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NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Level 4 Laboratory Report, Data Validation Report, Sample Location Report, SDG FA57914

MCAS
El Toro, CA
April 2021

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Automated Report



Technical Report for

NOREAS, Inc.

APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

SGS Job Number: FA57914

Sampling Dates: 09/24/18 - 09/25/18

Report to:

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Total number of pages in report: **833**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

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General Manager

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Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.

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SGS North America Inc.

Sample Summary

NOREAS, Inc.

Job No: FA57914

APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA57914-1	09/24/18	09:30	RRRW	09/26/18	AQ	Water	18BGMP6A
FA57914-2	09/24/18	10:00	RRRW	09/26/18	AQ	Water	18BGMP6B
FA57914-3	09/24/18	00:00	RRRW	09/26/18	AQ	Water	FD1
FA57914-4	09/24/18	10:15	RRRW	09/26/18	AQ	Water	18BGMP6C
FA57914-4D	09/24/18	10:15	RRRW	09/26/18	AQ	Water Dup/MSD	18BGMP6C
FA57914-4S	09/24/18	10:15	RRRW	09/26/18	AQ	Water Matrix Spike	18BGMP6C
FA57914-5	09/24/18	11:00	RRRW	09/26/18	AQ	Water	18BGMP6D
FA57914-6	09/24/18	11:20	RRRW	09/26/18	AQ	Water	18BGMP6E
FA57914-7	09/24/18	11:45	RRRW	09/26/18	AQ	Equipment Blank	QCEB1
FA57914-8	09/25/18	08:00	RRRW	09/26/18	AQ	Equipment Blank	QCEB2
FA57914-9	09/25/18	09:15	RRRW	09/26/18	AQ	Water	18BGMW19A
FA57914-10	09/25/18	10:25	RRRW	09/26/18	AQ	Equipment Blank	QCEB3
FA57914-11	09/25/18	11:25	RRRW	09/26/18	AQ	Water	18BGMW19B

SGS North America Inc.

Sample Summary
(continued)

NOREAS, Inc.

Job No: FA57914

APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA57914-12	09/25/18	12:15	RRRW	09/26/18	AQ	Equipment Blank	QCEB4
FA57914-13	09/25/18	12:55	RRRW	09/26/18	AQ	Water	18BGMW19C
FA57914-14	09/25/18	14:10	RRRW	09/26/18	AQ	Water	18BGMW19D
FA57914-15	09/25/18	15:40	RRRW	09/26/18	AQ	Water	18BGMW19E

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	NOREAS, Inc.	**Job**	FA57914
Site:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24	**Report**	10/23/2018 6:09:36

15 Samples were collected between 09/24/2018 and 09/25/2018 and were received at SGS North America Inc - Orlando on 09/26/2018 properly preserved, at 2.4 Deg. C and intact. These Samples received an SGS Orlando job number of FA57914.
A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job.
For more information, please refer to QC summary pages.

MS Semi-Volatiles By Method EPA 537M QSM5.1 B-15

Matrix: AQ **Batch ID:** OP71994

All samples were extracted and analyzed within the recommended method holding time.

Sample(s) FA57914-4MS, FA57914-4MSD were used as the QC samples indicated.

Blank Spike Recovery(s) for Perfluorotridecanoic acid is outside control limits.

The following samples have surrogates outside control limits:

OP72234-MB, FA57914-5, OP71994-BS, OP71994-MB, FA57914-10, FA57914-11, FA57914-12, FA57914-13, FA57914-14, FA57914-2, FA57914-7, FA57914-9
Associated Method Blank surrogate is outside QC limits; insufficient samples for re-extraction.
Associated BS recovery outside control limits. Insufficient sample for re-extraction. Confirmation run.

Samples FA57914-5, FA57914-8 are associated with a blank spike that has a recovery for Perfluorotridecanoic acid outside DOD QSM control limits.

FA57914-1: Confirmation run.

FA57914-2: Confirmation run.

FA57914-3: Confirmation run.

FA57914-4: Confirmation run.

FA57914-6: Confirmation run.

FA57914-7: Confirmation run.

FA57914-8: Associated Method Blank surrogate is outside QC limits; insufficient samples for re-extraction.
Associated BS recovery outside control limits. Insufficient sample for re-extraction. Confirmation run.

FA57914-9: Confirmation run.

FA57914-10: Associated Method Blank surrogate is outside QC limits; insufficient samples for re-extraction.

Associated BS recovery outside control limits. Insufficient sample for re-extraction. Confirmation run.

FA57914-10 for Perfluorotetradecanoic acid: Associated ID Standard outside control limits.

FA57914-10 for Perfluorotridecanoic acid: Associated ID Standard outside control limits.

FA57914-11 for 13C2-PFTeDA: Outside control limits.

FA57914-11: Confirmation run.

FA57914-12 for 13C2-PFTeDA: Outside control limits.

FA57914-12: Confirmation run.

FA57914-13 for 13C2-PFTeDA: Outside control limits.

FA57914-13: Confirmation run.

FA57914-14: Confirmation run.

FA57914-14 for 13C2-PFTeDA: Outside control limits.

FA57914-15: Confirmation run.

MS Semi-Volatiles By Method EPA 537M QSM5.1 B-15

Matrix: AQ **Batch ID:** OP71994

FA57914-2 for 13C2-PFTeDA: Outside control limits.

FA57914-9 for 13C2-PFTeDA: Outside control limits.

FA57914-7 for 13C2-PFTeDA: Outside control limits.

OP71994-MB for 13C7-PFUnDA: Outside control limits.

OP71994-MB for 13C2-PFTeDA: Outside control limits.

OP71994-MB for 13C2-PFDoDA: Outside control limits.

OP71994-BS for 13C2-PFTeDA: Outside control limits.

OP71994-MB for d3-MeFOSAA: Outside control limits.

Matrix: AQ **Batch ID:** OP72234

All samples were extracted and analyzed within the recommended method holding time.

Sample(s) FA57914-4MS, FA57914-4MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for Perfluorobutanesulfonic acid, Perfluorodecanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonic acid, Perfluorohexanoic acid, Perfluorononanoic acid, Perfluorooctanesulfonic acid, Perfluorooctanoic acid, Perfluorotetradecanoic acid are outside control limits. Probable cause is due to matrix interference.

RPD(s) for MSD for EtFOSAA, MeFOSAA, Perfluorobutanesulfonic acid, Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonic acid, Perfluorohexanoic acid, Perfluorononanoic acid, Perfluorooctanesulfonic acid, Perfluorooctanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid are outside control limits for sample OP72234-MSD. Probable cause is due to sample non-homogeneity.

The following samples have surrogates outside control limits: OP72234-MB, FA57914-5, FA57914-10, FA57914-11, FA57914-12, FA57914-13, FA57914-14, FA57914-2, FA57914-7, FA57914-9

FA57914-1: Sample extracted beyond project holdtime of 14 days.

FA57914-2: Sample extracted beyond project holdtime of 14 days.

FA57914-3: Sample extracted beyond project holdtime of 14 days.

FA57914-4: Sample extracted beyond project holdtime of 14 days.

FA57914-5: Confirmation run.

FA57914-6: Sample extracted beyond project holdtime of 14 days.

FA57914-7: Sample extracted beyond project holdtime of 14 days.

FA57914-9: Sample extracted beyond project holdtime of 14 days.

FA57914-11: Sample extracted beyond project holdtime of 14 days.

FA57914-12: Sample extracted beyond project holdtime of 14 days.

FA57914-13: Sample extracted beyond project holdtime of 14 days.

FA57914-14: Sample extracted beyond project holdtime of 14 days.

FA57914-15: Sample extracted beyond project holdtime of 14 days.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:
Ariel T. Hartney, Client Services
(signature on file)

Summary of Hits

Job Number: FA57914
Account: NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 09/24/18 thru 09/25/18

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA57914-1	**18BGMP6A**					
No hits reported in this sample.						
FA57914-2	**18BGMP6B**					
No hits reported in this sample.						
FA57914-3	**FD1**					
No hits reported in this sample.						
FA57914-4	**18BGMP6C**					
Perfluorooctanoic acid [a]		0.00513 J	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid [a]		0.00190 J	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
FA57914-5	**18BGMP6D**					
No hits reported in this sample.						
FA57914-6	**18BGMP6E**					
Perfluorohexanoic acid [a]		0.00468 J	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluorobutanesulfonic acid [a]		0.00257 J	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
FA57914-7	**QCEB1**					
No hits reported in this sample.						
FA57914-8	**QCEB2**					
No hits reported in this sample.						
FA57914-9	**18BGMW19A**					
No hits reported in this sample.						
FA57914-10	**QCEB3**					
No hits reported in this sample.						
FA57914-11	**18BGMW19B**					
Perfluorohexanoic acid [a]		0.00364 J	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15

Summary of Hits

Job Number: FA57914
Account: NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 09/24/18 thru 09/25/18

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA57914-12	**QCEB4**					
No hits reported in this sample.						
FA57914-13	**18BGMW19C**					
Perfluorohexanoic acid [a]		0.0385	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluoroheptanoic acid [a]		0.00806	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanoic acid [a]		0.0456	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluorobutanesulfonic acid [a]		0.0108	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid [a]		0.0318	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
FA57914-14	**18BGMW19D**					
Perfluorohexanoic acid [a]		0.0214	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanoic acid [a]		0.00196 J	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluorobutanesulfonic acid [a]		0.0114	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid [a]		0.00632 J	0.0077	0.0038	ug/l	EPA 537M QSM5.1 B-15
FA57914-15	**18BGMW19E**					
No hits reported in this sample.						

(a) Sample extracted beyond project holdtime of 14 days.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	18BGMP6A		
Lab Sample ID:	FA57914-1	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22415.D	1	10/19/18 21:07	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22134.D	1	10/15/18 16:01	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	85%	99%	50-150%
	13C4-PFHpA	84%	101%	50-150%
	13C8-PFOA	77%	104%	50-150%
	13C9-PFNA	79%	100%	50-150%
	13C6-PFDA	81%	102%	50-150%
	13C7-PFUnDA	67%	89%	50-150%
	13C2-PFDoDA	67%	88%	50-150%
	13C2-PFTeDA	65%	79%	50-150%
	13C3-PFBS	77%	96%	50-150%
	13C3-PFHxS	79%	99%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMP6A		
Lab Sample ID:	FA57914-1	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	74%	98%	50-150%
	d3-MeFOSAA	67%	95%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	18BGMP6B		
Lab Sample ID:	FA57914-2	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22416.D	1	10/19/18 21:28	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22135.D	1	10/15/18 16:22	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	83%	95%	50-150%
	13C4-PFHpA	81%	96%	50-150%
	13C8-PFOA	75%	99%	50-150%
	13C9-PFNA	75%	92%	50-150%
	13C6-PFDA	76%	86%	50-150%
	13C7-PFUnDA	62%	75%	50-150%
	13C2-PFDoDA	61%	70%	50-150%
	13C2-PFTeDA	55%	38% [c]	50-150%
	13C3-PFBS	74%	92%	50-150%
	13C3-PFHxS	77%	94%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMP6B		
Lab Sample ID:	FA57914-2	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	69%	86%	50-150%
	d3-MeFOSAA	65%	72%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	FD1		
Lab Sample ID:	FA57914-3	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22417.D	1	10/19/18 21:49	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22136.D	1	10/15/18 16:43	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	75%	108%	50-150%
	13C4-PFHpA	74%	109%	50-150%
	13C8-PFOA	70%	114%	50-150%
	13C9-PFNA	69%	109%	50-150%
	13C6-PFDA	70%	107%	50-150%
	13C7-PFUnDA	57%	96%	50-150%
	13C2-PFDoDA	56%	94%	50-150%
	13C2-PFTeDA	52%	90%	50-150%
	13C3-PFBS	69%	104%	50-150%
	13C3-PFHxS	70%	109%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FD1		
Lab Sample ID:	FA57914-3	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	66%	106%	50-150%
	d3-MeFOSAA	60%	102%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	18BGMP6C		
Lab Sample ID:	FA57914-4	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22418.D	1	10/19/18 22:11	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22137.D	1	10/15/18 17:04	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.00513	0.0077	0.0038	0.0019	ug/l	J
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.00190	0.0077	0.0038	0.0019	ug/l	J
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	90%	97%	50-150%
	13C4-PFHpA	88%	100%	50-150%
	13C8-PFOA	83%	104%	50-150%
	13C9-PFNA	84%	100%	50-150%
	13C6-PFDA	81%	99%	50-150%
	13C7-PFUnDA	67%	89%	50-150%
	13C2-PFDoDA	66%	88%	50-150%
	13C2-PFTeDA	59%	87%	50-150%
	13C3-PFBS	82%	95%	50-150%
	13C3-PFHxS	83%	98%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMP6C		
Lab Sample ID:	FA57914-4	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	76%	97%	50-150%
	d3-MeFOSAA	71%	94%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	18BGMP6D		
Lab Sample ID:	FA57914-5	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22140.D	1	10/15/18 18:06	NG	09/29/18 08:00	OP71994	S2Q349
Run #2 [b]	2Q22421.D	1	10/19/18 23:14	NG	10/17/18 12:30	OP72234	S2Q352

	Initial Volume	Final Volume
Run #1	120 ml	1.0 ml
Run #2	130 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
335-67-1	Perfluorooctanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
375-95-1	Perfluorononanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
335-76-2	Perfluorodecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
307-55-1	Perfluorododecanoic acid	0.0042 U	0.0083	0.0042	0.0031	ug/l	
72629-94-8	Perfluorotridecanoic acid [c]	0.0042 U	0.0083	0.0042	0.0021	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0083 U	0.017	0.0083	0.0042	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.017 U	0.042	0.017	0.0083	ug/l	
2991-50-6	EtFOSAA	0.017 U	0.042	0.017	0.0083	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	91%	44%	50-150%
	13C4-PFHpA	92%	43%	50-150%
	13C8-PFOA	95%	41%	50-150%
	13C9-PFNA	90%	43%	50-150%
	13C6-PFDA	88%	45%	50-150%
	13C7-PFUnDA	78%	34%	50-150%
	13C2-PFDoDA	77%	34%	50-150%
	13C2-PFTeDA	79%	32%	50-150%
	13C3-PFBS	88%	41%	50-150%
	13C3-PFHxS	91%	41%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMP6D		
Lab Sample ID:	FA57914-5	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	86%	39%	50-150%
	d3-MeFOSAA	82%	36%	50-150%

(a) Associated Method Blank surrogate is outside QC limits. Associated BS recovery outside control limits.
(b) Confirmation run.
(c) Associated BS recovery outside DOD QSM control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	18BGMP6E		
Lab Sample ID:	FA57914-6	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22422.D	1	10/19/18 23:36	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22141.D	1	10/15/18 18:27	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.00468	0.0077	0.0038	0.0019	ug/l	J
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.00257	0.0077	0.0038	0.0019	ug/l	J
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	88%	91%	50-150%
	13C4-PFHpA	86%	93%	50-150%
	13C8-PFOA	82%	95%	50-150%
	13C9-PFNA	82%	91%	50-150%
	13C6-PFDA	83%	86%	50-150%
	13C7-PFUnDA	67%	76%	50-150%
	13C2-PFDoDA	67%	73%	50-150%
	13C2-PFTeDA	65%	58%	50-150%
	13C3-PFBS	79%	88%	50-150%
	13C3-PFHxS	81%	91%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMP6E		
Lab Sample ID:	FA57914-6	**Date Sampled:**	09/24/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	77%	87%	50-150%
	d3-MeFOSAA	73%	80%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	QCEB1		
Lab Sample ID:	FA57914-7	**Date Sampled:**	09/24/18
Matrix:	AQ - Equipment Blank	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22425.D	1	10/20/18 00:39	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22144.D	1	10/15/18 19:29	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	86%	95%	50-150%
	13C4-PFHpA	83%	96%	50-150%
	13C8-PFOA	79%	96%	50-150%
	13C9-PFNA	80%	92%	50-150%
	13C6-PFDA	79%	88%	50-150%
	13C7-PFUnDA	64%	78%	50-150%
	13C2-PFDoDA	62%	72%	50-150%
	13C2-PFTeDA	51%	43% [c]	50-150%
	13C3-PFBS	78%	92%	50-150%
	13C3-PFHxS	79%	95%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	QCEB1		
Lab Sample ID:	FA57914-7	**Date Sampled:**	09/24/18
Matrix:	AQ - Equipment Blank	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	75%	86%	50-150%
	d3-MeFOSAA	71%	77%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	QCEB2		
Lab Sample ID:	FA57914-8	**Date Sampled:**	09/25/18
Matrix:	AQ - Equipment Blank	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 IN HOUSE	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22145.D	1	10/15/18 19:50	NG	09/29/18 08:00	OP71994	S2Q349
Run #2							

	Initial Volume	Final Volume
Run #1	120 ml	1.0 ml
Run #2		

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
335-67-1	Perfluorooctanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
375-95-1	Perfluorononanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
335-76-2	Perfluorodecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
307-55-1	Perfluorododecanoic acid	0.0042 U	0.0083	0.0042	0.0031	ug/l	
72629-94-8	Perfluorotridecanoic acid [b]	0.0042 U	0.0083	0.0042	0.0021	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0083 U	0.017	0.0083	0.0042	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.017 U	0.042	0.017	0.0083	ug/l	
2991-50-6	EtFOSAA	0.017 U	0.042	0.017	0.0083	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	101%		50-150%
	13C4-PFHpA	100%		50-150%
	13C8-PFOA	102%		50-150%
	13C9-PFNA	99%		50-150%
	13C6-PFDA	100%		50-150%
	13C7-PFUnDA	94%		50-150%
	13C2-PFDoDA	94%		50-150%
	13C2-PFTeDA	81%		50-150%
	13C3-PFBS	96%		50-150%
	13C3-PFHxS	100%		50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	QCEB2		
Lab Sample ID:	FA57914-8	**Date Sampled:**	09/25/18
Matrix:	AQ - Equipment Blank	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 IN HOUSE	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	98%		50-150%
	d3-MeFOSAA	98%		50-150%

(a) Associated Method Blank surrogate is outside QC limits; insufficient samples for re-extraction. Associated BS recovery outside control limits. Insufficient sample for re-extraction.
(b) Associated BS recovery outside DOD QSM control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	18BGMW19A		
Lab Sample ID:	FA57914-9	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22426.D	1	10/20/18 01:01	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22146.D	1	10/15/18 20:10	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	85%	92%	50-150%
	13C4-PFHpA	83%	92%	50-150%
	13C8-PFOA	77%	92%	50-150%
	13C9-PFNA	79%	88%	50-150%
	13C6-PFDA	75%	85%	50-150%
	13C7-PFUnDA	62%	76%	50-150%
	13C2-PFDoDA	61%	67%	50-150%
	13C2-PFTeDA	55%	27% [c]	50-150%
	13C3-PFBS	78%	90%	50-150%
	13C3-PFHxS	78%	91%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMW19A		
Lab Sample ID:	FA57914-9	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	70%	83%	50-150%
	d3-MeFOSAA	69%	74%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: QCEB3
Lab Sample ID: FA57914-10 **Date Sampled:** 09/25/18
Matrix: AQ - Equipment Blank **Date Received:** 09/26/18
Method: EPA 537M QSM5.1 B-15 IN HOUSE **Percent Solids:** n/a
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22147.D	1	10/15/18 20:31	NG	09/29/18 08:00	OP71994	S2Q349
Run #2							

	Initial Volume	Final Volume
Run #1	120 ml	1.0 ml
Run #2		

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
335-67-1	Perfluorooctanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
375-95-1	Perfluorononanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
335-76-2	Perfluorodecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
307-55-1	Perfluorododecanoic acid	0.0042 U	0.0083	0.0042	0.0031	ug/l	
72629-94-8	Perfluorotridecanoic acid [b]	0.0042 U	0.0083	0.0042	0.0021	ug/l	
376-06-7	Perfluorotetradecanoic acid [b]	0.0042 U	0.0083	0.0042	0.0021	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0083 U	0.017	0.0083	0.0042	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.017 U	0.042	0.017	0.0083	ug/l	
2991-50-6	EtFOSAA	0.017 U	0.042	0.017	0.0083	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	92%		50-150%
	13C4-PFHpA	93%		50-150%
	13C8-PFOA	95%		50-150%
	13C9-PFNA	88%		50-150%
	13C6-PFDA	79%		50-150%
	13C7-PFUnDA	68%		50-150%
	13C2-PFDoDA	64%		50-150%
	13C2-PFTeDA	34% [c]		50-150%
	13C3-PFBS	91%		50-150%
	13C3-PFHxS	92%		50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	QCEB3		
Lab Sample ID:	FA57914-10	**Date Sampled:**	09/25/18
Matrix:	AQ - Equipment Blank	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 IN HOUSE	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	80%		50-150%
	d3-MeFOSAA	65%		50-150%

(a) Associated Method Blank surrogate is outside QC limits; insufficient samples for re-extraction. Associated BS recovery outside control limits. Insufficient sample for re-extraction.

(b) Associated ID Standard outside control limits.

(c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	18BGMW19B		
Lab Sample ID:	FA57914-11	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22427.D	1	10/20/18 01:22	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22148.D	1	10/15/18 20:52	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.00364	0.0077	0.0038	0.0019	ug/l	J
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	88%	95%	50-150%
	13C4-PFHpA	87%	95%	50-150%
	13C8-PFOA	80%	96%	50-150%
	13C9-PFNA	78%	93%	50-150%
	13C6-PFDA	77%	88%	50-150%
	13C7-PFUnDA	63%	76%	50-150%
	13C2-PFDoDA	62%	64%	50-150%
	13C2-PFTeDA	59%	25% [c]	50-150%
	13C3-PFBS	80%	92%	50-150%
	13C3-PFHxS	80%	94%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMW19B		
Lab Sample ID:	FA57914-11	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	70%	87%	50-150%
	d3-MeFOSAA	72%	74%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	QCEB4		
Lab Sample ID:	FA57914-12	**Date Sampled:**	09/25/18
Matrix:	AQ - Equipment Blank	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22428.D	1	10/20/18 01:43	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22149.D	1	10/15/18 21:13	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	120 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
335-67-1	Perfluorooctanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
375-95-1	Perfluorononanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
335-76-2	Perfluorodecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
307-55-1	Perfluorododecanoic acid	0.0042 U	0.0083	0.0042	0.0031	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0042 U	0.0083	0.0042	0.0021	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0083 U	0.017	0.0083	0.0042	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.017 U	0.042	0.017	0.0083	ug/l	
2991-50-6	EtFOSAA	0.017 U	0.042	0.017	0.0083	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	86%	94%	50-150%
	13C4-PFHpA	84%	95%	50-150%
	13C8-PFOA	78%	96%	50-150%
	13C9-PFNA	78%	90%	50-150%
	13C6-PFDA	78%	85%	50-150%
	13C7-PFUnDA	65%	77%	50-150%
	13C2-PFDoDA	63%	68%	50-150%
	13C2-PFTeDA	58%	34% [c]	50-150%
	13C3-PFBS	79%	90%	50-150%
	13C3-PFHxS	79%	93%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	QCEB4		
Lab Sample ID:	FA57914-12	**Date Sampled:**	09/25/18
Matrix:	AQ - Equipment Blank	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	72%	84%	50-150%
	d3-MeFOSAA	72%	80%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 18BGMW19C
Lab Sample ID: FA57914-13 **Date Sampled:** 09/25/18
Matrix: AQ - Water **Date Received:** 09/26/18
Method: EPA 537M QSM5.1 B-15 EPA 537 MOD **Percent Solids:** n/a
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22429.D	1	10/20/18 02:04	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22150.D	1	10/15/18 21:33	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0385	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.00806	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0456	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0108	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0318	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	83%	100%	50-150%
	13C4-PFHpA	82%	100%	50-150%
	13C8-PFOA	76%	99%	50-150%
	13C9-PFNA	73%	96%	50-150%
	13C6-PFDA	70%	89%	50-150%
	13C7-PFUnDA	57%	76%	50-150%
	13C2-PFDoDA	57%	61%	50-150%
	13C2-PFTeDA	54%	15% [c]	50-150%
	13C3-PFBS	75%	98%	50-150%
	13C3-PFHxS	74%	100%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMW19C		
Lab Sample ID:	FA57914-13	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	64%	88%	50-150%
	d3-MeFOSAA	68%	71%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	18BGMW19D		
Lab Sample ID:	FA57914-14	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22430.D	1	10/20/18 02:26	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22151.D	1	10/15/18 21:54	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0214	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.00196	0.0077	0.0038	0.0019	ug/l	J
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0114	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.00632	0.0077	0.0038	0.0019	ug/l	J
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	84%	91%	50-150%
	13C4-PFHpA	84%	91%	50-150%
	13C8-PFOA	79%	92%	50-150%
	13C9-PFNA	81%	89%	50-150%
	13C6-PFDA	80%	85%	50-150%
	13C7-PFUnDA	65%	76%	50-150%
	13C2-PFDoDA	64%	68%	50-150%
	13C2-PFTeDA	61%	29% [c]	50-150%
	13C3-PFBS	77%	88%	50-150%
	13C3-PFHxS	79%	90%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMW19D		
Lab Sample ID:	FA57914-14	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	71%	83%	50-150%
	d3-MeFOSAA	74%	78%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.
(c) Outside control limits.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	18BGMW19E		
Lab Sample ID:	FA57914-15	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	2Q22431.D	1	10/20/18 02:47	NG	10/17/18 12:30	OP72234	S2Q352
Run #2 [b]	2Q22152.D	1	10/15/18 22:15	NG	09/29/18 08:00	OP71994	S2Q349

	Initial Volume	Final Volume
Run #1	130 ml	1.0 ml
Run #2	120 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0077	0.0038	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.0077	0.0038	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.015	0.0077	0.0038	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	
2991-50-6	EtFOSAA	0.015 U	0.038	0.015	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	78%	99%	50-150%
	13C4-PFHpA	78%	100%	50-150%
	13C8-PFOA	72%	102%	50-150%
	13C9-PFNA	74%	97%	50-150%
	13C6-PFDA	71%	96%	50-150%
	13C7-PFUnDA	59%	85%	50-150%
	13C2-PFDoDA	58%	81%	50-150%
	13C2-PFTeDA	58%	59%	50-150%
	13C3-PFBS	71%	96%	50-150%
	13C3-PFHxS	71%	98%	50-150%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	18BGMW19E		
Lab Sample ID:	FA57914-15	**Date Sampled:**	09/25/18
Matrix:	AQ - Water	**Date Received:**	09/26/18
Method:	EPA 537M QSM5.1 B-15 EPA 537 MOD	**Percent Solids:**	n/a
Project:	APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24		

EPA 537 Method List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	65%	92%	50-150%
	d3-MeFOSAA	69%	90%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.
(b) Confirmation run.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5 Limits

NOREAS FA57914

CHAIN-OF-CUSTODY RECORD ~~FA57914~~

SP 09/27/18

PAGE 1 of 2

Project Name/No:	Groundwater Sampling Event 36	Purchase Order No.	18095
Project Location:	Former MCAS El Toro IRP Sites 18 & 24	Laboratory Name:	SGS North America, Inc.
Company Name:	NOREAS, Inc.	Laboratory Contact:	Jean Dent-Smith
Address:	16361 Scientific Way Irvine, CA 92618	Laboratory Address:	4405 Vineland Road, Suite C-15, Orlando, FL 32811
Project Manager:	Jinny Hong	Laboratory Phone:	407-426-6700 X14911
Phone/Fax No.	(949) 467-9104		
Project Contact:	Sevda Aleckson	Airbill No.	
Contact Phone:	(949) 510-8610		COURIER

Laboratory SDG No:

ANALYSES REQUIRED

	Sample ID	Sampling Location	Date	Time	Matrix	QC Stage (4)	Unpreserved	Preserved	# of Containers	PFAS - Modified EPA 537 (DoD QSM 5.1 compliant)	MS/MSD
1	18B6MP06A	18B6MP06A	09/24/18	0930	W	4	X		2	X	
2	18B6MP06B	18B6MP06B		1000	W	4	X		2	X	
	~~18B6MP06C~~				W		X				
3	FD1	—		—	W	4	X		2	X	
4	18B6MP06C	18B6MP06C		1015	W	4	X		6	X	X
	~~18B6MP06B~~			1100	W		X		2	X	
5	18B6MP06D	18B6MP06D		1100	W	4	X		2	X	
6	18B6MP06E	18B6MP06E		1120	W	4	X		2	X	
7	QCEB1	— EB		1145	W	4	X		2	X	
8	QCEB2	EB	09/25/18	0800	W	4	X		2	X	
9	18B6MW19A	18B6MW19A		0915	W	4	X		2	X	
10	QCEB3	EB		1025	W	4	X		1	X	

Special Instructions: PFAS-Free Water:

Turnaround Time: ☐ 24 HR ☐ 48 HR ☐ 72 HR
X STANDARD OR ☐ _____

Matrix: W: Groundwater or Drinking water; S: Soil; W: Waste

Sampler(s) Name(s): Ryley Robitaille/Rosemarie Wrigley; Phone No. (714) 273-5132

Relinquished By (signature):	Date 9/25/18	Received By (signature): FedEx	Date
Company NOREAS	Time 1600	Company	Time
Relinquished By (signature): FEDEX	Date	Received By (signature):	Date 9/26/18 1400
Company	Time	Company	Time
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Cooler Temp (°C): 2.4

Sample Condition: ☐ Intact ☐ Broken

Cooler Seal: ☑ Intact ☐ Broken

DISTRIBUTION: White - Laboratory; Blue - Project File

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FA57914: Chain of Custody
Page 1 of 3

NOREAS

FA57914

CHAIN-OF-CUSTODY RECORD

COC No. ET1824-001
PAGE 2 of 2

Project Name/No:	Groundwater Sampling Event 36	Purchase Order No.	18095
Project Location:	Former MCAS El Toro IRP Sites 18 & 24	Laboratory Name:	SGS North America, Inc.
Company Name:	NOREAS, Inc.	Laboratory Contact:	Jean Dent-Smith
Address:	16361 Scientific Way Irvine, CA 92618	Laboratory Address:	4405 Vineland Road, Suite C-15, Orlando, FL 32811
Project Manager:	Jinny Hong	Laboratory Phone:	407-426-6700 X14911
Phone/Fax No.	(949) 467-9104		
Project Contact:	Sevda Aleckson	Airbill No.	
Contact Phone:	(949) 510-8610		COURIER

Laboratory SDG No:

ANALYSES REQUIRED

	Sample ID	Sampling Location	Date	Time	Matrix	QC Stage (4)	Unpreserved	Preserved	# of Containers	PFAS - Modified EPA 537 (DoD QSM 5.1 compliant)	MS/MSD
11	18B6MW19B	18B6MW19B	09/25/18	1125	W	4	X		2	X	
12	QCEB4	EB		1215	W	4	X		2	X	
13	18B6MW19C	18B6MW19C		1255	W	4	X		2	X	
	~~18B6MW19B~~	~~18B6MW19B~~			W		X		2	X	
14	18B6MW19D	18B6MW19D		1410	W	4	X		2	X	
15	18B6MW19E	18B6MW19E	✓	1540	W	4	X		2	X	

9/25 PM

Special Instructions: PFAS-Free Water:

Turnaround Time: □ 24 HR □ 48 HR □ 72 HR
X STANDARD OR □ _____

Sampler(s) Name(s): Ryley Robitaille/Rosemarie Wrigley; Phone No. (714) 273-5132

Matrix: W: Groundwater or Drinking water; S: Soil; W: Waste

Relinquished By (signature):	Date	Received By (signature):	Date
Company: NOREAS	Time: 9/25/18 1600	Company: FedEx	Time
Relinquished By (signature): FED EX	Date	Received By (signature):	Date: 9/26/18
Company	Time	Company	Time: 940
Relinquished By (signature):	Date	Received By (signature)	Date
Company	Time	Company	Time

Sample Condition Upon Receipt (For Laboratory Use)

Cooler Temp (°C):

Sample Condition: □ Intact □ Broken

Cooler Seal: □ Intact □ Broken

DISTRIBUTION: White - Laboratory; Blue - Project File

5.1 5

FA57914: Chain of Custody
Page 2 of 3

SGS Sample Receipt Summary

Job Number: FA57914 **Client:** NOREAS INC. **Project:** GROUNDWATER SAMPLE EVENT 36

Date / Time Received: 9/26/2018 2:00:00 PM **Delivery Method:** FED EX **Airbill #'s:** 1002239543760003281100813711142751

Therm ID: IR 1; **Therm CF:** -0.2; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (2.6);

Cooler Temps (Corrected) °C: Cooler 1: (2.4);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☐		☑	☐
2. Trip Blank listed on COC	☐		☑	☐

	W	or	S	N/A
3. Type Of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: TRINITYM Date: 9/26/2018 2:00:00 PM Reviewer: _____ Date: _____

FA57914: Chain of Custody
Page 3 of 3

QC Evaluation: DOD QSM5 Limits

Job Number: FA57914
Account: NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 09/24/18 thru 09/25/18

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits

No Exceptions found.

* Sample used for QC is not from job FA57914

MS Semi-volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection Standard Area Summaries
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries

Instrument Blank

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q349-IBLK	2Q22130.D	1	10/15/18	NG	n/a	n/a	S2Q349

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA57914-5

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0015	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0080	0.0020	ug/l	
2355-31-9	MeFOSAA	ND	0.020	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.020	0.0040	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C5-PFHxA	103%	50-150%
	13C4-PFHpA	103%	50-150%
	13C8-PFOA	106%	50-150%
	13C9-PFNA	107%	50-150%
	13C6-PFDA	105%	50-150%
	13C7-PFUnDA	98%	50-150%
	13C2-PFDoDA	96%	50-150%
	13C2-PFTeDA	97%	50-150%
	13C3-PFBS	104%	50-150%
	13C3-PFHxS	109%	50-150%
	13C8-PFOS	110%	50-150%
	d3-MeFOSAA	113%	50-150%

Instrument Blank

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q352-IBLK	2Q22391.D	1	10/19/18	NG	n/a	n/a	S2Q352

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA57914-1, FA57914-2, FA57914-3, FA57914-4, FA57914-6, FA57914-7, FA57914-9, FA57914-11, FA57914-12, FA57914-13, FA57914-14, FA57914-15

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0077	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0077	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0077	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0077	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0077	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0077	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0077	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0077	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0077	0.0019	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0077	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0077	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.015	0.0038	ug/l	
2355-31-9	MeFOSAA	ND	0.038	0.0077	ug/l	
2991-50-6	EtFOSAA	ND	0.038	0.0077	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C8-PFOA	94%	50-150%
	13C8-PFOS	95%	50-150%

Method Blank Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP71994-MB	2Q22133.D	1	10/15/18	NG	09/29/18	OP71994	S2Q349

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA57914-5

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0083	0.0021	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0083	0.0021	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0083	0.0021	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0083	0.0021	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0083	0.0021	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0083	0.0021	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0083	0.0031	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0083	0.0021	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0083	0.0021	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0083	0.0021	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0083	0.0021	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.017	0.0042	ug/l	
2355-31-9	MeFOSAA	ND	0.042	0.0083	ug/l	
2991-50-6	EtFOSAA	ND	0.042	0.0083	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C5-PFHxA	99%	50-150%
	13C4-PFHpA	99%	50-150%
	13C8-PFOA	97%	50-150%
	13C9-PFNA	85%	50-150%
	13C6-PFDA	69%	50-150%
	13C7-PFUnDA	49%* [a]	50-150%
	13C2-PFDoDA	37%* [a]	50-150%
	13C2-PFTeDA	13%* [a]	50-150%
	13C3-PFBS	96%	50-150%
	13C3-PFHxS	94%	50-150%
	13C8-PFOS	75%	50-150%
	d3-MeFOSAA	44%* [a]	50-150%

(a) Outside control limits.

Method Blank Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP72234-MB	2Q22414.D	1	10/19/18	NG	10/17/18	OP72234	S2Q352

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA57914-1, FA57914-2, FA57914-3, FA57914-4, FA57914-6, FA57914-7, FA57914-9, FA57914-11, FA57914-12, FA57914-13, FA57914-14, FA57914-15

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0077	0.0019	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0077	0.0019	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0077	0.0019	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0077	0.0019	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0077	0.0019	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0077	0.0019	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0077	0.0029	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0077	0.0019	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0077	0.0019	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0077	0.0019	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0077	0.0019	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.015	0.0038	ug/l	
2355-31-9	MeFOSAA	ND	0.038	0.0077	ug/l	
2991-50-6	EtFOSAA	ND	0.038	0.0077	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C5-PFHxA	84%	50-150%
	13C4-PFHpA	82%	50-150%
	13C8-PFOA	75%	50-150%
	13C9-PFNA	75%	50-150%
	13C6-PFDA	74%	50-150%
	13C7-PFUnDA	61%	50-150%
	13C2-PFDoDA	58%	50-150%
	13C2-PFTeDA	41%*	50-150%
	13C3-PFBS	77%	50-150%
	13C3-PFHxS	76%	50-150%
	13C8-PFOS	71%	50-150%
	d3-MeFOSAA	60%	50-150%

Blank Spike Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP71994-BS	2Q22132.D	1	10/15/18	NG	09/29/18	OP71994	S2Q349

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA57914-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.167	0.161	97	63-146
375-85-9	Perfluoroheptanoic acid	0.167	0.189	113	71-138
335-67-1	Perfluorooctanoic acid	0.167	0.177	106	74-137
375-95-1	Perfluorononanoic acid	0.167	0.163	98	76-140
335-76-2	Perfluorodecanoic acid	0.167	0.158	95	65-148
2058-94-8	Perfluoroundecanoic acid	0.167	0.178	107	57-138
307-55-1	Perfluorododecanoic acid	0.167	0.184	110	58-123
72629-94-8	Perfluorotridecanoic acid	0.167	0.305	183*	52-130
376-06-7	Perfluorotetradecanoic acid	0.167	0.165	99	59-132
375-73-5	Perfluorobutanesulfonic acid	0.147	0.151	102	73-148
355-46-4	Perfluorohexanesulfonic acid	0.152	0.155	102	74-142
1763-23-1	Perfluorooctanesulfonic acid	0.154	0.181	117	70-134
2355-31-9	MeFOSAA	0.167	0.179	107	57-128
2991-50-6	EtFOSAA	0.167	0.156	94	55-135

CAS No.	ID Standard Recoveries	BSP	Limits
	13C5-PFHxA	93%	50-150%
	13C4-PFHpA	93%	50-150%
	13C8-PFOA	96%	50-150%
	13C9-PFNA	92%	50-150%
	13C6-PFDA	83%	50-150%
	13C7-PFUnDA	70%	50-150%
	13C2-PFDoDA	61%	50-150%
	13C2-PFTeDA	31%* [a]	50-150%
	13C3-PFBS	94%	50-150%
	13C3-PFHxS	95%	50-150%
	13C8-PFOS	87%	50-150%
	d3-MeFOSAA	70%	50-150%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP72234-BS	2Q22413.D	1	10/19/18	NG	10/17/18	OP72234	S2Q352

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA57914-1, FA57914-2, FA57914-3, FA57914-4, FA57914-6, FA57914-7, FA57914-9, FA57914-11, FA57914-12, FA57914-13, FA57914-14, FA57914-15

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.154	0.127	83	63-146
375-85-9	Perfluoroheptanoic acid	0.154	0.153	99	71-138
335-67-1	Perfluorooctanoic acid	0.154	0.148	96	74-137
375-95-1	Perfluorononanoic acid	0.154	0.132	86	76-140
335-76-2	Perfluorodecanoic acid	0.154	0.136	88	65-148
2058-94-8	Perfluoroundecanoic acid	0.154	0.154	100	57-138
307-55-1	Perfluorododecanoic acid	0.154	0.158	103	58-123
72629-94-8	Perfluorotridecanoic acid	0.154	0.181	118	52-130
376-06-7	Perfluorotetradecanoic acid	0.154	0.141	92	59-132
375-73-5	Perfluorobutanesulfonic acid	0.136	0.133	98	73-148
355-46-4	Perfluorohexanesulfonic acid	0.14	0.131	94	74-142
1763-23-1	Perfluorooctanesulfonic acid	0.142	0.149	105	70-134
2355-31-9	MeFOSAA	0.154	0.149	97	57-128
2991-50-6	EtFOSAA	0.154	0.147	96	55-135

CAS No.	ID Standard Recoveries	BSP	Limits
	13C5-PFHxA	88%	50-150%
	13C4-PFHpA	86%	50-150%
	13C8-PFOA	79%	50-150%
	13C9-PFNA	81%	50-150%
	13C6-PFDA	81%	50-150%
	13C7-PFUnDA	67%	50-150%
	13C2-PFDoDA	66%	50-150%
	13C2-PFTeDA	58%	50-150%
	13C3-PFBS	80%	50-150%
	13C3-PFHxS	81%	50-150%
	13C8-PFOS	78%	50-150%
	d3-MeFOSAA	67%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP71994-MS	2Q22138.D	1	10/15/18	NG	09/29/18	OP71994	S2Q349
OP71994-MSD	2Q22139.D	1	10/15/18	NG	09/29/18	OP71994	S2Q349
FA57914-4 [a]	2Q22137.D	1	10/15/18	NG	09/29/18	OP71994	S2Q349

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA57914-5

CAS No.	Compound	FA57914-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
307-24-4	Perfluorohexanoic acid	0.0083	U	0.167	0.149	89	0.167	0.155	93	4	63-146/30
375-85-9	Perfluoroheptanoic acid	0.0083	U	0.167	0.177	106	0.167	0.180	108	2	71-138/30
335-67-1	Perfluorooctanoic acid	0.00458	J	0.167	0.177	103	0.167	0.181	106	2	74-137/30
375-95-1	Perfluorononanoic acid	0.0083	U	0.167	0.157	94	0.167	0.154	92	2	76-140/30
335-76-2	Perfluorodecanoic acid	0.0083	U	0.167	0.151	91	0.167	0.155	93	3	65-148/30
2058-94-8	Perfluoroundecanoic acid	0.0083	U	0.167	0.170	102	0.167	0.169	101	1	57-138/30
307-55-1	Perfluorododecanoic acid	0.0083	U	0.167	0.177	106	0.167	0.176	106	1	58-123/30
72629-94-8	Perfluorotridecanoic acid	0.0083	U	0.167	0.185	111	0.167	0.216	130	15	52-130/30
376-06-7	Perfluorotetradecanoic acid	0.0083	U	0.167	0.152	91	0.167	0.156	94	3	59-132/30
375-73-5	Perfluorobutanesulfonic acid	0.0083	U	0.147	0.145	98	0.147	0.150	102	3	73-148/30
355-46-4	Perfluorohexanesulfonic acid	0.0083	U	0.152	0.147	97	0.152	0.152	100	3	74-142/30
1763-23-1	Perfluorooctanesulfonic acid	0.017	U	0.154	0.172	112	0.154	0.177	115	3	70-134/30
2355-31-9	MeFOSAA	0.042	U	0.167	0.171	103	0.167	0.173	104	1	57-128/30
2991-50-6	EtFOSAA	0.042	U	0.167	0.163	98	0.167	0.165	99	1	55-135/30

CAS No.	ID Standard Recoveries	MS	MSD	FA57914-4	Limits
	13C5-PFHxA	97%	92%	97%	50-150%
	13C4-PFHpA	97%	96%	100%	50-150%
	13C8-PFOA	100%	97%	104%	50-150%
	13C9-PFNA	97%	94%	100%	50-150%
	13C6-PFDA	99%	92%	99%	50-150%
	13C7-PFUnDA	89%	83%	89%	50-150%
	13C2-PFDoDA	88%	80%	88%	50-150%
	13C2-PFTeDA	83%	62%	87%	50-150%
	13C3-PFBS	94%	89%	95%	50-150%
	13C3-PFHxS	97%	94%	98%	50-150%
	13C8-PFOS	97%	89%	97%	50-150%
	d3-MeFOSAA	95%	84%	94%	50-150%

(a) Confirmation run.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP72234-MS	2Q22419.D	1	10/19/18	NG	10/17/18	OP72234	S2Q352
OP72234-MSD	2Q22420.D	1	10/19/18	NG	10/17/18	OP72234	S2Q352
FA57914-4 [a]	2Q22418.D	1	10/19/18	NG	10/17/18	OP72234	S2Q352

The QC reported here applies to the following samples: **Method:** EPA 537M QSM5.1 B-15

FA57914-1, FA57914-2, FA57914-3, FA57914-4, FA57914-6, FA57914-7, FA57914-9, FA57914-11, FA57914-12, FA57914-13, FA57914-14, FA57914-15

CAS No.	Compound	FA57914-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
307-24-4	Perfluorohexanoic acid	0.0077	U	0.154	0.0866	56*	0.154	0.142	92	48*	63-146/30
375-85-9	Perfluoroheptanoic acid	0.0077	U	0.154	0.101	66*	0.154	0.166	108	49*	71-138/30
335-67-1	Perfluorooctanoic acid	0.00513	J	0.154	0.101	62*	0.154	0.164	103	48*	74-137/30
375-95-1	Perfluorononanoic acid	0.0077	U	0.154	0.0868	56*	0.154	0.144	94	50*	76-140/30
335-76-2	Perfluorodecanoic acid	0.0077	U	0.154	0.0890	58*	0.154	0.147	96	49*	65-148/30
2058-94-8	Perfluoroundecanoic acid	0.0077	U	0.154	0.101	66	0.154	0.167	109	49*	57-138/30
307-55-1	Perfluorododecanoic acid	0.0077	U	0.154	0.104	68	0.154	0.169	110	48*	58-123/30
72629-94-8	Perfluorotridecanoic acid	0.0077	U	0.154	0.107	70	0.154	0.179	116	50*	52-130/30
376-06-7	Perfluorotetradecanoic acid	0.0077	U	0.154	0.0871	57*	0.154	0.144	94	49*	59-132/30
375-73-5	Perfluorobutanesulfonic acid	0.0077	U	0.136	0.0868	64*	0.136	0.143	105	49*	73-148/30
355-46-4	Perfluorohexanesulfonic acid	0.00190	J	0.14	0.0882	62*	0.14	0.145	102	49*	74-142/30
1763-23-1	Perfluorooctanesulfonic acid	0.015	U	0.142	0.0980	69*	0.142	0.164	115	50*	70-134/30
2355-31-9	MeFOSAA	0.038	U	0.154	0.0997	65	0.154	0.162	105	48*	57-128/30
2991-50-6	EtFOSAA	0.038	U	0.154	0.0957	62	0.154	0.159	103	50*	55-135/30

CAS No.	ID Standard Recoveries	MS	MSD	FA57914-4	Limits
	13C5-PFHxA	78%	91%	90%	50-150%
	13C4-PFHpA	77%	89%	88%	50-150%
	13C8-PFOA	72%	83%	83%	50-150%
	13C9-PFNA	74%	84%	84%	50-150%
	13C6-PFDA	74%	84%	81%	50-150%
	13C7-PFUnDA	61%	70%	67%	50-150%
	13C2-PFDoDA	60%	69%	66%	50-150%
	13C2-PFTeDA	57%	63%	59%	50-150%
	13C3-PFBS	72%	83%	82%	50-150%
	13C3-PFHxS	73%	83%	83%	50-150%
	13C8-PFOS	70%	77%	76%	50-150%
	d3-MeFOSAA	64%	75%	71%	50-150%

(a) Sample extracted beyond project holdtime of 14 days.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q349-ICC349	**Injection Date:**	10/15/18
Lab File ID:	2Q22127.D	**Injection Time:**	13:06
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	153232	6.91	57765	7.55
Check Std [b]	153232	6.91	57765	7.55
Upper Limit [c]	229848	7.91	86648	8.55
Lower Limit [d]	76616	5.91	28883	6.55

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
S2Q349-IBLK	156637	6.92	62584	7.56
S2Q349-IBLK	156637	6.92	62584	7.56
OP71994-BS	134698	6.92	50925	7.56
OP71994-MB	129319	6.91	45436	7.56
FA57914-1 [e]	139866	6.92	51482	7.56
FA57914-2 [e]	137975	6.92	50163	7.56
FA57914-3 [e]	152769	6.92	54971	7.56
FA57914-4 [e]	140402	6.92	52277	7.56
OP71994-MS	134583	6.92	49816	7.55
OP71994-MSD	133670	6.91	48513	7.55
FA57914-5 [f]	133544	6.92	50027	7.56
FA57914-6 [e]	134470	6.92	48651	7.55

IS 1 = 13C2-PFOA
IS 2 = 13C4-PFOS

(a) Initial Cal is: S2Q349-ICC349 2Q22127.D 10/15/18 13:06
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.
(e) Confirmation run.
(f) Associated Method Blank surrogate is outside QC limits. Associated BS recovery outside control limits.

Injection Standard Area Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q349-CC349	**Injection Date:**	10/15/18
Lab File ID:	2Q22142.D	**Injection Time:**	18:47
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	153232	6.91	57765	7.55
Check Std [b]	157702	6.91	59038	7.56
Upper Limit [c]	229848	7.91	86648	8.56
Lower Limit [d]	76616	5.91	28883	6.56

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
FA57914-7 [e]	137063	6.92	48940	7.56
FA57914-8 [f]	137482	6.91	51778	7.55
FA57914-9 [e]	133207	6.91	47508	7.55
FA57914-10 [f]	130299	6.91	47210	7.55
FA57914-11 [e]	133364	6.92	48771	7.56
FA57914-12 [e]	131121	6.92	47549	7.56
FA57914-13 [e]	141453	6.91	51096	7.55
FA57914-14 [e]	131615	6.91	48495	7.55
FA57914-15 [e]	138108	6.91	49996	7.55

IS 1 = 13C2-PFOA
IS 2 = 13C4-PFOS

(a) Initial Cal is: S2Q349-ICC349 2Q22127.D 10/15/18 13:06
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.
(e) Confirmation run.
(f) Associated Method Blank surrogate is outside QC limits; insufficient samples for re-extraction. Associated BS recovery outside control limits. Insufficient sample for re-extraction.

Injection Standard Area Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q352-CC350	**Injection Date:**	10/19/18
Lab File ID:	2Q22410.D	**Injection Time:**	19:21
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	141309	6.90	58630	7.54
Check Std [b]	108130	6.97	44942	7.64
Upper Limit [c]	211964	7.97	87945	8.64
Lower Limit [d]	70655	5.97	29315	6.64

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
OP72234-BS	109402	6.97	46130	7.64
OP72234-MB	114363	6.97	47387	7.64
FA57914-1 [e]	112545	6.97	46623	7.64
FA57914-2 [e]	110190	6.97	46064	7.64
FA57914-3 [e]	106271	6.97	44370	7.64
FA57914-4 [e]	121188	6.97	49781	7.64
OP72234-MS	108636	6.97	44756	7.64
OP72234-MSD	119546	6.97	49902	7.64
FA57914-5 [f]	122421	6.97	49864	7.64
FA57914-6 [e]	115873	6.97	48729	7.64

IS 1 = 13C2-PFOA
IS 2 = 13C4-PFOS

(a) Initial Cal is: S2Q350-ICC350 2Q22185.D 10/16/18 12:08
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.
(e) Sample extracted beyond project holdtime of 14 days.
(f) Confirmation run.

Injection Standard Area Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q352-CC350	**Injection Date:**	10/19/18
Lab File ID:	2Q22423.D	**Injection Time:**	23:57
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	141309	6.90	58630	7.54
Check Std [b]	110104	6.97	46300	7.64
Upper Limit [c]	211964	7.97	87945	8.64
Lower Limit [d]	70655	5.97	29315	6.64

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
FA57914-7 [e]	114143	6.97	46359	7.64
FA57914-9 [e]	110284	6.97	45732	7.64
FA57914-11 [e]	115041	6.97	46984	7.64
FA57914-12 [e]	116159	6.97	47040	7.64
FA57914-13 [e]	113250	6.97	47396	7.64
FA57914-14 [e]	116965	6.97	47813	7.64
FA57914-15 [e]	109230	6.97	44613	7.64

IS 1 = 13C2-PFOA
IS 2 = 13C4-PFOS

(a) Initial Cal is: S2Q350-ICC350 2Q22185.D 10/16/18 12:08
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 1 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -1 minutes of check standard.
(e) Sample extracted beyond project holdtime of 14 days.

Isotope Dilution Standard Recovery Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Method: EPA 537M QSM5.1 B-15 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FA57914-1	2Q22415.D	85	84	77	79	81	67	67	65
FA57914-1	2Q22134.D	99	101	104	100	102	89	88	79
FA57914-2	2Q22416.D	83	81	75	75	76	62	61	55
FA57914-2	2Q22135.D	95	96	99	92	86	75	70	38* a
FA57914-3	2Q22417.D	75	74	70	69	70	57	56	52
FA57914-3	2Q22136.D	108	109	114	109	107	96	94	90
FA57914-4	2Q22418.D	90	88	83	84	81	67	66	59
FA57914-4	2Q22137.D	97	100	104	100	99	89	88	87
FA57914-5	2Q22421.D	44*	43*	41*	43*	45*	34*	34*	32*
FA57914-5	2Q22140.D	91	92	95	90	88	78	77	79
FA57914-6	2Q22422.D	88	86	82	82	83	67	67	65
FA57914-6	2Q22141.D	91	93	95	91	86	76	73	58
FA57914-7	2Q22425.D	86	83	79	80	79	64	62	51
FA57914-7	2Q22144.D	95	96	96	92	88	78	72	43* a
FA57914-8	2Q22145.D	101	100	102	99	100	94	94	81
FA57914-9	2Q22146.D	92	92	92	88	85	76	67	27* a
FA57914-9	2Q22426.D	85	83	77	79	75	62	61	55
FA57914-10	2Q22147.D	92	93	95	88	79	68	64	34* a
FA57914-11	2Q22427.D	88	87	80	78	77	63	62	59
FA57914-11	2Q22148.D	95	95	96	93	88	76	64	25* a
FA57914-12	2Q22428.D	86	84	78	78	78	65	63	58
FA57914-12	2Q22149.D	94	95	96	90	85	77	68	34* a
FA57914-13	2Q22150.D	100	100	99	96	89	76	61	15* a
FA57914-13	2Q22429.D	83	82	76	73	70	57	57	54
FA57914-14	2Q22430.D	84	84	79	81	80	65	64	61
FA57914-14	2Q22151.D	91	91	92	89	85	76	68	29* a
FA57914-15	2Q22431.D	78	78	72	74	71	59	58	58
FA57914-15	2Q22152.D	99	100	102	97	96	85	81	59
OP71994-BS	2Q22132.D	93	93	96	92	83	70	61	31* a
OP71994-MB	2Q22133.D	99	99	97	85	69	49* a	37* a	13* a
OP71994-MS	2Q22138.D	97	97	100	97	99	89	88	83
OP71994-MSD	2Q22139.D	92	96	97	94	92	83	80	62
OP72234-BS	2Q22413.D	88	86	79	81	81	67	66	58
OP72234-MB	2Q22414.D	84	82	75	75	74	61	58	41*
OP72234-MS	2Q22419.D	78	77	72	74	74	61	60	57
OP72234-MSD	2Q22420.D	91	89	83	84	84	70	69	63
S2Q349-IBLK	2Q22130.D	103	103	106	107	105	98	96	97
S2Q352-IBLK	2Q22391.D			94					

Isotope Dilution Standard Recovery Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Method: EPA 537M QSM5.1 B-15 **Matrix:** AQ

Samples and QC shown here apply to the above method

Isotope Dilution Standards	Recovery Limits

Isotope Dilution Standards	Recovery Limits
S1 = 13C5-PFHxA	50-150%
S2 = 13C4-PFHpA	50-150%
S3 = 13C8-PFOA	50-150%
S4 = 13C9-PFNA	50-150%
S5 = 13C6-PFDA	50-150%
S6 = 13C7-PFUnDA	50-150%
S7 = 13C2-PFDoDA	50-150%
S8 = 13C2-PFTeDA	50-150%

(a) Outside control limits.

Isotope Dilution Standard Recovery Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Method: EPA 537M QSM5.1 B-15 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12
FA57914-1	2Q22415.D	77	79	74	67
FA57914-1	2Q22134.D	96	99	98	95
FA57914-2	2Q22416.D	74	77	69	65
FA57914-2	2Q22135.D	92	94	86	72
FA57914-3	2Q22417.D	69	70	66	60
FA57914-3	2Q22136.D	104	109	106	102
FA57914-4	2Q22418.D	82	83	76	71
FA57914-4	2Q22137.D	95	98	97	94
FA57914-5	2Q22421.D	41*	41*	39*	36*
FA57914-5	2Q22140.D	88	91	86	82
FA57914-6	2Q22422.D	79	81	77	73
FA57914-6	2Q22141.D	88	91	87	80
FA57914-7	2Q22425.D	78	79	75	71
FA57914-7	2Q22144.D	92	95	86	77
FA57914-8	2Q22145.D	96	100	98	98
FA57914-9	2Q22146.D	90	91	83	74
FA57914-9	2Q22426.D	78	78	70	69
FA57914-10	2Q22147.D	91	92	80	65
FA57914-11	2Q22427.D	80	80	70	72
FA57914-11	2Q22148.D	92	94	87	74
FA57914-12	2Q22428.D	79	79	72	72
FA57914-12	2Q22149.D	90	93	84	80
FA57914-13	2Q22150.D	98	100	88	71
FA57914-13	2Q22429.D	75	74	64	68
FA57914-14	2Q22430.D	77	79	71	74
FA57914-14	2Q22151.D	88	90	83	78
FA57914-15	2Q22431.D	71	71	65	69
FA57914-15	2Q22152.D	96	98	92	90
OP71994-BS	2Q22132.D	94	95	87	70
OP71994-MB	2Q22133.D	96	94	75	44* [a]
OP71994-MS	2Q22138.D	94	97	97	95
OP71994-MSD	2Q22139.D	89	94	89	84
OP72234-BS	2Q22413.D	80	81	78	67
OP72234-MB	2Q22414.D	77	76	71	60
OP72234-MS	2Q22419.D	72	73	70	64
OP72234-MSD	2Q22420.D	83	83	77	75
S2Q349-IBLK	2Q22130.D	104	109	110	113
S2Q352-IBLK	2Q22391.D			95	

Isotope Dilution Standard Recovery Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Method: EPA 537M QSM5.1 B-15 **Matrix:** AQ

Samples and QC shown here apply to the above method

Isotope Dilution Standards	Recovery Limits

Isotope Dilution Standards	Recovery Limits
S9 = 13C3-PFBS	50-150%
S10 = 13C3-PFHxS	50-150%
S11 = 13C8-PFOS	50-150%
S12 = d3-MeFOSAA	50-150%

(a) Outside control limits.

Initial Calibration Report

Method Path	D:\MassHunter\damethods
Method File	PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name	D:\MassHunter\Data\1015_PFC_ID_S2Q349\QuantResults\s2q349.batch.bin
Last Calib Update	10/16/2018 9:04:00 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22122.d	10/15/2018 11:23:00 AM	10/16/2018 9:04:00 AM
2	D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22123.d	10/15/2018 11:43:46 AM	10/16/2018 9:04:00 AM
3	D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22124.d	10/15/2018 12:04:29 PM	10/16/2018 9:04:00 AM
4	D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22125.d	10/15/2018 12:25:15 PM	10/16/2018 9:04:00 AM
5	D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22126.d	10/15/2018 12:45:59 PM	10/16/2018 9:04:00 AM
6	D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22127.d	10/15/2018 1:06:43 PM	10/16/2018 9:04:00 AM
7	D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22128.d	10/15/2018 1:27:28 PM	10/16/2018 9:04:00 AM
8	D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22129.d	10/15/2018 1:48:28 PM	10/16/2018 9:04:00 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
S 13C4-PFBA	Linear	12830	14529	14575	14658	15204	14566	14687	14525	14447	4.777
S 13C5-PFPeA	Linear	5508	6288	6358	6384	6646	6327	6379	6359	6281	5.265
S 13C3-PFBS	Linear	1266	1413	1442	1452	1512	1443	1447	1419	1424	4.965
S 13C2-4:2FTS	Linear	5763	6497	6683	6768	7128	7076	7715	8560	7024	11.912
S 13C5-PFHxA	Linear	5392	6124	6223	6196	6477	6184	6133	5835	6071	5.354
S 13C3-PFHxS	Linear	1538	1731	1758	1766	1848	1771	1750	1699	1733	5.163
S 13C4-PFHpA	Linear	6247	7054	7075	7102	7542	7151	7101	6834	7013	5.222
S 13C8-PFOA	Linear	5124	5953	5948	5878	6234	5959	6046	5818	5870	5.551
S 13C2-6:2FTS	Linear	7349	8226	8445	8501	9007	8846	9548	10378	8787	10.309
S 13C8-FOSA	Linear	3124	3609	3724	3833	3987	3848	3732	3582	3680	7.071
S 13C8-PFOS	Linear	1526	1720	1751	1795	1842	1797	1788	1777	1749	5.552
S 13C9-PFNA	Linear	4574	5157	5237	5348	5668	5346	5311	5329	5246	5.894
S d3-MeFOSAA	Linear	1920	2207	2271	2264	2392	2316	2284	2237	2236	6.220
S 13C6-PFDA	Linear	8919	10075	10280	10306	10738	10281	10201	9849	10081	5.275
S 13C2-8:2FTS	Linear	8618	9694	9878	9903	10509	10371	11466	12824	10408	12.163
S 13C7-PFUnDA	Linear	6921	7659	7735	7621	8010	7697	7806	7734	7648	4.144
S 13C2-PFDoDA	Linear	5616	6302	6279	6225	6590	6348	6423	6430	6277	4.615
S 13C2-PFTeDA	Linear	1946	2191	2197	2210	2322	2267	2353	2380	2233	6.126
I 13C2-PFOA				---------- ISTD ----------							
S M2-PFOA	Linear	0.9995	0.9998	1.0009	0.9998	1.0000	1.0000	1.0002	0.9996	1.0000	0.042
I 13C4-PFOS				---------- ISTD ----------							
S M4-PFOS	Linear	1.0005	0.9992	1.0006	0.9997	1.0006	1.0005	0.9985	1.0001	0.9999	0.076
I M4-PFBA				---------- ISTD ----------							
T PFBA	Linear	0.1220	0.1154	0.1167	0.1155	0.1123	0.1189	0.1207	0.1206	0.1178	2.825
I M5-PFPeA				---------- ISTD ----------							
T PFPeA	Quadratic	1.2630	1.0182	0.9784	0.9143	0.8698	0.9255	0.9183	0.9053	0.9741	12.873

Generated at 11:26 AM on 10/16/2018

Initial Calibration Summary
Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Sample: S2Q349-ICC349
Lab FileID: 2Q22127.D
Page 1 of 5

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-PFHxA						ISTD					
T PFHxA	Linear	0.3385	0.3110	0.3072	0.3045	0.2956	0.3149	0.3156	0.3223	0.3137	4.095
I M4-PFHpA						ISTD					
T PFHpA	Linear	0.7850	0.7556	0.7470	0.7187	0.7027	0.7558	0.7476	0.7446	0.7446	3.337
I M8-PFOA						ISTD					
T PFOA	Linear	0.6108	0.5022	0.5182	0.5073	0.4724	0.4943	0.4898	0.4918	0.5108	8.333
I M9-PFNA						ISTD					
T PFNA	Linear	0.5664	0.5150	0.5206	0.4829	0.4875	0.5238	0.5308	0.5184	0.5182	5.006
I M6-PFDA						ISTD					
T PFDA	Linear	0.3523	0.2849	0.3020	0.2871	0.2750	0.2972	0.3007	0.3016	0.3001	7.727
I M7-PFUnDA						ISTD					
T PFUnDA	Linear	0.4103	0.3872	0.3858	0.3686	0.3532	0.3712	0.3783	0.3800	0.3793	4.372
I M2-PFDoDA						ISTD					
T PFDoDA	Linear	0.4582	0.4216	0.4253	0.4113	0.3928	0.4167	0.4207	0.4208	0.4209	4.313
I M2-PFTeDA						ISTD					
T PFTrDA	Linear	0.8755	0.8487	0.8370	0.8238	0.7951	0.8401	0.8471	0.8440	0.8389	2.733
T PFTeDA	Linear	0.6857	0.6266	0.5943	0.5735	0.5409	0.5749	0.5749	0.5759	0.5933	7.474
I M8-FOSA						ISTD					
T FOSA	Linear	0.5042	0.4493	0.4990	0.4694	0.4634	0.4728	0.4860	0.4778	0.4777	3.815
I M3-PFBS						ISTD					
T PFBS	Linear	1.5749	1.4359	1.4500	1.4131	1.3599	1.4568	1.4509	1.4456	1.4484	4.153
T PFPeS	Linear	1.0348	0.9657	0.9950	0.9580	0.9307	0.9807	0.9947	0.9891	0.9811	3.139
I M3-PFHxS						ISTD					
T PFHxS	Linear	1.0962	1.0252	0.9961	0.9825	0.9431	0.9860	1.0035	1.0059	1.0048	4.372
T PFHpS	Linear	0.8608	0.7986	0.7879	0.8055	0.7807	0.8193	0.8367	0.8323	0.8152	3.328
I M8-PFOS						ISTD					
T PFOS	Linear	1.0683	0.8908	0.9211	0.8156	0.7873	0.8154	0.8381	0.8495	0.8733	10.289
T PFNS	Linear	0.8309	0.8084	0.8188	0.7800	0.7505	0.7835	0.7944	0.7780	0.7931	3.245
T PFDS	Linear	0.4553	0.4577	0.4588	0.4367	0.4359	0.4479	0.4538	0.4517	0.4497	1.990
I M2-4:2FTS						ISTD					
T 4:2FTS	Quadratic	0.6010	0.5506	0.5445	0.5517	0.5226	0.5411	0.5056	0.4475	0.5331	8.279
I M2-6:2FTS						ISTD					
T 6:2FTS	Quadratic	0.5293	0.4858	0.4799	0.4848	0.4493	0.4854	0.4456	0.4012	0.4702	8.068
I M2-8:2FTS						ISTD					
T 8:2FTS	Quadratic	0.5322	0.5072	0.5069	0.4967	0.4740	0.4904	0.4552	0.4062	0.4836	8.039

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M3-MeFOSAA		---------- ISTD ----------									
T MeFOSAA	Linear	0.5218	0.5014	0.5090	0.4917	0.4811	0.5100	0.5194	0.5174	0.5065	2.819
T EtFOSAA	Linear	0.4803	0.4377	0.4546	0.4480	0.4271	0.4566	0.4639	0.4609	0.4536	3.603

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
S 13C4-PFBA	Linear	y = 14446.833402 * x	0.000000
T PFBA	Linear	y = 0.120473 * x	0.999931
T PFPeA	Quadratic	y = -0.003964 * x ^ 2 + 0.925472 * x	0.999948
S 13C5-PFPeA	Linear	y = 6280.993924 * x	0.000000
S 13C3-PFBS	Linear	y = 1424.193109 * x	0.000000
T PFBS	Linear	y = 1.446219 * x	0.999951
S 13C2-4:2FTS	Linear	y = 7023.720358 * x	0.000000
T 4:2FTS	Quadratic	y = -0.022646 * x ^ 2 + 0.560931 * x	0.999953
S 13C5-PFHxA	Linear	y = 6070.570279 * x	0.000000
T PFHxA	Linear	y = 0.320539 * x	0.999804
T PFPeS	Linear	y = 0.989435 * x	0.999944
S 13C3-PFHxS	Linear	y = 1732.679242 * x	0.000000
T PFHxS	Linear	y = 1.004273 * x	0.999937
S 13C4-PFHpA	Linear	y = 7013.171658 * x	0.000000
T PFHpA	Linear	y = 0.745181 * x	0.999945
T PFHpS	Linear	y = 0.832255 * x	0.999932
S 13C8-PFOA	Linear	y = 5870.152406 * x	0.000000
S M2-PFOA	Linear	y = 0.999984 * x	0.000000
T PFOA	Linear	y = 0.491377 * x	0.999971
S 13C2-6:2FTS	Linear	y = 8787.408677 * x	0.000000
T 6:2FTS	Quadratic	y = -0.018038 * x ^ 2 + 0.491367 * x	0.999880
S 13C8-FOSA	Linear	y = 3679.941761 * x	0.000000
T FOSA	Linear	y = 0.479079 * x	0.999909
S 13C8-PFOS	Linear	y = 1749.225100 * x	0.000000
S M4-PFOS	Linear	y = 0.999947 * x	0.000000
T PFOS	Linear	y = 0.845723 * x	0.999830
S 13C9-PFNA	Linear	y = 5246.089078 * x	0.000000
T PFNA	Linear	y = 0.520662 * x	0.999805
S d3-MeFOSAA	Linear	y = 2236.458375 * x	0.000000
T MeFOSAA	Linear	y = 0.517224 * x	0.999922
T EtFOSAA	Linear	y = 0.461059 * x	0.999919
T PFNS	Linear	y = 0.781099 * x	0.999877
S 13C6-PFDA	Linear	y = 10081.044767 * x	0.000000
T PFDA	Linear	y = 0.301040 * x	0.999895
S 13C2-8:2FTS	Linear	y = 10407.766209 * x	0.000000
T 8:2FTS	Quadratic	y = -0.019594 * x ^ 2 + 0.504147 * x	0.999962
T PFDS	Linear	y = 0.451861 * x	0.999973
T PFUnDA	Linear	y = 0.379219 * x	0.999915
S 13C7-PFUnDA	Linear	y = 7647.907935 * x	0.000000
S 13C2-PFDoDA	Linear	y = 6276.609512 * x	0.000000
T PFDoDA	Linear	y = 0.420432 * x	0.999944
T PFTrDA	Linear	y = 0.844069 * x	0.999954
S 13C2-PFTeDA	Linear	y = 2233.289976 * x	0.000000

T PFTeDA	Linear	y = 0.575388 * x	0.999955

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 11:26 AM on 10/16/2018

Initial Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q349-ICC349
Lab FileID: 2Q22127.D

Initial Calibration Verification

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q349-ICV349
Lab FileID: 2Q22131.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1015_PFC_ID_S2Q349\s2q349.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22122.d
2:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22123.d
3:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22124.d
4:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22125.d
5:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22126.d
6:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22127.d
7:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22128.d
8:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22129.d

Data File: 2q22131
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.156	0.8	100.8
13C2-6:2FTS	20.000	21.209	6.0	106.0
13C2-8:2FTS	20.000	20.710	3.6	103.6
13C2-PFDoDA	20.000	20.742	3.7	103.7
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	20.706	3.5	103.5
13C3-PFBS	20.000	20.461	2.3	102.3
13C3-PFHxS	20.000	21.020	5.1	105.1
13C4-PFBA	20.000	20.087	0.4	100.4
13C4-PFHpA	20.000	21.038	5.2	105.2
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.832	4.2	104.2
13C5-PFPeA	20.000	20.506	2.5	102.5
13C6-PFDA	20.000	22.030	10.1	110.1
13C7-PFUnDA	20.000	20.844	4.2	104.2
13C8-FOSA	20.000	22.195	11.0	111.0
13C8-PFOA	20.000	22.028	10.1	110.1
13C8-PFOS	20.000	21.814	9.1	109.1
13C9-PFNA	20.000	22.472	12.4	112.4
4:2FTS	20.000	16.107	-19.5	80.5
6:2FTS	20.000	17.002	-15.0	85.0
8:2FTS	20.000	16.526	-17.4	82.6
d3-MeFOSAA	20.000	22.446	12.2	112.2
M2-PFOA	20.000	19.903	-0.5	99.5
EtFOSAA	20.000	17.584	-12.1	87.9
FOSA	20.000	17.762	-11.2	88.8
MeFOSAA	20.000	17.605	-12.0	88.0
PFBA	20.000	17.178	-14.1	85.9
PFBS	20.000	14.633	-26.8	73.2
PFDA	20.000	15.668	-21.7	78.3
PFDoDA	20.000	18.003	-10.0	90.0
PFDS	20.000	15.768	-21.2	78.8
PFHpA	20.000	17.754	-11.2	88.8
PFHpS	20.000	16.812	-15.9	84.1
PFHxA	20.000	15.054	-24.7	75.3
PFHxS	20.000	15.072	-24.6	75.4
PFNA	20.000	16.421	-17.9	82.1

Initial Calibration Verification

Job Number: FA57914 **Sample:** S2Q349-ICV349
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22131.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	16.520	-17.4	82.6
PFOA	20.000	17.265	-13.7	86.3
PFOS	20.000	17.551	-12.2	87.8
PFPeA	20.000	16.065	-19.7	80.3
PFPeS	20.000	14.459	-27.7	72.3
PFTeDA	20.000	15.821	-20.9	79.1
PFTrDA	20.000	18.651	-6.7	93.3
PFUnDA	20.000	17.107	-14.5	85.5
M4-PFOS	20.000	20.013	0.1	100.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q349-CC349
Lab FileID: 2Q22142.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1015_PFC_ID_S2Q349\s2q349.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22122.d
2:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22123.d
3:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22124.d
4:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22125.d
5:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22126.d
6:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22127.d
7:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22128.d
8:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22129.d

Data File: 2q22142
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.427	2.1	102.1
13C2-6:2FTS	20.000	20.809	4.0	104.0
13C2-8:2FTS	20.000	20.374	1.9	101.9
13C2-PFDoDA	20.000	20.380	1.9	101.9
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	20.909	4.5	104.5
13C3-PFBS	20.000	20.520	2.6	102.6
13C3-PFHxS	20.000	20.917	4.6	104.6
13C4-PFBA	20.000	20.208	1.0	101.0
13C4-PFHpA	20.000	20.819	4.1	104.1
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.682	3.4	103.4
13C5-PFPeA	20.000	20.577	2.9	102.9
13C6-PFDA	20.000	20.997	5.0	105.0
13C7-PFUnDA	20.000	20.263	1.3	101.3
13C8-FOSA	20.000	23.161	15.8	115.8
13C8-PFOA	20.000	21.148	5.7	105.7
13C8-PFOS	20.000	20.748	3.7	103.7
13C9-PFNA	20.000	20.492	2.5	102.5
4:2FTS	20.000	20.324	1.6	101.6
6:2FTS	20.000	20.350	1.8	101.8
8:2FTS	20.000	20.365	1.8	101.8
d3-MeFOSAA	20.000	21.562	7.8	107.8
M2-PFOA	20.000	19.996	0.0	100.0
EtFOSAA	20.000	19.612	-1.9	98.1
FOSA	20.000	20.158	0.8	100.8
MeFOSAA	20.000	19.925	-0.4	99.6
PFBA	20.000	19.804	-1.0	99.0
PFBS	20.000	19.872	-0.6	99.4
PFDA	20.000	19.650	-1.7	98.3
PFDoDA	20.000	20.063	0.3	100.3
PFDS	20.000	19.940	-0.3	99.7
PFHpA	20.000	19.626	-1.9	98.1
PFHpS	20.000	20.042	0.2	100.2
PFHxA	20.000	19.458	-2.7	97.3
PFHxS	20.000	19.618	-1.9	98.1
PFNA	20.000	19.956	-0.2	99.8

Continuing Calibration Summary

Job Number: FA57914 **Sample:** S2Q349-CC349
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22142.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	20.113	0.6	100.6
PFOA	20.000	19.987	-0.1	99.9
PFOS	20.000	20.015	0.1	100.1
PFPeA	20.000	19.761	-1.2	98.8
PFPeS	20.000	20.223	1.1	101.1
PFTeDA	20.000	19.207	-4.0	96.0
PFTrDA	20.000	19.423	-2.9	97.1
PFUnDA	20.000	19.509	-2.5	97.5
M4-PFOS	20.000	20.016	0.1	100.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q349-CC349
Lab FileID: 2Q22153.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1015_PFC_ID_S2Q349\s2q349.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22122.d
2:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22123.d
3:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22124.d
4:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22125.d
5:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22126.d
6:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22127.d
7:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22128.d
8:D:\MassHunter\Data\1015_PFC_ID_S2Q349\2q22129.d

Data File: 2q22153
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.878	4.4	104.4
13C2-6:2FTS	20.000	21.251	6.3	106.3
13C2-8:2FTS	20.000	21.156	5.8	105.8
13C2-PFDoDA	20.000	20.350	1.7	101.7
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	20.455	2.3	102.3
13C3-PFBS	20.000	20.655	3.3	103.3
13C3-PFHxS	20.000	21.127	5.6	105.6
13C4-PFBA	20.000	20.425	2.1	102.1
13C4-PFHpA	20.000	21.052	5.3	105.3
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.896	4.5	104.5
13C5-PFPeA	20.000	20.709	3.5	103.5
13C6-PFDA	20.000	21.374	6.9	106.9
13C7-PFUnDA	20.000	20.447	2.2	102.2
13C8-FOSA	20.000	24.206	21.0	121.0
13C8-PFOA	20.000	21.401	7.0	107.0
13C8-PFOS	20.000	20.708	3.5	103.5
13C9-PFNA	20.000	20.847	4.2	104.2
4:2FTS	20.000	19.984	-0.1	99.9
6:2FTS	20.000	20.290	1.5	101.5
8:2FTS	20.000	20.253	1.3	101.3
d3-MeFOSAA	20.000	22.382	11.9	111.9
M2-PFOA	20.000	19.997	0.0	100.0
EtFOSAA	20.000	19.567	-2.2	97.8
FOSA	20.000	19.890	-0.6	99.4
MeFOSAA	20.000	19.782	-1.1	98.9
PFBA	20.000	19.720	-1.4	98.6
PFBS	20.000	20.025	0.1	100.1
PFDA	20.000	19.679	-1.6	98.4
PFDoDA	20.000	19.910	-0.5	99.5
PFDS	20.000	19.861	-0.7	99.3
PFHpA	20.000	19.819	-0.9	99.1
PFHpS	20.000	19.756	-1.2	98.8
PFHxA	20.000	19.237	-3.8	96.2
PFHxS	20.000	19.654	-1.7	98.3
PFNA	20.000	20.154	0.8	100.8

Continuing Calibration Summary

Job Number: FA57914 **Sample:** S2Q349-CC349
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22153.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	20.105	0.5	100.5
PFOA	20.000	20.420	2.1	102.1
PFOS	20.000	20.028	0.1	100.1
PFPeA	20.000	20.087	0.4	100.4
PFPeS	20.000	20.361	1.8	101.8
PFTeDA	20.000	19.607	-2.0	98.0
PFTrDA	20.000	19.635	-1.8	98.2
PFUnDA	20.000	19.626	-1.9	98.1
M4-PFOS	20.000	20.007	0.0	100.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q350-ICC350
Lab FileID: 2Q22185.D

Initial Calibration Report

Method Path	D:\MassHunter\damethods
Method File	PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name	D:\MassHunter\Data\1016_PFC_ID_S2Q350\QuantResults\s2q350.batch.bin
Last Calib Update	10/17/2018 7:46:51 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22180.d	10/16/2018 10:25:15 AM	10/17/2018 7:46:51 AM
2	D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22181.d	10/16/2018 10:45:59 AM	10/17/2018 7:46:51 AM
3	D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22182.d	10/16/2018 11:06:43 AM	10/17/2018 7:46:51 AM
4	D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22183.d	10/16/2018 11:27:27 AM	10/17/2018 7:46:51 AM
5	D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22184.d	10/16/2018 11:48:12 AM	10/17/2018 7:46:51 AM
6	D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22185.d	10/16/2018 12:08:57 PM	10/17/2018 7:46:51 AM
7	D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22186.d	10/16/2018 12:29:41 PM	10/17/2018 7:46:51 AM
8	D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22187.d	10/16/2018 12:50:26 PM	10/17/2018 7:46:51 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
S 13C4-PFBA	Linear	12032	13205	13545	13611	14229	13498	13806	13643	13446	4.769
S 13C5-PFPeA	Linear	4963	5534	5774	5847	6051	5749	5945	5865	5716	5.947
S 13C3-PFBS	Linear	1279	1393	1410	1409	1490	1387	1415	1406	1399	4.120
S 13C2-4:2FTS	Linear	5541	6055	6271	6367	6694	6547	7266	7939	6585	11.230
S 13C5-PFHxA	Linear	4837	5409	5681	5663	5826	5640	5612	5370	5505	5.587
S 13C3-PFHxS	Linear	1653	1794	1812	1826	1880	1783	1799	1699	1781	4.050
S 13C4-PFHpA	Linear	5698	6404	6535	6688	6838	6483	6567	6251	6433	5.366
S 13C8-PFOA	Linear	4793	5405	5403	5555	5700	5430	5406	5297	5374	4.915
S 13C2-6:2FTS	Linear	7663	8488	8463	8569	8980	8798	9499	10175	8829	8.521
S 13C8-FOSA	Linear	3585	3916	3986	4023	4213	3945	3846	3534	3881	5.809
S 13C8-PFOS	Linear	1692	1834	1844	1826	1913	1800	1833	1775	1815	3.492
S 13C9-PFNA	Linear	4266	4924	4975	4955	5263	4925	5080	4938	4916	5.836
S d3-MeFOSAA	Linear	2141	2364	2334	2323	2446	2326	2377	2295	2326	3.754
S 13C6-PFDA	Linear	8193	9268	9489	9532	9845	9391	9540	9169	9303	5.293
S 13C2-8:2FTS	Linear	9336	9634	9828	10008	10619	10422	11535	12691	10509	10.601
S 13C7-PFUnDA	Linear	5900	6776	6823	6939	7284	6929	7048	7081	6847	6.058
S 13C2-PFDoDA	Linear	4675	5372	5487	5635	5850	5583	5806	5826	5529	6.966
S 13C2-PFTeDA	Linear	1605	1846	1900	1960	2039	1993	2067	2116	1941	8.334
I 13C2-PFOA					---------- ISTD ----------						
S M2-PFOA	Linear	1.0000	0.9997	1.0001	1.0003	1.0005	1.0000	1.0002	0.9996	1.0001	0.030
I 13C4-PFOS					---------- ISTD ----------						
S M4-PFOS	Linear	0.9995	0.9995	0.9992	0.9994	0.9983	1.0002	1.0002	0.9998	0.9995	0.060
I M4-PFBA					---------- ISTD ----------						
T PFBA	Linear	0.1268	0.1186	0.1189	0.1152	0.1123	0.1195	0.1195	0.1201	0.1189	3.518
I M5-PFPeA					---------- ISTD ----------						
T PFPeA	Quadratic	1.4037	1.0946	0.9983	0.9348	0.8966	0.9491	0.9349	0.9302	1.0178	16.444

Generated at 8:40 AM on 10/17/2018

Initial Calibration Summary

Job Number: FA57914 **Sample:** S2Q350-ICC350
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 2Q2185.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-PFHxA						ISTD					
T PFHxA	Linear	0.3354	0.3112	0.3186	0.3080	0.3014	0.3126	0.3163	0.3218	0.3157	3.226
I M4-PFHpA						ISTD					
T PFHpA	Linear	0.7699	0.7461	0.7415	0.7166	0.7026	0.7544	0.7485	0.7633	0.7429	3.069
I M8-PFOA						ISTD					
T PFOA	Linear	0.5759	0.5368	0.5236	0.5060	0.4797	0.5147	0.5171	0.5180	0.5215	5.256
I M9-PFNA						ISTD					
T PFNA	Linear	0.6011	0.5396	0.5192	0.5230	0.4991	0.5519	0.5404	0.5525	0.5409	5.596
I M6-PFDA						ISTD					
T PFDA	Linear	0.3190	0.3049	0.3020	0.2937	0.2831	0.3032	0.3017	0.3058	0.3017	3.400
I M7-PFUnDA						ISTD					
T PFUnDA	Linear	0.4021	0.3646	0.3742	0.3743	0.3489	0.3689	0.3758	0.3708	0.3725	3.962
I M2-PFDoDA						ISTD					
T PFDoDA	Linear	0.4415	0.4037	0.4150	0.4074	0.3943	0.4179	0.4145	0.4141	0.4136	3.310
I M2-PFTeDA						ISTD					
T PFTrDA	Linear	0.9633	0.8661	0.9062	0.8432	0.8392	0.8728	0.8723	0.8627	0.8782	4.559
T PFTeDA	Linear	0.7373	0.6126	0.6301	0.5753	0.5696	0.5961	0.5935	0.5904	0.6131	8.768
I M8-FOSA						ISTD					
T FOSA	Linear	0.5580	0.4795	0.4852	0.4647	0.4463	0.4738	0.4703	0.4748	0.4816	6.850
I M3-PFBS						ISTD					
T PFBS	Linear	1.4541	1.3761	1.4469	1.4314	1.3398	1.4644	1.4589	1.4431	1.4268	3.136
T PFPeS	Linear	0.9577	0.8736	0.9203	0.9304	0.8779	0.9522	0.9579	0.9311	0.9251	3.619
I M3-PFHxS						ISTD					
T PFHxS	Linear	1.1304	0.9545	0.9596	0.9254	0.8957	0.9585	0.9611	0.9807	0.9707	7.170
T PFHpS	Linear	0.8937	0.8019	0.8276	0.7791	0.7726	0.7983	0.7902	0.8143	0.8097	4.733
I M8-PFOS						ISTD					
T PFOS	Linear	0.9397	0.8003	0.8507	0.8500	0.7933	0.8419	0.8462	0.8616	0.8480	5.260
T PFNS	Linear	0.7435	0.7061	0.7082	0.6956	0.6745	0.7224	0.7233	0.7224	0.7120	2.936
T PFDS	Linear	0.4010	0.3877	0.3927	0.4018	0.3898	0.4110	0.4111	0.4193	0.4018	2.828
I M2-4:2FTS						ISTD					
T 4:2FTS	Quadratic	0.6159	0.5368	0.5431	0.5456	0.5230	0.5371	0.5017	0.4518	0.5319	8.653
I M2-6:2FTS						ISTD					
T 6:2FTS	Linear	0.5269	0.4918	0.4882	0.4782	0.4681	0.4788	0.4504	0.4044	0.4734	7.486
I M2-8:2FTS						ISTD					
T 8:2FTS	Quadratic	0.5532	0.4921	0.5205	0.4936	0.4730	0.4881	0.4571	0.4076	0.4857	8.857

Generated at 8:40 AM on 10/17/2018

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M3-MeFOSAA		---------- ISTD ----------									
T MeFOSAA	Linear	0.5839	0.4880	0.5149	0.4870	0.4830	0.4980	0.5142	0.5102	0.5099	6.370
T EtFOSAA	Linear	0.4811	0.4471	0.4419	0.4638	0.4246	0.4601	0.4579	0.4555	0.4540	3.667

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T PFBA	Linear	y = 0.119902 * x	0.999942
S 13C4-PFBA	Linear	y = 13446.053512 * x	0.000000
S 13C5-PFPeA	Linear	y = 5716.043714 * x	0.000000
T PFPeA	Quadratic	y = -0.001930 * x ^ 2 + 0.939854 * x	0.999957
S 13C3-PFBS	Linear	y = 1398.515033 * x	0.000000
T PFBS	Linear	y = 1.445963 * x	0.999901
S 13C2-4:2FTS	Linear	y = 6584.813584 * x	0.000000
T 4:2FTS	Quadratic	y = -0.019959 * x ^ 2 + 0.551624 * x	0.999973
S 13C5-PFHxA	Linear	y = 5504.848698 * x	0.000000
T PFHxA	Linear	y = 0.320279 * x	0.999857
T PFPeS	Linear	y = 0.936506 * x	0.999751
T PFHpA	Linear	y = 0.759610 * x	0.999835
S 13C3-PFHxS	Linear	y = 1780.750277 * x	0.000000
T PFHxS	Linear	y = 0.975473 * x	0.999805
S 13C4-PFHpA	Linear	y = 6433.055512 * x	0.000000
T PFHpS	Linear	y = 0.808803 * x	0.999757
T PFOA	Linear	y = 0.517449 * x	0.999933
S 13C8-PFOA	Linear	y = 5373.626951 * x	0.000000
S M2-PFOA	Linear	y = 1.000066 * x	0.000000
S 13C2-6:2FTS	Linear	y = 8829.395649 * x	0.000000
T 6:2FTS	Linear	y = 0.416180 * x	0.995629
S 13C8-FOSA	Linear	y = 3881.002300 * x	0.000000
T FOSA	Linear	y = 0.473666 * x	0.999938
T PFOS	Linear	y = 0.857462 * x	0.999842
S 13C8-PFOS	Linear	y = 1814.647918 * x	0.000000
S M4-PFOS	Linear	y = 0.999522 * x	0.000000
S 13C9-PFNA	Linear	y = 4915.962883 * x	0.000000
T PFNA	Linear	y = 0.549659 * x	0.999781
S d3-MeFOSAA	Linear	y = 2325.643673 * x	0.000000
T MeFOSAA	Linear	y = 0.510321 * x	0.999916
T EtFOSAA	Linear	y = 0.455850 * x	0.999934
T PFNS	Linear	y = 0.722150 * x	0.999945
S 13C6-PFDA	Linear	y = 9303.479105 * x	0.000000
T PFDA	Linear	y = 0.304730 * x	0.999894
S 13C2-8:2FTS	Linear	y = 10509.254762 * x	0.000000
T 8:2FTS	Quadratic	y = -0.019383 * x ^ 2 + 0.504636 * x	0.999961
T PFDS	Linear	y = 0.417222 * x	0.999841
S 13C7-PFUnDA	Linear	y = 6847.469399 * x	0.000000
T PFUnDA	Linear	y = 0.371563 * x	0.999911
S 13C2-PFDoDA	Linear	y = 5529.245322 * x	0.000000
T PFDoDA	Linear	y = 0.414147 * x	0.999968
T PFTrDA	Linear	y = 0.864671 * x	0.999954
T PFTeDA	Linear	y = 0.591005 * x	0.999969

S 13C2-PFTeDA	Linear	y = 1940.965280 * x	0.000000

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q350-ICC350
Lab FileID: 2Q2185.D

Initial Calibration Verification

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q350-ICV350
Lab FileID: 2Q22189.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1016_PFC_ID_S2Q350\s2q350.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22180.d
2:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22181.d
3:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22182.d
4:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22183.d
5:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22184.d
6:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22185.d
7:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22186.d
8:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22187.d

Data File: 2q22189
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.165	0.8	100.8
13C2-6:2FTS	20.000	20.344	1.7	101.7
13C2-8:2FTS	20.000	20.069	0.3	100.3
13C2-PFDoDA	20.000	21.194	6.0	106.0
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	21.454	7.3	107.3
13C3-PFBS	20.000	20.295	1.5	101.5
13C3-PFHxS	20.000	20.405	2.0	102.0
13C4-PFBA	20.000	20.232	1.2	101.2
13C4-PFHpA	20.000	20.813	4.1	104.1
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	21.111	5.6	105.6
13C5-PFPeA	20.000	20.566	2.8	102.8
13C6-PFDA	20.000	21.575	7.9	107.9
13C7-PFUnDA	20.000	20.895	4.5	104.5
13C8-FOSA	20.000	21.174	5.9	105.9
13C8-PFOA	20.000	21.731	8.7	108.7
13C8-PFOS	20.000	20.642	3.2	103.2
13C9-PFNA	20.000	22.152	10.8	110.8
4:2FTS	20.000	16.249	-18.8	81.2
6:2FTS	20.000	19.445	-2.8	97.2
8:2FTS	20.000	16.559	-17.2	82.8
d3-MeFOSAA	20.000	21.138	5.7	105.7
M2-PFOA	20.000	20.003	0.0	100.0
EtFOSAA	20.000	16.976	-15.1	84.9
FOSA	20.000	17.603	-12.0	88.0
MeFOSAA	20.000	17.288	-13.6	86.4
PFBA	20.000	17.369	-13.2	86.8
PFBS	20.000	14.717	-26.4	73.6
PFDA	20.000	15.520	-22.4	77.6
PFDoDA	20.000	18.168	-9.2	90.8
PFDS	20.000	16.179	-19.1	80.9
PFHpA	20.000	17.857	-10.7	89.3
PFHpS	20.000	16.592	-17.0	83.0
PFHxA	20.000	15.269	-23.7	76.3
PFHxS	20.000	15.017	-24.9	75.1
PFNA	20.000	15.148	-24.3	75.7

Initial Calibration Verification

Job Number: FA57914 **Sample:** S2Q350-ICV350
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22189.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	16.473	-17.6	82.4
PFOA	20.000	16.558	-17.2	82.8
PFOS	20.000	16.612	-16.9	83.1
PFPeA	20.000	16.406	-18.0	82.0
PFPeS	20.000	14.585	-27.1	72.9
PFTeDA	20.000	15.914	-20.4	79.6
PFTrDA	20.000	18.638	-6.8	93.2
PFUnDA	20.000	17.703	-11.5	88.5
M4-PFOS	20.000	20.013	0.1	100.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q352-CC350
Lab FileID: 2Q22410.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1019_PFC_ID_S2Q352\s2q352.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22180.d
2:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22181.d
3:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22182.d
4:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22183.d
5:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22184.d
6:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22185.d
7:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22186.d
8:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22187.d

Data File: 2q22410
Type : QC
Level : 2

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	15.472	-22.6	77.4
13C2-6:2FTS	20.000	14.499	-27.5	72.5
13C2-8:2FTS	20.000	12.613	# -36.9	63.1
13C2-PFDoDA	20.000	14.073	-29.6	70.4
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	14.094	-29.5	70.5
13C3-PFBS	20.000	16.380	-18.1	81.9
13C3-PFHxS	20.000	15.969	-20.2	79.8
13C4-PFBA	20.000	17.434	-12.8	87.2
13C4-PFHpA	20.000	16.723	-16.4	83.6
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	17.163	-14.2	85.8
13C5-PFPeA	20.000	17.456	-12.7	87.3
13C6-PFDA	20.000	15.536	-22.3	77.7
13C7-PFUnDA	20.000	13.871	# -30.6	69.4
13C8-FOSA	20.000	15.790	-21.1	78.9
13C8-PFOA	20.000	15.763	-21.2	78.8
13C8-PFOS	20.000	15.537	-22.3	77.7
13C9-PFNA	20.000	15.646	-21.8	78.2
4:2FTS	1.000	1.243	24.3	124.3
6:2FTS	1.000	1.283	28.3	128.3
8:2FTS	1.000	1.313	# 31.3	131.3
d3-MeFOSAA	20.000	13.953	# -30.2	69.8
M2-PFOA	20.000	19.999	0.0	100.0
EtFOSAA	1.000	1.019	1.9	101.9
FOSA	1.000	1.112	11.2	111.2
MeFOSAA	1.000	1.126	12.6	112.6
PFBA	1.000	1.018	1.8	101.8
PFBS	1.000	1.080	8.0	108.0
PFDA	1.000	1.048	4.8	104.8
PFDoDA	1.000	1.104	10.4	110.4
PFDS	1.000	1.101	10.1	110.1
PFHpA	1.000	1.092	9.2	109.2
PFHpS	1.000	1.010	1.0	101.0
PFHxA	1.000	1.101	10.1	110.1
PFHxS	1.000	1.077	7.7	107.7
PFNA	1.000	1.060	6.0	106.0

Continuing Calibration Summary

Job Number: FA57914 **Sample:** S2Q352-CC350
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22410.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	1.000	1.393	# 39.3	139.3
PFOA	1.000	1.046	4.6	104.6
PFOS	1.000	1.136	13.6	113.6
PFPeA	1.000	1.216	21.6	121.6
PFPeS	1.000	1.171	17.1	117.1
PFTeDA	1.000	1.123	12.3	112.3
PFTrDA	1.000	1.065	6.5	106.5
PFUnDA	1.000	1.082	8.2	108.2
M4-PFOS	20.000	20.011	0.1	100.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q352-CC350
Lab FileID: 2Q22411.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1019_PFC_ID_S2Q352\s2q352.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22180.d
2:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22181.d
3:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22182.d
4:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22183.d
5:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22184.d
6:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22185.d
7:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22186.d
8:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22187.d

Data File: 2q22411
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	16.474	-17.6	82.4
13C2-6:2FTS	20.000	15.330	-23.4	76.6
13C2-8:2FTS	20.000	13.567	# -32.2	67.8
13C2-PFDoDA	20.000	14.198	-29.0	71.0
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	14.617	-26.9	73.1
13C3-PFBS	20.000	16.449	-17.8	82.2
13C3-PFHxS	20.000	15.932	-20.3	79.7
13C4-PFBA	20.000	17.465	-12.7	87.3
13C4-PFHpA	20.000	16.793	-16.0	84.0
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	17.112	-14.4	85.6
13C5-PFPeA	20.000	17.642	-11.8	88.2
13C6-PFDA	20.000	15.552	-22.2	77.8
13C7-PFUnDA	20.000	13.879	# -30.6	69.4
13C8-FOSA	20.000	16.156	-19.2	80.8
13C8-PFOA	20.000	15.593	-22.0	78.0
13C8-PFOS	20.000	15.350	-23.3	76.7
13C9-PFNA	20.000	15.982	-20.1	79.9
4:2FTS	20.000	25.147	25.7	125.7
6:2FTS	20.000	25.087	25.4	125.4
8:2FTS	20.000	25.310	26.6	126.6
d3-MeFOSAA	20.000	13.631	# -31.8	68.2
M2-PFOA	20.000	19.987	-0.1	99.9
EtFOSAA	20.000	22.245	11.2	111.2
FOSA	20.000	22.198	11.0	111.0
MeFOSAA	20.000	21.861	9.3	109.3
PFBA	20.000	20.563	2.8	102.8
PFBS	20.000	21.913	9.6	109.6
PFDA	20.000	22.118	10.6	110.6
PFDoDA	20.000	22.083	10.4	110.4
PFDS	20.000	22.950	14.7	114.7
PFHpA	20.000	21.525	7.6	107.6
PFHpS	20.000	21.657	8.3	108.3
PFHxA	20.000	21.528	7.6	107.6
PFHxS	20.000	21.958	9.8	109.8
PFNA	20.000	20.415	2.1	102.1

Continuing Calibration Summary

Job Number: FA57914 **Sample:** S2Q352-CC350
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22411.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	27.116	# 35.6	135.6
PFOA	20.000	21.243	6.2	106.2
PFOS	20.000	21.851	9.3	109.3
PFPeA	20.000	21.599	8.0	108.0
PFPeS	20.000	23.632	18.2	118.2
PFTeDA	20.000	21.681	8.4	108.4
PFTrDA	20.000	21.445	7.2	107.2
PFUnDA	20.000	21.941	9.7	109.7
M4-PFOS	20.000	20.008	0.0	100.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q352-CC350
Lab FileID: 2Q22423.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1019_PFC_ID_S2Q352\s2q352.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22180.d
2:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22181.d
3:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22182.d
4:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22183.d
5:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22184.d
6:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22185.d
7:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22186.d
8:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22187.d

Data File: 2q22423
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	17.007	-15.0	85.0
13C2-6:2FTS	20.000	16.385	-18.1	81.9
13C2-8:2FTS	20.000	15.334	-23.3	76.7
13C2-PFDoDA	20.000	14.532	-27.3	72.7
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	14.472	-27.6	72.4
13C3-PFBS	20.000	16.780	-16.1	83.9
13C3-PFHxS	20.000	16.379	-18.1	81.9
13C4-PFBA	20.000	17.401	-13.0	87.0
13C4-PFHpA	20.000	17.313	-13.4	86.6
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	17.388	-13.1	86.9
13C5-PFPeA	20.000	17.509	-12.5	87.5
13C6-PFDA	20.000	16.802	-16.0	84.0
13C7-PFUnDA	20.000	14.510	-27.4	72.6
13C8-FOSA	20.000	18.922	-5.4	94.6
13C8-PFOA	20.000	16.114	-19.4	80.6
13C8-PFOS	20.000	16.111	-19.4	80.6
13C9-PFNA	20.000	16.462	-17.7	82.3
4:2FTS	20.000	24.971	24.9	124.9
6:2FTS	20.000	25.178	25.9	125.9
8:2FTS	20.000	25.264	26.3	126.3
d3-MeFOSAA	20.000	15.298	-23.5	76.5
M2-PFOA	20.000	19.969	-0.2	99.8
EtFOSAA	20.000	22.310	11.5	111.5
FOSA	20.000	22.345	11.7	111.7
MeFOSAA	20.000	22.588	12.9	112.9
PFBA	20.000	20.535	2.7	102.7
PFBS	20.000	21.901	9.5	109.5
PFDA	20.000	22.036	10.2	110.2
PFDoDA	20.000	21.642	8.2	108.2
PFDS	20.000	21.547	7.7	107.7
PFHpA	20.000	21.310	6.6	106.6
PFHpS	20.000	21.758	8.8	108.8
PFHxA	20.000	21.589	7.9	107.9
PFHxS	20.000	21.722	8.6	108.6
PFNA	20.000	21.264	6.3	106.3

Continuing Calibration Summary

Job Number: FA57914 **Sample:** S2Q352-CC350
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22423.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	26.138	# 30.7	130.7
PFOA	20.000	21.544	7.7	107.7
PFOS	20.000	21.261	6.3	106.3
PFPeA	20.000	21.943	9.7	109.7
PFPeS	20.000	23.418	17.1	117.1
PFTeDA	20.000	21.050	5.2	105.2
PFTrDA	20.000	20.799	4.0	104.0
PFUnDA	20.000	21.421	7.1	107.1
M4-PFOS	20.000	19.993	0.0	100.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q352-CC350
Lab FileID: 2Q22432.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1019_PFC_ID_S2Q352\s2q352.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22180.d
2:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22181.d
3:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22182.d
4:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22183.d
5:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22184.d
6:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22185.d
7:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22186.d
8:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22187.d

Data File: 2q22432
Type : QC
Level : 2

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	16.146	-19.3	80.7
13C2-6:2FTS	20.000	15.933	-20.3	79.7
13C2-8:2FTS	20.000	14.715	-26.4	73.6
13C2-PFDoDA	20.000	14.290	-28.5	71.5
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	14.021	-29.9	70.1
13C3-PFBS	20.000	16.777	-16.1	83.9
13C3-PFHxS	20.000	16.457	-17.7	82.3
13C4-PFBA	20.000	17.227	-13.9	86.1
13C4-PFHpA	20.000	17.595	-12.0	88.0
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	17.485	-12.6	87.4
13C5-PFPeA	20.000	17.438	-12.8	87.2
13C6-PFDA	20.000	17.009	-15.0	85.0
13C7-PFUnDA	20.000	14.438	-27.8	72.2
13C8-FOSA	20.000	20.707	3.5	103.5
13C8-PFOA	20.000	16.448	-17.8	82.2
13C8-PFOS	20.000	15.833	-20.8	79.2
13C9-PFNA	20.000	17.012	-14.9	85.1
4:2FTS	1.000	1.283	28.3	128.3
6:2FTS	1.000	1.318	# 31.8	131.8
8:2FTS	1.000	1.284	28.4	128.4
d3-MeFOSAA	20.000	16.539	-17.3	82.7
M2-PFOA	20.000	20.005	0.0	100.0
EtFOSAA	1.000	1.031	3.1	103.1
FOSA	1.000	1.052	5.2	105.2
MeFOSAA	1.000	1.104	10.4	110.4
PFBA	1.000	1.003	0.3	100.3
PFBS	1.000	1.069	6.9	106.9
PFDA	1.000	1.068	6.8	106.8
PFDoDA	1.000	1.082	8.2	108.2
PFDS	1.000	1.004	0.4	100.4
PFHpA	1.000	1.029	2.9	102.9
PFHpS	1.000	1.047	4.7	104.7
PFHxA	1.000	1.039	3.9	103.9
PFHxS	1.000	1.071	7.1	107.1
PFNA	1.000	1.003	0.3	100.3

Continuing Calibration Summary

Job Number: FA57914 **Sample:** S2Q352-CC350
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22432.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	1.000	1.282	28.2	128.2
PFOA	1.000	1.133	13.3	113.3
PFOS	1.000	1.090	9.0	109.0
PFPeA	1.000	1.215	21.5	121.5
PFPeS	1.000	1.101	10.1	110.1
PFTeDA	1.000	1.055	5.5	105.5
PFTrDA	1.000	1.032	3.2	103.2
PFUnDA	1.000	1.113	11.3	111.3
M4-PFOS	20.000	19.998	0.0	100.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA57914
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q352-CC350
Lab FileID: 2Q22433.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1019_PFC_ID_S2Q352\s2q352.batch.bin

Level ID:Calibration File
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4:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22183.d
5:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22184.d
6:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22185.d
7:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22186.d
8:D:\MassHunter\Data\1016_PFC_ID_S2Q350\2q22187.d

Data File: 2q22433
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	17.236	-13.8	86.2
13C2-6:2FTS	20.000	17.047	-14.8	85.2
13C2-8:2FTS	20.000	16.047	-19.8	80.2
13C2-PFDoDA	20.000	14.691	-26.5	73.5
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	14.596	-27.0	73.0
13C3-PFBS	20.000	16.808	-16.0	84.0
13C3-PFHxS	20.000	16.469	-17.7	82.3
13C4-PFBA	20.000	17.340	-13.3	86.7
13C4-PFHpA	20.000	17.403	-13.0	87.0
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	17.373	-13.1	86.9
13C5-PFPeA	20.000	17.579	-12.1	87.9
13C6-PFDA	20.000	16.981	-15.1	84.9
13C7-PFUnDA	20.000	14.694	-26.5	73.5
13C8-FOSA	20.000	19.961	-0.2	99.8
13C8-PFOA	20.000	16.475	-17.6	82.4
13C8-PFOS	20.000	15.826	-20.9	79.1
13C9-PFNA	20.000	16.585	-17.1	82.9
4:2FTS	20.000	25.121	25.6	125.6
6:2FTS	20.000	25.063	25.3	125.3
8:2FTS	20.000	25.225	26.1	126.1
d3-MeFOSAA	20.000	16.268	-18.7	81.3
M2-PFOA	20.000	20.001	0.0	100.0
EtFOSAA	20.000	22.120	10.6	110.6
FOSA	20.000	21.954	9.8	109.8
MeFOSAA	20.000	22.398	12.0	112.0
PFBA	20.000	20.489	2.4	102.4
PFBS	20.000	21.943	9.7	109.7
PFDA	20.000	21.559	7.8	107.8
PFDoDA	20.000	21.702	8.5	108.5
PFDS	20.000	21.426	7.1	107.1
PFHpA	20.000	21.583	7.9	107.9
PFHpS	20.000	21.539	7.7	107.7
PFHxA	20.000	21.261	6.3	106.3
PFHxS	20.000	21.844	9.2	109.2
PFNA	20.000	21.437	7.2	107.2

Continuing Calibration Summary

Job Number: FA57914 **Sample:** S2Q352-CC350
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q22433.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	26.319	# 31.6	131.6
PFOA	20.000	21.100	5.5	105.5
PFOS	20.000	21.836	9.2	109.2
PFPeA	20.000	21.946	9.7	109.7
PFPeS	20.000	23.537	17.7	117.7
PFTeDA	20.000	20.973	4.9	104.9
PFTrDA	20.000	21.077	5.4	105.4
PFUnDA	20.000	21.867	9.3	109.3
M4-PFOS	20.000	20.019	0.1	100.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		

CC Criteria: +/- 30%

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File	:	2q22415.d
Operator	:	NATASHAG
Acq. Method	:	dMRM_ID_PFC.m
Acq. Date-Time	:	10/19/2018 9:07:22 PM
Sample Name	:	fa57914-1
Vial	:	Vial 30
DA Method File	:	PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name	:	s2q352.batch.bin
Sample Information	:	op72234,S2Q352,130,,,1.0,1,water

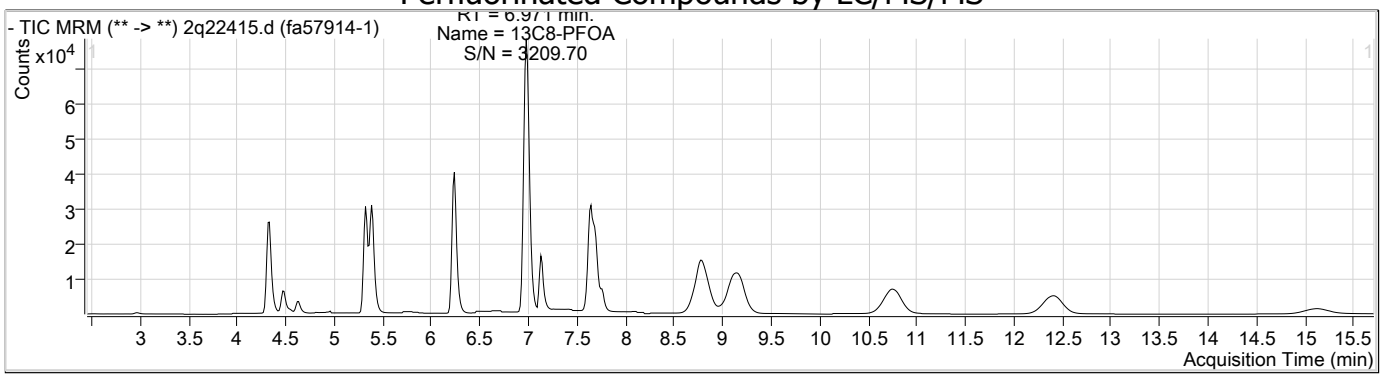
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	112545	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	46623	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1285	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	90740	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	93851	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	108450	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	83192	20.00	µg/L	0.013
M9-PFNA	7.690	472.0 -> 427.0	77471	20.00	µg/L	0.013
M6-PFDA	8.779	519.0 -> 474.0	151121	20.00	µg/L	0.000
M7-PFUnDA	10.754	570.0 -> 525.0	92132	20.00	µg/L	-0.025
M2-PFDoDA	12.403	615.0 -> 570.0	74883	20.00	µg/L	-0.050
M2-PFTeDA	15.131	715.0 -> 670.0	27695	20.00	µg/L	0.012
M8-FOSA	7.129	506.0 -> 78.0	46694	20.00	µg/L	0.000
M3-PFBS	4.468	302.0 -> 99.0	21460	20.00	µg/L	0.013
M3-PFHxS	6.235	402.0 -> 99.0	28318	20.00	µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	26810	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	100199	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	129999	20.00	µg/L	0.013
M2-8:2FTS	9.147	529.0 -> 509.0	138447	20.00	µg/L	0.050
M3-MeFOSAA	7.645	573.0 -> 419.0	31217	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	100173	15.21	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.1%		
13C2-6:2FTS	6.993	429.0 -> 409.0	130079	14.73	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.7%		
13C2-8:2FTS	9.147	529.0 -> 509.0	137623	13.10	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 65.5%		
13C2-PFDoDA	12.403	615.0 -> 570.0	74444	13.46	µg/L	-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.3%		
13C2-PFTeDA	15.131	715.0 -> 670.0	25309	13.04	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 65.2%		
13C3-PFBS	4.468	302.0 -> 99.0	21447	15.34	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.7%		
13C3-PFHxS	6.235	402.0 -> 99.0	28295	15.89	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.4%		
13C4-PFBA	2.966	217.0 -> 172.0	1290	0.10	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.5%		
13C4-PFHpA	6.242	367.0 -> 322.0	108445	16.86	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.3%		
13C5-PFHxA	5.390	318.0 -> 273.0	93837	17.05	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.2%		
13C5-PFPeA	4.337	268.0 -> 223.0	90762	15.88	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.4%		
13C6-PFDA	8.779	519.0 -> 474.0	150258	16.15	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.8%		

Perfluorinated Compounds by LC/MS/MS

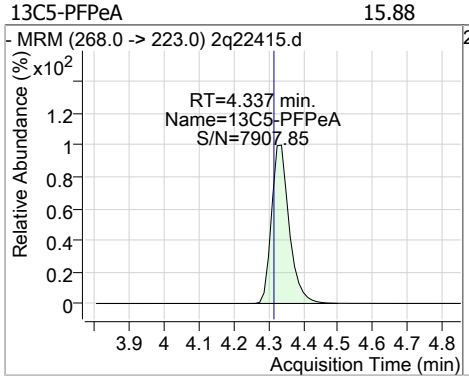
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.754	570.0 -> 525.0	91601	13.38	µg/L		-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.9%			
13C8-FOSA	7.129	506.0 -> 78.0	46696	12.03	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 60.2%			
13C8-PFOA	6.971	421.0 -> 376.0	83192	15.48	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.4%			
13C8-PFOS	7.633	507.0 -> 99.0	26815	14.78	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.9%			
13C9-PFNA	7.690	472.0 -> 427.0	77453	15.76	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.8%			
d3-MeFOSAA	7.645	573.0 -> 419.0	31218	13.42	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.1%			
M2-PFOA	6.973	415.0 -> 370.0	112474	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
M4-PFOS	7.636	503.0 -> 80.0	46581	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.447	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	8.769	513.0 -> 469.0	0	0.00	µg/L	m	1
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	419	0.19	µg/L		100
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.328	263.0 -> 219.0	1050	0.25	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

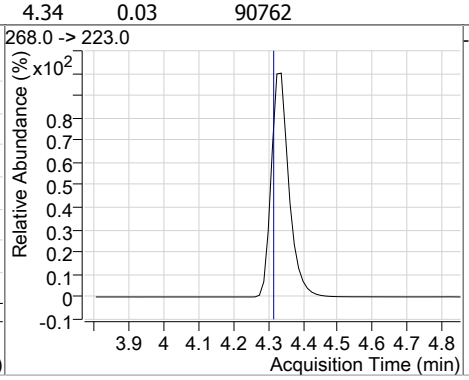
 # = Qualifier out of range, m = manually integrated, + = Area summed

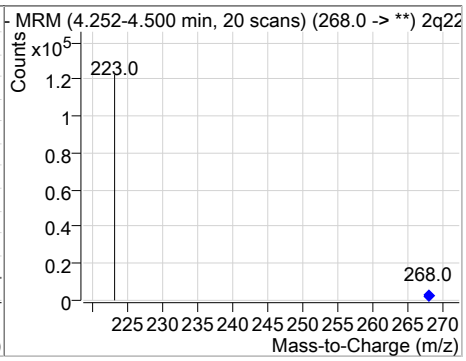
Perfluorinated Compounds by LC/MS/MS



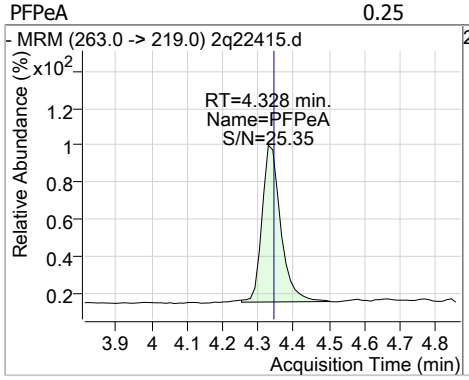
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	15.88	4.34	0.03	90762				

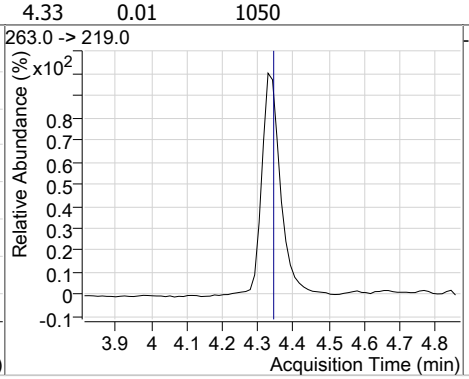


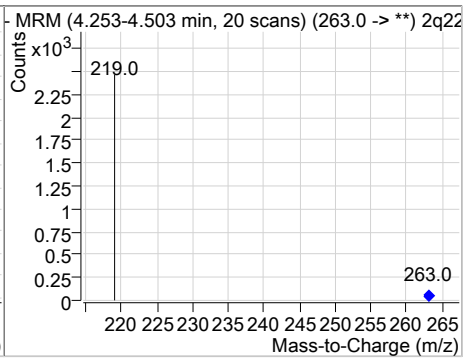




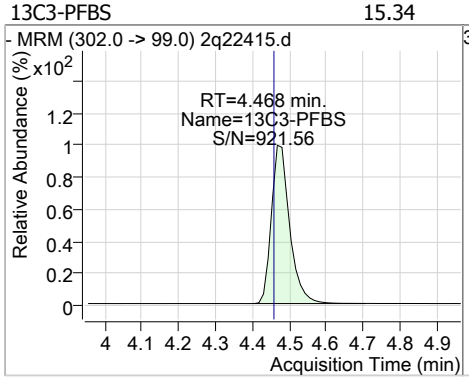
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.25	4.33	0.01	1050				

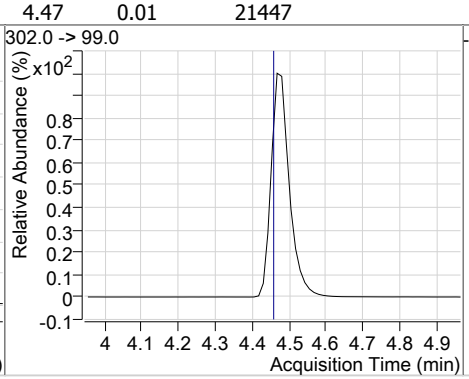


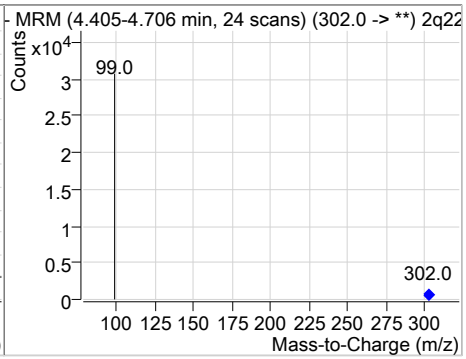




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.34	4.47	0.01	21447				

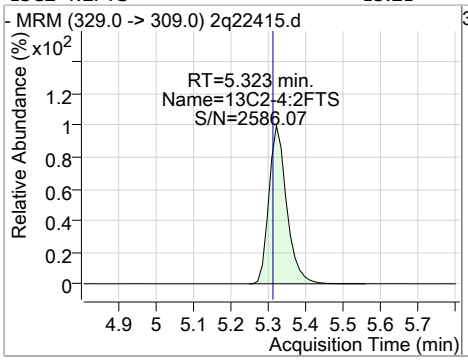


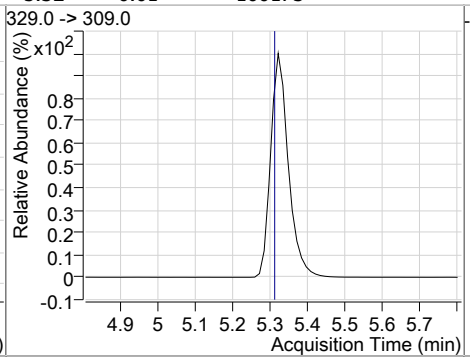


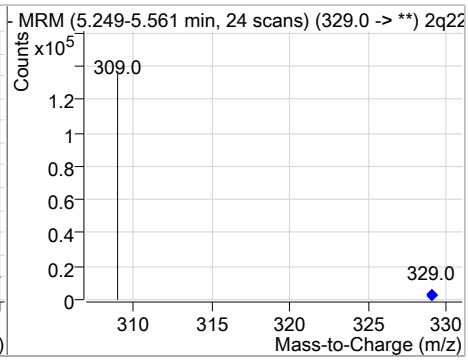


Perfluorinated Compounds by LC/MS/MS

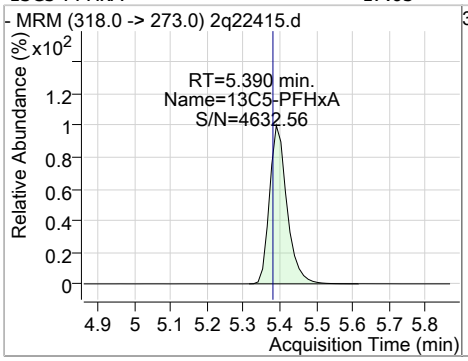
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.21	5.32	0.01	100173				

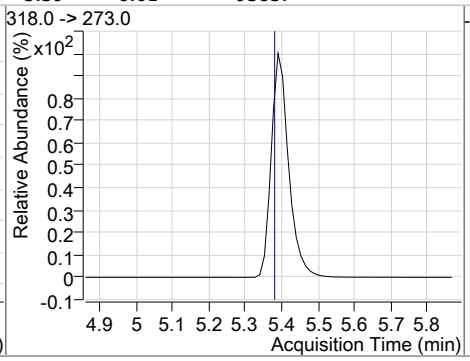


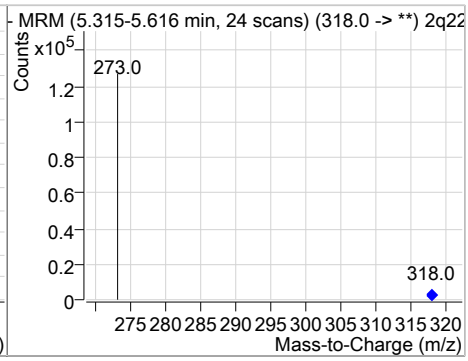




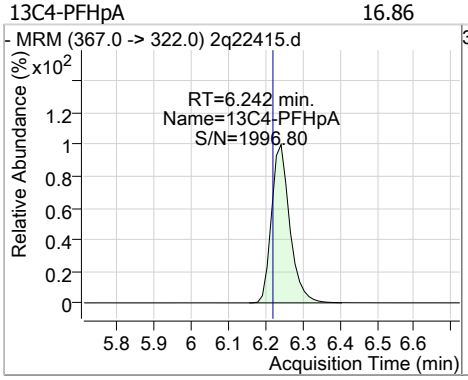
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.05	5.39	0.01	93837				

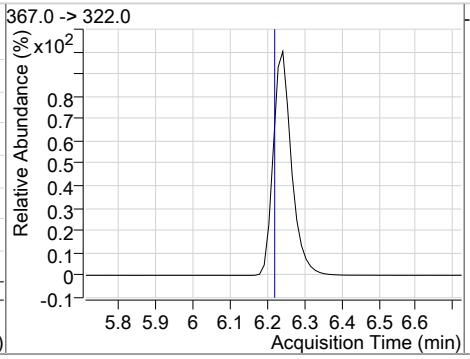


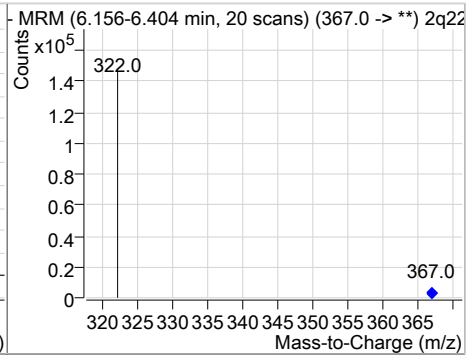




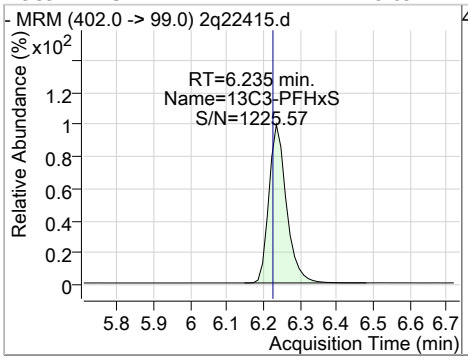
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.86	6.24	0.03	108445				

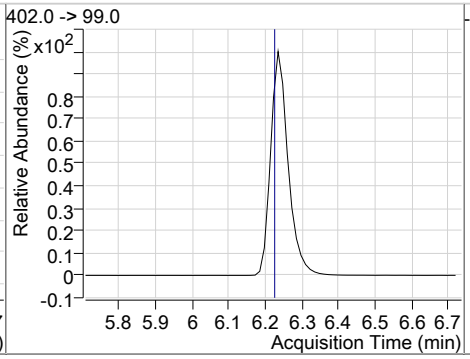


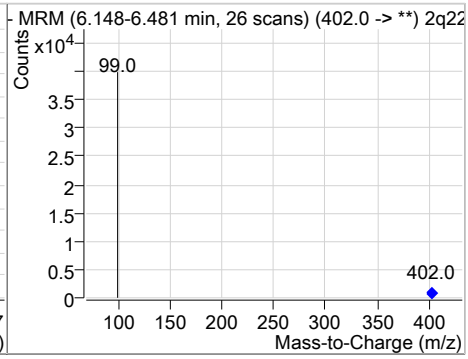




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.89	6.24	0.01	28295				

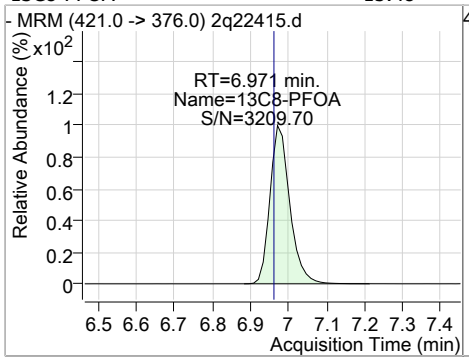


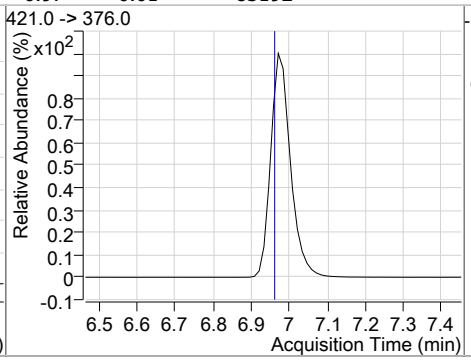


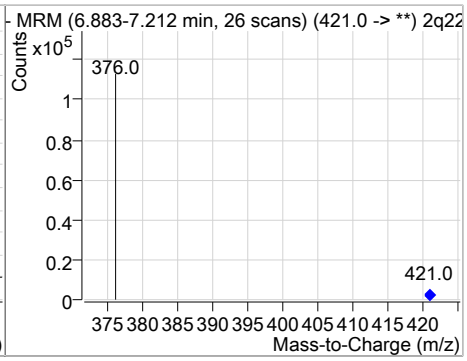


Perfluorinated Compounds by LC/MS/MS

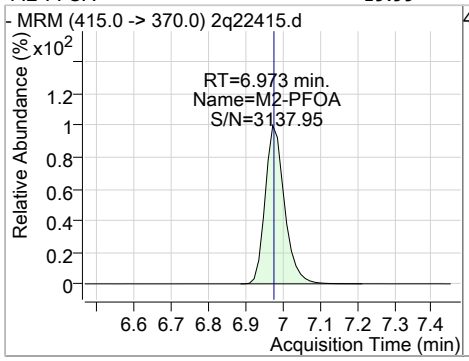
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.48	6.97	0.01	83192				

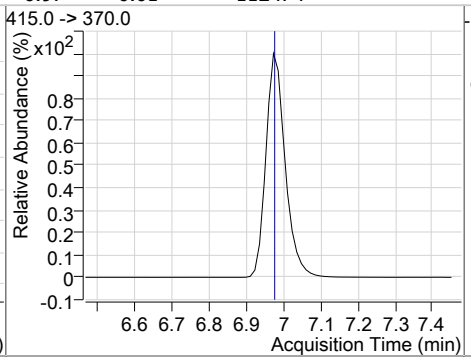


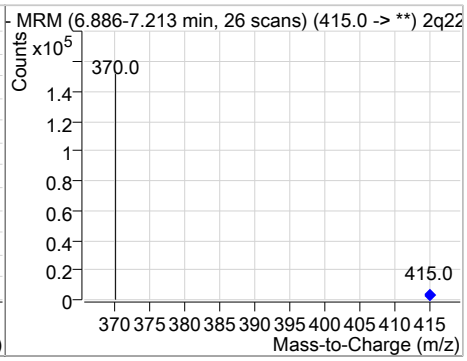




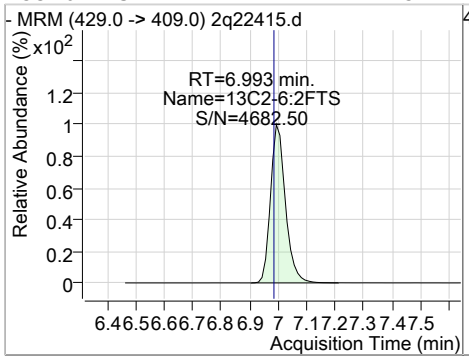
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	112474				

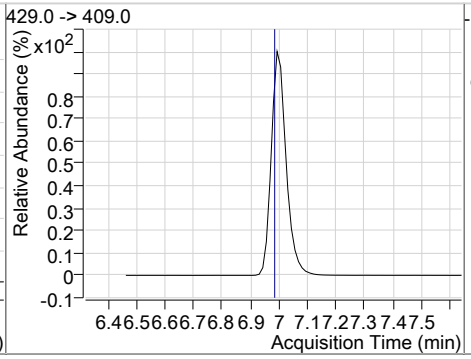


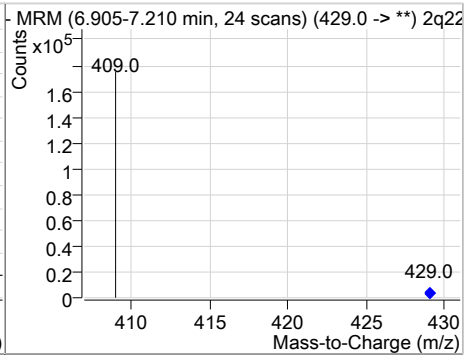




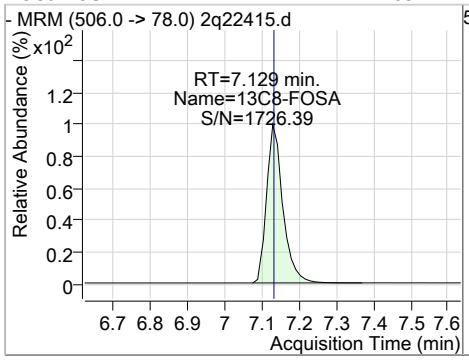
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	14.73	6.99	0.01	130079				

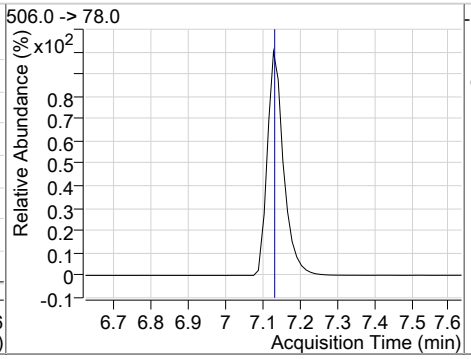


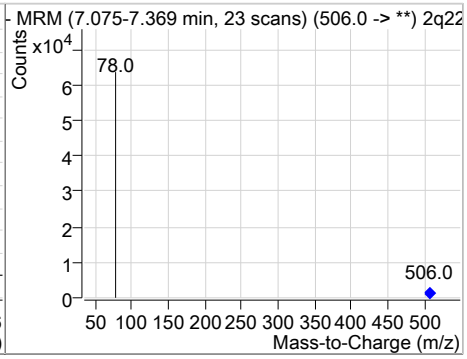




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	12.03	7.13	0.00	46696				

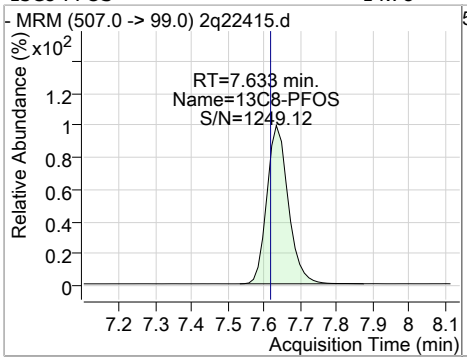


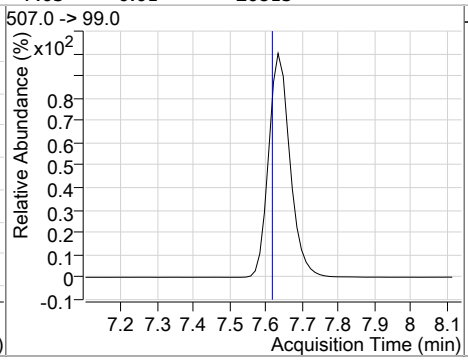


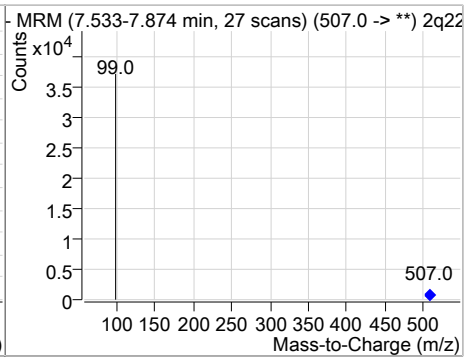


Perfluorinated Compounds by LC/MS/MS

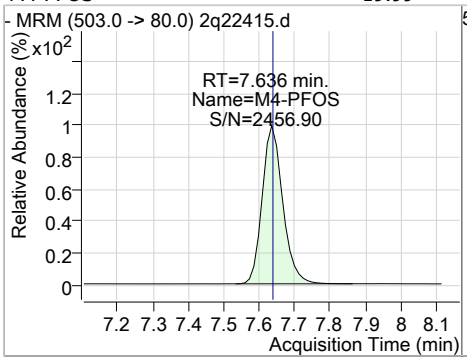
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	14.78	7.63	0.01	26815				

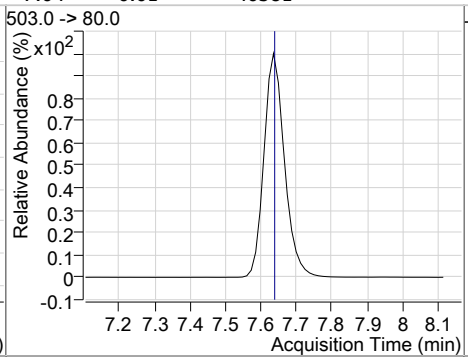


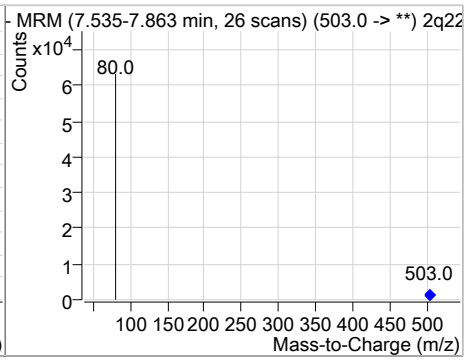




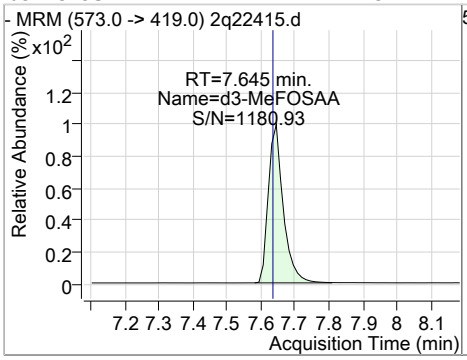
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.64	0.01	46581				

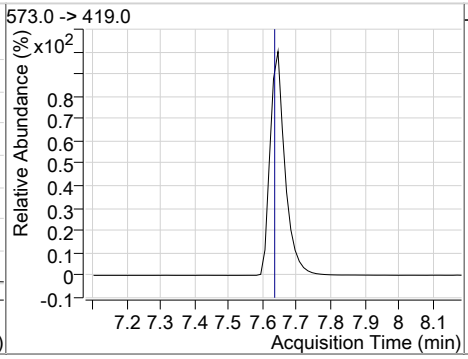


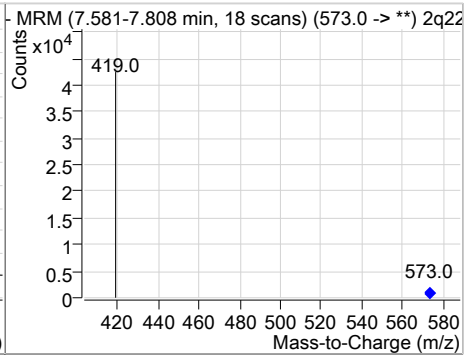




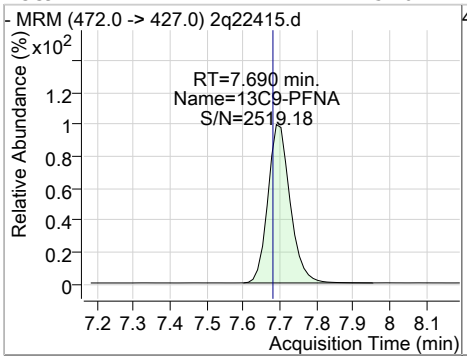
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.42	7.64	0.01	31218				

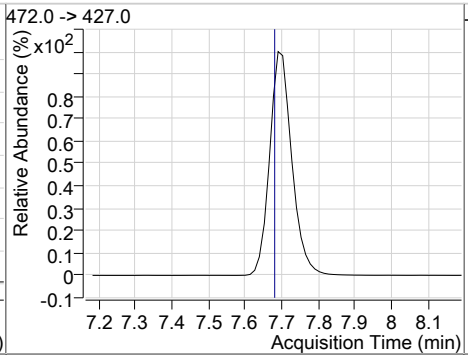


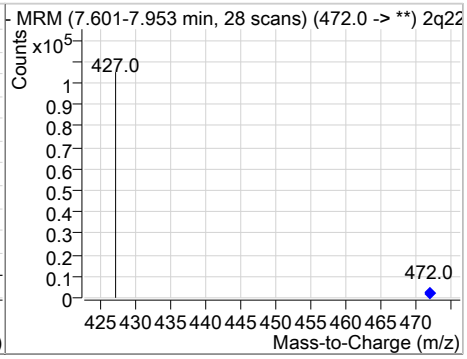




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.76	7.69	0.01	77453				

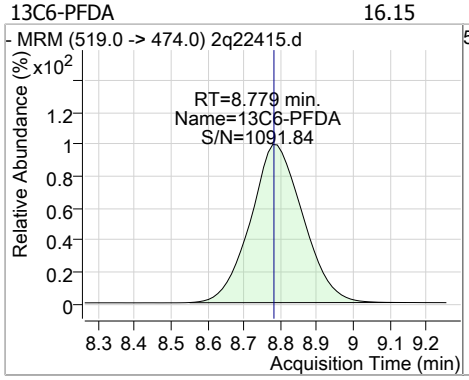


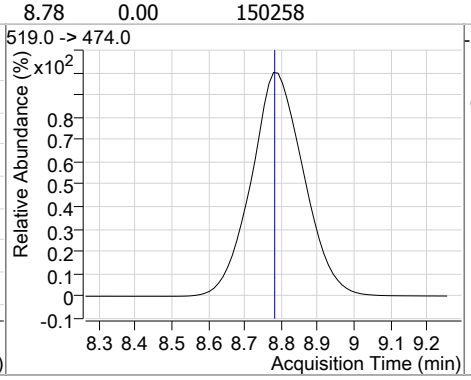


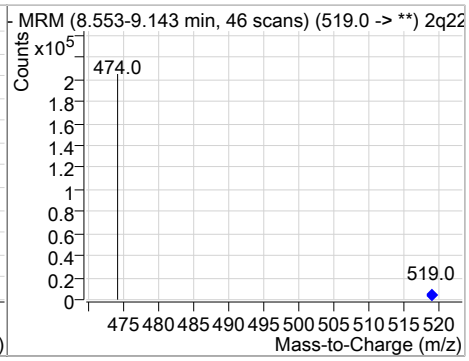


Perfluorinated Compounds by LC/MS/MS

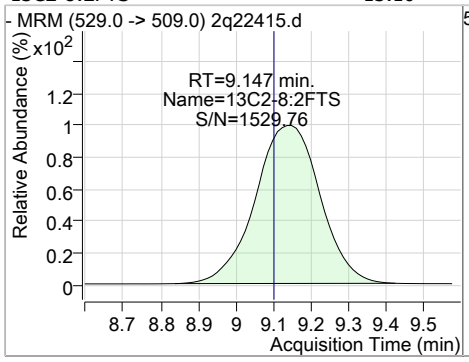
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.15	8.78	0.00	150258				

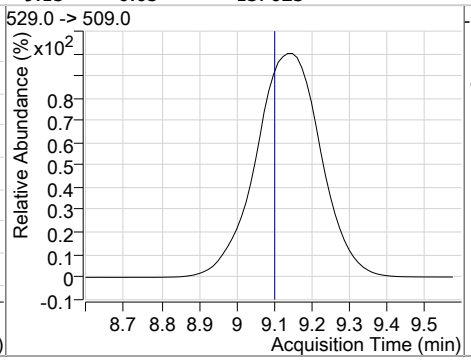


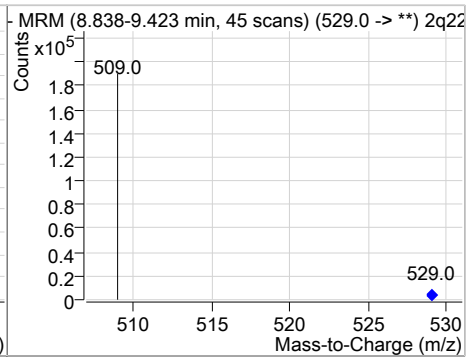




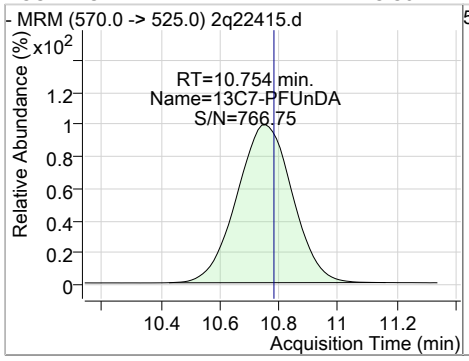
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.10	9.15	0.05	137623				

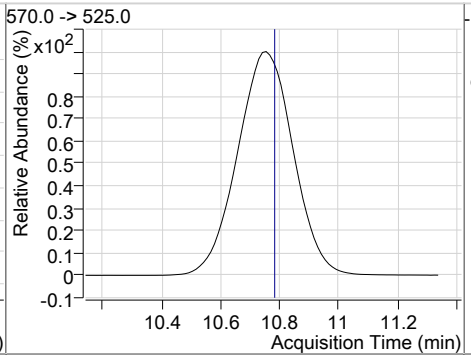


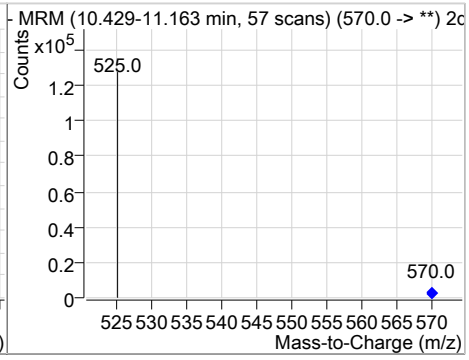




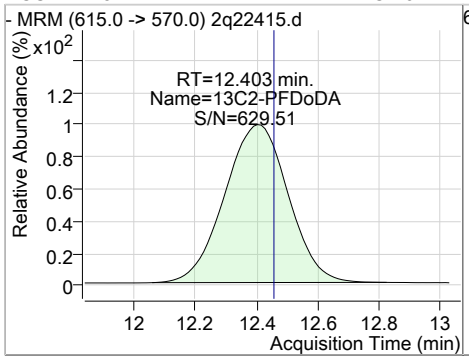
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.38	10.75	-0.03	91601				

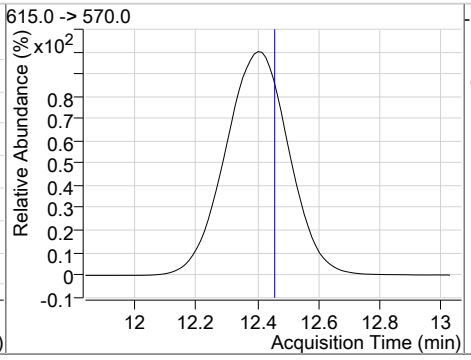


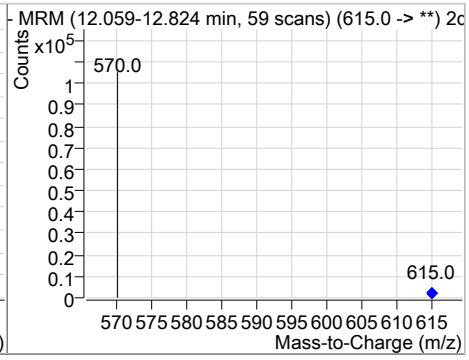




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	13.46	12.40	-0.05	74444				

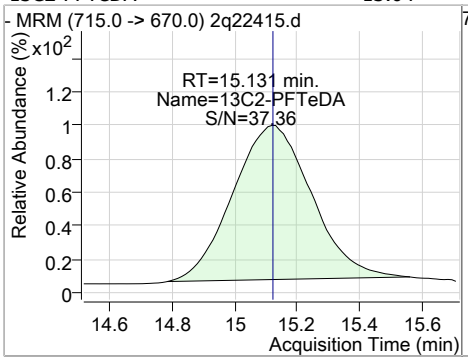


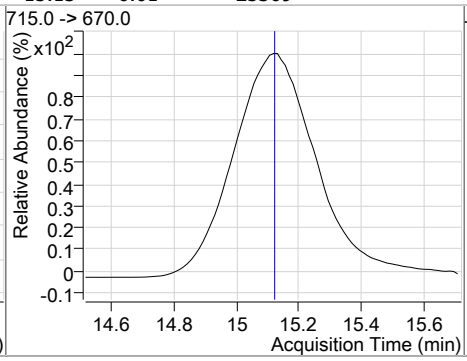


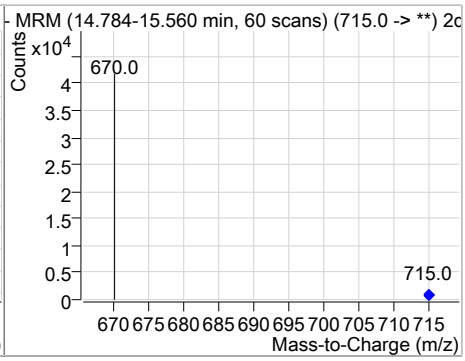


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	13.04	15.13	0.01	25309				







Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22134.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 4:01:58 PM
Sample Name : fa57914-1
Vial : Vial 13
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

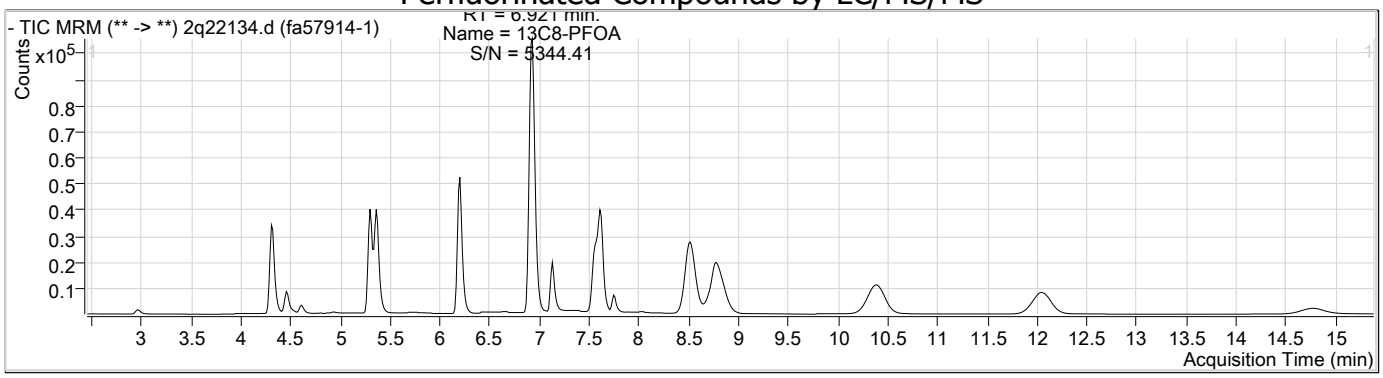
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.923	415.0 -> 370.0	139866	20.00 µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	51482	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	6017	20.00 µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	114784	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	120490	20.00 µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	141048	20.00 µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	121958	20.00 µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	104483	20.00 µg/L	0.013
M6-PFDA	8.516	519.0 -> 474.0	204657	20.00 µg/L	0.012
M7-PFUnDA	10.392	570.0 -> 525.0	137438	20.00 µg/L	-0.012
M2-PFDoDA	12.040	615.0 -> 570.0	110841	20.00 µg/L	-0.050
M2-PFTeDA	14.768	715.0 -> 670.0	38019	20.00 µg/L	-0.012
M8-FOSA	7.130	506.0 -> 78.0	54754	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	27404	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	34272	20.00 µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	34245	20.00 µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	130071	20.00 µg/L	0.012
M2-6:2FTS	6.943	429.0 -> 409.0	165913	20.00 µg/L	0.014
M2-8:2FTS	8.775	529.0 -> 509.0	185246	20.00 µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	42306	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	130099	18.52 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C2-6:2FTS	6.943	429.0 -> 409.0	165917	18.88 µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C2-8:2FTS	8.775	529.0 -> 509.0	184681	17.74 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
13C2-PFDoDA	12.040	615.0 -> 570.0	110412	17.59 µg/L	-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.0%	
13C2-PFTeDA	14.768	715.0 -> 670.0	35451	15.87 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.4%	
13C3-PFBS	4.455	302.0 -> 99.0	27400	19.24 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C3-PFHxS	6.198	402.0 -> 99.0	34274	19.78 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C4-PFBA	2.966	217.0 -> 172.0	6029	0.42 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 2.1%	
13C4-PFHpA	6.204	367.0 -> 322.0	141043	20.11 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C5-PFHxA	5.364	318.0 -> 273.0	120491	19.85 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.312	268.0 -> 223.0	114756	18.27 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.4%	
13C6-PFDA	8.516	519.0 -> 474.0	204662	20.30 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%	

Perfluorinated Compounds by LC/MS/MS

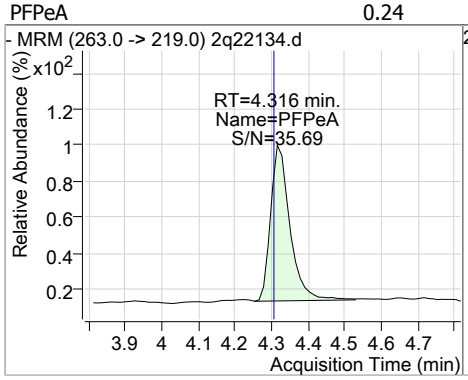
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.392	570.0 -> 525.0	136896	17.90	µg/L		-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.5%			
13C8-FOSA	7.130	506.0 -> 78.0	54786	14.89	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.4%			
13C8-PFOA	6.921	421.0 -> 376.0	122002	20.78	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%			
13C8-PFOS	7.559	507.0 -> 99.0	34272	19.59	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%			
13C9-PFNA	7.614	472.0 -> 427.0	104467	19.91	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%			
d3-MeFOSAA	7.620	573.0 -> 419.0	42321	18.92	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%			
M2-PFOA	6.923	415.0 -> 370.0	139876	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	51401	19.97	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	6.945	427.0 -> 407.0	1202	0.30	µg/L		84
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.434	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	8.532	513.0 -> 469.0	0	0.00	µg/L	m	1
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.924	413.0 -> 369.0	567	0.19	µg/L	m	94
PFOS	7.371	499.0 -> 80.0	186	0.13	µg/L	m	99
PFPeA	4.316	263.0 -> 219.0	1264	0.24	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

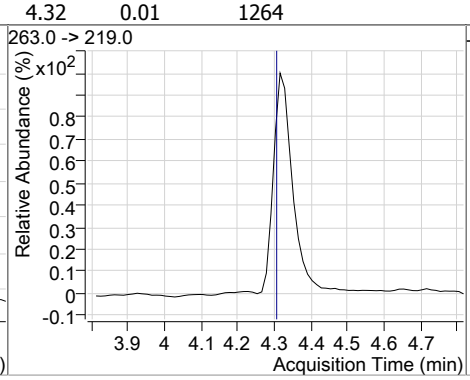
 # = Qualifier out of range, m = manually integrated, + = Area summed

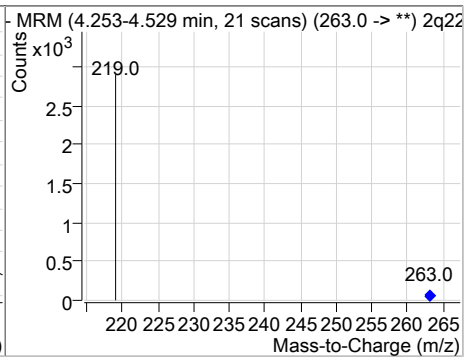
Perfluorinated Compounds by LC/MS/MS



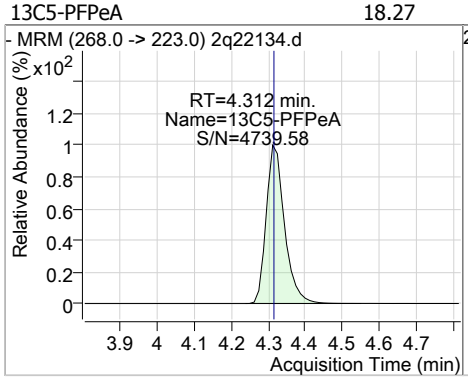
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.24	4.32	0.01	1264				

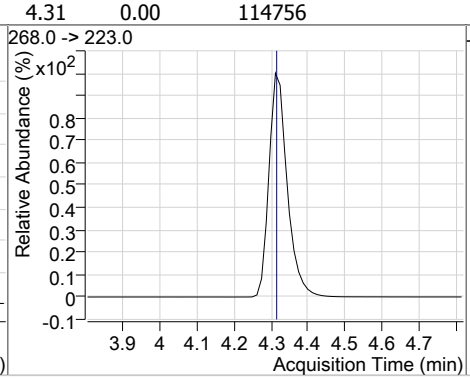


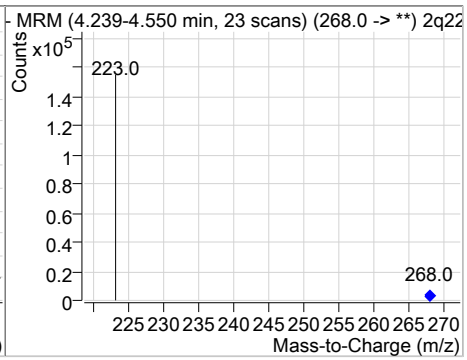




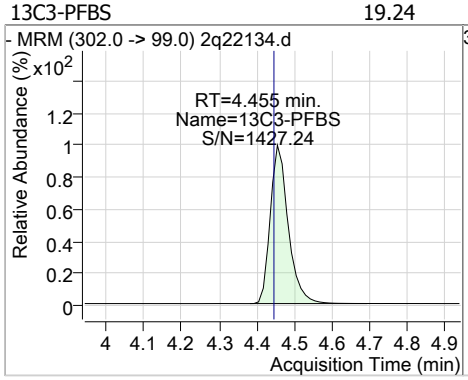
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.27	4.31	0.00	114756				

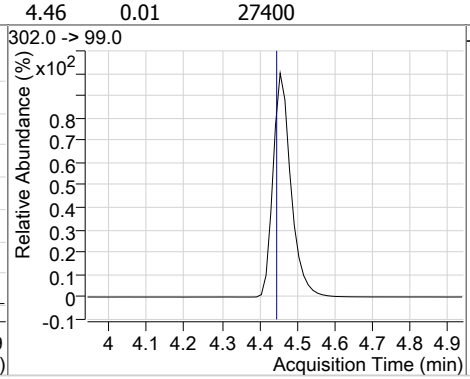


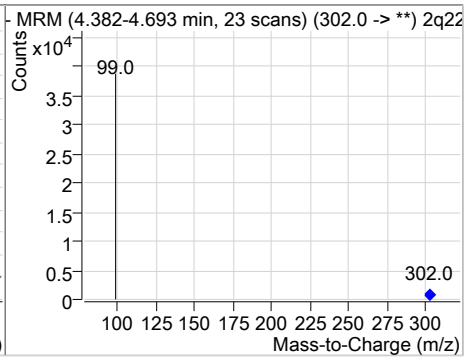




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.24	4.46	0.01	27400				

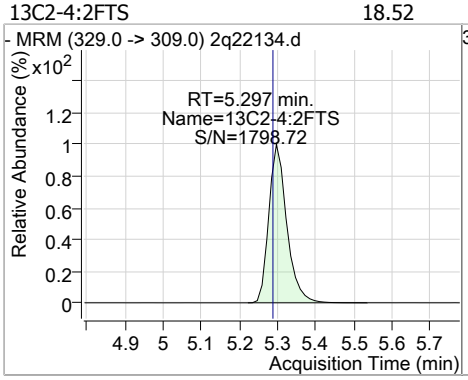


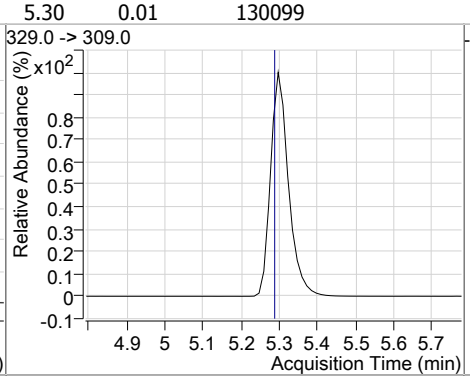


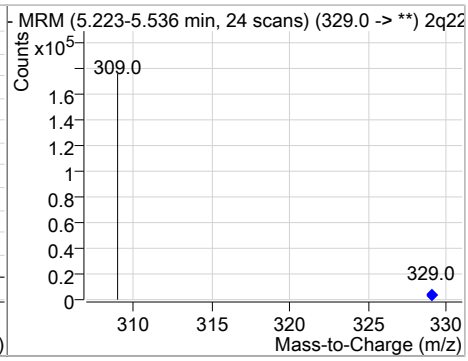


Perfluorinated Compounds by LC/MS/MS

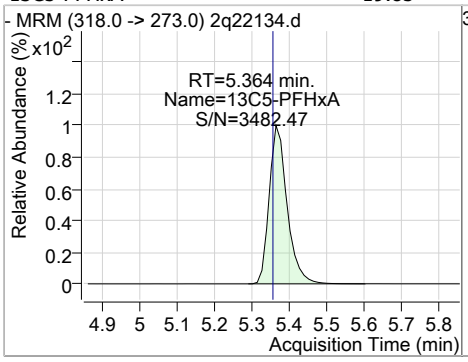
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.52	5.30	0.01	130099				

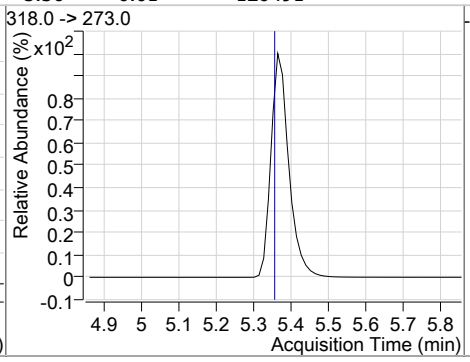


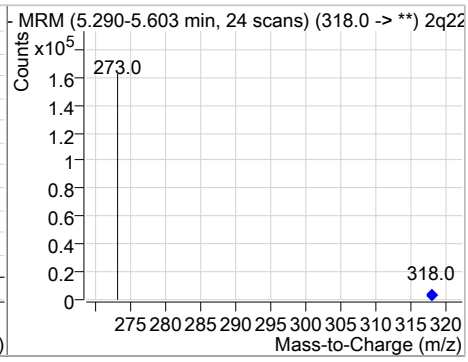




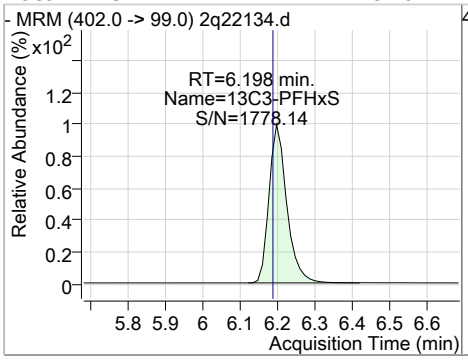
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.85	5.36	0.01	120491				

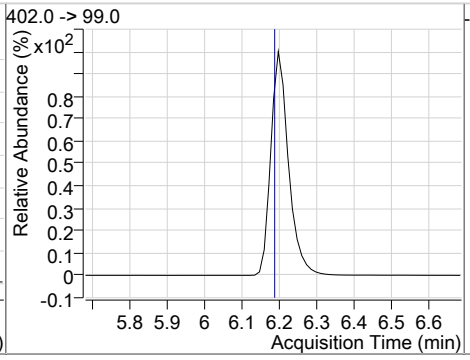


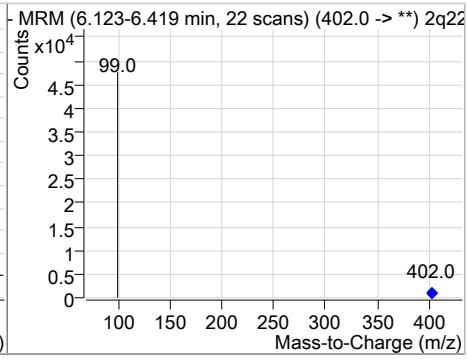




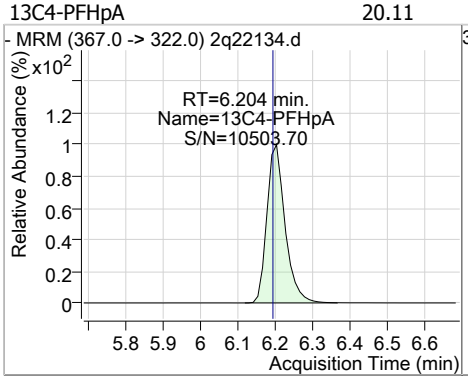
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.78	6.20	0.01	34274				

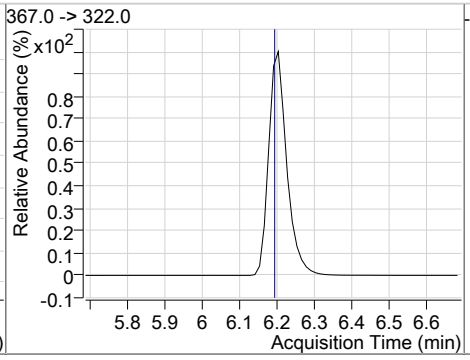


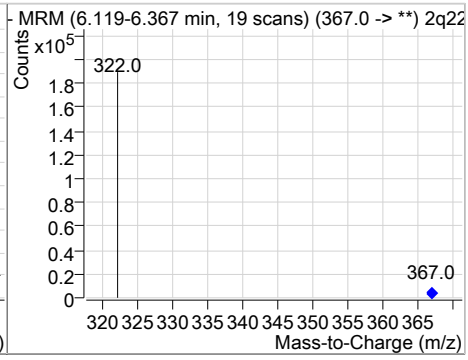




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.11	6.20	0.01	141043				

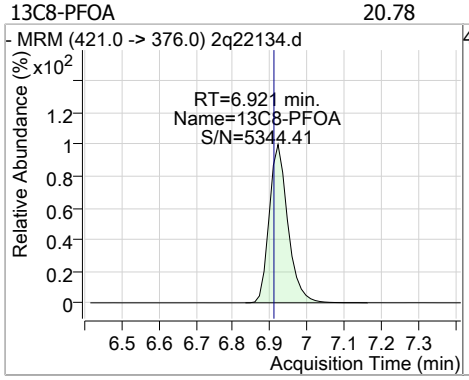


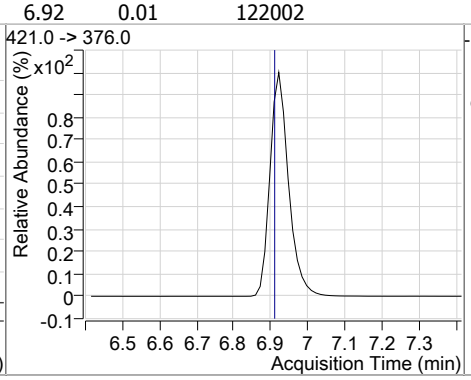


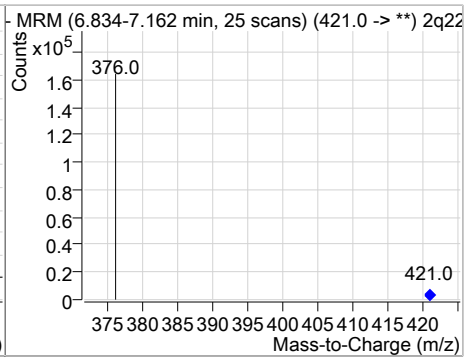


Perfluorinated Compounds by LC/MS/MS

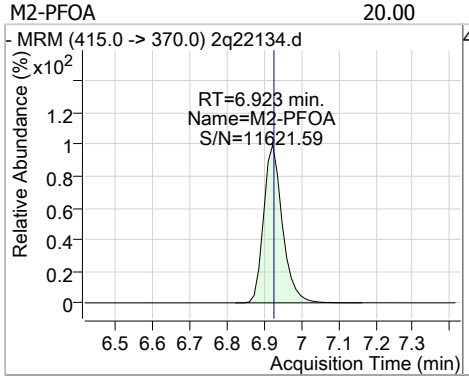
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.78	6.92	0.01	122002				

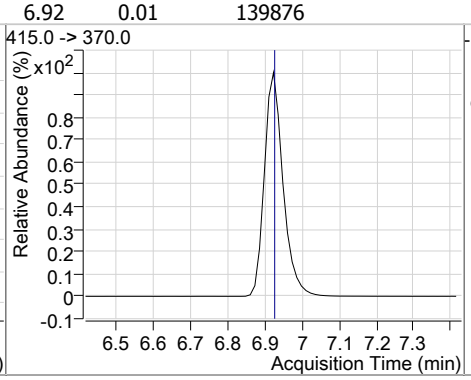


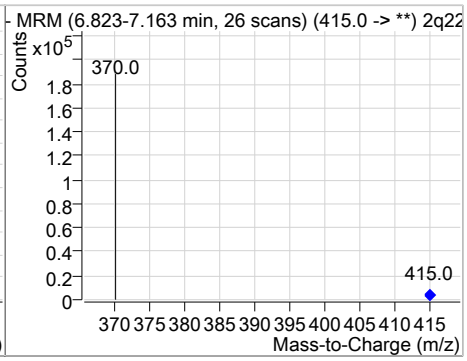




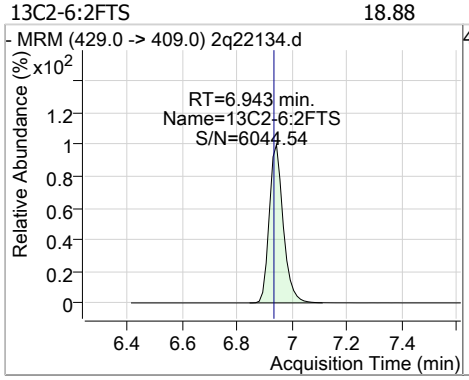
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	139876				

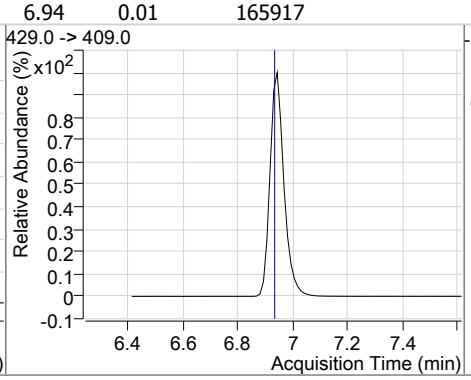


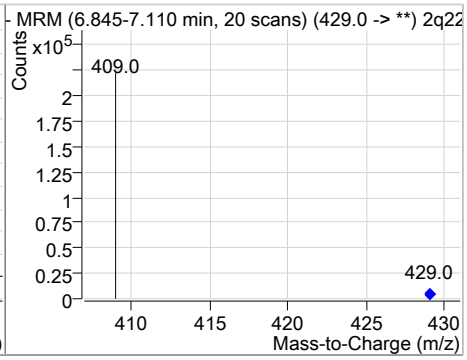




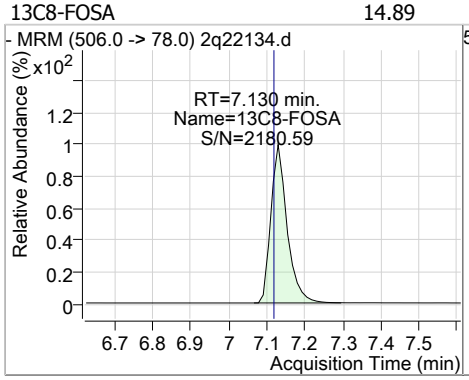
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.88	6.94	0.01	165917				

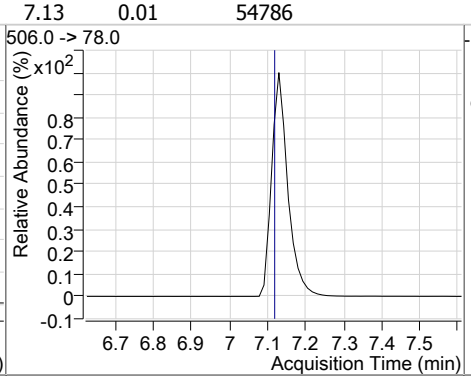


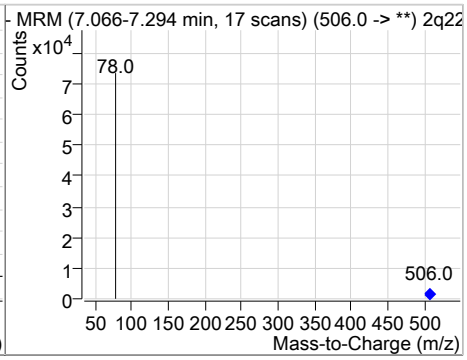




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	14.89	7.13	0.01	54786				

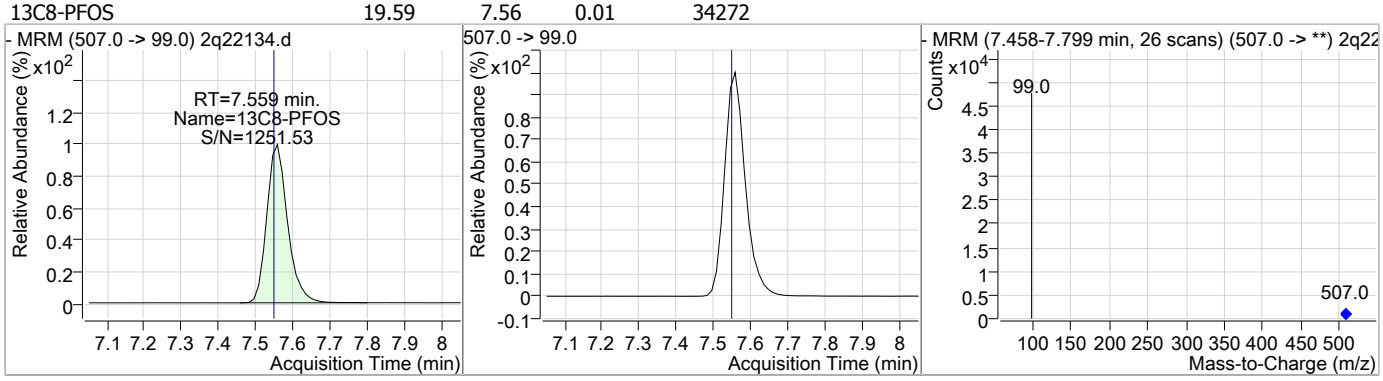




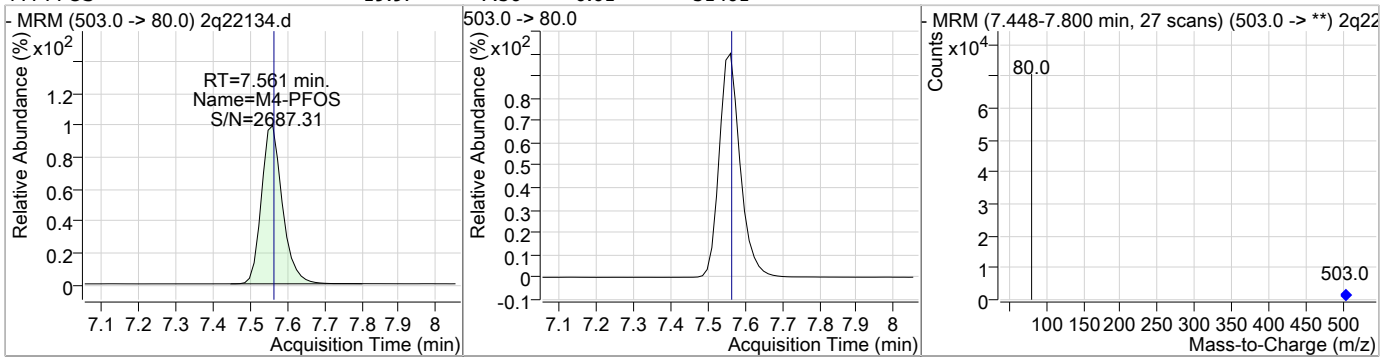


Perfluorinated Compounds by LC/MS/MS

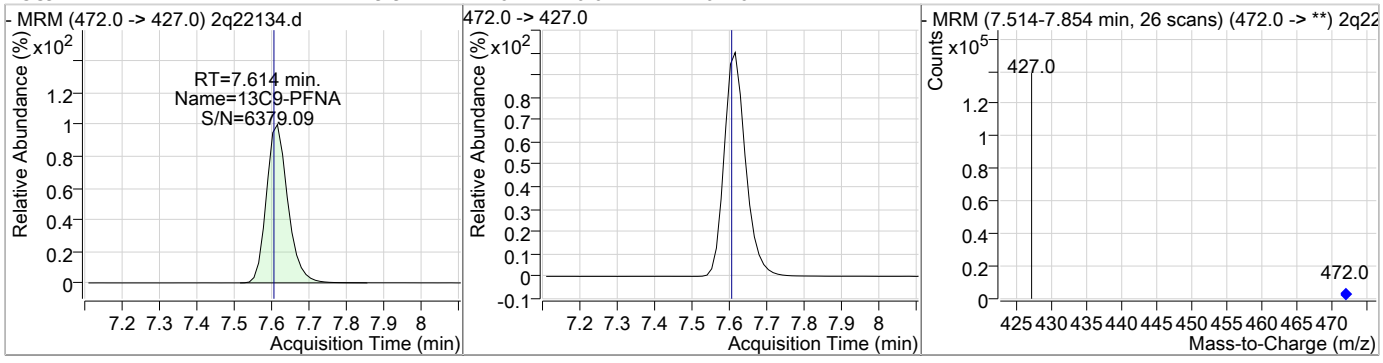
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.59	7.56	0.01	34272				



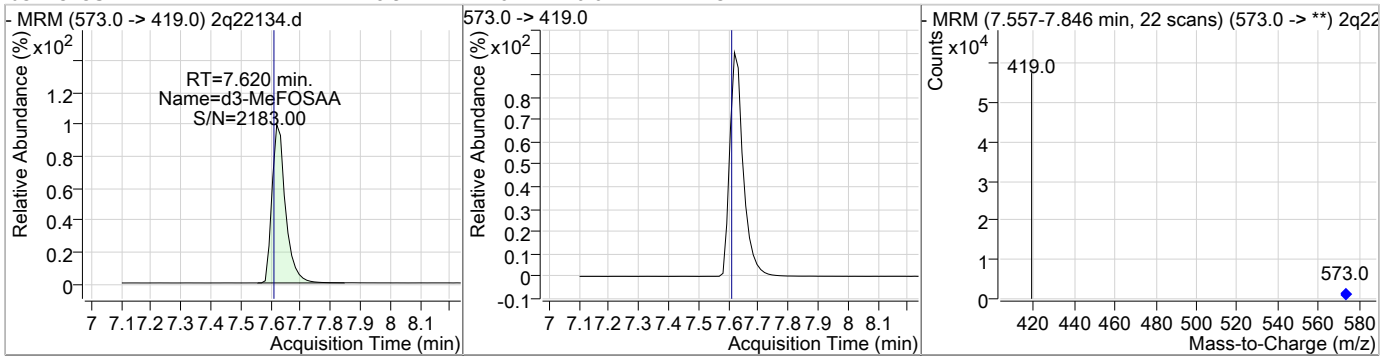
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.97	7.56	0.01	51401				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.91	7.61	0.01	104467				

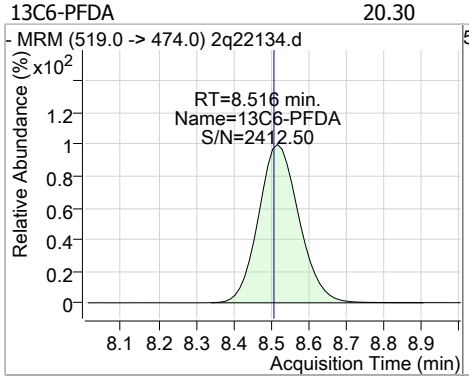


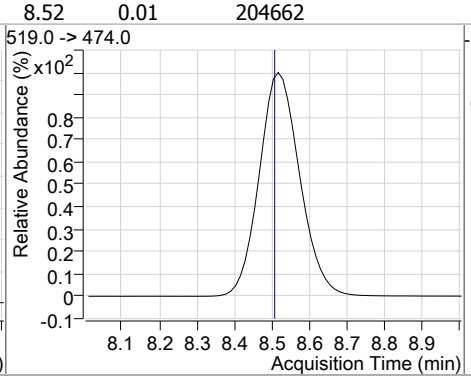
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.92	7.62	0.01	42321				

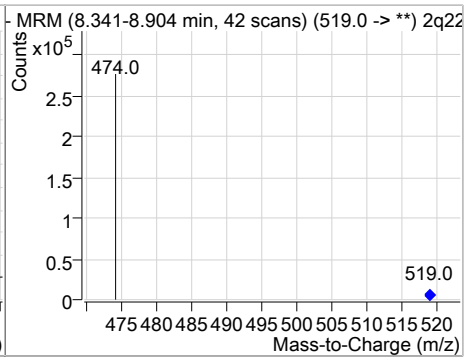


Perfluorinated Compounds by LC/MS/MS

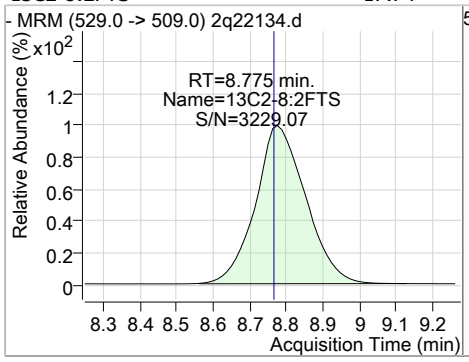
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.30	8.52	0.01	204662				

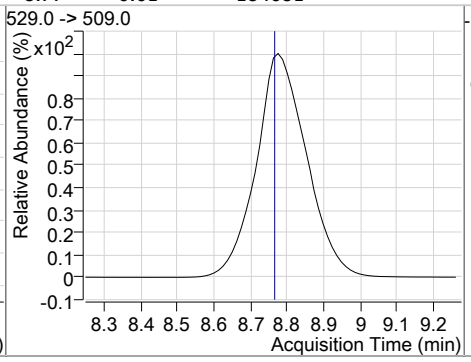


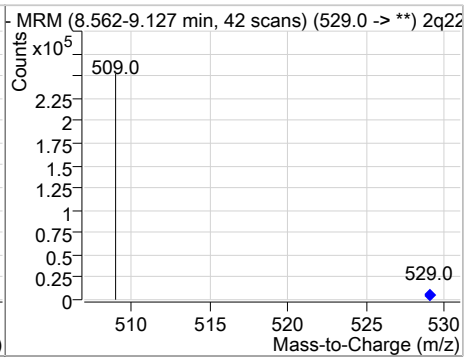




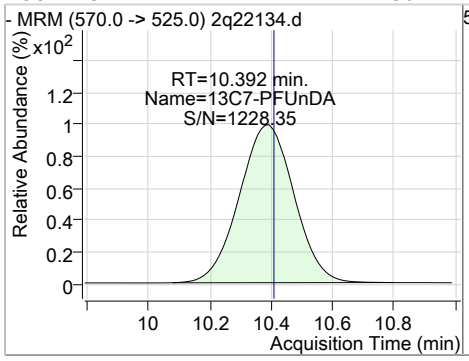
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.74	8.77	0.01	184681				

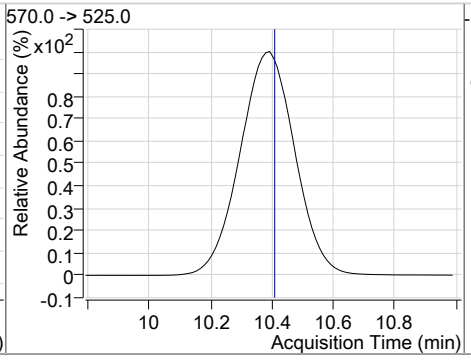


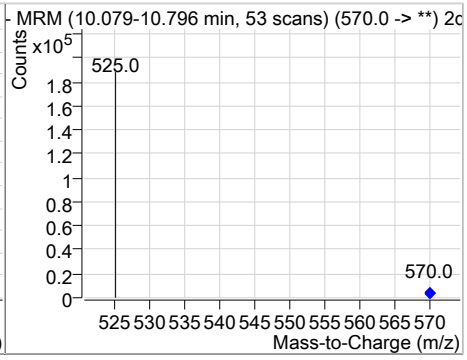




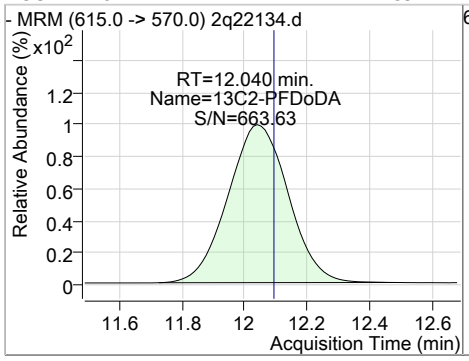
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	17.90	10.39	-0.01	136896				

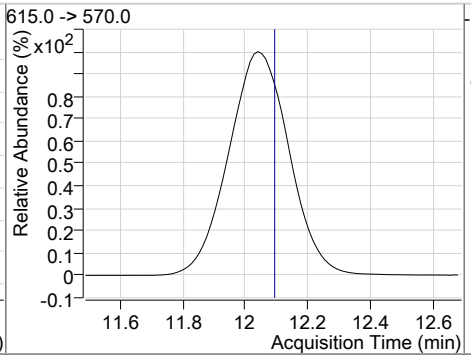


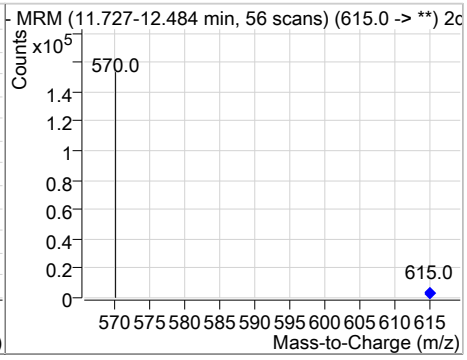




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	17.59	12.04	-0.05	110412				

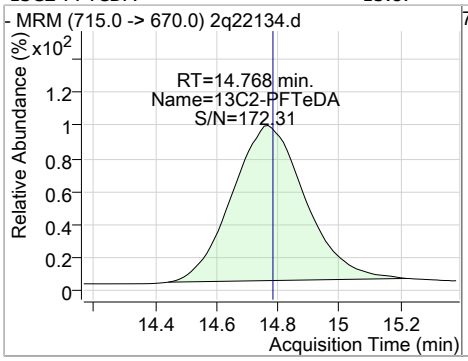


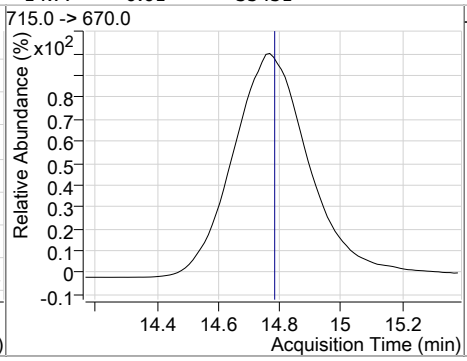


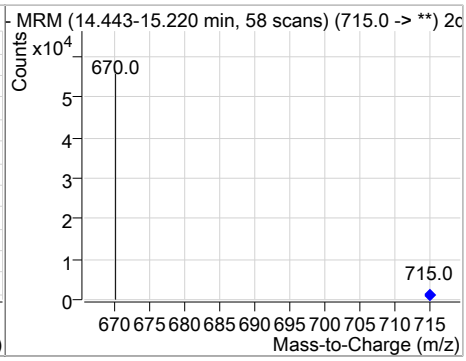


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	15.87	14.77	-0.01	35451				







7.1.2

7

Manual Integration Approval Summary

Sample Number: FA57914-1
Lab FileID: 2Q22134.D
Injection Time: 10/15/18 16:01
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.92	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.37	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22416.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 9:28:37 PM
Sample Name : fa57914-2
Vial : Vial 31
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

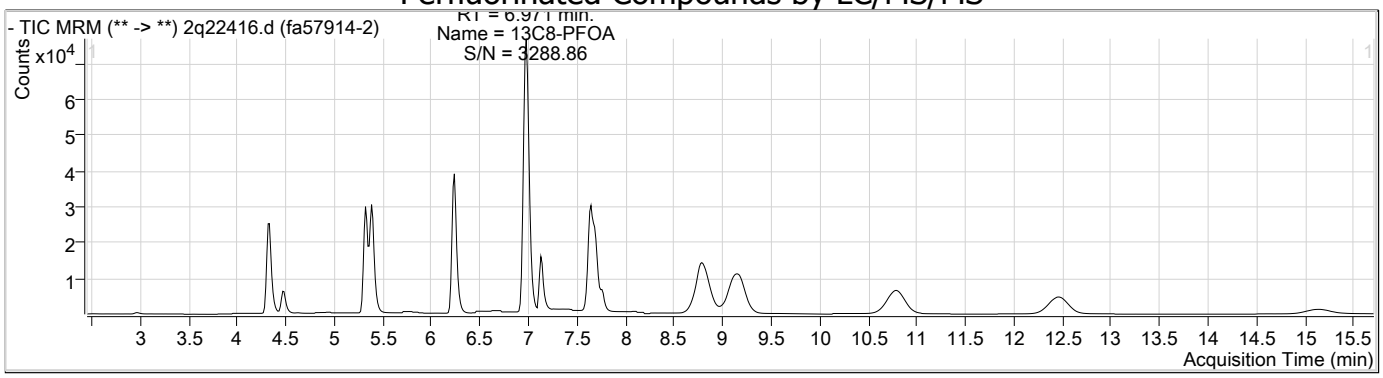
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.973	415.0 -> 370.0	110190	20.00 µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	46064	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1378	20.00 µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	87034	20.00 µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	91381	20.00 µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	103980	20.00 µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	81160	20.00 µg/L	0.013
M9-PFNA	7.690	472.0 -> 427.0	73889	20.00 µg/L	0.013
M6-PFDA	8.791	519.0 -> 474.0	140896	20.00 µg/L	0.013
M7-PFUnDA	10.792	570.0 -> 525.0	84834	20.00 µg/L	0.013
M2-PFDoDA	12.453	615.0 -> 570.0	67842	20.00 µg/L	0.000
M2-PFTeDA	15.143	715.0 -> 670.0	23522	20.00 µg/L	0.025
M8-FOSA	7.129	506.0 -> 78.0	44873	20.00 µg/L	0.000
M3-PFBS	4.468	302.0 -> 99.0	20806	20.00 µg/L	0.013
M3-PFHxS	6.235	402.0 -> 99.0	27517	20.00 µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	25208	20.00 µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	97550	20.00 µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	125369	20.00 µg/L	0.013
M2-8:2FTS	9.147	529.0 -> 509.0	130279	20.00 µg/L	0.050
M3-MeFOSAA	7.645	573.0 -> 419.0	30054	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.0 -> 309.0	97506	14.81 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.0%	
13C2-6:2FTS	6.993	429.0 -> 409.0	125375	14.20 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.0%	
13C2-8:2FTS	9.147	529.0 -> 509.0	129477	12.32 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.6%	
13C2-PFDoDA	12.453	615.0 -> 570.0	67411	12.19 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.0%	
13C2-PFTeDA	15.143	715.0 -> 670.0	21453	11.05 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 55.3%	
13C3-PFBS	4.468	302.0 -> 99.0	20818	14.89 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.4%	
13C3-PFHxS	6.235	402.0 -> 99.0	27504	15.45 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.2%	
13C4-PFBA	2.966	217.0 -> 172.0	1381	0.10 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.5%	
13C4-PFHpA	6.242	367.0 -> 322.0	103921	16.15 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.8%	
13C5-PFHxA	5.390	318.0 -> 273.0	91344	16.59 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.0%	
13C5-PFPeA	4.337	268.0 -> 223.0	87041	15.23 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.1%	
13C6-PFDA	8.791	519.0 -> 474.0	140896	15.14 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.7%	

Perfluorinated Compounds by LC/MS/MS

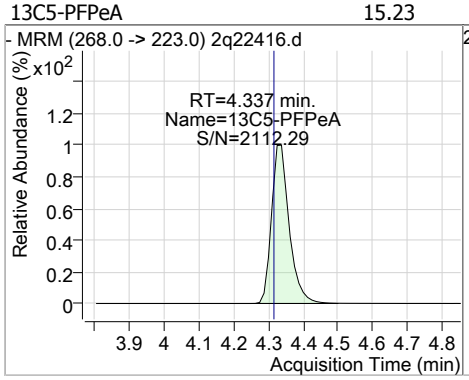
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.792	570.0 -> 525.0	84573	12.35	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.8%			
13C8-FOSA	7.129	506.0 -> 78.0	44895	11.57	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.8%			
13C8-PFOA	6.971	421.0 -> 376.0	81136	15.10	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.5%			
13C8-PFOS	7.634	507.0 -> 99.0	25219	13.90	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.5%			
13C9-PFNA	7.690	472.0 -> 427.0	73884	15.03	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.1%			
d3-MeFOSAA	7.645	573.0 -> 419.0	30082	12.93	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.7%			
M2-PFOA	6.973	415.0 -> 370.0	110127	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
M4-PFOS	7.636	503.0 -> 80.0	46060	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.472	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.393	313.0 -> 269.0	228	0.16	µg/L		97
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	211	0.10	µg/L		91
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.328	263.0 -> 219.0	1219	0.30	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

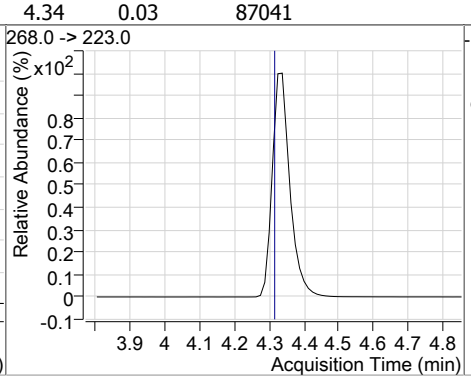
 # = Qualifier out of range, m = manually integrated, + = Area summed

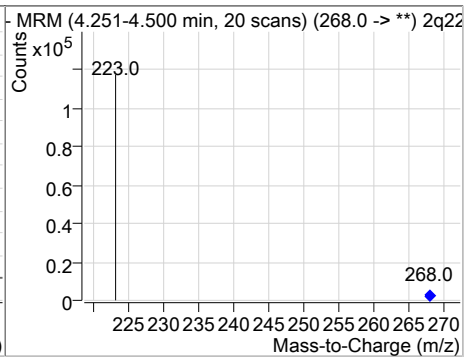
Perfluorinated Compounds by LC/MS/MS



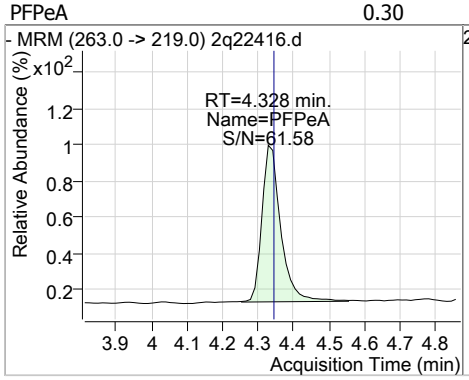
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	15.23	4.34	0.03	87041				

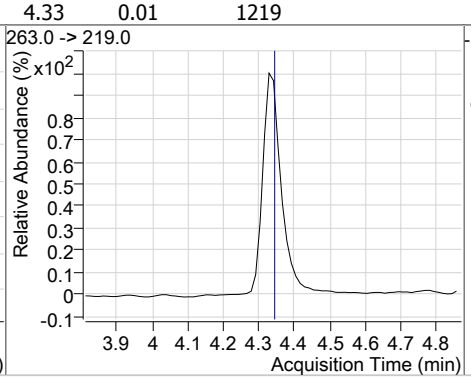


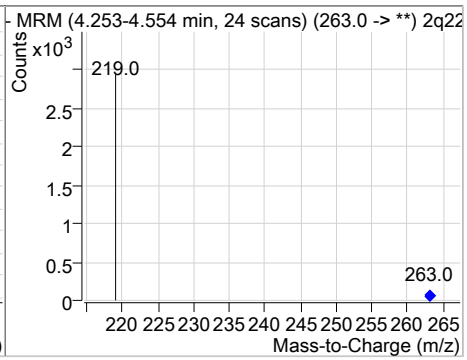




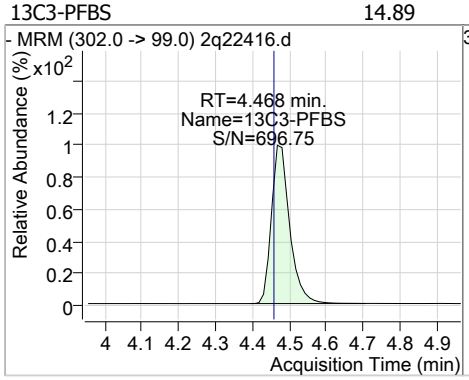
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.30	4.33	0.01	1219				

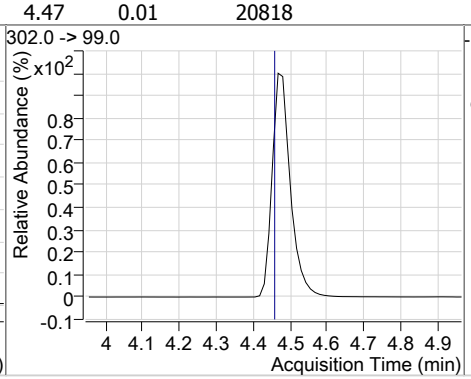


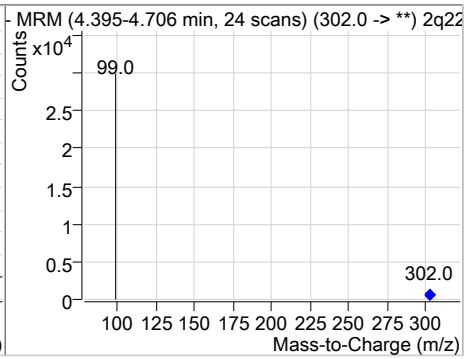




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	14.89	4.47	0.01	20818				

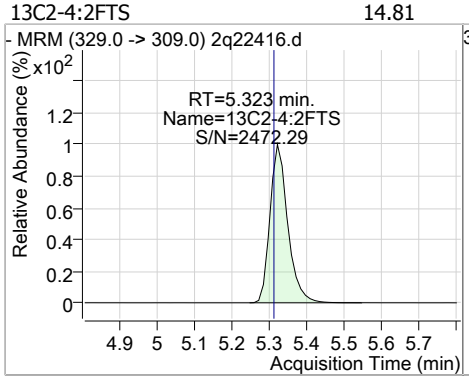


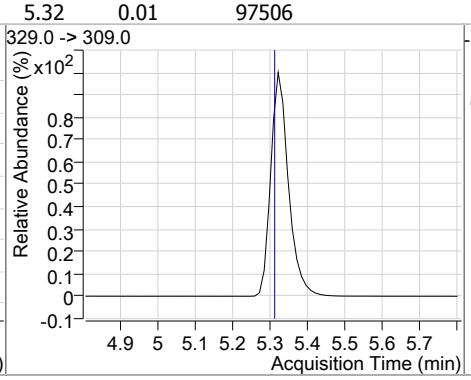


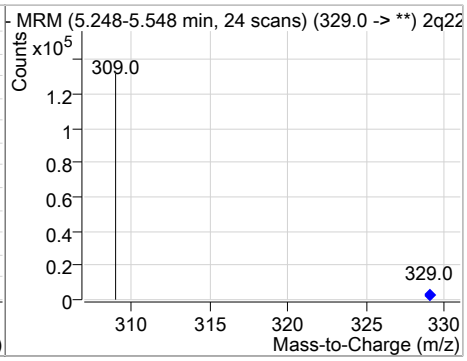


Perfluorinated Compounds by LC/MS/MS

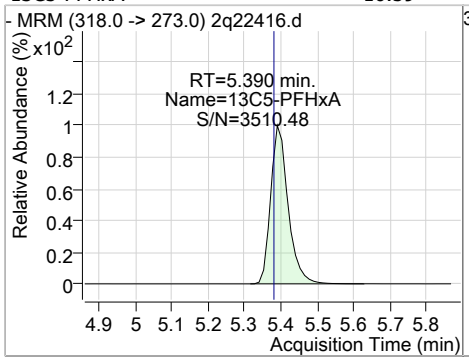
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	14.81	5.32	0.01	97506				

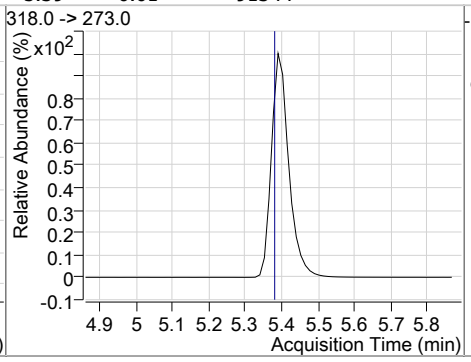


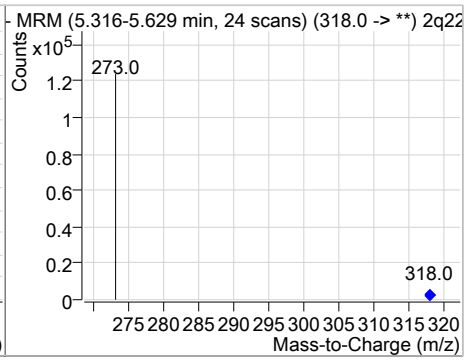




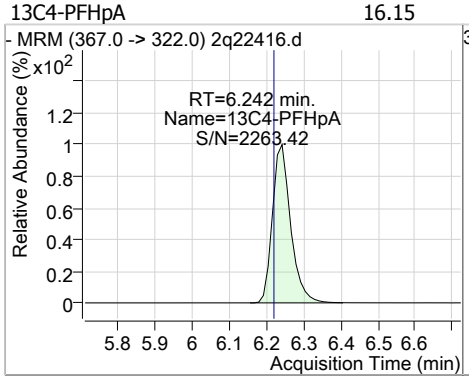
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	16.59	5.39	0.01	91344				

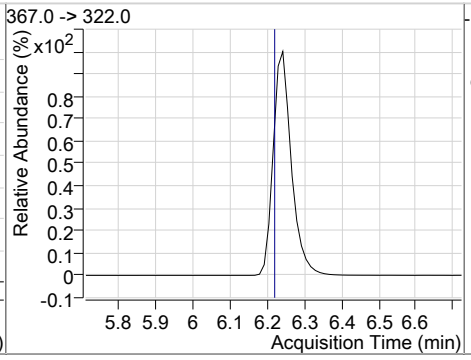


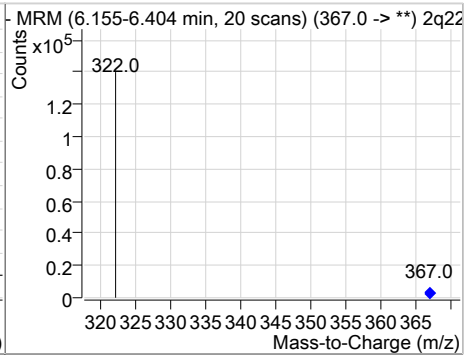




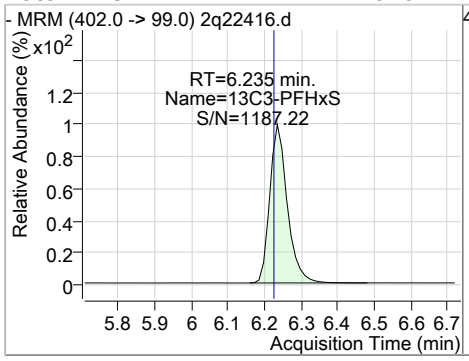
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.15	6.24	0.03	103921				

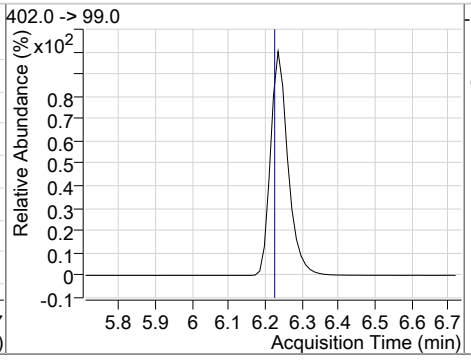


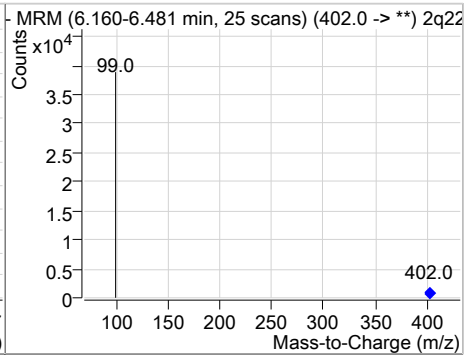




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.45	6.24	0.01	27504				

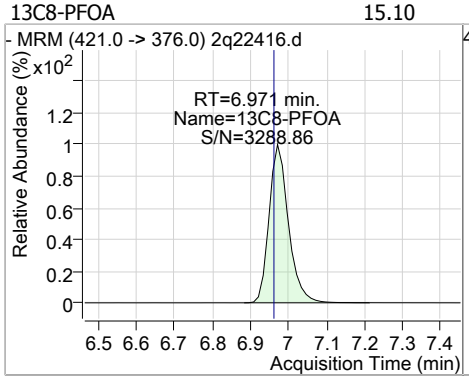


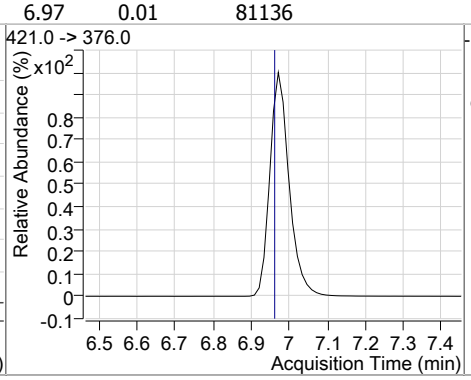


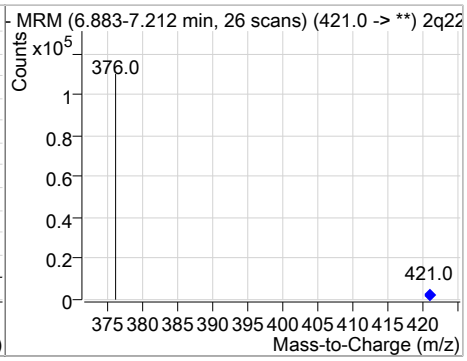


Perfluorinated Compounds by LC/MS/MS

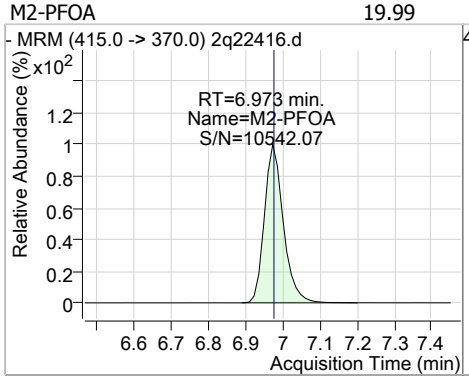
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.10	6.97	0.01	81136				

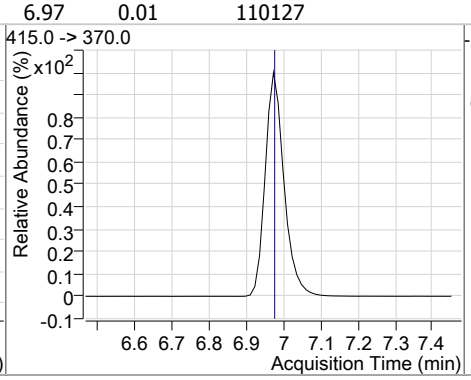


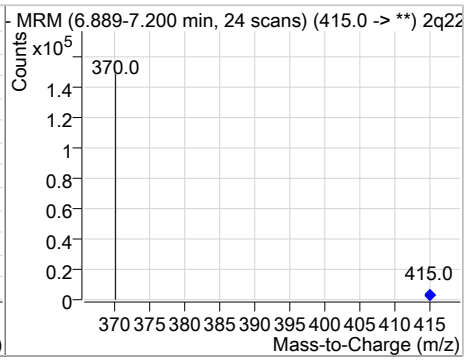




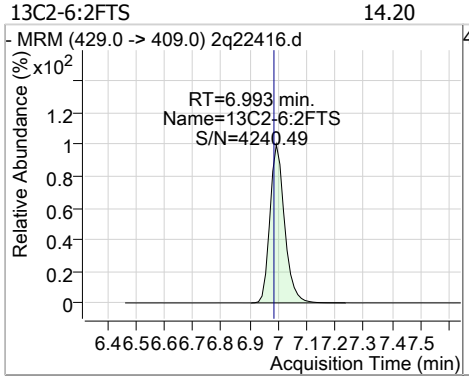
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	110127				

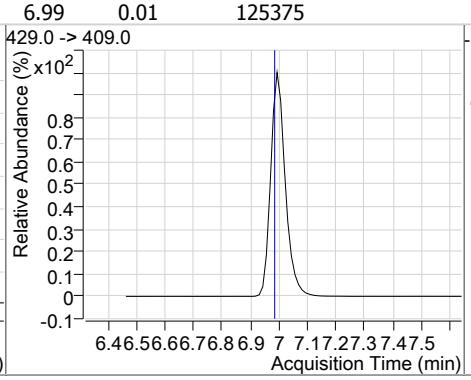


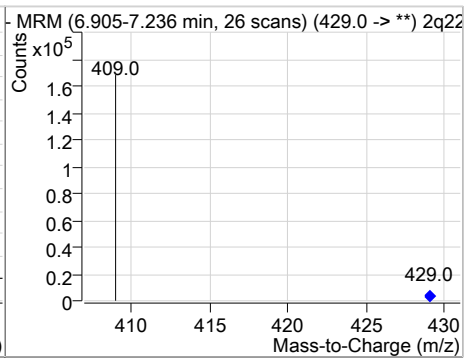




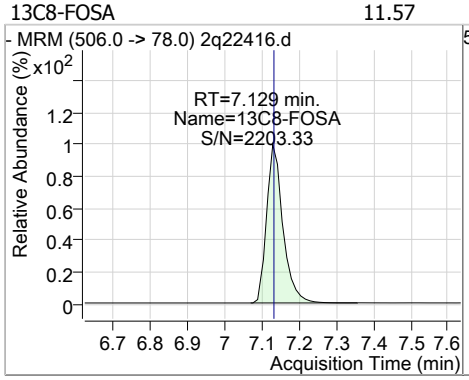
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	14.20	6.99	0.01	125375				

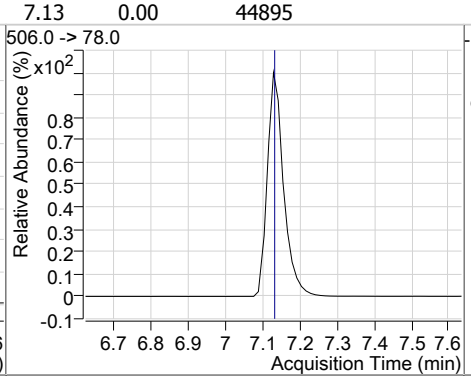


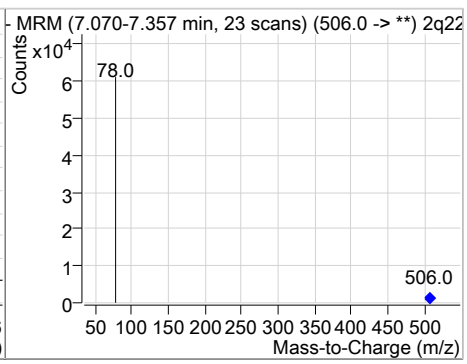




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	11.57	7.13	0.00	44895				

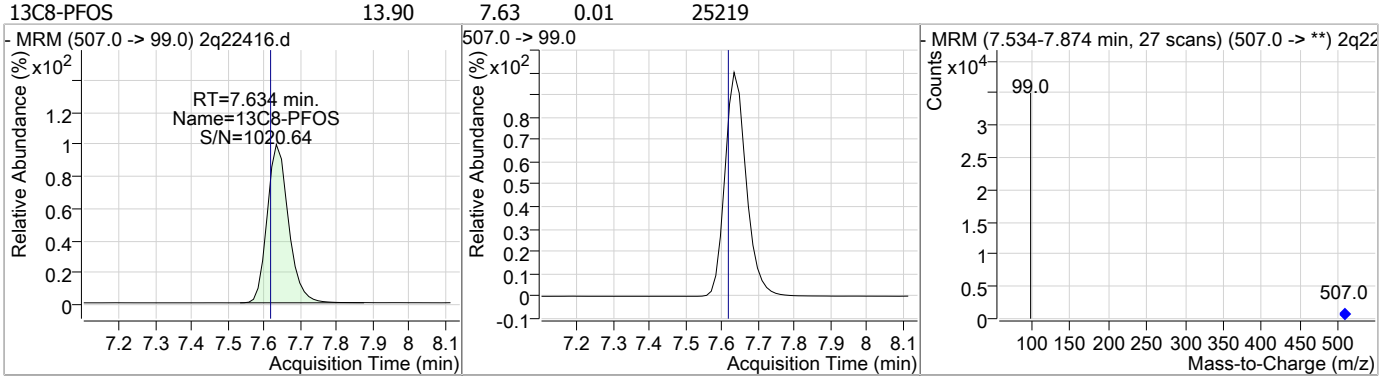




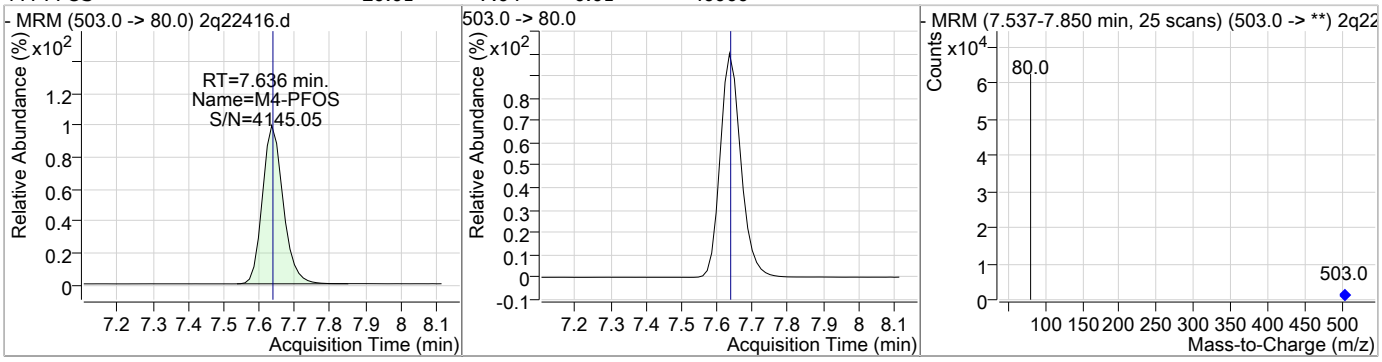


Perfluorinated Compounds by LC/MS/MS

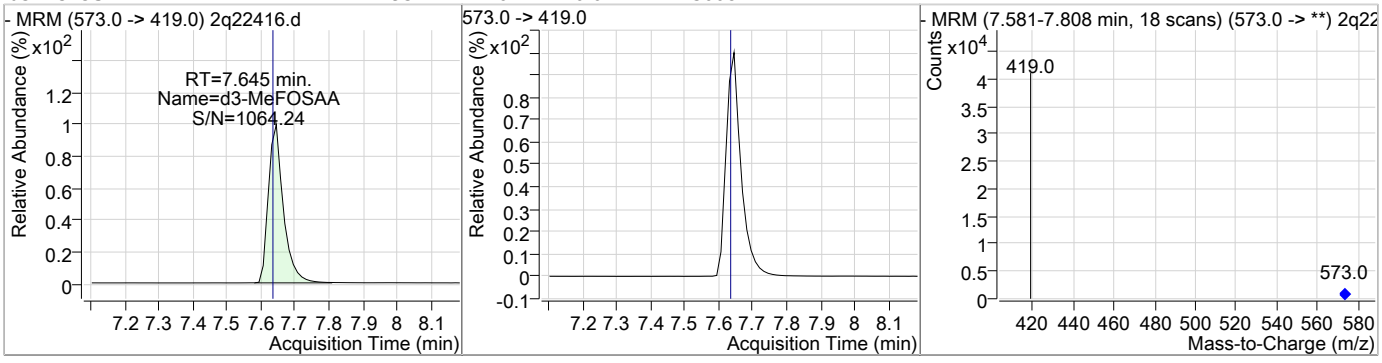
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	13.90	7.63	0.01	25219				



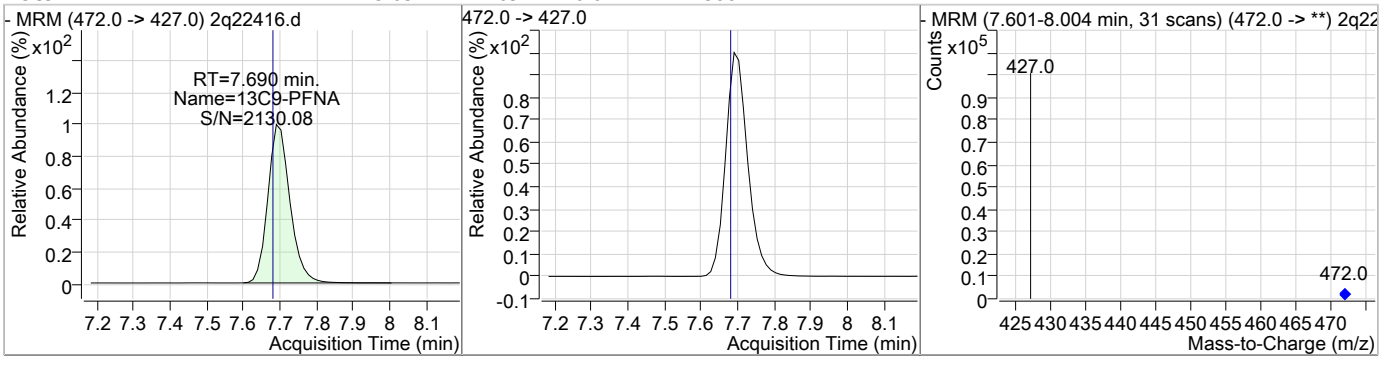
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.64	0.01	46060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	12.93	7.64	0.01	30082				

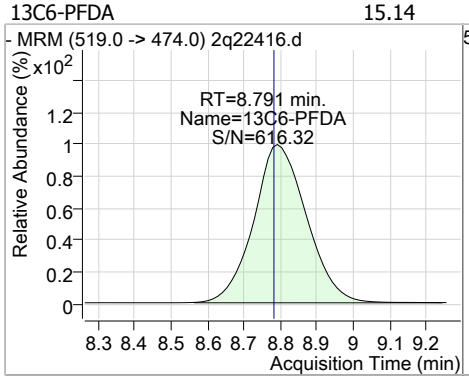


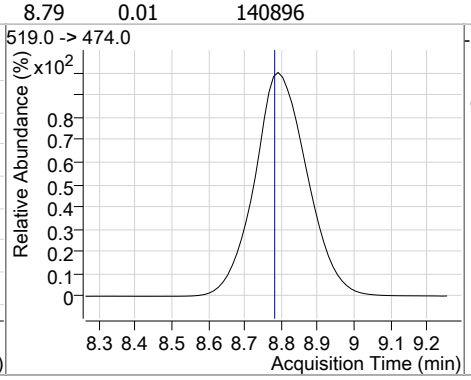
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.03	7.69	0.01	73884				

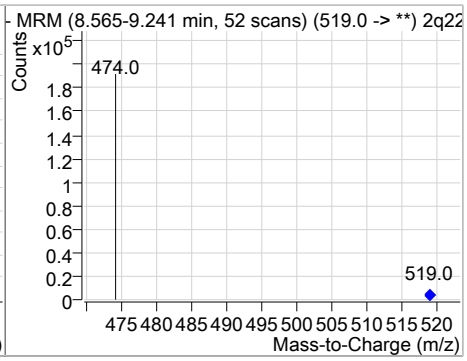


Perfluorinated Compounds by LC/MS/MS

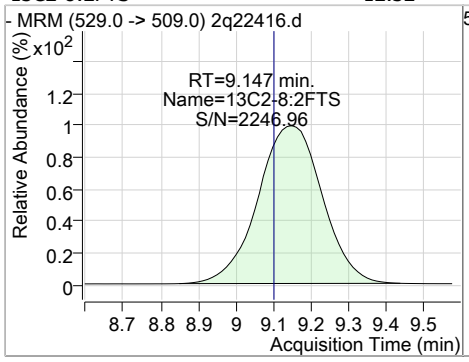
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.14	8.79	0.01	140896				

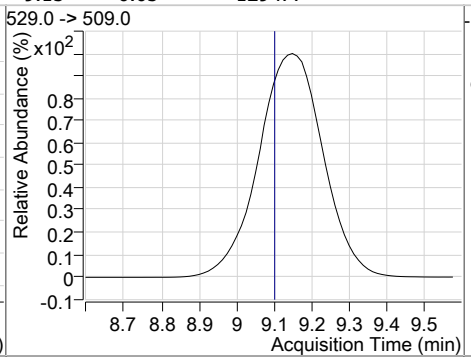


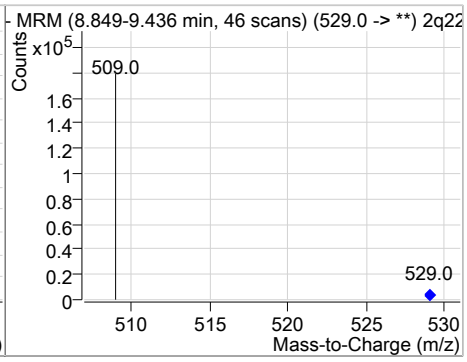




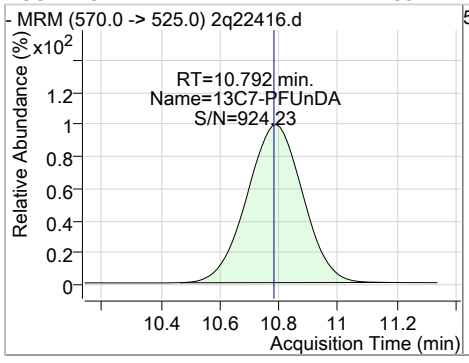
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	12.32	9.15	0.05	129477				

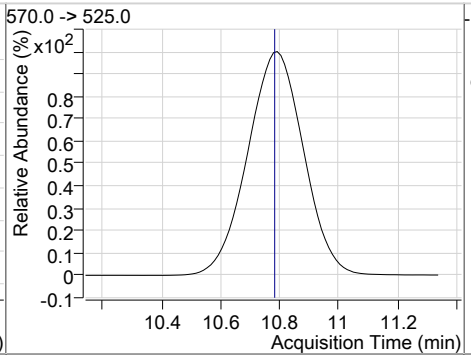


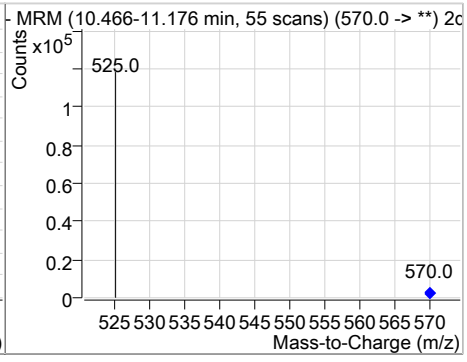




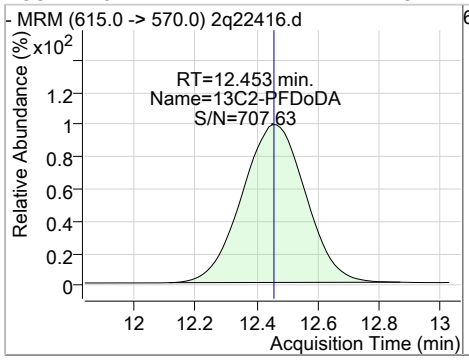
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	12.35	10.79	0.01	84573				

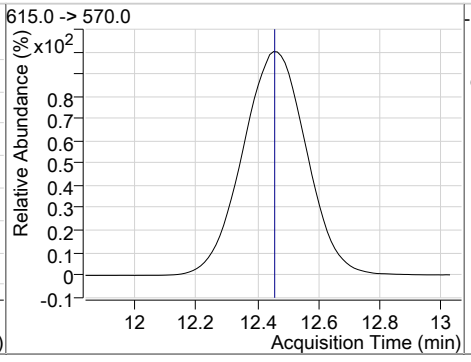


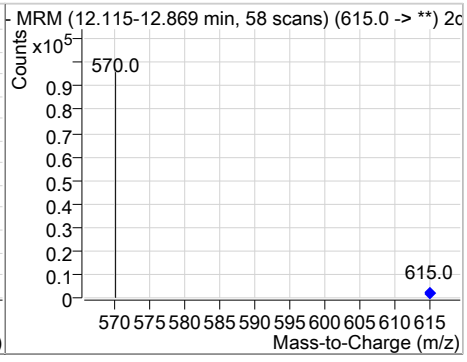




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.19	12.45	0.00	67411				

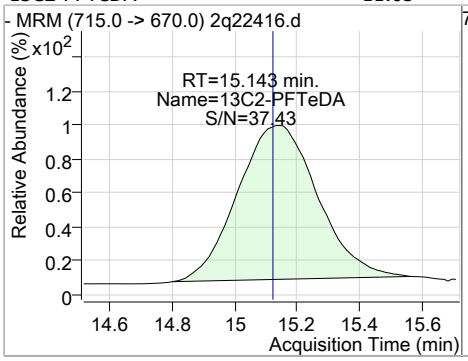


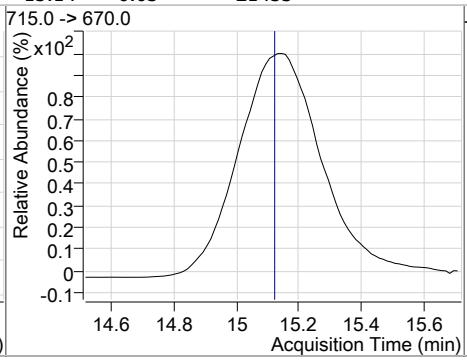


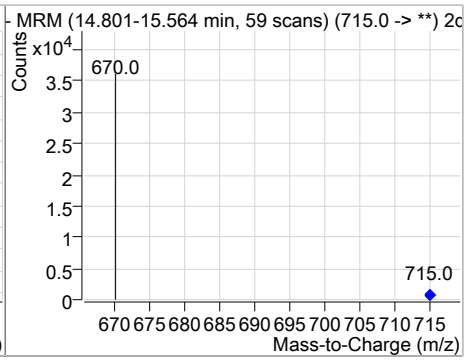


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.05	15.14	0.03	21453				







Perfluorinated Compounds by LC/MS/MS

Data File	:	2q22135.d
Operator	:	NATASHAG
Acq. Method	:	dMRM_ID_PFC.m
Acq. Date-Time	:	10/15/2018 4:22:42 PM
Sample Name	:	fa57914-2
Vial	:	Vial 14
DA Method File	:	PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name	:	s2q349.batch.bin
Sample Information	:	op71994,S2Q349,120,,,1.0,1,water

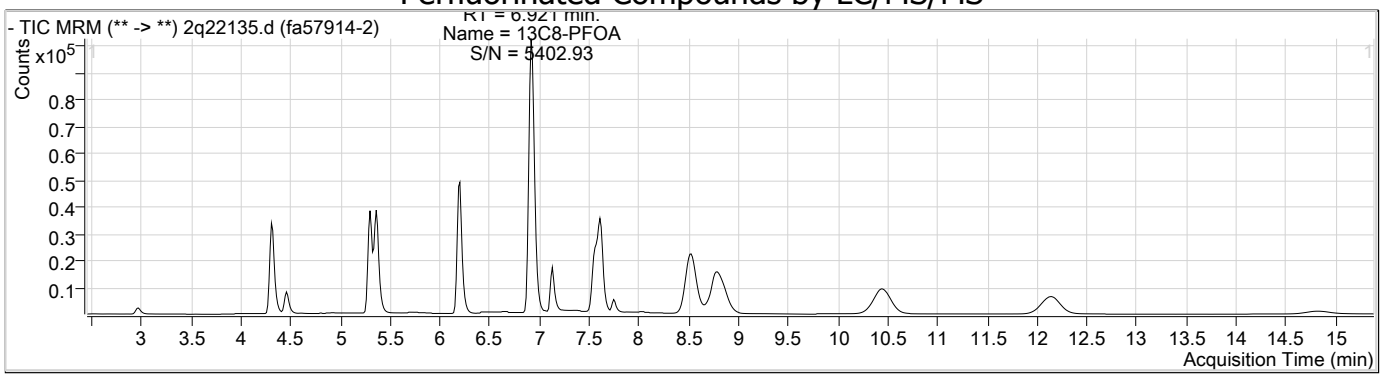
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.923	415.0 -> 370.0	137975	20.00	µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	50163	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	8316	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	113013	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	115887	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	135331	20.00	µg/L	0.000
M8-PFOA	6.921	421.0 -> 376.0	116164	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	96832	20.00	µg/L	0.013
M6-PFDA	8.529	519.0 -> 474.0	173151	20.00	µg/L	0.025
M7-PFUnDA	10.442	570.0 -> 525.0	115434	20.00	µg/L	0.038
M2-PFDoDA	12.140	615.0 -> 570.0	88800	20.00	µg/L	0.050
M2-PFTeDA	14.818	715.0 -> 670.0	18521	20.00	µg/L	0.038
M8-FOSA	7.130	506.0 -> 78.0	47847	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	26256	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	32454	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	30247	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	124285	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	155693	20.00	µg/L	0.001
M2-8:2FTS	8.787	529.0 -> 509.0	157945	20.00	µg/L	0.025
M3-MeFOSAA	7.620	573.0 -> 419.0	32178	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	124336	17.70	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.5%		
13C2-6:2FTS	6.931	429.0 -> 409.0	155742	17.72	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.6%		
13C2-8:2FTS	8.787	529.0 -> 509.0	157040	15.09	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.4%		
13C2-PFDoDA	12.140	615.0 -> 570.0	87898	14.00	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.0%		
13C2-PFTeDA	14.818	715.0 -> 670.0	16916	7.57	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 37.9%		
13C3-PFBS	4.455	302.0 -> 99.0	26251	18.43	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%		
13C3-PFHxS	6.198	402.0 -> 99.0	32443	18.72	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
13C4-PFBA	2.966	217.0 -> 172.0	8310	0.58	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 2.9%		
13C4-PFHpA	6.192	367.0 -> 322.0	135300	19.29	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.5%		
13C5-PFHxA	5.364	318.0 -> 273.0	115865	19.09	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C5-PFPeA	4.312	268.0 -> 223.0	112999	17.99	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.0%		
13C6-PFDA	8.529	519.0 -> 474.0	172991	17.16	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.8%		

Perfluorinated Compounds by LC/MS/MS

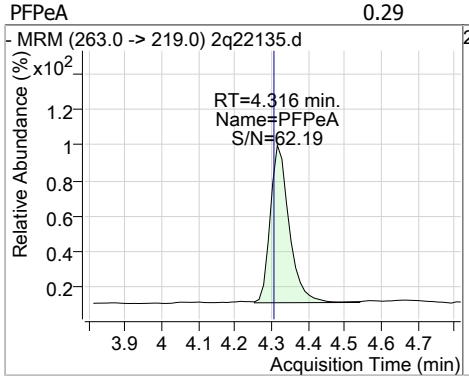
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.442	570.0 -> 525.0	115074	15.05	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.2%			
13C8-FOSA	7.130	506.0 -> 78.0	47875	13.01	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 65.0%			
13C8-PFOA	6.921	421.0 -> 376.0	116298	19.81	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%			
13C8-PFOS	7.559	507.0 -> 99.0	30230	17.28	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.4%			
13C9-PFNA	7.614	472.0 -> 427.0	96808	18.45	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.3%			
d3-MeFOSAA	7.620	573.0 -> 419.0	32174	14.39	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.9%			
M2-PFOA	6.923	415.0 -> 370.0	138010	20.01	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	50156	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.674	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.459	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	232	0.12	µg/L		94
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	1541	0.29	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

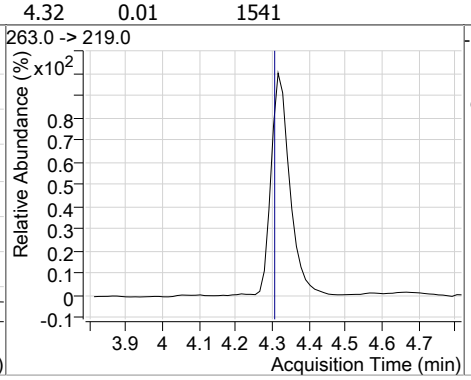
 # = Qualifier out of range, m = manually integrated, + = Area summed

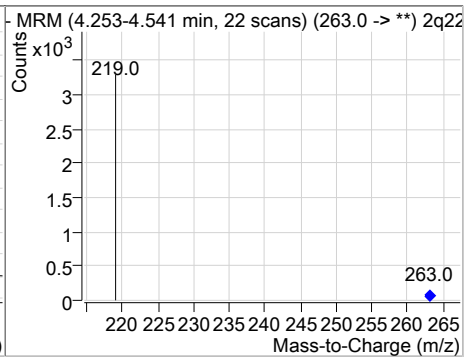
Perfluorinated Compounds by LC/MS/MS



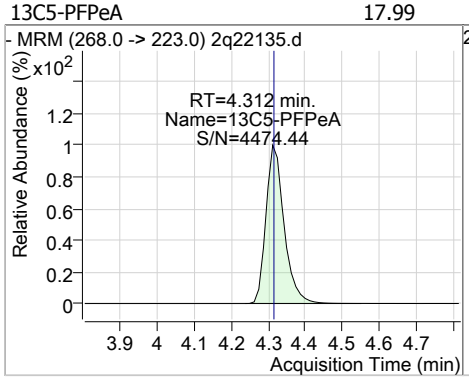
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.29	4.32	0.01	1541				

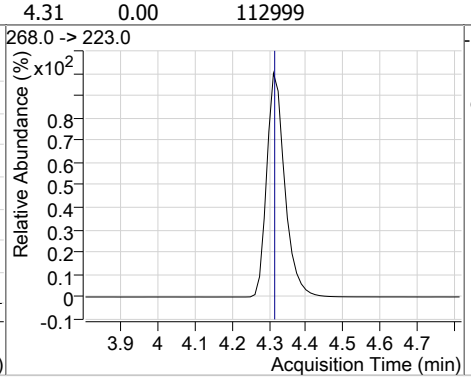


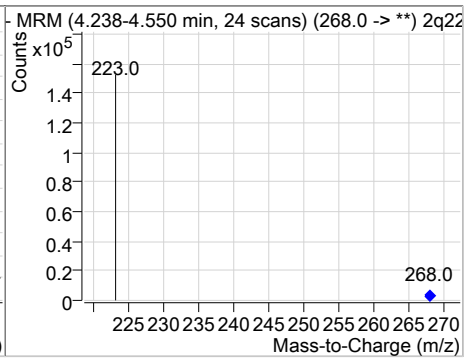




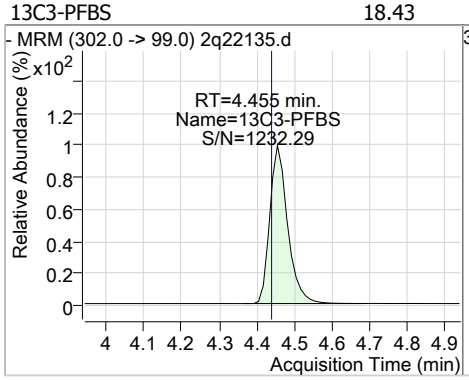
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.99	4.31	0.00	112999				

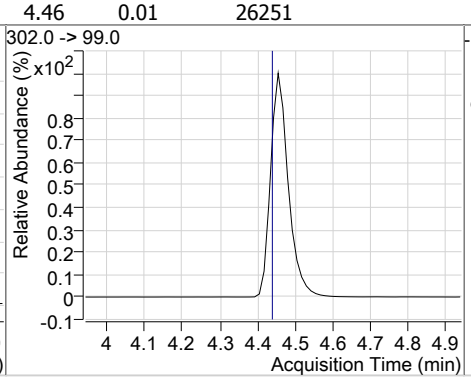


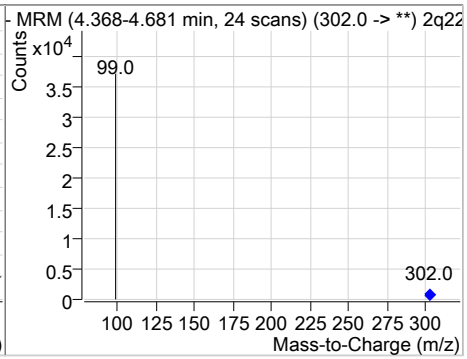




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.43	4.46	0.01	26251				

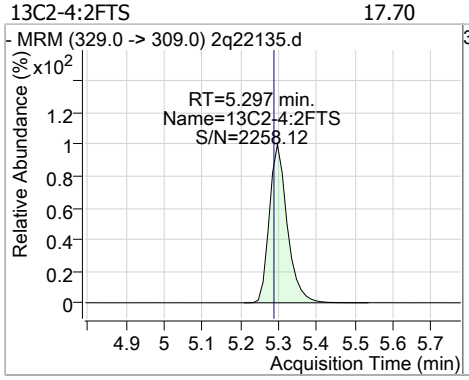


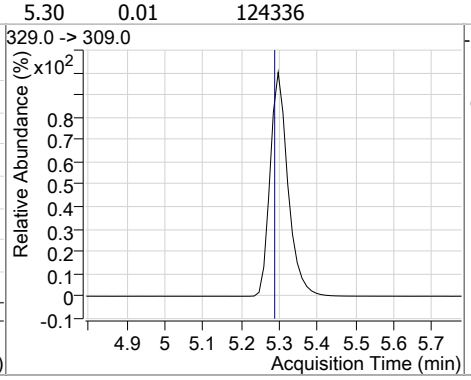


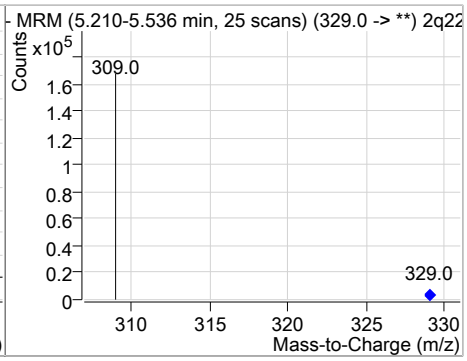


Perfluorinated Compounds by LC/MS/MS

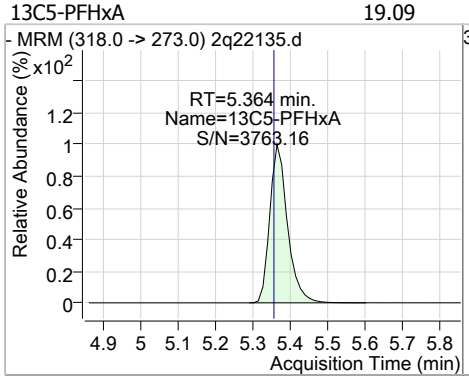
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.70	5.30	0.01	124336				

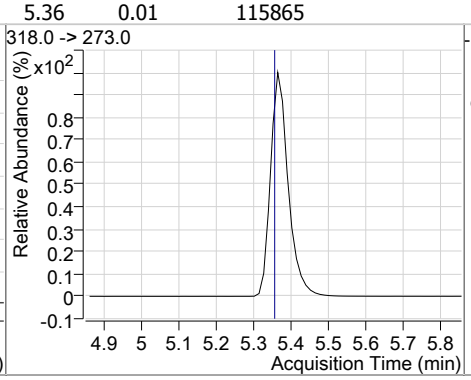


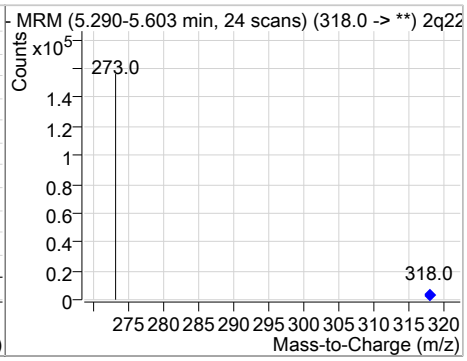




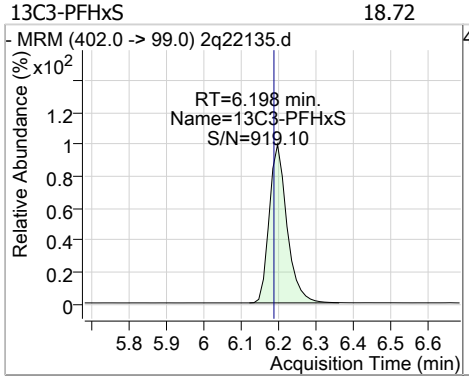
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.09	5.36	0.01	115865				

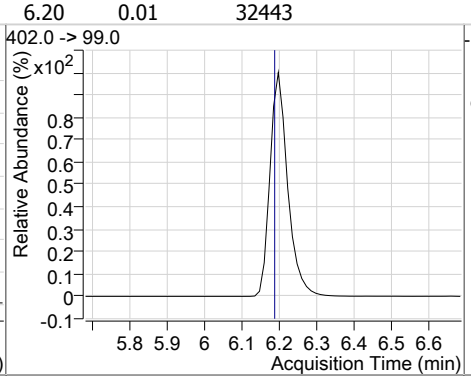


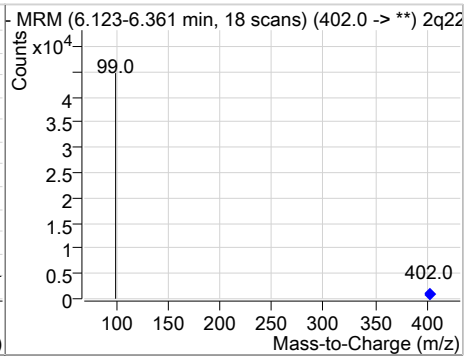




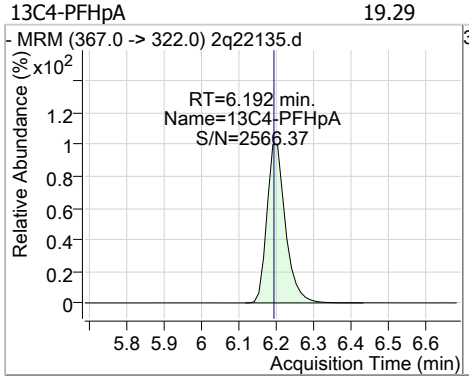
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.72	6.20	0.01	32443				

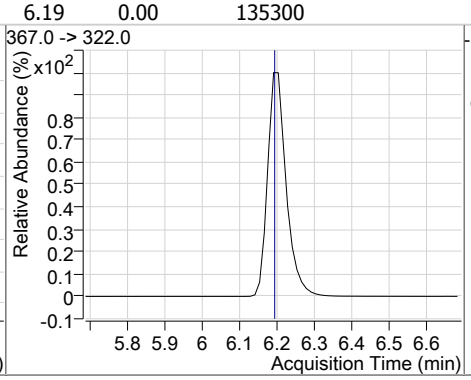


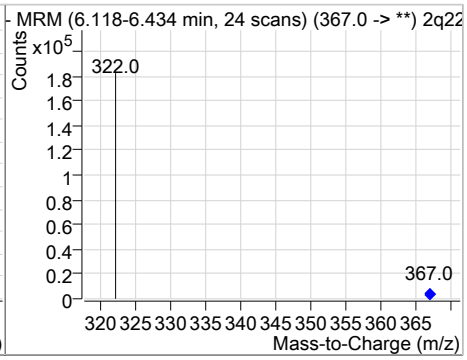




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.29	6.19	0.00	135300				

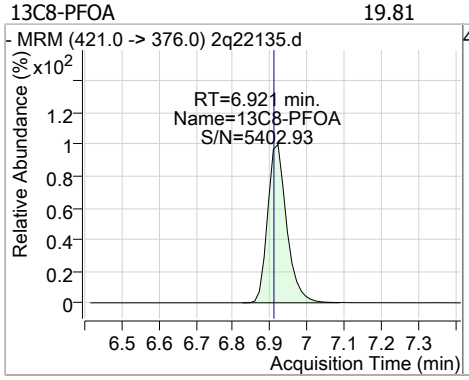


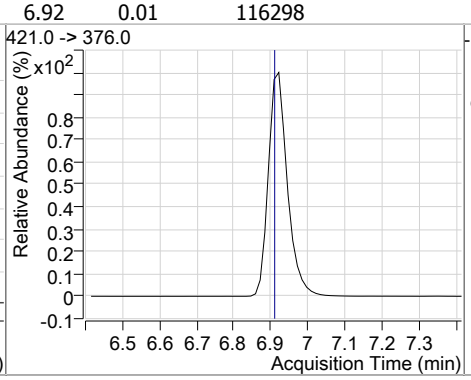


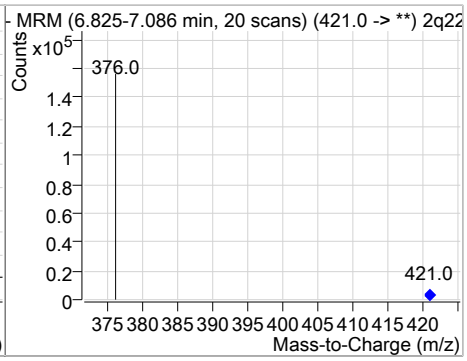


Perfluorinated Compounds by LC/MS/MS

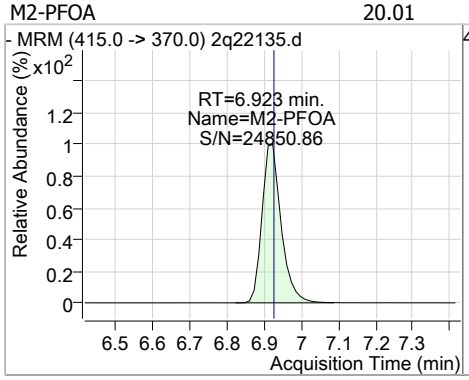
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.81	6.92	0.01	116298				

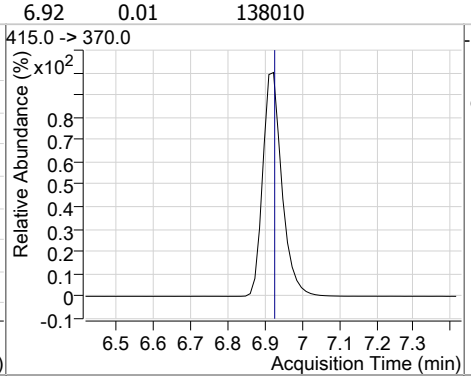


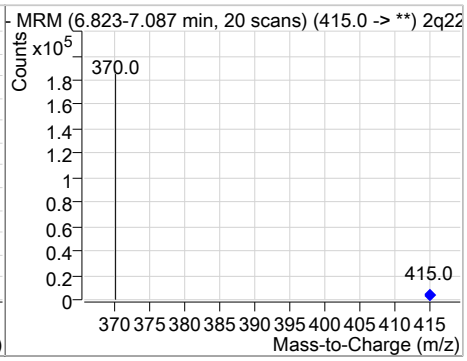




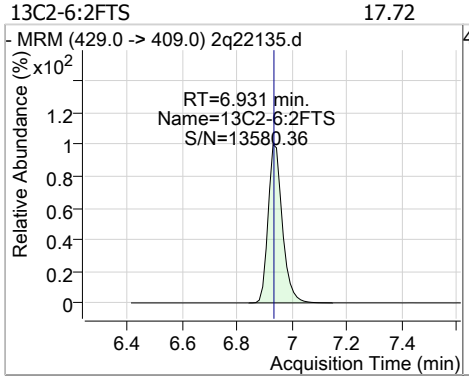
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.92	0.01	138010				

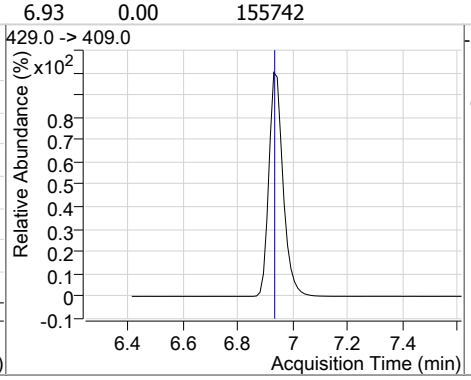


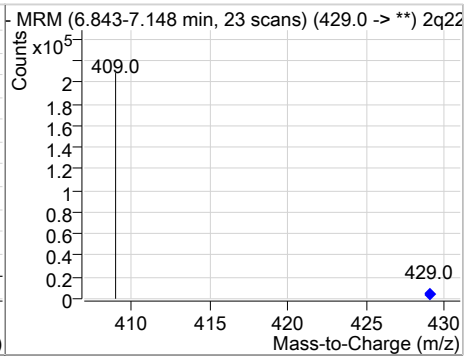




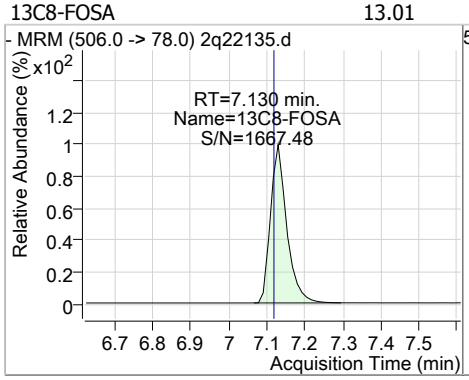
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.72	6.93	0.00	155742				

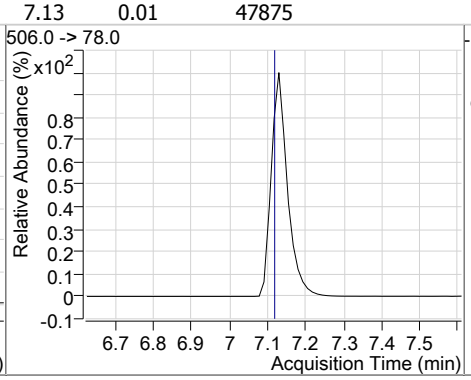


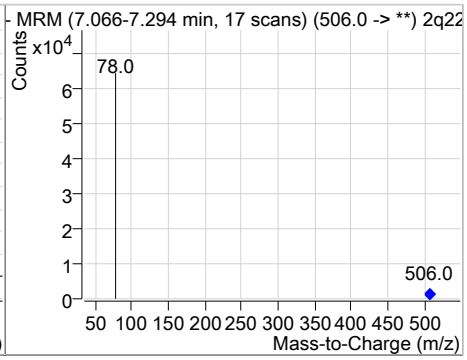




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	13.01	7.13	0.01	47875				

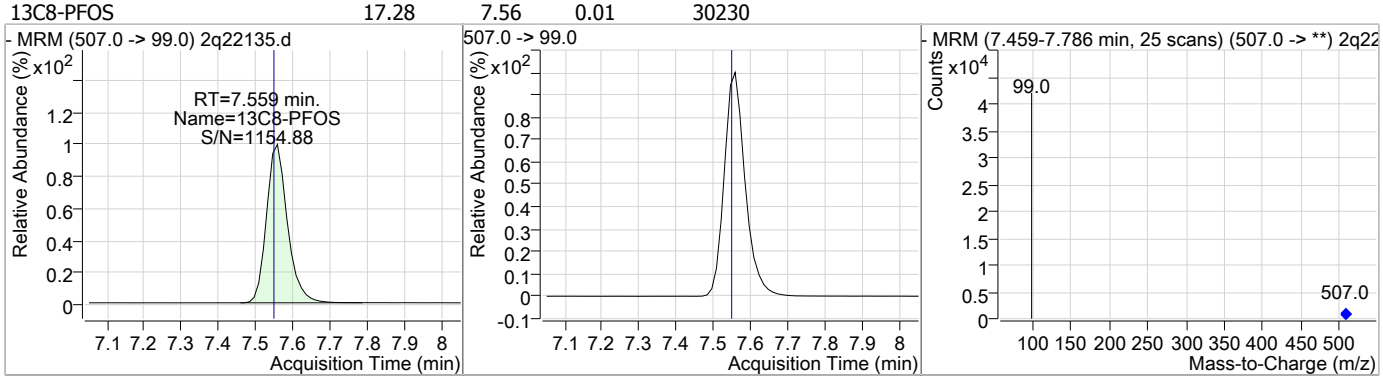




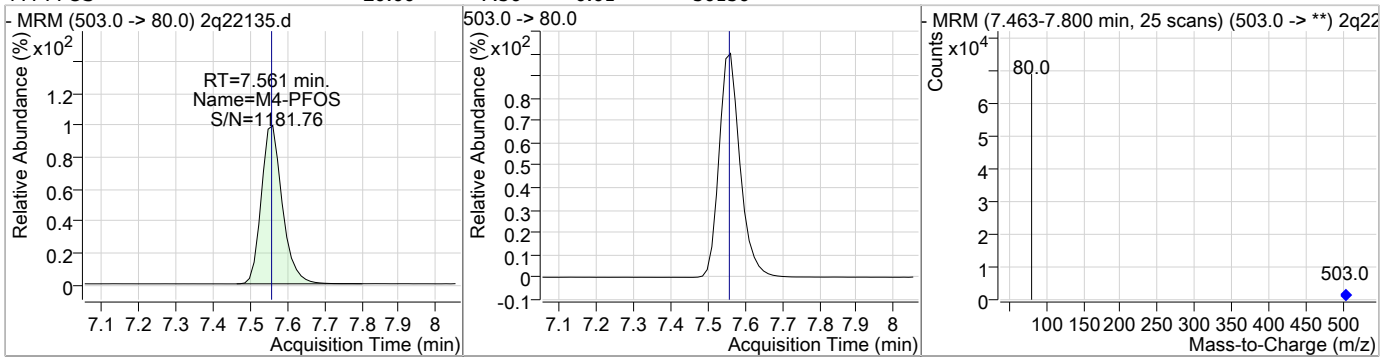


Perfluorinated Compounds by LC/MS/MS

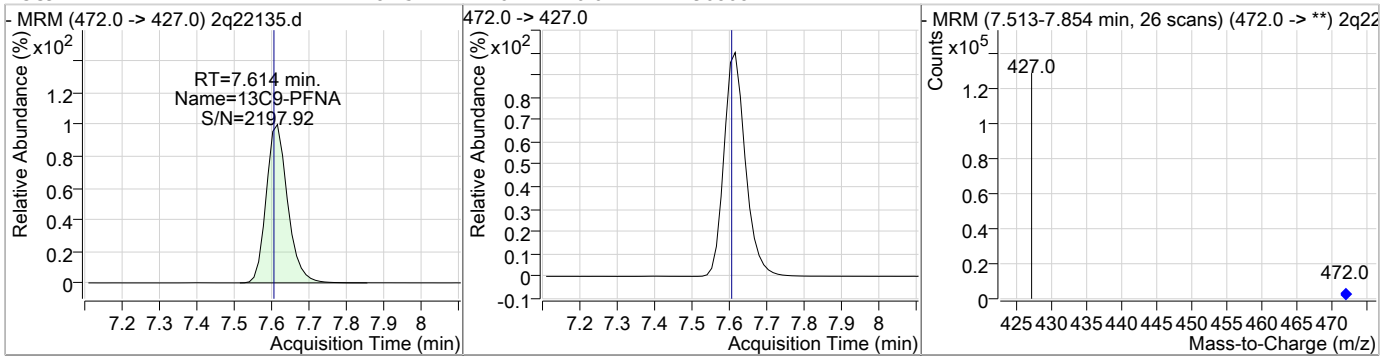
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.28	7.56	0.01	30230				



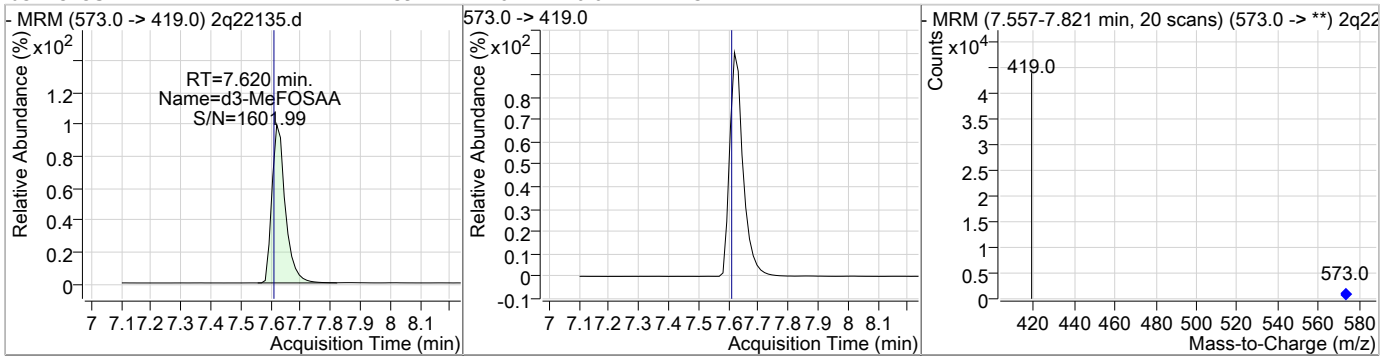
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.56	0.01	50156				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.45	7.61	0.01	96808				

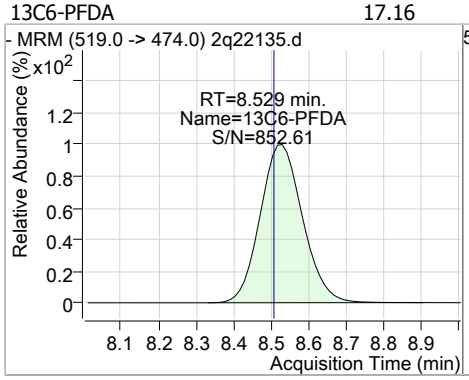


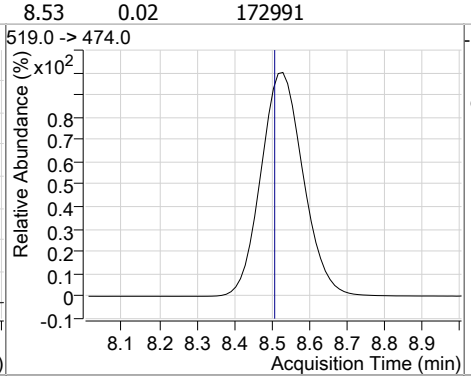
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.39	7.62	0.01	32174				

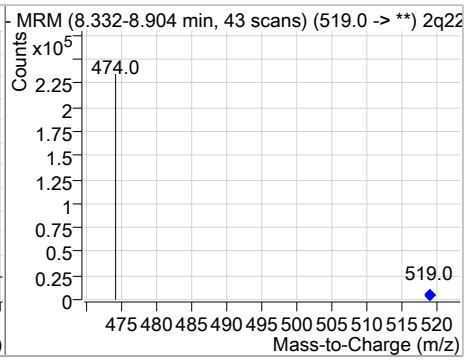


Perfluorinated Compounds by LC/MS/MS

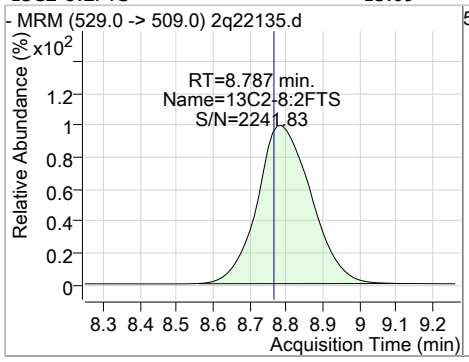
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.16	8.53	0.02	172991				

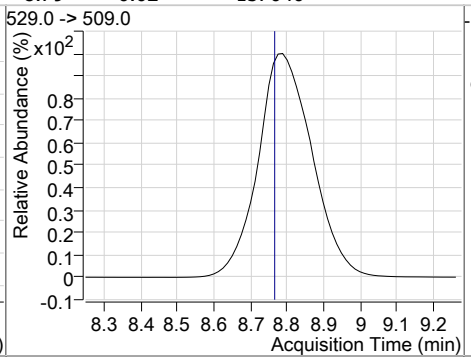


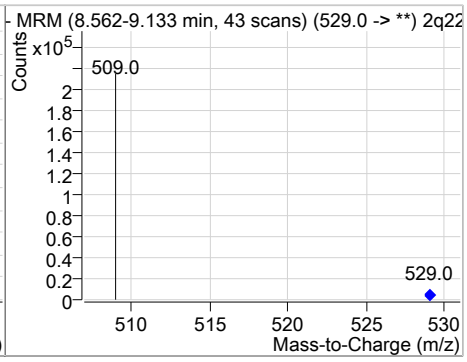




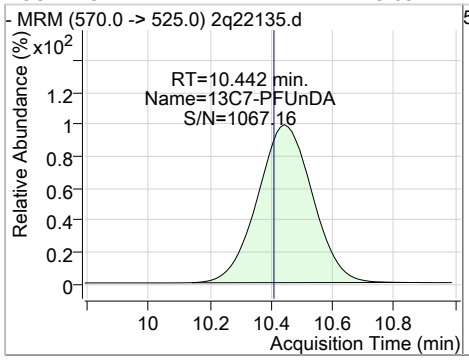
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	15.09	8.79	0.02	157040				

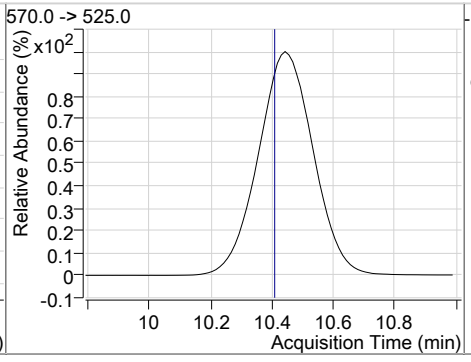


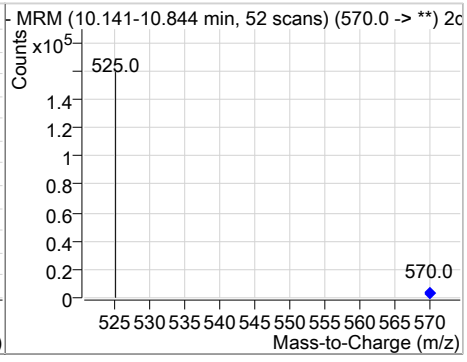




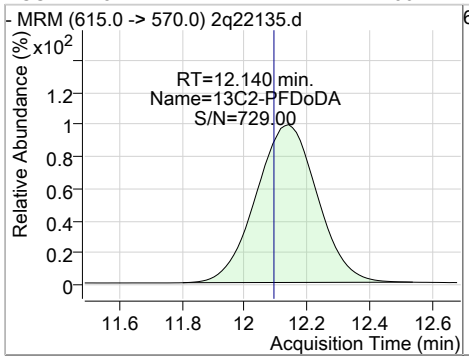
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.05	10.44	0.04	115074				

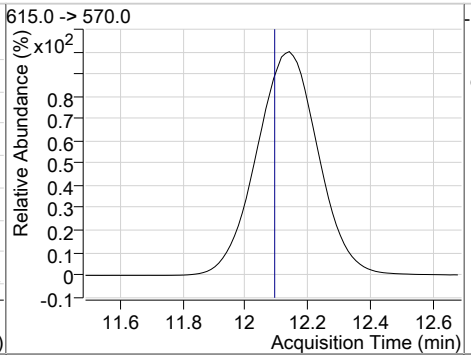


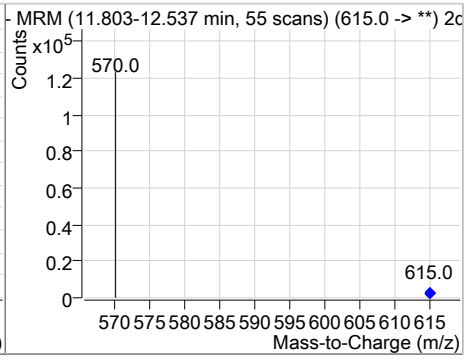




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	14.00	12.14	0.05	87898				

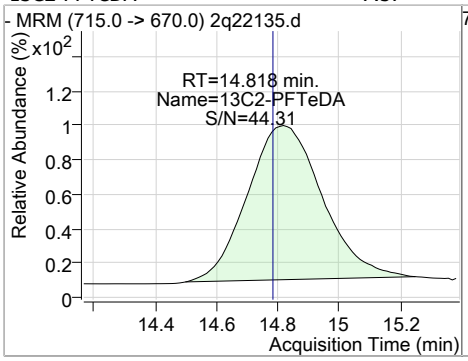


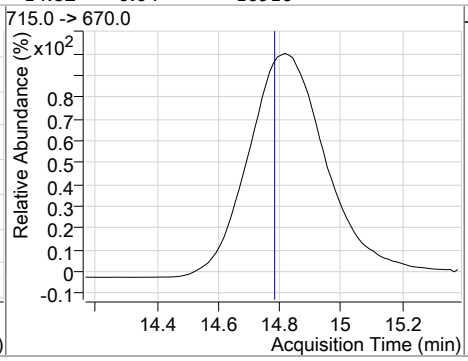


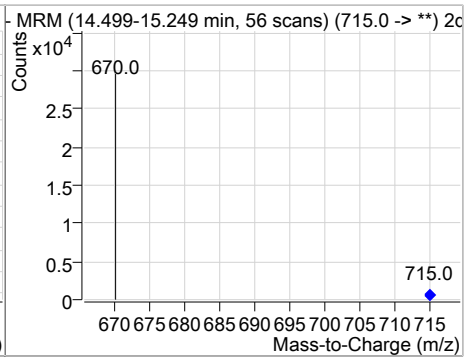


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	7.57	14.82	0.04	16916				







7.1.14

7

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22417.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 9:49:51 PM
Sample Name : fa57914-3
Vial : Vial 32
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

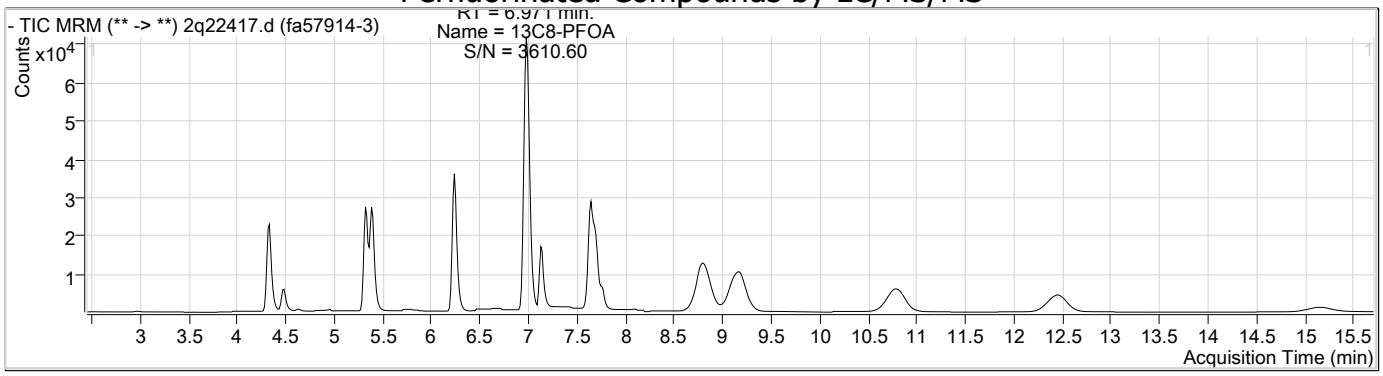
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	106271	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	44370	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	631	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	77264	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	82582	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	95137	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	74720	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	68192	20.00	µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	130400	20.00	µg/L	0.025
M7-PFUnDA	10.792	570.0 -> 525.0	78692	20.00	µg/L	0.013
M2-PFDoDA	12.453	615.0 -> 570.0	62901	20.00	µg/L	0.000
M2-PFTeDA	15.131	715.0 -> 670.0	22114	20.00	µg/L	0.013
M8-FOSA	7.129	506.0 -> 78.0	48967	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	19381	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	24905	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	24112	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	89897	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	116500	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	121825	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	28014	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	89912	13.65	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.3%		
13C2-6:2FTS	6.993	429.0 -> 409.0	116595	13.21	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.0%		
13C2-8:2FTS	9.160	529.0 -> 509.0	121010	11.51	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.6%		
13C2-PFDoDA	12.453	615.0 -> 570.0	62457	11.30	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 56.5%		
13C2-PFTeDA	15.131	715.0 -> 670.0	20066	10.34	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 51.7%		
13C3-PFBS	4.481	302.0 -> 99.0	19389	13.86	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.3%		
13C3-PFHxS	6.235	402.0 -> 99.0	24920	13.99	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.0%		
13C4-PFBA	2.966	217.0 -> 172.0	636	0.05	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.2%		
13C4-PFHpA	6.242	367.0 -> 322.0	95147	14.79	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.0%		
13C5-PFHxA	5.390	318.0 -> 273.0	82585	15.00	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.0%		
13C5-PFPeA	4.337	268.0 -> 223.0	77271	13.52	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.6%		
13C6-PFDA	8.804	519.0 -> 474.0	129684	13.94	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.7%		

Perfluorinated Compounds by LC/MS/MS

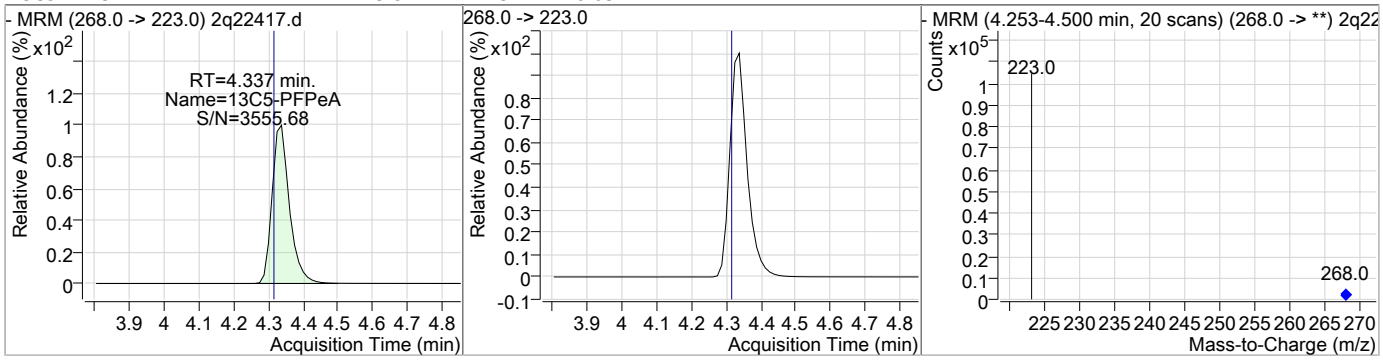
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.792	570.0 -> 525.0	78172	11.42	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.1%			
13C8-FOSA	7.129	506.0 -> 78.0	48860	12.59	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 62.9%			
13C8-PFOA	6.971	421.0 -> 376.0	74739	13.91	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.5%			
13C8-PFOS	7.634	507.0 -> 99.0	24103	13.28	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.4%			
13C9-PFNA	7.702	472.0 -> 427.0	68170	13.87	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.3%			
d3-MeFOSAA	7.645	573.0 -> 419.0	28021	12.05	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 60.2%			
M2-PFOA	6.973	415.0 -> 370.0	106276	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	44386	20.02	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.547	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.393	313.0 -> 269.0	221	0.17	µg/L		97
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	346	0.18	µg/L	m	100
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.328	263.0 -> 219.0	1085	0.30	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

 # = Qualifier out of range, m = manually integrated, + = Area summed

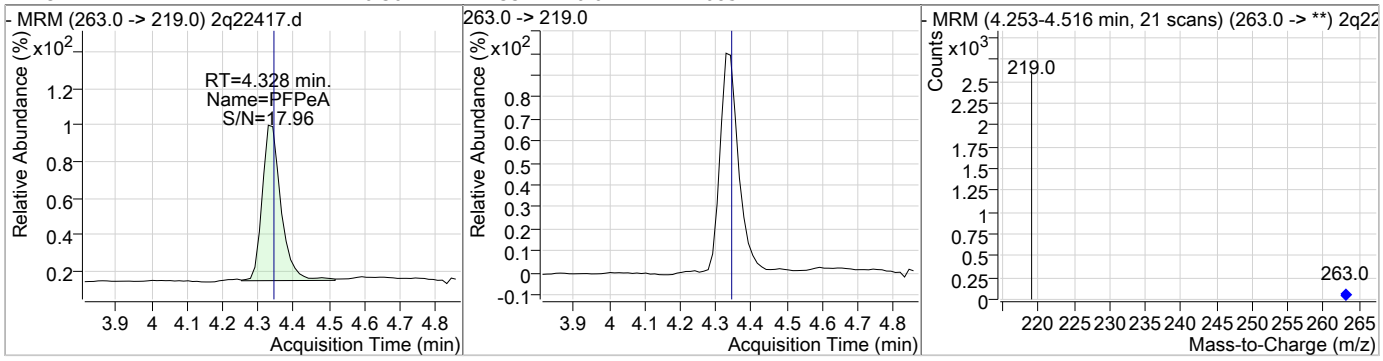
Perfluorinated Compounds by LC/MS/MS



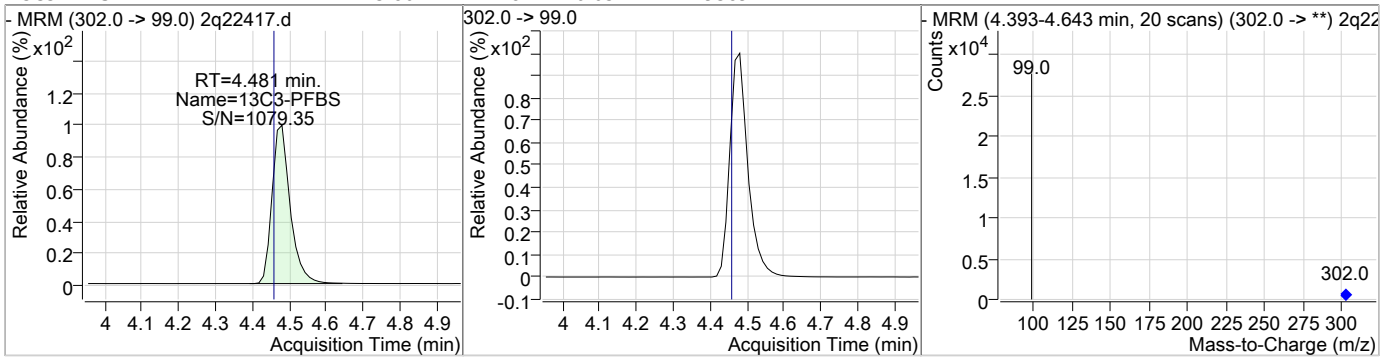
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	13.52	4.34	0.03	77271				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.30	4.33	0.01	1085				

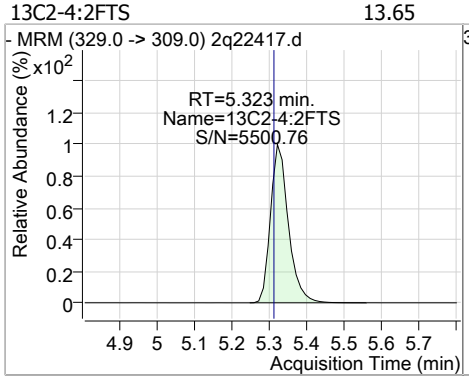


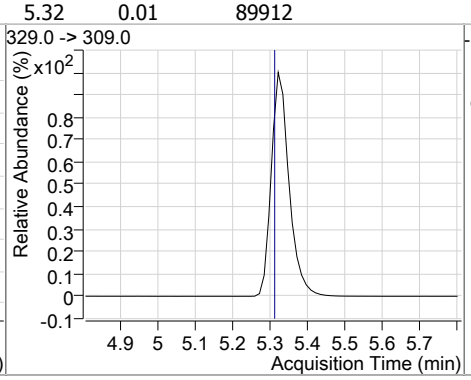
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	13.86	4.48	0.03	19389				

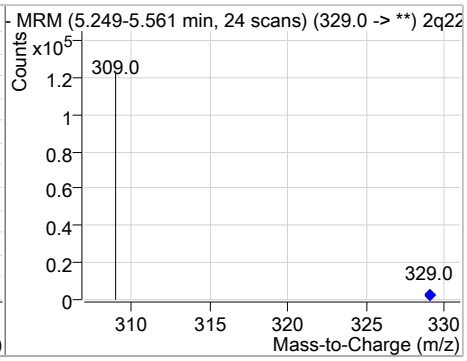


Perfluorinated Compounds by LC/MS/MS

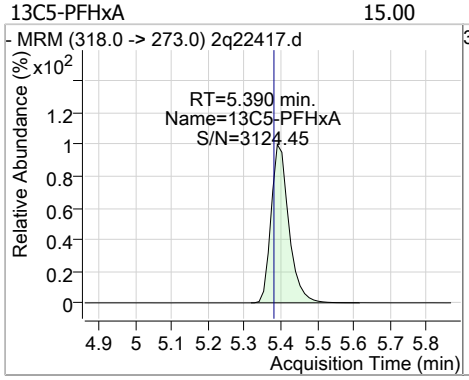
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	13.65	5.32	0.01	89912				

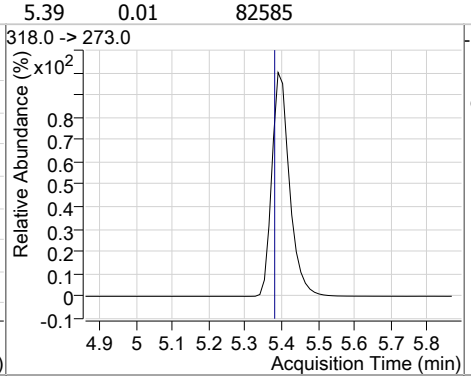


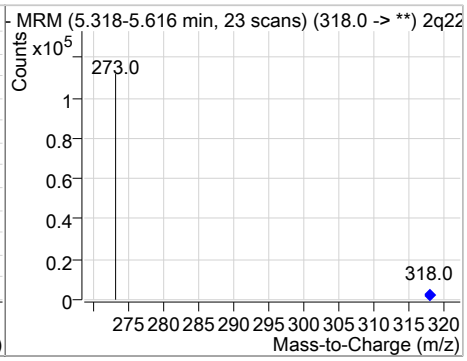




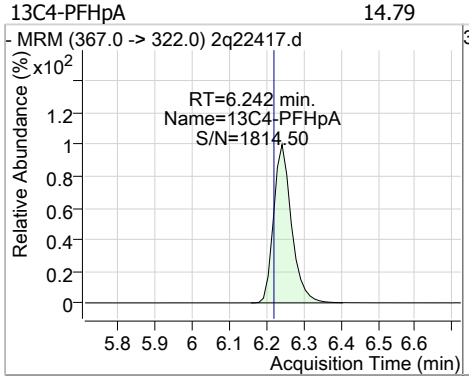
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	15.00	5.39	0.01	82585				

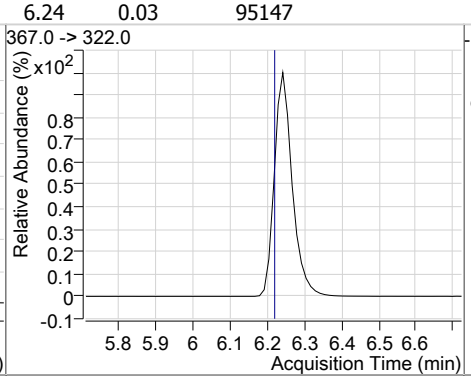


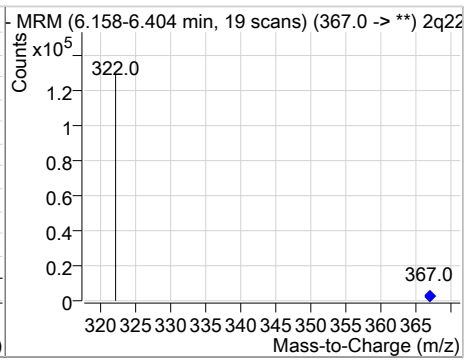




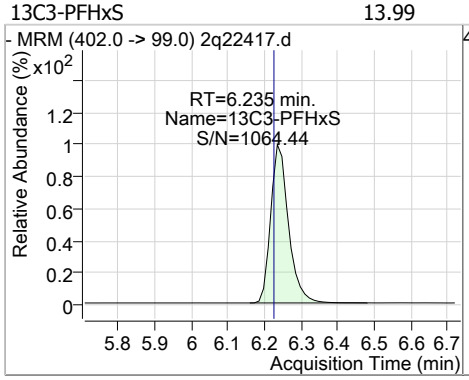
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	14.79	6.24	0.03	95147				

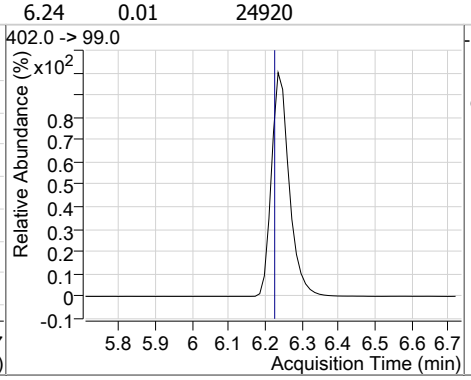


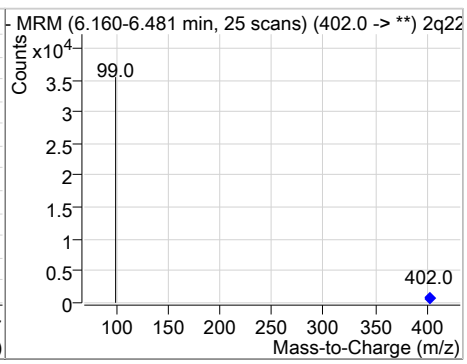




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	13.99	6.24	0.01	24920				

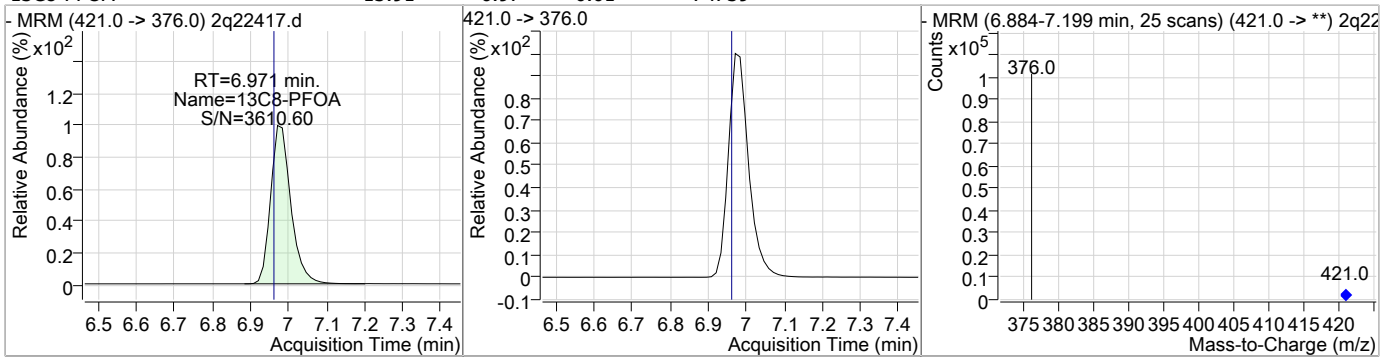




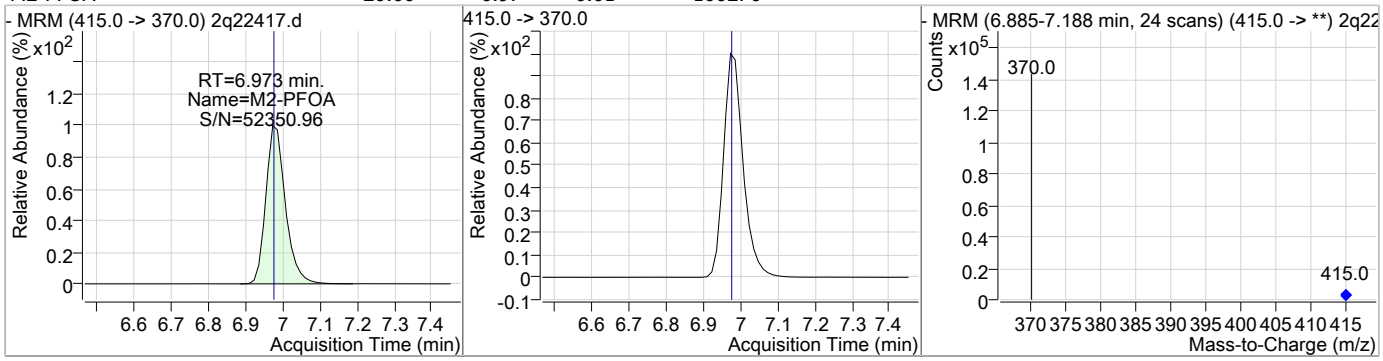


Perfluorinated Compounds by LC/MS/MS

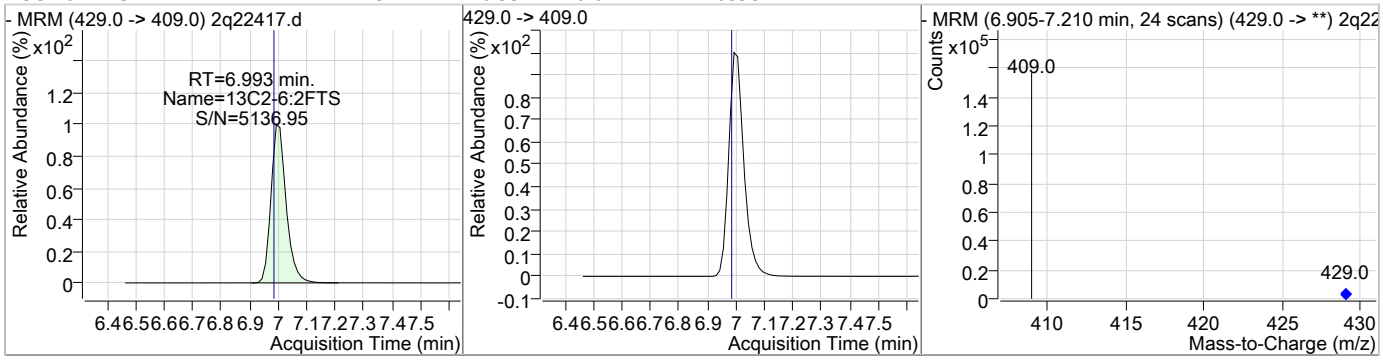
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	13.91	6.97	0.01	74739				



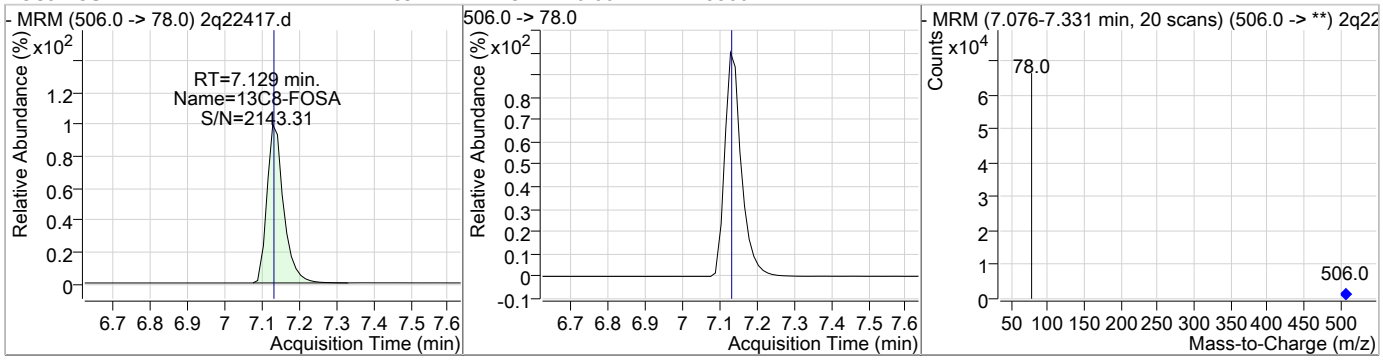
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	106276				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	13.21	6.99	0.01	116595				

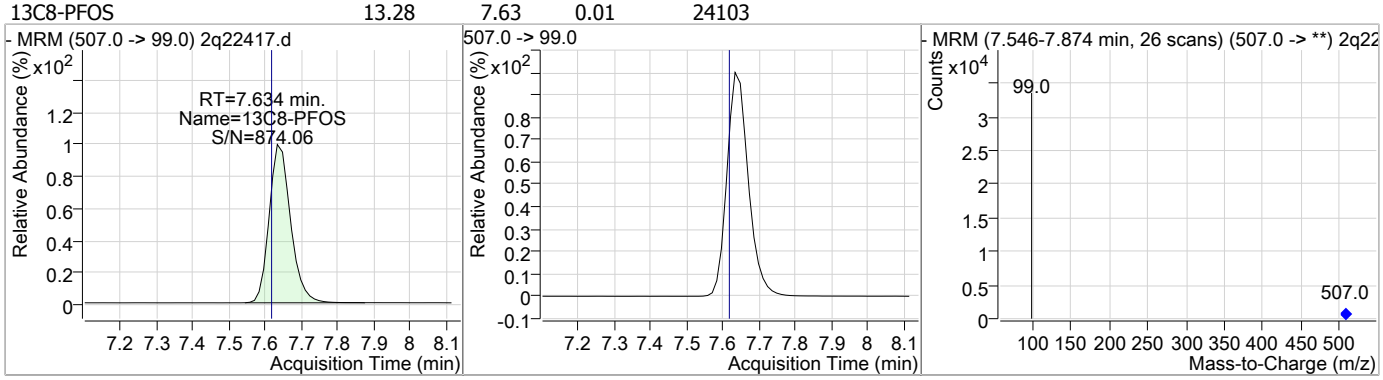


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	12.59	7.13	0.00	48860				

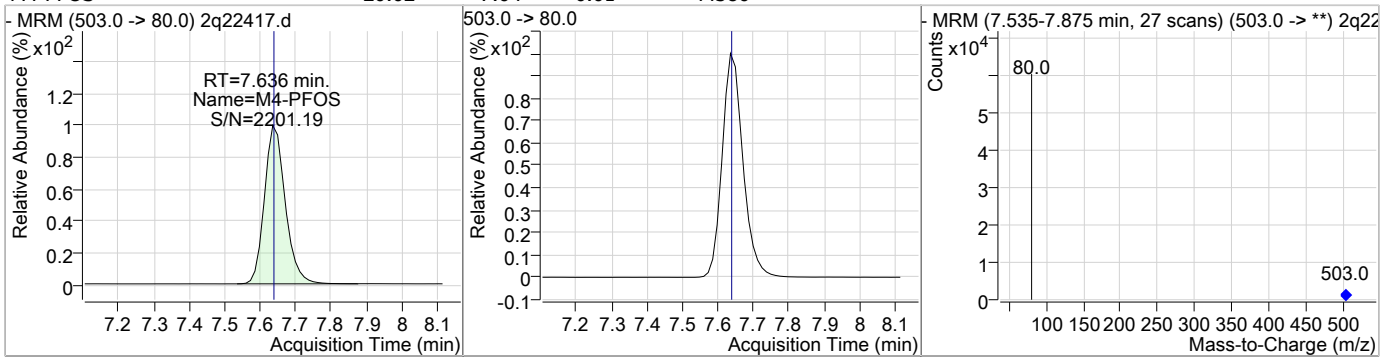


Perfluorinated Compounds by LC/MS/MS

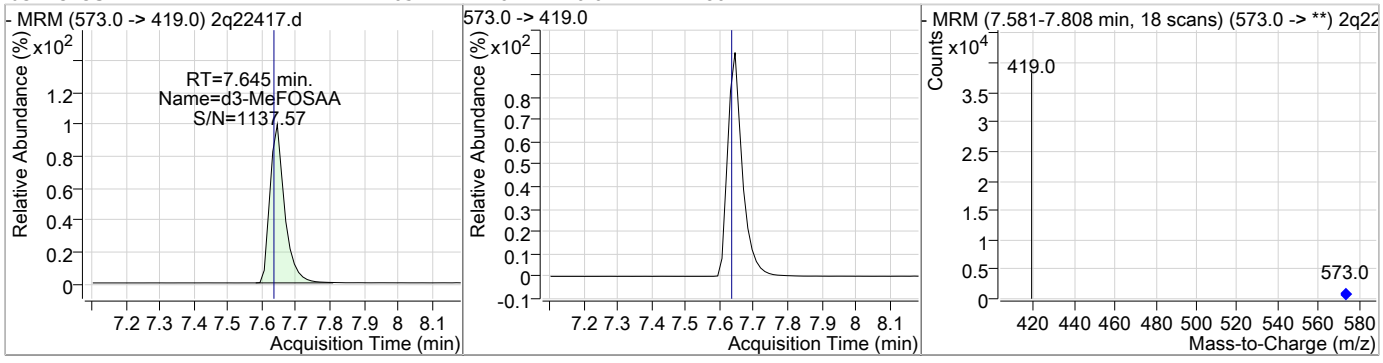
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	13.28	7.63	0.01	24103				



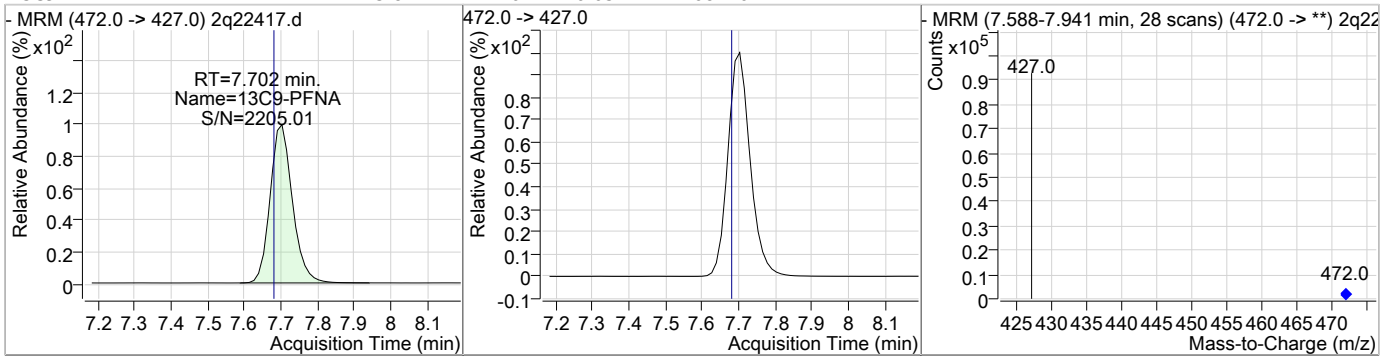
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.64	0.01	44386				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	12.05	7.64	0.01	28021				

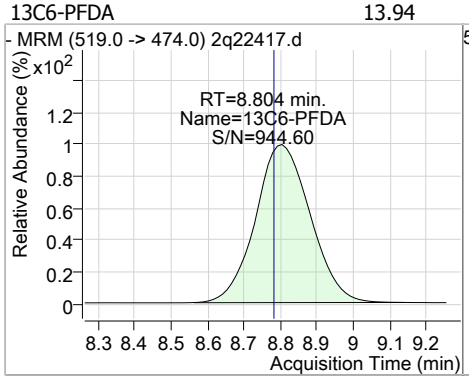


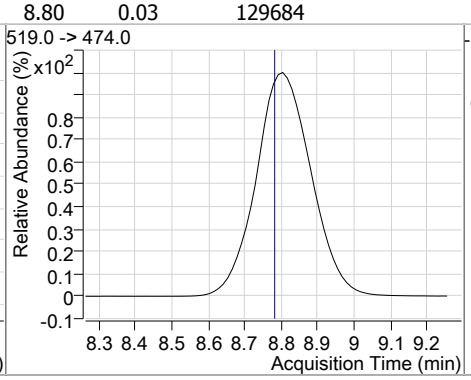
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	13.87	7.70	0.03	68170				

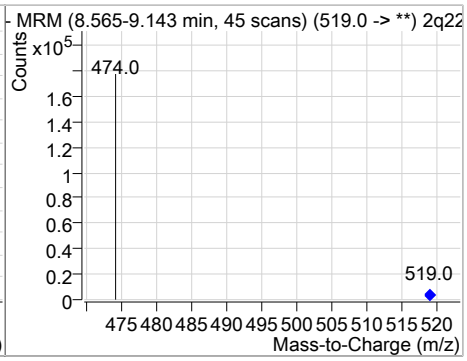


Perfluorinated Compounds by LC/MS/MS

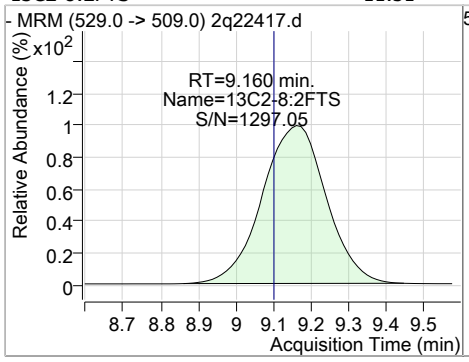
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	13.94	8.80	0.03	129684				

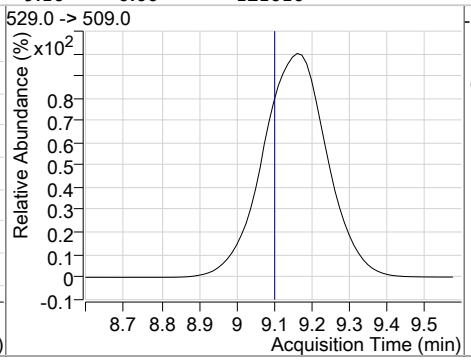


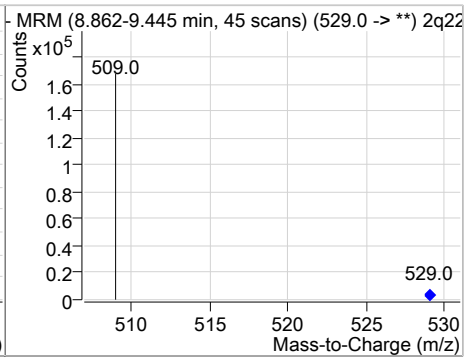




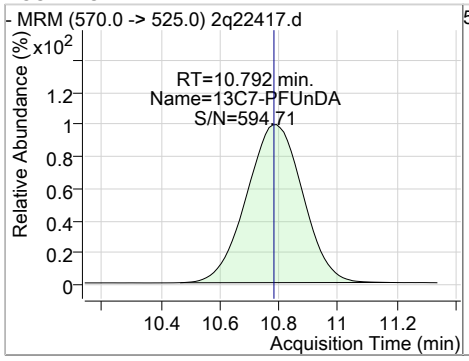
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.51	9.16	0.06	121010				

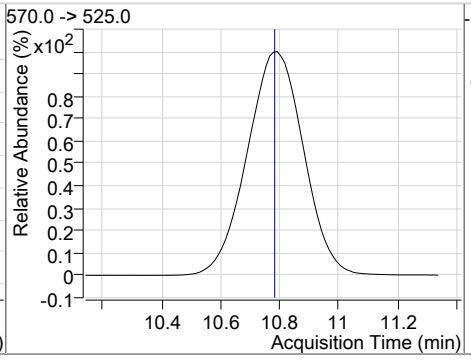


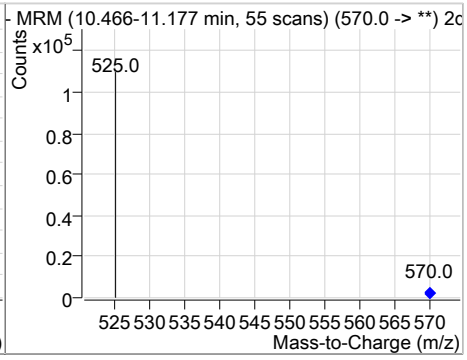




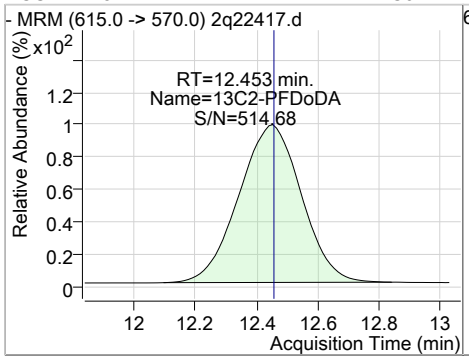
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.42	10.79	0.01	78172				

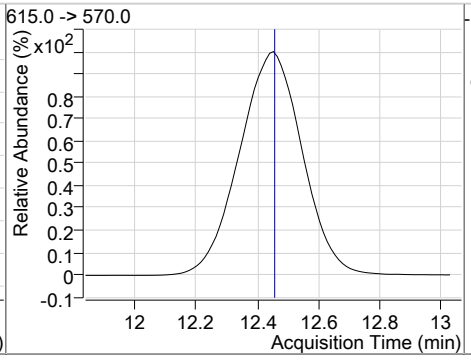


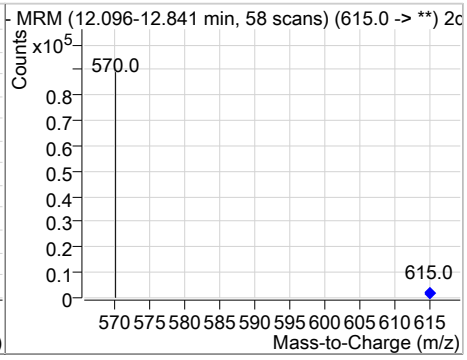




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.30	12.45	0.00	62457				

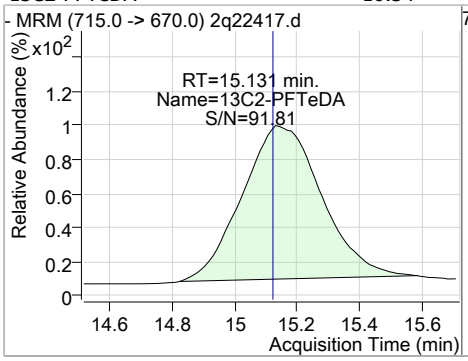


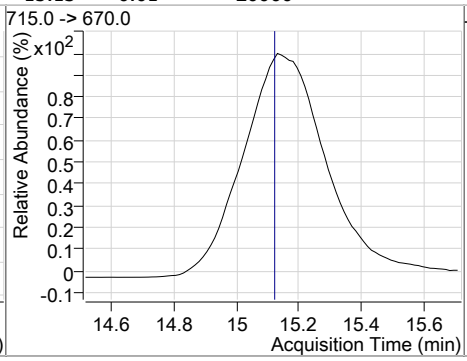


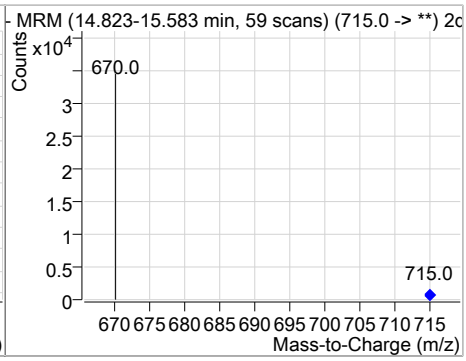


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	10.34	15.13	0.01	20066				







Manual Integration Approval Summary

Sample Number: FA57914-3
Lab FileID: 2Q22417.D
Injection Time: 10/19/18 21:49
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22136.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 4:43:26 PM
Sample Name : fa57914-3
Vial : Vial 15
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

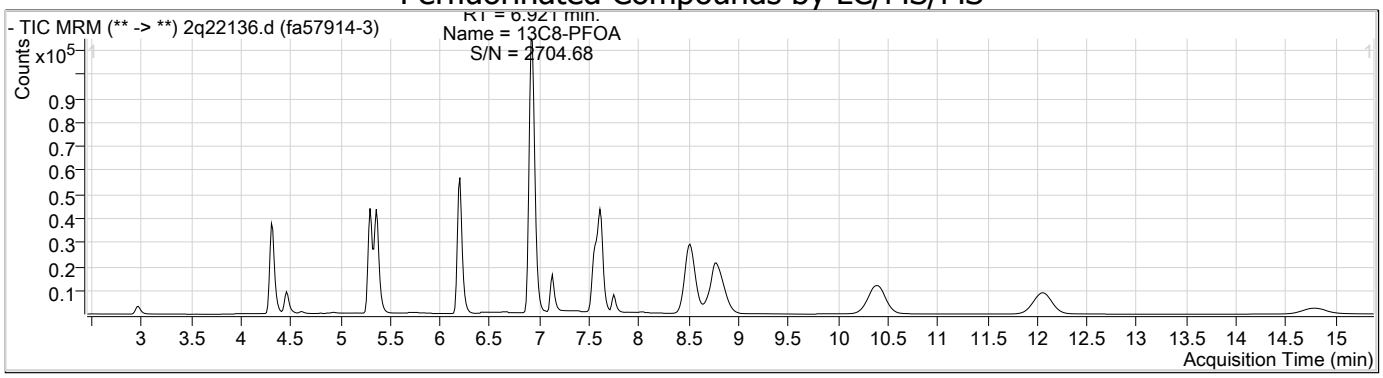
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.923	415.0 -> 370.0	152769	20.00	µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	54971	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	12030	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	126985	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	131101	20.00	µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	153345	20.00	µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	133357	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	114482	20.00	µg/L	0.013
M6-PFDA	8.517	519.0 -> 474.0	215930	20.00	µg/L	0.012
M7-PFUnDA	10.392	570.0 -> 525.0	146856	20.00	µg/L	-0.012
M2-PFDoDA	12.053	615.0 -> 570.0	118265	20.00	µg/L	-0.037
M2-PFTeDA	14.781	715.0 -> 670.0	43231	20.00	µg/L	0.000
M8-FOSA	7.130	506.0 -> 78.0	44924	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	29664	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	37651	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	37175	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	142578	20.00	µg/L	0.012
M2-6:2FTS	6.943	429.0 -> 409.0	180973	20.00	µg/L	0.014
M2-8:2FTS	8.775	529.0 -> 509.0	203887	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	45573	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	142573	20.30	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C2-6:2FTS	6.943	429.0 -> 409.0	180973	20.59	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C2-8:2FTS	8.775	529.0 -> 509.0	202682	19.47	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.4%		
13C2-PFDoDA	12.053	615.0 -> 570.0	117639	18.74	µg/L	-0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C2-PFTeDA	14.781	715.0 -> 670.0	40236	18.02	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.1%		
13C3-PFBS	4.455	302.0 -> 99.0	29665	20.83	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C3-PFHxS	6.198	402.0 -> 99.0	37657	21.73	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.7%		
13C4-PFBA	2.966	217.0 -> 172.0	12028	0.83	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 4.2%		
13C4-PFHpA	6.204	367.0 -> 322.0	153350	21.87	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.3%		
13C5-PFHxA	5.364	318.0 -> 273.0	131088	21.59	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.0%		
13C5-PFPeA	4.312	268.0 -> 223.0	126920	20.21	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C6-PFDA	8.517	519.0 -> 474.0	215857	21.41	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.1%		

Perfluorinated Compounds by LC/MS/MS

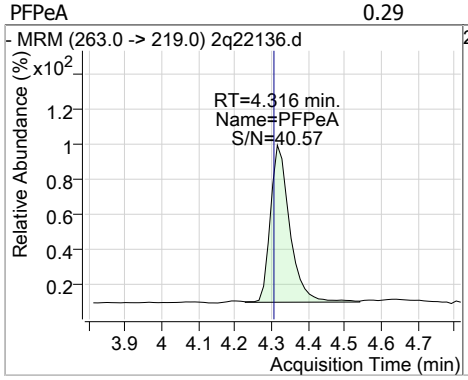
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.392	570.0 -> 525.0	146362	19.14	µg/L		-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.7%			
13C8-FOSA	7.130	506.0 -> 78.0	44929	12.21	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.0%			
13C8-PFOA	6.921	421.0 -> 376.0	133348	22.72	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.6%			
13C8-PFOS	7.559	507.0 -> 99.0	37172	21.25	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.3%			
13C9-PFNA	7.614	472.0 -> 427.0	114480	21.82	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.1%			
d3-MeFOSAA	7.620	573.0 -> 419.0	45585	20.38	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%			
M2-PFOA	6.923	415.0 -> 370.0	152716	19.99	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	54990	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.674	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.447	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	8.532	513.0 -> 469.0	0	0.00	µg/L	m	1
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	272	0.13	µg/L		98
PFHxS	6.201	399.0 -> 80.0	0	0.00	µg/L	m	1
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.924	413.0 -> 369.0	483	0.15	µg/L	m	100
PFOS	7.359	499.0 -> 80.0	189	0.12	µg/L	m	83
PFPeA	4.316	263.0 -> 219.0	1690	0.29	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	14.800	713.0 -> 669.0	0	0.00	µg/L	m	1
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.359	563.0 -> 519.0	0	0.00	µg/L	m	1

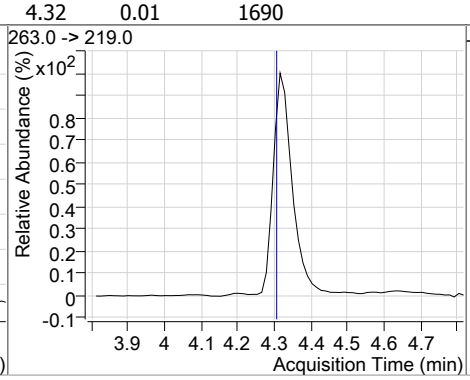
 # = Qualifier out of range, m = manually integrated, + = Area summed

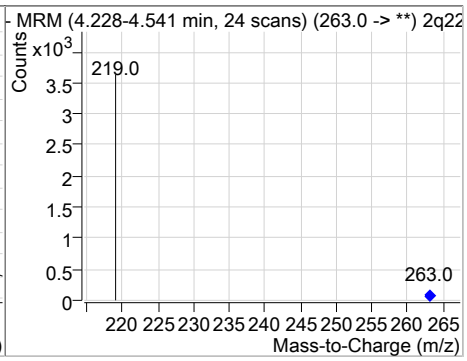
Perfluorinated Compounds by LC/MS/MS



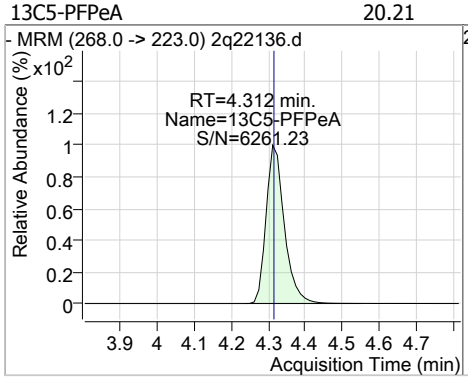
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.29	4.32	0.01	1690				

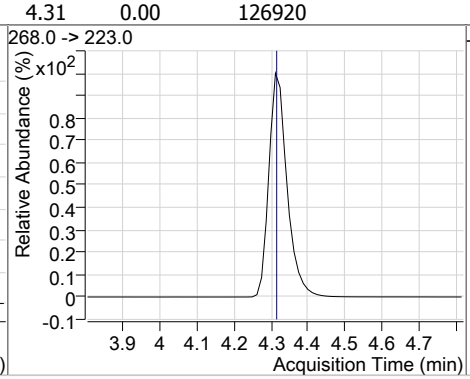


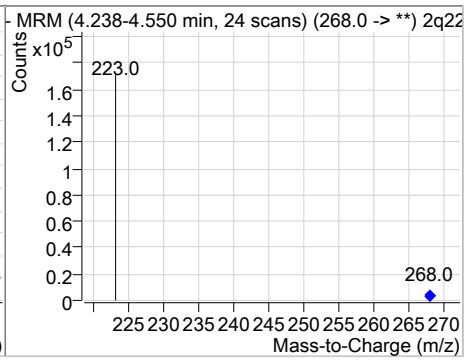




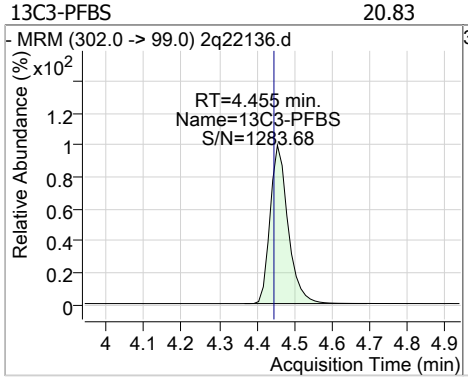
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.21	4.31	0.00	126920				

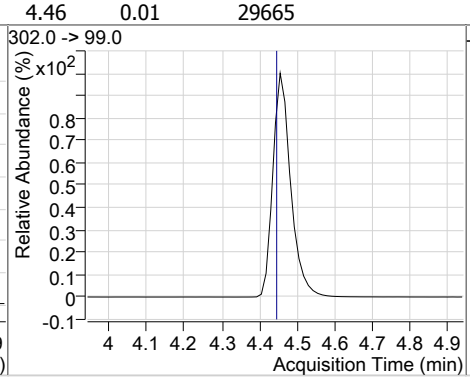


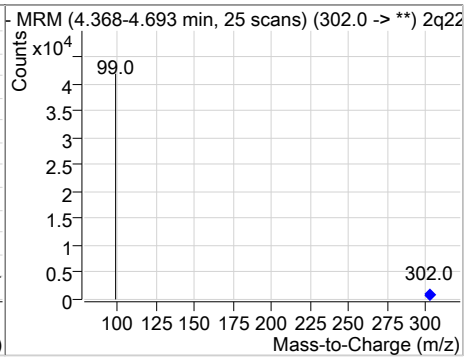




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.83	4.46	0.01	29665				

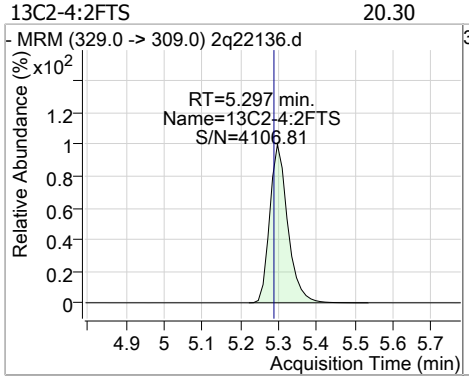


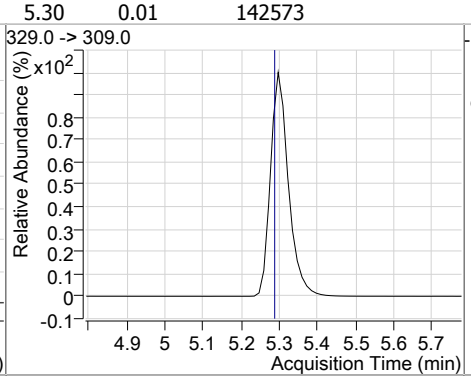


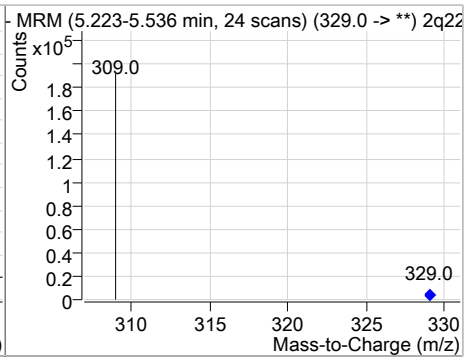


Perfluorinated Compounds by LC/MS/MS

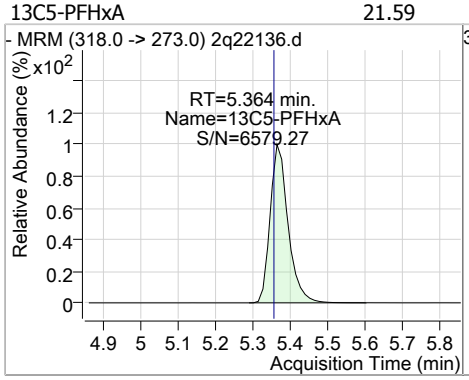
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.30	5.30	0.01	142573				

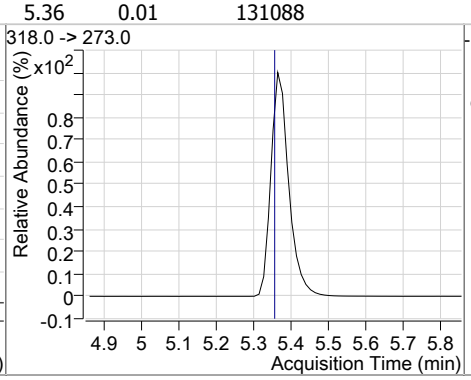


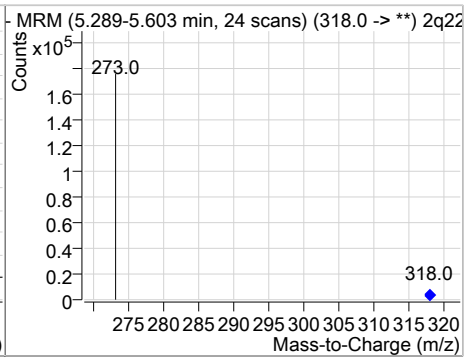




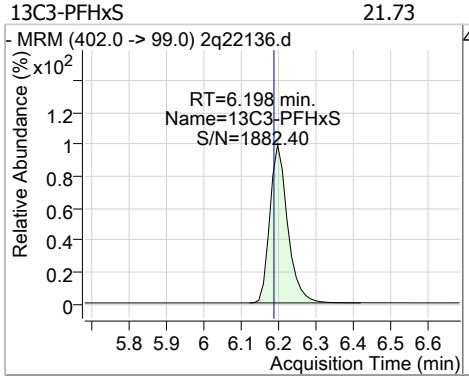
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.59	5.36	0.01	131088				

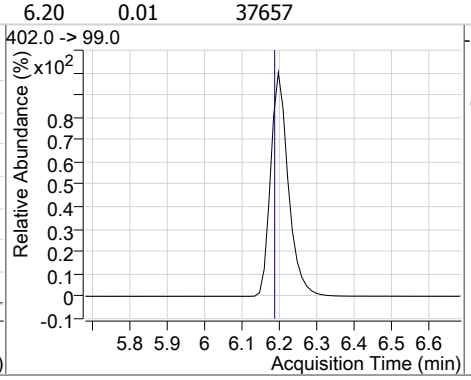


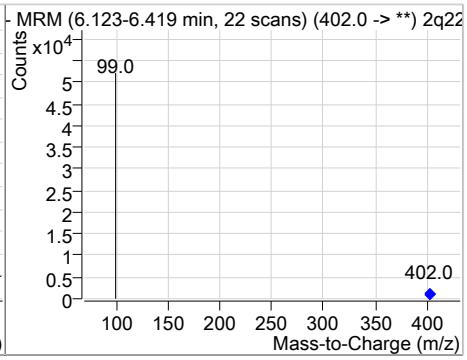




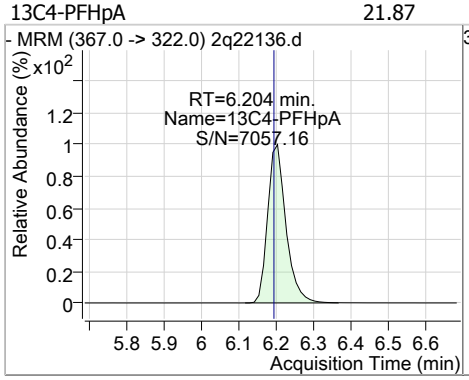
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.73	6.20	0.01	37657				

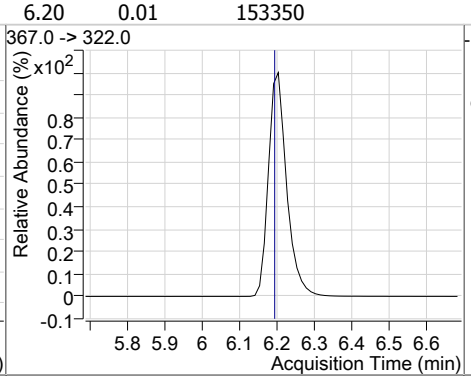


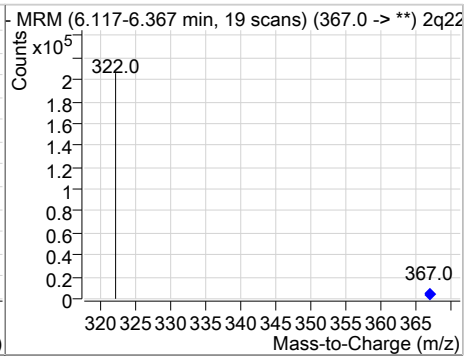




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.87	6.20	0.01	153350				

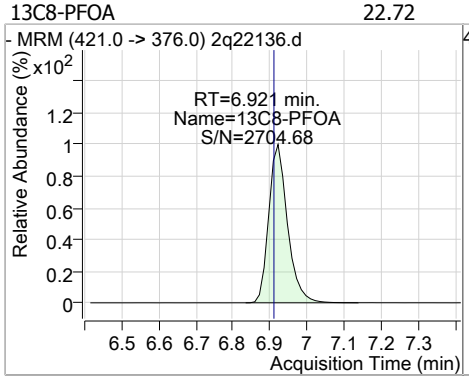


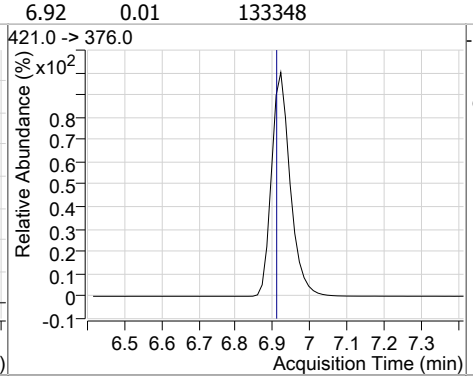


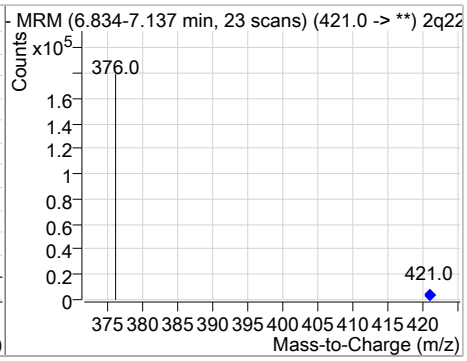


Perfluorinated Compounds by LC/MS/MS

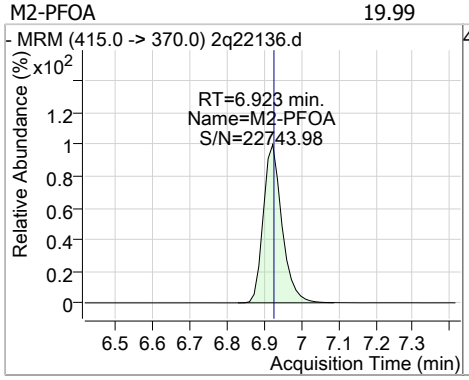
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	22.72	6.92	0.01	133348				

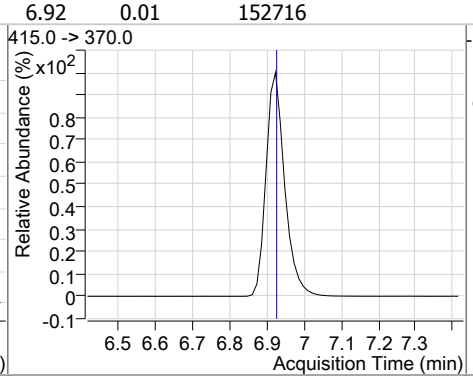


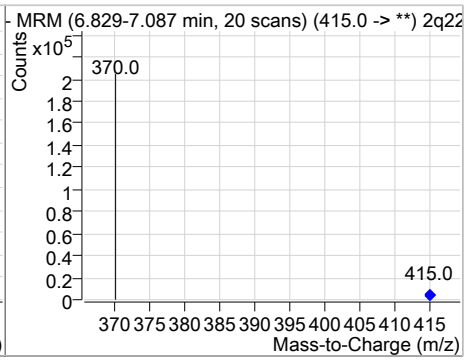




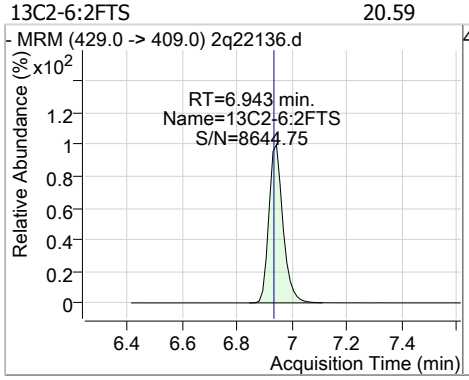
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.92	0.01	152716				

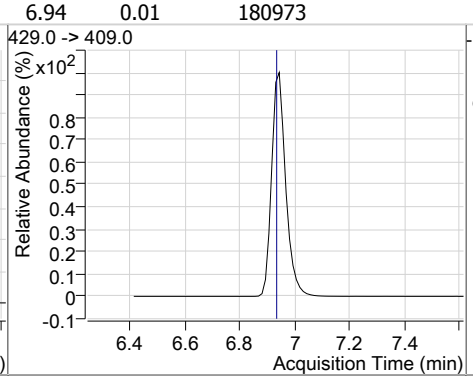


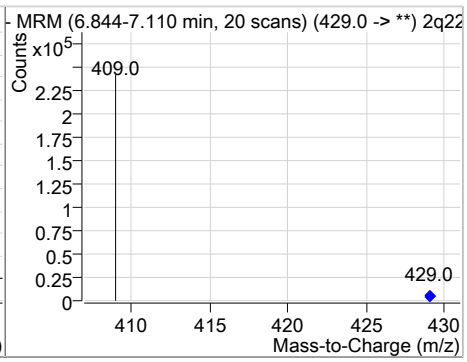




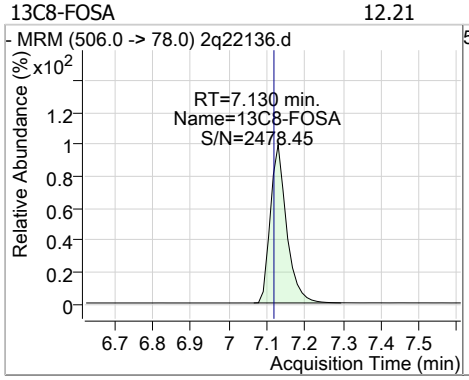
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.59	6.94	0.01	180973				

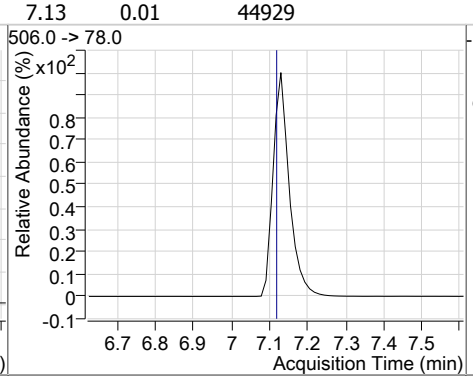


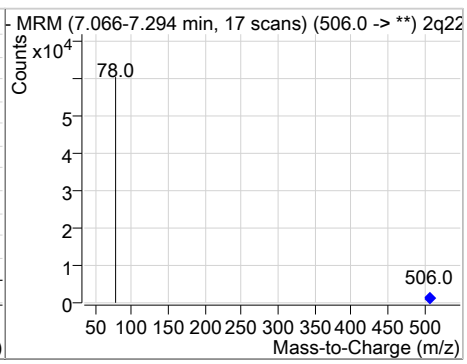




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	12.21	7.13	0.01	44929				

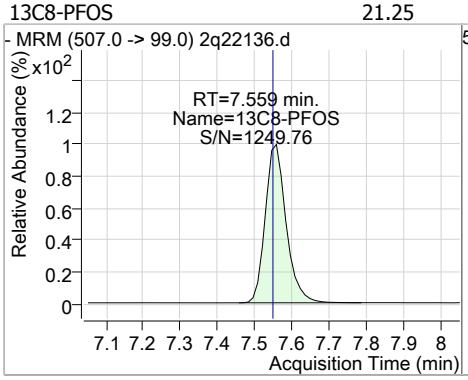


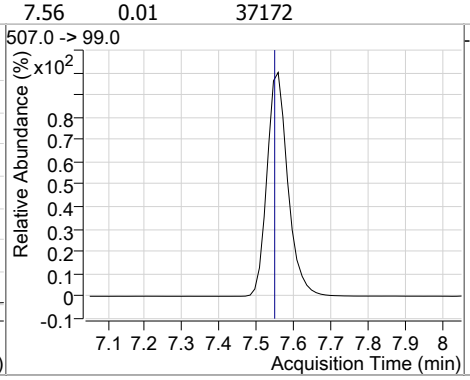


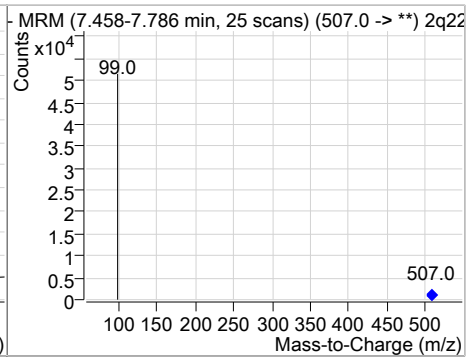


Perfluorinated Compounds by LC/MS/MS

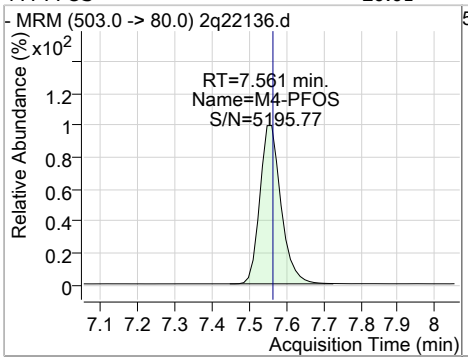
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.25	7.56	0.01	37172				

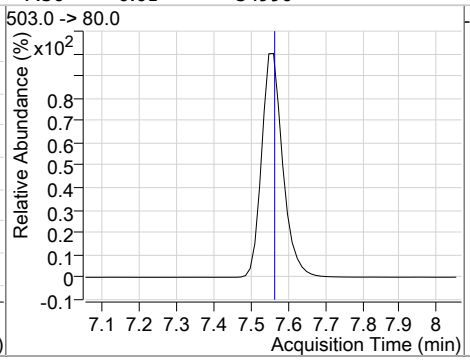


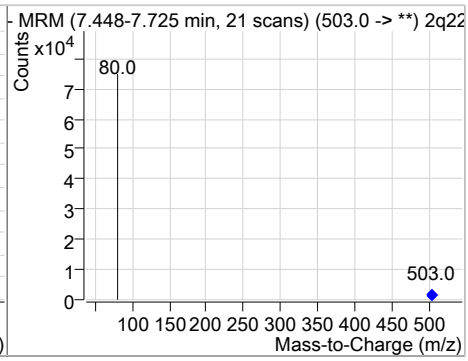




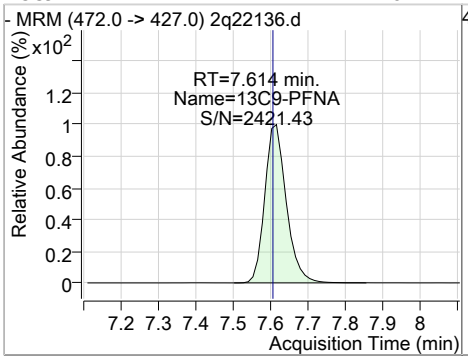
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.56	0.01	54990				

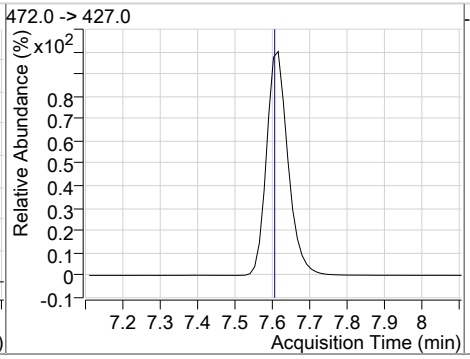


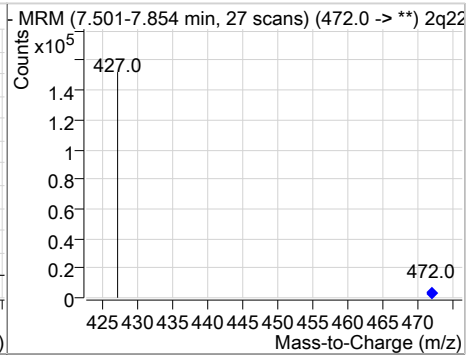




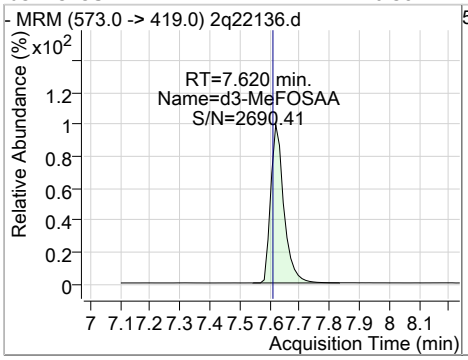
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.82	7.61	0.01	114480				

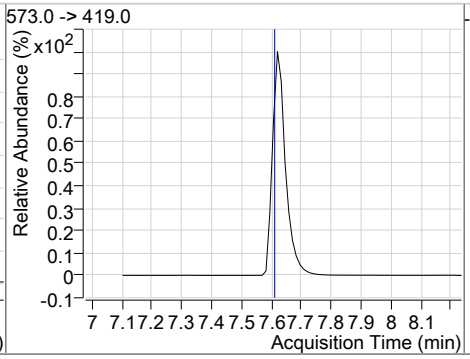


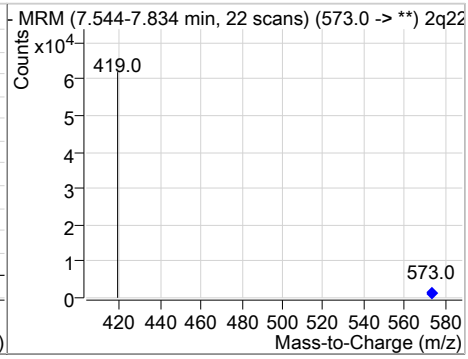




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.38	7.62	0.01	45585				

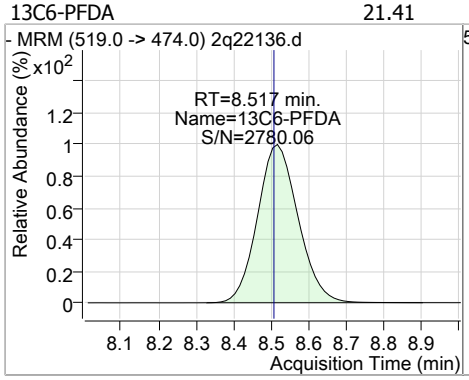


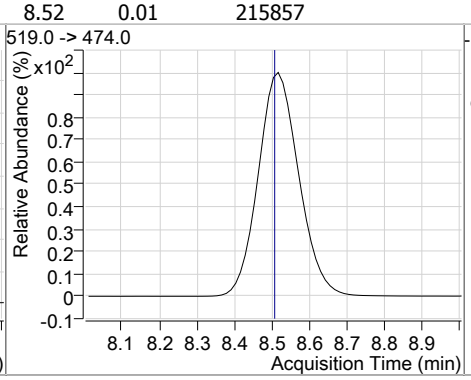


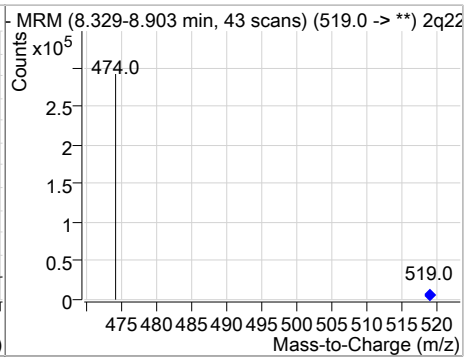


Perfluorinated Compounds by LC/MS/MS

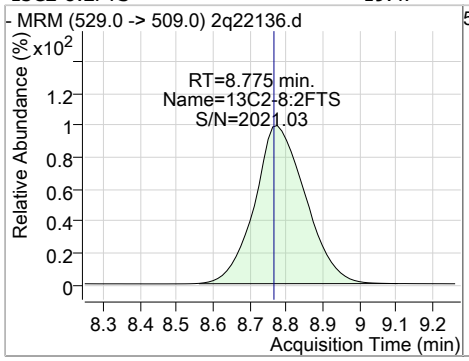
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.41	8.52	0.01	215857				

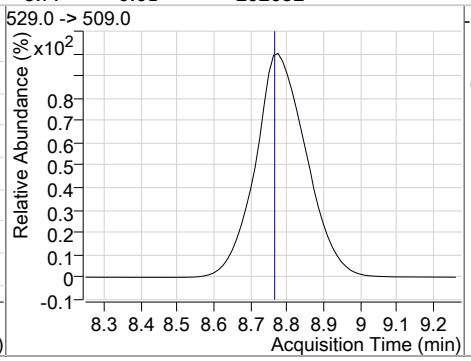


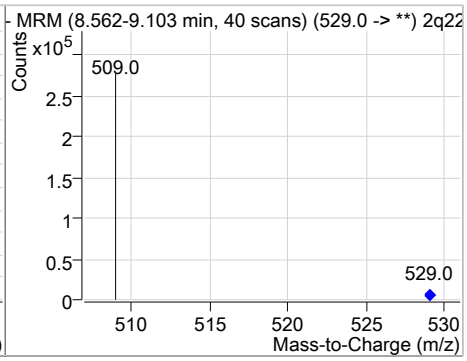




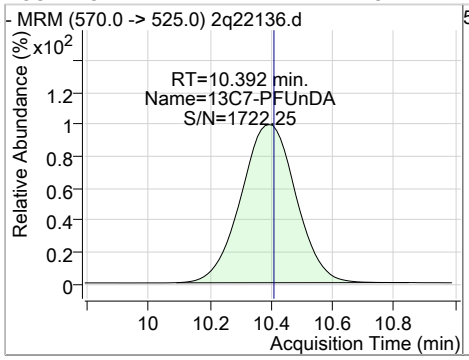
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.47	8.77	0.01	202682				

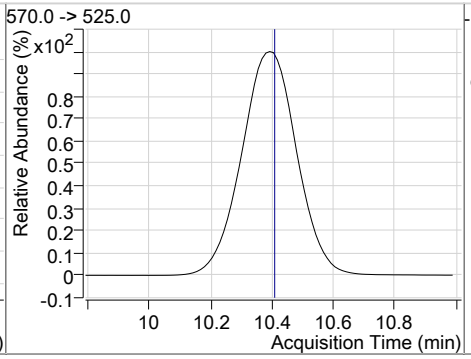


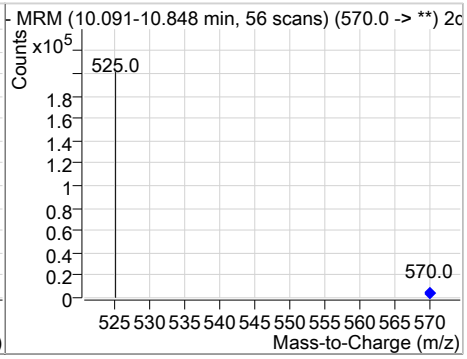




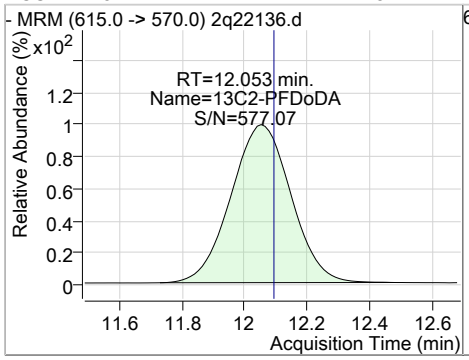
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.14	10.39	-0.01	146362				

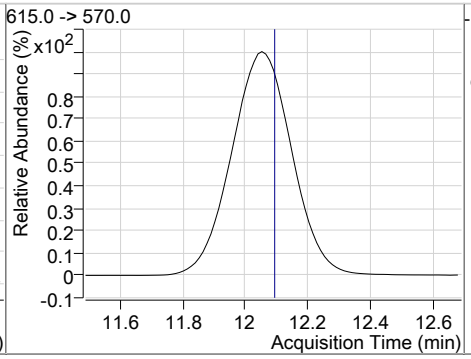


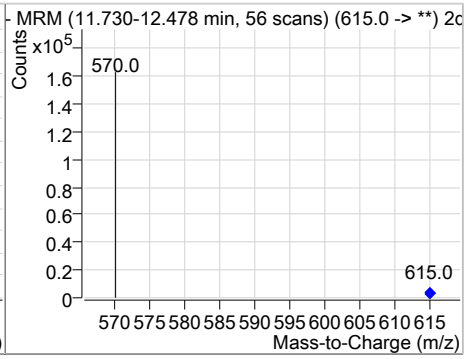




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.74	12.05	-0.04	117639				

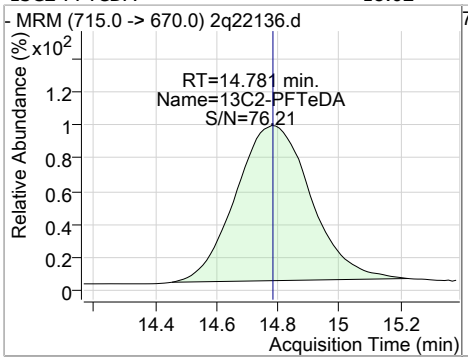


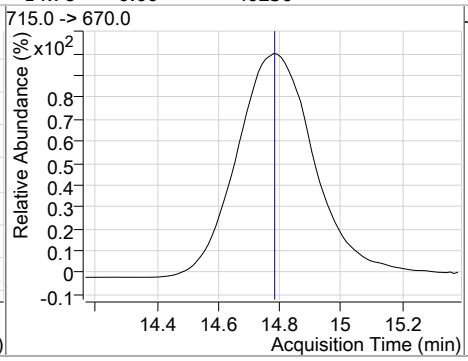


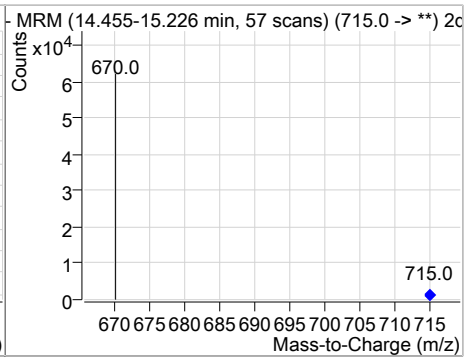


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.02	14.78	0.00	40236				







Manual Integration Approval Summary

Sample Number: FA57914-3
Lab FileID: 2Q22136.D
Injection Time: 10/15/18 16:43
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.92	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.36	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22418.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 10:11:06 PM
Sample Name : fa57914-4
Vial : Vial 33
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

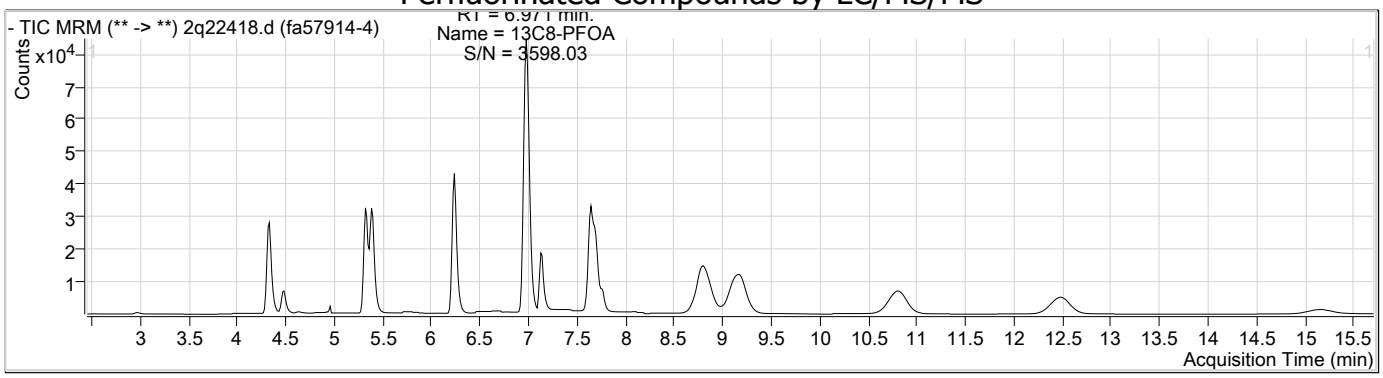
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	121188	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	49781	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1583	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	95033	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	98619	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	113685	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	89327	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	82325	20.00	µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	151558	20.00	µg/L	0.025
M7-PFUnDA	10.805	570.0 -> 525.0	92951	20.00	µg/L	0.025
M2-PFDoDA	12.478	615.0 -> 570.0	73537	20.00	µg/L	0.025
M2-PFTeDA	15.168	715.0 -> 670.0	25014	20.00	µg/L	0.050
M8-FOSA	7.129	506.0 -> 78.0	54427	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	23009	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	29590	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	27451	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	107136	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	138572	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	143166	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	33092	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	107119	16.27	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.3%		
13C2-6:2FTS	6.993	429.0 -> 409.0	138604	15.70	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.5%		
13C2-8:2FTS	9.160	529.0 -> 509.0	142052	13.52	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.6%		
13C2-PFDoDA	12.478	615.0 -> 570.0	73079	13.22	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.1%		
13C2-PFTeDA	15.168	715.0 -> 670.0	22723	11.71	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 58.5%		
13C3-PFBS	4.481	302.0 -> 99.0	23026	16.46	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.3%		
13C3-PFHxS	6.235	402.0 -> 99.0	29590	16.62	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.1%		
13C4-PFBA	2.966	217.0 -> 172.0	1574	0.12	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.6%		
13C4-PFHpA	6.242	367.0 -> 322.0	113710	17.68	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.4%		
13C5-PFHxA	5.390	318.0 -> 273.0	98673	17.92	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.6%		
13C5-PFPeA	4.337	268.0 -> 223.0	95024	16.62	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.1%		
13C6-PFDA	8.804	519.0 -> 474.0	150519	16.18	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.9%		

Perfluorinated Compounds by LC/MS/MS

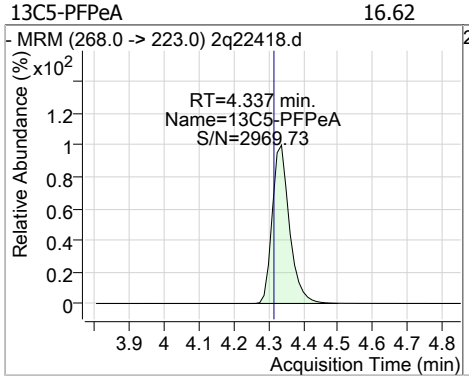
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.805	570.0 -> 525.0	92291	13.48	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.4%			
13C8-FOSA	7.129	506.0 -> 78.0	54379	14.01	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.1%			
13C8-PFOA	6.971	421.0 -> 376.0	89380	16.63	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.2%			
13C8-PFOS	7.634	507.0 -> 99.0	27451	15.13	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.6%			
13C9-PFNA	7.702	472.0 -> 427.0	82300	16.74	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.7%			
d3-MeFOSAA	7.645	573.0 -> 419.0	33101	14.23	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.2%			
M2-PFOA	6.973	415.0 -> 370.0	121199	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	49779	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.536	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.547	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.393	313.0 -> 269.0	216	0.14	µg/L		98
PFHxS	6.238	399.0 -> 80.0	357	0.25	µg/L	m	98
PFNA	7.704	463.0 -> 419.0	0	0.00	µg/L	m	1
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	1541	0.67	µg/L	m	88
PFOS	7.637	499.0 -> 80.0	298	0.25	µg/L	m	98
PFPeA	4.328	263.0 -> 219.0	1024	0.23	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

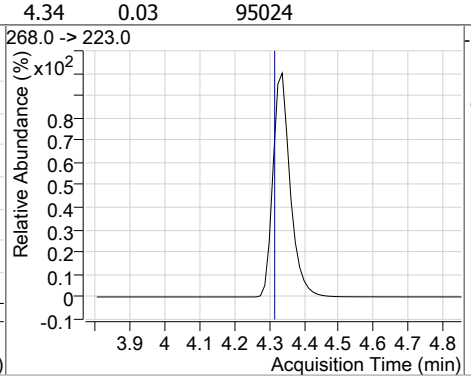
 # = Qualifier out of range, m = manually integrated, + = Area summed

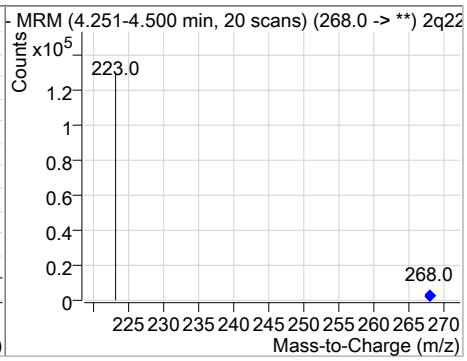
Perfluorinated Compounds by LC/MS/MS



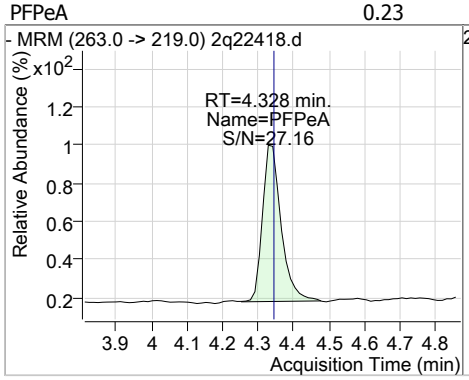
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.62	4.34	0.03	95024				

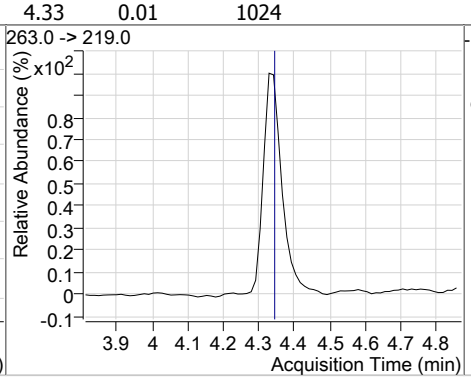


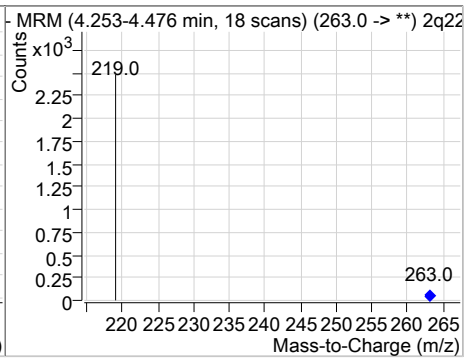




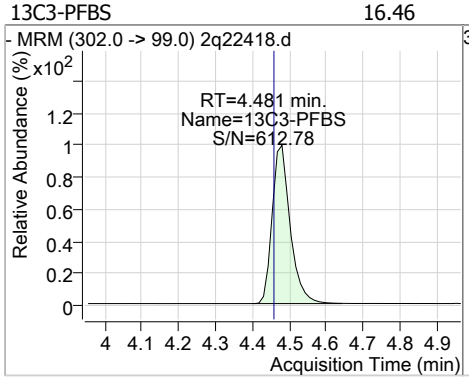
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.23	4.33	0.01	1024				

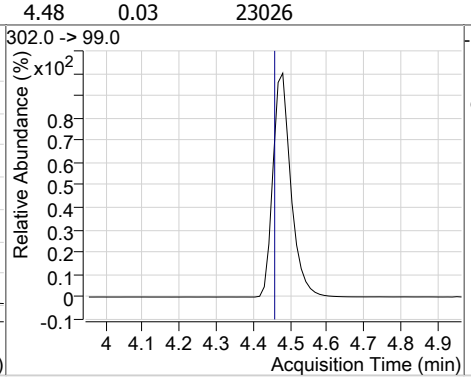


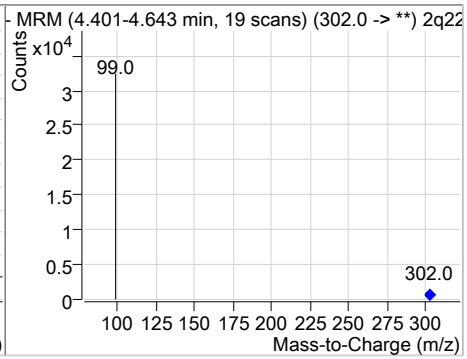




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	16.46	4.48	0.03	23026				

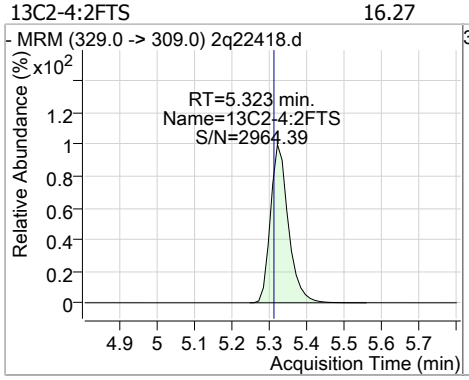


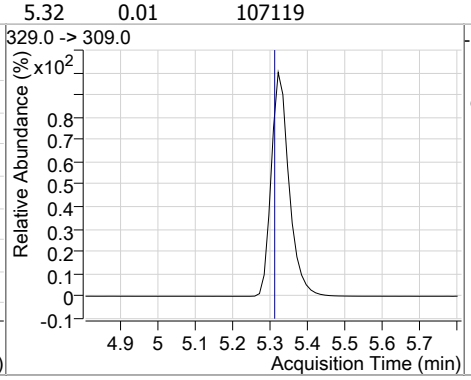


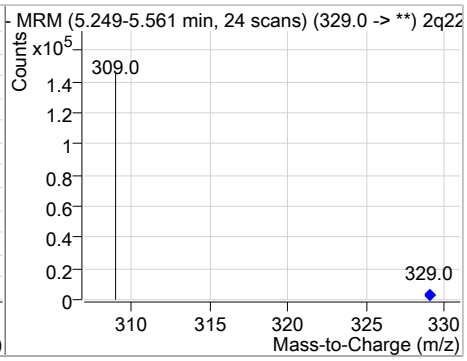


Perfluorinated Compounds by LC/MS/MS

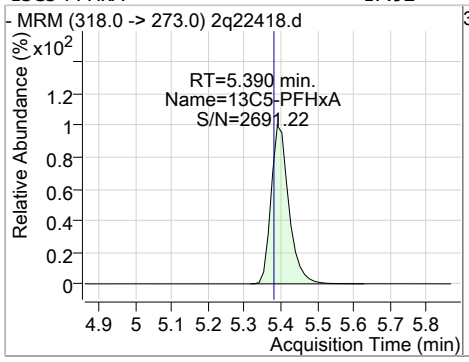
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.27	5.32	0.01	107119				

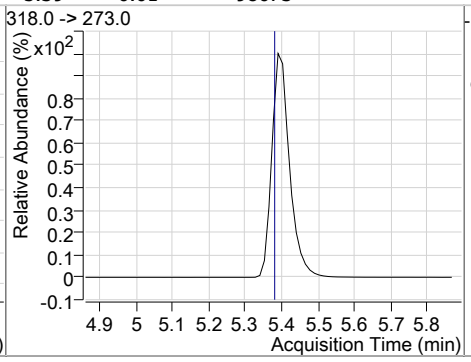


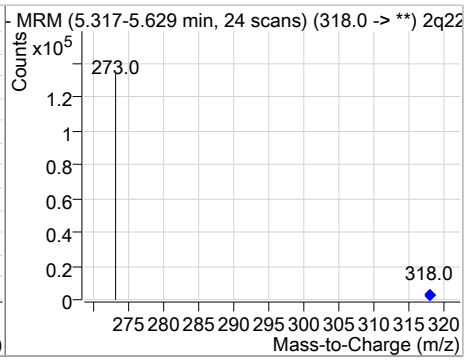




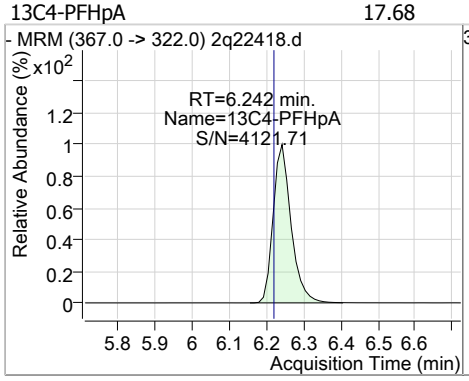
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.92	5.39	0.01	98673				

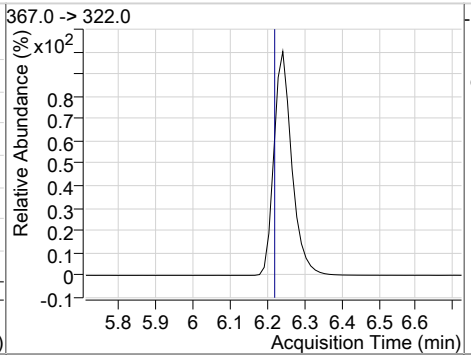


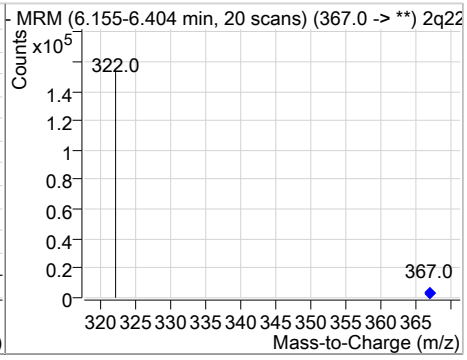




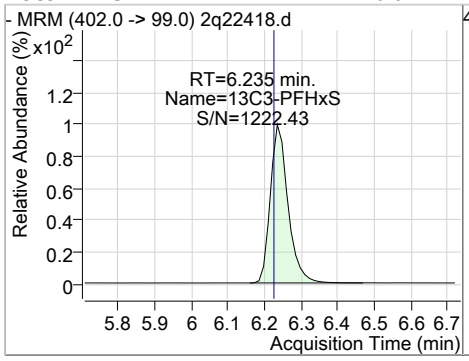
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.68	6.24	0.03	113710				

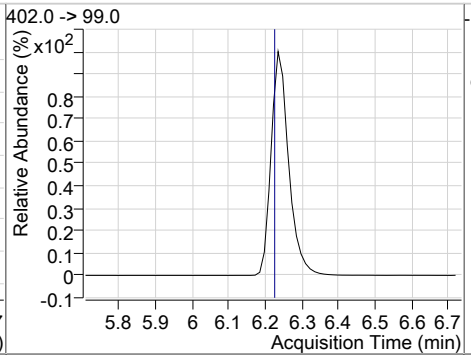


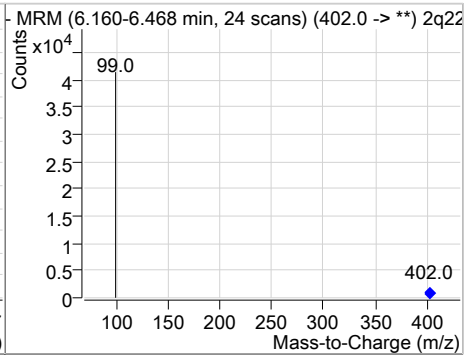




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.62	6.24	0.01	29590				

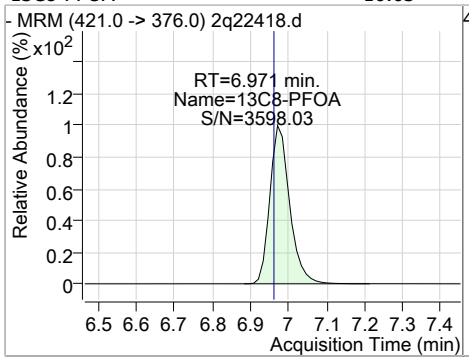


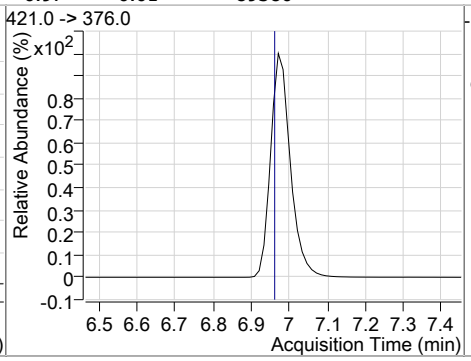


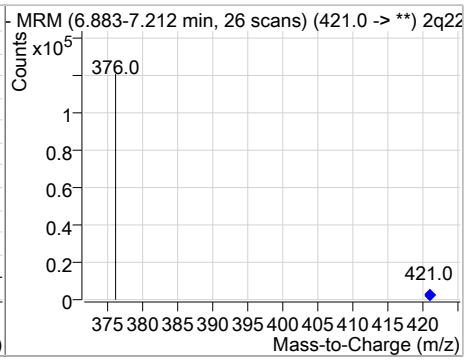


Perfluorinated Compounds by LC/MS/MS

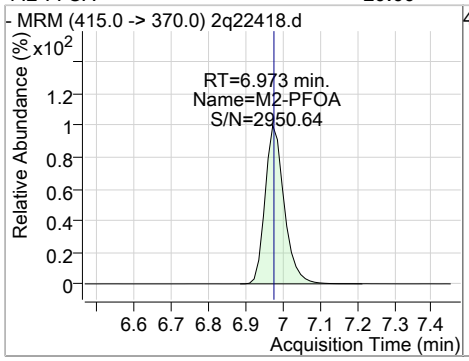
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	16.63	6.97	0.01	89380				

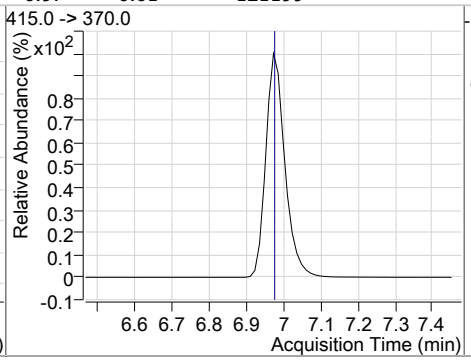


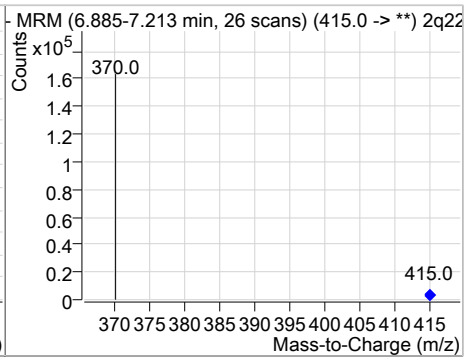




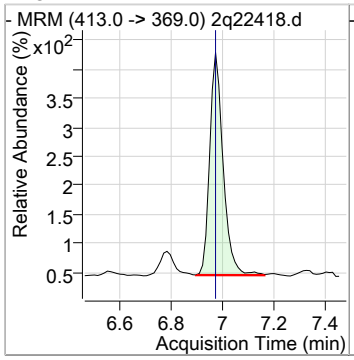
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	121199				

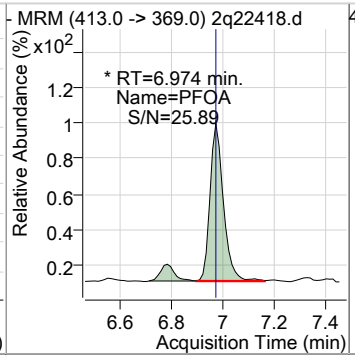


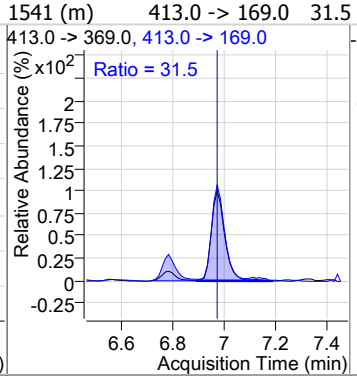


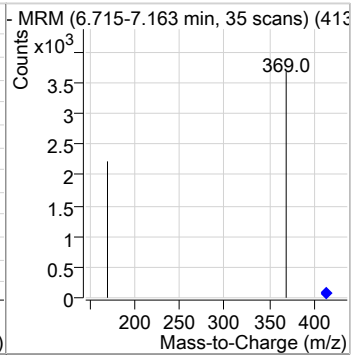


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.67	6.97	0.01	1541 (m)	413.0 -> 169.0	31.5	0.0	55.3

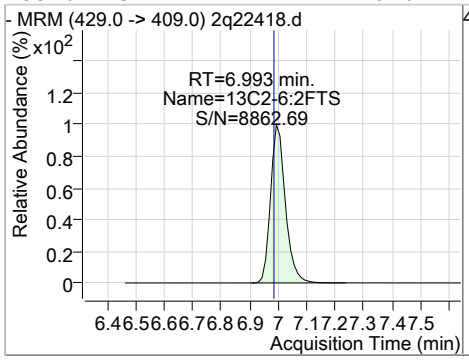


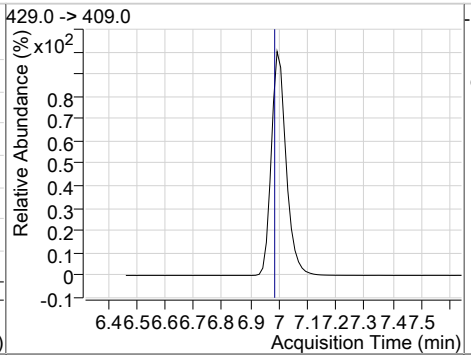


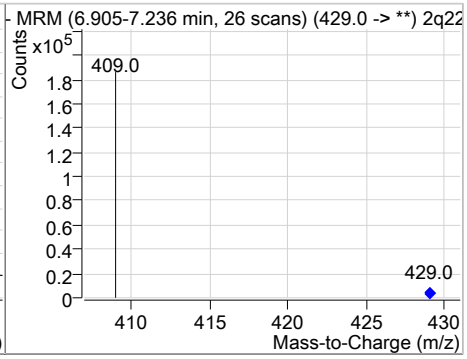




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.70	6.99	0.01	138604				

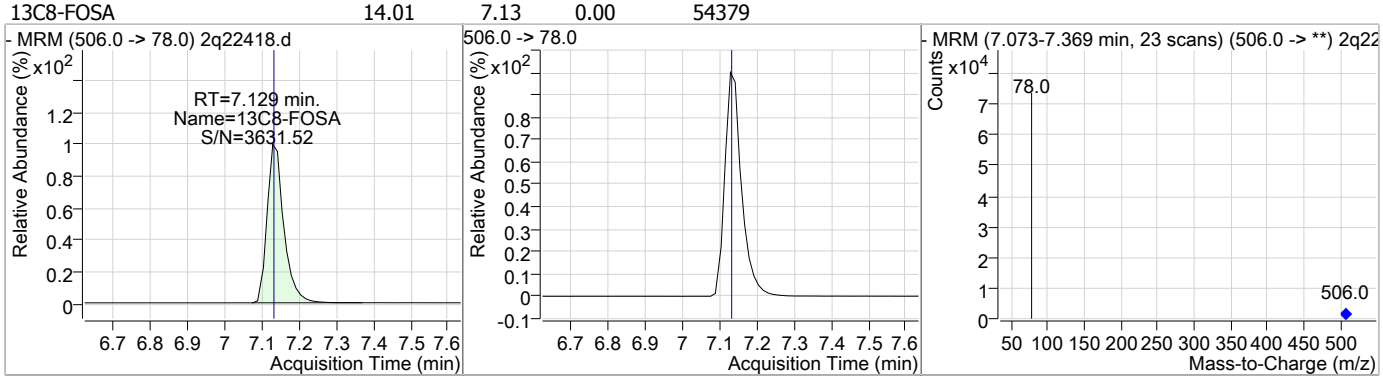




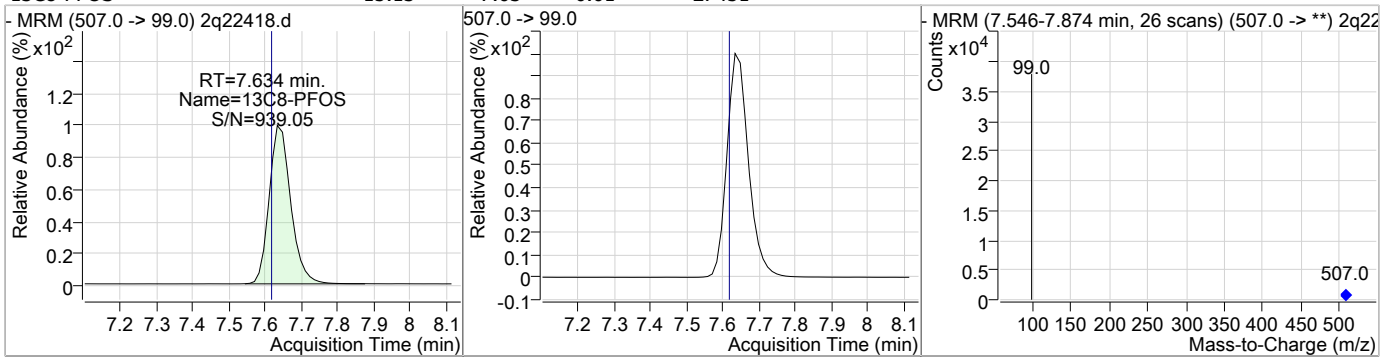


Perfluorinated Compounds by LC/MS/MS

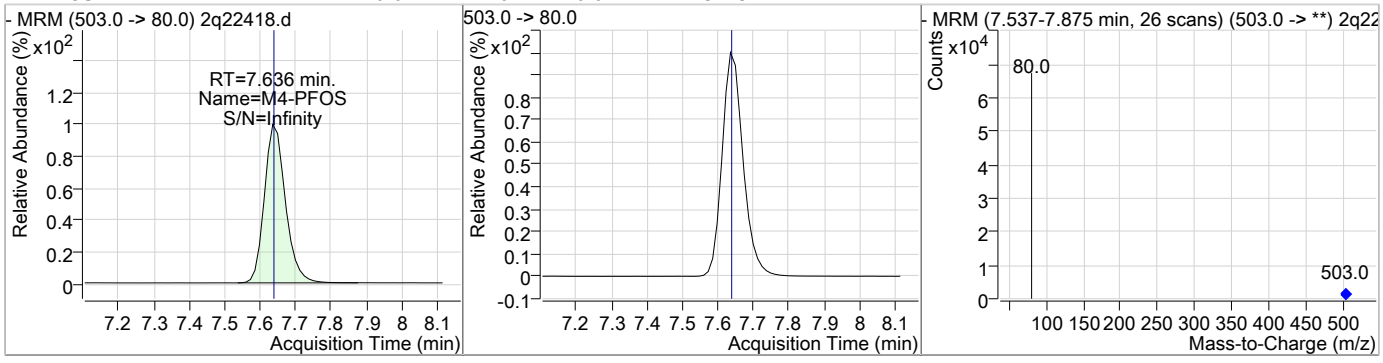
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	14.01	7.13	0.00	54379				



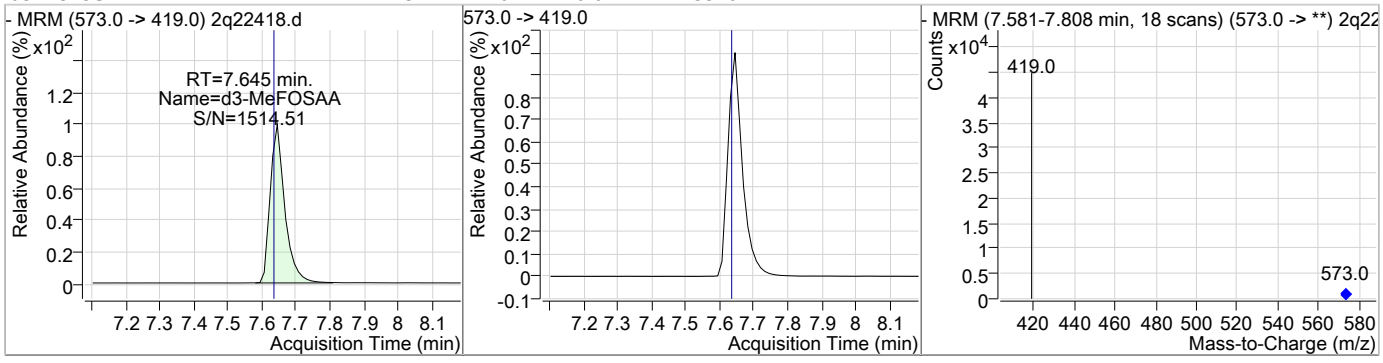
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.13	7.63	0.01	27451				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.64	0.01	49779				

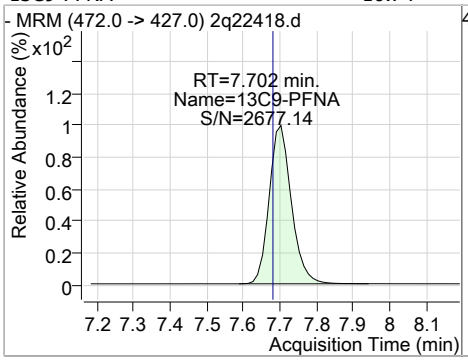


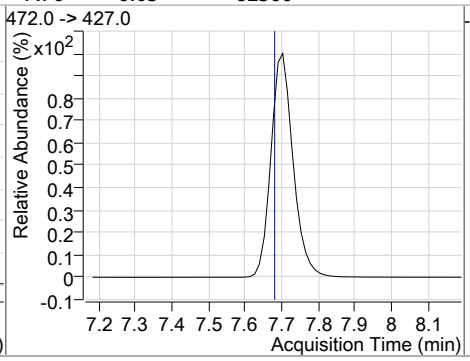
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.23	7.64	0.01	33101				

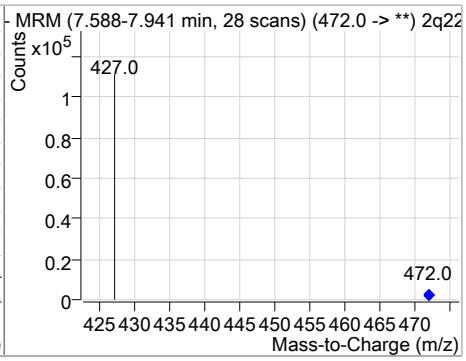


Perfluorinated Compounds by LC/MS/MS

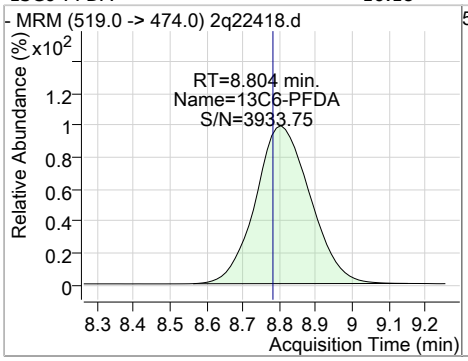
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	16.74	7.70	0.03	82300				

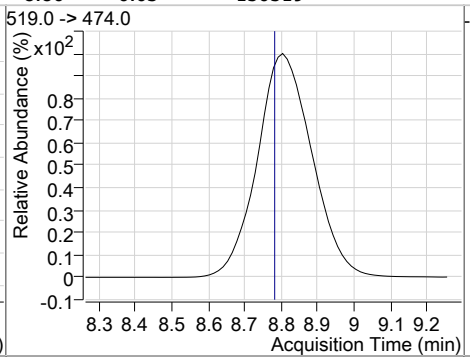


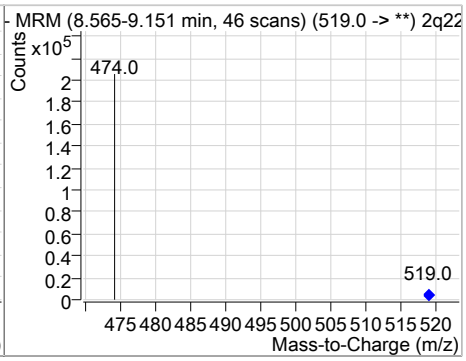




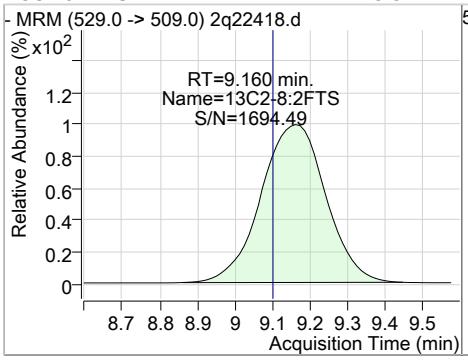
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.18	8.80	0.03	150519				

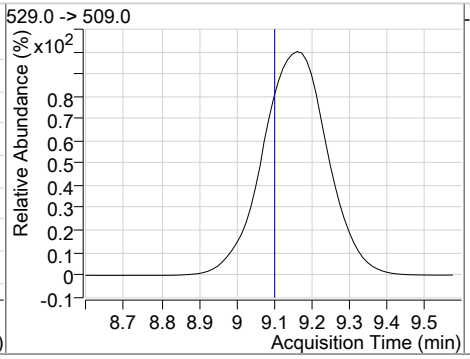


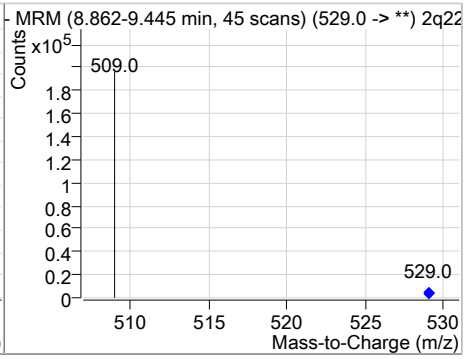




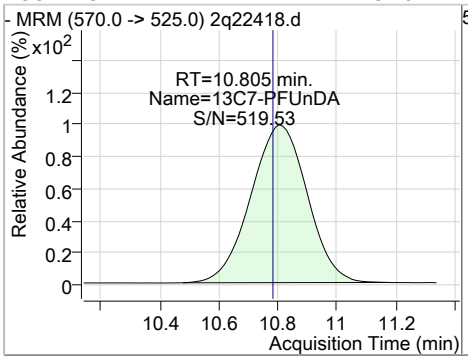
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.52	9.16	0.06	142052				

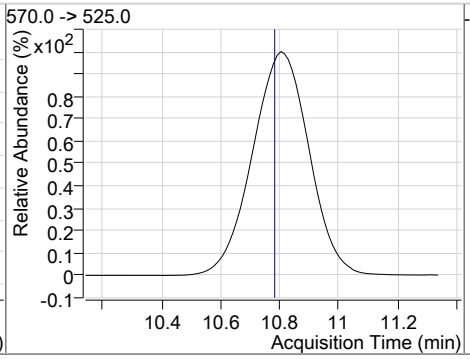


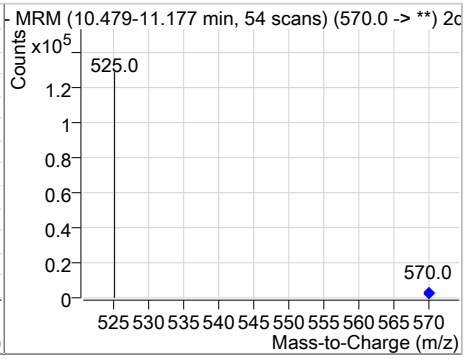




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.48	10.80	0.03	92291				

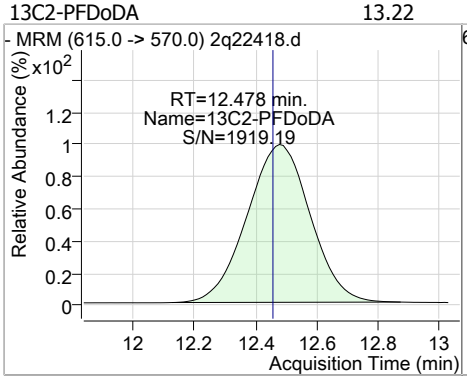


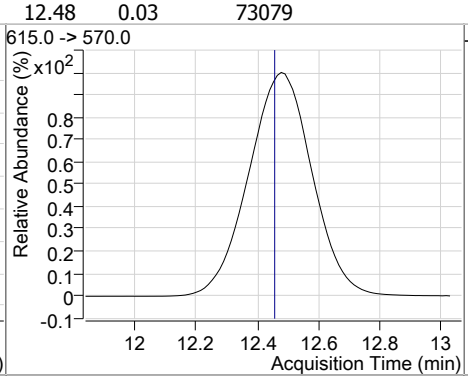


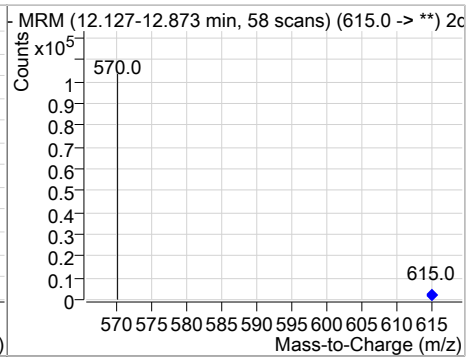


Perfluorinated Compounds by LC/MS/MS

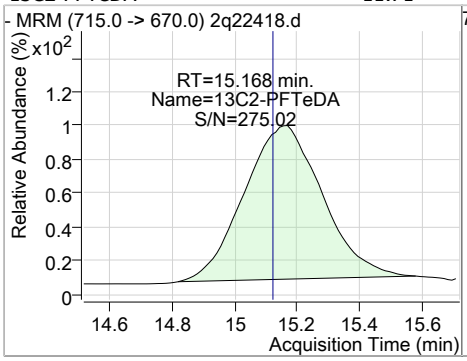
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	13.22	12.48	0.03	73079				

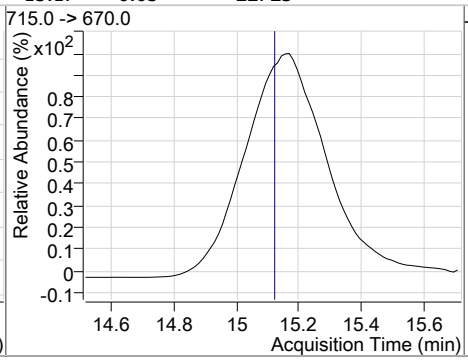


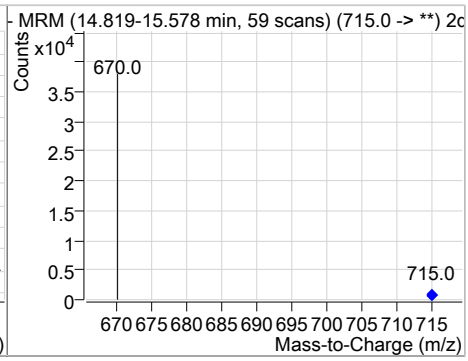




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.71	15.17	0.05	22723				







Manual Integration Approval Summary

Sample Number: FA57914-4
Lab FileID: 2Q22418.D
Injection Time: 10/19/18 22:11
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanoic acid	335-67-1		6.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22137.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 5:04:10 PM
Sample Name : fa57914-4
Vial : Vial 16
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

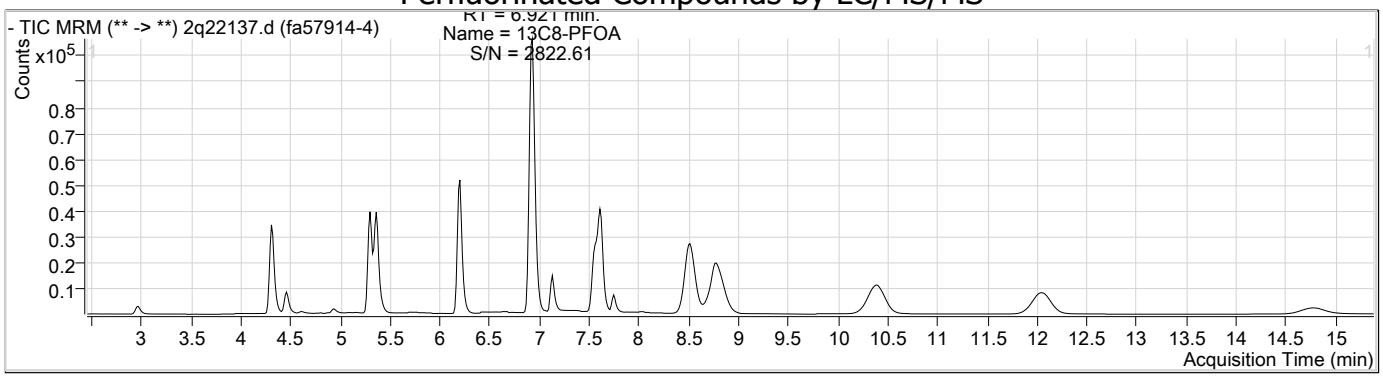
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.923	415.0 -> 370.0	140402	20.00	µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	52277	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	10964	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	114484	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	117661	20.00	µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	139966	20.00	µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	121832	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	104711	20.00	µg/L	0.013
M6-PFDA	8.516	519.0 -> 474.0	200497	20.00	µg/L	0.012
M7-PFUnDA	10.392	570.0 -> 525.0	136188	20.00	µg/L	-0.012
M2-PFDoDA	12.040	615.0 -> 570.0	110954	20.00	µg/L	-0.050
M2-PFTeDA	14.768	715.0 -> 670.0	42178	20.00	µg/L	-0.012
M8-FOSA	7.130	506.0 -> 78.0	40278	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	27027	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	33891	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	33800	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	127763	20.00	µg/L	0.012
M2-6:2FTS	6.943	429.0 -> 409.0	165242	20.00	µg/L	0.014
M2-8:2FTS	8.775	529.0 -> 509.0	186196	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	42218	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	127712	18.18	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.9%		
13C2-6:2FTS	6.943	429.0 -> 409.0	165255	18.81	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C2-8:2FTS	8.775	529.0 -> 509.0	185726	17.84	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.2%		
13C2-PFDoDA	12.040	615.0 -> 570.0	110326	17.58	µg/L	-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.9%		
13C2-PFTeDA	14.768	715.0 -> 670.0	39036	17.48	µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.4%		
13C3-PFBS	4.455	302.0 -> 99.0	27035	18.98	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C3-PFHxS	6.198	402.0 -> 99.0	33880	19.55	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C4-PFBA	2.966	217.0 -> 172.0	10974	0.76	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 3.8%		
13C4-PFHpA	6.204	367.0 -> 322.0	139969	19.96	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C5-PFHxA	5.364	318.0 -> 273.0	117609	19.37	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.9%		
13C5-PFPeA	4.312	268.0 -> 223.0	114403	18.21	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C6-PFDA	8.516	519.0 -> 474.0	200165	19.86	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		

Perfluorinated Compounds by LC/MS/MS

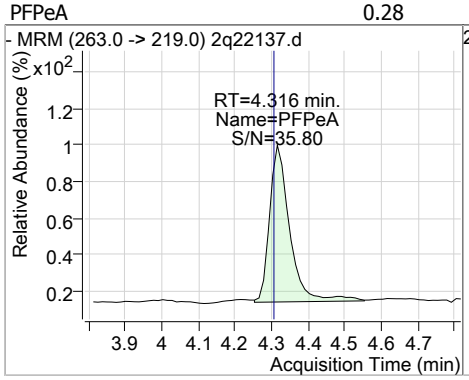
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.392	570.0 -> 525.0	135703	17.74	µg/L		-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.7%			
13C8-FOSA	7.130	506.0 -> 78.0	40264	10.94	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 54.7%			
13C8-PFOA	6.921	421.0 -> 376.0	121848	20.76	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%			
13C8-PFOS	7.559	507.0 -> 99.0	33796	19.32	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.6%			
13C9-PFNA	7.614	472.0 -> 427.0	104693	19.96	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%			
d3-MeFOSAA	7.620	573.0 -> 419.0	42219	18.88	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.4%			
M2-PFOA	6.923	415.0 -> 370.0	140417	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	52242	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.334	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	8.519	513.0 -> 469.0	0	0.00	µg/L	m	1
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	293	0.16	µg/L		99
PFHxS	6.201	399.0 -> 80.0	365	0.21	µg/L	m	95
PFNA	7.602	463.0 -> 419.0	0	0.00	µg/L	m	1
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.924	413.0 -> 369.0	1644	0.55	µg/L	m	94
PFOS	7.562	499.0 -> 80.0	338	0.24	µg/L	m	90
PFPeA	4.316	263.0 -> 219.0	1481	0.28	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	14.775	713.0 -> 669.0	0	0.00	µg/L	m	1
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.421	563.0 -> 519.0	0	0.00	µg/L	m	1

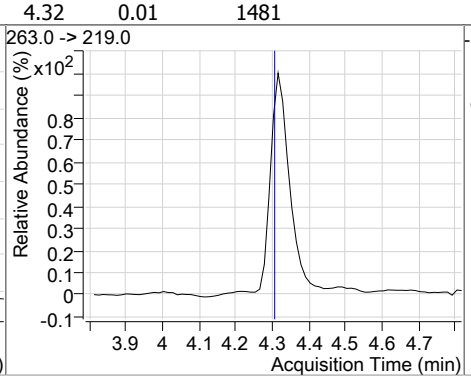
 # = Qualifier out of range, m = manually integrated, + = Area summed

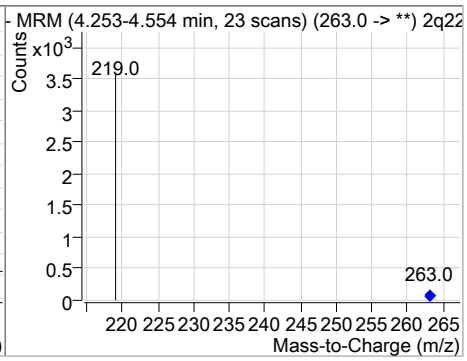
Perfluorinated Compounds by LC/MS/MS



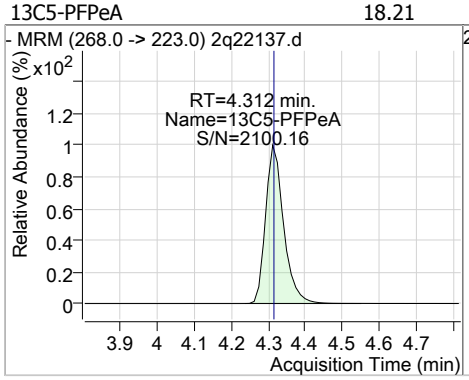
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.28	4.32	0.01	1481				

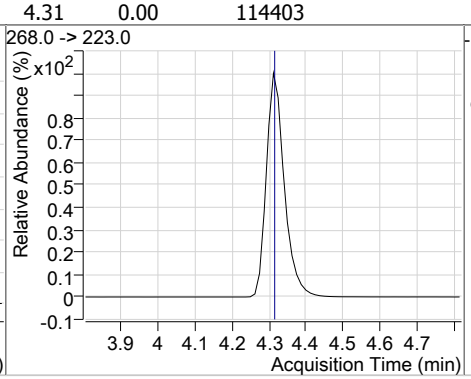


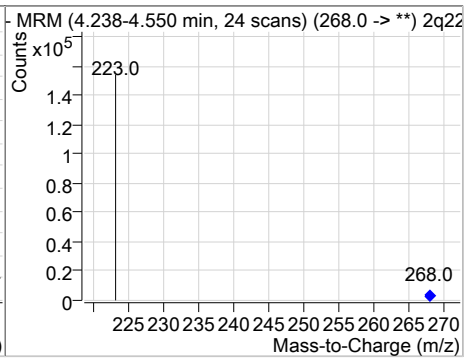




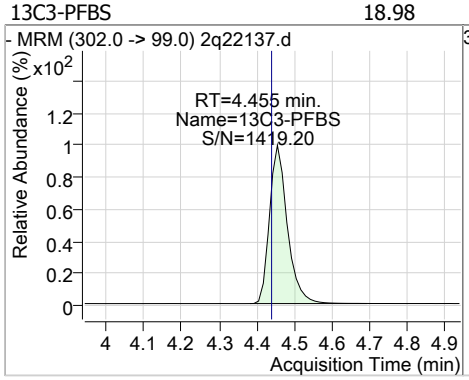
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.21	4.31	0.00	114403				

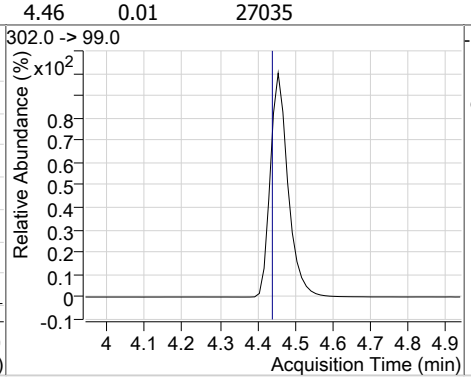


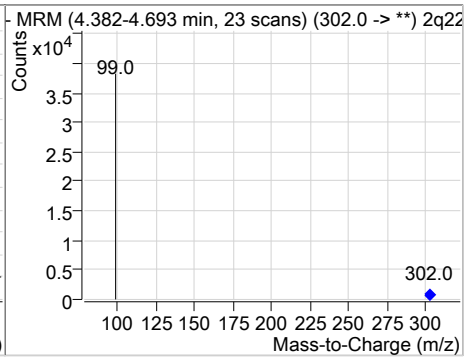




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.98	4.46	0.01	27035				

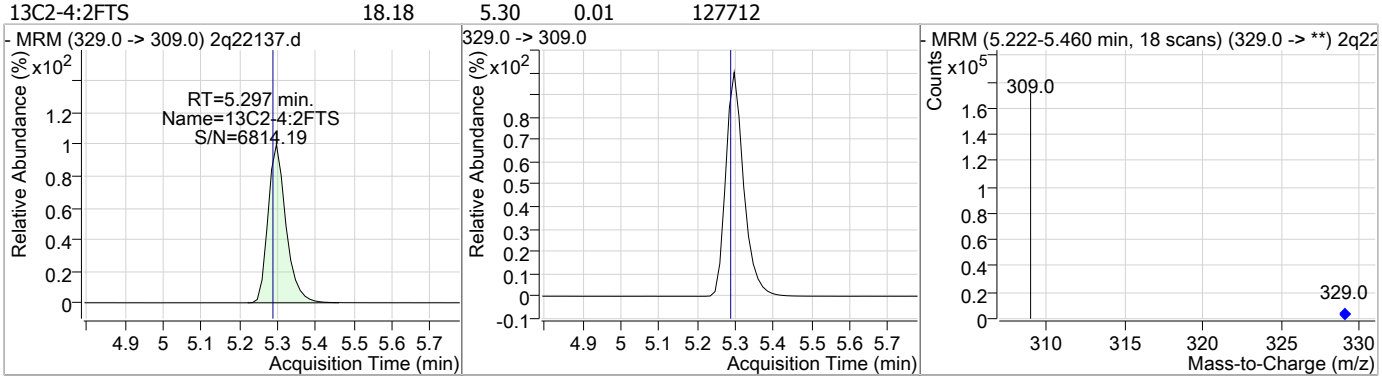




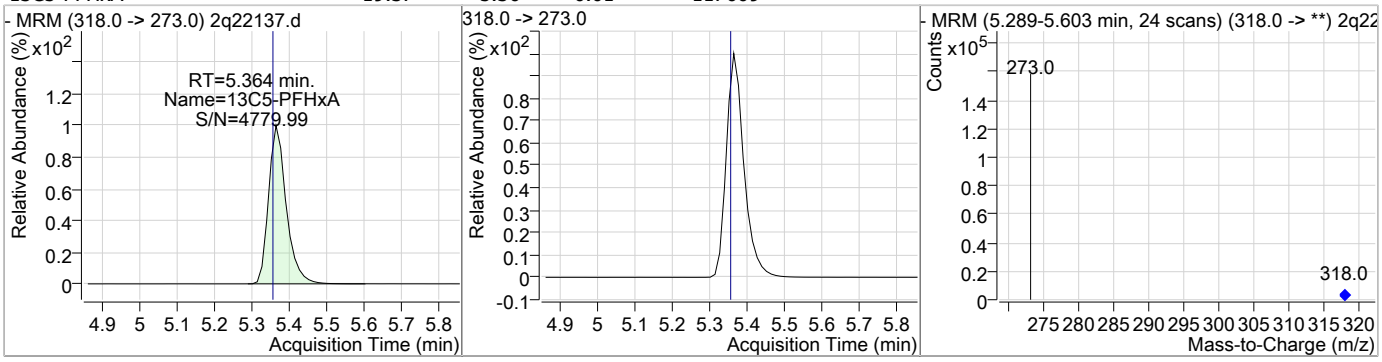


Perfluorinated Compounds by LC/MS/MS

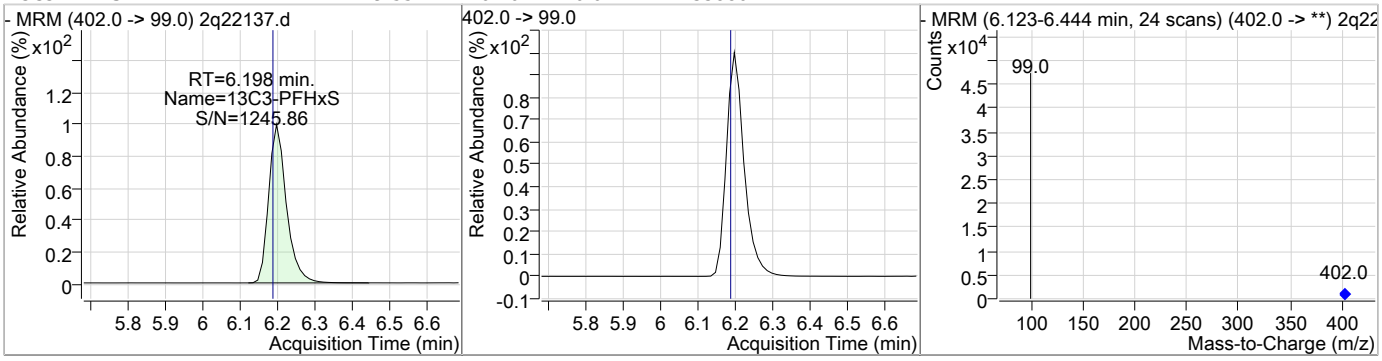
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.18	5.30	0.01	127712				



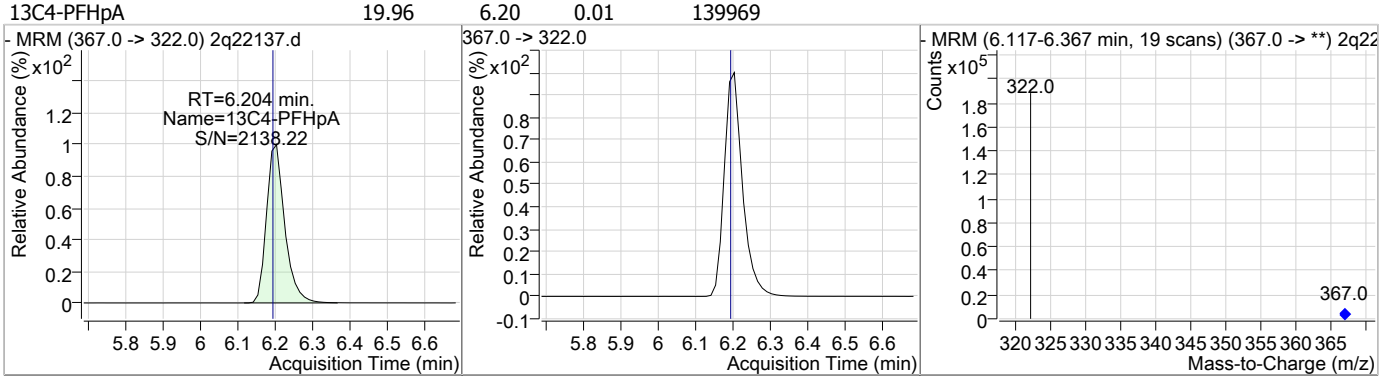
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.37	5.36	0.01	117609				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.55	6.20	0.01	33880				

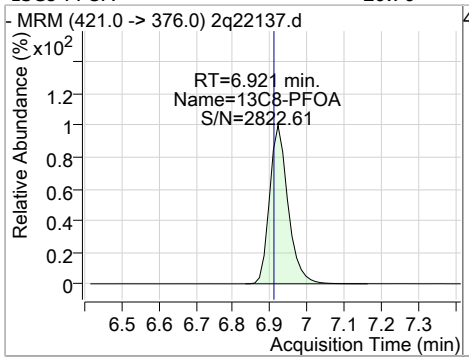


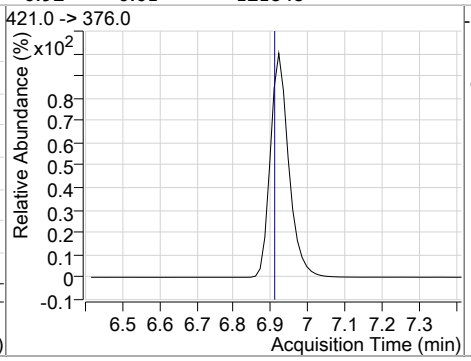
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.96	6.20	0.01	139969				

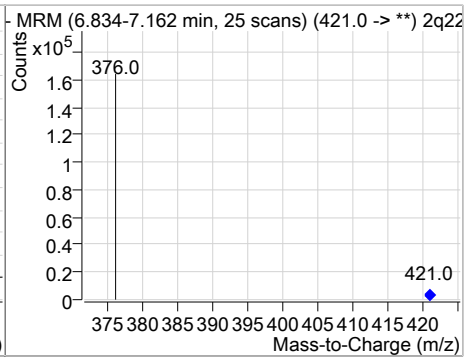


Perfluorinated Compounds by LC/MS/MS

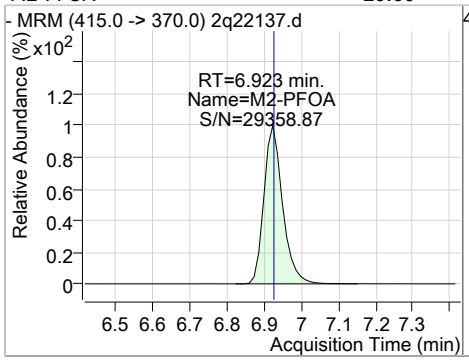
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.76	6.92	0.01	121848				

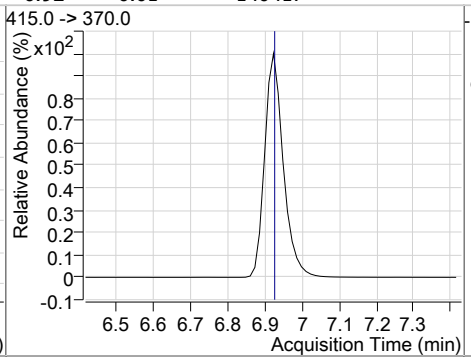


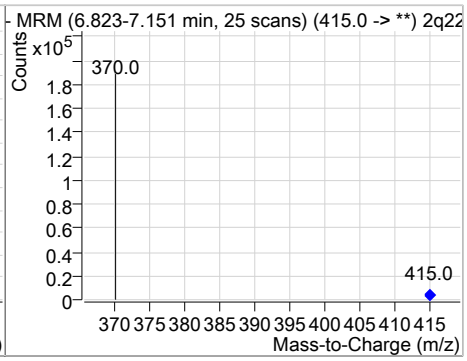




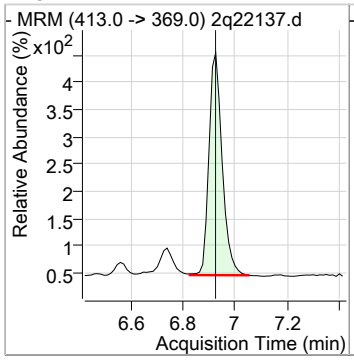
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	140417				

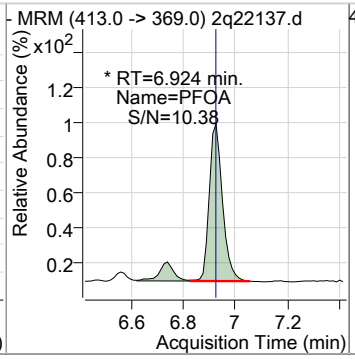


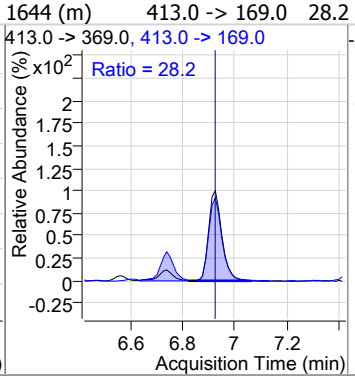


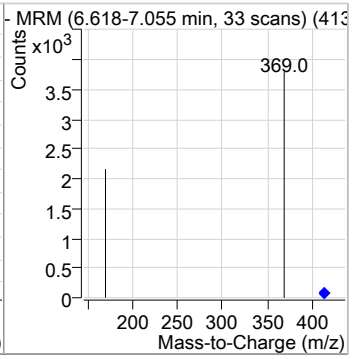


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.55	6.92	0.01	1644 (m)	413.0 -> 169.0	28.2	0.0	55.3

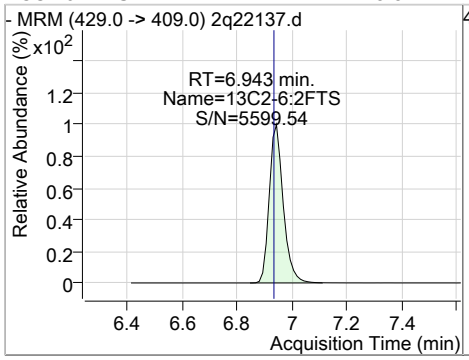


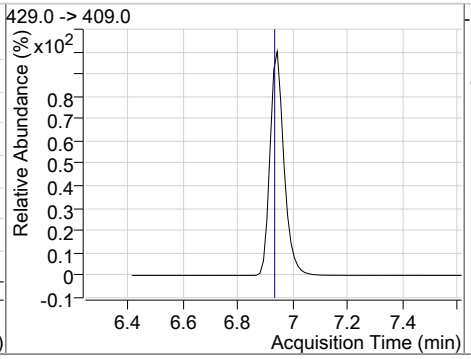


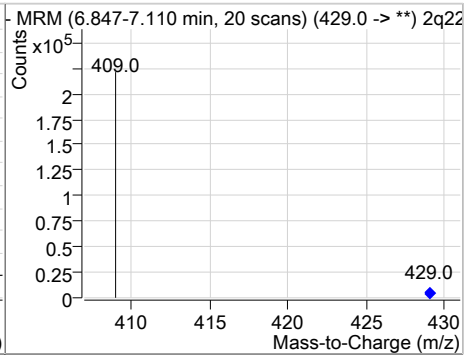




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.81	6.94	0.01	165255				

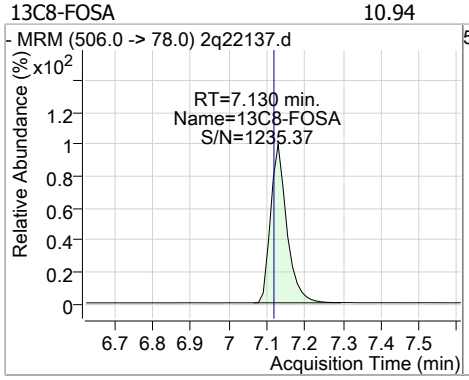


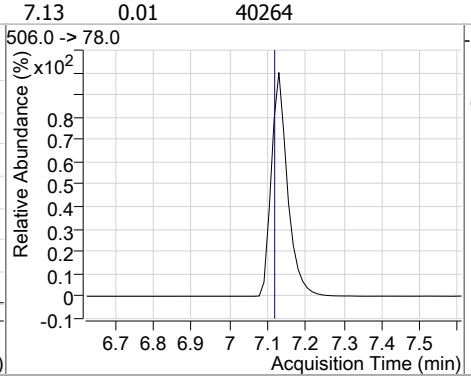


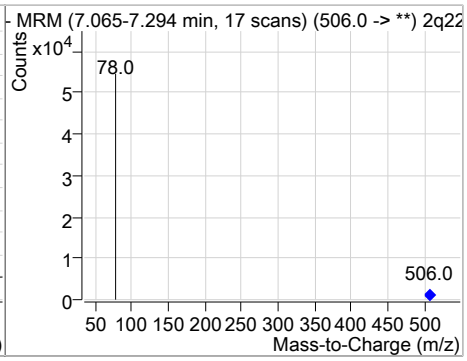


Perfluorinated Compounds by LC/MS/MS

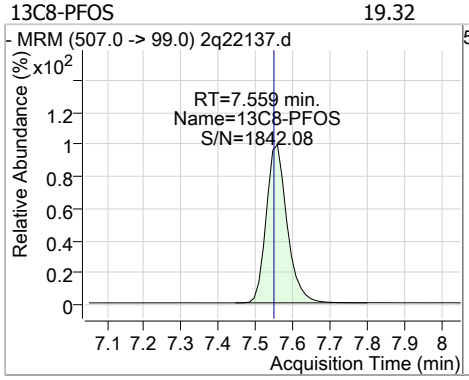
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	10.94	7.13	0.01	40264				

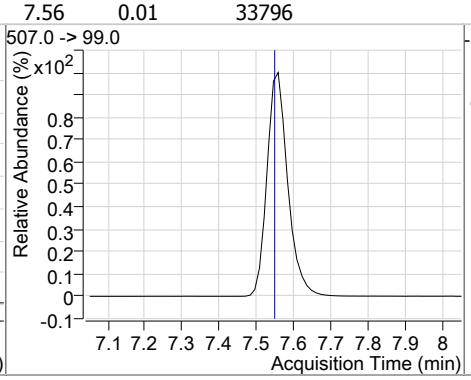


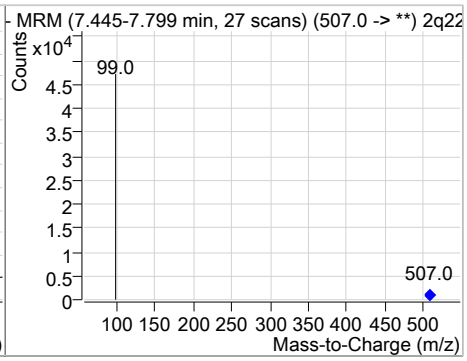




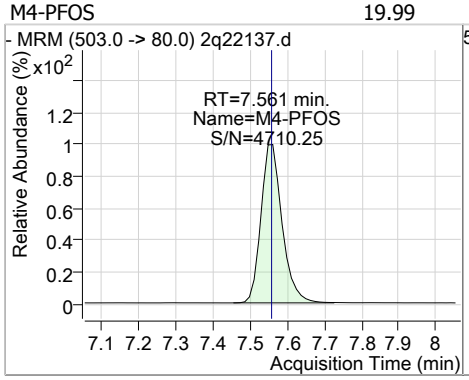
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.32	7.56	0.01	33796				

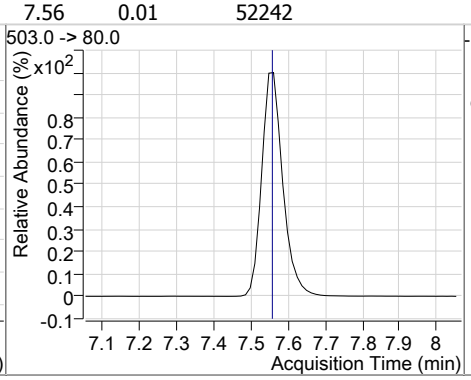


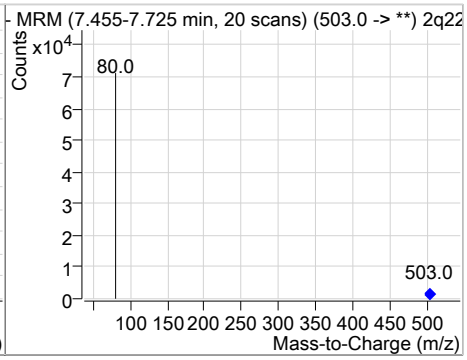




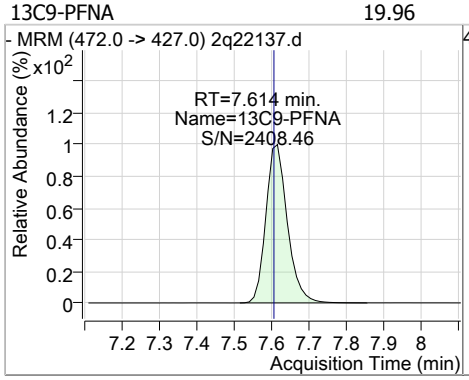
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.56	0.01	52242				

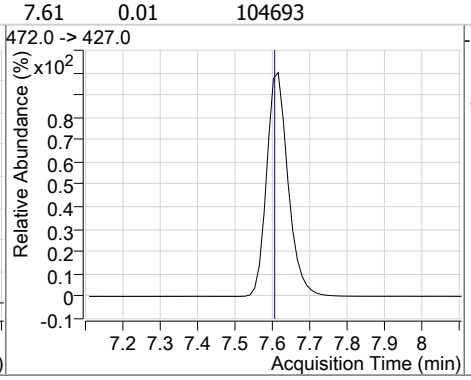


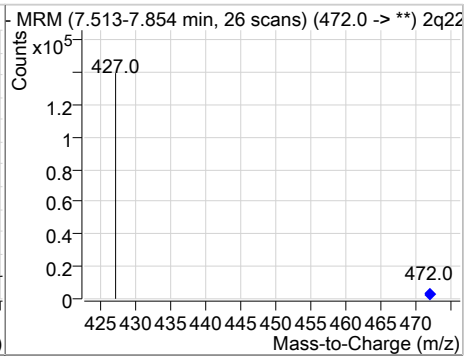




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.96	7.61	0.01	104693				

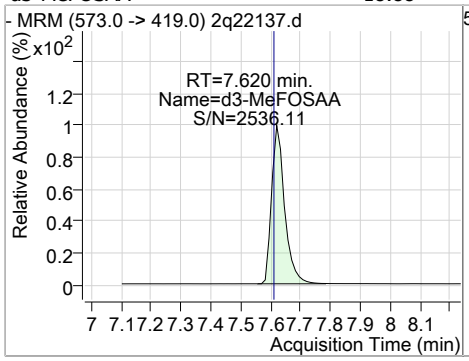


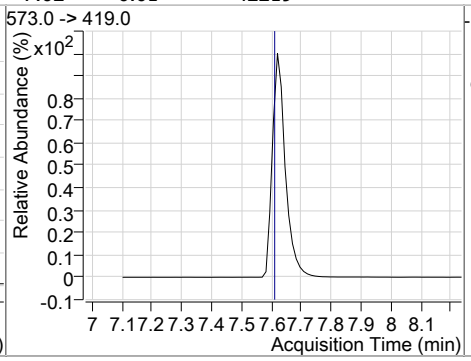


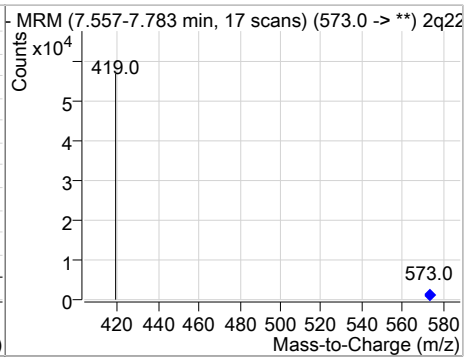


Perfluorinated Compounds by LC/MS/MS

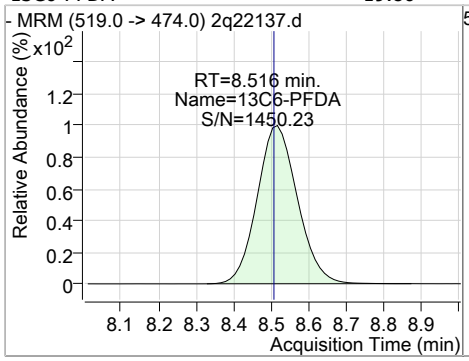
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.88	7.62	0.01	42219				

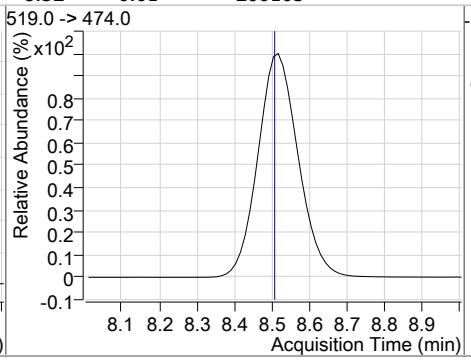


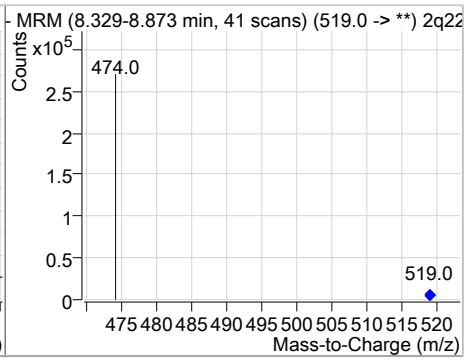




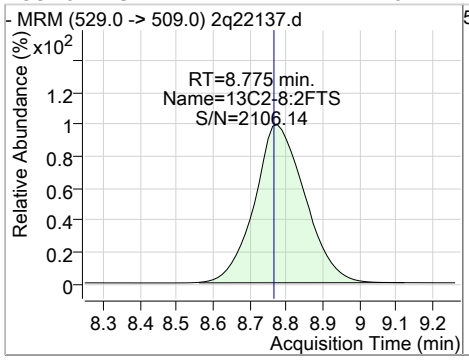
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.86	8.52	0.01	200165				

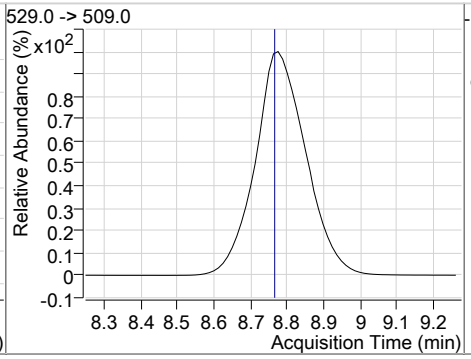


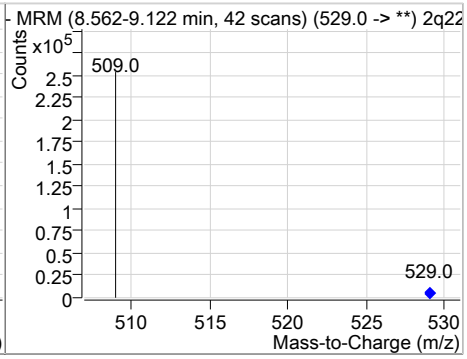




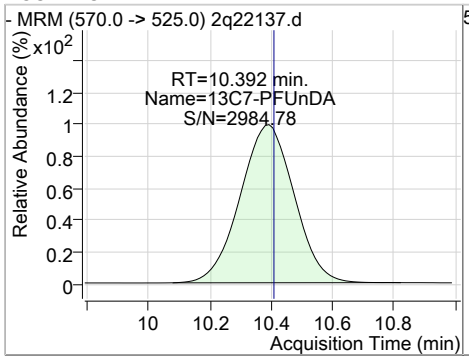
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.84	8.77	0.01	185726				

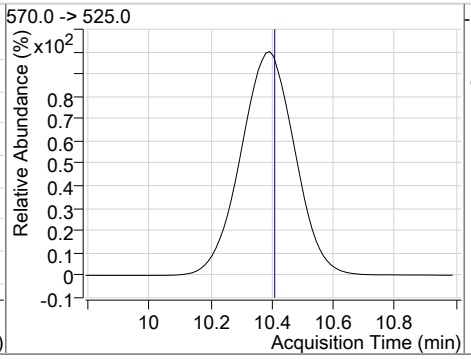


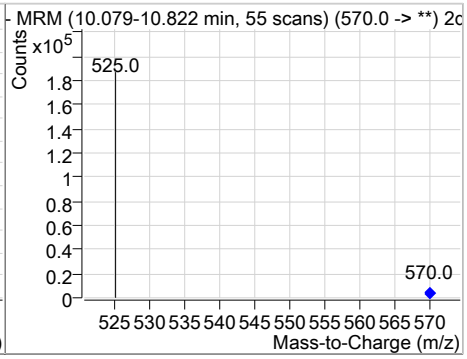




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	17.74	10.39	-0.01	135703				

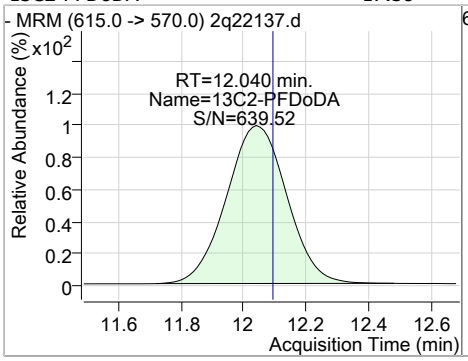


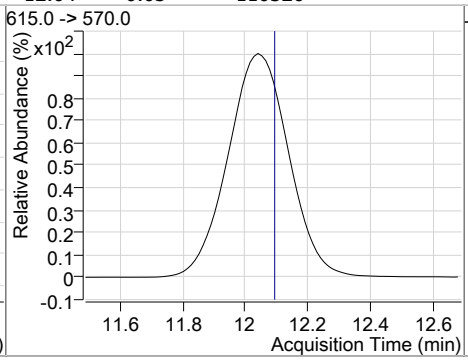


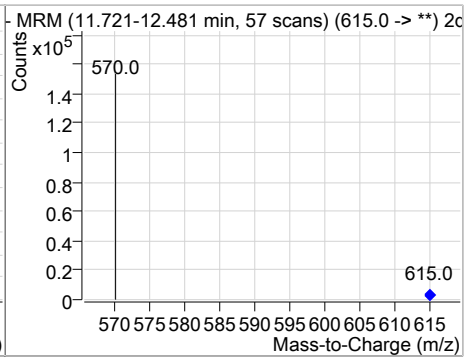


Perfluorinated Compounds by LC/MS/MS

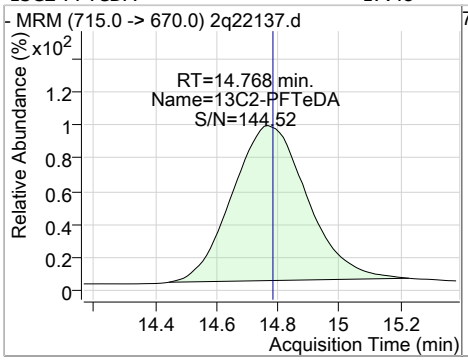
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	17.58	12.04	-0.05	110326				

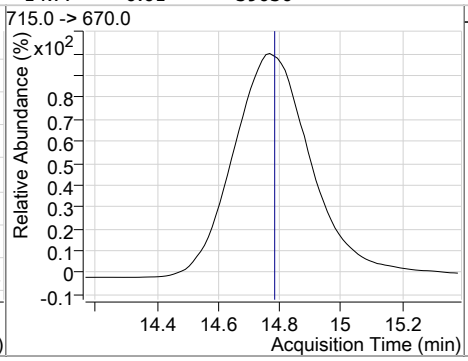


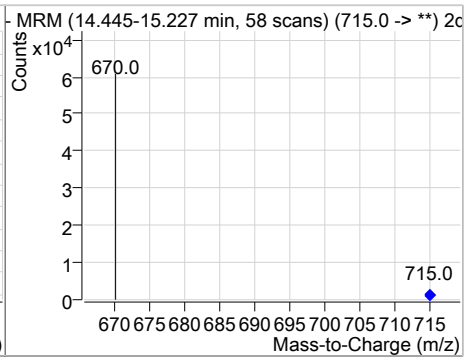




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	17.48	14.77	-0.01	39036				







Manual Integration Approval Summary

Sample Number: FA57914-4
Lab FileID: 2Q22137.D
Injection Time: 10/15/18 17:04
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.20	Split peak
Perfluorooctanoic acid	335-67-1		6.92	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.56	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File	:	2q22140.d
Operator	:	NATASHAG
Acq. Method	:	dMRM_ID_PFC.m
Acq. Date-Time	:	10/15/2018 6:06:24 PM
Sample Name	:	fa57914-5
Vial	:	Vial 19
DA Method File	:	PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name	:	s2q349.batch.bin
Sample Information	:	op71994,S2Q349,120,,,1.0,1,water

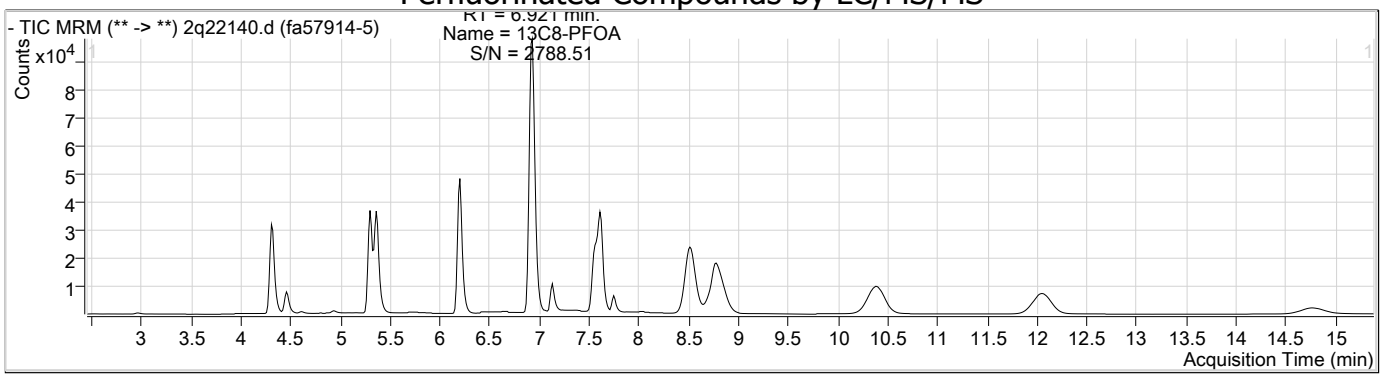
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.923	415.0 -> 370.0	133544	20.00 µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	50027	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1394	20.00 µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	107542	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	110097	20.00 µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	129311	20.00 µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	111966	20.00 µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	94011	20.00 µg/L	0.013
M6-PFDA	8.516	519.0 -> 474.0	177063	20.00 µg/L	0.012
M7-PFUnDA	10.379	570.0 -> 525.0	119970	20.00 µg/L	-0.025
M2-PFDoDA	12.040	615.0 -> 570.0	97813	20.00 µg/L	-0.050
M2-PFTeDA	14.756	715.0 -> 670.0	38032	20.00 µg/L	-0.025
M8-FOSA	7.130	506.0 -> 78.0	28187	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	25182	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	31464	20.00 µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	29944	20.00 µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	119278	20.00 µg/L	0.012
M2-6:2FTS	6.943	429.0 -> 409.0	151372	20.00 µg/L	0.014
M2-8:2FTS	8.775	529.0 -> 509.0	167604	20.00 µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	36613	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	119271	16.98 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.9%	
13C2-6:2FTS	6.943	429.0 -> 409.0	151402	17.23 µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.1%	
13C2-8:2FTS	8.775	529.0 -> 509.0	167090	16.05 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.3%	
13C2-PFDoDA	12.040	615.0 -> 570.0	96953	15.45 µg/L	-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.2%	
13C2-PFTeDA	14.756	715.0 -> 670.0	35294	15.80 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
13C3-PFBS	4.455	302.0 -> 99.0	25183	17.68 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
13C3-PFHxS	6.198	402.0 -> 99.0	31484	18.17 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C4-PFBA	2.966	217.0 -> 172.0	1401	0.10 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.5%	
13C4-PFHpA	6.204	367.0 -> 322.0	129319	18.44 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C5-PFHxA	5.364	318.0 -> 273.0	110085	18.13 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C5-PFPeA	4.312	268.0 -> 223.0	107548	17.12 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.6%	
13C6-PFDA	8.516	519.0 -> 474.0	176696	17.53 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.6%	

Perfluorinated Compounds by LC/MS/MS

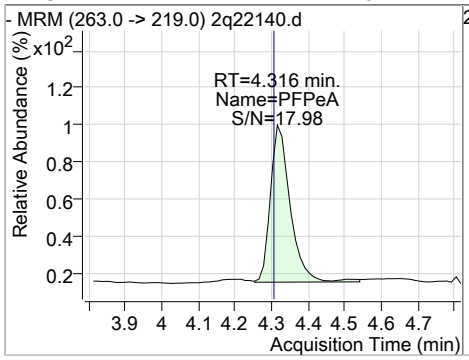
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.379	570.0 -> 525.0	119702	15.65	µg/L		-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.3%			
13C8-FOSA	7.130	506.0 -> 78.0	28178	7.66	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 38.3%			
13C8-PFOA	6.921	421.0 -> 376.0	111972	19.07	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%			
13C8-PFOS	7.559	507.0 -> 99.0	29919	17.10	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.5%			
13C9-PFNA	7.614	472.0 -> 427.0	93995	17.92	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.6%			
d3-MeFOSAA	7.620	573.0 -> 419.0	36685	16.40	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.0%			
M2-PFOA	6.923	415.0 -> 370.0	133530	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	50032	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.536	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.534	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	8.481	513.0 -> 469.0	0	0.00	µg/L	m	1
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.208	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.924	413.0 -> 369.0	326	0.12	µg/L		91
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	1100	0.22	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.396	563.0 -> 519.0	0	0.00	µg/L	m	1

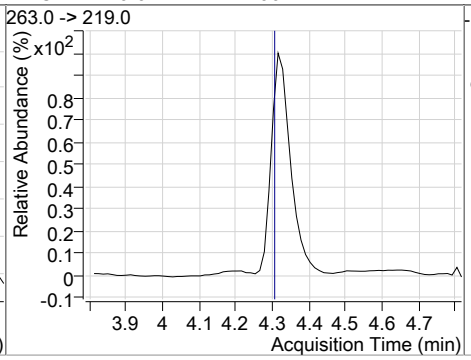
 # = Qualifier out of range, m = manually integrated, + = Area summed

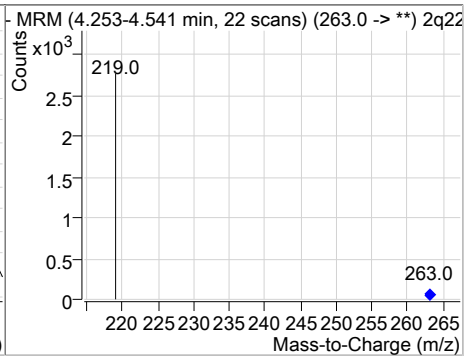
Perfluorinated Compounds by LC/MS/MS



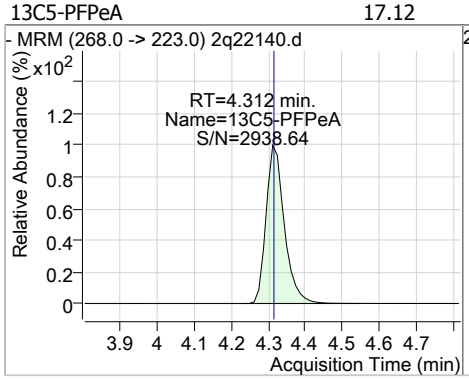
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.22	4.32	0.01	1100				

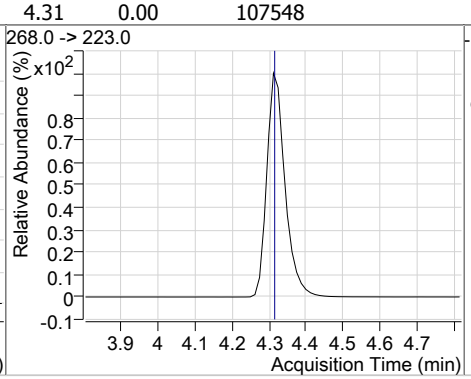


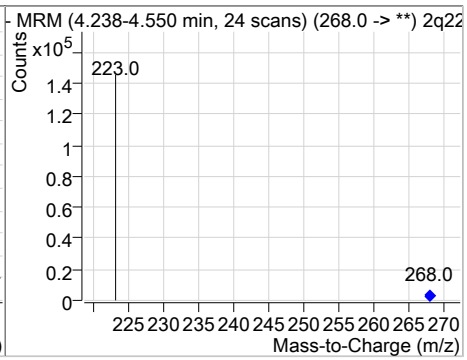




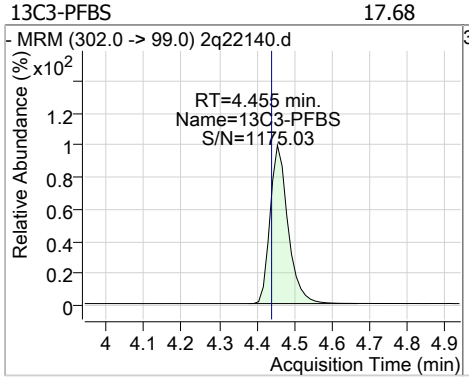
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.12	4.31	0.00	107548				

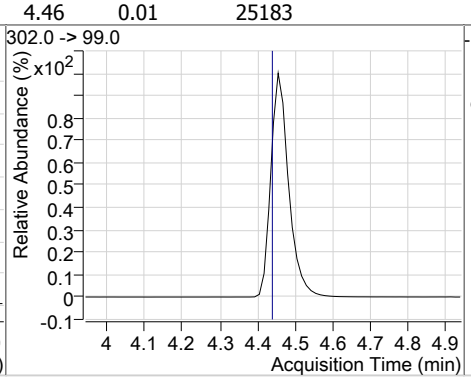


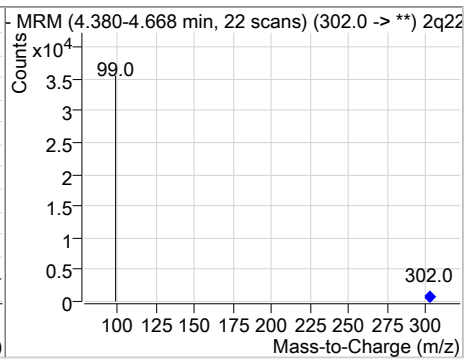




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.68	4.46	0.01	25183				

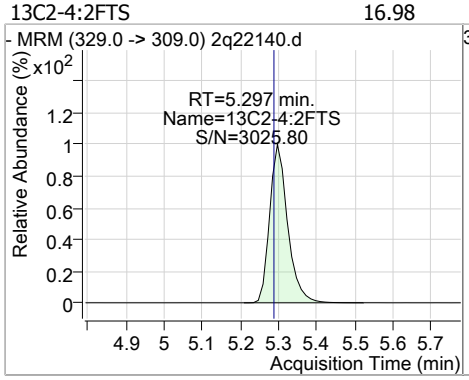


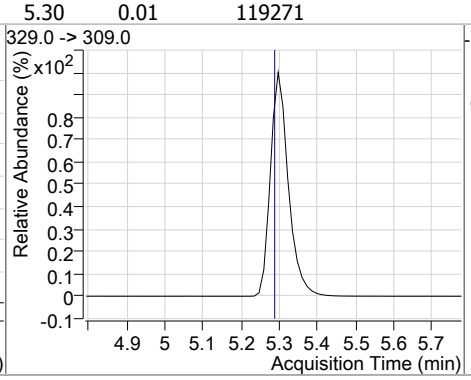


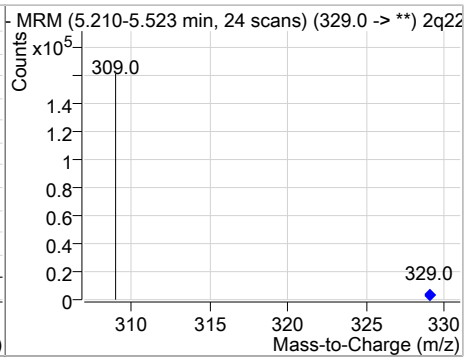


Perfluorinated Compounds by LC/MS/MS

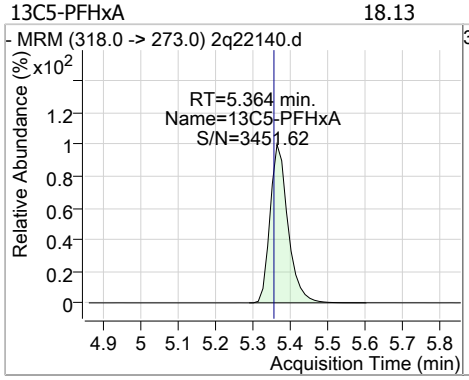
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.98	5.30	0.01	119271				

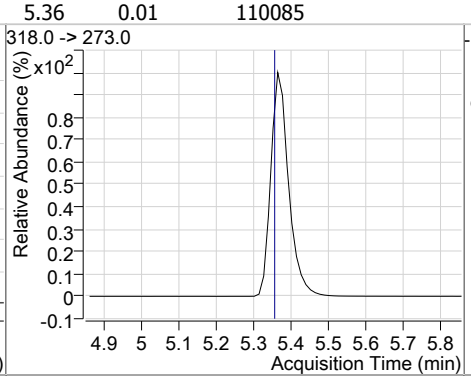


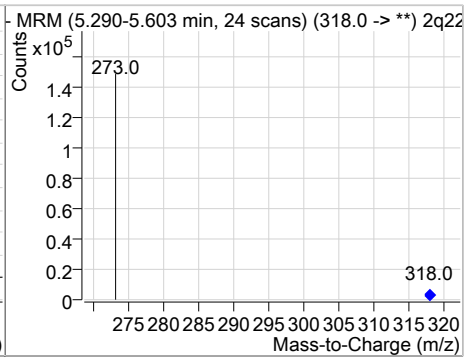




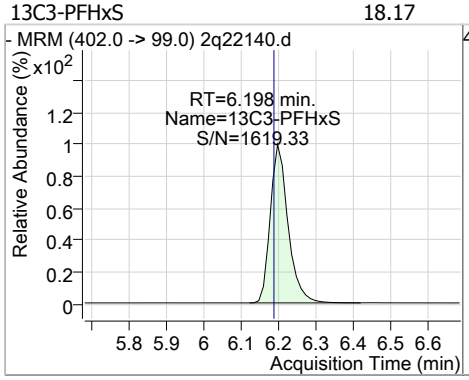
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.13	5.36	0.01	110085				

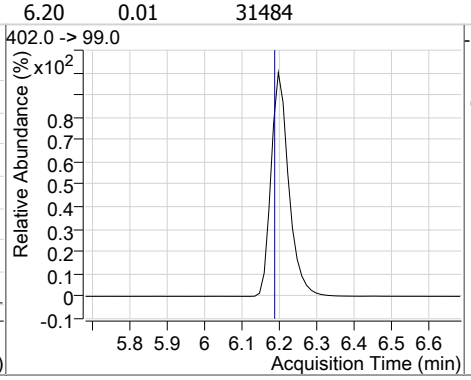


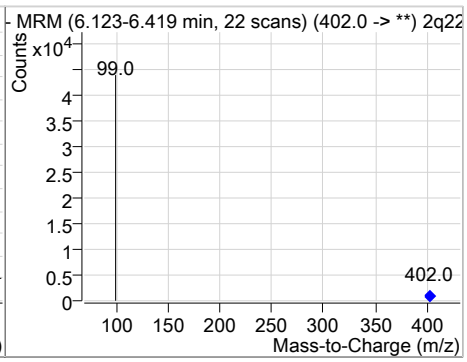




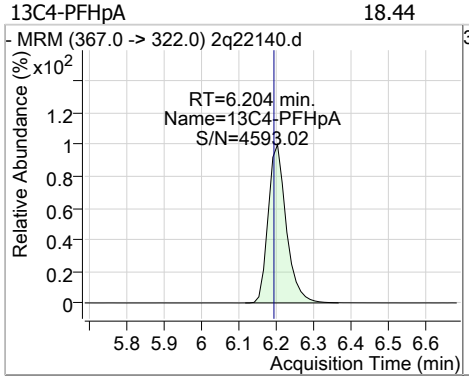
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.17	6.20	0.01	31484				

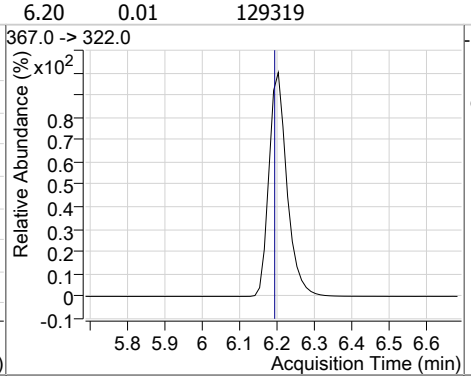


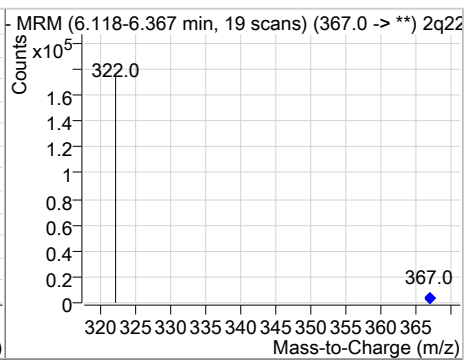




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.44	6.20	0.01	129319				

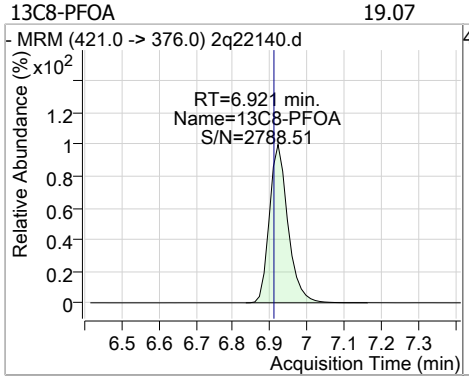


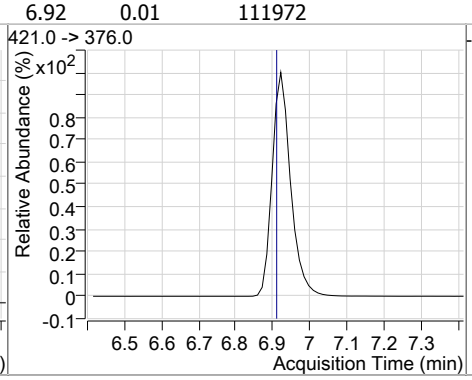


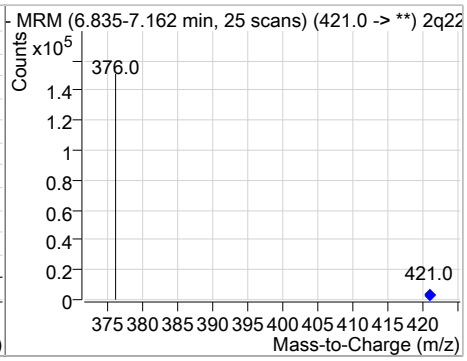


Perfluorinated Compounds by LC/MS/MS

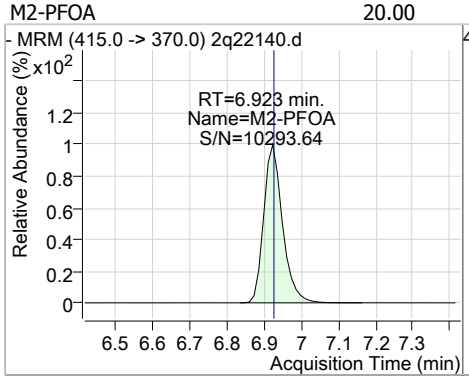
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.07	6.92	0.01	111972				

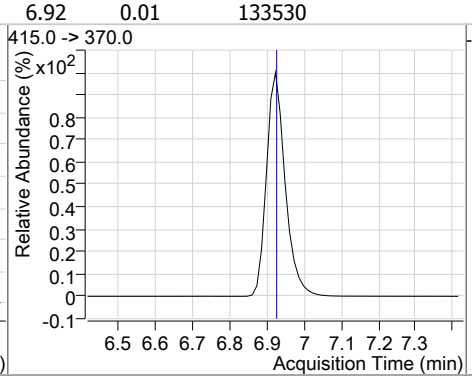


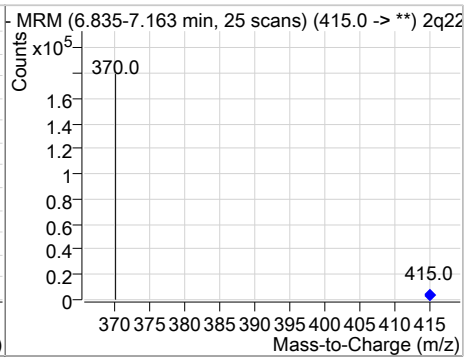




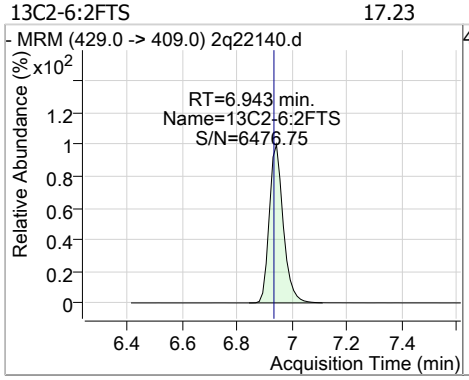
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	133530				

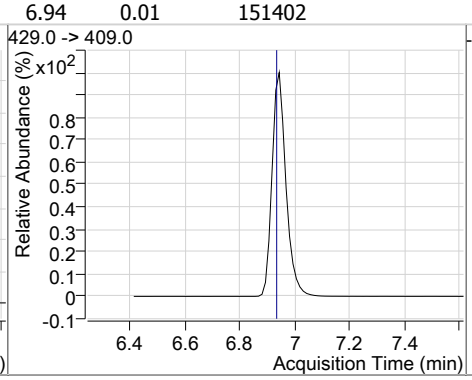


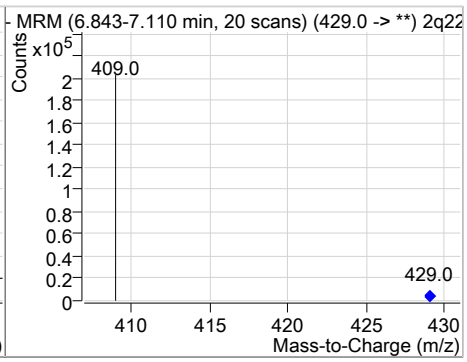




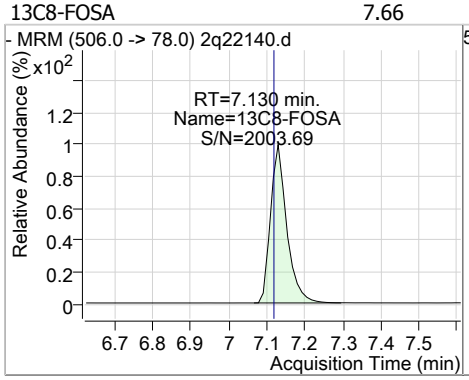
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.23	6.94	0.01	151402				

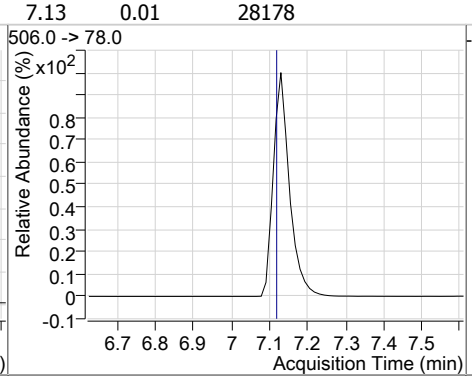


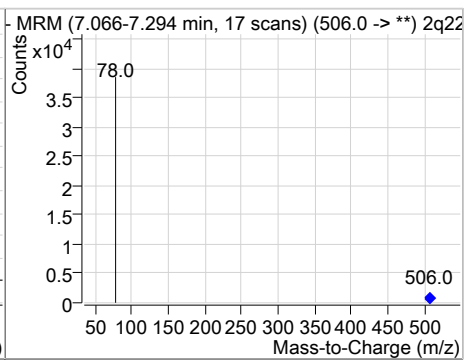




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	7.66	7.13	0.01	28178				

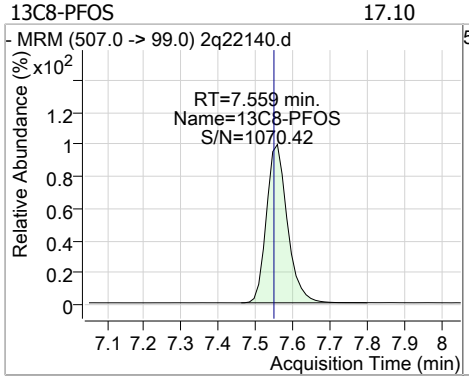


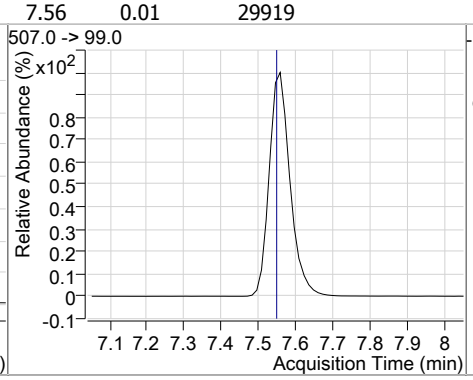


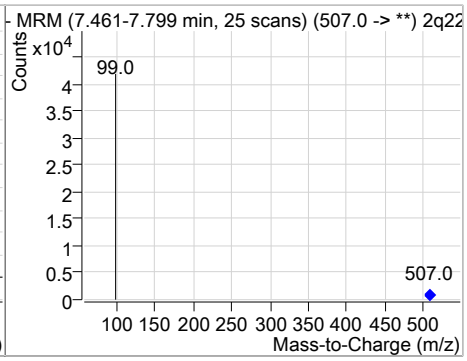


Perfluorinated Compounds by LC/MS/MS

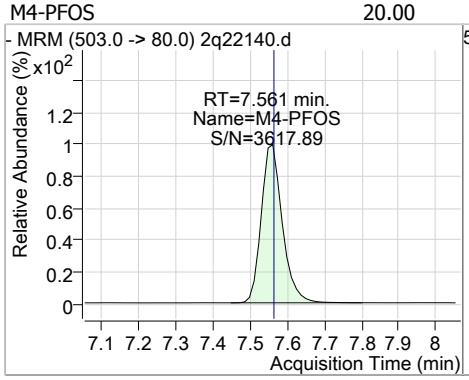
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.10	7.56	0.01	29919				

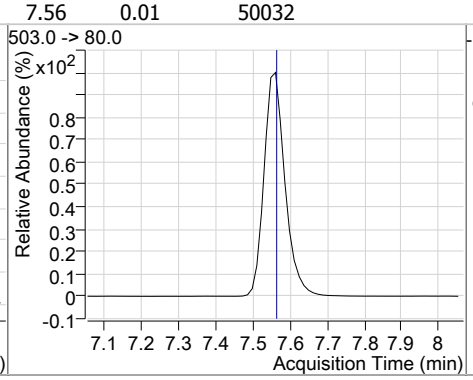


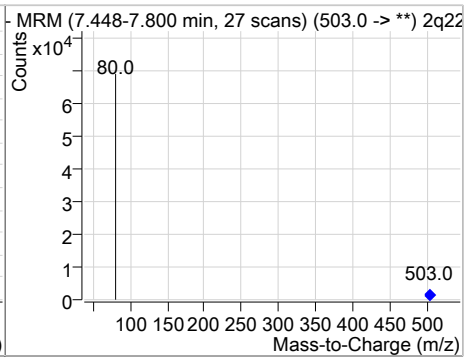




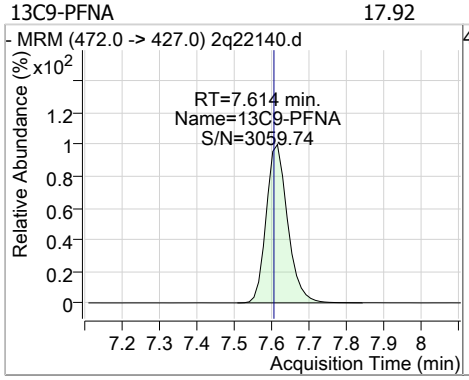
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.56	0.01	50032				

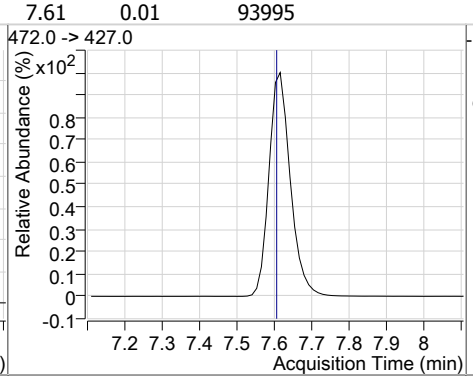


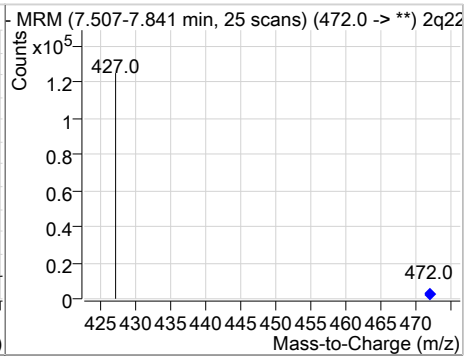




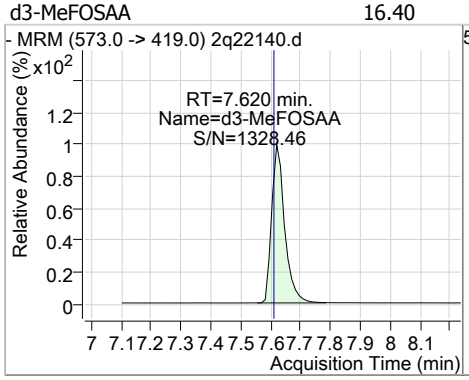
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.92	7.61	0.01	93995				

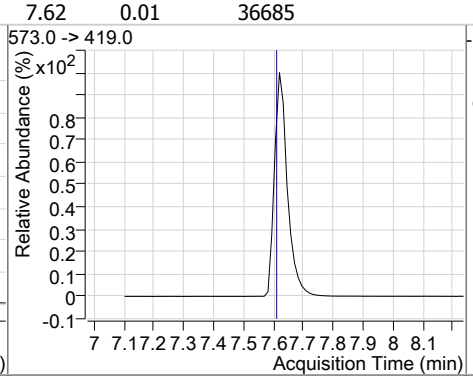


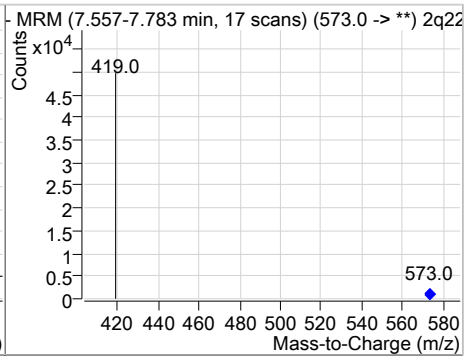




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	16.40	7.62	0.01	36685				

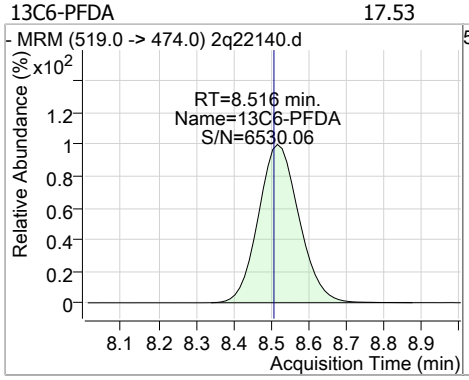


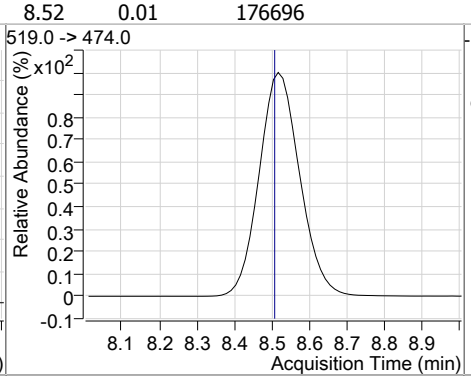


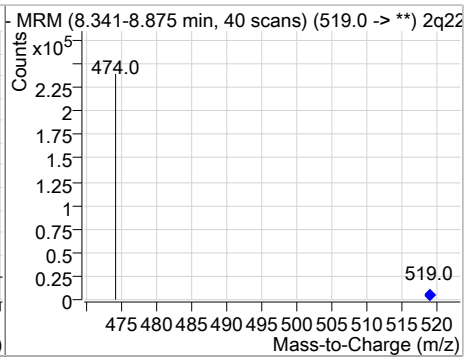


Perfluorinated Compounds by LC/MS/MS

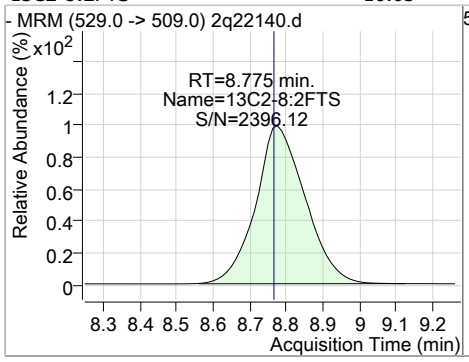
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.53	8.52	0.01	176696				

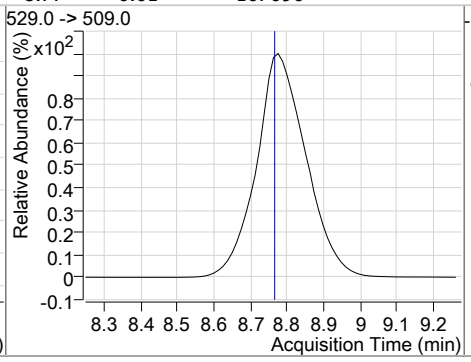


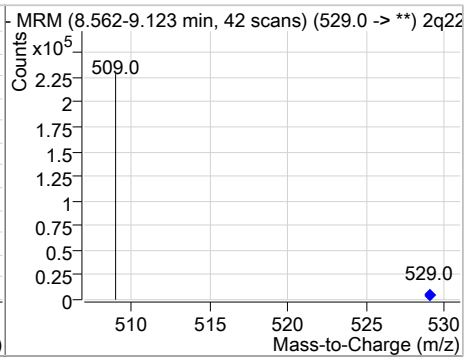




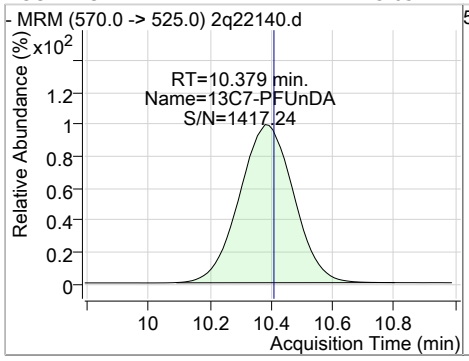
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.05	8.77	0.01	167090				

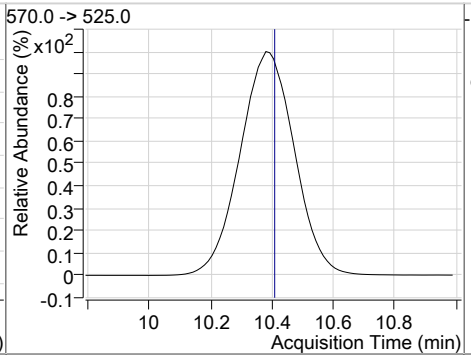


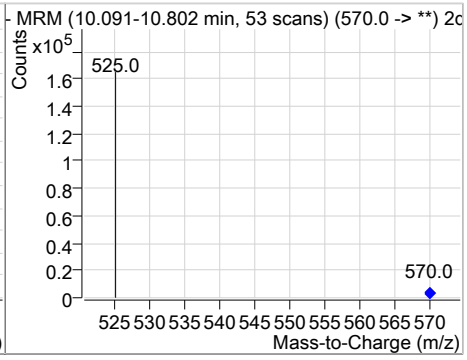




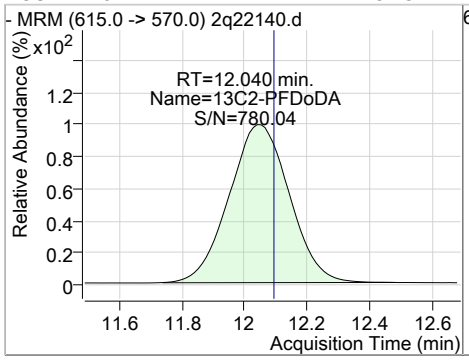
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.65	10.38	-0.02	119702				

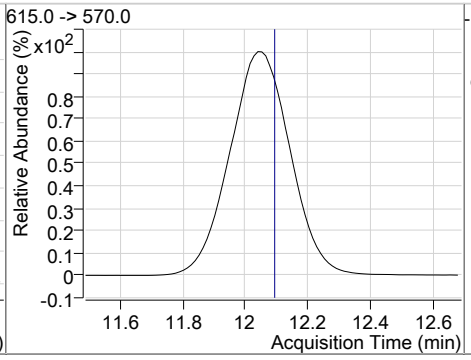


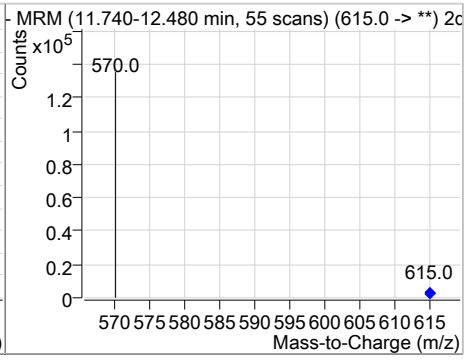




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	15.45	12.04	-0.05	96953				

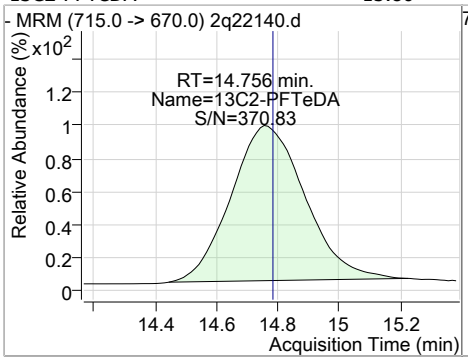


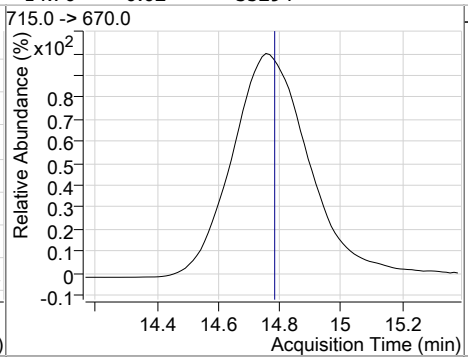


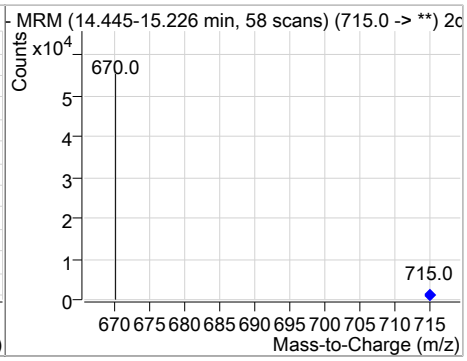


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	15.80	14.76	-0.02	35294				







Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22421.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 11:14:55 PM
Sample Name : fa57914-5
Vial : Vial 36
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

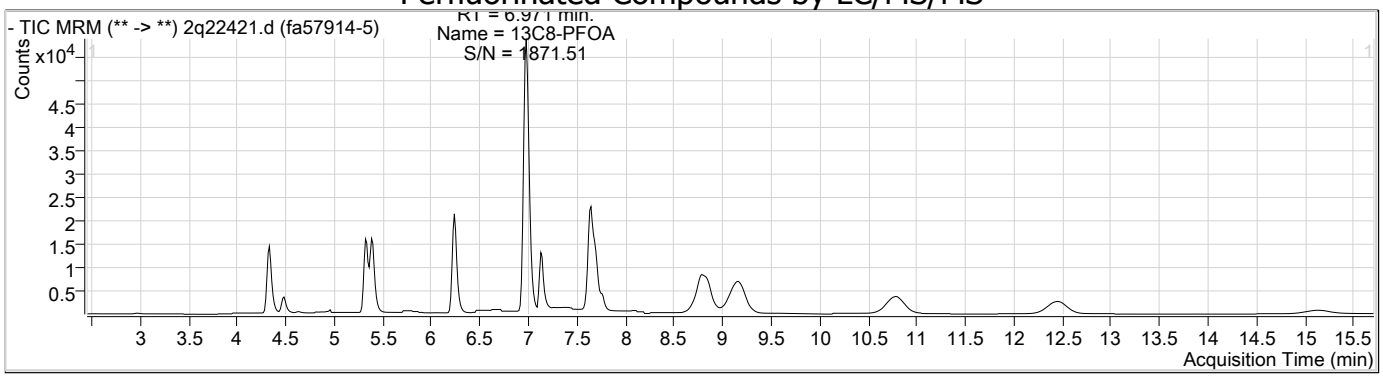
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	122421	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	49864	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	520	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	48097	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	48755	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	55761	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	44271	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	41822	20.00	µg/L	0.025
M6-PFDA	8.791	519.0 -> 474.0	84644	20.00	µg/L	0.013
M7-PFUnDA	10.792	570.0 -> 525.0	47121	20.00	µg/L	0.013
M2-PFDoDA	12.440	615.0 -> 570.0	37848	20.00	µg/L	-0.013
M2-PFTeDA	15.131	715.0 -> 670.0	13767	20.00	µg/L	0.013
M8-FOSA	7.129	506.0 -> 78.0	36719	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	11364	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	14640	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	14057	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	52575	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	68982	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	77014	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	16914	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	52584	7.99	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 39.9%		
13C2-6:2FTS	6.993	429.0 -> 409.0	68971	7.81	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 39.1%		
13C2-8:2FTS	9.160	529.0 -> 509.0	76506	7.28	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 36.4%		
13C2-PFDoDA	12.440	615.0 -> 570.0	37439	6.77	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 33.9%		
13C2-PFTeDA	15.131	715.0 -> 670.0	12429	6.40	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 32.0%		
13C3-PFBS	4.481	302.0 -> 99.0	11359	8.12	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 40.6%		
13C3-PFHxS	6.235	402.0 -> 99.0	14648	8.23	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 41.1%		
13C4-PFBA	2.966	217.0 -> 172.0	530	0.04	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.2%		
13C4-PFHpA	6.242	367.0 -> 322.0	55767	8.67	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 43.3%		
13C5-PFHxA	5.390	318.0 -> 273.0	48754	8.86	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 44.3%		
13C5-PFPeA	4.337	268.0 -> 223.0	48081	8.41	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 42.1%		
13C6-PFDA	8.791	519.0 -> 474.0	84466	9.08	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 45.4%		

Perfluorinated Compounds by LC/MS/MS

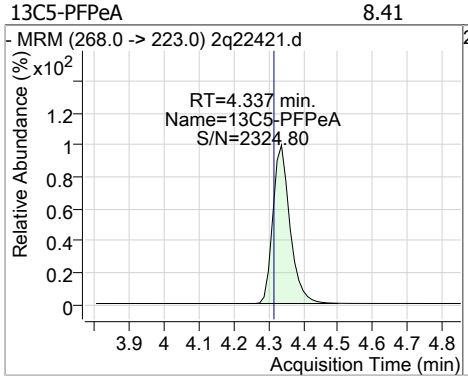
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.792	570.0 -> 525.0	46873	6.85	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 34.2%			
13C8-FOSA	7.129	506.0 -> 78.0	36717	9.46	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 47.3%			
13C8-PFOA	6.971	421.0 -> 376.0	44261	8.24	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 41.2%			
13C8-PFOS	7.634	507.0 -> 99.0	14062	7.75	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 38.7%			
13C9-PFNA	7.702	472.0 -> 427.0	41828	8.51	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 42.5%			
d3-MeFOSAA	7.645	573.0 -> 419.0	16919	7.28	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 36.4%			
M2-PFOA	6.973	415.0 -> 370.0	122364	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
M4-PFOS	7.636	503.0 -> 80.0	49920	20.03	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	-	213.0 -> 169.0	-	N.D.			
PFBS	4.547	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	6.238	399.0 -> 80.0	248	0.35	µg/L	m	93
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	169	0.15	µg/L		83
PFOS	7.651	499.0 -> 80.0	529	0.88	µg/L	m	93
PFPeA	4.341	263.0 -> 219.0	423	0.19	µg/L	m	100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

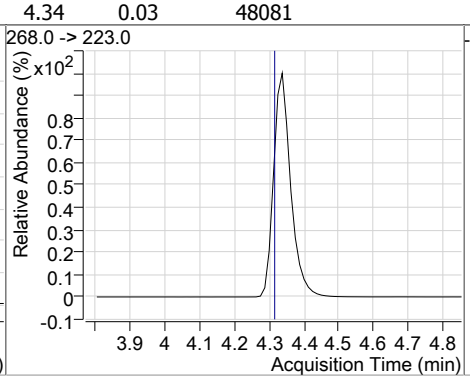
 # = Qualifier out of range, m = manually integrated, + = Area summed

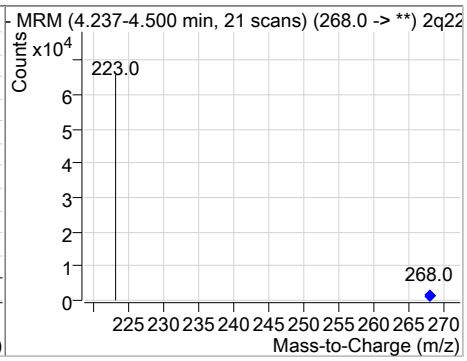
Perfluorinated Compounds by LC/MS/MS



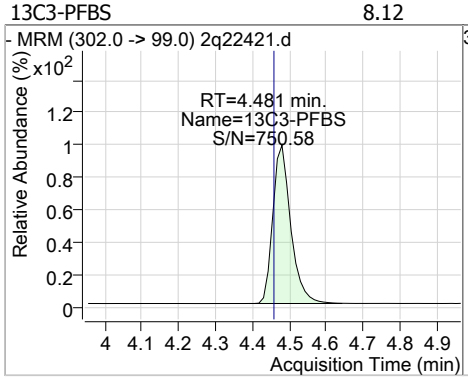
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	8.41	4.34	0.03	48081				

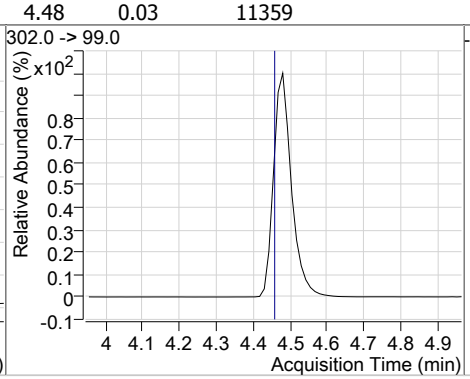


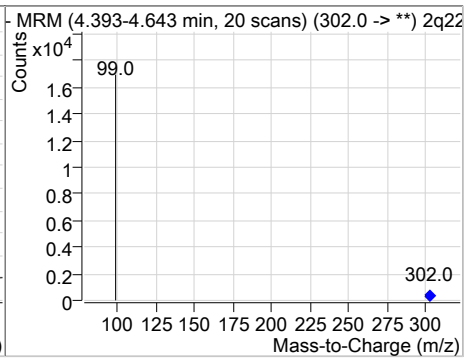




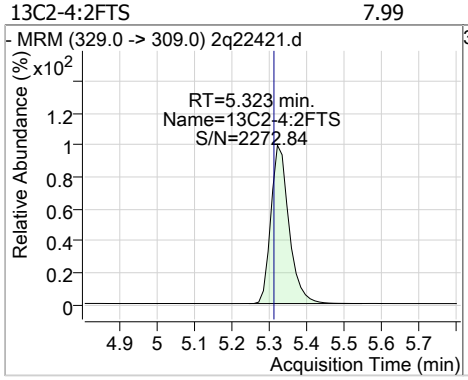
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	8.12	4.48	0.03	11359				

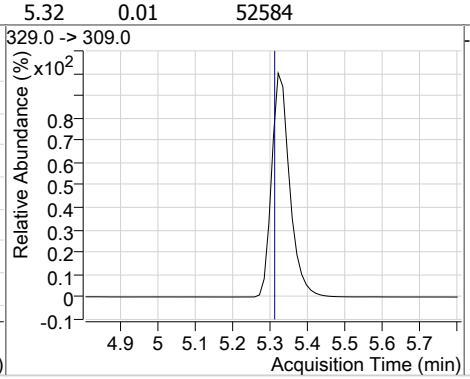


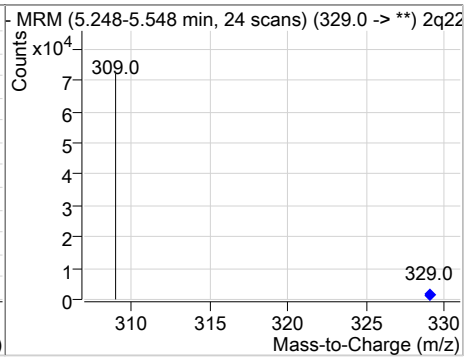




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	7.99	5.32	0.01	52584				

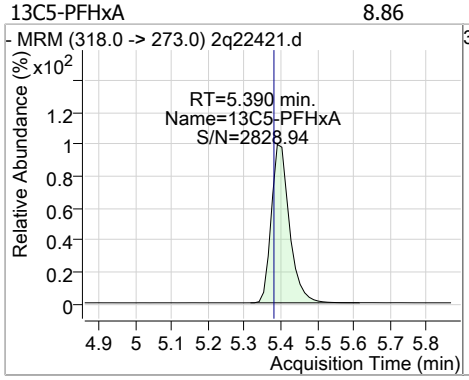


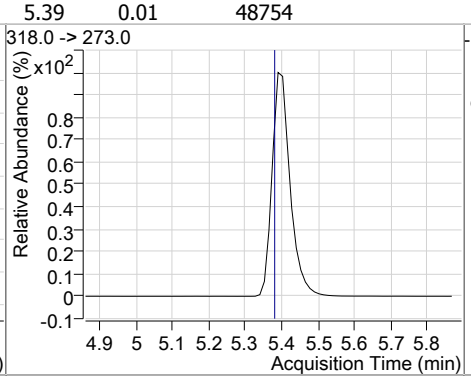


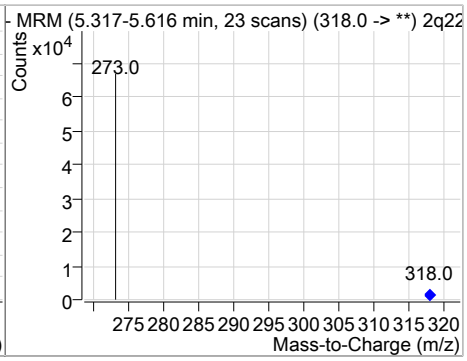


Perfluorinated Compounds by LC/MS/MS

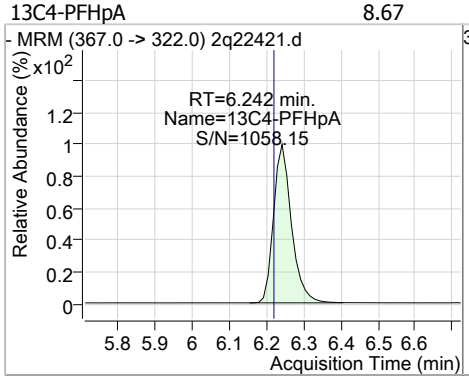
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	8.86	5.39	0.01	48754				

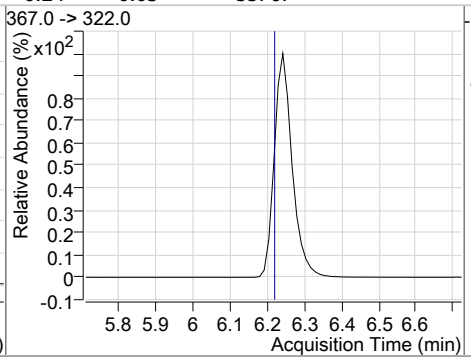


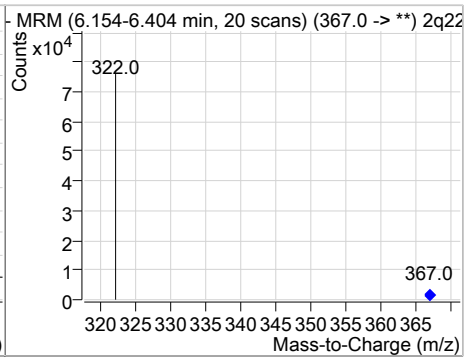




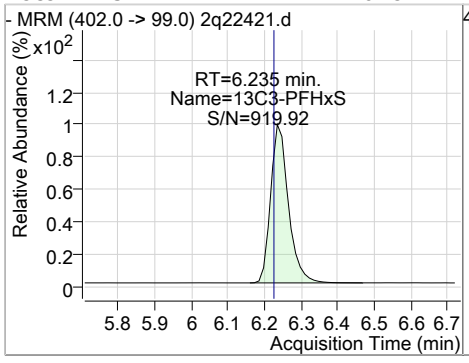
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	8.67	6.24	0.03	55767				

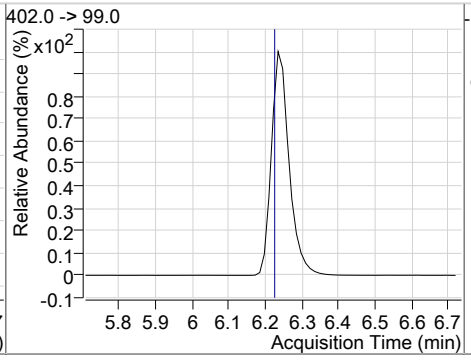


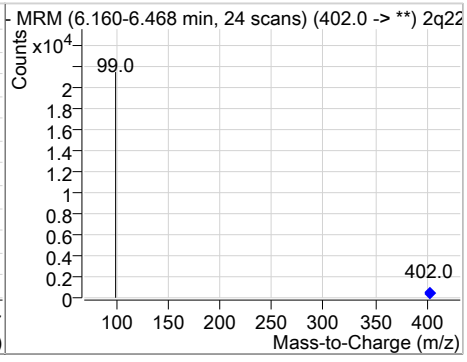




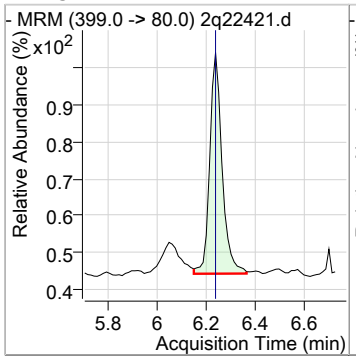
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	8.23	6.24	0.01	14648				

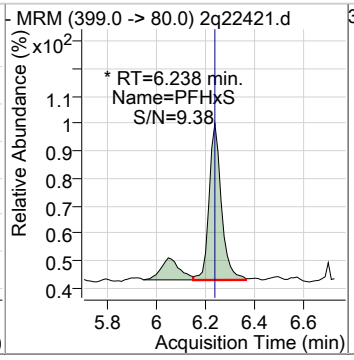


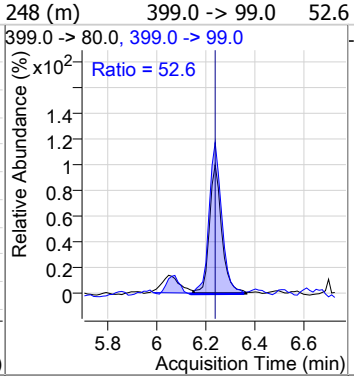


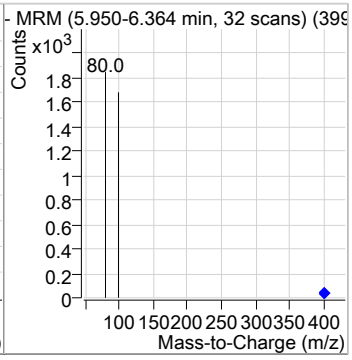


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.35	6.24	0.01	248 (m)	399.0 -> 99.0	52.6	17.7	77.7



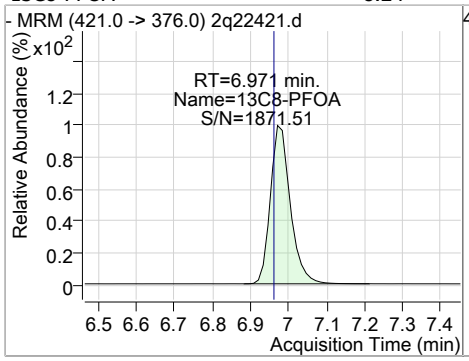


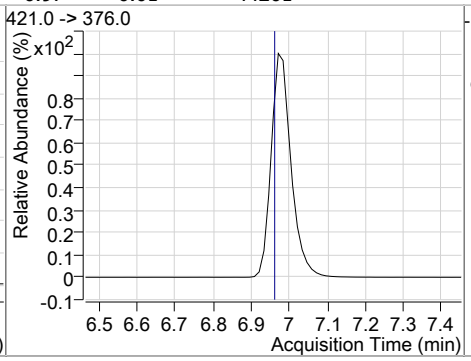


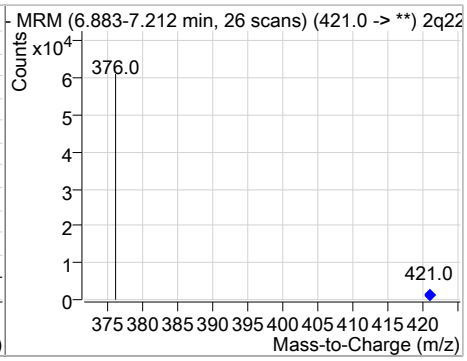


Perfluorinated Compounds by LC/MS/MS

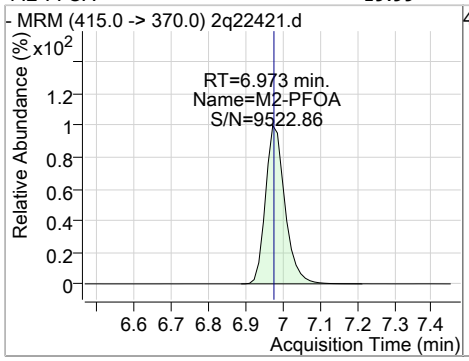
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	8.24	6.97	0.01	44261				

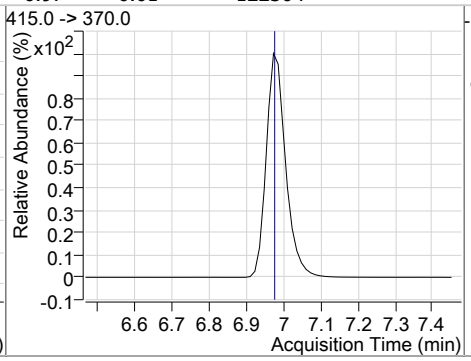


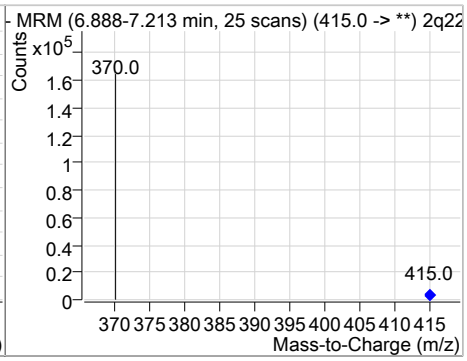




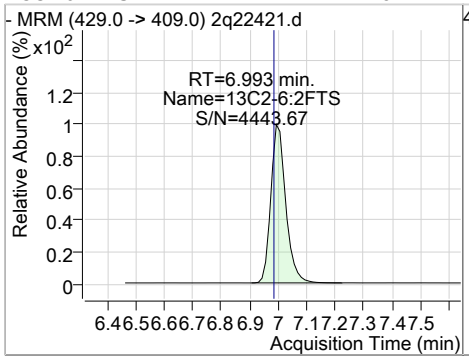
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	122364				

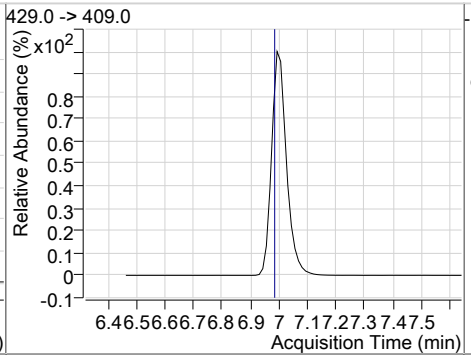


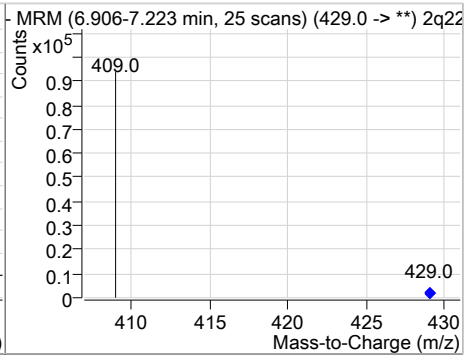




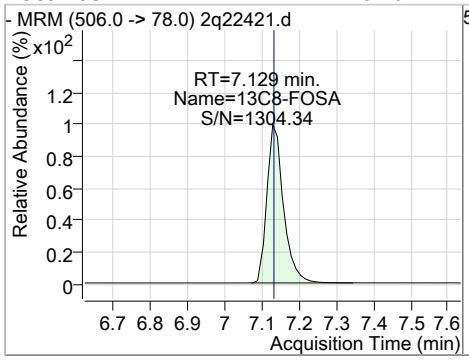
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	7.81	6.99	0.01	68971				

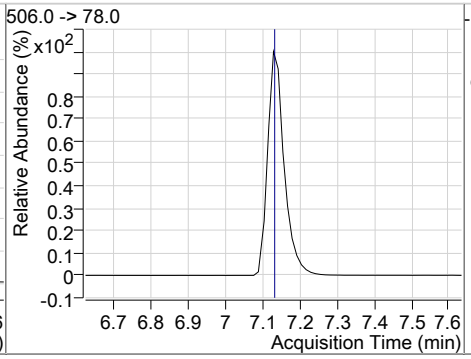


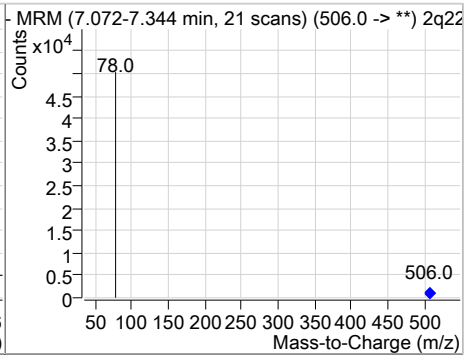




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	9.46	7.13	0.00	36717				

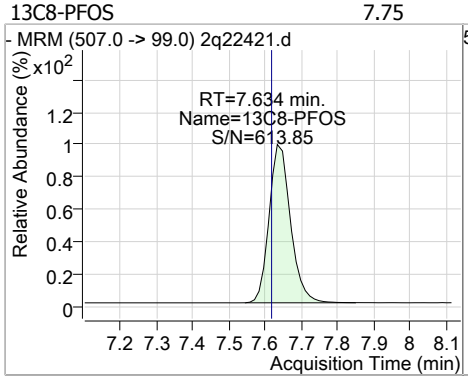


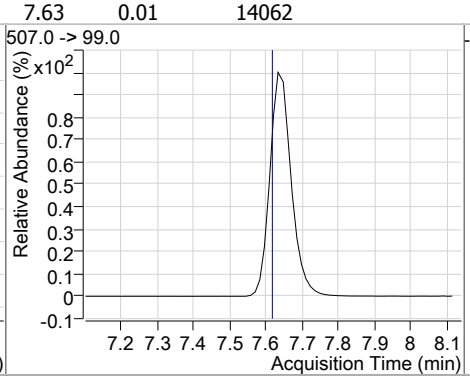


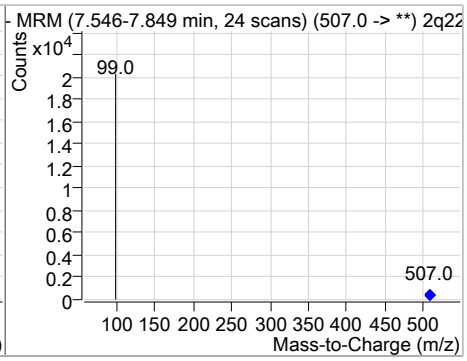


Perfluorinated Compounds by LC/MS/MS

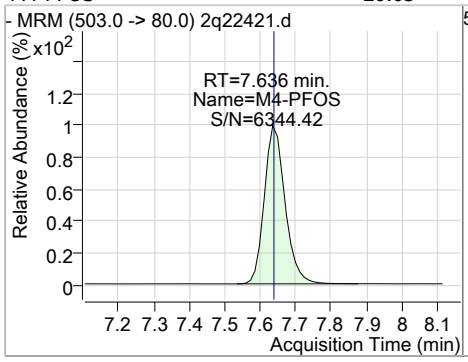
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	7.75	7.63	0.01	14062				

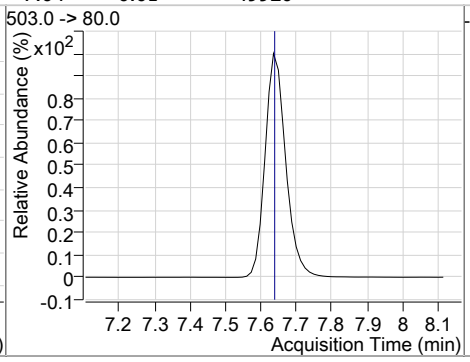


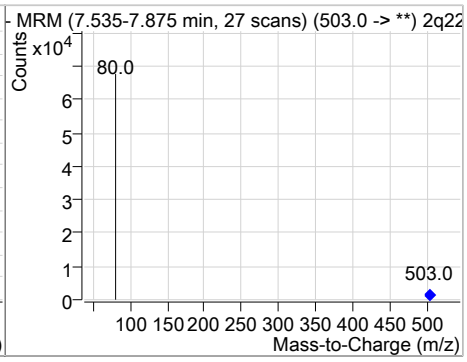




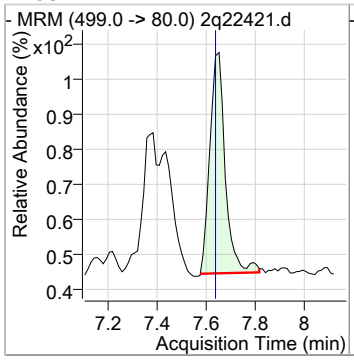
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.03	7.64	0.01	49920				

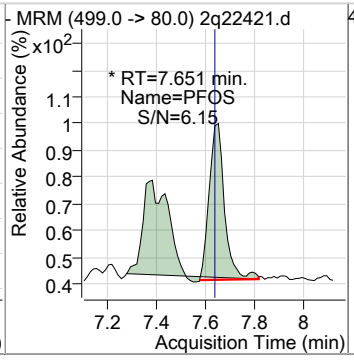


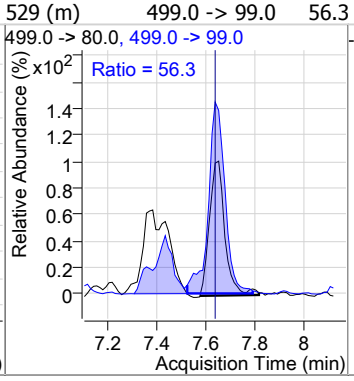


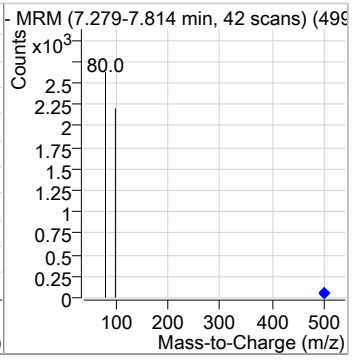


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.88	7.65	0.03	529 (m)	499.0 -> 99.0	56.3	21.5	81.5

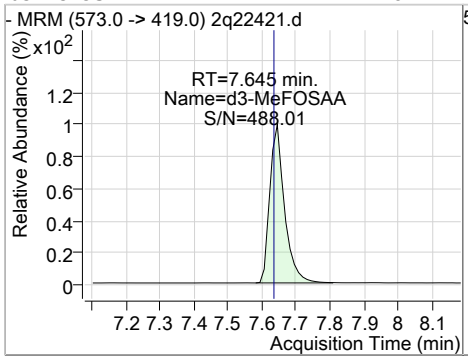


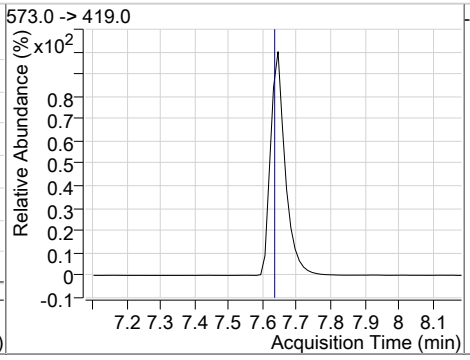


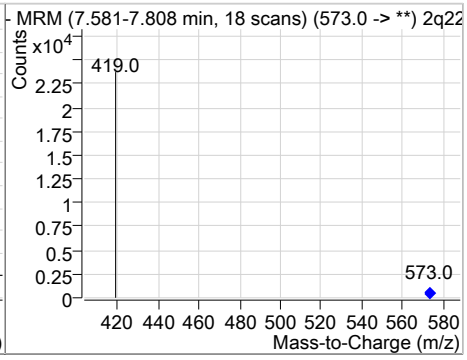




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	7.28	7.64	0.01	16919				

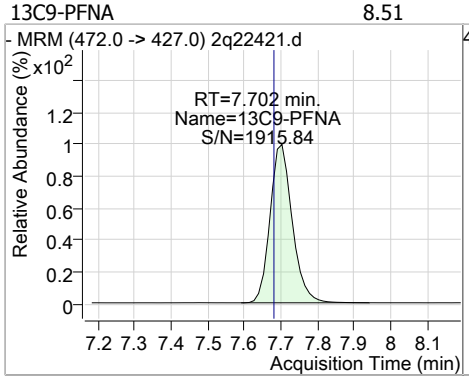


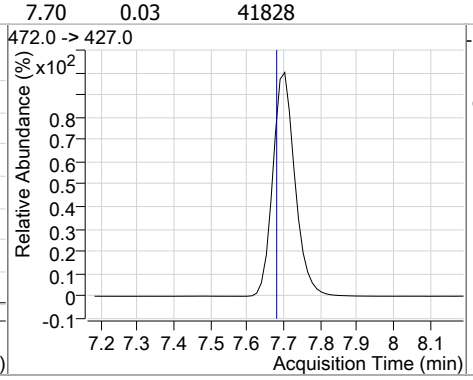


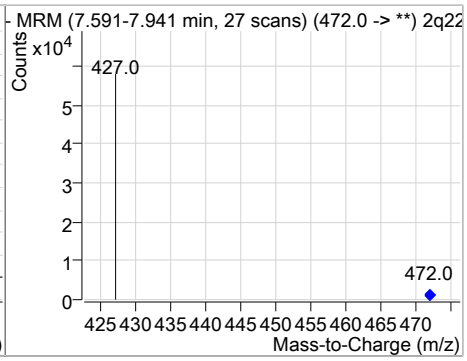


Perfluorinated Compounds by LC/MS/MS

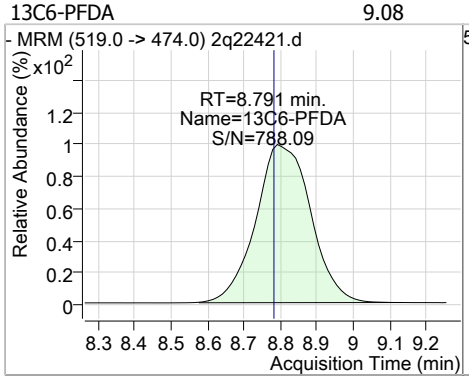
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	8.51	7.70	0.03	41828				

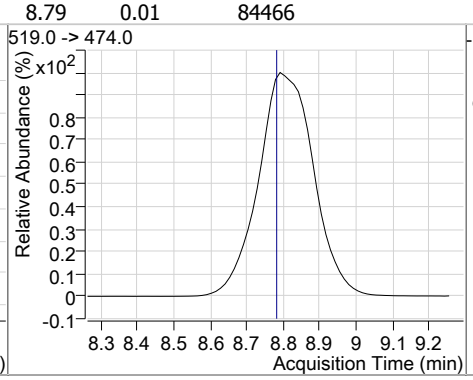


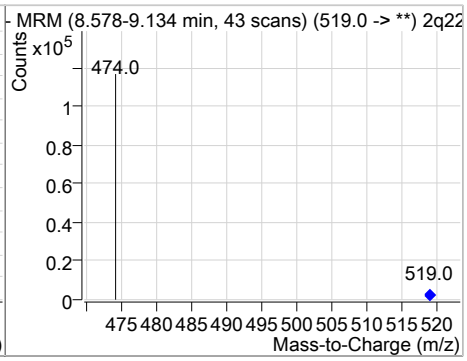




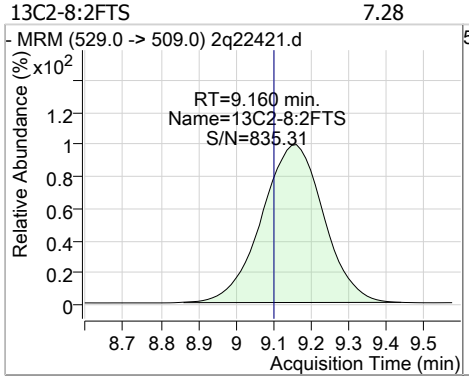
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	9.08	8.79	0.01	84466				

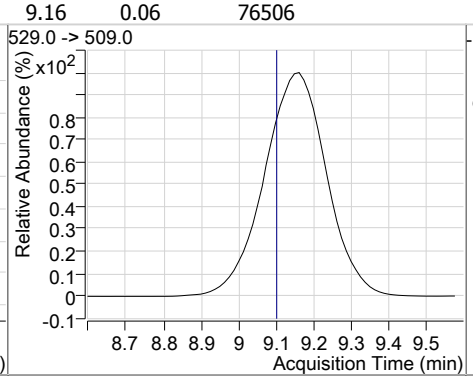


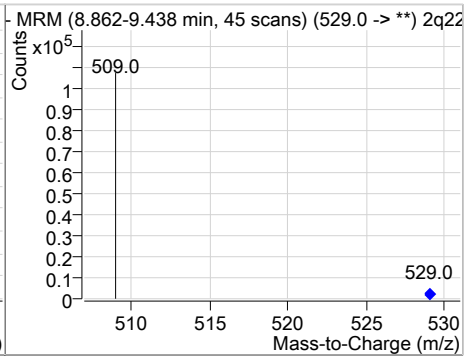




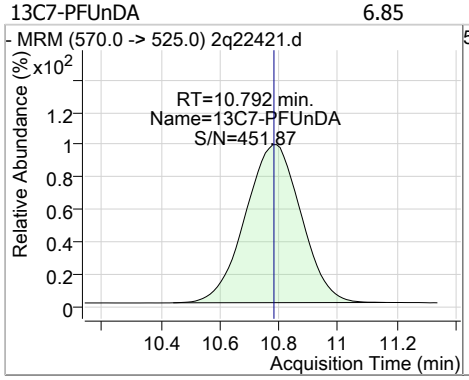
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	7.28	9.16	0.06	76506				

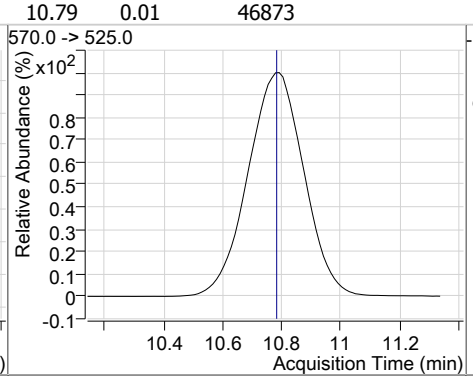


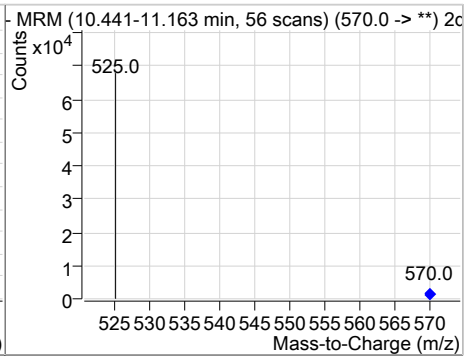




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	6.85	10.79	0.01	46873				

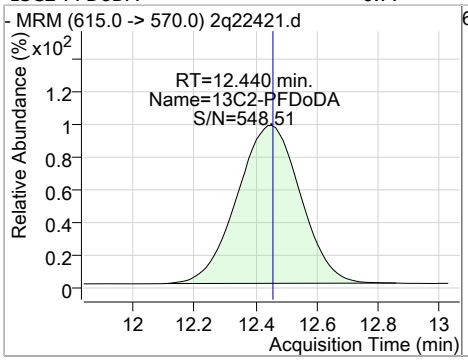


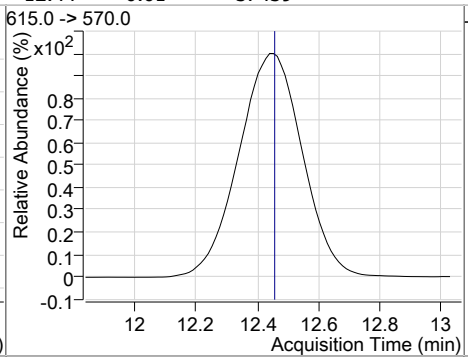


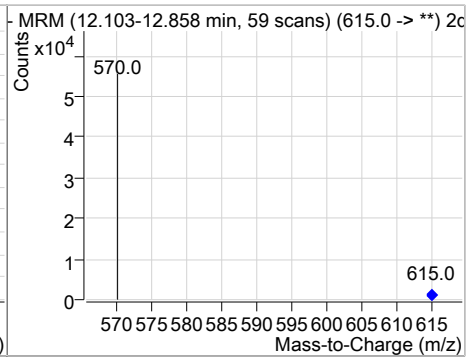


Perfluorinated Compounds by LC/MS/MS

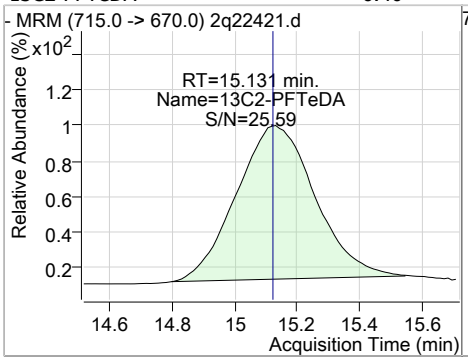
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	6.77	12.44	-0.01	37439				

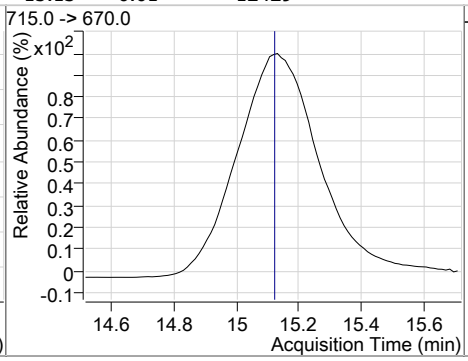


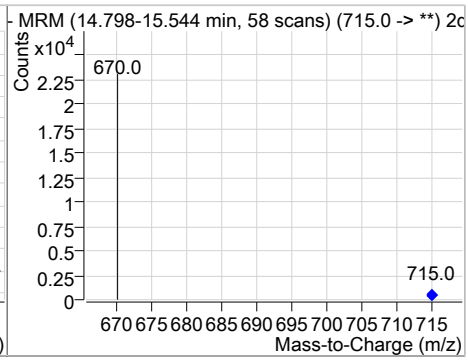




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	6.40	15.13	0.01	12429				







Manual Integration Approval Summary

Sample Number: FA57914-5
Lab FileID: 2Q22421.D
Injection Time: 10/19/18 23:14
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		4.34	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.65	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22422.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 11:36:09 PM
Sample Name : fa57914-6
Vial : Vial 37
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

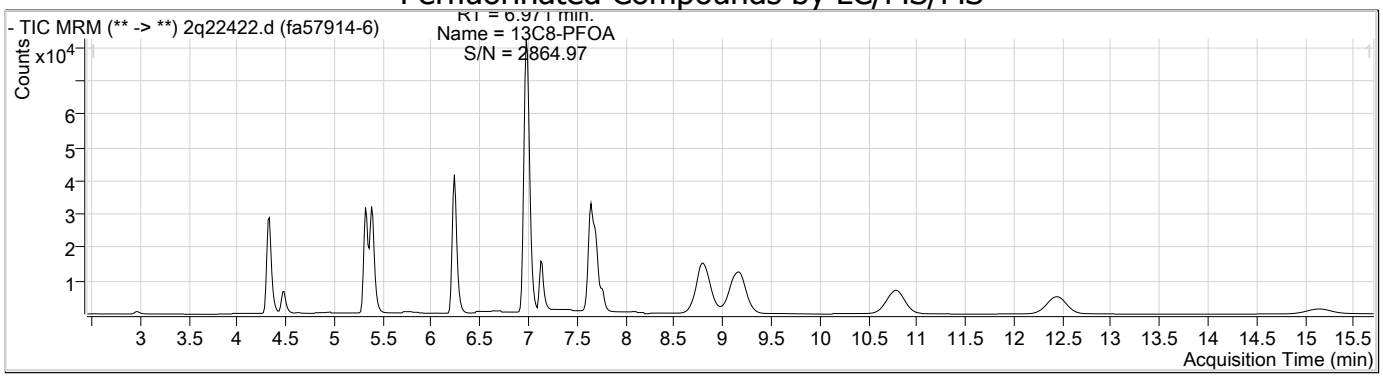
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	115873	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	48729	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	2636	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	96945	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	96520	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	110051	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	88002	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	80939	20.00	µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	154255	20.00	µg/L	0.025
M7-PFUnDA	10.792	570.0 -> 525.0	92370	20.00	µg/L	0.012
M2-PFDoDA	12.440	615.0 -> 570.0	74274	20.00	µg/L	-0.013
M2-PFTeDA	15.143	715.0 -> 670.0	27759	20.00	µg/L	0.025
M8-FOSA	7.129	506.0 -> 78.0	45400	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	21943	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	29010	20.00	µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	27848	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	104421	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	137957	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	147880	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	34111	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	104395	15.85	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.3%		
13C2-6:2FTS	6.993	429.0 -> 409.0	137942	15.62	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.1%		
13C2-8:2FTS	9.160	529.0 -> 509.0	146506	13.94	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.7%		
13C2-PFDoDA	12.440	615.0 -> 570.0	73867	13.36	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.8%		
13C2-PFTeDA	15.143	715.0 -> 670.0	25238	13.00	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 65.0%		
13C3-PFBS	4.481	302.0 -> 99.0	21962	15.70	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.5%		
13C3-PFHxS	6.235	402.0 -> 99.0	29021	16.30	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.5%		
13C4-PFBA	2.966	217.0 -> 172.0	2636	0.20	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 1.0%		
13C4-PFHpA	6.242	367.0 -> 322.0	110052	17.11	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.5%		
13C5-PFHxA	5.390	318.0 -> 273.0	96480	17.53	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.6%		
13C5-PFPeA	4.337	268.0 -> 223.0	96927	16.96	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.8%		
13C6-PFDA	8.804	519.0 -> 474.0	154008	16.55	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.8%		

Perfluorinated Compounds by LC/MS/MS

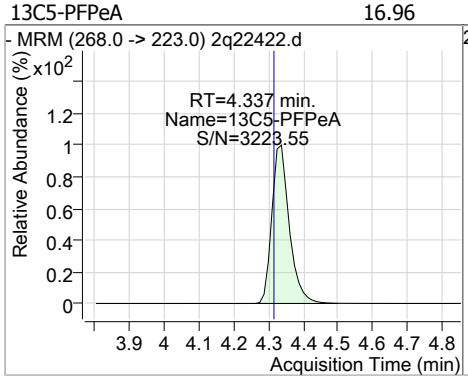
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.792	570.0 -> 525.0	91699	13.39	µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.0%			
13C8-FOSA	7.129	506.0 -> 78.0	45421	11.70	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 58.5%			
13C8-PFOA	6.971	421.0 -> 376.0	88051	16.39	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.9%			
13C8-PFOS	7.633	507.0 -> 99.0	27842	15.34	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.7%			
13C9-PFNA	7.702	472.0 -> 427.0	80938	16.46	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.3%			
d3-MeFOSAA	7.645	573.0 -> 419.0	34100	14.66	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.3%			
M2-PFOA	6.973	415.0 -> 370.0	115899	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	48740	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.472	299.0 -> 80.0	529	0.33	µg/L		78
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.393	313.0 -> 269.0	941	0.61	µg/L		99
PFHxS	6.238	399.0 -> 80.0	304	0.22	µg/L	m	91
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	453	0.20	µg/L	m	84
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.328	263.0 -> 219.0	3016	0.66	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

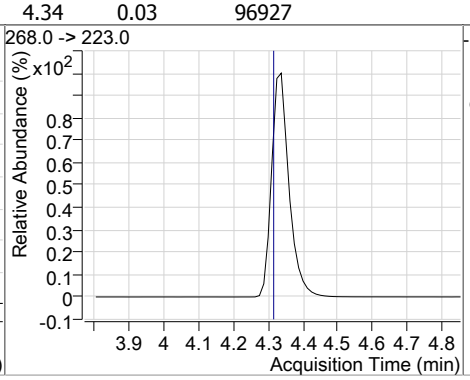
 # = Qualifier out of range, m = manually integrated, + = Area summed

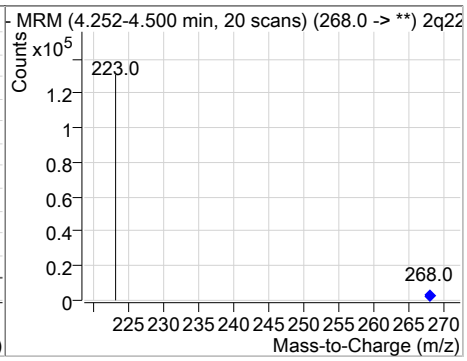
Perfluorinated Compounds by LC/MS/MS



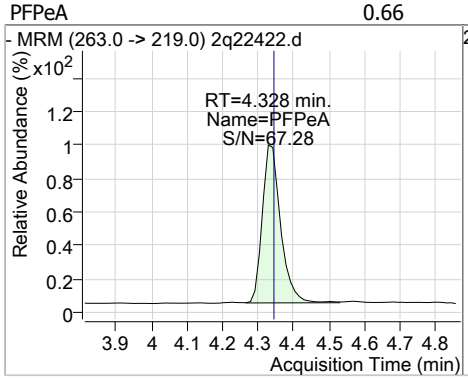
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.96	4.34	0.03	96927				

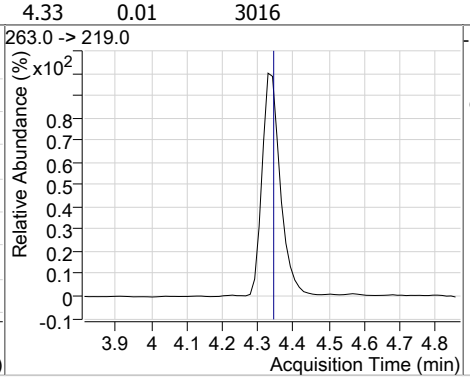


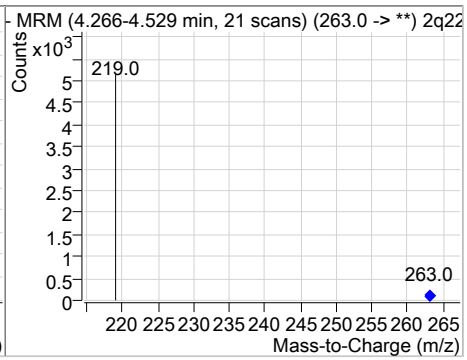




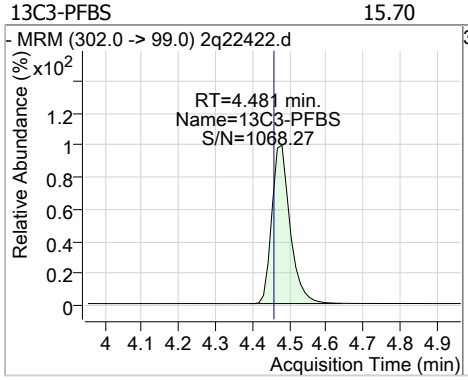
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.66	4.33	0.01	3016				

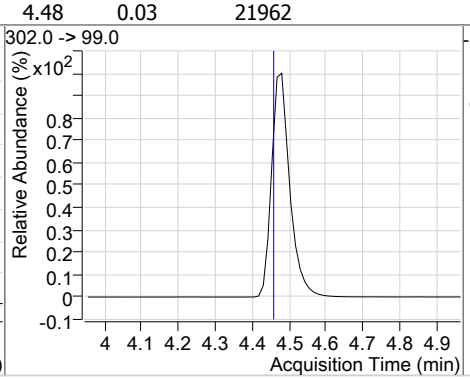


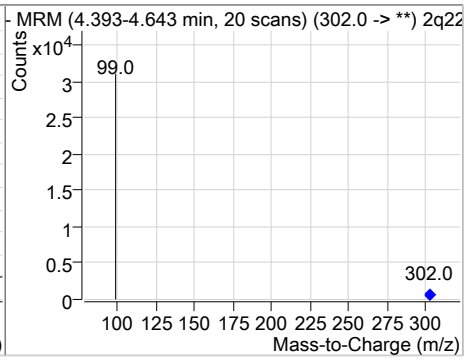




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.70	4.48	0.03	21962				

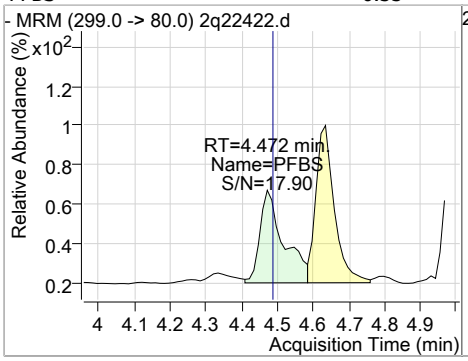


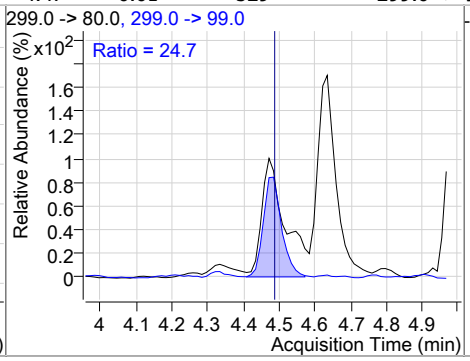


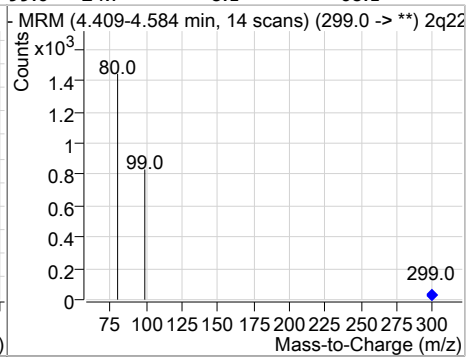


Perfluorinated Compounds by LC/MS/MS

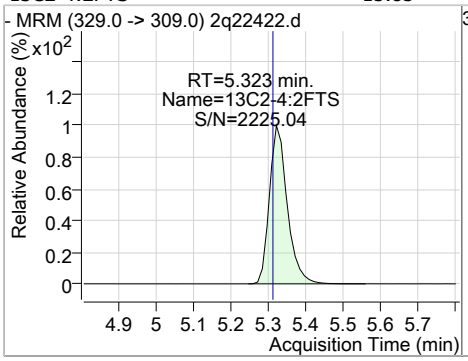
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.33	4.47	0.01	529	299.0 -> 99.0	24.7	8.1	68.1

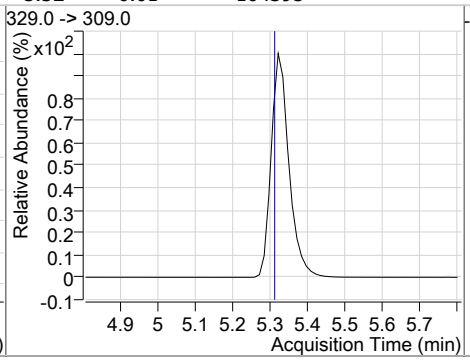


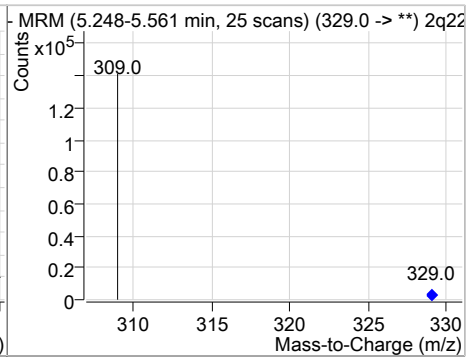




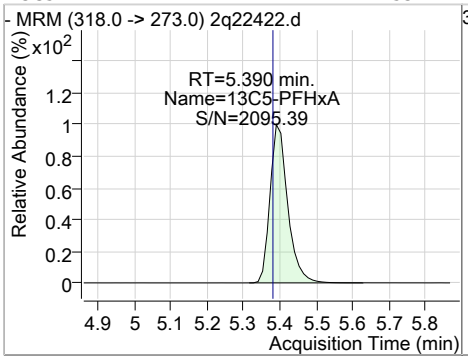
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.85	5.32	0.01	104395				

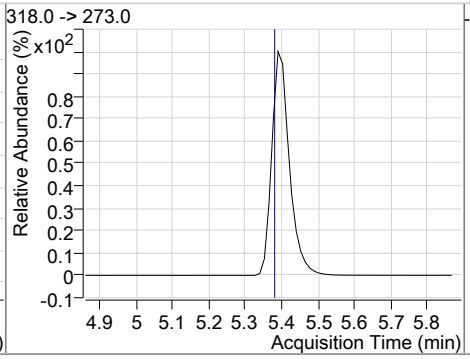


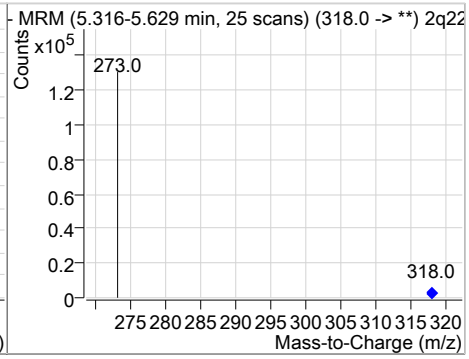




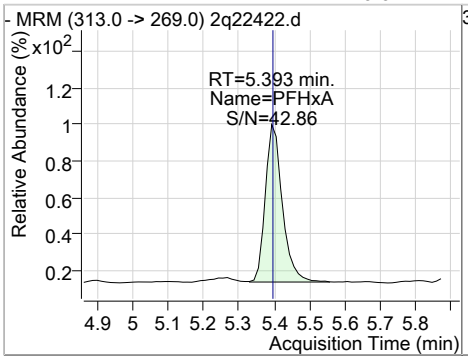
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.53	5.39	0.01	96480				

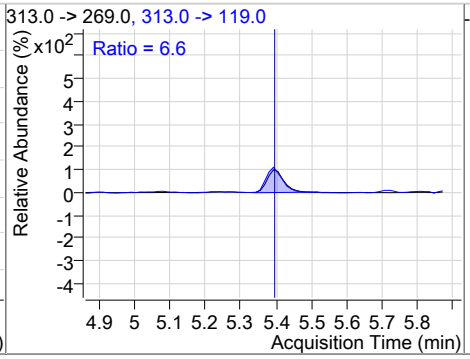


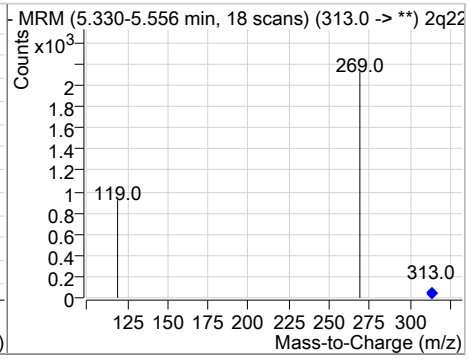




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.61	5.39	0.01	941	313.0 -> 119.0	6.6	0.0	36.4

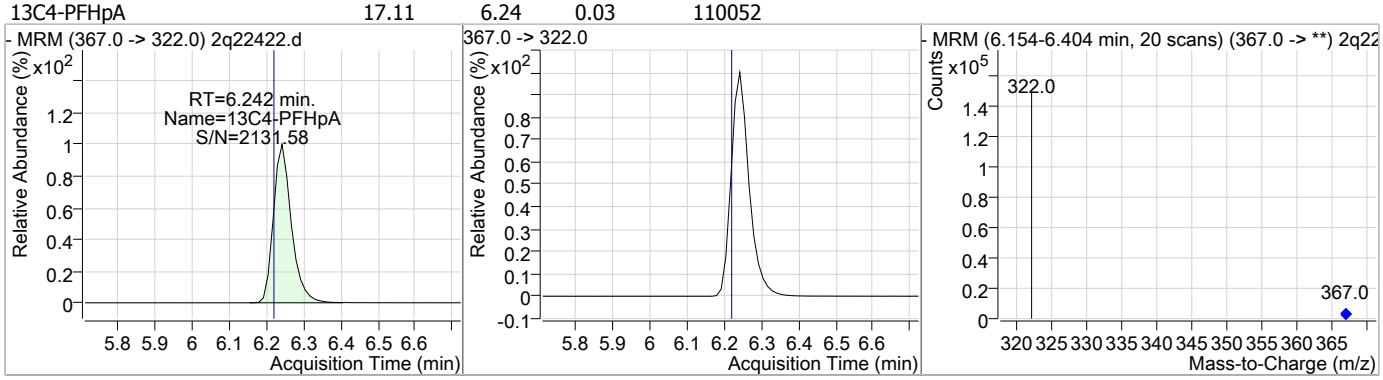




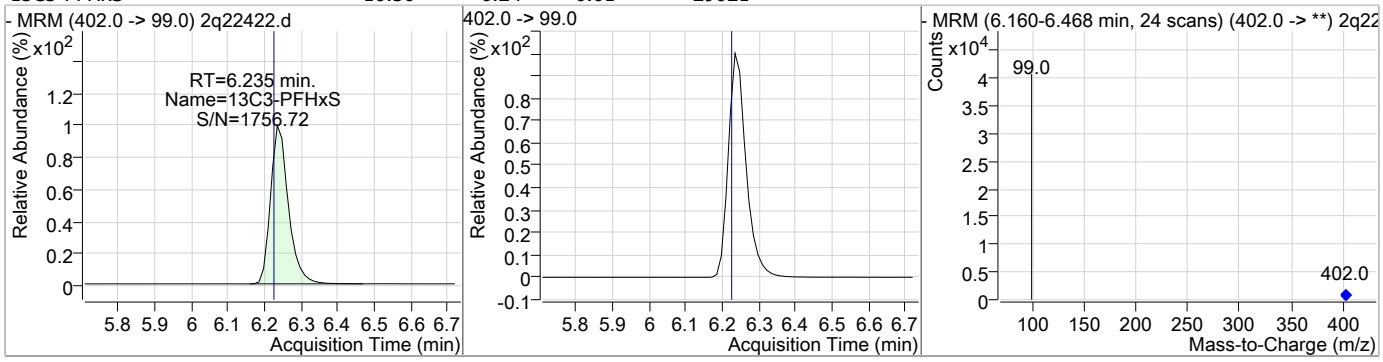


Perfluorinated Compounds by LC/MS/MS

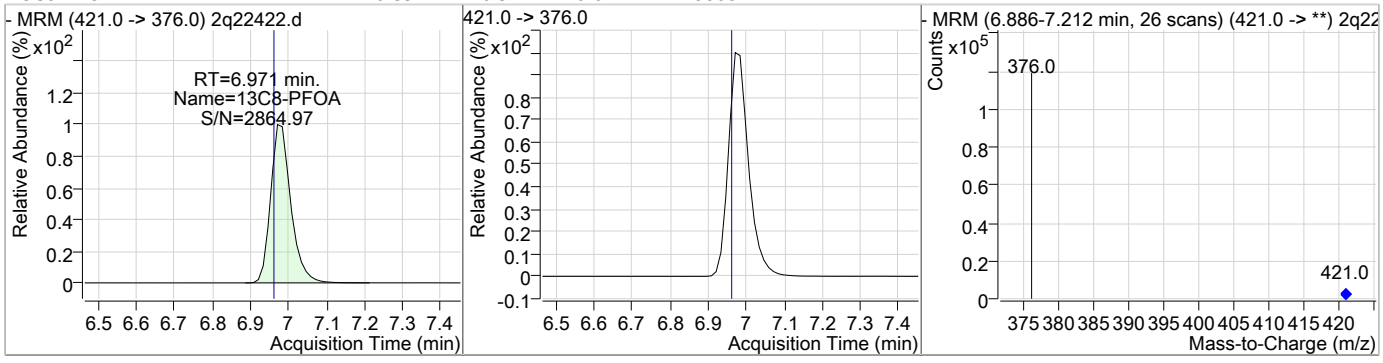
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.11	6.24	0.03	110052				



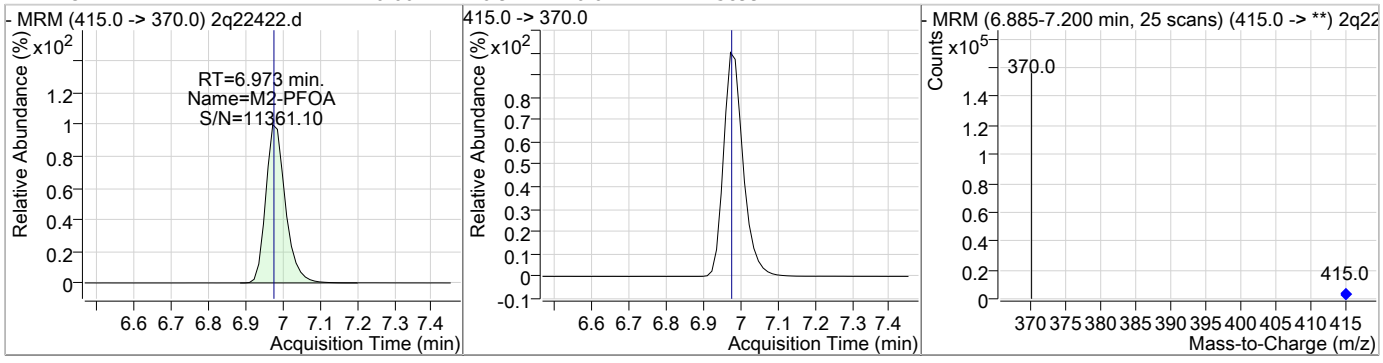
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.30	6.24	0.01	29021				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	16.39	6.97	0.01	88051				

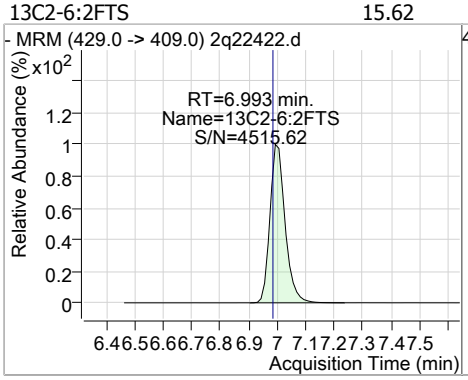


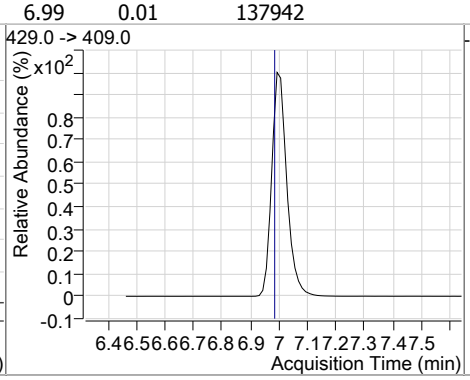
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	115899				

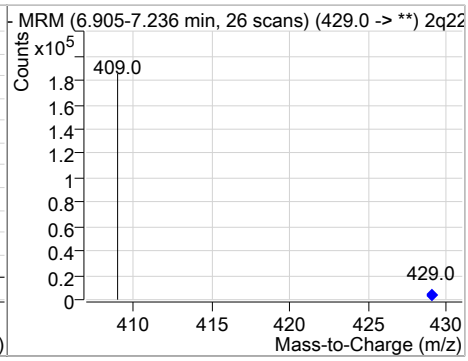


Perfluorinated Compounds by LC/MS/MS

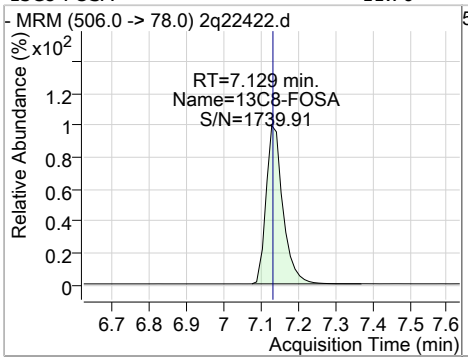
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.62	6.99	0.01	137942				

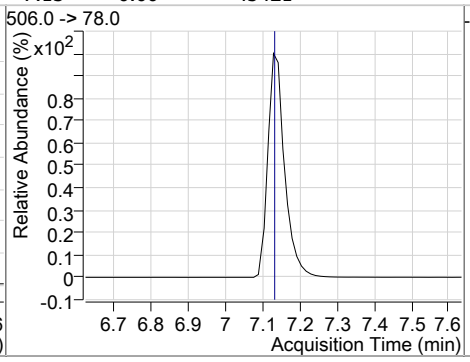


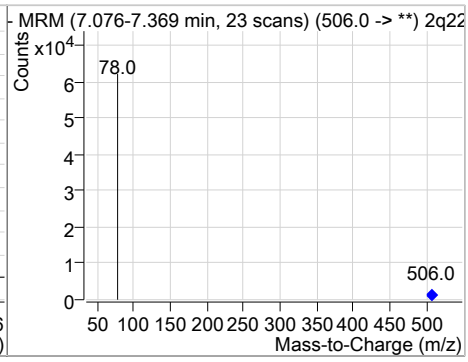




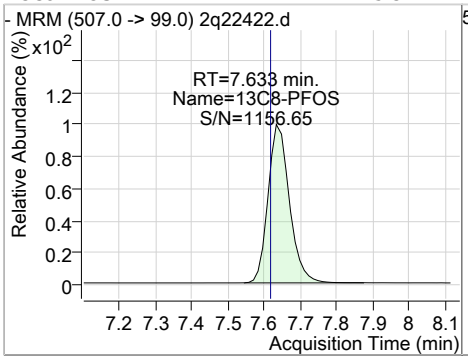
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	11.70	7.13	0.00	45421				

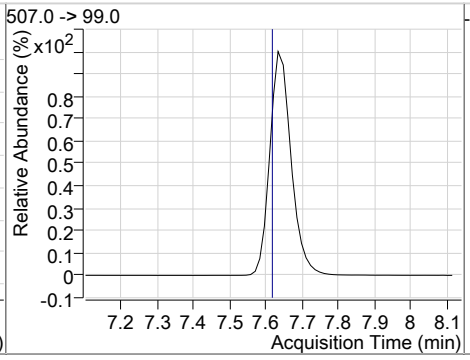


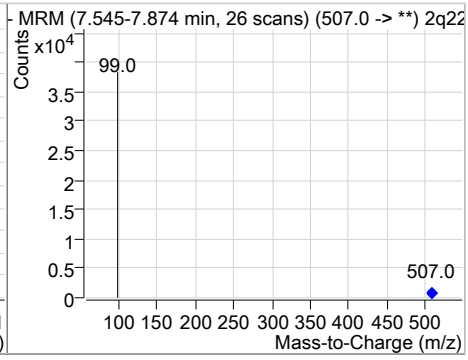




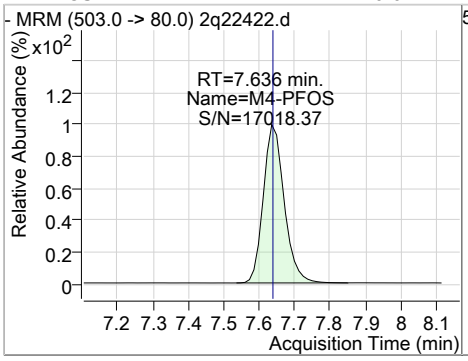
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.34	7.63	0.01	27842				

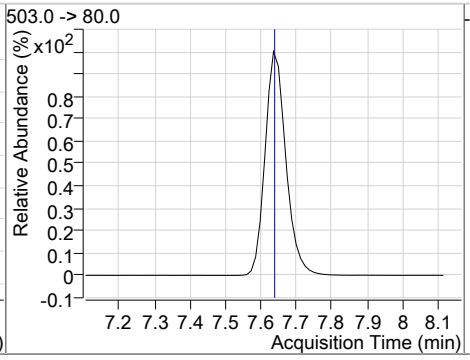


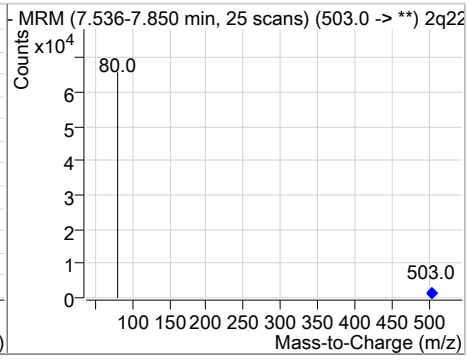




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.64	0.01	48740				

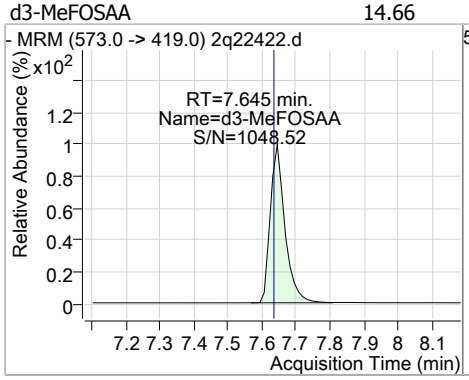


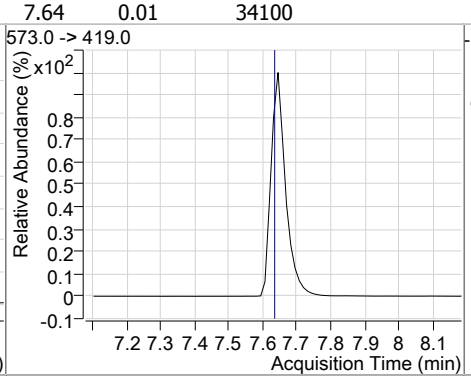


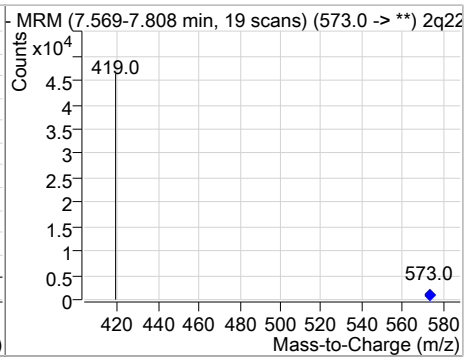


Perfluorinated Compounds by LC/MS/MS

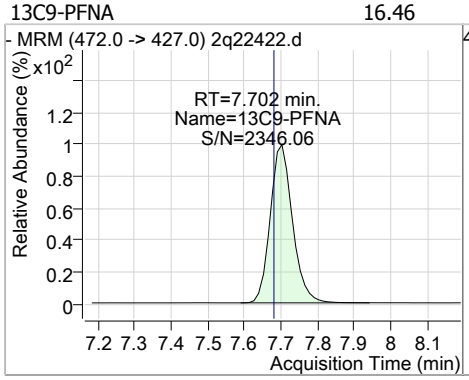
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.66	7.64	0.01	34100				

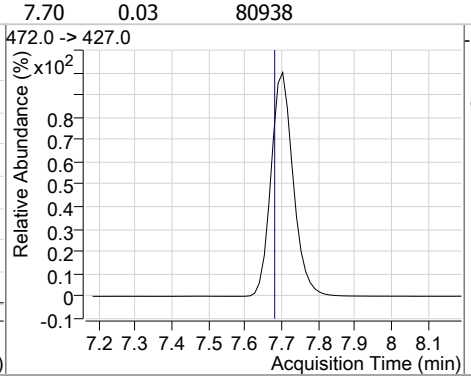


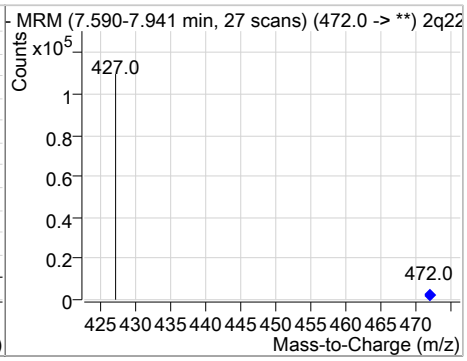




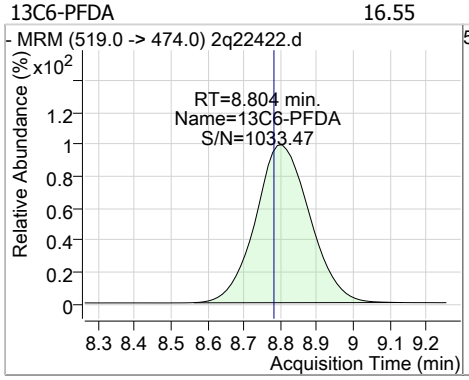
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	16.46	7.70	0.03	80938				

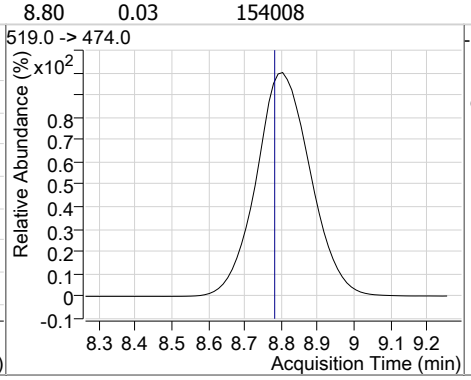


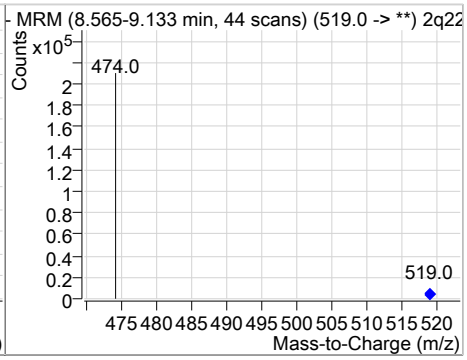




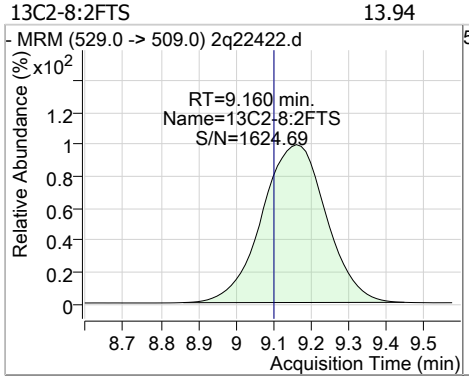
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.55	8.80	0.03	154008				

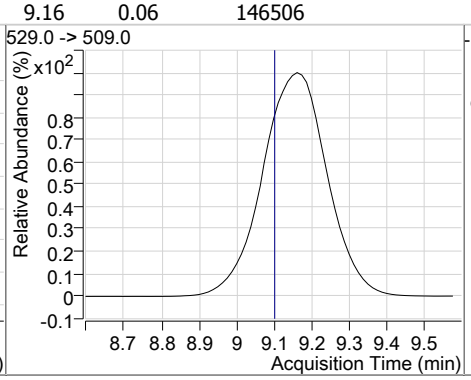


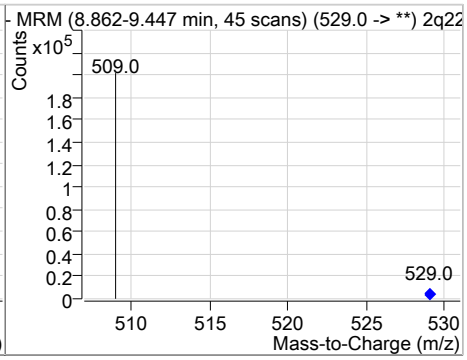




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.94	9.16	0.06	146506				

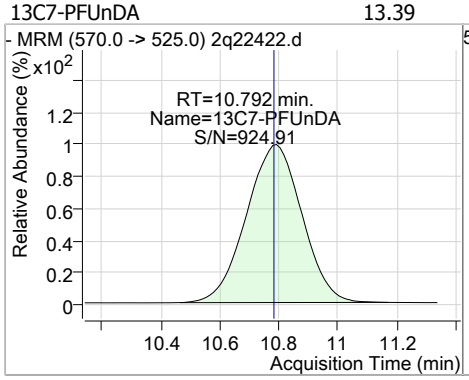


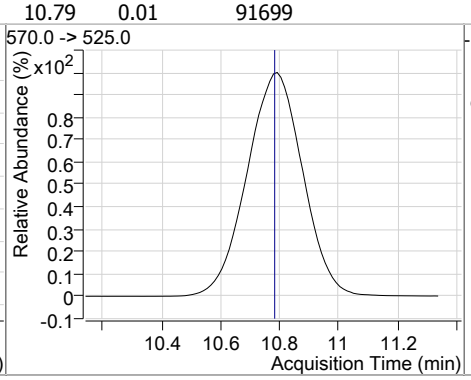


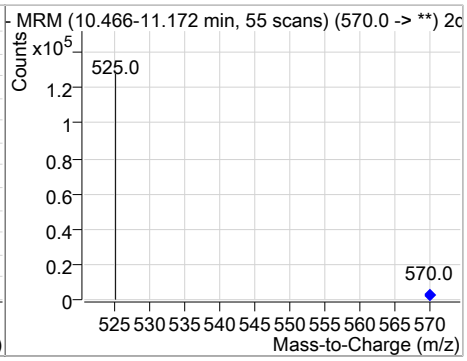


Perfluorinated Compounds by LC/MS/MS

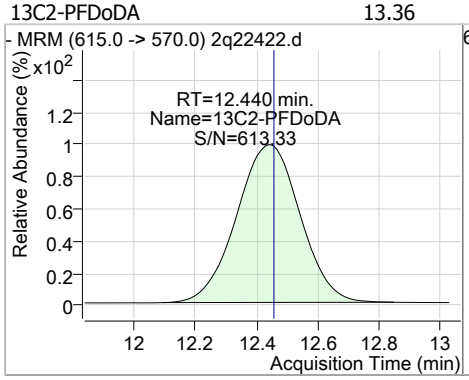
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.39	10.79	0.01	91699				

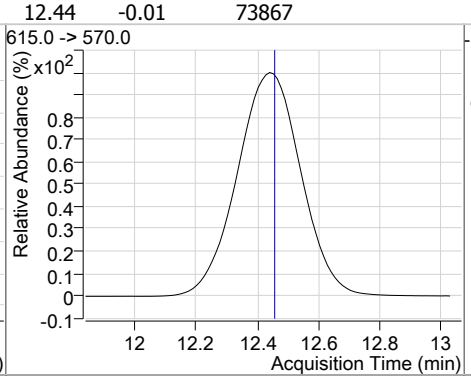


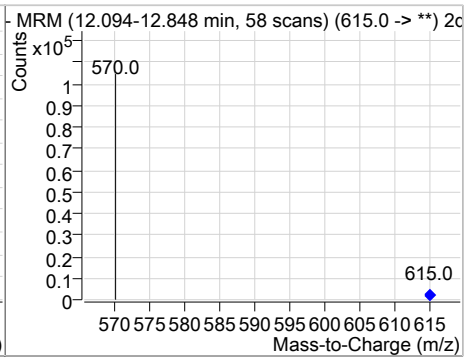




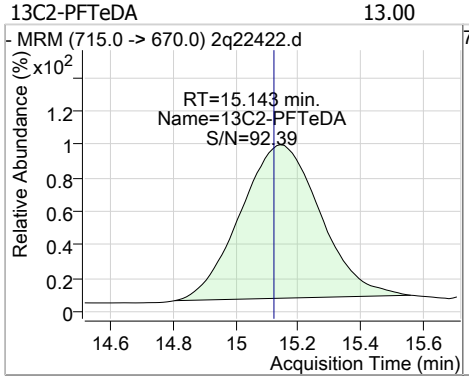
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	13.36	12.44	-0.01	73867				

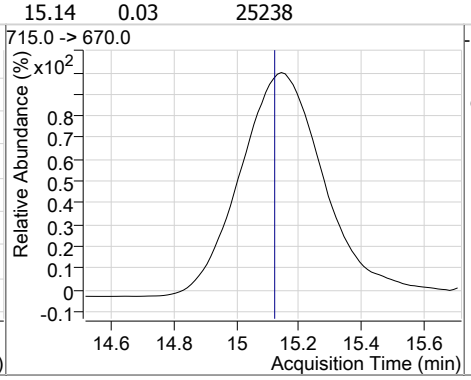


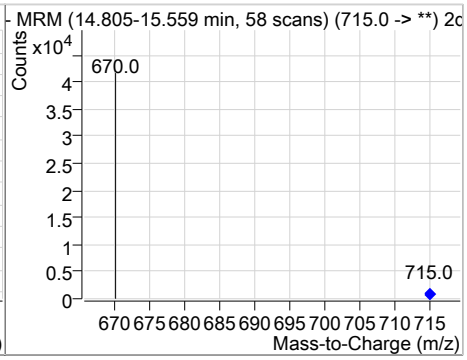




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	13.00	15.14	0.03	25238				







Manual Integration Approval Summary

Sample Number: FA57914-6
Lab FileID: 2Q22422.D
Injection Time: 10/19/18 23:36
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanoic acid	335-67-1		6.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22141.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 6:27:10 PM
Sample Name : fa57914-6
Vial : Vial 20
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

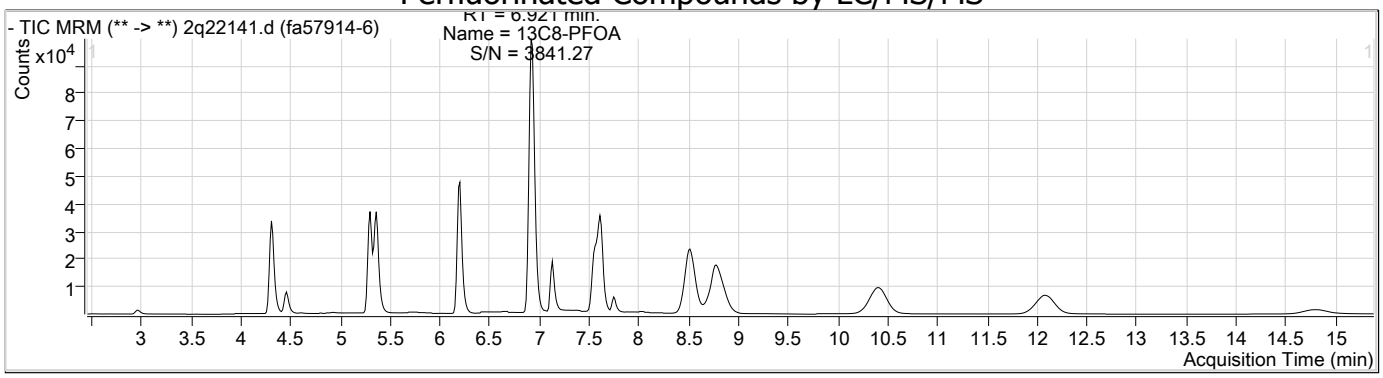
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.923	415.0 -> 370.0	134470	20.00	µg/L	0.015
13C4-PFOS	7.548	503.0 -> 80.0	48651	20.00	µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	5007	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	109095	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	110479	20.00	µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	130198	20.00	µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	112124	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	95264	20.00	µg/L	0.013
M6-PFDA	8.517	519.0 -> 474.0	174198	20.00	µg/L	0.012
M7-PFUnDA	10.404	570.0 -> 525.0	117191	20.00	µg/L	0.000
M2-PFDoDA	12.078	615.0 -> 570.0	92030	20.00	µg/L	-0.012
M2-PFTeDA	14.806	715.0 -> 670.0	28285	20.00	µg/L	0.025
M8-FOSA	7.130	506.0 -> 78.0	52934	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	25048	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	31627	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	30286	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	120108	20.00	µg/L	0.012
M2-6:2FTS	6.943	429.0 -> 409.0	154243	20.00	µg/L	0.014
M2-8:2FTS	8.775	529.0 -> 509.0	167157	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	35939	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	120140	17.10	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.5%		
13C2-6:2FTS	6.943	429.0 -> 409.0	154240	17.55	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.8%		
13C2-8:2FTS	8.775	529.0 -> 509.0	166687	16.02	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.1%		
13C2-PFDoDA	12.078	615.0 -> 570.0	91428	14.57	µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.8%		
13C2-PFTeDA	14.806	715.0 -> 670.0	25869	11.58	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.9%		
13C3-PFBS	4.455	302.0 -> 99.0	25046	17.59	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.9%		
13C3-PFHxS	6.198	402.0 -> 99.0	31622	18.25	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.3%		
13C4-PFBA	2.966	217.0 -> 172.0	5011	0.35	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 1.7%		
13C4-PFHpA	6.204	367.0 -> 322.0	130230	18.57	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C5-PFHxA	5.364	318.0 -> 273.0	110537	18.21	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.0%		
13C5-PFPeA	4.312	268.0 -> 223.0	109044	17.36	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.8%		
13C6-PFDA	8.517	519.0 -> 474.0	174116	17.27	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.4%		

Perfluorinated Compounds by LC/MS/MS

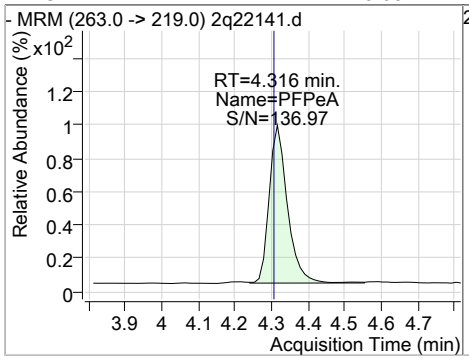
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.404	570.0 -> 525.0	116899	15.29	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.4%			
13C8-FOSA	7.130	506.0 -> 78.0	52922	14.38	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.9%			
13C8-PFOA	6.921	421.0 -> 376.0	112119	19.10	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%			
13C8-PFOS	7.559	507.0 -> 99.0	30288	17.32	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.6%			
13C9-PFNA	7.614	472.0 -> 427.0	95239	18.15	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.8%			
d3-MeFOSAA	7.620	573.0 -> 419.0	35972	16.08	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.4%			
M2-PFOA	6.923	415.0 -> 370.0	134456	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	48575	19.97	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.674	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.459	299.0 -> 80.0	520	0.29	µg/L		84
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	1008	0.57	µg/L		100
PFHxS	6.201	399.0 -> 80.0	364	0.23	µg/L	m	99
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.924	413.0 -> 369.0	510	0.19	µg/L	m	81
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	3416	0.68	µg/L		100
PFPeS	5.421	349.0 -> 80.0	0	0.00	µg/L	m	1
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

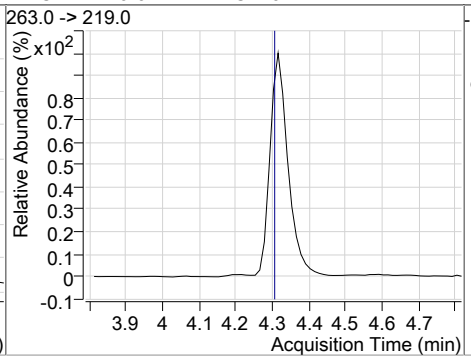
 # = Qualifier out of range, m = manually integrated, + = Area summed

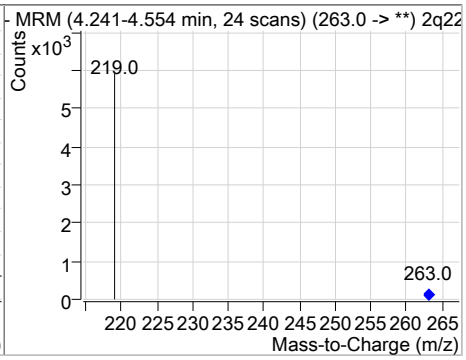
Perfluorinated Compounds by LC/MS/MS



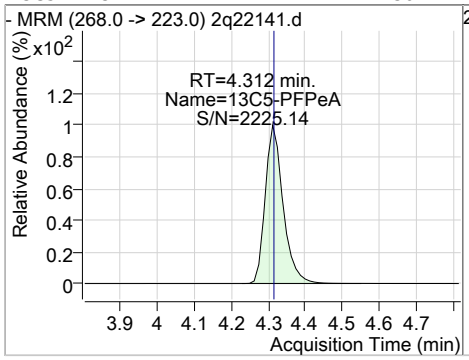
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.68	4.32	0.01	3416				

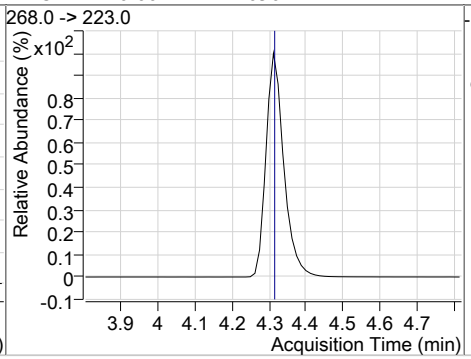


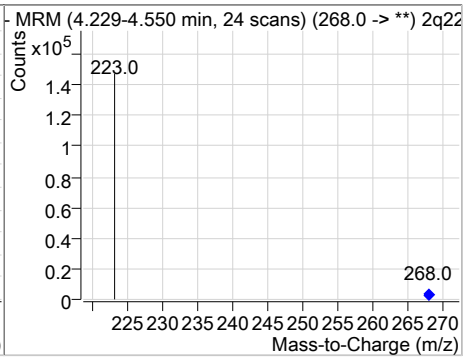




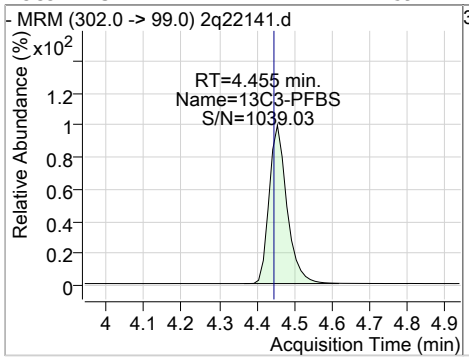
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.36	4.31	0.00	109044				

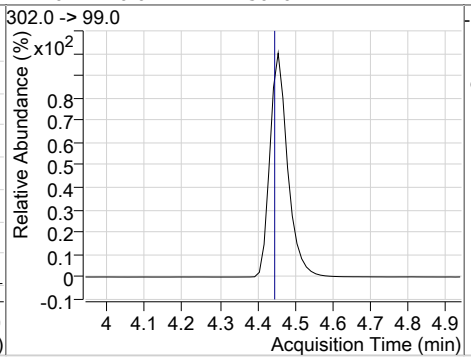


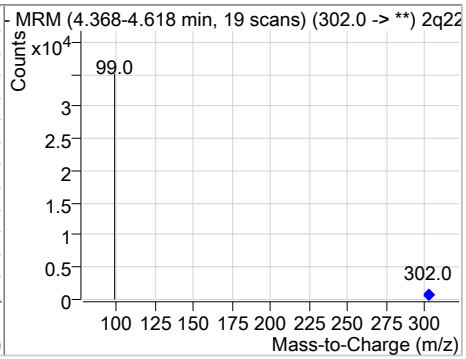




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.59	4.46	0.01	25046				

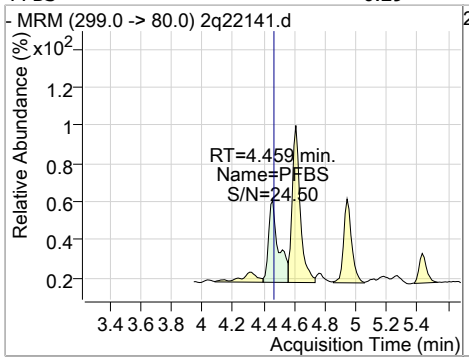


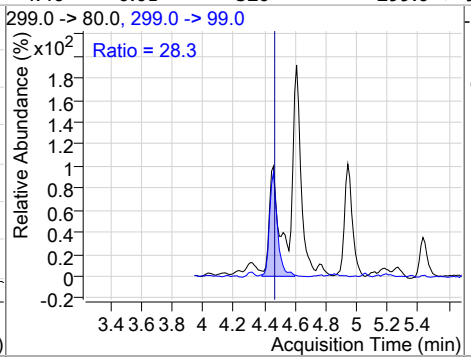


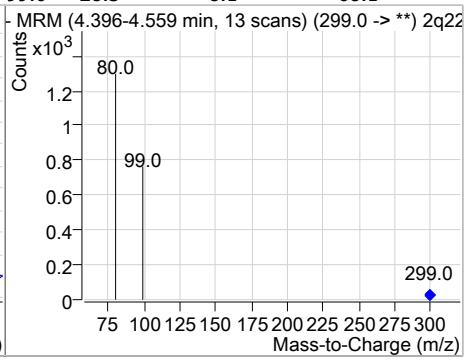


Perfluorinated Compounds by LC/MS/MS

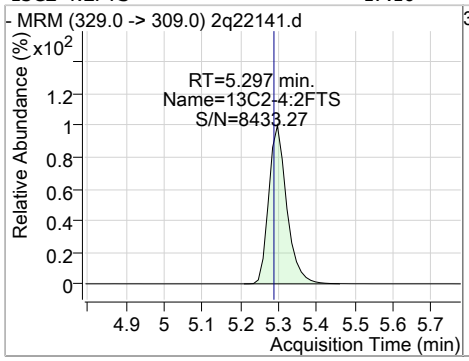
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.29	4.46	0.01	520	299.0 -> 99.0	28.3	8.1	68.1

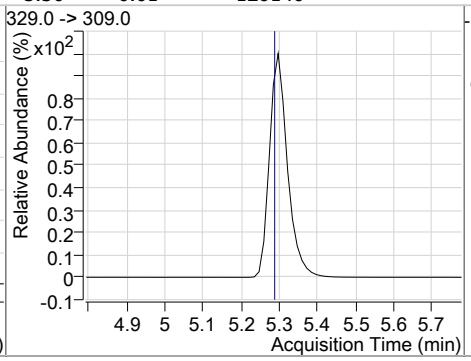


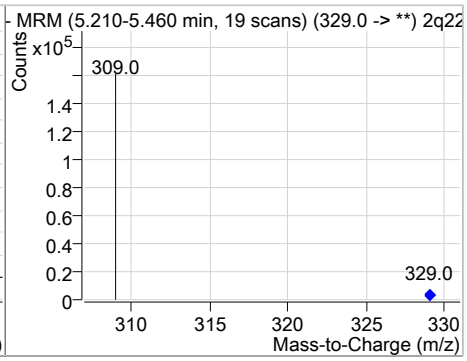




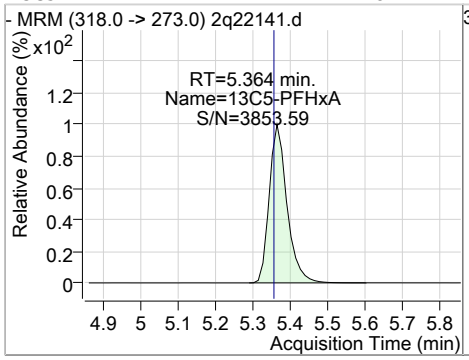
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.10	5.30	0.01	120140				

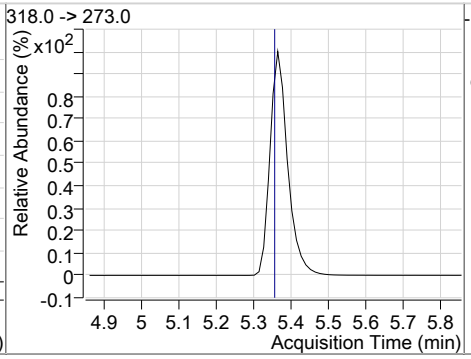


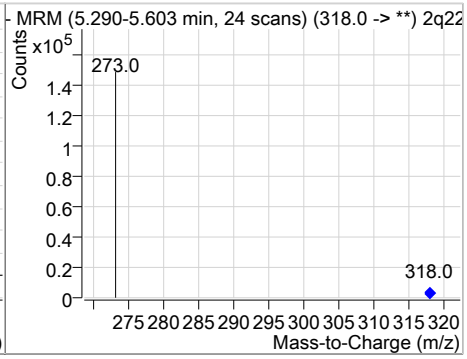




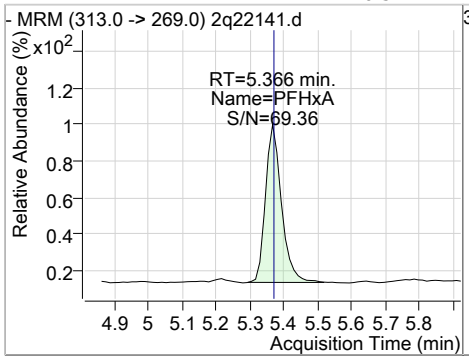
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.21	5.36	0.01	110537				

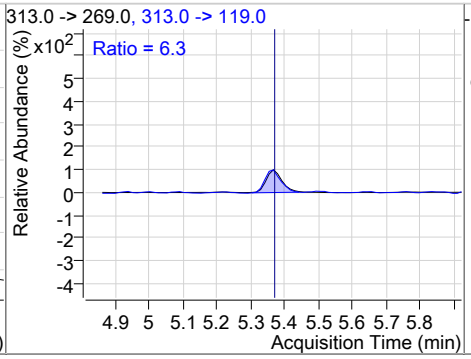


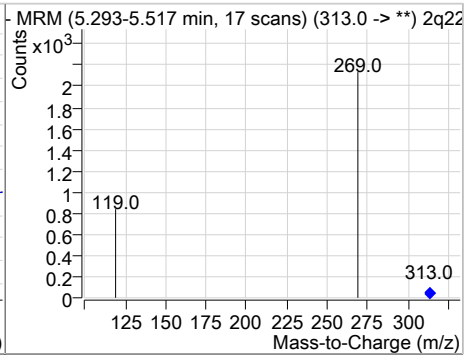




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.57	5.37	0.01	1008	313.0 -> 119.0	6.3	0.0	36.4

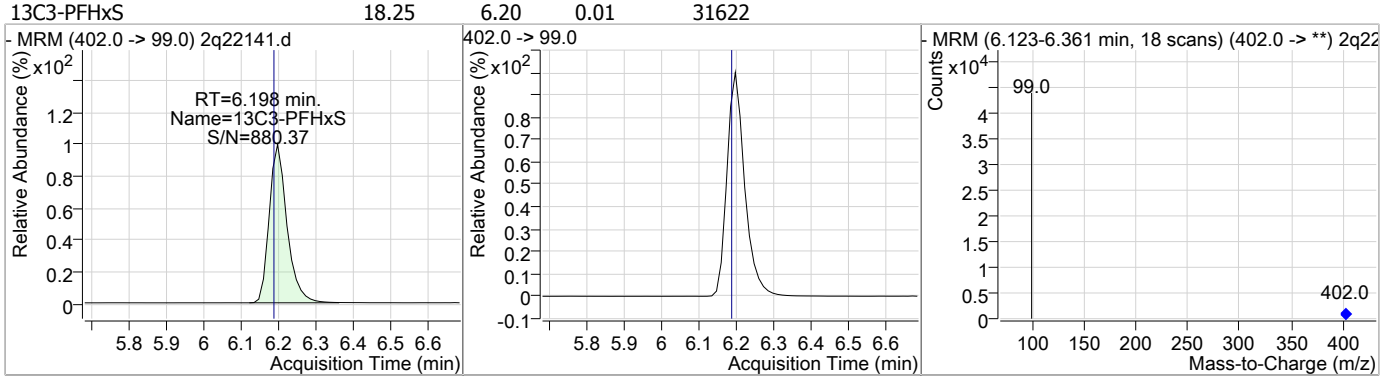




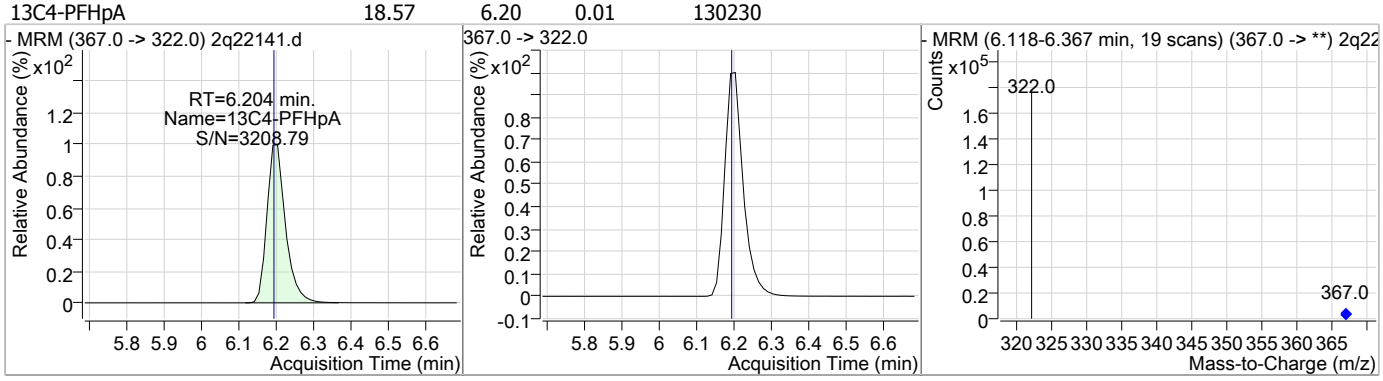


Perfluorinated Compounds by LC/MS/MS

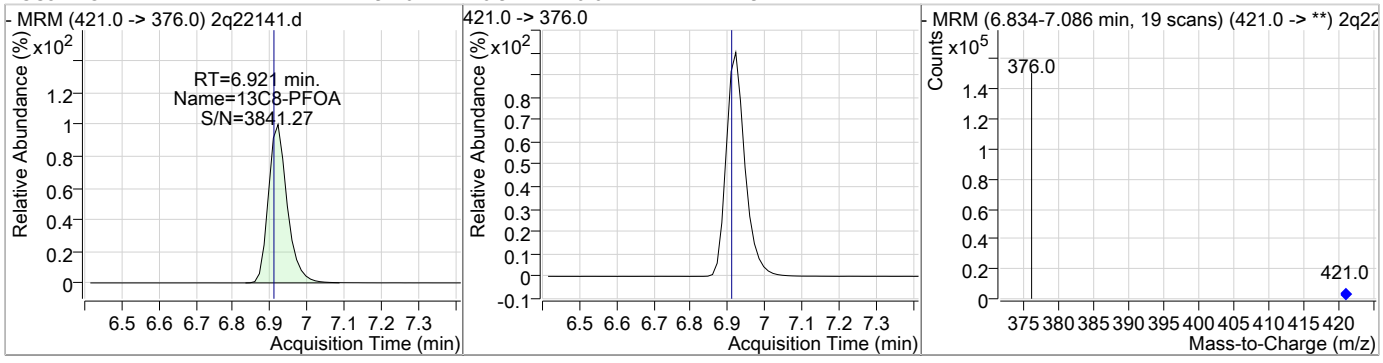
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.25	6.20	0.01	31622				



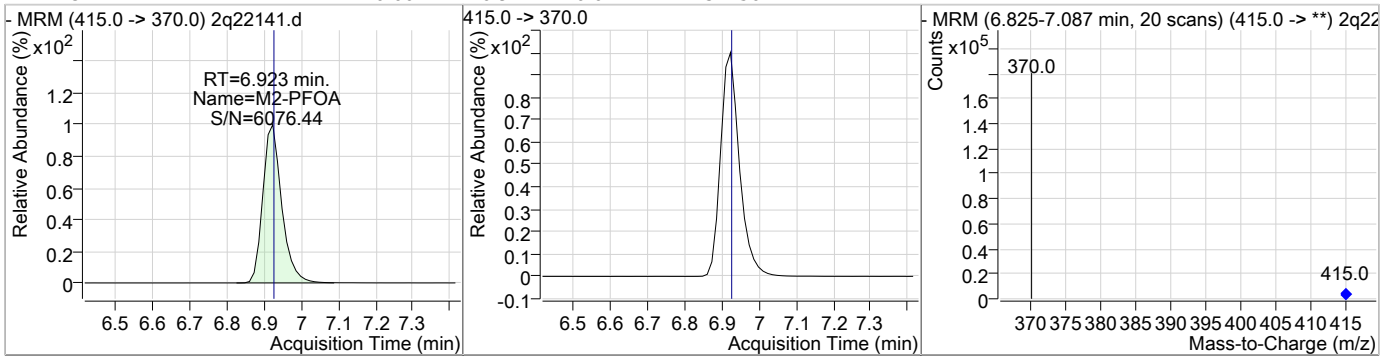
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.57	6.20	0.01	130230				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.10	6.92	0.01	112119				

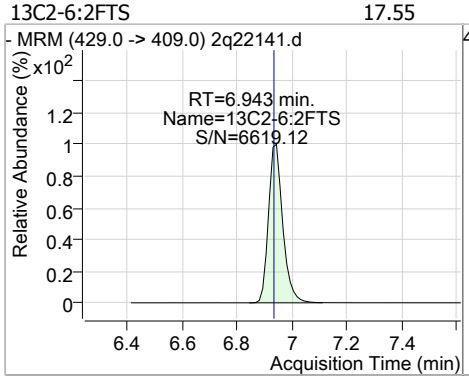


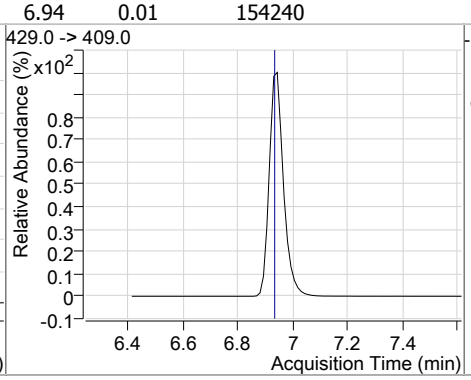
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	134456				

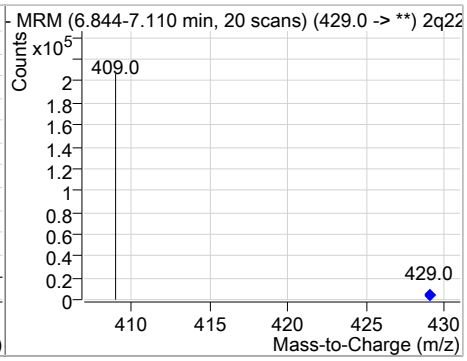


Perfluorinated Compounds by LC/MS/MS

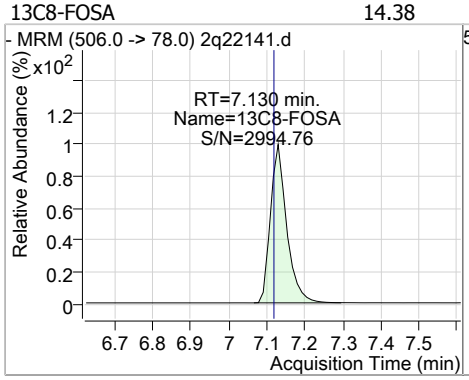
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.55	6.94	0.01	154240				

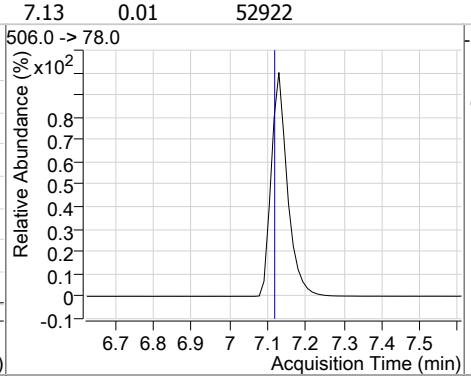


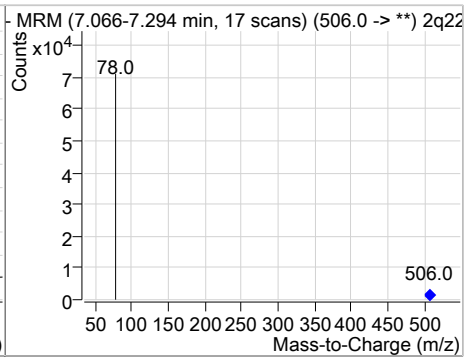




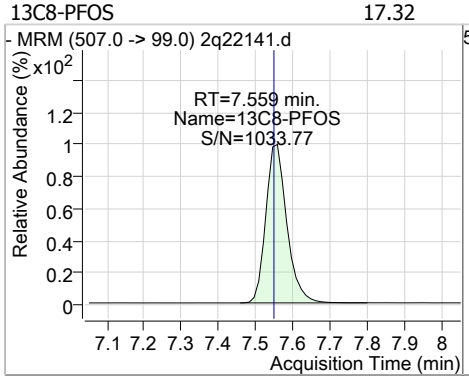
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	14.38	7.13	0.01	52922				

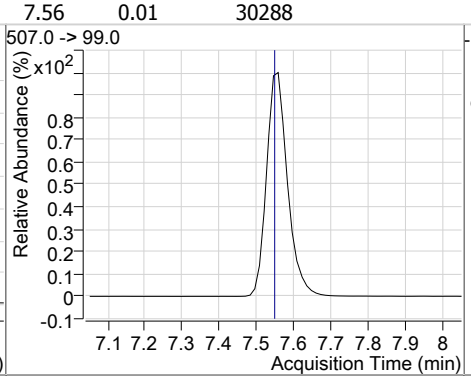


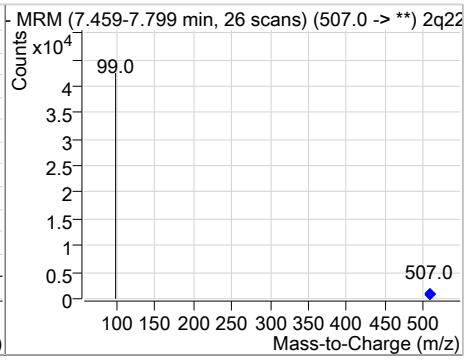




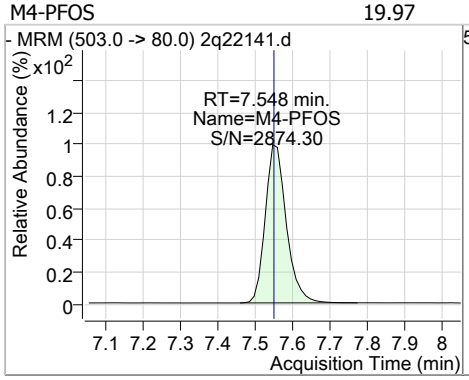
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.32	7.56	0.01	30288				

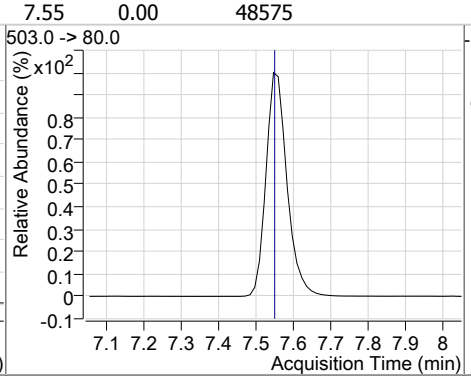


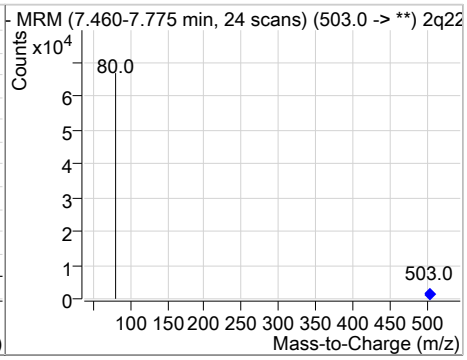




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.97	7.55	0.00	48575				

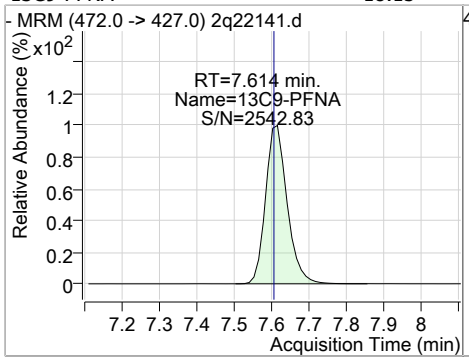


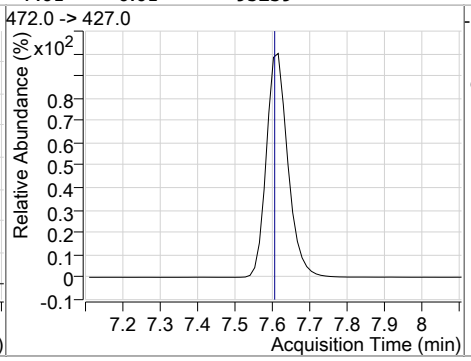


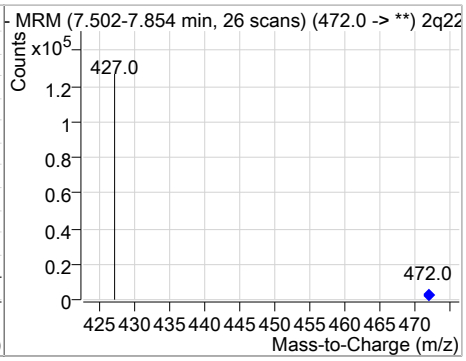


Perfluorinated Compounds by LC/MS/MS

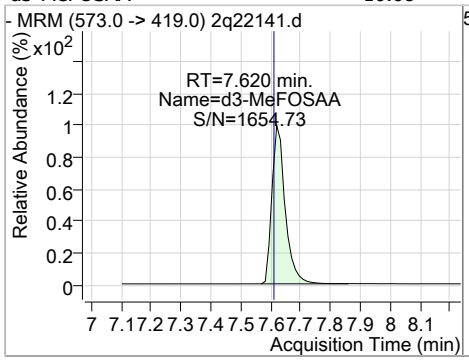
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.15	7.61	0.01	95239				

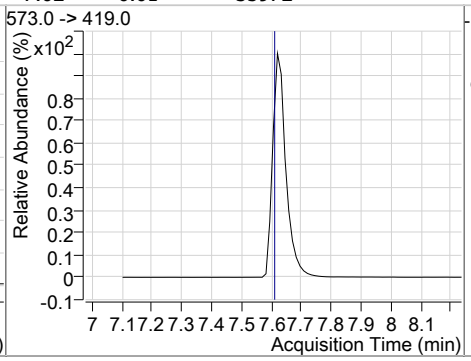


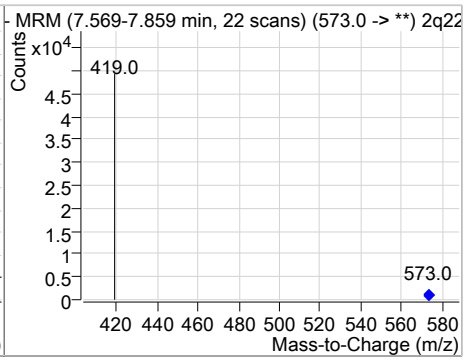




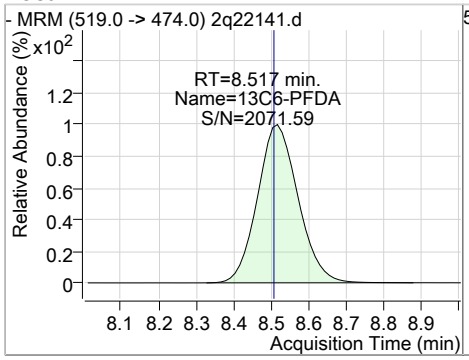
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	16.08	7.62	0.01	35972				

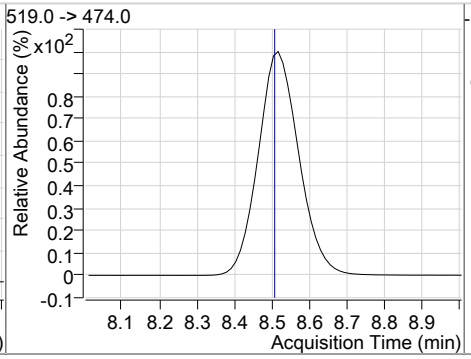


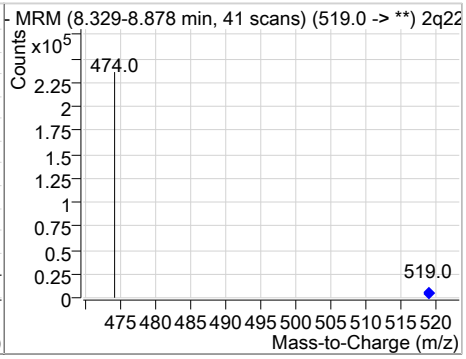




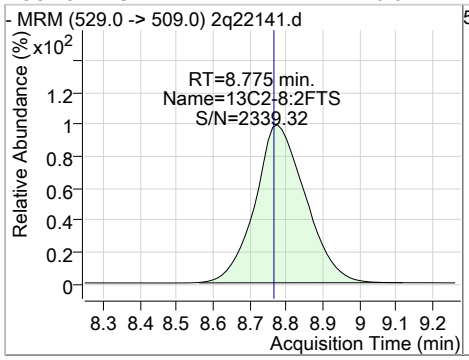
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.27	8.52	0.01	174116				

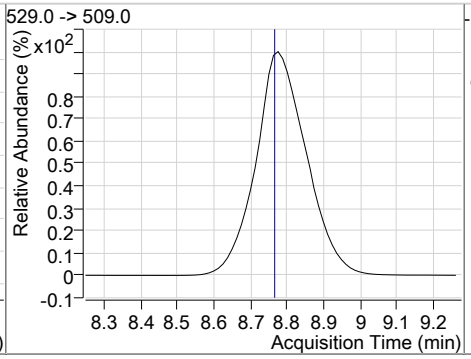


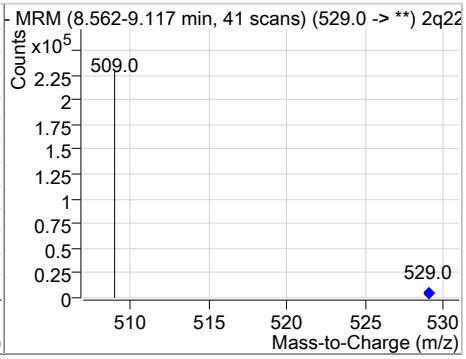




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.02	8.77	0.01	166687				

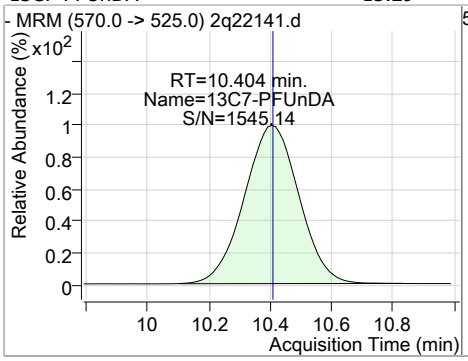


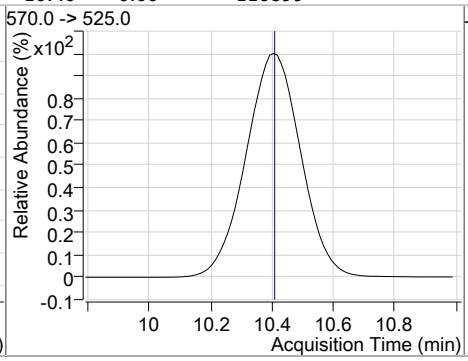


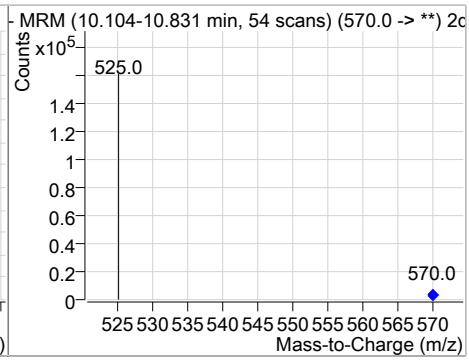


Perfluorinated Compounds by LC/MS/MS

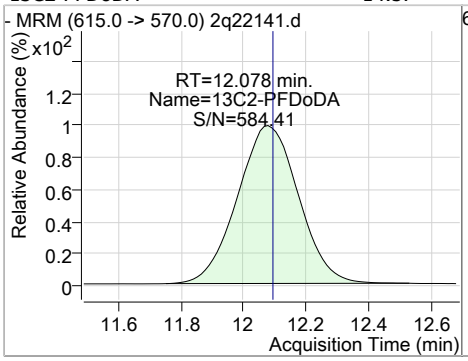
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.29	10.40	0.00	116899				

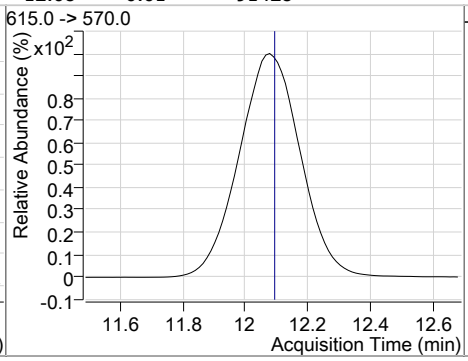


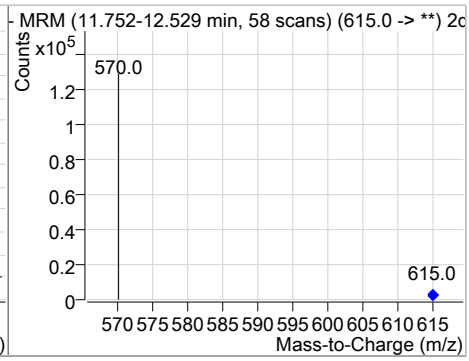




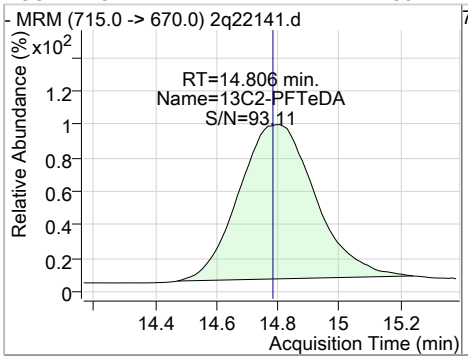
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	14.57	12.08	-0.01	91428				

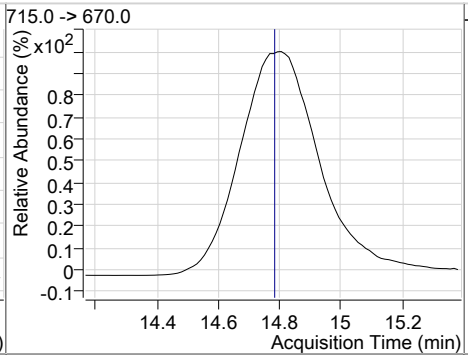


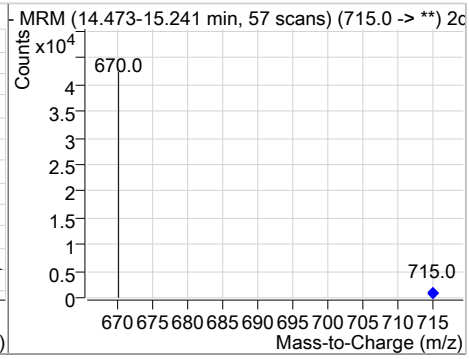




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.58	14.81	0.03	25869				







Manual Integration Approval Summary

Sample Number: FA57914-6
Lab FileID: 2Q22141.D
Injection Time: 10/15/18 18:27
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.20	Split peak
Perfluorooctanoic acid	335-67-1		6.92	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22425.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/20/2018 12:39:51 AM
Sample Name : fa57914-7
Vial : Vial 38
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

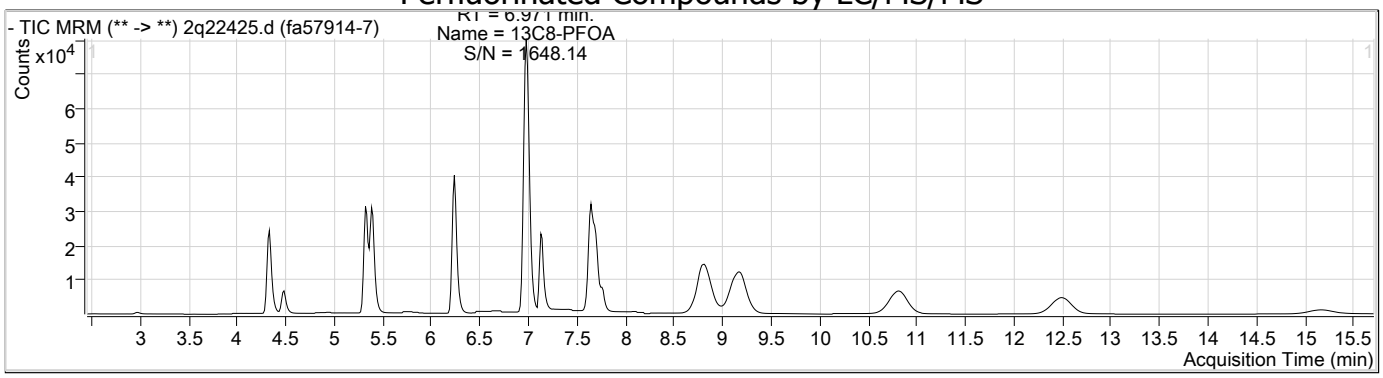
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	114143	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	46359	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1691	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	81182	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	94396	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	107063	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	84779	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	78627	20.00	µg/L	0.025
M6-PFDA	8.816	519.0 -> 474.0	148519	20.00	µg/L	0.038
M7-PFUnDA	10.817	570.0 -> 525.0	88627	20.00	µg/L	0.038
M2-PFDoDA	12.490	615.0 -> 570.0	69635	20.00	µg/L	0.038
M2-PFTeDA	15.156	715.0 -> 670.0	21817	20.00	µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	68917	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	21906	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	27972	20.00	µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	27128	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	103336	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	133587	20.00	µg/L	0.013
M2-8:2FTS	9.172	529.0 -> 509.0	142341	20.00	µg/L	0.075
M3-MeFOSAA	7.645	573.0 -> 419.0	33108	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	103308	15.69	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.4%		
13C2-6:2FTS	6.993	429.0 -> 409.0	133613	15.13	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.7%		
13C2-8:2FTS	9.172	529.0 -> 509.0	141361	13.45	µg/L	0.075
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.3%		
13C2-PFDoDA	12.490	615.0 -> 570.0	68697	12.42	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 62.1%		
13C2-PFTeDA	15.156	715.0 -> 670.0	19823	10.21	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 51.1%		
13C3-PFBS	4.481	302.0 -> 99.0	21909	15.67	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.3%		
13C3-PFHxS	6.235	402.0 -> 99.0	27976	15.71	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.6%		
13C4-PFBA	2.966	217.0 -> 172.0	1695	0.13	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.6%		
13C4-PFHpA	6.242	367.0 -> 322.0	107064	16.64	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.2%		
13C5-PFHxA	5.390	318.0 -> 273.0	94382	17.15	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.7%		
13C5-PFPeA	4.337	268.0 -> 223.0	81170	14.20	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.0%		
13C6-PFDA	8.816	519.0 -> 474.0	147398	15.84	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.2%		

Perfluorinated Compounds by LC/MS/MS

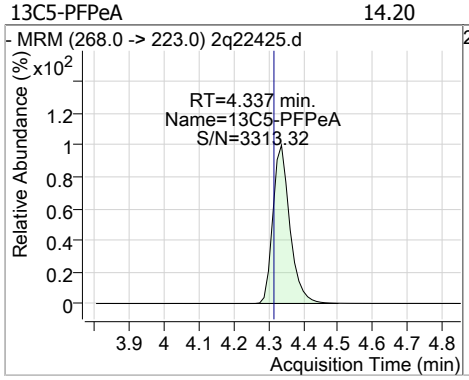
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.817	570.0 -> 525.0	87941	12.84	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.2%			
13C8-FOSA	7.129	506.0 -> 78.0	68899	17.75	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.8%			
13C8-PFOA	6.971	421.0 -> 376.0	84783	15.78	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.9%			
13C8-PFOS	7.633	507.0 -> 99.0	27119	14.94	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.7%			
13C9-PFNA	7.702	472.0 -> 427.0	78602	15.99	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.9%			
d3-MeFOSAA	7.645	573.0 -> 419.0	33132	14.25	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.2%			
M2-PFOA	6.973	415.0 -> 370.0	114155	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	46314	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.536	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.341	263.0 -> 219.0	708	0.19	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.746	563.0 -> 519.0	0	0.00	µg/L	m	1

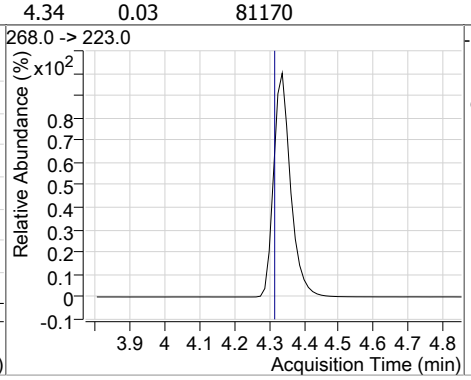
 # = Qualifier out of range, m = manually integrated, + = Area summed

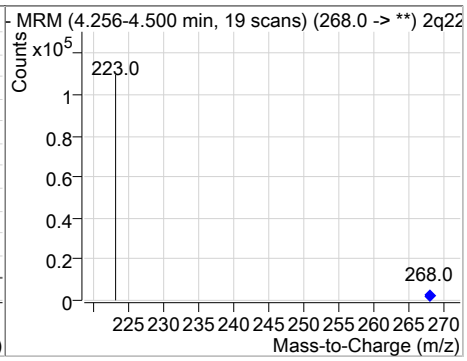
Perfluorinated Compounds by LC/MS/MS



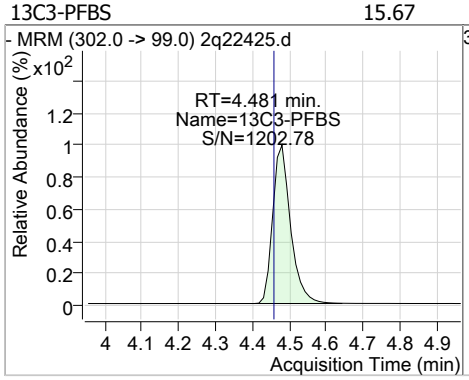
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	14.20	4.34	0.03	81170				

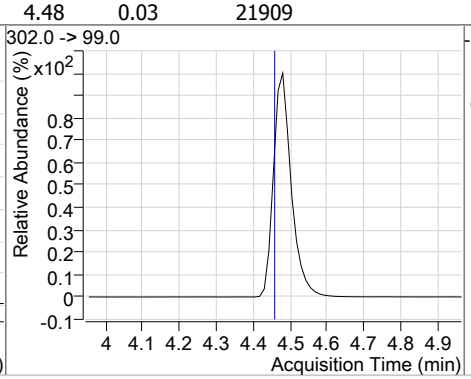


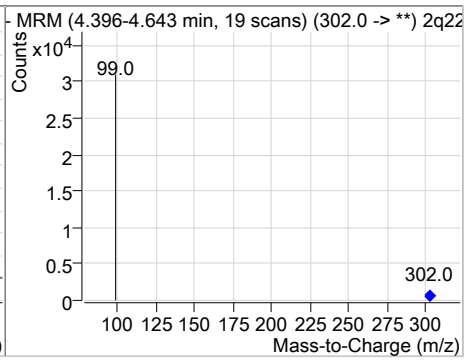




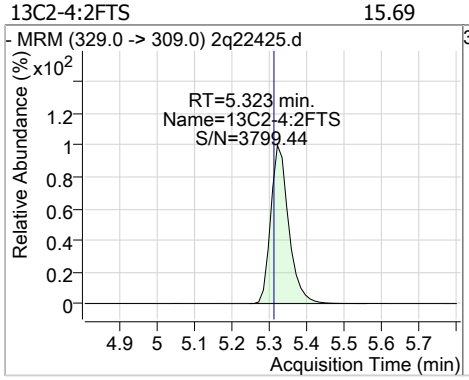
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.67	4.48	0.03	21909				

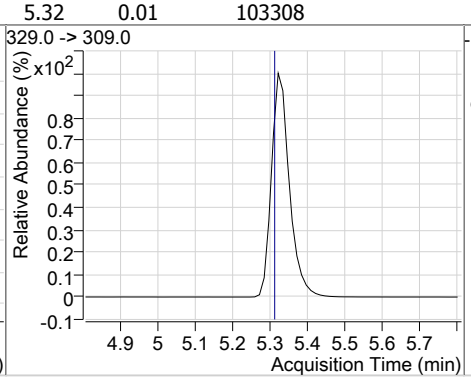


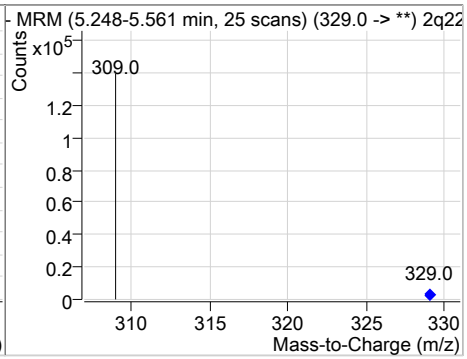




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.69	5.32	0.01	103308				

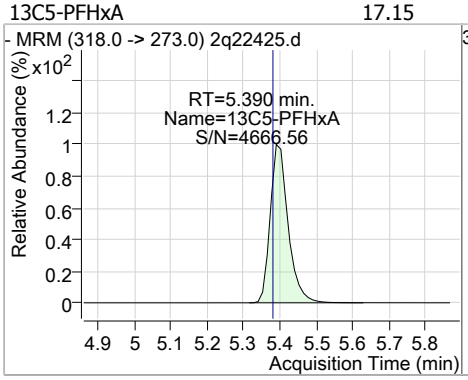


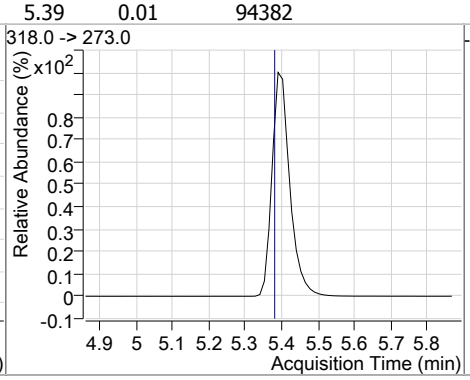


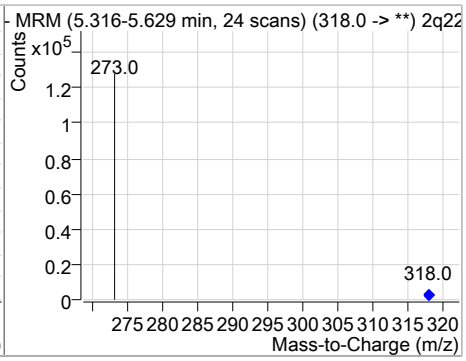


Perfluorinated Compounds by LC/MS/MS

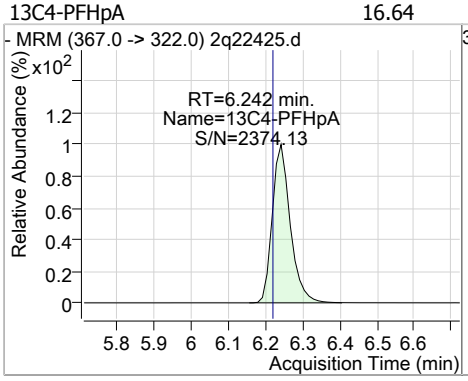
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.15	5.39	0.01	94382				

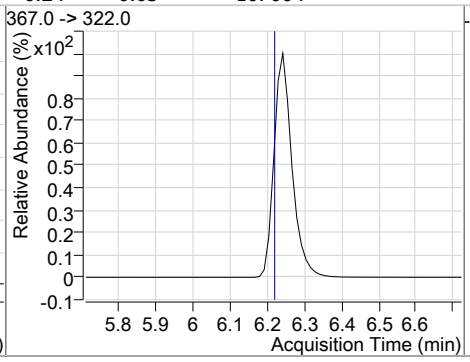


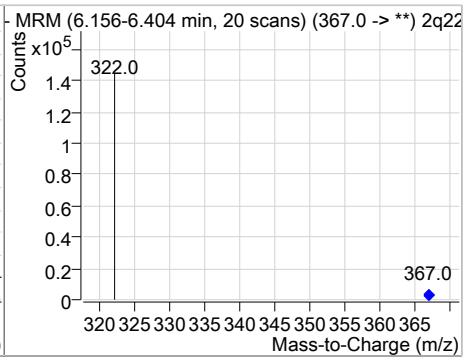




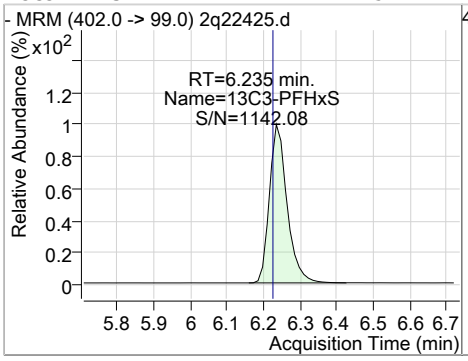
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.64	6.24	0.03	107064				

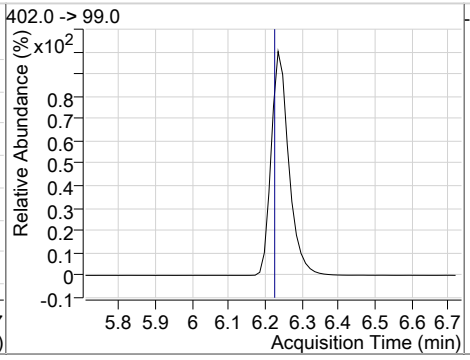


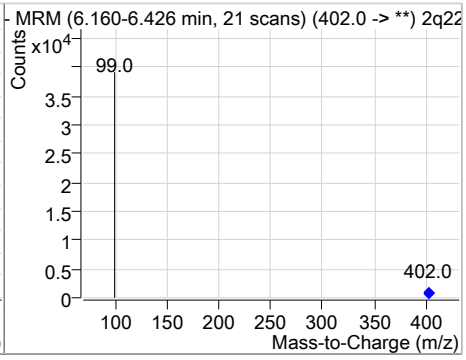




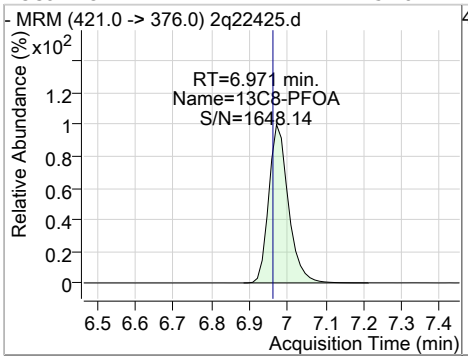
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.71	6.24	0.01	27976				

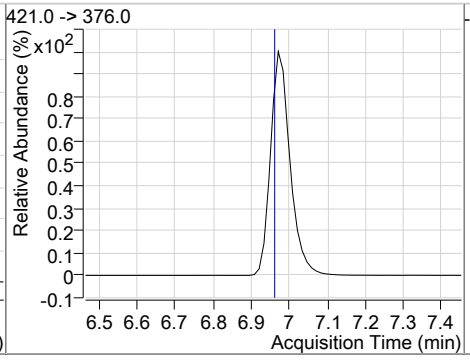


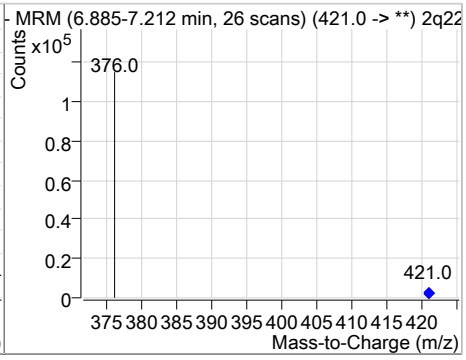




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.78	6.97	0.01	84783				

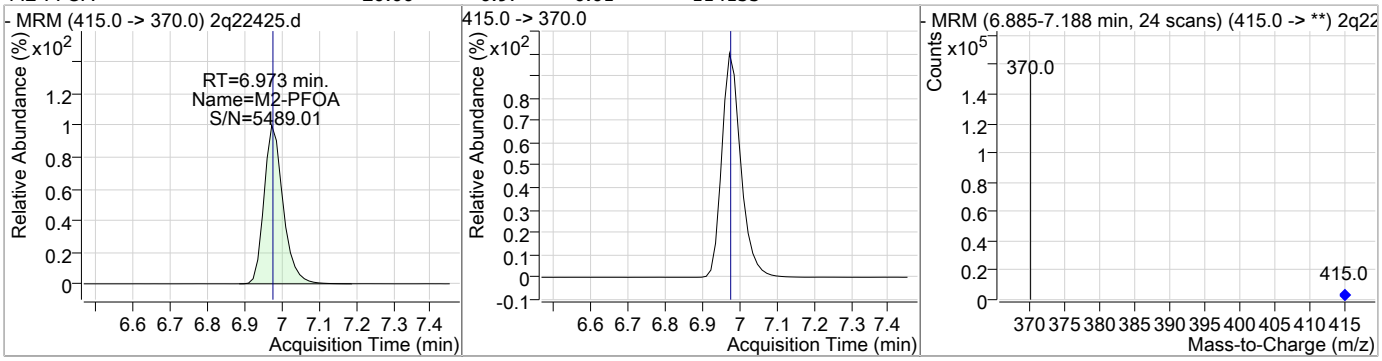




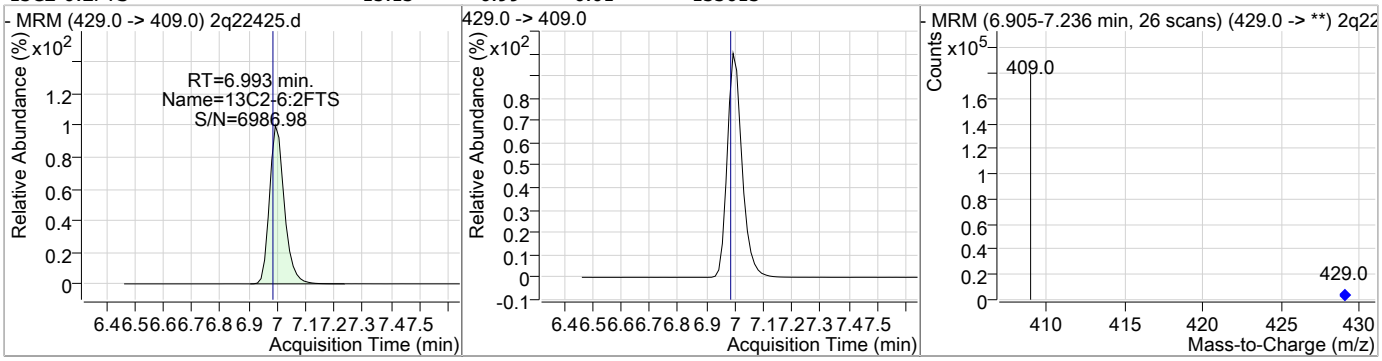


Perfluorinated Compounds by LC/MS/MS

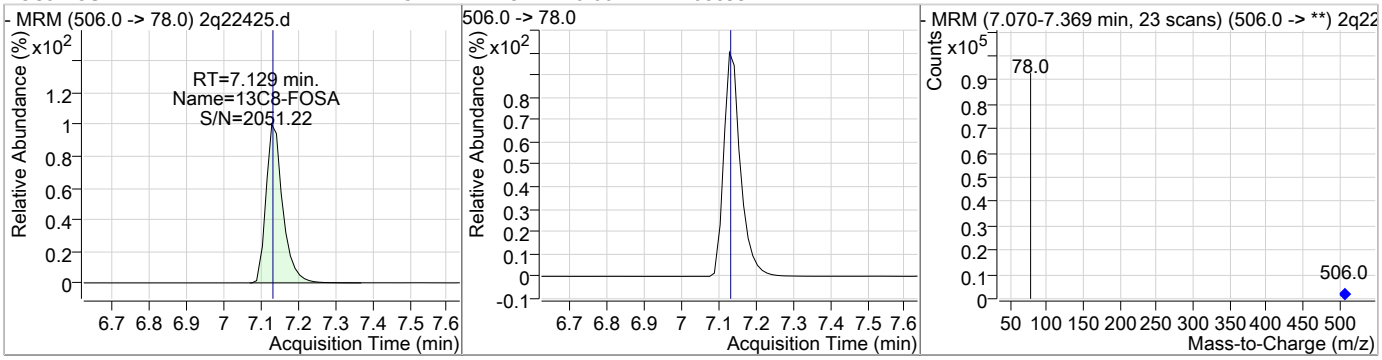
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	114155				



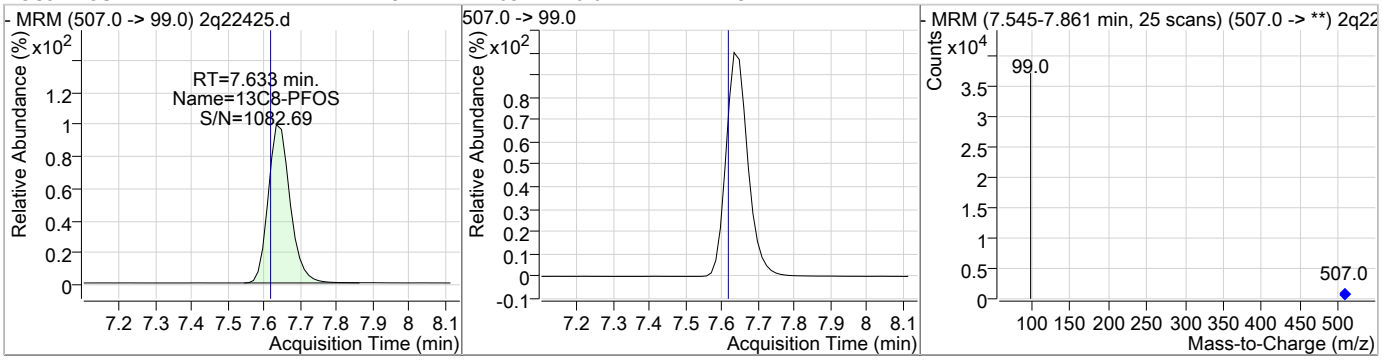
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.13	6.99	0.01	133613				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	17.75	7.13	0.00	68899				

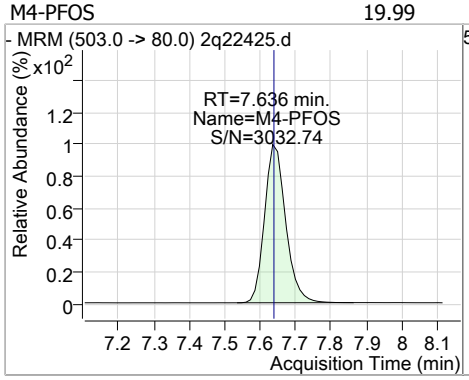


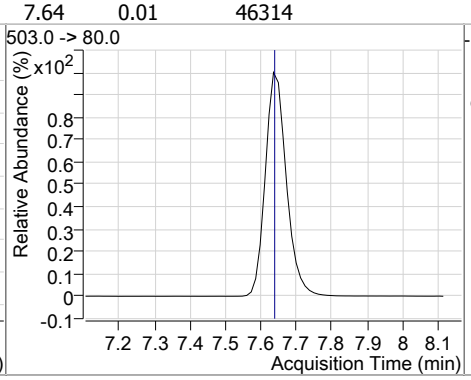
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	14.94	7.63	0.01	27119				

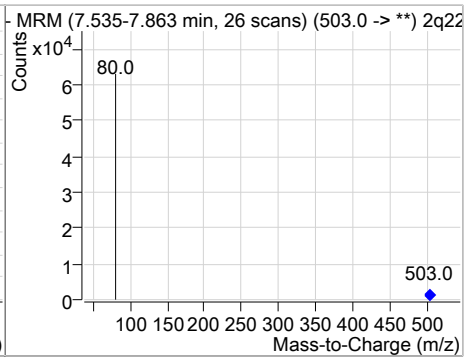


Perfluorinated Compounds by LC/MS/MS

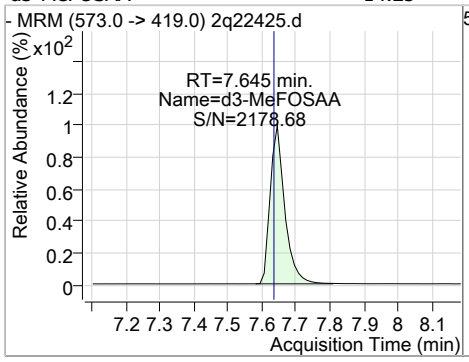
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.64	0.01	46314				

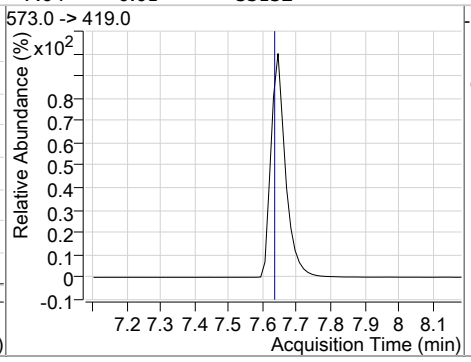


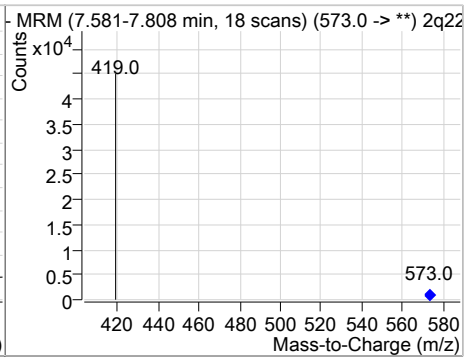




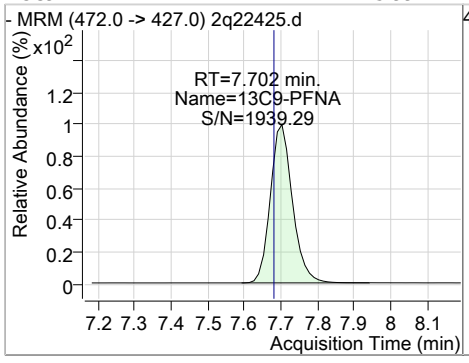
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.25	7.64	0.01	33132				

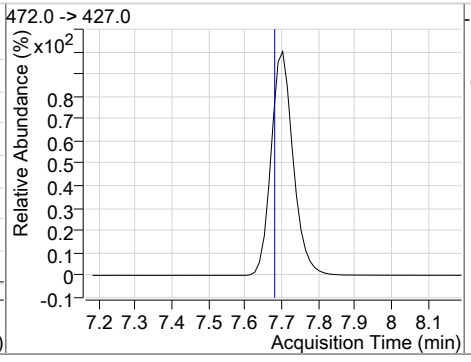


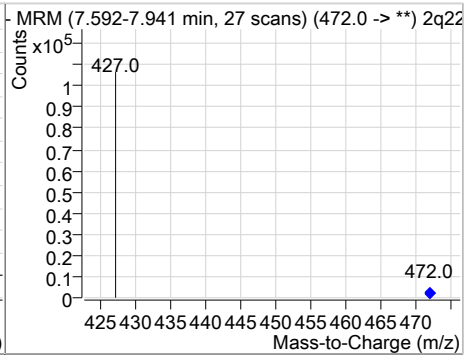




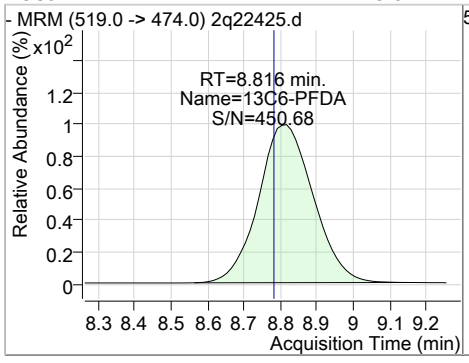
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.99	7.70	0.03	78602				

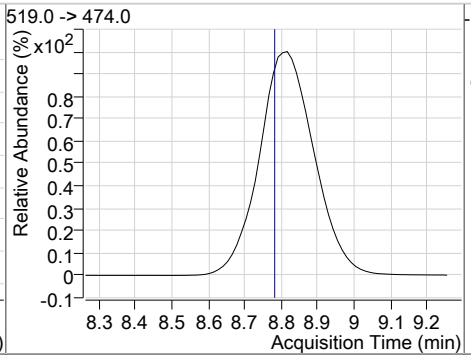


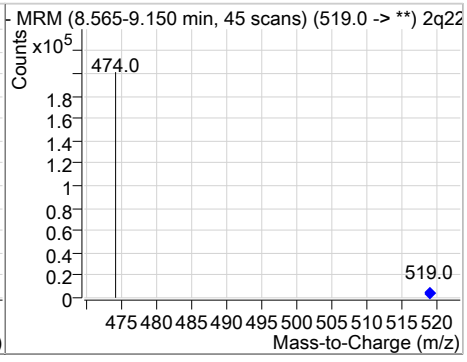




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.84	8.82	0.04	147398				

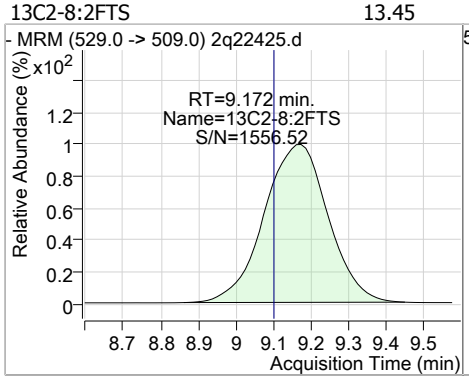


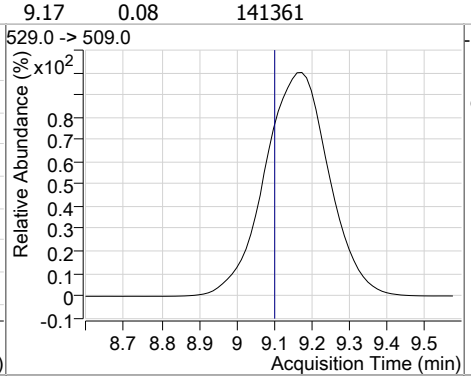


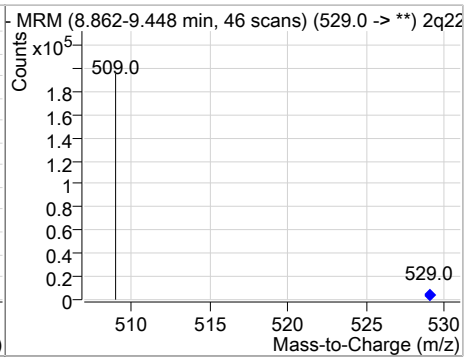


Perfluorinated Compounds by LC/MS/MS

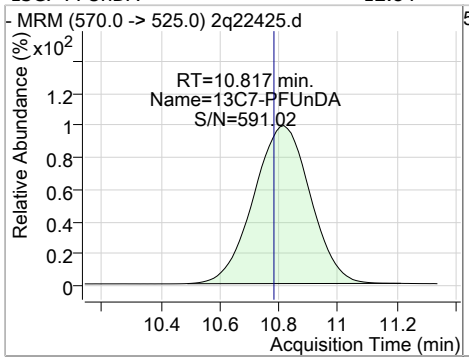
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.45	9.17	0.08	141361				

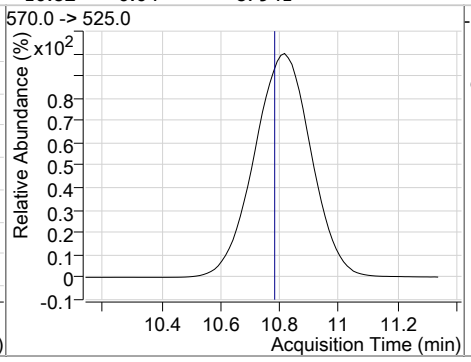


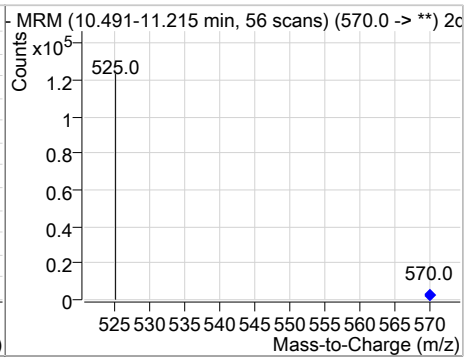




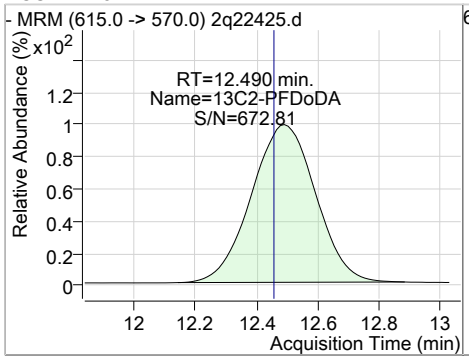
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	12.84	10.82	0.04	87941				

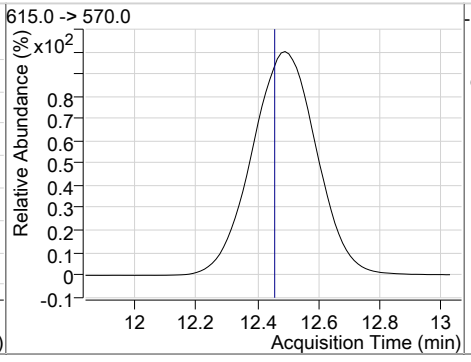


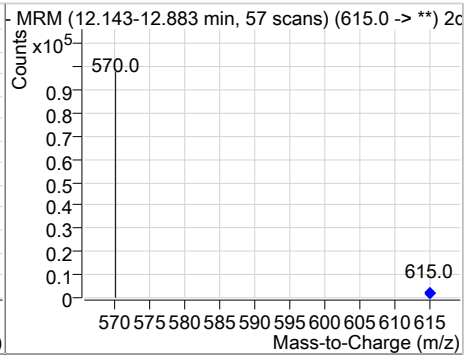




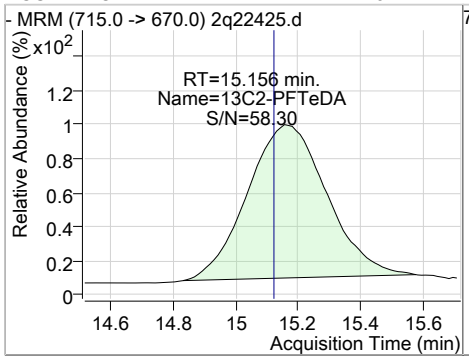
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.42	12.49	0.04	68697				

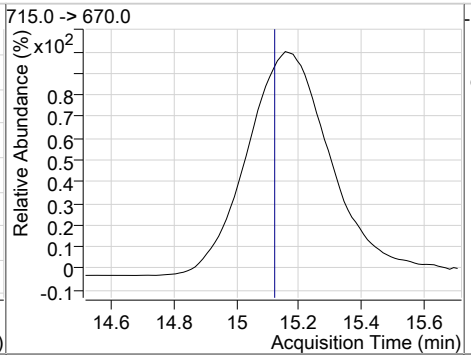


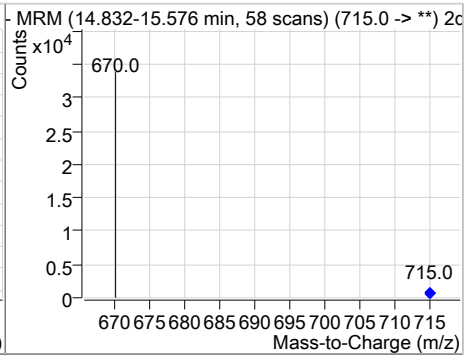




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	10.21	15.16	0.04	19823				







Perfluorinated Compounds by LC/MS/MS

Data File	:	2q22144.d
Operator	:	NATASHAG
Acq. Method	:	dMRM_ID_PFC.m
Acq. Date-Time	:	10/15/2018 7:29:23 PM
Sample Name	:	fa57914-7
Vial	:	Vial 21
DA Method File	:	PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name	:	s2q349.batch.bin
Sample Information	:	op71994,S2Q349,120,,,1.0,1,water

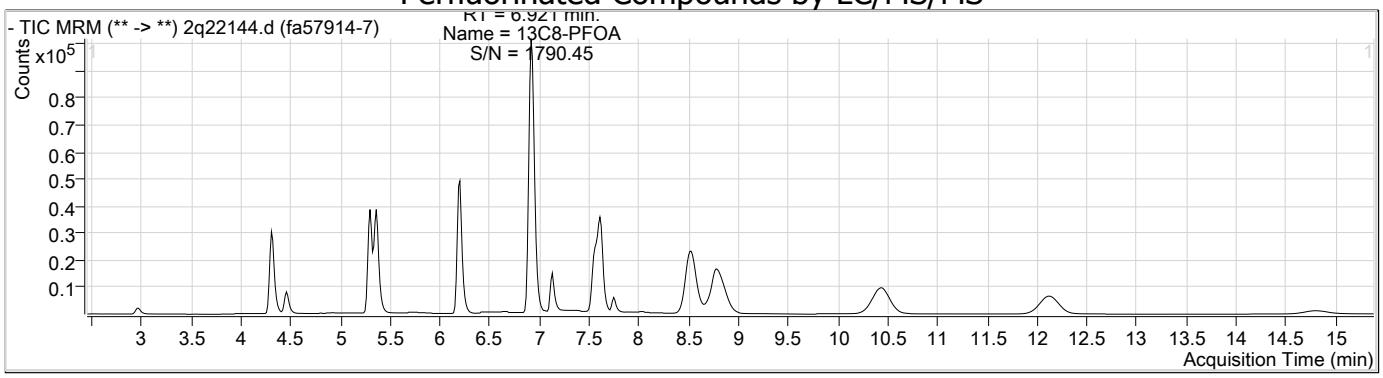
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.923	415.0 -> 370.0	137063	20.00 µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	48940	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	8194	20.00 µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	101372	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	115631	20.00 µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	134641	20.00 µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	112396	20.00 µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	97011	20.00 µg/L	0.013
M6-PFDA	8.529	519.0 -> 474.0	178706	20.00 µg/L	0.025
M7-PFUnDA	10.429	570.0 -> 525.0	120330	20.00 µg/L	0.025
M2-PFDoDA	12.115	615.0 -> 570.0	90390	20.00 µg/L	0.025
M2-PFTeDA	14.793	715.0 -> 670.0	21248	20.00 µg/L	0.013
M8-FOSA	7.130	506.0 -> 78.0	41098	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	26232	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	32775	20.00 µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	29968	20.00 µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	124642	20.00 µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	155485	20.00 µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	161613	20.00 µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	34468	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	124651	17.75 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.7%	
13C2-6:2FTS	6.931	429.0 -> 409.0	155523	17.70 µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.5%	
13C2-8:2FTS	8.775	529.0 -> 509.0	160617	15.43 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.2%	
13C2-PFDoDA	12.115	615.0 -> 570.0	89853	14.32 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.6%	
13C2-PFTeDA	14.793	715.0 -> 670.0	19349	8.66 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 43.3%	
13C3-PFBS	4.455	302.0 -> 99.0	26250	18.43 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C3-PFHxS	6.198	402.0 -> 99.0	32804	18.93 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C4-PFBA	2.966	217.0 -> 172.0	8195	0.57 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 2.8%	
13C4-PFHpA	6.204	367.0 -> 322.0	134647	19.20 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C5-PFHxA	5.364	318.0 -> 273.0	115594	19.04 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C5-PFPeA	4.312	268.0 -> 223.0	101348	16.14 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.7%	
13C6-PFDA	8.529	519.0 -> 474.0	178431	17.70 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.5%	

Perfluorinated Compounds by LC/MS/MS

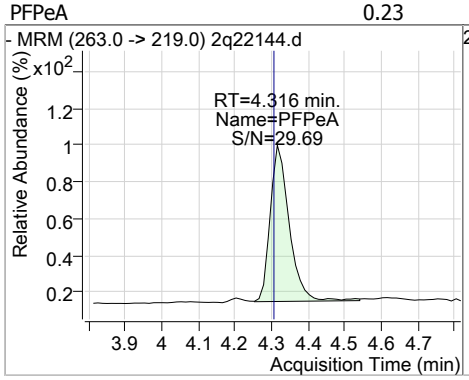
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	119906	15.68	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.4%			
13C8-FOSA	7.130	506.0 -> 78.0	41115	11.17	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 55.9%			
13C8-PFOA	6.921	421.0 -> 376.0	112366	19.14	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.7%			
13C8-PFOS	7.559	507.0 -> 99.0	29970	17.13	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.7%			
13C9-PFNA	7.614	472.0 -> 427.0	96985	18.49	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.4%			
d3-MeFOSAA	7.620	573.0 -> 419.0	34572	15.46	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.3%			
M2-PFOA	6.923	415.0 -> 370.0	137092	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	48965	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	3.099	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.609	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	1081	0.23	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.233	563.0 -> 519.0	0	0.00	µg/L	m	1

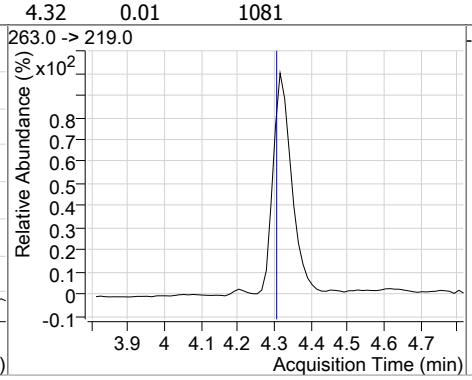
 # = Qualifier out of range, m = manually integrated, + = Area summed

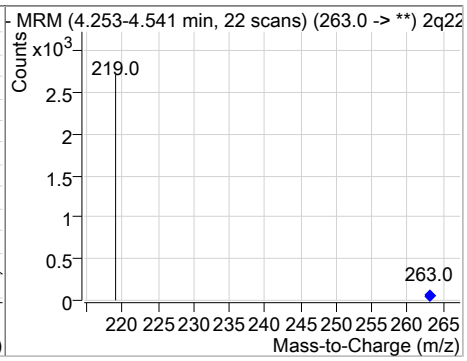
Perfluorinated Compounds by LC/MS/MS



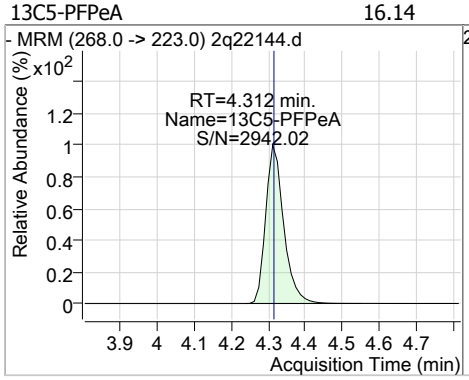
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.23	4.32	0.01	1081				

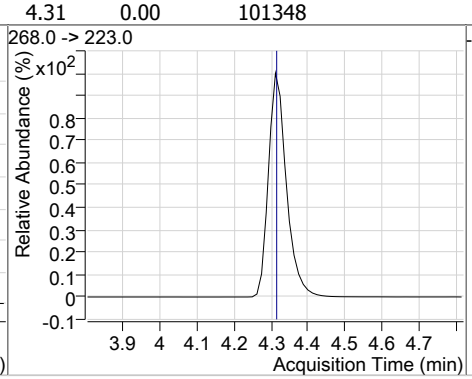


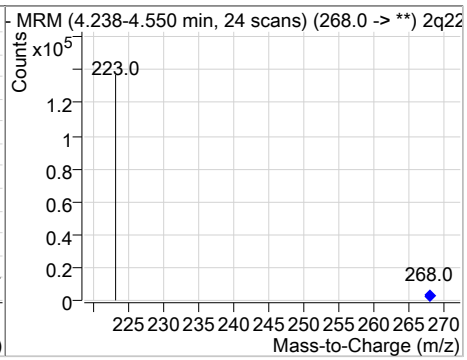




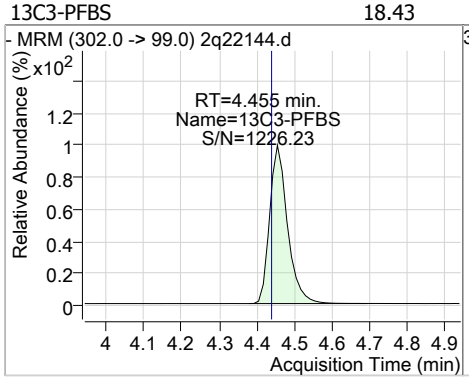
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.14	4.31	0.00	101348				

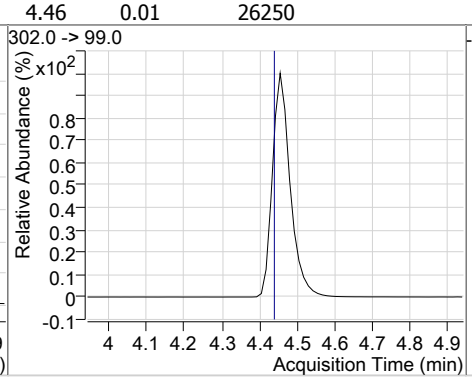


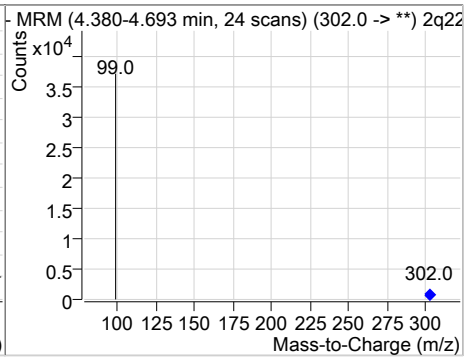




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.43	4.46	0.01	26250				

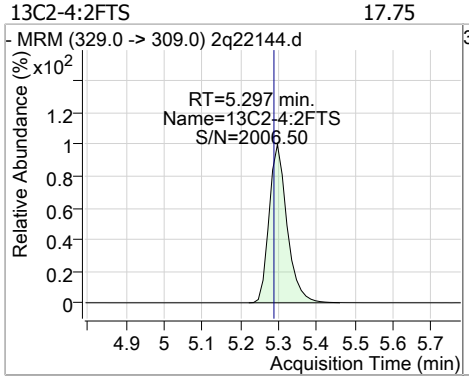


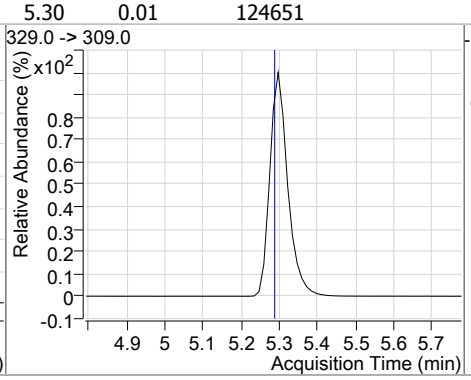


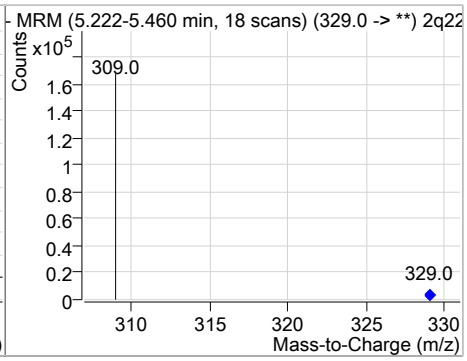


Perfluorinated Compounds by LC/MS/MS

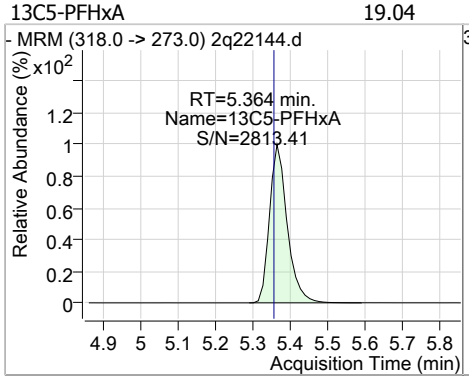
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.75	5.30	0.01	124651				

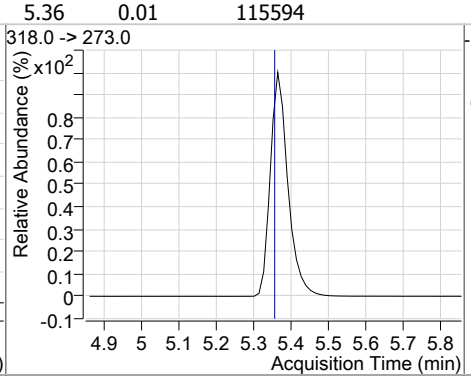


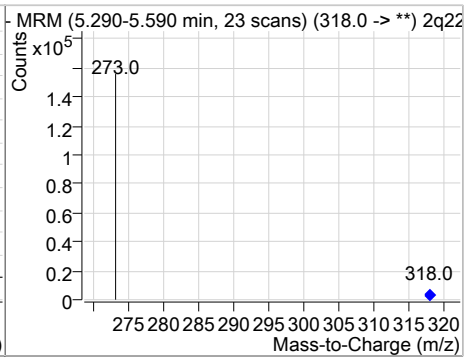




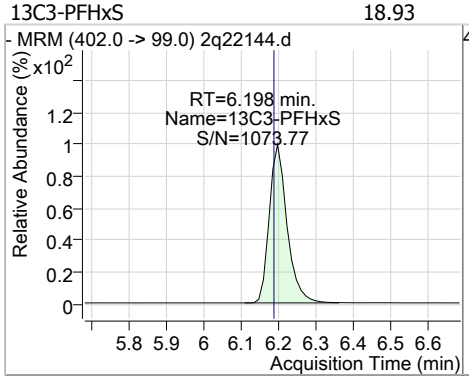
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.04	5.36	0.01	115594				

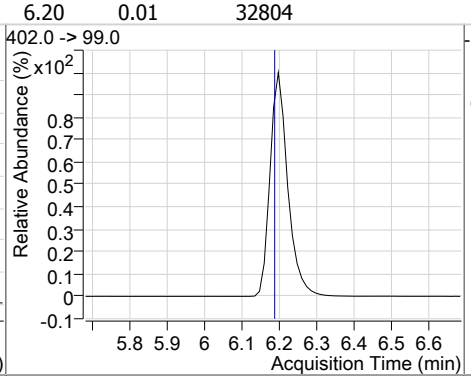


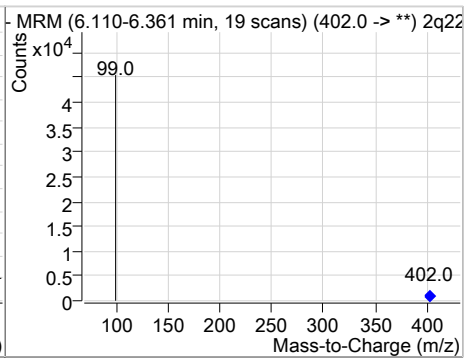




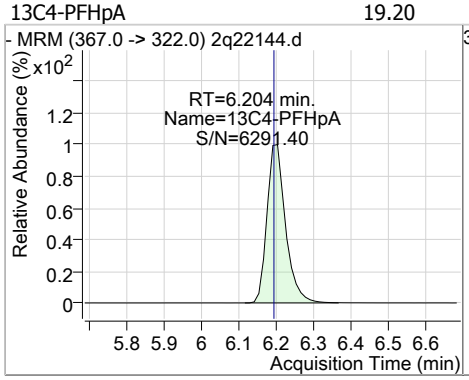
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.93	6.20	0.01	32804				

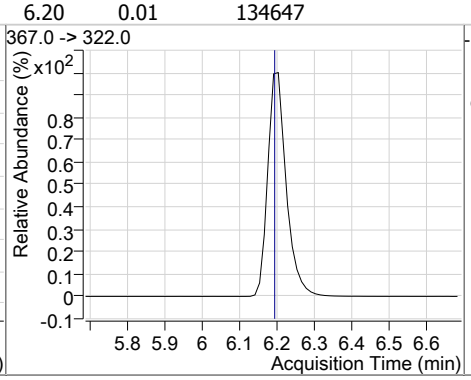


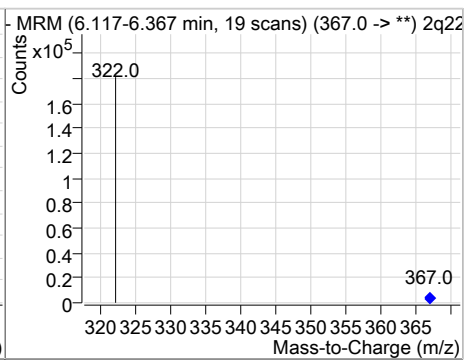




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.20	6.20	0.01	134647				

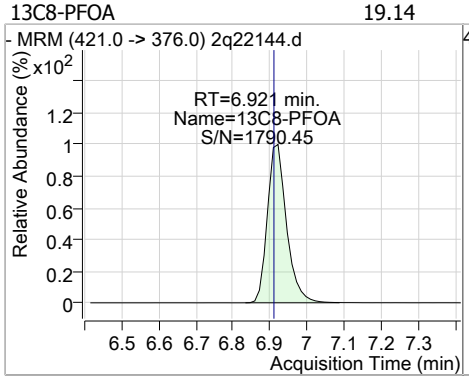


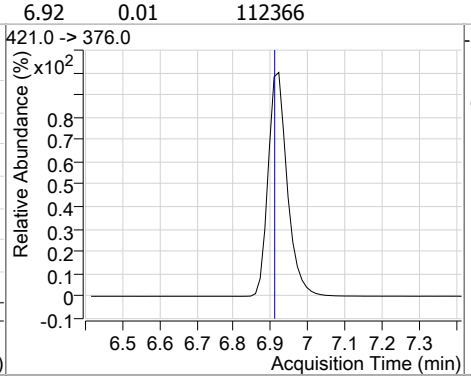


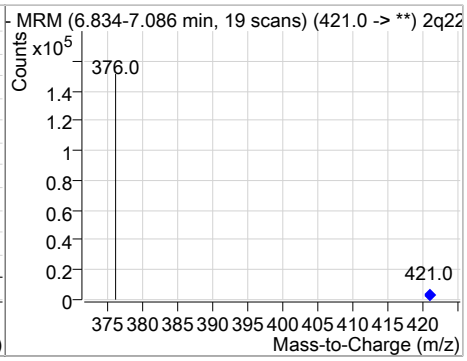


Perfluorinated Compounds by LC/MS/MS

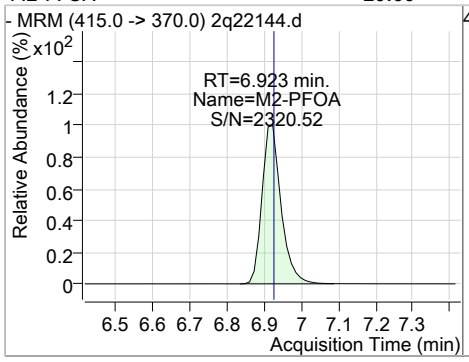
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.14	6.92	0.01	112366				

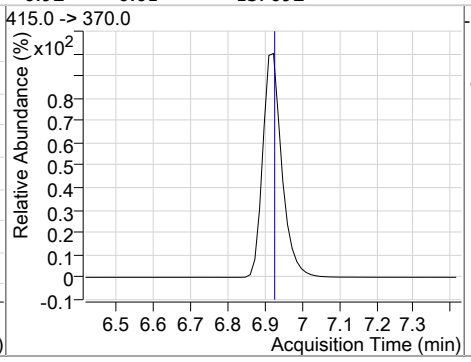


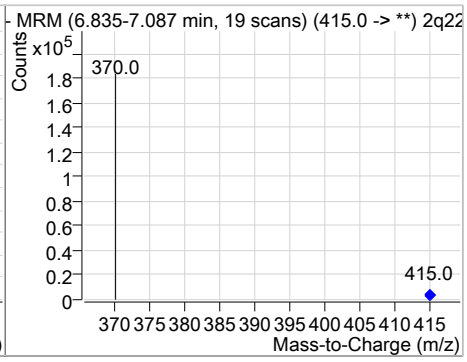




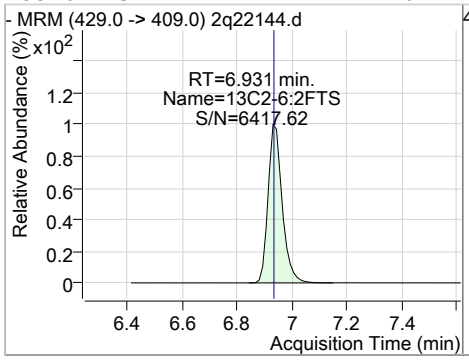
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	137092				

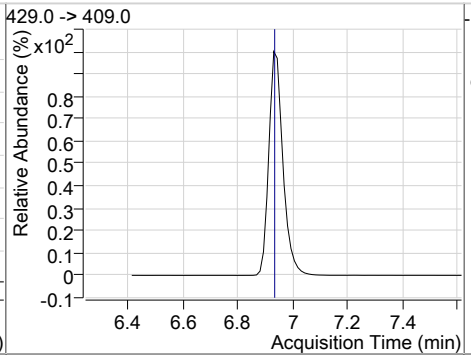


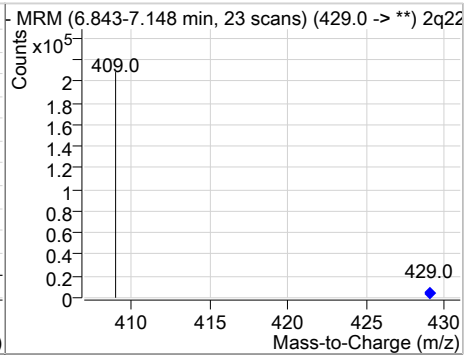




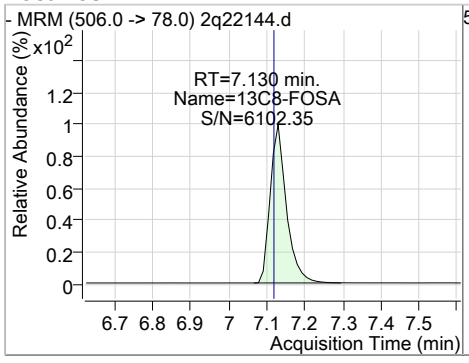
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.70	6.93	0.00	155523				

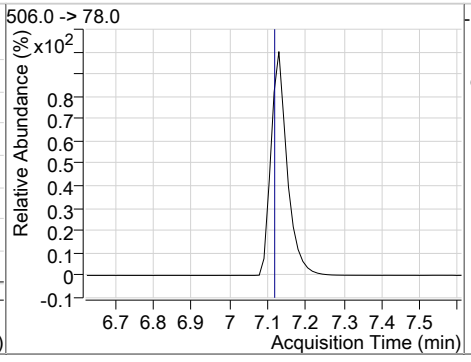


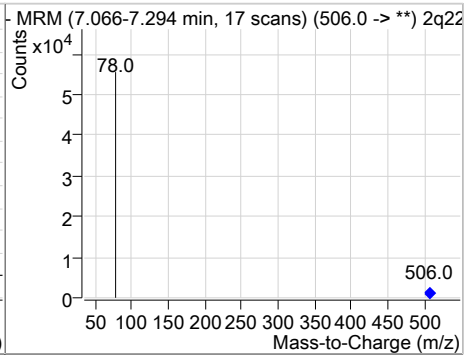




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	11.17	7.13	0.01	41115				

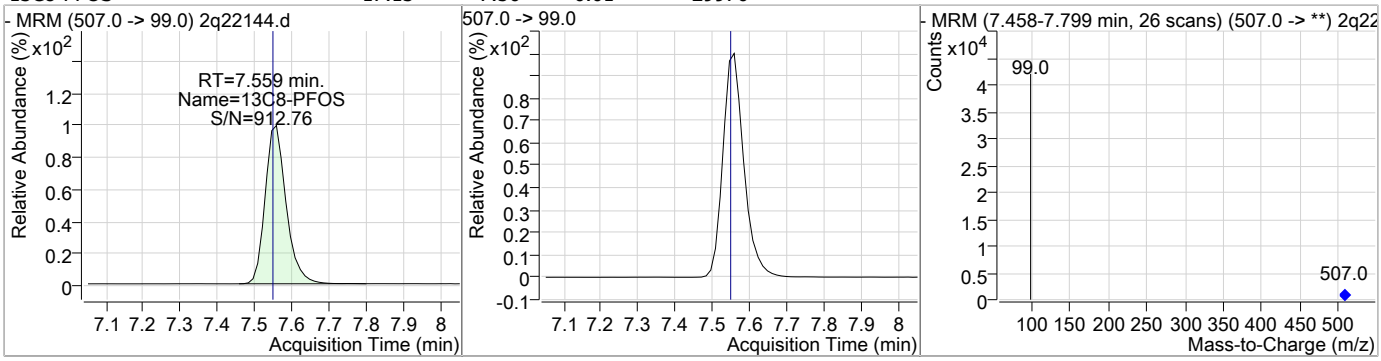




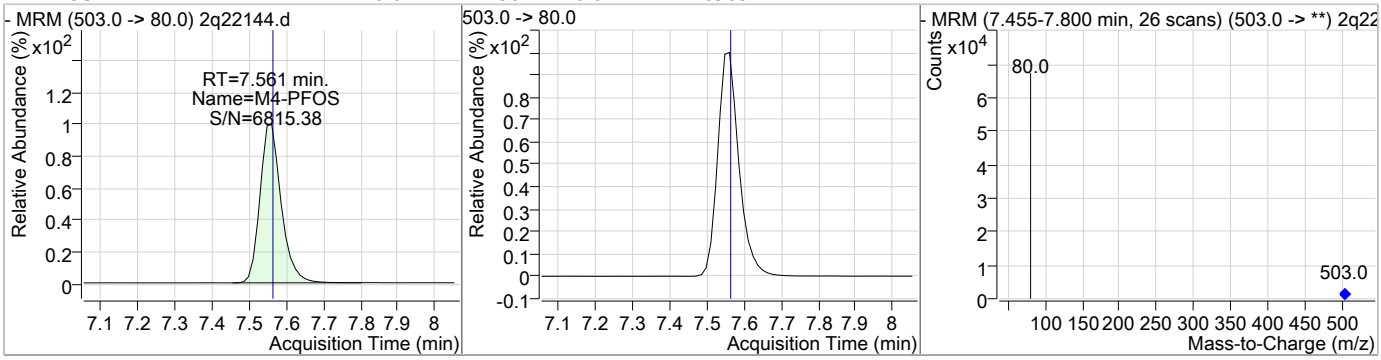


Perfluorinated Compounds by LC/MS/MS

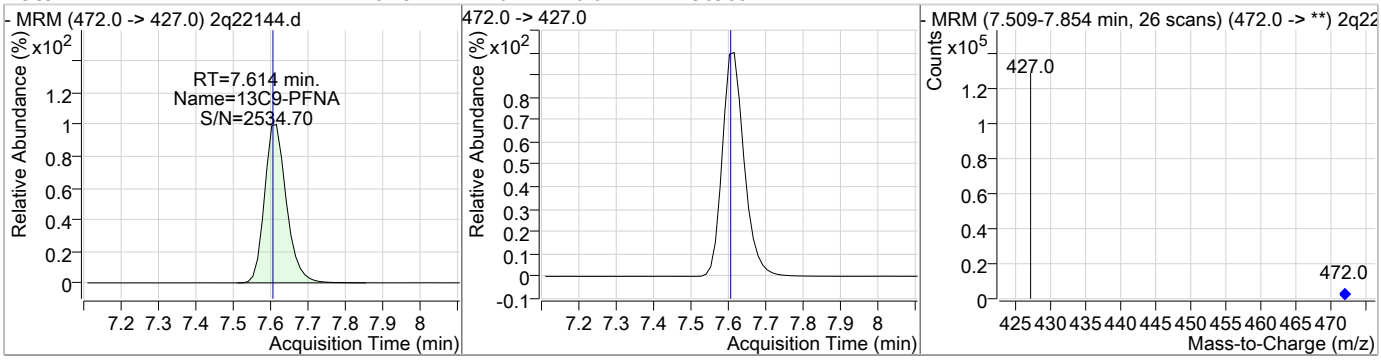
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.13	7.56	0.01	29970				



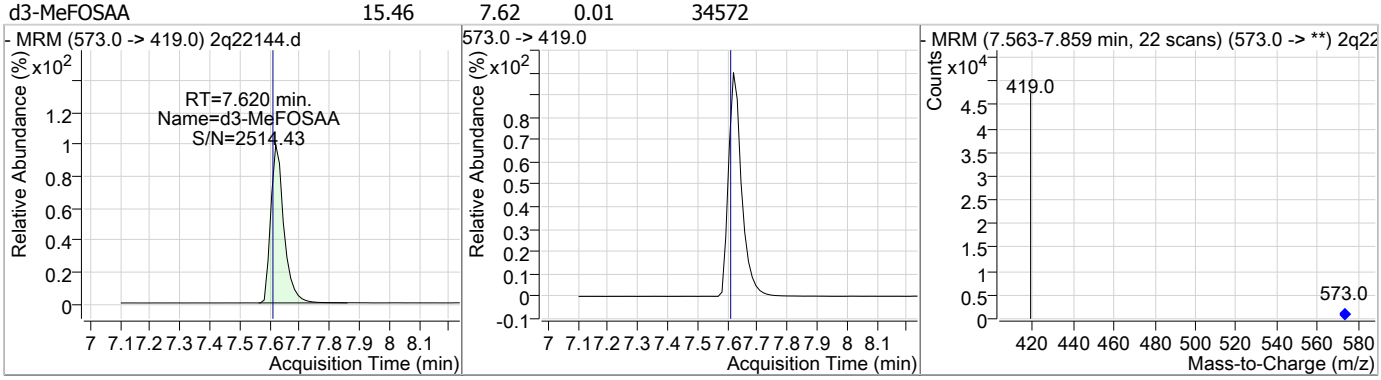
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.56	0.01	48965				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.49	7.61	0.01	96985				

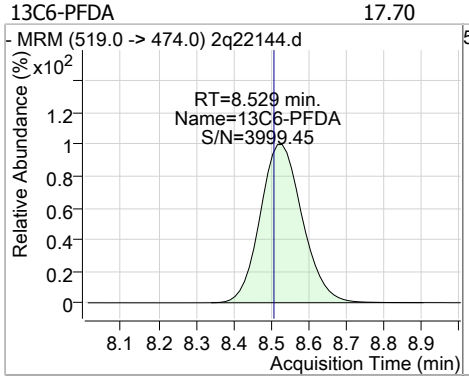


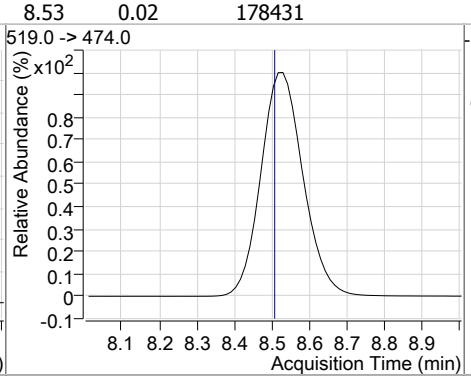
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	15.46	7.62	0.01	34572				

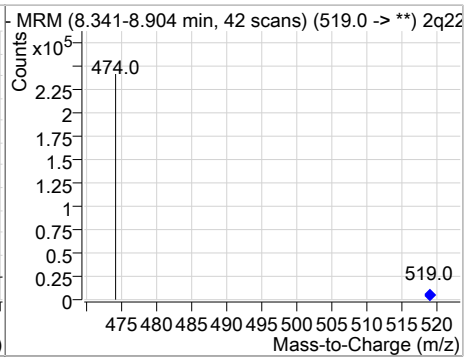


Perfluorinated Compounds by LC/MS/MS

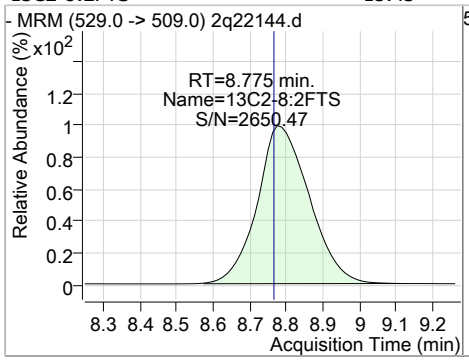
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.70	8.53	0.02	178431				

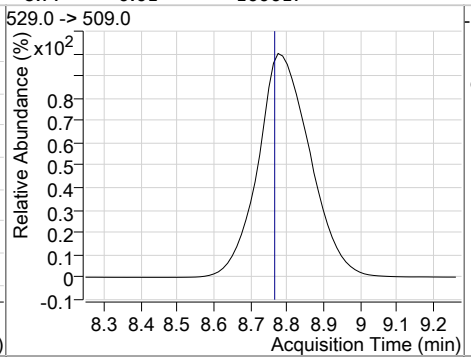


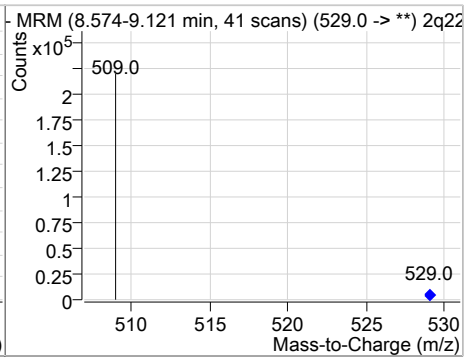




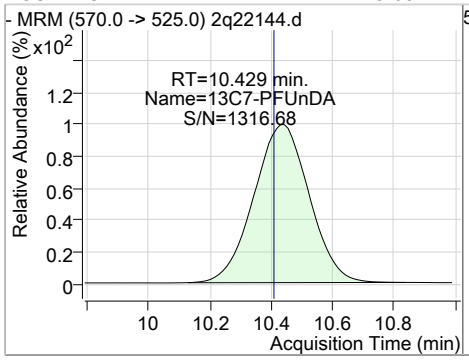
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	15.43	8.77	0.01	160617				

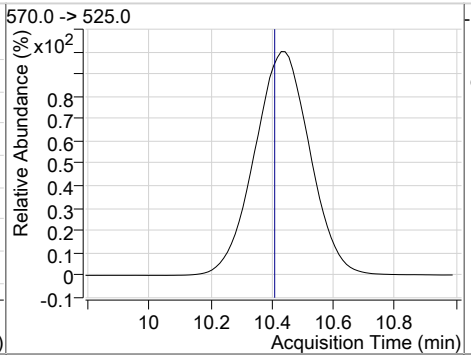


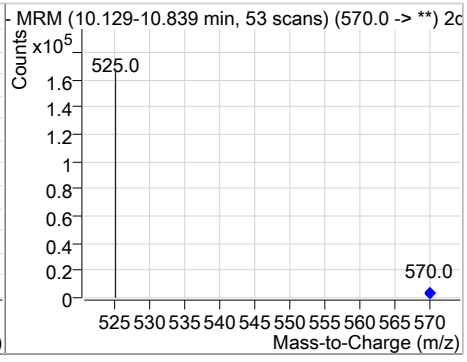




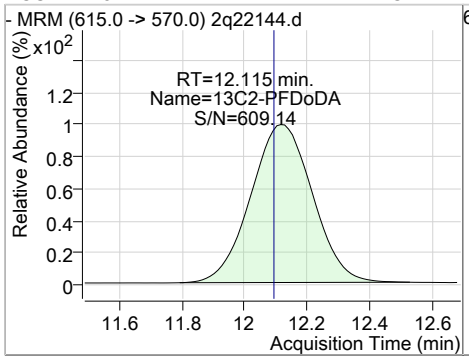
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.68	10.43	0.03	119906				

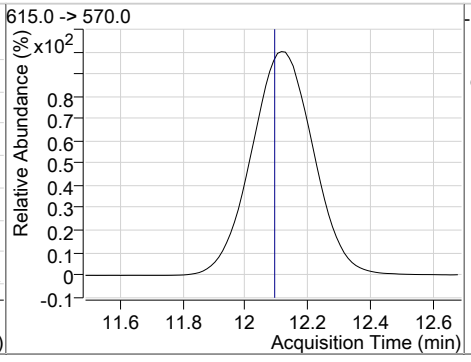


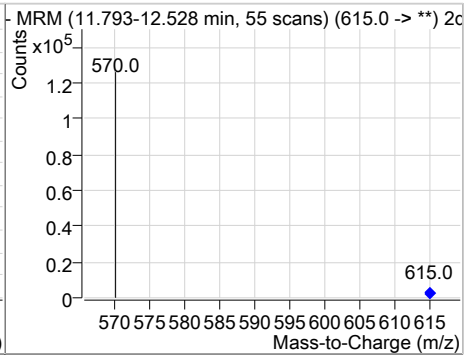




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	14.32	12.12	0.03	89853				

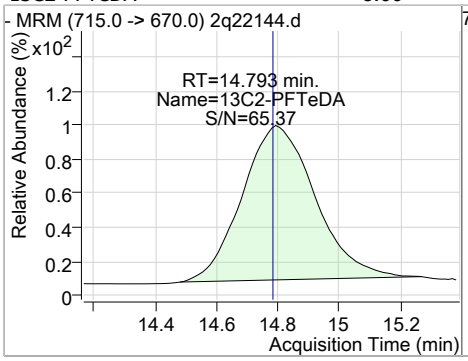


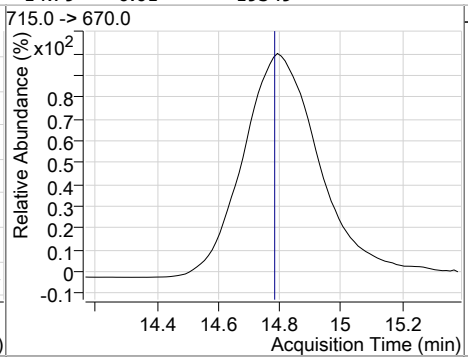


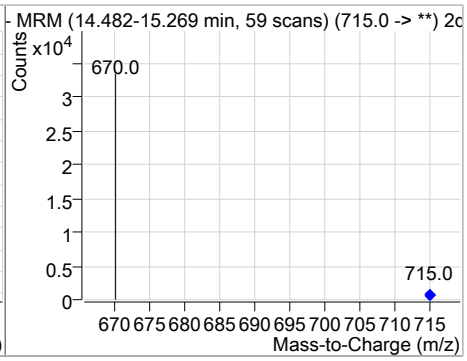


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	8.66	14.79	0.01	19349				







Perfluorinated Compounds by LC/MS/MS

Data File	:	2q22145.d
Operator	:	NATASHAG
Acq. Method	:	dMRM_ID_PFC.m
Acq. Date-Time	:	10/15/2018 7:50:07 PM
Sample Name	:	fa57914-8
Vial	:	Vial 22
DA Method File	:	PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name	:	s2q349.batch.bin
Sample Information	:	op71994,S2Q349,120,,,1.0,1,water

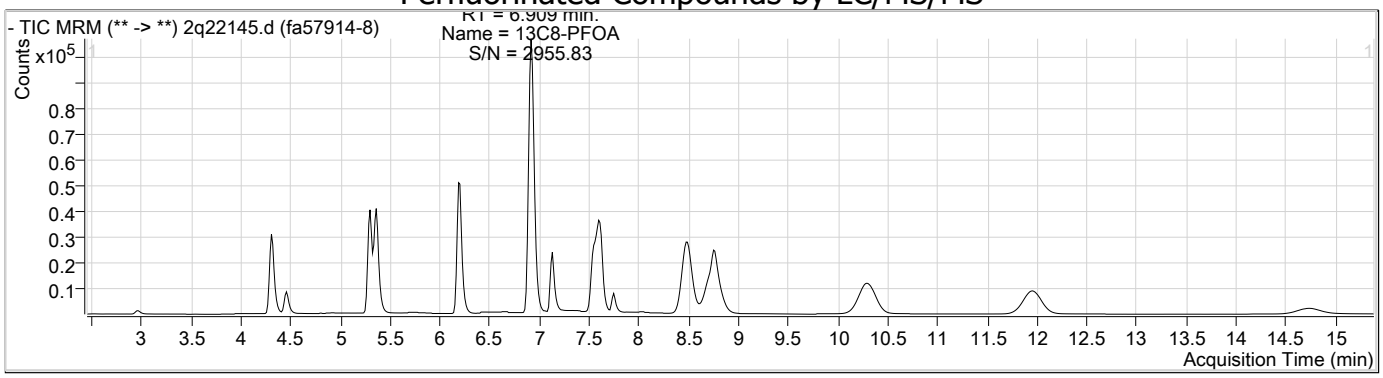
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.910	415.0 -> 370.0	137482	20.00 µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	51778	20.00 µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	4862	20.00 µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	102439	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	122688	20.00 µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	140845	20.00 µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	119810	20.00 µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	104299	20.00 µg/L	0.000
M6-PFDA	8.479	519.0 -> 474.0	202084	20.00 µg/L	-0.025
M7-PFUnDA	10.292	570.0 -> 525.0	144536	20.00 µg/L	-0.113
M2-PFDoDA	11.953	615.0 -> 570.0	118542	20.00 µg/L	-0.137
M2-PFTeDA	14.731	715.0 -> 670.0	38719	20.00 µg/L	-0.050
M8-FOSA	7.130	506.0 -> 78.0	67627	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	27377	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	34624	20.00 µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	34290	20.00 µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	130701	20.00 µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	166191	20.00 µg/L	0.001
M2-8:2FTS	8.750	529.0 -> 509.0	204040	20.00 µg/L	-0.013
M3-MeFOSAA	7.620	573.0 -> 419.0	43862	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	130716	18.61 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.1%	
13C2-6:2FTS	6.931	429.0 -> 409.0	166183	18.91 µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C2-8:2FTS	8.750	529.0 -> 509.0	203482	19.55 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C2-PFDoDA	11.953	615.0 -> 570.0	117869	18.78 µg/L	-0.137
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C2-PFTeDA	14.731	715.0 -> 670.0	36010	16.12 µg/L	-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.6%	
13C3-PFBS	4.455	302.0 -> 99.0	27401	19.24 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C3-PFHxS	6.198	402.0 -> 99.0	34624	19.98 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFBA	2.966	217.0 -> 172.0	4863	0.34 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 1.7%	
13C4-PFHpA	6.192	367.0 -> 322.0	140771	20.07 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFHxA	5.364	318.0 -> 273.0	122687	20.21 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C5-PFPeA	4.312	268.0 -> 223.0	102446	16.31 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.6%	
13C6-PFDA	8.479	519.0 -> 474.0	201881	20.03 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%	

Perfluorinated Compounds by LC/MS/MS

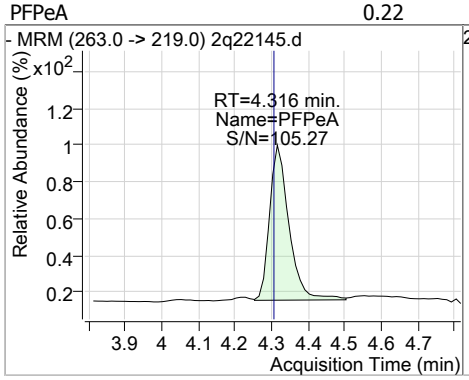
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.292	570.0 -> 525.0	144086	18.84	µg/L		-0.113
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.2%			
13C8-FOSA	7.130	506.0 -> 78.0	67630	18.38	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.9%			
13C8-PFOA	6.909	421.0 -> 376.0	119831	20.41	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%			
13C8-PFOS	7.546	507.0 -> 99.0	34297	19.61	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%			
13C9-PFNA	7.601	472.0 -> 427.0	104294	19.88	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%			
d3-MeFOSAA	7.620	573.0 -> 419.0	43867	19.61	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%			
M2-PFOA	6.910	415.0 -> 370.0	137552	20.01	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
M4-PFOS	7.548	503.0 -> 80.0	51728	19.98	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	3.099	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.609	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	12.009	613.0 -> 569.0	0	0.00	µg/L	m	1
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	7.346	499.0 -> 80.0	0	0.00	µg/L	m	1
PFPeA	4.316	263.0 -> 219.0	1029	0.22	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	14.737	713.0 -> 669.0	0	0.00	µg/L	m	1
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.308	563.0 -> 519.0	0	0.00	µg/L	m	1

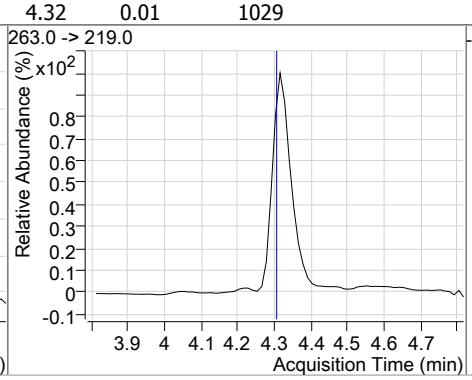
 # = Qualifier out of range, m = manually integrated, + = Area summed

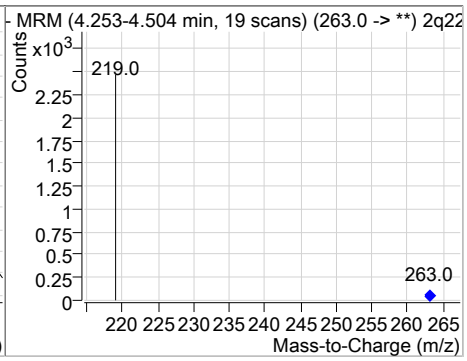
Perfluorinated Compounds by LC/MS/MS



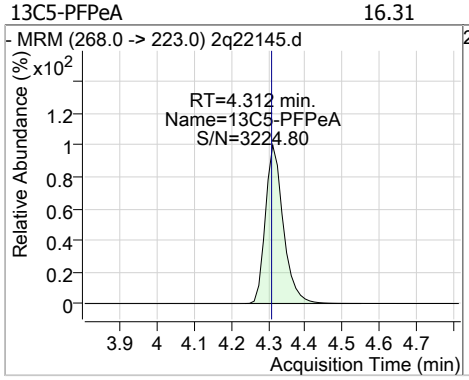
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.22	4.32	0.01	1029				

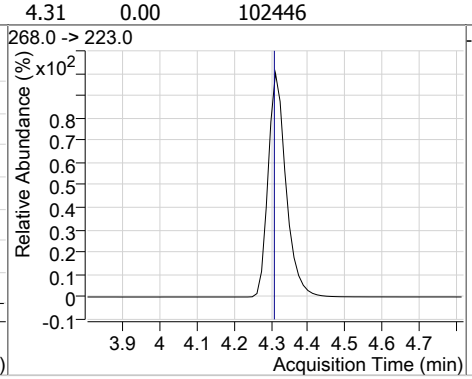


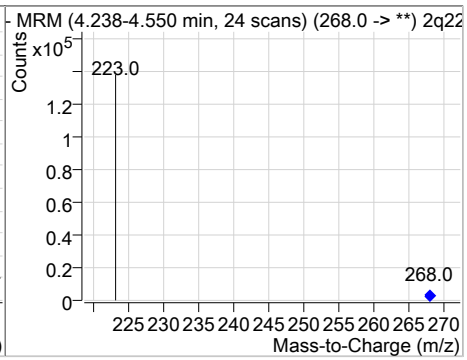




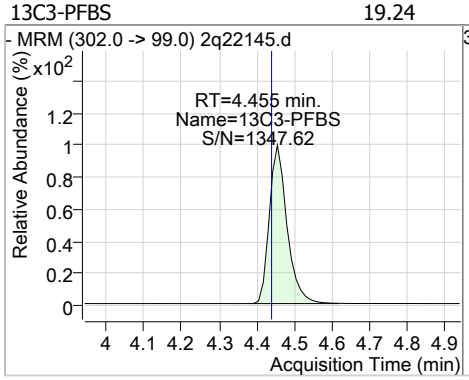
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.31	4.31	0.00	102446				

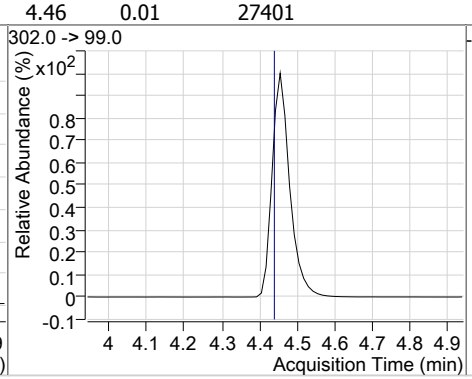


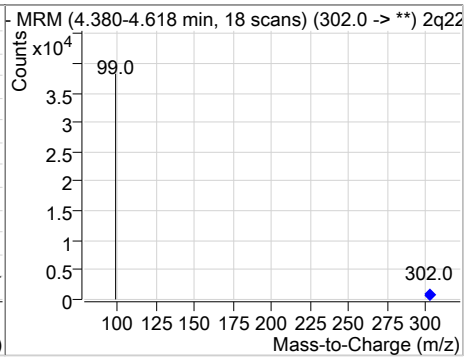




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.24	4.46	0.01	27401				

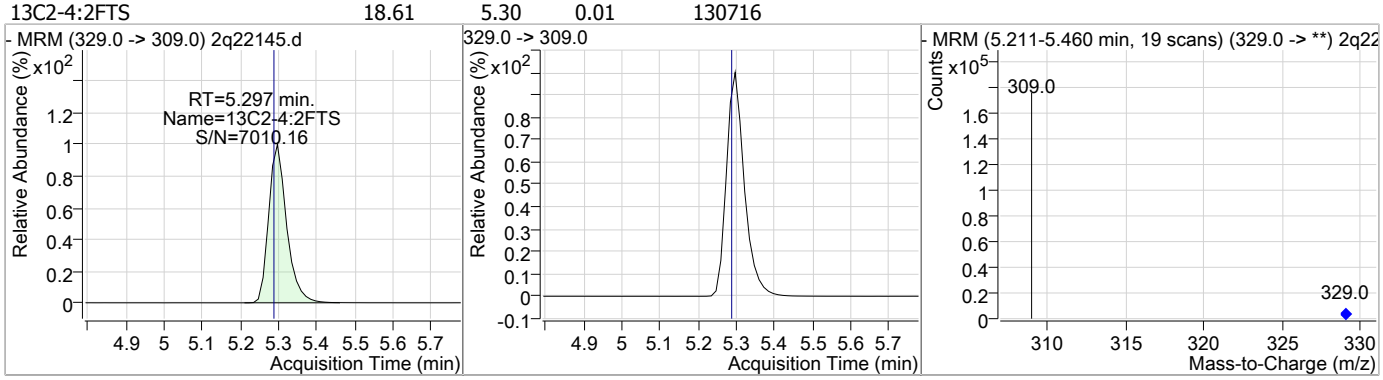




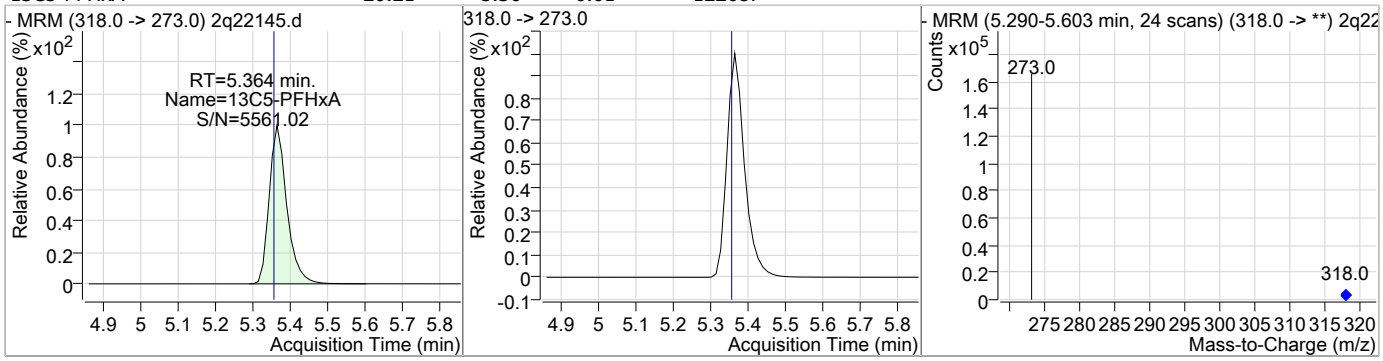


Perfluorinated Compounds by LC/MS/MS

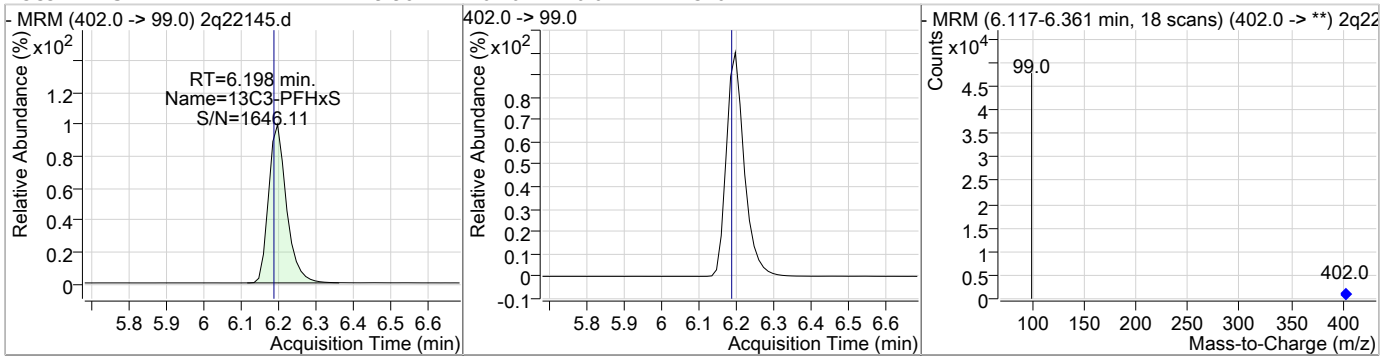
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.61	5.30	0.01	130716				



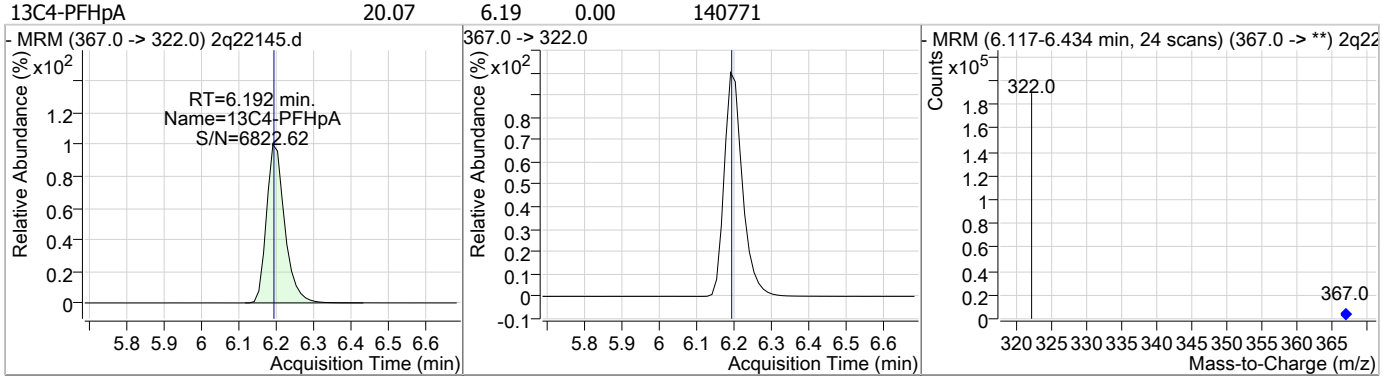
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.21	5.36	0.01	122687				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.98	6.20	0.01	34624				

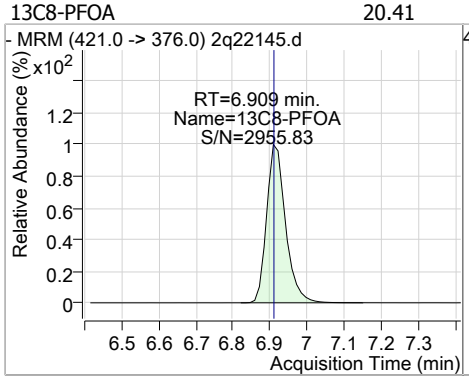


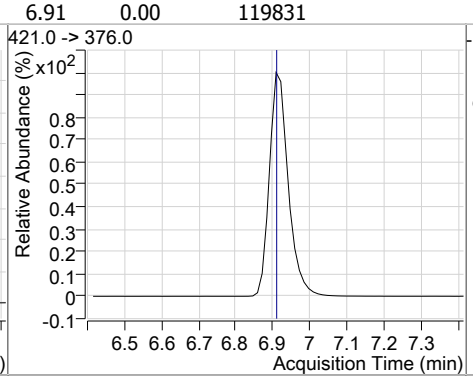
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.07	6.19	0.00	140771				

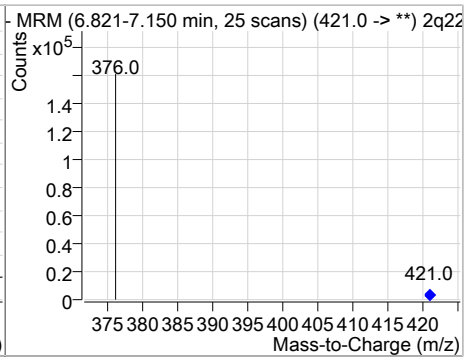


Perfluorinated Compounds by LC/MS/MS

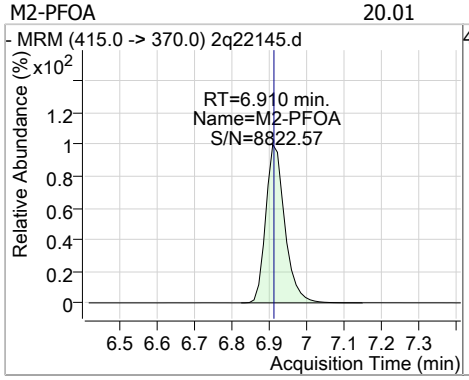
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.41	6.91	0.00	119831				

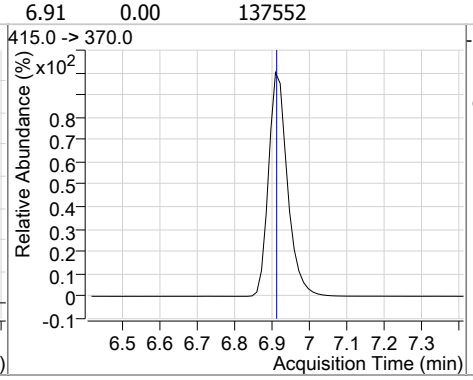


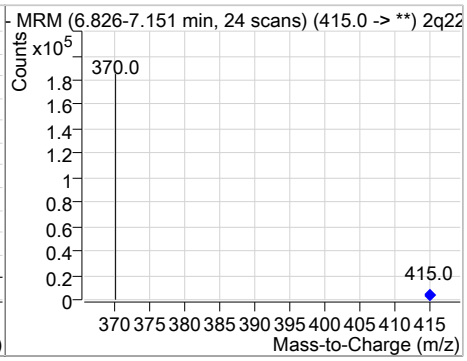




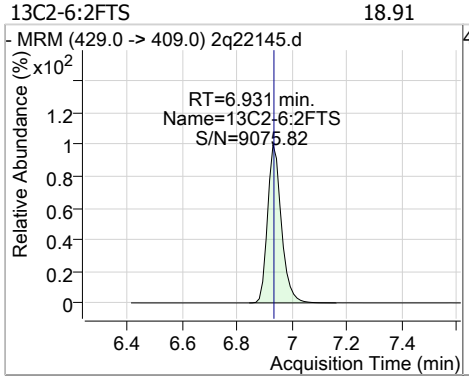
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.91	0.00	137552				

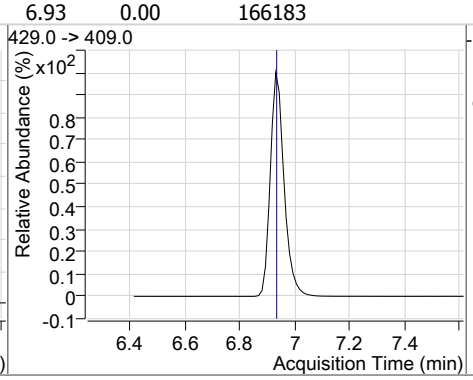


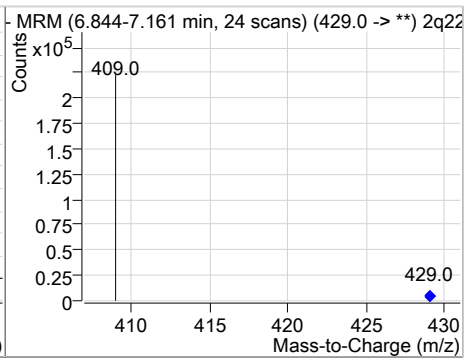




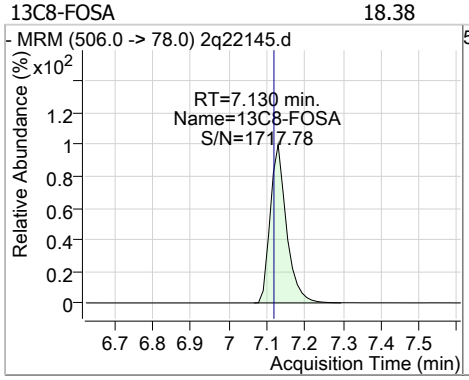
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.91	6.93	0.00	166183				

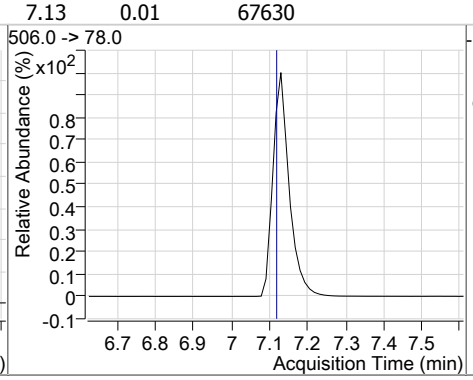


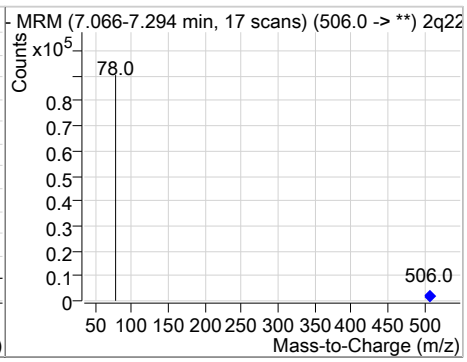




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.38	7.13	0.01	67630				

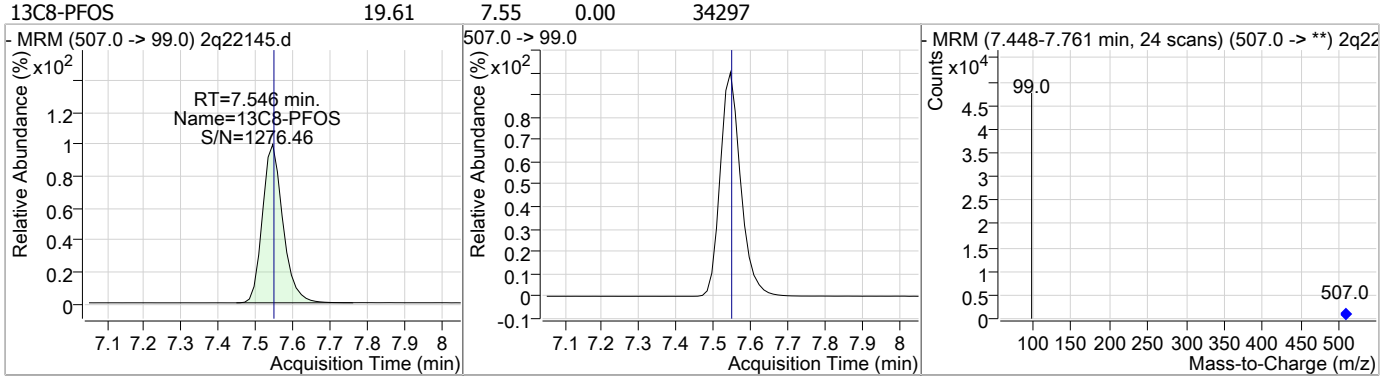




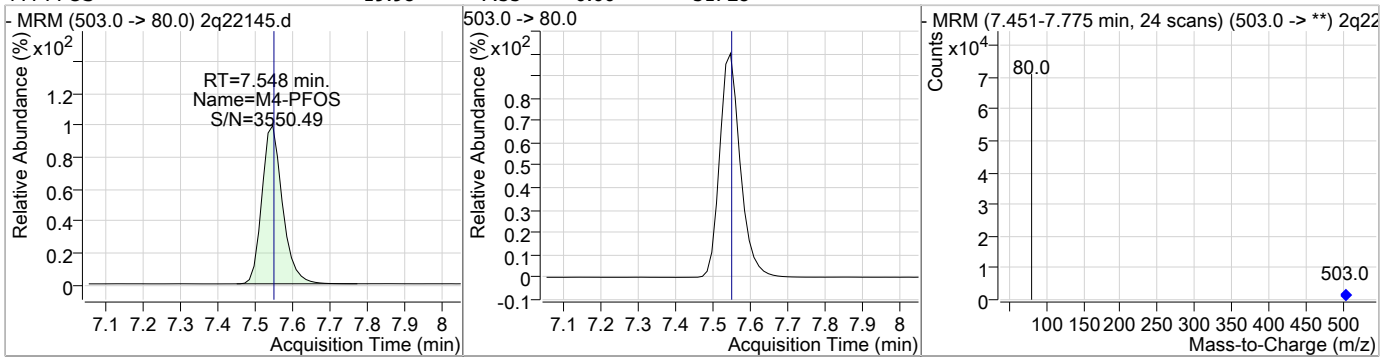


Perfluorinated Compounds by LC/MS/MS

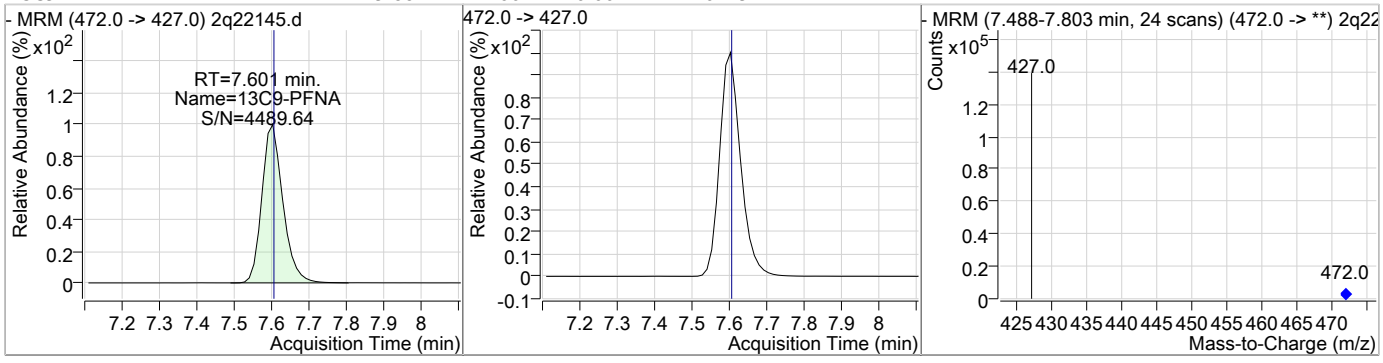
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.61	7.55	0.00	34297				



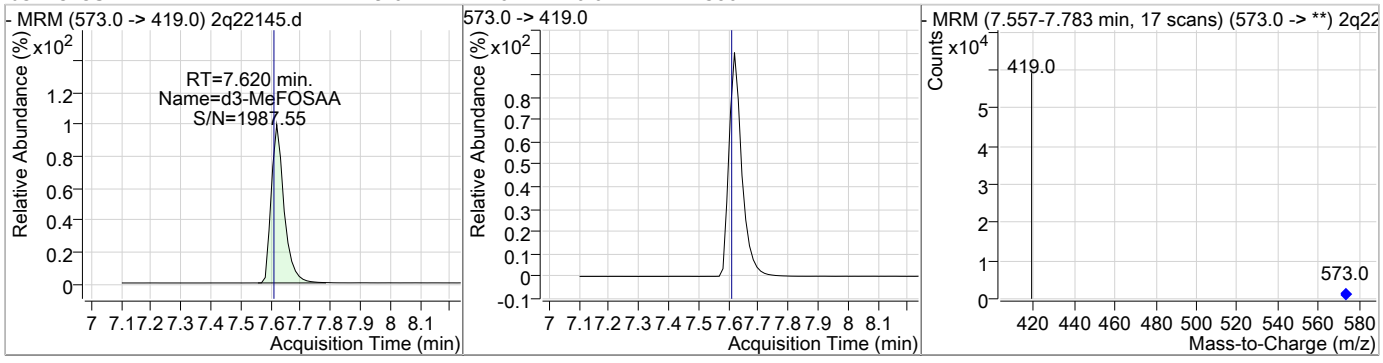
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.55	0.00	51728				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.88	7.60	0.00	104294				

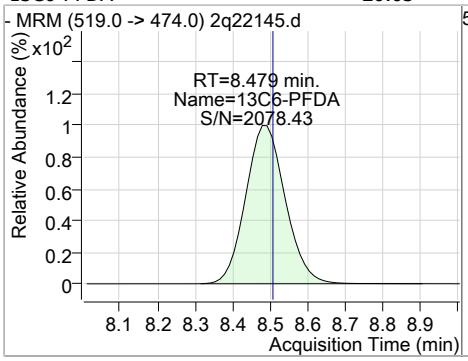


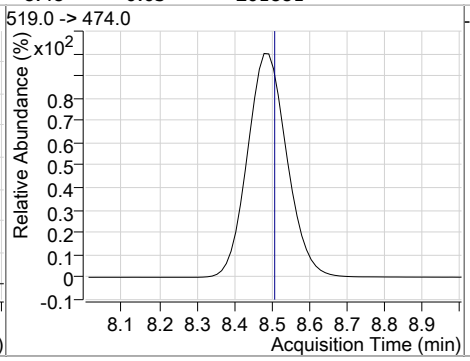
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.61	7.62	0.01	43867				

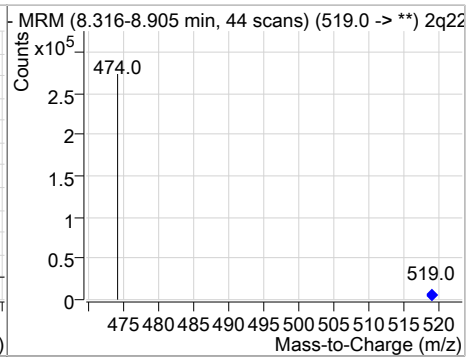


Perfluorinated Compounds by LC/MS/MS

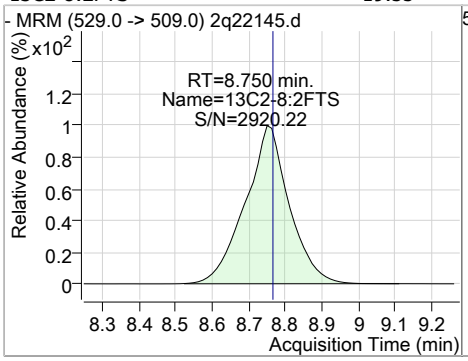
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.03	8.48	-0.03	201881				

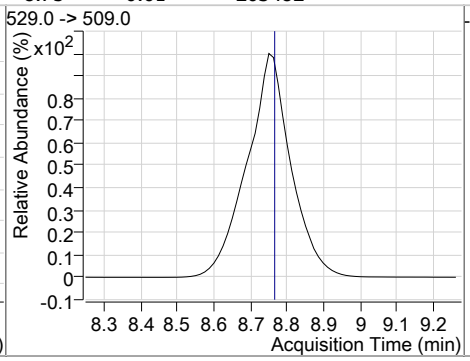


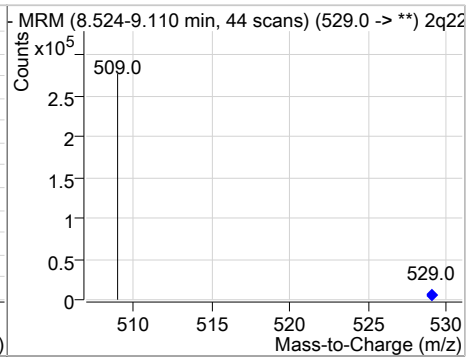




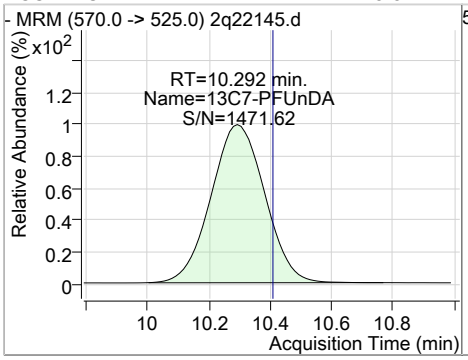
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.55	8.75	-0.01	203482				

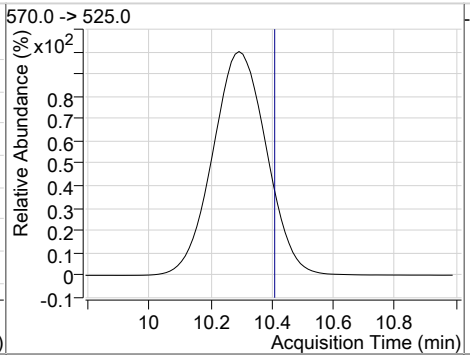


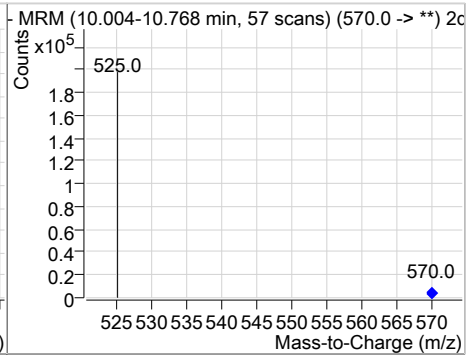




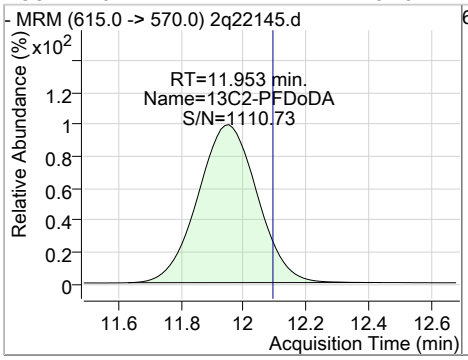
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.84	10.29	-0.11	144086				

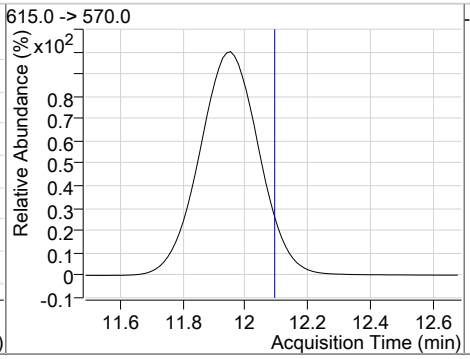


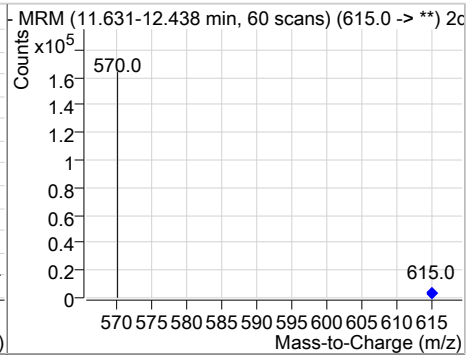




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.78	11.95	-0.14	117869				

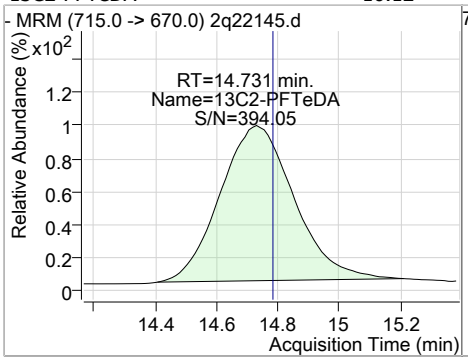


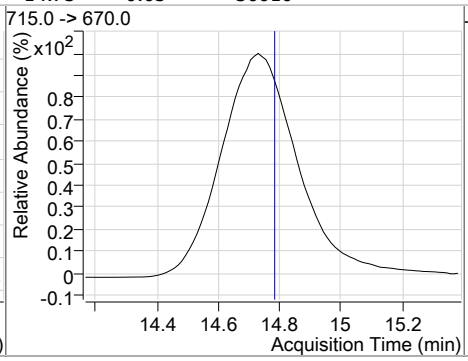


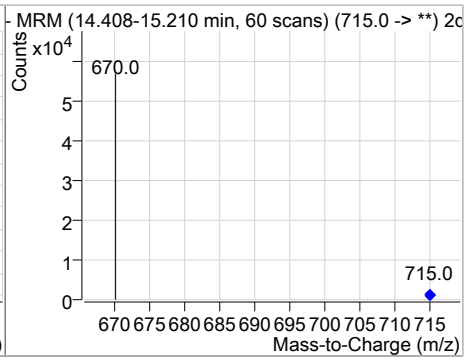


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	16.12	14.73	-0.05	36010				







Perfluorinated Compounds by LC/MS/MS

Data File	:	2q22426.d
Operator	:	NATASHAG
Acq. Method	:	dMRM_ID_PFC.m
Acq. Date-Time	:	10/20/2018 1:01:06 AM
Sample Name	:	fa57914-9
Vial	:	Vial 39
DA Method File	:	PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name	:	s2q352.batch.bin
Sample Information	:	op72234,S2Q352,130,,,1.0,1,water

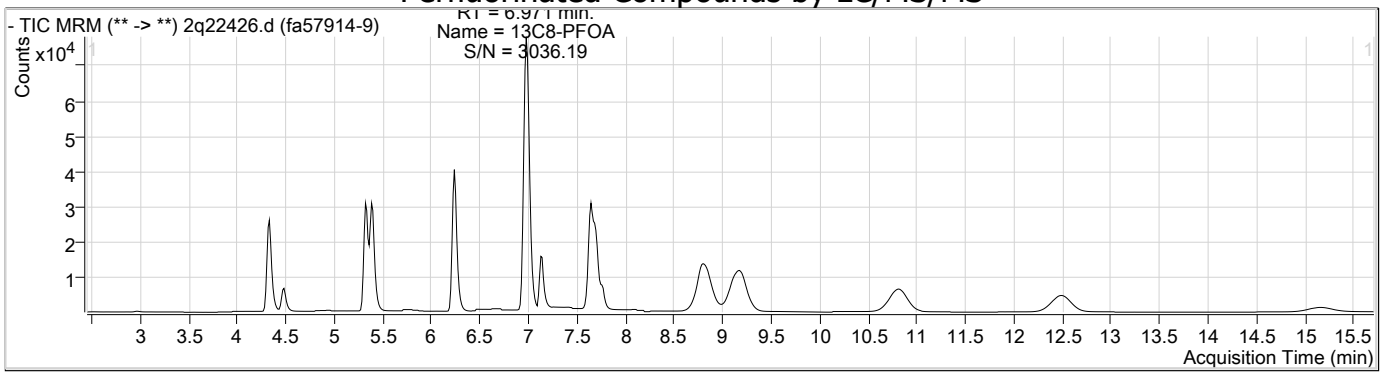
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.973	415.0 -> 370.0	110284	20.00 µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	45732	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	748	20.00 µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	87548	20.00 µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	94034	20.00 µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	107001	20.00 µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	82430	20.00 µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	77645	20.00 µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	140882	20.00 µg/L	0.025
M7-PFUnDA	10.817	570.0 -> 525.0	85009	20.00 µg/L	0.038
M2-PFDoDA	12.490	615.0 -> 570.0	67867	20.00 µg/L	0.038
M2-PFTeDA	15.156	715.0 -> 670.0	23180	20.00 µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	46082	20.00 µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	21704	20.00 µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	27797	20.00 µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	25331	20.00 µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	102289	20.00 µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	132963	20.00 µg/L	0.013
M2-8:2FTS	9.172	529.0 -> 509.0	138416	20.00 µg/L	0.075
M3-MeFOSAA	7.645	573.0 -> 419.0	32006	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.0 -> 309.0	102277	15.53 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
13C2-6:2FTS	6.993	429.0 -> 409.0	133024	15.07 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.3%	
13C2-8:2FTS	9.172	529.0 -> 509.0	137045	13.04 µg/L	0.075
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 65.2%	
13C2-PFDoDA	12.490	615.0 -> 570.0	67008	12.12 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 60.6%	
13C2-PFTeDA	15.156	715.0 -> 670.0	21413	11.03 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 55.2%	
13C3-PFBS	4.481	302.0 -> 99.0	21705	15.52 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
13C3-PFHxS	6.235	402.0 -> 99.0	27784	15.60 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C4-PFBA	2.966	217.0 -> 172.0	743	0.06 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.3%	
13C4-PFHpA	6.242	367.0 -> 322.0	106955	16.63 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.1%	
13C5-PFHxA	5.390	318.0 -> 273.0	94031	17.08 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.4%	
13C5-PFPeA	4.337	268.0 -> 223.0	87551	15.32 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.6%	
13C6-PFDA	8.804	519.0 -> 474.0	140014	15.05 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.2%	

Perfluorinated Compounds by LC/MS/MS

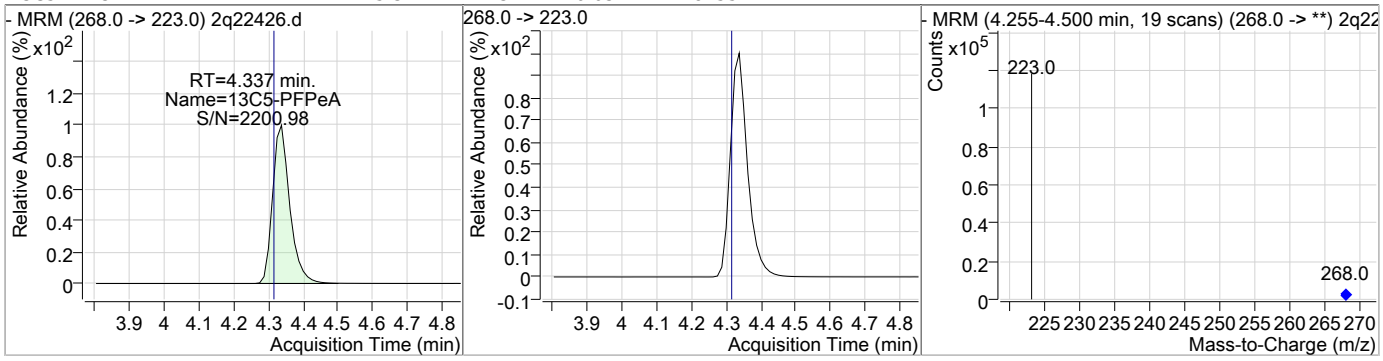
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.817	570.0 -> 525.0	84677	12.37	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.8%			
13C8-FOSA	7.129	506.0 -> 78.0	45974	11.85	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 59.2%			
13C8-PFOA	6.971	421.0 -> 376.0	82434	15.34	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.7%			
13C8-PFOS	7.634	507.0 -> 99.0	25316	13.95	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.8%			
13C9-PFNA	7.702	472.0 -> 427.0	77650	15.80	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.0%			
d3-MeFOSAA	7.645	573.0 -> 419.0	32011	13.76	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.8%			
M2-PFOA	6.973	415.0 -> 370.0	110276	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	45738	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.472	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.405	313.0 -> 269.0	191	0.13	µg/L		99
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.341	263.0 -> 219.0	1264	0.31	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

 # = Qualifier out of range, m = manually integrated, + = Area summed

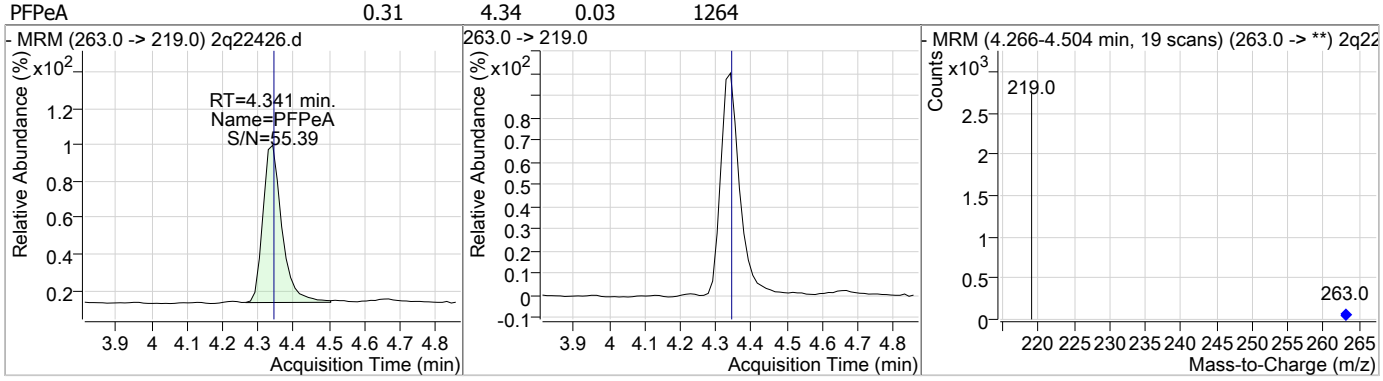
Perfluorinated Compounds by LC/MS/MS



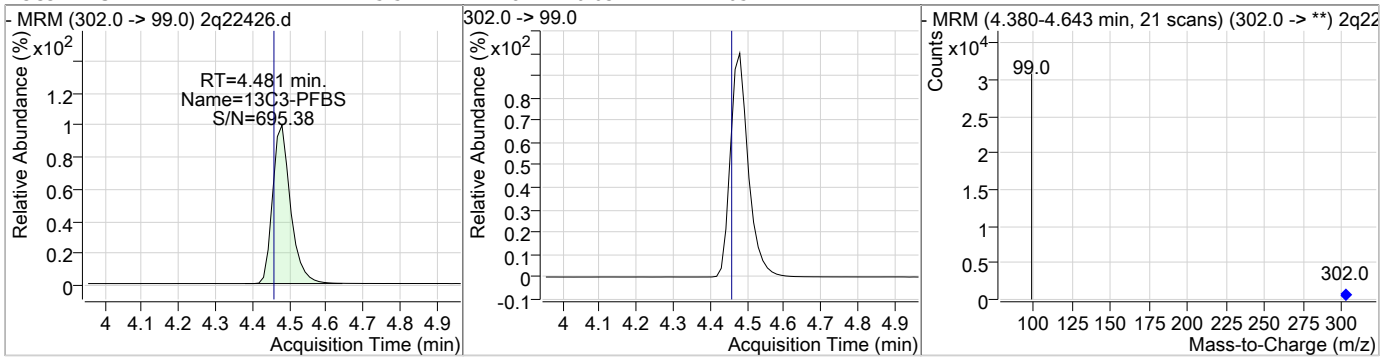
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	15.32	4.34	0.03	87551				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.31	4.34	0.03	1264				

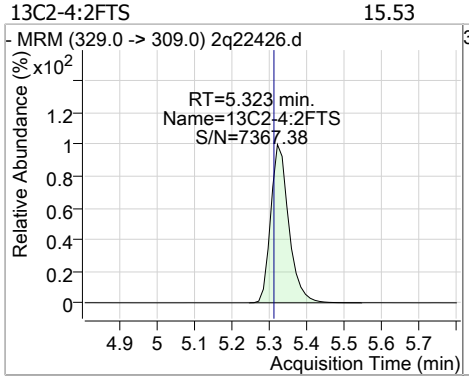


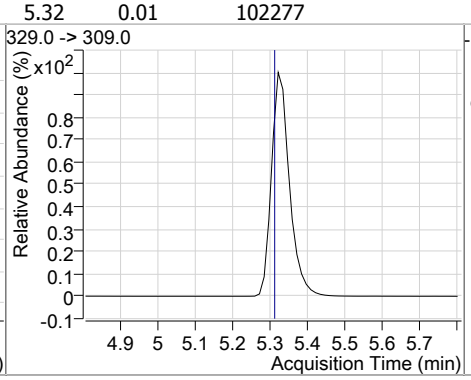
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.52	4.48	0.03	21705				

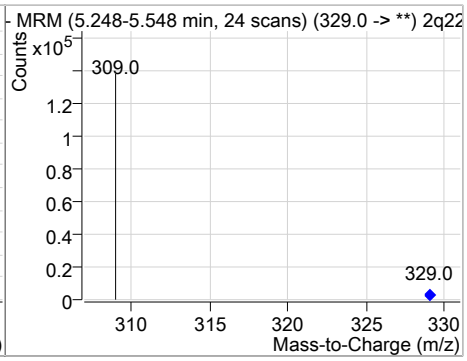


Perfluorinated Compounds by LC/MS/MS

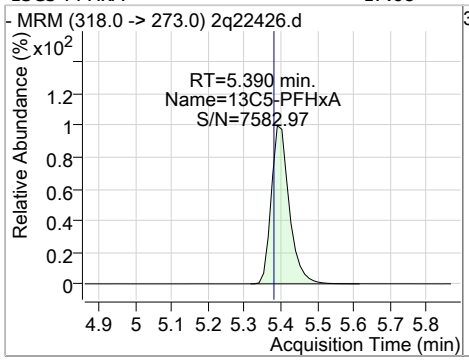
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.53	5.32	0.01	102277				

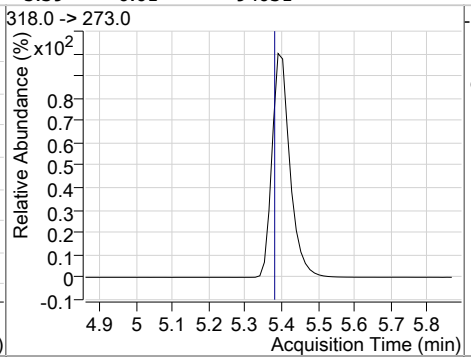


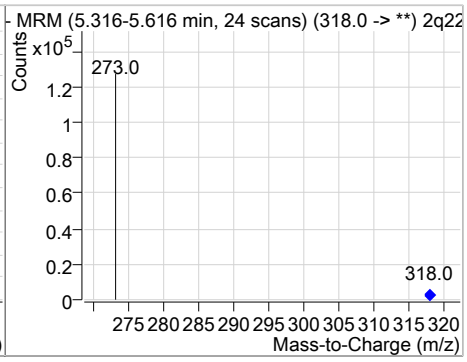




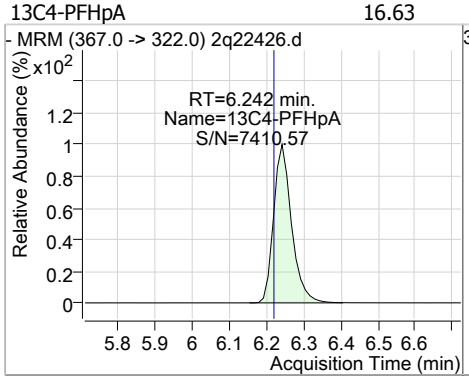
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.08	5.39	0.01	94031				

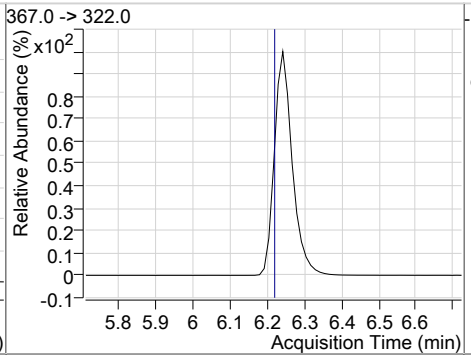


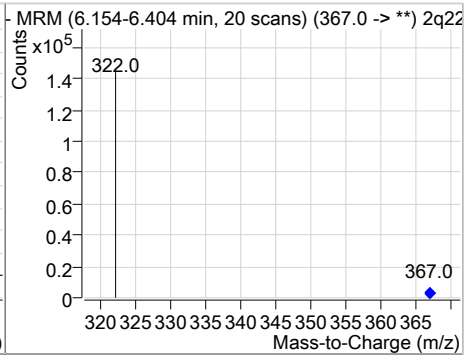




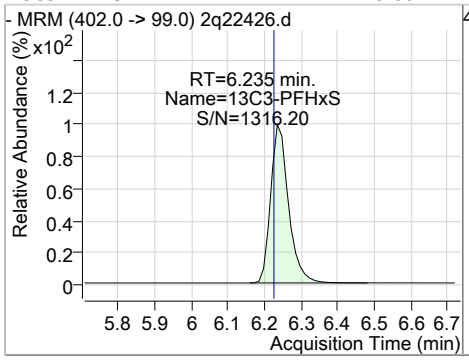
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.63	6.24	0.03	106955				

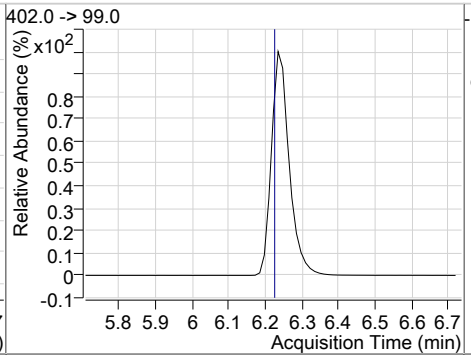


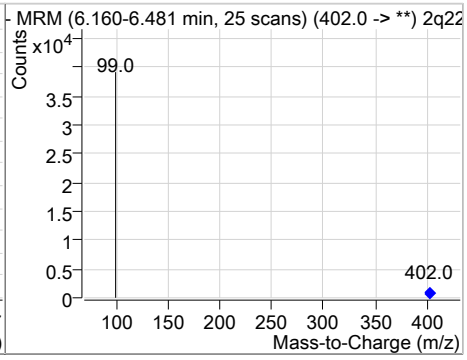




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.60	6.24	0.01	27784				

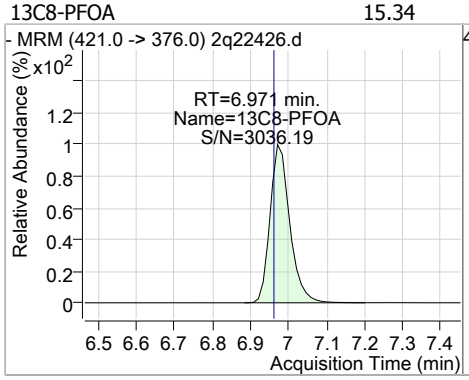


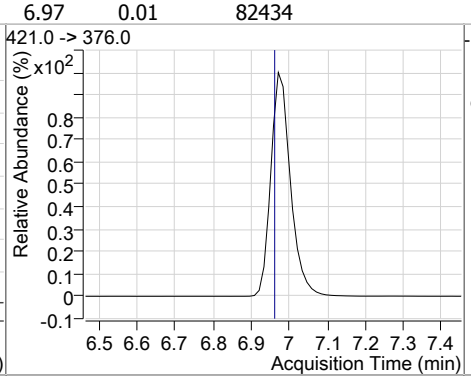


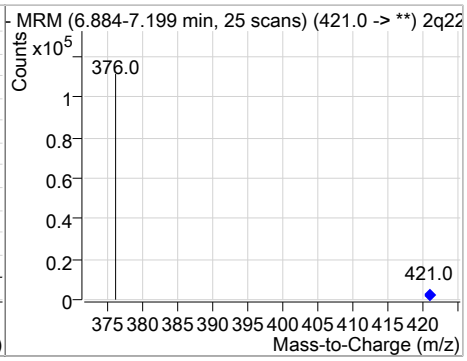


Perfluorinated Compounds by LC/MS/MS

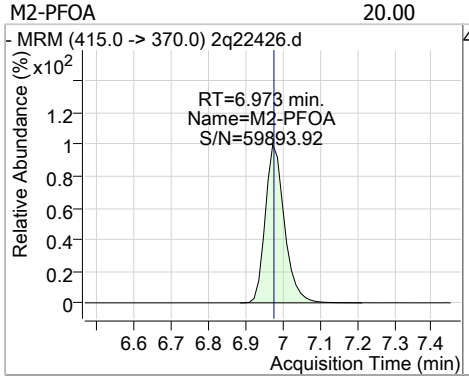
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.34	6.97	0.01	82434				

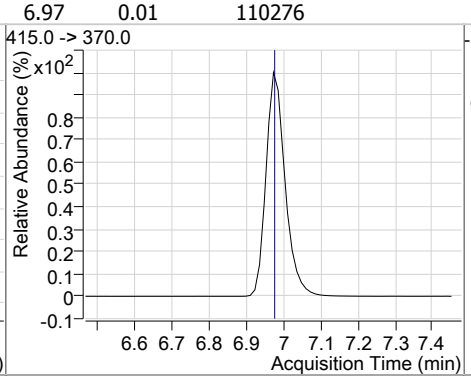


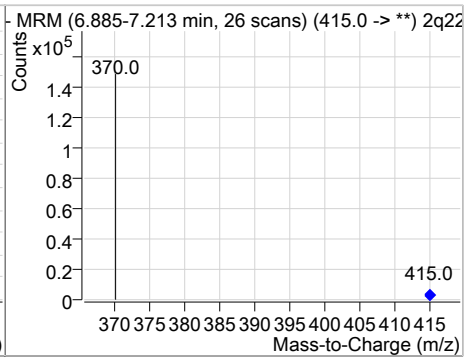




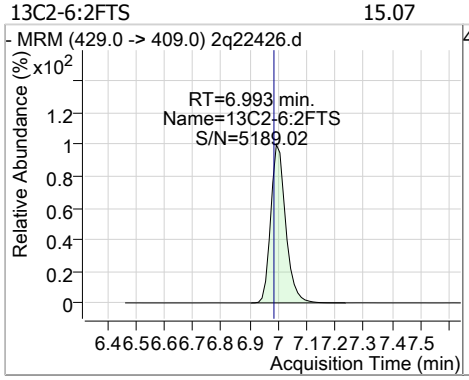
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	110276				

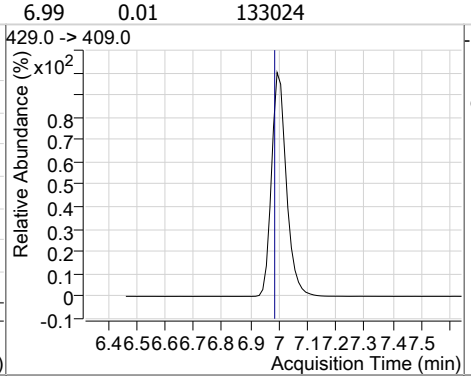


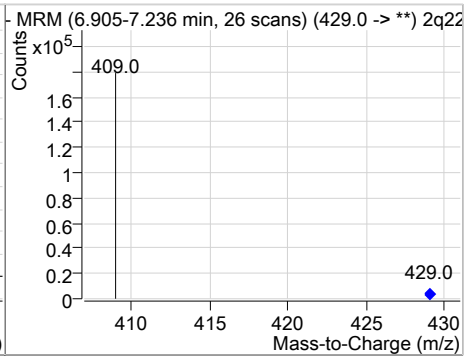




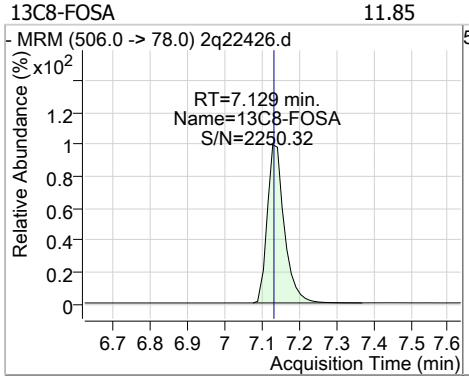
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.07	6.99	0.01	133024				

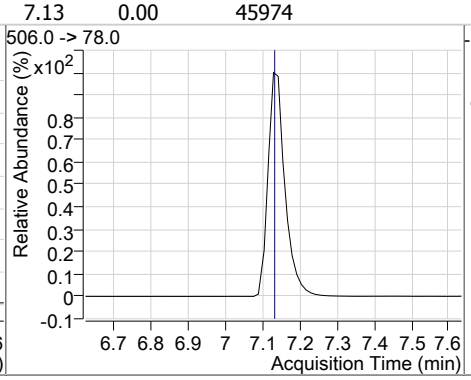


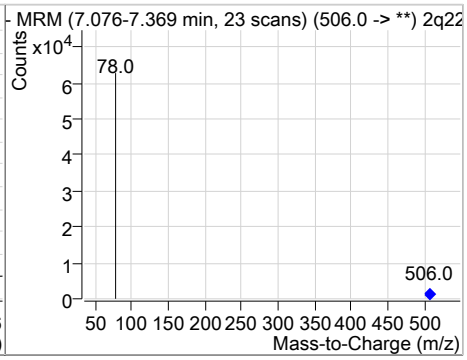




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	11.85	7.13	0.00	45974				

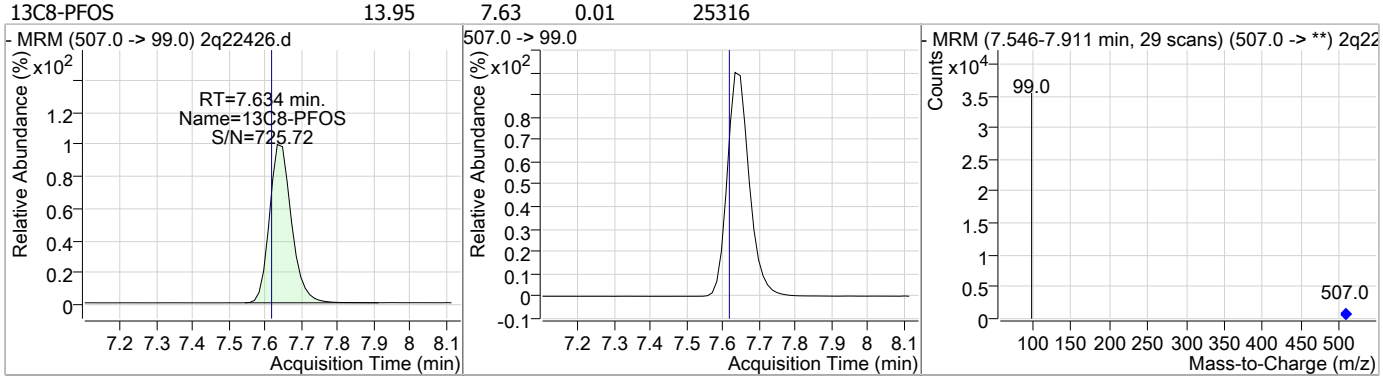




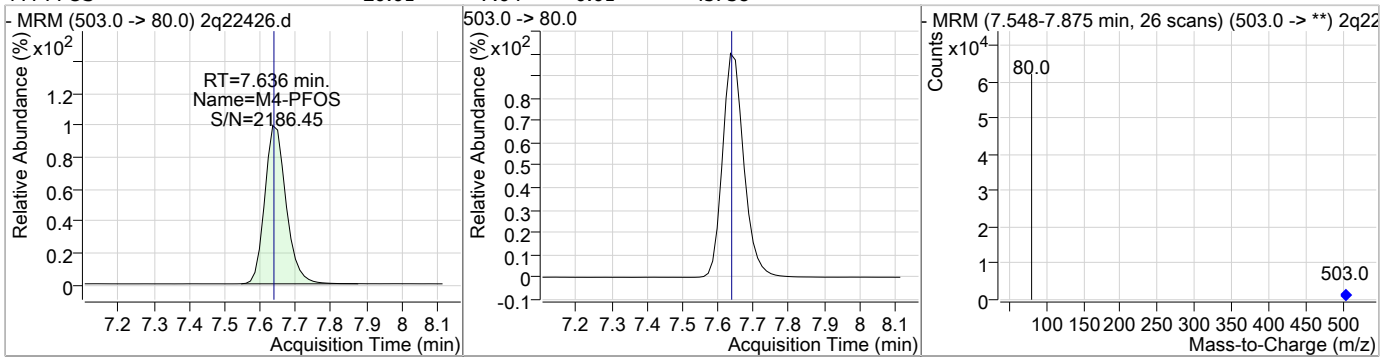


Perfluorinated Compounds by LC/MS/MS

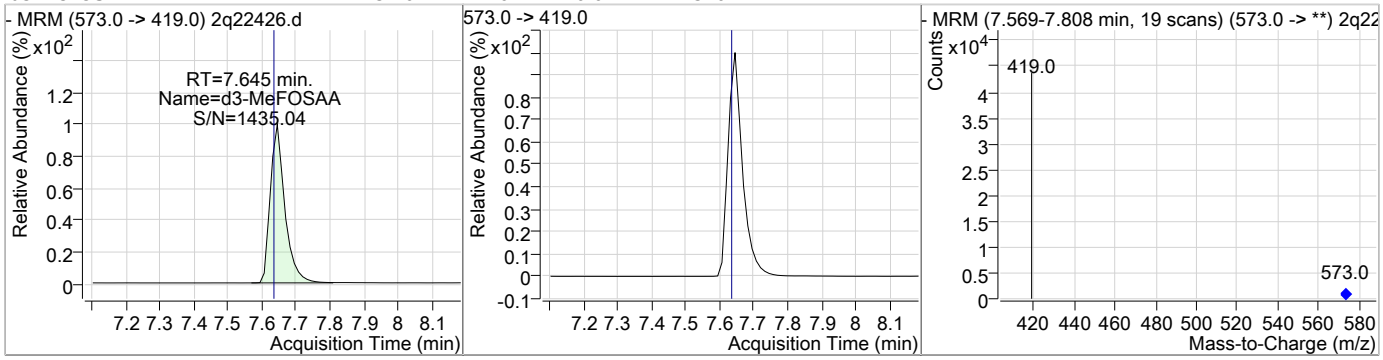
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	13.95	7.63	0.01	25316				



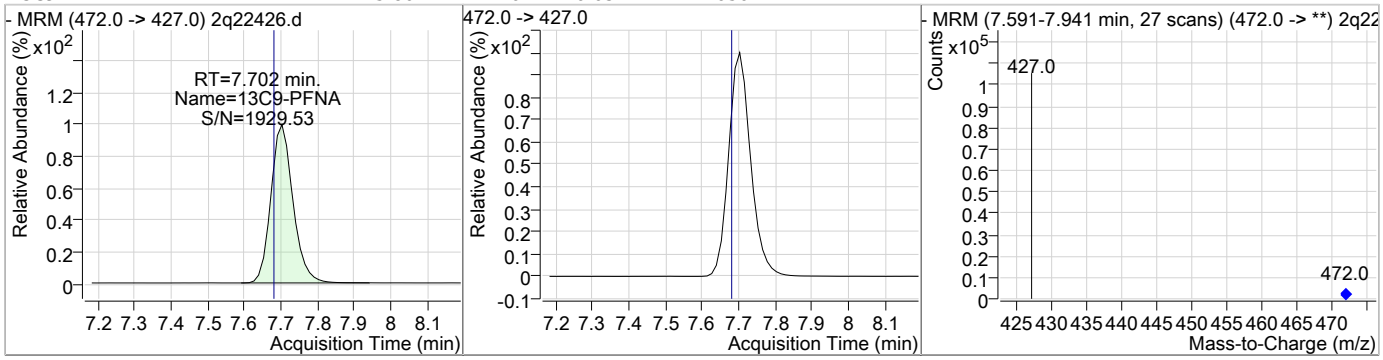
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.64	0.01	45738				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.76	7.64	0.01	32011				

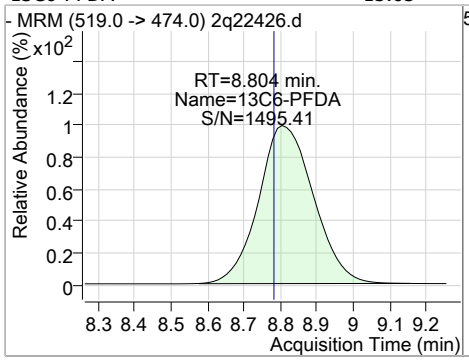


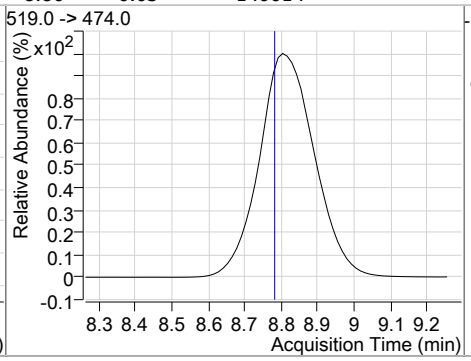
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.80	7.70	0.03	77650				

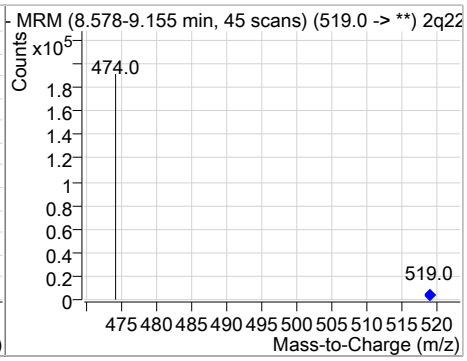


Perfluorinated Compounds by LC/MS/MS

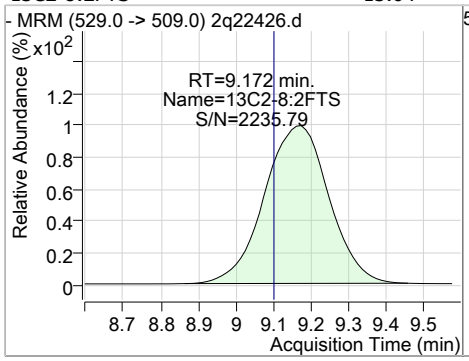
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.05	8.80	0.03	140014				

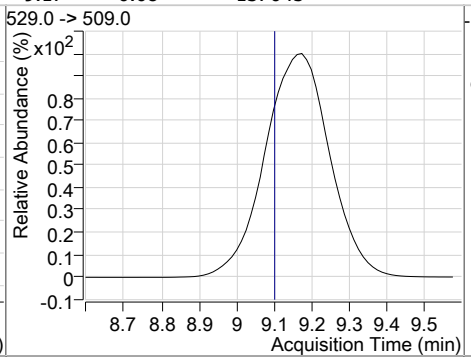


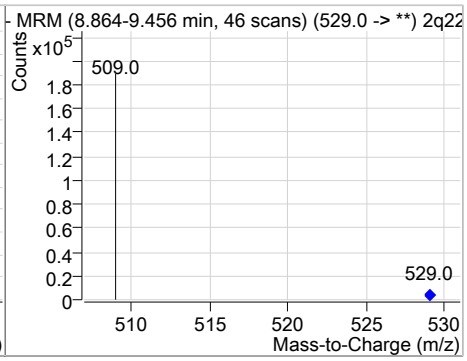




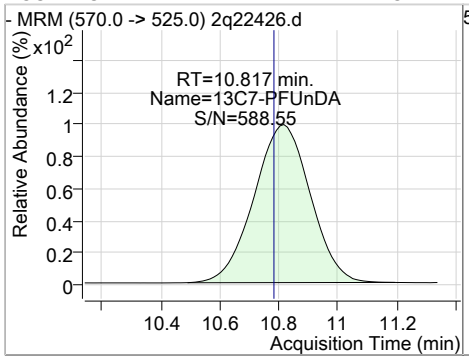
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.04	9.17	0.08	137045				

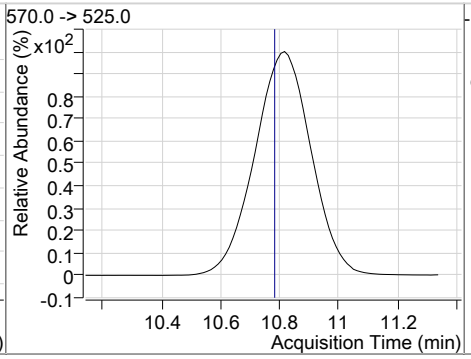


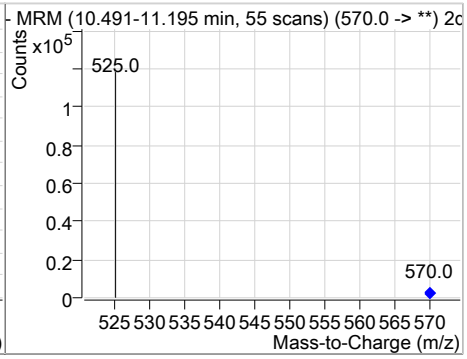




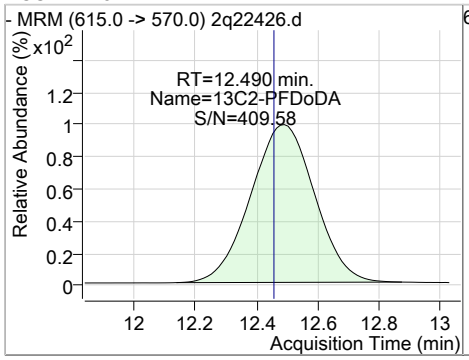
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	12.37	10.82	0.04	84677				

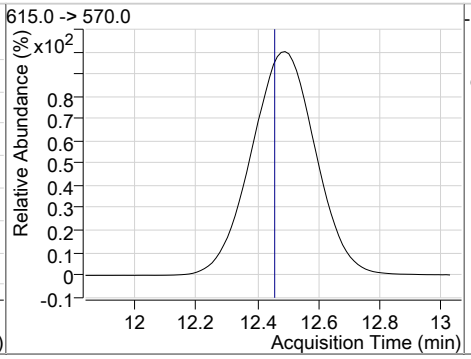


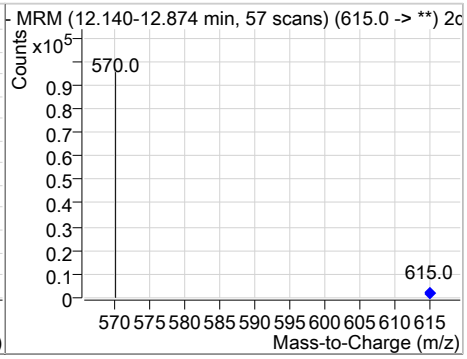




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.12	12.49	0.04	67008				

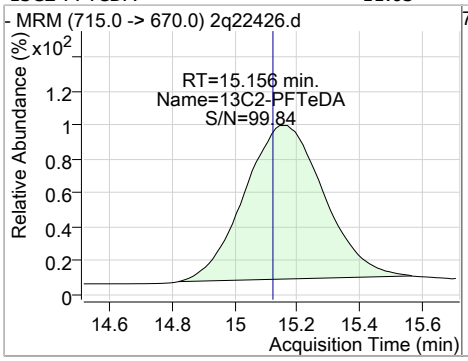


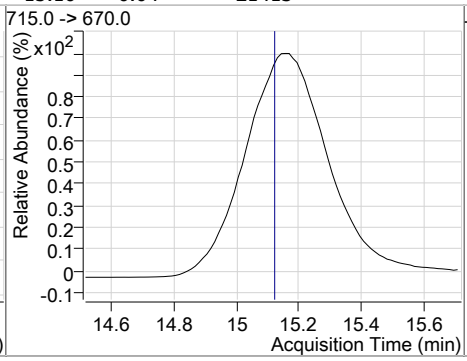


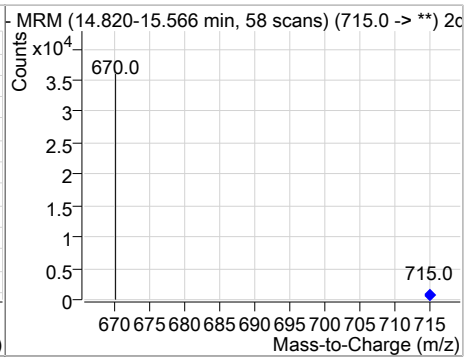


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.03	15.16	0.04	21413				







Perfluorinated Compounds by LC/MS/MS

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Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 8:10:51 PM
Sample Name : fa57914-9
Vial : Vial 23
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

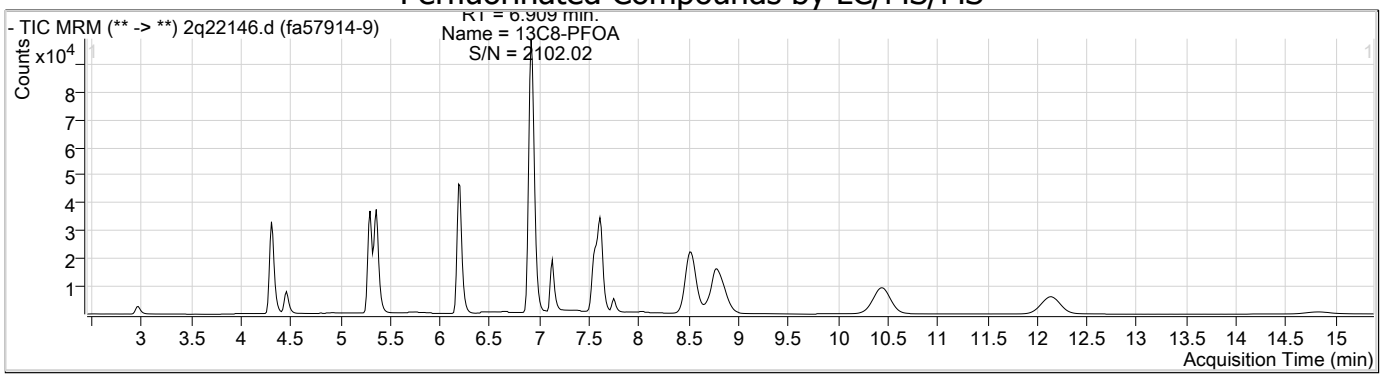
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.910	415.0 -> 370.0	133207	20.00 µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	47508	20.00 µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	9958	20.00 µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	108917	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	112267	20.00 µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	129264	20.00 µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	108187	20.00 µg/L	0.002
M9-PFNA	7.614	472.0 -> 427.0	92272	20.00 µg/L	0.013
M6-PFDA	8.516	519.0 -> 474.0	171005	20.00 µg/L	0.012
M7-PFUnDA	10.442	570.0 -> 525.0	116455	20.00 µg/L	0.038
M2-PFDoDA	12.140	615.0 -> 570.0	84828	20.00 µg/L	0.050
M2-PFTeDA	14.818	715.0 -> 670.0	13040	20.00 µg/L	0.038
M8-FOSA	7.130	506.0 -> 78.0	54270	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	25554	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	31405	20.00 µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	28989	20.00 µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	119950	20.00 µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	150838	20.00 µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	157746	20.00 µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	33267	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	119959	17.08 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.4%	
13C2-6:2FTS	6.931	429.0 -> 409.0	150822	17.16 µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.8%	
13C2-8:2FTS	8.775	529.0 -> 509.0	157278	15.11 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.6%	
13C2-PFDoDA	12.140	615.0 -> 570.0	84316	13.43 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.2%	
13C2-PFTeDA	14.818	715.0 -> 670.0	11882	5.32 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 26.6%	
13C3-PFBS	4.455	302.0 -> 99.0	25543	17.93 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C3-PFHxS	6.198	402.0 -> 99.0	31409	18.13 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.6%	
13C4-PFBA	2.966	217.0 -> 172.0	9937	0.69 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 3.4%	
13C4-PFHpA	6.192	367.0 -> 322.0	129260	18.43 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%	
13C5-PFHxA	5.364	318.0 -> 273.0	112288	18.50 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.5%	
13C5-PFPeA	4.312	268.0 -> 223.0	108904	17.34 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.7%	
13C6-PFDA	8.516	519.0 -> 474.0	170647	16.93 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.6%	

Perfluorinated Compounds by LC/MS/MS

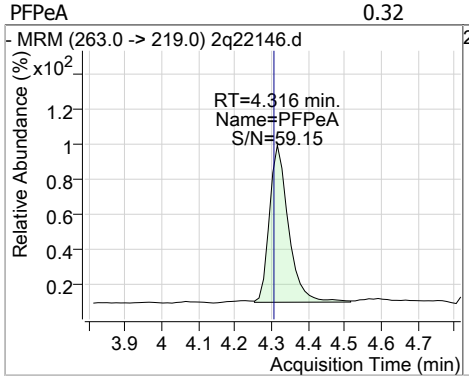
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.442	570.0 -> 525.0	116088	15.18	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.9%			
13C8-FOSA	7.130	506.0 -> 78.0	54228	14.74	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.7%			
13C8-PFOA	6.909	421.0 -> 376.0	108145	18.42	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.1%			
13C8-PFOS	7.559	507.0 -> 99.0	28989	16.57	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.9%			
13C9-PFNA	7.614	472.0 -> 427.0	92199	17.57	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.9%			
d3-MeFOSAA	7.620	573.0 -> 419.0	33302	14.89	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.5%			
M2-PFOA	6.910	415.0 -> 370.0	133235	20.00	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	47442	19.97	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	6.932	427.0 -> 407.0	0	0.00	µg/L	m	1
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.459	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	184	0.10	µg/L		99
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	1603	0.32	µg/L		100
PFPeS	5.906	349.0 -> 80.0	0	0.00	µg/L	m	1
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

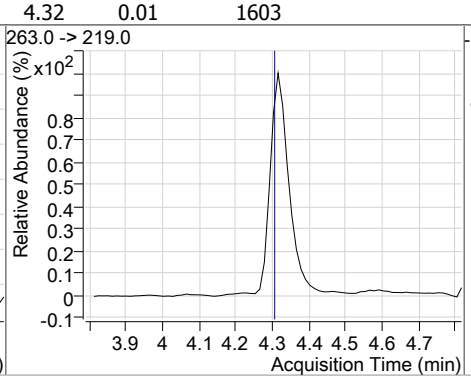
 # = Qualifier out of range, m = manually integrated, + = Area summed

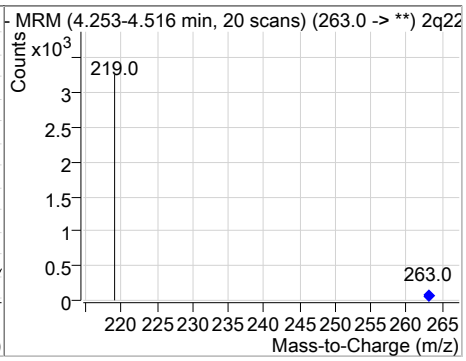
Perfluorinated Compounds by LC/MS/MS



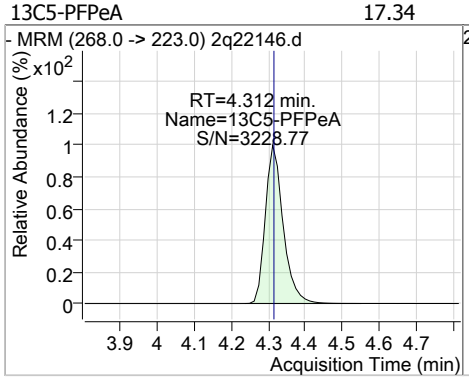
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.32	4.32	0.01	1603				

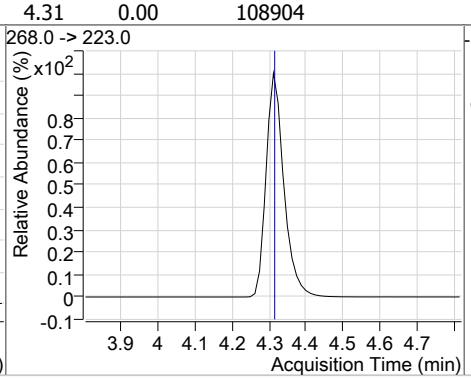


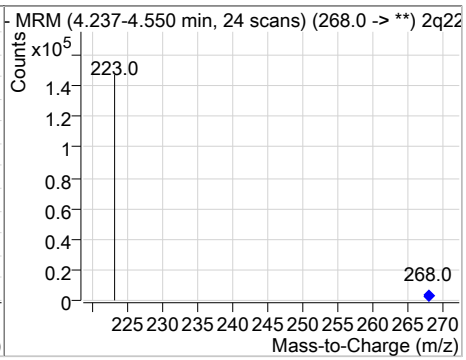




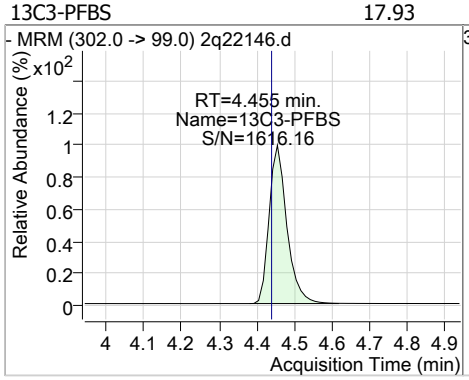
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.34	4.31	0.00	108904				

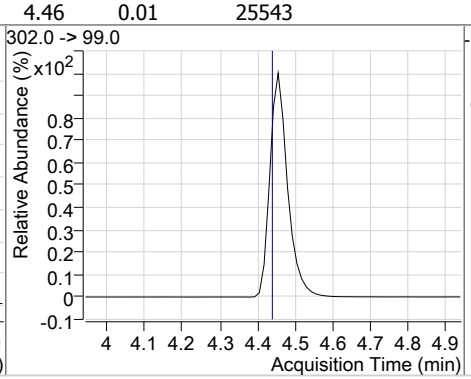


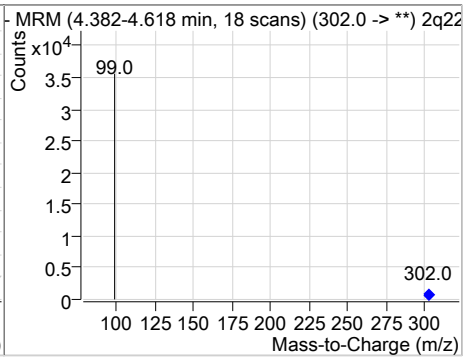




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.93	4.46	0.01	25543				

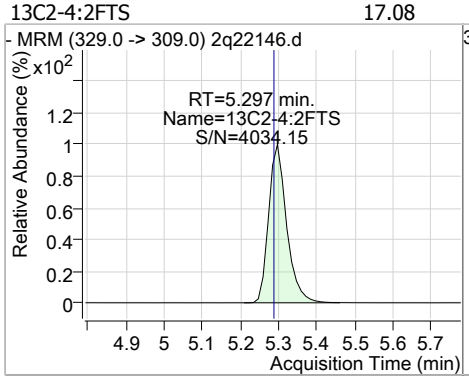


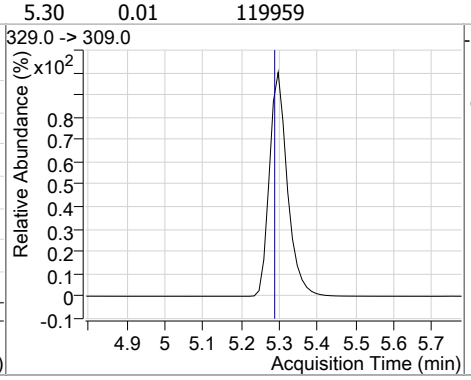


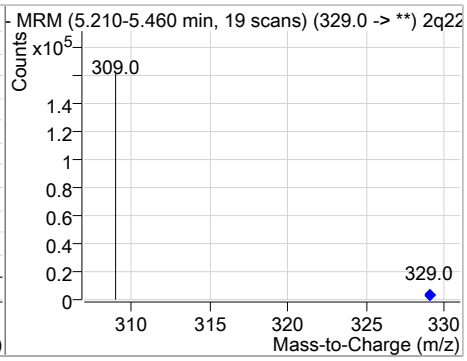


Perfluorinated Compounds by LC/MS/MS

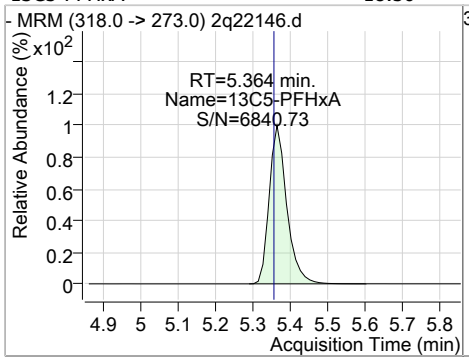
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.08	5.30	0.01	119959				

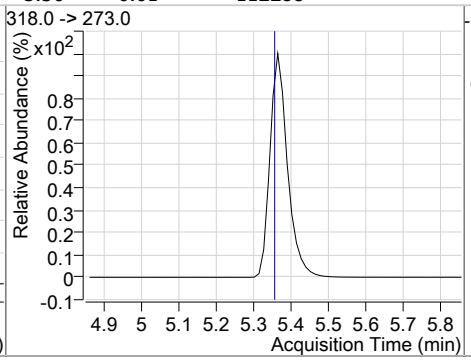


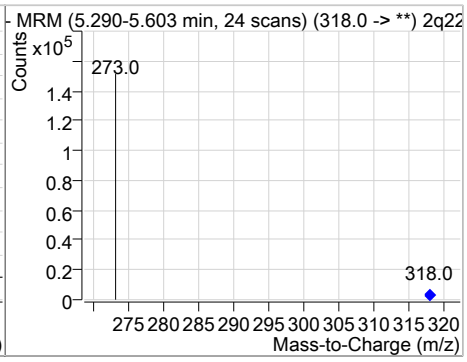




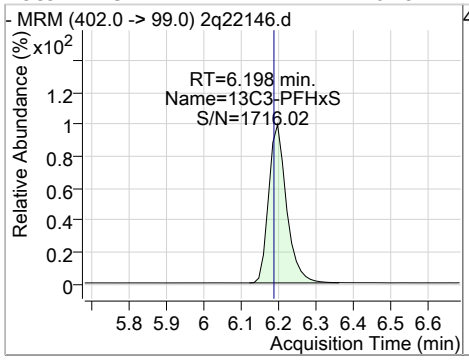
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.50	5.36	0.01	112288				

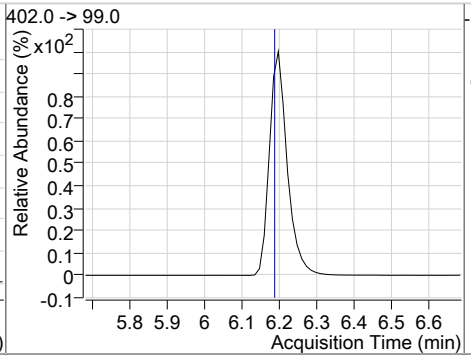


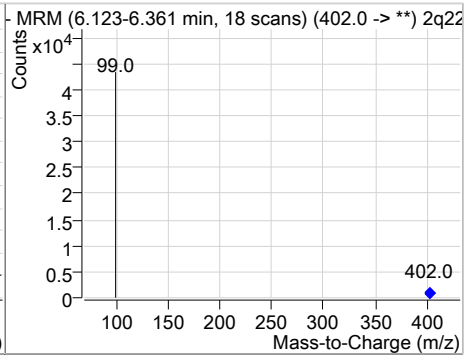




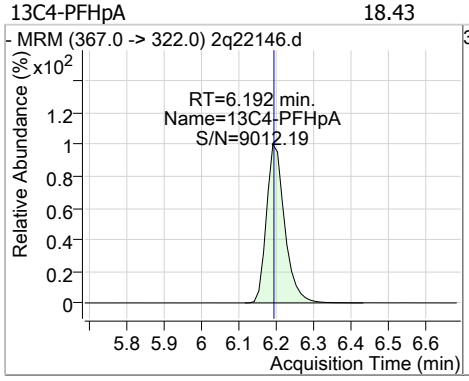
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.13	6.20	0.01	31409				

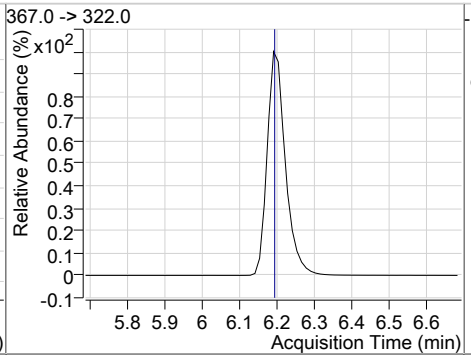


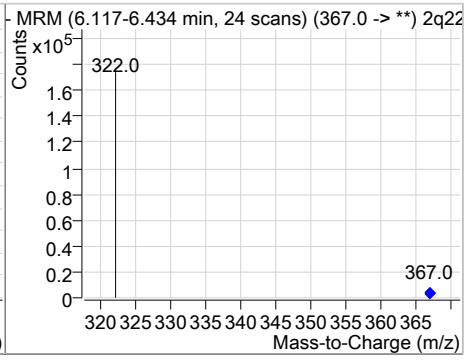




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.43	6.19	0.00	129260				

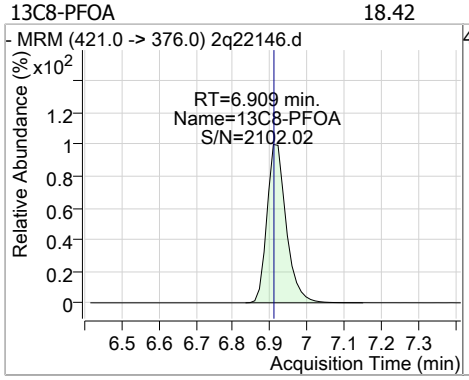


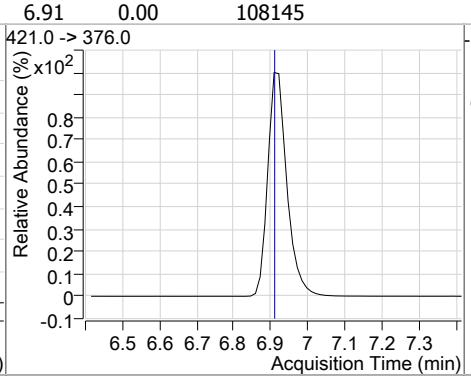


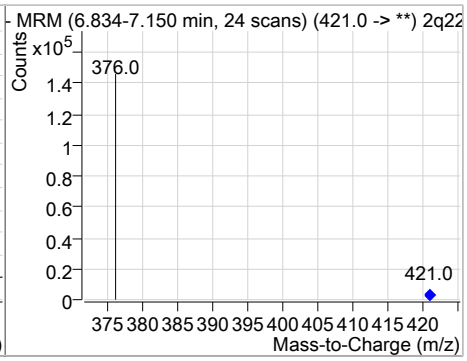


Perfluorinated Compounds by LC/MS/MS

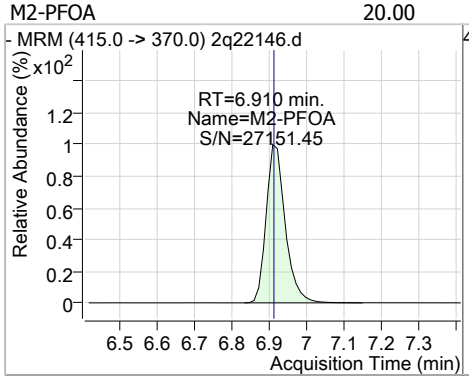
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.42	6.91	0.00	108145				

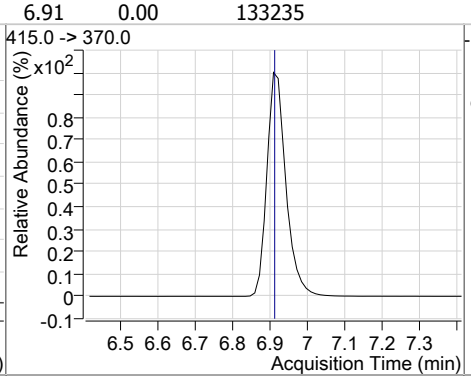


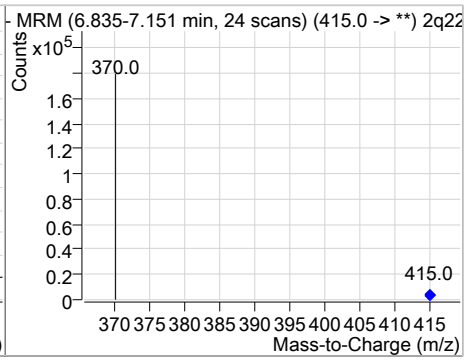




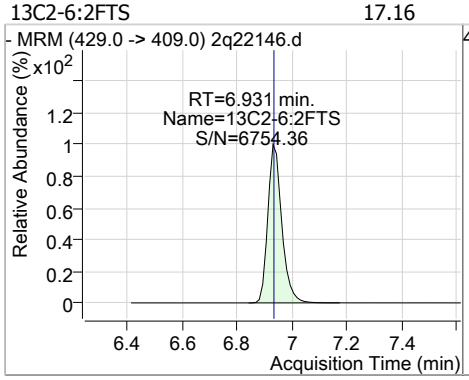
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.91	0.00	133235				

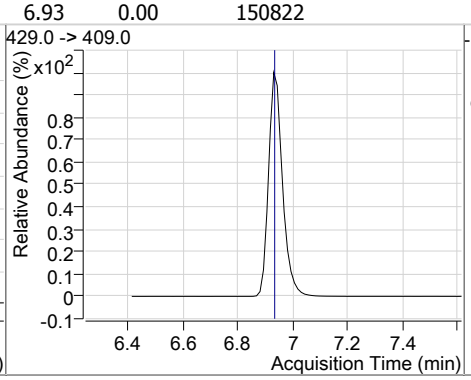


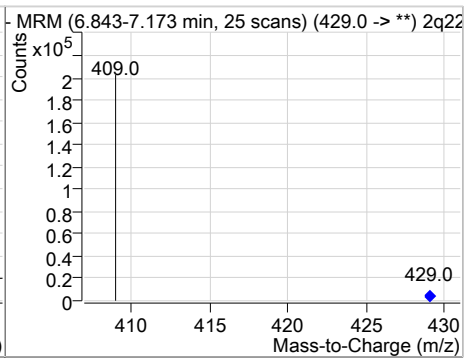




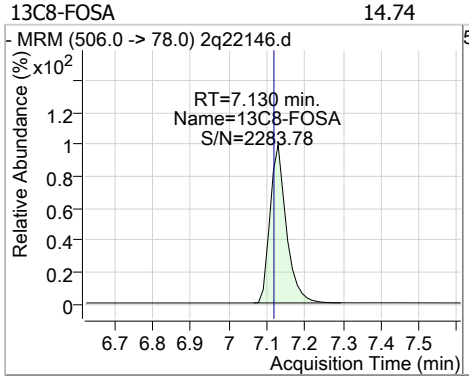
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.16	6.93	0.00	150822				

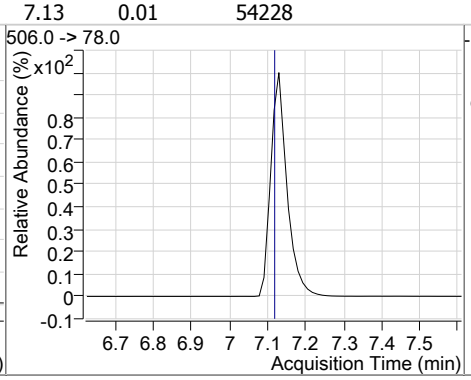


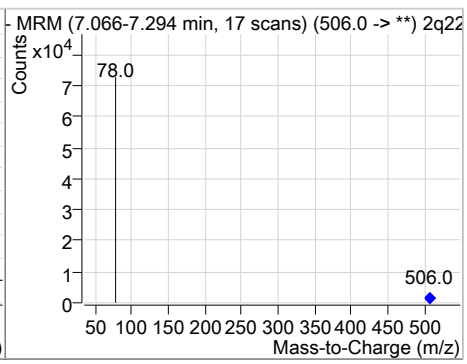




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	14.74	7.13	0.01	54228				

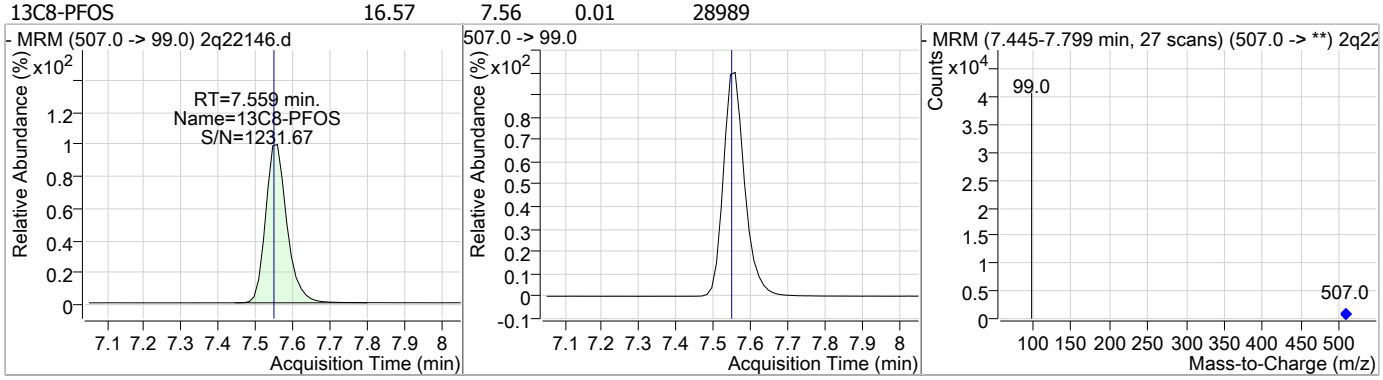




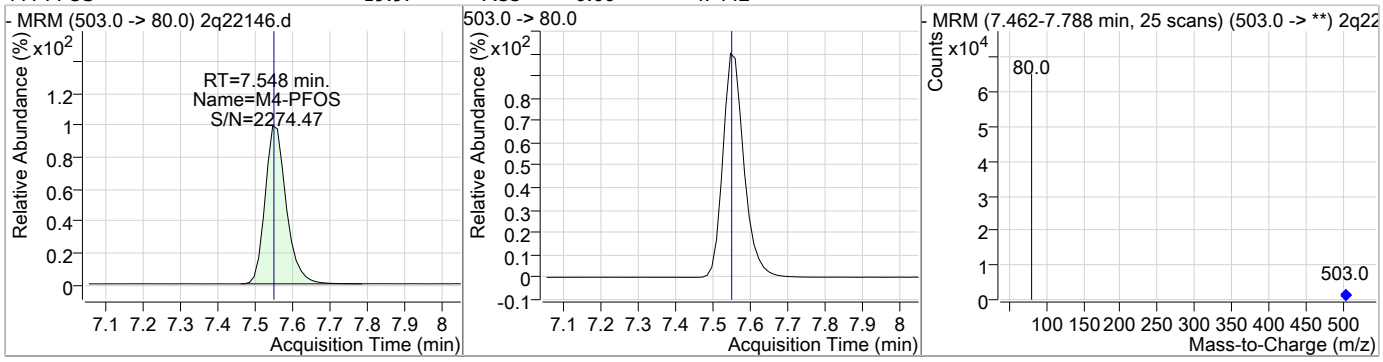


Perfluorinated Compounds by LC/MS/MS

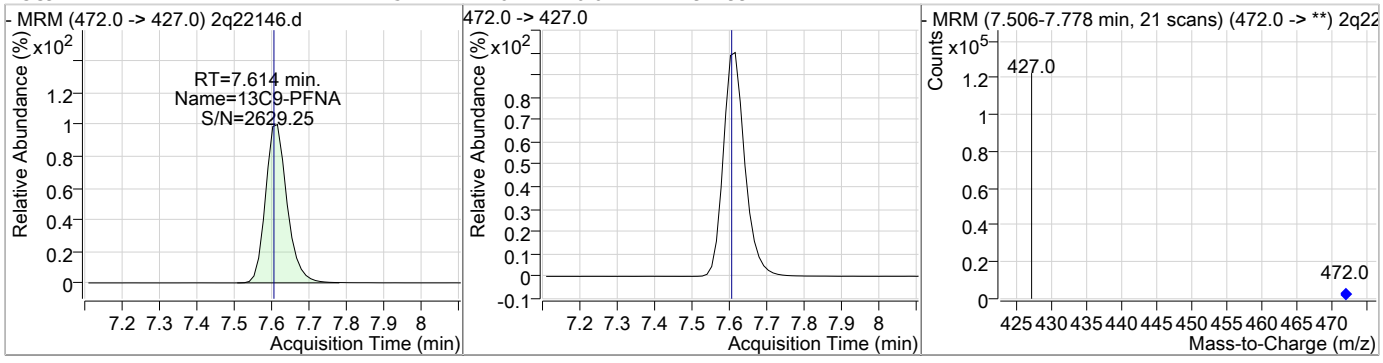
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	16.57	7.56	0.01	28989				



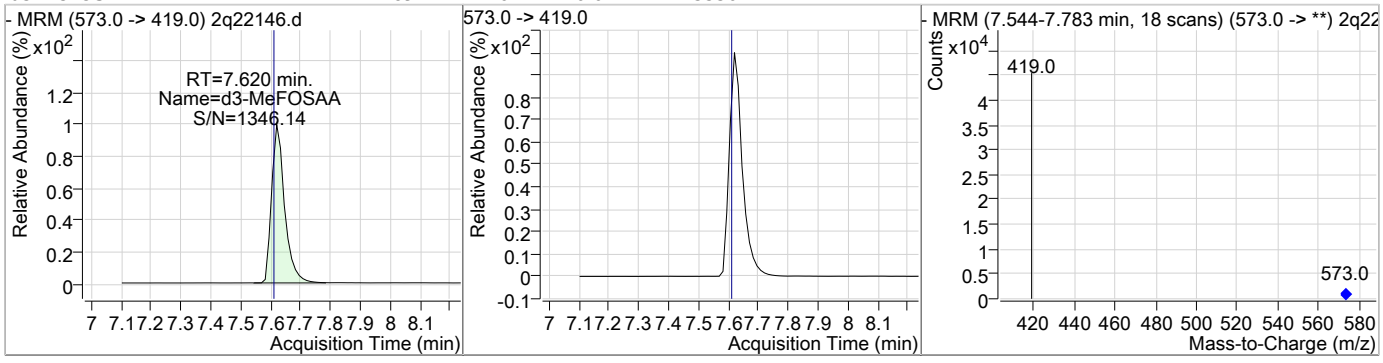
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.97	7.55	0.00	47442				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.57	7.61	0.01	92199				

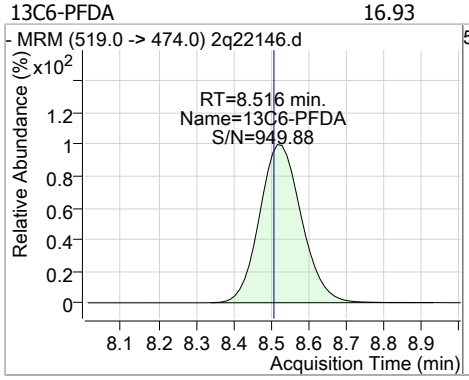


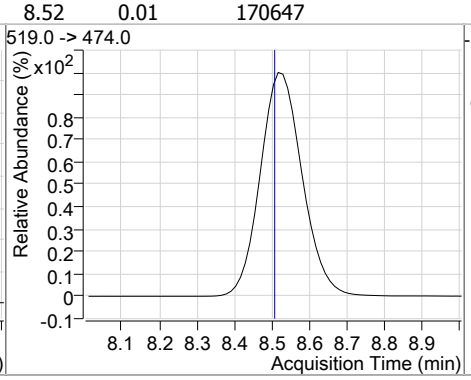
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.89	7.62	0.01	33302				

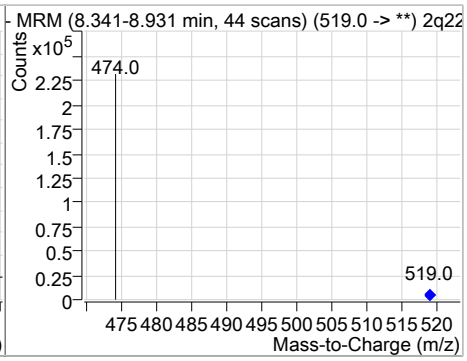


Perfluorinated Compounds by LC/MS/MS

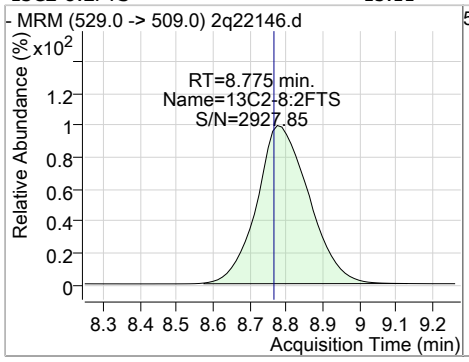
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.93	8.52	0.01	170647				

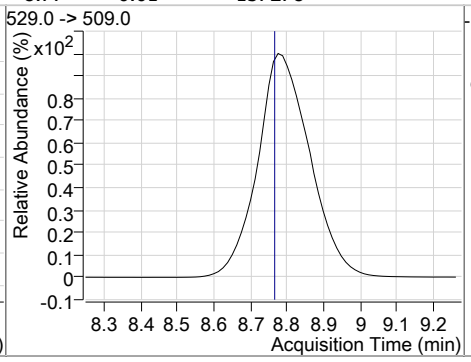


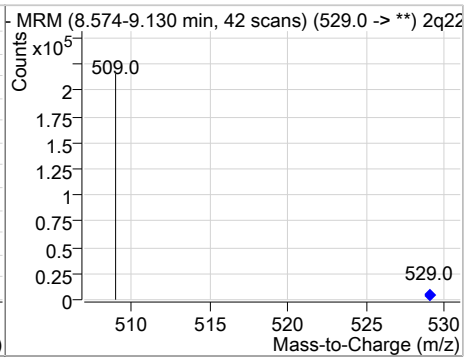




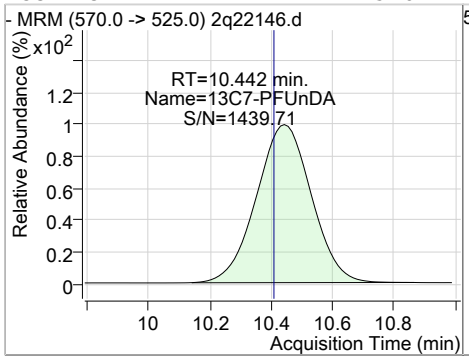
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	15.11	8.77	0.01	157278				

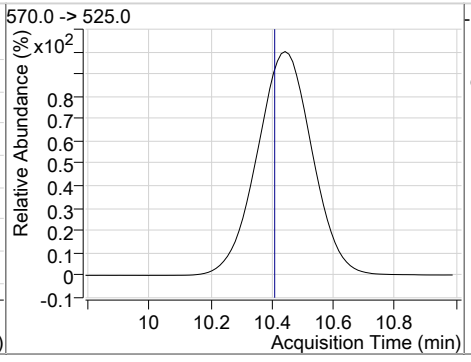


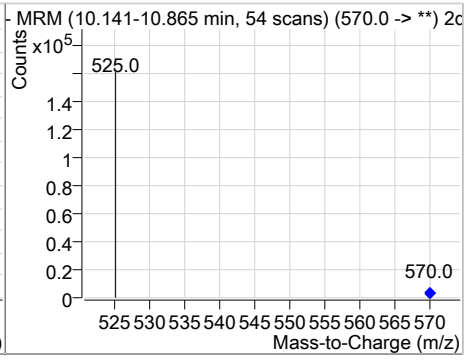




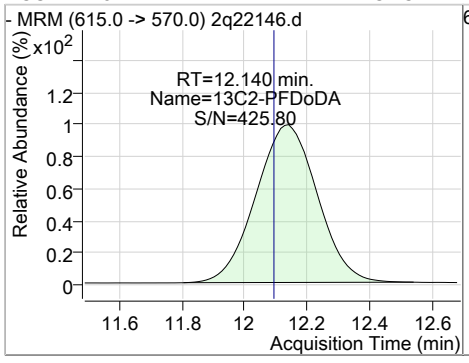
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.18	10.44	0.04	116088				

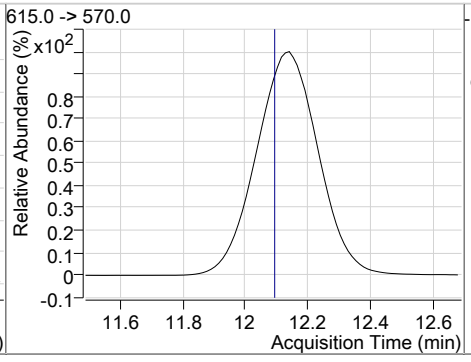


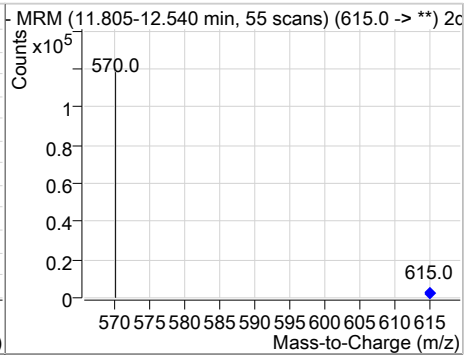




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	13.43	12.14	0.05	84316				

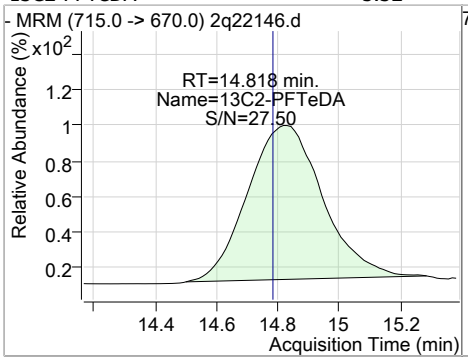


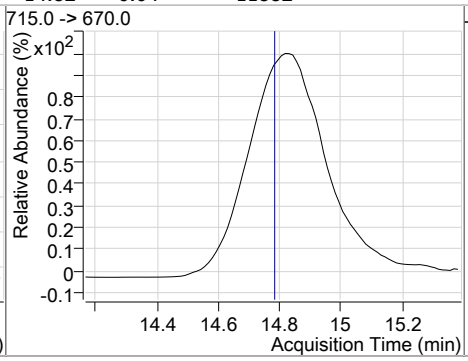


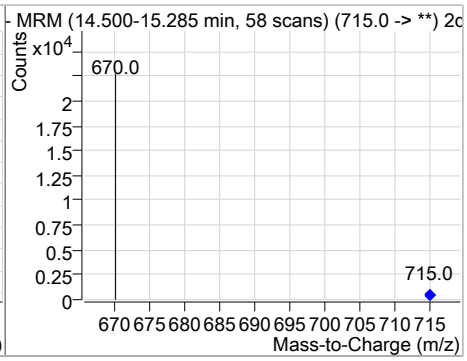


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	5.32	14.82	0.04	11882				







Perfluorinated Compounds by LC/MS/MS

Data File	:	2q22147.d
Operator	:	NATASHAG
Acq. Method	:	dMRM_ID_PFC.m
Acq. Date-Time	:	10/15/2018 8:31:36 PM
Sample Name	:	fa57914-10
Vial	:	Vial 24
DA Method File	:	PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name	:	s2q349.batch.bin
Sample Information	:	op71994,S2Q349,120,,,1.0,1,water

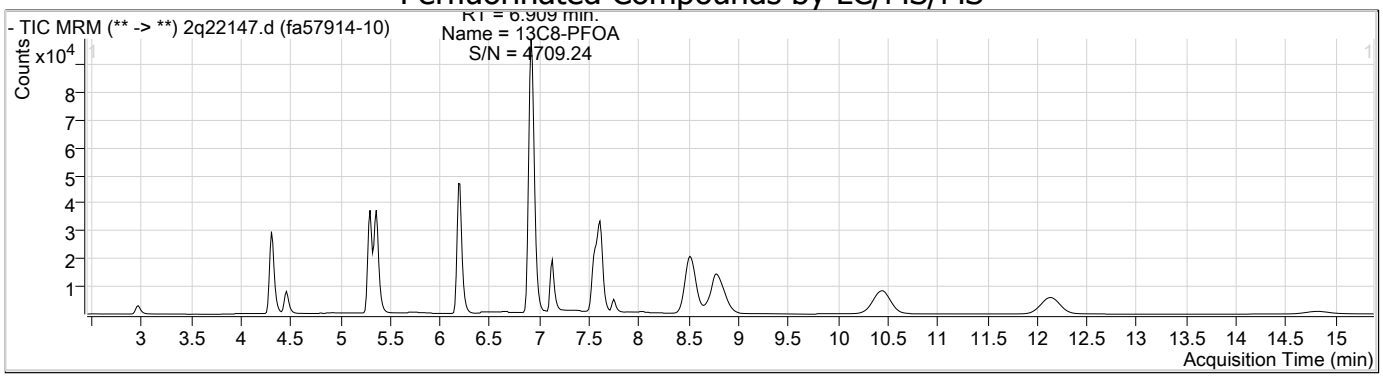
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.910	415.0 -> 370.0	130299	20.00 µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	47210	20.00 µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	10989	20.00 µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	98011	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	112072	20.00 µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	131126	20.00 µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	111426	20.00 µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	92777	20.00 µg/L	0.000
M6-PFDA	8.516	519.0 -> 474.0	158919	20.00 µg/L	0.012
M7-PFUnDA	10.442	570.0 -> 525.0	104048	20.00 µg/L	0.038
M2-PFDoDA	12.140	615.0 -> 570.0	81311	20.00 µg/L	0.050
M2-PFTeDA	14.831	715.0 -> 670.0	16181	20.00 µg/L	0.050
M8-FOSA	7.130	506.0 -> 78.0	54932	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	26007	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	31819	20.00 µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	27826	20.00 µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	121080	20.00 µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	152656	20.00 µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	138831	20.00 µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	29016	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	121092	17.24 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.2%	
13C2-6:2FTS	6.931	429.0 -> 409.0	152651	17.37 µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.9%	
13C2-8:2FTS	8.775	529.0 -> 509.0	138032	13.26 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.3%	
13C2-PFDoDA	12.140	615.0 -> 570.0	80833	12.88 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.4%	
13C2-PFTeDA	14.831	715.0 -> 670.0	14985	6.71 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 33.5%	
13C3-PFBS	4.455	302.0 -> 99.0	26005	18.26 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.3%	
13C3-PFHxS	6.198	402.0 -> 99.0	31823	18.37 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C4-PFBA	2.966	217.0 -> 172.0	10979	0.76 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 3.8%	
13C4-PFHpA	6.192	367.0 -> 322.0	131128	18.70 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C5-PFHxA	5.364	318.0 -> 273.0	112071	18.46 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C5-PFPeA	4.312	268.0 -> 223.0	98007	15.60 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C6-PFDA	8.516	519.0 -> 474.0	158595	15.73 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.7%	

Perfluorinated Compounds by LC/MS/MS

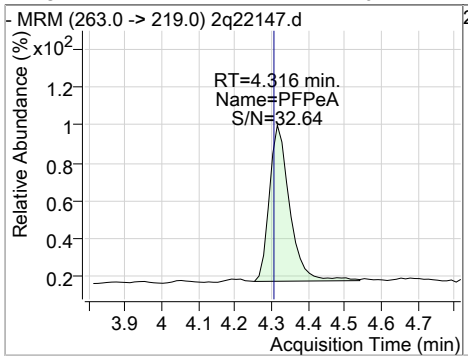
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.442	570.0 -> 525.0	103705	13.56	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.8%			
13C8-FOSA	7.130	506.0 -> 78.0	54888	14.92	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.6%			
13C8-PFOA	6.909	421.0 -> 376.0	111423	18.98	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%			
13C8-PFOS	7.559	507.0 -> 99.0	27816	15.90	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.5%			
13C9-PFNA	7.601	472.0 -> 427.0	92755	17.68	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.4%			
d3-MeFOSAA	7.620	573.0 -> 419.0	29026	12.98	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.9%			
M2-PFOA	6.910	415.0 -> 370.0	130349	20.01	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	47206	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.536	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.609	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	967	0.21	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

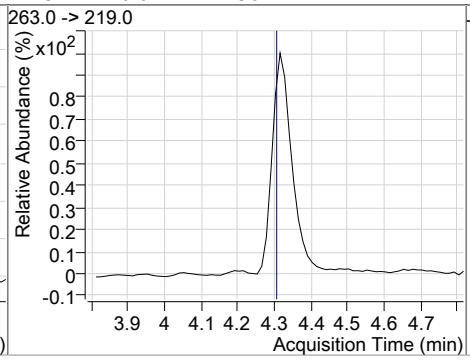
 # = Qualifier out of range, m = manually integrated, + = Area summed

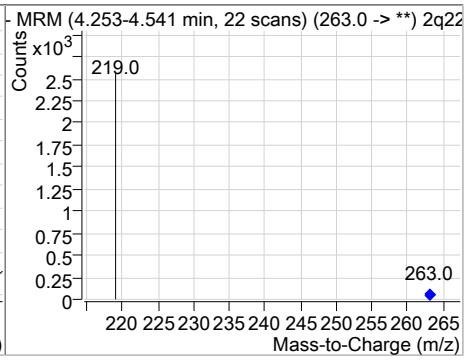
Perfluorinated Compounds by LC/MS/MS



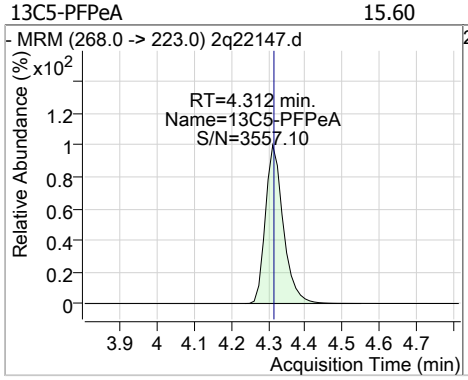
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.21	4.32	0.01	967				

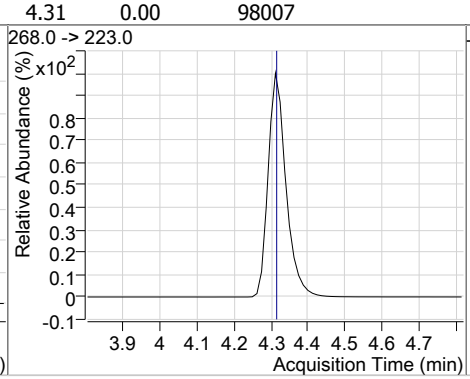


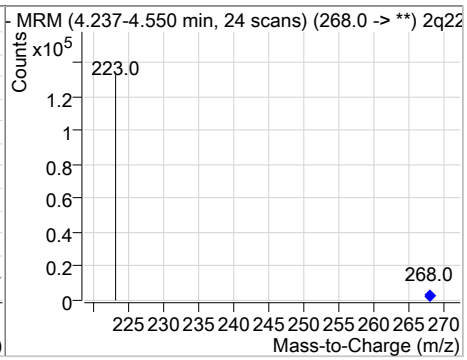




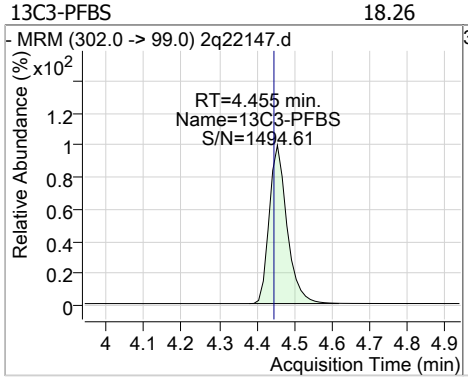
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	15.60	4.31	0.00	98007				

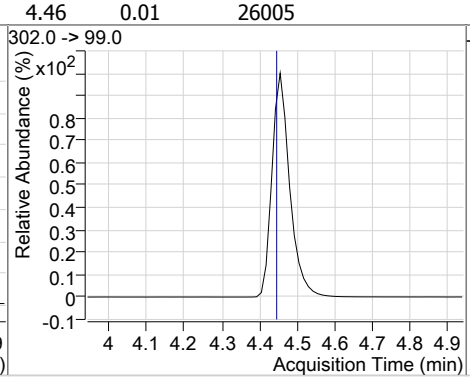


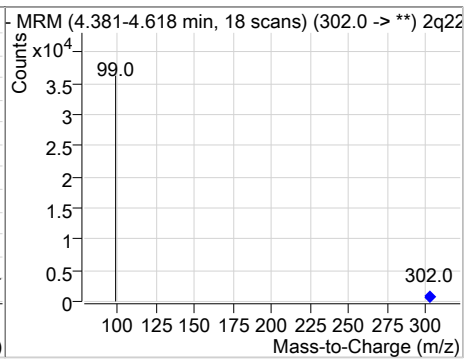




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.26	4.46	0.01	26005				

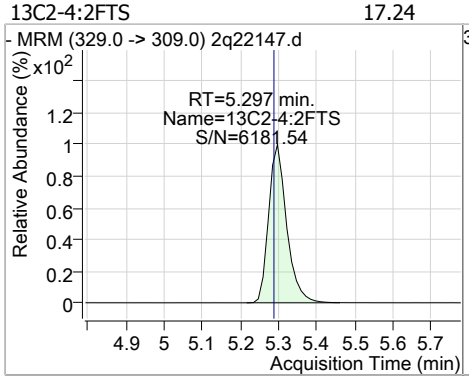


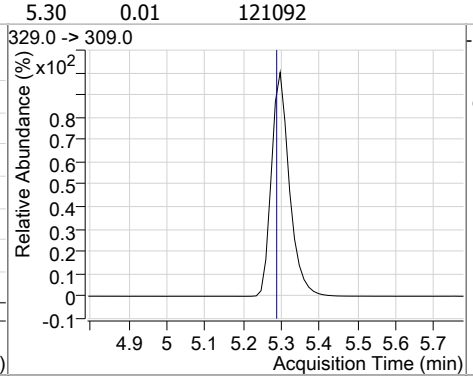


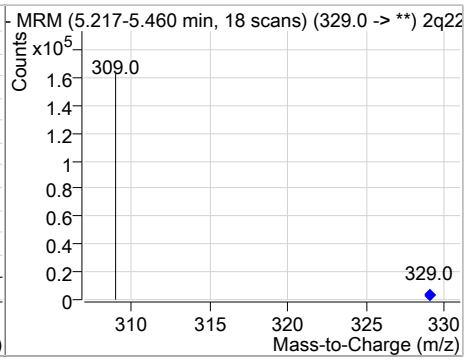


Perfluorinated Compounds by LC/MS/MS

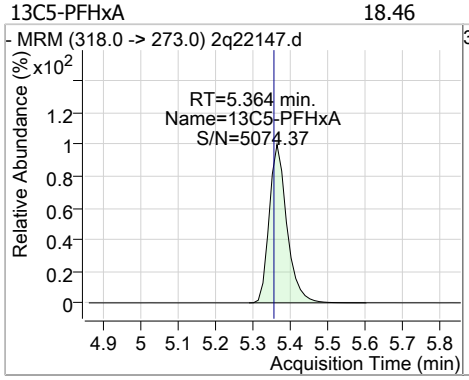
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.24	5.30	0.01	121092				

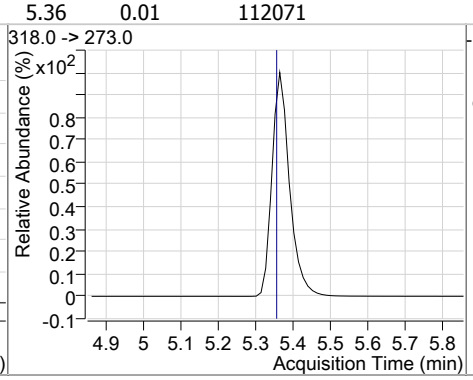


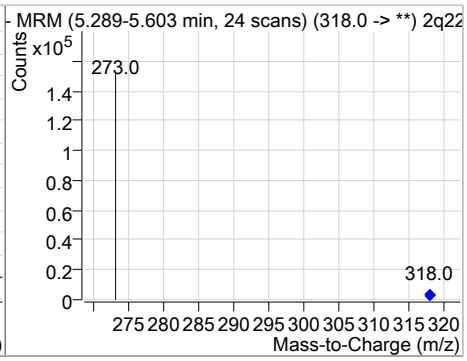




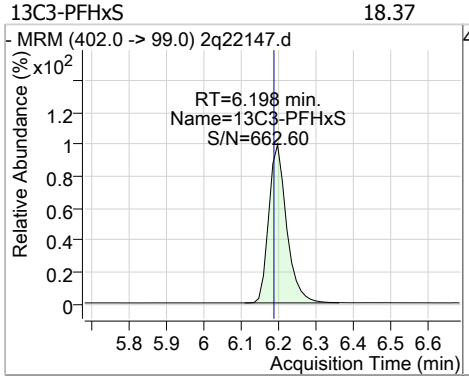
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.46	5.36	0.01	112071				

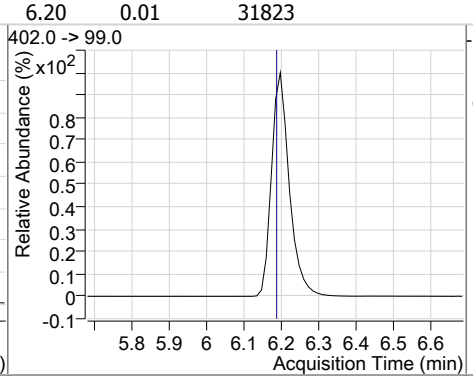


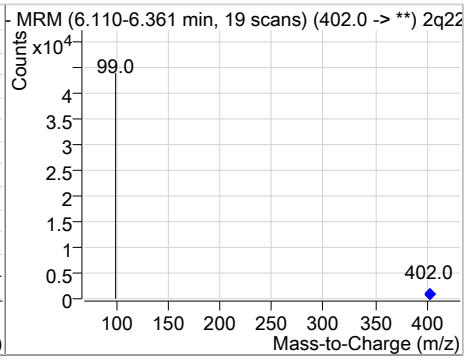




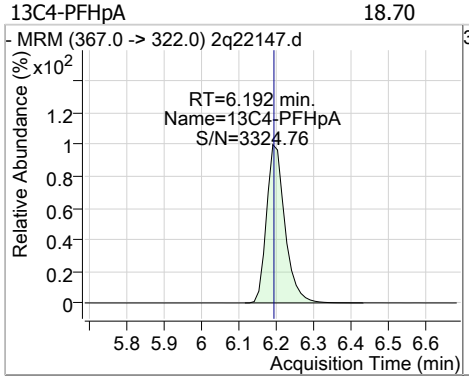
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.37	6.20	0.01	31823				

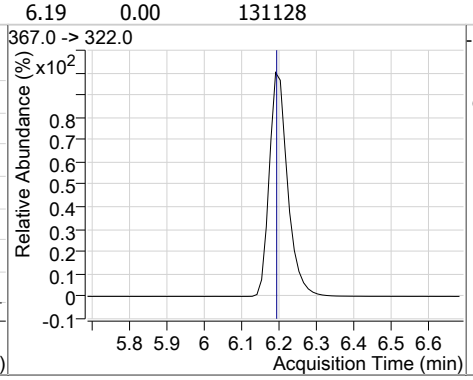


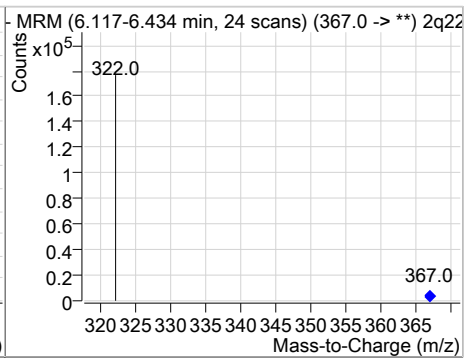




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.70	6.19	0.00	131128				

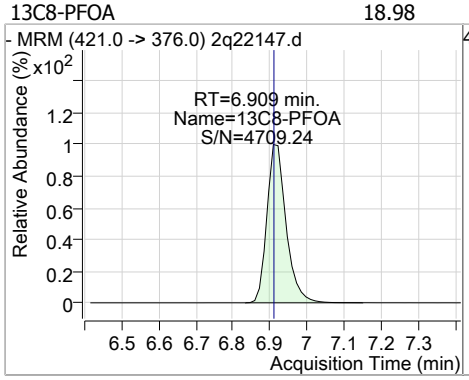


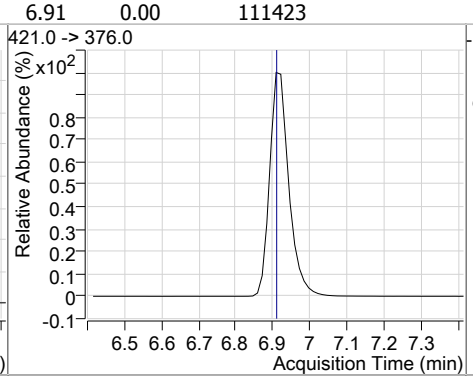


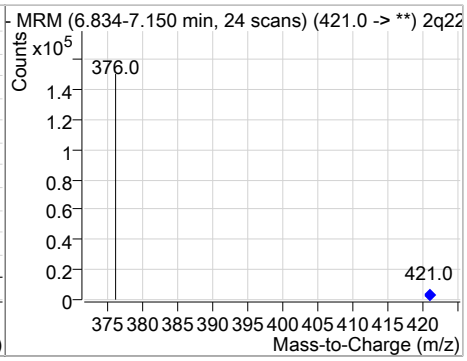


Perfluorinated Compounds by LC/MS/MS

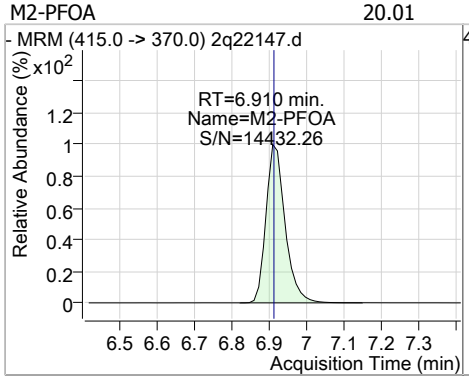
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.98	6.91	0.00	111423				

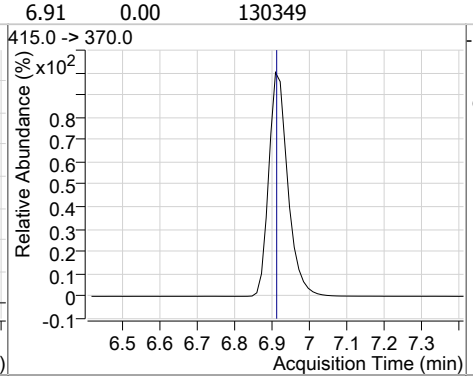


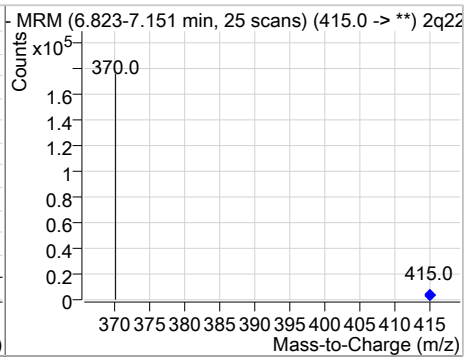




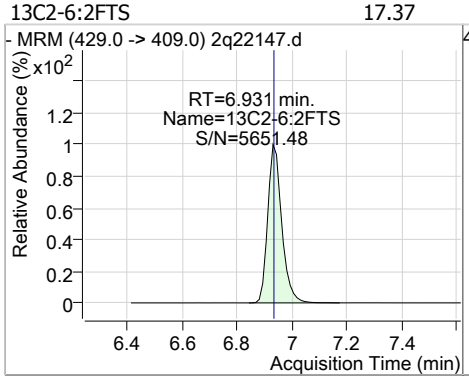
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.91	0.00	130349				

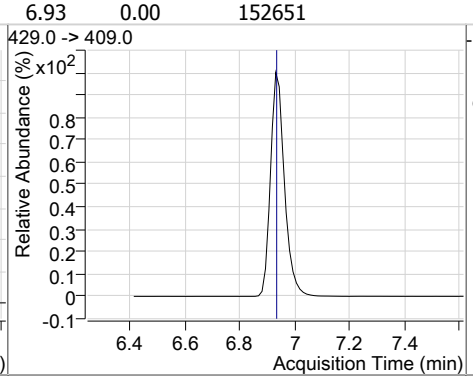


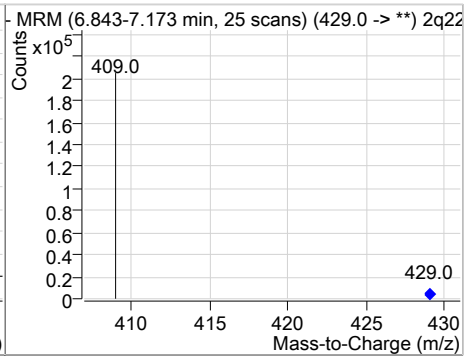




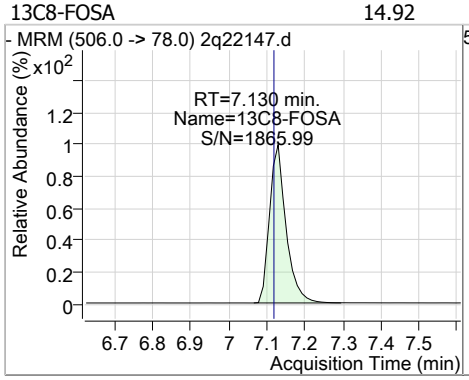
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.37	6.93	0.00	152651				

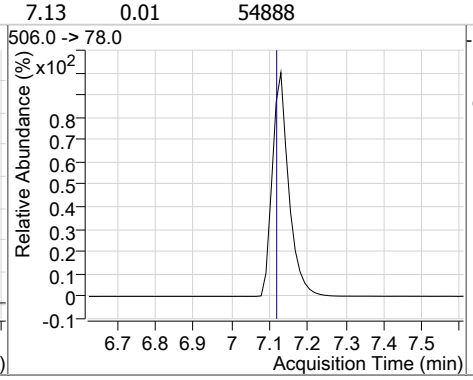


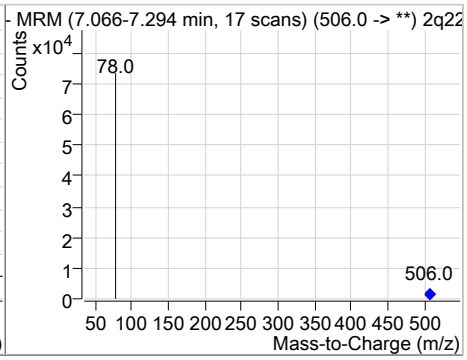




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	14.92	7.13	0.01	54888				

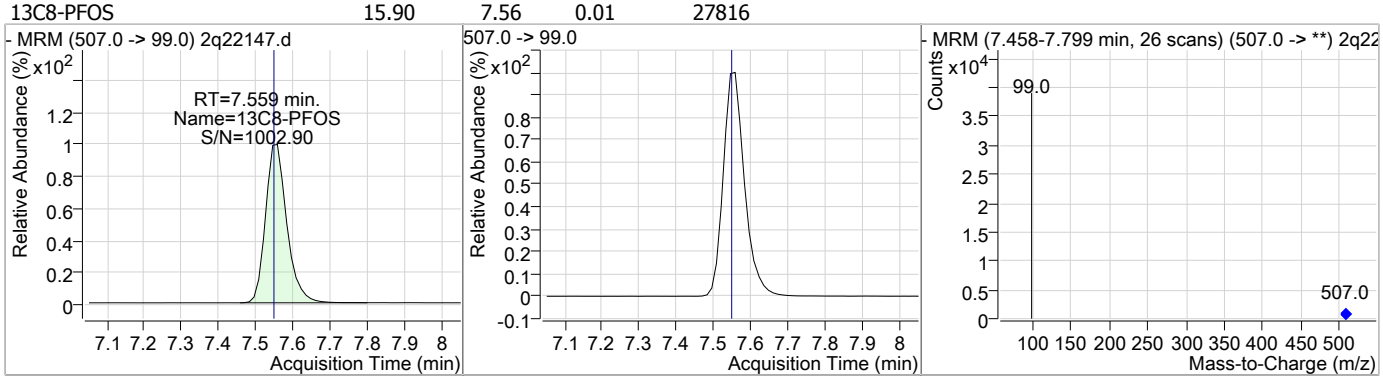




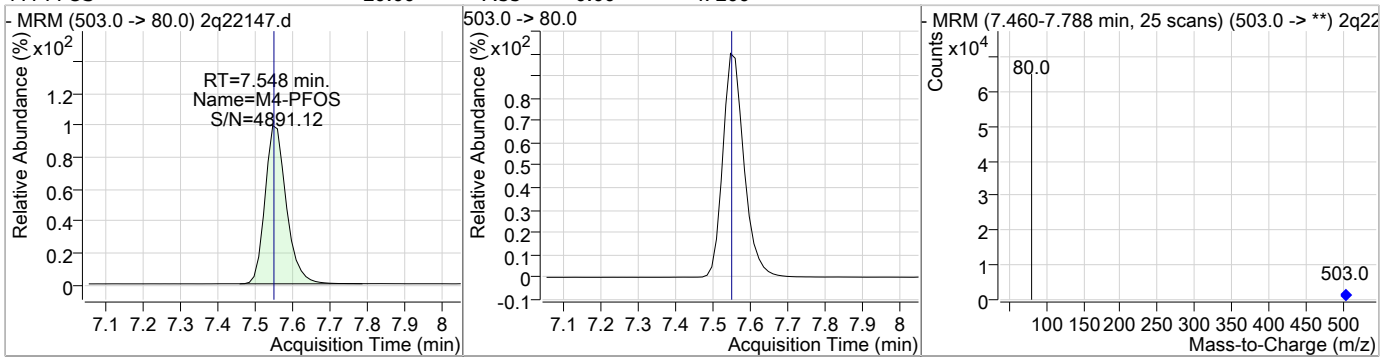


Perfluorinated Compounds by LC/MS/MS

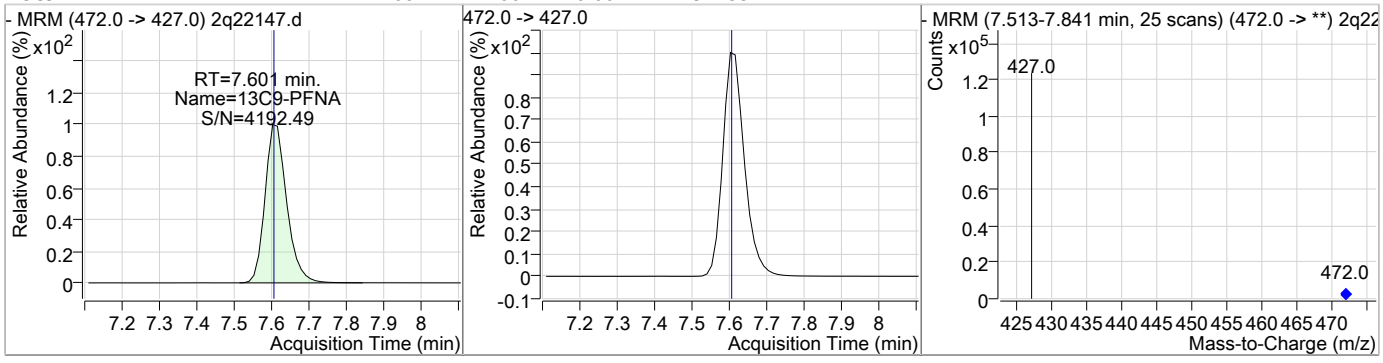
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.90	7.56	0.01	27816				



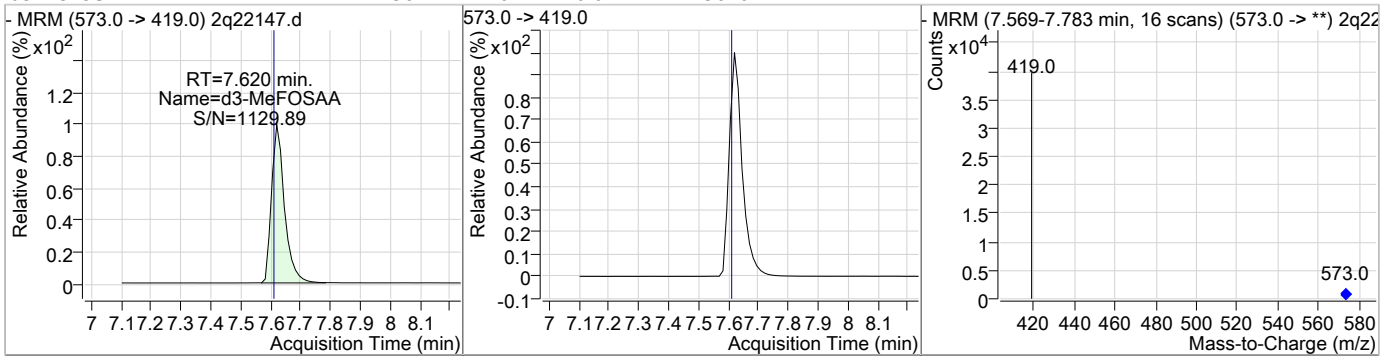
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.55	0.00	47206				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.68	7.60	0.00	92755				

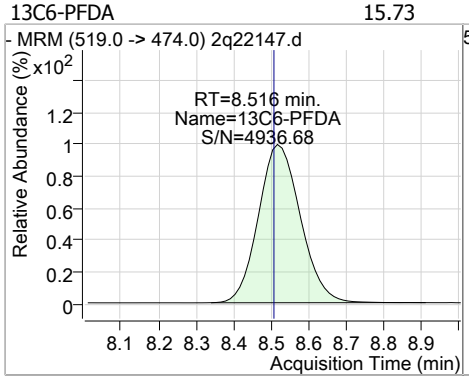


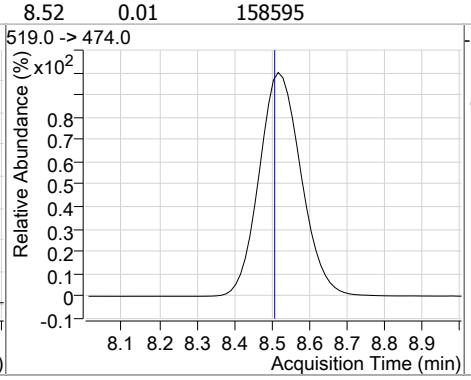
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	12.98	7.62	0.01	29026				

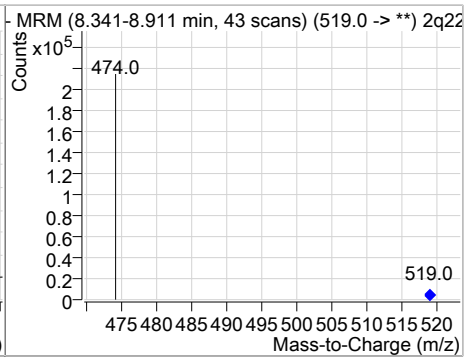


Perfluorinated Compounds by LC/MS/MS

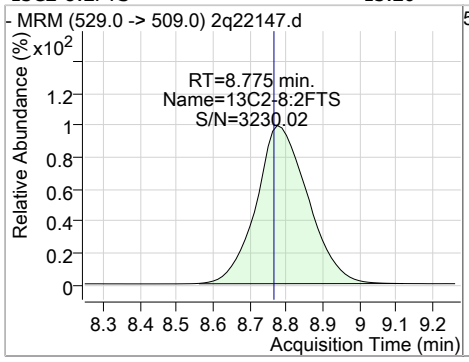
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.73	8.52	0.01	158595				

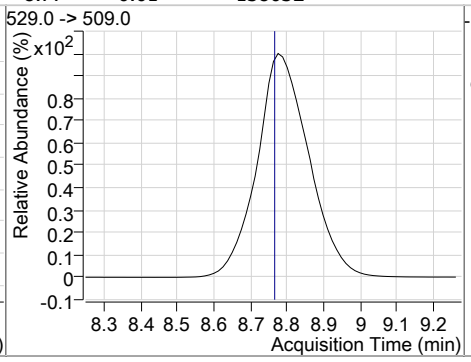


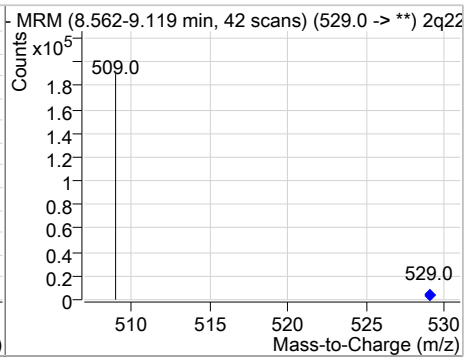




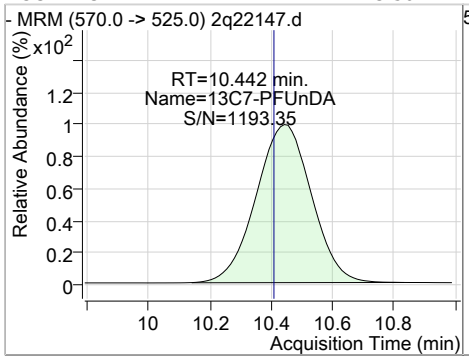
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.26	8.77	0.01	138032				

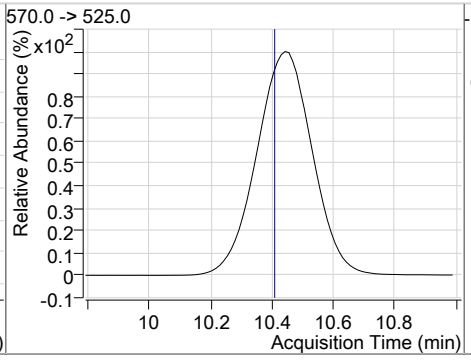


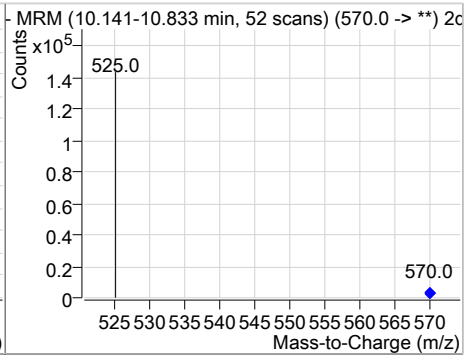




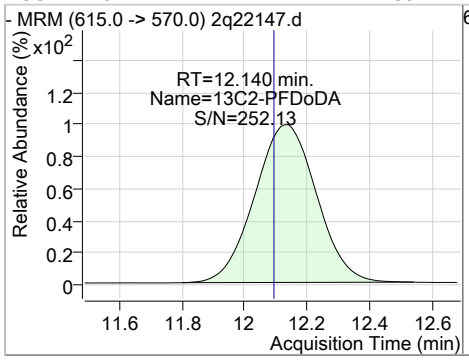
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.56	10.44	0.04	103705				

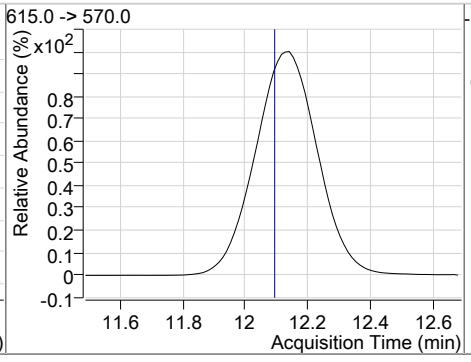


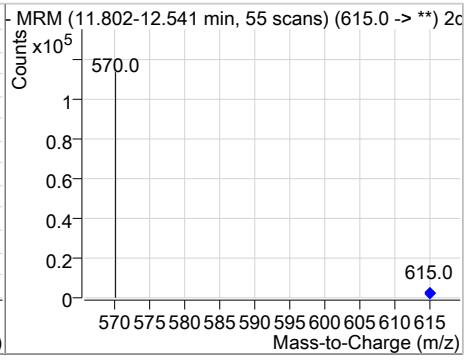




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.88	12.14	0.05	80833				

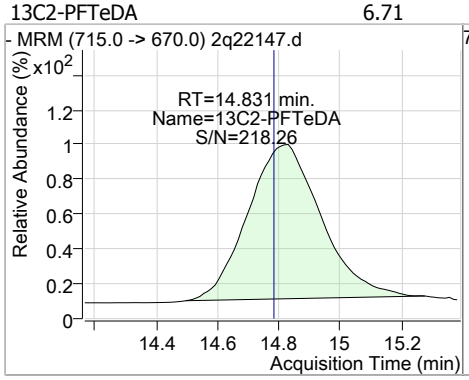


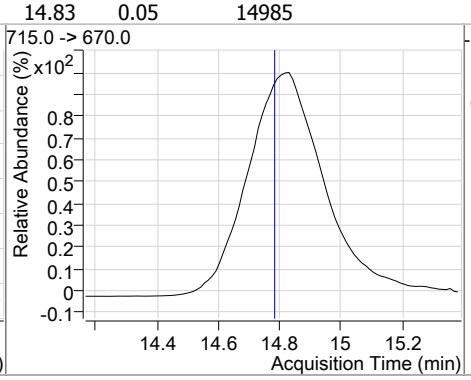


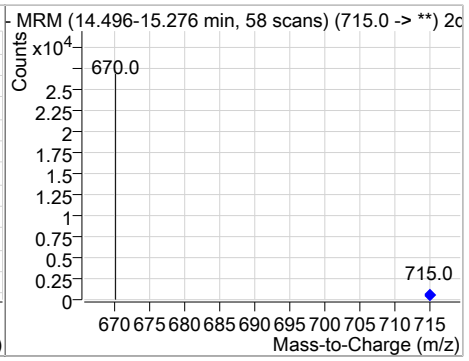


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	6.71	14.83	0.05	14985				







Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22427.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/20/2018 1:22:21 AM
Sample Name : fa57914-11
Vial : Vial 40
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

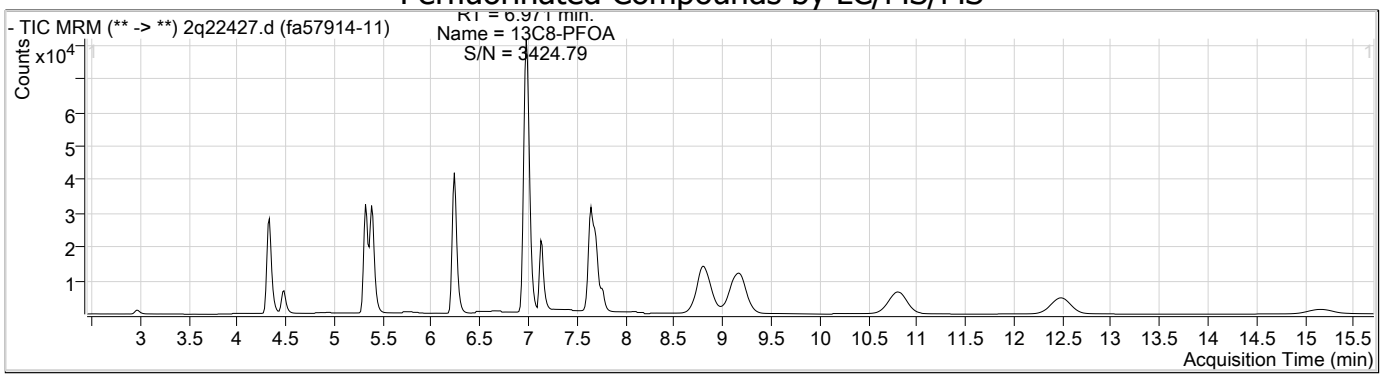
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	115041	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	46984	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	4270	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	95392	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	97177	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	111574	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	85878	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	77048	20.00	µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	143100	20.00	µg/L	0.025
M7-PFUnDA	10.805	570.0 -> 525.0	86702	20.00	µg/L	0.025
M2-PFDoDA	12.490	615.0 -> 570.0	69375	20.00	µg/L	0.038
M2-PFTeDA	15.156	715.0 -> 670.0	25075	20.00	µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	63813	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	22460	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	28581	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	25496	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	106624	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	138918	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	142518	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	33376	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	106613	16.19	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.0%		
13C2-6:2FTS	6.993	429.0 -> 409.0	138923	15.73	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.7%		
13C2-8:2FTS	9.160	529.0 -> 509.0	141563	13.47	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.4%		
13C2-PFDoDA	12.490	615.0 -> 570.0	68900	12.46	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 62.3%		
13C2-PFTeDA	15.156	715.0 -> 670.0	22887	11.79	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 59.0%		
13C3-PFBS	4.481	302.0 -> 99.0	22452	16.05	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.3%		
13C3-PFHxS	6.235	402.0 -> 99.0	28609	16.07	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.3%		
13C4-PFBA	2.966	217.0 -> 172.0	4265	0.32	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 1.6%		
13C4-PFHpA	6.242	367.0 -> 322.0	111572	17.34	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.7%		
13C5-PFHxA	5.390	318.0 -> 273.0	97140	17.65	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.2%		
13C5-PFPeA	4.337	268.0 -> 223.0	95370	16.68	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.4%		
13C6-PFDA	8.804	519.0 -> 474.0	142713	15.34	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.7%		

Perfluorinated Compounds by LC/MS/MS

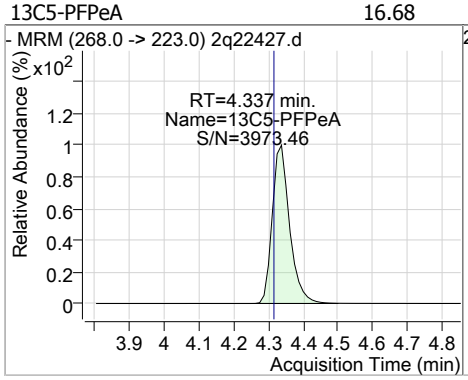
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.805	570.0 -> 525.0	86421	12.62	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 63.1%			
13C8-FOSA	7.129	506.0 -> 78.0	63852	16.45	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.3%			
13C8-PFOA	6.971	421.0 -> 376.0	85887	15.98	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.9%			
13C8-PFOS	7.634	507.0 -> 99.0	25492	14.05	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.2%			
13C9-PFNA	7.702	472.0 -> 427.0	77008	15.66	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.3%			
d3-MeFOSAA	7.645	573.0 -> 419.0	33384	14.35	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.8%			
M2-PFOA	6.973	415.0 -> 370.0	114993	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	47014	20.02	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.472	299.0 -> 80.0	220	0.14	µg/L		95
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.232	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.393	313.0 -> 269.0	737	0.47	µg/L		97
PFHxS	6.238	399.0 -> 80.0	0	0.00	µg/L	m	1
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	332	0.15	µg/L	m	91
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.328	263.0 -> 219.0	1997	0.45	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

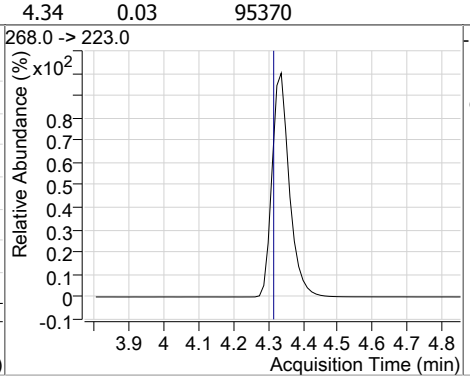
 # = Qualifier out of range, m = manually integrated, + = Area summed

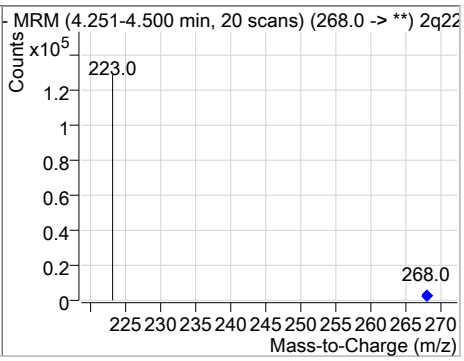
Perfluorinated Compounds by LC/MS/MS



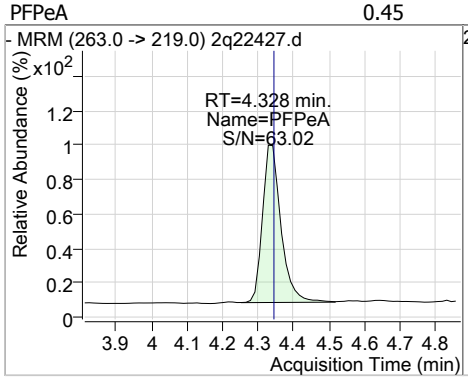
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.68	4.34	0.03	95370				

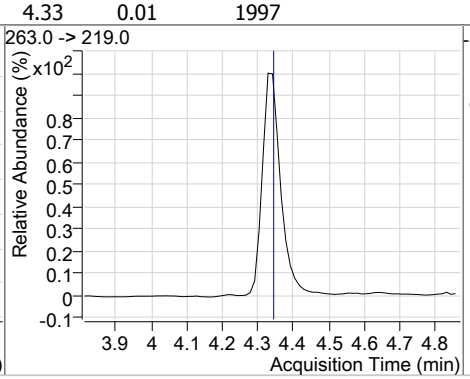


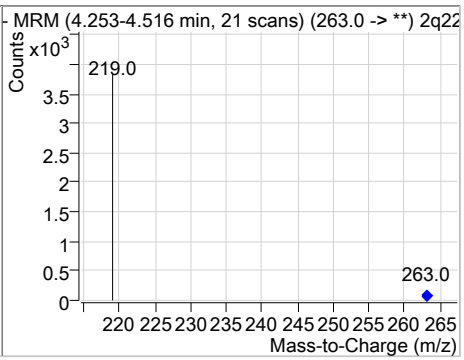




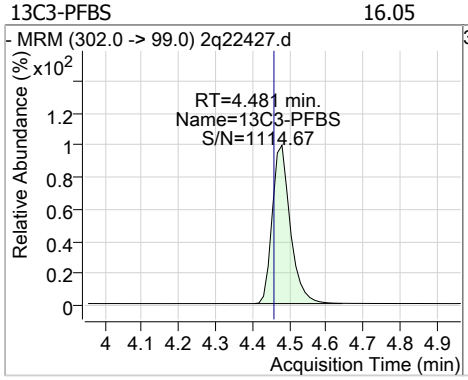
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.45	4.33	0.01	1997				

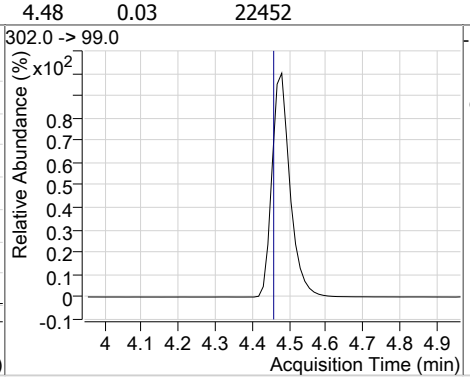


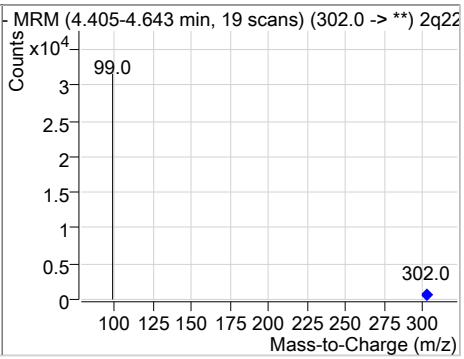




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	16.05	4.48	0.03	22452				

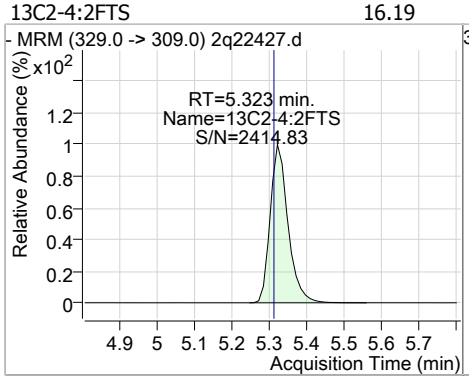


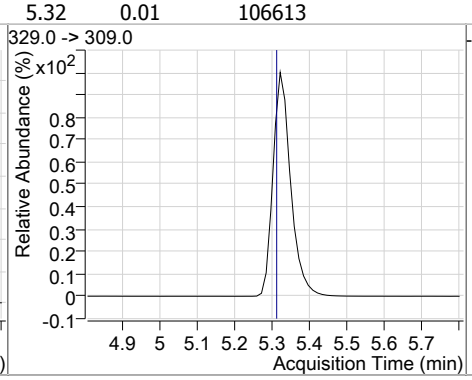


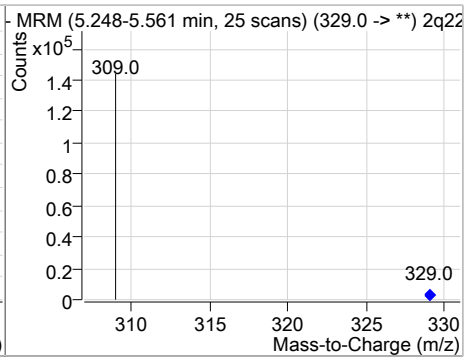


Perfluorinated Compounds by LC/MS/MS

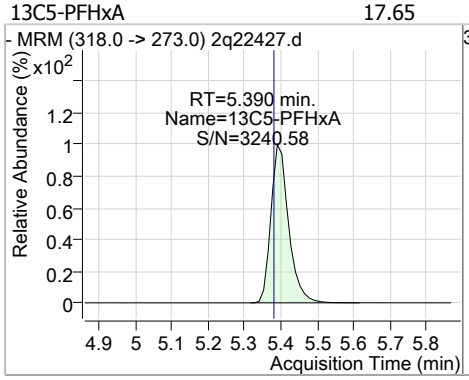
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.19	5.32	0.01	106613				

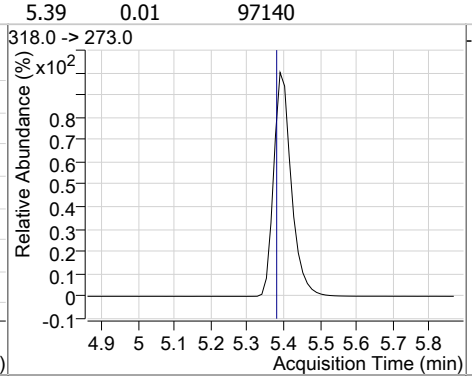


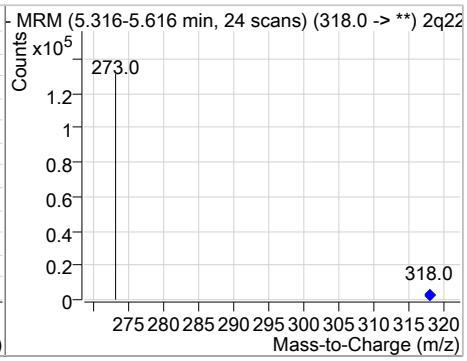




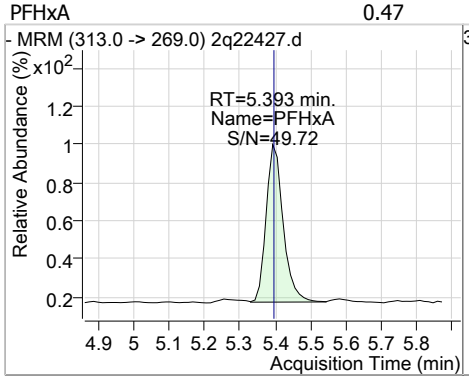
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.65	5.39	0.01	97140				

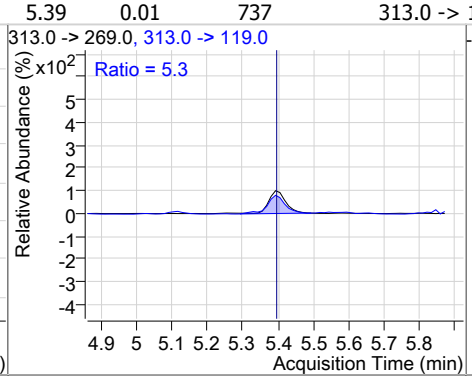


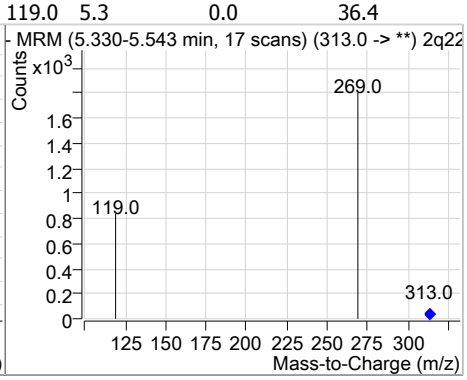




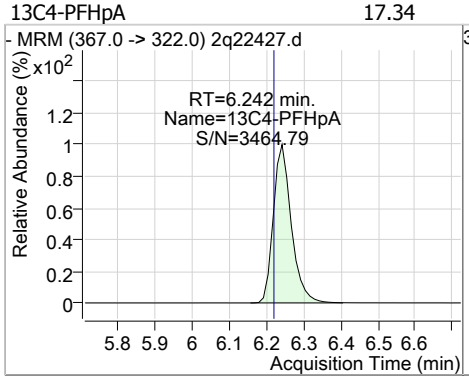
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.47	5.39	0.01	737	313.0 -> 119.0	5.3	0.0	36.4

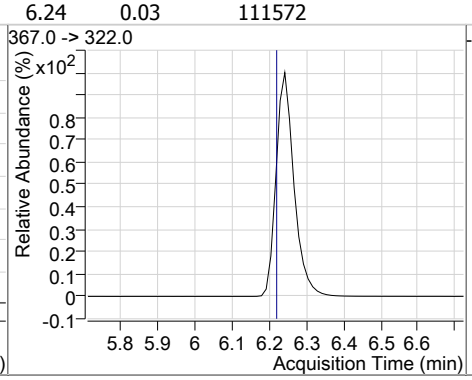


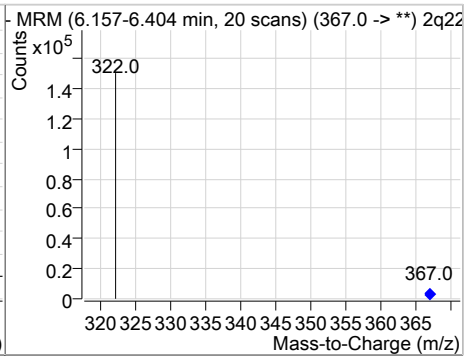




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.34	6.24	0.03	111572				

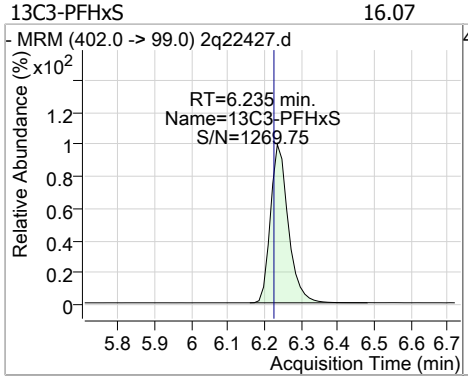


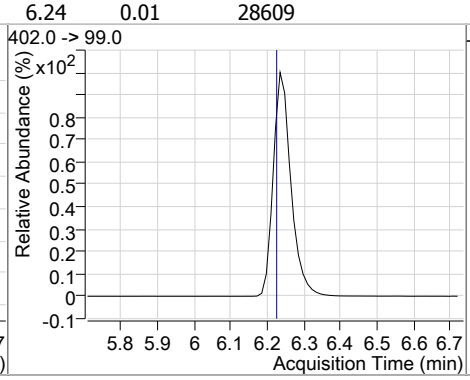


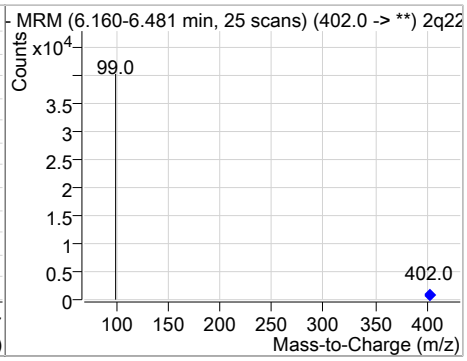


Perfluorinated Compounds by LC/MS/MS

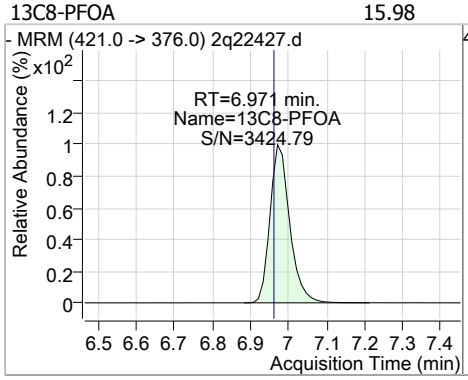
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.07	6.24	0.01	28609				

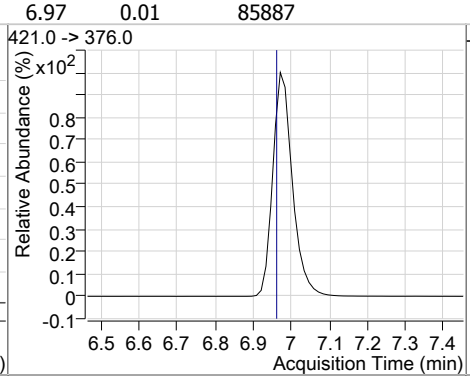


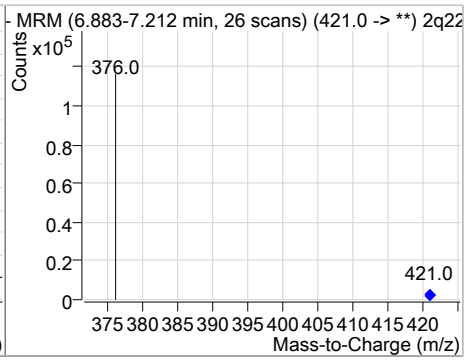




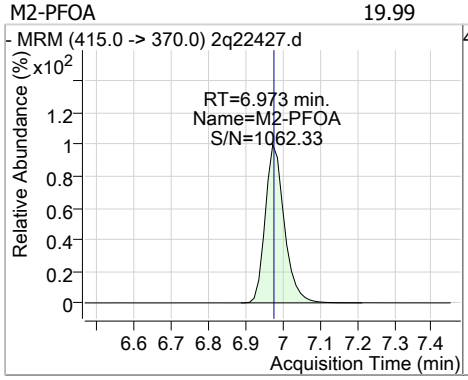
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.98	6.97	0.01	85887				

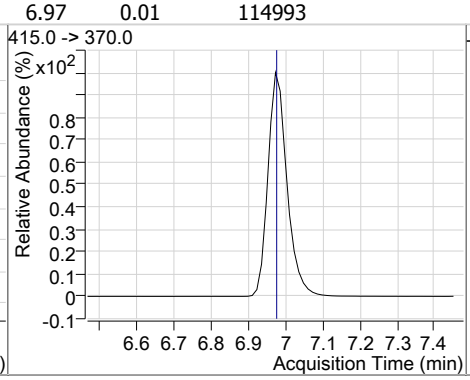


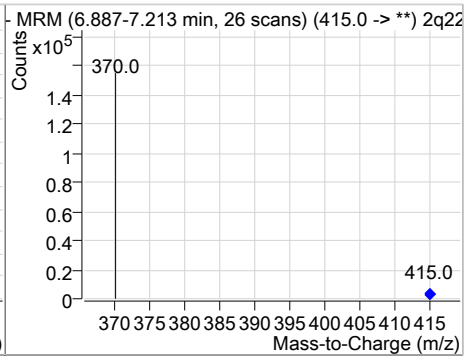




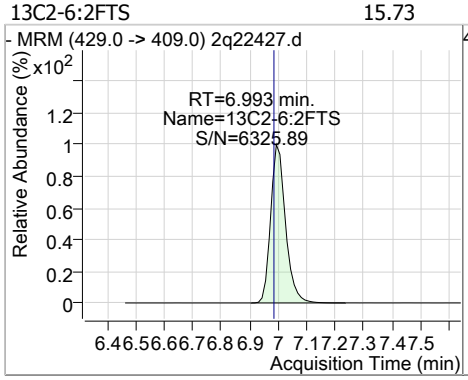
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	114993				

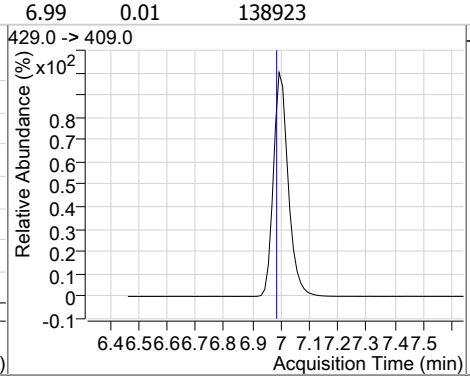


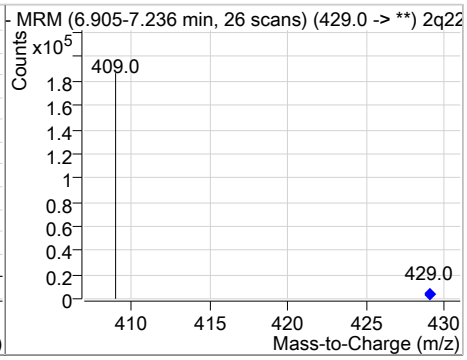




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.73	6.99	0.01	138923				

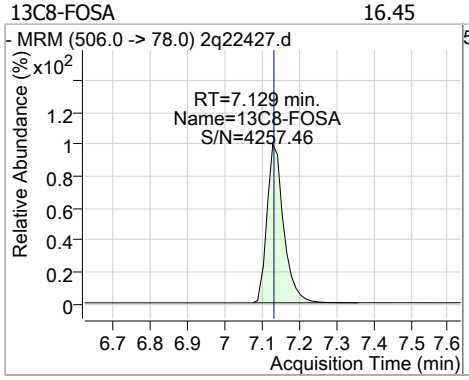


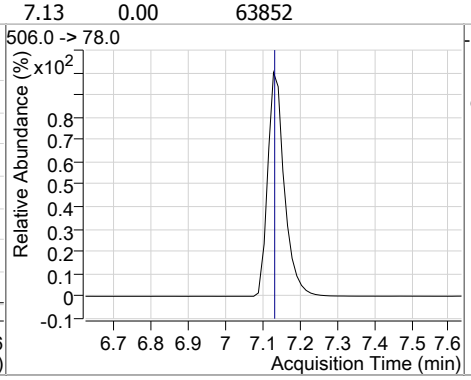


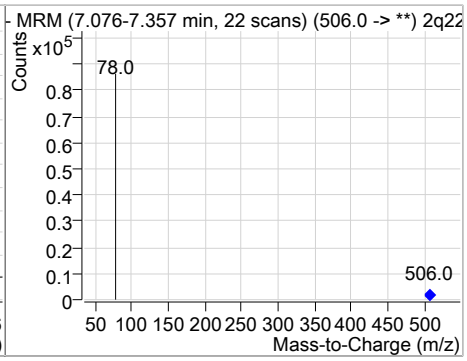


Perfluorinated Compounds by LC/MS/MS

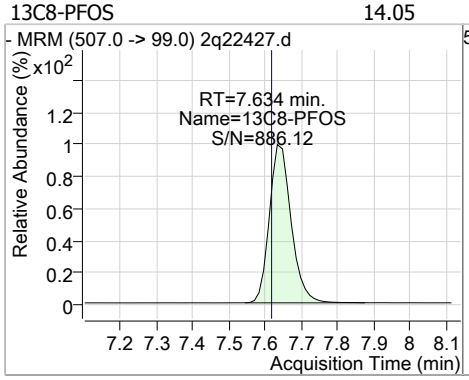
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	16.45	7.13	0.00	63852				

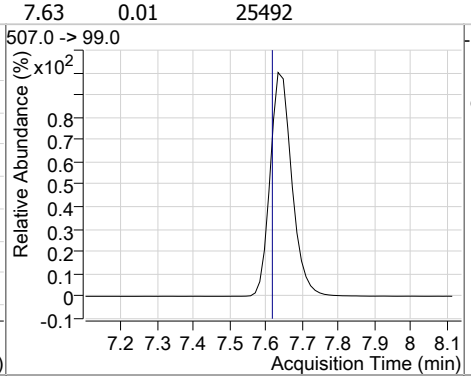


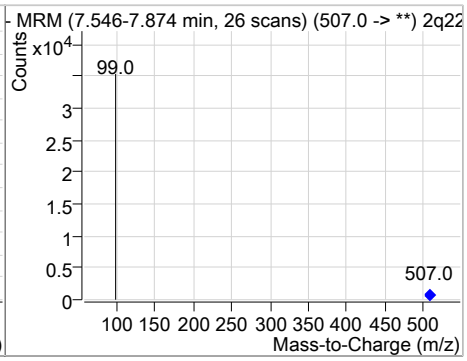




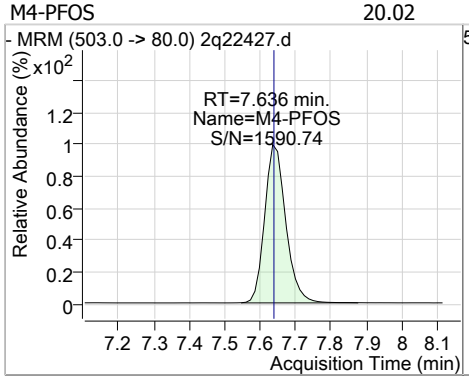
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	14.05	7.63	0.01	25492				

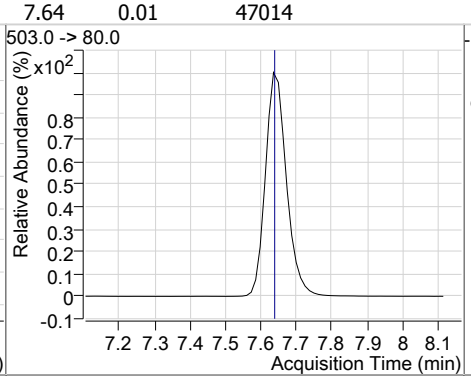


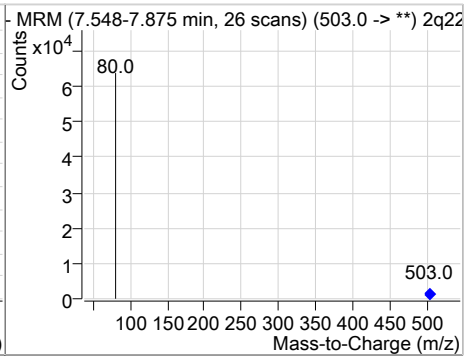




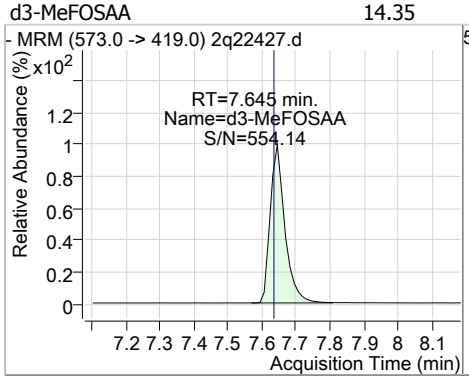
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.64	0.01	47014				

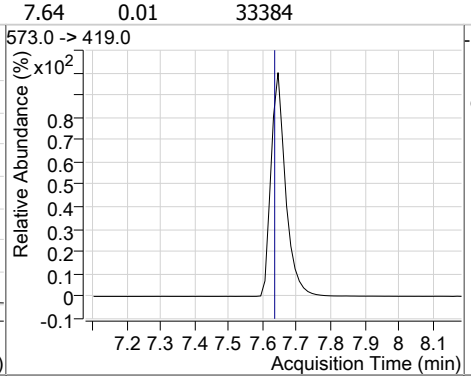


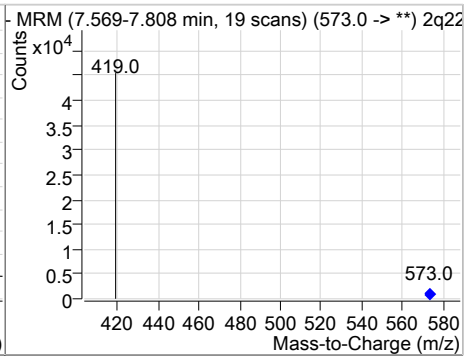




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.35	7.64	0.01	33384				

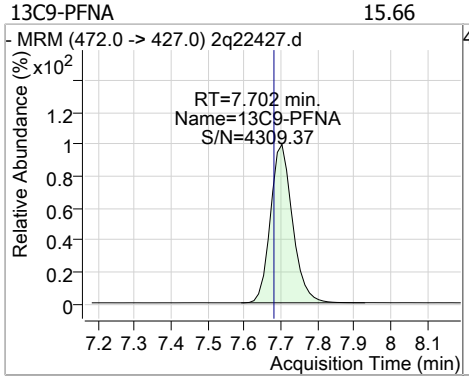


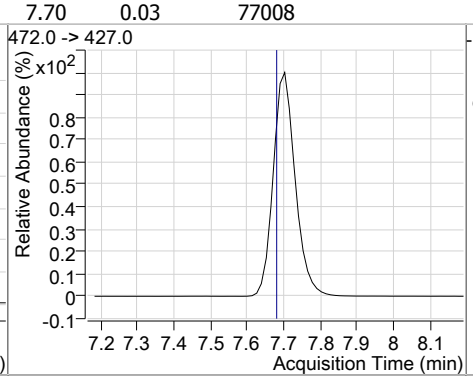


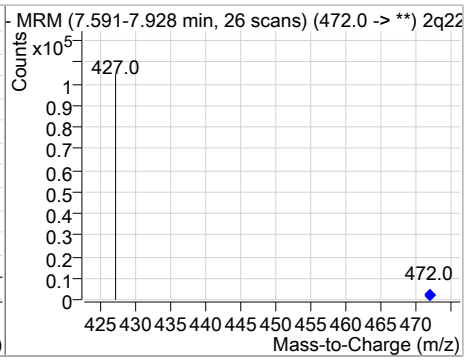


Perfluorinated Compounds by LC/MS/MS

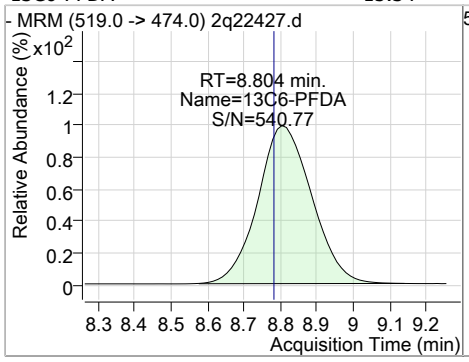
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.66	7.70	0.03	77008				

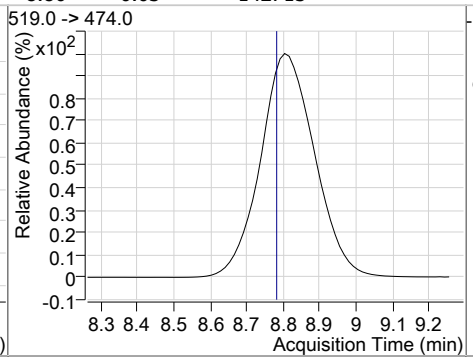


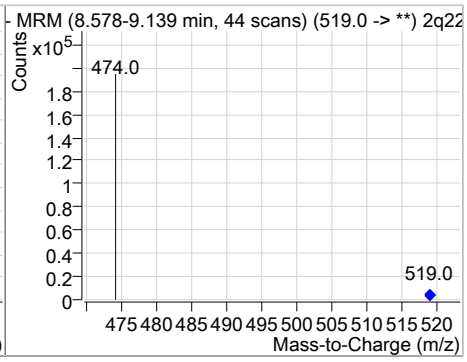




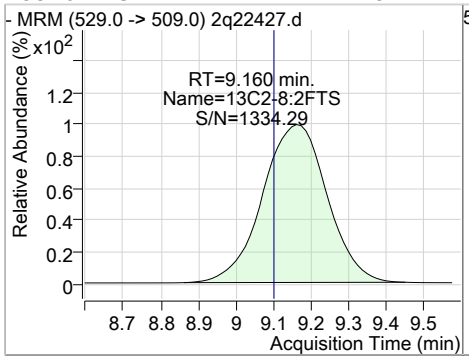
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.34	8.80	0.03	142713				

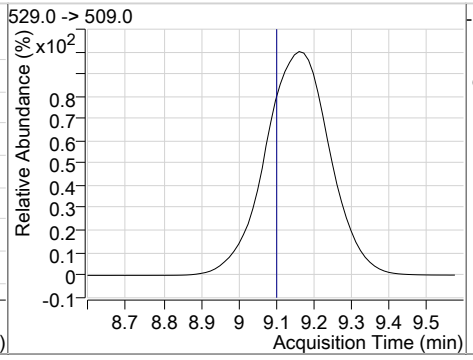


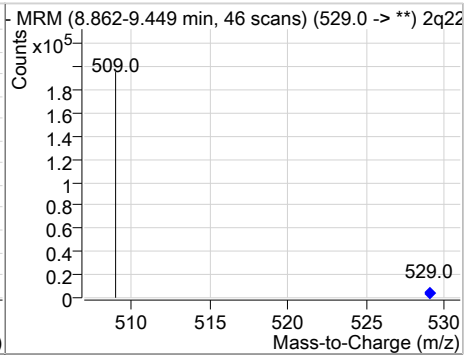




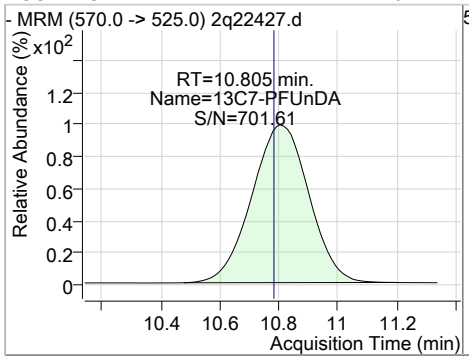
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.47	9.16	0.06	141563				

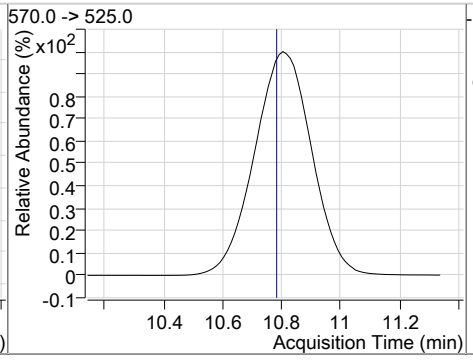


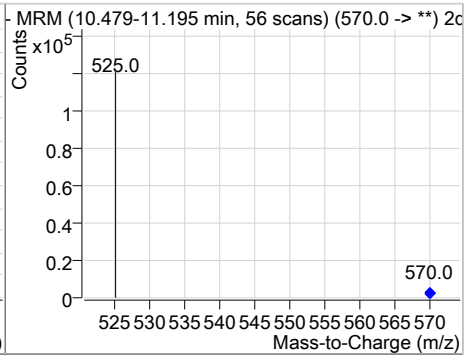




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	12.62	10.80	0.03	86421				

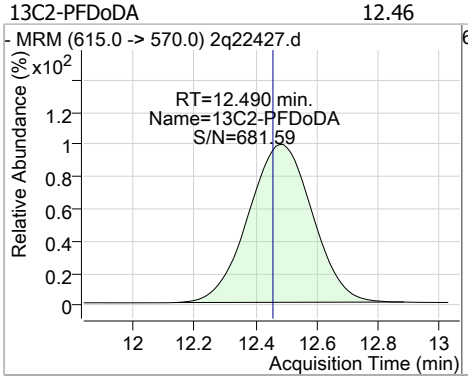


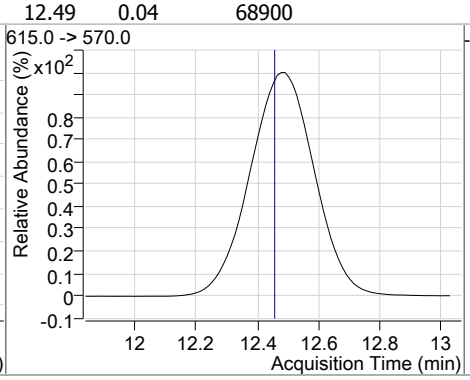


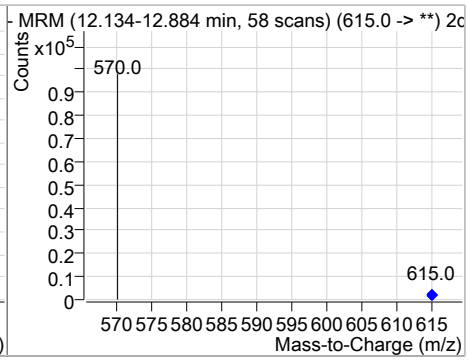


Perfluorinated Compounds by LC/MS/MS

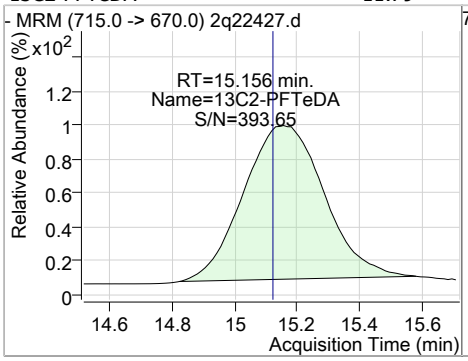
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.46	12.49	0.04	68900				

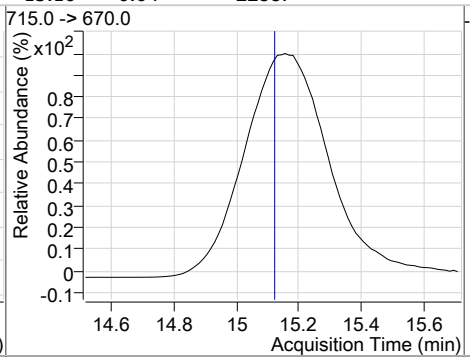


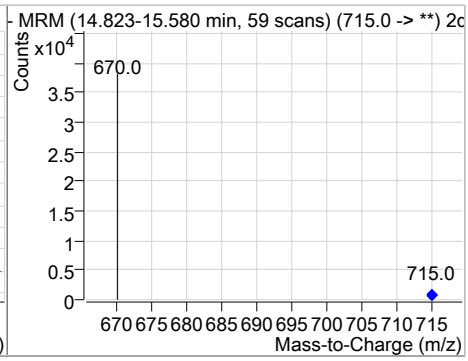




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.79	15.16	0.04	22887				







Manual Integration Approval Summary

Sample Number: FA57914-11
Lab FileID: 2Q22427.D
Injection Time: 10/20/18 01:22
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 16:10

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22148.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 8:52:21 PM
Sample Name : fa57914-11
Vial : Vial 25
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

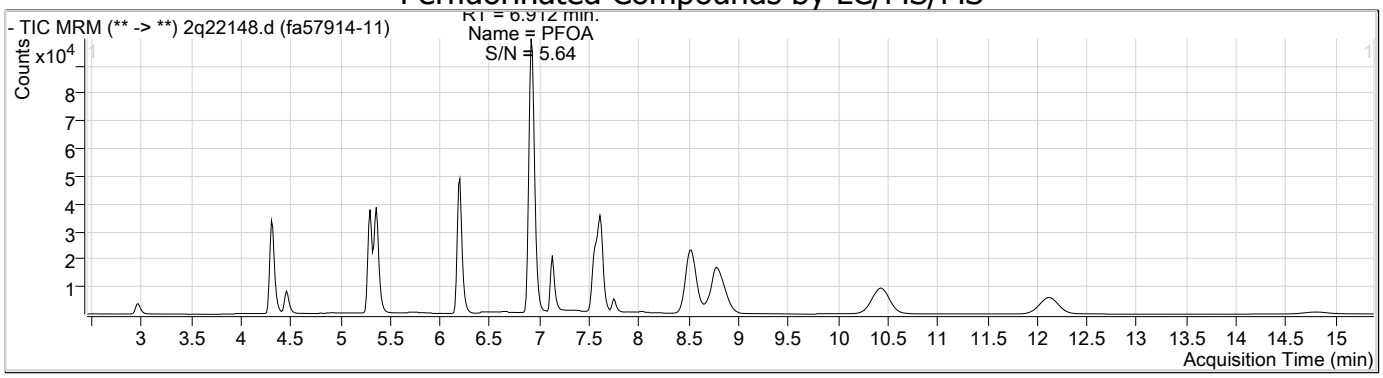
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.923	415.0 -> 370.0	133364	20.00 µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	48771	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	13883	20.00 µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	112606	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	115545	20.00 µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	133621	20.00 µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	112211	20.00 µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	97426	20.00 µg/L	0.013
M6-PFDA	8.529	519.0 -> 474.0	177571	20.00 µg/L	0.025
M7-PFUnDA	10.429	570.0 -> 525.0	116500	20.00 µg/L	0.025
M2-PFDoDA	12.115	615.0 -> 570.0	81370	20.00 µg/L	0.025
M2-PFTeDA	14.806	715.0 -> 670.0	11221	20.00 µg/L	0.025
M8-FOSA	7.130	506.0 -> 78.0	58821	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	26139	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	32574	20.00 µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	30482	20.00 µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	122475	20.00 µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	155110	20.00 µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	163098	20.00 µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	33011	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	122458	17.43 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
13C2-6:2FTS	6.931	429.0 -> 409.0	155103	17.65 µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.3%	
13C2-8:2FTS	8.775	529.0 -> 509.0	162602	15.62 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.1%	
13C2-PFDoDA	12.115	615.0 -> 570.0	80446	12.82 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.1%	
13C2-PFTeDA	14.806	715.0 -> 670.0	11140	4.99 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 24.9%	
13C3-PFBS	4.455	302.0 -> 99.0	26139	18.35 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
13C3-PFHxS	6.198	402.0 -> 99.0	32575	18.80 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.0%	
13C4-PFBA	2.966	217.0 -> 172.0	13877	0.96 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 4.8%	
13C4-PFHpA	6.204	367.0 -> 322.0	133626	19.05 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.3%	
13C5-PFHxA	5.364	318.0 -> 273.0	115488	19.02 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C5-PFPeA	4.312	268.0 -> 223.0	112569	17.92 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C6-PFDA	8.529	519.0 -> 474.0	177371	17.59 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.0%	

Perfluorinated Compounds by LC/MS/MS

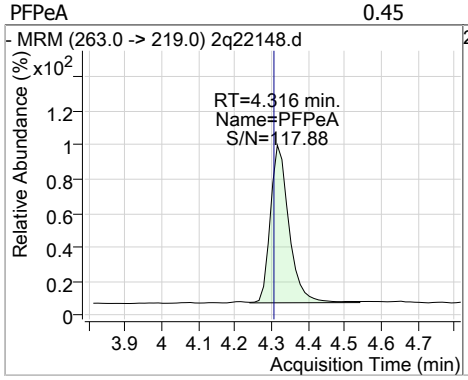
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	116163	15.19	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.9%			
13C8-FOSA	7.130	506.0 -> 78.0	58845	15.99	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.0%			
13C8-PFOA	6.921	421.0 -> 376.0	112224	19.12	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.6%			
13C8-PFOS	7.559	507.0 -> 99.0	30484	17.43	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.1%			
13C9-PFNA	7.614	472.0 -> 427.0	97359	18.56	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.8%			
d3-MeFOSAA	7.620	573.0 -> 419.0	33060	14.78	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.9%			
M2-PFOA	6.923	415.0 -> 370.0	133379	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	48800	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.459	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	849	0.46	µg/L		99
PFHxS	6.201	399.0 -> 80.0	0	0.00	µg/L	m	1
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	376	0.14	µg/L	m	75
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	2334	0.45	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.409	563.0 -> 519.0	0	0.00	µg/L	m	1

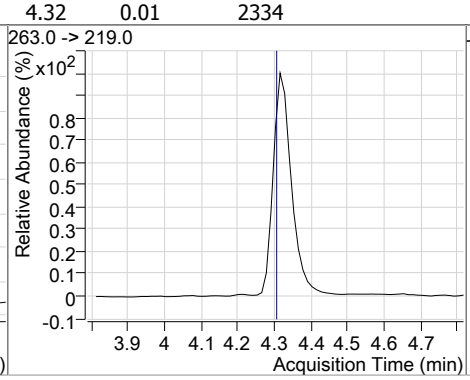
 # = Qualifier out of range, m = manually integrated, + = Area summed

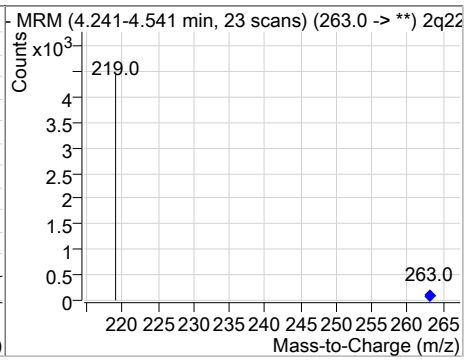
Perfluorinated Compounds by LC/MS/MS



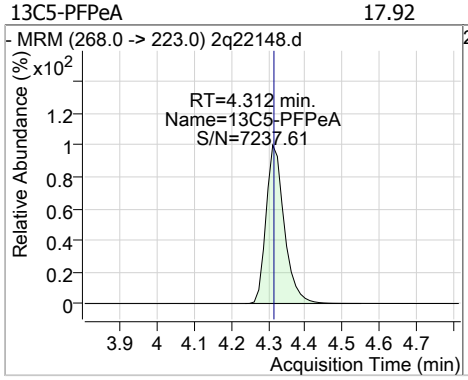
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.45	4.32	0.01	2334				

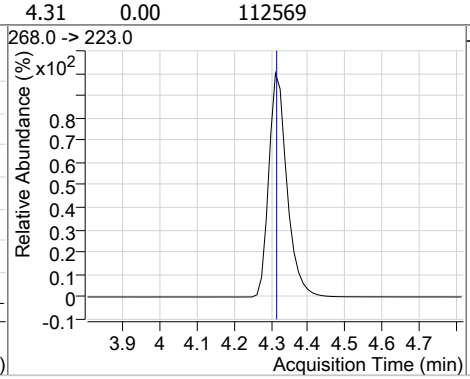


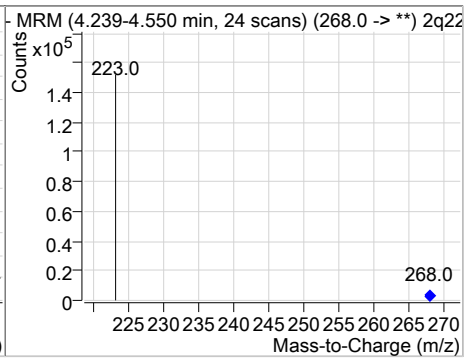




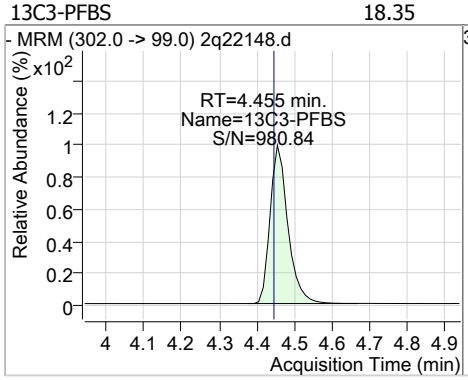
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.92	4.31	0.00	112569				

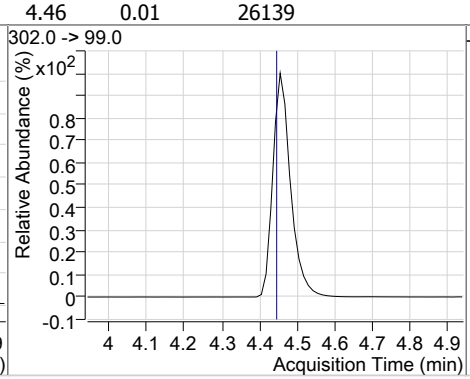


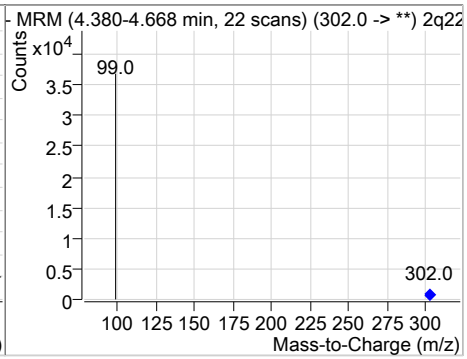




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.35	4.46	0.01	26139				

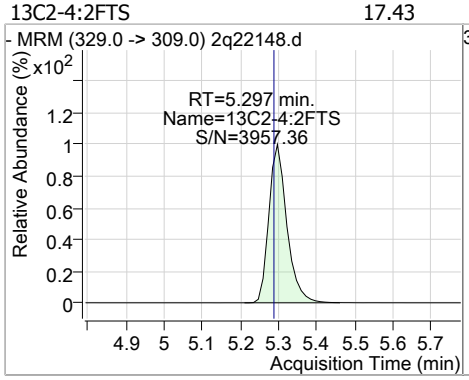


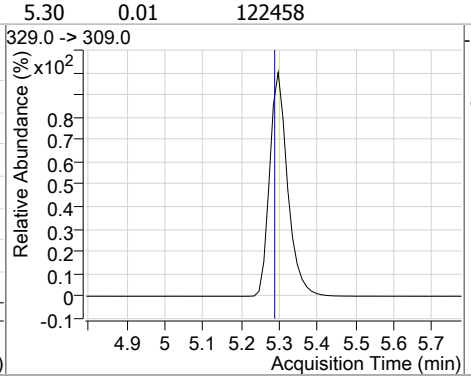


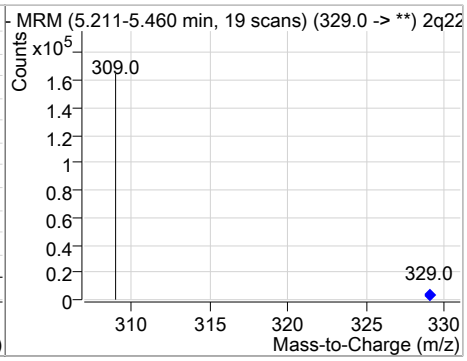


Perfluorinated Compounds by LC/MS/MS

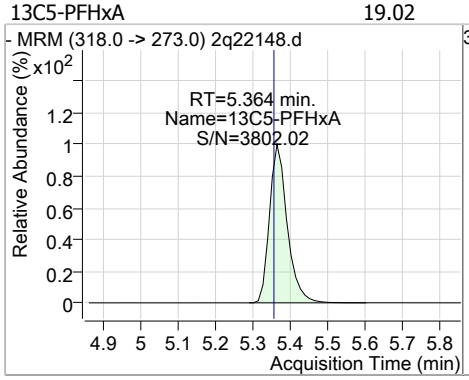
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.43	5.30	0.01	122458				

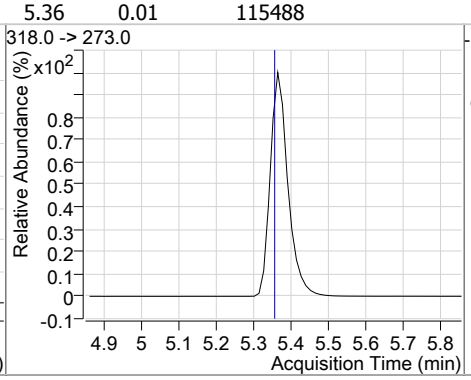


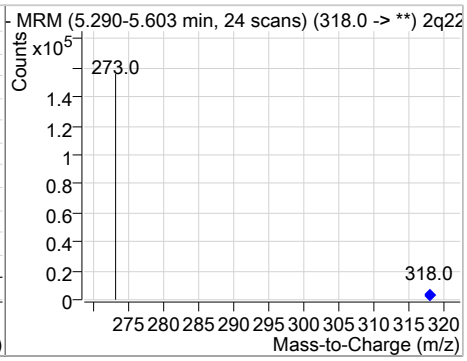




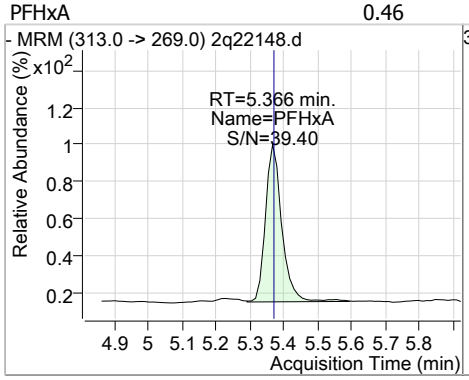
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.02	5.36	0.01	115488				

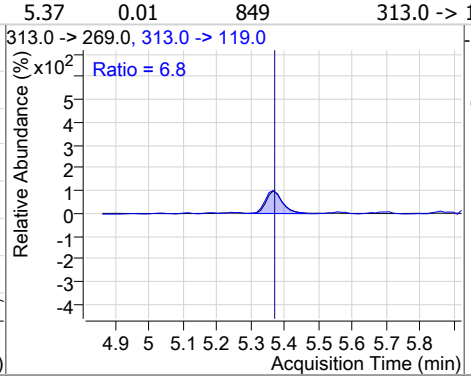


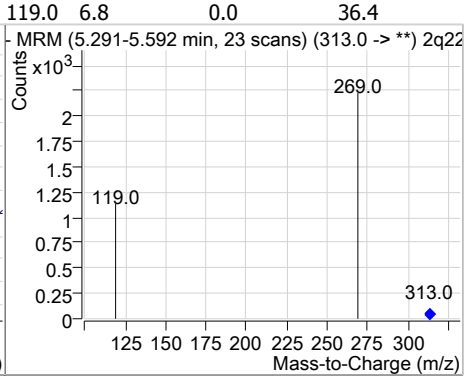




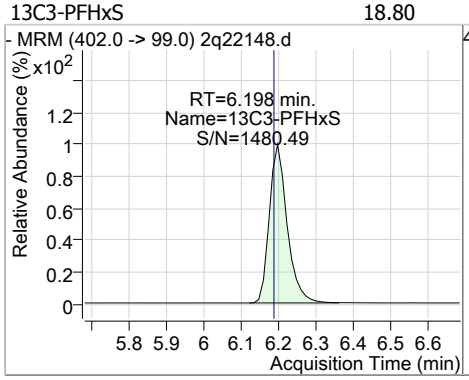
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.46	5.37	0.01	849	313.0 -> 119.0	6.8	0.0	36.4

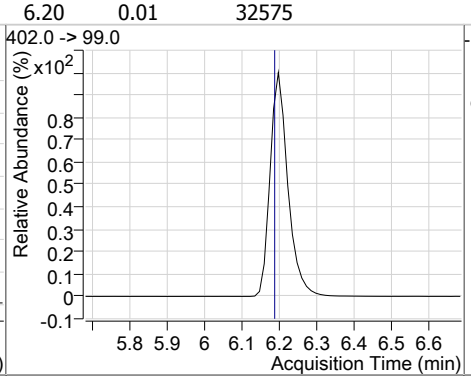


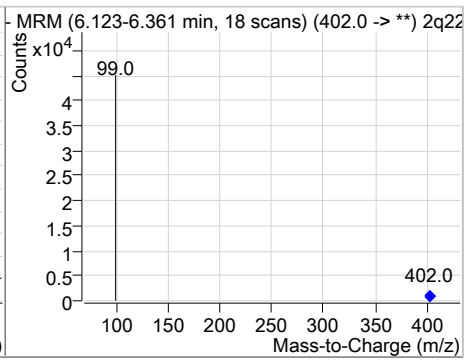




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.80	6.20	0.01	32575				

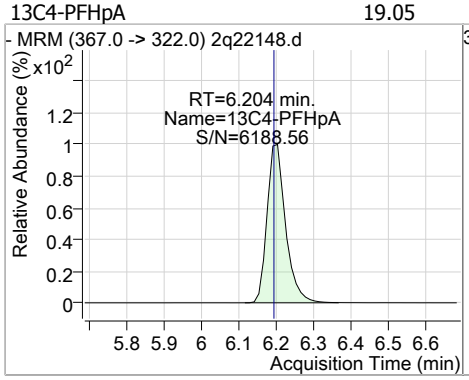


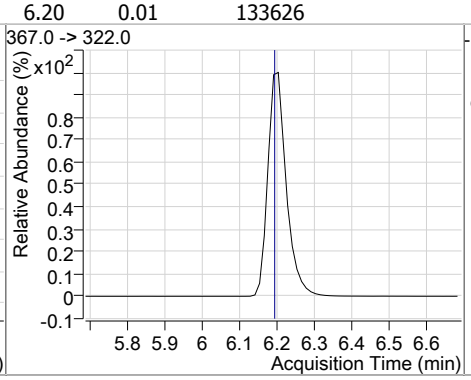


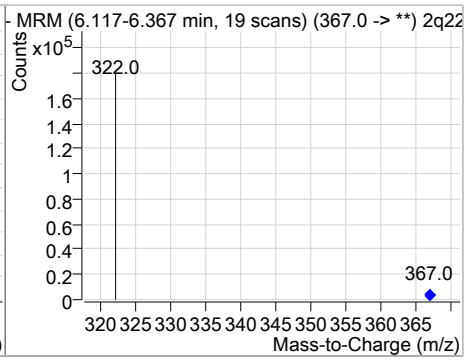


Perfluorinated Compounds by LC/MS/MS

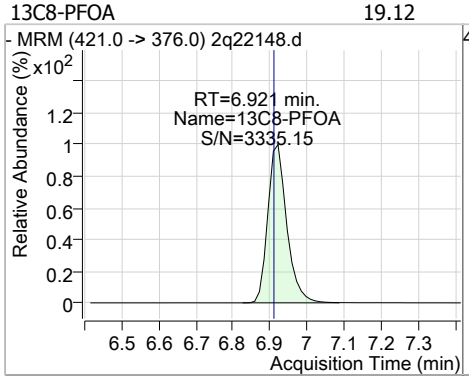
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.05	6.20	0.01	133626				

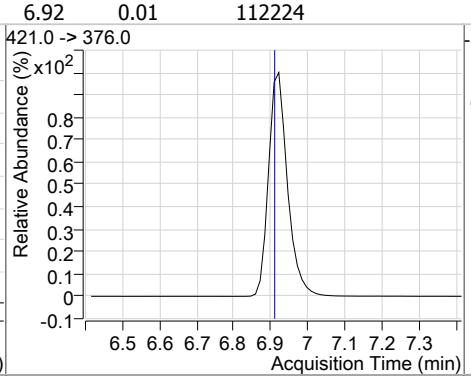


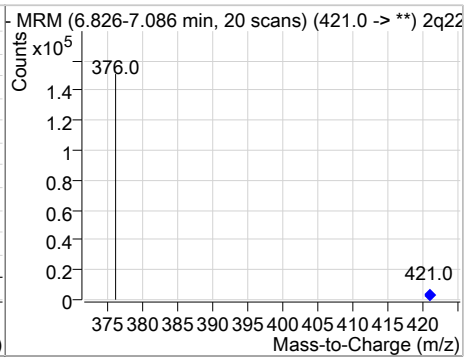




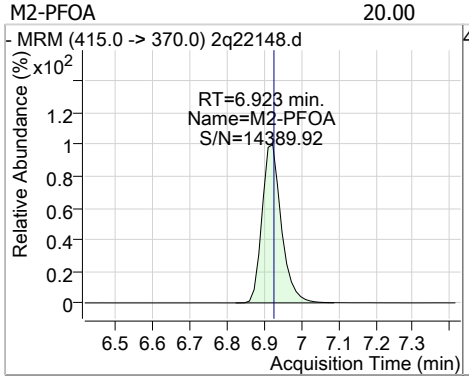
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.12	6.92	0.01	112224				

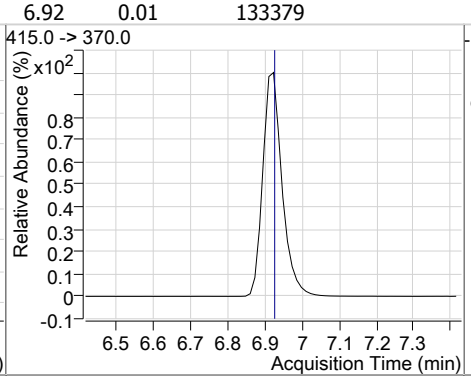


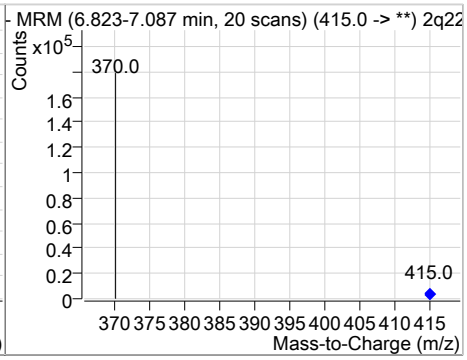




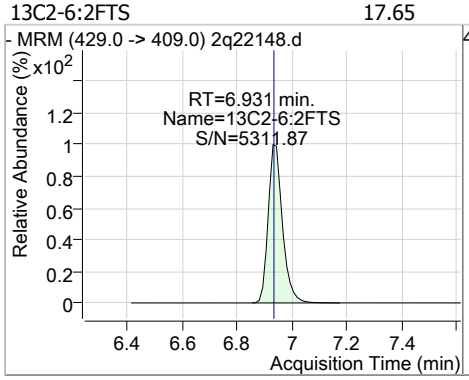
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	133379				

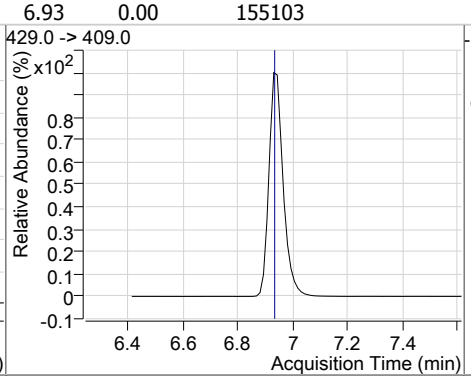


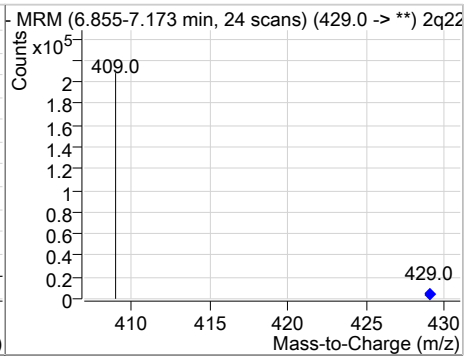




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.65	6.93	0.00	155103				

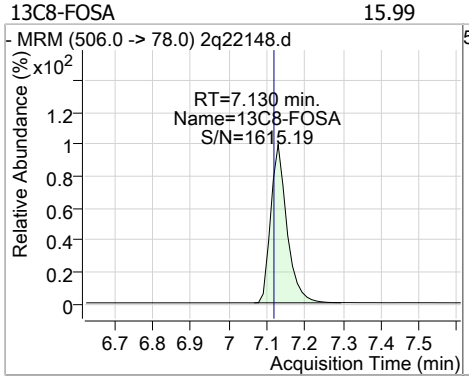


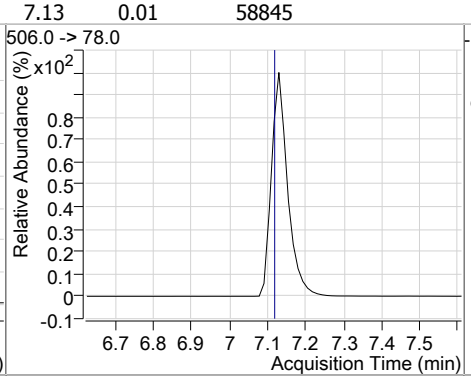


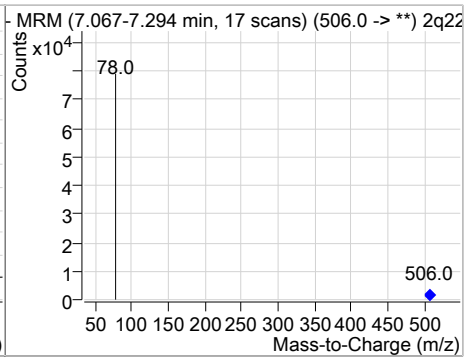


Perfluorinated Compounds by LC/MS/MS

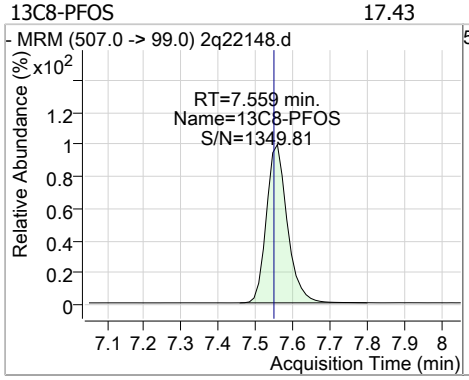
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	15.99	7.13	0.01	58845				

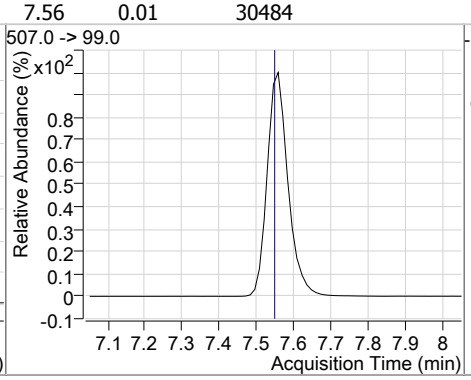


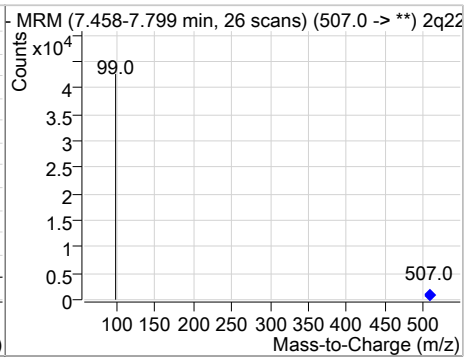




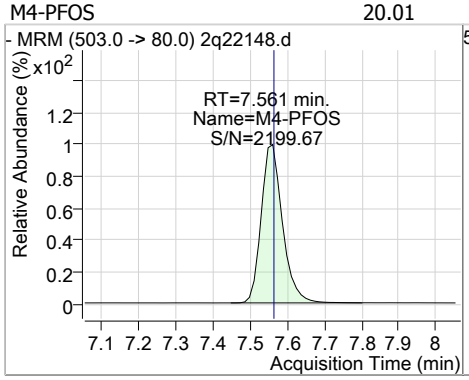
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.43	7.56	0.01	30484				

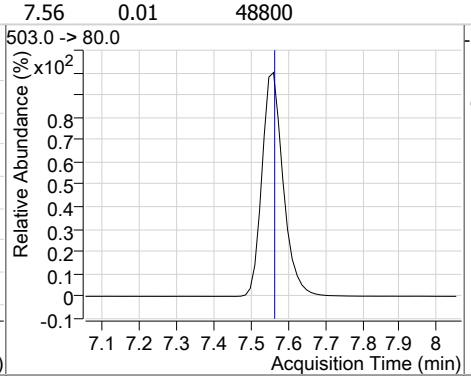


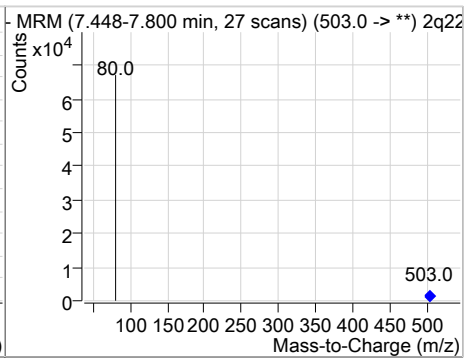




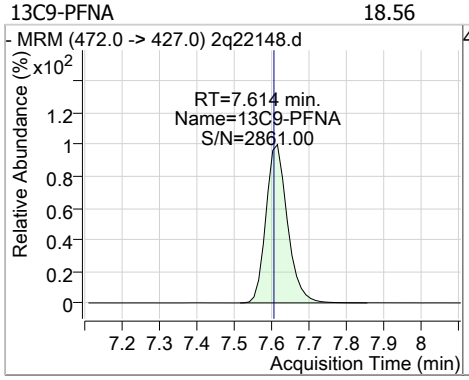
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.56	0.01	48800				

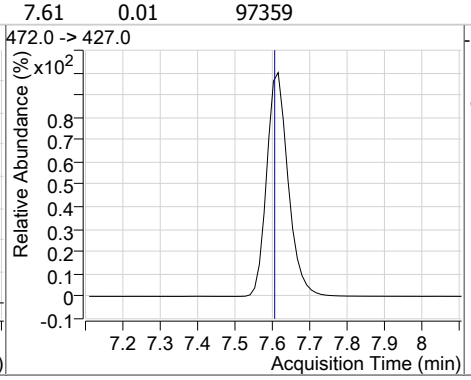


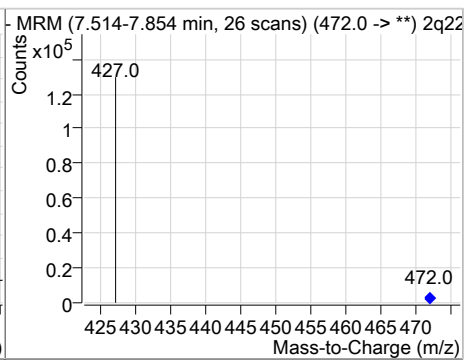




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.56	7.61	0.01	97359				

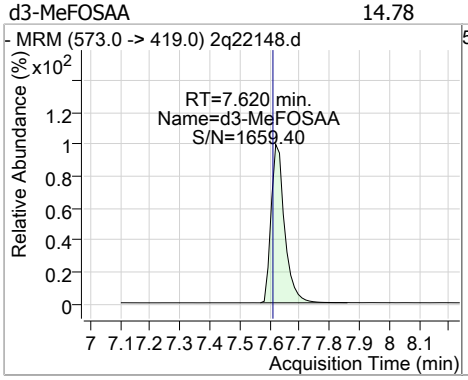


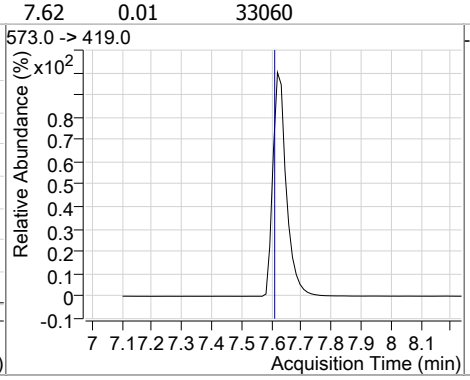


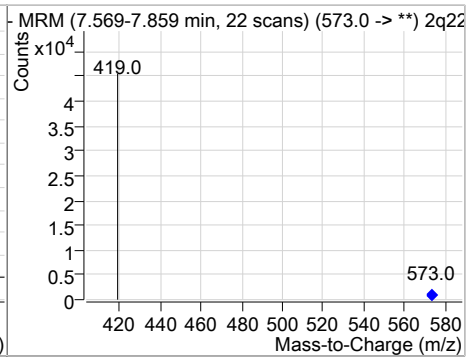


Perfluorinated Compounds by LC/MS/MS

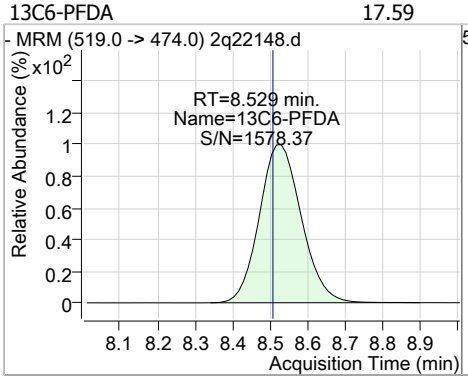
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.78	7.62	0.01	33060				

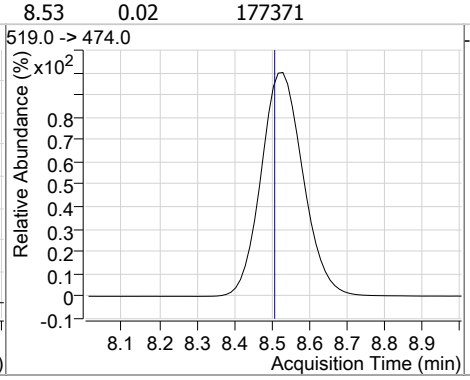


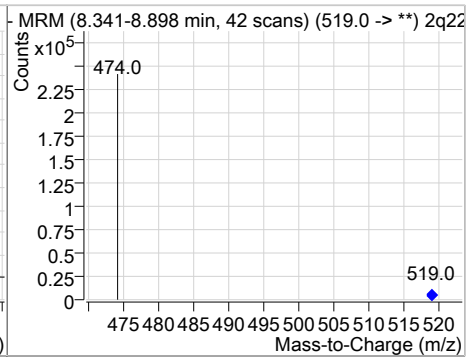




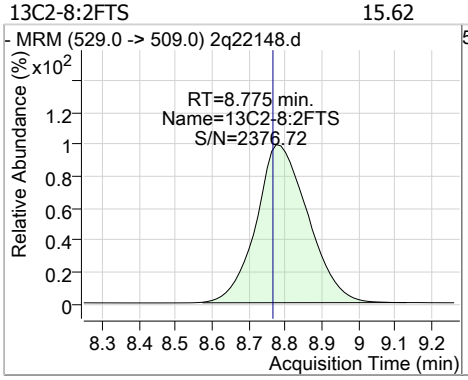
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.59	8.53	0.02	177371				

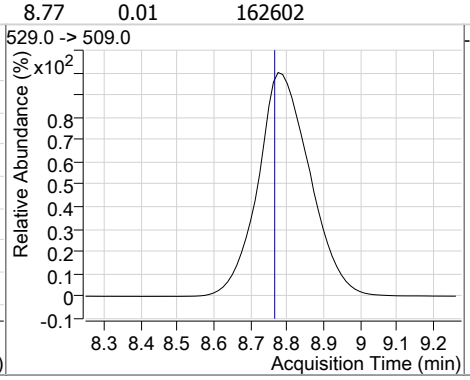


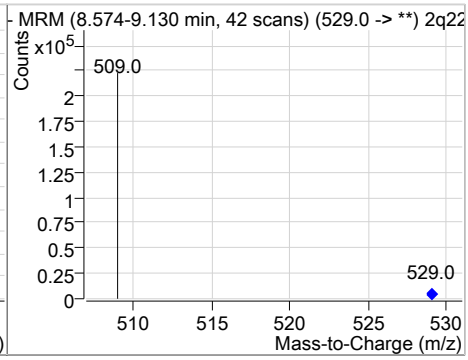




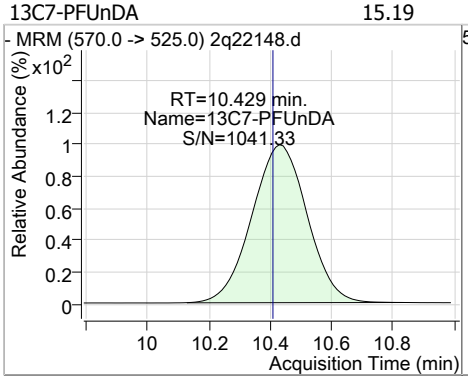
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	15.62	8.77	0.01	162602				

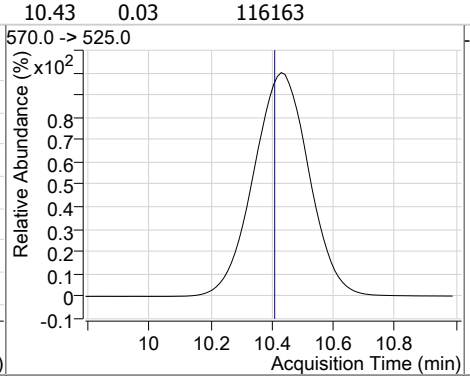


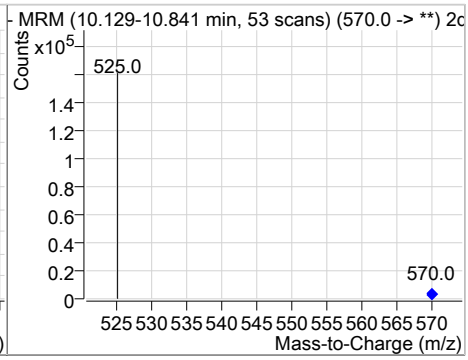




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.19	10.43	0.03	116163				

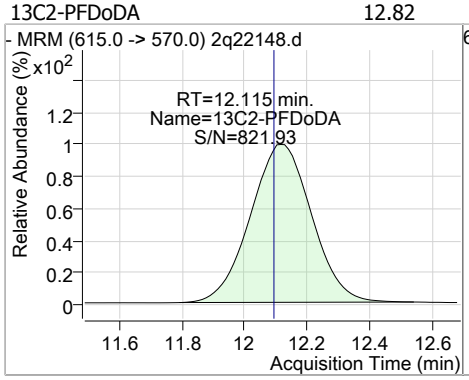


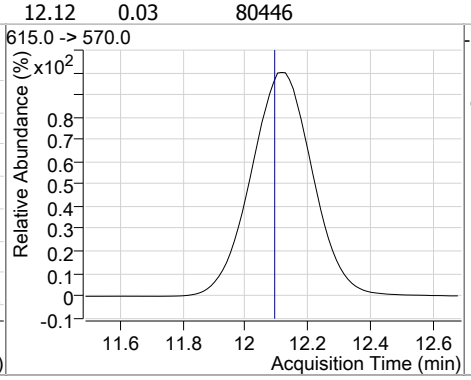


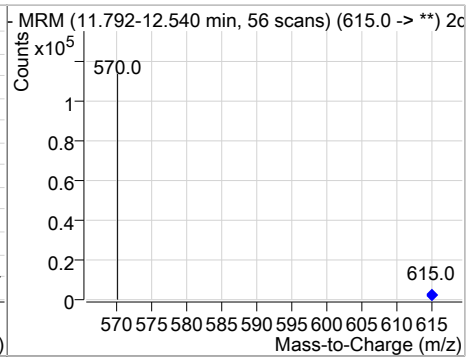


Perfluorinated Compounds by LC/MS/MS

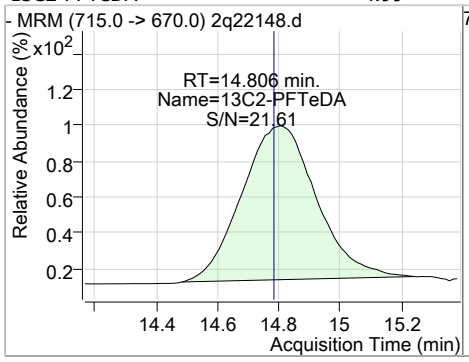
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.82	12.12	0.03	80446				

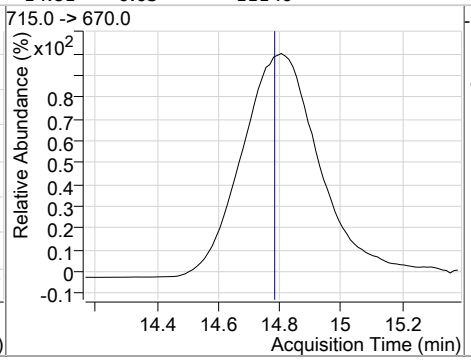


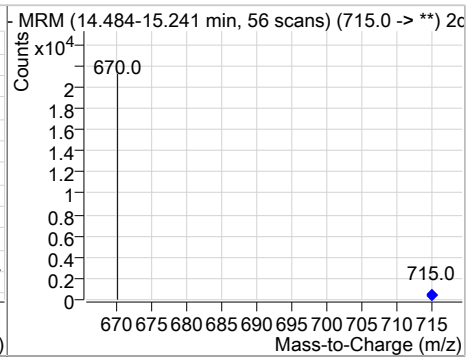




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	4.99	14.81	0.03	11140				







Manual Integration Approval Summary

Sample Number: FA57914-11
Lab FileID: 2Q22148.D
Injection Time: 10/15/18 20:52
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 16:10 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.91	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22428.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/20/2018 1:43:37 AM
Sample Name : fa57914-12
Vial : Vial 47
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,120,,,1.0,1,water

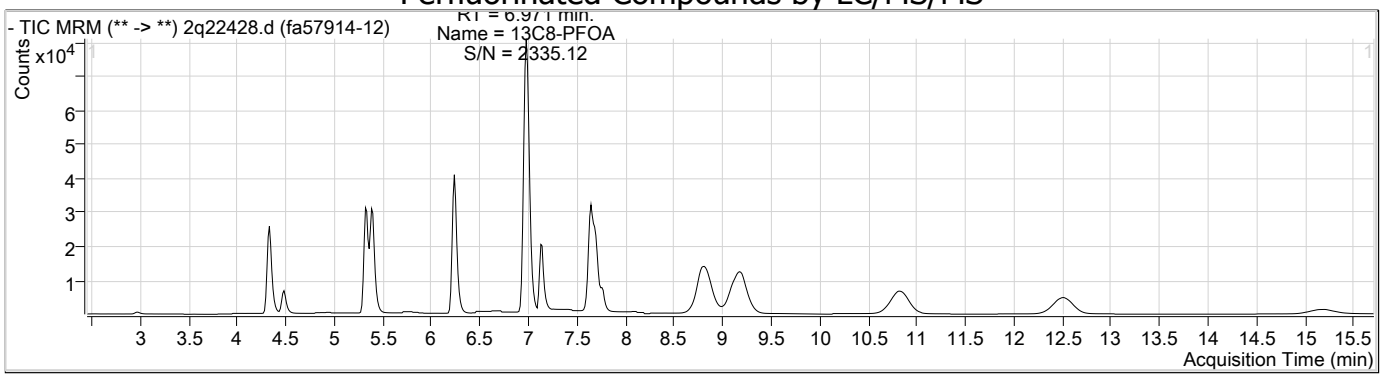
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.973	415.0 -> 370.0	116159	20.00 µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	47040	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	2049	20.00 µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	86245	20.00 µg/L	0.025
M5-PFHxA	5.403	318.0 -> 273.0	95159	20.00 µg/L	0.025
M4-PFHpA	6.242	367.0 -> 322.0	108577	20.00 µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	84127	20.00 µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	77126	20.00 µg/L	0.025
M6-PFDA	8.816	519.0 -> 474.0	146341	20.00 µg/L	0.038
M7-PFUnDA	10.817	570.0 -> 525.0	89076	20.00 µg/L	0.038
M2-PFDoDA	12.503	615.0 -> 570.0	70061	20.00 µg/L	0.050
M2-PFTeDA	15.193	715.0 -> 670.0	24388	20.00 µg/L	0.075
M8-FOSA	7.129	506.0 -> 78.0	60746	20.00 µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	21987	20.00 µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	28018	20.00 µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	25958	20.00 µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	104687	20.00 µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	135112	20.00 µg/L	0.013
M2-8:2FTS	9.172	529.0 -> 509.0	143881	20.00 µg/L	0.075
M3-MeFOSAA	7.645	573.0 -> 419.0	33665	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.0 -> 309.0	104659	15.89 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.5%	
13C2-6:2FTS	6.993	429.0 -> 409.0	135146	15.31 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.5%	
13C2-8:2FTS	9.172	529.0 -> 509.0	142380	13.55 µg/L	0.075
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.7%	
13C2-PFDoDA	12.503	615.0 -> 570.0	69369	12.55 µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 62.7%	
13C2-PFTeDA	15.193	715.0 -> 670.0	22370	11.52 µg/L	0.075
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.6%	
13C3-PFBS	4.481	302.0 -> 99.0	21992	15.73 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.6%	
13C3-PFHxS	6.235	402.0 -> 99.0	28035	15.74 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.7%	
13C4-PFBA	2.966	217.0 -> 172.0	2043	0.15 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.8%	
13C4-PFHpA	6.242	367.0 -> 322.0	108573	16.88 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.4%	
13C5-PFHxA	5.403	318.0 -> 273.0	95211	17.30 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.5%	
13C5-PFPeA	4.337	268.0 -> 223.0	86263	15.09 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.5%	
13C6-PFDA	8.816	519.0 -> 474.0	145792	15.67 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.4%	

Perfluorinated Compounds by LC/MS/MS

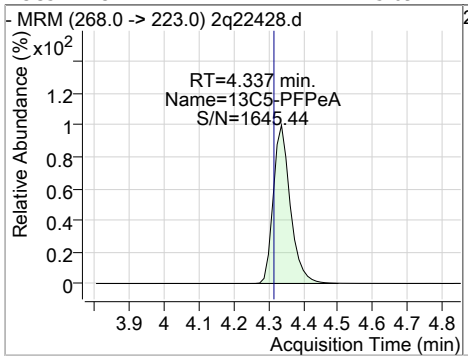
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.817	570.0 -> 525.0	88374	12.91	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.5%			
13C8-FOSA	7.129	506.0 -> 78.0	60804	15.67	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.3%			
13C8-PFOA	6.971	421.0 -> 376.0	84123	15.65	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.3%			
13C8-PFOS	7.633	507.0 -> 99.0	26002	14.33	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.6%			
13C9-PFNA	7.702	472.0 -> 427.0	77073	15.68	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.4%			
d3-MeFOSAA	7.645	573.0 -> 419.0	33664	14.48	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.4%			
M2-PFOA	6.973	415.0 -> 370.0	116174	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	46971	19.98	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.536	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.341	263.0 -> 219.0	778	0.19	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

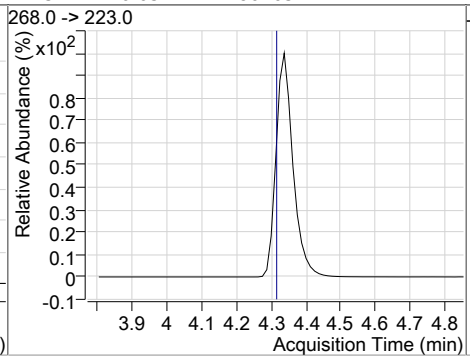
 # = Qualifier out of range, m = manually integrated, + = Area summed

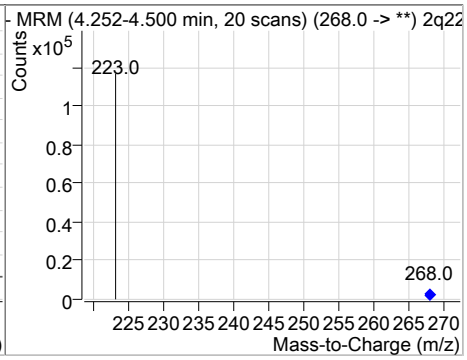
Perfluorinated Compounds by LC/MS/MS



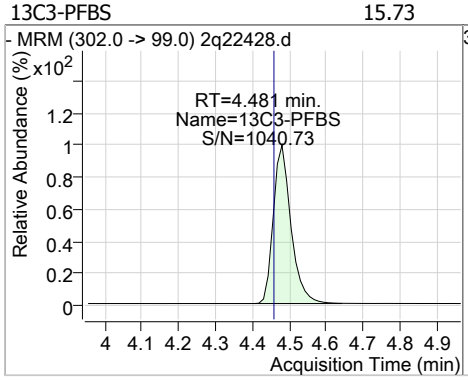
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	15.09	4.34	0.03	86263				

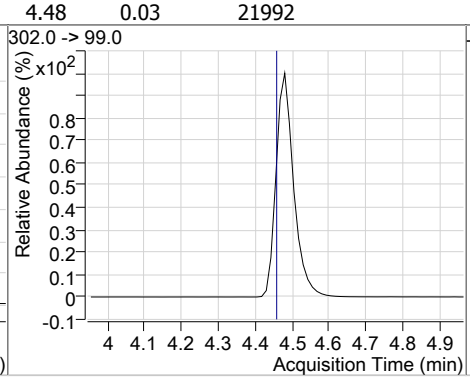


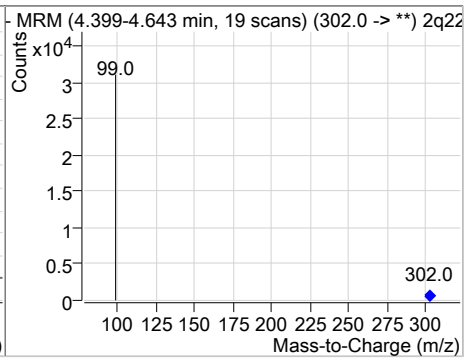




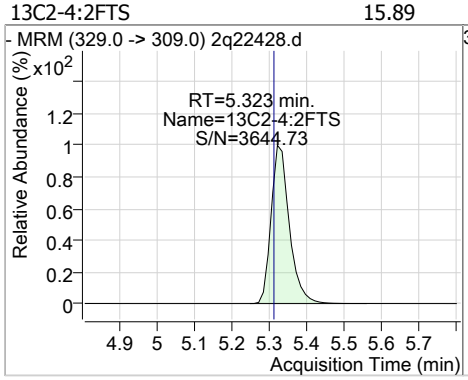
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.73	4.48	0.03	21992				

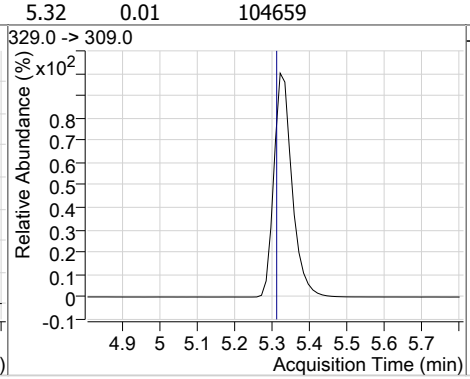


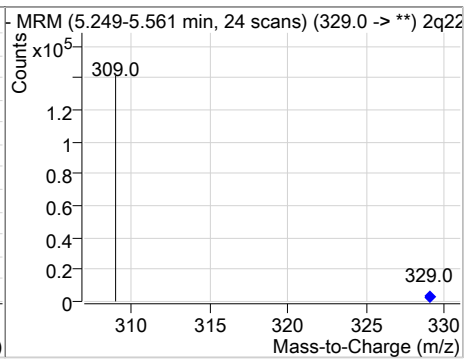




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.89	5.32	0.01	104659				

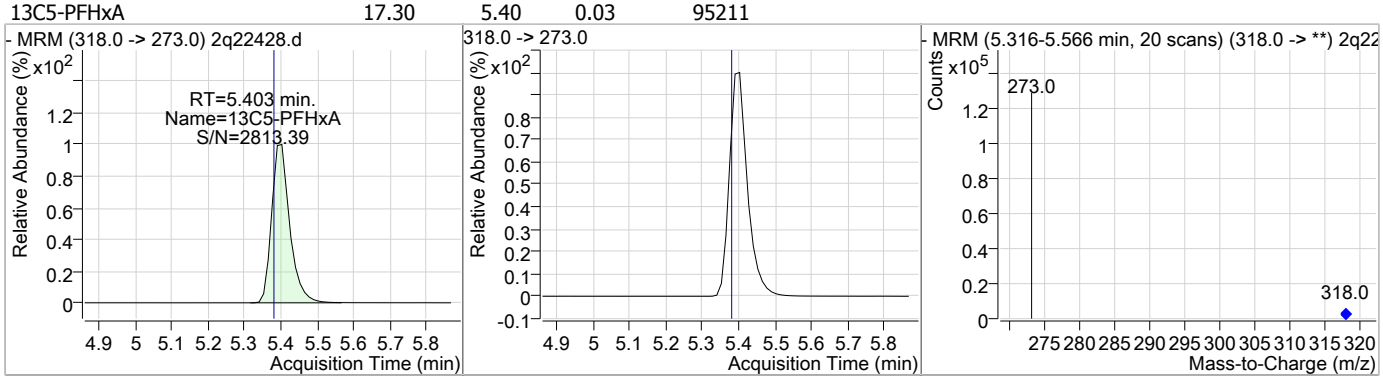




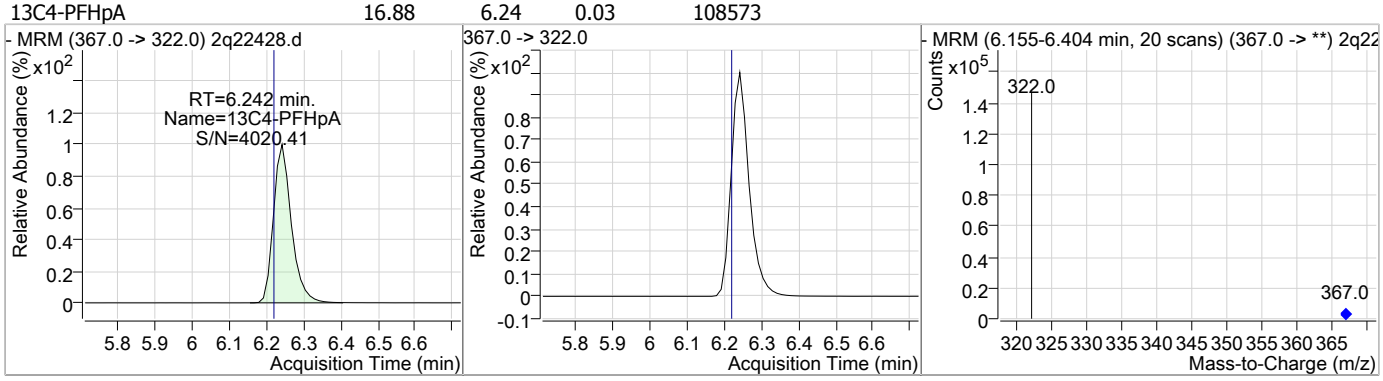


Perfluorinated Compounds by LC/MS/MS

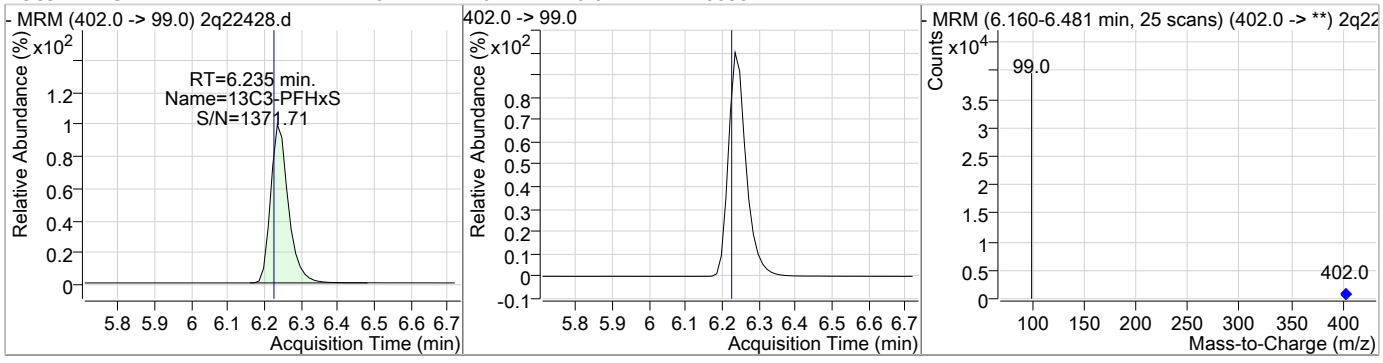
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.30	5.40	0.03	95211				



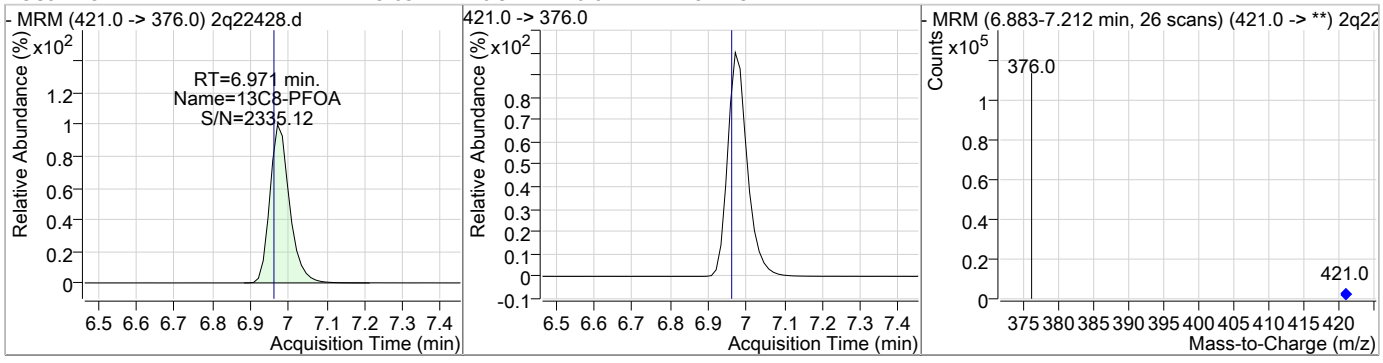
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.88	6.24	0.03	108573				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.74	6.24	0.01	28035				

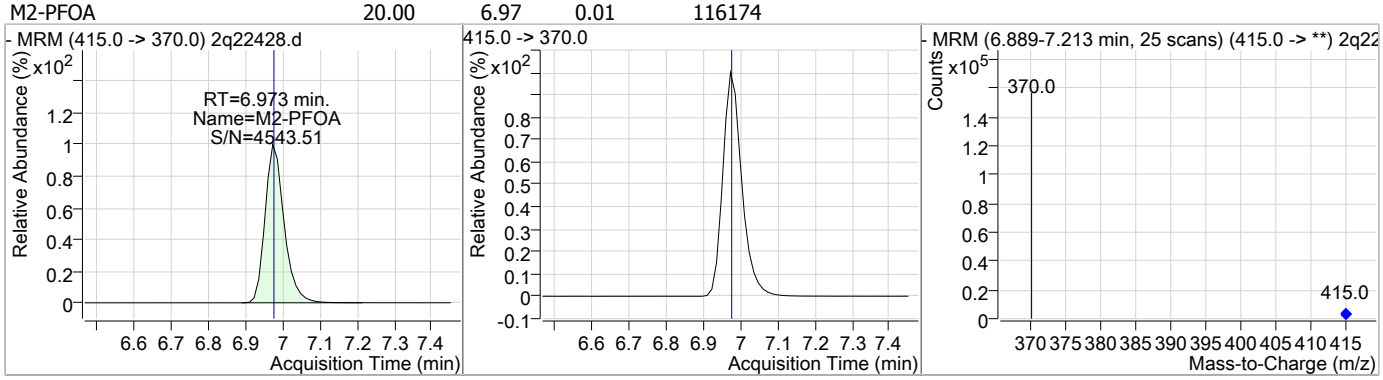


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.65	6.97	0.01	84123				

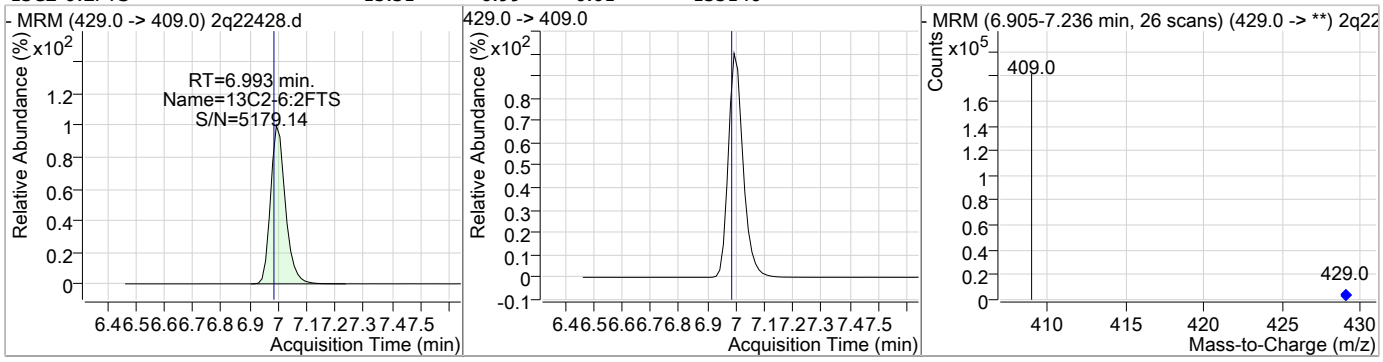


Perfluorinated Compounds by LC/MS/MS

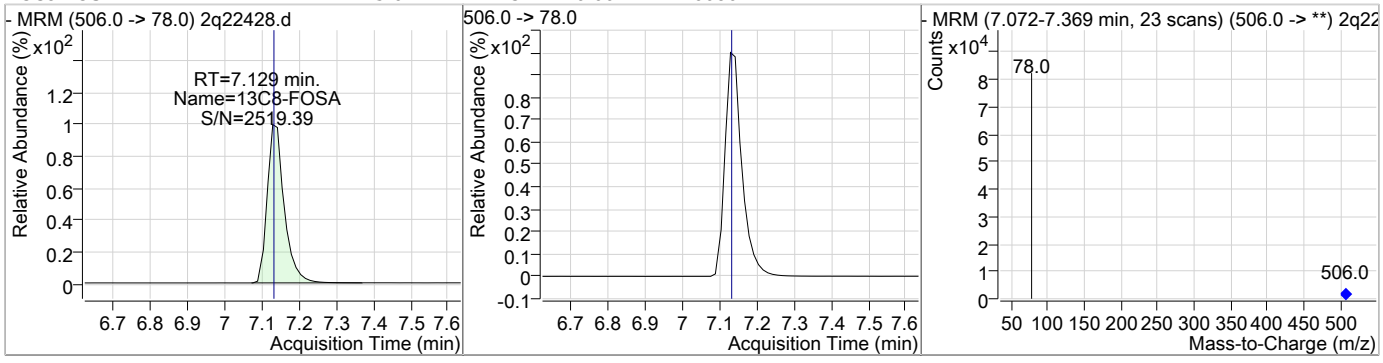
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	116174				



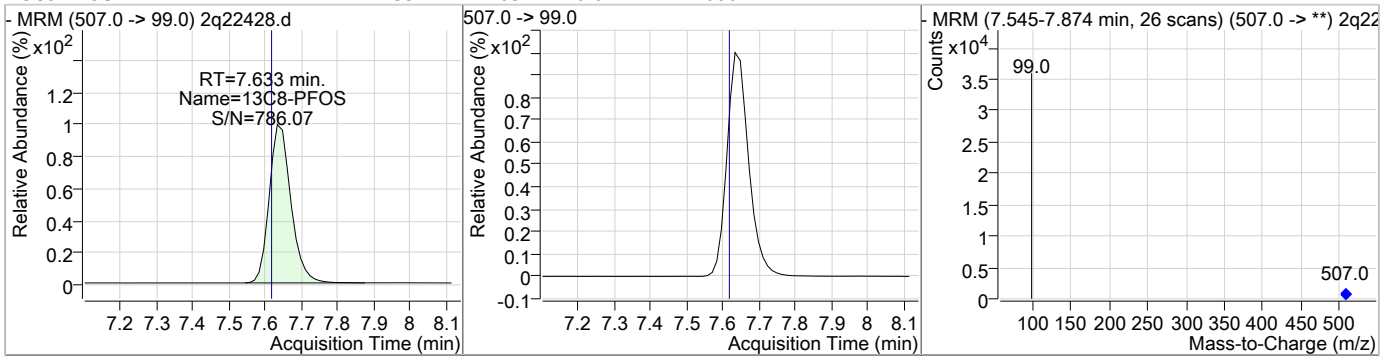
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.31	6.99	0.01	135146				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	15.67	7.13	0.00	60804				

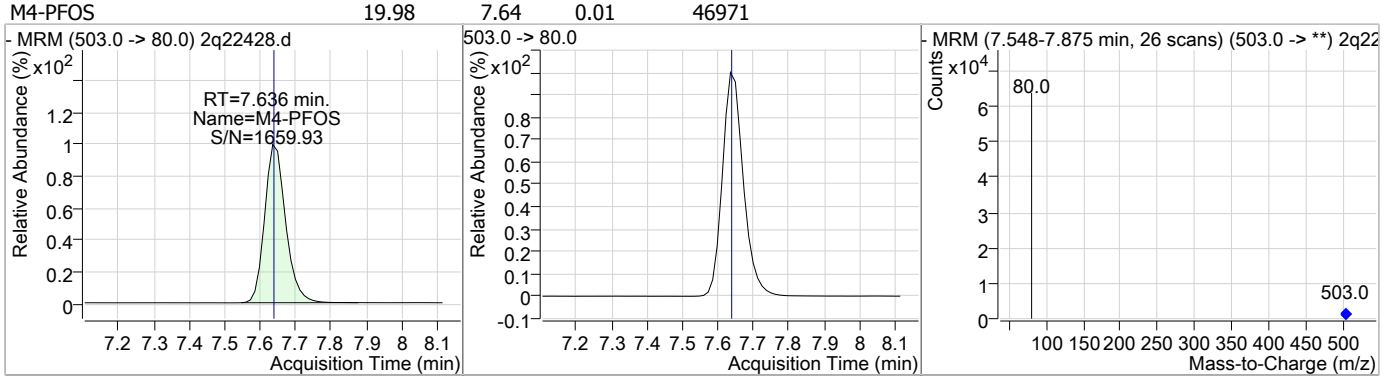


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	14.33	7.63	0.01	26002				

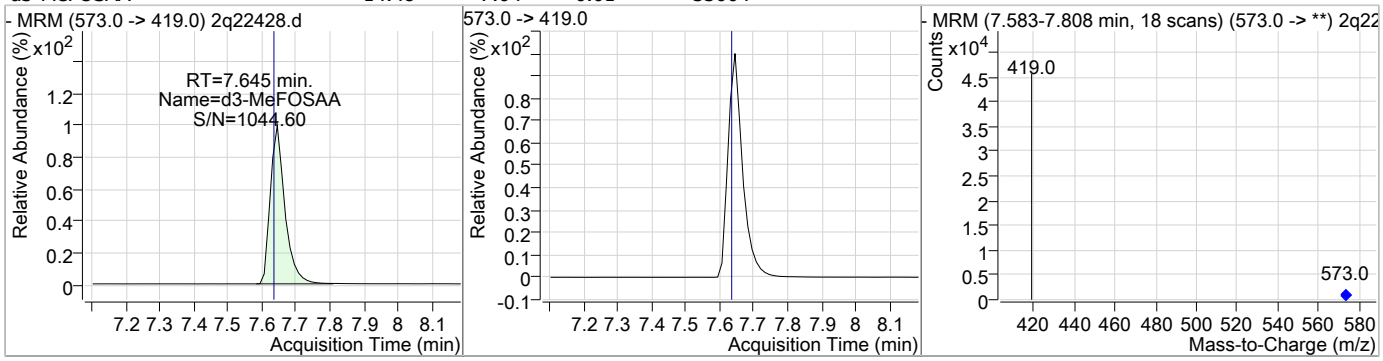


Perfluorinated Compounds by LC/MS/MS

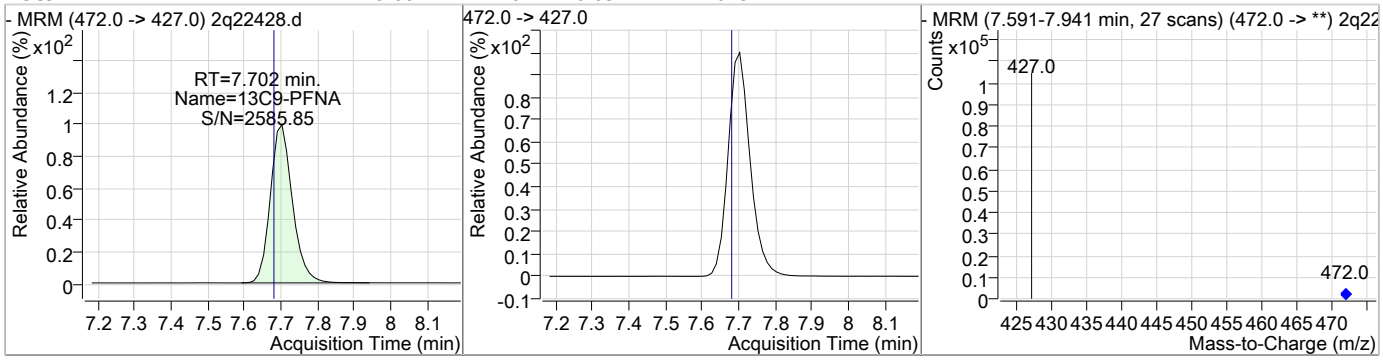
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.64	0.01	46971				



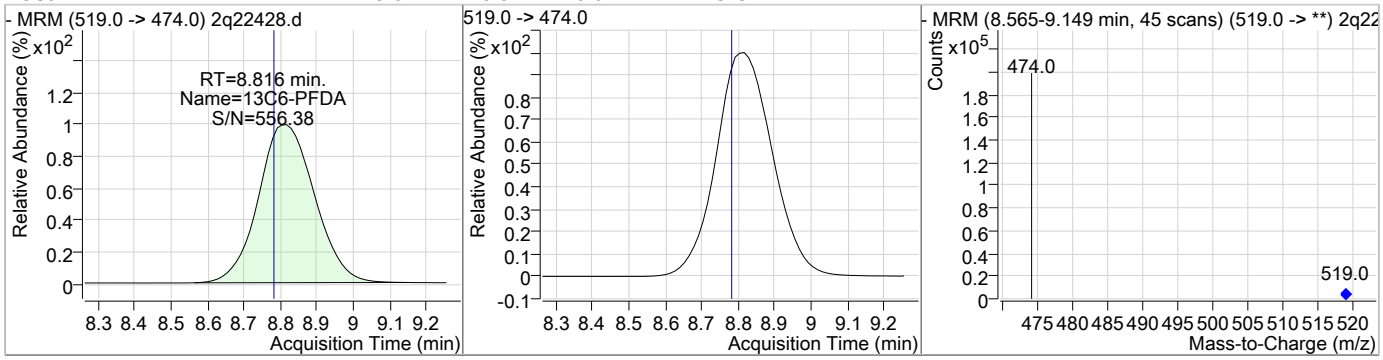
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.48	7.64	0.01	33664				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.68	7.70	0.03	77073				

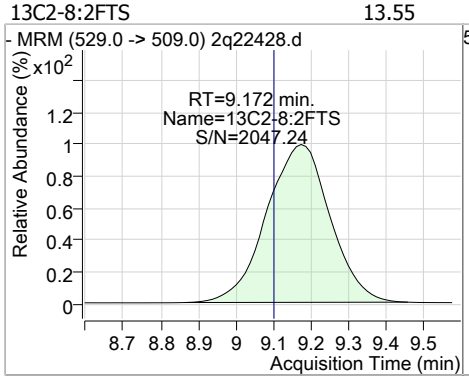


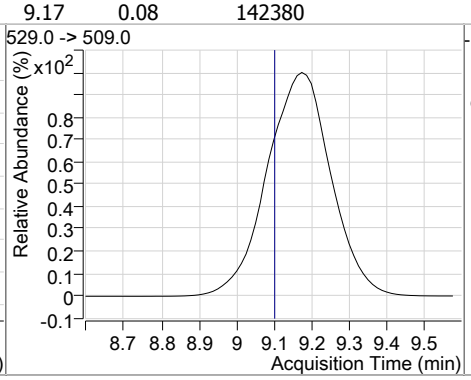
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.67	8.82	0.04	145792				

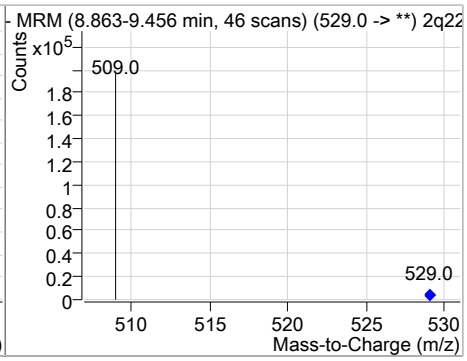


Perfluorinated Compounds by LC/MS/MS

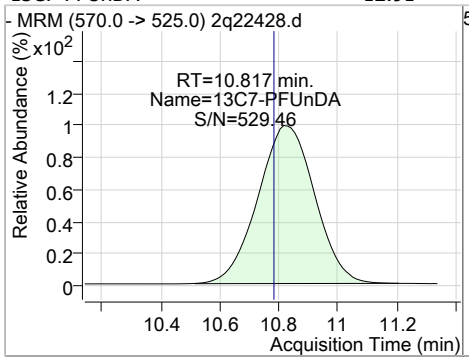
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.55	9.17	0.08	142380				

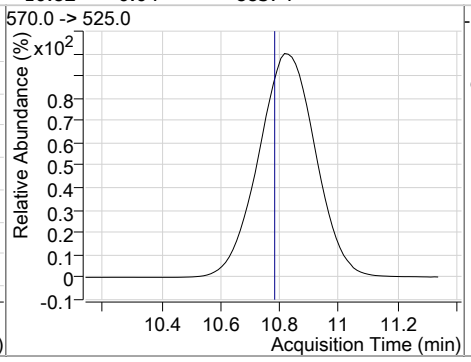


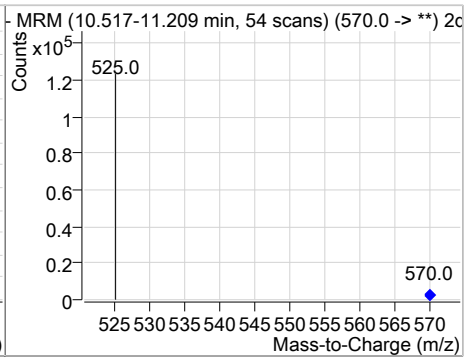




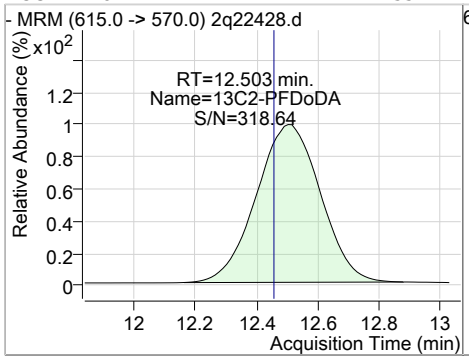
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	12.91	10.82	0.04	88374				

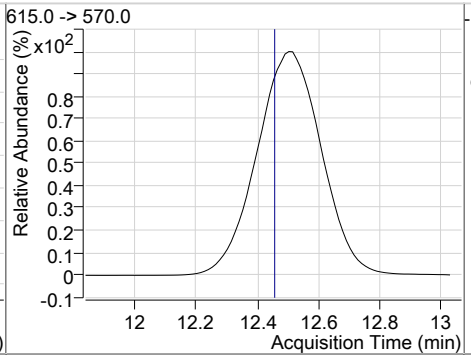


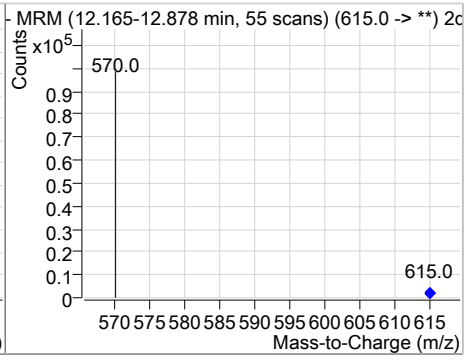




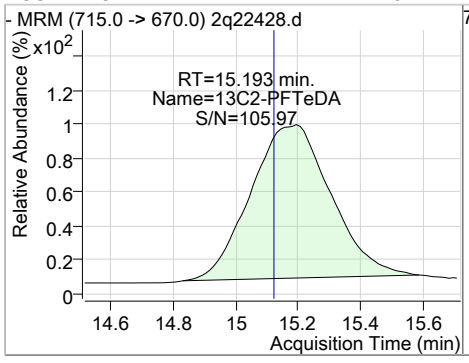
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.55	12.50	0.05	69369				

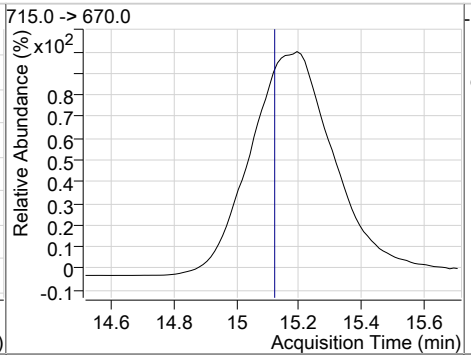


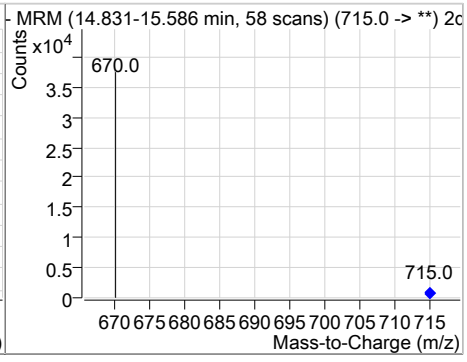




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.52	15.19	0.08	22370				







Perfluorinated Compounds by LC/MS/MS

Data File : 2q22149.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 9:13:06 PM
Sample Name : fa57914-12
Vial : Vial 26
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

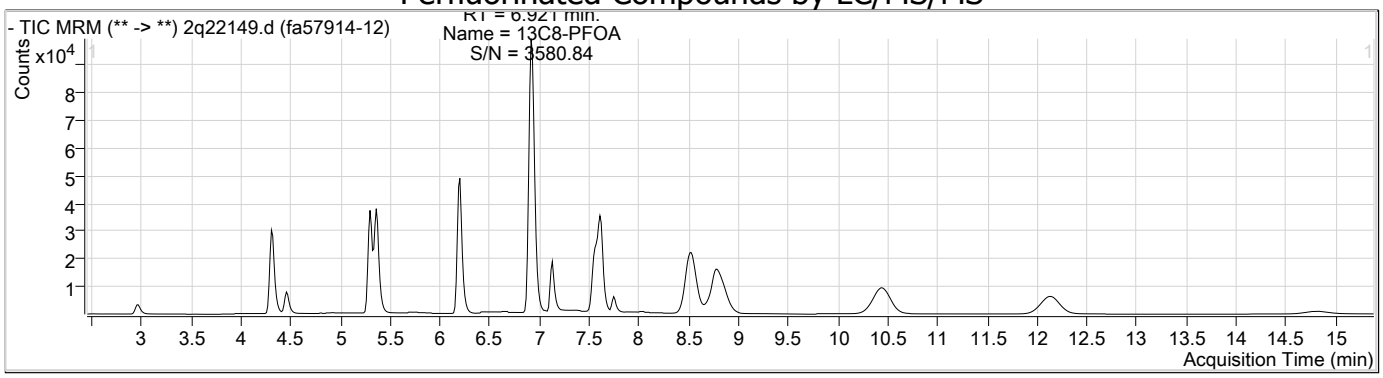
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.923	415.0 -> 370.0	131121	20.00 µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	47549	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	12764	20.00 µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	102261	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	113940	20.00 µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	133409	20.00 µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	112611	20.00 µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	93946	20.00 µg/L	0.013
M6-PFDA	8.529	519.0 -> 474.0	172067	20.00 µg/L	0.025
M7-PFUnDA	10.442	570.0 -> 525.0	117557	20.00 µg/L	0.038
M2-PFDoDA	12.128	615.0 -> 570.0	86803	20.00 µg/L	0.038
M2-PFTeDA	14.818	715.0 -> 670.0	15733	20.00 µg/L	0.038
M8-FOSA	7.130	506.0 -> 78.0	52986	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	25543	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	32251	20.00 µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	29428	20.00 µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	120797	20.00 µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	154394	20.00 µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	157535	20.00 µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	35479	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	120805	17.20 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.0%	
13C2-6:2FTS	6.931	429.0 -> 409.0	154413	17.57 µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.9%	
13C2-8:2FTS	8.775	529.0 -> 509.0	156633	15.05 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.2%	
13C2-PFDoDA	12.128	615.0 -> 570.0	85971	13.70 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.5%	
13C2-PFTeDA	14.818	715.0 -> 670.0	15190	6.80 µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 34.0%	
13C3-PFBS	4.455	302.0 -> 99.0	25536	17.93 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.7%	
13C3-PFHxS	6.198	402.0 -> 99.0	32240	18.61 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C4-PFBA	2.966	217.0 -> 172.0	12754	0.88 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 4.4%	
13C4-PFHpA	6.204	367.0 -> 322.0	133425	19.02 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C5-PFHxA	5.364	318.0 -> 273.0	113963	18.77 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.9%	
13C5-PFPeA	4.312	268.0 -> 223.0	102254	16.28 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.4%	
13C6-PFDA	8.529	519.0 -> 474.0	171701	17.03 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.2%	

Perfluorinated Compounds by LC/MS/MS

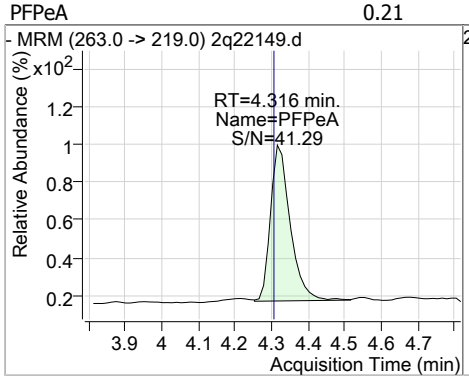
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.442	570.0 -> 525.0	117114	15.31	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.6%			
13C8-FOSA	7.130	506.0 -> 78.0	52980	14.40	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.0%			
13C8-PFOA	6.921	421.0 -> 376.0	112620	19.19	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.9%			
13C8-PFOS	7.559	507.0 -> 99.0	29475	16.85	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.3%			
13C9-PFNA	7.614	472.0 -> 427.0	93921	17.90	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.5%			
d3-MeFOSAA	7.620	573.0 -> 419.0	35640	15.94	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.7%			
M2-PFOA	6.923	415.0 -> 370.0	131120	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	47546	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.609	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.925	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	985	0.21	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

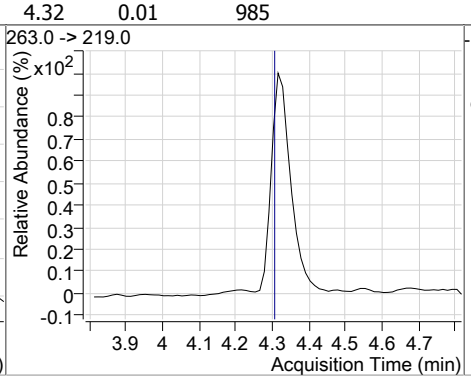
 # = Qualifier out of range, m = manually integrated, + = Area summed

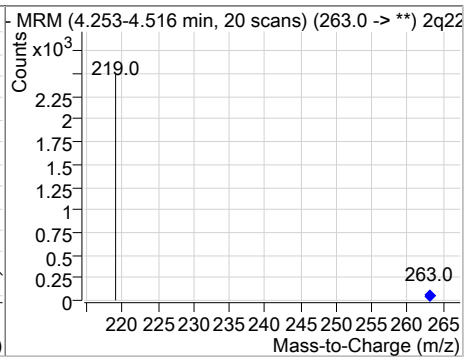
Perfluorinated Compounds by LC/MS/MS



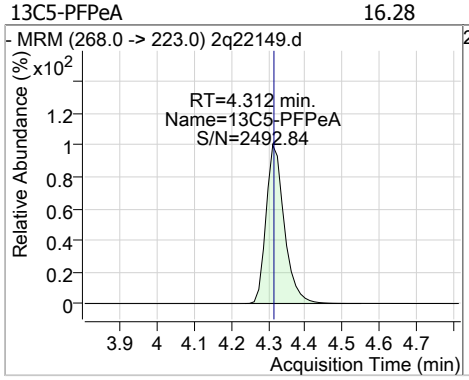
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.21	4.32	0.01	985				

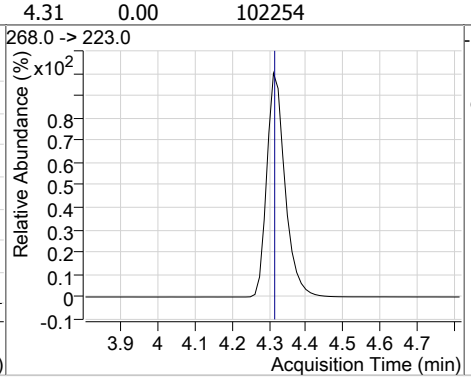


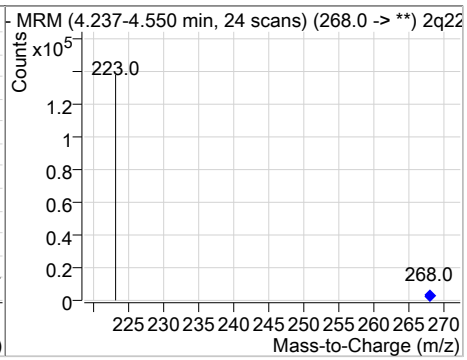




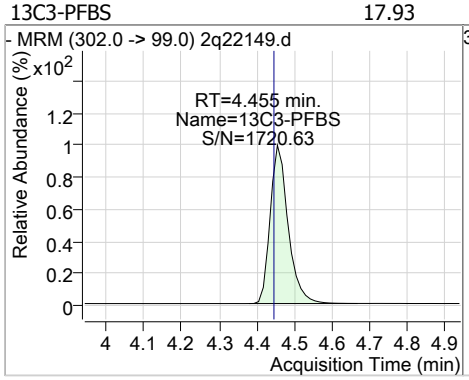
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.28	4.31	0.00	102254				

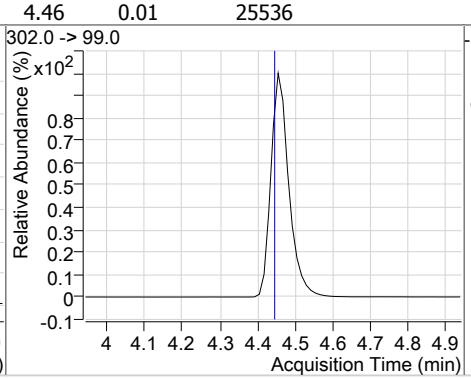


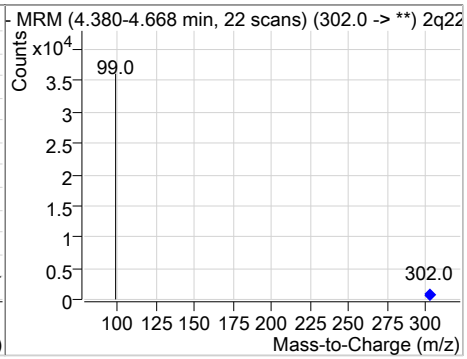




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.93	4.46	0.01	25536				

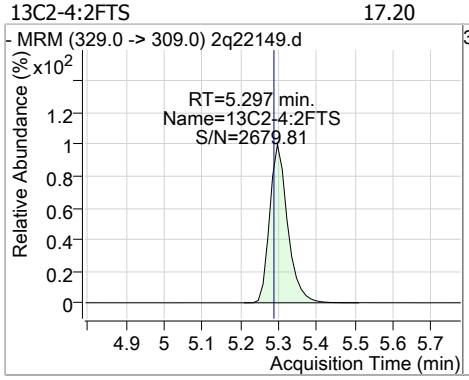


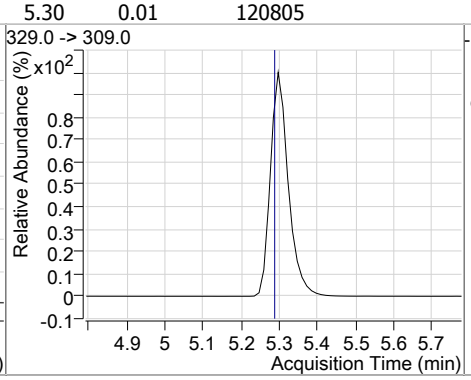


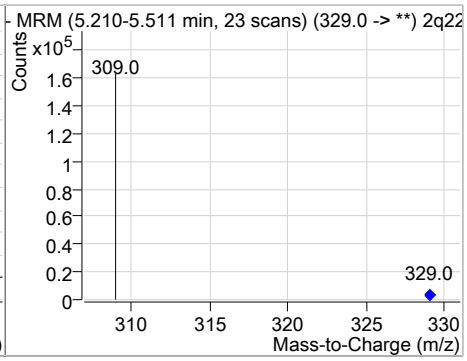


Perfluorinated Compounds by LC/MS/MS

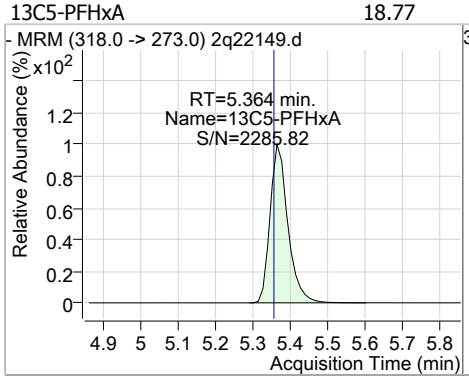
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.20	5.30	0.01	120805				

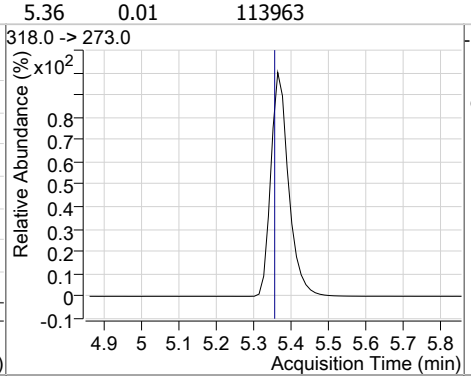


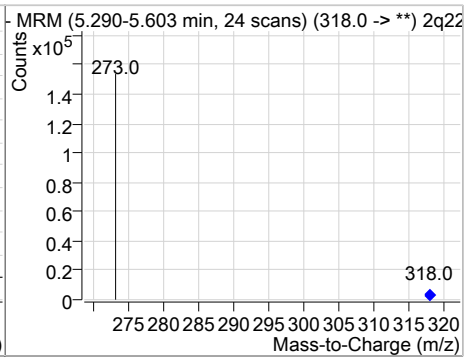




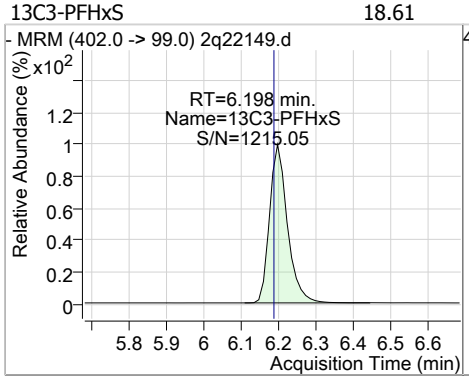
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.77	5.36	0.01	113963				

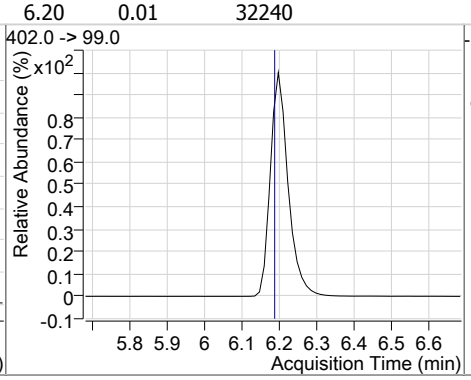


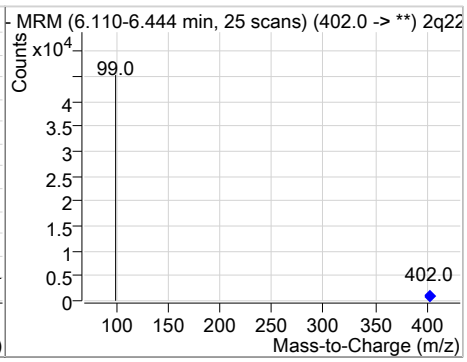




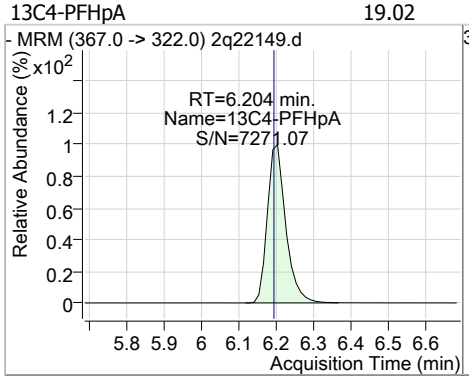
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.61	6.20	0.01	32240				

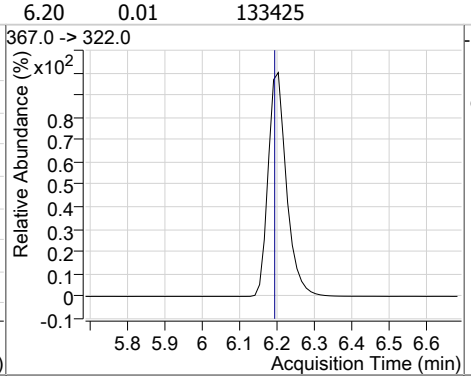


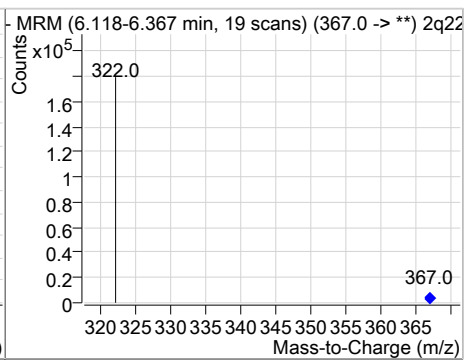




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.02	6.20	0.01	133425				

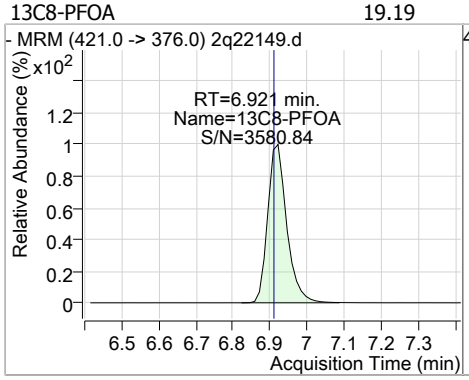


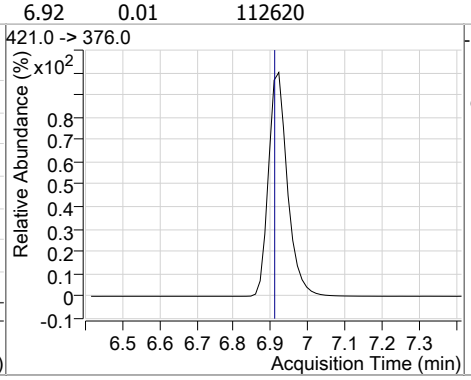


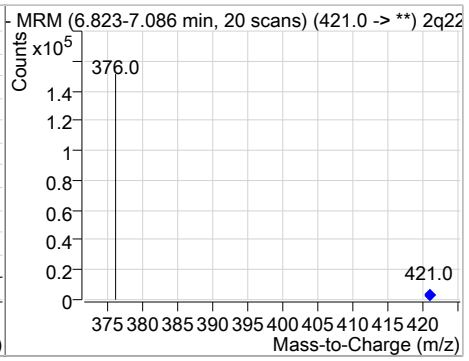


Perfluorinated Compounds by LC/MS/MS

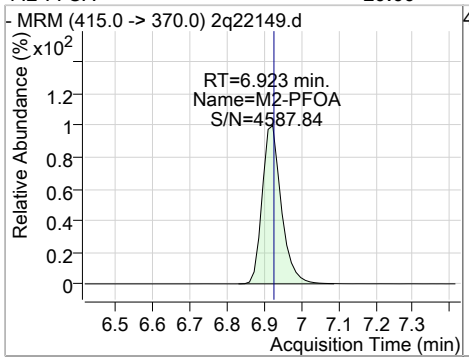
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.19	6.92	0.01	112620				

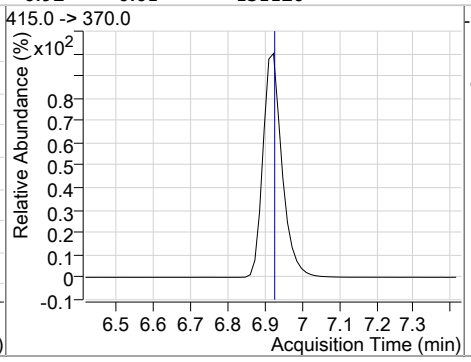


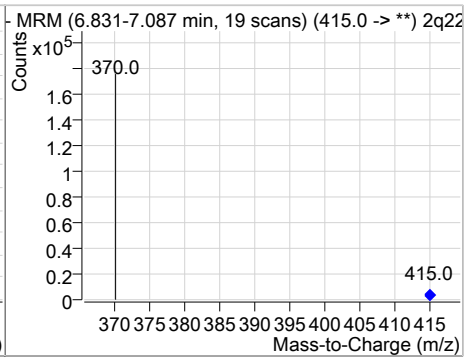




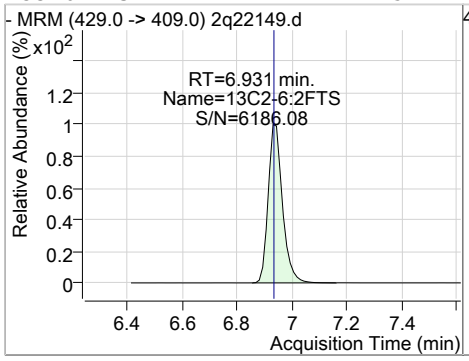
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	131120				

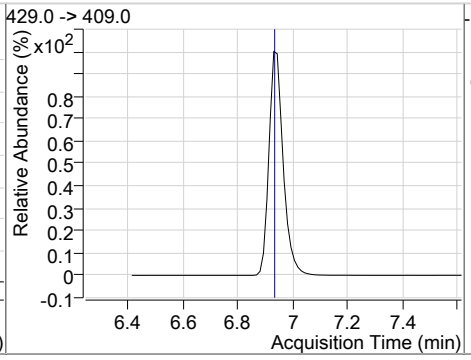


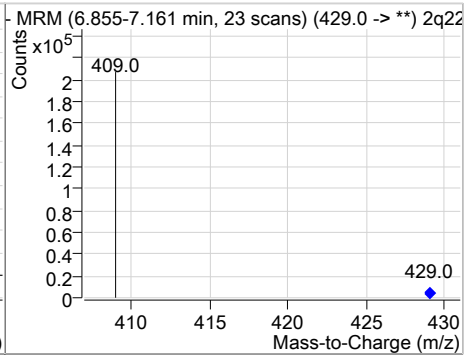




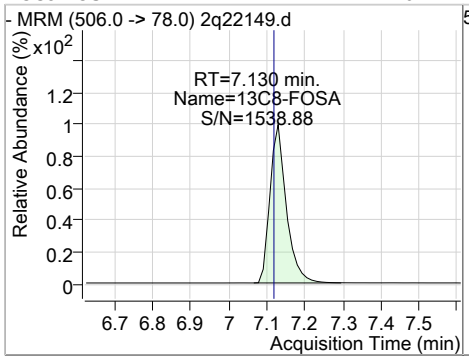
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.57	6.93	0.00	154413				

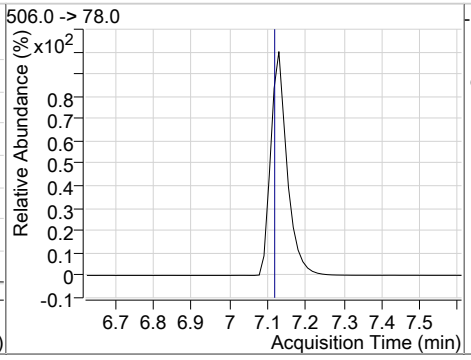


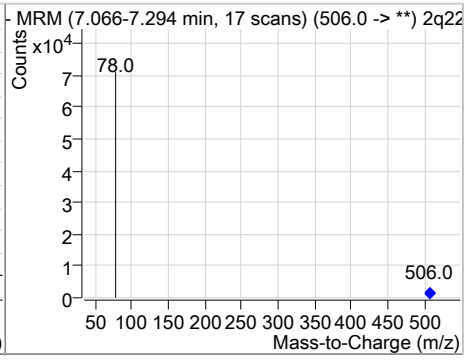




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	14.40	7.13	0.01	52980				

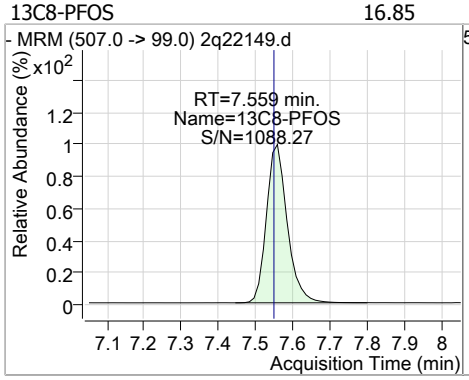


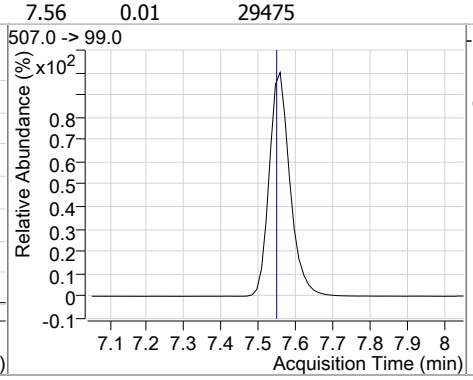


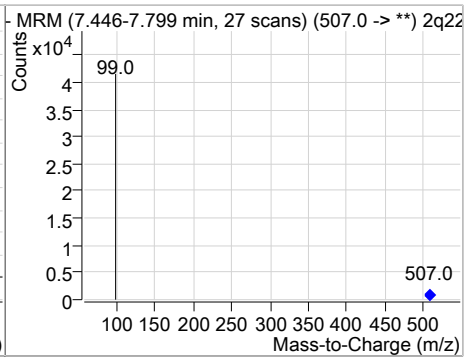


Perfluorinated Compounds by LC/MS/MS

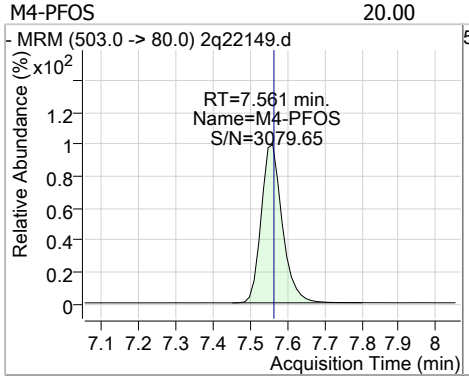
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	16.85	7.56	0.01	29475				

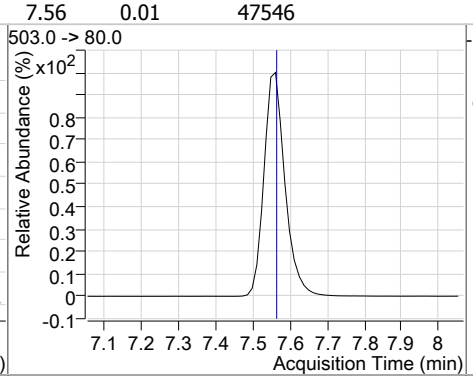


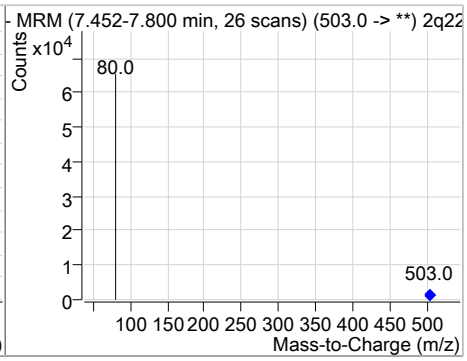




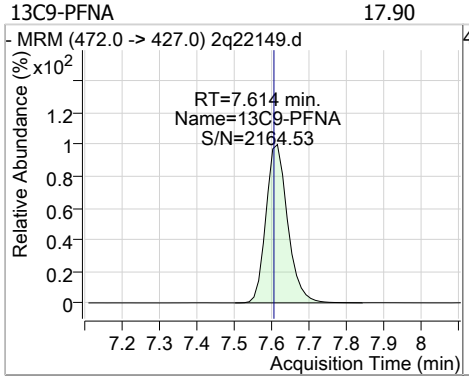
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.56	0.01	47546				

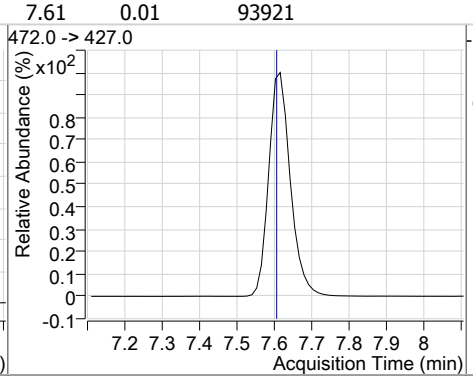


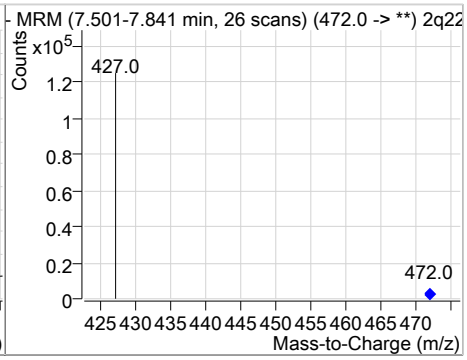




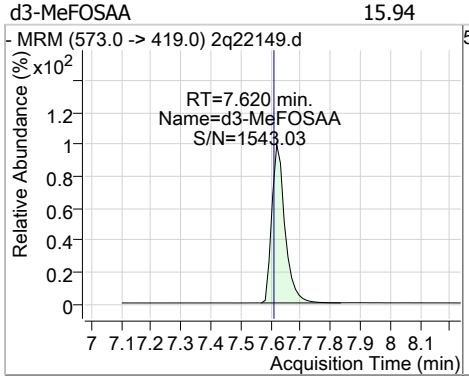
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.90	7.61	0.01	93921				

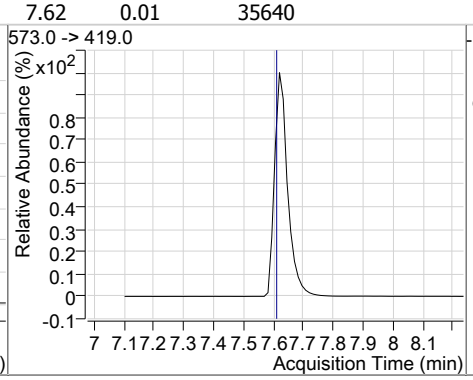


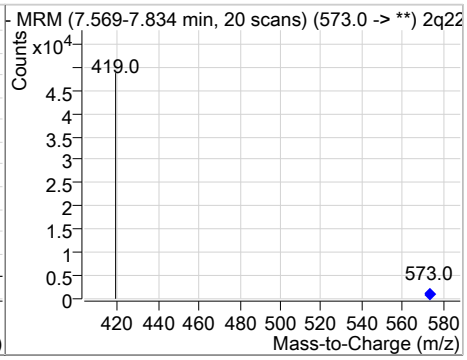




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	15.94	7.62	0.01	35640				

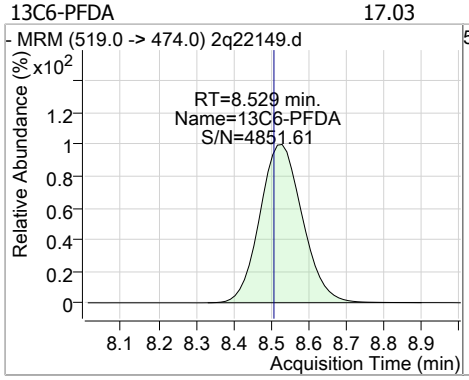


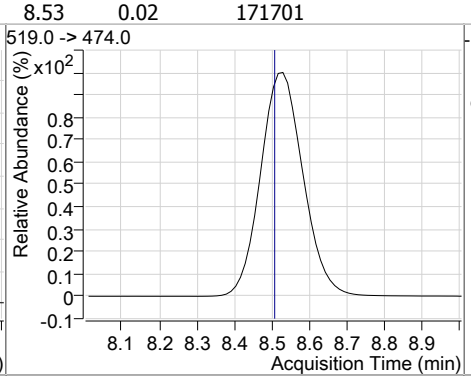


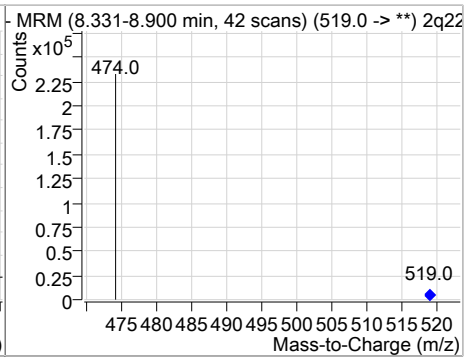


Perfluorinated Compounds by LC/MS/MS

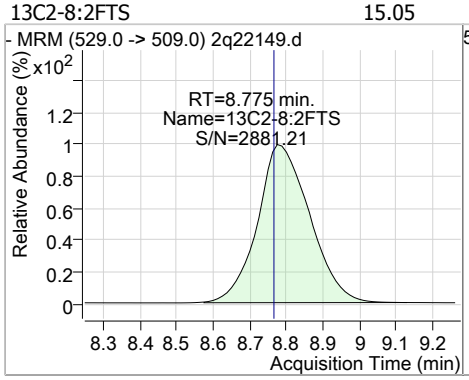
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.03	8.53	0.02	171701				

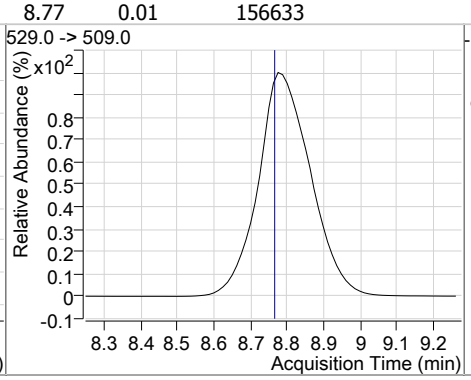


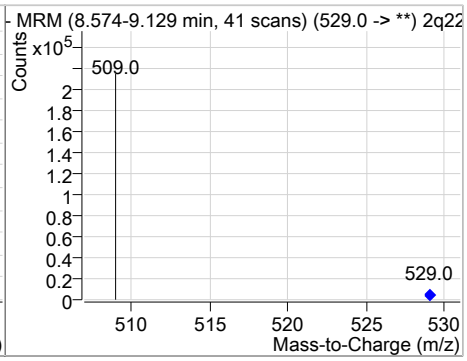




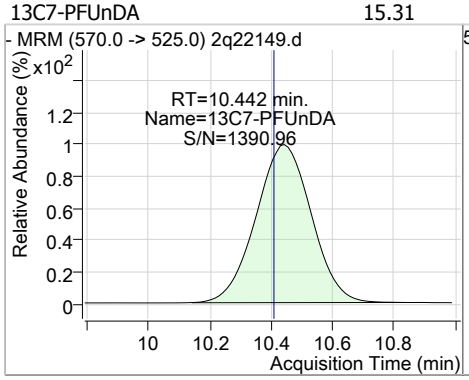
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	15.05	8.77	0.01	156633				

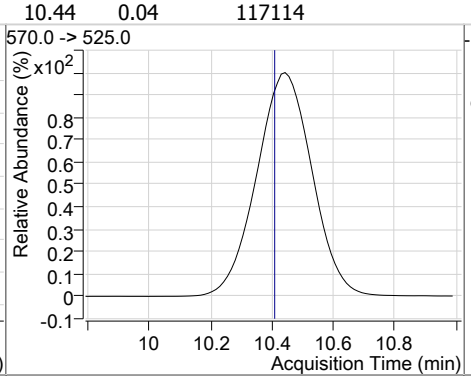


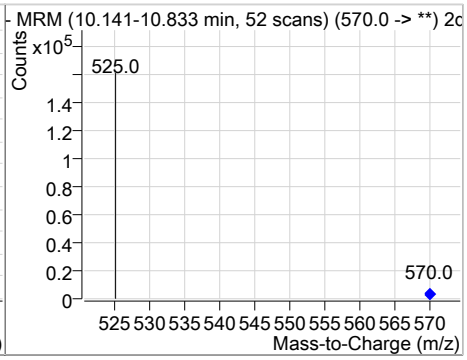




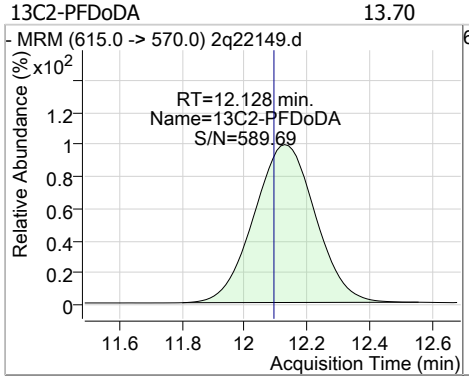
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.31	10.44	0.04	117114				

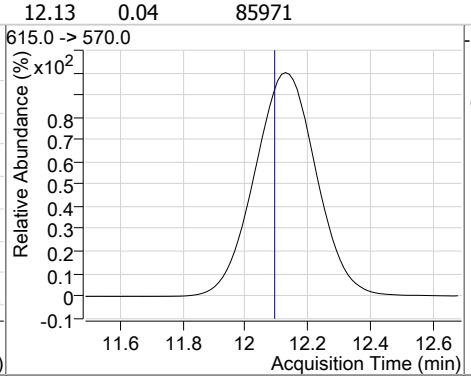


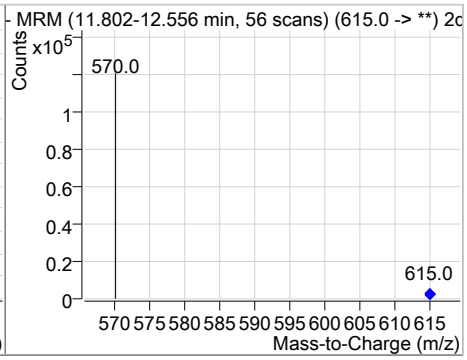




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	13.70	12.13	0.04	85971				

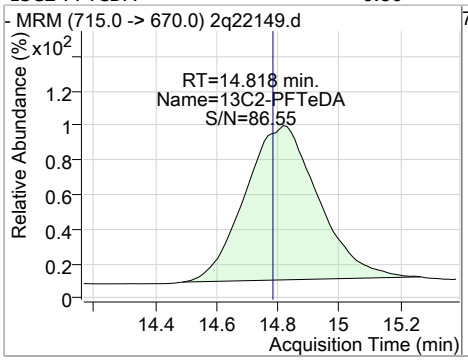


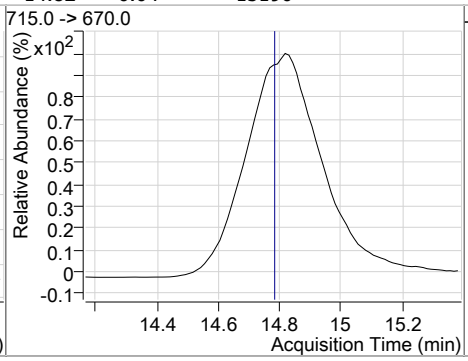


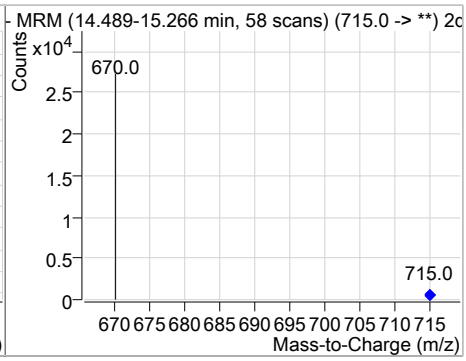


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	6.80	14.82	0.04	15190				







7.1.22

7

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22429.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/20/2018 2:04:51 AM
Sample Name : fa57914-13
Vial : Vial 48
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

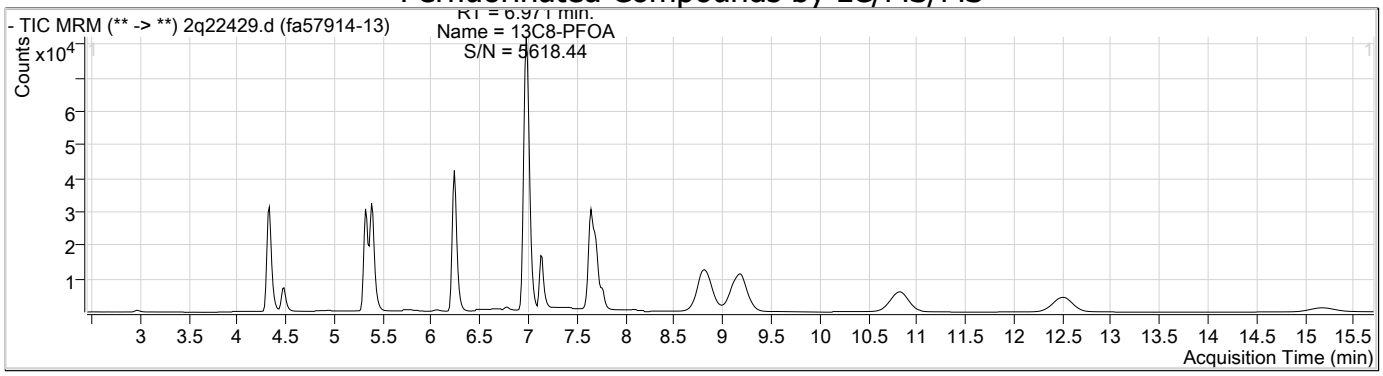
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	113250	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	47396	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1801	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	89676	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	91347	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	104869	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	81925	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	71589	20.00	µg/L	0.025
M6-PFDA	8.817	519.0 -> 474.0	131945	20.00	µg/L	0.038
M7-PFUnDA	10.830	570.0 -> 525.0	79021	20.00	µg/L	0.050
M2-PFDoDA	12.503	615.0 -> 570.0	63717	20.00	µg/L	0.050
M2-PFTeDA	15.156	715.0 -> 670.0	22927	20.00	µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	49102	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	21081	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	26403	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	23265	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	100874	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	132430	20.00	µg/L	0.013
M2-8:2FTS	9.172	529.0 -> 509.0	131593	20.00	µg/L	0.075
M3-MeFOSAA	7.645	573.0 -> 419.0	31501	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	100880	15.32	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.6%		
13C2-6:2FTS	6.993	429.0 -> 409.0	132415	15.00	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.0%		
13C2-8:2FTS	9.172	529.0 -> 509.0	130262	12.39	µg/L	0.075
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 62.0%		
13C2-PFDoDA	12.503	615.0 -> 570.0	62862	11.37	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 56.8%		
13C2-PFTeDA	15.156	715.0 -> 670.0	20796	10.71	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 53.6%		
13C3-PFBS	4.481	302.0 -> 99.0	21088	15.08	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.4%		
13C3-PFHxS	6.235	402.0 -> 99.0	26416	14.83	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.2%		
13C4-PFBA	2.966	217.0 -> 172.0	1807	0.13	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.7%		
13C4-PFHpA	6.242	367.0 -> 322.0	104913	16.31	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.5%		
13C5-PFHxA	5.390	318.0 -> 273.0	91303	16.59	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.9%		
13C5-PFPeA	4.337	268.0 -> 223.0	89666	15.69	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.4%		
13C6-PFDA	8.817	519.0 -> 474.0	131036	14.08	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.4%		

Perfluorinated Compounds by LC/MS/MS

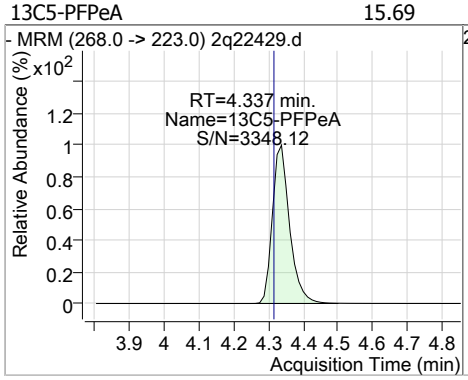
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.830	570.0 -> 525.0	78435	11.45	µg/L		0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.3%			
13C8-FOSA	7.129	506.0 -> 78.0	48999	12.63	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 63.1%			
13C8-PFOA	6.971	421.0 -> 376.0	81960	15.25	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.3%			
13C8-PFOS	7.634	507.0 -> 99.0	23314	12.85	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.2%			
13C9-PFNA	7.702	472.0 -> 427.0	71569	14.56	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.8%			
d3-MeFOSAA	7.645	573.0 -> 419.0	31489	13.54	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.7%			
M2-PFOA	6.973	415.0 -> 370.0	113194	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
M4-PFOS	7.636	503.0 -> 80.0	47401	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.536	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.472	299.0 -> 80.0	2140	1.40	µg/L	m	98
PFDA	8.832	513.0 -> 469.0	0	0.00	µg/L	m	1
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	4171	1.05	µg/L	m	98
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.393	313.0 -> 269.0	7318	5.00	µg/L		99
PFHxS	6.238	399.0 -> 80.0	5318	4.13	µg/L	m	96
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	12573	5.93	µg/L	m	87
PFOS	7.434	499.0 -> 80.0	186	0.19	µg/L	m	75
PFPeA	4.341	263.0 -> 219.0	17740	4.21	µg/L		100
PFPeS	5.446	349.0 -> 80.0	818	0.83	µg/L	m	93
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

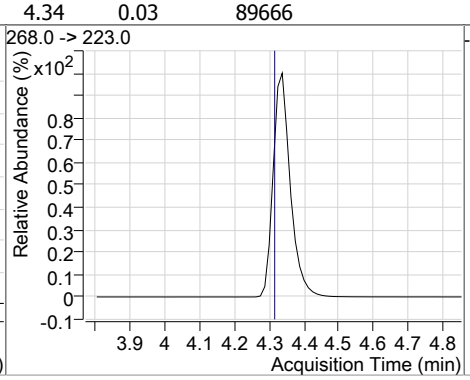
 # = Qualifier out of range, m = manually integrated, + = Area summed

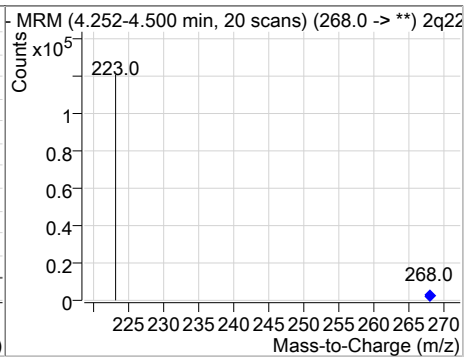
Perfluorinated Compounds by LC/MS/MS



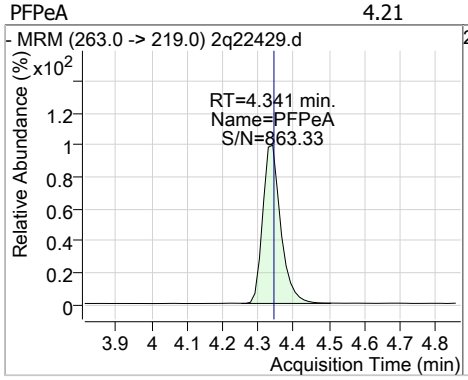
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	15.69	4.34	0.03	89666				

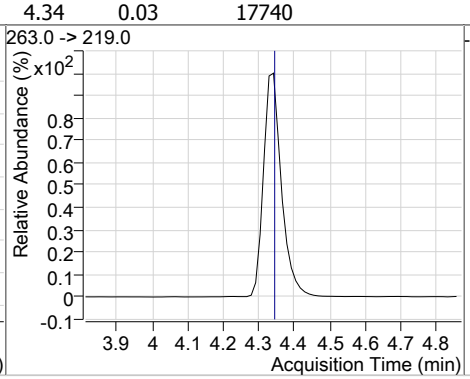


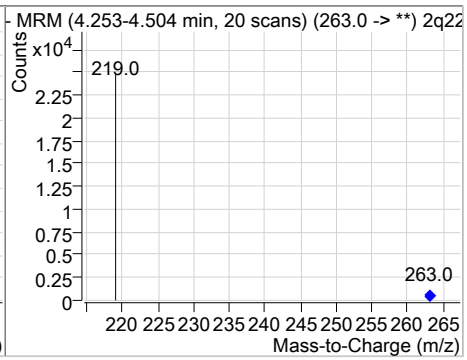




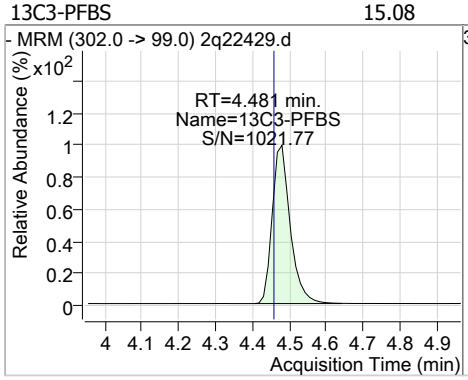
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.21	4.34	0.03	17740				

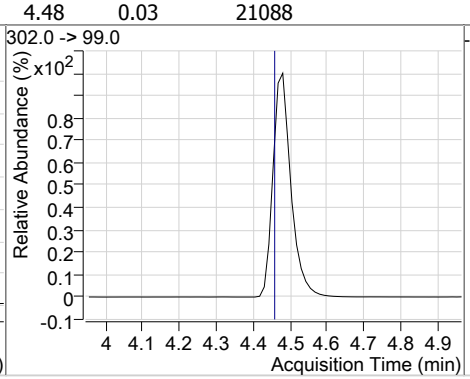


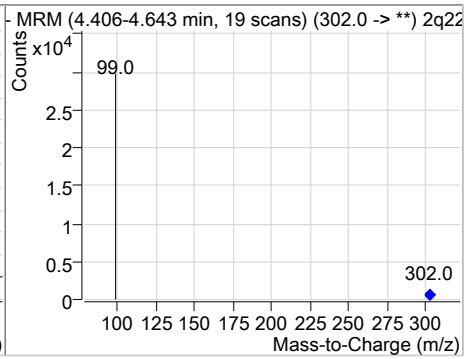




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.08	4.48	0.03	21088				

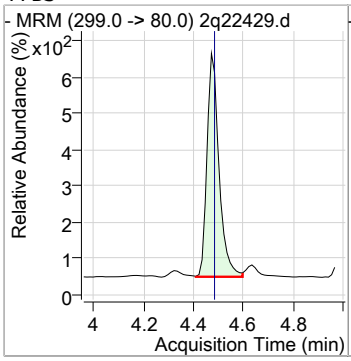


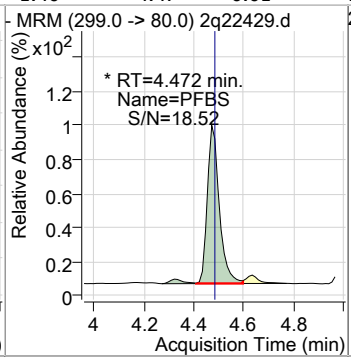


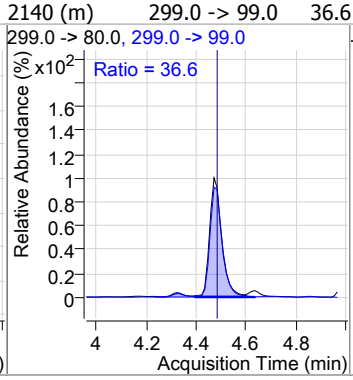


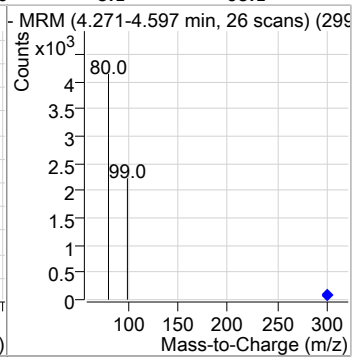
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.40	4.47	0.01	2140 (m)	299.0 -> 99.0	36.6	8.1	68.1

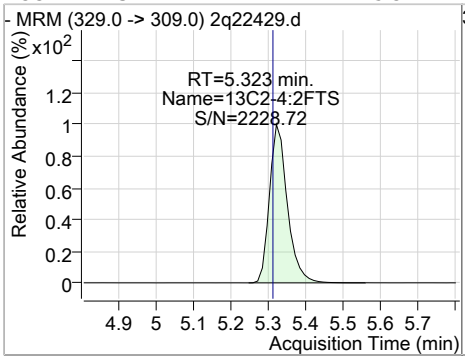


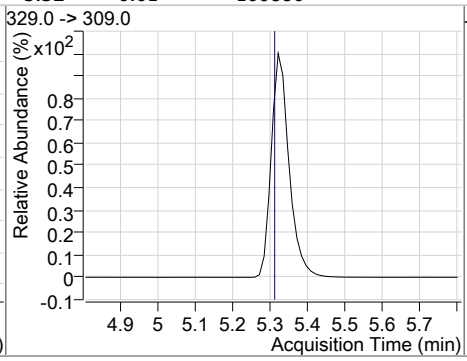


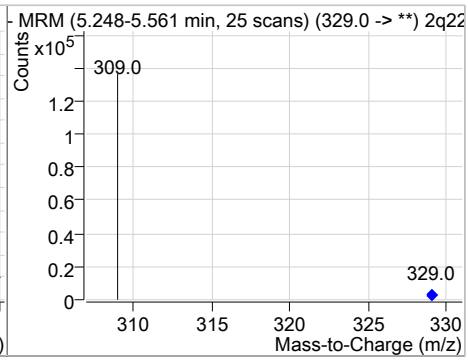




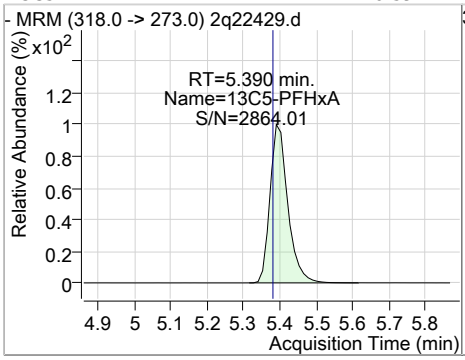
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.32	5.32	0.01	100880				

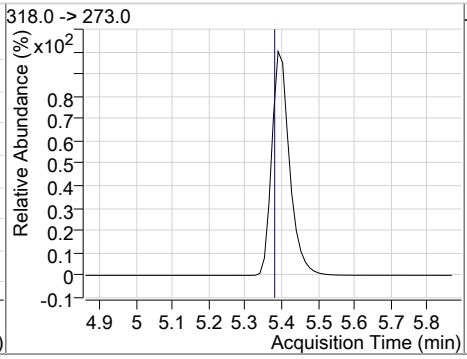


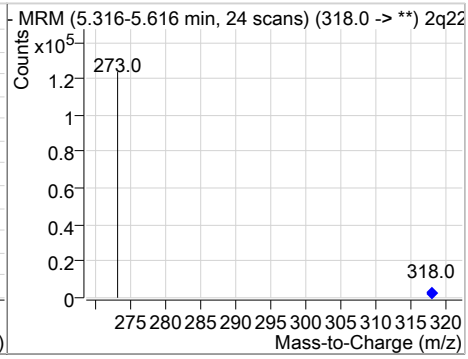




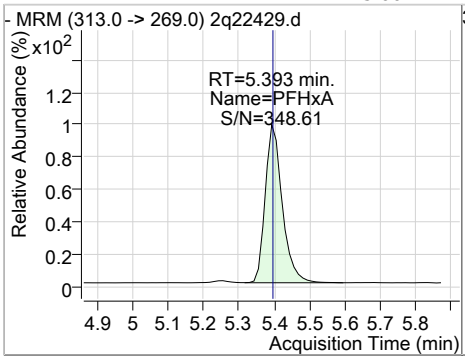
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	16.59	5.39	0.01	91303				

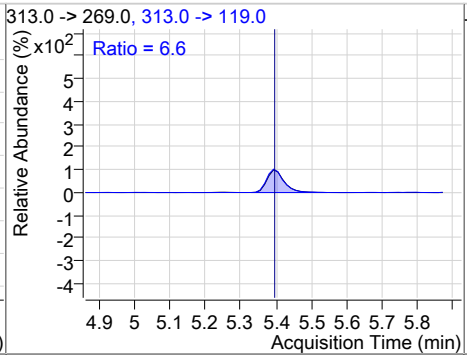


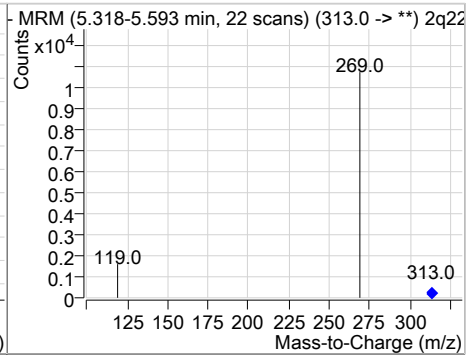




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	5.00	5.39	0.01	7318	313.0 -> 119.0	6.6	0.0	36.4

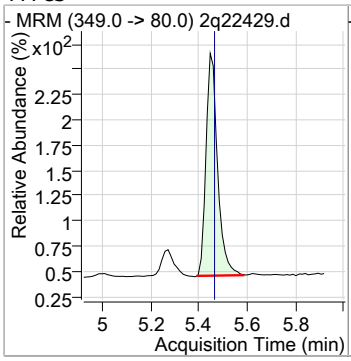


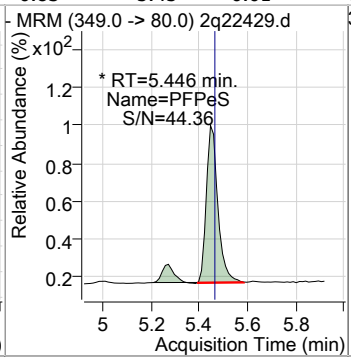


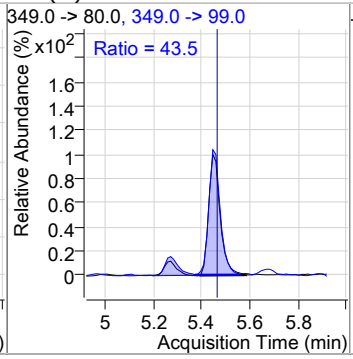


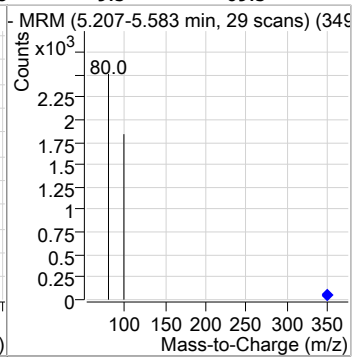
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.83	5.45	0.01	818 (m)	349.0 -> 99.0	43.5	9.5	69.5

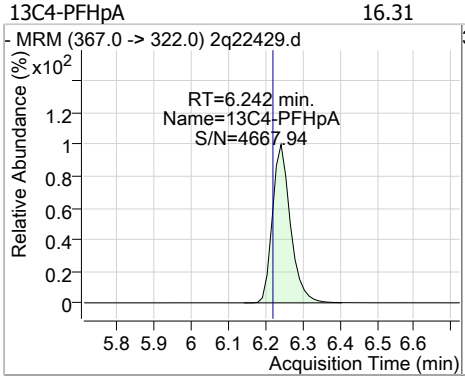


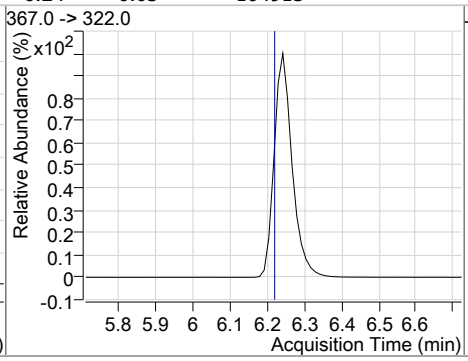


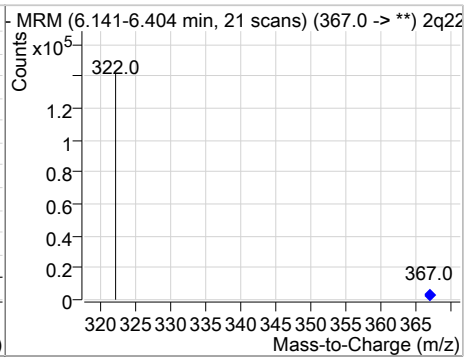




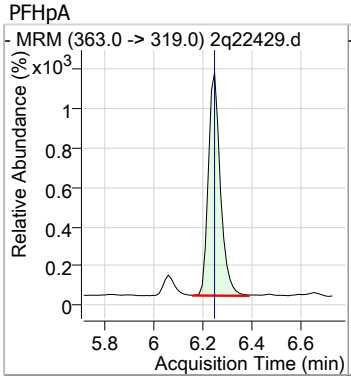
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.31	6.24	0.03	104913				

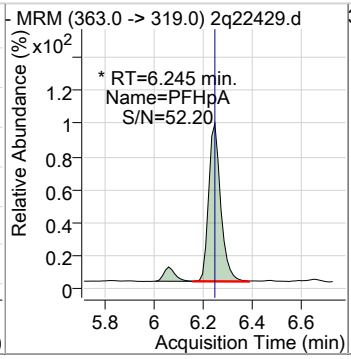


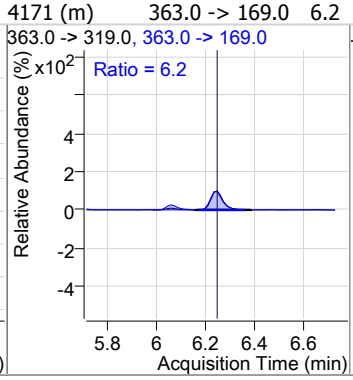


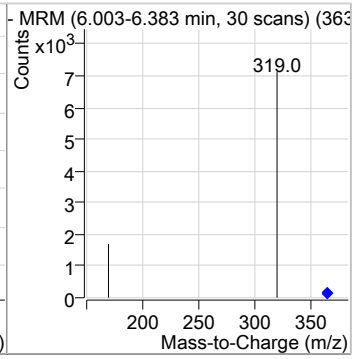


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.05	6.24	0.03	4171 (m)	363.0 -> 169.0	6.2	0.0	35.4

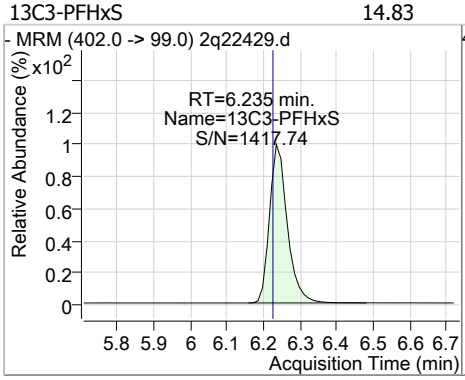


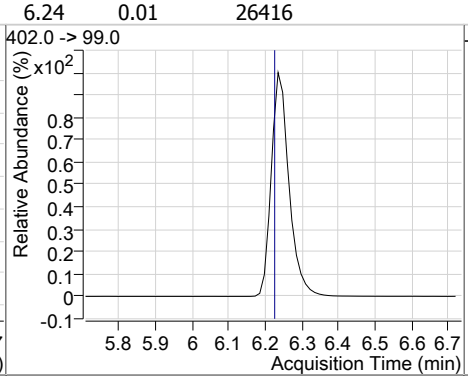


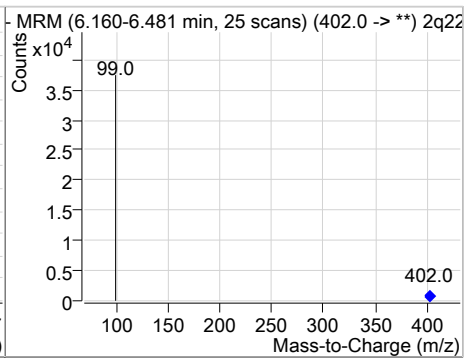




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	14.83	6.24	0.01	26416				

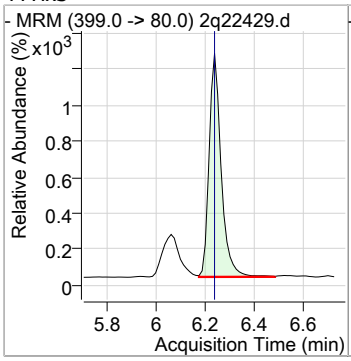


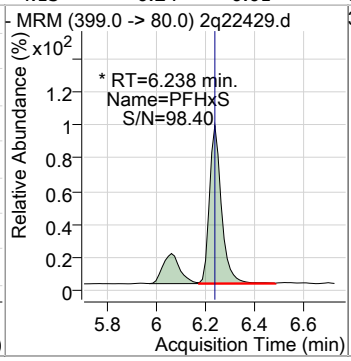


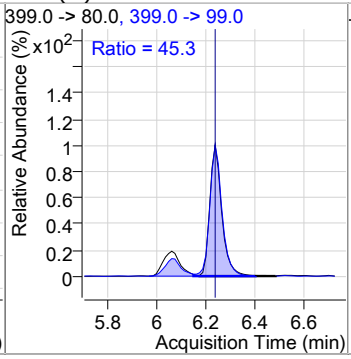


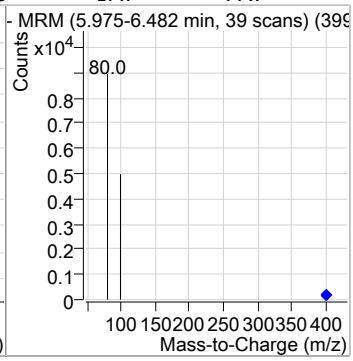
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.13	6.24	0.01	5318 (m)	399.0 -> 99.0	45.3	17.7	77.7

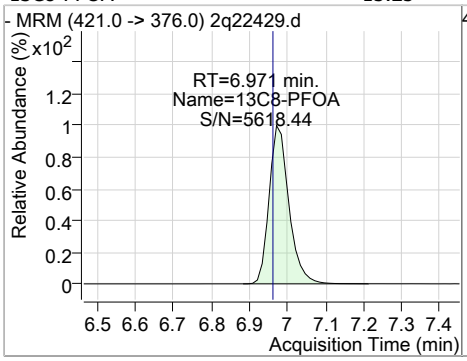


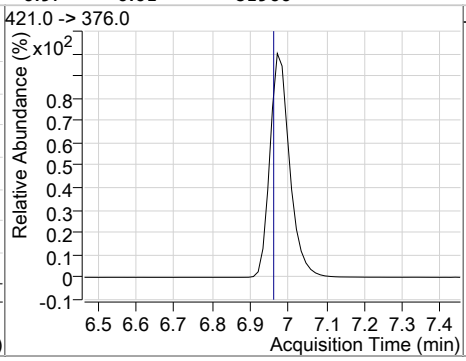


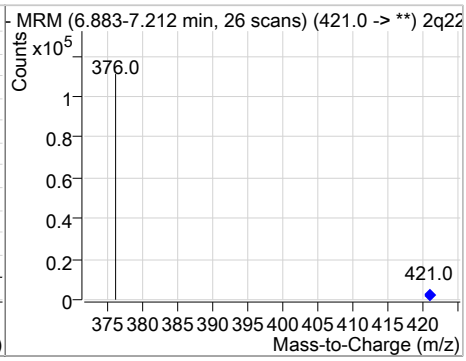




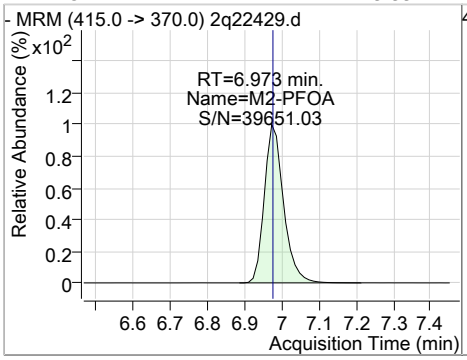
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.25	6.97	0.01	81960				

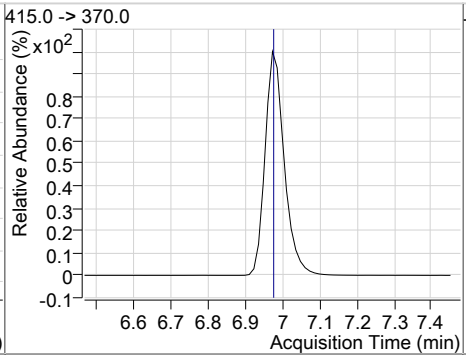


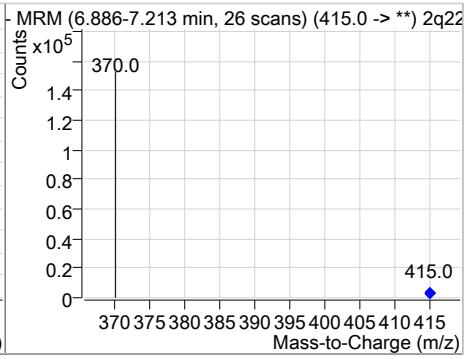




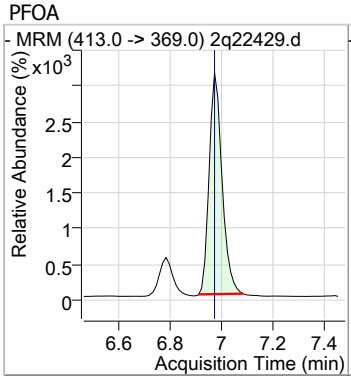
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	113194				

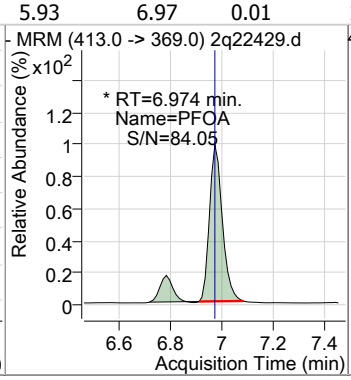


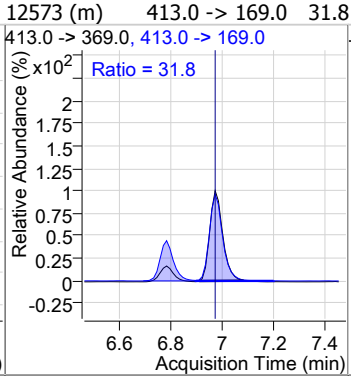


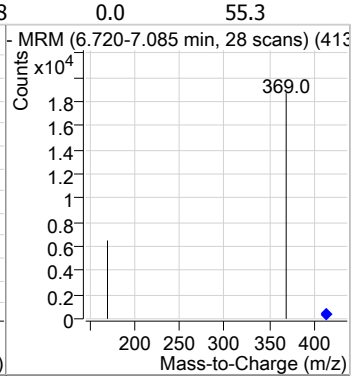


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.93	6.97	0.01	12573 (m)	413.0 -> 169.0	31.8	0.0	55.3



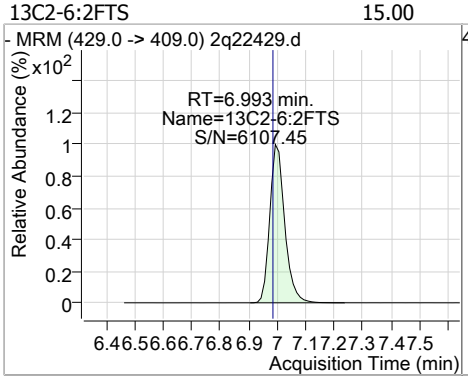


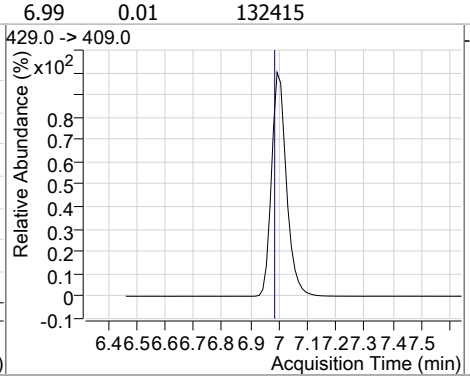


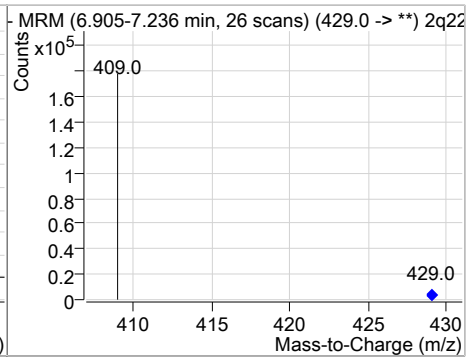


Perfluorinated Compounds by LC/MS/MS

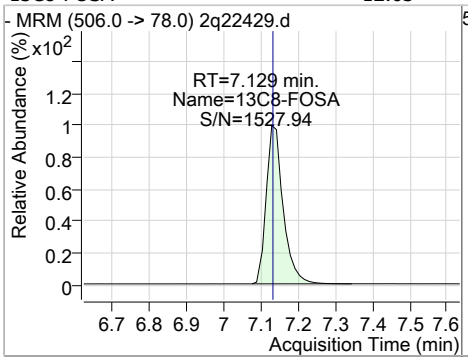
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.00	6.99	0.01	132415				

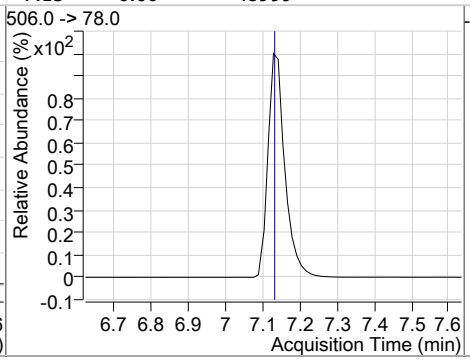


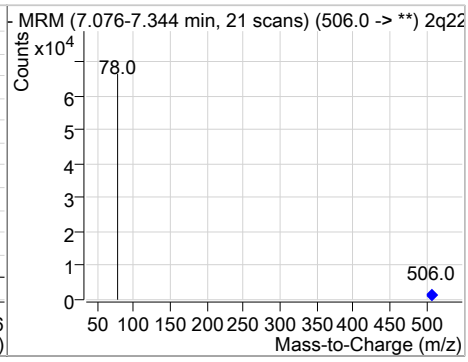




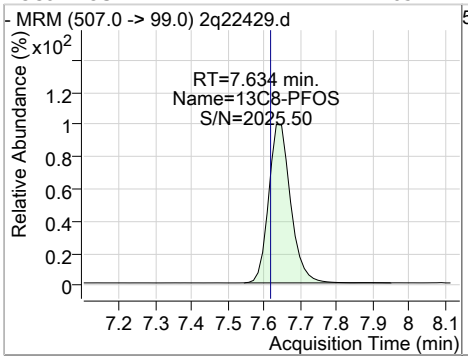
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	12.63	7.13	0.00	48999				

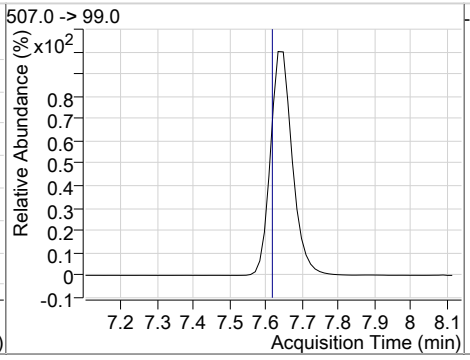


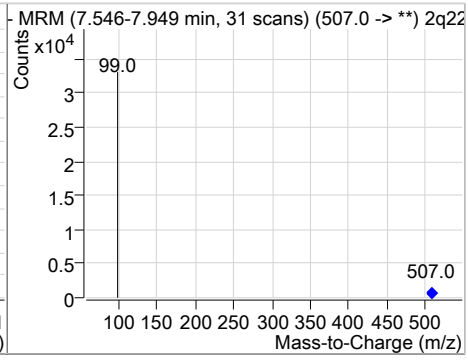




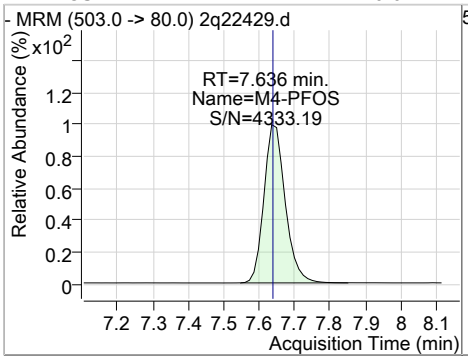
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	12.85	7.63	0.01	23314				

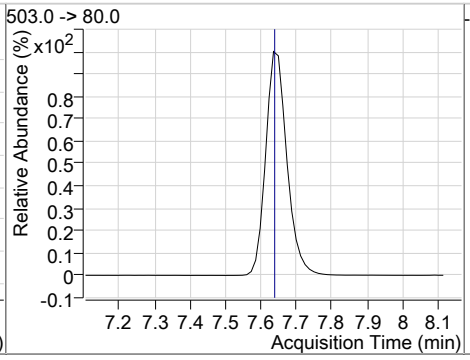


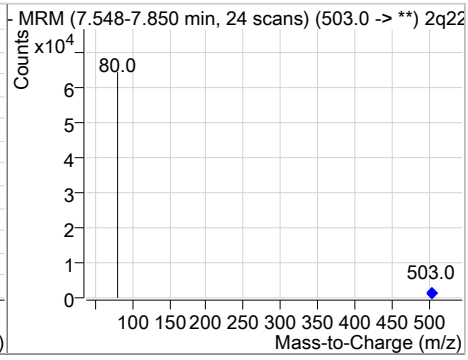




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.64	0.01	47401				

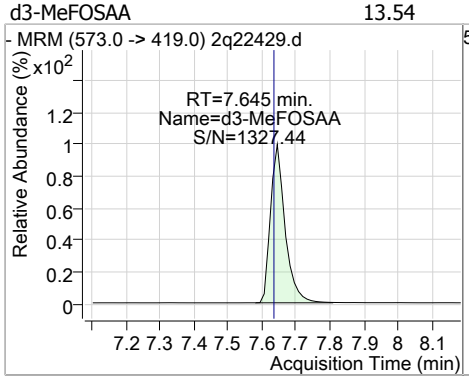


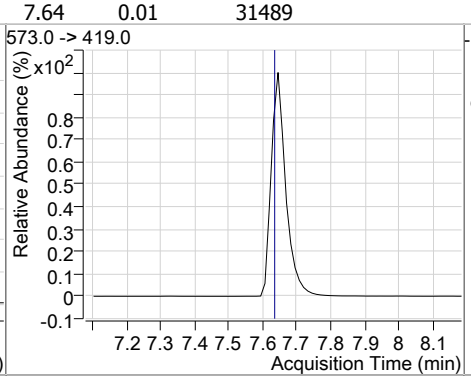


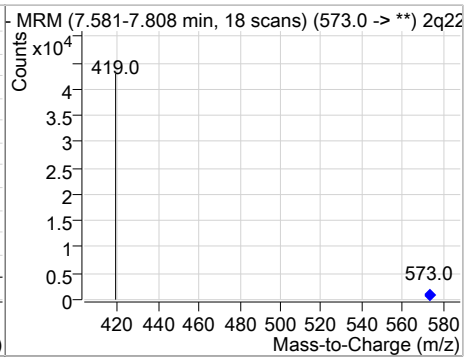


Perfluorinated Compounds by LC/MS/MS

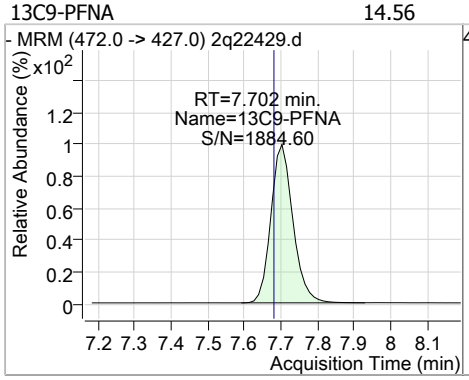
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.54	7.64	0.01	31489				

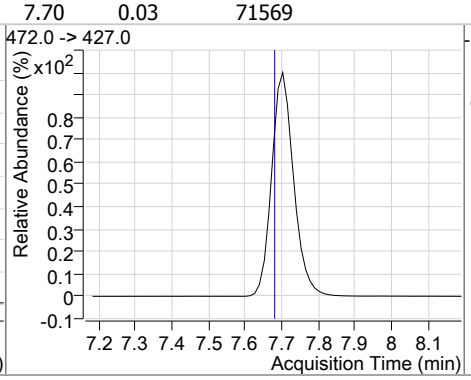


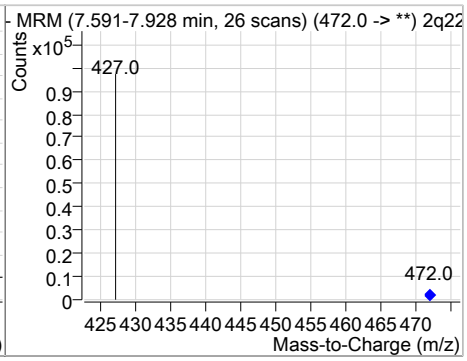




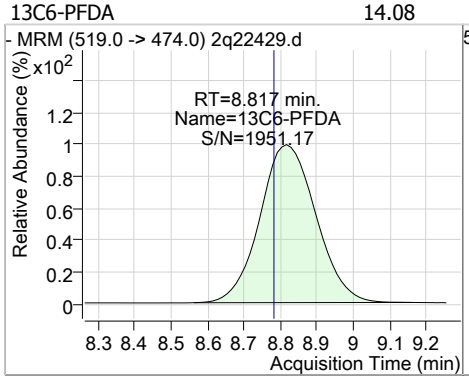
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	14.56	7.70	0.03	71569				

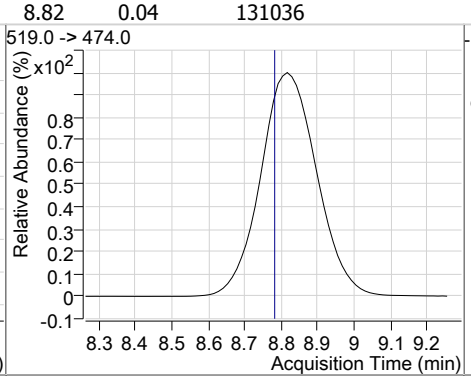


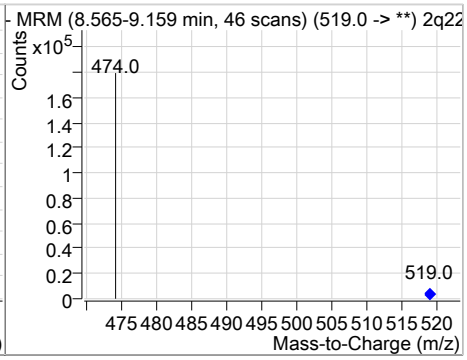




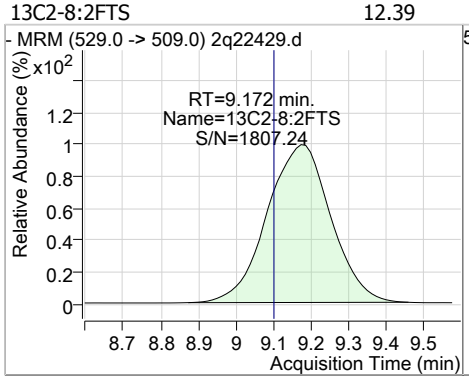
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	14.08	8.82	0.04	131036				

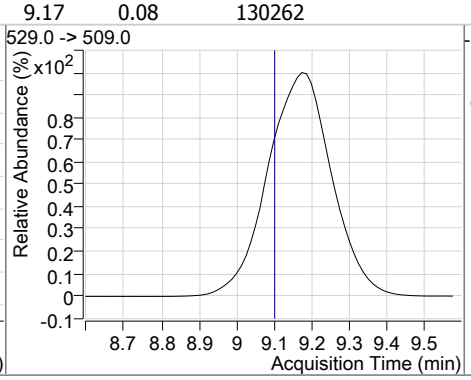


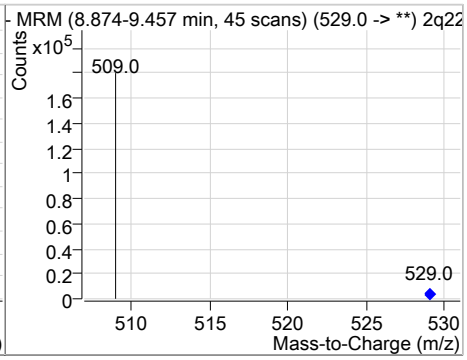




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	12.39	9.17	0.08	130262				

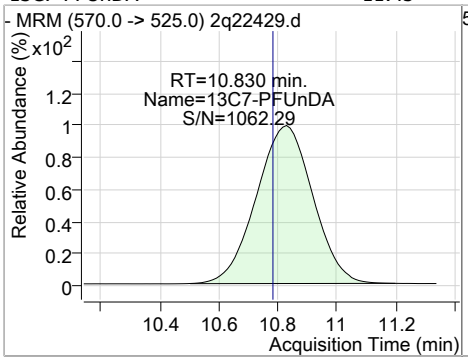


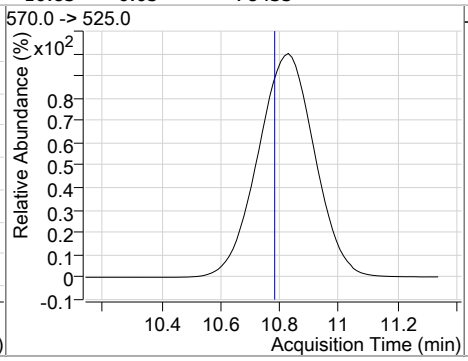


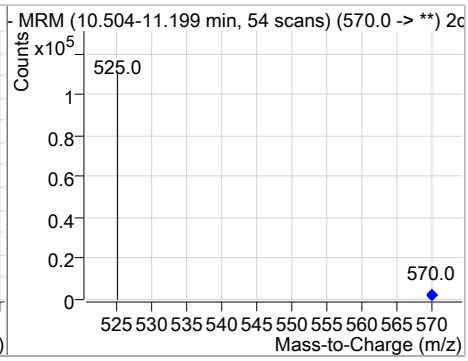


Perfluorinated Compounds by LC/MS/MS

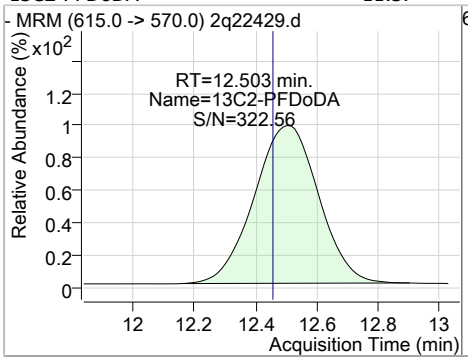
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.45	10.83	0.05	78435				

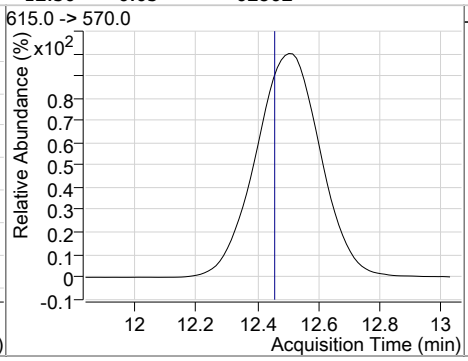


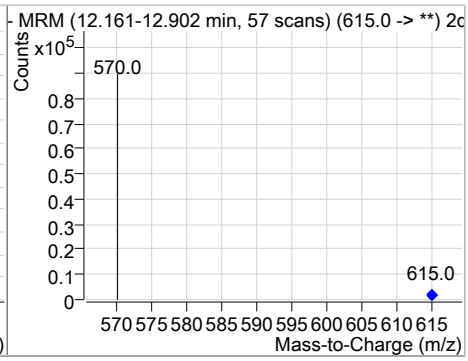




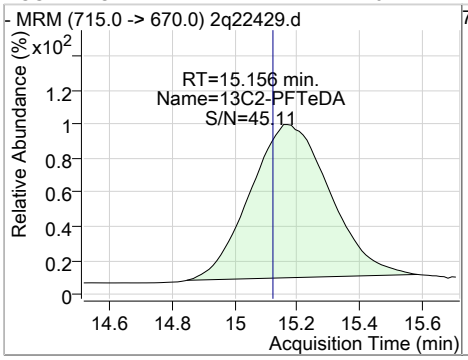
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.37	12.50	0.05	62862				

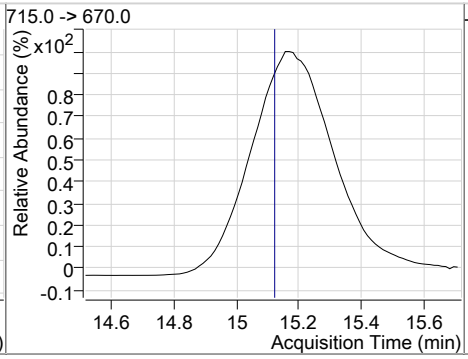


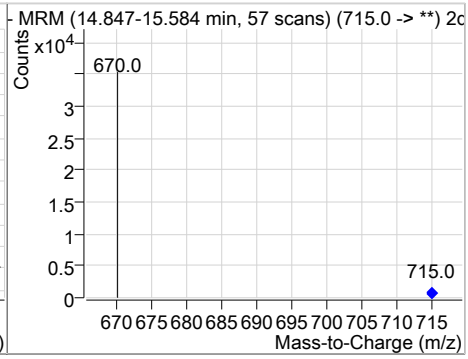




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	10.71	15.16	0.04	20796				







Manual Integration Approval Summary

Sample Number: FA57914-13
Lab FileID: 2Q22429.D
Injection Time: 10/20/18 02:04
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		4.47	Split peak
Perfluoropentanesulfonic acid	2706-91-4		5.45	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluoroheptanoic acid	375-85-9		6.25	Split peak
Perfluorooctanoic acid	335-67-1		6.97	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.43	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22150.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 9:33:50 PM
Sample Name : fa57914-13
Vial : Vial 27
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

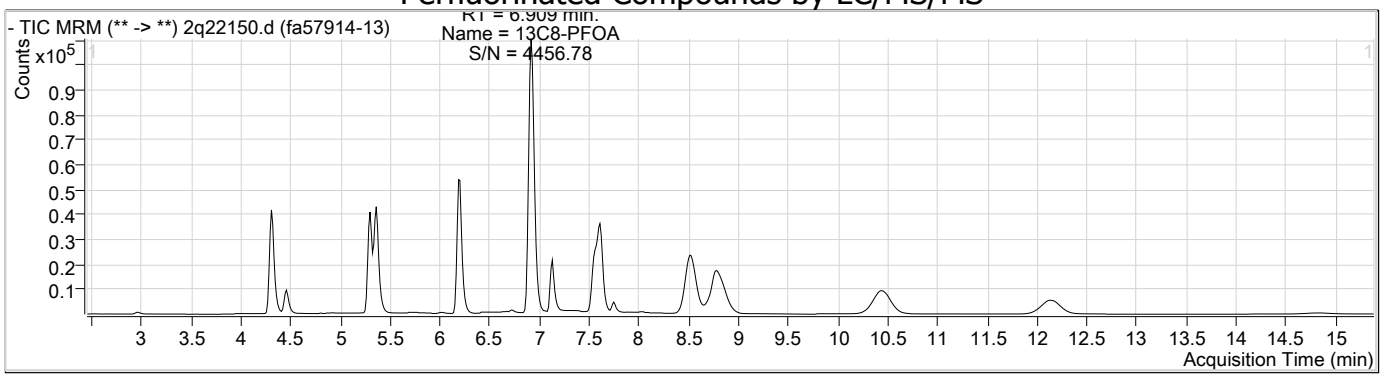
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	141453	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	51096	20.00	µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	2418	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	119421	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	121135	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	140526	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	116711	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	100746	20.00	µg/L	0.000
M6-PFDA	8.516	519.0 -> 474.0	180649	20.00	µg/L	0.012
M7-PFUnDA	10.429	570.0 -> 525.0	117524	20.00	µg/L	0.025
M2-PFDoDA	12.128	615.0 -> 570.0	76812	20.00	µg/L	0.038
M2-PFTeDA	14.831	715.0 -> 670.0	6965	20.00	µg/L	0.050
M8-FOSA	7.130	506.0 -> 78.0	60956	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	27855	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	34731	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	30715	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	132065	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	164650	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	169486	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	31865	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	132052	18.80	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C2-6:2FTS	6.931	429.0 -> 409.0	164647	18.74	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C2-8:2FTS	8.775	529.0 -> 509.0	168468	16.19	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.9%		
13C2-PFDoDA	12.128	615.0 -> 570.0	75948	12.10	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 60.5%		
13C2-PFTeDA	14.831	715.0 -> 670.0	6771	3.03	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 15.2%		
13C3-PFBS	4.455	302.0 -> 99.0	27847	19.55	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C3-PFHxS	6.198	402.0 -> 99.0	34715	20.04	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C4-PFBA	2.966	217.0 -> 172.0	2415	0.17	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.8%		
13C4-PFHpA	6.192	367.0 -> 322.0	140530	20.04	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C5-PFHxA	5.364	318.0 -> 273.0	121097	19.95	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C5-PFPeA	4.312	268.0 -> 223.0	119406	19.01	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C6-PFDA	8.516	519.0 -> 474.0	180296	17.88	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.4%		

Perfluorinated Compounds by LC/MS/MS

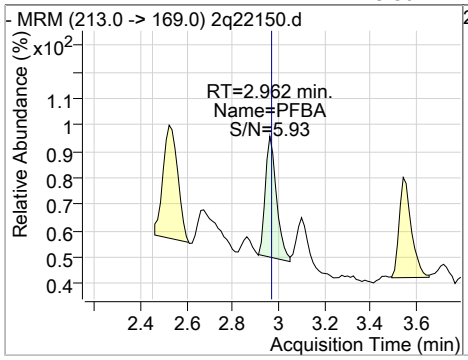
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	116720	15.26	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.3%			
13C8-FOSA	7.130	506.0 -> 78.0	60887	16.55	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.7%			
13C8-PFOA	6.909	421.0 -> 376.0	116728	19.89	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%			
13C8-PFOS	7.559	507.0 -> 99.0	30708	17.55	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.8%			
13C9-PFNA	7.601	472.0 -> 427.0	100791	19.21	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%			
d3-MeFOSAA	7.620	573.0 -> 419.0	31880	14.25	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.3%			
M2-PFOA	6.910	415.0 -> 370.0	141410	19.99	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	51127	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.962	213.0 -> 169.0	197	13.50	µg/L		100
PFBS	4.459	299.0 -> 80.0	2185	1.08	µg/L	m	99
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	4679	0.89	µg/L	m	96
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	8441	4.35	µg/L	m	99
PFHxS	6.201	399.0 -> 80.0	5737	3.29	µg/L	m	96
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	15679	5.47	µg/L	m	89
PFOS	7.346	499.0 -> 80.0	243	0.19	µg/L	m	70
PFPeA	4.316	263.0 -> 219.0	19822	3.59	µg/L		100
PFPeS	5.421	349.0 -> 80.0	831	0.60	µg/L	m	93
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

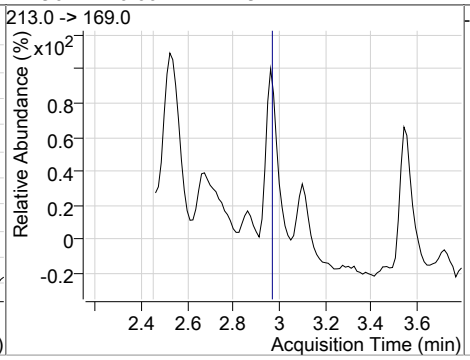
 # = Qualifier out of range, m = manually integrated, + = Area summed

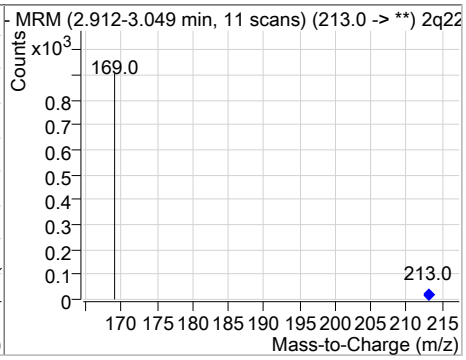
Perfluorinated Compounds by LC/MS/MS



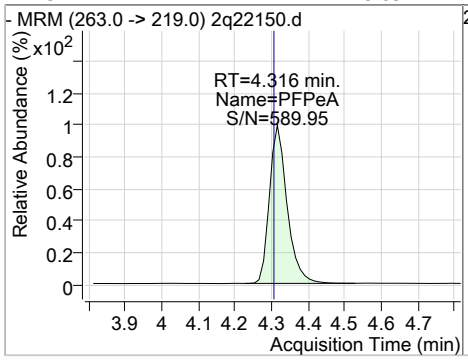
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	13.50	2.96	0.00	197				

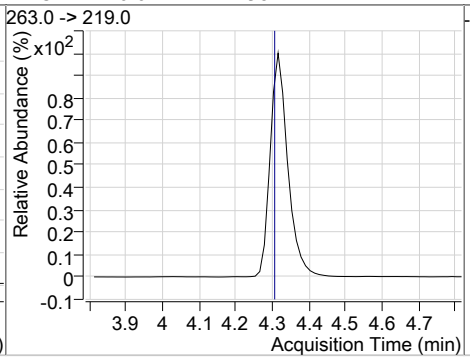


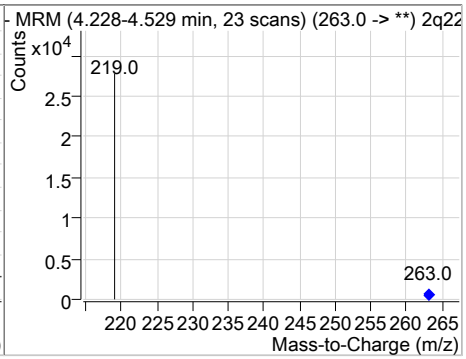




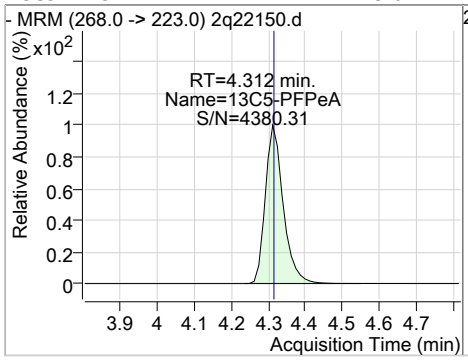
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	3.59	4.32	0.01	19822				

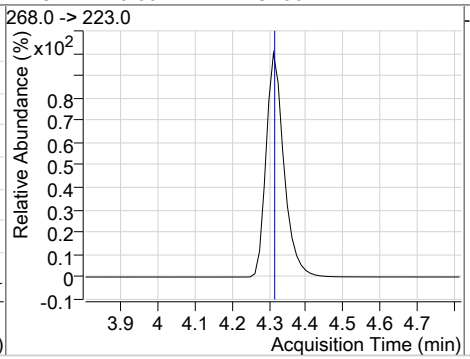


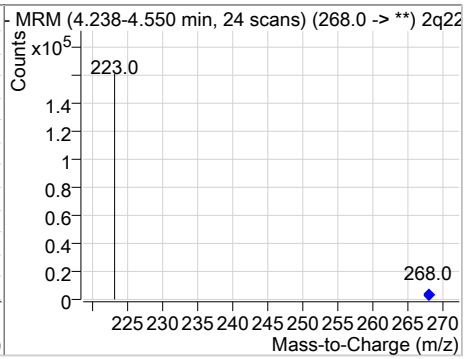




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.01	4.31	0.00	119406				

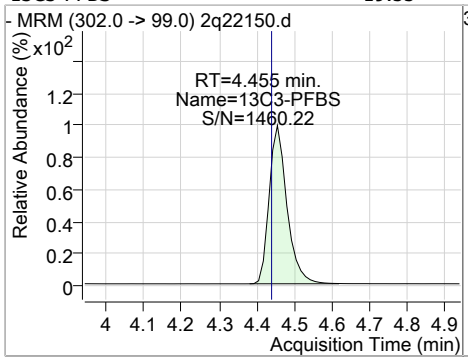


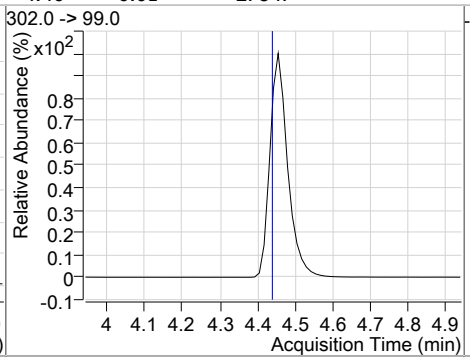


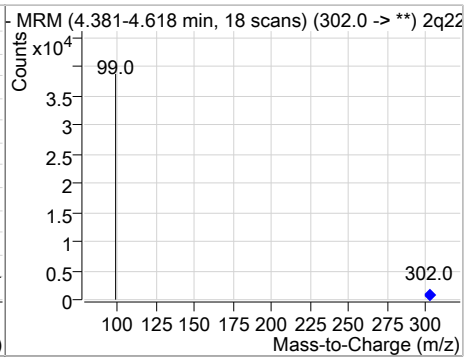


Perfluorinated Compounds by LC/MS/MS

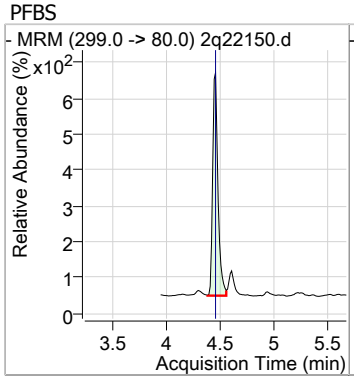
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.55	4.46	0.01	27847				

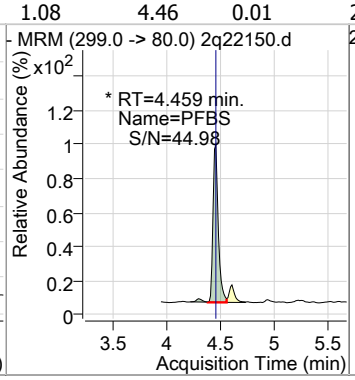


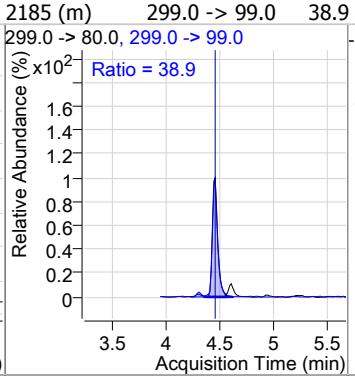


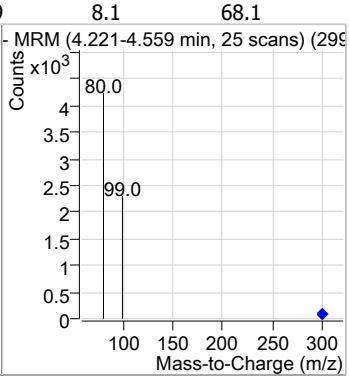


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.08	4.46	0.01	2185 (m)	299.0 -> 99.0	38.9	8.1	68.1

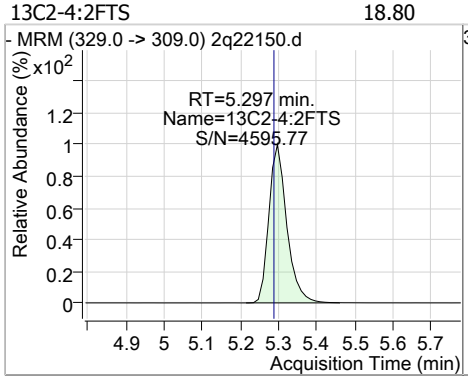


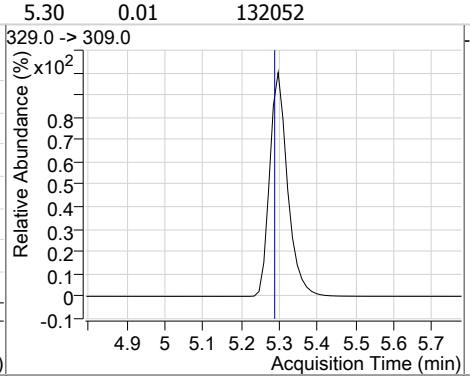


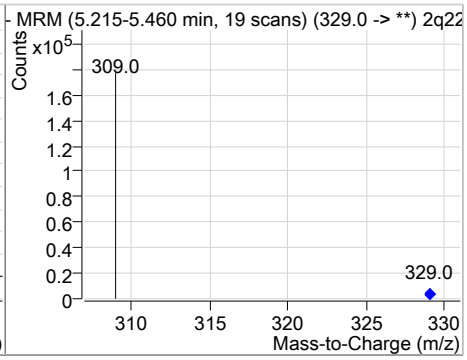




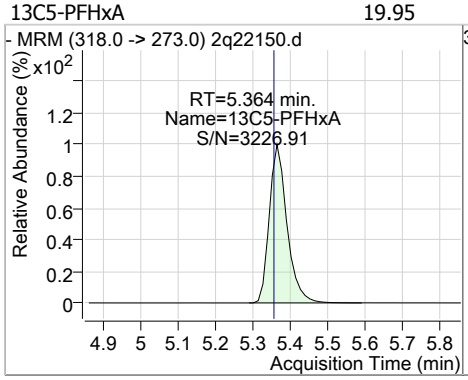
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.80	5.30	0.01	132052				

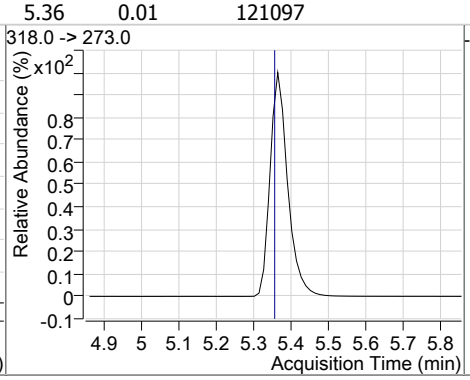


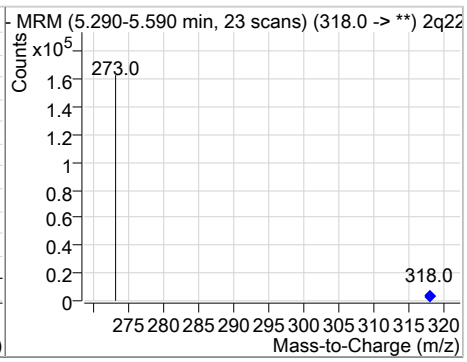




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.95	5.36	0.01	121097				

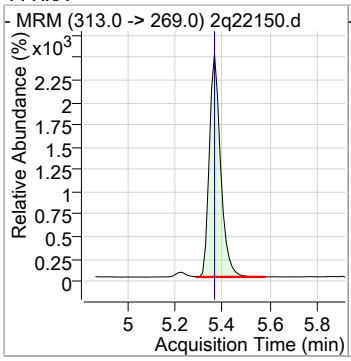


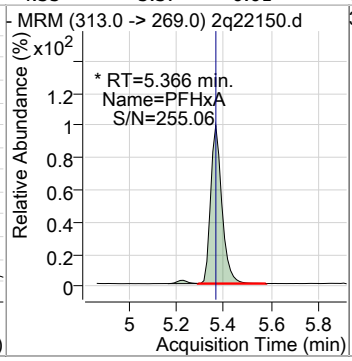


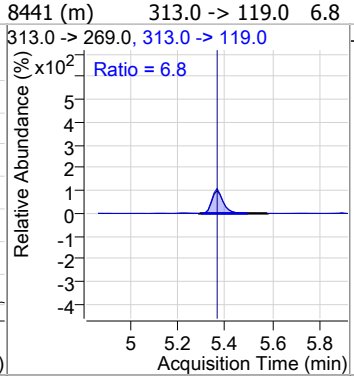


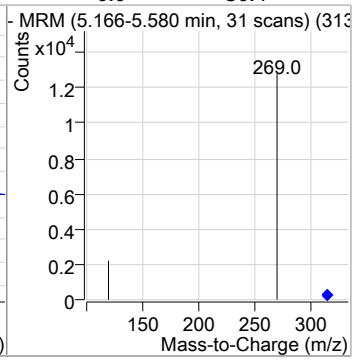
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.35	5.37	0.01	8441 (m)	313.0 -> 119.0	6.8	0.0	36.4

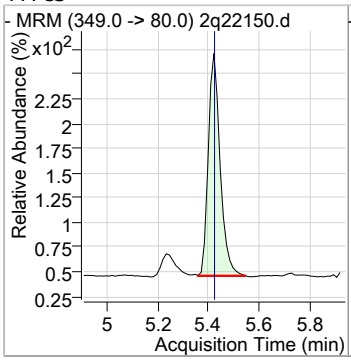


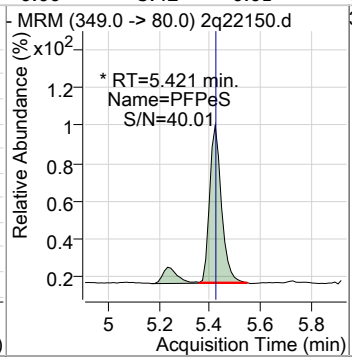


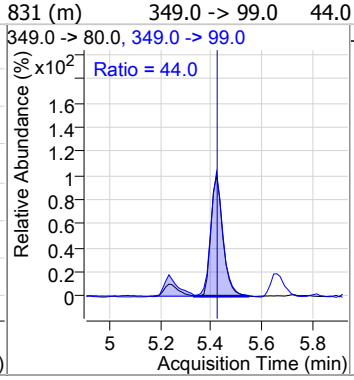


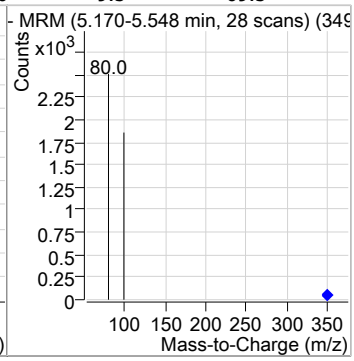


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.60	5.42	0.01	831 (m)	349.0 -> 99.0	44.0	9.5	69.5

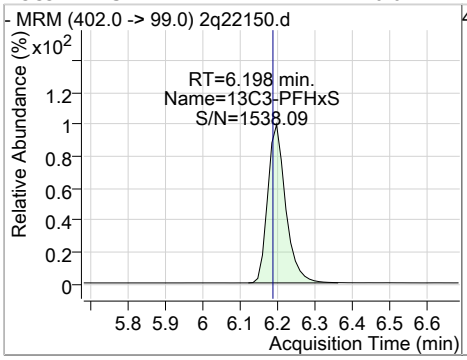


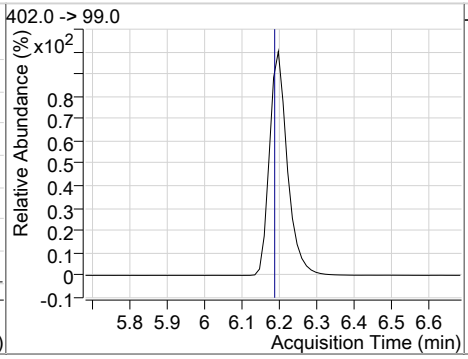


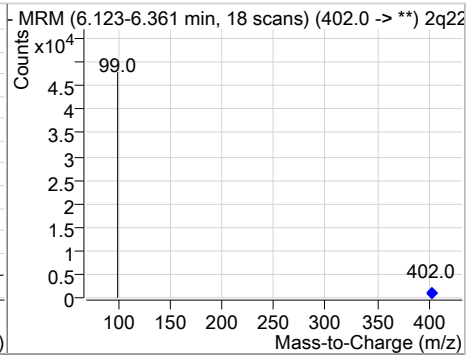




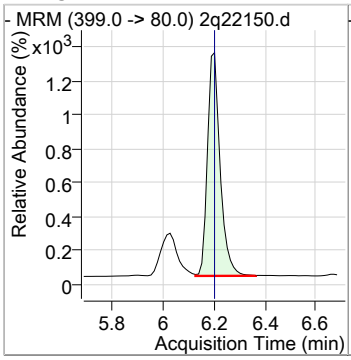
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.04	6.20	0.01	34715				

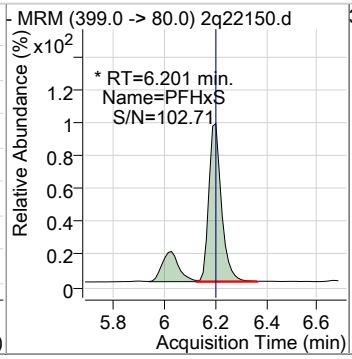


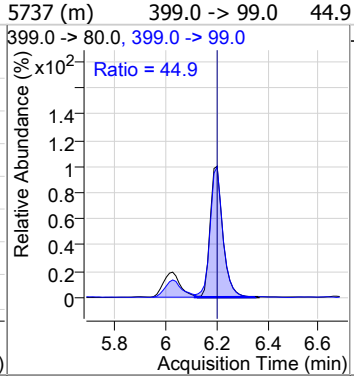


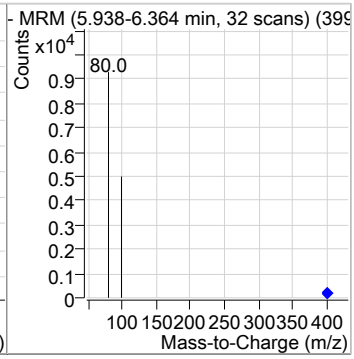


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	3.29	6.20	0.01	5737 (m)	399.0 -> 99.0	44.9	17.7	77.7



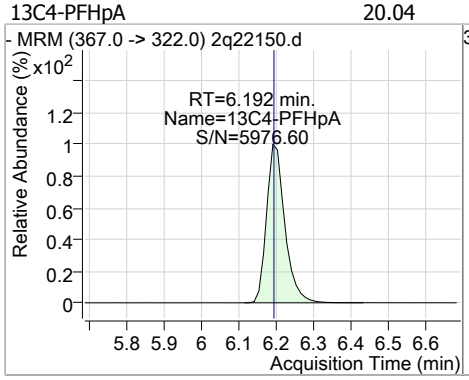


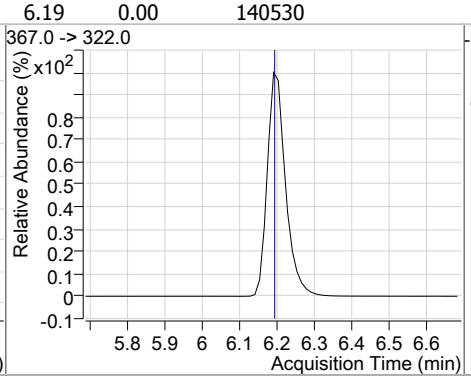


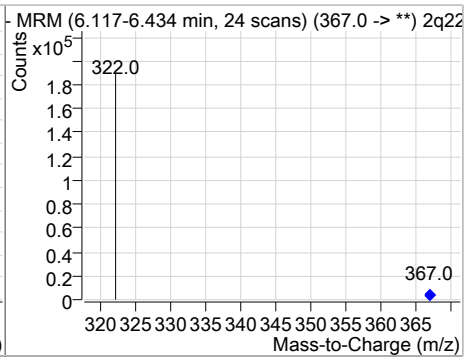


Perfluorinated Compounds by LC/MS/MS

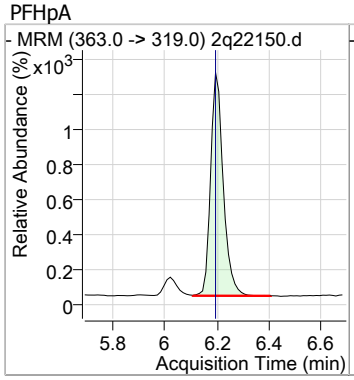
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.04	6.19	0.00	140530				

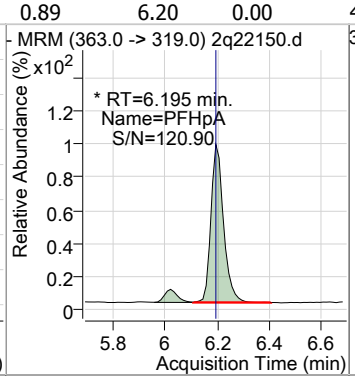


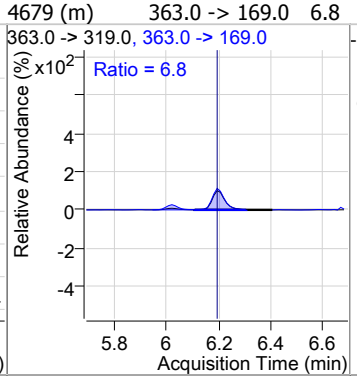


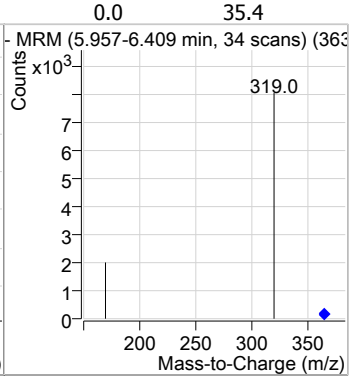


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.89	6.20	0.00	4679 (m)	363.0 -> 169.0	6.8	0.0	35.4

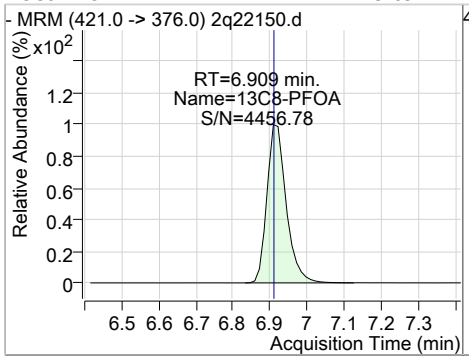


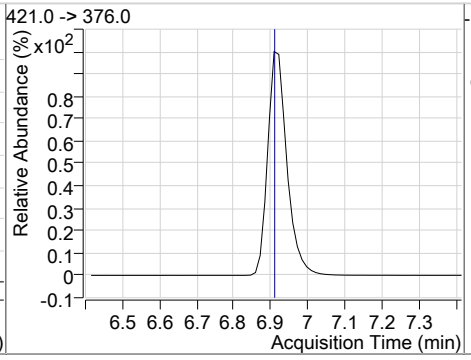


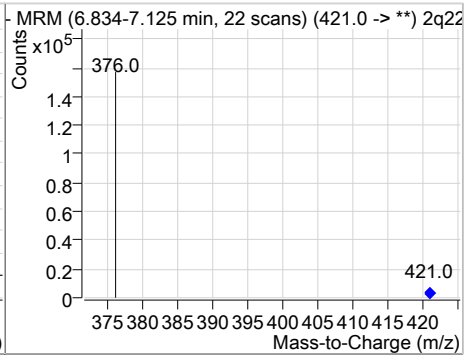




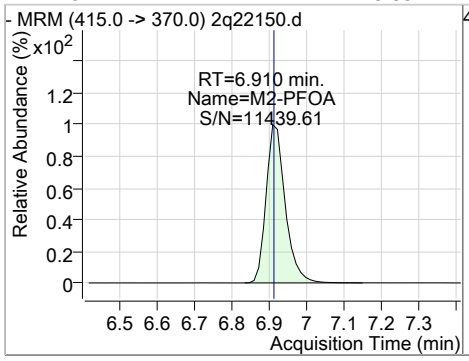
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.89	6.91	0.00	116728				

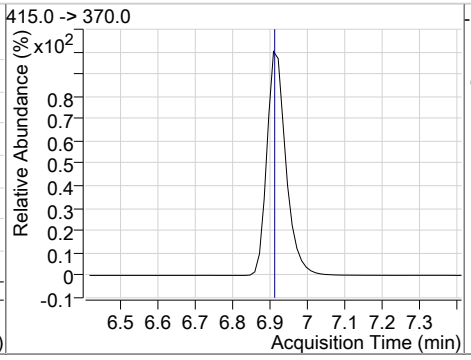


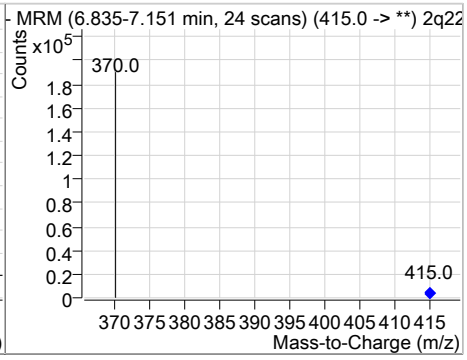




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.91	0.00	141410				

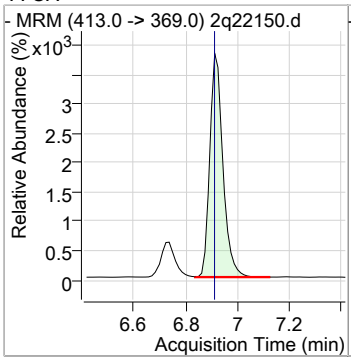


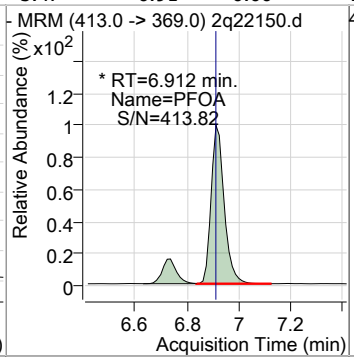


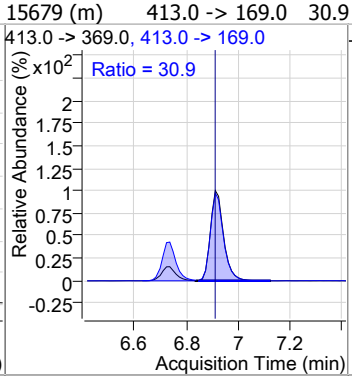


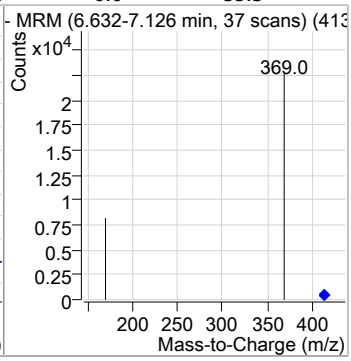
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.47	6.91	0.00	15679 (m)	413.0 -> 169.0	30.9	0.0	55.3

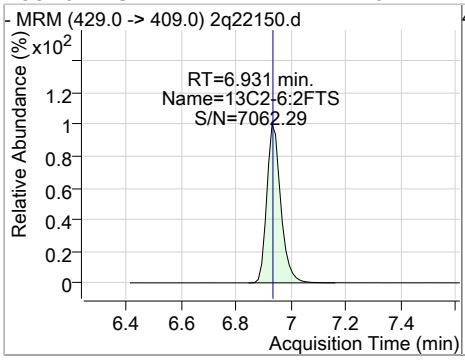


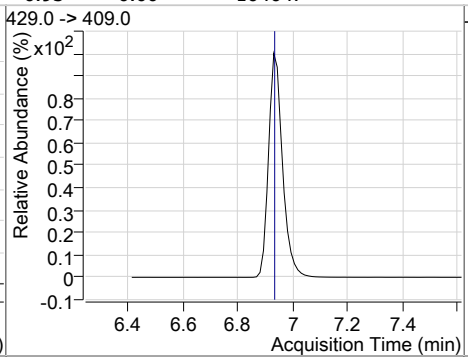


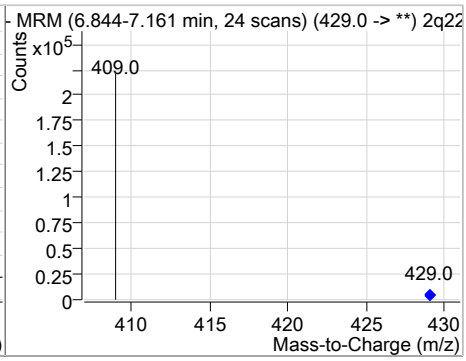




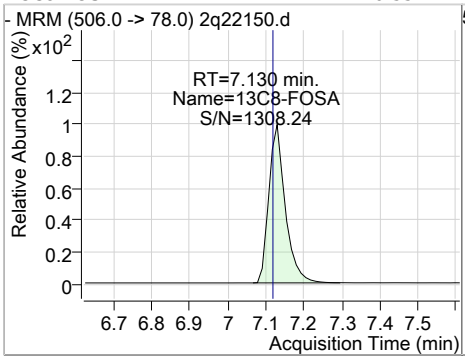
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.74	6.93	0.00	164647				

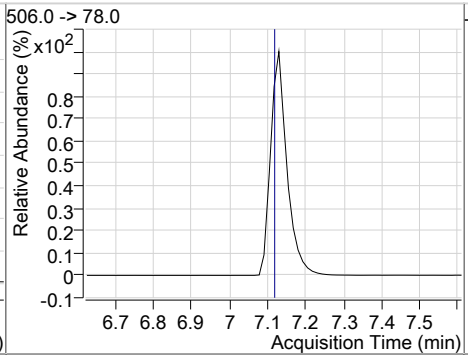


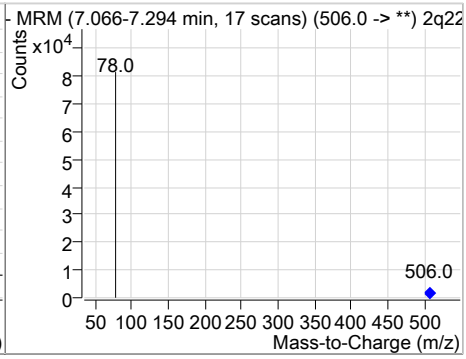




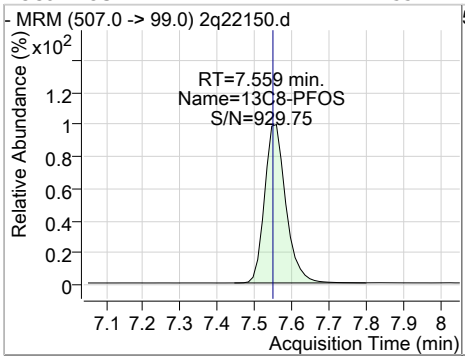
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	16.55	7.13	0.01	60887				

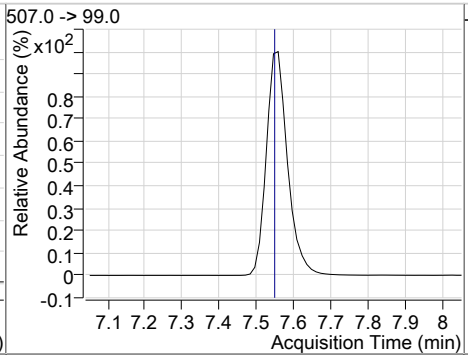


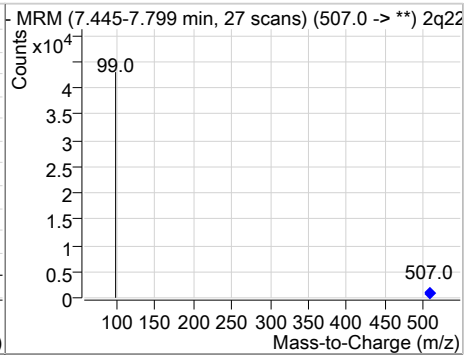




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.55	7.56	0.01	30708				

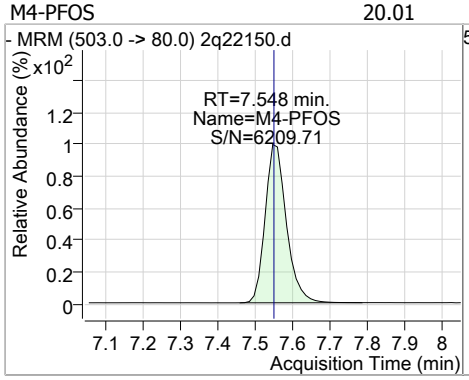


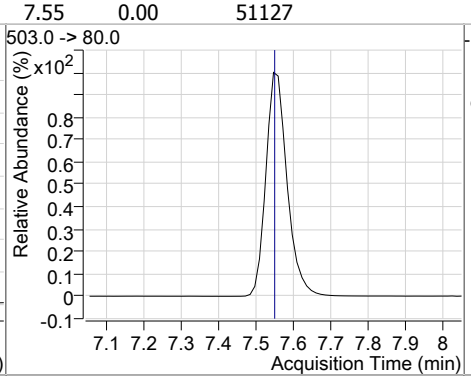


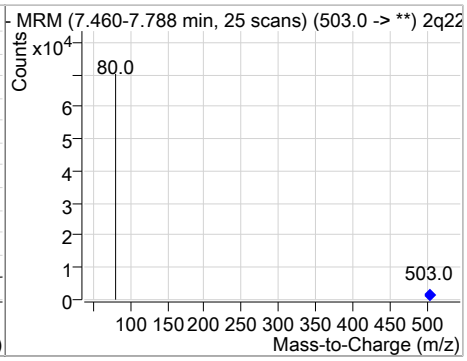


Perfluorinated Compounds by LC/MS/MS

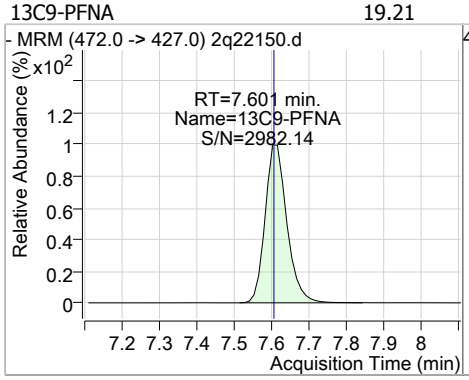
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.55	0.00	51127				

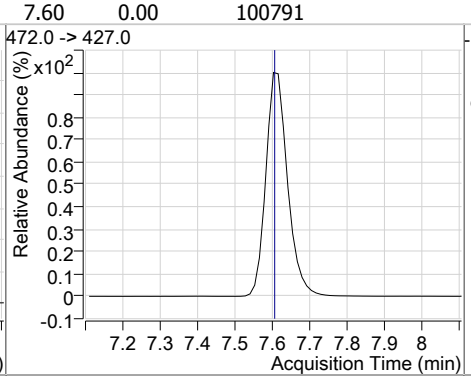


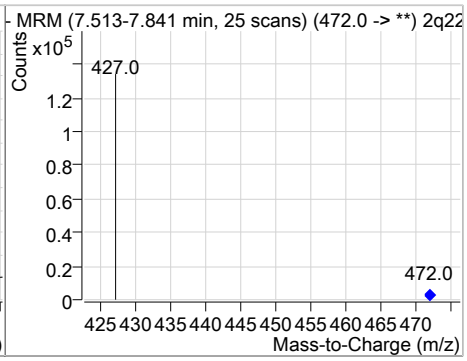




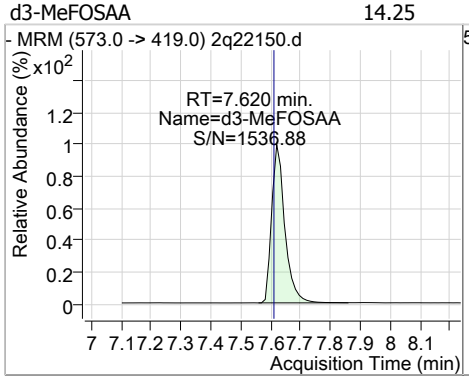
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.21	7.60	0.00	100791				

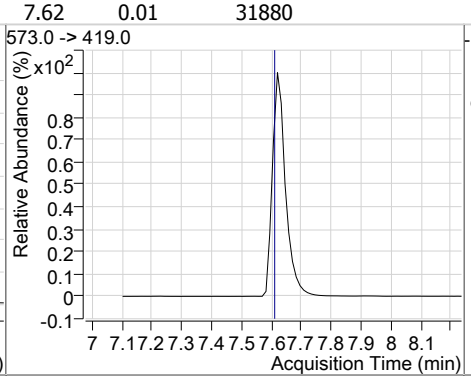


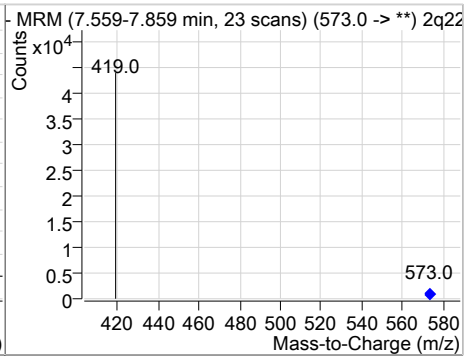




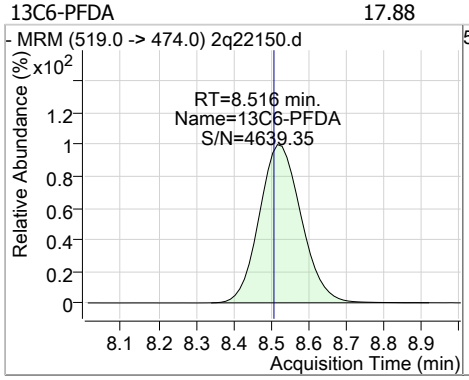
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.25	7.62	0.01	31880				

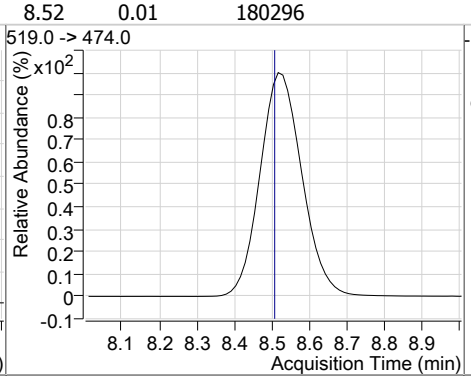


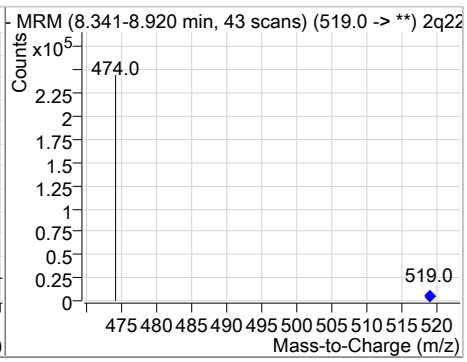




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.88	8.52	0.01	180296				

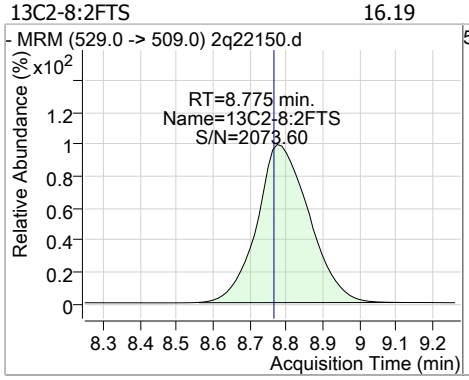


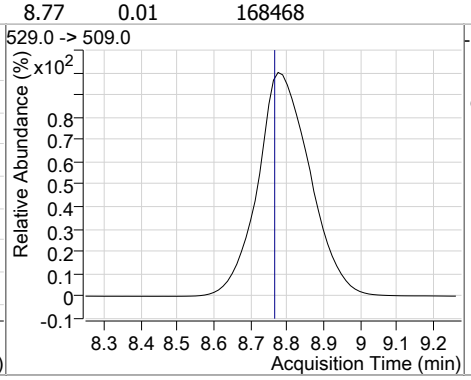


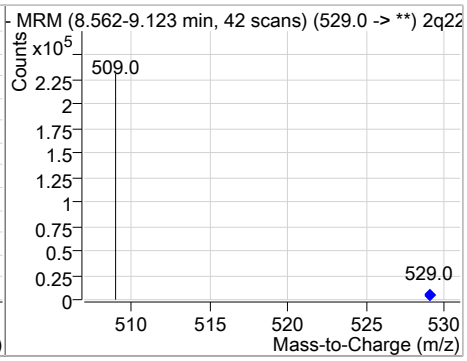


Perfluorinated Compounds by LC/MS/MS

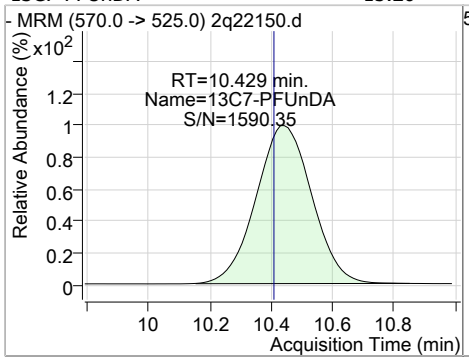
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.19	8.77	0.01	168468				

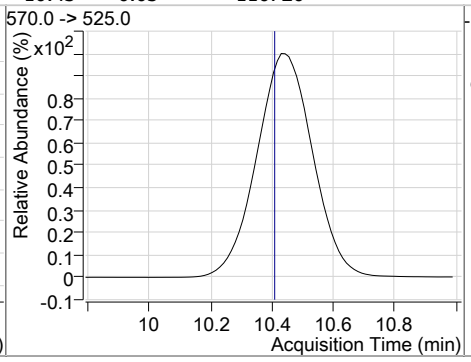


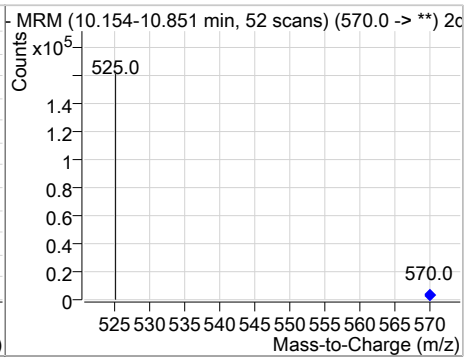




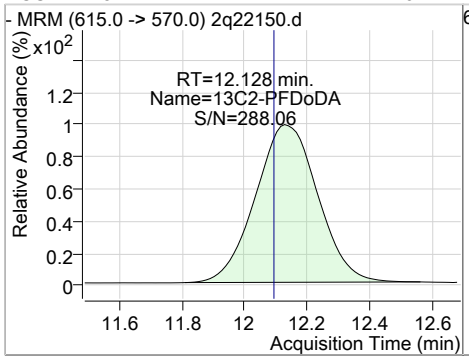
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.26	10.43	0.03	116720				

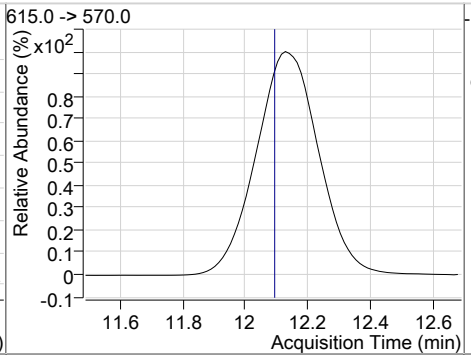


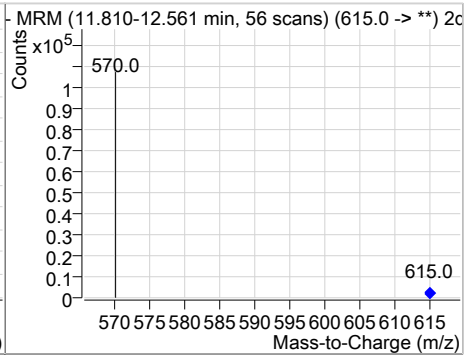




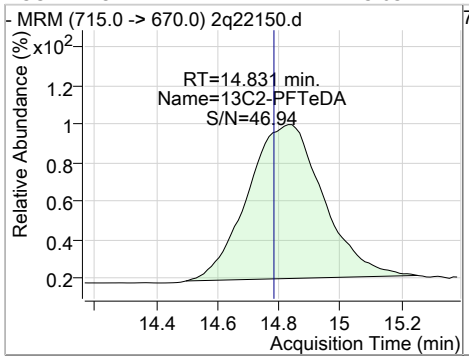
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.10	12.13	0.04	75948				

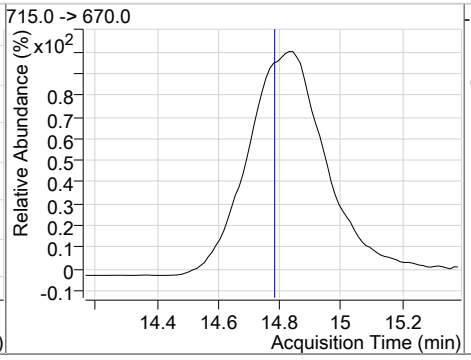


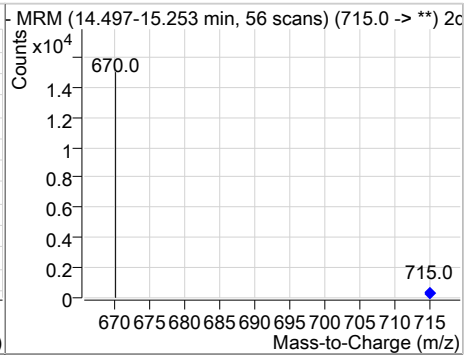




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.03	14.83	0.05	6771				







Manual Integration Approval Summary

Sample Number: FA57914-13
Lab FileID: 2Q22150.D
Injection Time: 10/15/18 21:33
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		4.46	Split peak
Perfluorohexanoic acid	307-24-4		5.37	Split peak
Perfluoropentanesulfonic acid	2706-91-4		5.42	Split peak
Perfluoroheptanoic acid	375-85-9		6.20	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.20	Split peak
Perfluorooctanoic acid	335-67-1		6.91	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.35	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22430.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/20/2018 2:26:06 AM
Sample Name : fa57914-14
Vial : Vial 49
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

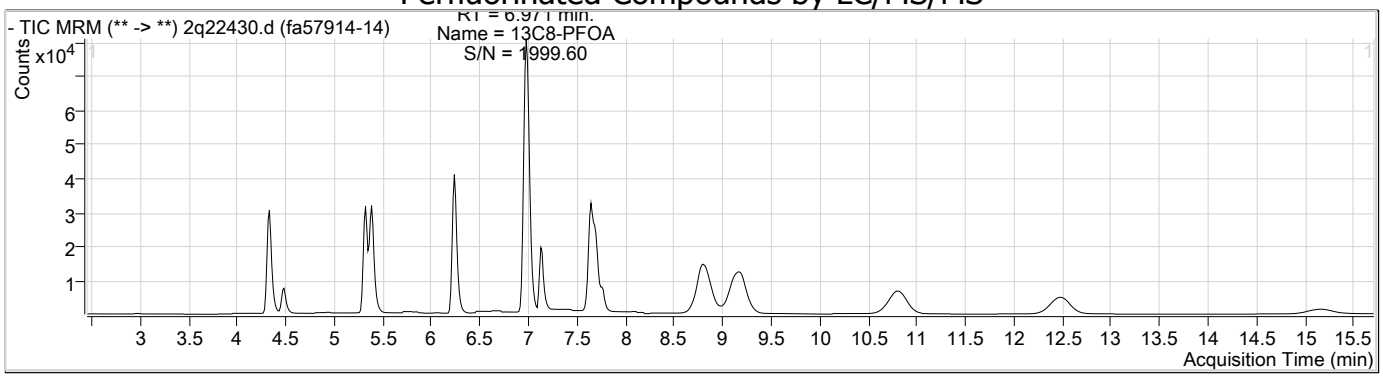
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	116965	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	47813	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	581	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	91926	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	92541	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	107575	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	84528	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	79207	20.00	µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	148441	20.00	µg/L	0.025
M7-PFUnDA	10.805	570.0 -> 525.0	89493	20.00	µg/L	0.025
M2-PFDoDA	12.478	615.0 -> 570.0	71277	20.00	µg/L	0.025
M2-PFTeDA	15.156	715.0 -> 670.0	24832	20.00	µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	56748	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	21547	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	28005	20.00	µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	25937	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	103470	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	137094	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	146520	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	34544	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	103442	15.71	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.5%		
13C2-6:2FTS	6.993	429.0 -> 409.0	137104	15.53	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.6%		
13C2-8:2FTS	9.160	529.0 -> 509.0	145301	13.83	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.1%		
13C2-PFDoDA	12.478	615.0 -> 570.0	70690	12.78	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 63.9%		
13C2-PFTeDA	15.156	715.0 -> 670.0	23712	12.22	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.1%		
13C3-PFBS	4.481	302.0 -> 99.0	21545	15.41	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.0%		
13C3-PFHxS	6.235	402.0 -> 99.0	28022	15.74	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.7%		
13C4-PFBA	2.966	217.0 -> 172.0	581	0.04	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.2%		
13C4-PFHpA	6.242	367.0 -> 322.0	107565	16.72	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.6%		
13C5-PFHxA	5.390	318.0 -> 273.0	92571	16.82	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.1%		
13C5-PFPeA	4.337	268.0 -> 223.0	91906	16.08	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.4%		
13C6-PFDA	8.804	519.0 -> 474.0	148016	15.91	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.5%		

Perfluorinated Compounds by LC/MS/MS

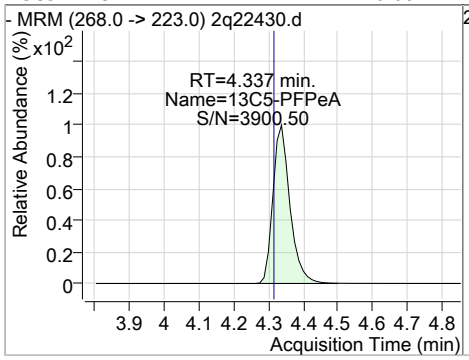
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.805	570.0 -> 525.0	88891	12.98	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.9%			
13C8-FOSA	7.129	506.0 -> 78.0	56656	14.60	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.0%			
13C8-PFOA	6.971	421.0 -> 376.0	84530	15.73	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.7%			
13C8-PFOS	7.633	507.0 -> 99.0	25930	14.29	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.4%			
13C9-PFNA	7.702	472.0 -> 427.0	79220	16.11	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.6%			
d3-MeFOSAA	7.645	573.0 -> 419.0	34558	14.86	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.3%			
M2-PFOA	6.973	415.0 -> 370.0	117001	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	47847	20.02	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.536	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.472	299.0 -> 80.0	2302	1.48	µg/L	m	98
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	982	0.24	µg/L	m	96
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.393	313.0 -> 269.0	4121	2.78	µg/L		100
PFHxS	6.238	399.0 -> 80.0	1123	0.82	µg/L	m	91
PFNA	7.704	463.0 -> 419.0	0	0.00	µg/L	m	1
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	558	0.25	µg/L	m	79
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.341	263.0 -> 219.0	11615	2.69	µg/L		100
PFPeS	5.446	349.0 -> 80.0	682	0.68	µg/L	m	92
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.834	563.0 -> 519.0	0	0.00	µg/L	m	1

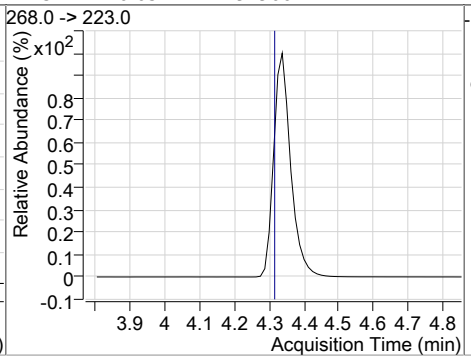
 # = Qualifier out of range, m = manually integrated, + = Area summed

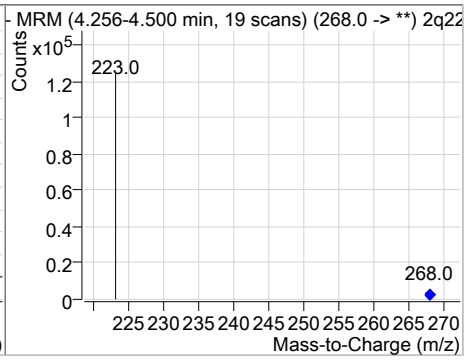
Perfluorinated Compounds by LC/MS/MS



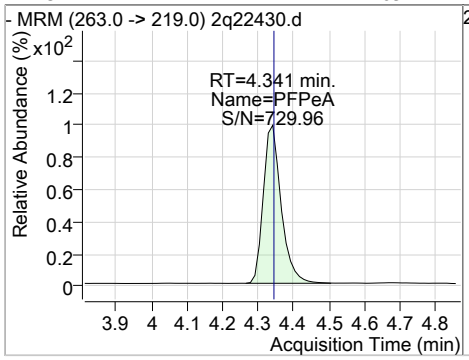
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.08	4.34	0.03	91906				

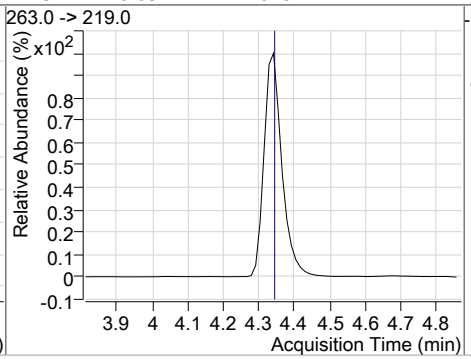


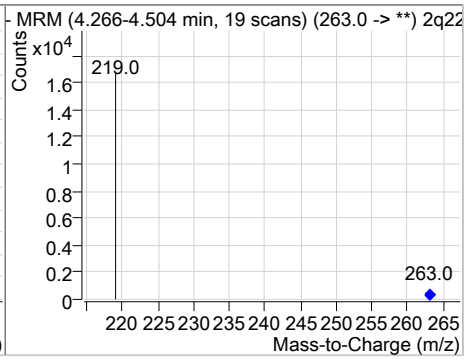




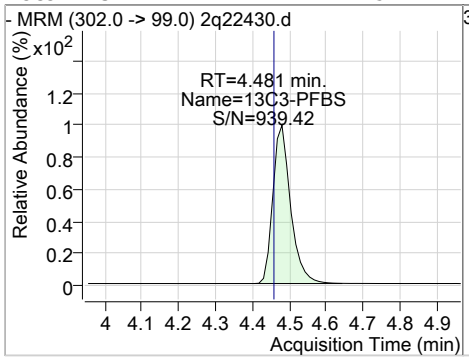
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.69	4.34	0.03	11615				

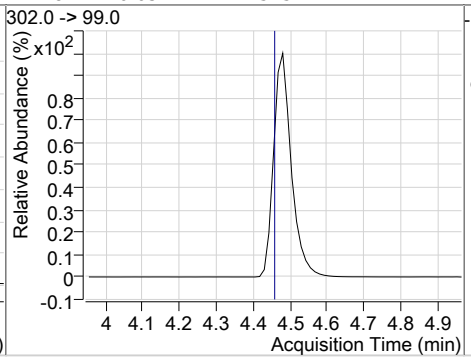


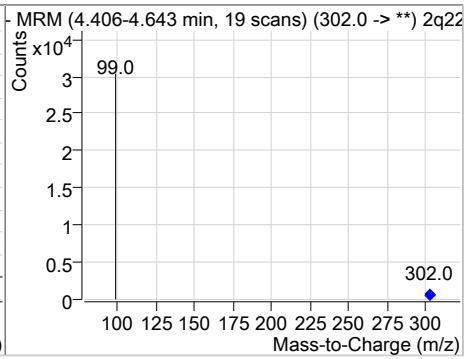




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.41	4.48	0.03	21545				

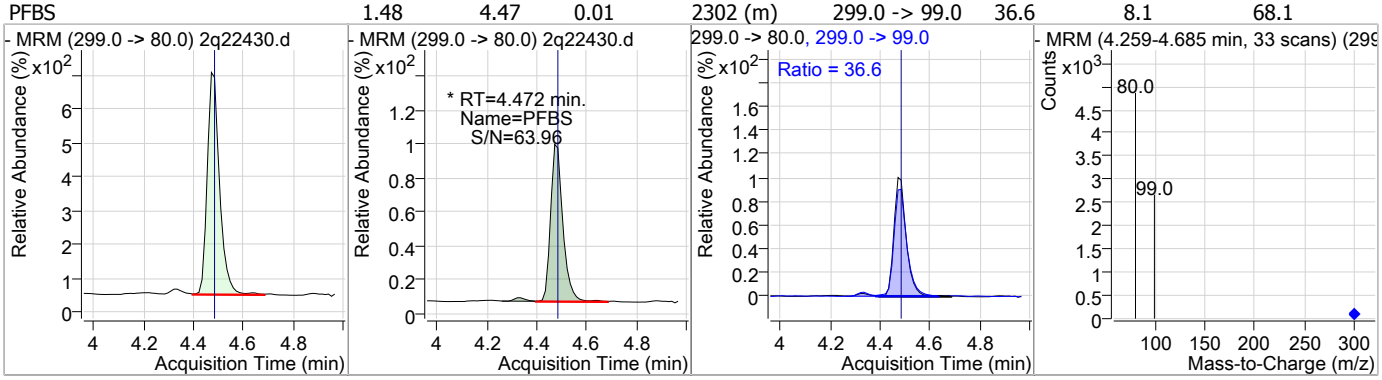




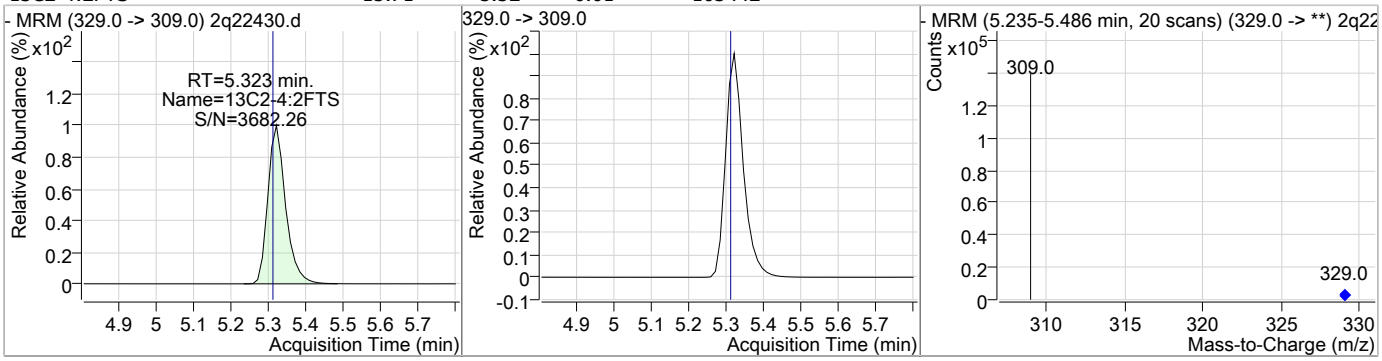


Perfluorinated Compounds by LC/MS/MS

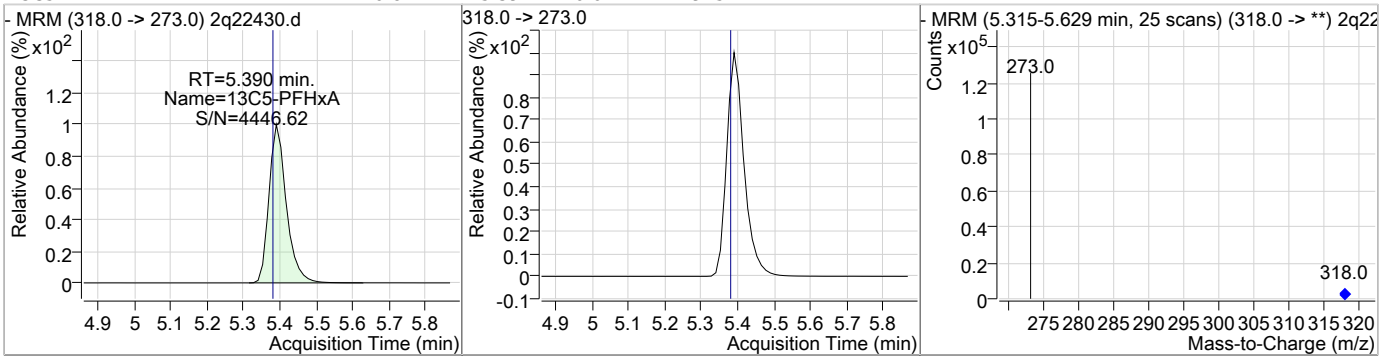
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.48	4.47	0.01	2302 (m)	299.0 -> 99.0	36.6	8.1	68.1



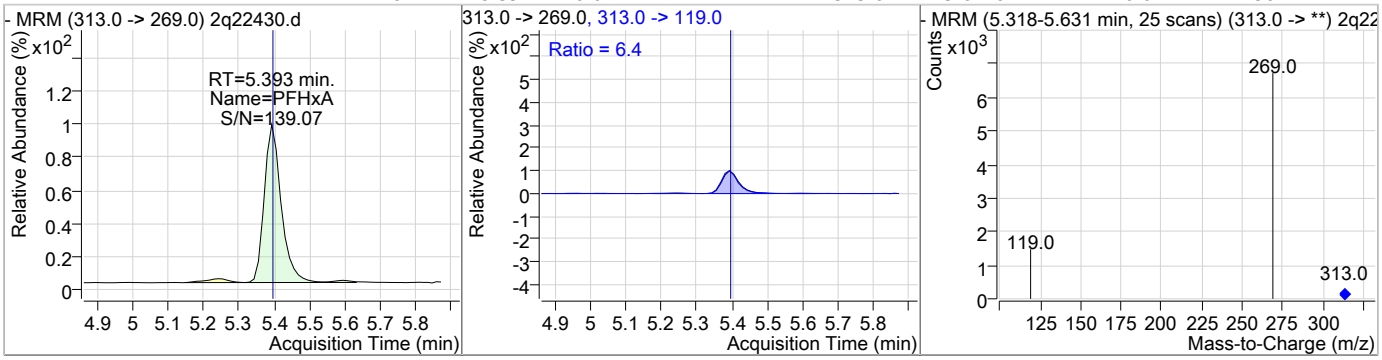
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.71	5.32	0.01	103442				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	16.82	5.39	0.01	92571				

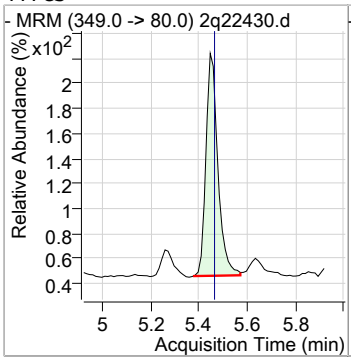


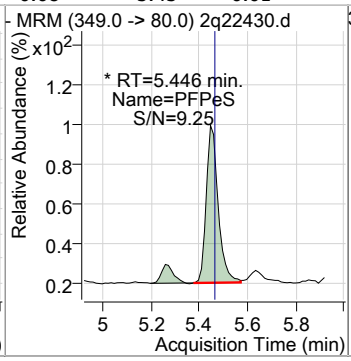
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.78	5.39	0.01	4121	313.0 -> 119.0	6.4	0.0	36.4

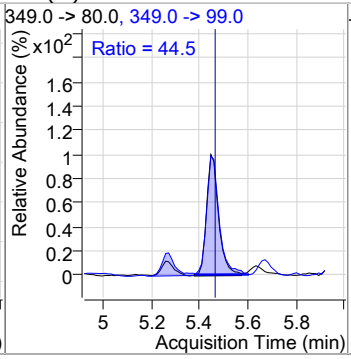


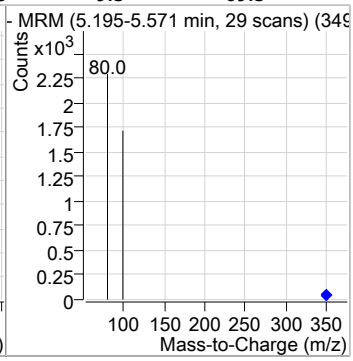
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.68	5.45	0.01	682 (m)	349.0 -> 99.0	44.5	9.5	69.5

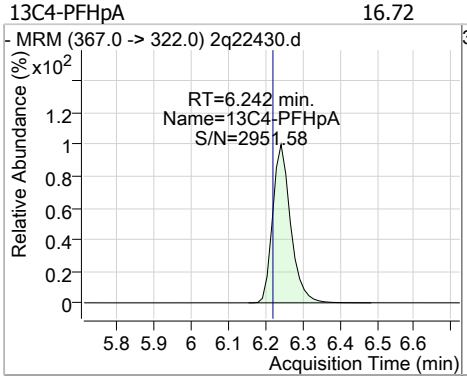


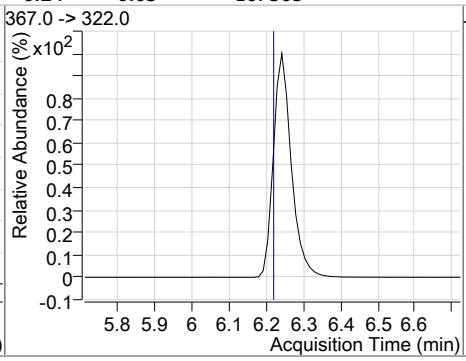


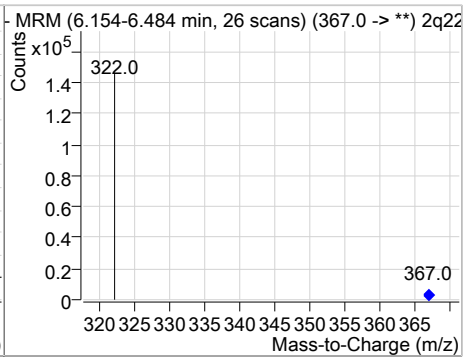




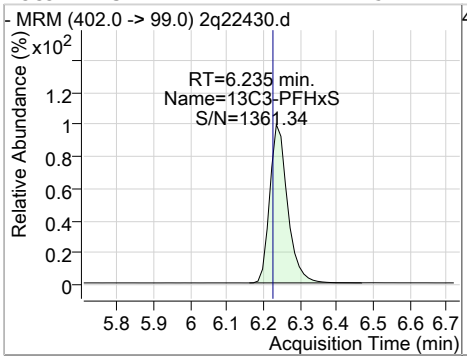
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.72	6.24	0.03	107565				

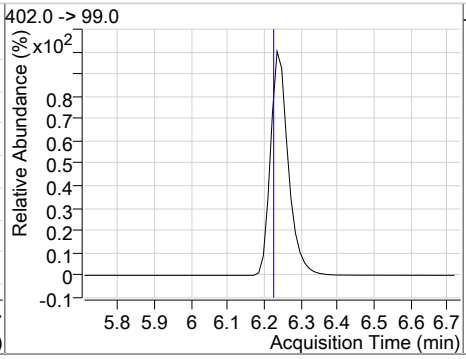


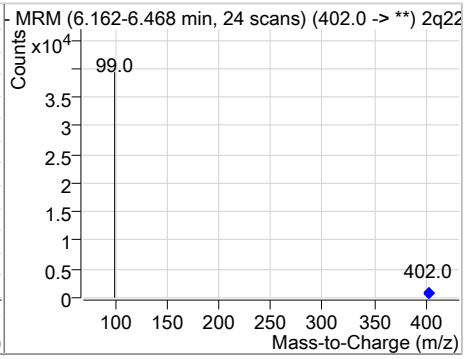




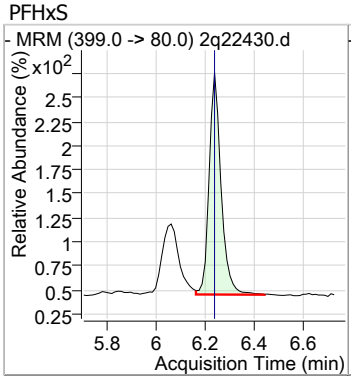
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.74	6.24	0.01	28022				

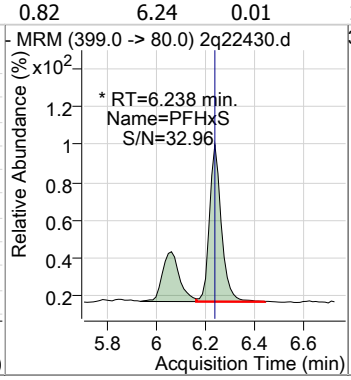


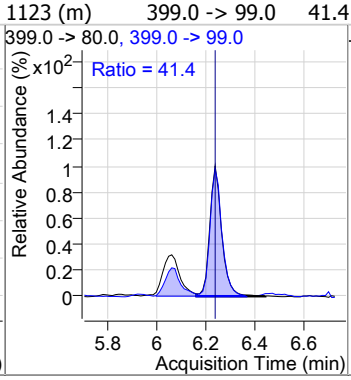


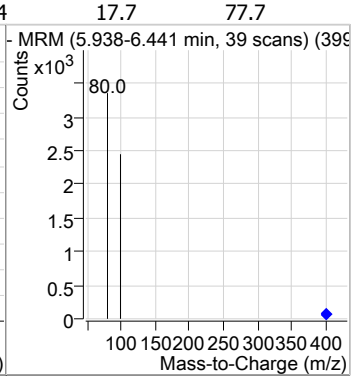


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.82	6.24	0.01	1123 (m)	399.0 -> 99.0	41.4	17.7	77.7



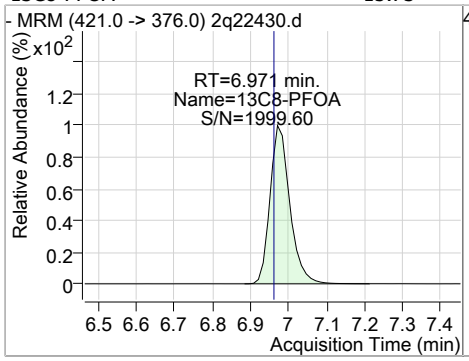


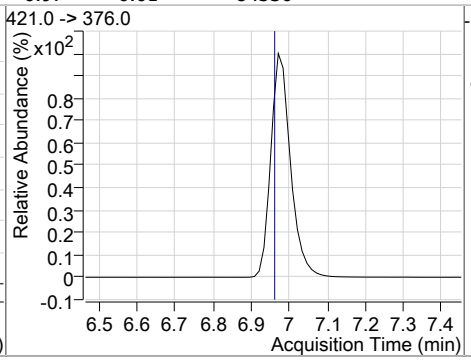


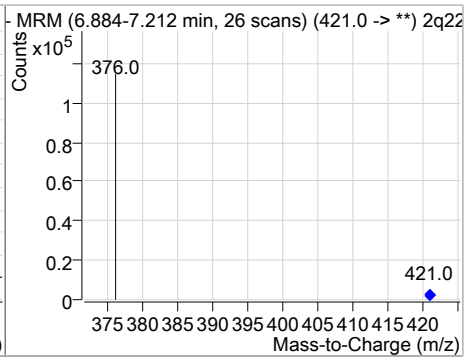


Perfluorinated Compounds by LC/MS/MS

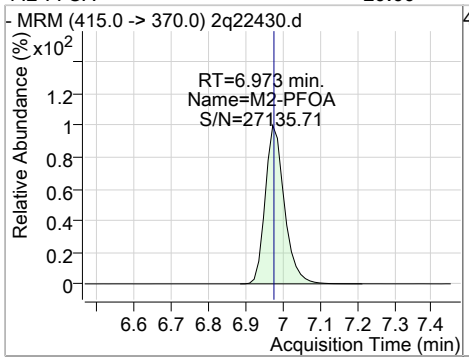
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.73	6.97	0.01	84530				

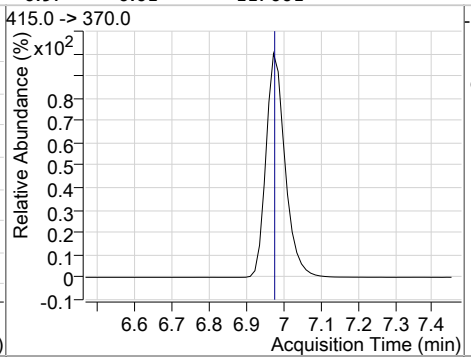


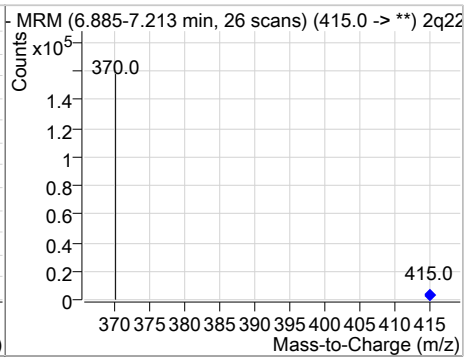




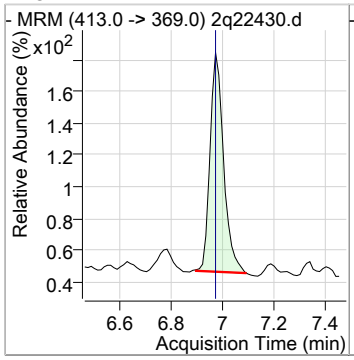
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	117001				

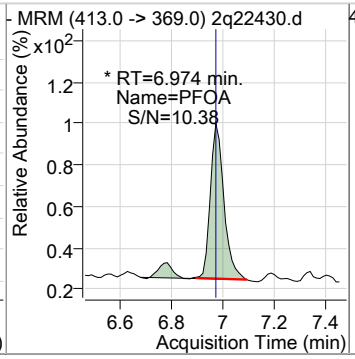


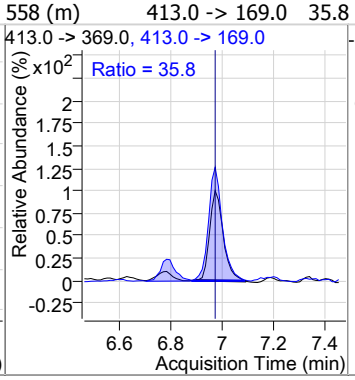


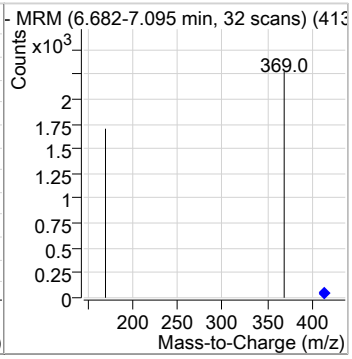


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.25	6.97	0.01	558 (m)	413.0 -> 169.0	35.8	0.0	55.3

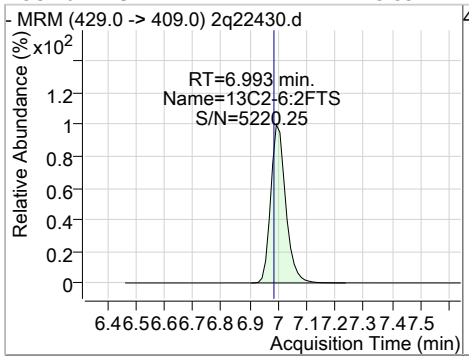


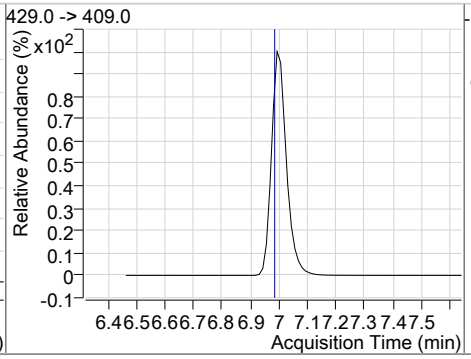


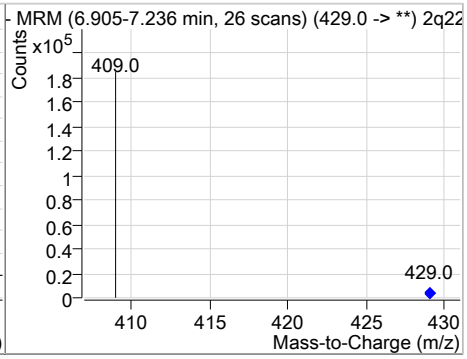




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.53	6.99	0.01	137104				

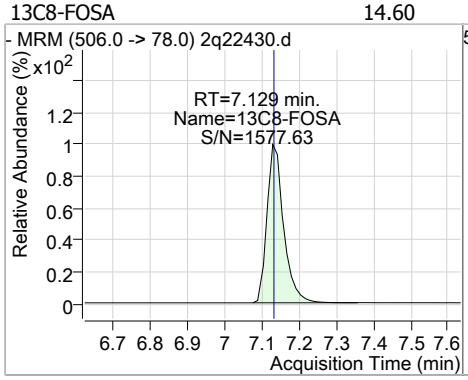


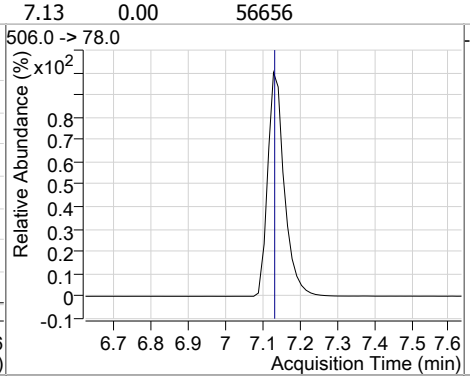


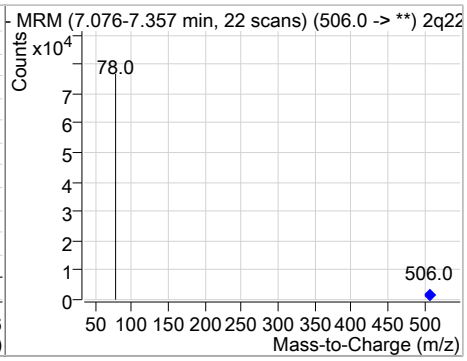


Perfluorinated Compounds by LC/MS/MS

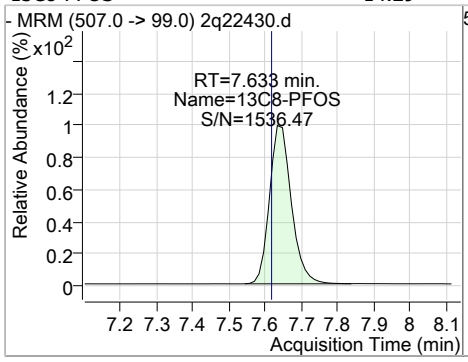
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	14.60	7.13	0.00	56656				

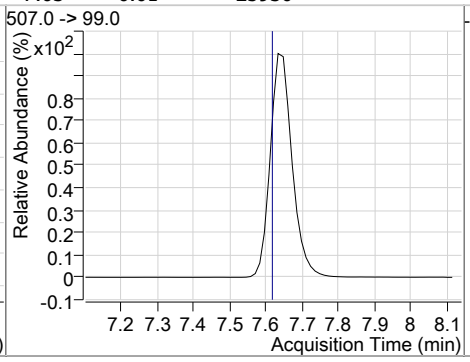


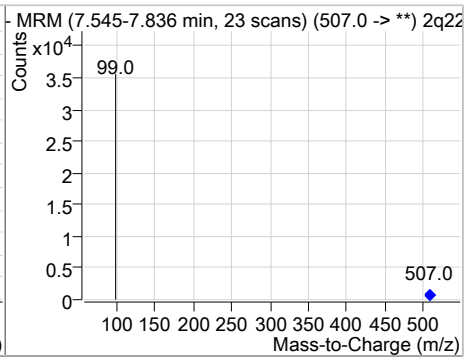




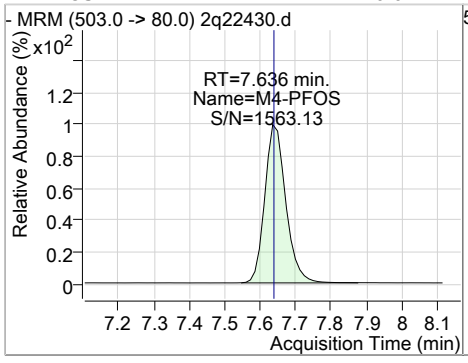
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	14.29	7.63	0.01	25930				

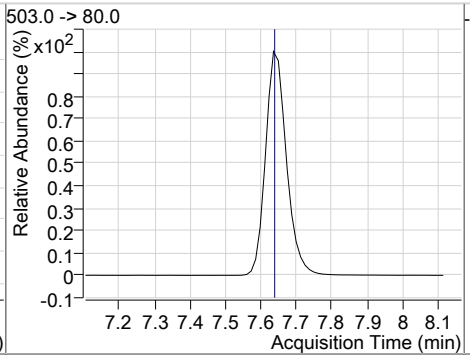


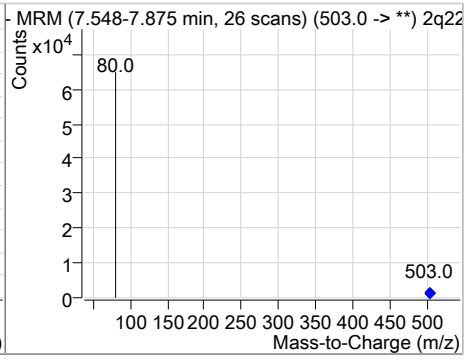




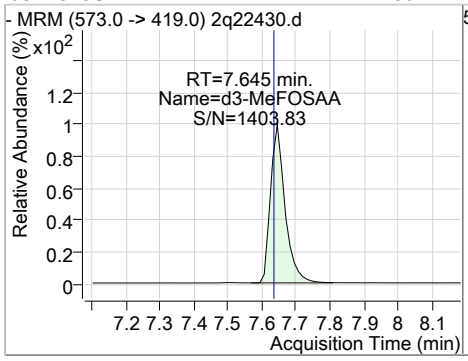
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.64	0.01	47847				

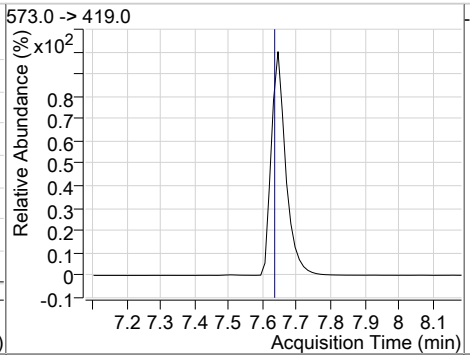


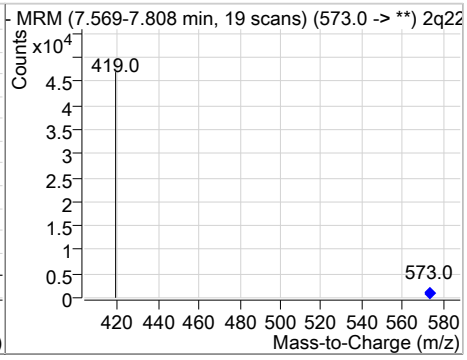




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.86	7.64	0.01	34558				

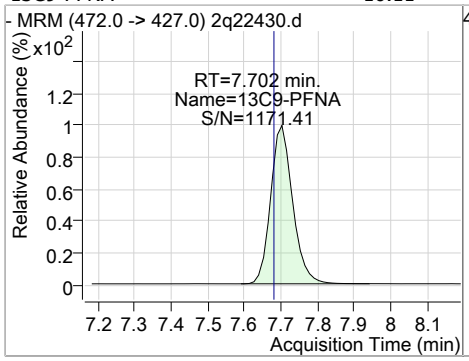


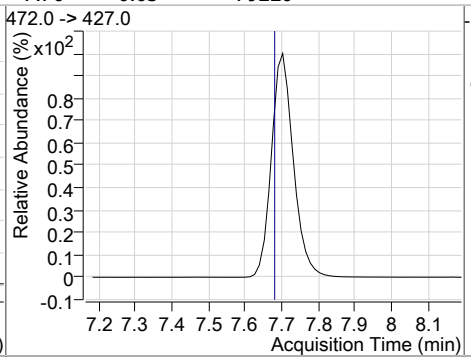


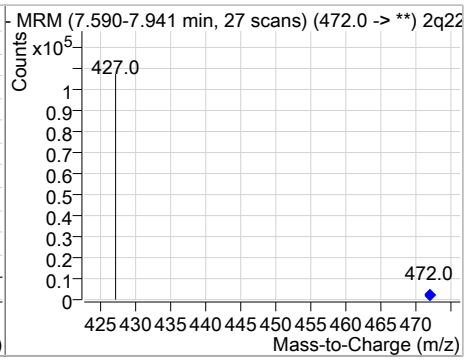


Perfluorinated Compounds by LC/MS/MS

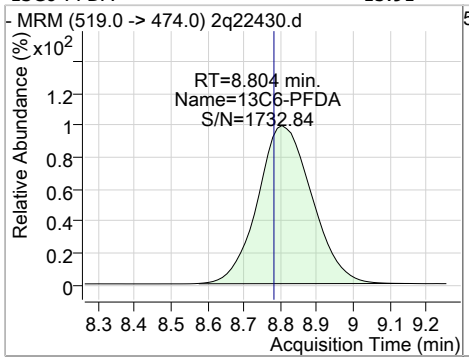
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	16.11	7.70	0.03	79220				

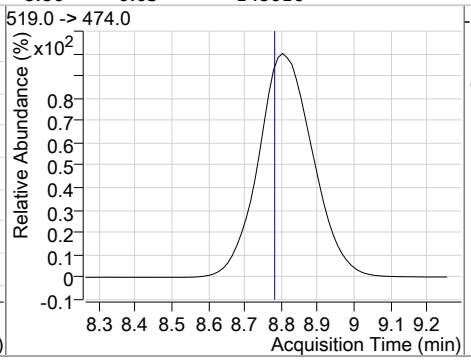


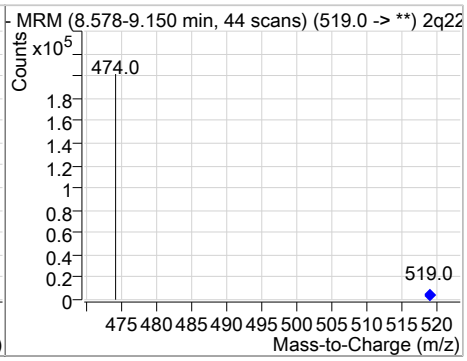




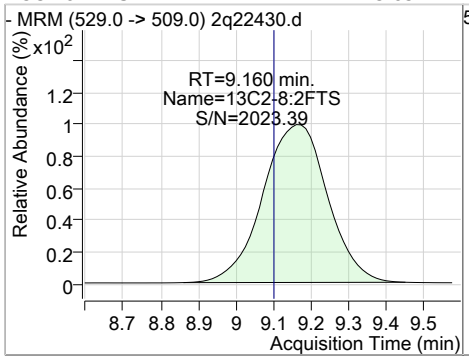
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.91	8.80	0.03	148016				

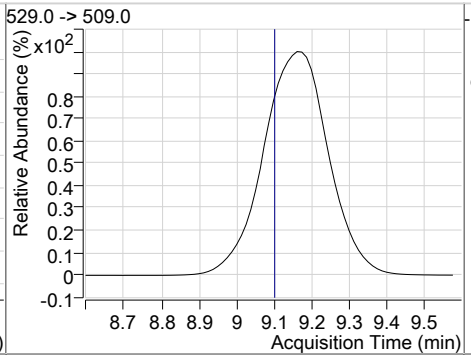


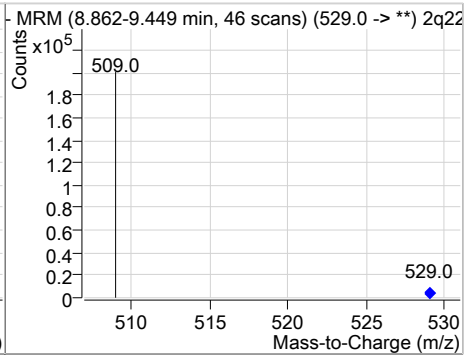




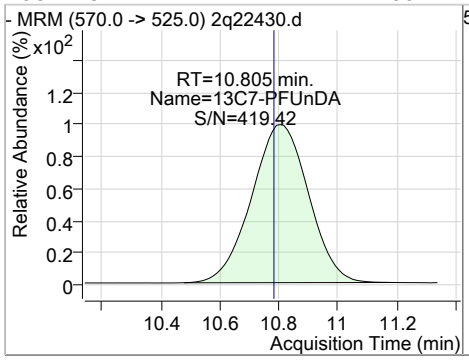
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.83	9.16	0.06	145301				

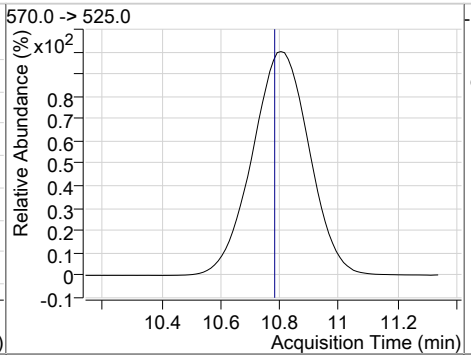


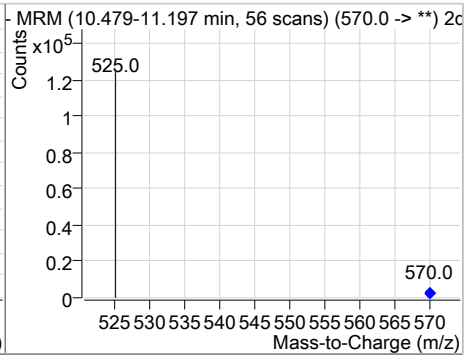




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	12.98	10.80	0.03	88891				

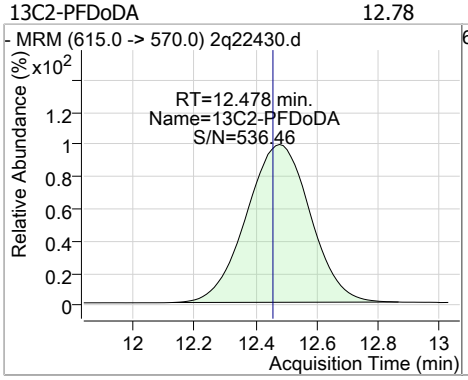


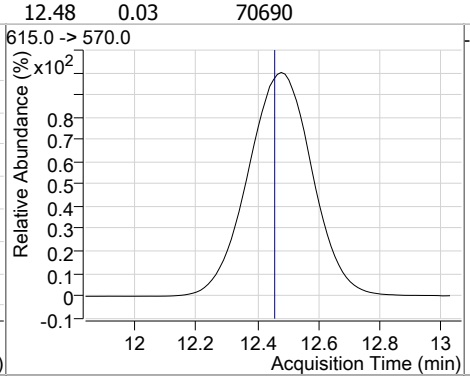


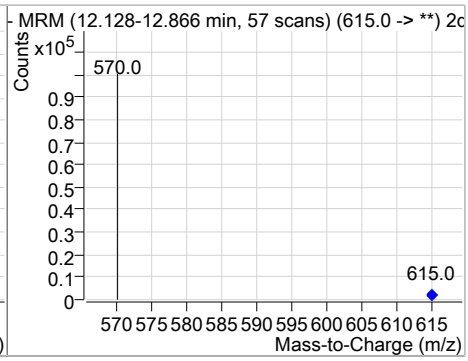


Perfluorinated Compounds by LC/MS/MS

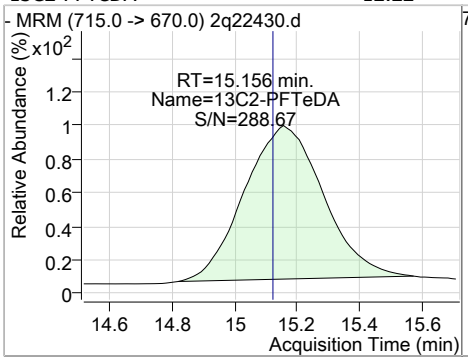
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.78	12.48	0.03	70690				

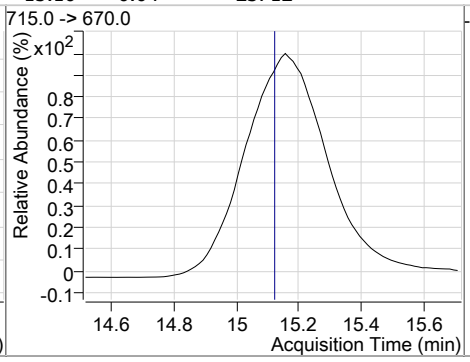


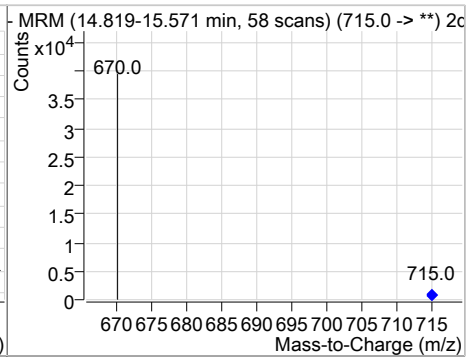




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	12.22	15.16	0.04	23712				







Manual Integration Approval Summary

Sample Number: FA57914-14
Lab FileID: 2Q22430.D
Injection Time: 10/20/18 02:26
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		4.47	Split peak
Perfluoropentanesulfonic acid	2706-91-4		5.45	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluoroheptanoic acid	375-85-9		6.25	Split peak
Perfluorooctanoic acid	335-67-1		6.97	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22151.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 9:54:34 PM
Sample Name : fa57914-14
Vial : Vial 28
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

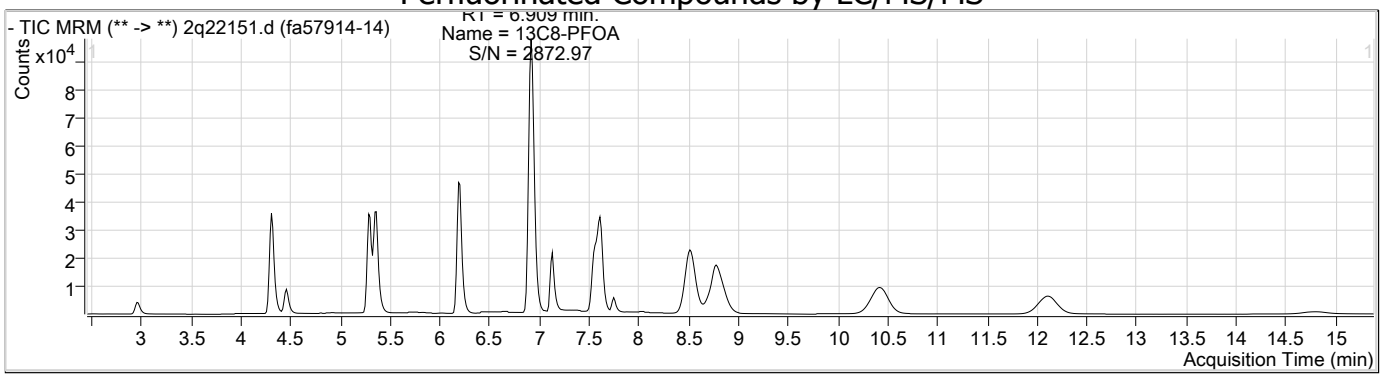
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	131615	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	48495	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	14970	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	107406	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	110125	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	127997	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	107884	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	93014	20.00	µg/L	0.000
M6-PFDA	8.517	519.0 -> 474.0	170361	20.00	µg/L	0.012
M7-PFUnDA	10.417	570.0 -> 525.0	117557	20.00	µg/L	0.013
M2-PFDoDA	12.103	615.0 -> 570.0	86457	20.00	µg/L	0.013
M2-PFTeDA	14.793	715.0 -> 670.0	12869	20.00	µg/L	0.013
M8-FOSA	7.130	506.0 -> 78.0	61668	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	24915	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	31234	20.00	µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	28949	20.00	µg/L	0.000
M2-4:2FTS	5.285	329.0 -> 309.0	118730	20.00	µg/L	0.000
M2-6:2FTS	6.931	429.0 -> 409.0	149841	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	162359	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	34631	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.285	329.0 -> 309.0	118716	16.90	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.5%		
13C2-6:2FTS	6.931	429.0 -> 409.0	149827	17.05	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.3%		
13C2-8:2FTS	8.775	529.0 -> 509.0	161556	15.52	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.6%		
13C2-PFDoDA	12.103	615.0 -> 570.0	85861	13.68	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.4%		
13C2-PFTeDA	14.793	715.0 -> 670.0	12839	5.75	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 28.7%		
13C3-PFBS	4.455	302.0 -> 99.0	24925	17.50	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.5%		
13C3-PFHxS	6.198	402.0 -> 99.0	31222	18.02	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.1%		
13C4-PFBA	2.953	217.0 -> 172.0	14996	1.04	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 5.2%		
13C4-PFHpA	6.192	367.0 -> 322.0	127988	18.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.2%		
13C5-PFHxA	5.364	318.0 -> 273.0	110142	18.14	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.7%		
13C5-PFPeA	4.312	268.0 -> 223.0	107395	17.10	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.5%		
13C6-PFDA	8.517	519.0 -> 474.0	170708	16.93	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.7%		

Perfluorinated Compounds by LC/MS/MS

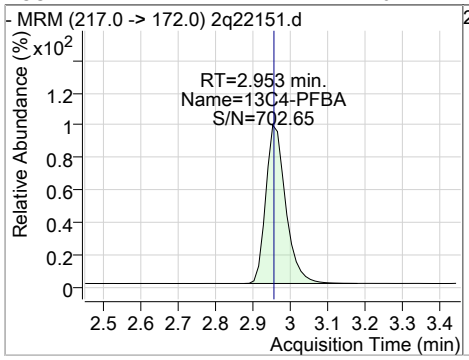
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.417	570.0 -> 525.0	116749	15.27	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.3%			
13C8-FOSA	7.130	506.0 -> 78.0	61662	16.76	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.8%			
13C8-PFOA	6.909	421.0 -> 376.0	107935	18.39	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.9%			
13C8-PFOS	7.546	507.0 -> 99.0	28954	16.55	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.8%			
13C9-PFNA	7.601	472.0 -> 427.0	93023	17.73	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.7%			
d3-MeFOSAA	7.620	573.0 -> 419.0	34669	15.50	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.5%			
M2-PFOA	6.910	415.0 -> 370.0	131635	20.00	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	48543	20.02	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.962	213.0 -> 169.0	187	2.08	µg/L		100
PFBS	4.459	299.0 -> 80.0	2352	1.31	µg/L	m	98
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	1096	0.23	µg/L	m	97
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	4200	2.38	µg/L		99
PFHxS	6.189	399.0 -> 80.0	1107	0.71	µg/L	m	96
PFNA	7.615	463.0 -> 419.0	0	0.00	µg/L	m	1
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	633	0.24	µg/L	m	94
PFOS	7.334	499.0 -> 80.0	213	0.17	µg/L	m	92
PFPeA	4.316	263.0 -> 219.0	12277	2.47	µg/L		100
PFPeS	5.421	349.0 -> 80.0	769	0.62	µg/L	m	97
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	10.359	563.0 -> 519.0	0	0.00	µg/L	m	1

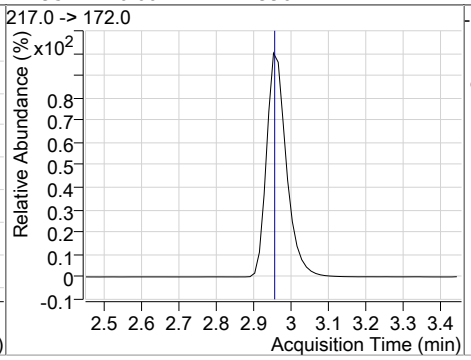
 # = Qualifier out of range, m = manually integrated, + = Area summed

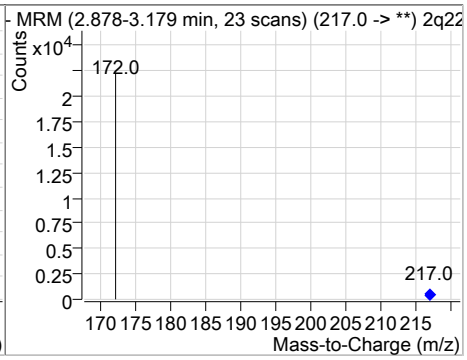
Perfluorinated Compounds by LC/MS/MS



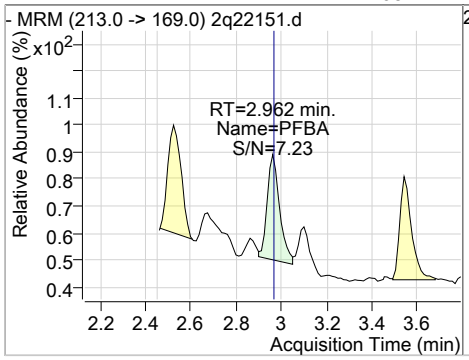
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	1.04	2.95	0.00	14996				

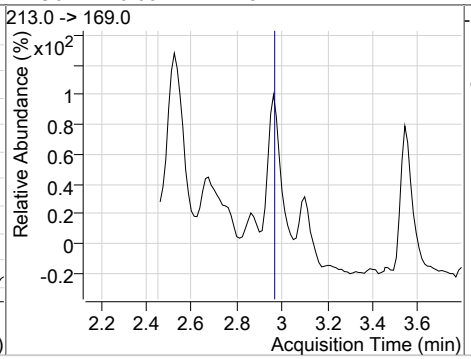


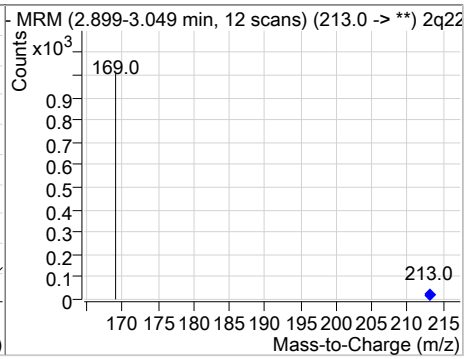




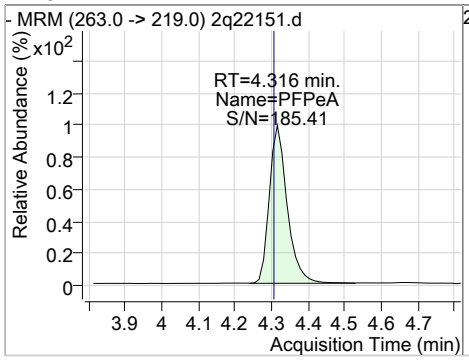
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	2.08	2.96	0.00	187				

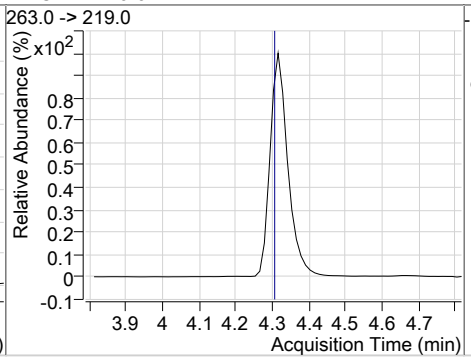


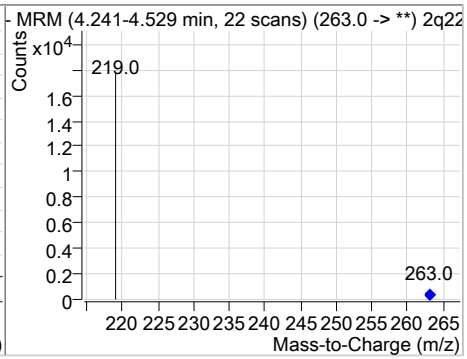




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.47	4.32	0.01	12277				

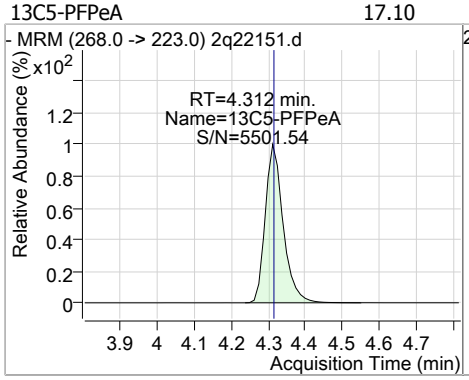


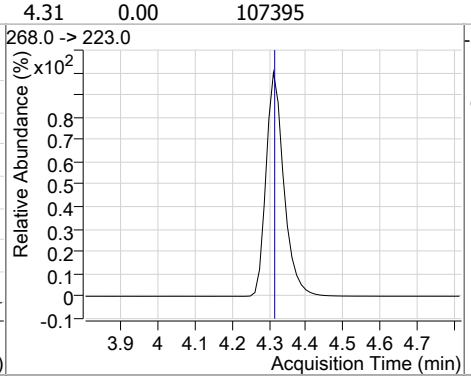


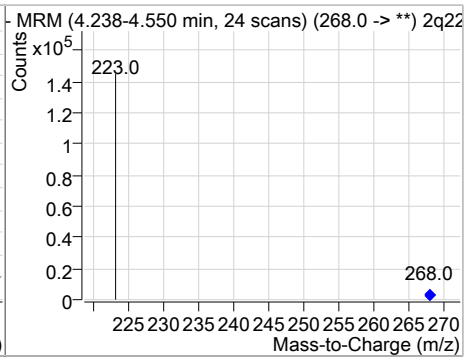


Perfluorinated Compounds by LC/MS/MS

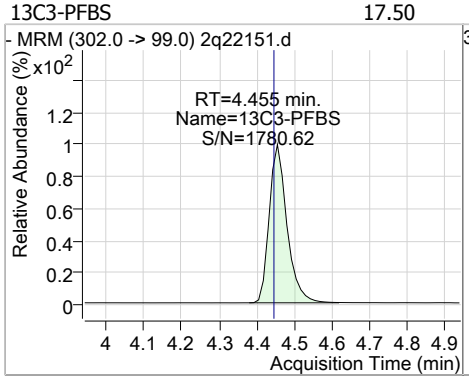
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.10	4.31	0.00	107395				

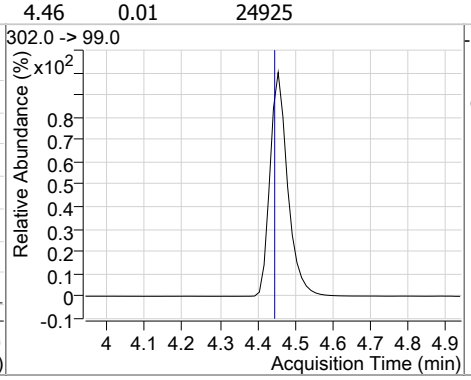


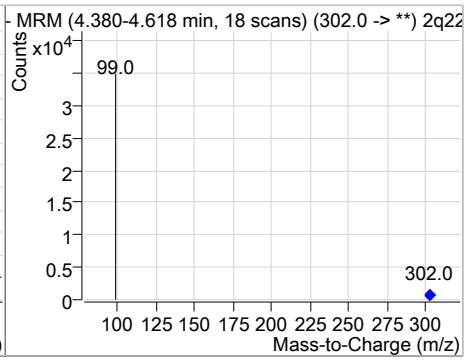




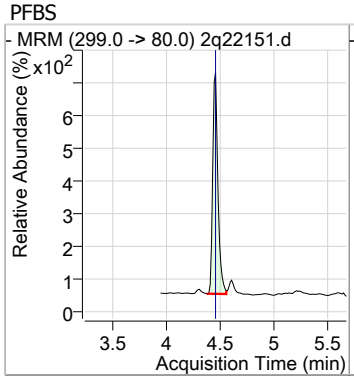
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.50	4.46	0.01	24925				

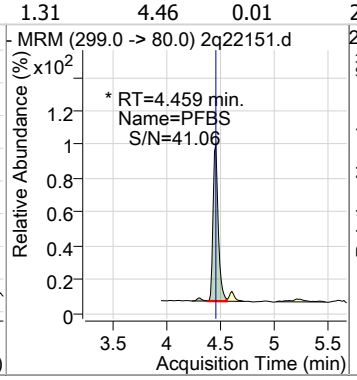


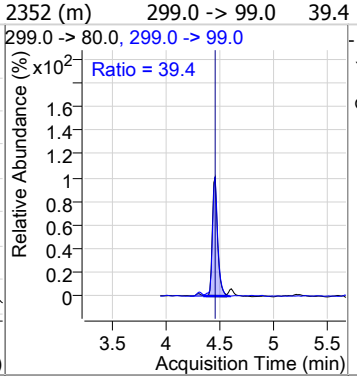


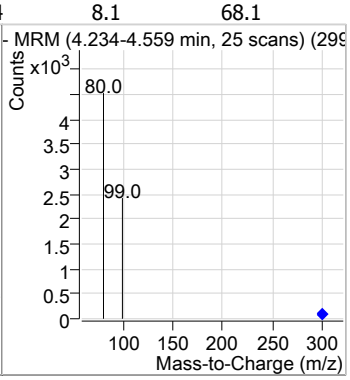


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.31	4.46	0.01	2352 (m)	299.0 -> 99.0	39.4	8.1	68.1

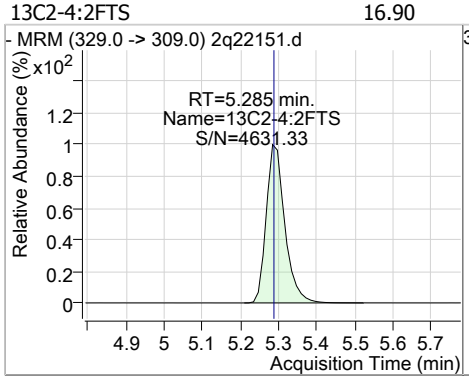


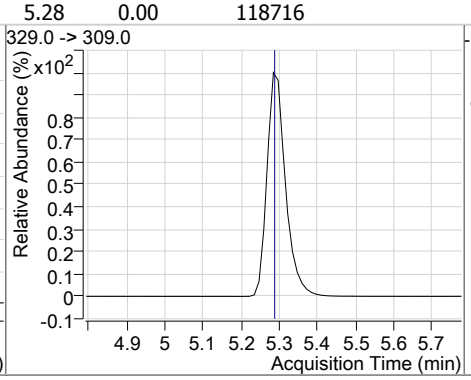


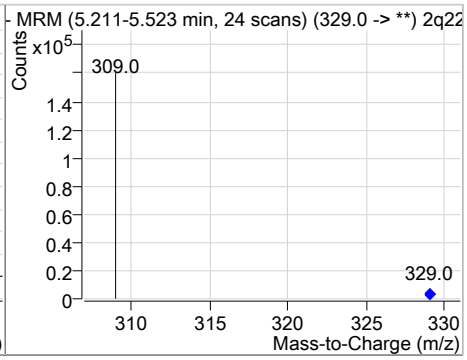




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.90	5.28	0.00	118716				

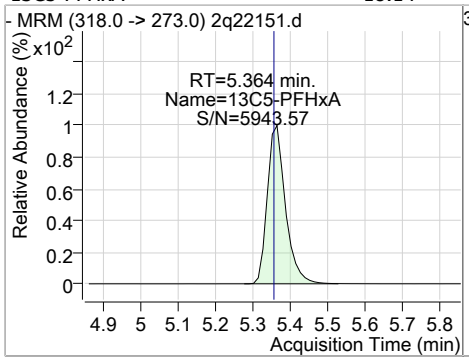


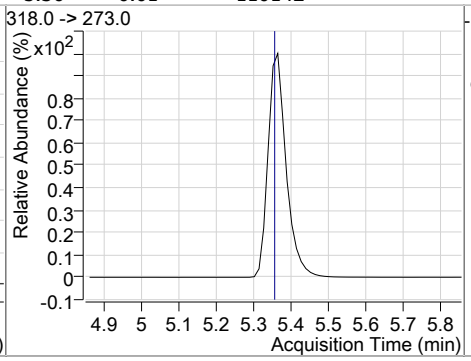


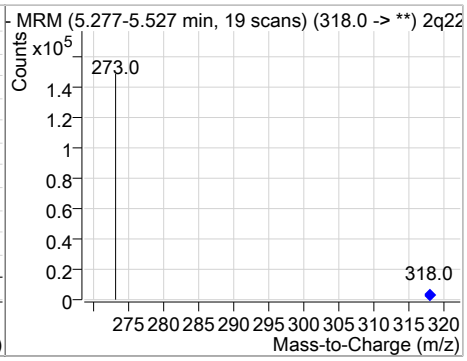


Perfluorinated Compounds by LC/MS/MS

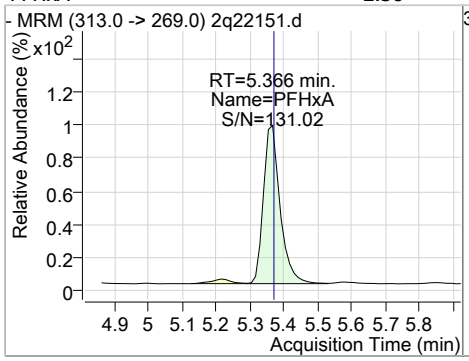
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.14	5.36	0.01	110142				

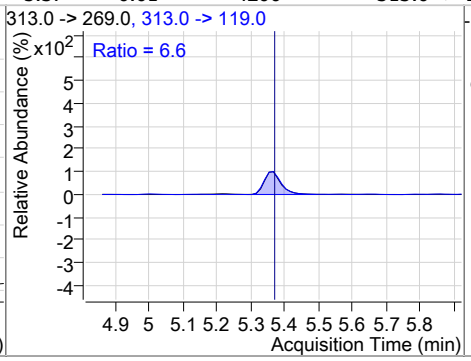


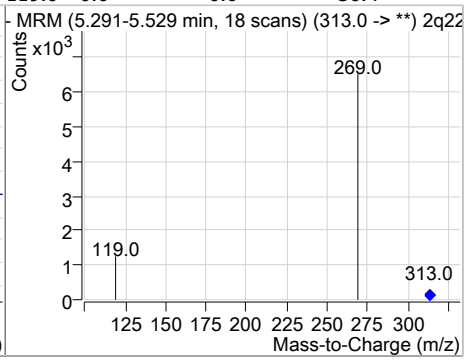




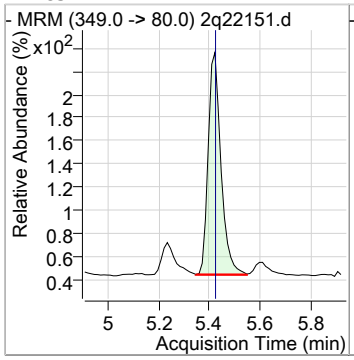
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.38	5.37	0.01	4200	313.0 -> 119.0	6.6	0.0	36.4

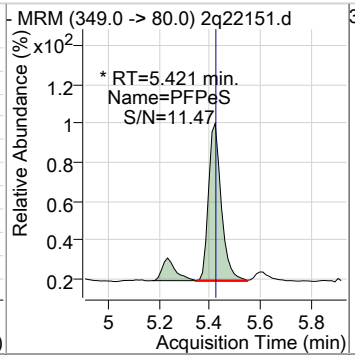


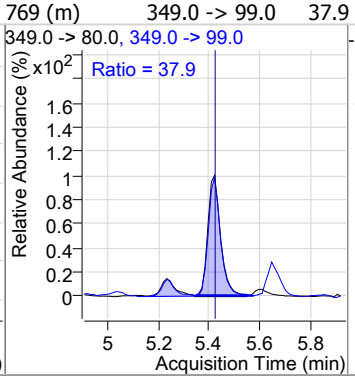


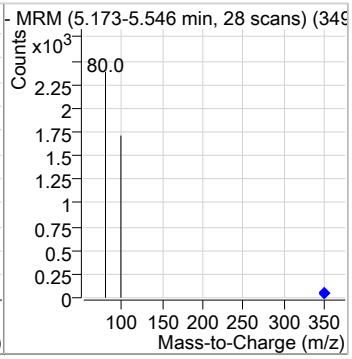


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.62	5.42	0.01	769 (m)	349.0 -> 99.0	37.9	9.5	69.5

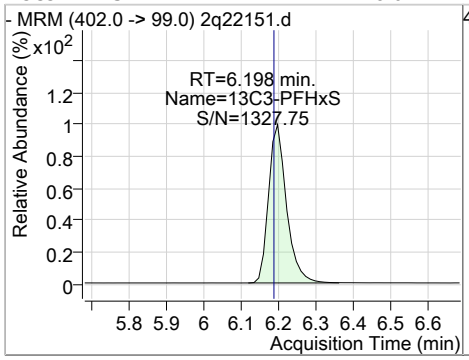


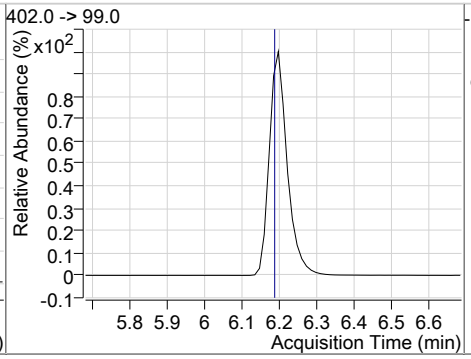


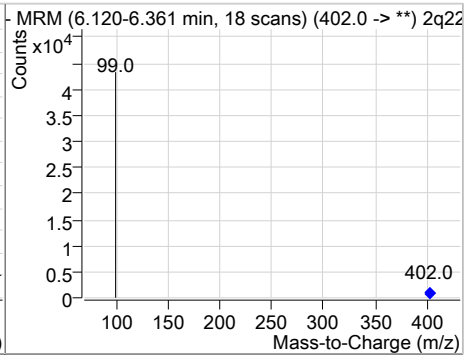




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.02	6.20	0.01	31222				

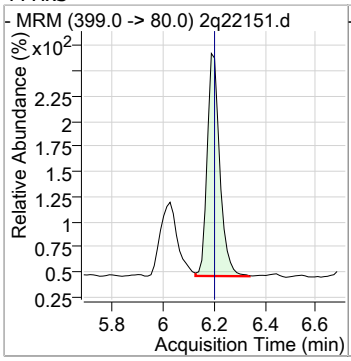


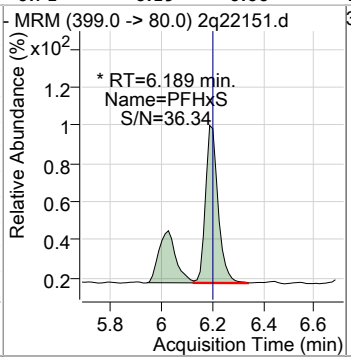


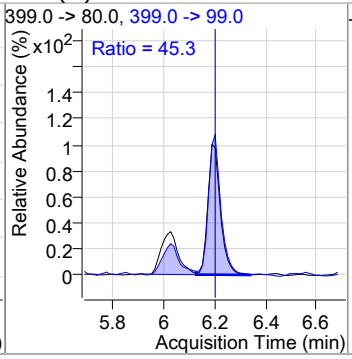


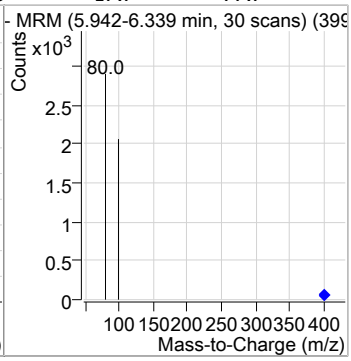
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.71	6.19	0.00	1107 (m)	399.0 -> 99.0	45.3	17.7	77.7

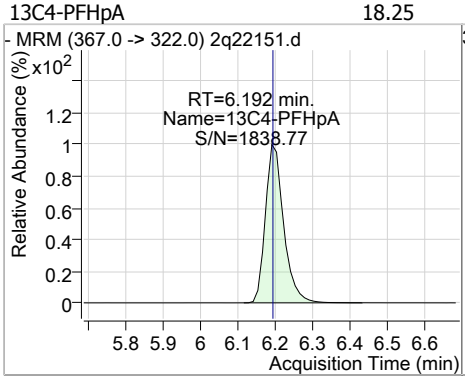


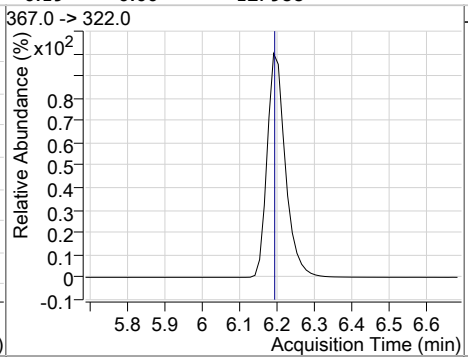


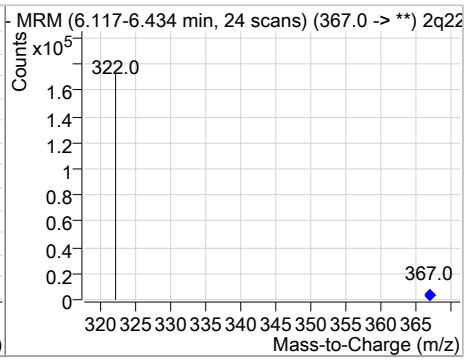




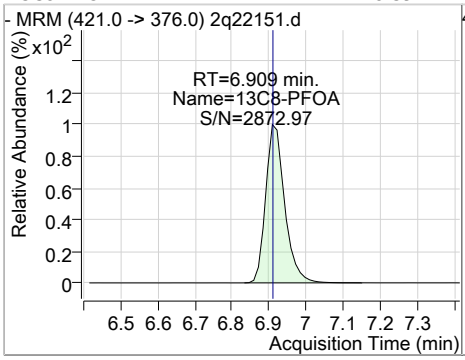
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.25	6.19	0.00	127988				

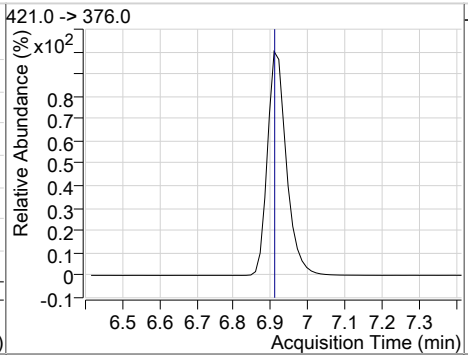


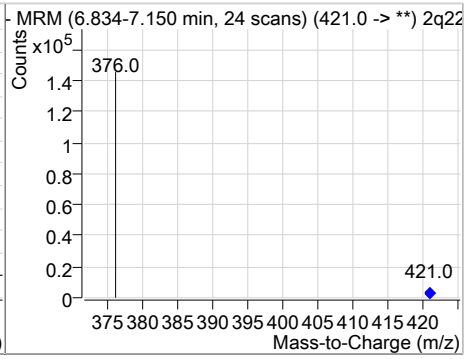




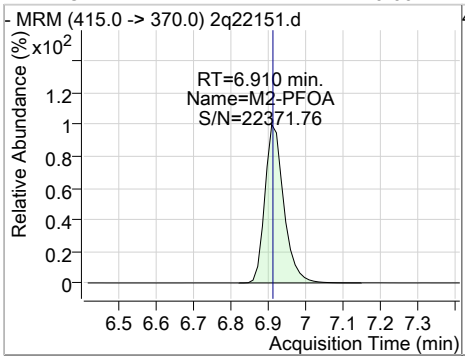
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.39	6.91	0.00	107935				

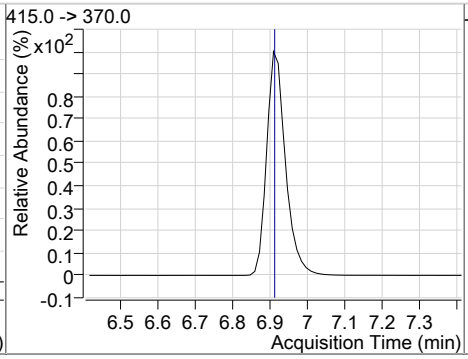


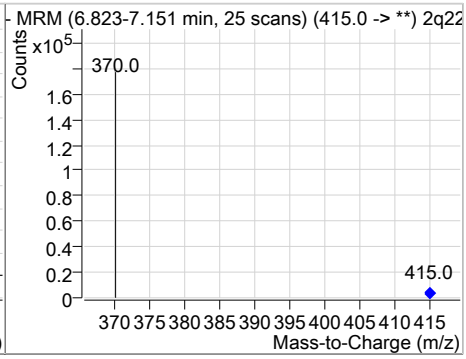




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.91	0.00	131635				

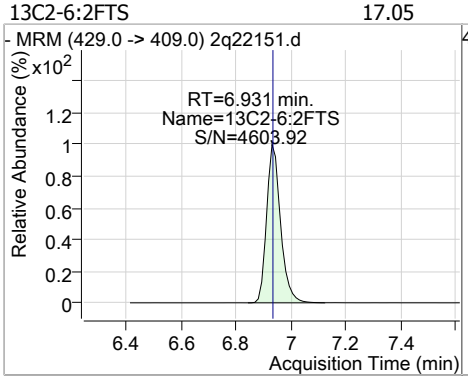


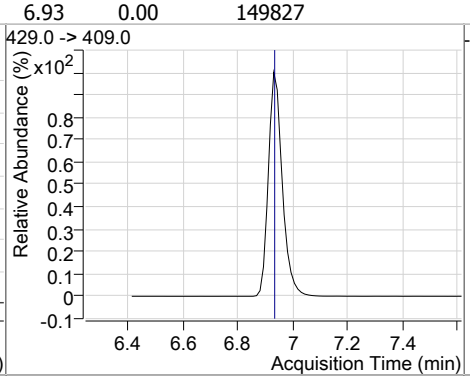


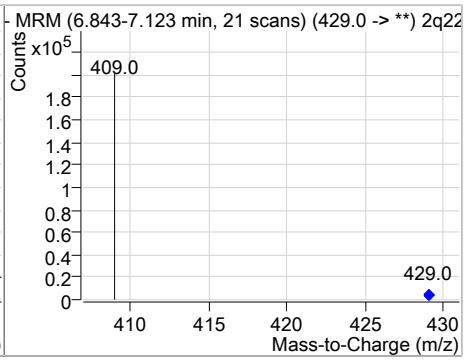


Perfluorinated Compounds by LC/MS/MS

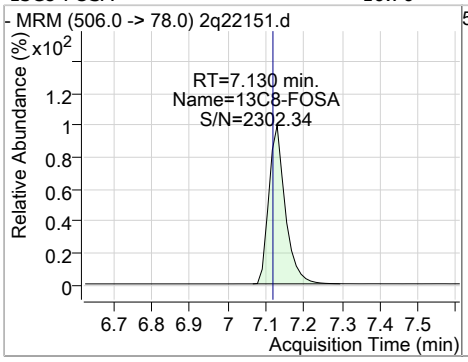
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.05	6.93	0.00	149827				

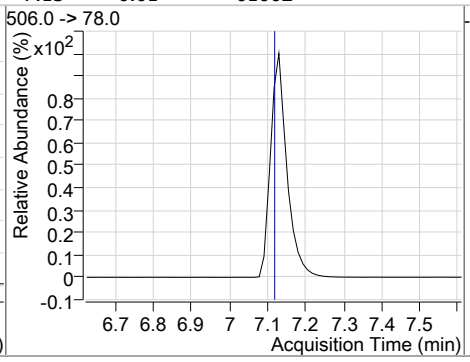


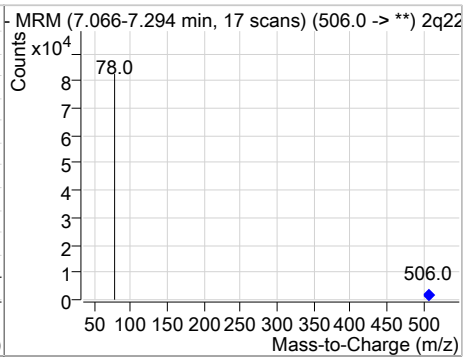




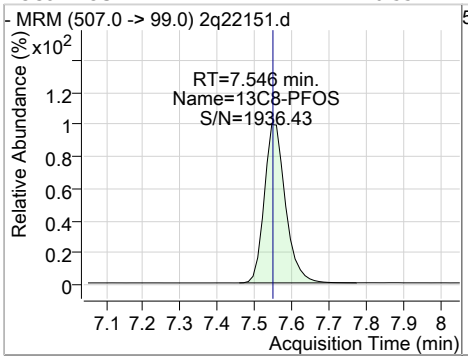
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	16.76	7.13	0.01	61662				

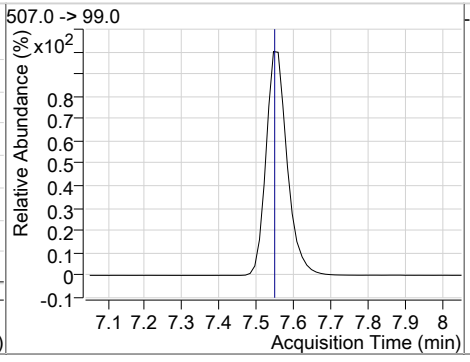


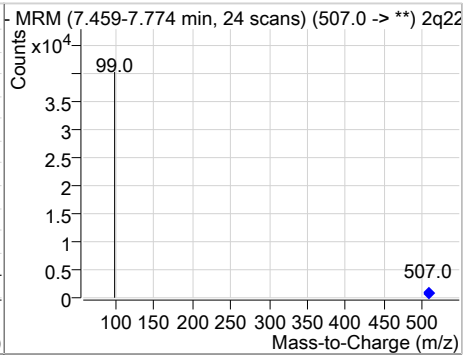




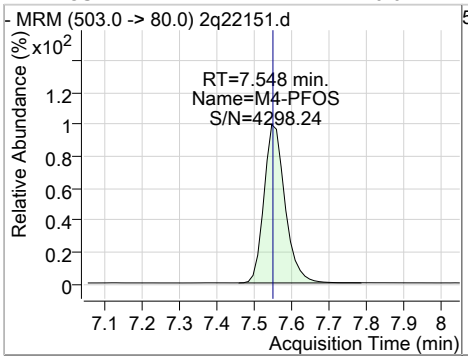
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	16.55	7.55	0.00	28954				

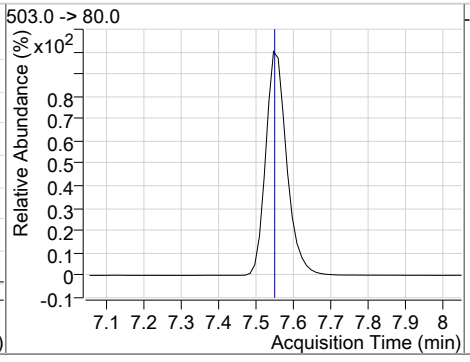


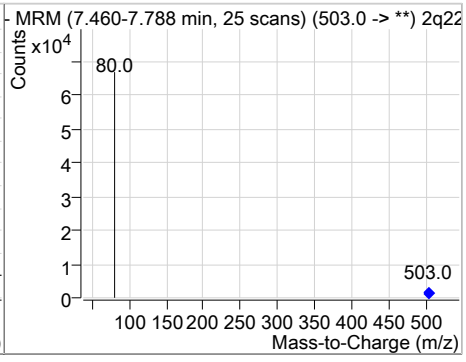




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.55	0.00	48543				

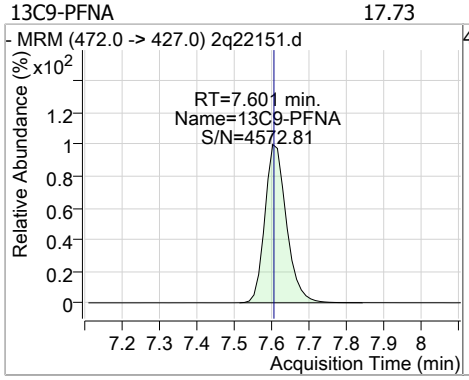


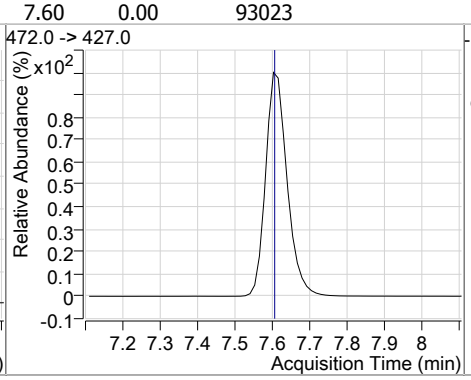


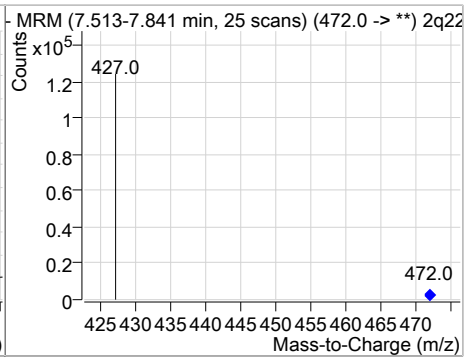


Perfluorinated Compounds by LC/MS/MS

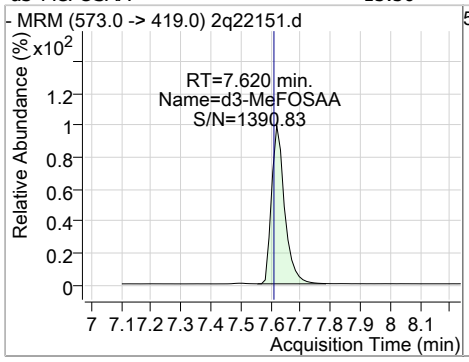
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.73	7.60	0.00	93023				

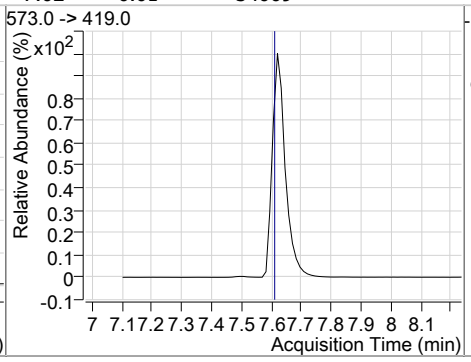


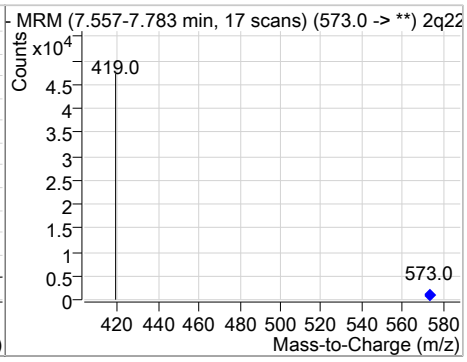




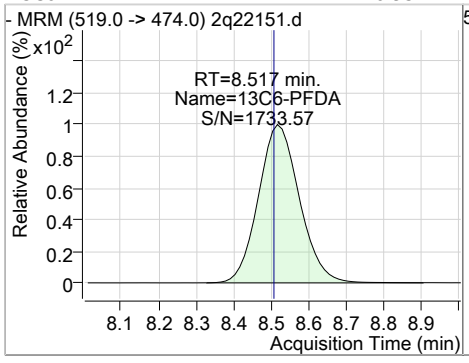
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	15.50	7.62	0.01	34669				

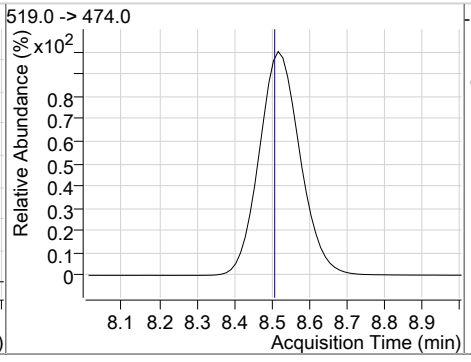


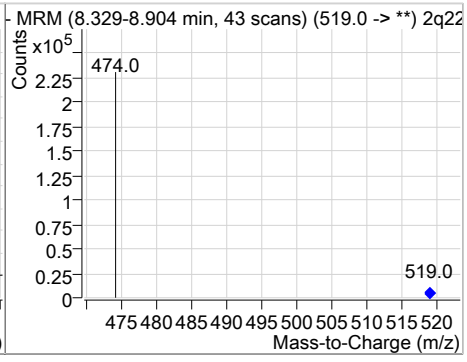




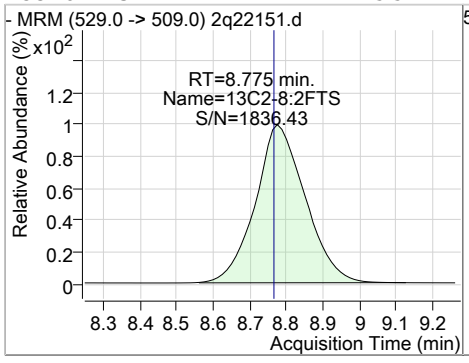
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.93	8.52	0.01	170708				

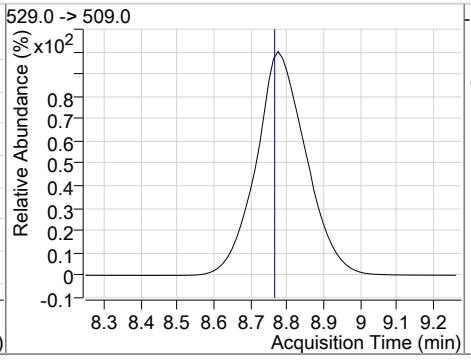


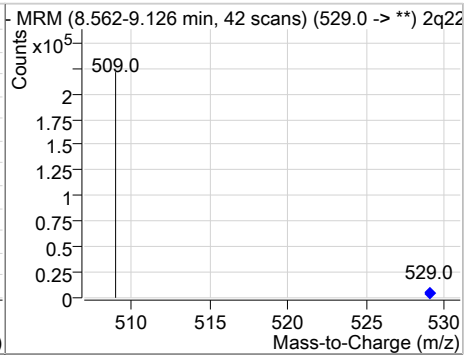




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	15.52	8.77	0.01	161556				

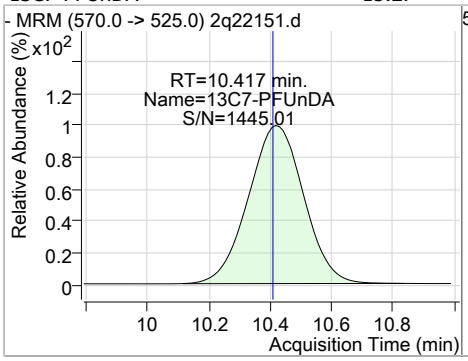


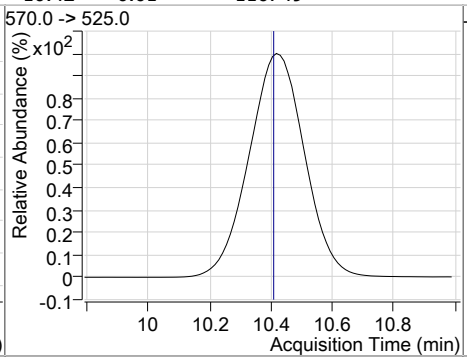


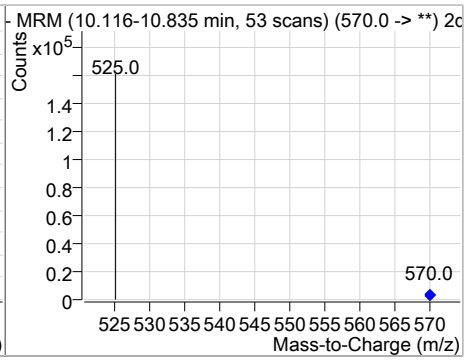


Perfluorinated Compounds by LC/MS/MS

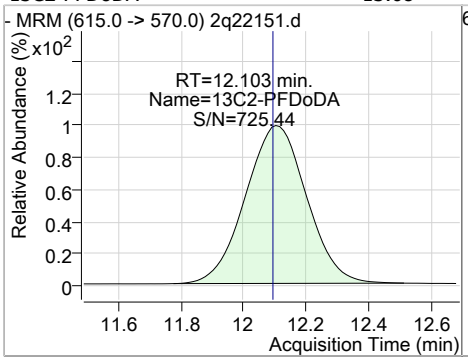
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.27	10.42	0.01	116749				

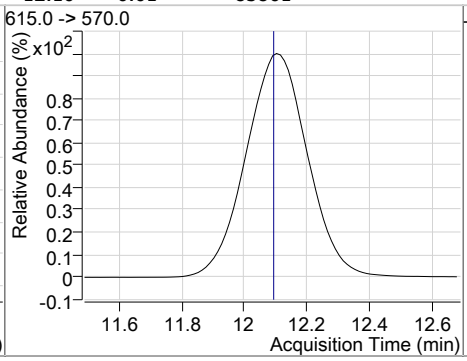


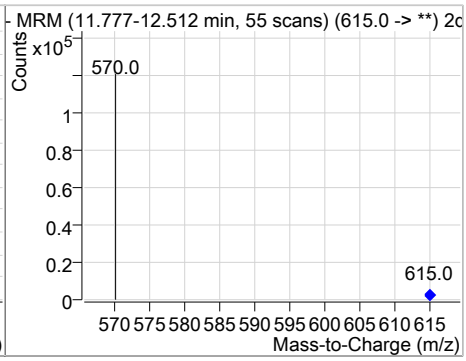




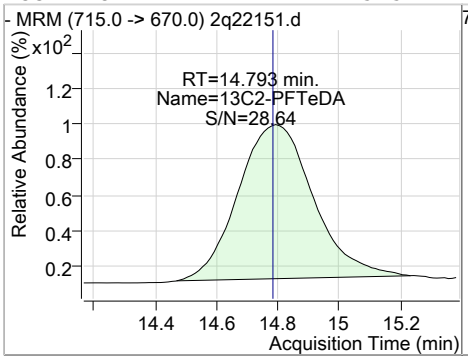
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	13.68	12.10	0.01	85861				

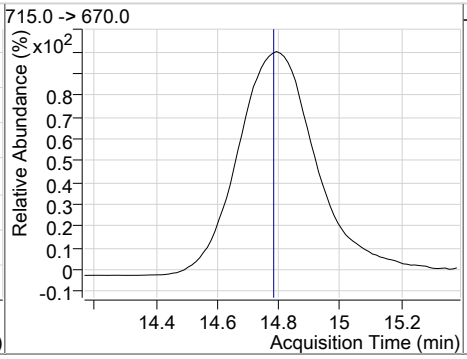


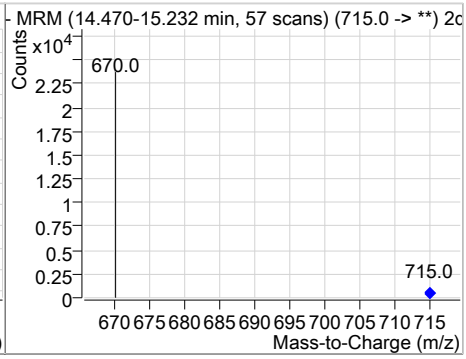




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	5.75	14.79	0.01	12839				







Manual Integration Approval Summary

Sample Number: FA57914-14
Lab FileID: 2Q22151.D
Injection Time: 10/15/18 21:54
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		4.46	Split peak
Perfluoropentanesulfonic acid	2706-91-4		5.42	Split peak
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluoroheptanoic acid	375-85-9		6.20	Split peak
Perfluorooctanoic acid	335-67-1		6.91	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.33	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22431.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/20/2018 2:47:20 AM
Sample Name : fa57914-15
Vial : Vial 50
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

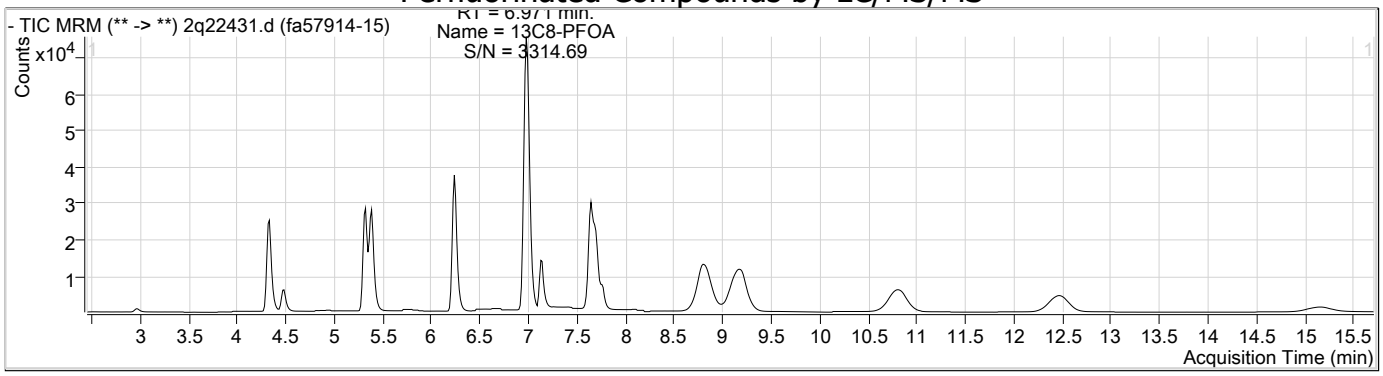
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.973	415.0 -> 370.0	109230	20.00 µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	44613	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	3304	20.00 µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	85991	20.00 µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	85928	20.00 µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	100249	20.00 µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	77793	20.00 µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	72788	20.00 µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	133639	20.00 µg/L	0.025
M7-PFUnDA	10.805	570.0 -> 525.0	80360	20.00 µg/L	0.025
M2-PFDoDA	12.465	615.0 -> 570.0	64220	20.00 µg/L	0.013
M2-PFTeDA	15.143	715.0 -> 670.0	24479	20.00 µg/L	0.025
M8-FOSA	7.129	506.0 -> 78.0	40923	20.00 µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	19984	20.00 µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	25252	20.00 µg/L	0.013
M8-PFOS	7.648	507.0 -> 99.0	23570	20.00 µg/L	0.027
M2-4:2FTS	5.323	329.0 -> 309.0	95159	20.00 µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	127177	20.00 µg/L	0.013
M2-8:2FTS	9.172	529.0 -> 509.0	135952	20.00 µg/L	0.075
M3-MeFOSAA	7.645	573.0 -> 419.0	32062	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.0 -> 309.0	95150	14.45 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.2%	
13C2-6:2FTS	6.993	429.0 -> 409.0	127185	14.40 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.0%	
13C2-8:2FTS	9.172	529.0 -> 509.0	135047	12.85 µg/L	0.075
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.3%	
13C2-PFDoDA	12.465	615.0 -> 570.0	63862	11.55 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.7%	
13C2-PFTeDA	15.143	715.0 -> 670.0	22469	11.58 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.9%	
13C3-PFBS	4.481	302.0 -> 99.0	19982	14.29 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.4%	
13C3-PFHxS	6.235	402.0 -> 99.0	25244	14.18 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.9%	
13C4-PFBA	2.966	217.0 -> 172.0	3315	0.25 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 1.2%	
13C4-PFHpA	6.242	367.0 -> 322.0	100247	15.58 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.9%	
13C5-PFHxA	5.390	318.0 -> 273.0	85883	15.60 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.0%	
13C5-PFPeA	4.337	268.0 -> 223.0	85977	15.04 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.2%	
13C6-PFDA	8.804	519.0 -> 474.0	132784	14.27 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.4%	

Perfluorinated Compounds by LC/MS/MS

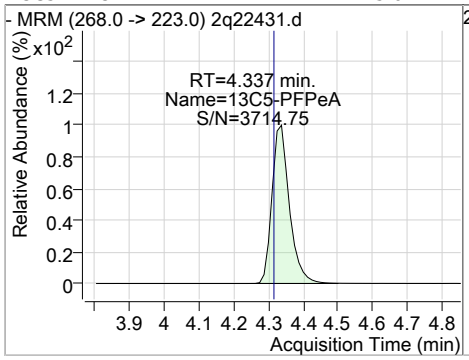
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.805	570.0 -> 525.0	80129	11.70	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 58.5%			
13C8-FOSA	7.129	506.0 -> 78.0	40857	10.53	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 52.6%			
13C8-PFOA	6.971	421.0 -> 376.0	77783	14.47	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.4%			
13C8-PFOS	7.648	507.0 -> 99.0	23561	12.98	µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.9%			
13C9-PFNA	7.702	472.0 -> 427.0	72818	14.81	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.1%			
d3-MeFOSAA	7.645	573.0 -> 419.0	32061	13.79	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.9%			
M2-PFOA	6.973	415.0 -> 370.0	109239	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	44657	20.03	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.472	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.341	263.0 -> 219.0	834	0.21	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

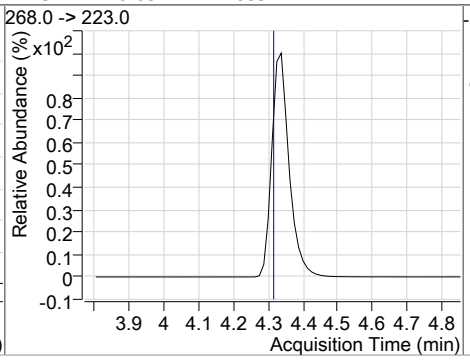
 # = Qualifier out of range, m = manually integrated, + = Area summed

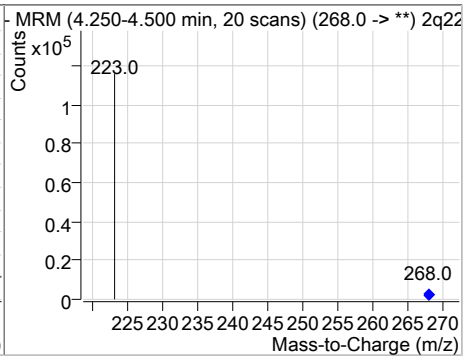
Perfluorinated Compounds by LC/MS/MS



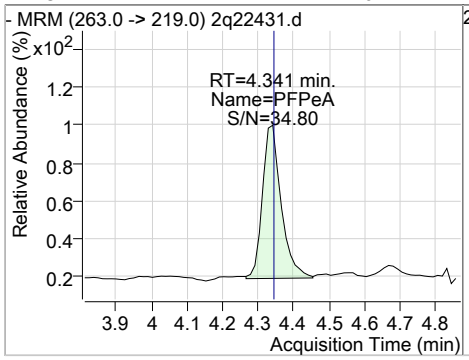
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	15.04	4.34	0.03	85977				

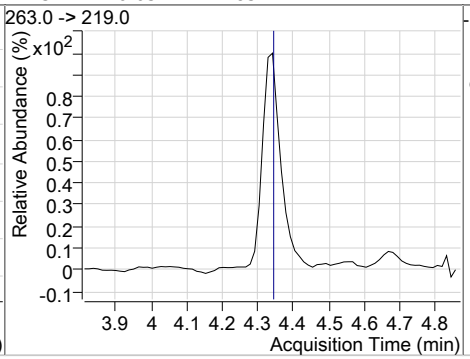


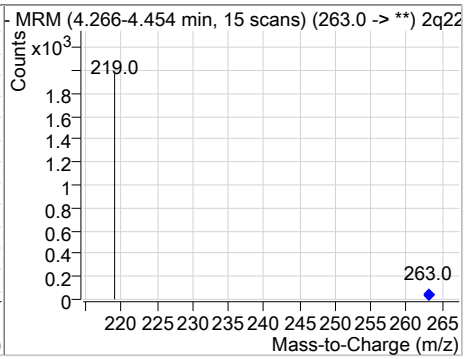




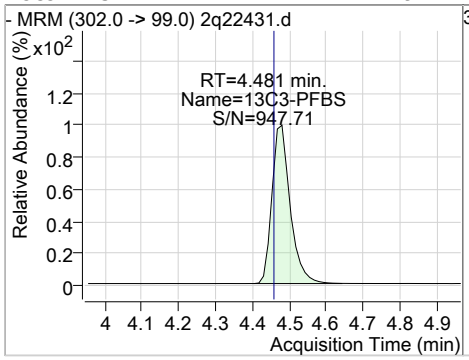
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.21	4.34	0.03	834				

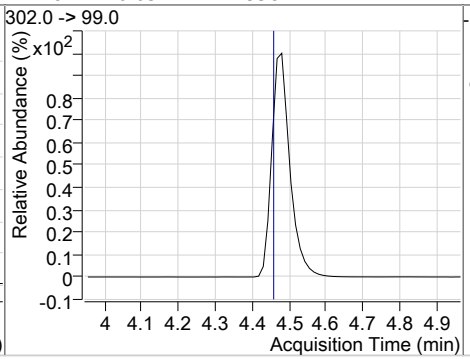


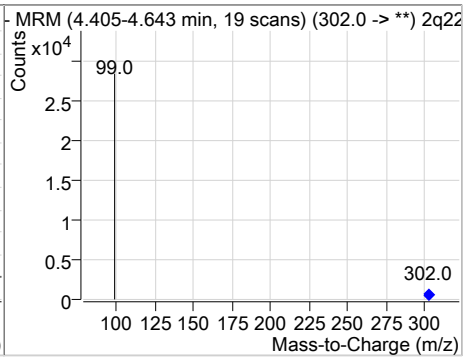




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	14.29	4.48	0.03	19982				

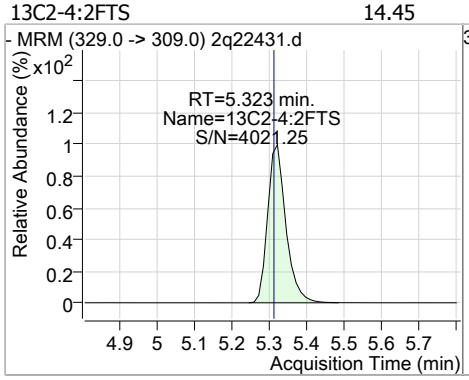


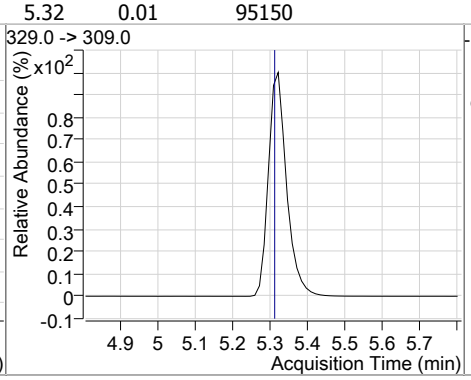


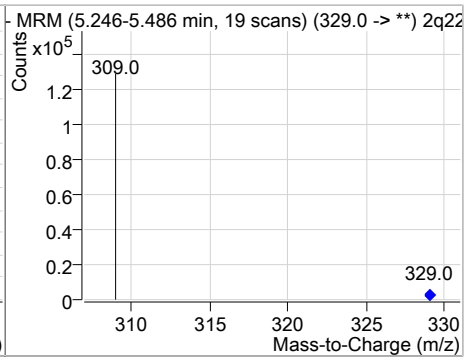


Perfluorinated Compounds by LC/MS/MS

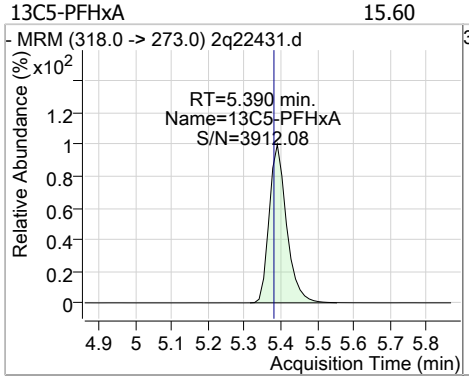
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	14.45	5.32	0.01	95150				

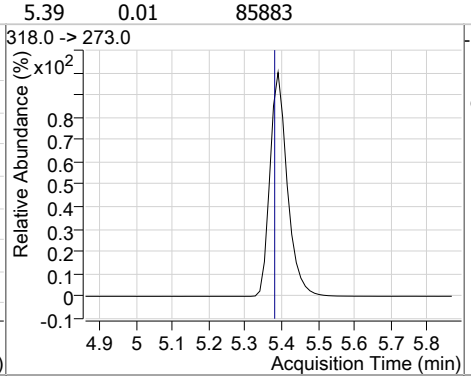


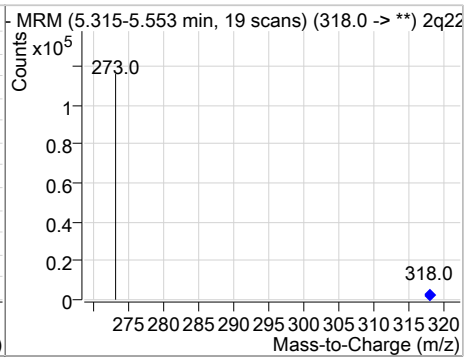




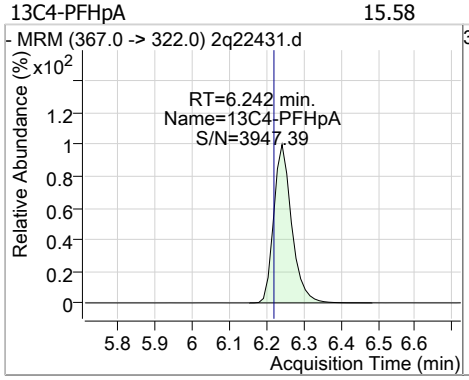
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	15.60	5.39	0.01	85883				

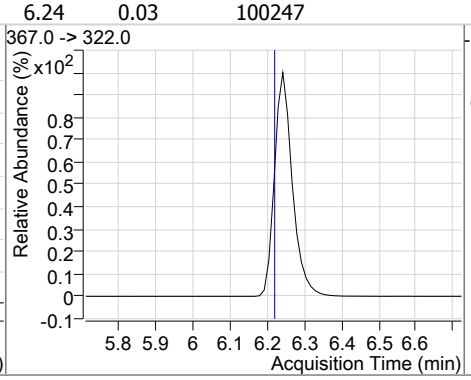


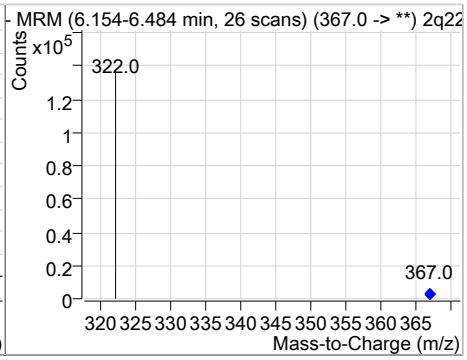




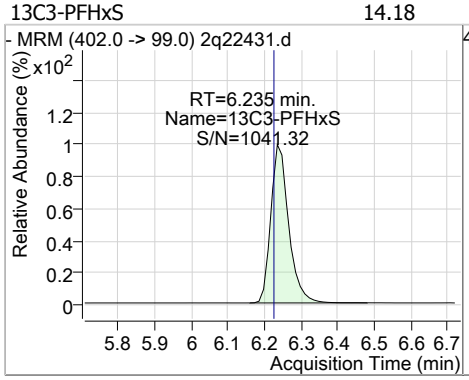
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	15.58	6.24	0.03	100247				

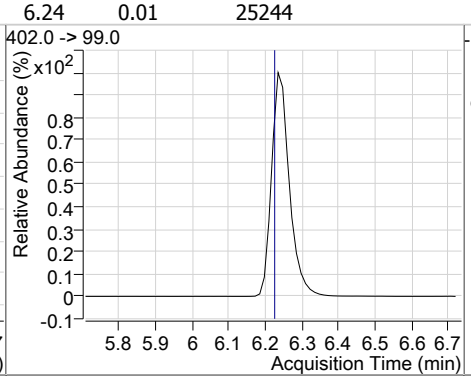


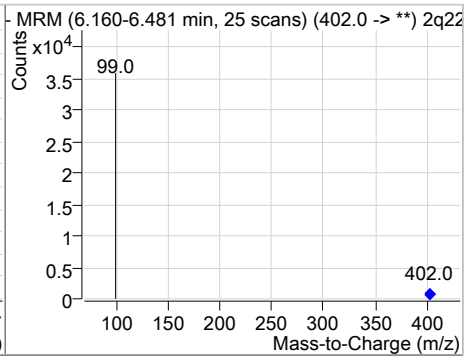




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	14.18	6.24	0.01	25244				

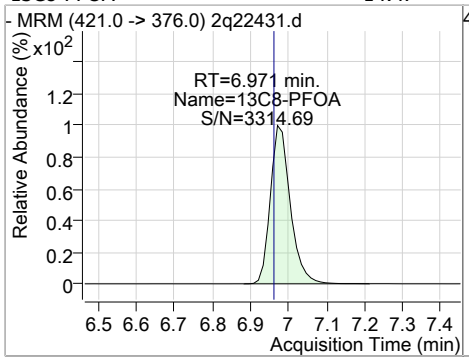


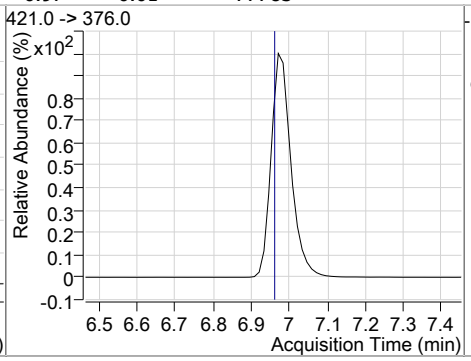


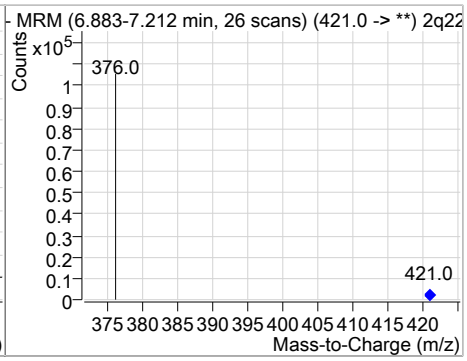


Perfluorinated Compounds by LC/MS/MS

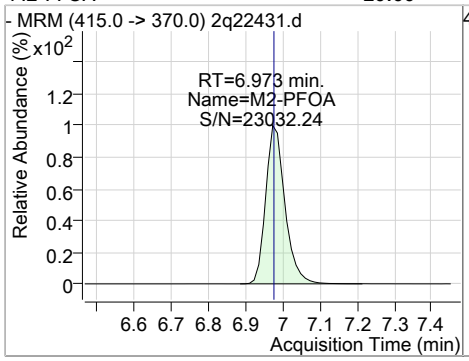
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	14.47	6.97	0.01	77783				

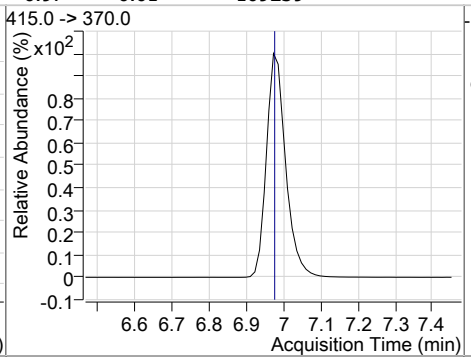


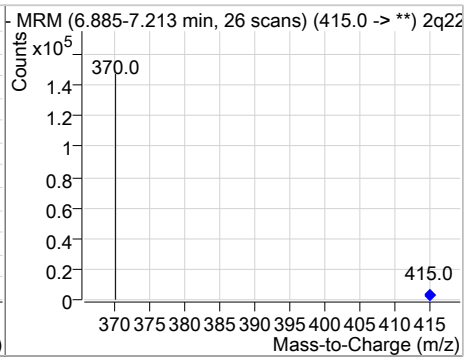




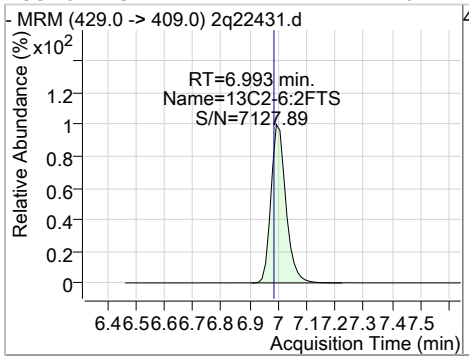
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	109239				

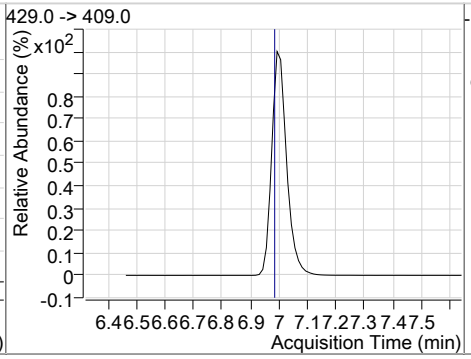


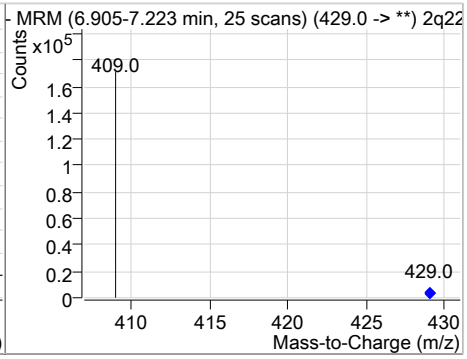




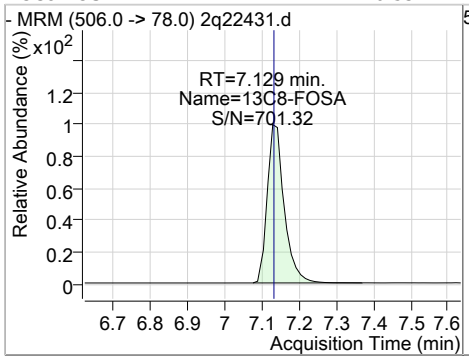
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	14.40	6.99	0.01	127185				

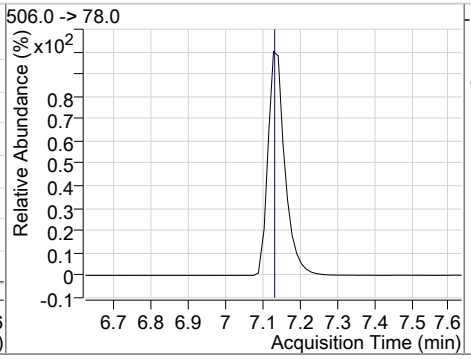


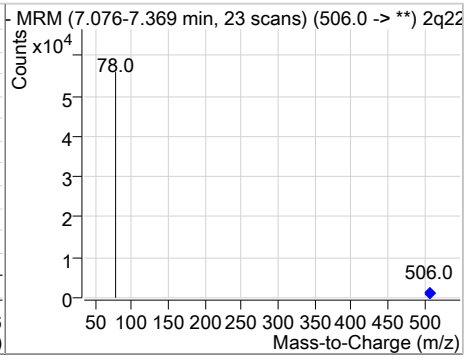




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	10.53	7.13	0.00	40857				

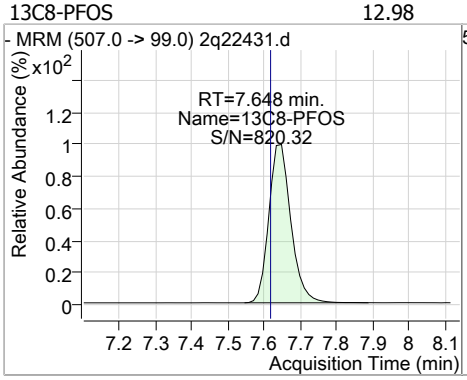


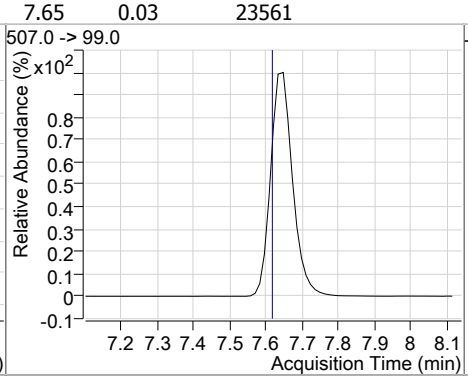


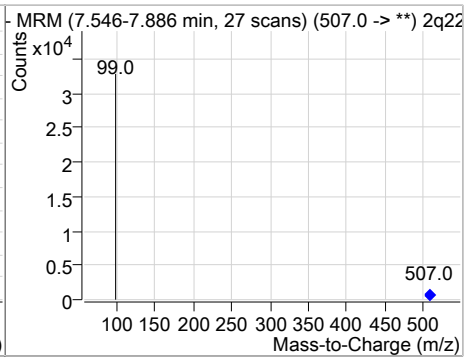


Perfluorinated Compounds by LC/MS/MS

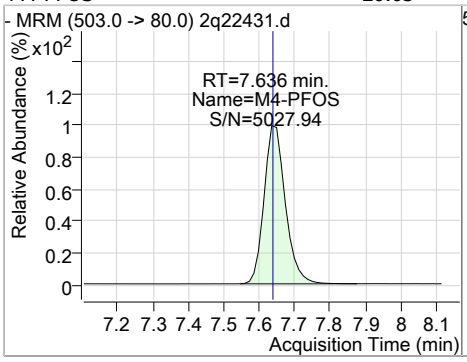
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	12.98	7.65	0.03	23561				

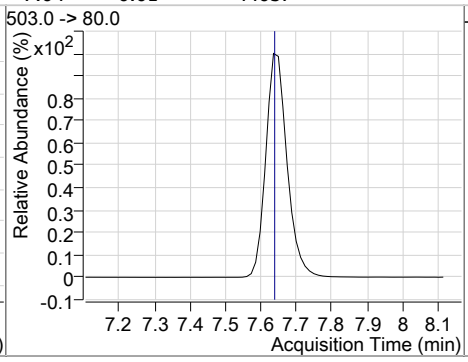


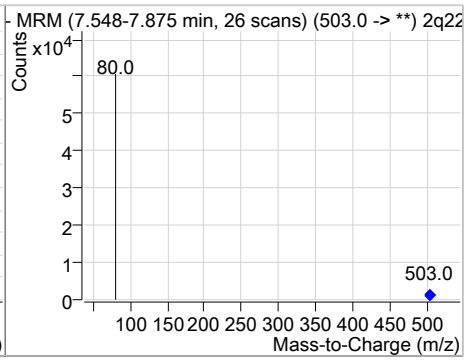




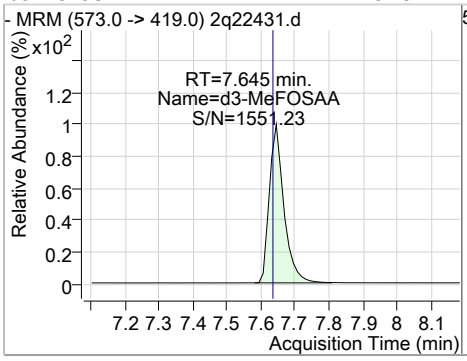
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.03	7.64	0.01	44657				

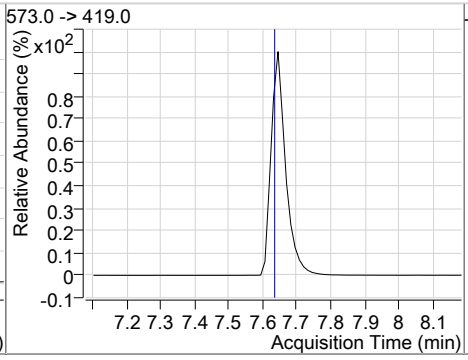


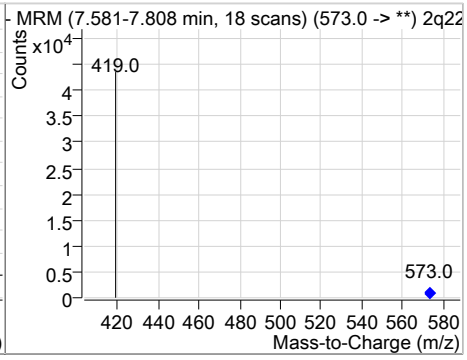




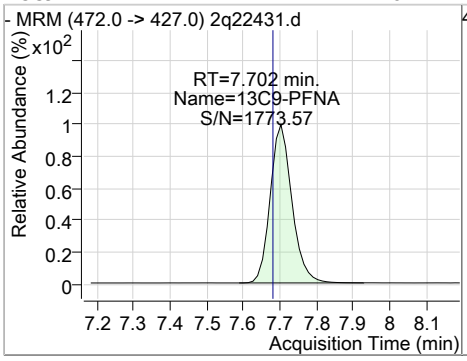
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.79	7.64	0.01	32061				

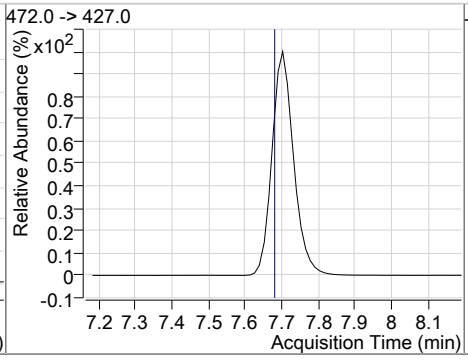


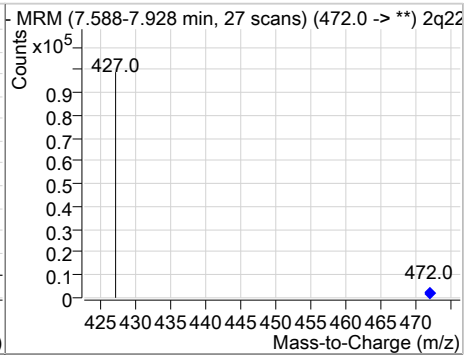




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	14.81	7.70	0.03	72818				

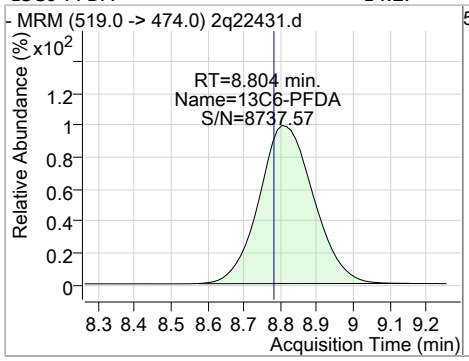


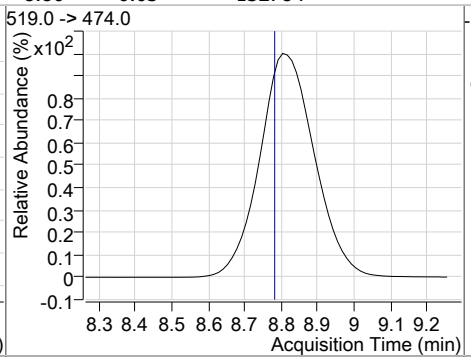


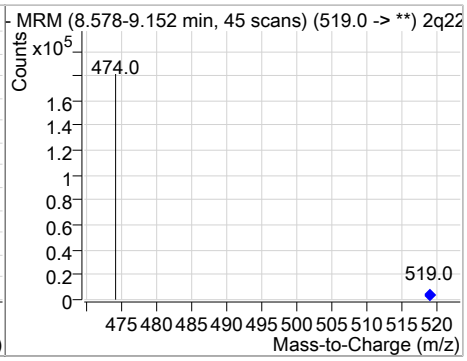


Perfluorinated Compounds by LC/MS/MS

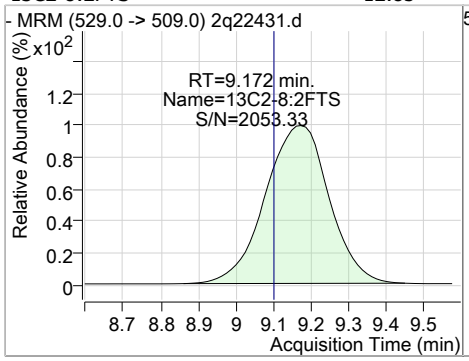
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	14.27	8.80	0.03	132784				

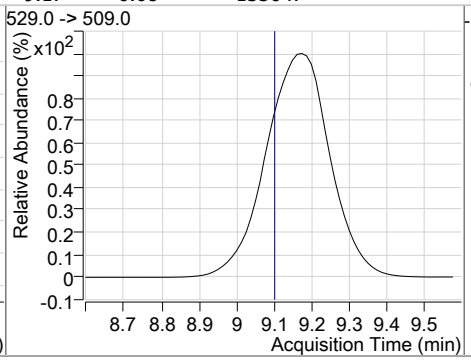


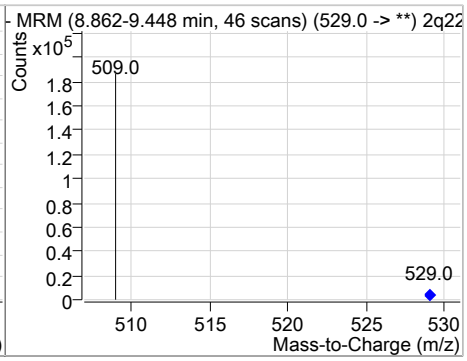




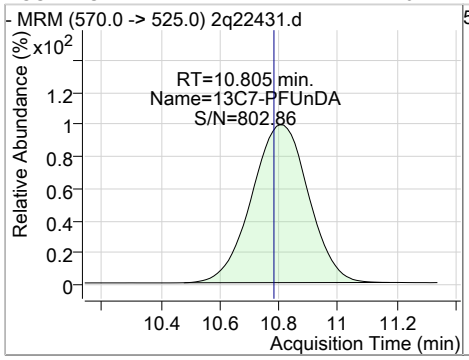
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	12.85	9.17	0.08	135047				

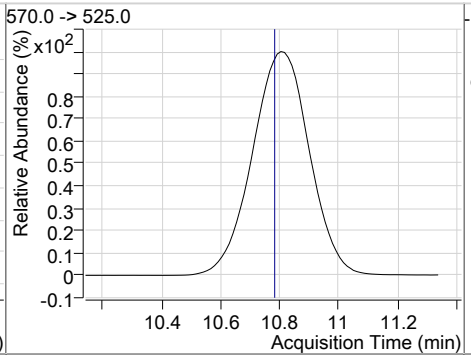


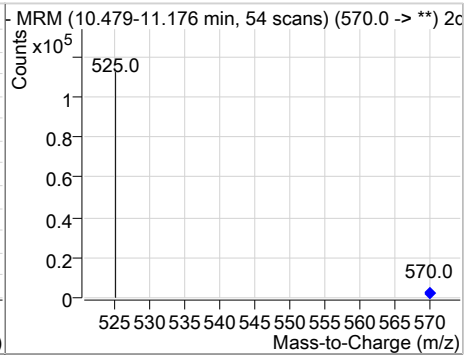




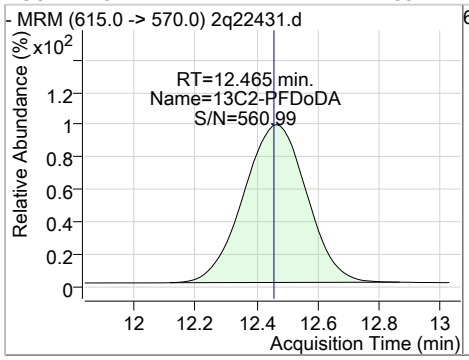
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.70	10.80	0.03	80129				

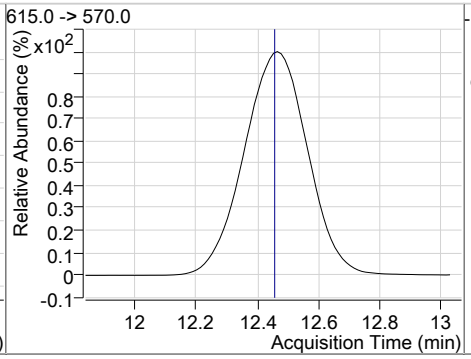


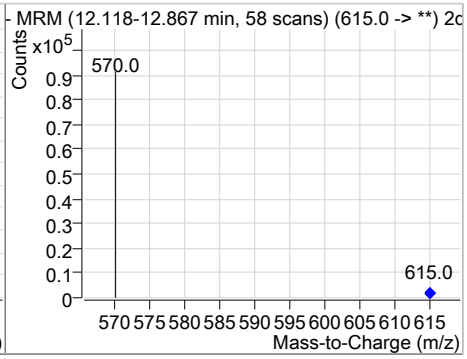




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.55	12.47	0.01	63862				

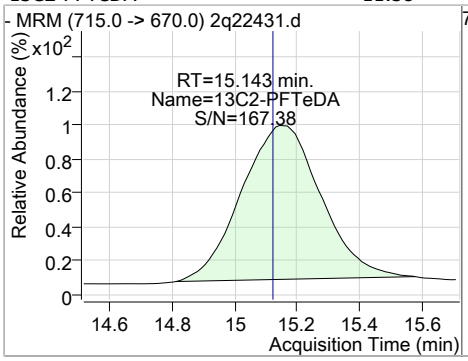


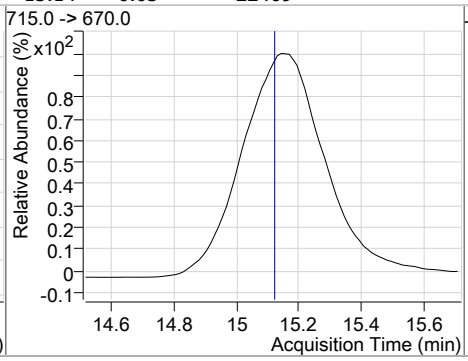


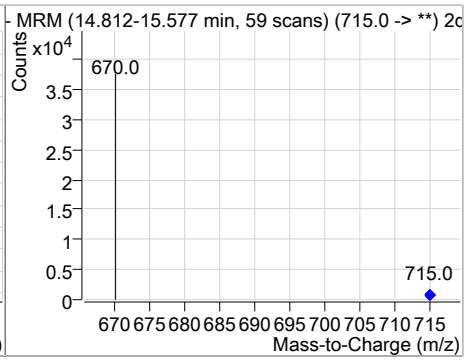


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.58	15.14	0.03	22469				







7.1.27

7

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22152.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 10:15:20 PM
Sample Name : fa57914-15
Vial : Vial 29
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

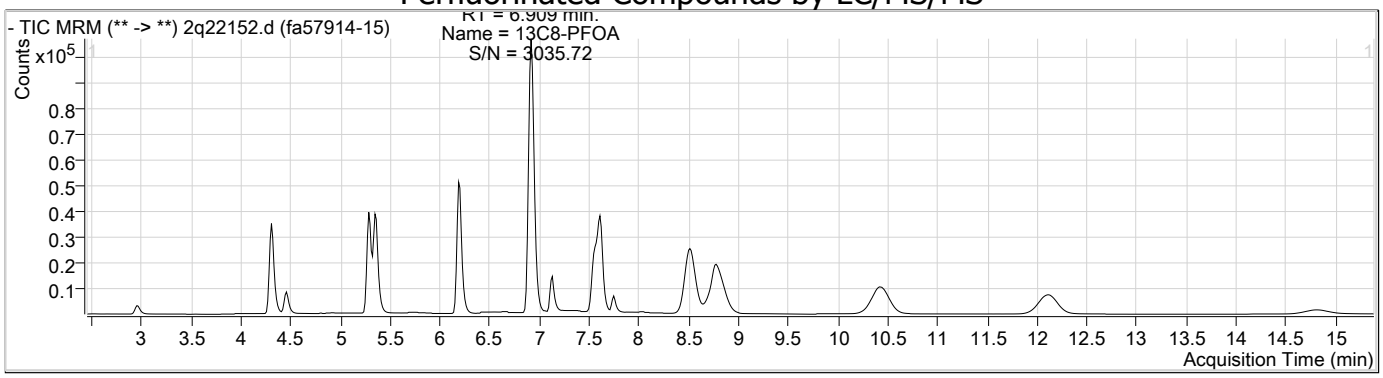
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.910	415.0 -> 370.0	138108	20.00 µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	49996	20.00 µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	12011	20.00 µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	116382	20.00 µg/L	0.000
M5-PFHxA	5.352	318.0 -> 273.0	119853	20.00 µg/L	-0.001
M4-PFHpA	6.192	367.0 -> 322.0	140344	20.00 µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	120191	20.00 µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	101989	20.00 µg/L	0.000
M6-PFDA	8.516	519.0 -> 474.0	192750	20.00 µg/L	0.012
M7-PFUnDA	10.417	570.0 -> 525.0	130997	20.00 µg/L	0.013
M2-PFDoDA	12.115	615.0 -> 570.0	102212	20.00 µg/L	0.025
M2-PFTeDA	14.806	715.0 -> 670.0	28568	20.00 µg/L	0.025
M8-FOSA	7.130	506.0 -> 78.0	40642	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	27290	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	33827	20.00 µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	32072	20.00 µg/L	0.000
M2-4:2FTS	5.285	329.0 -> 309.0	129135	20.00 µg/L	0.000
M2-6:2FTS	6.931	429.0 -> 409.0	166925	20.00 µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	182649	20.00 µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	40077	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.285	329.0 -> 309.0	129119	18.38 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C2-6:2FTS	6.931	429.0 -> 409.0	166912	18.99 µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.0%	
13C2-8:2FTS	8.775	529.0 -> 509.0	181688	17.46 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.3%	
13C2-PFDoDA	12.115	615.0 -> 570.0	101506	16.17 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.9%	
13C2-PFTeDA	14.806	715.0 -> 670.0	26228	11.74 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 58.7%	
13C3-PFBS	4.455	302.0 -> 99.0	27290	19.16 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C3-PFHxS	6.198	402.0 -> 99.0	33827	19.52 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C4-PFBA	2.953	217.0 -> 172.0	12013	0.83 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 4.2%	
13C4-PFHpA	6.192	367.0 -> 322.0	140468	20.03 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C5-PFHxA	5.352	318.0 -> 273.0	119849	19.74 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFPeA	4.312	268.0 -> 223.0	116387	18.53 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C6-PFDA	8.516	519.0 -> 474.0	192612	19.11 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%	

Perfluorinated Compounds by LC/MS/MS

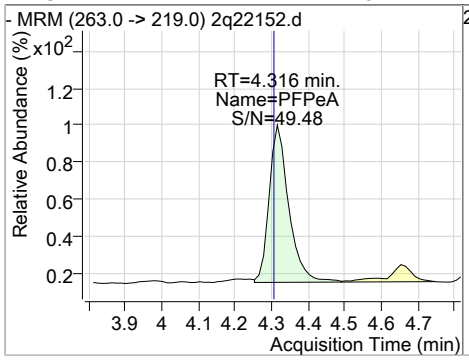
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.417	570.0 -> 525.0	130615	17.08	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.4%			
13C8-FOSA	7.130	506.0 -> 78.0	40641	11.04	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 55.2%			
13C8-PFOA	6.909	421.0 -> 376.0	120271	20.49	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%			
13C8-PFOS	7.546	507.0 -> 99.0	32064	18.33	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.7%			
13C9-PFNA	7.601	472.0 -> 427.0	101967	19.44	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%			
d3-MeFOSAA	7.620	573.0 -> 419.0	40134	17.95	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.7%			
M2-PFOA	6.910	415.0 -> 370.0	138160	20.01	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	50005	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.661	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.459	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.912	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	1198	0.22	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

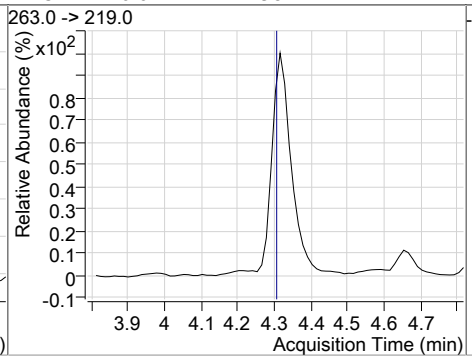
 # = Qualifier out of range, m = manually integrated, + = Area summed

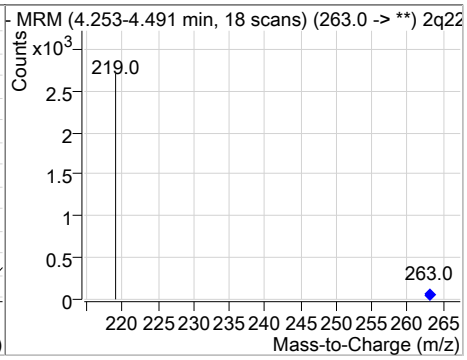
Perfluorinated Compounds by LC/MS/MS



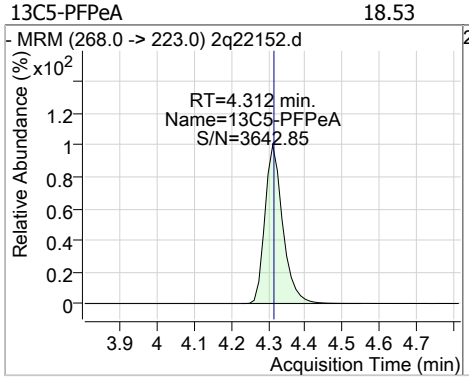
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.22	4.32	0.01	1198				

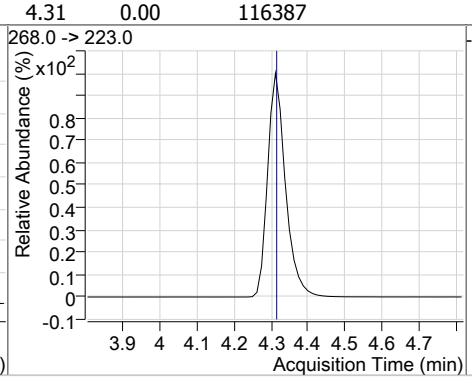


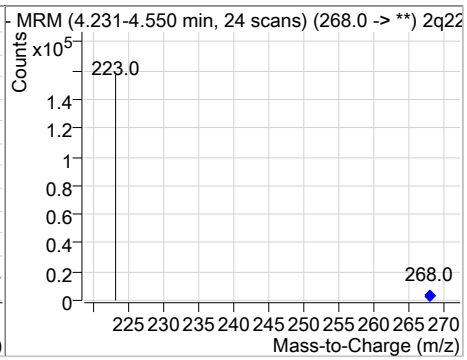




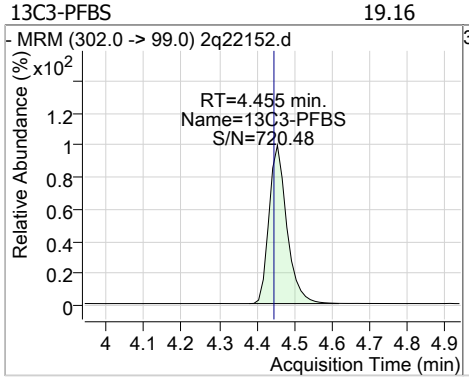
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.53	4.31	0.00	116387				

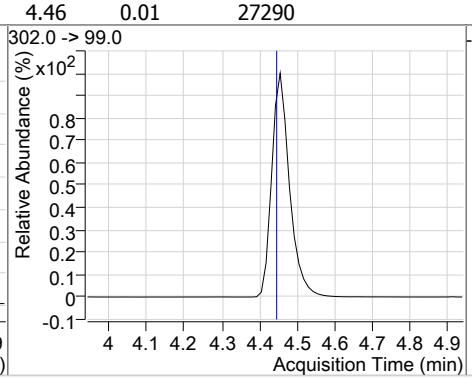


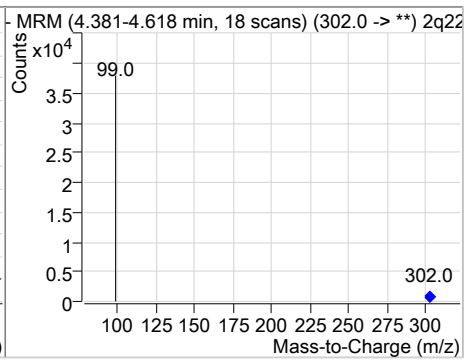




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.16	4.46	0.01	27290				

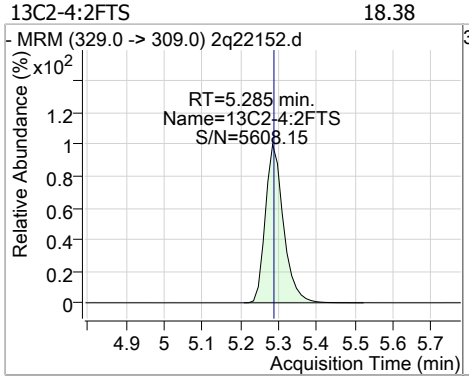


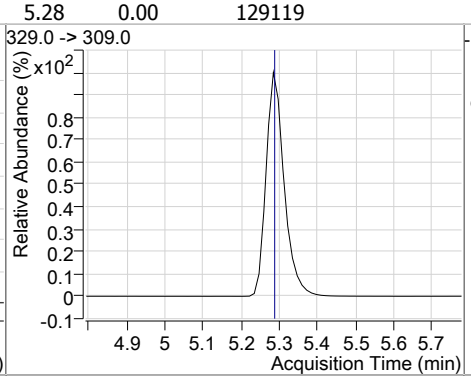


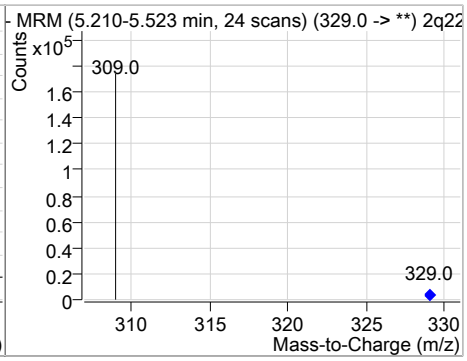


Perfluorinated Compounds by LC/MS/MS

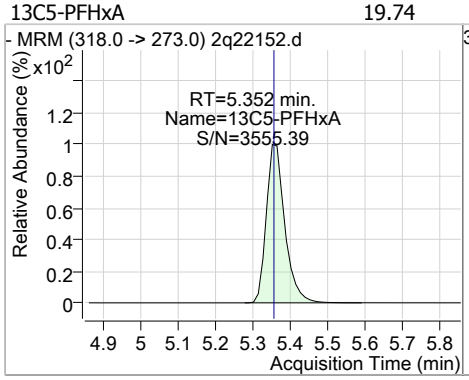
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.38	5.28	0.00	129119				

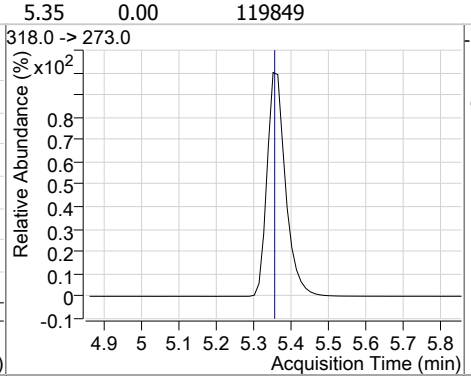


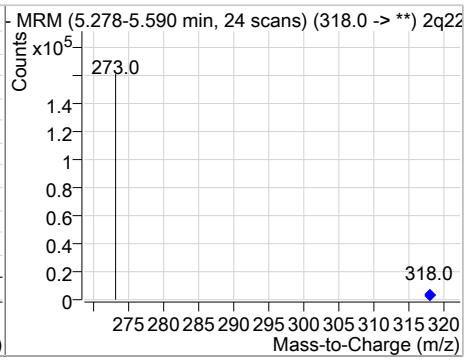




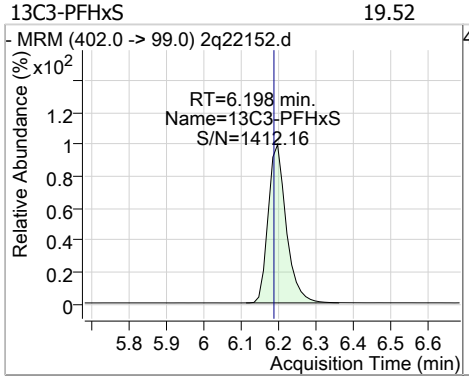
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.74	5.35	0.00	119849				

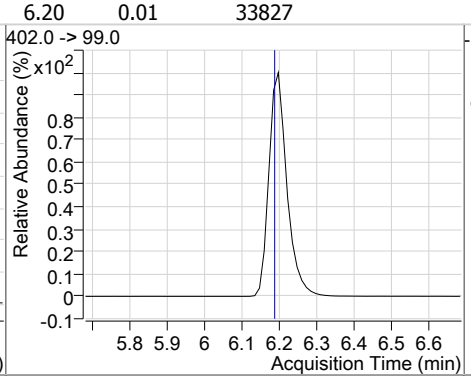


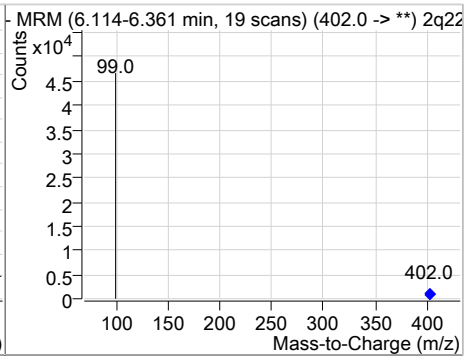




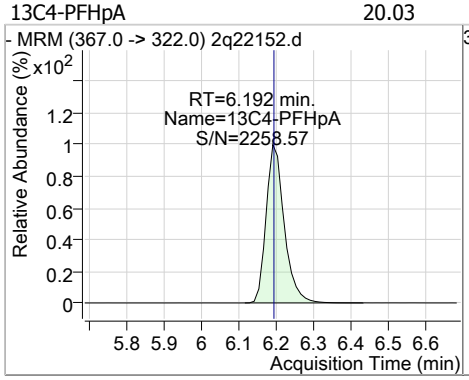
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.52	6.20	0.01	33827				

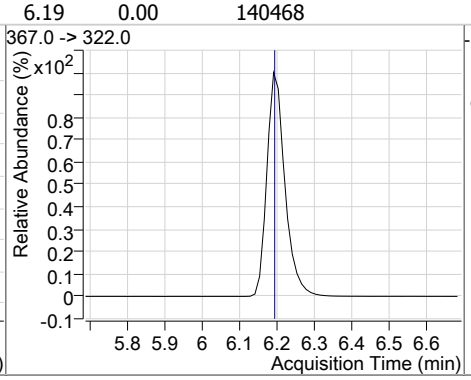


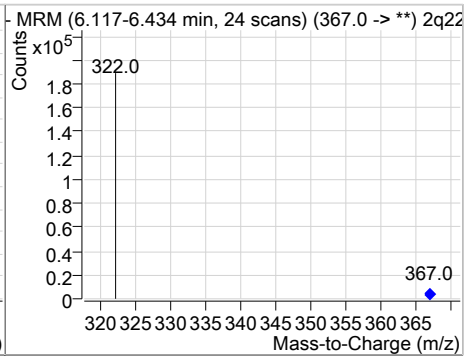




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.03	6.19	0.00	140468				

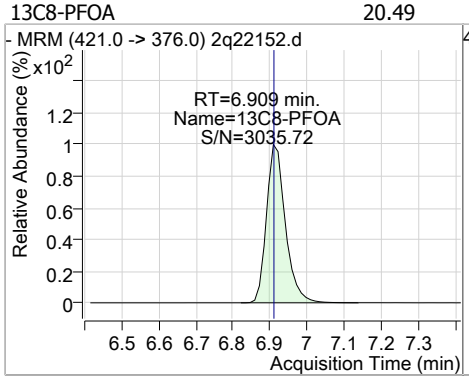


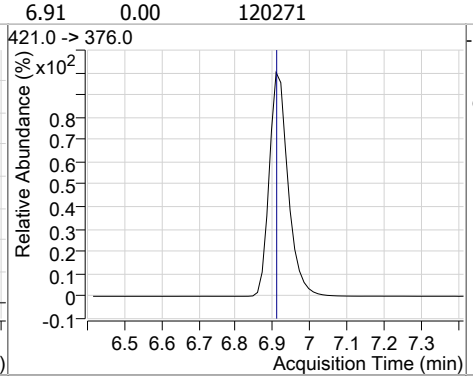


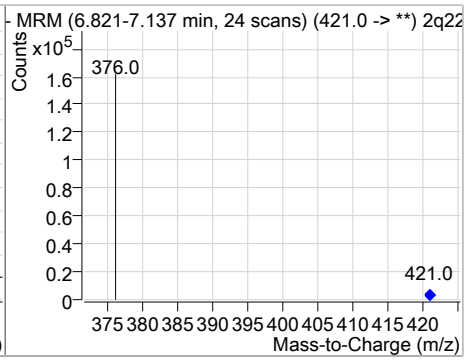


Perfluorinated Compounds by LC/MS/MS

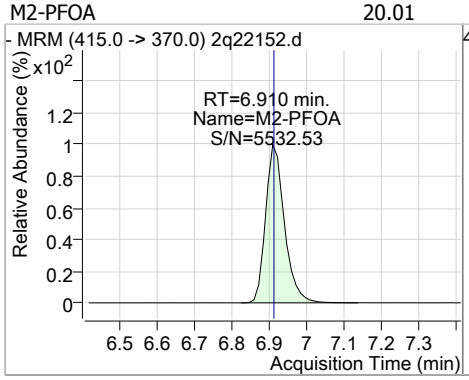
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.49	6.91	0.00	120271				

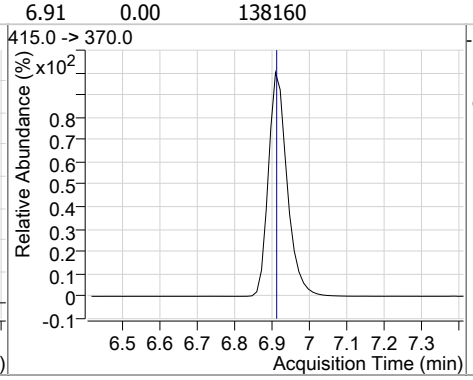


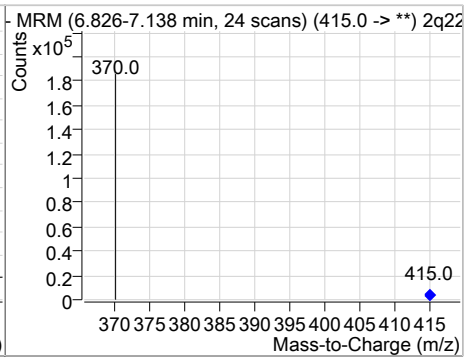




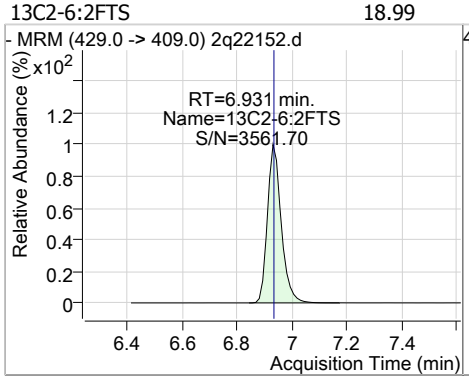
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.91	0.00	138160				

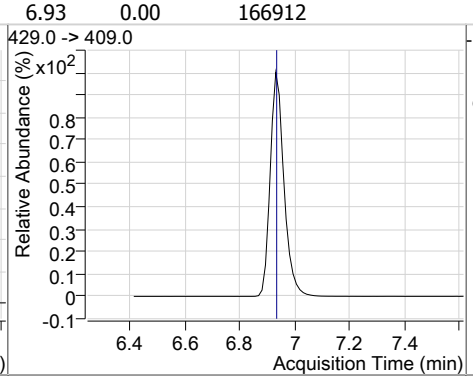


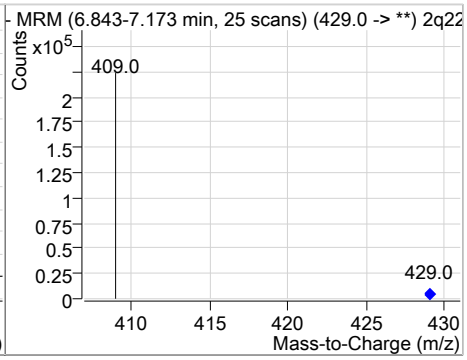




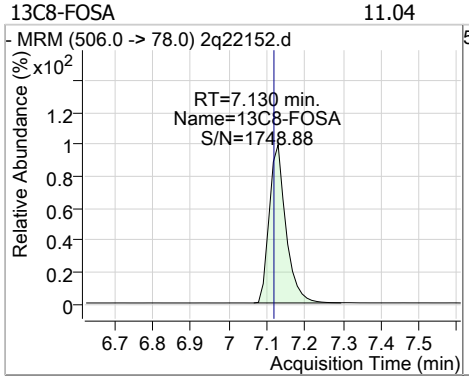
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.99	6.93	0.00	166912				

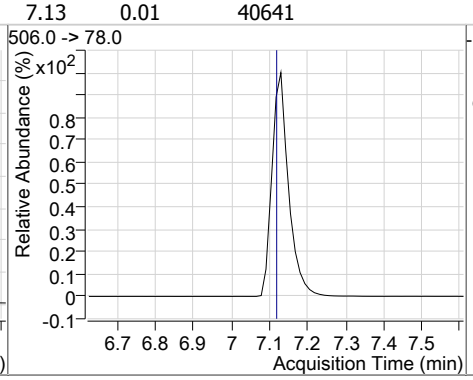


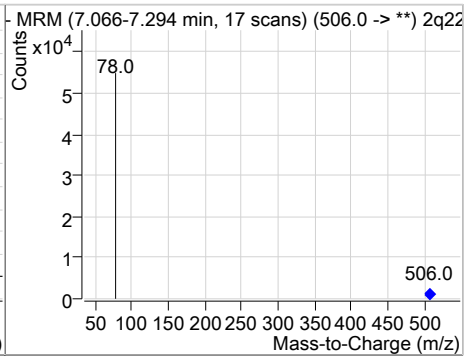




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	11.04	7.13	0.01	40641				

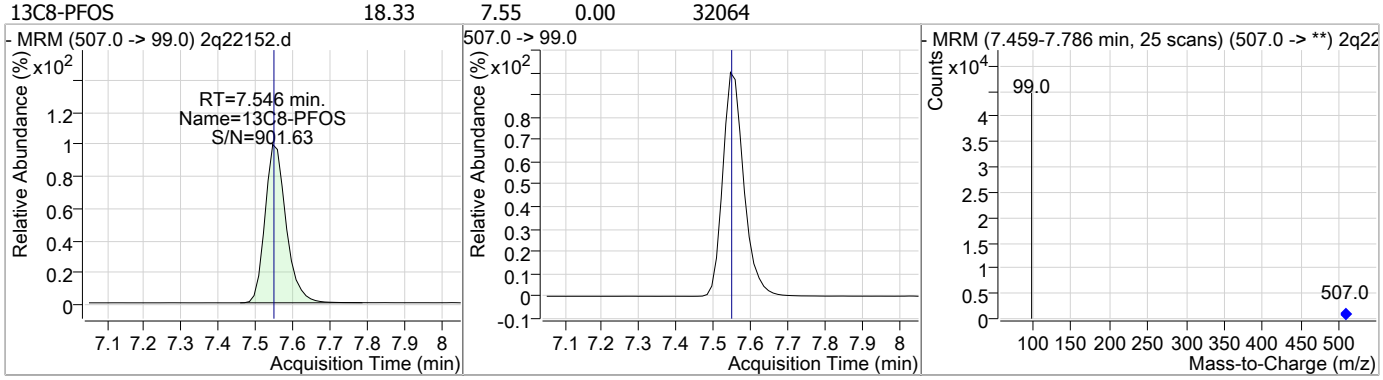




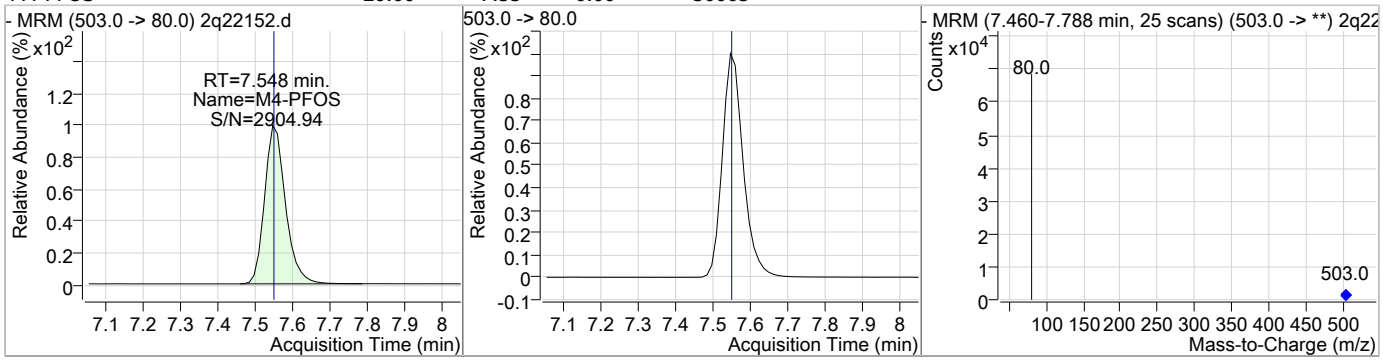


Perfluorinated Compounds by LC/MS/MS

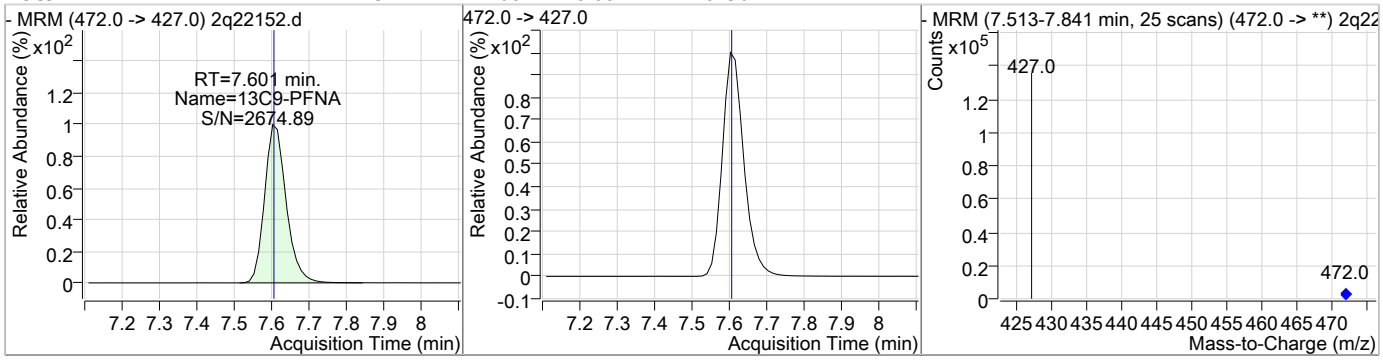
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.33	7.55	0.00	32064				



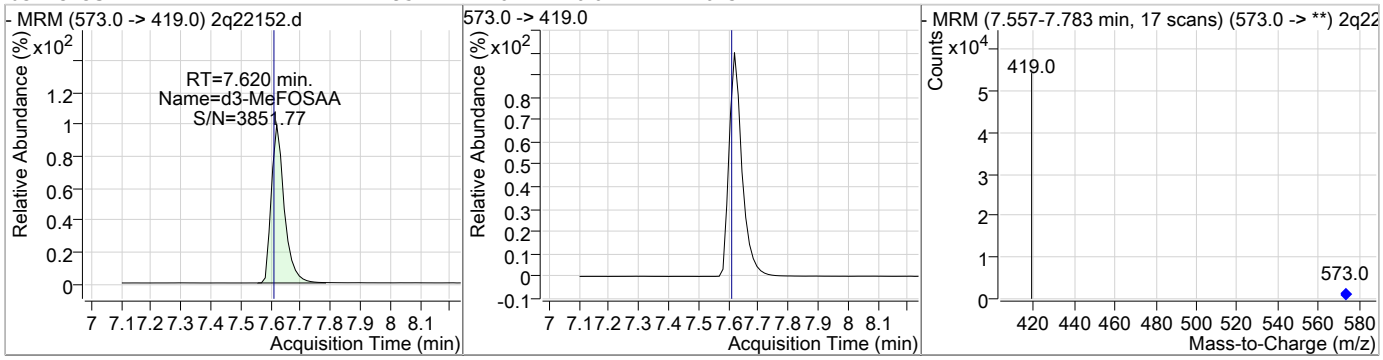
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.55	0.00	50005				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.44	7.60	0.00	101967				

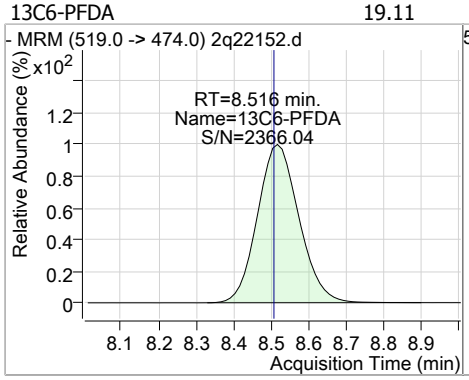


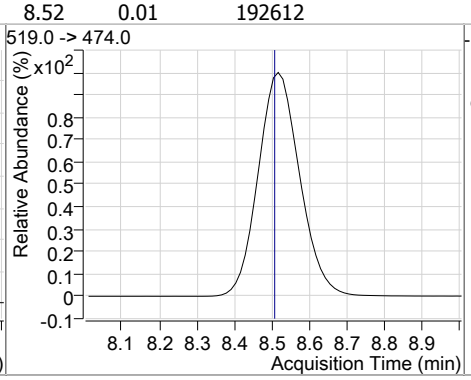
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	17.95	7.62	0.01	40134				

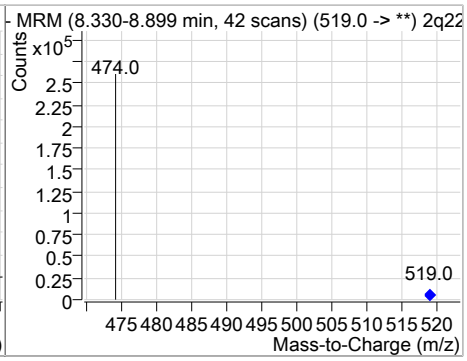


Perfluorinated Compounds by LC/MS/MS

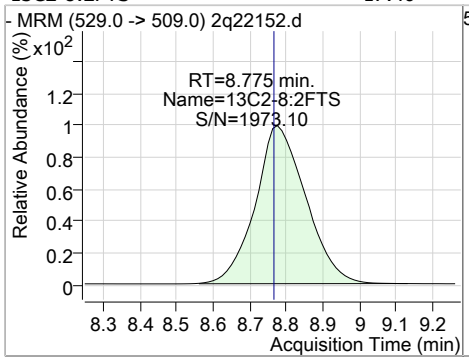
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.11	8.52	0.01	192612				

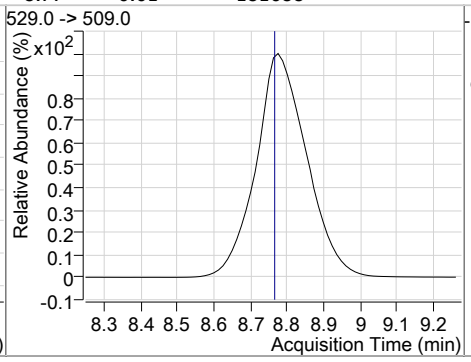


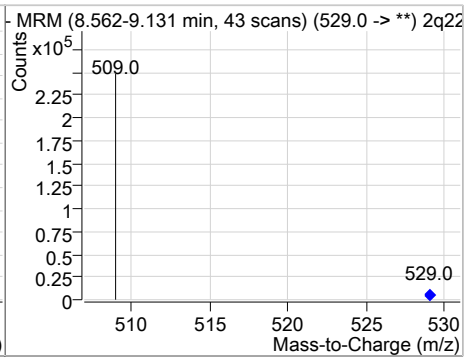




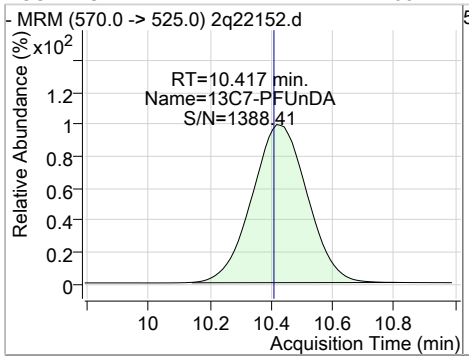
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.46	8.77	0.01	181688				

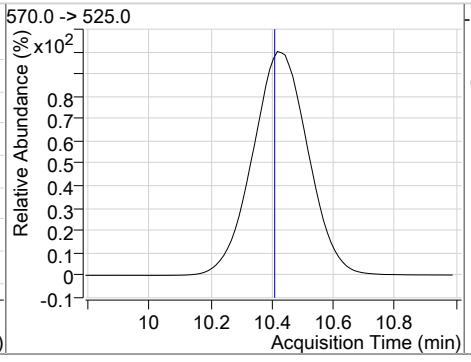


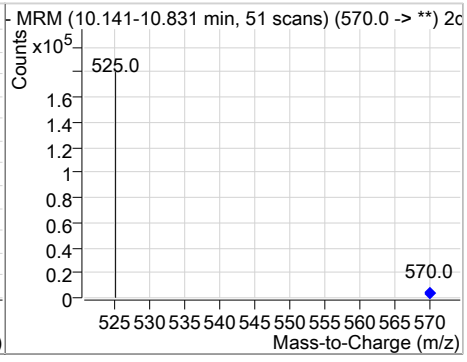




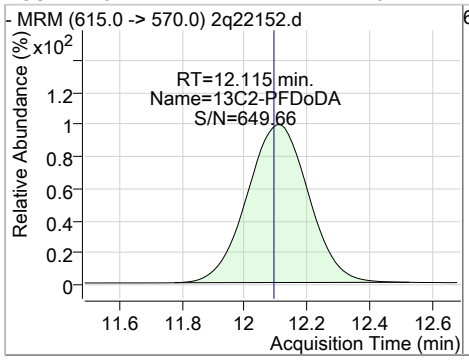
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	17.08	10.42	0.01	130615				

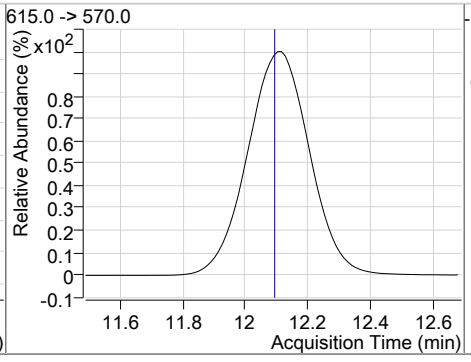


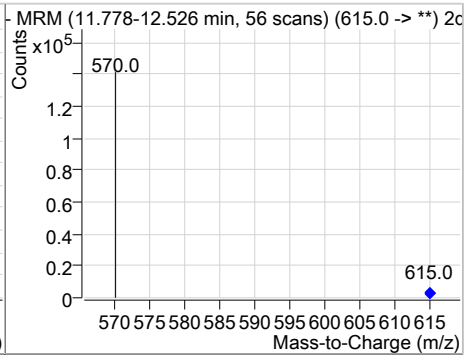




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	16.17	12.12	0.03	101506				

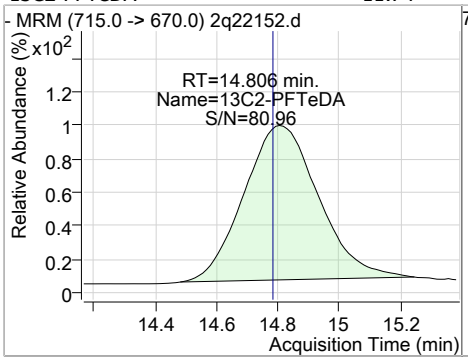


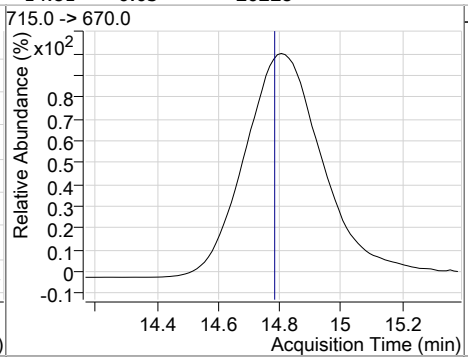


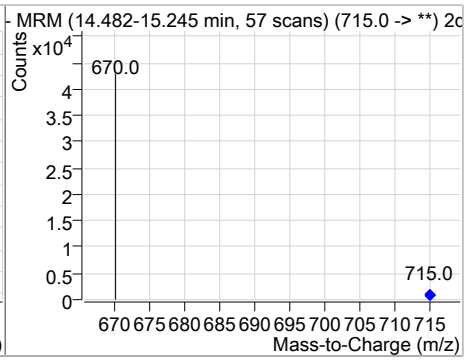


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.74	14.81	0.03	26228				







Perfluorinated Compounds by LC/MS/MS

Data File : 2q22133.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 3:41:13 PM
Sample Name : op71994-mb
Vial : Vial 12
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

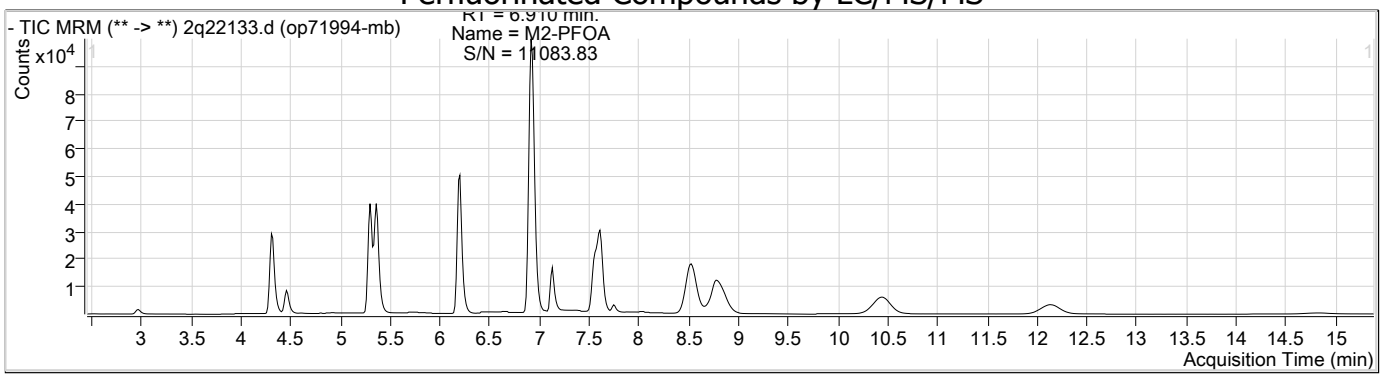
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	129319	20.00	µg/L	0.002
13C4-PFOS	7.561	503.0 -> 80.0	45436	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	5936	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	98158	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	119956	20.00	µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	138655	20.00	µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	114382	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	89601	20.00	µg/L	0.013
M6-PFDA	8.529	519.0 -> 474.0	139075	20.00	µg/L	0.025
M7-PFUnDA	10.442	570.0 -> 525.0	75783	20.00	µg/L	0.038
M2-PFDoDA	12.128	615.0 -> 570.0	46180	20.00	µg/L	0.038
M2-PFTeDA	14.831	715.0 -> 670.0	6176	20.00	µg/L	0.050
M8-FOSA	7.130	506.0 -> 78.0	46464	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	27366	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	32735	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	26201	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	129219	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	156620	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	119015	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	19815	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	129322	18.41	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.1%		
13C2-6:2FTS	6.931	429.0 -> 409.0	156674	17.83	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.1%		
13C2-8:2FTS	8.775	529.0 -> 509.0	118559	11.39	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.0%		
13C2-PFDoDA	12.128	615.0 -> 570.0	45898	7.31	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 36.6%		
13C2-PFTeDA	14.831	715.0 -> 670.0	5878	2.63	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 13.2%		
13C3-PFBS	4.455	302.0 -> 99.0	27370	19.22	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C3-PFHxS	6.198	402.0 -> 99.0	32719	18.88	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.4%		
13C4-PFBA	2.966	217.0 -> 172.0	5941	0.41	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 2.1%		
13C4-PFHpA	6.204	367.0 -> 322.0	138620	19.77	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C5-PFHxA	5.364	318.0 -> 273.0	119959	19.76	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C5-PFPeA	4.312	268.0 -> 223.0	98137	15.62	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.1%		
13C6-PFDA	8.529	519.0 -> 474.0	138702	13.76	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.8%		

Perfluorinated Compounds by LC/MS/MS

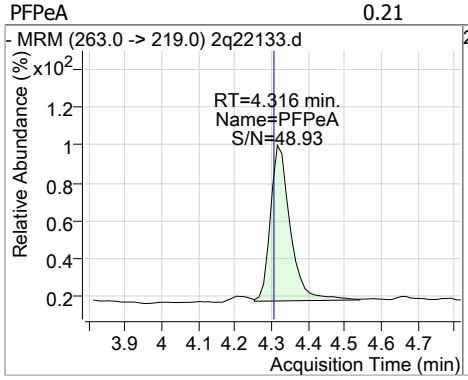
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.442	570.0 -> 525.0	75587	9.88	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 49.4%			
13C8-FOSA	7.130	506.0 -> 78.0	46415	12.61	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 63.1%			
13C8-PFOA	6.921	421.0 -> 376.0	114386	19.49	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.4%			
13C8-PFOS	7.559	507.0 -> 99.0	26201	14.98	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.9%			
13C9-PFNA	7.614	472.0 -> 427.0	89500	17.06	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.3%			
d3-MeFOSAA	7.620	573.0 -> 419.0	19821	8.86	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 44.3%			
M2-PFOA	6.910	415.0 -> 370.0	129276	19.99	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	45215	19.90	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.661	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	4.609	299.0 -> 80.0	0	0.00	µg/L	m	1
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.924	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.316	263.0 -> 219.0	968	0.21	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

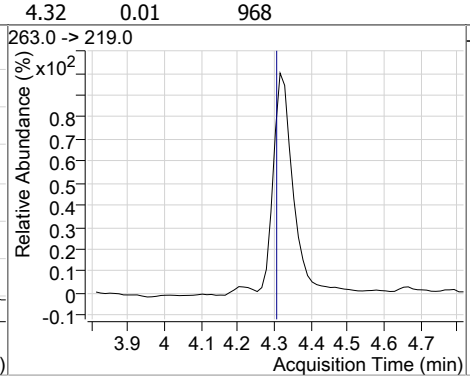
 # = Qualifier out of range, m = manually integrated, + = Area summed

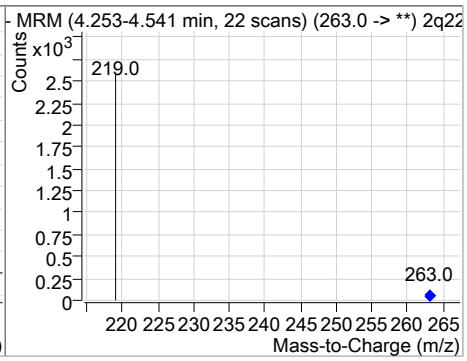
Perfluorinated Compounds by LC/MS/MS



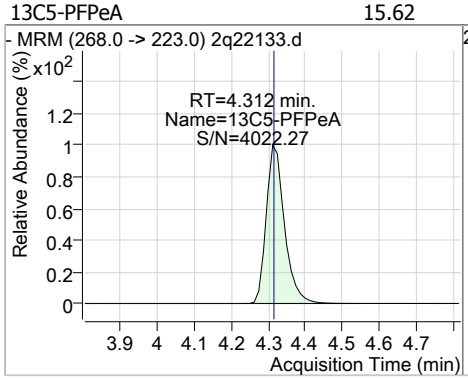
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.21	4.32	0.01	968				

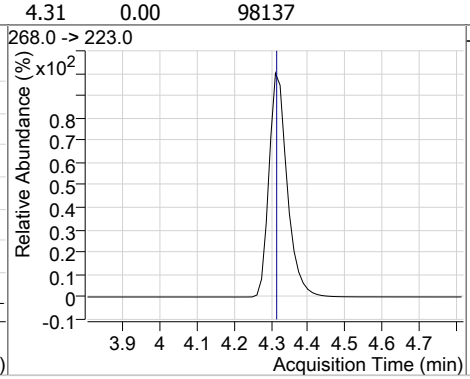


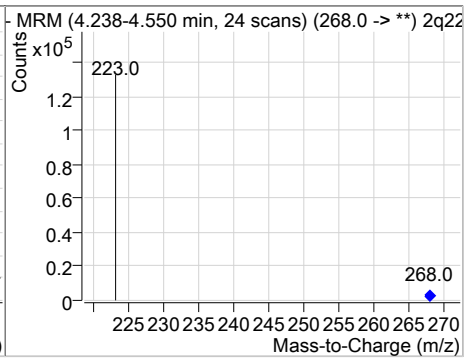




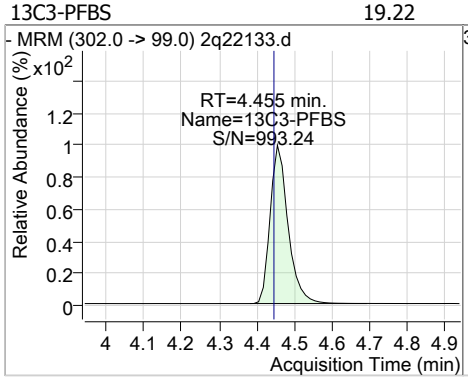
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	15.62	4.31	0.00	98137				

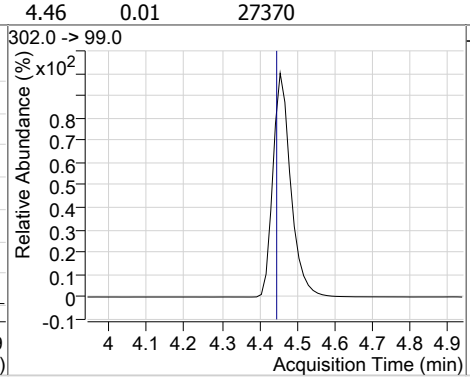


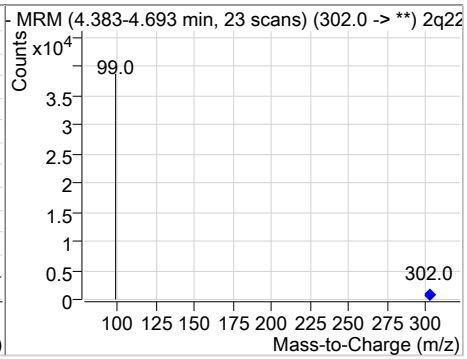




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.22	4.46	0.01	27370				

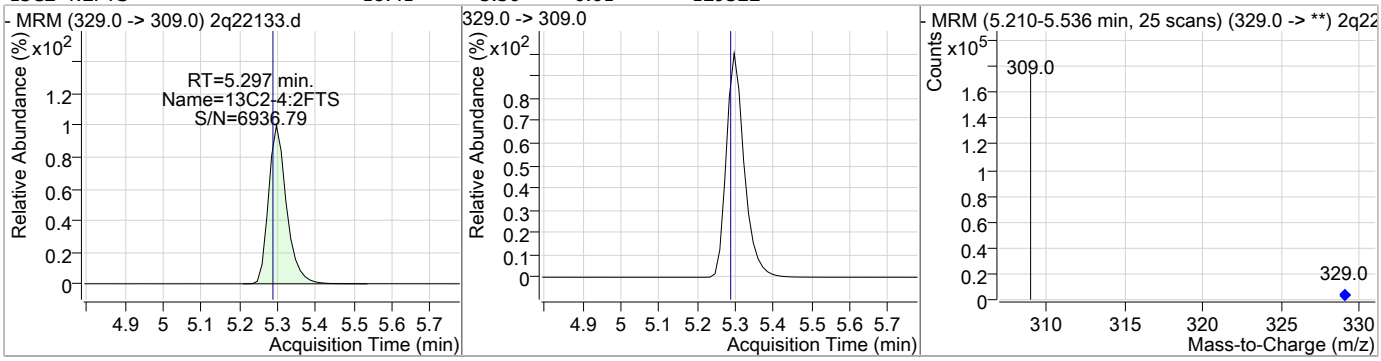




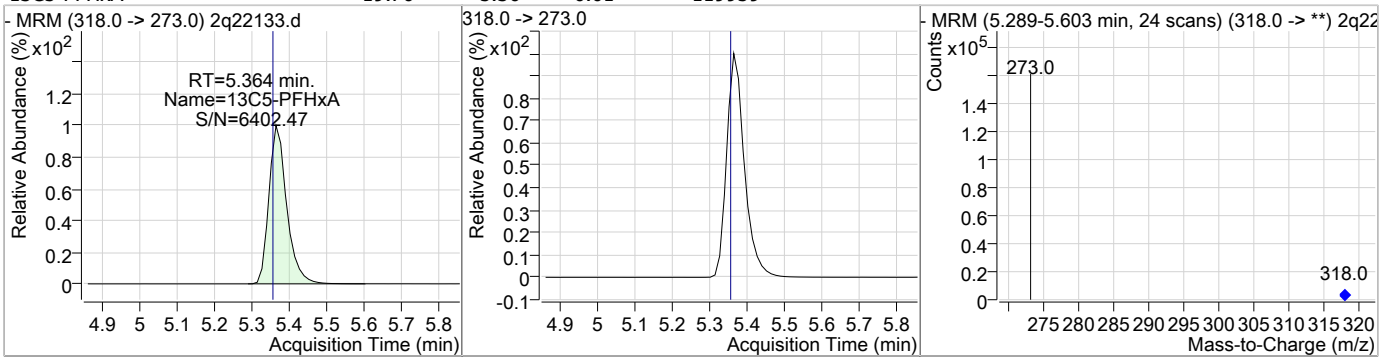


Perfluorinated Compounds by LC/MS/MS

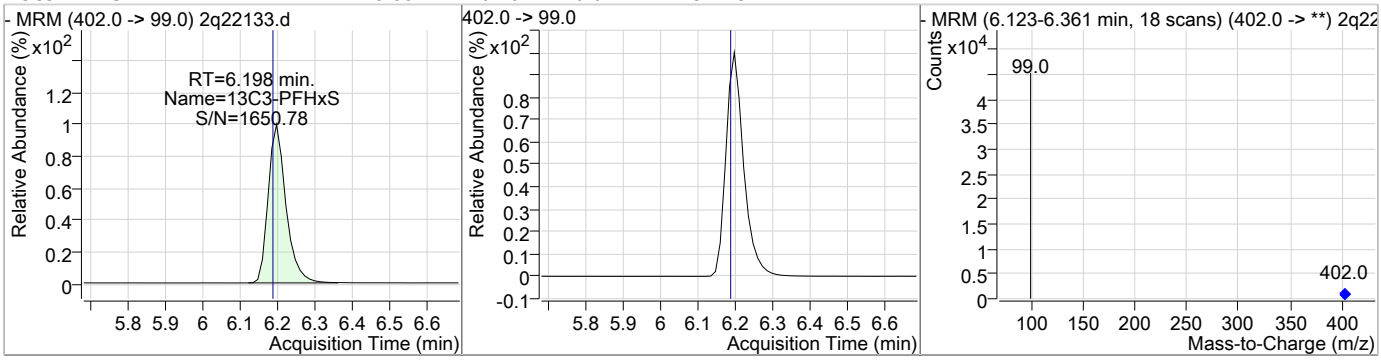
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.41	5.30	0.01	129322				



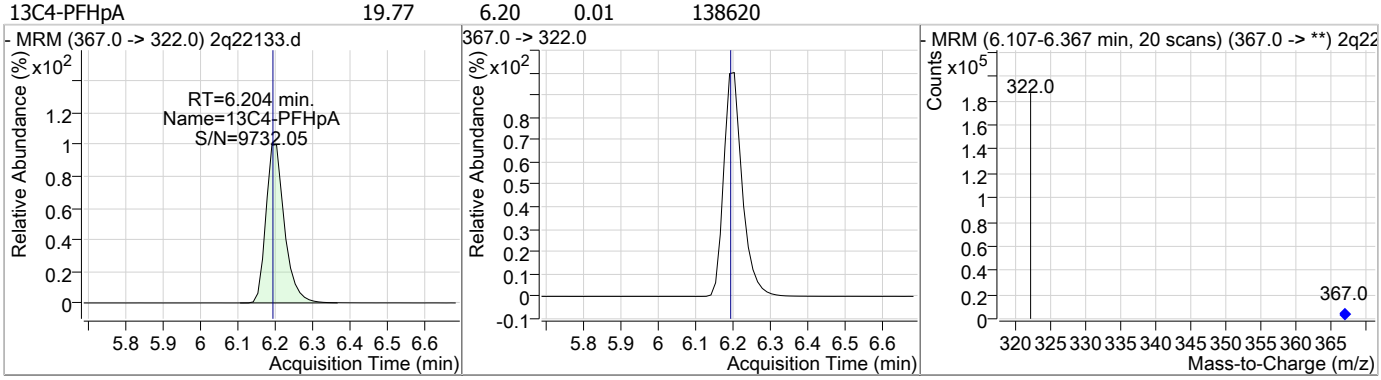
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.76	5.36	0.01	119959				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.88	6.20	0.01	32719				

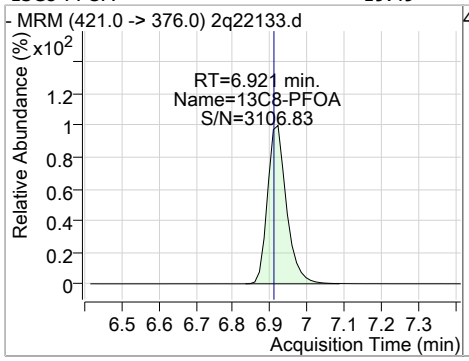


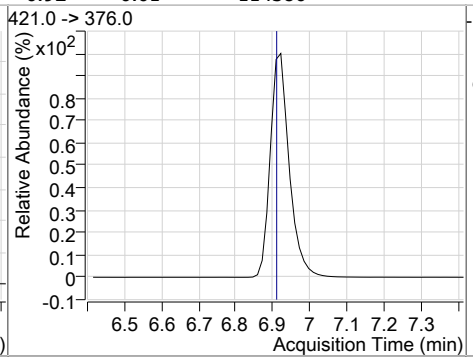
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.77	6.20	0.01	138620				

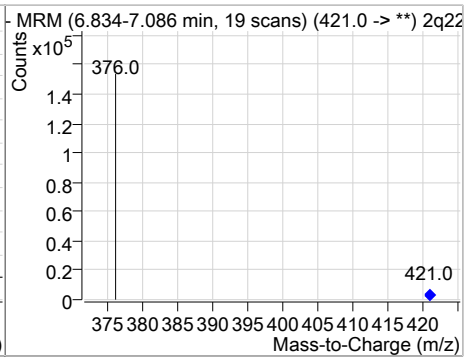


Perfluorinated Compounds by LC/MS/MS

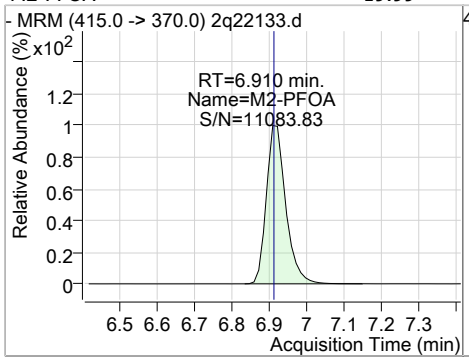
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.49	6.92	0.01	114386				

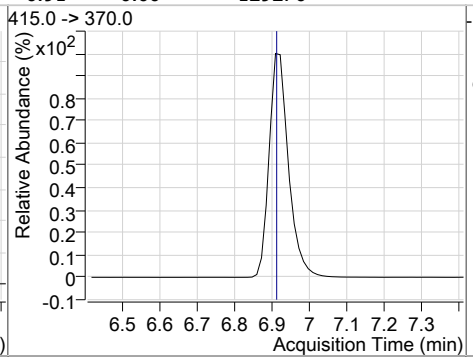


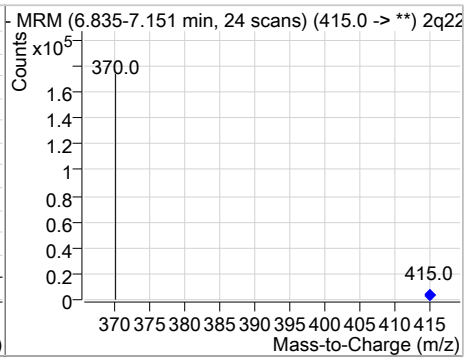




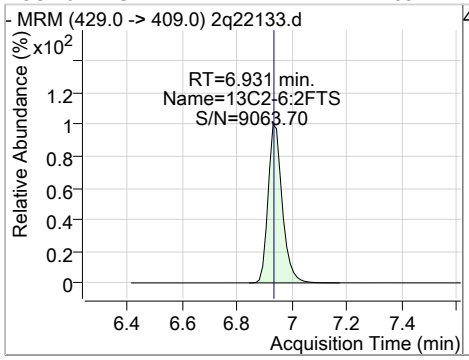
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.91	0.00	129276				

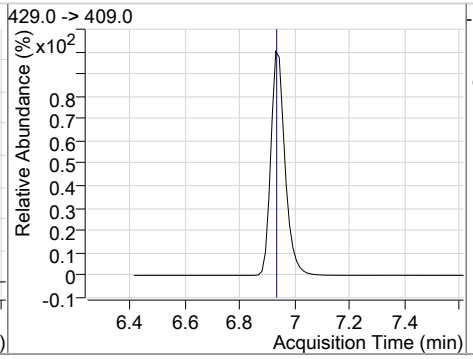


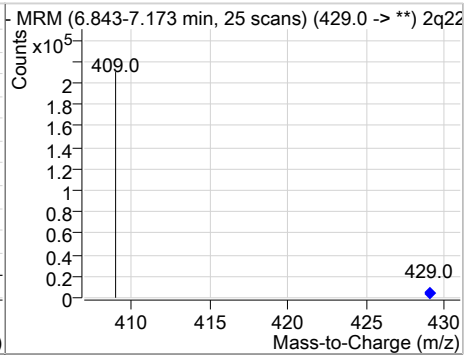




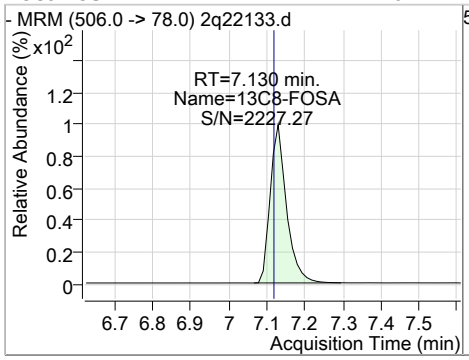
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.83	6.93	0.00	156674				

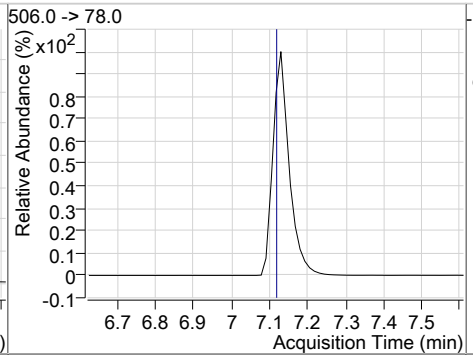


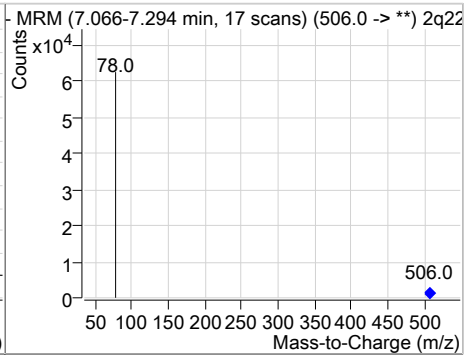




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	12.61	7.13	0.01	46415				

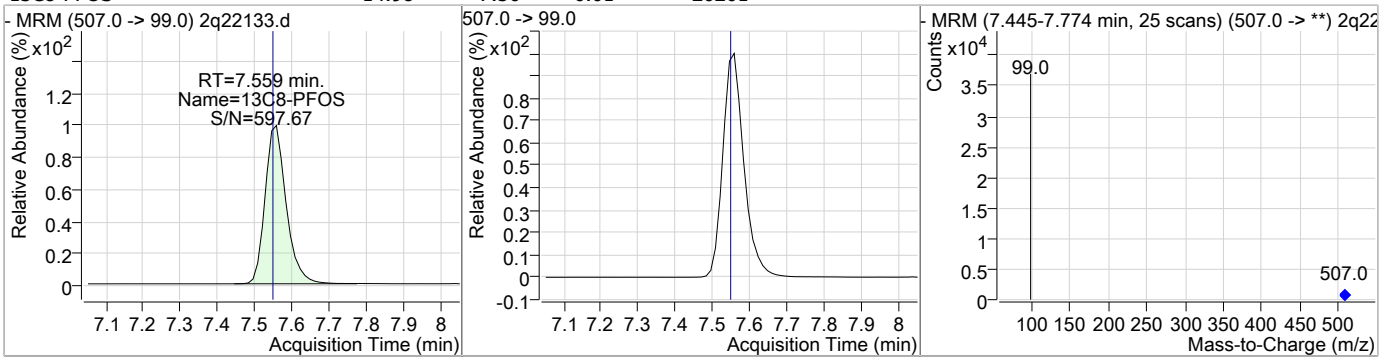




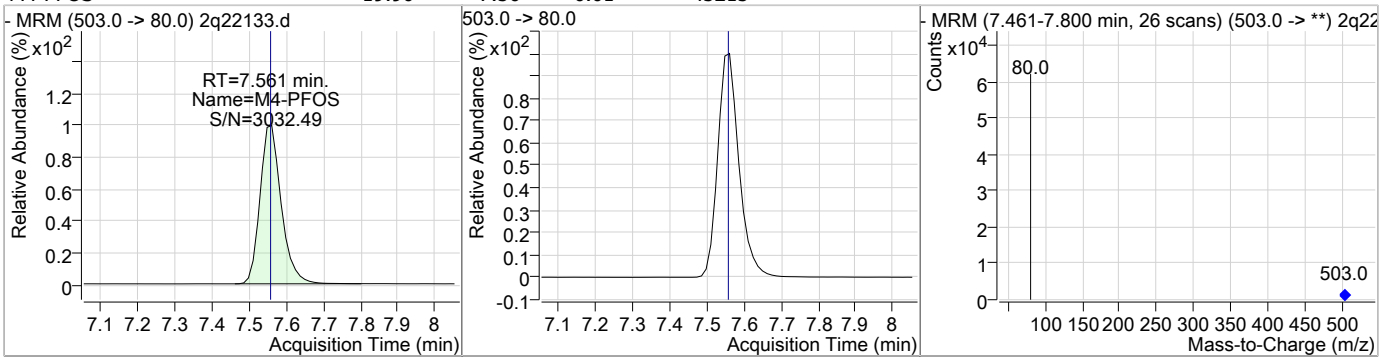


Perfluorinated Compounds by LC/MS/MS

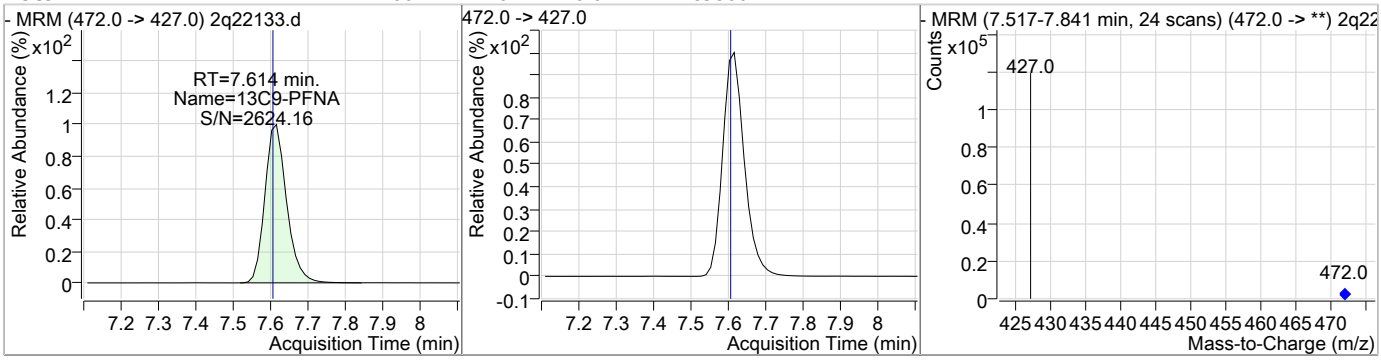
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	14.98	7.56	0.01	26201				



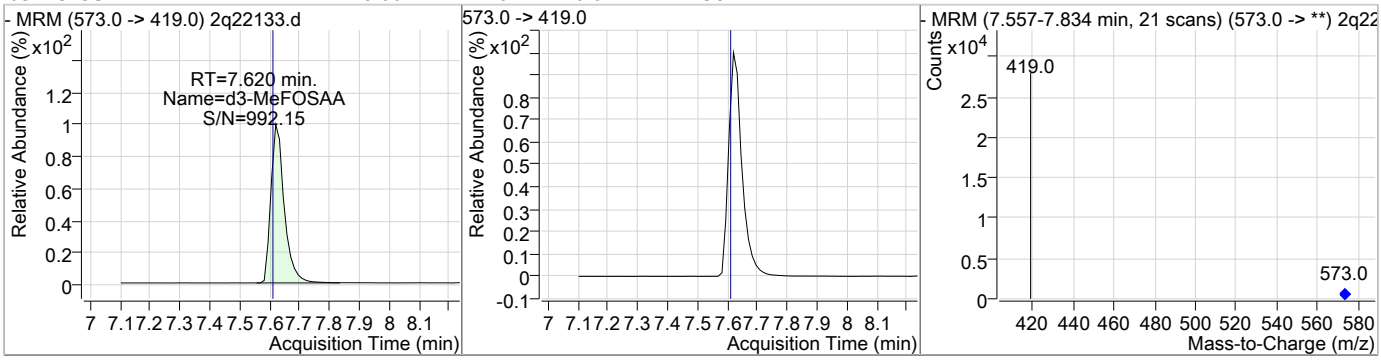
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.90	7.56	0.01	45215				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.06	7.61	0.01	89500				

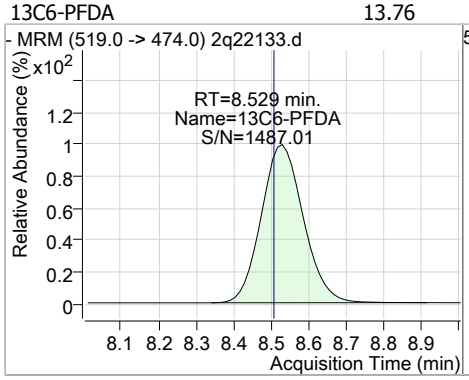


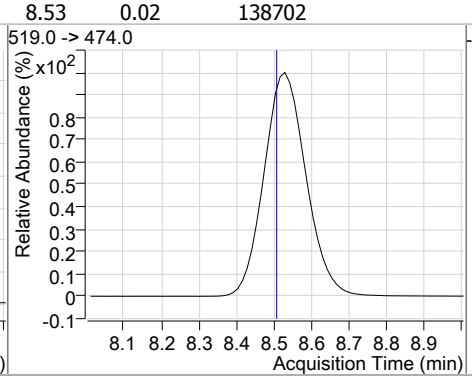
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	8.86	7.62	0.01	19821				

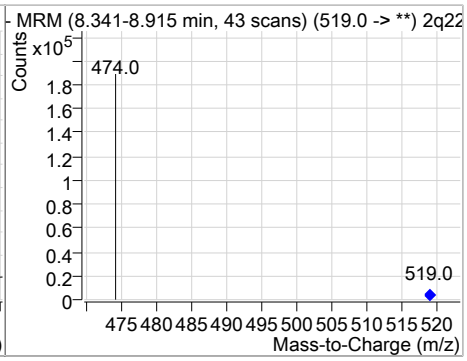


Perfluorinated Compounds by LC/MS/MS

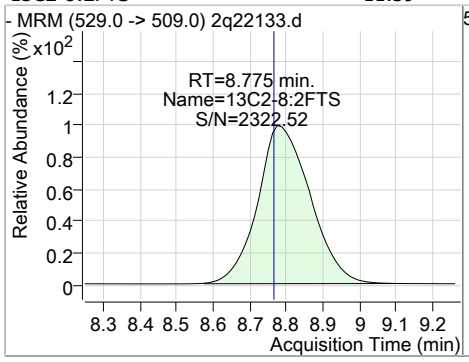
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	13.76	8.53	0.02	138702				

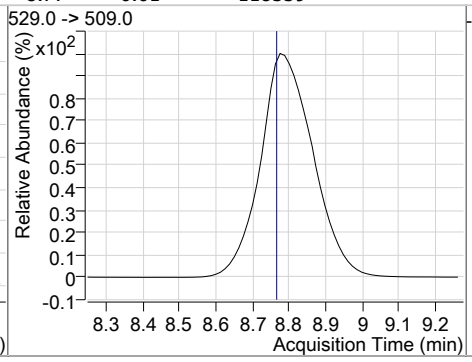


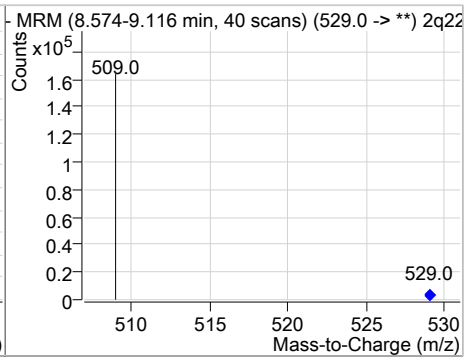




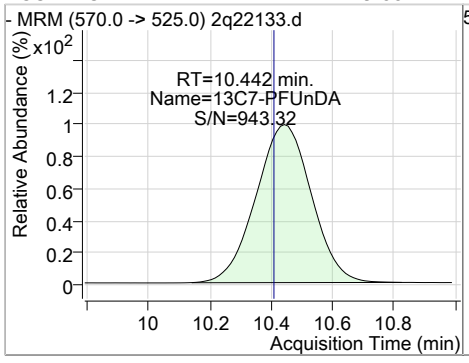
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.39	8.77	0.01	118559				

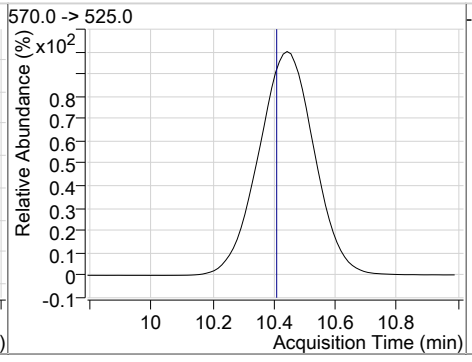


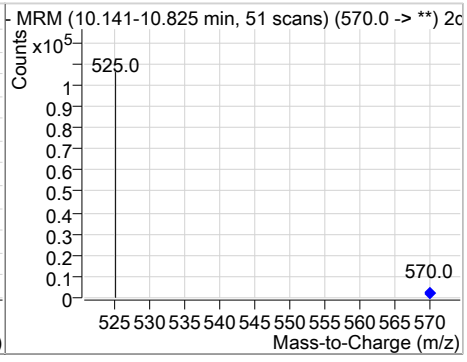




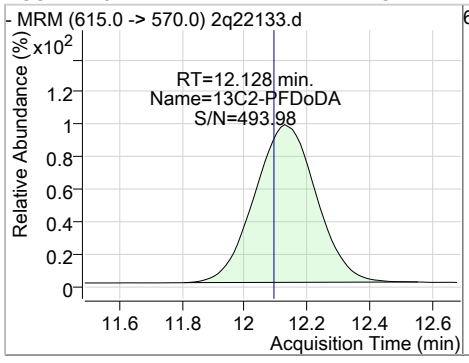
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	9.88	10.44	0.04	75587				

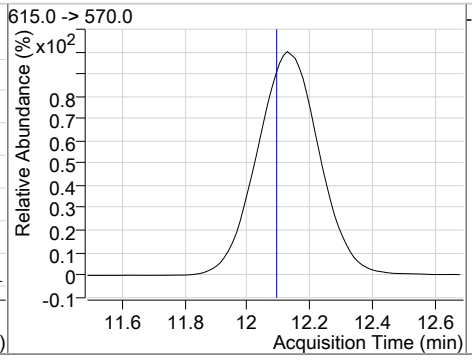


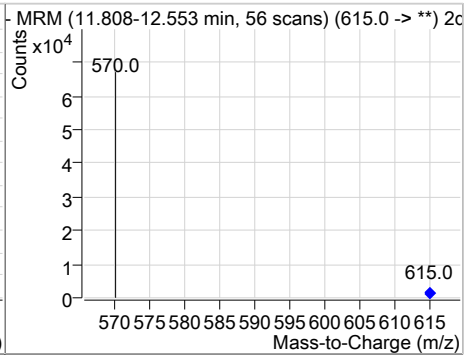




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	7.31	12.13	0.04	45898				

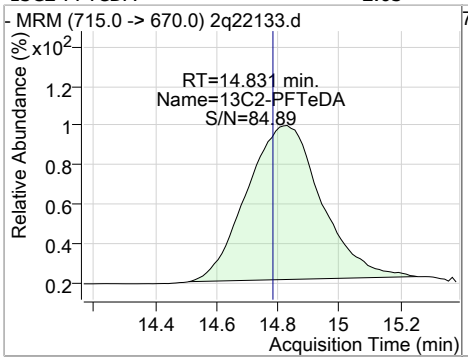


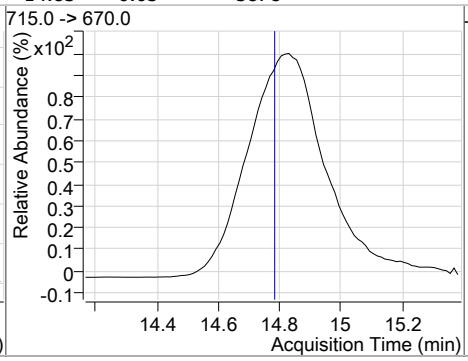


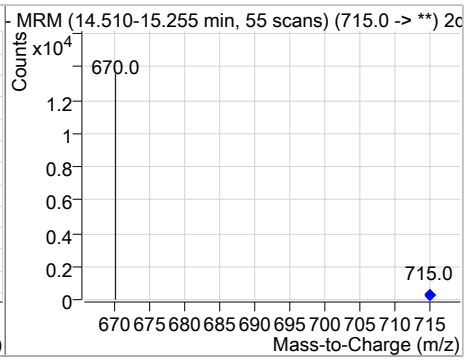


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	2.63	14.83	0.05	5878				







Perfluorinated Compounds by LC/MS/MS

Data File : 2q22414.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 8:46:07 PM
Sample Name : op72234-mb
Vial : Vial 29
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

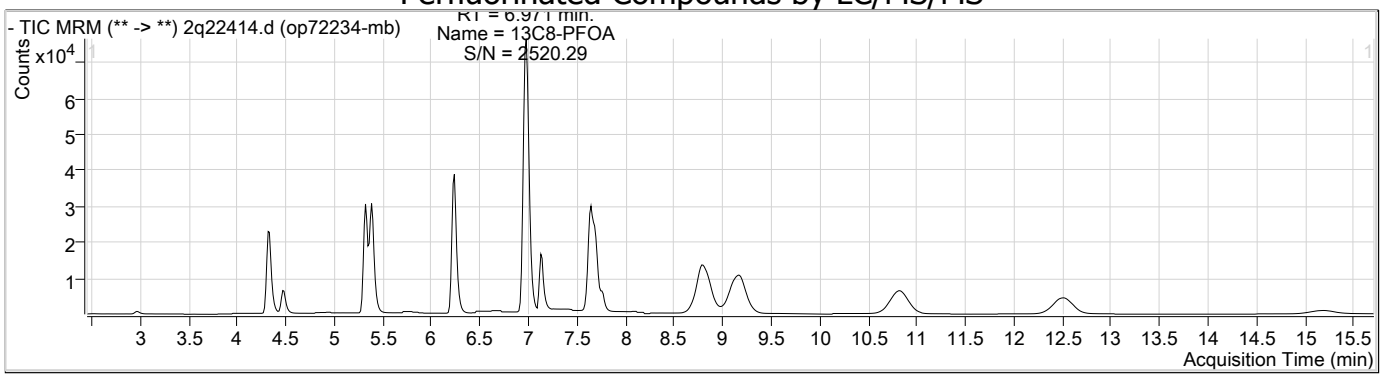
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.973	415.0 -> 370.0	114363	20.00 µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	47387	20.00 µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	2555	20.00 µg/L	0.013
M5-PFPeA	4.325	268.0 -> 223.0	79104	20.00 µg/L	0.013
M5-PFHxA	5.390	318.0 -> 273.0	92233	20.00 µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	104858	20.00 µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	80419	20.00 µg/L	0.013
M9-PFNA	7.690	472.0 -> 427.0	74250	20.00 µg/L	0.013
M6-PFDA	8.791	519.0 -> 474.0	139162	20.00 µg/L	0.013
M7-PFUnDA	10.817	570.0 -> 525.0	84496	20.00 µg/L	0.038
M2-PFDoDA	12.515	615.0 -> 570.0	65133	20.00 µg/L	0.063
M2-PFTeDA	15.193	715.0 -> 670.0	17499	20.00 µg/L	0.075
M8-FOSA	7.129	506.0 -> 78.0	47670	20.00 µg/L	0.000
M3-PFBS	4.468	302.0 -> 99.0	21492	20.00 µg/L	0.013
M3-PFHxS	6.235	402.0 -> 99.0	27029	20.00 µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	25933	20.00 µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	99226	20.00 µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	124269	20.00 µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	125553	20.00 µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	27907	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.323	329.0 -> 309.0	99259	15.07 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.4%	
13C2-6:2FTS	6.993	429.0 -> 409.0	124260	14.07 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.4%	
13C2-8:2FTS	9.160	529.0 -> 509.0	124519	11.85 µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 59.2%	
13C2-PFDoDA	12.515	615.0 -> 570.0	64365	11.64 µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 58.2%	
13C2-PFTeDA	15.193	715.0 -> 670.0	15727	8.10 µg/L	0.075
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 40.5%	
13C3-PFBS	4.468	302.0 -> 99.0	21487	15.36 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.8%	
13C3-PFHxS	6.235	402.0 -> 99.0	27035	15.18 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.9%	
13C4-PFBA	2.966	217.0 -> 172.0	2559	0.19 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 1.0%	
13C4-PFHpA	6.242	367.0 -> 322.0	104873	16.30 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.5%	
13C5-PFHxA	5.390	318.0 -> 273.0	92220	16.75 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.8%	
13C5-PFPeA	4.325	268.0 -> 223.0	79139	13.85 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.2%	
13C6-PFDA	8.791	519.0 -> 474.0	138091	14.84 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.2%	

Perfluorinated Compounds by LC/MS/MS

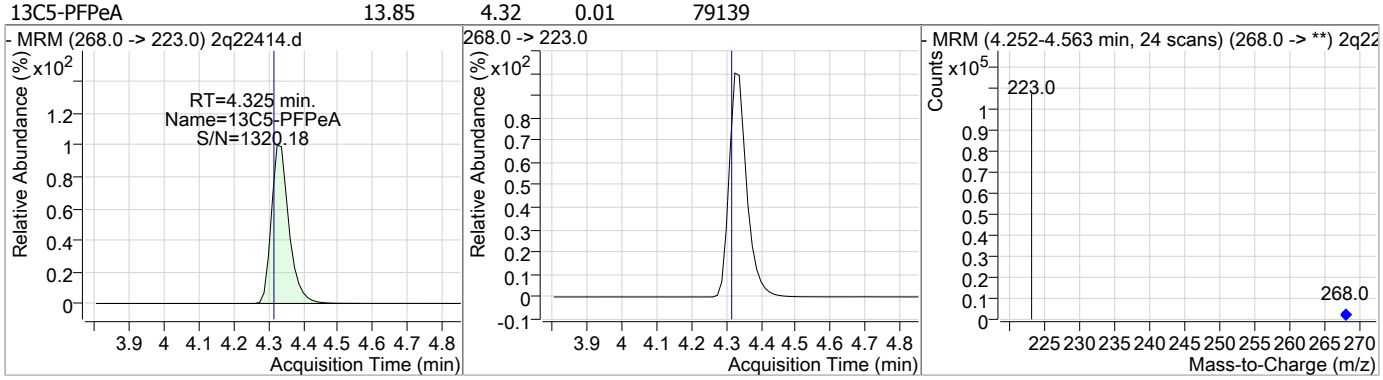
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.817	570.0 -> 525.0	84069	12.28	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.4%			
13C8-FOSA	7.129	506.0 -> 78.0	47631	12.27	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.4%			
13C8-PFOA	6.971	421.0 -> 376.0	80448	14.97	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.9%			
13C8-PFOS	7.633	507.0 -> 99.0	25946	14.30	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.5%			
13C9-PFNA	7.690	472.0 -> 427.0	74212	15.10	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 75.5%			
d3-MeFOSAA	7.645	573.0 -> 419.0	27890	11.99	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 60.0%			
M2-PFOA	6.973	415.0 -> 370.0	114323	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	47417	20.02	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	-	427.0 -> 407.0	-	N.D.			
8:2FTS	-	527.0 -> 507.0	-	N.D.			
EtFOSAA	-	584.0 -> 419.0	-	N.D.			
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	-	570.0 -> 419.0	-	N.D.			
PFBA	2.524	213.0 -> 169.0	0	0.00	µg/L	m	1
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.245	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.974	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	-	499.0 -> 80.0	-	N.D.			
PFPeA	4.328	263.0 -> 219.0	759	0.20	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			

 # = Qualifier out of range, m = manually integrated, + = Area summed

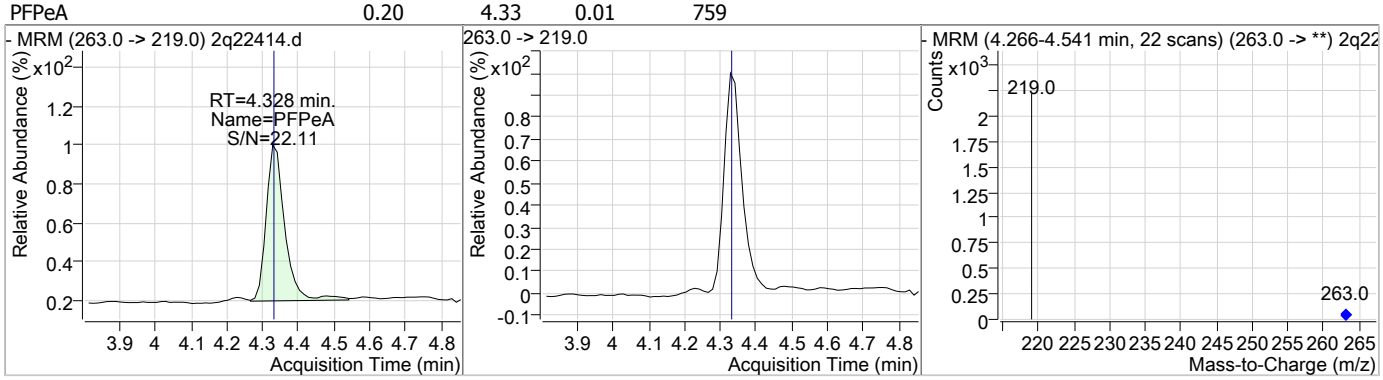
Perfluorinated Compounds by LC/MS/MS



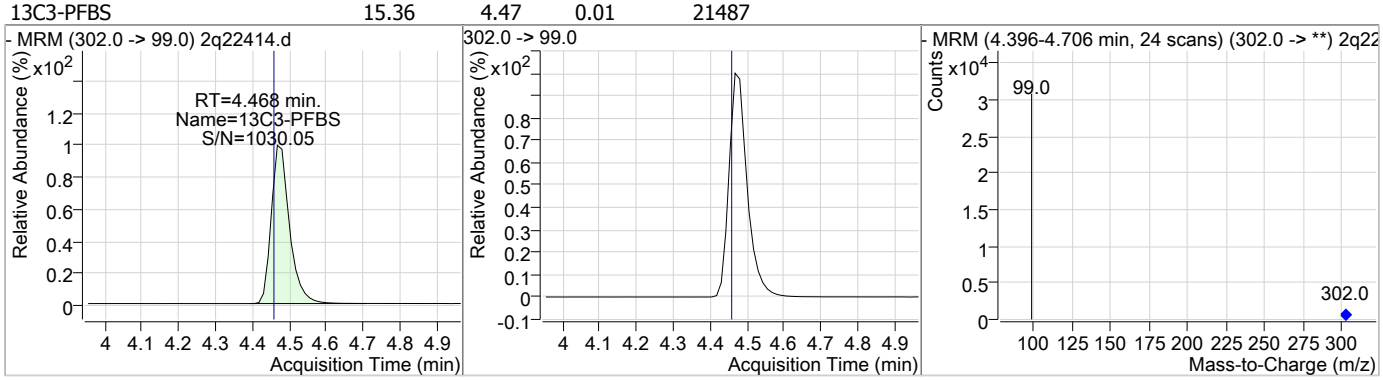
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	13.85	4.32	0.01	79139				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.20	4.33	0.01	759				

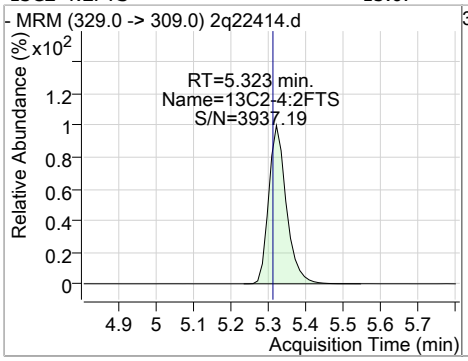


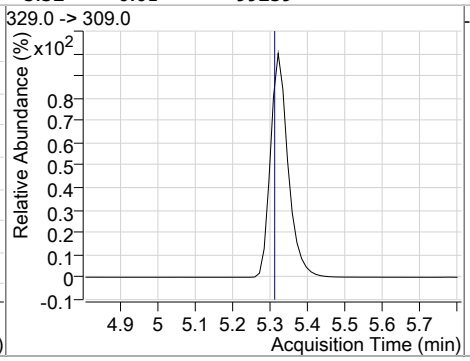
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.36	4.47	0.01	21487				

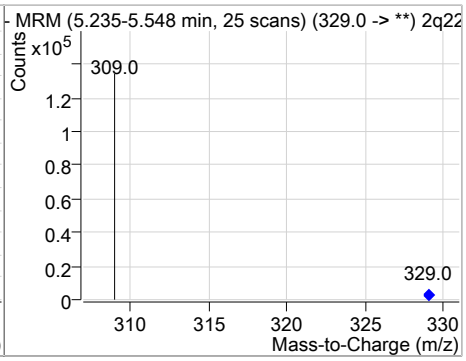


Perfluorinated Compounds by LC/MS/MS

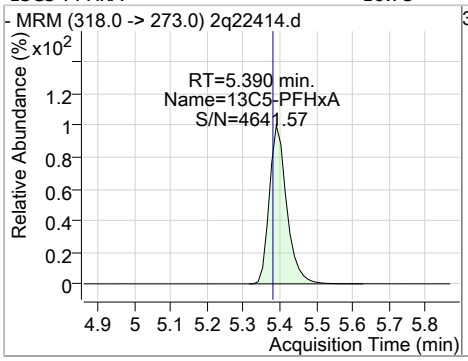
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.07	5.32	0.01	99259				

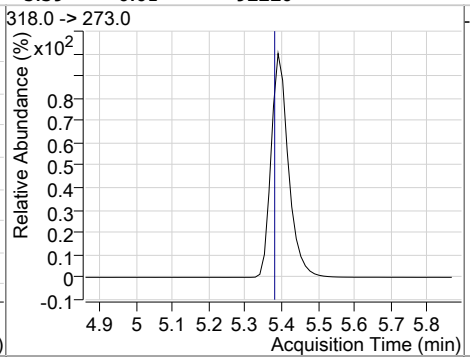


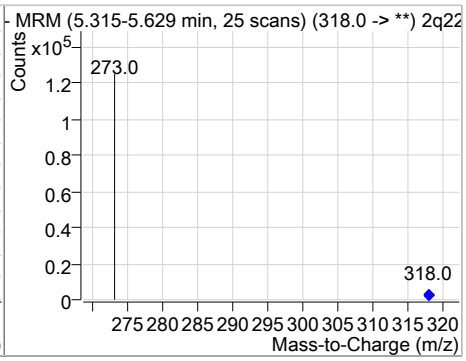




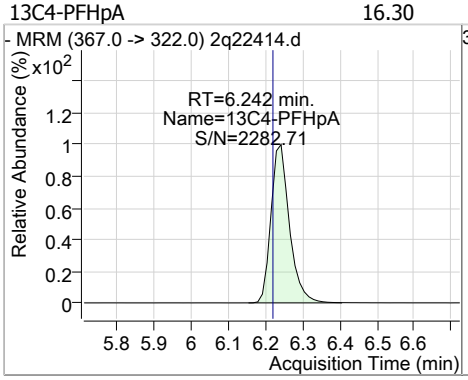
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	16.75	5.39	0.01	92220				

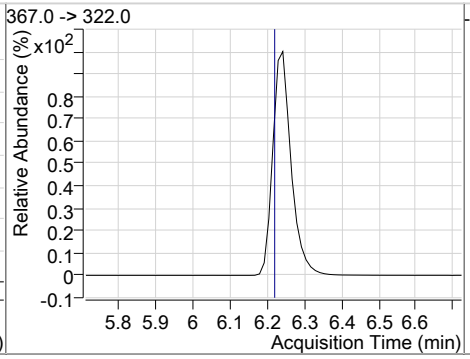


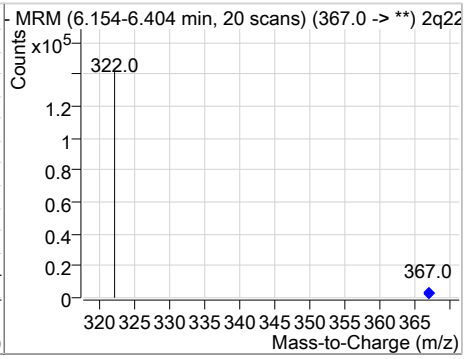




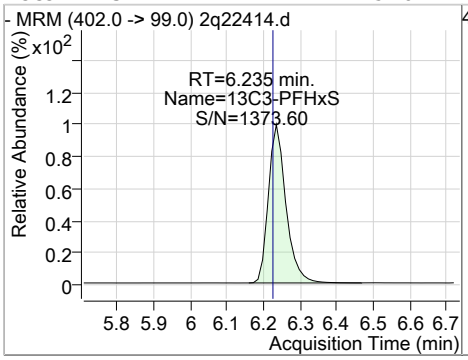
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.30	6.24	0.03	104873				

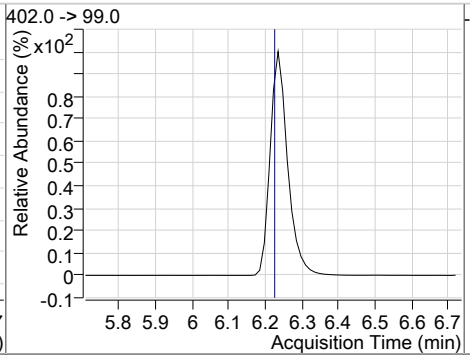


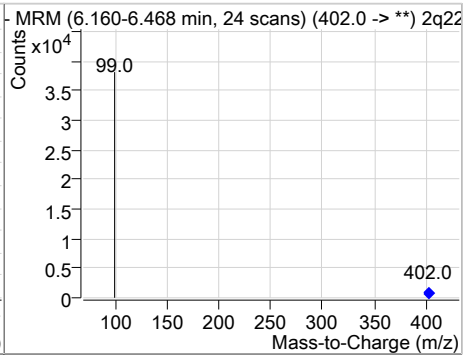




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.18	6.24	0.01	27035				

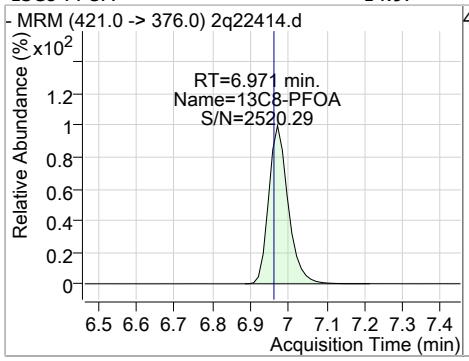


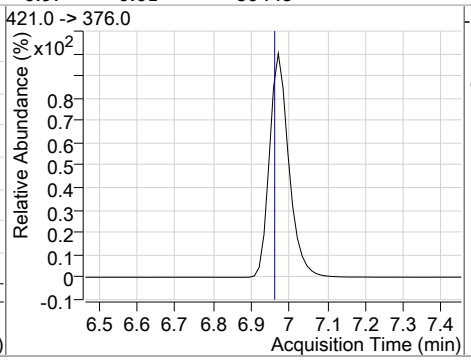


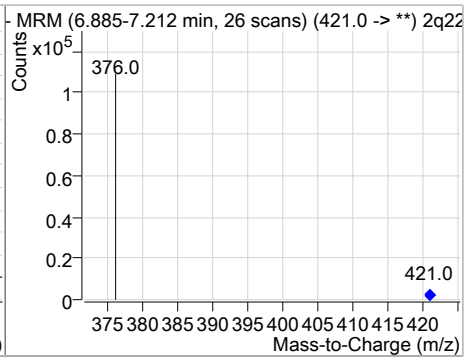


Perfluorinated Compounds by LC/MS/MS

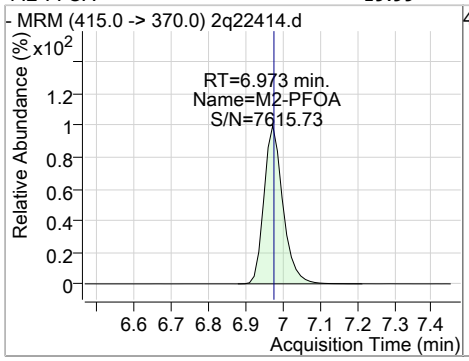
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	14.97	6.97	0.01	80448				

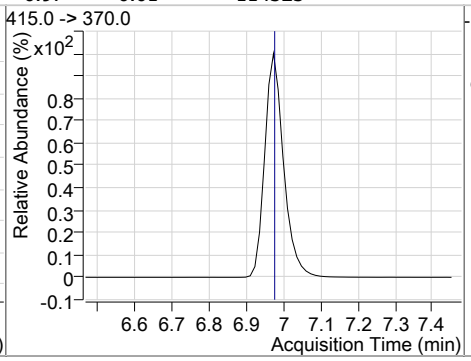


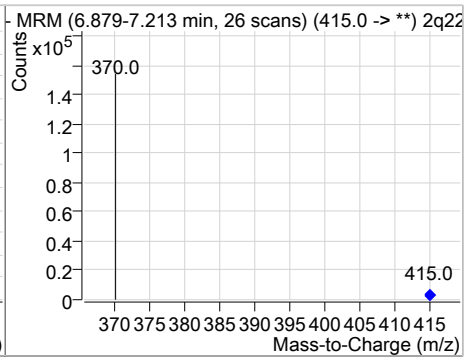




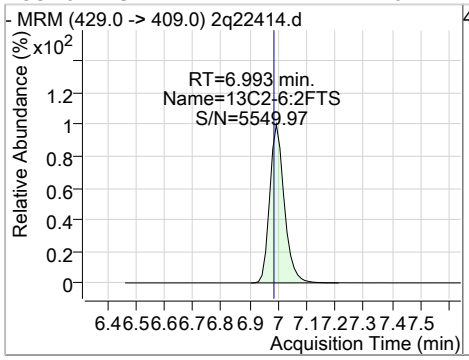
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	114323				

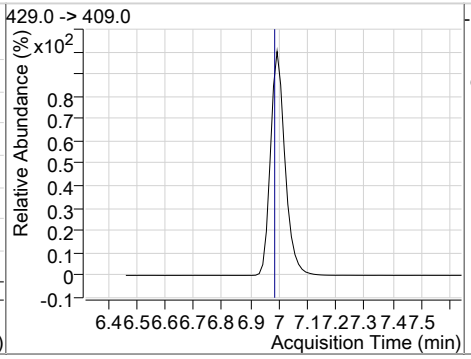


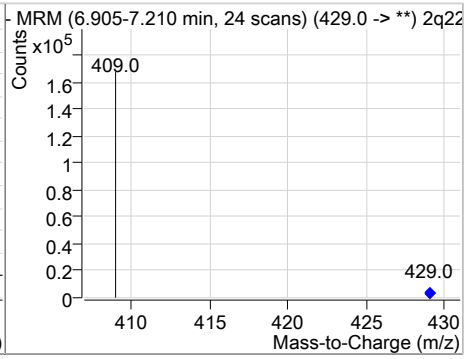




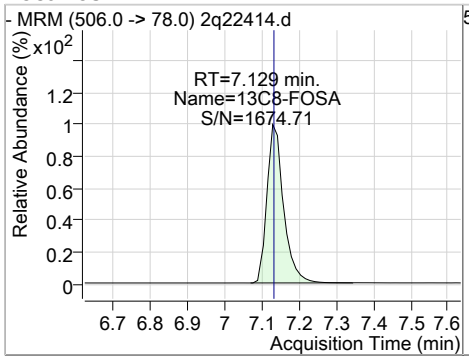
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	14.07	6.99	0.01	124260				

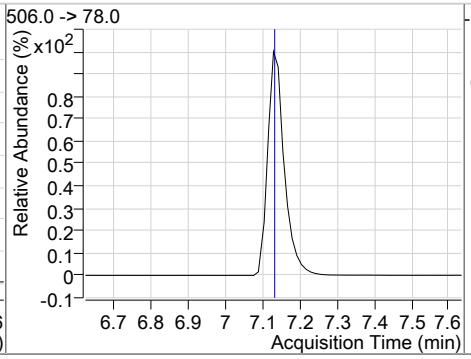


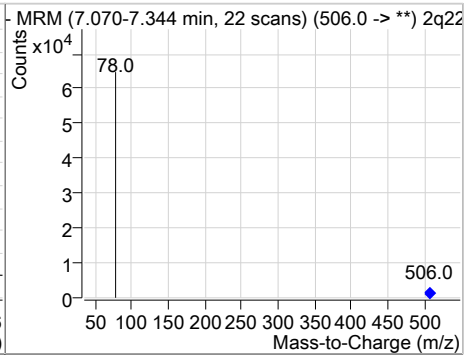




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	12.27	7.13	0.00	47631				

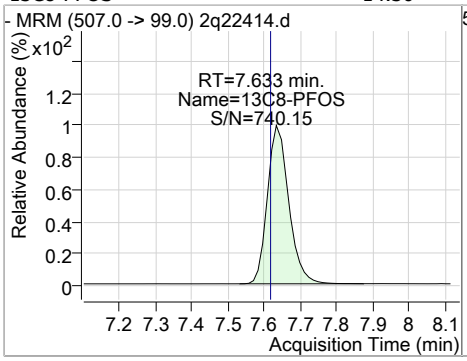


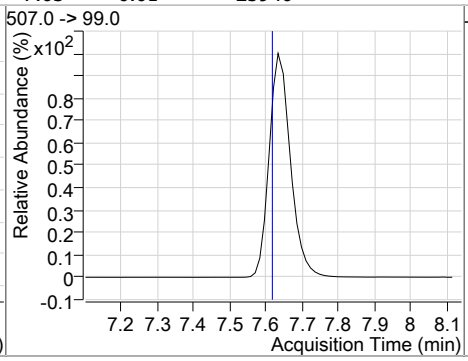


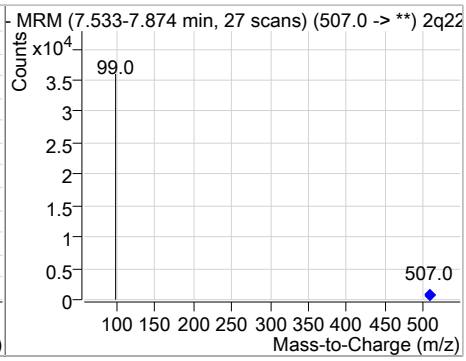


Perfluorinated Compounds by LC/MS/MS

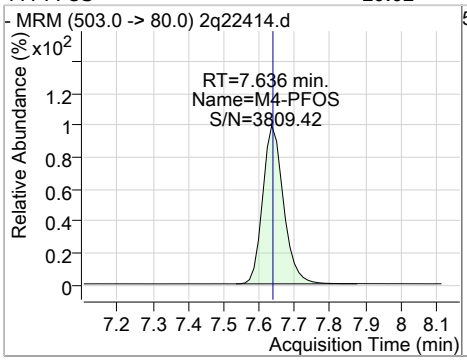
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	14.30	7.63	0.01	25946				

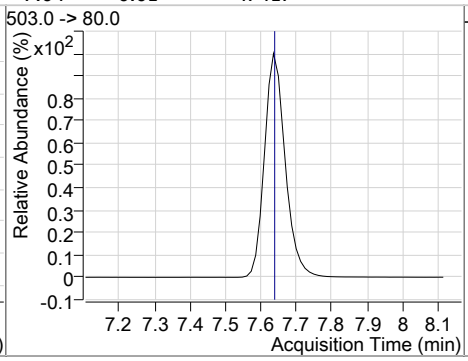


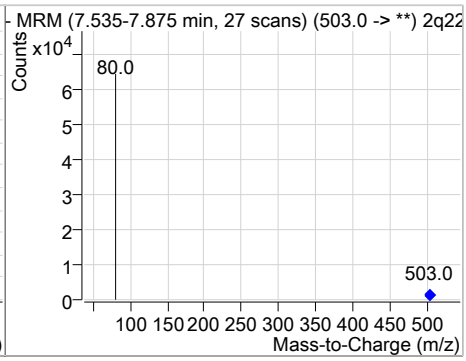




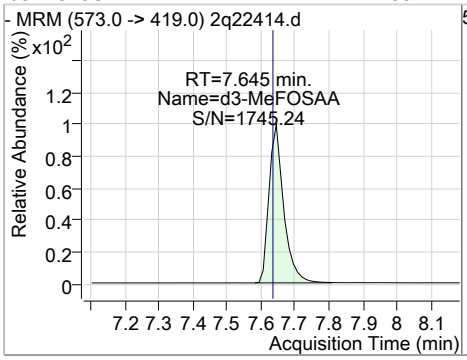
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.64	0.01	47417				

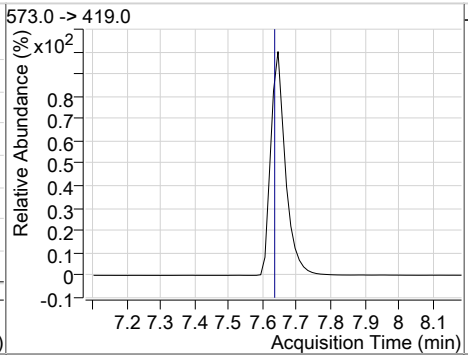


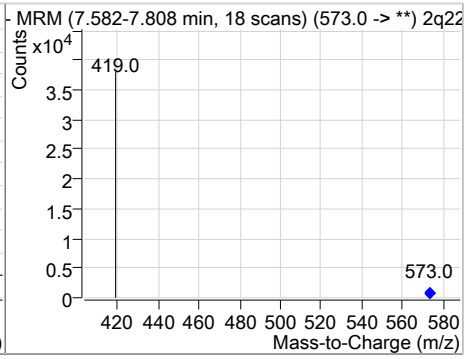




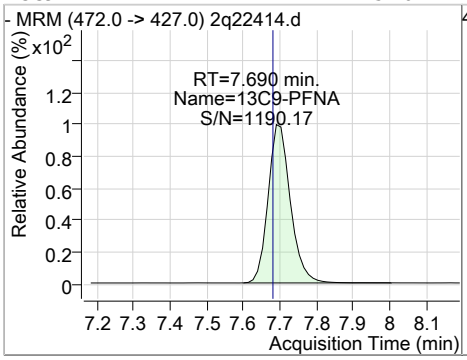
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	11.99	7.64	0.01	27890				

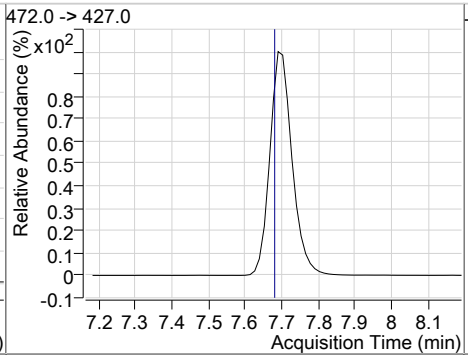


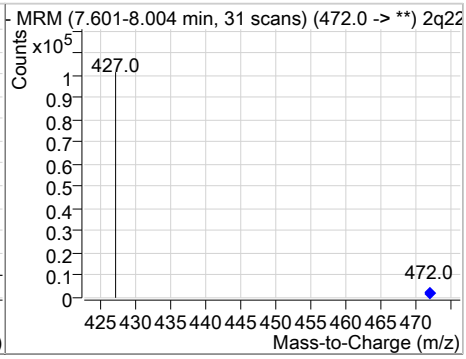




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.10	7.69	0.01	74212				

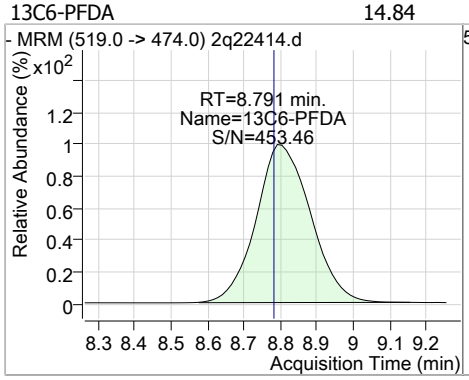


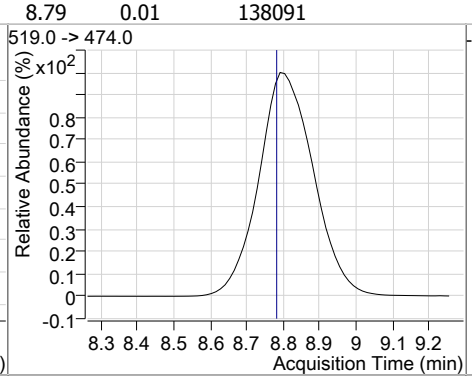


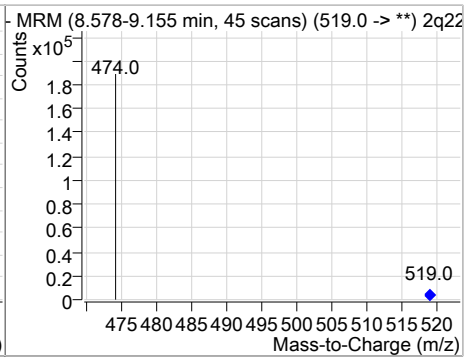


Perfluorinated Compounds by LC/MS/MS

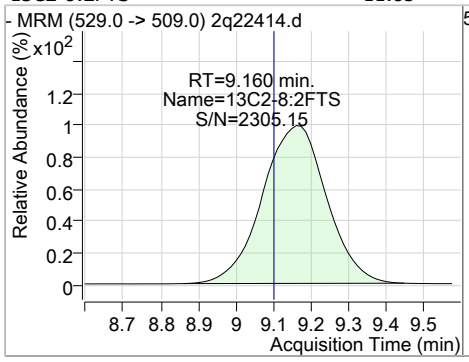
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	14.84	8.79	0.01	138091				

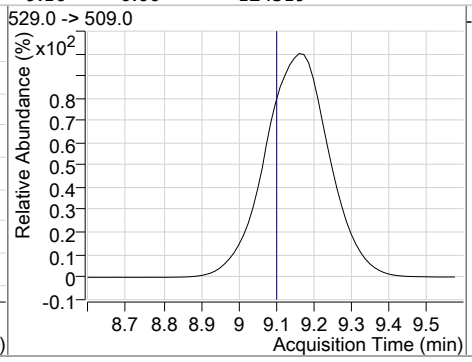


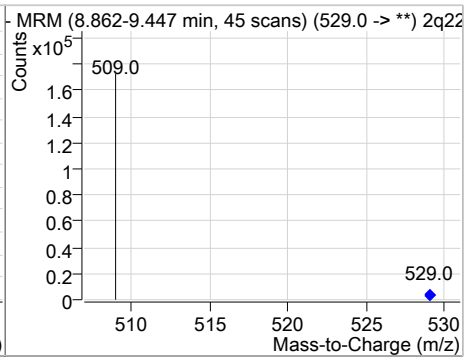




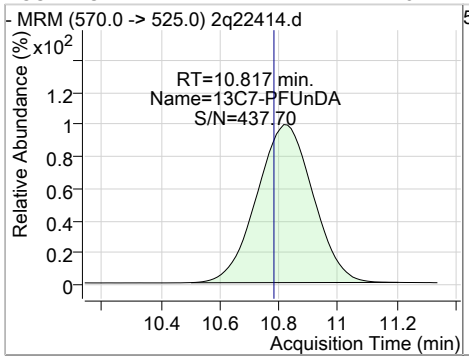
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	11.85	9.16	0.06	124519				

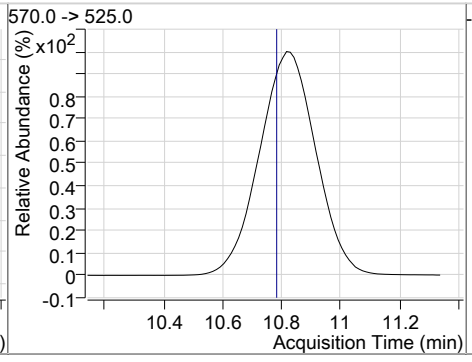


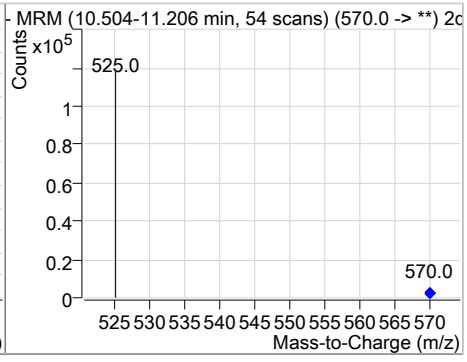




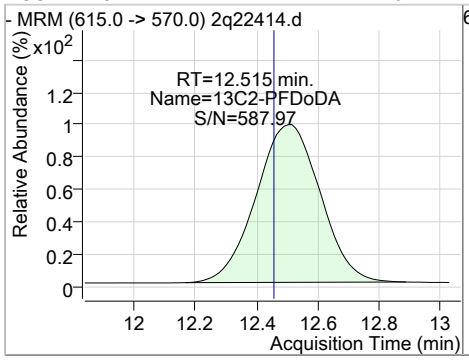
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	12.28	10.82	0.04	84069				

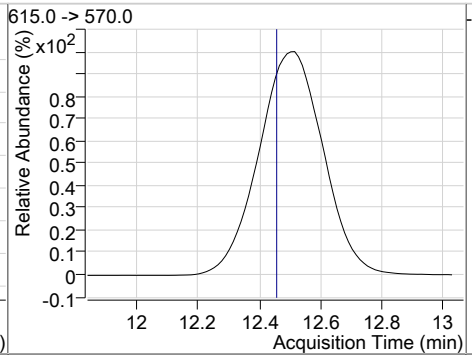


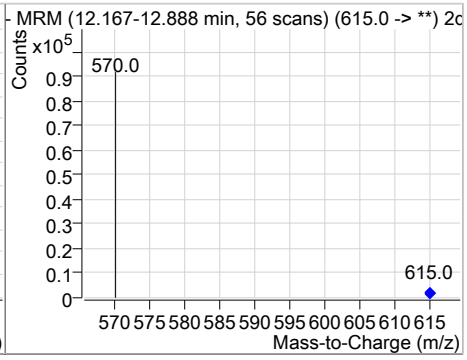




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.64	12.52	0.06	64365				

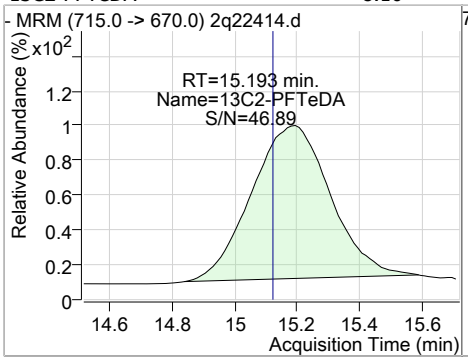


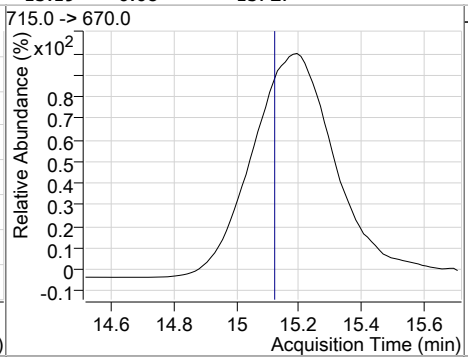


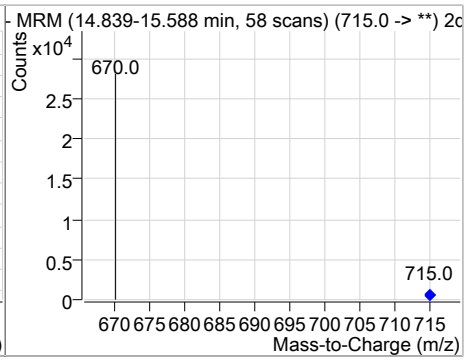


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	8.10	15.19	0.08	15727				







Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22130.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 2:31:56 PM
Sample Name : iblk
Vial : Vial 1
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

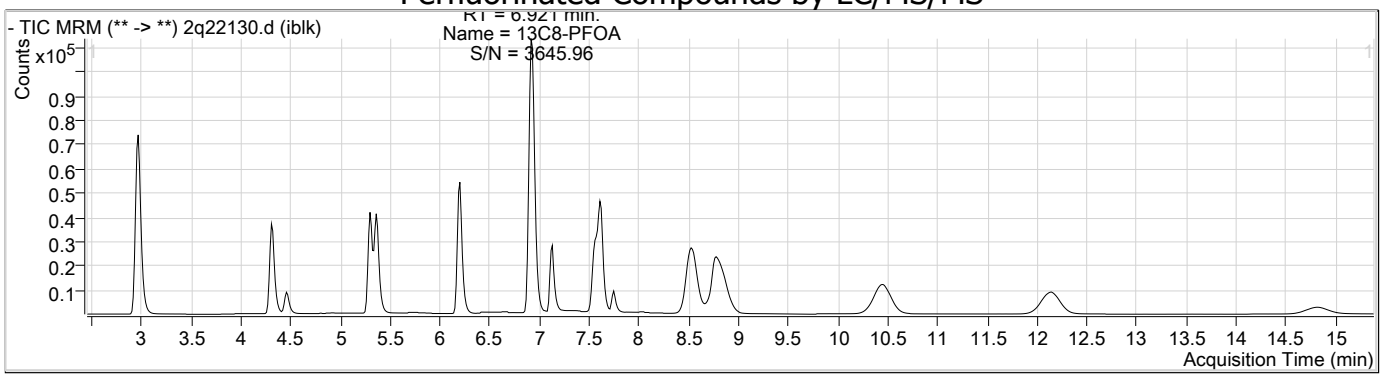
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.923	415.0 -> 370.0	156637	20.00	µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	62584	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	288094	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	126533	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	124472	20.00	µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	145168	20.00	µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	124890	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	112650	20.00	µg/L	0.013
M6-PFDA	8.529	519.0 -> 474.0	212838	20.00	µg/L	0.025
M7-PFUnDA	10.442	570.0 -> 525.0	150446	20.00	µg/L	0.038
M2-PFDoDA	12.140	615.0 -> 570.0	121695	20.00	µg/L	0.050
M2-PFTeDA	14.806	715.0 -> 670.0	45905	20.00	µg/L	0.025
M8-FOSA	7.130	506.0 -> 78.0	83436	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	29567	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	37912	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	38507	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	136741	20.00	µg/L	0.012
M2-6:2FTS	6.943	429.0 -> 409.0	180825	20.00	µg/L	0.014
M2-8:2FTS	8.775	529.0 -> 509.0	231599	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	50428	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	136676	19.46	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%		
13C2-6:2FTS	6.943	429.0 -> 409.0	180811	20.58	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C2-8:2FTS	8.775	529.0 -> 509.0	230118	22.11	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.6%		
13C2-PFDoDA	12.140	615.0 -> 570.0	120851	19.25	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C2-PFTeDA	14.806	715.0 -> 670.0	43359	19.41	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C3-PFBS	4.455	302.0 -> 99.0	29573	20.76	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C3-PFHxS	6.198	402.0 -> 99.0	37939	21.90	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.5%		
13C4-PFBA	2.966	217.0 -> 172.0	287840	19.92	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C4-PFHpA	6.204	367.0 -> 322.0	145137	20.69	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C5-PFHxA	5.364	318.0 -> 273.0	124494	20.51	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C5-PFPeA	4.312	268.0 -> 223.0	126503	20.14	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C6-PFDA	8.529	519.0 -> 474.0	212060	21.04	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.2%		

Perfluorinated Compounds by LC/MS/MS

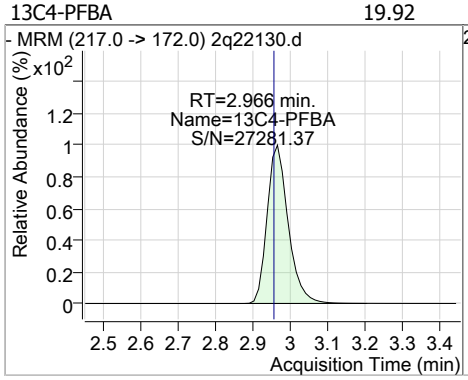
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.442	570.0 -> 525.0	149350	19.53	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.6%			
13C8-FOSA	7.130	506.0 -> 78.0	83296	22.64	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.2%			
13C8-PFOA	6.921	421.0 -> 376.0	124877	21.27	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.4%			
13C8-PFOS	7.559	507.0 -> 99.0	38474	21.99	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.0%			
13C9-PFNA	7.614	472.0 -> 427.0	112734	21.49	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.4%			
d3-MeFOSAA	7.620	573.0 -> 419.0	50445	22.56	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.8%			
M2-PFOA	6.923	415.0 -> 370.0	156572	19.99	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	62564	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	0	0.00	µg/L	m	1
6:2FTS	6.945	427.0 -> 407.0	0	0.00	µg/L	m	1
8:2FTS	8.777	527.0 -> 507.0	0	0.00	µg/L	m	1
EtFOSAA	7.744	584.0 -> 419.0	324	0.28	µg/L		91
FOSA	-	498.0 -> 78.0	-	N.D.			
MeFOSAA	7.622	570.0 -> 419.0	377	0.29	µg/L		91
PFBA	-	213.0 -> 169.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	8.532	513.0 -> 469.0	0	0.00	µg/L	m	1
PFDoDA	12.097	613.0 -> 569.0	0	0.00	µg/L	m	1
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.195	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	5.366	313.0 -> 269.0	0	0.00	µg/L	m	1
PFHxS	6.201	399.0 -> 80.0	0	0.00	µg/L	m	1
PFNA	7.615	463.0 -> 419.0	0	0.00	µg/L	m	1
PFNS	8.396	549.0 -> 80.0	0	0.00	µg/L	m	1
PFOA	6.924	413.0 -> 369.0	360	0.12	µg/L		91
PFOS	7.562	499.0 -> 80.0	210	0.13	µg/L	m	71
PFPeA	4.316	263.0 -> 219.0	1442	0.25	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	14.800	713.0 -> 669.0	0	0.00	µg/L	m	1
PFTrDA	13.554	663.0 -> 619.0	0	0.00	µg/L	m	1
PFUnDA	10.409	563.0 -> 519.0	0	0.00	µg/L	m	1

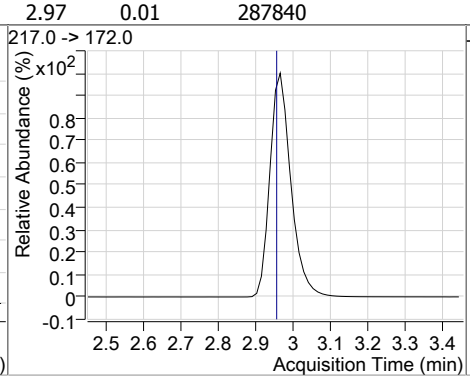
 # = Qualifier out of range, m = manually integrated, + = Area summed

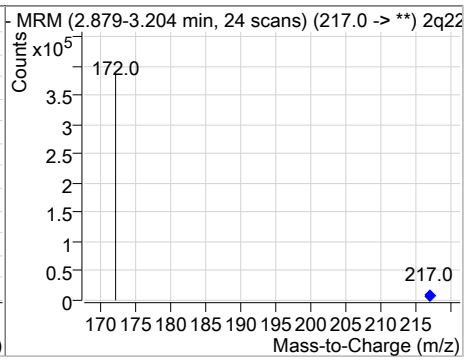
Perfluorinated Compounds by LC/MS/MS



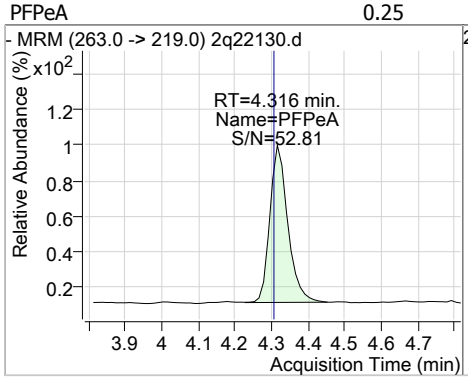
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.92	2.97	0.01	287840				

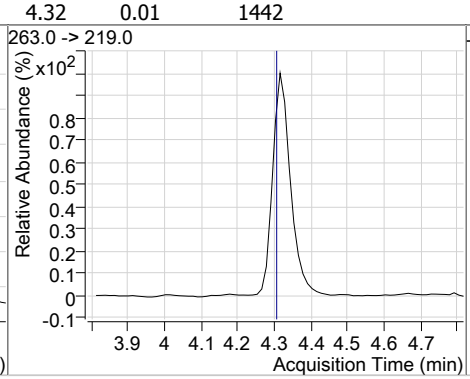


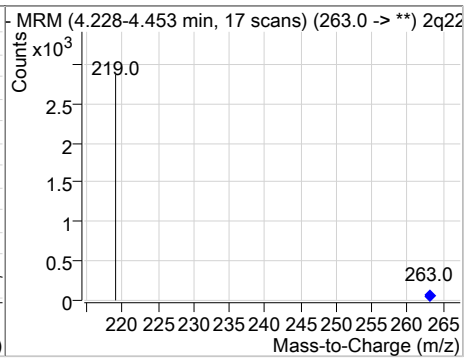




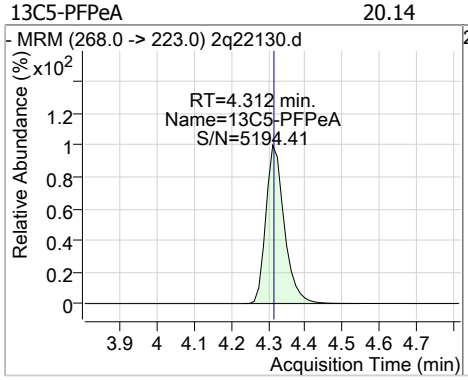
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.25	4.32	0.01	1442				

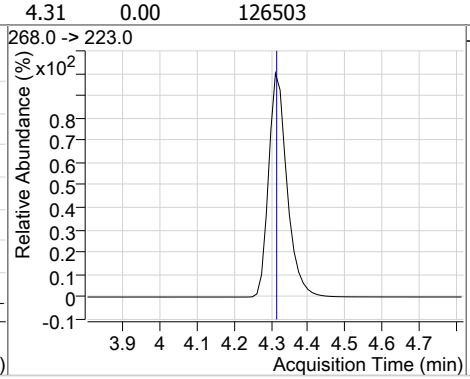


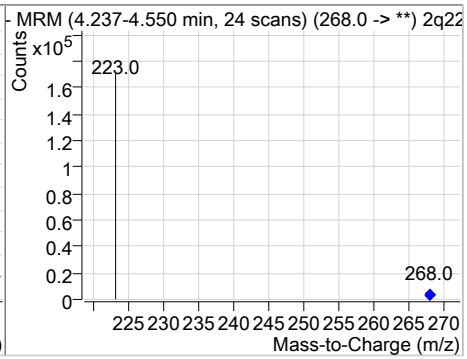




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.14	4.31	0.00	126503				

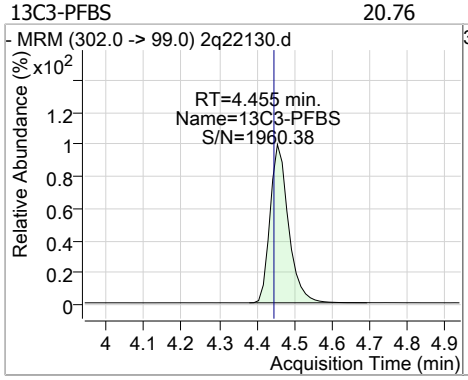


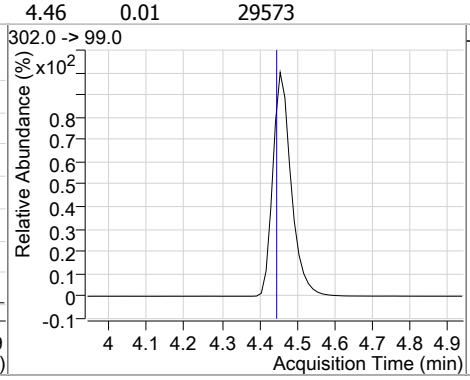


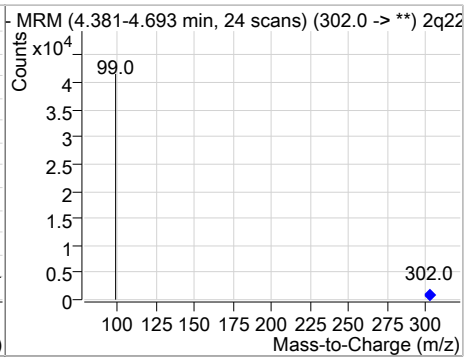


Perfluorinated Compounds by LC/MS/MS

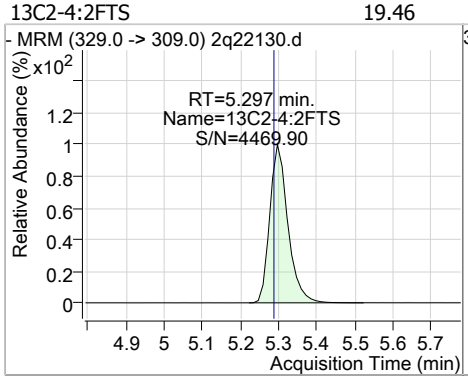
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.76	4.46	0.01	29573				

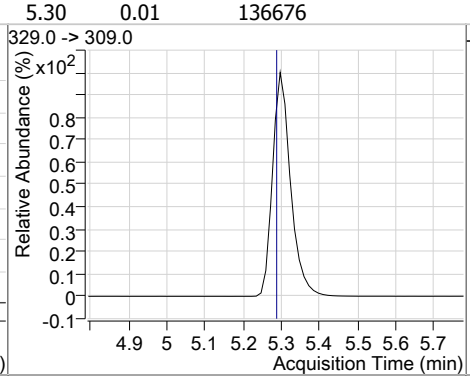


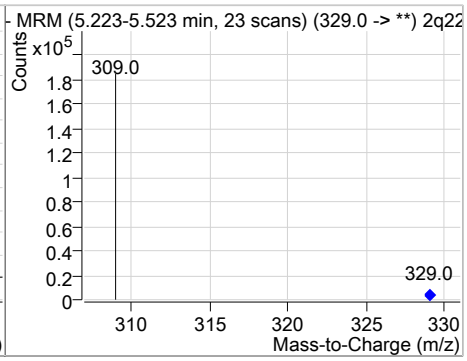




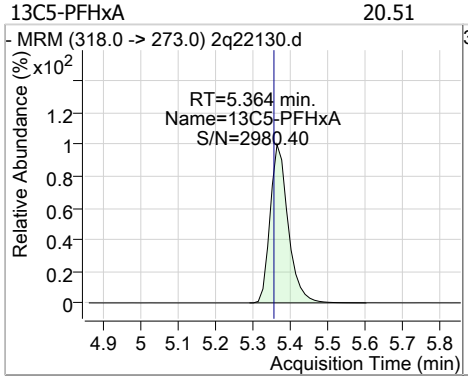
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.46	5.30	0.01	136676				

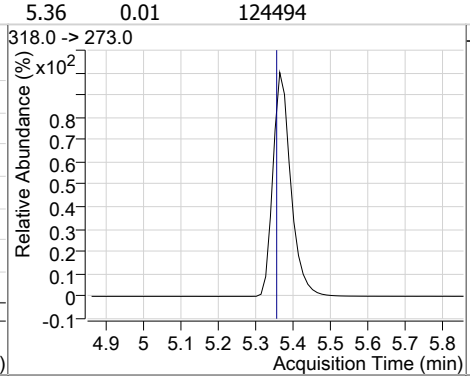


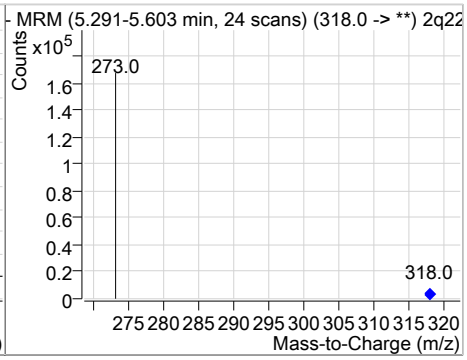




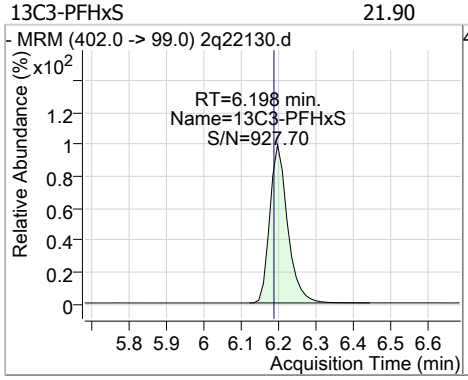
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.51	5.36	0.01	124494				

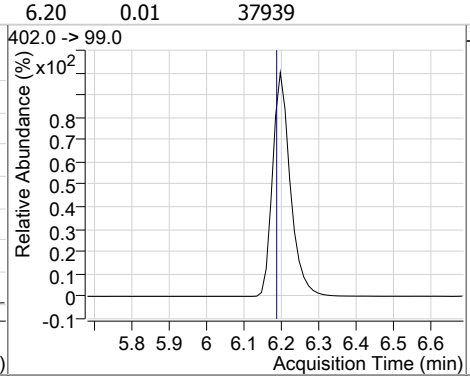


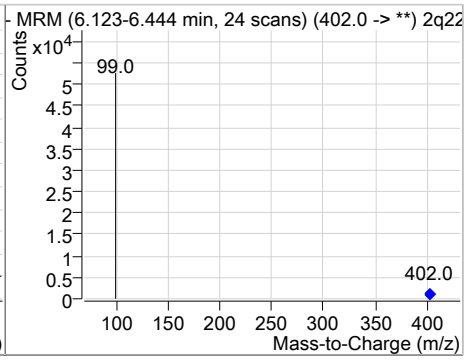




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.90	6.20	0.01	37939				

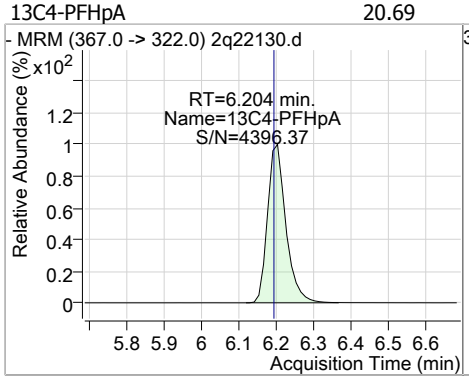


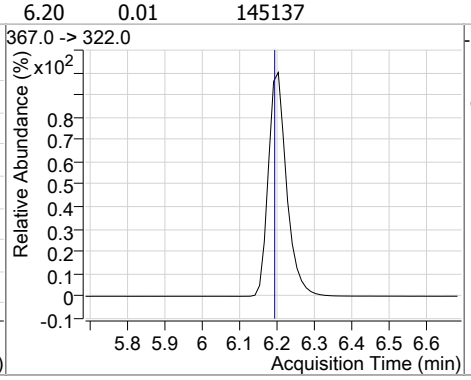


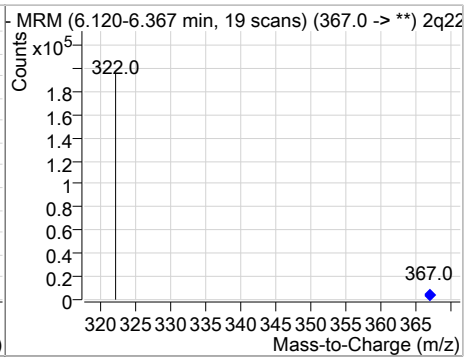


Perfluorinated Compounds by LC/MS/MS

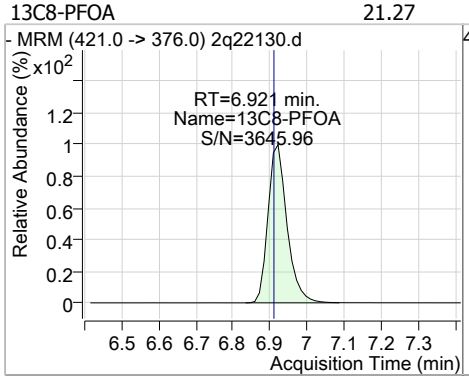
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.69	6.20	0.01	145137				

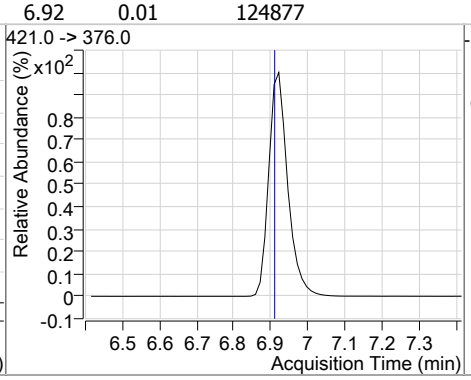


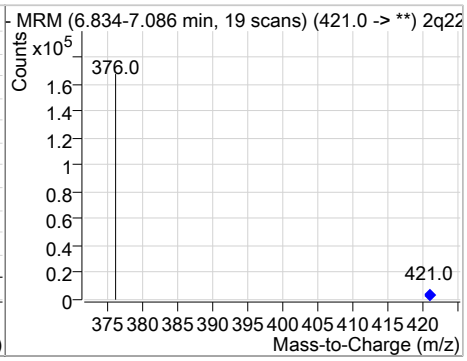




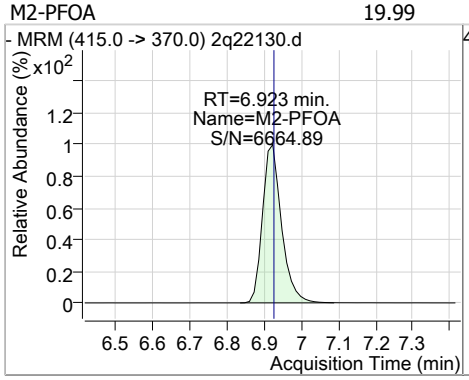
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.27	6.92	0.01	124877				

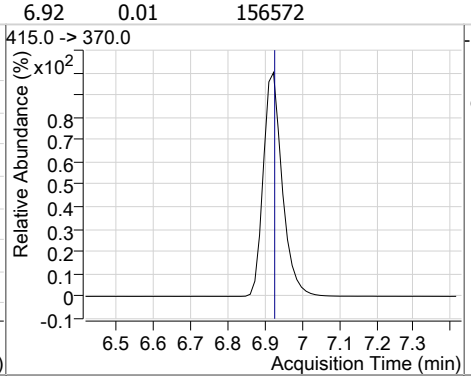


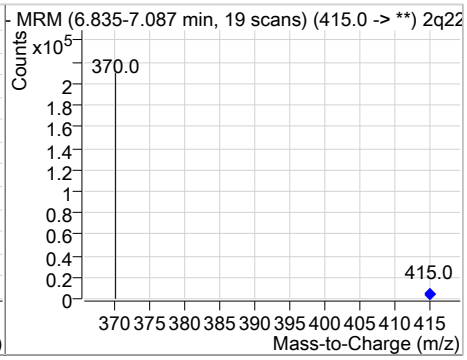




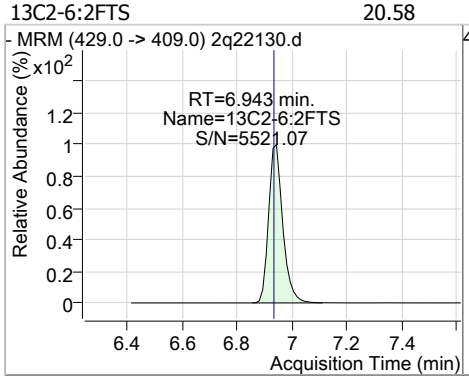
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.92	0.01	156572				

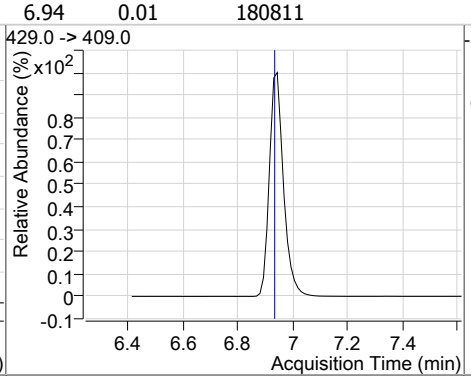


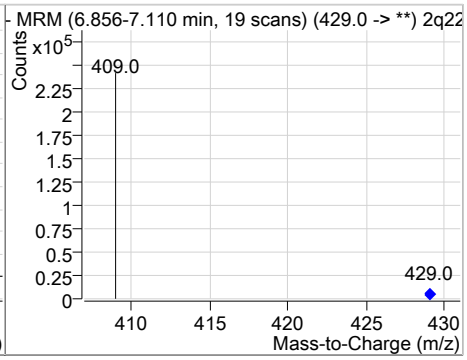




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.58	6.94	0.01	180811				

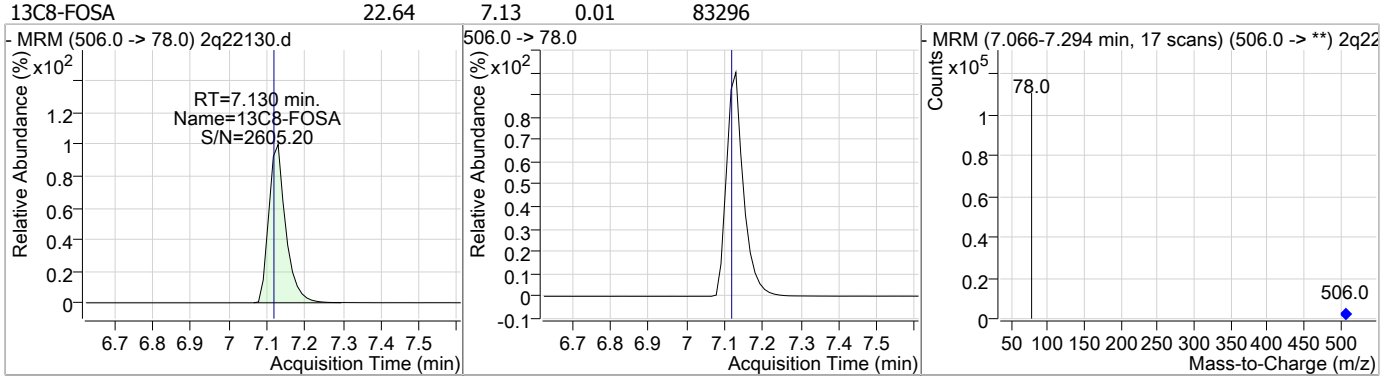




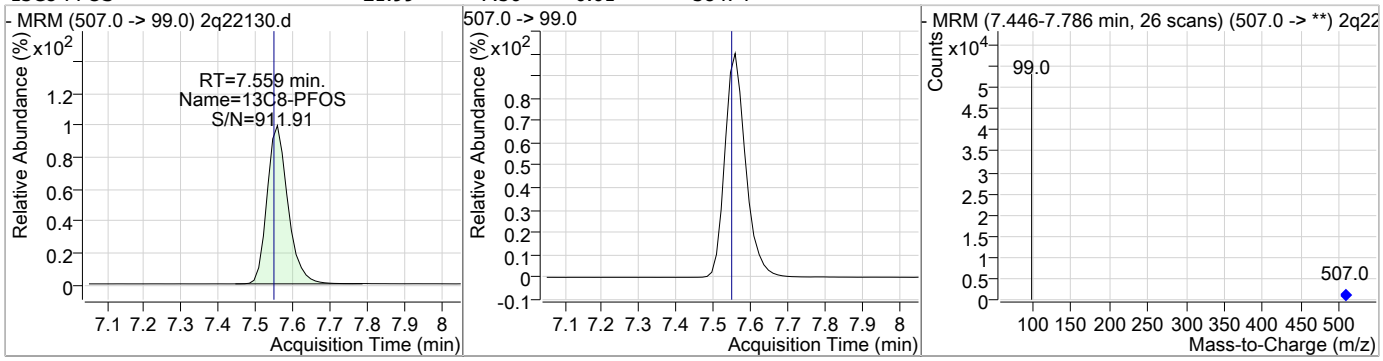


Perfluorinated Compounds by LC/MS/MS

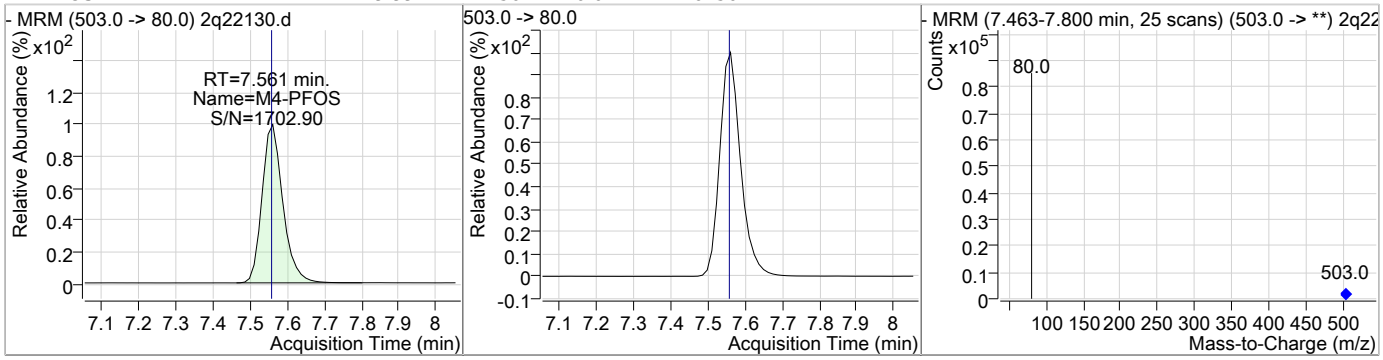
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	22.64	7.13	0.01	83296				



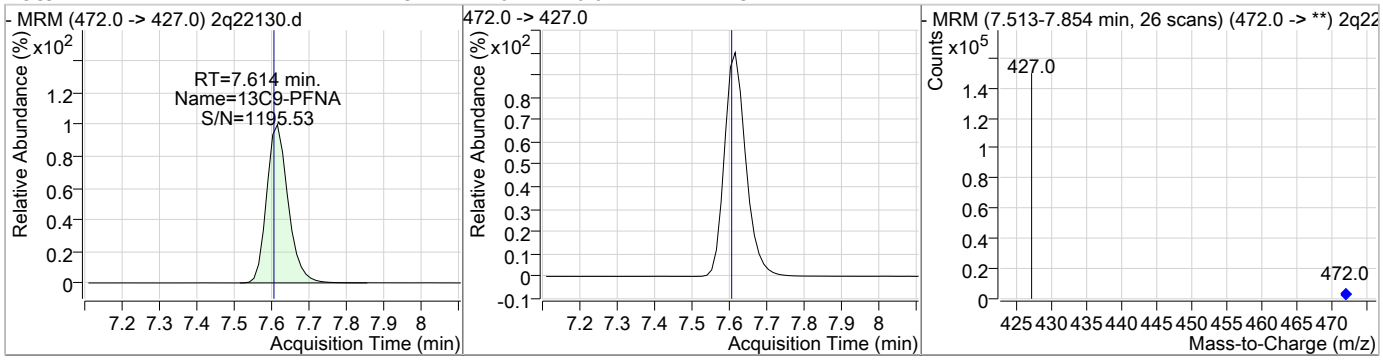
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.99	7.56	0.01	38474				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.56	0.01	62564				

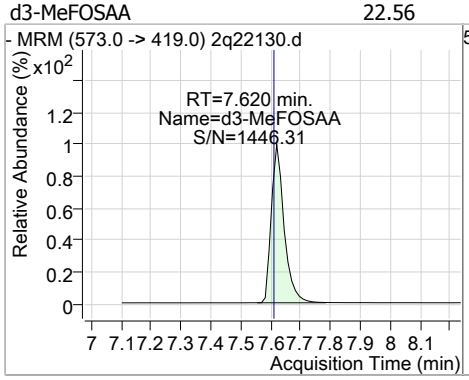


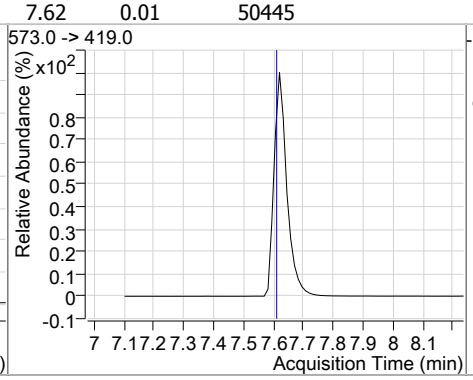
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.49	7.61	0.01	112734				

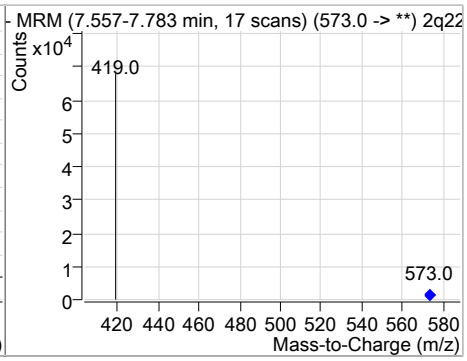


Perfluorinated Compounds by LC/MS/MS

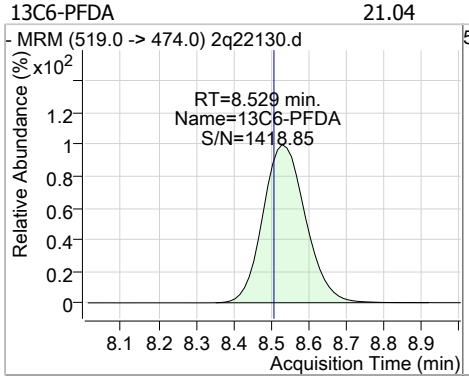
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	22.56	7.62	0.01	50445				

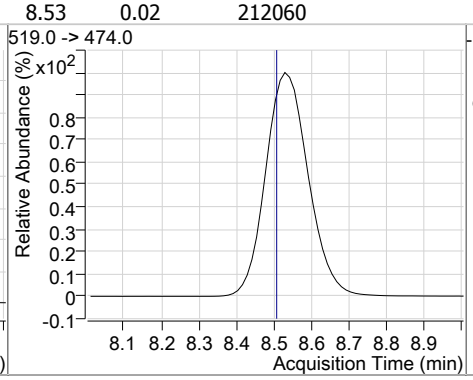


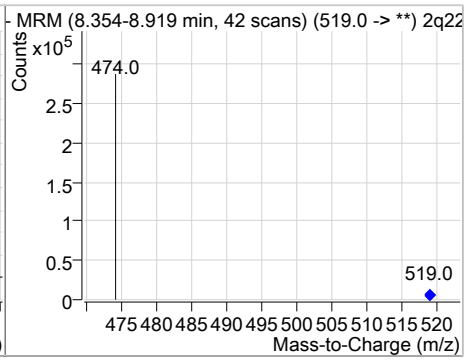




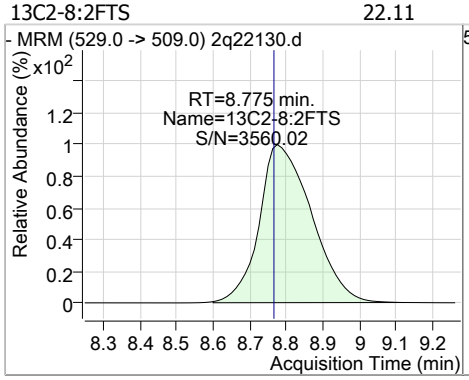
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.04	8.53	0.02	212060				

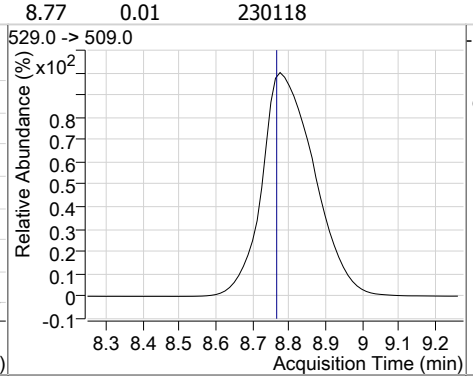


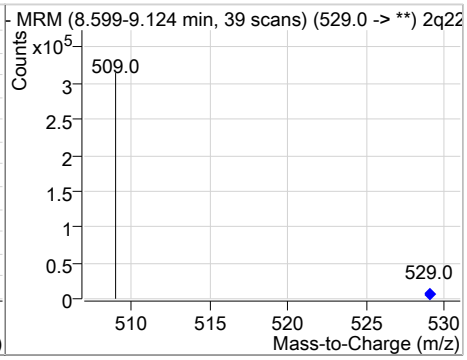




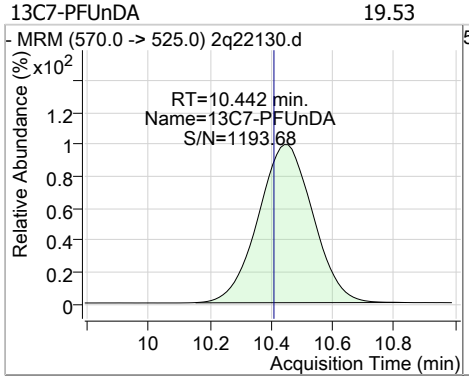
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	22.11	8.77	0.01	230118				

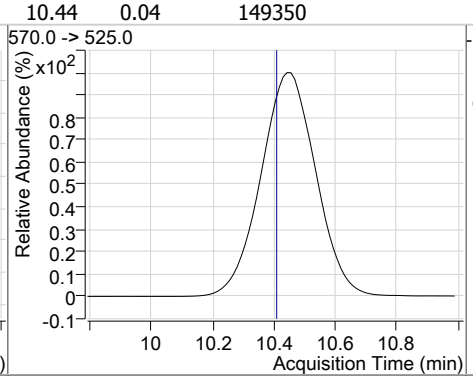


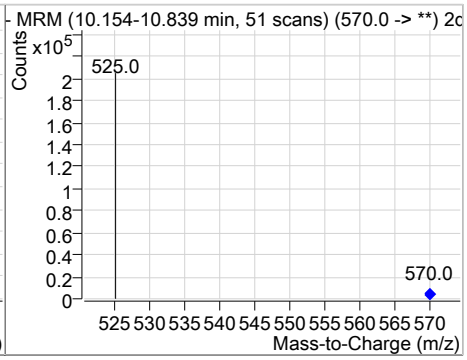




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.53	10.44	0.04	149350				

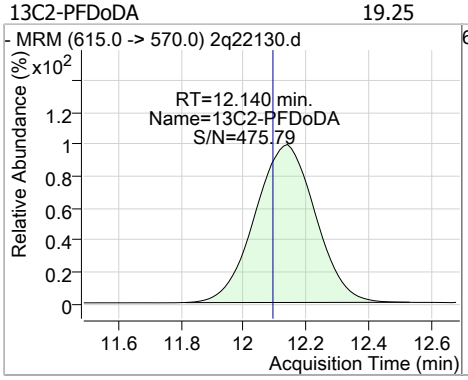


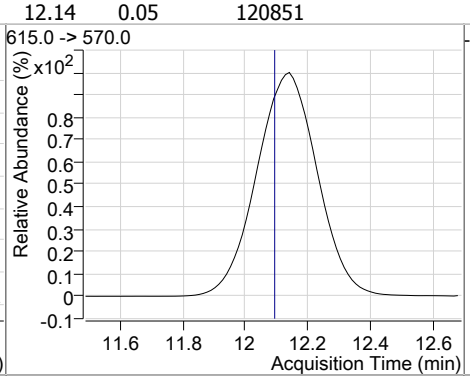


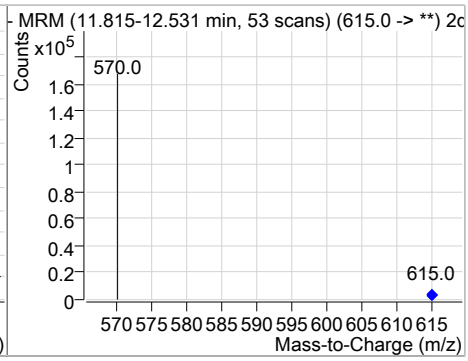


Perfluorinated Compounds by LC/MS/MS

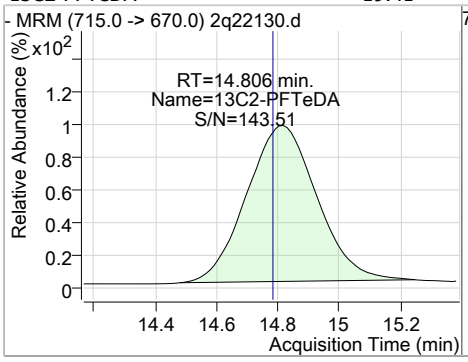
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.25	12.14	0.05	120851				

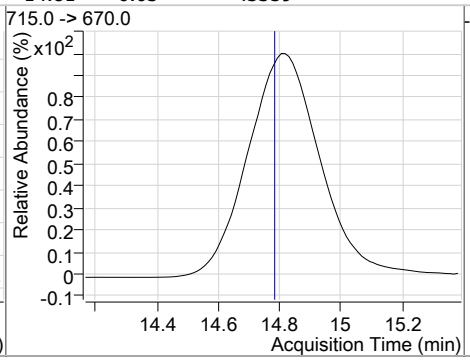


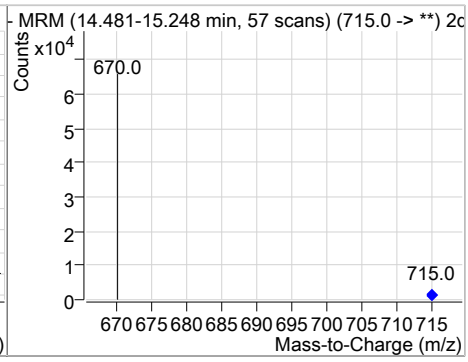




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.41	14.81	0.03	43359				







Manual Integration Approval Summary

Sample Number: S2Q349-IBLK
Lab FileID: 2Q22130.D
Injection Time: 10/15/18 14:31
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		7.56	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/24/18 15:16

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22391.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 12:27:31 PM
Sample Name : iblk
Vial : Vial 1
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op71956,S2Q352,130,,,1.0,1,water

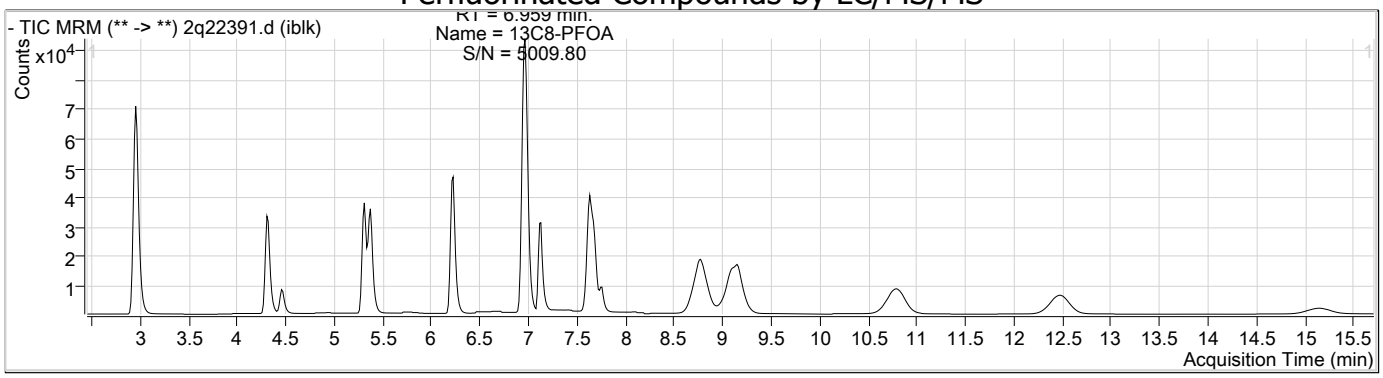
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.960	415.0 -> 370.0	129470	20.00	µg/L	0.000
13C4-PFOS	7.623	503.0 -> 80.0	54979	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	271518	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	115057	20.00	µg/L	0.000
M5-PFHxA	5.378	318.0 -> 273.0	108599	20.00	µg/L	0.000
M4-PFHpA	6.217	367.0 -> 322.0	127278	20.00	µg/L	0.000
M8-PFOA	6.959	421.0 -> 376.0	100504	20.00	µg/L	0.000
M9-PFNA	7.677	472.0 -> 427.0	94207	20.00	µg/L	0.000
M6-PFDA	8.779	519.0 -> 474.0	181954	20.00	µg/L	0.000
M7-PFUnDA	10.792	570.0 -> 525.0	112730	20.00	µg/L	0.012
M2-PFDoDA	12.465	615.0 -> 570.0	91101	20.00	µg/L	0.013
M2-PFTeDA	15.143	715.0 -> 670.0	34265	20.00	µg/L	0.025
M8-FOSA	7.129	506.0 -> 78.0	97442	20.00	µg/L	0.000
M3-PFBS	4.455	302.0 -> 99.0	27438	20.00	µg/L	0.000
M3-PFHxS	6.223	402.0 -> 99.0	34361	20.00	µg/L	0.000
M8-PFOS	7.621	507.0 -> 99.0	34309	20.00	µg/L	0.000
M2-4:2FTS	5.310	329.0 -> 309.0	124211	20.00	µg/L	0.000
M2-6:2FTS	6.980	429.0 -> 409.0	165601	20.00	µg/L	0.000
M2-8:2FTS	9.147	529.0 -> 509.0	193376	20.00	µg/L	0.050
M3-MeFOSAA	7.631	573.0 -> 419.0	44279	20.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.310	329.0 -> 309.0	124206	18.86	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C2-6:2FTS	6.980	429.0 -> 409.0	165589	18.75	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C2-8:2FTS	9.147	529.0 -> 509.0	191626	18.23	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.2%		
13C2-PFDoDA	12.465	615.0 -> 570.0	90574	16.38	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.9%		
13C2-PFTeDA	15.143	715.0 -> 670.0	32333	16.66	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.3%		
13C3-PFBS	4.455	302.0 -> 99.0	27432	19.62	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C3-PFHxS	6.223	402.0 -> 99.0	34361	19.30	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.5%		
13C4-PFBA	2.953	217.0 -> 172.0	271464	20.19	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C4-PFHpA	6.217	367.0 -> 322.0	127291	19.79	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%		
13C5-PFHxA	5.378	318.0 -> 273.0	108565	19.72	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C5-PFPeA	4.312	268.0 -> 223.0	115032	20.12	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C6-PFDA	8.779	519.0 -> 474.0	180841	19.44	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		

Perfluorinated Compounds by LC/MS/MS

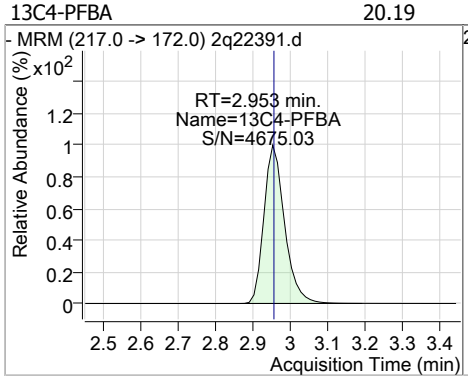
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.792	570.0 -> 525.0	112304	16.40	µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.0%			
13C8-FOSA	7.129	506.0 -> 78.0	97283	25.07	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 125.3%			
13C8-PFOA	6.959	421.0 -> 376.0	100499	18.70	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.5%			
13C8-PFOS	7.621	507.0 -> 99.0	34320	18.91	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%			
13C9-PFNA	7.677	472.0 -> 427.0	94183	19.16	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%			
d3-MeFOSAA	7.631	573.0 -> 419.0	44281	19.04	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.2%			
M2-PFOA	6.960	415.0 -> 370.0	129462	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.623	503.0 -> 80.0	54969	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.313	327.0 -> 307.0	0	0.00	µg/L	m	1
6:2FTS	6.982	427.0 -> 407.0	0	0.00	µg/L	m	1
8:2FTS	9.138	527.0 -> 507.0	0	0.00	µg/L	m	1
EtFOSAA	7.756	584.0 -> 419.0	153	0.15	µg/L	#	48
FOSA	7.120	498.0 -> 78.0	0	0.00	µg/L	m	1
MeFOSAA	7.632	570.0 -> 419.0	199	0.18	µg/L		97
PFBA	-	213.0 -> 169.0	-	N.D.			
PFBS	-	299.0 -> 80.0	-	N.D.			
PFDA	8.794	513.0 -> 469.0	0	0.00	µg/L	m	1
PFDoDA	12.521	613.0 -> 569.0	0	0.00	µg/L	m	1
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	6.220	363.0 -> 319.0	0	0.00	µg/L	m	1
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	-	313.0 -> 269.0	-	N.D.			
PFHxS	-	399.0 -> 80.0	-	N.D.			
PFNA	7.679	463.0 -> 419.0	0	0.00	µg/L	m	1
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.962	413.0 -> 369.0	0	0.00	µg/L	m	1
PFOS	7.611	499.0 -> 80.0	242	0.16	µg/L	m	80
PFPeA	4.316	263.0 -> 219.0	1046	0.19	µg/L		100
PFPeS	-	349.0 -> 80.0	-	N.D.			
PFTeDA	15.162	713.0 -> 669.0	0	0.00	µg/L	m	1
PFTrDA	13.904	663.0 -> 619.0	0	0.00	µg/L	m	1
PFUnDA	10.821	563.0 -> 519.0	0	0.00	µg/L	m	1

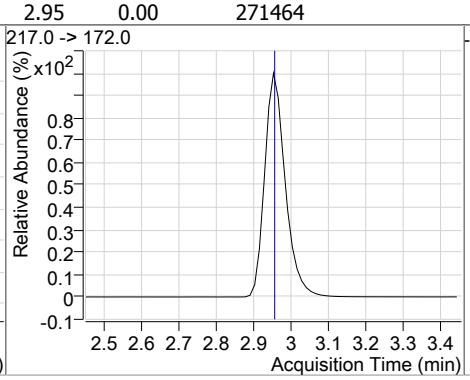
 # = Qualifier out of range, m = manually integrated, + = Area summed

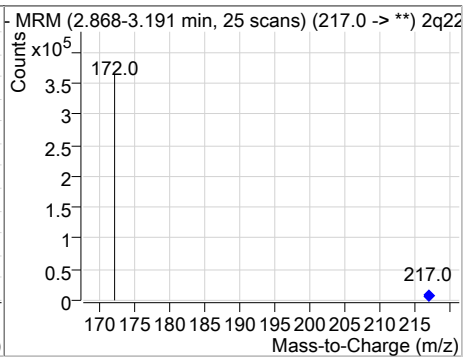
Perfluorinated Compounds by LC/MS/MS



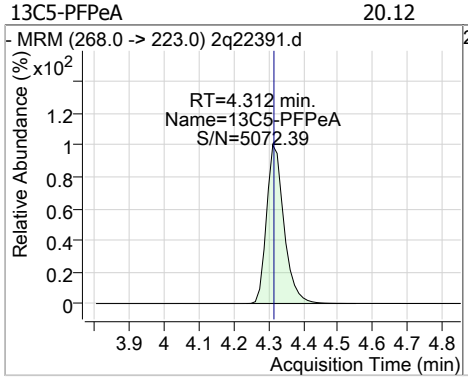
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.19	2.95	0.00	271464				

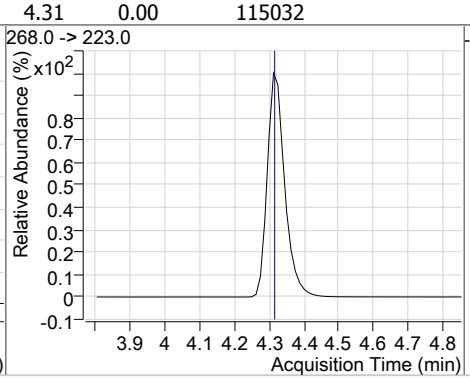


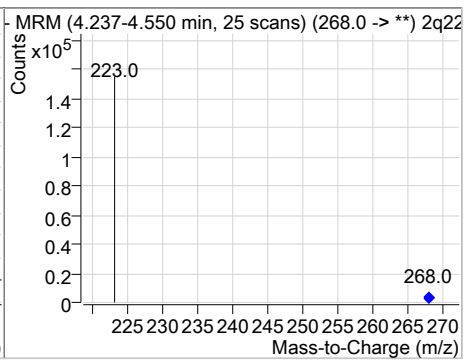




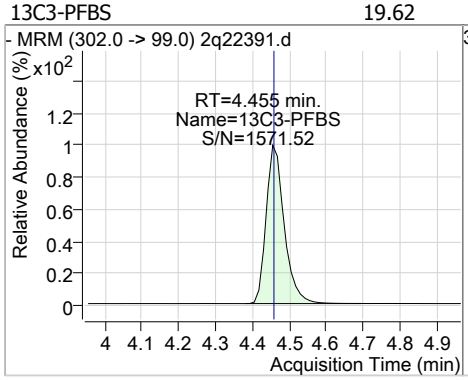
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.12	4.31	0.00	115032				

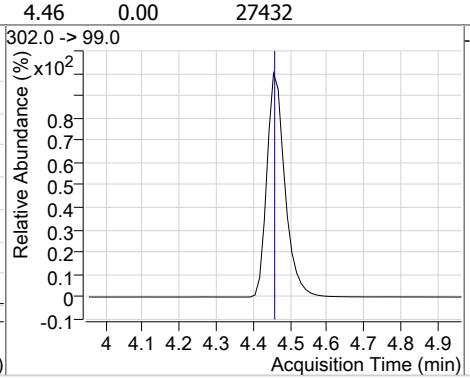


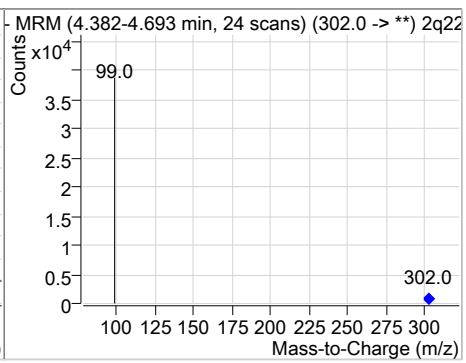




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.62	4.46	0.00	27432				

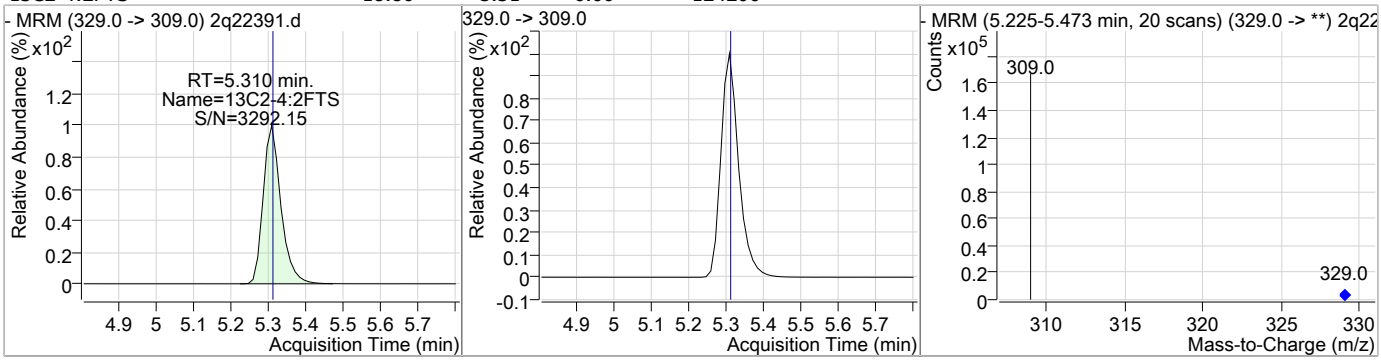




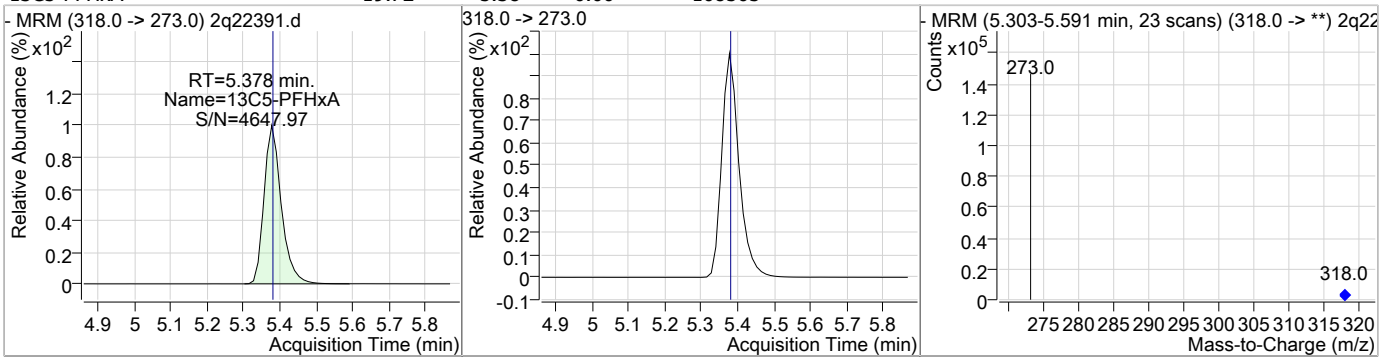


Perfluorinated Compounds by LC/MS/MS

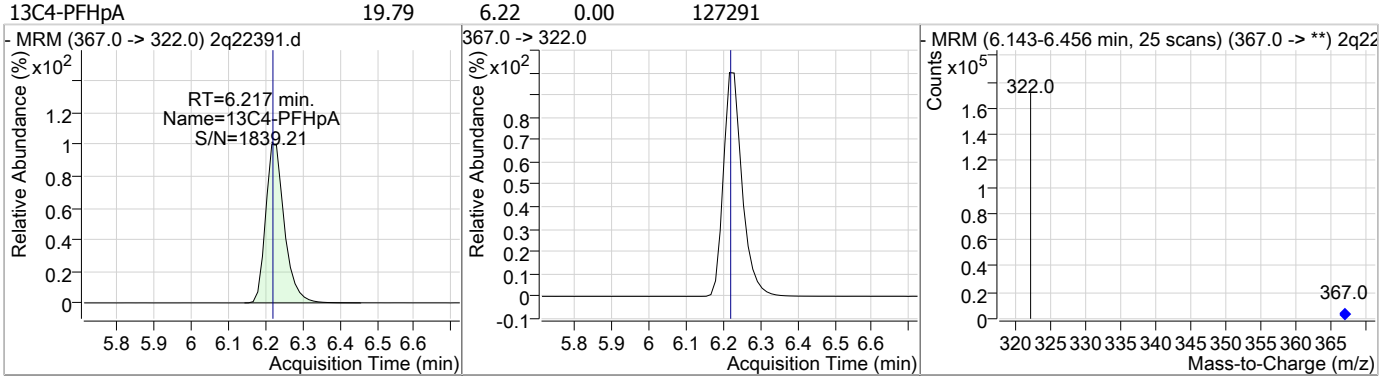
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.86	5.31	0.00	124206				



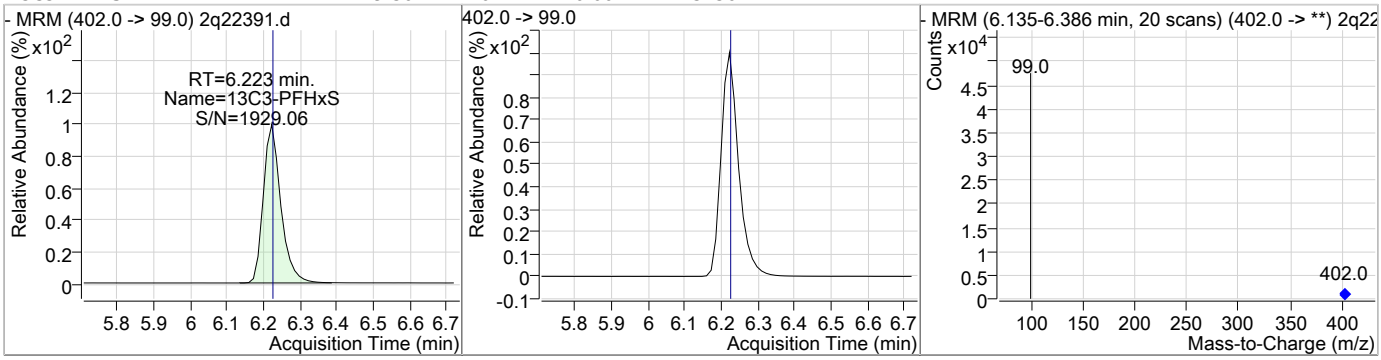
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.72	5.38	0.00	108565				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.79	6.22	0.00	127291				

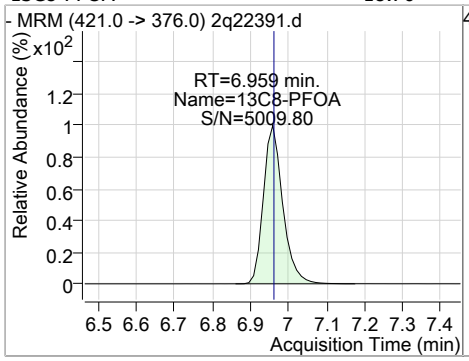


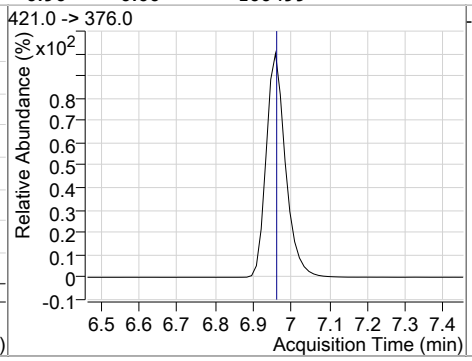
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.30	6.22	0.00	34361				

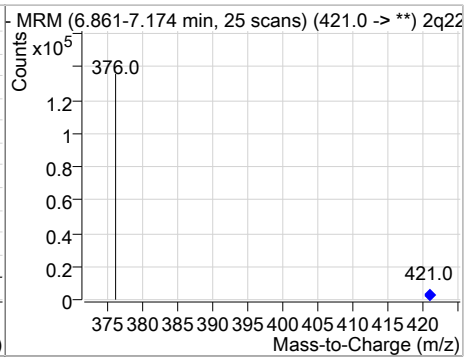


Perfluorinated Compounds by LC/MS/MS

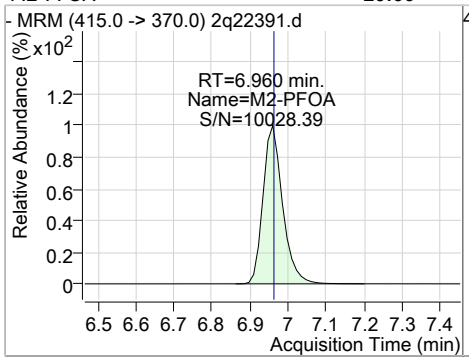
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.70	6.96	0.00	100499				

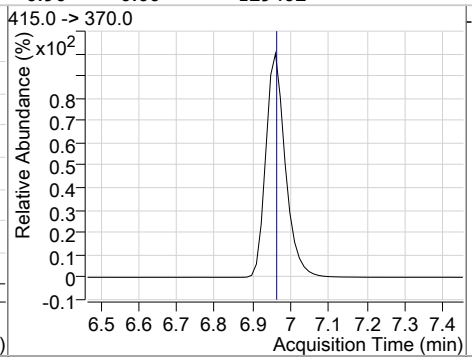


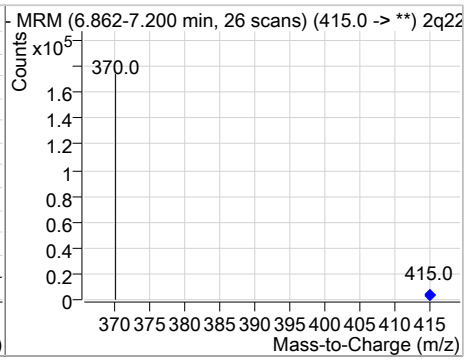




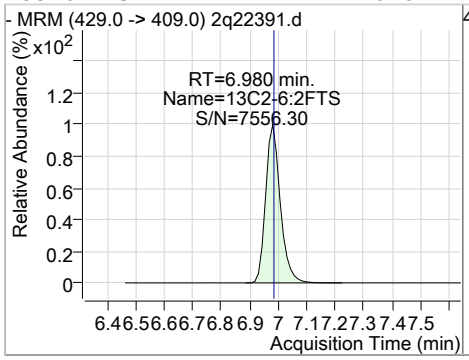
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.96	0.00	129462				

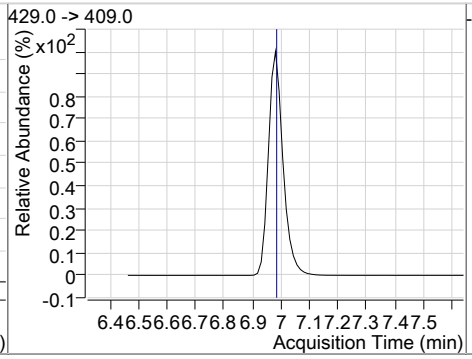


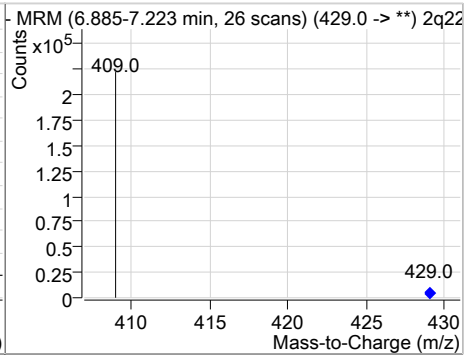




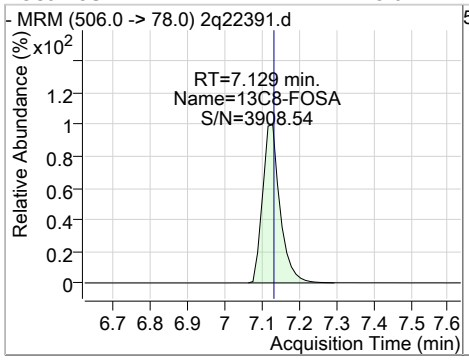
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.75	6.98	0.00	165589				

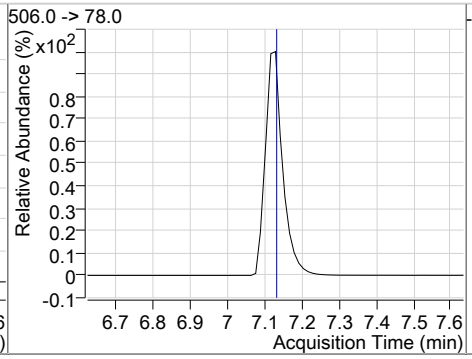


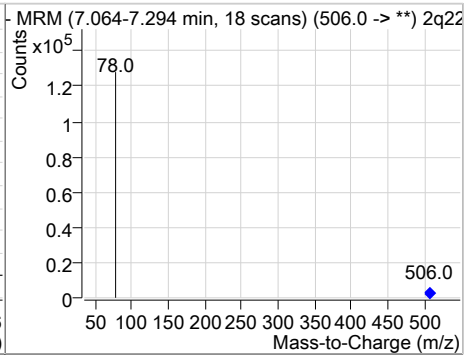




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	25.07	7.13	0.00	97283				

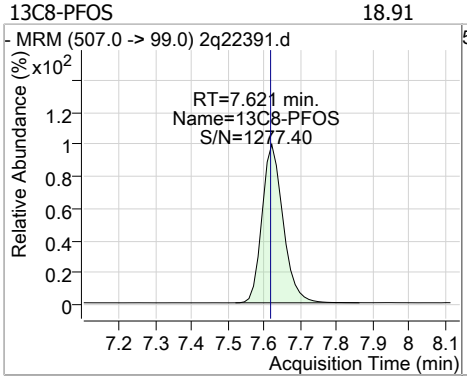


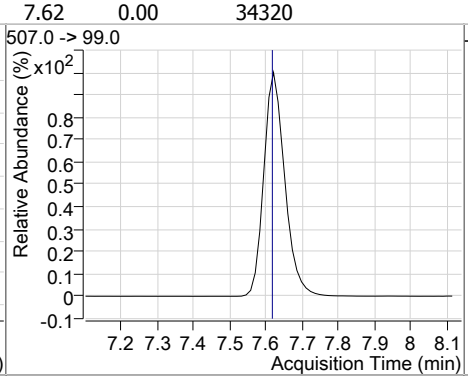


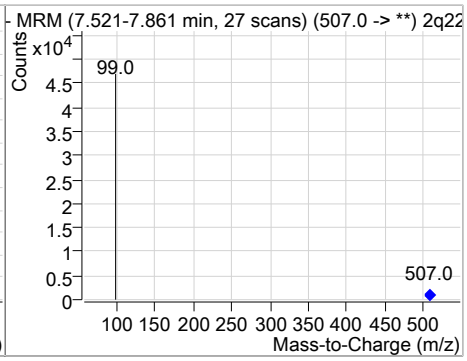


Perfluorinated Compounds by LC/MS/MS

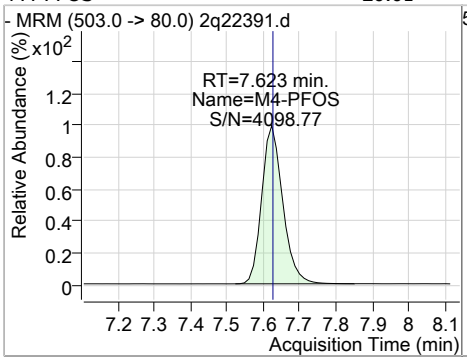
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.91	7.62	0.00	34320				

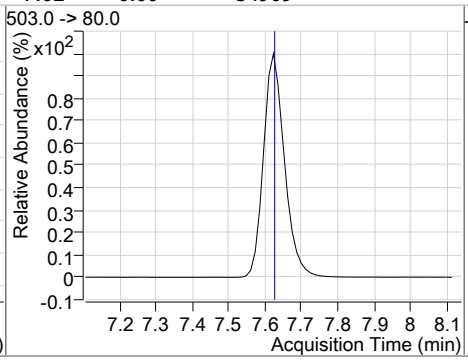


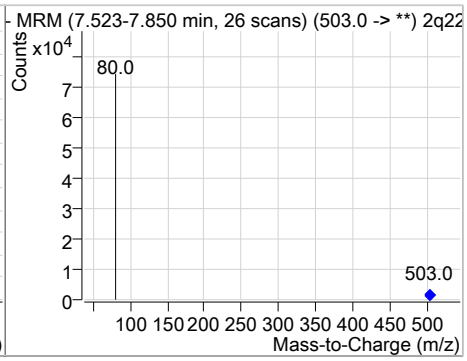




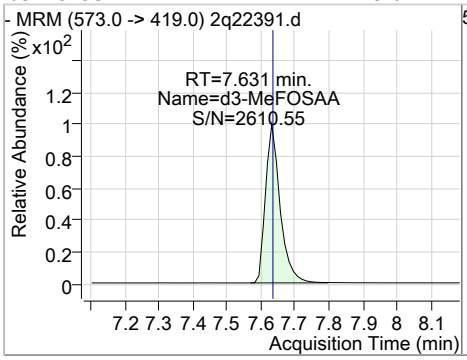
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.62	0.00	54969				

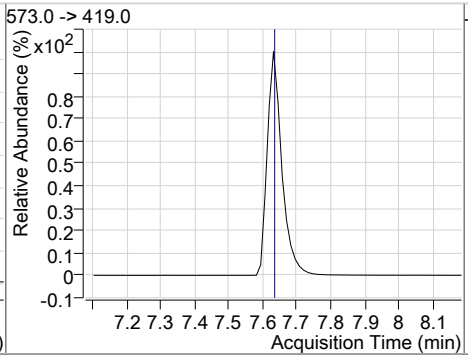


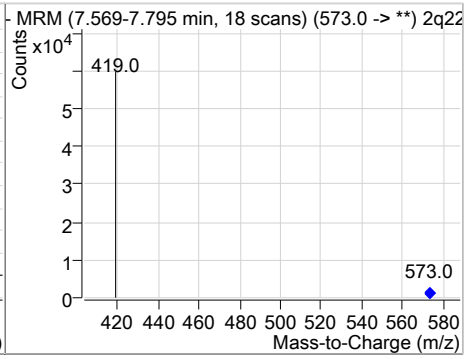




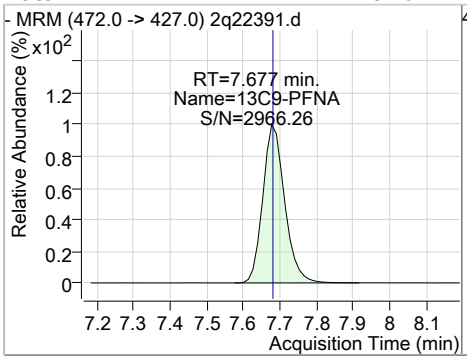
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.04	7.63	0.00	44281				

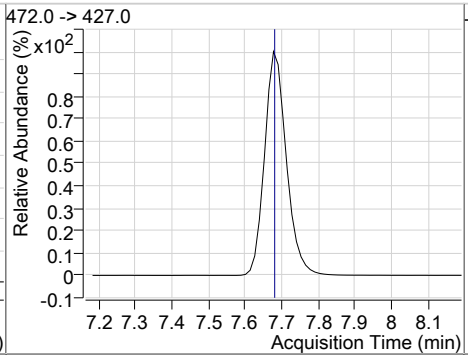


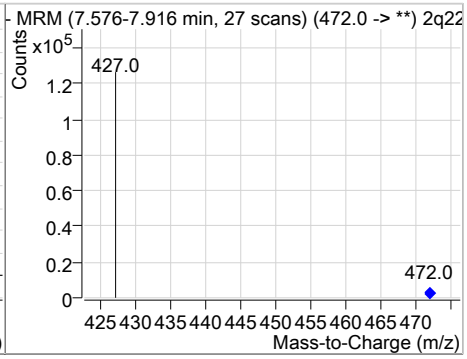




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.16	7.68	0.00	94183				

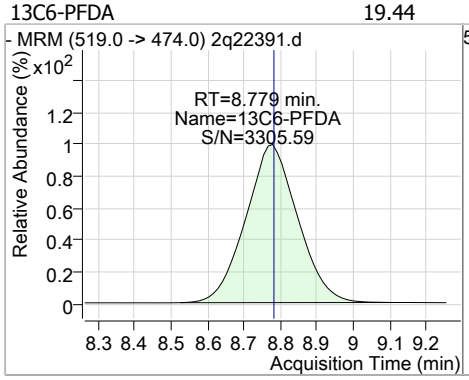


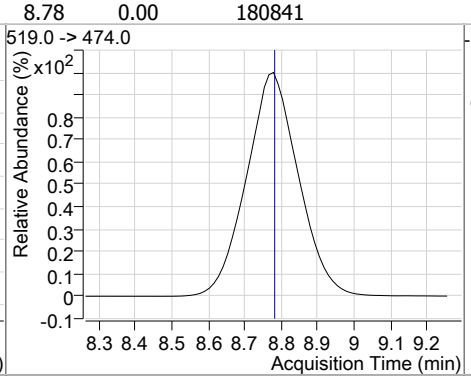


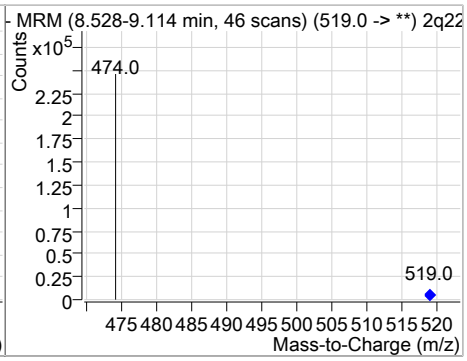


Perfluorinated Compounds by LC/MS/MS

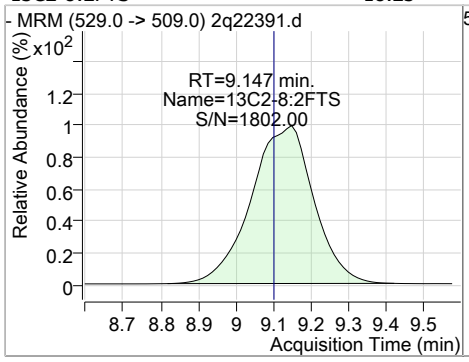
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.44	8.78	0.00	180841				

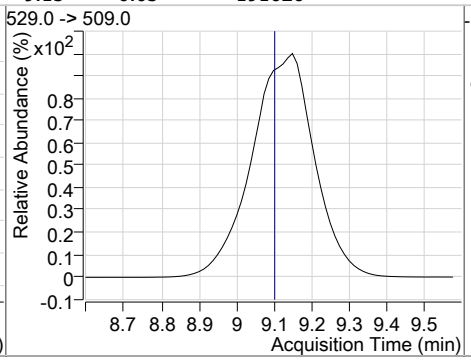


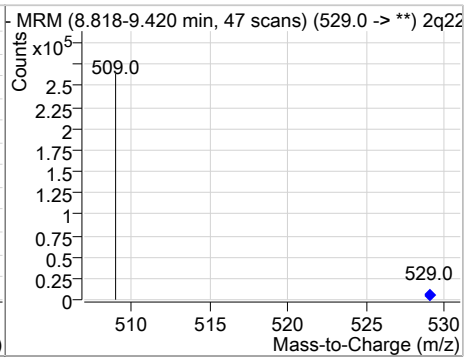




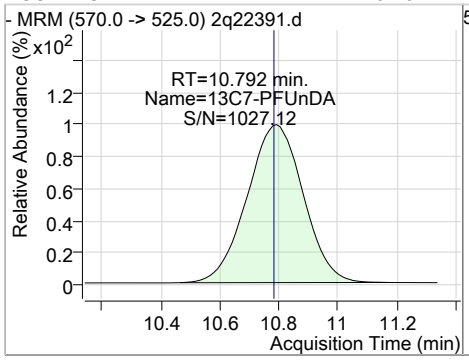
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.23	9.15	0.05	191626				

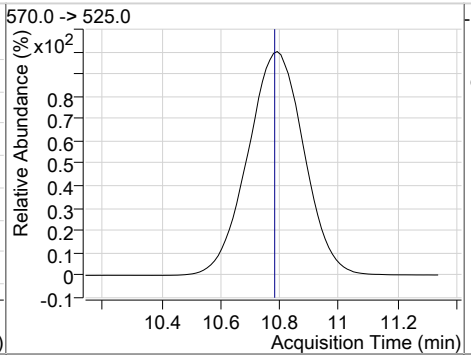


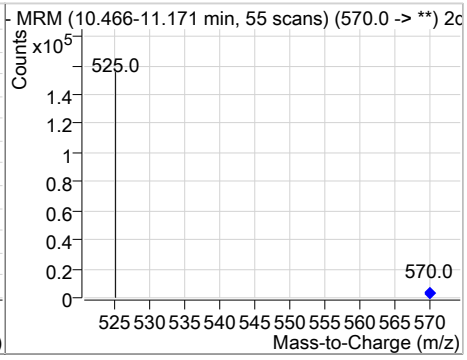




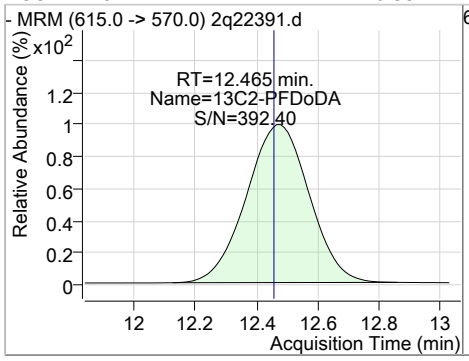
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	16.40	10.79	0.01	112304				

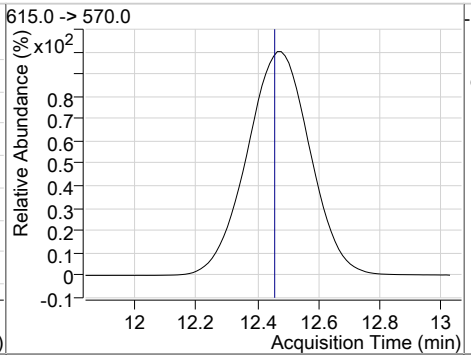


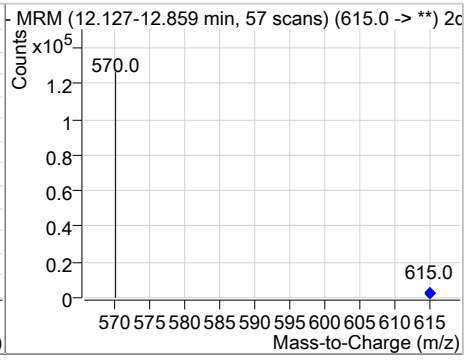




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	16.38	12.47	0.01	90574				

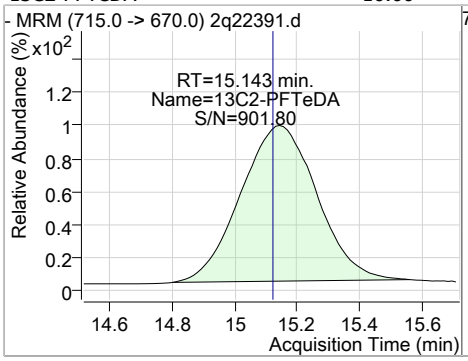


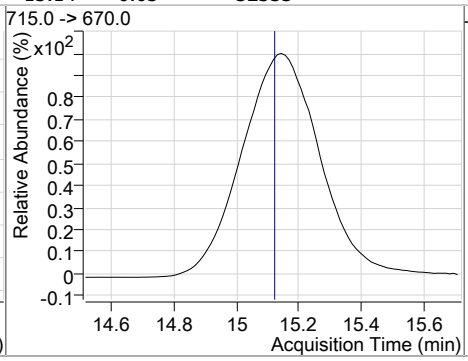


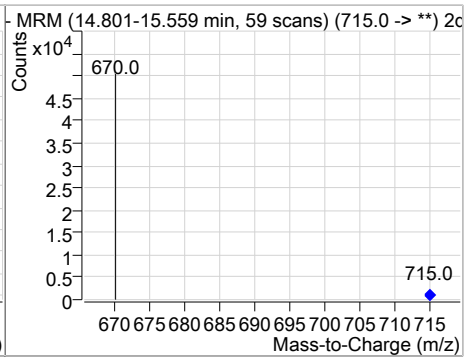


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	16.66	15.14	0.03	32333				







Manual Integration Approval Summary

Sample Number: S2Q352-IBLK
Lab FileID: 2Q22391.D
Injection Time: 10/19/18 12:27
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/24/18 15:16 Mike Eger
Supervisor approved: 10/24/18 15:16 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		7.61	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/22/18 10:08

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22132.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 3:20:28 PM
Sample Name : op71994-bs
Vial : Vial 11
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

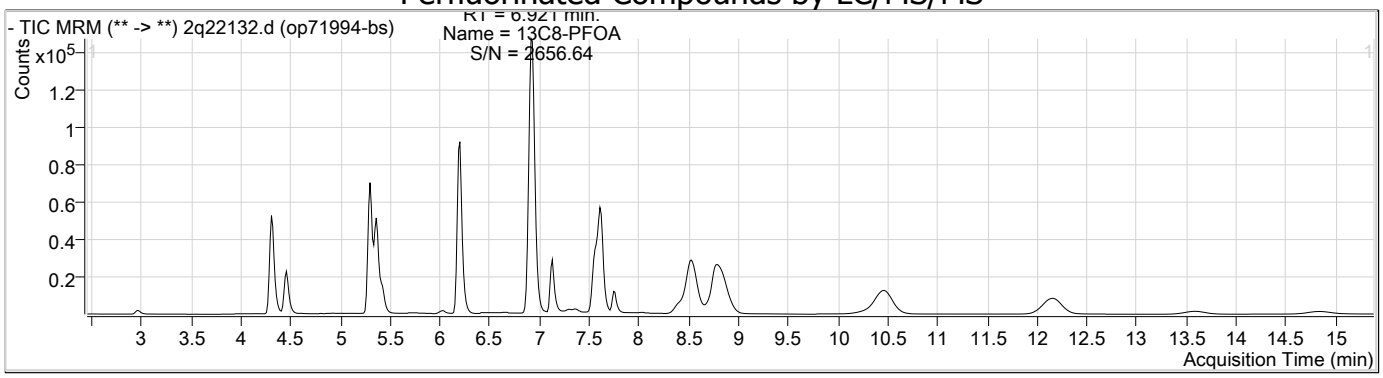
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.923	415.0 -> 370.0	134698	20.00	µg/L	0.015
13C4-PFOS	7.561	503.0 -> 80.0	50925	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	6180	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	91868	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	113294	20.00	µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	130260	20.00	µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	112304	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	96381	20.00	µg/L	0.013
M6-PFDA	8.529	519.0 -> 474.0	167706	20.00	µg/L	0.025
M7-PFUnDA	10.454	570.0 -> 525.0	108125	20.00	µg/L	0.050
M2-PFDoDA	12.153	615.0 -> 570.0	77300	20.00	µg/L	0.063
M2-PFTeDA	14.831	715.0 -> 670.0	14140	20.00	µg/L	0.050
M8-FOSA	7.130	506.0 -> 78.0	53853	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	26838	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	32936	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	30344	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	131684	20.00	µg/L	0.012
M2-6:2FTS	6.943	429.0 -> 409.0	165488	20.00	µg/L	0.014
M2-8:2FTS	8.787	529.0 -> 509.0	172074	20.00	µg/L	0.025
M3-MeFOSAA	7.620	573.0 -> 419.0	31243	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	131729	18.75	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C2-6:2FTS	6.943	429.0 -> 409.0	165496	18.83	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.2%		
13C2-8:2FTS	8.787	529.0 -> 509.0	170957	16.43	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.1%		
13C2-PFDoDA	12.153	615.0 -> 570.0	76863	12.25	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.2%		
13C2-PFTeDA	14.831	715.0 -> 670.0	13779	6.17	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 30.8%		
13C3-PFBS	4.455	302.0 -> 99.0	26846	18.85	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C3-PFHxS	6.198	402.0 -> 99.0	32960	19.02	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C4-PFBA	2.966	217.0 -> 172.0	6178	0.43	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 2.1%		
13C4-PFHpA	6.204	367.0 -> 322.0	130307	18.58	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C5-PFHxA	5.364	318.0 -> 273.0	113304	18.66	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C5-PFPeA	4.312	268.0 -> 223.0	91838	14.62	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.1%		
13C6-PFDA	8.529	519.0 -> 474.0	167501	16.62	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.1%		

Perfluorinated Compounds by LC/MS/MS

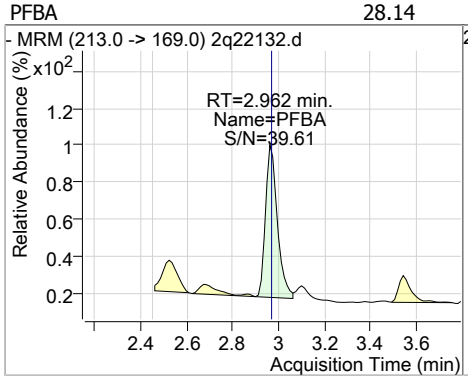
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.454	570.0 -> 525.0	107756	14.09	µg/L		0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.4%			
13C8-FOSA	7.130	506.0 -> 78.0	53859	14.64	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.2%			
13C8-PFOA	6.921	421.0 -> 376.0	112306	19.13	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.7%			
13C8-PFOS	7.559	507.0 -> 99.0	30300	17.32	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.6%			
13C9-PFNA	7.614	472.0 -> 427.0	96332	18.36	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%			
d3-MeFOSAA	7.620	573.0 -> 419.0	31281	13.99	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.9%			
M2-PFOA	6.923	415.0 -> 370.0	134683	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	50954	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	71351	20.14	µg/L		99
6:2FTS	6.932	427.0 -> 407.0	82360	21.07	µg/L		98
8:2FTS	8.790	527.0 -> 507.0	84623	20.31	µg/L		98
EtFOSAA	7.757	584.0 -> 419.0	13505	18.75	µg/L		99
FOSA	7.132	498.0 -> 78.0	28114	21.79	µg/L		99
MeFOSAA	7.634	570.0 -> 419.0	17344	21.47	µg/L		94
PFBA	2.962	213.0 -> 169.0	1048	28.14	µg/L		100
PFBS	4.459	299.0 -> 80.0	35119	18.10	µg/L		100
PFDA	8.532	513.0 -> 469.0	47786	18.93	µg/L		98
PFDoDA	12.159	613.0 -> 569.0	35906	22.10	µg/L		99
PFDS	10.262	599.0 -> 80.0	10262	14.97	µg/L		100
PFHpA	6.195	363.0 -> 319.0	109959	22.66	µg/L		100
PFHpS	6.892	449.0 -> 80.0	26779	19.54	µg/L		98
PFHxA	5.366	313.0 -> 269.0	35092	19.33	µg/L		100
PFHxS	6.201	399.0 -> 80.0	30803	18.62	µg/L	m	99
PFNA	7.615	463.0 -> 419.0	49079	19.56	µg/L		96
PFNS	8.396	549.0 -> 80.0	21453	18.10	µg/L		96
PFOA	6.924	413.0 -> 369.0	58699	21.27	µg/L		97
PFOS	7.562	499.0 -> 80.0	27944	21.78	µg/L	m	98
PFPeA	4.316	263.0 -> 219.0	86375	20.41	µg/L		100
PFPeS	5.421	349.0 -> 80.0	23628	17.80	µg/L		99
PFTeDA	14.850	713.0 -> 669.0	8062	19.82	µg/L		98
PFTrDA	13.567	663.0 -> 619.0	21853	36.62	µg/L		100
PFUnDA	10.471	563.0 -> 519.0	43822	21.38	µg/L		97

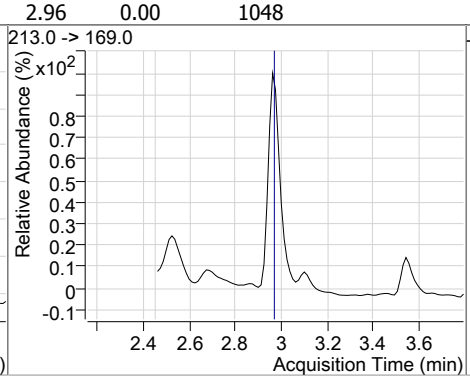
 # = Qualifier out of range, m = manually integrated, + = Area summed

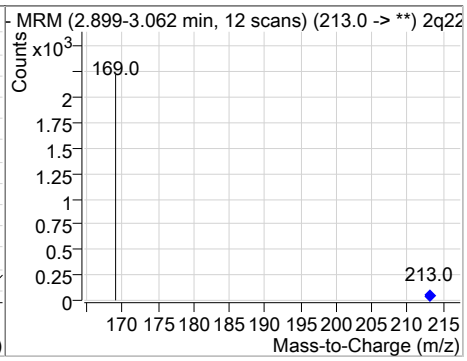
Perfluorinated Compounds by LC/MS/MS



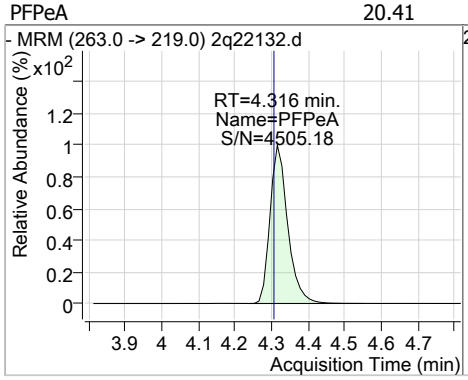
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	28.14	2.96	0.00	1048				

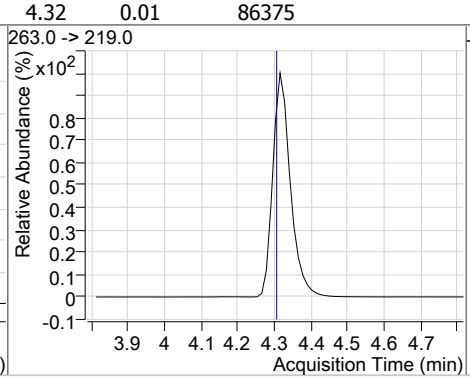


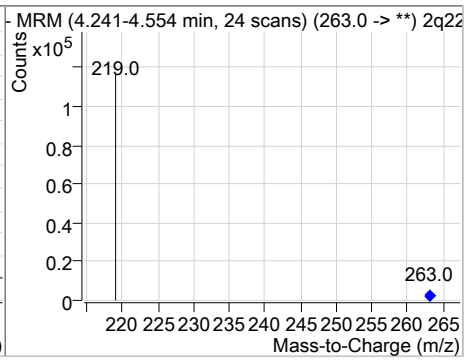




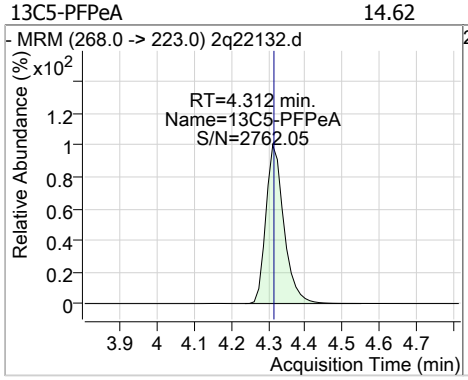
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.41	4.32	0.01	86375				

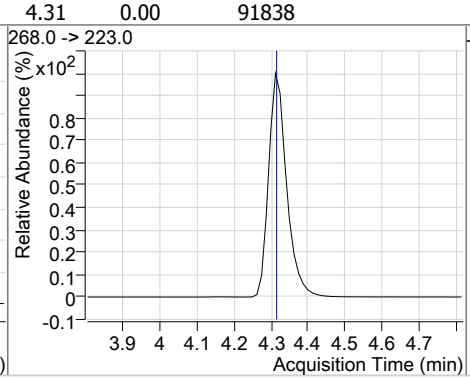


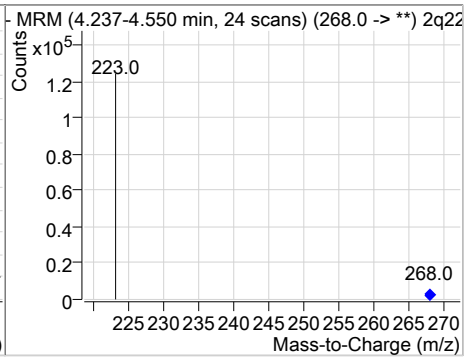




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	14.62	4.31	0.00	91838				

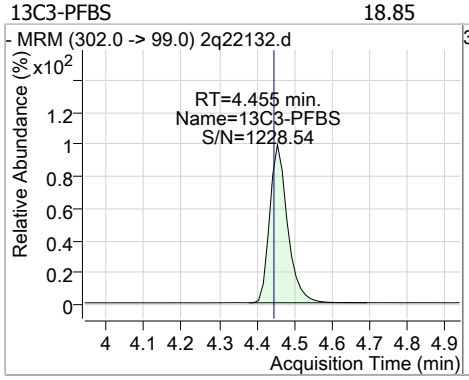


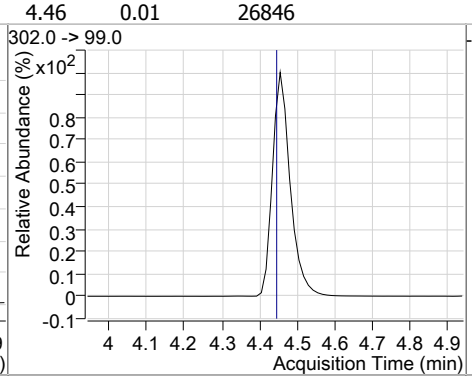


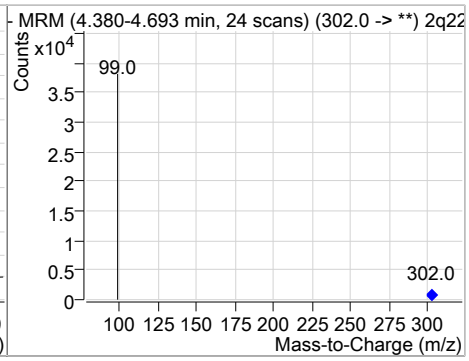


Perfluorinated Compounds by LC/MS/MS

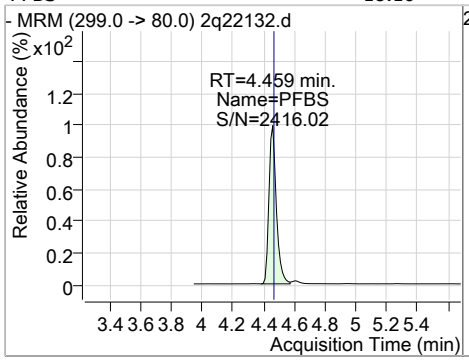
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.85	4.46	0.01	26846				

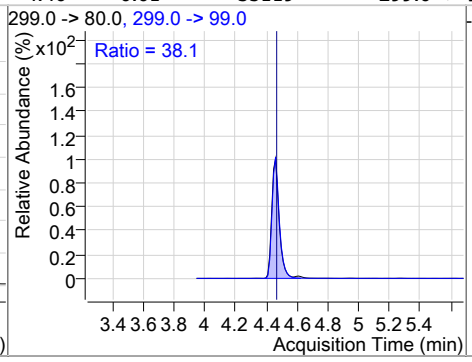


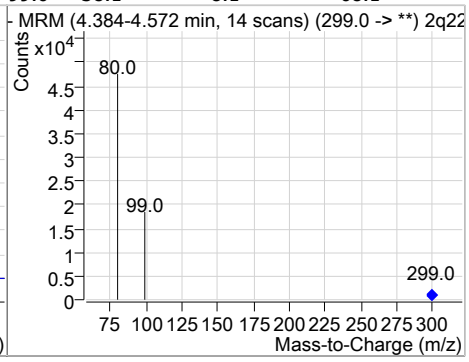




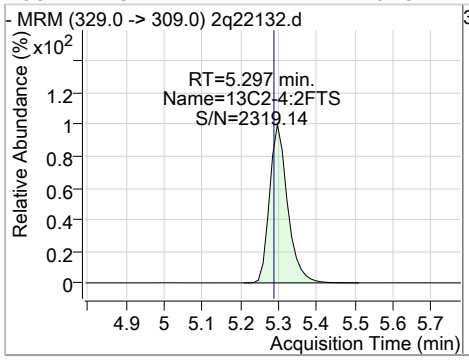
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.10	4.46	0.01	35119	299.0 -> 99.0	38.1	8.1	68.1

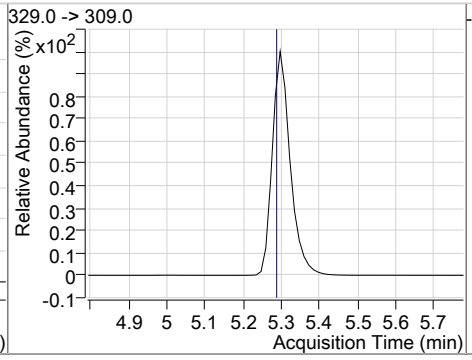


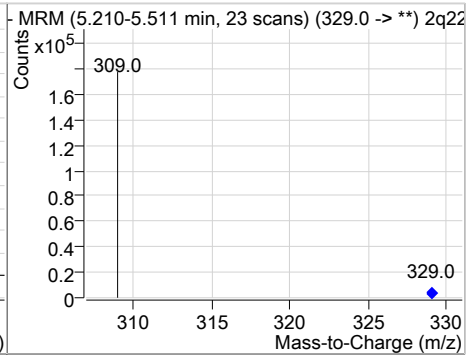




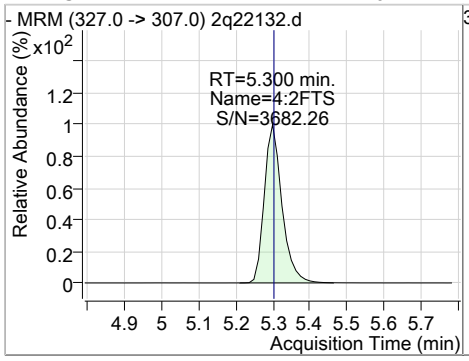
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.75	5.30	0.01	131729				

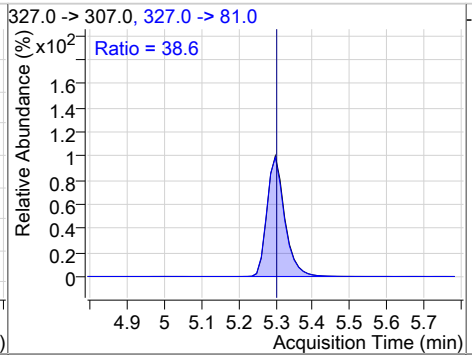


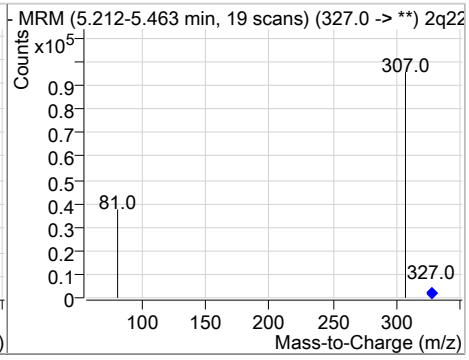




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	20.14	5.30	0.01	71351	327.0 -> 81.0	38.6	9.0	69.0

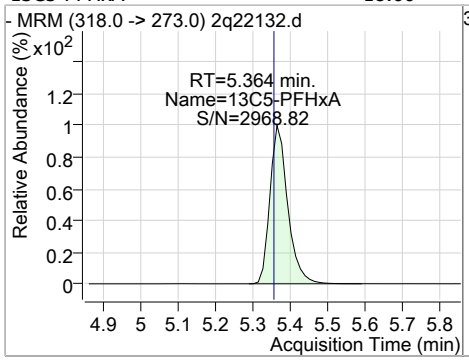


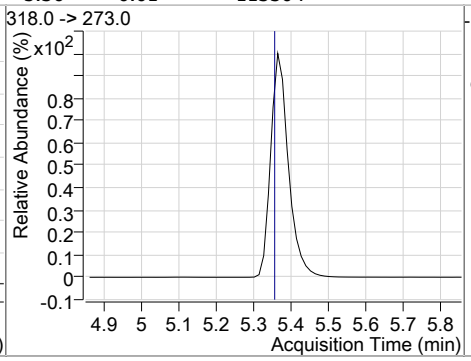


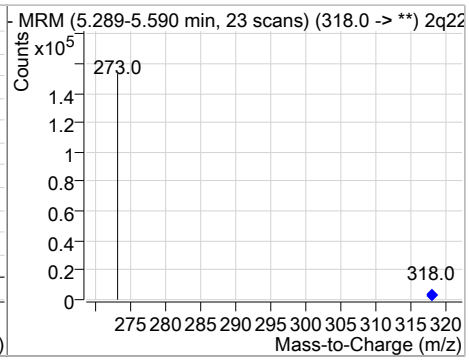


Perfluorinated Compounds by LC/MS/MS

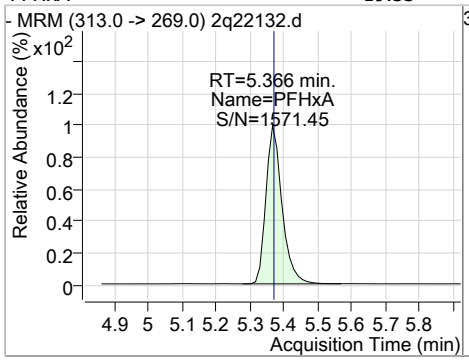
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.66	5.36	0.01	113304				

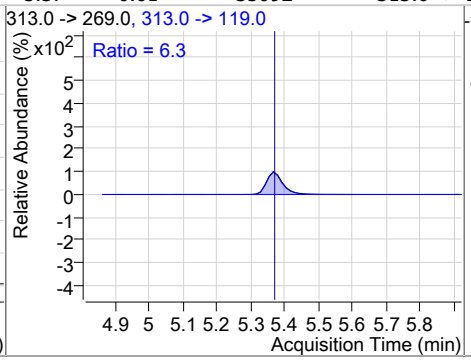


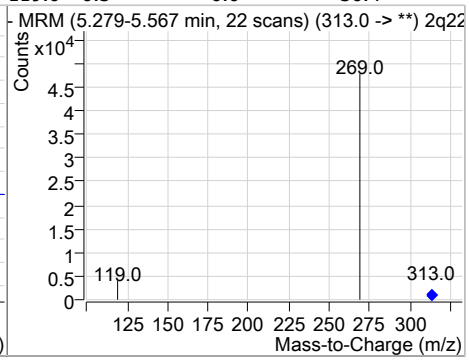




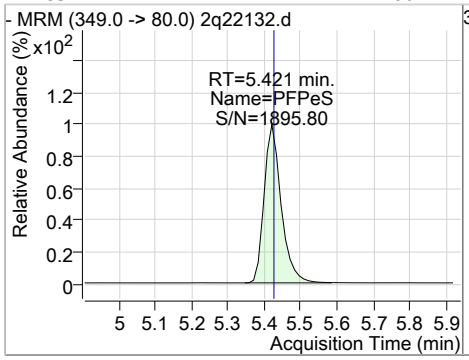
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.33	5.37	0.01	35092	313.0 -> 119.0	6.3	0.0	36.4

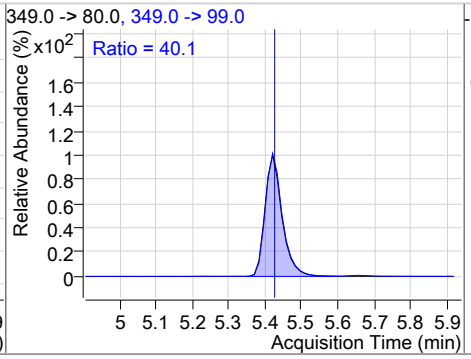


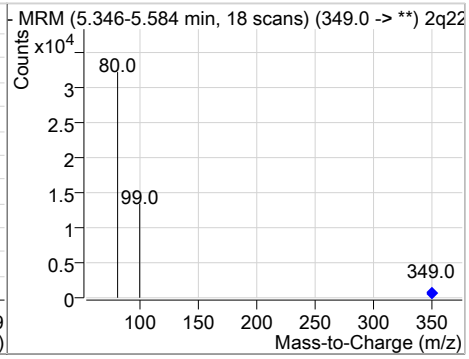




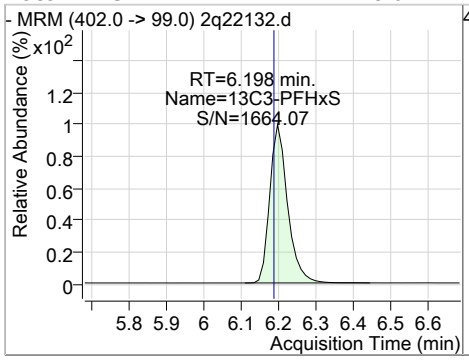
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	17.80	5.42	0.01	23628	349.0 -> 99.0	40.1	9.5	69.5

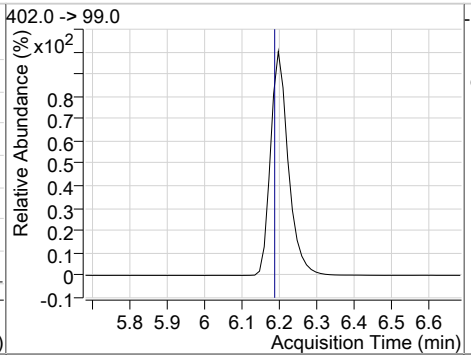


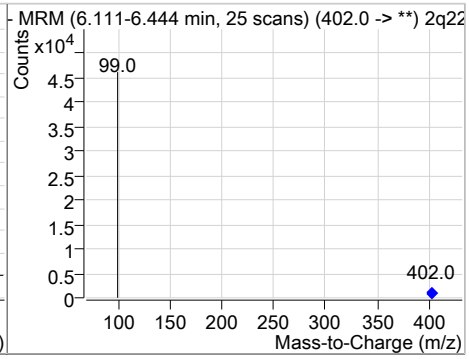




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.02	6.20	0.01	32960				

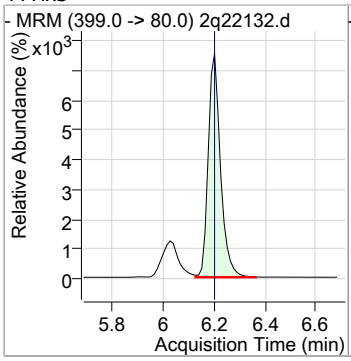


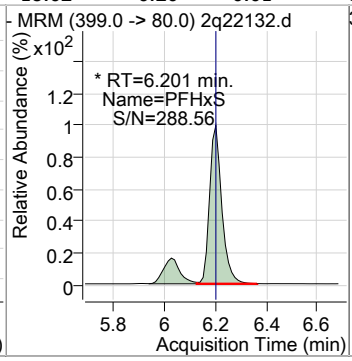


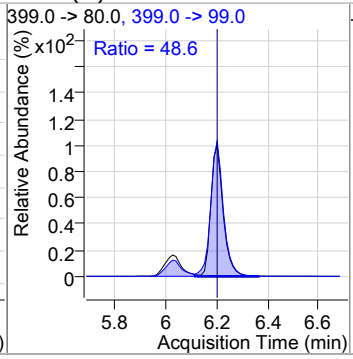


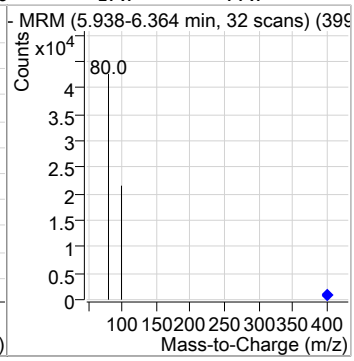
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.62	6.20	0.01	30803 (m)	399.0 -> 99.0	48.6	17.7	77.7

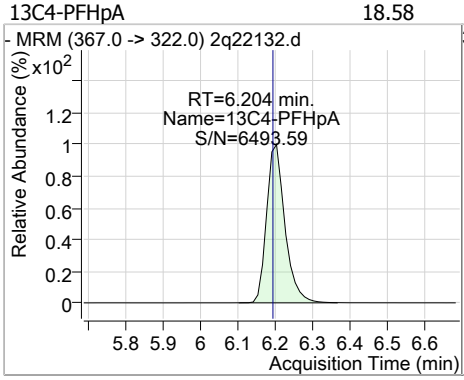


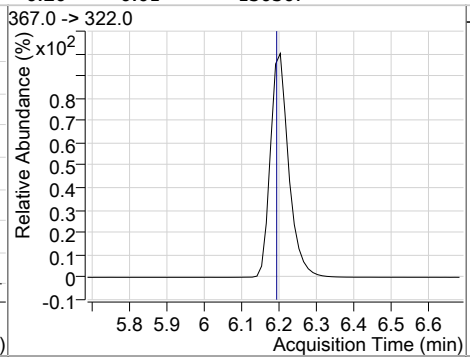


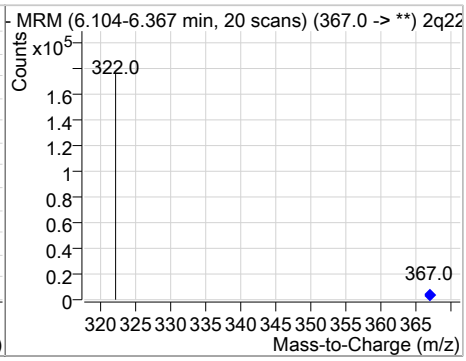




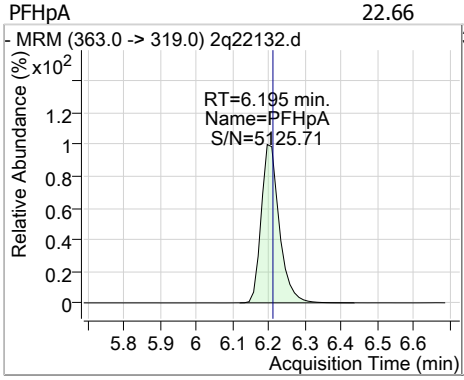
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.58	6.20	0.01	130307				

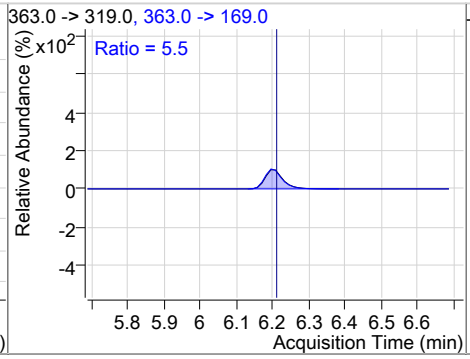


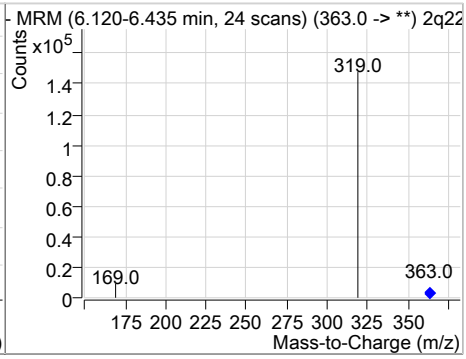




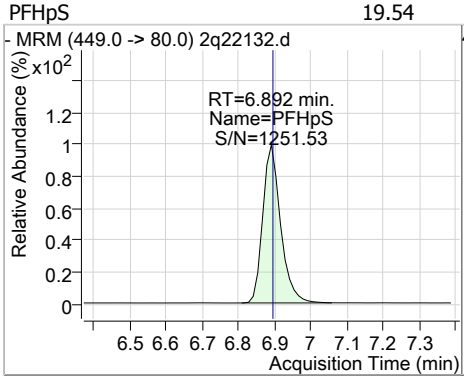
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	22.66	6.20	0.00	109959	363.0 -> 169.0	5.5	0.0	35.4

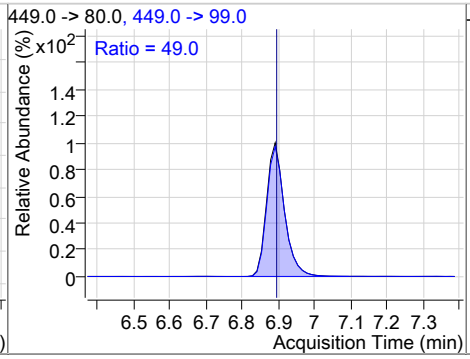


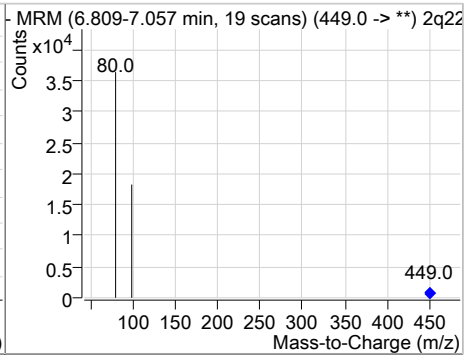




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.54	6.89	0.01	26779	449.0 -> 99.0	49.0	20.3	80.3

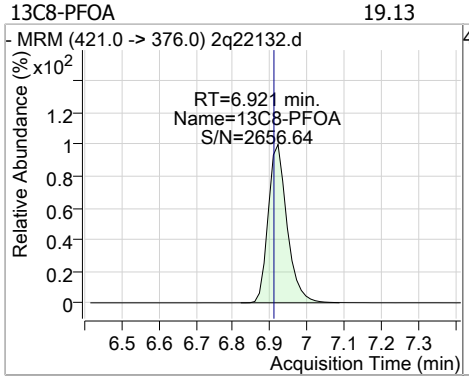


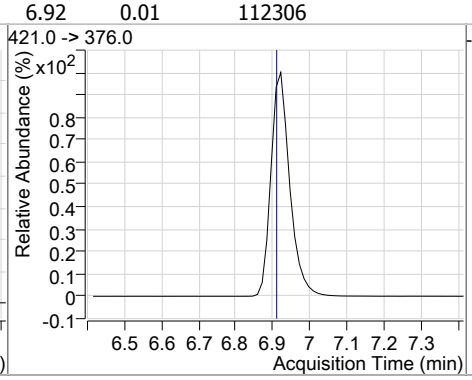


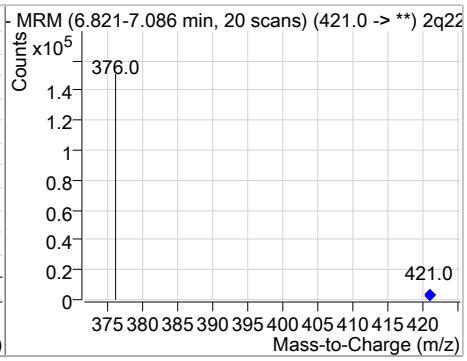


Perfluorinated Compounds by LC/MS/MS

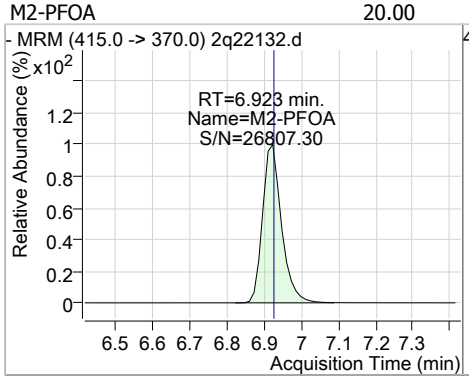
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.13	6.92	0.01	112306				

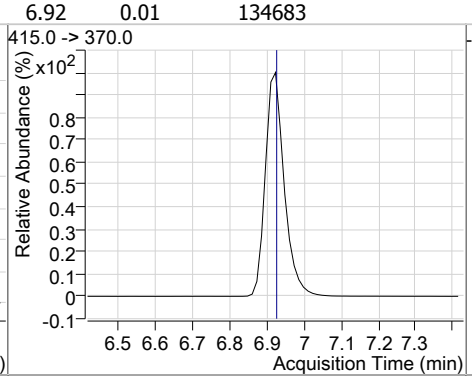


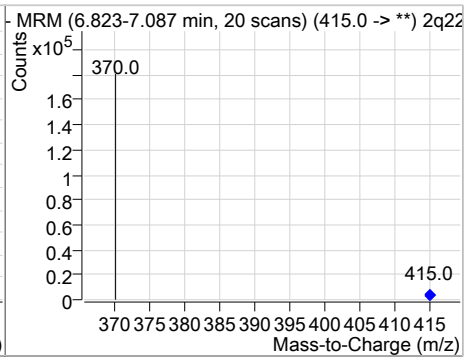




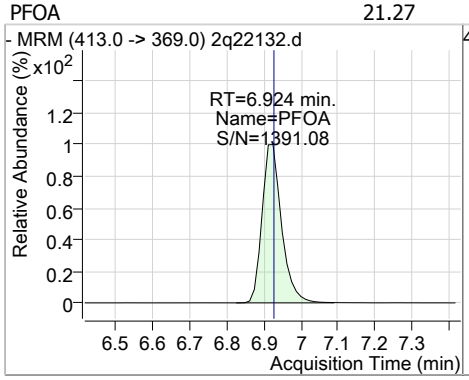
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	134683				

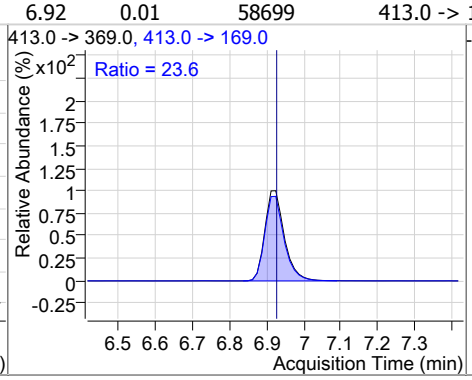


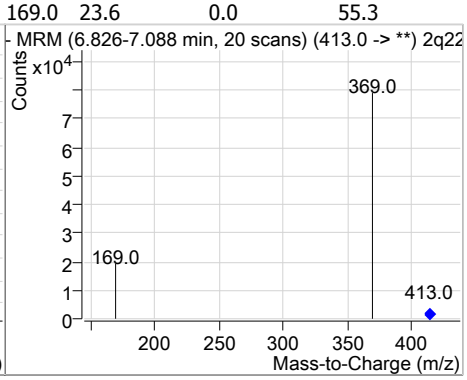




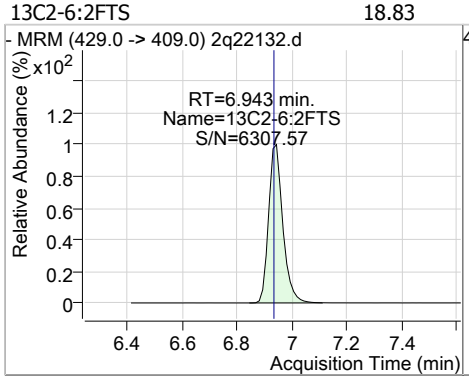
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.27	6.92	0.01	58699	413.0 -> 169.0	23.6	0.0	55.3

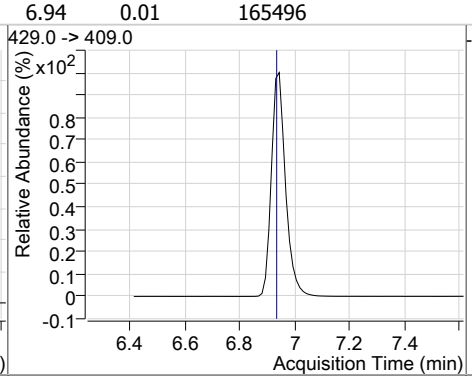


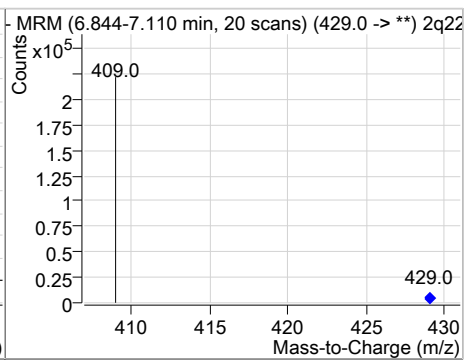




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.83	6.94	0.01	165496				

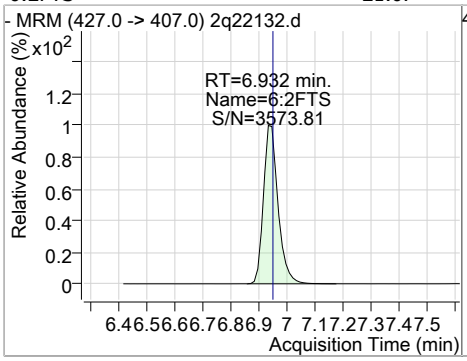


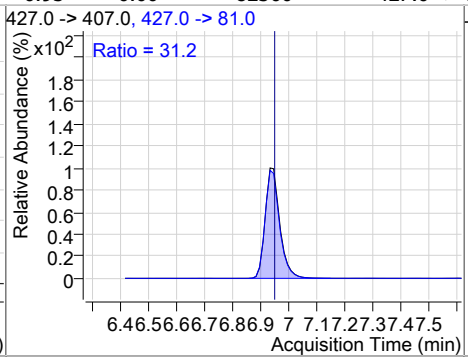


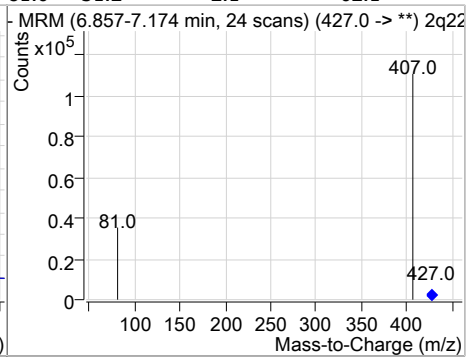


Perfluorinated Compounds by LC/MS/MS

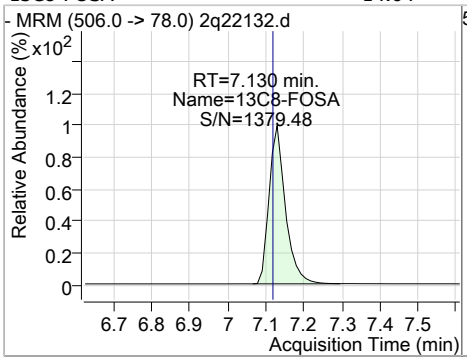
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	21.07	6.93	0.00	82360	427.0 -> 81.0	31.2	2.1	62.1

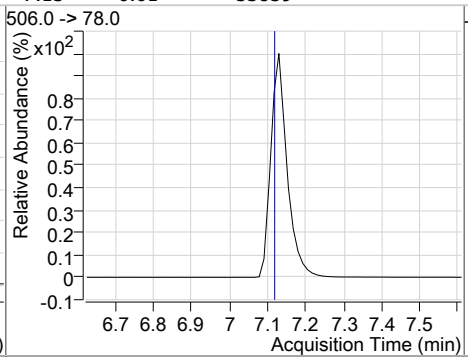


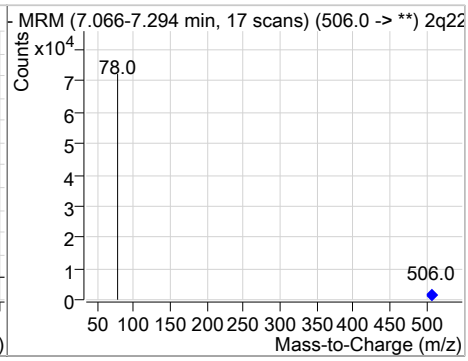




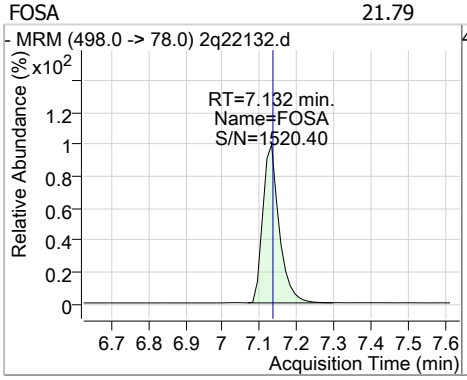
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	14.64	7.13	0.01	53859				

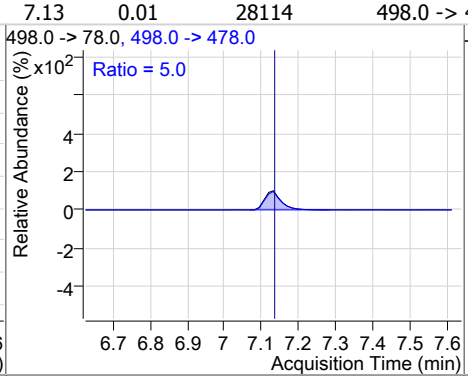


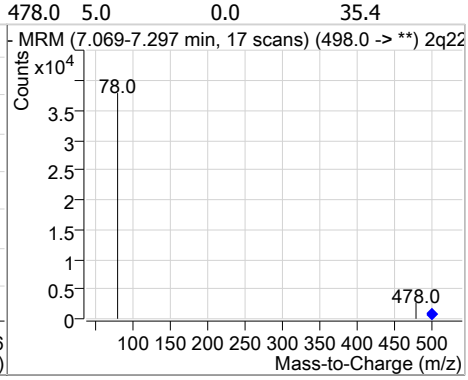




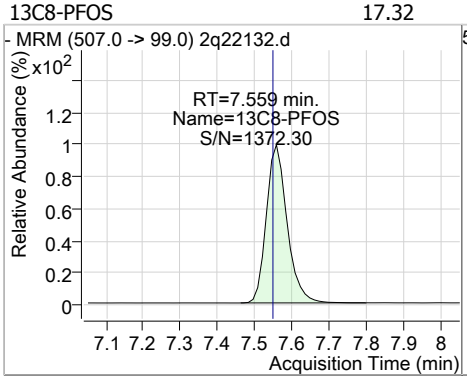
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	21.79	7.13	0.01	28114	498.0 -> 478.0	5.0	0.0	35.4

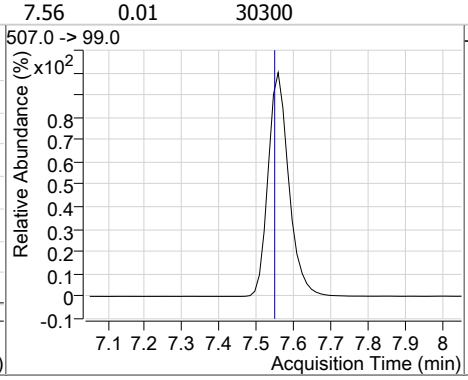


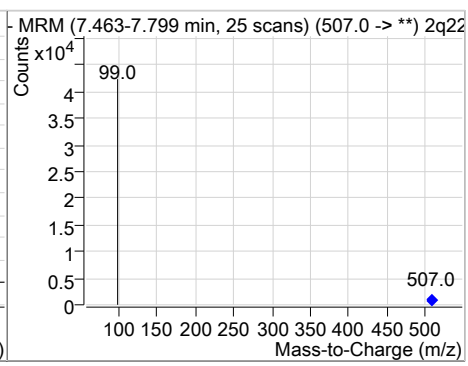




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.32	7.56	0.01	30300				

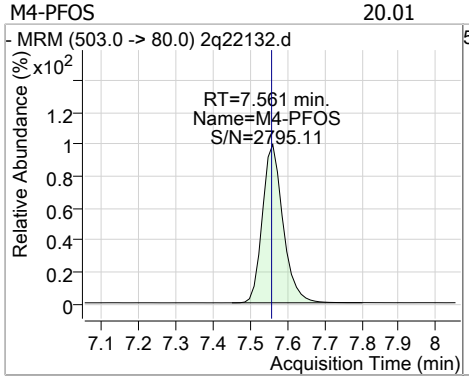


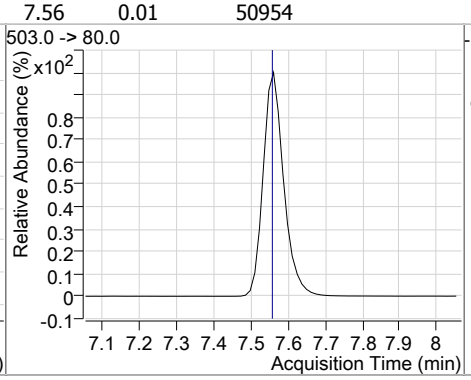


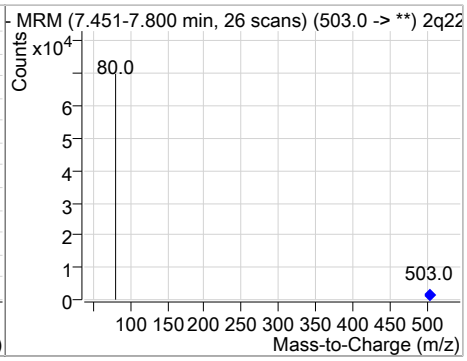


Perfluorinated Compounds by LC/MS/MS

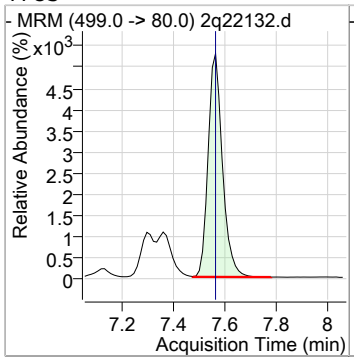
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.56	0.01	50954				

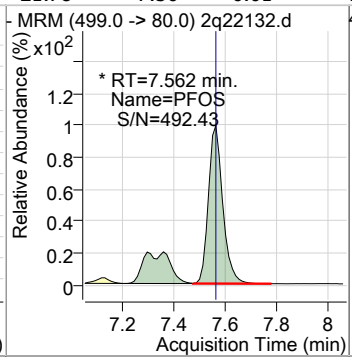


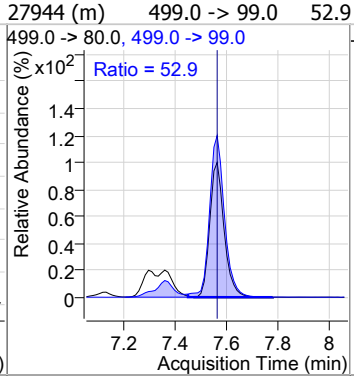


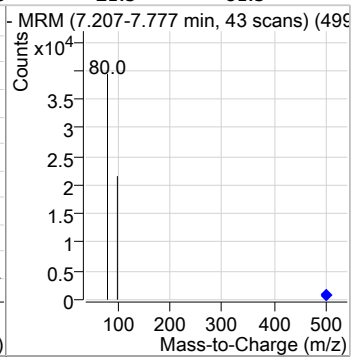


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.78	7.56	0.01	27944 (m)	499.0 -> 99.0	52.9	21.5	81.5

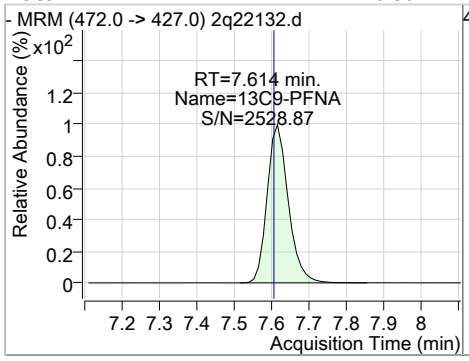


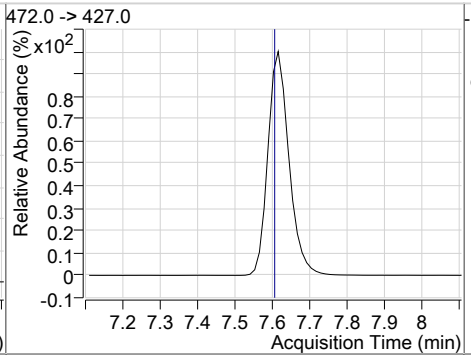


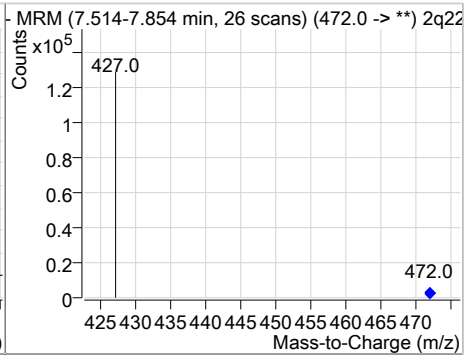




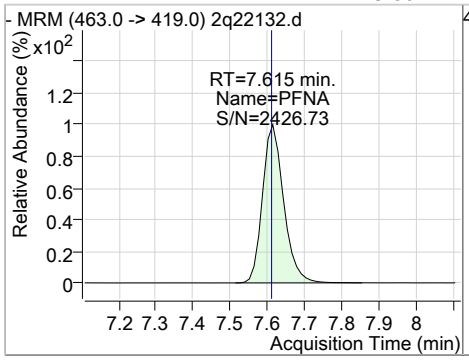
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.36	7.61	0.01	96332				

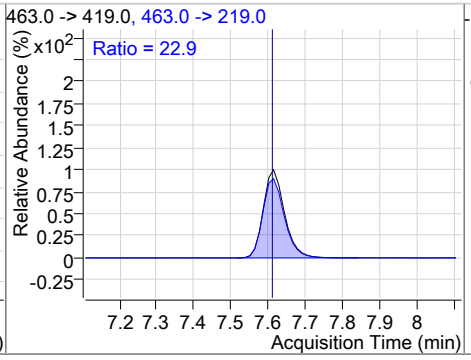


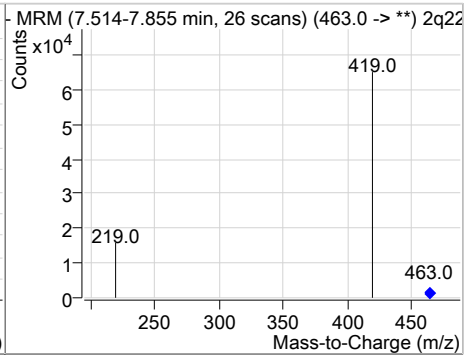




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.56	7.61	0.01	49079	463.0 -> 219.0	22.9	0.0	54.8

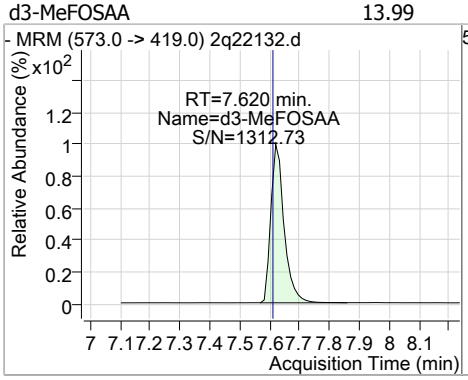


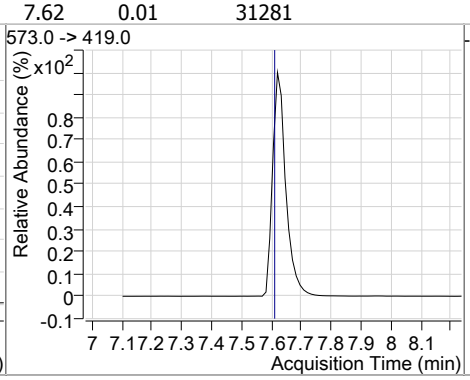


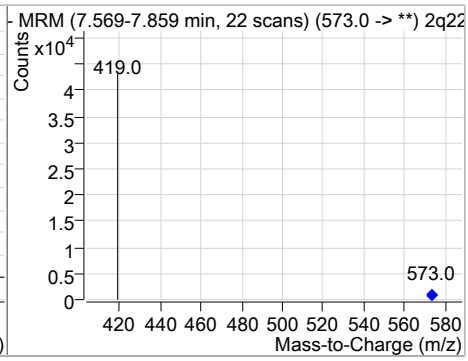


Perfluorinated Compounds by LC/MS/MS

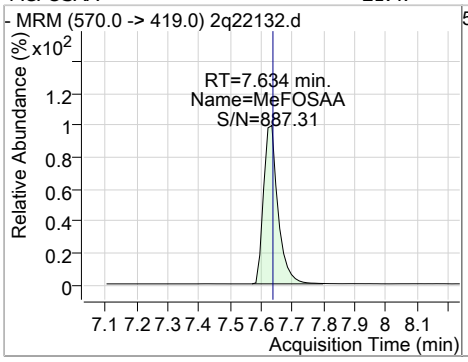
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.99	7.62	0.01	31281				

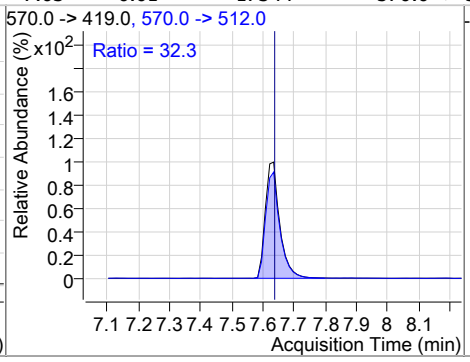


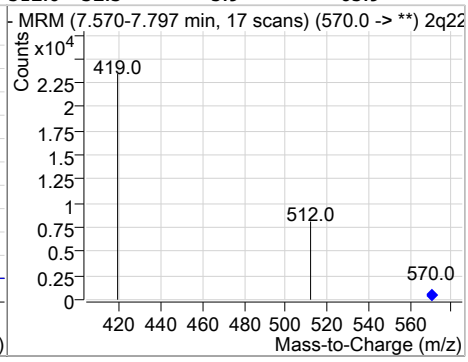




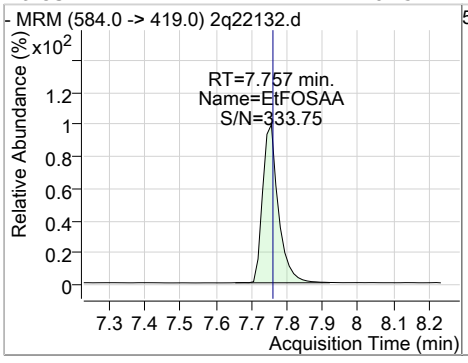
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.47	7.63	0.01	17344	570.0 -> 512.0	32.3	5.9	65.9

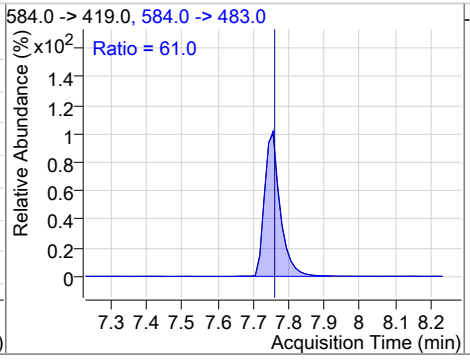


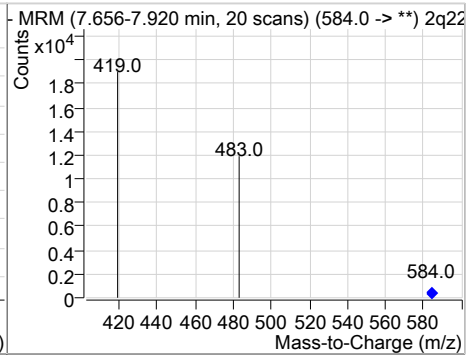




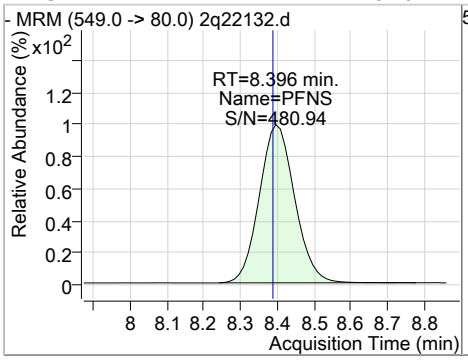
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	18.75	7.76	0.01	13505	584.0 -> 483.0	61.0	30.5	90.5

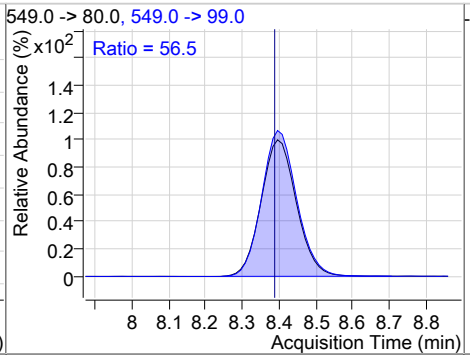


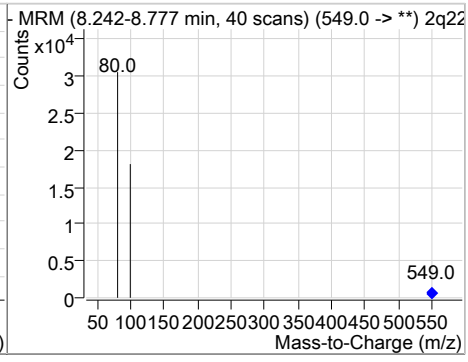




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	18.10	8.40	0.02	21453	549.0 -> 99.0	56.5	23.4	83.4

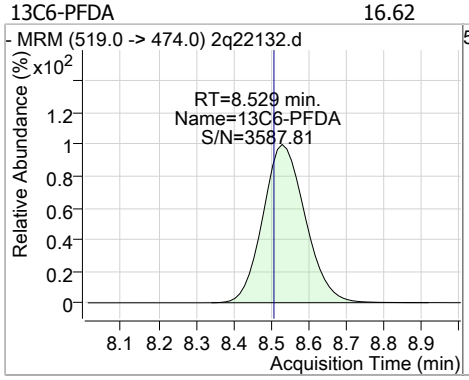


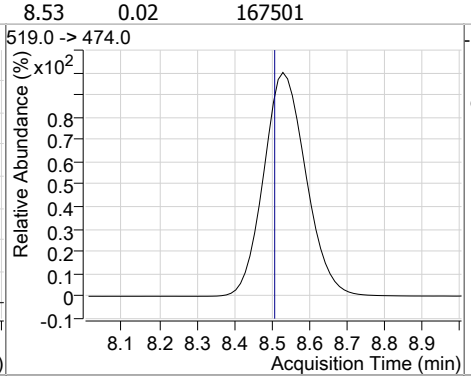


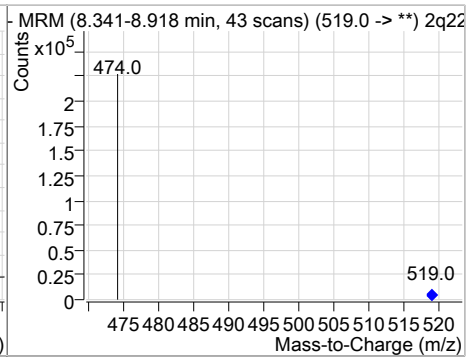


Perfluorinated Compounds by LC/MS/MS

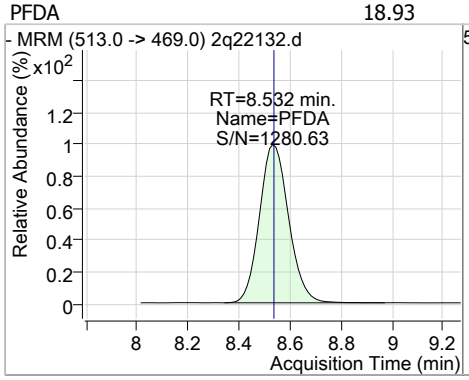
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.62	8.53	0.02	167501				

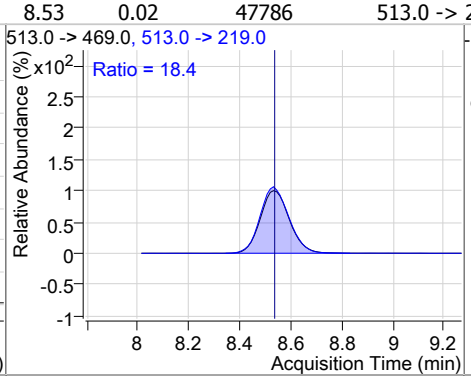


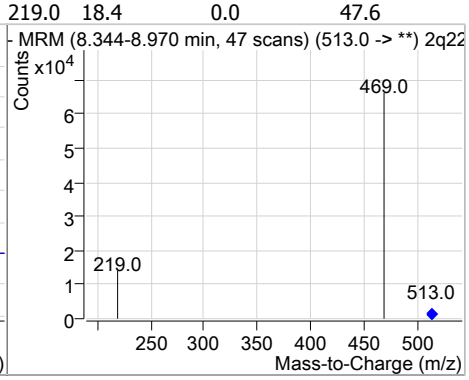




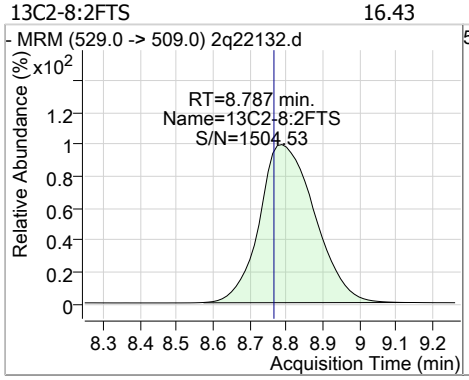
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.93	8.53	0.02	47786	513.0 -> 219.0	18.4	0.0	47.6

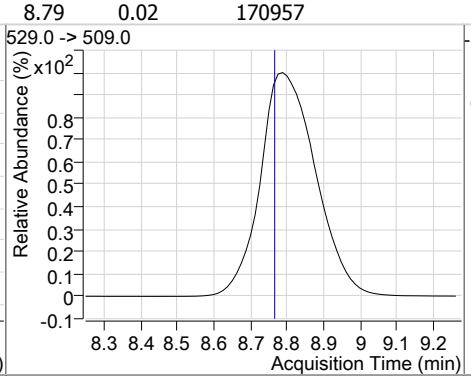


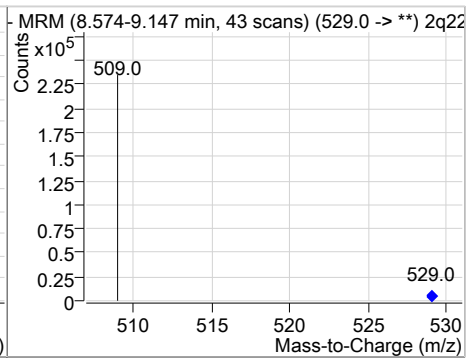




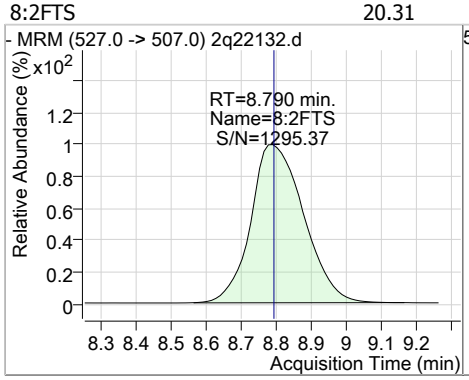
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.43	8.79	0.02	170957				

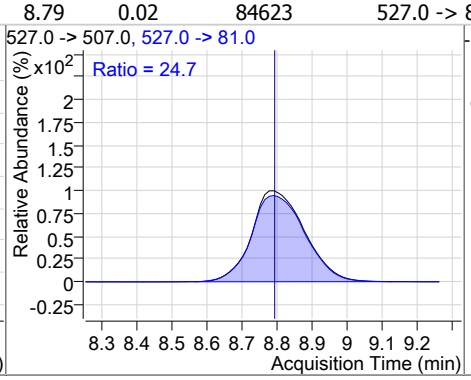


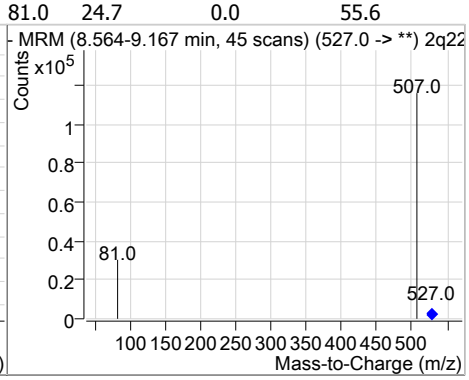




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.31	8.79	0.02	84623	527.0 -> 81.0	24.7	0.0	55.6

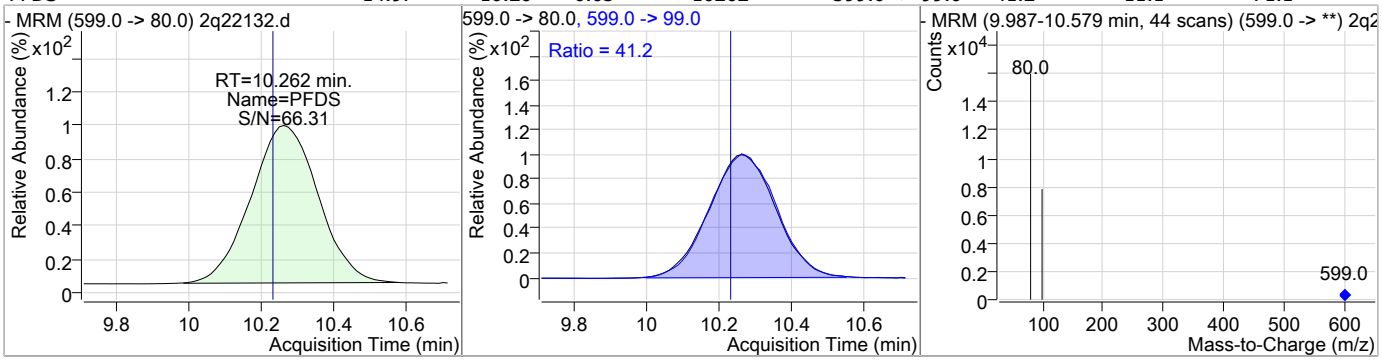




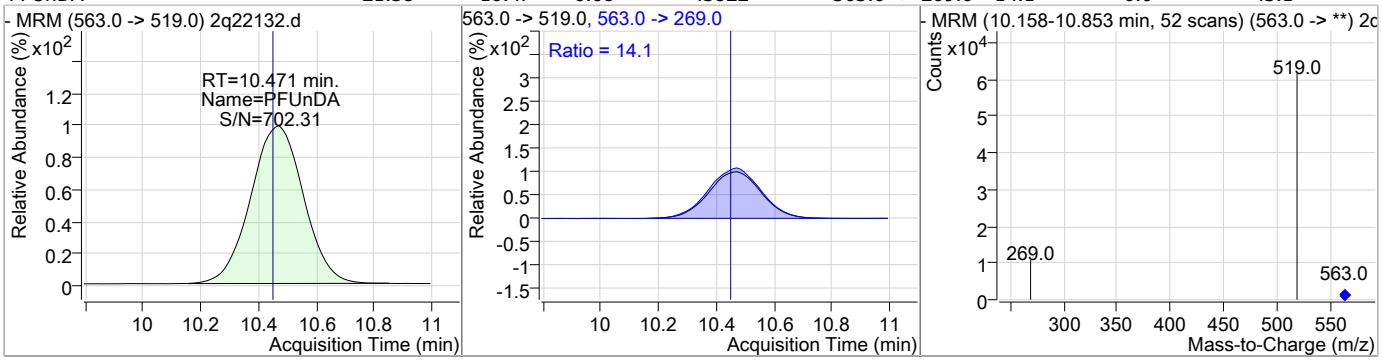


Perfluorinated Compounds by LC/MS/MS

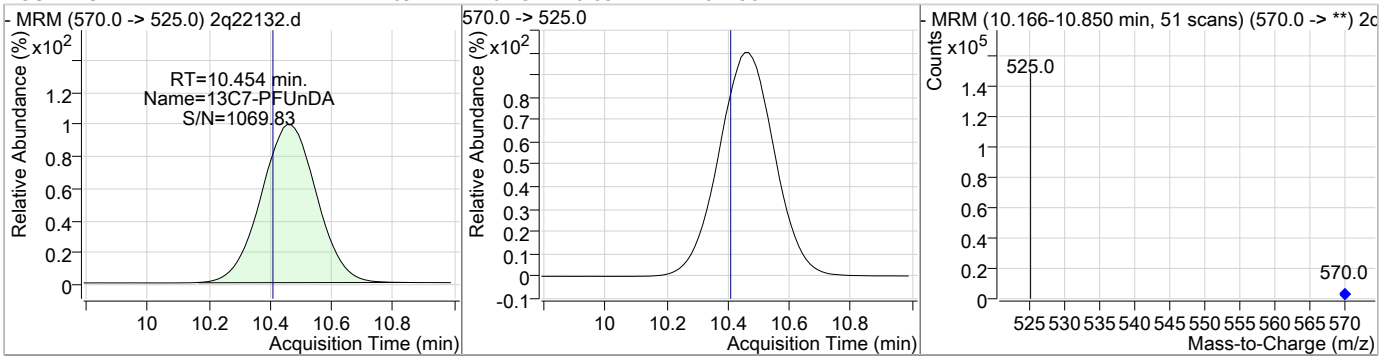
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	14.97	10.26	0.05	10262	599.0 -> 99.0	41.2	11.1	71.1



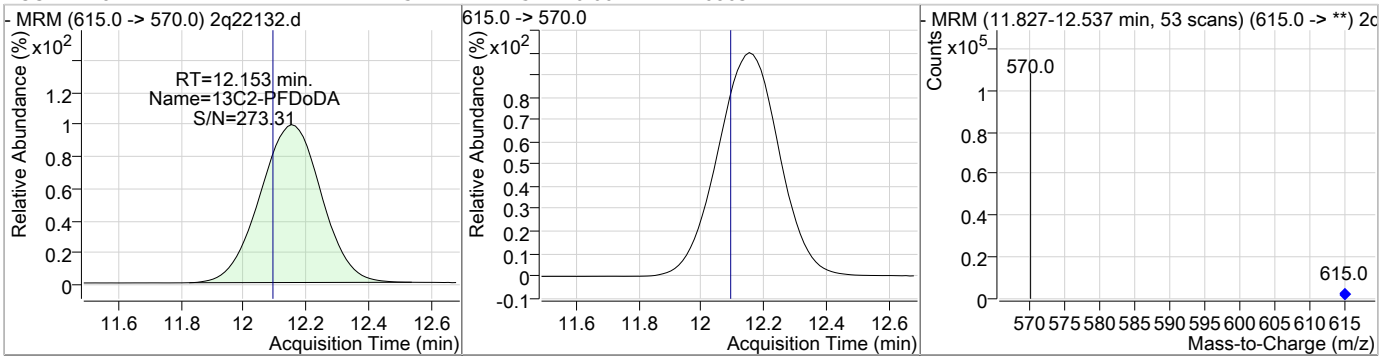
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.38	10.47	0.08	43822	563.0 -> 269.0	14.1	0.0	43.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	14.09	10.45	0.05	107756				

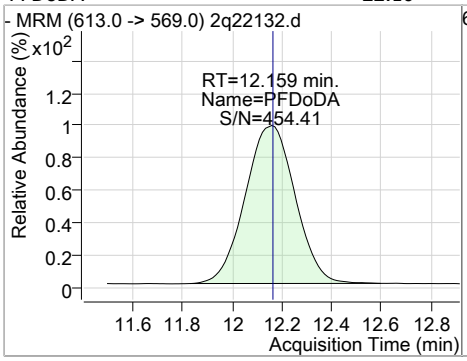


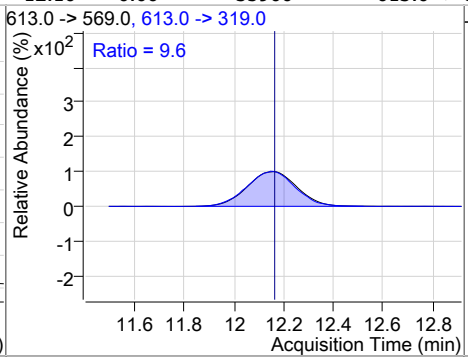
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.25	12.15	0.06	76863				

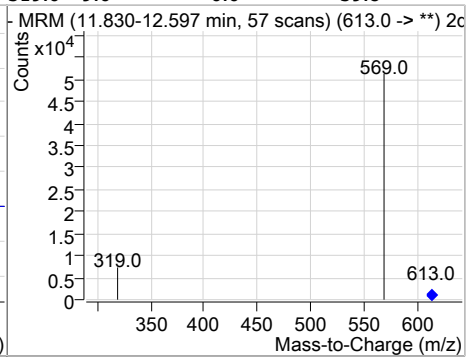


Perfluorinated Compounds by LC/MS/MS

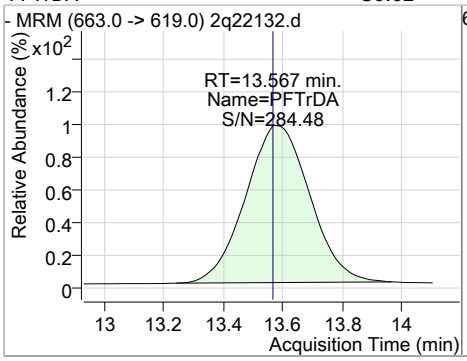
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	22.10	12.16	0.06	35906	613.0 -> 319.0	9.6	0.0	39.8

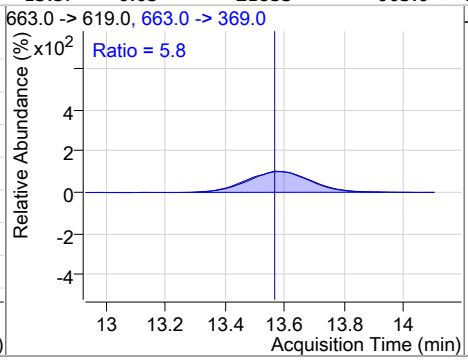


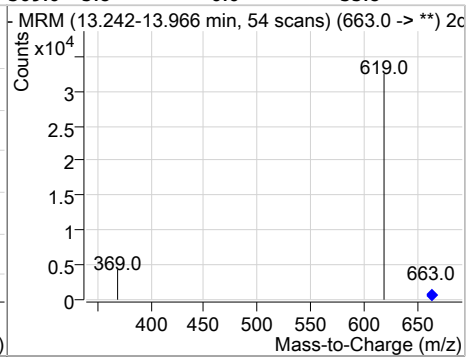




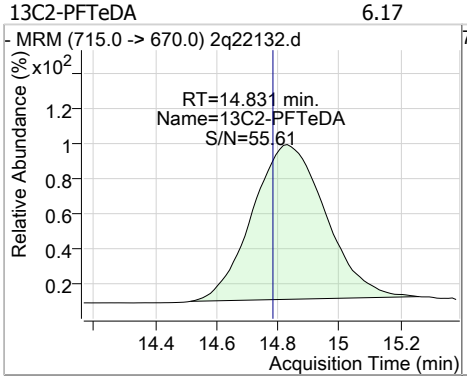
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	36.62	13.57	0.05	21853	663.0 -> 369.0	5.8	0.0	35.8

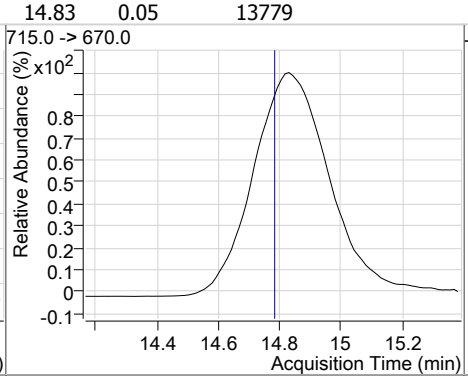


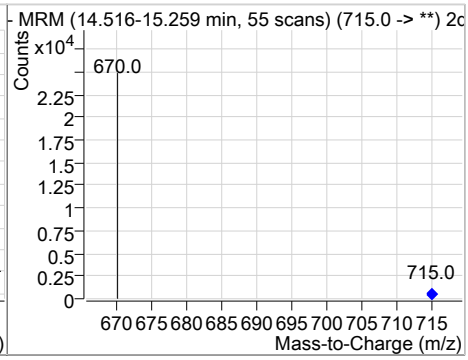




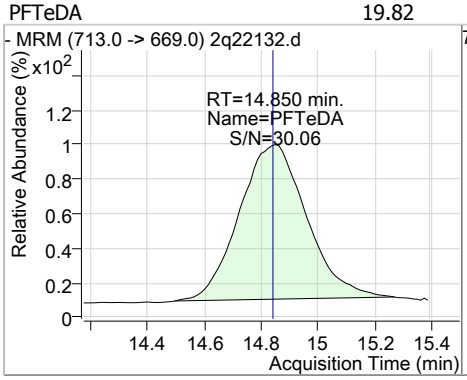
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	6.17	14.83	0.05	13779				

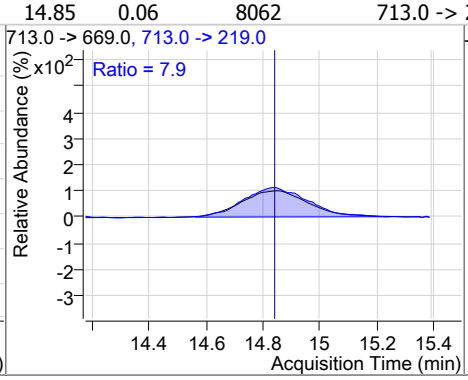


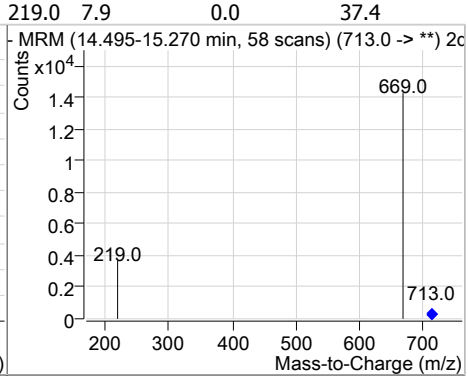




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.82	14.85	0.06	8062	713.0 -> 219.0	7.9	0.0	37.4







Manual Integration Approval Summary

Sample Number: OP71994-BS
Lab FileID: 2Q22132.D
Injection Time: 10/15/18 15:20
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/22/18 10:08 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.20	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.56	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22413.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 8:24:53 PM
Sample Name : op72234-bs
Vial : Vial 28
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

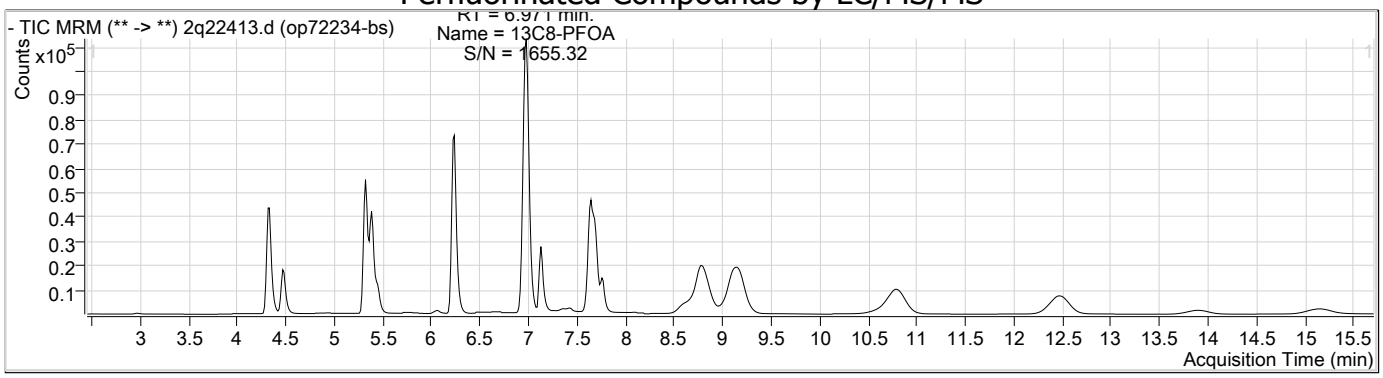
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	109402	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	46130	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1137	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	82139	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	96819	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	110264	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	84791	20.00	µg/L	0.013
M9-PFNA	7.690	472.0 -> 427.0	79345	20.00	µg/L	0.013
M6-PFDA	8.791	519.0 -> 474.0	150355	20.00	µg/L	0.013
M7-PFUnDA	10.792	570.0 -> 525.0	92479	20.00	µg/L	0.013
M2-PFDoDA	12.478	615.0 -> 570.0	73354	20.00	µg/L	0.025
M2-PFTeDA	15.168	715.0 -> 670.0	23156	20.00	µg/L	0.050
M8-FOSA	7.129	506.0 -> 78.0	52494	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	22266	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	28732	20.00	µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	28123	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	107812	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	137501	20.00	µg/L	0.013
M2-8:2FTS	9.147	529.0 -> 509.0	146600	20.00	µg/L	0.050
M3-MeFOSAA	7.645	573.0 -> 419.0	31051	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	107908	16.39	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.9%		
13C2-6:2FTS	6.993	429.0 -> 409.0	137478	15.57	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.9%		
13C2-8:2FTS	9.147	529.0 -> 509.0	145364	13.83	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.2%		
13C2-PFDoDA	12.478	615.0 -> 570.0	72898	13.18	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 65.9%		
13C2-PFTeDA	15.168	715.0 -> 670.0	22346	11.51	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.6%		
13C3-PFBS	4.481	302.0 -> 99.0	22260	15.92	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.6%		
13C3-PFHxS	6.235	402.0 -> 99.0	28707	16.12	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.6%		
13C4-PFBA	2.966	217.0 -> 172.0	1126	0.08	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.4%		
13C4-PFHpA	6.242	367.0 -> 322.0	110250	17.14	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.7%		
13C5-PFHxA	5.390	318.0 -> 273.0	96792	17.58	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.9%		
13C5-PFPeA	4.337	268.0 -> 223.0	82139	14.37	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.8%		
13C6-PFDA	8.791	519.0 -> 474.0	149805	16.10	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.5%		

Perfluorinated Compounds by LC/MS/MS

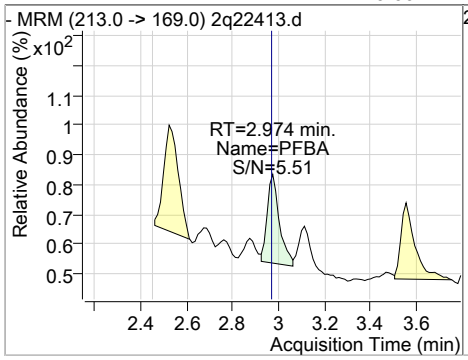
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.792	570.0 -> 525.0	92183	13.46	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.3%			
13C8-FOSA	7.129	506.0 -> 78.0	52514	13.53	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.7%			
13C8-PFOA	6.971	421.0 -> 376.0	84810	15.78	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.9%			
13C8-PFOS	7.633	507.0 -> 99.0	28136	15.51	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.5%			
13C9-PFNA	7.690	472.0 -> 427.0	79269	16.12	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.6%			
d3-MeFOSAA	7.645	573.0 -> 419.0	31104	13.37	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.9%			
M2-PFOA	6.973	415.0 -> 370.0	109297	19.98	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
M4-PFOS	7.636	503.0 -> 80.0	46155	20.02	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.325	327.0 -> 307.0	52164	20.82	µg/L		98
6:2FTS	6.995	427.0 -> 407.0	61500	21.49	µg/L		98
8:2FTS	9.151	527.0 -> 507.0	65984	21.42	µg/L		96
EtFOSAA	7.769	584.0 -> 419.0	13505	19.08	µg/L		99
FOSA	7.132	498.0 -> 78.0	24967	20.08	µg/L		99
MeFOSAA	7.646	570.0 -> 419.0	15385	19.42	µg/L		98
PFBA	2.974	213.0 -> 169.0	114	16.66	µg/L		100
PFBS	4.472	299.0 -> 80.0	27788	17.26	µg/L		100
PFDA	8.794	513.0 -> 469.0	40482	17.67	µg/L		99
PFDoDA	12.471	613.0 -> 569.0	31173	20.52	µg/L		99
PFDS	10.587	599.0 -> 80.0	10254	17.48	µg/L		99
PFHpA	6.232	363.0 -> 319.0	83053	19.83	µg/L		99
PFHpS	6.941	449.0 -> 80.0	21530	18.53	µg/L		98
PFHxA	5.393	313.0 -> 269.0	25675	16.56	µg/L		100
PFHxS	6.238	399.0 -> 80.0	23814	16.99	µg/L	m	99
PFNA	7.691	463.0 -> 419.0	37307	17.11	µg/L		98
PFNS	8.608	549.0 -> 80.0	22207	21.87	µg/L		96
PFOA	6.974	413.0 -> 369.0	42071	19.18	µg/L		97
PFOS	7.637	499.0 -> 80.0	23414	19.42	µg/L	m	97
PFPeA	4.328	263.0 -> 219.0	71117	18.46	µg/L		100
PFPeS	5.446	349.0 -> 80.0	18868	18.10	µg/L		98
PFTeDA	15.162	713.0 -> 669.0	12580	18.38	µg/L		100
PFTrDA	13.904	663.0 -> 619.0	23597	23.57	µg/L		100
PFUnDA	10.796	563.0 -> 519.0	34492	20.08	µg/L		97

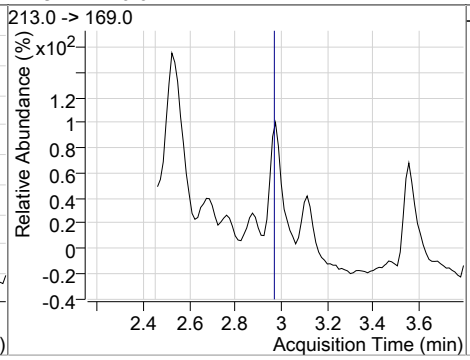
 # = Qualifier out of range, m = manually integrated, + = Area summed

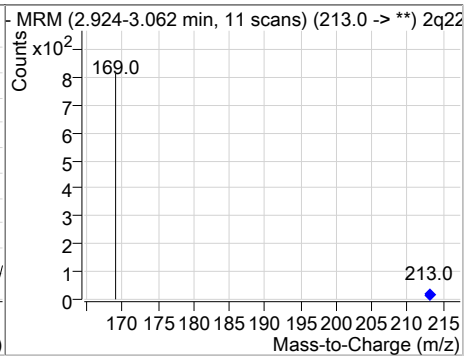
Perfluorinated Compounds by LC/MS/MS



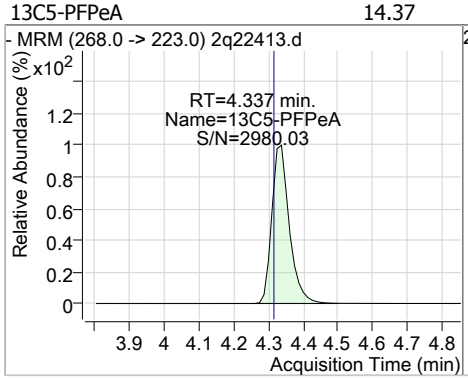
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	16.66	2.97	0.01	114				

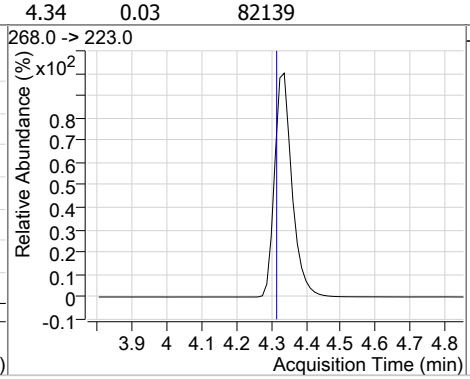


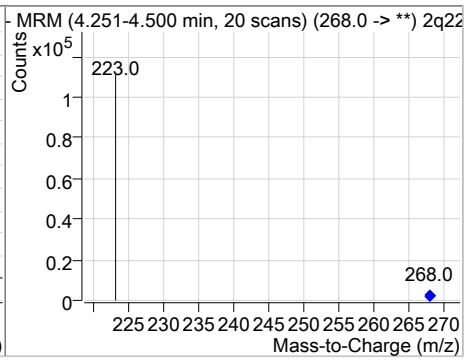




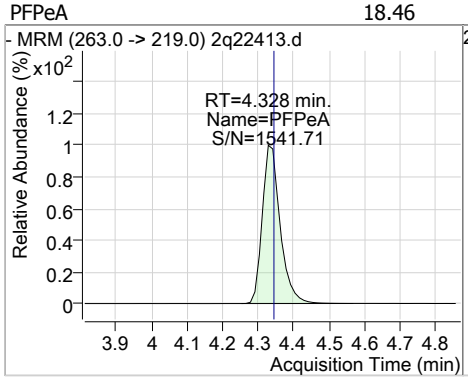
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	14.37	4.34	0.03	82139				

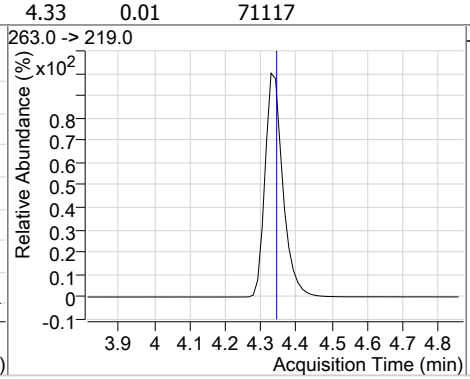


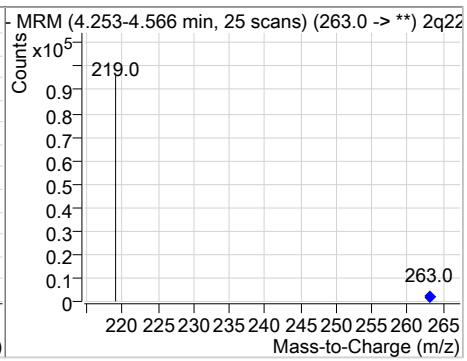




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	18.46	4.33	0.01	71117				

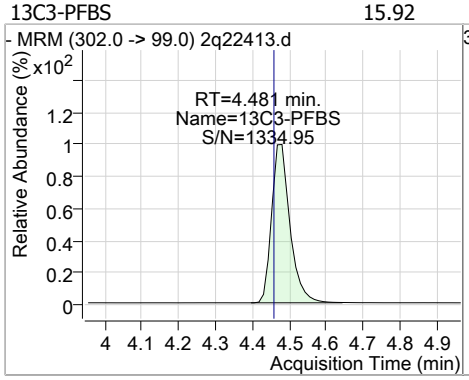


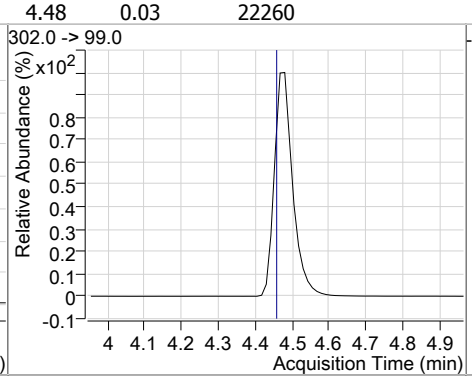


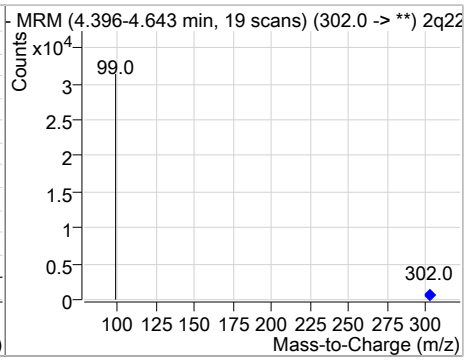


Perfluorinated Compounds by LC/MS/MS

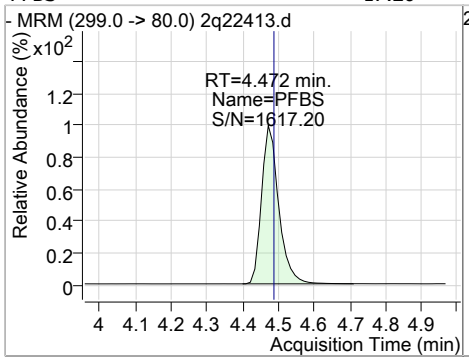
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.92	4.48	0.03	22260				

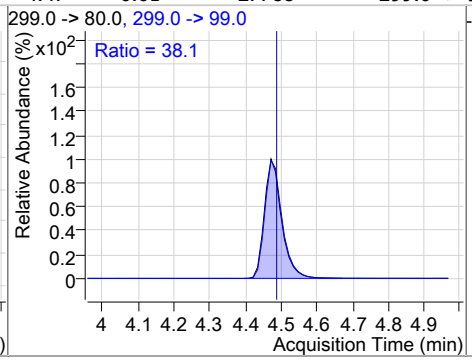


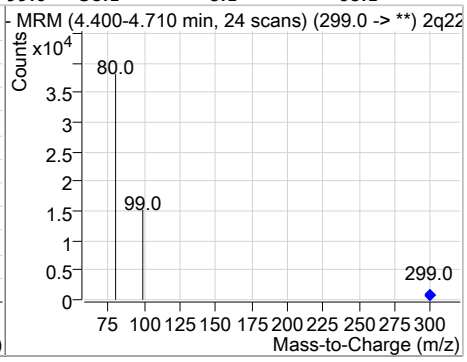




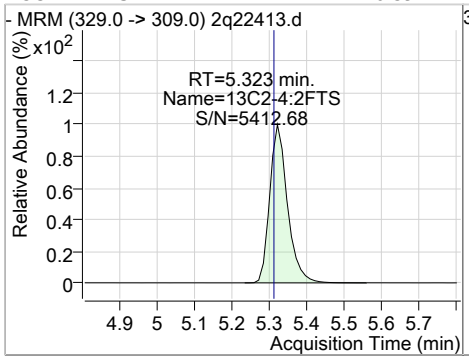
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.26	4.47	0.01	27788	299.0 -> 99.0	38.1	8.1	68.1

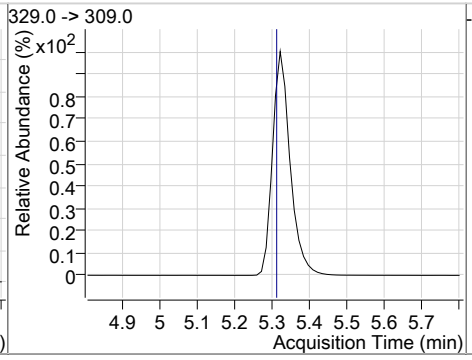


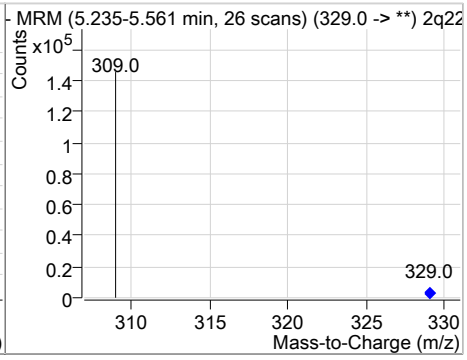




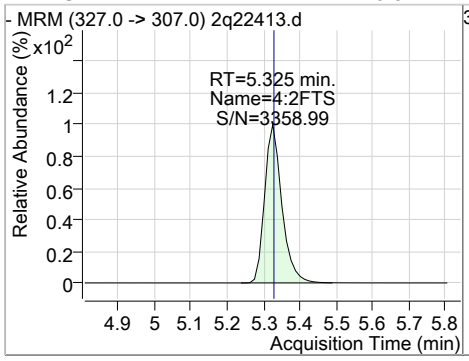
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.39	5.32	0.01	107908				

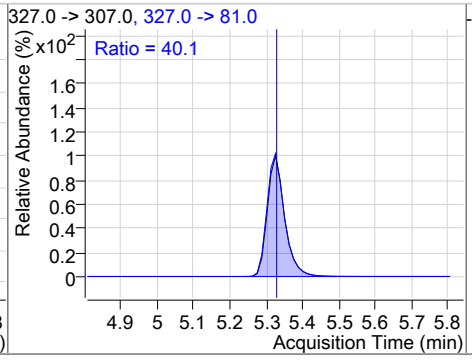


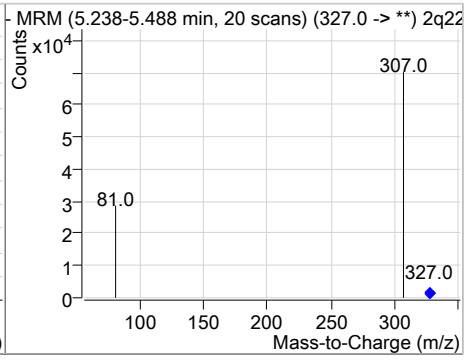




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	20.82	5.33	0.01	52164	327.0 -> 81.0	40.1	9.0	69.0

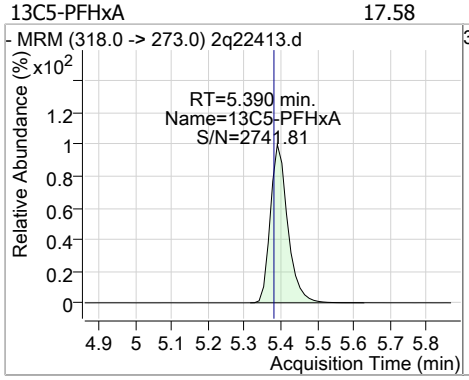


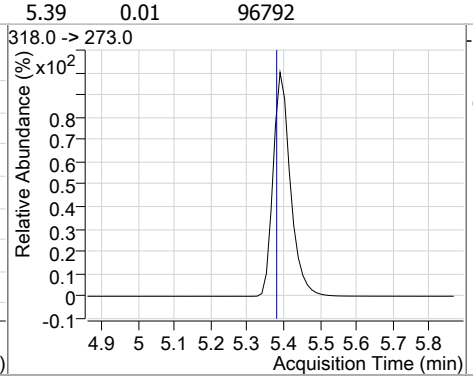


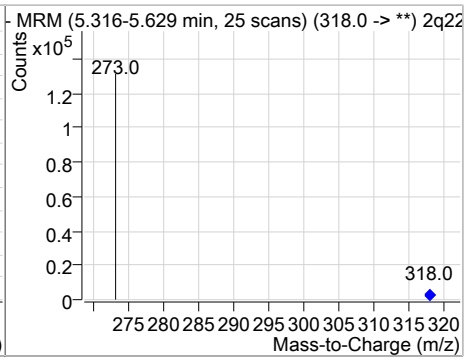


Perfluorinated Compounds by LC/MS/MS

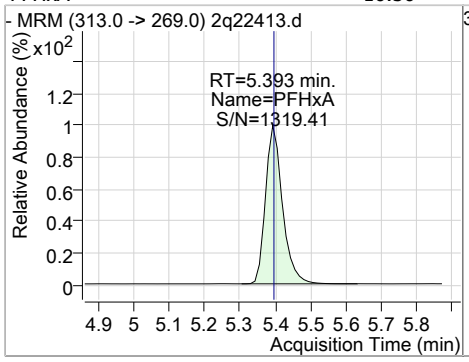
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.58	5.39	0.01	96792				

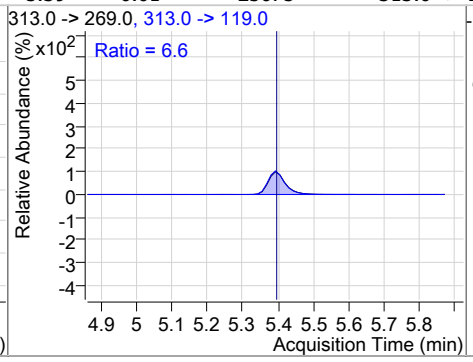


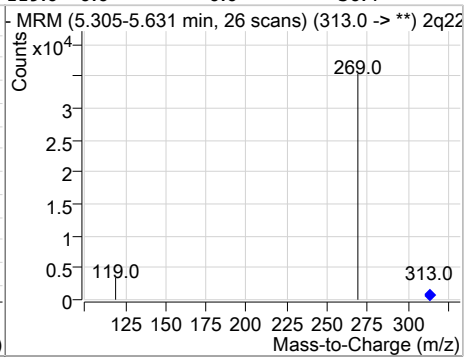




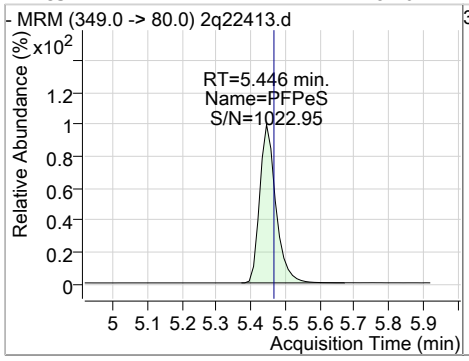
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	16.56	5.39	0.01	25675	313.0 -> 119.0	6.6	0.0	36.4

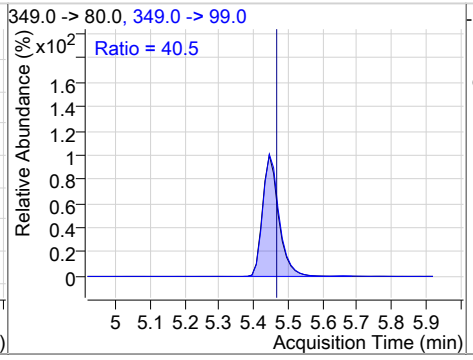


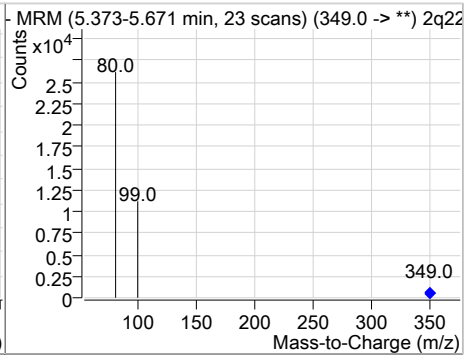




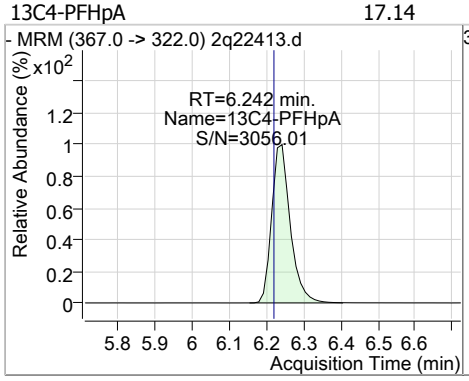
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	18.10	5.45	0.01	18868	349.0 -> 99.0	40.5	9.5	69.5

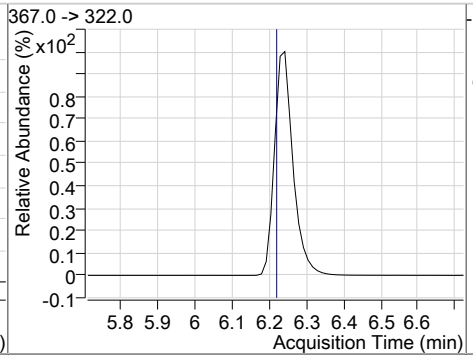


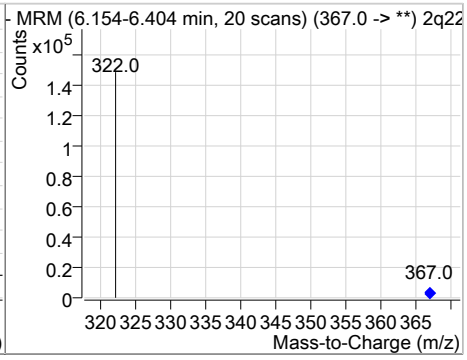




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.14	6.24	0.03	110250				

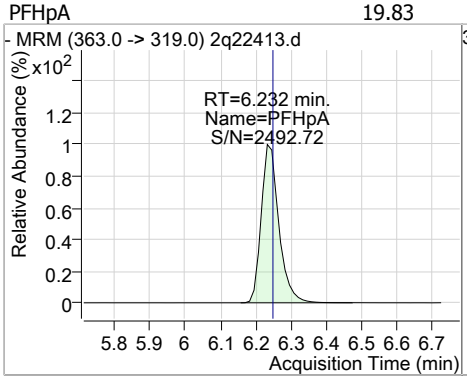


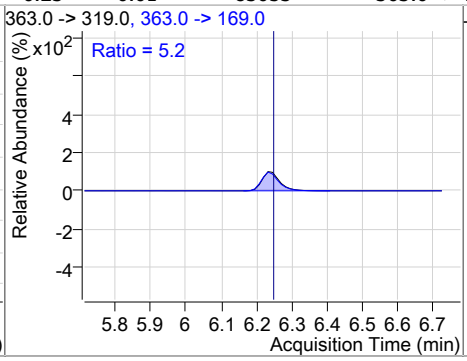


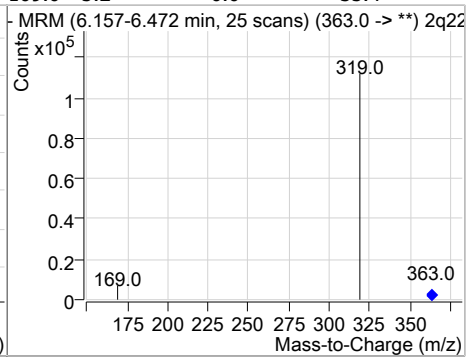


Perfluorinated Compounds by LC/MS/MS

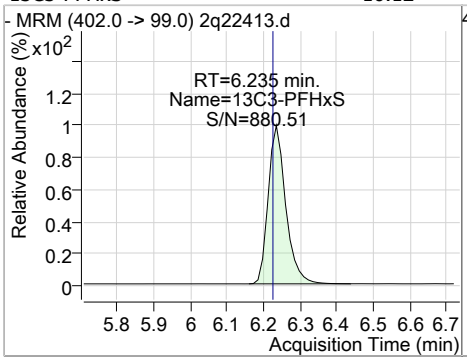
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.83	6.23	0.01	83053	363.0 -> 169.0	5.2	0.0	35.4

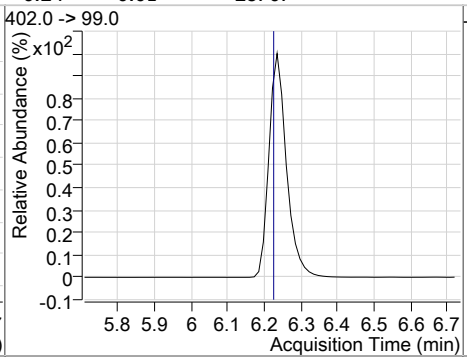


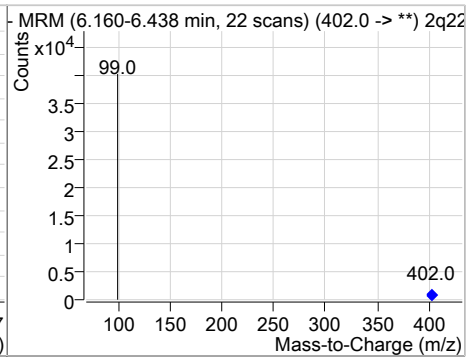




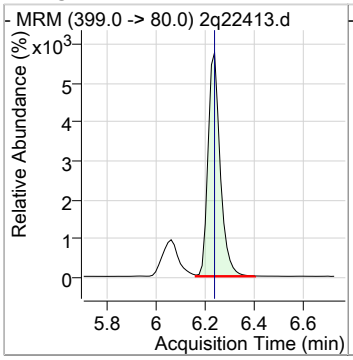
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.12	6.24	0.01	28707				

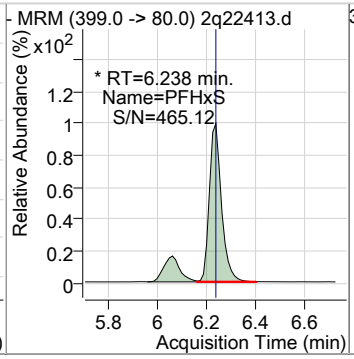


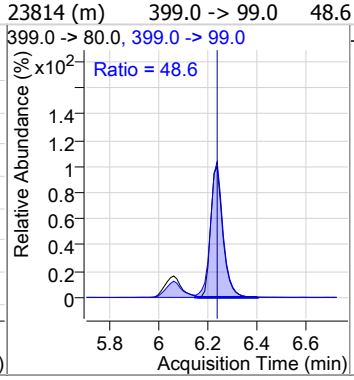


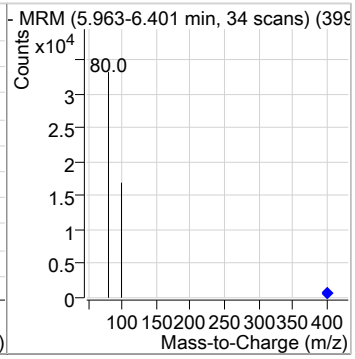


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	16.99	6.24	0.01	23814 (m)	399.0 -> 99.0	48.6	17.7	77.7

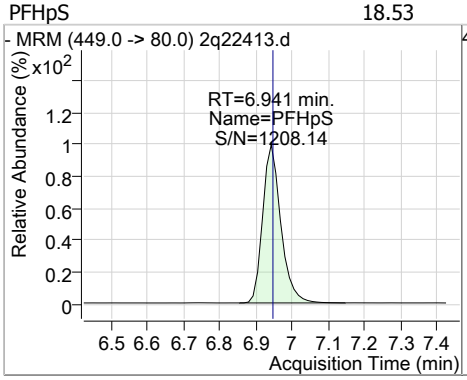


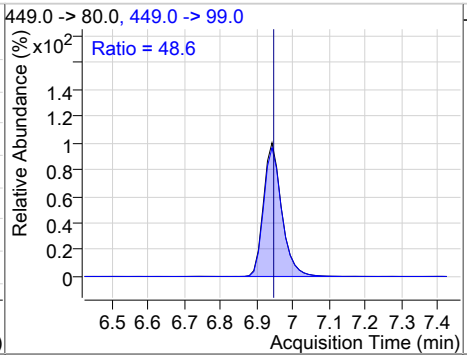


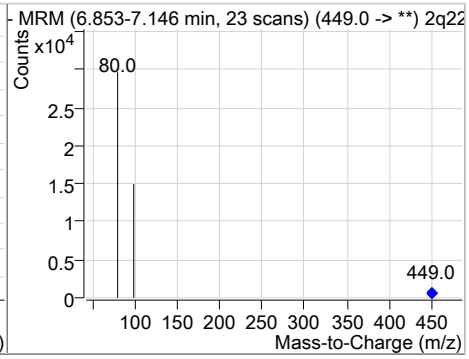




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.53	6.94	0.01	21530	449.0 -> 99.0	48.6	20.3	80.3

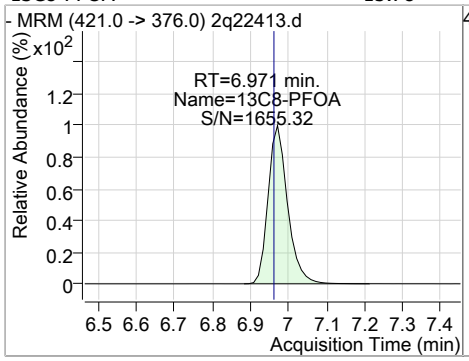


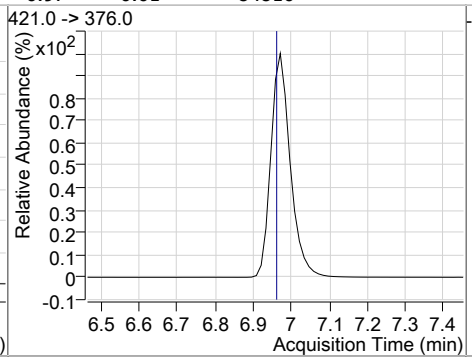


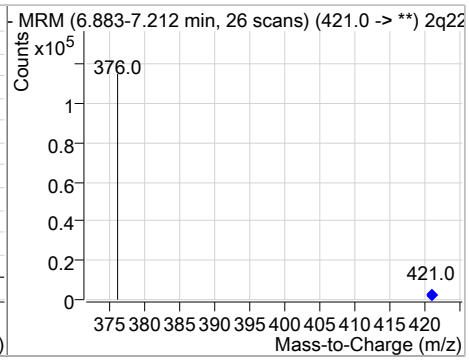


Perfluorinated Compounds by LC/MS/MS

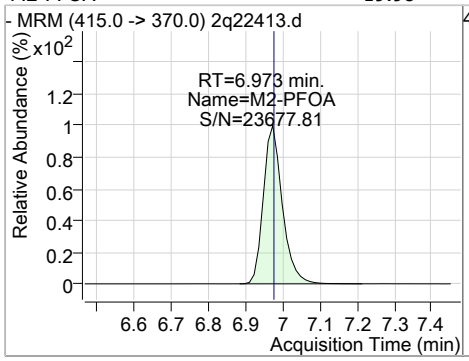
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.78	6.97	0.01	84810				

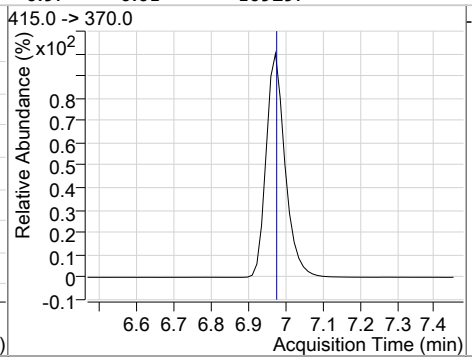


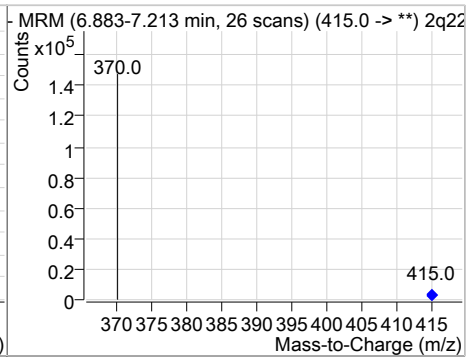




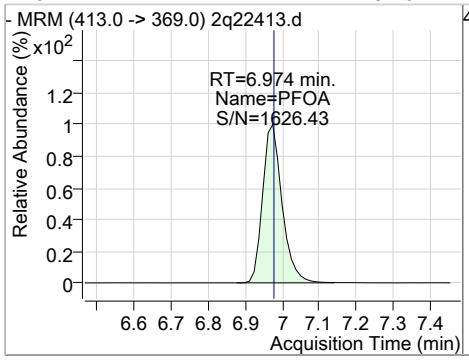
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.98	6.97	0.01	109297				

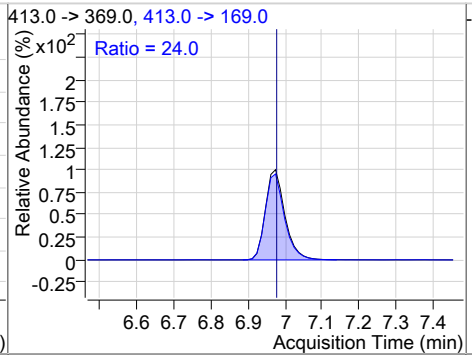


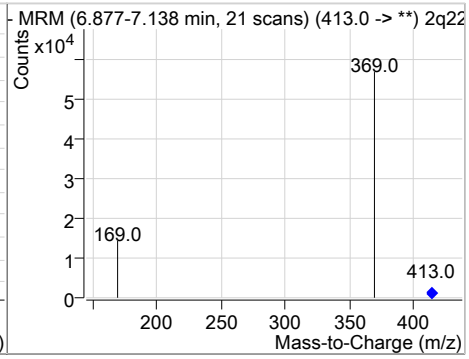




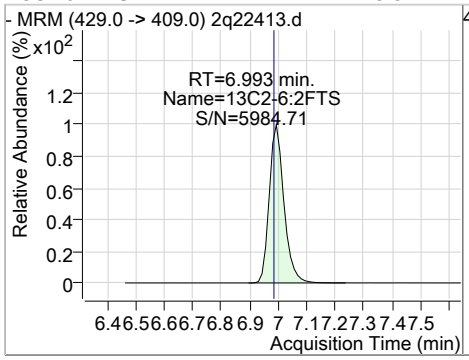
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.18	6.97	0.01	42071	413.0 -> 169.0	24.0	0.0	55.3

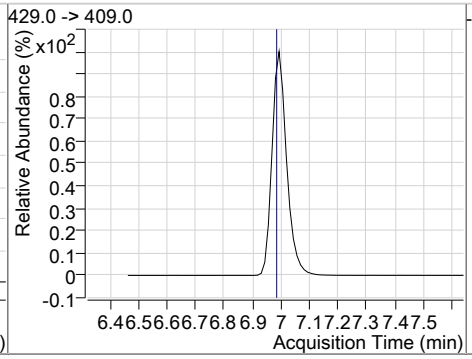


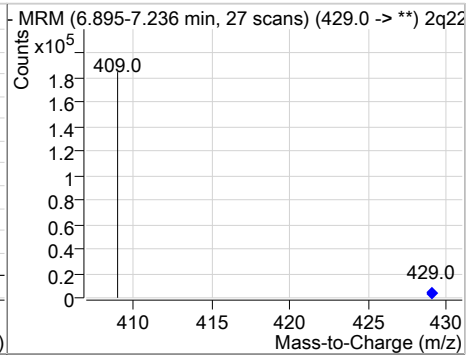




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.57	6.99	0.01	137478				

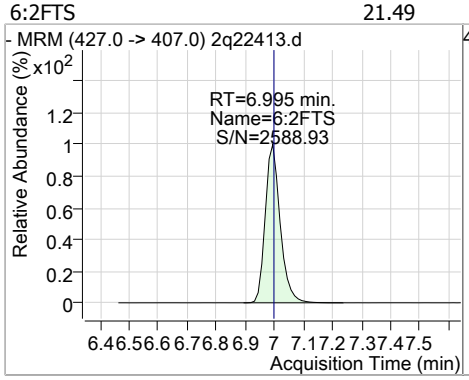


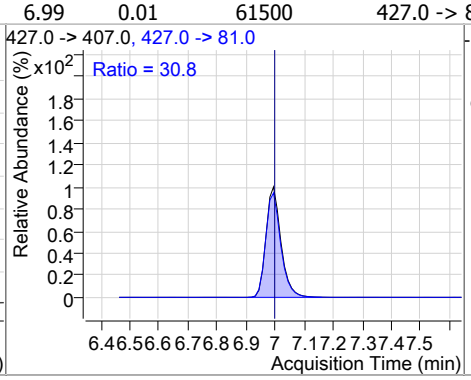


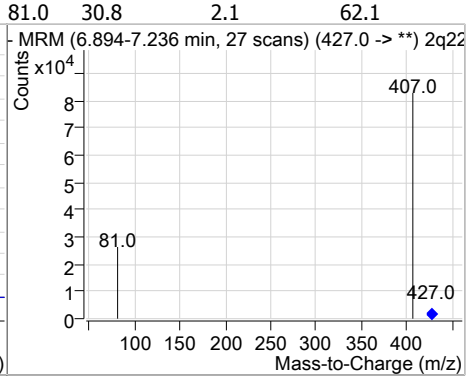


Perfluorinated Compounds by LC/MS/MS

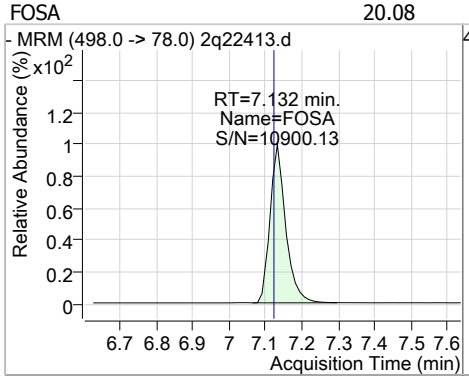
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	21.49	6.99	0.01	61500	427.0 -> 81.0	30.8	2.1	62.1

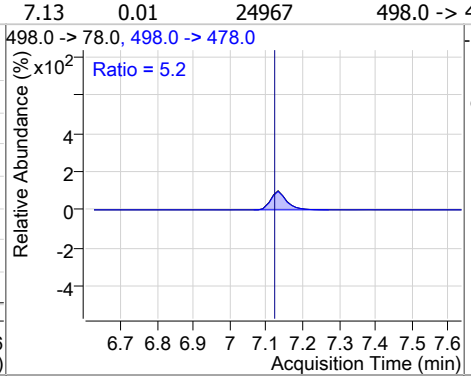


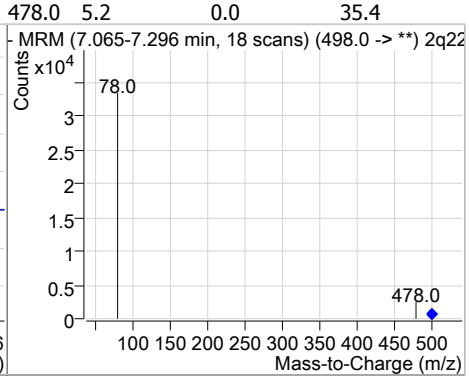




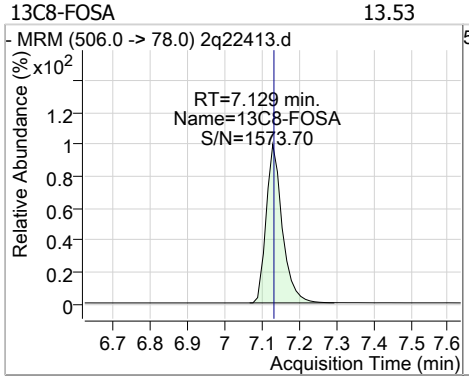
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	20.08	7.13	0.01	24967	498.0 -> 478.0	5.2	0.0	35.4

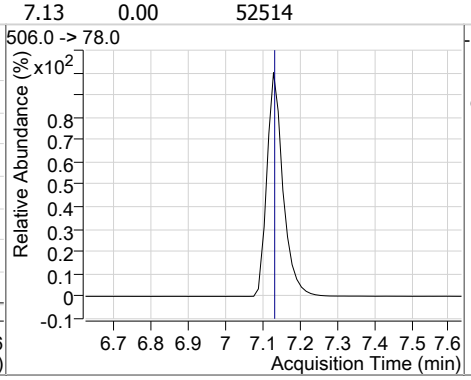


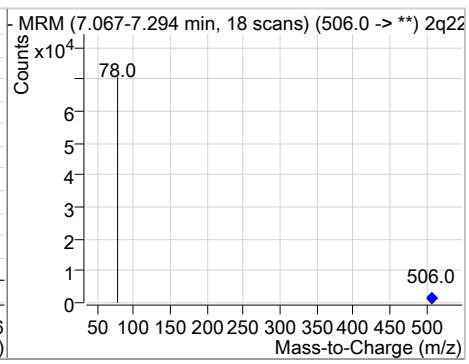




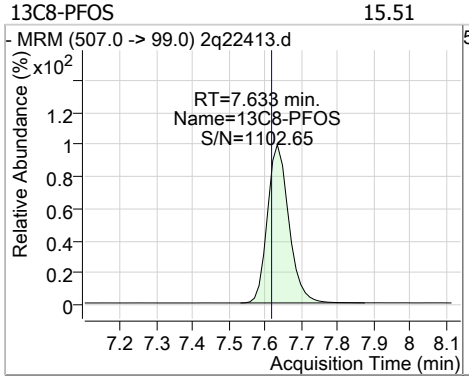
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	13.53	7.13	0.00	52514				

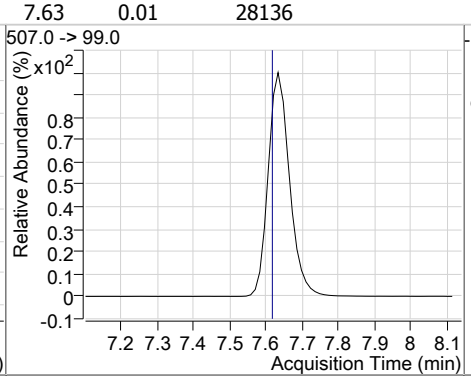


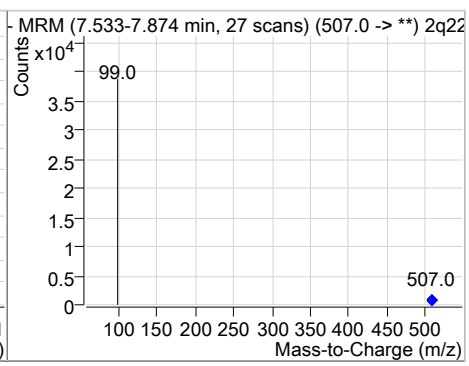




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.51	7.63	0.01	28136				

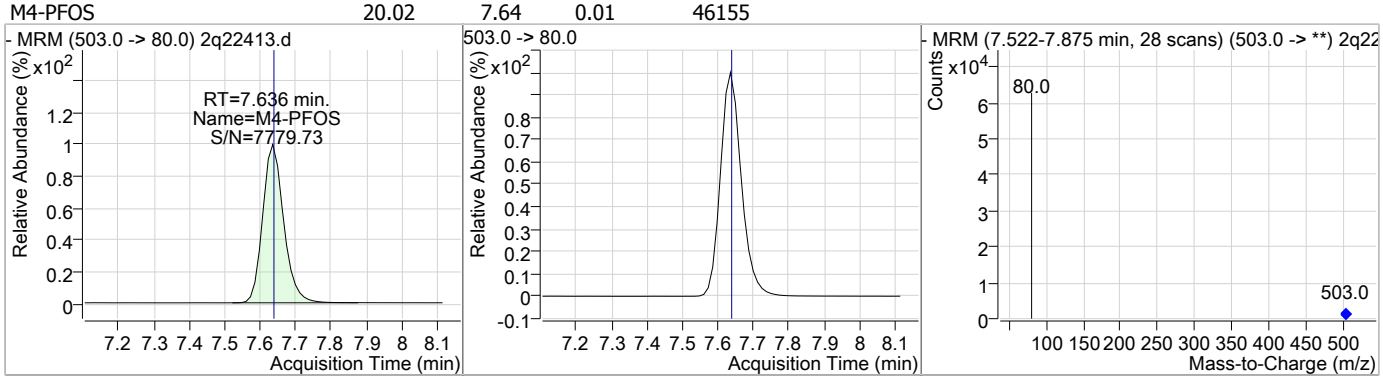




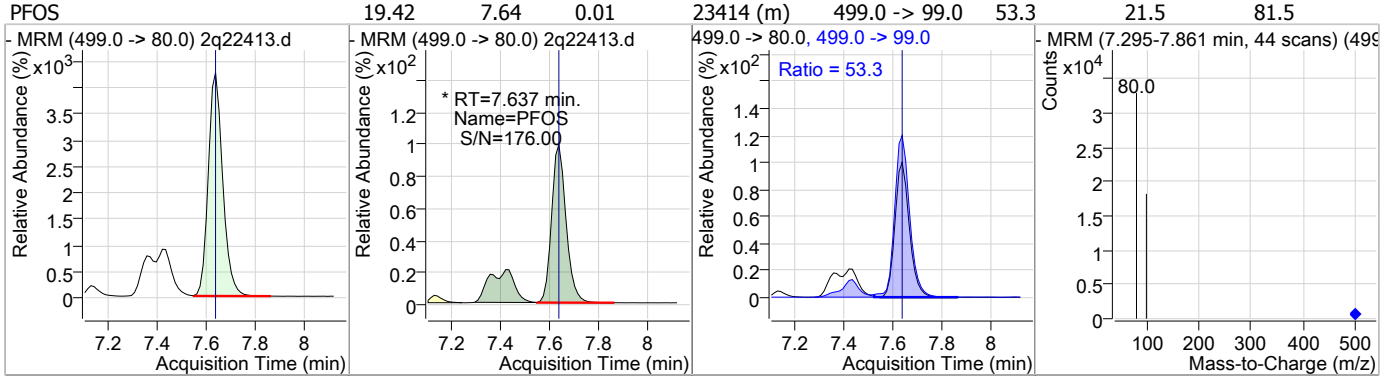


Perfluorinated Compounds by LC/MS/MS

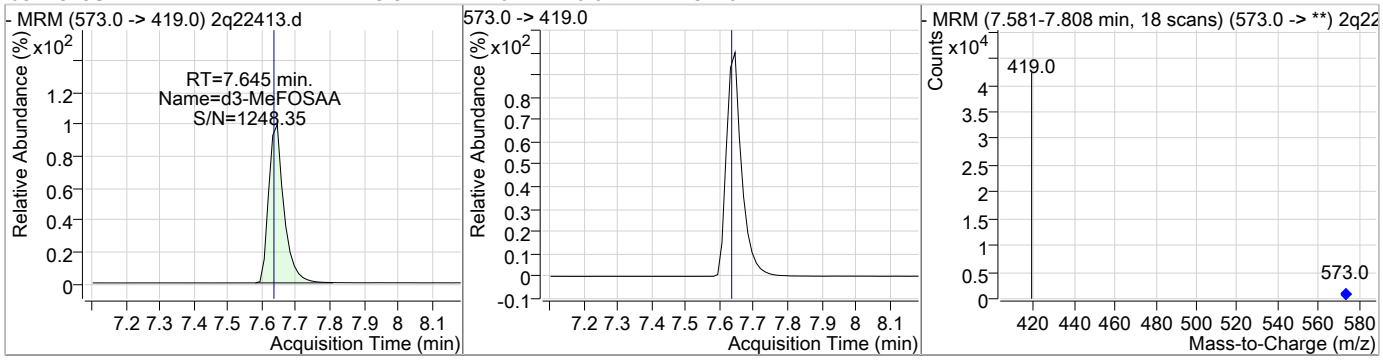
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.64	0.01	46155				



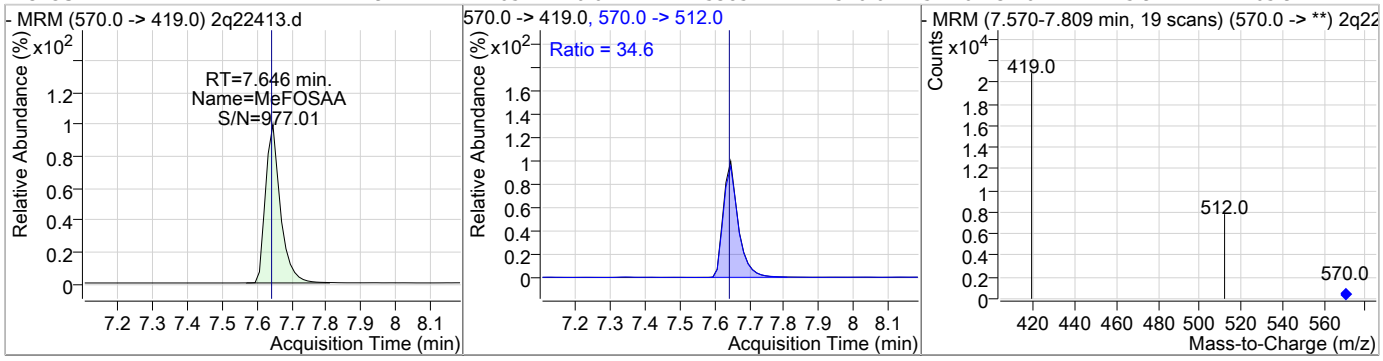
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.42	7.64	0.01	23414 (m)	499.0 -> 99.0	53.3	21.5	81.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.37	7.64	0.01	31104				

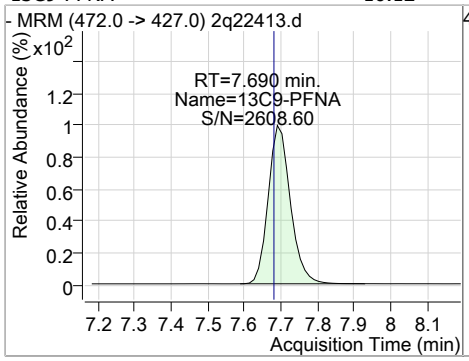


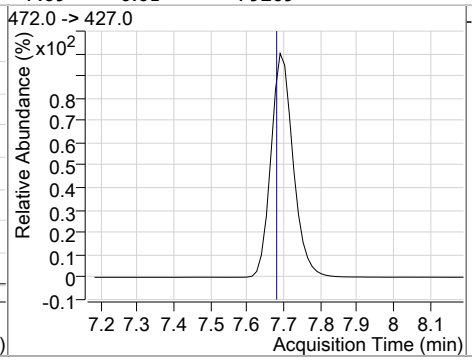
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.42	7.65	0.01	15385	570.0 -> 512.0	34.6	5.9	65.9

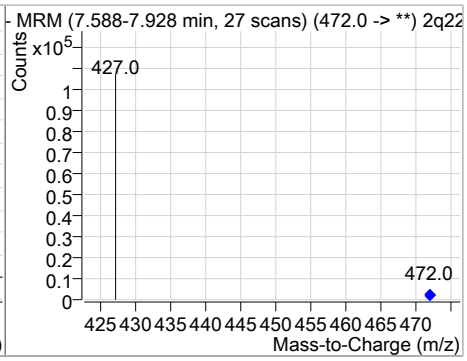


Perfluorinated Compounds by LC/MS/MS

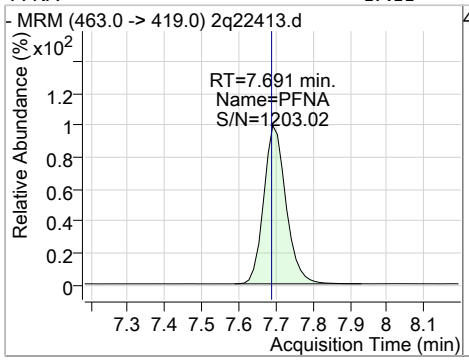
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	16.12	7.69	0.01	79269				

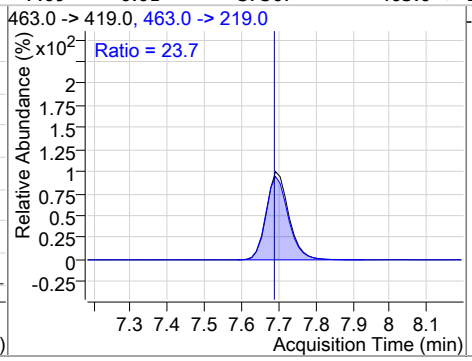


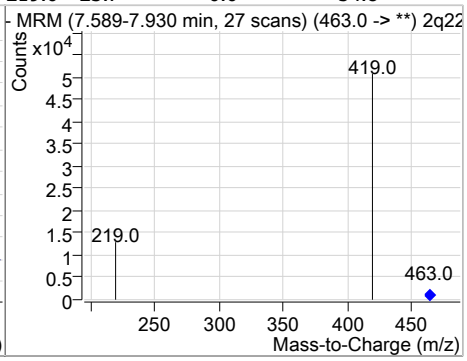




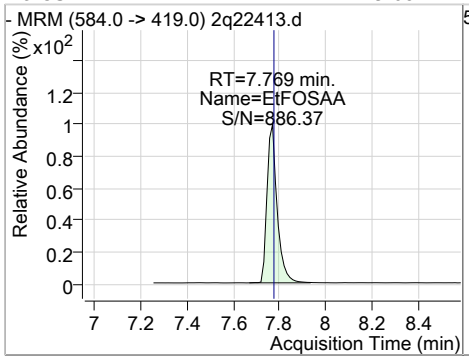
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	17.11	7.69	0.01	37307	463.0 -> 219.0	23.7	0.0	54.8

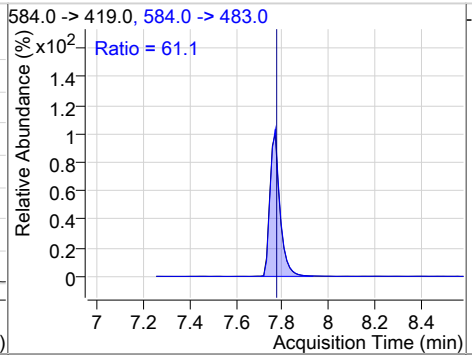


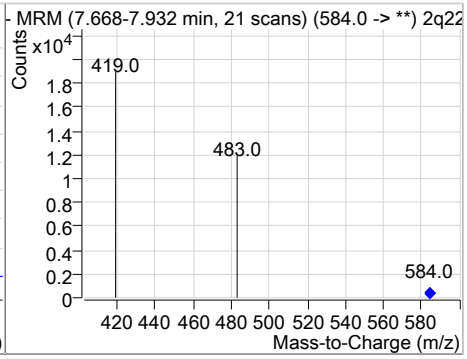




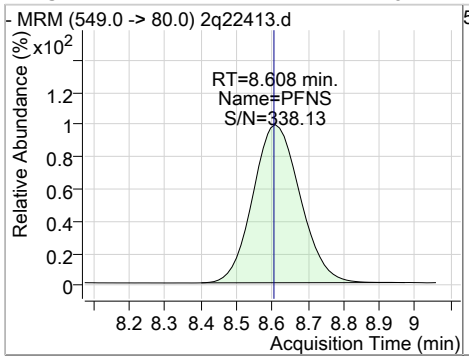
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.08	7.77	0.01	13505	584.0 -> 483.0	61.1	30.5	90.5

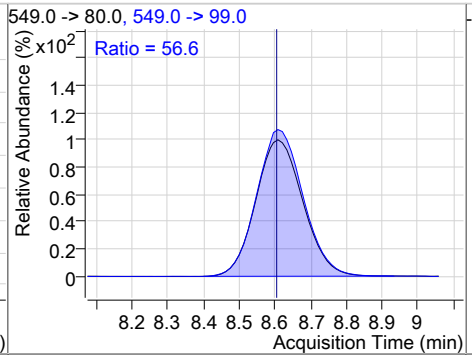


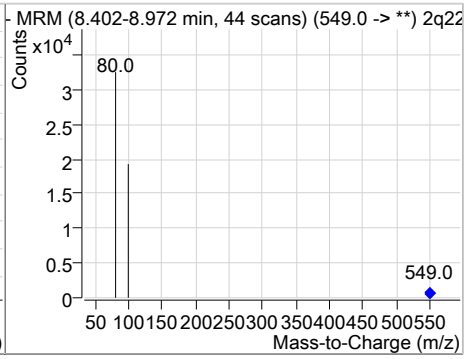




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	21.87	8.61	0.02	22207	549.0 -> 99.0	56.6	23.4	83.4

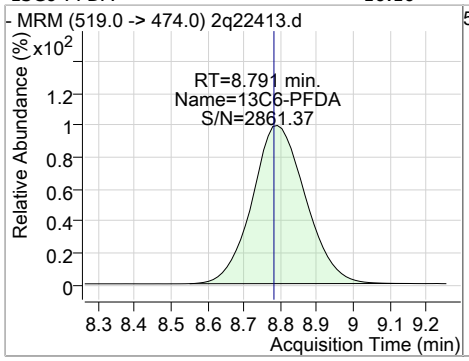


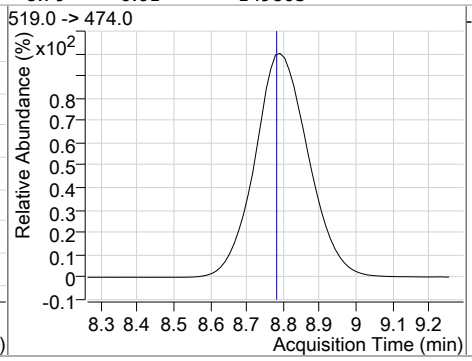


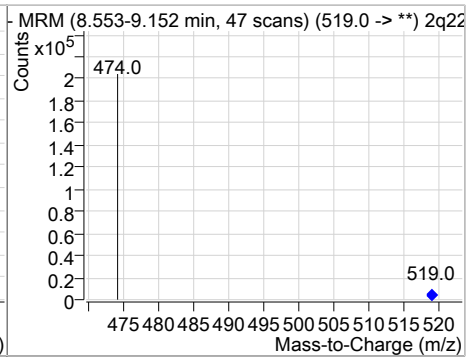


Perfluorinated Compounds by LC/MS/MS

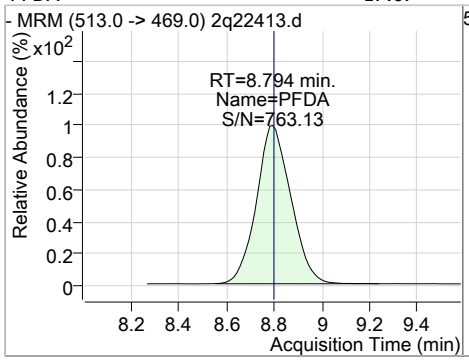
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.10	8.79	0.01	149805				

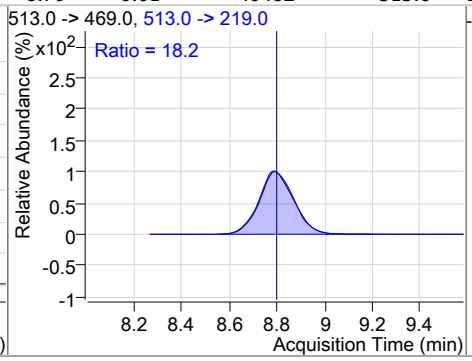


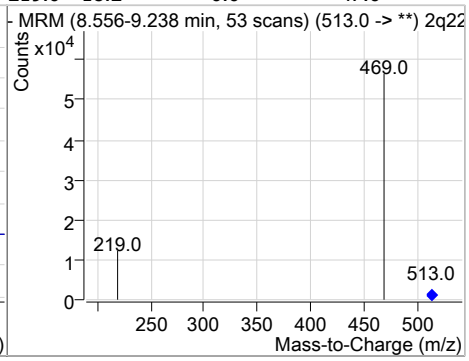




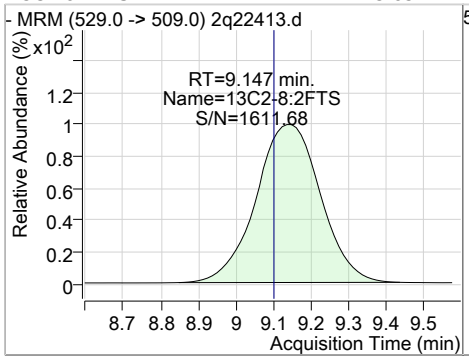
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	17.67	8.79	0.01	40482	513.0 -> 219.0	18.2	0.0	47.6

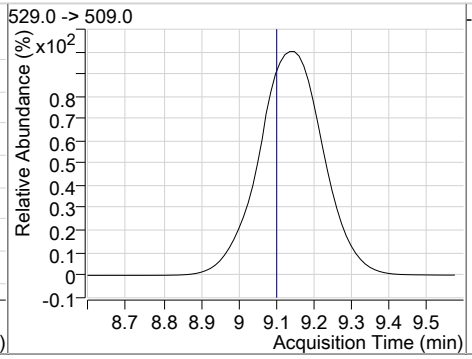


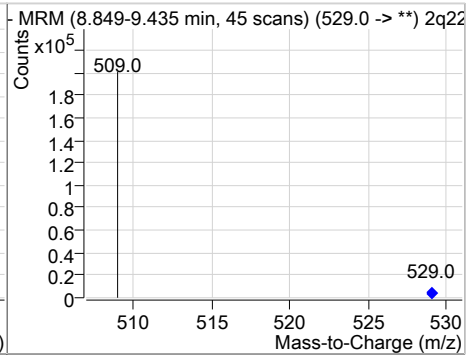




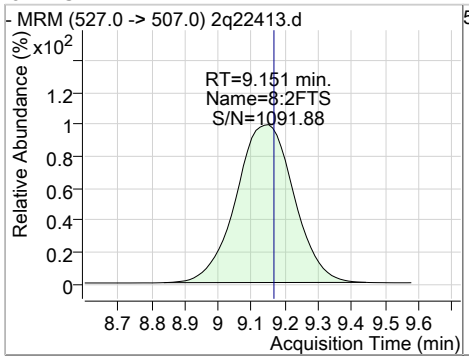
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.83	9.15	0.05	145364				

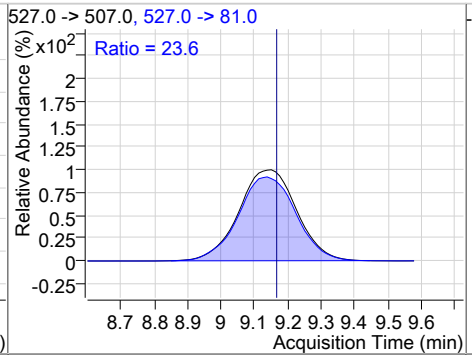


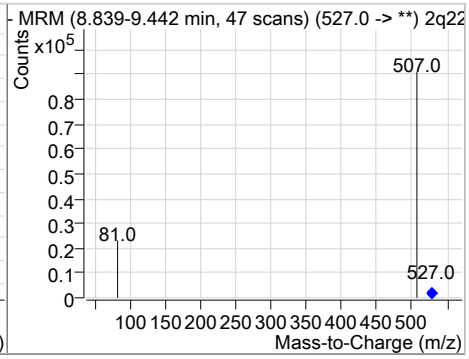




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	21.42	9.15	0.04	65984	527.0 -> 81.0	23.6	0.0	55.6

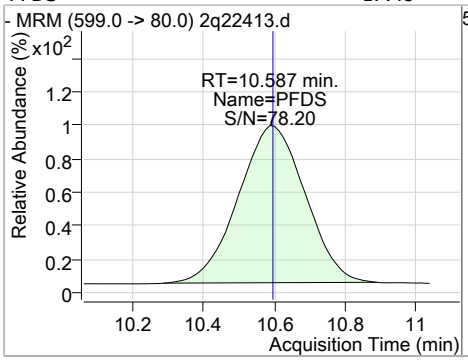


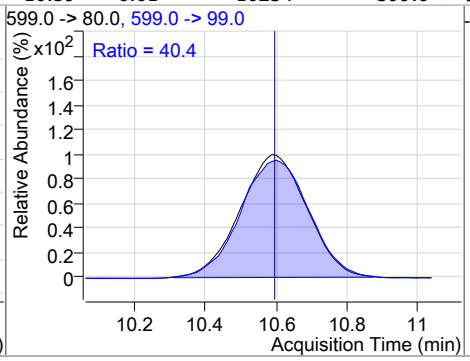


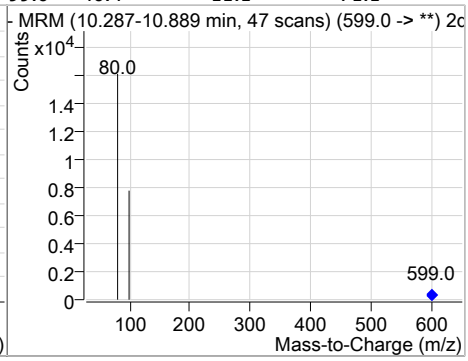


Perfluorinated Compounds by LC/MS/MS

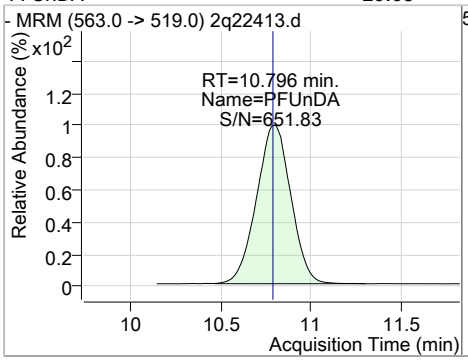
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	17.48	10.59	0.01	10254	599.0 -> 99.0	40.4	11.1	71.1

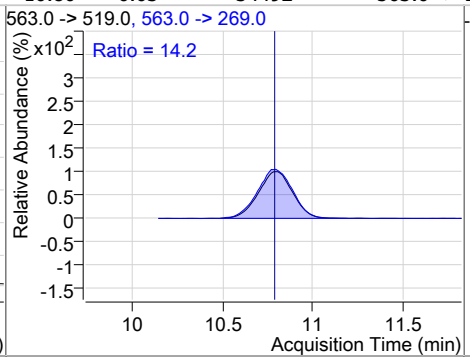


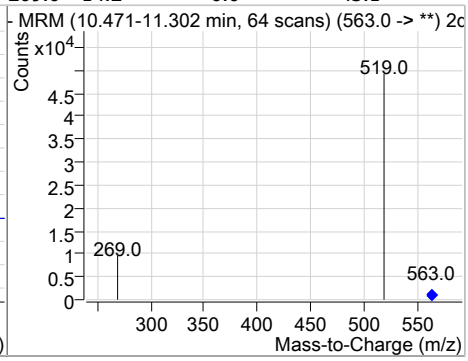




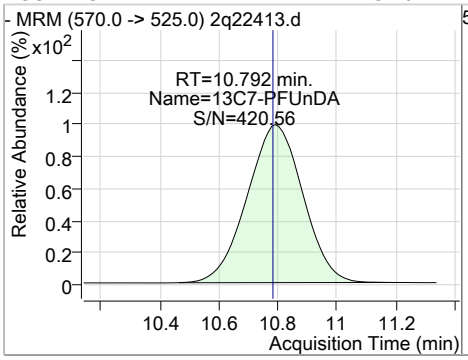
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.08	10.80	0.03	34492	563.0 -> 269.0	14.2	0.0	43.1

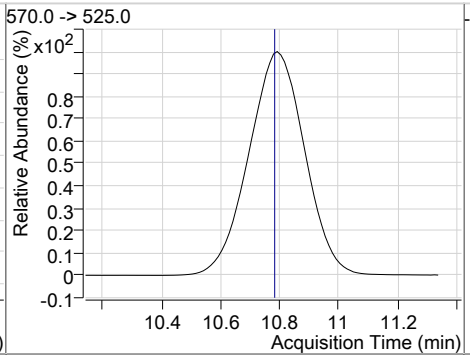


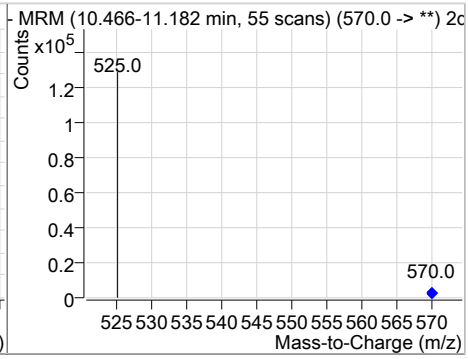




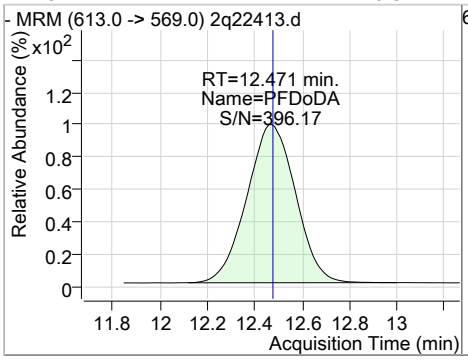
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.46	10.79	0.01	92183				

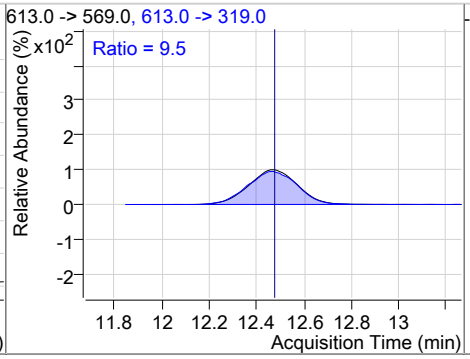


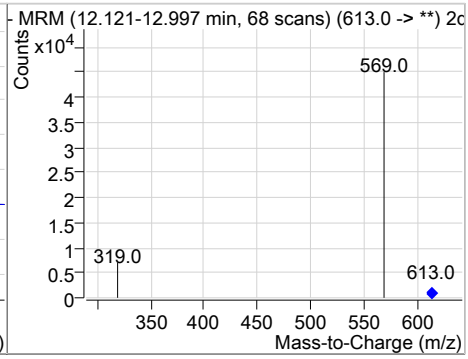




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.52	12.47	0.03	31173	613.0 -> 319.0	9.5	0.0	39.8

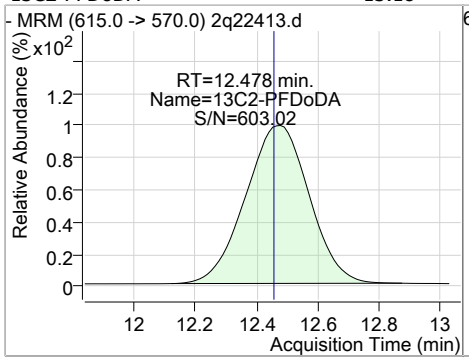


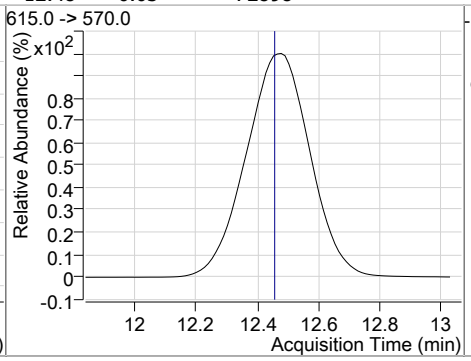


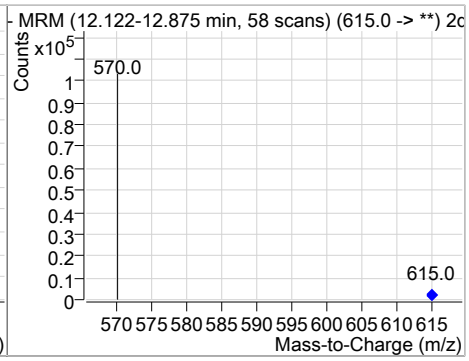


Perfluorinated Compounds by LC/MS/MS

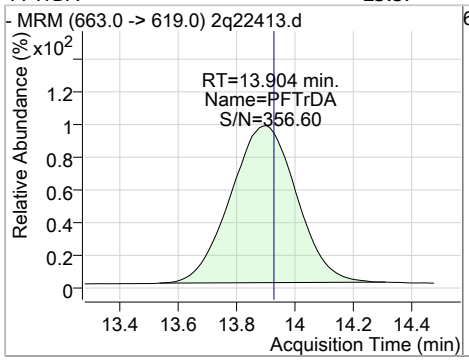
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	13.18	12.48	0.03	72898				

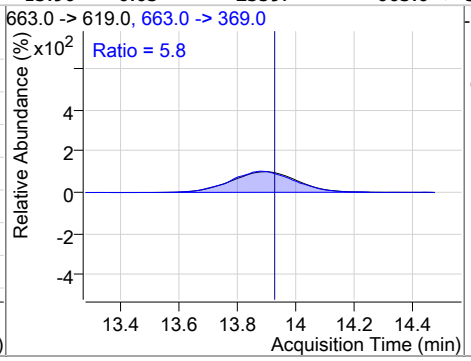


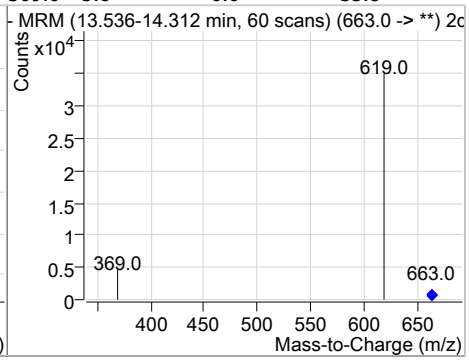




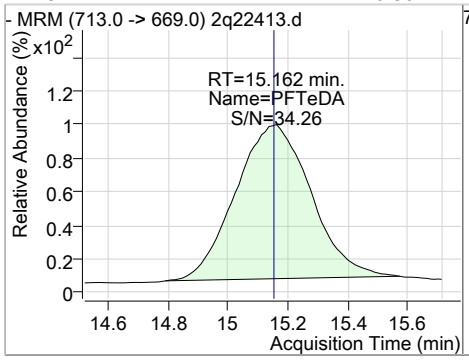
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	23.57	13.90	0.03	23597	663.0 -> 369.0	5.8	0.0	35.8

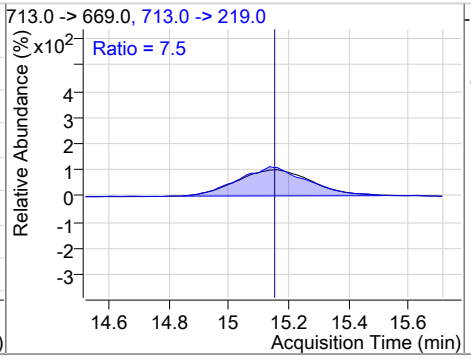


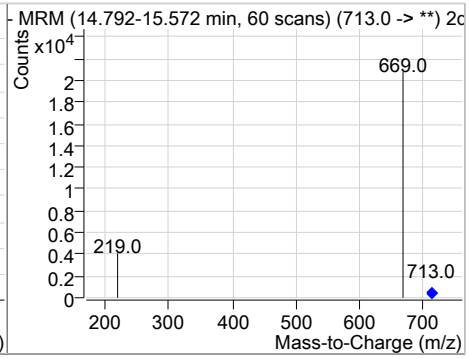




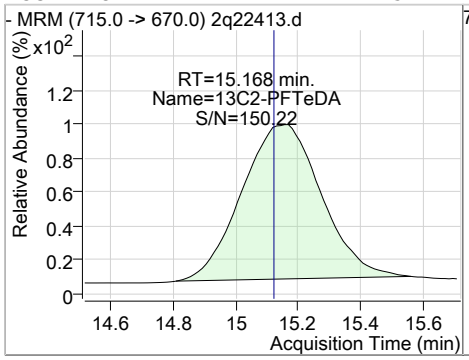
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.38	15.16	0.06	12580	713.0 -> 219.0	7.5	0.0	37.4

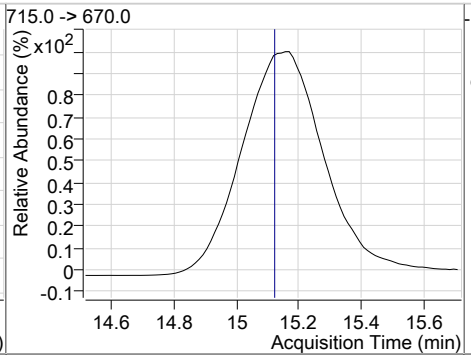


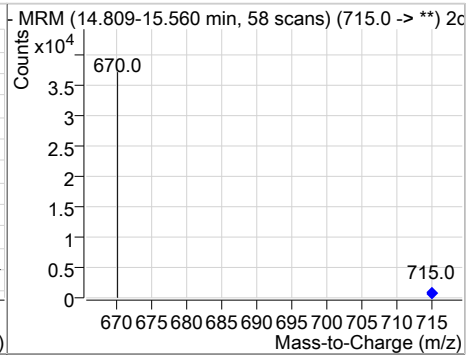




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.51	15.17	0.05	22346				







Manual Integration Approval Summary

Sample Number: OP72234-BS
Lab FileID: 2Q22413.D
Injection Time: 10/19/18 20:24
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 12:42 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/23/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22138.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 5:24:55 PM
Sample Name : op71994-ms
Vial : Vial 17
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

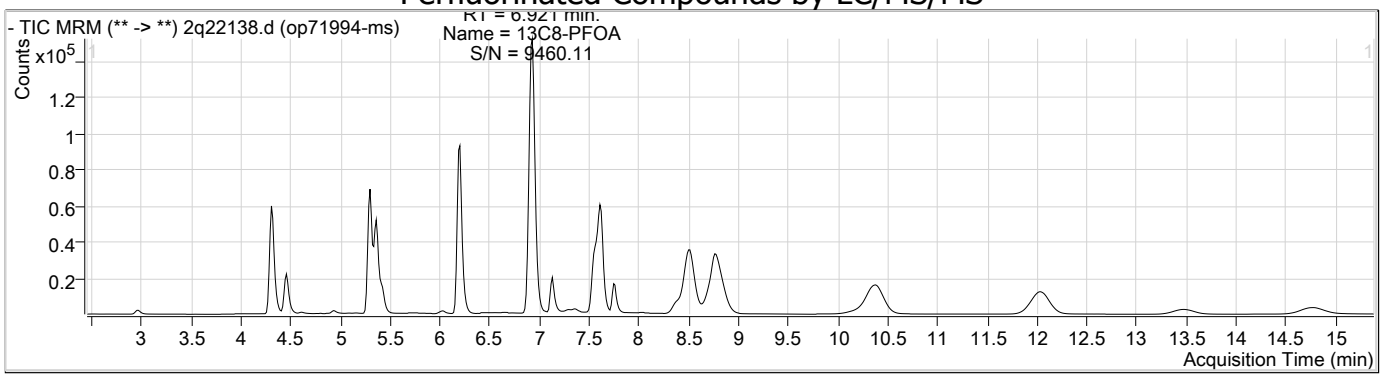
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.923	415.0 -> 370.0	134583	20.00	µg/L	0.015
13C4-PFOS	7.548	503.0 -> 80.0	49816	20.00	µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	7161	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	107289	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	117321	20.00	µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	136452	20.00	µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	117964	20.00	µg/L	0.014
M9-PFNA	7.601	472.0 -> 427.0	101910	20.00	µg/L	0.000
M6-PFDA	8.517	519.0 -> 474.0	199597	20.00	µg/L	0.012
M7-PFUnDA	10.379	570.0 -> 525.0	137183	20.00	µg/L	-0.025
M2-PFDoDA	12.028	615.0 -> 570.0	110822	20.00	µg/L	-0.062
M2-PFTeDA	14.781	715.0 -> 670.0	39648	20.00	µg/L	0.000
M8-FOSA	7.130	506.0 -> 78.0	37012	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	26808	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	33552	20.00	µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	33884	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	133362	20.00	µg/L	0.012
M2-6:2FTS	6.943	429.0 -> 409.0	170458	20.00	µg/L	0.014
M2-8:2FTS	8.762	529.0 -> 509.0	196138	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	42361	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	133379	18.99	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C2-6:2FTS	6.943	429.0 -> 409.0	170454	19.40	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C2-8:2FTS	8.762	529.0 -> 509.0	195538	18.79	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C2-PFDoDA	12.028	615.0 -> 570.0	110458	17.60	µg/L	-0.062
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.0%		
13C2-PFTeDA	14.781	715.0 -> 670.0	37273	16.69	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.4%		
13C3-PFBS	4.455	302.0 -> 99.0	26782	18.81	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C3-PFHxS	6.198	402.0 -> 99.0	33532	19.35	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C4-PFBA	2.966	217.0 -> 172.0	7167	0.50	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 2.5%		
13C4-PFHpA	6.204	367.0 -> 322.0	136431	19.45	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%		
13C5-PFHxA	5.364	318.0 -> 273.0	117325	19.33	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C5-PFPeA	4.312	268.0 -> 223.0	107268	17.08	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.4%		
13C6-PFDA	8.517	519.0 -> 474.0	199761	19.82	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%		

Perfluorinated Compounds by LC/MS/MS

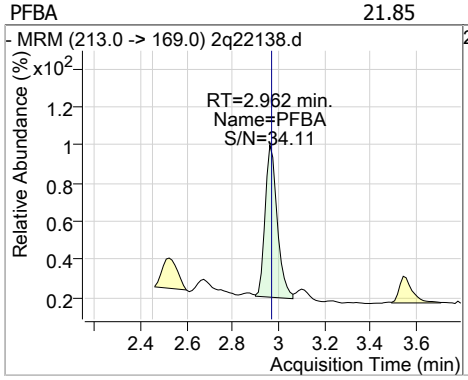
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.379	570.0 -> 525.0	136807	17.89	µg/L		-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.4%			
13C8-FOSA	7.130	506.0 -> 78.0	37016	10.06	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 50.3%			
13C8-PFOA	6.921	421.0 -> 376.0	117932	20.09	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%			
13C8-PFOS	7.546	507.0 -> 99.0	33874	19.37	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%			
13C9-PFNA	7.601	472.0 -> 427.0	101897	19.42	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%			
d3-MeFOSAA	7.620	573.0 -> 419.0	42356	18.94	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%			
M2-PFOA	6.923	415.0 -> 370.0	134588	20.00	ng/ml		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	49800	19.99	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	67042	18.62	µg/L		100
6:2FTS	6.945	427.0 -> 407.0	81106	20.11	µg/L		99
8:2FTS	8.765	527.0 -> 507.0	91838	19.30	µg/L		99
EtFOSAA	7.757	584.0 -> 419.0	19148	19.61	µg/L		98
FOSA	7.132	498.0 -> 78.0	18227	20.56	µg/L		98
MeFOSAA	7.622	570.0 -> 419.0	22481	20.52	µg/L		95
PFBA	2.962	213.0 -> 169.0	942	21.85	µg/L		100
PFBS	4.459	299.0 -> 80.0	33801	17.44	µg/L		99
PFDA	8.506	513.0 -> 469.0	54384	18.10	µg/L		100
PFDoDA	12.034	613.0 -> 569.0	49511	21.25	µg/L		100
PFDS	10.175	599.0 -> 80.0	13246	17.30	µg/L		98
PFHpA	6.195	363.0 -> 319.0	108274	21.30	µg/L		100
PFHpS	6.892	449.0 -> 80.0	27447	19.66	µg/L		98
PFHxA	5.366	313.0 -> 269.0	33513	17.82	µg/L		99
PFHxS	6.201	399.0 -> 80.0	29781	17.68	µg/L	m	99
PFNA	7.615	463.0 -> 419.0	49892	18.81	µg/L		98
PFNS	8.371	549.0 -> 80.0	24906	18.82	µg/L		97
PFOA	6.925	413.0 -> 369.0	61577	21.25	µg/L		97
PFOS	7.549	499.0 -> 80.0	29501	20.59	µg/L	m	96
PFPeA	4.316	263.0 -> 219.0	94703	19.15	µg/L		100
PFPeS	5.421	349.0 -> 80.0	22512	16.97	µg/L		99
PFTeDA	14.775	713.0 -> 669.0	20871	18.30	µg/L		99
PFTrDA	13.467	663.0 -> 619.0	37064	22.15	µg/L		100
PFUnDA	10.384	563.0 -> 519.0	53158	20.44	µg/L		97

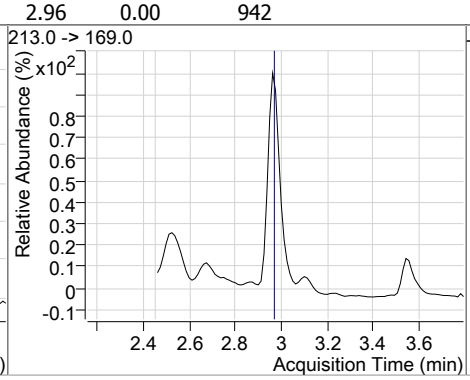
 # = Qualifier out of range, m = manually integrated, + = Area summed

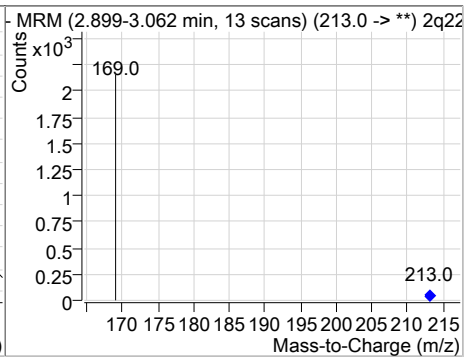
Perfluorinated Compounds by LC/MS/MS



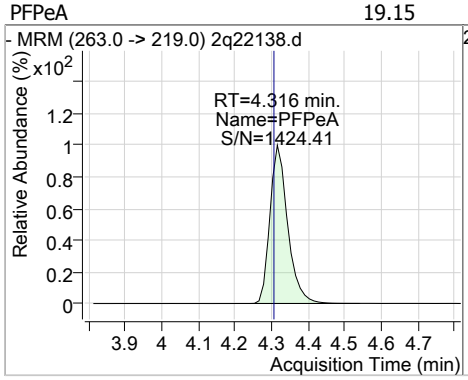
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	21.85	2.96	0.00	942				

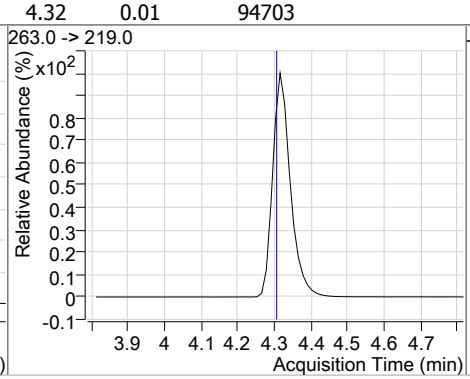


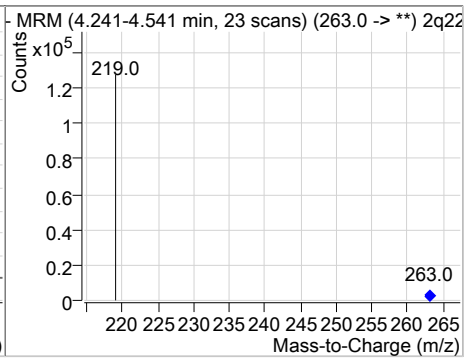




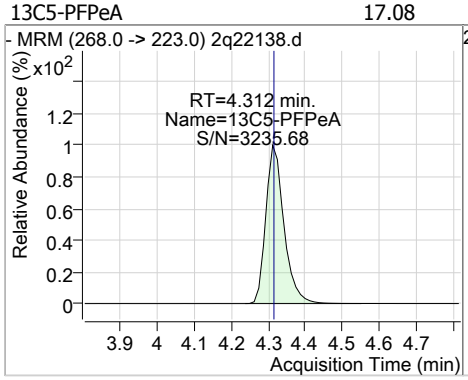
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.15	4.32	0.01	94703				

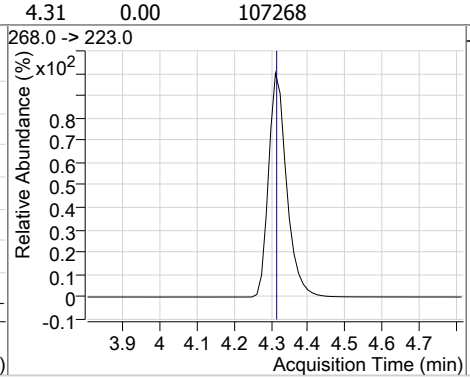


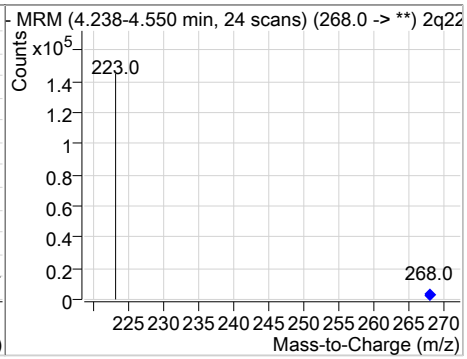




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.08	4.31	0.00	107268				

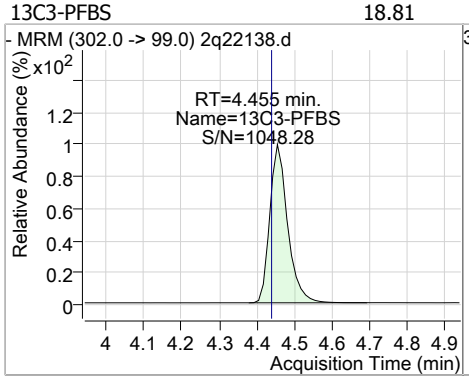


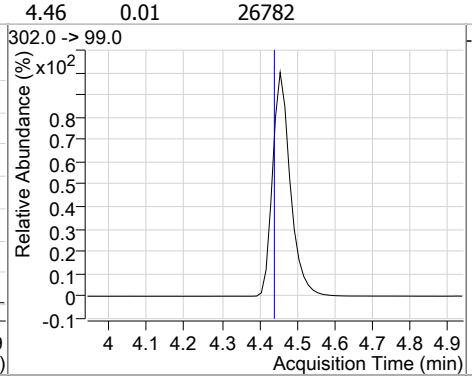


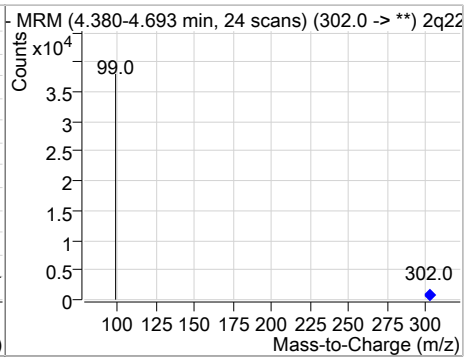


Perfluorinated Compounds by LC/MS/MS

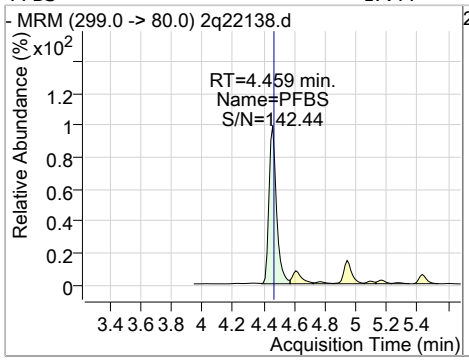
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.81	4.46	0.01	26782				

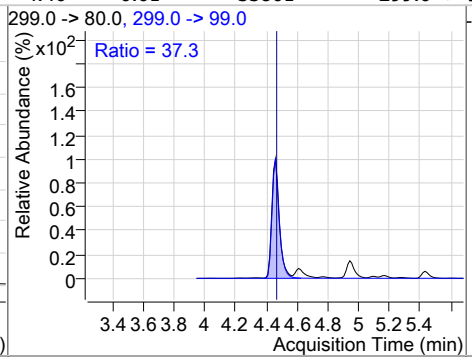


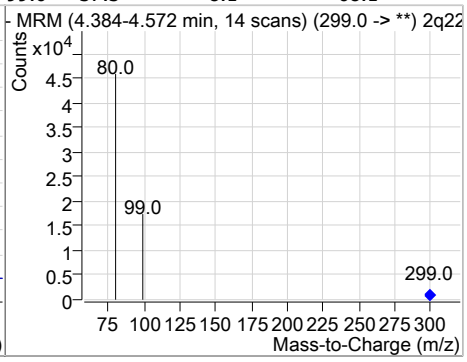




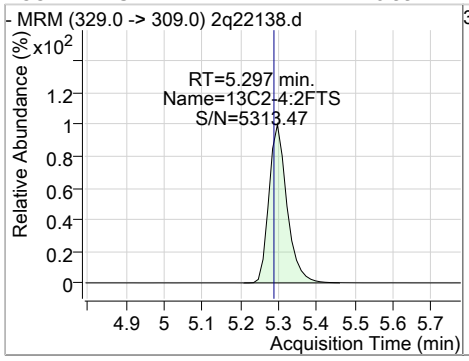
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.44	4.46	0.01	33801	299.0 -> 99.0	37.3	8.1	68.1

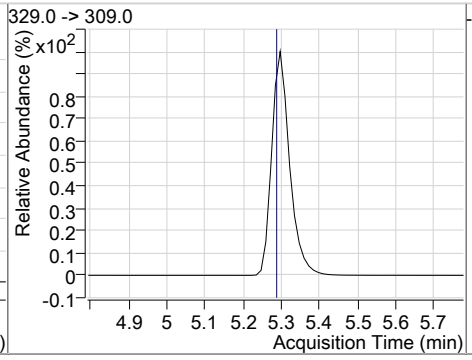


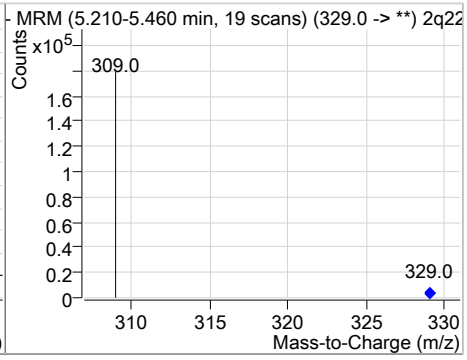




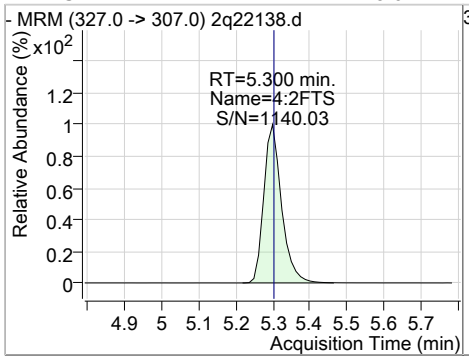
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.99	5.30	0.01	133379				

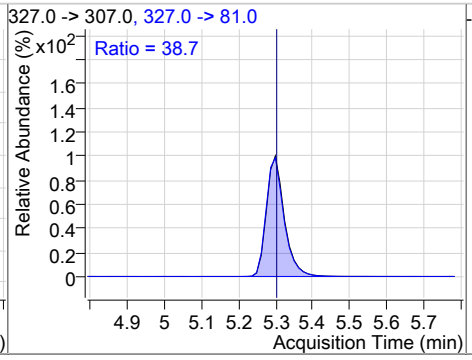


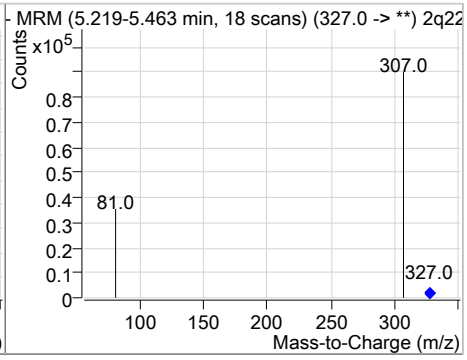




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.62	5.30	0.01	67042	327.0 -> 81.0	38.7	9.0	69.0

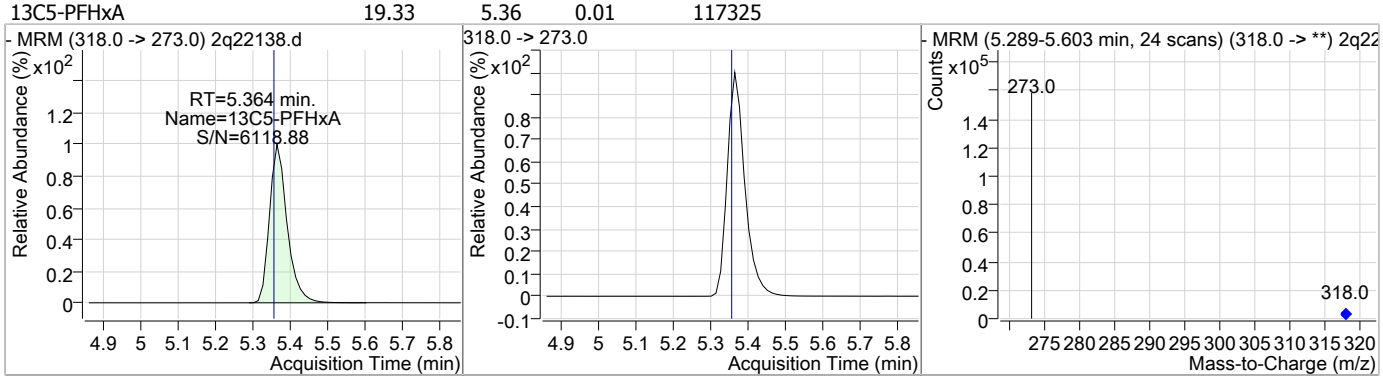




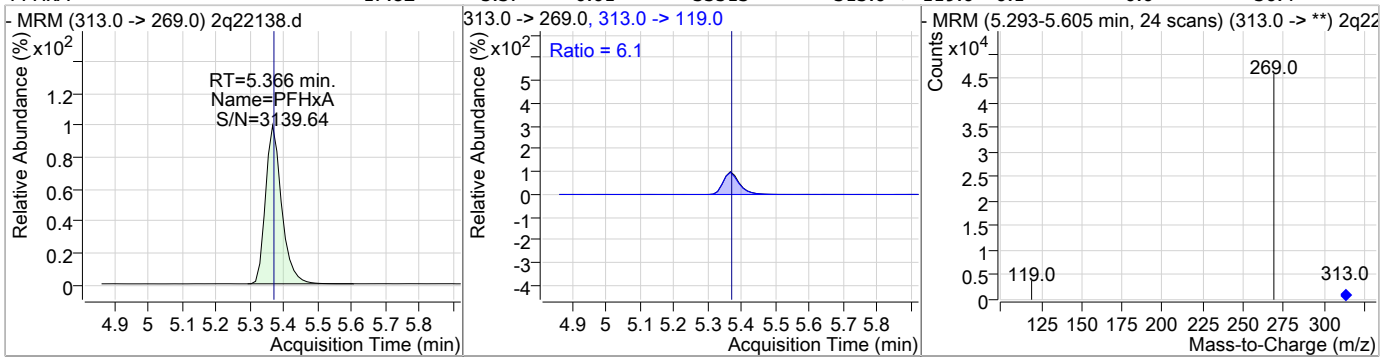


Perfluorinated Compounds by LC/MS/MS

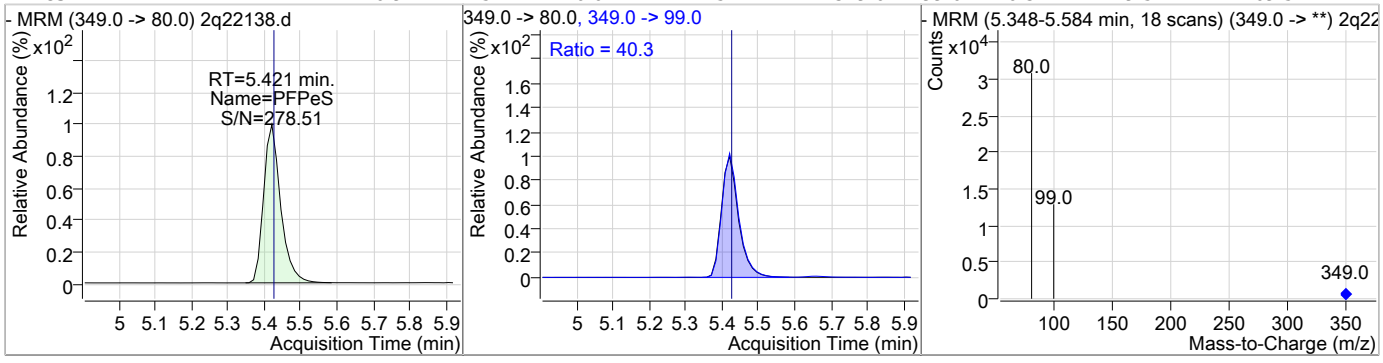
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.33	5.36	0.01	117325				



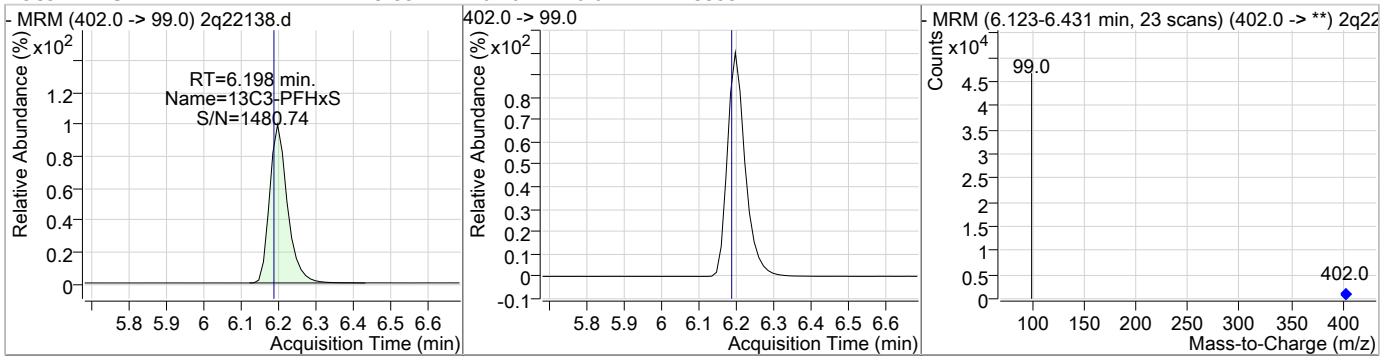
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	17.82	5.37	0.01	33513	313.0 -> 119.0	6.1	0.0	36.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	16.97	5.42	0.01	22512	349.0 -> 99.0	40.3	9.5	69.5

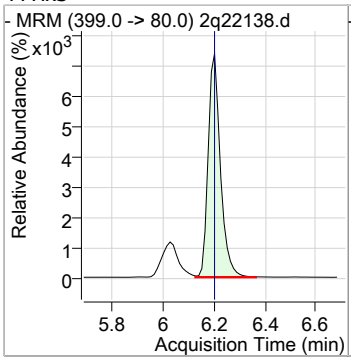


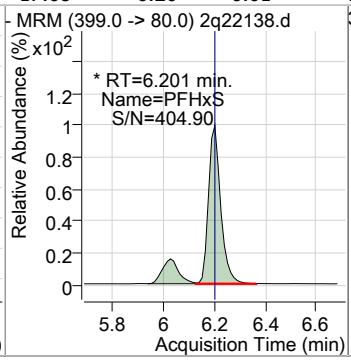
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.35	6.20	0.01	33532				

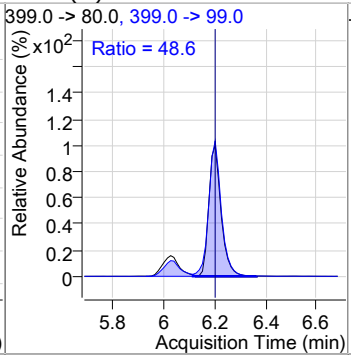


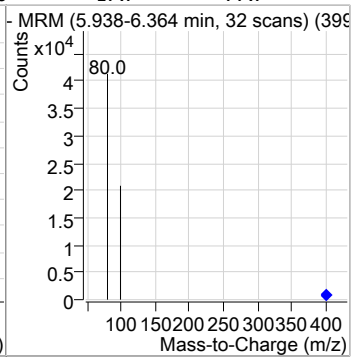
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	17.68	6.20	0.01	29781 (m)	399.0 -> 99.0	48.6	17.7	77.7

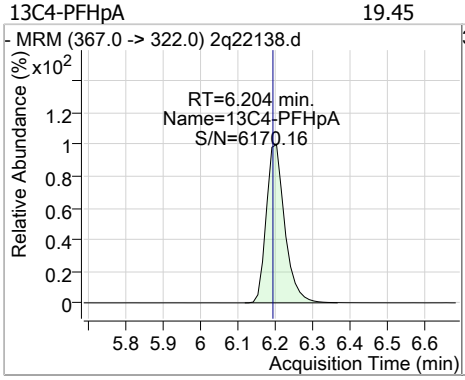


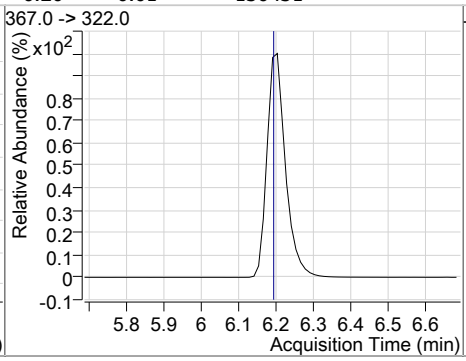


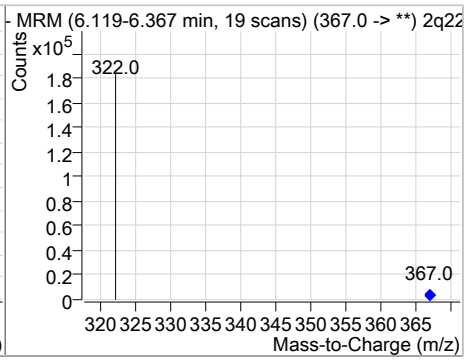




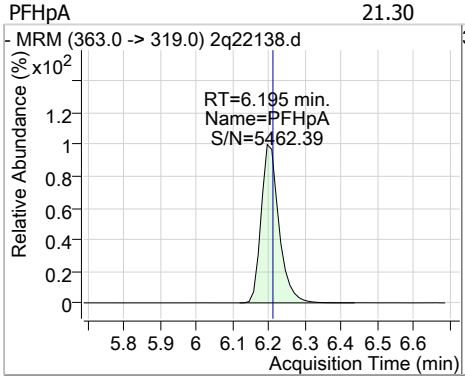
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.45	6.20	0.01	136431				

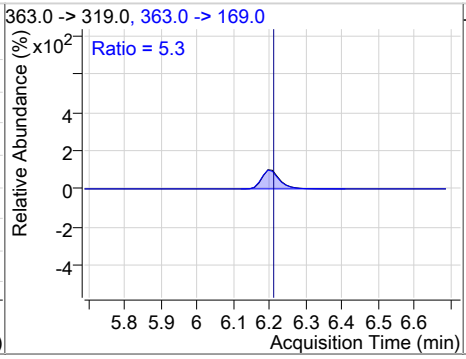


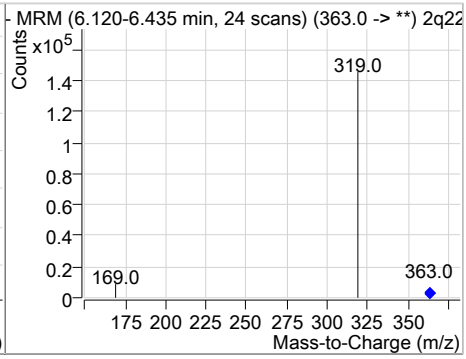




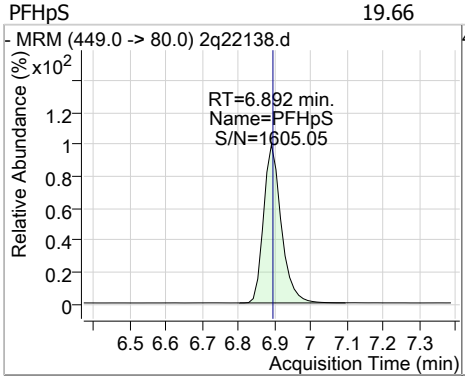
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.30	6.20	0.00	108274	363.0 -> 169.0	5.3	0.0	35.4

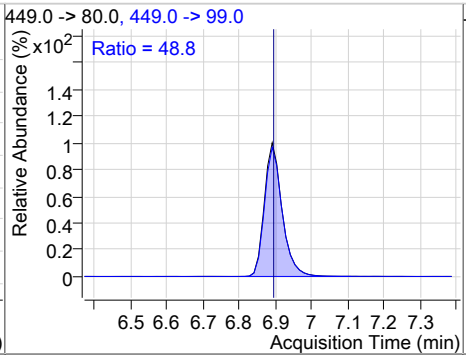


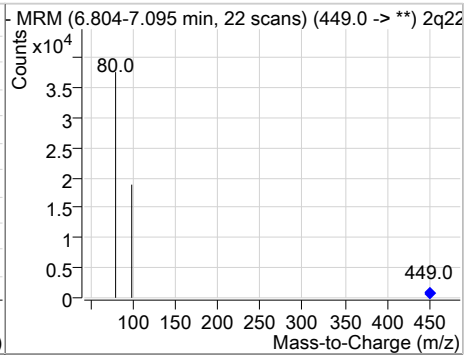




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.66	6.89	0.01	27447	449.0 -> 99.0	48.8	20.3	80.3

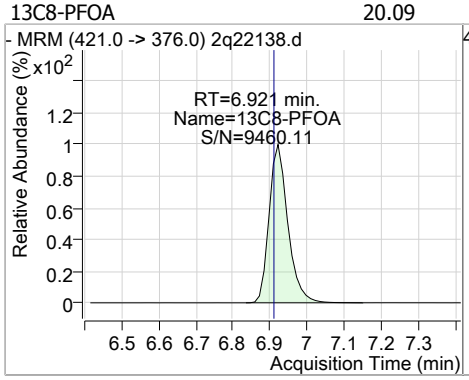


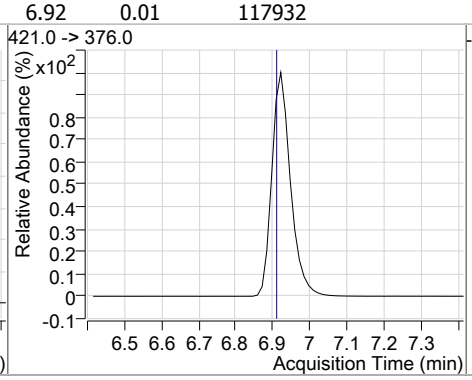


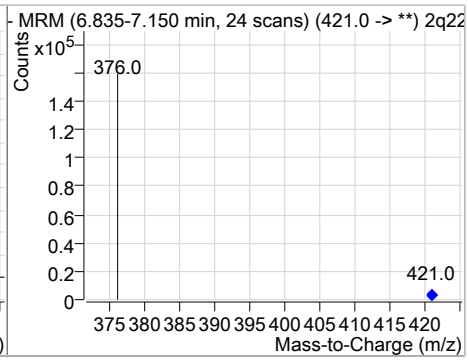


Perfluorinated Compounds by LC/MS/MS

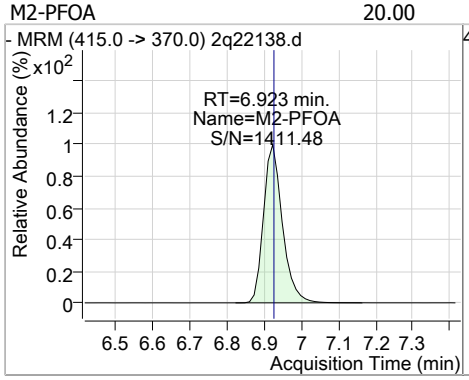
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.09	6.92	0.01	117932				

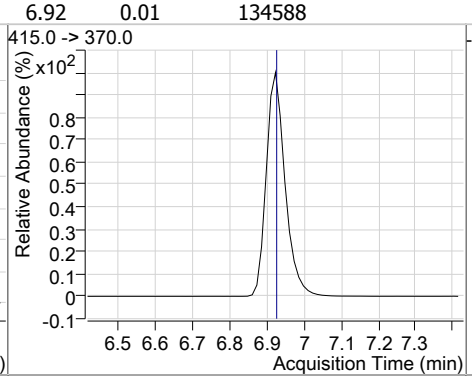


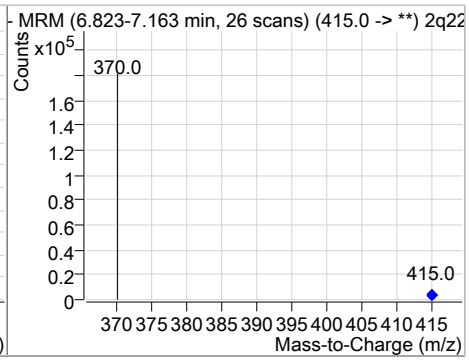




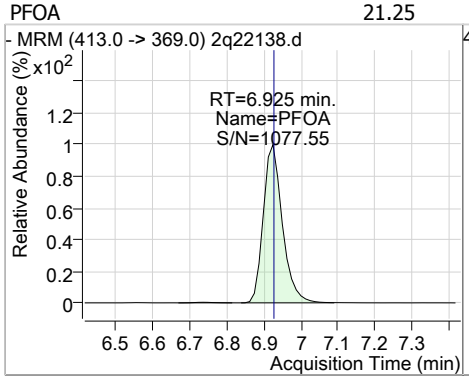
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.92	0.01	134588				

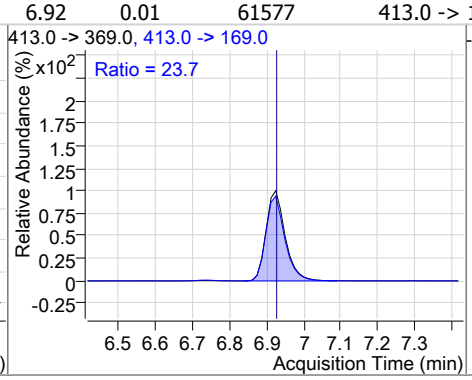


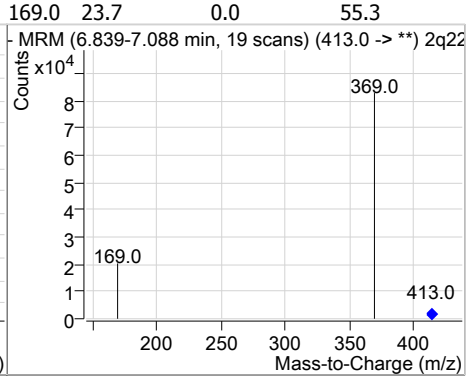




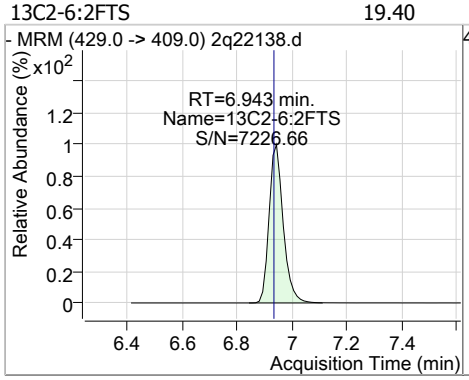
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.25	6.92	0.01	61577	413.0 -> 169.0	23.7	0.0	55.3

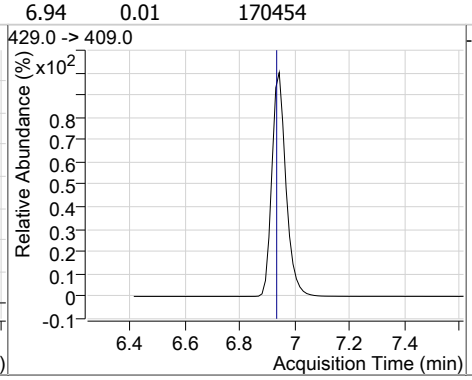


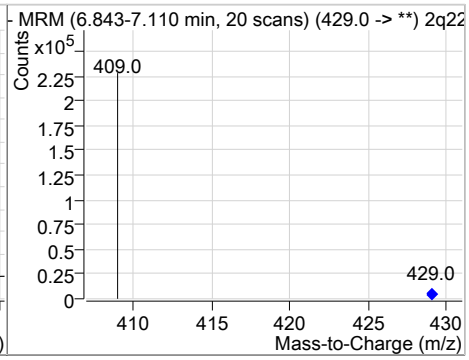




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.40	6.94	0.01	170454				

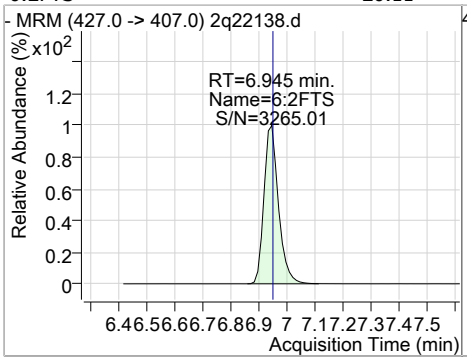


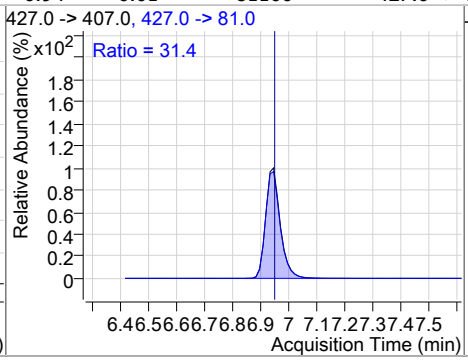


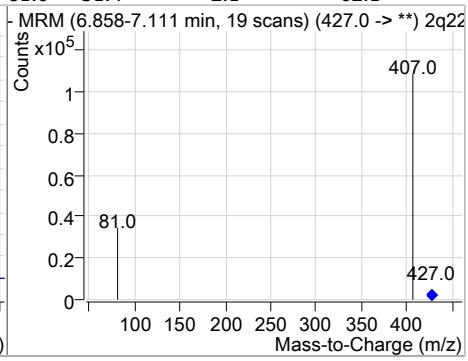


Perfluorinated Compounds by LC/MS/MS

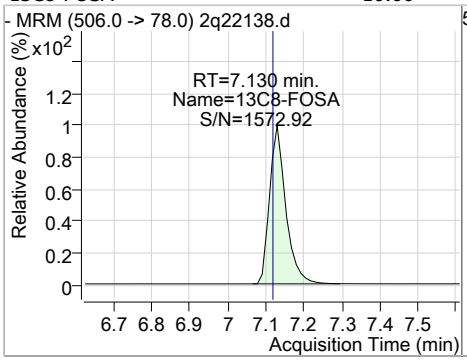
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.11	6.94	0.01	81106	427.0 -> 81.0	31.4	2.1	62.1

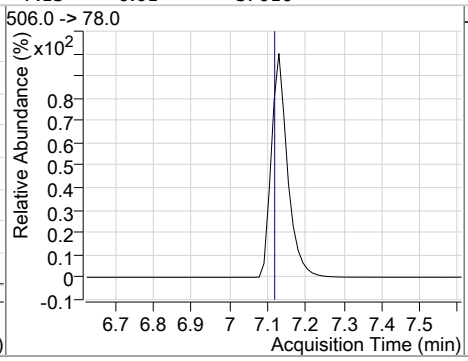


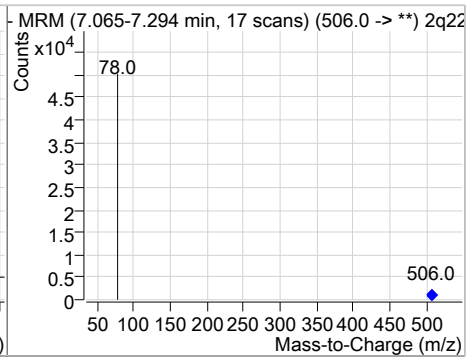




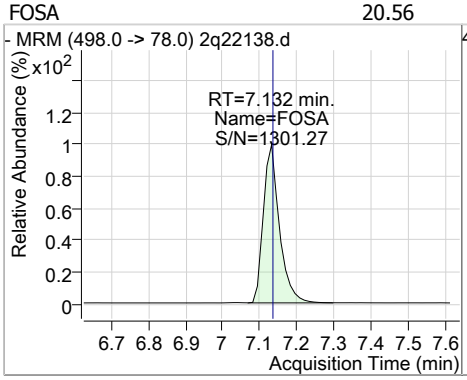
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	10.06	7.13	0.01	37016				

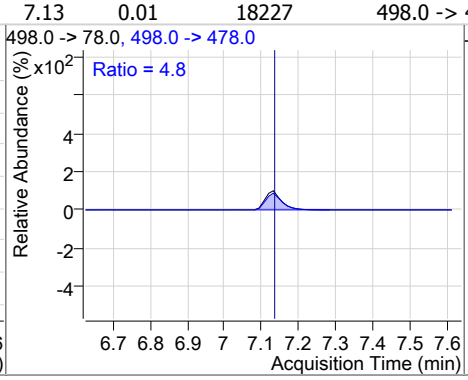


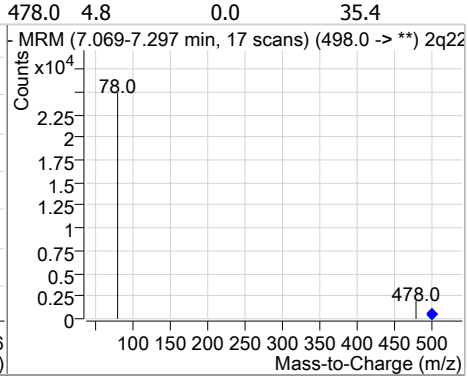




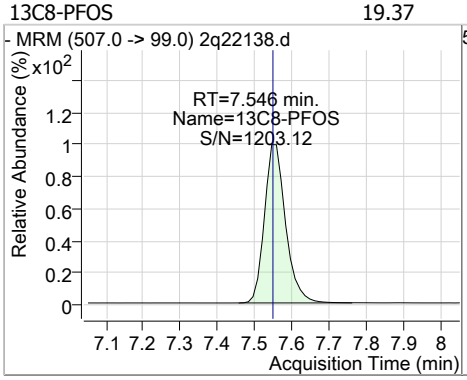
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	20.56	7.13	0.01	18227	498.0 -> 478.0	4.8	0.0	35.4

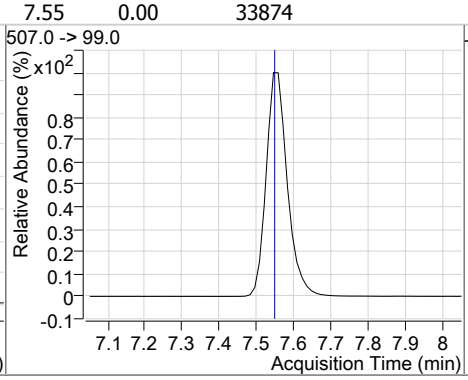


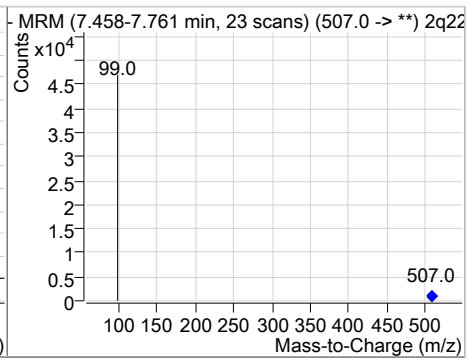




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.37	7.55	0.00	33874				

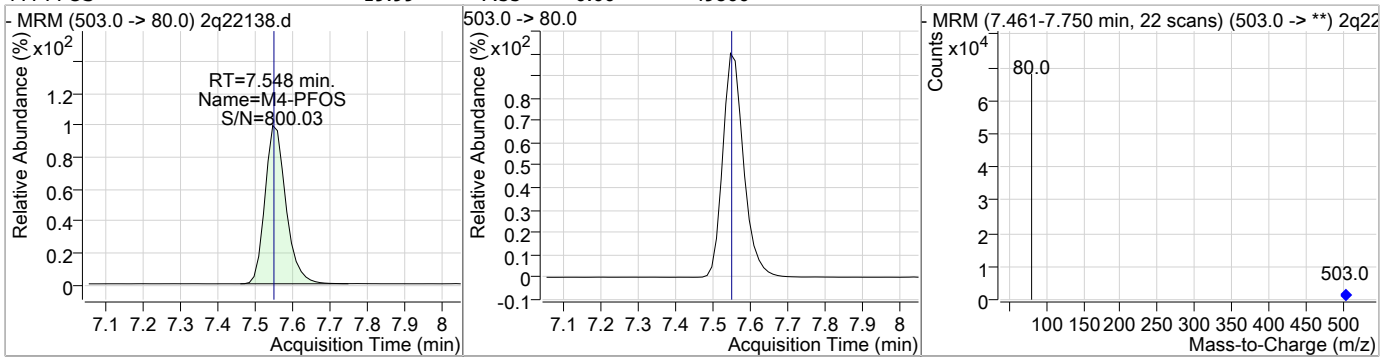




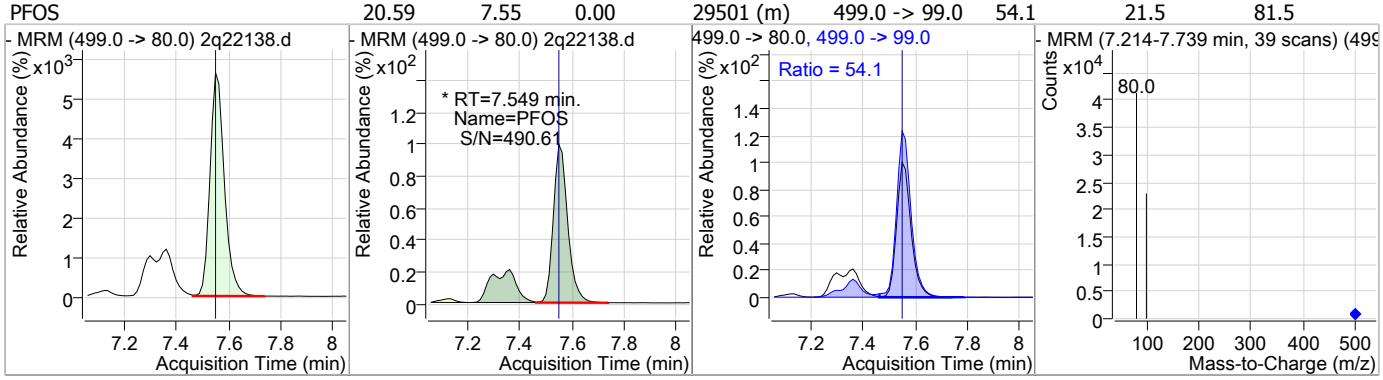


Perfluorinated Compounds by LC/MS/MS

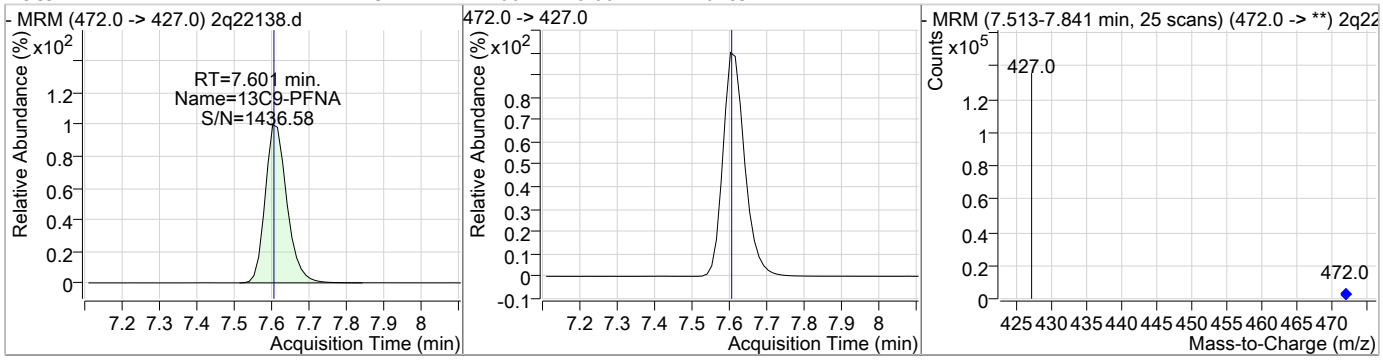
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.55	0.00	49800				



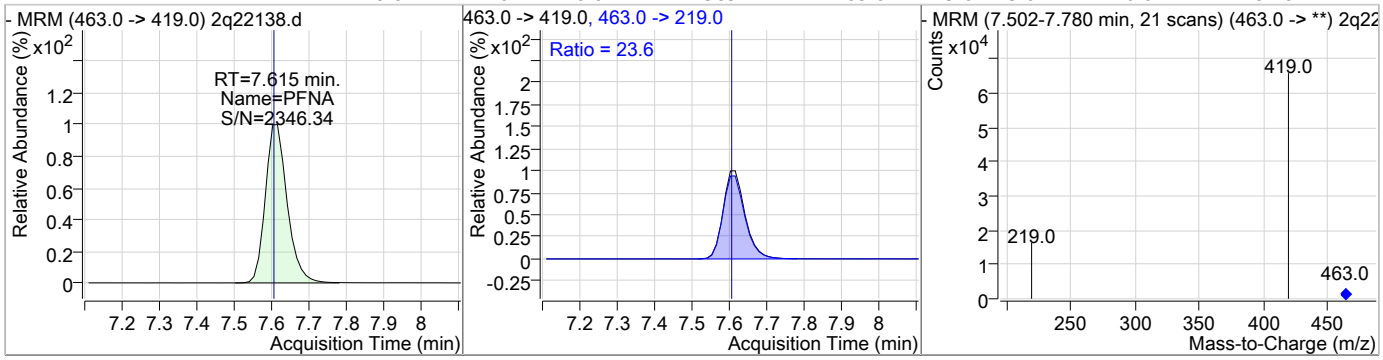
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.59	7.55	0.00	29501 (m)	499.0 -> 99.0	54.1	21.5	81.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.42	7.60	0.00	101897				

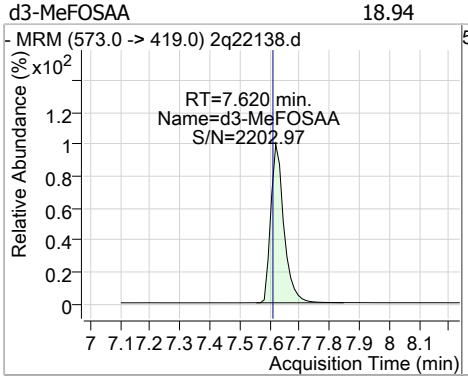


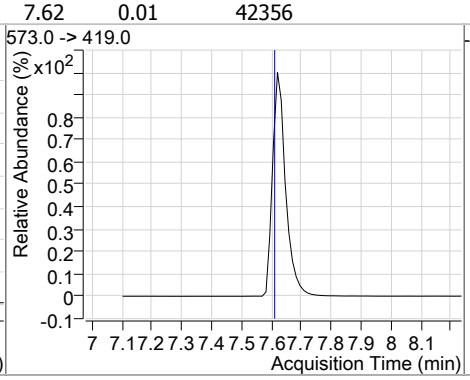
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.81	7.61	0.01	49892	463.0 -> 219.0	23.6	0.0	54.8

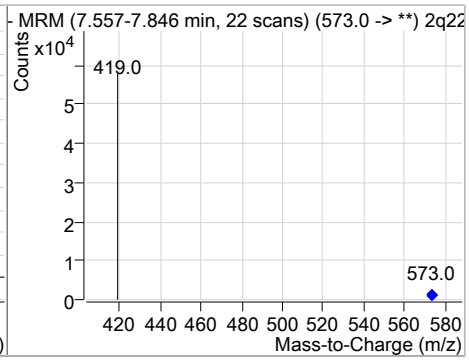


Perfluorinated Compounds by LC/MS/MS

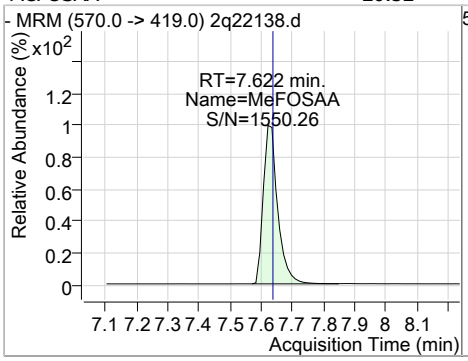
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.94	7.62	0.01	42356				

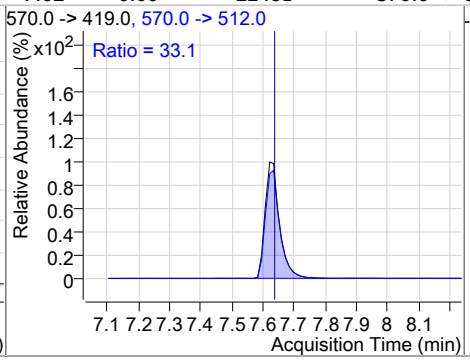


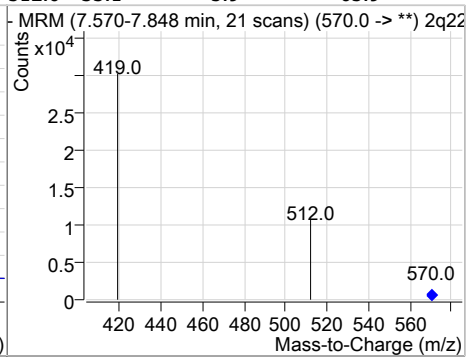




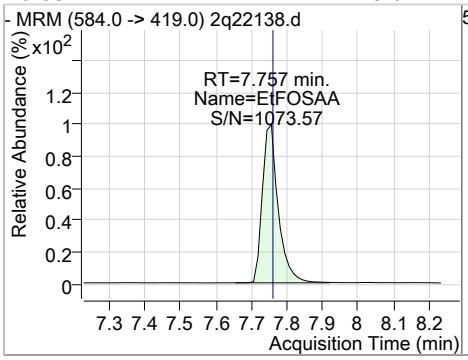
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.52	7.62	0.00	22481	570.0 -> 512.0	33.1	5.9	65.9

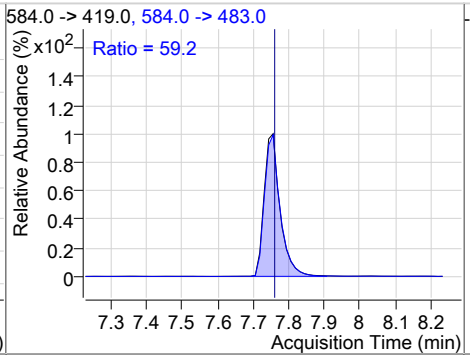


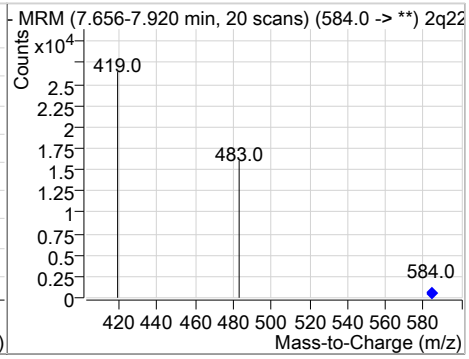




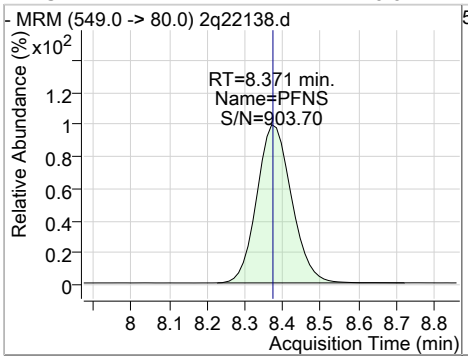
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.61	7.76	0.01	19148	584.0 -> 483.0	59.2	30.5	90.5

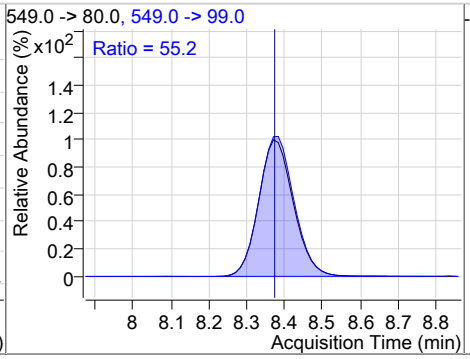


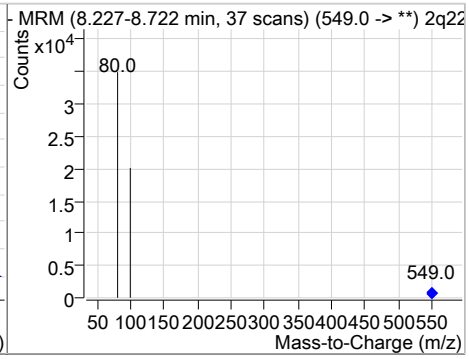




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	18.82	8.37	0.00	24906	549.0 -> 99.0	55.2	23.4	83.4

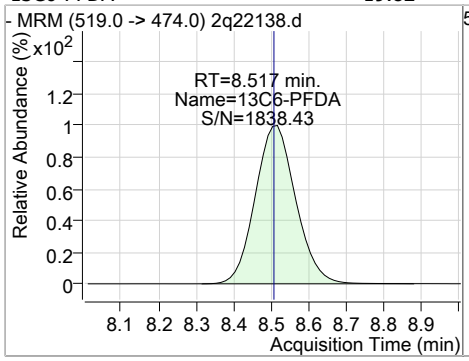


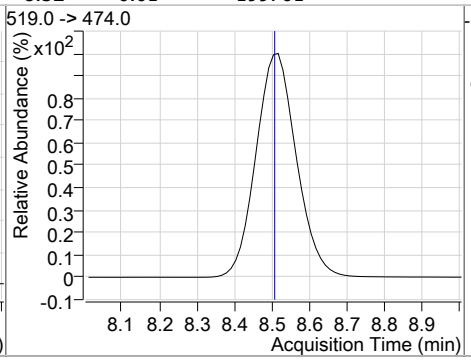


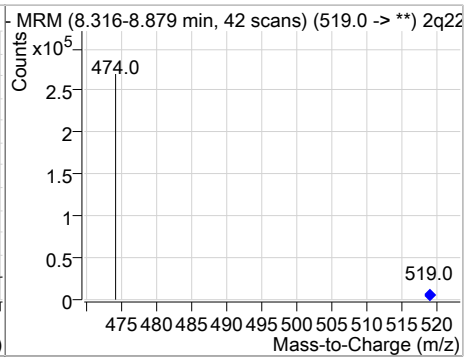


Perfluorinated Compounds by LC/MS/MS

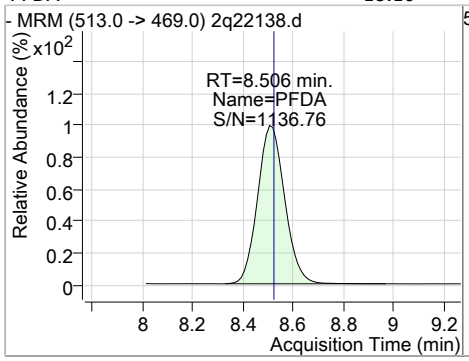
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.82	8.52	0.01	199761				

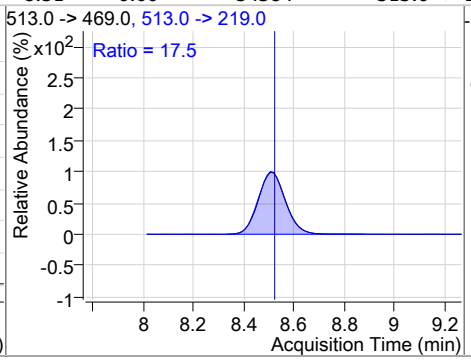


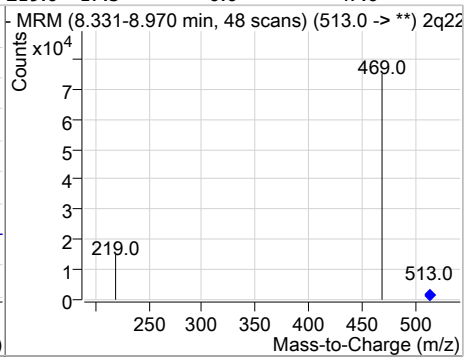




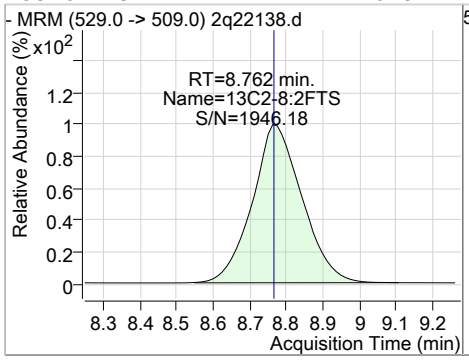
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.10	8.51	0.00	54384	513.0 -> 219.0	17.5	0.0	47.6

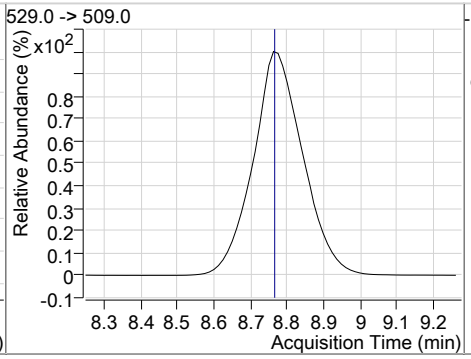


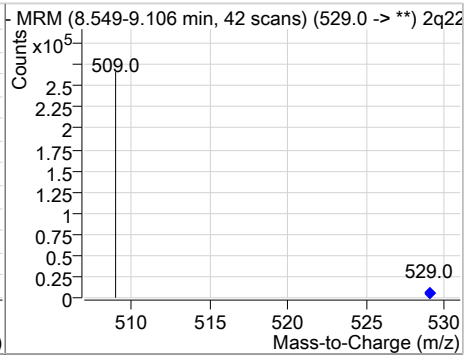




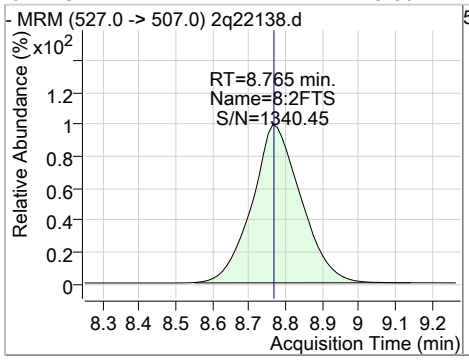
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.79	8.76	0.00	195538				

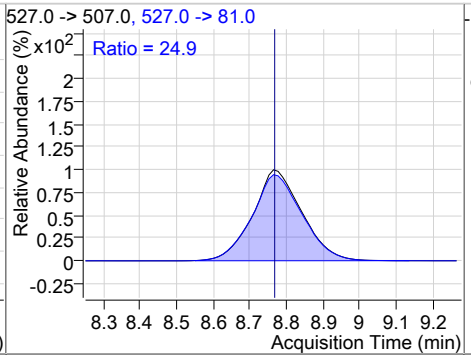


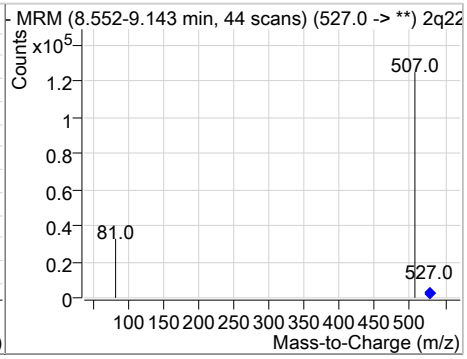




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.30	8.76	0.00	91838	527.0 -> 81.0	24.9	0.0	55.6

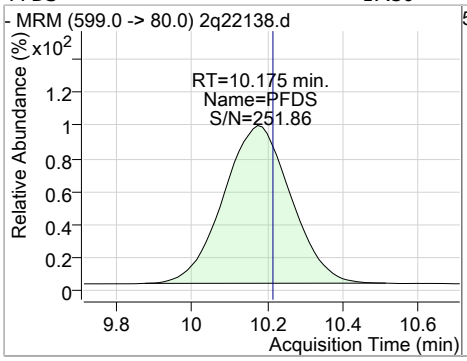


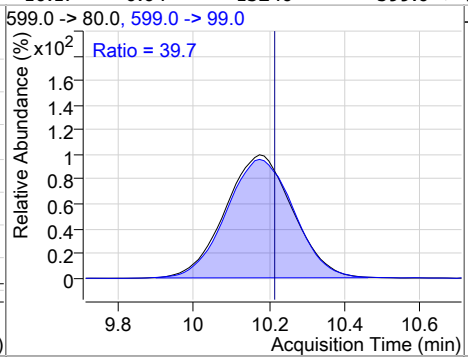


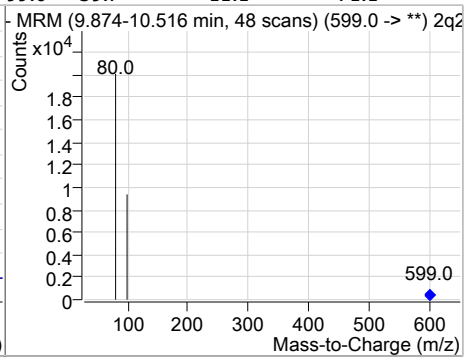


Perfluorinated Compounds by LC/MS/MS

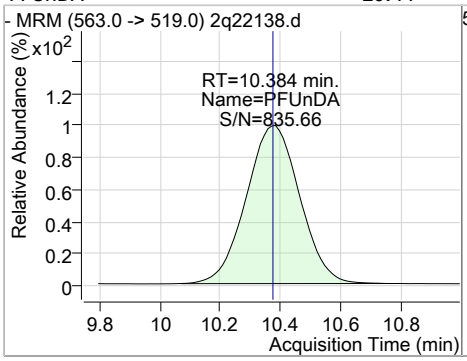
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	17.30	10.17	-0.04	13246	599.0 -> 99.0	39.7	11.1	71.1

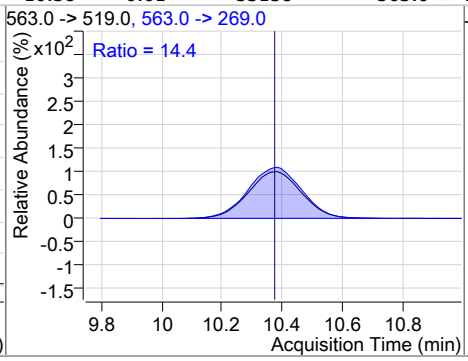


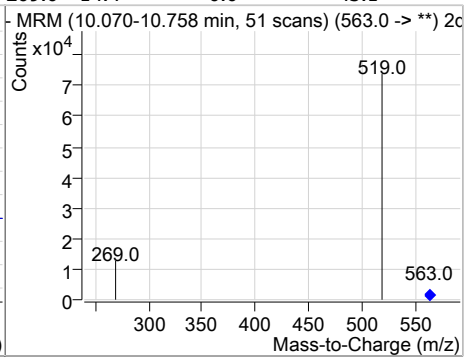




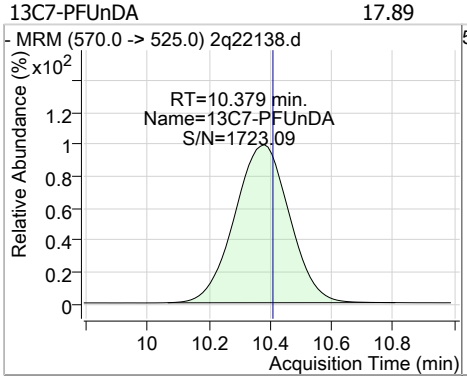
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.44	10.38	-0.01	53158	563.0 -> 269.0	14.4	0.0	43.1

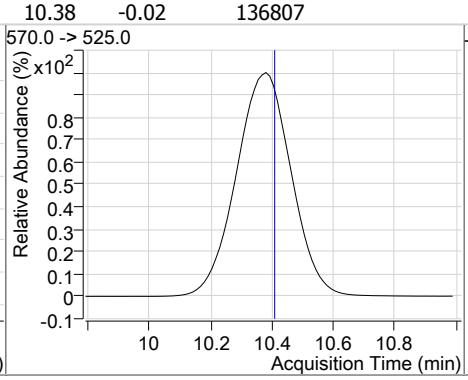


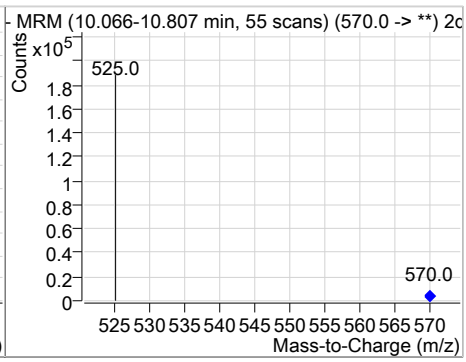




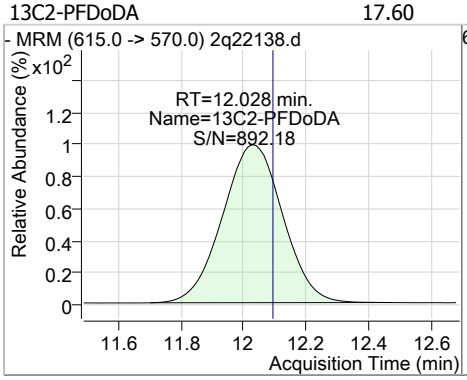
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	17.89	10.38	-0.02	136807				

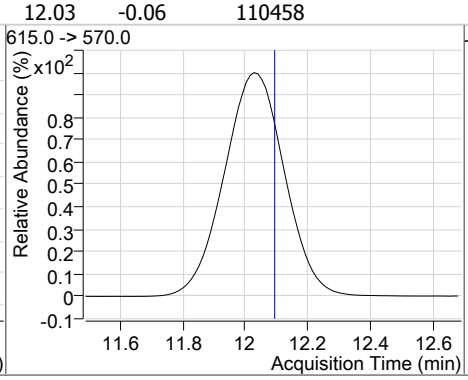


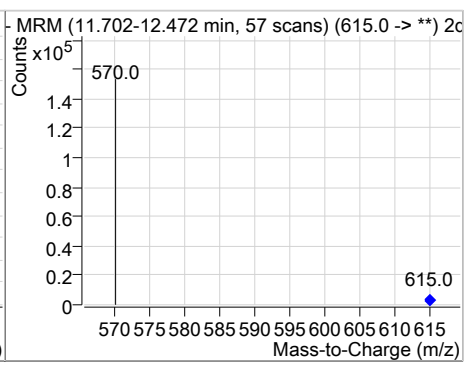




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	17.60	12.03	-0.06	110458				

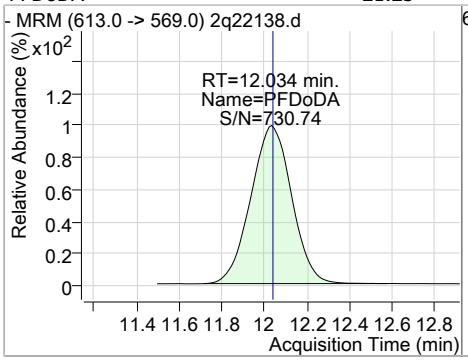


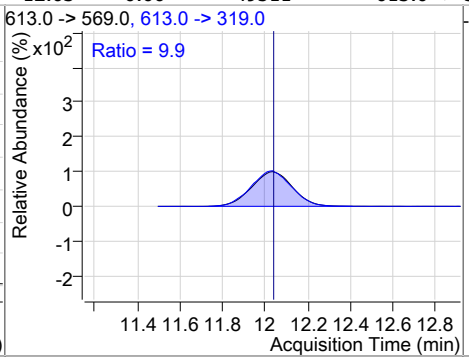


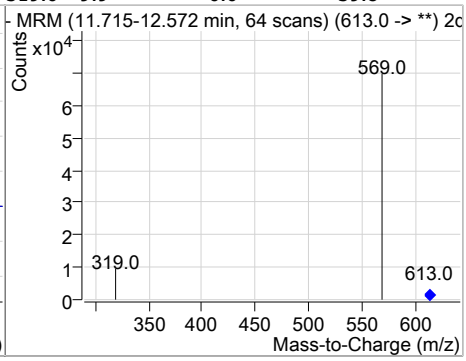


Perfluorinated Compounds by LC/MS/MS

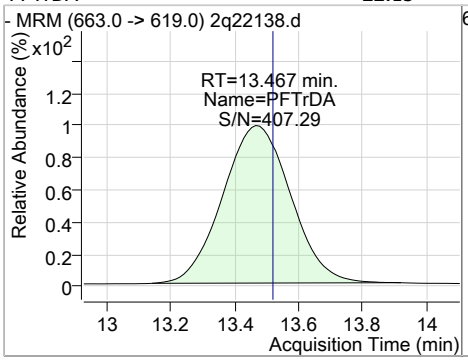
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	21.25	12.03	-0.06	49511	613.0 -> 319.0	9.9	0.0	39.8

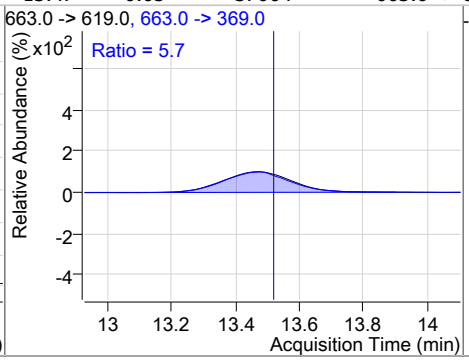


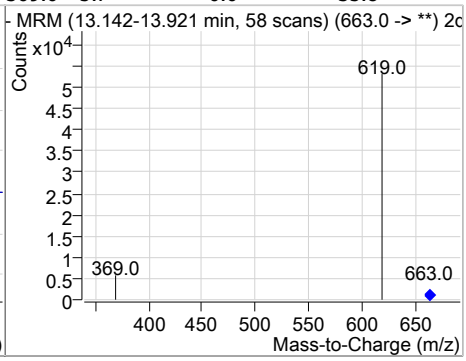




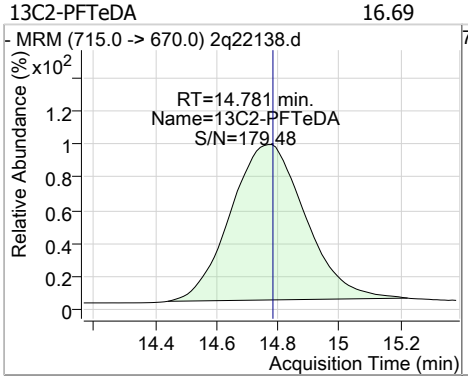
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	22.15	13.47	-0.05	37064	663.0 -> 369.0	5.7	0.0	35.8

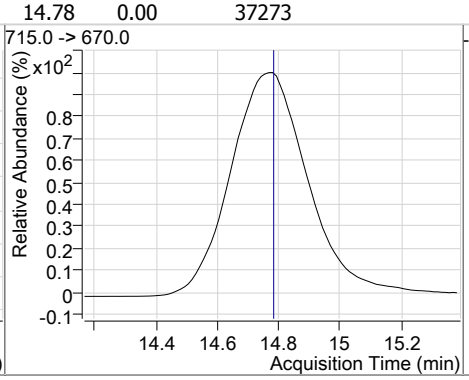


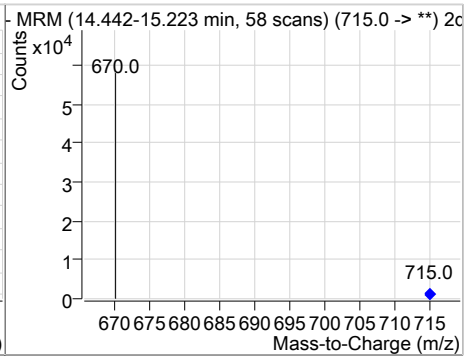




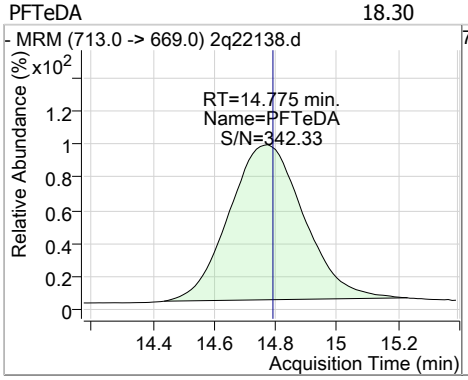
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	16.69	14.78	0.00	37273				

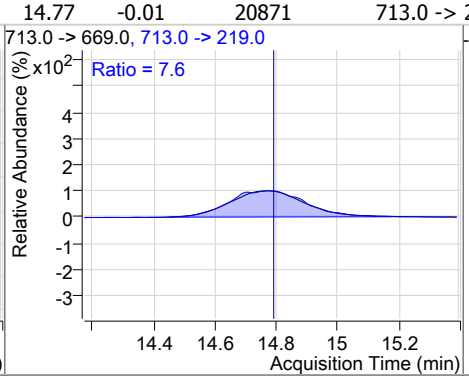


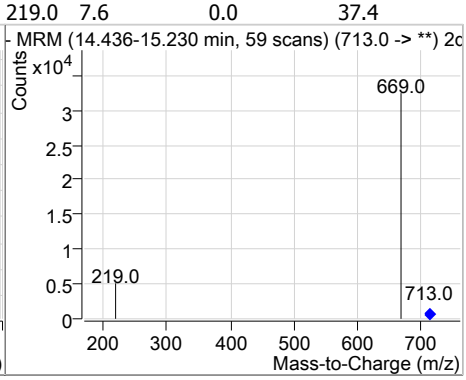




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.30	14.77	-0.01	20871	713.0 -> 219.0	7.6	0.0	37.4







Manual Integration Approval Summary

Sample Number: OP71994-MS
Lab FileID: 2Q22138.D
Injection Time: 10/15/18 17:24
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.20	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/23/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22139.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 5:45:39 PM
Sample Name : op71994-msd
Vial : Vial 18
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

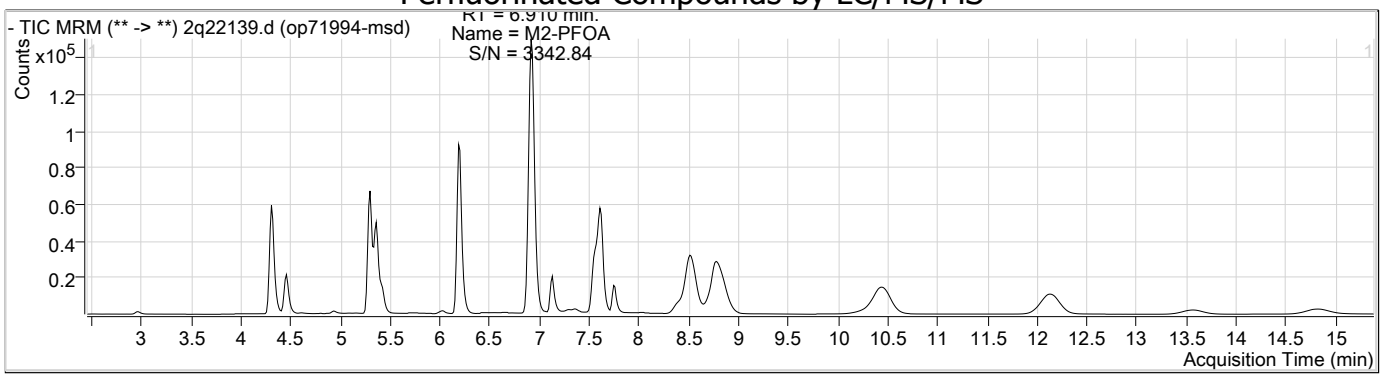
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	133670	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	48513	20.00	µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	4169	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	104347	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	111666	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	134409	20.00	µg/L	0.000
M8-PFOA	6.921	421.0 -> 376.0	114491	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	98575	20.00	µg/L	0.013
M6-PFDA	8.516	519.0 -> 474.0	185209	20.00	µg/L	0.012
M7-PFUnDA	10.442	570.0 -> 525.0	127956	20.00	µg/L	0.038
M2-PFDoDA	12.128	615.0 -> 570.0	100717	20.00	µg/L	0.038
M2-PFTeDA	14.818	715.0 -> 670.0	29713	20.00	µg/L	0.038
M8-FOSA	7.130	506.0 -> 78.0	37234	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	25430	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	32697	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	31226	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	127193	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	164787	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	179603	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	37768	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	127194	18.11	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.5%		
13C2-6:2FTS	6.931	429.0 -> 409.0	164753	18.75	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C2-8:2FTS	8.775	529.0 -> 509.0	179080	17.21	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.0%		
13C2-PFDoDA	12.128	615.0 -> 570.0	100230	15.97	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.8%		
13C2-PFTeDA	14.818	715.0 -> 670.0	27701	12.40	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 62.0%		
13C3-PFBS	4.455	302.0 -> 99.0	25430	17.86	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.3%		
13C3-PFHxS	6.198	402.0 -> 99.0	32695	18.87	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C4-PFBA	2.966	217.0 -> 172.0	4179	0.29	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 1.4%		
13C4-PFHpA	6.192	367.0 -> 322.0	134348	19.16	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%		
13C5-PFHxA	5.364	318.0 -> 273.0	111670	18.40	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.0%		
13C5-PFPeA	4.312	268.0 -> 223.0	104326	16.61	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.0%		
13C6-PFDA	8.516	519.0 -> 474.0	184678	18.32	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.6%		

Perfluorinated Compounds by LC/MS/MS

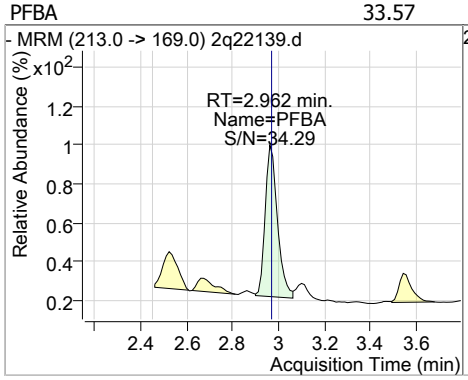
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.442	570.0 -> 525.0	127159	16.63	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.1%			
13C8-FOSA	7.130	506.0 -> 78.0	37250	10.12	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 50.6%			
13C8-PFOA	6.921	421.0 -> 376.0	114451	19.50	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.5%			
13C8-PFOS	7.559	507.0 -> 99.0	31237	17.86	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.3%			
13C9-PFNA	7.614	472.0 -> 427.0	98469	18.77	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%			
d3-MeFOSAA	7.620	573.0 -> 419.0	37770	16.89	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.4%			
M2-PFOA	6.910	415.0 -> 370.0	133718	20.01	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	48568	20.02	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	67338	19.66	µg/L		99
6:2FTS	6.932	427.0 -> 407.0	79372	20.37	µg/L		100
8:2FTS	8.777	527.0 -> 507.0	86006	19.76	µg/L		98
EtFOSAA	7.757	584.0 -> 419.0	17242	19.80	µg/L		98
FOSA	7.132	498.0 -> 78.0	19286	21.62	µg/L		97
MeFOSAA	7.634	570.0 -> 419.0	20278	20.76	µg/L		95
PFBA	2.962	213.0 -> 169.0	843	33.57	µg/L		100
PFBS	4.459	299.0 -> 80.0	33171	18.04	µg/L		99
PFDA	8.519	513.0 -> 469.0	51764	18.57	µg/L		99
PFDoDA	12.122	613.0 -> 569.0	44664	21.10	µg/L		100
PFDS	10.237	599.0 -> 80.0	12021	17.04	µg/L		98
PFHpA	6.195	363.0 -> 319.0	107889	21.54	µg/L		99
PFHpS	6.892	449.0 -> 80.0	26374	19.38	µg/L		99
PFHxA	5.366	313.0 -> 269.0	33273	18.59	µg/L		99
PFHxS	6.201	399.0 -> 80.0	29990	18.27	µg/L	m	100
PFNA	7.615	463.0 -> 419.0	47499	18.51	µg/L		98
PFNS	8.384	549.0 -> 80.0	22576	18.51	µg/L		97
PFOA	6.912	413.0 -> 369.0	61192	21.75	µg/L		96
PFOS	7.549	499.0 -> 80.0	28101	21.28	µg/L	m	98
PFPeA	4.316	263.0 -> 219.0	95723	19.91	µg/L		100
PFPeS	5.421	349.0 -> 80.0	22154	17.61	µg/L		98
PFTeDA	14.825	713.0 -> 669.0	16051	18.78	µg/L		100
PFTrDA	13.567	663.0 -> 619.0	32539	25.95	µg/L		99
PFUnDA	10.446	563.0 -> 519.0	49246	20.30	µg/L		97

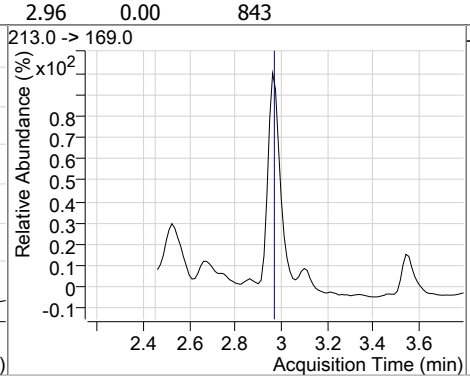
 # = Qualifier out of range, m = manually integrated, + = Area summed

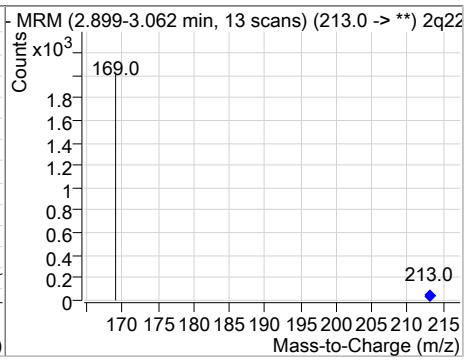
Perfluorinated Compounds by LC/MS/MS



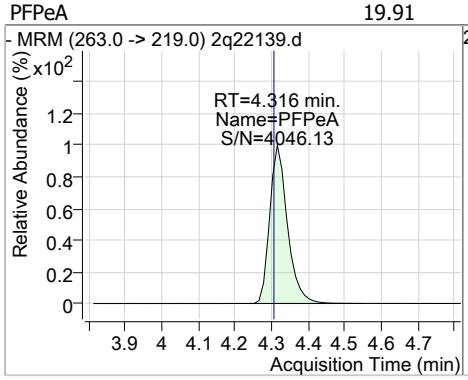
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	33.57	2.96	0.00	843				

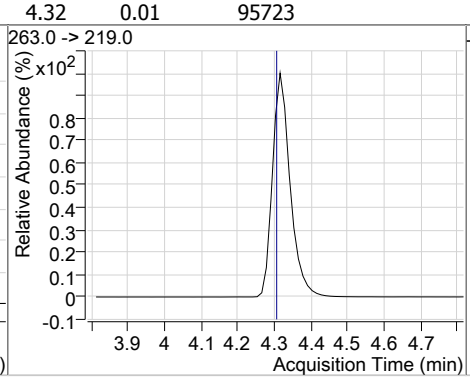


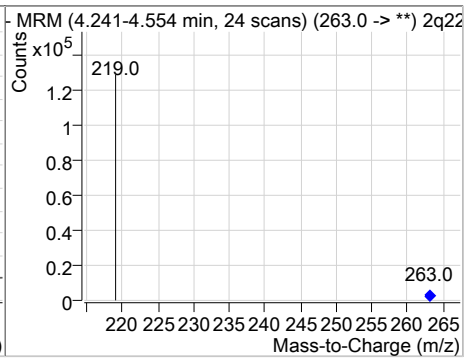




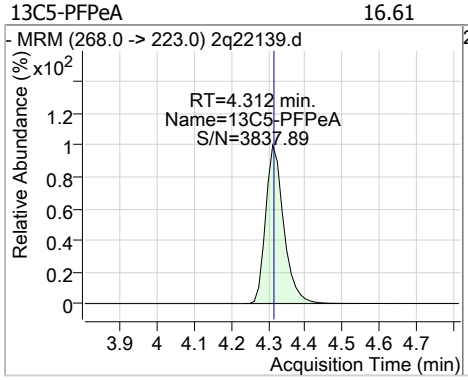
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.91	4.32	0.01	95723				

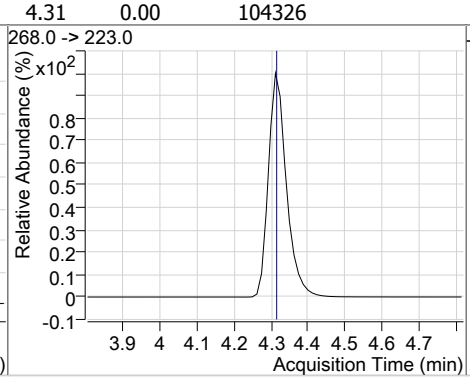


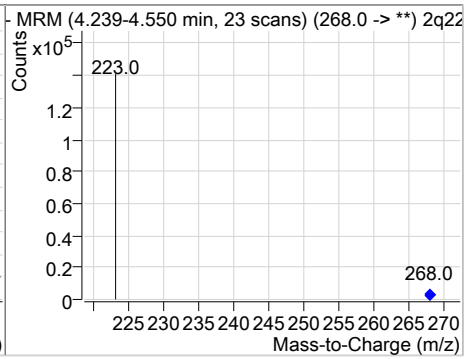




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.61	4.31	0.00	104326				

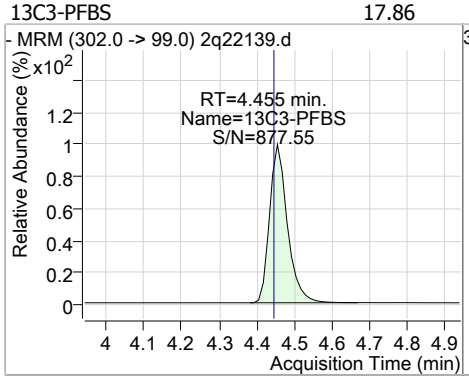


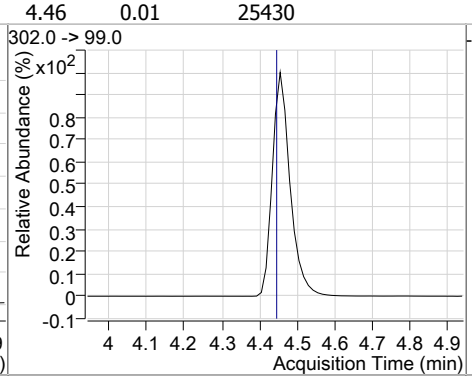


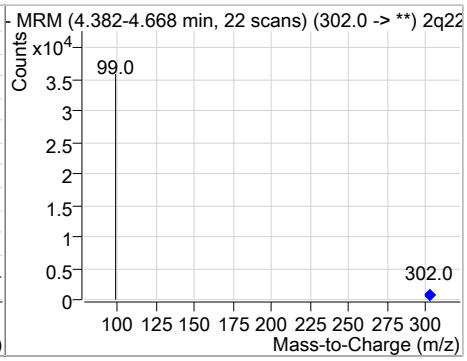


Perfluorinated Compounds by LC/MS/MS

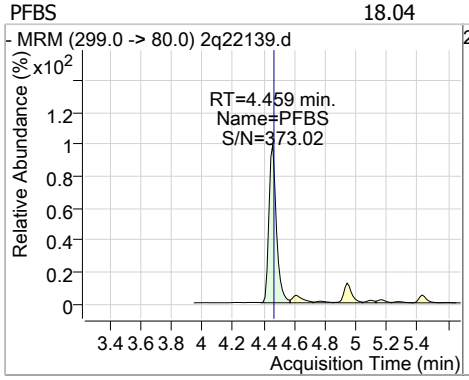
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.86	4.46	0.01	25430				

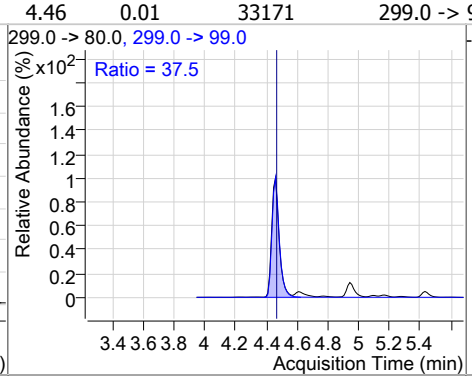


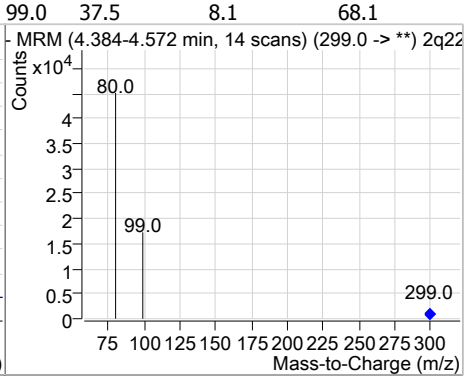




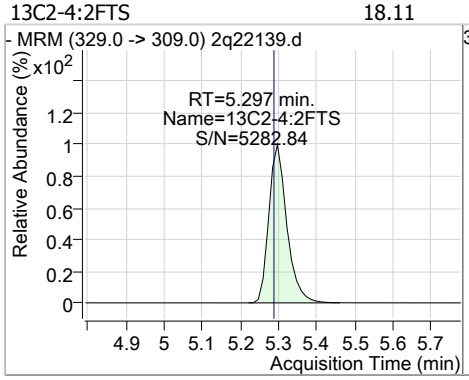
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.04	4.46	0.01	33171	299.0 -> 99.0	37.5	8.1	68.1

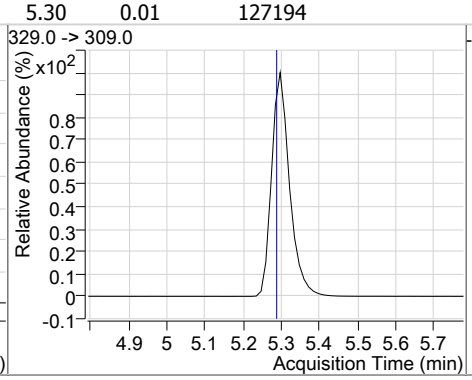


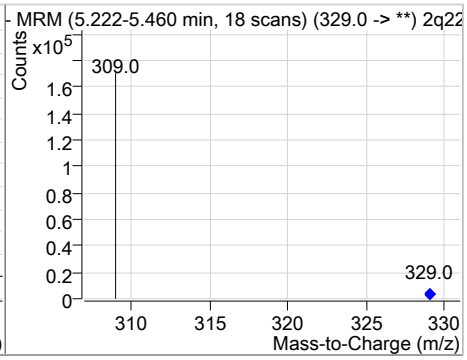




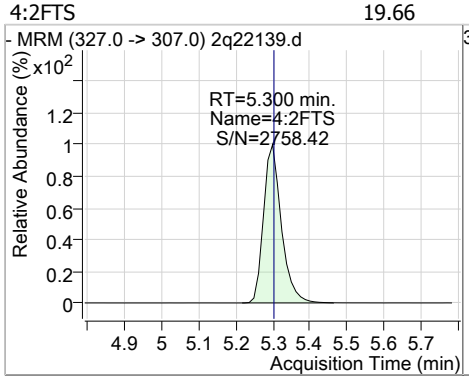
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.11	5.30	0.01	127194				

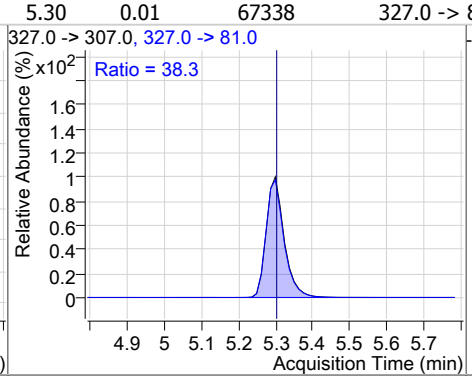


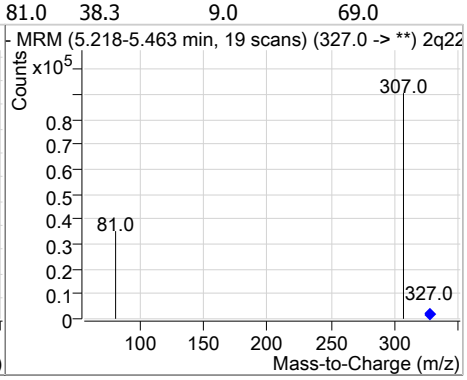




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.66	5.30	0.01	67338	327.0 -> 81.0	38.3	9.0	69.0

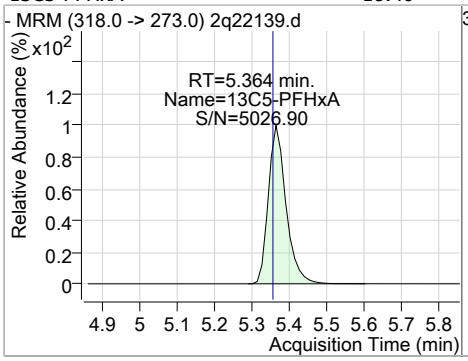


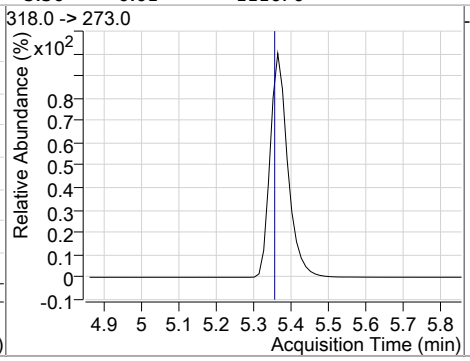


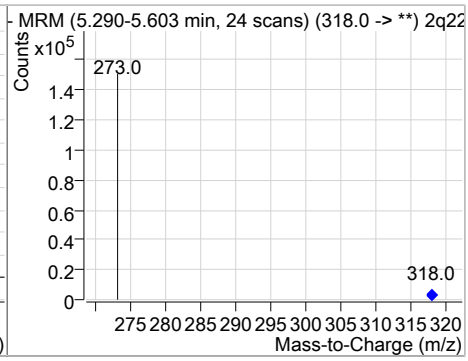


Perfluorinated Compounds by LC/MS/MS

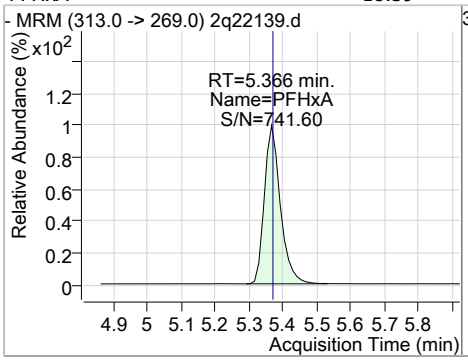
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.40	5.36	0.01	111670				

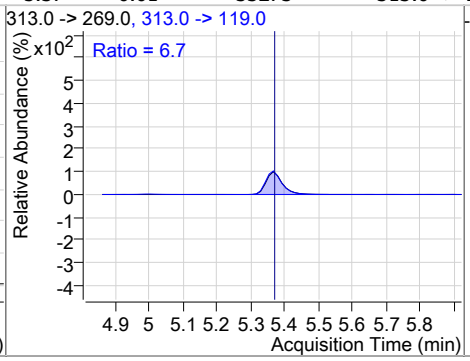


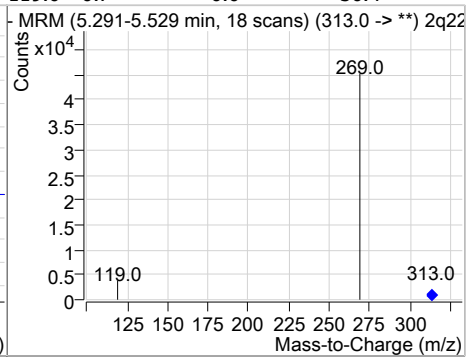




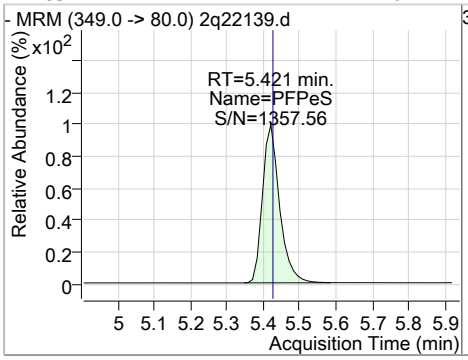
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.59	5.37	0.01	33273	313.0 -> 119.0	6.7	0.0	36.4

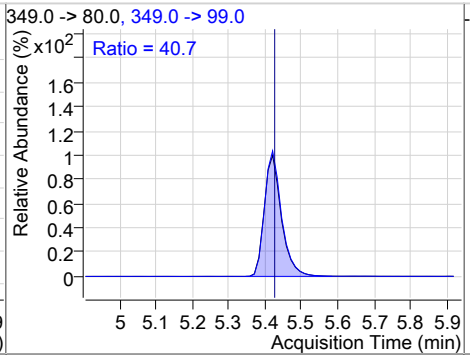


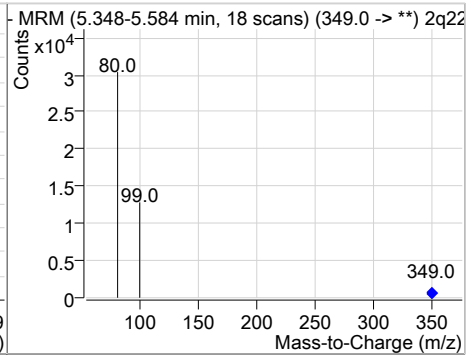




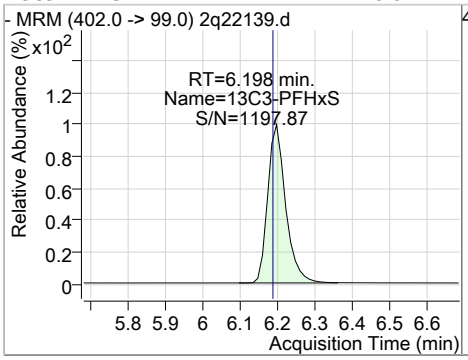
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	17.61	5.42	0.01	22154	349.0 -> 99.0	40.7	9.5	69.5

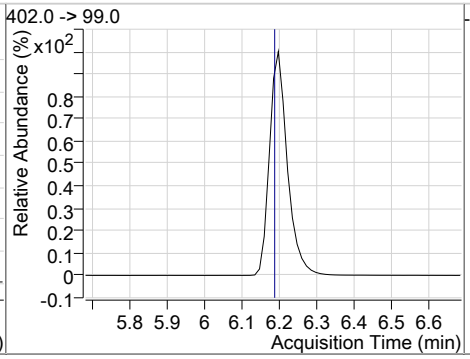


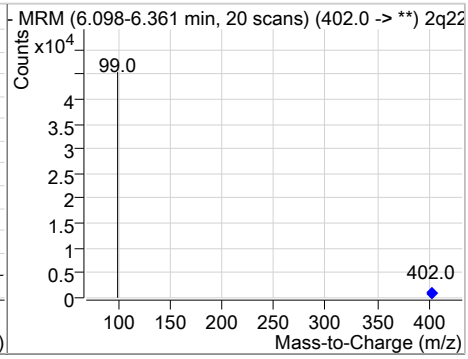




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.87	6.20	0.01	32695				

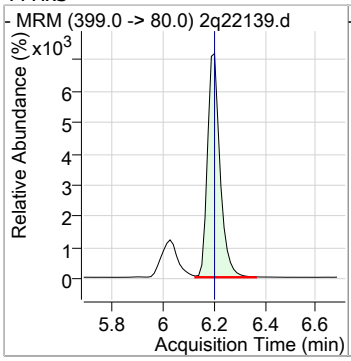


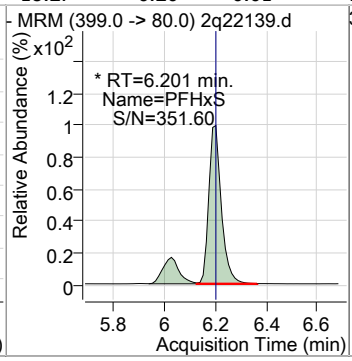


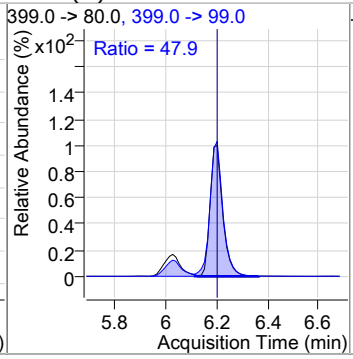


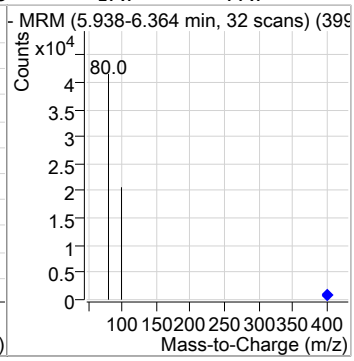
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.27	6.20	0.01	29990 (m)	399.0 -> 99.0	47.9	17.7	77.7

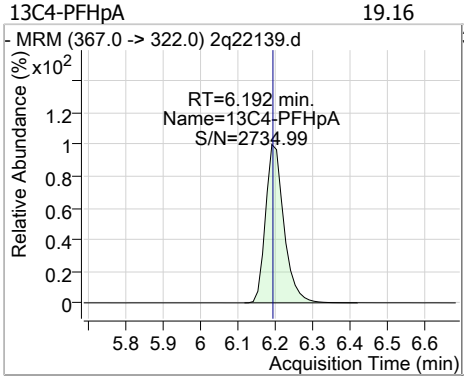


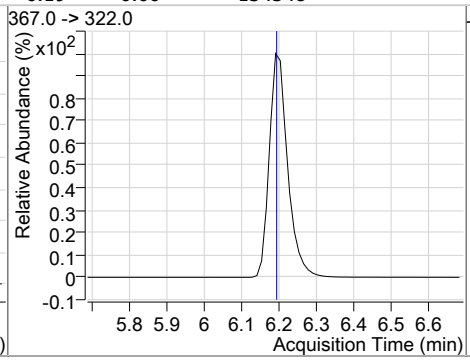


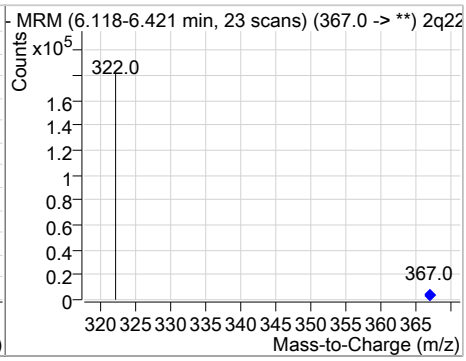




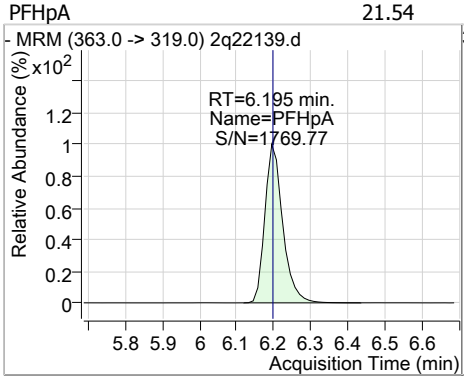
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.16	6.19	0.00	134348				

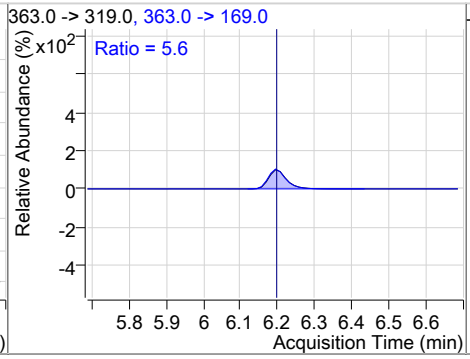


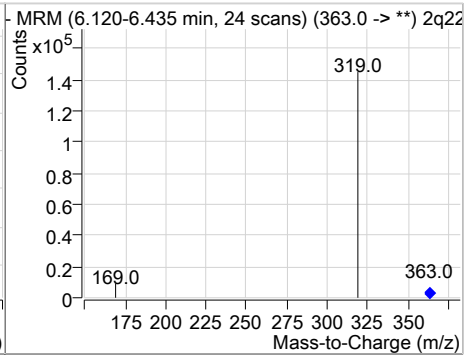




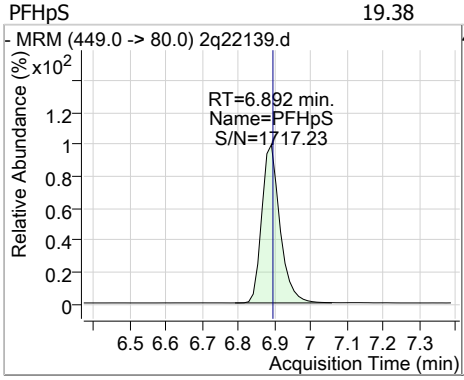
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.54	6.20	0.00	107889	363.0 -> 169.0	5.6	0.0	35.4

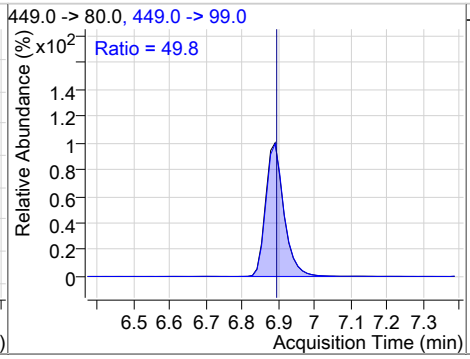


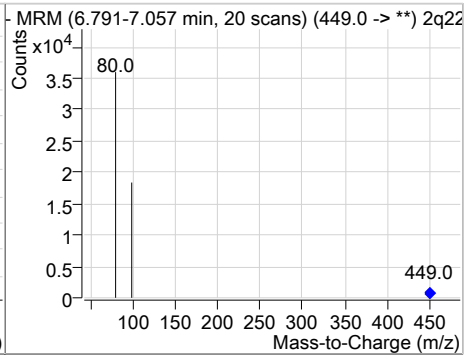




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.38	6.89	0.01	26374	449.0 -> 99.0	49.8	20.3	80.3

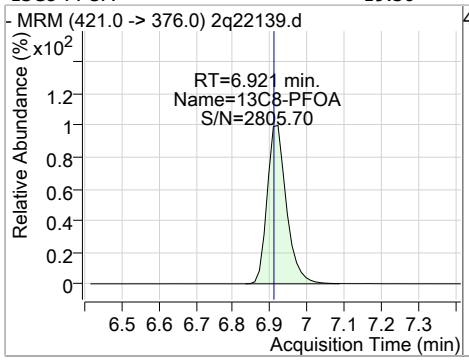


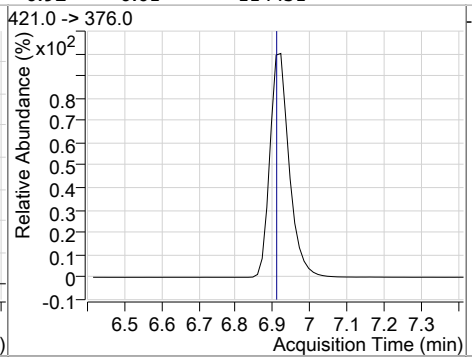


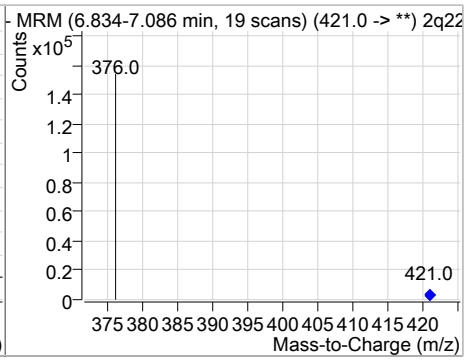


Perfluorinated Compounds by LC/MS/MS

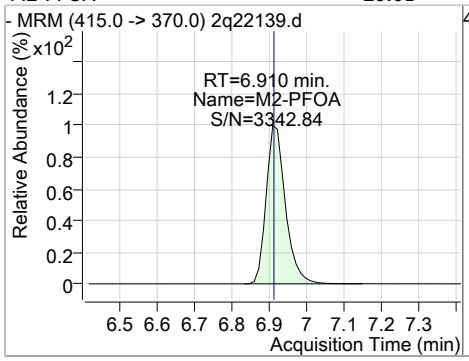
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.50	6.92	0.01	114451				

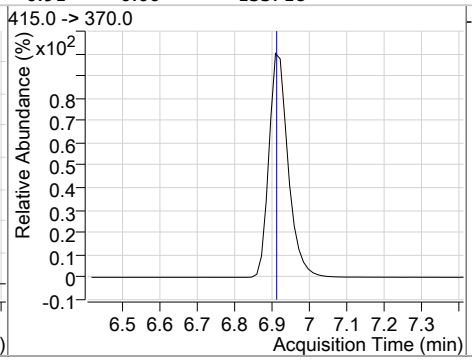


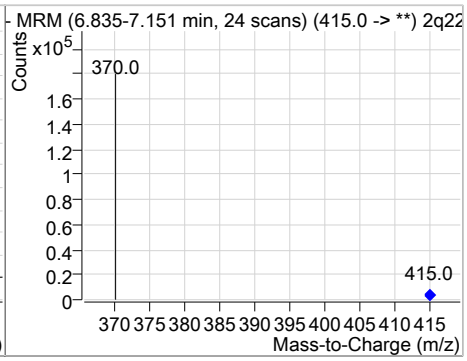




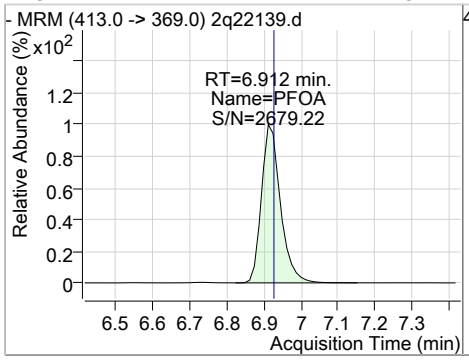
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.91	0.00	133718				

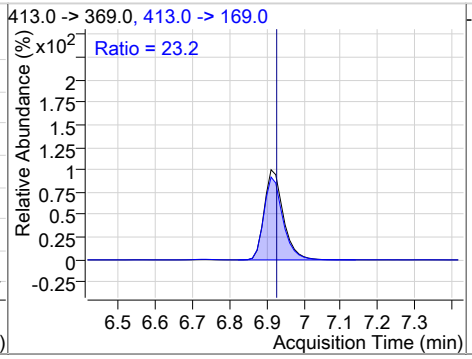


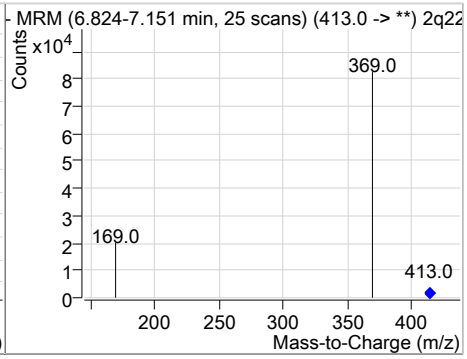




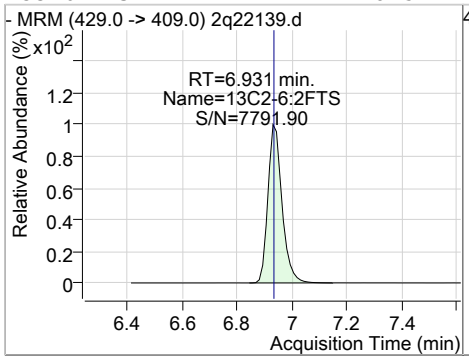
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.75	6.91	0.00	61192	413.0 -> 169.0	23.2	0.0	55.3

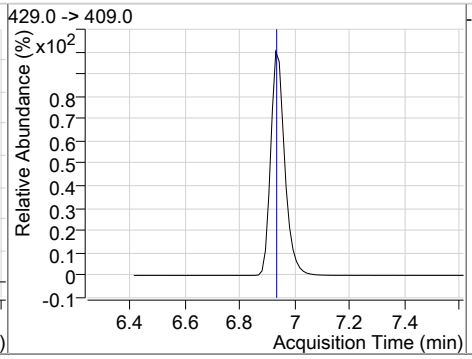


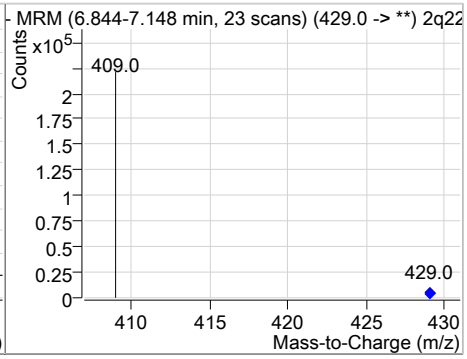




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.75	6.93	0.00	164753				

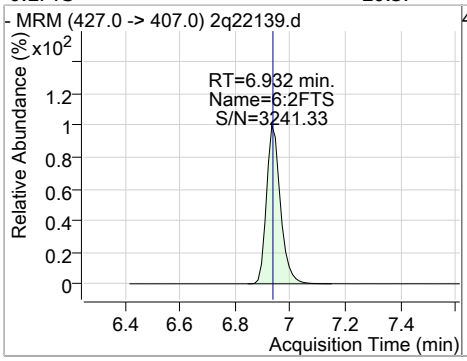


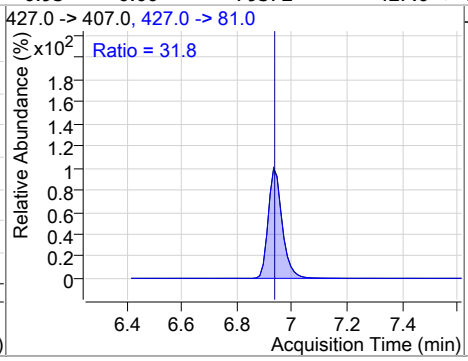


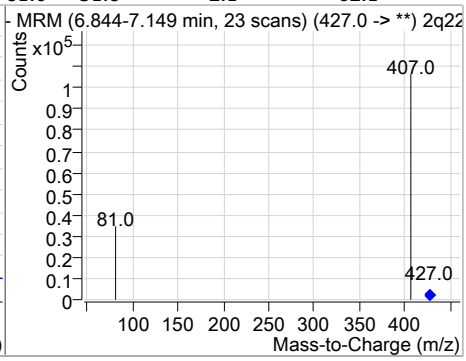


Perfluorinated Compounds by LC/MS/MS

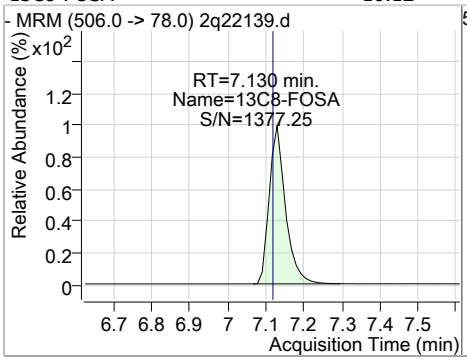
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.37	6.93	0.00	79372	427.0 -> 81.0	31.8	2.1	62.1

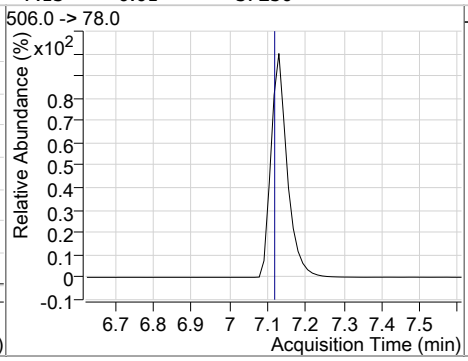


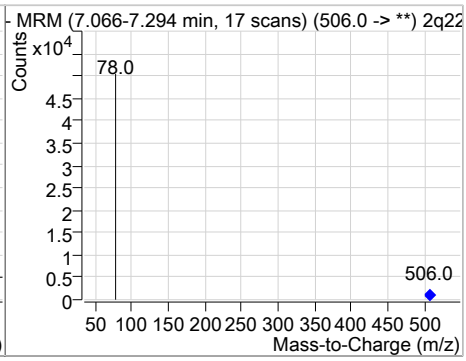




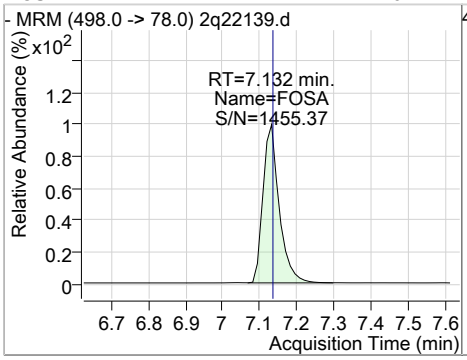
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	10.12	7.13	0.01	37250				

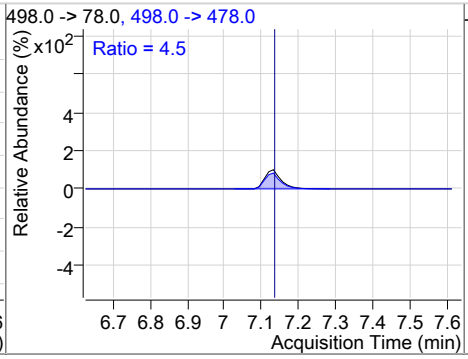


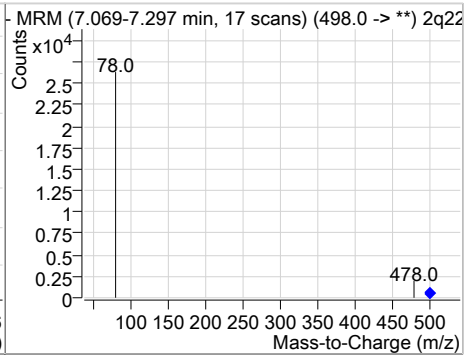




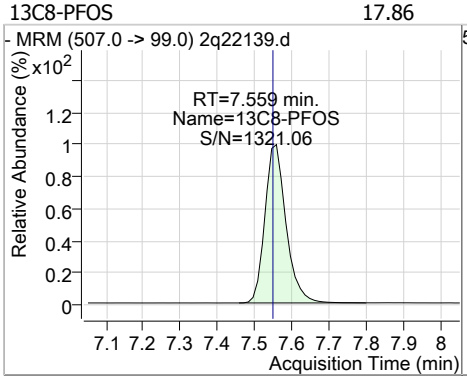
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	21.62	7.13	0.01	19286	498.0 -> 478.0	4.5	0.0	35.4

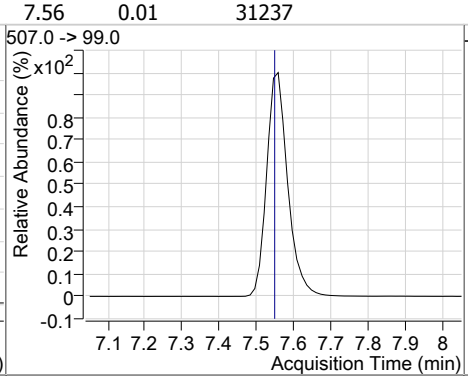


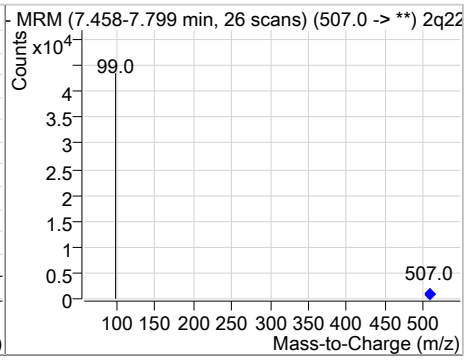




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.86	7.56	0.01	31237				

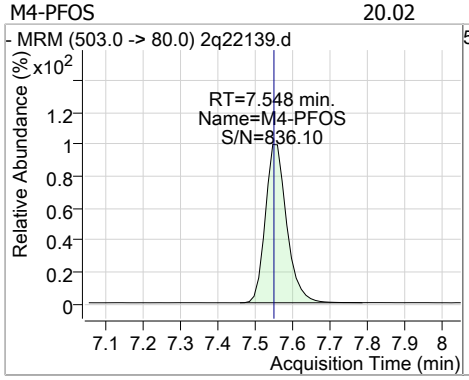


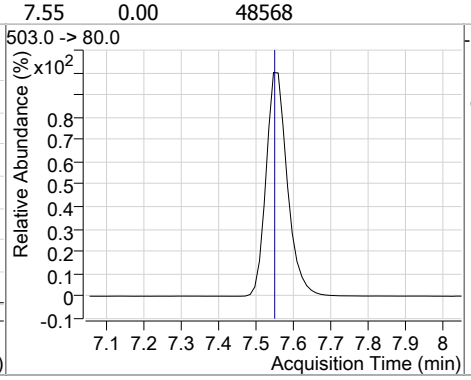


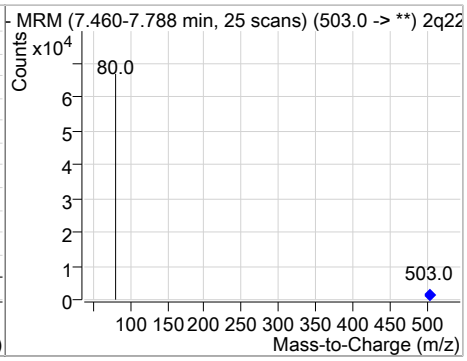


Perfluorinated Compounds by LC/MS/MS

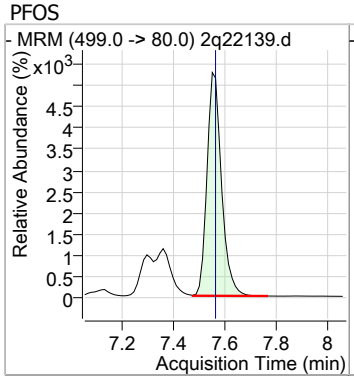
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.55	0.00	48568				

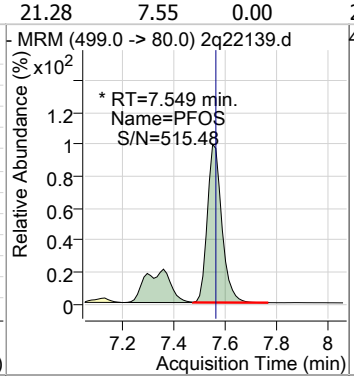


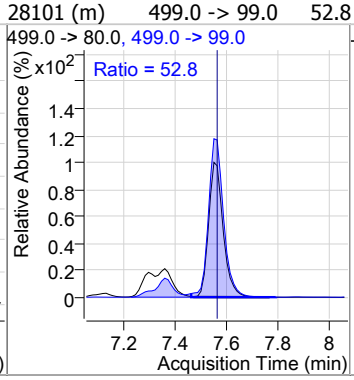


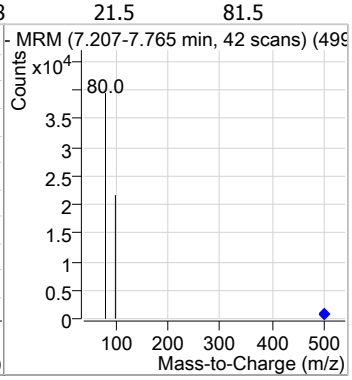


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.28	7.55	0.00	28101 (m)	499.0 -> 99.0	52.8	21.5	81.5

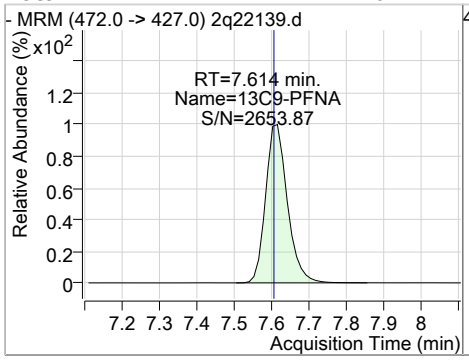


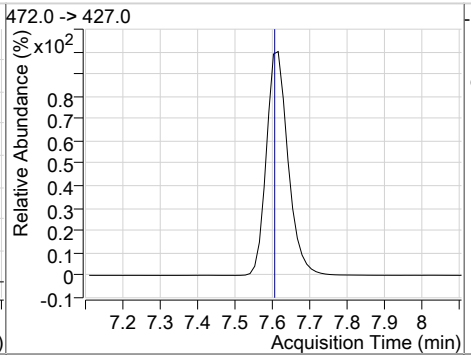


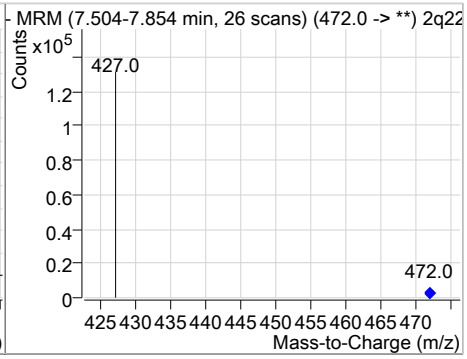




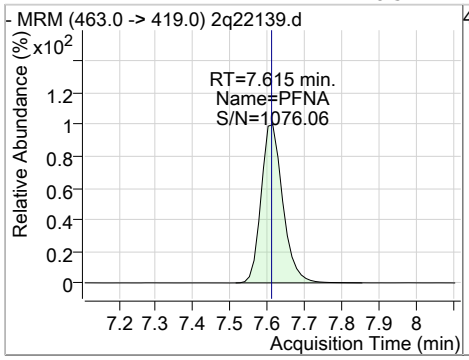
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.77	7.61	0.01	98469				

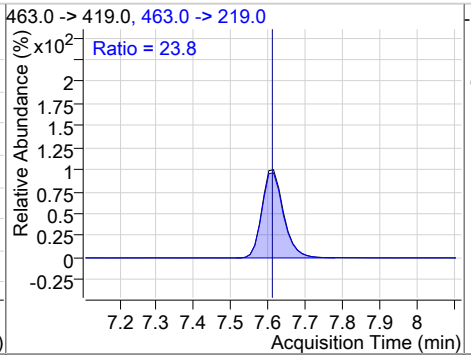


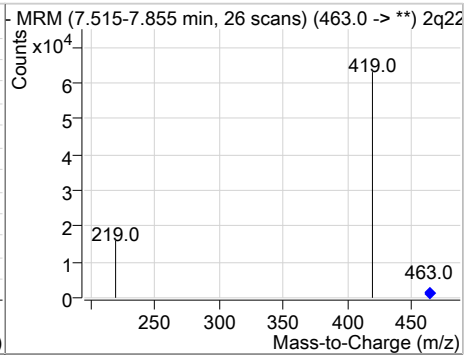




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.51	7.61	0.01	47499	463.0 -> 219.0	23.8	0.0	54.8

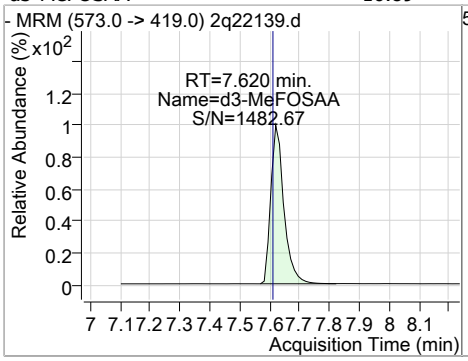


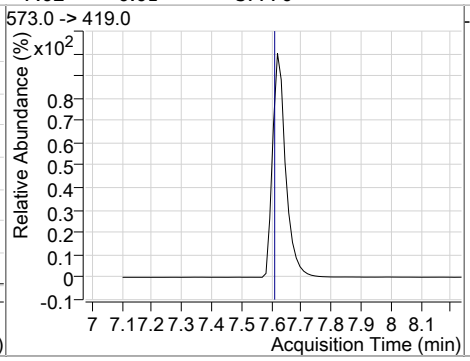


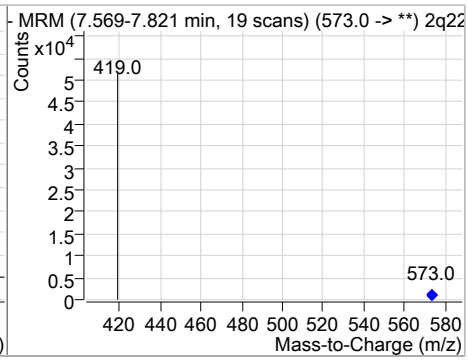


Perfluorinated Compounds by LC/MS/MS

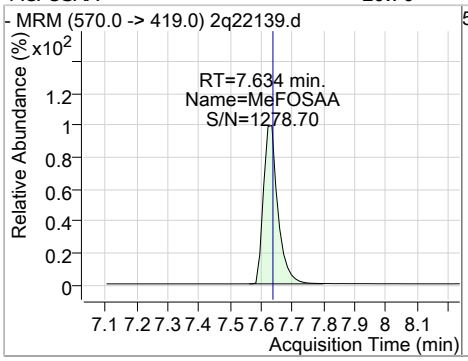
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	16.89	7.62	0.01	37770				

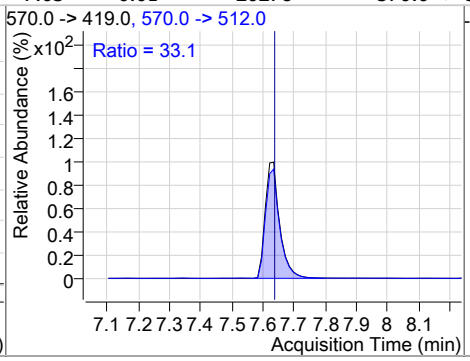


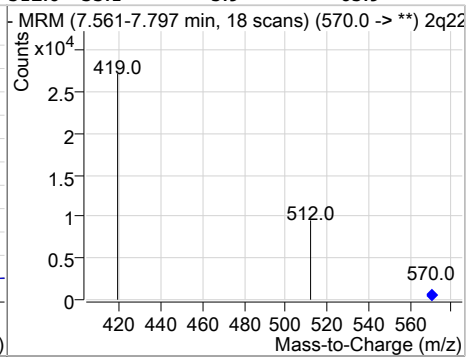




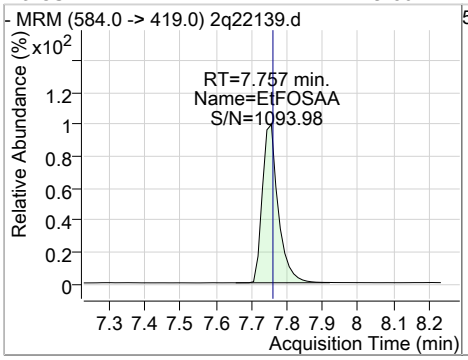
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.76	7.63	0.01	20278	570.0 -> 512.0	33.1	5.9	65.9

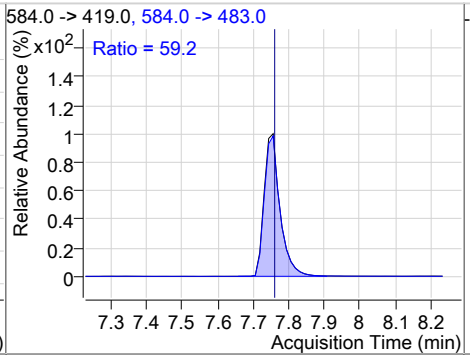


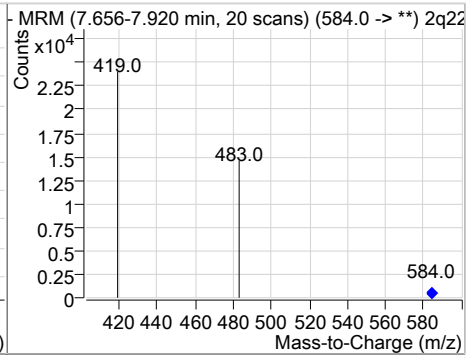




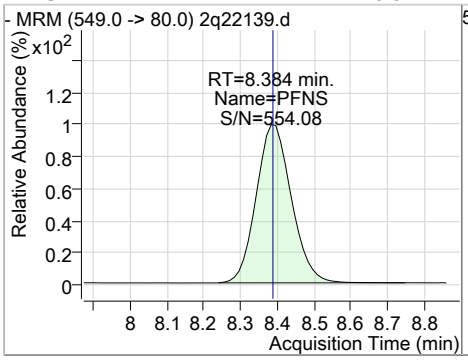
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.80	7.76	0.01	17242	584.0 -> 483.0	59.2	30.5	90.5

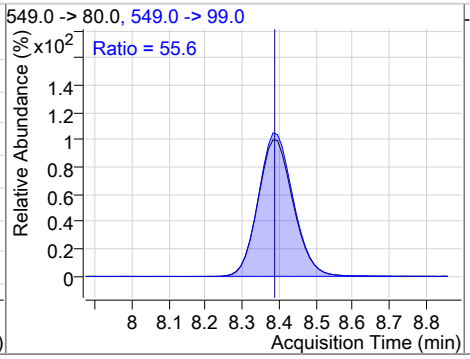


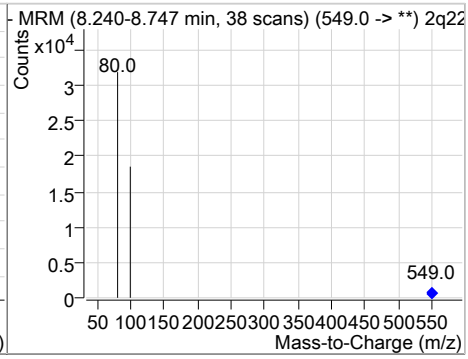




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	18.51	8.38	0.01	22576	549.0 -> 99.0	55.6	23.4	83.4

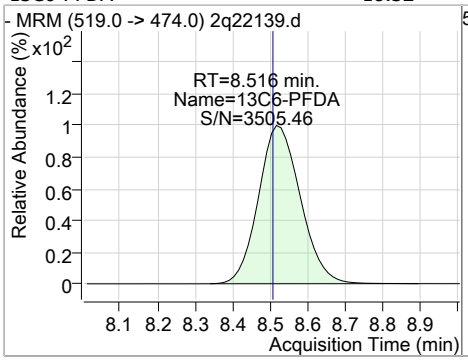


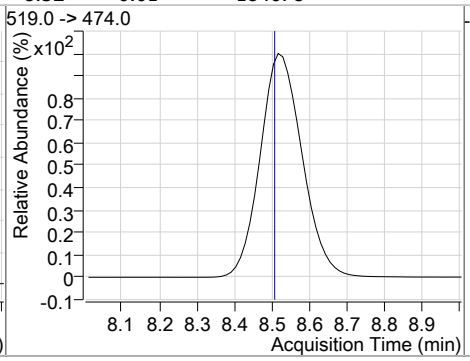


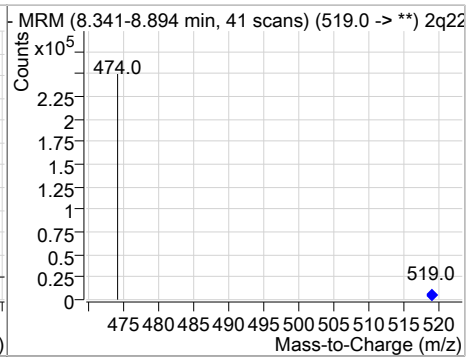


Perfluorinated Compounds by LC/MS/MS

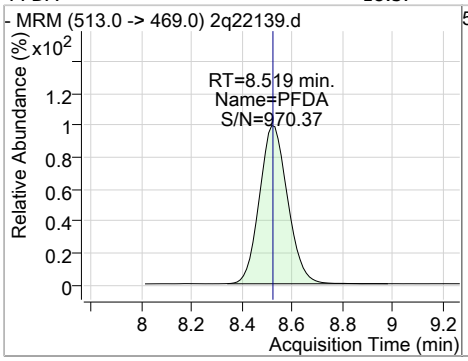
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.32	8.52	0.01	184678				

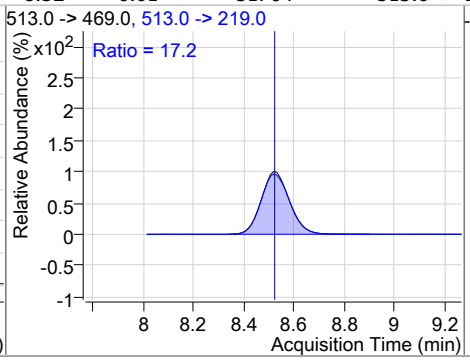


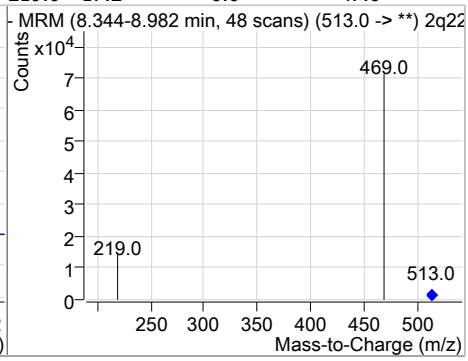




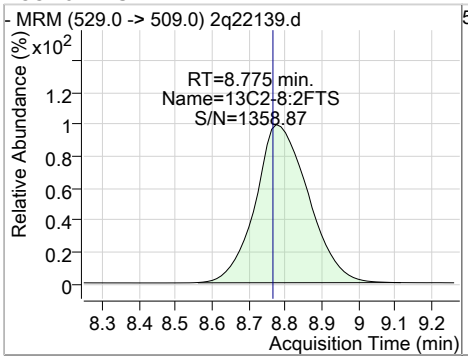
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.57	8.52	0.01	51764	513.0 -> 219.0	17.2	0.0	47.6

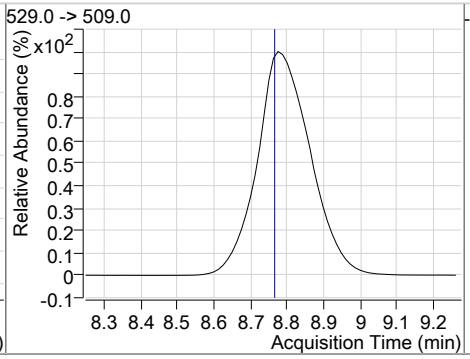


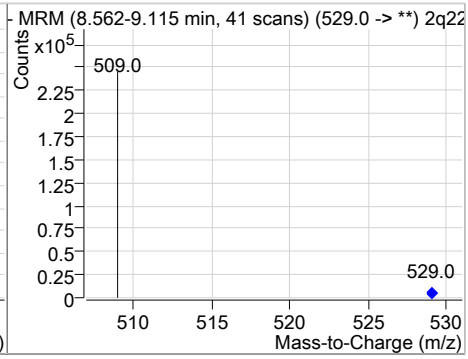




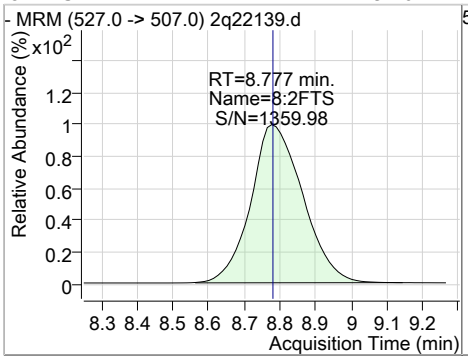
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.21	8.77	0.01	179080				

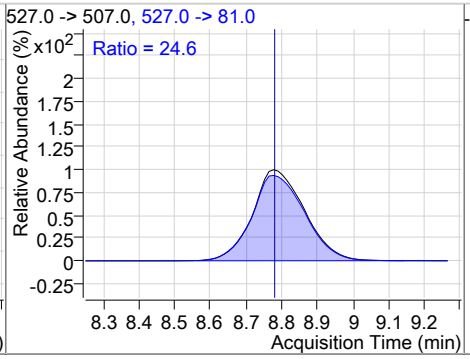


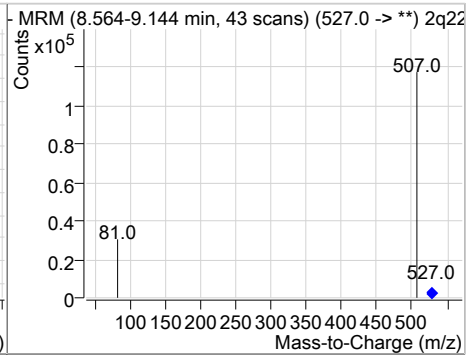




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.76	8.78	0.01	86006	527.0 -> 81.0	24.6	0.0	55.6

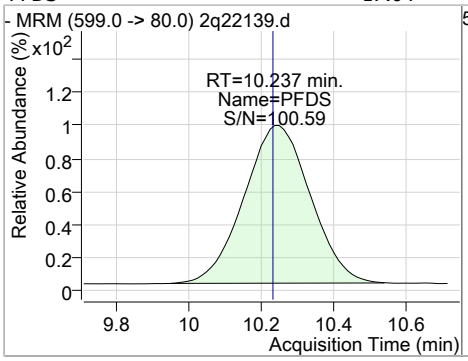


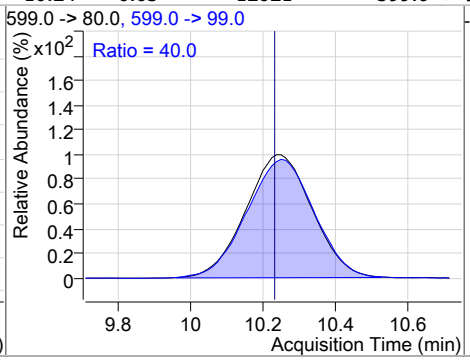


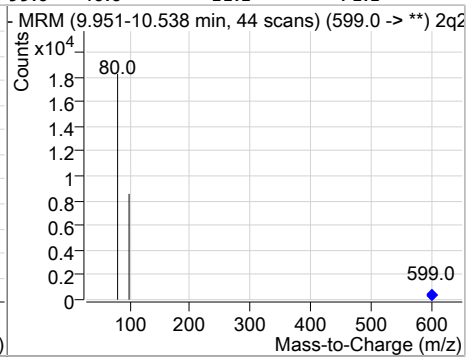


Perfluorinated Compounds by LC/MS/MS

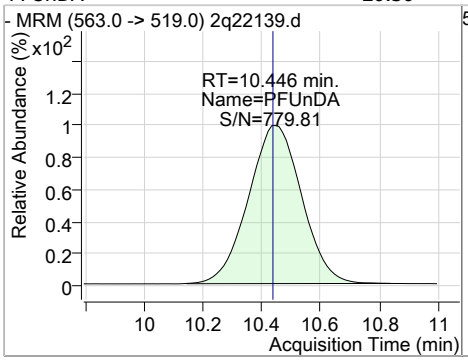
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	17.04	10.24	0.03	12021	599.0 -> 99.0	40.0	11.1	71.1

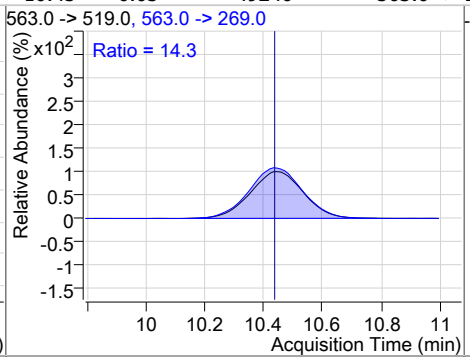


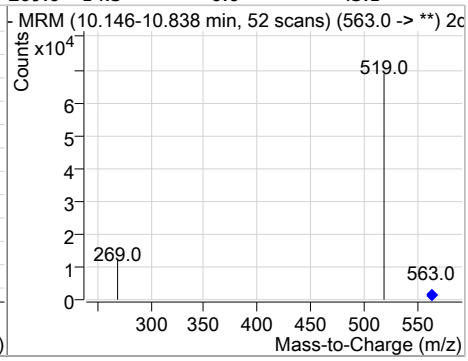




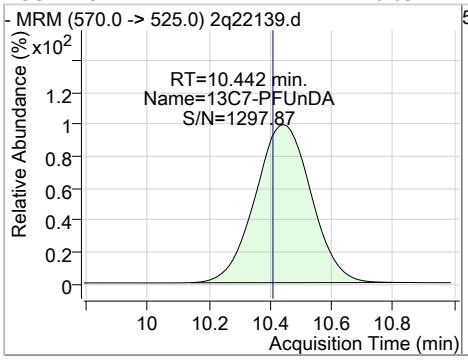
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.30	10.45	0.05	49246	563.0 -> 269.0	14.3	0.0	43.1

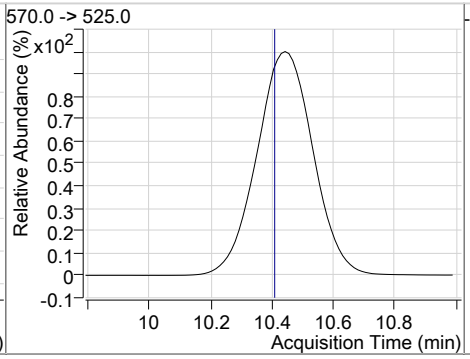


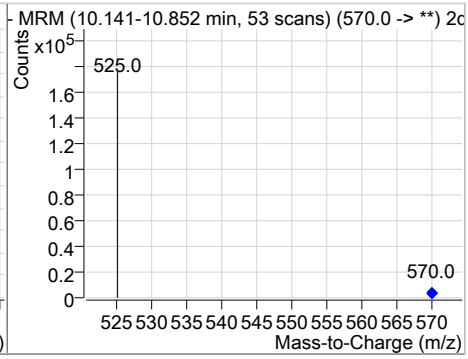




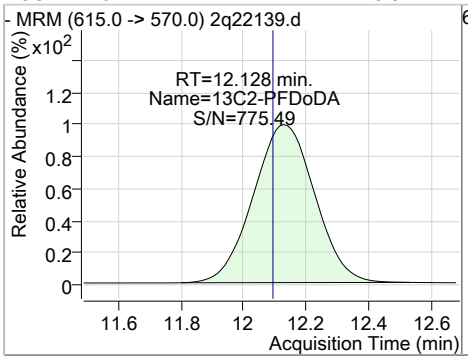
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	16.63	10.44	0.04	127159				

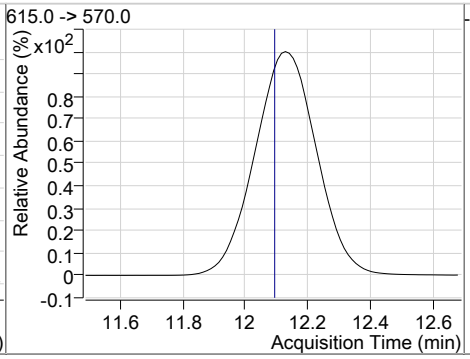


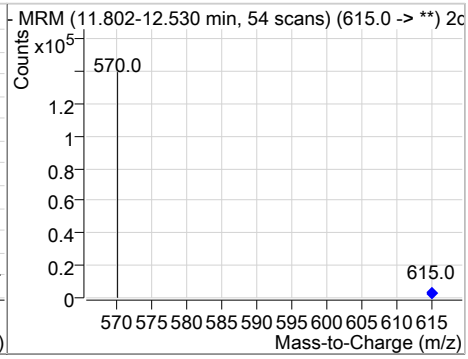




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	15.97	12.13	0.04	100230				

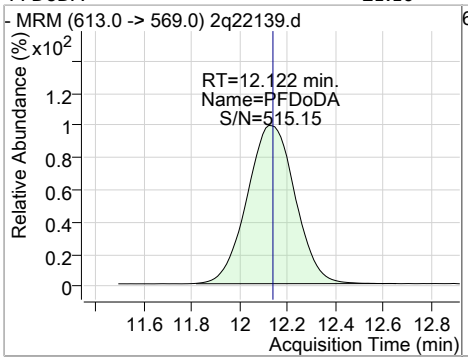


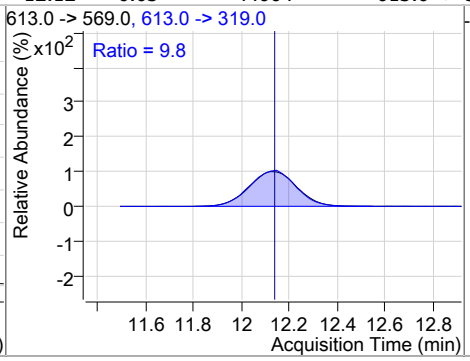


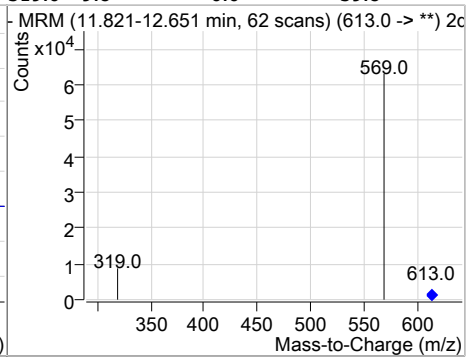


Perfluorinated Compounds by LC/MS/MS

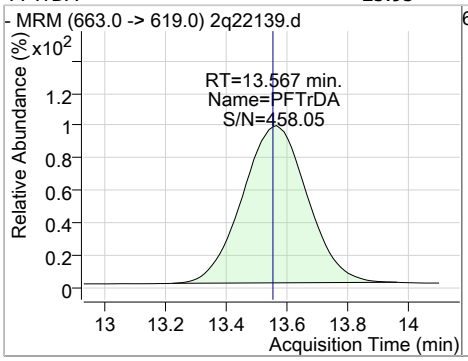
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	21.10	12.12	0.03	44664	613.0 -> 319.0	9.8	0.0	39.8

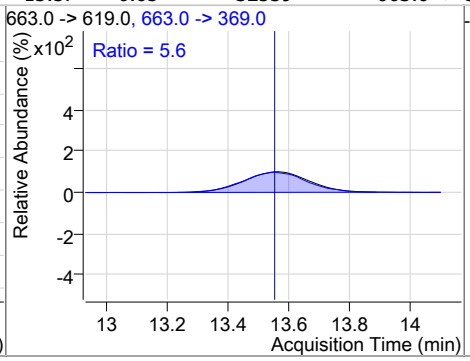


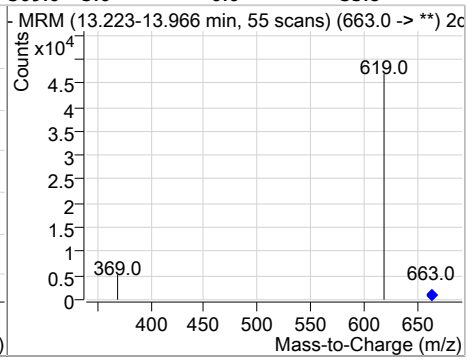




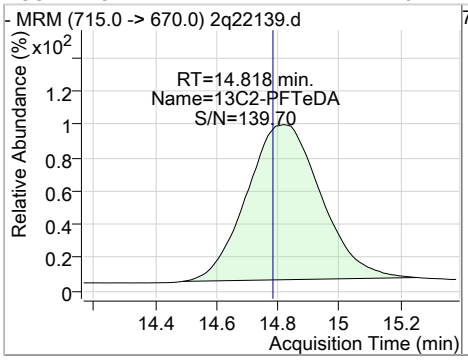
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	25.95	13.57	0.05	32539	663.0 -> 369.0	5.6	0.0	35.8

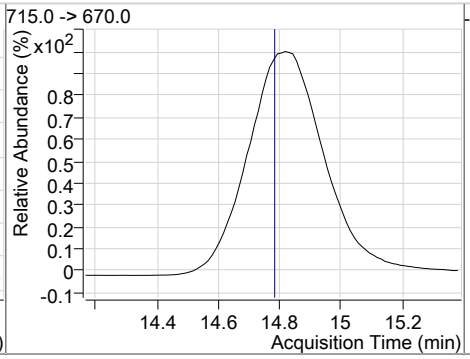


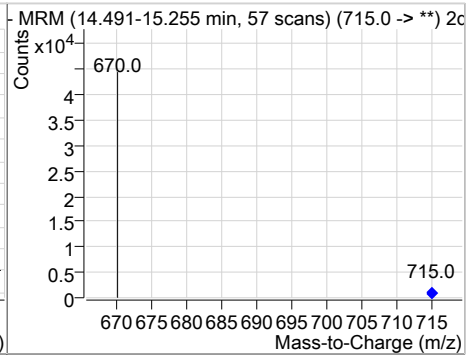




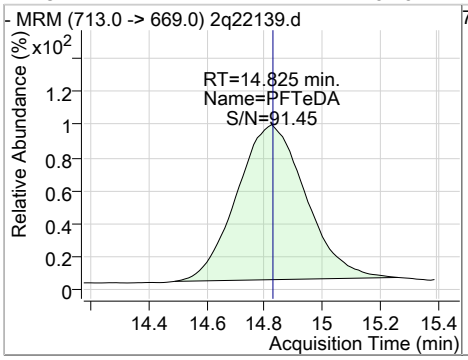
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	12.40	14.82	0.04	27701				

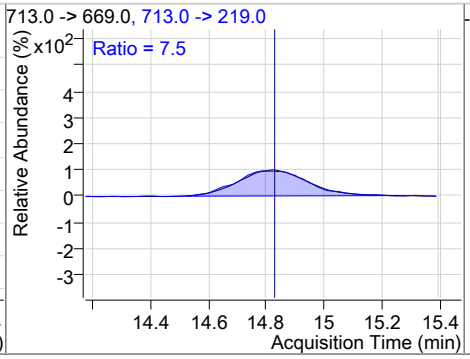


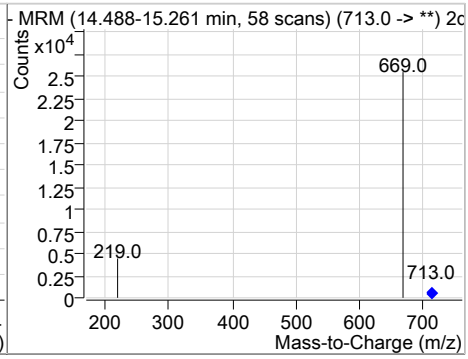




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.78	14.82	0.04	16051	713.0 -> 219.0	7.5	0.0	37.4







Manual Integration Approval Summary

Sample Number: OP71994-MSD
Lab FileID: 2Q22139.D
Injection Time: 10/15/18 17:45
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 13:00 Natasha Gumtie
Supervisor approved: 10/23/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.20	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22419.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 10:32:25 PM
Sample Name : op72234-ms
Vial : Vial 34
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

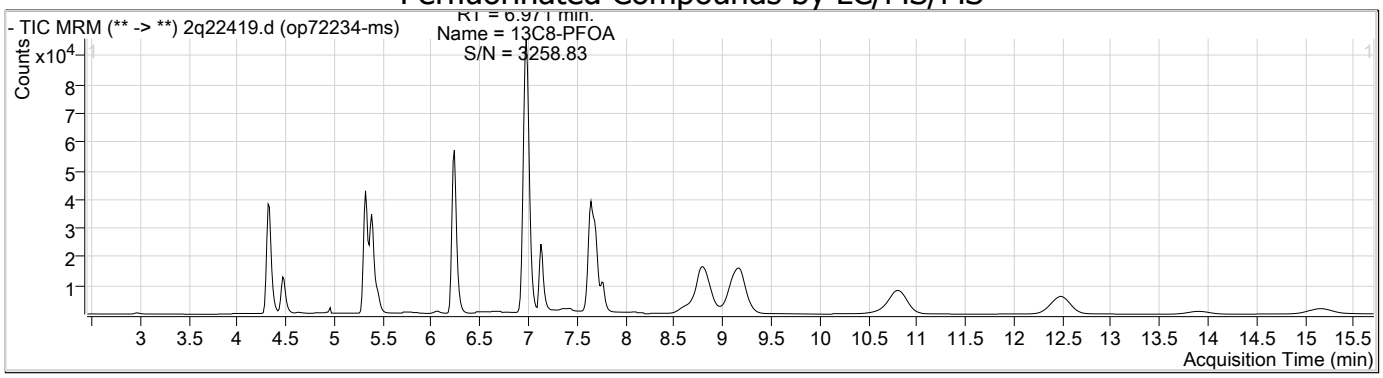
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	108636	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	44756	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1380	20.00	µg/L	0.013
M5-PFPeA	4.325	268.0 -> 223.0	85217	20.00	µg/L	0.013
M5-PFHxA	5.390	318.0 -> 273.0	86373	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	99292	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	77843	20.00	µg/L	0.013
M9-PFNA	7.690	472.0 -> 427.0	73083	20.00	µg/L	0.013
M6-PFDA	8.804	519.0 -> 474.0	138856	20.00	µg/L	0.025
M7-PFUnDA	10.805	570.0 -> 525.0	83897	20.00	µg/L	0.025
M2-PFDoDA	12.478	615.0 -> 570.0	66699	20.00	µg/L	0.025
M2-PFTeDA	15.156	715.0 -> 670.0	24037	20.00	µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	52696	20.00	µg/L	0.000
M3-PFBS	4.468	302.0 -> 99.0	20160	20.00	µg/L	0.013
M3-PFHxS	6.235	402.0 -> 99.0	25914	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	25256	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	97071	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	126031	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	135939	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	29677	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	97256	14.77	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.8%		
13C2-6:2FTS	6.993	429.0 -> 409.0	126108	14.28	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.4%		
13C2-8:2FTS	9.160	529.0 -> 509.0	134595	12.81	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.0%		
13C2-PFDoDA	12.478	615.0 -> 570.0	66364	12.00	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 60.0%		
13C2-PFTeDA	15.156	715.0 -> 670.0	22295	11.49	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.4%		
13C3-PFBS	4.468	302.0 -> 99.0	20158	14.41	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.1%		
13C3-PFHxS	6.235	402.0 -> 99.0	25905	14.55	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.7%		
13C4-PFBA	2.966	217.0 -> 172.0	1383	0.10	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.5%		
13C4-PFHpA	6.242	367.0 -> 322.0	99313	15.44	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.2%		
13C5-PFHxA	5.390	318.0 -> 273.0	86394	15.69	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.5%		
13C5-PFPeA	4.325	268.0 -> 223.0	85185	14.90	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.5%		
13C6-PFDA	8.804	519.0 -> 474.0	138004	14.83	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.2%		

Perfluorinated Compounds by LC/MS/MS

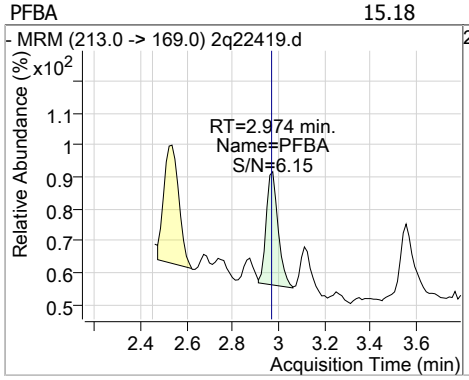
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.805	570.0 -> 525.0	83595	12.21	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 61.0%			
13C8-FOSA	7.129	506.0 -> 78.0	52747	13.59	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.0%			
13C8-PFOA	6.971	421.0 -> 376.0	77854	14.49	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.4%			
13C8-PFOS	7.634	507.0 -> 99.0	25255	13.92	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.6%			
13C9-PFNA	7.690	472.0 -> 427.0	73079	14.87	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.3%			
d3-MeFOSAA	7.645	573.0 -> 419.0	29742	12.79	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 63.9%			
M2-PFOA	6.973	415.0 -> 370.0	108573	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
M4-PFOS	7.636	503.0 -> 80.0	44798	20.03	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.325	327.0 -> 307.0	31051	13.77	µg/L		99
6:2FTS	6.995	427.0 -> 407.0	37312	14.23	µg/L		99
8:2FTS	9.163	527.0 -> 507.0	41141	14.40	µg/L		96
EtFOSAA	7.769	584.0 -> 419.0	8419	12.45	µg/L		99
FOSA	7.132	498.0 -> 78.0	16548	13.26	µg/L		97
MeFOSAA	7.646	570.0 -> 419.0	9819	12.97	µg/L		96
PFBA	2.974	213.0 -> 169.0	126	15.18	µg/L		100
PFBS	4.472	299.0 -> 80.0	16454	11.29	µg/L		99
PFDA	8.794	513.0 -> 469.0	24481	11.57	µg/L		99
PFDoDA	12.484	613.0 -> 569.0	18738	13.57	µg/L		99
PFDS	10.613	599.0 -> 80.0	6004	11.40	µg/L		98
PFHpA	6.245	363.0 -> 319.0	49468	13.12	µg/L		99
PFHpS	6.941	449.0 -> 80.0	12304	11.74	µg/L		99
PFHxA	5.393	313.0 -> 269.0	15579	11.26	µg/L		99
PFHxS	6.238	399.0 -> 80.0	14494	11.47	µg/L	m	99
PFNA	7.691	463.0 -> 419.0	22674	11.29	µg/L		98
PFNS	8.608	549.0 -> 80.0	12957	14.21	µg/L		97
PFOA	6.974	413.0 -> 369.0	26463	13.14	µg/L		100
PFOS	7.637	499.0 -> 80.0	13792	12.74	µg/L	m	95
PFPeA	4.328	263.0 -> 219.0	48285	12.07	µg/L		100
PFPeS	5.446	349.0 -> 80.0	11159	11.82	µg/L		99
PFTeDA	15.175	713.0 -> 669.0	8044	11.32	µg/L		100
PFTrDA	13.904	663.0 -> 619.0	14427	13.88	µg/L		100
PFUnDA	10.809	563.0 -> 519.0	20431	13.11	µg/L		97

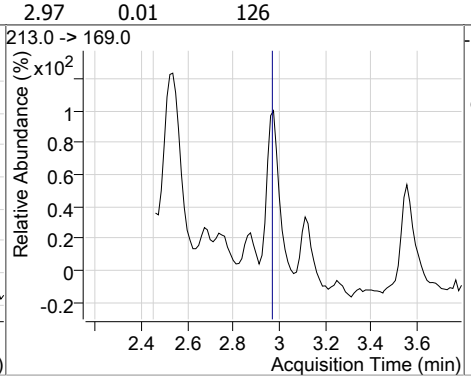
 # = Qualifier out of range, m = manually integrated, + = Area summed

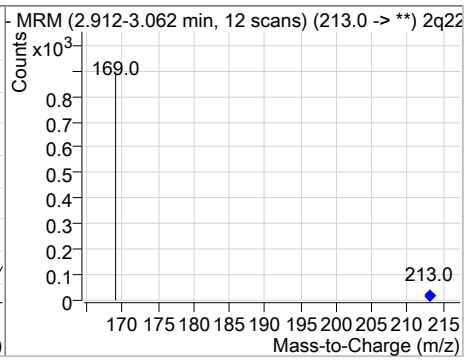
Perfluorinated Compounds by LC/MS/MS



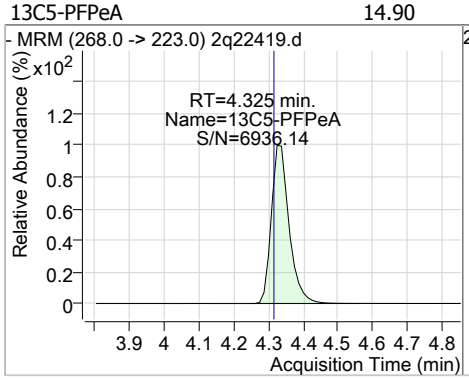
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	15.18	2.97	0.01	126				

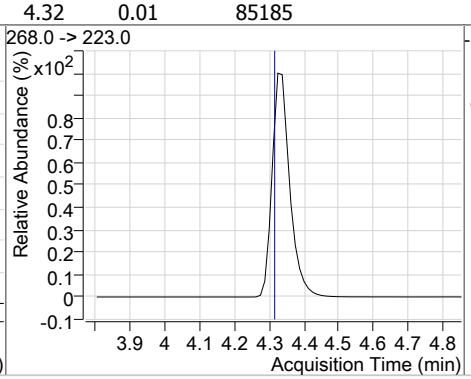


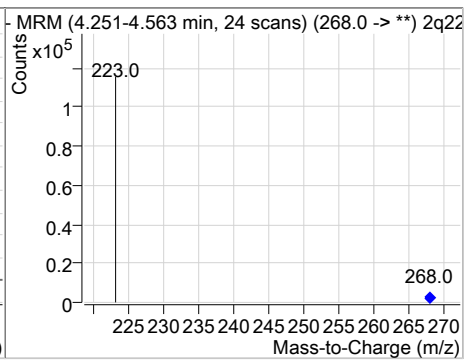




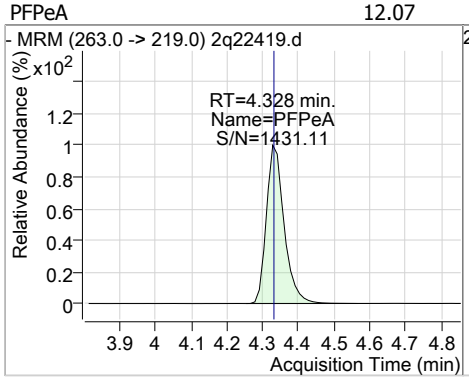
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	14.90	4.32	0.01	85185				

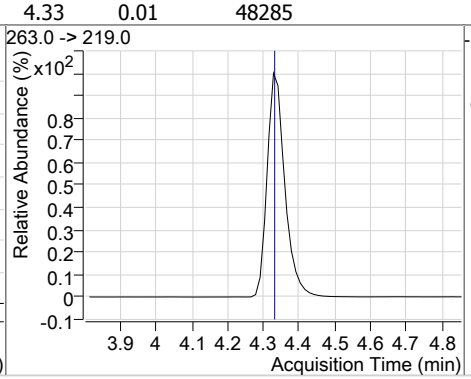


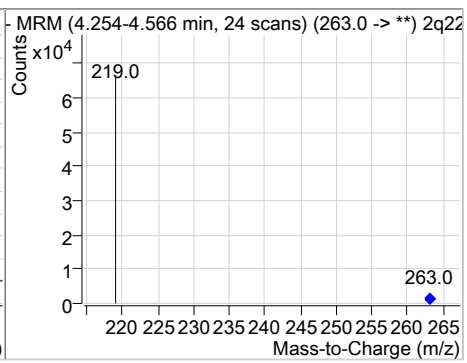




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	12.07	4.33	0.01	48285				

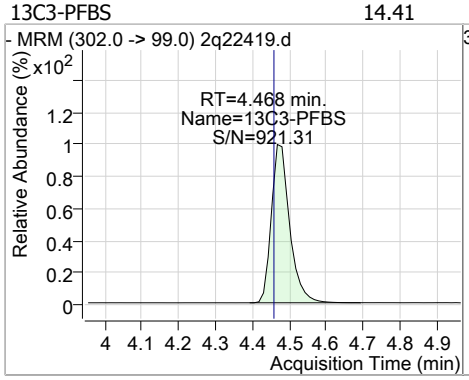


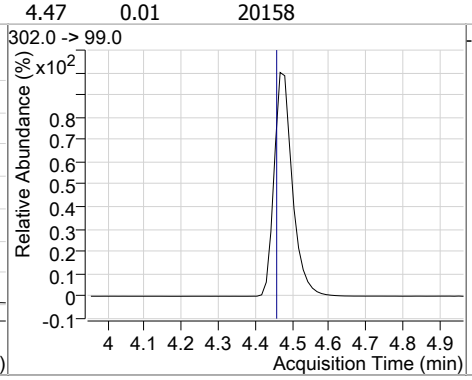


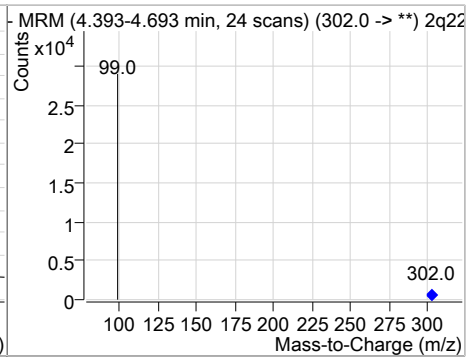


Perfluorinated Compounds by LC/MS/MS

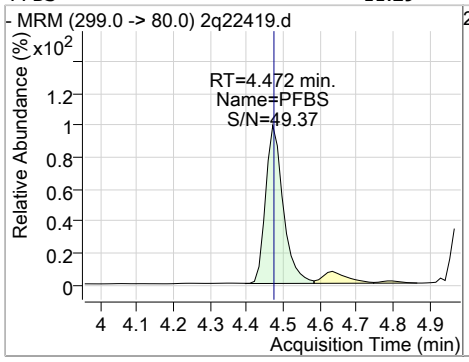
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	14.41	4.47	0.01	20158				

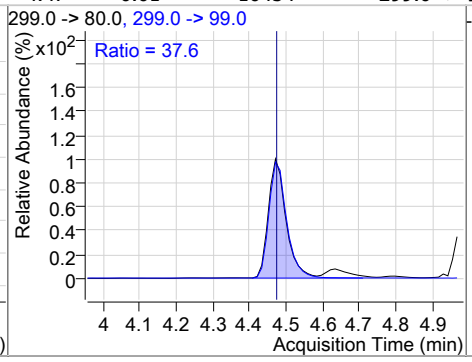


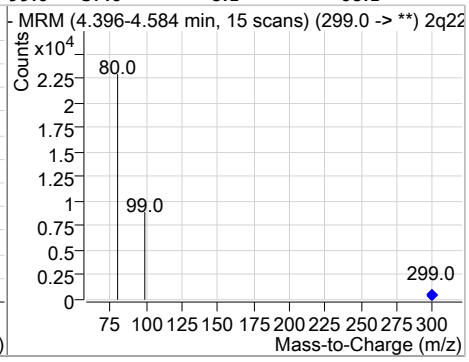




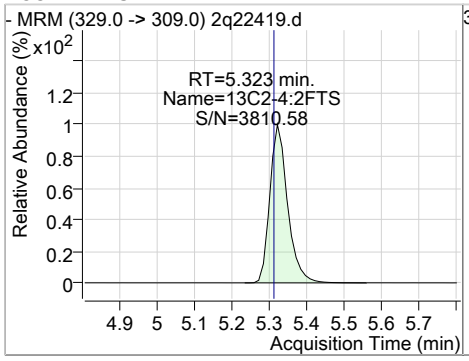
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.29	4.47	0.01	16454	299.0 -> 99.0	37.6	8.1	68.1

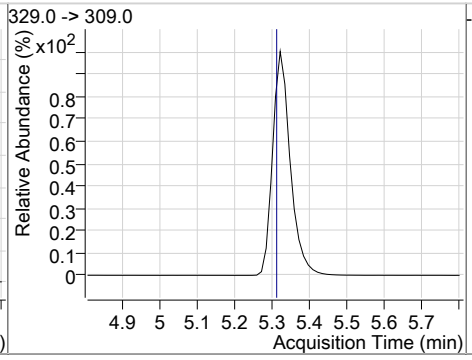


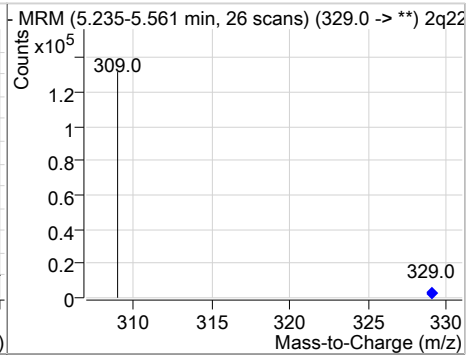




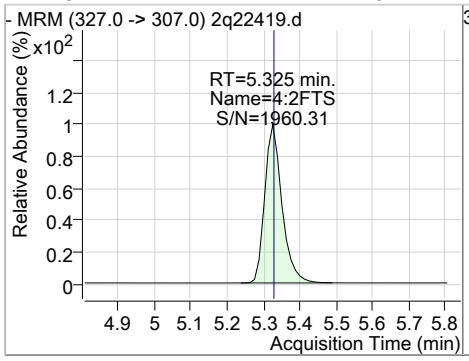
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	14.77	5.32	0.01	97256				

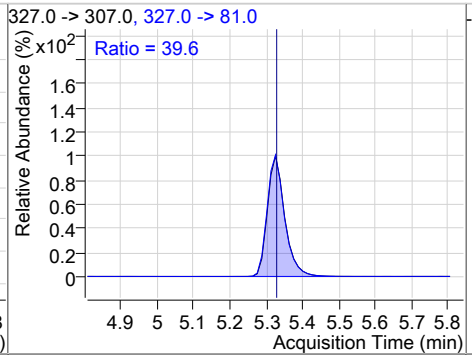


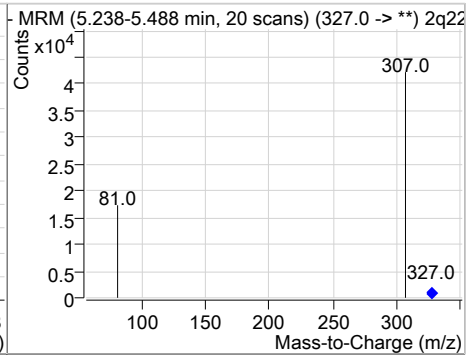




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	13.77	5.33	0.01	31051	327.0 -> 81.0	39.6	9.0	69.0

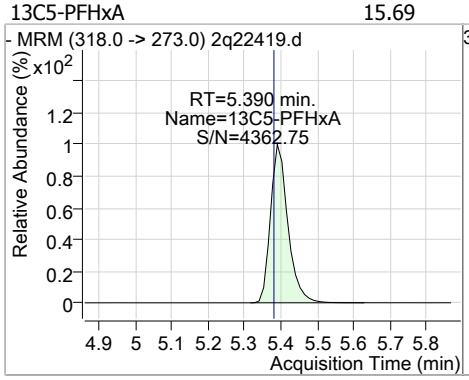


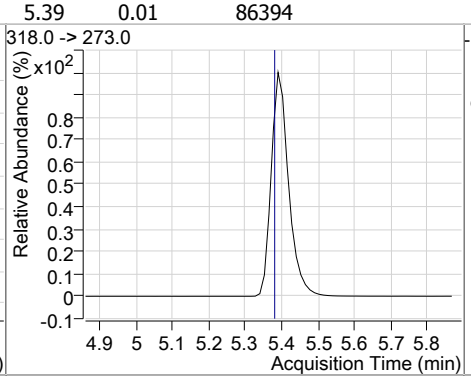


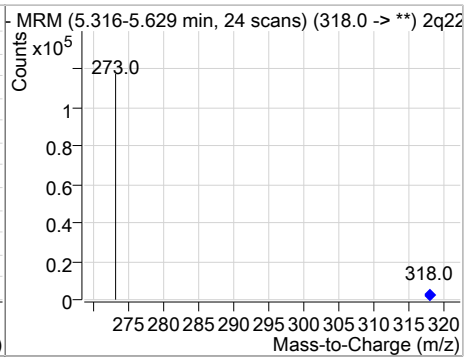


Perfluorinated Compounds by LC/MS/MS

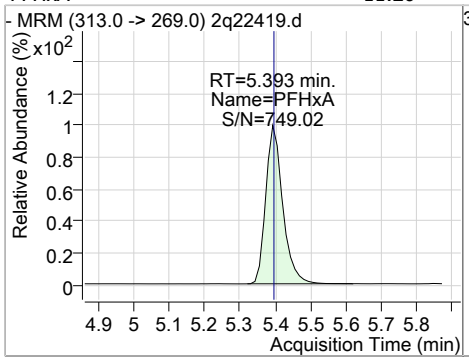
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	15.69	5.39	0.01	86394				

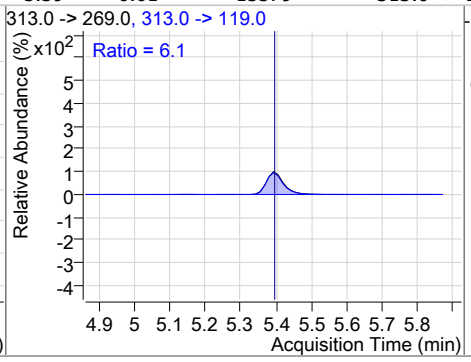


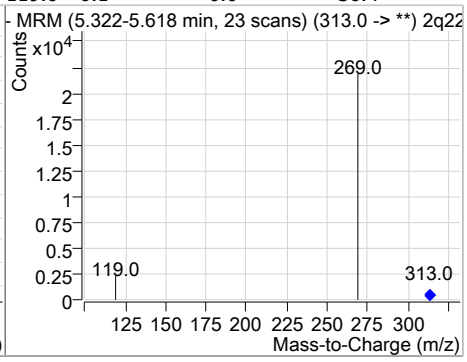




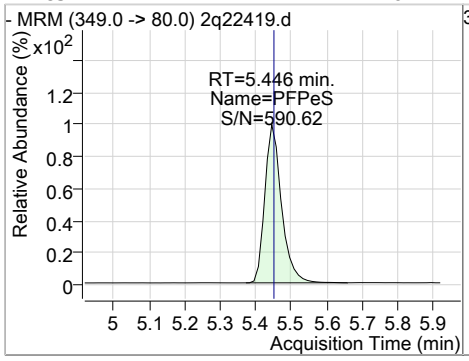
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	11.26	5.39	0.01	15579	313.0 -> 119.0	6.1	0.0	36.4

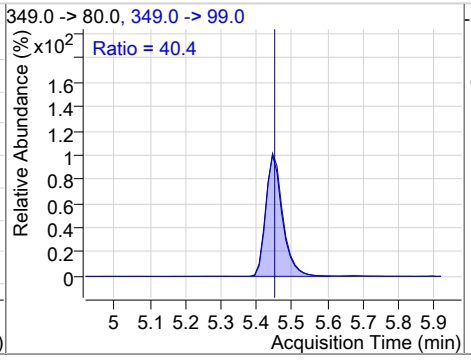


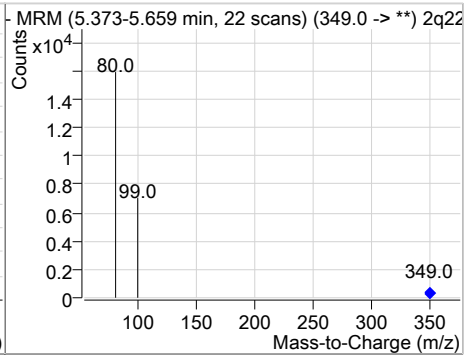




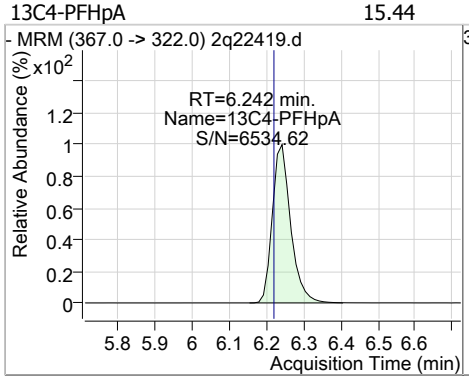
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	11.82	5.45	0.01	11159	349.0 -> 99.0	40.4	9.5	69.5

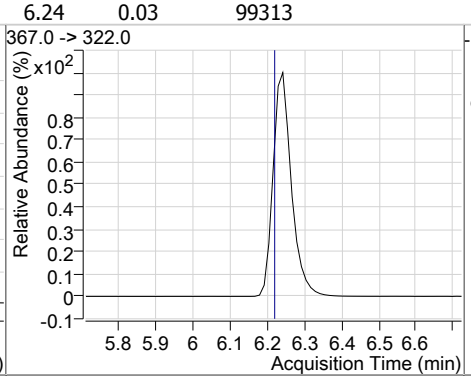


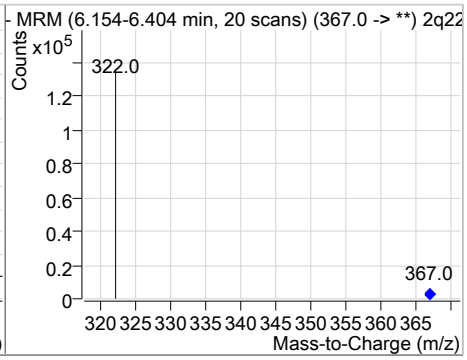




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	15.44	6.24	0.03	99313				

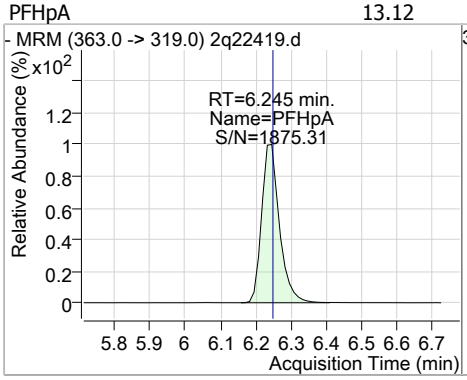


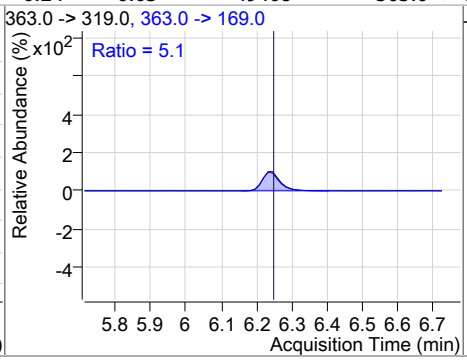


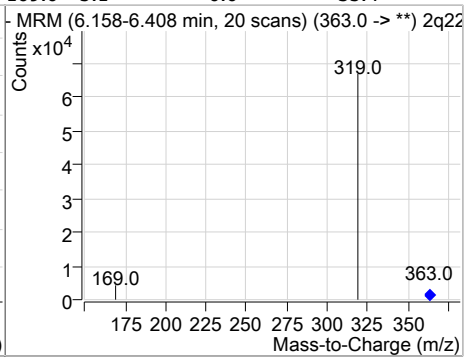


Perfluorinated Compounds by LC/MS/MS

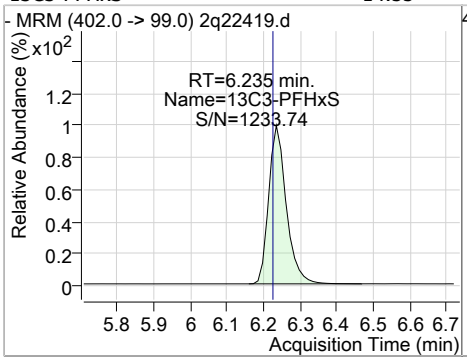
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	13.12	6.24	0.03	49468	363.0 -> 169.0	5.1	0.0	35.4

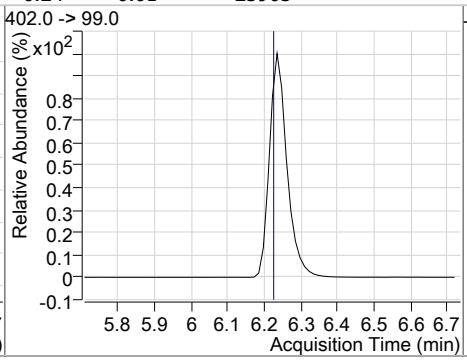


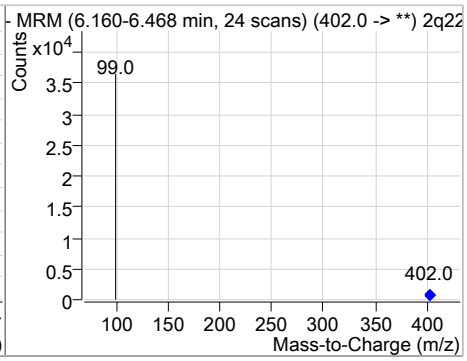




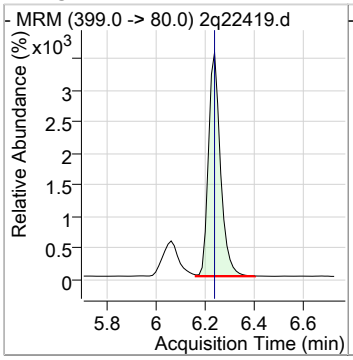
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	14.55	6.24	0.01	25905				

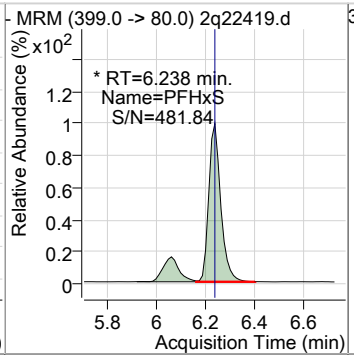


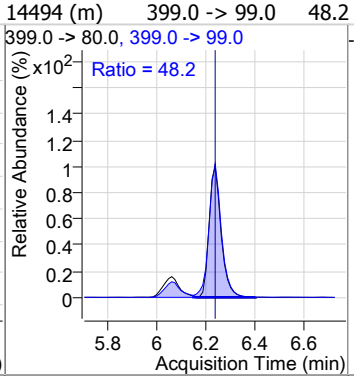


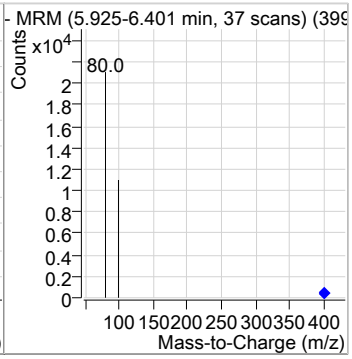


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	11.47	6.24	0.01	14494 (m)	399.0 -> 99.0	48.2	17.7	77.7

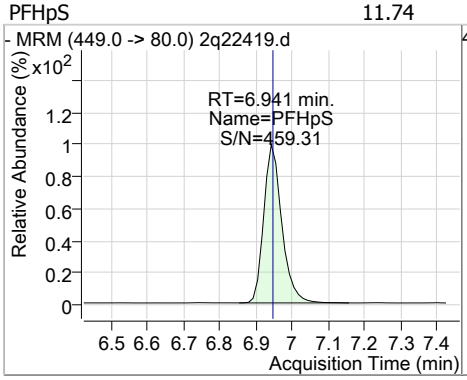


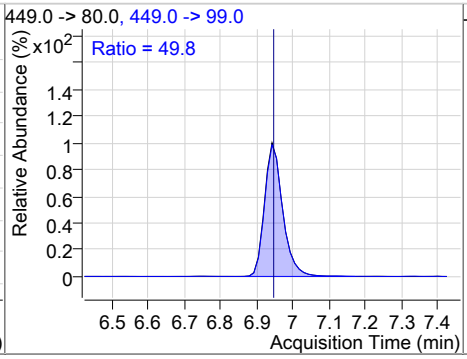


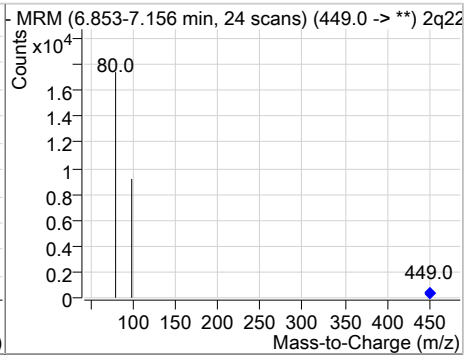




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	11.74	6.94	0.01	12304	449.0 -> 99.0	49.8	20.3	80.3

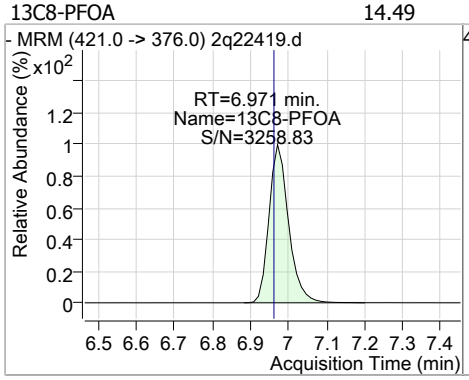


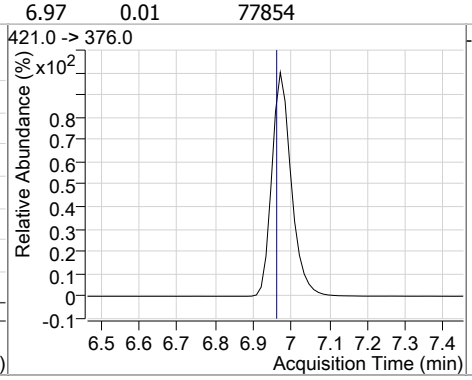


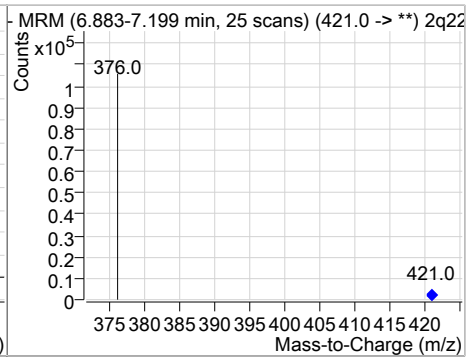


Perfluorinated Compounds by LC/MS/MS

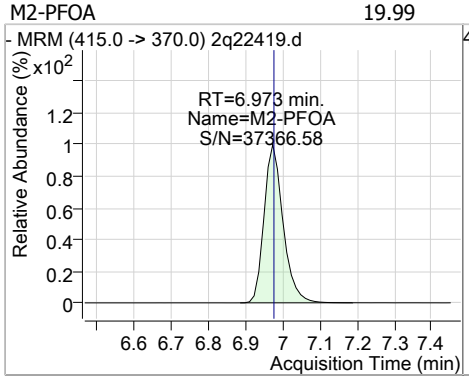
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	14.49	6.97	0.01	77854				

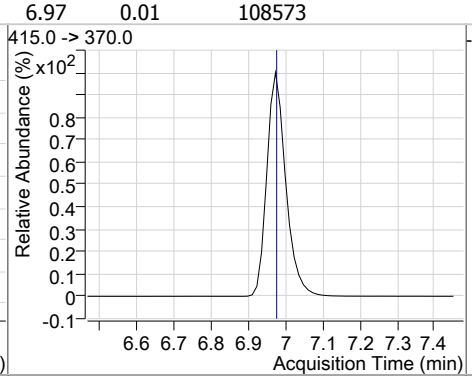


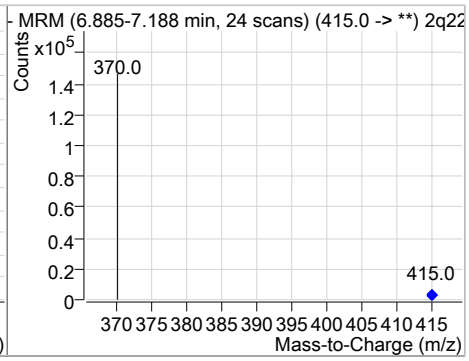




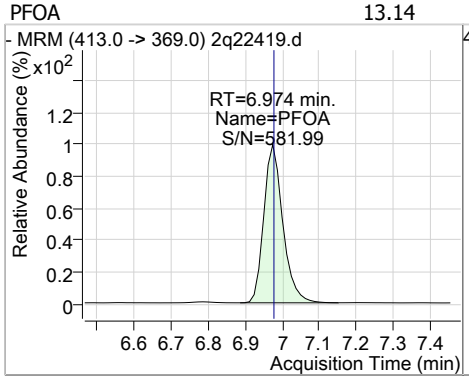
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	108573				

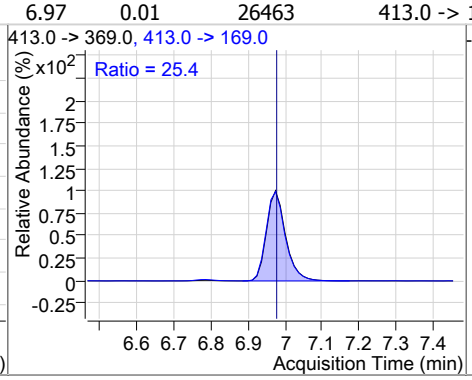


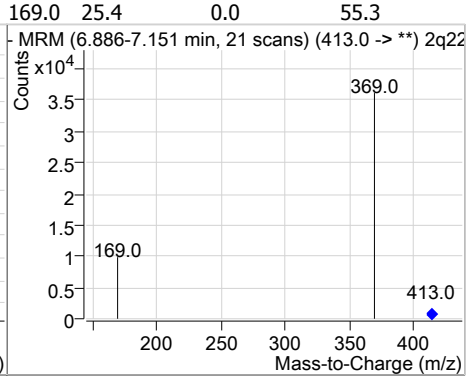




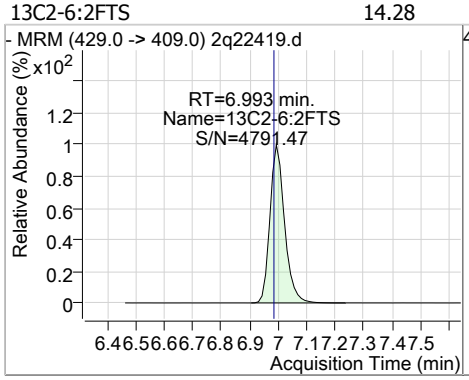
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	13.14	6.97	0.01	26463	413.0 -> 169.0	25.4	0.0	55.3

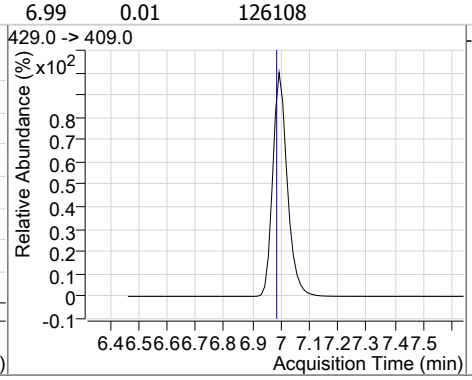


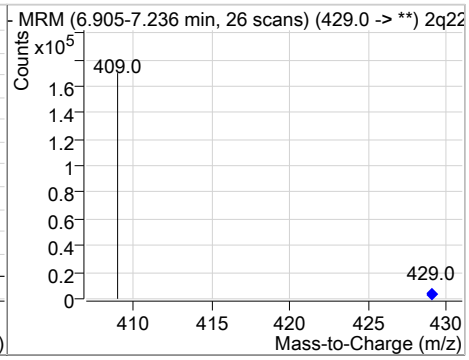




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	14.28	6.99	0.01	126108				

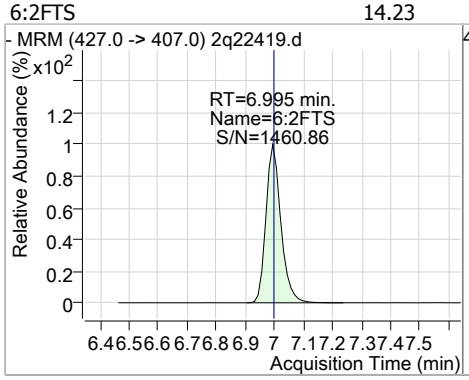


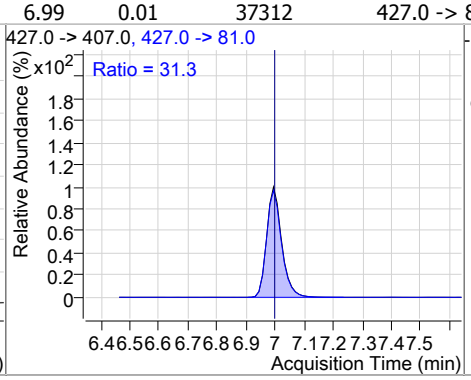


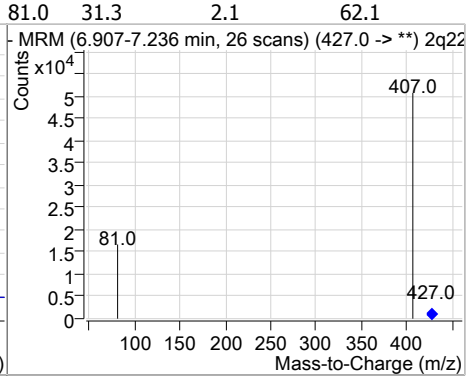


Perfluorinated Compounds by LC/MS/MS

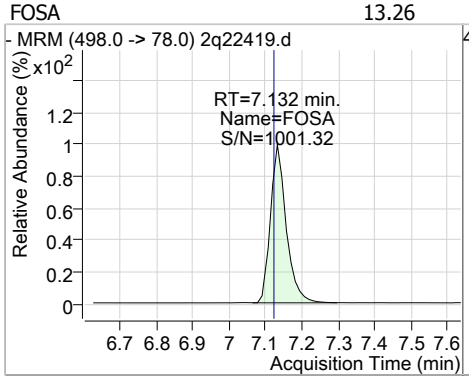
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	14.23	6.99	0.01	37312	427.0 -> 81.0	31.3	2.1	62.1

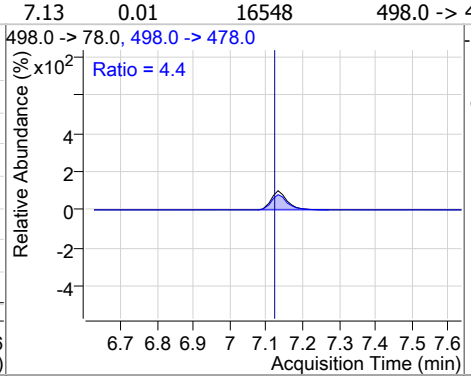


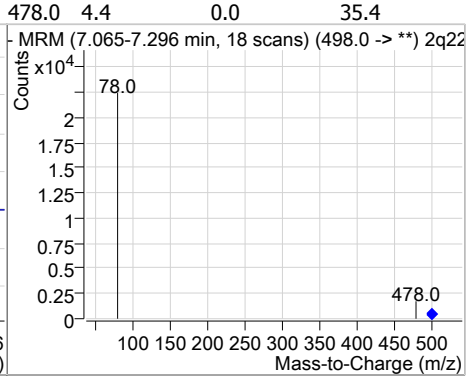




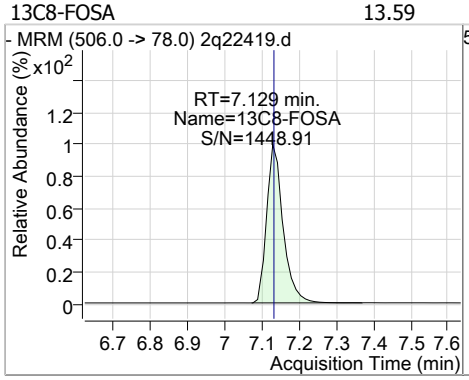
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	13.26	7.13	0.01	16548	498.0 -> 478.0	4.4	0.0	35.4

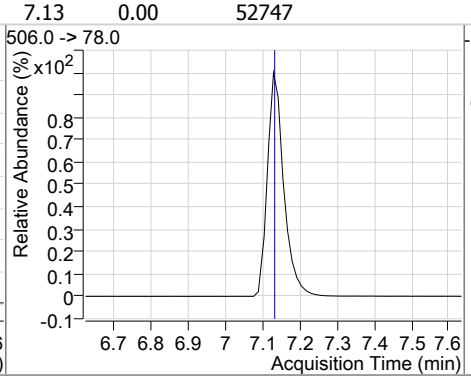


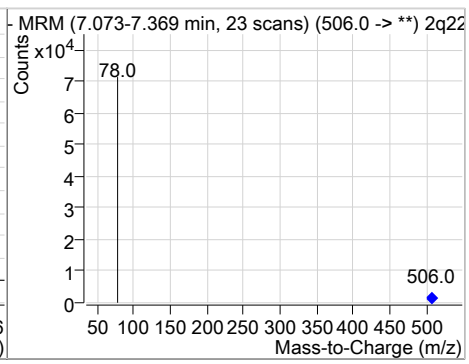




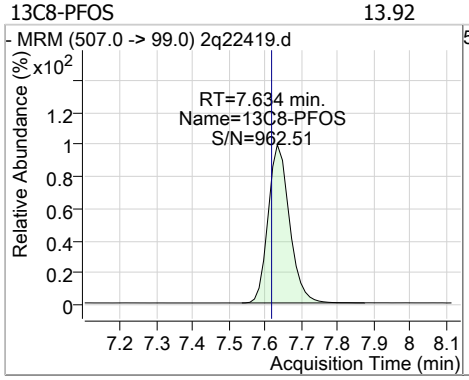
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	13.59	7.13	0.00	52747				

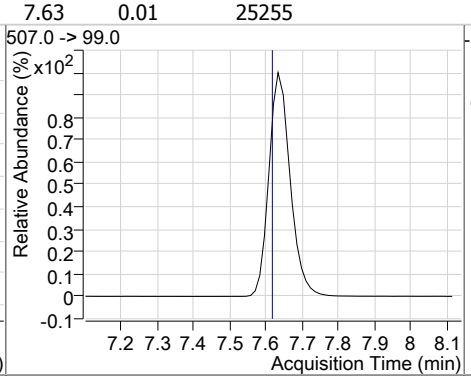


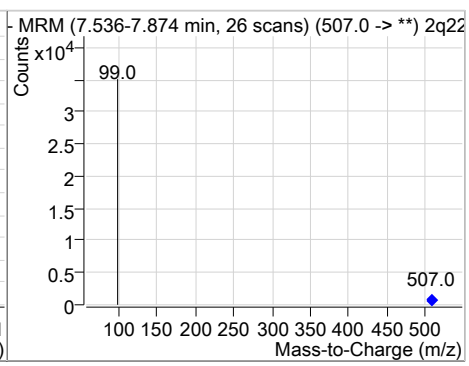




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	13.92	7.63	0.01	25255				

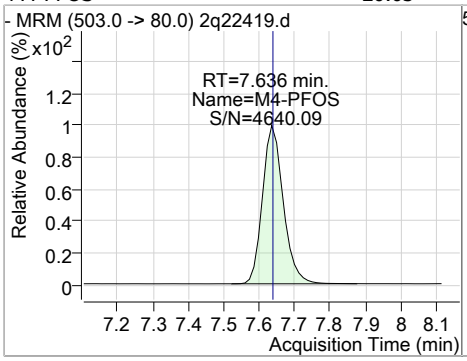


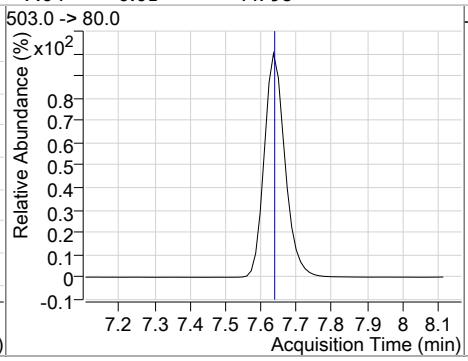


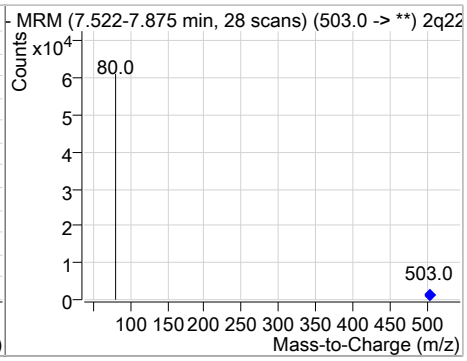


Perfluorinated Compounds by LC/MS/MS

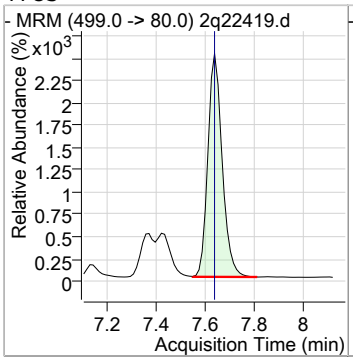
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.03	7.64	0.01	44798				

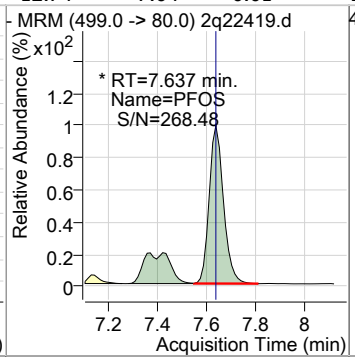


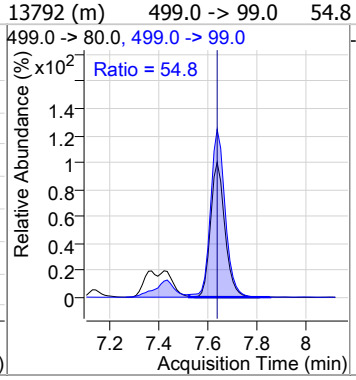


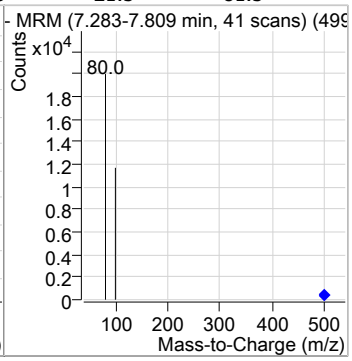


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	12.74	7.64	0.01	13792 (m)	499.0 -> 99.0	54.8	21.5	81.5

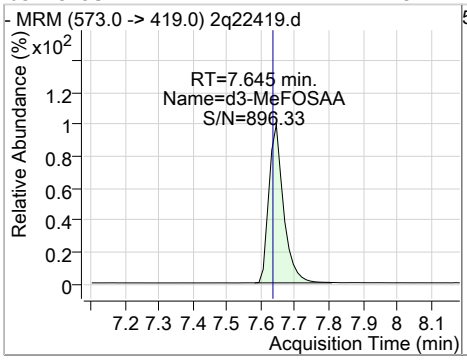


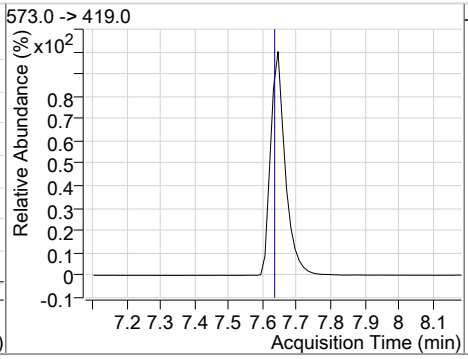


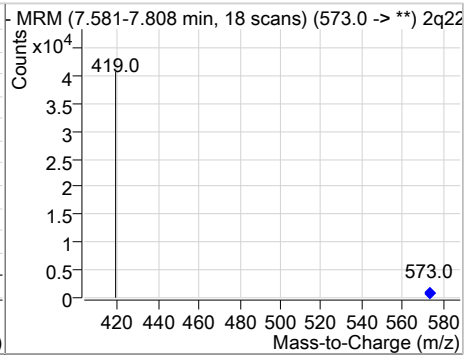




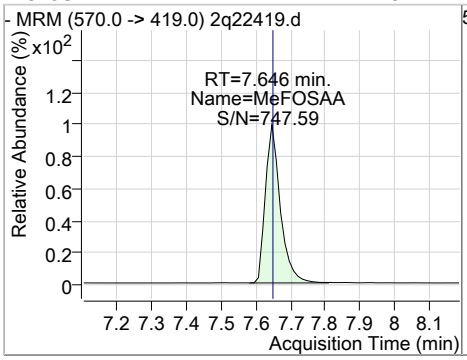
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	12.79	7.64	0.01	29742				

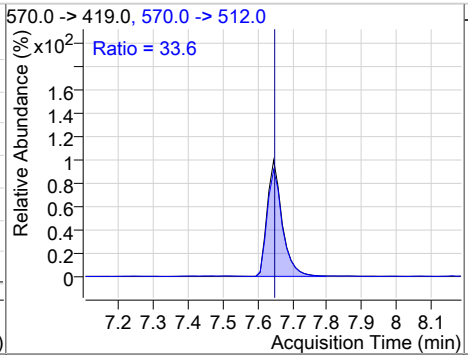


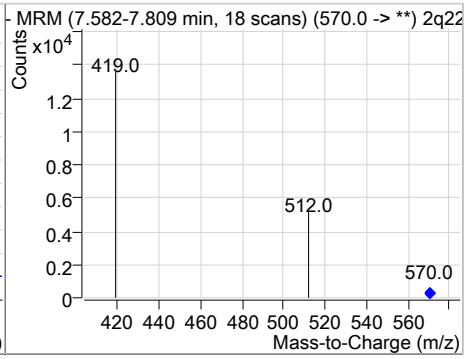




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	12.97	7.65	0.01	9819	570.0 -> 512.0	33.6	5.9	65.9

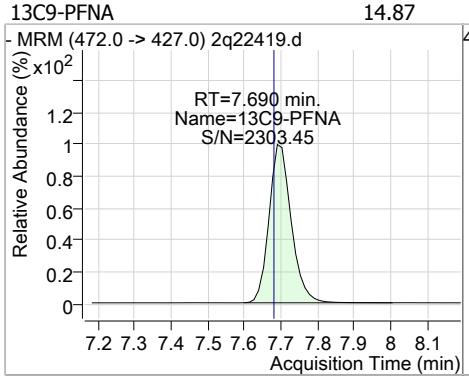


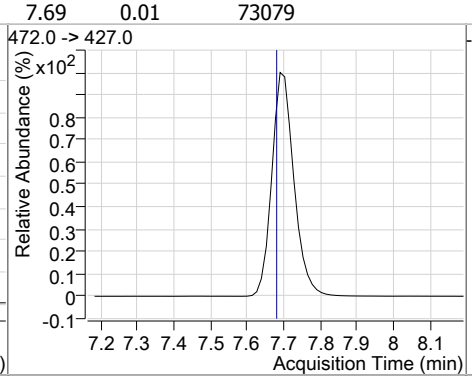


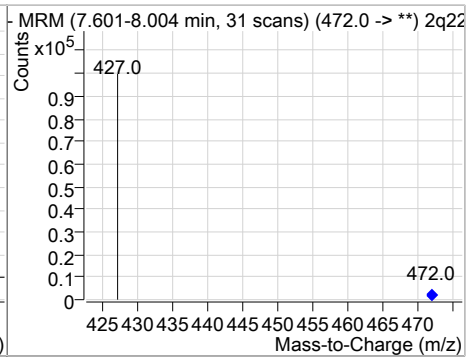


Perfluorinated Compounds by LC/MS/MS

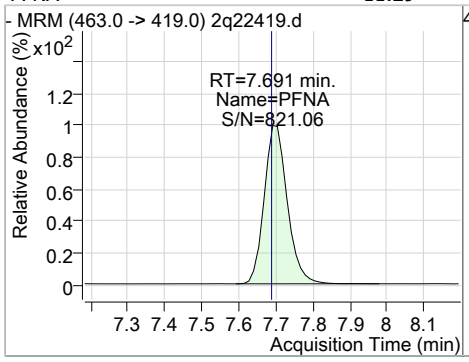
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	14.87	7.69	0.01	73079				

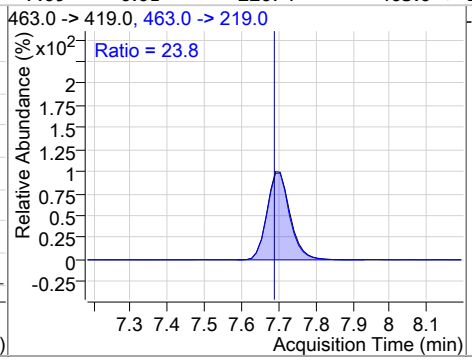


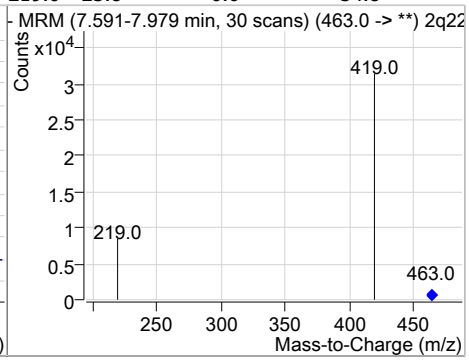




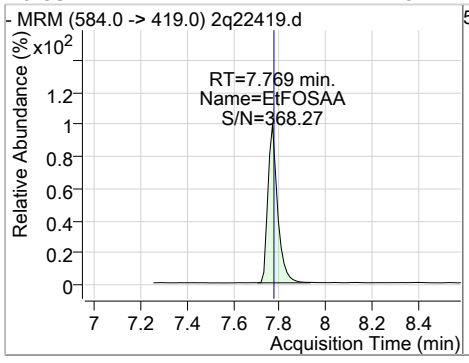
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	11.29	7.69	0.01	22674	463.0 -> 219.0	23.8	0.0	54.8

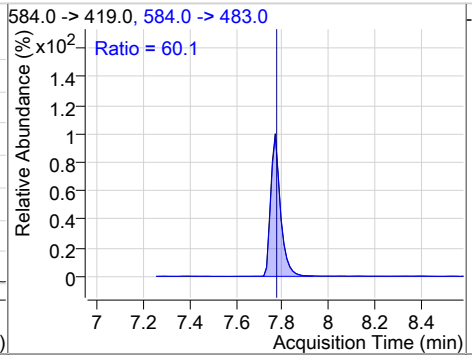


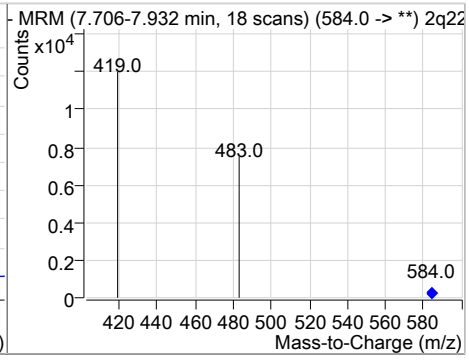




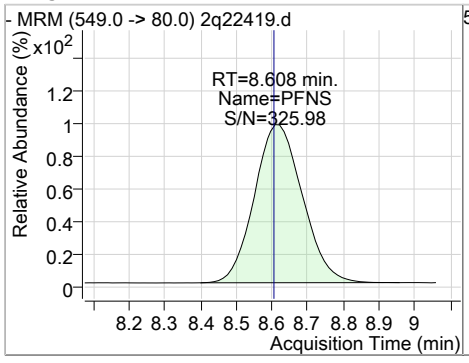
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	12.45	7.77	0.01	8419	584.0 -> 483.0	60.1	30.5	90.5

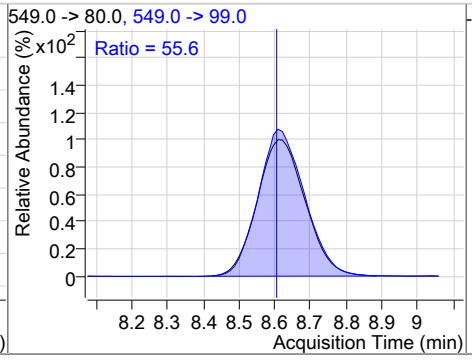


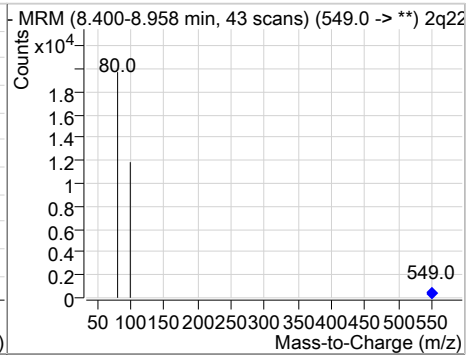




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	14.21	8.61	0.02	12957	549.0 -> 99.0	55.6	23.4	83.4

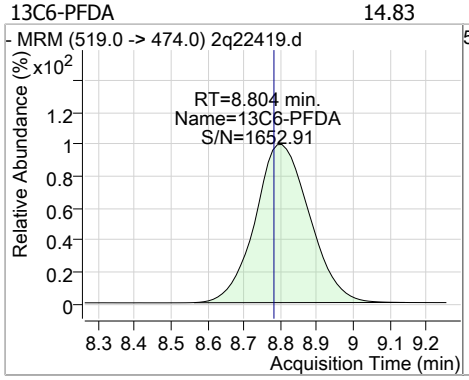


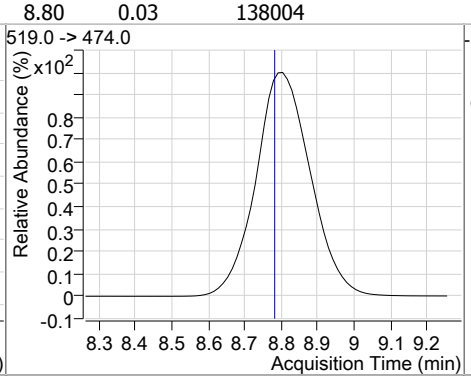


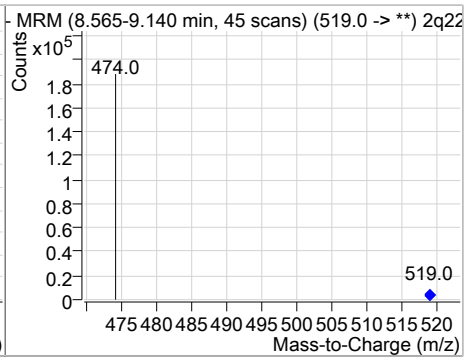


Perfluorinated Compounds by LC/MS/MS

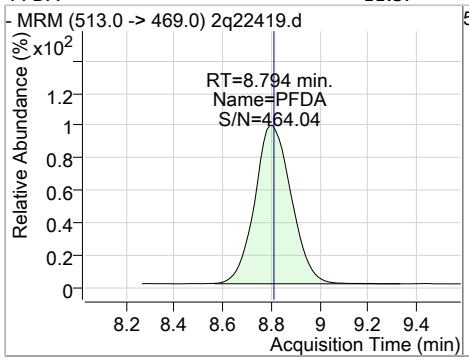
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	14.83	8.80	0.03	138004				

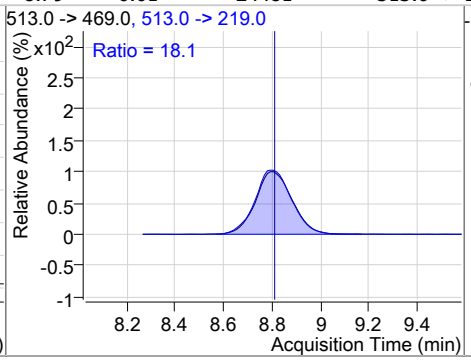


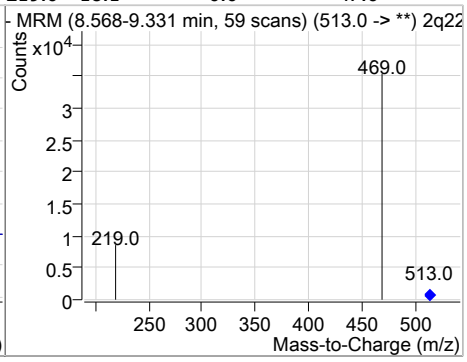




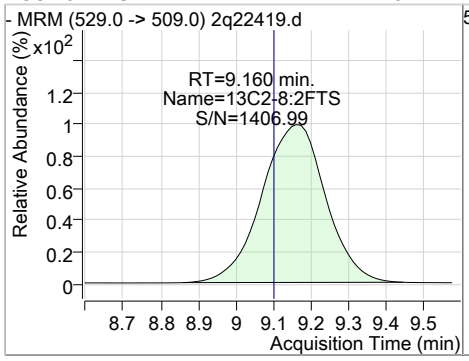
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	11.57	8.79	0.01	24481	513.0 -> 219.0	18.1	0.0	47.6

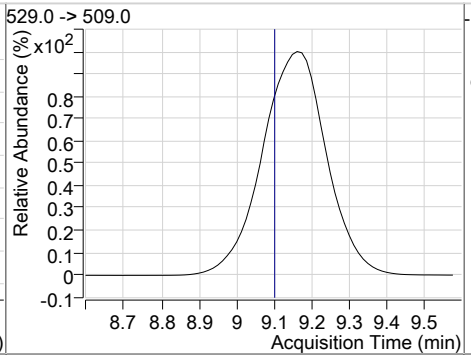


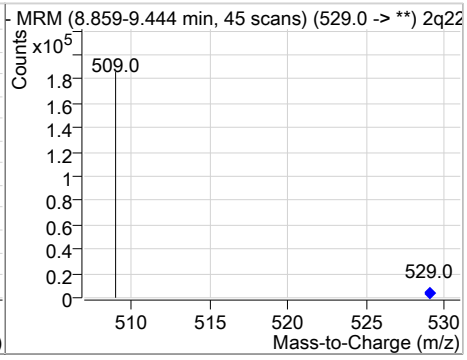




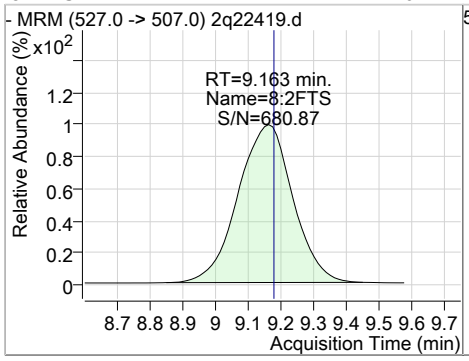
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	12.81	9.16	0.06	134595				

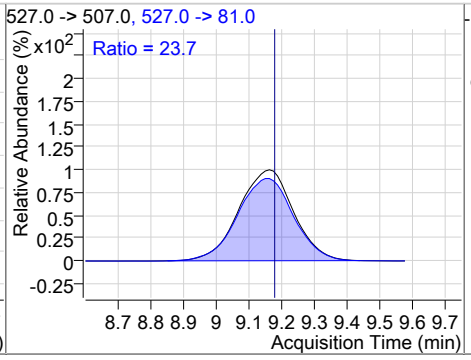


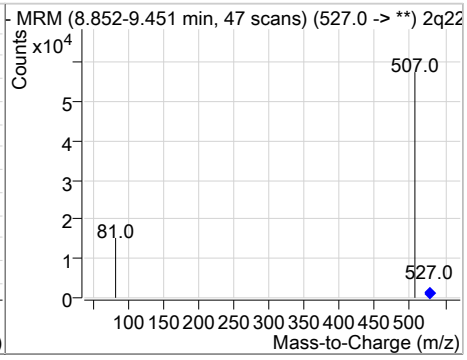




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	14.40	9.16	0.05	41141	527.0 -> 81.0	23.7	0.0	55.6

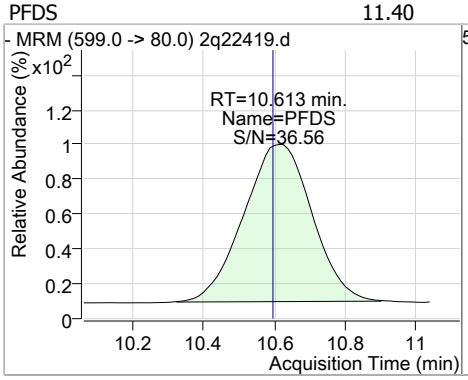


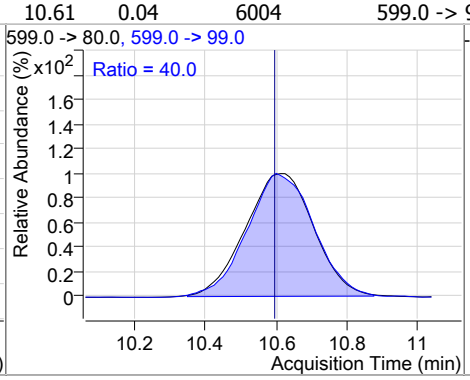


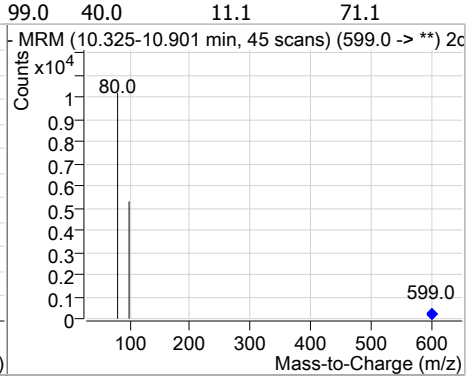


Perfluorinated Compounds by LC/MS/MS

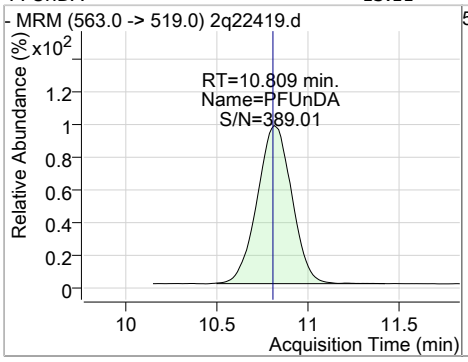
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	11.40	10.61	0.04	6004	599.0 -> 99.0	40.0	11.1	71.1

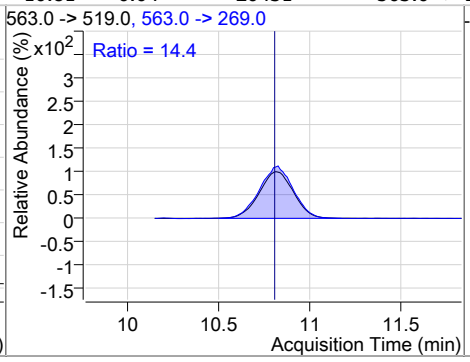


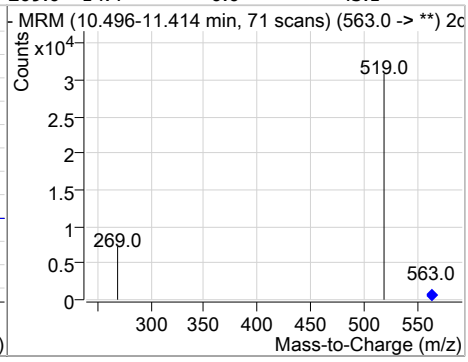




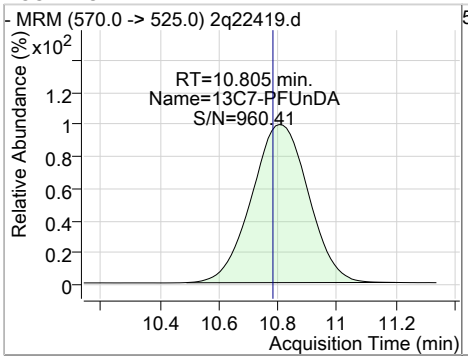
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.11	10.81	0.04	20431	563.0 -> 269.0	14.4	0.0	43.1

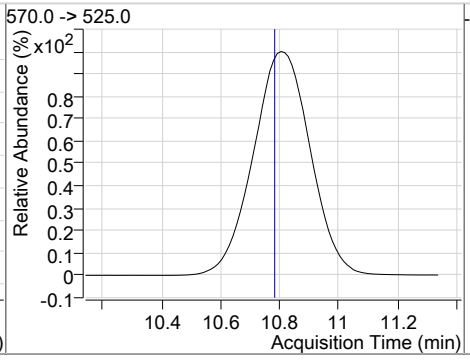


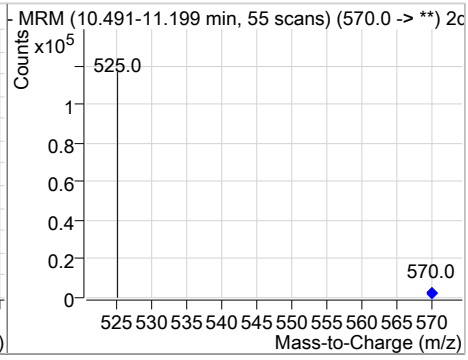




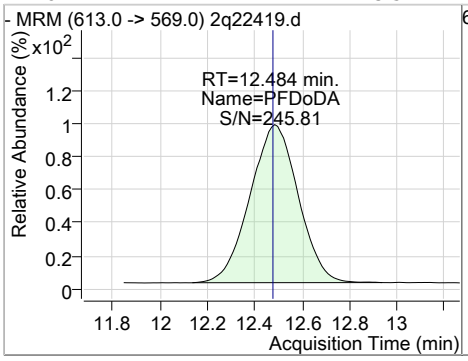
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	12.21	10.80	0.03	83595				

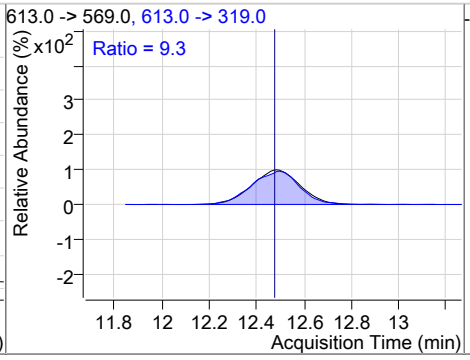


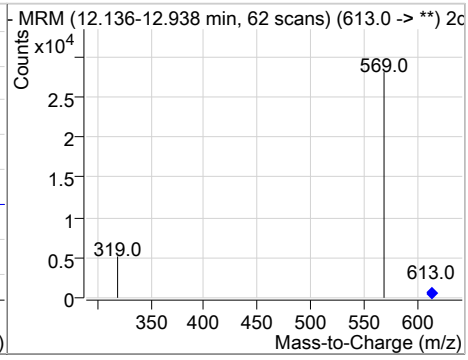




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	13.57	12.48	0.04	18738	613.0 -> 319.0	9.3	0.0	39.8

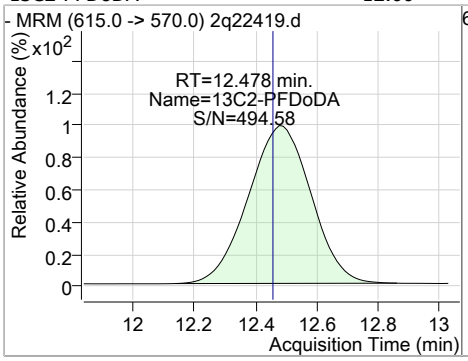


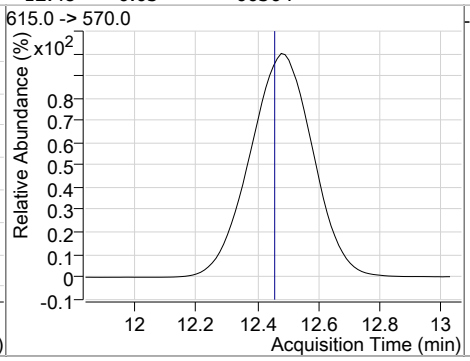


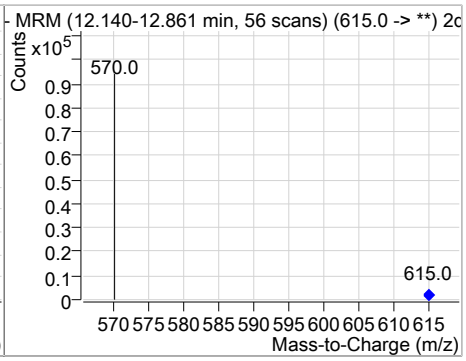


Perfluorinated Compounds by LC/MS/MS

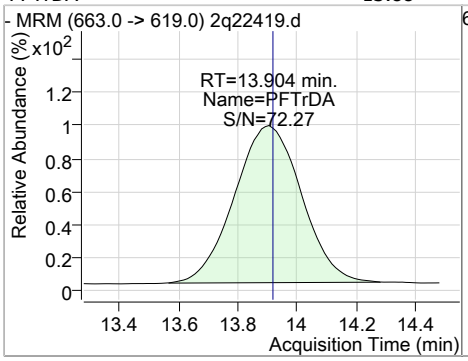
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	12.00	12.48	0.03	66364				

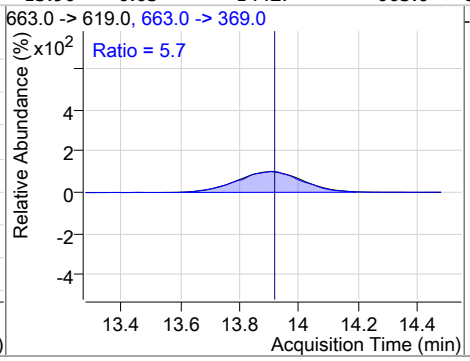


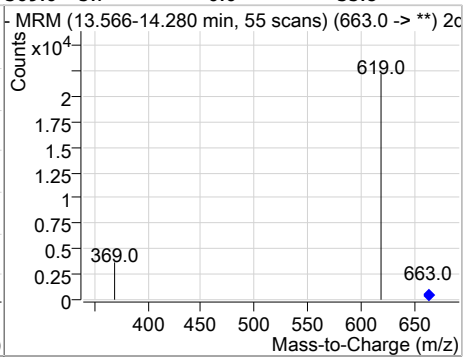




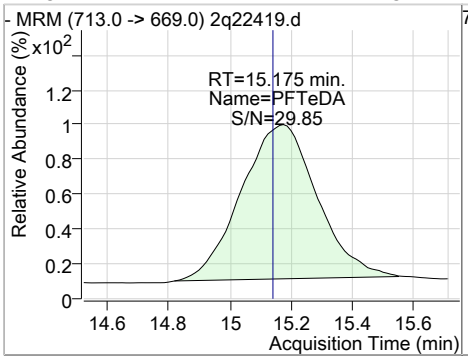
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	13.88	13.90	0.03	14427	663.0 -> 369.0	5.7	0.0	35.8

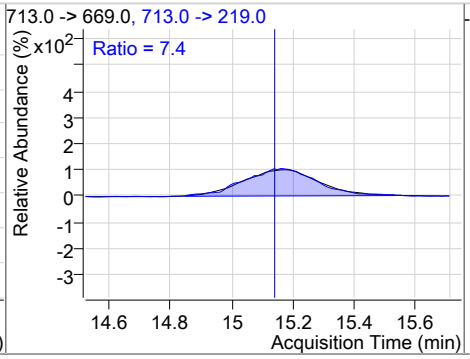


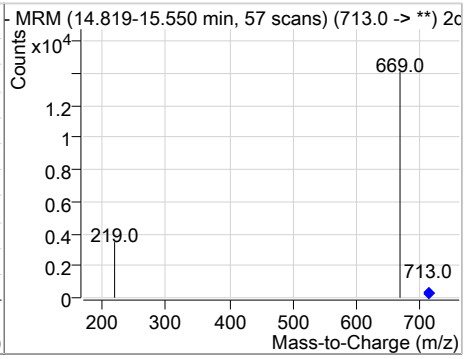




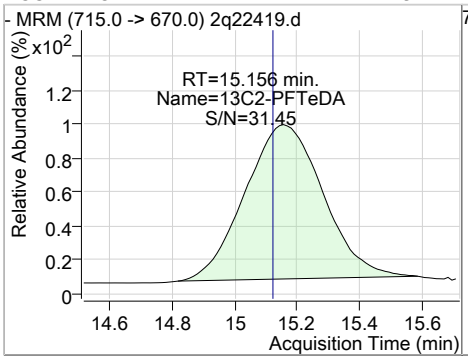
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	11.32	15.17	0.08	8044	713.0 -> 219.0	7.4	0.0	37.4

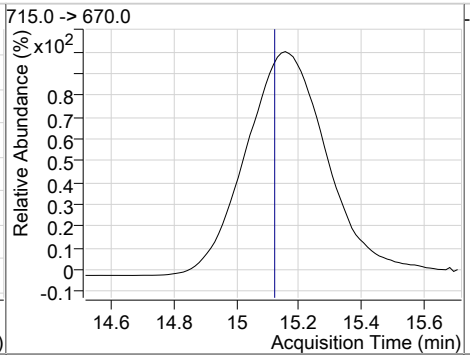


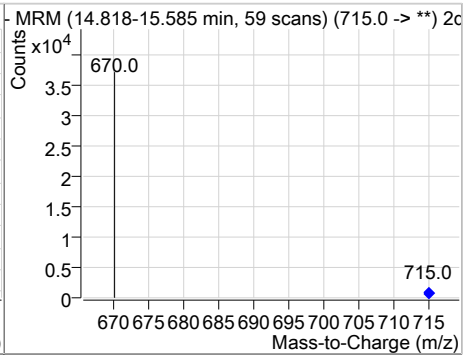




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	11.49	15.16	0.04	22295				







Manual Integration Approval Summary

Sample Number: OP72234-MS
Lab FileID: 2Q22419.D
Injection Time: 10/19/18 22:32
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/23/18 15:58

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22420.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 10:53:40 PM
Sample Name : op72234-msd
Vial : Vial 35
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op72234,S2Q352,130,,,1.0,1,water

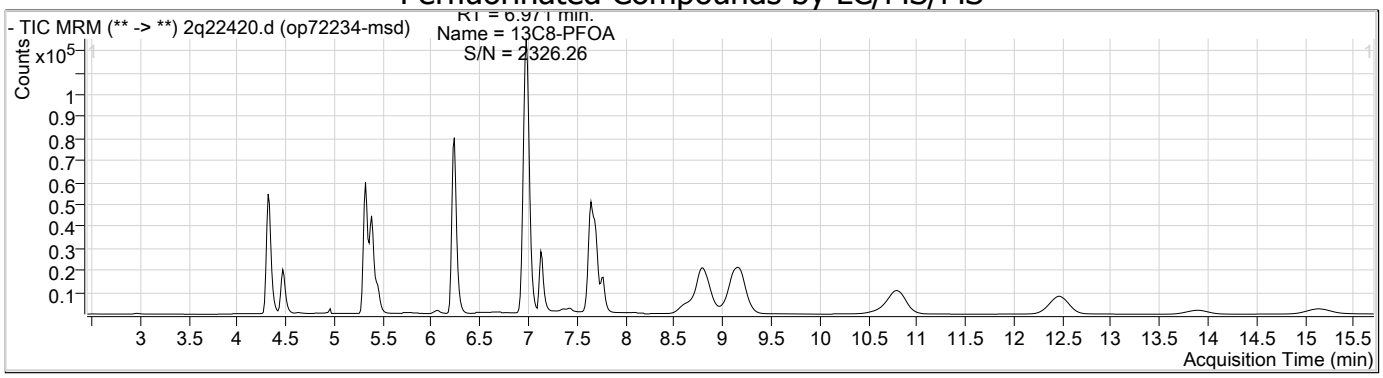
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	119546	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	49902	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	1121	20.00	µg/L	0.013
M5-PFPeA	4.325	268.0 -> 223.0	95567	20.00	µg/L	0.013
M5-PFHxA	5.390	318.0 -> 273.0	100195	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	114304	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	89365	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	82433	20.00	µg/L	0.025
M6-PFDA	8.791	519.0 -> 474.0	157102	20.00	µg/L	0.013
M7-PFUnDA	10.792	570.0 -> 525.0	96060	20.00	µg/L	0.012
M2-PFDoDA	12.465	615.0 -> 570.0	76861	20.00	µg/L	0.013
M2-PFTeDA	15.143	715.0 -> 670.0	26306	20.00	µg/L	0.025
M8-FOSA	7.129	506.0 -> 78.0	52911	20.00	µg/L	0.000
M3-PFBS	4.468	302.0 -> 99.0	23173	20.00	µg/L	0.013
M3-PFHxS	6.235	402.0 -> 99.0	29693	20.00	µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	28091	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	114669	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	148588	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	158249	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	34761	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	114713	17.42	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.1%		
13C2-6:2FTS	6.993	429.0 -> 409.0	148607	16.83	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.2%		
13C2-8:2FTS	9.160	529.0 -> 509.0	156867	14.93	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.6%		
13C2-PFDoDA	12.465	615.0 -> 570.0	76451	13.83	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.1%		
13C2-PFTeDA	15.143	715.0 -> 670.0	24290	12.51	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 62.6%		
13C3-PFBS	4.468	302.0 -> 99.0	23165	16.56	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.8%		
13C3-PFHxS	6.235	402.0 -> 99.0	29699	16.68	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.4%		
13C4-PFBA	2.966	217.0 -> 172.0	1127	0.08	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 0.4%		
13C4-PFHpA	6.242	367.0 -> 322.0	114279	17.76	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C5-PFHxA	5.390	318.0 -> 273.0	100166	18.20	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.0%		
13C5-PFPeA	4.325	268.0 -> 223.0	95585	16.72	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.6%		
13C6-PFDA	8.791	519.0 -> 474.0	156121	16.78	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.9%		

Perfluorinated Compounds by LC/MS/MS

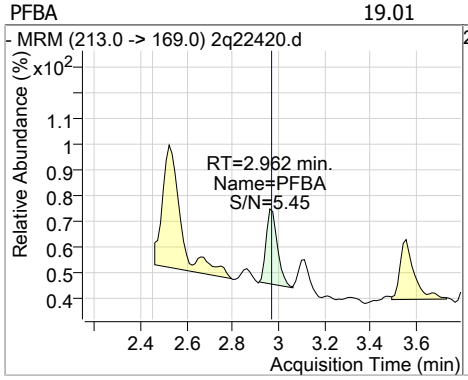
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.792	570.0 -> 525.0	95382	13.93	µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.6%			
13C8-FOSA	7.129	506.0 -> 78.0	53102	13.68	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.4%			
13C8-PFOA	6.971	421.0 -> 376.0	89343	16.63	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.1%			
13C8-PFOS	7.633	507.0 -> 99.0	28068	15.47	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.3%			
13C9-PFNA	7.702	472.0 -> 427.0	82361	16.75	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.8%			
d3-MeFOSAA	7.645	573.0 -> 419.0	34787	14.96	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.8%			
M2-PFOA	6.973	415.0 -> 370.0	119506	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	49908	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.325	327.0 -> 307.0	58666	22.02	µg/L		99
6:2FTS	6.995	427.0 -> 407.0	71798	23.22	µg/L		97
8:2FTS	9.151	527.0 -> 507.0	77329	23.25	µg/L		96
EtFOSAA	7.769	584.0 -> 419.0	16425	20.73	µg/L		99
FOSA	7.132	498.0 -> 78.0	27803	22.19	µg/L		99
MeFOSAA	7.646	570.0 -> 419.0	18673	21.05	µg/L		95
PFBA	2.962	213.0 -> 169.0	128	19.01	µg/L		100
PFBS	4.472	299.0 -> 80.0	31189	18.62	µg/L		99
PFDA	8.794	513.0 -> 469.0	45858	19.16	µg/L		100
PFDoDA	12.471	613.0 -> 569.0	34960	21.97	µg/L		100
PFDS	10.600	599.0 -> 80.0	11105	18.95	µg/L		99
PFHpA	6.232	363.0 -> 319.0	93689	21.58	µg/L		99
PFHpS	6.941	449.0 -> 80.0	23614	19.67	µg/L		98
PFHxA	5.393	313.0 -> 269.0	29611	18.45	µg/L		99
PFHxS	6.238	399.0 -> 80.0	27301	18.85	µg/L	m	100
PFNA	7.704	463.0 -> 419.0	42346	18.69	µg/L		98
PFNS	8.608	549.0 -> 80.0	23903	23.57	µg/L		97
PFOA	6.974	413.0 -> 369.0	49273	21.31	µg/L		98
PFOS	7.637	499.0 -> 80.0	25604	21.26	µg/L	m	98
PFPeA	4.328	263.0 -> 219.0	90368	20.16	µg/L		100
PFPeS	5.446	349.0 -> 80.0	21257	19.59	µg/L		99
PFTeDA	15.150	713.0 -> 669.0	14518	18.68	µg/L		100
PFTrDA	13.892	663.0 -> 619.0	26413	23.22	µg/L		100
PFUnDA	10.796	563.0 -> 519.0	38640	21.65	µg/L		98

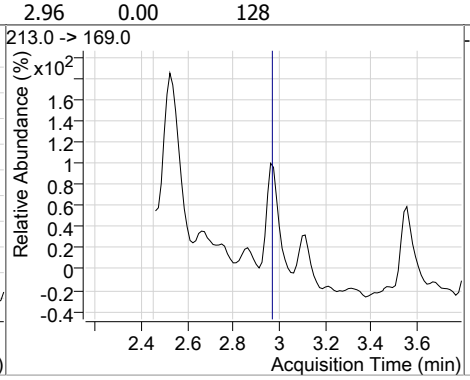
 # = Qualifier out of range, m = manually integrated, + = Area summed

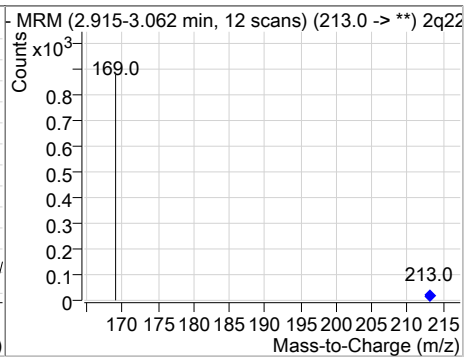
Perfluorinated Compounds by LC/MS/MS



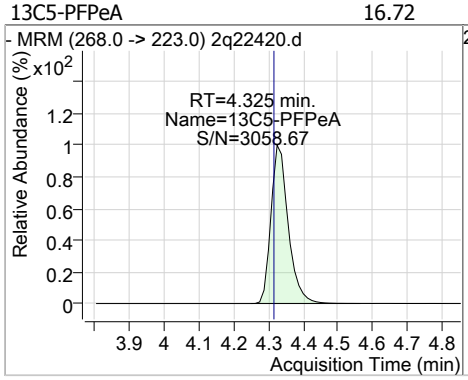
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.01	2.96	0.00	128				

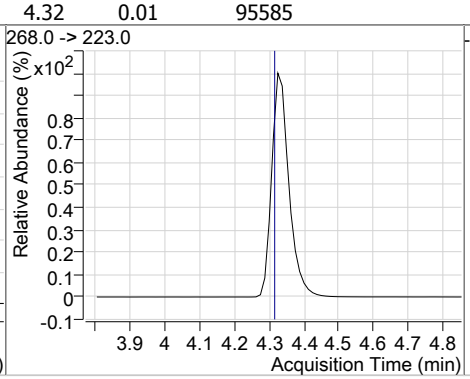


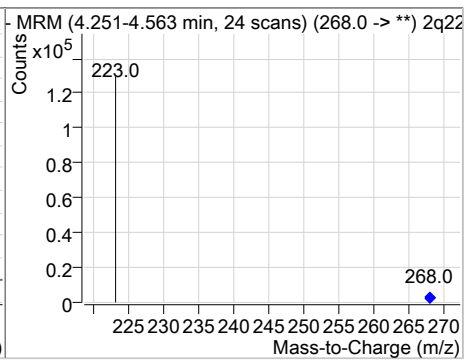




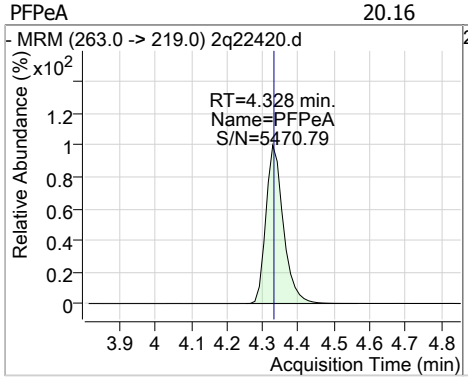
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	16.72	4.32	0.01	95585				

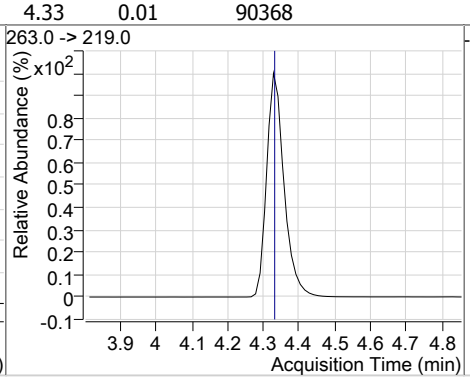


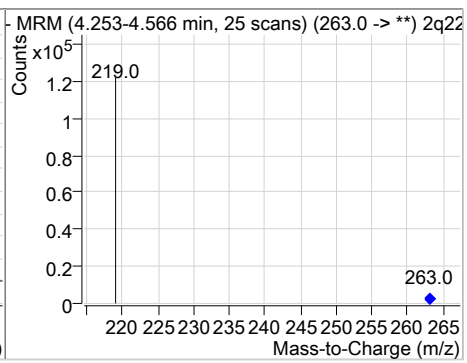




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.16	4.33	0.01	90368				

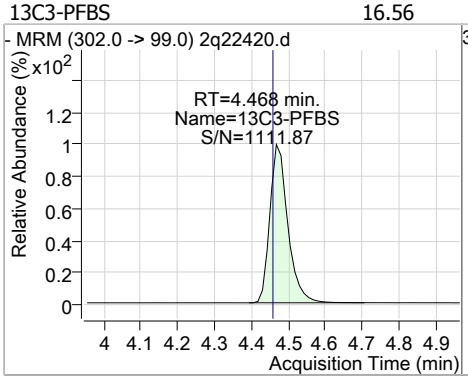


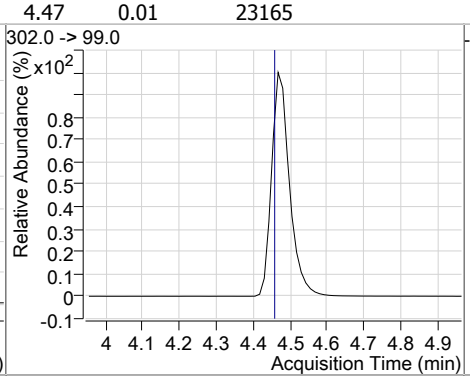


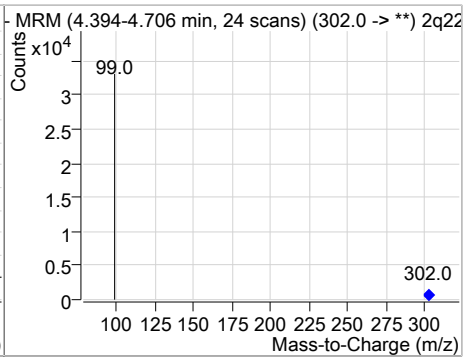


Perfluorinated Compounds by LC/MS/MS

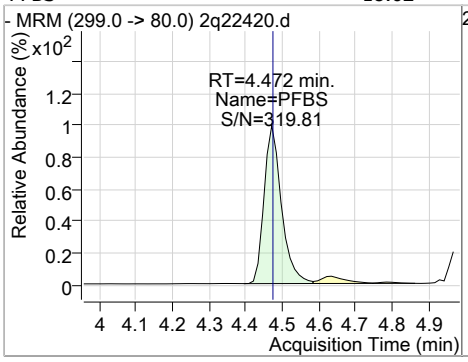
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	16.56	4.47	0.01	23165				

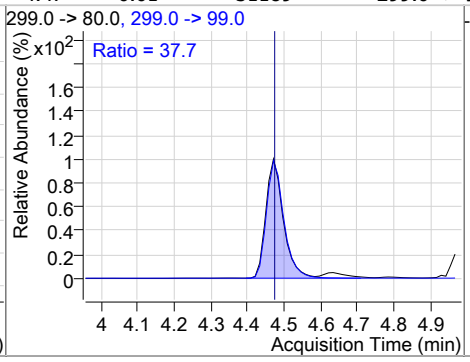


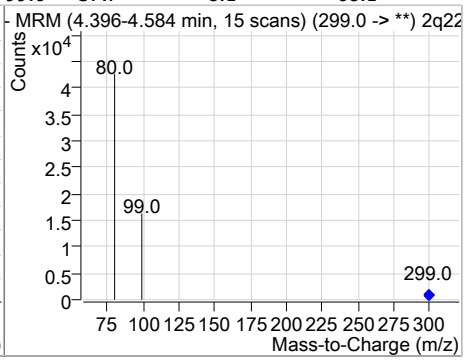




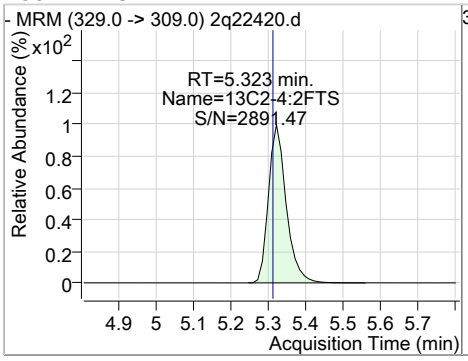
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.62	4.47	0.01	31189	299.0 -> 99.0	37.7	8.1	68.1

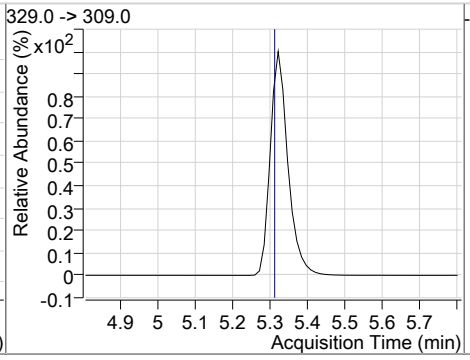


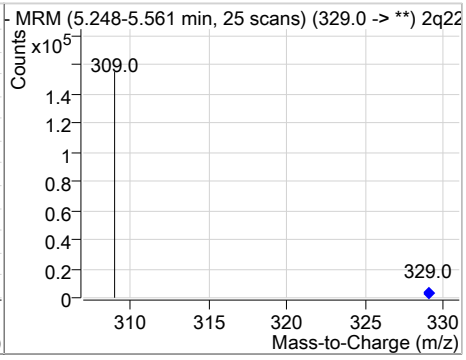




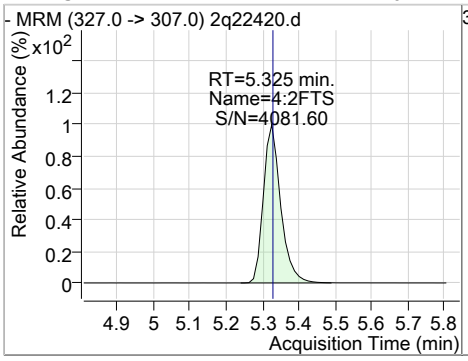
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.42	5.32	0.01	114713				

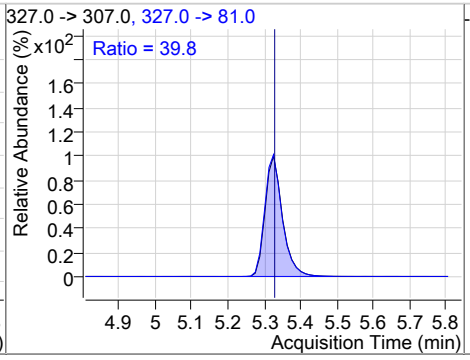


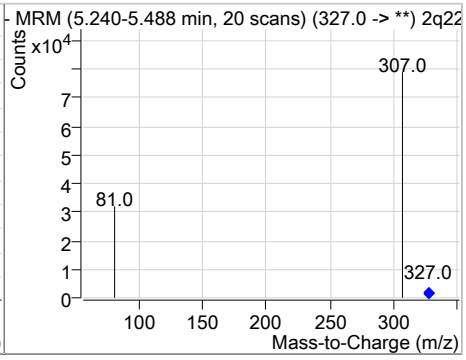




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	22.02	5.33	0.01	58666	327.0 -> 81.0	39.8	9.0	69.0

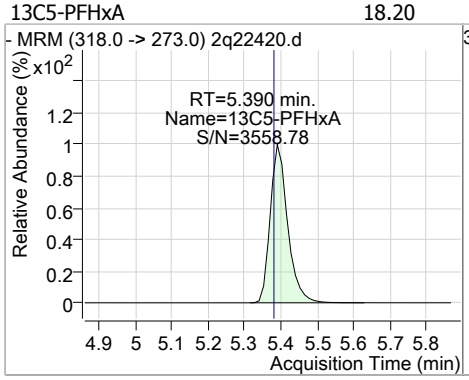


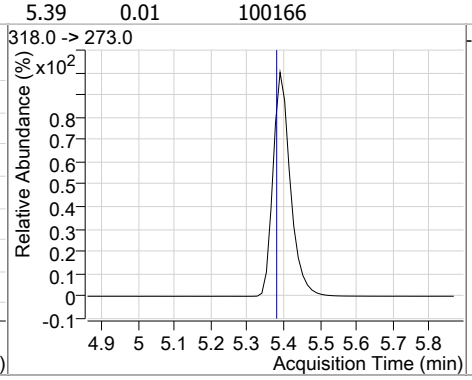


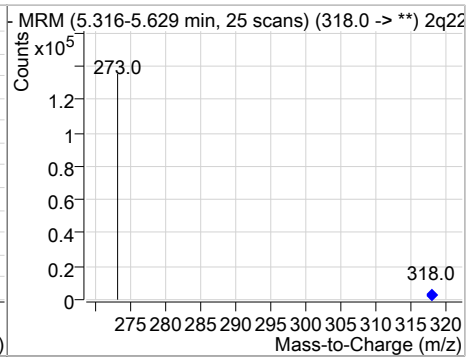


Perfluorinated Compounds by LC/MS/MS

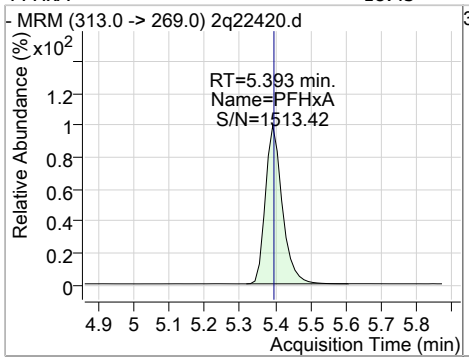
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.20	5.39	0.01	100166				

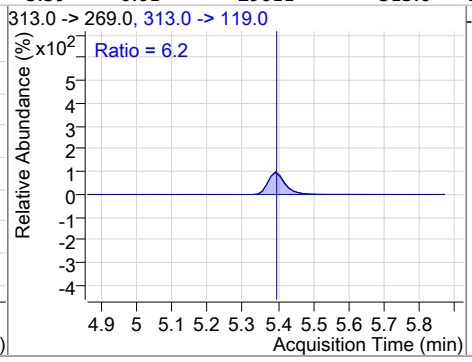


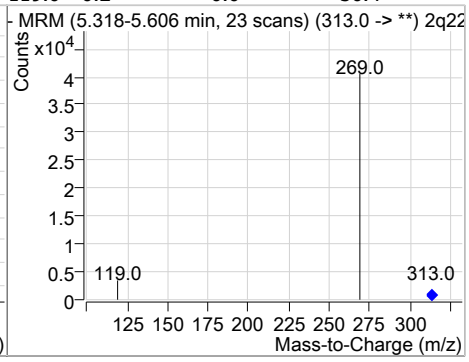




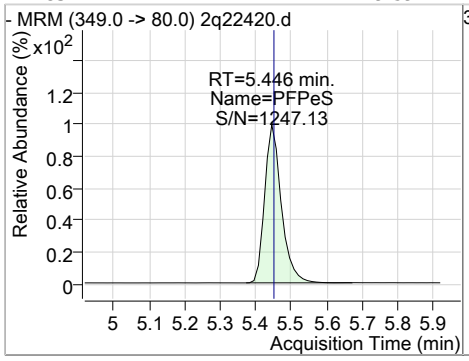
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.45	5.39	0.01	29611	313.0 -> 119.0	6.2	0.0	36.4

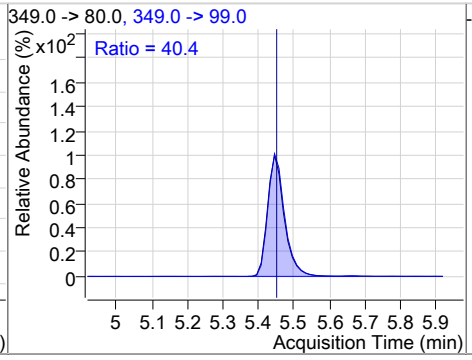


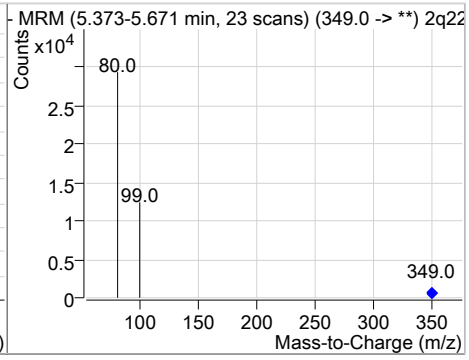




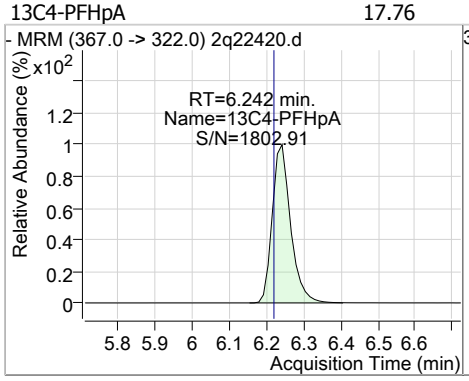
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.59	5.45	0.01	21257	349.0 -> 99.0	40.4	9.5	69.5

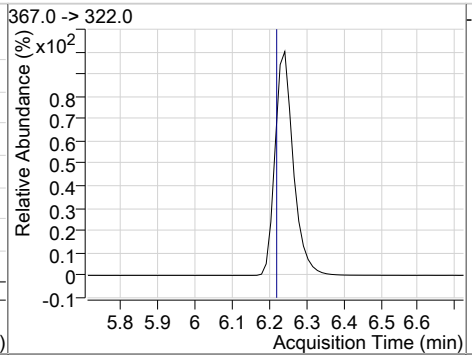


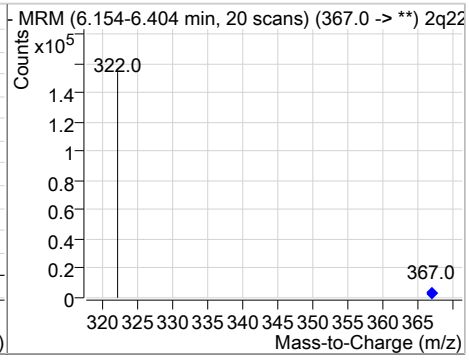




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.76	6.24	0.03	114279				

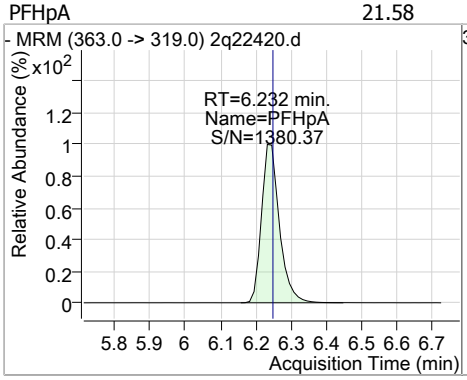


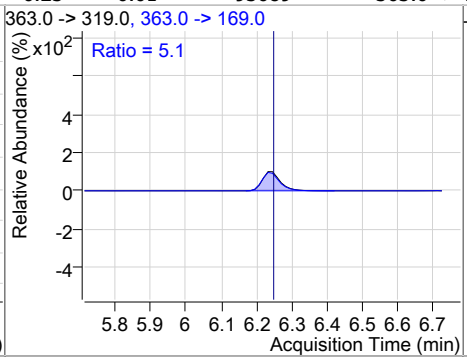


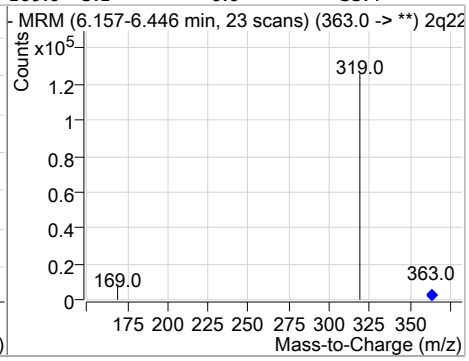


Perfluorinated Compounds by LC/MS/MS

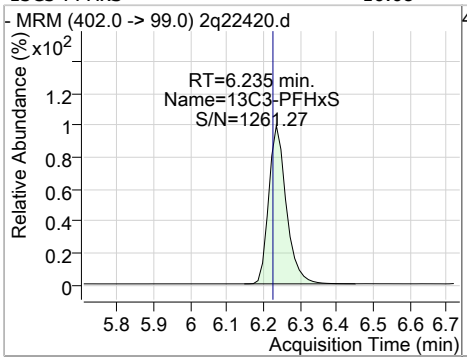
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.58	6.23	0.01	93689	363.0 -> 169.0	5.1	0.0	35.4

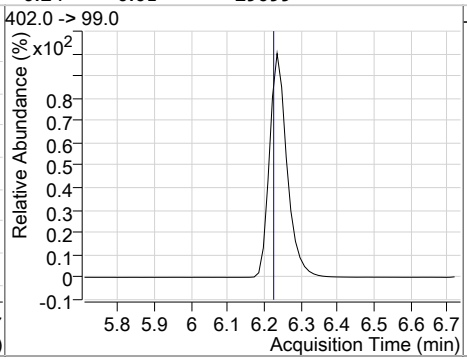


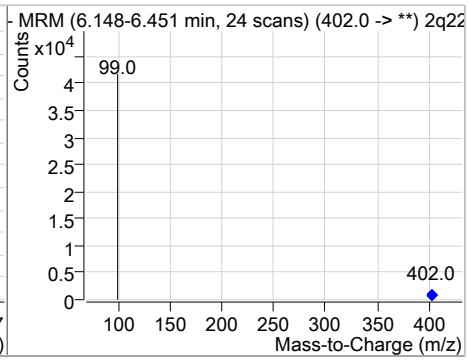




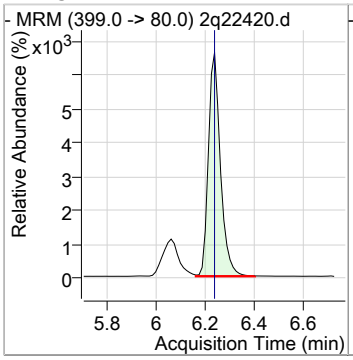
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.68	6.24	0.01	29699				

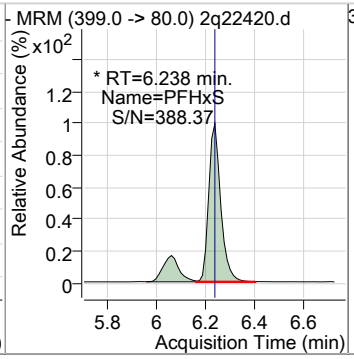


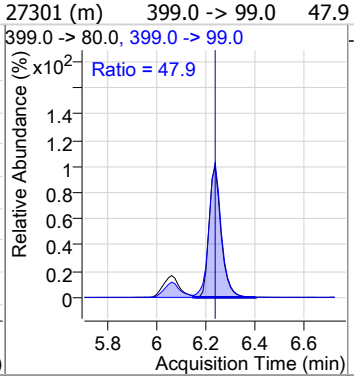


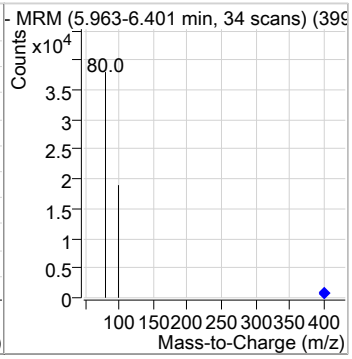


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.85	6.24	0.01	27301 (m)	399.0 -> 99.0	47.9	17.7	77.7

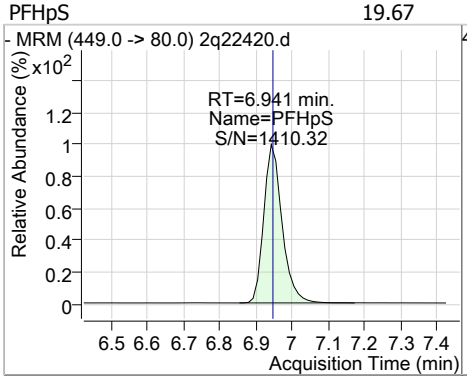


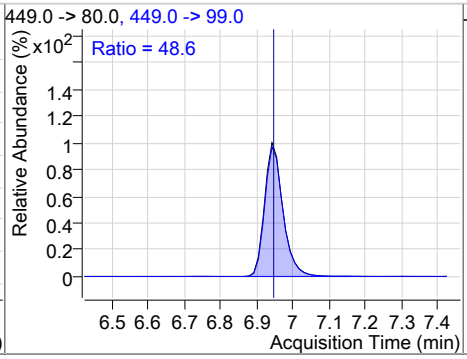


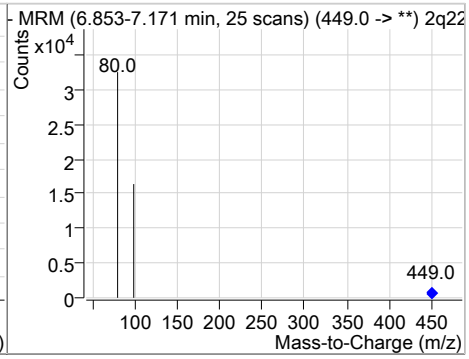




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.67	6.94	0.01	23614	449.0 -> 99.0	48.6	20.3	80.3

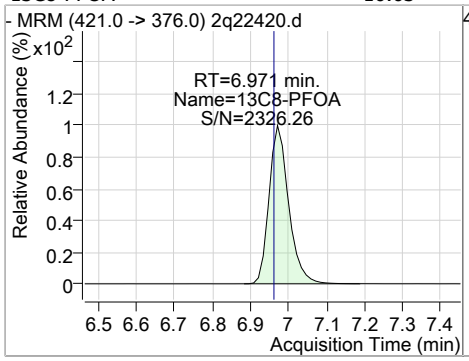


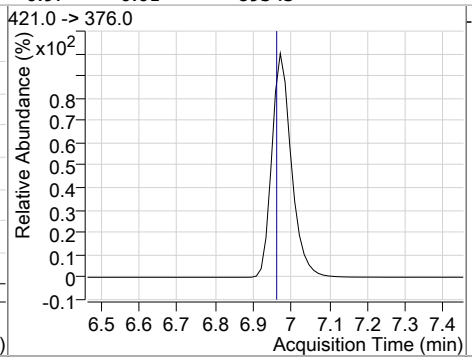


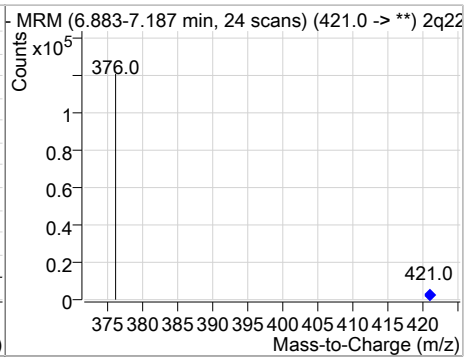


Perfluorinated Compounds by LC/MS/MS

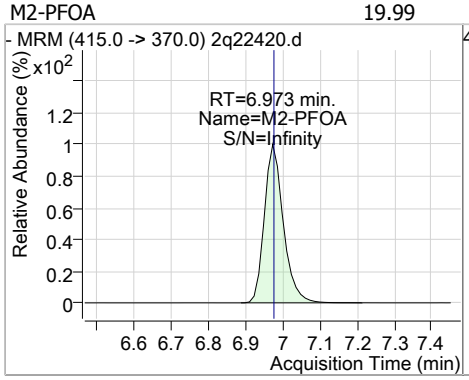
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	16.63	6.97	0.01	89343				

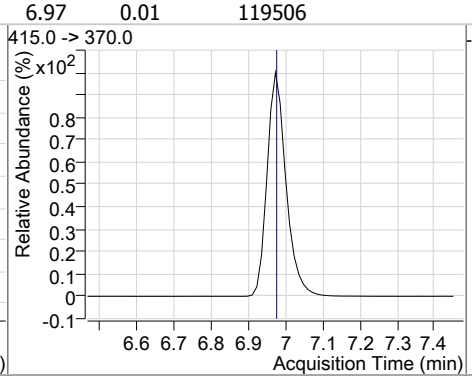


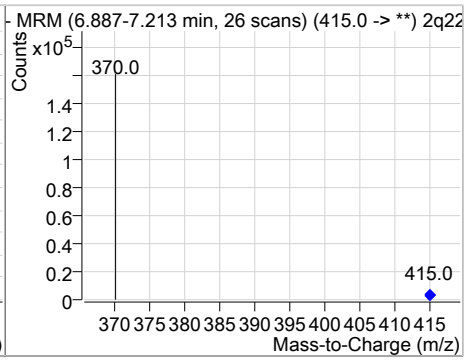




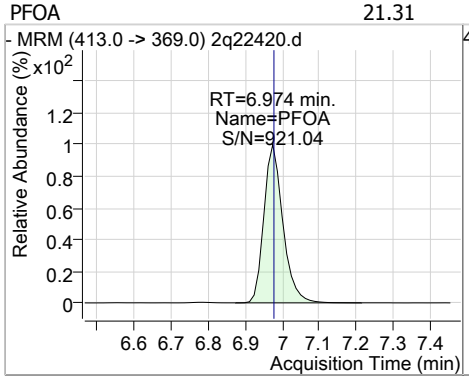
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	119506				

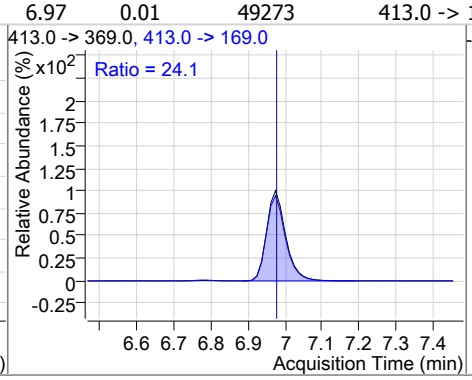


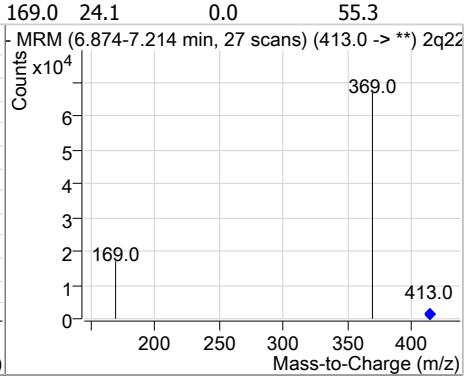




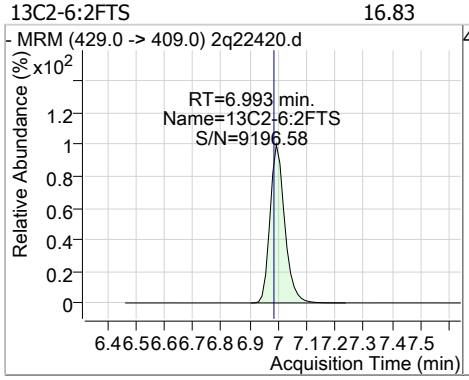
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.31	6.97	0.01	49273	413.0 -> 169.0	24.1	0.0	55.3

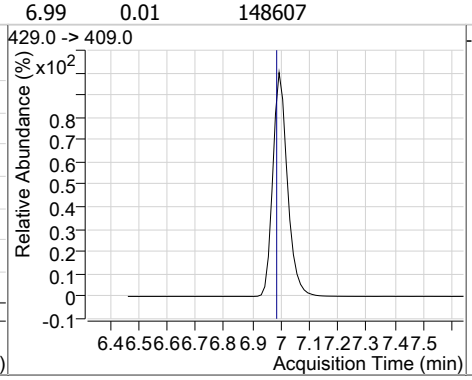


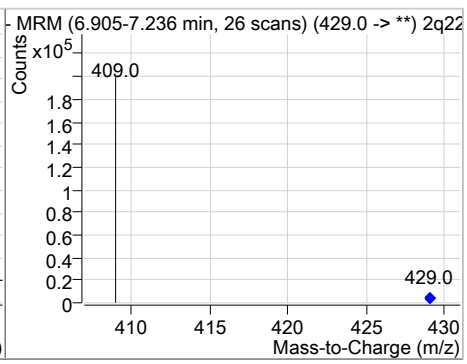




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	16.83	6.99	0.01	148607				

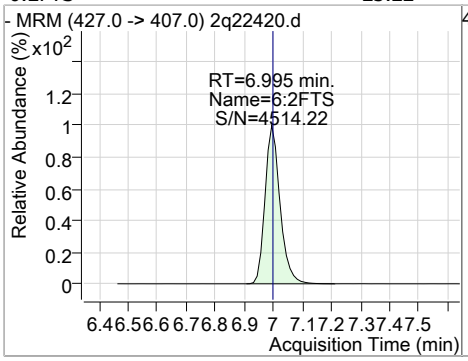


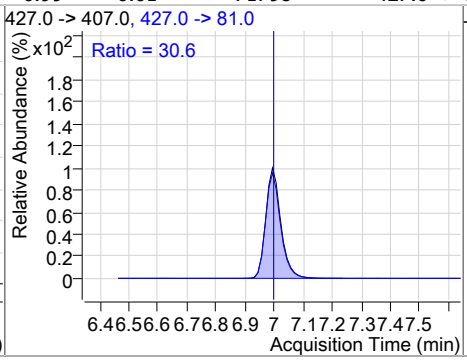


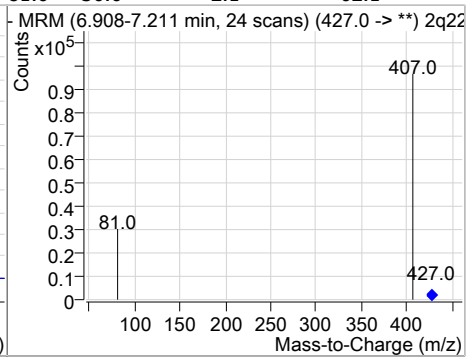


Perfluorinated Compounds by LC/MS/MS

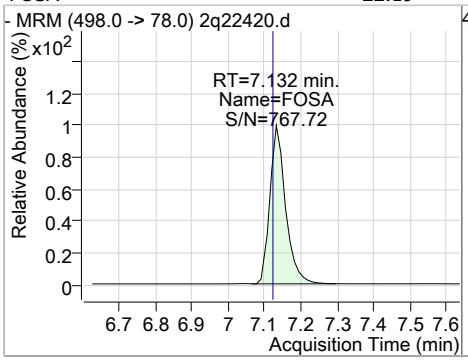
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.22	6.99	0.01	71798	427.0 -> 81.0	30.6	2.1	62.1

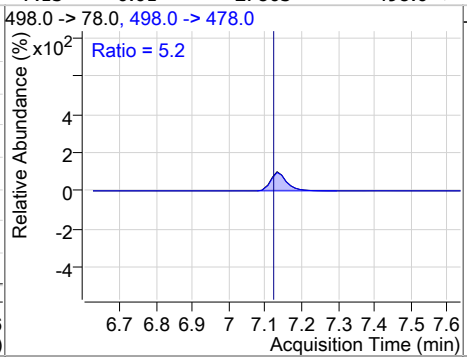


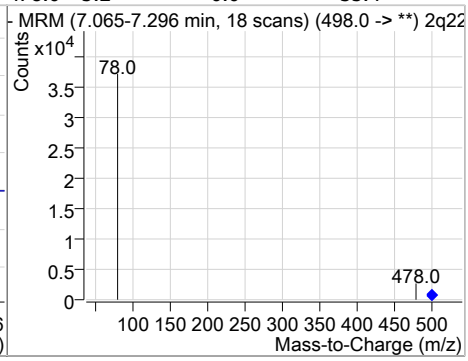




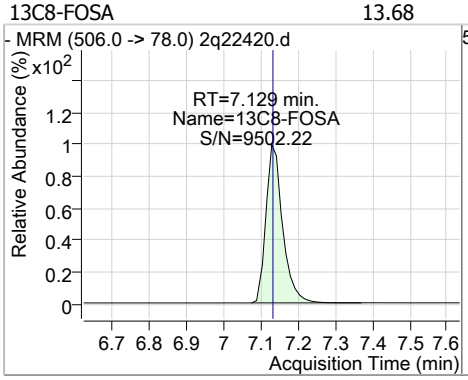
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	22.19	7.13	0.01	27803	498.0 -> 478.0	5.2	0.0	35.4

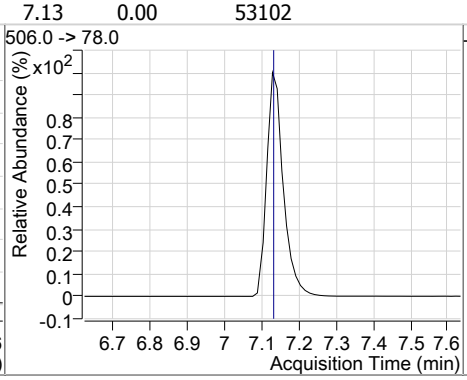


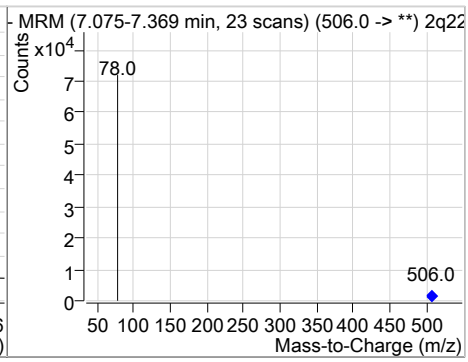




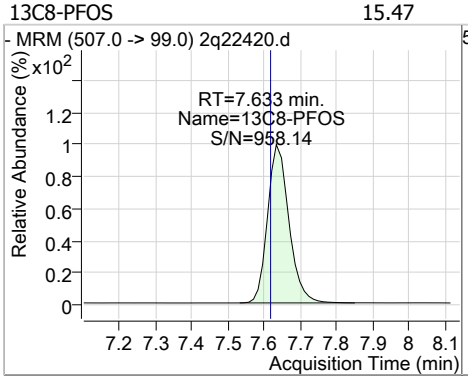
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	13.68	7.13	0.00	53102				

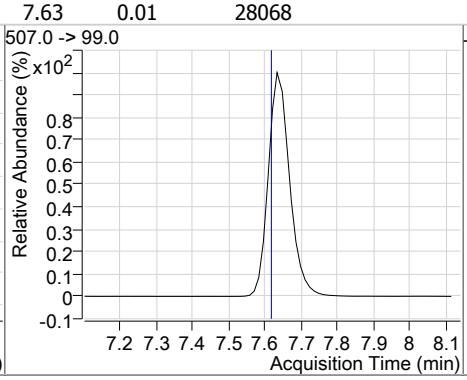


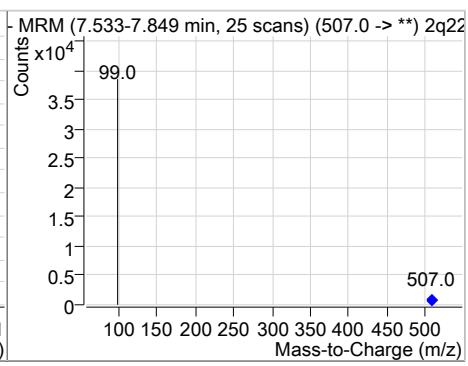




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.47	7.63	0.01	28068				

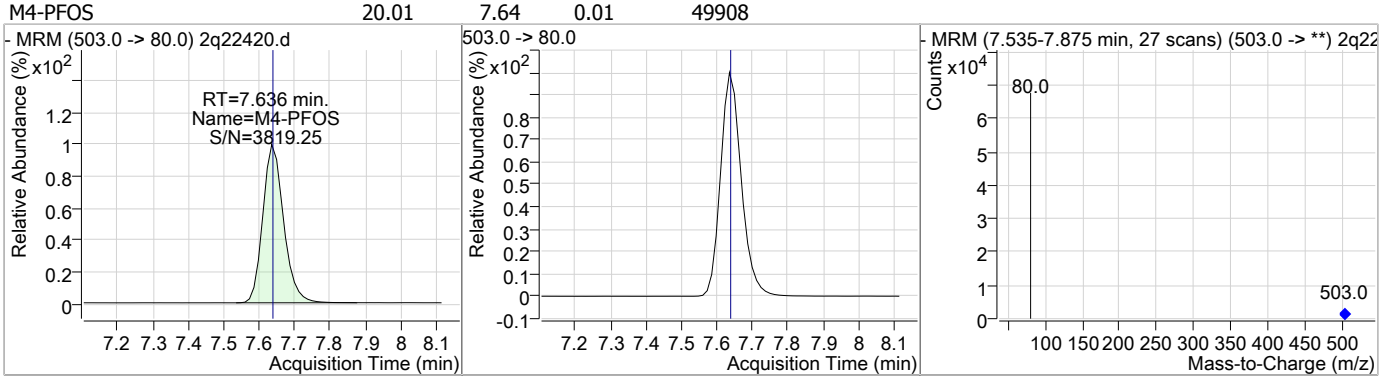




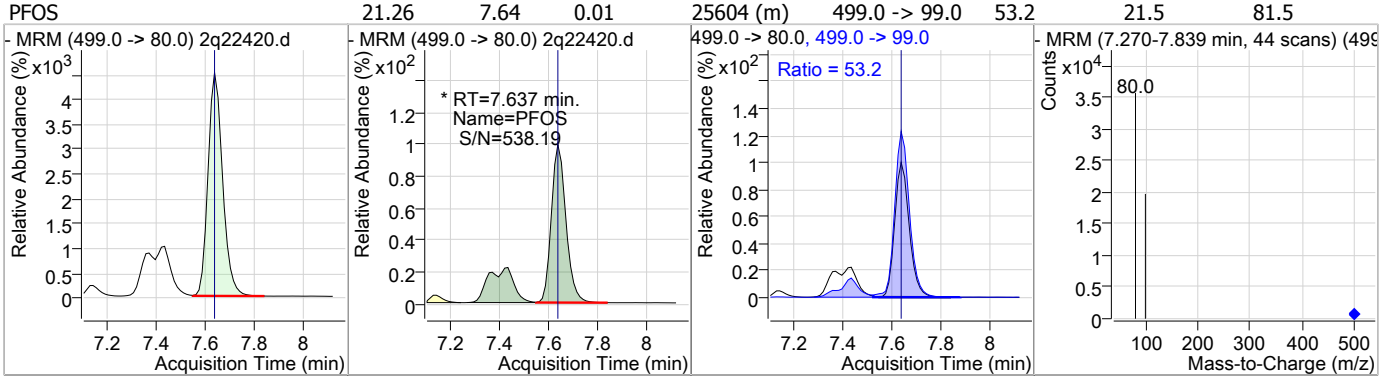


Perfluorinated Compounds by LC/MS/MS

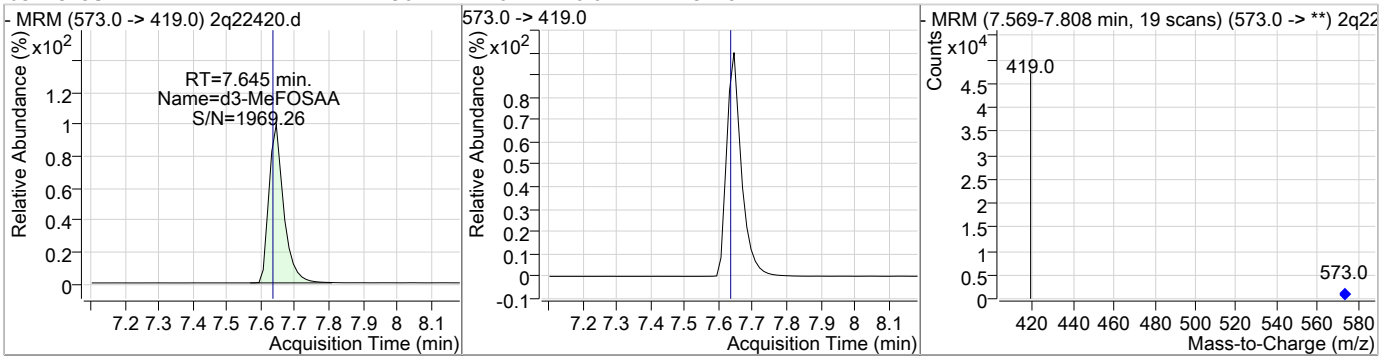
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.64	0.01	49908				



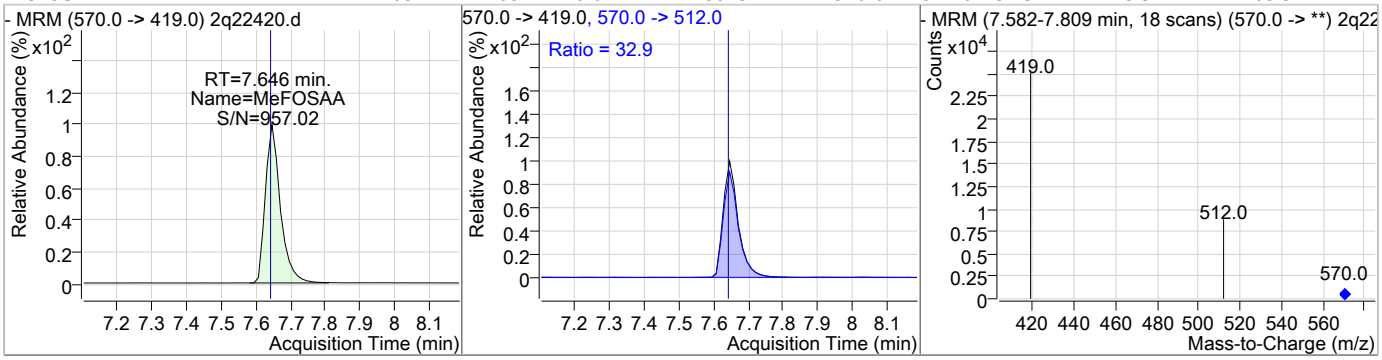
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.26	7.64	0.01	25604 (m)	499.0 -> 99.0	53.2	21.5	81.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	14.96	7.64	0.01	34787				

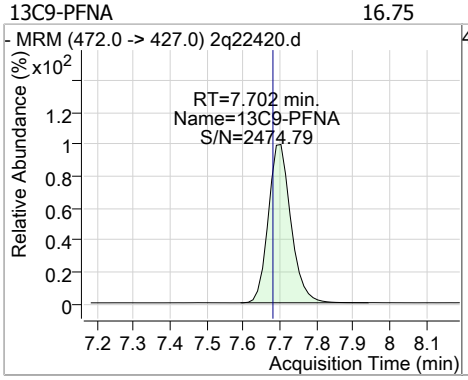


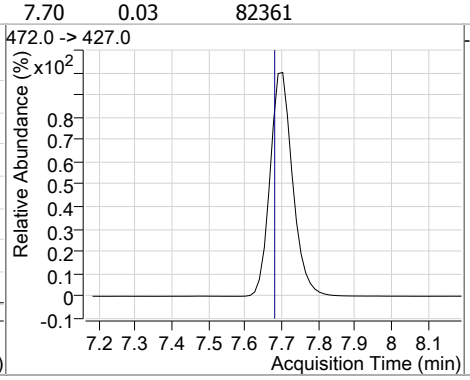
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.05	7.65	0.01	18673	570.0 -> 512.0	32.9	5.9	65.9

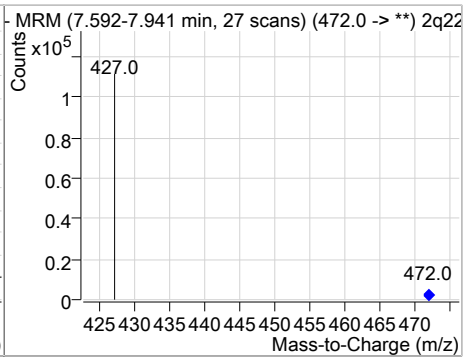


Perfluorinated Compounds by LC/MS/MS

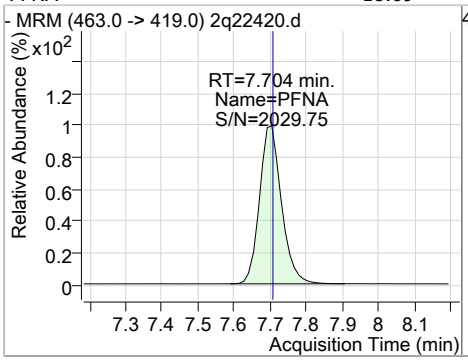
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	16.75	7.70	0.03	82361				

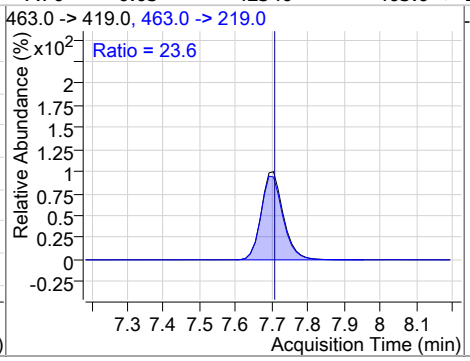


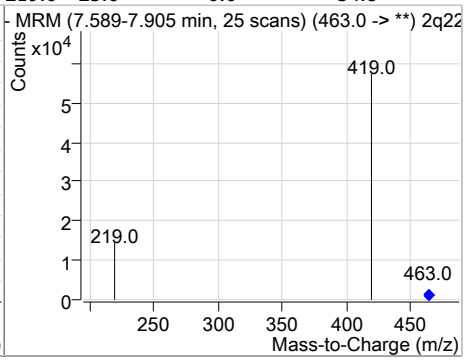




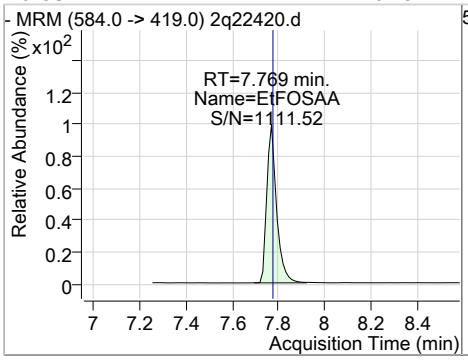
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.69	7.70	0.03	42346	463.0 -> 219.0	23.6	0.0	54.8

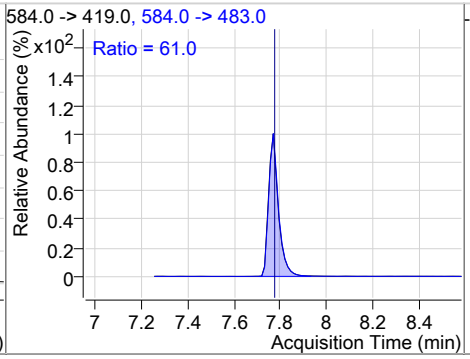


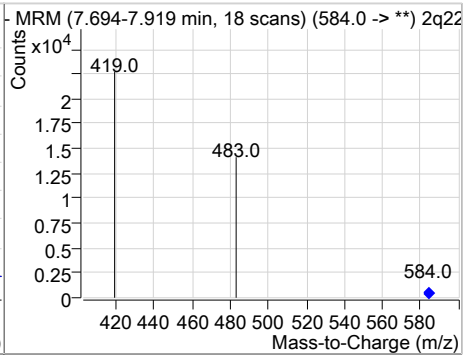




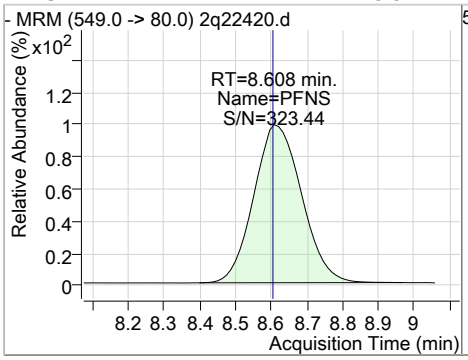
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.73	7.77	0.01	16425	584.0 -> 483.0	61.0	30.5	90.5

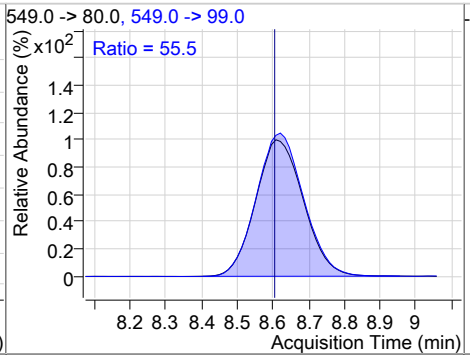


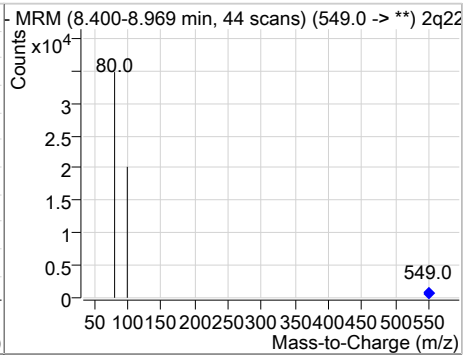




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	23.57	8.61	0.02	23903	549.0 -> 99.0	55.5	23.4	83.4

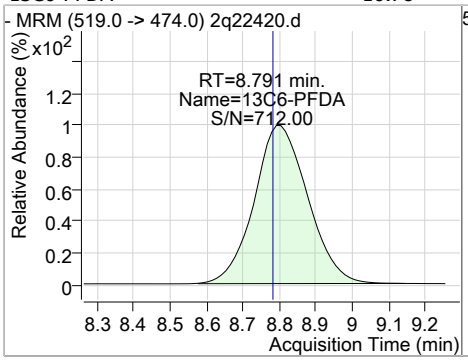


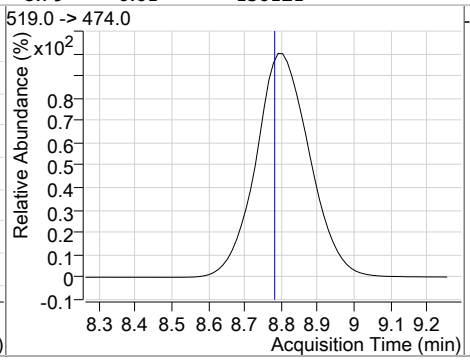


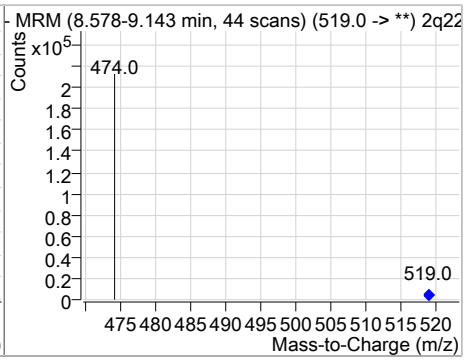


Perfluorinated Compounds by LC/MS/MS

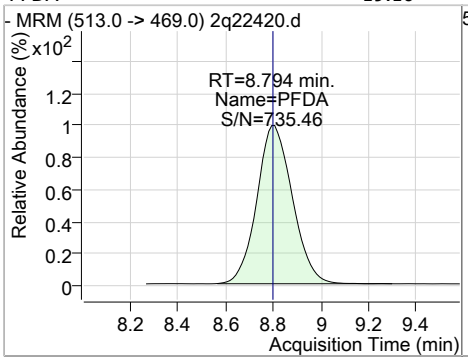
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.78	8.79	0.01	156121				

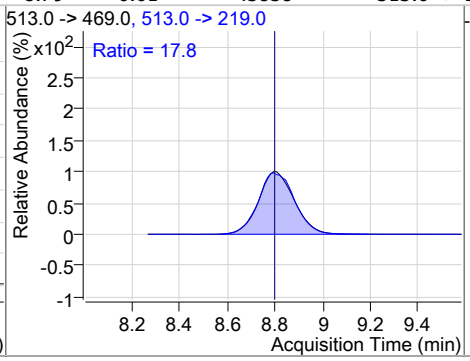


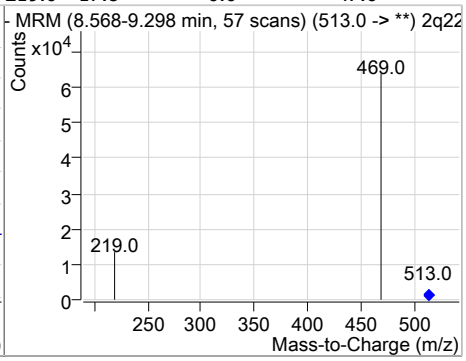




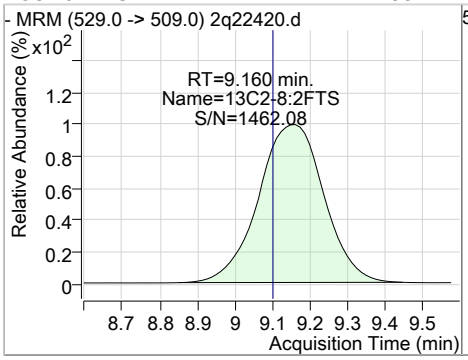
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.16	8.79	0.01	45858	513.0 -> 219.0	17.8	0.0	47.6

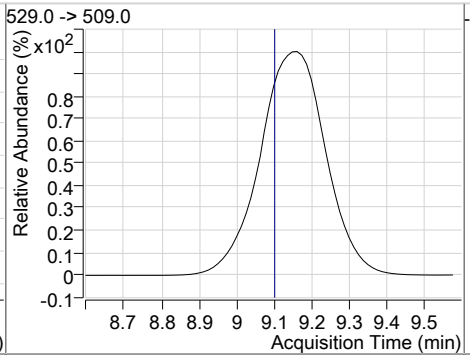


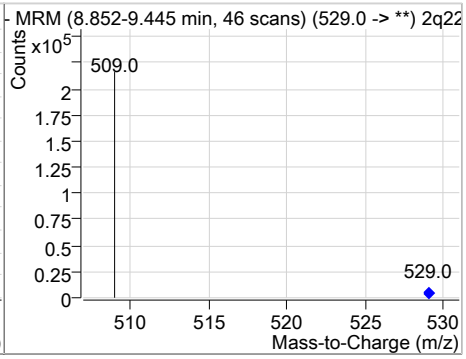




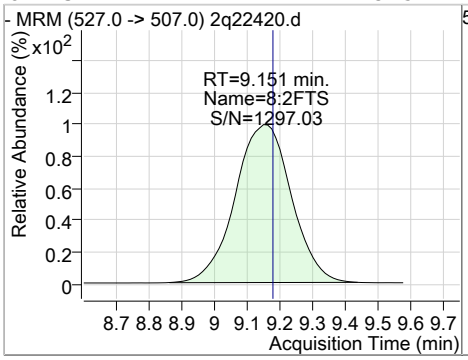
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	14.93	9.16	0.06	156867				

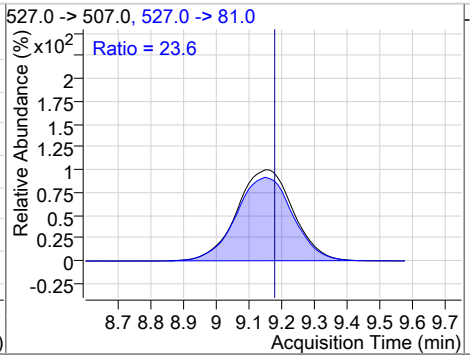


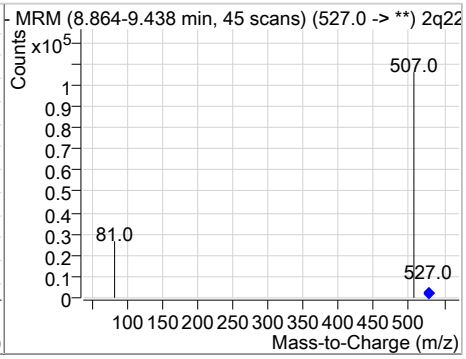




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	23.25	9.15	0.04	77329	527.0 -> 81.0	23.6	0.0	55.6

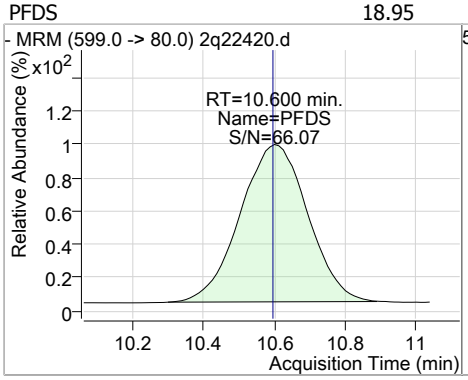


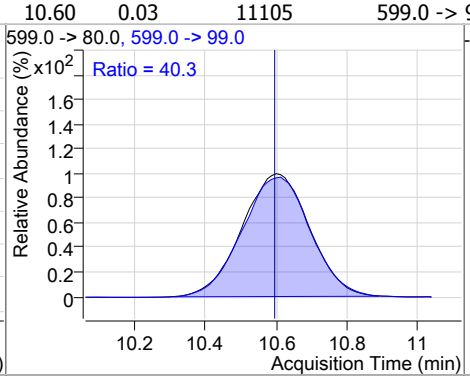


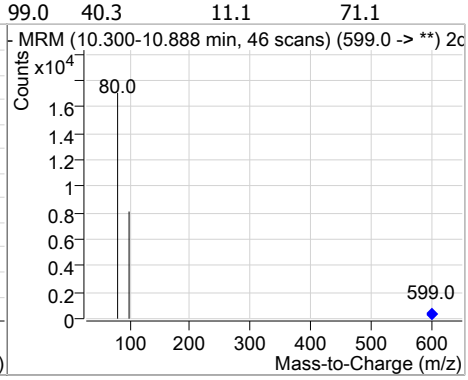


Perfluorinated Compounds by LC/MS/MS

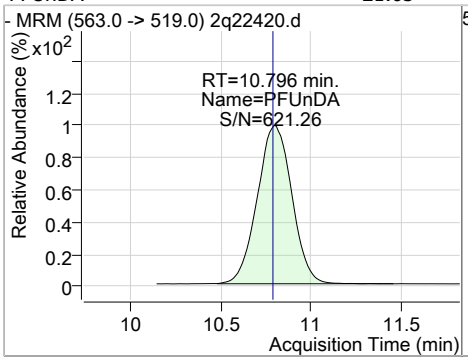
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	18.95	10.60	0.03	11105	599.0 -> 99.0	40.3	11.1	71.1

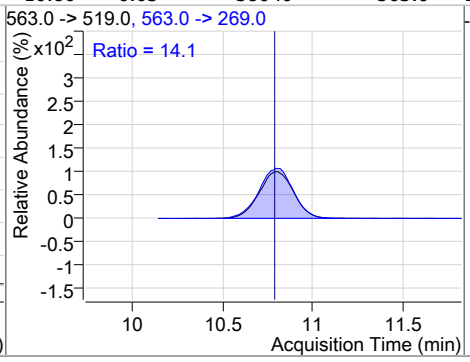


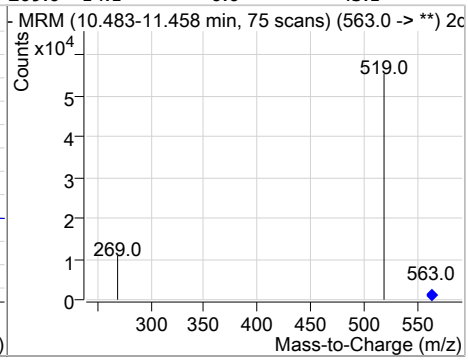




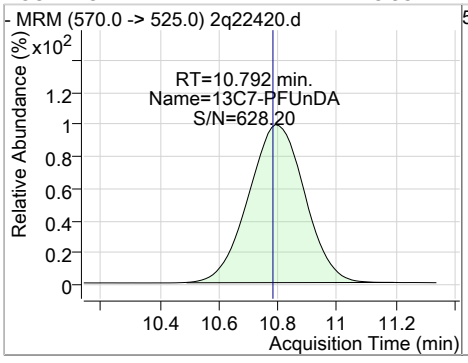
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.65	10.80	0.03	38640	563.0 -> 269.0	14.1	0.0	43.1

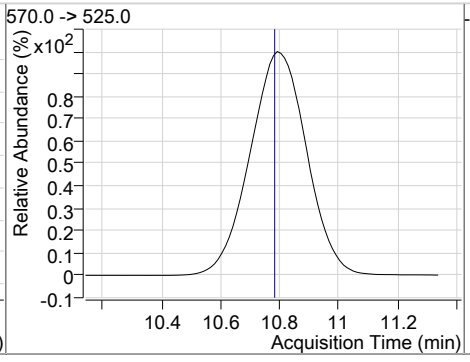


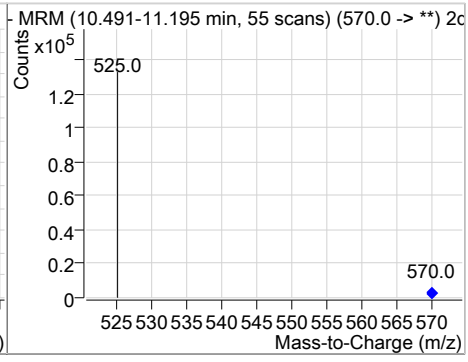




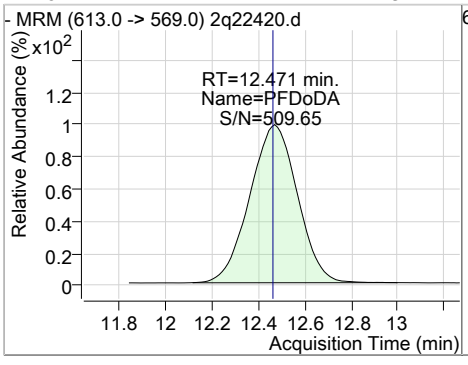
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.93	10.79	0.01	95382				

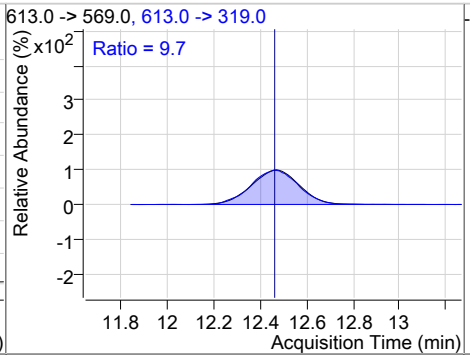


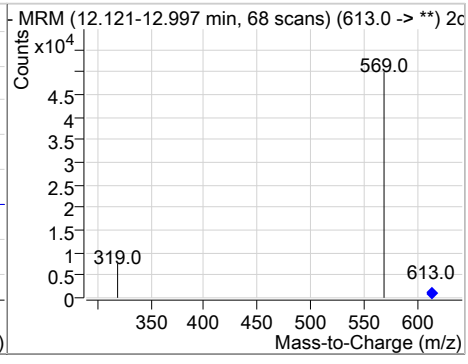




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	21.97	12.47	0.03	34960	613.0 -> 319.0	9.7	0.0	39.8

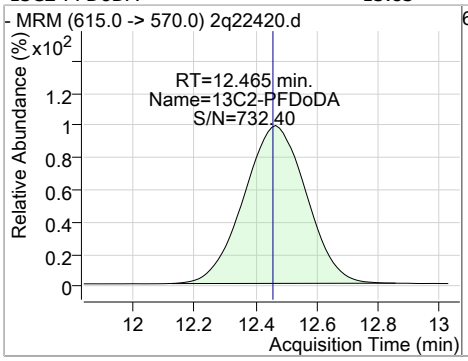


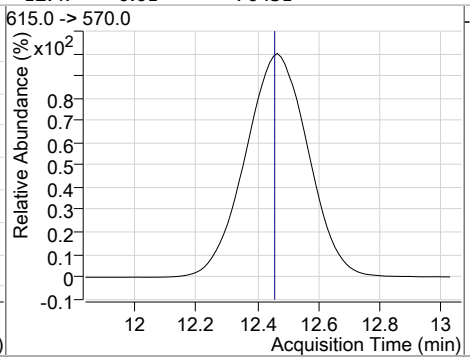


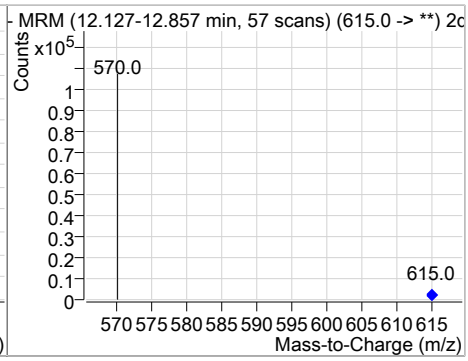


Perfluorinated Compounds by LC/MS/MS

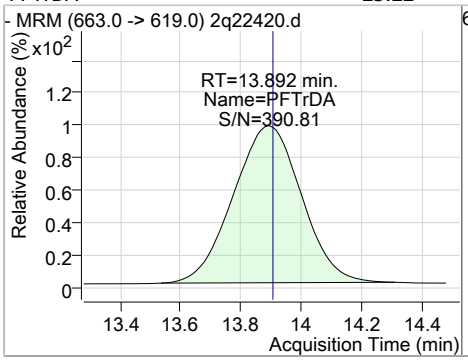
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	13.83	12.47	0.01	76451				

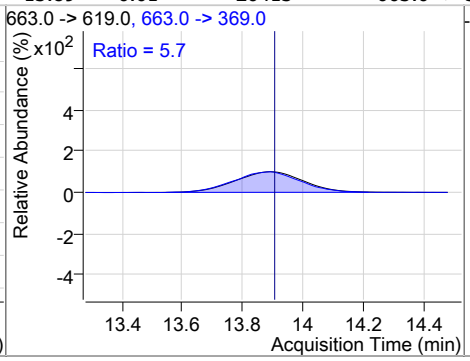


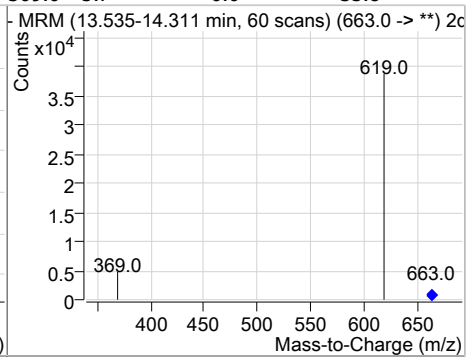




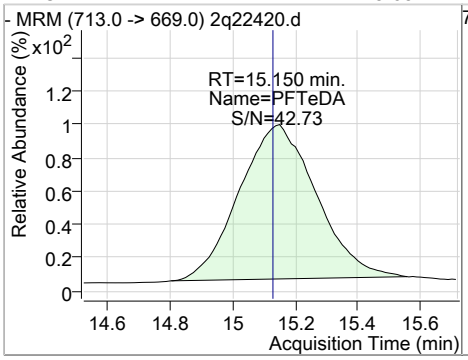
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	23.22	13.89	0.01	26413	663.0 -> 369.0	5.7	0.0	35.8

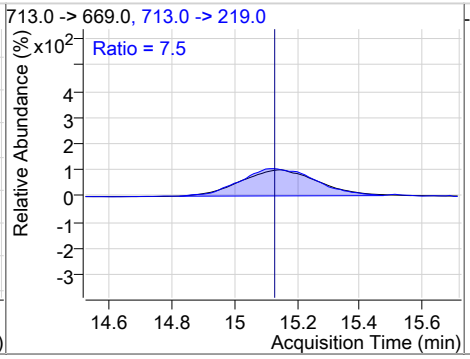


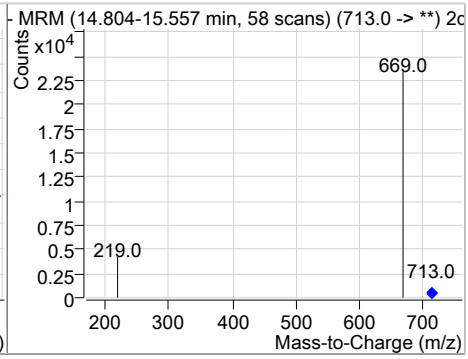




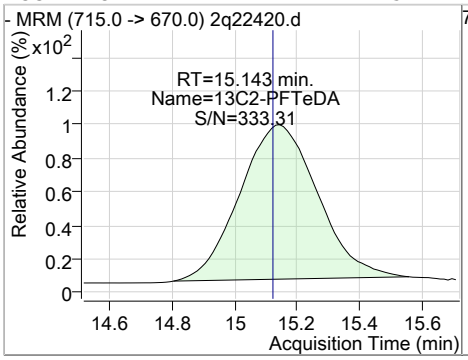
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.68	15.15	0.05	14518	713.0 -> 219.0	7.5	0.0	37.4

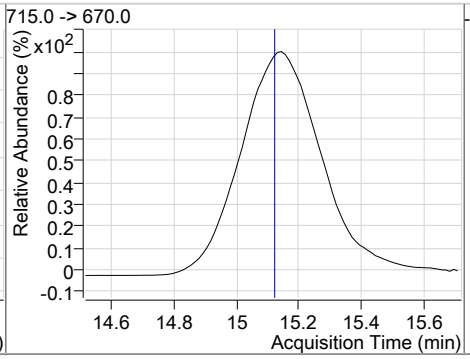


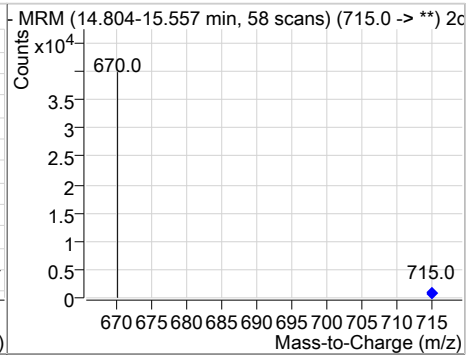




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	12.51	15.14	0.03	24290				







Manual Integration Approval Summary

Sample Number: OP72234-MSD
Lab FileID: 2Q22420.D
Injection Time: 10/19/18 22:53
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 14:15 Natasha Gumtie
Supervisor approved: 10/23/18 15:58 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22122.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 11:23:00 AM
Sample Name : ic349-0.5
Vial : Vial 2
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

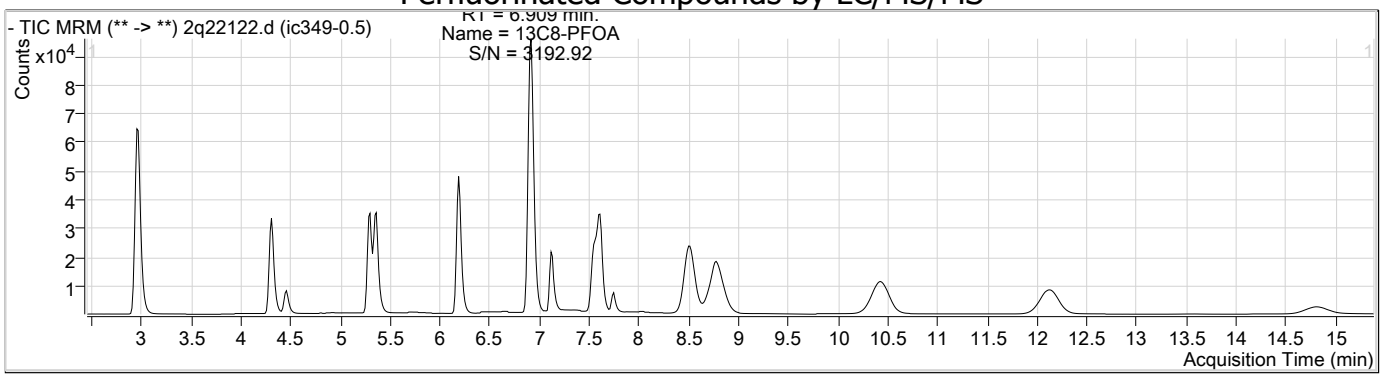
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	132190	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	49593	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	256876	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	110188	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	107852	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	124960	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	102484	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	91543	20.00	µg/L	0.000
M6-PFDA	8.504	519.0 -> 474.0	178696	20.00	µg/L	0.000
M7-PFUnDA	10.429	570.0 -> 525.0	138896	20.00	µg/L	0.025
M2-PFDoDA	12.115	615.0 -> 570.0	112889	20.00	µg/L	0.025
M2-PFTeDA	14.806	715.0 -> 670.0	41715	20.00	µg/L	0.025
M8-FOSA	7.117	506.0 -> 78.0	62468	20.00	µg/L	0.002
M3-PFBS	4.455	302.0 -> 99.0	25295	20.00	µg/L	0.012
M3-PFHxS	6.186	402.0 -> 99.0	30774	20.00	µg/L	0.000
M8-PFOS	7.546	507.0 -> 99.0	30493	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	115098	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	146894	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	172883	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	38412	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	115255	16.41	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.0%		
13C2-6:2FTS	6.931	429.0 -> 409.0	146977	16.73	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.6%		
13C2-8:2FTS	8.775	529.0 -> 509.0	172357	16.56	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.8%		
13C2-PFDoDA	12.115	615.0 -> 570.0	112326	17.90	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.5%		
13C2-PFTeDA	14.806	715.0 -> 670.0	38921	17.43	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.1%		
13C3-PFBS	4.455	302.0 -> 99.0	25314	17.77	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.9%		
13C3-PFHxS	6.186	402.0 -> 99.0	30756	17.75	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C4-PFBA	2.953	217.0 -> 172.0	256599	17.76	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C4-PFHpA	6.192	367.0 -> 322.0	124935	17.81	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.1%		
13C5-PFHxA	5.364	318.0 -> 273.0	107845	17.77	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C5-PFPeA	4.312	268.0 -> 223.0	110153	17.54	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.7%		
13C6-PFDA	8.504	519.0 -> 474.0	178384	17.70	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.5%		

Perfluorinated Compounds by LC/MS/MS

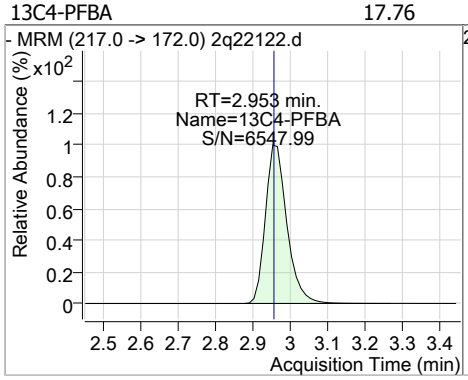
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	138416	18.10	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.5%			
13C8-FOSA	7.117	506.0 -> 78.0	62486	16.98	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.9%			
13C8-PFOA	6.909	421.0 -> 376.0	102487	17.46	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.3%			
13C8-PFOS	7.546	507.0 -> 99.0	30511	17.44	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.2%			
13C9-PFNA	7.601	472.0 -> 427.0	91472	17.44	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.2%			
d3-MeFOSAA	7.620	573.0 -> 419.0	38406	17.17	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.9%			
M2-PFOA	6.910	415.0 -> 370.0	132129	19.99	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	49616	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.287	327.0 -> 307.0	1729	0.54	µg/L		80
6:2FTS	6.932	427.0 -> 407.0	1944	0.54	µg/L		98
8:2FTS	8.777	527.0 -> 507.0	2300	0.53	µg/L		92
EtFOSAA	7.744	584.0 -> 419.0	461	0.52	µg/L		96
FOSA	7.120	498.0 -> 78.0	787	0.53	µg/L		91
MeFOSAA	7.622	570.0 -> 419.0	501	0.50	µg/L		98
PFBA	2.962	213.0 -> 169.0	783	0.51	µg/L		100
PFBS	4.447	299.0 -> 80.0	996	0.54	µg/L		100
PFDA	8.506	513.0 -> 469.0	1574	0.59	µg/L		95
PFDoDA	12.147	613.0 -> 569.0	1293	0.54	µg/L		97
PFDS	10.237	599.0 -> 80.0	347	0.50	µg/L	m	97
PFHpA	6.195	363.0 -> 319.0	2452	0.53	µg/L		97
PFHpS	6.879	449.0 -> 80.0	662	0.52	µg/L		98
PFHxA	5.366	313.0 -> 269.0	913	0.53	µg/L		95
PFHxS	6.189	399.0 -> 80.0	843	0.55	µg/L	m	99
PFNA	7.602	463.0 -> 419.0	1296	0.54	µg/L		89
PFNS	8.371	549.0 -> 80.0	633	0.53	µg/L		91
PFOA	6.912	413.0 -> 369.0	1565	0.62	µg/L		97
PFOS	7.549	499.0 -> 80.0	814	0.63	µg/L	m	96
PFPeA	4.316	263.0 -> 219.0	3479	0.68	µg/L		100
PFPeS	5.421	349.0 -> 80.0	654	0.52	µg/L		92
PFTeDA	14.800	713.0 -> 669.0	715	0.60	µg/L		97
PFTrDA	13.579	663.0 -> 619.0	913	0.52	µg/L		98
PFUnDA	10.446	563.0 -> 519.0	1425	0.54	µg/L		95

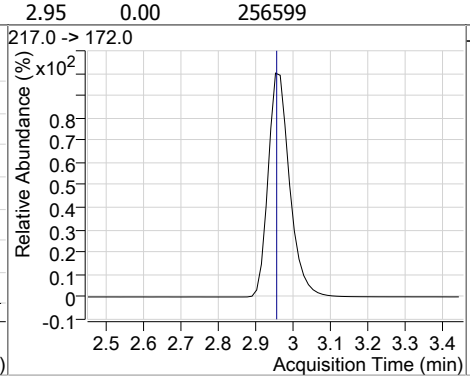
 # = Qualifier out of range, m = manually integrated, + = Area summed

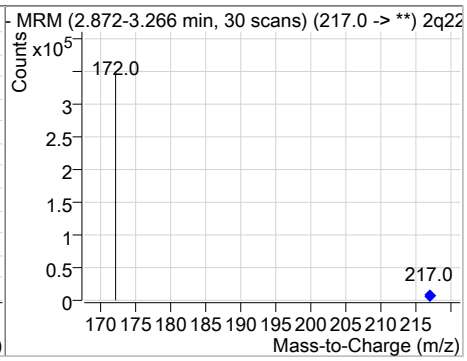
Perfluorinated Compounds by LC/MS/MS



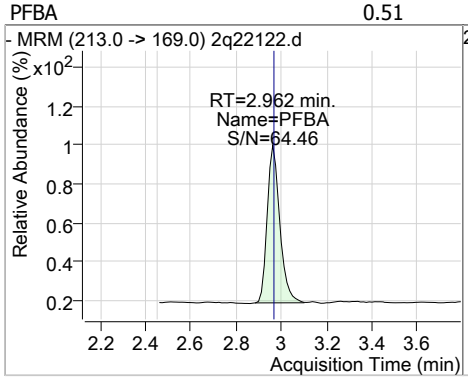
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.76	2.95	0.00	256599				

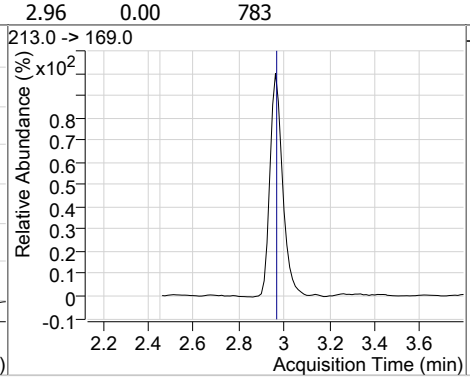


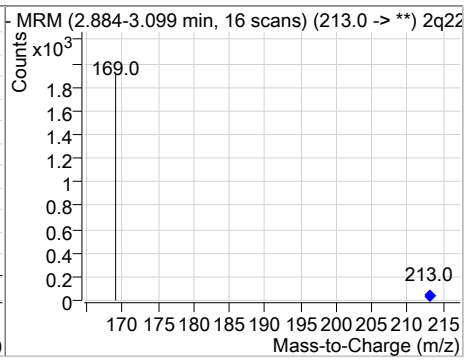




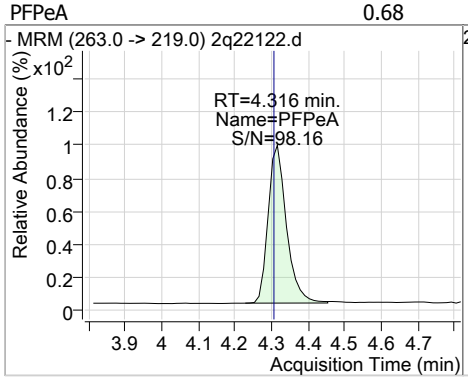
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.51	2.96	0.00	783				

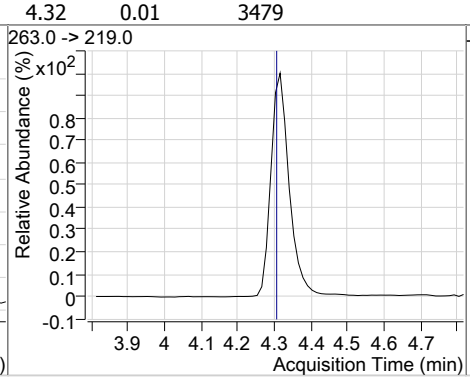


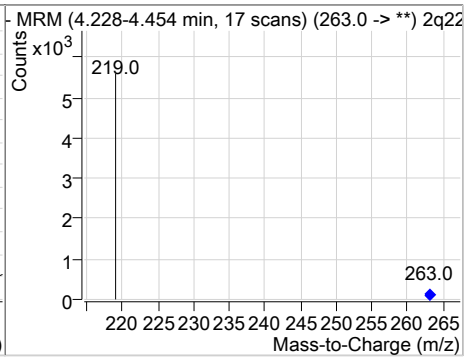




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.68	4.32	0.01	3479				

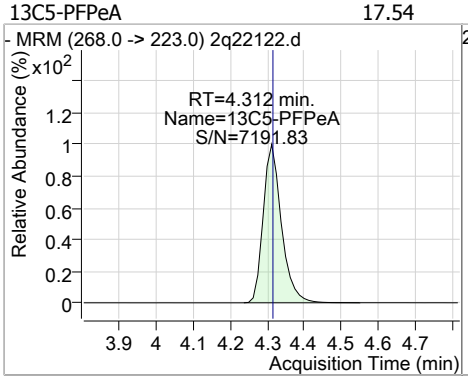


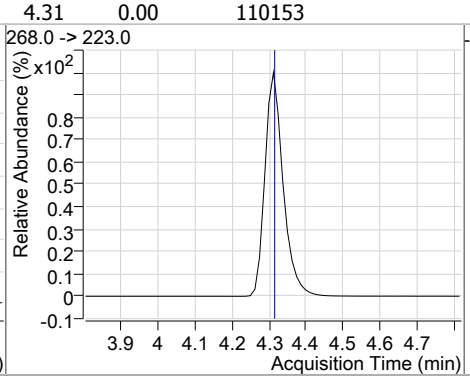


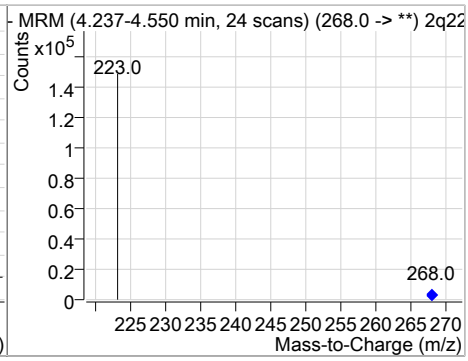


Perfluorinated Compounds by LC/MS/MS

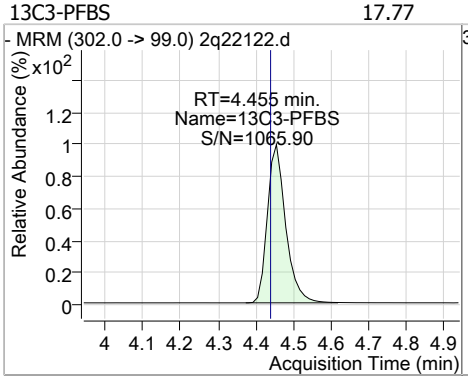
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.54	4.31	0.00	110153				

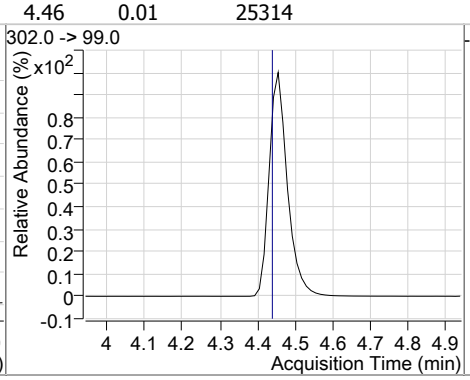


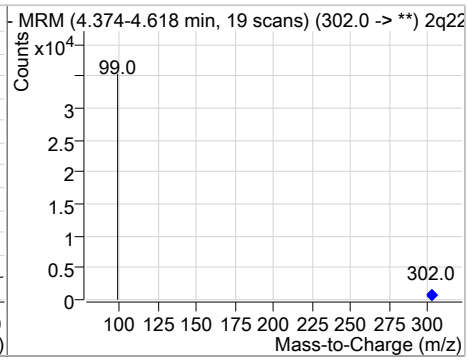




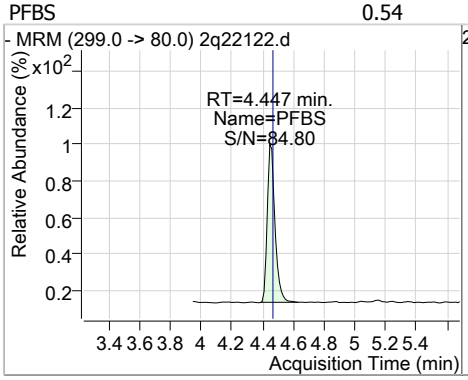
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.77	4.46	0.01	25314				

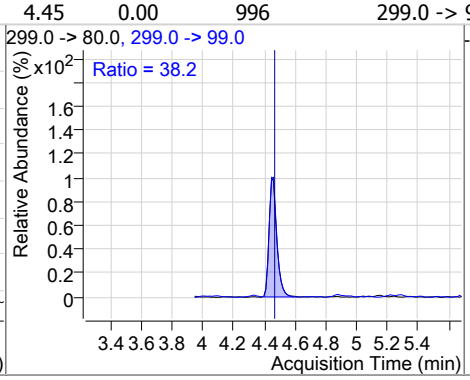


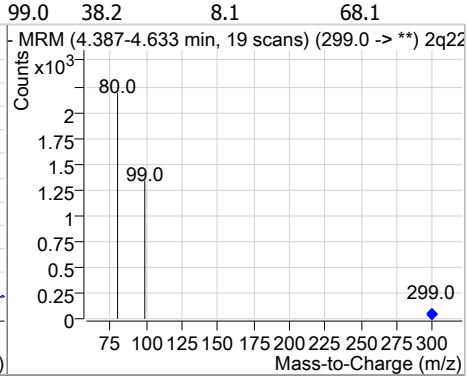




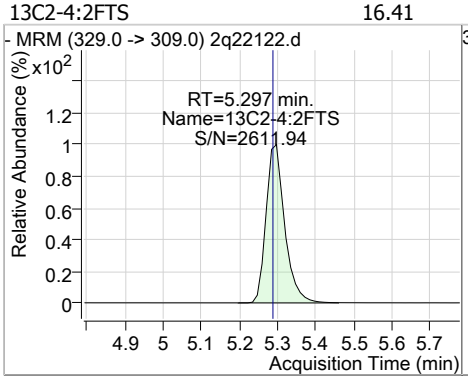
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.54	4.45	0.00	996	299.0 -> 99.0	38.2	8.1	68.1

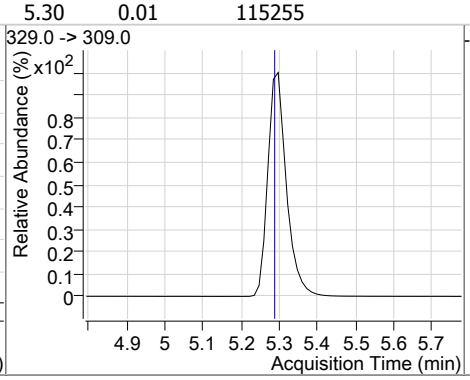


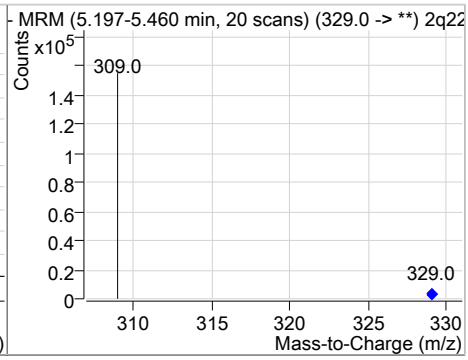




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.41	5.30	0.01	115255				

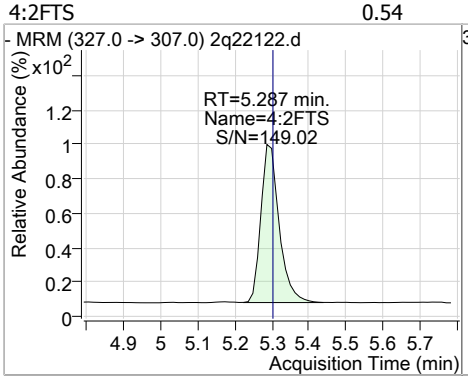


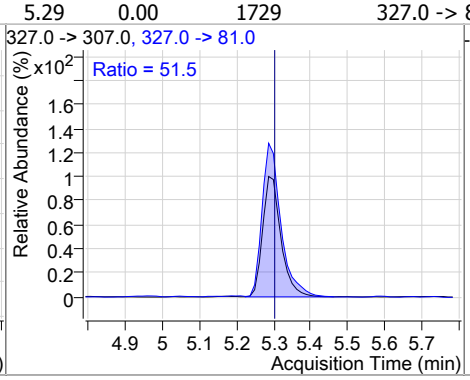


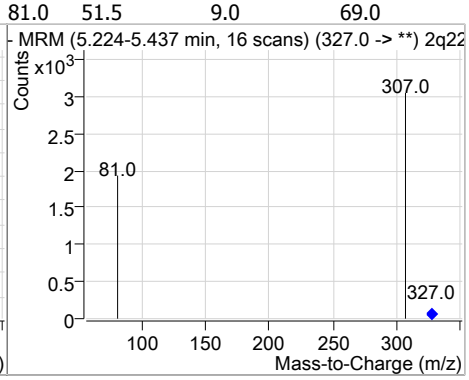


Perfluorinated Compounds by LC/MS/MS

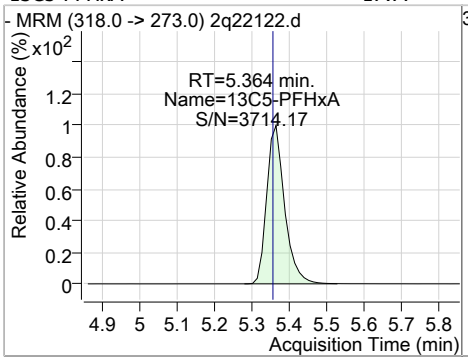
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.54	5.29	0.00	1729	327.0 -> 81.0	51.5	9.0	69.0

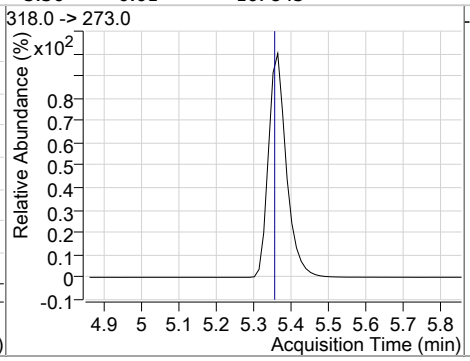


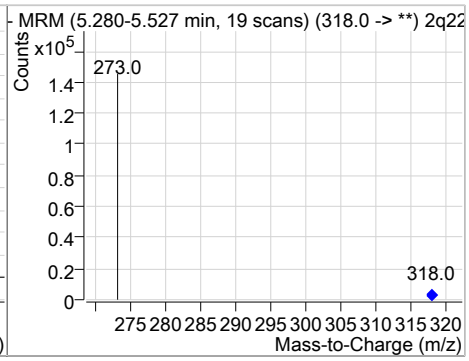




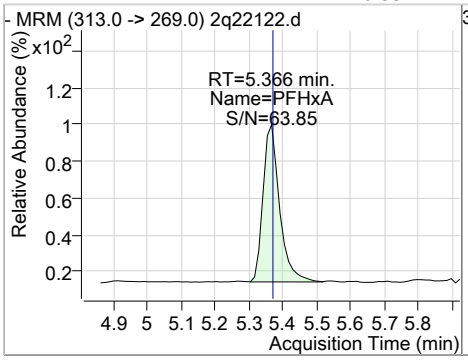
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.77	5.36	0.01	107845				

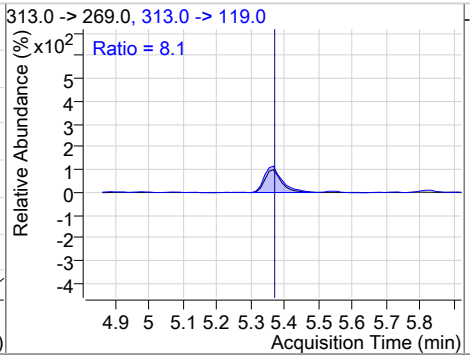


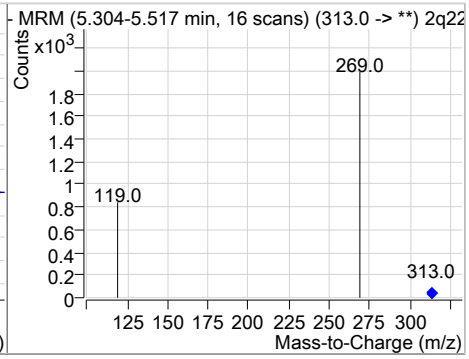




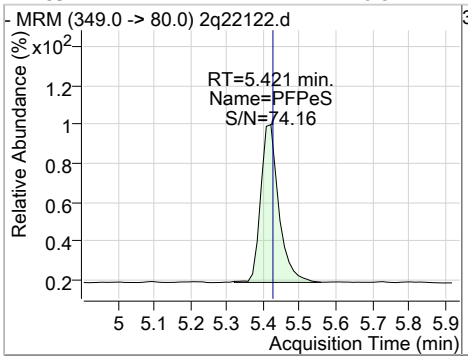
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.53	5.37	0.01	913	313.0 -> 119.0	8.1	0.0	36.4

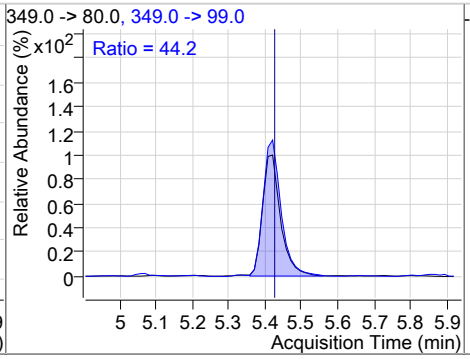


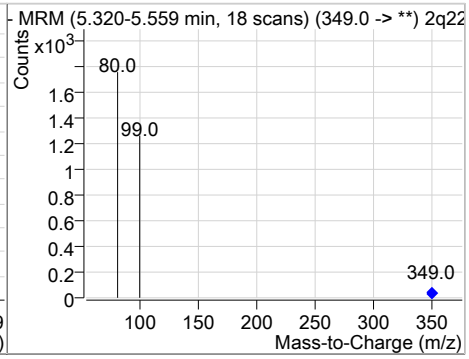




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.52	5.42	0.01	654	349.0 -> 99.0	44.2	9.5	69.5

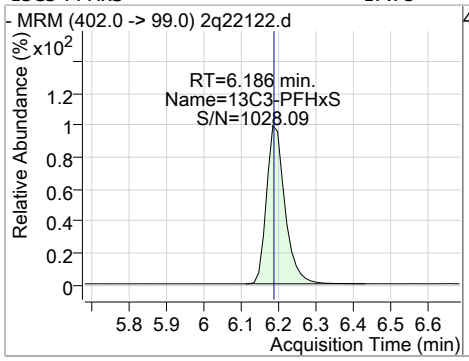


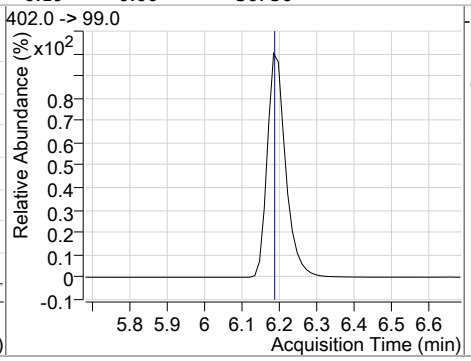


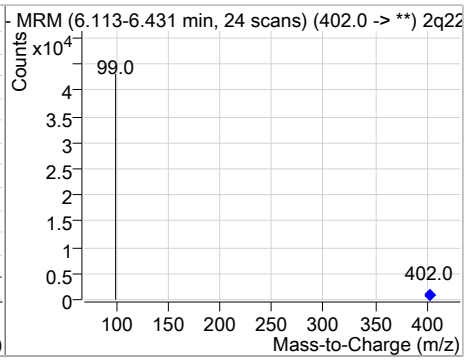


Perfluorinated Compounds by LC/MS/MS

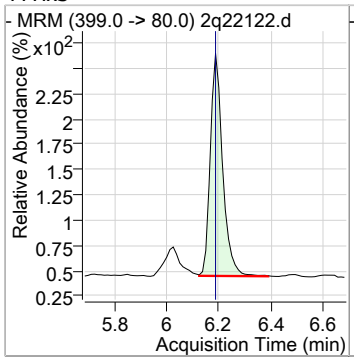
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	17.75	6.19	0.00	30756				

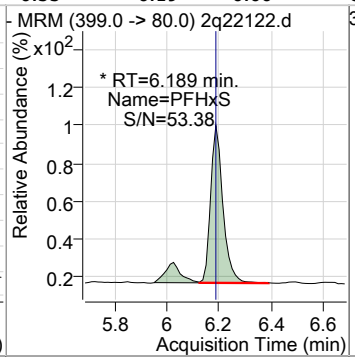


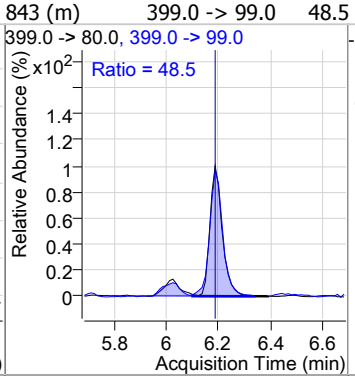


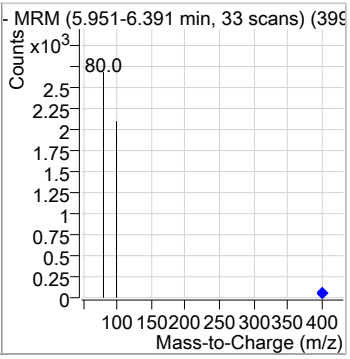


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.55	6.19	0.00	843 (m)	399.0 -> 99.0	48.5	17.7	77.7

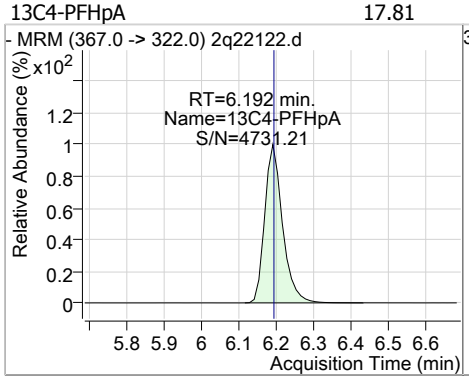


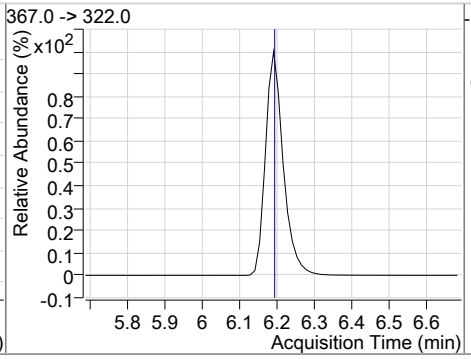


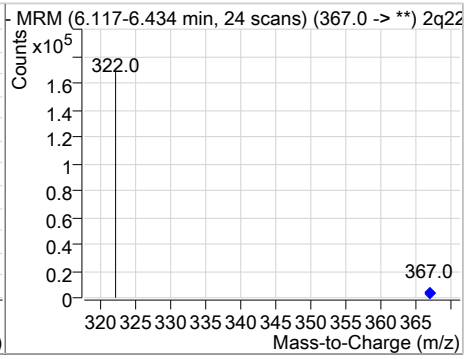




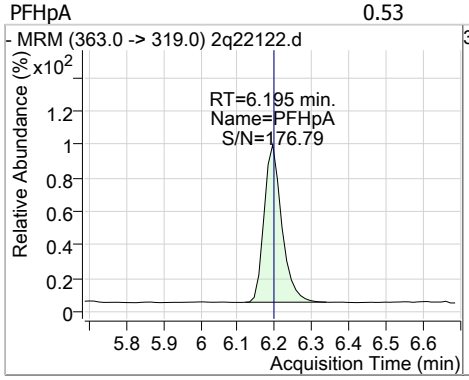
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.81	6.19	0.00	124935				

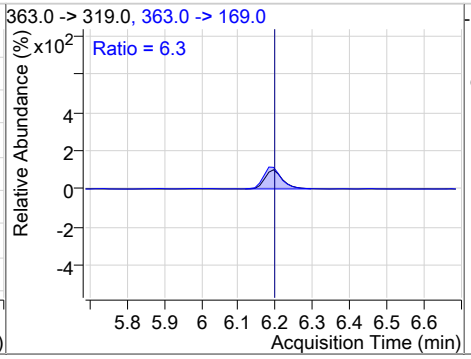


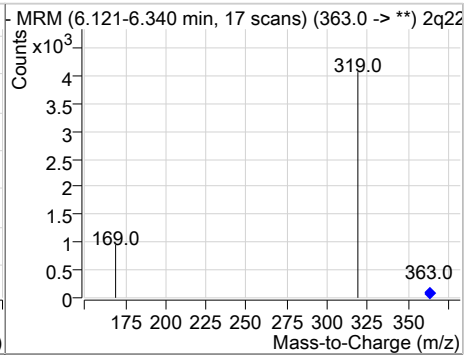




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.53	6.20	0.00	2452	363.0 -> 169.0	6.3	0.0	35.4

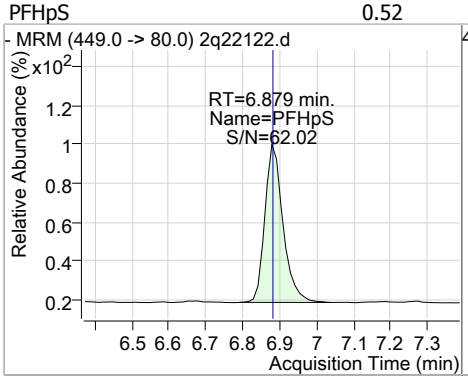


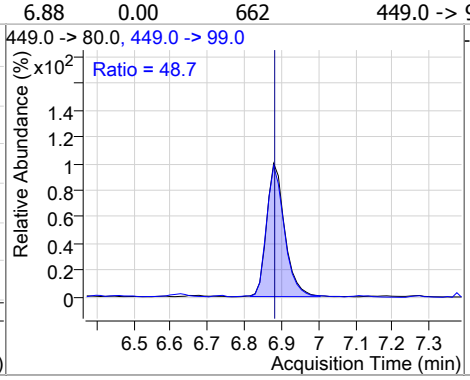


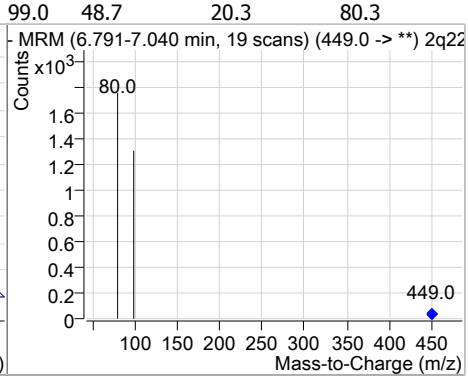


Perfluorinated Compounds by LC/MS/MS

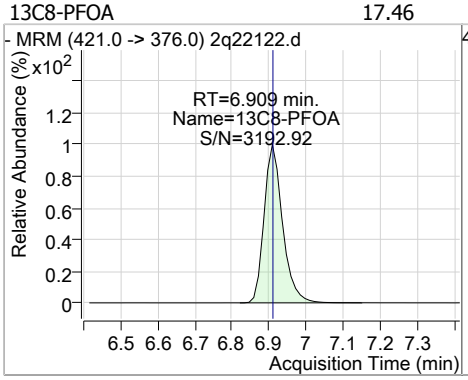
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.52	6.88	0.00	662	449.0 -> 99.0	48.7	20.3	80.3

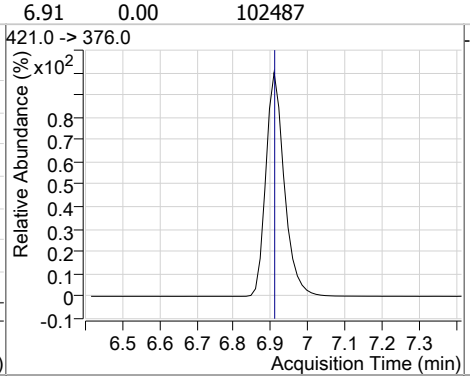


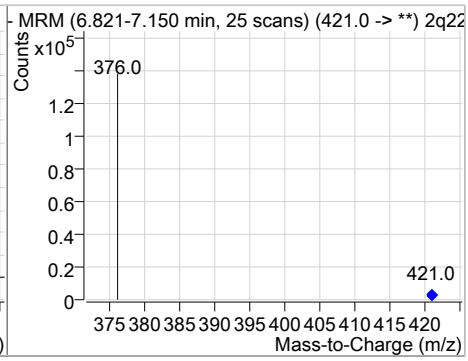




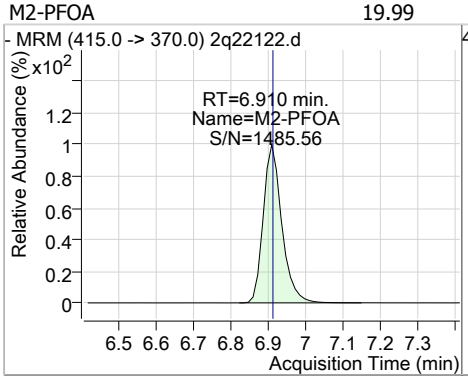
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	17.46	6.91	0.00	102487				

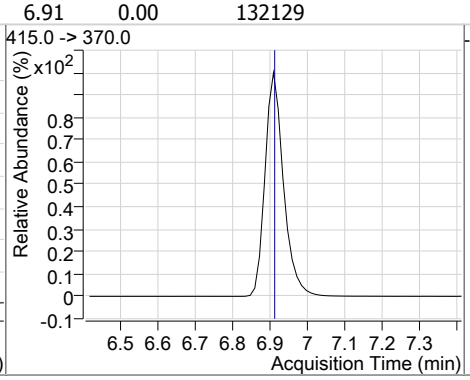


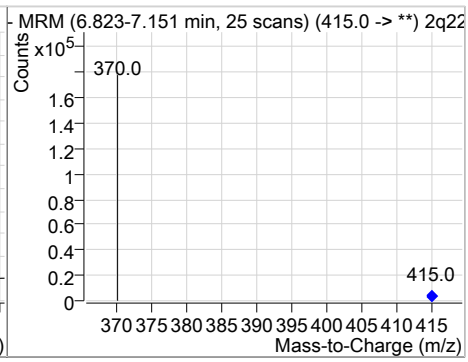




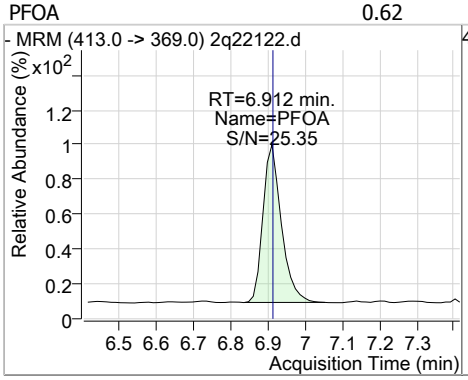
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.91	0.00	132129				

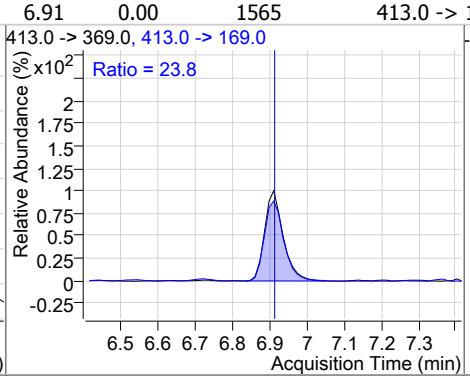


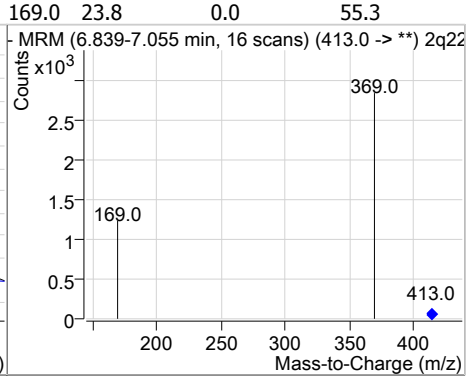




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.62	6.91	0.00	1565	413.0 -> 169.0	23.8	0.0	55.3

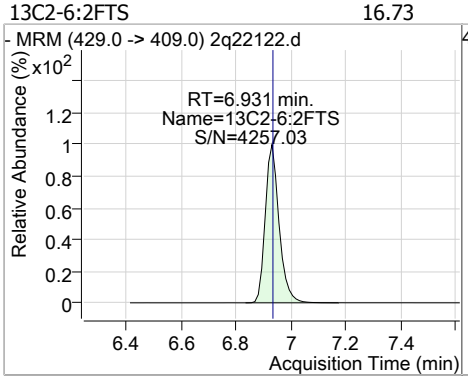


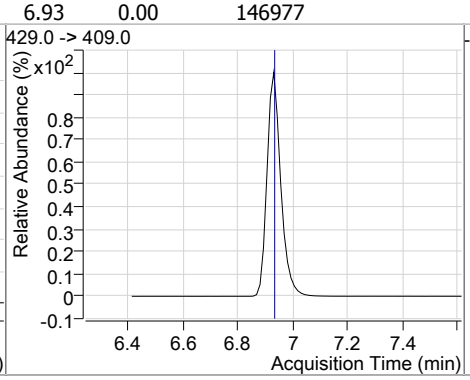


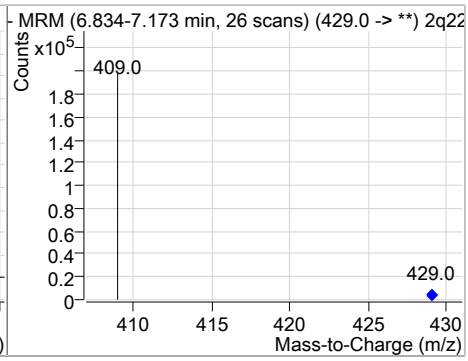


Perfluorinated Compounds by LC/MS/MS

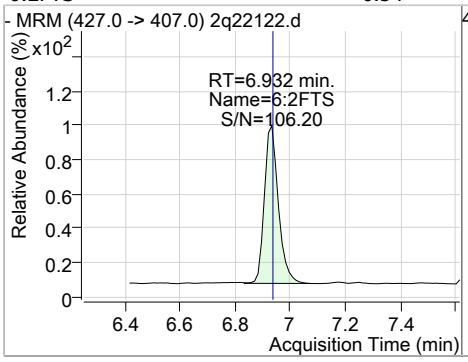
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	16.73	6.93	0.00	146977				

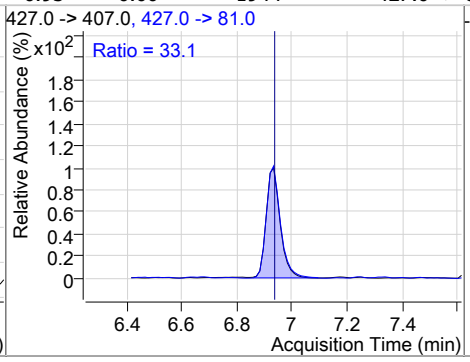


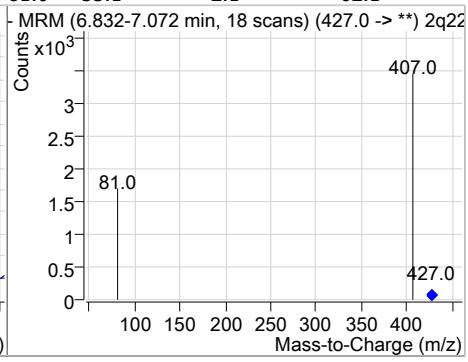




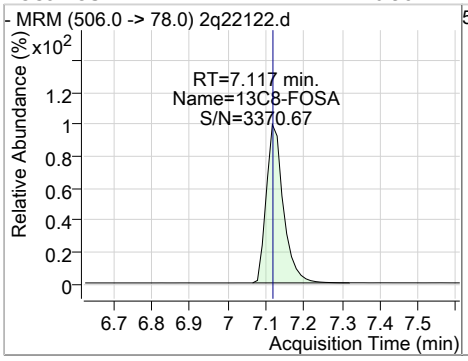
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.54	6.93	0.00	1944	427.0 -> 81.0	33.1	2.1	62.1

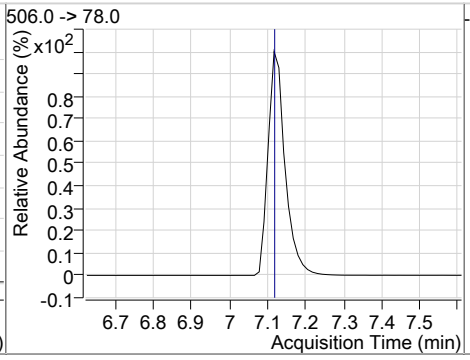


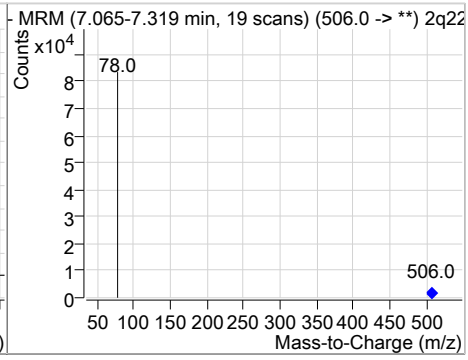




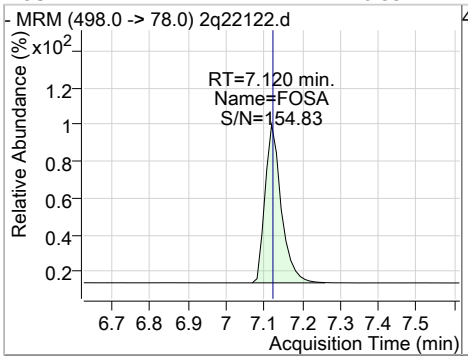
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	16.98	7.12	0.00	62486				

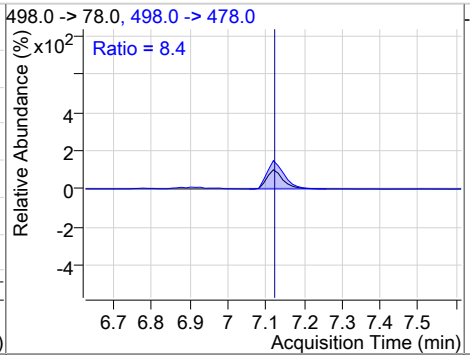


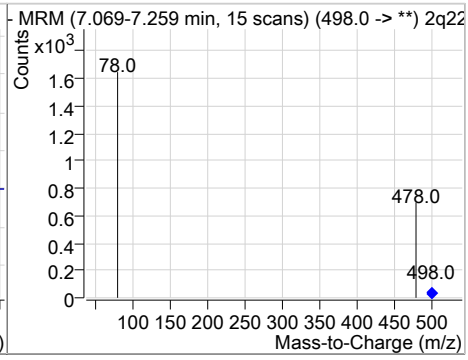




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.53	7.12	0.00	787	498.0 -> 478.0	8.4	0.0	35.4

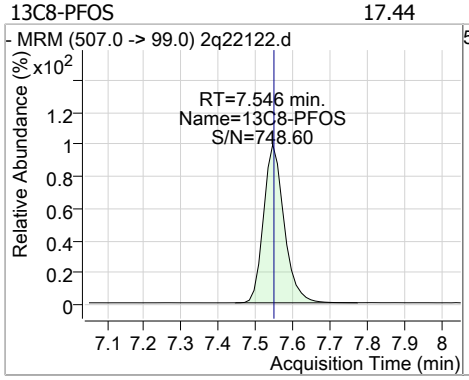


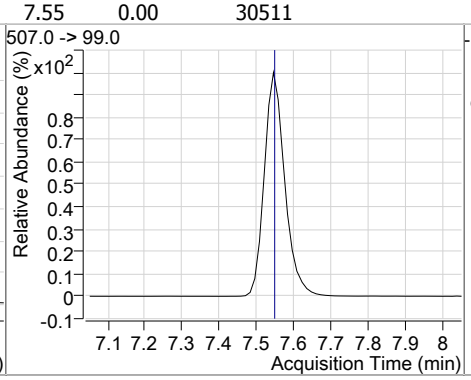


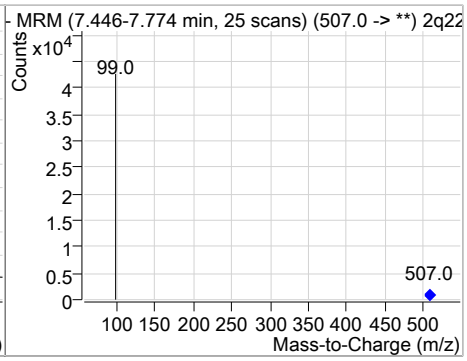


Perfluorinated Compounds by LC/MS/MS

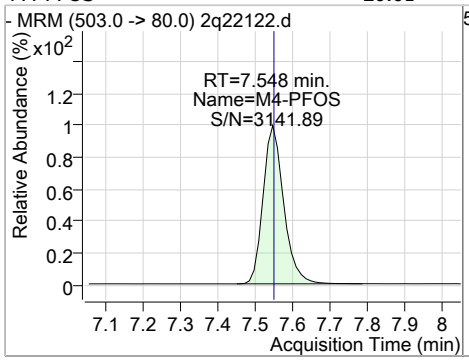
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	17.44	7.55	0.00	30511				

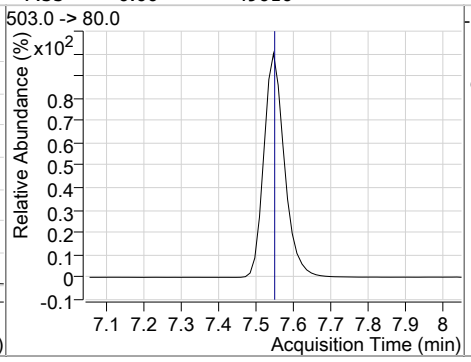


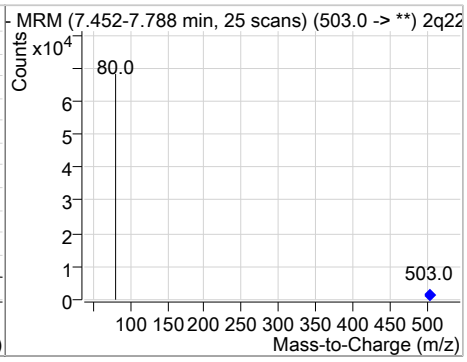




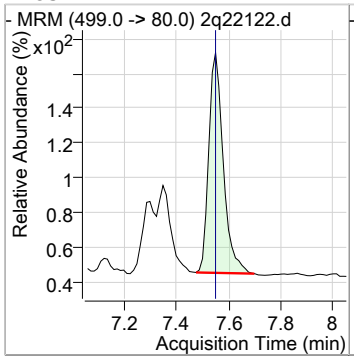
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.55	0.00	49616				

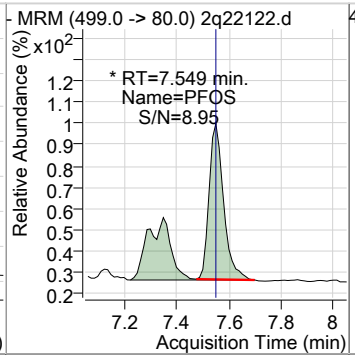


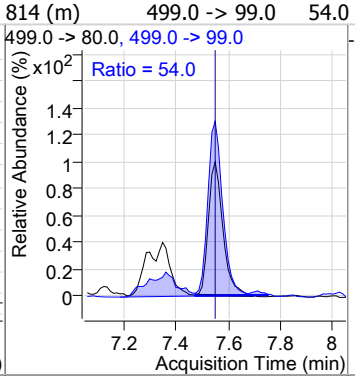


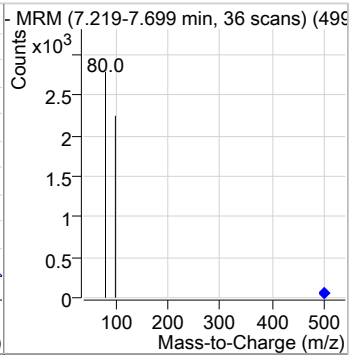


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.63	7.55	0.00	814 (m)	499.0 -> 99.0	54.0	21.5	81.5

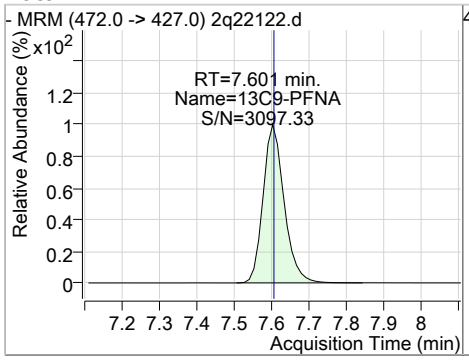


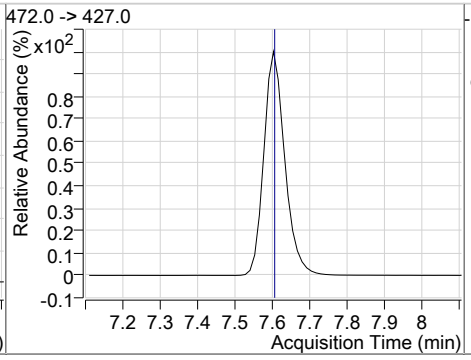


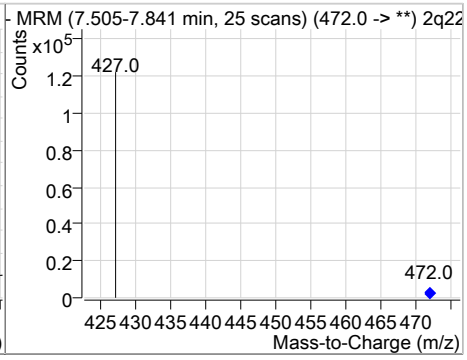




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.44	7.60	0.00	91472				

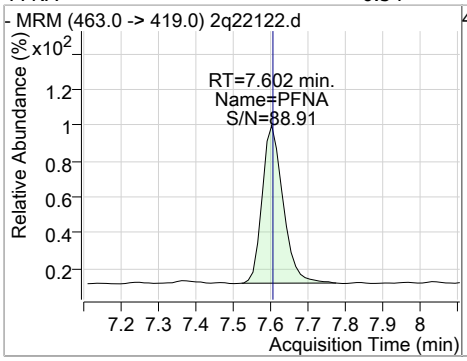


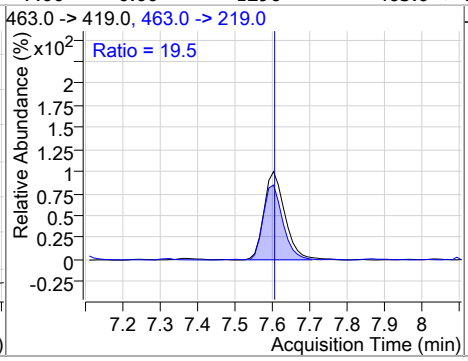


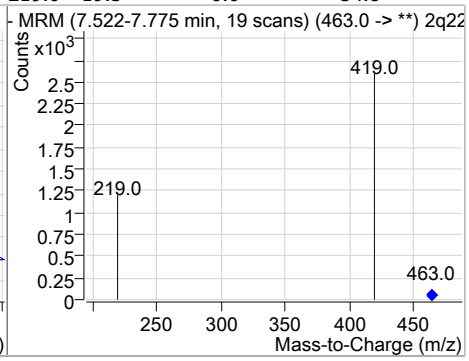


Perfluorinated Compounds by LC/MS/MS

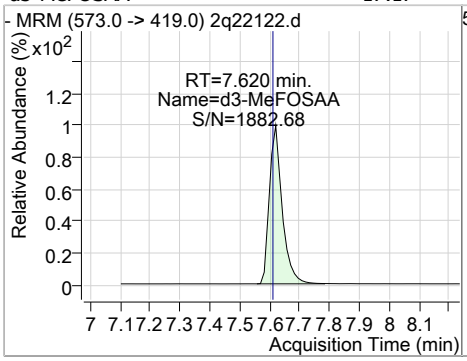
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.54	7.60	0.00	1296	463.0 -> 219.0	19.5	0.0	54.8

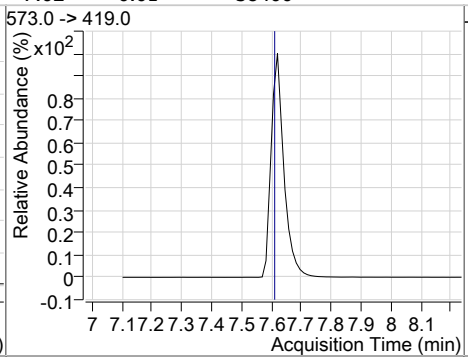


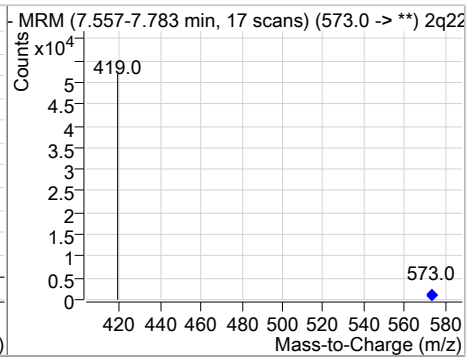




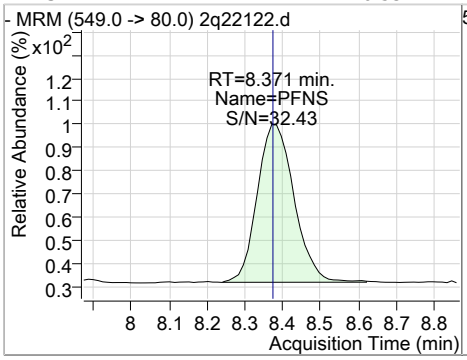
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	17.17	7.62	0.01	38406				

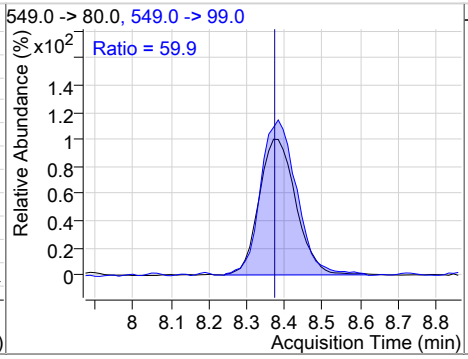


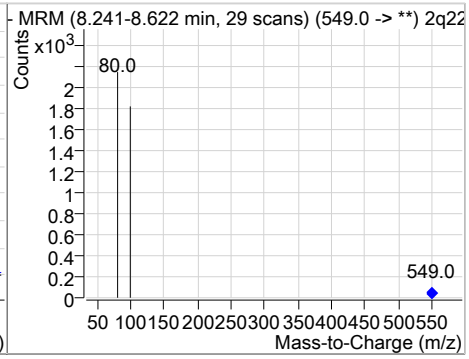




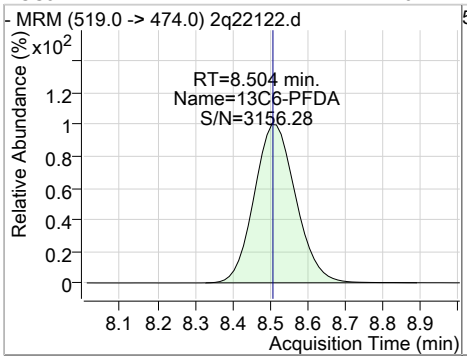
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.53	8.37	0.00	633	549.0 -> 99.0	59.9	23.4	83.4

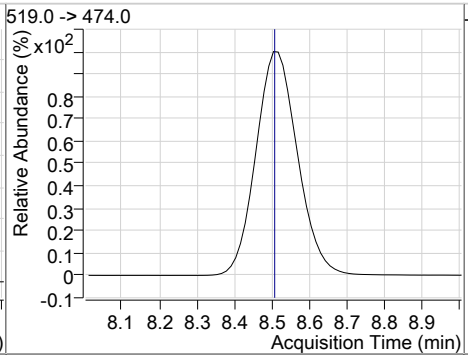


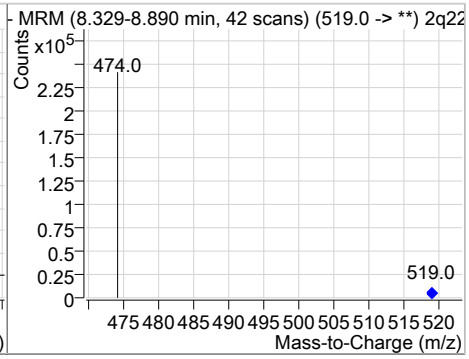




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.70	8.50	0.00	178384				

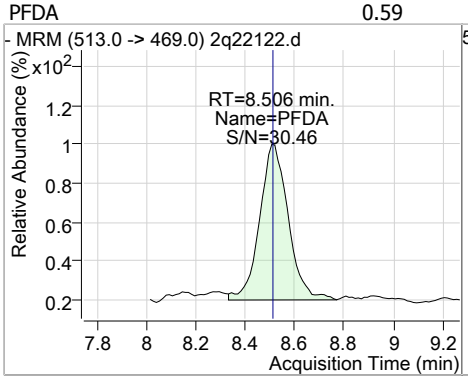


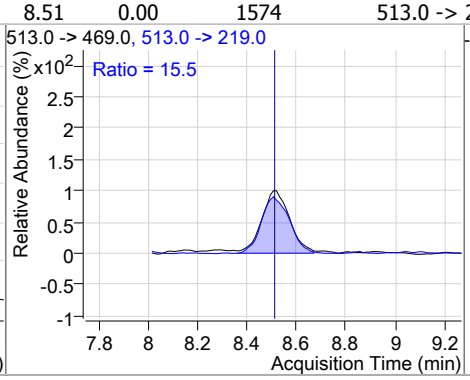


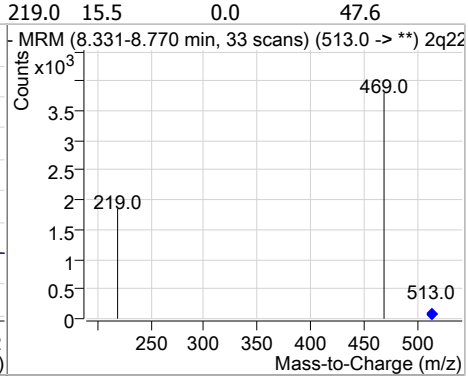


Perfluorinated Compounds by LC/MS/MS

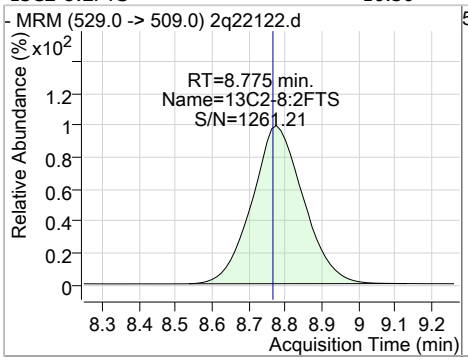
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.59	8.51	0.00	1574	513.0 -> 219.0	15.5	0.0	47.6

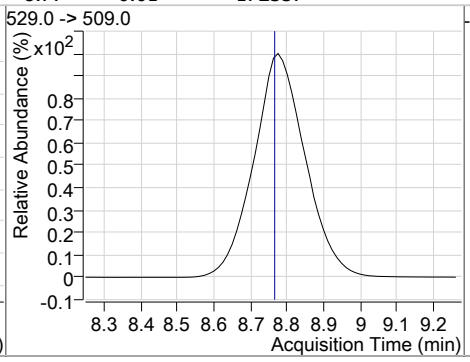


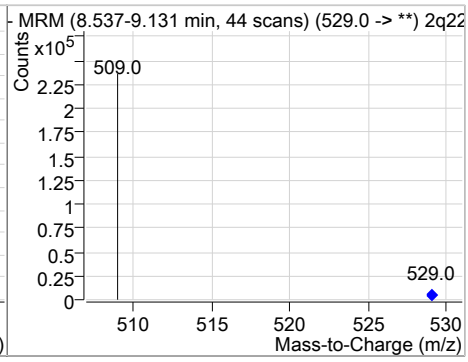




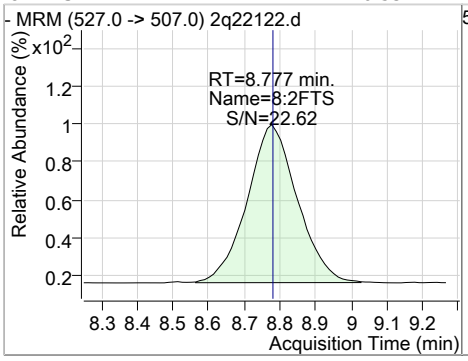
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.56	8.77	0.01	172357				

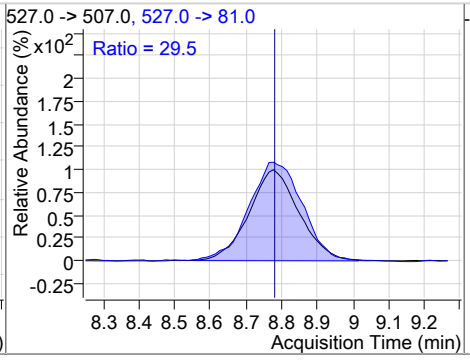


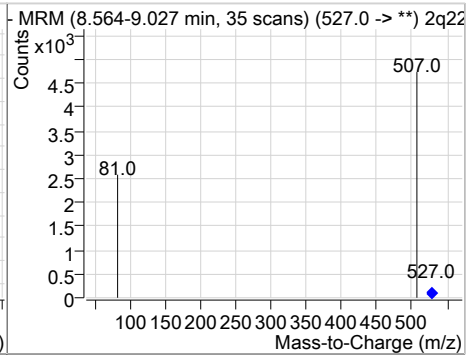




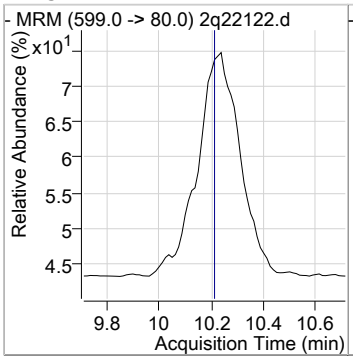
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.53	8.78	0.01	2300	527.0 -> 81.0	29.5	0.0	55.6

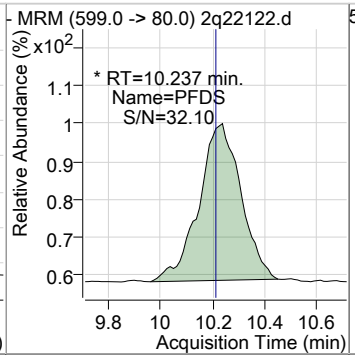


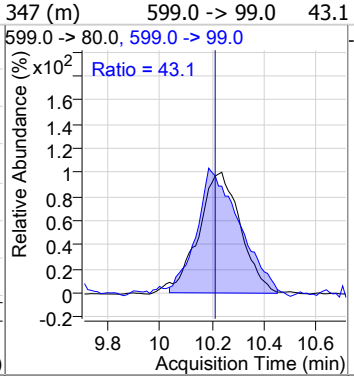


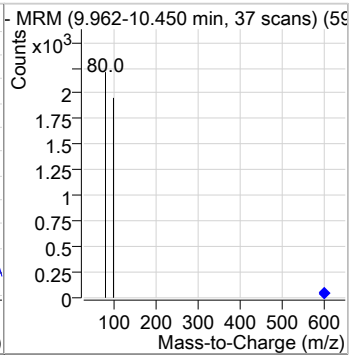


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.50	10.24	0.03	347 (m)	599.0 -> 99.0	43.1	11.1	71.1



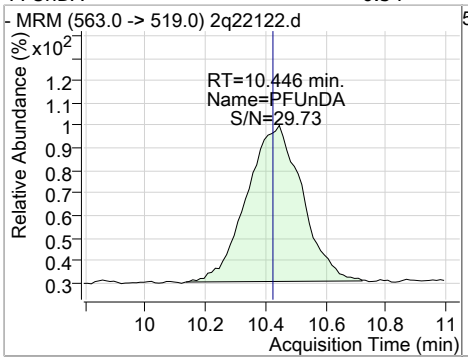


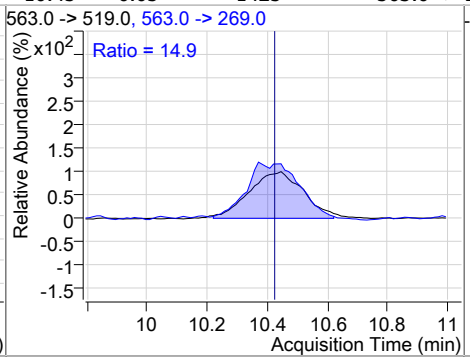


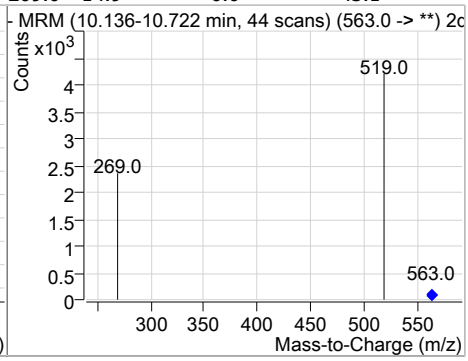


Perfluorinated Compounds by LC/MS/MS

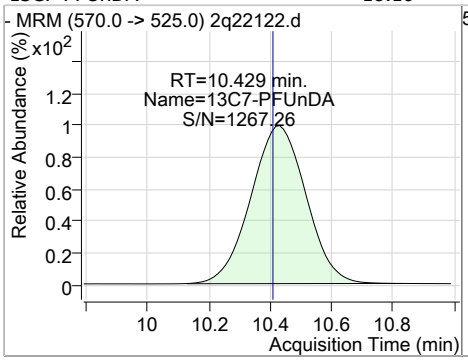
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.54	10.45	0.05	1425	563.0 -> 269.0	14.9	0.0	43.1

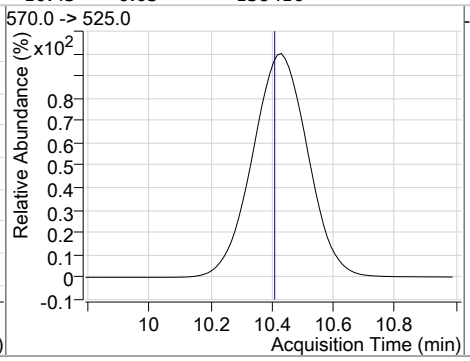


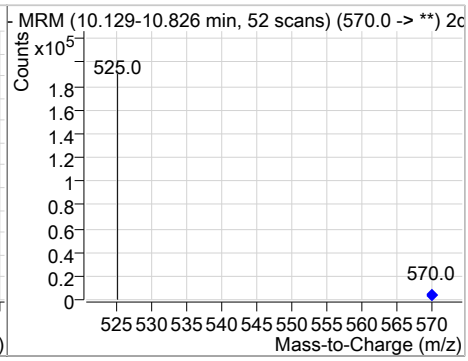




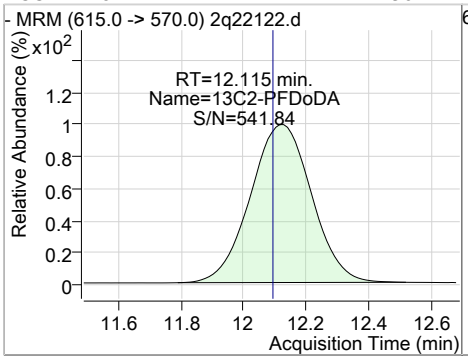
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.10	10.43	0.03	138416				

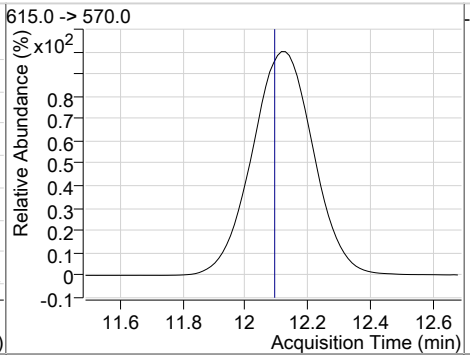


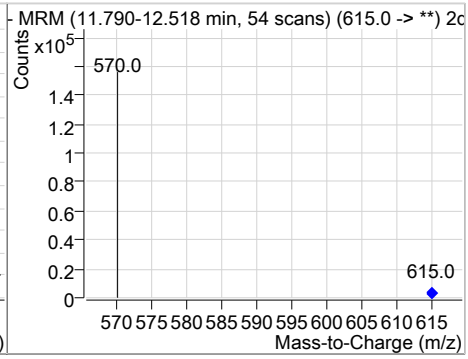




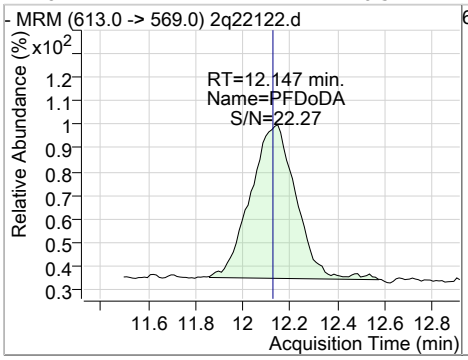
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	17.90	12.12	0.03	112326				

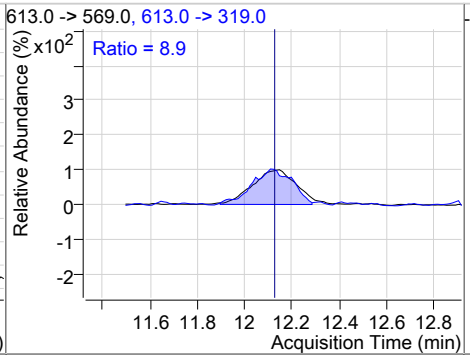


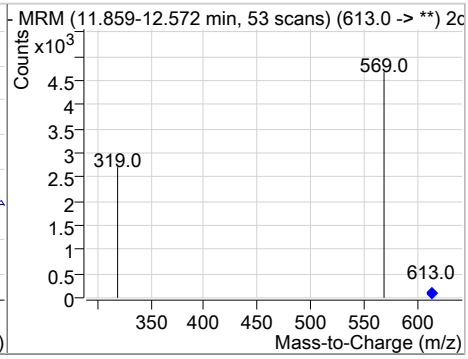




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.54	12.15	0.05	1293	613.0 -> 319.0	8.9	0.0	39.8

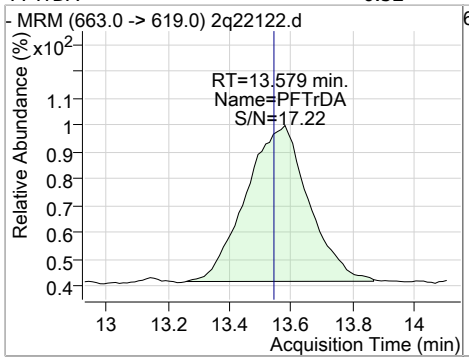


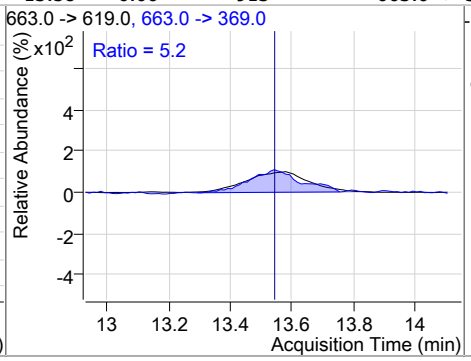


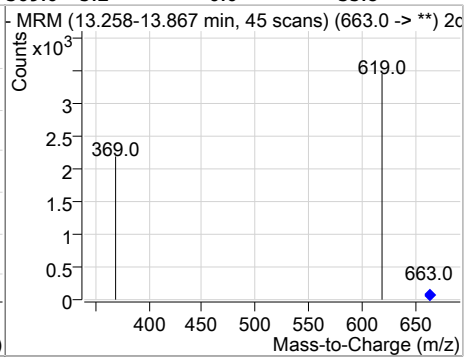


Perfluorinated Compounds by LC/MS/MS

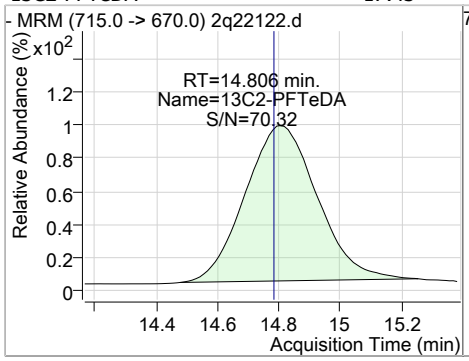
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.52	13.58	0.06	913	663.0 -> 369.0	5.2	0.0	35.8

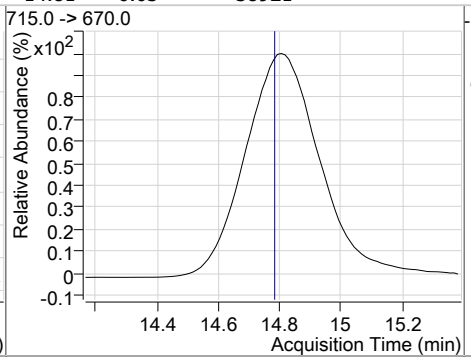


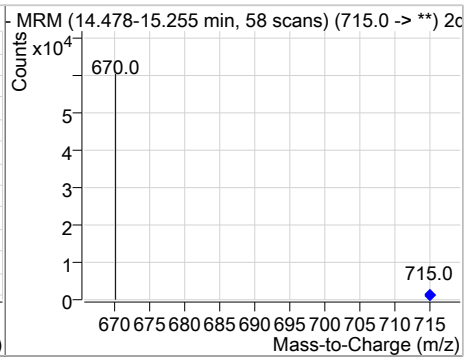




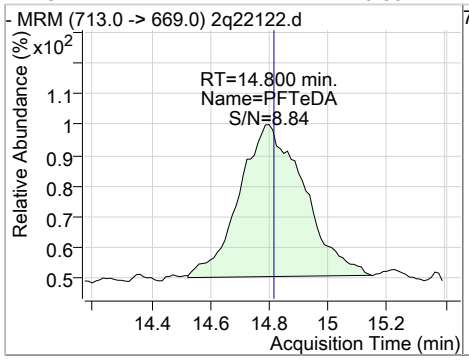
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	17.43	14.81	0.03	38921				

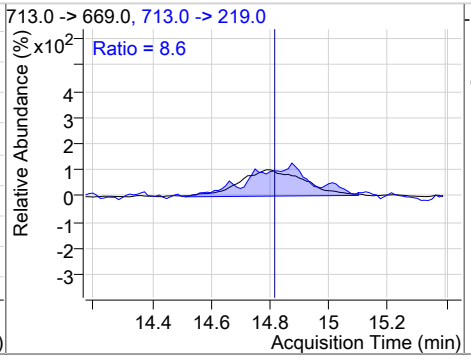


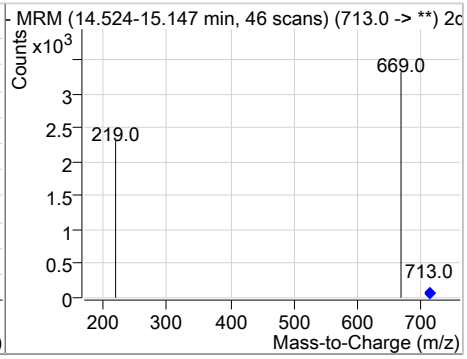




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.60	14.80	0.01	715	713.0 -> 219.0	8.6	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-IC349
Lab FileID: 2Q22122.D
Injection Time: 10/15/18 11:23
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak
Perfluorodecanesulfonic acid	335-77-3		10.24	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22123.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 11:43:46 AM
Sample Name : ic349-1
Vial : Vial 3
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

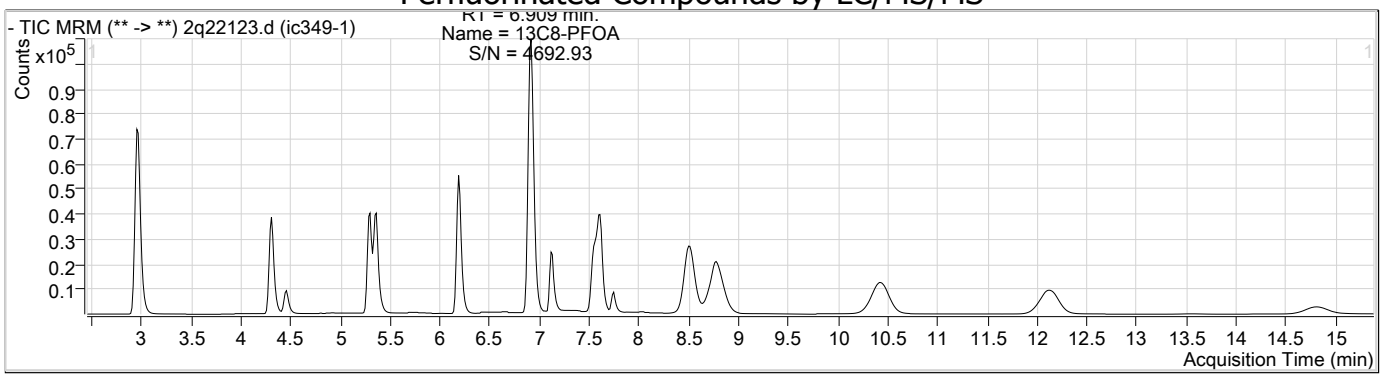
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	149490	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	55190	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	290827	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	125831	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	122493	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	141131	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	119068	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	103146	20.00	µg/L	0.000
M6-PFDA	8.504	519.0 -> 474.0	202114	20.00	µg/L	0.000
M7-PFUnDA	10.417	570.0 -> 525.0	153653	20.00	µg/L	0.013
M2-PFDoDA	12.115	615.0 -> 570.0	127197	20.00	µg/L	0.025
M2-PFTeDA	14.806	715.0 -> 670.0	45055	20.00	µg/L	0.025
M8-FOSA	7.117	506.0 -> 78.0	72346	20.00	µg/L	0.002
M3-PFBS	4.455	302.0 -> 99.0	28230	20.00	µg/L	0.012
M3-PFHxS	6.186	402.0 -> 99.0	34651	20.00	µg/L	0.000
M8-PFOS	7.546	507.0 -> 99.0	34374	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	129913	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	164520	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	194889	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	44138	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	129947	18.50	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.5%		
13C2-6:2FTS	6.931	429.0 -> 409.0	164510	18.72	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
13C2-8:2FTS	8.775	529.0 -> 509.0	193874	18.63	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.1%		
13C2-PFDoDA	12.115	615.0 -> 570.0	126039	20.08	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C2-PFTeDA	14.806	715.0 -> 670.0	43817	19.62	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C3-PFBS	4.455	302.0 -> 99.0	28256	19.84	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C3-PFHxS	6.186	402.0 -> 99.0	34623	19.98	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C4-PFBA	2.953	217.0 -> 172.0	290584	20.11	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C4-PFHpA	6.192	367.0 -> 322.0	141090	20.12	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C5-PFHxA	5.364	318.0 -> 273.0	122488	20.18	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C5-PFPeA	4.312	268.0 -> 223.0	125755	20.02	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C6-PFDA	8.504	519.0 -> 474.0	201504	19.99	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		

Perfluorinated Compounds by LC/MS/MS

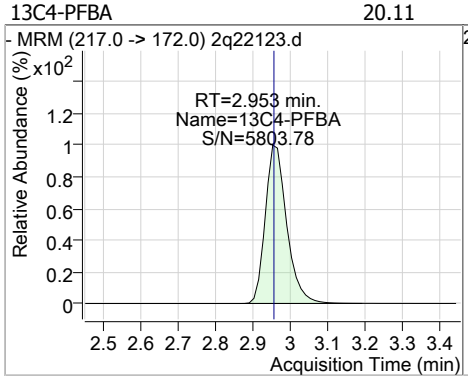
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.417	570.0 -> 525.0	153176	20.03	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
13C8-FOSA	7.117	506.0 -> 78.0	72174	19.61	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%			
13C8-PFOA	6.909	421.0 -> 376.0	119066	20.28	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%			
13C8-PFOS	7.546	507.0 -> 99.0	34399	19.67	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%			
13C9-PFNA	7.601	472.0 -> 427.0	103145	19.66	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%			
d3-MeFOSAA	7.620	573.0 -> 419.0	44146	19.74	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%			
M2-PFOA	6.910	415.0 -> 370.0	149461	20.00	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	55144	19.98	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
Target Compounds							**QValue**
4:2FTS	5.287	327.0 -> 307.0	3576	0.98	µg/L		84
6:2FTS	6.932	427.0 -> 407.0	3997	0.99	µg/L		97
8:2FTS	8.765	527.0 -> 507.0	4942	1.01	µg/L		98
EtFOSAA	7.744	584.0 -> 419.0	966	0.95	µg/L		97
FOSA	7.120	498.0 -> 78.0	1625	0.94	µg/L		94
MeFOSAA	7.622	570.0 -> 419.0	1107	0.97	µg/L		99
PFBA	2.962	213.0 -> 169.0	1678	0.96	µg/L		100
PFBS	4.447	299.0 -> 80.0	2027	0.99	µg/L		99
PFDA	8.519	513.0 -> 469.0	2879	0.95	µg/L		100
PFDoDA	12.122	613.0 -> 569.0	2682	1.00	µg/L		100
PFDS	10.225	599.0 -> 80.0	787	1.01	µg/L		100
PFHpA	6.195	363.0 -> 319.0	5332	1.01	µg/L		99
PFHpS	6.879	449.0 -> 80.0	1384	0.96	µg/L		99
PFHxA	5.366	313.0 -> 269.0	1905	0.97	µg/L		99
PFHxS	6.189	399.0 -> 80.0	1776	1.02	µg/L	m	97
PFNA	7.602	463.0 -> 419.0	2656	0.99	µg/L		98
PFNS	8.384	549.0 -> 80.0	1389	1.03	µg/L		99
PFOA	6.912	413.0 -> 369.0	2990	1.02	µg/L		97
PFOS	7.549	499.0 -> 80.0	1531	1.05	µg/L	m	94
PFPeA	4.316	263.0 -> 219.0	6406	1.10	µg/L		100
PFPeS	5.421	349.0 -> 80.0	1363	0.98	µg/L		98
PFTeDA	14.812	713.0 -> 669.0	1412	1.09	µg/L		100
PFTrDA	13.529	663.0 -> 619.0	1912	1.01	µg/L		100
PFUnDA	10.421	563.0 -> 519.0	2974	1.02	µg/L		97

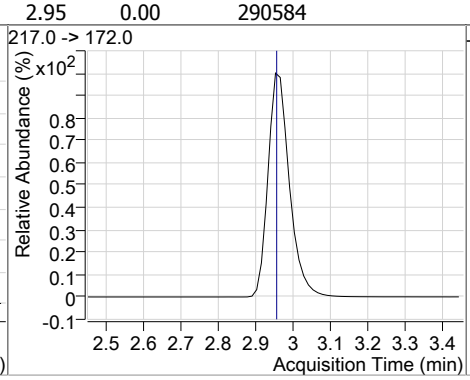
 # = Qualifier out of range, m = manually integrated, + = Area summed

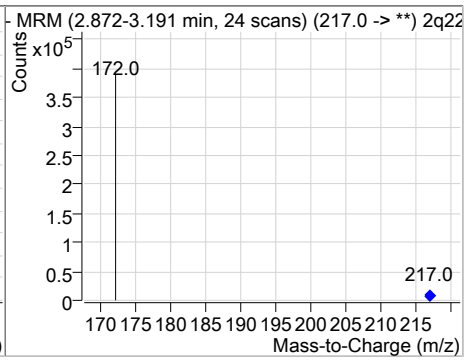
Perfluorinated Compounds by LC/MS/MS



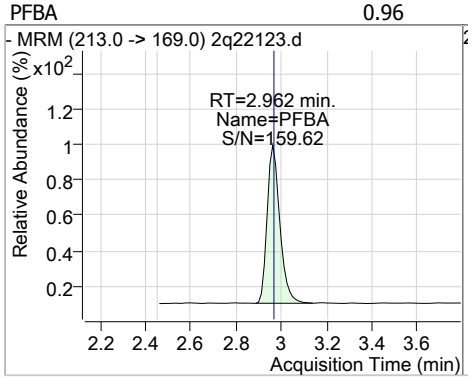
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.11	2.95	0.00	290584				

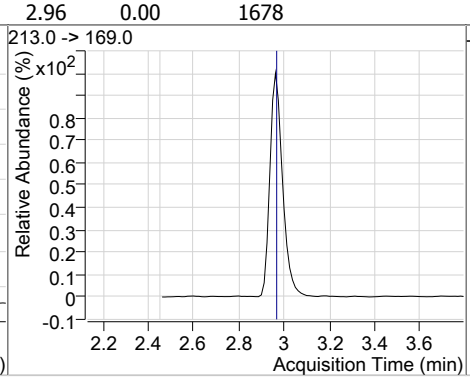


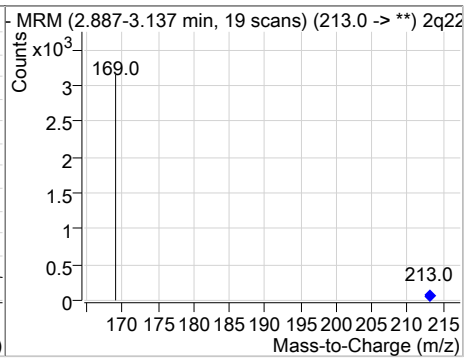




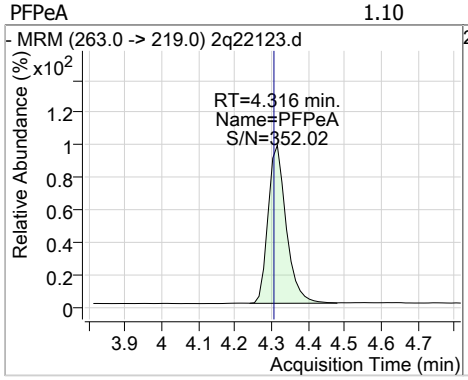
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.96	2.96	0.00	1678				

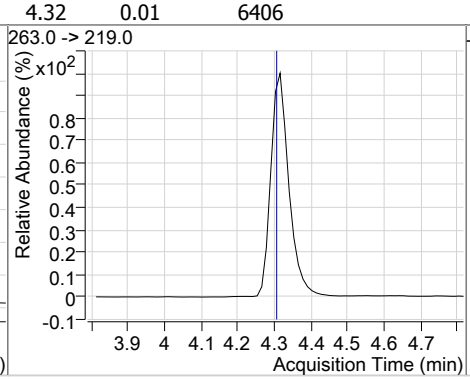


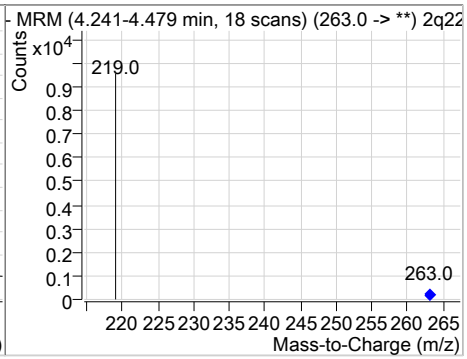




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.10	4.32	0.01	6406				

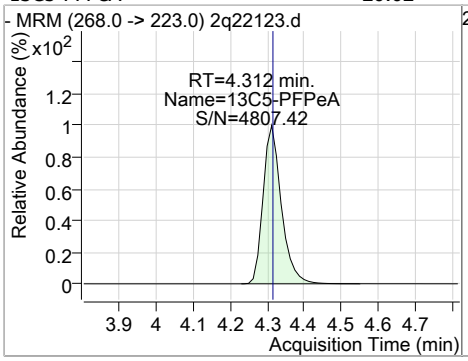


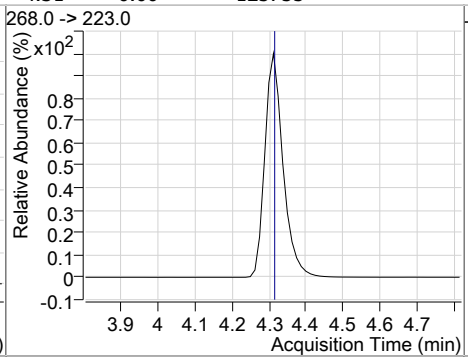


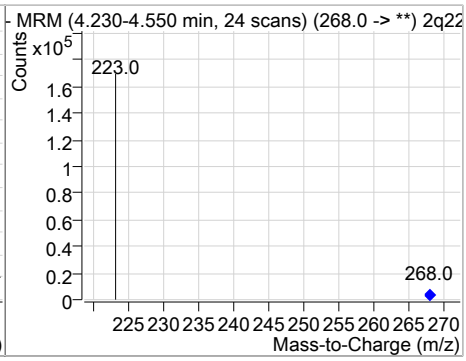


Perfluorinated Compounds by LC/MS/MS

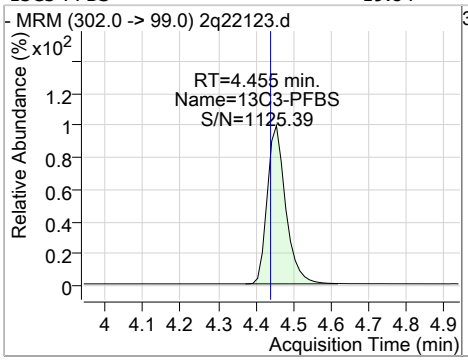
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.02	4.31	0.00	125755				

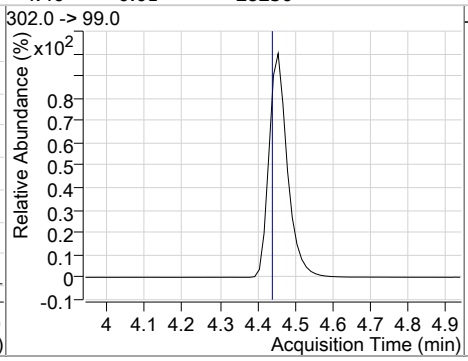


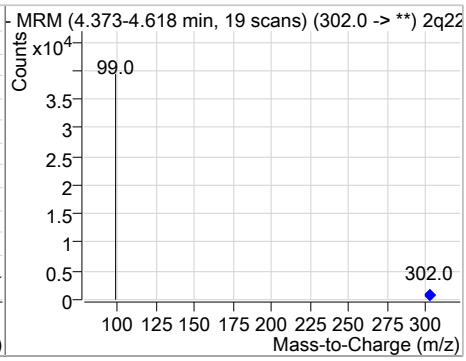




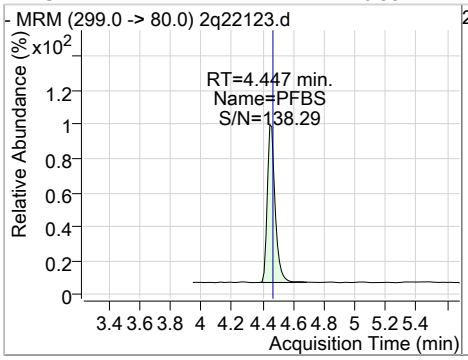
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.84	4.46	0.01	28256				

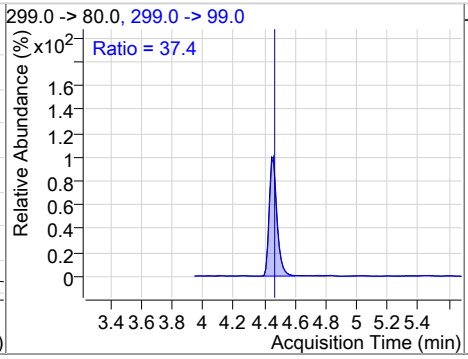


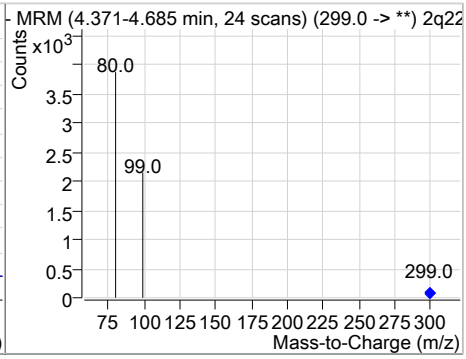




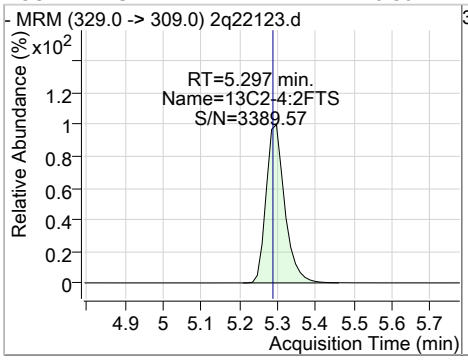
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.99	4.45	0.00	2027	299.0 -> 99.0	37.4	8.1	68.1

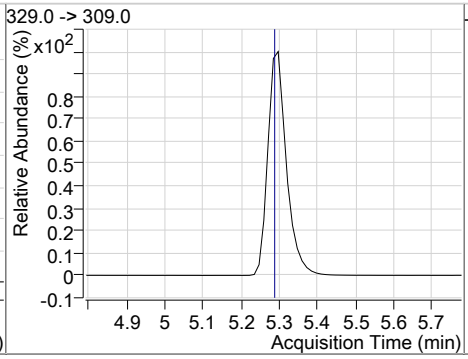


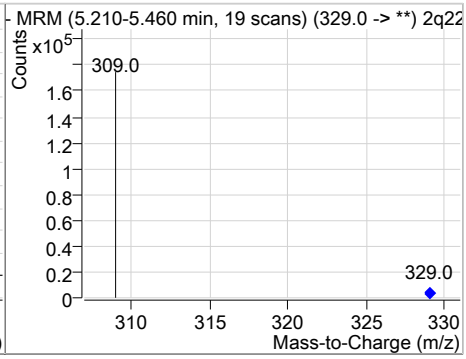




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.50	5.30	0.01	129947				

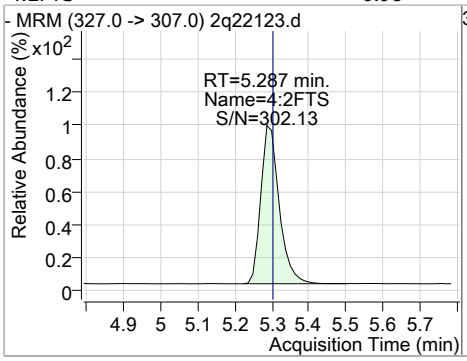


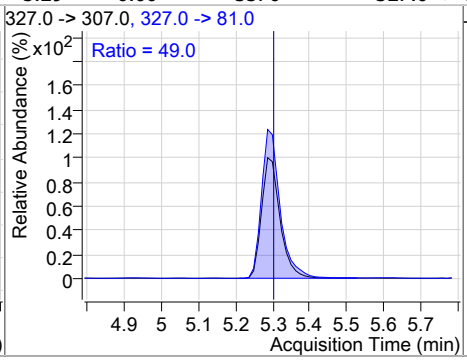


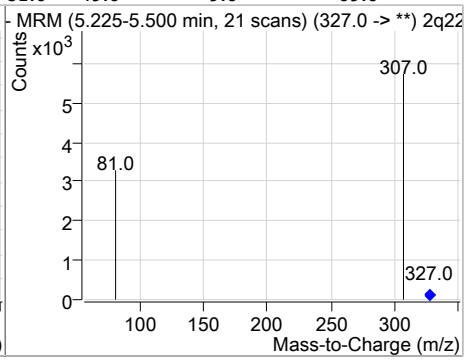


Perfluorinated Compounds by LC/MS/MS

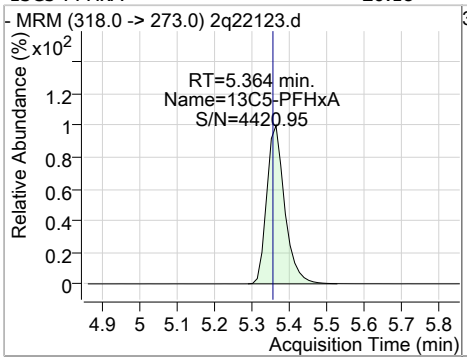
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.98	5.29	0.00	3576	327.0 -> 81.0	49.0	9.0	69.0

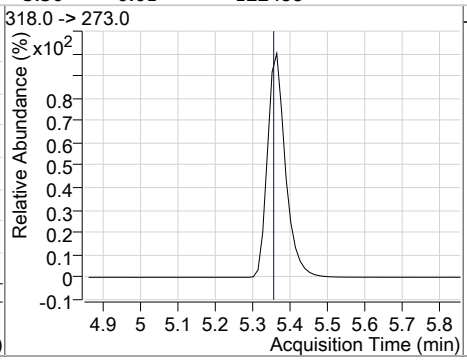


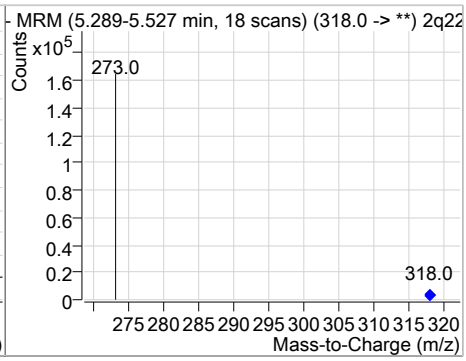




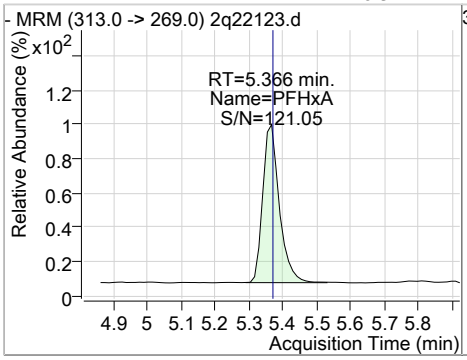
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.18	5.36	0.01	122488				

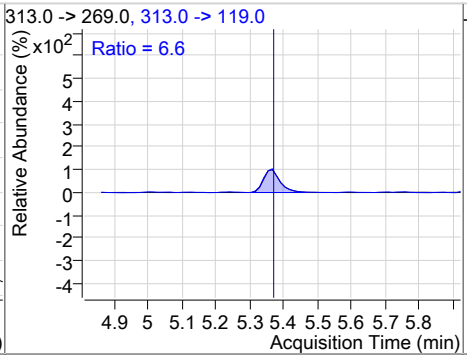


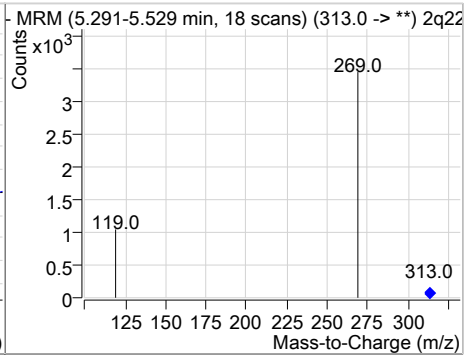




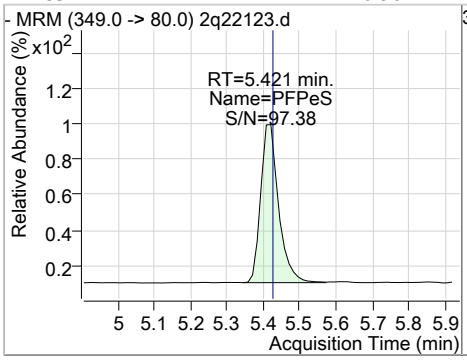
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.97	5.37	0.01	1905	313.0 -> 119.0	6.6	0.0	36.4

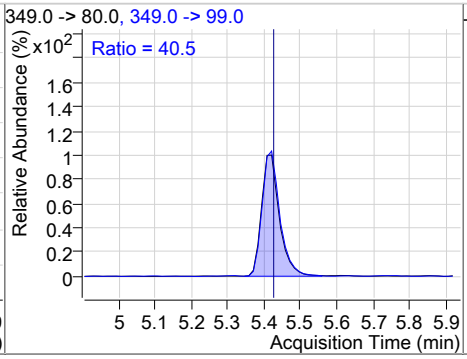


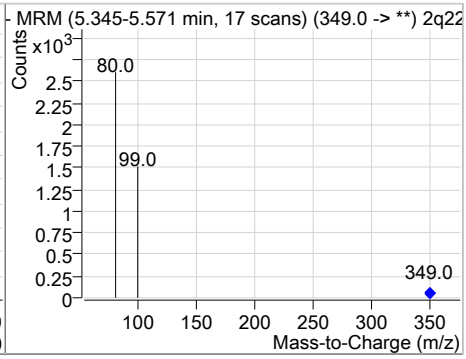




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.98	5.42	0.01	1363	349.0 -> 99.0	40.5	9.5	69.5

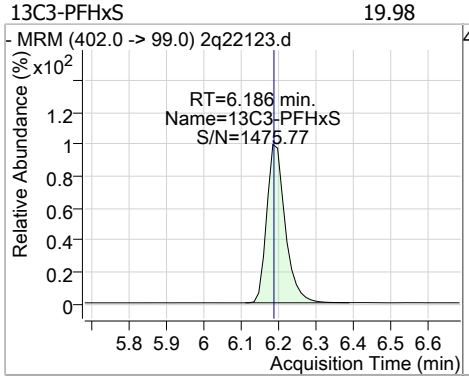


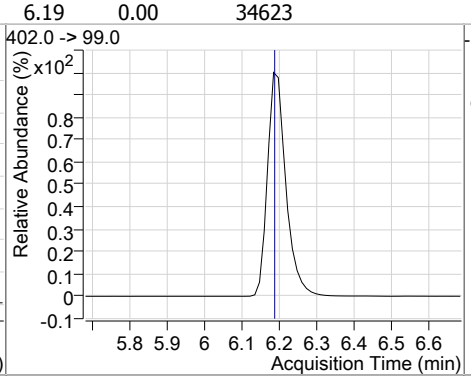


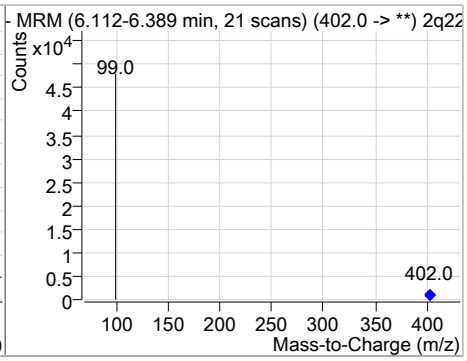


Perfluorinated Compounds by LC/MS/MS

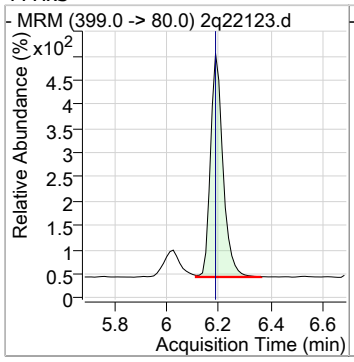
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.98	6.19	0.00	34623				

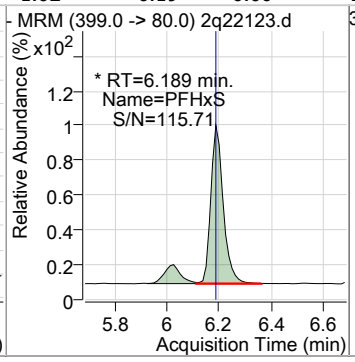


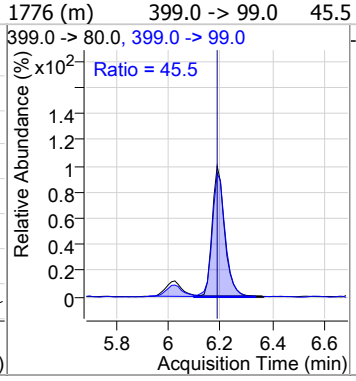


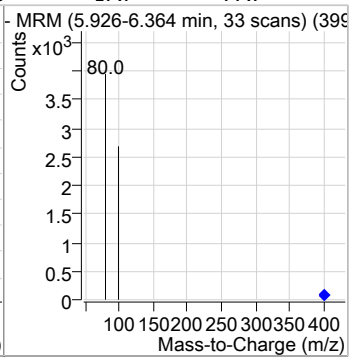


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.02	6.19	0.00	1776 (m)	399.0 -> 99.0	45.5	17.7	77.7

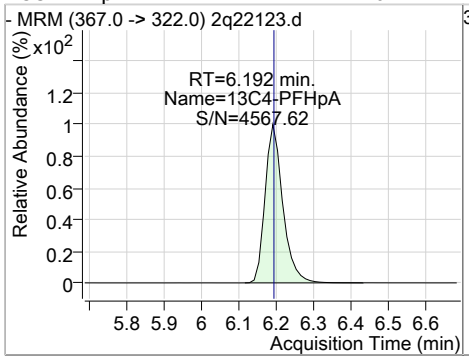


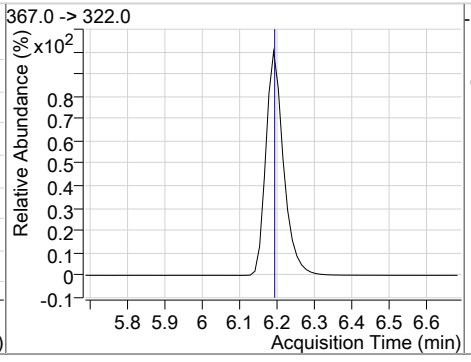


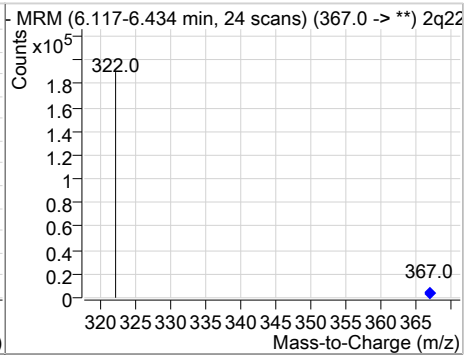




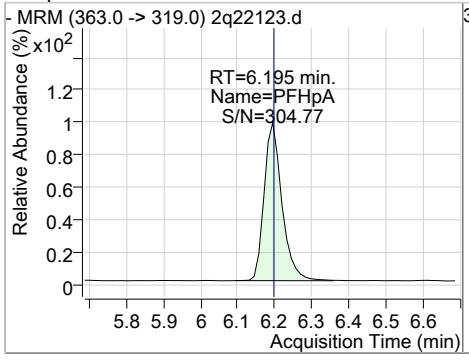
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.12	6.19	0.00	141090				

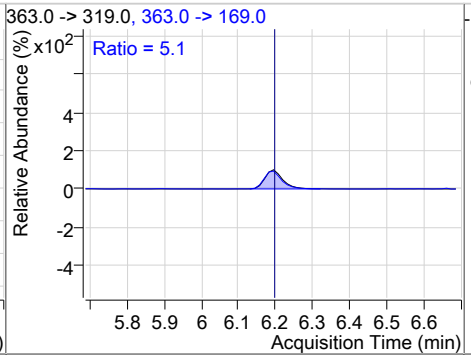


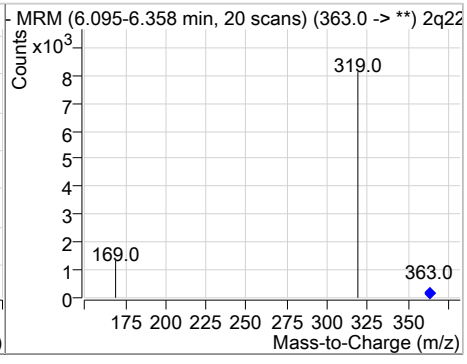




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.01	6.20	0.00	5332	363.0 -> 169.0	5.1	0.0	35.4

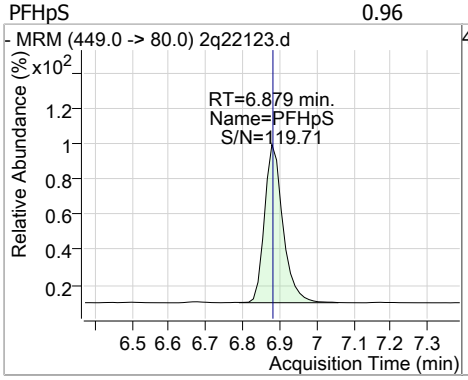


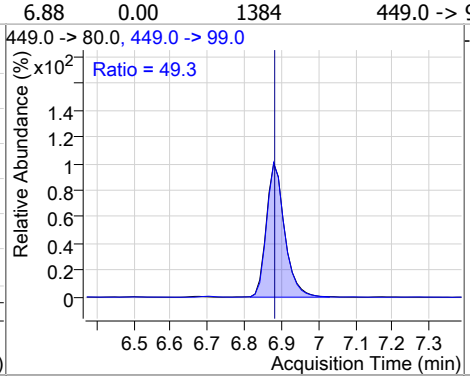


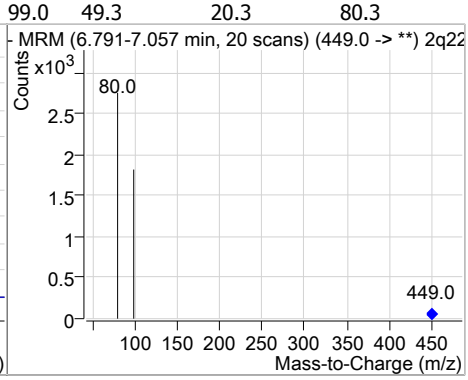


Perfluorinated Compounds by LC/MS/MS

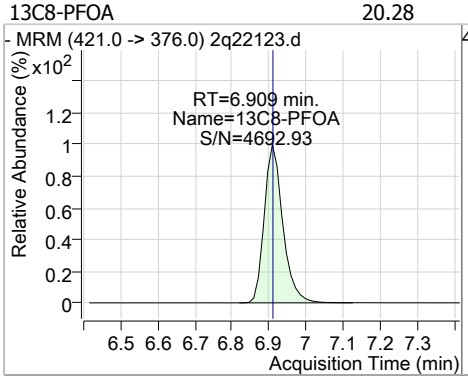
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.96	6.88	0.00	1384	449.0 -> 99.0	49.3	20.3	80.3

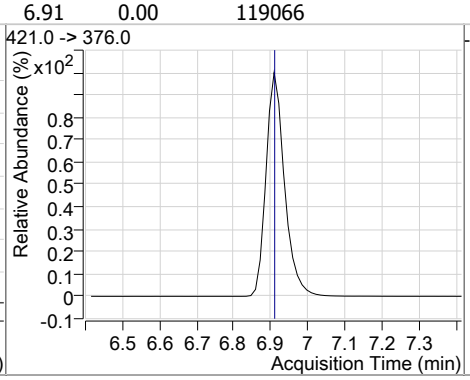


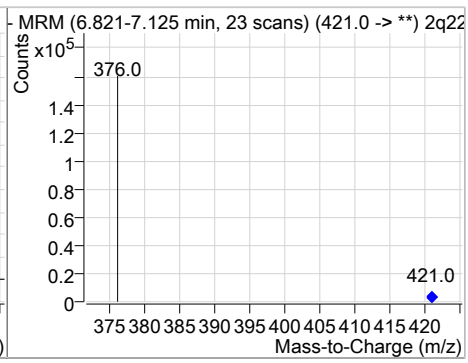




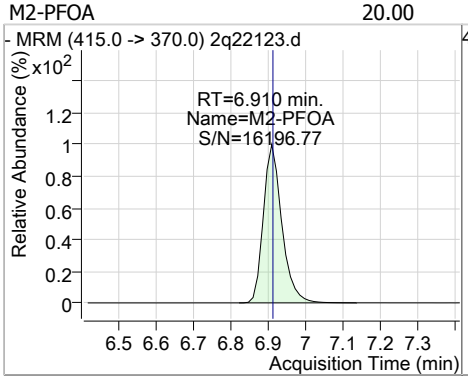
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.28	6.91	0.00	119066				

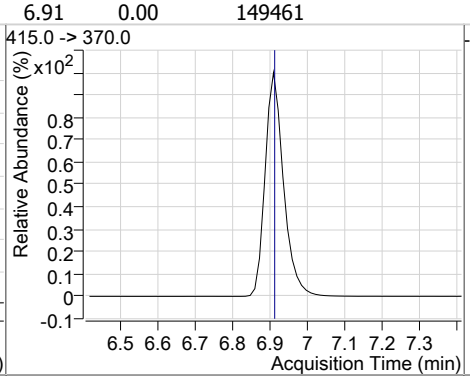


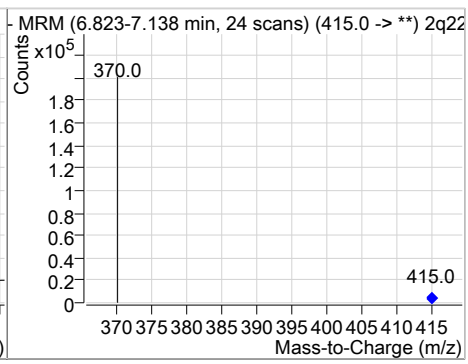




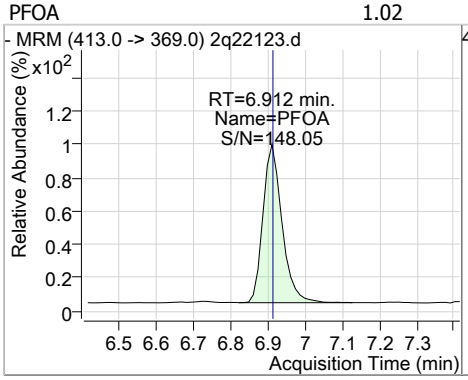
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.91	0.00	149461				

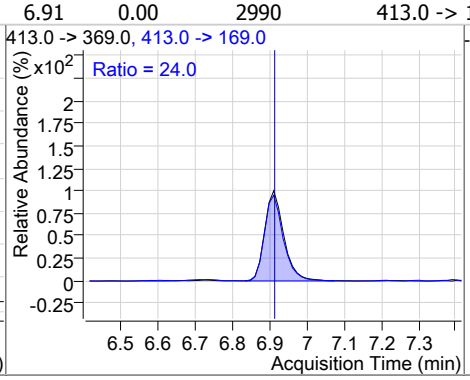


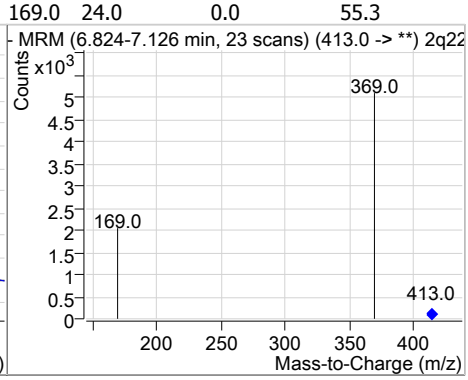




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.02	6.91	0.00	2990	413.0 -> 169.0	24.0	0.0	55.3

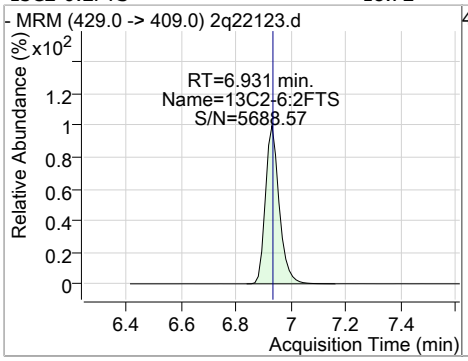


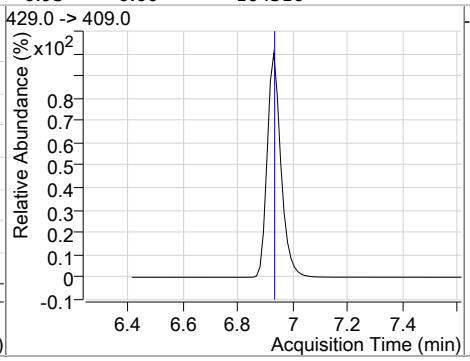


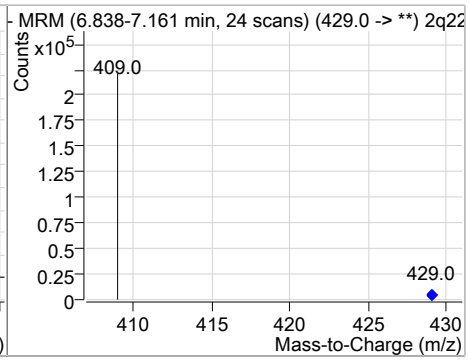


Perfluorinated Compounds by LC/MS/MS

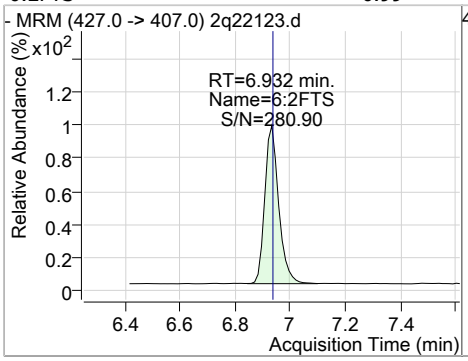
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.72	6.93	0.00	164510				

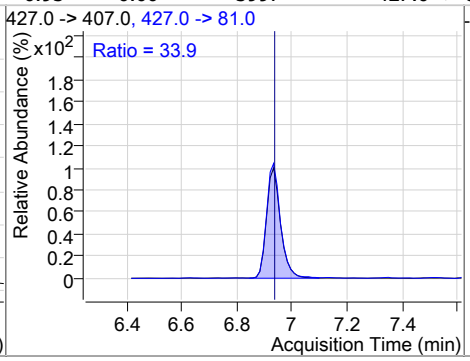


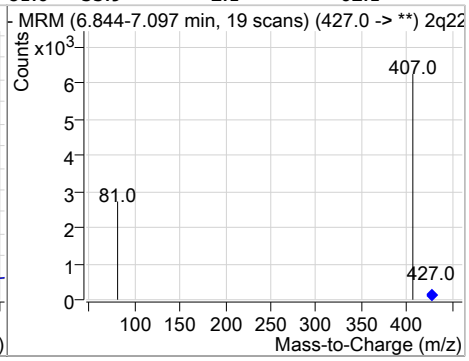




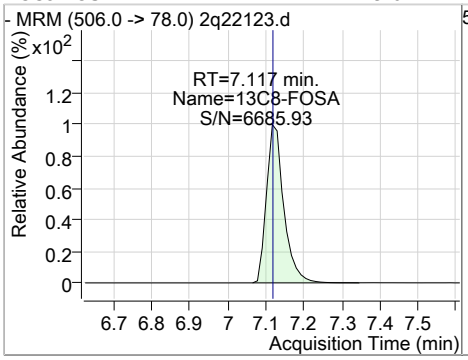
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.99	6.93	0.00	3997	427.0 -> 81.0	33.9	2.1	62.1

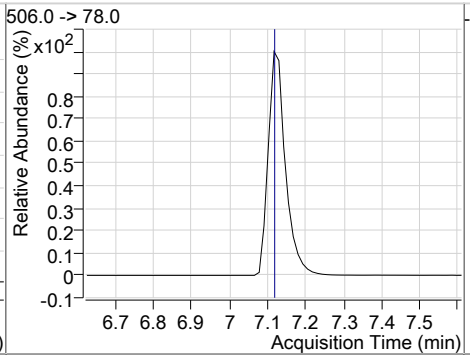


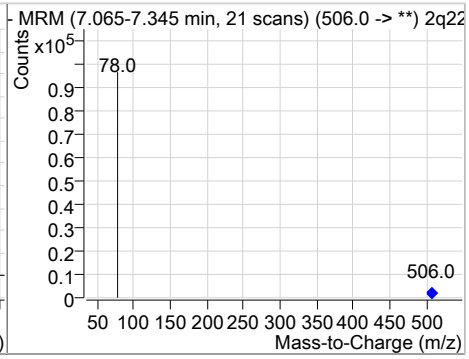




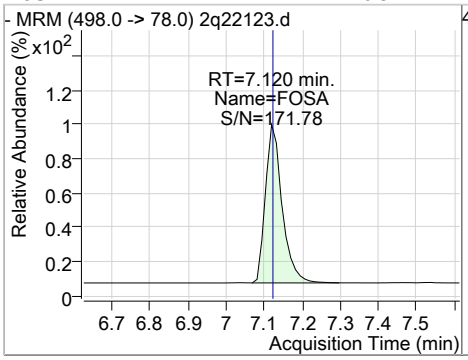
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.61	7.12	0.00	72174				

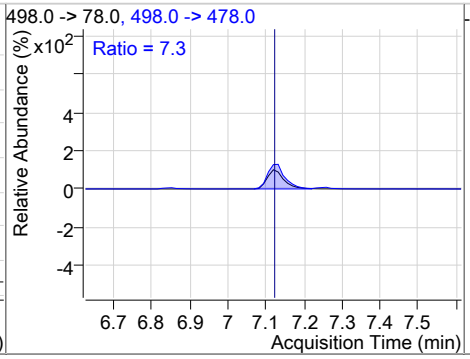


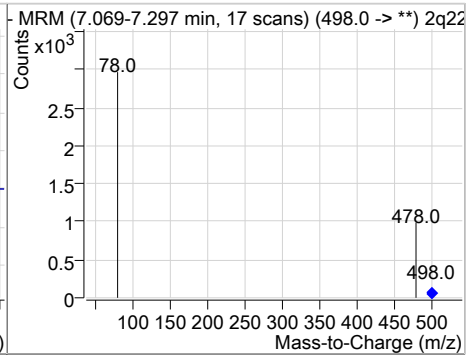




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.94	7.12	0.00	1625	498.0 -> 478.0	7.3	0.0	35.4

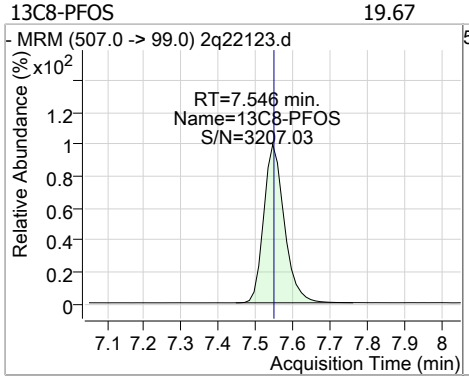


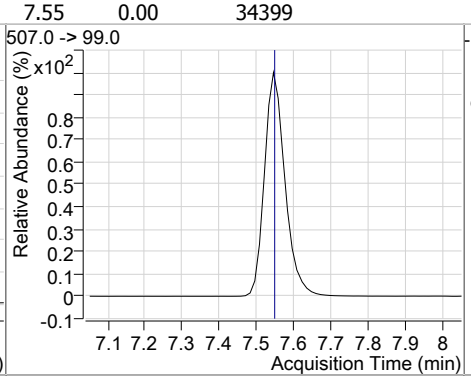


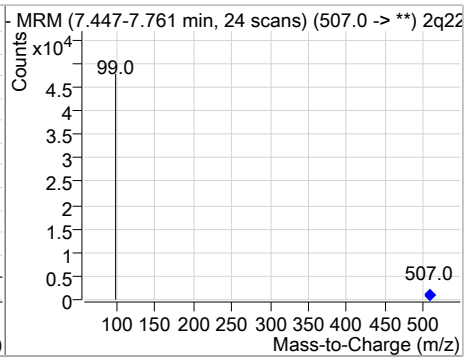


Perfluorinated Compounds by LC/MS/MS

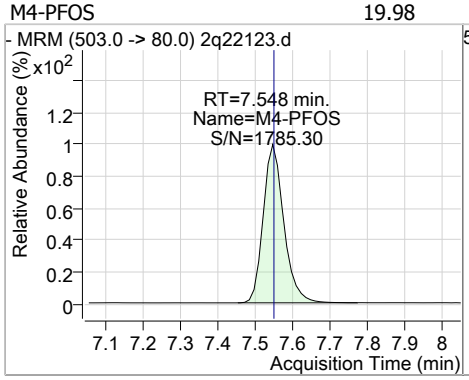
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.67	7.55	0.00	34399				

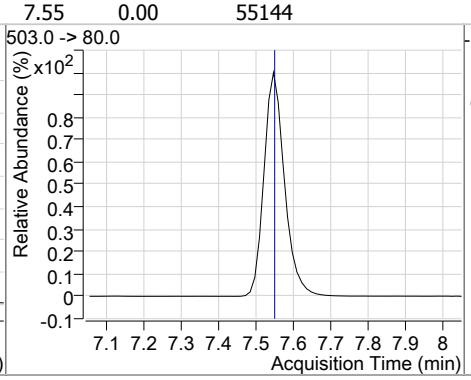


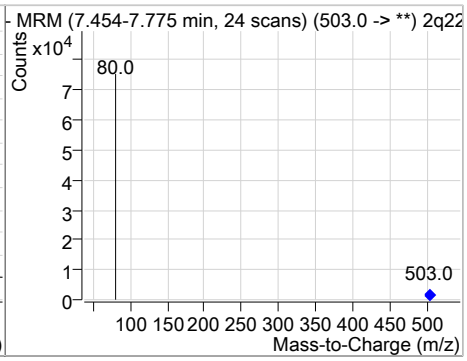




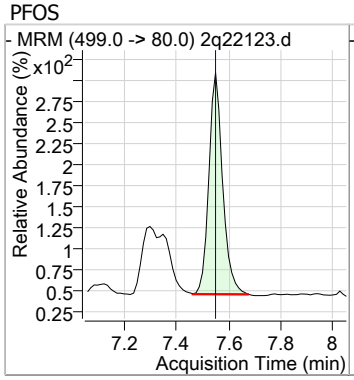
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.55	0.00	55144				

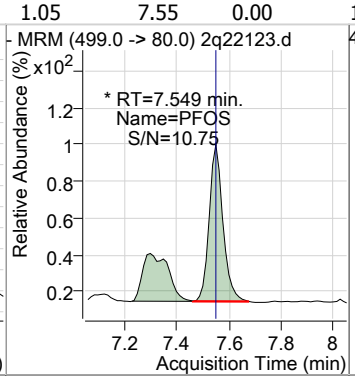


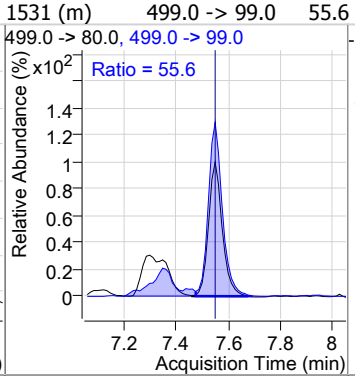


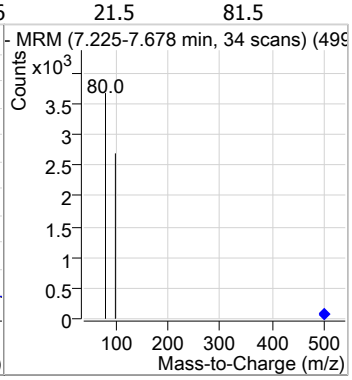


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.05	7.55	0.00	1531 (m)	499.0 -> 99.0	55.6	21.5	81.5

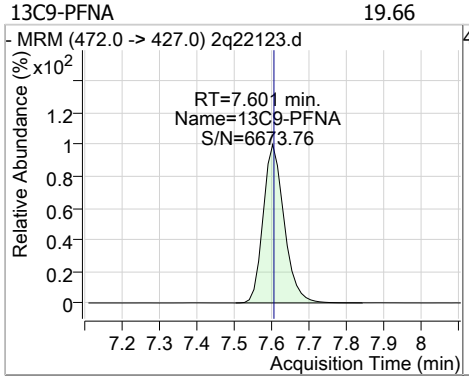


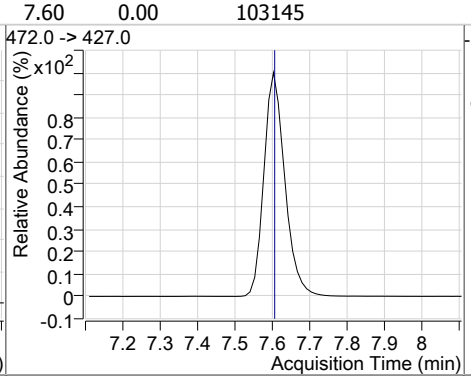


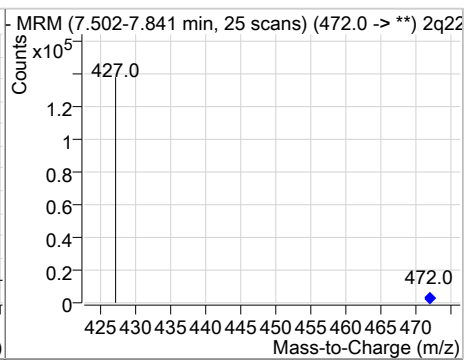




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.66	7.60	0.00	103145				

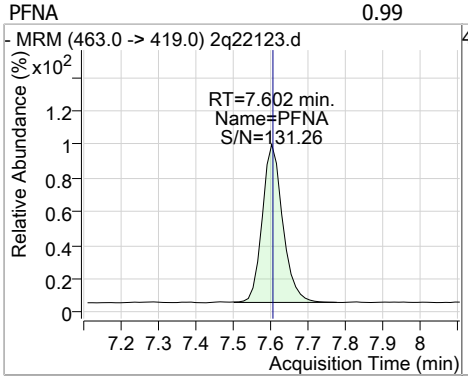


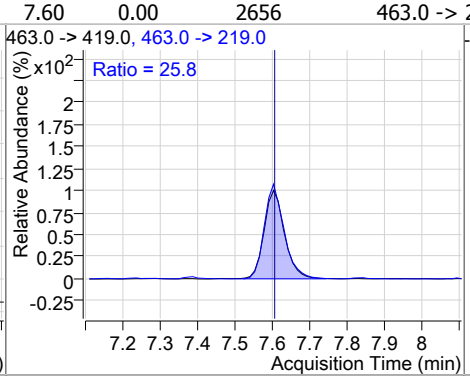


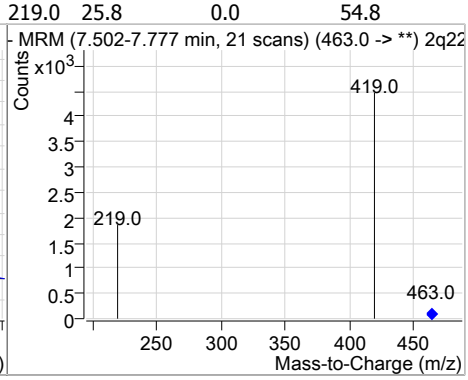


Perfluorinated Compounds by LC/MS/MS

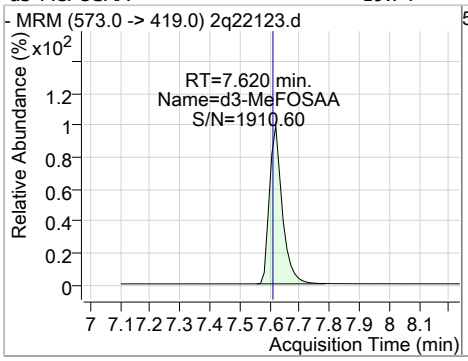
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.99	7.60	0.00	2656	463.0 -> 219.0	25.8	0.0	54.8

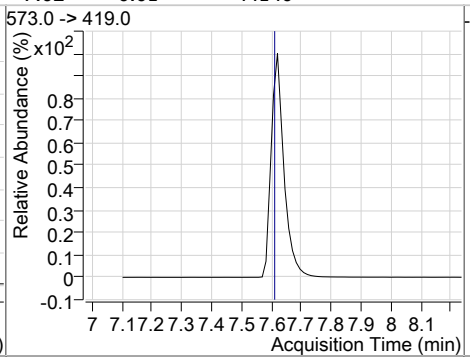


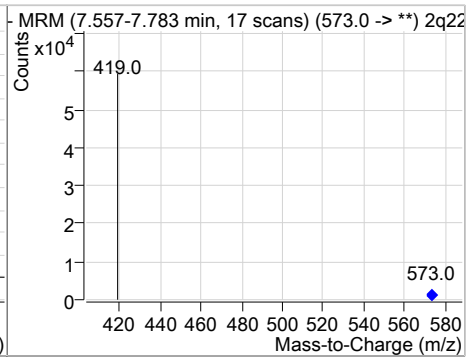




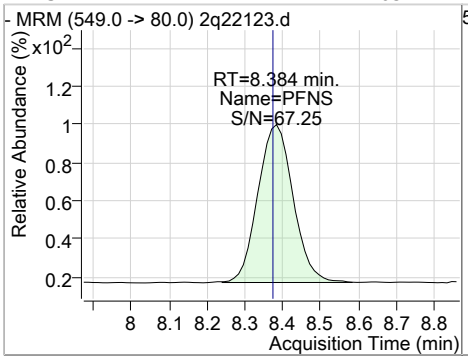
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.74	7.62	0.01	44146				

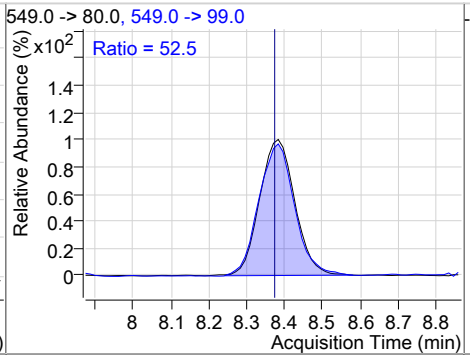


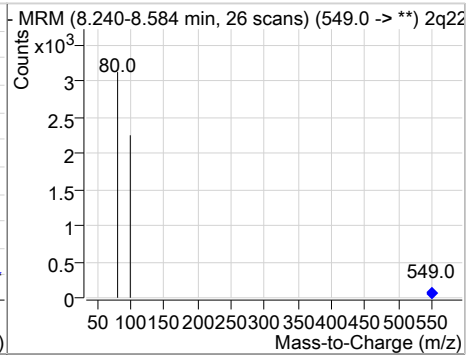




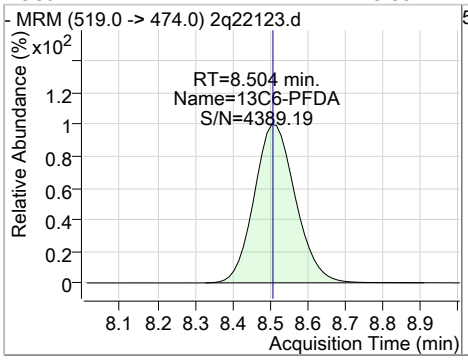
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.03	8.38	0.01	1389	549.0 -> 99.0	52.5	23.4	83.4

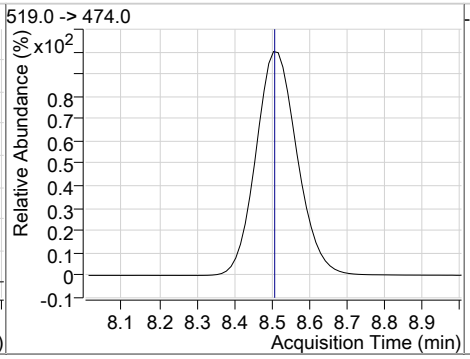


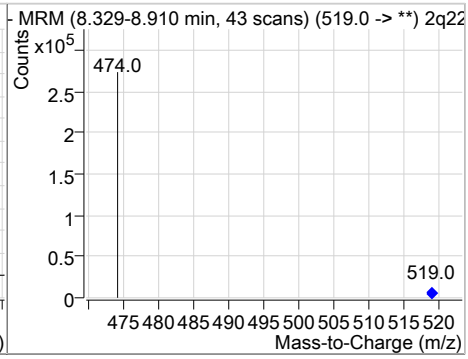




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.99	8.50	0.00	201504				

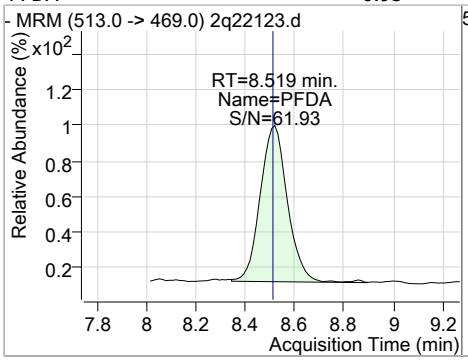


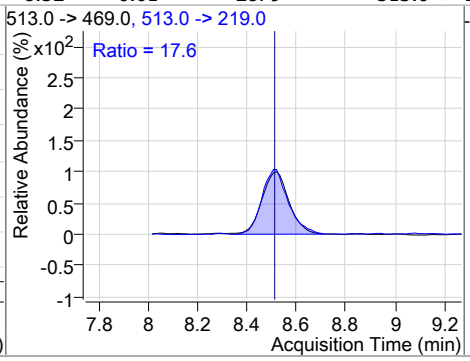


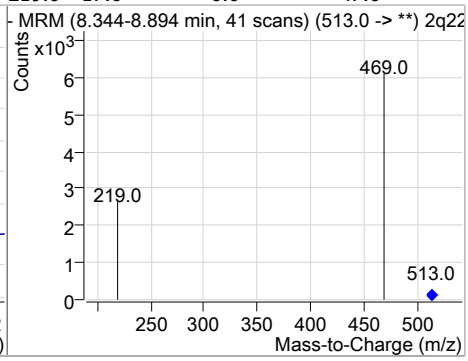


Perfluorinated Compounds by LC/MS/MS

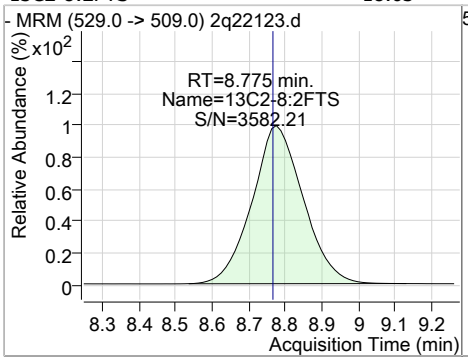
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.95	8.52	0.01	2879	513.0 -> 219.0	17.6	0.0	47.6

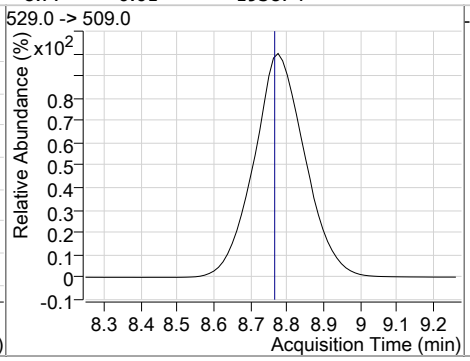


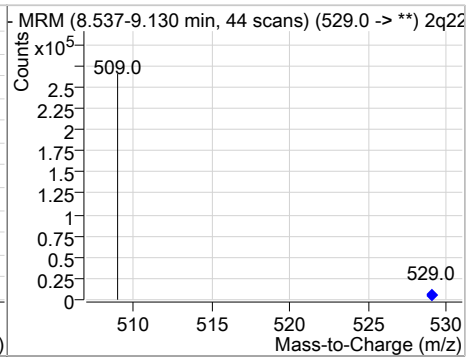




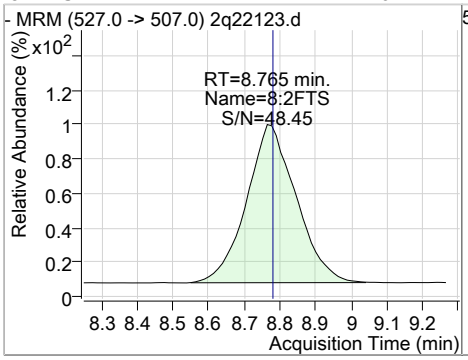
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.63	8.77	0.01	193874				

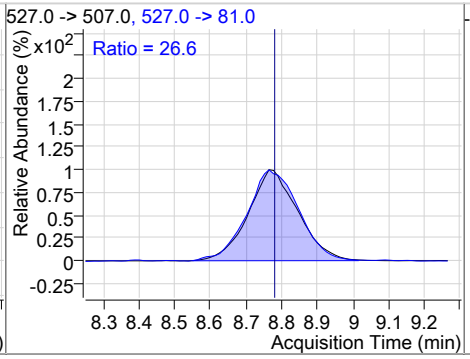


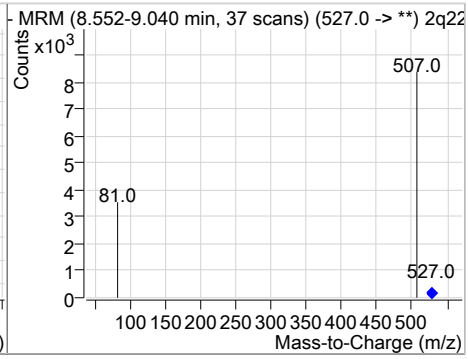




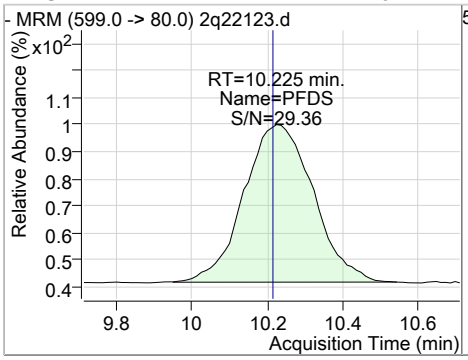
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.01	8.76	0.00	4942	527.0 -> 81.0	26.6	0.0	55.6

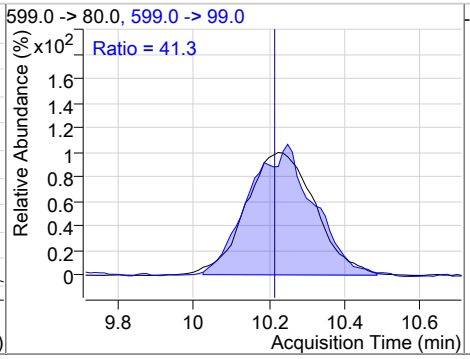


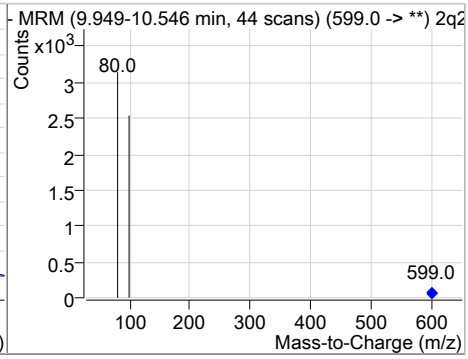




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.01	10.22	0.01	787	599.0 -> 99.0	41.3	11.1	71.1

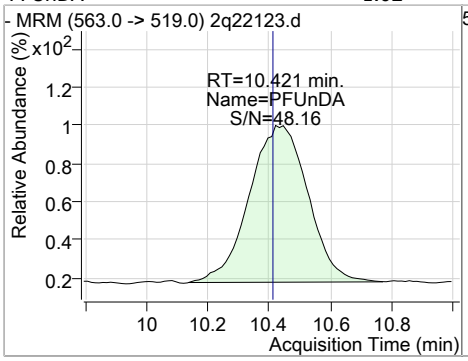


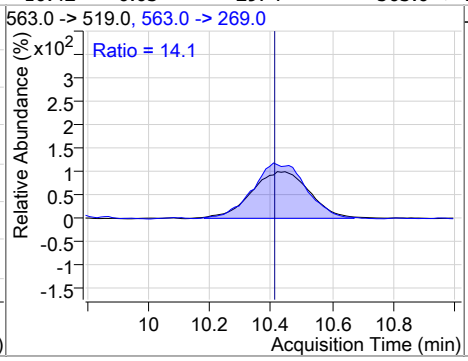


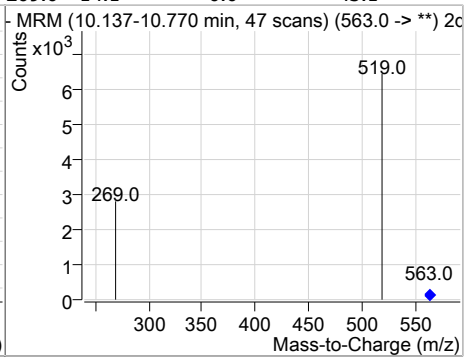


Perfluorinated Compounds by LC/MS/MS

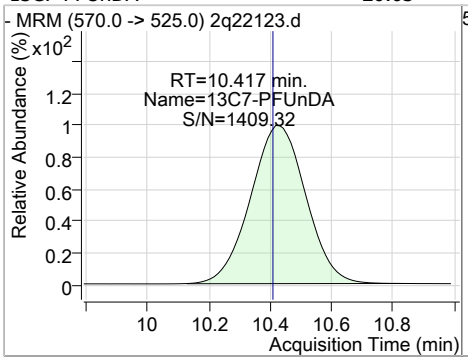
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.02	10.42	0.03	2974	563.0 -> 269.0	14.1	0.0	43.1

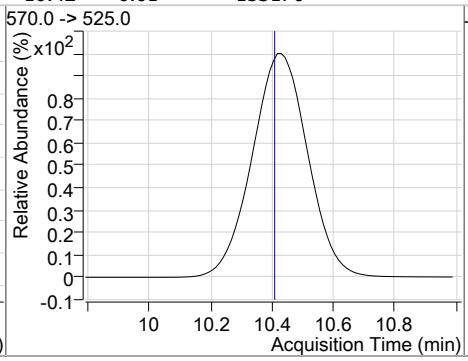


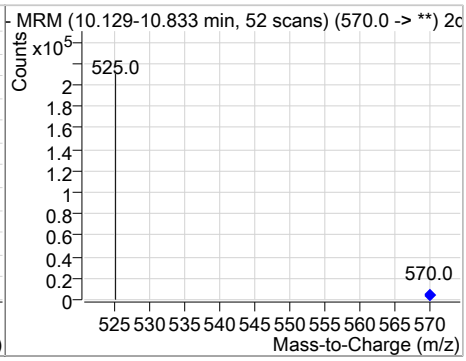




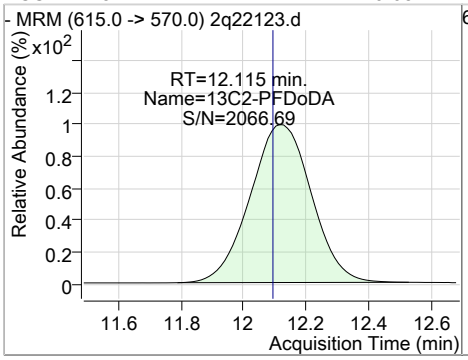
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.03	10.42	0.01	153176				

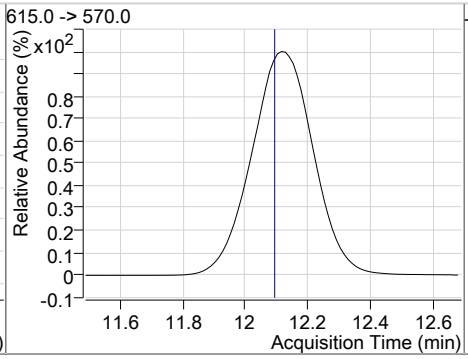


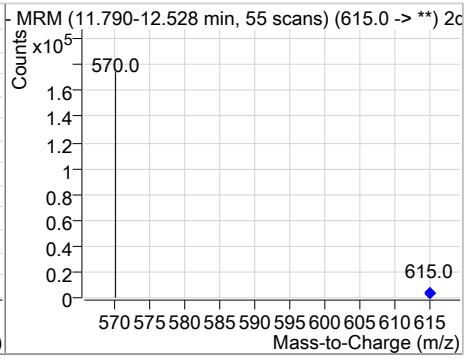




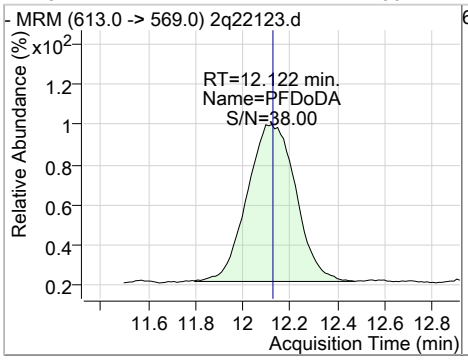
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.08	12.12	0.03	126039				

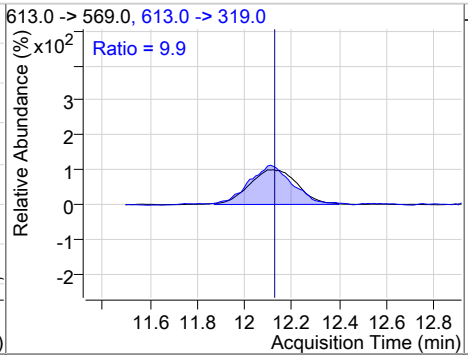


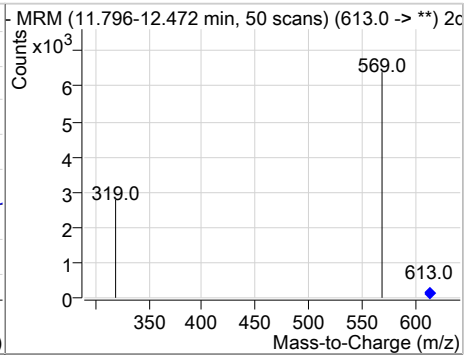




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.00	12.12	0.03	2682	613.0 -> 319.0	9.9	0.0	39.8

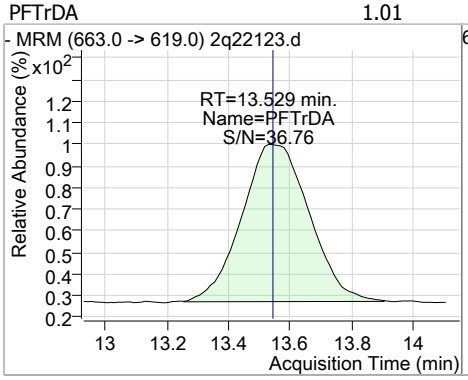


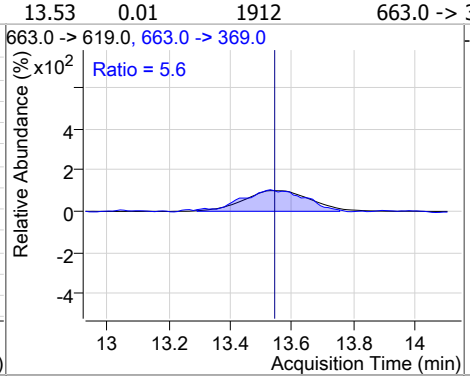


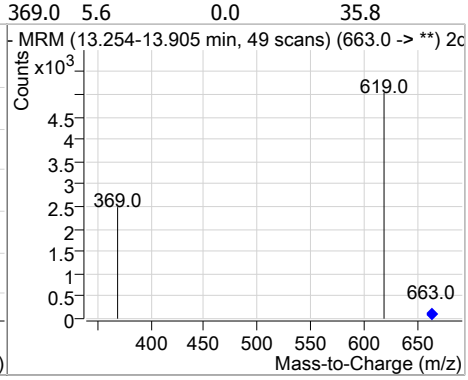


Perfluorinated Compounds by LC/MS/MS

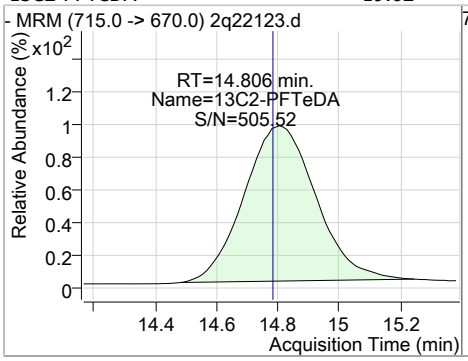
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.01	13.53	0.01	1912	663.0 -> 369.0	5.6	0.0	35.8

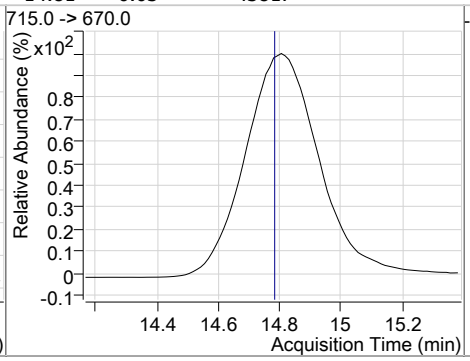


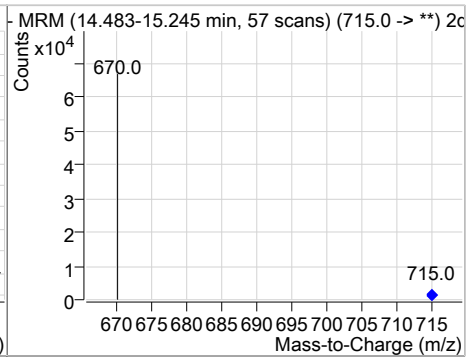




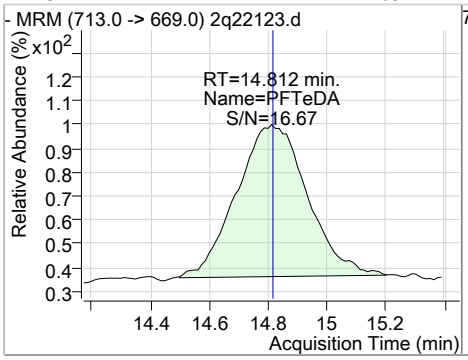
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.62	14.81	0.03	43817				

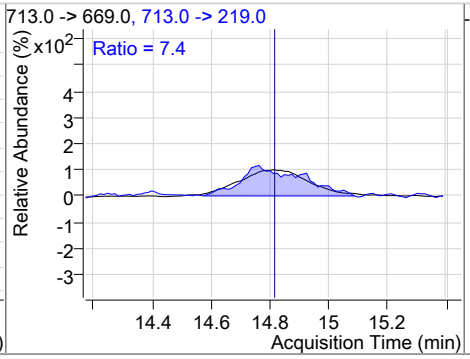


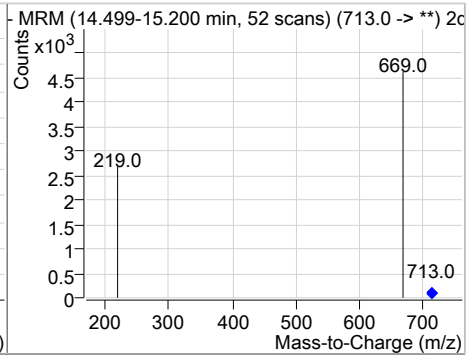




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.09	14.81	0.03	1412	713.0 -> 219.0	7.4	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-IC349
Lab FileID: 2Q22123.D
Injection Time: 10/15/18 11:43
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22124.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 12:04:29 PM
Sample Name : ic349-2
Vial : Vial 4
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

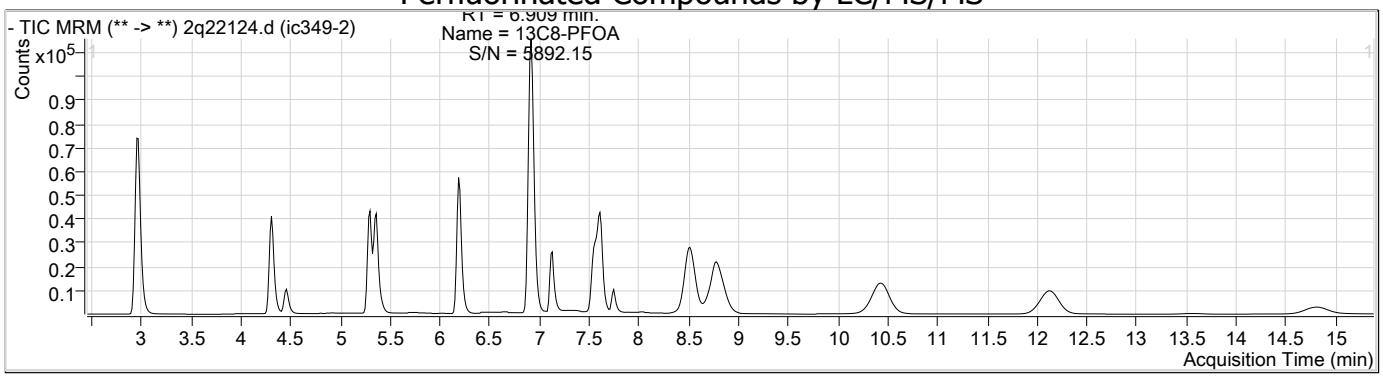
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	155313	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	58079	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	291814	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	127182	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	124471	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	141340	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	118972	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	104733	20.00	µg/L	0.000
M6-PFDA	8.516	519.0 -> 474.0	205842	20.00	µg/L	0.012
M7-PFUnDA	10.429	570.0 -> 525.0	155121	20.00	µg/L	0.025
M2-PFDoDA	12.115	615.0 -> 570.0	126184	20.00	µg/L	0.025
M2-PFTeDA	14.806	715.0 -> 670.0	46979	20.00	µg/L	0.025
M8-FOSA	7.130	506.0 -> 78.0	74567	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	28834	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	35116	20.00	µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	35016	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	133696	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	168899	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	198552	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	45413	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	133662	19.03	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.2%		
13C2-6:2FTS	6.931	429.0 -> 409.0	168903	19.22	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C2-8:2FTS	8.775	529.0 -> 509.0	197558	18.98	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C2-PFDoDA	12.115	615.0 -> 570.0	125574	20.01	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C2-PFTeDA	14.806	715.0 -> 670.0	43940	19.68	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.4%		
13C3-PFBS	4.455	302.0 -> 99.0	28834	20.25	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C3-PFHxS	6.198	402.0 -> 99.0	35168	20.30	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C4-PFBA	2.953	217.0 -> 172.0	291507	20.18	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C4-PFHpA	6.192	367.0 -> 322.0	141491	20.18	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C5-PFHxA	5.364	318.0 -> 273.0	124466	20.50	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C5-PFPeA	4.312	268.0 -> 223.0	127163	20.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C6-PFDA	8.516	519.0 -> 474.0	205600	20.39	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		

Perfluorinated Compounds by LC/MS/MS

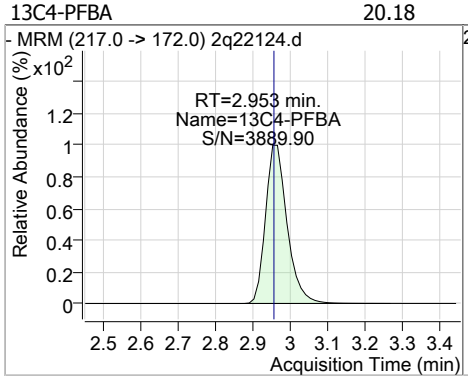
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	154702	20.23	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%			
13C8-FOSA	7.130	506.0 -> 78.0	74477	20.24	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%			
13C8-PFOA	6.909	421.0 -> 376.0	118969	20.27	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%			
13C8-PFOS	7.546	507.0 -> 99.0	35017	20.02	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
13C9-PFNA	7.601	472.0 -> 427.0	104747	19.97	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%			
d3-MeFOSAA	7.620	573.0 -> 419.0	45414	20.31	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%			
M2-PFOA	6.910	415.0 -> 370.0	155448	20.02	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
M4-PFOS	7.548	503.0 -> 80.0	58111	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	7280	1.95	µg/L		92
6:2FTS	6.932	427.0 -> 407.0	8105	1.96	µg/L		97
8:2FTS	8.777	527.0 -> 507.0	10065	2.02	µg/L		98
EtFOSAA	7.744	584.0 -> 419.0	2064	1.97	µg/L		96
FOSA	7.120	498.0 -> 78.0	3721	2.08	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	2311	1.97	µg/L		98
PFBA	2.962	213.0 -> 169.0	3405	1.94	µg/L		100
PFBS	4.459	299.0 -> 80.0	4181	2.01	µg/L		100
PFDA	8.519	513.0 -> 469.0	6216	2.01	µg/L		98
PFDoDA	12.122	613.0 -> 569.0	5366	2.02	µg/L		99
PFDS	10.237	599.0 -> 80.0	1606	2.03	µg/L		97
PFHpA	6.195	363.0 -> 319.0	10558	2.00	µg/L		99
PFHpS	6.879	449.0 -> 80.0	2767	1.89	µg/L		98
PFHxA	5.366	313.0 -> 269.0	3824	1.92	µg/L		98
PFHxS	6.189	399.0 -> 80.0	3498	1.98	µg/L	m	100
PFNA	7.602	463.0 -> 419.0	5452	2.00	µg/L		98
PFNS	8.384	549.0 -> 80.0	2867	2.10	µg/L		98
PFOA	6.912	413.0 -> 369.0	6165	2.11	µg/L		99
PFOS	7.549	499.0 -> 80.0	3225	2.18	µg/L	m	97
PFPeA	4.316	263.0 -> 219.0	12443	2.12	µg/L		100
PFPeS	5.421	349.0 -> 80.0	2869	2.01	µg/L		99
PFTeDA	14.800	713.0 -> 669.0	2792	2.07	µg/L		98
PFTrDA	13.567	663.0 -> 619.0	3932	1.98	µg/L		99
PFUnDA	10.434	563.0 -> 519.0	5984	2.03	µg/L		97

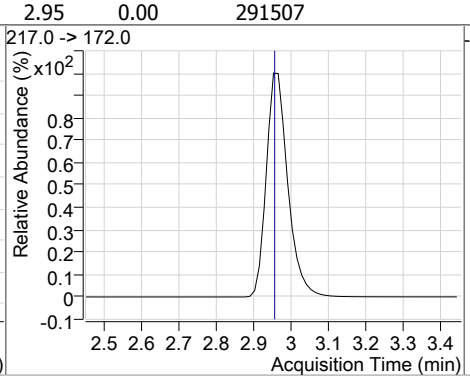
 # = Qualifier out of range, m = manually integrated, + = Area summed

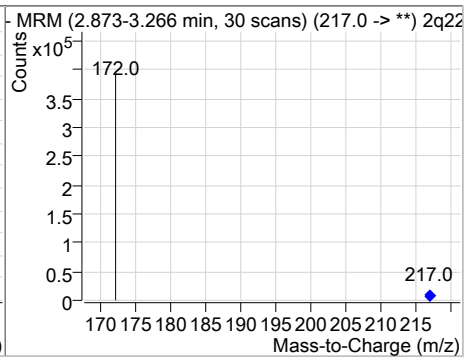
Perfluorinated Compounds by LC/MS/MS



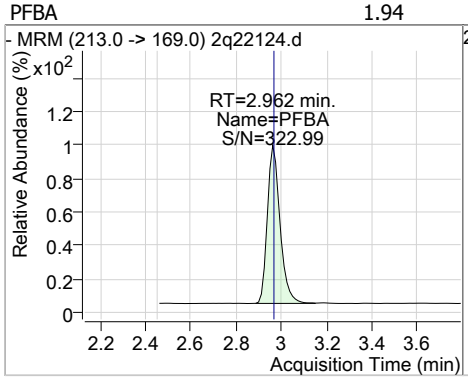
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.18	2.95	0.00	291507				

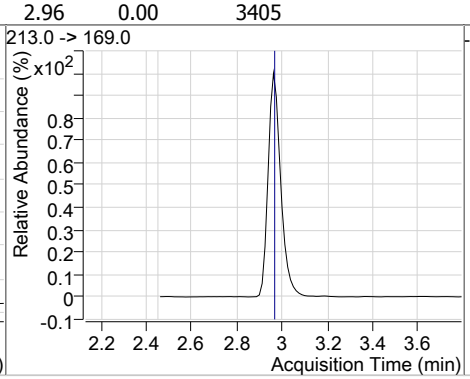


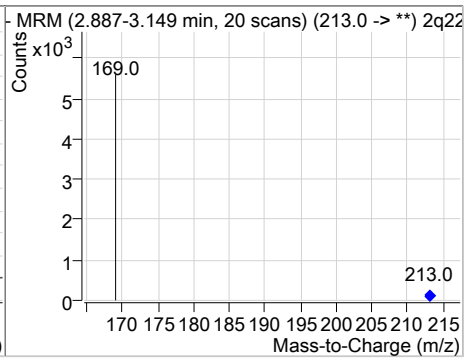




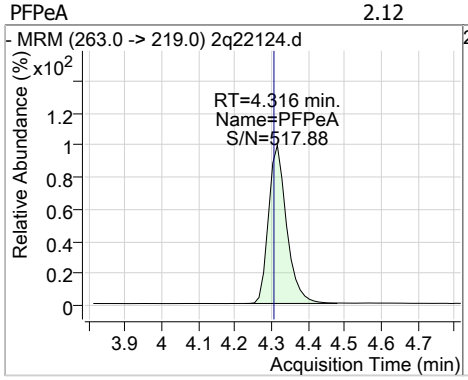
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.94	2.96	0.00	3405				

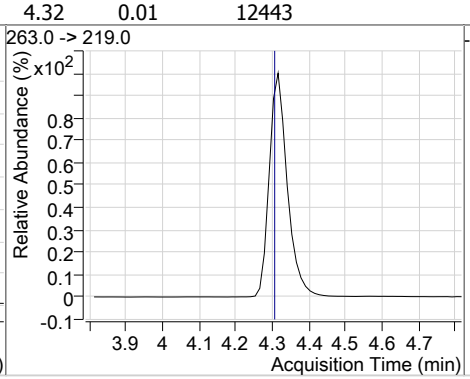


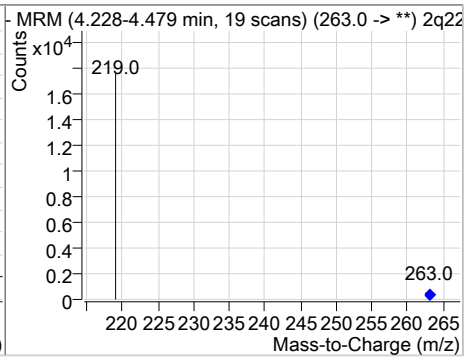




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.12	4.32	0.01	12443				

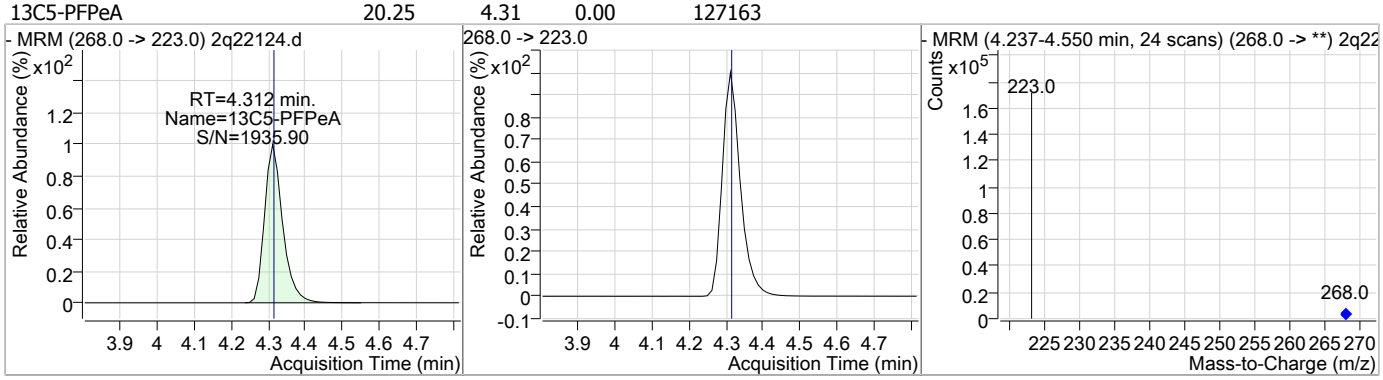




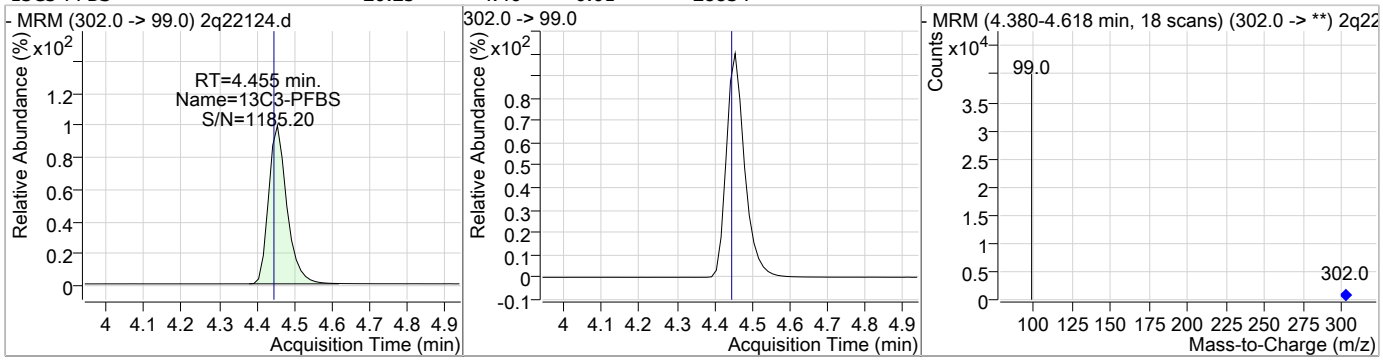


Perfluorinated Compounds by LC/MS/MS

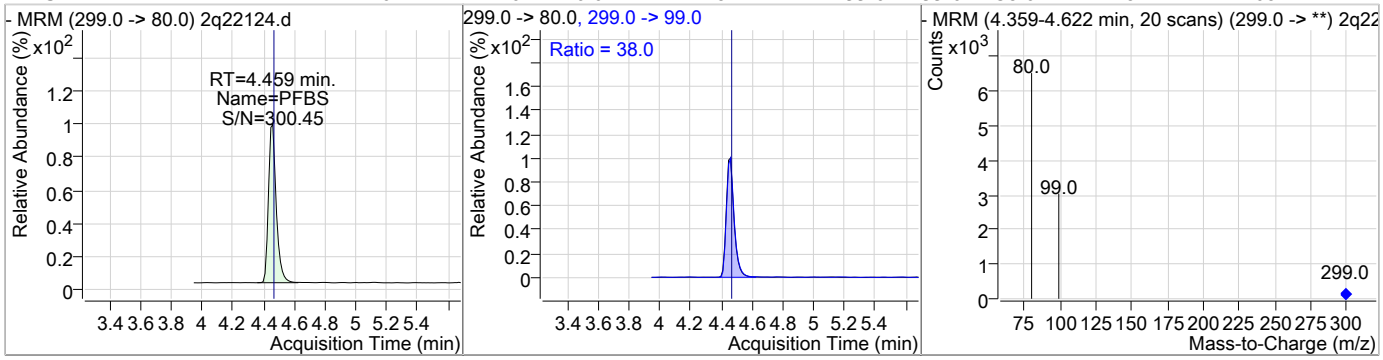
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.25	4.31	0.00	127163				



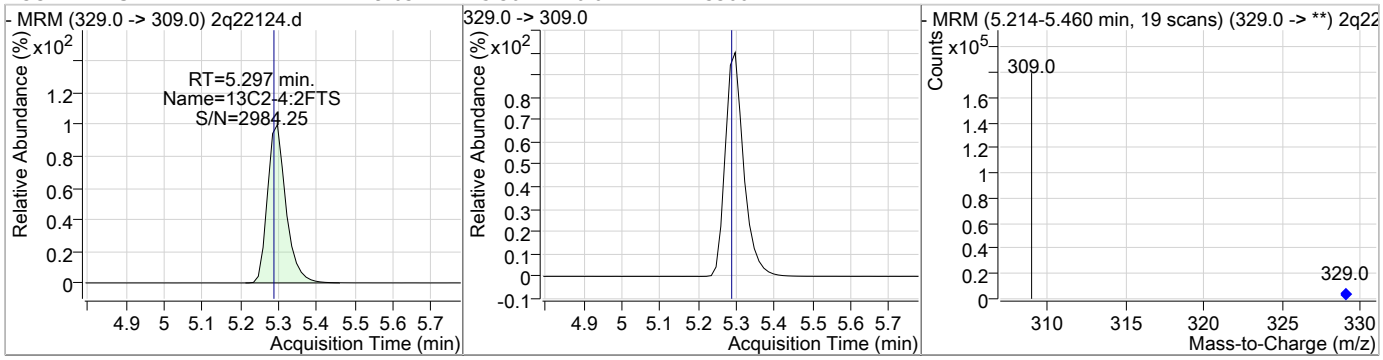
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.25	4.46	0.01	28834				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.01	4.46	0.01	4181	299.0 -> 99.0	38.0	8.1	68.1

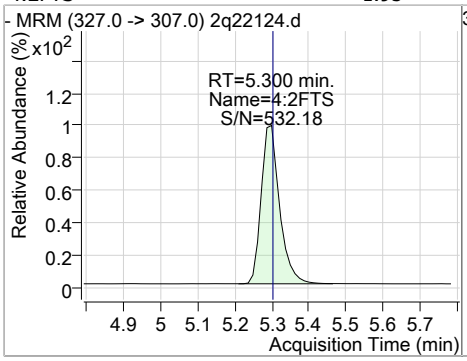


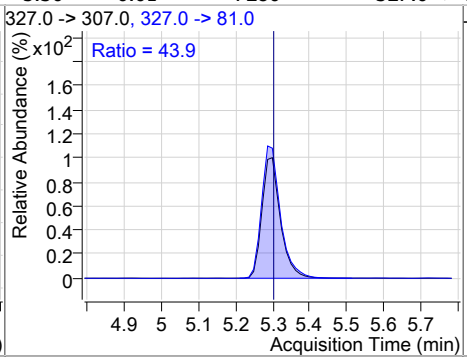
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.03	5.30	0.01	133662				

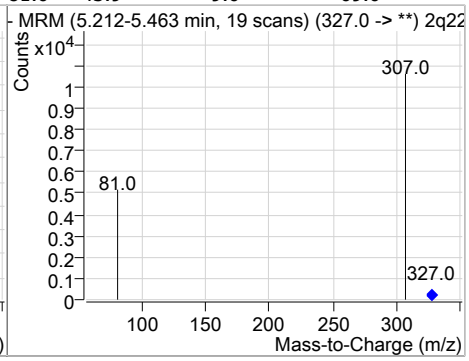


Perfluorinated Compounds by LC/MS/MS

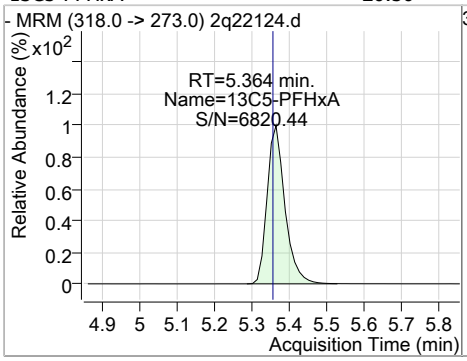
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.95	5.30	0.01	7280	327.0 -> 81.0	43.9	9.0	69.0

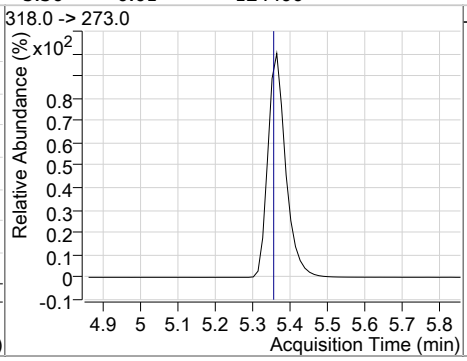


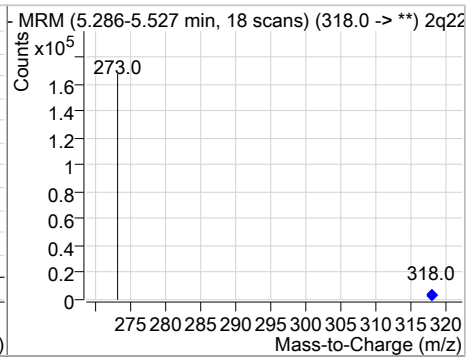




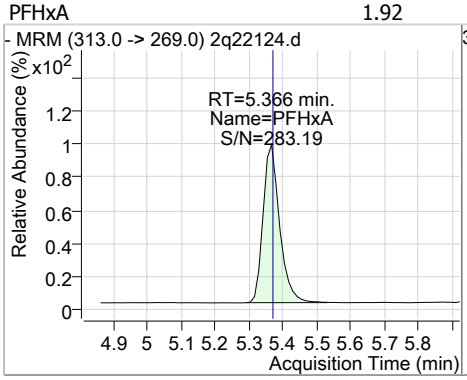
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.50	5.36	0.01	124466				

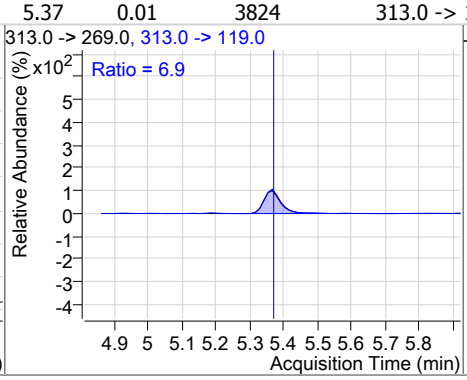


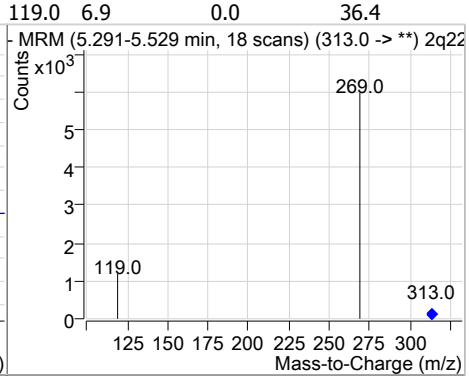




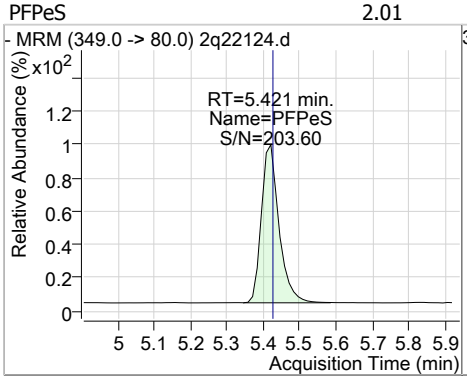
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.92	5.37	0.01	3824	313.0 -> 119.0	6.9	0.0	36.4

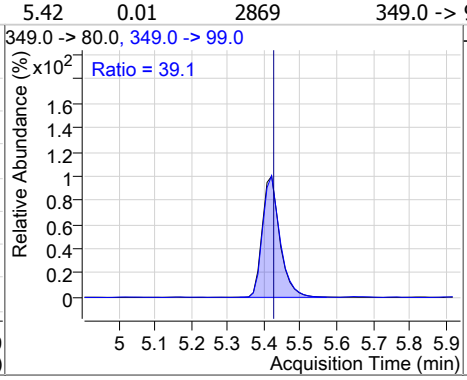


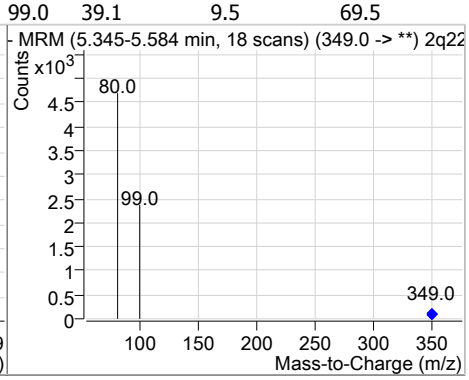




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.01	5.42	0.01	2869	349.0 -> 99.0	39.1	9.5	69.5

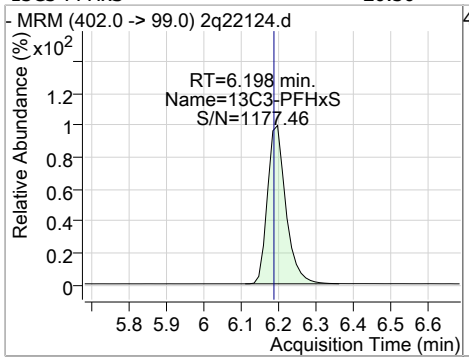


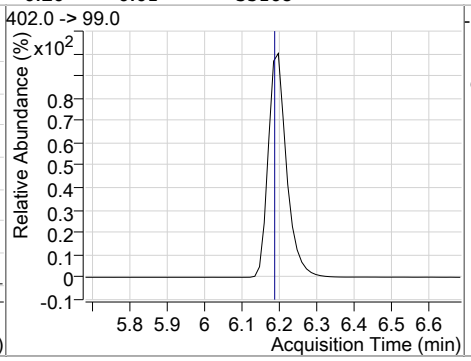


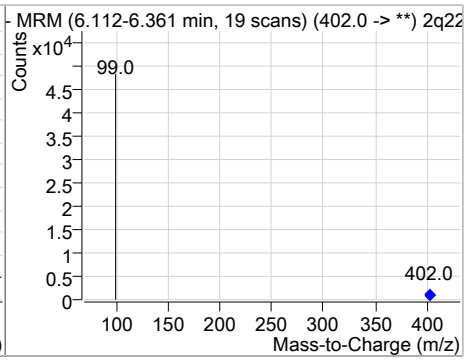


Perfluorinated Compounds by LC/MS/MS

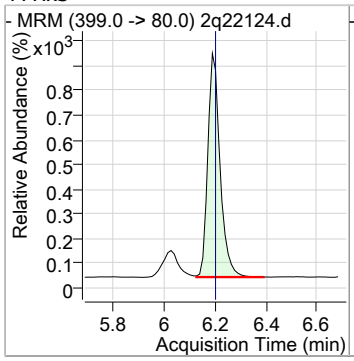
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.30	6.20	0.01	35168				

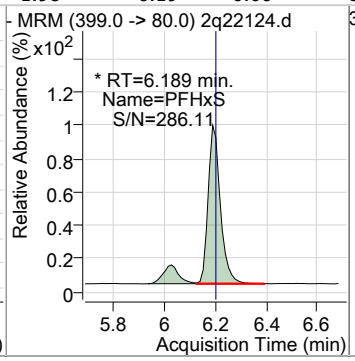


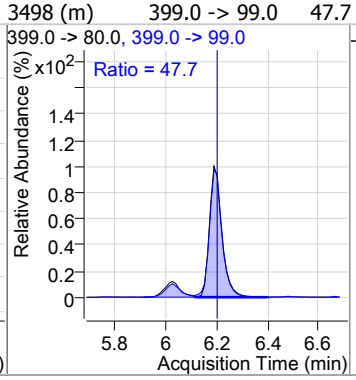


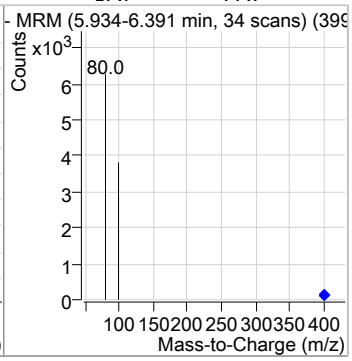


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.98	6.19	0.00	3498 (m)	399.0 -> 99.0	47.7	17.7	77.7

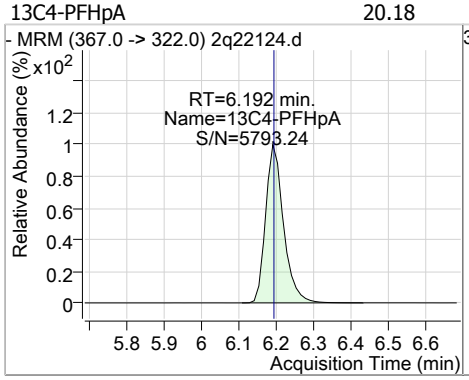


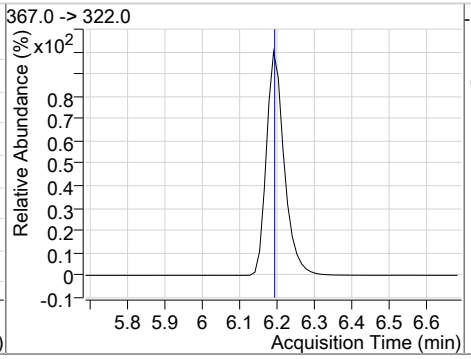


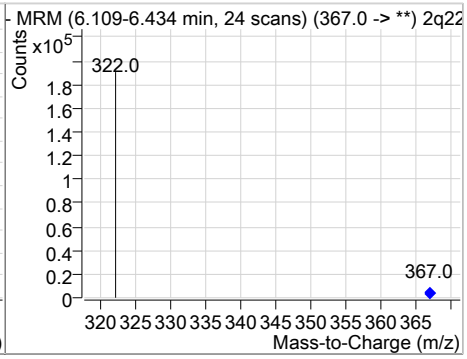




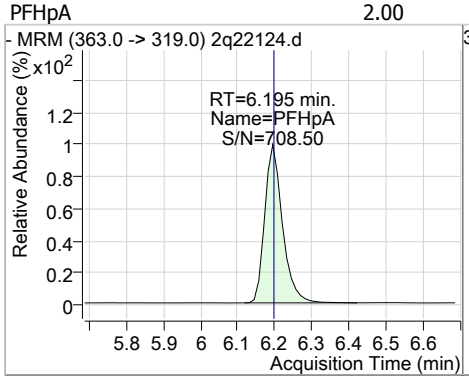
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.18	6.19	0.00	141491				

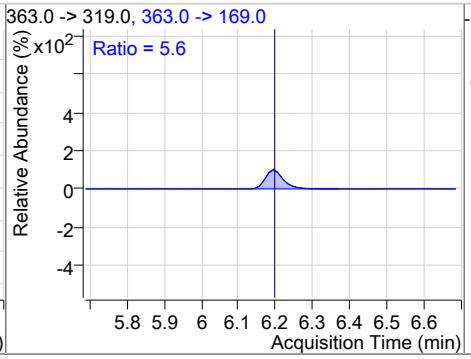


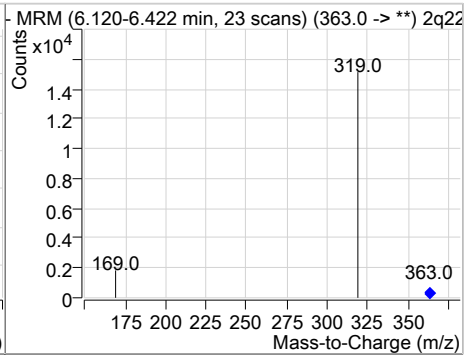




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.00	6.20	0.00	10558	363.0 -> 169.0	5.6	0.0	35.4

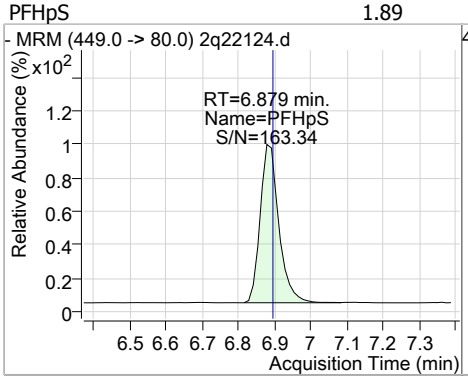


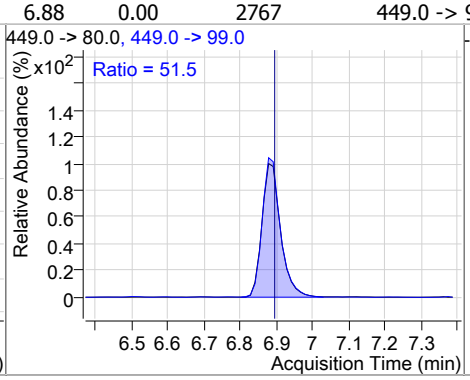


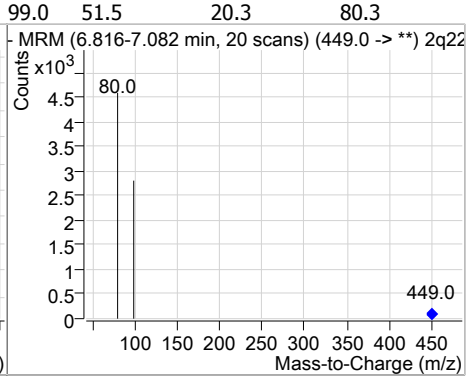


Perfluorinated Compounds by LC/MS/MS

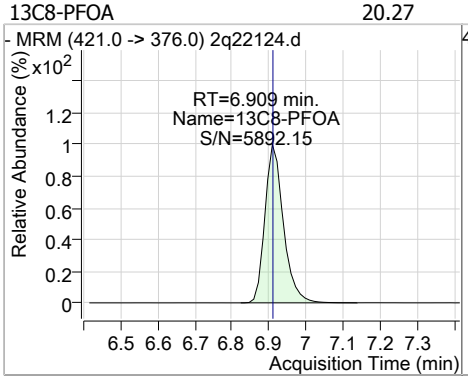
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.89	6.88	0.00	2767	449.0 -> 99.0	51.5	20.3	80.3

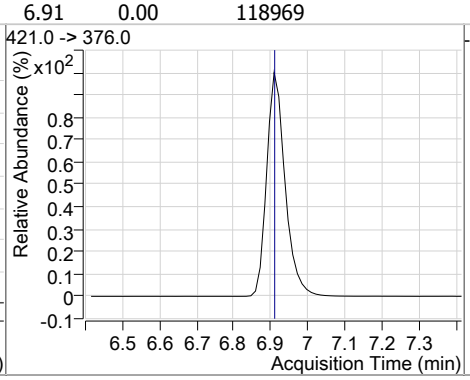


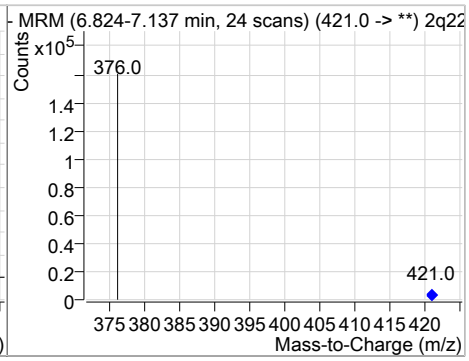




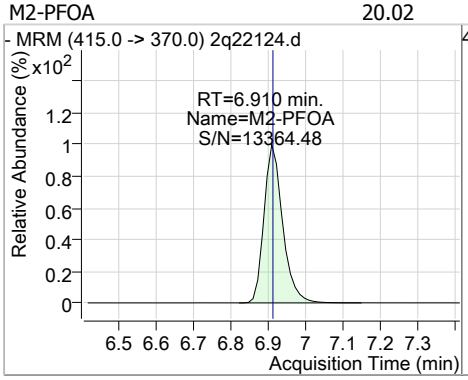
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.27	6.91	0.00	118969				

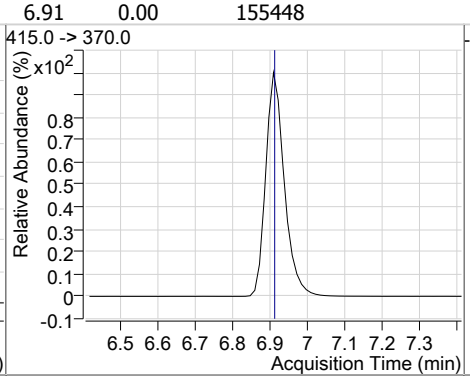


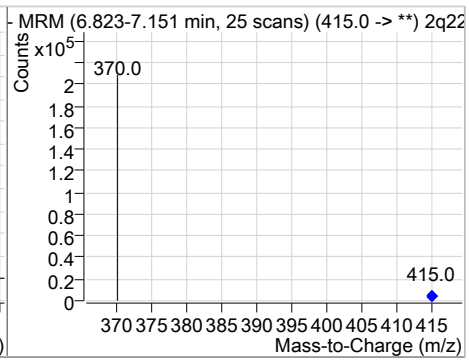




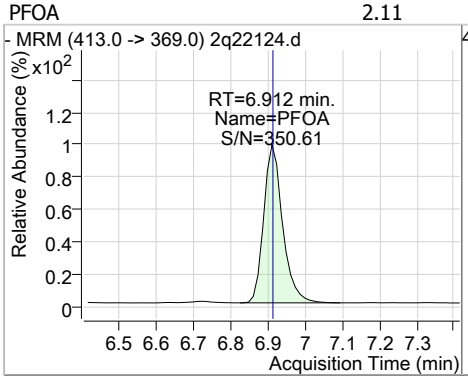
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.02	6.91	0.00	155448				

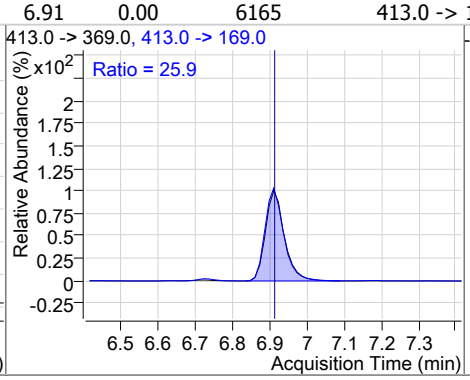


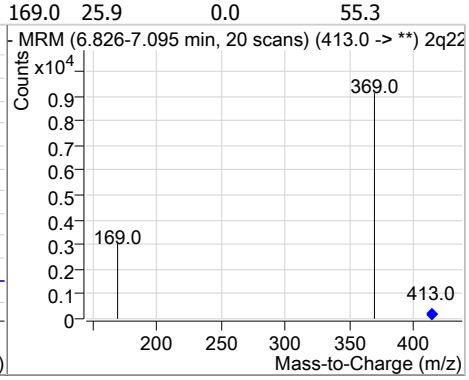




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.11	6.91	0.00	6165	413.0 -> 169.0	25.9	0.0	55.3

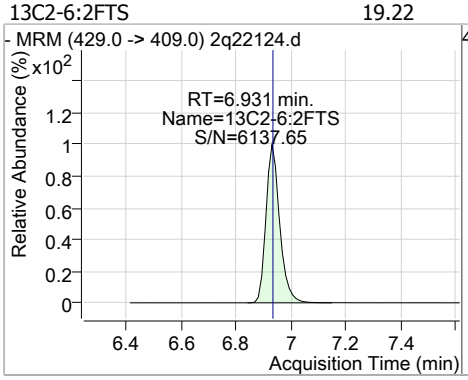


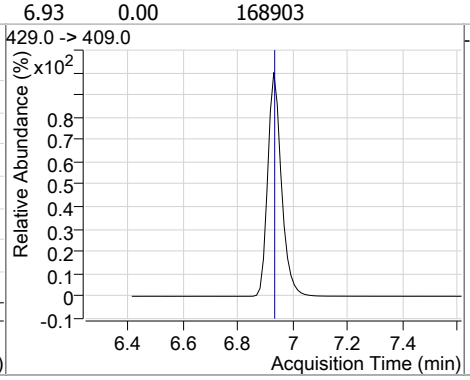


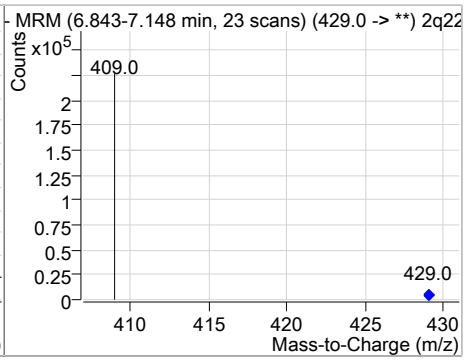


Perfluorinated Compounds by LC/MS/MS

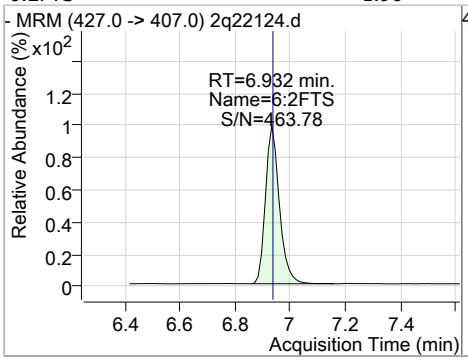
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.22	6.93	0.00	168903				

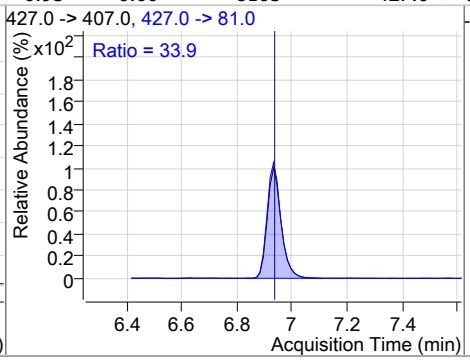


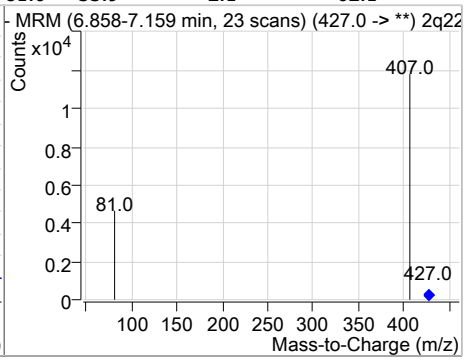




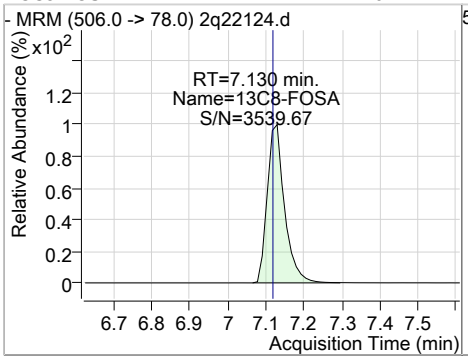
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.96	6.93	0.00	8105	427.0 -> 81.0	33.9	2.1	62.1

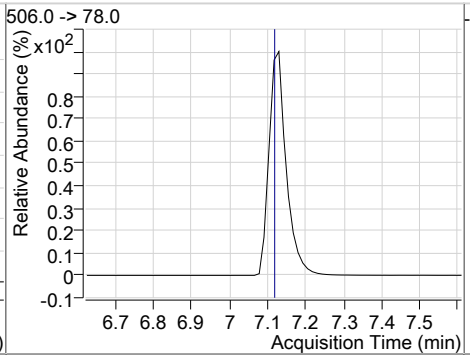


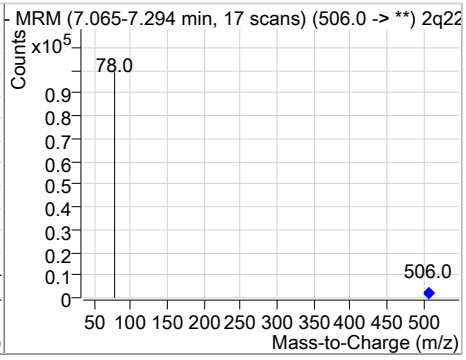




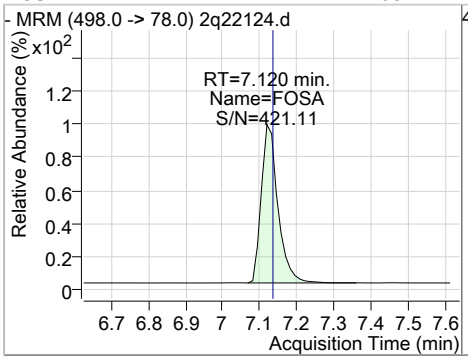
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.24	7.13	0.01	74477				

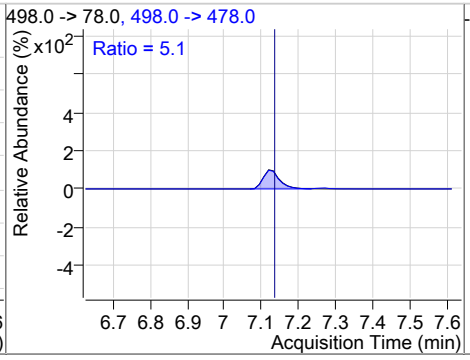


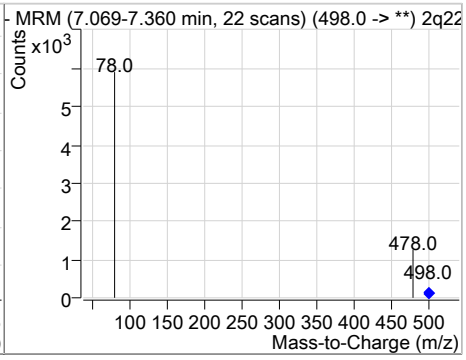




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.08	7.12	0.00	3721	498.0 -> 478.0	5.1	0.0	35.4

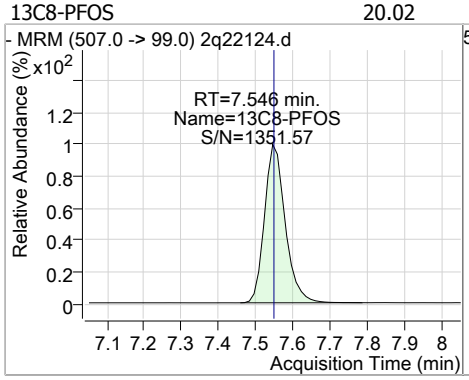


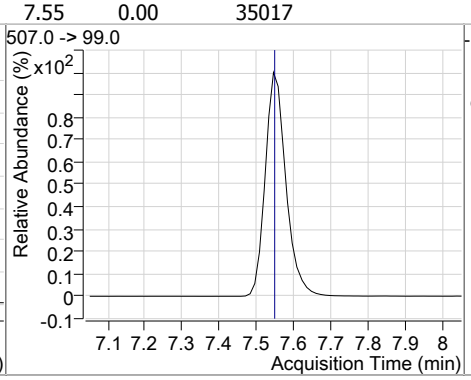


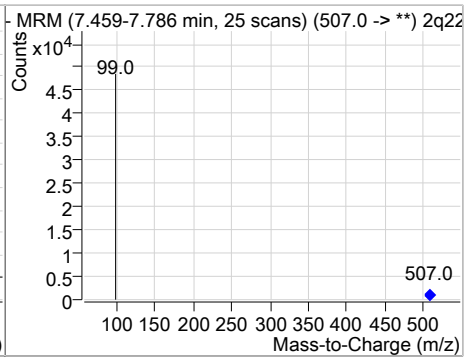


Perfluorinated Compounds by LC/MS/MS

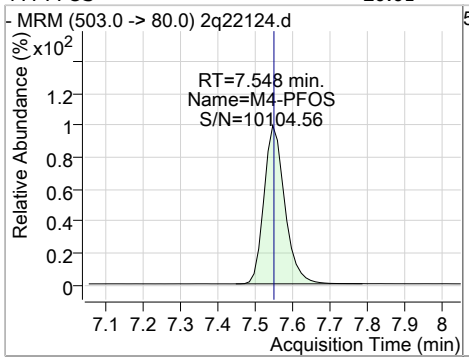
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.02	7.55	0.00	35017				

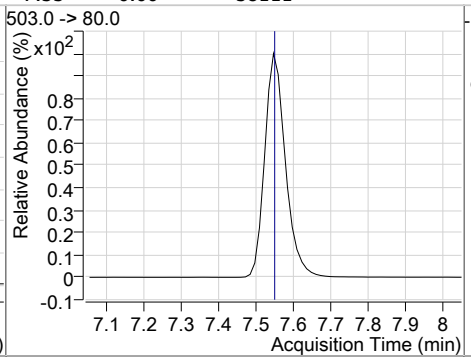


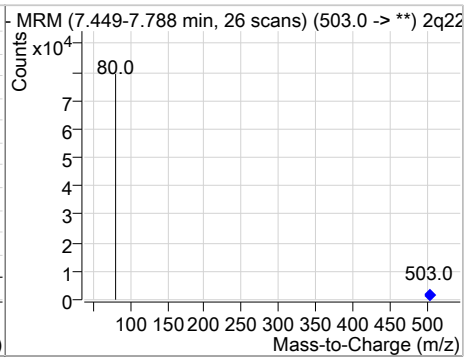




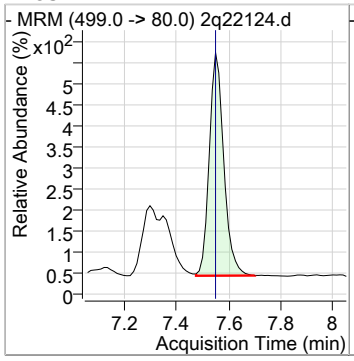
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.55	0.00	58111				

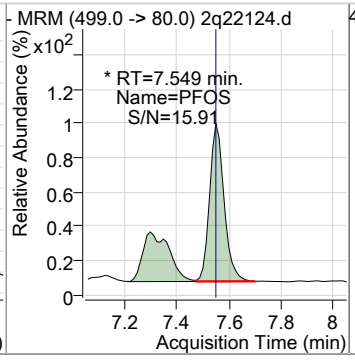


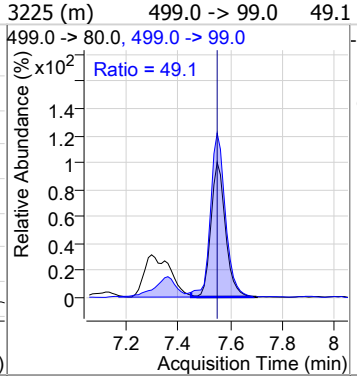


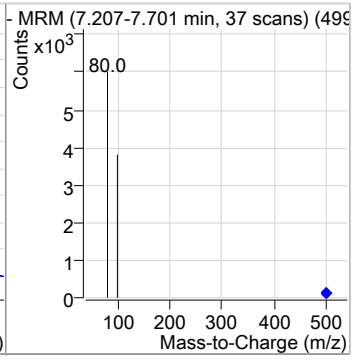


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.18	7.55	0.00	3225 (m)	499.0 -> 99.0	49.1	21.5	81.5

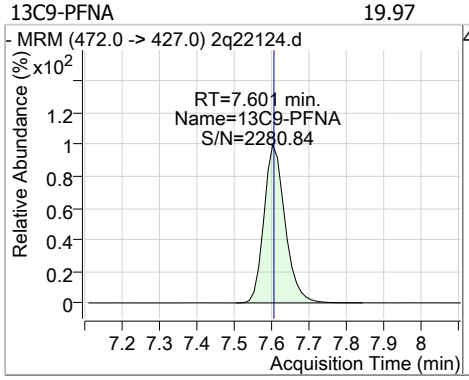


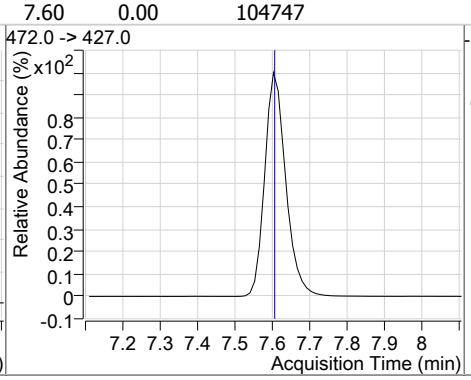


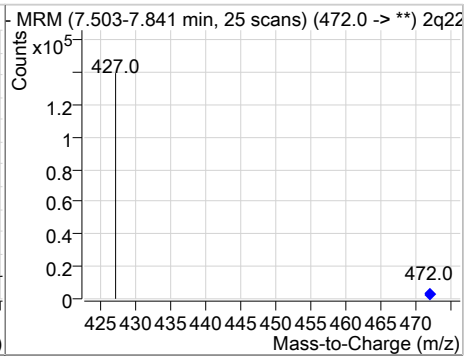




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.97	7.60	0.00	104747				

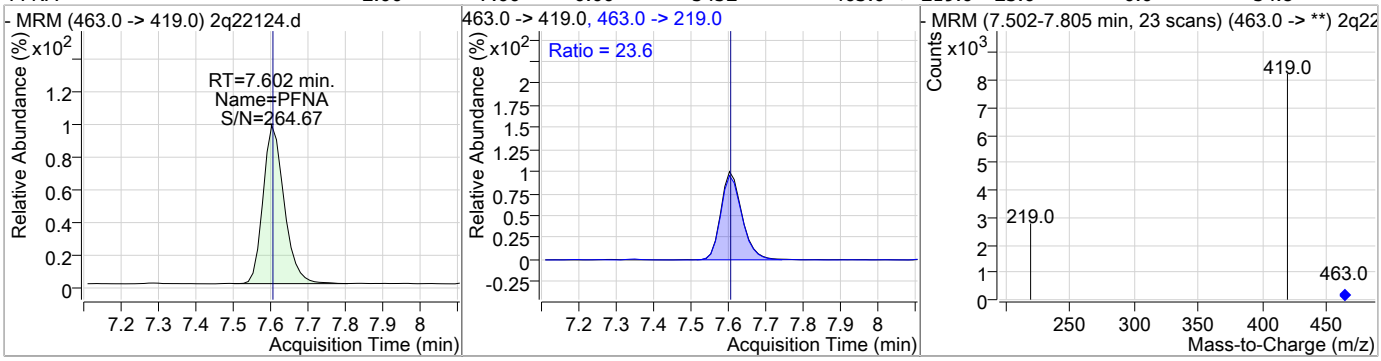




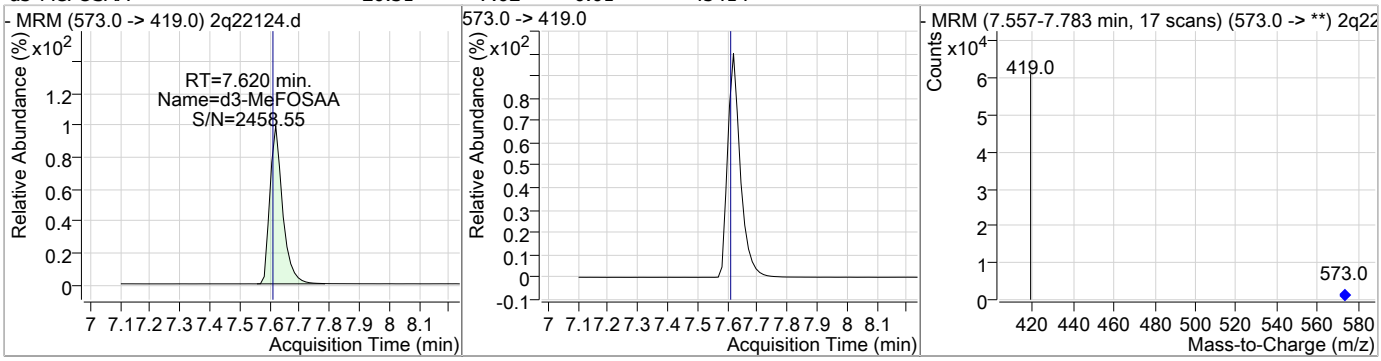


Perfluorinated Compounds by LC/MS/MS

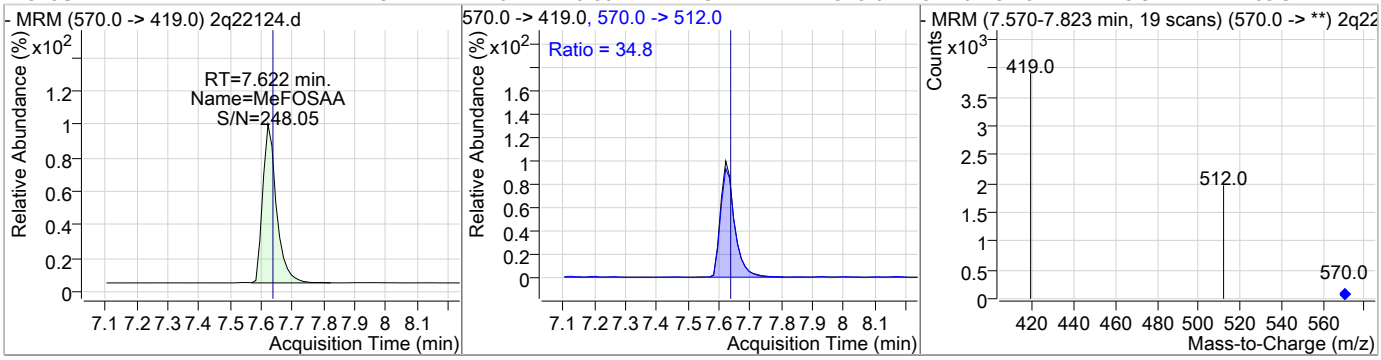
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.00	7.60	0.00	5452	463.0 -> 219.0	23.6	0.0	54.8



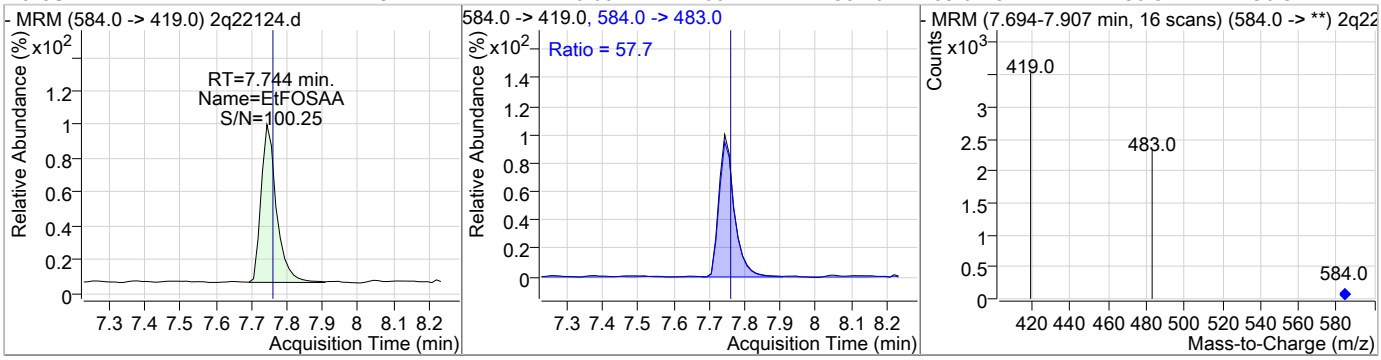
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.31	7.62	0.01	45414				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.97	7.62	0.00	2311	570.0 -> 512.0	34.8	5.9	65.9

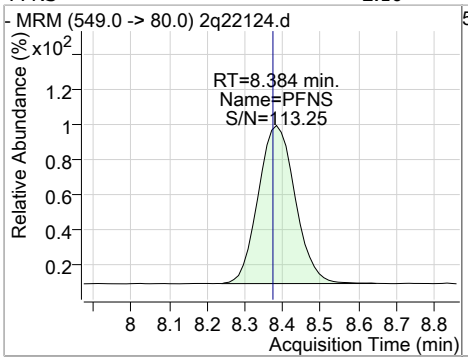


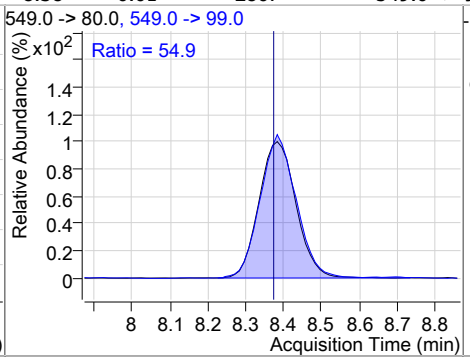
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.97	7.74	0.00	2064	584.0 -> 483.0	57.7	30.5	90.5

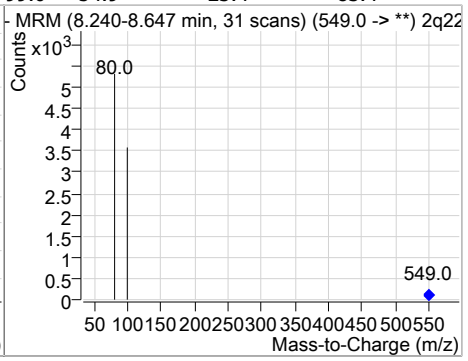


Perfluorinated Compounds by LC/MS/MS

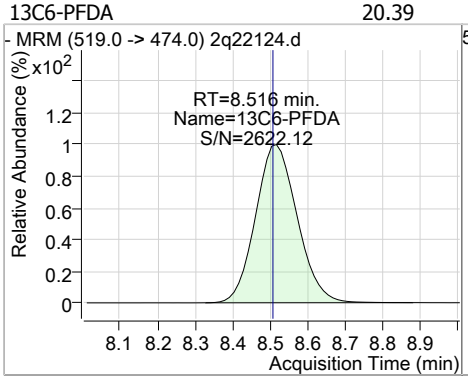
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.10	8.38	0.01	2867	549.0 -> 99.0	54.9	23.4	83.4

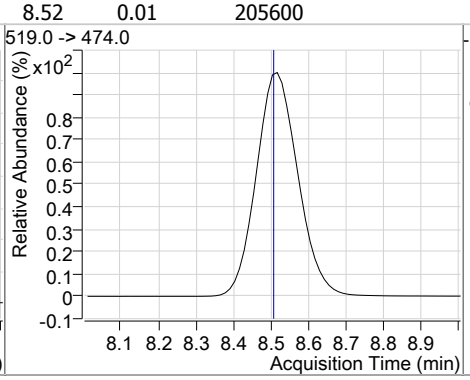


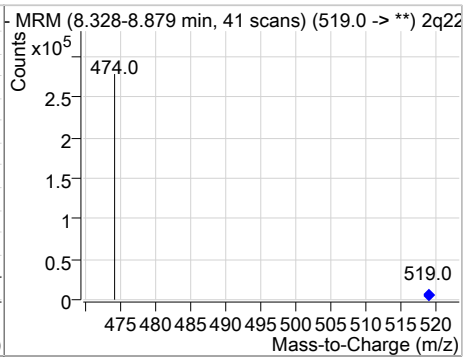




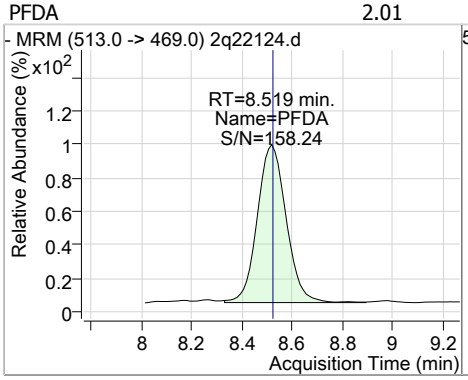
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.39	8.52	0.01	205600				

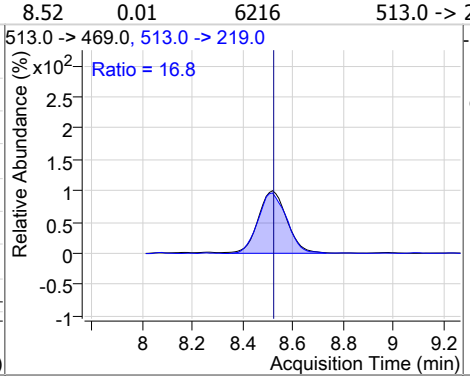


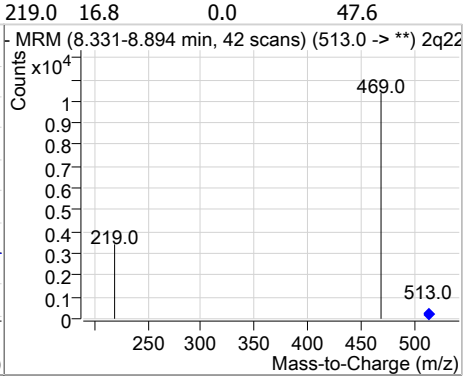




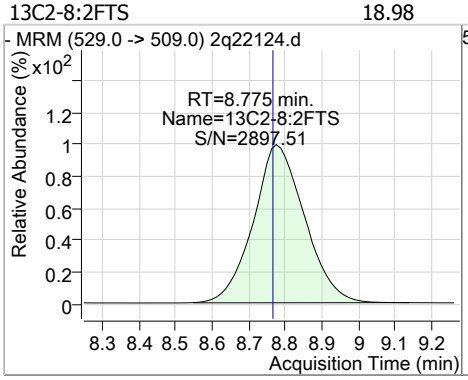
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.01	8.52	0.01	6216	513.0 -> 219.0	16.8	0.0	47.6

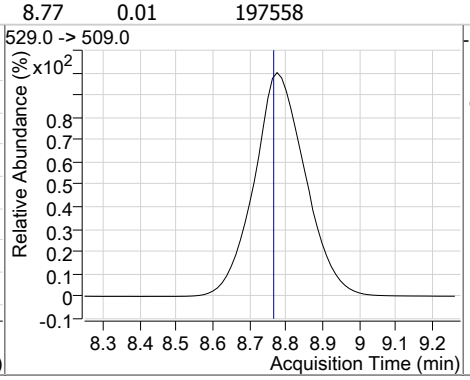


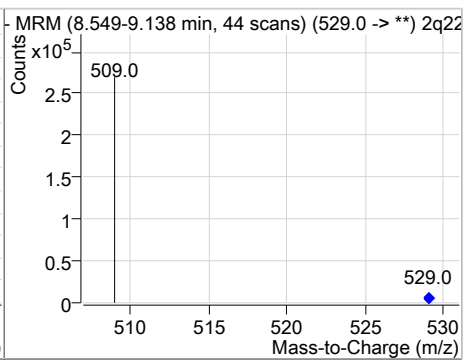




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.98	8.77	0.01	197558				

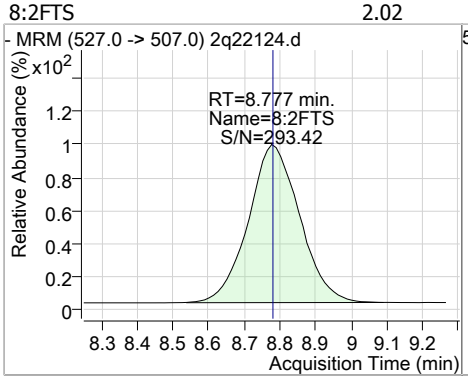


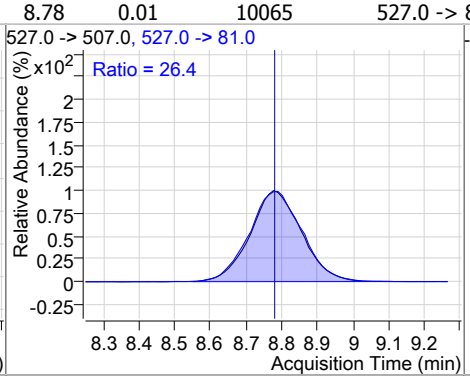


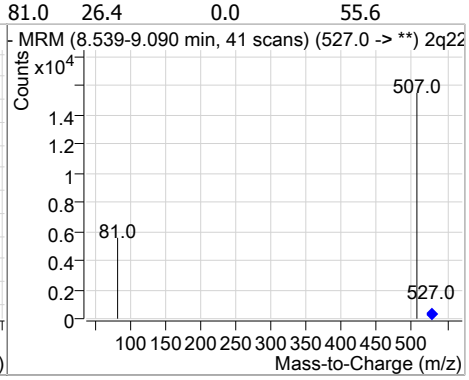


Perfluorinated Compounds by LC/MS/MS

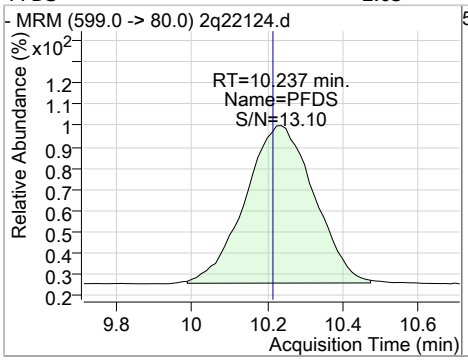
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.02	8.78	0.01	10065	527.0 -> 81.0	26.4	0.0	55.6

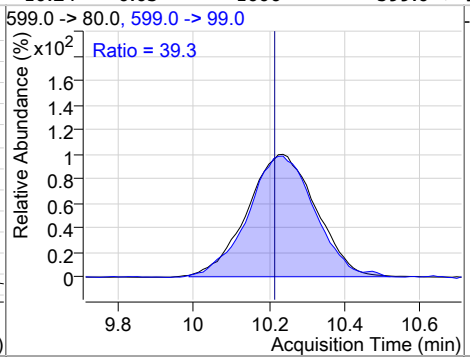


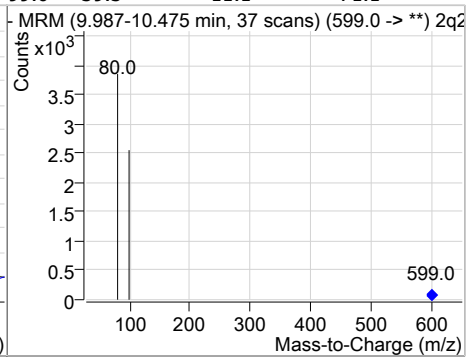




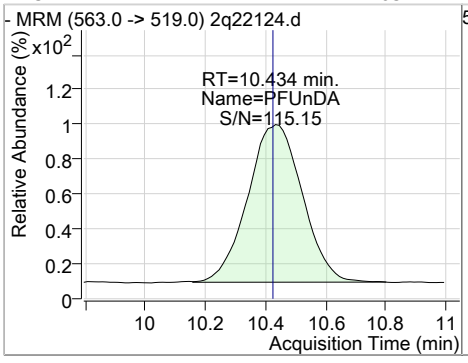
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.03	10.24	0.03	1606	599.0 -> 99.0	39.3	11.1	71.1

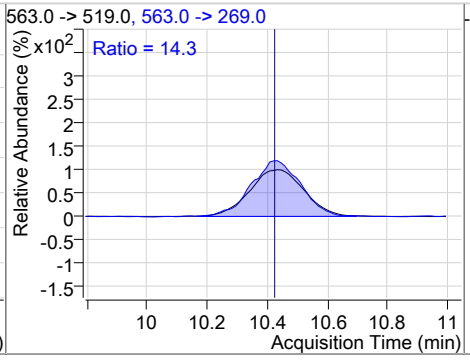


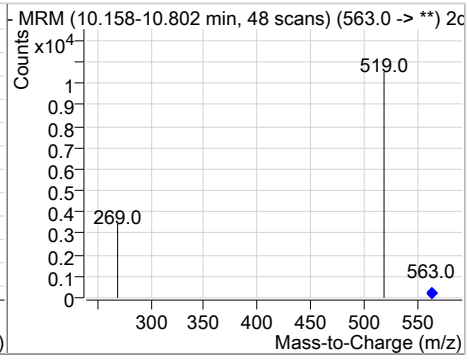




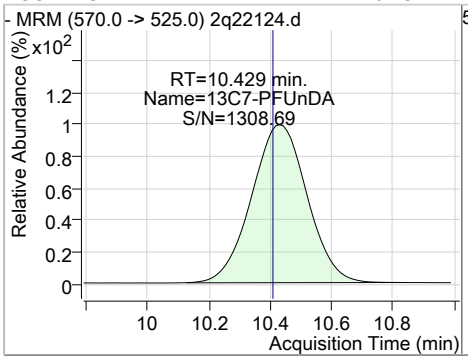
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.03	10.43	0.04	5984	563.0 -> 269.0	14.3	0.0	43.1

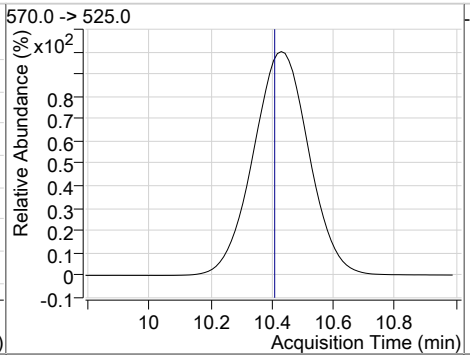


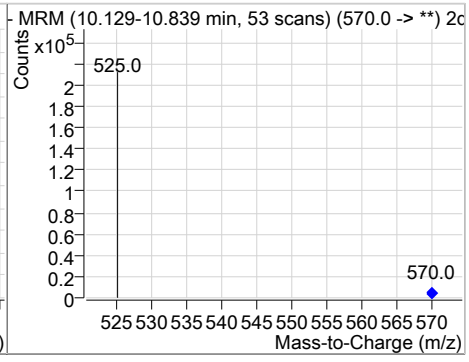




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.23	10.43	0.03	154702				

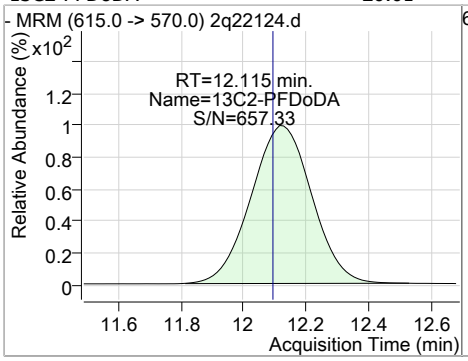


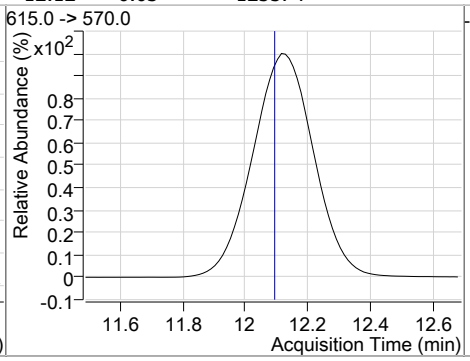


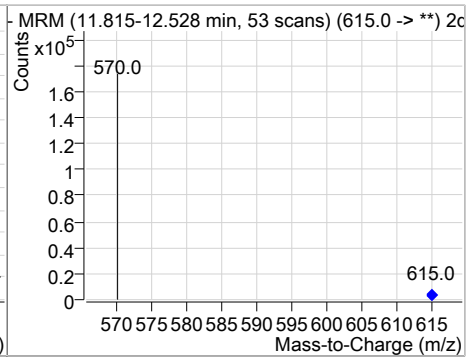


Perfluorinated Compounds by LC/MS/MS

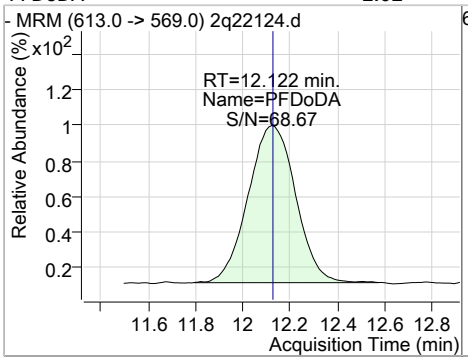
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.01	12.12	0.03	125574				

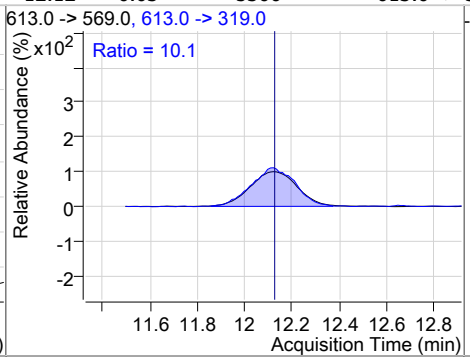


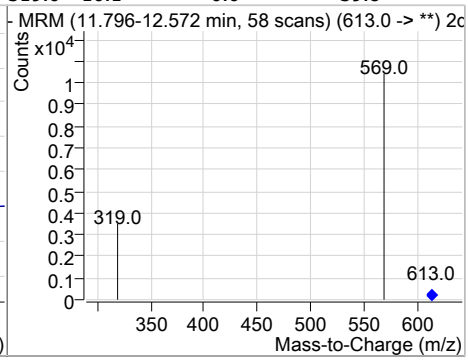




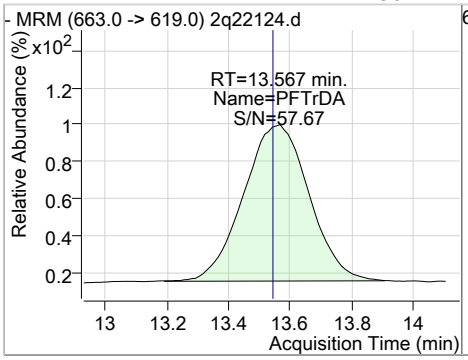
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.02	12.12	0.03	5366	613.0 -> 319.0	10.1	0.0	39.8

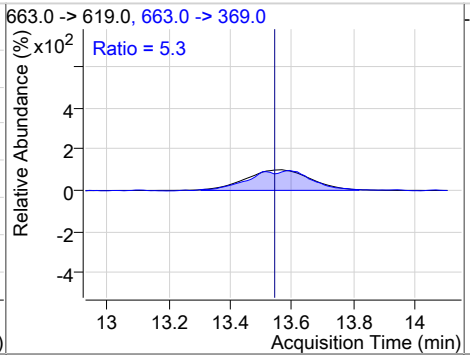


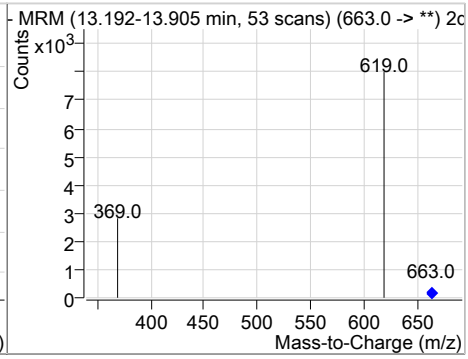




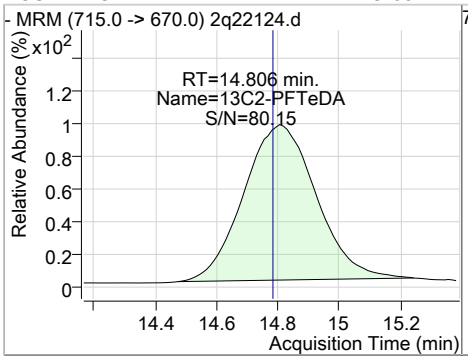
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.98	13.57	0.05	3932	663.0 -> 369.0	5.3	0.0	35.8

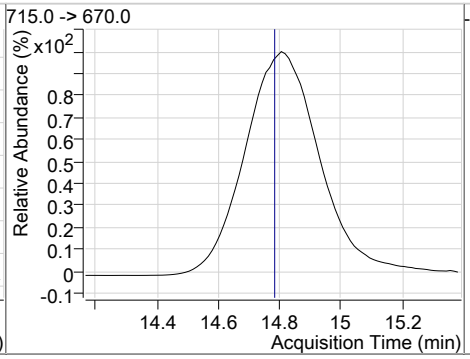


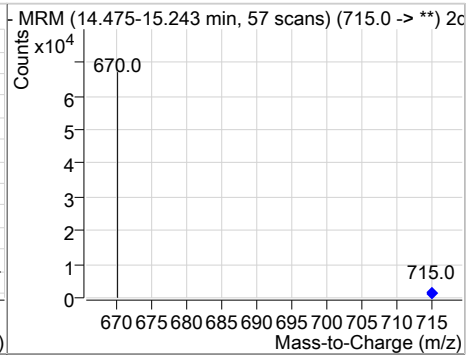




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.68	14.81	0.03	43940				

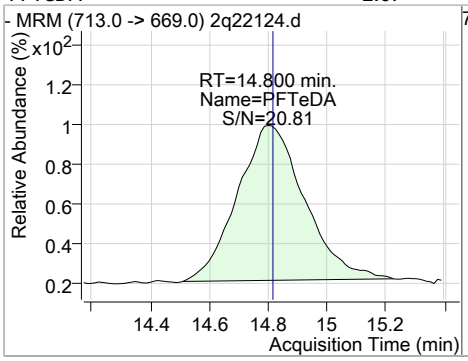


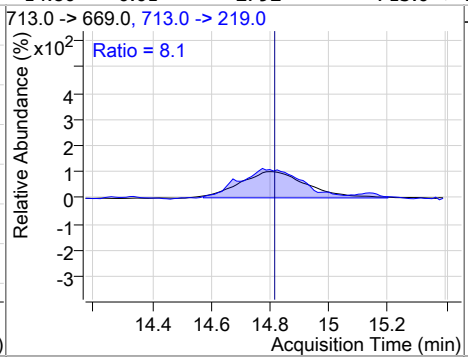


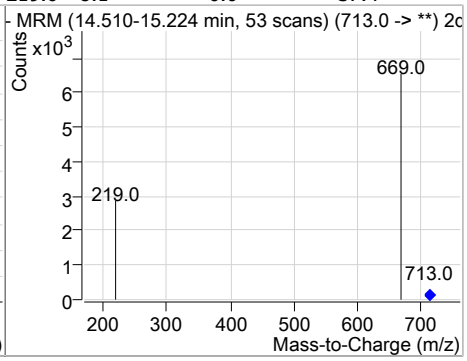


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.07	14.80	0.01	2792	713.0 -> 219.0	8.1	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-IC349
Lab FileID: 2Q22124.D
Injection Time: 10/15/18 12:04
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22125.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 12:25:15 PM
Sample Name : ic349-5
Vial : Vial 5
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

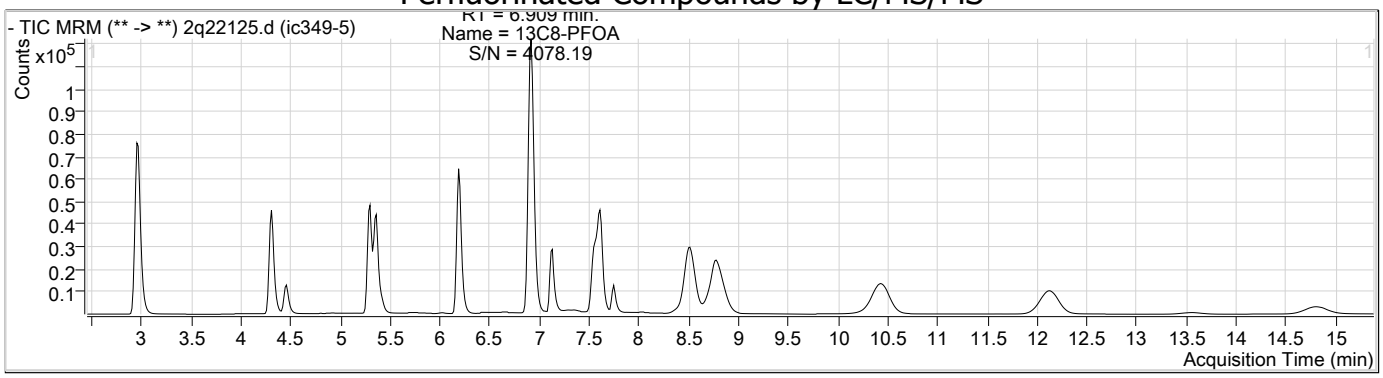
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	153195	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	57414	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	293406	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	127722	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	123890	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	142022	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	117520	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	106994	20.00	µg/L	0.000
M6-PFDA	8.516	519.0 -> 474.0	206630	20.00	µg/L	0.012
M7-PFUnDA	10.429	570.0 -> 525.0	152867	20.00	µg/L	0.025
M2-PFDoDA	12.115	615.0 -> 570.0	125118	20.00	µg/L	0.025
M2-PFTeDA	14.806	715.0 -> 670.0	46815	20.00	µg/L	0.025
M8-FOSA	7.130	506.0 -> 78.0	76655	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	29036	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	35326	20.00	µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	35911	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	135394	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	170031	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	198704	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	45303	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	135351	19.27	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C2-6:2FTS	6.931	429.0 -> 409.0	170023	19.35	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.7%		
13C2-8:2FTS	8.775	529.0 -> 509.0	198052	19.03	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C2-PFDoDA	12.115	615.0 -> 570.0	124508	19.84	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C2-PFTeDA	14.806	715.0 -> 670.0	44205	19.79	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C3-PFBS	4.455	302.0 -> 99.0	29032	20.39	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C3-PFHxS	6.198	402.0 -> 99.0	35322	20.39	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C4-PFBA	2.953	217.0 -> 172.0	293154	20.29	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C4-PFHpA	6.192	367.0 -> 322.0	142042	20.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C5-PFHxA	5.364	318.0 -> 273.0	123919	20.41	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C5-PFPeA	4.312	268.0 -> 223.0	127672	20.33	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C6-PFDA	8.516	519.0 -> 474.0	206114	20.45	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%		

Perfluorinated Compounds by LC/MS/MS

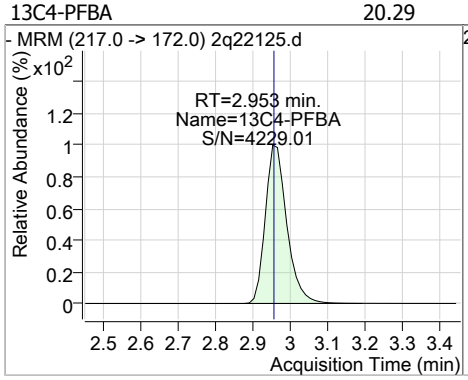
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	152414	19.93	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%			
13C8-FOSA	7.130	506.0 -> 78.0	76659	20.83	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%			
13C8-PFOA	6.909	421.0 -> 376.0	117567	20.03	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
13C8-PFOS	7.546	507.0 -> 99.0	35891	20.52	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%			
13C9-PFNA	7.601	472.0 -> 427.0	106952	20.39	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%			
d3-MeFOSAA	7.620	573.0 -> 419.0	45289	20.25	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%			
M2-PFOA	6.910	415.0 -> 370.0	153162	20.00	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	57398	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	18673	4.97	µg/L		99
6:2FTS	6.932	427.0 -> 407.0	20607	4.98	µg/L		99
8:2FTS	8.777	527.0 -> 507.0	24672	4.97	µg/L		99
EtFOSAA	7.744	584.0 -> 419.0	5074	4.86	µg/L		99
FOSA	7.120	498.0 -> 78.0	8995	4.90	µg/L		98
MeFOSAA	7.622	570.0 -> 419.0	5569	4.75	µg/L		94
PFBA	2.962	213.0 -> 169.0	8474	4.79	µg/L		100
PFBS	4.459	299.0 -> 80.0	10258	4.89	µg/L		99
PFDA	8.506	513.0 -> 469.0	14832	4.77	µg/L		98
PFDoDA	12.134	613.0 -> 569.0	12864	4.89	µg/L		100
PFDS	10.225	599.0 -> 80.0	3921	4.83	µg/L		99
PFHpA	6.195	363.0 -> 319.0	25517	4.82	µg/L		100
PFHpS	6.879	449.0 -> 80.0	7114	4.84	µg/L		98
PFHxA	5.366	313.0 -> 269.0	9431	4.75	µg/L		98
PFHxS	6.189	399.0 -> 80.0	8677	4.89	µg/L	m	100
PFNA	7.602	463.0 -> 419.0	12918	4.64	µg/L		98
PFNS	8.384	549.0 -> 80.0	7003	4.99	µg/L		98
PFOA	6.912	413.0 -> 369.0	14905	5.16	µg/L		95
PFOS	7.549	499.0 -> 80.0	7322	4.82	µg/L	m	99
PFPeA	4.316	263.0 -> 219.0	29194	4.94	µg/L		100
PFPeS	5.421	349.0 -> 80.0	6954	4.84	µg/L		100
PFTeDA	14.825	713.0 -> 669.0	6712	4.98	µg/L		99
PFTrDA	13.554	663.0 -> 619.0	9641	4.88	µg/L		100
PFUnDA	10.434	563.0 -> 519.0	14086	4.86	µg/L		97

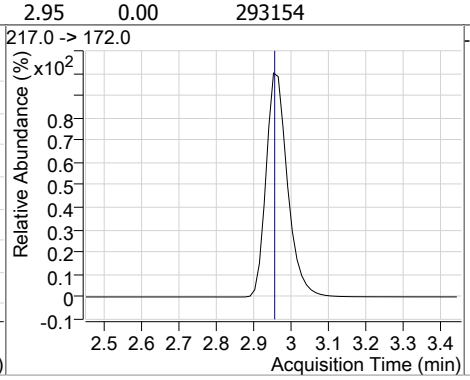
 # = Qualifier out of range, m = manually integrated, + = Area summed

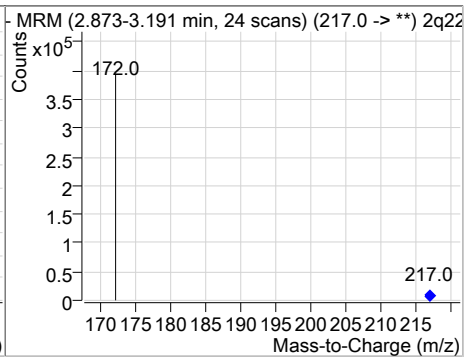
Perfluorinated Compounds by LC/MS/MS



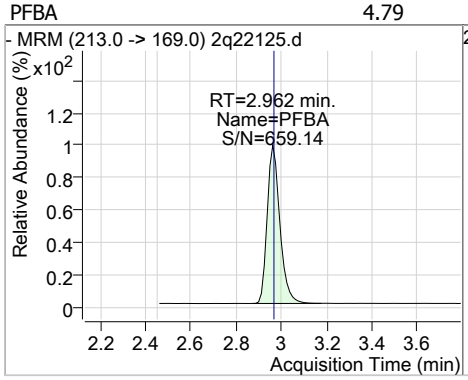
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.29	2.95	0.00	293154				

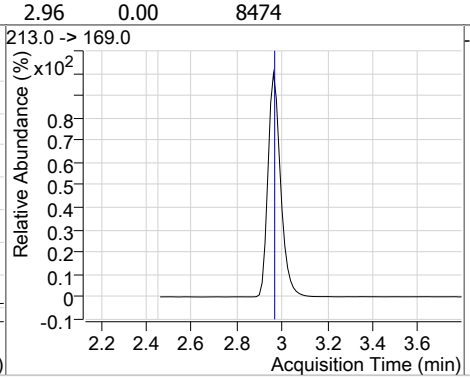


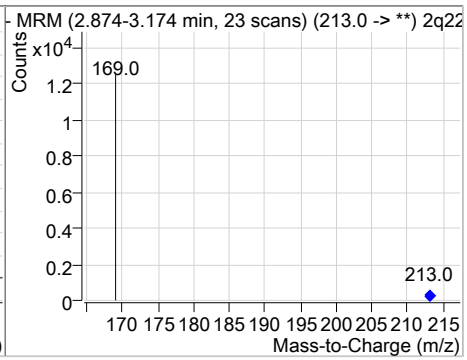




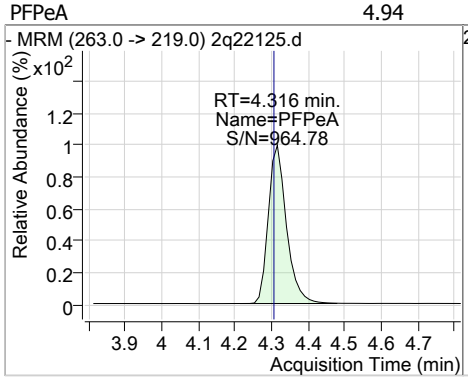
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	4.79	2.96	0.00	8474				

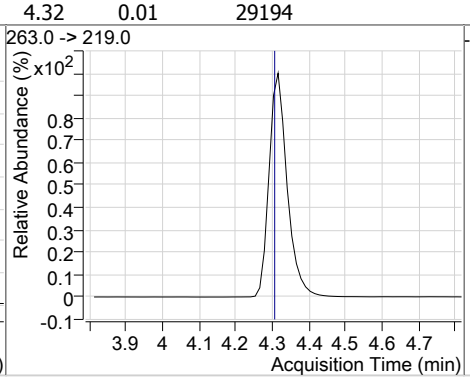


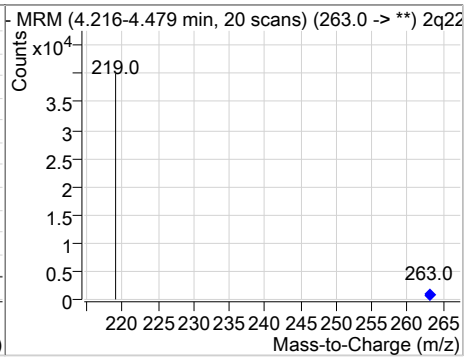




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.94	4.32	0.01	29194				

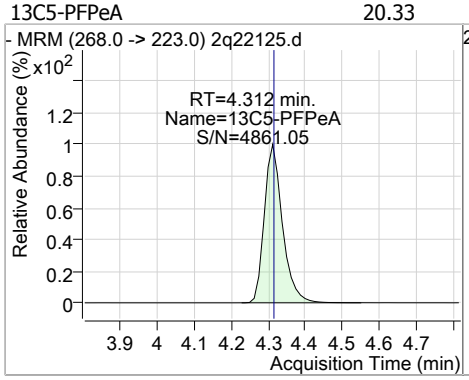


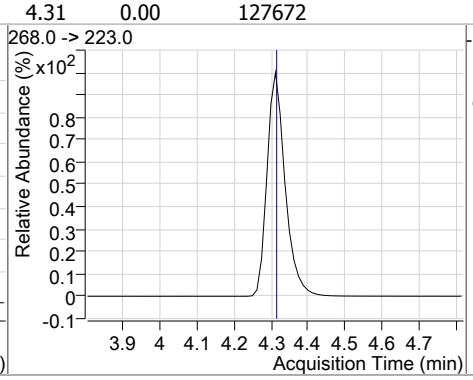


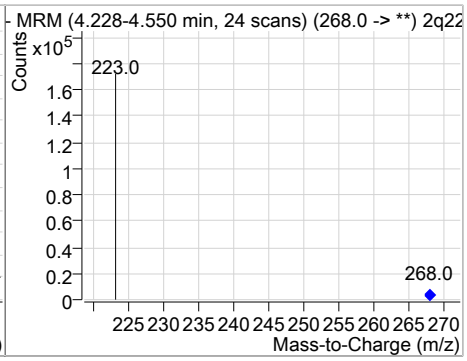


Perfluorinated Compounds by LC/MS/MS

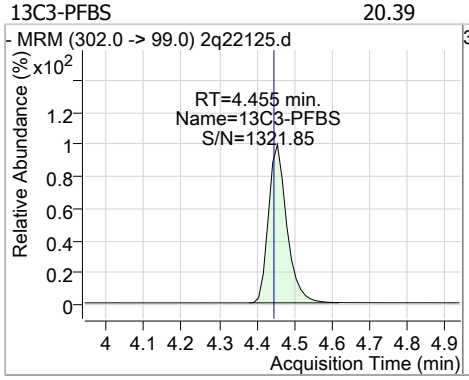
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.33	4.31	0.00	127672				

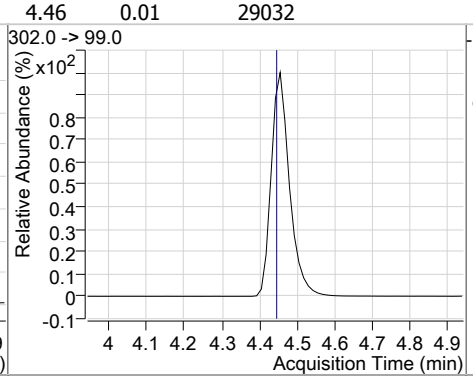


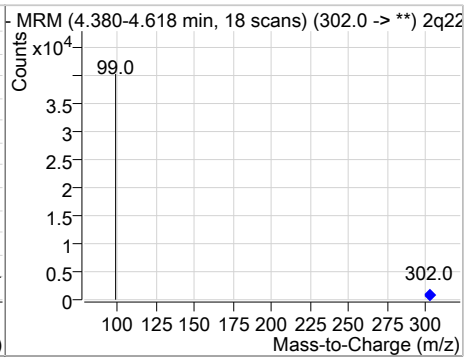




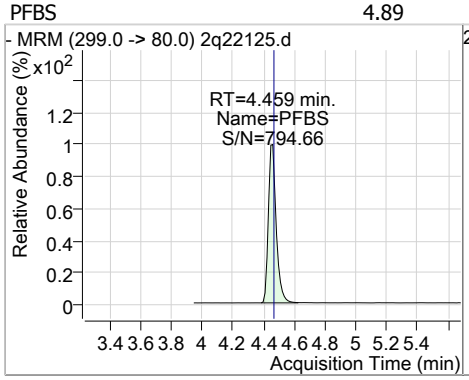
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.39	4.46	0.01	29032				

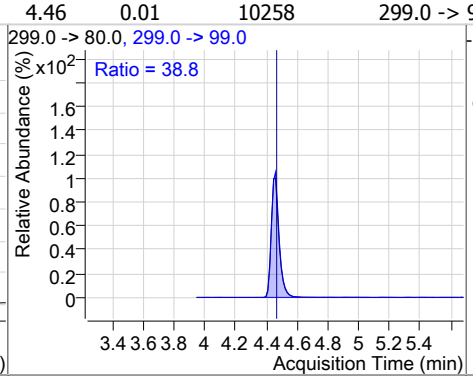


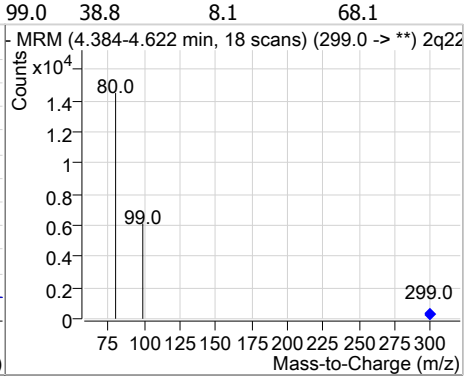




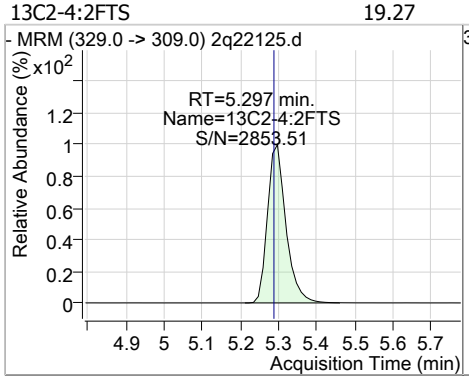
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.89	4.46	0.01	10258	299.0 -> 99.0	38.8	8.1	68.1

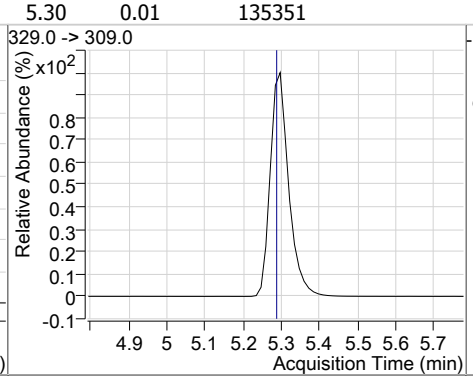


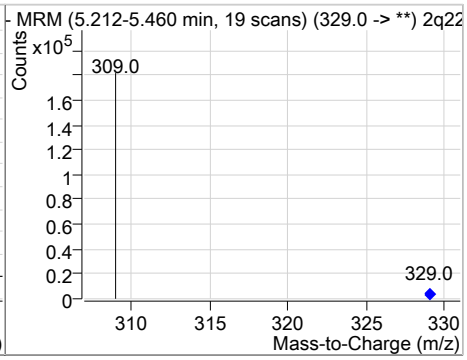




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.27	5.30	0.01	135351				

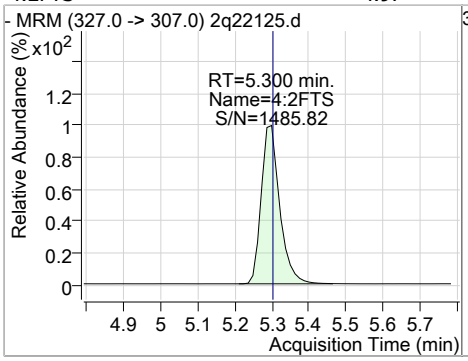


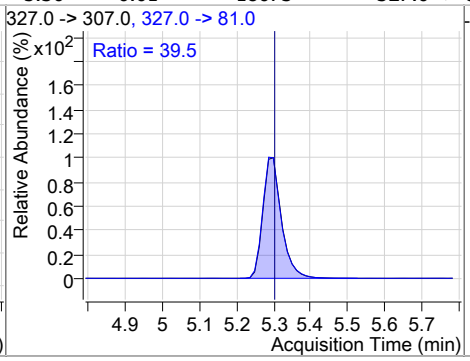


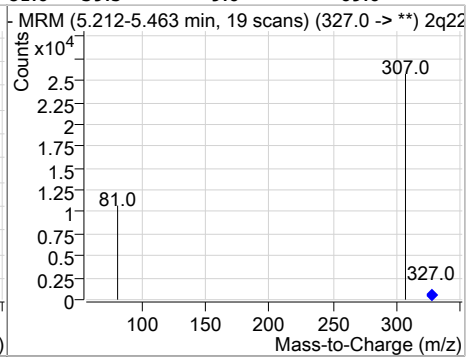


Perfluorinated Compounds by LC/MS/MS

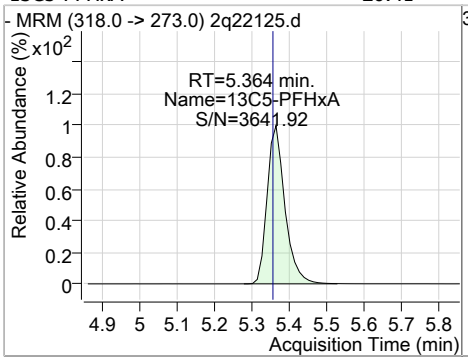
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	4.97	5.30	0.01	18673	327.0 -> 81.0	39.5	9.0	69.0

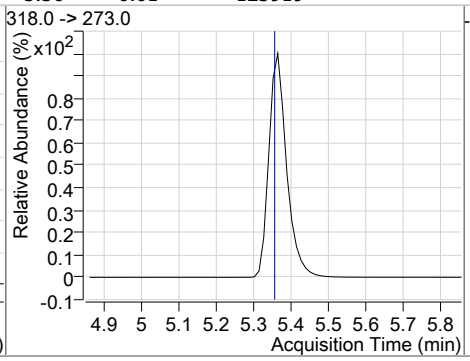


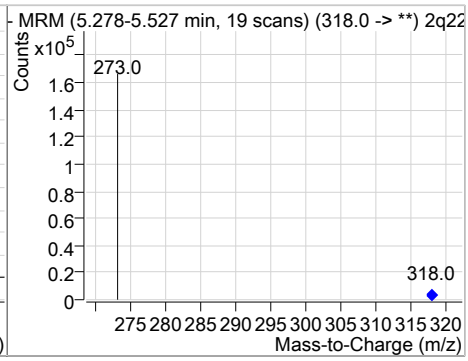




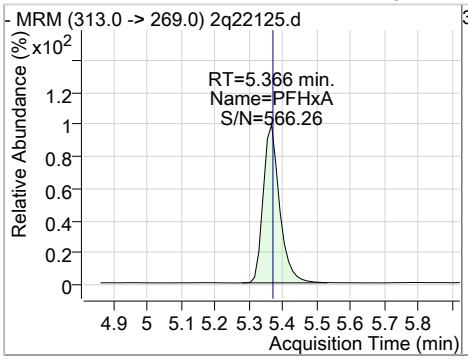
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.41	5.36	0.01	123919				

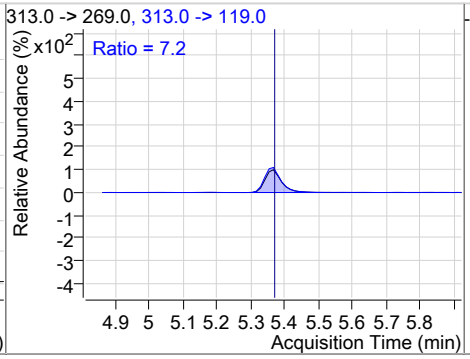


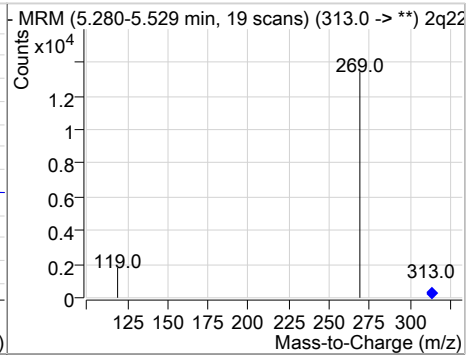




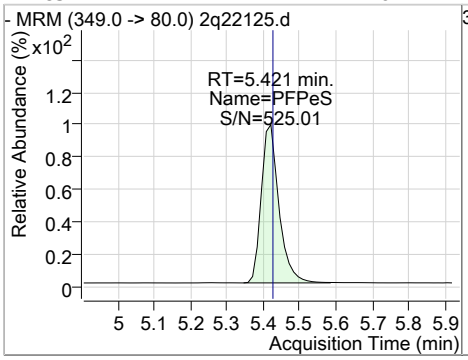
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.75	5.37	0.01	9431	313.0 -> 119.0	7.2	0.0	36.4

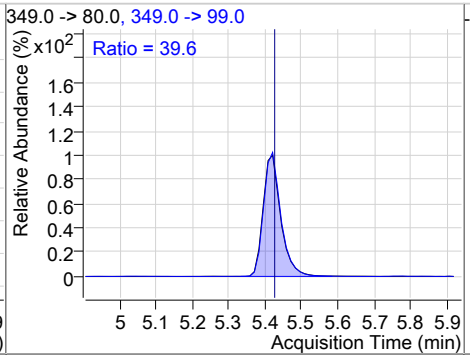


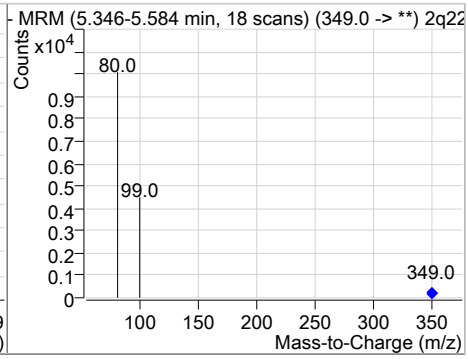




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	4.84	5.42	0.01	6954	349.0 -> 99.0	39.6	9.5	69.5

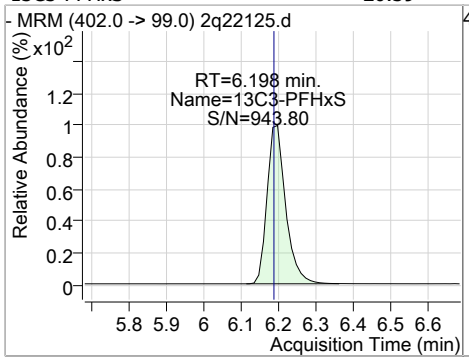


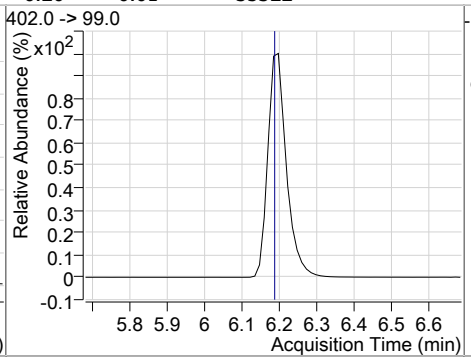


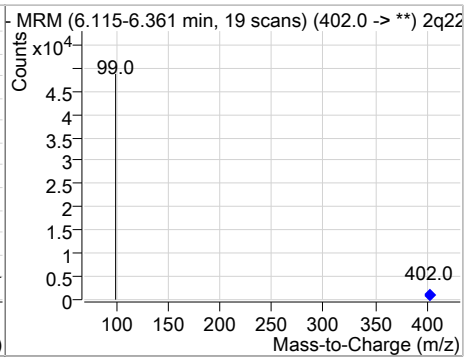


Perfluorinated Compounds by LC/MS/MS

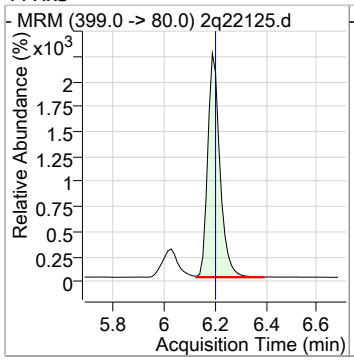
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.39	6.20	0.01	35322				

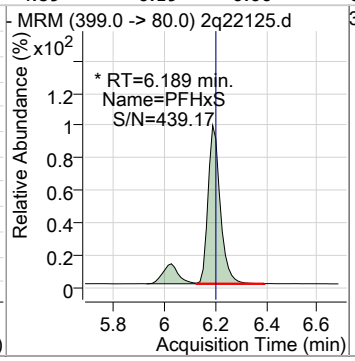


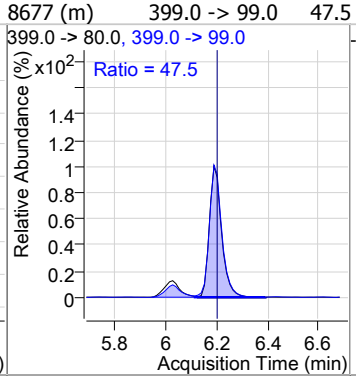


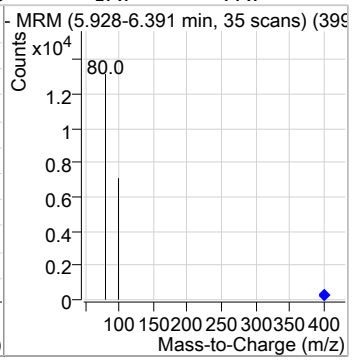


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.89	6.19	0.00	8677 (m)	399.0 -> 99.0	47.5	17.7	77.7

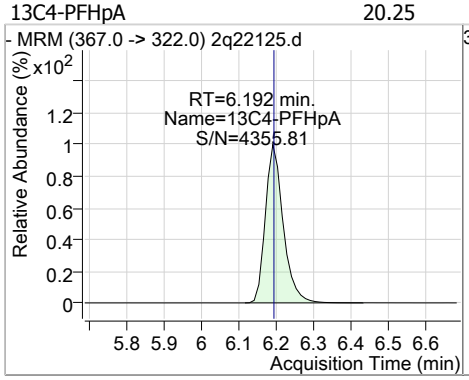


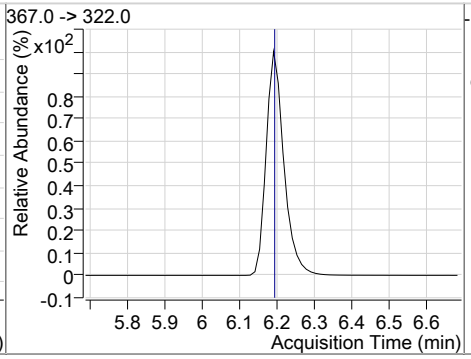


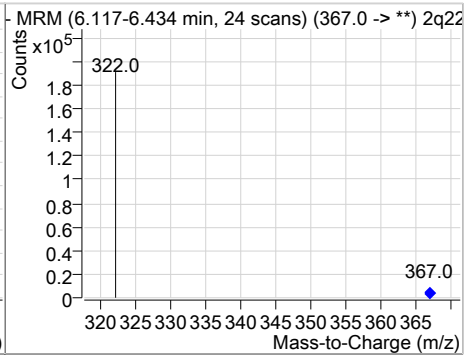




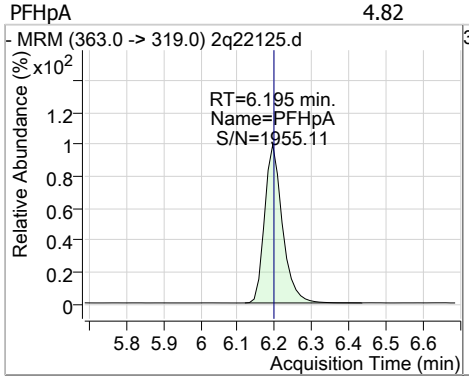
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.25	6.19	0.00	142042				

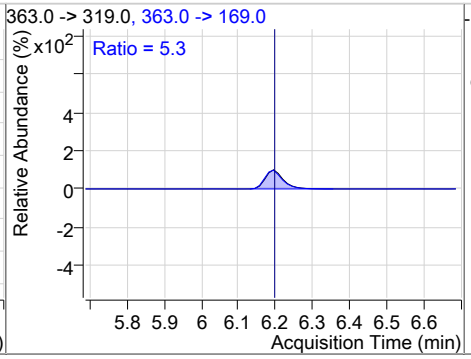


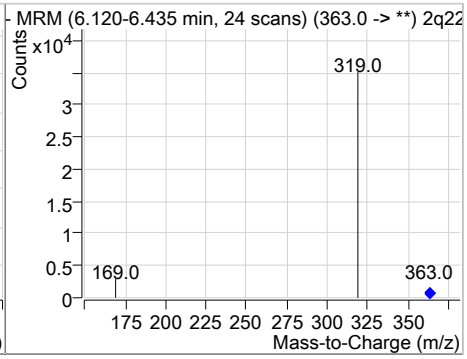




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.82	6.20	0.00	25517	363.0 -> 169.0	5.3	0.0	35.4

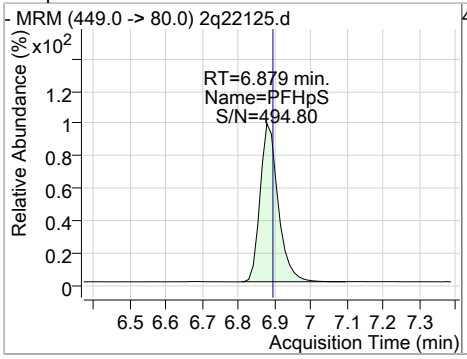


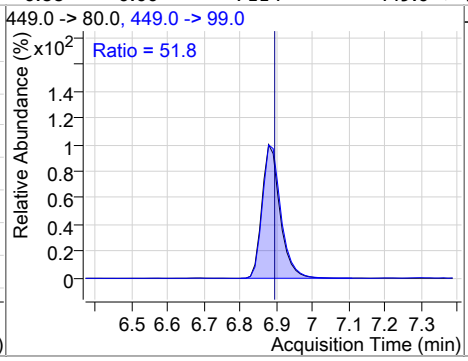


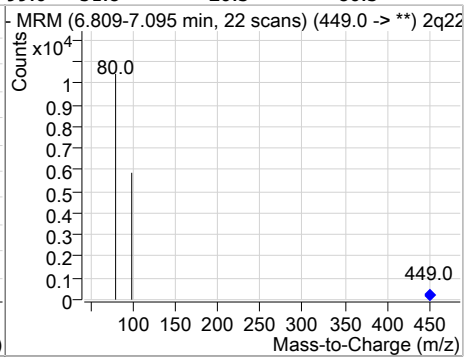


Perfluorinated Compounds by LC/MS/MS

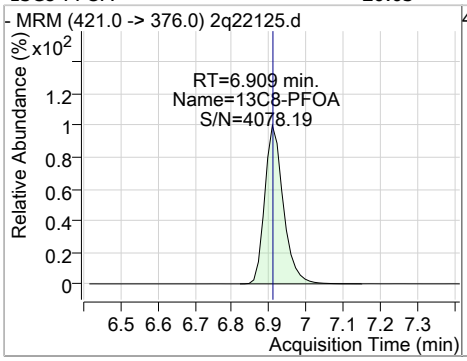
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.84	6.88	0.00	7114	449.0 -> 99.0	51.8	20.3	80.3

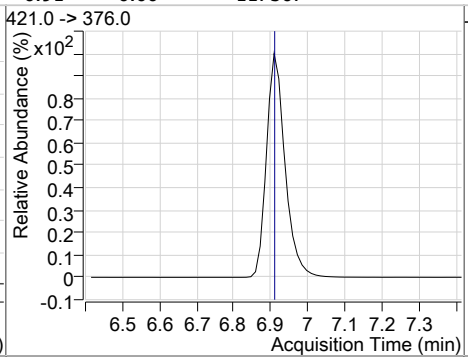


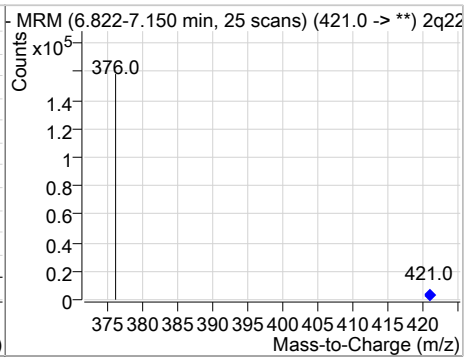




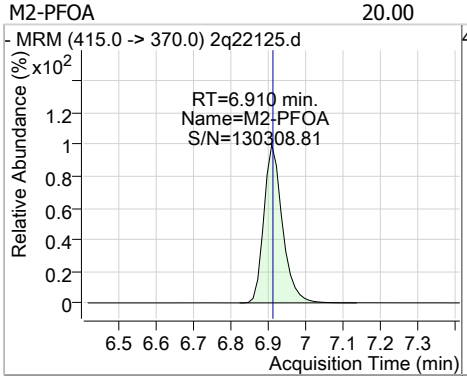
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.03	6.91	0.00	117567				

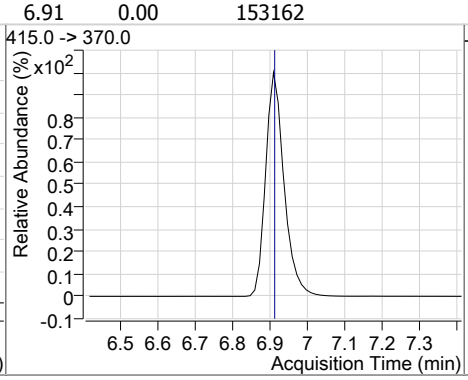


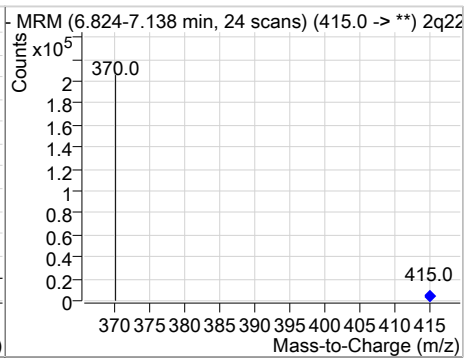




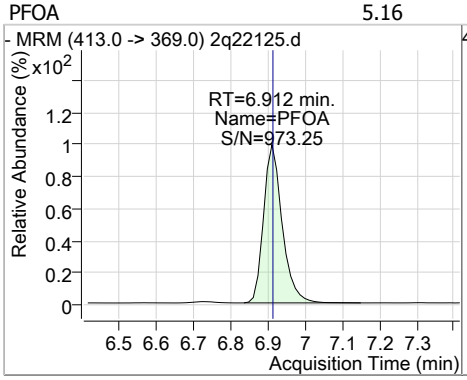
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.91	0.00	153162				

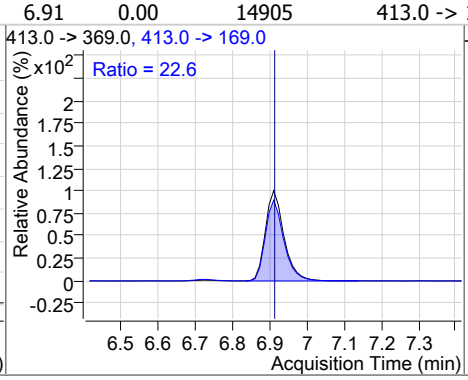


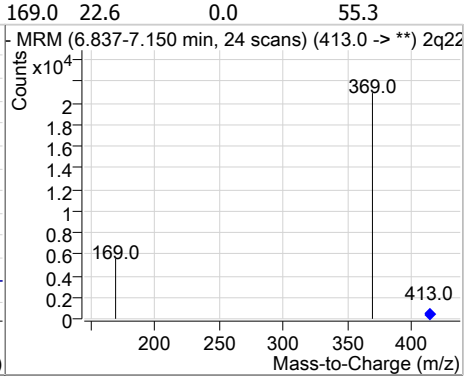




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.16	6.91	0.00	14905	413.0 -> 169.0	22.6	0.0	55.3

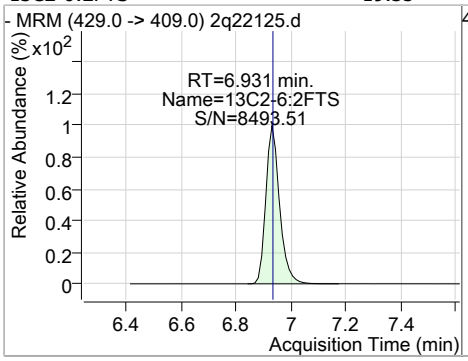


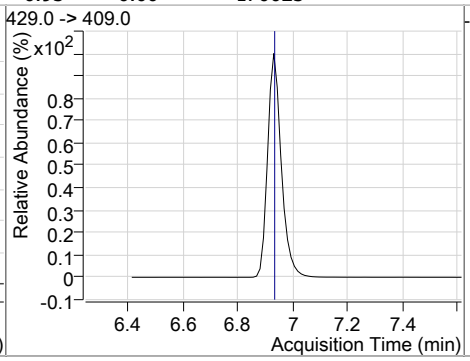


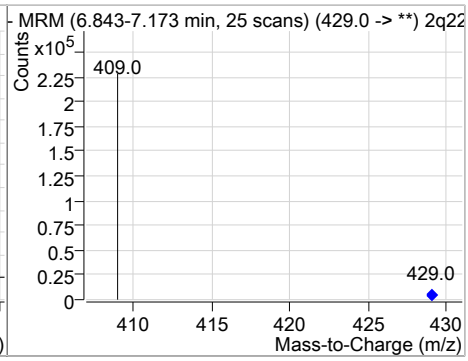


Perfluorinated Compounds by LC/MS/MS

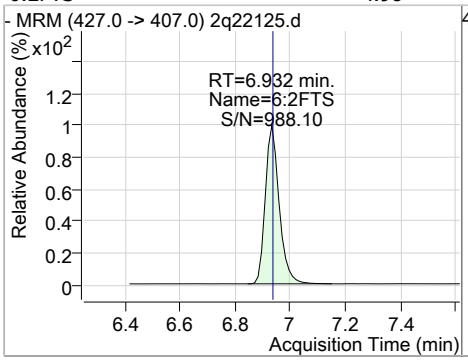
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.35	6.93	0.00	170023				

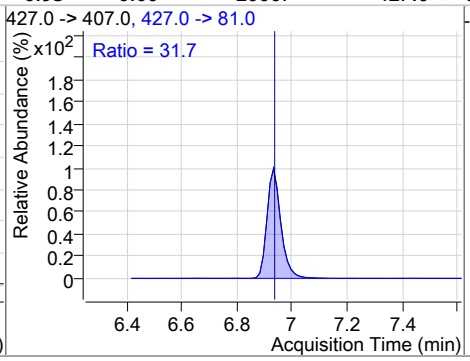


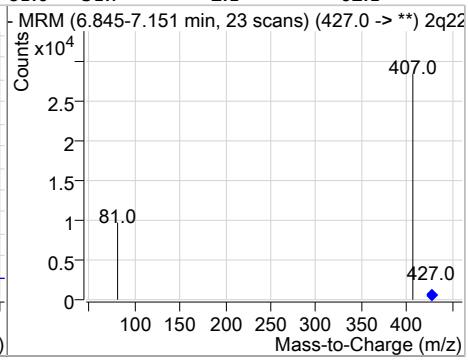




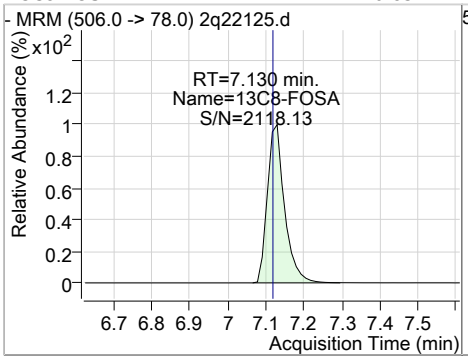
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	4.98	6.93	0.00	20607	427.0 -> 81.0	31.7	2.1	62.1

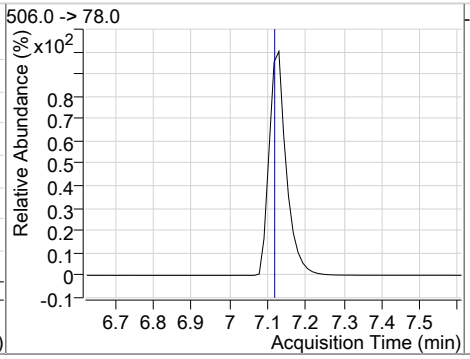


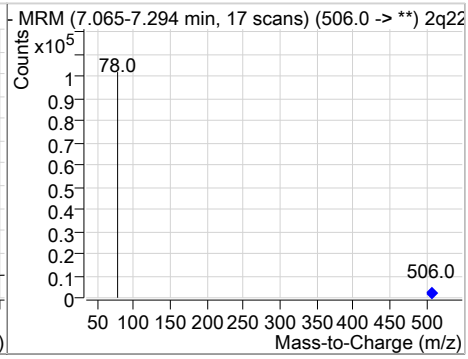




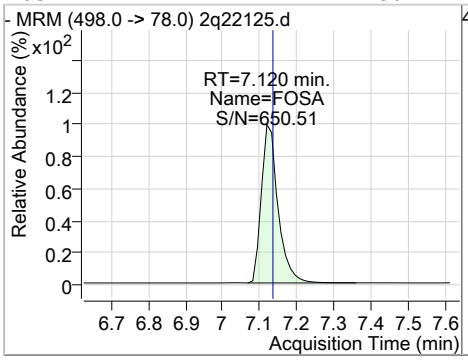
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.83	7.13	0.01	76659				

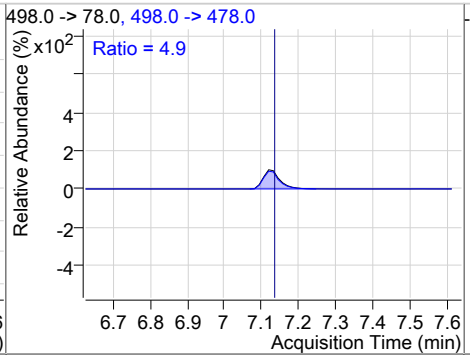


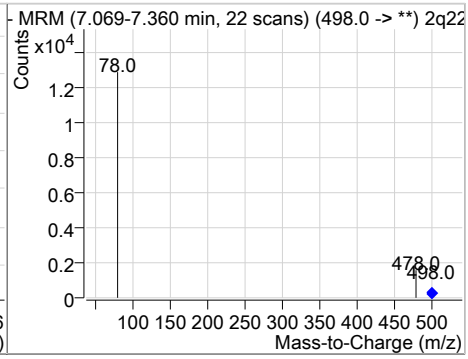




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.90	7.12	0.00	8995	498.0 -> 478.0	4.9	0.0	35.4

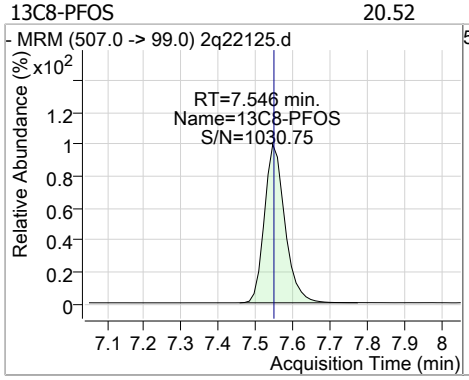


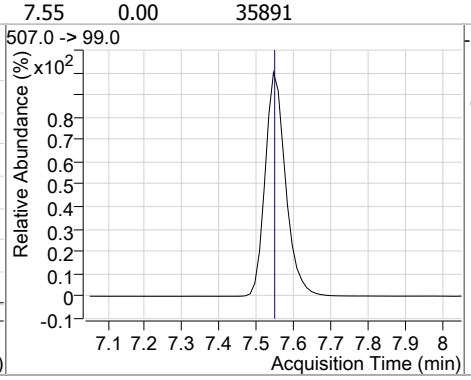


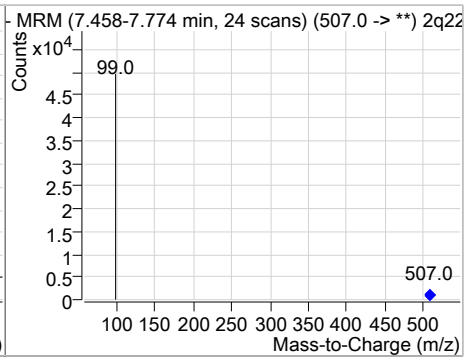


Perfluorinated Compounds by LC/MS/MS

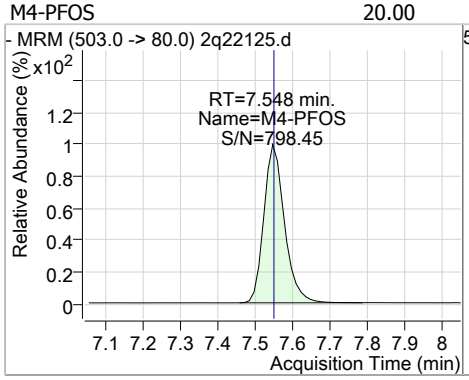
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.52	7.55	0.00	35891				

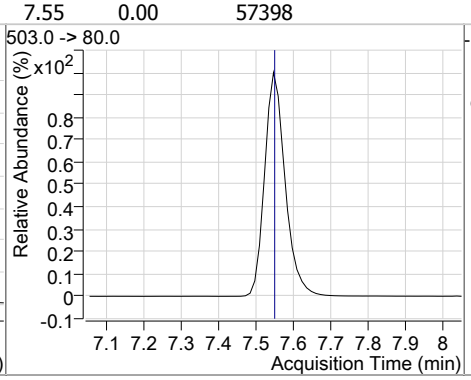


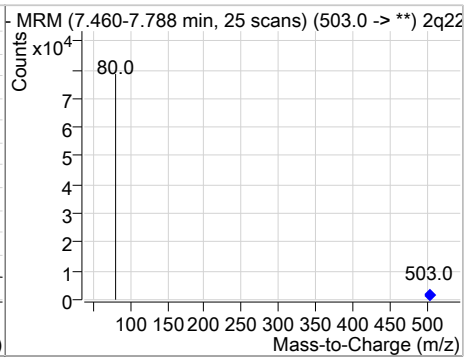




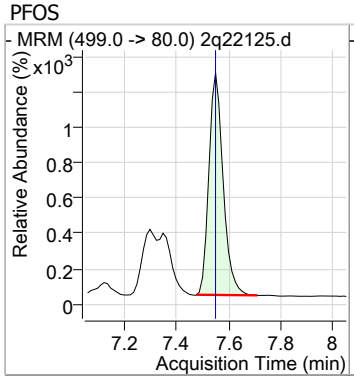
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.55	0.00	57398				

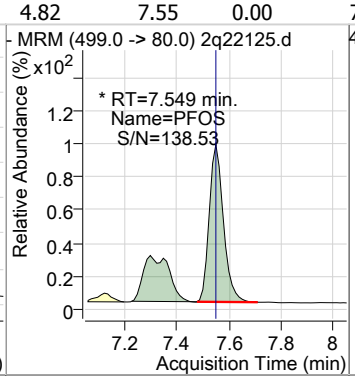


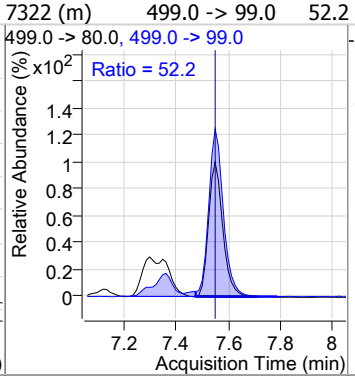


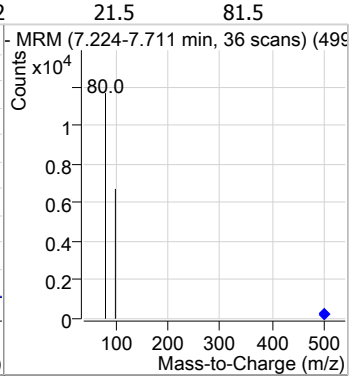


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.82	7.55	0.00	7322 (m)	499.0 -> 99.0	52.2	21.5	81.5

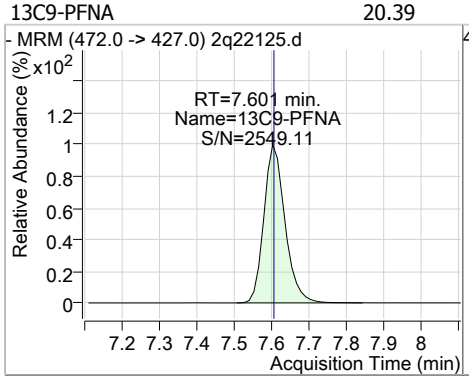


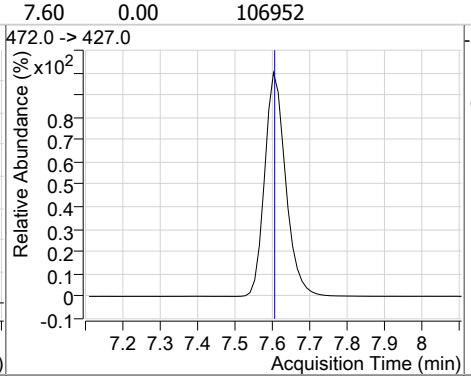


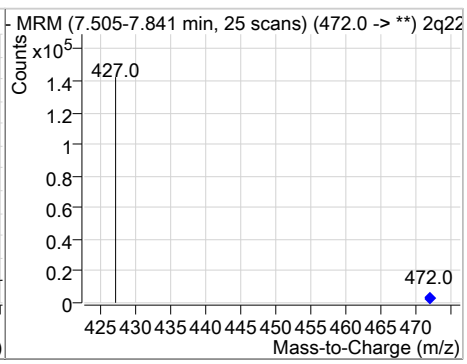




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.39	7.60	0.00	106952				

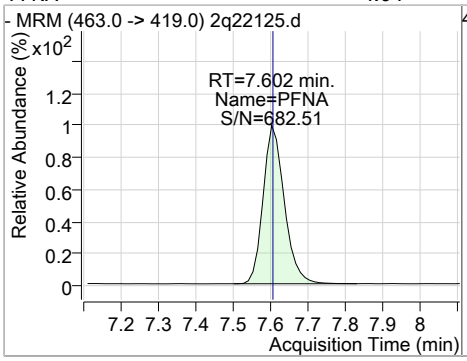


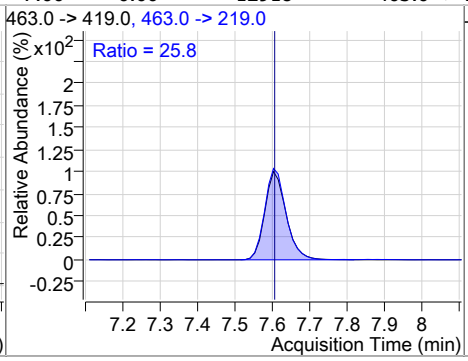


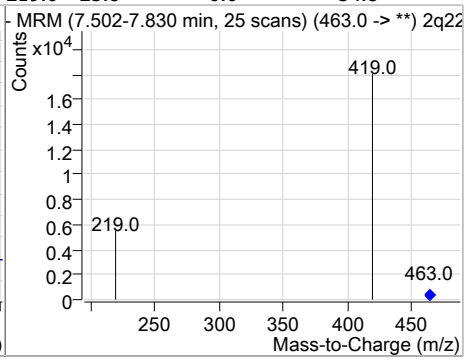


Perfluorinated Compounds by LC/MS/MS

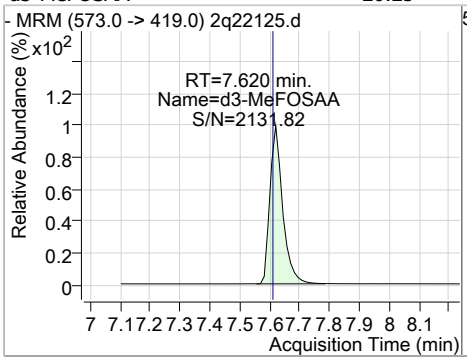
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.64	7.60	0.00	12918	463.0 -> 219.0	25.8	0.0	54.8

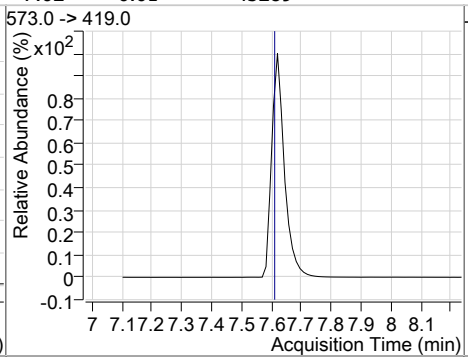


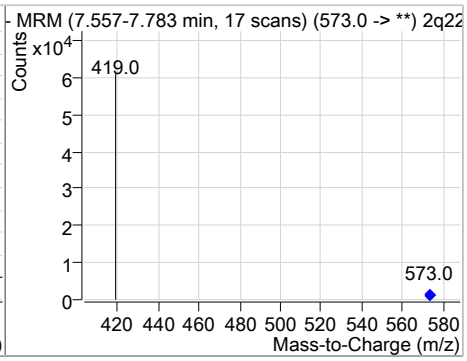




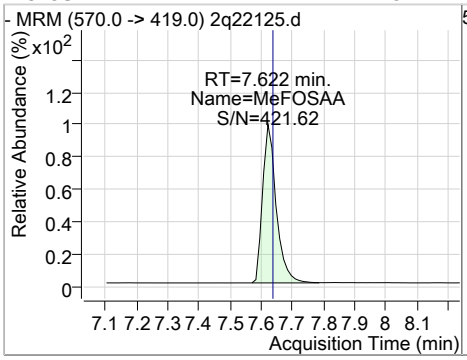
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.25	7.62	0.01	45289				

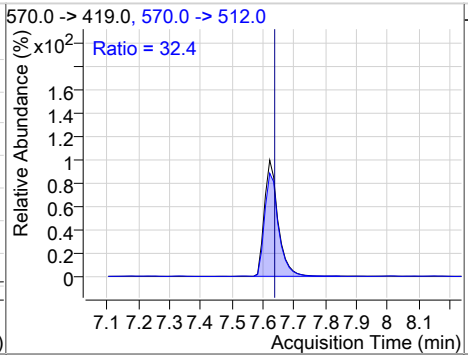


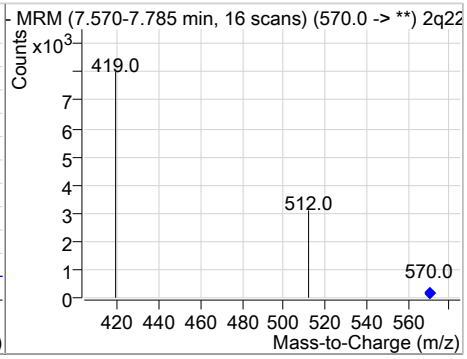




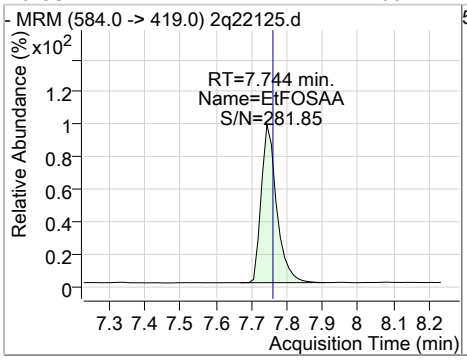
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.75	7.62	0.00	5569	570.0 -> 512.0	32.4	5.9	65.9

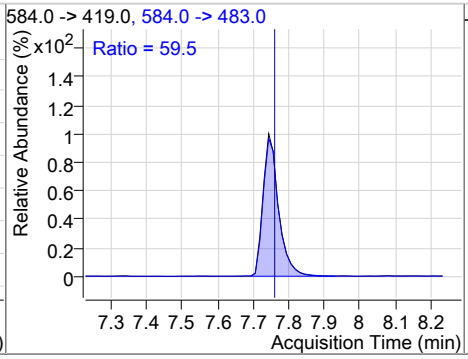


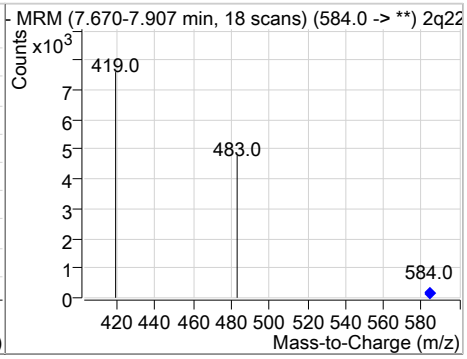




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.86	7.74	0.00	5074	584.0 -> 483.0	59.5	30.5	90.5

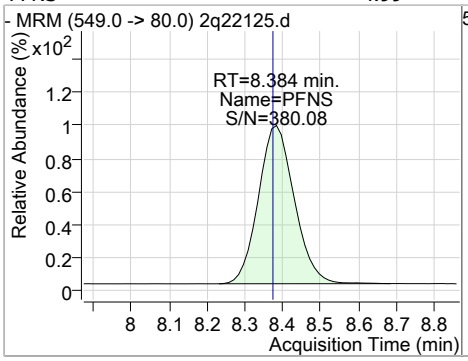


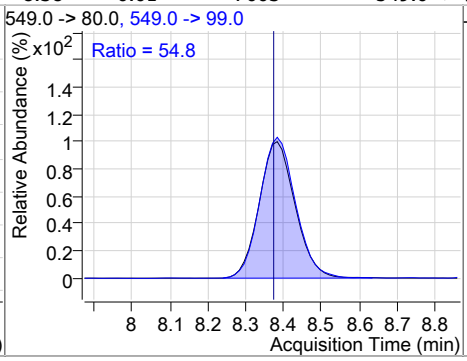


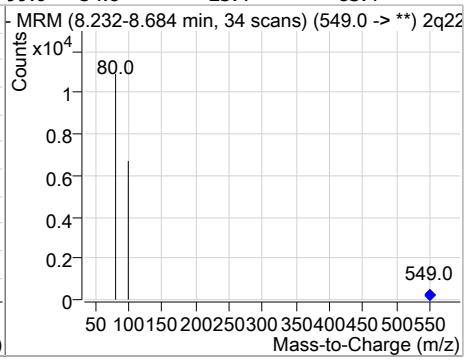


Perfluorinated Compounds by LC/MS/MS

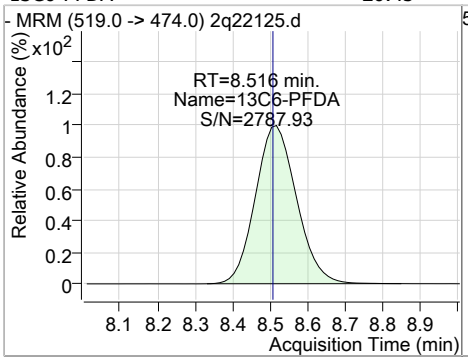
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	4.99	8.38	0.01	7003	549.0 -> 99.0	54.8	23.4	83.4

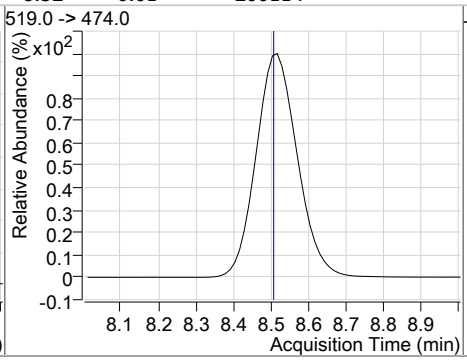


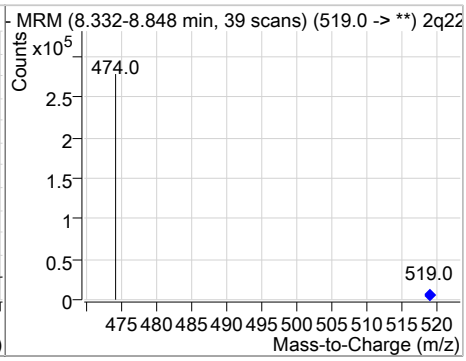




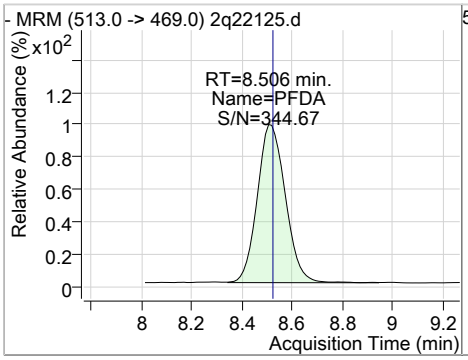
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.45	8.52	0.01	206114				

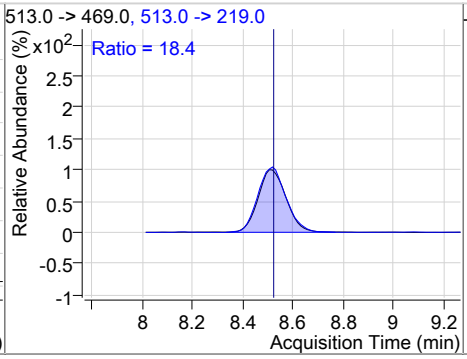


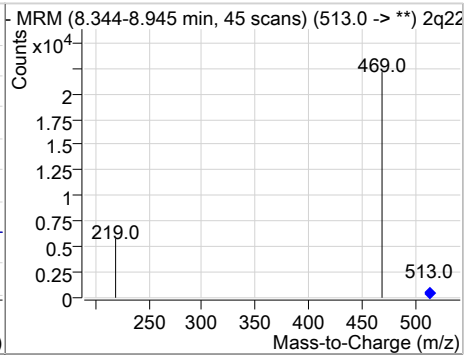




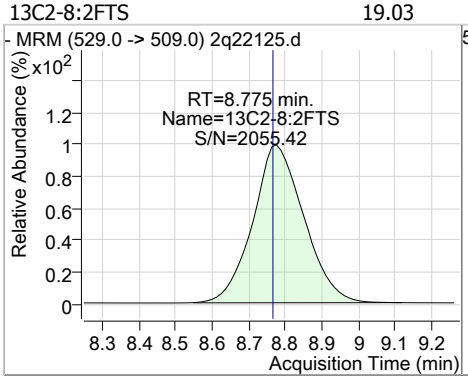
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.77	8.51	0.00	14832	513.0 -> 219.0	18.4	0.0	47.6

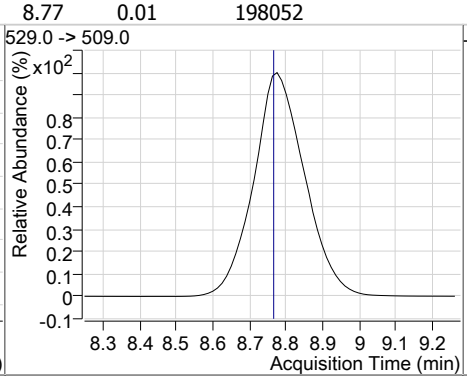


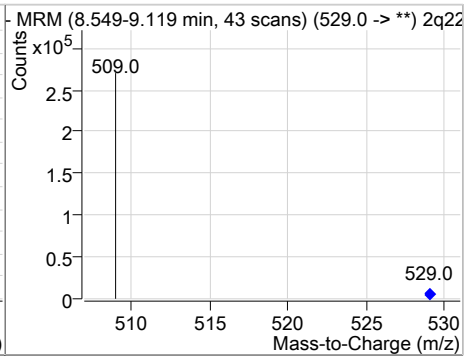




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.03	8.77	0.01	198052				

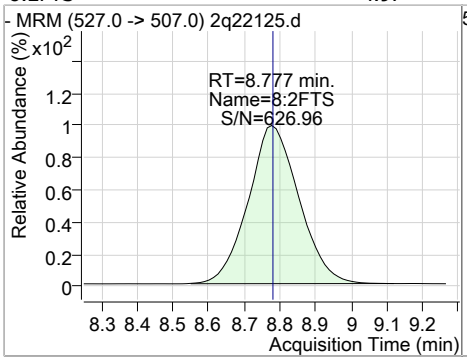


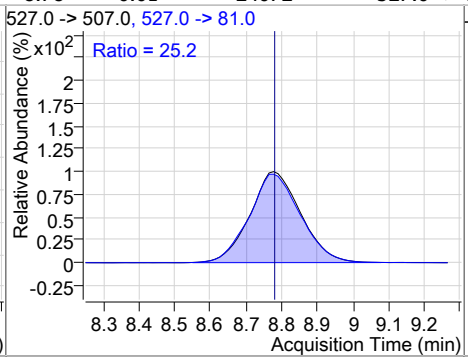


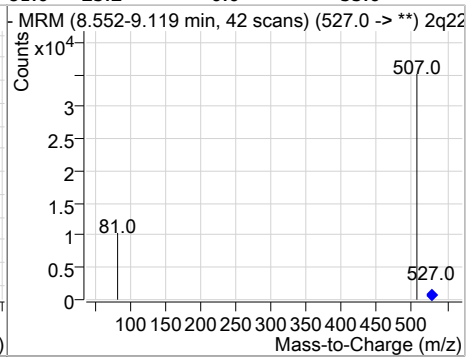


Perfluorinated Compounds by LC/MS/MS

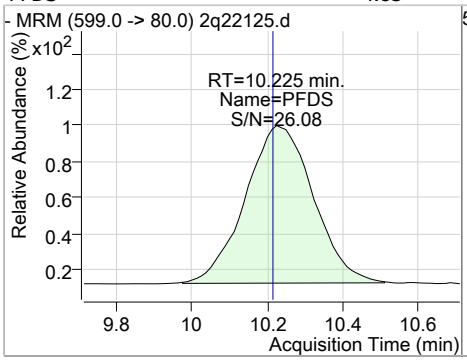
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	4.97	8.78	0.01	24672	527.0 -> 81.0	25.2	0.0	55.6

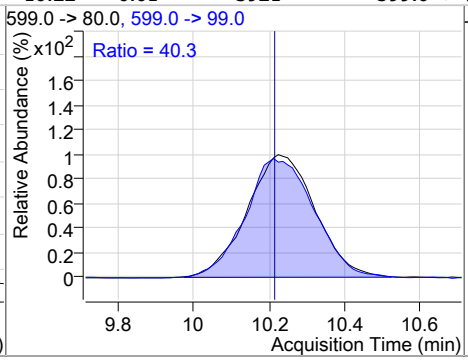


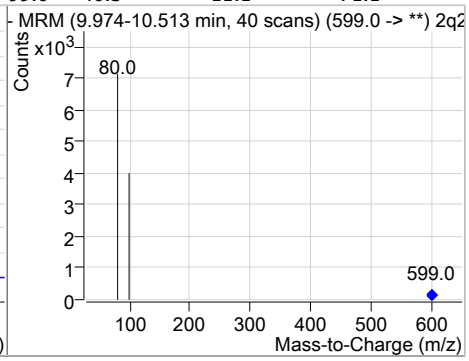




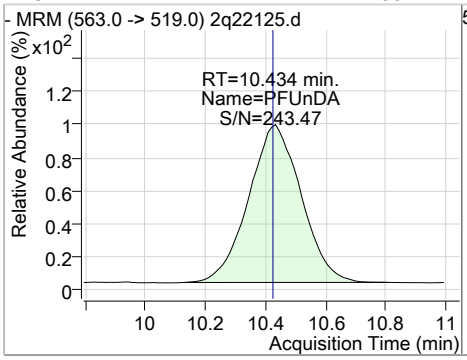
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	4.83	10.22	0.01	3921	599.0 -> 99.0	40.3	11.1	71.1

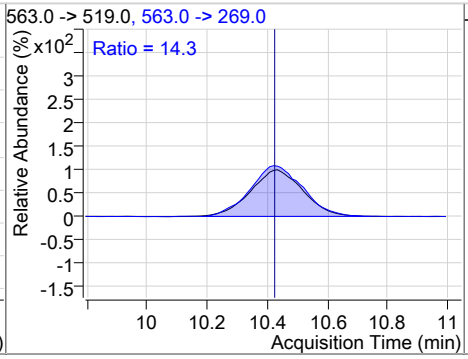


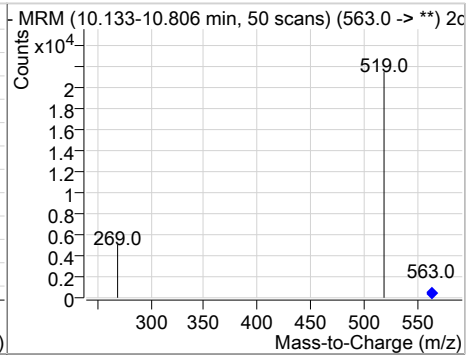




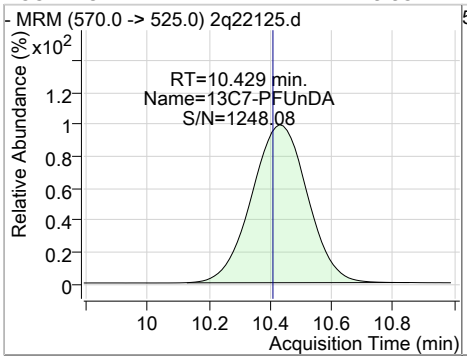
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.86	10.43	0.04	14086	563.0 -> 269.0	14.3	0.0	43.1

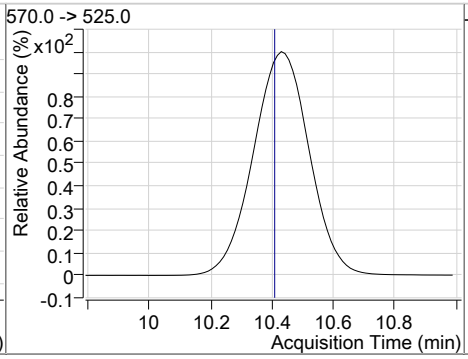


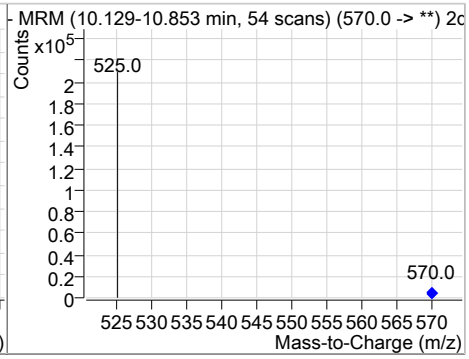




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.93	10.43	0.03	152414				

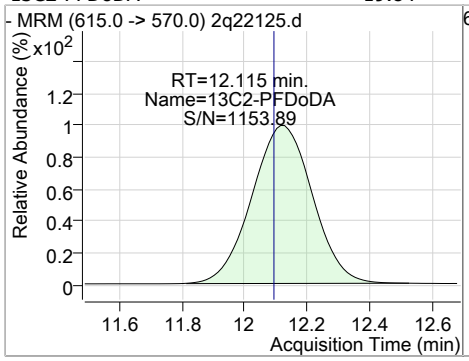


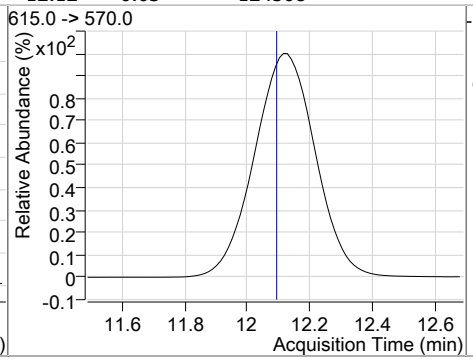


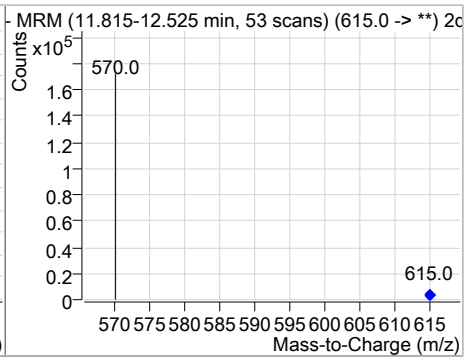


Perfluorinated Compounds by LC/MS/MS

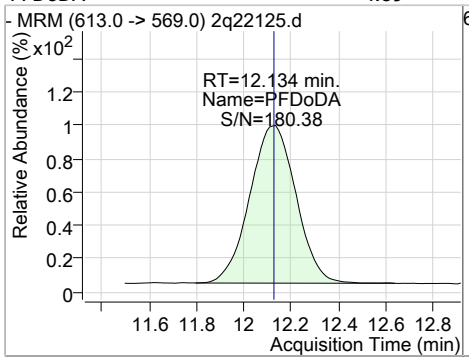
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.84	12.12	0.03	124508				

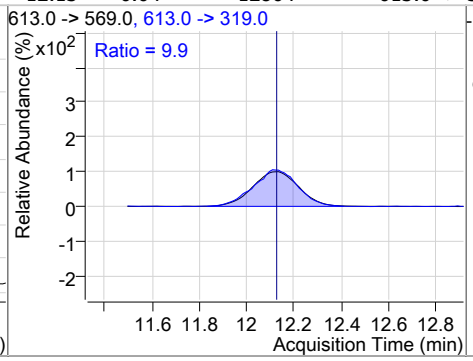


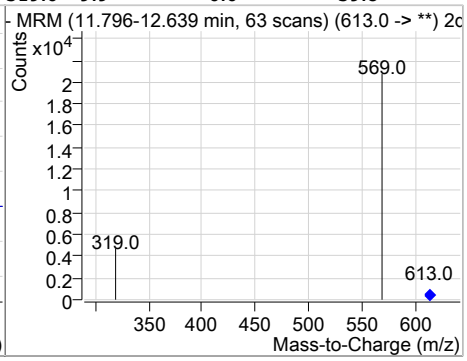




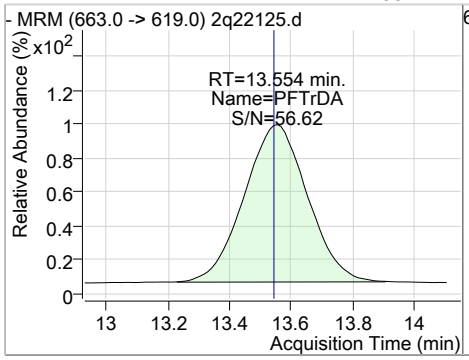
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.89	12.13	0.04	12864	613.0 -> 319.0	9.9	0.0	39.8

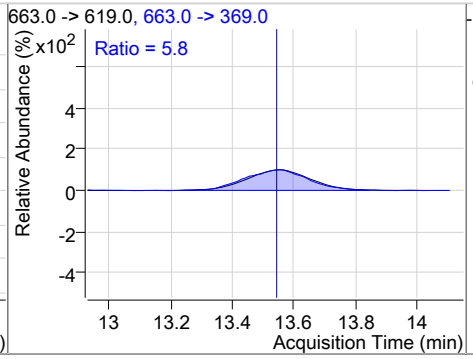


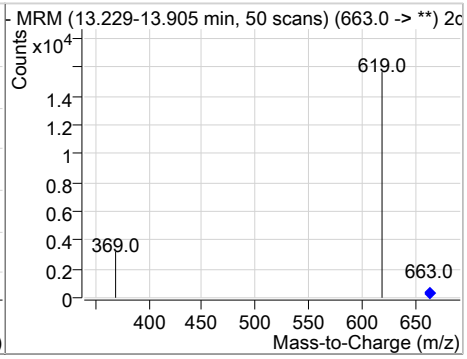




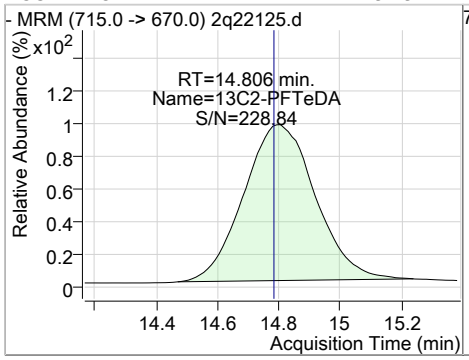
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.88	13.55	0.04	9641	663.0 -> 369.0	5.8	0.0	35.8

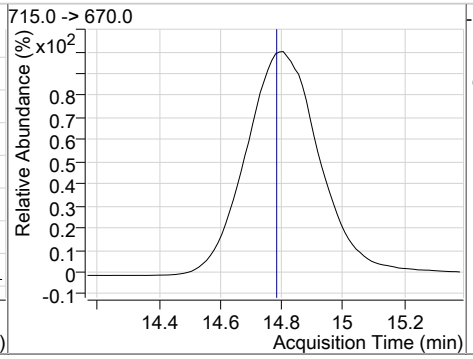


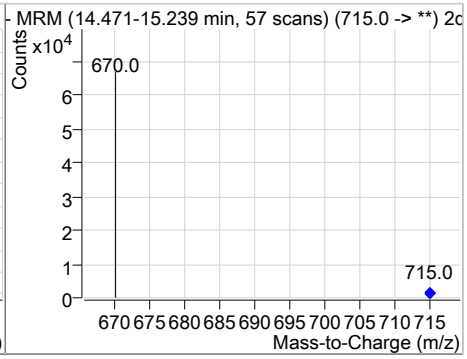




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.79	14.81	0.03	44205				

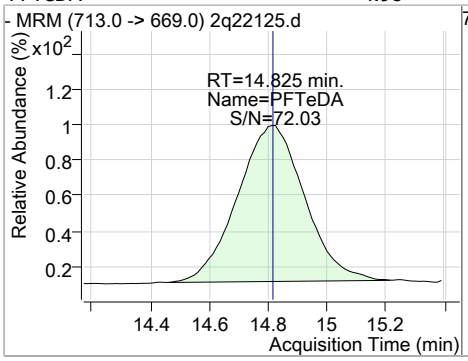


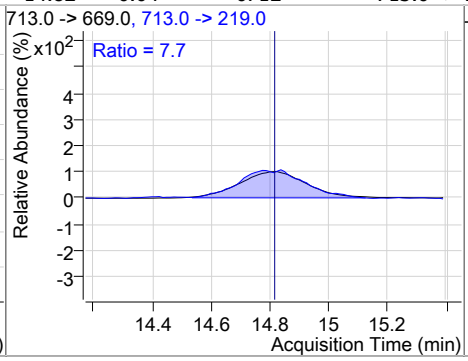


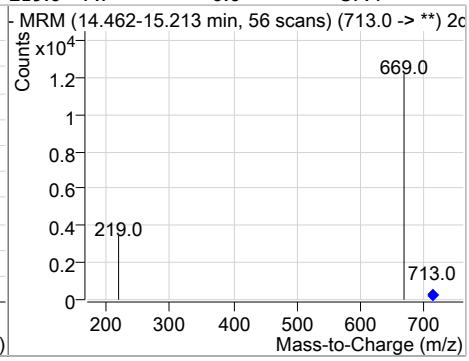


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.98	14.82	0.04	6712	713.0 -> 219.0	7.7	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-IC349
Lab FileID: 2Q22125.D
Injection Time: 10/15/18 12:25
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22126.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 12:45:59 PM
Sample Name : ic349-10
Vial : Vial 6
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

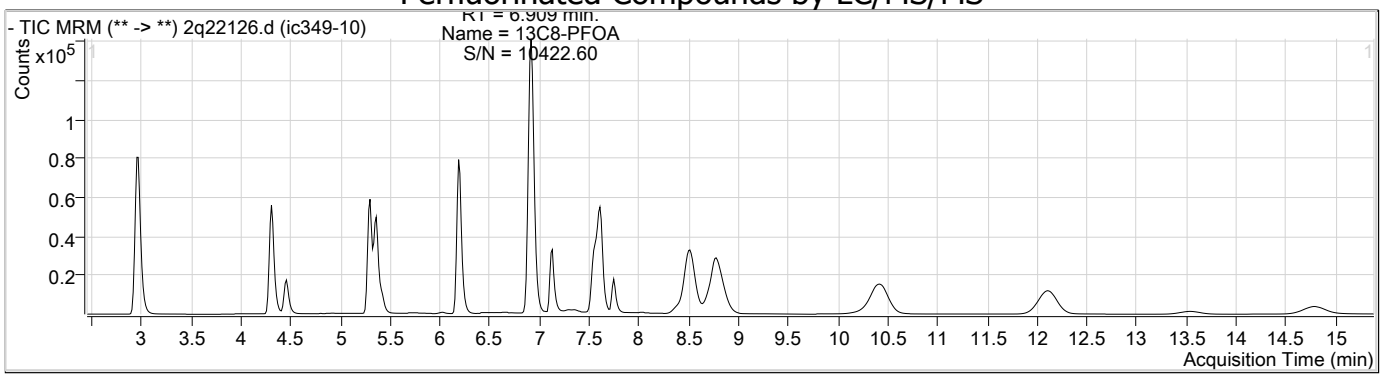
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	161900	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	60103	20.00	µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	304165	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	132923	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	129582	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	150923	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	124667	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	113433	20.00	µg/L	0.000
M6-PFDA	8.517	519.0 -> 474.0	214771	20.00	µg/L	0.012
M7-PFUnDA	10.417	570.0 -> 525.0	161217	20.00	µg/L	0.013
M2-PFDoDA	12.103	615.0 -> 570.0	132857	20.00	µg/L	0.013
M2-PFTeDA	14.781	715.0 -> 670.0	49172	20.00	µg/L	0.000
M8-FOSA	7.130	506.0 -> 78.0	79618	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	30237	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	36945	20.00	µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	36833	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	142567	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	180141	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	211307	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	47836	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	142553	20.30	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C2-6:2FTS	6.931	429.0 -> 409.0	180131	20.50	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C2-8:2FTS	8.775	529.0 -> 509.0	210189	20.20	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C2-PFDoDA	12.103	615.0 -> 570.0	131798	21.00	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C2-PFTeDA	14.781	715.0 -> 670.0	46433	20.79	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.0%		
13C3-PFBS	4.455	302.0 -> 99.0	30248	21.24	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.2%		
13C3-PFHxS	6.198	402.0 -> 99.0	36958	21.33	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C4-PFBA	2.966	217.0 -> 172.0	304083	21.05	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.2%		
13C4-PFHpA	6.192	367.0 -> 322.0	150833	21.51	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.5%		
13C5-PFHxA	5.364	318.0 -> 273.0	129539	21.34	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C5-PFPeA	4.312	268.0 -> 223.0	132913	21.16	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
13C6-PFDA	8.517	519.0 -> 474.0	214753	21.30	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.5%		

Perfluorinated Compounds by LC/MS/MS

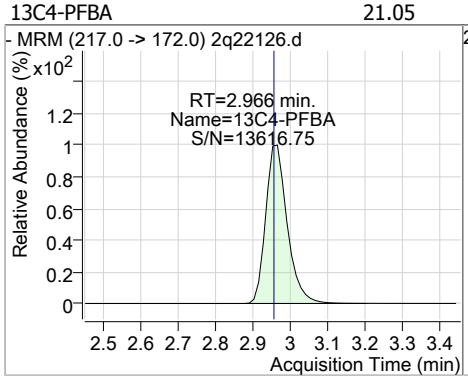
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.417	570.0 -> 525.0	160199	20.95	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%			
13C8-FOSA	7.130	506.0 -> 78.0	79734	21.67	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.3%			
13C8-PFOA	6.909	421.0 -> 376.0	124681	21.24	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.2%			
13C8-PFOS	7.546	507.0 -> 99.0	36836	21.06	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.3%			
13C9-PFNA	7.601	472.0 -> 427.0	113358	21.61	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.0%			
d3-MeFOSAA	7.620	573.0 -> 419.0	47840	21.39	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.0%			
M2-PFOA	6.910	415.0 -> 370.0	161897	20.00	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	60136	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	37255	9.50	µg/L		100
6:2FTS	6.932	427.0 -> 407.0	40469	9.30	µg/L		100
8:2FTS	8.777	527.0 -> 507.0	50080	9.58	µg/L		98
EtFOSAA	7.744	584.0 -> 419.0	10215	9.26	µg/L		99
FOSA	7.120	498.0 -> 78.0	18447	9.67	µg/L		98
MeFOSAA	7.622	570.0 -> 419.0	11506	9.30	µg/L		99
PFBA	2.962	213.0 -> 169.0	17076	9.32	µg/L		100
PFBS	4.459	299.0 -> 80.0	20560	9.40	µg/L		100
PFDA	8.519	513.0 -> 469.0	29534	9.14	µg/L		99
PFDoDA	12.109	613.0 -> 569.0	26093	9.34	µg/L		100
PFDS	10.212	599.0 -> 80.0	8028	9.65	µg/L		98
PFHpA	6.195	363.0 -> 319.0	53026	9.43	µg/L		100
PFHpS	6.879	449.0 -> 80.0	14421	9.38	µg/L		98
PFHxA	5.366	313.0 -> 269.0	19155	9.22	µg/L		100
PFHxS	6.189	399.0 -> 80.0	17421	9.39	µg/L	m	99
PFNA	7.602	463.0 -> 419.0	27651	9.36	µg/L		97
PFNS	8.384	549.0 -> 80.0	13821	9.61	µg/L		96
PFOA	6.912	413.0 -> 369.0	29447	9.61	µg/L		97
PFOS	7.549	499.0 -> 80.0	14500	9.31	µg/L	m	99
PFPeA	4.316	263.0 -> 219.0	57810	9.42	µg/L		100
PFPeS	5.421	349.0 -> 80.0	14070	9.41	µg/L		100
PFTeDA	14.787	713.0 -> 669.0	13298	9.40	µg/L		99
PFTrDA	13.529	663.0 -> 619.0	19548	9.42	µg/L		100
PFUnDA	10.409	563.0 -> 519.0	28475	9.32	µg/L		98

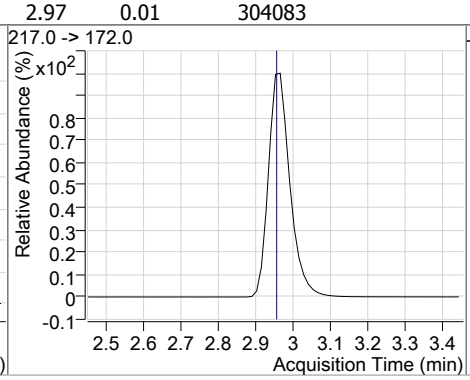
 # = Qualifier out of range, m = manually integrated, + = Area summed

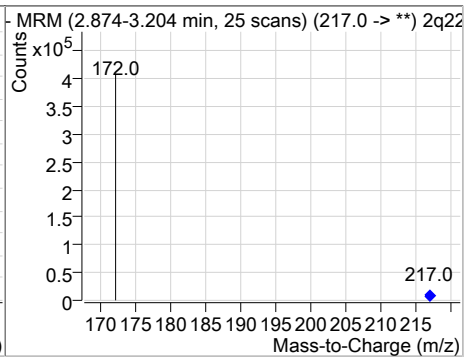
Perfluorinated Compounds by LC/MS/MS



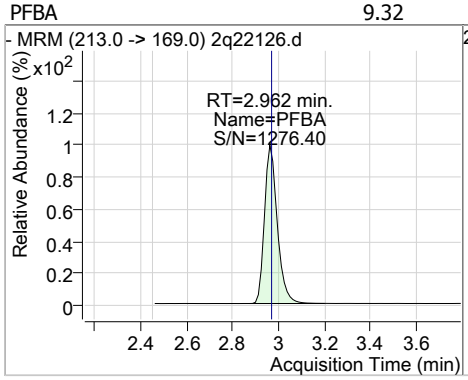
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.05	2.97	0.01	304083				

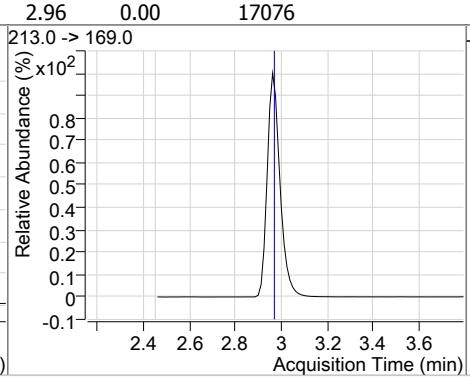


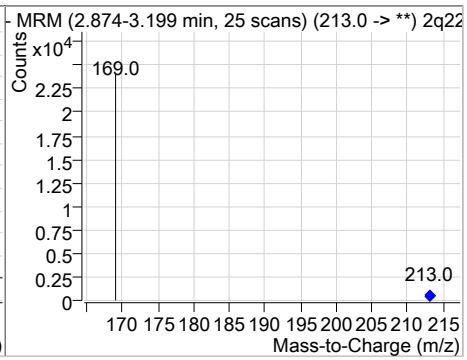




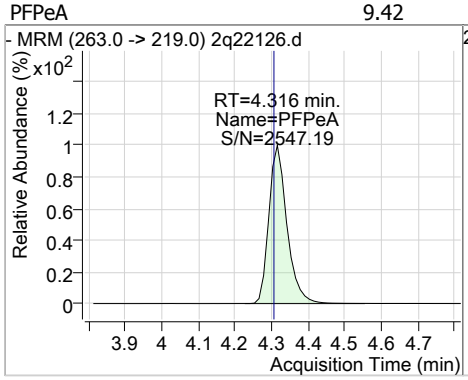
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.32	2.96	0.00	17076				

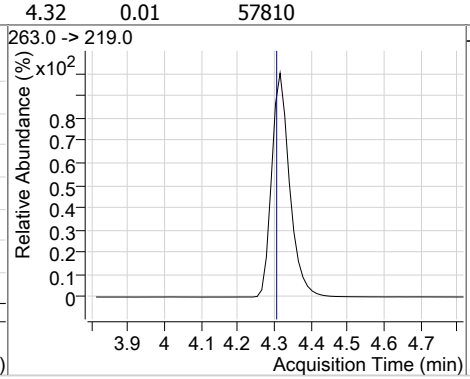


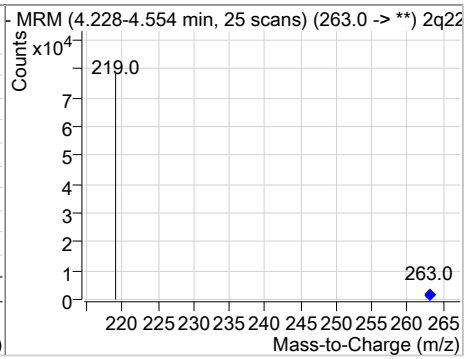




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.42	4.32	0.01	57810				

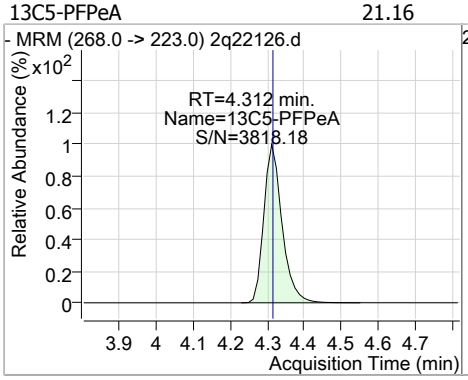


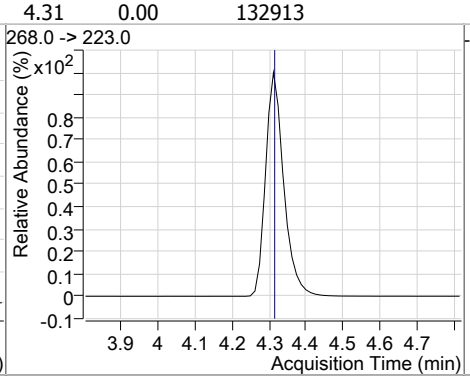


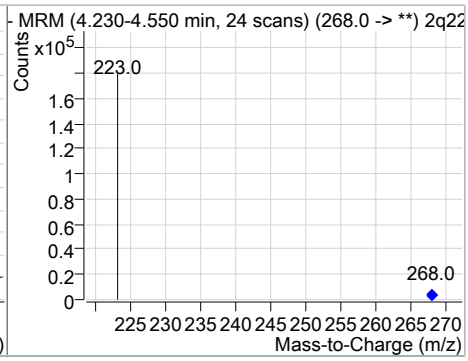


Perfluorinated Compounds by LC/MS/MS

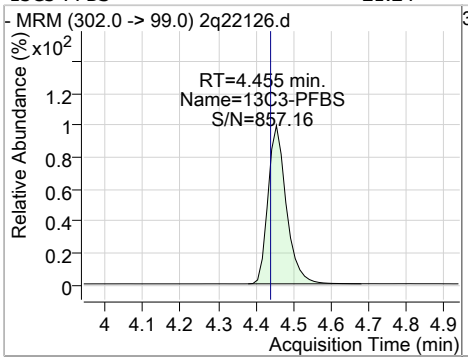
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	21.16	4.31	0.00	132913				

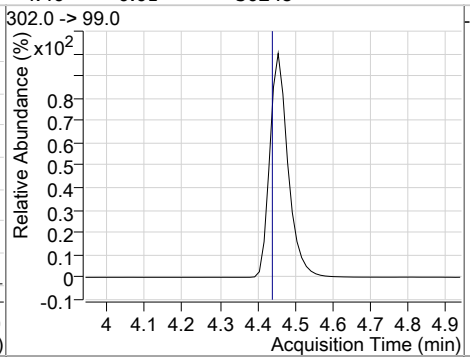


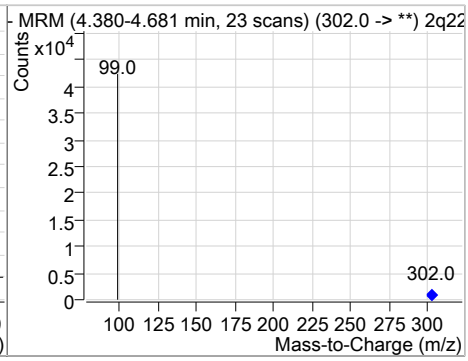




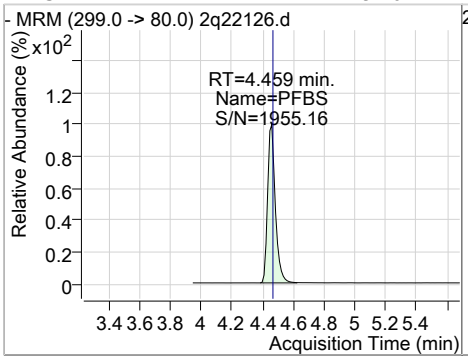
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	21.24	4.46	0.01	30248				

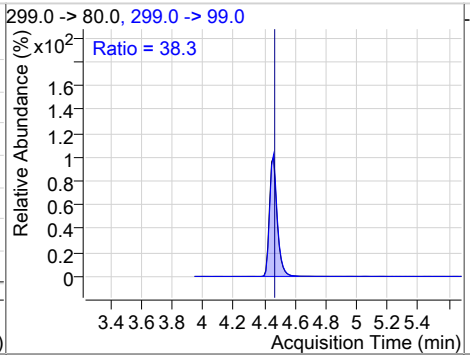


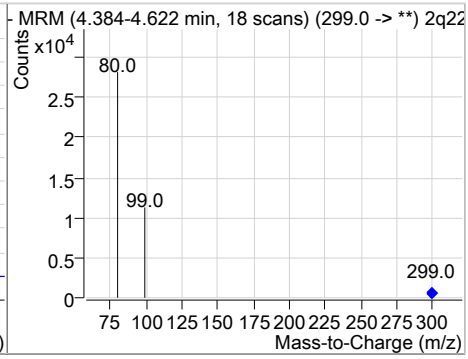




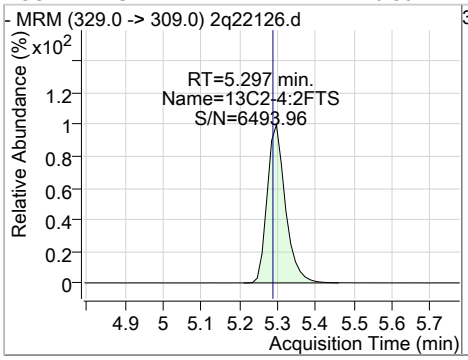
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	9.40	4.46	0.01	20560	299.0 -> 99.0	38.3	8.1	68.1

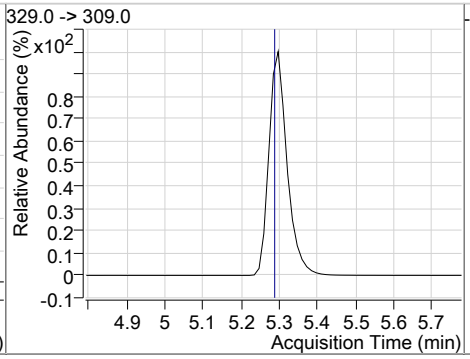


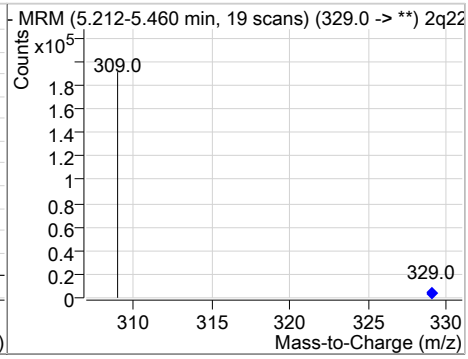




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.30	5.30	0.01	142553				

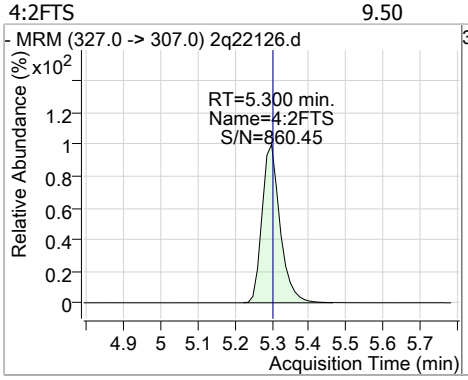


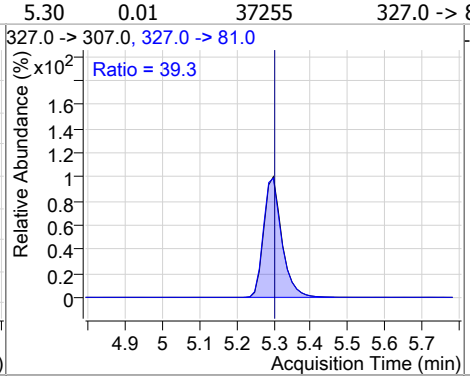


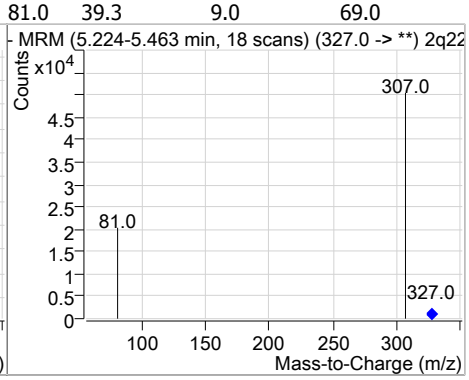


Perfluorinated Compounds by LC/MS/MS

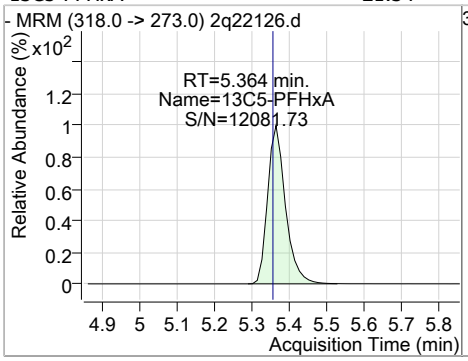
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.50	5.30	0.01	37255	327.0 -> 81.0	39.3	9.0	69.0

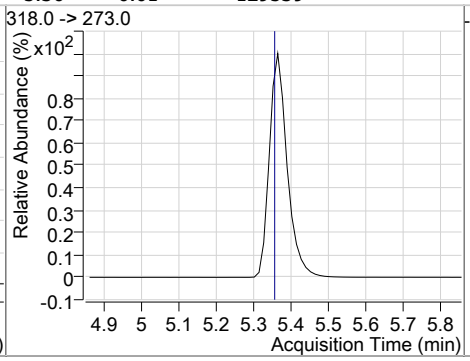


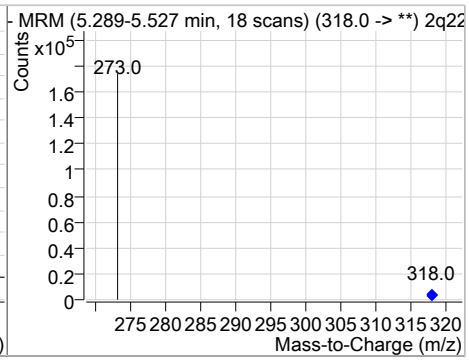




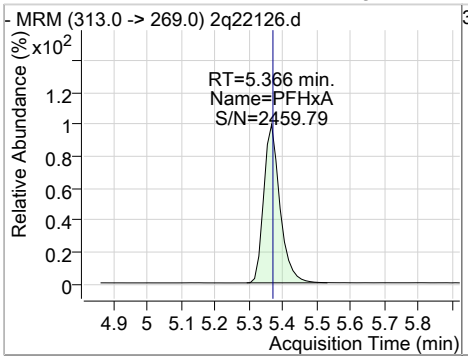
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.34	5.36	0.01	129539				

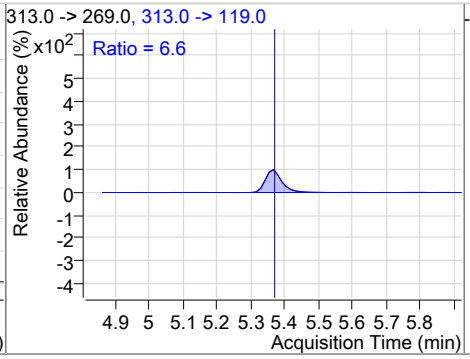


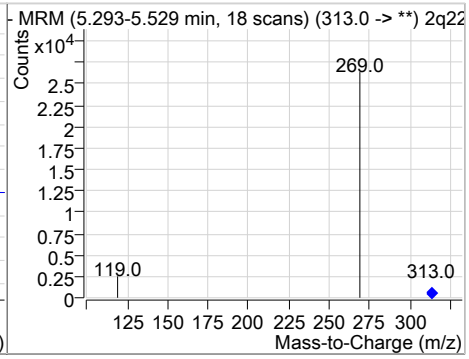




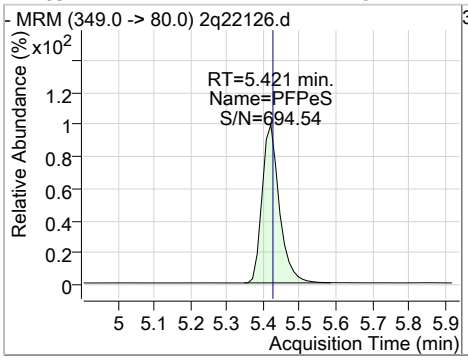
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	9.22	5.37	0.01	19155	313.0 -> 119.0	6.6	0.0	36.4

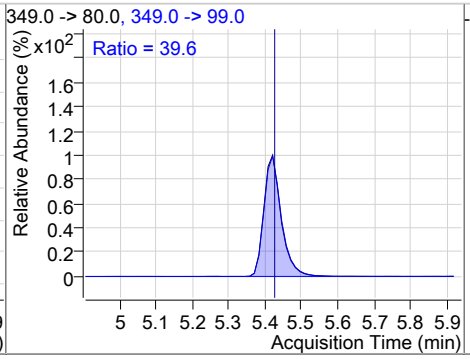


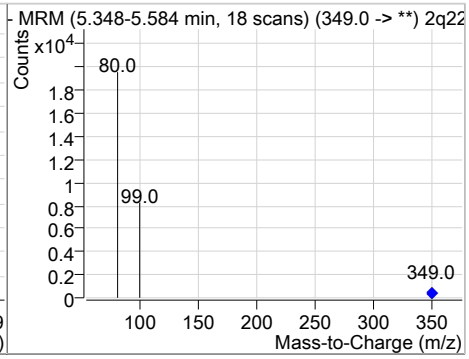




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	9.41	5.42	0.01	14070	349.0 -> 99.0	39.6	9.5	69.5

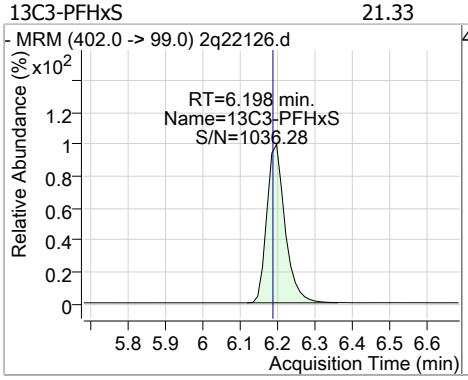


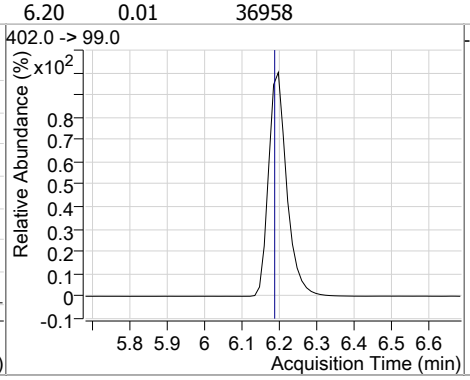


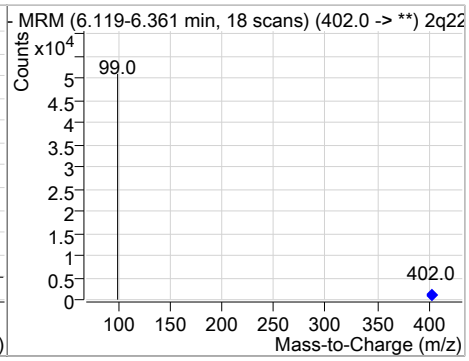


Perfluorinated Compounds by LC/MS/MS

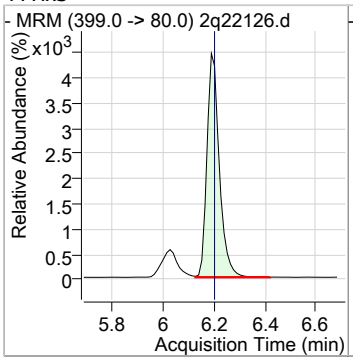
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.33	6.20	0.01	36958				

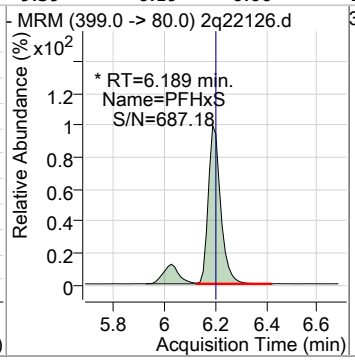


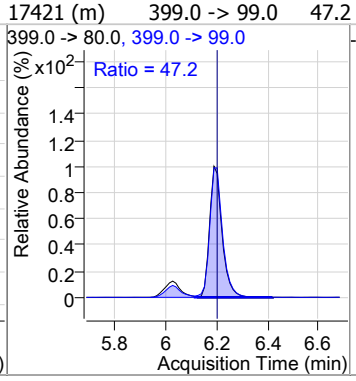


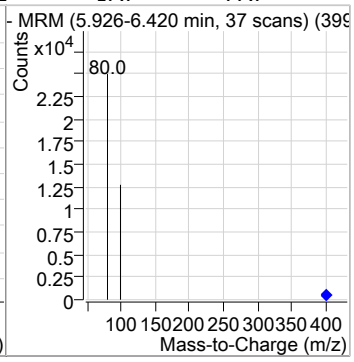


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.39	6.19	0.00	17421 (m)	399.0 -> 99.0	47.2	17.7	77.7

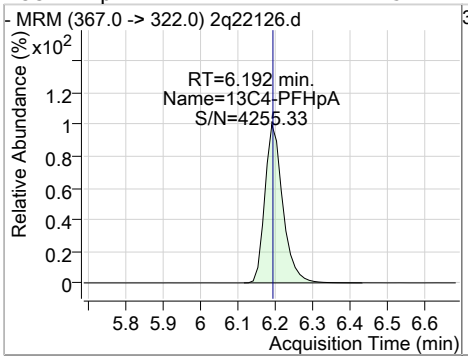


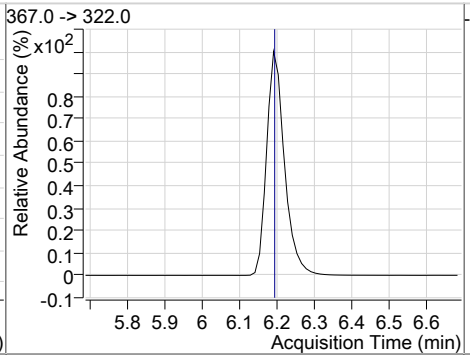


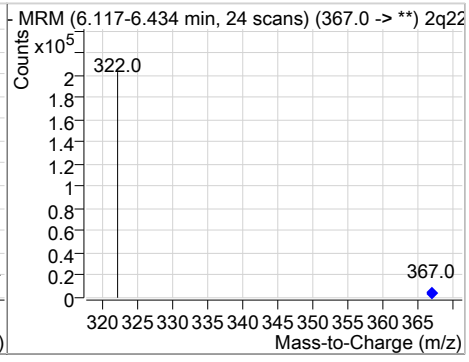




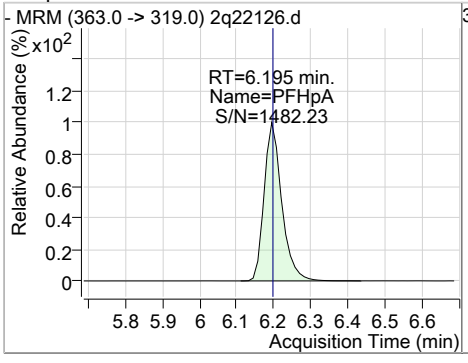
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.51	6.19	0.00	150833				

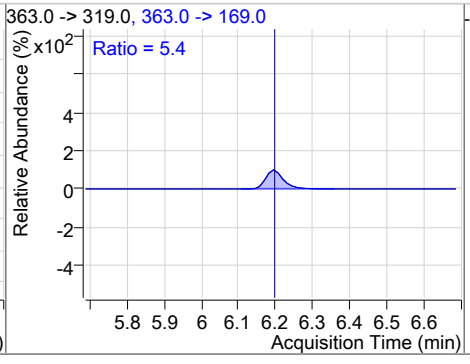


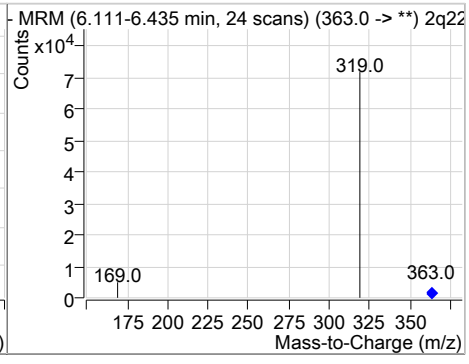




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	9.43	6.20	0.00	53026	363.0 -> 169.0	5.4	0.0	35.4

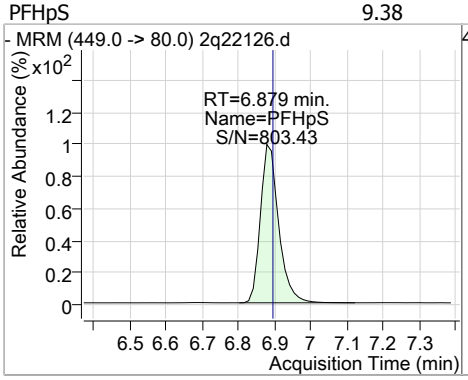


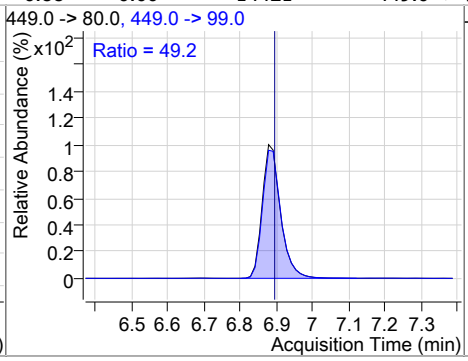


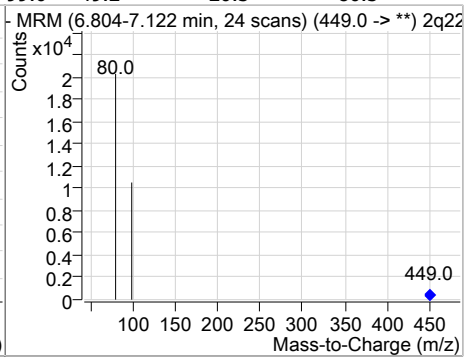


Perfluorinated Compounds by LC/MS/MS

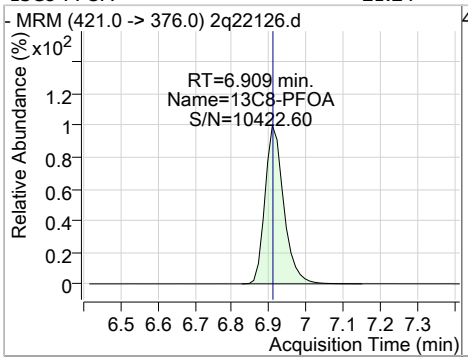
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	9.38	6.88	0.00	14421	449.0 -> 99.0	49.2	20.3	80.3

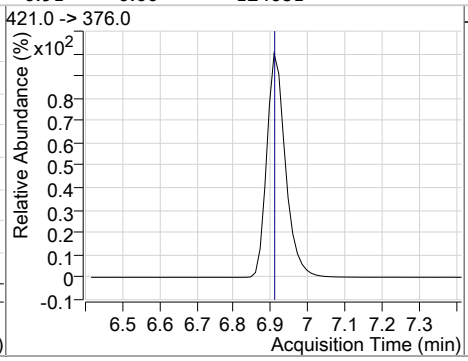


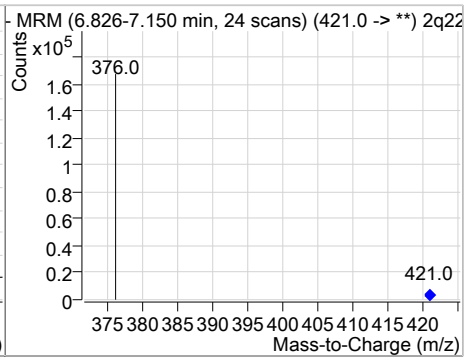




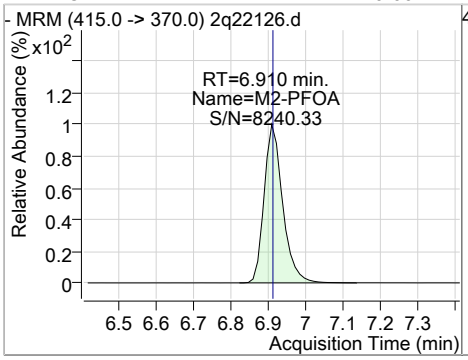
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.24	6.91	0.00	124681				

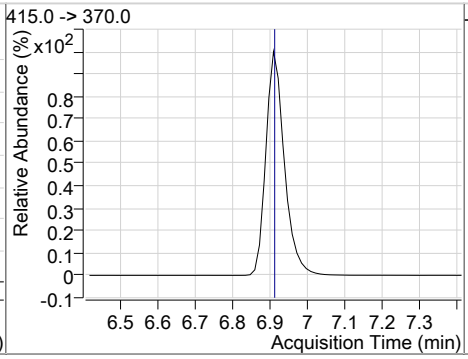


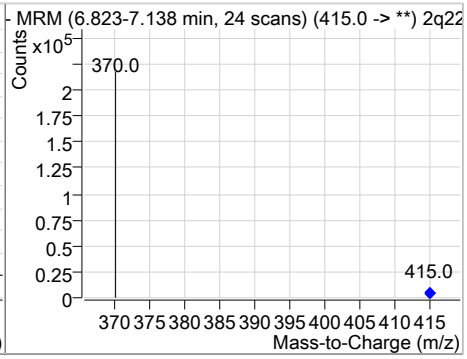




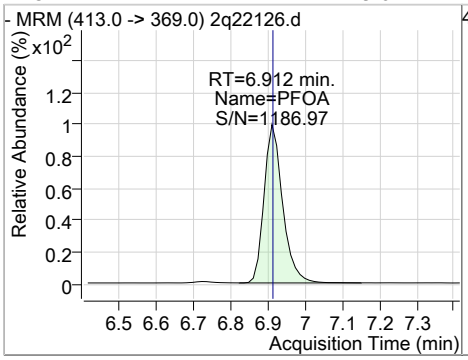
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.91	0.00	161897				

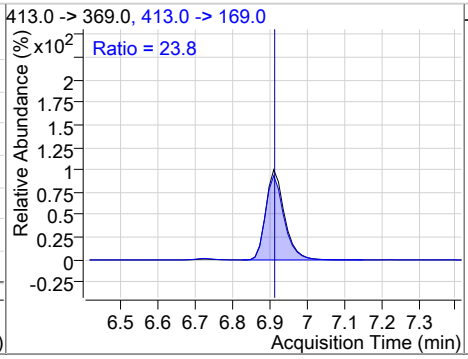


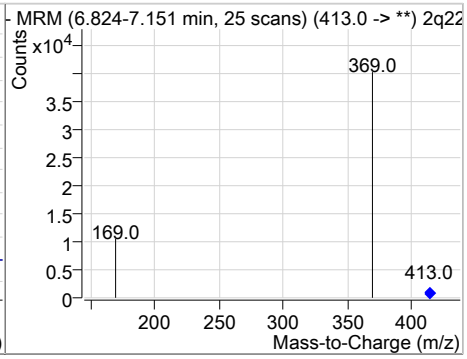




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	9.61	6.91	0.00	29447	413.0 -> 169.0	23.8	0.0	55.3

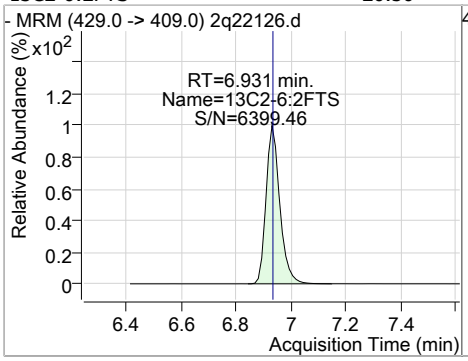


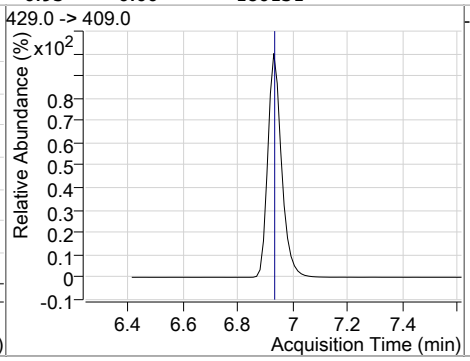


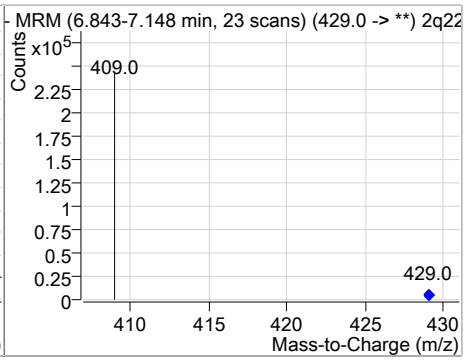


Perfluorinated Compounds by LC/MS/MS

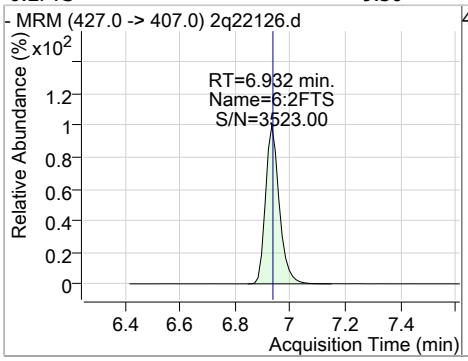
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.50	6.93	0.00	180131				

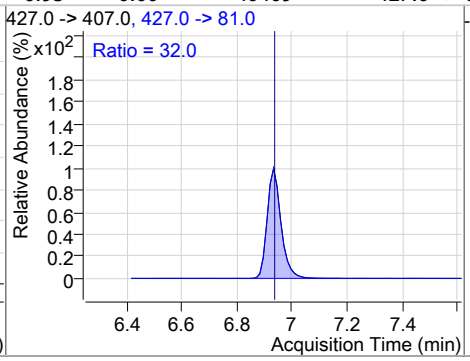


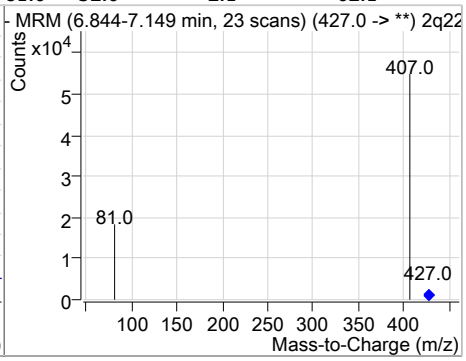




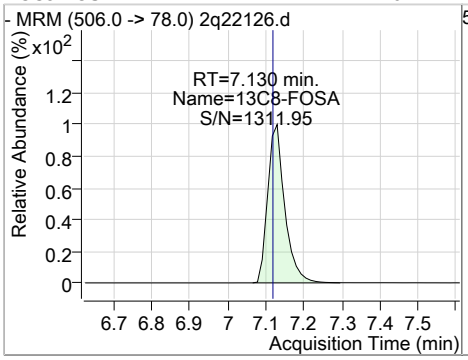
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.30	6.93	0.00	40469	427.0 -> 81.0	32.0	2.1	62.1

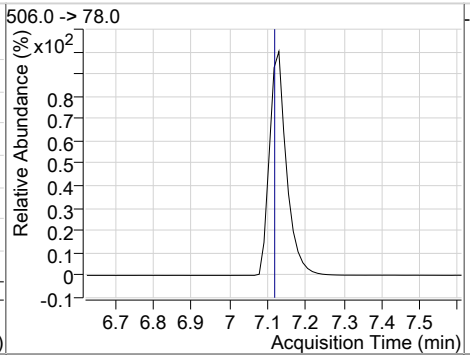


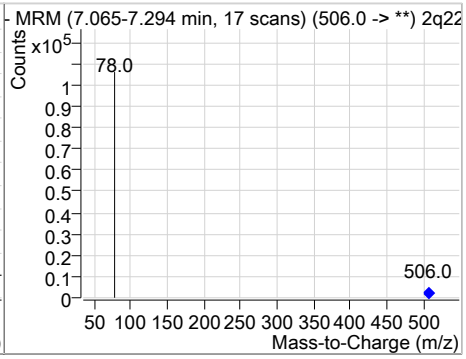




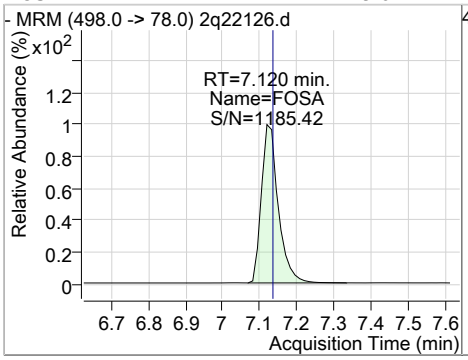
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.67	7.13	0.01	79734				

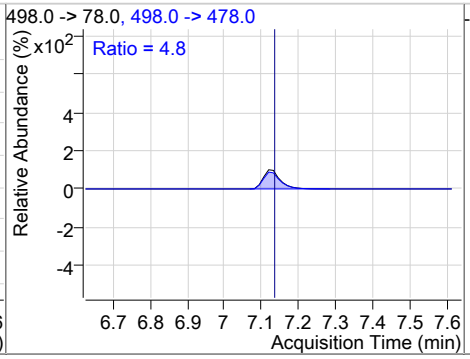


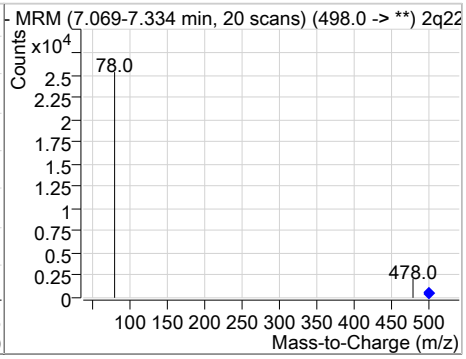




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	9.67	7.12	0.00	18447	498.0 -> 478.0	4.8	0.0	35.4

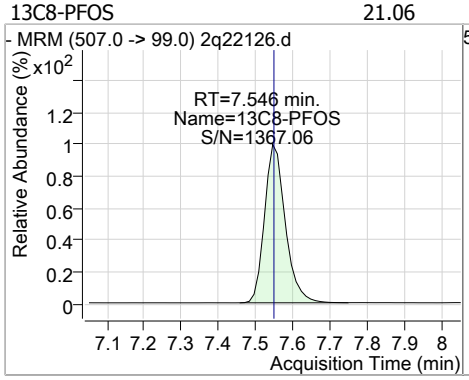


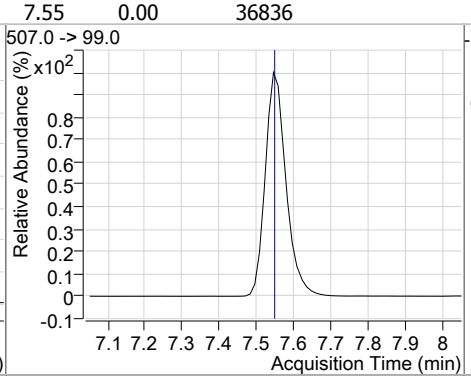


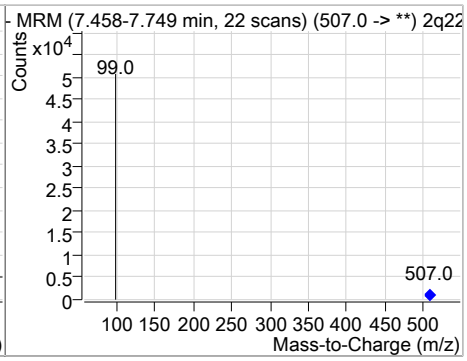


Perfluorinated Compounds by LC/MS/MS

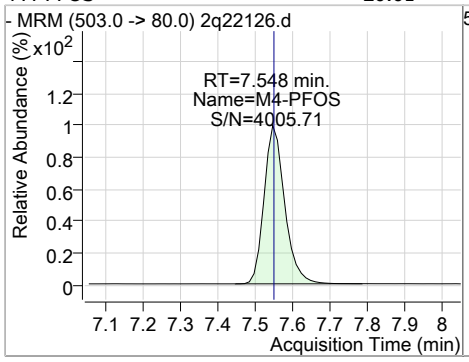
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.06	7.55	0.00	36836				

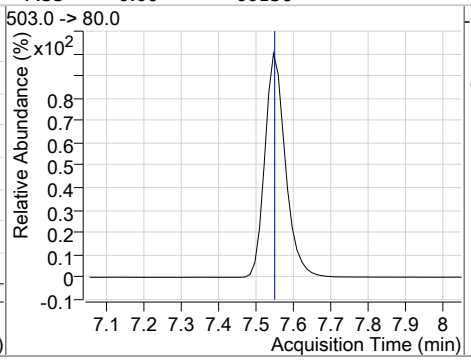


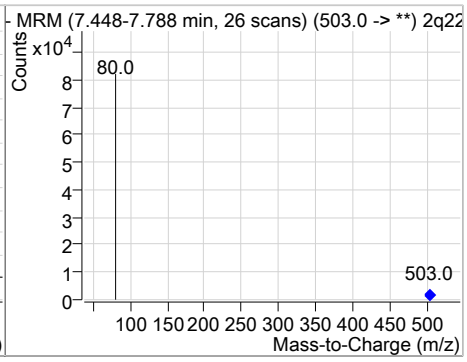




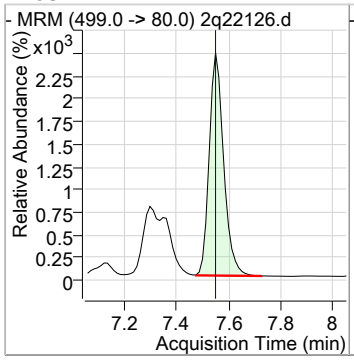
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.55	0.00	60136				

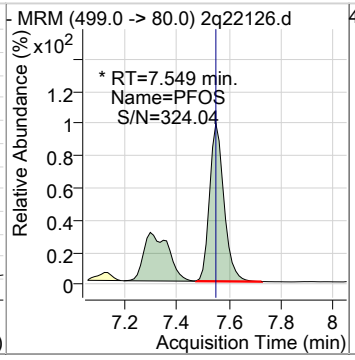


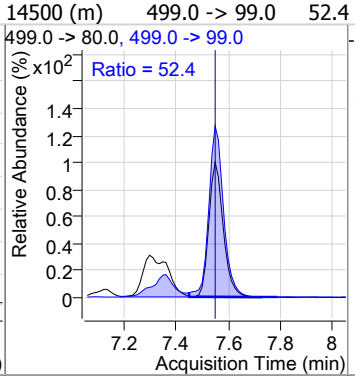


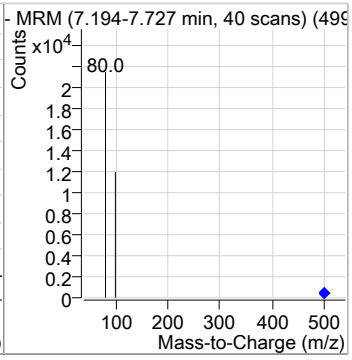


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.31	7.55	0.00	14500 (m)	499.0 -> 99.0	52.4	21.5	81.5

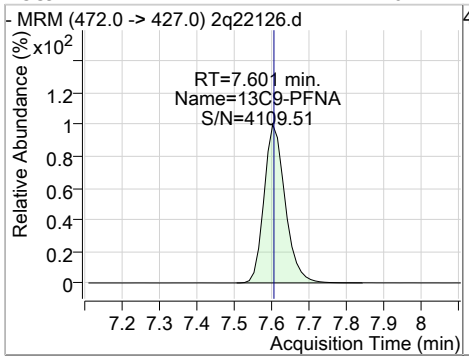


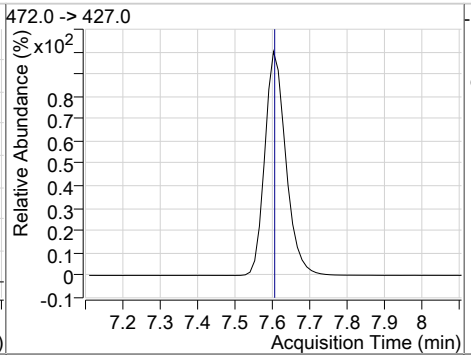


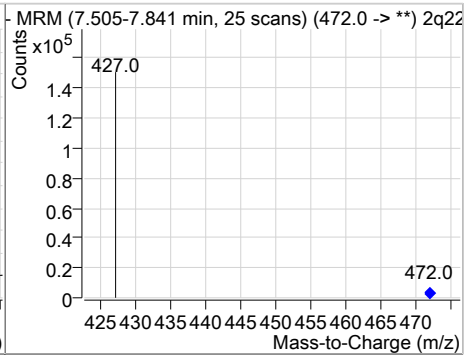




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.61	7.60	0.00	113358				

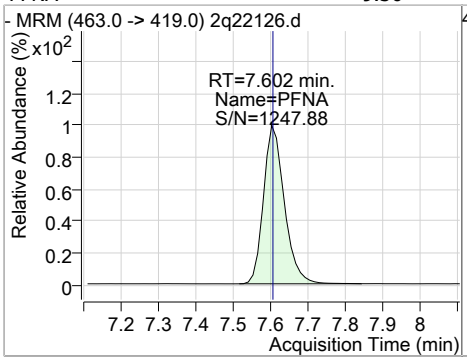


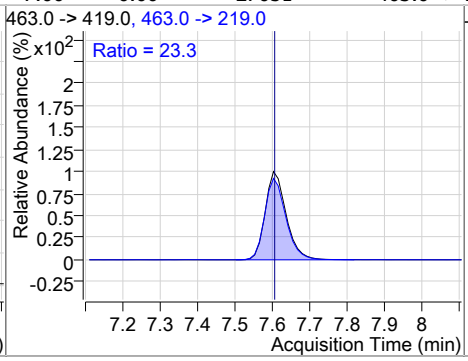


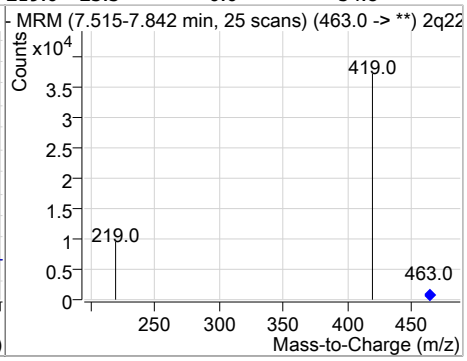


Perfluorinated Compounds by LC/MS/MS

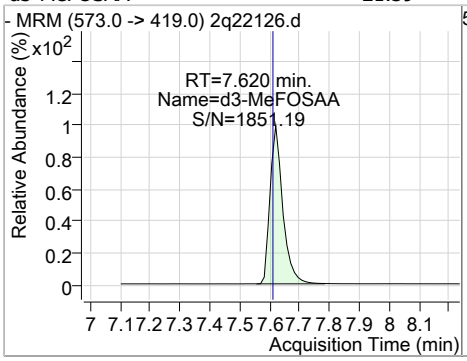
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	9.36	7.60	0.00	27651	463.0 -> 219.0	23.3	0.0	54.8

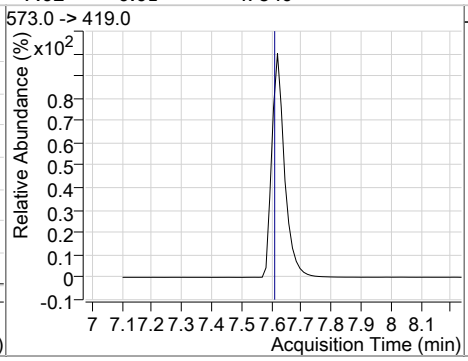


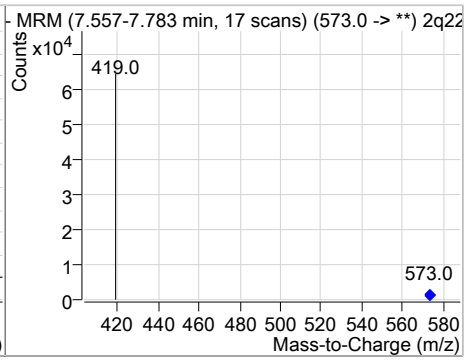




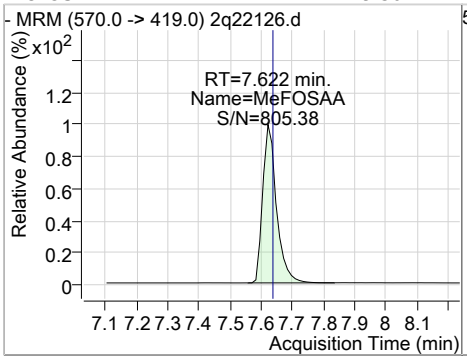
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.39	7.62	0.01	47840				

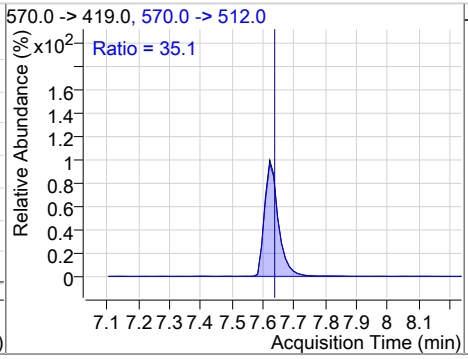


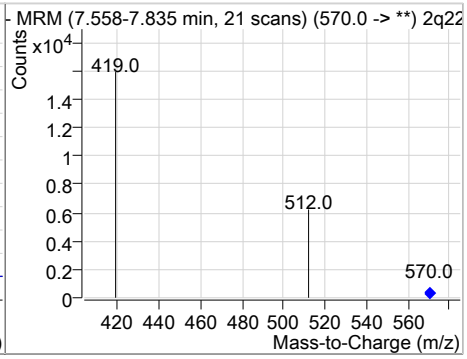




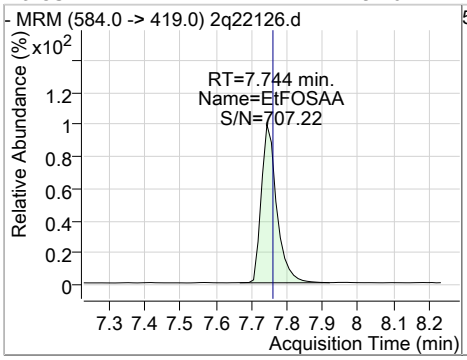
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	9.30	7.62	0.00	11506	570.0 -> 512.0	35.1	5.9	65.9

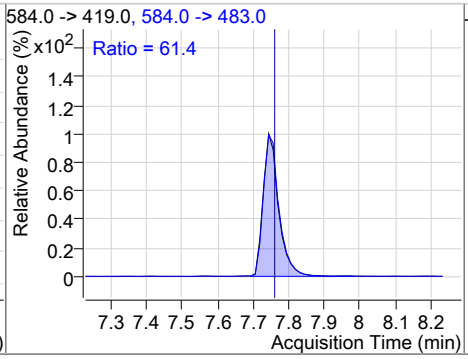


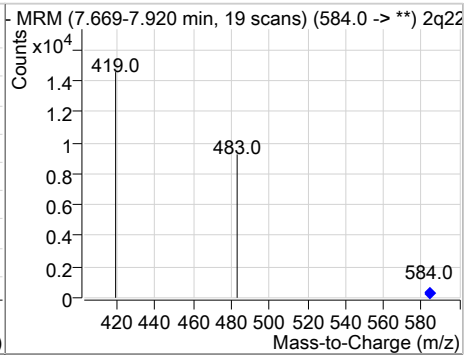




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	9.26	7.74	0.00	10215	584.0 -> 483.0	61.4	30.5	90.5

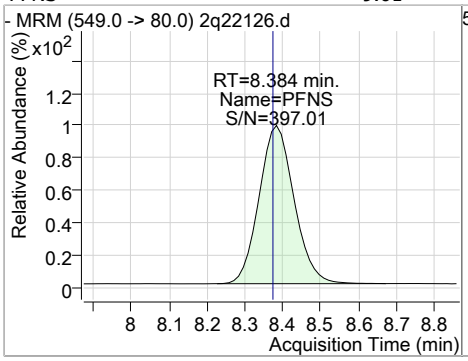


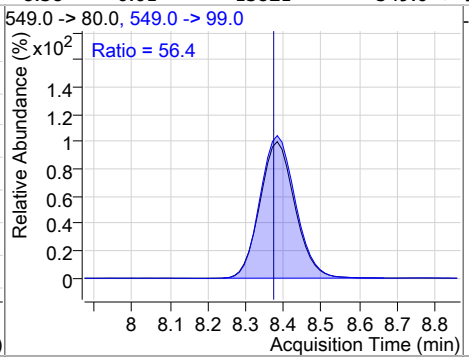


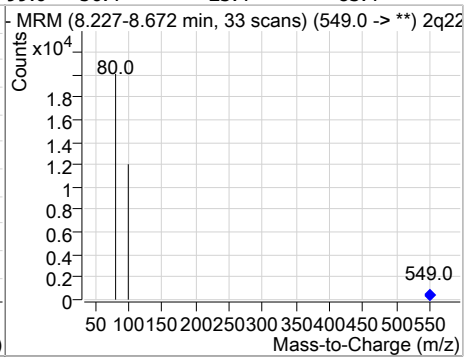


Perfluorinated Compounds by LC/MS/MS

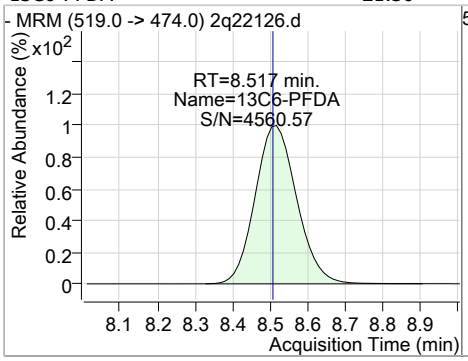
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	9.61	8.38	0.01	13821	549.0 -> 99.0	56.4	23.4	83.4

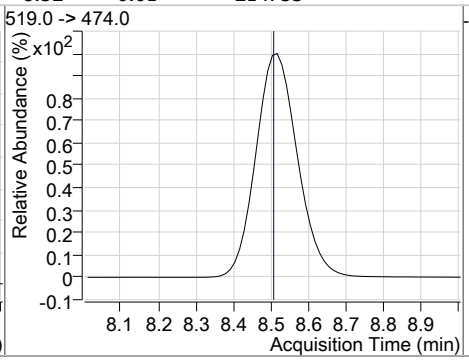


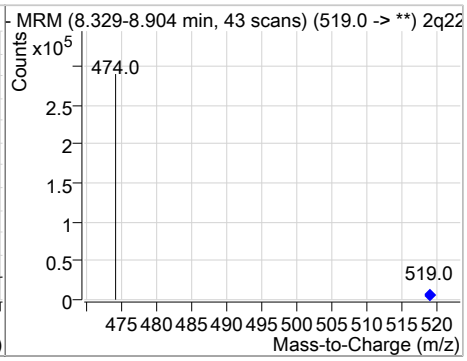




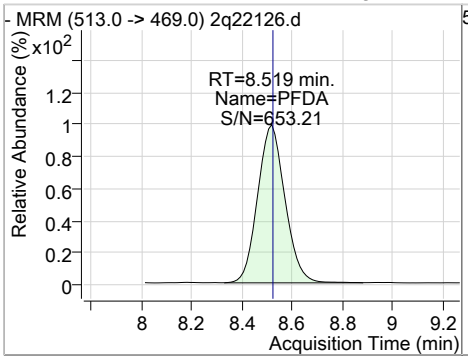
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.30	8.52	0.01	214753				

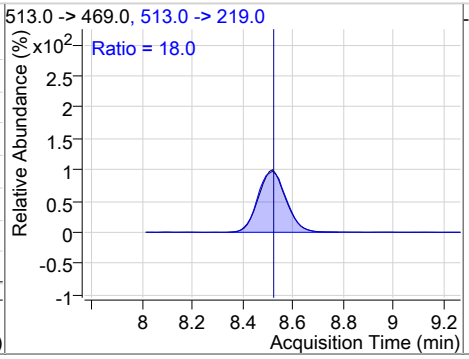


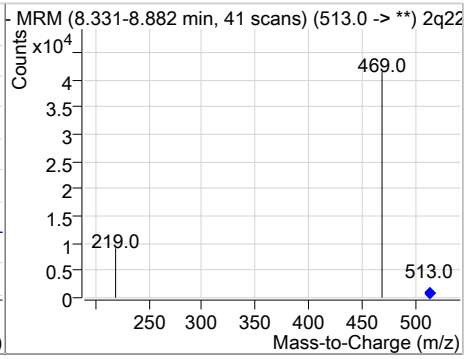




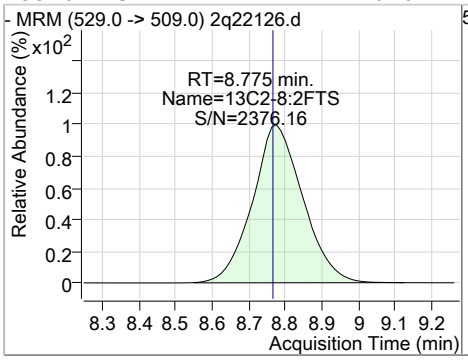
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	9.14	8.52	0.01	29534	513.0 -> 219.0	18.0	0.0	47.6

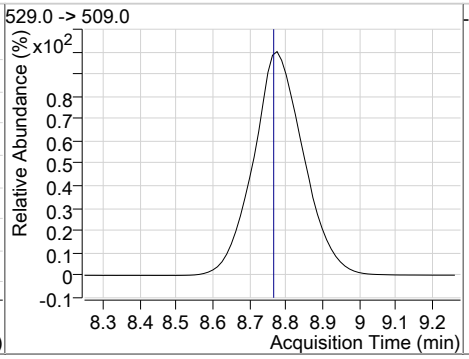


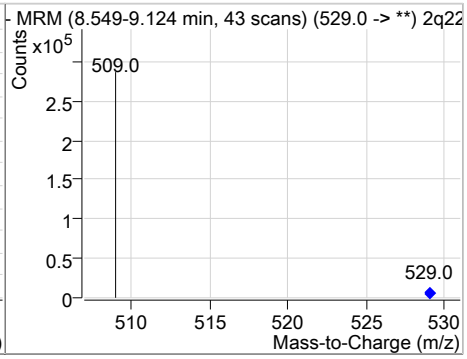




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.20	8.77	0.01	210189				

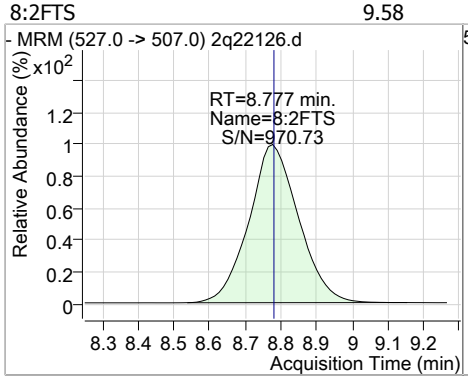


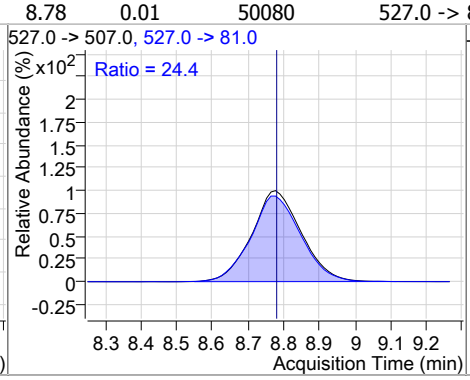


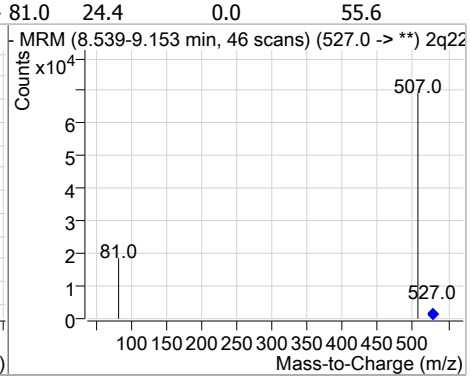


Perfluorinated Compounds by LC/MS/MS

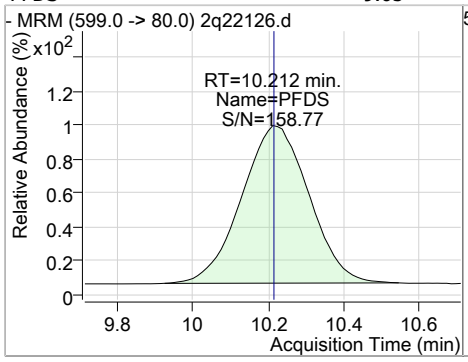
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.58	8.78	0.01	50080	527.0 -> 81.0	24.4	0.0	55.6

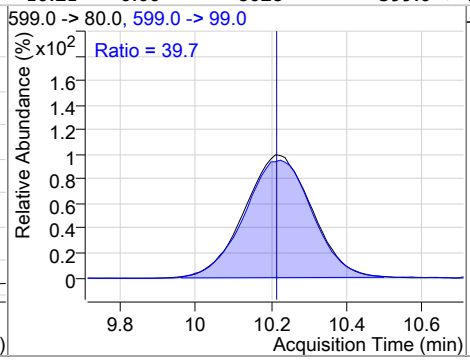


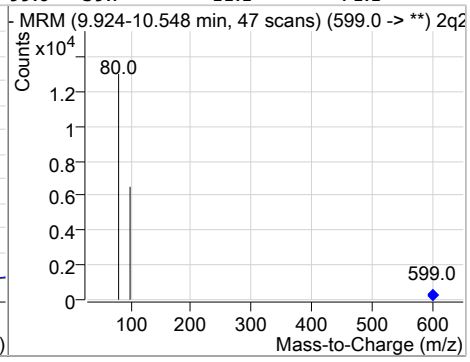




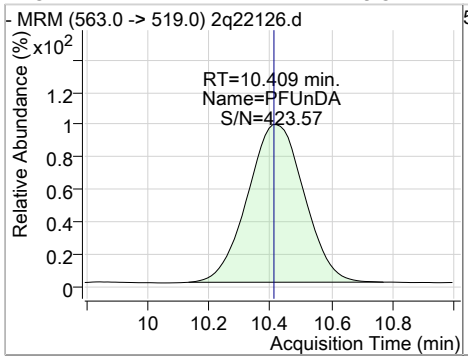
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	9.65	10.21	0.00	8028	599.0 -> 99.0	39.7	11.1	71.1

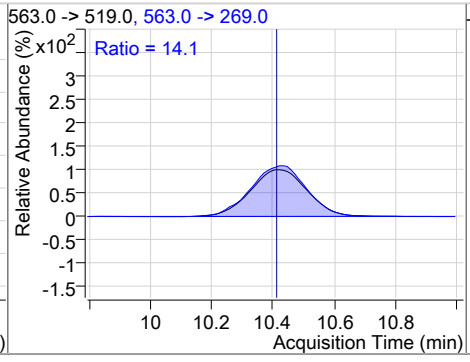


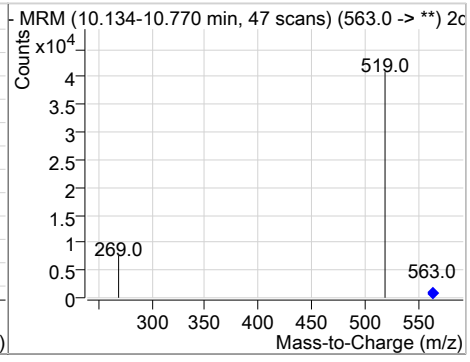




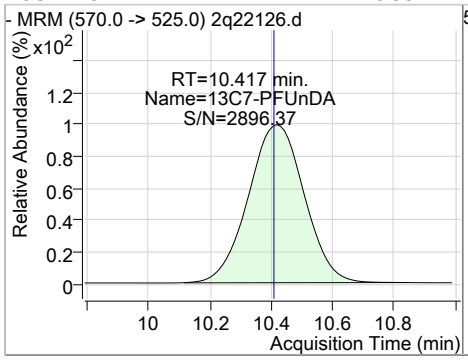
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.32	10.41	0.01	28475	563.0 -> 269.0	14.1	0.0	43.1

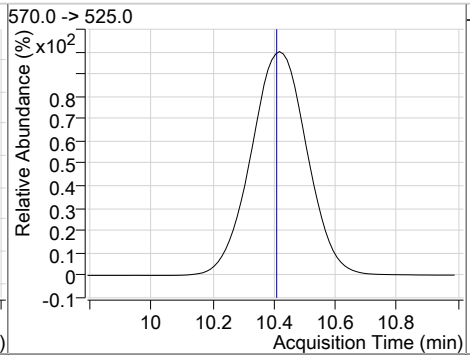


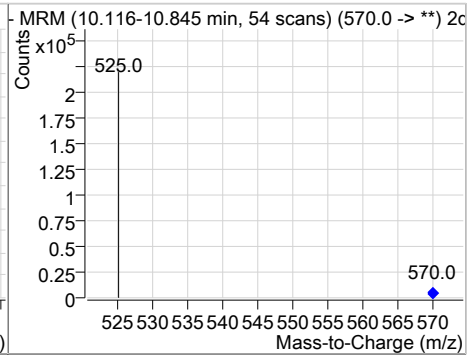




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.95	10.42	0.01	160199				

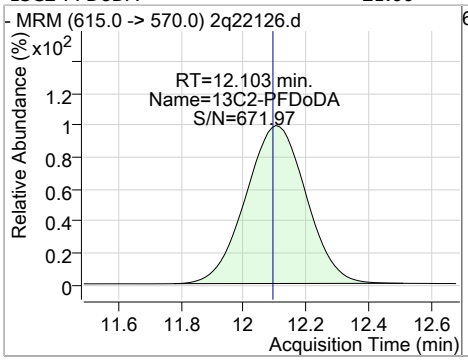


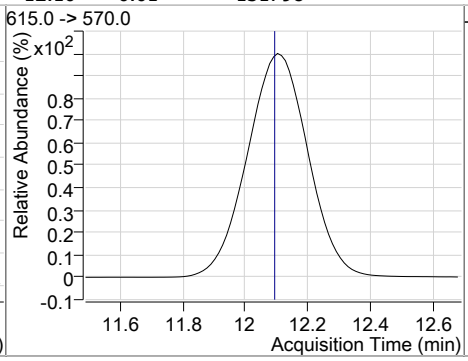


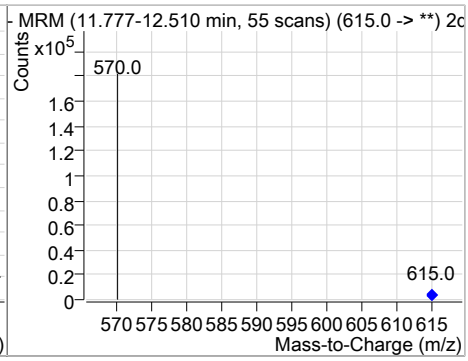


Perfluorinated Compounds by LC/MS/MS

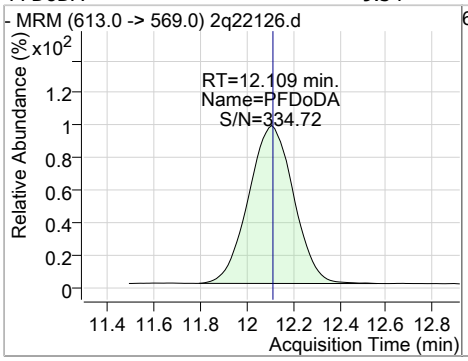
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.00	12.10	0.01	131798				

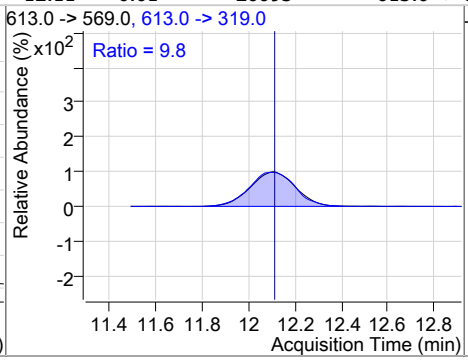


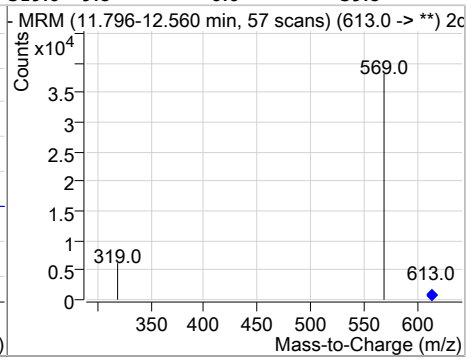




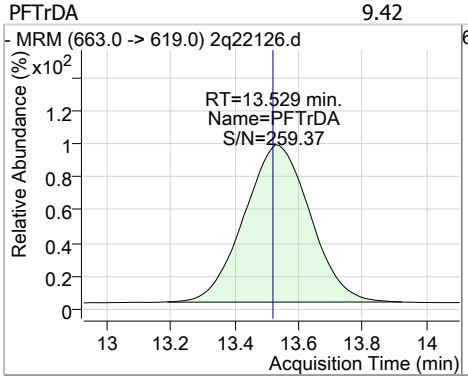
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	9.34	12.11	0.01	26093	613.0 -> 319.0	9.8	0.0	39.8

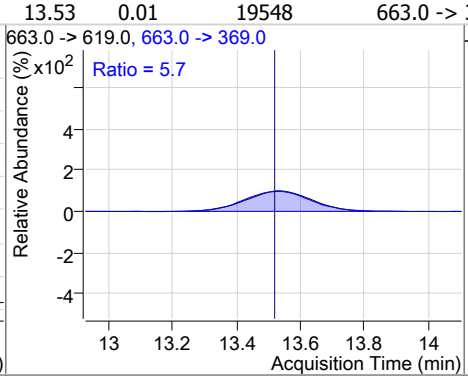


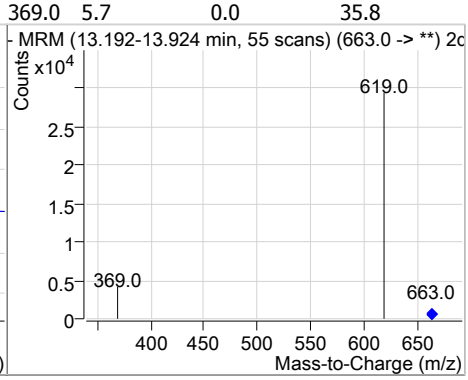




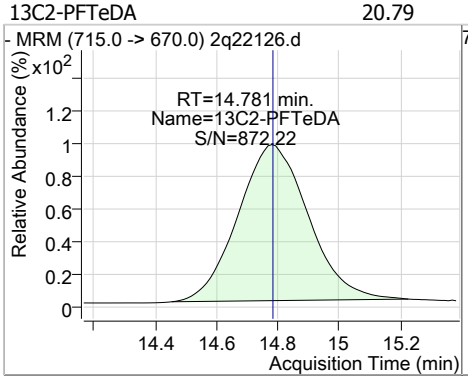
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	9.42	13.53	0.01	19548	663.0 -> 369.0	5.7	0.0	35.8

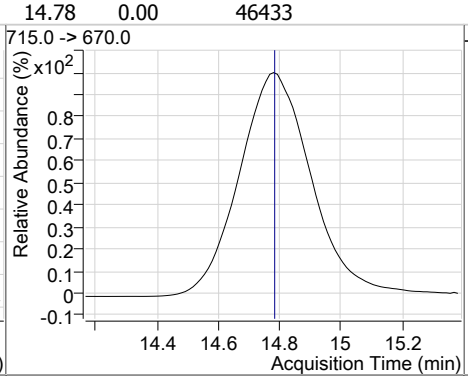


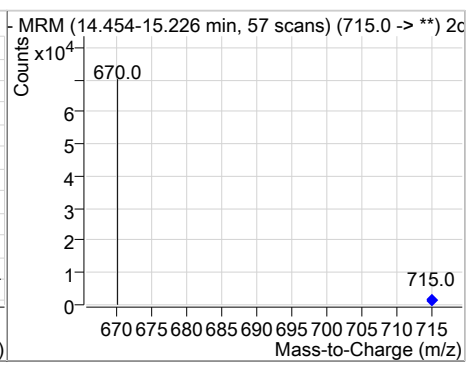




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.79	14.78	0.00	46433				

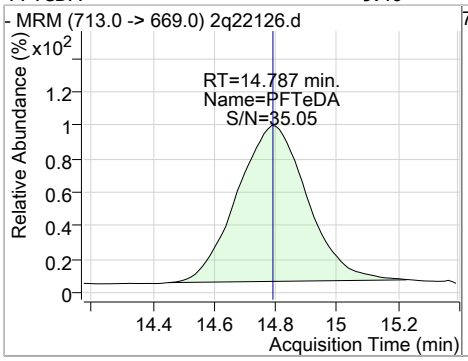


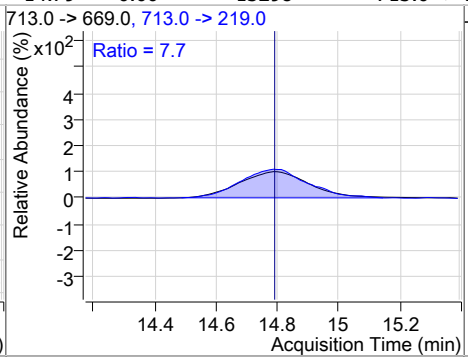


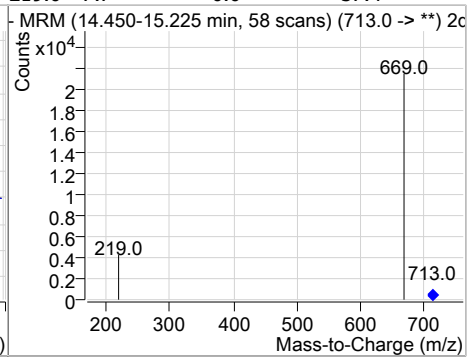


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.40	14.79	0.00	13298	713.0 -> 219.0	7.7	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-IC349
Lab FileID: 2Q22126.D
Injection Time: 10/15/18 12:45

Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22127.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 1:06:43 PM
Sample Name : icc349-20
Vial : Vial 7
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

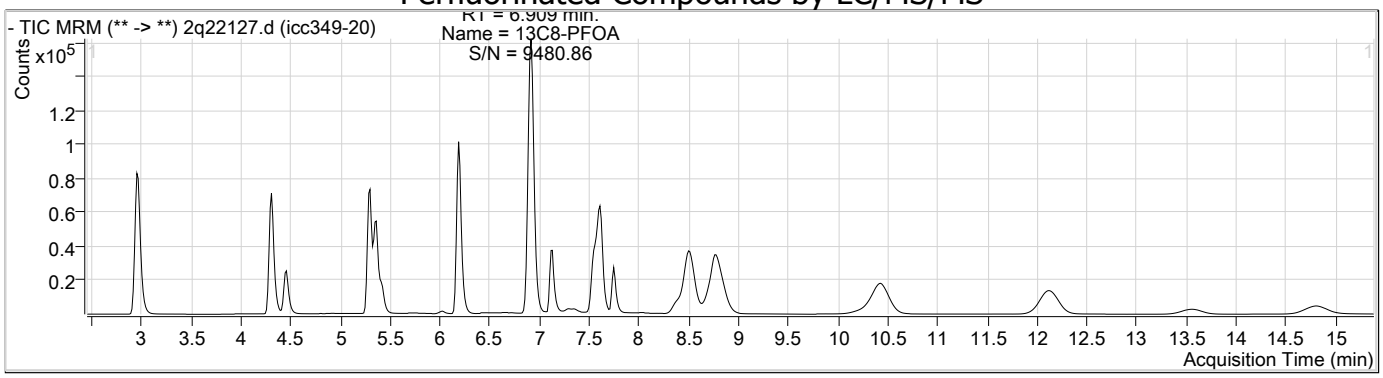
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	153232	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	57765	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	291545	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	126582	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	123713	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	143114	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	119176	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	106915	20.00	µg/L	0.000
M6-PFDA	8.504	519.0 -> 474.0	206063	20.00	µg/L	0.000
M7-PFUnDA	10.429	570.0 -> 525.0	154863	20.00	µg/L	0.025
M2-PFDoDA	12.115	615.0 -> 570.0	127674	20.00	µg/L	0.025
M2-PFTeDA	14.806	715.0 -> 670.0	47668	20.00	µg/L	0.025
M8-FOSA	7.130	506.0 -> 78.0	77050	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	28871	20.00	µg/L	0.012
M3-PFHxS	6.186	402.0 -> 99.0	35444	20.00	µg/L	0.000
M8-PFOS	7.546	507.0 -> 99.0	35933	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	141532	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	176803	20.00	µg/L	0.001
M2-8:2FTS	8.762	529.0 -> 509.0	208535	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	46323	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	141526	20.15	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C2-6:2FTS	6.931	429.0 -> 409.0	176920	20.13	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C2-8:2FTS	8.762	529.0 -> 509.0	207420	19.93	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C2-PFDoDA	12.115	615.0 -> 570.0	126967	20.23	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%		
13C2-PFTeDA	14.806	715.0 -> 670.0	45348	20.31	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C3-PFBS	4.455	302.0 -> 99.0	28870	20.27	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C3-PFHxS	6.186	402.0 -> 99.0	35430	20.45	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C4-PFBA	2.953	217.0 -> 172.0	291324	20.17	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C4-PFHpA	6.192	367.0 -> 322.0	143013	20.39	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C5-PFHxA	5.364	318.0 -> 273.0	123684	20.37	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C5-PFPeA	4.312	268.0 -> 223.0	126535	20.15	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C6-PFDA	8.504	519.0 -> 474.0	205620	20.40	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		

Perfluorinated Compounds by LC/MS/MS

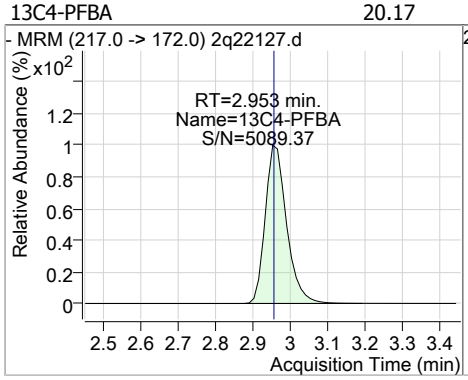
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	153945	20.13	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%			
13C8-FOSA	7.130	506.0 -> 78.0	76969	20.92	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%			
13C8-PFOA	6.909	421.0 -> 376.0	119177	20.30	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%			
13C8-PFOS	7.546	507.0 -> 99.0	35932	20.54	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%			
13C9-PFNA	7.601	472.0 -> 427.0	106913	20.38	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%			
d3-MeFOSAA	7.620	573.0 -> 419.0	46312	20.71	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%			
M2-PFOA	6.910	415.0 -> 370.0	153238	20.00	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	57792	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	76590	20.11	µg/L		100
6:2FTS	6.932	427.0 -> 407.0	85822	20.53	µg/L		98
8:2FTS	8.765	527.0 -> 507.0	102264	20.25	µg/L		97
EtFOSAA	7.744	584.0 -> 419.0	21153	19.81	µg/L		99
FOSA	7.120	498.0 -> 78.0	36429	19.74	µg/L		98
MeFOSAA	7.622	570.0 -> 419.0	23626	19.72	µg/L		94
PFBA	2.962	213.0 -> 169.0	34652	19.73	µg/L		100
PFBS	4.459	299.0 -> 80.0	42060	20.15	µg/L		100
PFDA	8.506	513.0 -> 469.0	61240	19.74	µg/L		100
PFDoDA	12.122	613.0 -> 569.0	53200	19.82	µg/L		100
PFDS	10.237	599.0 -> 80.0	16095	19.82	µg/L		99
PFHpA	6.195	363.0 -> 319.0	108168	20.29	µg/L		100
PFHpS	6.879	449.0 -> 80.0	29041	19.69	µg/L		100
PFHxA	5.366	313.0 -> 269.0	38952	19.65	µg/L		100
PFHxS	6.189	399.0 -> 80.0	34948	19.64	µg/L	m	100
PFNA	7.602	463.0 -> 419.0	55998	20.12	µg/L		96
PFNS	8.384	549.0 -> 80.0	28155	20.06	µg/L		97
PFOA	6.912	413.0 -> 369.0	58910	20.12	µg/L		97
PFOS	7.549	499.0 -> 80.0	29300	19.28	µg/L	m	97
PFPeA	4.316	263.0 -> 219.0	117147	20.09	µg/L		100
PFPeS	5.421	349.0 -> 80.0	28313	19.82	µg/L		97
PFTeDA	14.800	713.0 -> 669.0	27405	19.98	µg/L		99
PFTrDA	13.554	663.0 -> 619.0	40046	19.91	µg/L		100
PFUnDA	10.434	563.0 -> 519.0	57484	19.58	µg/L		97

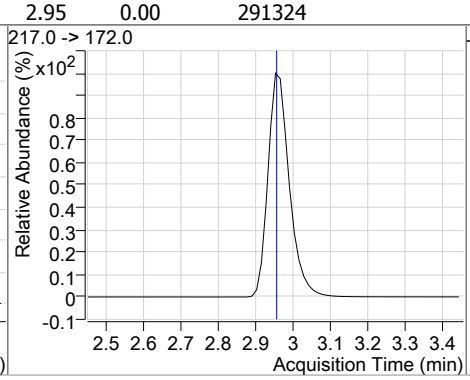
 # = Qualifier out of range, m = manually integrated, + = Area summed

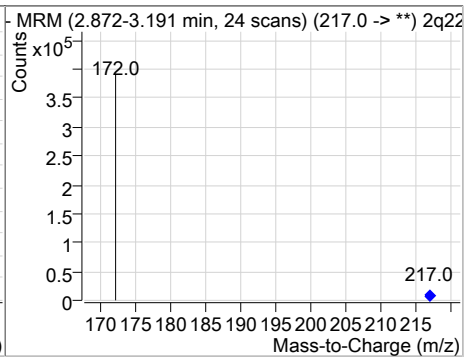
Perfluorinated Compounds by LC/MS/MS



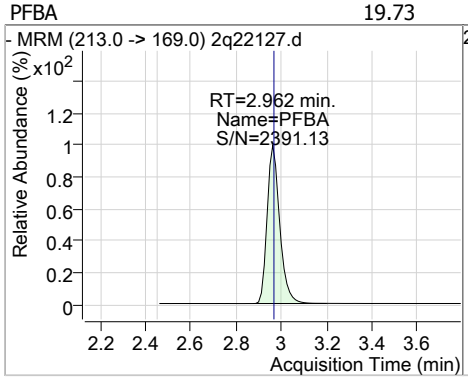
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.17	2.95	0.00	291324				

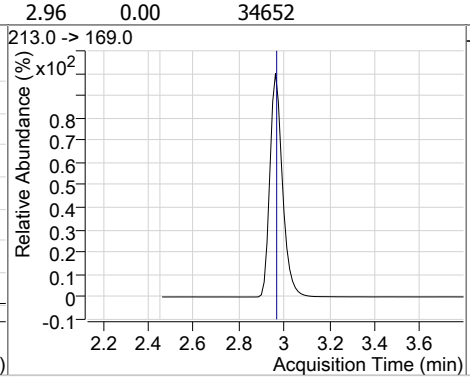


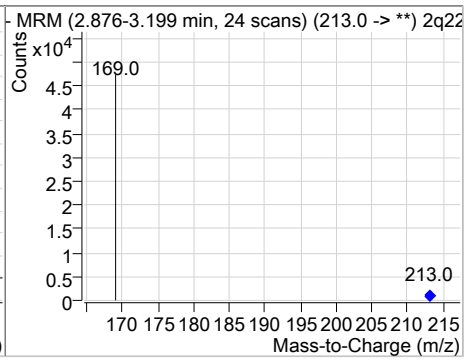




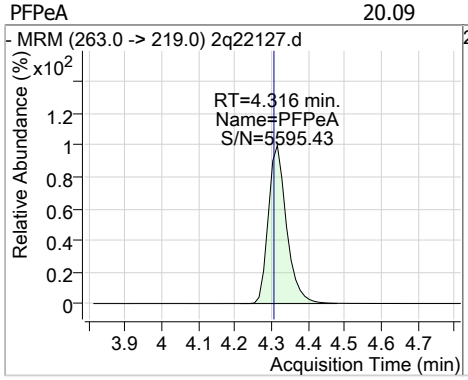
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.73	2.96	0.00	34652				

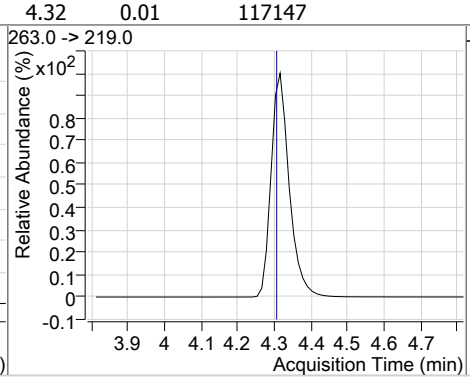


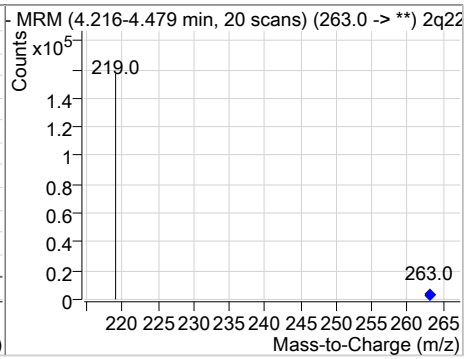




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.09	4.32	0.01	117147				

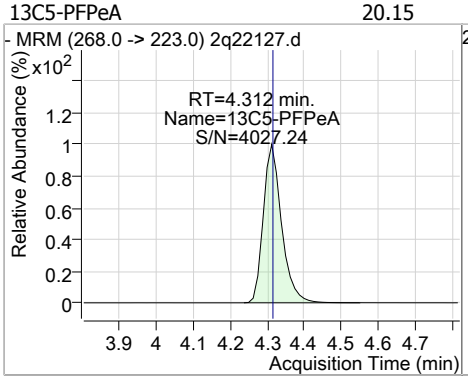


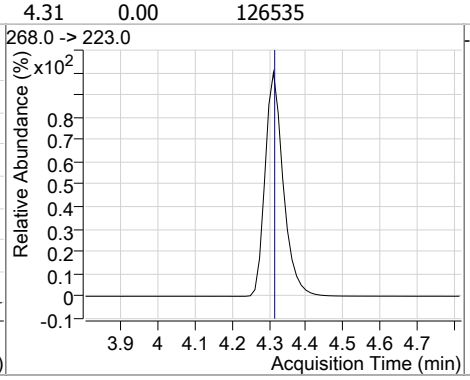


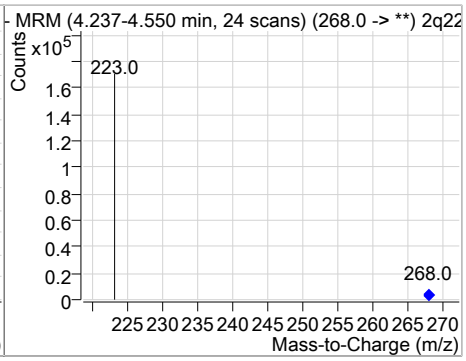


Perfluorinated Compounds by LC/MS/MS

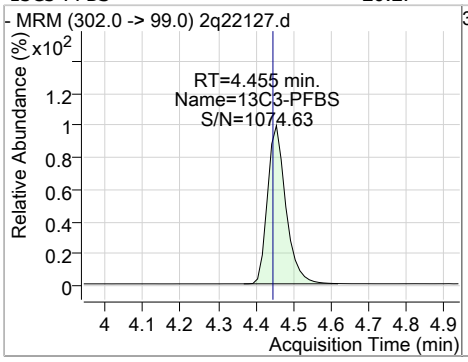
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.15	4.31	0.00	126535				

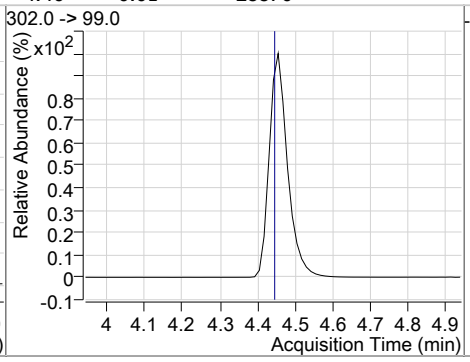


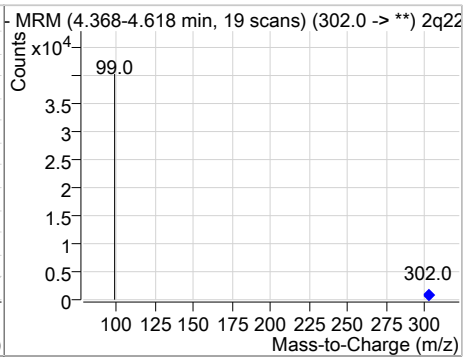




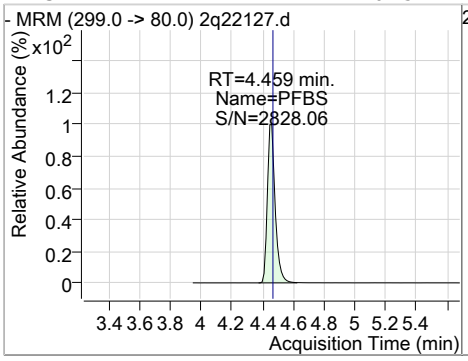
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.27	4.46	0.01	28870				

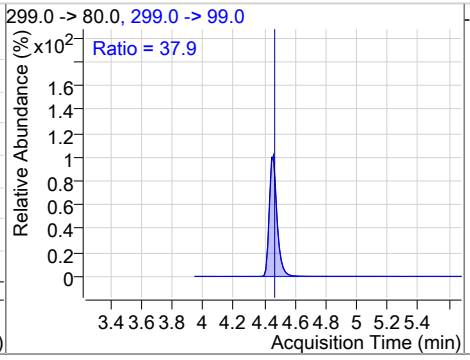


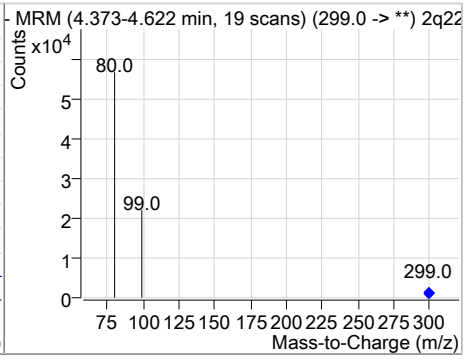




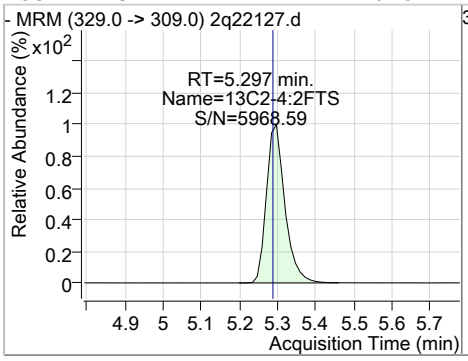
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.15	4.46	0.01	42060	299.0 -> 99.0	37.9	8.1	68.1

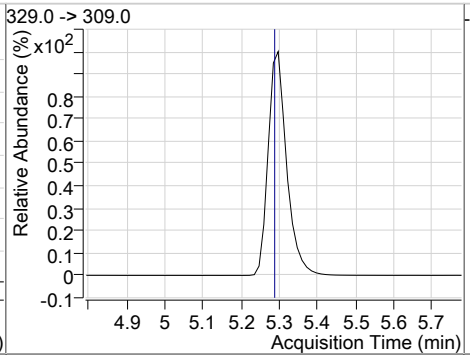


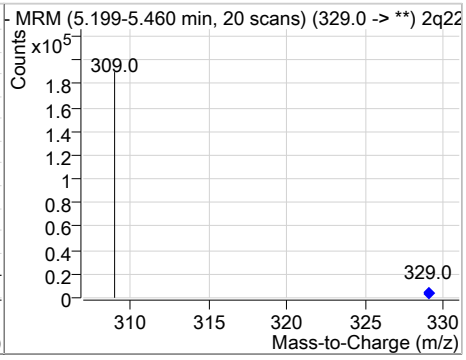




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.15	5.30	0.01	141526				

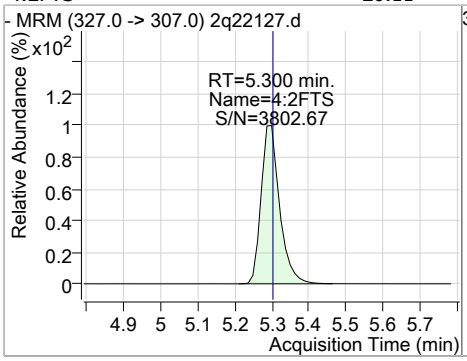


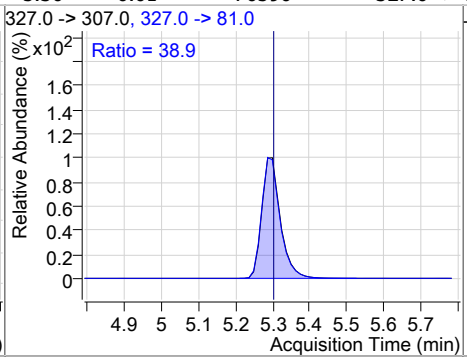


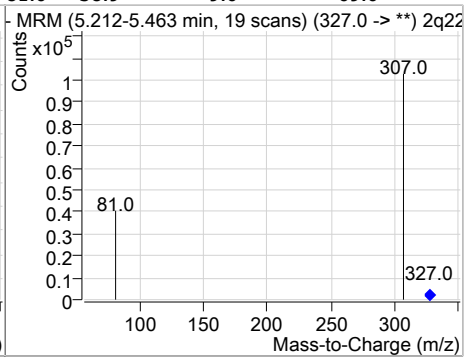


Perfluorinated Compounds by LC/MS/MS

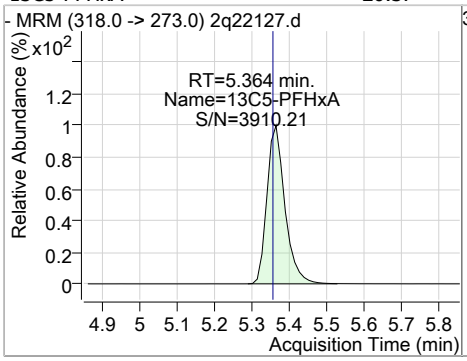
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	20.11	5.30	0.01	76590	327.0 -> 81.0	38.9	9.0	69.0

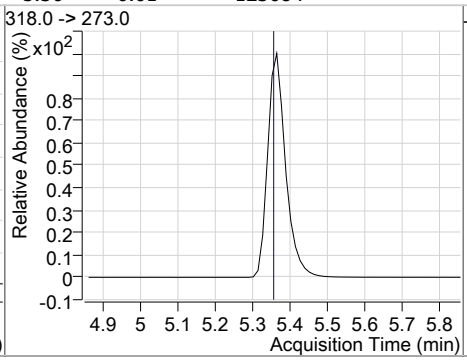


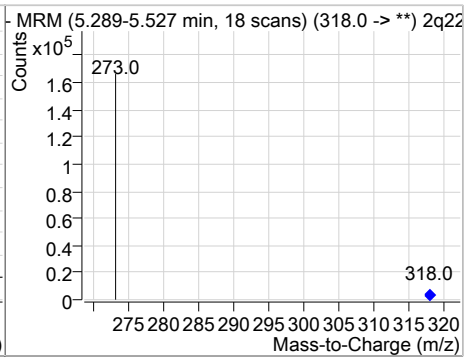




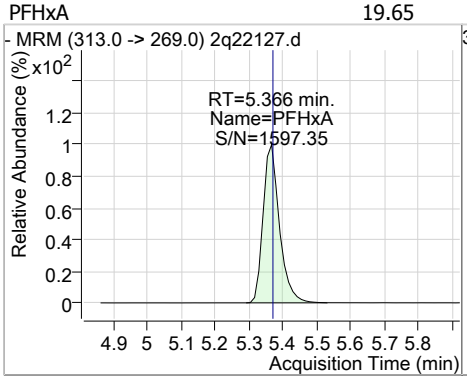
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.37	5.36	0.01	123684				

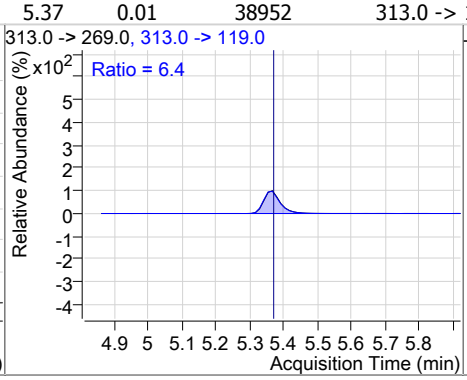


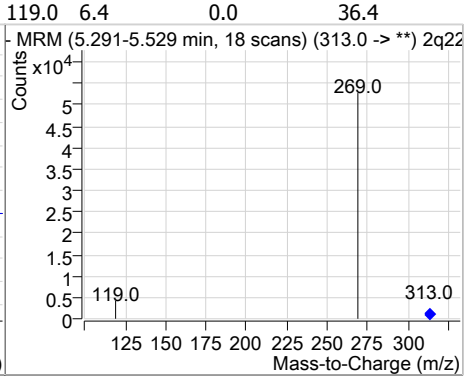




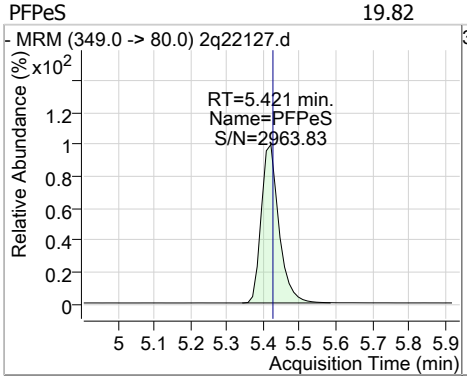
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.65	5.37	0.01	38952	313.0 -> 119.0	6.4	0.0	36.4

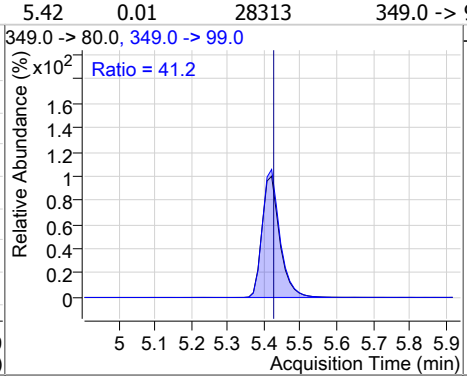


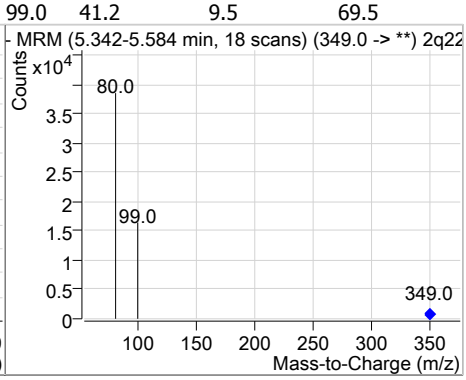




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.82	5.42	0.01	28313	349.0 -> 99.0	41.2	9.5	69.5

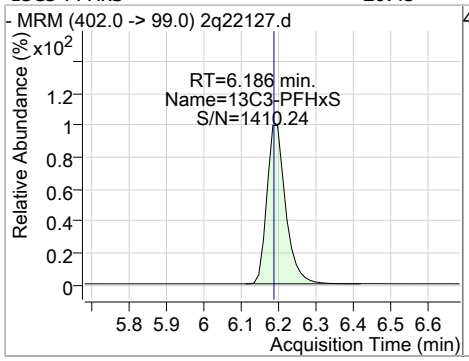


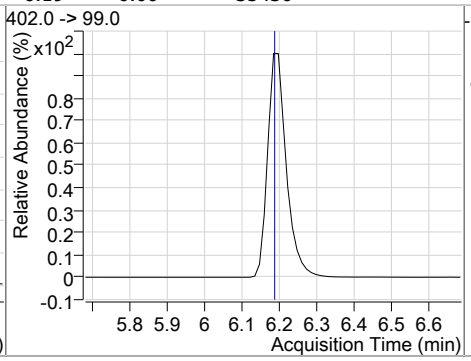


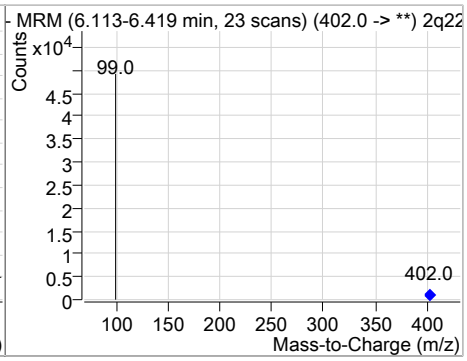


Perfluorinated Compounds by LC/MS/MS

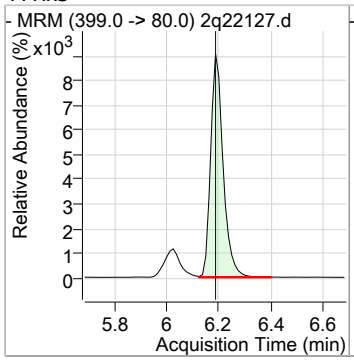
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.45	6.19	0.00	35430				

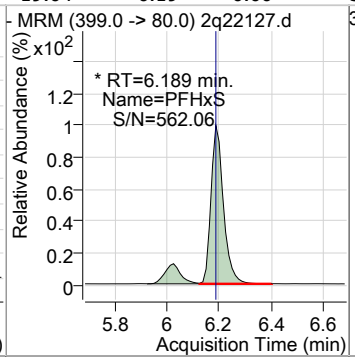


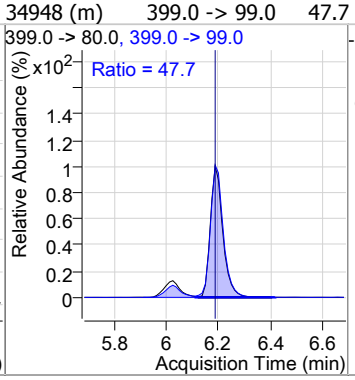


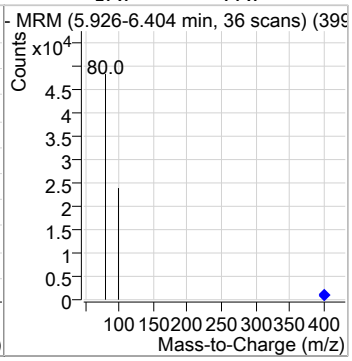


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.64	6.19	0.00	34948 (m)	399.0 -> 99.0	47.7	17.7	77.7

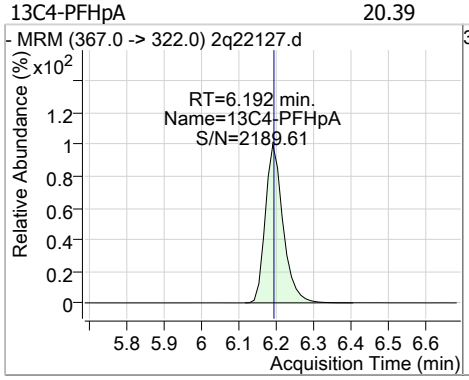


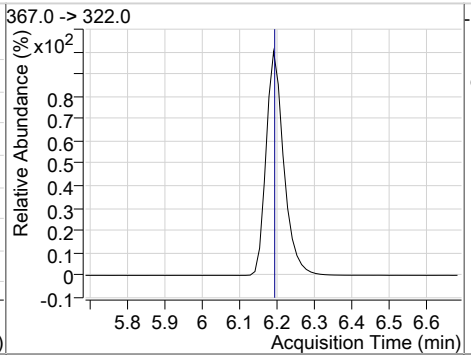


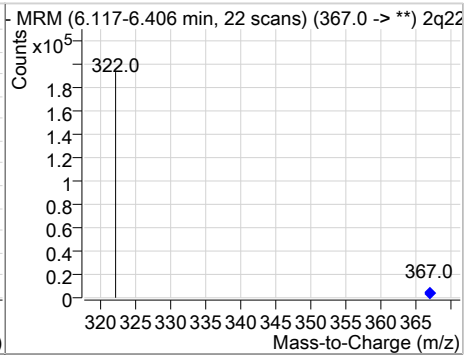




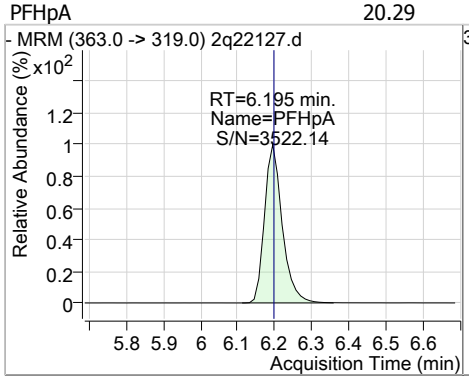
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.39	6.19	0.00	143013				

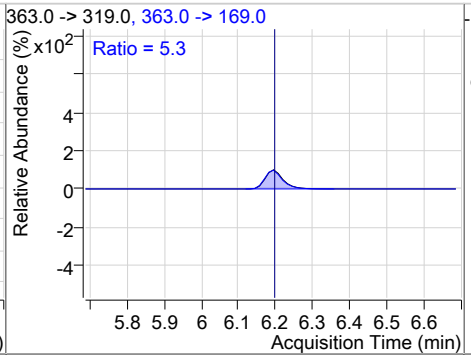


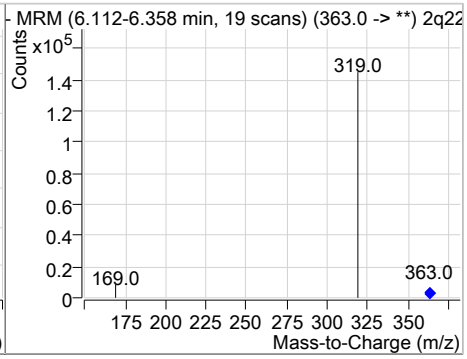




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.29	6.20	0.00	108168	363.0 -> 169.0	5.3	0.0	35.4

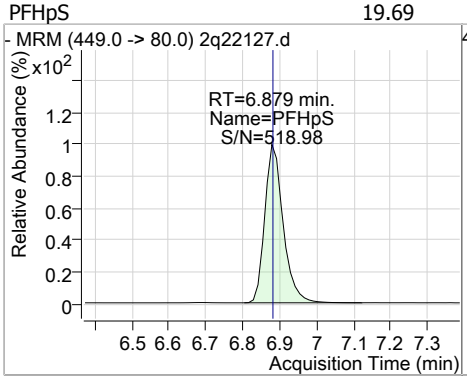


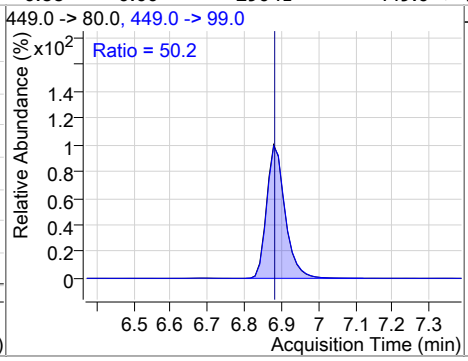


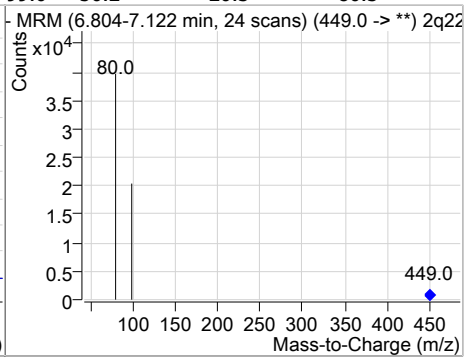


Perfluorinated Compounds by LC/MS/MS

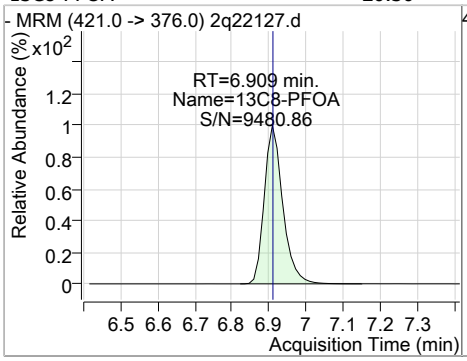
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.69	6.88	0.00	29041	449.0 -> 99.0	50.2	20.3	80.3

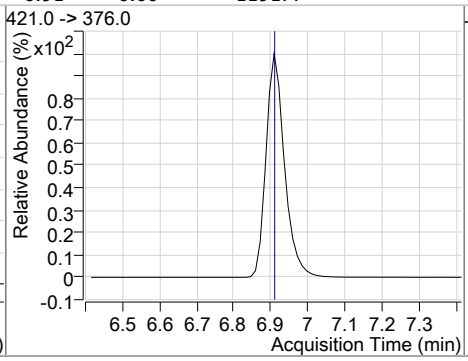


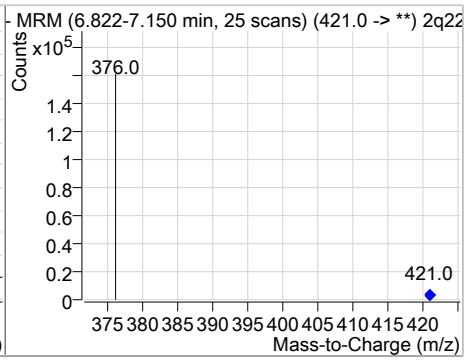




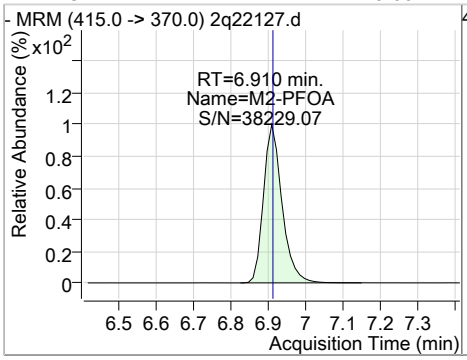
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.30	6.91	0.00	119177				

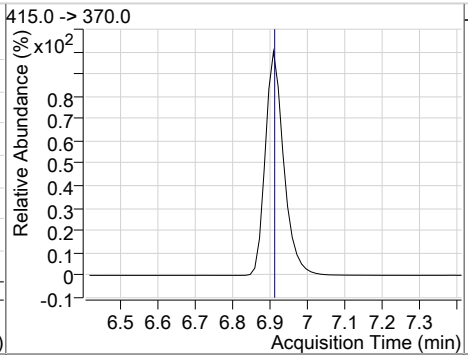


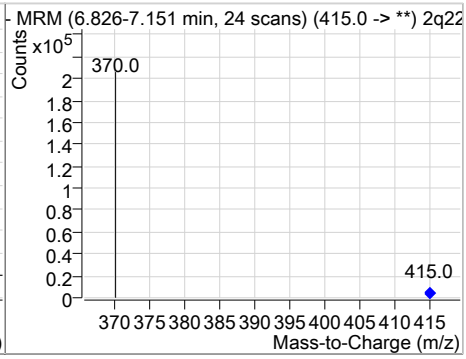




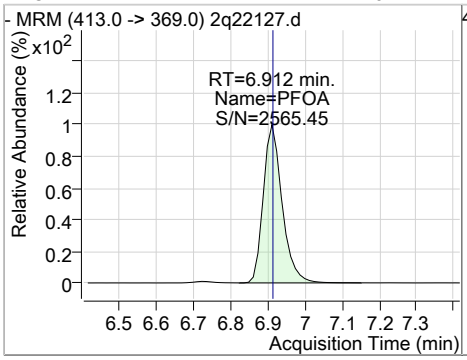
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.91	0.00	153238				

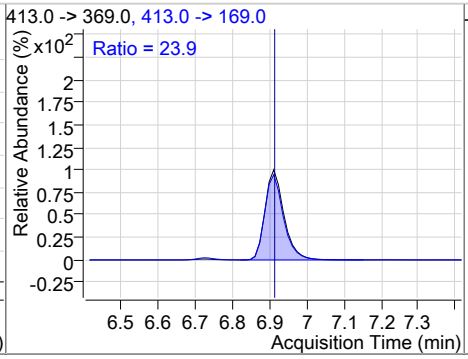


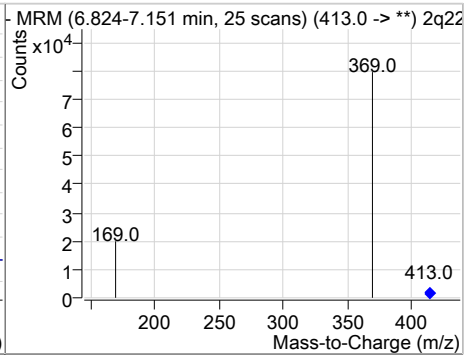




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.12	6.91	0.00	58910	413.0 -> 169.0	23.9	0.0	55.3

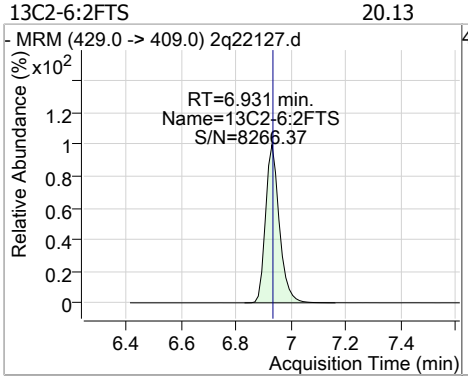


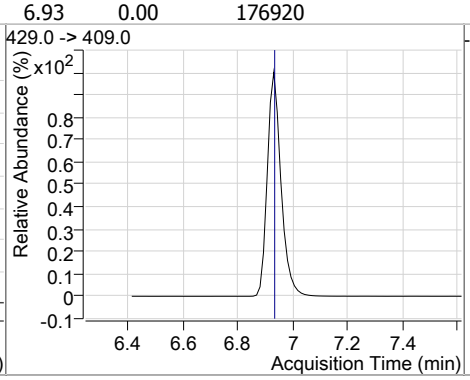


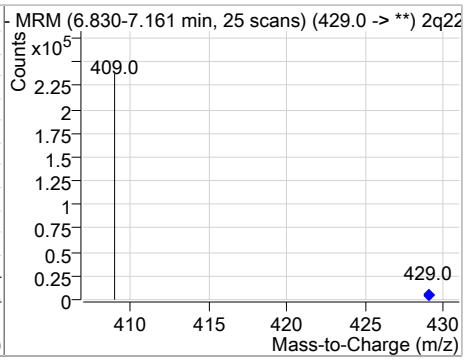


Perfluorinated Compounds by LC/MS/MS

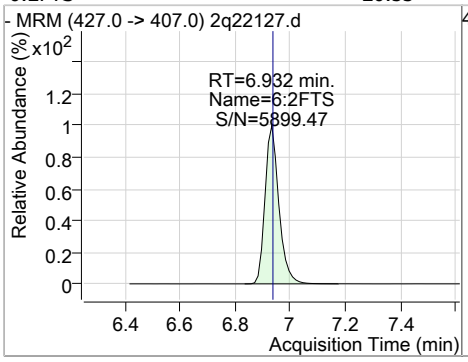
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.13	6.93	0.00	176920				

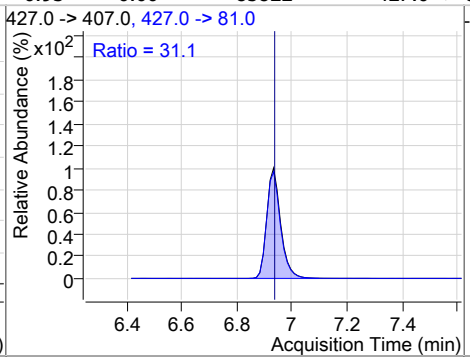


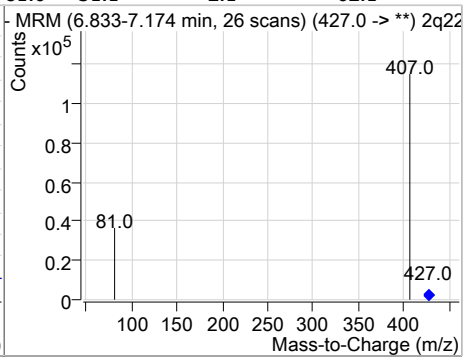




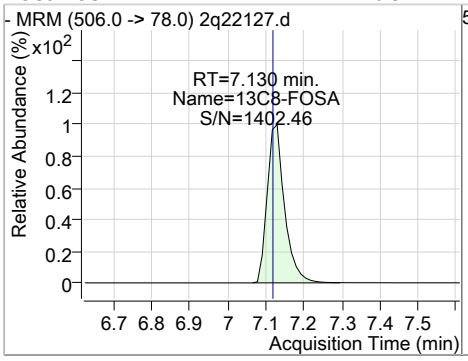
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.53	6.93	0.00	85822	427.0 -> 81.0	31.1	2.1	62.1

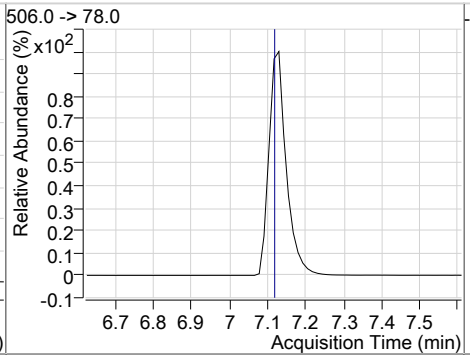


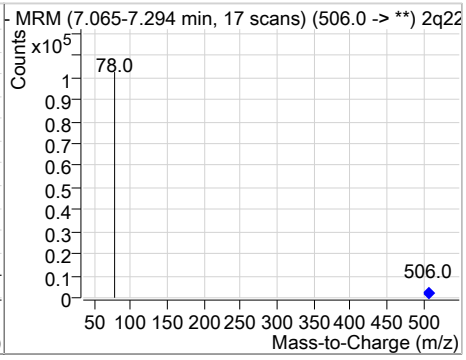




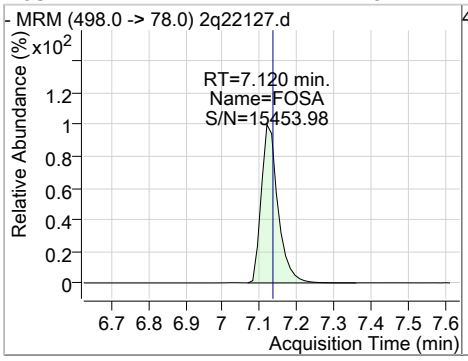
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.92	7.13	0.01	76969				

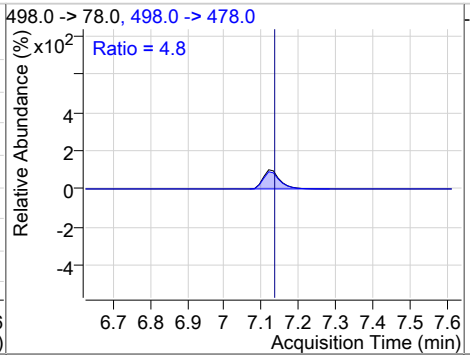


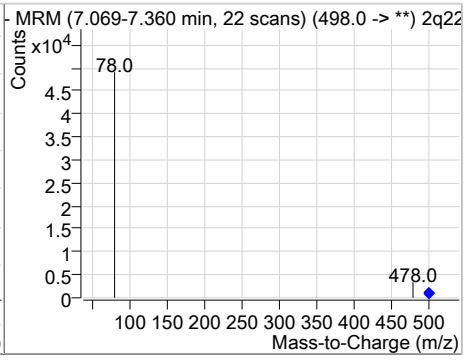




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.74	7.12	0.00	36429	498.0 -> 478.0	4.8	0.0	35.4

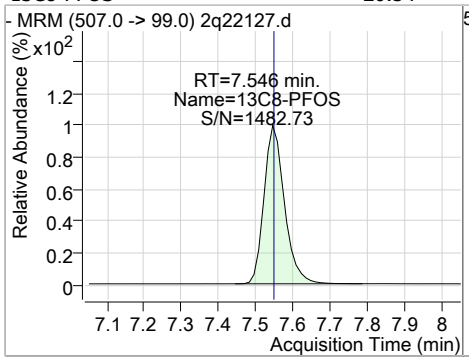


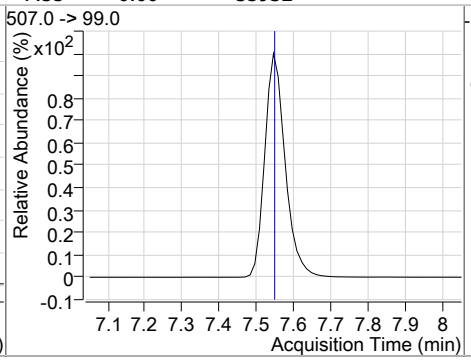


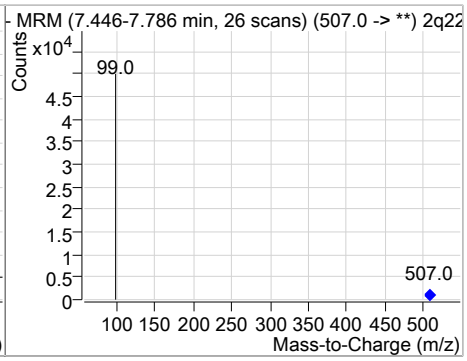


Perfluorinated Compounds by LC/MS/MS

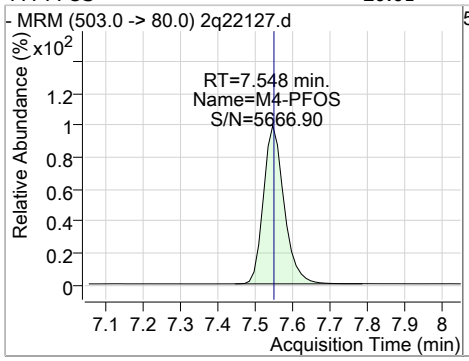
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.54	7.55	0.00	35932				

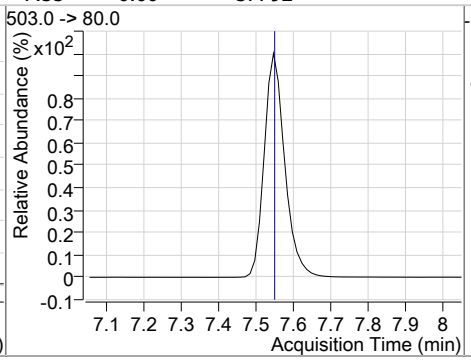


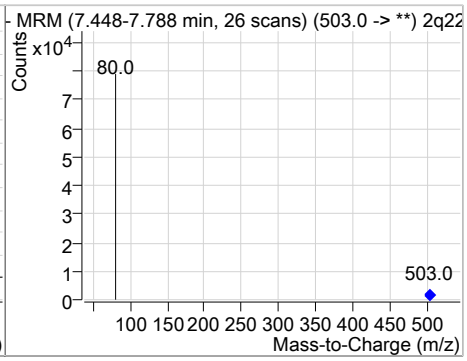




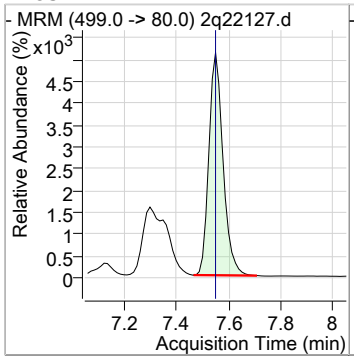
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.55	0.00	57792				

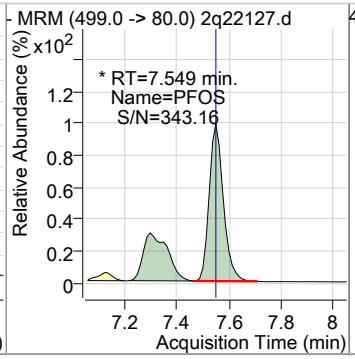


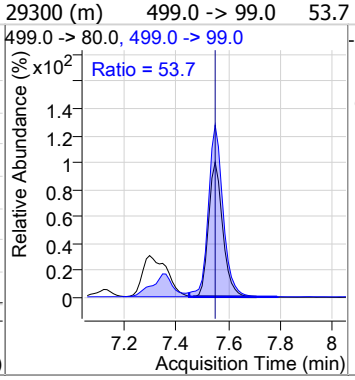


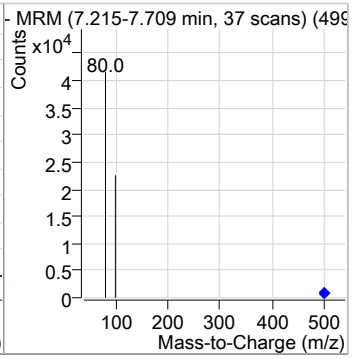


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.28	7.55	0.00	29300 (m)	499.0 -> 99.0	53.7	21.5	81.5

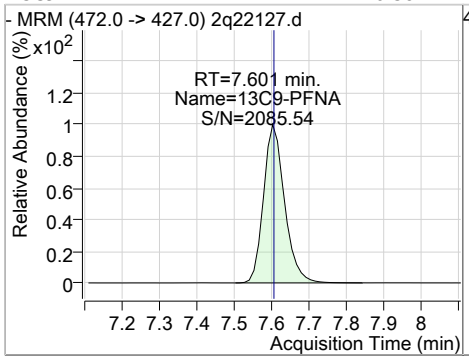


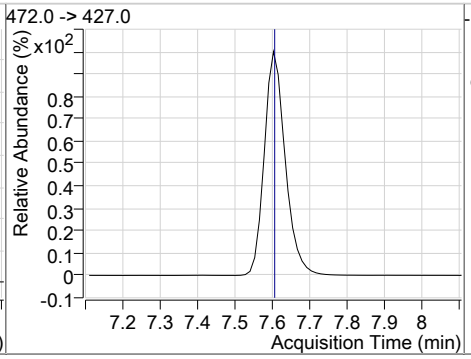


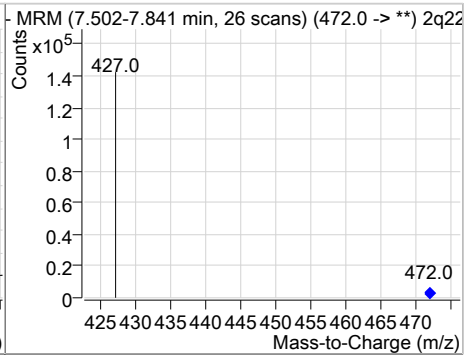




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.38	7.60	0.00	106913				

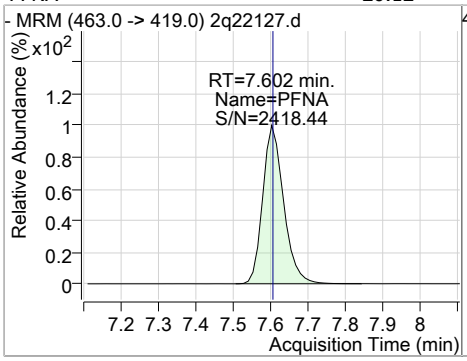


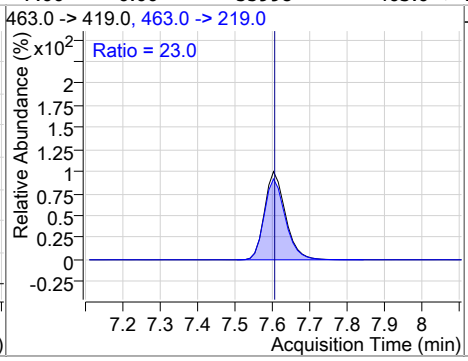


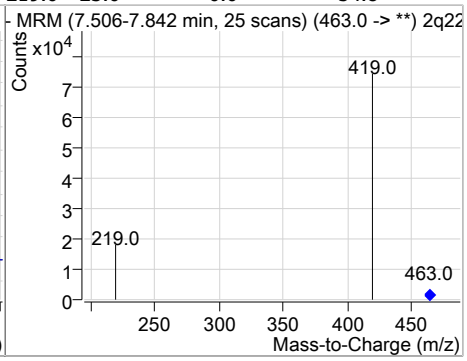


Perfluorinated Compounds by LC/MS/MS

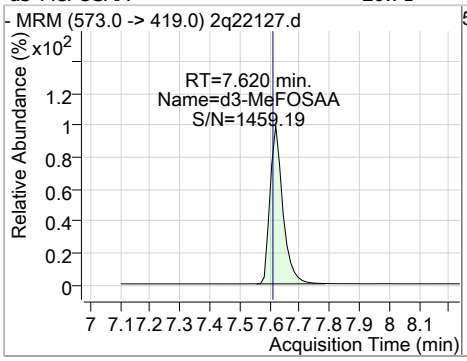
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.12	7.60	0.00	55998	463.0 -> 219.0	23.0	0.0	54.8

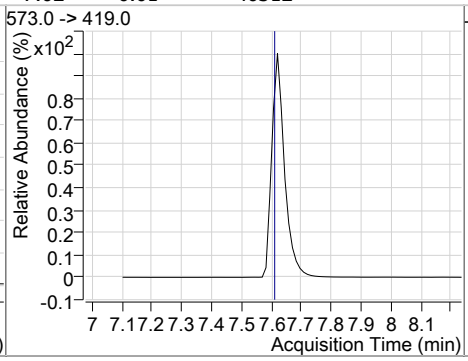


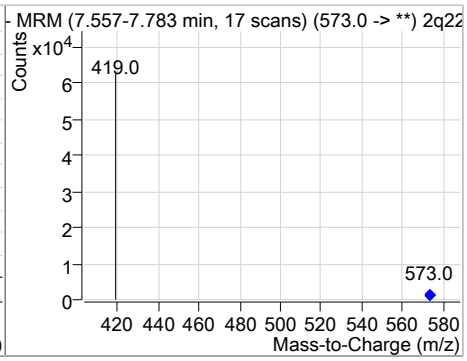




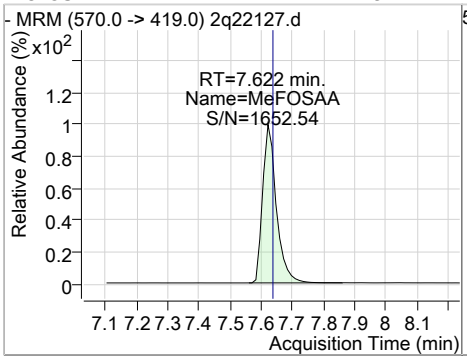
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.71	7.62	0.01	46312				

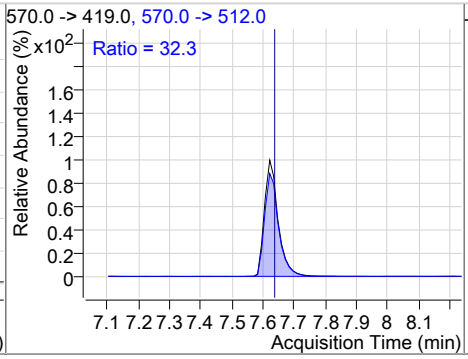


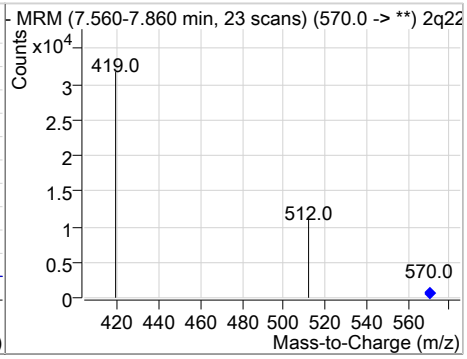




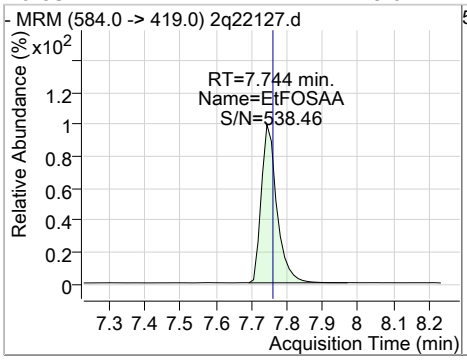
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.72	7.62	0.00	23626	570.0 -> 512.0	32.3	5.9	65.9

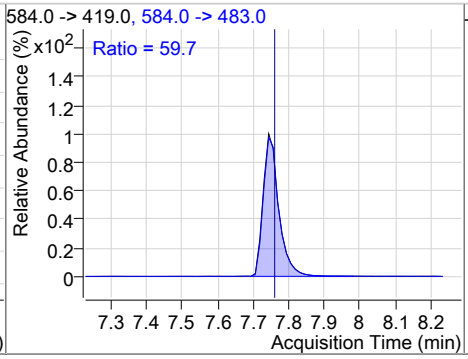


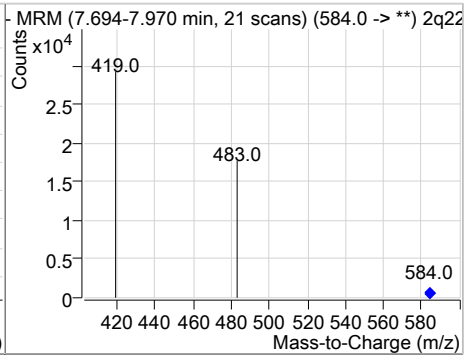




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.81	7.74	0.00	21153	584.0 -> 483.0	59.7	30.5	90.5

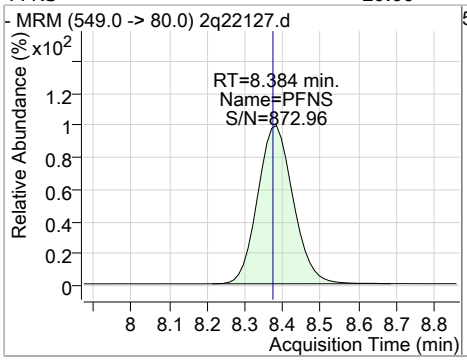


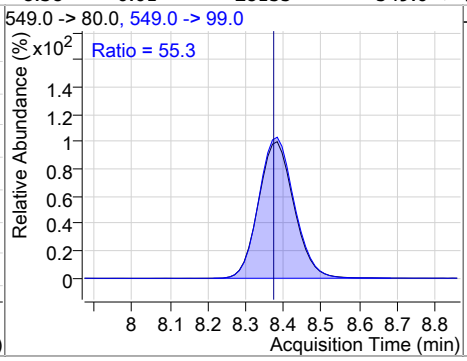


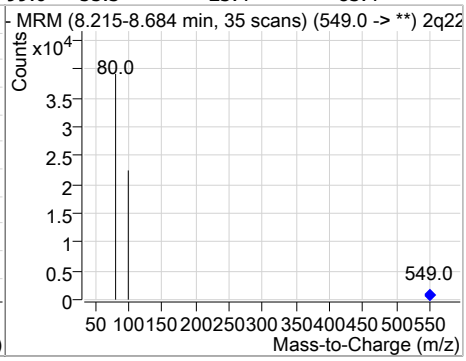


Perfluorinated Compounds by LC/MS/MS

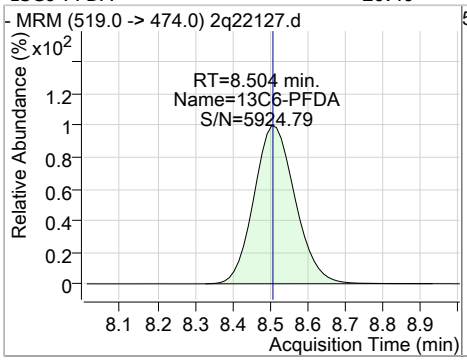
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.06	8.38	0.01	28155	549.0 -> 99.0	55.3	23.4	83.4

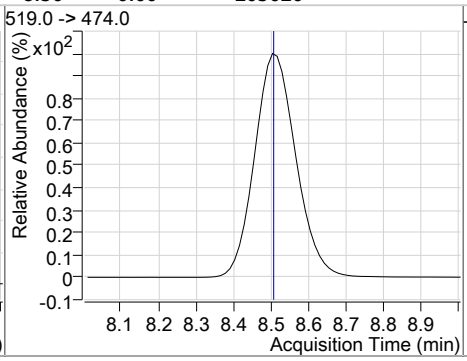


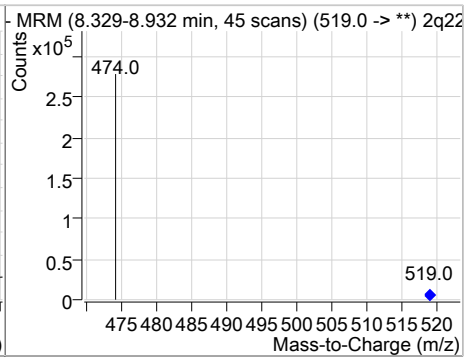




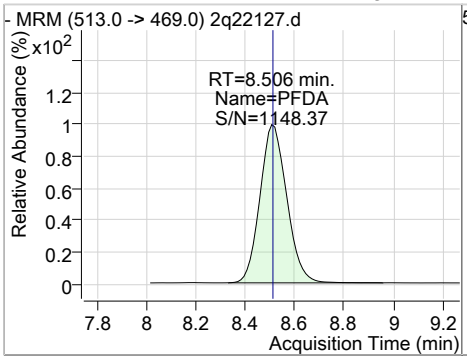
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.40	8.50	0.00	205620				

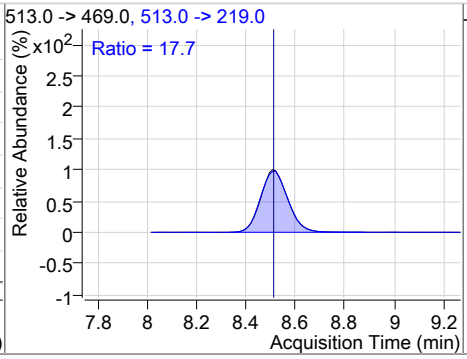


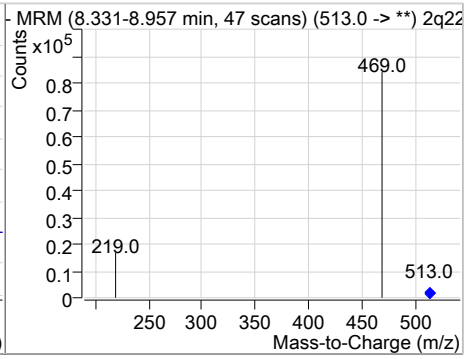




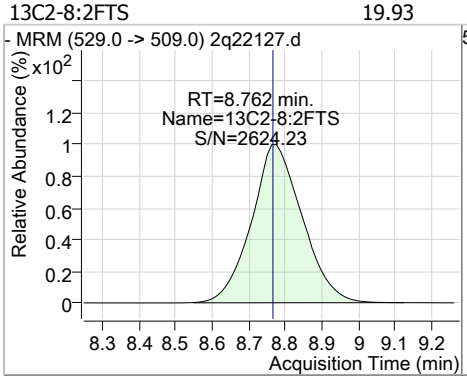
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.74	8.51	0.00	61240	513.0 -> 219.0	17.7	0.0	47.6

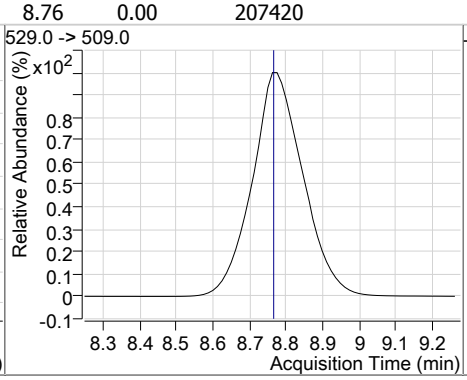


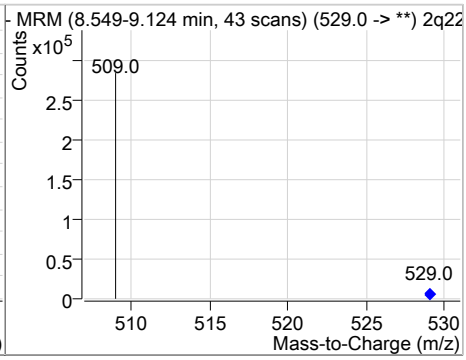




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.93	8.76	0.00	207420				

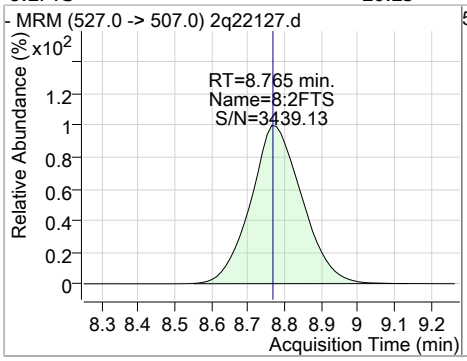


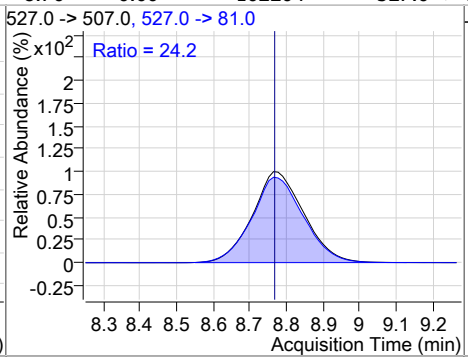


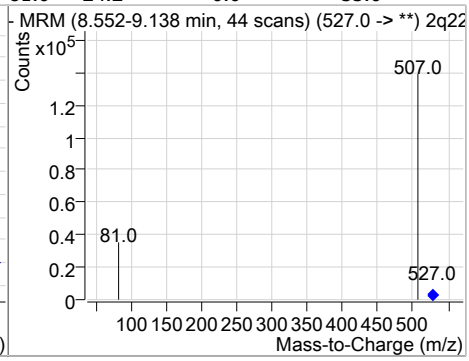


Perfluorinated Compounds by LC/MS/MS

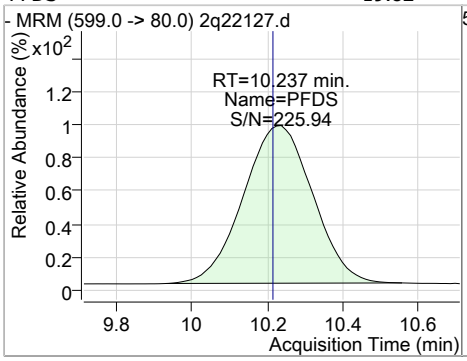
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.25	8.76	0.00	102264	527.0 -> 81.0	24.2	0.0	55.6

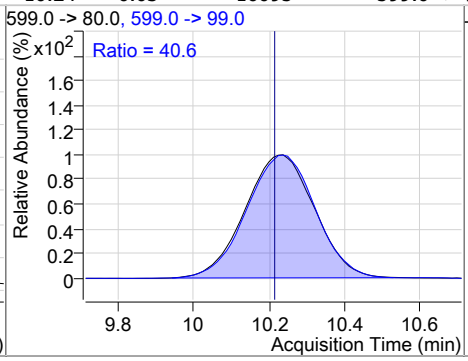


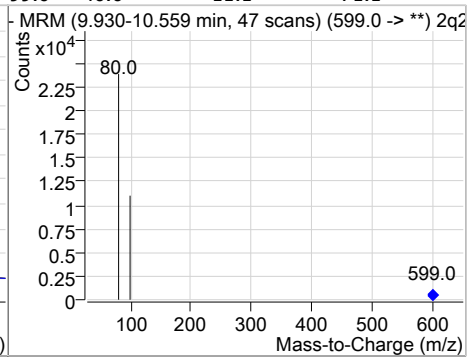




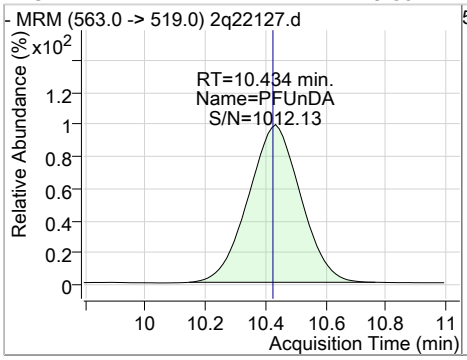
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.82	10.24	0.03	16095	599.0 -> 99.0	40.6	11.1	71.1

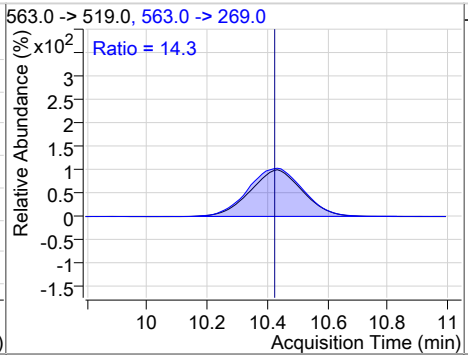


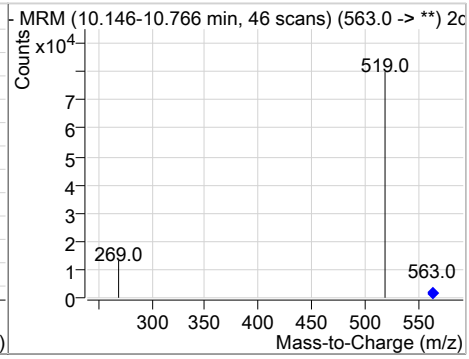




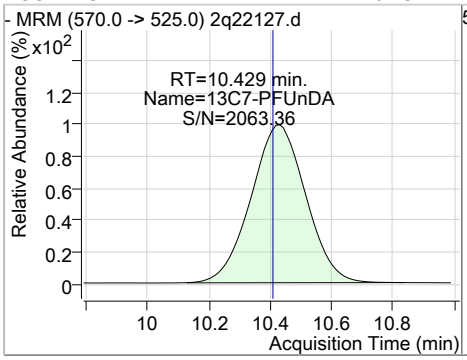
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.58	10.43	0.04	57484	563.0 -> 269.0	14.3	0.0	43.1

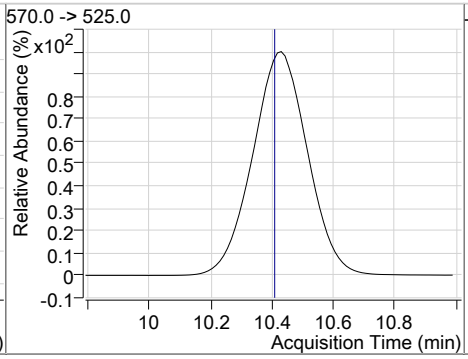


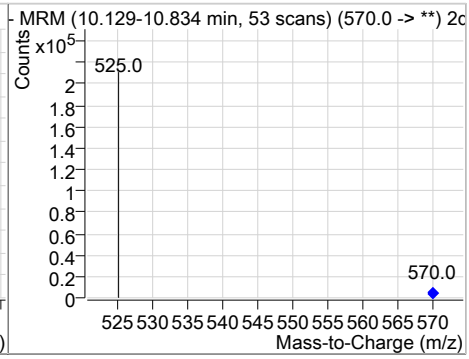




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.13	10.43	0.03	153945				

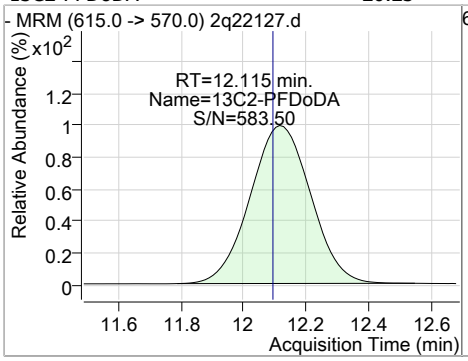


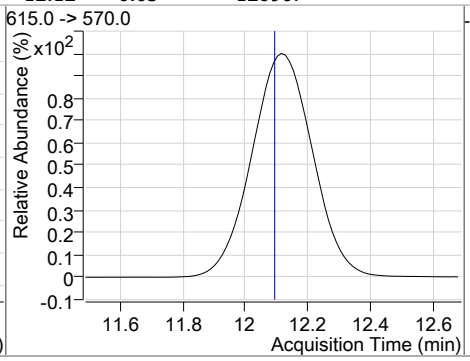


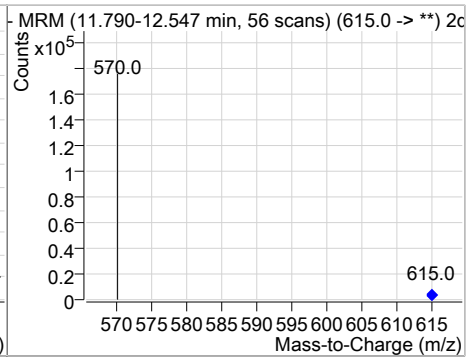


Perfluorinated Compounds by LC/MS/MS

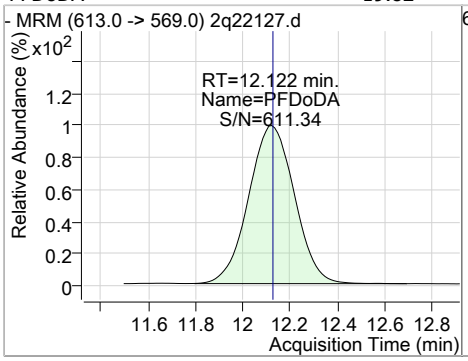
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.23	12.12	0.03	126967				

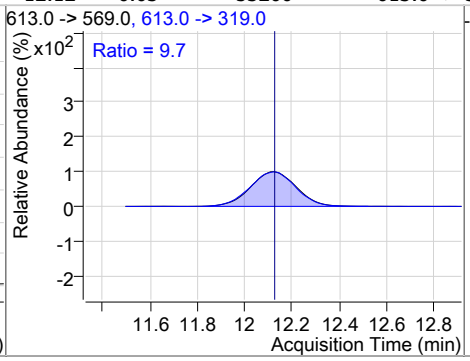


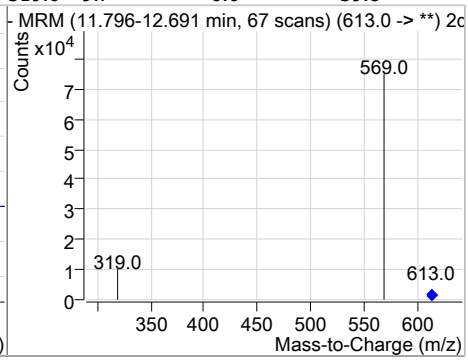




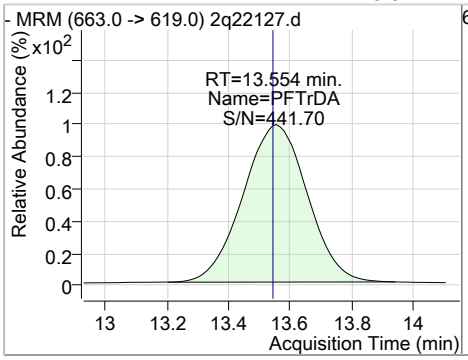
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.82	12.12	0.03	53200	613.0 -> 319.0	9.7	0.0	39.8

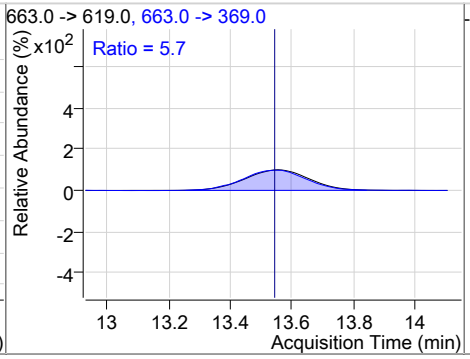


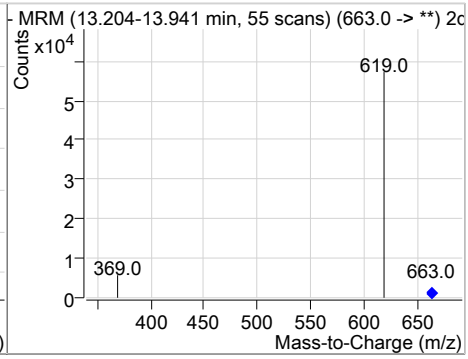




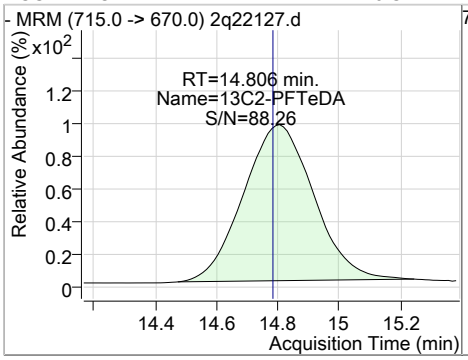
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.91	13.55	0.04	40046	663.0 -> 369.0	5.7	0.0	35.8

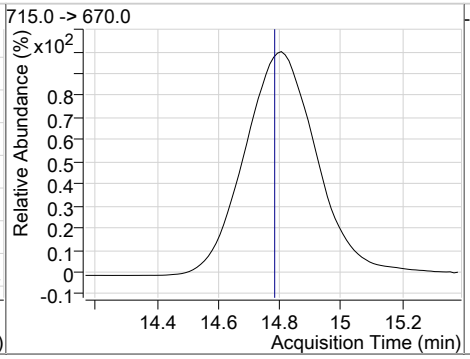


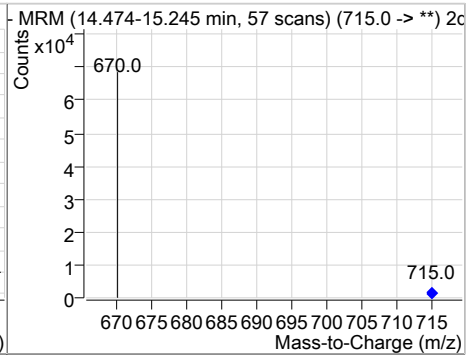




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.31	14.81	0.03	45348				

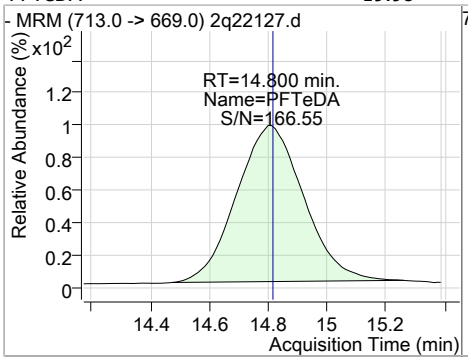


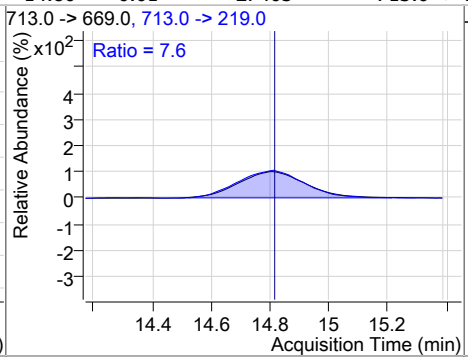


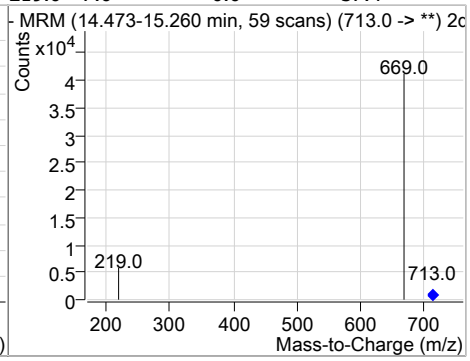


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.98	14.80	0.01	27405	713.0 -> 219.0	7.6	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-ICC349
Lab FileID: 2Q22127.D
Injection Time: 10/15/18 13:06
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

2Q22128.D

Manual Integrations APPROVED (compounds with "m" flag)

Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22128.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 1:27:28 PM
Sample Name : ic349-50
Vial : Vial 8
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

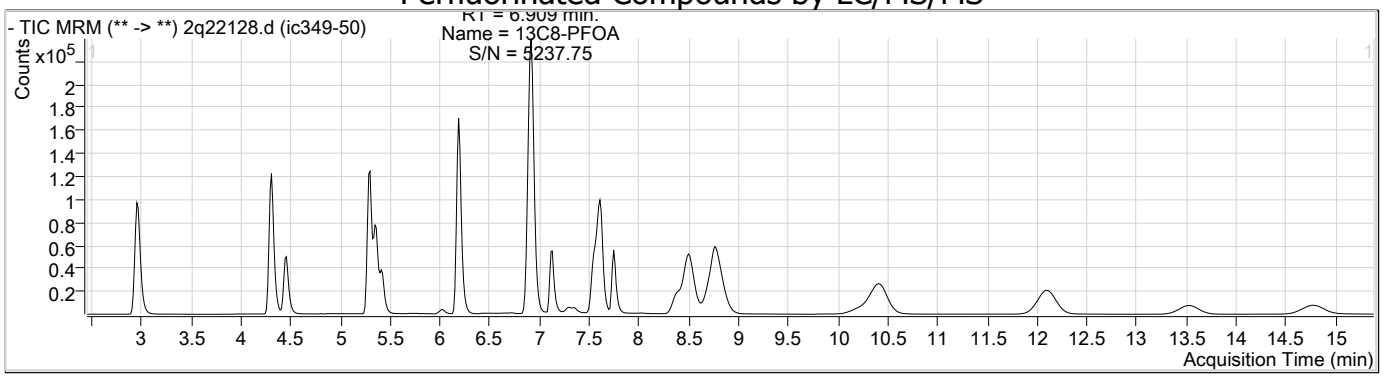
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.910	415.0 -> 370.0	150115	20.00 µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	58434	20.00 µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	293823	20.00 µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	127612	20.00 µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	122674	20.00 µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	142050	20.00 µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	120942	20.00 µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	106259	20.00 µg/L	0.000
M6-PFDA	8.504	519.0 -> 474.0	204237	20.00 µg/L	0.000
M7-PFUnDA	10.417	570.0 -> 525.0	156695	20.00 µg/L	0.013
M2-PFDoDA	12.090	615.0 -> 570.0	129028	20.00 µg/L	0.000
M2-PFTeDA	14.768	715.0 -> 670.0	48233	20.00 µg/L	-0.012
M8-FOSA	7.130	506.0 -> 78.0	74643	20.00 µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	28944	20.00 µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	34998	20.00 µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	35760	20.00 µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	154301	20.00 µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	190960	20.00 µg/L	0.001
M2-8:2FTS	8.762	529.0 -> 509.0	229806	20.00 µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	45669	20.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	5.297	329.0 -> 309.0	154307	21.97 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.8%	
13C2-6:2FTS	6.931	429.0 -> 409.0	190955	21.73 µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C2-8:2FTS	8.762	529.0 -> 509.0	229316	22.03 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.2%	
13C2-PFDoDA	12.090	615.0 -> 570.0	128451	20.47 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C2-PFTeDA	14.768	715.0 -> 670.0	47064	21.07 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C3-PFBS	4.455	302.0 -> 99.0	28938	20.32 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C3-PFHxS	6.198	402.0 -> 99.0	35001	20.20 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFBA	2.953	217.0 -> 172.0	293749	20.33 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C4-PFHpA	6.192	367.0 -> 322.0	142020	20.25 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C5-PFHxA	5.364	318.0 -> 273.0	122652	20.20 µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C5-PFPeA	4.312	268.0 -> 223.0	127590	20.31 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C6-PFDA	8.504	519.0 -> 474.0	204021	20.24 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%	

Perfluorinated Compounds by LC/MS/MS

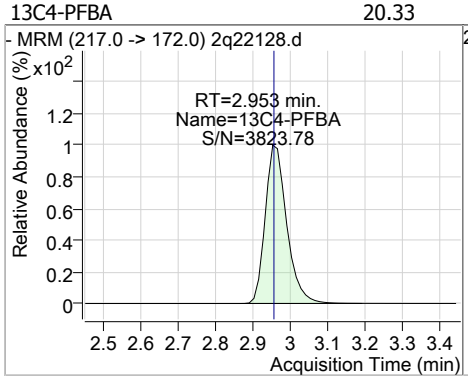
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.417	570.0 -> 525.0	156124	20.41	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%			
13C8-FOSA	7.130	506.0 -> 78.0	74645	20.28	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%			
13C8-PFOA	6.909	421.0 -> 376.0	120915	20.60	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%			
13C8-PFOS	7.546	507.0 -> 99.0	35758	20.44	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%			
13C9-PFNA	7.601	472.0 -> 427.0	106216	20.25	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%			
d3-MeFOSAA	7.620	573.0 -> 419.0	45678	20.42	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%			
M2-PFOA	6.910	415.0 -> 370.0	150152	20.01	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	58347	19.97	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	195051	50.15	µg/L		99
6:2FTS	6.932	427.0 -> 407.0	212742	49.92	µg/L		98
8:2FTS	8.765	527.0 -> 507.0	261494	50.00	µg/L		97
EtFOSAA	7.744	584.0 -> 419.0	52962	50.30	µg/L		99
FOSA	7.120	498.0 -> 78.0	90682	50.72	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	59299	50.21	µg/L		95
PFBA	2.962	213.0 -> 169.0	88659	50.09	µg/L		100
PFBS	4.447	299.0 -> 80.0	104991	50.16	µg/L		99
PFDA	8.506	513.0 -> 469.0	153548	49.95	µg/L		99
PFDoDA	12.097	613.0 -> 569.0	135716	50.04	µg/L		99
PFDS	10.212	599.0 -> 80.0	40570	50.22	µg/L		99
PFHpA	6.195	363.0 -> 319.0	265494	50.16	µg/L		100
PFHpS	6.879	449.0 -> 80.0	73204	50.26	µg/L		98
PFHxA	5.366	313.0 -> 269.0	96787	49.23	µg/L		99
PFHxS	6.189	399.0 -> 80.0	87805	49.96	µg/L	m	99
PFNA	7.602	463.0 -> 419.0	140995	50.97	µg/L		99
PFNS	8.384	549.0 -> 80.0	71018	50.85	µg/L		98
PFOA	6.912	413.0 -> 369.0	148092	49.84	µg/L		99
PFOS	7.549	499.0 -> 80.0	74928	49.55	µg/L	m	100
PFPeA	4.316	263.0 -> 219.0	292964	50.15	µg/L		100
PFPeS	5.421	349.0 -> 80.0	71975	50.26	µg/L		100
PFTeDA	14.775	713.0 -> 669.0	69322	49.96	µg/L		100
PFTrDA	13.529	663.0 -> 619.0	102143	50.18	µg/L		100
PFUnDA	10.409	563.0 -> 519.0	148207	49.88	µg/L		98

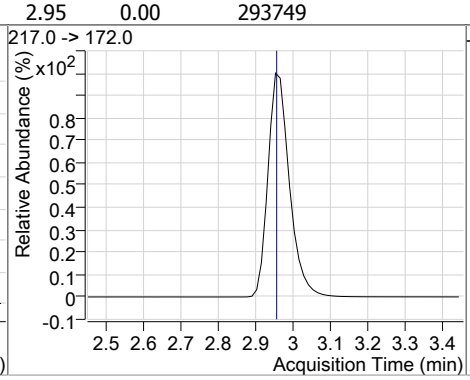
 # = Qualifier out of range, m = manually integrated, + = Area summed

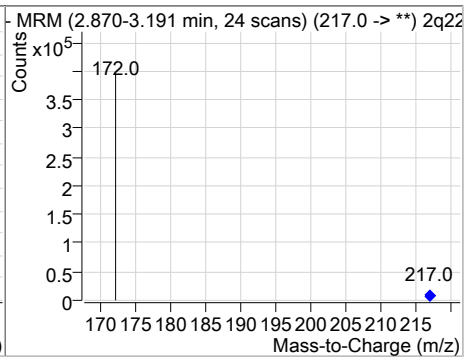
Perfluorinated Compounds by LC/MS/MS



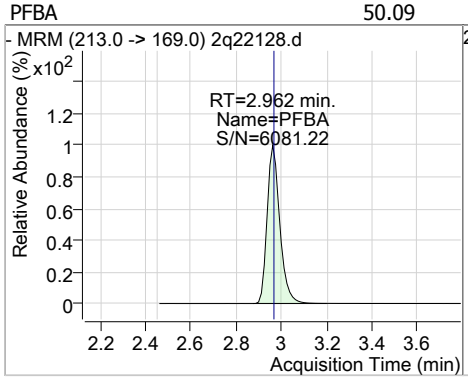
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.33	2.95	0.00	293749				

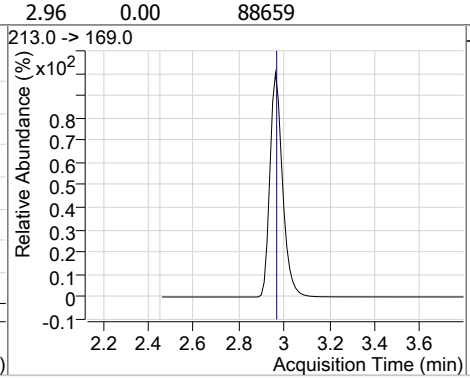


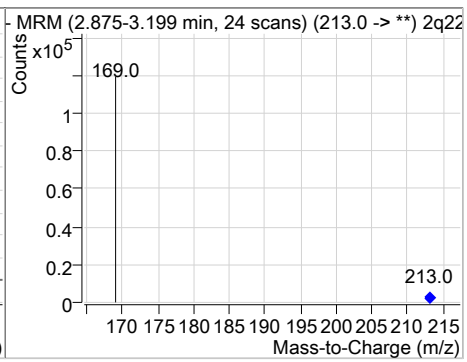




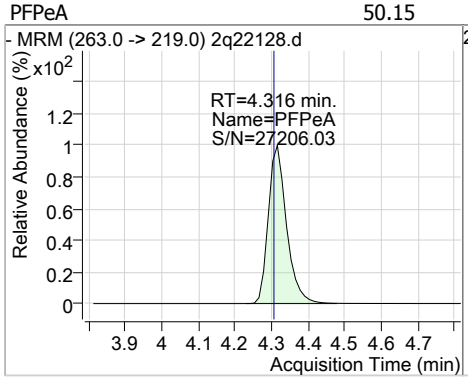
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	50.09	2.96	0.00	88659				

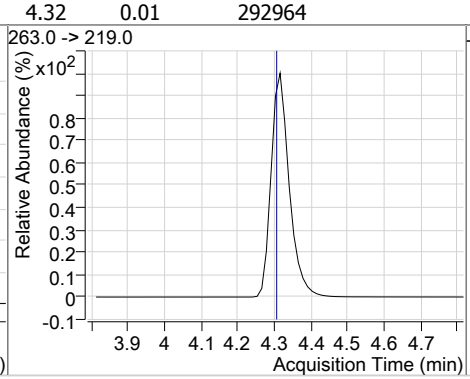


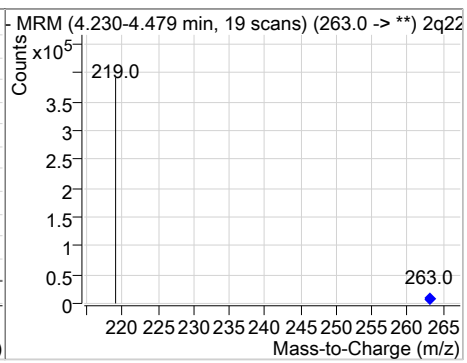




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	50.15	4.32	0.01	292964				

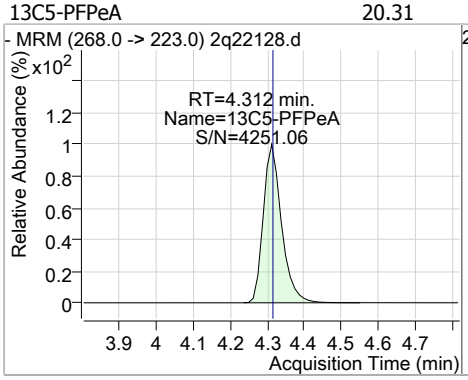


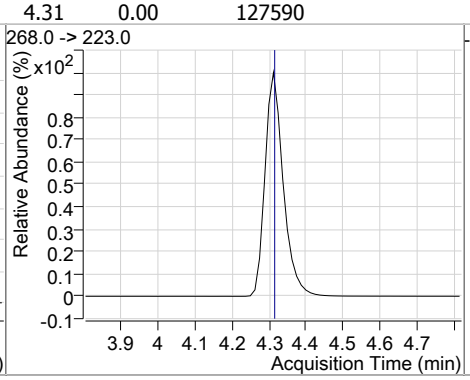


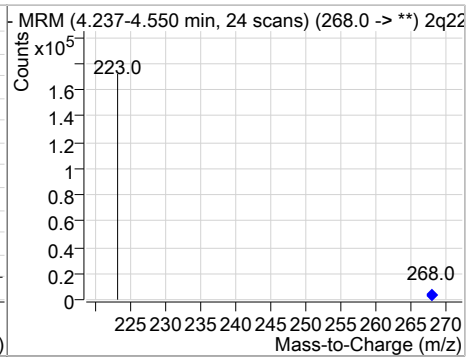


Perfluorinated Compounds by LC/MS/MS

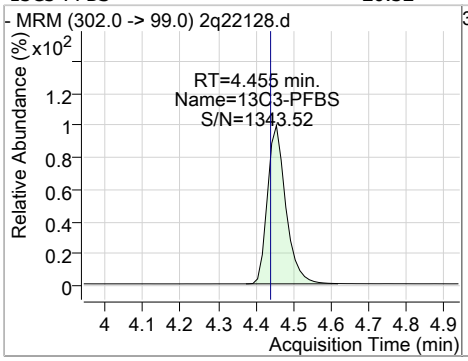
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.31	4.31	0.00	127590				

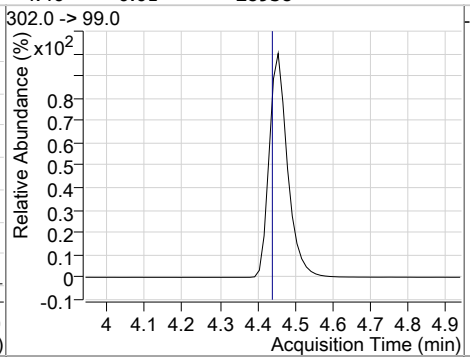


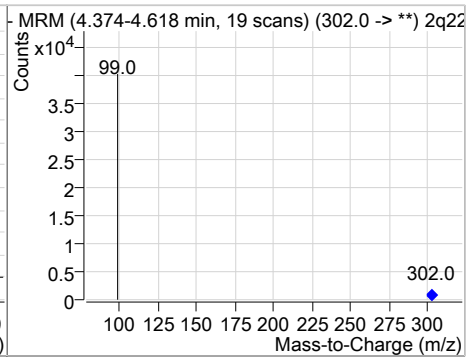




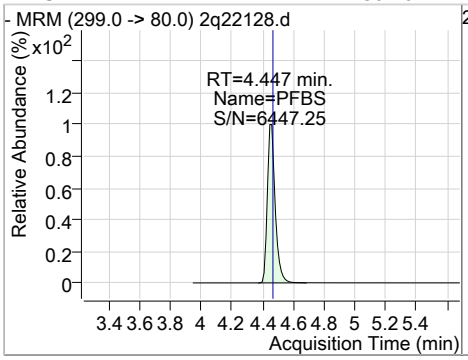
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.32	4.46	0.01	28938				

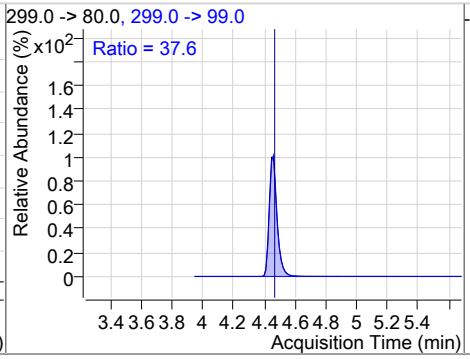


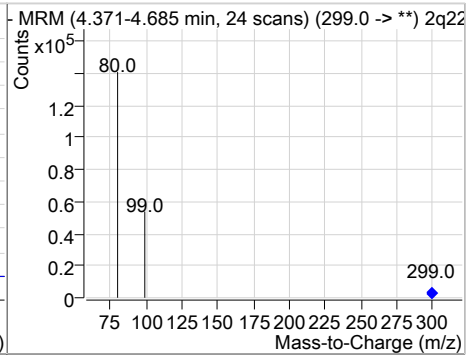




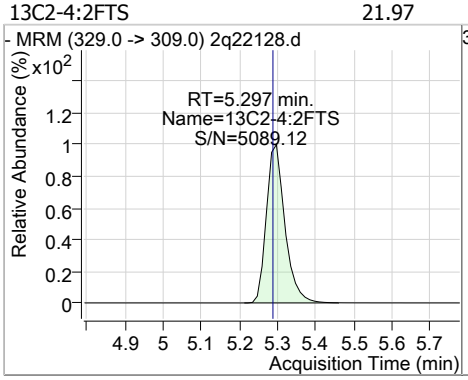
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	50.16	4.45	0.00	104991	299.0 -> 99.0	37.6	8.1	68.1

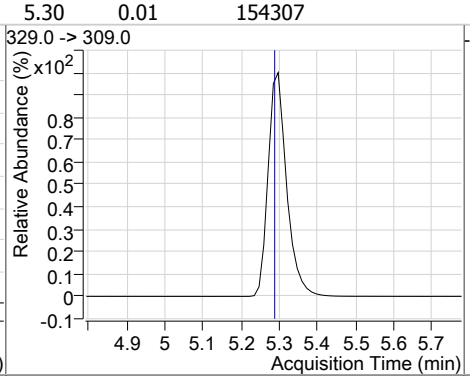


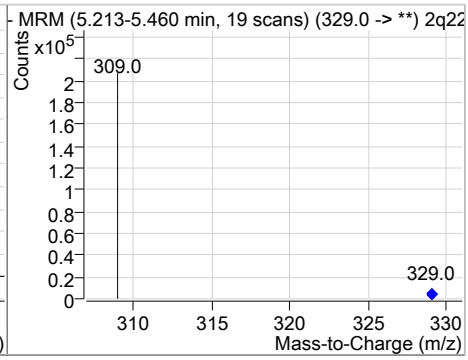




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	21.97	5.30	0.01	154307				

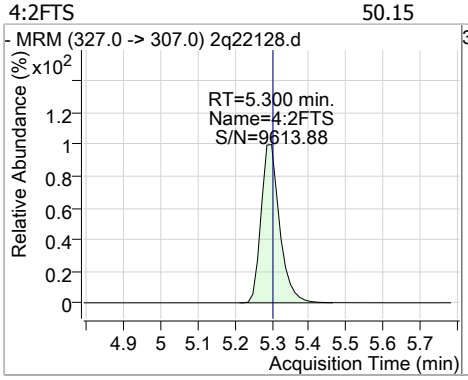


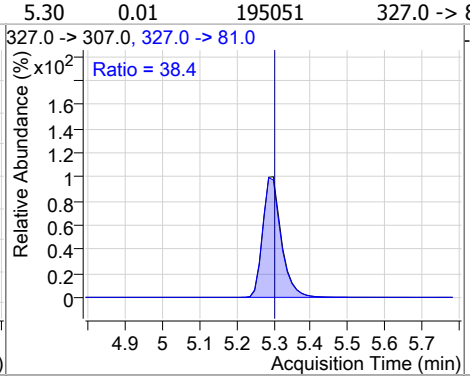


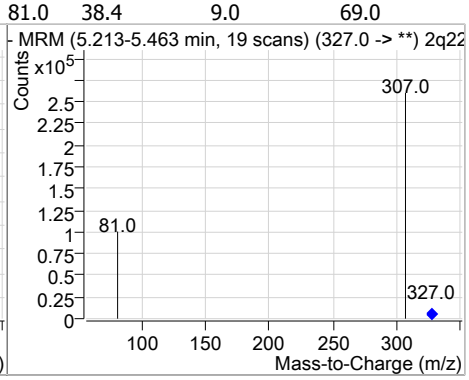


Perfluorinated Compounds by LC/MS/MS

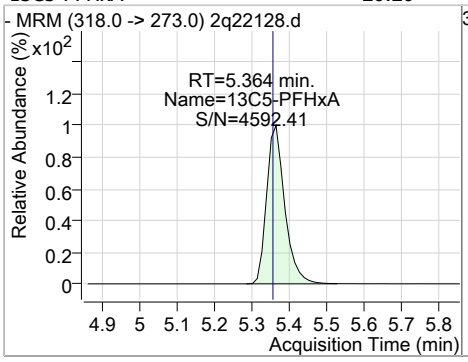
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	50.15	5.30	0.01	195051	327.0 -> 81.0	38.4	9.0	69.0

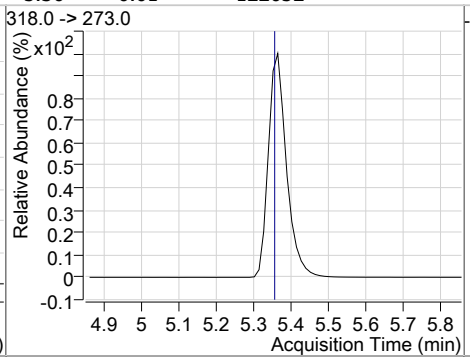


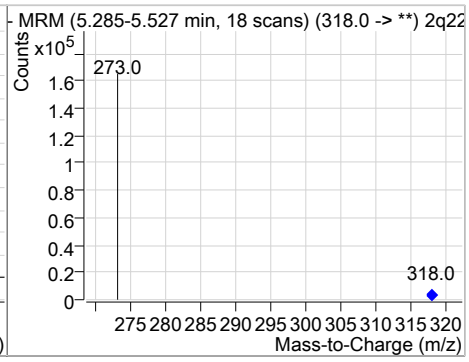




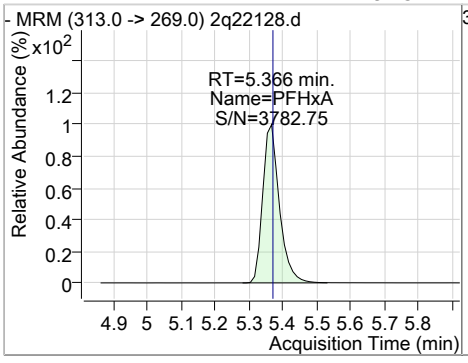
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.20	5.36	0.01	122652				

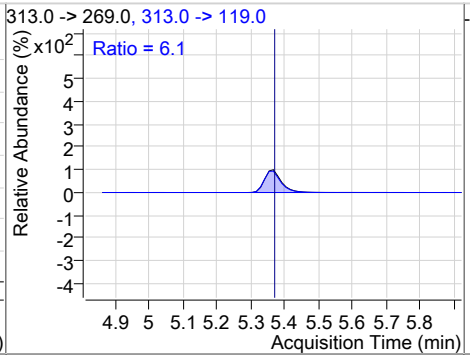


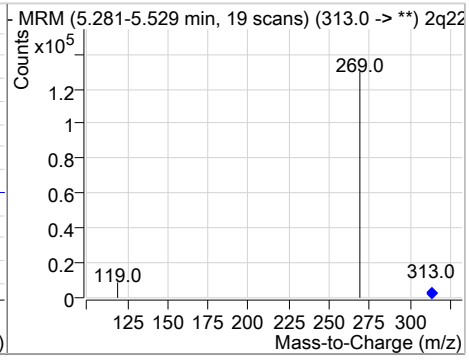




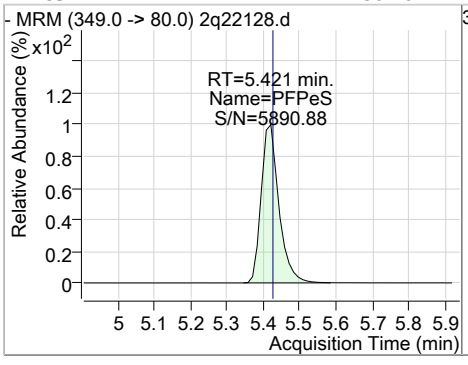
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.23	5.37	0.01	96787	313.0 -> 119.0	6.1	0.0	36.4

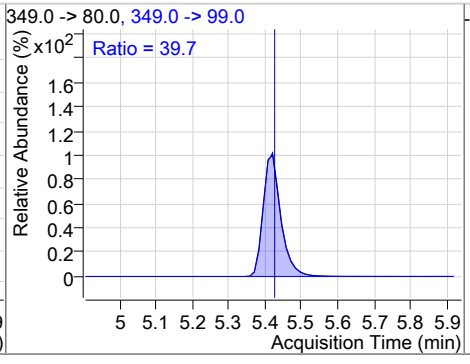


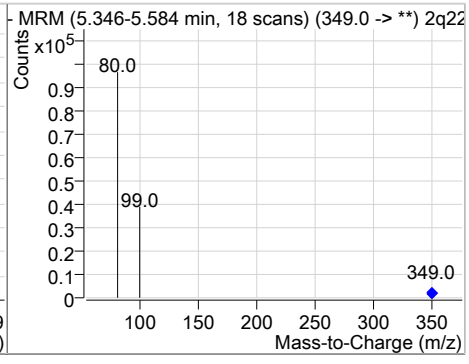




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	50.26	5.42	0.01	71975	349.0 -> 99.0	39.7	9.5	69.5

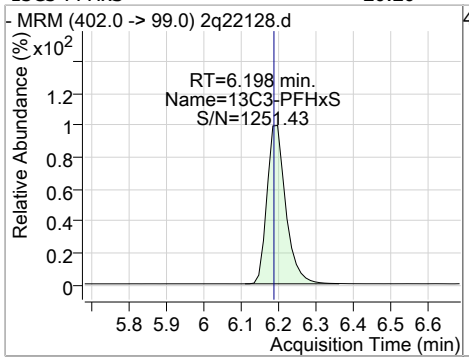


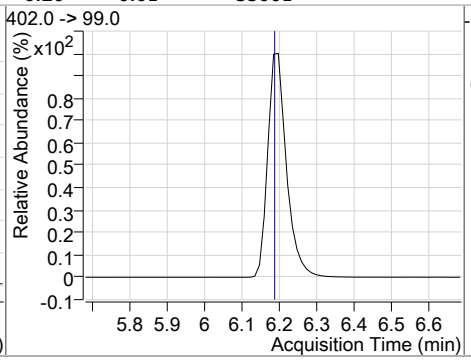


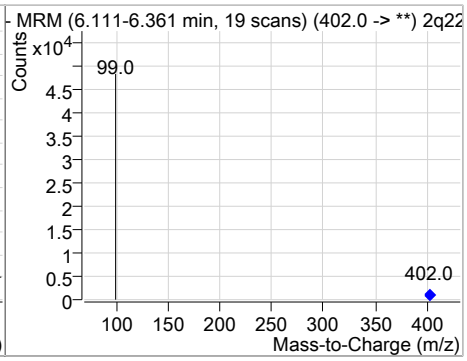


Perfluorinated Compounds by LC/MS/MS

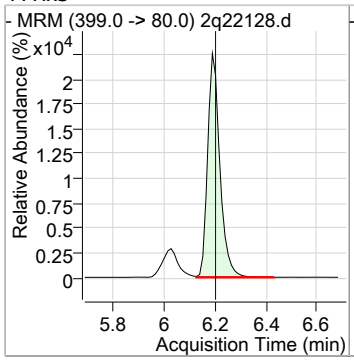
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.20	6.20	0.01	35001				

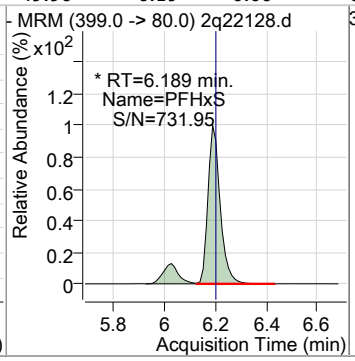


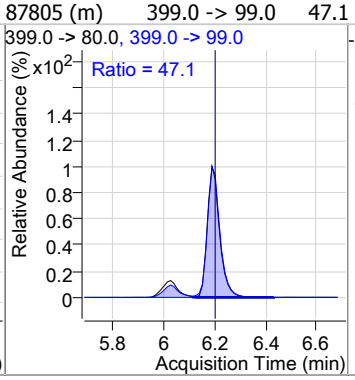


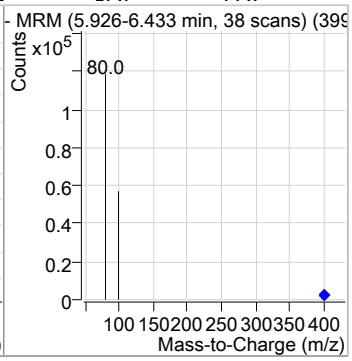


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.96	6.19	0.00	87805 (m)	399.0 -> 99.0	47.1	17.7	77.7

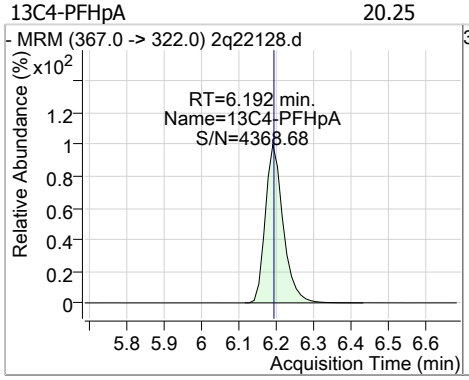


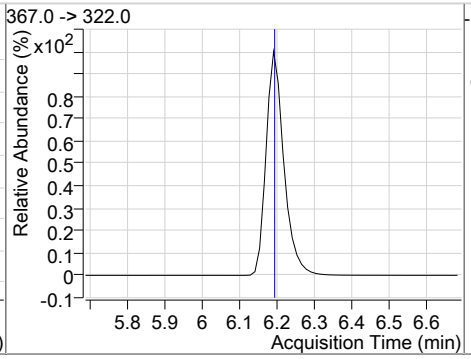


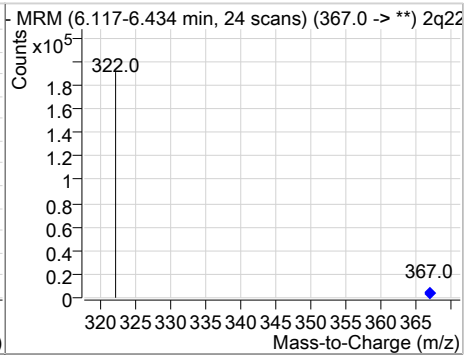




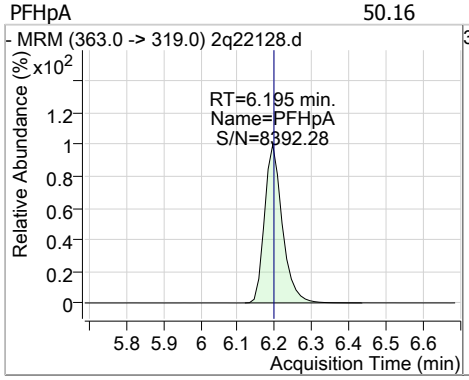
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.25	6.19	0.00	142020				

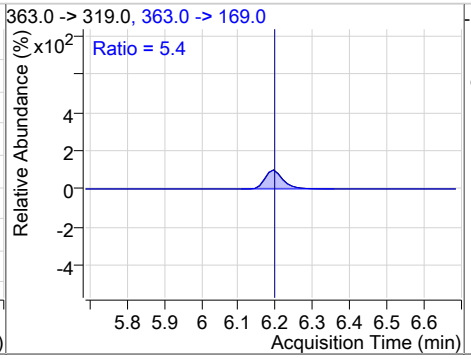


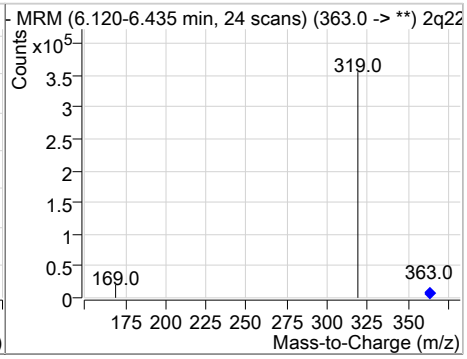




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	50.16	6.20	0.00	265494	363.0 -> 169.0	5.4	0.0	35.4

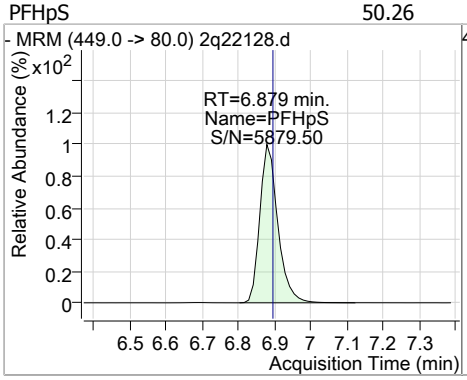


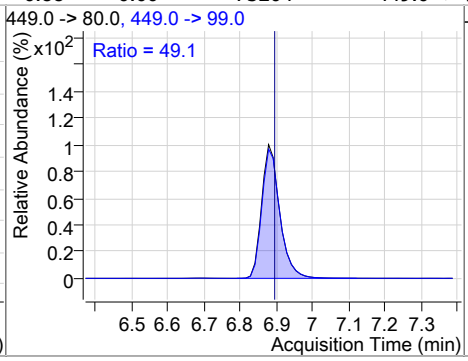


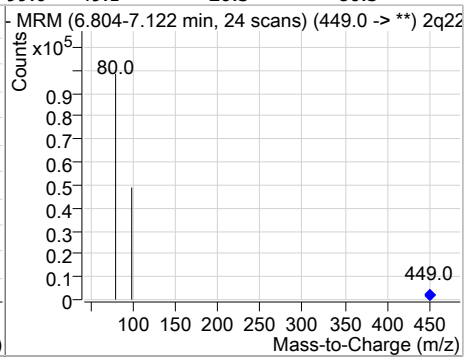


Perfluorinated Compounds by LC/MS/MS

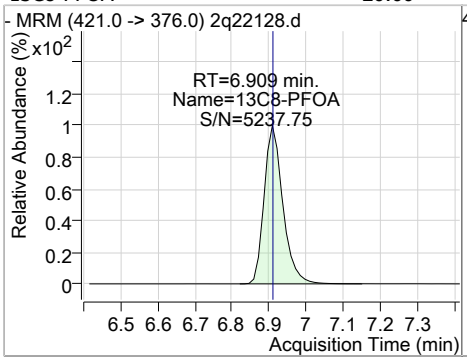
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	50.26	6.88	0.00	73204	449.0 -> 99.0	49.1	20.3	80.3

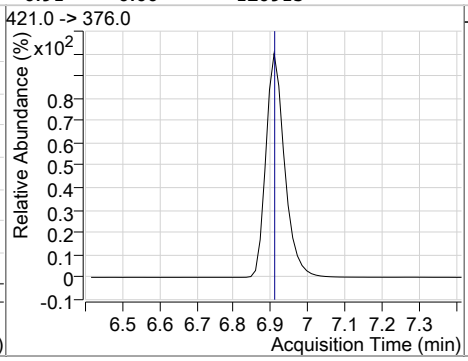


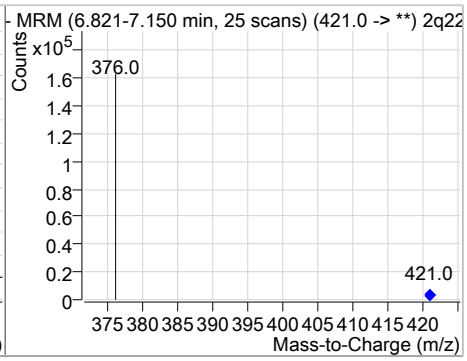




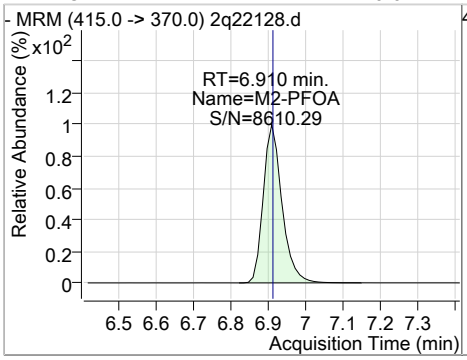
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.60	6.91	0.00	120915				

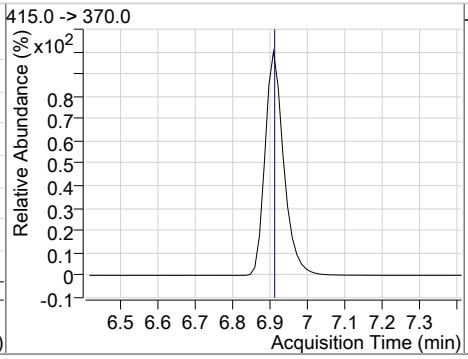


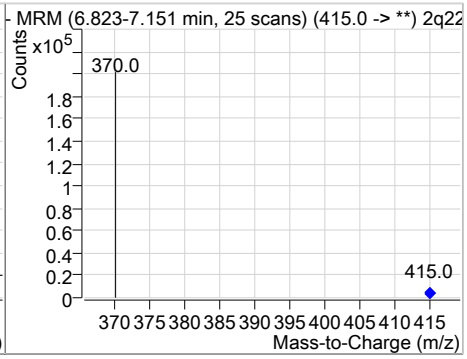




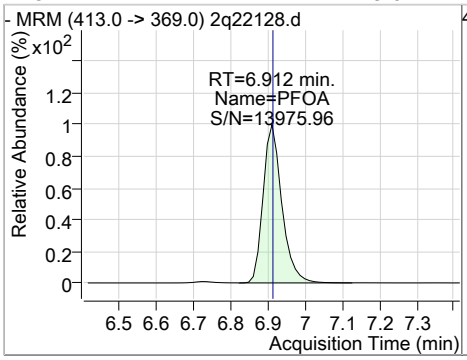
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.91	0.00	150152				

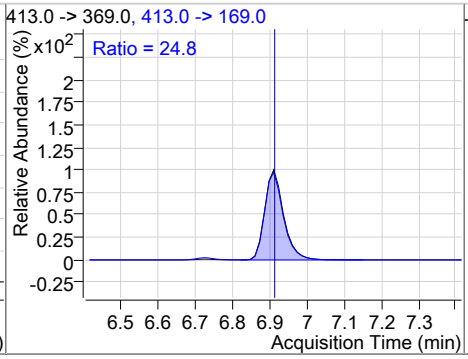


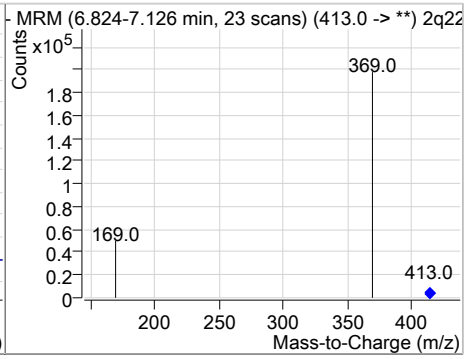




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.84	6.91	0.00	148092	413.0 -> 169.0	24.8	0.0	55.3

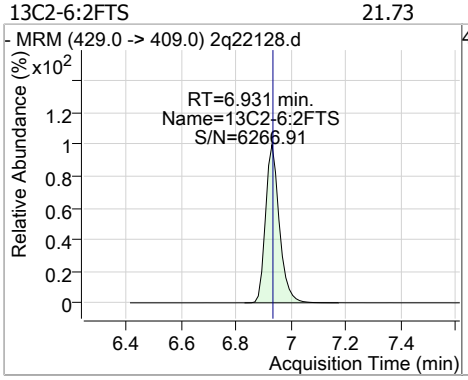


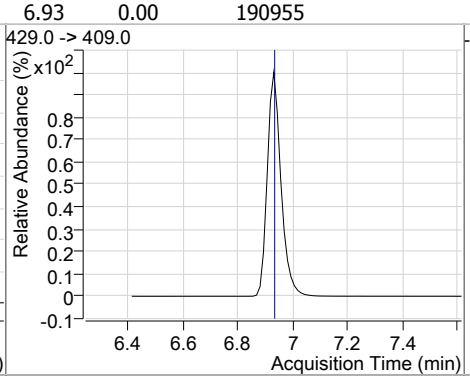


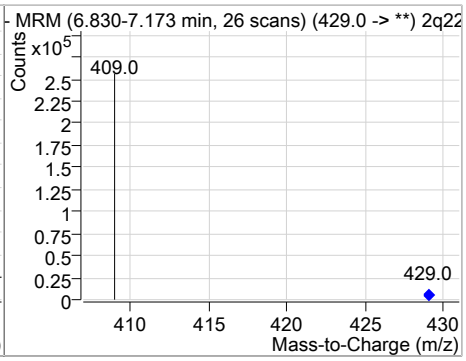


Perfluorinated Compounds by LC/MS/MS

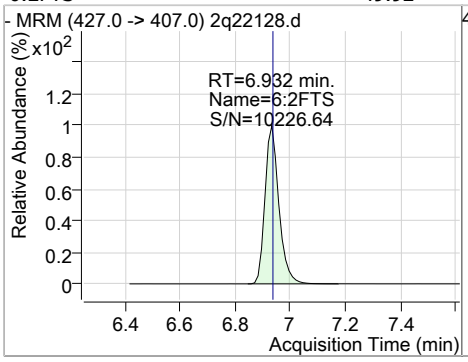
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.73	6.93	0.00	190955				

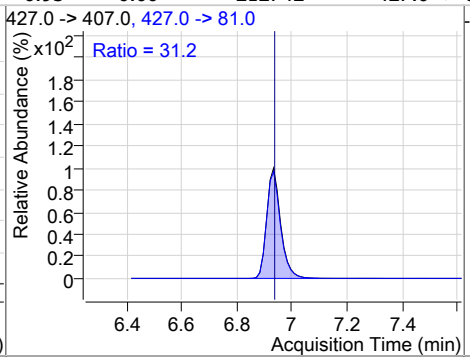


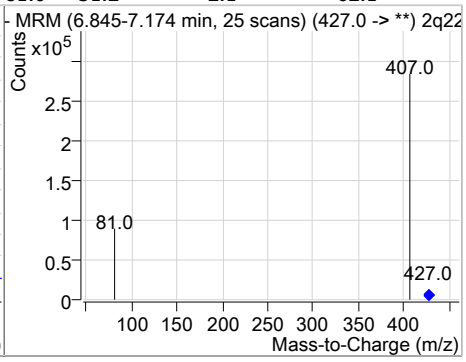




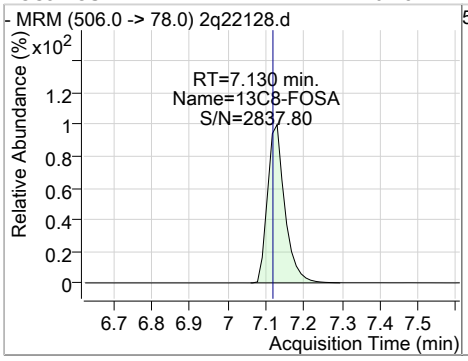
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	49.92	6.93	0.00	212742	427.0 -> 81.0	31.2	2.1	62.1

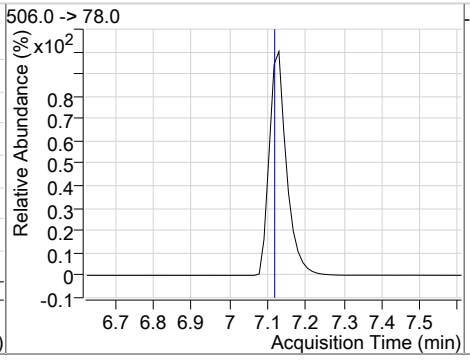


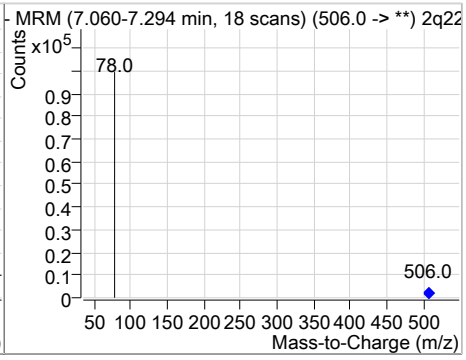




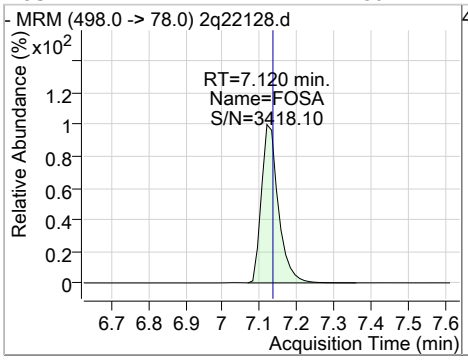
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.28	7.13	0.01	74645				

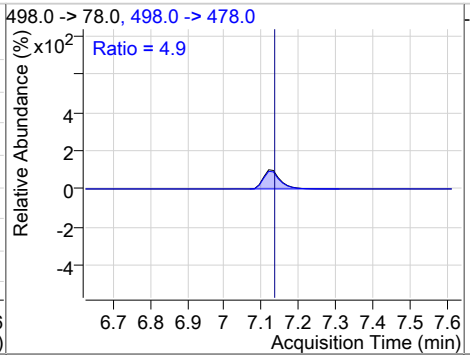


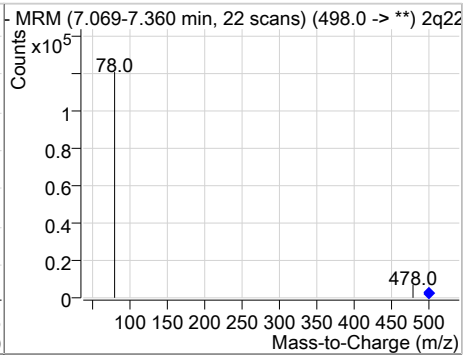




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	50.72	7.12	0.00	90682	498.0 -> 478.0	4.9	0.0	35.4

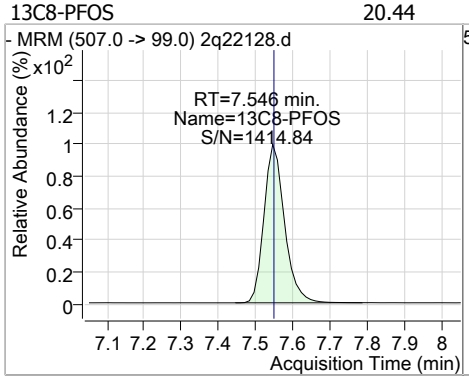


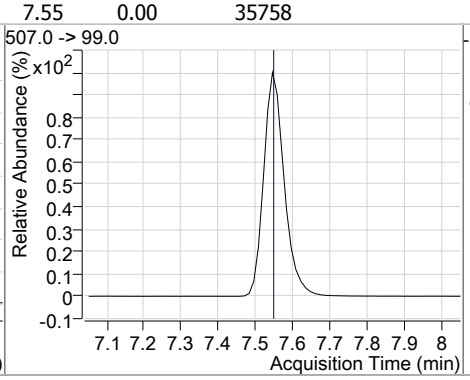


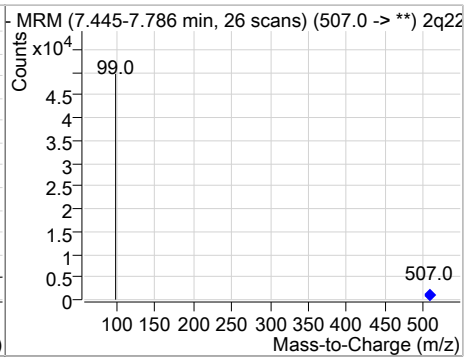


Perfluorinated Compounds by LC/MS/MS

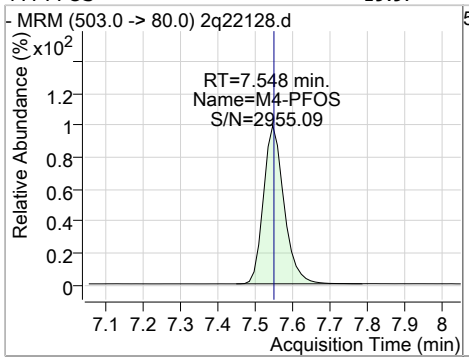
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.44	7.55	0.00	35758				

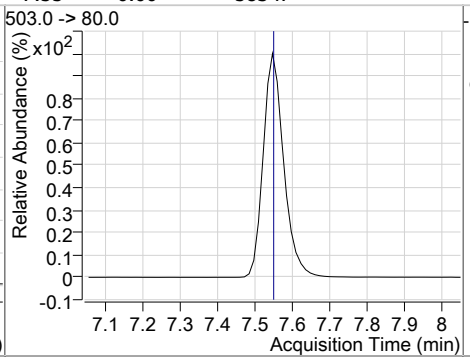


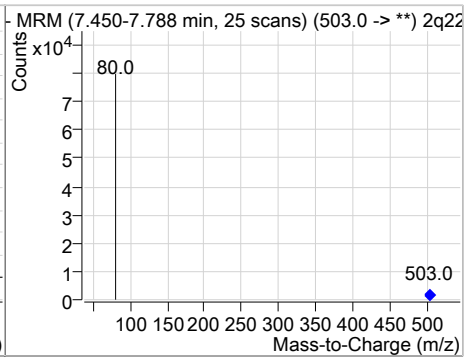




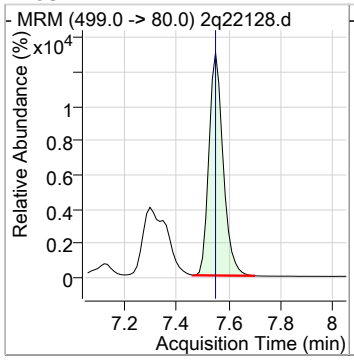
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.97	7.55	0.00	58347				

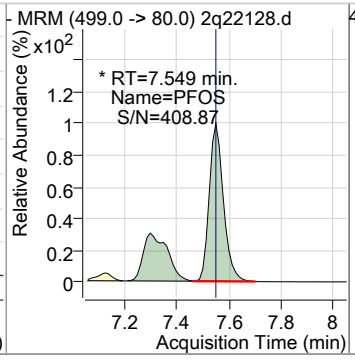


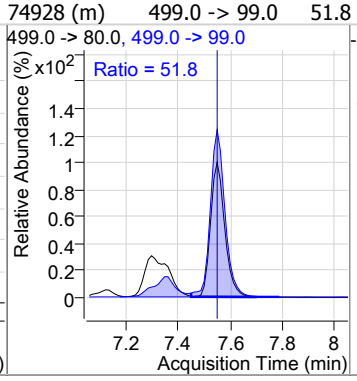


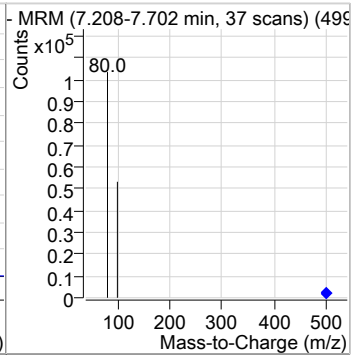


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	49.55	7.55	0.00	74928 (m)	499.0 -> 99.0	51.8	21.5	81.5

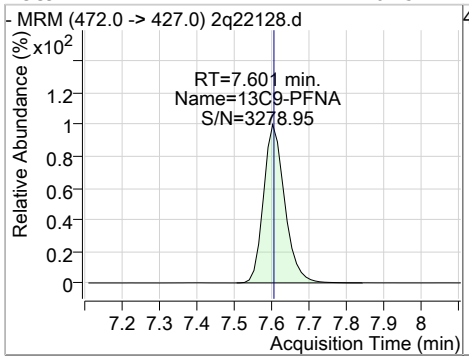


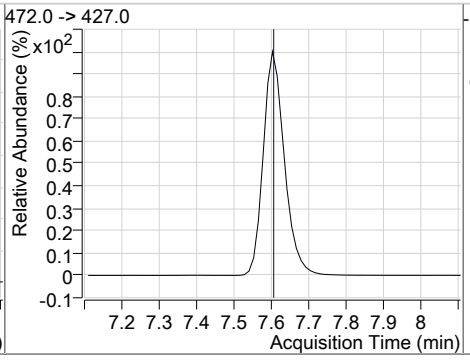


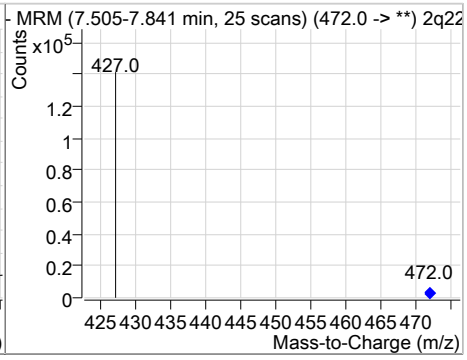




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.25	7.60	0.00	106216				

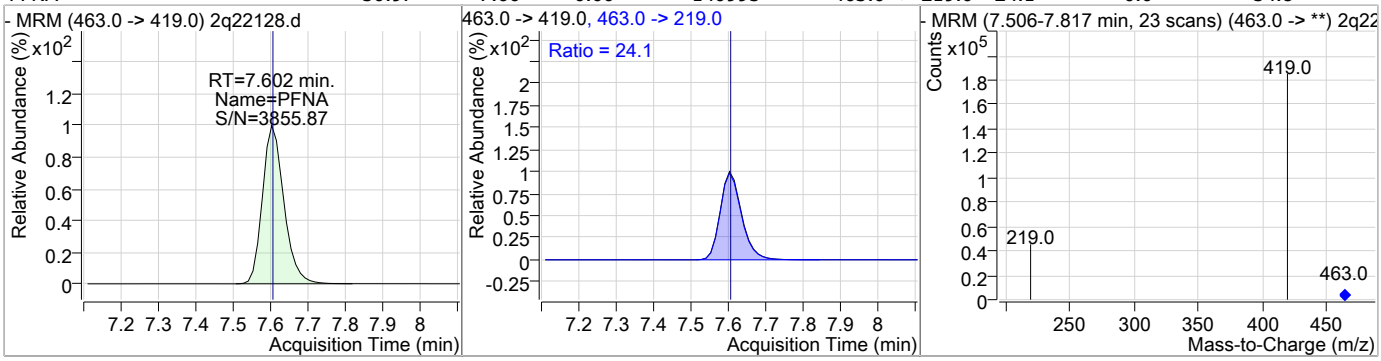




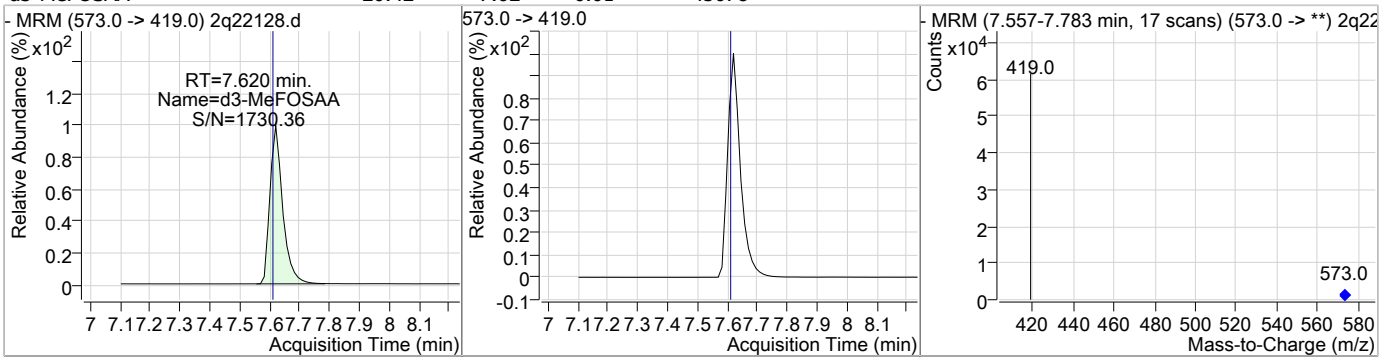


Perfluorinated Compounds by LC/MS/MS

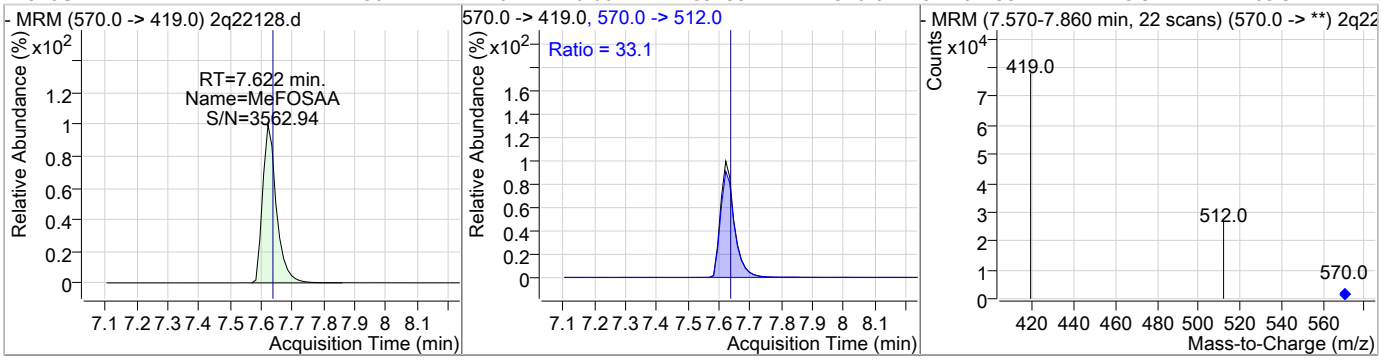
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	50.97	7.60	0.00	140995	463.0 -> 219.0	24.1	0.0	54.8



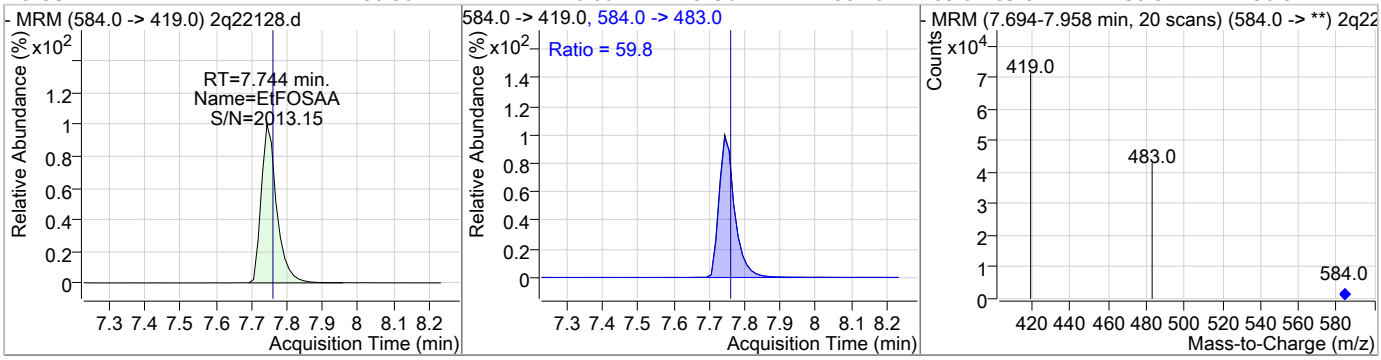
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.42	7.62	0.01	45678				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	50.21	7.62	0.00	59299	570.0 -> 512.0	33.1	5.9	65.9

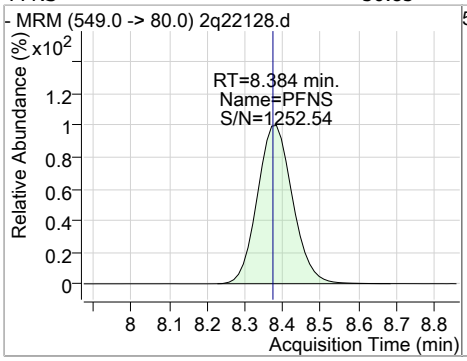


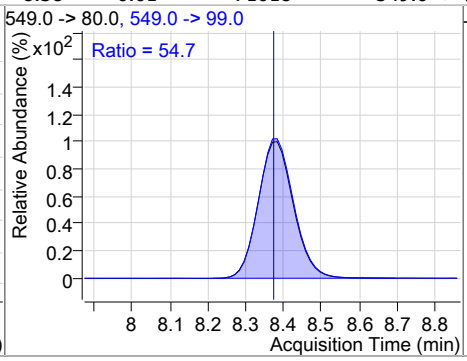
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	50.30	7.74	0.00	52962	584.0 -> 483.0	59.8	30.5	90.5

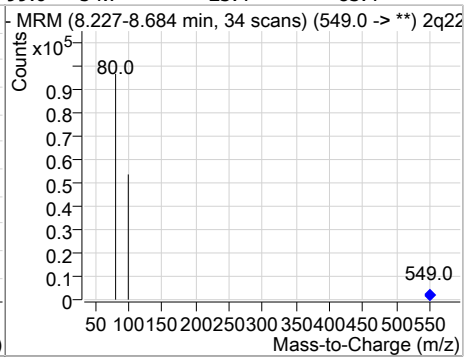


Perfluorinated Compounds by LC/MS/MS

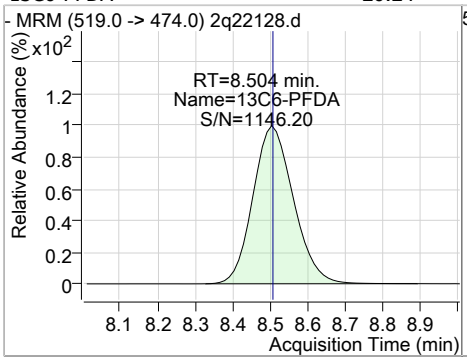
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	50.85	8.38	0.01	71018	549.0 -> 99.0	54.7	23.4	83.4

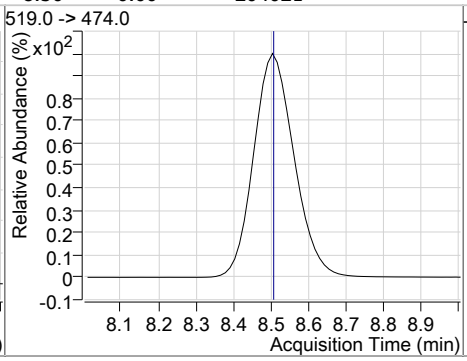


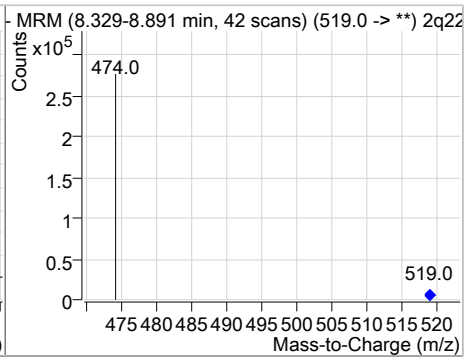




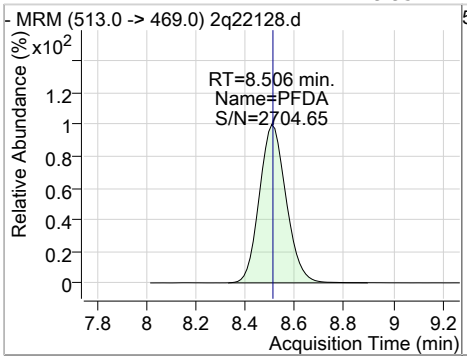
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.24	8.50	0.00	204021				

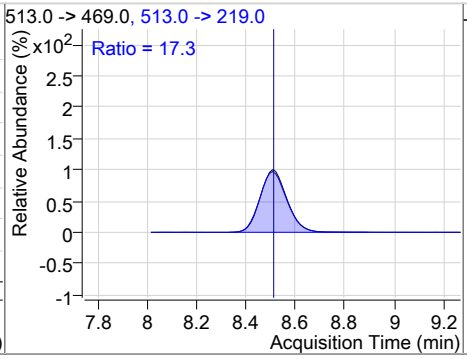


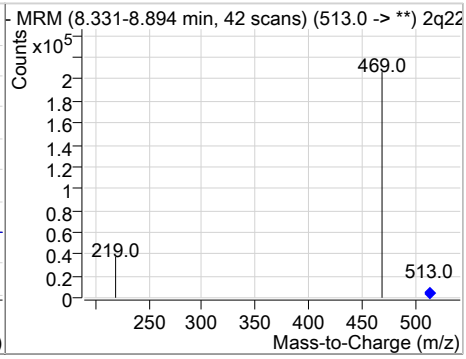




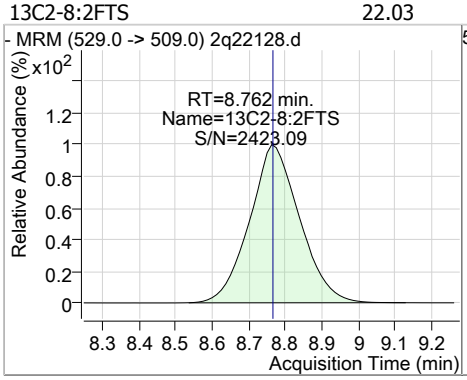
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	49.95	8.51	0.00	153548	513.0 -> 219.0	17.3	0.0	47.6

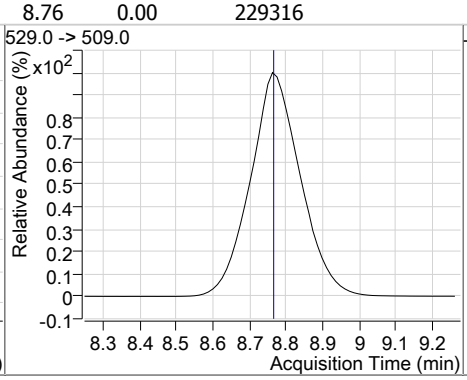


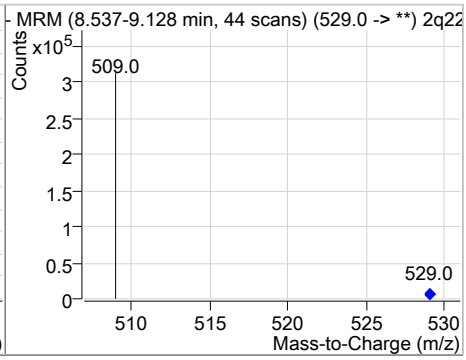




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	22.03	8.76	0.00	229316				

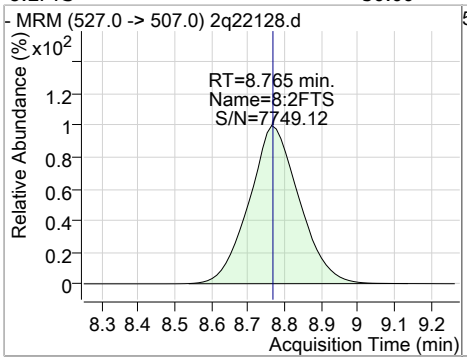


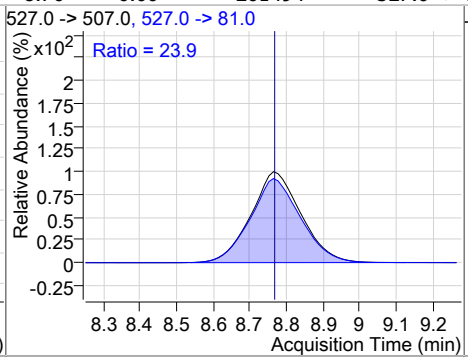


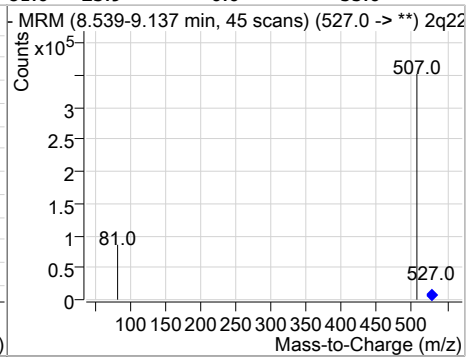


Perfluorinated Compounds by LC/MS/MS

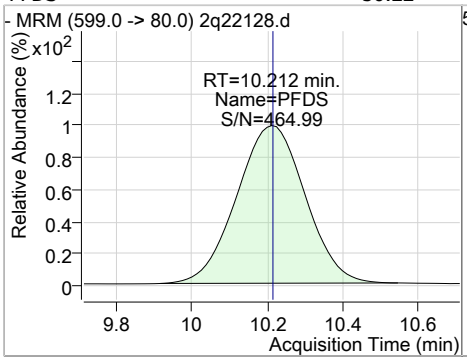
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	50.00	8.76	0.00	261494	527.0 -> 81.0	23.9	0.0	55.6

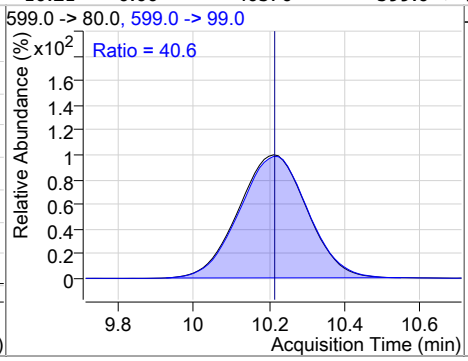


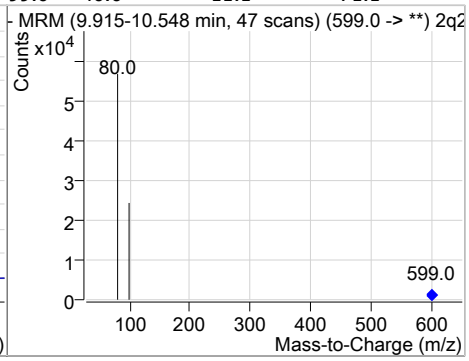




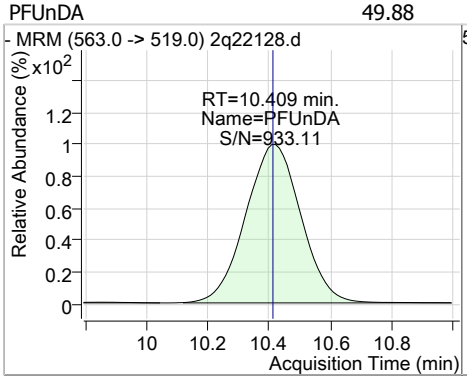
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	50.22	10.21	0.00	40570	599.0 -> 99.0	40.6	11.1	71.1

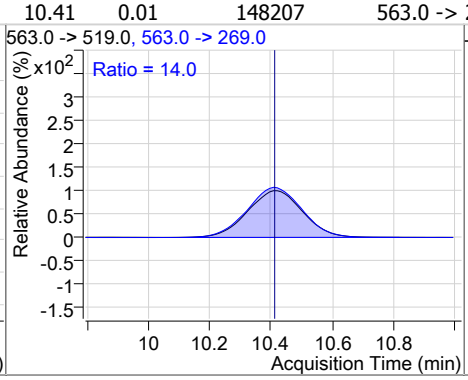


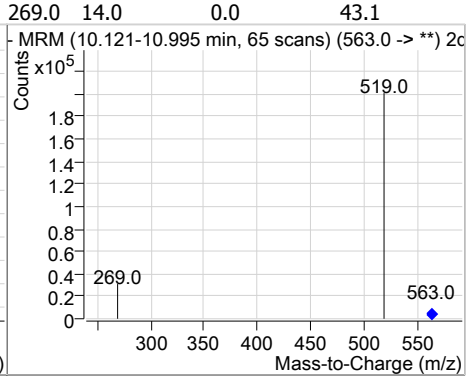




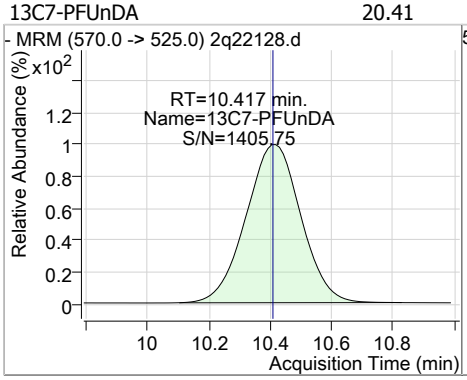
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	49.88	10.41	0.01	148207	563.0 -> 269.0	14.0	0.0	43.1

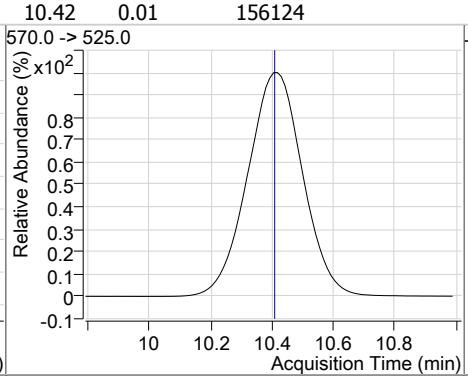


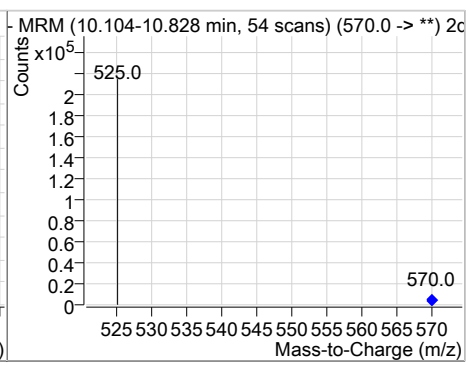




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.41	10.42	0.01	156124				

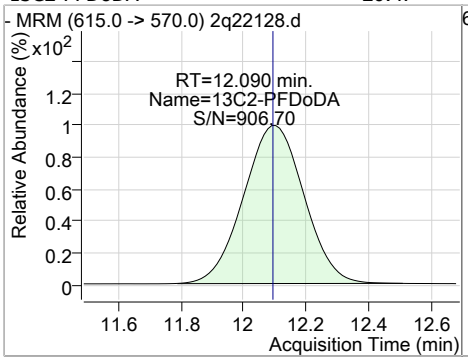


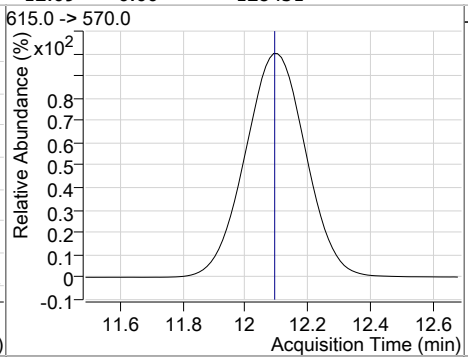


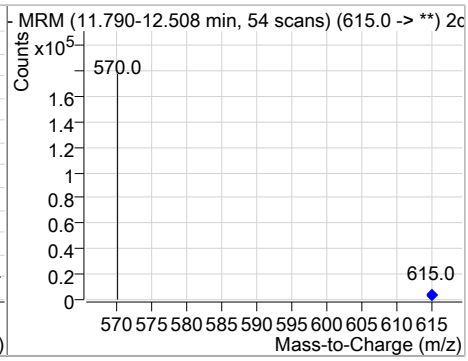


Perfluorinated Compounds by LC/MS/MS

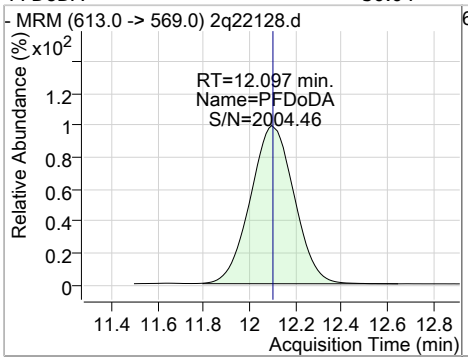
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.47	12.09	0.00	128451				

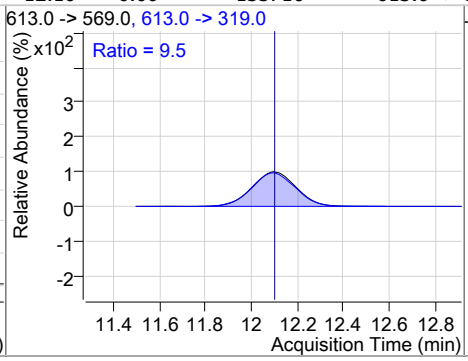


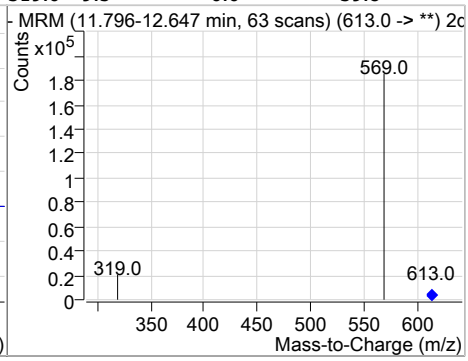




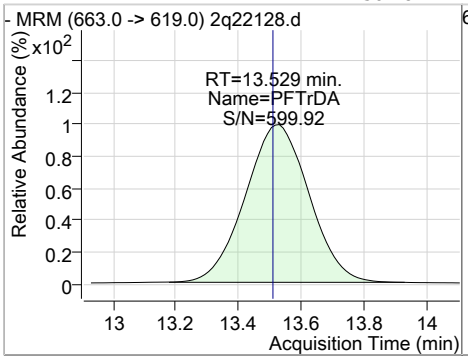
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	50.04	12.10	0.00	135716	613.0 -> 319.0	9.5	0.0	39.8

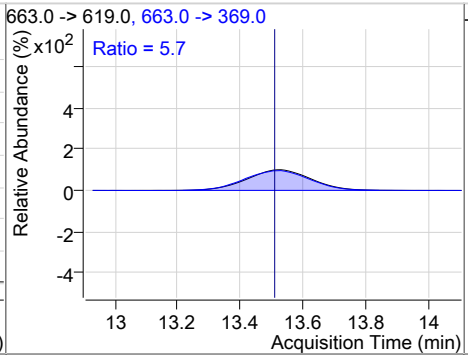


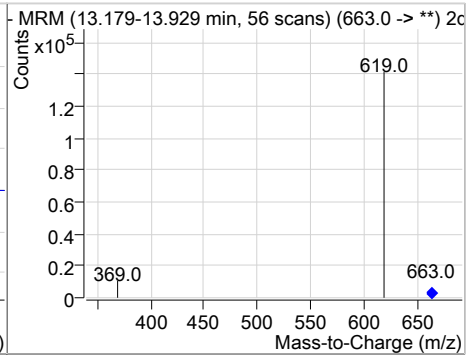




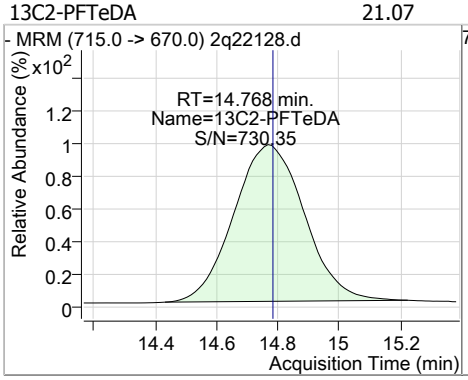
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	50.18	13.53	0.01	102143	663.0 -> 369.0	5.7	0.0	35.8

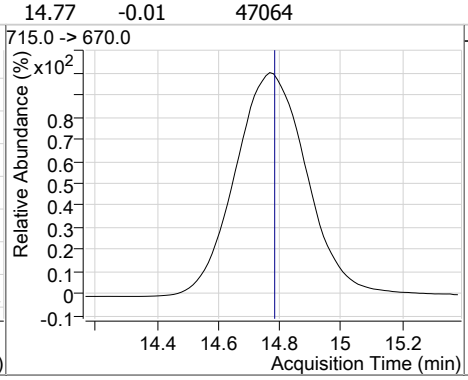


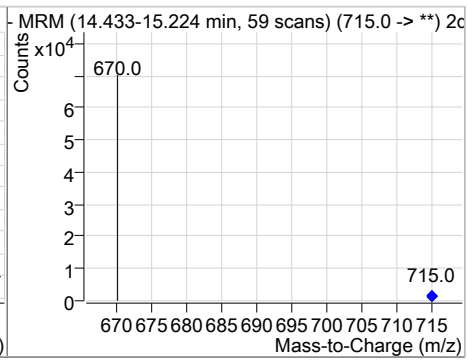




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.07	14.77	-0.01	47064				

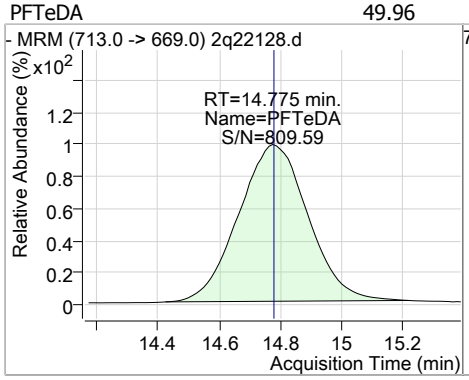


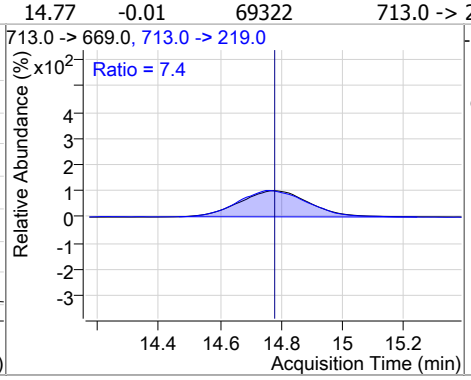


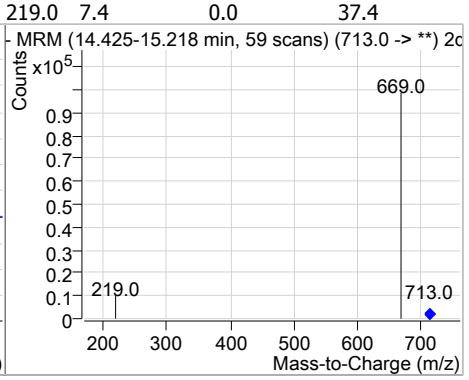


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	49.96	14.77	-0.01	69322	713.0 -> 219.0	7.4	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-IC349
Lab FileID: 2Q22128.D
Injection Time: 10/15/18 13:27
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22129.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 1:48:28 PM
Sample Name : ic349-100
Vial : Vial 9
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

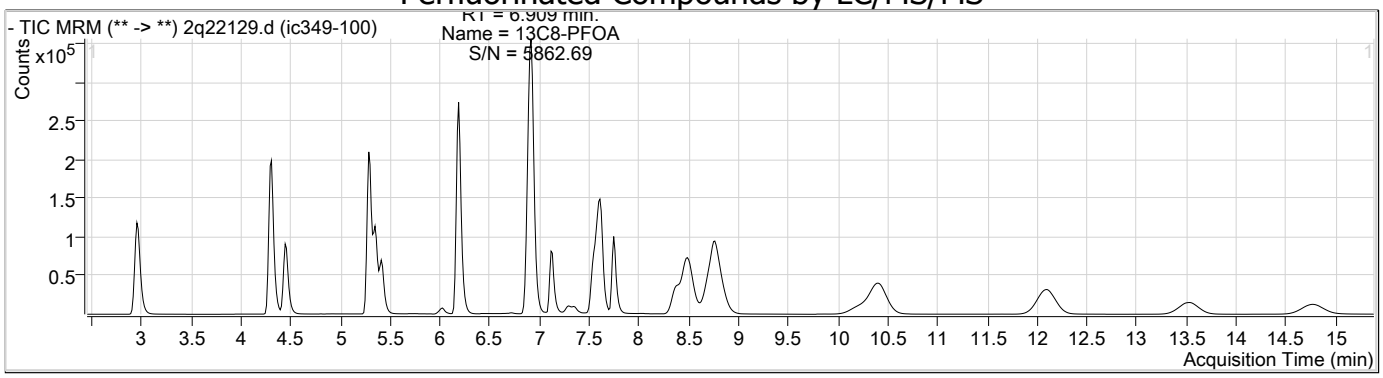
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	146740	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	56972	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	290701	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	127190	20.00	µg/L	0.000
M5-PFHxA	5.352	318.0 -> 273.0	116769	20.00	µg/L	-0.001
M4-PFHpA	6.192	367.0 -> 322.0	136777	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	116383	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	106550	20.00	µg/L	0.000
M6-PFDA	8.491	519.0 -> 474.0	197339	20.00	µg/L	-0.013
M7-PFUnDA	10.404	570.0 -> 525.0	155286	20.00	µg/L	0.000
M2-PFDoDA	12.090	615.0 -> 570.0	129177	20.00	µg/L	0.000
M2-PFTeDA	14.768	715.0 -> 670.0	48625	20.00	µg/L	-0.012
M8-FOSA	7.130	506.0 -> 78.0	71644	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	28392	20.00	µg/L	0.012
M3-PFHxS	6.186	402.0 -> 99.0	33970	20.00	µg/L	0.000
M8-PFOS	7.546	507.0 -> 99.0	35534	20.00	µg/L	0.000
M2-4:2FTS	5.285	329.0 -> 309.0	171167	20.00	µg/L	0.000
M2-6:2FTS	6.931	429.0 -> 409.0	207509	20.00	µg/L	0.001
M2-8:2FTS	8.762	529.0 -> 509.0	257766	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	44757	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.285	329.0 -> 309.0	171195	24.37	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 121.9%		
13C2-6:2FTS	6.931	429.0 -> 409.0	207565	23.62	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 118.1%		
13C2-8:2FTS	8.762	529.0 -> 509.0	256477	24.64	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 123.2%		
13C2-PFDoDA	12.090	615.0 -> 570.0	128593	20.49	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C2-PFTeDA	14.768	715.0 -> 670.0	47598	21.31	µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.6%		
13C3-PFBS	4.455	302.0 -> 99.0	28379	19.93	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C3-PFHxS	6.186	402.0 -> 99.0	33971	19.61	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C4-PFBA	2.953	217.0 -> 172.0	290495	20.11	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C4-PFHpA	6.192	367.0 -> 322.0	136684	19.49	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.4%		
13C5-PFHxA	5.352	318.0 -> 273.0	116698	19.22	µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C5-PFPeA	4.312	268.0 -> 223.0	127178	20.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C6-PFDA	8.491	519.0 -> 474.0	196971	19.54	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.7%		

Perfluorinated Compounds by LC/MS/MS

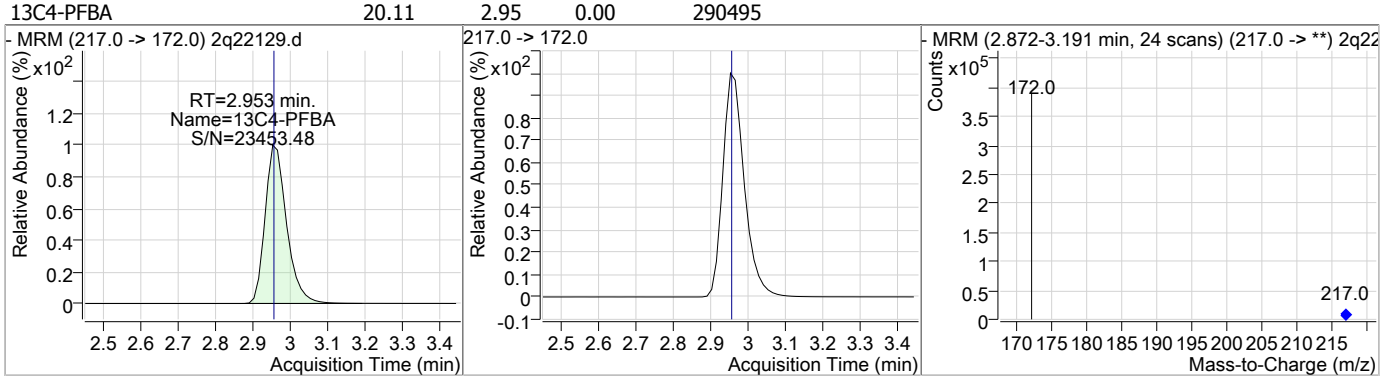
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.404	570.0 -> 525.0	154690	20.23	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%			
13C8-FOSA	7.130	506.0 -> 78.0	71645	19.47	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%			
13C8-PFOA	6.909	421.0 -> 376.0	116364	19.82	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%			
13C8-PFOS	7.546	507.0 -> 99.0	35532	20.31	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%			
13C9-PFNA	7.601	472.0 -> 427.0	106573	20.31	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%			
d3-MeFOSAA	7.620	573.0 -> 419.0	44748	20.01	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M2-PFOA	6.910	415.0 -> 370.0	146683	19.99	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	56980	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.287	327.0 -> 307.0	383023	99.95	µg/L		100
6:2FTS	6.932	427.0 -> 407.0	416261	100.01	µg/L		99
8:2FTS	8.765	527.0 -> 507.0	523458	99.99	µg/L		97
EtFOSAA	7.744	584.0 -> 419.0	103144	99.97	µg/L		99
FOSA	7.120	498.0 -> 78.0	171152	99.73	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	115787	100.04	µg/L		95
PFBA	2.962	213.0 -> 169.0	175260	100.09	µg/L		100
PFBS	4.447	299.0 -> 80.0	205212	99.95	µg/L		100
PFDA	8.494	513.0 -> 469.0	297555	100.18	µg/L		100
PFDoDA	12.097	613.0 -> 569.0	271789	100.09	µg/L		99
PFDS	10.200	599.0 -> 80.0	80258	99.97	µg/L		98
PFHpA	6.195	363.0 -> 319.0	509245	99.93	µg/L		100
PFHpS	6.879	449.0 -> 80.0	141362	100.00	µg/L		99
PFHxA	5.354	313.0 -> 269.0	188171	100.55	µg/L		99
PFHxS	6.189	399.0 -> 80.0	170844	100.16	µg/L	m	99
PFNA	7.602	463.0 -> 419.0	276199	99.57	µg/L		99
PFNS	8.371	549.0 -> 80.0	138221	99.60	µg/L		98
PFOA	6.912	413.0 -> 369.0	286180	100.08	µg/L		98
PFOS	7.549	499.0 -> 80.0	150922	100.44	µg/L	m	98
PFPeA	4.316	263.0 -> 219.0	575747	99.96	µg/L		100
PFPeS	5.408	349.0 -> 80.0	140419	99.97	µg/L		99
PFTeDA	14.775	713.0 -> 669.0	140007	100.08	µg/L		100
PFTrDA	13.529	663.0 -> 619.0	205201	99.99	µg/L		99
PFUnDA	10.409	563.0 -> 519.0	295077	100.22	µg/L		98

 # = Qualifier out of range, m = manually integrated, + = Area summed

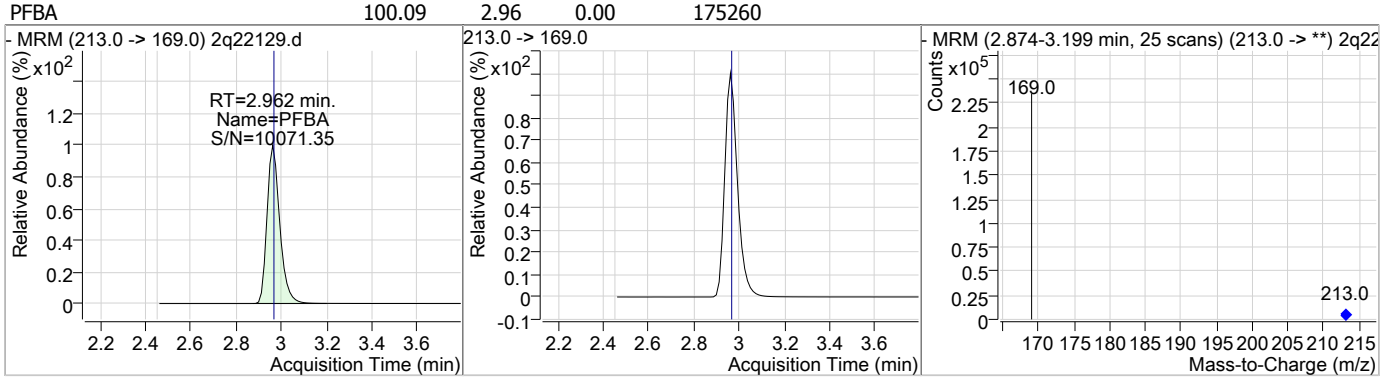
Perfluorinated Compounds by LC/MS/MS



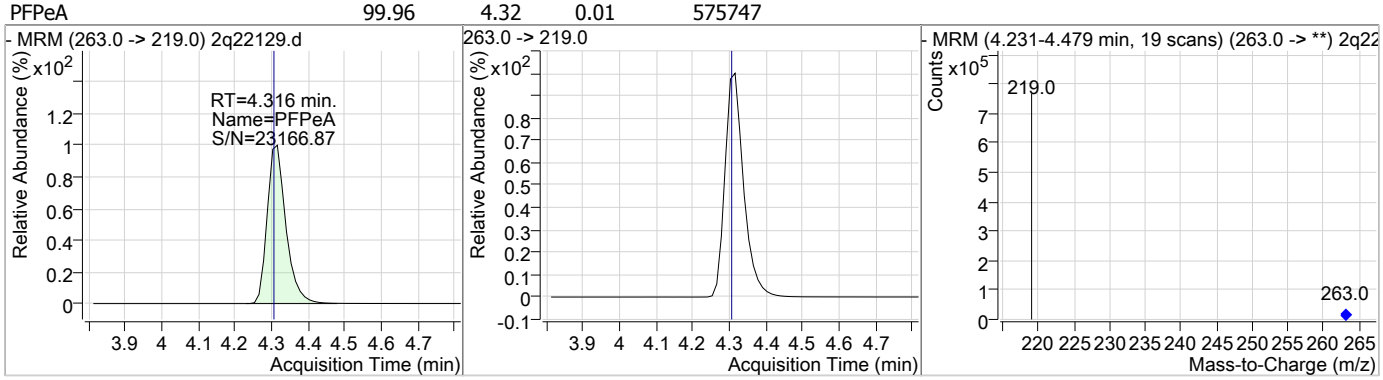
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.11	2.95	0.00	290495				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	100.09	2.96	0.00	175260				

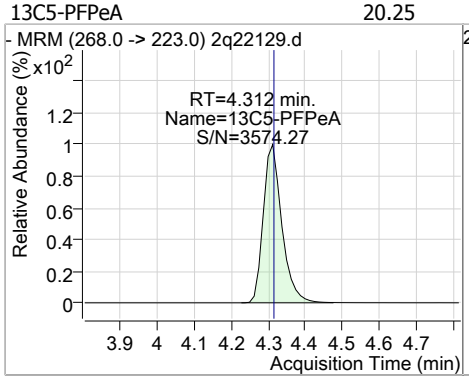


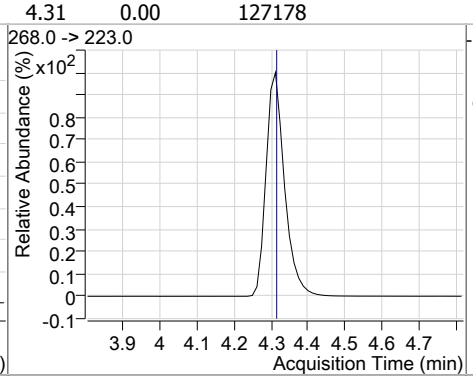
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	99.96	4.32	0.01	575747				

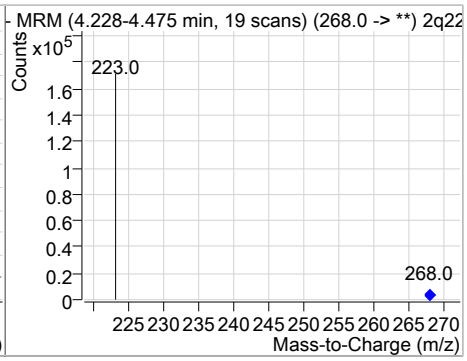


Perfluorinated Compounds by LC/MS/MS

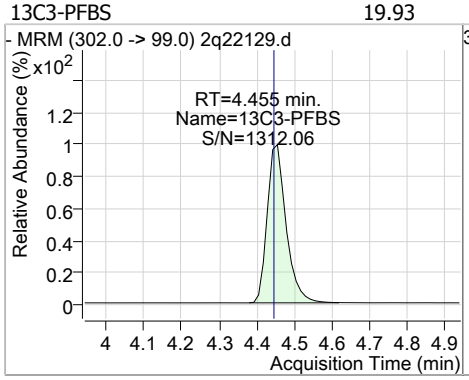
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.25	4.31	0.00	127178				

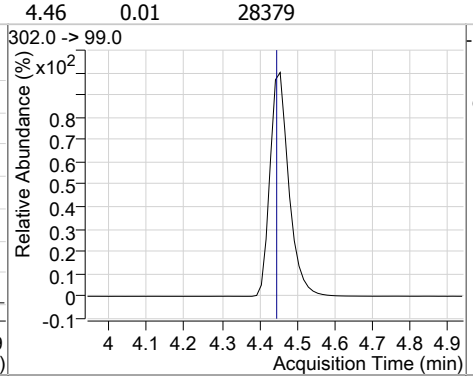


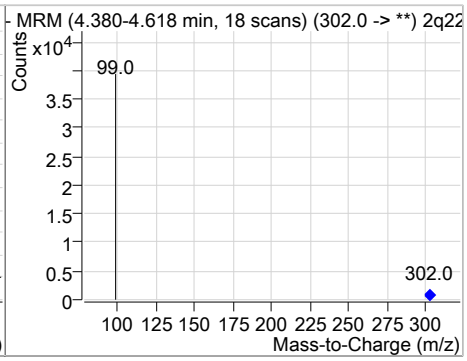




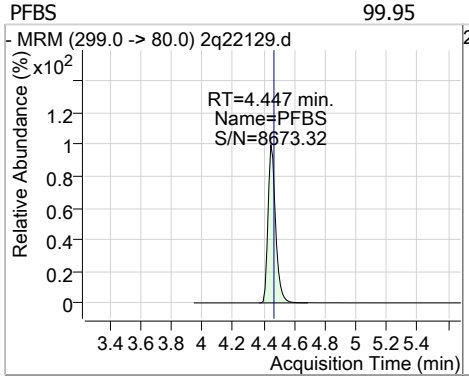
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.93	4.46	0.01	28379				

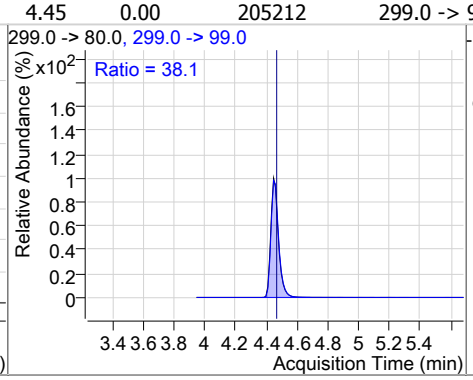


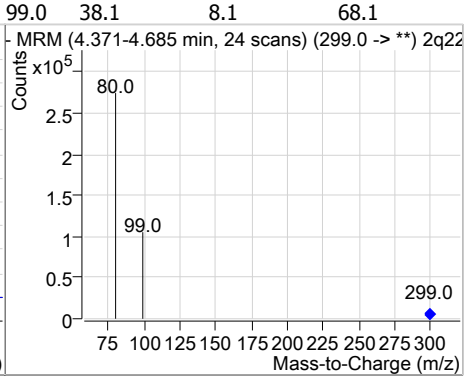




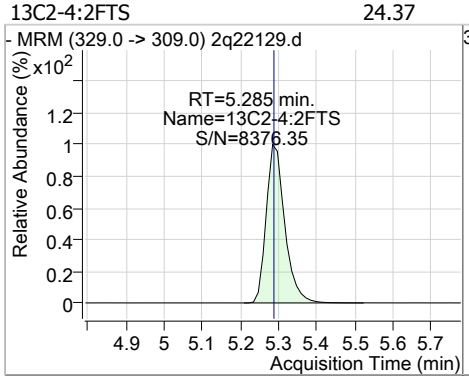
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.95	4.45	0.00	205212	299.0 -> 99.0	38.1	8.1	68.1

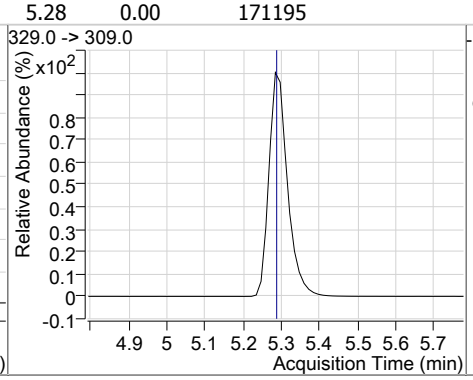


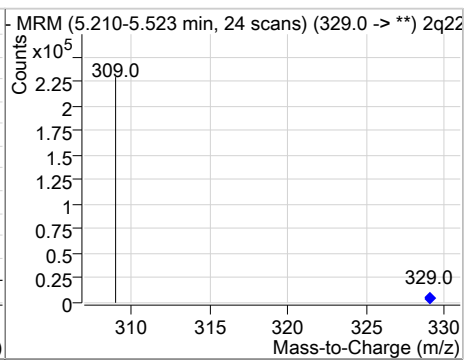




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	24.37	5.28	0.00	171195				

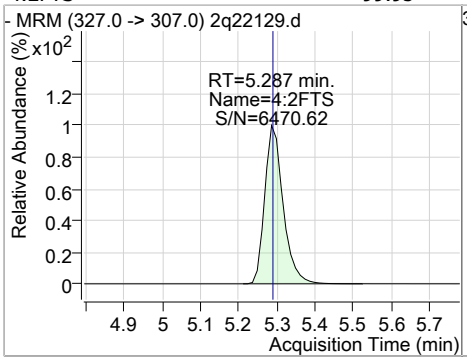


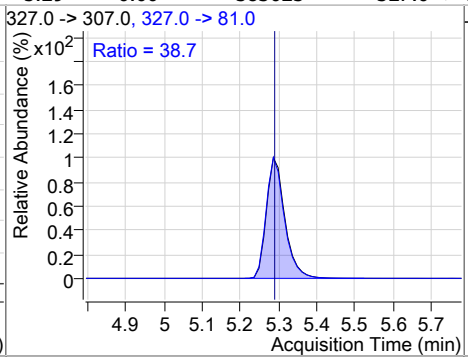


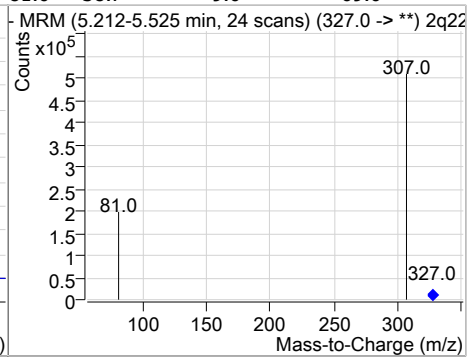


Perfluorinated Compounds by LC/MS/MS

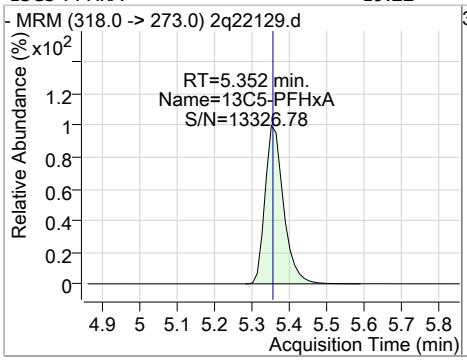
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	99.95	5.29	0.00	383023	327.0 -> 81.0	38.7	9.0	69.0

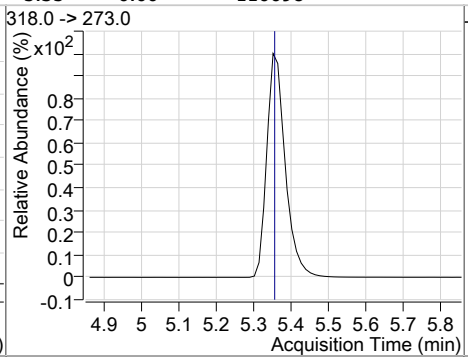


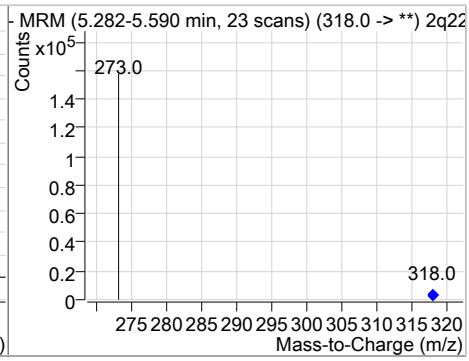




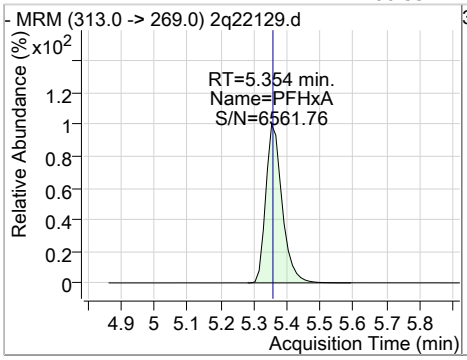
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.22	5.35	0.00	116698				

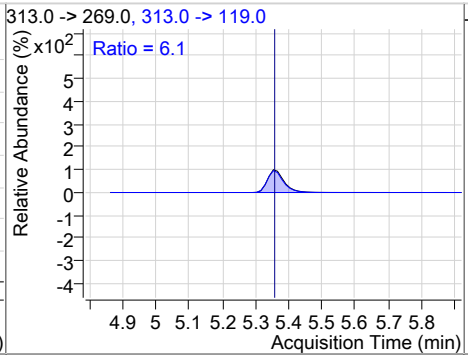


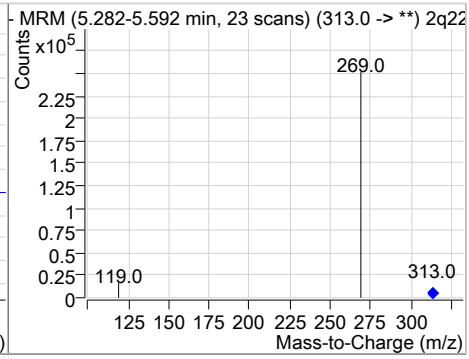




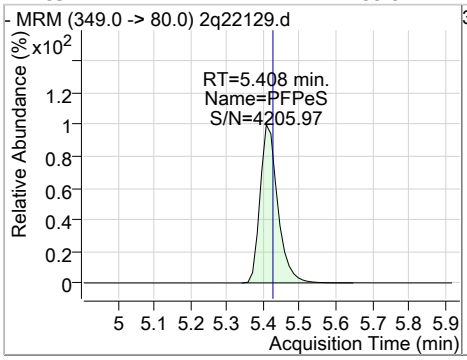
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.55	5.35	0.00	188171	313.0 -> 119.0	6.1	0.0	36.4

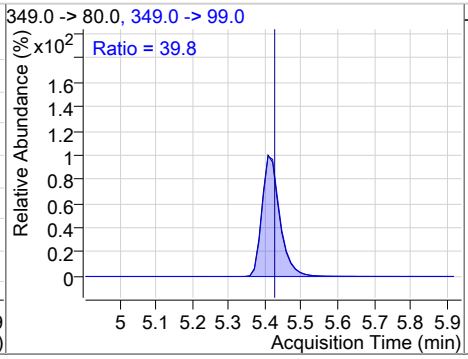


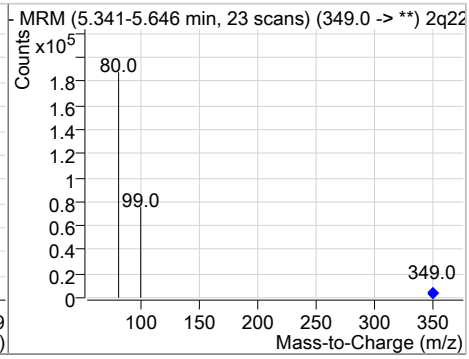




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	99.97	5.41	0.00	140419	349.0 -> 99.0	39.8	9.5	69.5

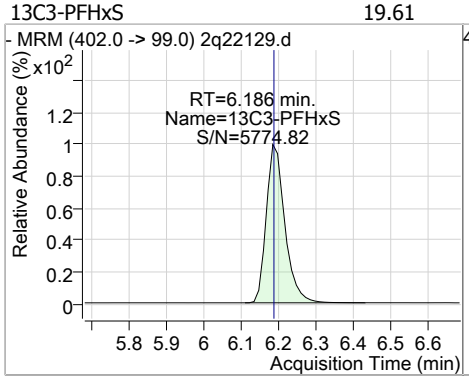


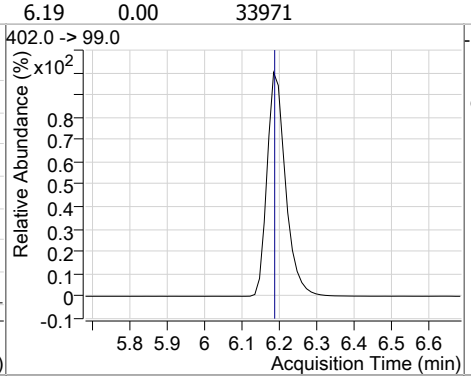


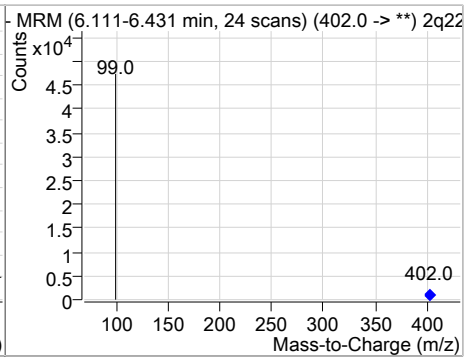


Perfluorinated Compounds by LC/MS/MS

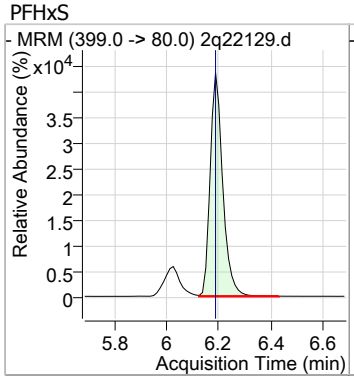
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.61	6.19	0.00	33971				

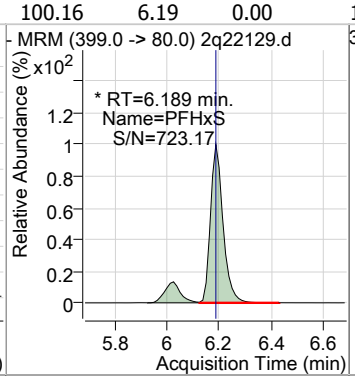


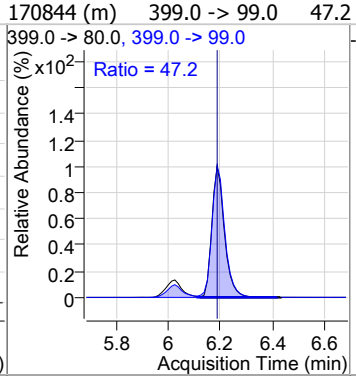


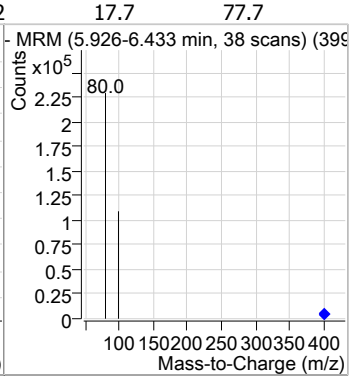


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	100.16	6.19	0.00	170844 (m)	399.0 -> 99.0	47.2	17.7	77.7

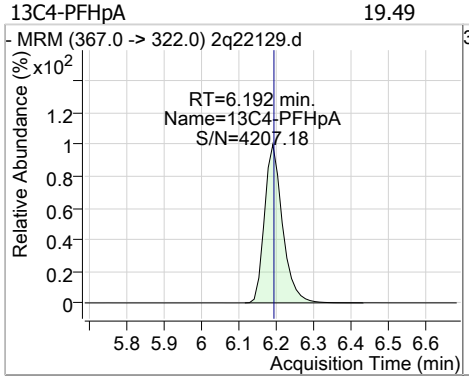


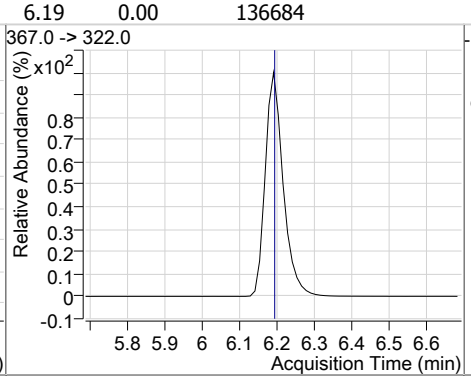


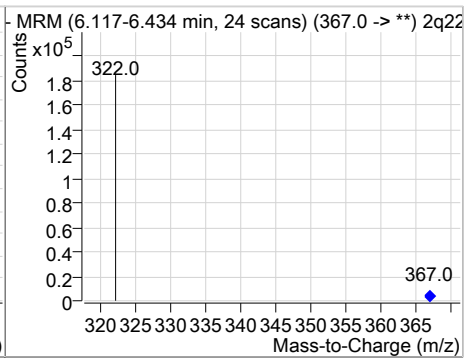




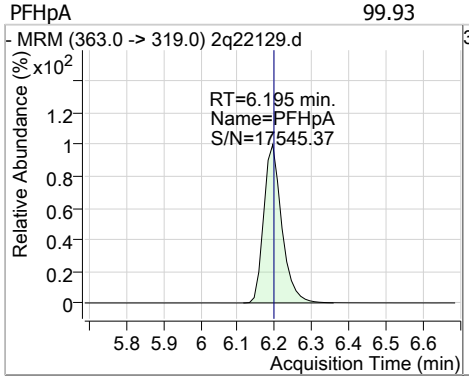
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.49	6.19	0.00	136684				

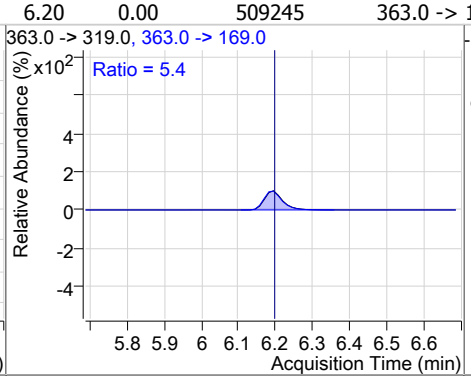


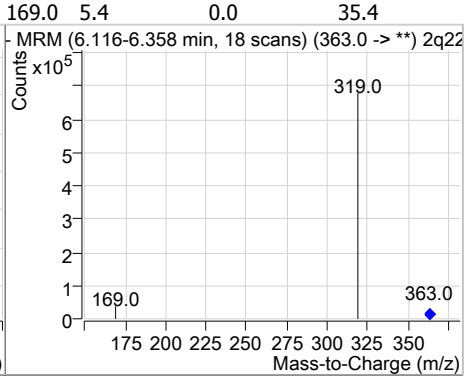




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	99.93	6.20	0.00	509245	363.0 -> 169.0	5.4	0.0	35.4

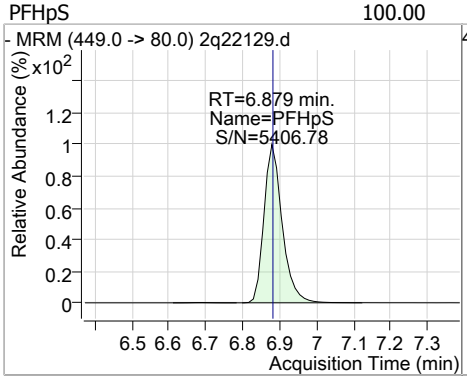


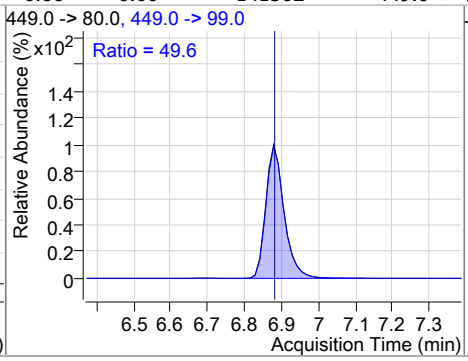


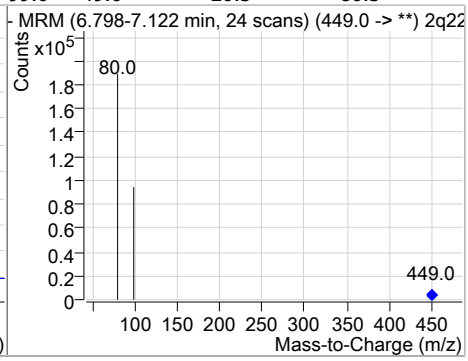


Perfluorinated Compounds by LC/MS/MS

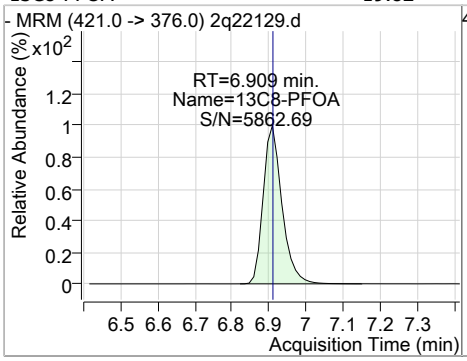
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	100.00	6.88	0.00	141362	449.0 -> 99.0	49.6	20.3	80.3

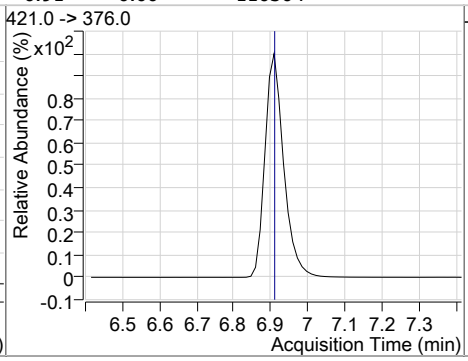


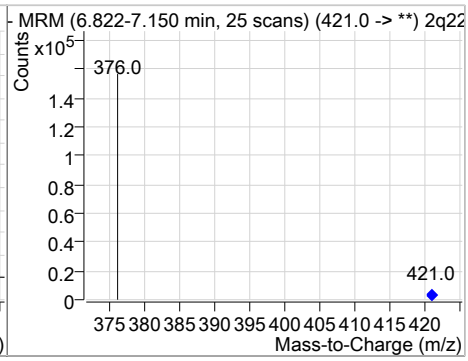




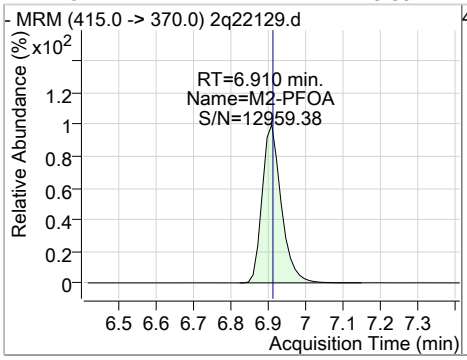
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.82	6.91	0.00	116364				

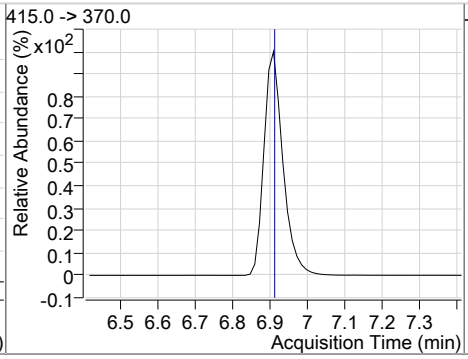


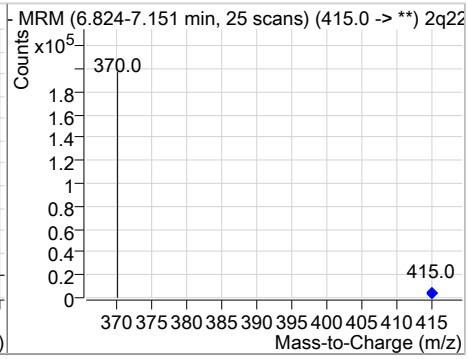




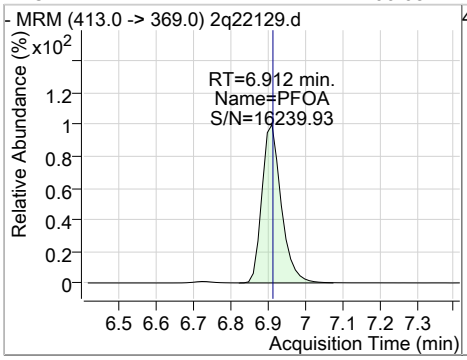
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.91	0.00	146683				

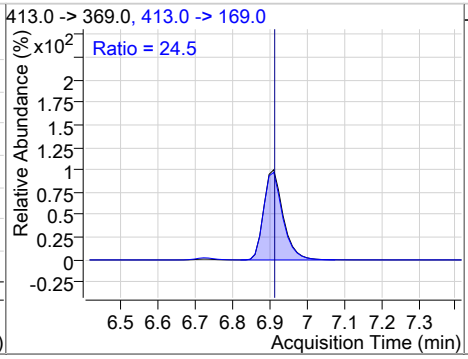


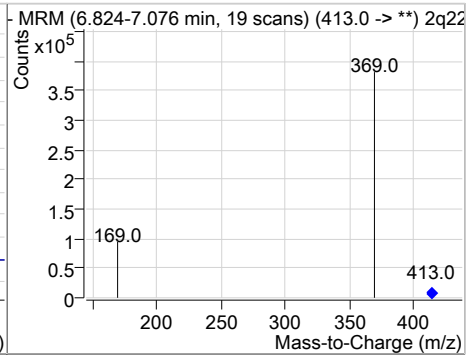




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.08	6.91	0.00	286180	413.0 -> 169.0	24.5	0.0	55.3

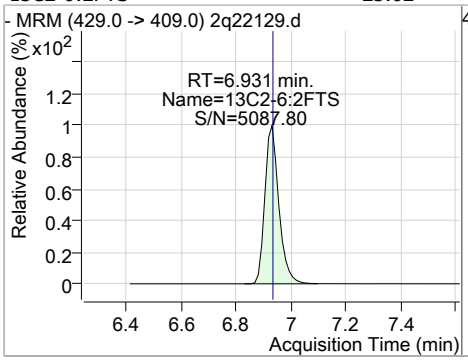


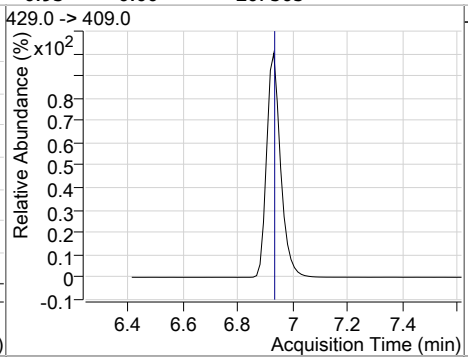


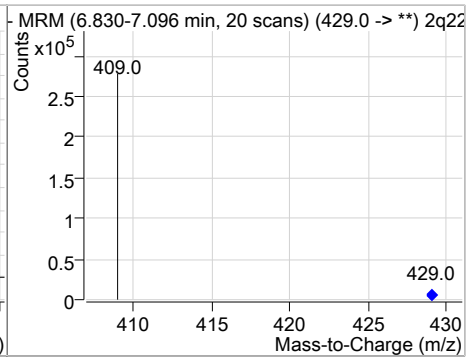


Perfluorinated Compounds by LC/MS/MS

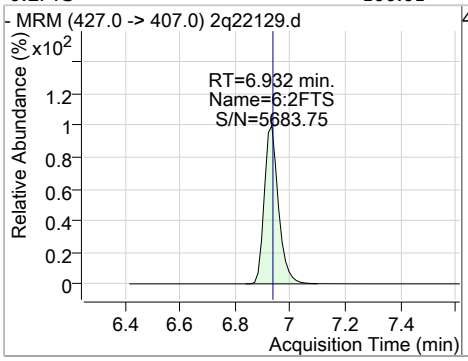
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	23.62	6.93	0.00	207565				

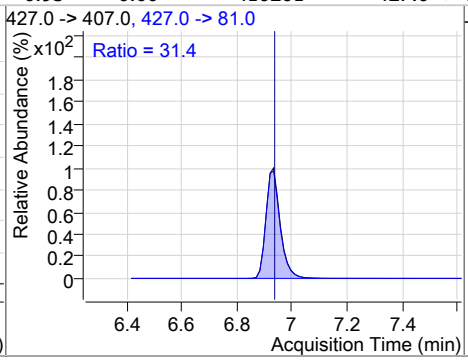


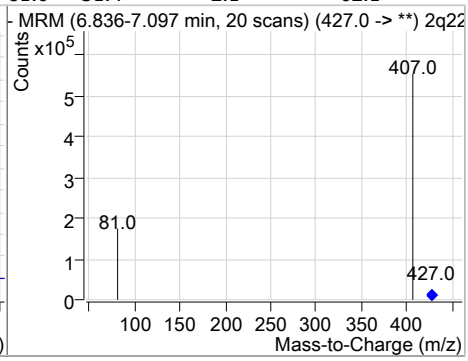




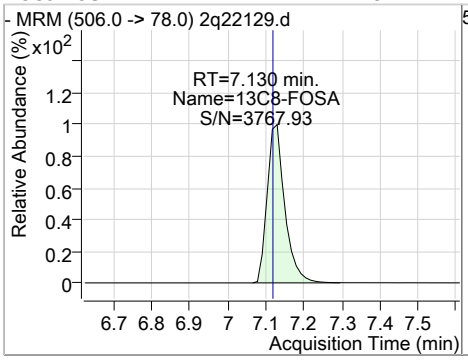
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	100.01	6.93	0.00	416261	427.0 -> 81.0	31.4	2.1	62.1

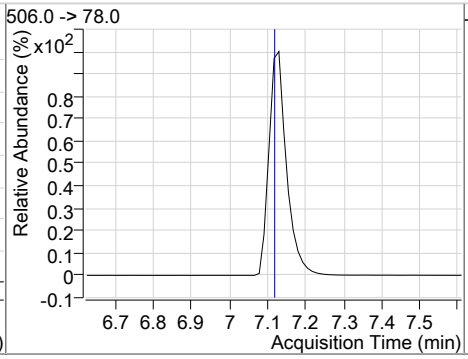


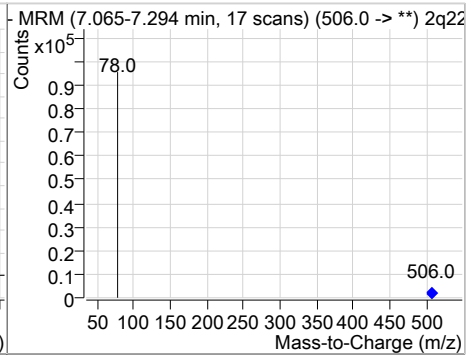




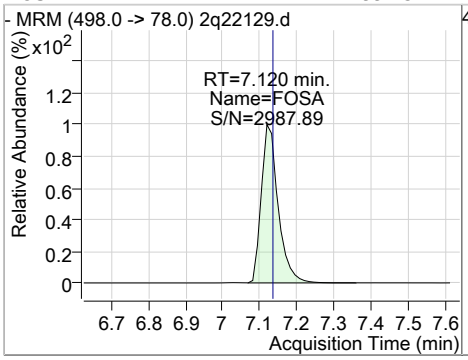
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.47	7.13	0.01	71645				

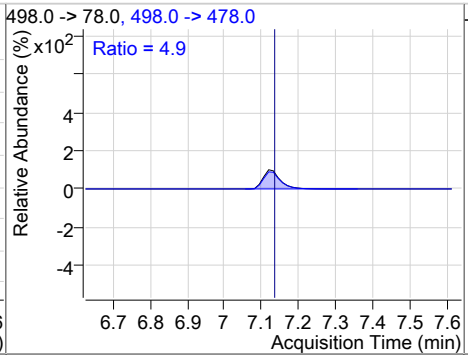


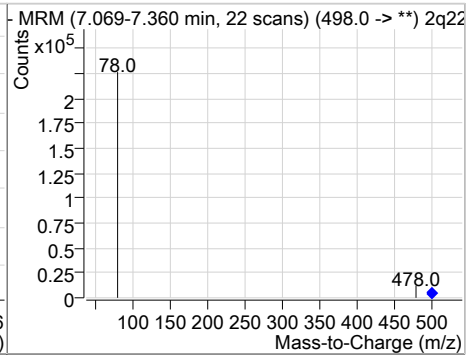




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	99.73	7.12	0.00	171152	498.0 -> 478.0	4.9	0.0	35.4

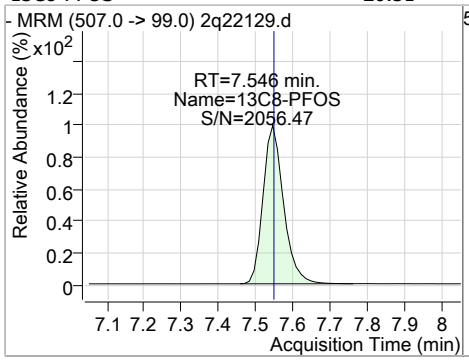


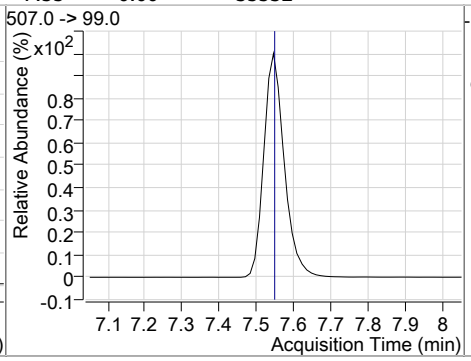


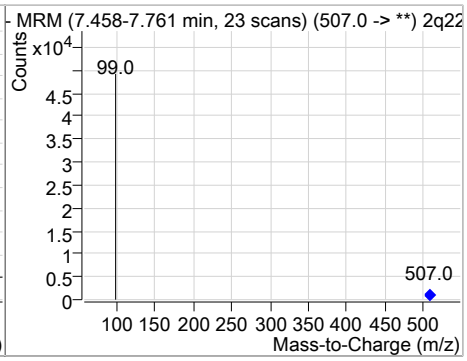


Perfluorinated Compounds by LC/MS/MS

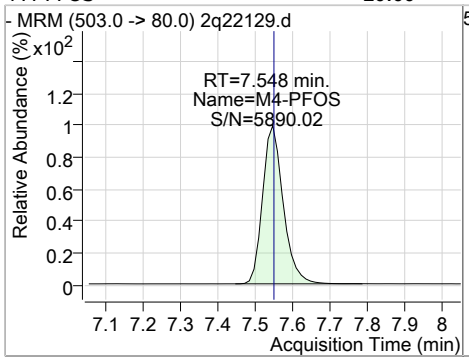
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.31	7.55	0.00	35532				

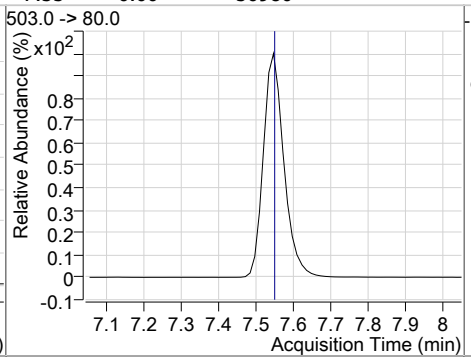


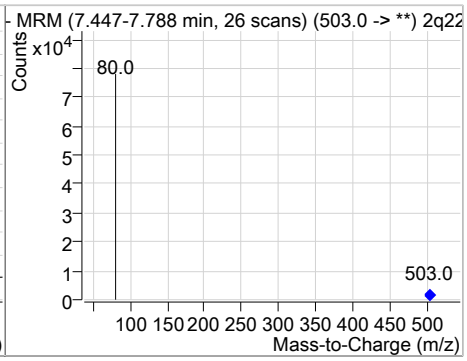




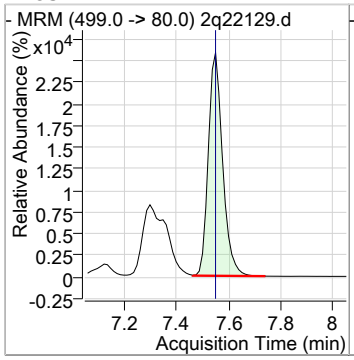
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.55	0.00	56980				

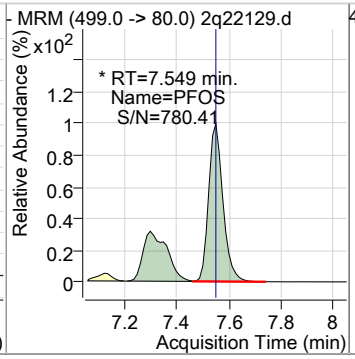


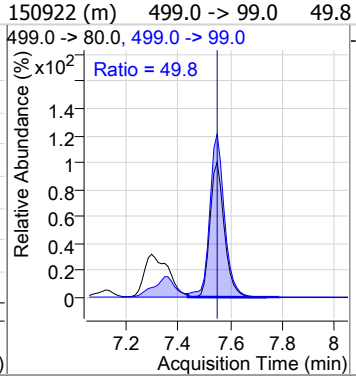


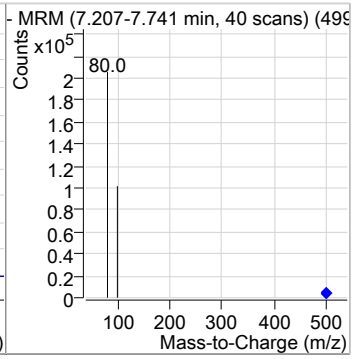


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	100.44	7.55	0.00	150922 (m)	499.0 -> 99.0	49.8	21.5	81.5

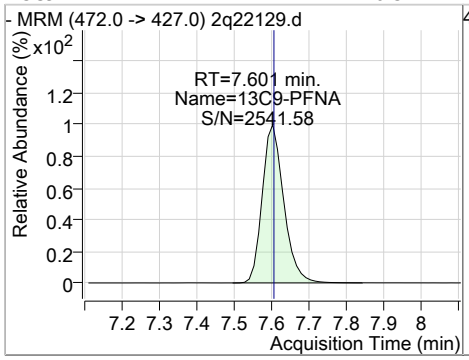


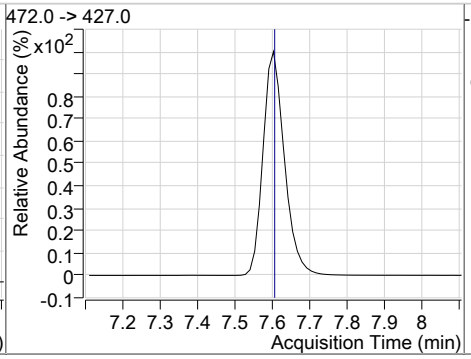


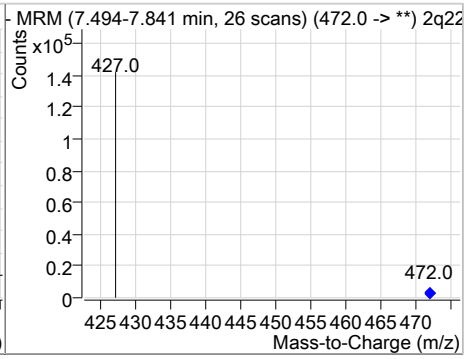




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.31	7.60	0.00	106573				

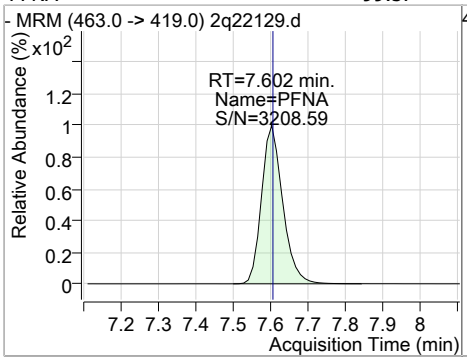


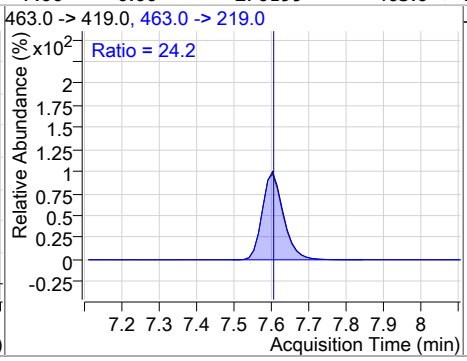


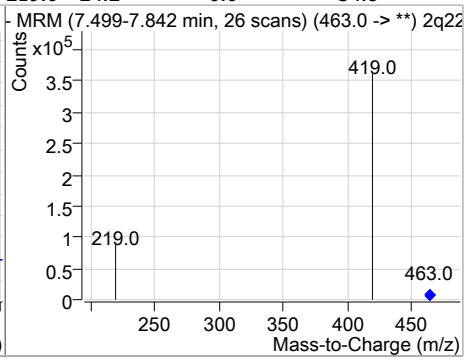


Perfluorinated Compounds by LC/MS/MS

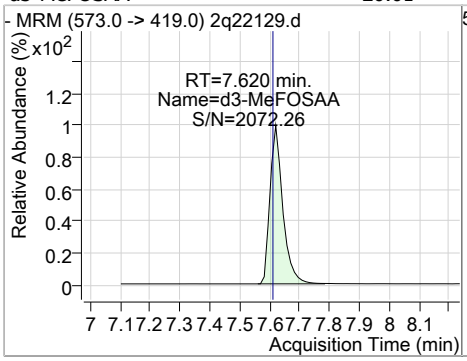
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	99.57	7.60	0.00	276199	463.0 -> 219.0	24.2	0.0	54.8

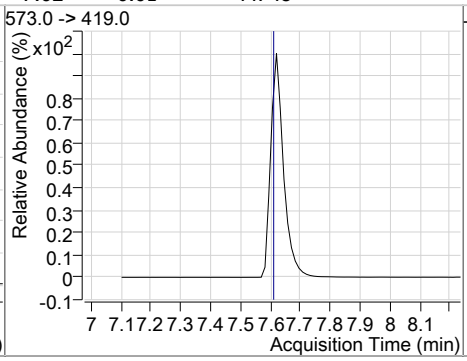


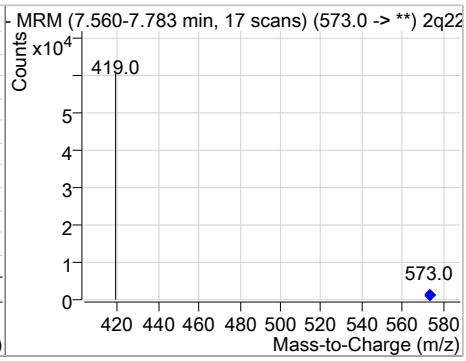




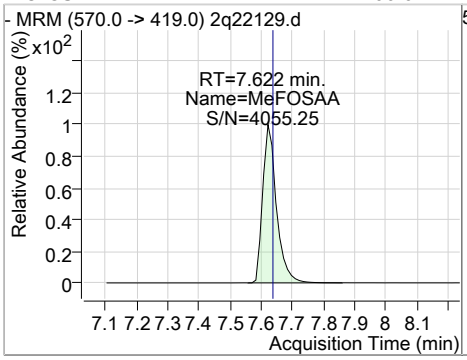
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.01	7.62	0.01	44748				

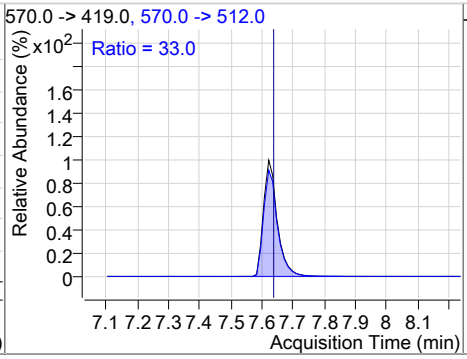


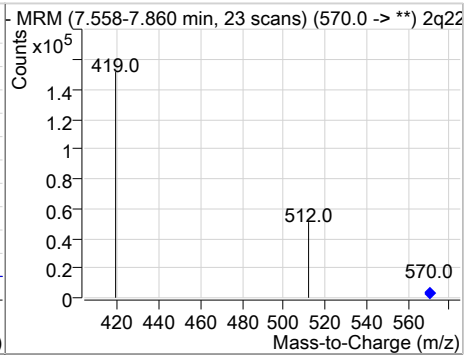




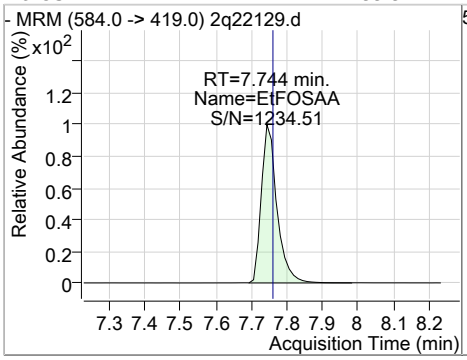
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	100.04	7.62	0.00	115787	570.0 -> 512.0	33.0	5.9	65.9

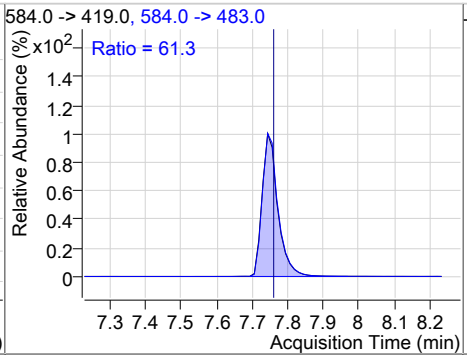


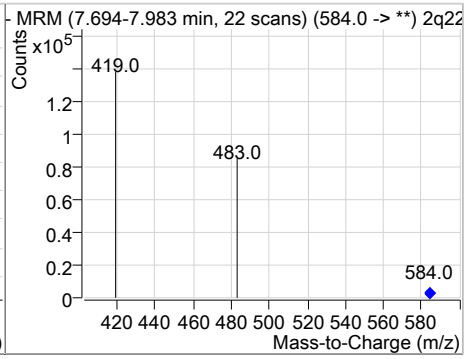




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	99.97	7.74	0.00	103144	584.0 -> 483.0	61.3	30.5	90.5

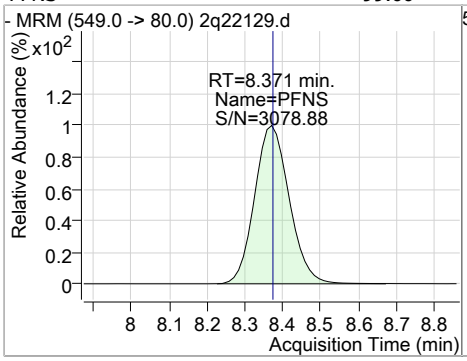


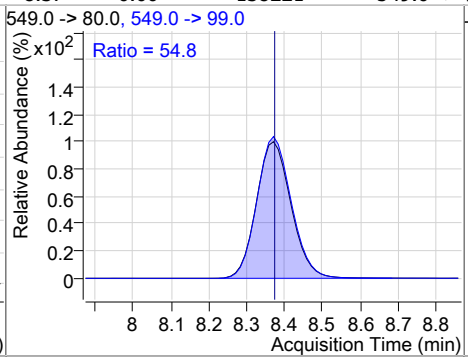


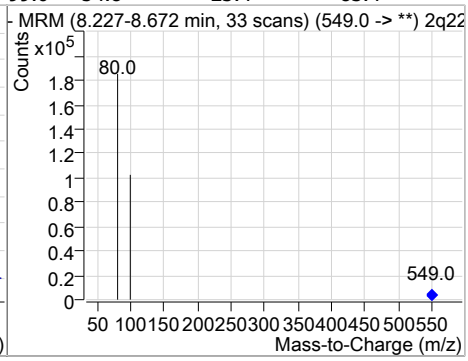


Perfluorinated Compounds by LC/MS/MS

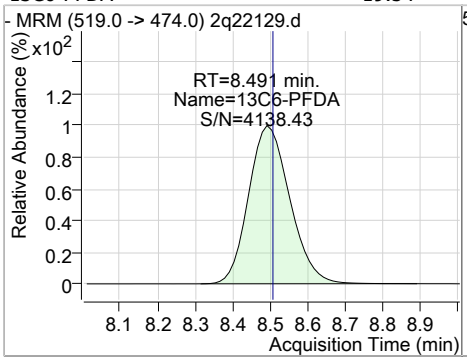
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	99.60	8.37	0.00	138221	549.0 -> 99.0	54.8	23.4	83.4

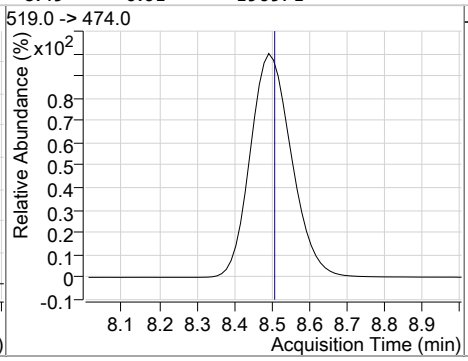


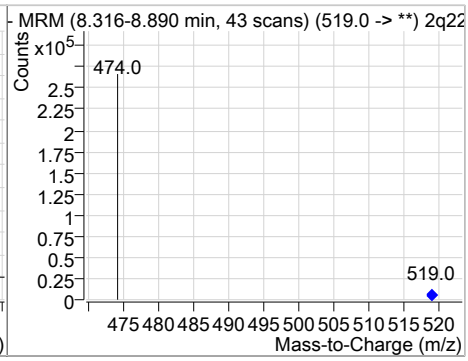




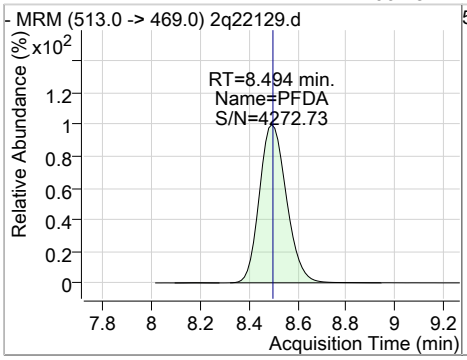
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.54	8.49	-0.01	196971				

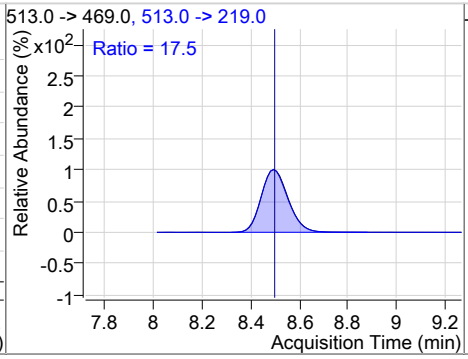


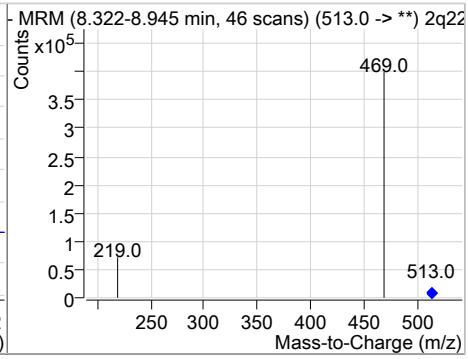




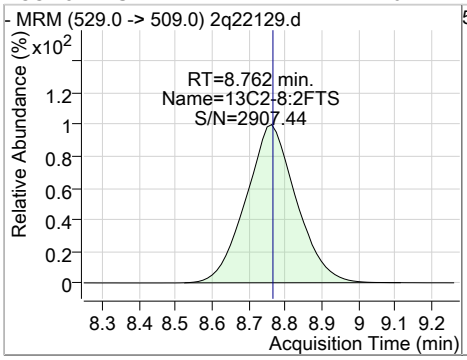
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.18	8.49	-0.01	297555	513.0 -> 219.0	17.5	0.0	47.6

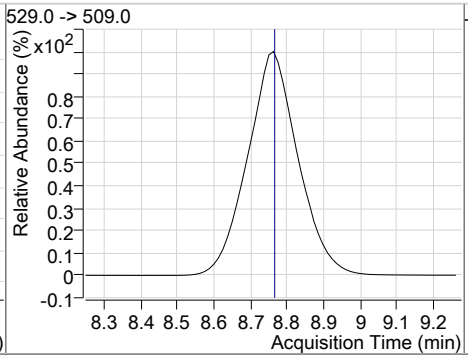


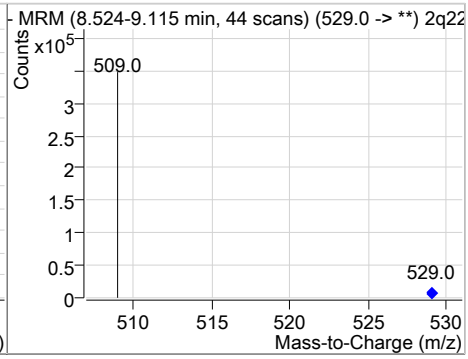




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	24.64	8.76	0.00	256477				

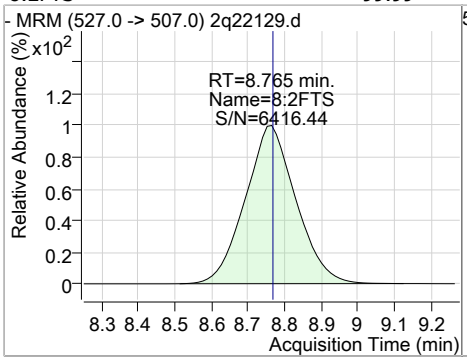


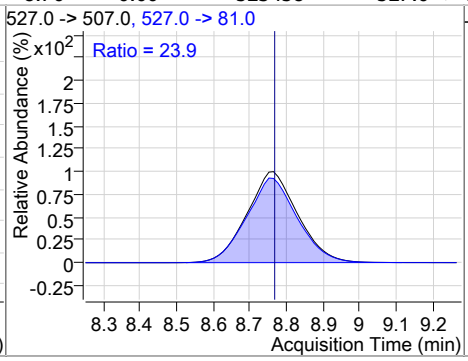


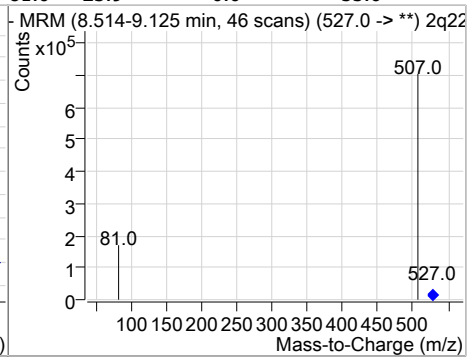


Perfluorinated Compounds by LC/MS/MS

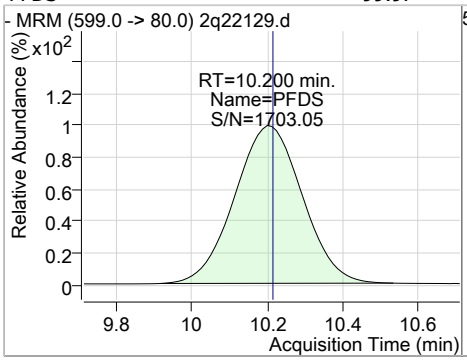
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	99.99	8.76	0.00	523458	527.0 -> 81.0	23.9	0.0	55.6

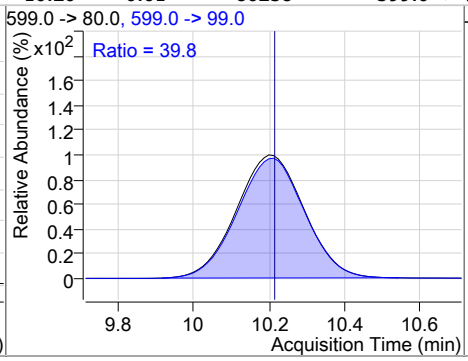


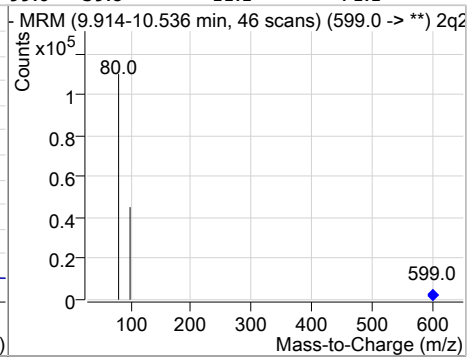




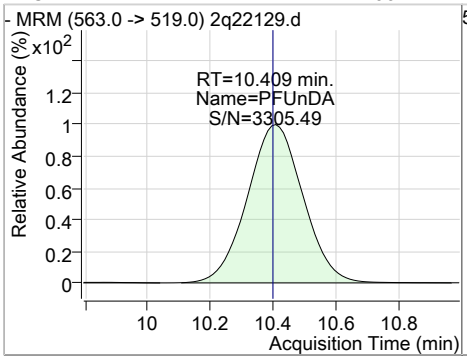
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	99.97	10.20	-0.01	80258	599.0 -> 99.0	39.8	11.1	71.1

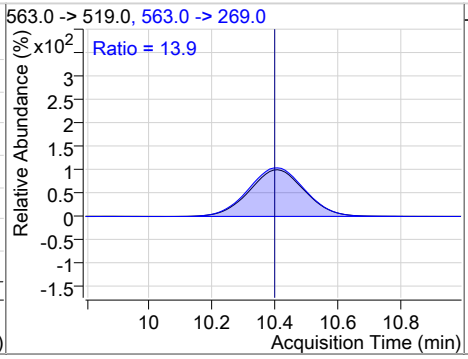


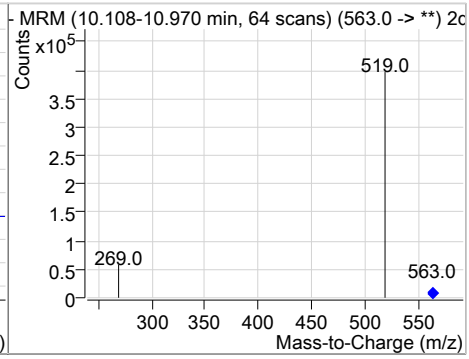




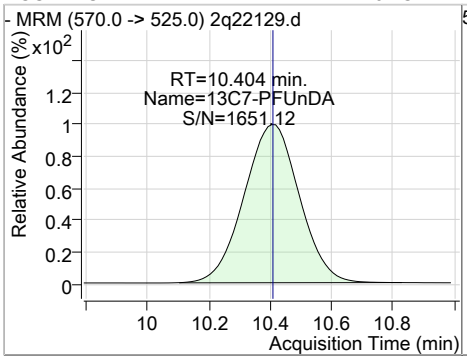
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	100.22	10.41	0.01	295077	563.0 -> 269.0	13.9	0.0	43.1

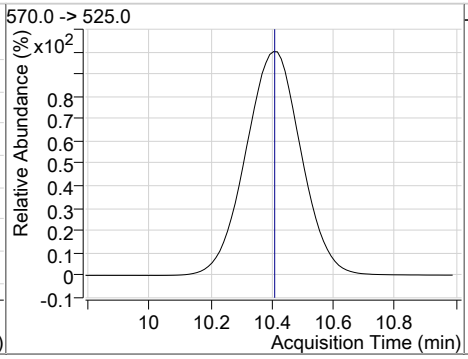


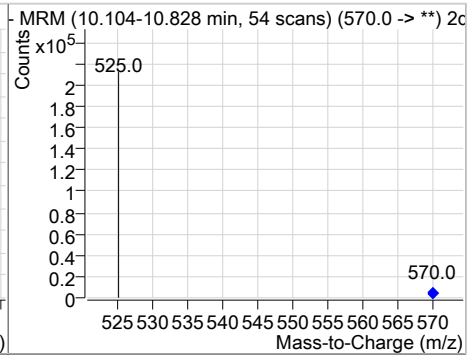




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.23	10.40	0.00	154690				

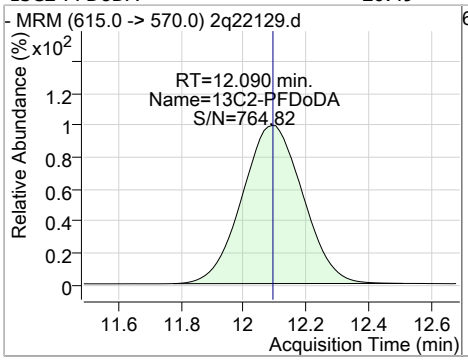


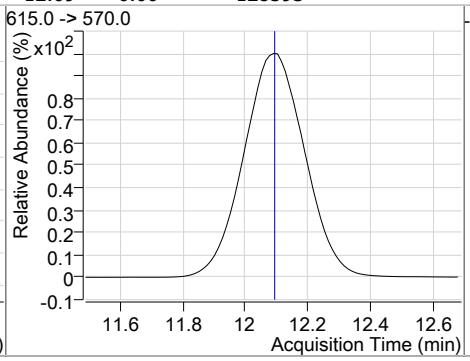


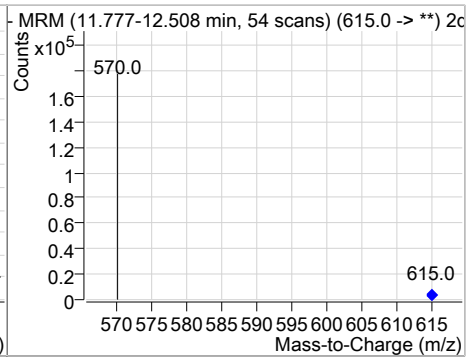


Perfluorinated Compounds by LC/MS/MS

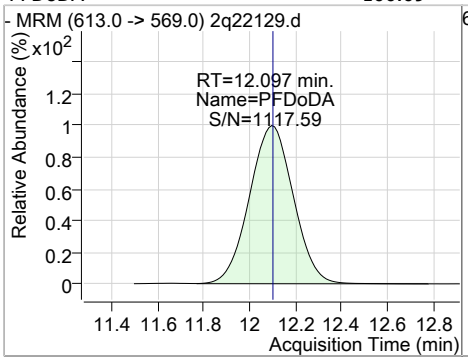
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.49	12.09	0.00	128593				

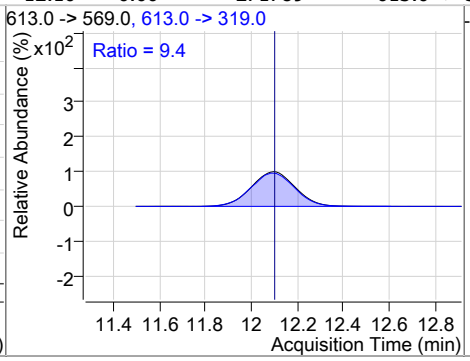


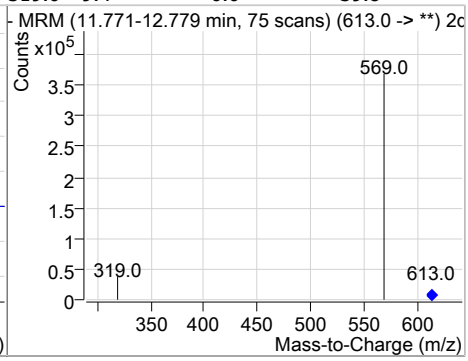




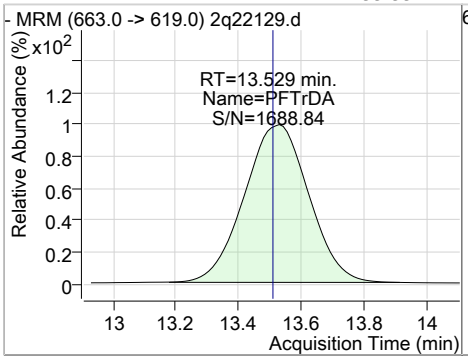
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	100.09	12.10	0.00	271789	613.0 -> 319.0	9.4	0.0	39.8

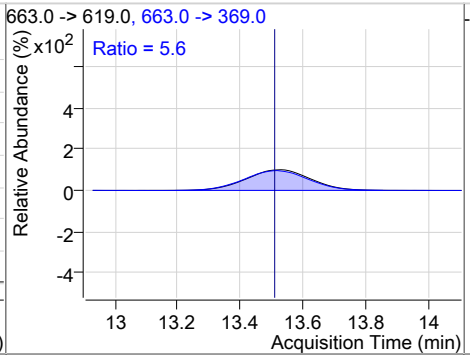


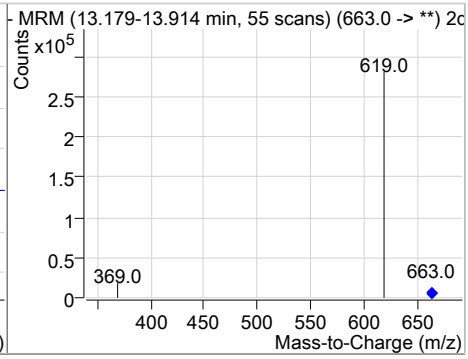




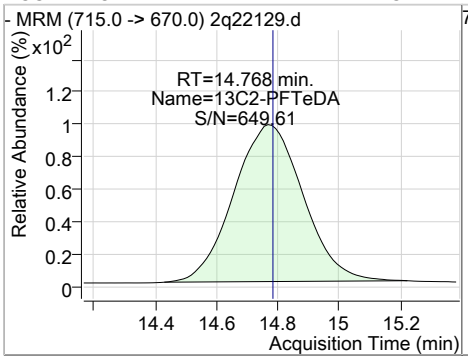
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	99.99	13.53	0.01	205201	663.0 -> 369.0	5.6	0.0	35.8

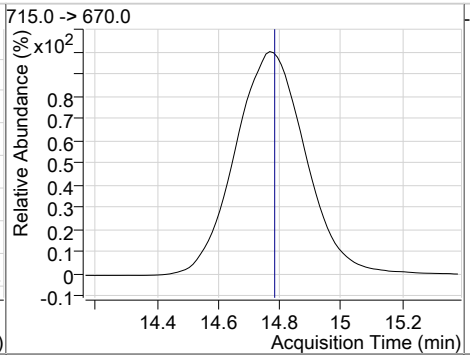


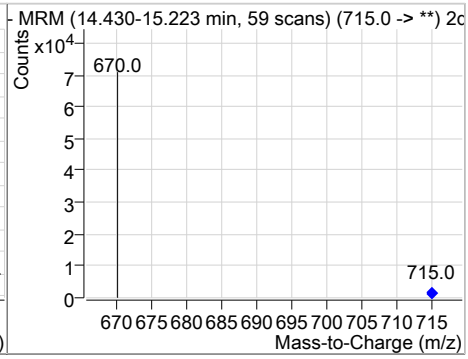




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.31	14.77	-0.01	47598				

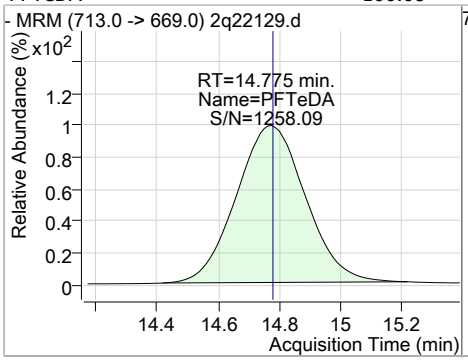


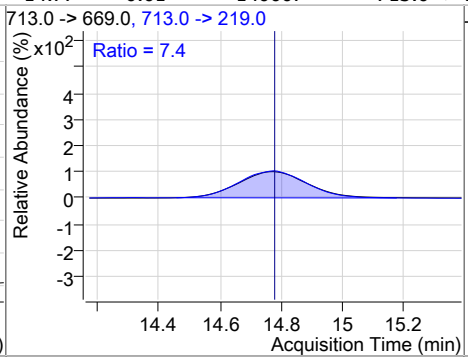


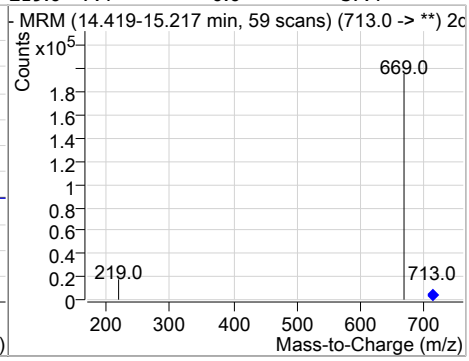


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	100.08	14.77	-0.01	140007	713.0 -> 219.0	7.4	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-IC349
Lab FileID: 2Q22129.D
Injection Time: 10/15/18 13:48
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22131.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 2:52:41 PM
Sample Name : icv349-20
Vial : Vial 10
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71813,S2Q349,2.01,,,1.0,1,soil

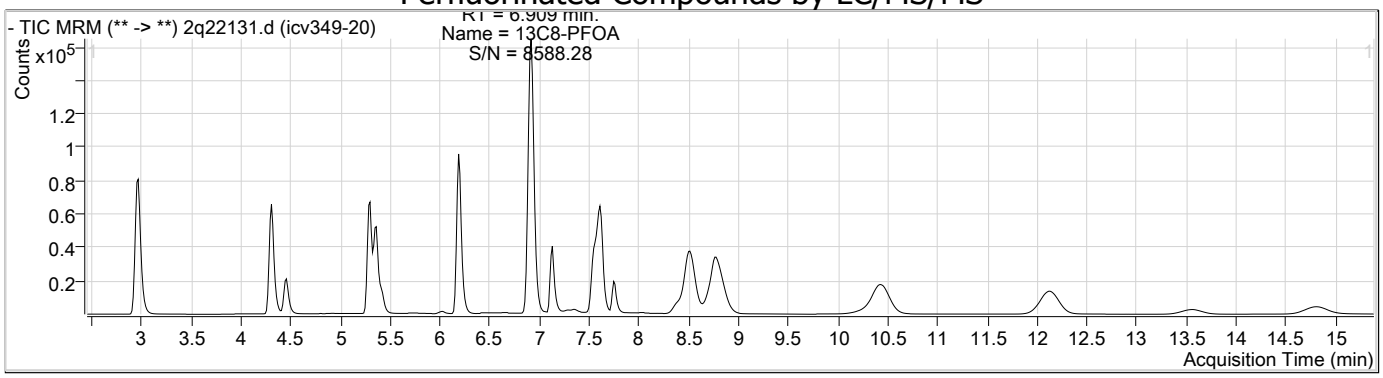
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	164760	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	62262	20.00	µg/L	0.000
M4-PFBA	2.966	217.0 -> 172.0	290256	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	128800	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	126496	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	147455	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	129221	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	117898	20.00	µg/L	0.000
M6-PFDA	8.517	519.0 -> 474.0	222479	20.00	µg/L	0.012
M7-PFUnDA	10.429	570.0 -> 525.0	160196	20.00	µg/L	0.025
M2-PFDoDA	12.128	615.0 -> 570.0	131121	20.00	µg/L	0.038
M2-PFTeDA	14.806	715.0 -> 670.0	48724	20.00	µg/L	0.025
M8-FOSA	7.130	506.0 -> 78.0	81686	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	29142	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	36424	20.00	µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	38150	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	141597	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	186295	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	216693	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	50157	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	141567	20.16	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C2-6:2FTS	6.931	429.0 -> 409.0	186373	21.21	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.0%		
13C2-8:2FTS	8.775	529.0 -> 509.0	215545	20.71	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C2-PFDoDA	12.128	615.0 -> 570.0	130190	20.74	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%		
13C2-PFTeDA	14.806	715.0 -> 670.0	46243	20.71	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C3-PFBS	4.455	302.0 -> 99.0	29140	20.46	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C3-PFHxS	6.198	402.0 -> 99.0	36421	21.02	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.1%		
13C4-PFBA	2.966	217.0 -> 172.0	290189	20.09	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C4-PFHpA	6.192	367.0 -> 322.0	147546	21.04	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.2%		
13C5-PFHxA	5.364	318.0 -> 273.0	126460	20.83	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C5-PFPeA	4.312	268.0 -> 223.0	128798	20.51	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C6-PFDA	8.517	519.0 -> 474.0	222083	22.03	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.1%		

Perfluorinated Compounds by LC/MS/MS

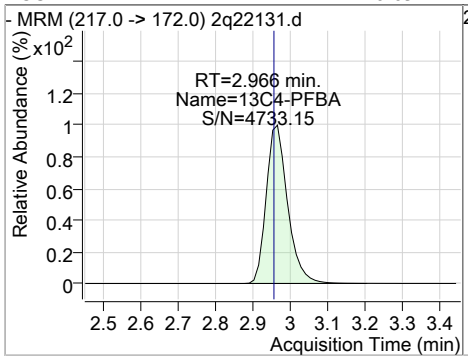
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	159415	20.84	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%			
13C8-FOSA	7.130	506.0 -> 78.0	81676	22.19	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.0%			
13C8-PFOA	6.909	421.0 -> 376.0	129305	22.03	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.1%			
13C8-PFOS	7.546	507.0 -> 99.0	38158	21.81	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.1%			
13C9-PFNA	7.601	472.0 -> 427.0	117891	22.47	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.4%			
d3-MeFOSAA	7.620	573.0 -> 419.0	50199	22.45	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.2%			
M2-PFOA	6.910	415.0 -> 370.0	163959	19.90	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%			
M4-PFOS	7.548	503.0 -> 80.0	62301	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.287	327.0 -> 307.0	61885	16.11	µg/L		99
6:2FTS	6.932	427.0 -> 407.0	75391	17.00	µg/L		99
8:2FTS	8.765	527.0 -> 507.0	87369	16.53	µg/L		98
EtFOSAA	7.757	584.0 -> 419.0	20332	17.58	µg/L		98
FOSA	7.132	498.0 -> 78.0	34756	17.76	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	22836	17.61	µg/L		96
PFBA	2.962	213.0 -> 169.0	30034	17.18	µg/L		100
PFBS	4.459	299.0 -> 80.0	30836	14.63	µg/L		100
PFDA	8.506	513.0 -> 469.0	52469	15.67	µg/L		100
PFDoDA	12.122	613.0 -> 569.0	49622	18.00	µg/L		99
PFDS	10.237	599.0 -> 80.0	13591	15.77	µg/L		98
PFHpA	6.195	363.0 -> 319.0	97540	17.75	µg/L		100
PFHpS	6.879	449.0 -> 80.0	25481	16.81	µg/L		97
PFHxA	5.366	313.0 -> 269.0	30519	15.05	µg/L		99
PFHxS	6.189	399.0 -> 80.0	27566	15.07	µg/L	m	100
PFNA	7.602	463.0 -> 419.0	50400	16.42	µg/L		97
PFNS	8.384	549.0 -> 80.0	24614	16.52	µg/L		98
PFOA	6.912	413.0 -> 369.0	54814	17.27	µg/L		99
PFOS	7.549	499.0 -> 80.0	28313	17.55	µg/L	m	96
PFPeA	4.316	263.0 -> 219.0	95416	16.06	µg/L		100
PFPeS	5.421	349.0 -> 80.0	20845	14.46	µg/L		99
PFTeDA	14.812	713.0 -> 669.0	22177	15.82	µg/L		99
PFTrDA	13.554	663.0 -> 619.0	38352	18.65	µg/L		100
PFUnDA	10.421	563.0 -> 519.0	51961	17.11	µg/L		97

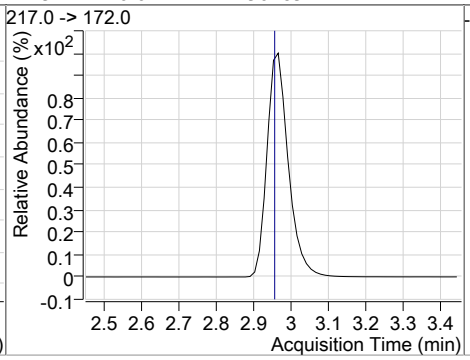
 # = Qualifier out of range, m = manually integrated, + = Area summed

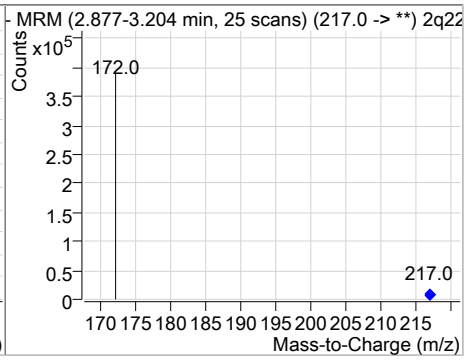
Perfluorinated Compounds by LC/MS/MS



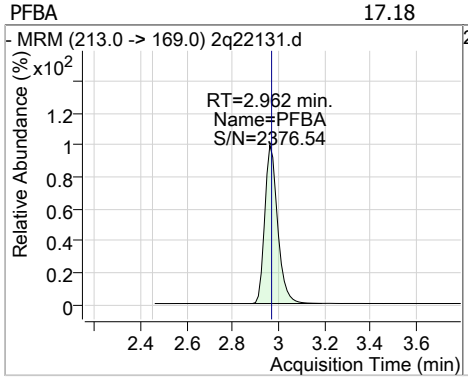
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.09	2.97	0.01	290189				

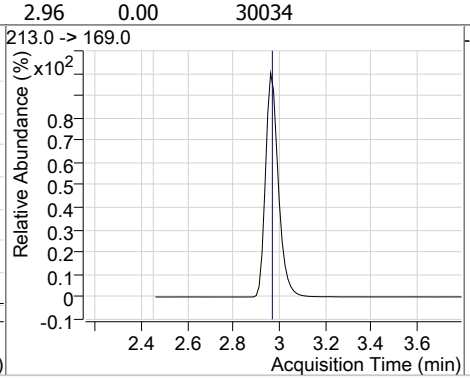


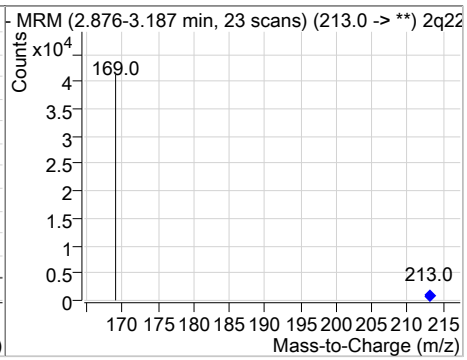




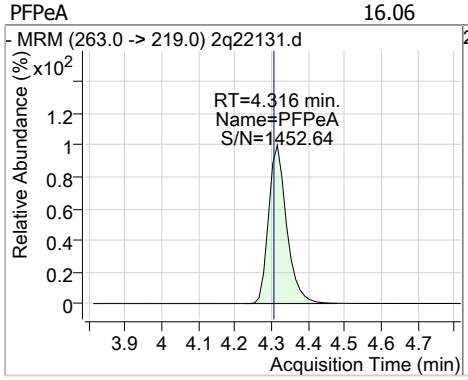
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	17.18	2.96	0.00	30034				

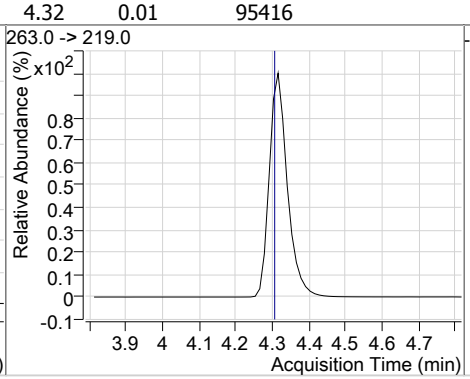


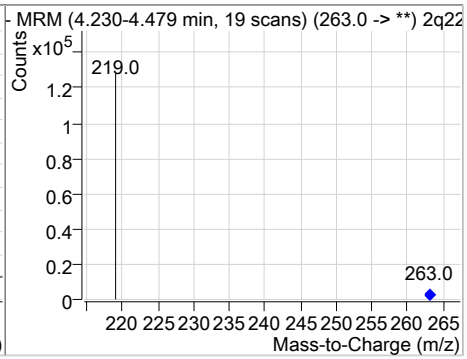




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	16.06	4.32	0.01	95416				

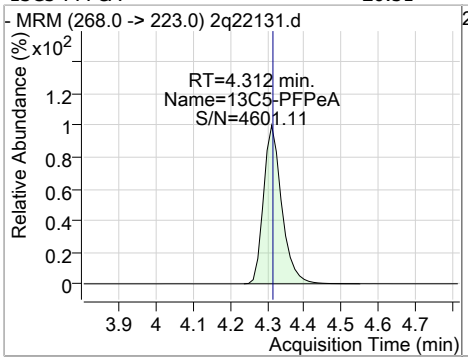


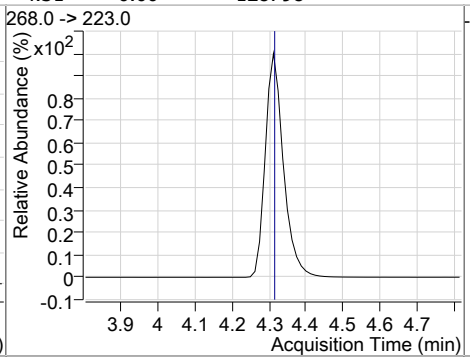


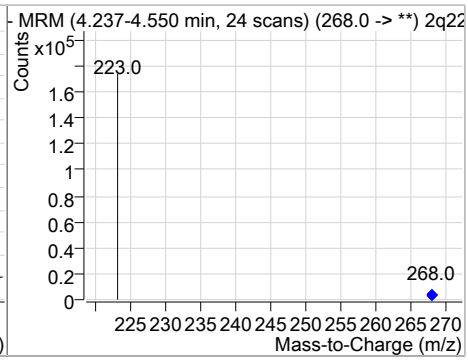


Perfluorinated Compounds by LC/MS/MS

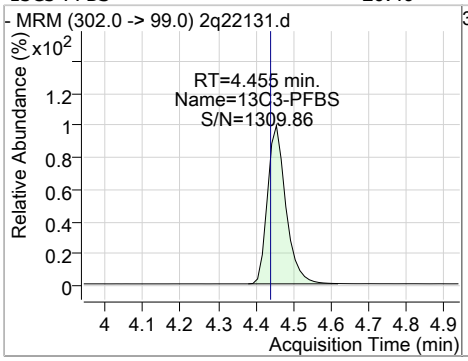
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.51	4.31	0.00	128798				

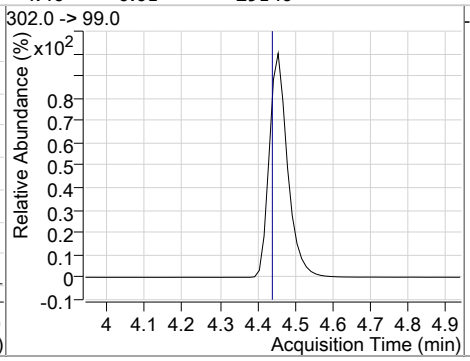


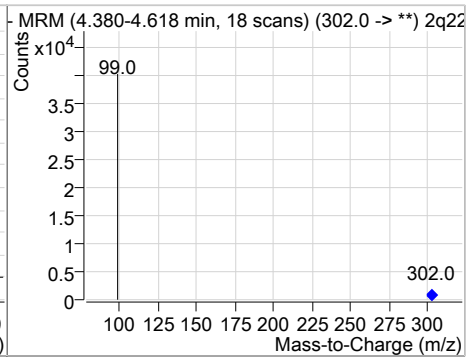




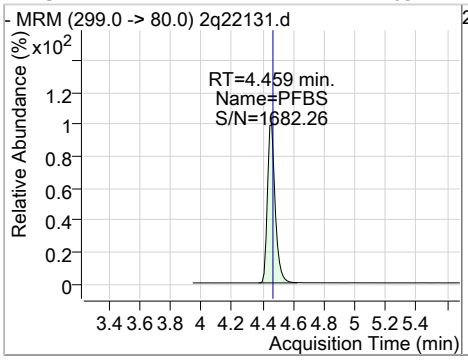
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.46	4.46	0.01	29140				

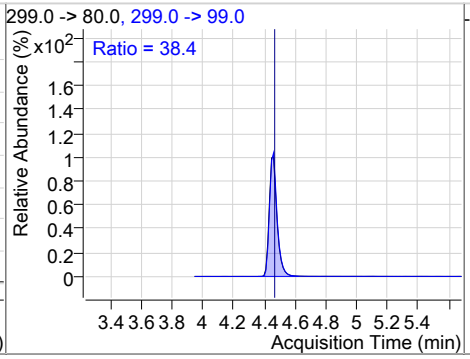


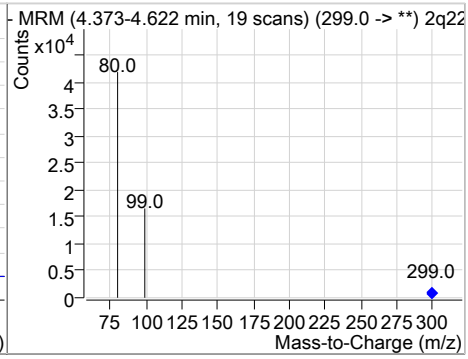




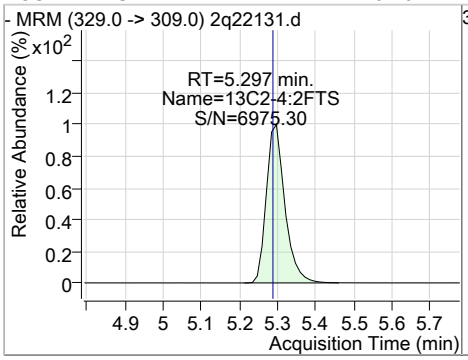
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	14.63	4.46	0.01	30836	299.0 -> 99.0	38.4	8.1	68.1

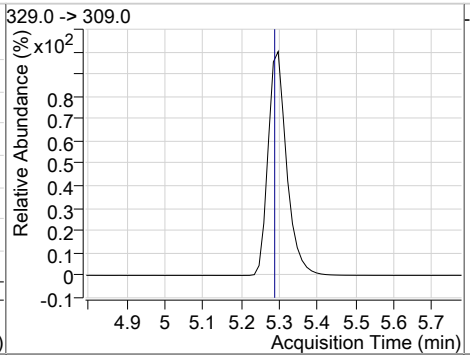


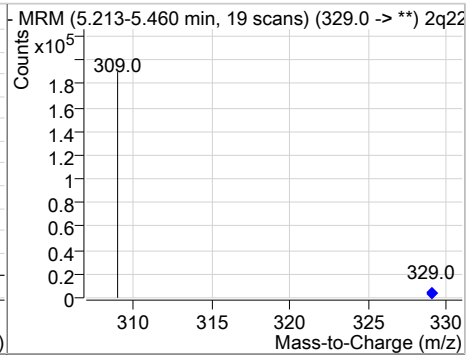




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.16	5.30	0.01	141567				

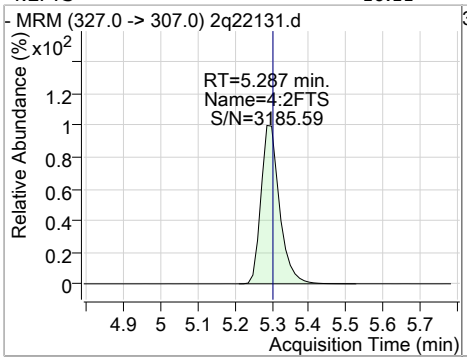


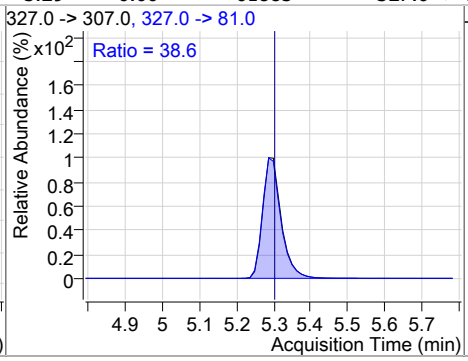


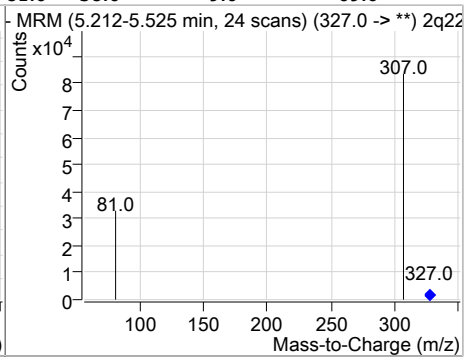


Perfluorinated Compounds by LC/MS/MS

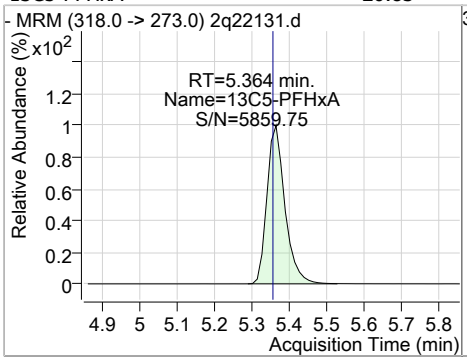
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	16.11	5.29	0.00	61885	327.0 -> 81.0	38.6	9.0	69.0

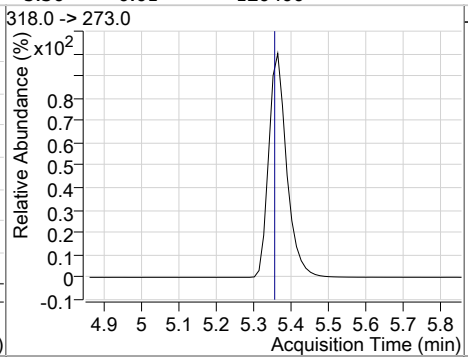


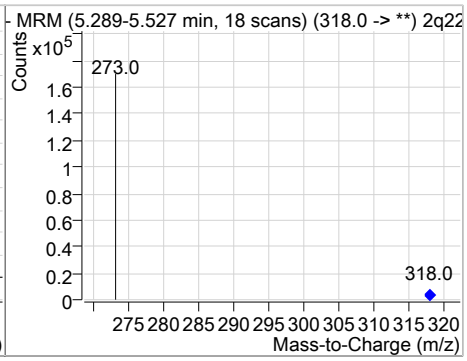




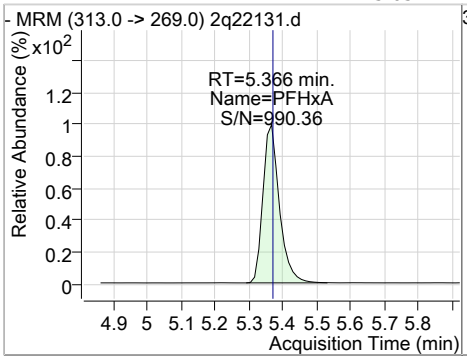
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.83	5.36	0.01	126460				

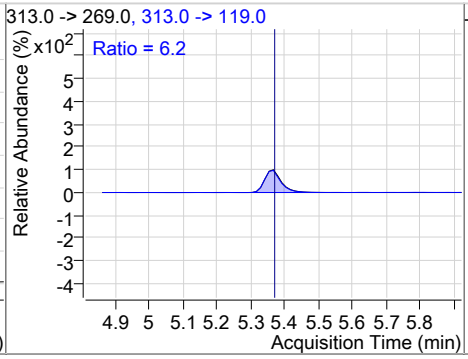


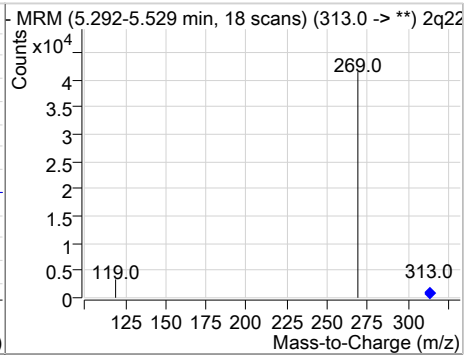




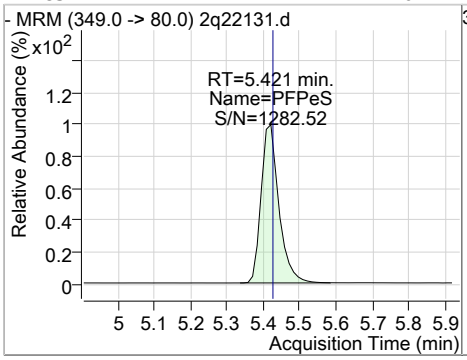
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	15.05	5.37	0.01	30519	313.0 -> 119.0	6.2	0.0	36.4

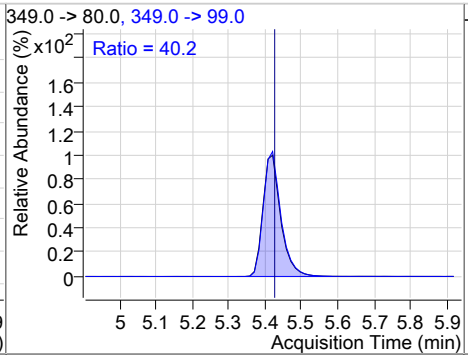


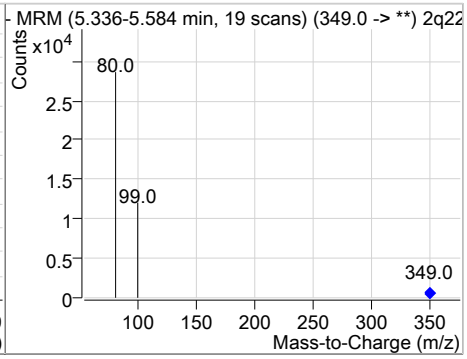




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	14.46	5.42	0.01	20845	349.0 -> 99.0	40.2	9.5	69.5

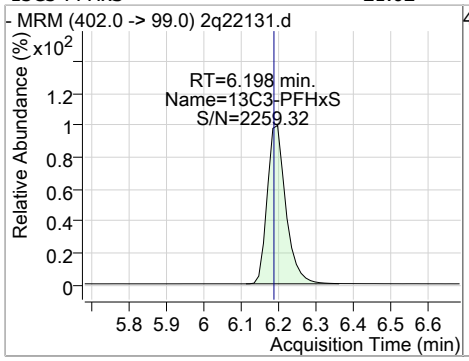


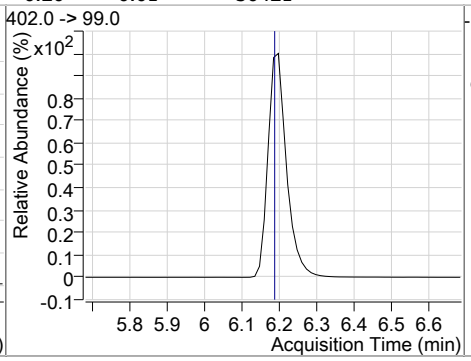


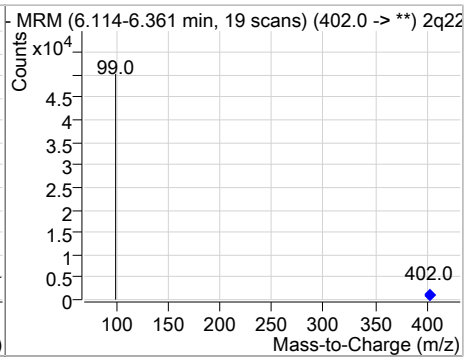


Perfluorinated Compounds by LC/MS/MS

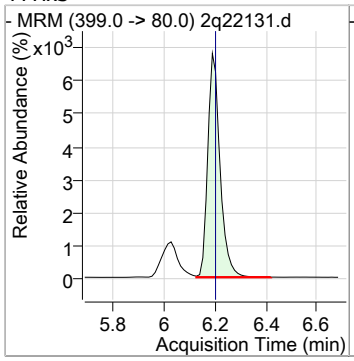
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.02	6.20	0.01	36421				

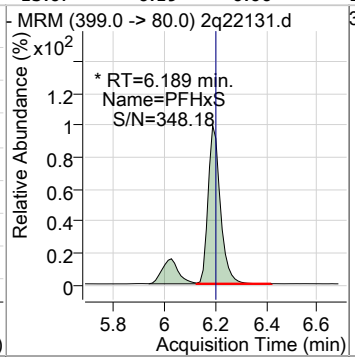


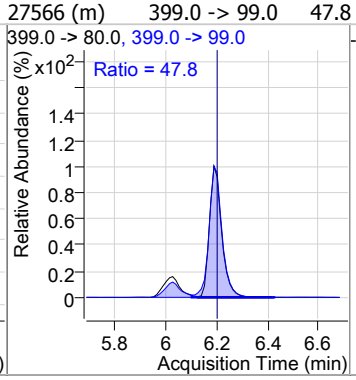


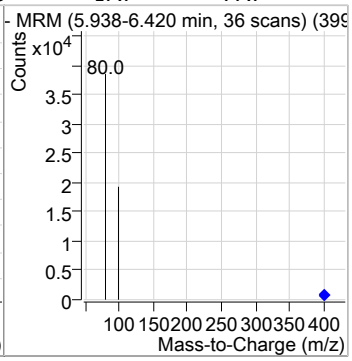


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	15.07	6.19	0.00	27566 (m)	399.0 -> 99.0	47.8	17.7	77.7

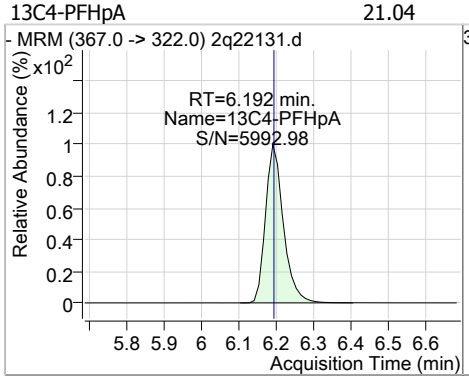


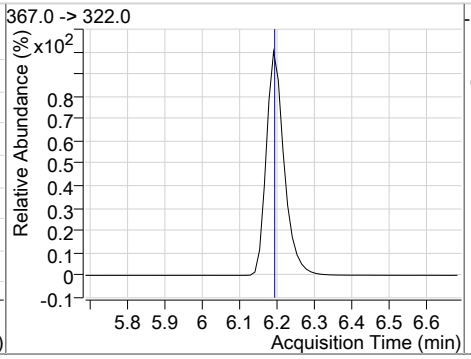


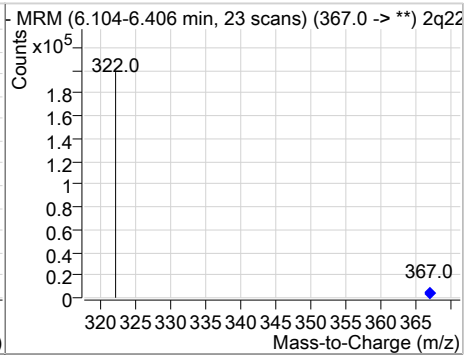




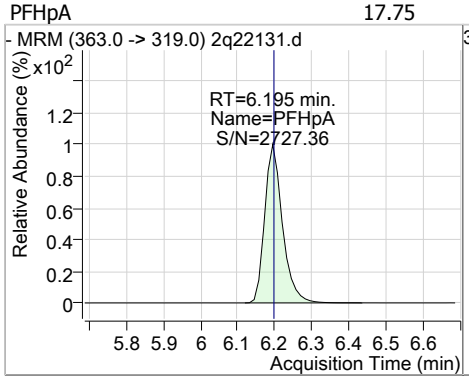
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.04	6.19	0.00	147546				

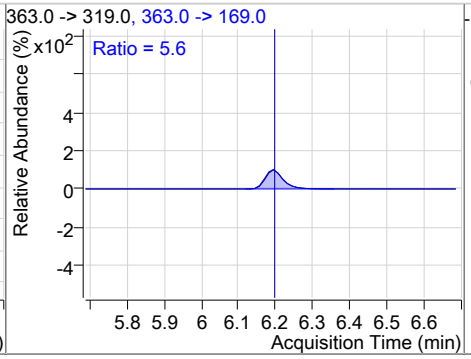


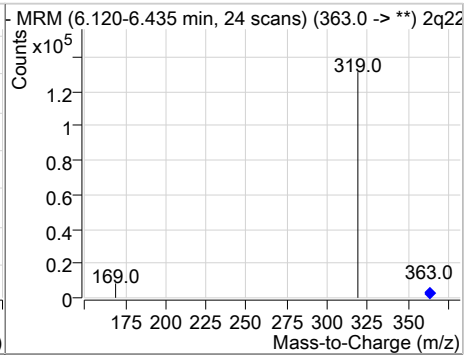




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	17.75	6.20	0.00	97540	363.0 -> 169.0	5.6	0.0	35.4

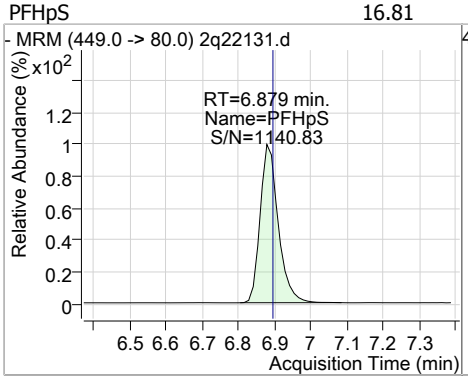


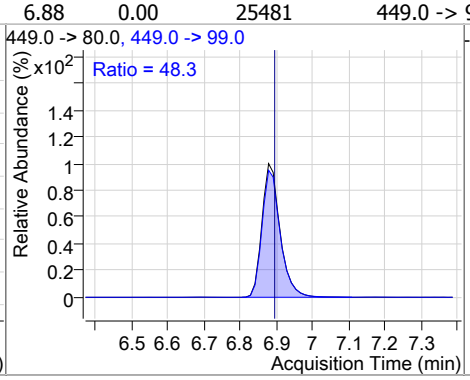


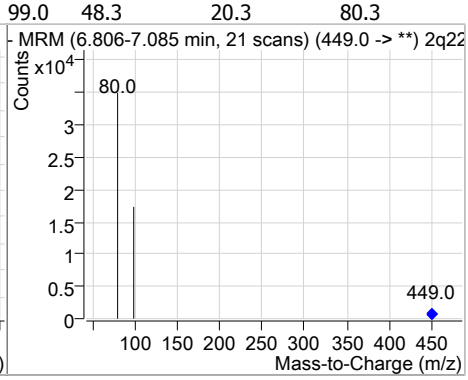


Perfluorinated Compounds by LC/MS/MS

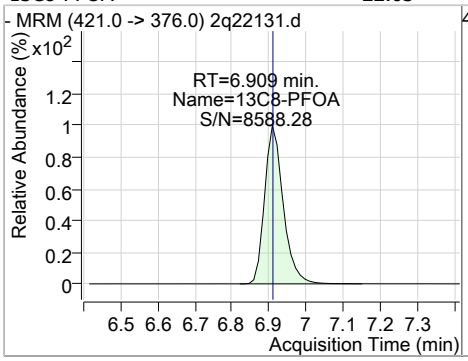
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	16.81	6.88	0.00	25481	449.0 -> 99.0	48.3	20.3	80.3

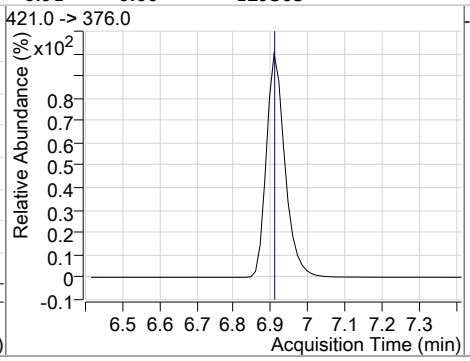


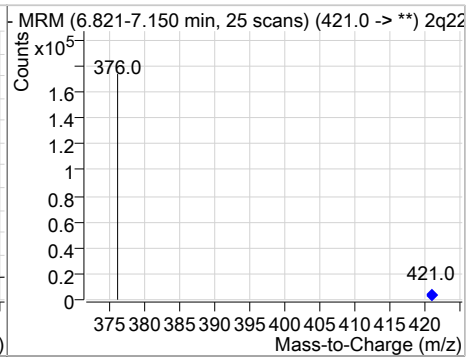




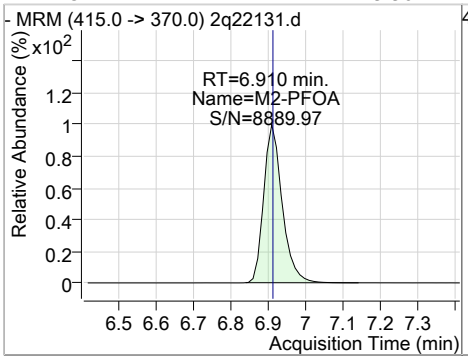
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	22.03	6.91	0.00	129305				

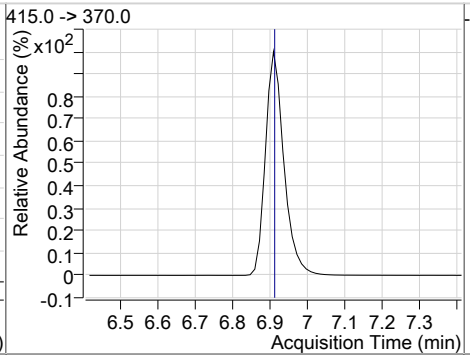


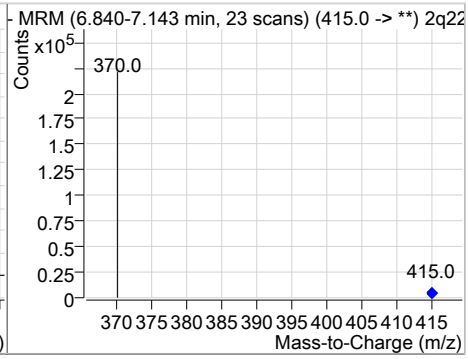




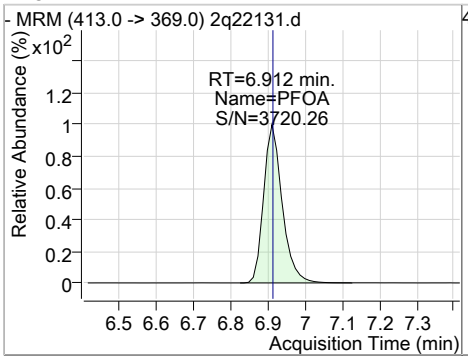
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.90	6.91	0.00	163959				

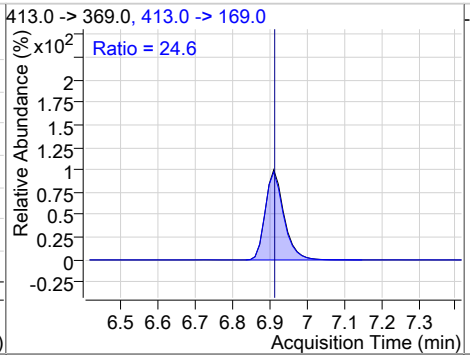


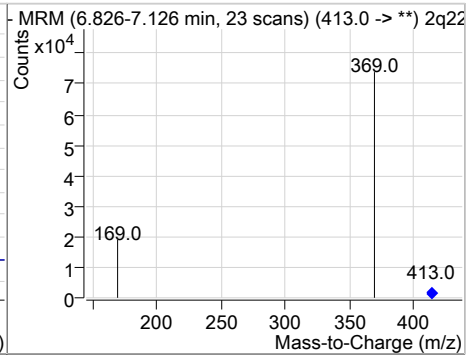




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	17.27	6.91	0.00	54814	413.0 -> 169.0	24.6	0.0	55.3

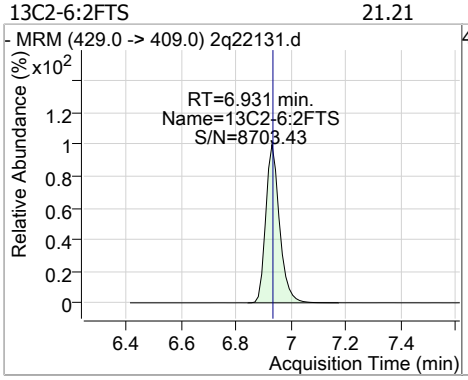


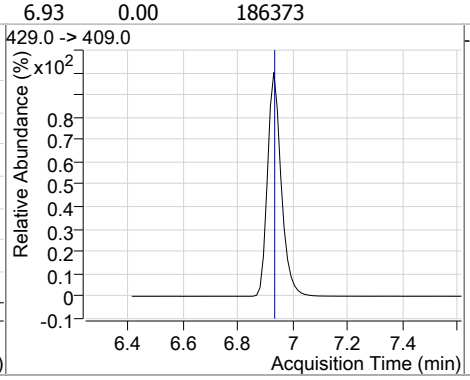


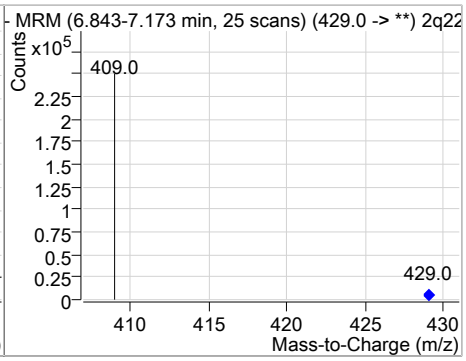


Perfluorinated Compounds by LC/MS/MS

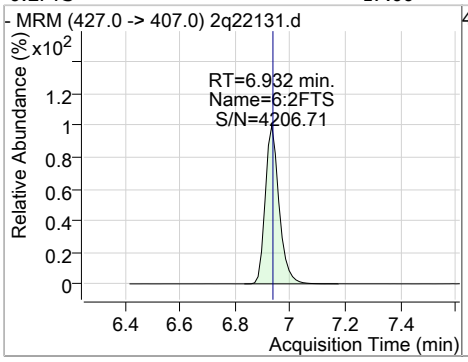
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.21	6.93	0.00	186373				

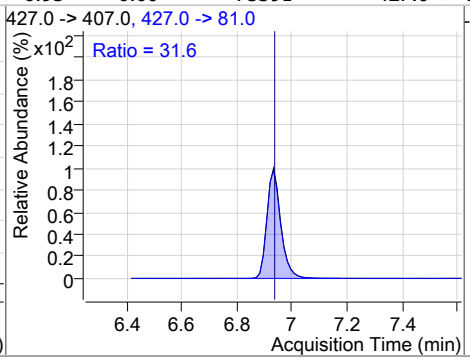


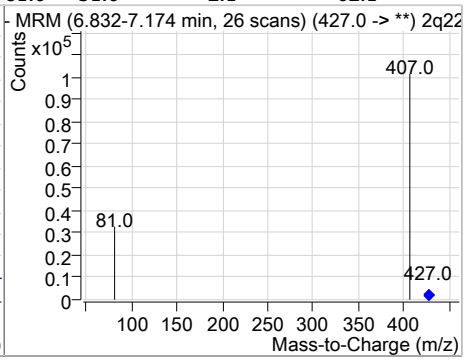




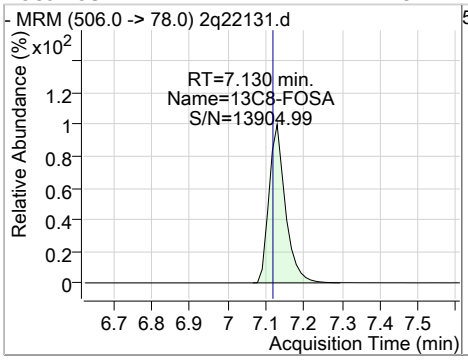
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	17.00	6.93	0.00	75391	427.0 -> 81.0	31.6	2.1	62.1

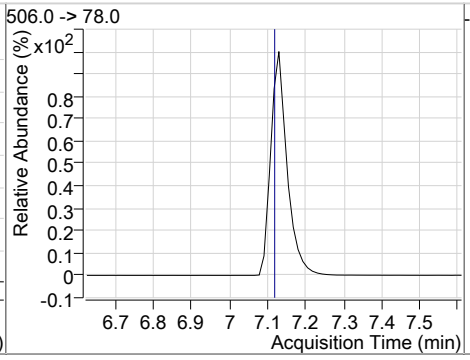


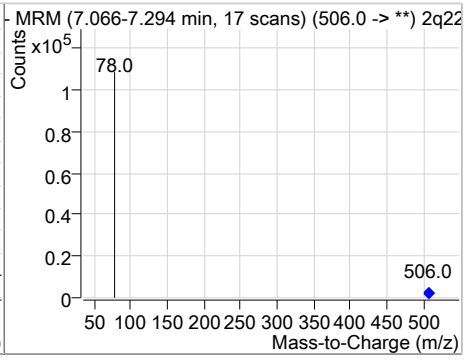




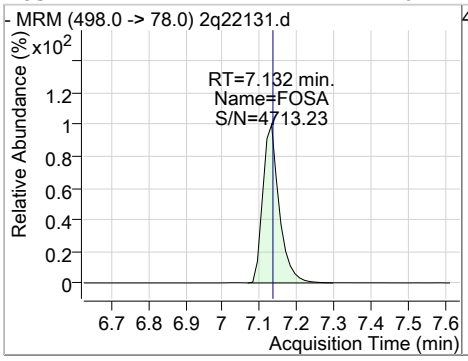
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	22.19	7.13	0.01	81676				

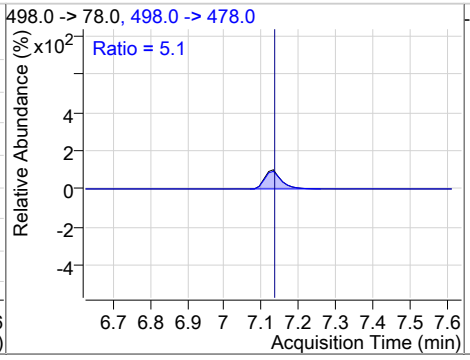


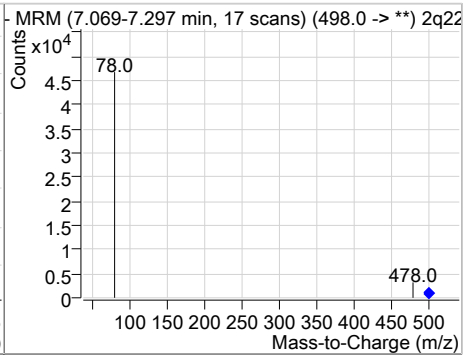




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	17.76	7.13	0.01	34756	498.0 -> 478.0	5.1	0.0	35.4

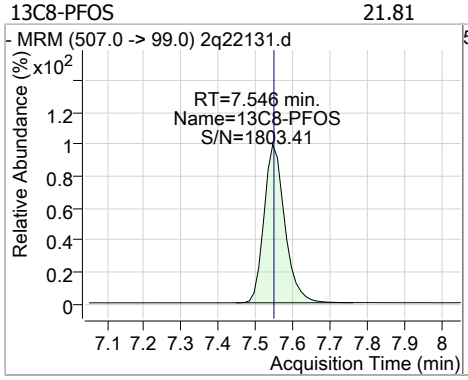


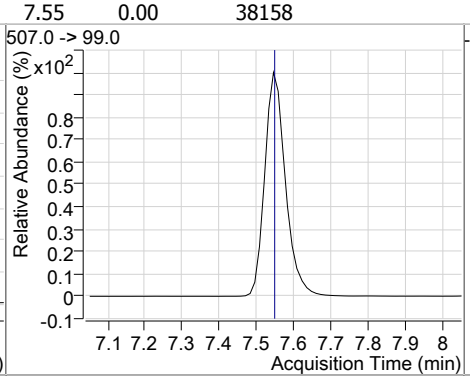


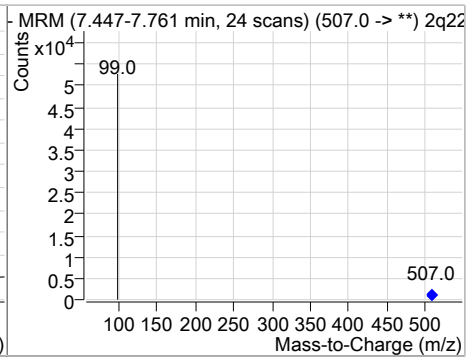


Perfluorinated Compounds by LC/MS/MS

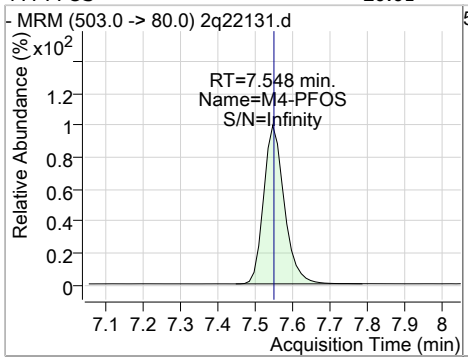
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.81	7.55	0.00	38158				

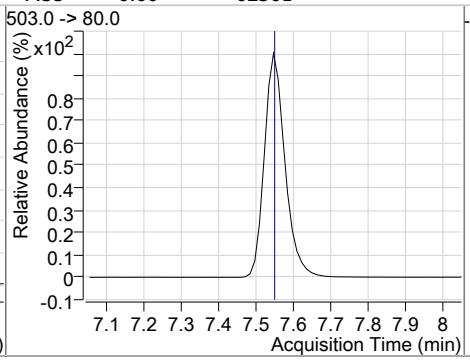


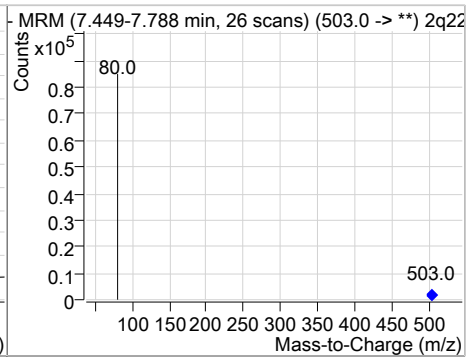




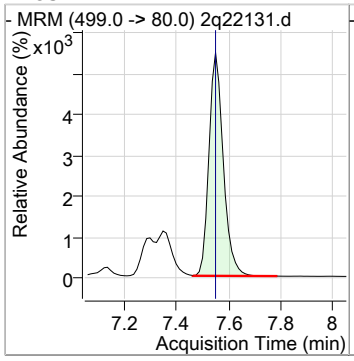
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.55	0.00	62301				

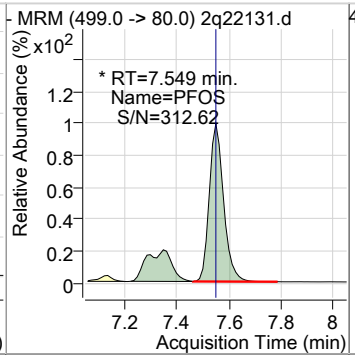


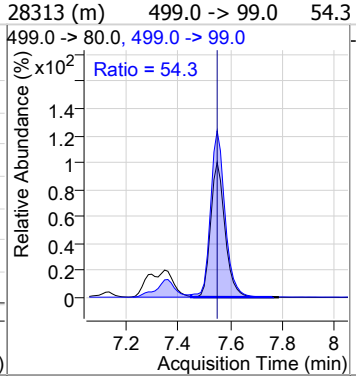


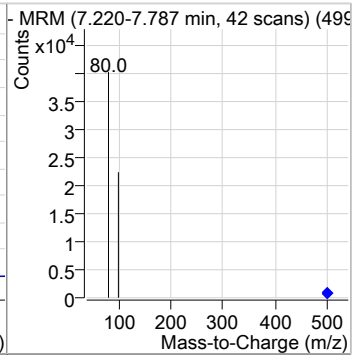


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.55	7.55	0.00	28313 (m)	499.0 -> 99.0	54.3	21.5	81.5

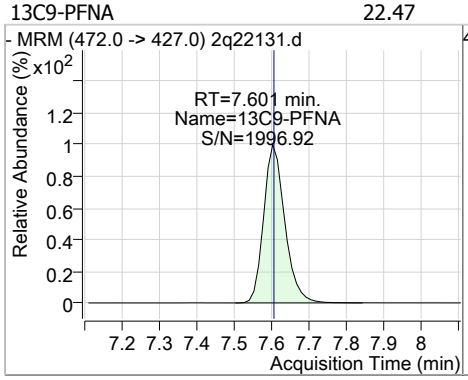


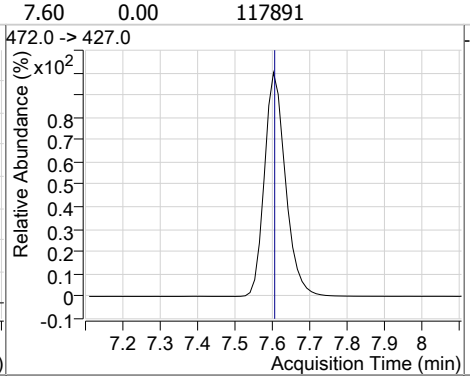


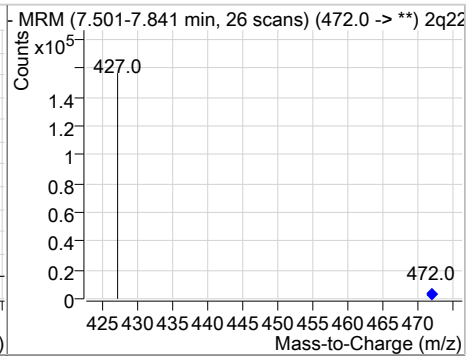




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	22.47	7.60	0.00	117891				

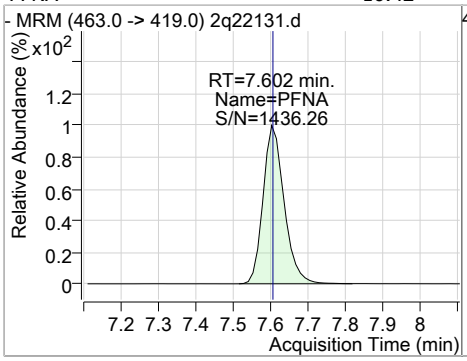


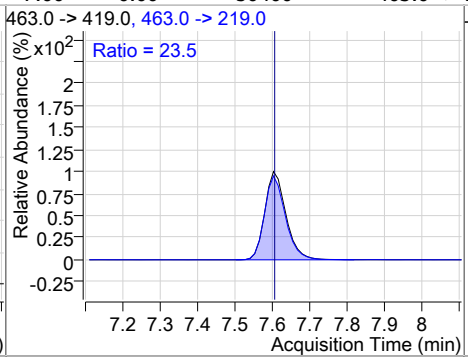


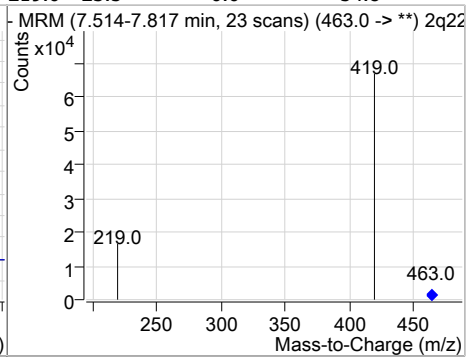


Perfluorinated Compounds by LC/MS/MS

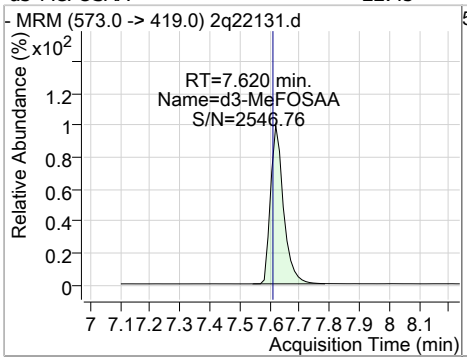
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	16.42	7.60	0.00	50400	463.0 -> 219.0	23.5	0.0	54.8

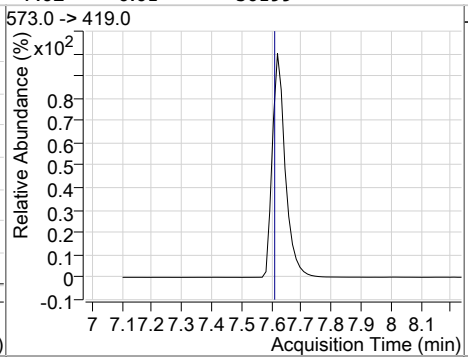


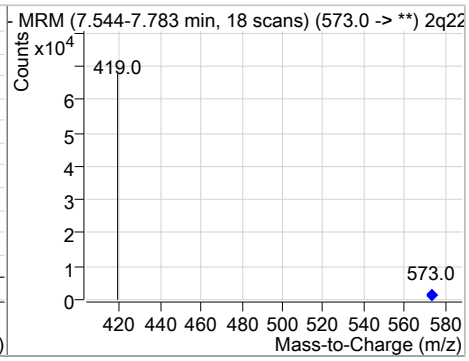




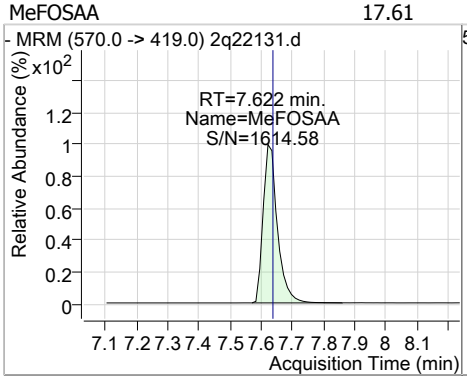
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	22.45	7.62	0.01	50199				

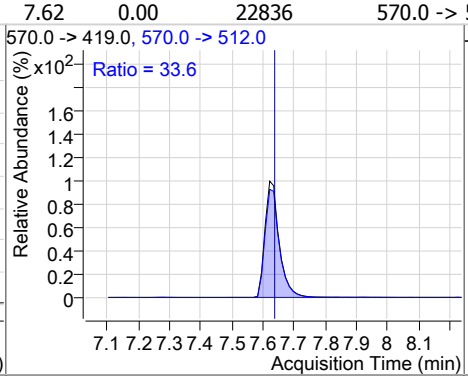


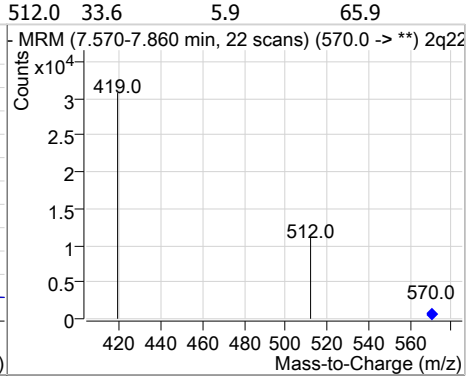




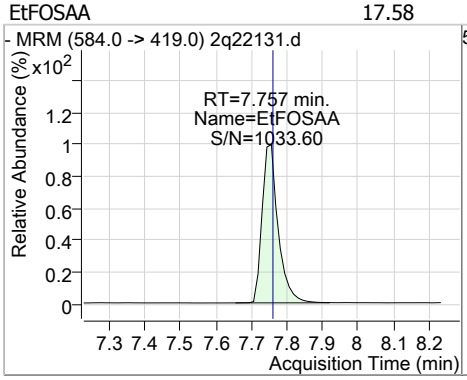
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.61	7.62	0.00	22836	570.0 -> 512.0	33.6	5.9	65.9

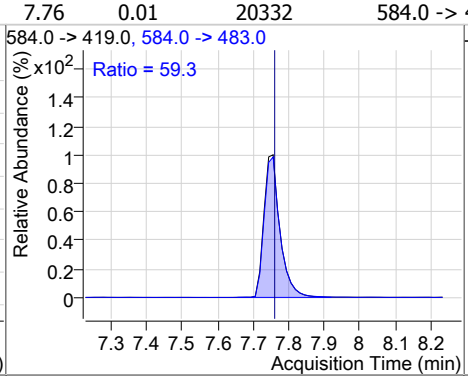


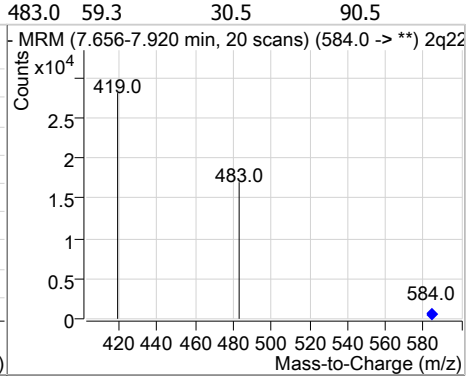




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	17.58	7.76	0.01	20332	584.0 -> 483.0	59.3	30.5	90.5

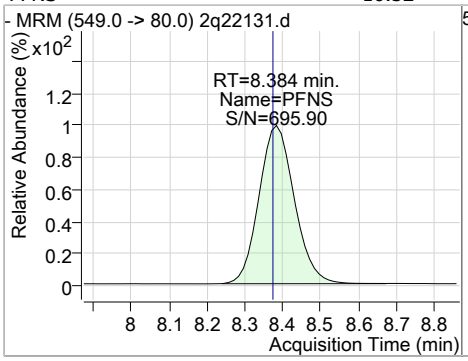


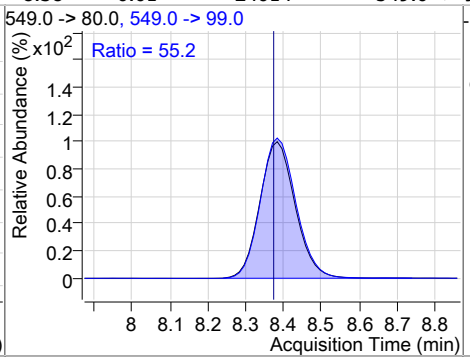


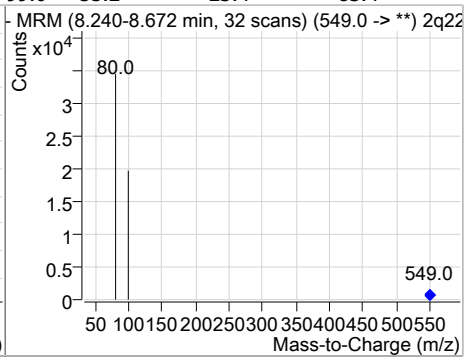


Perfluorinated Compounds by LC/MS/MS

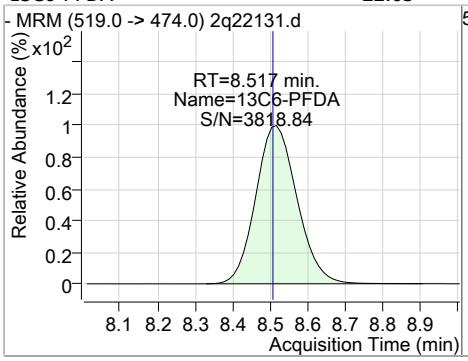
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	16.52	8.38	0.01	24614	549.0 -> 99.0	55.2	23.4	83.4

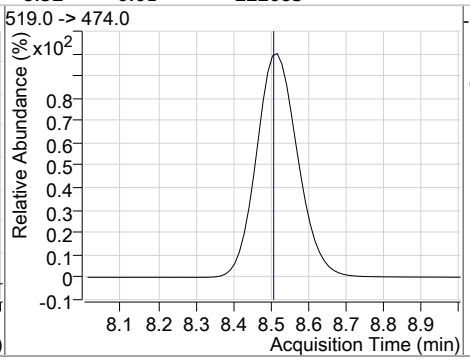


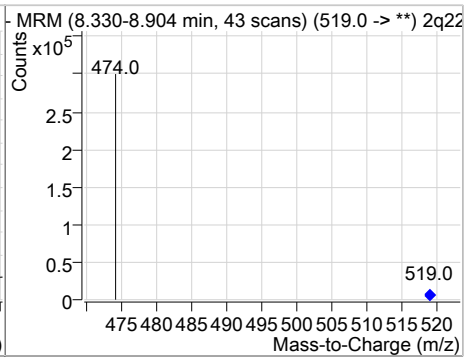




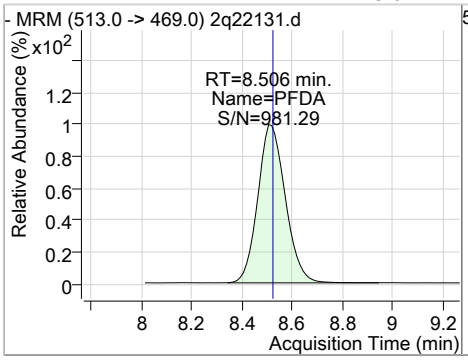
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	22.03	8.52	0.01	222083				

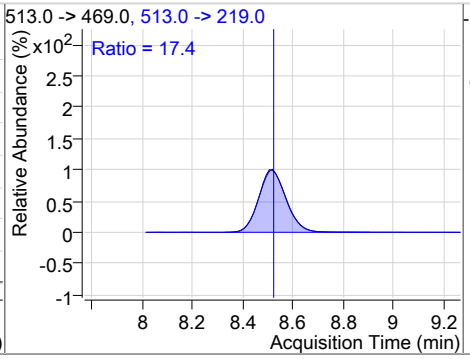


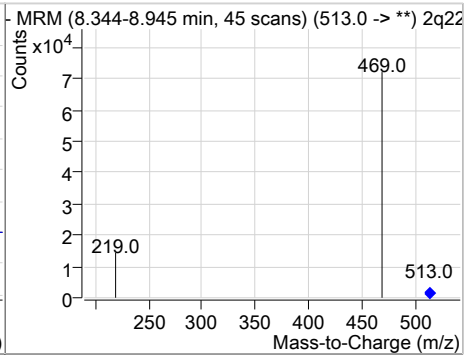




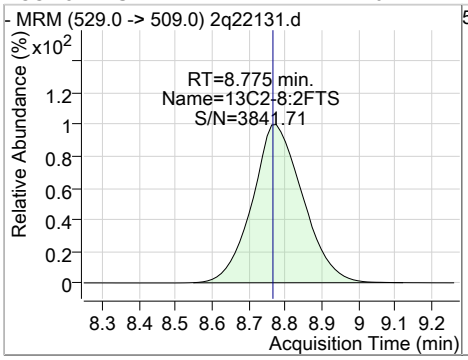
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	15.67	8.51	0.00	52469	513.0 -> 219.0	17.4	0.0	47.6

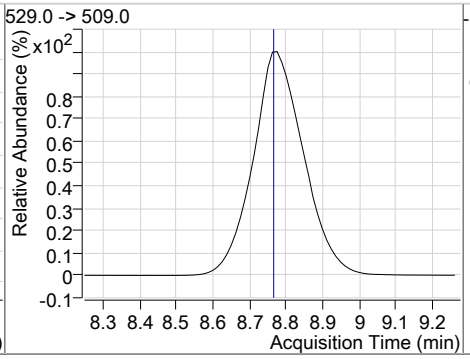


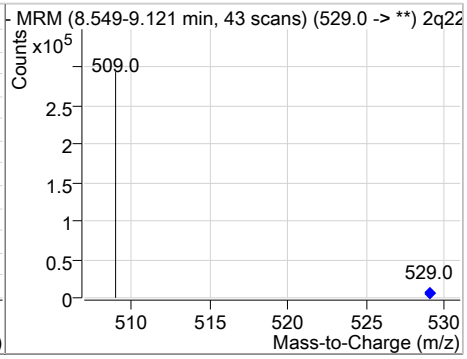




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.71	8.77	0.01	215545				

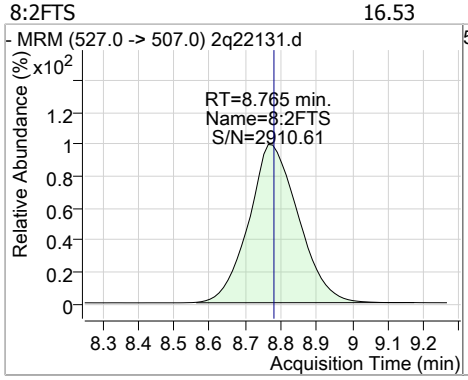


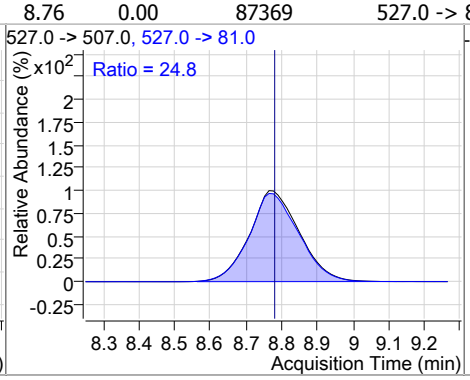


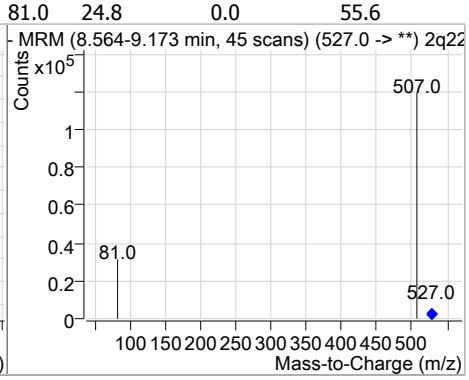


Perfluorinated Compounds by LC/MS/MS

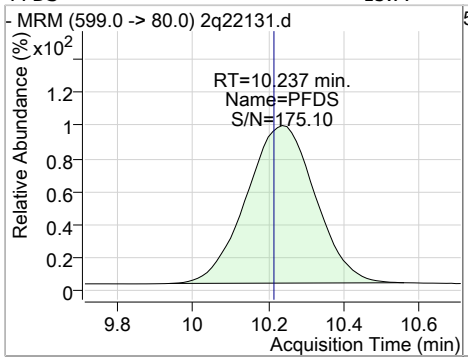
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	16.53	8.76	0.00	87369	527.0 -> 81.0	24.8	0.0	55.6

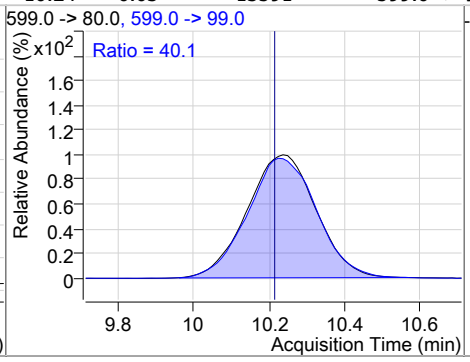


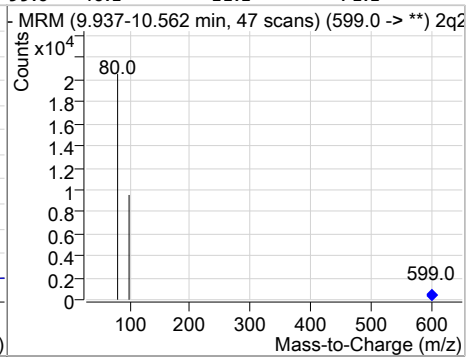




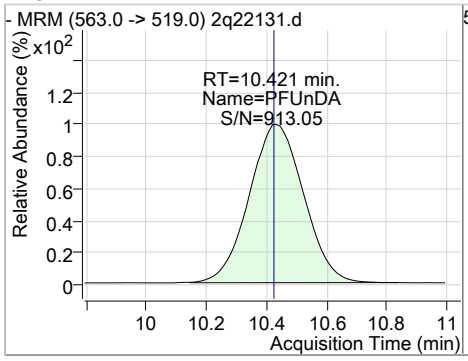
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	15.77	10.24	0.03	13591	599.0 -> 99.0	40.1	11.1	71.1

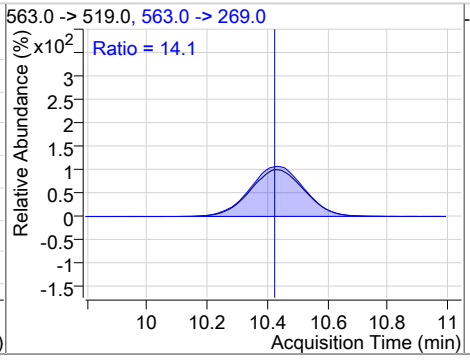


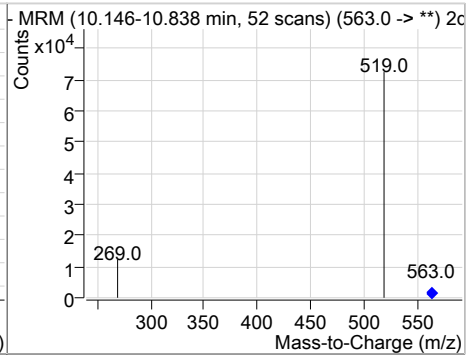




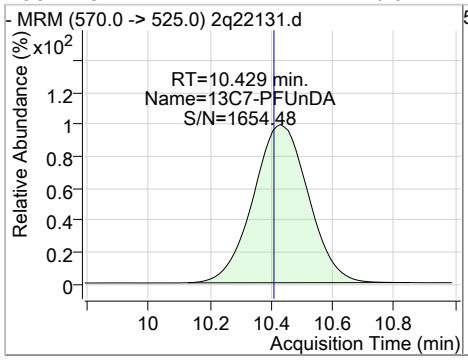
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	17.11	10.42	0.03	51961	563.0 -> 269.0	14.1	0.0	43.1

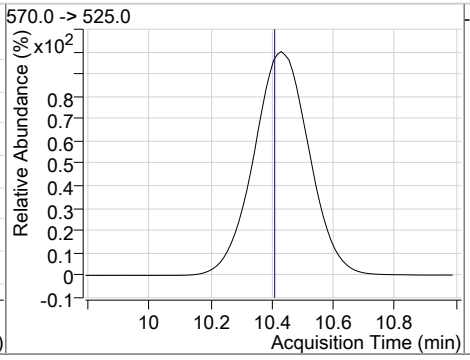


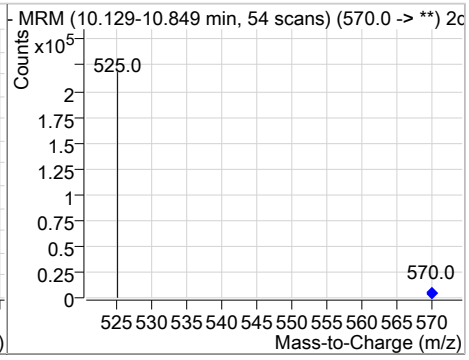




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.84	10.43	0.03	159415				

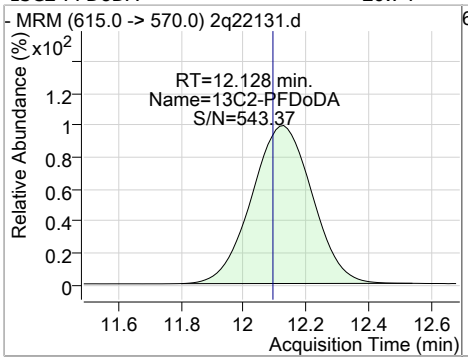


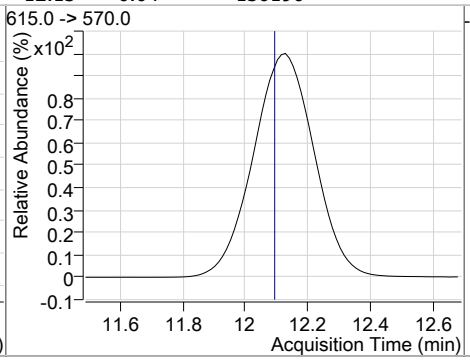


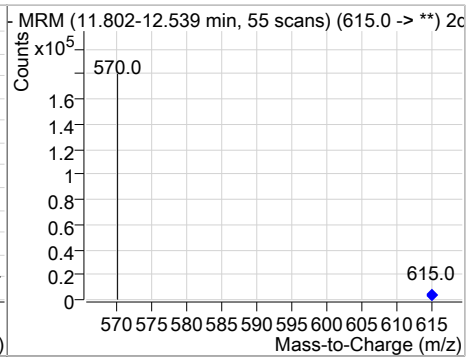


Perfluorinated Compounds by LC/MS/MS

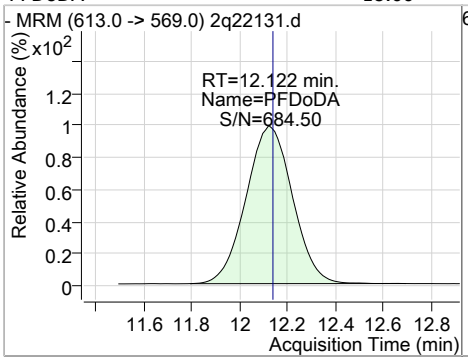
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.74	12.13	0.04	130190				

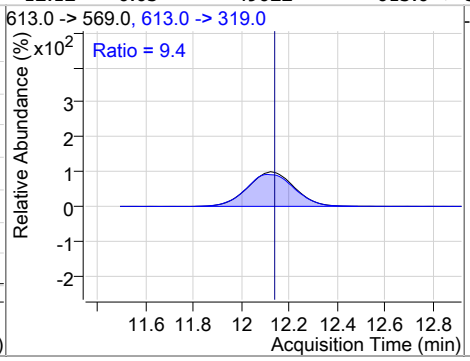


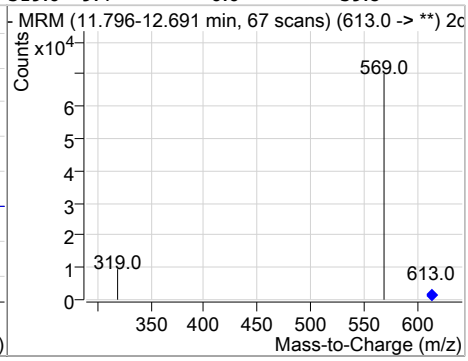




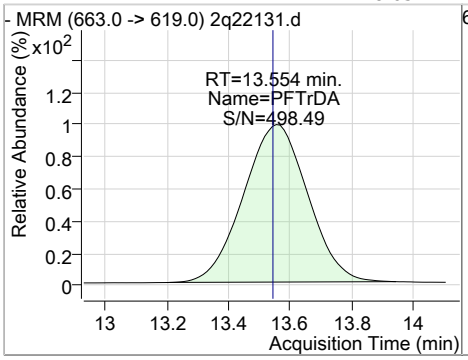
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	18.00	12.12	0.03	49622	613.0 -> 319.0	9.4	0.0	39.8

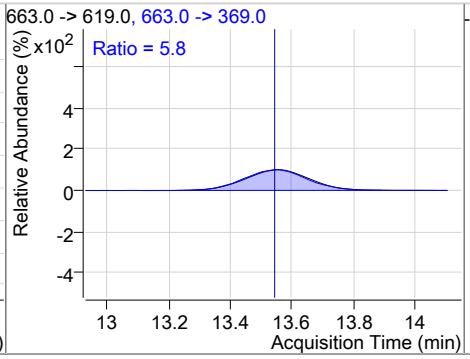


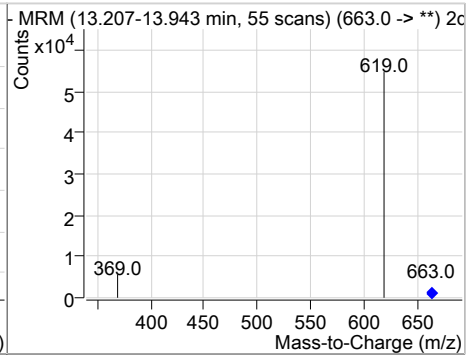




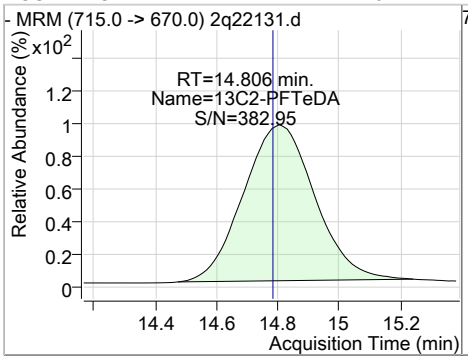
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	18.65	13.55	0.04	38352	663.0 -> 369.0	5.8	0.0	35.8

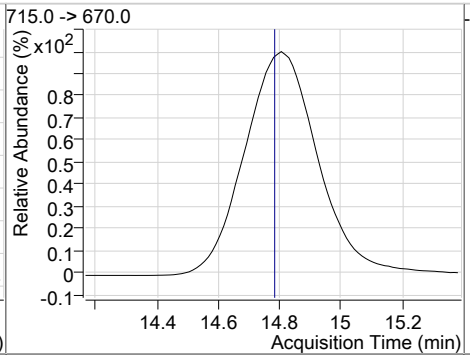


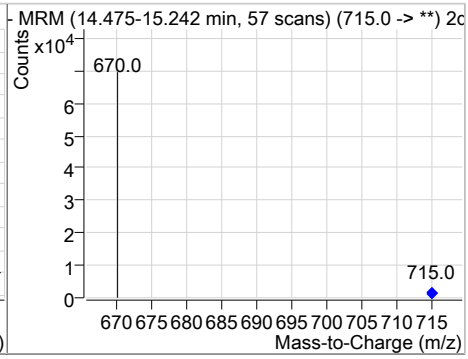




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.71	14.81	0.03	46243				

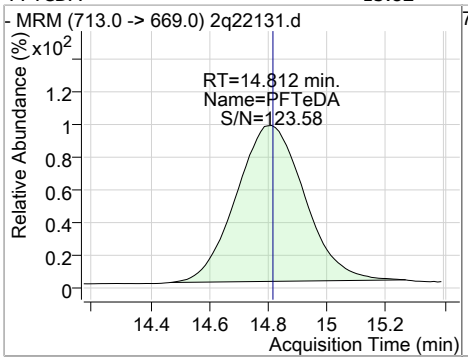


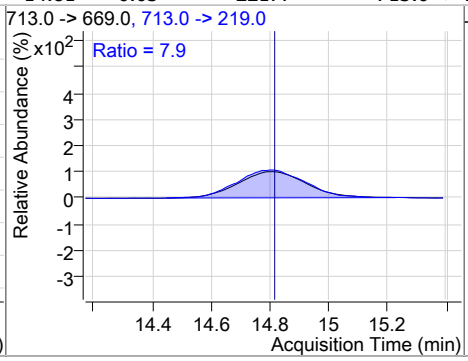


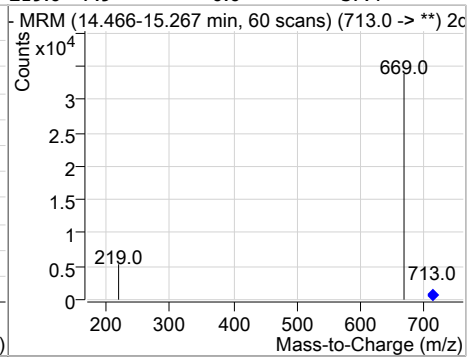


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.82	14.81	0.03	22177	713.0 -> 219.0	7.9	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-ICV349
Lab FileID: 2Q22131.D
Injection Time: 10/15/18 14:52
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22142.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 6:47:54 PM
Sample Name : cc349-20
Vial : Vial 7
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

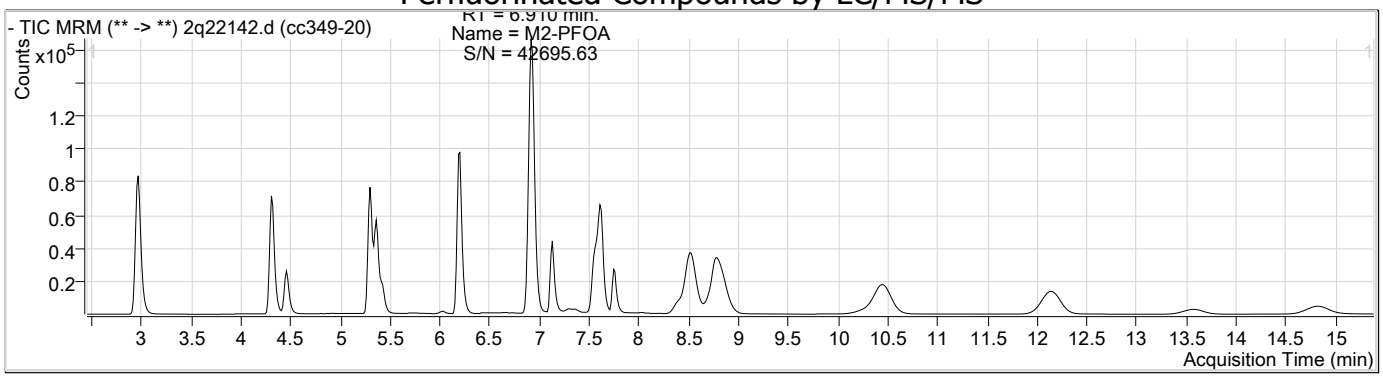
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	157702	20.00	µg/L	0.002
13C4-PFOS	7.561	503.0 -> 80.0	59038	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	292169	20.00	µg/L	0.013
M5-PFPeA	4.312	268.0 -> 223.0	129322	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	125542	20.00	µg/L	0.011
M4-PFHpA	6.204	367.0 -> 322.0	146089	20.00	µg/L	0.013
M8-PFOA	6.921	421.0 -> 376.0	124155	20.00	µg/L	0.014
M9-PFNA	7.614	472.0 -> 427.0	107492	20.00	µg/L	0.013
M6-PFDA	8.517	519.0 -> 474.0	212032	20.00	µg/L	0.012
M7-PFUnDA	10.442	570.0 -> 525.0	156007	20.00	µg/L	0.038
M2-PFDoDA	12.140	615.0 -> 570.0	128477	20.00	µg/L	0.050
M2-PFTeDA	14.818	715.0 -> 670.0	49198	20.00	µg/L	0.038
M8-FOSA	7.130	506.0 -> 78.0	85235	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	29216	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	36276	20.00	µg/L	0.013
M8-PFOS	7.559	507.0 -> 99.0	36296	20.00	µg/L	0.013
M2-4:2FTS	5.297	329.0 -> 309.0	143460	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	182785	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	213283	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	48186	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	143471	20.43	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C2-6:2FTS	6.931	429.0 -> 409.0	182857	20.81	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.0%		
13C2-8:2FTS	8.775	529.0 -> 509.0	212053	20.37	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C2-PFDoDA	12.140	615.0 -> 570.0	127918	20.38	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C2-PFTeDA	14.818	715.0 -> 670.0	46695	20.91	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C3-PFBS	4.455	302.0 -> 99.0	29224	20.52	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C3-PFHxS	6.198	402.0 -> 99.0	36242	20.92	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%		
13C4-PFBA	2.966	217.0 -> 172.0	291944	20.21	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C4-PFHpA	6.204	367.0 -> 322.0	146004	20.82	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C5-PFHxA	5.364	318.0 -> 273.0	125550	20.68	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%		
13C5-PFPeA	4.312	268.0 -> 223.0	129242	20.58	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C6-PFDA	8.517	519.0 -> 474.0	211675	21.00	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%		

Perfluorinated Compounds by LC/MS/MS

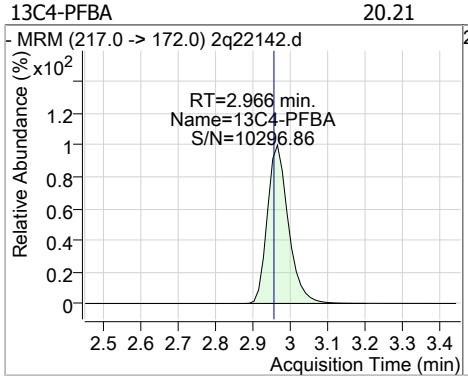
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.442	570.0 -> 525.0	154968	20.26	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%			
13C8-FOSA	7.130	506.0 -> 78.0	85230	23.16	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.8%			
13C8-PFOA	6.921	421.0 -> 376.0	124145	21.15	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.7%			
13C8-PFOS	7.559	507.0 -> 99.0	36293	20.75	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%			
13C9-PFNA	7.614	472.0 -> 427.0	107503	20.49	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%			
d3-MeFOSAA	7.620	573.0 -> 419.0	48222	21.56	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.8%			
M2-PFOA	6.910	415.0 -> 370.0	157668	20.00	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.561	503.0 -> 80.0	59082	20.02	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	78420	20.32	µg/L		100
6:2FTS	6.932	427.0 -> 407.0	87974	20.35	µg/L		99
8:2FTS	8.777	527.0 -> 507.0	105154	20.36	µg/L		97
EtFOSAA	7.757	584.0 -> 419.0	21785	19.61	µg/L		98
FOSA	7.132	498.0 -> 78.0	41156	20.16	µg/L		97
MeFOSAA	7.634	570.0 -> 419.0	24830	19.92	µg/L		93
PFBA	2.962	213.0 -> 169.0	34853	19.80	µg/L		100
PFBS	4.459	299.0 -> 80.0	41983	19.87	µg/L		99
PFDA	8.532	513.0 -> 469.0	62714	19.65	µg/L		100
PFDoDA	12.147	613.0 -> 569.0	54186	20.06	µg/L		99
PFDS	10.250	599.0 -> 80.0	16352	19.94	µg/L		99
PFHpA	6.195	363.0 -> 319.0	106829	19.63	µg/L		99
PFHpS	6.892	449.0 -> 80.0	30255	20.04	µg/L		98
PFHxA	5.366	313.0 -> 269.0	39151	19.46	µg/L		100
PFHxS	6.201	399.0 -> 80.0	35736	19.62	µg/L	m	100
PFNA	7.615	463.0 -> 419.0	55843	19.96	µg/L		99
PFNS	8.384	549.0 -> 80.0	28511	20.11	µg/L		98
PFOA	6.912	413.0 -> 369.0	60968	19.99	µg/L		99
PFOS	7.562	499.0 -> 80.0	30720	20.02	µg/L	m	99
PFPeA	4.316	263.0 -> 219.0	117755	19.76	µg/L		100
PFPeS	5.421	349.0 -> 80.0	29229	20.22	µg/L		99
PFTeDA	14.825	713.0 -> 669.0	27185	19.21	µg/L		100
PFTrDA	13.567	663.0 -> 619.0	40328	19.42	µg/L		100
PFUnDA	10.459	563.0 -> 519.0	57709	19.51	µg/L		97

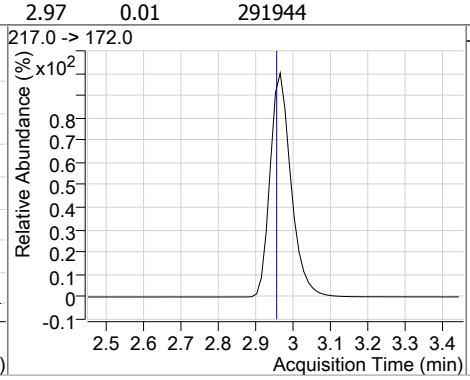
 # = Qualifier out of range, m = manually integrated, + = Area summed

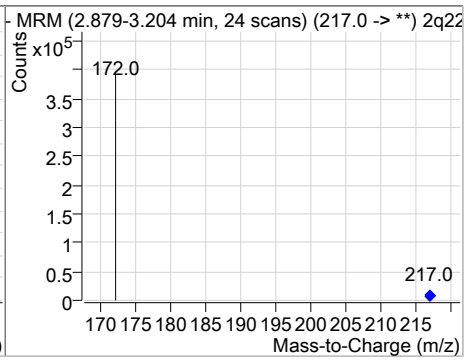
Perfluorinated Compounds by LC/MS/MS



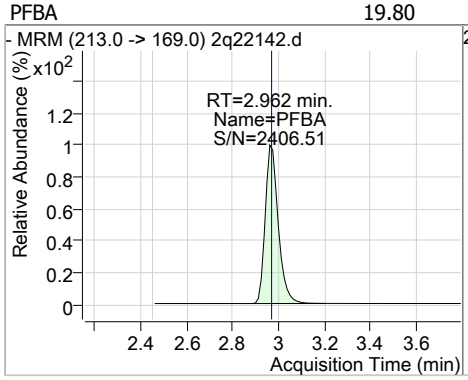
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.21	2.97	0.01	291944				

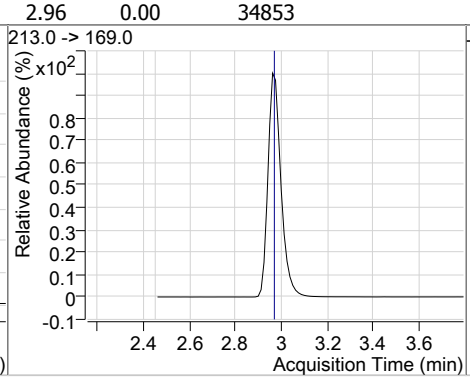


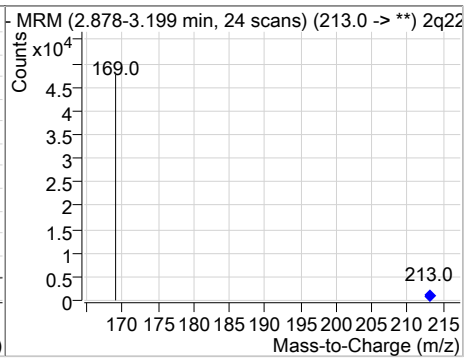




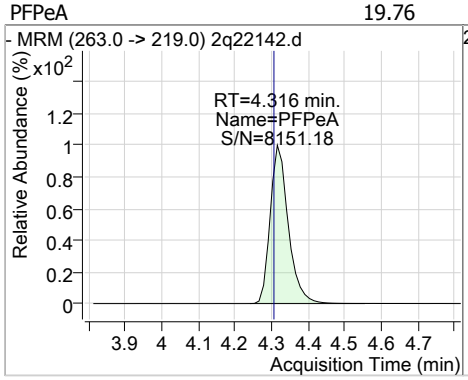
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.80	2.96	0.00	34853				

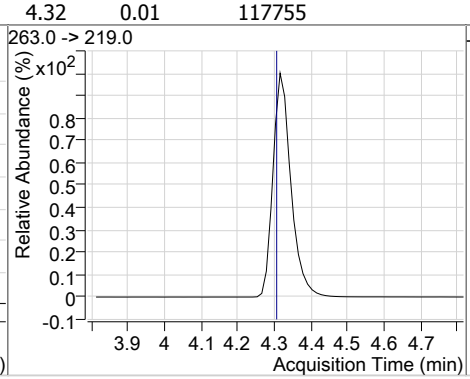


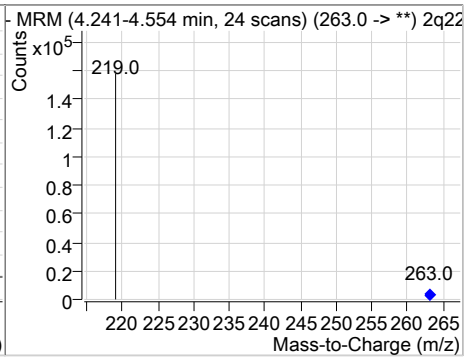




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.76	4.32	0.01	117755				

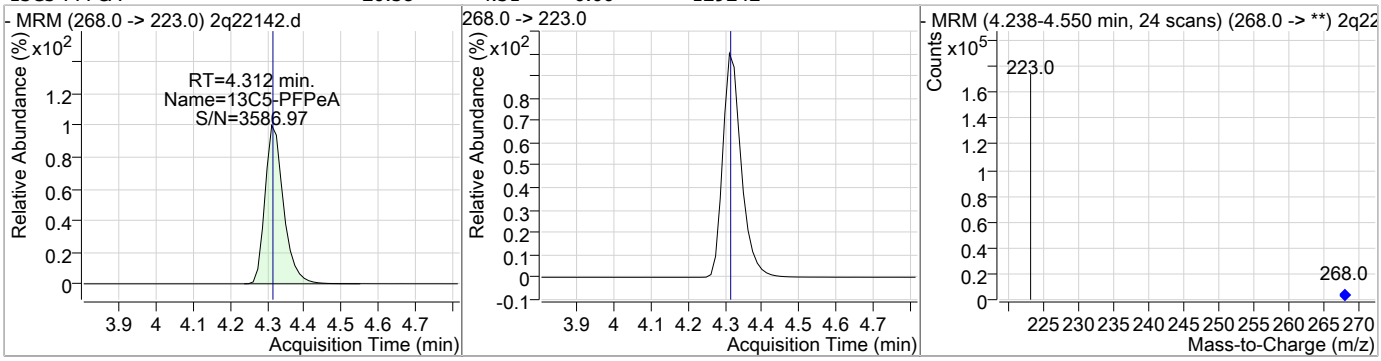




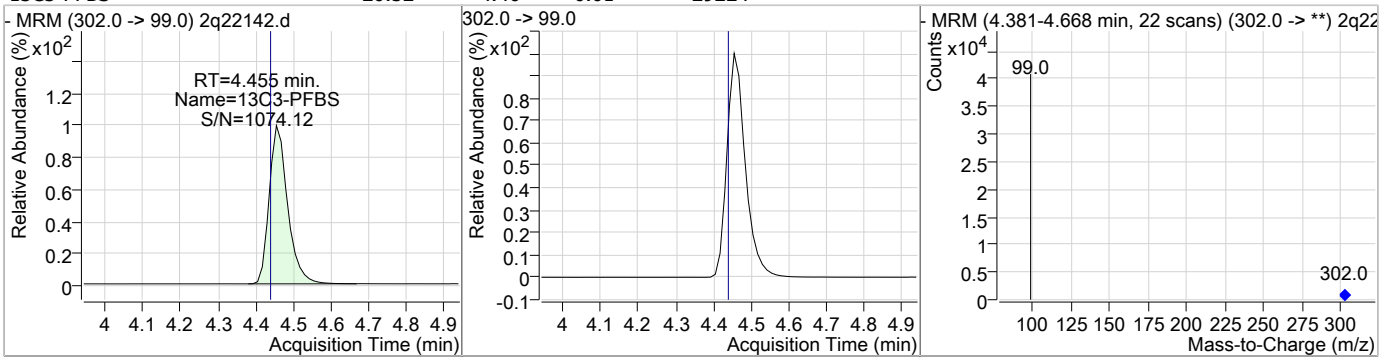


Perfluorinated Compounds by LC/MS/MS

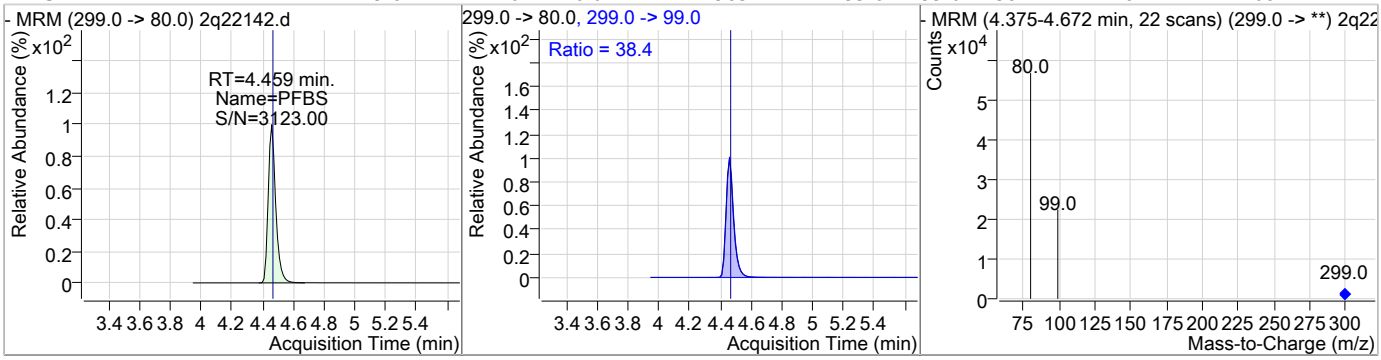
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.58	4.31	0.00	129242				



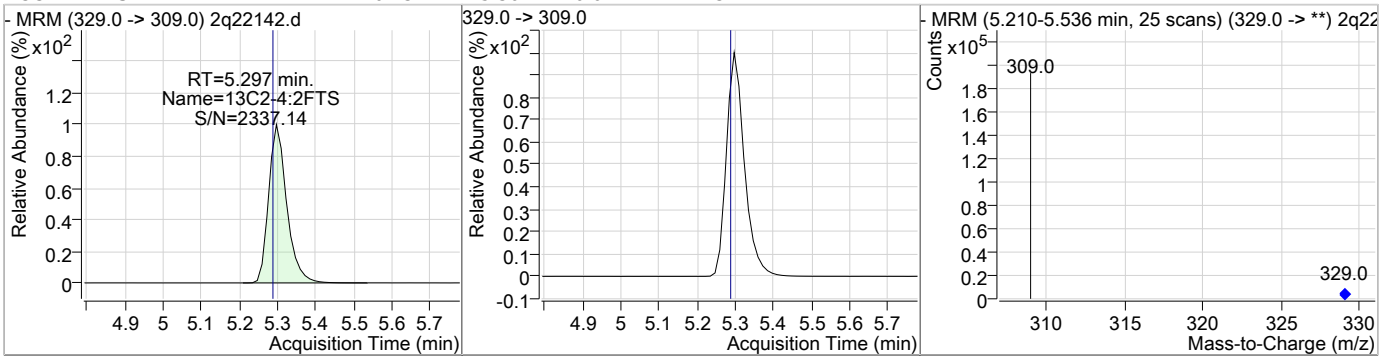
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.52	4.46	0.01	29224				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.87	4.46	0.01	41983	299.0 -> 99.0	38.4	8.1	68.1

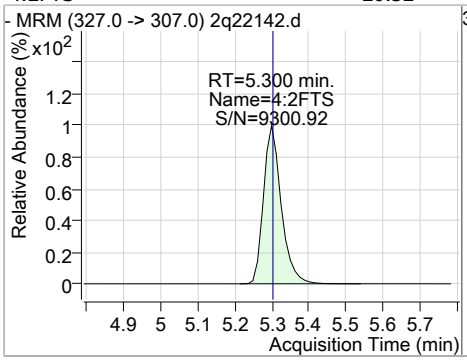


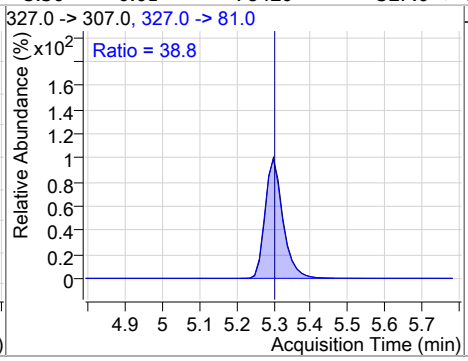
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.43	5.30	0.01	143471				

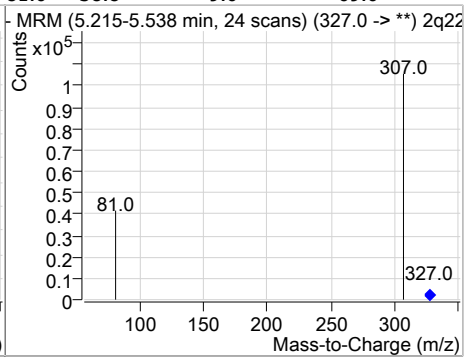


Perfluorinated Compounds by LC/MS/MS

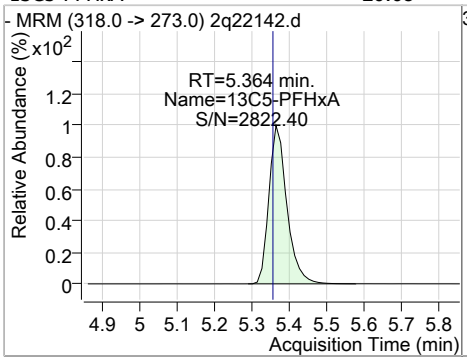
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	20.32	5.30	0.01	78420	327.0 -> 81.0	38.8	9.0	69.0

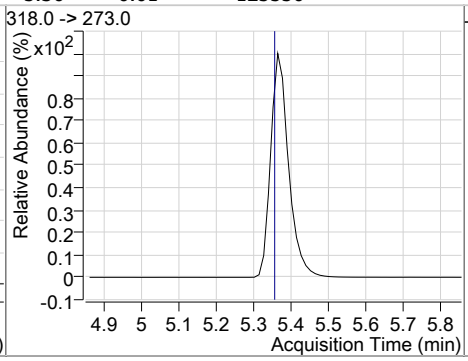


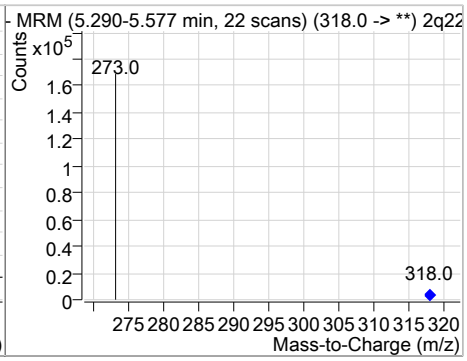




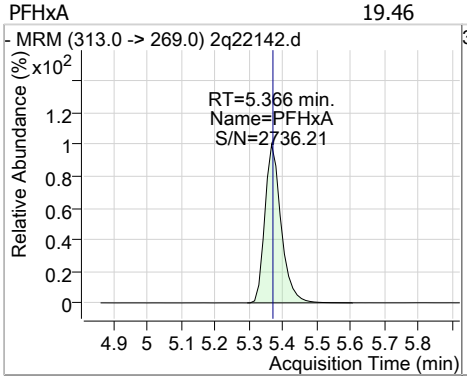
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.68	5.36	0.01	125550				

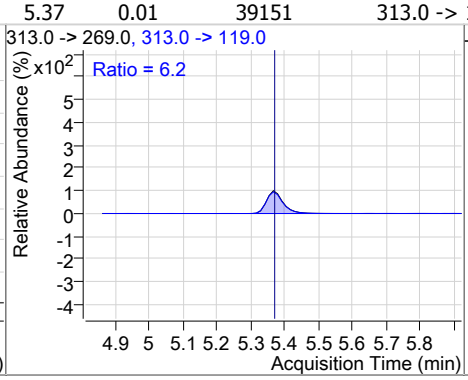


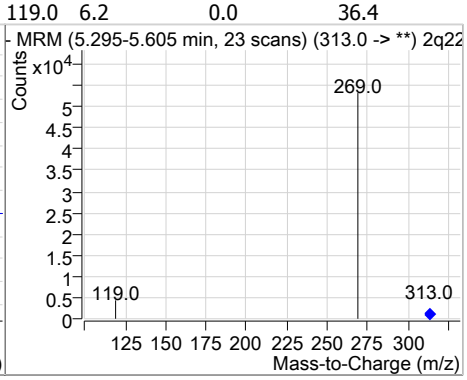




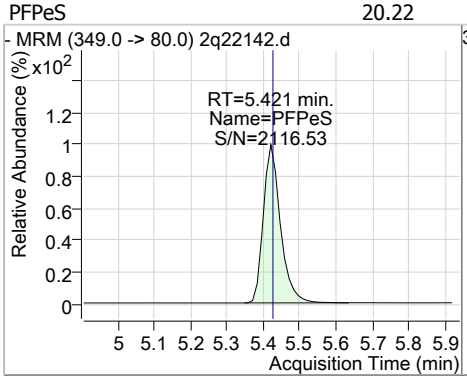
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.46	5.37	0.01	39151	313.0 -> 119.0	6.2	0.0	36.4

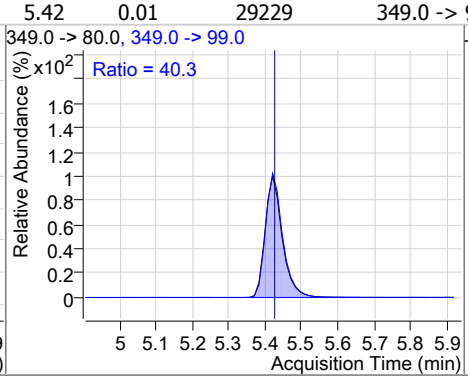


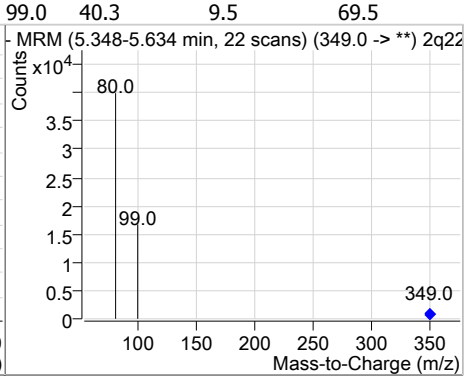




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.22	5.42	0.01	29229	349.0 -> 99.0	40.3	9.5	69.5

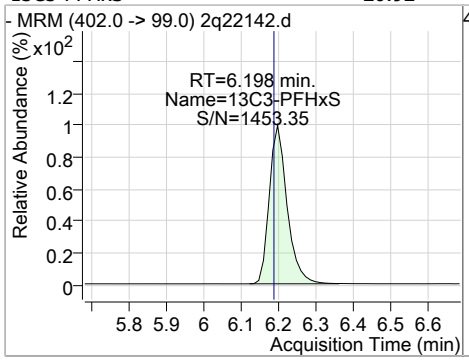


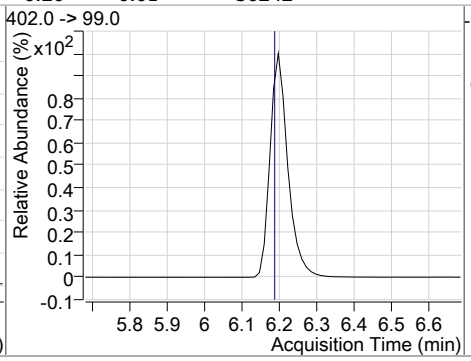


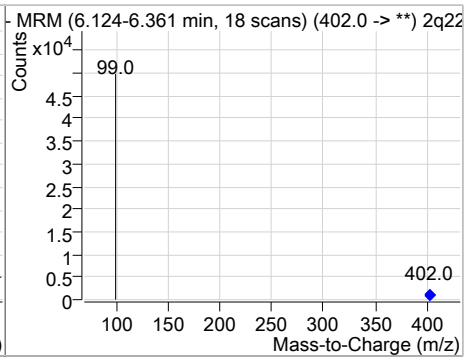


Perfluorinated Compounds by LC/MS/MS

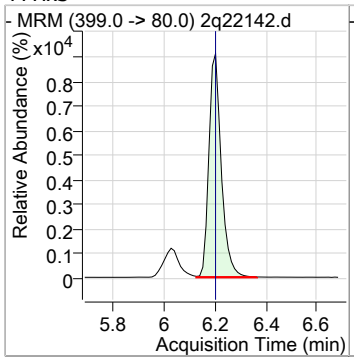
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.92	6.20	0.01	36242				

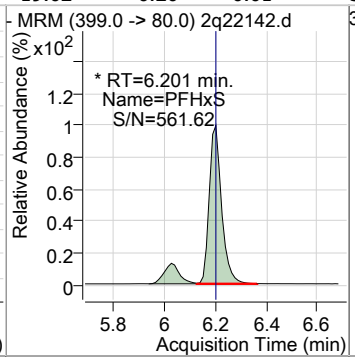


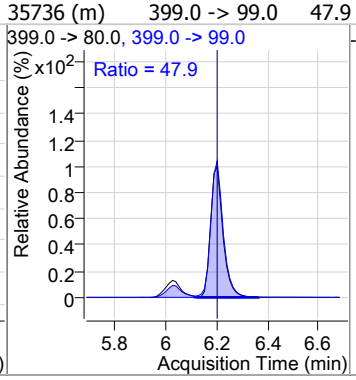


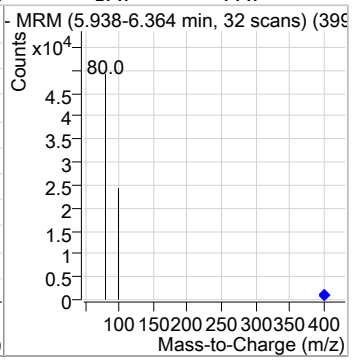


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.62	6.20	0.01	35736 (m)	399.0 -> 99.0	47.9	17.7	77.7

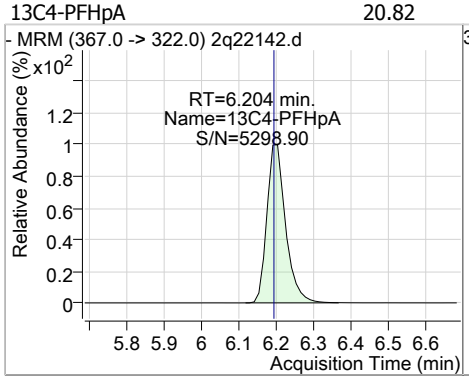


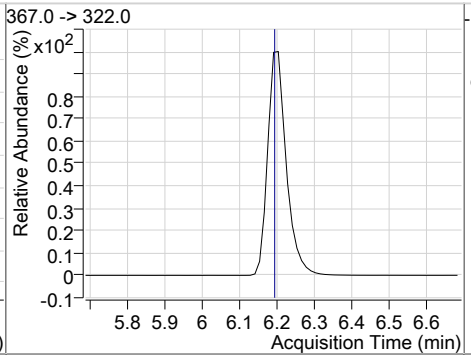


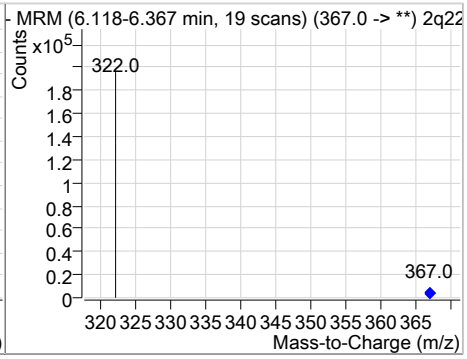




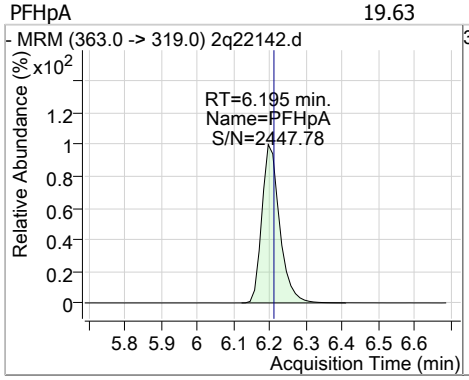
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.82	6.20	0.01	146004				

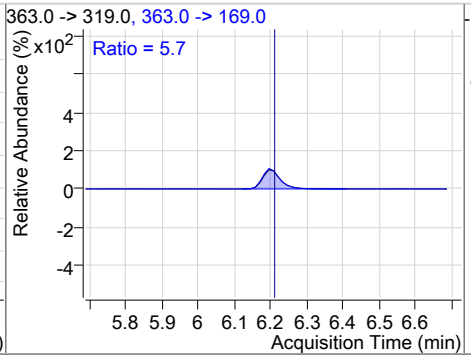


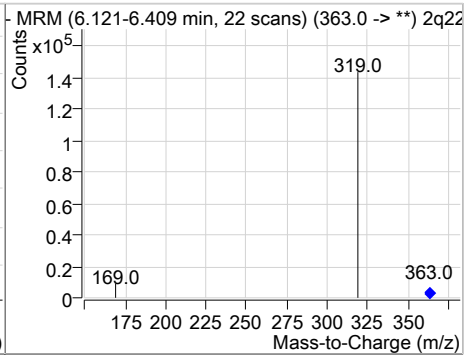




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.63	6.20	0.00	106829	363.0 -> 169.0	5.7	0.0	35.4

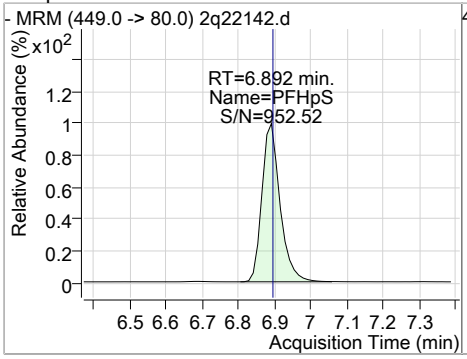


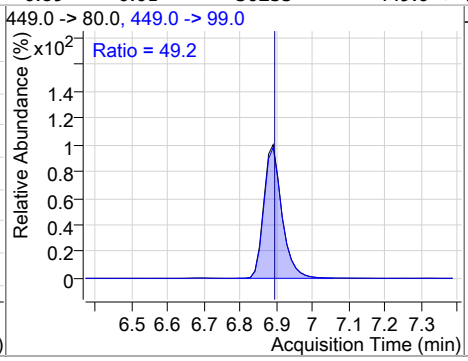


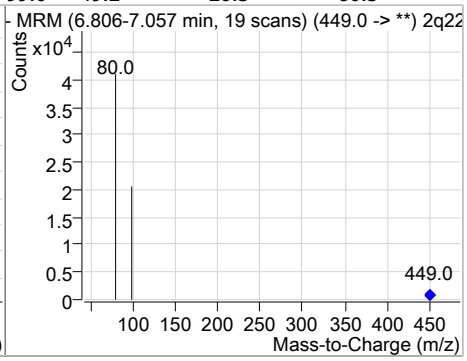


Perfluorinated Compounds by LC/MS/MS

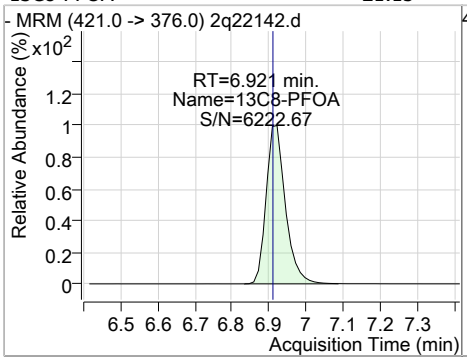
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.04	6.89	0.01	30255	449.0 -> 99.0	49.2	20.3	80.3

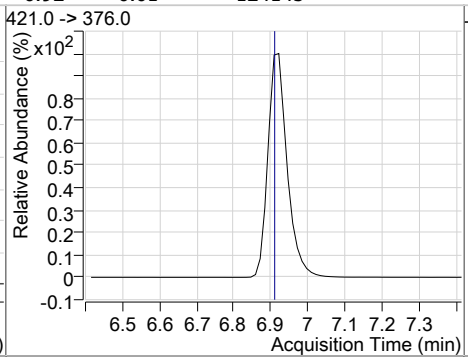


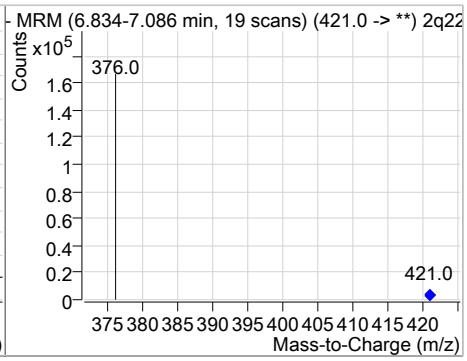




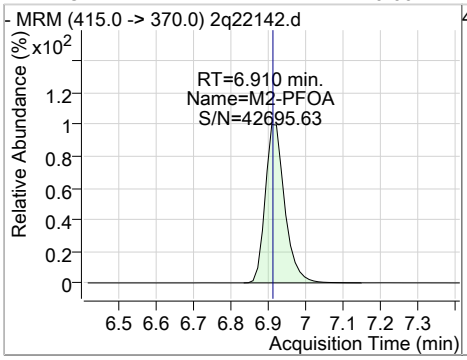
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.15	6.92	0.01	124145				

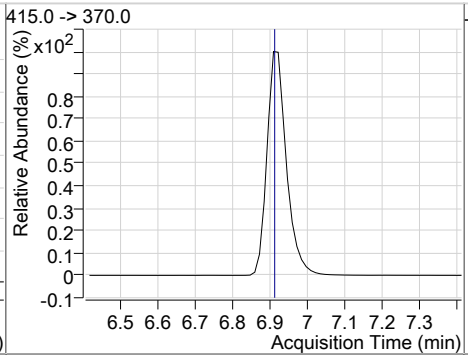


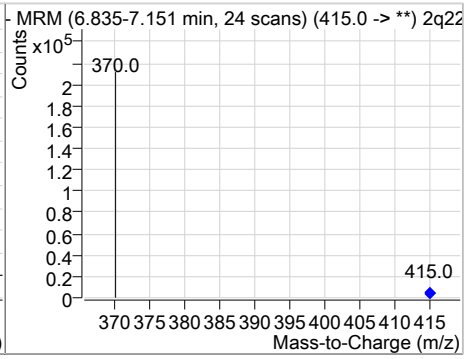




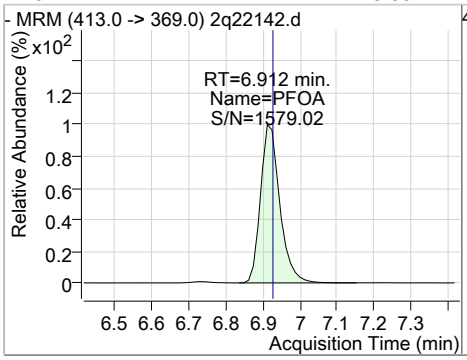
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.91	0.00	157668				

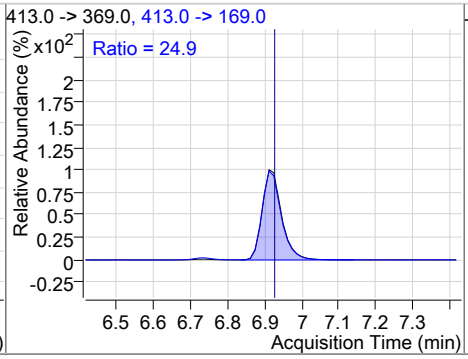


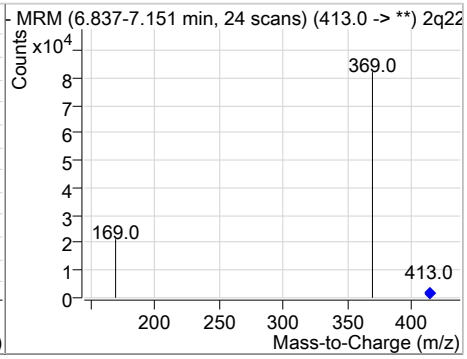




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.99	6.91	0.00	60968	413.0 -> 169.0	24.9	0.0	55.3

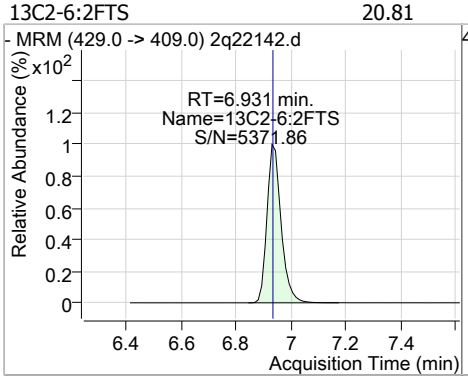


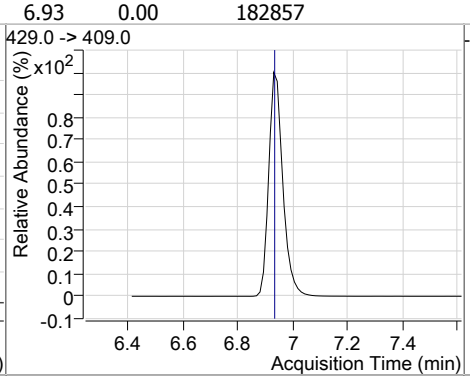


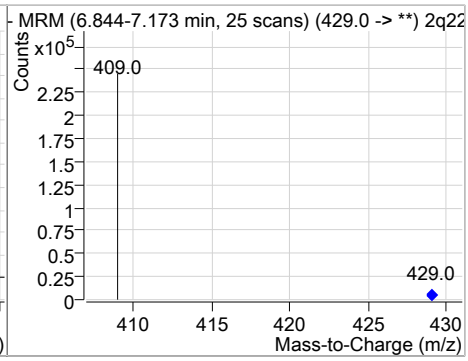


Perfluorinated Compounds by LC/MS/MS

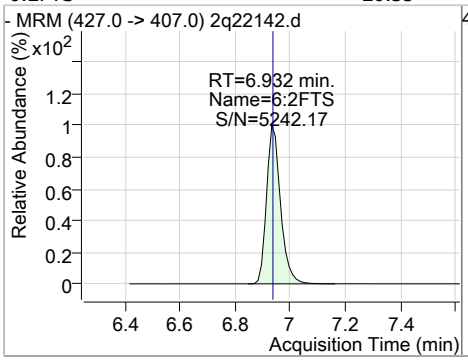
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.81	6.93	0.00	182857				

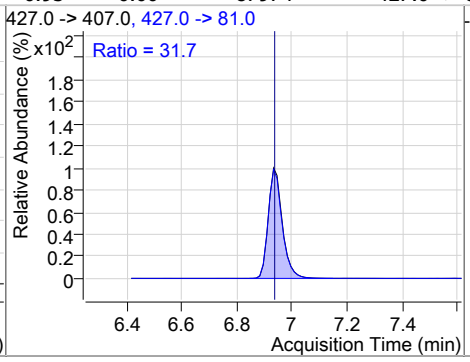


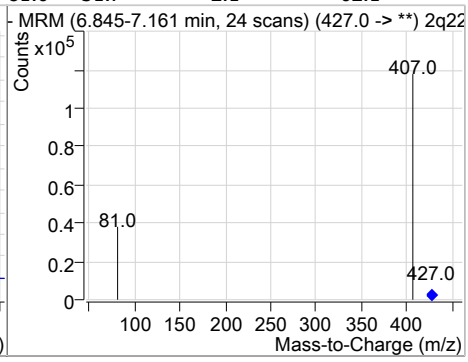




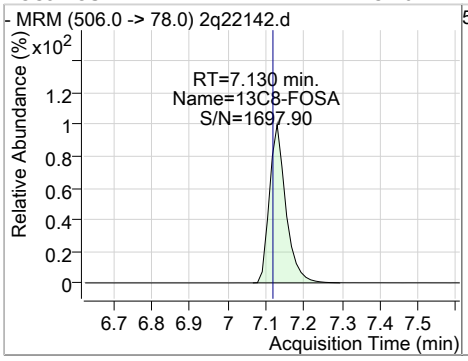
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.35	6.93	0.00	87974	427.0 -> 81.0	31.7	2.1	62.1

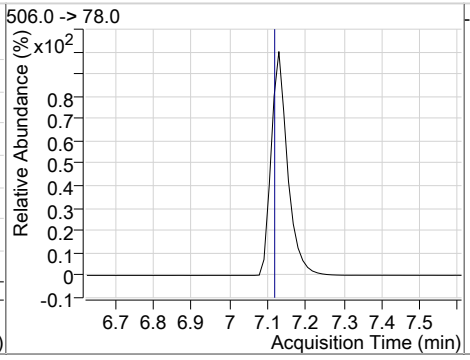


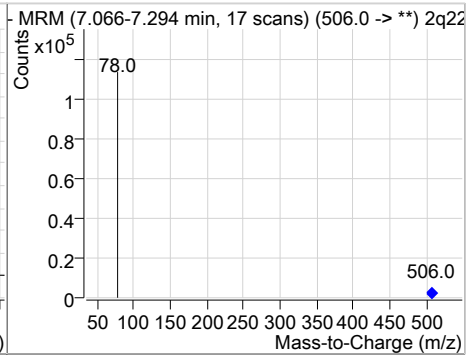




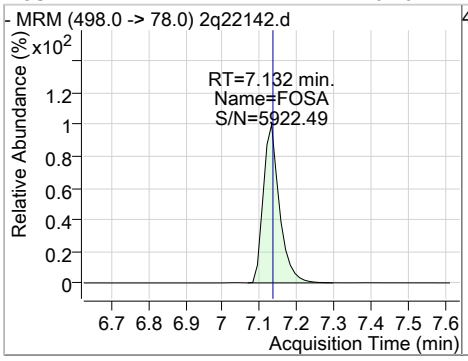
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	23.16	7.13	0.01	85230				

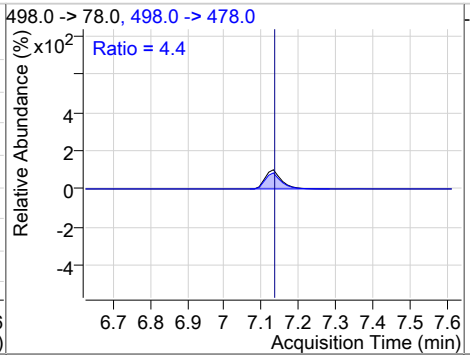


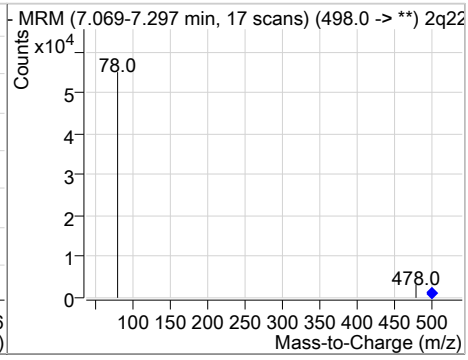




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	20.16	7.13	0.01	41156	498.0 -> 478.0	4.4	0.0	35.4

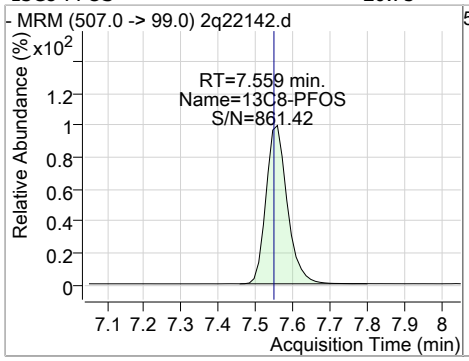


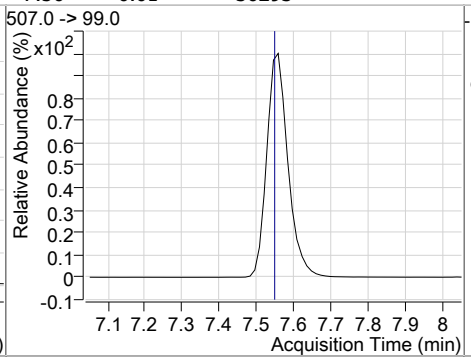


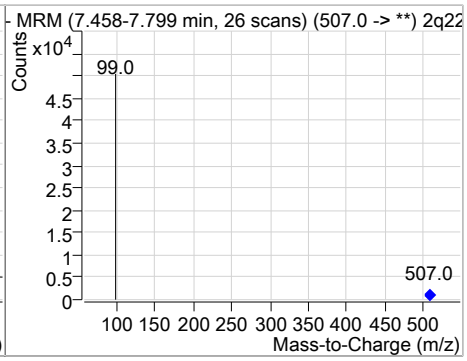


Perfluorinated Compounds by LC/MS/MS

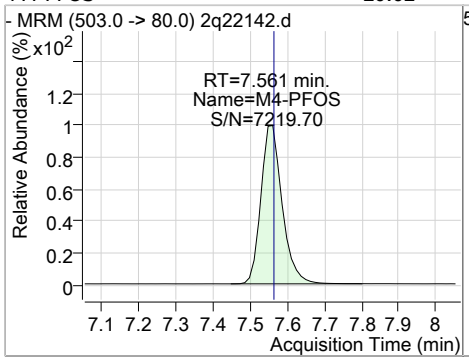
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.75	7.56	0.01	36293				

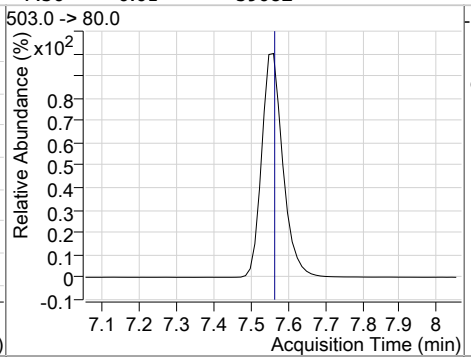


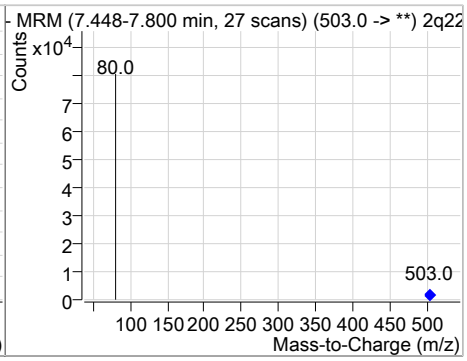




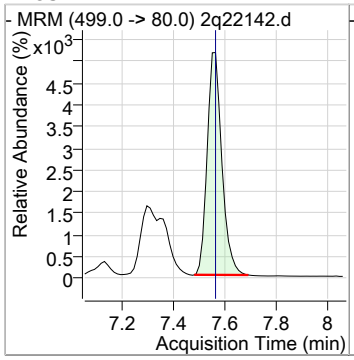
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.56	0.01	59082				

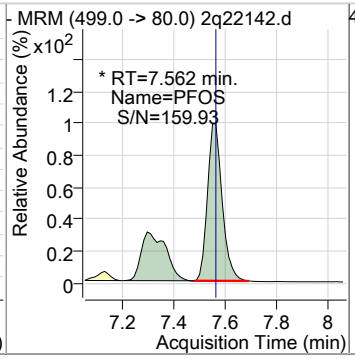


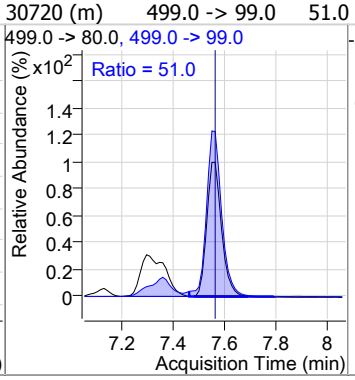


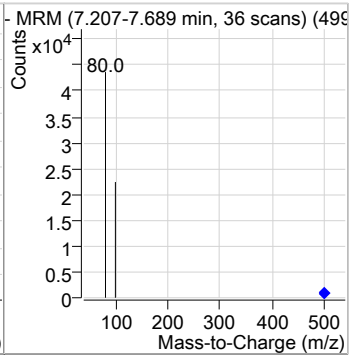


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.02	7.56	0.01	30720 (m)	499.0 -> 99.0	51.0	21.5	81.5

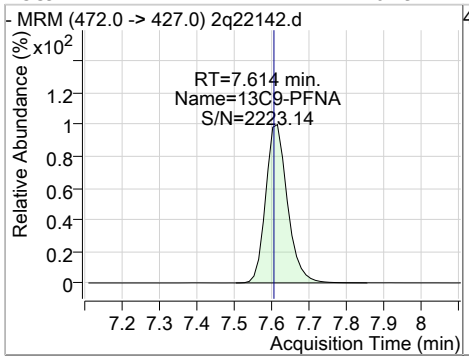


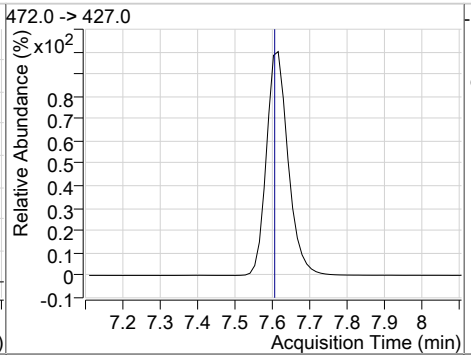


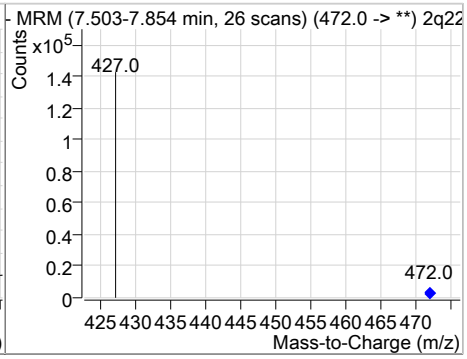




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.49	7.61	0.01	107503				

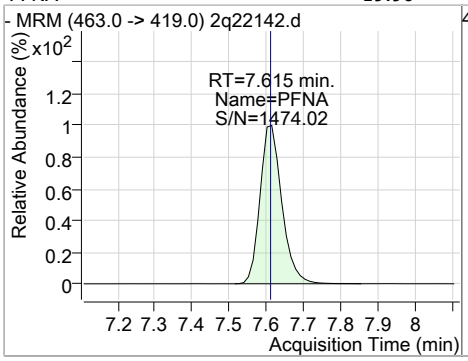


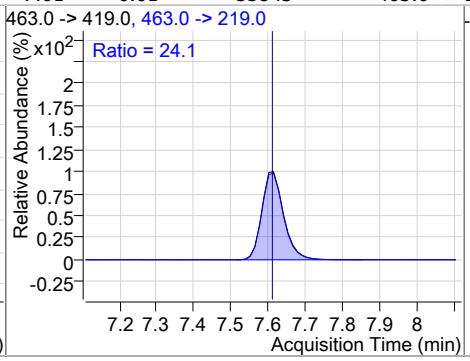


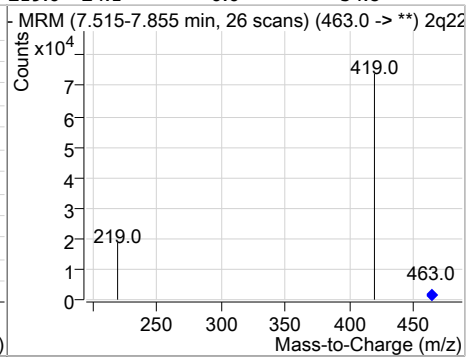


Perfluorinated Compounds by LC/MS/MS

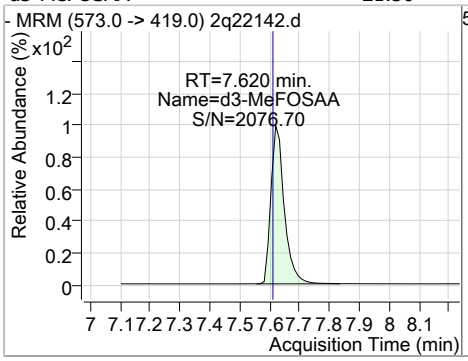
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.96	7.61	0.01	55843	463.0 -> 219.0	24.1	0.0	54.8

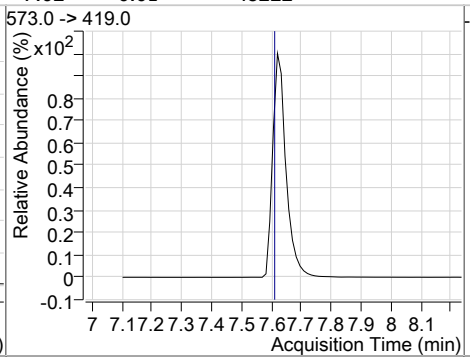


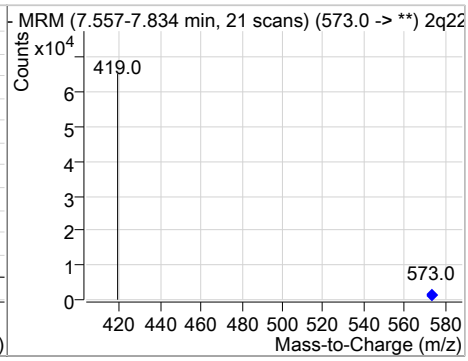




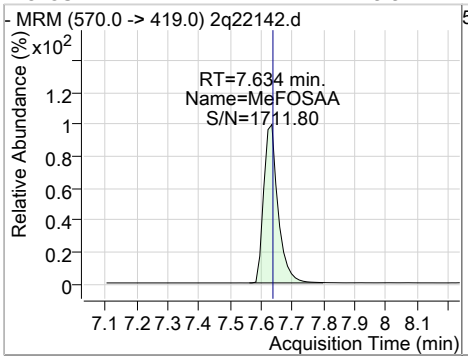
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.56	7.62	0.01	48222				

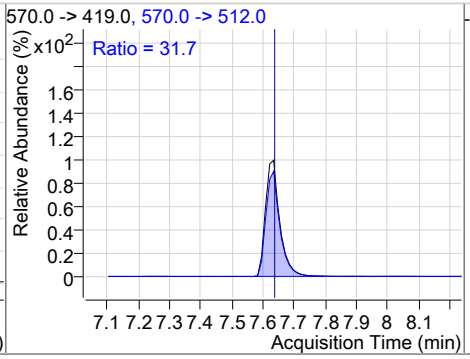


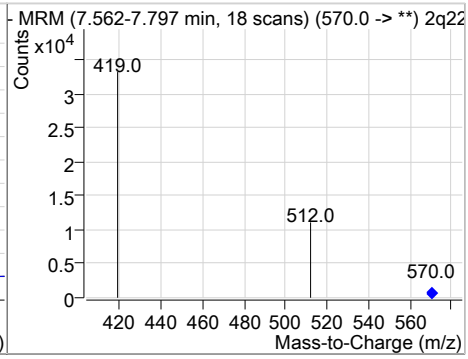




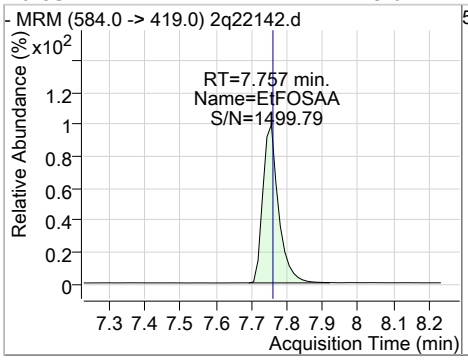
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.92	7.63	0.01	24830	570.0 -> 512.0	31.7	5.9	65.9

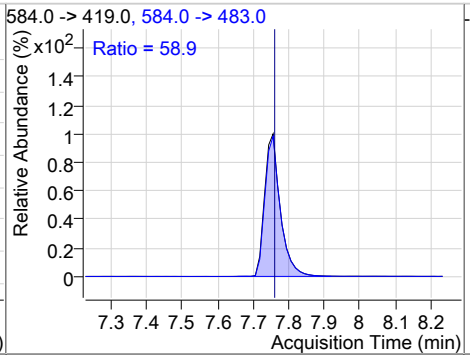


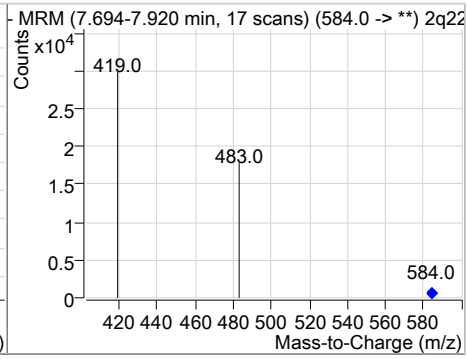




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.61	7.76	0.01	21785	584.0 -> 483.0	58.9	30.5	90.5

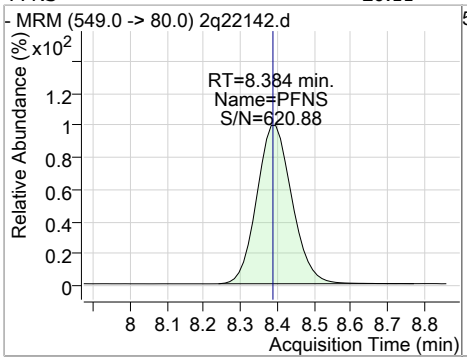


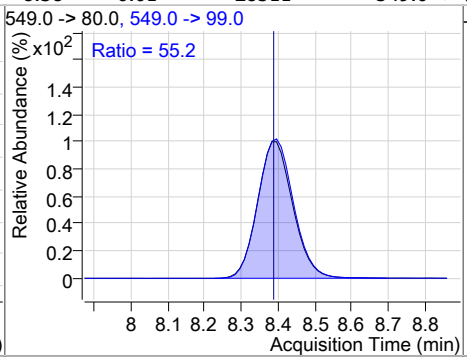


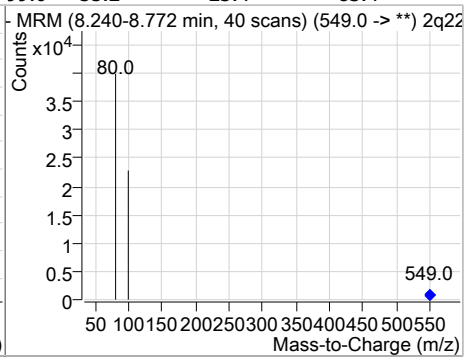


Perfluorinated Compounds by LC/MS/MS

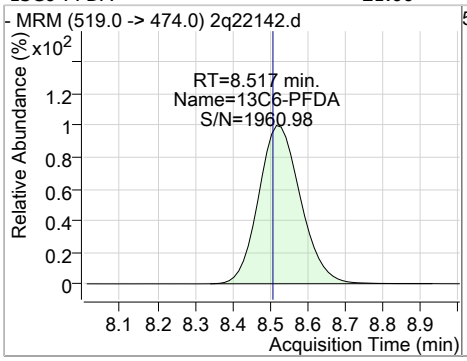
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.11	8.38	0.01	28511	549.0 -> 99.0	55.2	23.4	83.4

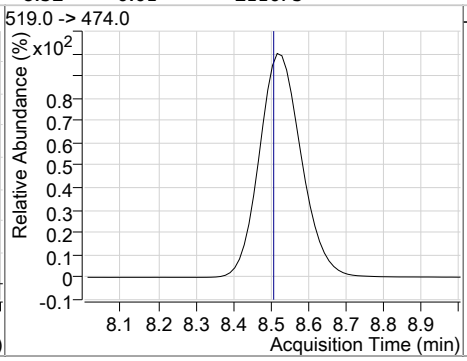


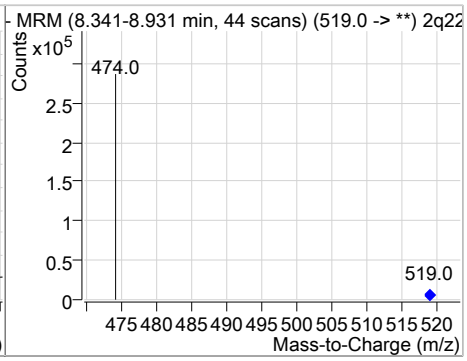




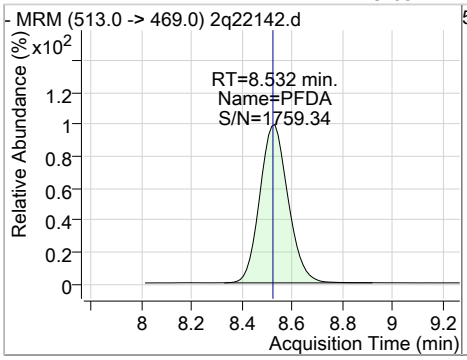
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.00	8.52	0.01	211675				

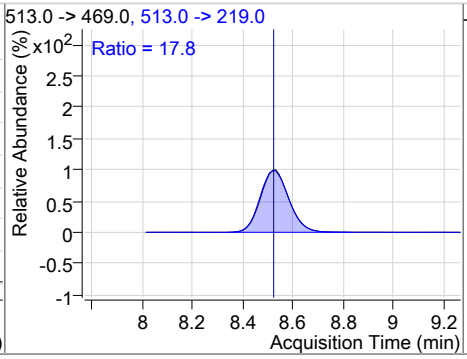


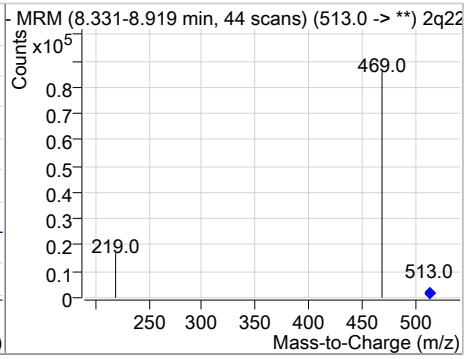




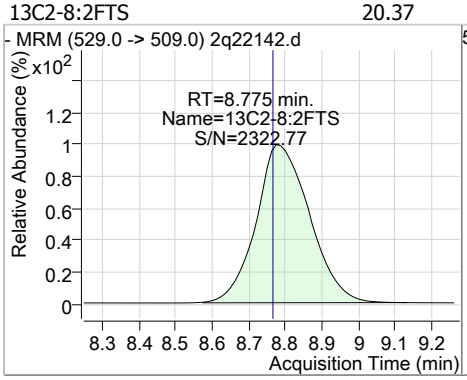
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.65	8.53	0.02	62714	513.0 -> 219.0	17.8	0.0	47.6

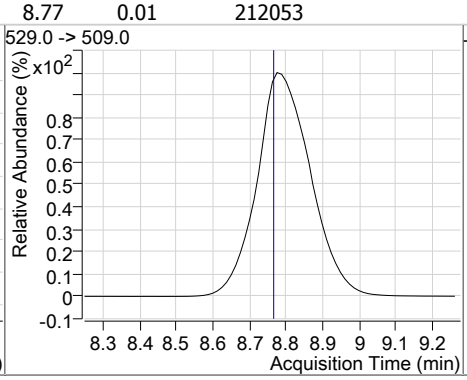


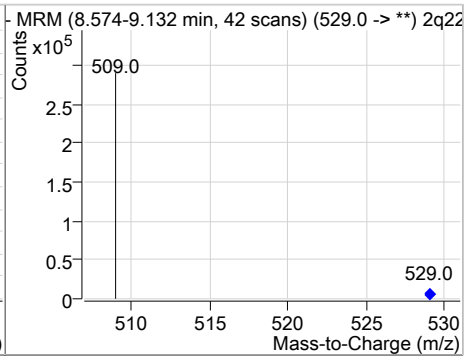




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.37	8.77	0.01	212053				

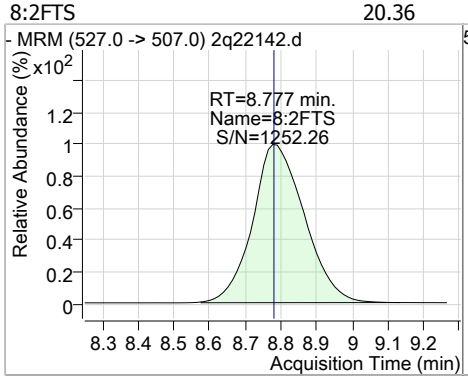


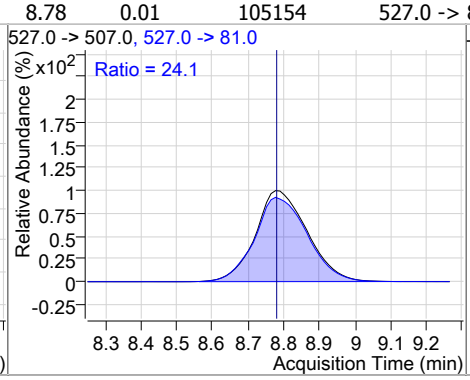


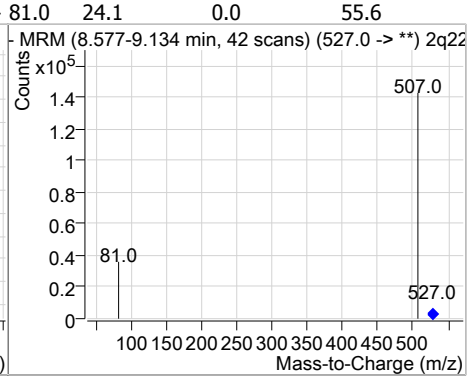


Perfluorinated Compounds by LC/MS/MS

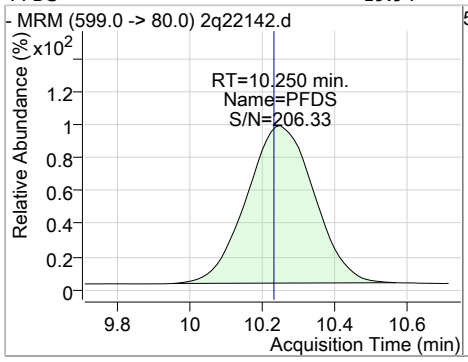
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.36	8.78	0.01	105154	527.0 -> 81.0	24.1	0.0	55.6

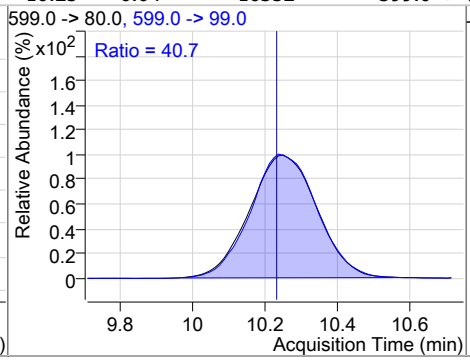


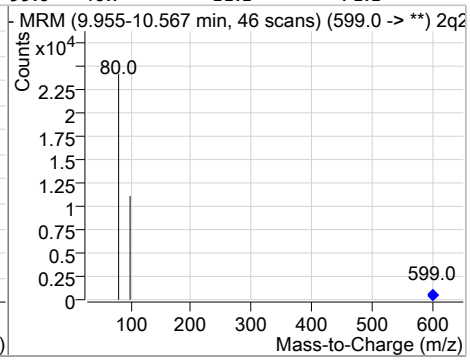




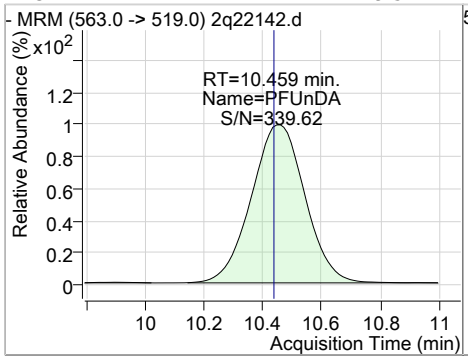
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.94	10.25	0.04	16352	599.0 -> 99.0	40.7	11.1	71.1

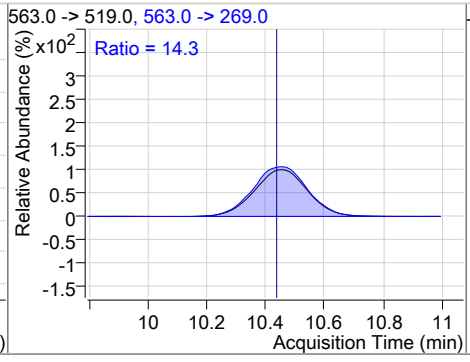


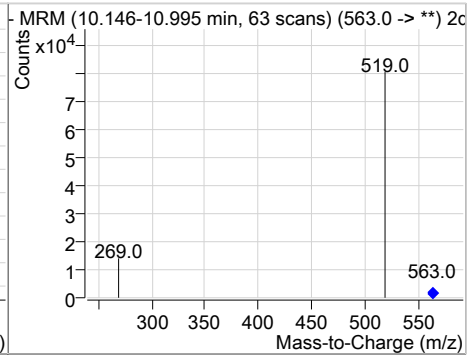




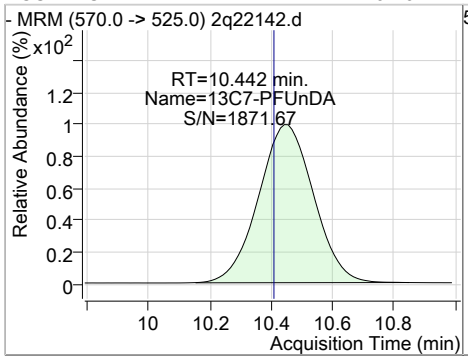
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.51	10.46	0.06	57709	563.0 -> 269.0	14.3	0.0	43.1

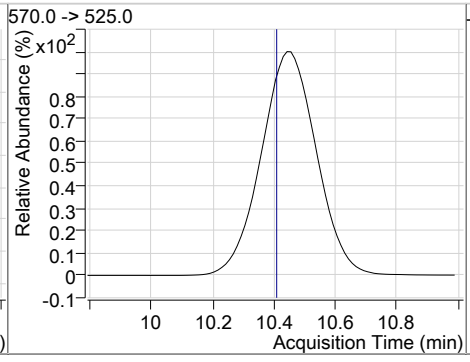


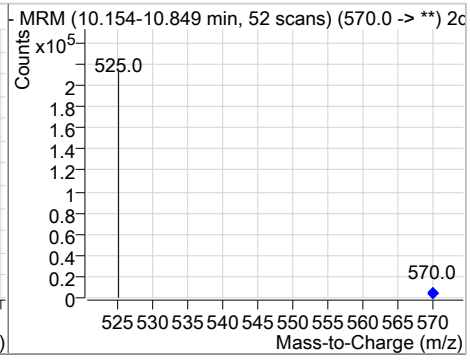




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.26	10.44	0.04	154968				

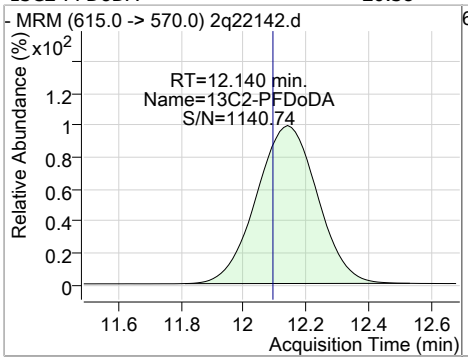


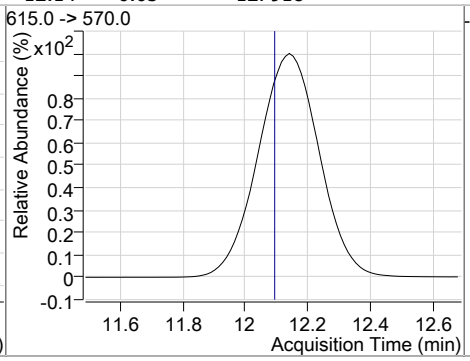


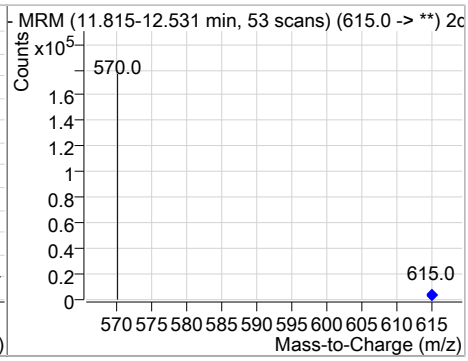


Perfluorinated Compounds by LC/MS/MS

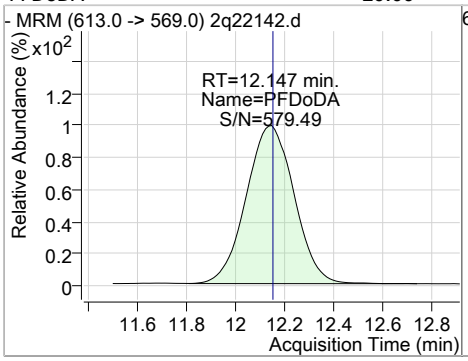
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.38	12.14	0.05	127918				

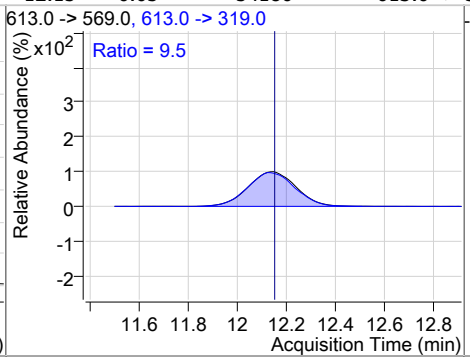


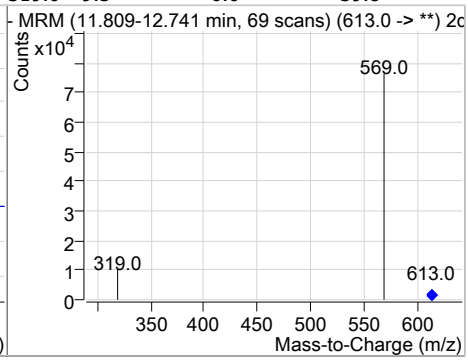




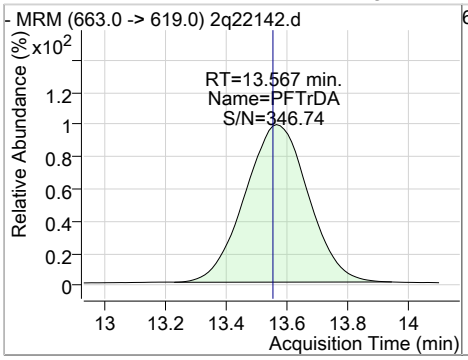
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.06	12.15	0.05	54186	613.0 -> 319.0	9.5	0.0	39.8

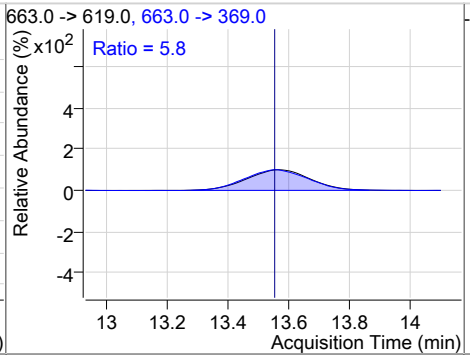


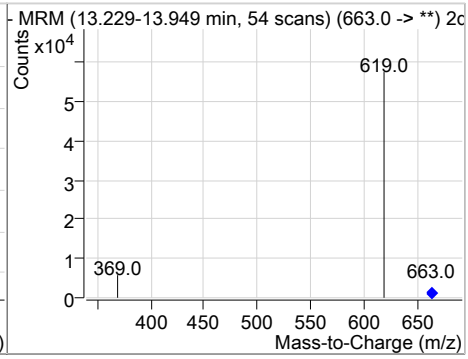




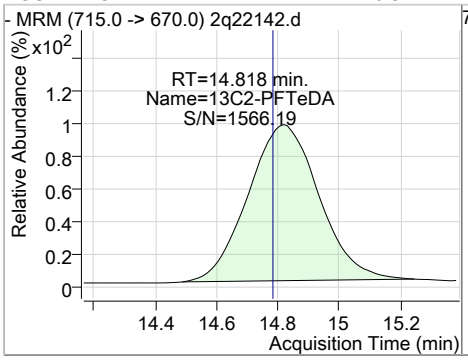
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.42	13.57	0.05	40328	663.0 -> 369.0	5.8	0.0	35.8

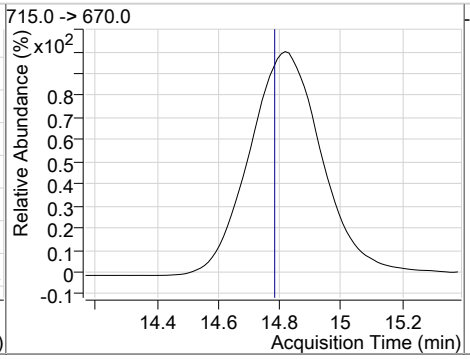


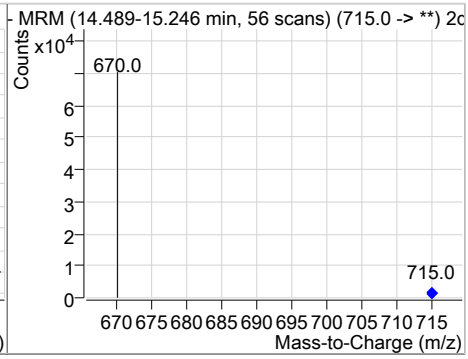




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.91	14.82	0.04	46695				

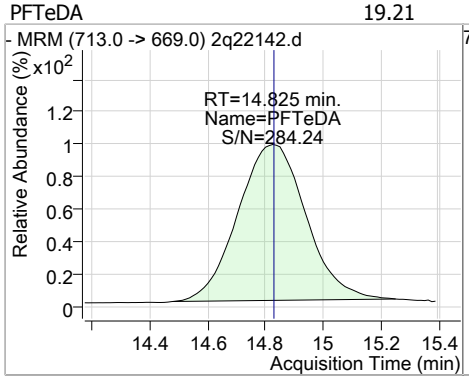


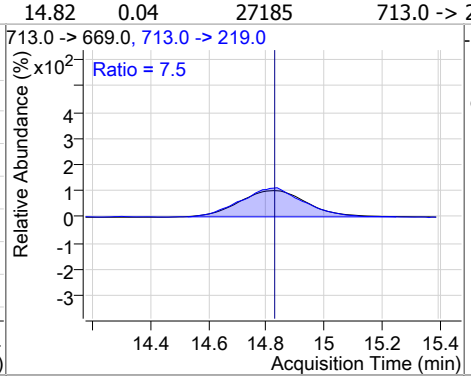


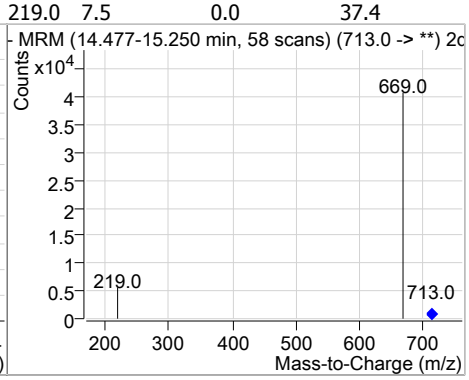


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.21	14.82	0.04	27185	713.0 -> 219.0	7.5	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-CC349
Lab FileID: 2Q22142.D
Injection Time: 10/15/18 18:47
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.20	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.56	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/16/18 15:19

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22153.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/15/2018 10:36:04 PM
Sample Name : cc349-20
Vial : Vial 7
DA Method File : PFC_ID_101518_S2Q349.quantmethod.xml
Batch Name : s2q349.batch.bin
Sample Information : op71994,S2Q349,120,,,1.0,1,water

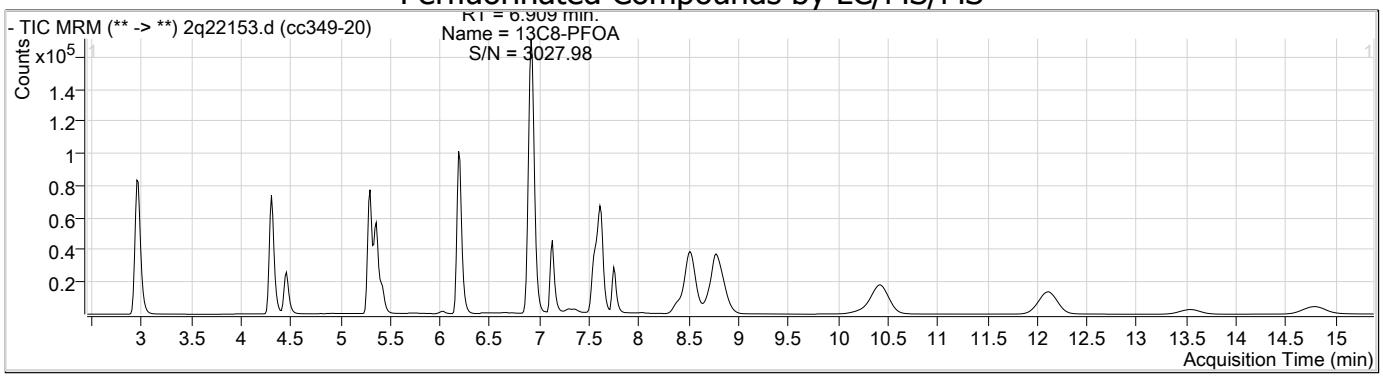
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.910	415.0 -> 370.0	159910	20.00	µg/L	0.002
13C4-PFOS	7.548	503.0 -> 80.0	59074	20.00	µg/L	0.000
M4-PFBA	2.953	217.0 -> 172.0	295154	20.00	µg/L	0.000
M5-PFPeA	4.312	268.0 -> 223.0	130153	20.00	µg/L	0.000
M5-PFHxA	5.364	318.0 -> 273.0	126882	20.00	µg/L	0.011
M4-PFHpA	6.192	367.0 -> 322.0	147663	20.00	µg/L	0.000
M8-PFOA	6.909	421.0 -> 376.0	125619	20.00	µg/L	0.002
M9-PFNA	7.601	472.0 -> 427.0	109319	20.00	µg/L	0.000
M6-PFDA	8.516	519.0 -> 474.0	215892	20.00	µg/L	0.012
M7-PFUnDA	10.429	570.0 -> 525.0	157391	20.00	µg/L	0.025
M2-PFDoDA	12.115	615.0 -> 570.0	128274	20.00	µg/L	0.025
M2-PFTeDA	14.781	715.0 -> 670.0	48359	20.00	µg/L	0.000
M8-FOSA	7.130	506.0 -> 78.0	89125	20.00	µg/L	0.014
M3-PFBS	4.455	302.0 -> 99.0	29431	20.00	µg/L	0.012
M3-PFHxS	6.198	402.0 -> 99.0	36571	20.00	µg/L	0.013
M8-PFOS	7.546	507.0 -> 99.0	36220	20.00	µg/L	0.000
M2-4:2FTS	5.297	329.0 -> 309.0	146608	20.00	µg/L	0.012
M2-6:2FTS	6.931	429.0 -> 409.0	186729	20.00	µg/L	0.001
M2-8:2FTS	8.775	529.0 -> 509.0	221333	20.00	µg/L	0.012
M3-MeFOSAA	7.620	573.0 -> 419.0	50106	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.297	329.0 -> 309.0	146640	20.88	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.4%		
13C2-6:2FTS	6.931	429.0 -> 409.0	186739	21.25	µg/L	0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.3%		
13C2-8:2FTS	8.775	529.0 -> 509.0	220190	21.16	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
13C2-PFDoDA	12.115	615.0 -> 570.0	127726	20.35	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C2-PFTeDA	14.781	715.0 -> 670.0	45683	20.46	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C3-PFBS	4.455	302.0 -> 99.0	29417	20.66	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C3-PFHxS	6.198	402.0 -> 99.0	36607	21.13	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%		
13C4-PFBA	2.953	217.0 -> 172.0	295077	20.43	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C4-PFHpA	6.192	367.0 -> 322.0	147642	21.05	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.3%		
13C5-PFHxA	5.364	318.0 -> 273.0	126848	20.90	µg/L	0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C5-PFPeA	4.312	268.0 -> 223.0	130075	20.71	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C6-PFDA	8.516	519.0 -> 474.0	215472	21.37	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.9%		

Perfluorinated Compounds by LC/MS/MS

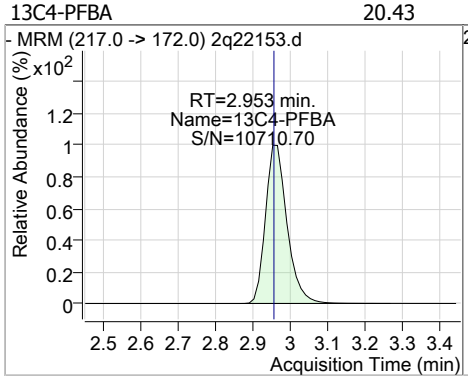
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.429	570.0 -> 525.0	156376	20.45	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%			
13C8-FOSA	7.130	506.0 -> 78.0	89076	24.21	µg/L		0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 121.0%			
13C8-PFOA	6.909	421.0 -> 376.0	125626	21.40	µg/L		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.0%			
13C8-PFOS	7.546	507.0 -> 99.0	36223	20.71	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%			
13C9-PFNA	7.601	472.0 -> 427.0	109367	20.85	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%			
d3-MeFOSAA	7.620	573.0 -> 419.0	50057	22.38	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.9%			
M2-PFOA	6.910	415.0 -> 370.0	159883	20.00	ng/ml		0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.548	503.0 -> 80.0	59091	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.300	327.0 -> 307.0	78856	19.98	µg/L		99
6:2FTS	6.932	427.0 -> 407.0	89618	20.29	µg/L		98
8:2FTS	8.777	527.0 -> 507.0	108549	20.25	µg/L		97
EtFOSAA	7.744	584.0 -> 419.0	22602	19.57	µg/L		99
FOSA	7.132	498.0 -> 78.0	42462	19.89	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	25634	19.78	µg/L		93
PFBA	2.962	213.0 -> 169.0	35059	19.72	µg/L		100
PFBS	4.459	299.0 -> 80.0	42617	20.02	µg/L		99
PFDA	8.519	513.0 -> 469.0	63948	19.68	µg/L		100
PFDoDA	12.122	613.0 -> 569.0	53687	19.91	µg/L		99
PFDS	10.225	599.0 -> 80.0	16253	19.86	µg/L		97
PFHpA	6.195	363.0 -> 319.0	109042	19.82	µg/L		99
PFHpS	6.892	449.0 -> 80.0	30065	19.76	µg/L		100
PFHxA	5.366	313.0 -> 269.0	39119	19.24	µg/L		100
PFHxS	6.189	399.0 -> 80.0	36092	19.65	µg/L	m	99
PFNA	7.602	463.0 -> 419.0	57357	20.15	µg/L		98
PFNS	8.384	549.0 -> 80.0	28439	20.10	µg/L		98
PFOA	6.912	413.0 -> 369.0	63023	20.42	µg/L		97
PFOS	7.549	499.0 -> 80.0	30675	20.03	µg/L	m	100
PFPeA	4.316	263.0 -> 219.0	120457	20.09	µg/L		100
PFPeS	5.421	349.0 -> 80.0	29646	20.36	µg/L		99
PFTeDA	14.800	713.0 -> 669.0	27279	19.61	µg/L		100
PFTrDA	13.542	663.0 -> 619.0	40073	19.63	µg/L		100
PFUnDA	10.421	563.0 -> 519.0	58570	19.63	µg/L		97

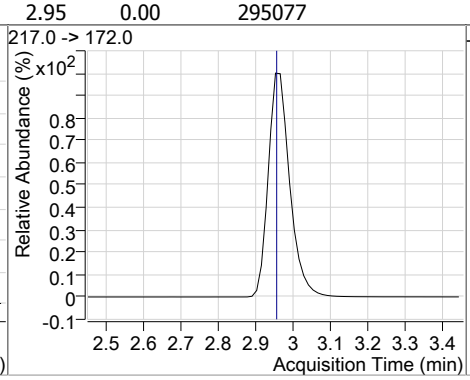
 # = Qualifier out of range, m = manually integrated, + = Area summed

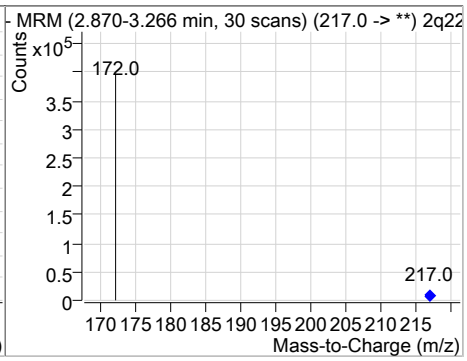
Perfluorinated Compounds by LC/MS/MS



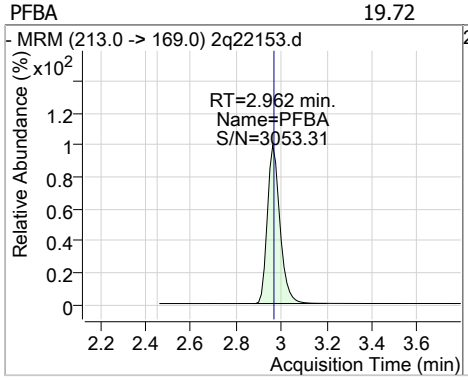
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.43	2.95	0.00	295077				

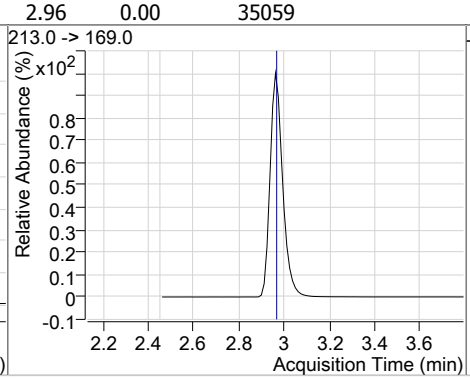


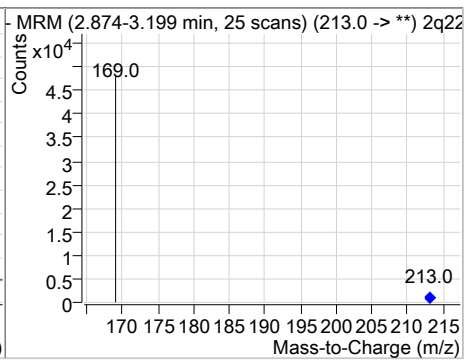




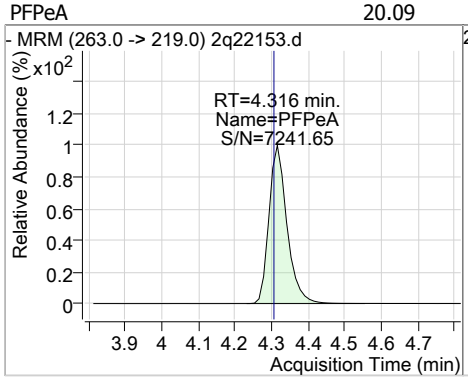
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.72	2.96	0.00	35059				

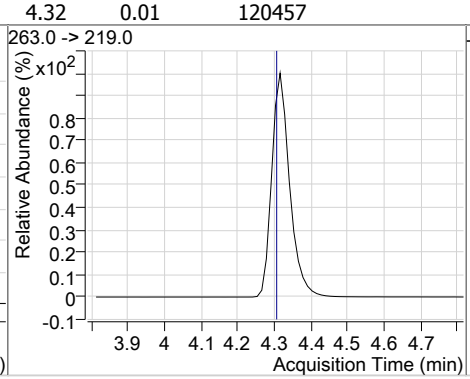


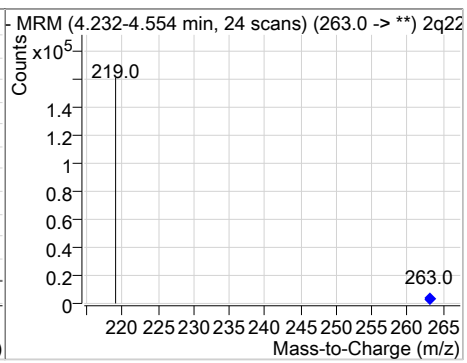




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.09	4.32	0.01	120457				

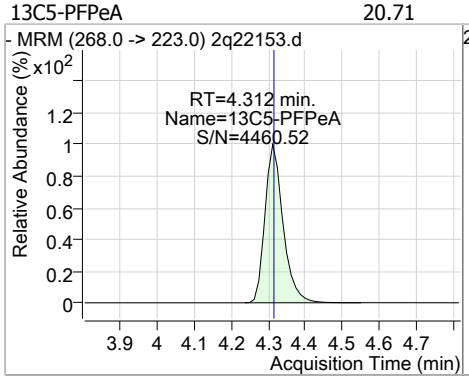


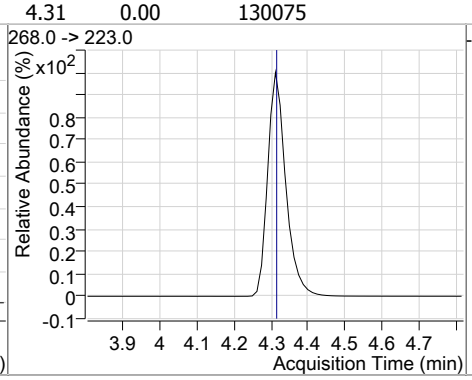


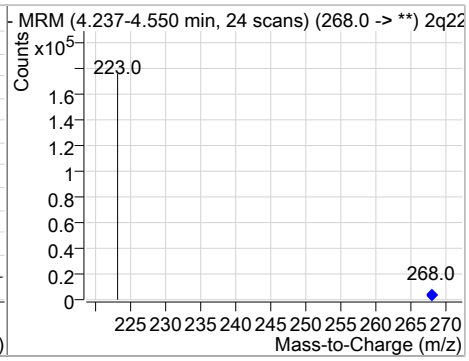


Perfluorinated Compounds by LC/MS/MS

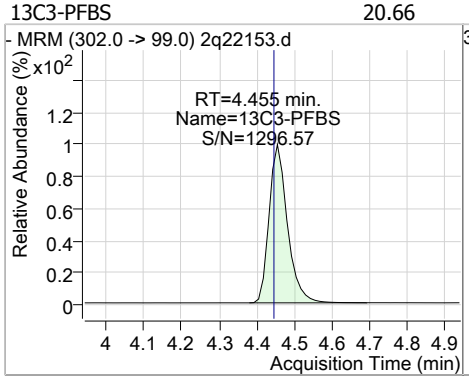
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.71	4.31	0.00	130075				

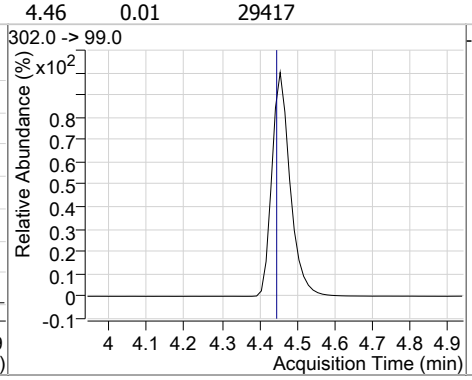


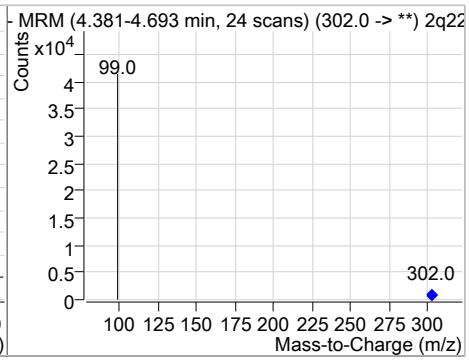




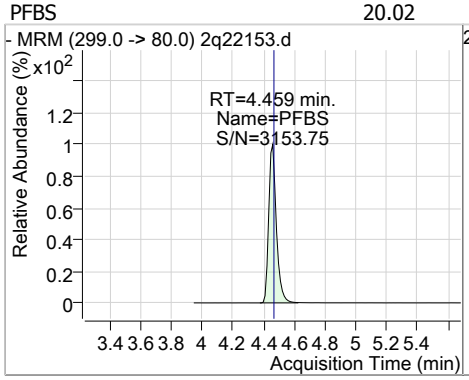
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.66	4.46	0.01	29417				

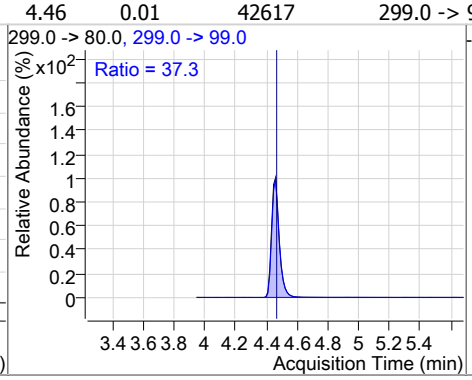


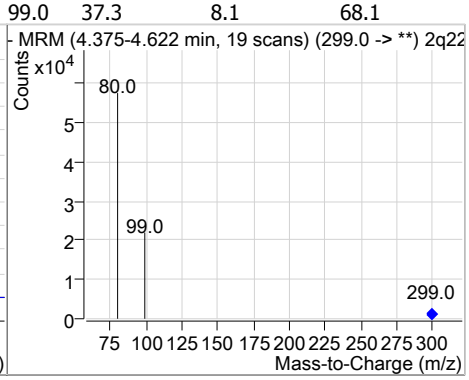




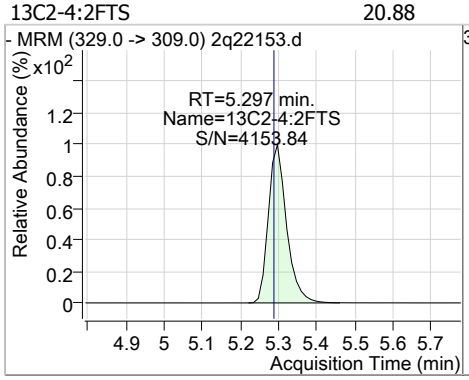
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.02	4.46	0.01	42617	299.0 -> 99.0	37.3	8.1	68.1

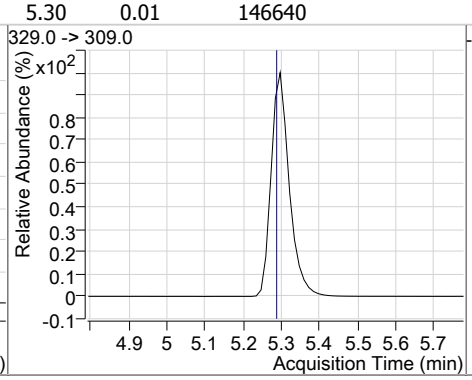


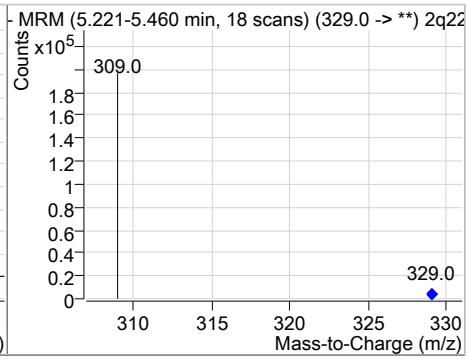




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.88	5.30	0.01	146640				

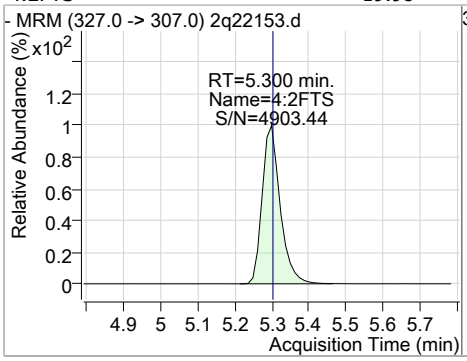


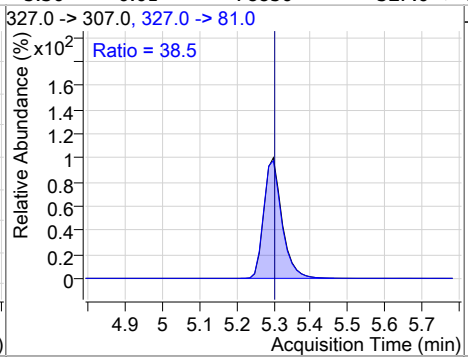


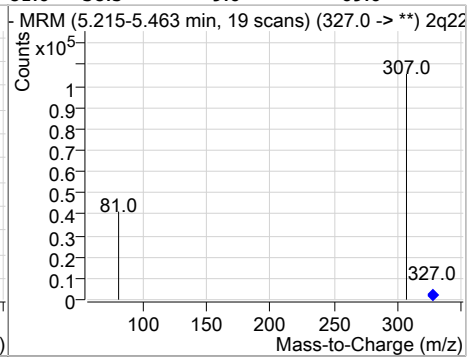


Perfluorinated Compounds by LC/MS/MS

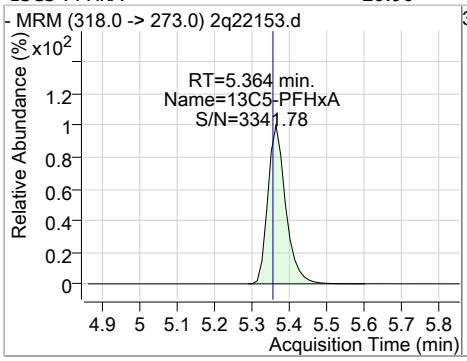
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.98	5.30	0.01	78856	327.0 -> 81.0	38.5	9.0	69.0

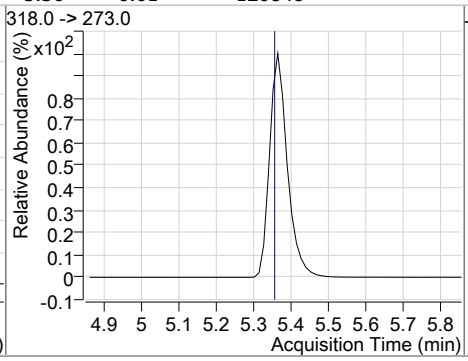


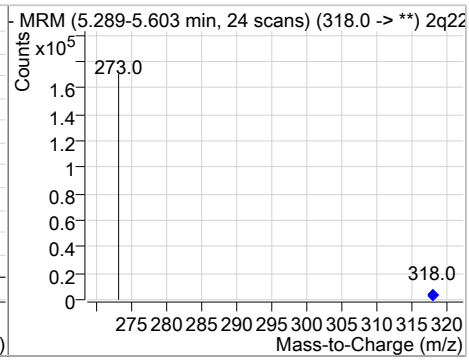




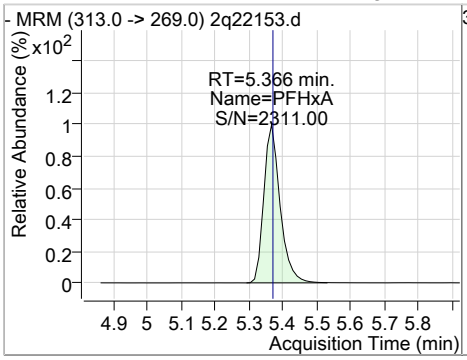
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.90	5.36	0.01	126848				

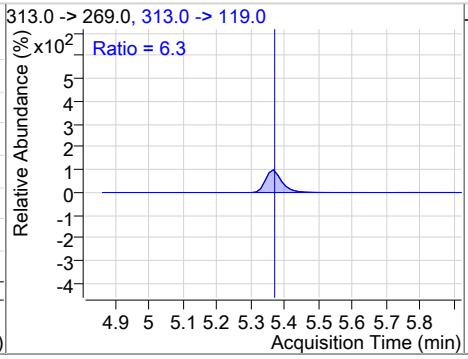


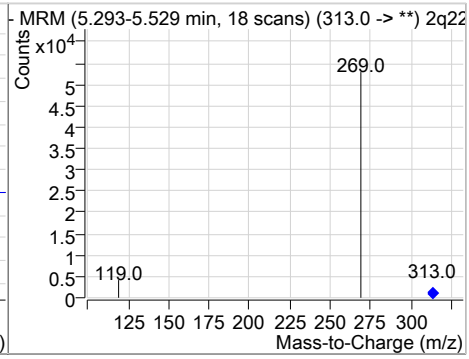




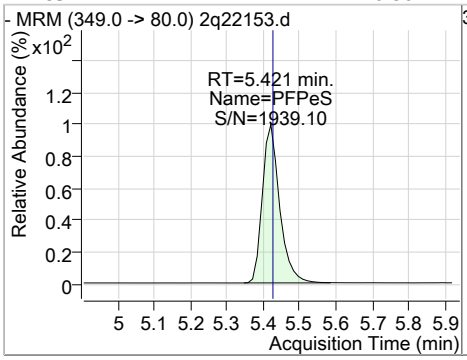
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.24	5.37	0.01	39119	313.0 -> 119.0	6.3	0.0	36.4

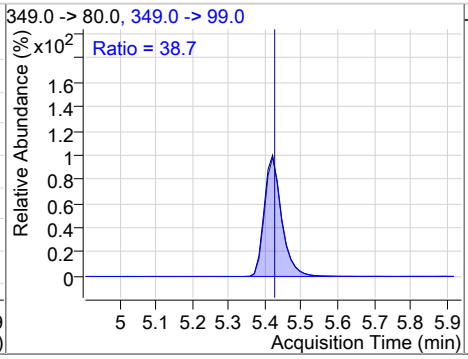


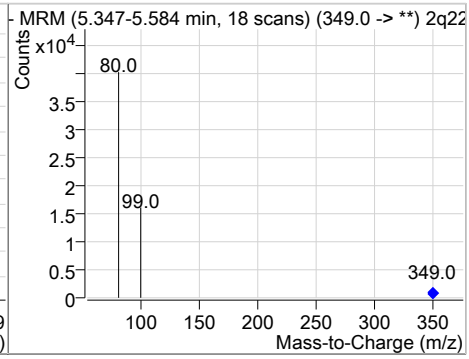




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.36	5.42	0.01	29646	349.0 -> 99.0	38.7	9.5	69.5

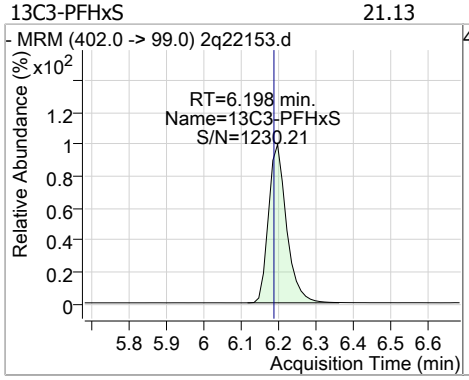


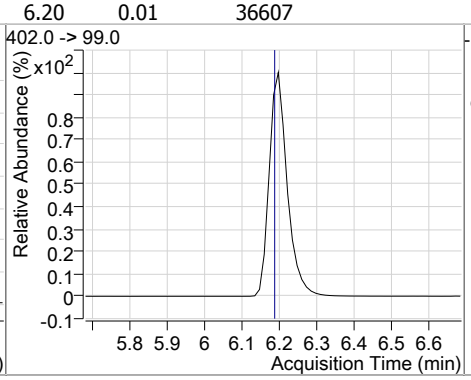


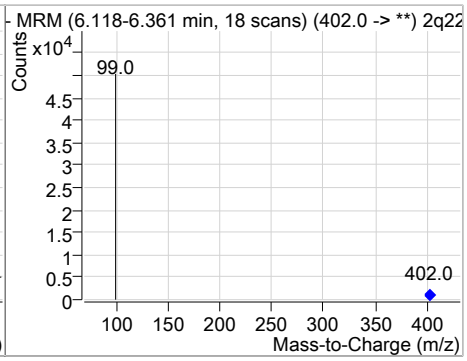


Perfluorinated Compounds by LC/MS/MS

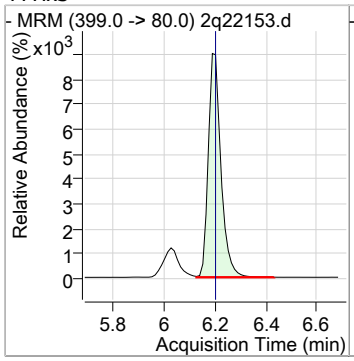
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.13	6.20	0.01	36607				

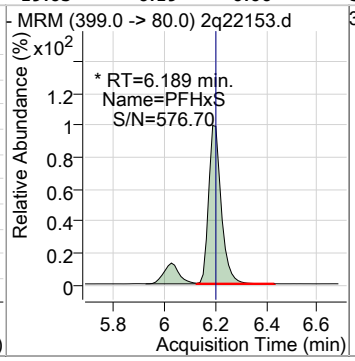


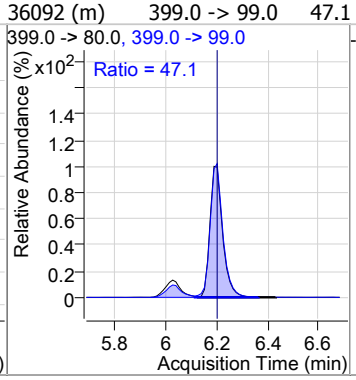


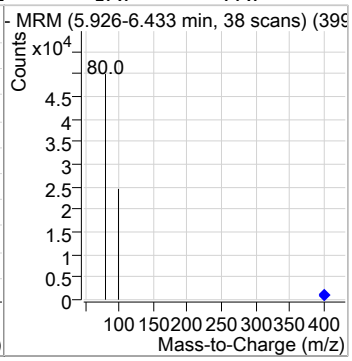


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.65	6.19	0.00	36092 (m)	399.0 -> 99.0	47.1	17.7	77.7

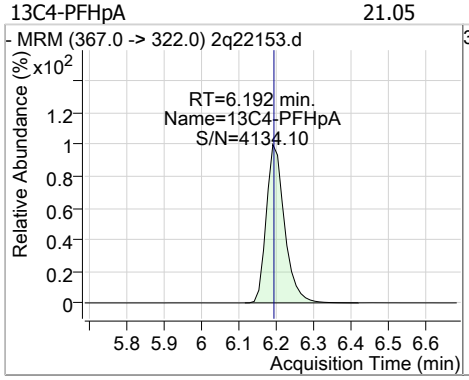


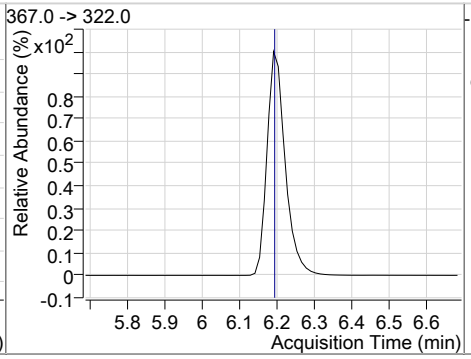


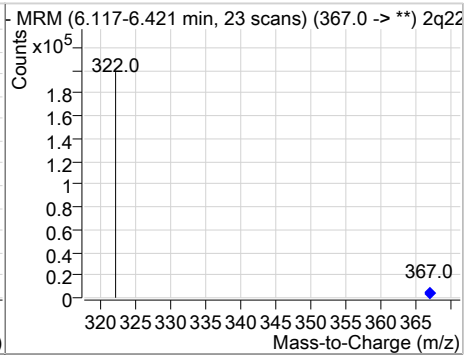




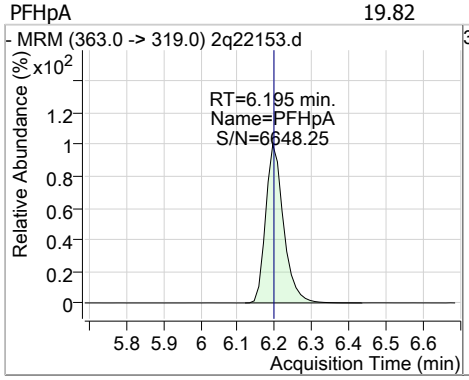
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.05	6.19	0.00	147642				

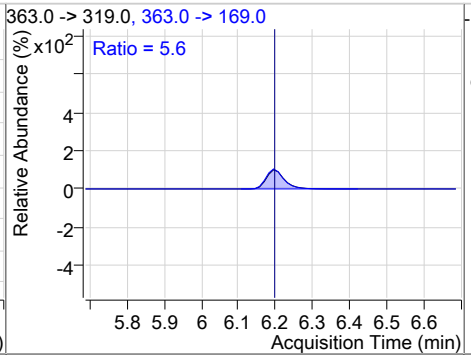


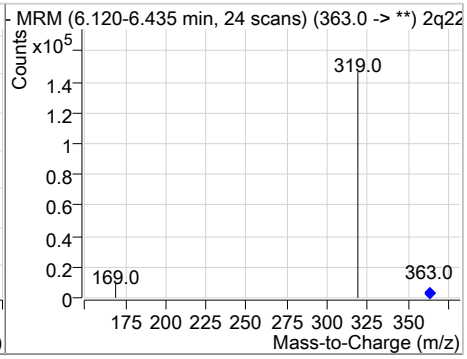




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.82	6.20	0.00	109042	363.0 -> 169.0	5.6	0.0	35.4

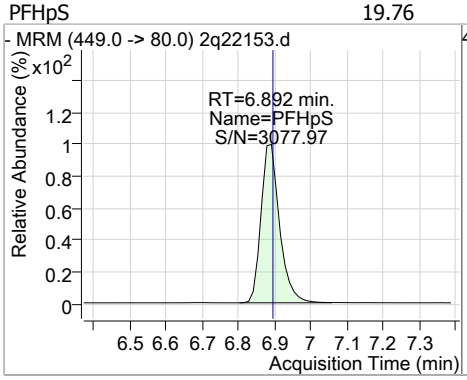


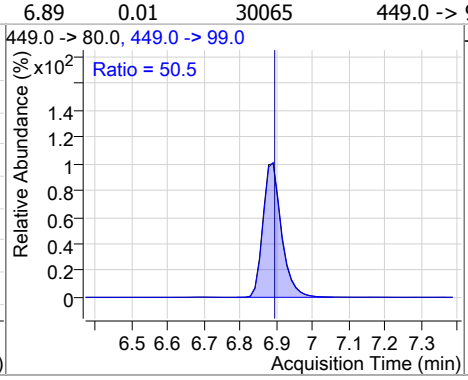


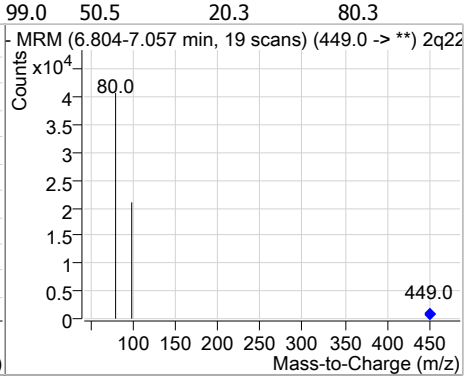


Perfluorinated Compounds by LC/MS/MS

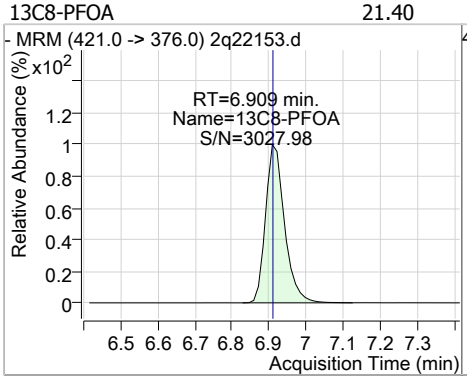
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.76	6.89	0.01	30065	449.0 -> 99.0	50.5	20.3	80.3

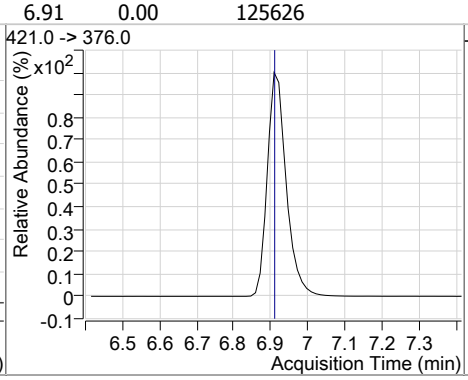


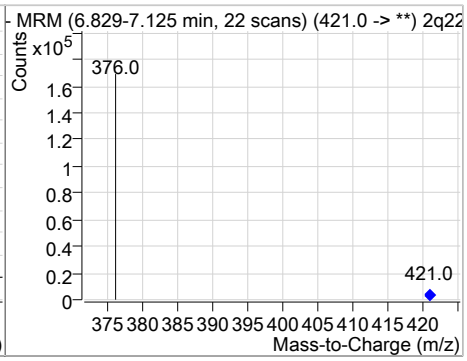




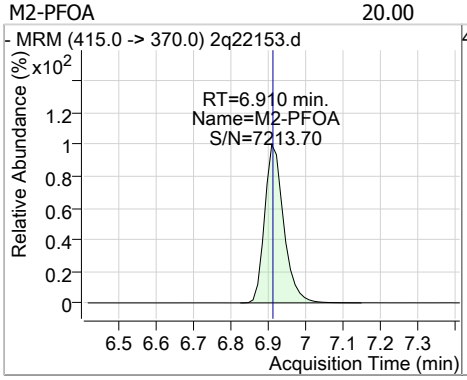
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.40	6.91	0.00	125626				

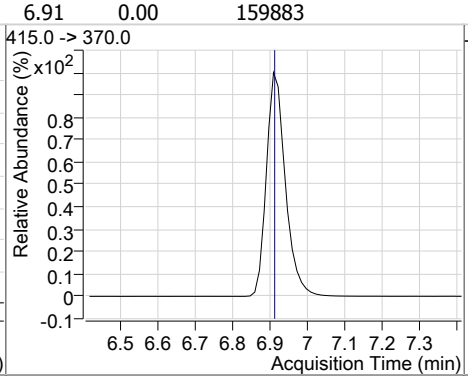


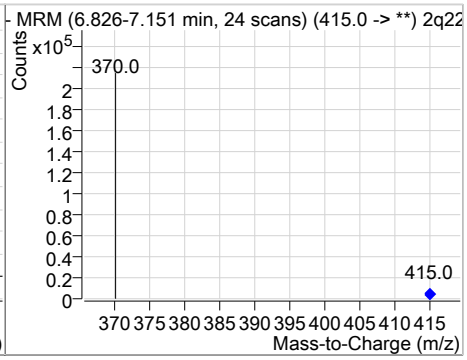




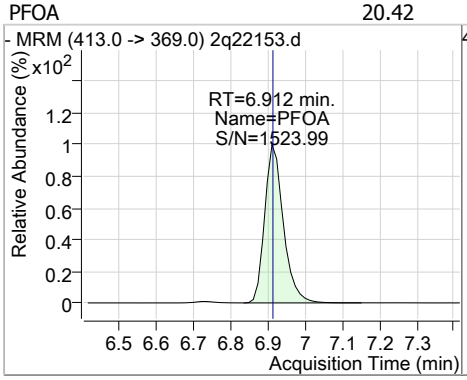
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.91	0.00	159883				

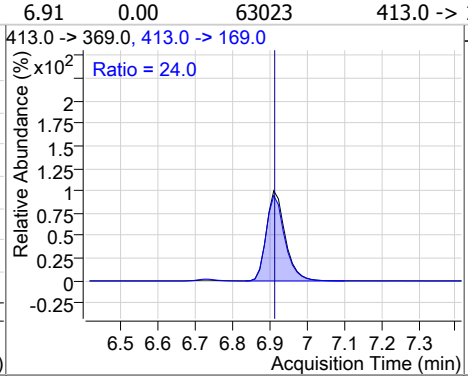


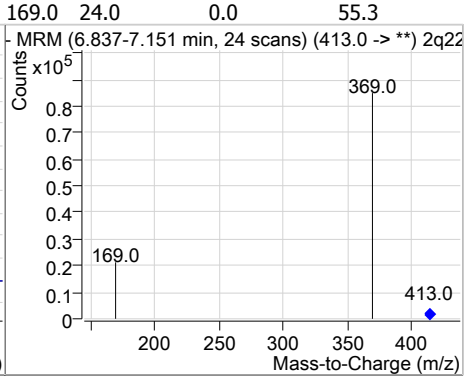




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.42	6.91	0.00	63023	413.0 -> 169.0	24.0	0.0	55.3

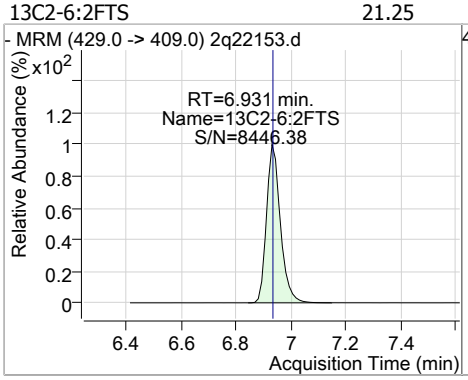


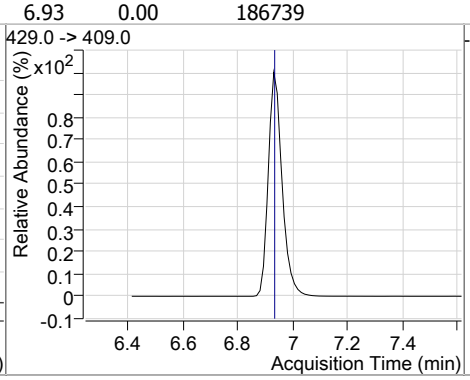


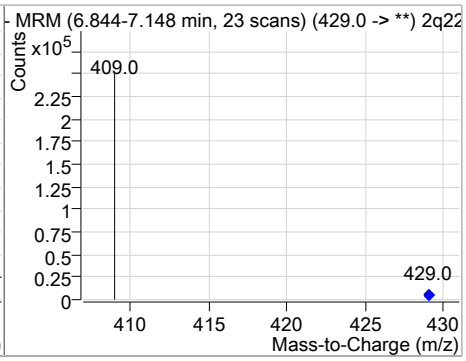


Perfluorinated Compounds by LC/MS/MS

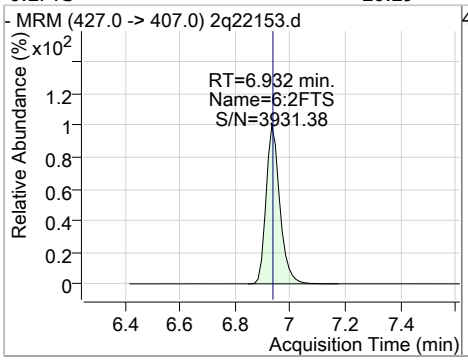
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.25	6.93	0.00	186739				

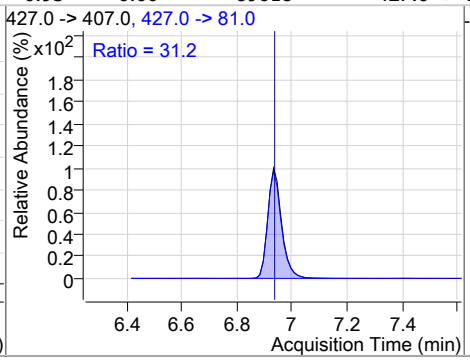


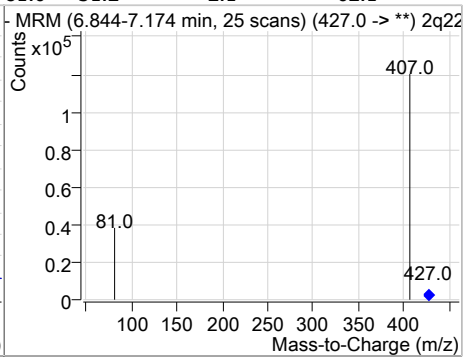




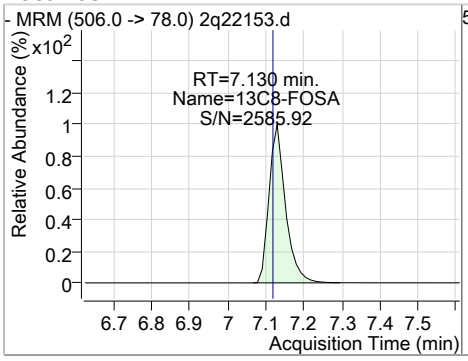
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.29	6.93	0.00	89618	427.0 -> 81.0	31.2	2.1	62.1

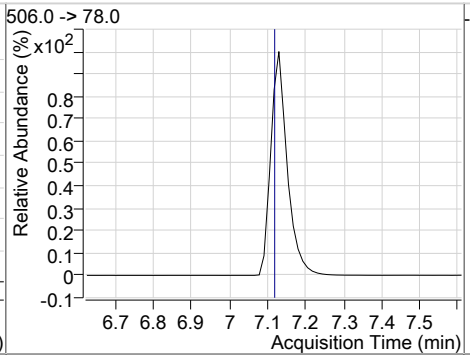


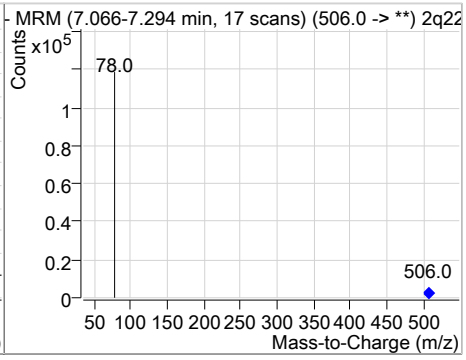




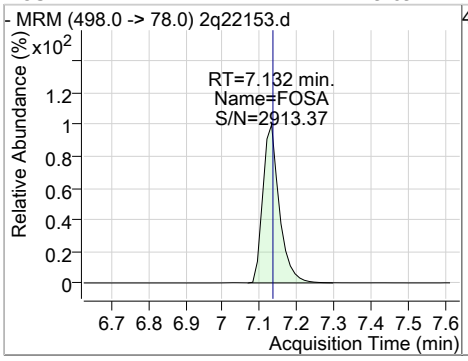
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	24.21	7.13	0.01	89076				

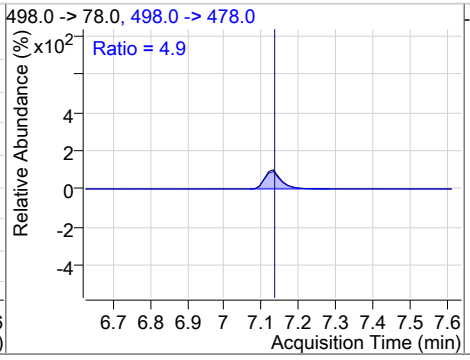


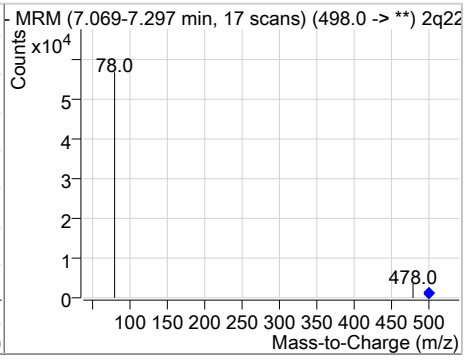




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.89	7.13	0.01	42462	498.0 -> 478.0	4.9	0.0	35.4

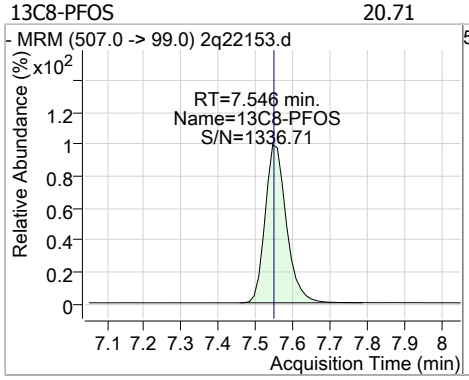


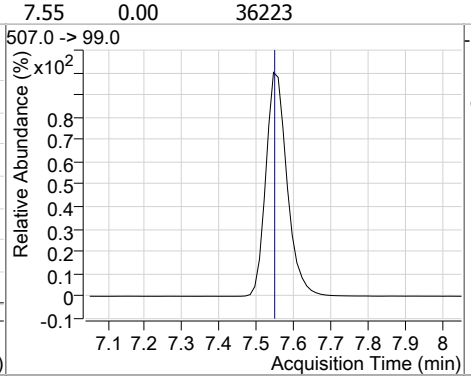


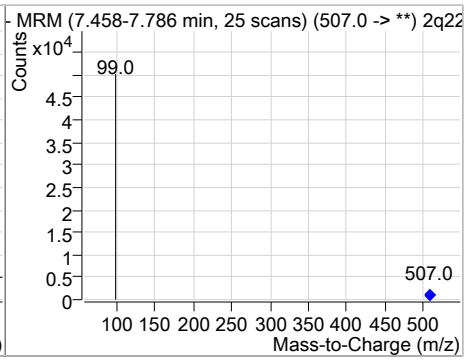


Perfluorinated Compounds by LC/MS/MS

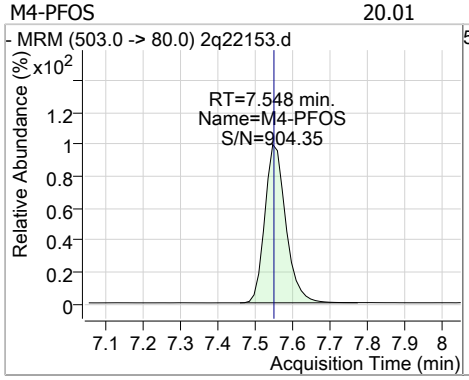
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.71	7.55	0.00	36223				

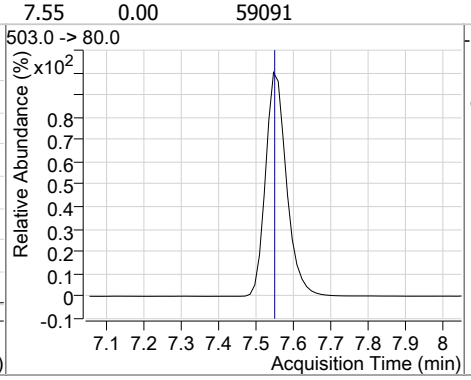


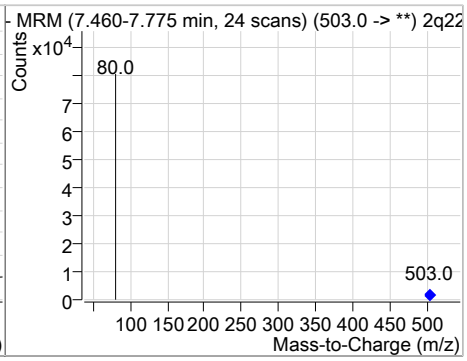




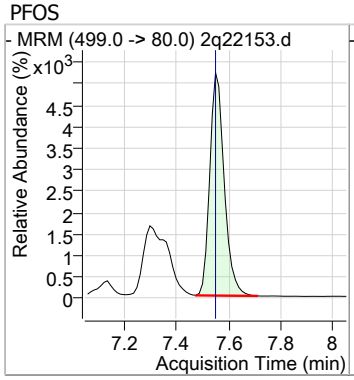
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.55	0.00	59091				

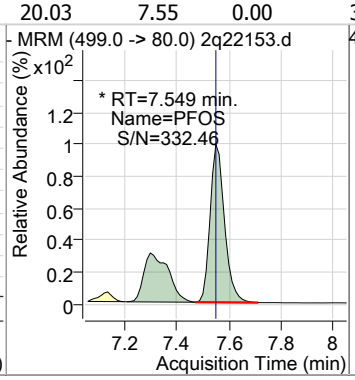


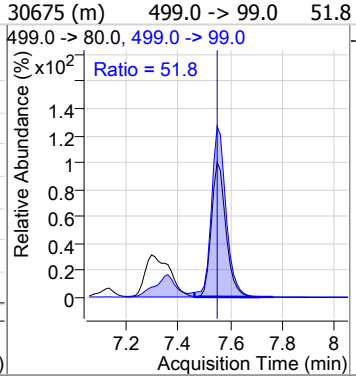


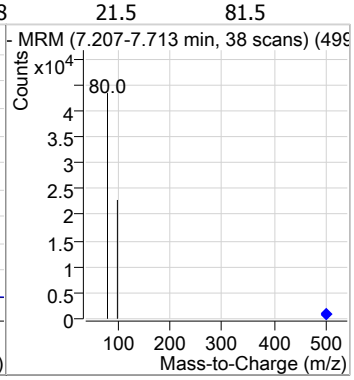


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	20.03	7.55	0.00	30675 (m)	499.0 -> 99.0	51.8	21.5	81.5

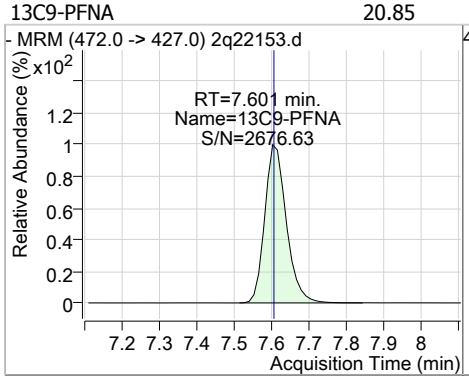


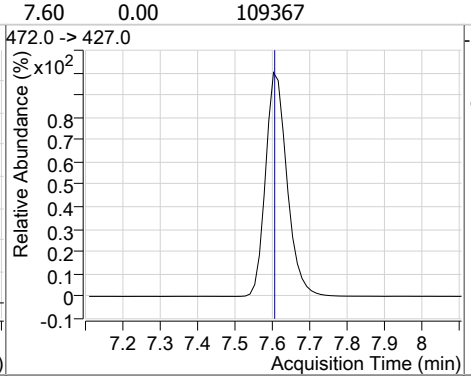


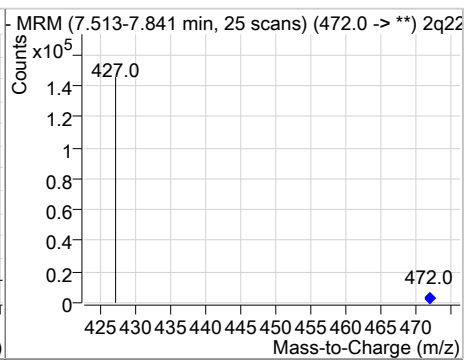




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.85	7.60	0.00	109367				

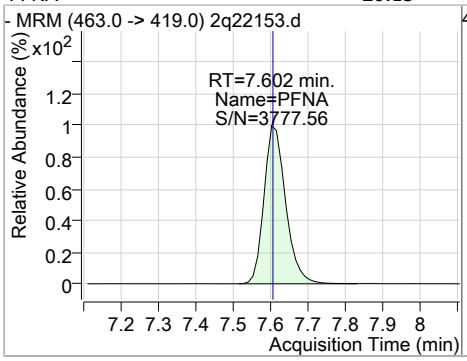


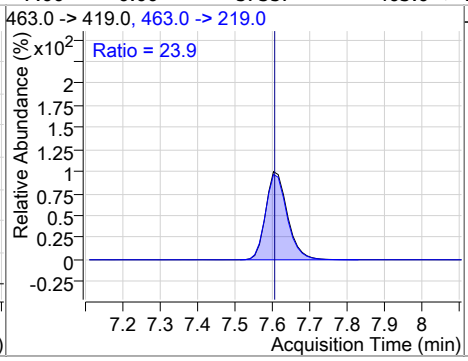


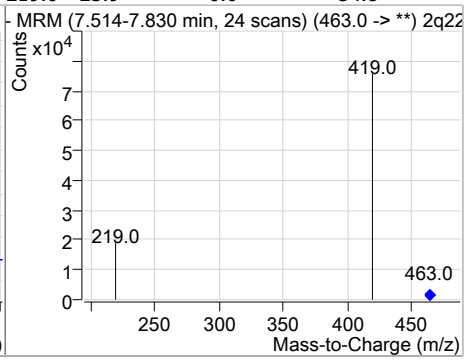


Perfluorinated Compounds by LC/MS/MS

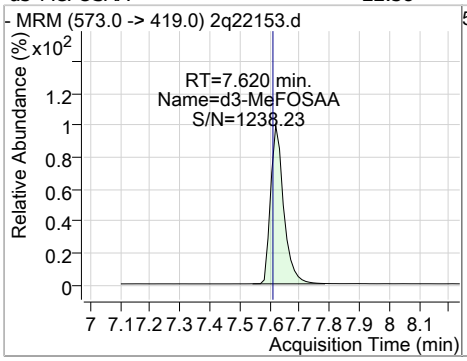
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.15	7.60	0.00	57357	463.0 -> 219.0	23.9	0.0	54.8

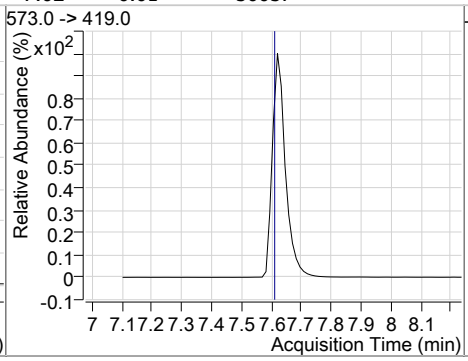


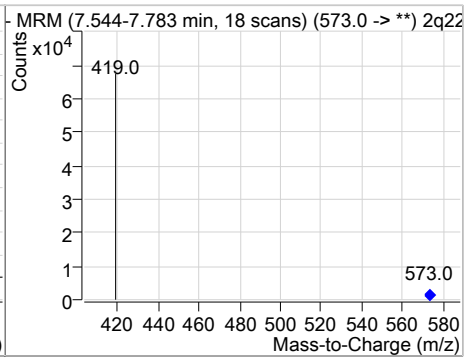




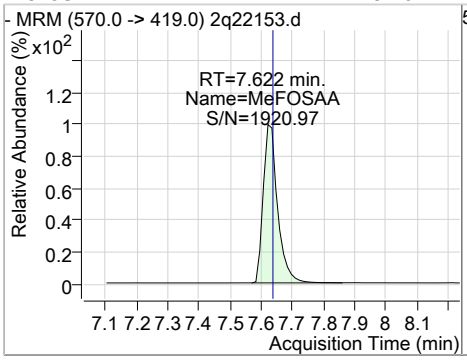
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	22.38	7.62	0.01	50057				

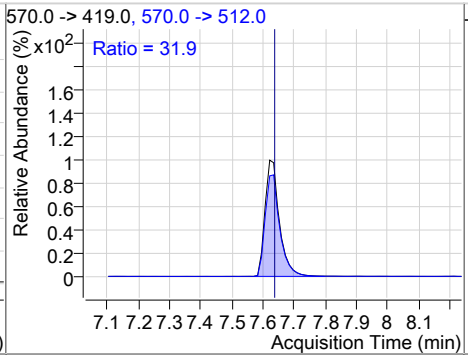


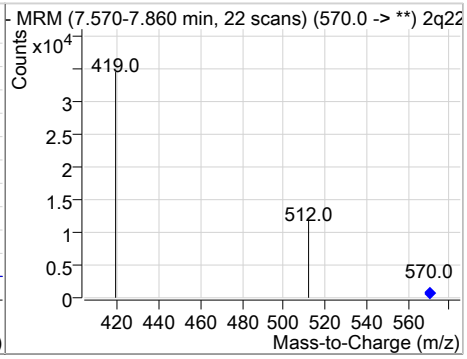




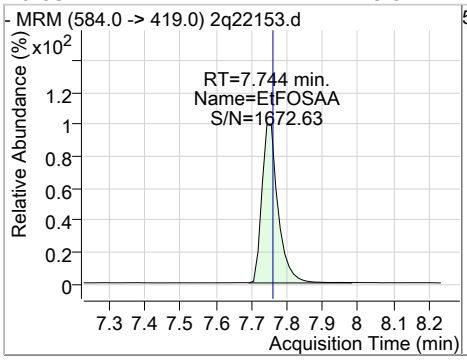
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.78	7.62	0.00	25634	570.0 -> 512.0	31.9	5.9	65.9

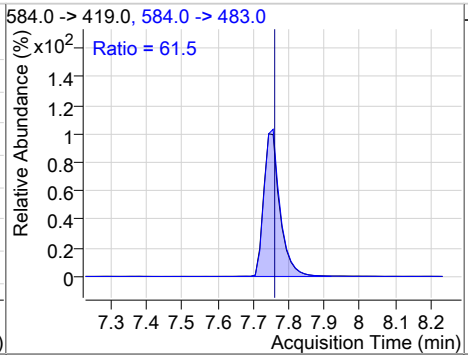


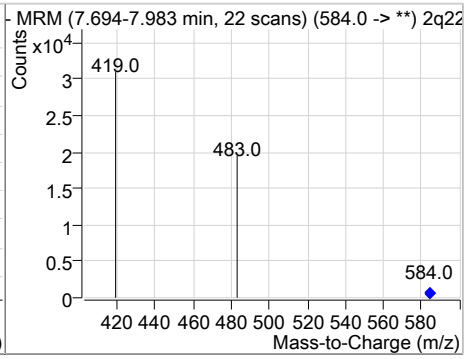




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.57	7.74	0.00	22602	584.0 -> 483.0	61.5	30.5	90.5

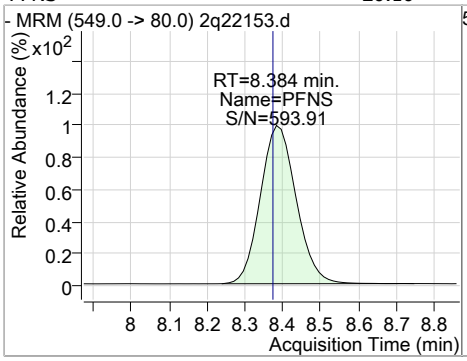


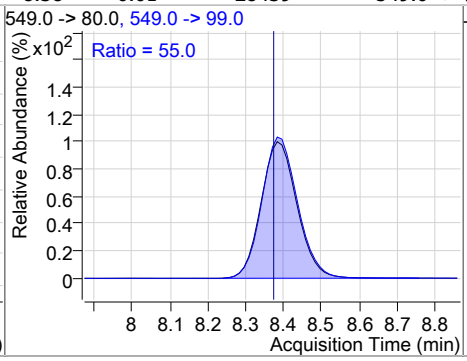


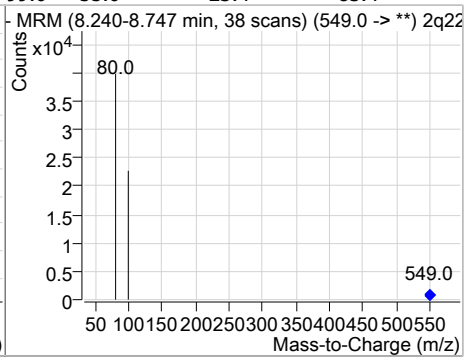


Perfluorinated Compounds by LC/MS/MS

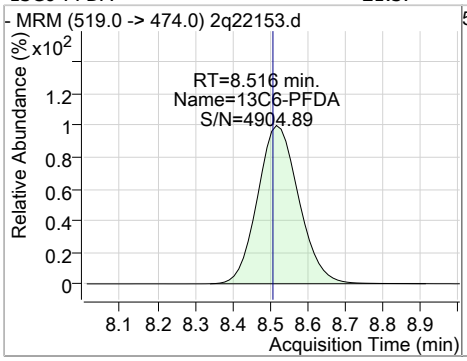
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.10	8.38	0.01	28439	549.0 -> 99.0	55.0	23.4	83.4

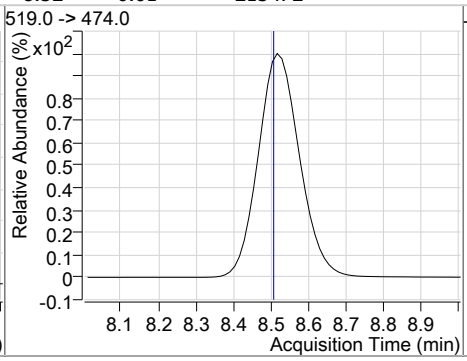


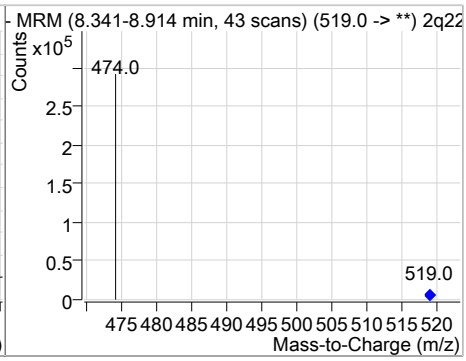




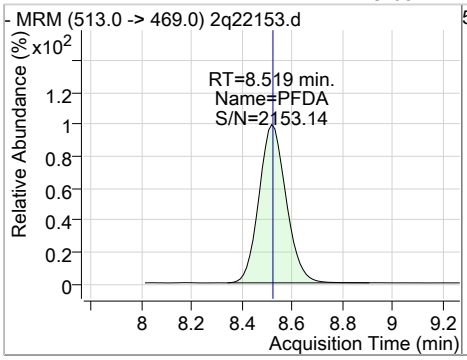
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.37	8.52	0.01	215472				

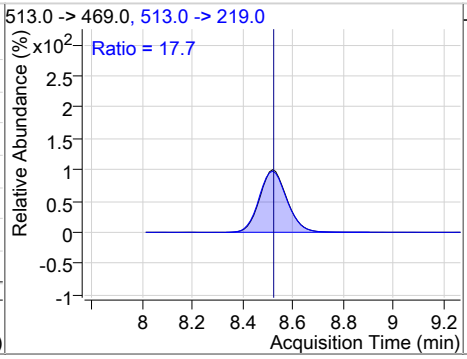


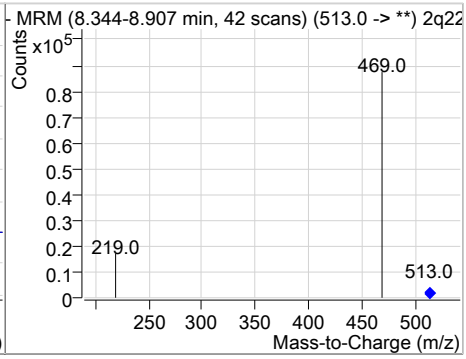




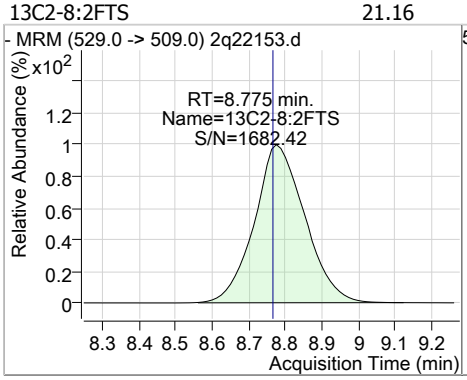
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.68	8.52	0.01	63948	513.0 -> 219.0	17.7	0.0	47.6

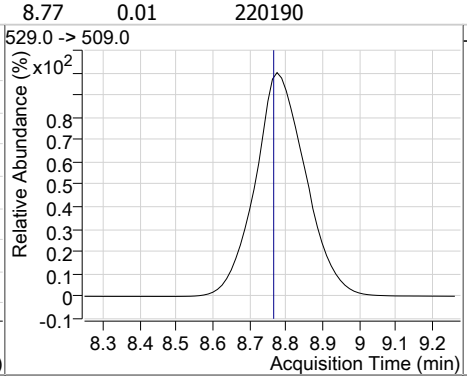


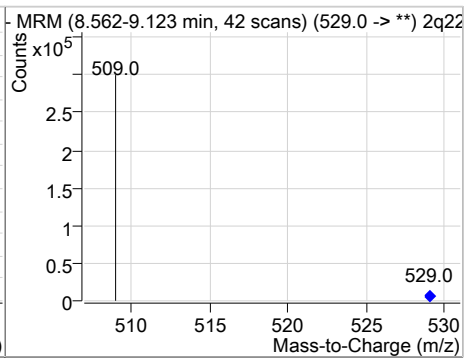




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	21.16	8.77	0.01	220190				

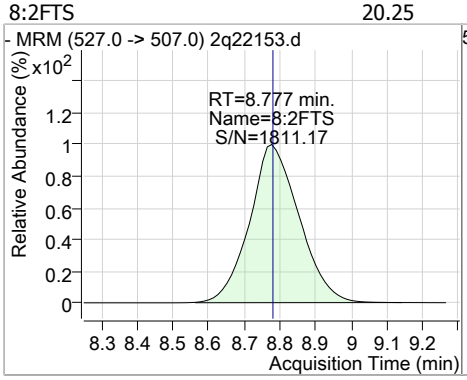


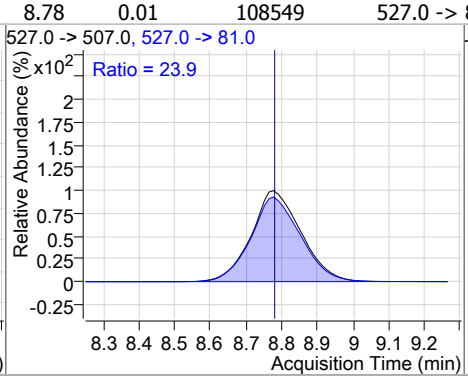


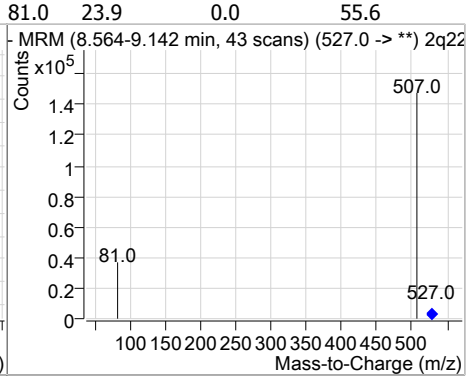


Perfluorinated Compounds by LC/MS/MS

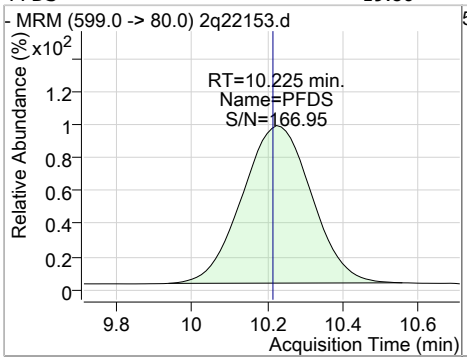
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.25	8.78	0.01	108549	527.0 -> 81.0	23.9	0.0	55.6

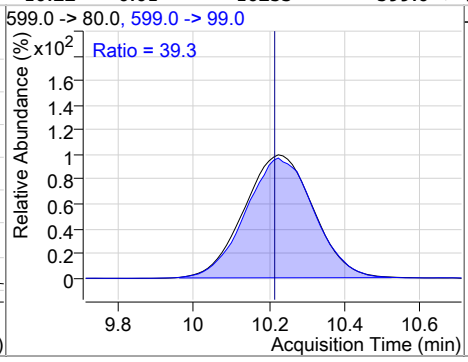


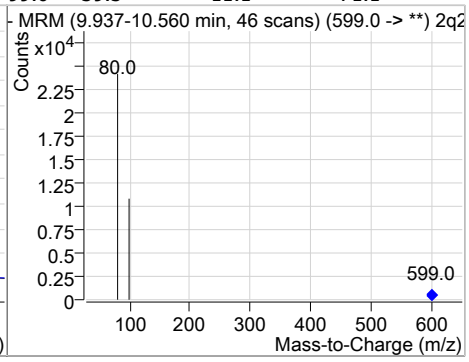




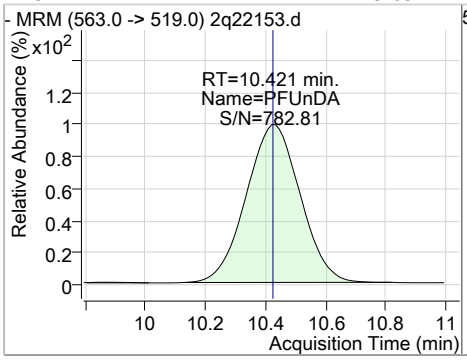
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.86	10.22	0.01	16253	599.0 -> 99.0	39.3	11.1	71.1

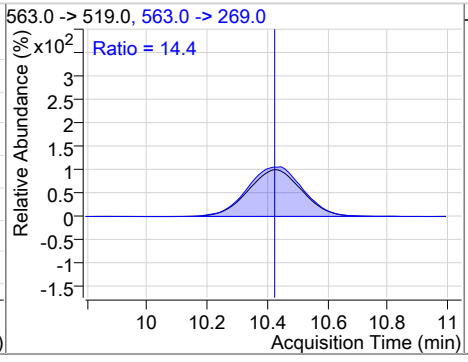


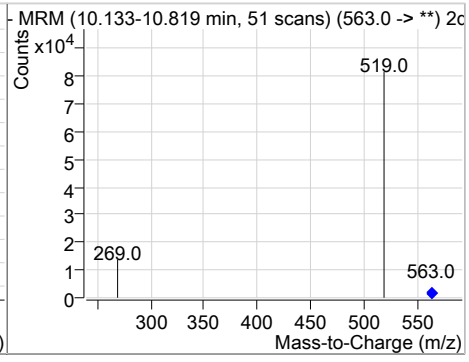




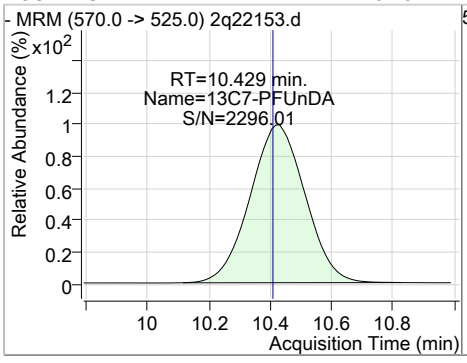
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.63	10.42	0.03	58570	563.0 -> 269.0	14.4	0.0	43.1

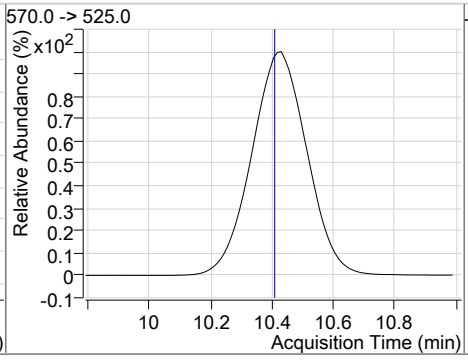


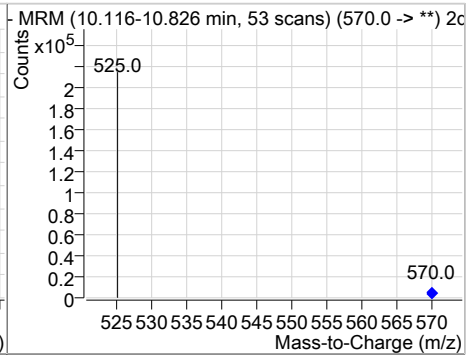




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.45	10.43	0.03	156376				

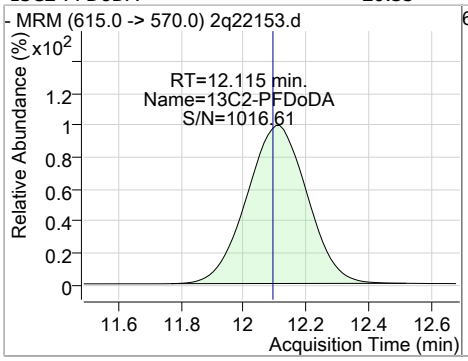


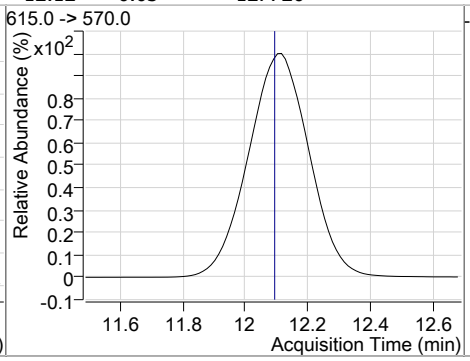


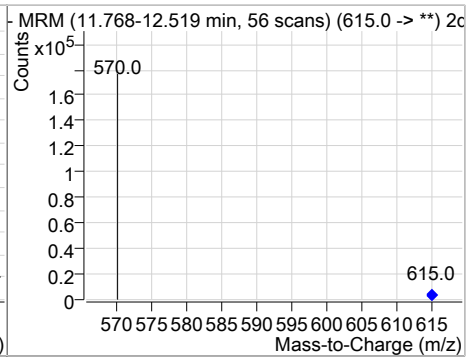


Perfluorinated Compounds by LC/MS/MS

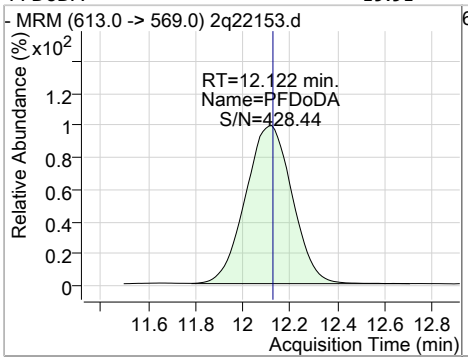
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.35	12.12	0.03	127726				

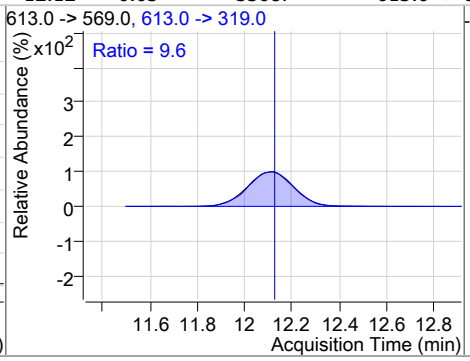


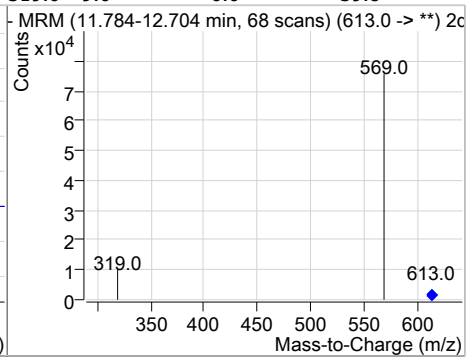




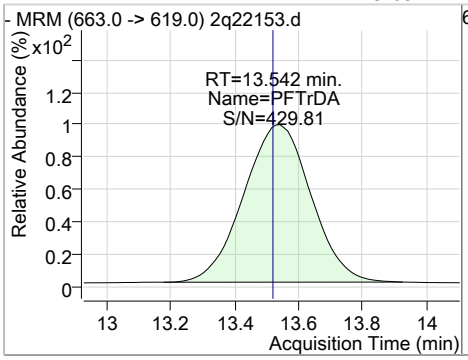
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.91	12.12	0.03	53687	613.0 -> 319.0	9.6	0.0	39.8

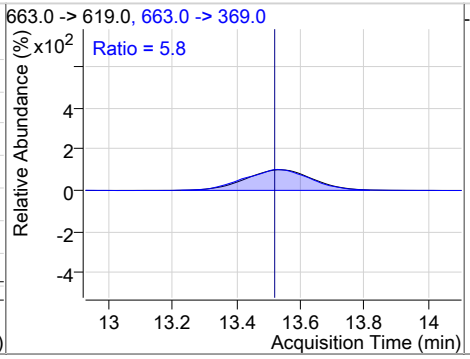


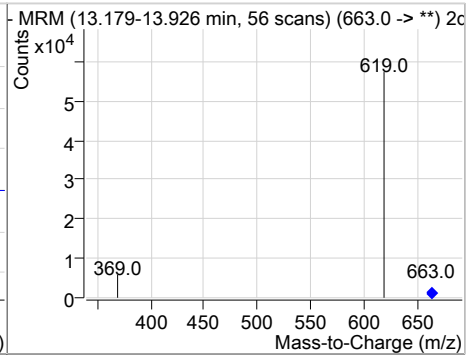




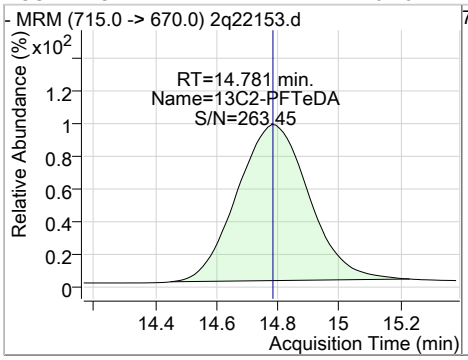
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.63	13.54	0.03	40073	663.0 -> 369.0	5.8	0.0	35.8

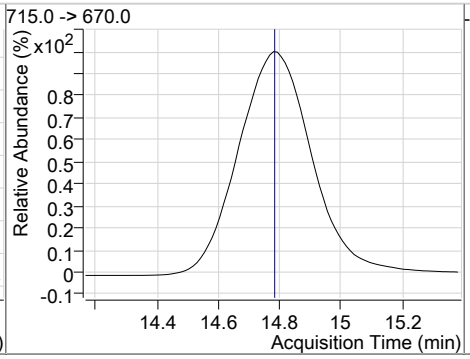


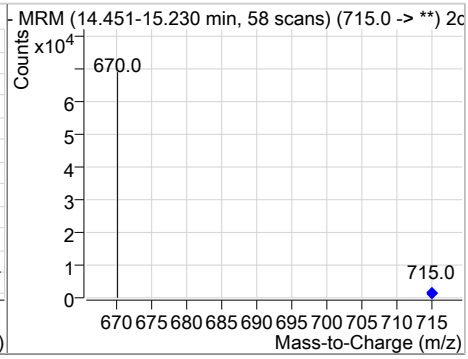




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.46	14.78	0.00	45683				

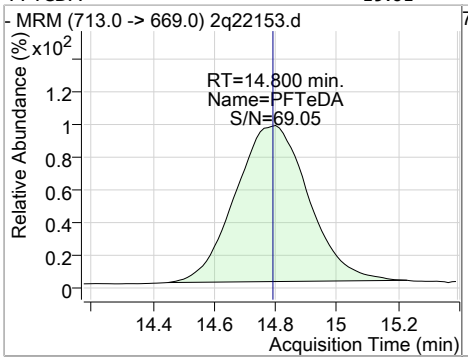


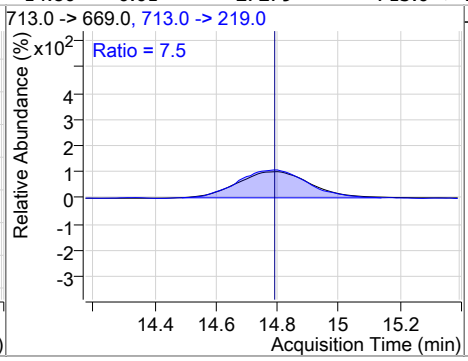


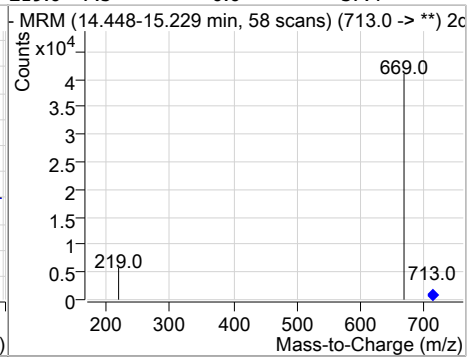


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.61	14.80	0.01	27279	713.0 -> 219.0	7.5	0.0	37.4







Manual Integration Approval Summary

Sample Number: S2Q349-CC349
Lab FileID: 2Q22153.D
Injection Time: 10/15/18 22:36
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/16/18 12:54 Natasha Gumtie
Supervisor approved: 10/16/18 15:19 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.55	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22180.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/16/2018 10:25:15 AM
Sample Name : ic350-0.5
Vial : Vial 2
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q350.batch.bin
Sample Information : op71813,S2Q350,2.01,,,1.0,1,soil

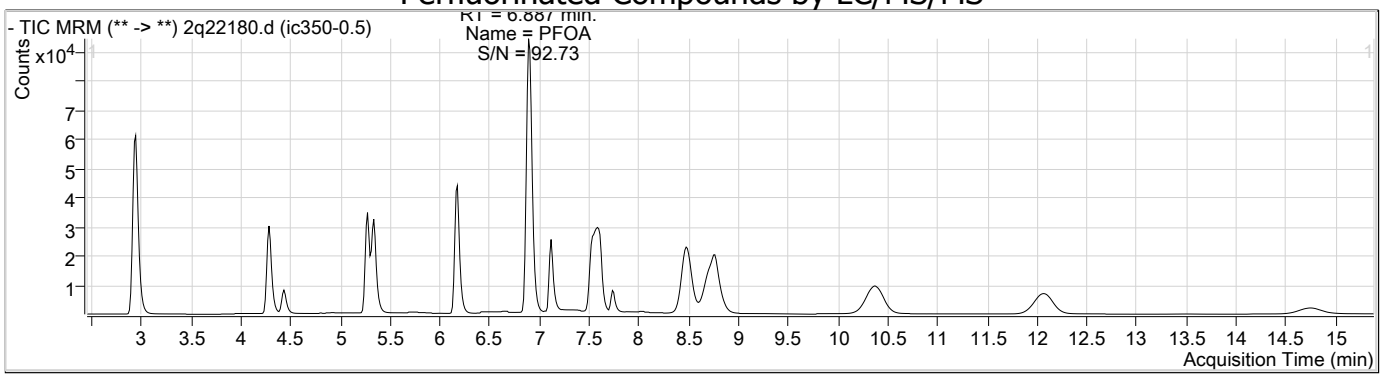
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.898	415.0 -> 370.0	125045	20.00	µg/L	0.000
13C4-PFOS	7.535	503.0 -> 80.0	54338	20.00	µg/L	0.000
M4-PFBA	2.941	217.0 -> 172.0	240733	20.00	µg/L	0.000
M5-PFPeA	4.287	268.0 -> 223.0	99296	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	96710	20.00	µg/L	0.000
M4-PFHpA	6.179	367.0 -> 322.0	113965	20.00	µg/L	0.000
M8-PFOA	6.896	421.0 -> 376.0	95877	20.00	µg/L	0.000
M9-PFNA	7.589	472.0 -> 427.0	85314	20.00	µg/L	0.000
M6-PFDA	8.479	519.0 -> 474.0	164277	20.00	µg/L	0.000
M7-PFUnDA	10.367	570.0 -> 525.0	118331	20.00	µg/L	0.000
M2-PFDoDA	12.065	615.0 -> 570.0	94030	20.00	µg/L	0.013
M2-PFTeDA	14.743	715.0 -> 670.0	33144	20.00	µg/L	0.000
M8-FOSA	7.117	506.0 -> 78.0	71743	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	25573	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	33096	20.00	µg/L	0.000
M8-PFOS	7.533	507.0 -> 99.0	33819	20.00	µg/L	0.000
M2-4:2FTS	5.272	329.0 -> 309.0	110821	20.00	µg/L	0.000
M2-6:2FTS	6.906	429.0 -> 409.0	153235	20.00	µg/L	0.000
M2-8:2FTS	8.762	529.0 -> 509.0	187456	20.00	µg/L	0.013
M3-MeFOSAA	7.607	573.0 -> 419.0	42822	20.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	110817	16.83	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.1%		
13C2-6:2FTS	6.906	429.0 -> 409.0	153258	17.36	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.8%		
13C2-8:2FTS	8.762	529.0 -> 509.0	186727	17.77	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.8%		
13C2-PFDoDA	12.065	615.0 -> 570.0	93490	16.91	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.5%		
13C2-PFTeDA	14.743	715.0 -> 670.0	32100	16.54	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.7%		
13C3-PFBS	4.430	302.0 -> 99.0	25587	18.30	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.5%		
13C3-PFHxS	6.173	402.0 -> 99.0	33065	18.57	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C4-PFBA	2.941	217.0 -> 172.0	240643	17.90	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.5%		
13C4-PFHpA	6.179	367.0 -> 322.0	113957	17.71	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.6%		
13C5-PFHxA	5.339	318.0 -> 273.0	96743	17.57	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.9%		
13C5-PFPeA	4.287	268.0 -> 223.0	99257	17.36	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.8%		
13C6-PFDA	8.479	519.0 -> 474.0	163851	17.61	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.1%		

Perfluorinated Compounds by LC/MS/MS

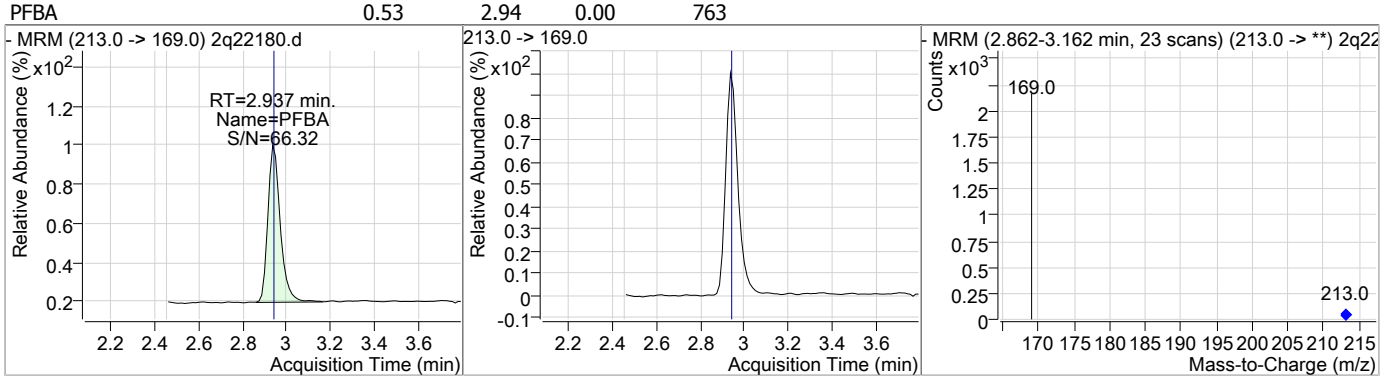
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.367	570.0 -> 525.0	117992	17.23	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.2%			
13C8-FOSA	7.117	506.0 -> 78.0	71692	18.47	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.4%			
13C8-PFOA	6.896	421.0 -> 376.0	95864	17.84	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.2%			
13C8-PFOS	7.533	507.0 -> 99.0	33845	18.65	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%			
13C9-PFNA	7.589	472.0 -> 427.0	85313	17.35	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.8%			
d3-MeFOSAA	7.607	573.0 -> 419.0	42829	18.42	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.1%			
M2-PFOA	6.898	415.0 -> 370.0	125044	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.535	503.0 -> 80.0	54313	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.274	327.0 -> 307.0	1706	0.56	µg/L		76
6:2FTS	6.907	427.0 -> 407.0	2019	0.63	µg/L		94
8:2FTS	8.752	527.0 -> 507.0	2592	0.55	µg/L		95
EtFOSAA	7.744	584.0 -> 419.0	515	0.53	µg/L		98
FOSA	7.120	498.0 -> 78.0	1001	0.59	µg/L		97
MeFOSAA	7.622	570.0 -> 419.0	625	0.57	µg/L		93
PFBA	2.937	213.0 -> 169.0	763	0.53	µg/L		100
PFBS	4.434	299.0 -> 80.0	930	0.50	µg/L		90
PFDA	8.469	513.0 -> 469.0	1310	0.52	µg/L		98
PFDoDA	12.084	613.0 -> 569.0	1038	0.53	µg/L		97
PFDS	10.187	599.0 -> 80.0	339	0.48	µg/L	m	98
PFHpA	6.170	363.0 -> 319.0	2194	0.51	µg/L		99
PFHpS	6.866	449.0 -> 80.0	739	0.55	µg/L		94
PFHxA	5.341	313.0 -> 269.0	811	0.52	µg/L		98
PFHxS	6.176	399.0 -> 80.0	935	0.58	µg/L	m	92
PFNA	7.590	463.0 -> 419.0	1282	0.55	µg/L		96
PFNS	8.346	549.0 -> 80.0	629	0.51	µg/L		97
PFOA	6.887	413.0 -> 369.0	1380	0.56	µg/L		98
PFOS	7.524	499.0 -> 80.0	795	0.55	µg/L	m	93
PFPeA	4.291	263.0 -> 219.0	3485	0.75	µg/L		100
PFPeS	5.396	349.0 -> 80.0	612	0.51	µg/L		99
PFTeDA	14.775	713.0 -> 669.0	611	0.62	µg/L		95
PFTrDA	13.492	663.0 -> 619.0	798	0.56	µg/L		98
PFUnDA	10.384	563.0 -> 519.0	1189	0.54	µg/L		96

 # = Qualifier out of range, m = manually integrated, + = Area summed

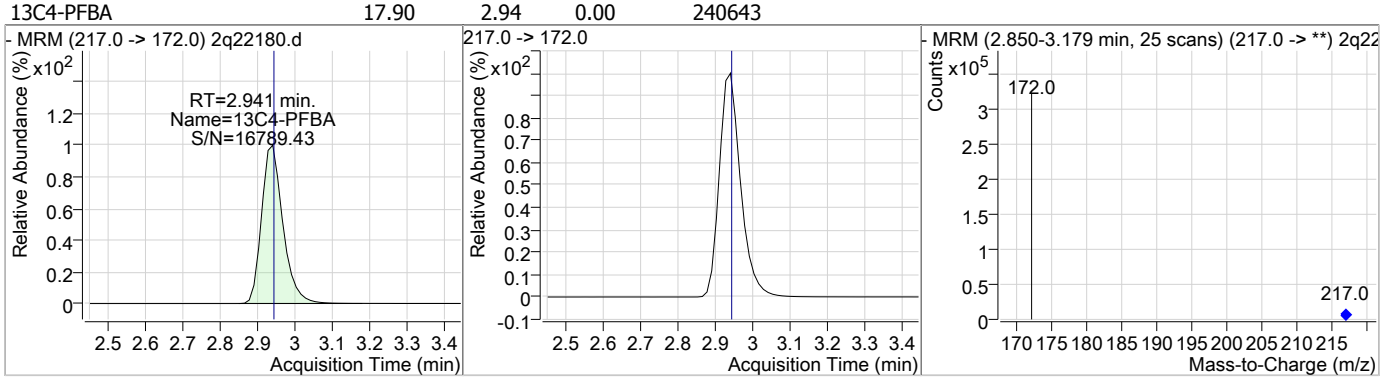
Perfluorinated Compounds by LC/MS/MS



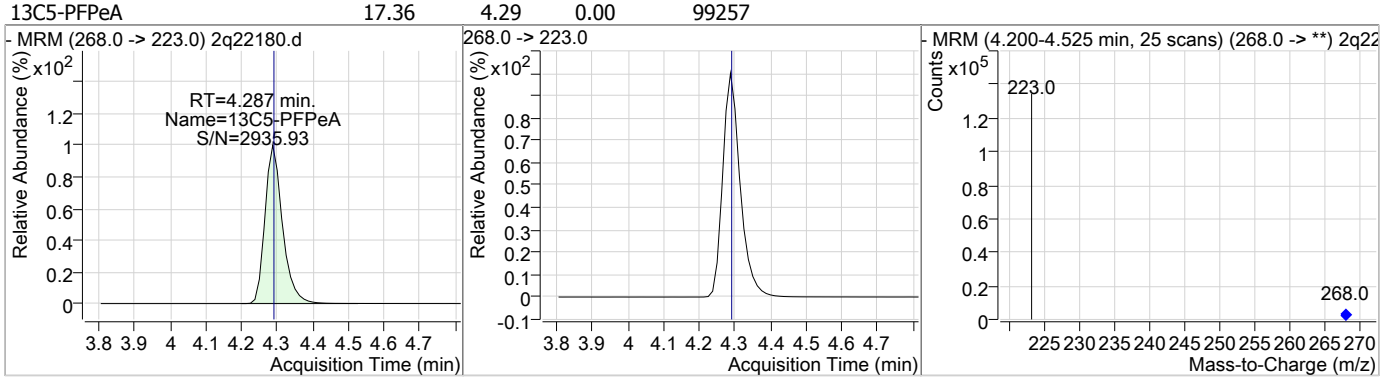
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.53	2.94	0.00	763				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.90	2.94	0.00	240643				

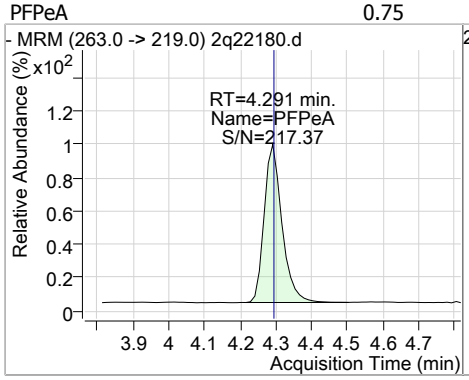


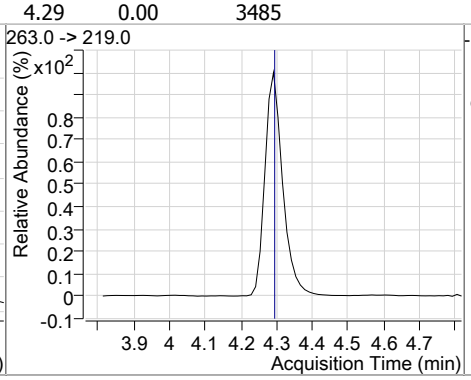
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.36	4.29	0.00	99257				

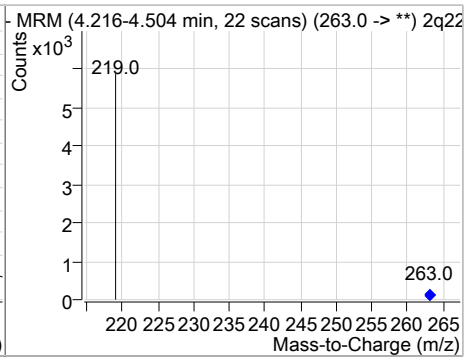


Perfluorinated Compounds by LC/MS/MS

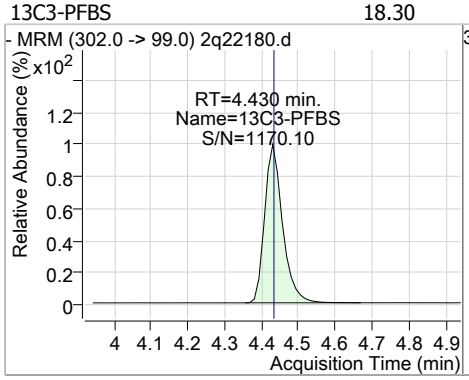
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.75	4.29	0.00	3485				

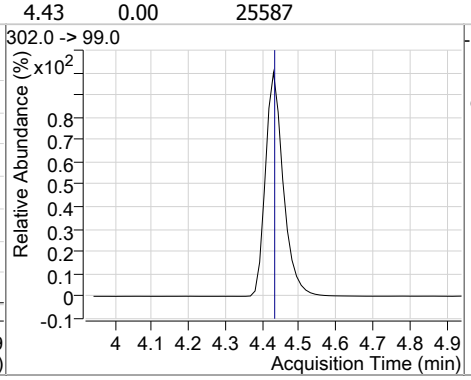


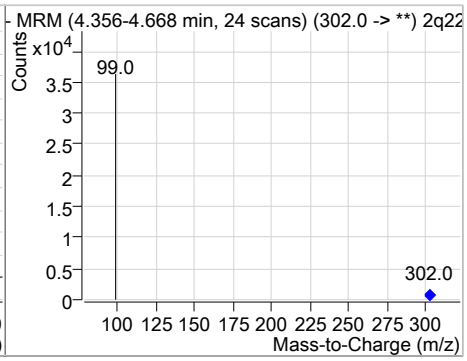




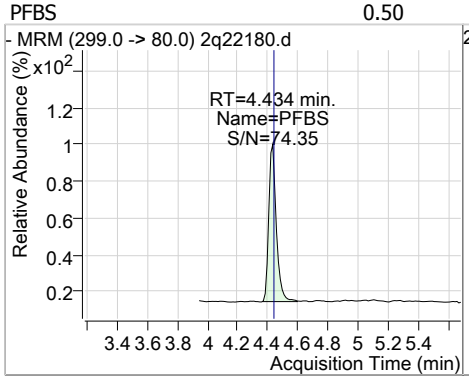
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.30	4.43	0.00	25587				

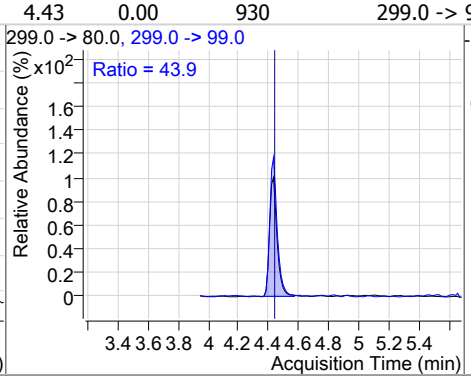


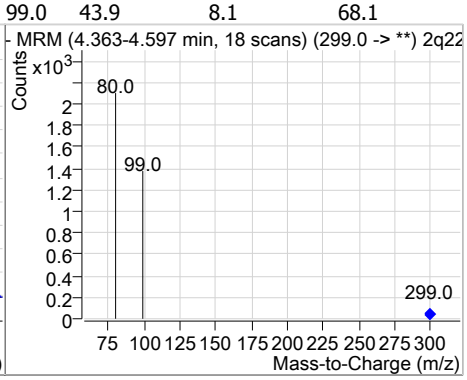




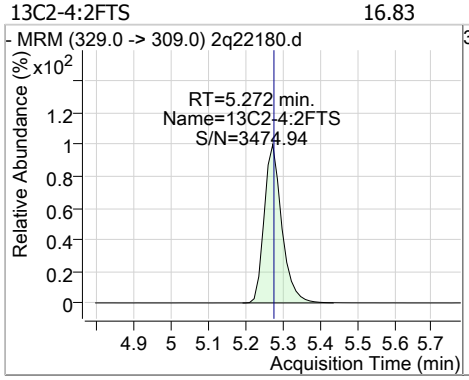
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.50	4.43	0.00	930	299.0 -> 99.0	43.9	8.1	68.1

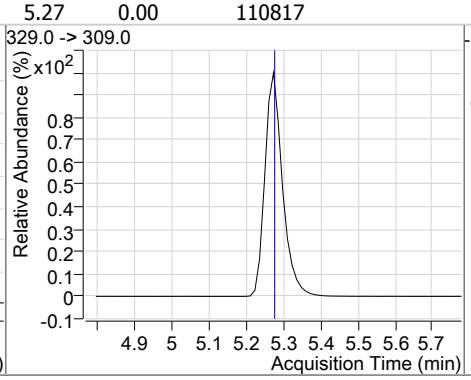


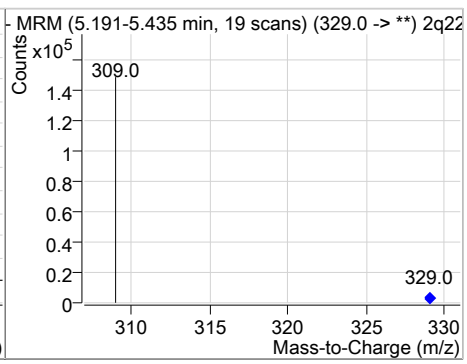




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.83	5.27	0.00	110817				

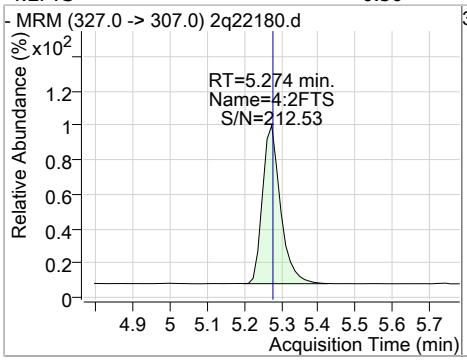


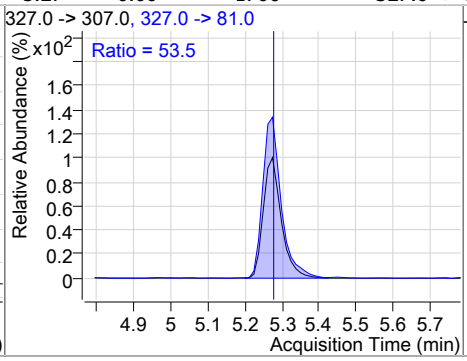


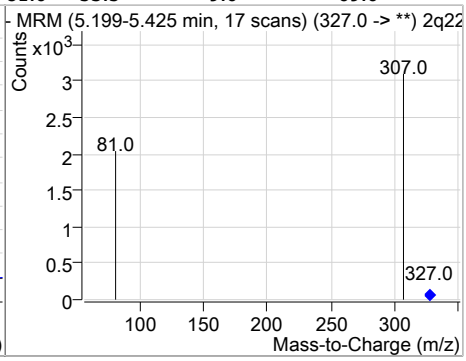


Perfluorinated Compounds by LC/MS/MS

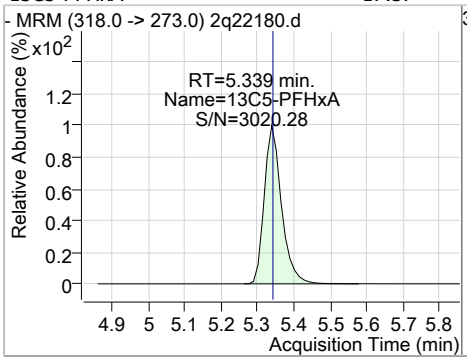
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.56	5.27	0.00	1706	327.0 -> 81.0	53.5	9.0	69.0

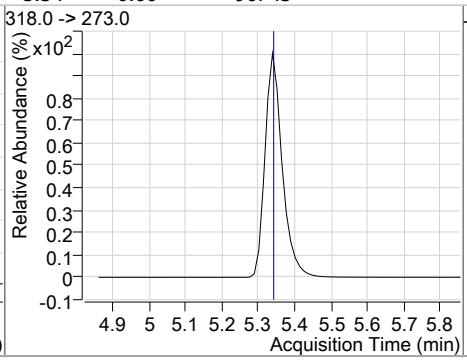


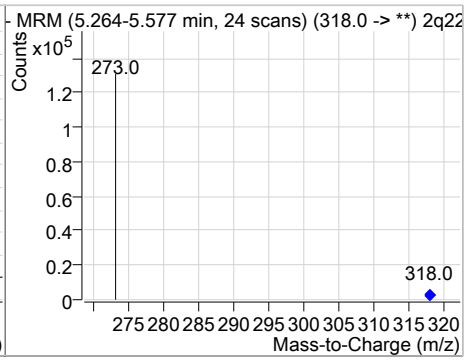




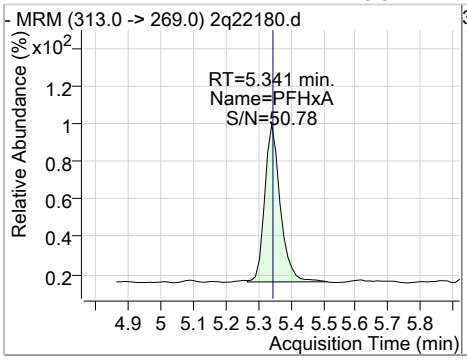
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.57	5.34	0.00	96743				

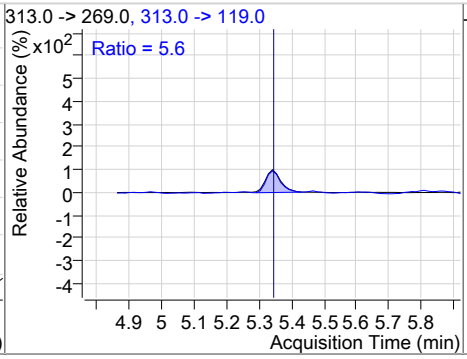


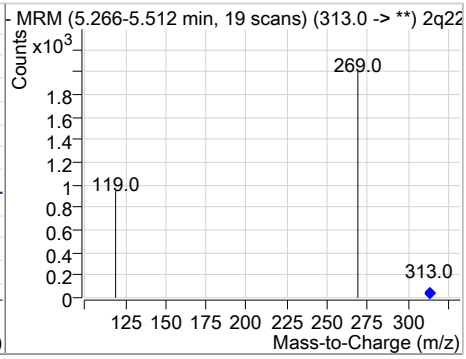




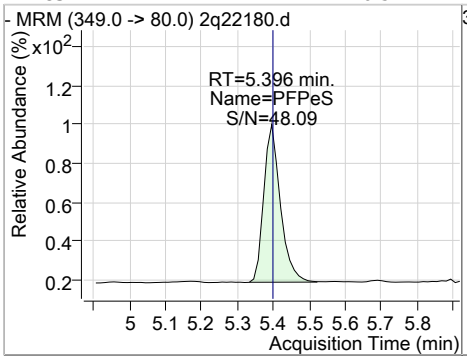
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.52	5.34	0.00	811	313.0 -> 119.0	5.6	0.0	36.4

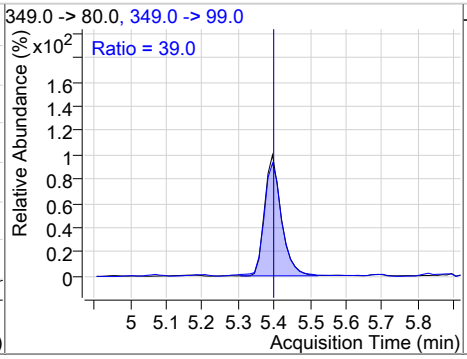


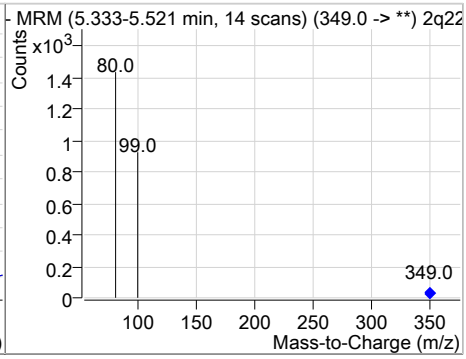




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.51	5.40	0.00	612	349.0 -> 99.0	39.0	9.5	69.5

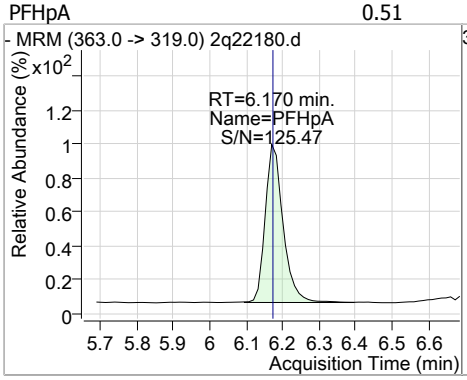


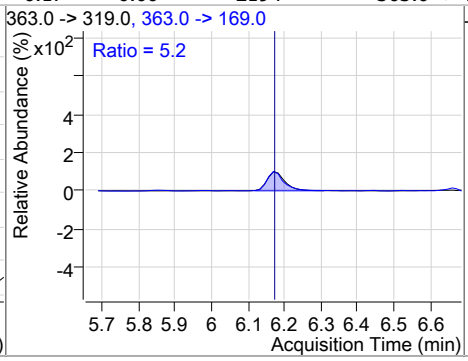


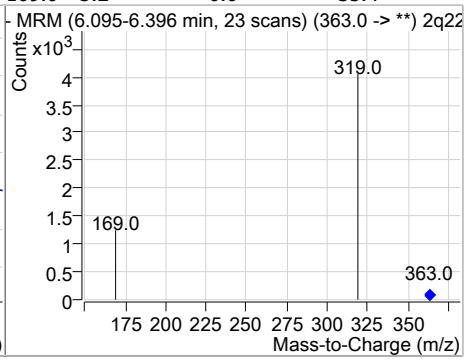


Perfluorinated Compounds by LC/MS/MS

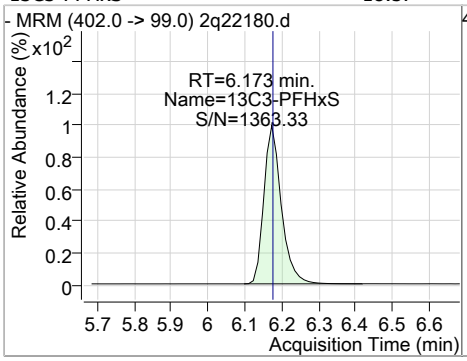
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.51	6.17	0.00	2194	363.0 -> 169.0	5.2	0.0	35.4

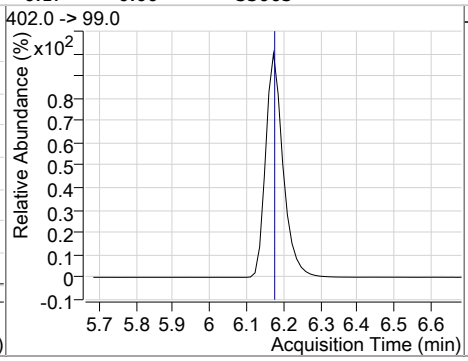


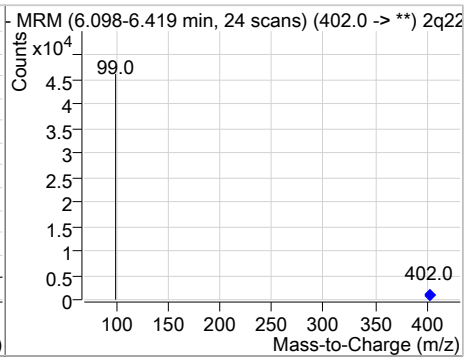




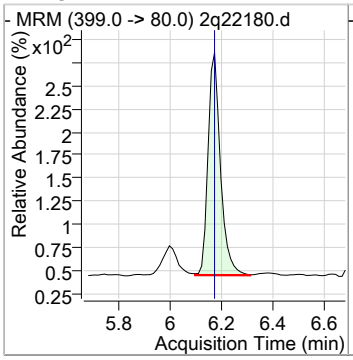
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.57	6.17	0.00	33065				

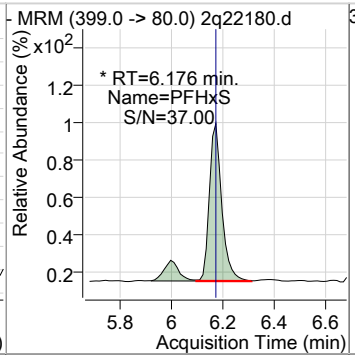


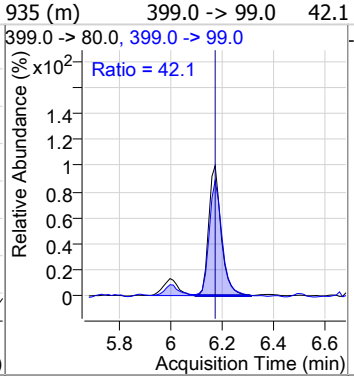


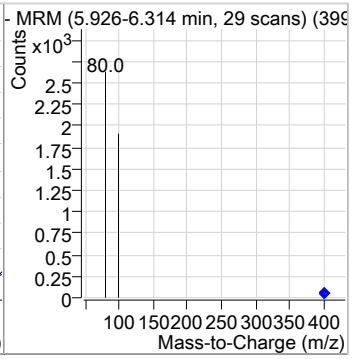


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.58	6.18	0.00	935 (m)	399.0 -> 99.0	42.1	17.7	77.7

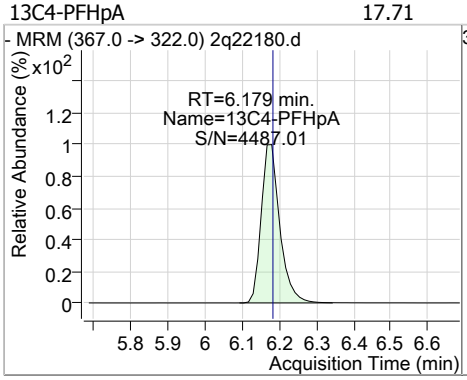


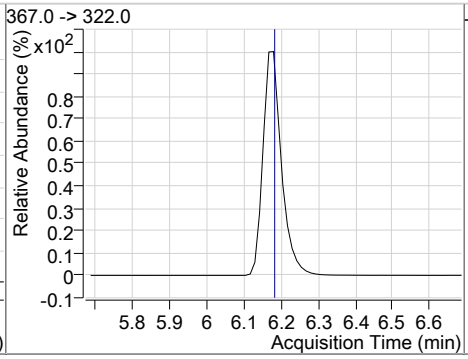


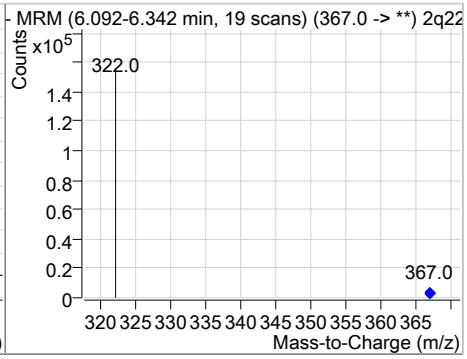




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.71	6.18	0.00	113957				

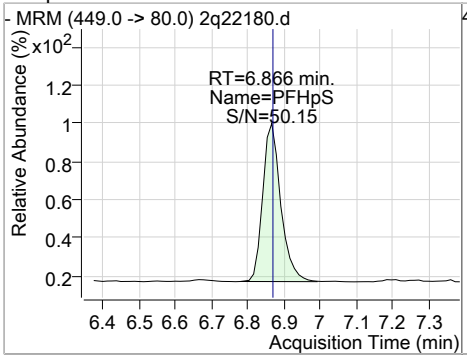


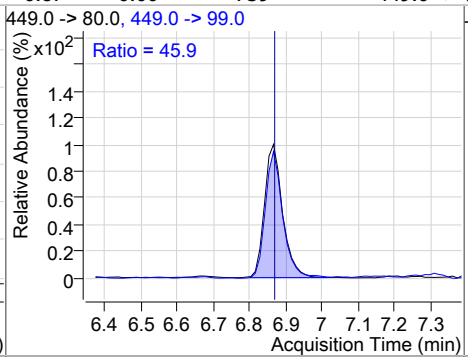


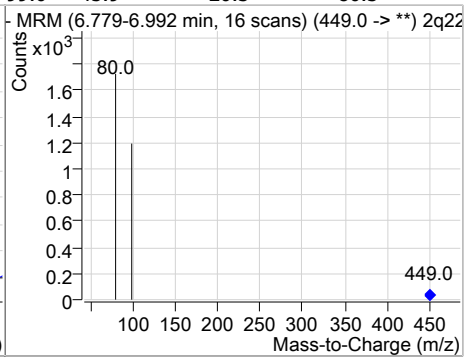


Perfluorinated Compounds by LC/MS/MS

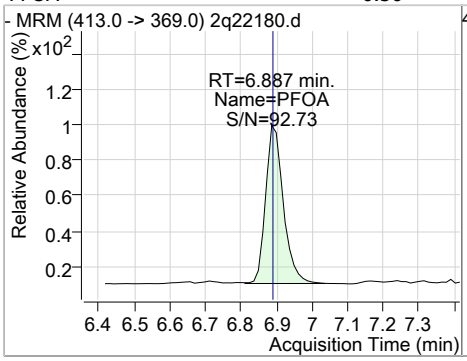
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.55	6.87	0.00	739	449.0 -> 99.0	45.9	20.3	80.3

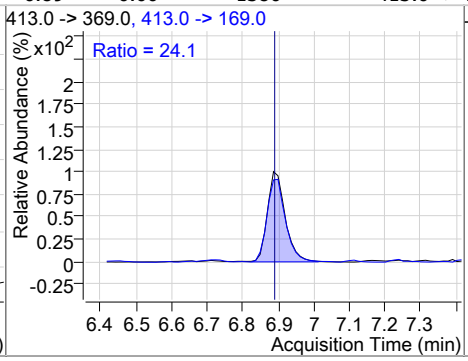


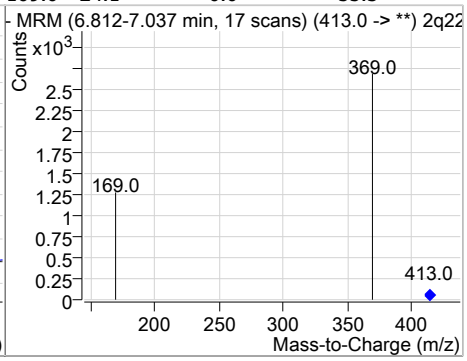




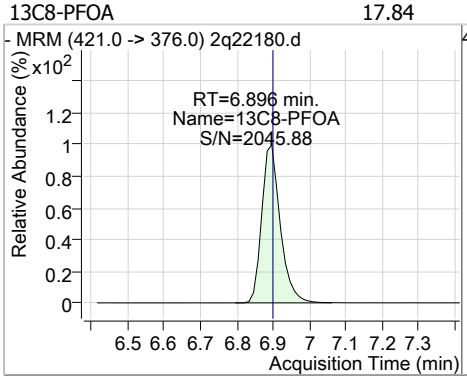
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.56	6.89	0.00	1380	413.0 -> 169.0	24.1	0.0	55.3

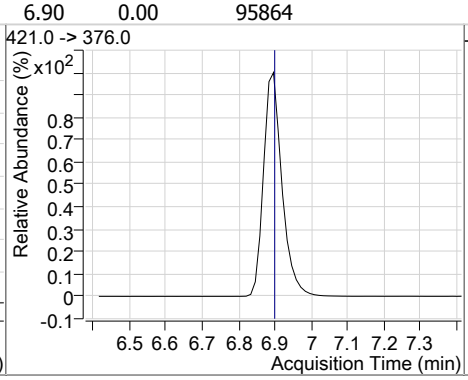


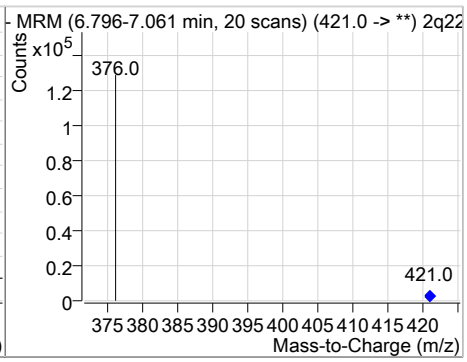




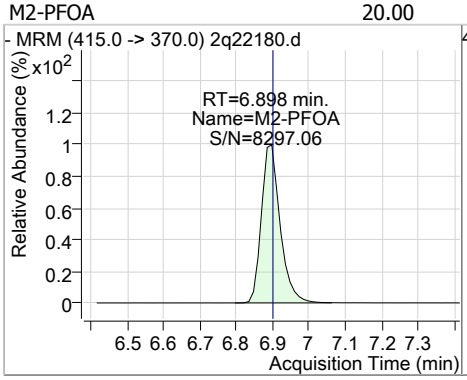
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	17.84	6.90	0.00	95864				

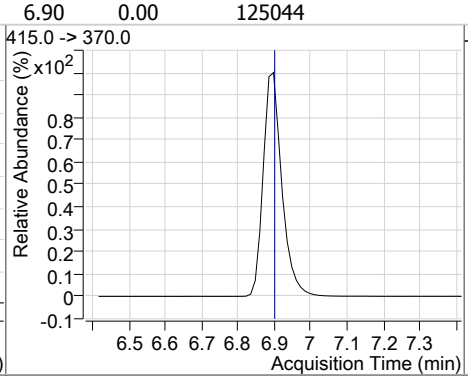


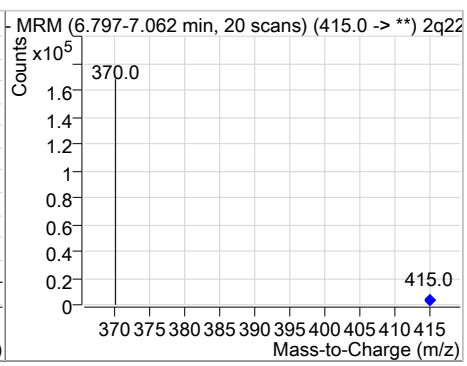




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.90	0.00	125044				

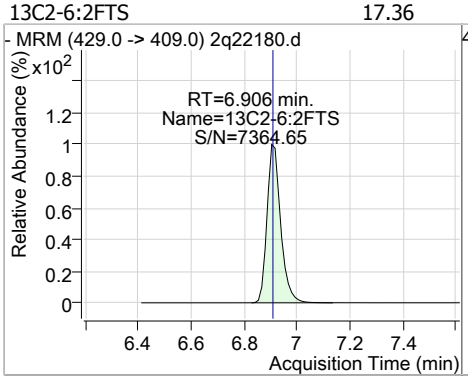


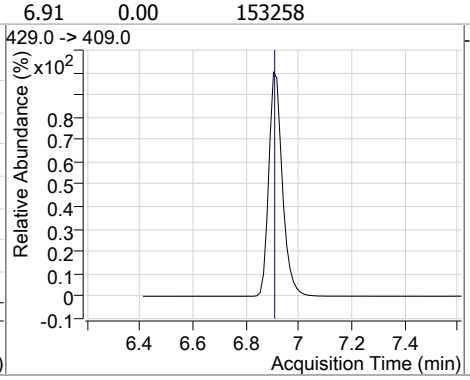


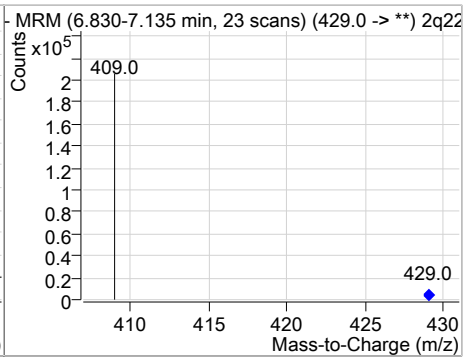


Perfluorinated Compounds by LC/MS/MS

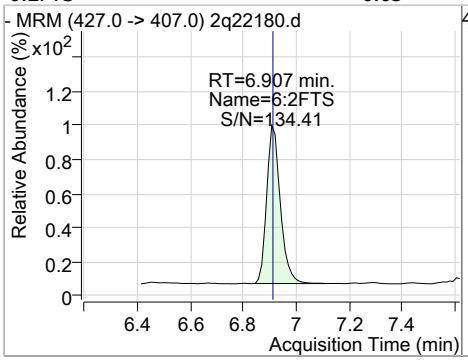
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.36	6.91	0.00	153258				

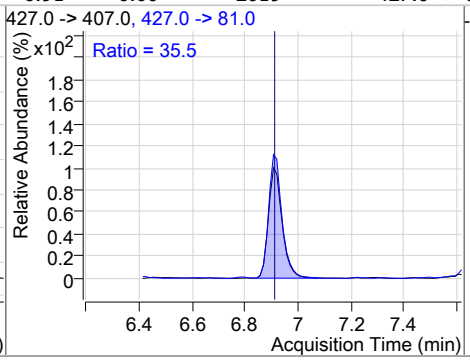


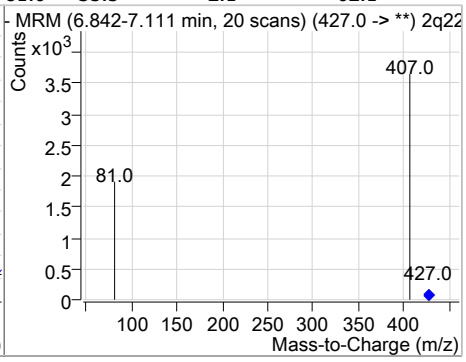




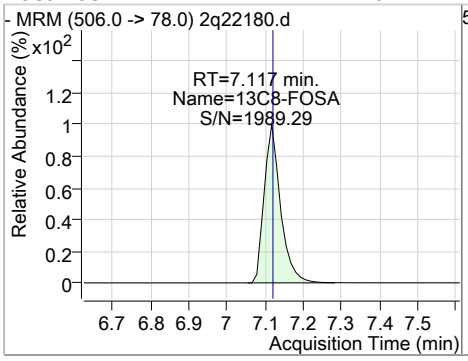
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.63	6.91	0.00	2019	427.0 -> 81.0	35.5	2.1	62.1

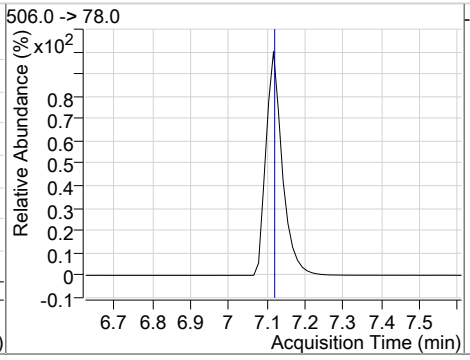


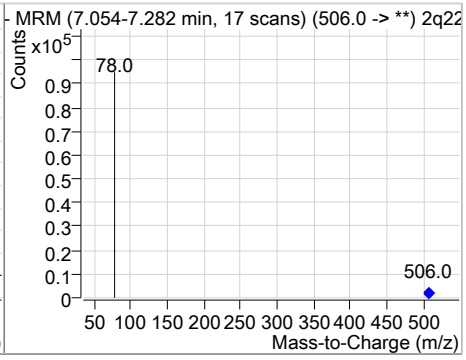




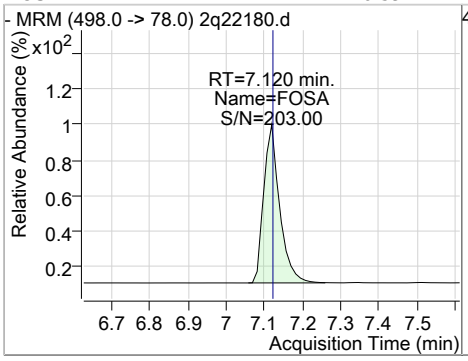
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.47	7.12	0.00	71692				

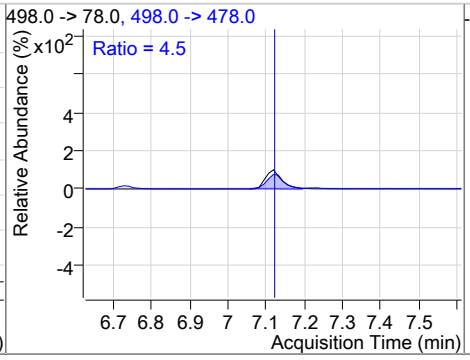


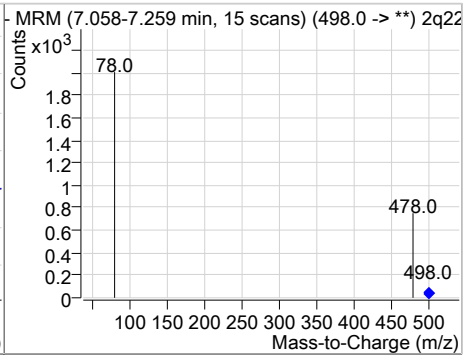




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.59	7.12	0.00	1001	498.0 -> 478.0	4.5	0.0	35.4

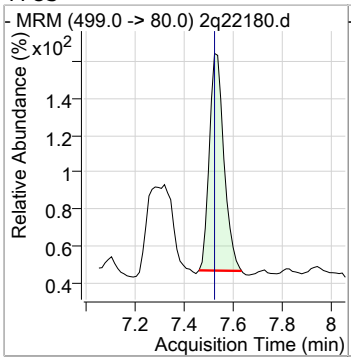


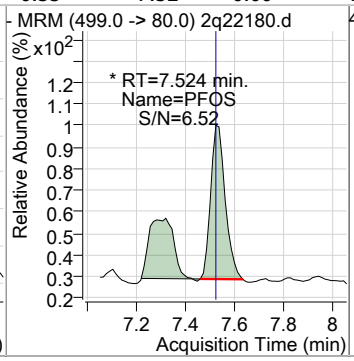


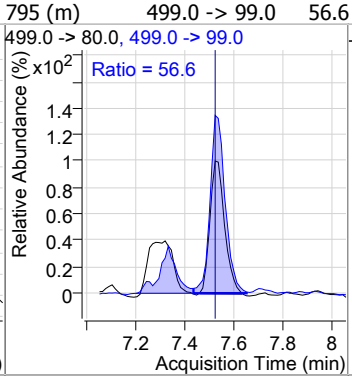


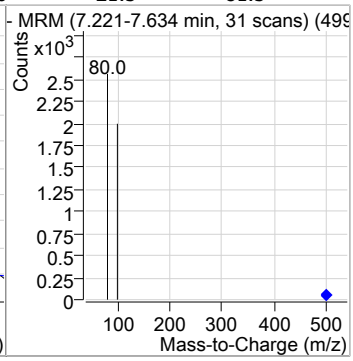
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.55	7.52	0.00	795 (m)	499.0 -> 99.0	56.6	21.5	81.5

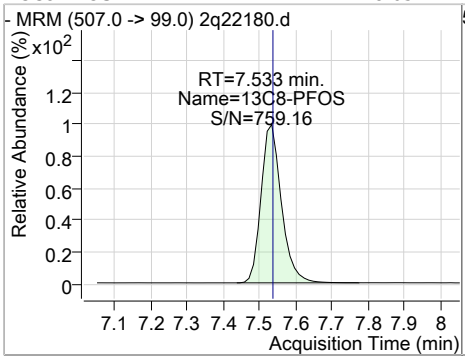


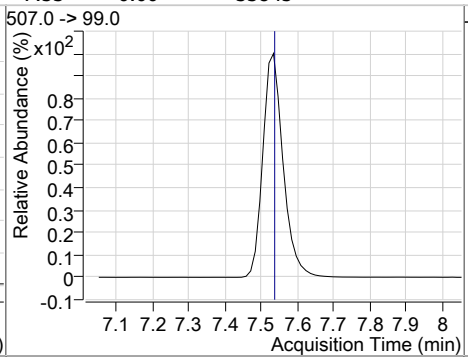


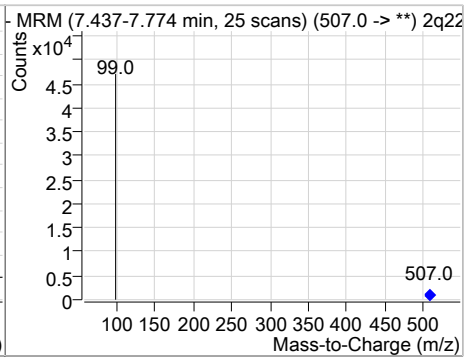




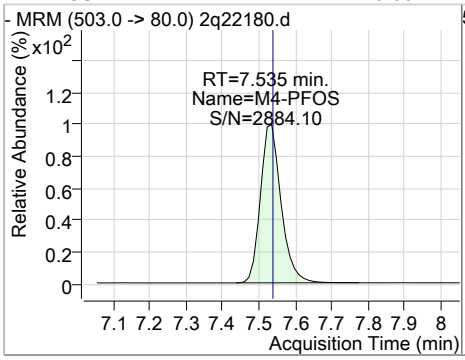
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.65	7.53	0.00	33845				

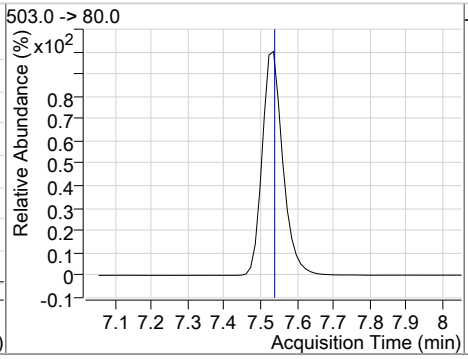


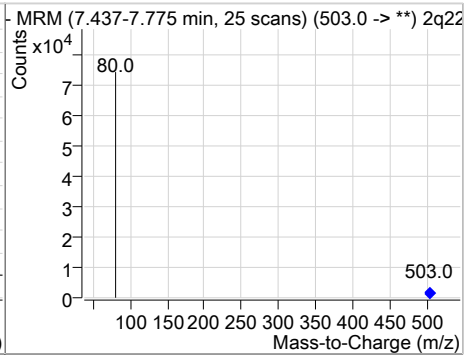




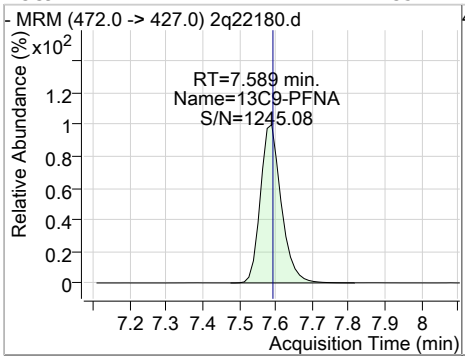
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.54	0.00	54313				

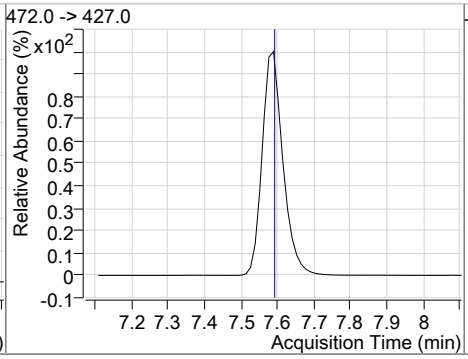


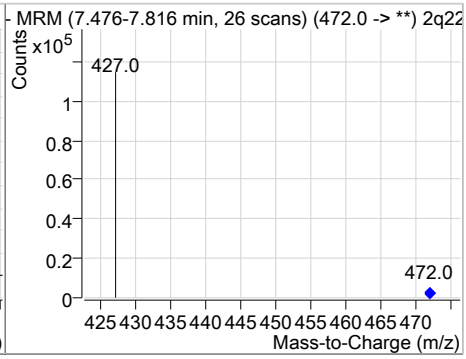




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.35	7.59	0.00	85313				

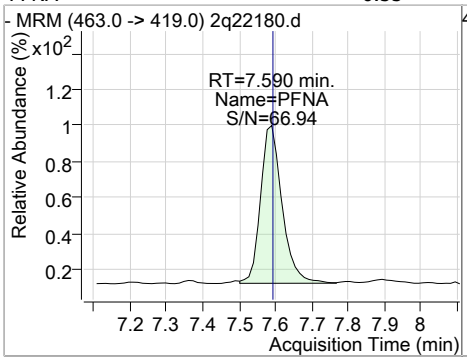


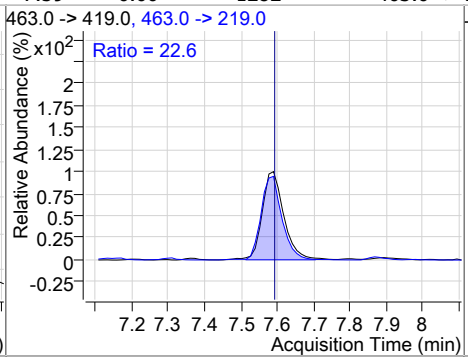


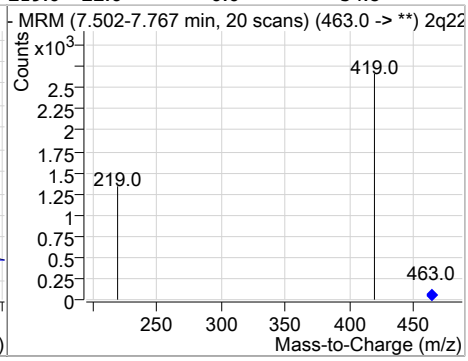


Perfluorinated Compounds by LC/MS/MS

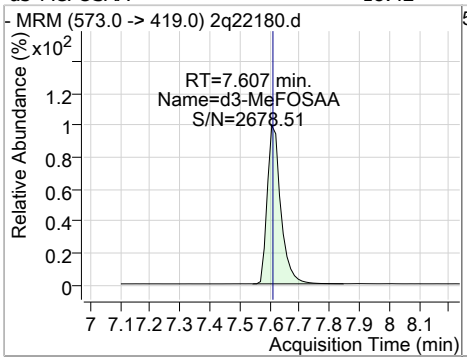
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.55	7.59	0.00	1282	463.0 -> 219.0	22.6	0.0	54.8

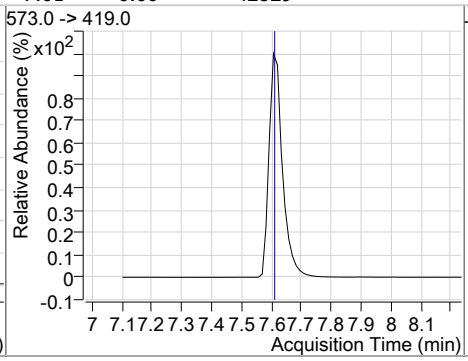


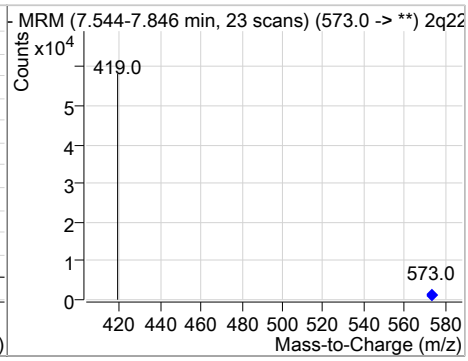




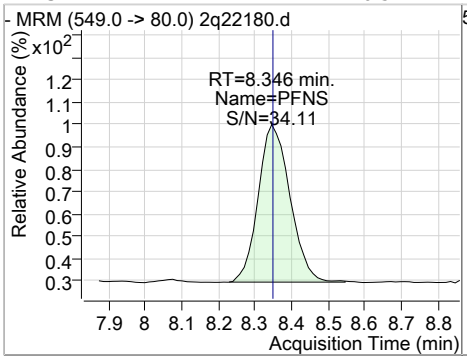
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.42	7.61	0.00	42829				

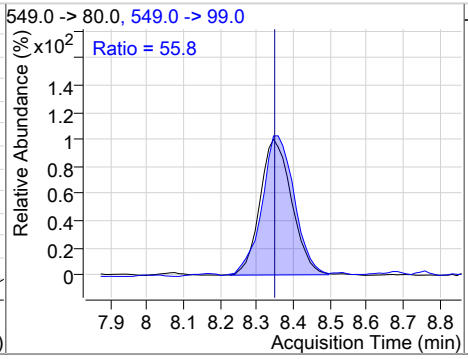


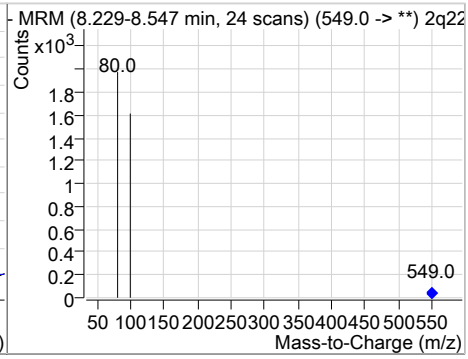




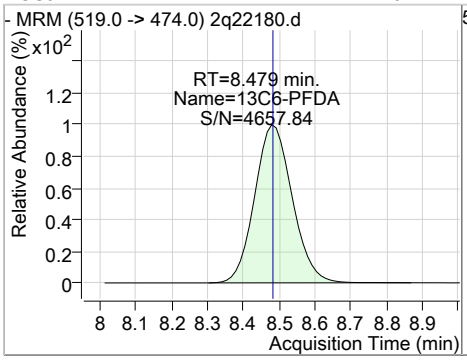
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.51	8.35	0.00	629	549.0 -> 99.0	55.8	23.4	83.4

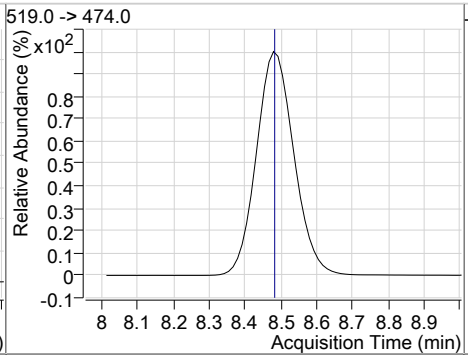


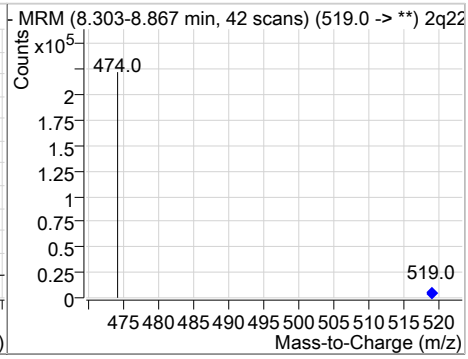




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.61	8.48	0.00	163851				

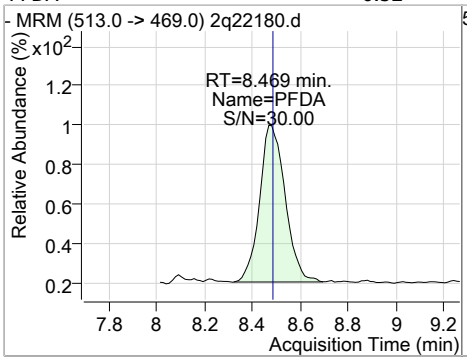


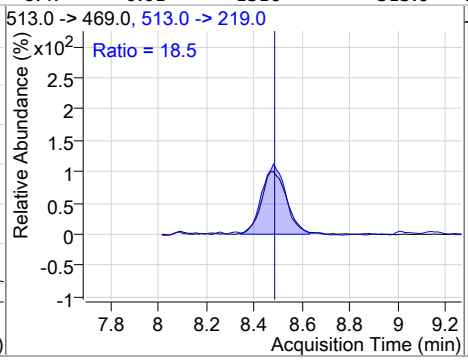


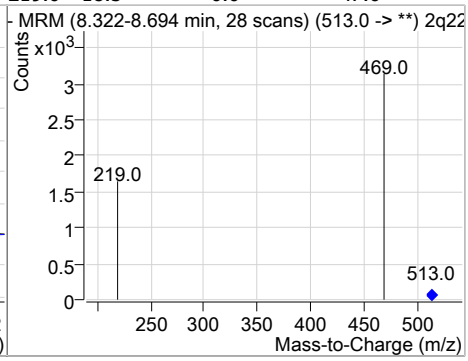


Perfluorinated Compounds by LC/MS/MS

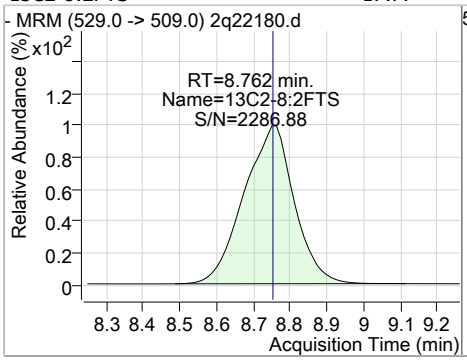
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.52	8.47	-0.01	1310	513.0 -> 219.0	18.5	0.0	47.6

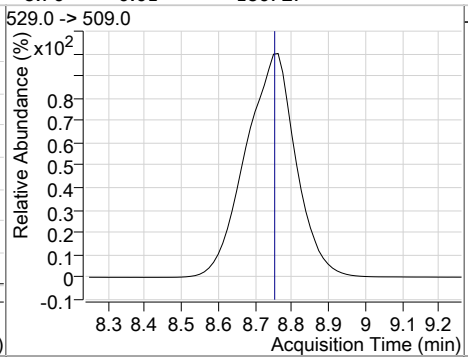


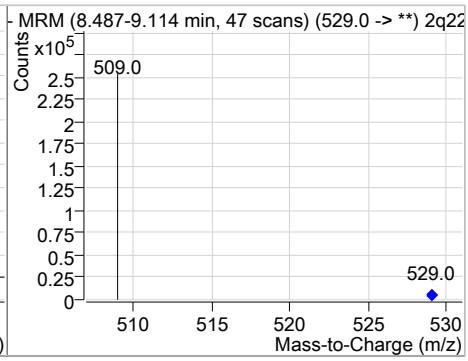




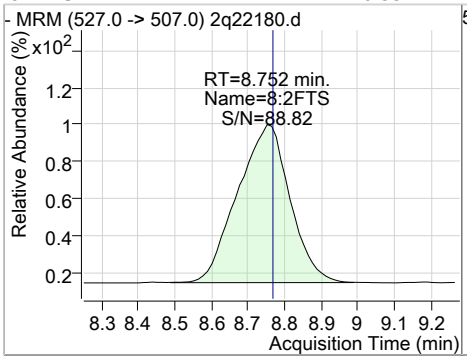
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.77	8.76	0.01	186727				

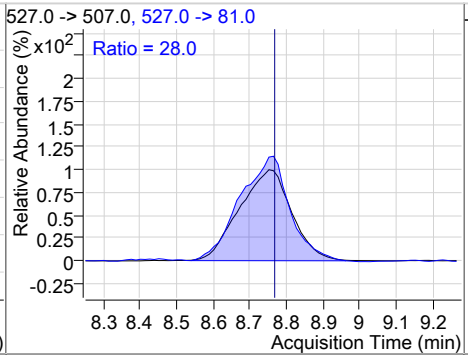


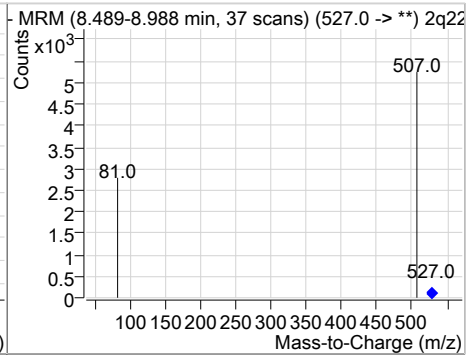




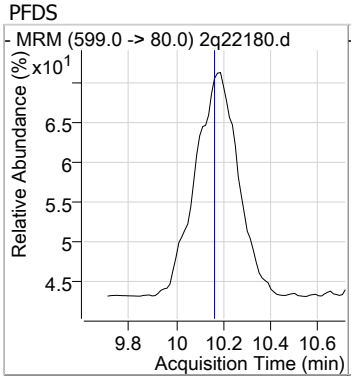
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.55	8.75	0.00	2592	527.0 -> 81.0	28.0	0.0	55.6

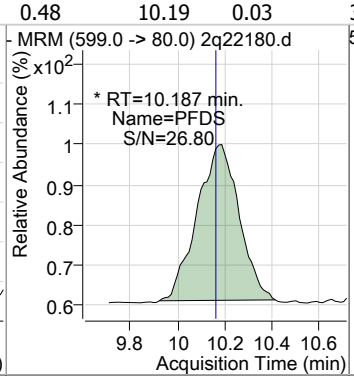


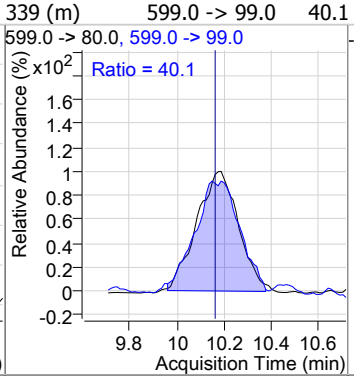


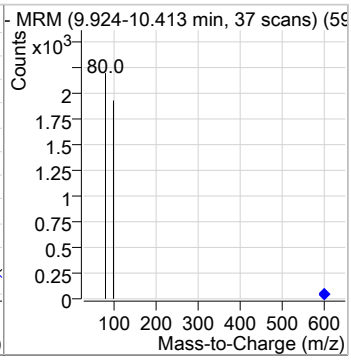


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.48	10.19	0.03	339 (m)	599.0 -> 99.0	40.1	11.1	71.1



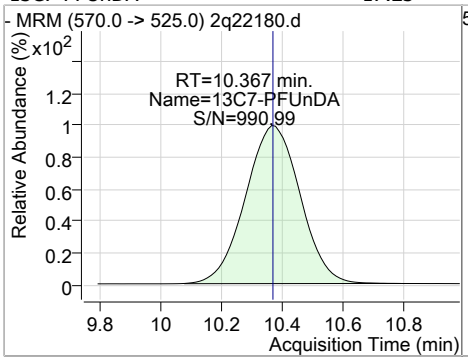


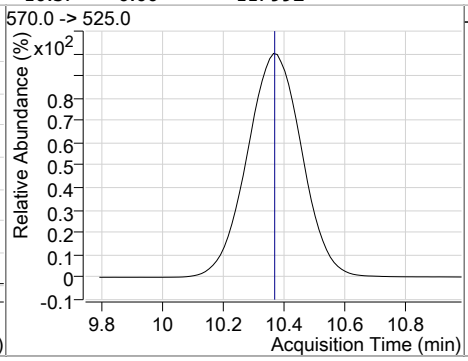


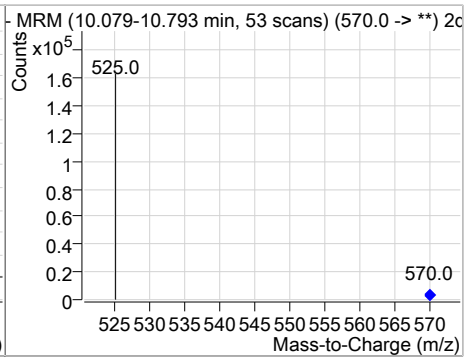


Perfluorinated Compounds by LC/MS/MS

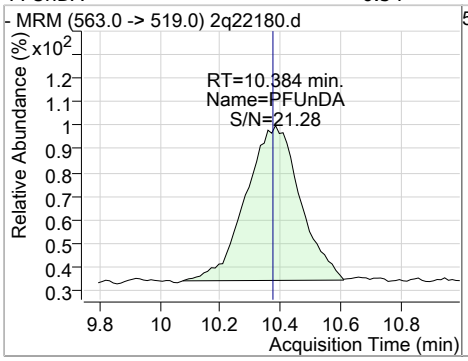
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	17.23	10.37	0.00	117992				

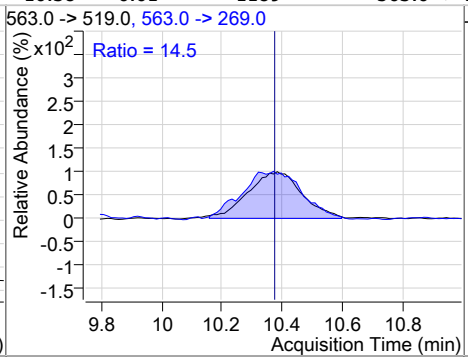


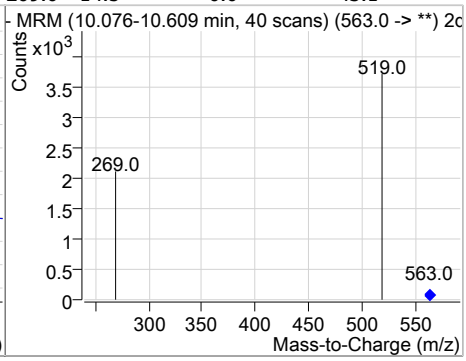




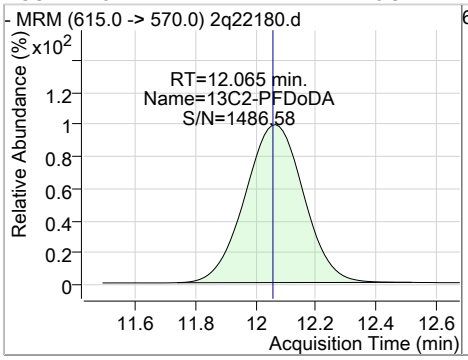
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.54	10.38	0.01	1189	563.0 -> 269.0	14.5	0.0	43.1

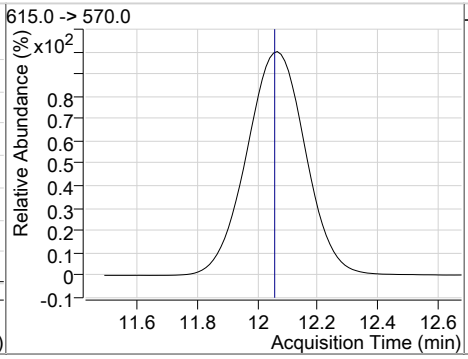


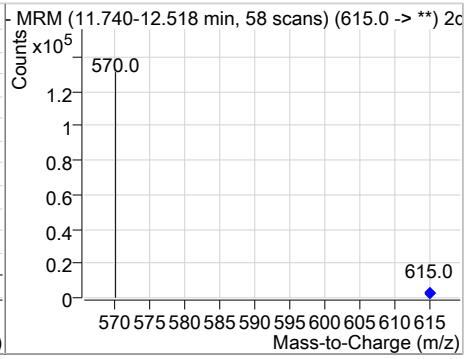




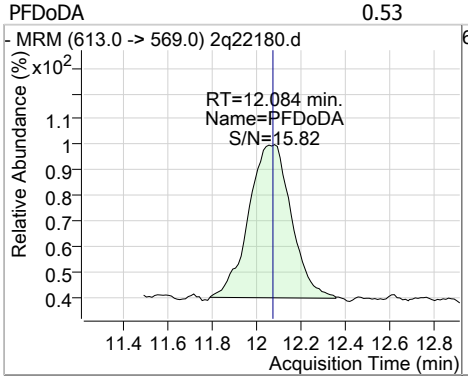
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	16.91	12.07	0.01	93490				

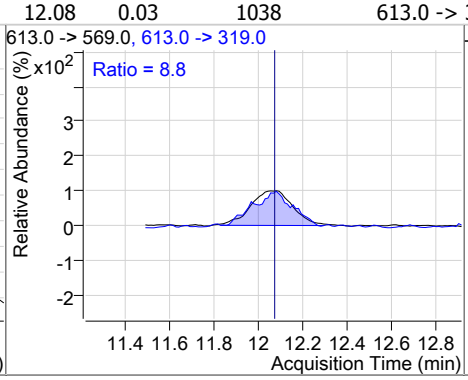


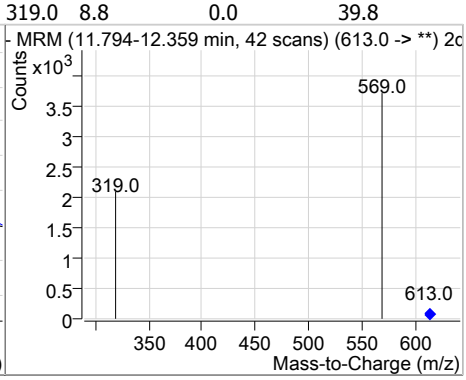




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.53	12.08	0.03	1038	613.0 -> 319.0	8.8	0.0	39.8

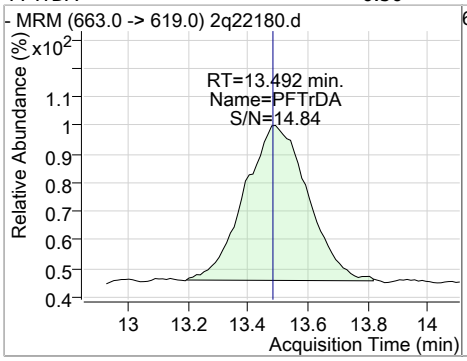


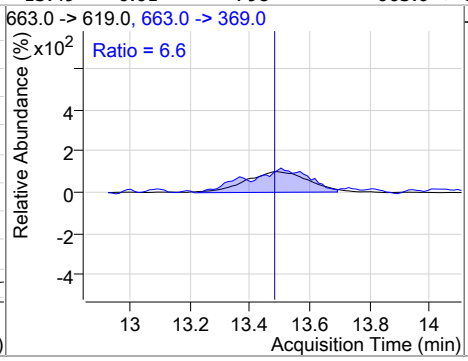


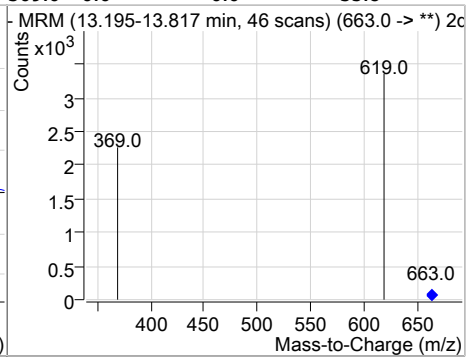


Perfluorinated Compounds by LC/MS/MS

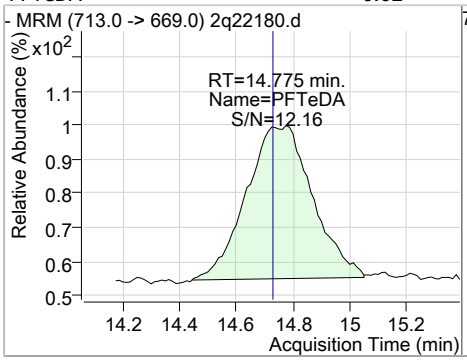
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.56	13.49	0.01	798	663.0 -> 369.0	6.6	0.0	35.8

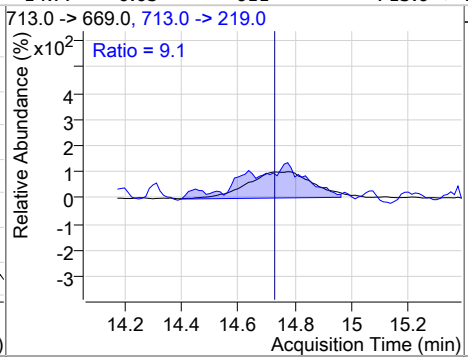


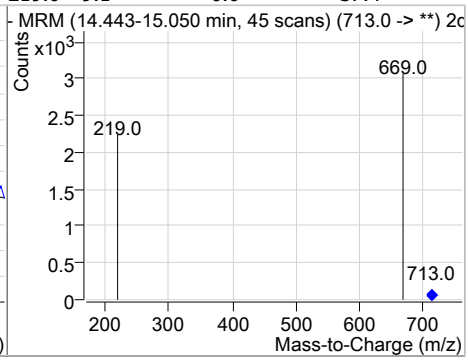




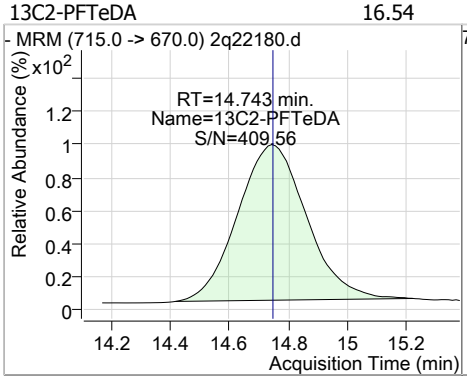
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.62	14.77	0.05	611	713.0 -> 219.0	9.1	0.0	37.4

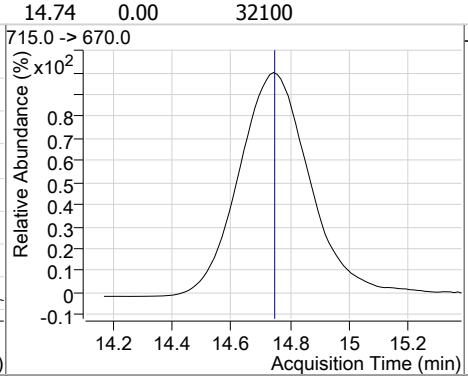


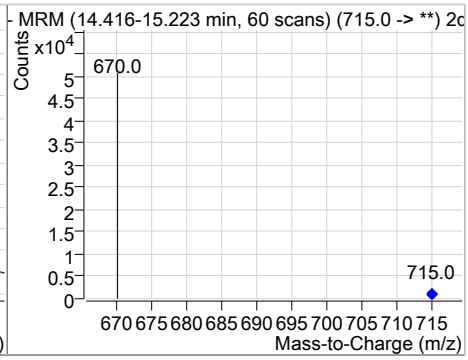




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	16.54	14.74	0.00	32100				







Manual Integration Approval Summary

Sample Number: S2Q350-IC350
Lab FileID: 2Q22180.D
Injection Time: 10/16/18 10:25

Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.52	Split peak
Perfluorodecanesulfonic acid	335-77-3		10.19	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22181.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/16/2018 10:45:59 AM
Sample Name : ic350-1
Vial : Vial 3
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q350.batch.bin
Sample Information : op71813,S2Q350,2.01,,,1.0,1,soil

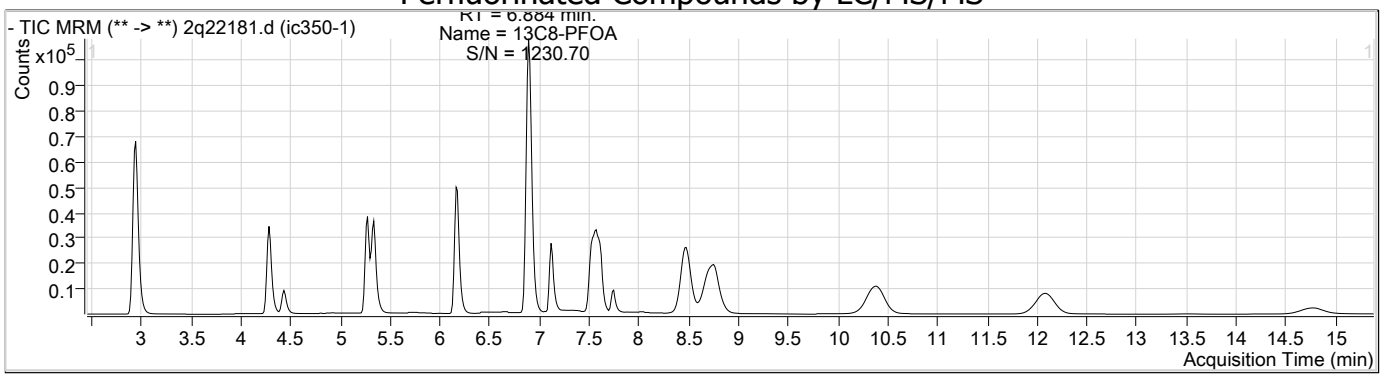
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.885	415.0 -> 370.0	139765	20.00	µg/L	-0.013
13C4-PFOS	7.523	503.0 -> 80.0	58388	20.00	µg/L	-0.013
M4-PFBA	2.941	217.0 -> 172.0	264314	20.00	µg/L	0.000
M5-PFPeA	4.287	268.0 -> 223.0	110715	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	108206	20.00	µg/L	0.000
M4-PFHpA	6.167	367.0 -> 322.0	128103	20.00	µg/L	-0.013
M8-PFOA	6.884	421.0 -> 376.0	108130	20.00	µg/L	-0.013
M9-PFNA	7.576	472.0 -> 427.0	98512	20.00	µg/L	-0.013
M6-PFDA	8.479	519.0 -> 474.0	185746	20.00	µg/L	0.000
M7-PFUnDA	10.379	570.0 -> 525.0	135991	20.00	µg/L	0.013
M2-PFDoDA	12.078	615.0 -> 570.0	107958	20.00	µg/L	0.025
M2-PFTeDA	14.768	715.0 -> 670.0	38279	20.00	µg/L	0.025
M8-FOSA	7.117	506.0 -> 78.0	78277	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	27854	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	35892	20.00	µg/L	0.000
M8-PFOS	7.521	507.0 -> 99.0	36685	20.00	µg/L	-0.013
M2-4:2FTS	5.272	329.0 -> 309.0	121101	20.00	µg/L	0.000
M2-6:2FTS	6.906	429.0 -> 409.0	169774	20.00	µg/L	0.000
M2-8:2FTS	8.750	529.0 -> 509.0	193091	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	47326	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	121093	18.39	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.9%		
13C2-6:2FTS	6.906	429.0 -> 409.0	169764	19.23	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C2-8:2FTS	8.750	529.0 -> 509.0	192683	18.33	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.7%		
13C2-PFDoDA	12.078	615.0 -> 570.0	107450	19.43	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C2-PFTeDA	14.768	715.0 -> 670.0	36912	19.02	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C3-PFBS	4.430	302.0 -> 99.0	27869	19.93	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C3-PFHxS	6.173	402.0 -> 99.0	35883	20.15	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C4-PFBA	2.941	217.0 -> 172.0	264091	19.64	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C4-PFHpA	6.167	367.0 -> 322.0	128086	19.91	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C5-PFHxA	5.339	318.0 -> 273.0	108188	19.65	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C5-PFPeA	4.287	268.0 -> 223.0	110685	19.36	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C6-PFDA	8.479	519.0 -> 474.0	185366	19.92	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		

Perfluorinated Compounds by LC/MS/MS

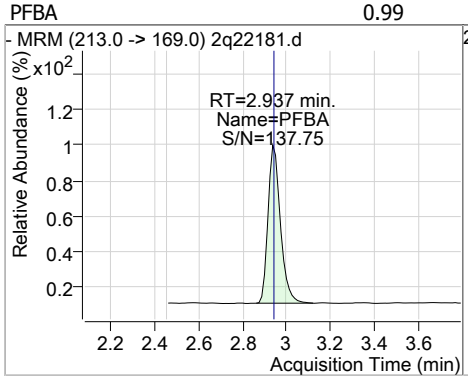
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.379	570.0 -> 525.0	135528	19.79	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.0%			
13C8-FOSA	7.117	506.0 -> 78.0	78318	20.18	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%			
13C8-PFOA	6.884	421.0 -> 376.0	108092	20.12	µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%			
13C8-PFOS	7.521	507.0 -> 99.0	36688	20.22	µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%			
13C9-PFNA	7.576	472.0 -> 427.0	98489	20.03	µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%			
d3-MeFOSAA	7.620	573.0 -> 419.0	47273	20.33	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%			
M2-PFOA	6.885	415.0 -> 370.0	139720	19.99	ng/ml		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.523	503.0 -> 80.0	58360	20.00	ng/ml		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.274	327.0 -> 307.0	3250	0.97	µg/L		84
6:2FTS	6.907	427.0 -> 407.0	4175	1.18	µg/L		100
8:2FTS	8.752	527.0 -> 507.0	4751	0.98	µg/L		94
EtFOSAA	7.744	584.0 -> 419.0	1058	0.98	µg/L		94
FOSA	7.120	498.0 -> 78.0	1877	1.01	µg/L		97
MeFOSAA	7.622	570.0 -> 419.0	1155	0.96	µg/L		88
PFBA	2.937	213.0 -> 169.0	1568	0.99	µg/L		100
PFBS	4.434	299.0 -> 80.0	1916	0.95	µg/L		98
PFDA	8.469	513.0 -> 469.0	2832	1.00	µg/L		100
PFDoDA	12.097	613.0 -> 569.0	2179	0.97	µg/L		100
PFDS	10.162	599.0 -> 80.0	711	0.93	µg/L		98
PFHpA	6.170	363.0 -> 319.0	4779	0.98	µg/L		99
PFHpS	6.866	449.0 -> 80.0	1439	0.99	µg/L		99
PFHxA	5.341	313.0 -> 269.0	1684	0.97	µg/L		97
PFHxS	6.176	399.0 -> 80.0	1713	0.98	µg/L	m	99
PFNA	7.577	463.0 -> 419.0	2658	0.98	µg/L		95
PFNS	8.346	549.0 -> 80.0	1295	0.98	µg/L		95
PFOA	6.887	413.0 -> 369.0	2902	1.04	µg/L		97
PFOS	7.524	499.0 -> 80.0	1468	0.93	µg/L	m	88
PFPeA	4.291	263.0 -> 219.0	6059	1.16	µg/L		100
PFPeS	5.396	349.0 -> 80.0	1217	0.93	µg/L		96
PFTeDA	14.762	713.0 -> 669.0	1173	1.04	µg/L		94
PFTrDA	13.504	663.0 -> 619.0	1658	1.00	µg/L		98
PFUnDA	10.384	563.0 -> 519.0	2479	0.98	µg/L		99

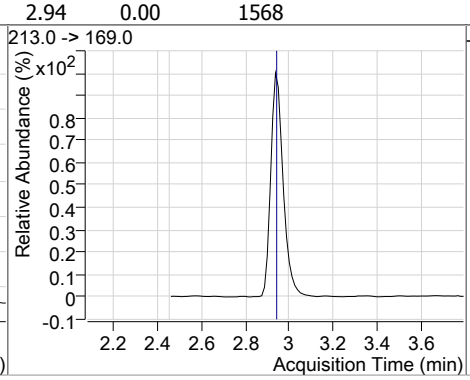
 # = Qualifier out of range, m = manually integrated, + = Area summed

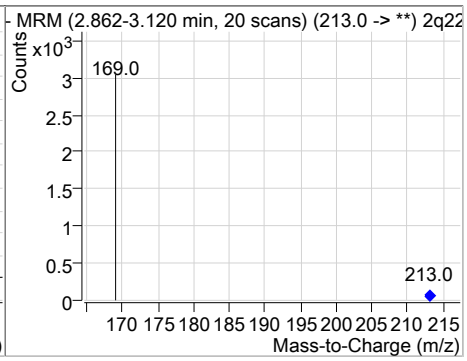
Perfluorinated Compounds by LC/MS/MS



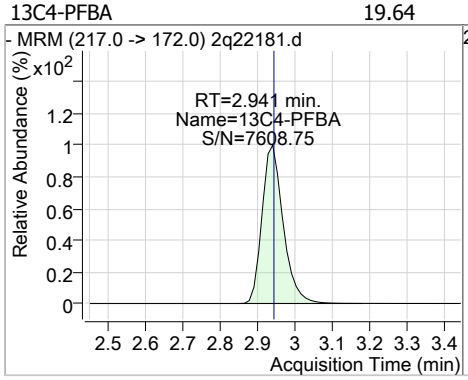
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.99	2.94	0.00	1568				

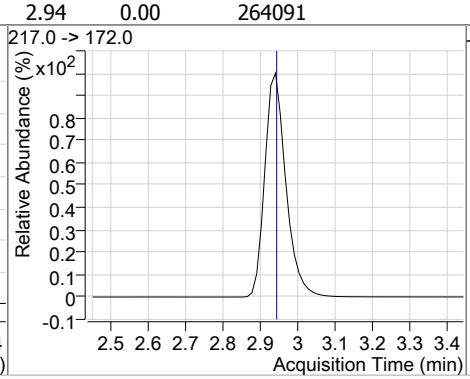


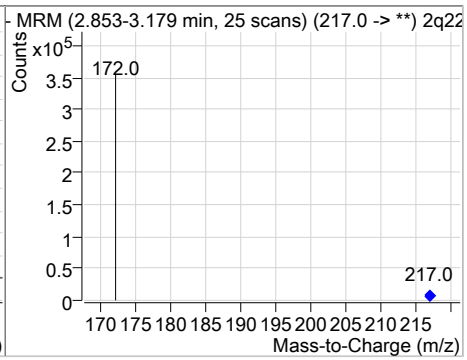




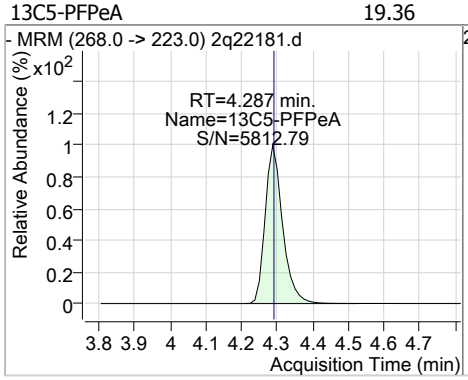
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.64	2.94	0.00	264091				

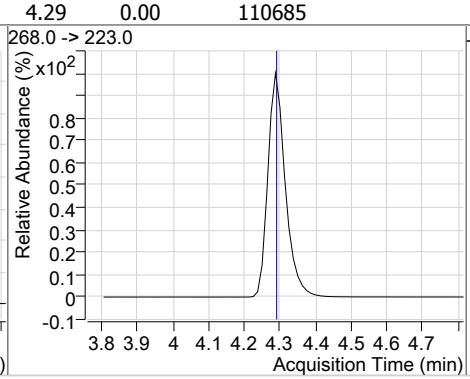


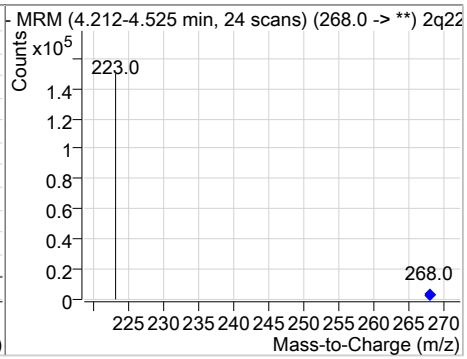




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.36	4.29	0.00	110685				

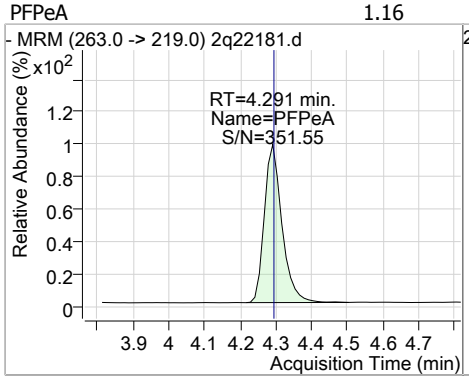


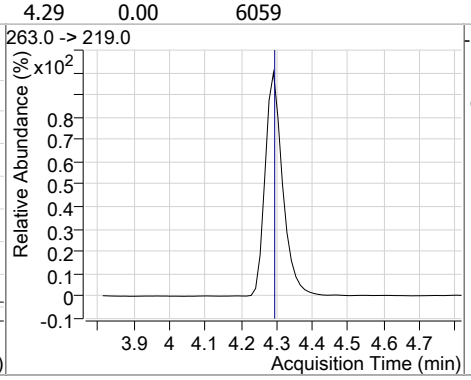


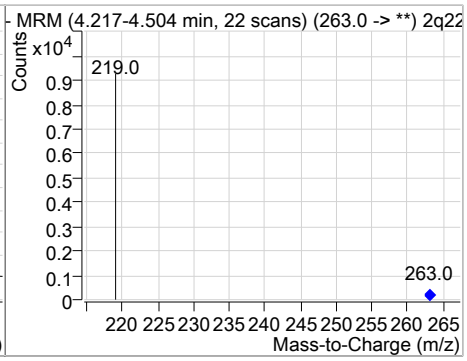


Perfluorinated Compounds by LC/MS/MS

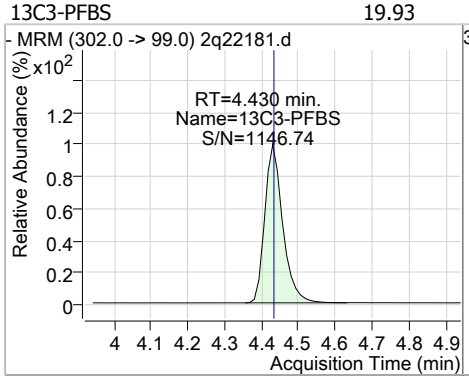
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.16	4.29	0.00	6059				

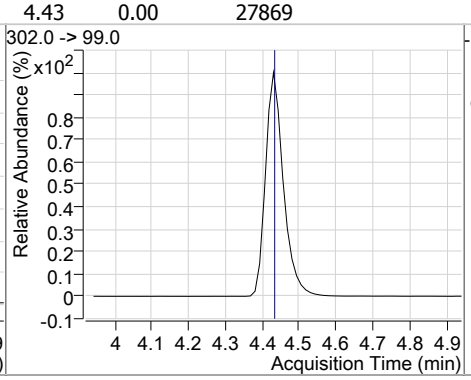


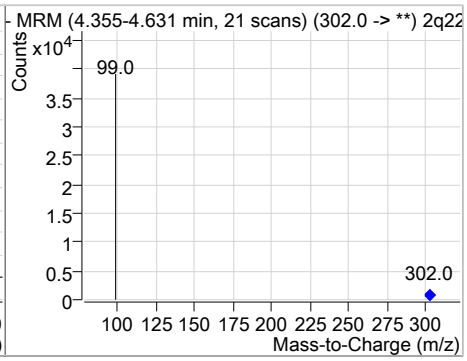




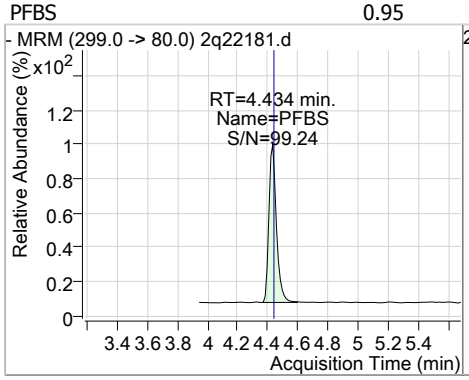
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.93	4.43	0.00	27869				

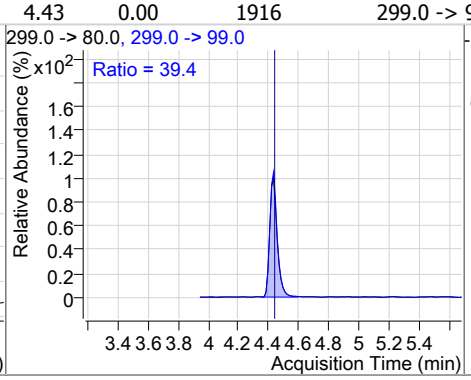


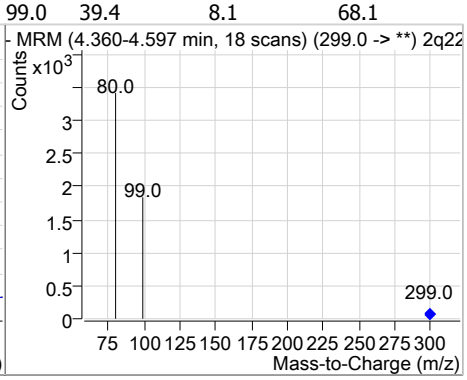




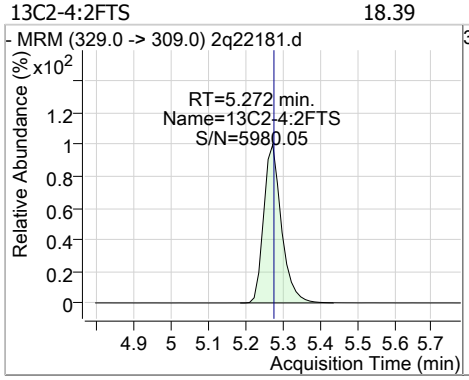
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.95	4.43	0.00	1916	299.0 -> 99.0	39.4	8.1	68.1

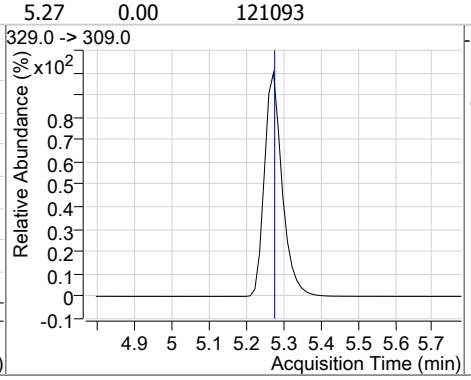


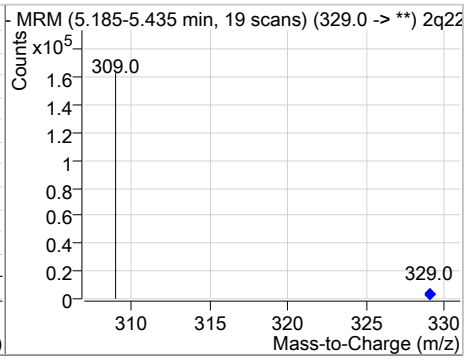




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.39	5.27	0.00	121093				

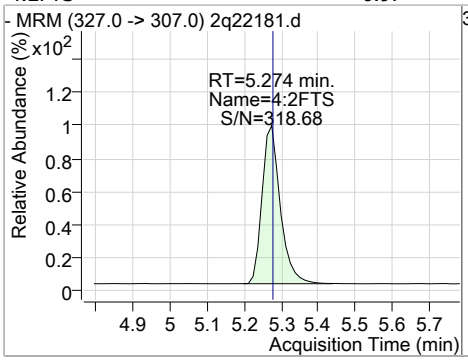


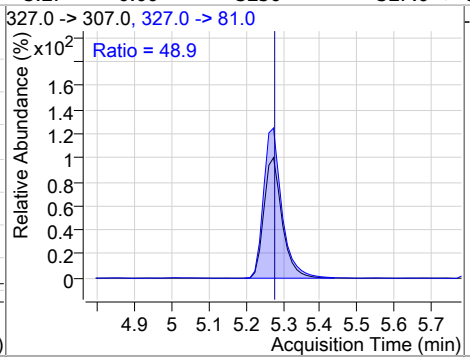


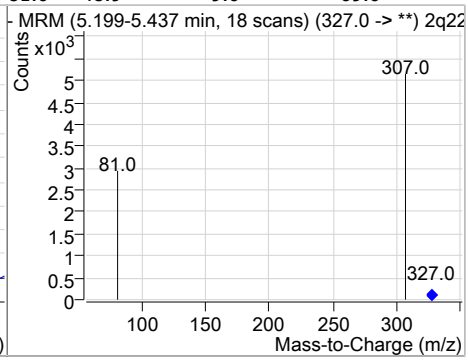


Perfluorinated Compounds by LC/MS/MS

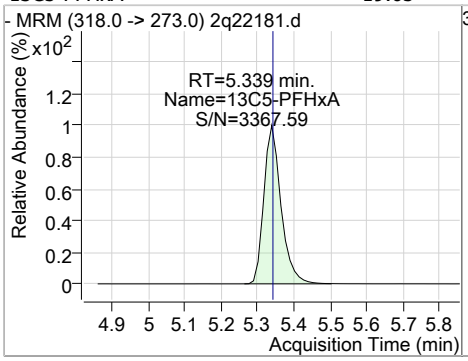
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.97	5.27	0.00	3250	327.0 -> 81.0	48.9	9.0	69.0

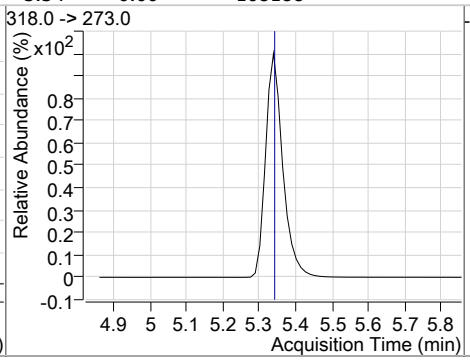


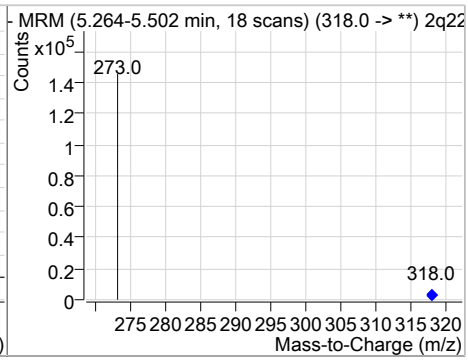




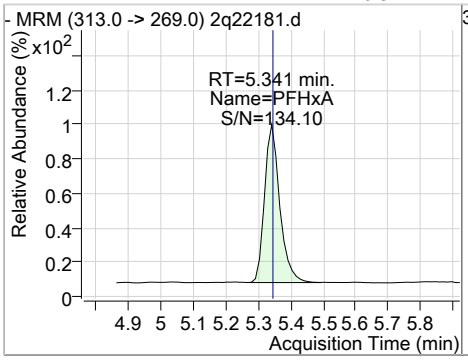
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.65	5.34	0.00	108188				

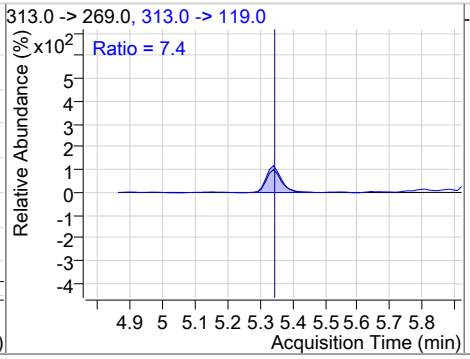


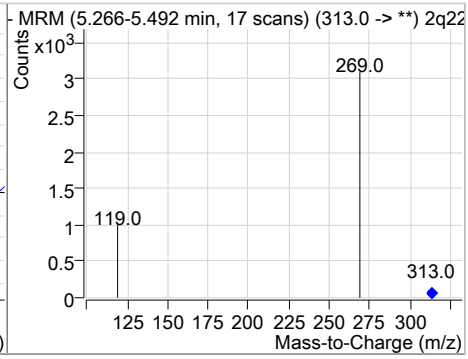




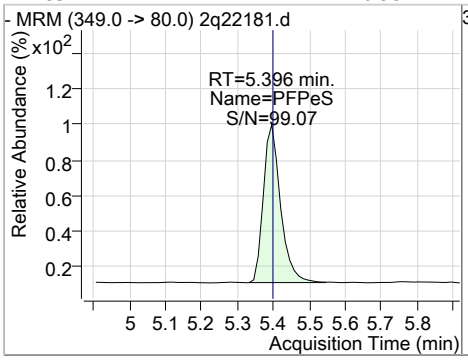
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.97	5.34	0.00	1684	313.0 -> 119.0	7.4	0.0	36.4

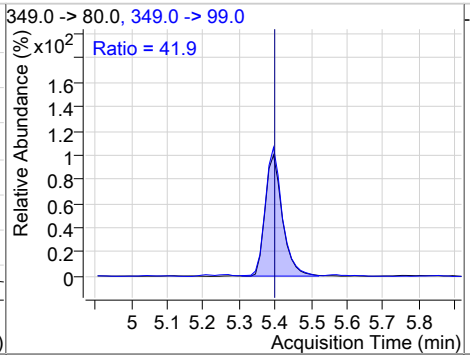


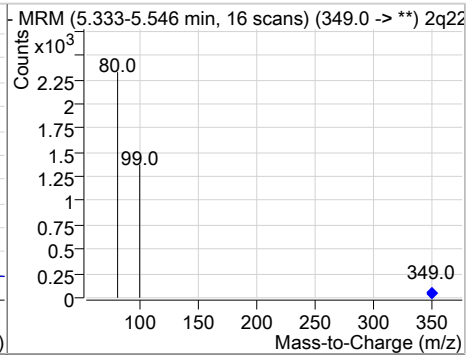




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.93	5.40	0.00	1217	349.0 -> 99.0	41.9	9.5	69.5

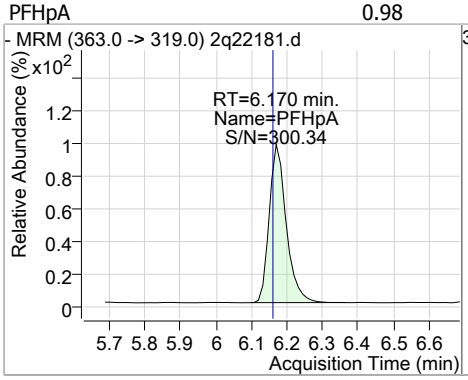


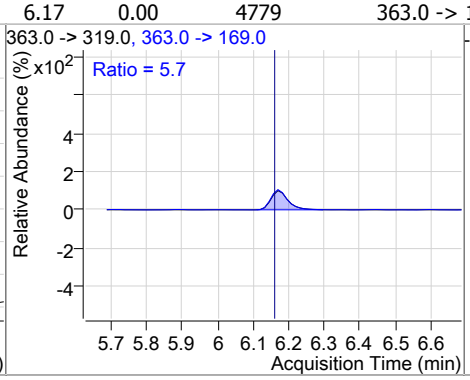


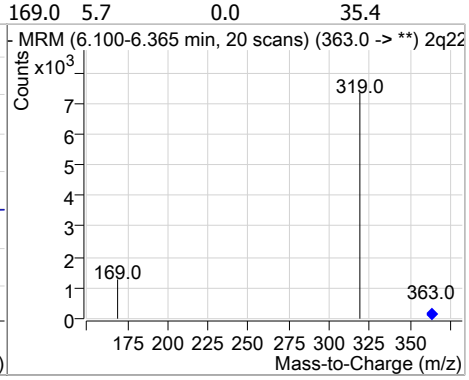


Perfluorinated Compounds by LC/MS/MS

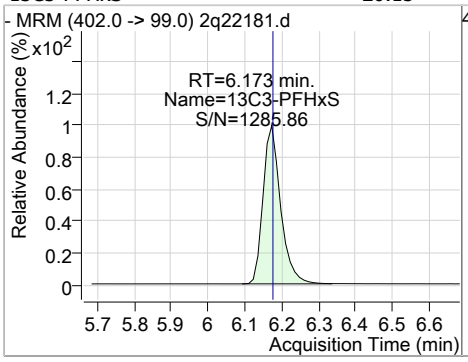
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.98	6.17	0.00	4779	363.0 -> 169.0	5.7	0.0	35.4

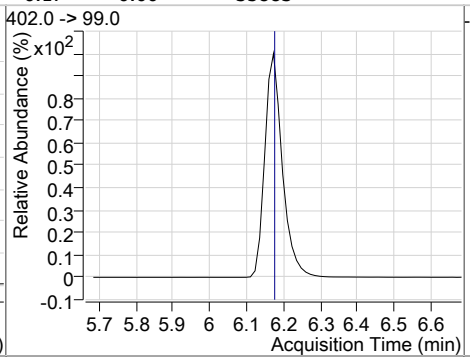


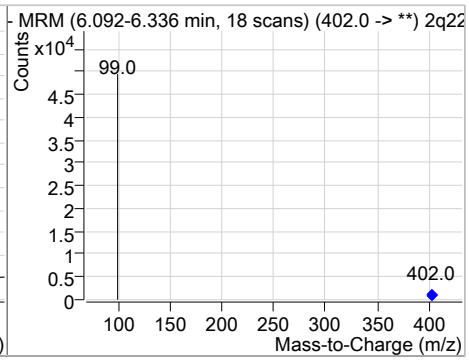




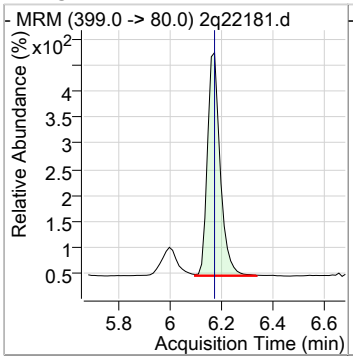
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.15	6.17	0.00	35883				

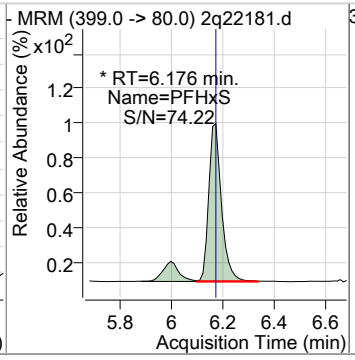


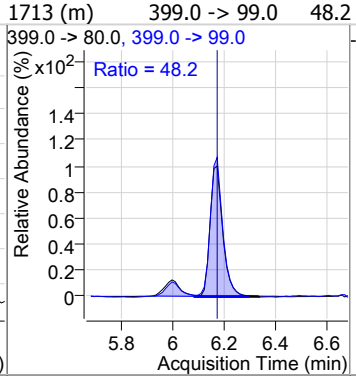


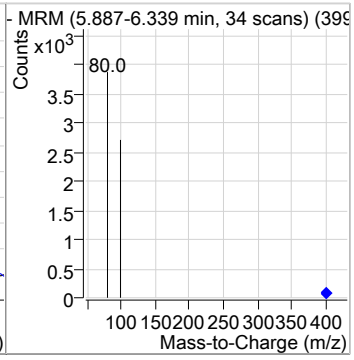


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.98	6.18	0.00	1713 (m)	399.0 -> 99.0	48.2	17.7	77.7

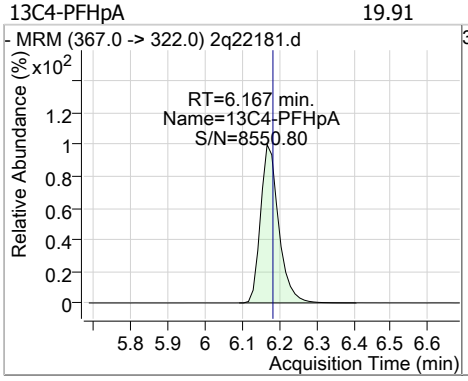


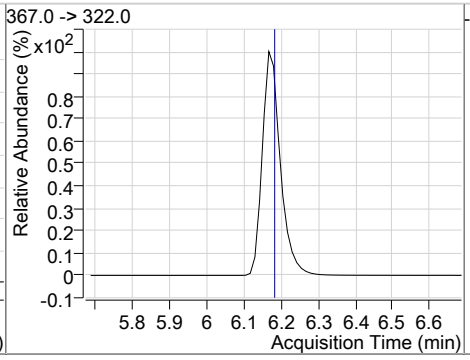


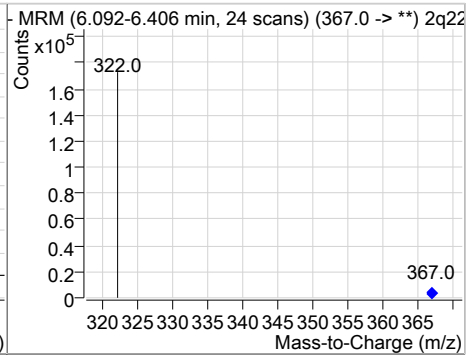




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.91	6.17	-0.01	128086				

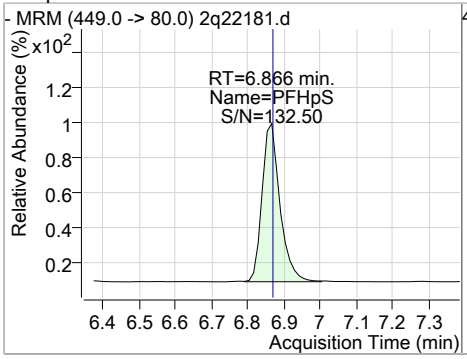


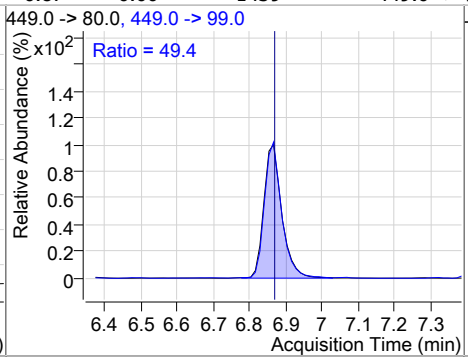


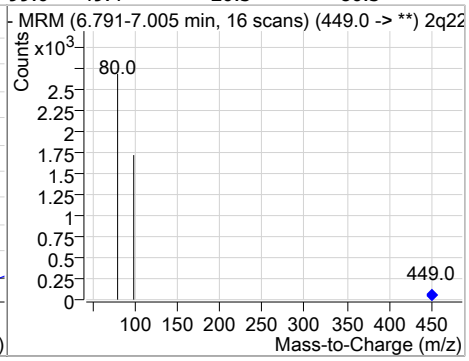


Perfluorinated Compounds by LC/MS/MS

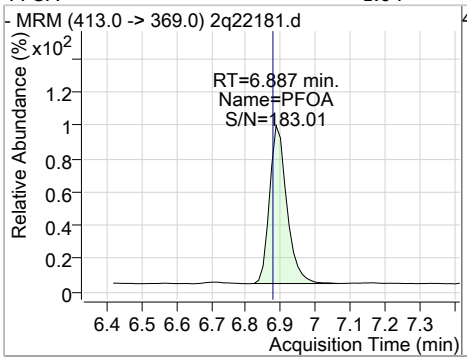
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.99	6.87	0.00	1439	449.0 -> 99.0	49.4	20.3	80.3

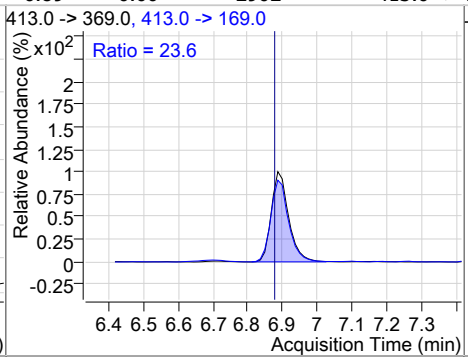


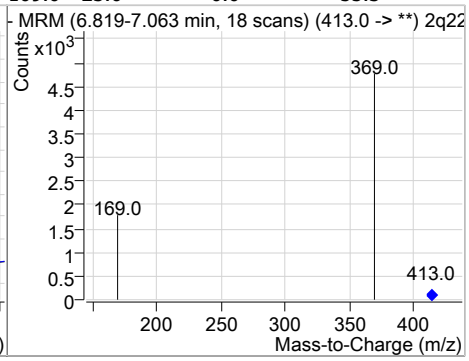




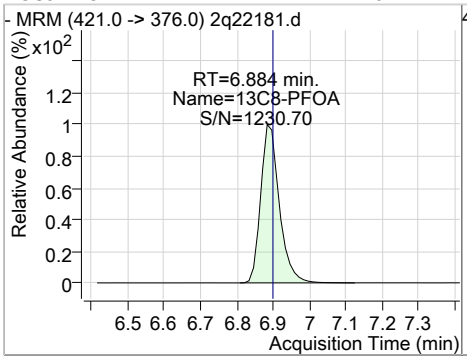
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.04	6.89	0.00	2902	413.0 -> 169.0	23.6	0.0	55.3

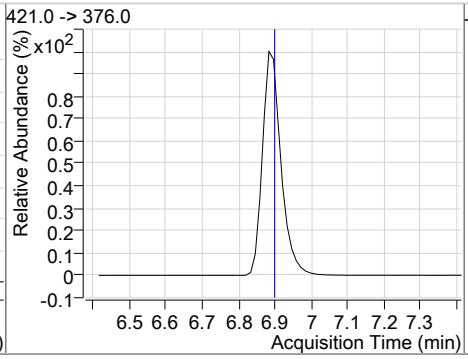


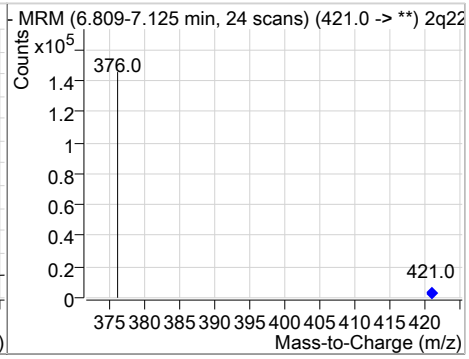




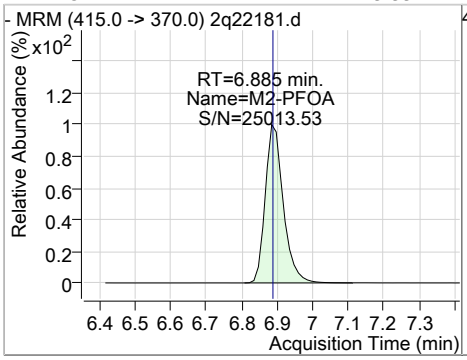
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.12	6.88	-0.01	108092				

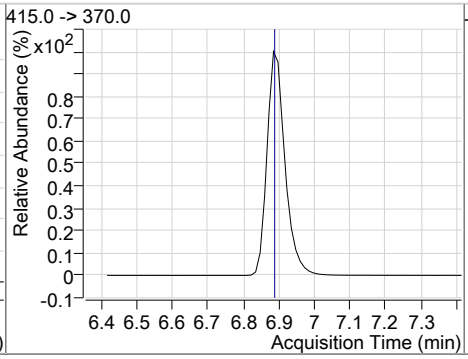


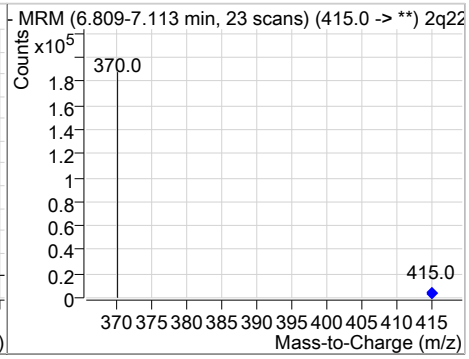




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.89	-0.01	139720				

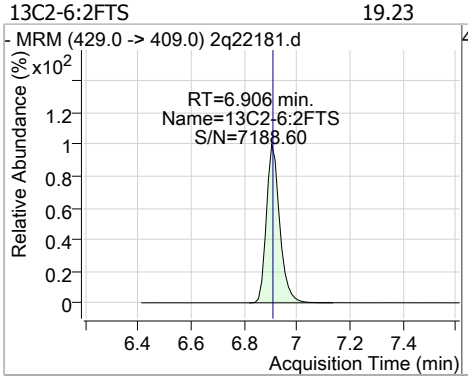


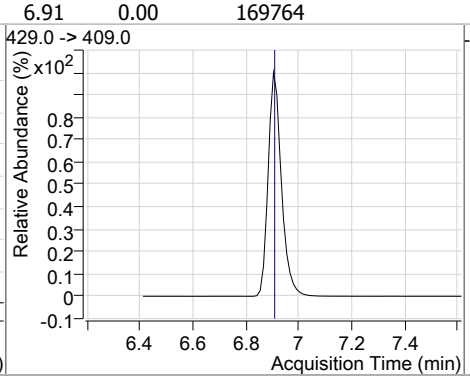


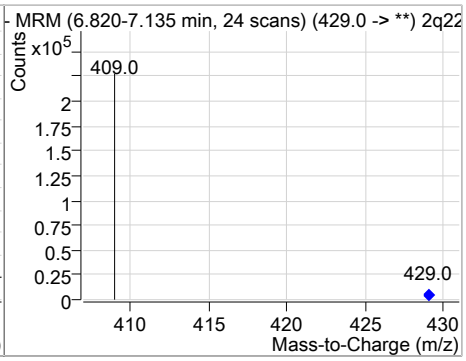


Perfluorinated Compounds by LC/MS/MS

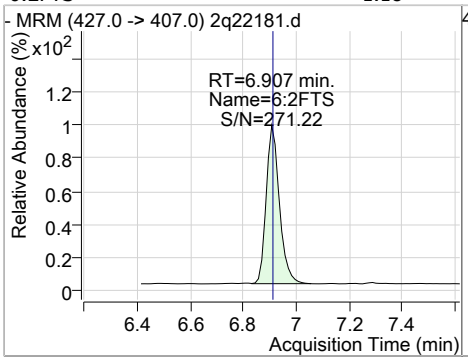
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.23	6.91	0.00	169764				

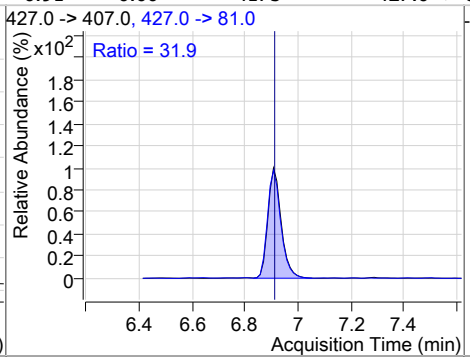


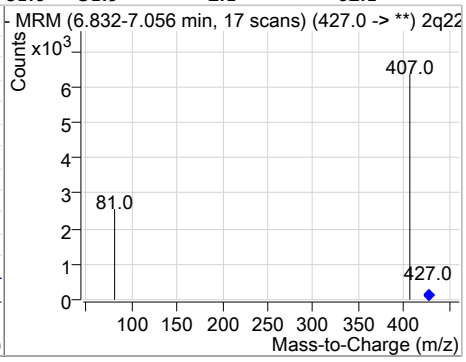




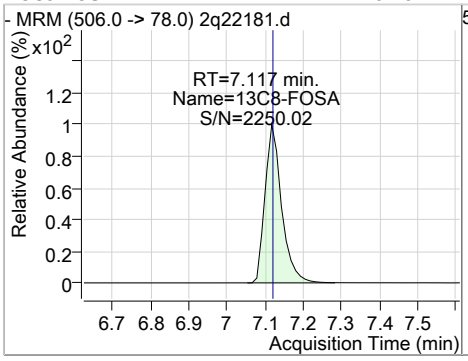
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.18	6.91	0.00	4175	427.0 -> 81.0	31.9	2.1	62.1

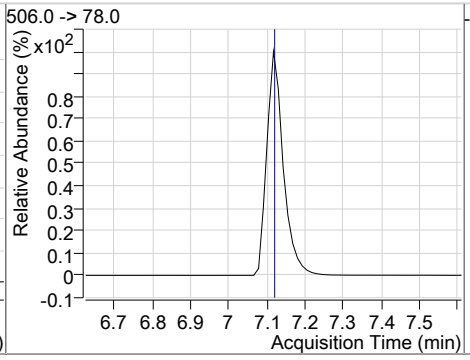


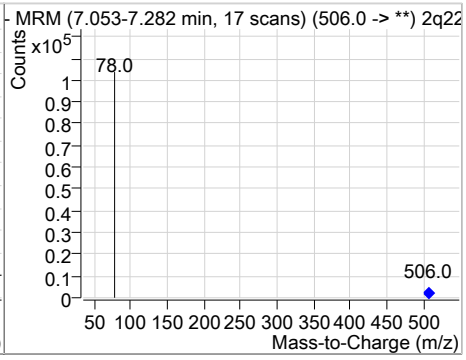




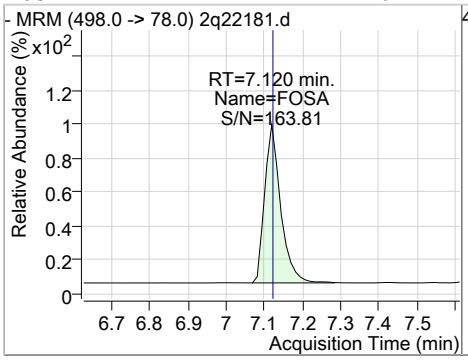
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.18	7.12	0.00	78318				

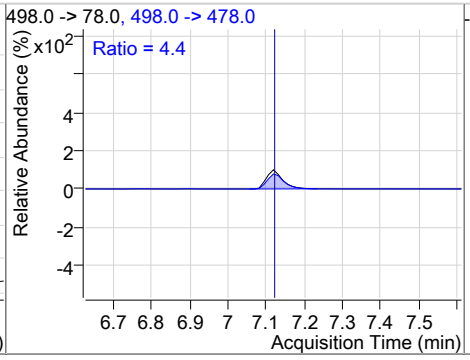


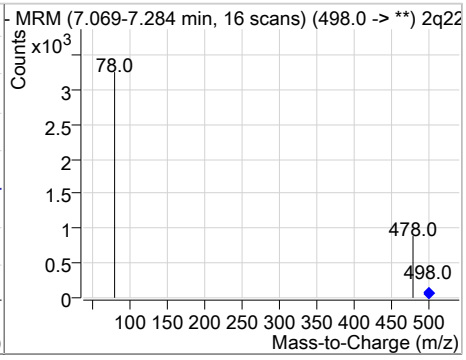




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.01	7.12	0.00	1877	498.0 -> 478.0	4.4	0.0	35.4

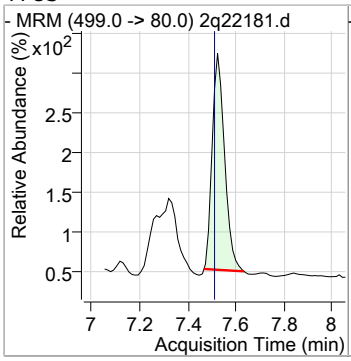


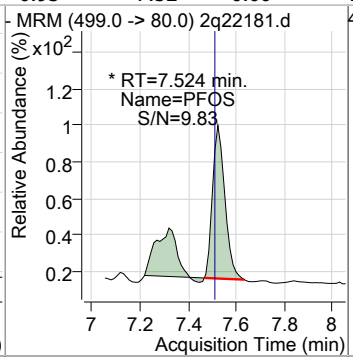


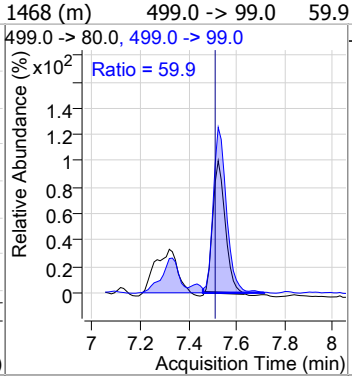


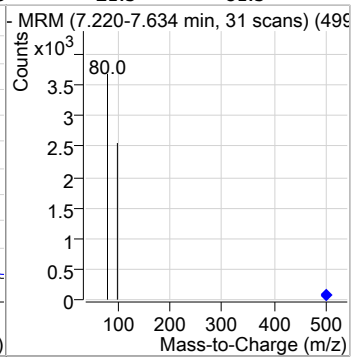
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.93	7.52	0.00	1468 (m)	499.0 -> 99.0	59.9	21.5	81.5

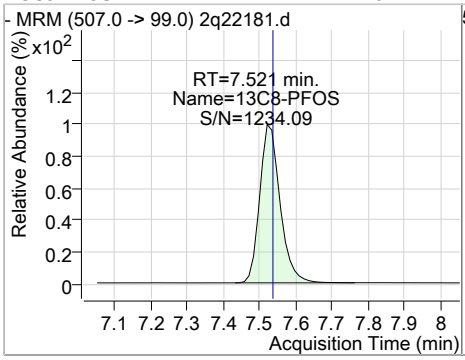


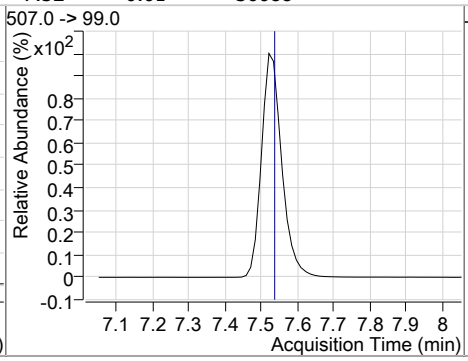


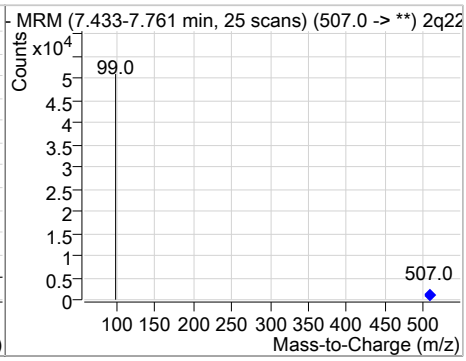




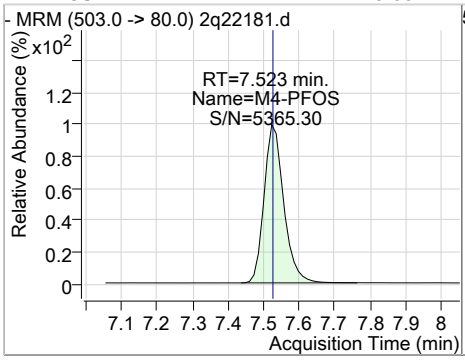
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.22	7.52	-0.01	36688				

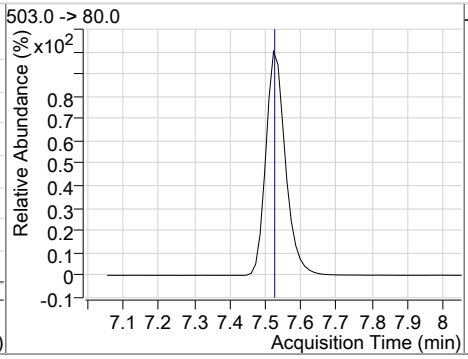


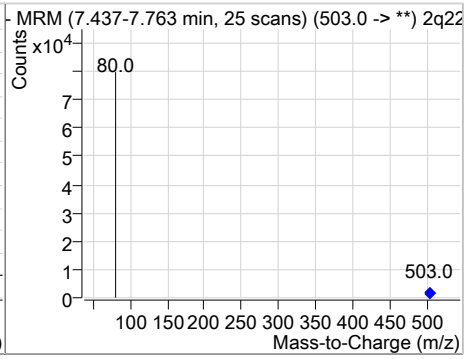




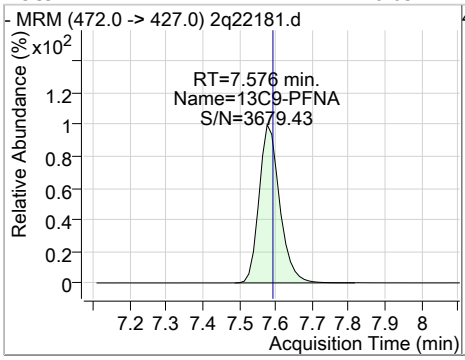
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.52	-0.01	58360				

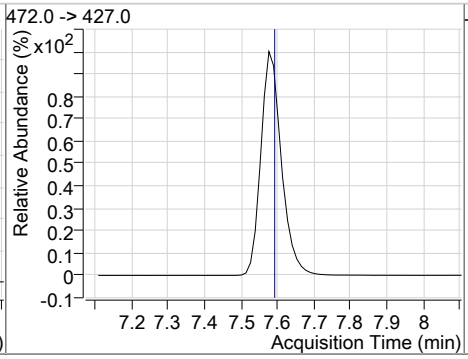


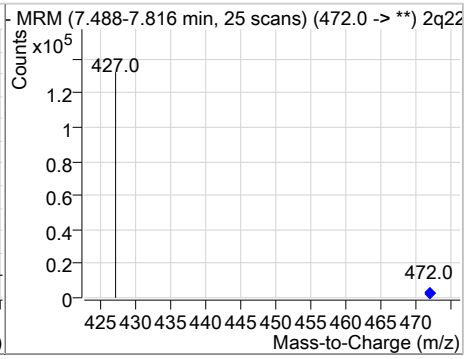




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.03	7.58	-0.01	98489				

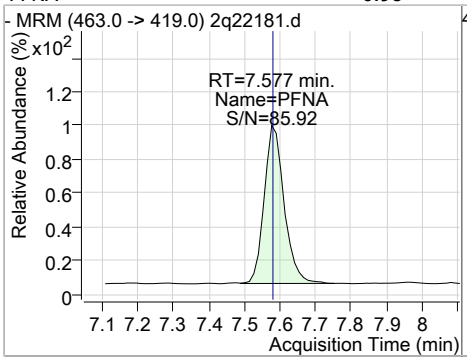


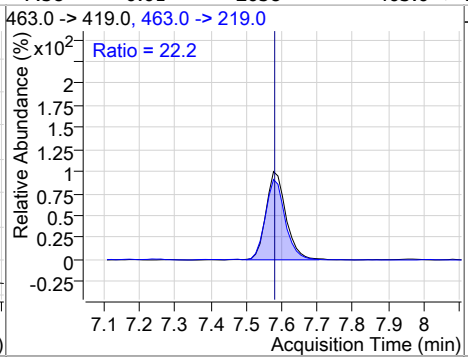


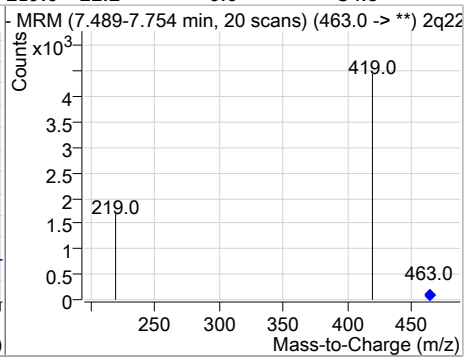


Perfluorinated Compounds by LC/MS/MS

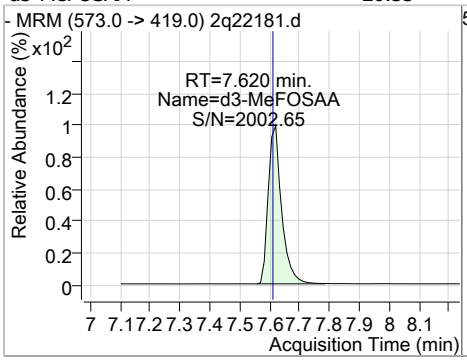
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.98	7.58	-0.01	2658	463.0 -> 219.0	22.2	0.0	54.8

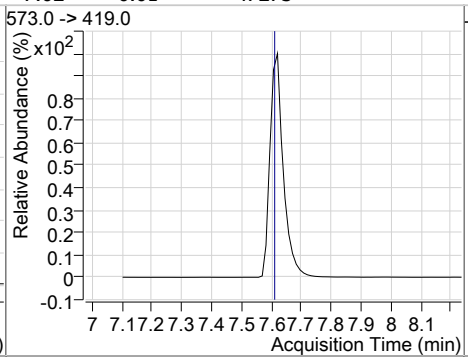


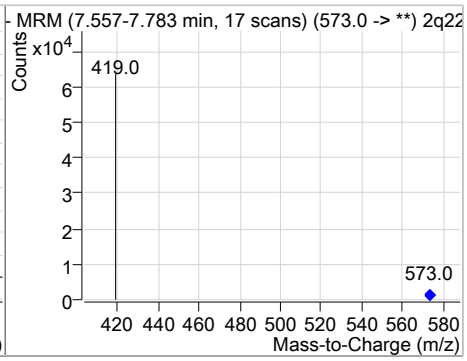




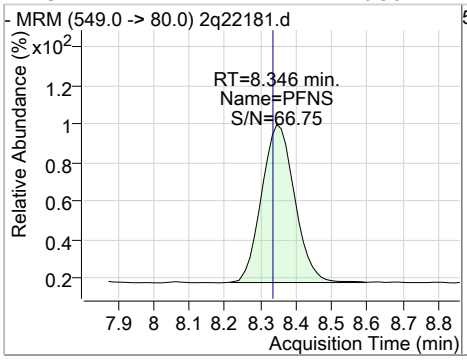
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.33	7.62	0.01	47273				

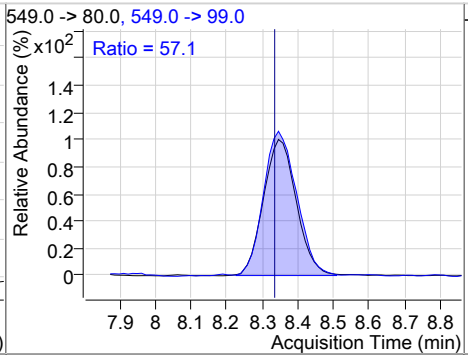


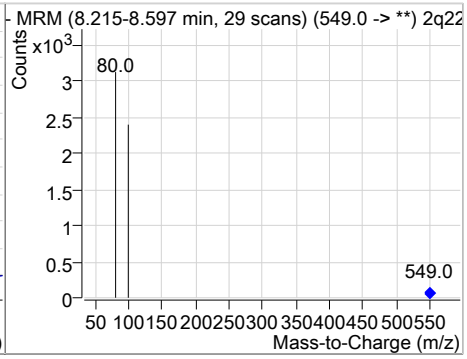




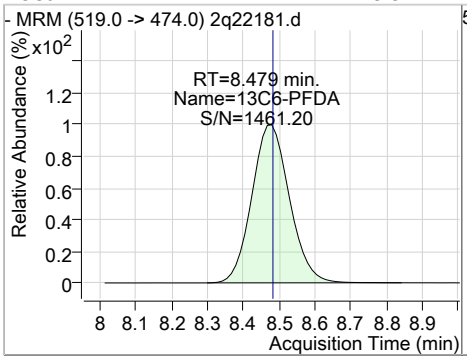
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.98	8.35	0.00	1295	549.0 -> 99.0	57.1	23.4	83.4

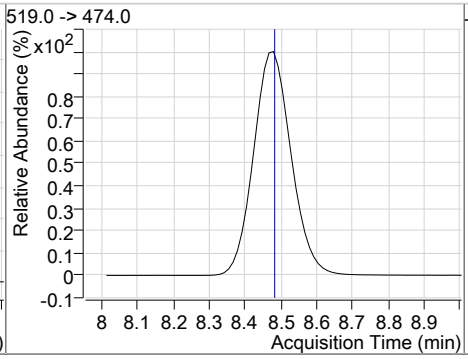


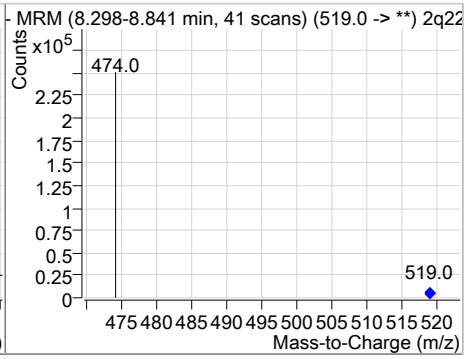




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.92	8.48	0.00	185366				

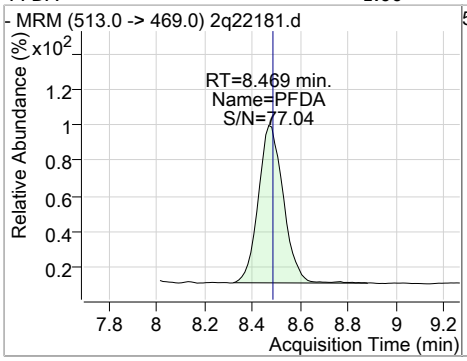


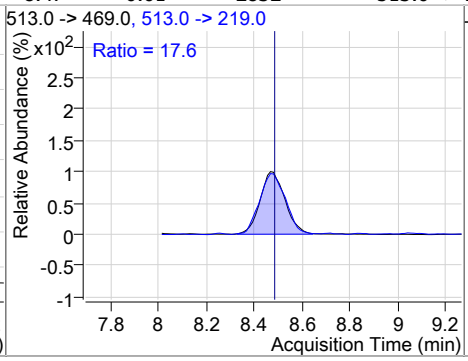


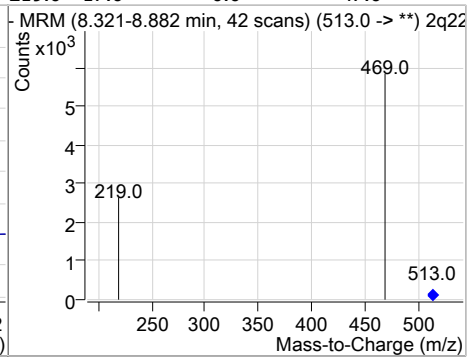


Perfluorinated Compounds by LC/MS/MS

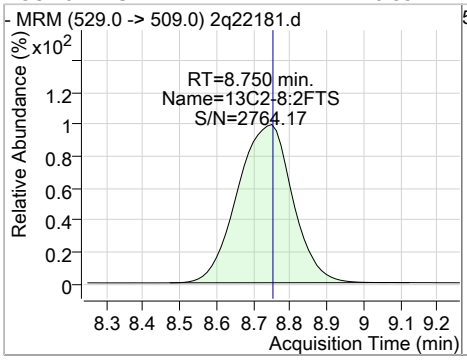
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.00	8.47	-0.01	2832	513.0 -> 219.0	17.6	0.0	47.6

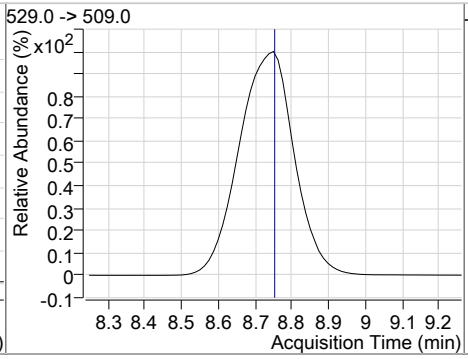


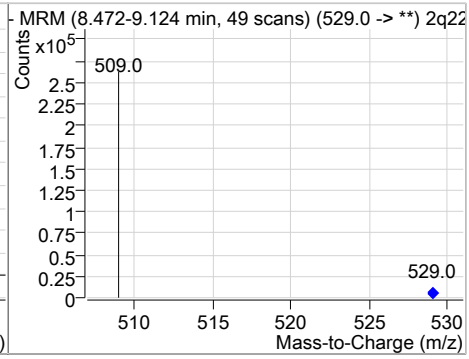




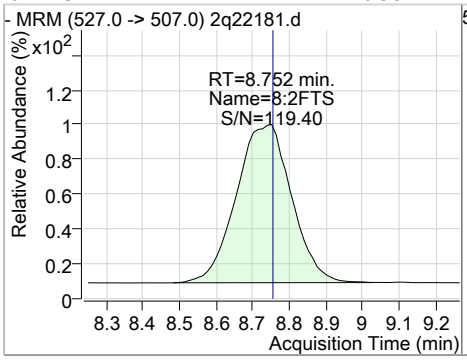
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.33	8.75	0.00	192683				

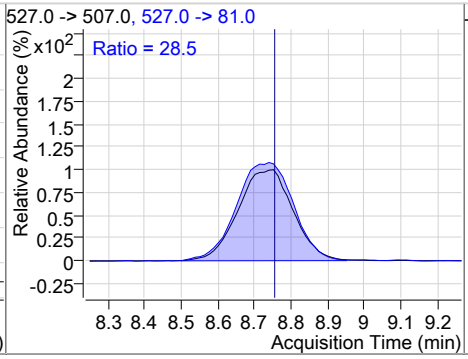


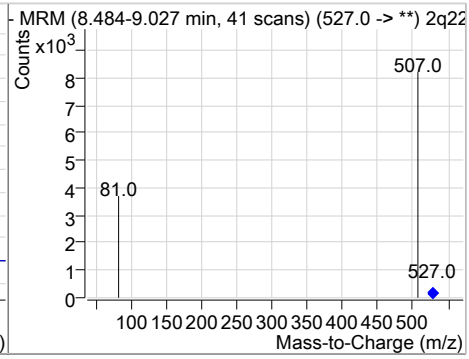




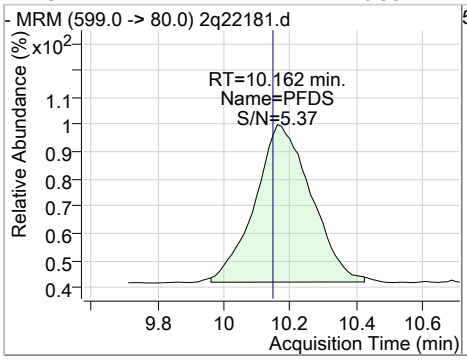
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.98	8.75	0.00	4751	527.0 -> 81.0	28.5	0.0	55.6

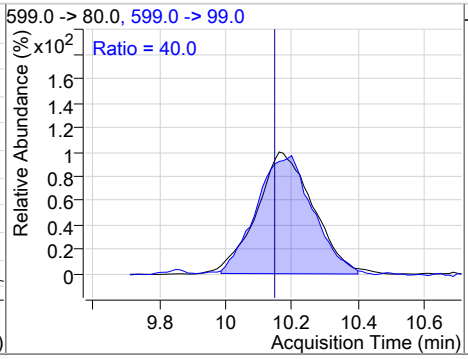


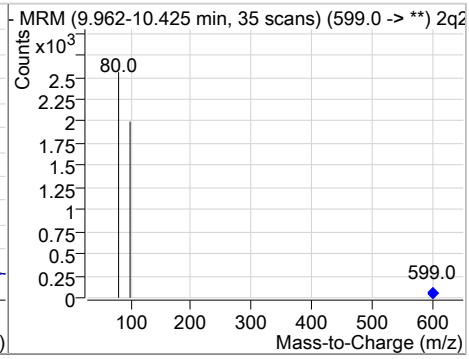




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.93	10.16	0.00	711	599.0 -> 99.0	40.0	11.1	71.1

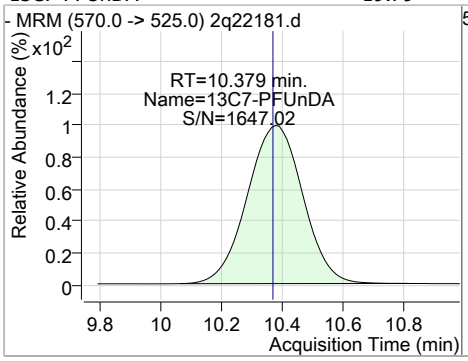


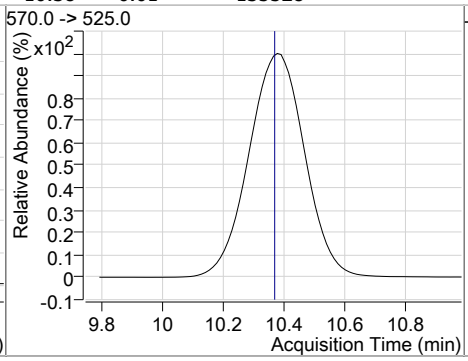


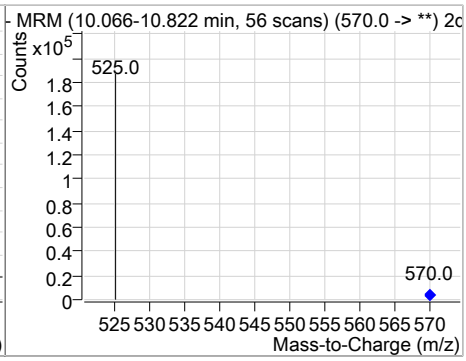


Perfluorinated Compounds by LC/MS/MS

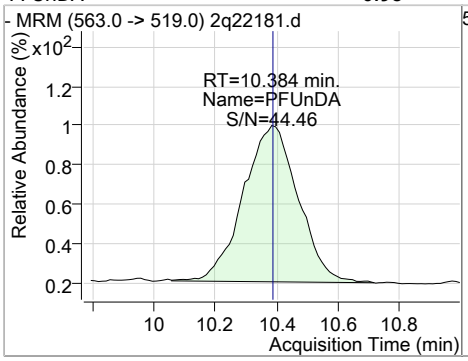
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.79	10.38	0.01	135528				

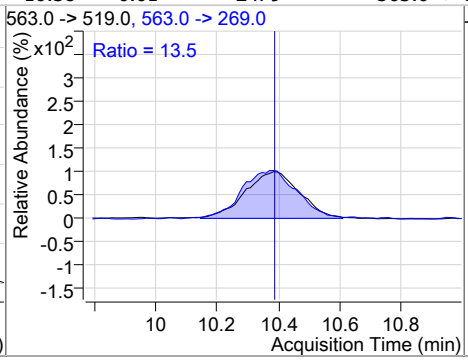


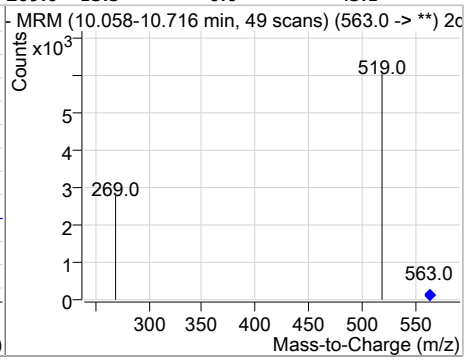




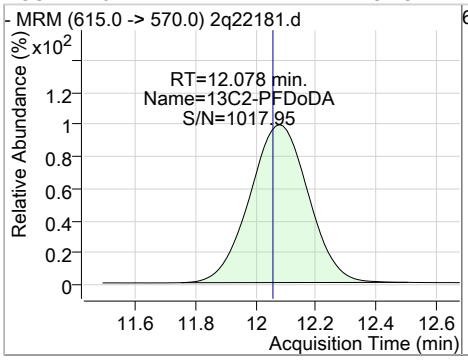
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.98	10.38	0.01	2479	563.0 -> 269.0	13.5	0.0	43.1

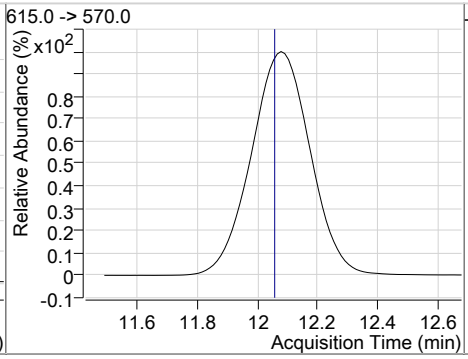


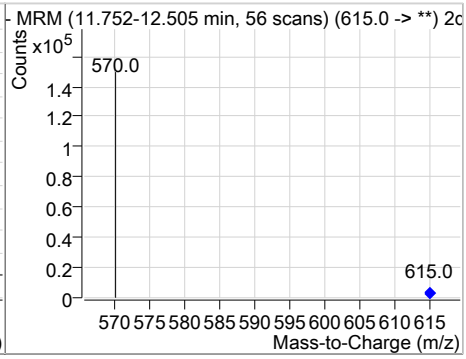




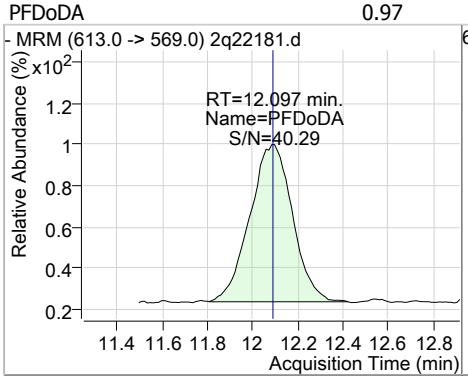
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.43	12.08	0.03	107450				

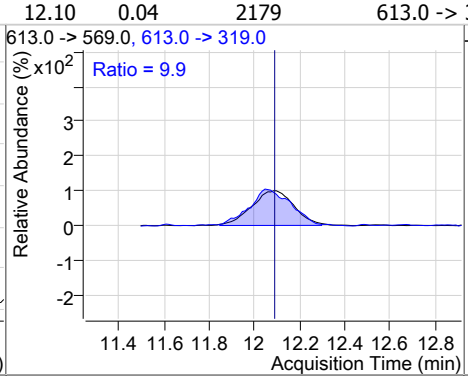


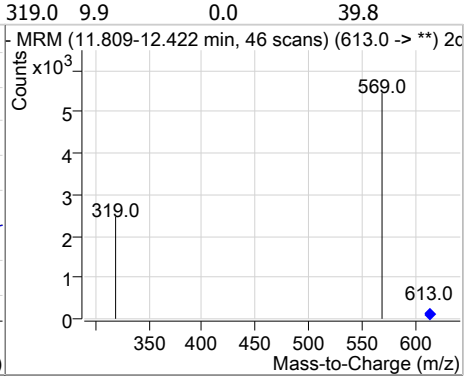




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.97	12.10	0.04	2179	613.0 -> 319.0	9.9	0.0	39.8

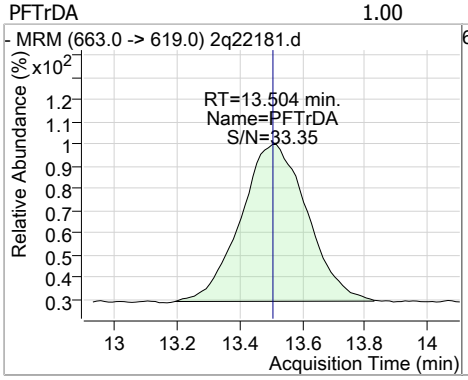


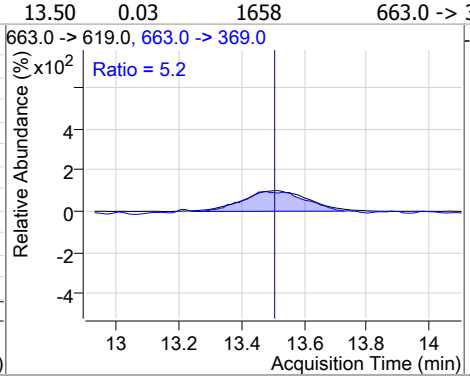


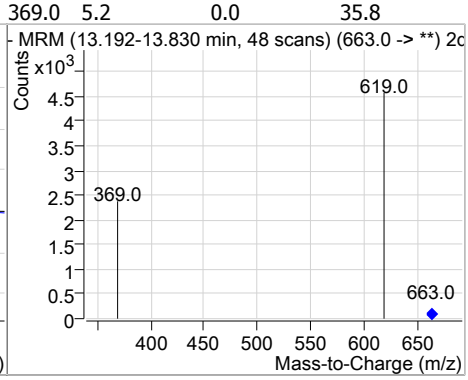


Perfluorinated Compounds by LC/MS/MS

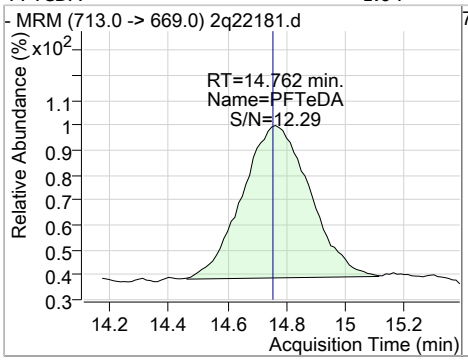
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.00	13.50	0.03	1658	663.0 -> 369.0	5.2	0.0	35.8

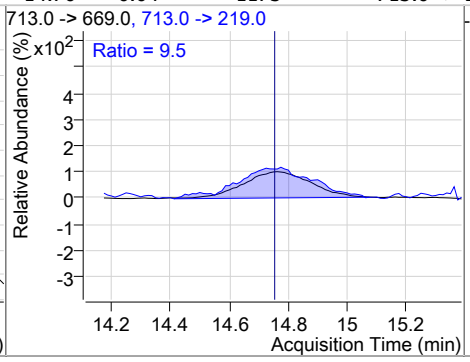


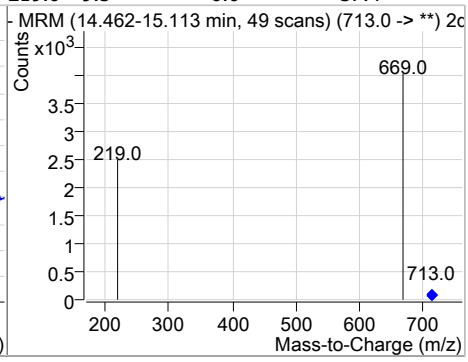




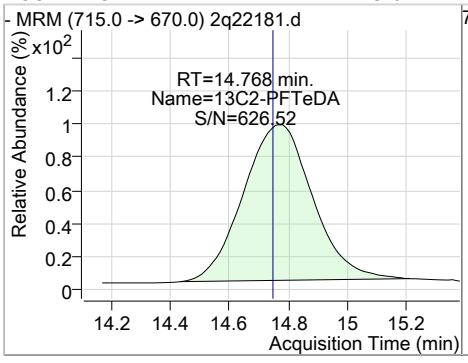
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.04	14.76	0.04	1173	713.0 -> 219.0	9.5	0.0	37.4

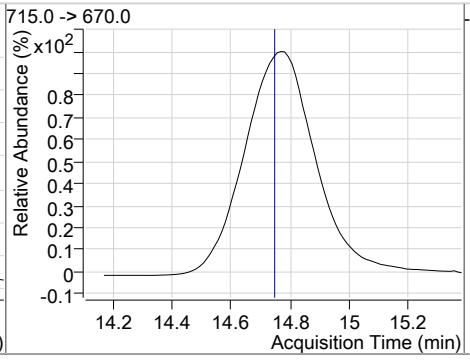


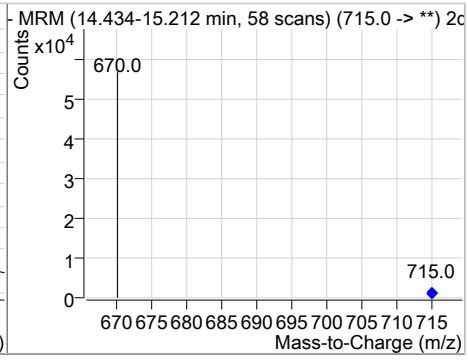




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.02	14.77	0.03	36912				







Manual Integration Approval Summary

Sample Number: S2Q350-IC350
Lab FileID: 2Q22181.D
Injection Time: 10/16/18 10:45
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.52	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22182.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/16/2018 11:06:43 AM
Sample Name : ic350-2
Vial : Vial 4
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q350.batch.bin
Sample Information : op71813,S2Q350,2.01,,,1.0,1,soil

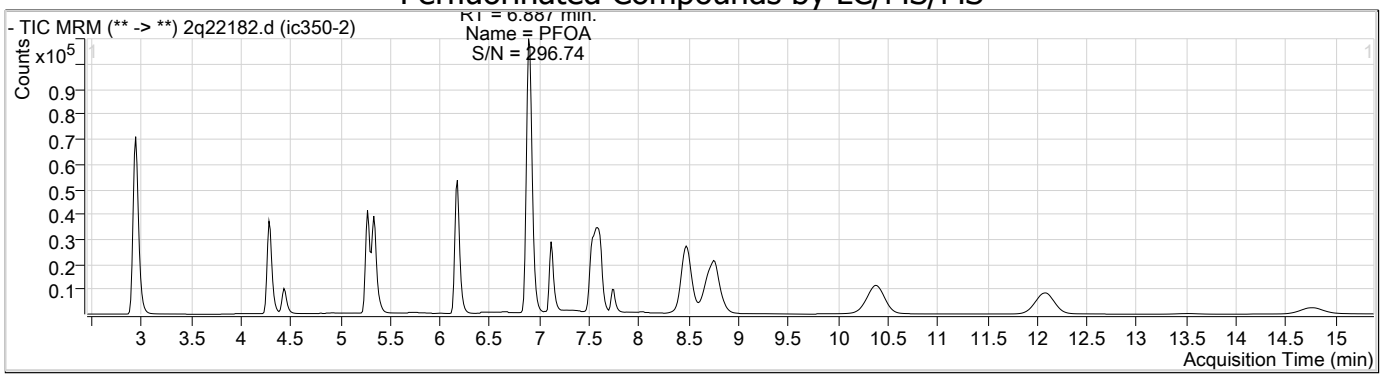
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.898	415.0 -> 370.0	145221	20.00	µg/L	0.000
13C4-PFOS	7.536	503.0 -> 80.0	60126	20.00	µg/L	0.000
M4-PFBA	2.941	217.0 -> 172.0	271099	20.00	µg/L	0.000
M5-PFPeA	4.287	268.0 -> 223.0	115554	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	113629	20.00	µg/L	0.000
M4-PFHpA	6.179	367.0 -> 322.0	130702	20.00	µg/L	0.000
M8-PFOA	6.896	421.0 -> 376.0	108072	20.00	µg/L	0.000
M9-PFNA	7.589	472.0 -> 427.0	99508	20.00	µg/L	0.000
M6-PFDA	8.479	519.0 -> 474.0	190046	20.00	µg/L	0.000
M7-PFUnDA	10.379	570.0 -> 525.0	137405	20.00	µg/L	0.013
M2-PFDoDA	12.078	615.0 -> 570.0	110692	20.00	µg/L	0.025
M2-PFTeDA	14.768	715.0 -> 670.0	39032	20.00	µg/L	0.025
M8-FOSA	7.117	506.0 -> 78.0	79689	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	28185	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	36245	20.00	µg/L	0.000
M8-PFOS	7.533	507.0 -> 99.0	36881	20.00	µg/L	0.000
M2-4:2FTS	5.272	329.0 -> 309.0	125421	20.00	µg/L	0.000
M2-6:2FTS	6.906	429.0 -> 409.0	169273	20.00	µg/L	0.000
M2-8:2FTS	8.750	529.0 -> 509.0	196935	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	46683	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	125416	19.05	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.2%		
13C2-6:2FTS	6.906	429.0 -> 409.0	169267	19.17	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.9%		
13C2-8:2FTS	8.750	529.0 -> 509.0	196568	18.70	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
13C2-PFDoDA	12.078	615.0 -> 570.0	109747	19.85	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C2-PFTeDA	14.768	715.0 -> 670.0	38008	19.58	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C3-PFBS	4.430	302.0 -> 99.0	28190	20.16	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C3-PFHxS	6.173	402.0 -> 99.0	36246	20.35	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C4-PFBA	2.941	217.0 -> 172.0	270897	20.15	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C4-PFHpA	6.179	367.0 -> 322.0	130700	20.32	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C5-PFHxA	5.339	318.0 -> 273.0	113627	20.64	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C5-PFPeA	4.287	268.0 -> 223.0	115480	20.20	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C6-PFDA	8.479	519.0 -> 474.0	189782	20.40	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		

Perfluorinated Compounds by LC/MS/MS

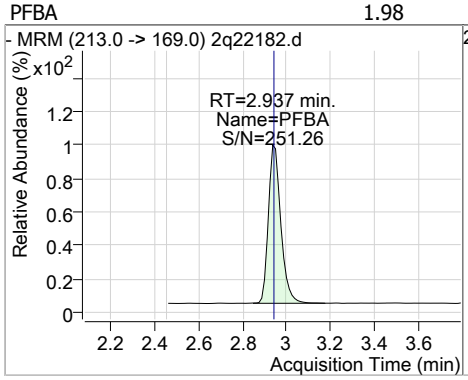
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.379	570.0 -> 525.0	136455	19.93	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%			
13C8-FOSA	7.117	506.0 -> 78.0	79728	20.54	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%			
13C8-PFOA	6.896	421.0 -> 376.0	108066	20.11	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%			
13C8-PFOS	7.533	507.0 -> 99.0	36874	20.32	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%			
13C9-PFNA	7.589	472.0 -> 427.0	99502	20.24	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%			
d3-MeFOSAA	7.620	573.0 -> 419.0	46685	20.07	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%			
M2-PFOA	6.898	415.0 -> 370.0	145238	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.536	503.0 -> 80.0	60079	19.99	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.274	327.0 -> 307.0	6812	1.98	µg/L		90
6:2FTS	6.907	427.0 -> 407.0	8263	2.35	µg/L		97
8:2FTS	8.752	527.0 -> 507.0	10251	2.07	µg/L		99
EtFOSAA	7.744	584.0 -> 419.0	2063	1.94	µg/L		99
FOSA	7.120	498.0 -> 78.0	3866	2.05	µg/L		97
MeFOSAA	7.622	570.0 -> 419.0	2404	2.02	µg/L		93
PFBA	2.937	213.0 -> 169.0	3222	1.98	µg/L		100
PFBS	4.434	299.0 -> 80.0	4078	2.00	µg/L		99
PFDA	8.481	513.0 -> 469.0	5740	1.98	µg/L		99
PFDoDA	12.084	613.0 -> 569.0	4594	2.00	µg/L		100
PFDS	10.187	599.0 -> 80.0	1448	1.88	µg/L		99
PFHpA	6.170	363.0 -> 319.0	9691	1.95	µg/L		100
PFHpS	6.866	449.0 -> 80.0	3000	2.05	µg/L		97
PFHxA	5.341	313.0 -> 269.0	3620	1.99	µg/L		100
PFHxS	6.176	399.0 -> 80.0	3478	1.97	µg/L	m	99
PFNA	7.590	463.0 -> 419.0	5166	1.89	µg/L		99
PFNS	8.359	549.0 -> 80.0	2612	1.96	µg/L		93
PFOA	6.887	413.0 -> 369.0	5658	2.02	µg/L		99
PFOS	7.537	499.0 -> 80.0	3137	1.98	µg/L	m	98
PFPeA	4.291	263.0 -> 219.0	11536	2.12	µg/L		100
PFPeS	5.396	349.0 -> 80.0	2594	1.97	µg/L		94
PFTeDA	14.762	713.0 -> 669.0	2459	2.13	µg/L		100
PFTrDA	13.517	663.0 -> 619.0	3537	2.10	µg/L		99
PFUnDA	10.396	563.0 -> 519.0	5142	2.01	µg/L		97

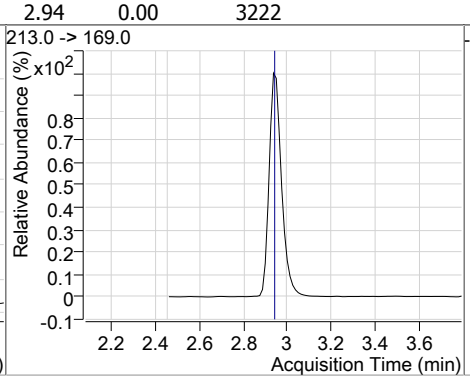
 # = Qualifier out of range, m = manually integrated, + = Area summed

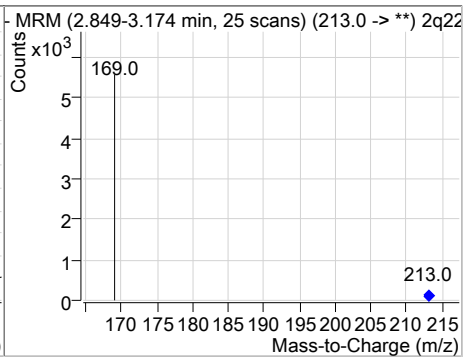
Perfluorinated Compounds by LC/MS/MS



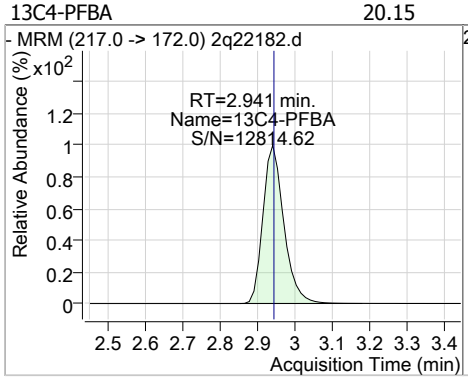
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.98	2.94	0.00	3222				

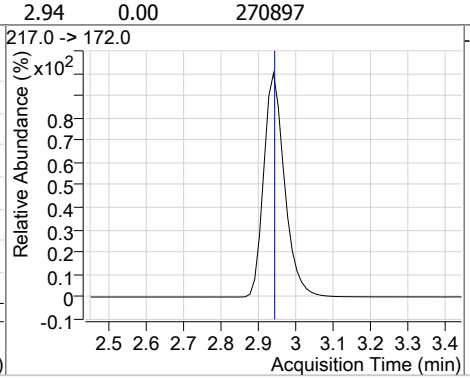


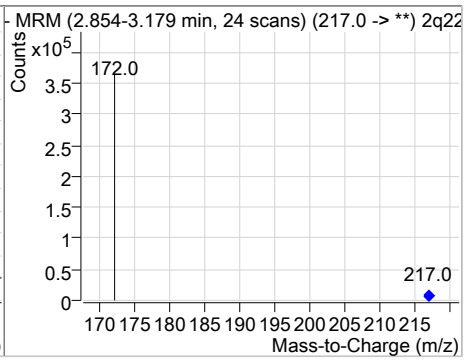




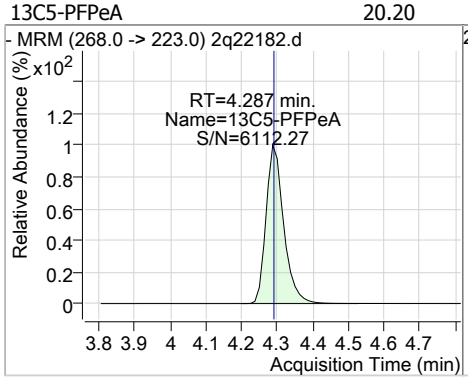
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.15	2.94	0.00	270897				

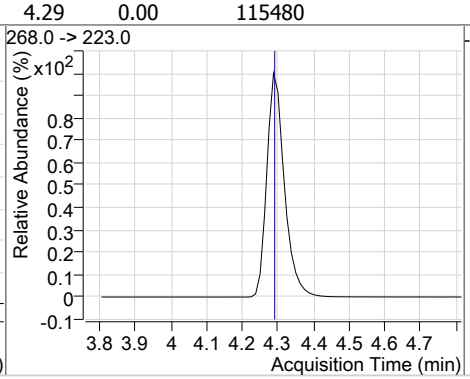


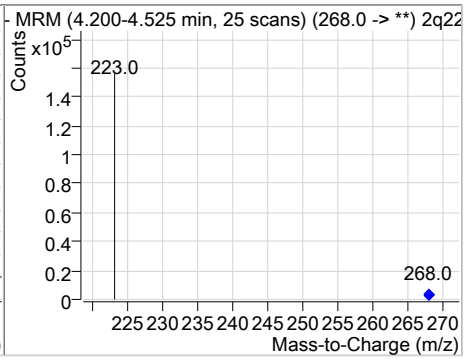




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.20	4.29	0.00	115480				

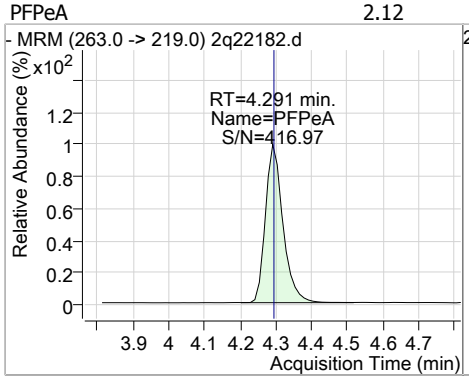


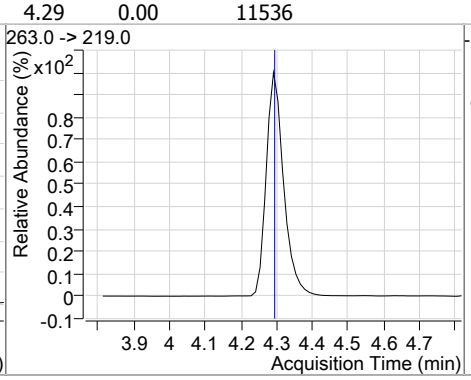


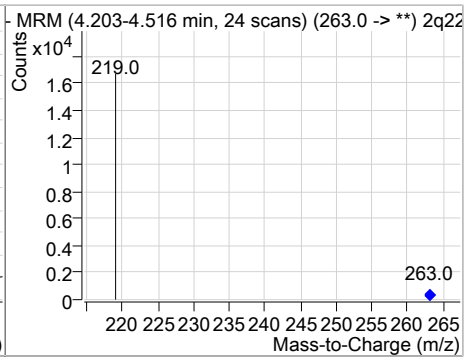


Perfluorinated Compounds by LC/MS/MS

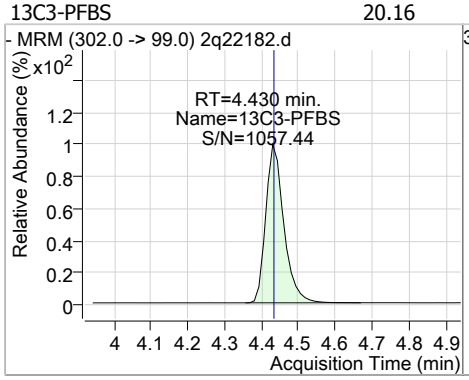
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.12	4.29	0.00	11536				

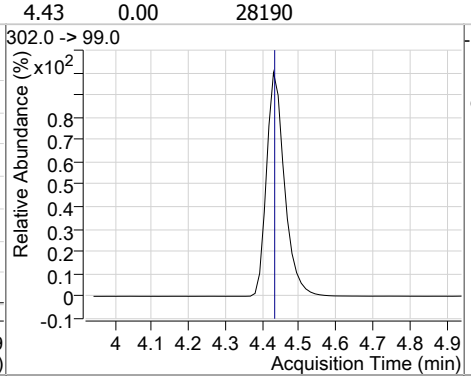


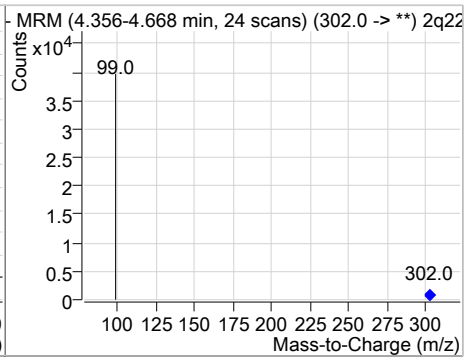




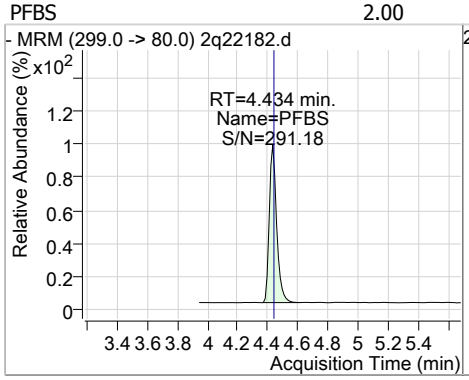
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.16	4.43	0.00	28190				

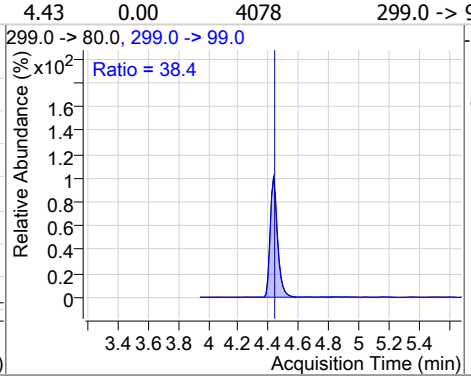


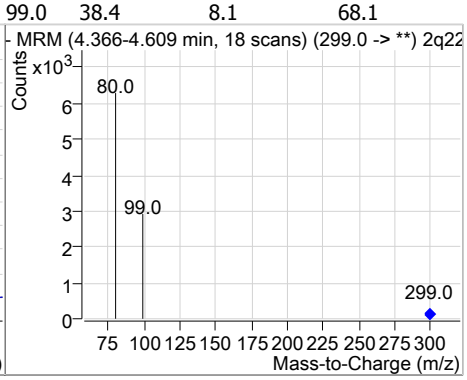




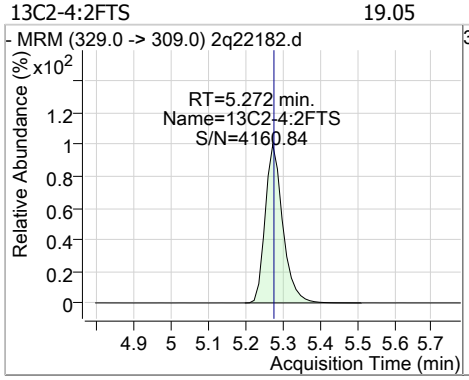
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.00	4.43	0.00	4078	299.0 -> 99.0	38.4	8.1	68.1

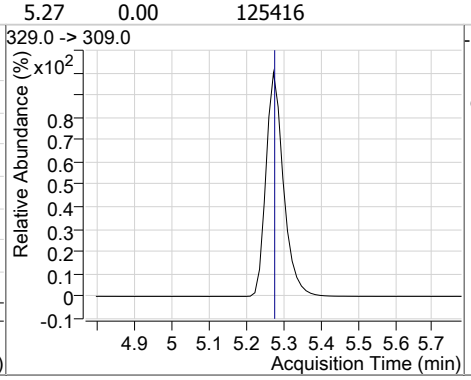


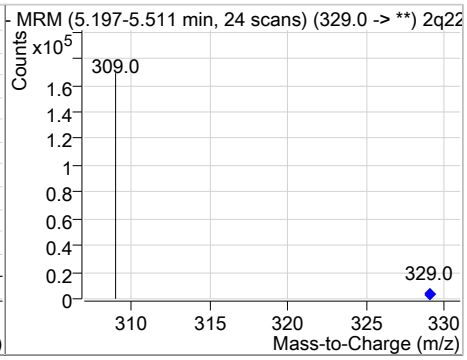




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.05	5.27	0.00	125416				

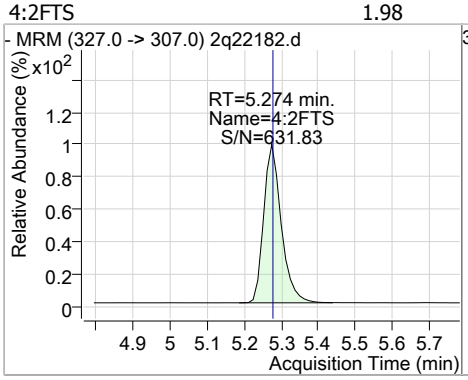


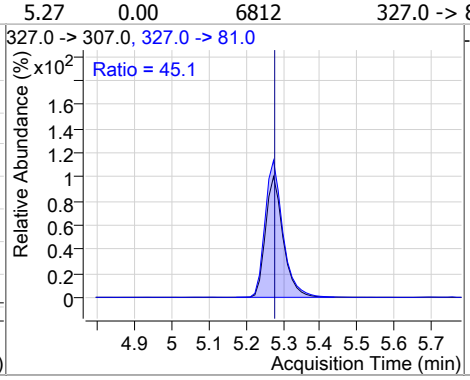


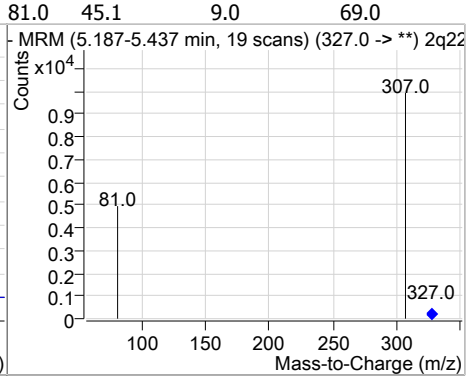


Perfluorinated Compounds by LC/MS/MS

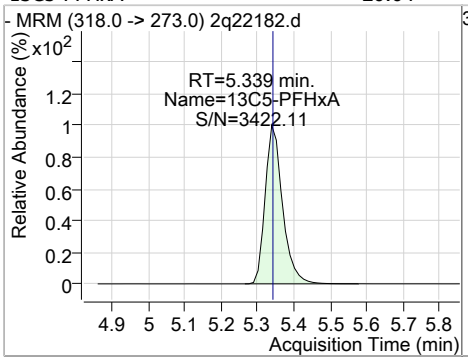
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.98	5.27	0.00	6812	327.0 -> 81.0	45.1	9.0	69.0

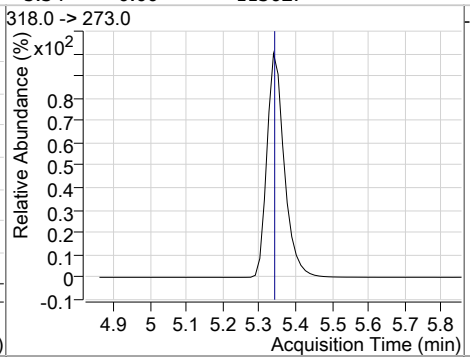


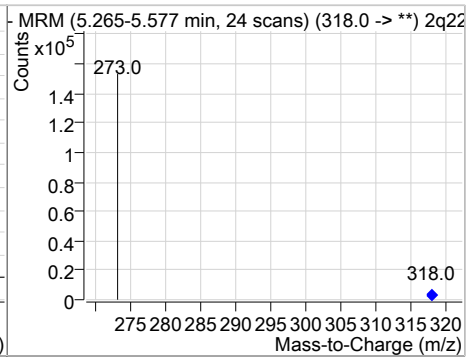




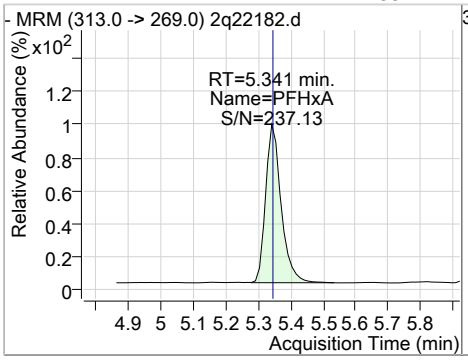
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.64	5.34	0.00	113627				

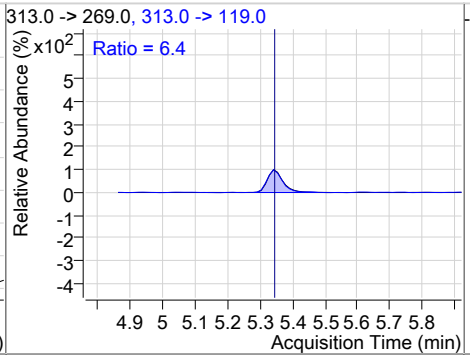


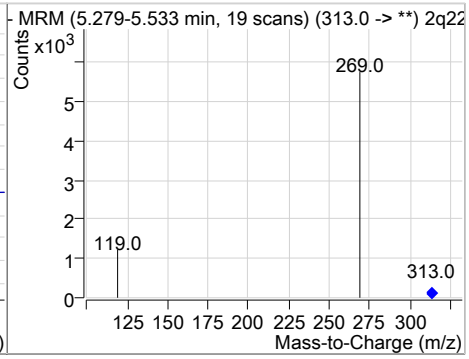




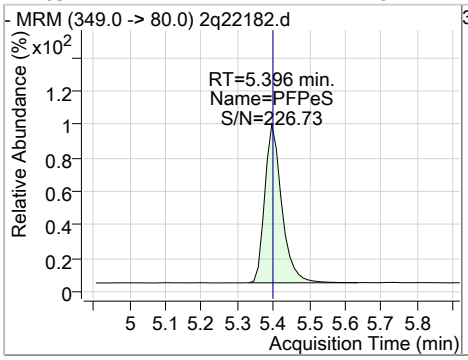
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.99	5.34	0.00	3620	313.0 -> 119.0	6.4	0.0	36.4

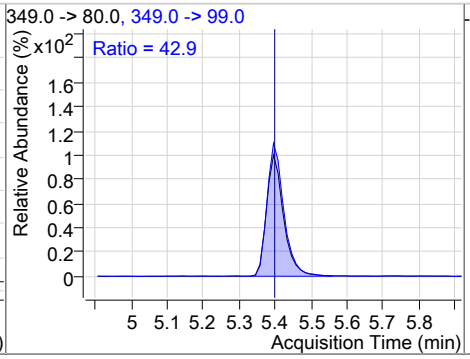


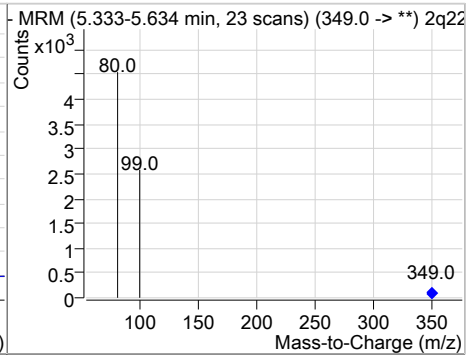




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.97	5.40	0.00	2594	349.0 -> 99.0	42.9	9.5	69.5

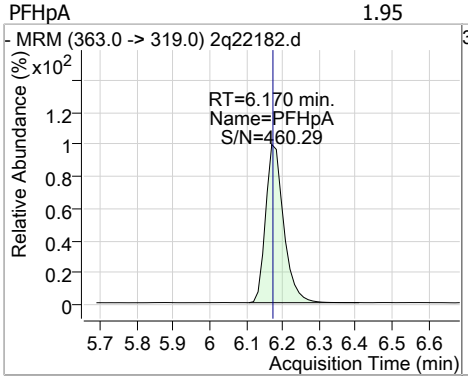


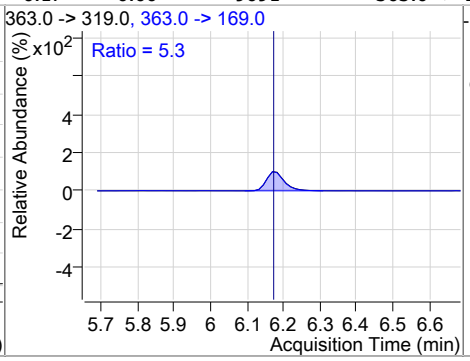


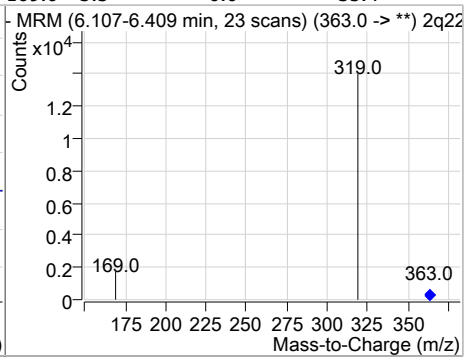


Perfluorinated Compounds by LC/MS/MS

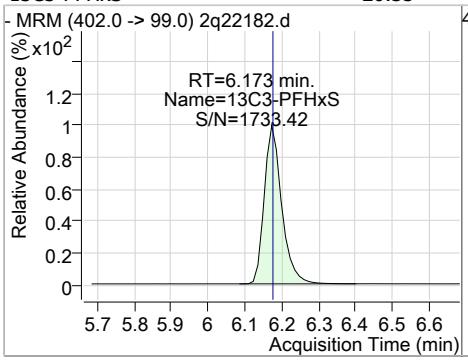
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.95	6.17	0.00	9691	363.0 -> 169.0	5.3	0.0	35.4

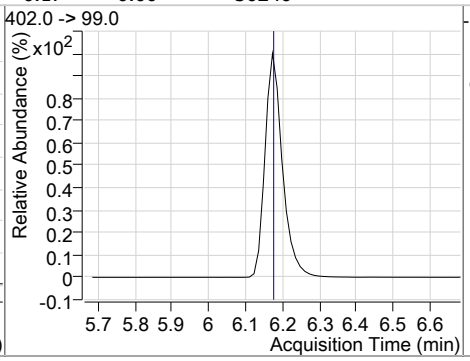


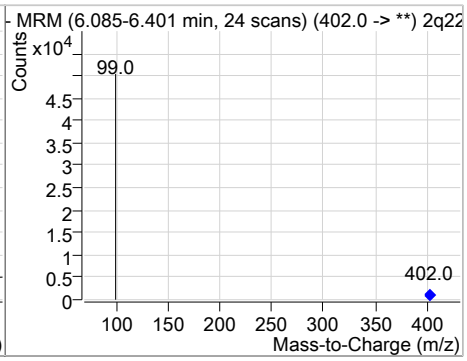




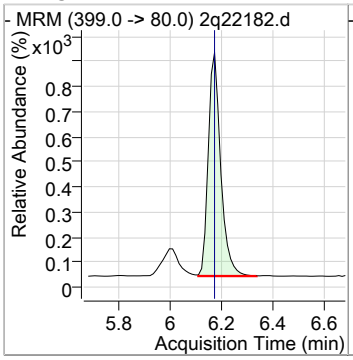
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.35	6.17	0.00	36246				

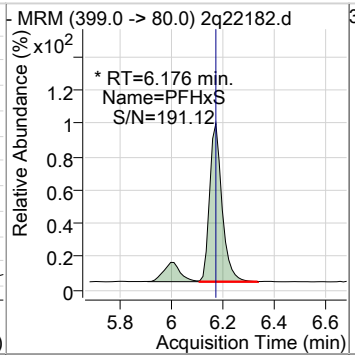


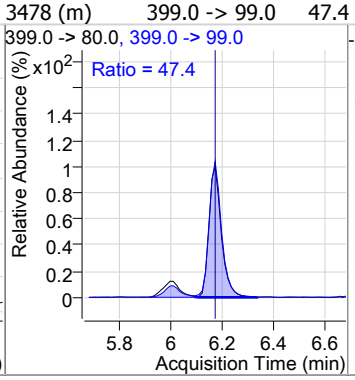


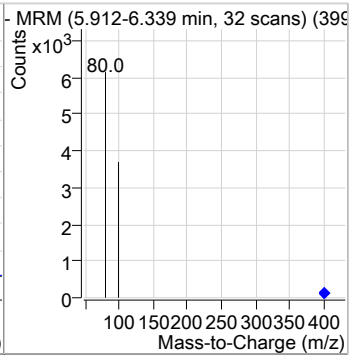


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.97	6.18	0.00	3478 (m)	399.0 -> 99.0	47.4	17.7	77.7

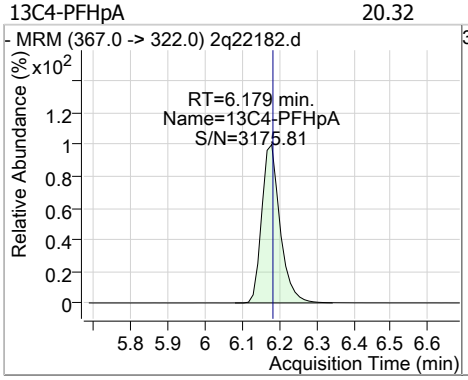


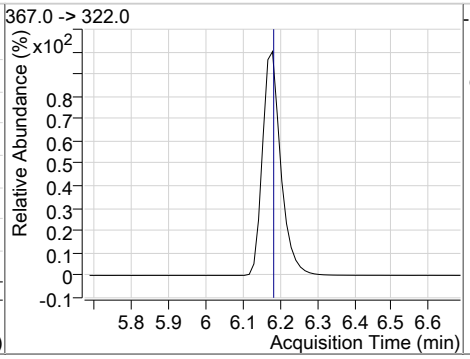


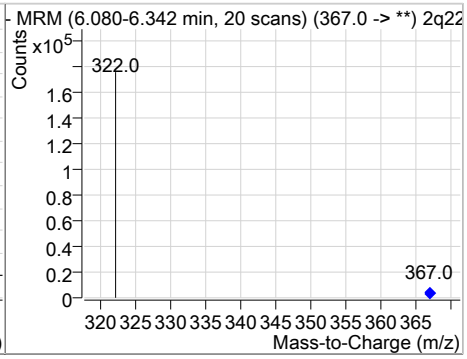




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.32	6.18	0.00	130700				

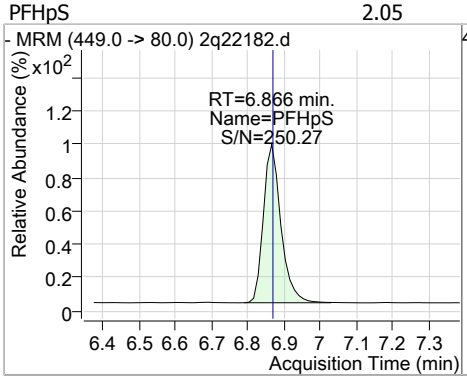


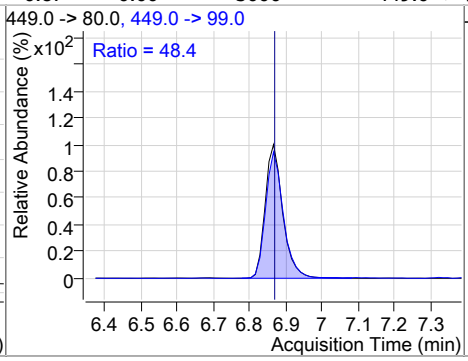


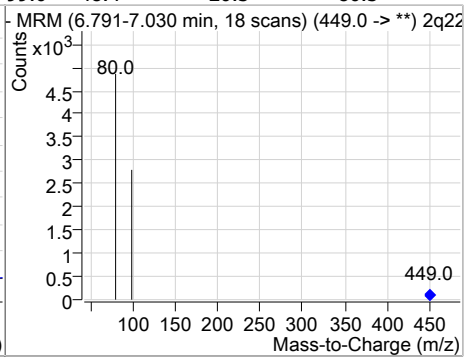


Perfluorinated Compounds by LC/MS/MS

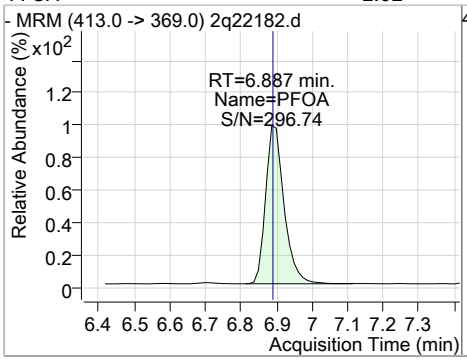
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.05	6.87	0.00	3000	449.0 -> 99.0	48.4	20.3	80.3

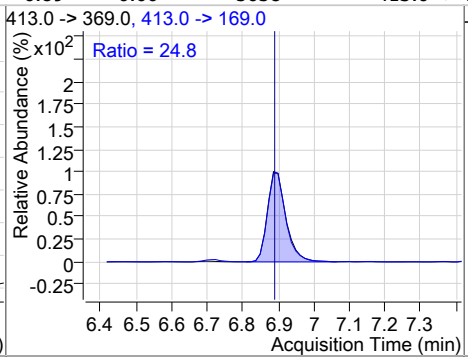


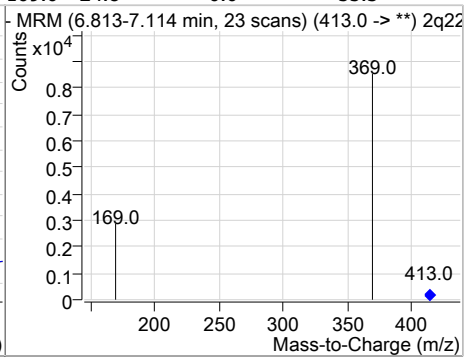




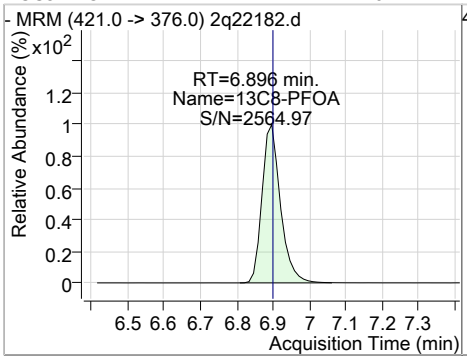
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.02	6.89	0.00	5658	413.0 -> 169.0	24.8	0.0	55.3

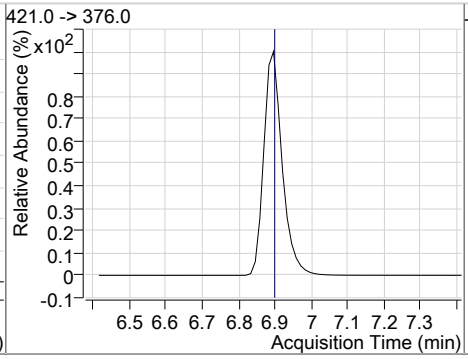


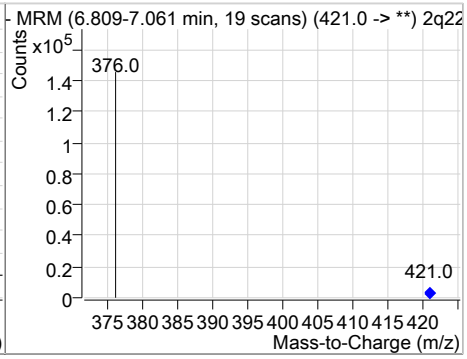




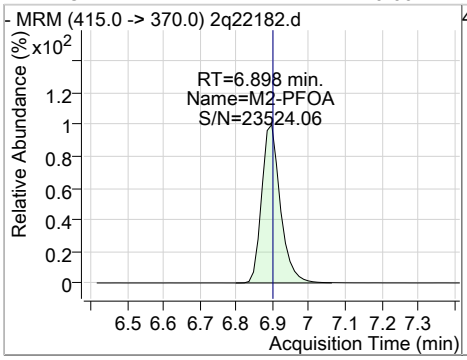
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.11	6.90	0.00	108066				

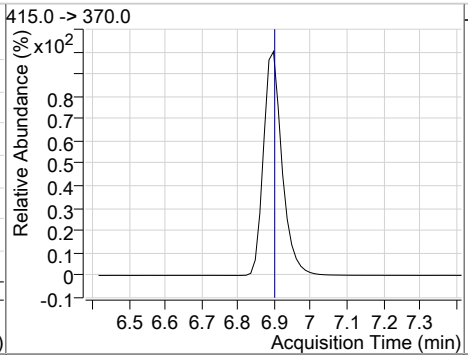


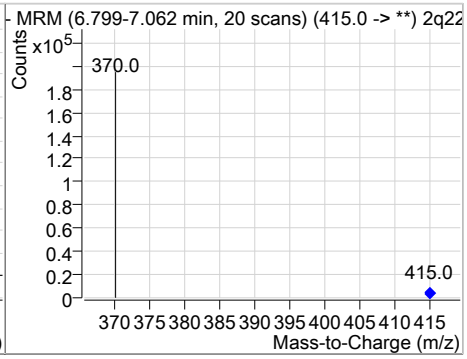




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.90	0.00	145238				

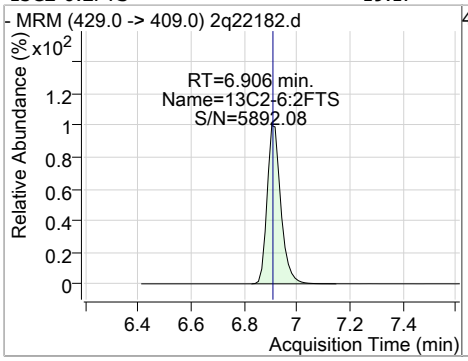


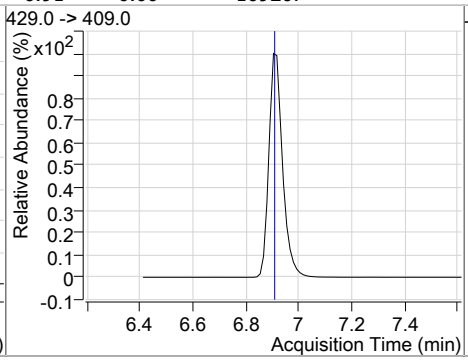


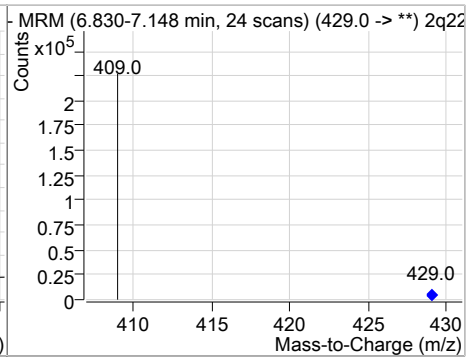


Perfluorinated Compounds by LC/MS/MS

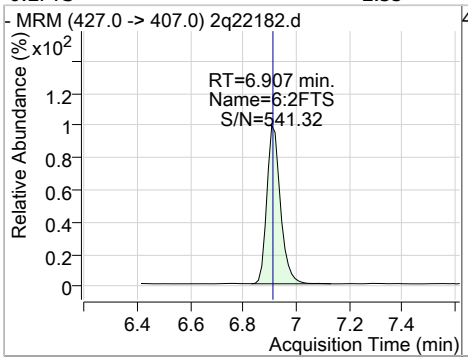
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.17	6.91	0.00	169267				

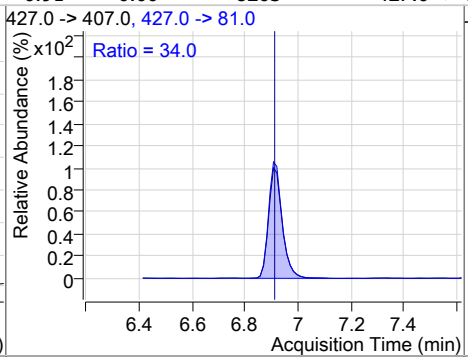


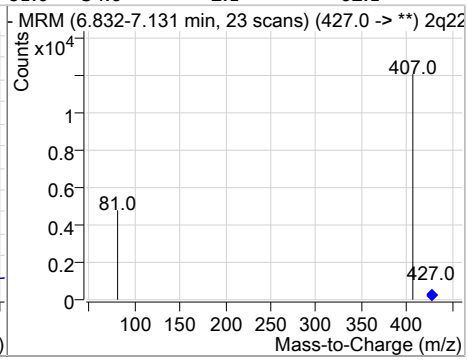




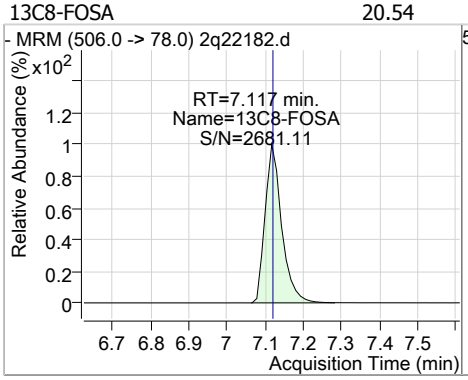
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.35	6.91	0.00	8263	427.0 -> 81.0	34.0	2.1	62.1

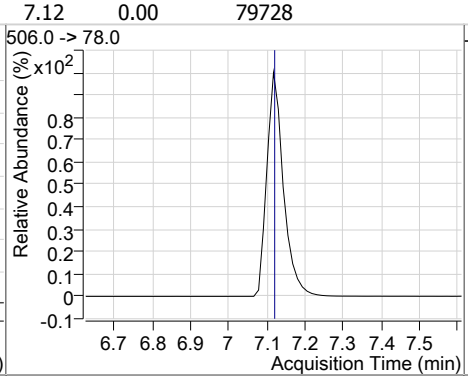


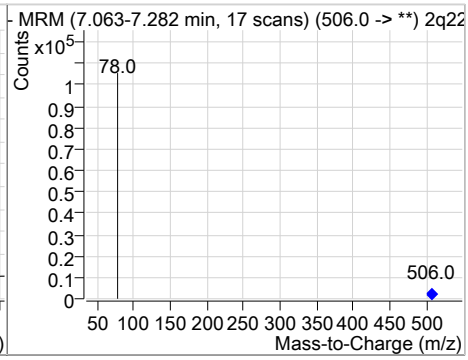




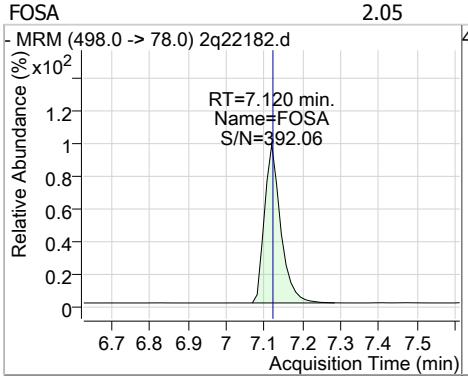
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.54	7.12	0.00	79728				

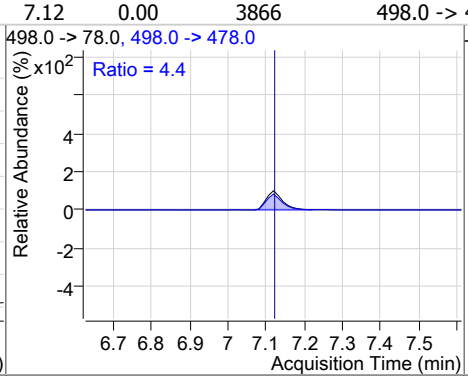


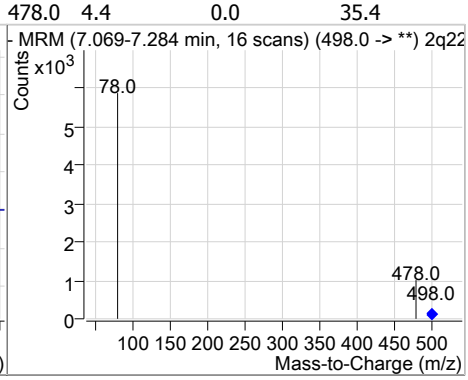




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.05	7.12	0.00	3866	498.0 -> 478.0	4.4	0.0	35.4

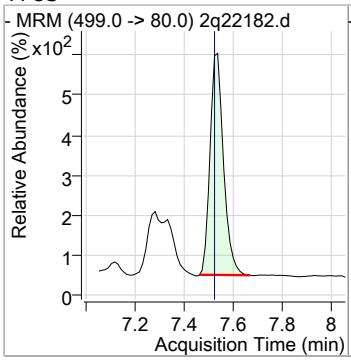


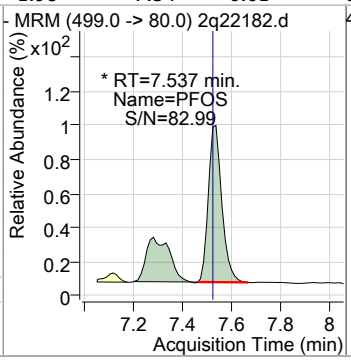


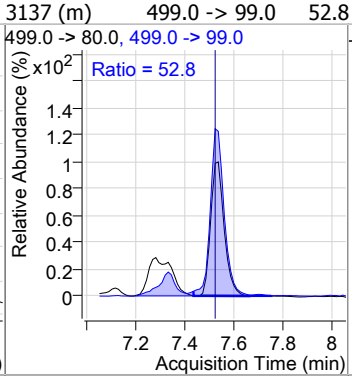


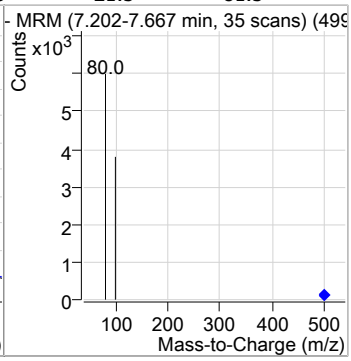
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.98	7.54	0.01	3137 (m)	499.0 -> 99.0	52.8	21.5	81.5

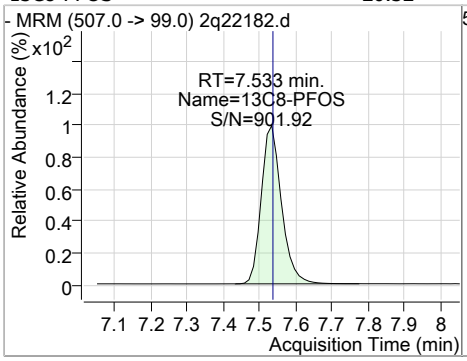


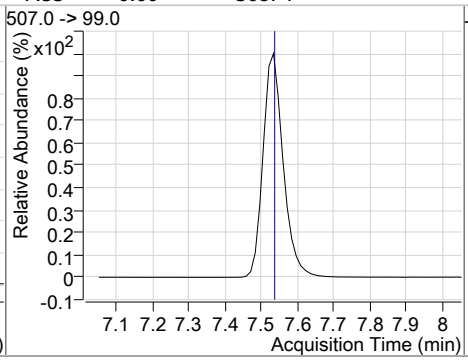


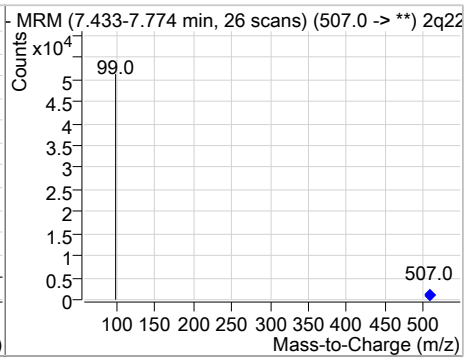




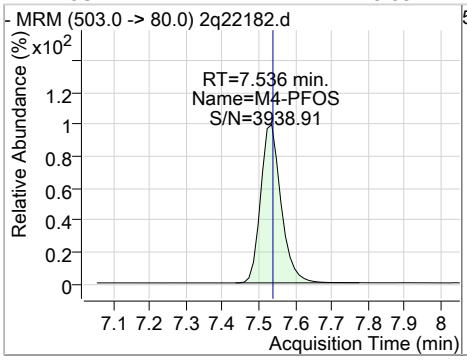
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.32	7.53	0.00	36874				

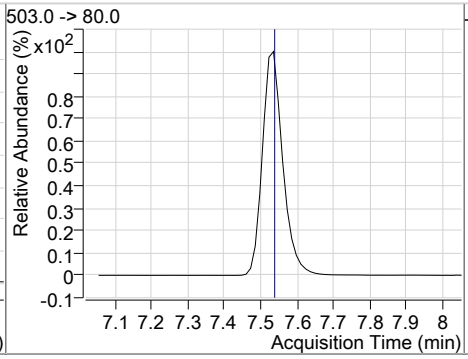


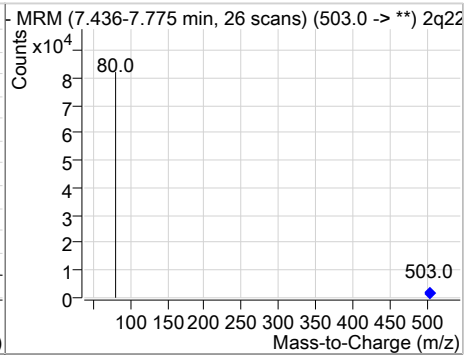




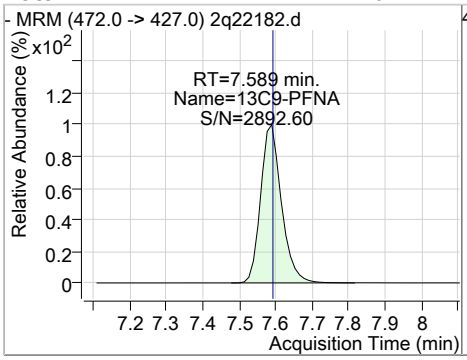
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.54	0.00	60079				

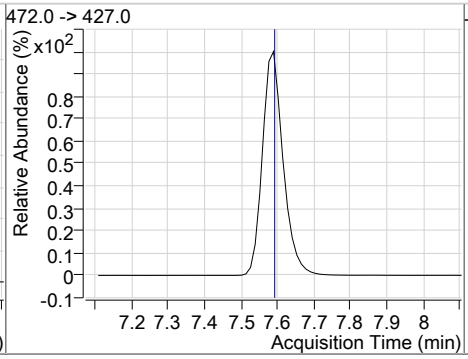


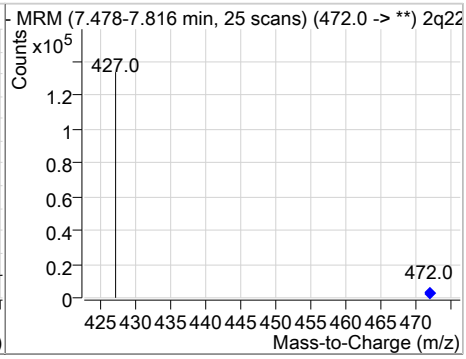




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.24	7.59	0.00	99502				

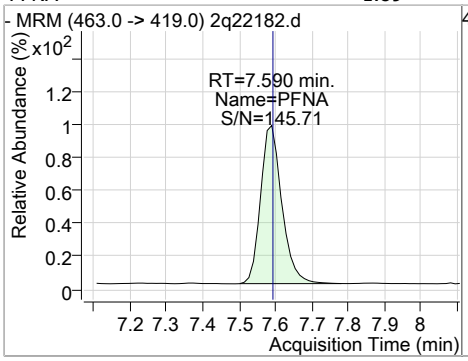


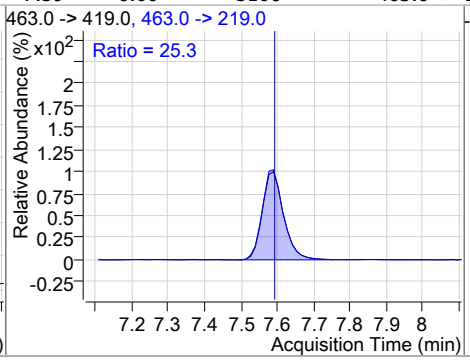


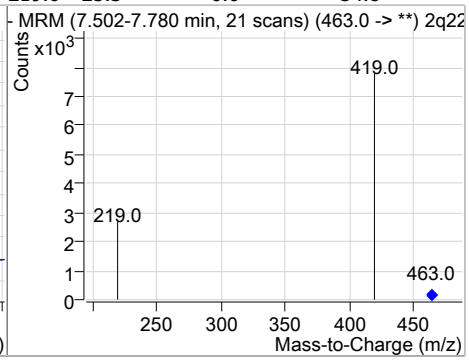


Perfluorinated Compounds by LC/MS/MS

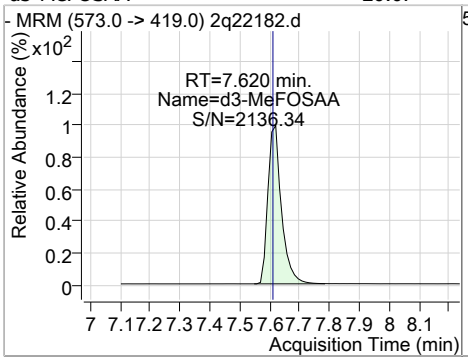
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.89	7.59	0.00	5166	463.0 -> 219.0	25.3	0.0	54.8

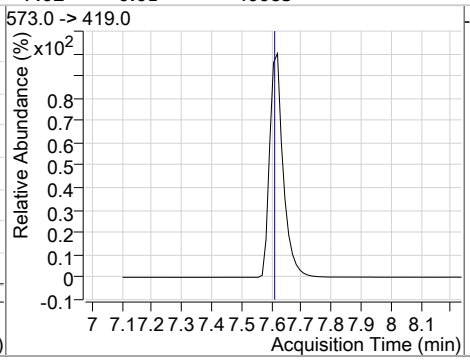


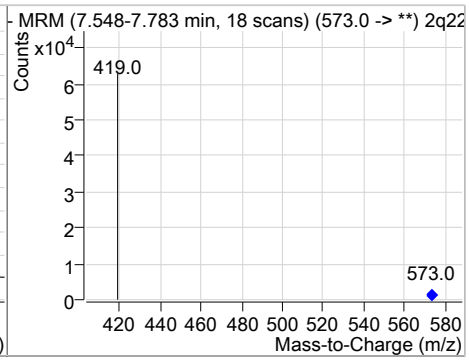




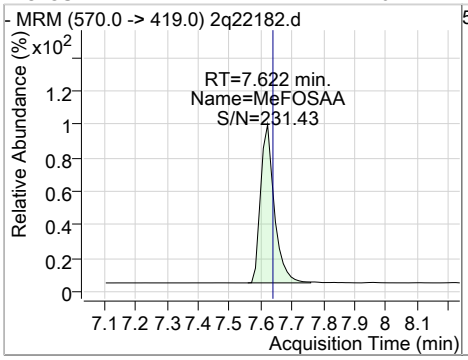
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.07	7.62	0.01	46685				

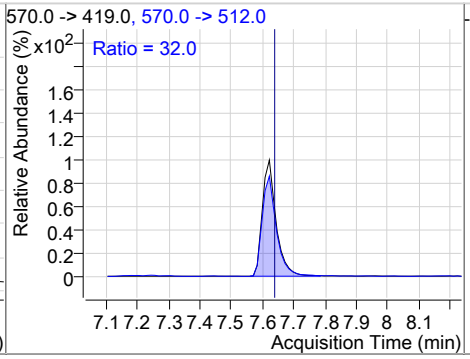


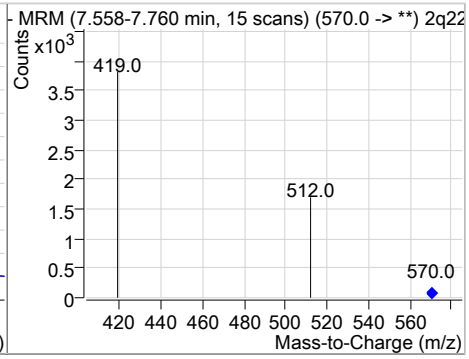




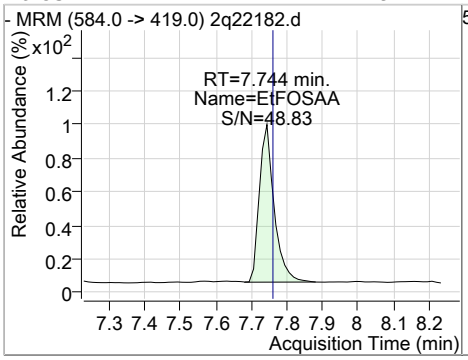
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.02	7.62	0.00	2404	570.0 -> 512.0	32.0	5.9	65.9

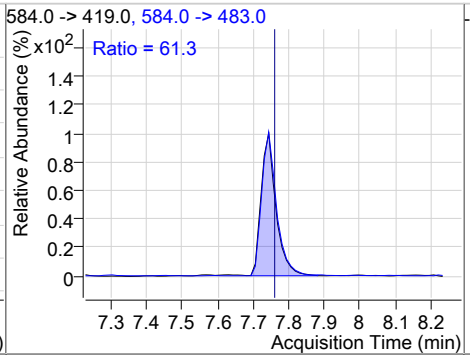


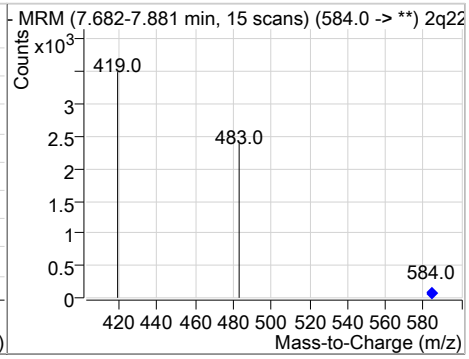




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.94	7.74	0.00	2063	584.0 -> 483.0	61.3	30.5	90.5

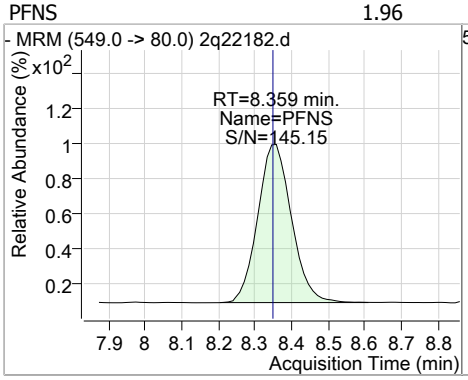


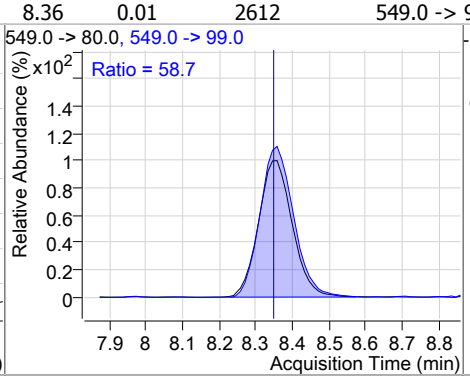


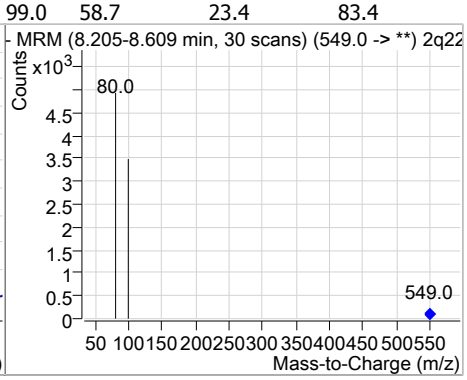


Perfluorinated Compounds by LC/MS/MS

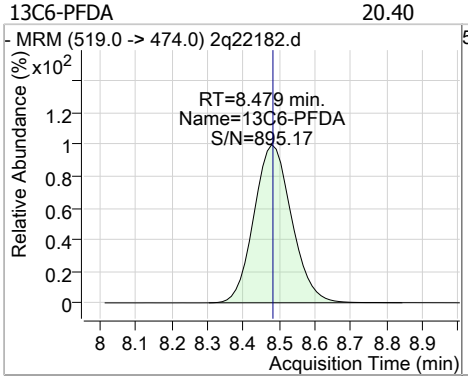
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.96	8.36	0.01	2612	549.0 -> 99.0	58.7	23.4	83.4

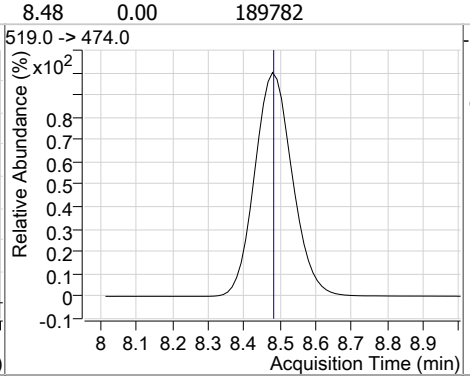


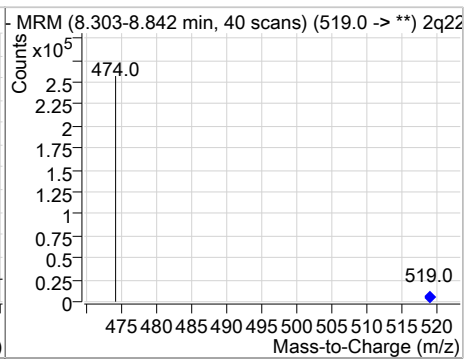




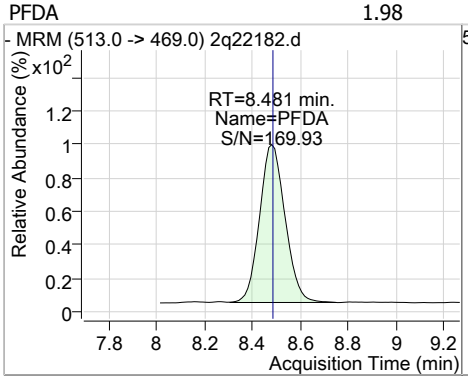
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.40	8.48	0.00	189782				

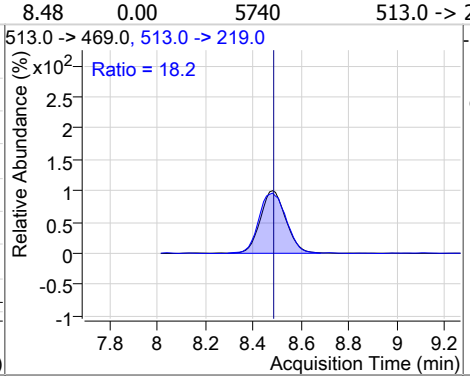


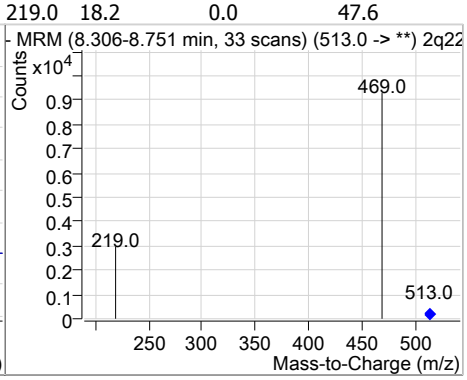




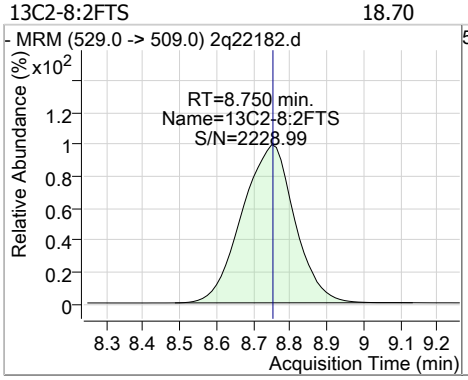
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.98	8.48	0.00	5740	513.0 -> 219.0	18.2	0.0	47.6

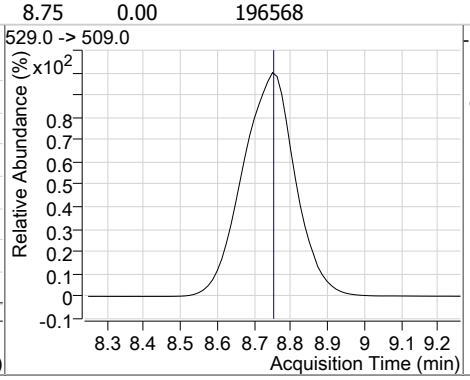


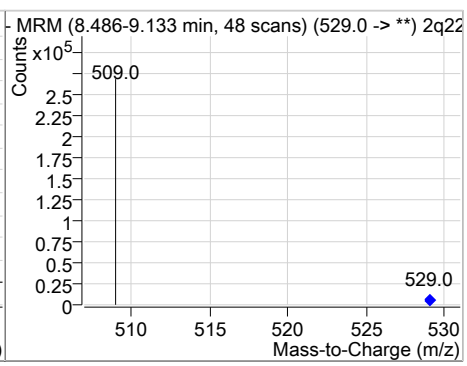




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.70	8.75	0.00	196568				

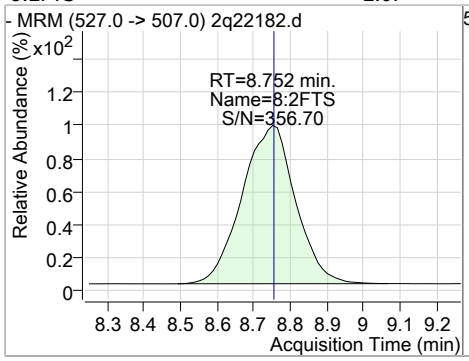


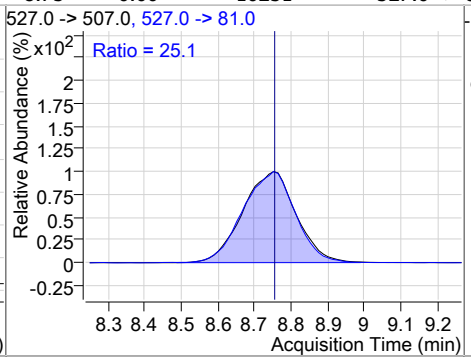


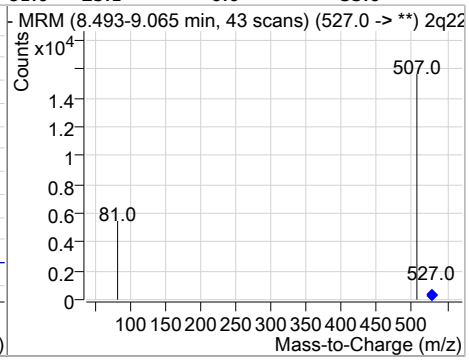


Perfluorinated Compounds by LC/MS/MS

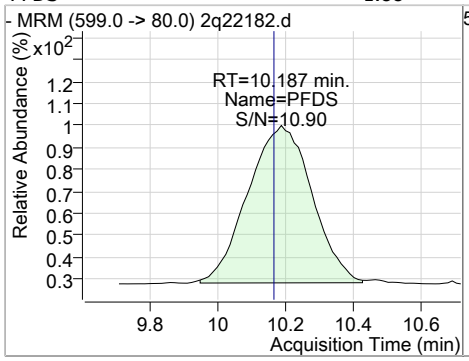
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.07	8.75	0.00	10251	527.0 -> 81.0	25.1	0.0	55.6

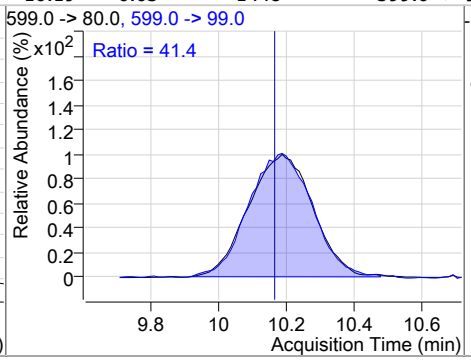


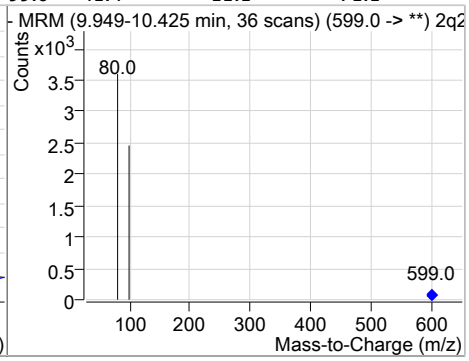




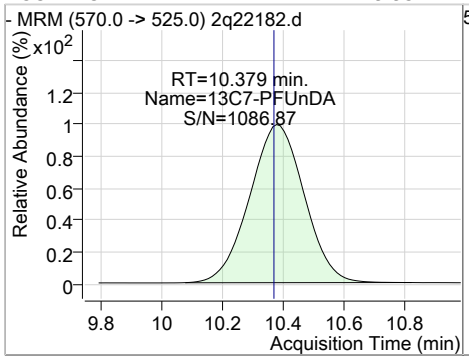
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.88	10.19	0.03	1448	599.0 -> 99.0	41.4	11.1	71.1

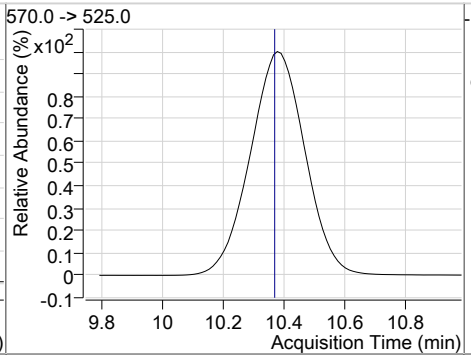


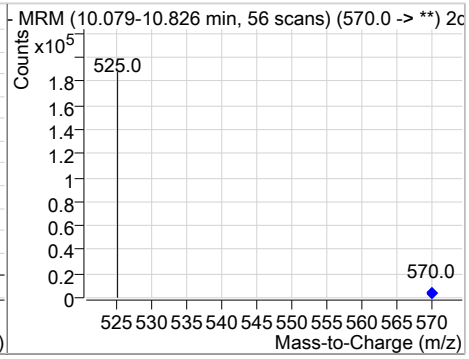




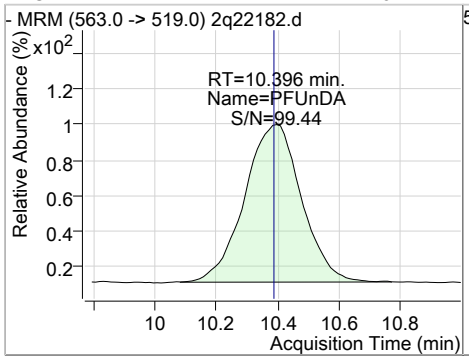
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.93	10.38	0.01	136455				

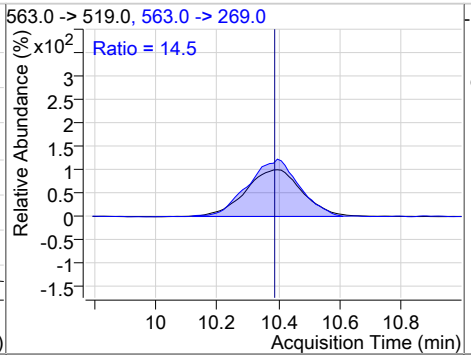


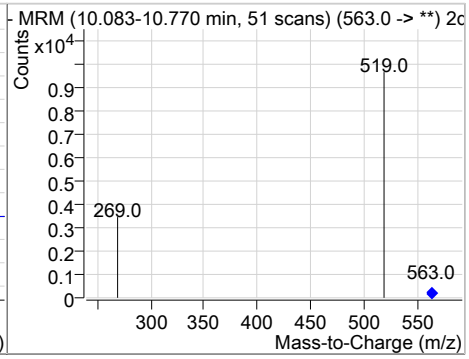




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.01	10.40	0.03	5142	563.0 -> 269.0	14.5	0.0	43.1

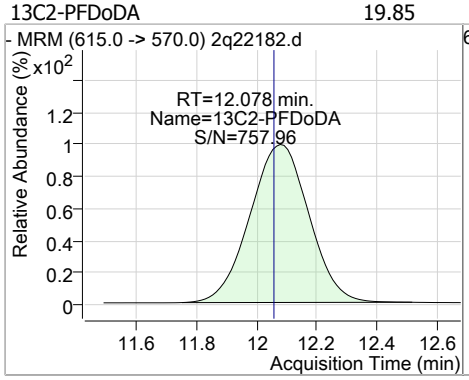


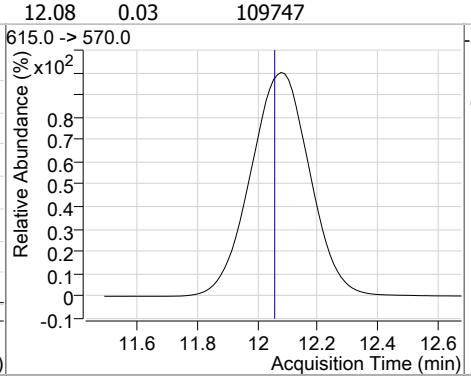


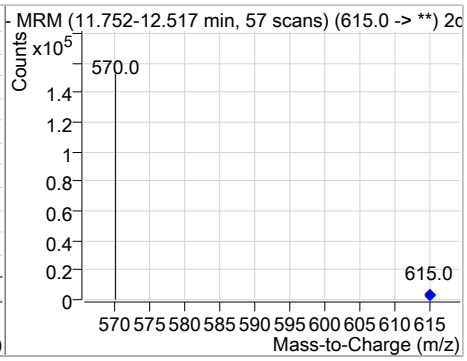


Perfluorinated Compounds by LC/MS/MS

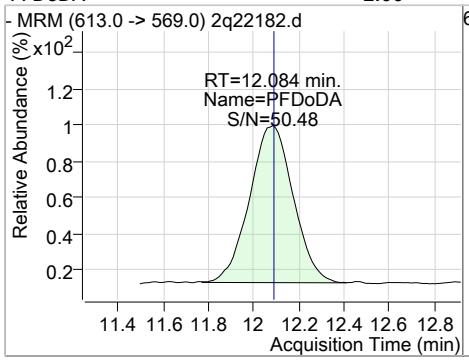
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.85	12.08	0.03	109747				

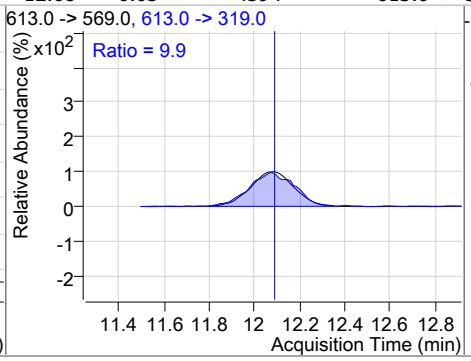


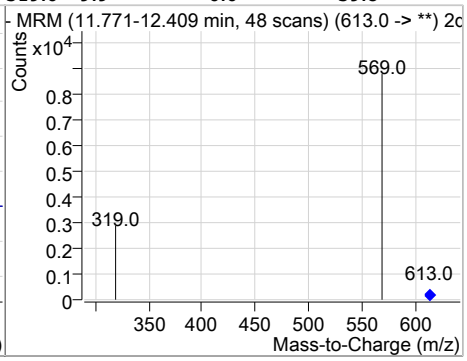




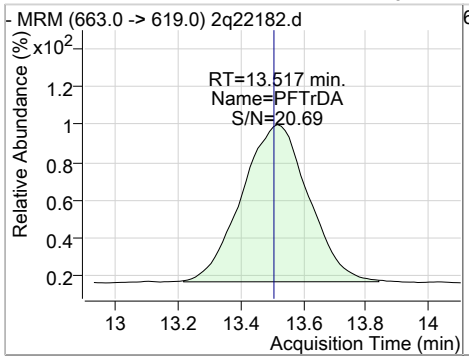
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.00	12.08	0.03	4594	613.0 -> 319.0	9.9	0.0	39.8

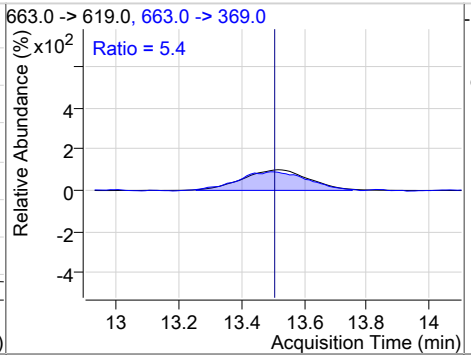


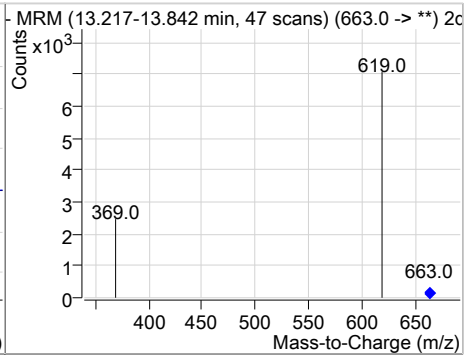




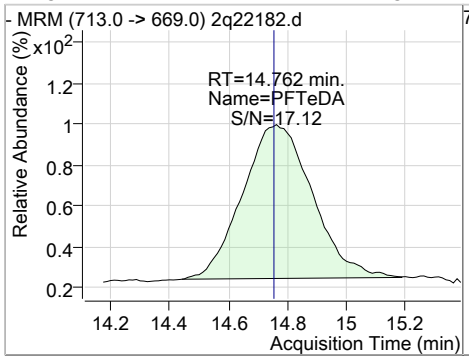
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	2.10	13.52	0.04	3537	663.0 -> 369.0	5.4	0.0	35.8

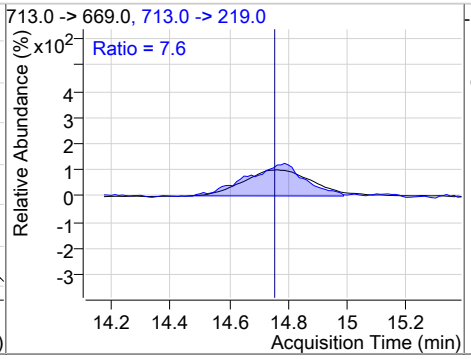


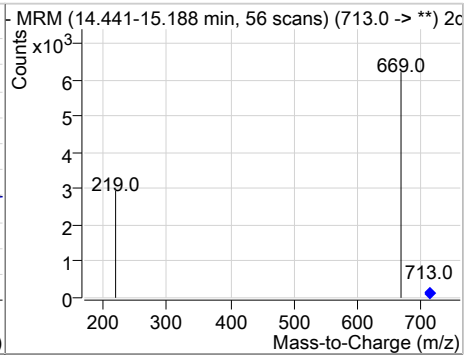




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.13	14.76	0.04	2459	713.0 -> 219.0	7.6	0.0	37.4

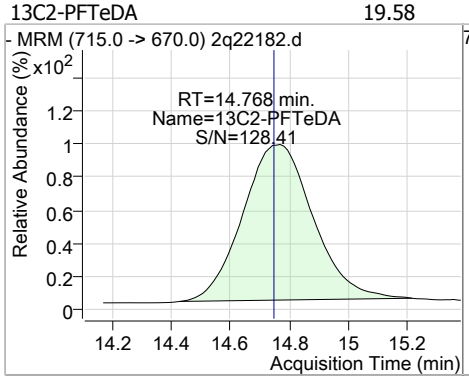


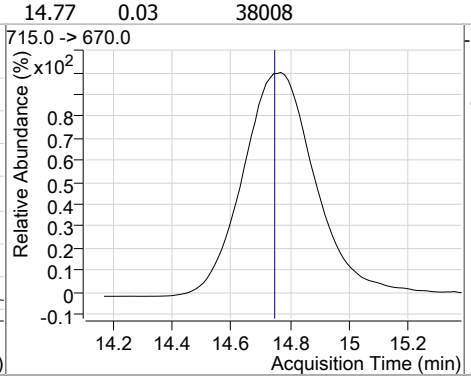


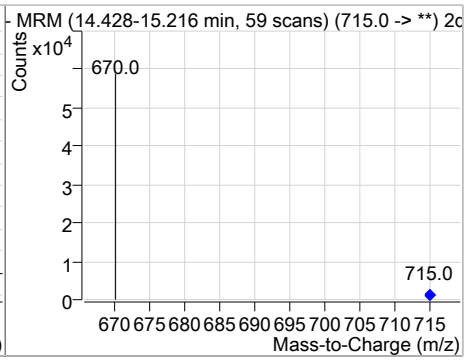


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.58	14.77	0.03	38008				







Manual Integration Approval Summary

Sample Number: S2Q350-IC350
Lab FileID: 2Q22182.D
Injection Time: 10/16/18 11:06
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.54	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22183.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/16/2018 11:27:27 AM
Sample Name : ic350-5
Vial : Vial 5
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q350.batch.bin
Sample Information : op71813,S2Q350,2.01,,,1.0,1,soil

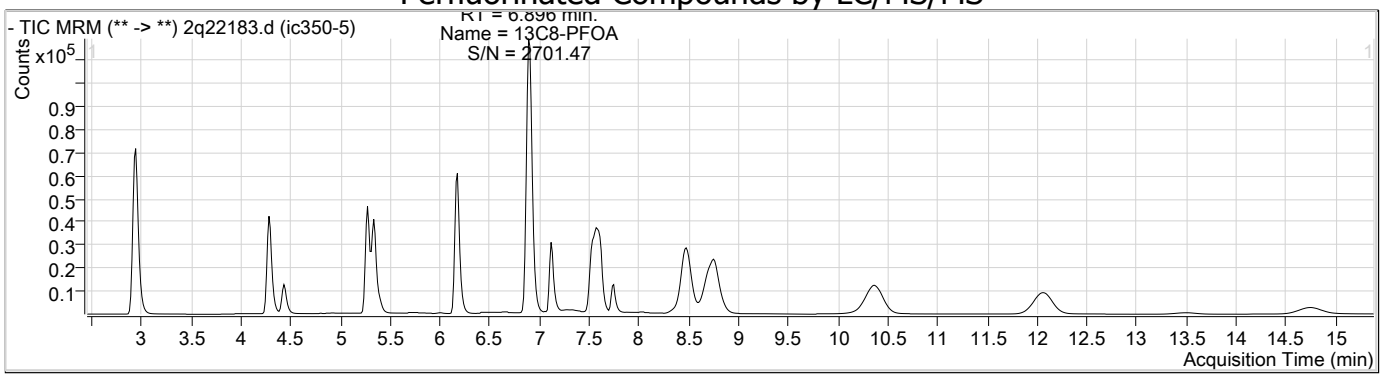
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.898	415.0 -> 370.0	147538	20.00	µg/L	0.000
13C4-PFOS	7.536	503.0 -> 80.0	59469	20.00	µg/L	0.000
M4-PFBA	2.941	217.0 -> 172.0	272402	20.00	µg/L	0.000
M5-PFPeA	4.287	268.0 -> 223.0	116978	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	113283	20.00	µg/L	0.000
M4-PFHpA	6.179	367.0 -> 322.0	133810	20.00	µg/L	0.000
M8-PFOA	6.896	421.0 -> 376.0	111097	20.00	µg/L	0.000
M9-PFNA	7.589	472.0 -> 427.0	99184	20.00	µg/L	0.000
M6-PFDA	8.479	519.0 -> 474.0	190883	20.00	µg/L	0.000
M7-PFUnDA	10.367	570.0 -> 525.0	139298	20.00	µg/L	0.000
M2-PFDoDA	12.053	615.0 -> 570.0	113379	20.00	µg/L	0.000
M2-PFTeDA	14.743	715.0 -> 670.0	41452	20.00	µg/L	0.000
M8-FOSA	7.117	506.0 -> 78.0	80525	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	28175	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	36490	20.00	µg/L	0.000
M8-PFOS	7.534	507.0 -> 99.0	36537	20.00	µg/L	0.000
M2-4:2FTS	5.272	329.0 -> 309.0	127363	20.00	µg/L	0.000
M2-6:2FTS	6.906	429.0 -> 409.0	171364	20.00	µg/L	0.000
M2-8:2FTS	8.750	529.0 -> 509.0	200479	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	46440	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	127339	19.34	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.7%		
13C2-6:2FTS	6.906	429.0 -> 409.0	171384	19.41	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C2-8:2FTS	8.750	529.0 -> 509.0	200163	19.05	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.2%		
13C2-PFDoDA	12.053	615.0 -> 570.0	112698	20.38	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C2-PFTeDA	14.743	715.0 -> 670.0	39205	20.20	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C3-PFBS	4.430	302.0 -> 99.0	28177	20.15	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C3-PFHxS	6.173	402.0 -> 99.0	36522	20.51	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C4-PFBA	2.941	217.0 -> 172.0	272221	20.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C4-PFHpA	6.179	367.0 -> 322.0	133763	20.79	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.0%		
13C5-PFHxA	5.339	318.0 -> 273.0	113257	20.57	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C5-PFPeA	4.287	268.0 -> 223.0	116945	20.46	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C6-PFDA	8.479	519.0 -> 474.0	190630	20.49	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		

Perfluorinated Compounds by LC/MS/MS

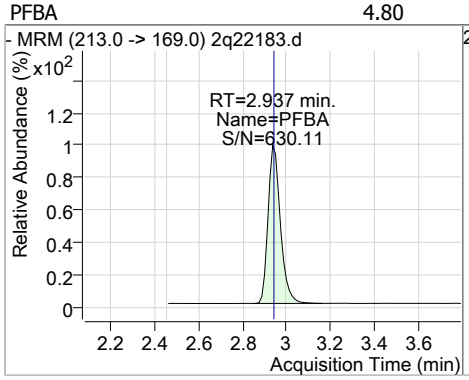
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.367	570.0 -> 525.0	138776	20.27	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%			
13C8-FOSA	7.117	506.0 -> 78.0	80459	20.73	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%			
13C8-PFOA	6.896	421.0 -> 376.0	111100	20.68	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%			
13C8-PFOS	7.534	507.0 -> 99.0	36523	20.13	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%			
13C9-PFNA	7.589	472.0 -> 427.0	99109	20.16	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%			
d3-MeFOSAA	7.620	573.0 -> 419.0	46459	19.98	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
M2-PFOA	6.898	415.0 -> 370.0	147585	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.536	503.0 -> 80.0	59431	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.274	327.0 -> 307.0	17372	4.99	µg/L		97
6:2FTS	6.907	427.0 -> 407.0	20488	5.75	µg/L		98
8:2FTS	8.752	527.0 -> 507.0	24739	4.94	µg/L		99
EtFOSAA	7.744	584.0 -> 419.0	5385	5.09	µg/L		96
FOSA	7.120	498.0 -> 78.0	9355	4.91	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	5654	4.77	µg/L		97
PFBA	2.937	213.0 -> 169.0	7847	4.80	µg/L		100
PFBS	4.434	299.0 -> 80.0	10083	4.95	µg/L		99
PFDA	8.481	513.0 -> 469.0	14018	4.82	µg/L		99
PFDoDA	12.059	613.0 -> 569.0	11548	4.92	µg/L		99
PFDS	10.162	599.0 -> 80.0	3670	4.82	µg/L		98
PFHpA	6.170	363.0 -> 319.0	23971	4.72	µg/L		100
PFHpS	6.866	449.0 -> 80.0	7108	4.82	µg/L		96
PFHxA	5.341	313.0 -> 269.0	8723	4.81	µg/L		98
PFHxS	6.176	399.0 -> 80.0	8442	4.74	µg/L	m	100
PFNA	7.590	463.0 -> 419.0	12969	4.76	µg/L		100
PFNS	8.359	549.0 -> 80.0	6354	4.82	µg/L		92
PFOA	6.899	413.0 -> 369.0	14054	4.89	µg/L		99
PFOS	7.537	499.0 -> 80.0	7764	4.96	µg/L	m	100
PFPeA	4.291	263.0 -> 219.0	27338	4.98	µg/L		100
PFPeS	5.396	349.0 -> 80.0	6553	4.97	µg/L		99
PFTeDA	14.750	713.0 -> 669.0	5961	4.87	µg/L		99
PFTrDA	13.492	663.0 -> 619.0	8738	4.88	µg/L		99
PFUnDA	10.371	563.0 -> 519.0	13033	5.04	µg/L		97

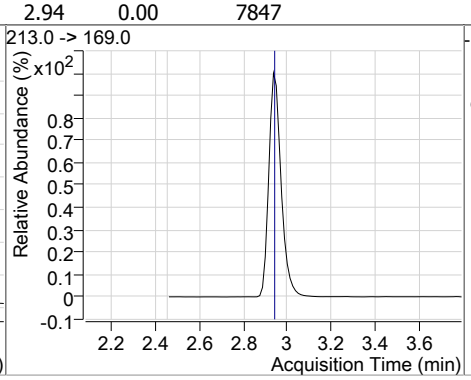
 # = Qualifier out of range, m = manually integrated, + = Area summed

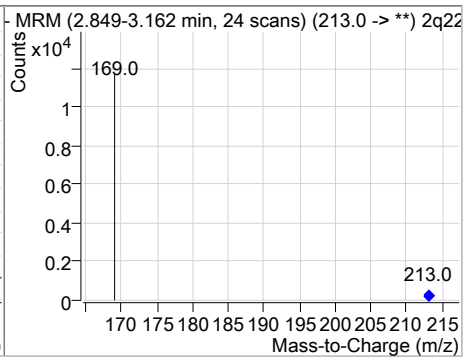
Perfluorinated Compounds by LC/MS/MS



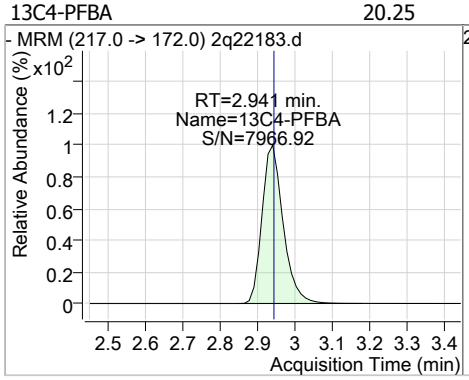
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	4.80	2.94	0.00	7847				

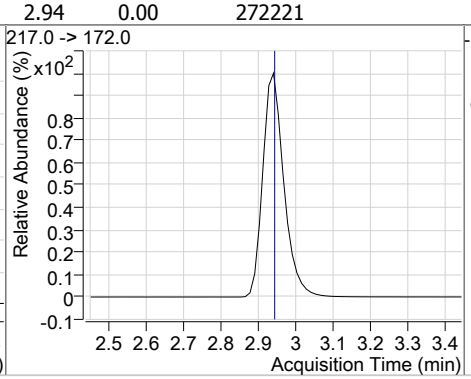


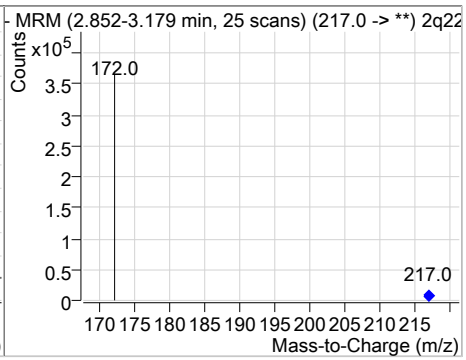




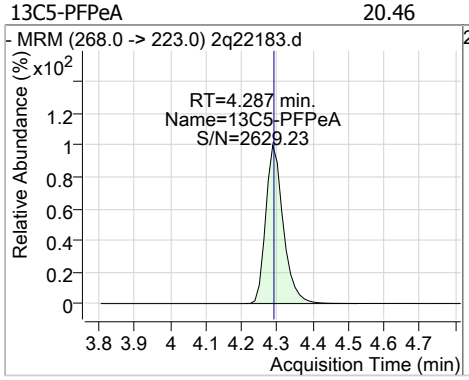
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.25	2.94	0.00	272221				

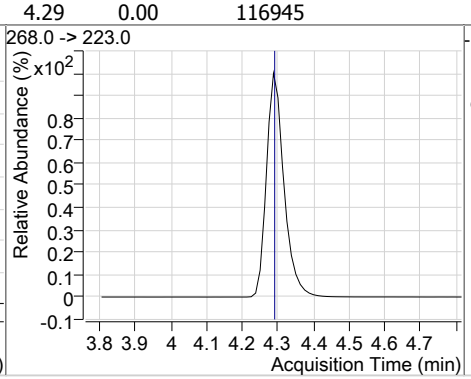


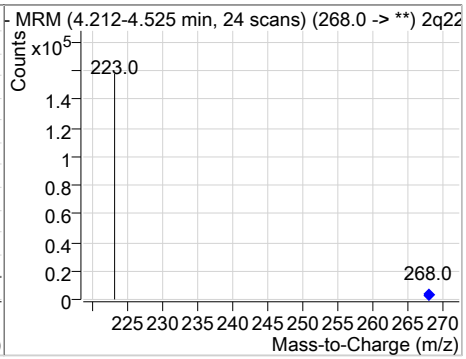




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.46	4.29	0.00	116945				

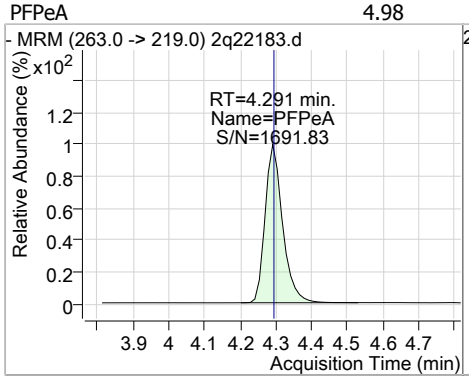


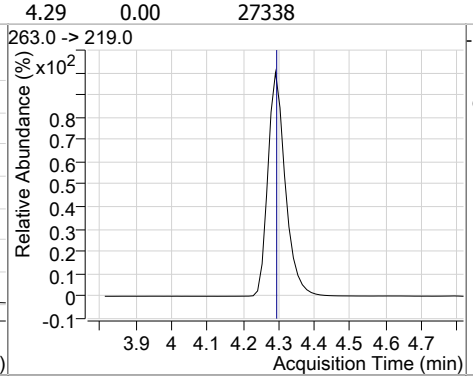


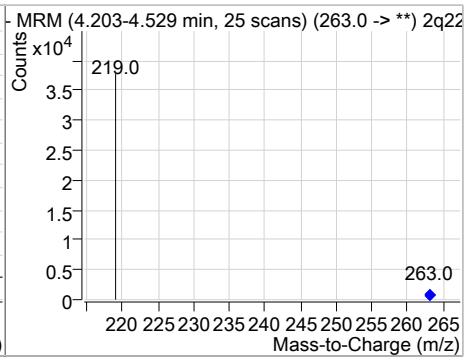


Perfluorinated Compounds by LC/MS/MS

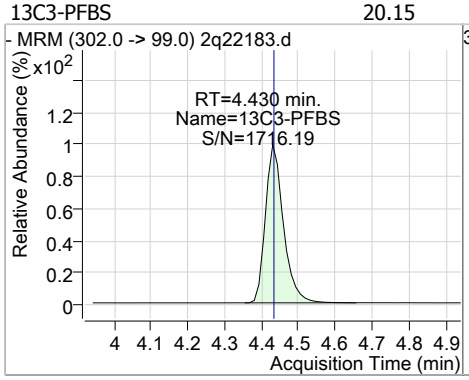
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.98	4.29	0.00	27338				

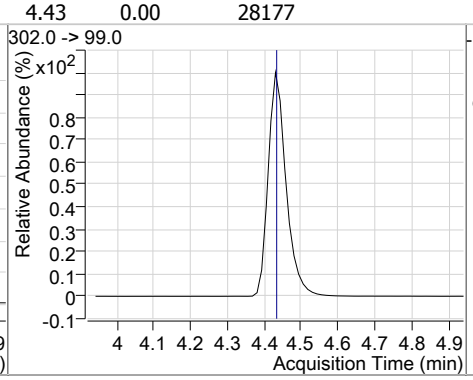


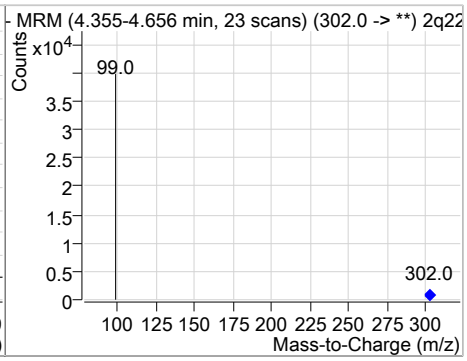




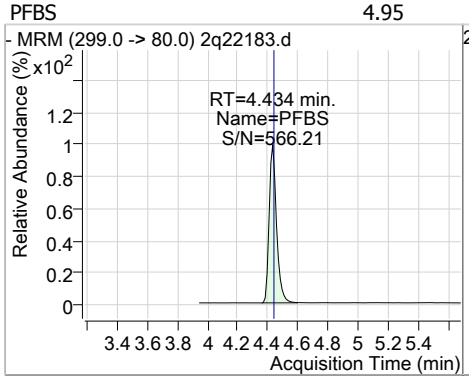
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.15	4.43	0.00	28177				

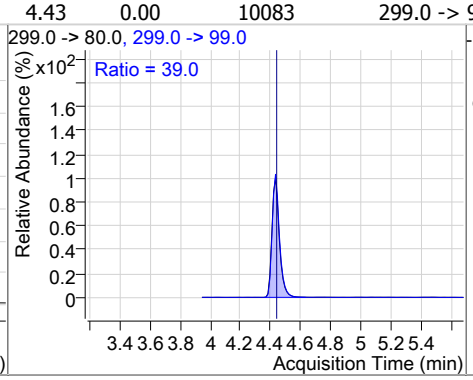


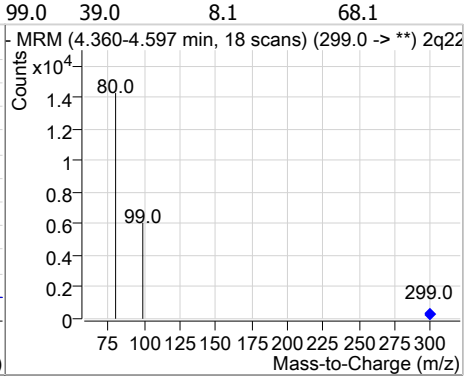




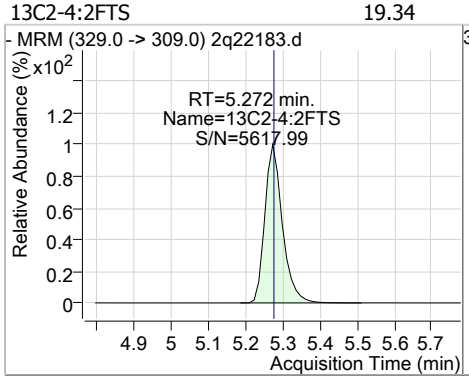
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.95	4.43	0.00	10083	299.0 -> 99.0	39.0	8.1	68.1

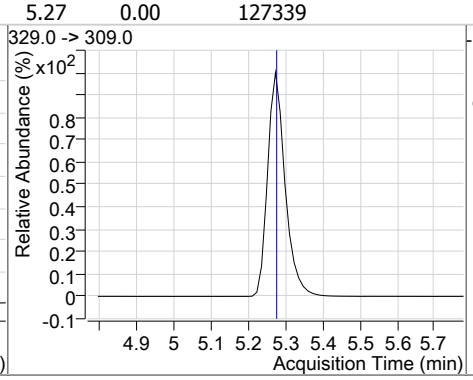


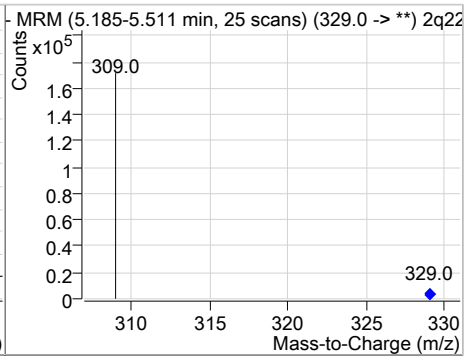




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.34	5.27	0.00	127339				

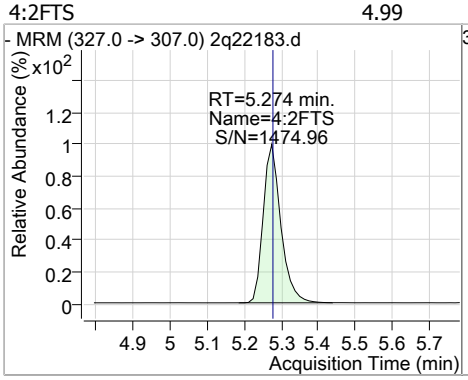


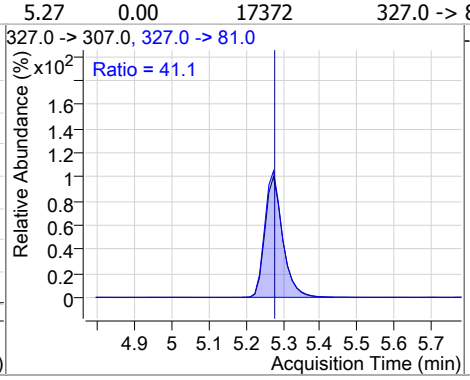


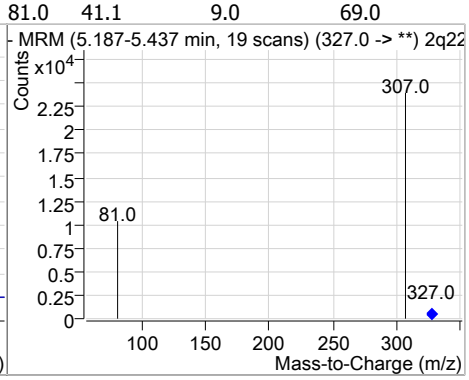


Perfluorinated Compounds by LC/MS/MS

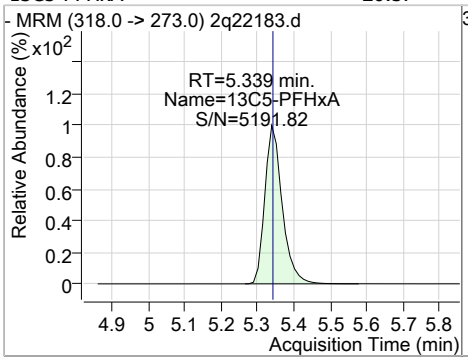
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	4.99	5.27	0.00	17372	327.0 -> 81.0	41.1	9.0	69.0

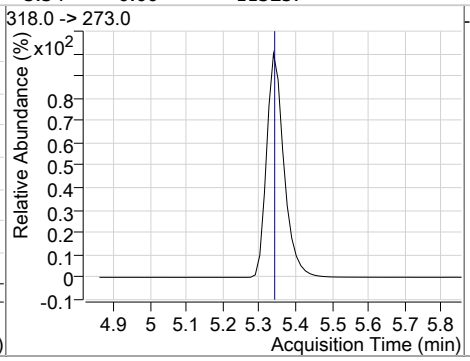


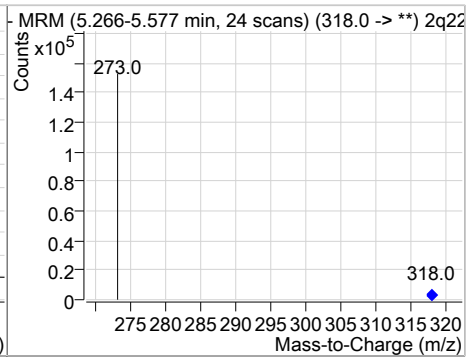




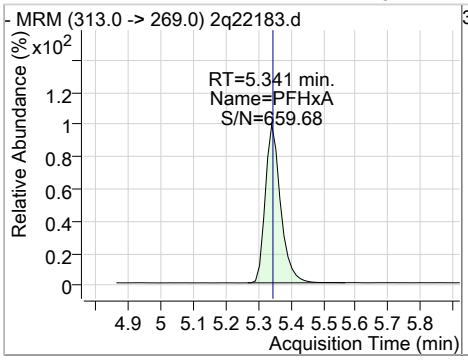
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.57	5.34	0.00	113257				

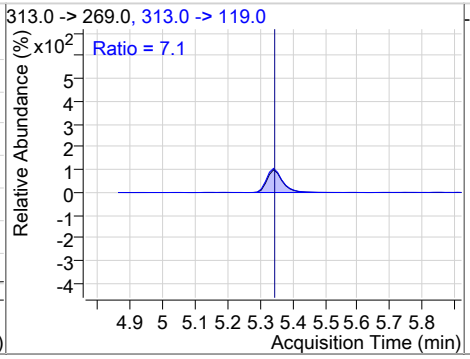


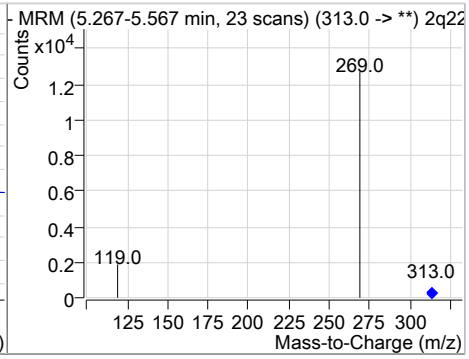




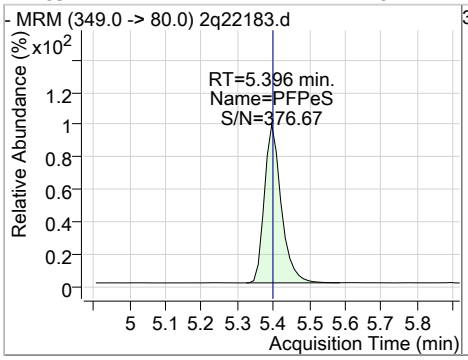
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.81	5.34	0.00	8723	313.0 -> 119.0	7.1	0.0	36.4

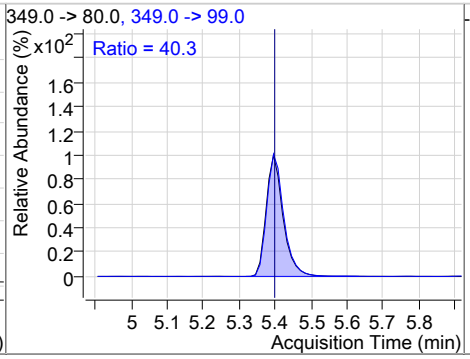


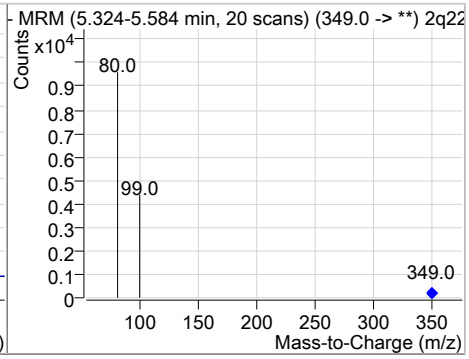




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	4.97	5.40	0.00	6553	349.0 -> 99.0	40.3	9.5	69.5

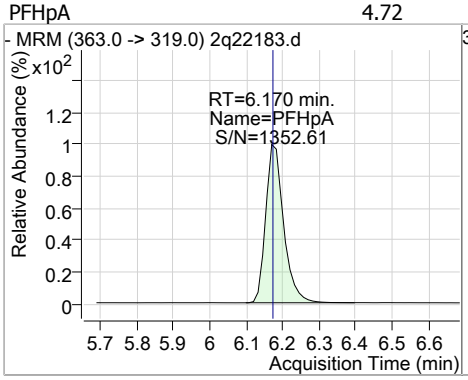


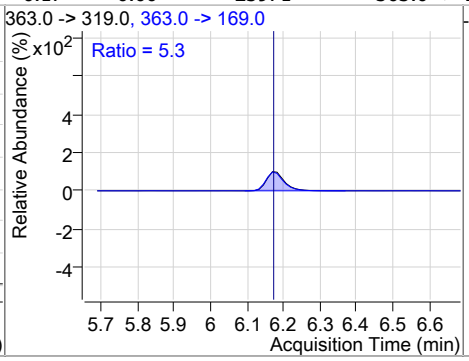


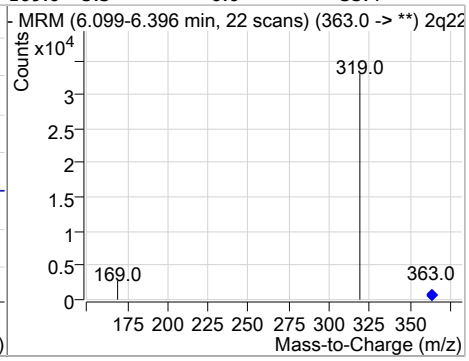


Perfluorinated Compounds by LC/MS/MS

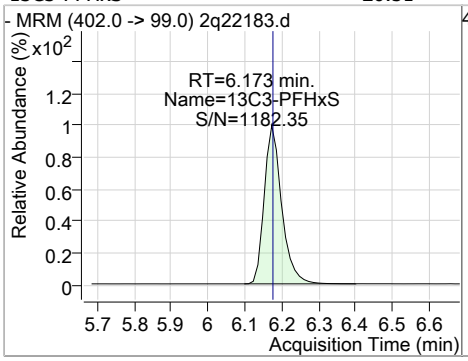
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.72	6.17	0.00	23971	363.0 -> 169.0	5.3	0.0	35.4

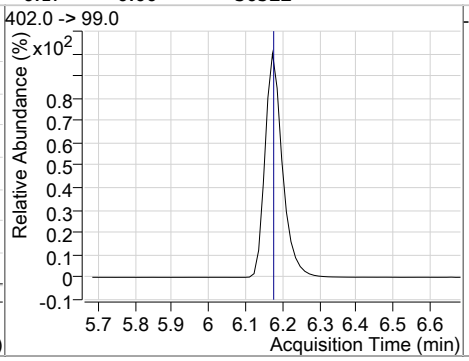


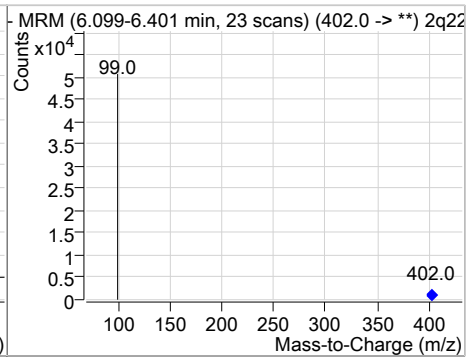




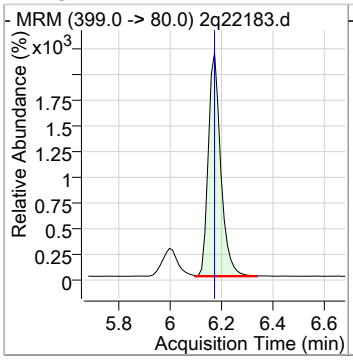
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.51	6.17	0.00	36522				

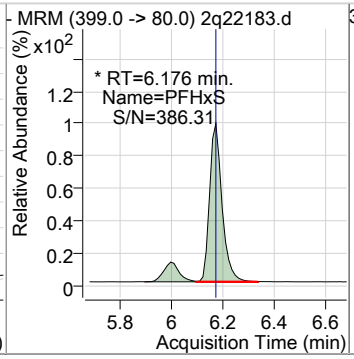


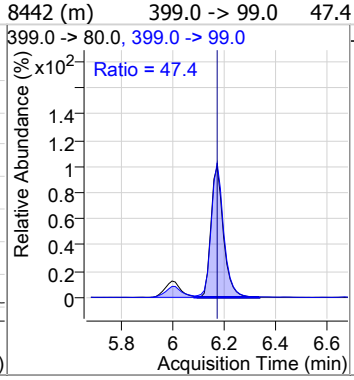


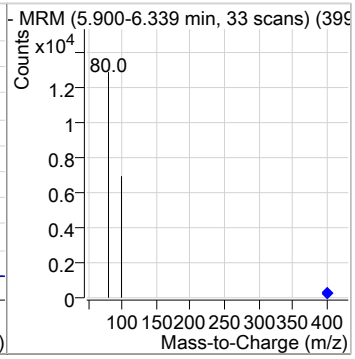


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.74	6.18	0.00	8442 (m)	399.0 -> 99.0	47.4	17.7	77.7

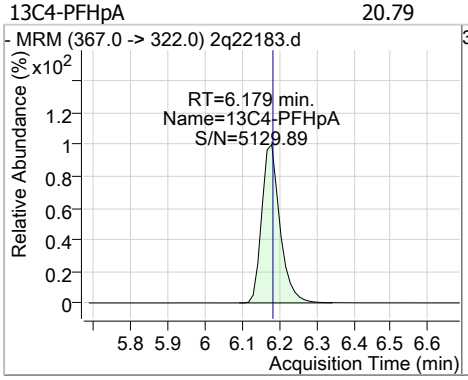


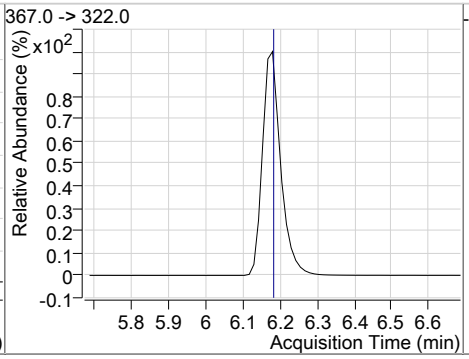


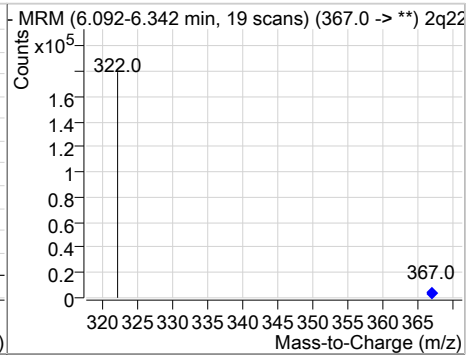




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.79	6.18	0.00	133763				

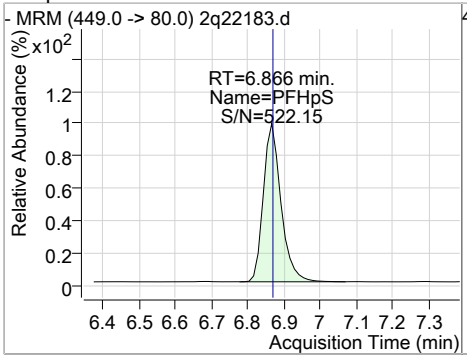


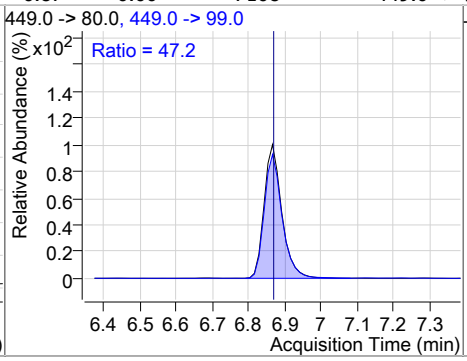


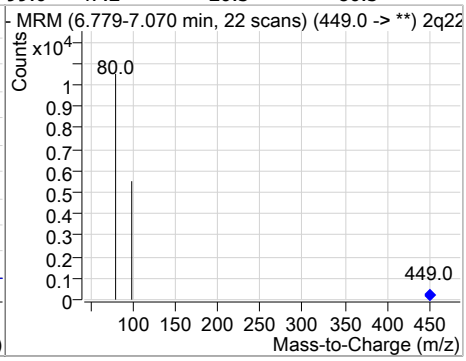


Perfluorinated Compounds by LC/MS/MS

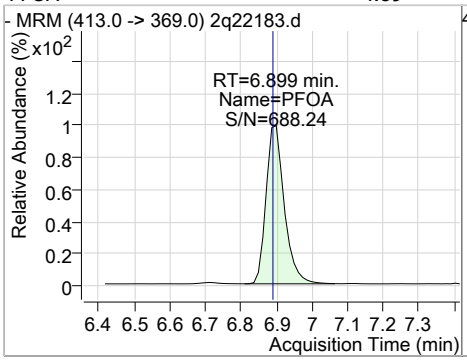
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.82	6.87	0.00	7108	449.0 -> 99.0	47.2	20.3	80.3

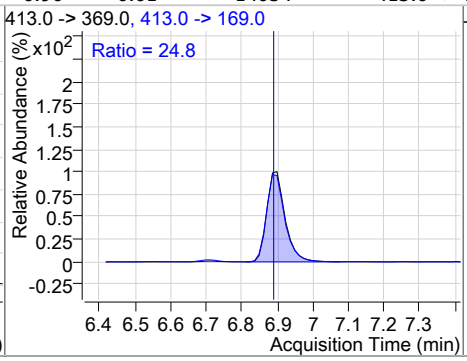


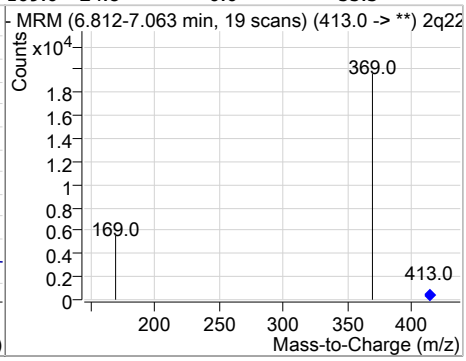




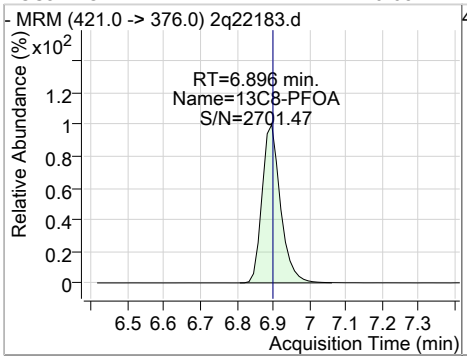
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.89	6.90	0.01	14054	413.0 -> 169.0	24.8	0.0	55.3

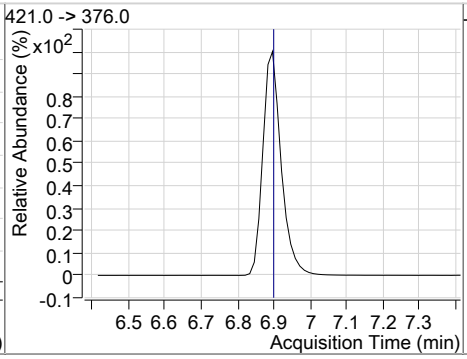


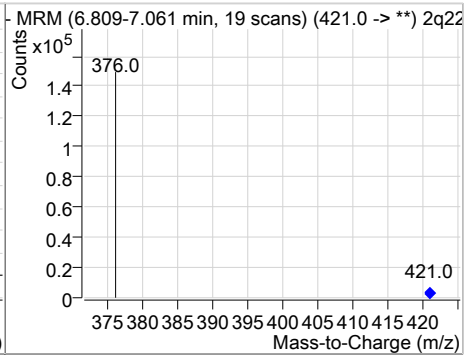




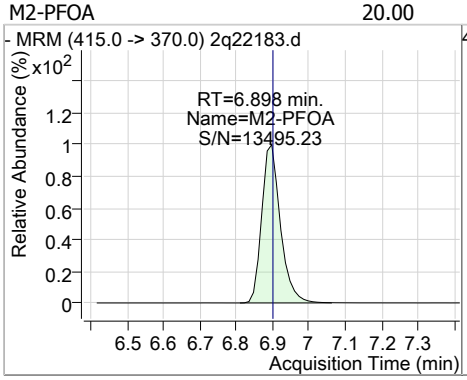
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.68	6.90	0.00	111100				

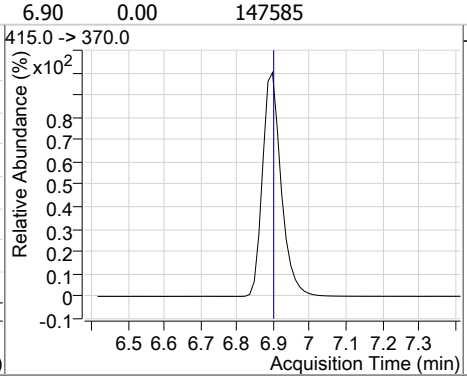


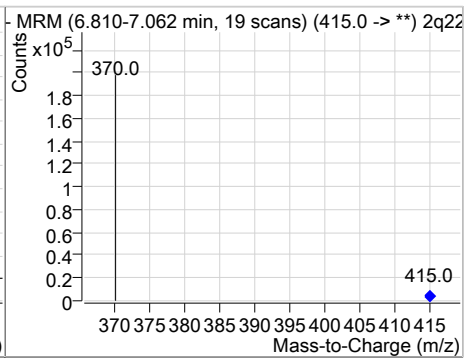




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.90	0.00	147585				

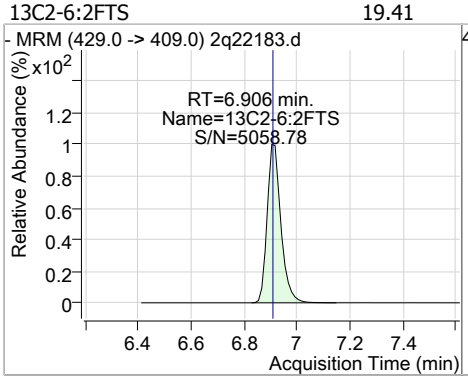


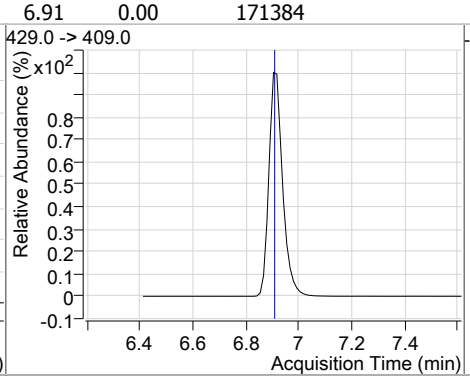


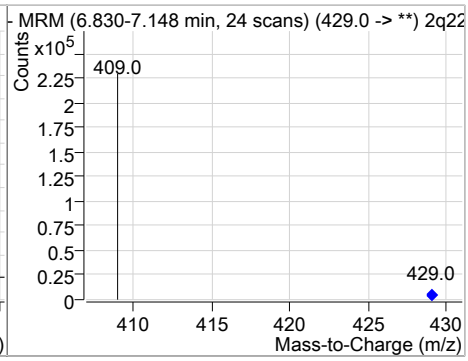


Perfluorinated Compounds by LC/MS/MS

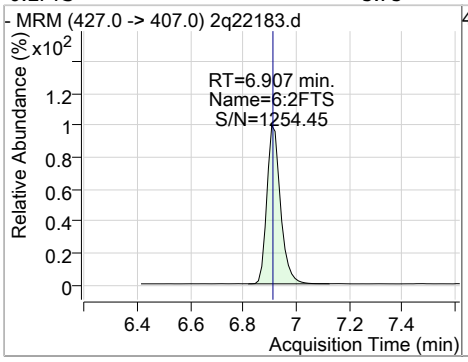
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.41	6.91	0.00	171384				

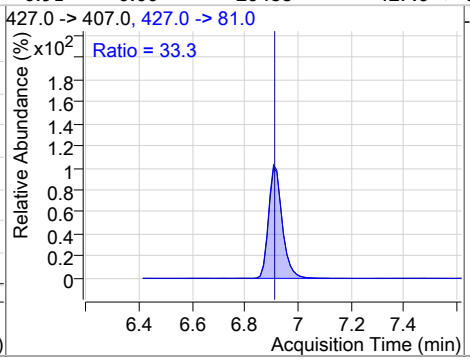


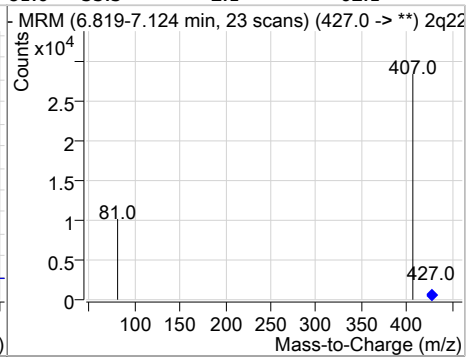




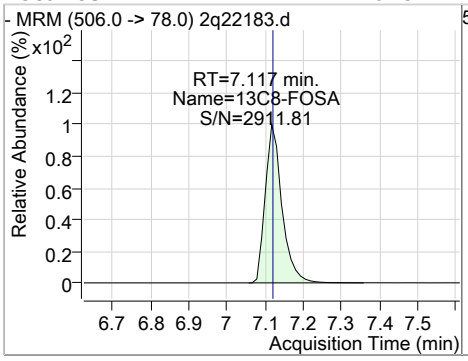
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.75	6.91	0.00	20488	427.0 -> 81.0	33.3	2.1	62.1

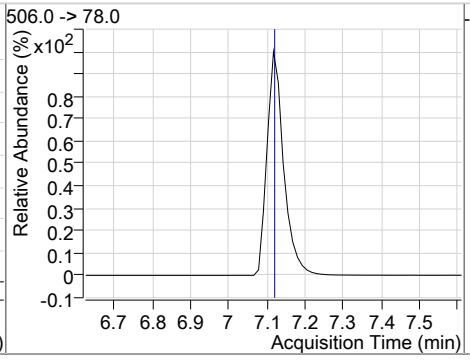


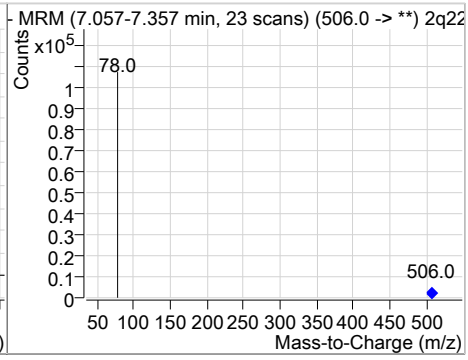




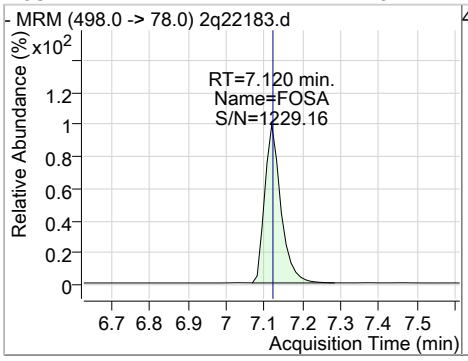
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.73	7.12	0.00	80459				

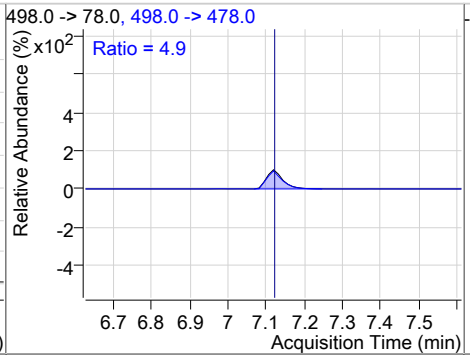


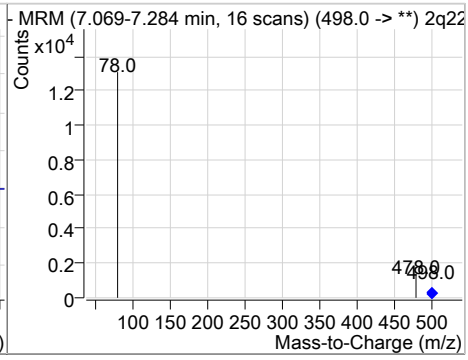




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.91	7.12	0.00	9355	498.0 -> 478.0	4.9	0.0	35.4

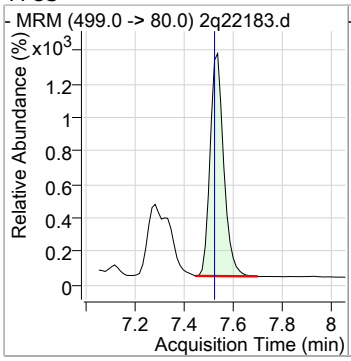


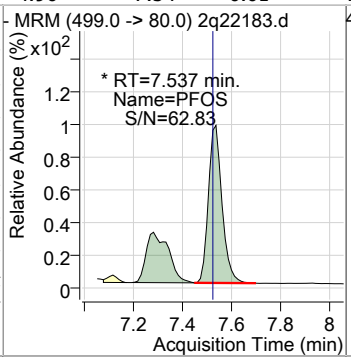


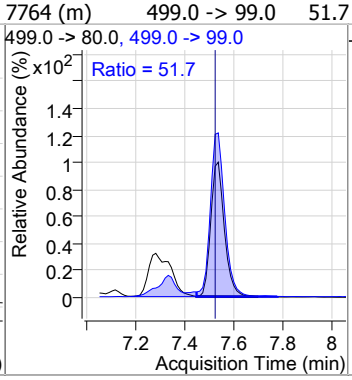


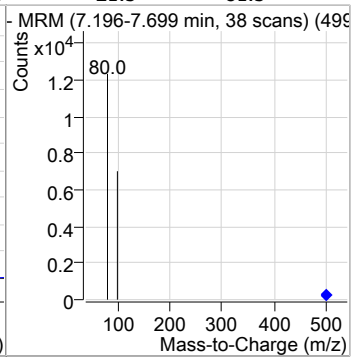
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.96	7.54	0.01	7764 (m)	499.0 -> 99.0	51.7	21.5	81.5

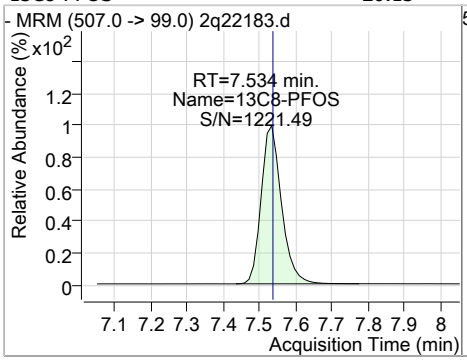


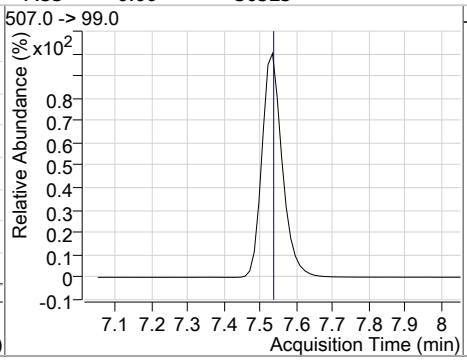


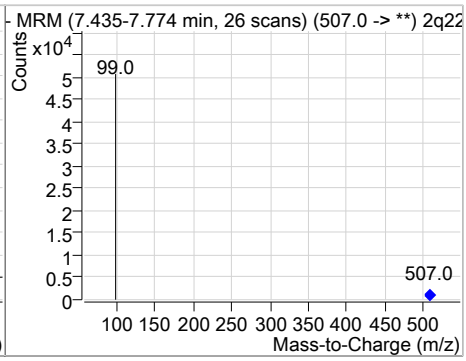




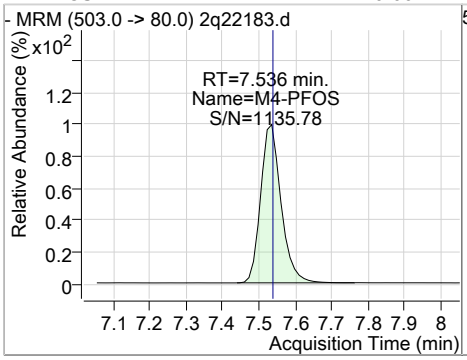
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.13	7.53	0.00	36523				

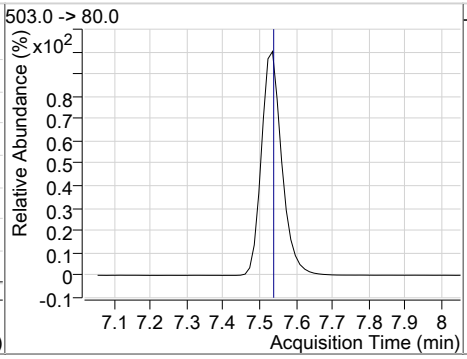


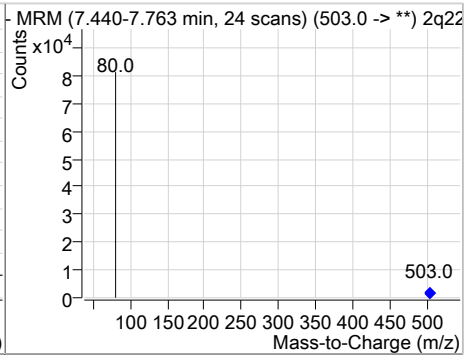




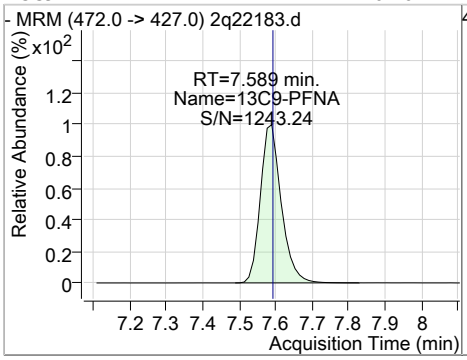
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.54	0.00	59431				

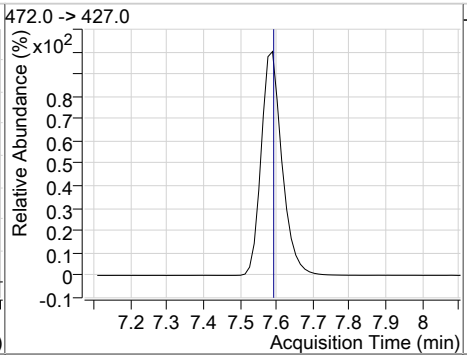


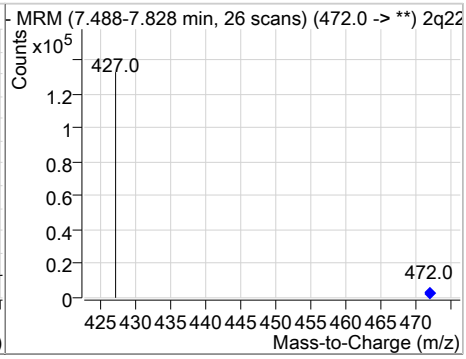




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.16	7.59	0.00	99109				

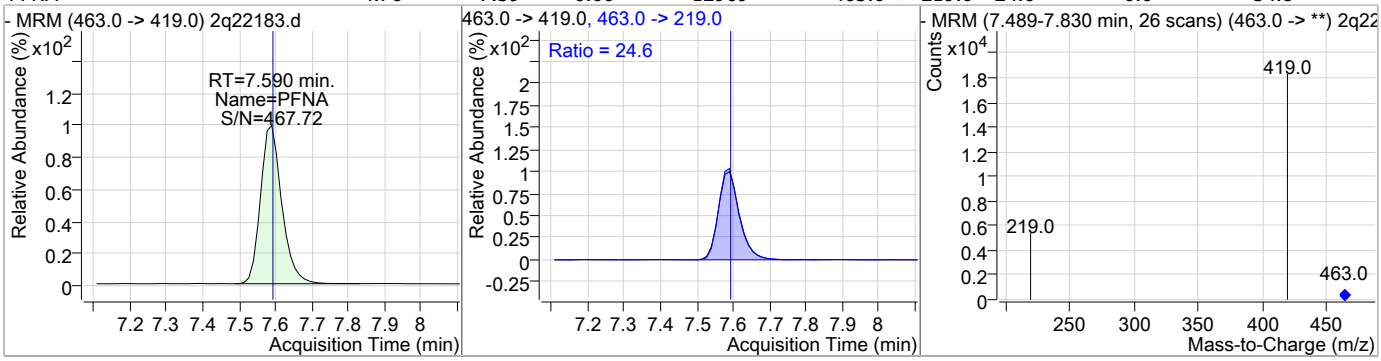




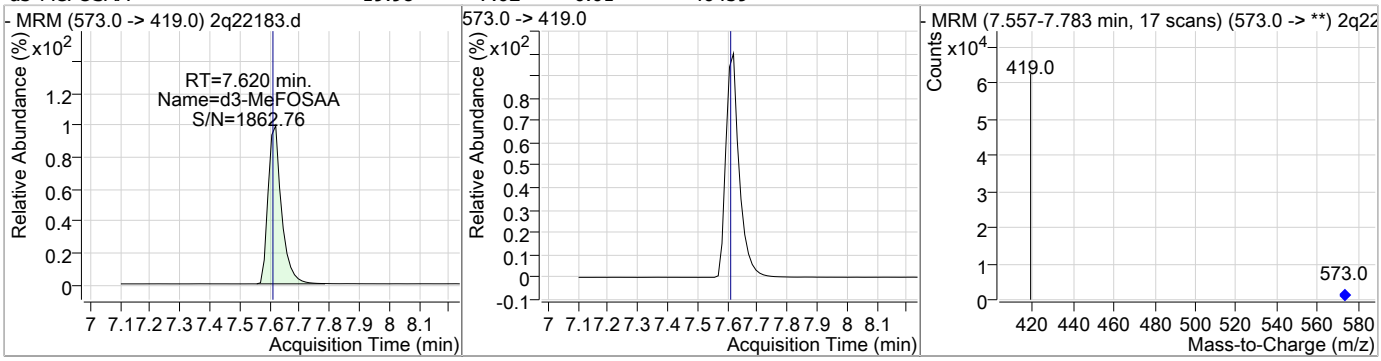


Perfluorinated Compounds by LC/MS/MS

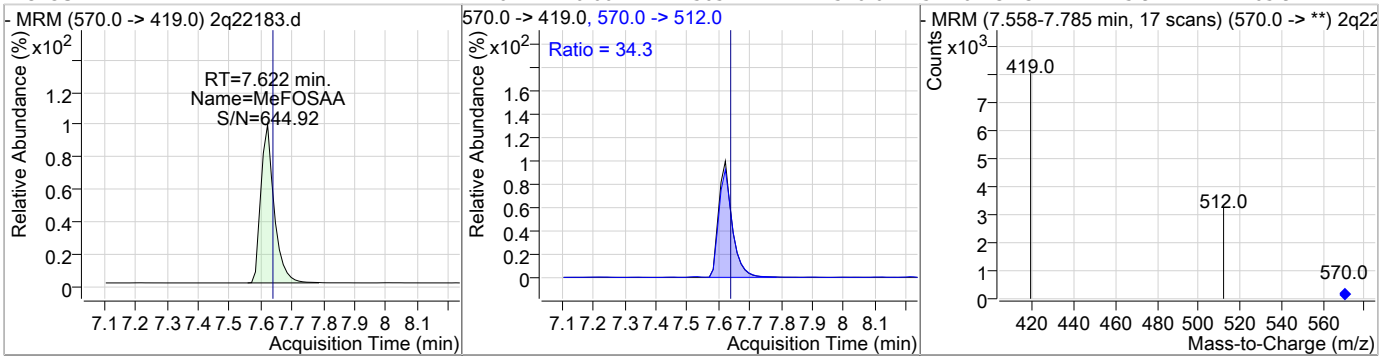
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.76	7.59	0.00	12969	463.0 -> 219.0	24.6	0.0	54.8



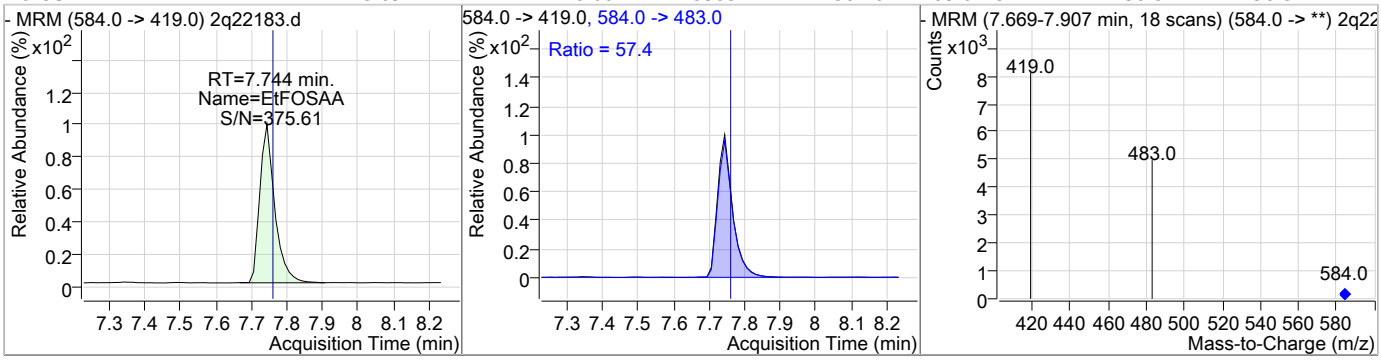
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.98	7.62	0.01	46459				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.77	7.62	0.00	5654	570.0 -> 512.0	34.3	5.9	65.9

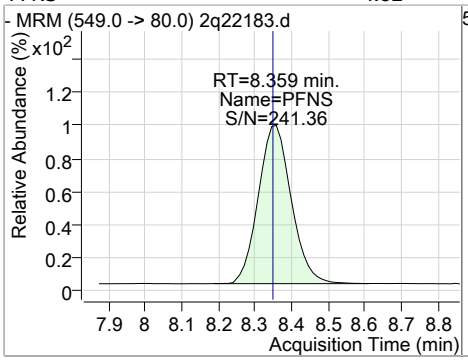


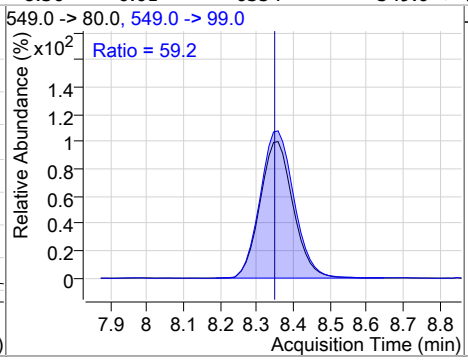
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	5.09	7.74	0.00	5385	584.0 -> 483.0	57.4	30.5	90.5

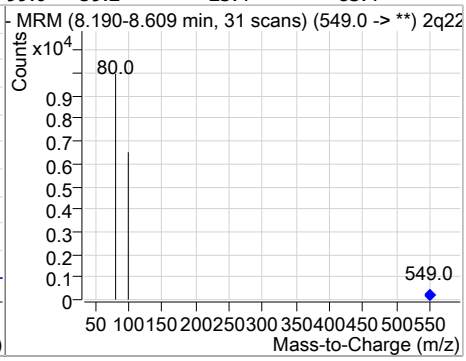


Perfluorinated Compounds by LC/MS/MS

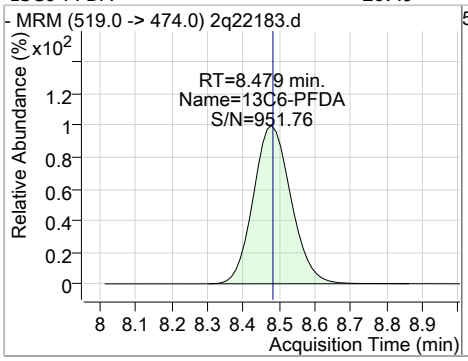
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	4.82	8.36	0.01	6354	549.0 -> 99.0	59.2	23.4	83.4

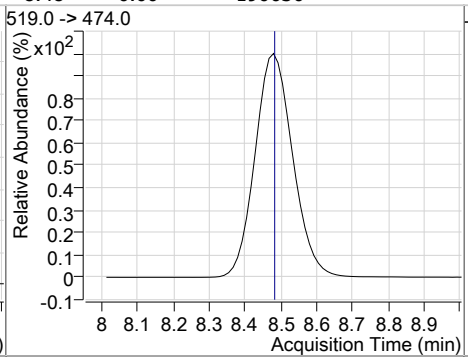


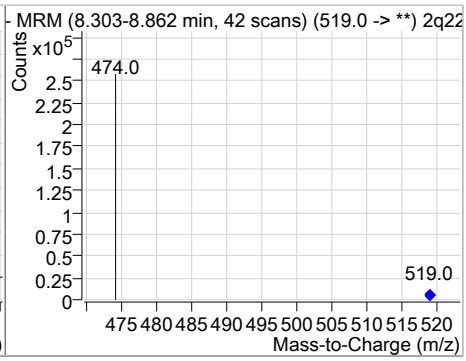




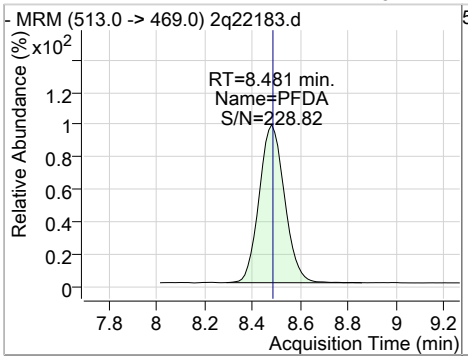
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.49	8.48	0.00	190630				

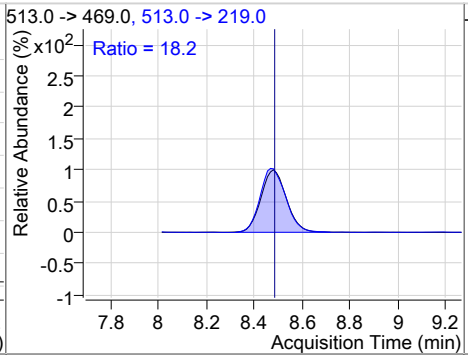


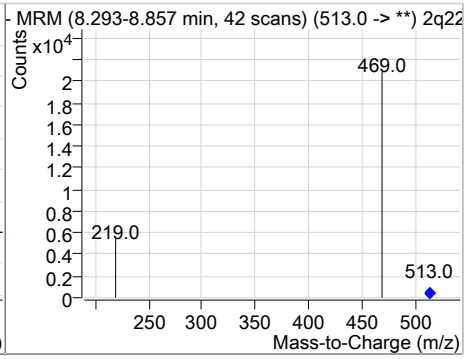




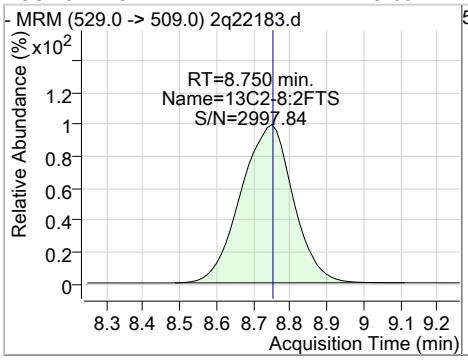
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.82	8.48	0.00	14018	513.0 -> 219.0	18.2	0.0	47.6

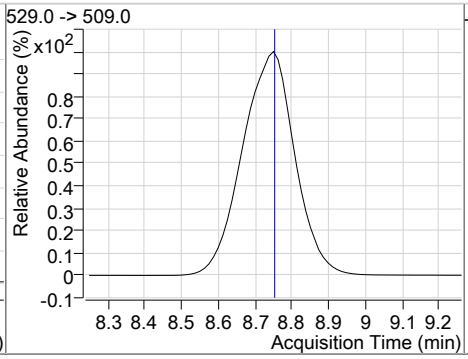


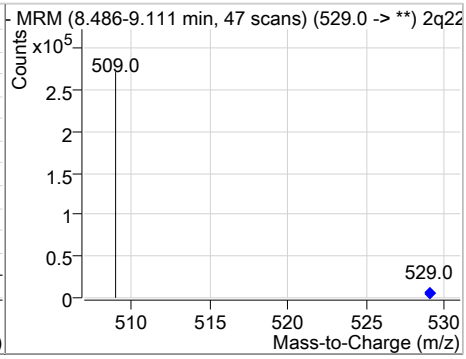




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.05	8.75	0.00	200163				

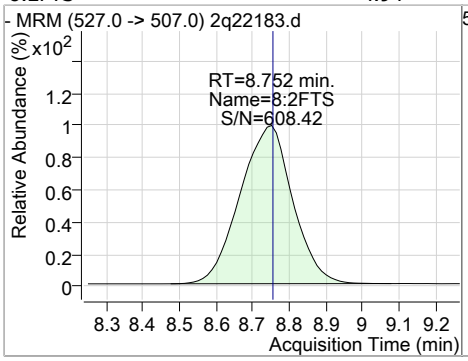


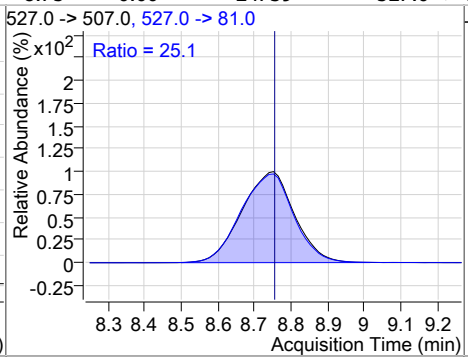


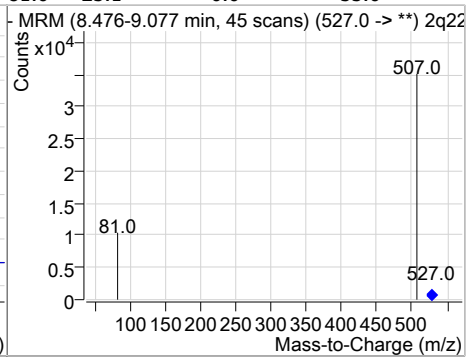


Perfluorinated Compounds by LC/MS/MS

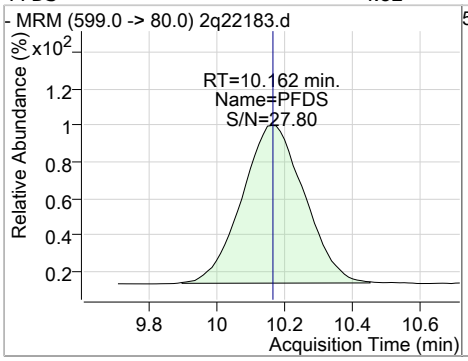
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	4.94	8.75	0.00	24739	527.0 -> 81.0	25.1	0.0	55.6

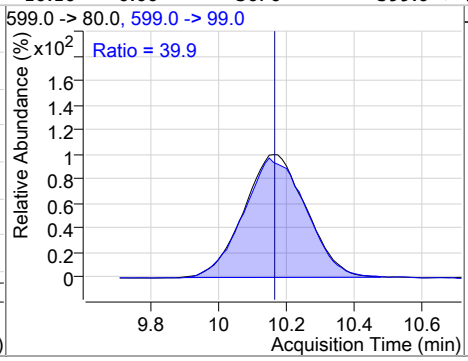


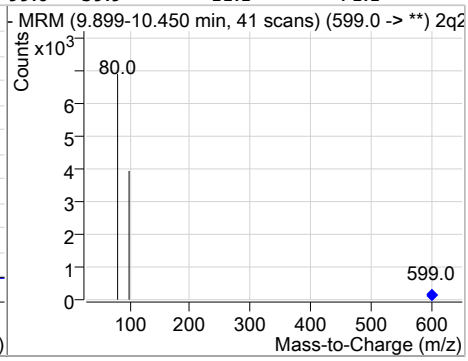




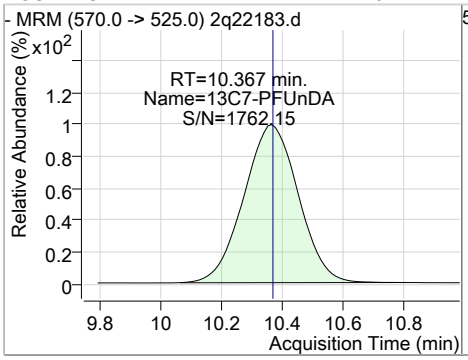
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	4.82	10.16	0.00	3670	599.0 -> 99.0	39.9	11.1	71.1

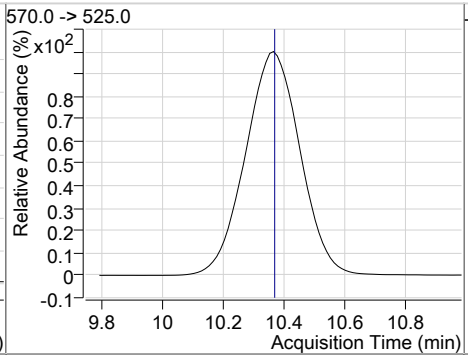


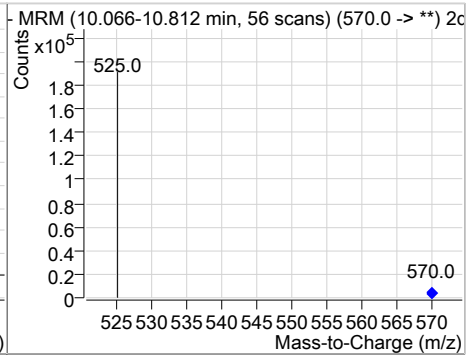




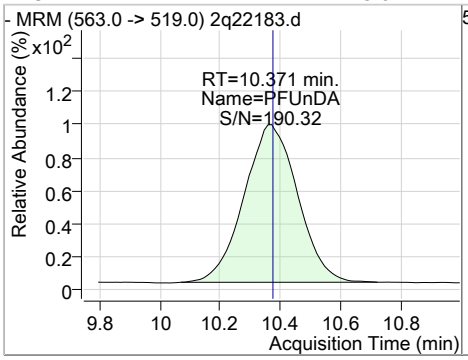
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.27	10.37	0.00	138776				

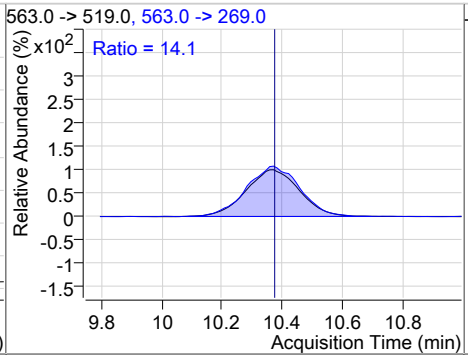


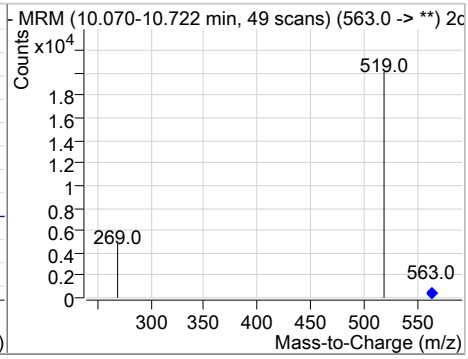




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	5.04	10.37	0.00	13033	563.0 -> 269.0	14.1	0.0	43.1

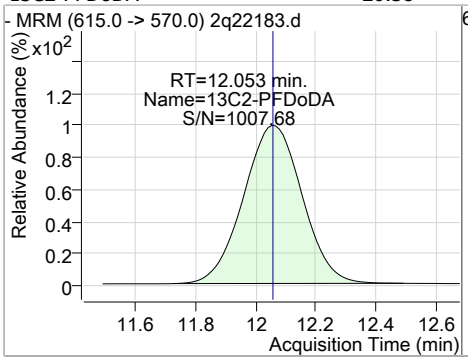


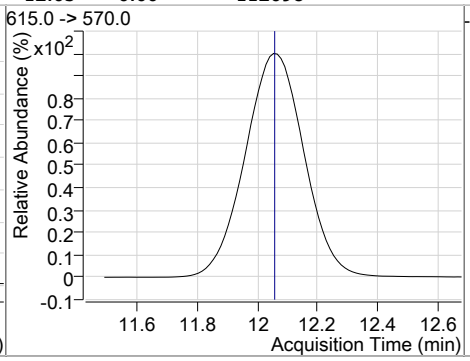


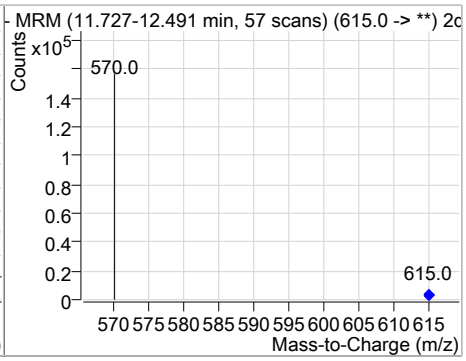


Perfluorinated Compounds by LC/MS/MS

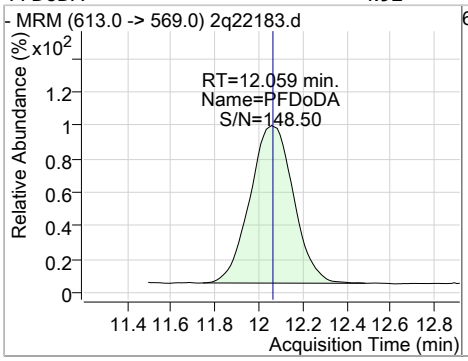
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.38	12.05	0.00	112698				

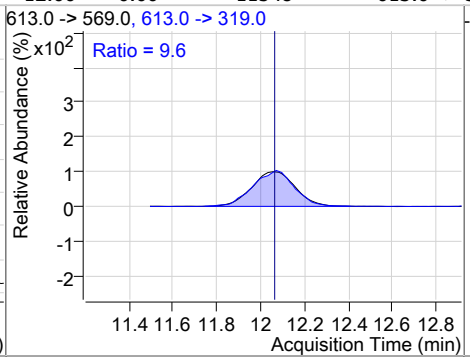


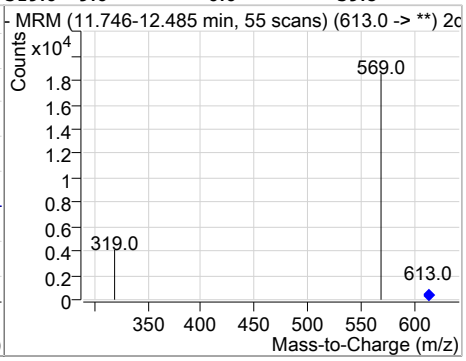




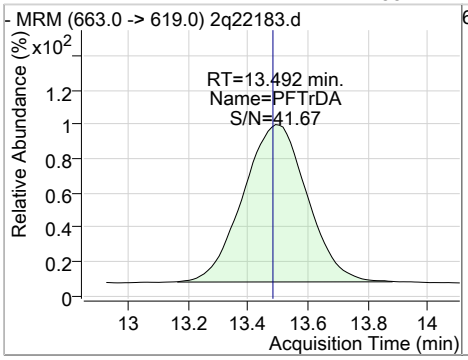
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.92	12.06	0.00	11548	613.0 -> 319.0	9.6	0.0	39.8

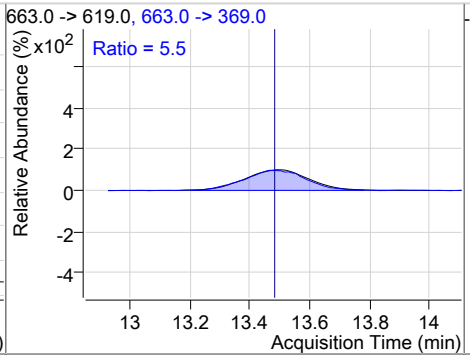


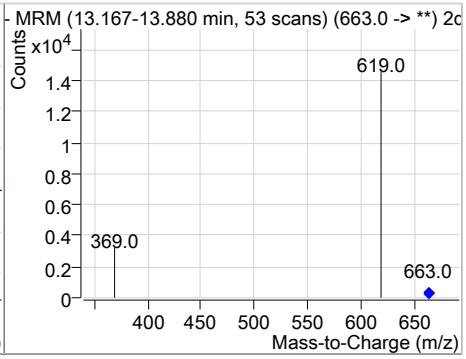




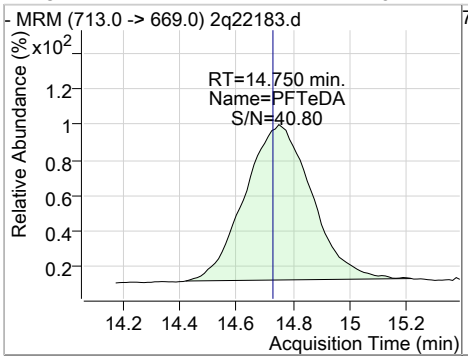
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.88	13.49	0.01	8738	663.0 -> 369.0	5.5	0.0	35.8

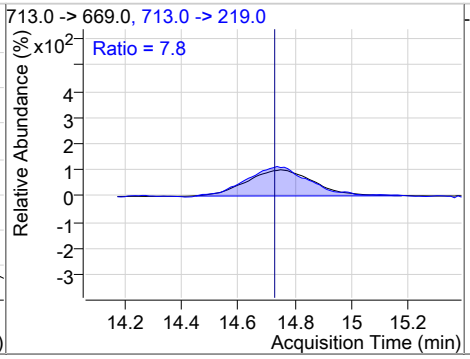


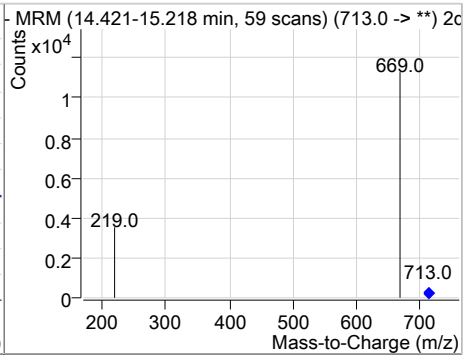




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.87	14.75	0.03	5961	713.0 -> 219.0	7.8	0.0	37.4

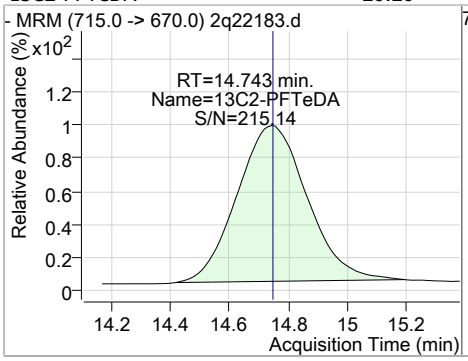


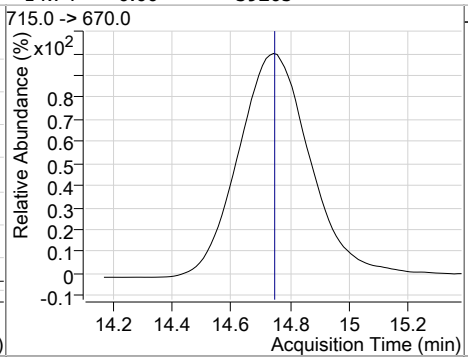


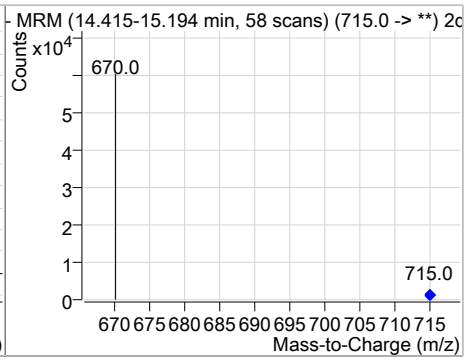


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.20	14.74	0.00	39205				







Manual Integration Approval Summary

Sample Number: S2Q350-IC350
Lab FileID: 2Q22183.D
Injection Time: 10/16/18 11:27

Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.54	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22184.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/16/2018 11:48:12 AM
Sample Name : ic350-10
Vial : Vial 6
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q350.batch.bin
Sample Information : op71813,S2Q350,2.01,,,1.0,1,soil

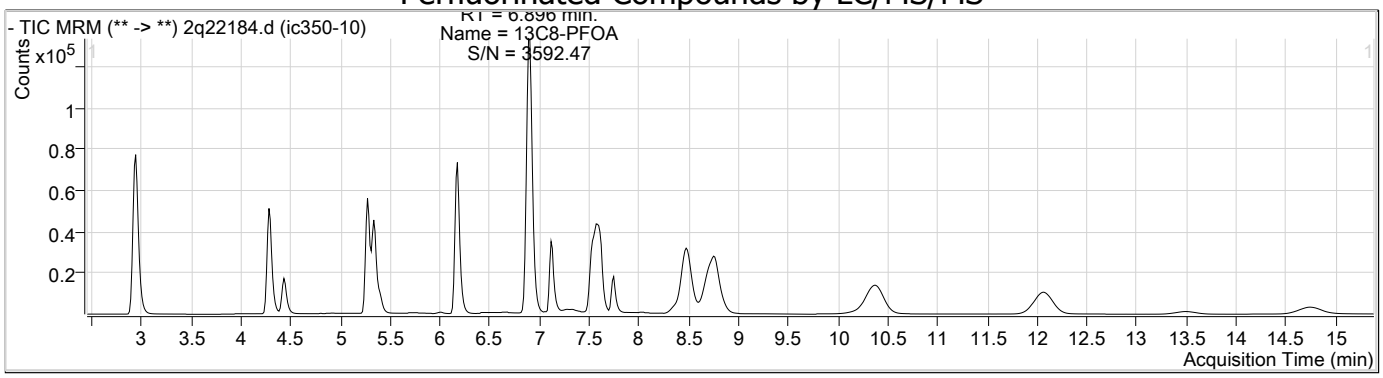
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.898	415.0 -> 370.0	151667	20.00	µg/L	0.000
13C4-PFOS	7.535	503.0 -> 80.0	62211	20.00	µg/L	0.000
M4-PFBA	2.941	217.0 -> 172.0	284669	20.00	µg/L	0.000
M5-PFPeA	4.287	268.0 -> 223.0	121079	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	116540	20.00	µg/L	0.000
M4-PFHpA	6.179	367.0 -> 322.0	136771	20.00	µg/L	0.000
M8-PFOA	6.896	421.0 -> 376.0	113979	20.00	µg/L	0.000
M9-PFNA	7.589	472.0 -> 427.0	105363	20.00	µg/L	0.000
M6-PFDA	8.479	519.0 -> 474.0	197382	20.00	µg/L	0.000
M7-PFUnDA	10.379	570.0 -> 525.0	146239	20.00	µg/L	0.013
M2-PFDoDA	12.065	615.0 -> 570.0	117669	20.00	µg/L	0.013
M2-PFTeDA	14.743	715.0 -> 670.0	41925	20.00	µg/L	0.000
M8-FOSA	7.117	506.0 -> 78.0	84288	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	29805	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	37594	20.00	µg/L	0.000
M8-PFOS	7.533	507.0 -> 99.0	38255	20.00	µg/L	0.000
M2-4:2FTS	5.272	329.0 -> 309.0	133864	20.00	µg/L	0.000
M2-6:2FTS	6.918	429.0 -> 409.0	179602	20.00	µg/L	0.013
M2-8:2FTS	8.750	529.0 -> 509.0	212825	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	48852	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	133871	20.33	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C2-6:2FTS	6.918	429.0 -> 409.0	179594	20.34	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C2-8:2FTS	8.750	529.0 -> 509.0	212390	20.21	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C2-PFDoDA	12.065	615.0 -> 570.0	116991	21.16	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
13C2-PFTeDA	14.743	715.0 -> 670.0	40788	21.01	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.1%		
13C3-PFBS	4.430	302.0 -> 99.0	29798	21.31	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.5%		
13C3-PFHxS	6.173	402.0 -> 99.0	37599	21.11	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%		
13C4-PFBA	2.941	217.0 -> 172.0	284577	21.16	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
13C4-PFHpA	6.179	367.0 -> 322.0	136756	21.26	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.3%		
13C5-PFHxA	5.339	318.0 -> 273.0	116524	21.17	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
13C5-PFPeA	4.287	268.0 -> 223.0	121017	21.17	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C6-PFDA	8.479	519.0 -> 474.0	196907	21.16	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		

Perfluorinated Compounds by LC/MS/MS

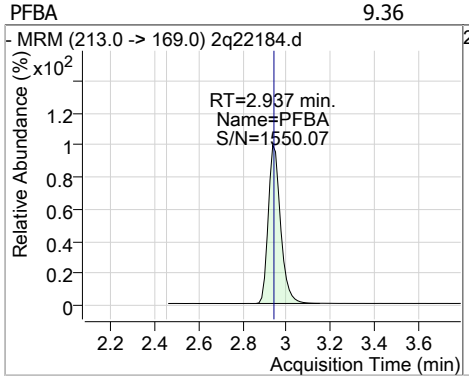
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.379	570.0 -> 525.0	145686	21.28	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.4%			
13C8-FOSA	7.117	506.0 -> 78.0	84255	21.71	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.5%			
13C8-PFOA	6.896	421.0 -> 376.0	114000	21.21	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.1%			
13C8-PFOS	7.533	507.0 -> 99.0	38257	21.08	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%			
13C9-PFNA	7.589	472.0 -> 427.0	105265	21.41	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.1%			
d3-MeFOSAA	7.620	573.0 -> 419.0	48910	21.03	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.2%			
M2-PFOA	6.898	415.0 -> 370.0	151747	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.535	503.0 -> 80.0	62108	19.98	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
Target Compounds							**QValue**
4:2FTS	5.274	327.0 -> 307.0	35002	9.65	µg/L		98
6:2FTS	6.920	427.0 -> 407.0	42036	11.25	µg/L		100
8:2FTS	8.752	527.0 -> 507.0	50330	9.55	µg/L		99
EtFOSAA	7.744	584.0 -> 419.0	10371	9.31	µg/L		99
FOSA	7.120	498.0 -> 78.0	18810	9.42	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	11797	9.46	µg/L		93
PFBA	2.937	213.0 -> 169.0	15979	9.36	µg/L		100
PFBS	4.434	299.0 -> 80.0	19967	9.27	µg/L		100
PFDA	8.481	513.0 -> 469.0	27944	9.29	µg/L		97
PFDoDA	12.059	613.0 -> 569.0	23198	9.52	µg/L		99
PFDS	10.175	599.0 -> 80.0	7457	9.34	µg/L		97
PFHpA	6.182	363.0 -> 319.0	48049	9.25	µg/L		100
PFHpS	6.866	449.0 -> 80.0	14522	9.55	µg/L		97
PFHxA	5.341	313.0 -> 269.0	17563	9.41	µg/L		100
PFHxS	6.176	399.0 -> 80.0	16836	9.18	µg/L	m	100
PFNA	7.590	463.0 -> 419.0	26295	9.08	µg/L		99
PFNS	8.359	549.0 -> 80.0	12902	9.34	µg/L		96
PFOA	6.899	413.0 -> 369.0	27336	9.27	µg/L		98
PFOS	7.536	499.0 -> 80.0	15173	9.25	µg/L	m	99
PFPeA	4.291	263.0 -> 219.0	54278	9.55	µg/L		100
PFPeS	5.396	349.0 -> 80.0	13082	9.37	µg/L		96
PFTeDA	14.737	713.0 -> 669.0	11939	9.64	µg/L		99
PFTrDA	13.492	663.0 -> 619.0	17591	9.71	µg/L		100
PFUnDA	10.371	563.0 -> 519.0	25515	9.39	µg/L		97

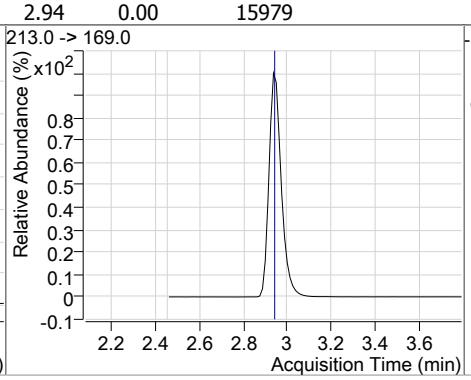
 # = Qualifier out of range, m = manually integrated, + = Area summed

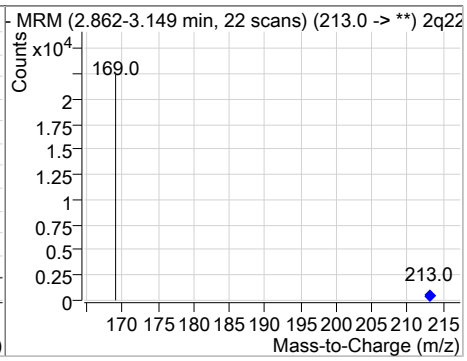
Perfluorinated Compounds by LC/MS/MS



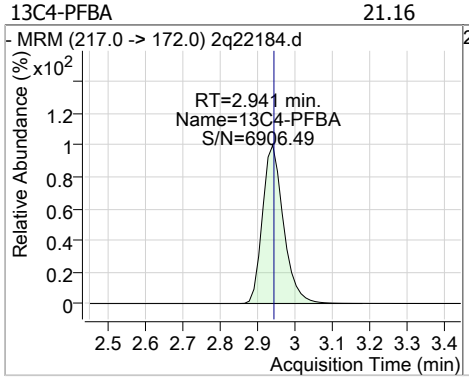
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.36	2.94	0.00	15979				

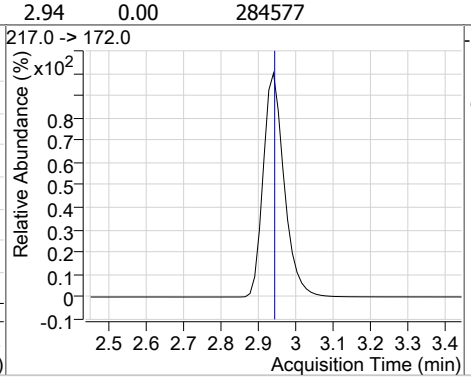


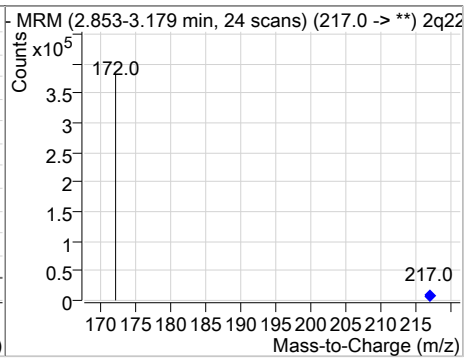




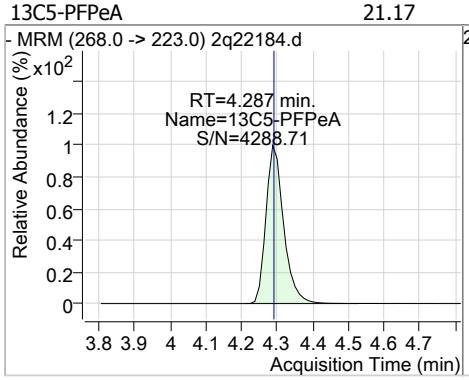
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.16	2.94	0.00	284577				

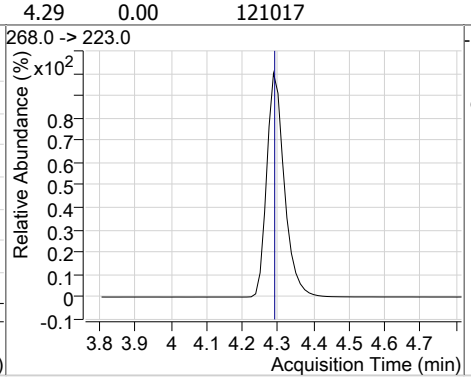


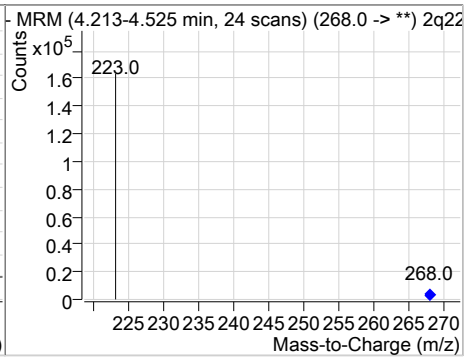




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	21.17	4.29	0.00	121017				

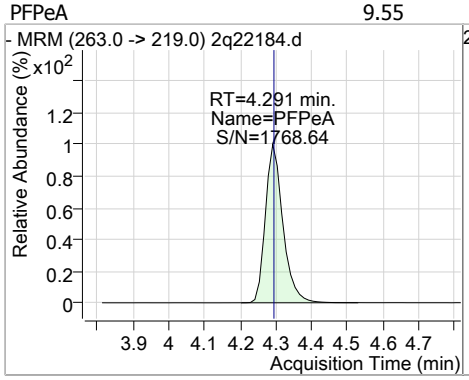


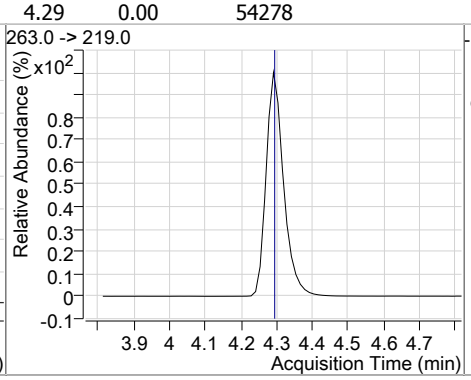


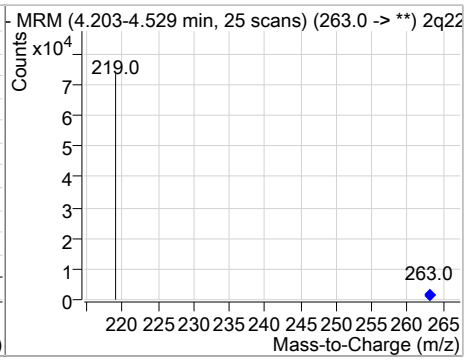


Perfluorinated Compounds by LC/MS/MS

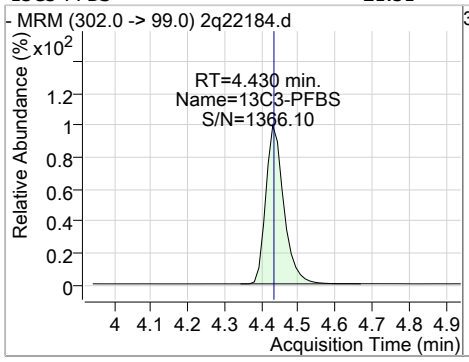
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.55	4.29	0.00	54278				

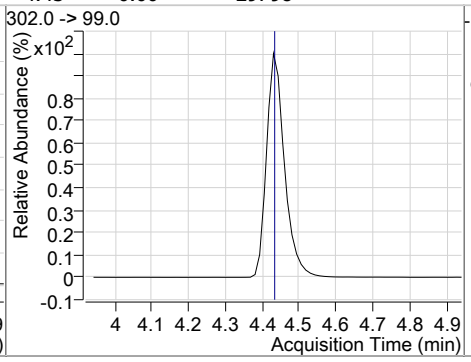


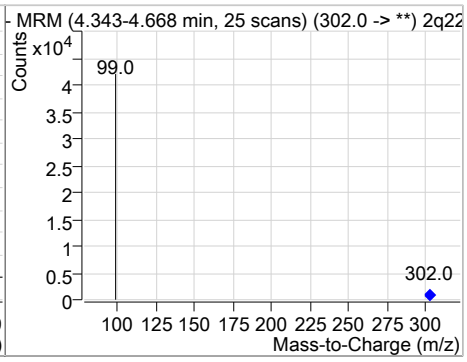




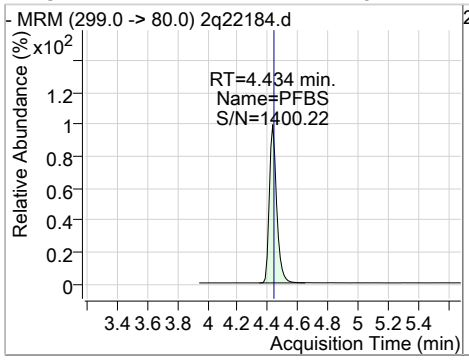
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	21.31	4.43	0.00	29798				

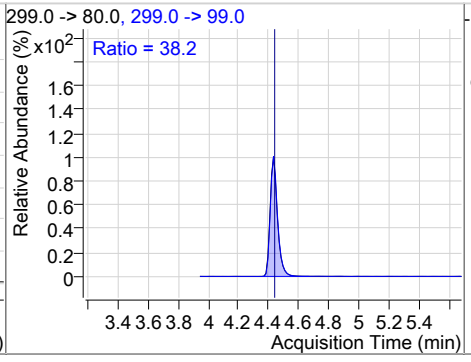


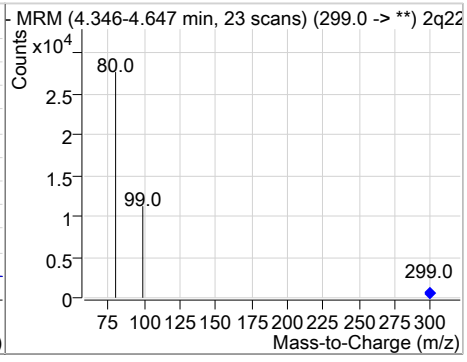




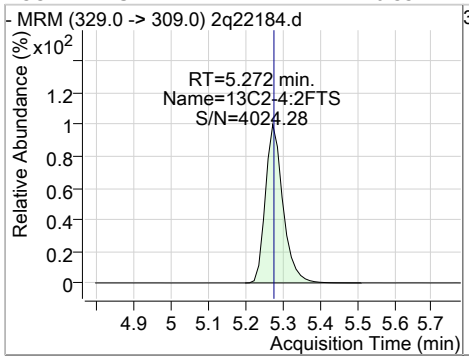
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	9.27	4.43	0.00	19967	299.0 -> 99.0	38.2	8.1	68.1

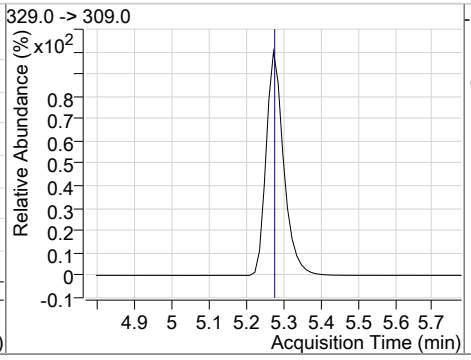


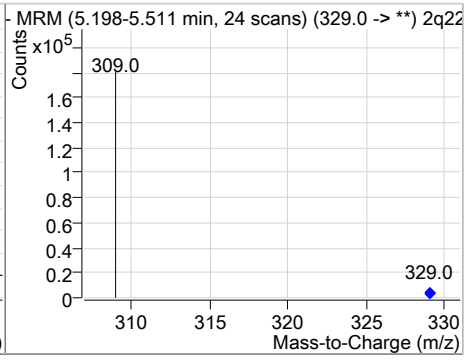




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.33	5.27	0.00	133871				

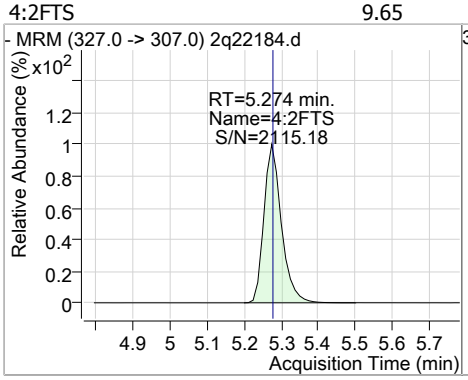


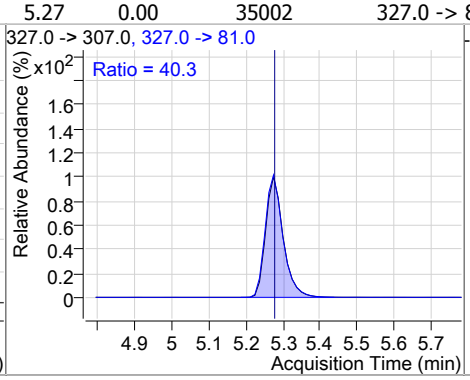


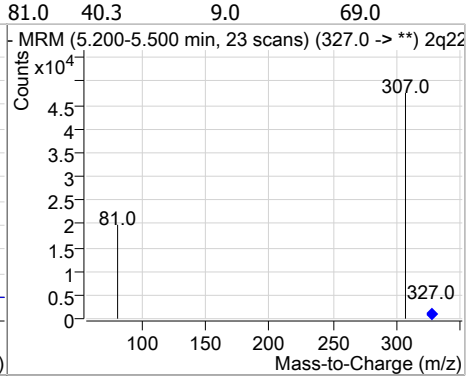


Perfluorinated Compounds by LC/MS/MS

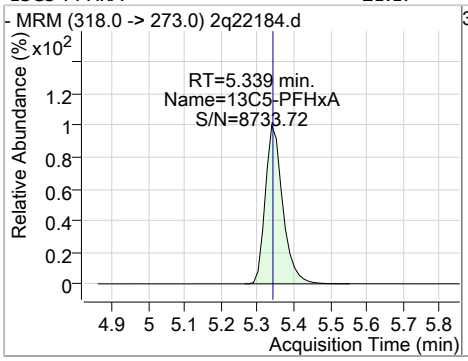
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.65	5.27	0.00	35002	327.0 -> 81.0	40.3	9.0	69.0

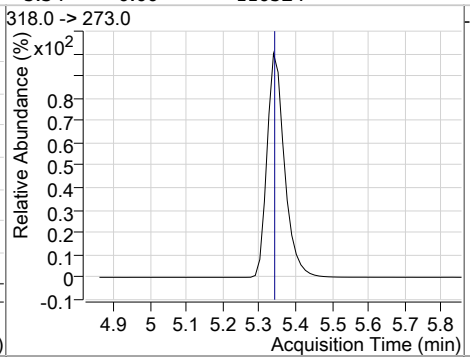


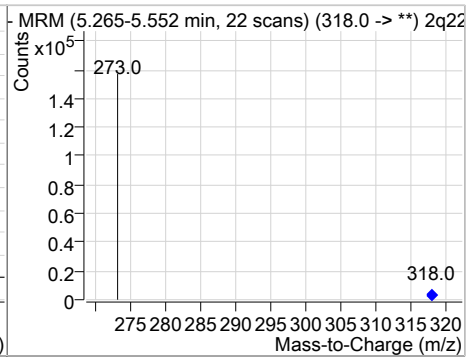




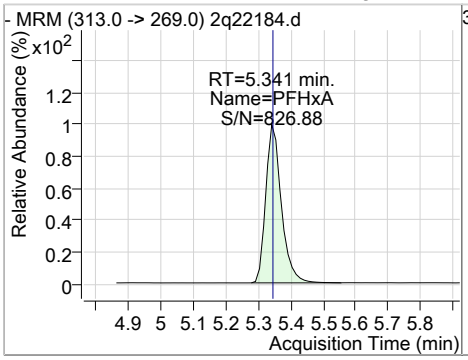
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.17	5.34	0.00	116524				

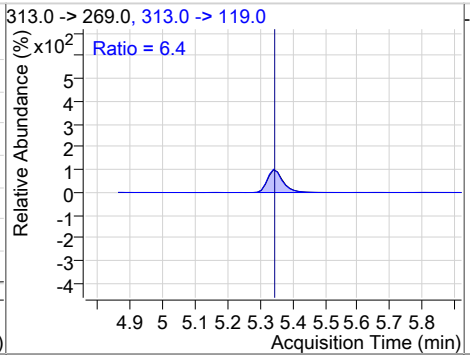


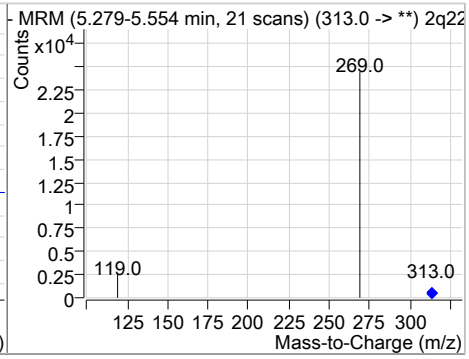




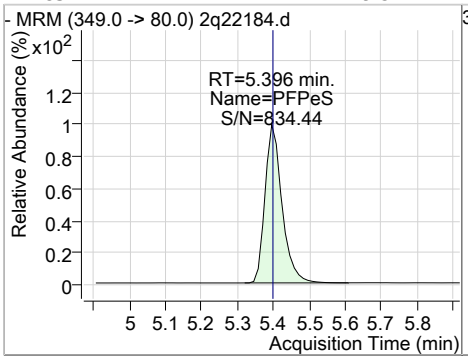
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	9.41	5.34	0.00	17563	313.0 -> 119.0	6.4	0.0	36.4

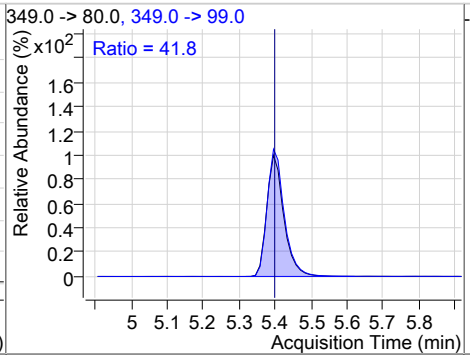


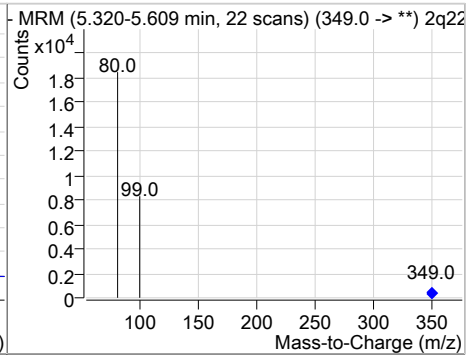




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	9.37	5.40	0.00	13082	349.0 -> 99.0	41.8	9.5	69.5

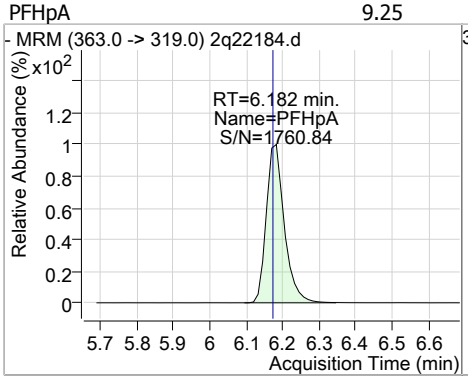


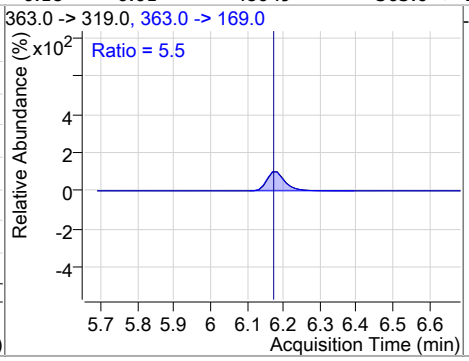


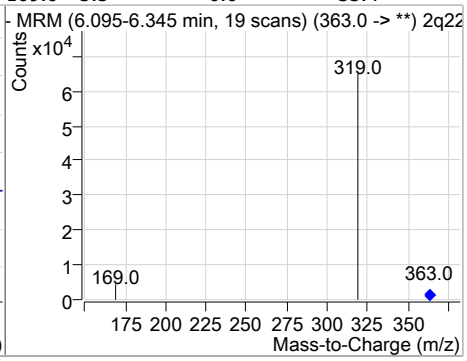


Perfluorinated Compounds by LC/MS/MS

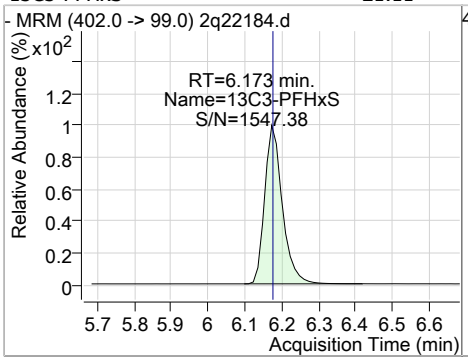
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	9.25	6.18	0.01	48049	363.0 -> 169.0	5.5	0.0	35.4

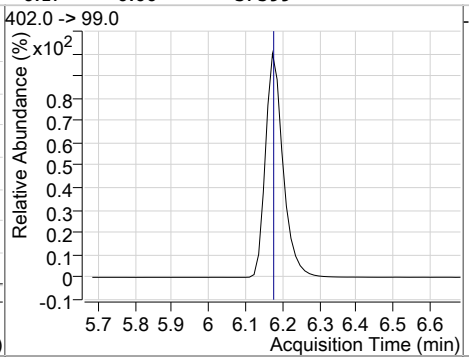


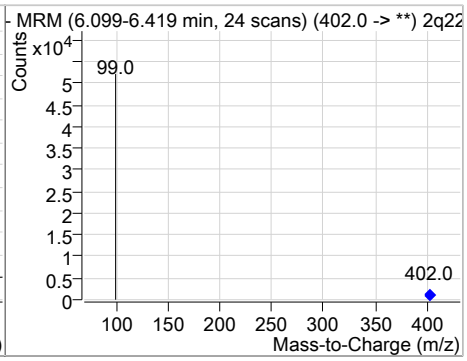




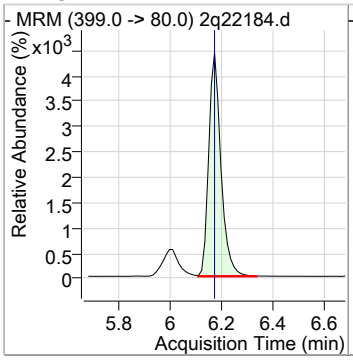
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.11	6.17	0.00	37599				

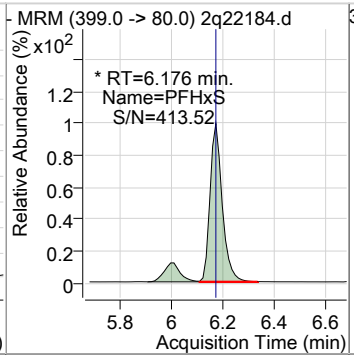


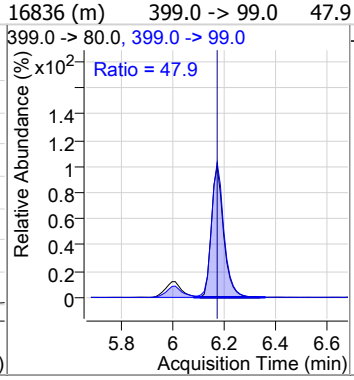


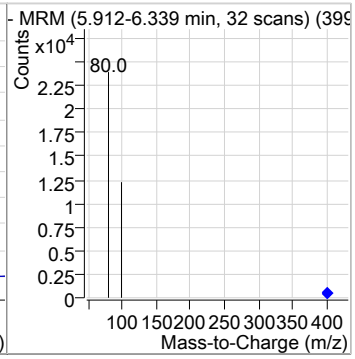


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.18	6.18	0.00	16836 (m)	399.0 -> 99.0	47.9	17.7	77.7

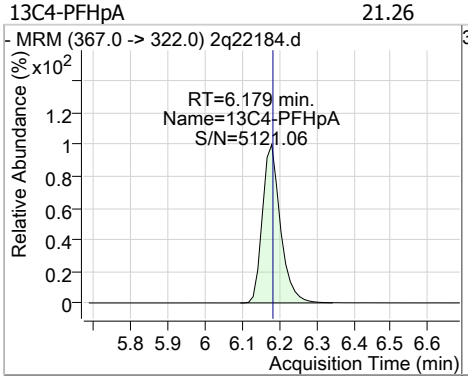


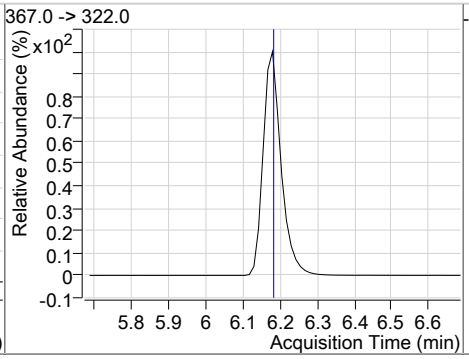


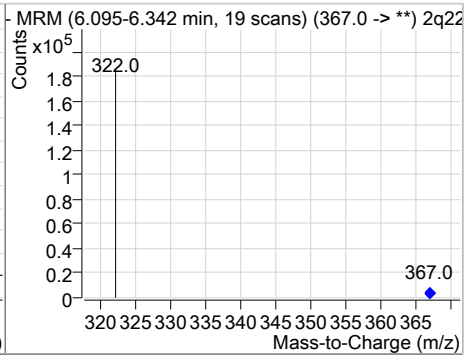




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.26	6.18	0.00	136756				

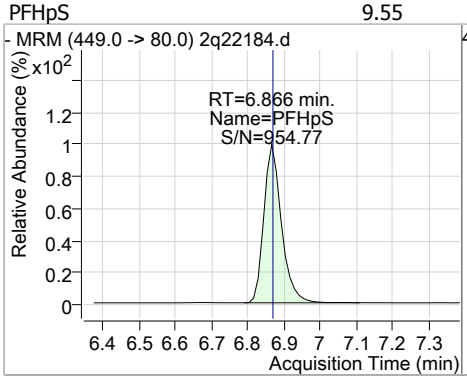


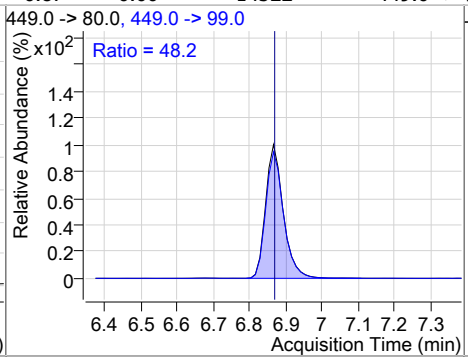


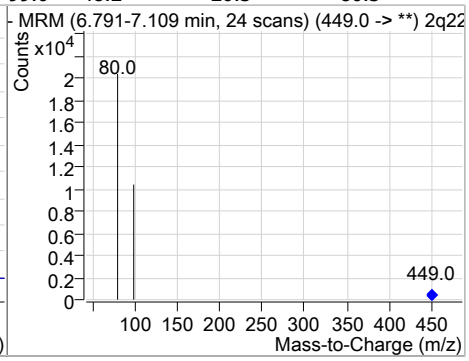


Perfluorinated Compounds by LC/MS/MS

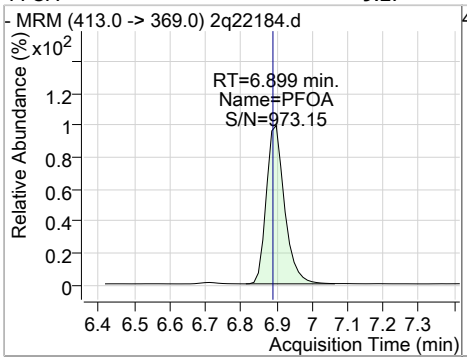
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	9.55	6.87	0.00	14522	449.0 -> 99.0	48.2	20.3	80.3

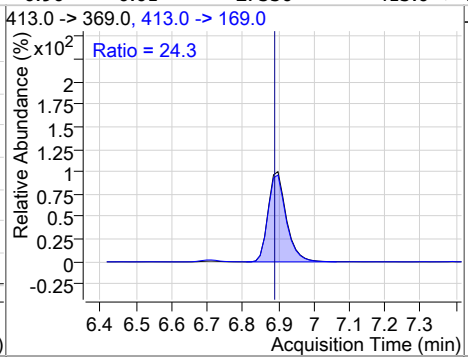


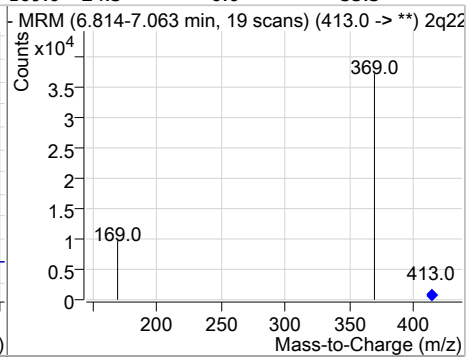




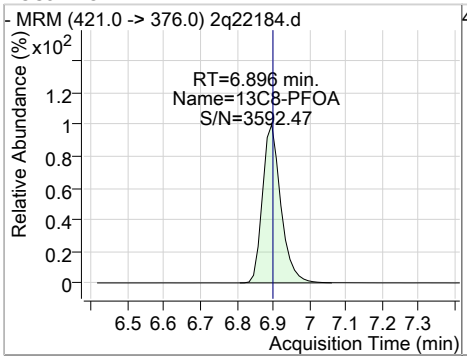
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	9.27	6.90	0.01	27336	413.0 -> 169.0	24.3	0.0	55.3

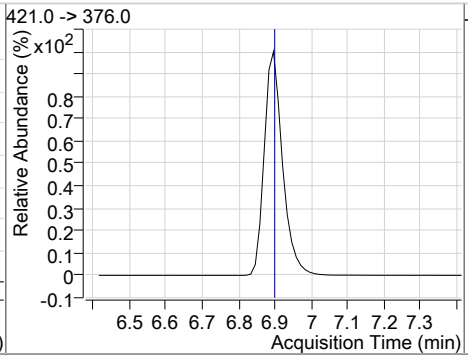


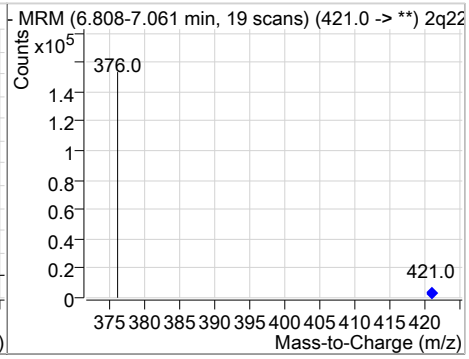




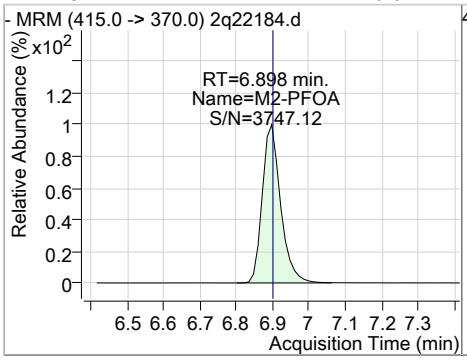
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.21	6.90	0.00	114000				

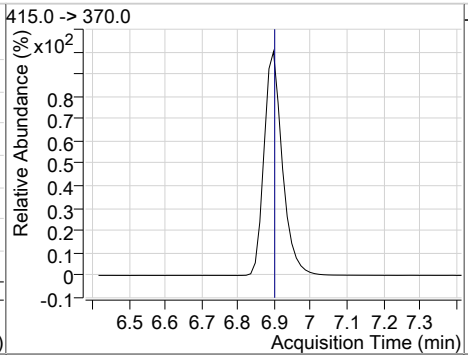


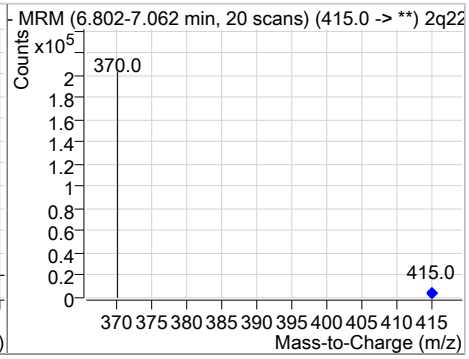




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.90	0.00	151747				

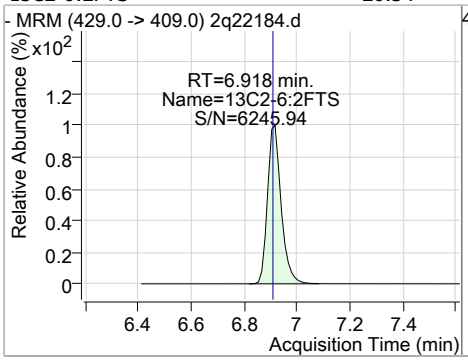


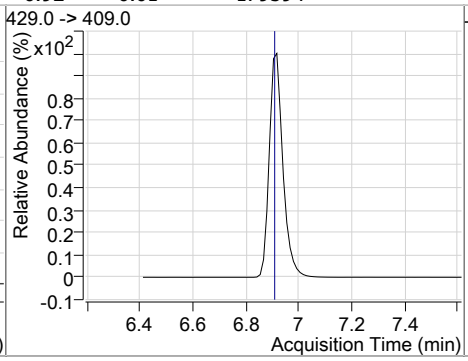


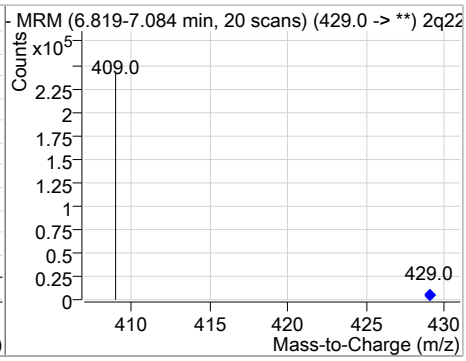


Perfluorinated Compounds by LC/MS/MS

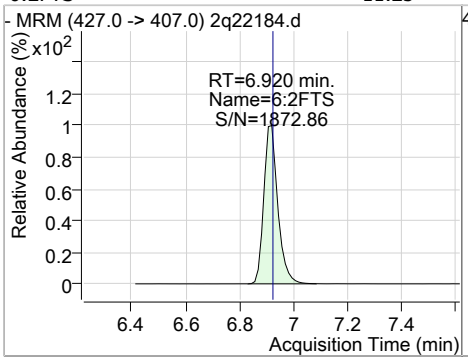
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.34	6.92	0.01	179594				

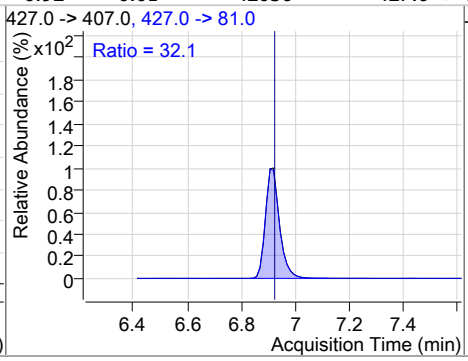


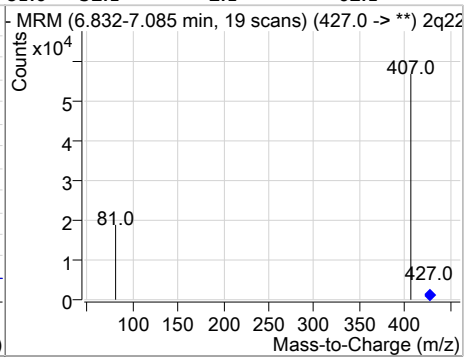




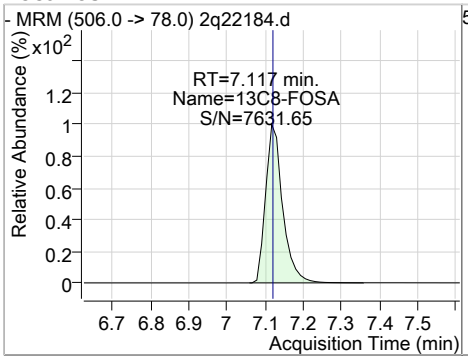
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	11.25	6.92	0.01	42036	427.0 -> 81.0	32.1	2.1	62.1

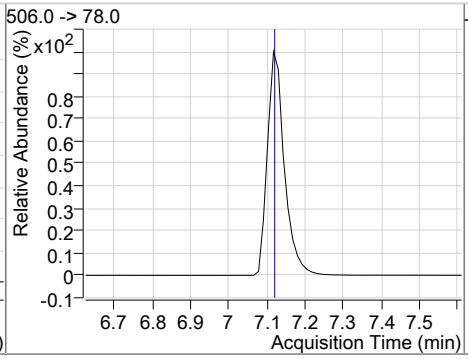


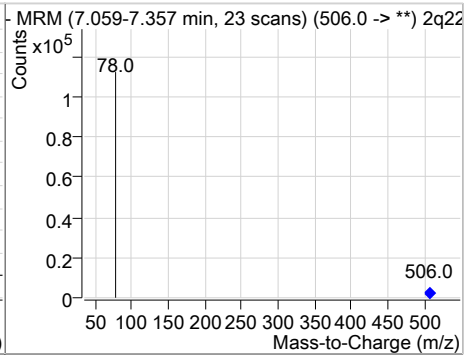




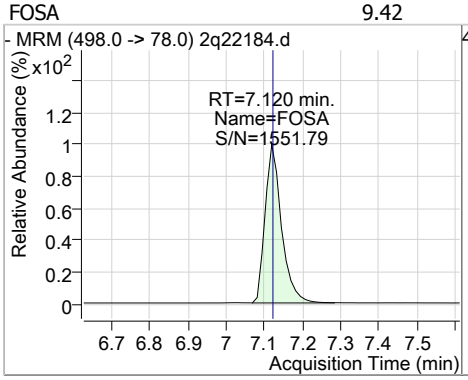
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.71	7.12	0.00	84255				

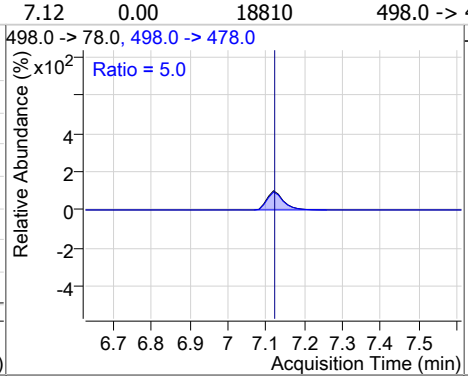


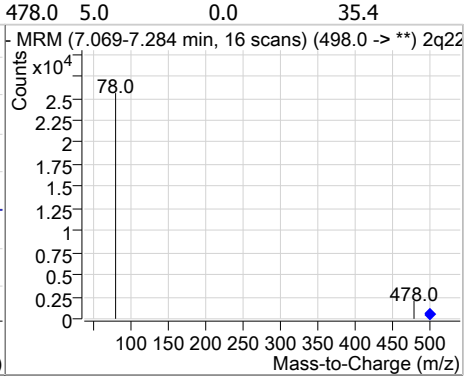




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	9.42	7.12	0.00	18810	498.0 -> 478.0	5.0	0.0	35.4

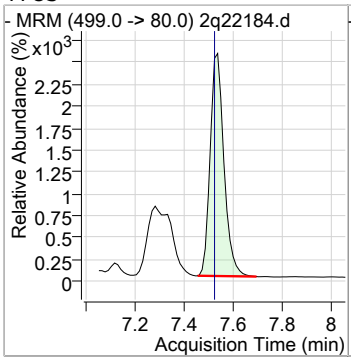


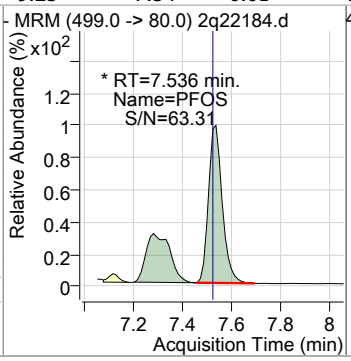


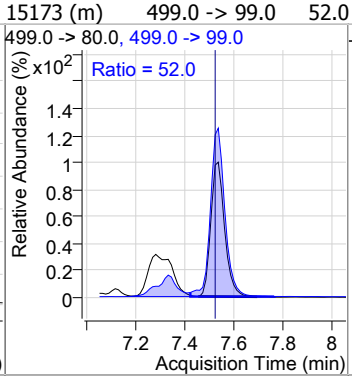


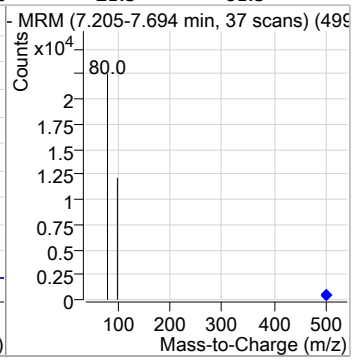
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.25	7.54	0.01	15173 (m)	499.0 -> 99.0	52.0	21.5	81.5

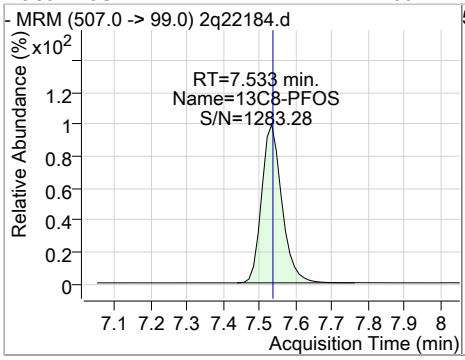


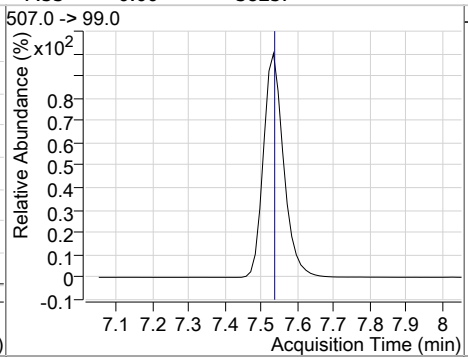


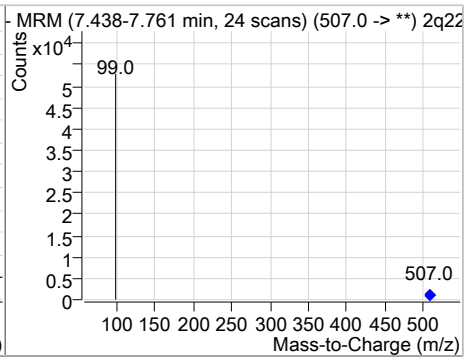




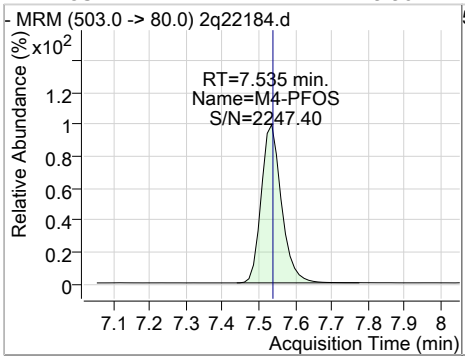
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.08	7.53	0.00	38257				

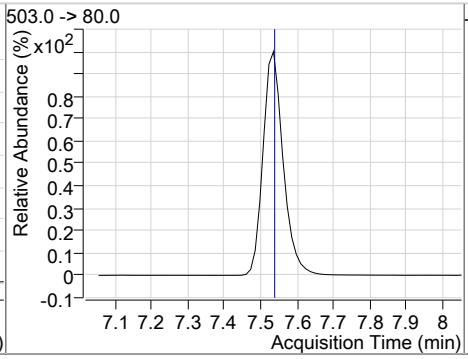


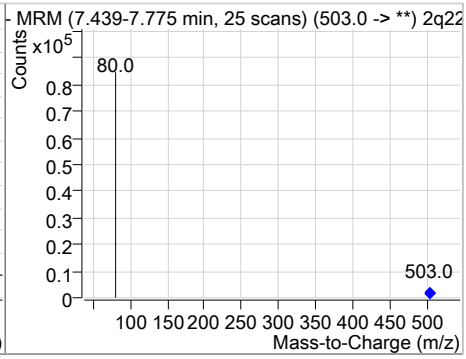




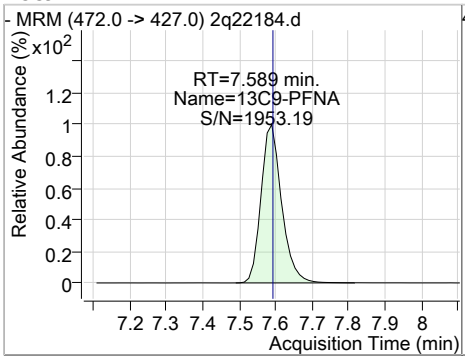
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.54	0.00	62108				

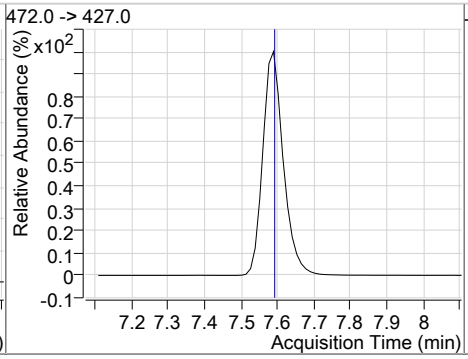


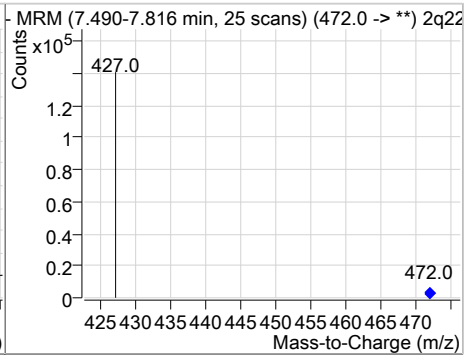




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.41	7.59	0.00	105265				

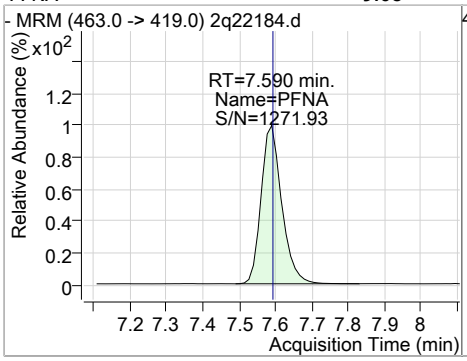


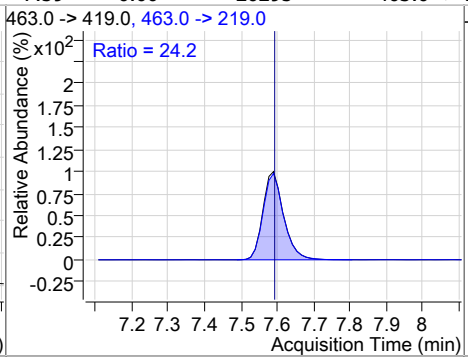


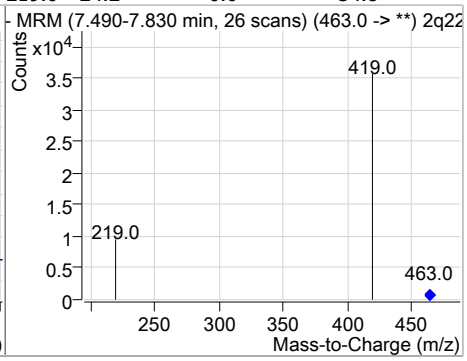


Perfluorinated Compounds by LC/MS/MS

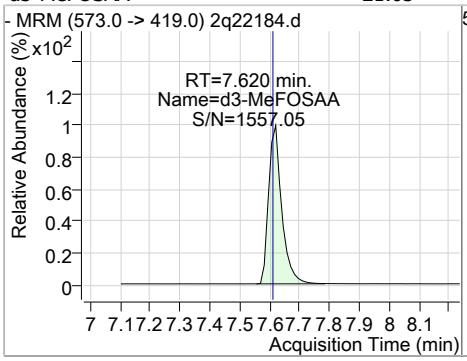
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	9.08	7.59	0.00	26295	463.0 -> 219.0	24.2	0.0	54.8

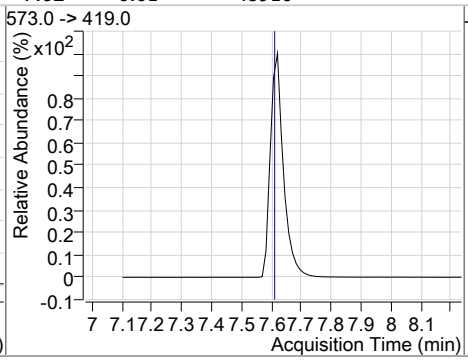


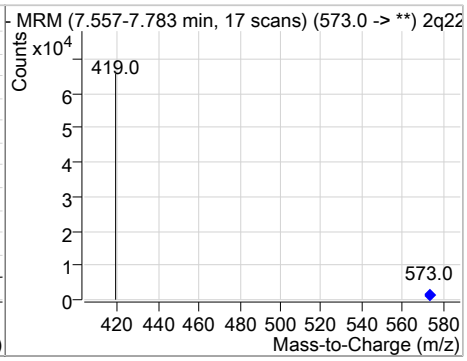




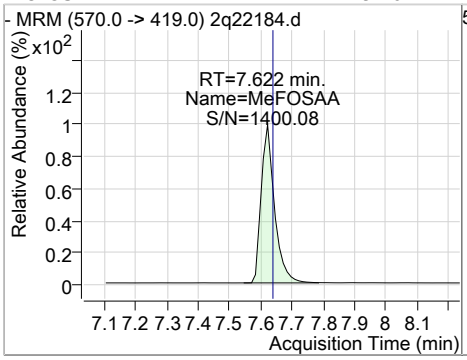
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.03	7.62	0.01	48910				

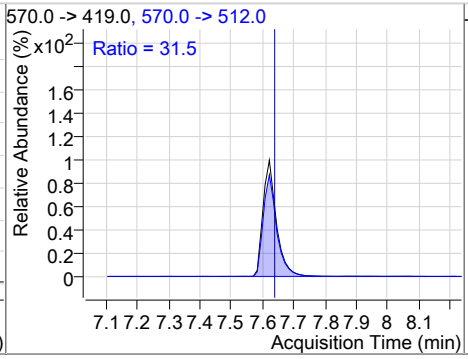


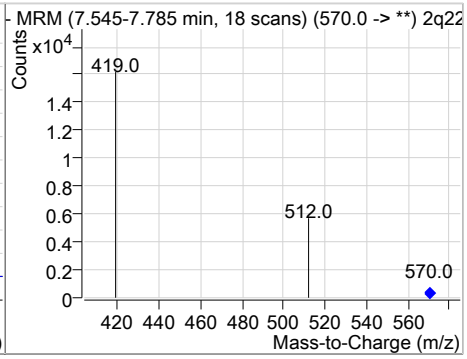




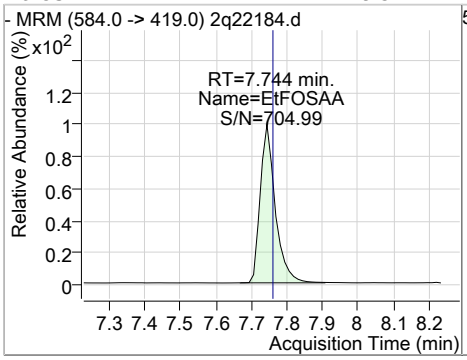
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	9.46	7.62	0.00	11797	570.0 -> 512.0	31.5	5.9	65.9

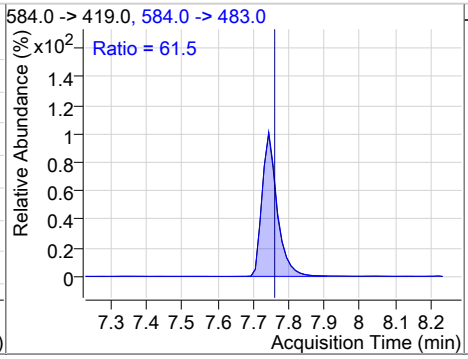


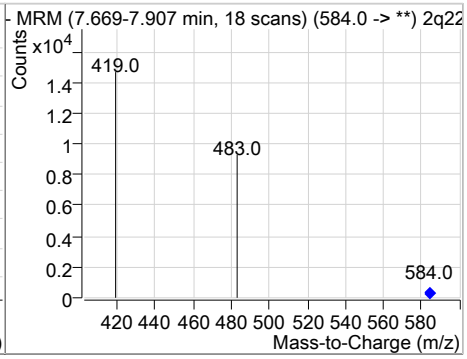




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	9.31	7.74	0.00	10371	584.0 -> 483.0	61.5	30.5	90.5

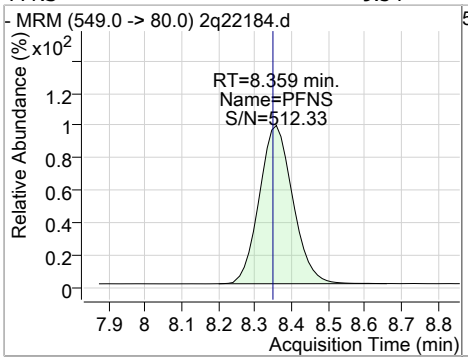


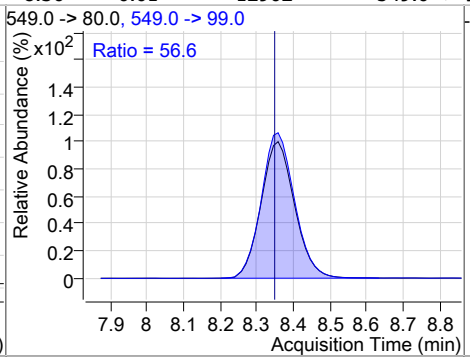


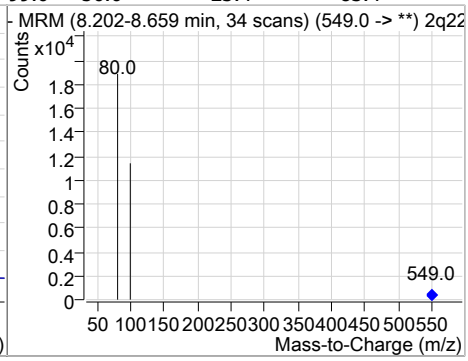


Perfluorinated Compounds by LC/MS/MS

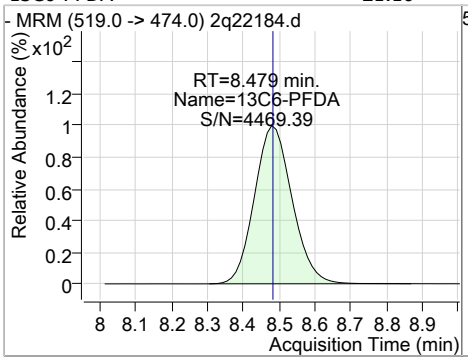
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	9.34	8.36	0.01	12902	549.0 -> 99.0	56.6	23.4	83.4

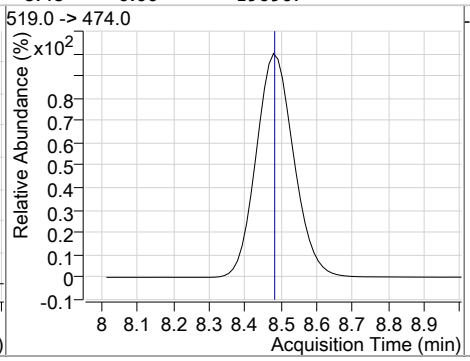


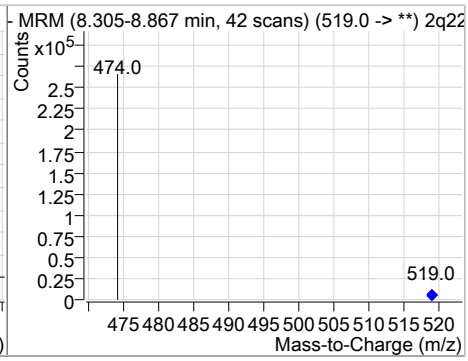




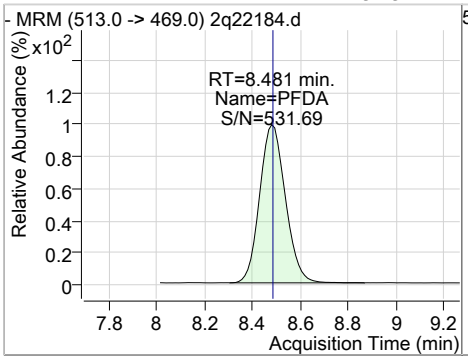
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.16	8.48	0.00	196907				

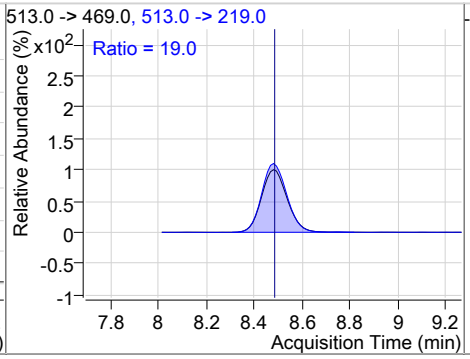


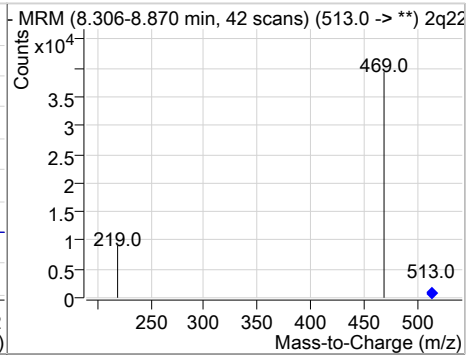




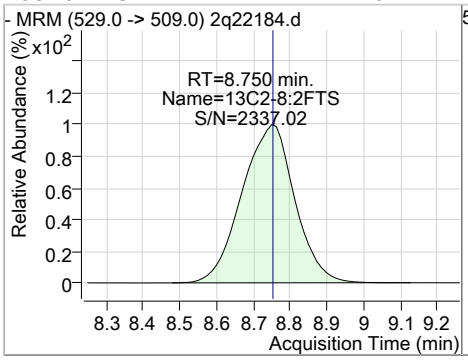
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	9.29	8.48	0.00	27944	513.0 -> 219.0	19.0	0.0	47.6

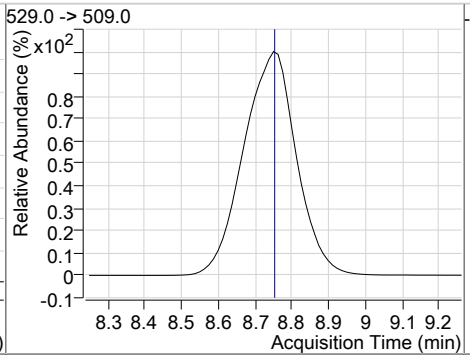


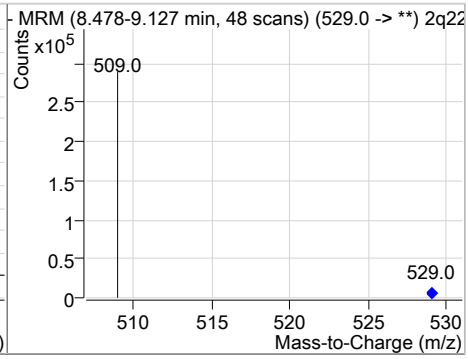




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.21	8.75	0.00	212390				

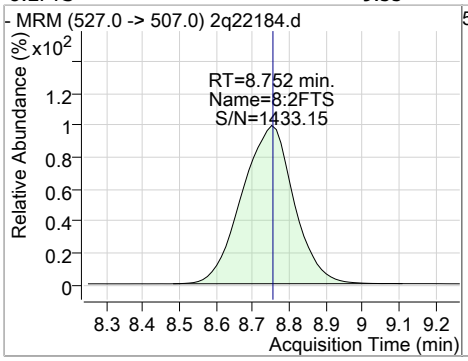


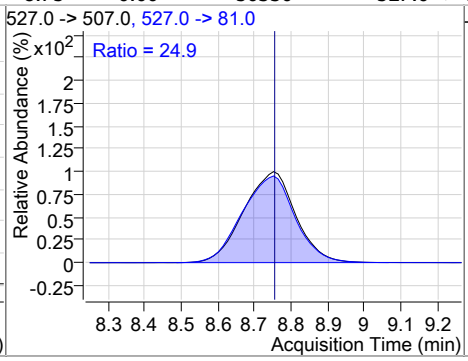


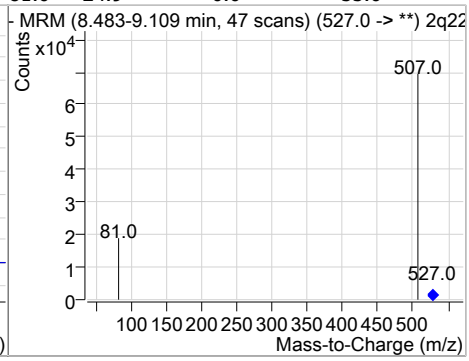


Perfluorinated Compounds by LC/MS/MS

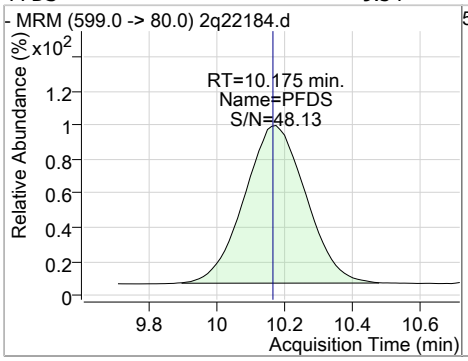
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.55	8.75	0.00	50330	527.0 -> 81.0	24.9	0.0	55.6

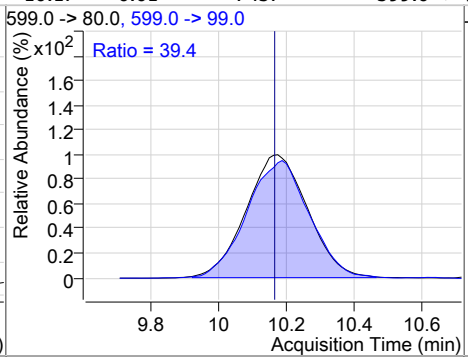


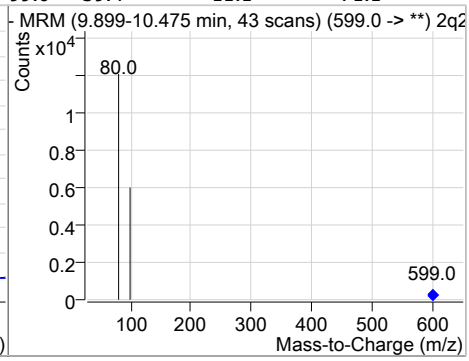




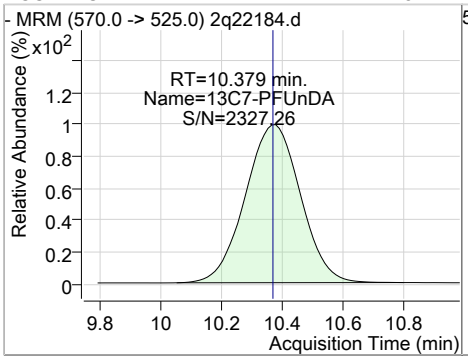
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	9.34	10.17	0.01	7457	599.0 -> 99.0	39.4	11.1	71.1

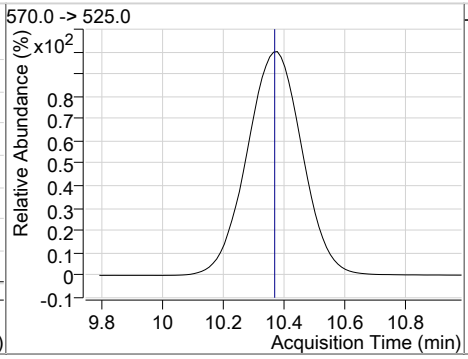


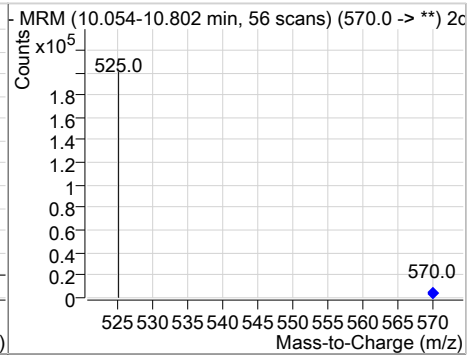




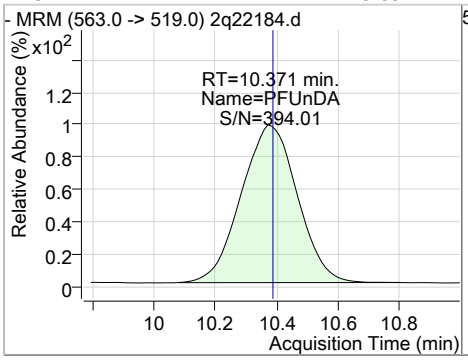
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	21.28	10.38	0.01	145686				

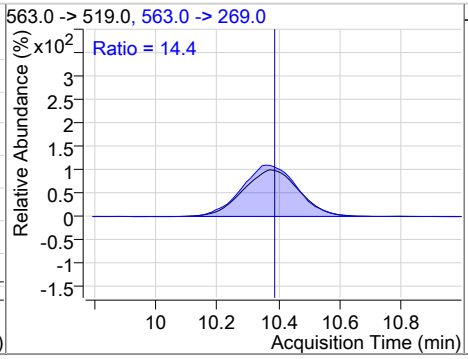


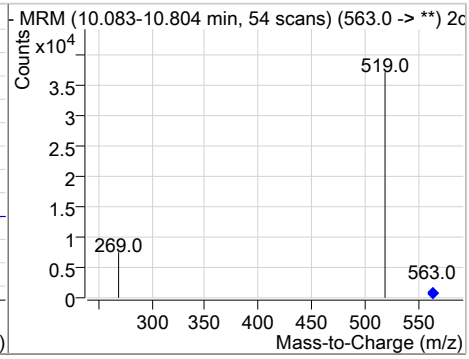




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.39	10.37	0.00	25515	563.0 -> 269.0	14.4	0.0	43.1

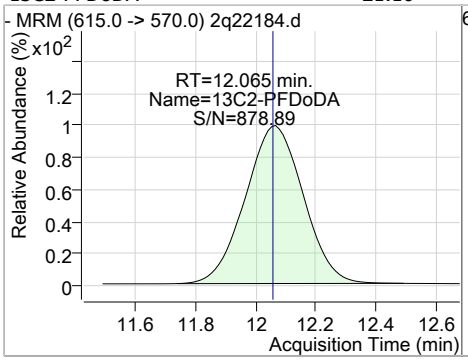


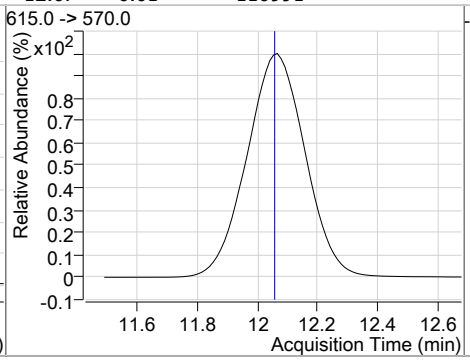


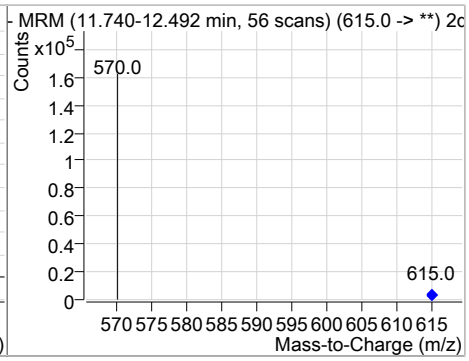


Perfluorinated Compounds by LC/MS/MS

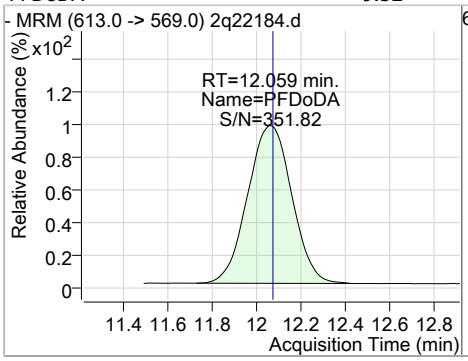
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.16	12.07	0.01	116991				

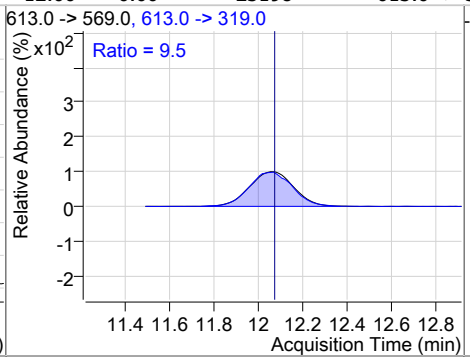


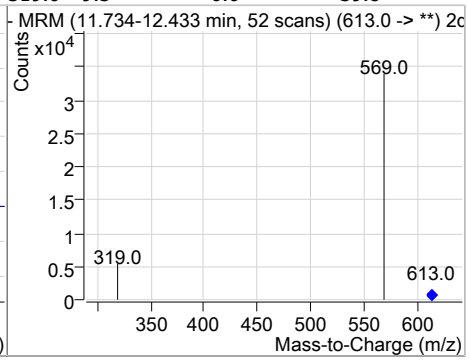




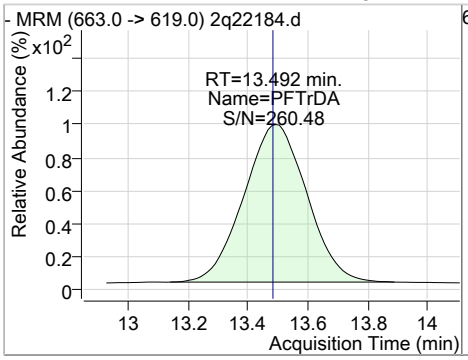
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	9.52	12.06	0.00	23198	613.0 -> 319.0	9.5	0.0	39.8

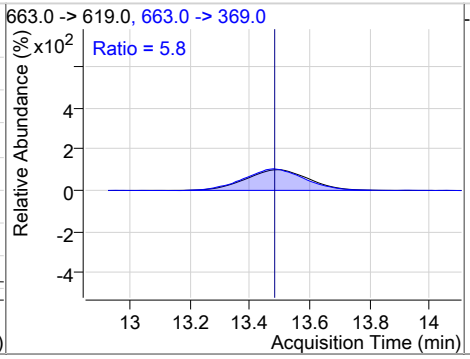


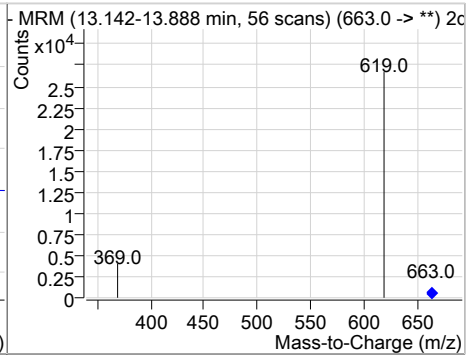




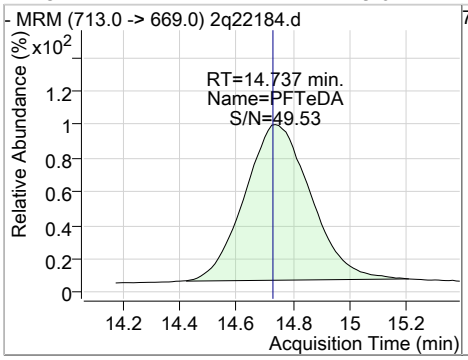
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	9.71	13.49	0.01	17591	663.0 -> 369.0	5.8	0.0	35.8

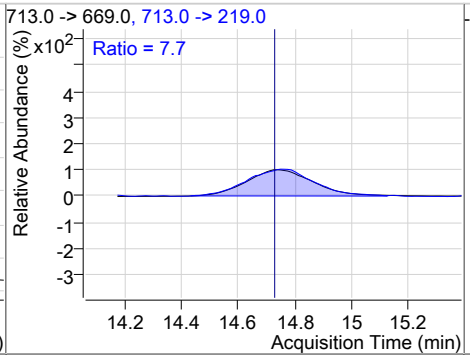


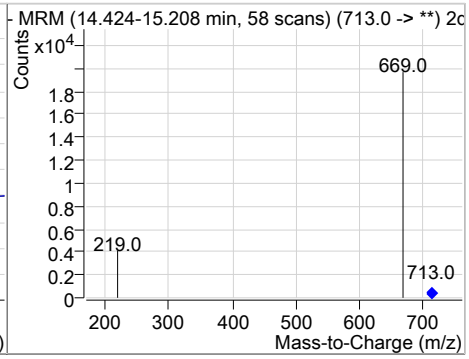




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.64	14.74	0.01	11939	713.0 -> 219.0	7.7	0.0	37.4

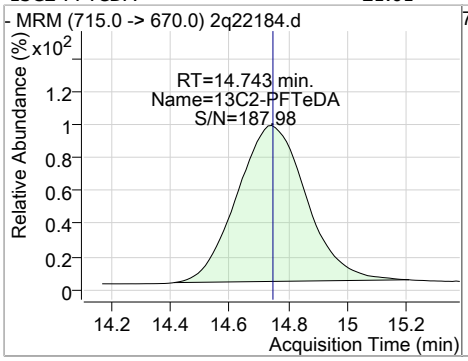


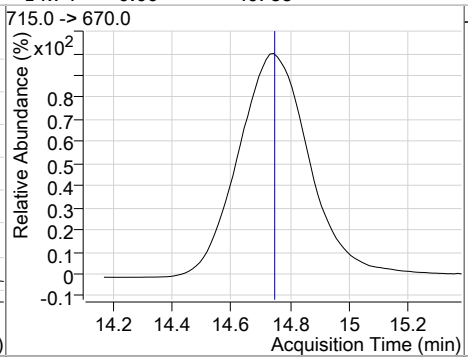


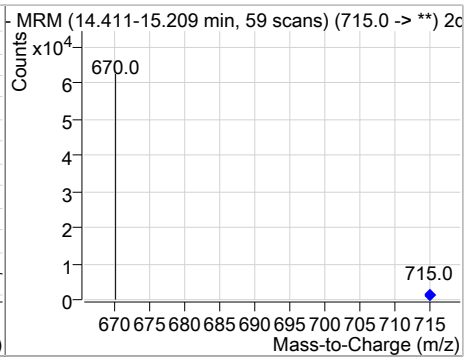


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.01	14.74	0.00	40788				







Manual Integration Approval Summary

Sample Number: S2Q350-IC350
Lab FileID: 2Q22184.D
Injection Time: 10/16/18 11:48
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.54	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22185.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/16/2018 12:08:57 PM
Sample Name : icc350-20
Vial : Vial 7
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q350.batch.bin
Sample Information : op71813,S2Q350,2.01,,,1.0,1,soil

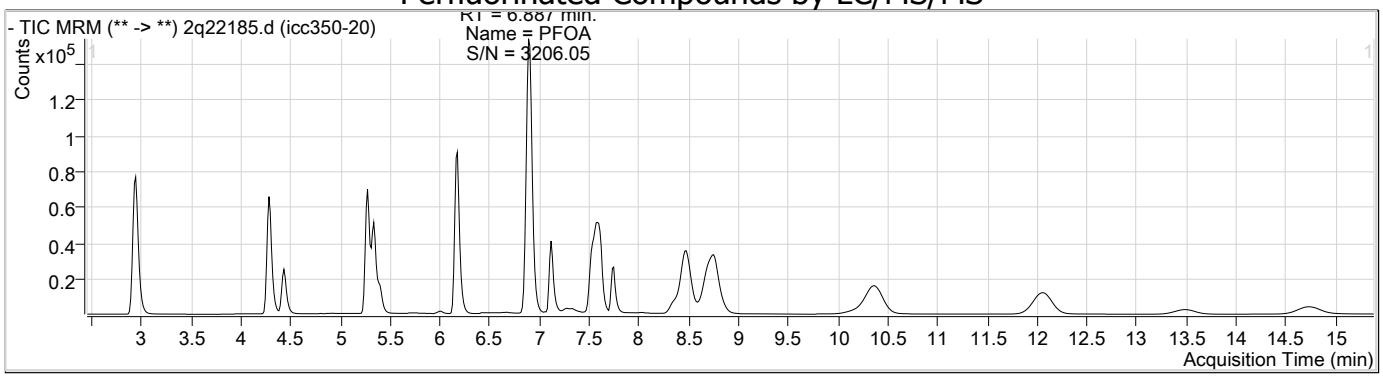
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.898	415.0 -> 370.0	141309	20.00	µg/L	0.000
13C4-PFOS	7.536	503.0 -> 80.0	58630	20.00	µg/L	0.000
M4-PFBA	2.941	217.0 -> 172.0	270077	20.00	µg/L	0.000
M5-PFPeA	4.287	268.0 -> 223.0	115057	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	112804	20.00	µg/L	0.000
M4-PFHpA	6.179	367.0 -> 322.0	129694	20.00	µg/L	0.000
M8-PFOA	6.896	421.0 -> 376.0	108607	20.00	µg/L	0.000
M9-PFNA	7.589	472.0 -> 427.0	98557	20.00	µg/L	0.000
M6-PFDA	8.479	519.0 -> 474.0	188185	20.00	µg/L	0.000
M7-PFUnDA	10.367	570.0 -> 525.0	139109	20.00	µg/L	0.000
M2-PFDoDA	12.053	615.0 -> 570.0	112178	20.00	µg/L	0.000
M2-PFTeDA	14.743	715.0 -> 670.0	40881	20.00	µg/L	0.000
M8-FOSA	7.117	506.0 -> 78.0	78964	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	27731	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	35654	20.00	µg/L	0.000
M8-PFOS	7.534	507.0 -> 99.0	36005	20.00	µg/L	0.000
M2-4:2FTS	5.272	329.0 -> 309.0	130957	20.00	µg/L	0.000
M2-6:2FTS	6.906	429.0 -> 409.0	175951	20.00	µg/L	0.000
M2-8:2FTS	8.750	529.0 -> 509.0	208878	20.00	µg/L	0.000
M3-MeFOSAA	7.607	573.0 -> 419.0	46507	20.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	130939	19.88	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C2-6:2FTS	6.906	429.0 -> 409.0	175952	19.93	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C2-8:2FTS	8.750	529.0 -> 509.0	208433	19.83	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C2-PFDoDA	12.053	615.0 -> 570.0	111655	20.19	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C2-PFTeDA	14.743	715.0 -> 670.0	39863	20.54	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C3-PFBS	4.430	302.0 -> 99.0	27736	19.83	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C3-PFHxS	6.173	402.0 -> 99.0	35659	20.02	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C4-PFBA	2.941	217.0 -> 172.0	269955	20.08	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C4-PFHpA	6.179	367.0 -> 322.0	129666	20.16	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C5-PFHxA	5.339	318.0 -> 273.0	112802	20.49	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C5-PFPeA	4.287	268.0 -> 223.0	114979	20.12	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C6-PFDA	8.479	519.0 -> 474.0	187828	20.19	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		

Perfluorinated Compounds by LC/MS/MS

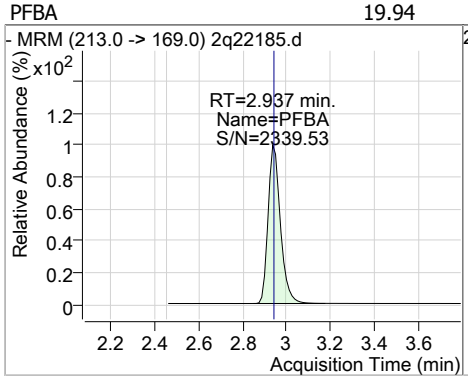
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.367	570.0 -> 525.0	138577	20.24	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%			
13C8-FOSA	7.117	506.0 -> 78.0	78899	20.33	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%			
13C8-PFOA	6.896	421.0 -> 376.0	108599	20.21	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%			
13C8-PFOS	7.534	507.0 -> 99.0	36001	19.84	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%			
13C9-PFNA	7.589	472.0 -> 427.0	98504	20.04	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%			
d3-MeFOSAA	7.607	573.0 -> 419.0	46514	20.00	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M2-PFOA	6.898	415.0 -> 370.0	141312	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.536	503.0 -> 80.0	58639	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							QValue
4:2FTS	5.274	327.0 -> 307.0	70339	20.21	µg/L		98
6:2FTS	6.907	427.0 -> 407.0	84243	23.01	µg/L		100
8:2FTS	8.752	527.0 -> 507.0	101957	20.12	µg/L		97
EtFOSAA	7.744	584.0 -> 419.0	21396	20.18	µg/L		100
FOSA	7.120	498.0 -> 78.0	37410	20.00	µg/L		100
MeFOSAA	7.622	570.0 -> 419.0	23159	19.52	µg/L		93
PFBA	2.937	213.0 -> 169.0	32283	19.94	µg/L		100
PFBS	4.434	299.0 -> 80.0	40609	20.25	µg/L		100
PFDA	8.481	513.0 -> 469.0	57061	19.90	µg/L		99
PFDoDA	12.059	613.0 -> 569.0	46884	20.18	µg/L		100
PFDS	10.162	599.0 -> 80.0	14797	19.70	µg/L		98
PFHpA	6.170	363.0 -> 319.0	97844	19.86	µg/L		100
PFHpS	6.866	449.0 -> 80.0	28462	19.74	µg/L		98
PFHxA	5.341	313.0 -> 269.0	35265	19.52	µg/L		100
PFHxS	6.176	399.0 -> 80.0	34174	19.65	µg/L	m	99
PFNA	7.590	463.0 -> 419.0	54390	20.08	µg/L		96
PFNS	8.346	549.0 -> 80.0	26011	20.01	µg/L		95
PFOA	6.887	413.0 -> 369.0	55902	19.89	µg/L		96
PFOS	7.524	499.0 -> 80.0	30314	19.64	µg/L	m	100
PFPeA	4.291	263.0 -> 219.0	109205	20.24	µg/L		100
PFPeS	5.396	349.0 -> 80.0	26407	20.34	µg/L		97
PFTeDA	14.725	713.0 -> 669.0	24368	20.17	µg/L		100
PFTrDA	13.479	663.0 -> 619.0	35681	20.19	µg/L		100
PFUnDA	10.371	563.0 -> 519.0	51322	19.86	µg/L		96

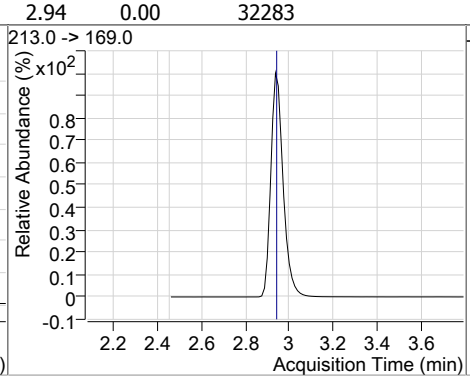
 # = Qualifier out of range, m = manually integrated, + = Area summed

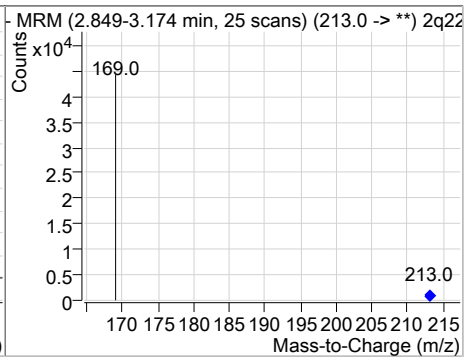
Perfluorinated Compounds by LC/MS/MS



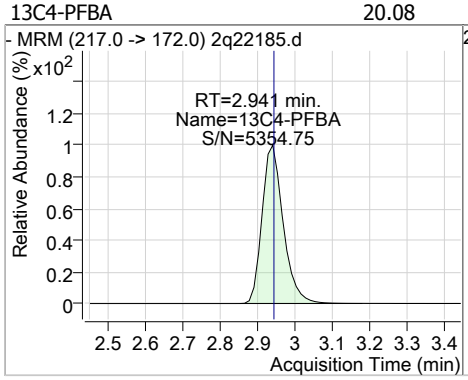
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.94	2.94	0.00	32283				

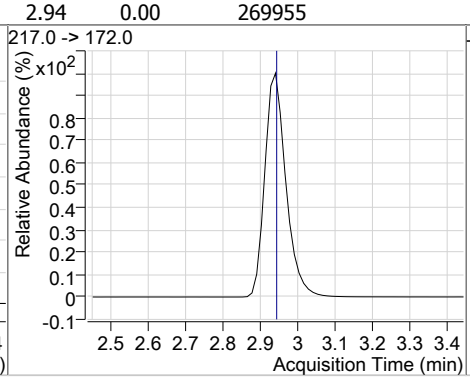


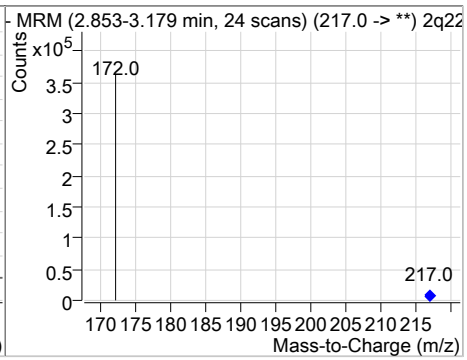




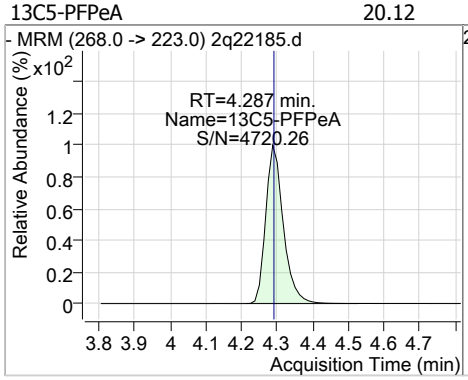
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.08	2.94	0.00	269955				

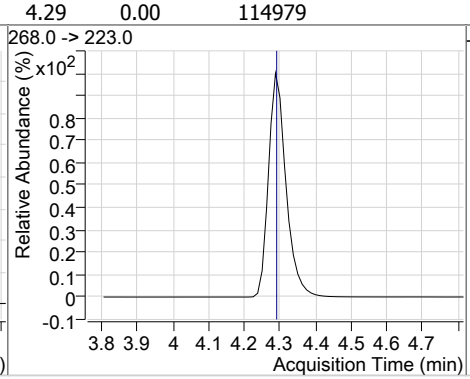


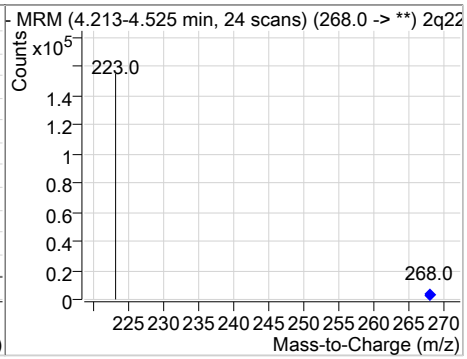




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.12	4.29	0.00	114979				

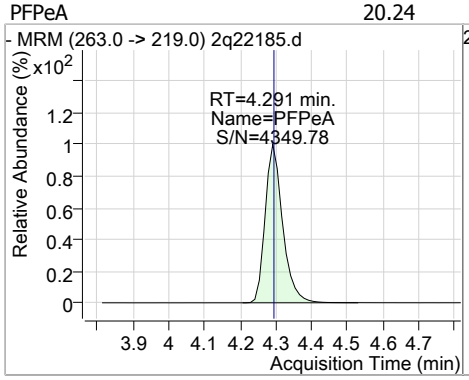


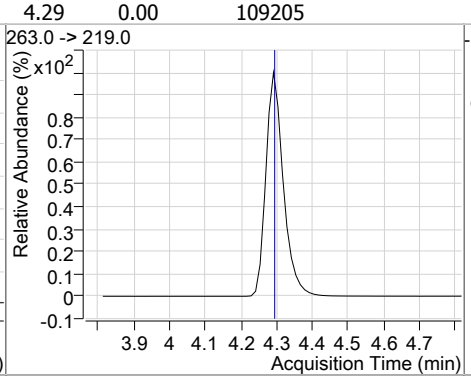


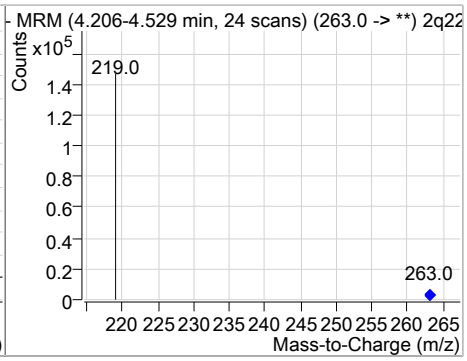


Perfluorinated Compounds by LC/MS/MS

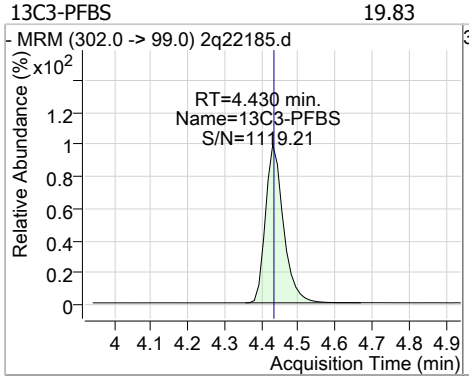
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.24	4.29	0.00	109205				

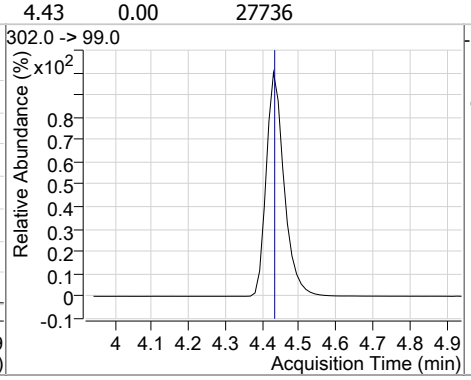


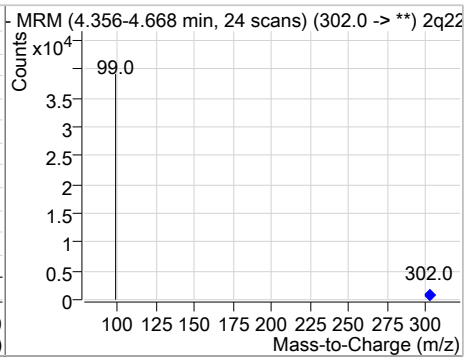




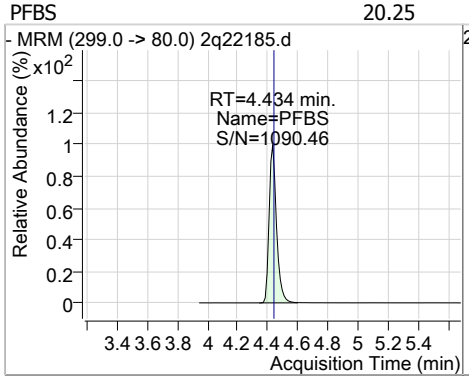
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.83	4.43	0.00	27736				

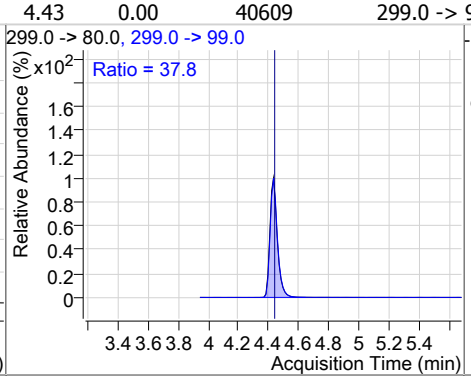


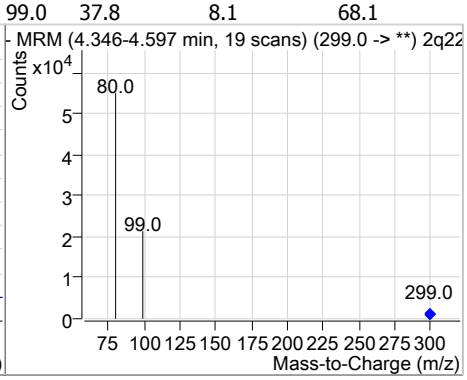




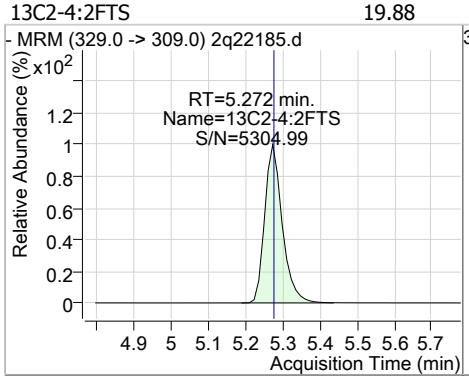
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.25	4.43	0.00	40609	299.0 -> 99.0	37.8	8.1	68.1

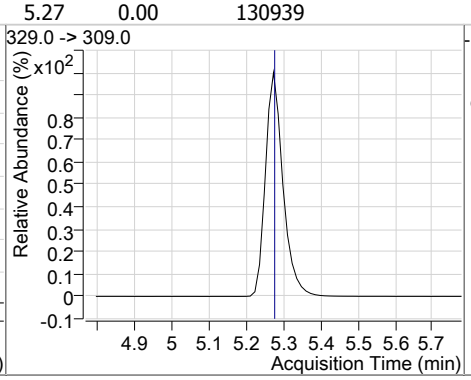


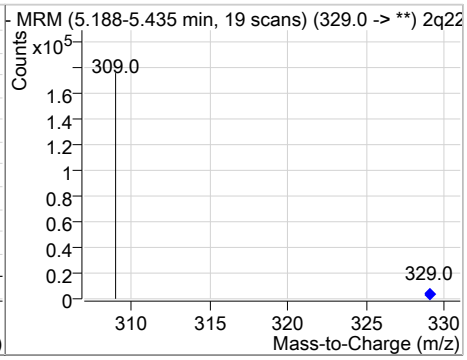




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.88	5.27	0.00	130939				

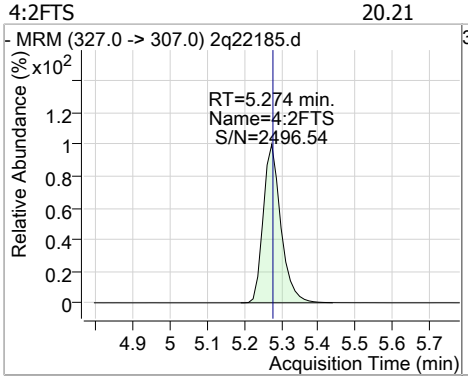


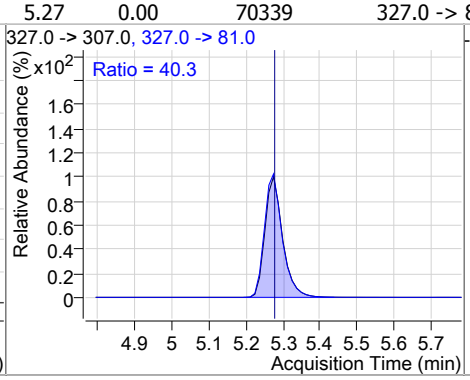


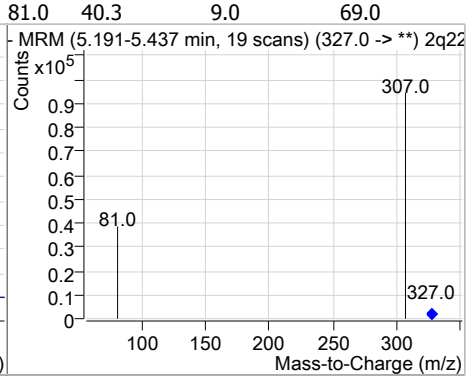


Perfluorinated Compounds by LC/MS/MS

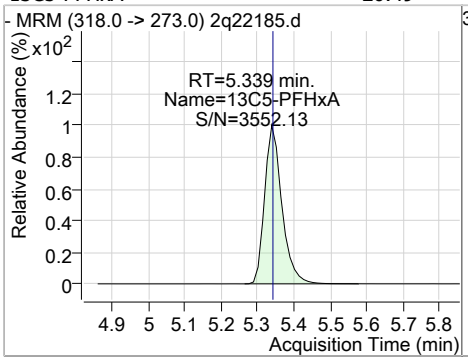
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	20.21	5.27	0.00	70339	327.0 -> 81.0	40.3	9.0	69.0

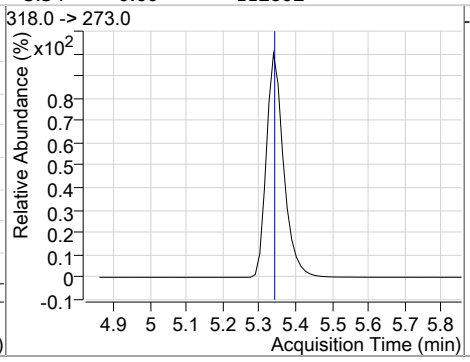


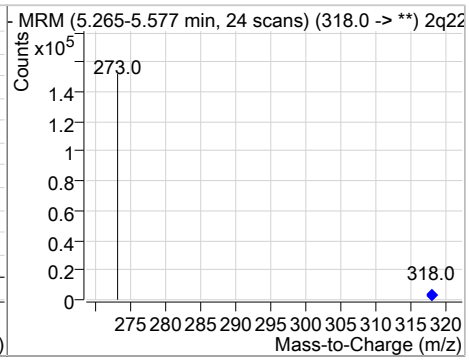




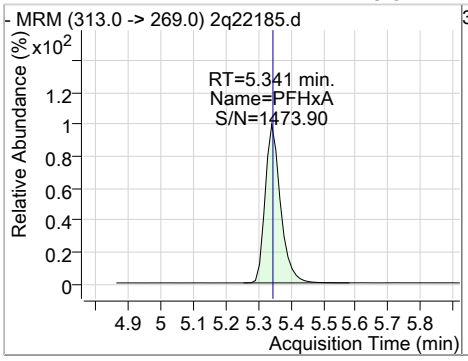
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.49	5.34	0.00	112802				

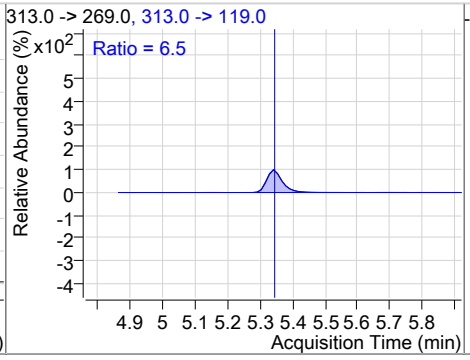


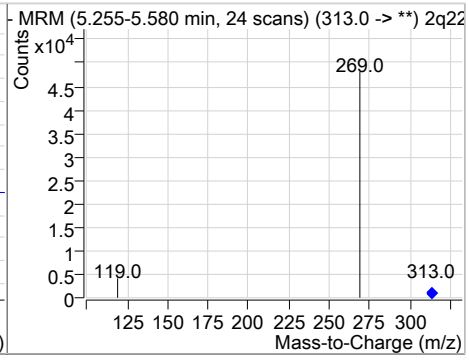




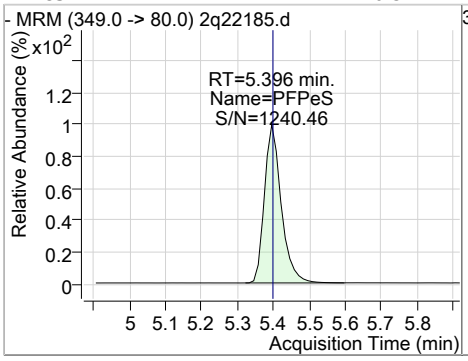
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.52	5.34	0.00	35265	313.0 -> 119.0	6.5	0.0	36.4

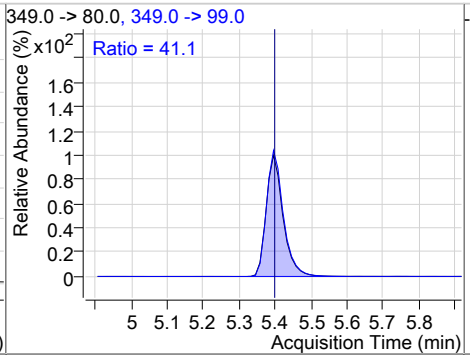


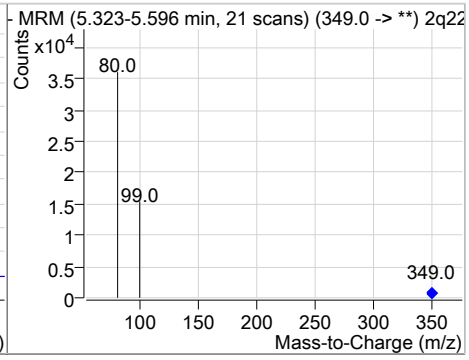




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.34	5.40	0.00	26407	349.0 -> 99.0	41.1	9.5	69.5

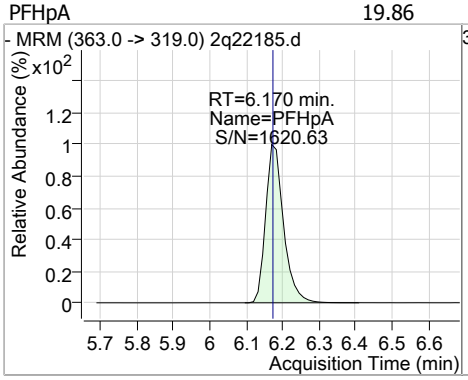


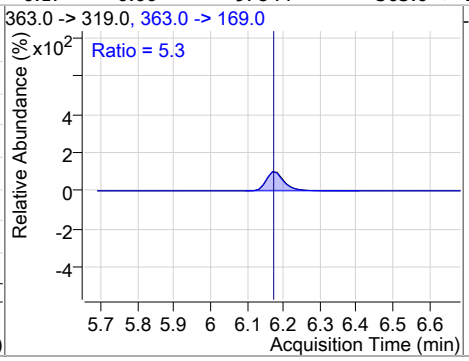


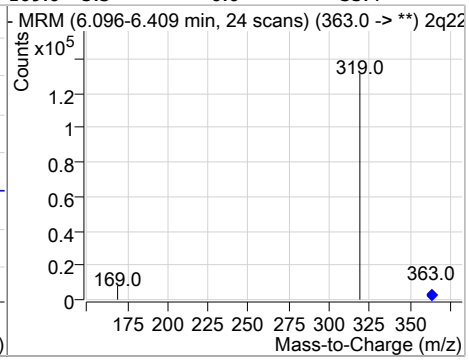


Perfluorinated Compounds by LC/MS/MS

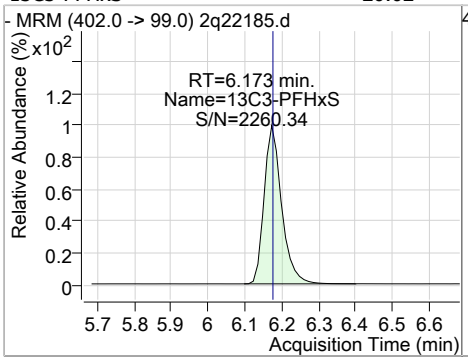
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.86	6.17	0.00	97844	363.0 -> 169.0	5.3	0.0	35.4

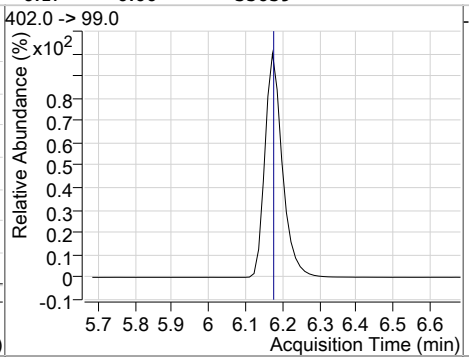


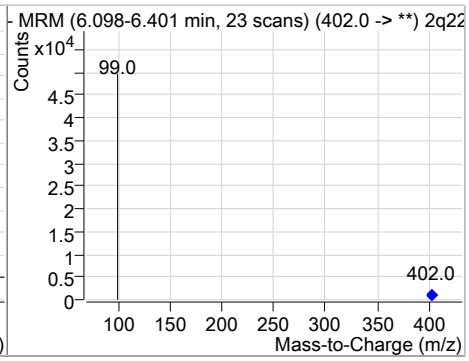




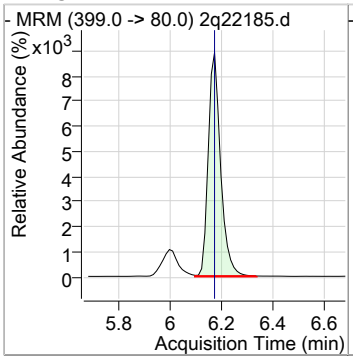
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.02	6.17	0.00	35659				

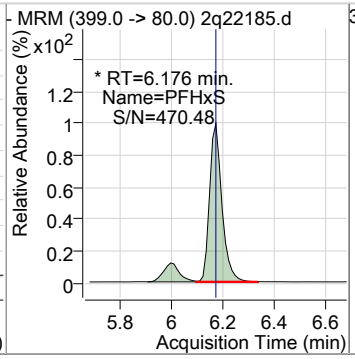


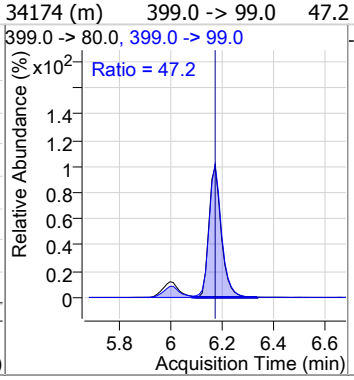


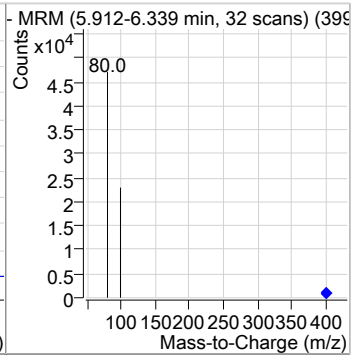


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.65	6.18	0.00	34174 (m)	399.0 -> 99.0	47.2	17.7	77.7

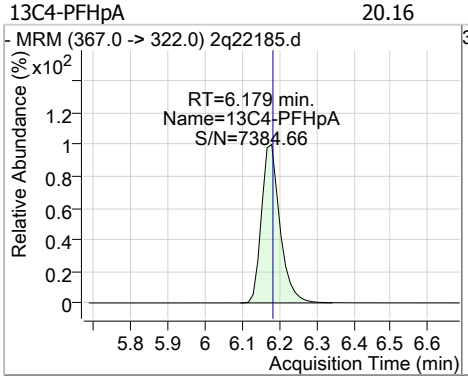


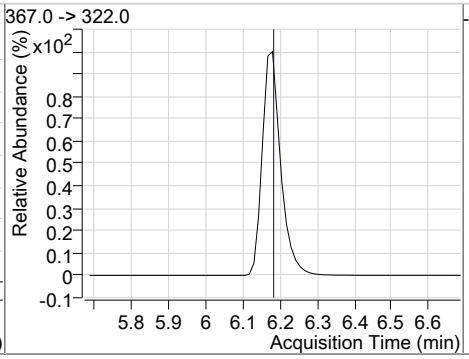


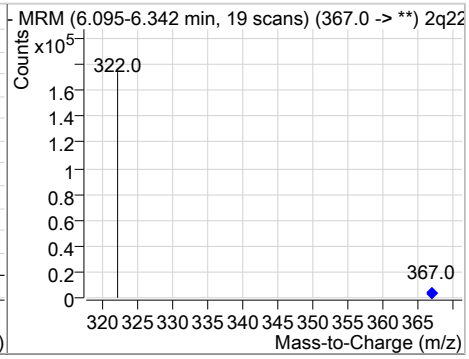




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.16	6.18	0.00	129666				

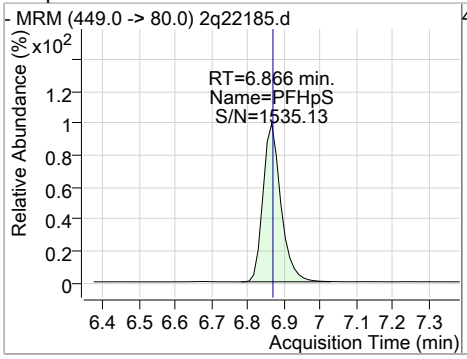


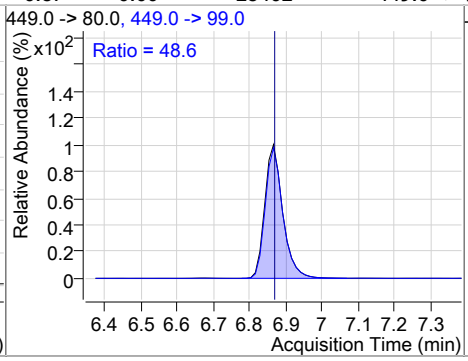


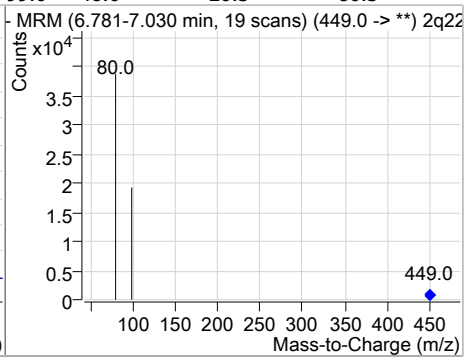


Perfluorinated Compounds by LC/MS/MS

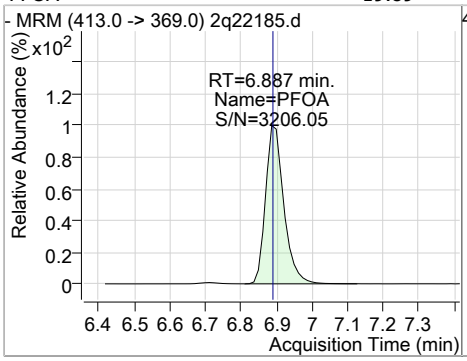
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.74	6.87	0.00	28462	449.0 -> 99.0	48.6	20.3	80.3

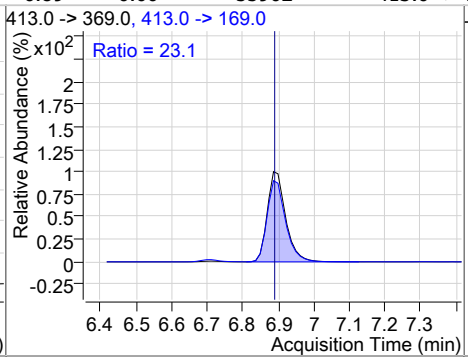


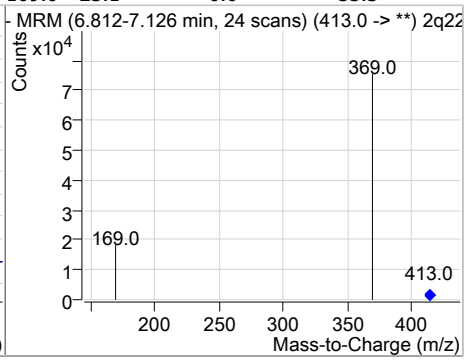




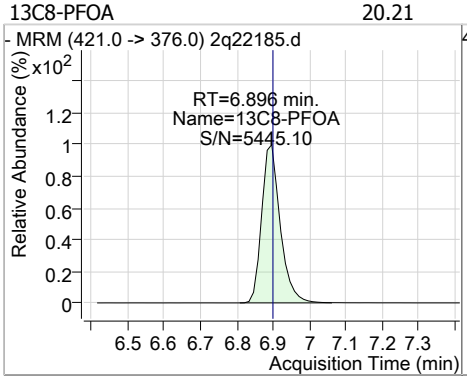
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.89	6.89	0.00	55902	413.0 -> 169.0	23.1	0.0	55.3

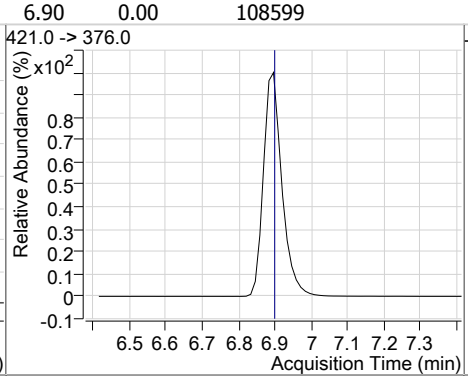


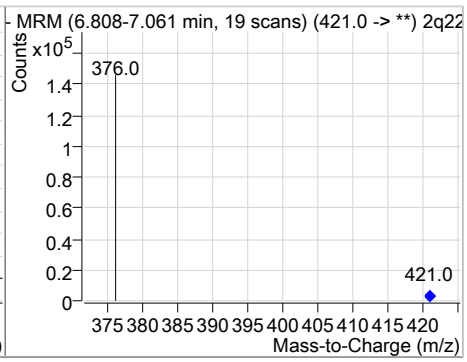




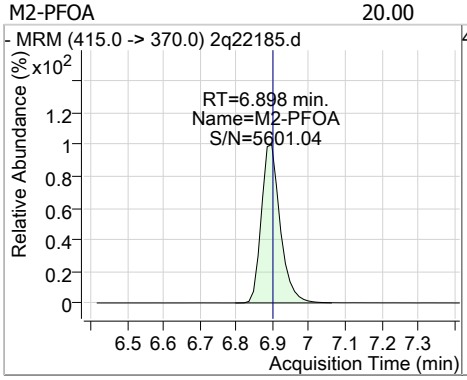
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.21	6.90	0.00	108599				

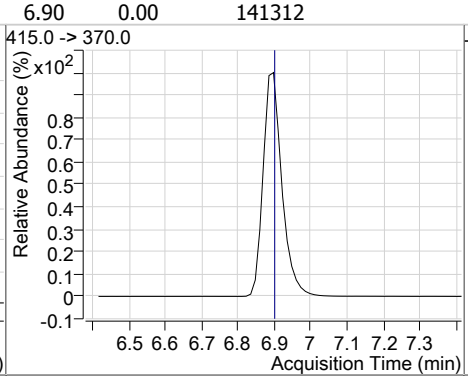


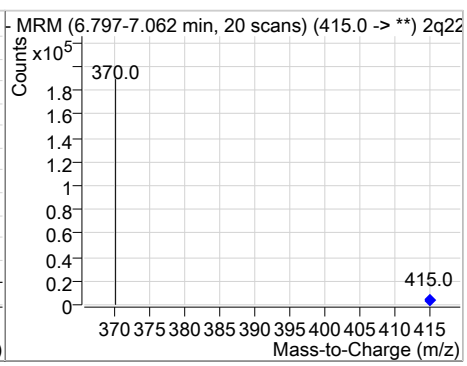




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.90	0.00	141312				

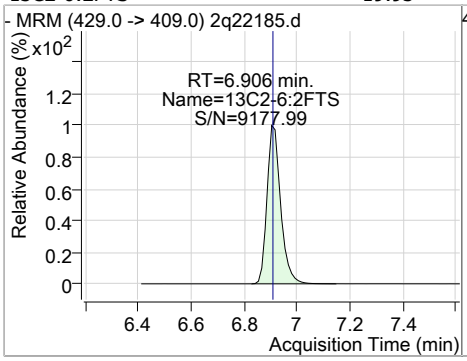


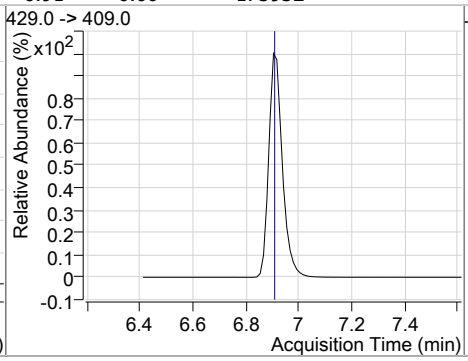


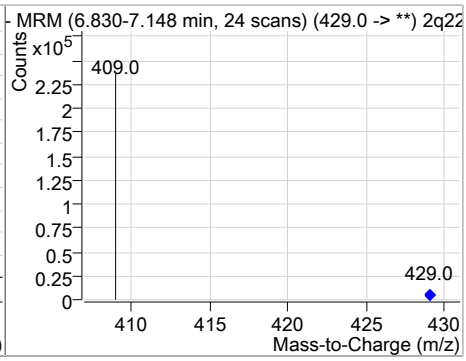


Perfluorinated Compounds by LC/MS/MS

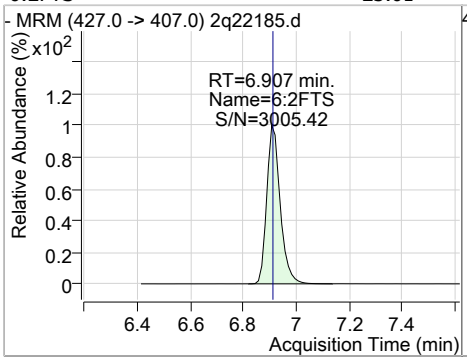
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.93	6.91	0.00	175952				

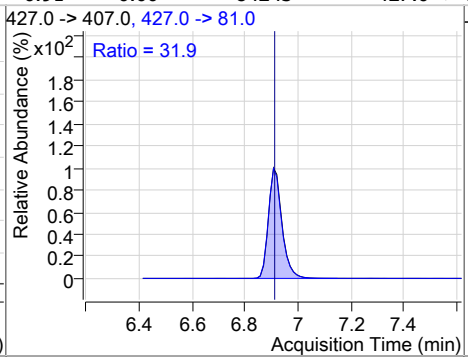


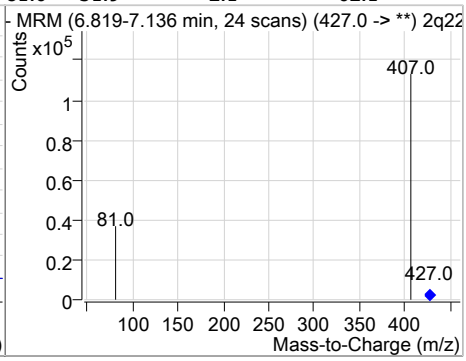




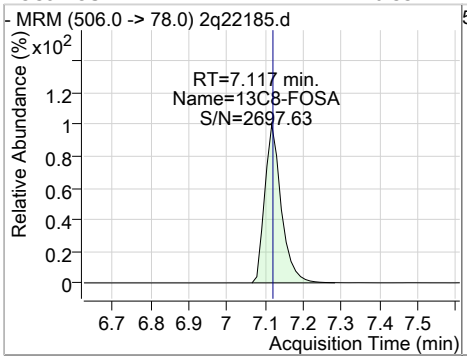
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.01	6.91	0.00	84243	427.0 -> 81.0	31.9	2.1	62.1

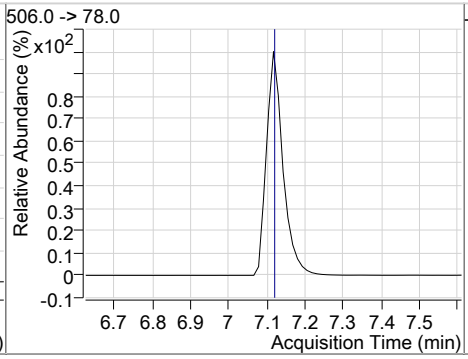


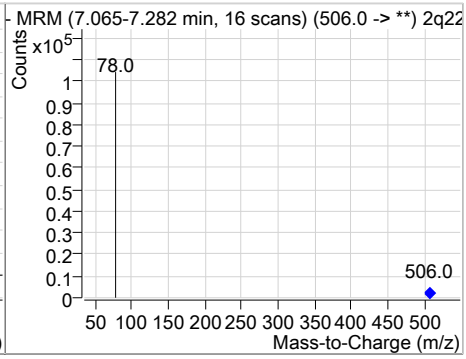




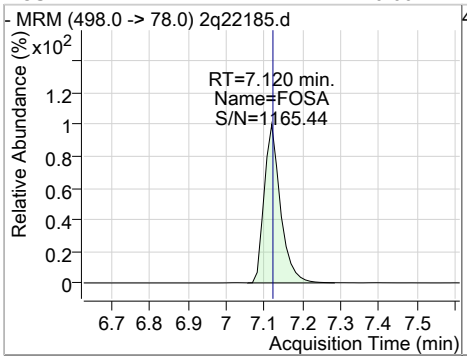
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.33	7.12	0.00	78899				

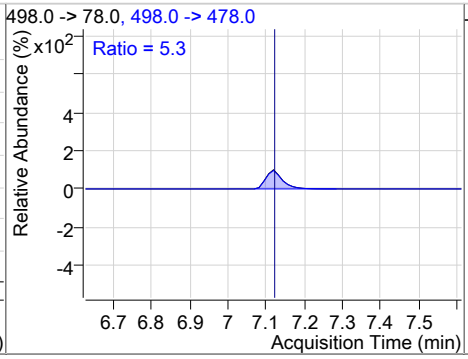


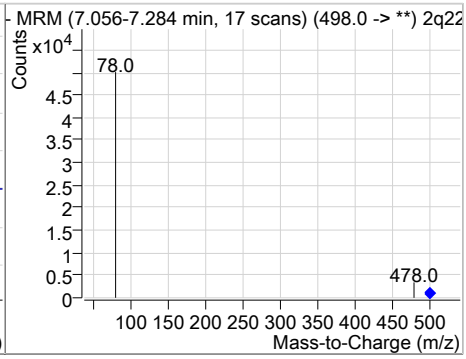




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	20.00	7.12	0.00	37410	498.0 -> 478.0	5.3	0.0	35.4

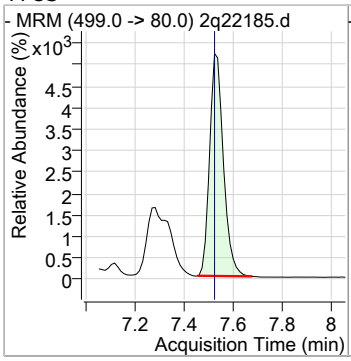


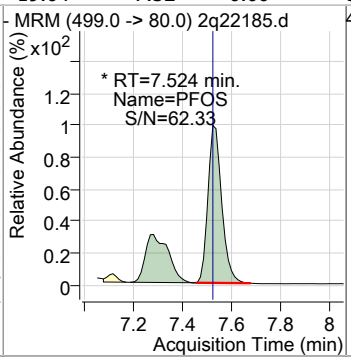


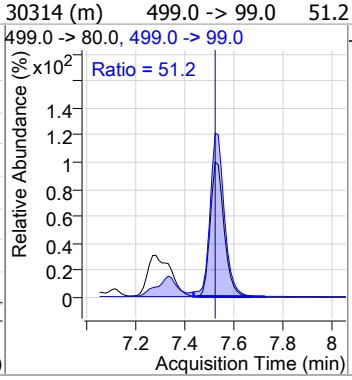


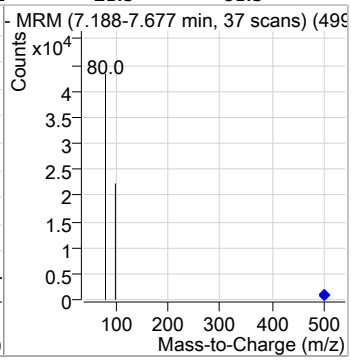
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.64	7.52	0.00	30314 (m)	499.0 -> 99.0	51.2	21.5	81.5

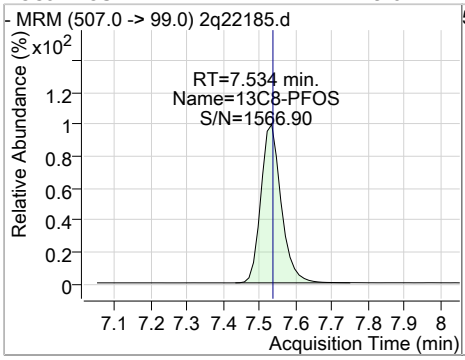


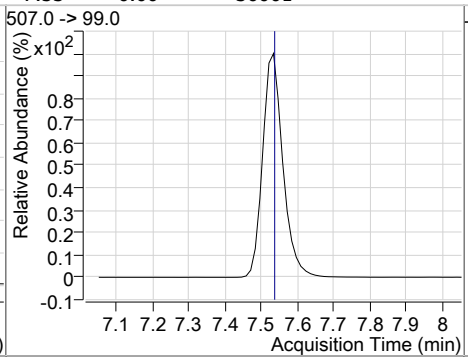


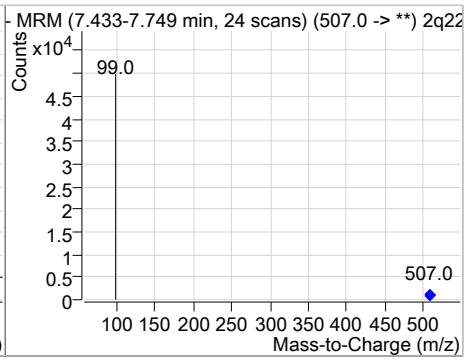




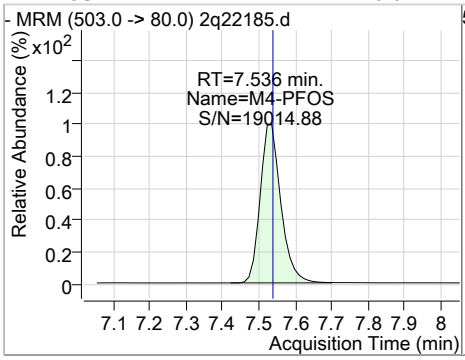
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.84	7.53	0.00	36001				

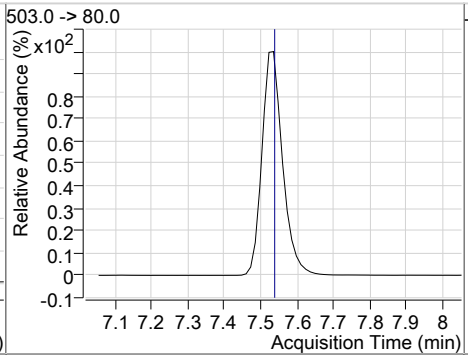


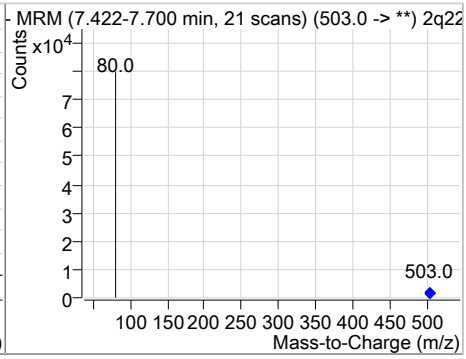




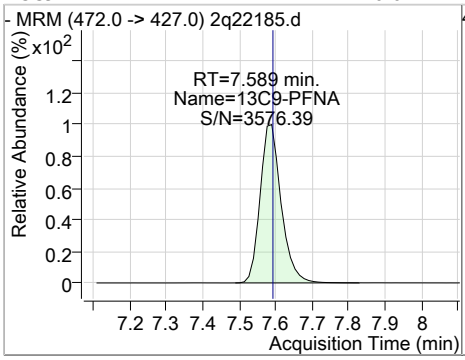
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.54	0.00	58639				

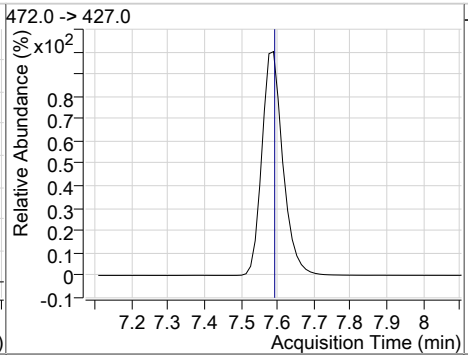


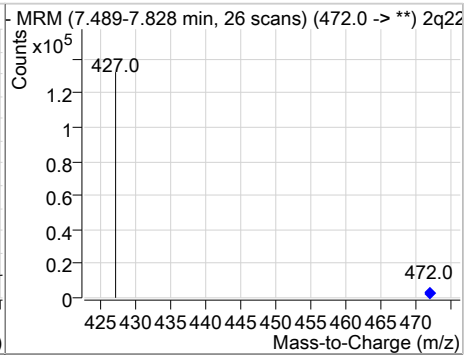




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.04	7.59	0.00	98504				

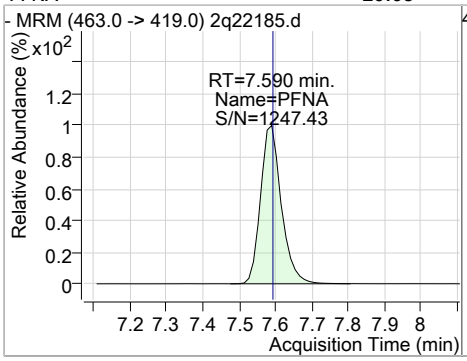


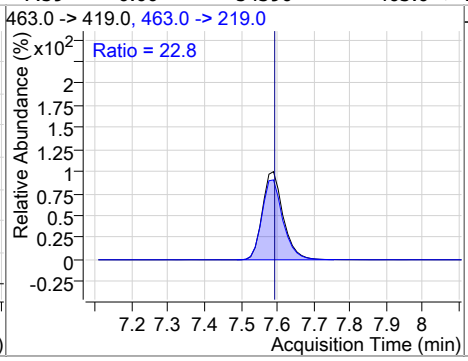


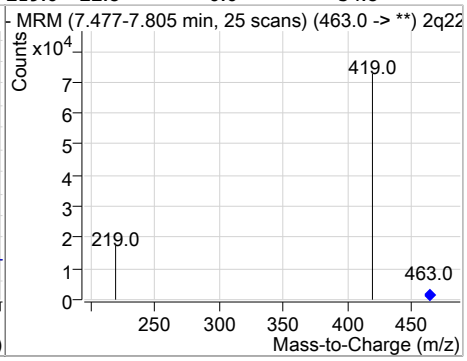


Perfluorinated Compounds by LC/MS/MS

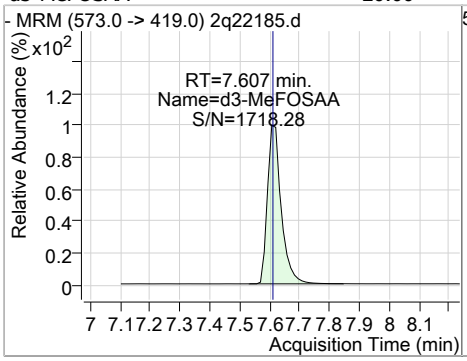
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.08	7.59	0.00	54390	463.0 -> 219.0	22.8	0.0	54.8

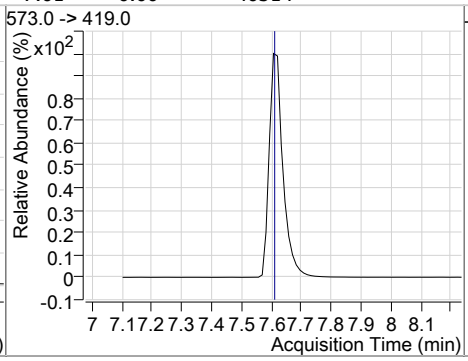


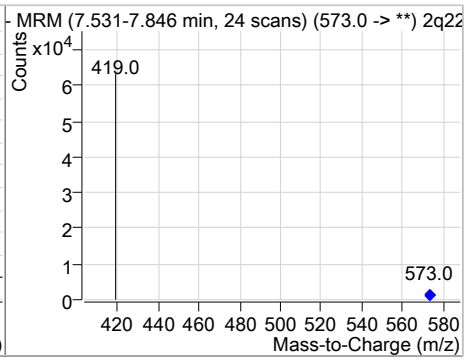




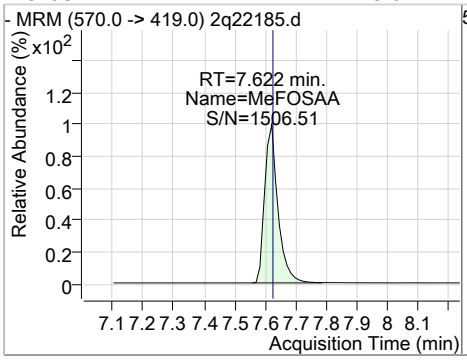
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.00	7.61	0.00	46514				

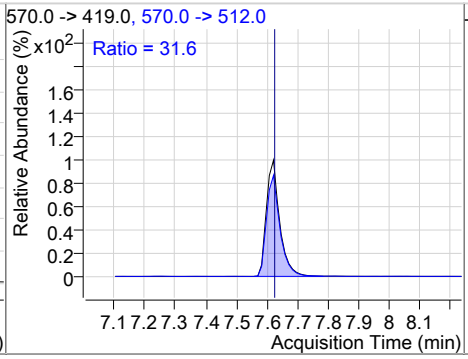


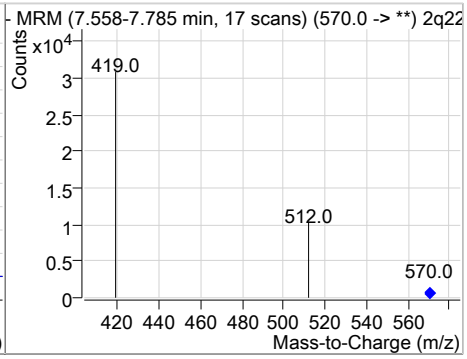




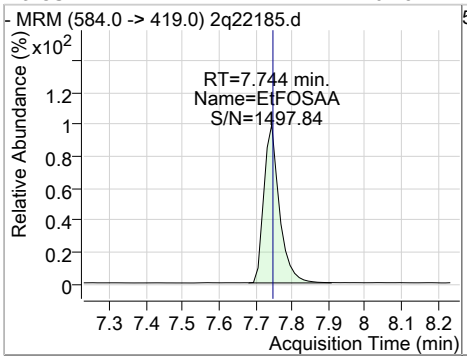
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.52	7.62	0.00	23159	570.0 -> 512.0	31.6	5.9	65.9

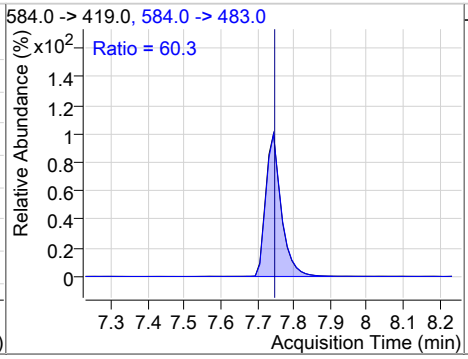


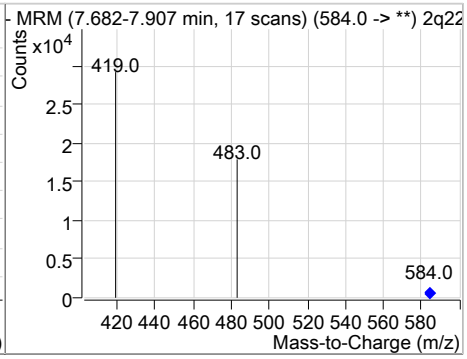




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.18	7.74	0.00	21396	584.0 -> 483.0	60.3	30.5	90.5

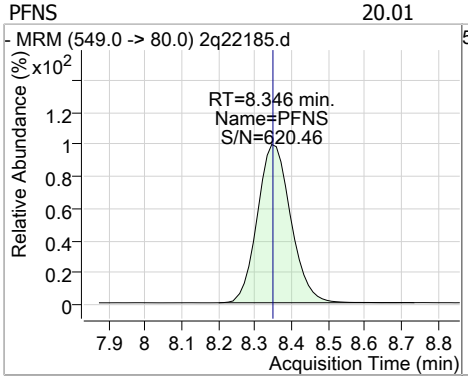


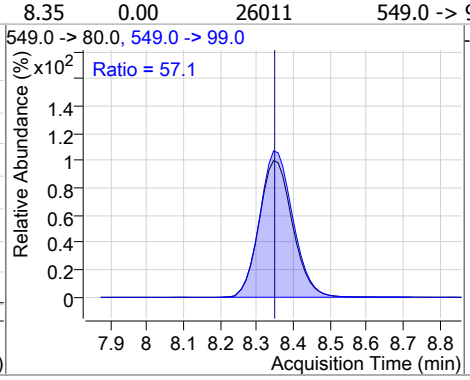


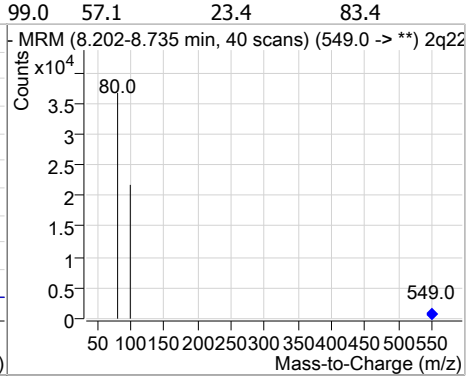


Perfluorinated Compounds by LC/MS/MS

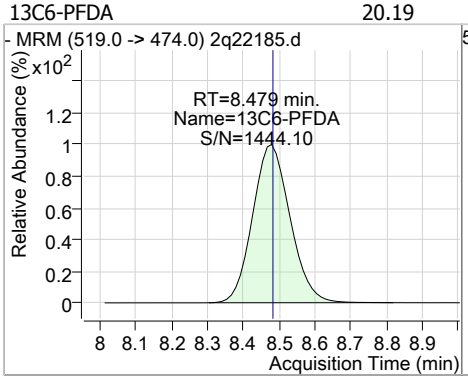
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.01	8.35	0.00	26011	549.0 -> 99.0	57.1	23.4	83.4

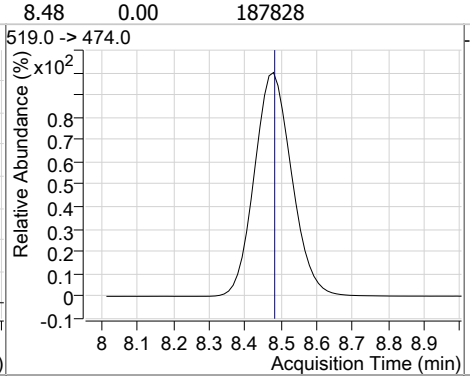


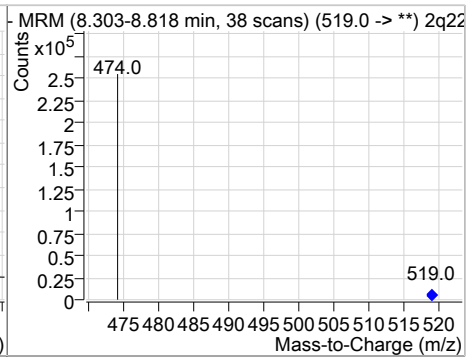




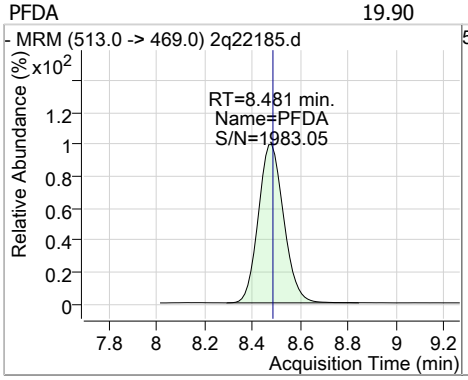
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.19	8.48	0.00	187828				

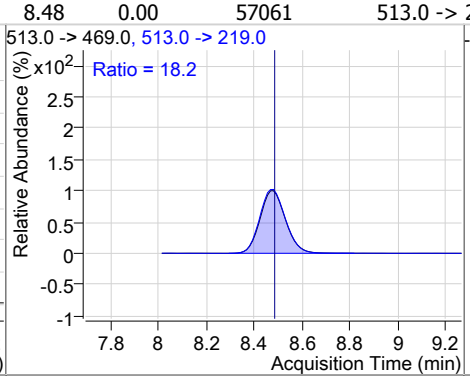


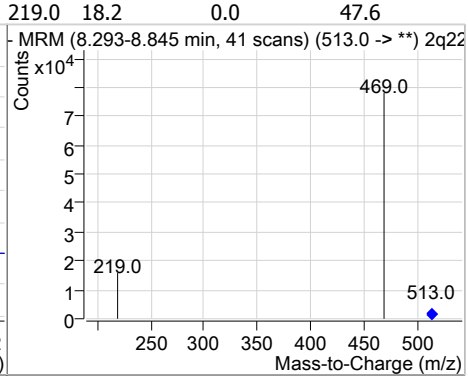




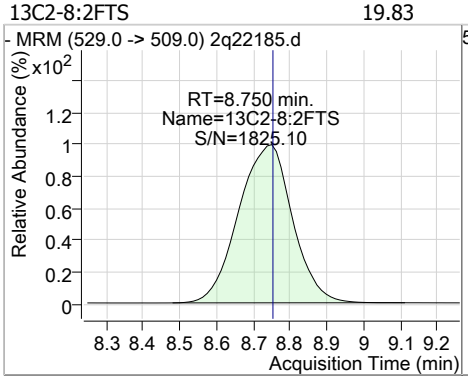
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.90	8.48	0.00	57061	513.0 -> 219.0	18.2	0.0	47.6

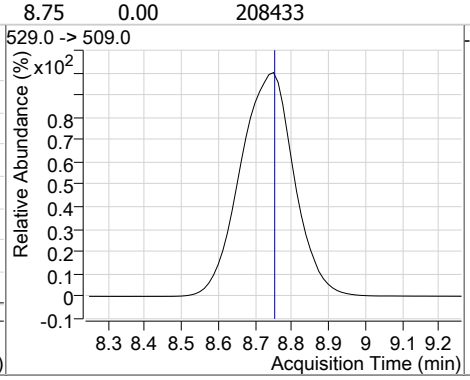


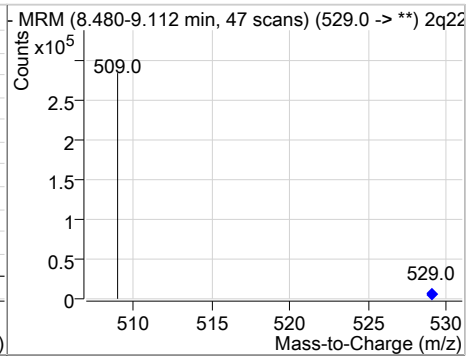




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.83	8.75	0.00	208433				

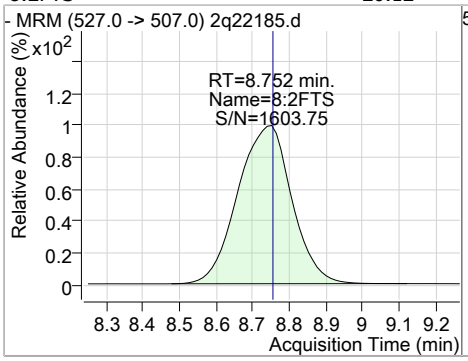


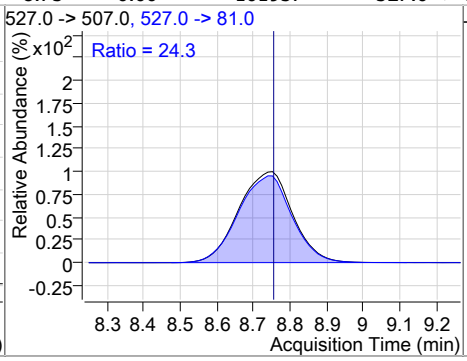


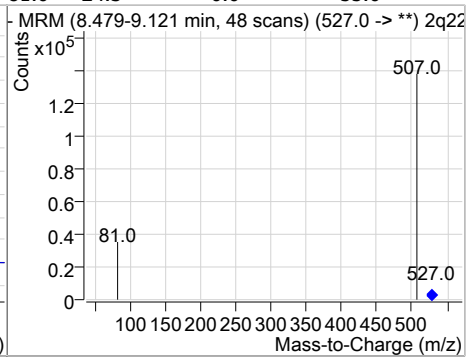


Perfluorinated Compounds by LC/MS/MS

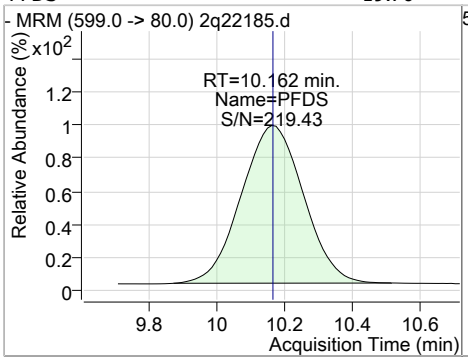
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.12	8.75	0.00	101957	527.0 -> 81.0	24.3	0.0	55.6

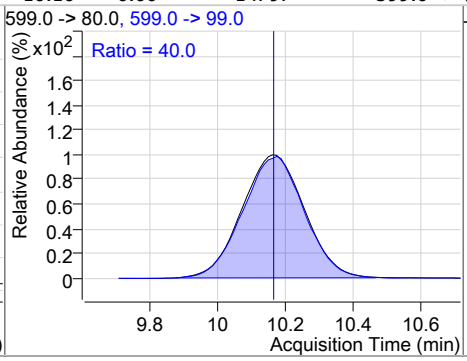


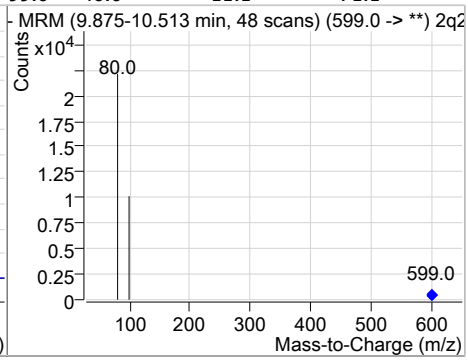




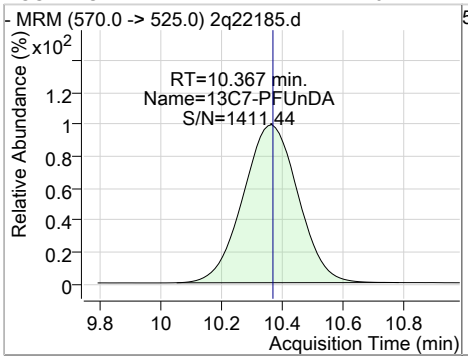
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.70	10.16	0.00	14797	599.0 -> 99.0	40.0	11.1	71.1

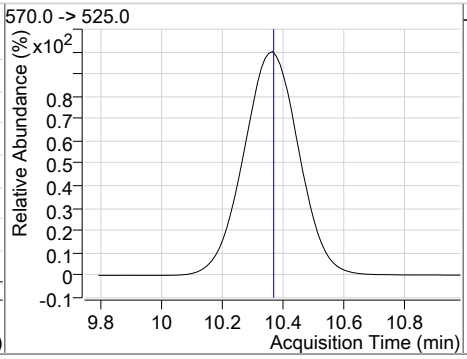


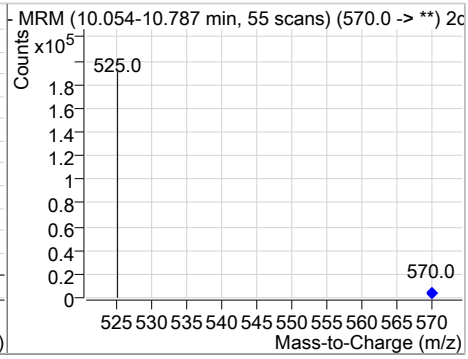




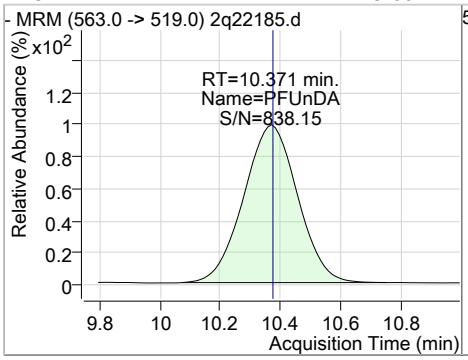
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.24	10.37	0.00	138577				

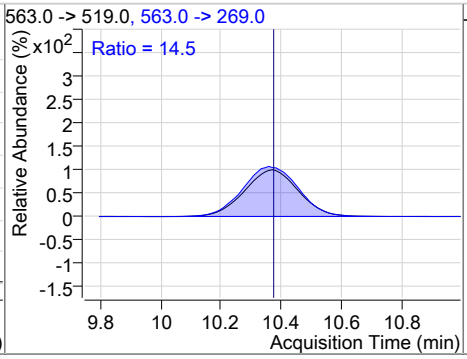


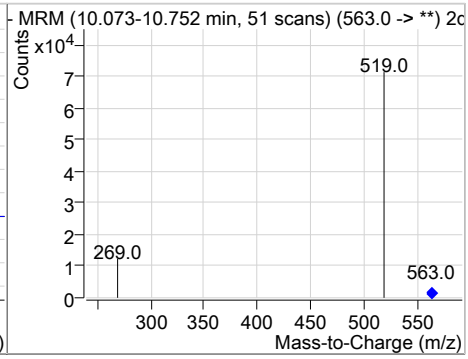




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.86	10.37	0.00	51322	563.0 -> 269.0	14.5	0.0	43.1

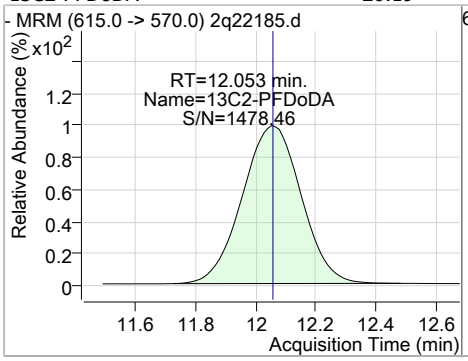


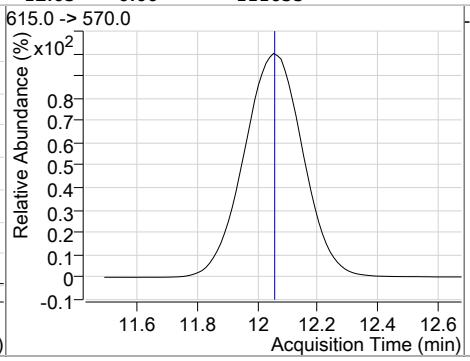


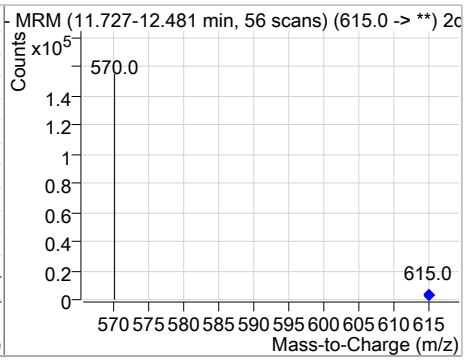


Perfluorinated Compounds by LC/MS/MS

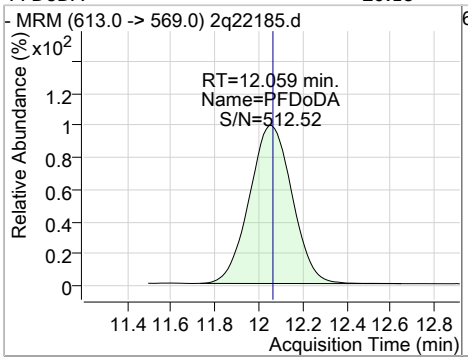
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.19	12.05	0.00	111655				

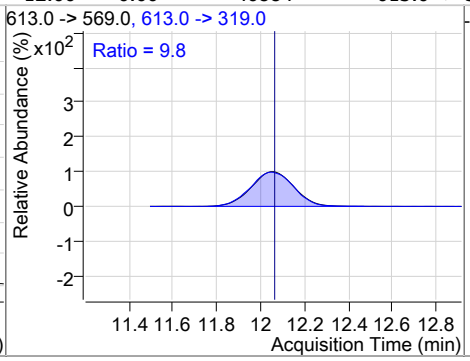


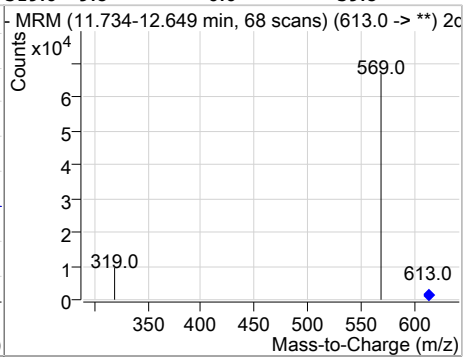




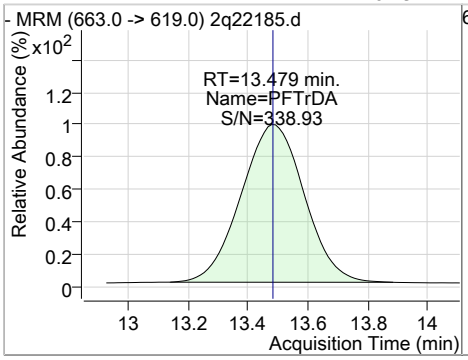
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.18	12.06	0.00	46884	613.0 -> 319.0	9.8	0.0	39.8

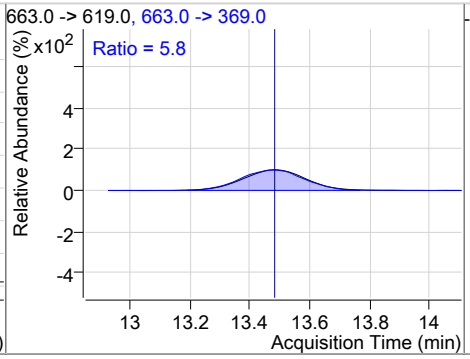


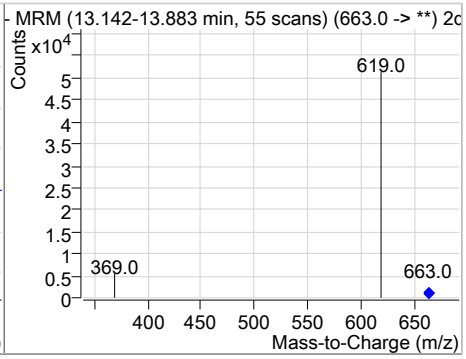




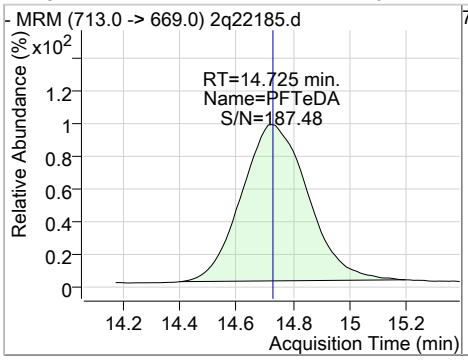
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.19	13.48	0.00	35681	663.0 -> 369.0	5.8	0.0	35.8

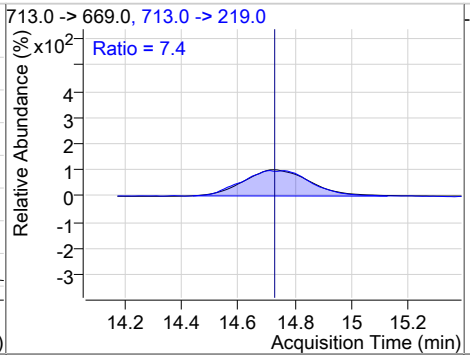


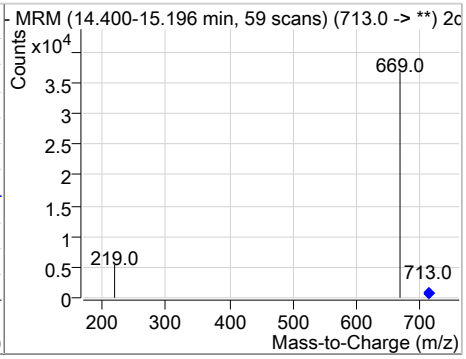




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.17	14.72	0.00	24368	713.0 -> 219.0	7.4	0.0	37.4

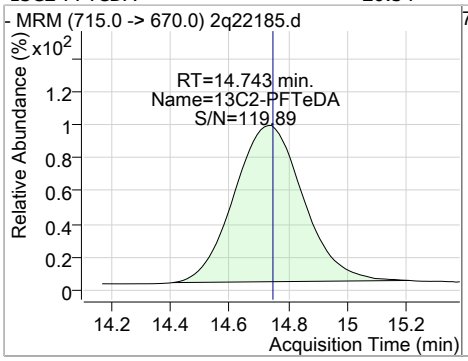


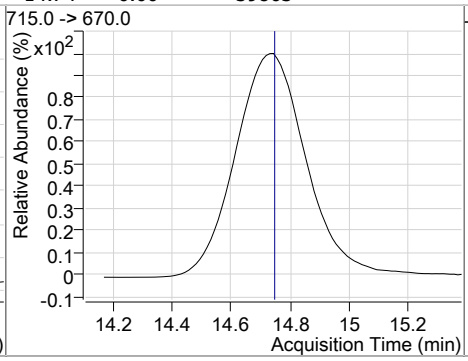


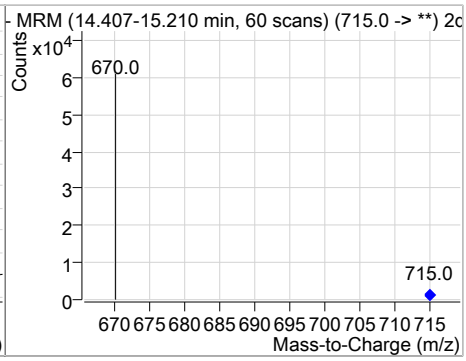


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.54	14.74	0.00	39863				







Manual Integration Approval Summary

Sample Number: S2Q350-ICC350
Lab FileID: 2Q22185.D
Injection Time: 10/16/18 12:08
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.52	Split peak

2Q22186.D

Manual Integrations APPROVED (compounds with "m" flag)

Mike Eger 10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File	:	2q22186.d
Operator	:	NATASHAG
Acq. Method	:	dMRM_ID_PFC.m
Acq. Date-Time	:	10/16/2018 12:29:41 PM
Sample Name	:	ic350-50
Vial	:	Vial 8
DA Method File	:	PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name	:	s2q350.batch.bin
Sample Information	:	op71813,S2Q350,2.01,,,1.0,1,soil

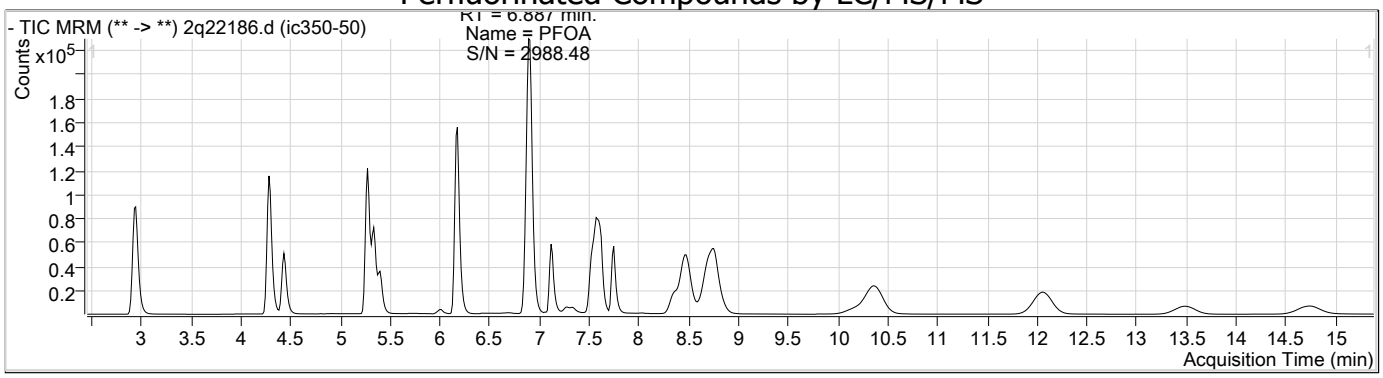
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.898	415.0 -> 370.0	143221	20.00	µg/L	0.000
13C4-PFOS	7.536	503.0 -> 80.0	59549	20.00	µg/L	0.000
M4-PFBA	2.941	217.0 -> 172.0	276208	20.00	µg/L	0.000
M5-PFPeA	4.287	268.0 -> 223.0	118909	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	112257	20.00	µg/L	0.000
M4-PFHpA	6.179	367.0 -> 322.0	131327	20.00	µg/L	0.000
M8-PFOA	6.896	421.0 -> 376.0	108100	20.00	µg/L	0.000
M9-PFNA	7.589	472.0 -> 427.0	101595	20.00	µg/L	0.000
M6-PFDA	8.479	519.0 -> 474.0	191026	20.00	µg/L	0.000
M7-PFUnDA	10.367	570.0 -> 525.0	141487	20.00	µg/L	0.000
M2-PFDoDA	12.053	615.0 -> 570.0	116652	20.00	µg/L	0.000
M2-PFTeDA	14.743	715.0 -> 670.0	42363	20.00	µg/L	0.000
M8-FOSA	7.117	506.0 -> 78.0	77166	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	28292	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	35981	20.00	µg/L	0.000
M8-PFOS	7.533	507.0 -> 99.0	36665	20.00	µg/L	0.000
M2-4:2FTS	5.272	329.0 -> 309.0	145414	20.00	µg/L	0.000
M2-6:2FTS	6.906	429.0 -> 409.0	189891	20.00	µg/L	0.000
M2-8:2FTS	8.750	529.0 -> 509.0	231138	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	47528	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	145319	22.07	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.3%		
13C2-6:2FTS	6.906	429.0 -> 409.0	189981	21.52	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.6%		
13C2-8:2FTS	8.750	529.0 -> 509.0	230692	21.95	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.8%		
13C2-PFDoDA	12.053	615.0 -> 570.0	116129	21.00	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C2-PFTeDA	14.743	715.0 -> 670.0	41348	21.30	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.5%		
13C3-PFBS	4.430	302.0 -> 99.0	28292	20.23	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C3-PFHxS	6.173	402.0 -> 99.0	35973	20.20	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C4-PFBA	2.941	217.0 -> 172.0	276121	20.54	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C4-PFHpA	6.179	367.0 -> 322.0	131332	20.42	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C5-PFHxA	5.339	318.0 -> 273.0	112234	20.39	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C5-PFPeA	4.287	268.0 -> 223.0	118906	20.80	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.0%		
13C6-PFDA	8.479	519.0 -> 474.0	190805	20.51	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		

Perfluorinated Compounds by LC/MS/MS

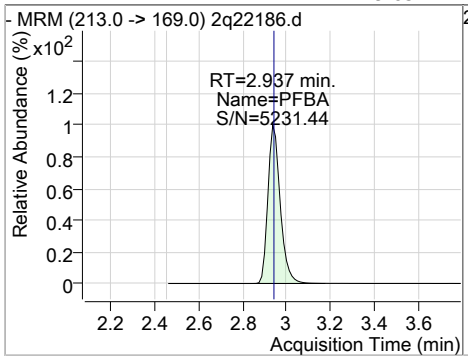
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.367	570.0 -> 525.0	140964	20.59	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%			
13C8-FOSA	7.117	506.0 -> 78.0	76920	19.82	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%			
13C8-PFOA	6.896	421.0 -> 376.0	108120	20.12	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%			
13C8-PFOS	7.533	507.0 -> 99.0	36657	20.20	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%			
13C9-PFNA	7.589	472.0 -> 427.0	101607	20.67	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%			
d3-MeFOSAA	7.620	573.0 -> 419.0	47533	20.44	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%			
M2-PFOA	6.898	415.0 -> 370.0	143254	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.536	503.0 -> 80.0	59562	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.274	327.0 -> 307.0	182390	50.00	µg/L		99
6:2FTS	6.907	427.0 -> 407.0	213817	54.11	µg/L		99
8:2FTS	8.740	527.0 -> 507.0	264126	50.11	µg/L		96
EtFOSAA	7.744	584.0 -> 419.0	54402	50.22	µg/L		99
FOSA	7.120	498.0 -> 78.0	90728	49.64	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	61094	50.38	µg/L		95
PFBA	2.937	213.0 -> 169.0	82520	49.83	µg/L		100
PFBS	4.434	299.0 -> 80.0	103188	50.45	µg/L		99
PFDA	8.481	513.0 -> 469.0	144073	49.50	µg/L		99
PFDoDA	12.059	613.0 -> 569.0	120874	50.04	µg/L		99
PFDS	10.162	599.0 -> 80.0	37678	49.26	µg/L		99
PFHpA	6.170	363.0 -> 319.0	245760	49.27	µg/L		100
PFHpS	6.866	449.0 -> 80.0	71076	48.85	µg/L		100
PFHxA	5.341	313.0 -> 269.0	88759	49.37	µg/L		100
PFHxS	6.176	399.0 -> 80.0	86452	49.26	µg/L	m	100
PFNA	7.590	463.0 -> 419.0	137256	49.16	µg/L		97
PFNS	8.346	549.0 -> 80.0	66300	50.08	µg/L		96
PFOA	6.887	413.0 -> 369.0	139755	49.97	µg/L		97
PFOS	7.524	499.0 -> 80.0	77563	49.34	µg/L	m	99
PFPeA	4.291	263.0 -> 219.0	277918	49.99	µg/L		100
PFPeS	5.396	349.0 -> 80.0	67749	51.14	µg/L		98
PFTeDA	14.737	713.0 -> 669.0	62859	50.21	µg/L		96
PFTrDA	13.479	663.0 -> 619.0	92386	50.44	µg/L		100
PFUnDA	10.358	563.0 -> 519.0	132942	50.58	µg/L		97

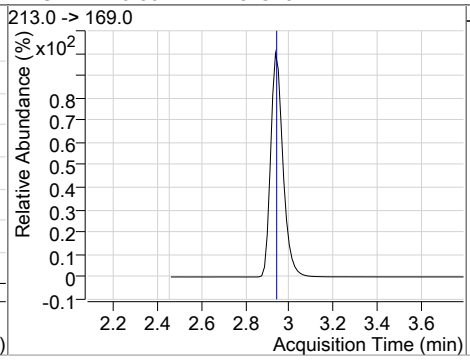
 # = Qualifier out of range, m = manually integrated, + = Area summed

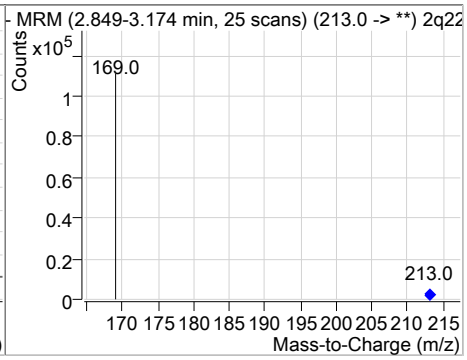
Perfluorinated Compounds by LC/MS/MS



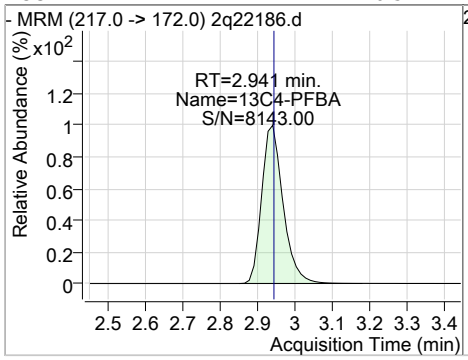
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	49.83	2.94	0.00	82520				

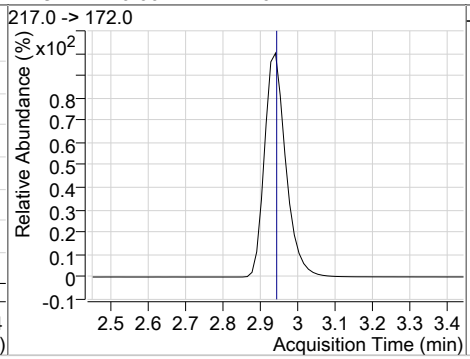


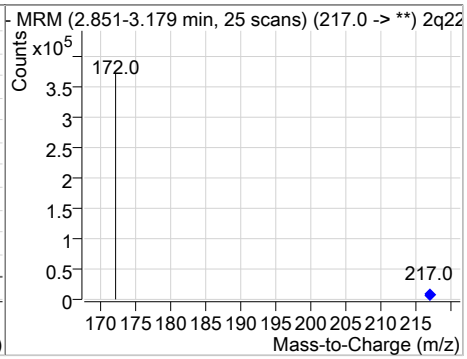




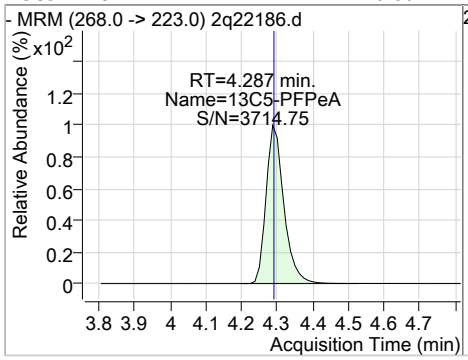
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.54	2.94	0.00	276121				

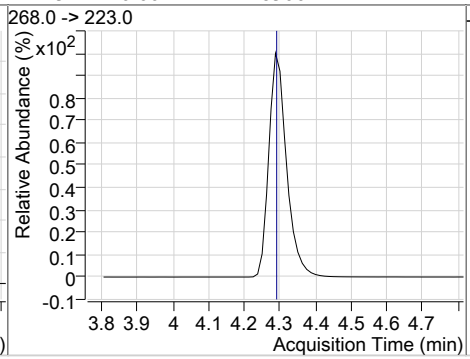


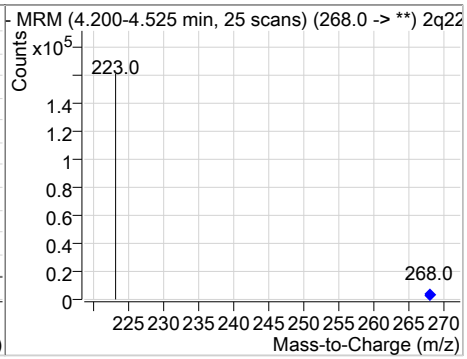




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.80	4.29	0.00	118906				

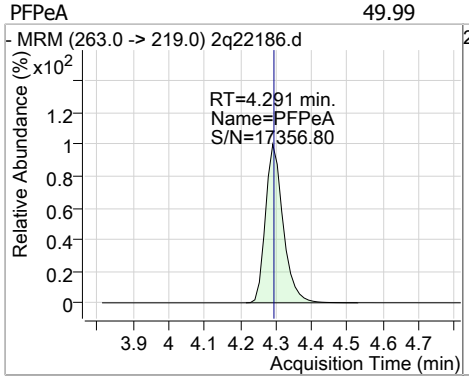


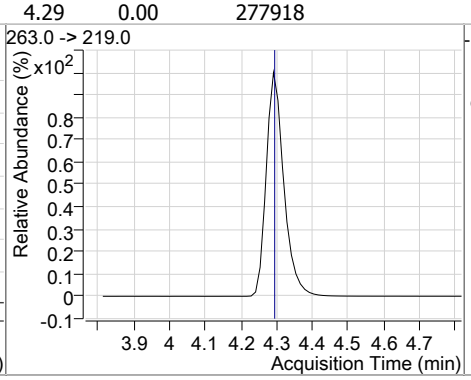


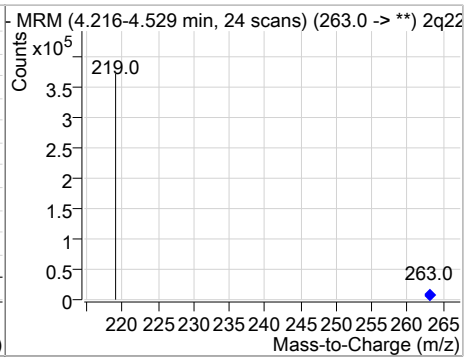


Perfluorinated Compounds by LC/MS/MS

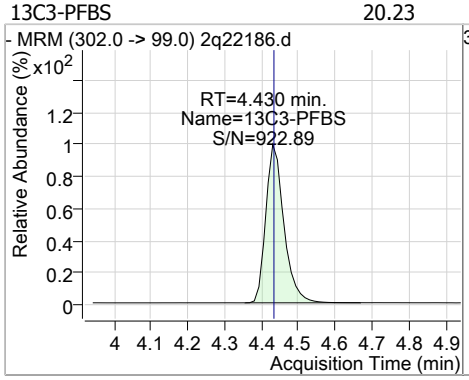
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.99	4.29	0.00	277918				

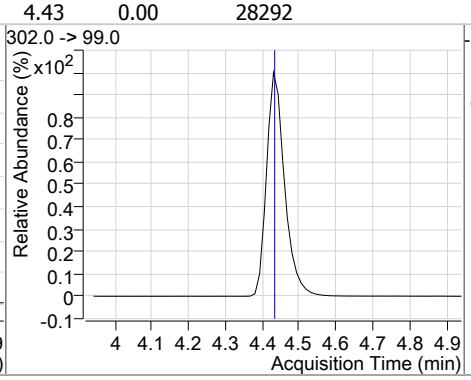


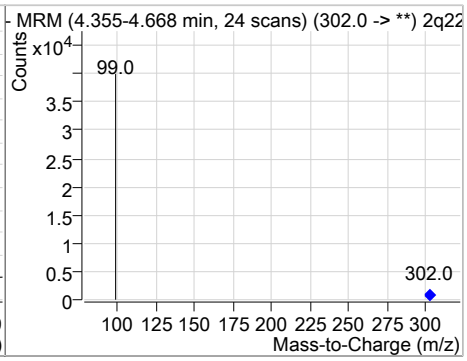




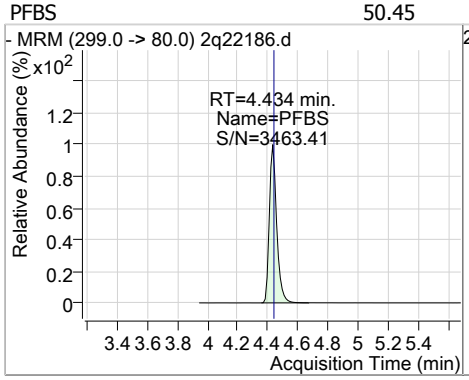
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.23	4.43	0.00	28292				

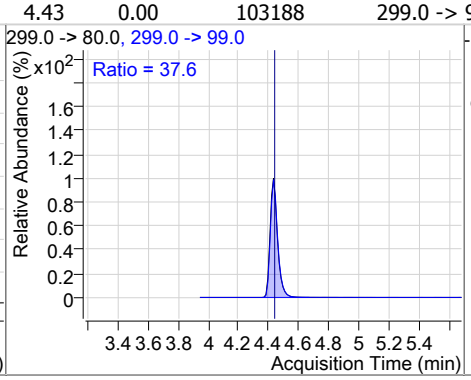


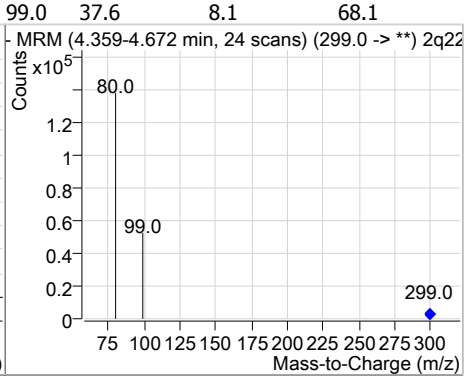




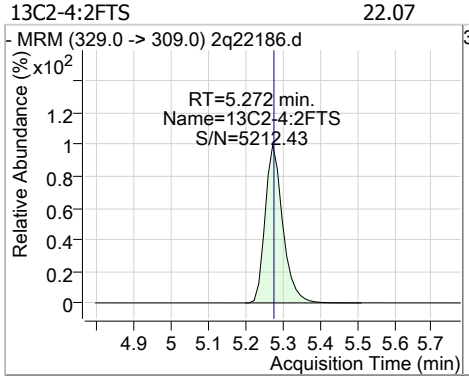
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	50.45	4.43	0.00	103188	299.0 -> 99.0	37.6	8.1	68.1

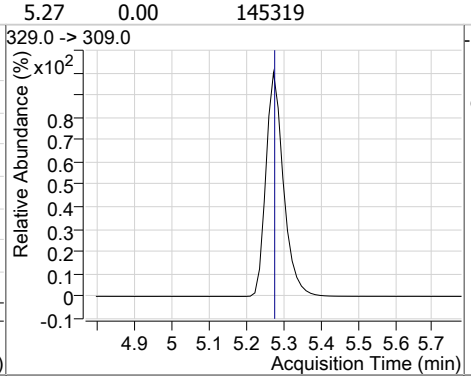


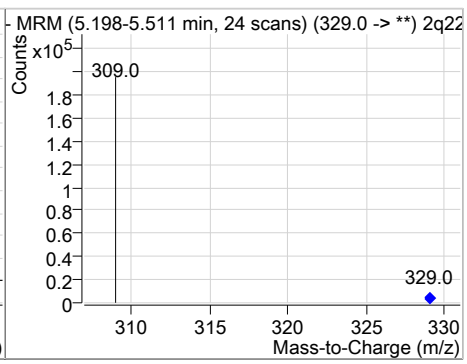




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	22.07	5.27	0.00	145319				

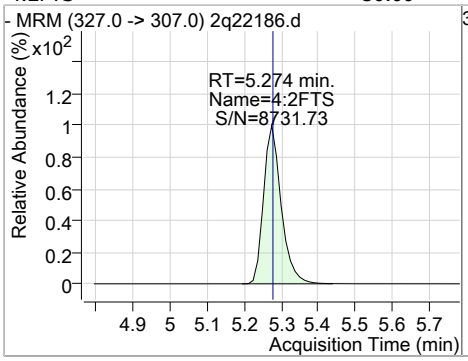


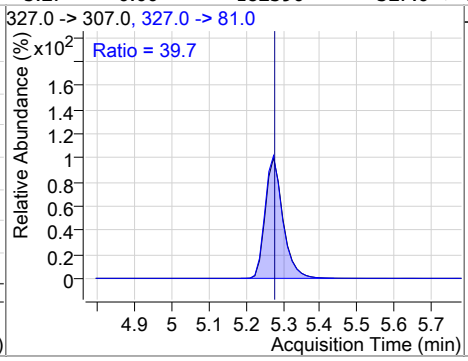


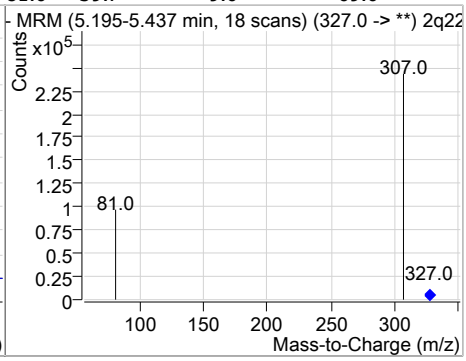


Perfluorinated Compounds by LC/MS/MS

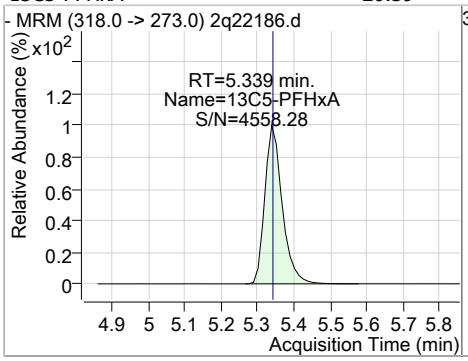
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	50.00	5.27	0.00	182390	327.0 -> 81.0	39.7	9.0	69.0

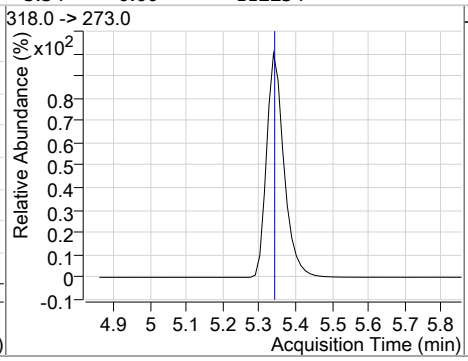


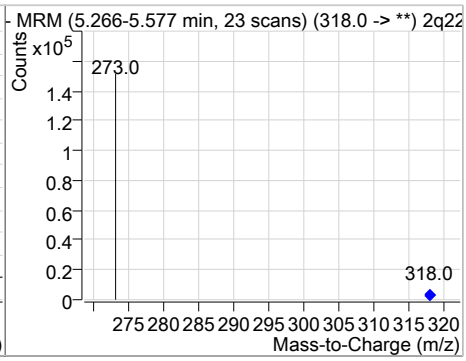




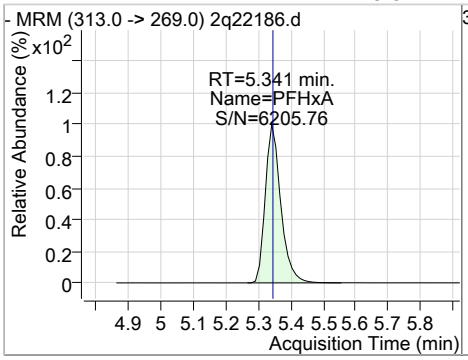
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.39	5.34	0.00	112234				

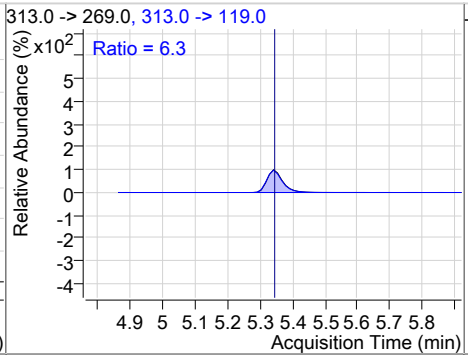


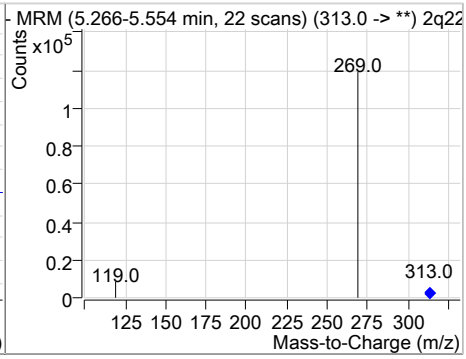




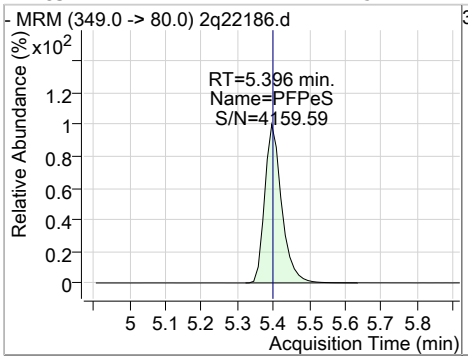
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.37	5.34	0.00	88759	313.0 -> 119.0	6.3	0.0	36.4

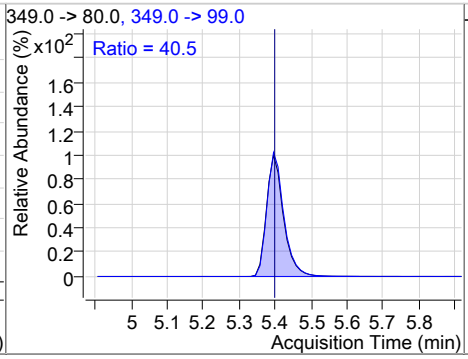


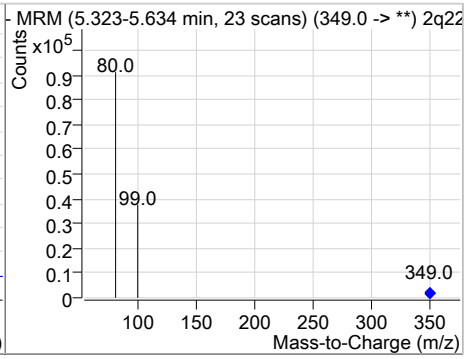




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	51.14	5.40	0.00	67749	349.0 -> 99.0	40.5	9.5	69.5

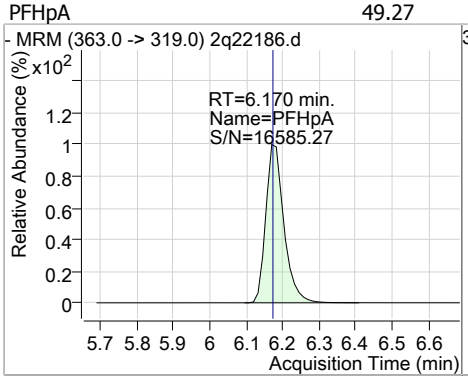


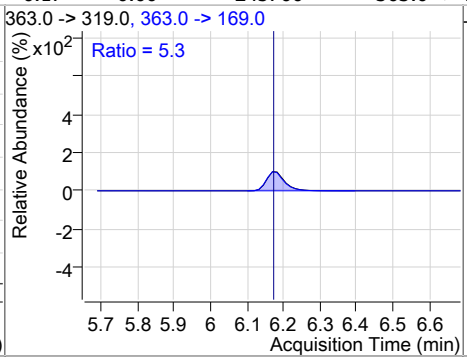


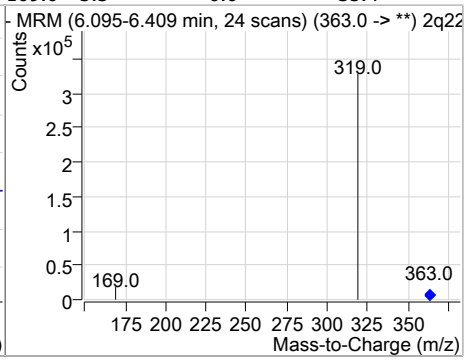


Perfluorinated Compounds by LC/MS/MS

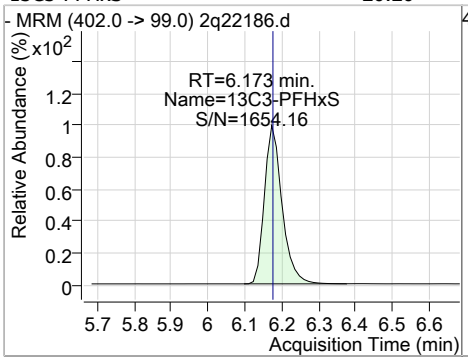
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.27	6.17	0.00	245760	363.0 -> 169.0	5.3	0.0	35.4

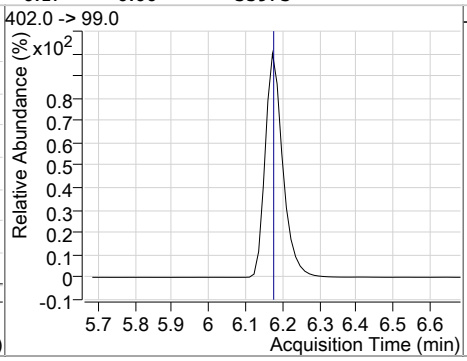


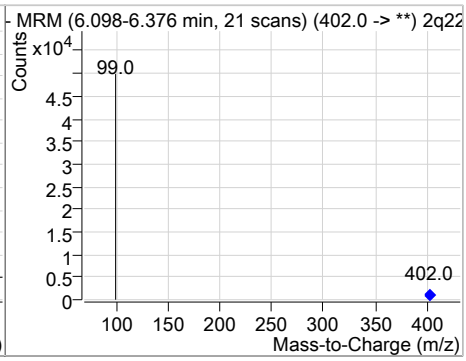




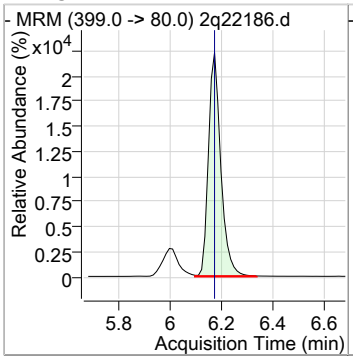
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.20	6.17	0.00	35973				

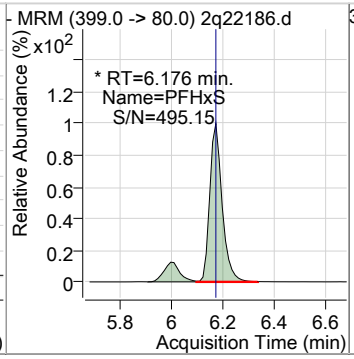


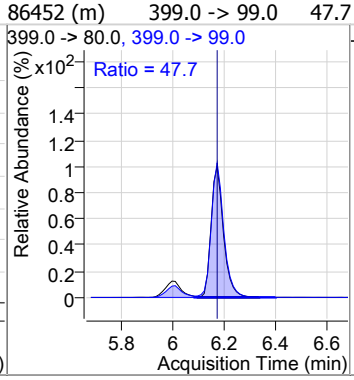


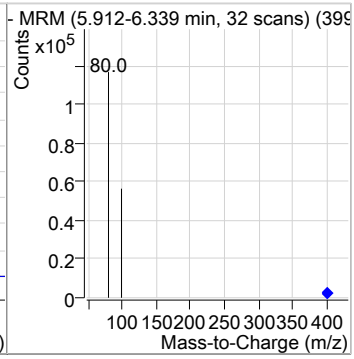


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.26	6.18	0.00	86452 (m)	399.0 -> 99.0	47.7	17.7	77.7

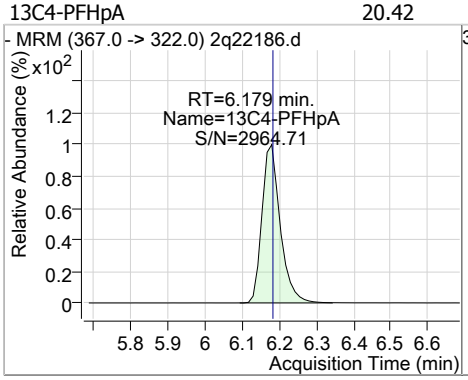


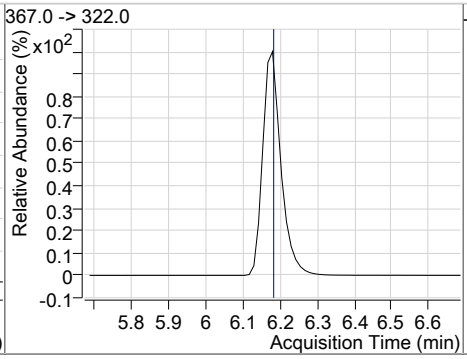


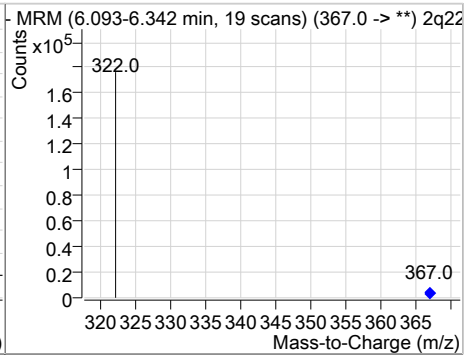




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.42	6.18	0.00	131332				

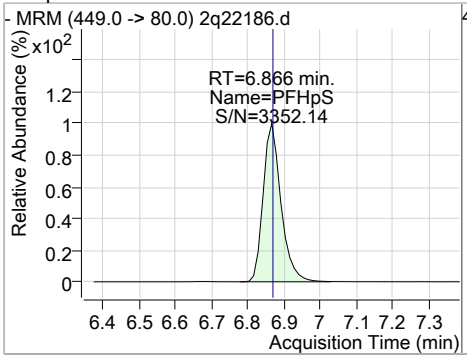


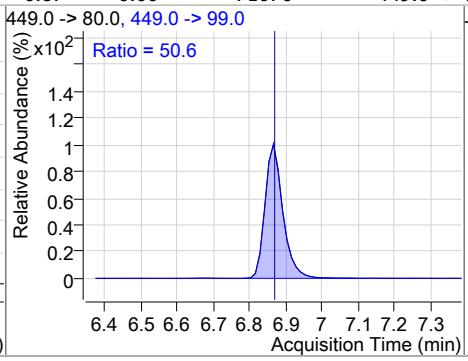


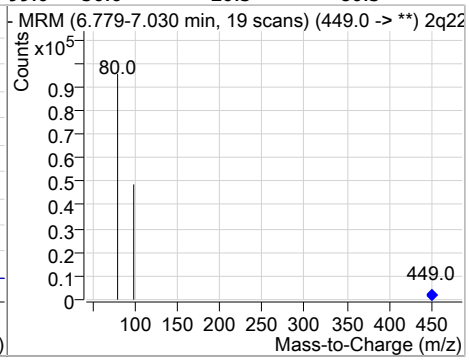


Perfluorinated Compounds by LC/MS/MS

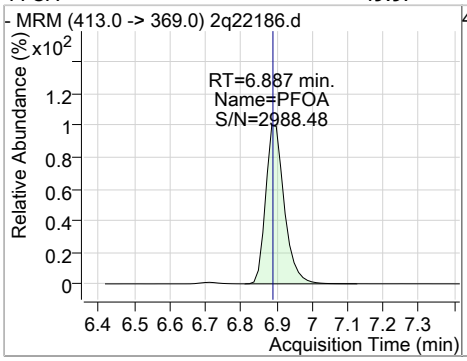
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	48.85	6.87	0.00	71076	449.0 -> 99.0	50.6	20.3	80.3

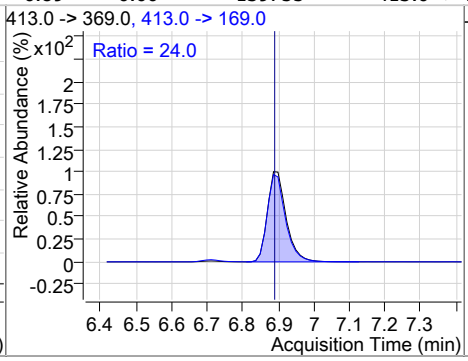


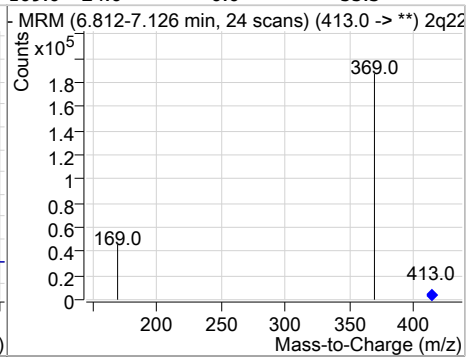




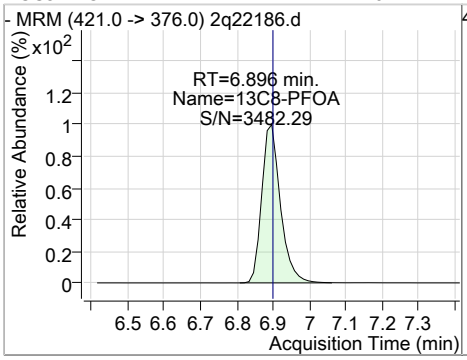
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.97	6.89	0.00	139755	413.0 -> 169.0	24.0	0.0	55.3

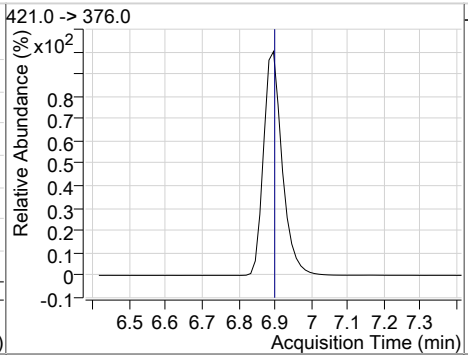


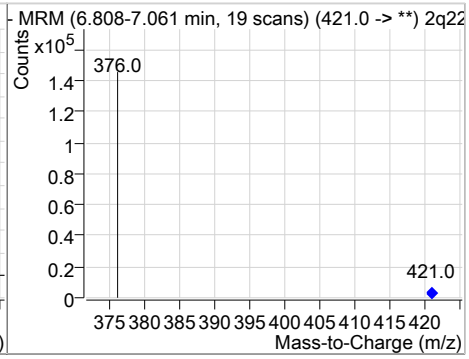




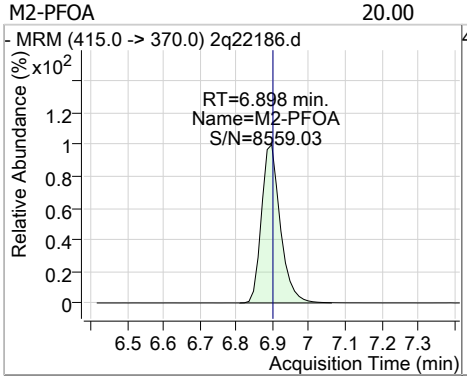
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.12	6.90	0.00	108120				

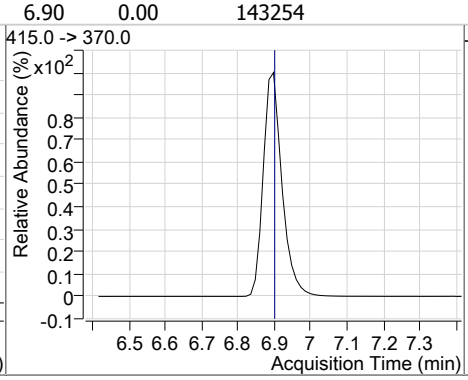


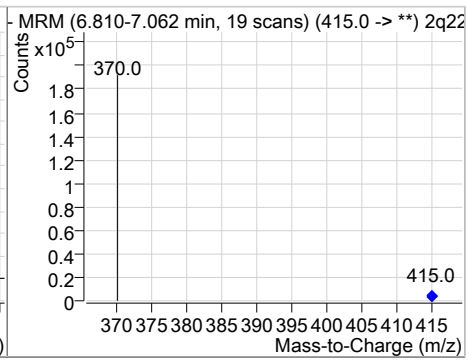




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.90	0.00	143254				

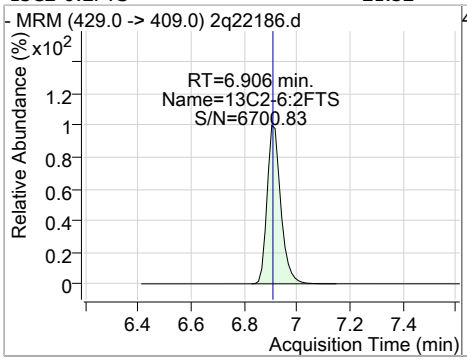


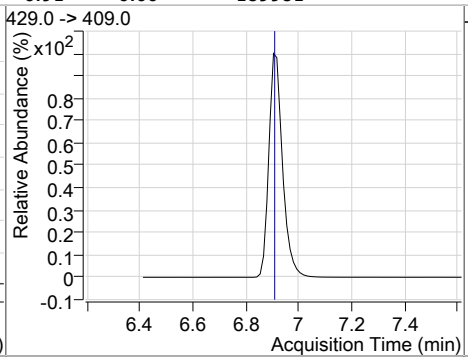


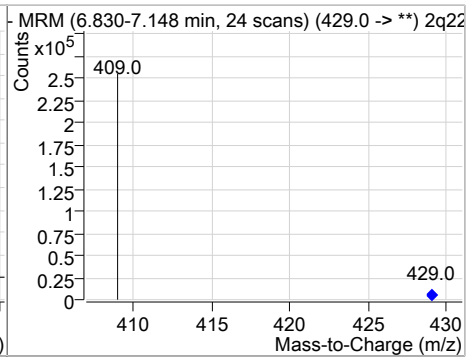


Perfluorinated Compounds by LC/MS/MS

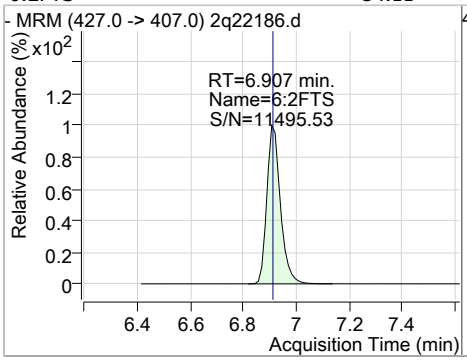
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.52	6.91	0.00	189981				

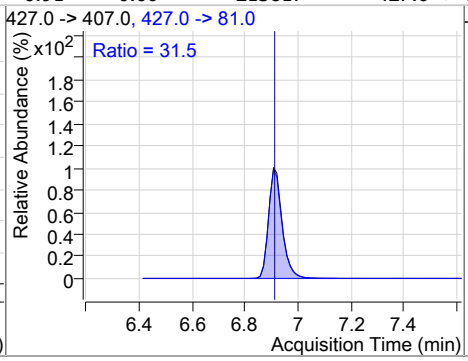


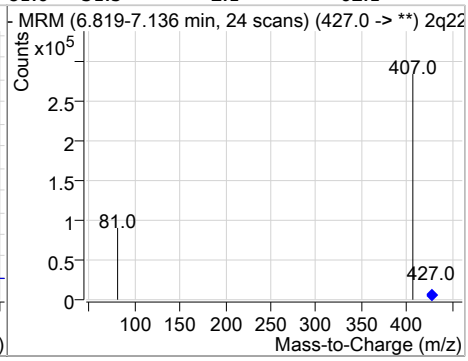




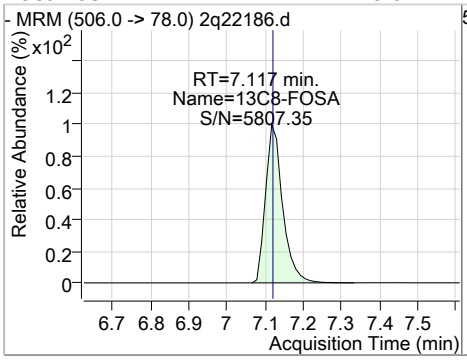
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	54.11	6.91	0.00	213817	427.0 -> 81.0	31.5	2.1	62.1

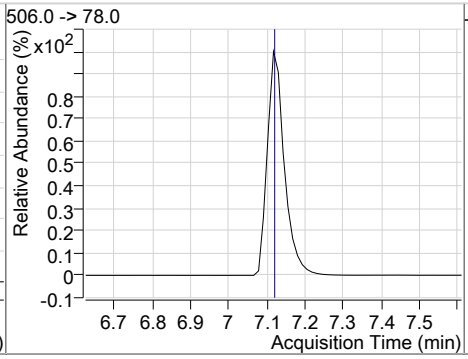


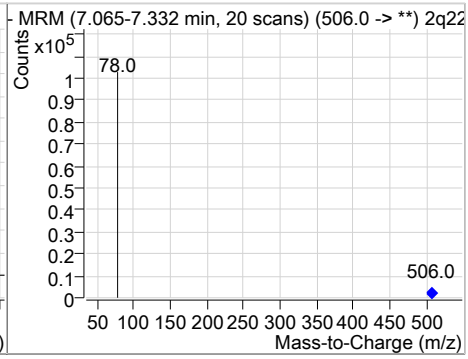




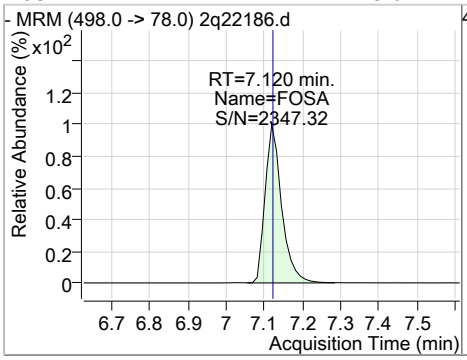
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.82	7.12	0.00	76920				

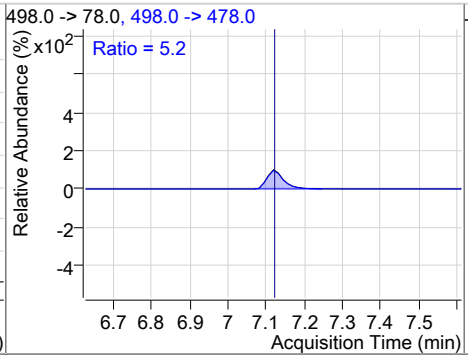


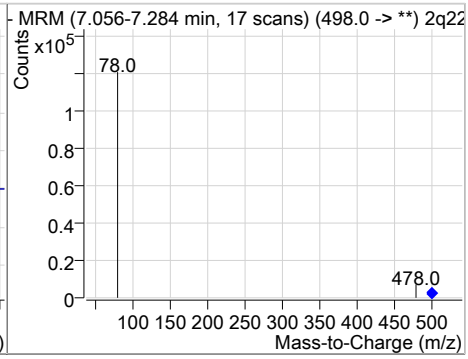




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	49.64	7.12	0.00	90728	498.0 -> 478.0	5.2	0.0	35.4

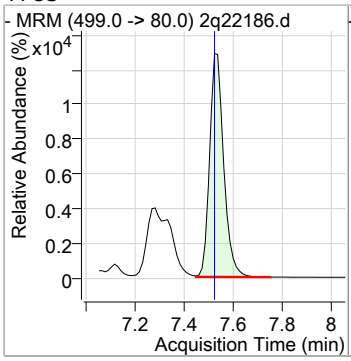


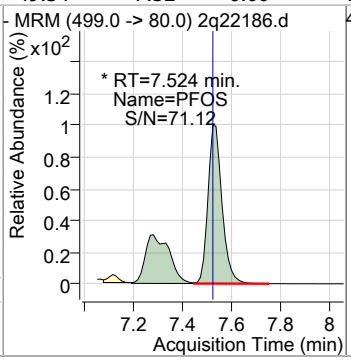


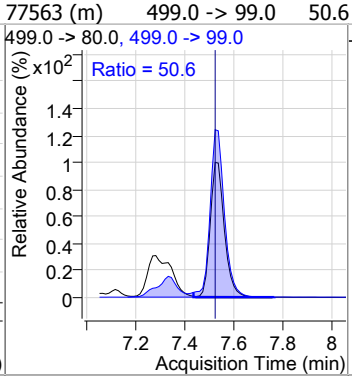


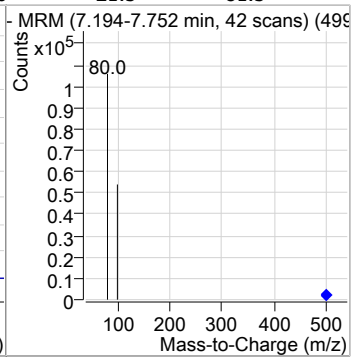
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	49.34	7.52	0.00	77563 (m)	499.0 -> 99.0	50.6	21.5	81.5

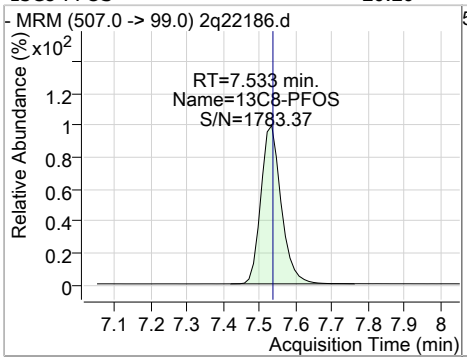


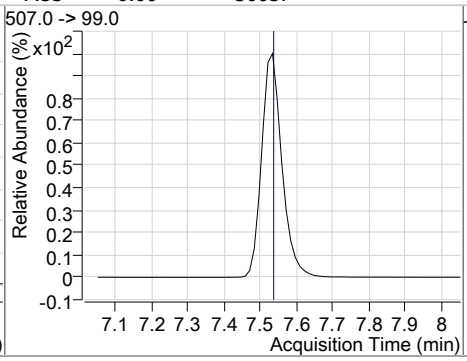


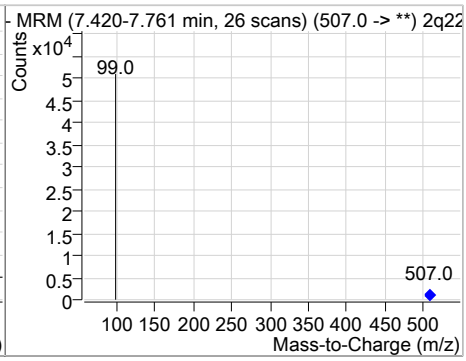




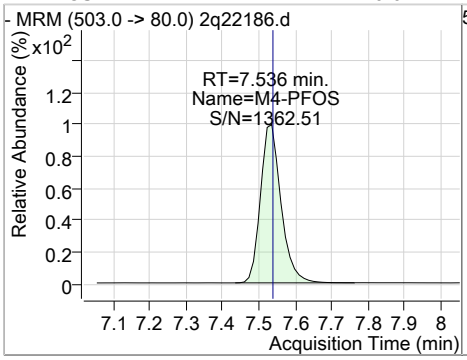
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.20	7.53	0.00	36657				

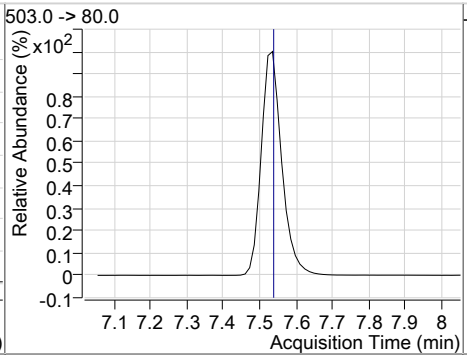


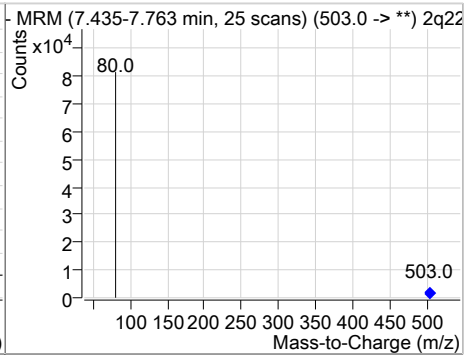




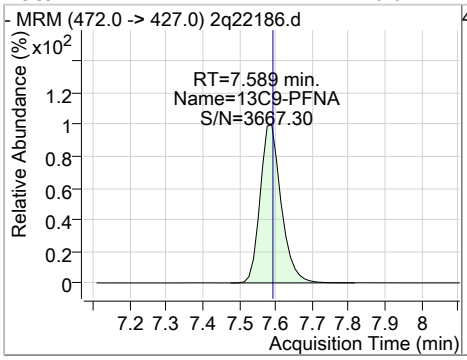
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.54	0.00	59562				

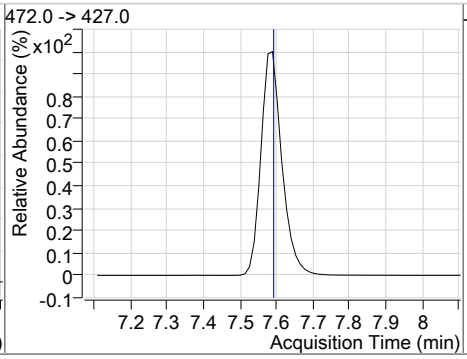


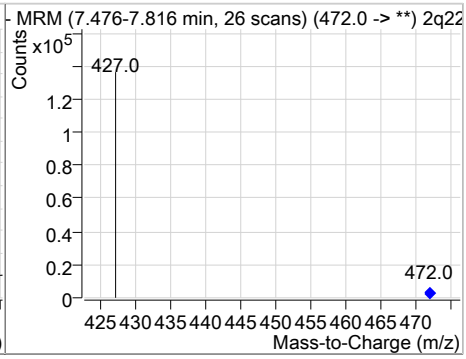




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.67	7.59	0.00	101607				

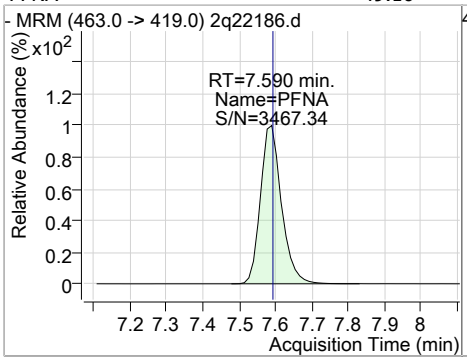


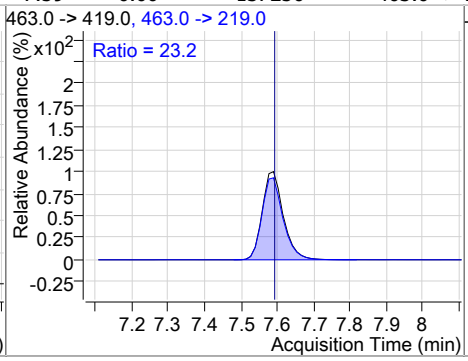


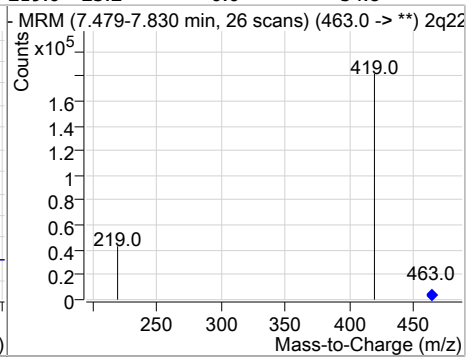


Perfluorinated Compounds by LC/MS/MS

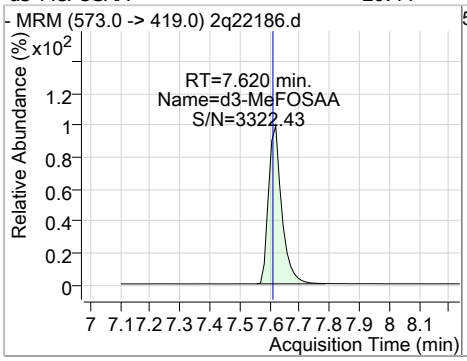
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	49.16	7.59	0.00	137256	463.0 -> 219.0	23.2	0.0	54.8

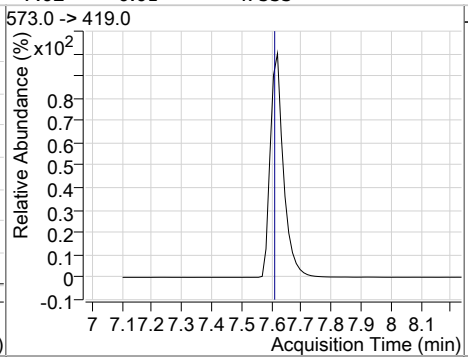


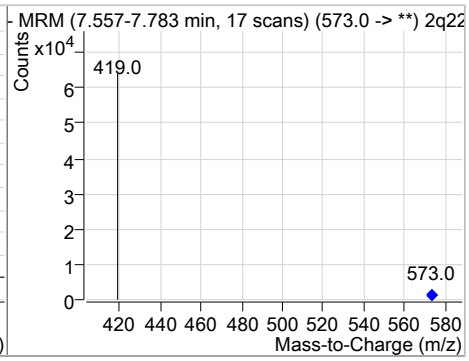




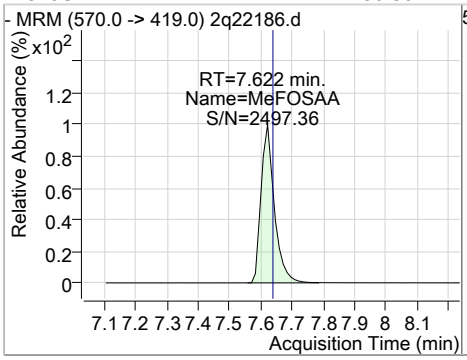
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.44	7.62	0.01	47533				

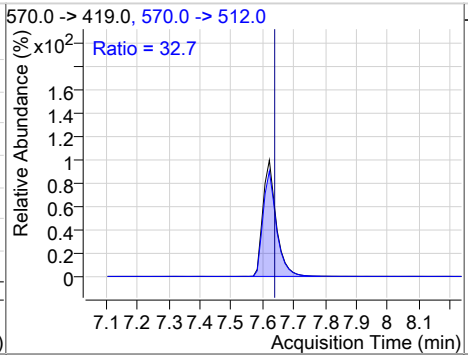


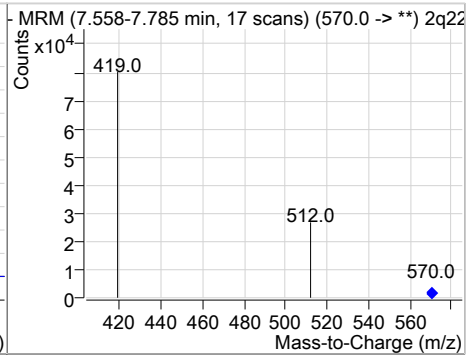




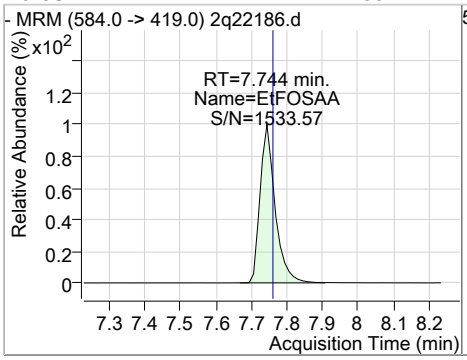
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	50.38	7.62	0.00	61094	570.0 -> 512.0	32.7	5.9	65.9

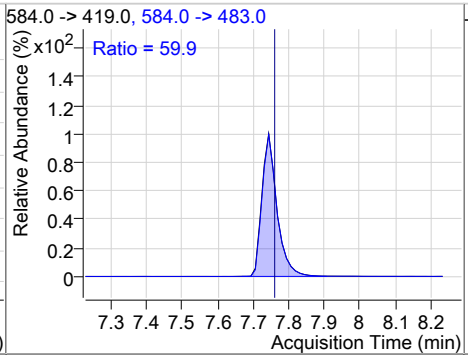


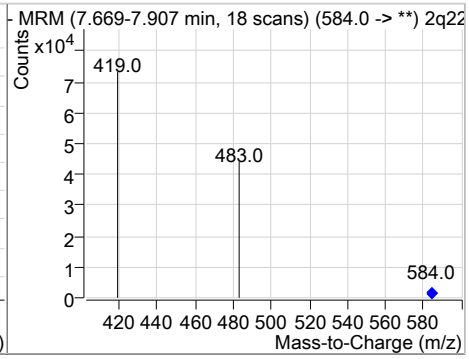




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	50.22	7.74	0.00	54402	584.0 -> 483.0	59.9	30.5	90.5

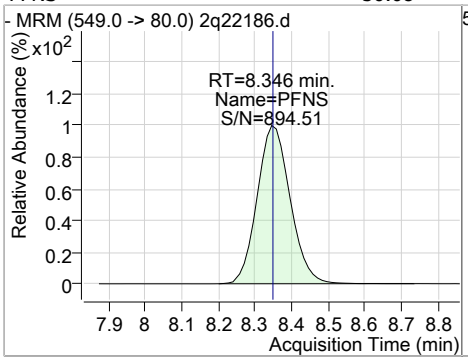


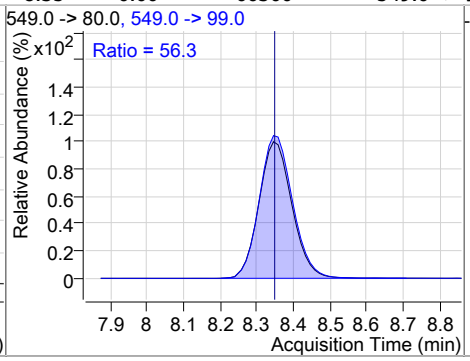


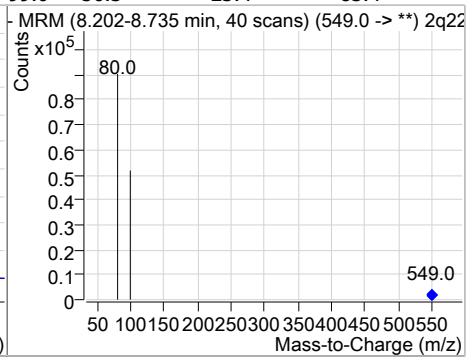


Perfluorinated Compounds by LC/MS/MS

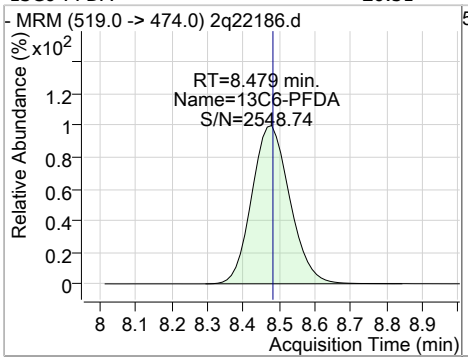
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	50.08	8.35	0.00	66300	549.0 -> 99.0	56.3	23.4	83.4

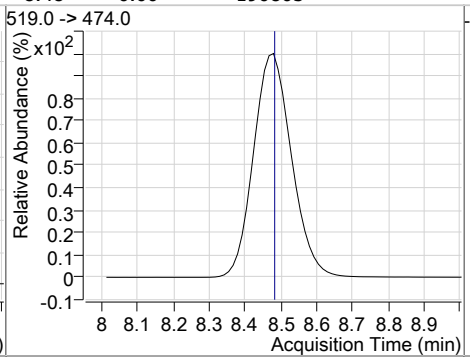


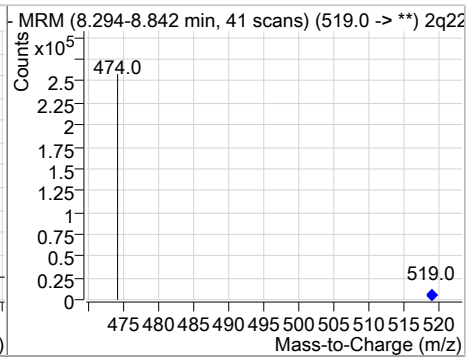




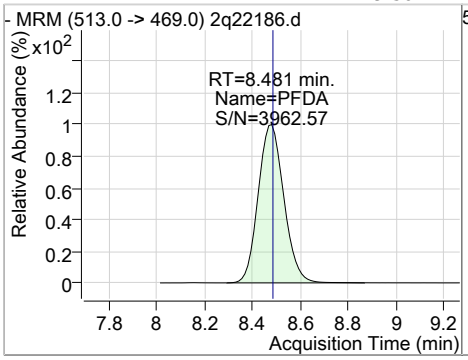
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.51	8.48	0.00	190805				

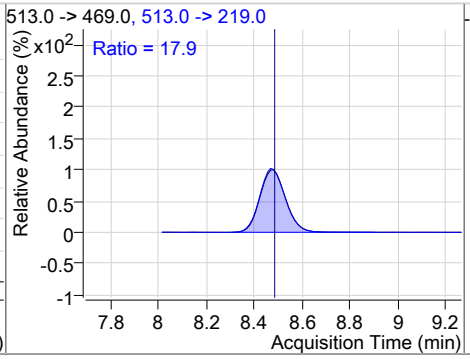


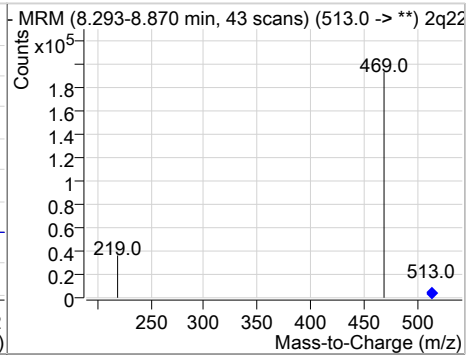




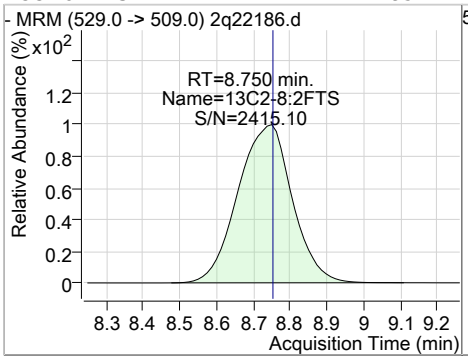
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	49.50	8.48	0.00	144073	513.0 -> 219.0	17.9	0.0	47.6

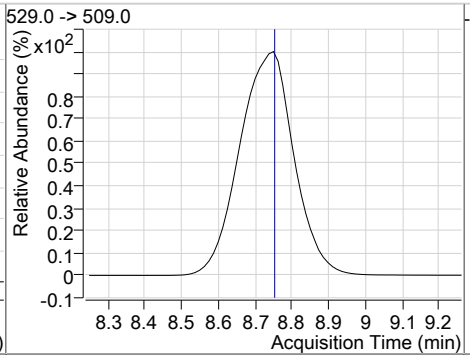


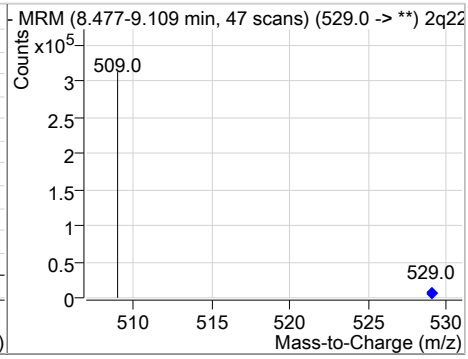




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	21.95	8.75	0.00	230692				

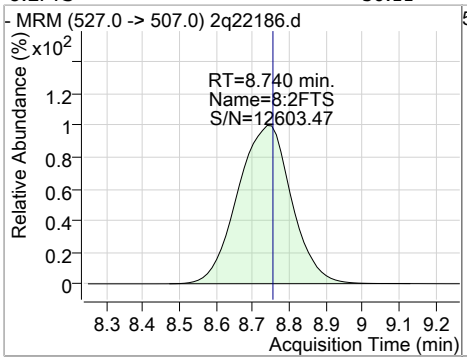


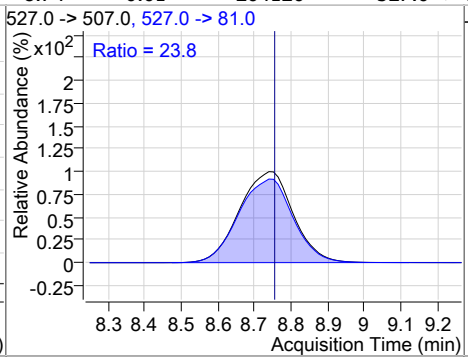


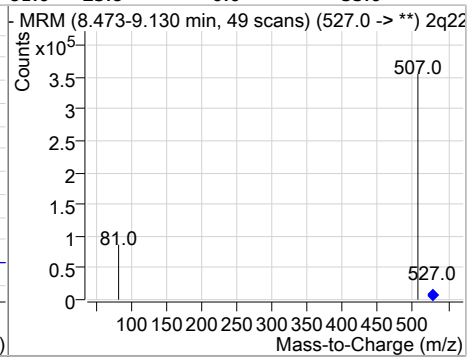


Perfluorinated Compounds by LC/MS/MS

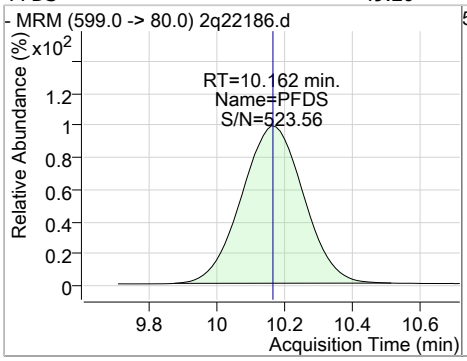
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	50.11	8.74	-0.01	264126	527.0 -> 81.0	23.8	0.0	55.6

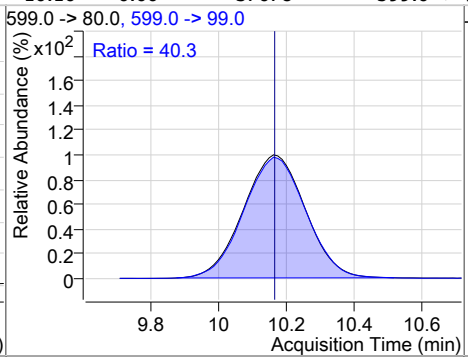


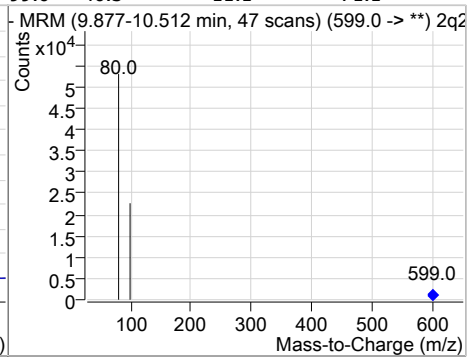




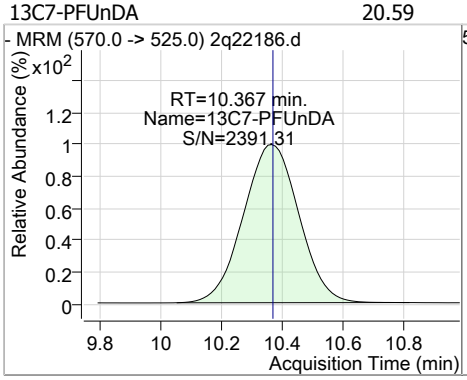
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	49.26	10.16	0.00	37678	599.0 -> 99.0	40.3	11.1	71.1

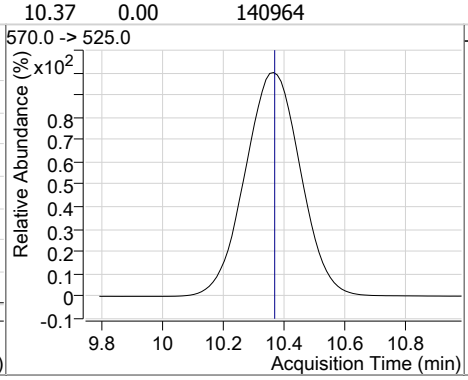


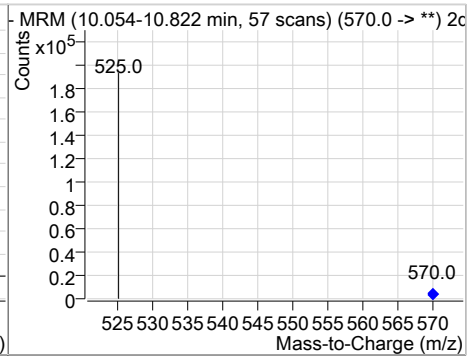




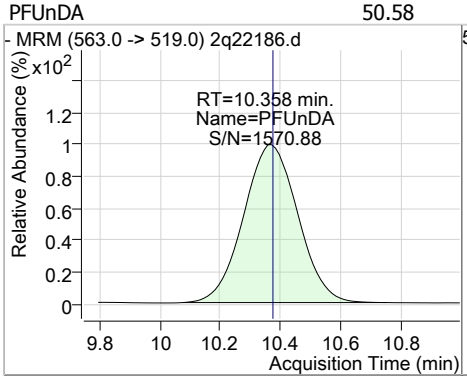
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.59	10.37	0.00	140964				

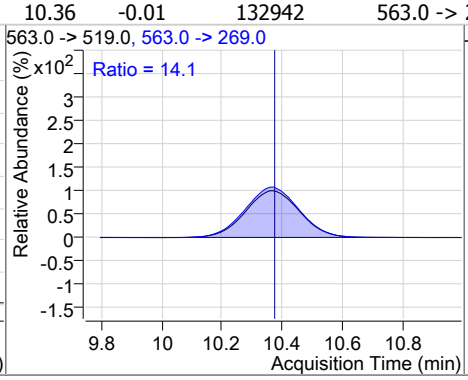


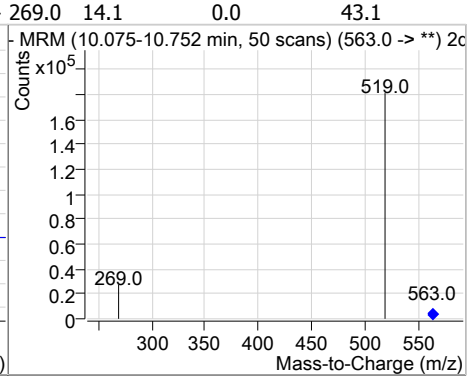




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	50.58	10.36	-0.01	132942	563.0 -> 269.0	14.1	0.0	43.1

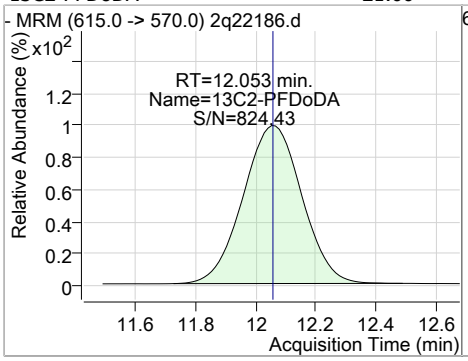


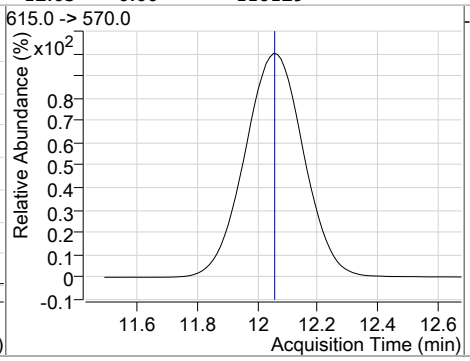


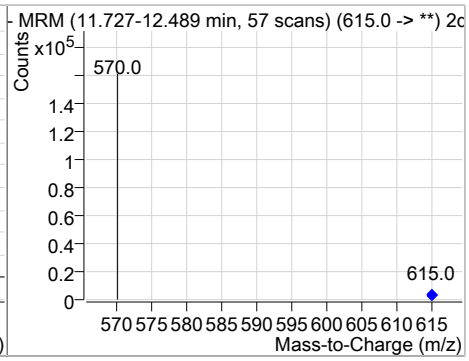


Perfluorinated Compounds by LC/MS/MS

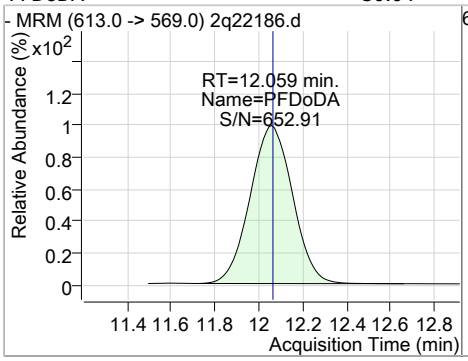
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.00	12.05	0.00	116129				

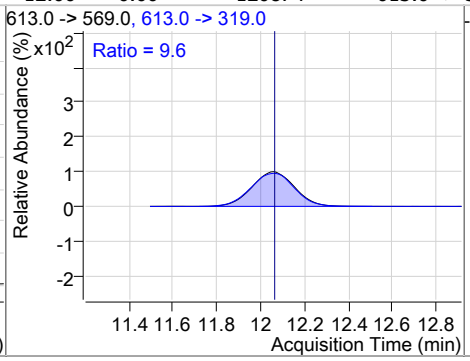


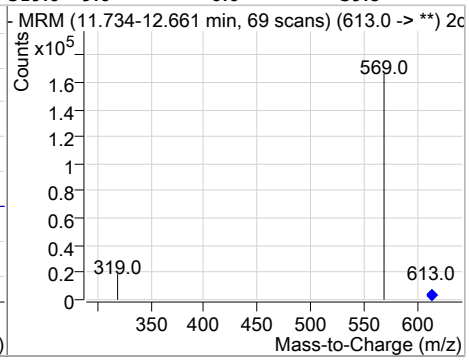




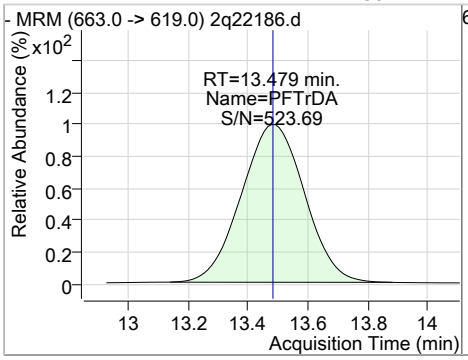
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	50.04	12.06	0.00	120874	613.0 -> 319.0	9.6	0.0	39.8

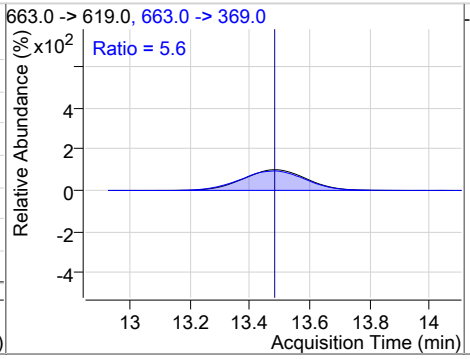


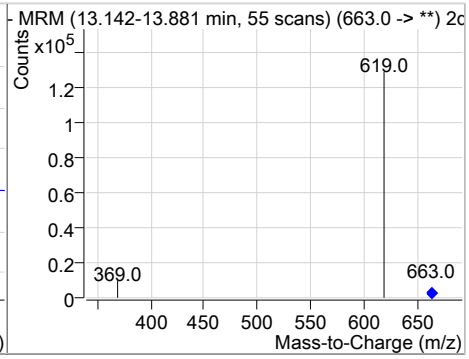




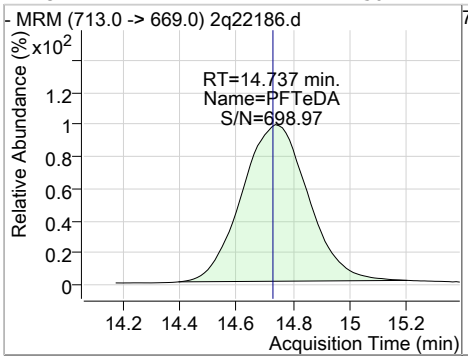
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	50.44	13.48	0.00	92386	663.0 -> 369.0	5.6	0.0	35.8

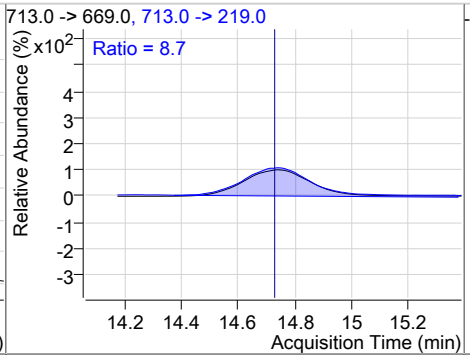


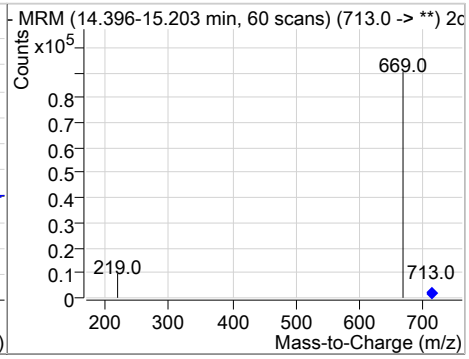




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	50.21	14.74	0.01	62859	713.0 -> 219.0	8.7	0.0	37.4

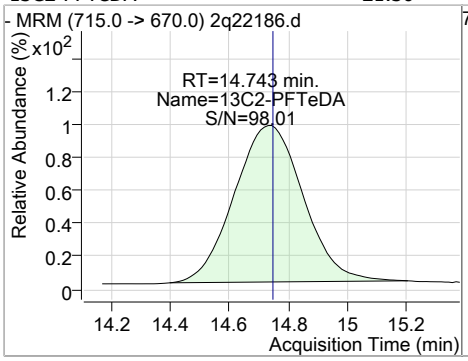


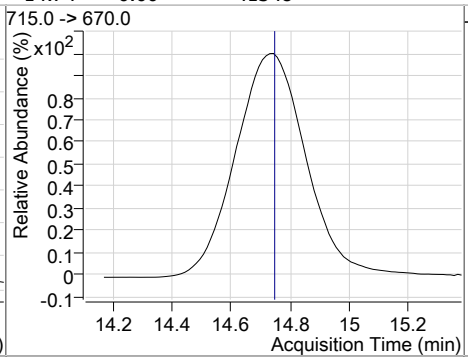


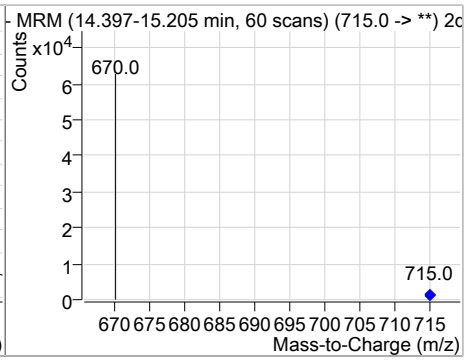


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.30	14.74	0.00	41348				







Manual Integration Approval Summary

Sample Number: S2Q350-IC350
Lab FileID: 2Q22186.D
Injection Time: 10/16/18 12:29
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.52	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22187.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/16/2018 12:50:26 PM
Sample Name : ic350-100
Vial : Vial 9
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q350.batch.bin
Sample Information : op71813,S2Q350,2.01,,,1.0,1,soil

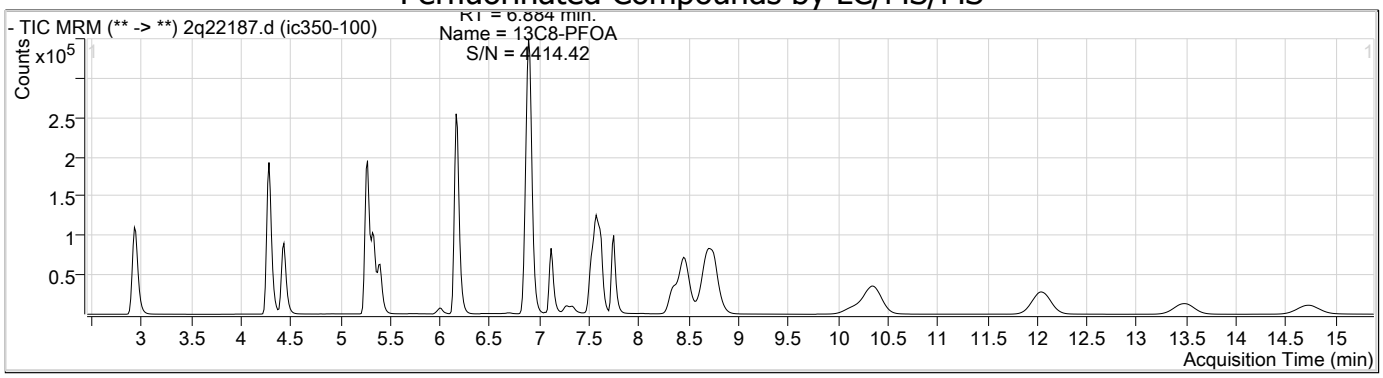
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.885	415.0 -> 370.0	138015	20.00	µg/L	-0.013
13C4-PFOS	7.523	503.0 -> 80.0	57644	20.00	µg/L	-0.013
M4-PFBA	2.928	217.0 -> 172.0	272902	20.00	µg/L	-0.013
M5-PFPeA	4.287	268.0 -> 223.0	117361	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	107445	20.00	µg/L	0.000
M4-PFHpA	6.167	367.0 -> 322.0	125033	20.00	µg/L	-0.013
M8-PFOA	6.884	421.0 -> 376.0	105935	20.00	µg/L	-0.013
M9-PFNA	7.576	472.0 -> 427.0	98807	20.00	µg/L	-0.013
M6-PFDA	8.454	519.0 -> 474.0	183853	20.00	µg/L	-0.025
M7-PFUnDA	10.354	570.0 -> 525.0	142151	20.00	µg/L	-0.013
M2-PFDoDA	12.040	615.0 -> 570.0	117182	20.00	µg/L	-0.013
M2-PFTeDA	14.731	715.0 -> 670.0	43303	20.00	µg/L	-0.013
M8-FOSA	7.117	506.0 -> 78.0	70691	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	28116	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	33959	20.00	µg/L	0.000
M8-PFOS	7.521	507.0 -> 99.0	35500	20.00	µg/L	-0.013
M2-4:2FTS	5.272	329.0 -> 309.0	158792	20.00	µg/L	0.000
M2-6:2FTS	6.906	429.0 -> 409.0	203444	20.00	µg/L	0.000
M2-8:2FTS	8.699	529.0 -> 509.0	254513	20.00	µg/L	-0.050
M3-MeFOSAA	7.620	573.0 -> 419.0	45903	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	158776	24.11	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.6%		
13C2-6:2FTS	6.906	429.0 -> 409.0	203503	23.05	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.2%		
13C2-8:2FTS	8.699	529.0 -> 509.0	253825	24.15	µg/L	-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.8%		
13C2-PFDoDA	12.040	615.0 -> 570.0	116520	21.07	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C2-PFTeDA	14.731	715.0 -> 670.0	42330	21.81	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.0%		
13C3-PFBS	4.430	302.0 -> 99.0	28113	20.10	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C3-PFHxS	6.173	402.0 -> 99.0	33973	19.08	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C4-PFBA	2.928	217.0 -> 172.0	272864	20.29	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C4-PFHpA	6.167	367.0 -> 322.0	125029	19.44	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C5-PFHxA	5.339	318.0 -> 273.0	107402	19.51	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.6%		
13C5-PFPeA	4.287	268.0 -> 223.0	117299	20.52	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C6-PFDA	8.454	519.0 -> 474.0	183387	19.71	µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%		

Perfluorinated Compounds by LC/MS/MS

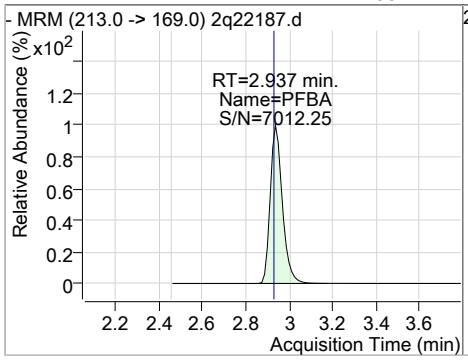
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.354	570.0 -> 525.0	141617	20.68	µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%			
13C8-FOSA	7.117	506.0 -> 78.0	70689	18.21	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%			
13C8-PFOA	6.884	421.0 -> 376.0	105939	19.71	µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%			
13C8-PFOS	7.521	507.0 -> 99.0	35499	19.56	µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%			
13C9-PFNA	7.576	472.0 -> 427.0	98765	20.09	µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%			
d3-MeFOSAA	7.620	573.0 -> 419.0	45899	19.74	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%			
M2-PFOA	6.885	415.0 -> 370.0	137966	19.99	ng/ml		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.523	503.0 -> 80.0	57634	20.01	ng/ml		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.274	327.0 -> 307.0	358713	99.99	µg/L		99
6:2FTS	6.907	427.0 -> 407.0	411372	97.17	µg/L		100
8:2FTS	8.702	527.0 -> 507.0	518706	99.96	µg/L		97
EtFOSAA	7.744	584.0 -> 419.0	104540	99.92	µg/L		100
FOSA	7.120	498.0 -> 78.0	167817	100.24	µg/L		98
MeFOSAA	7.622	570.0 -> 419.0	117095	99.97	µg/L		95
PFBA	2.937	213.0 -> 169.0	163885	100.17	µg/L		100
PFBS	4.434	299.0 -> 80.0	202870	99.80	µg/L		99
PFDA	8.456	513.0 -> 469.0	281108	100.35	µg/L		100
PFDoDA	12.046	613.0 -> 569.0	242641	100.00	µg/L		99
PFDS	10.150	599.0 -> 80.0	74432	100.51	µg/L		98
PFHpA	6.170	363.0 -> 319.0	477170	100.48	µg/L		100
PFHpS	6.866	449.0 -> 80.0	138267	100.68	µg/L		98
PFHxA	5.341	313.0 -> 269.0	172884	100.48	µg/L		100
PFHxS	6.176	399.0 -> 80.0	166514	100.53	µg/L	m	100
PFNA	7.577	463.0 -> 419.0	272940	100.51	µg/L		96
PFNS	8.346	549.0 -> 80.0	128225	100.03	µg/L		96
PFOA	6.887	413.0 -> 369.0	274392	100.11	µg/L		97
PFOS	7.524	499.0 -> 80.0	152928	100.48	µg/L	m	97
PFPeA	4.291	263.0 -> 219.0	545829	100.00	µg/L		100
PFPeS	5.396	349.0 -> 80.0	130901	99.43	µg/L		98
PFTeDA	14.737	713.0 -> 669.0	127831	99.90	µg/L		100
PFTrDA	13.479	663.0 -> 619.0	186792	99.77	µg/L		100
PFUnDA	10.346	563.0 -> 519.0	263559	99.80	µg/L		98

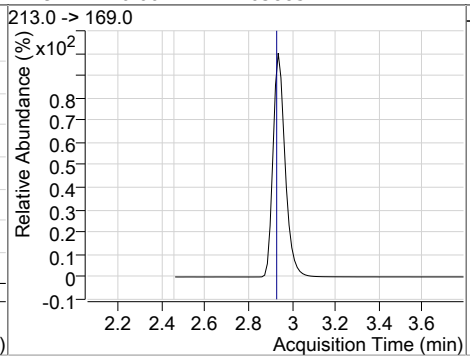
 # = Qualifier out of range, m = manually integrated, + = Area summed

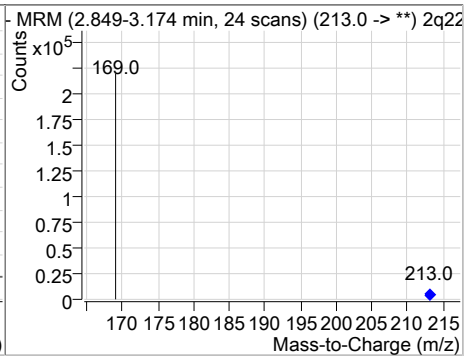
Perfluorinated Compounds by LC/MS/MS



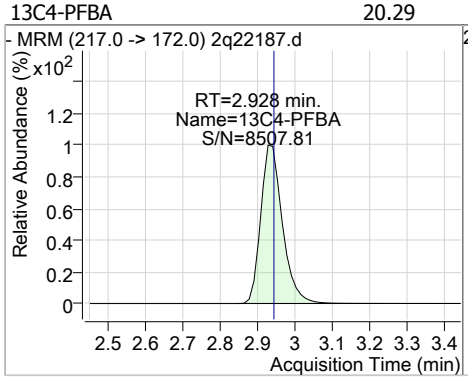
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	100.17	2.94	0.00	163885				

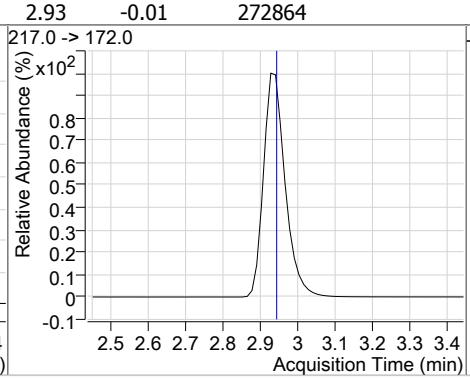


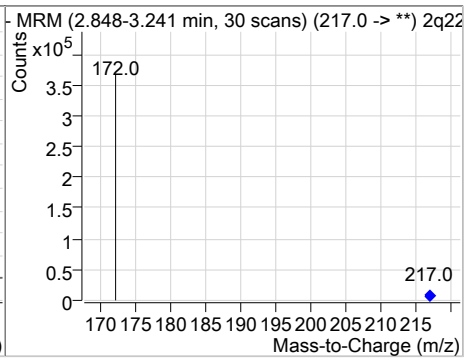




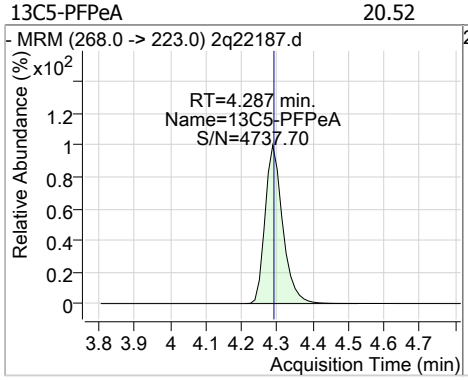
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.29	2.93	-0.01	272864				

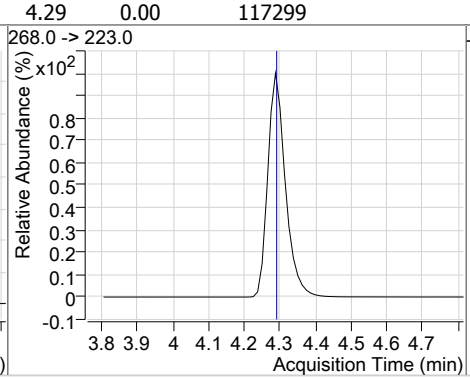


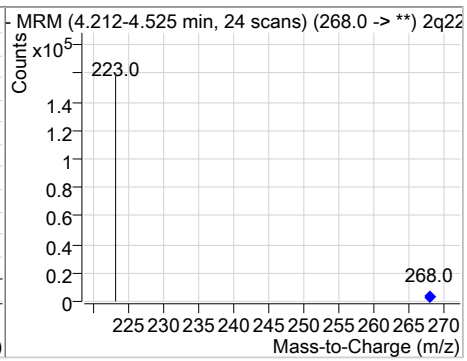




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.52	4.29	0.00	117299				

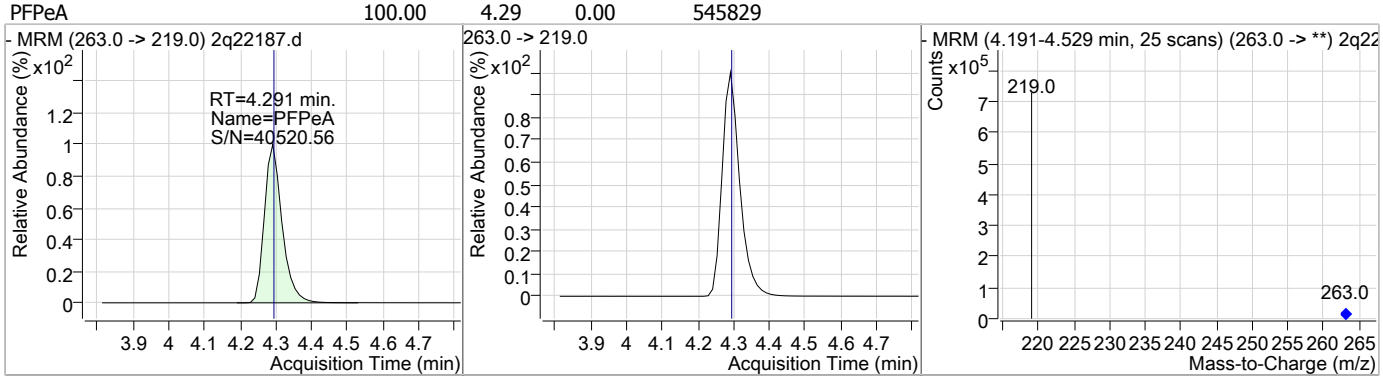




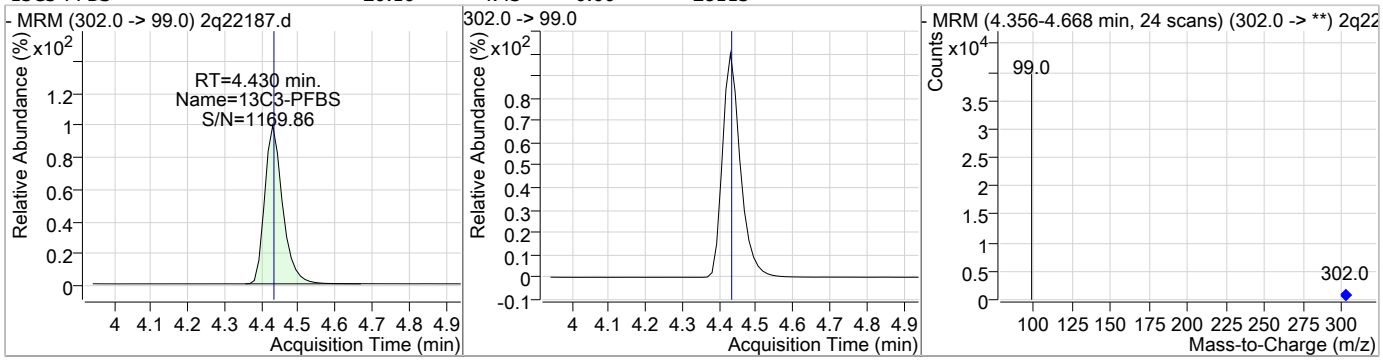


Perfluorinated Compounds by LC/MS/MS

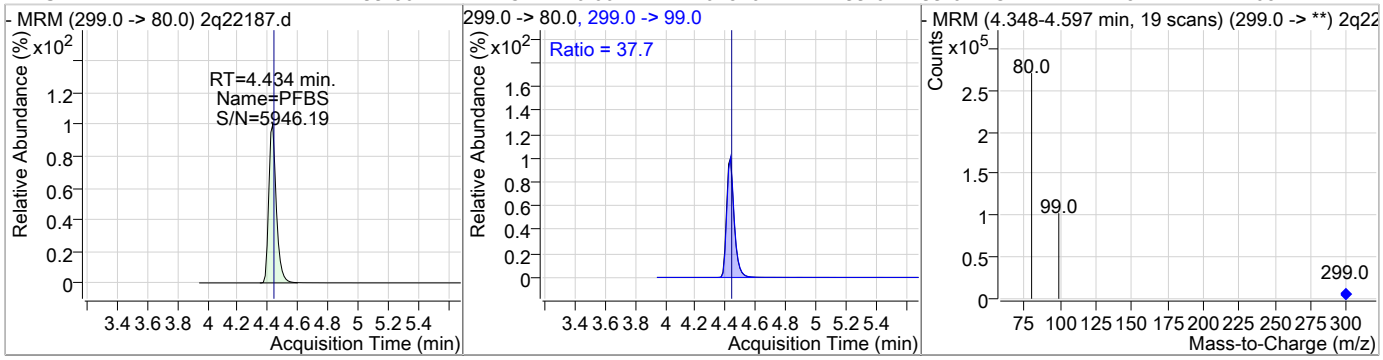
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.00	4.29	0.00	545829				



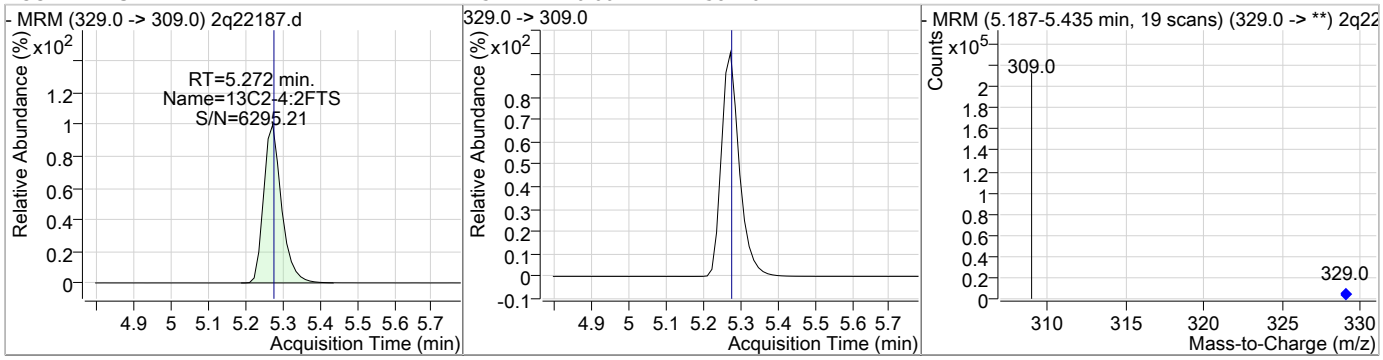
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.10	4.43	0.00	28113				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.80	4.43	0.00	202870	299.0 -> 99.0	37.7	8.1	68.1

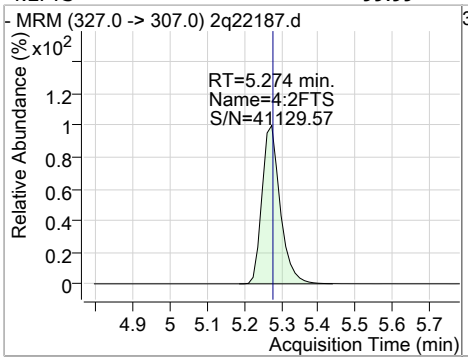


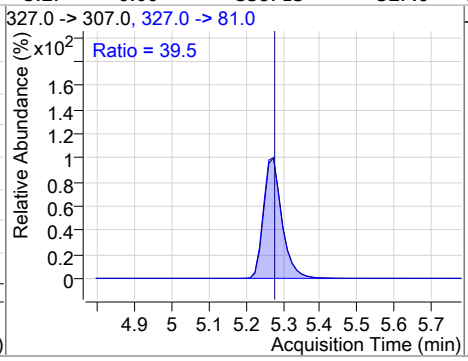
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	24.11	5.27	0.00	158776				

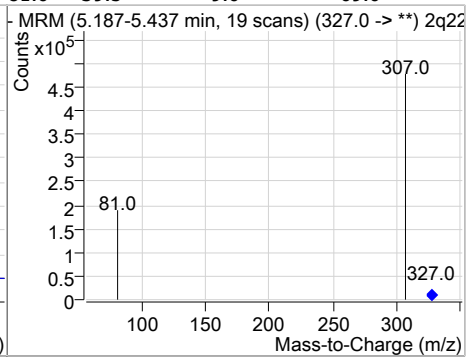


Perfluorinated Compounds by LC/MS/MS

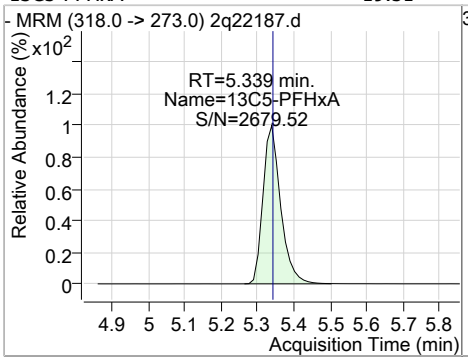
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	99.99	5.27	0.00	358713	327.0 -> 81.0	39.5	9.0	69.0

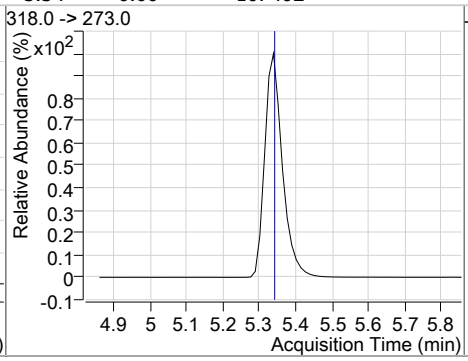


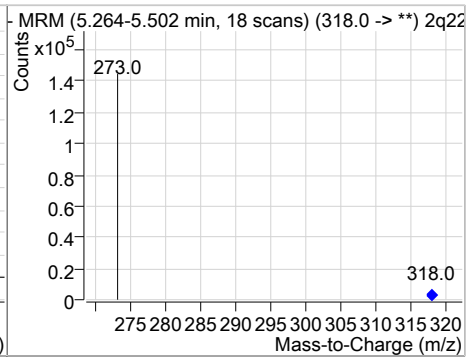




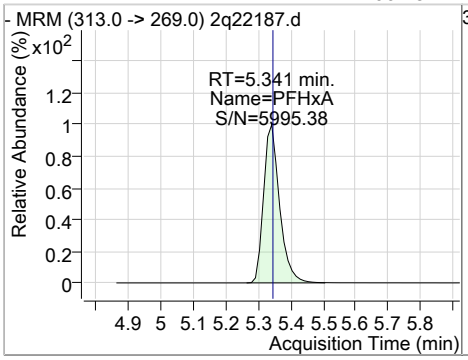
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.51	5.34	0.00	107402				

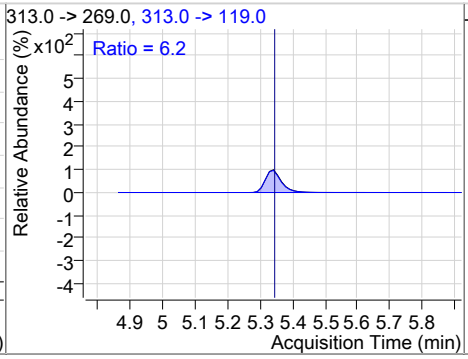


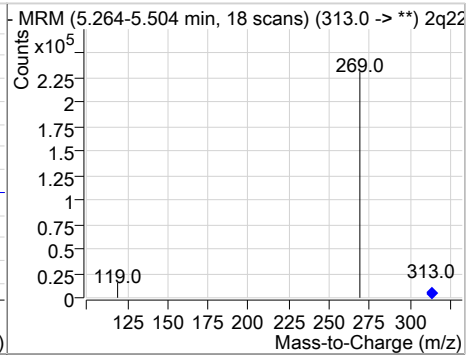




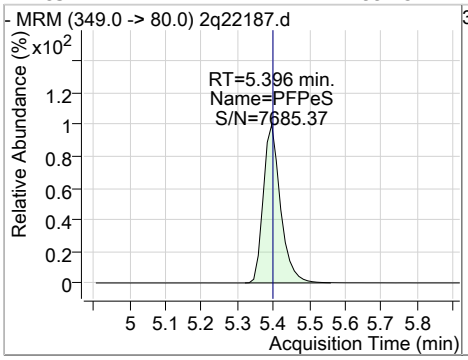
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.48	5.34	0.00	172884	313.0 -> 119.0	6.2	0.0	36.4

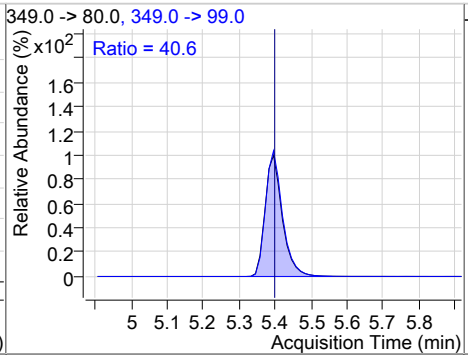


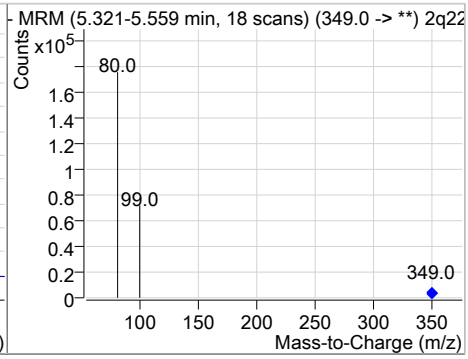




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	99.43	5.40	0.00	130901	349.0 -> 99.0	40.6	9.5	69.5

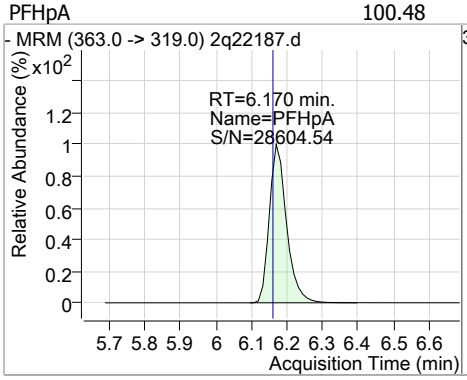


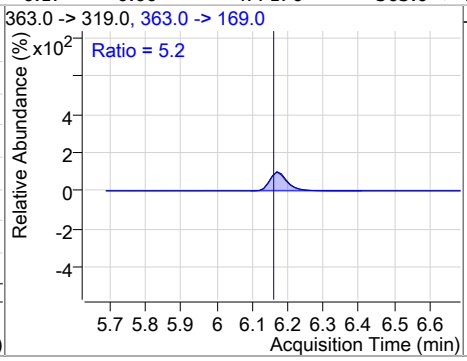


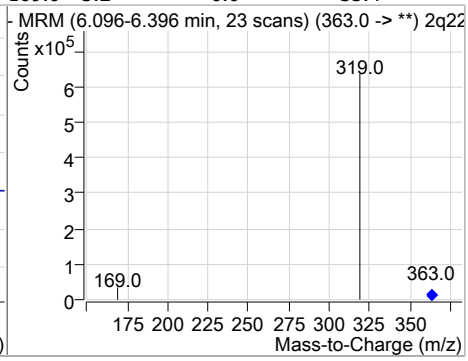


Perfluorinated Compounds by LC/MS/MS

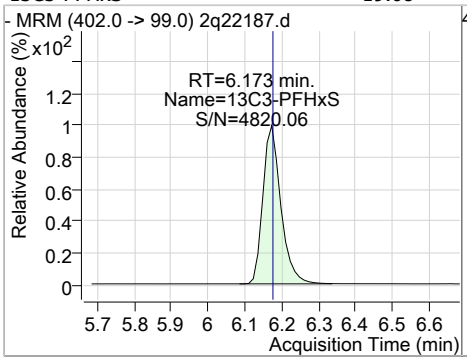
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.48	6.17	0.00	477170	363.0 -> 169.0	5.2	0.0	35.4

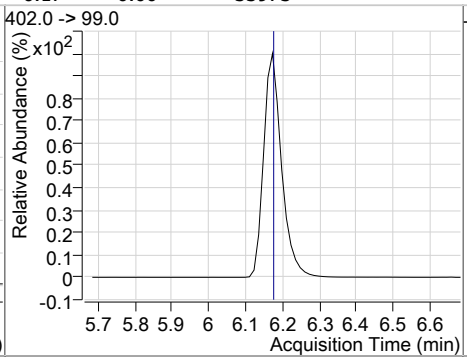


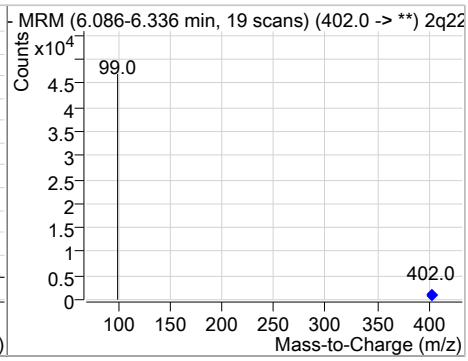




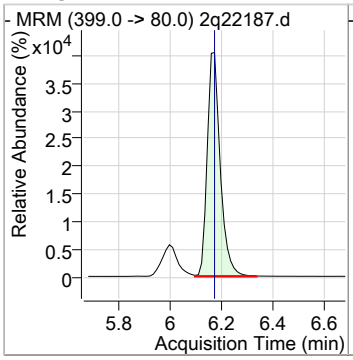
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.08	6.17	0.00	33973				

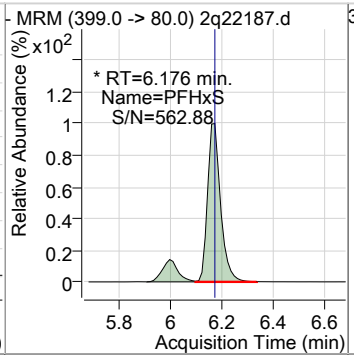


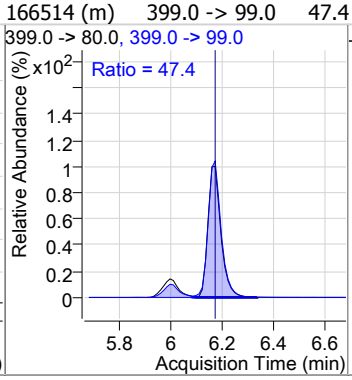


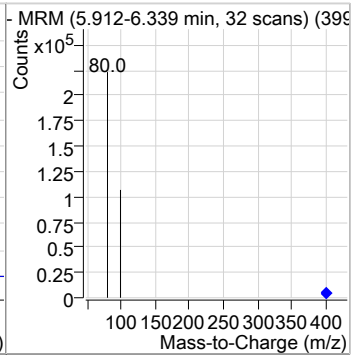


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	100.53	6.18	0.00	166514 (m)	399.0 -> 99.0	47.4	17.7	77.7

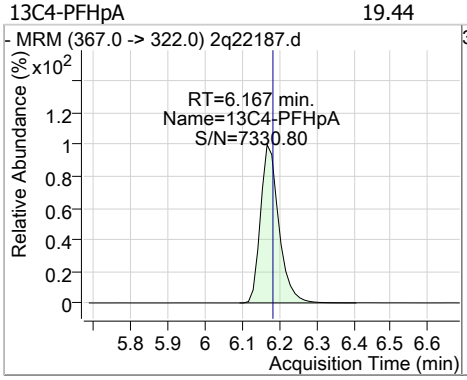


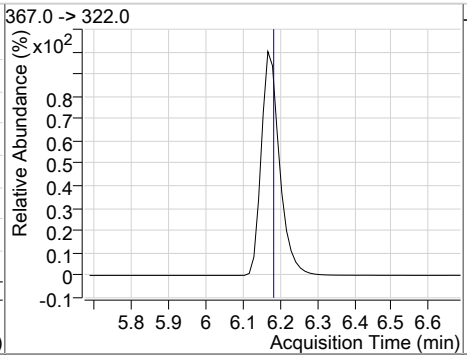


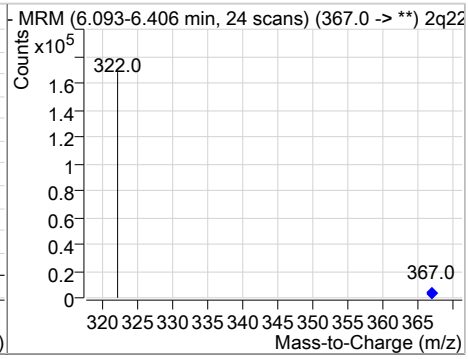




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.44	6.17	-0.01	125029				

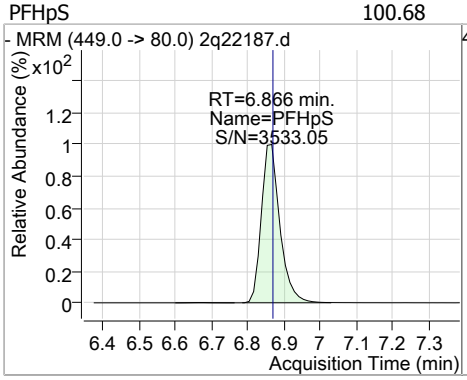


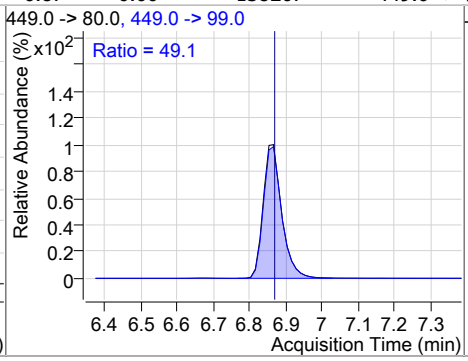


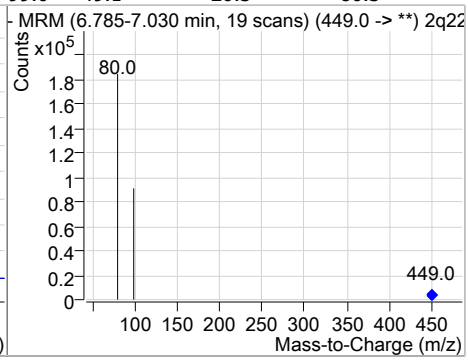


Perfluorinated Compounds by LC/MS/MS

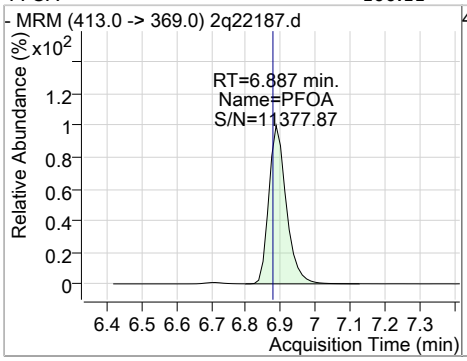
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	100.68	6.87	0.00	138267	449.0 -> 99.0	49.1	20.3	80.3

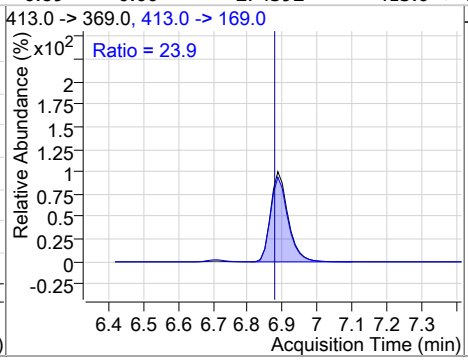


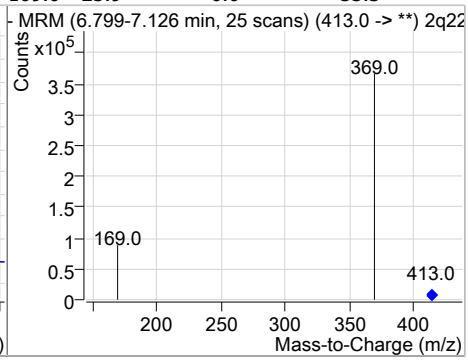




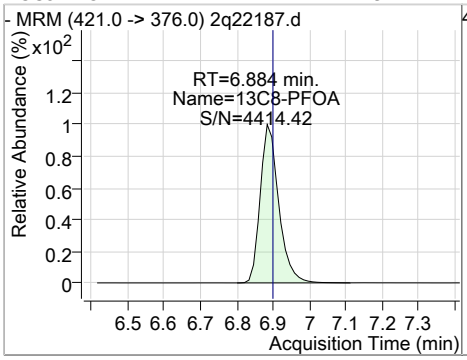
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.11	6.89	0.00	274392	413.0 -> 169.0	23.9	0.0	55.3

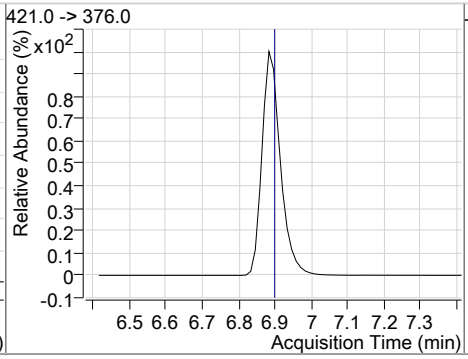


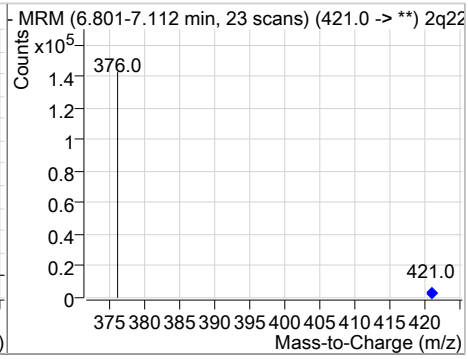




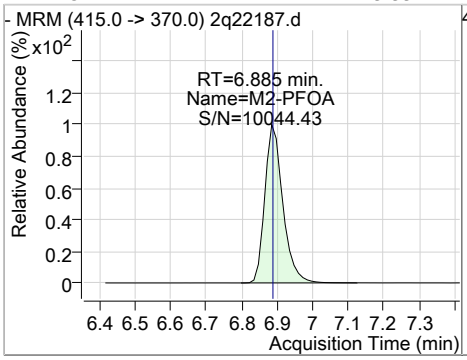
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.71	6.88	-0.01	105939				

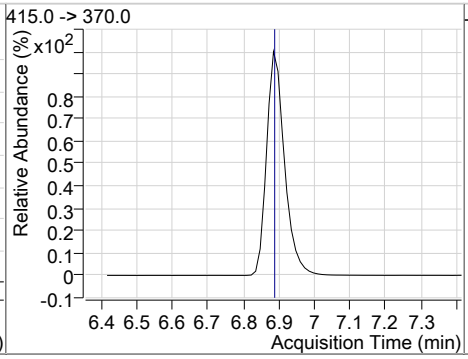


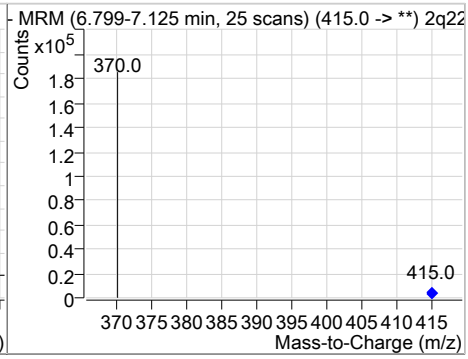




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.89	-0.01	137966				

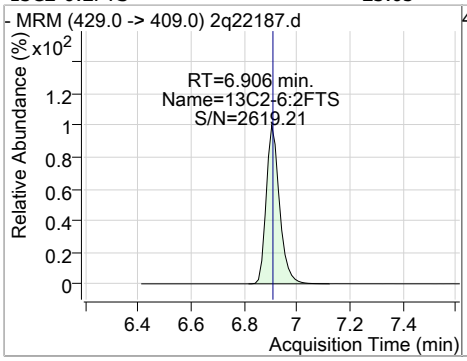


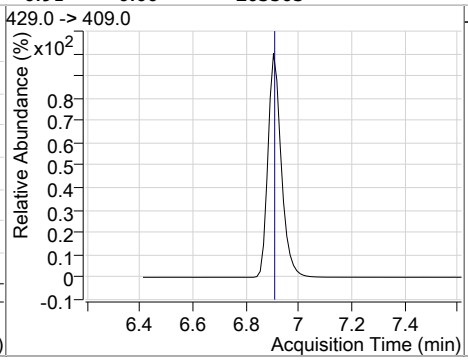


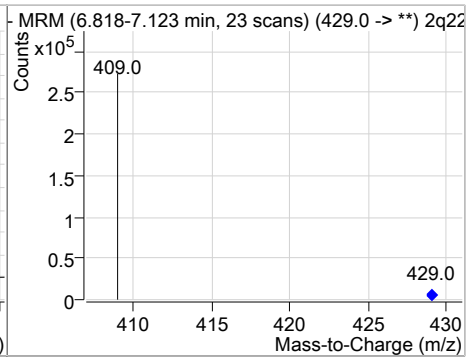


Perfluorinated Compounds by LC/MS/MS

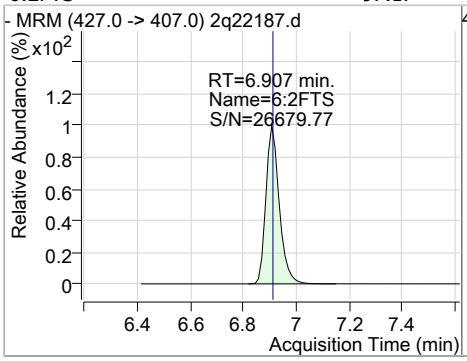
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	23.05	6.91	0.00	203503				

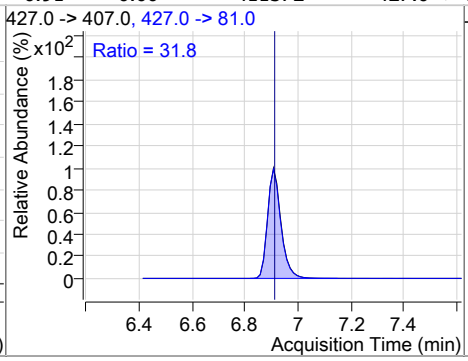


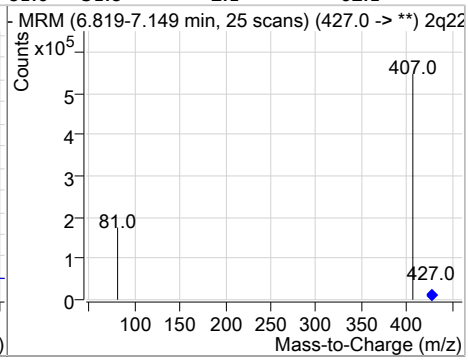




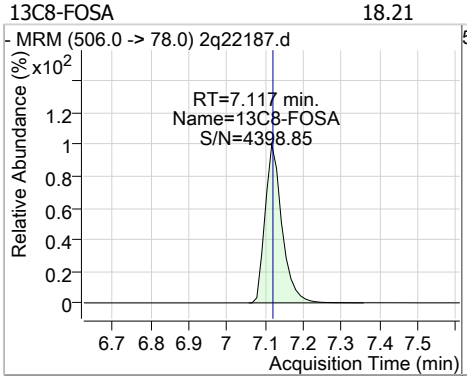
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	97.17	6.91	0.00	411372	427.0 -> 81.0	31.8	2.1	62.1

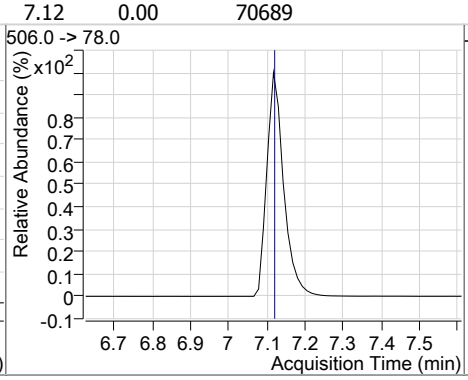


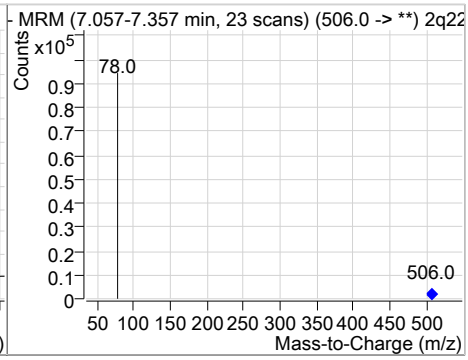




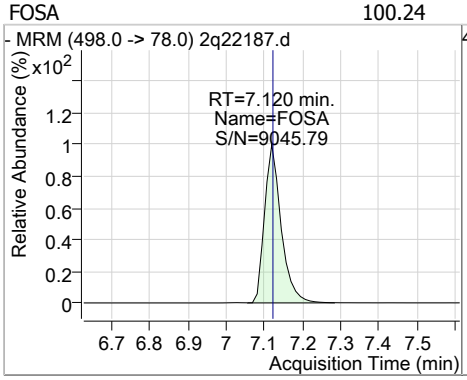
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.21	7.12	0.00	70689				

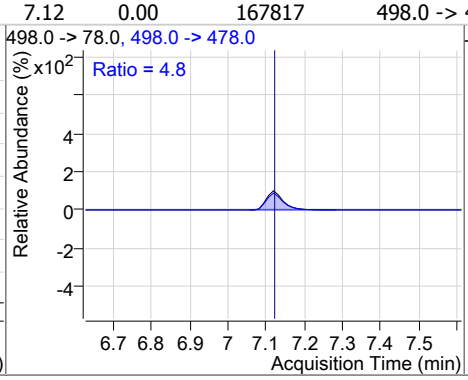


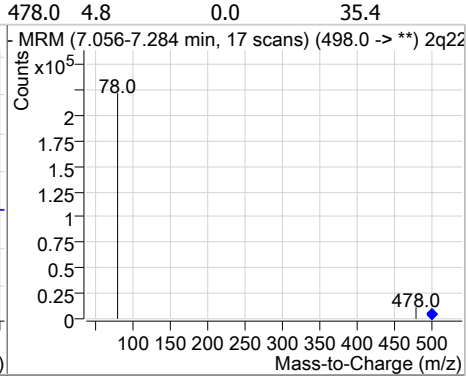




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	100.24	7.12	0.00	167817	498.0 -> 478.0	4.8	0.0	35.4

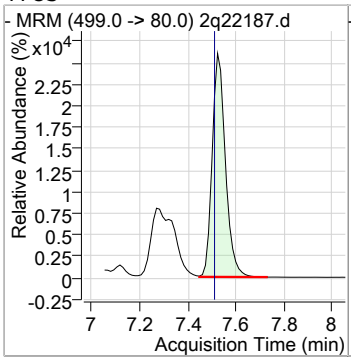


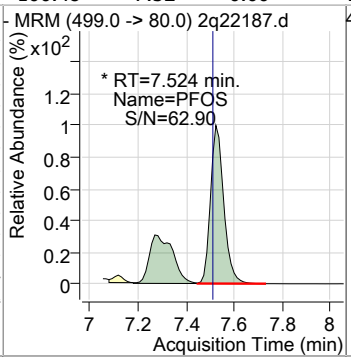


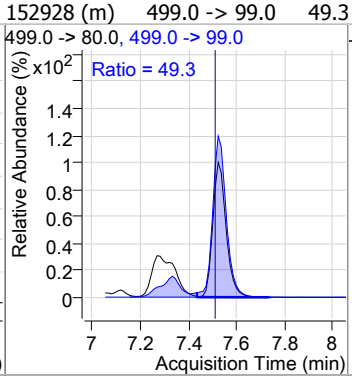


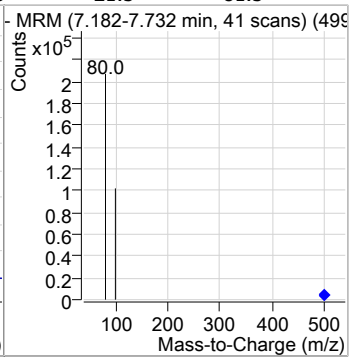
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	100.48	7.52	0.00	152928 (m)	499.0 -> 99.0	49.3	21.5	81.5

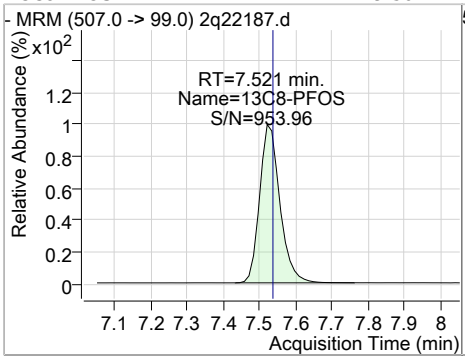


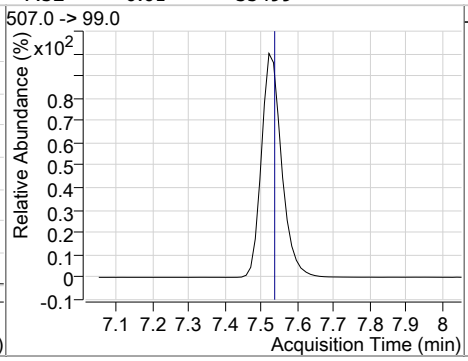


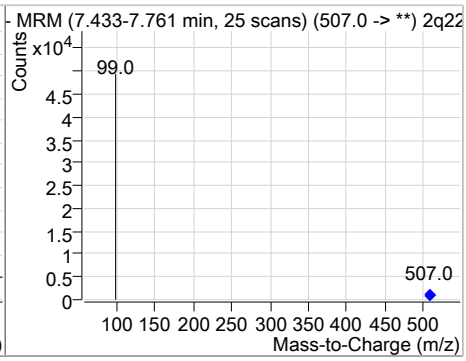




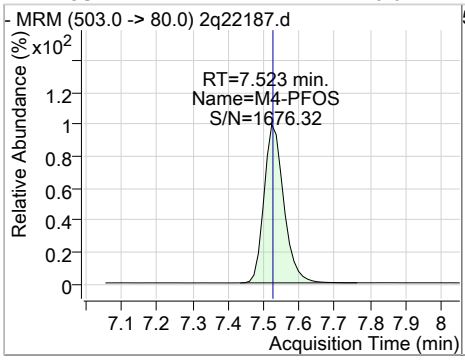
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.56	7.52	-0.01	35499				

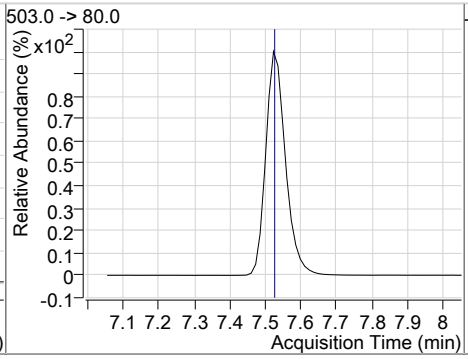


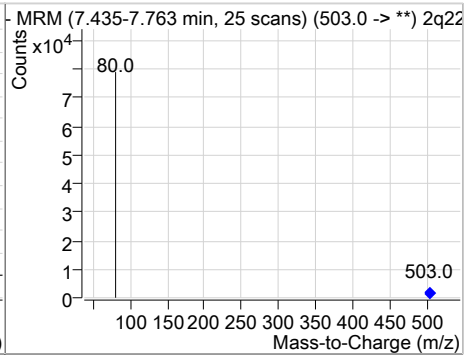




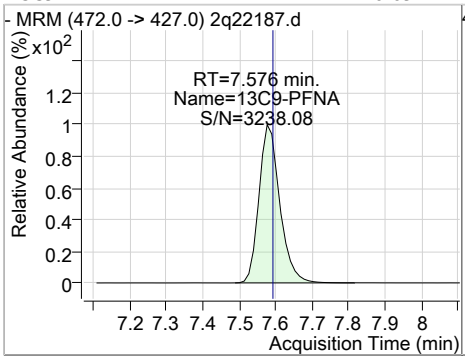
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.52	-0.01	57634				

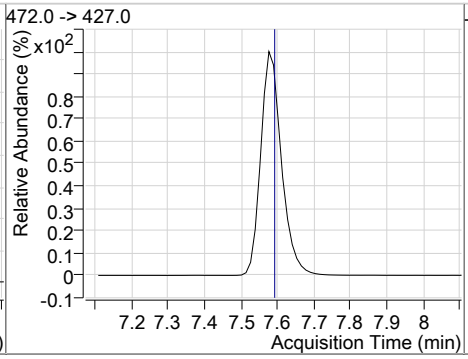


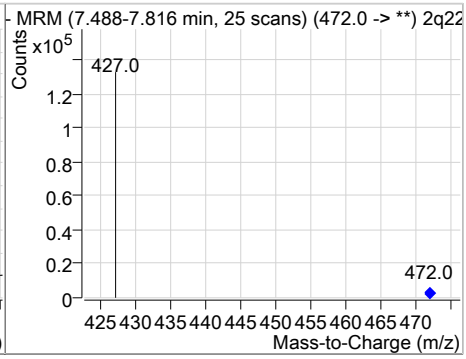




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.09	7.58	-0.01	98765				

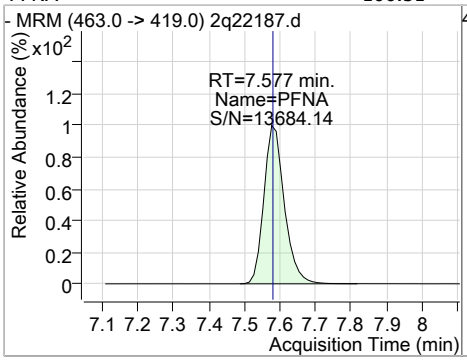


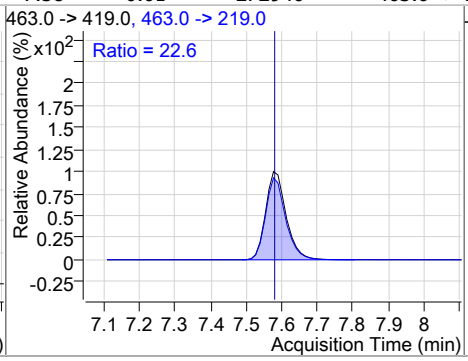


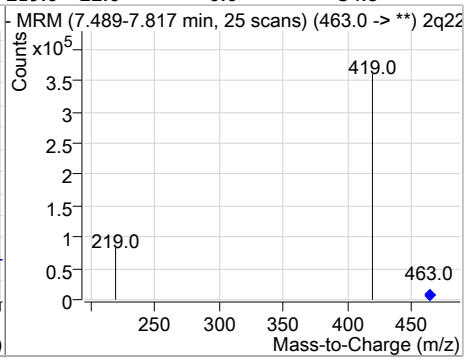


Perfluorinated Compounds by LC/MS/MS

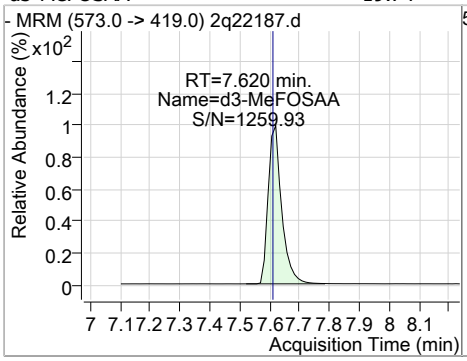
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	100.51	7.58	-0.01	272940	463.0 -> 219.0	22.6	0.0	54.8

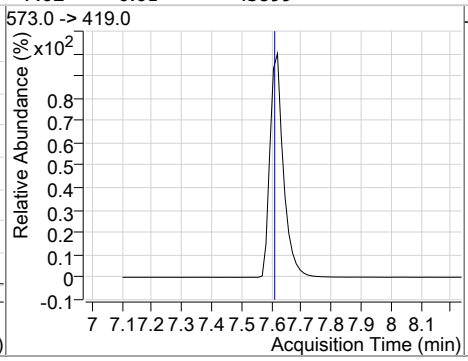


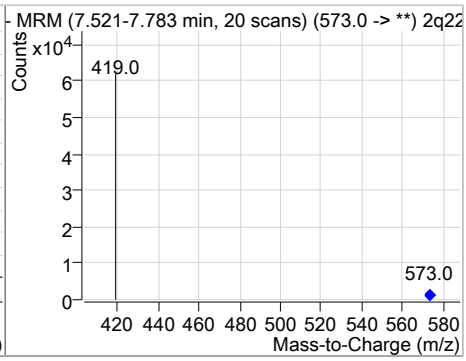




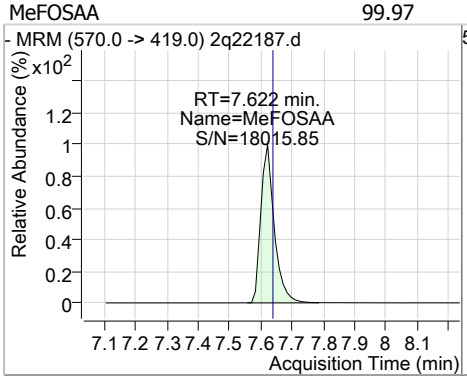
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.74	7.62	0.01	45899				

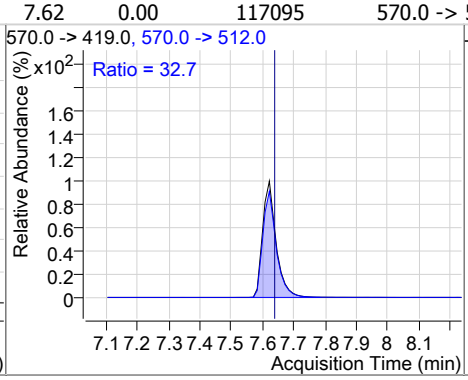


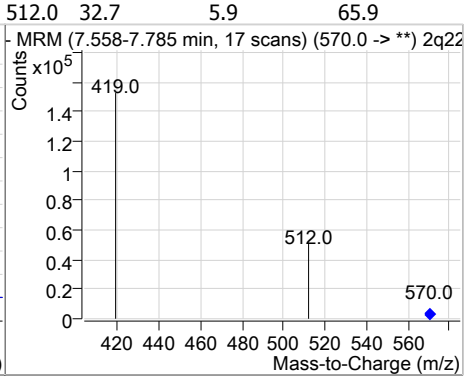




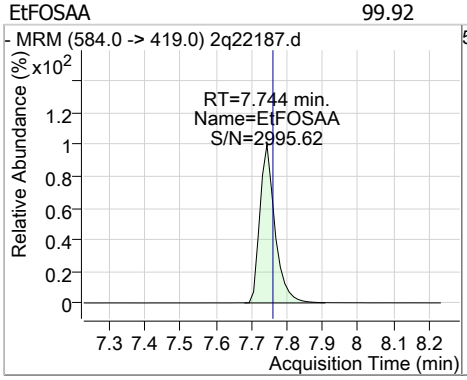
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	99.97	7.62	0.00	117095	570.0 -> 512.0	32.7	5.9	65.9

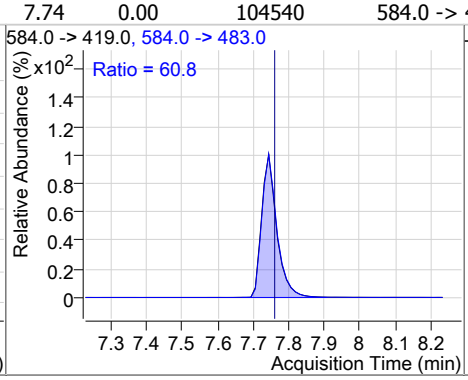


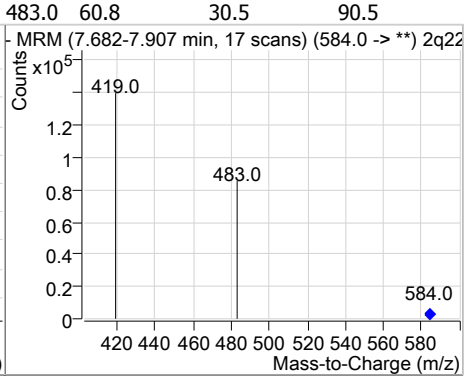




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	99.92	7.74	0.00	104540	584.0 -> 483.0	60.8	30.5	90.5

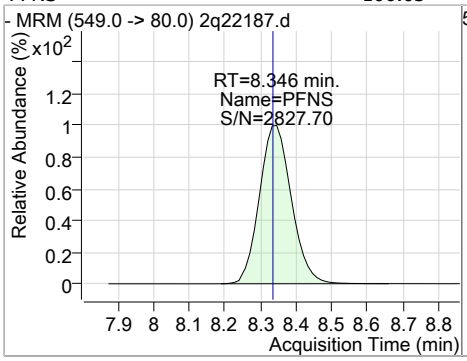


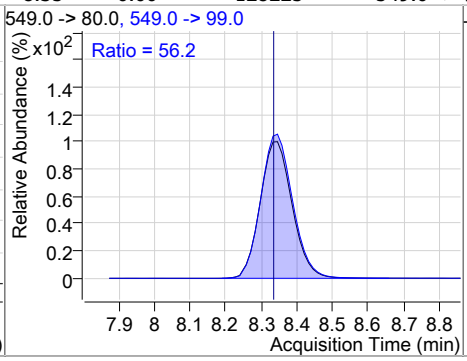


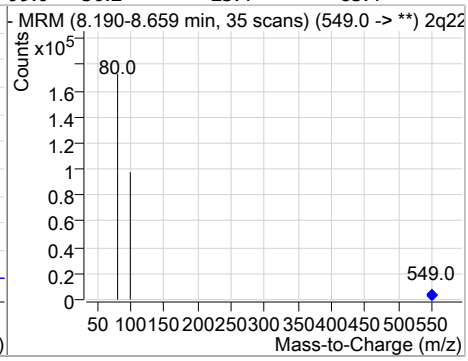


Perfluorinated Compounds by LC/MS/MS

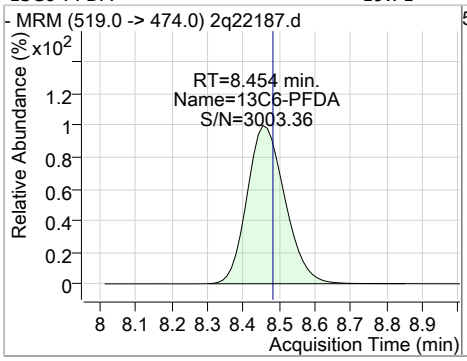
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	100.03	8.35	0.00	128225	549.0 -> 99.0	56.2	23.4	83.4

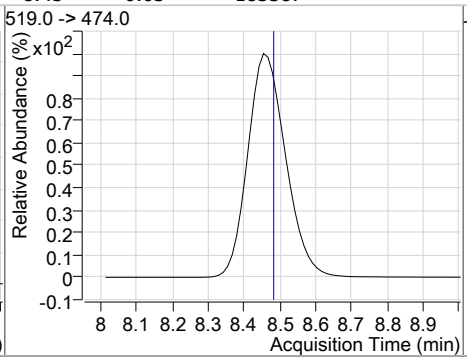


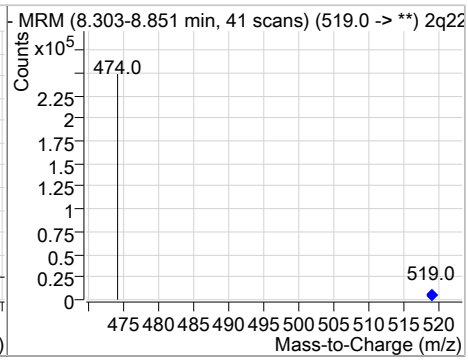




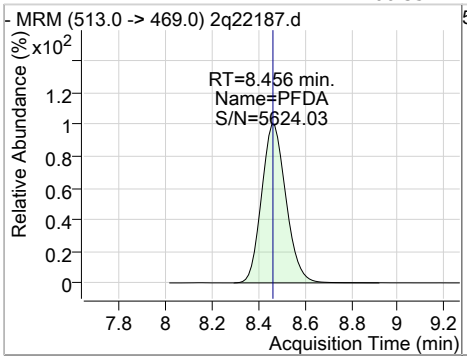
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.71	8.45	-0.03	183387				

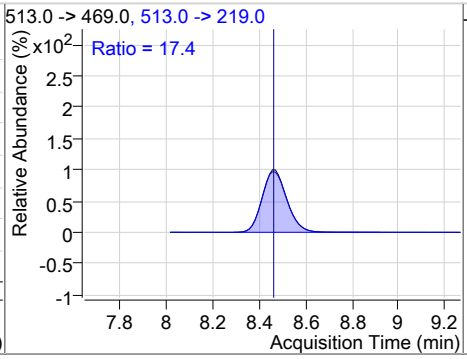


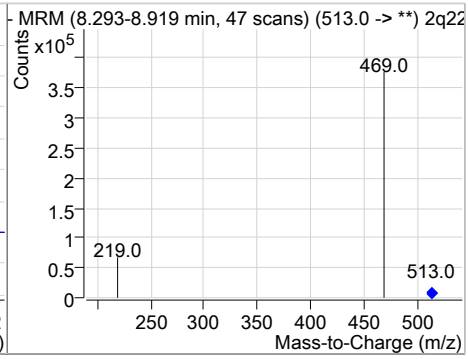




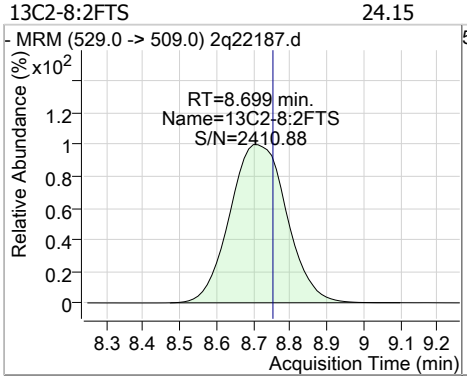
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.35	8.46	-0.03	281108	513.0 -> 219.0	17.4	0.0	47.6

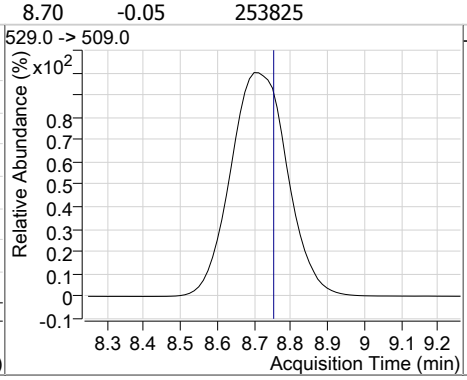


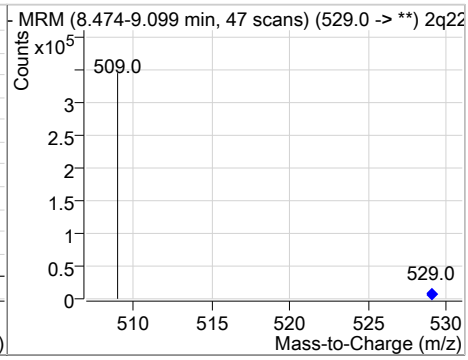




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	24.15	8.70	-0.05	253825				

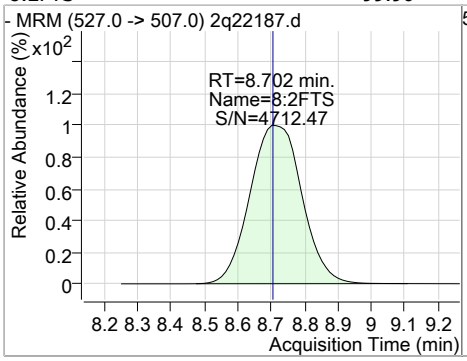


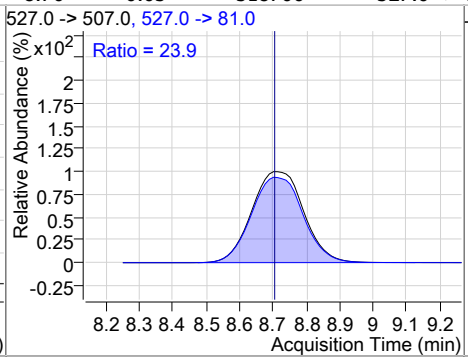


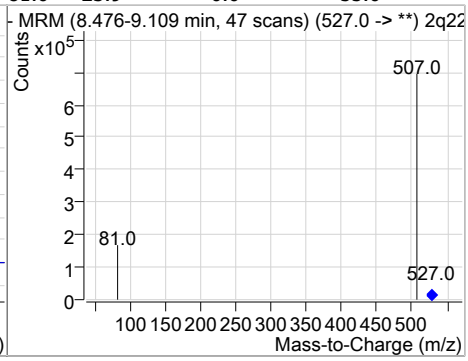


Perfluorinated Compounds by LC/MS/MS

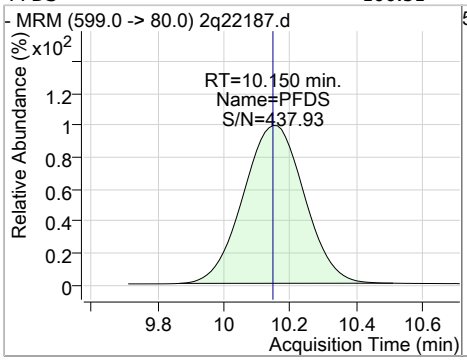
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	99.96	8.70	-0.05	518706	527.0 -> 81.0	23.9	0.0	55.6

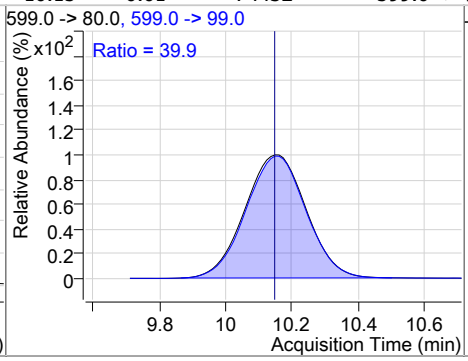


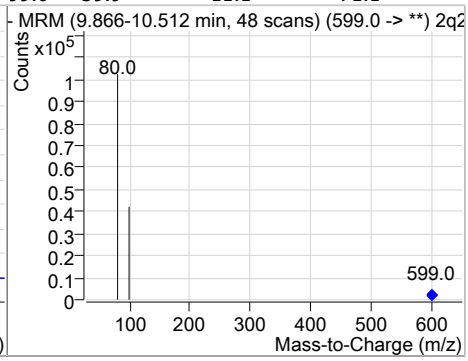




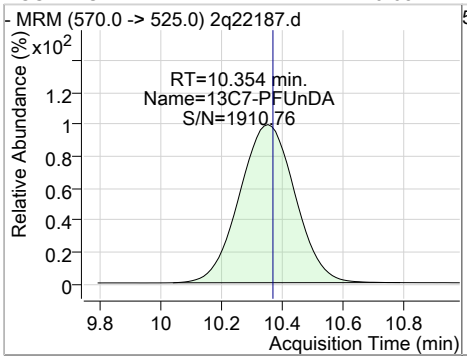
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	100.51	10.15	-0.01	74432	599.0 -> 99.0	39.9	11.1	71.1

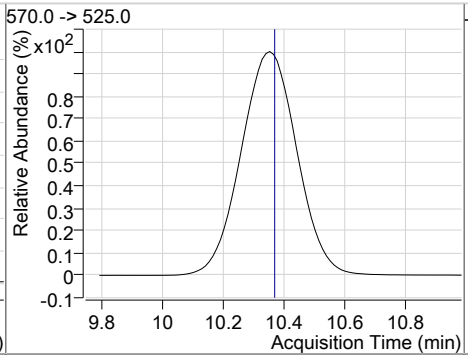


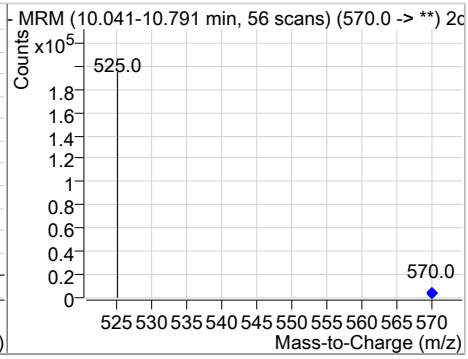




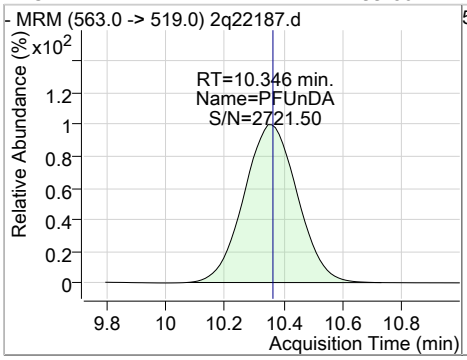
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.68	10.35	-0.01	141617				

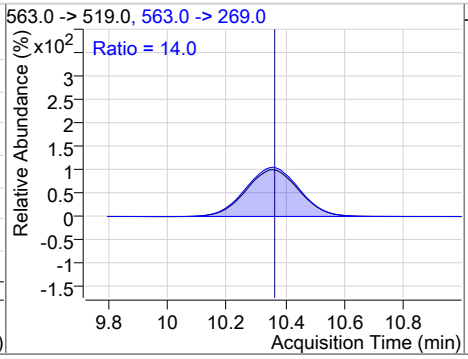


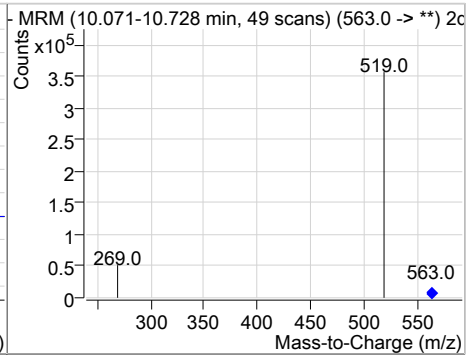




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	99.80	10.35	-0.03	263559	563.0 -> 269.0	14.0	0.0	43.1

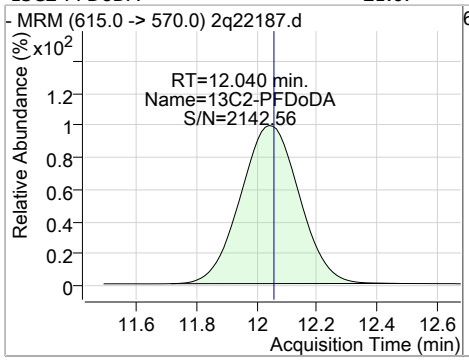


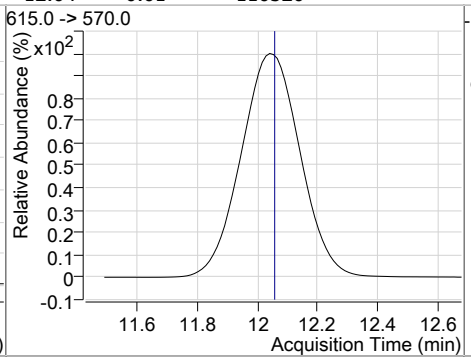


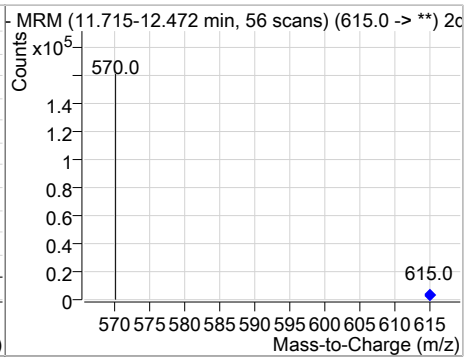


Perfluorinated Compounds by LC/MS/MS

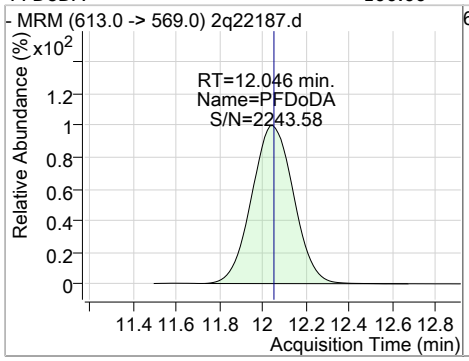
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.07	12.04	-0.01	116520				

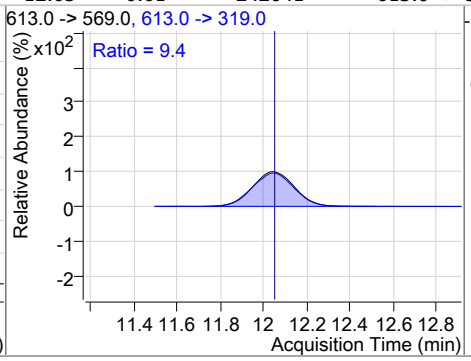


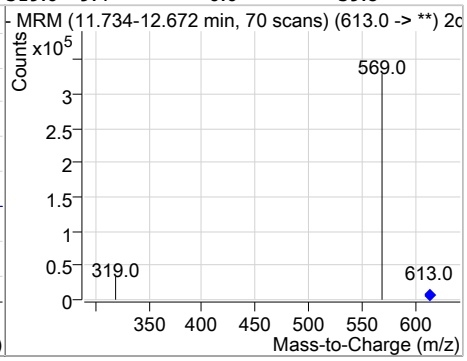




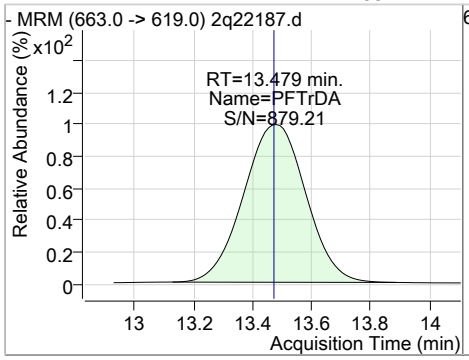
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	100.00	12.05	-0.01	242641	613.0 -> 319.0	9.4	0.0	39.8

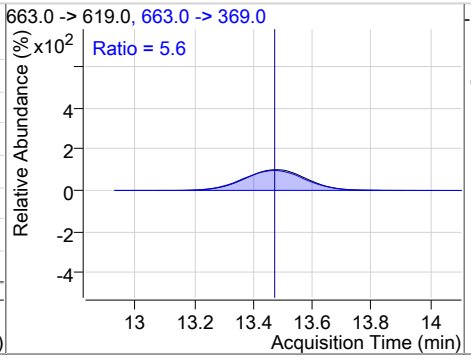


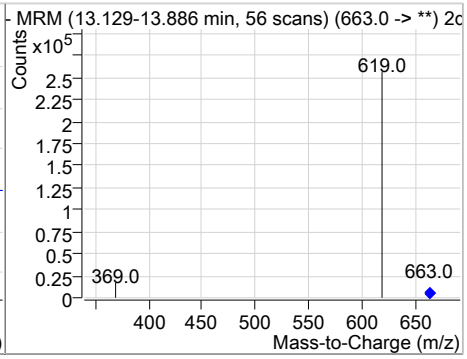




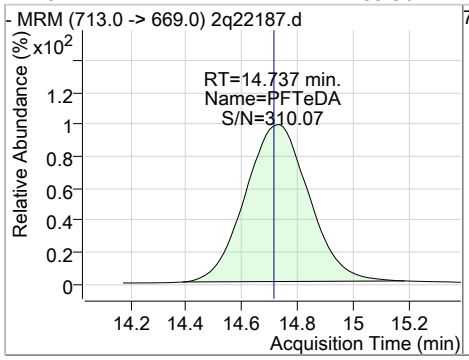
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	99.77	13.48	0.00	186792	663.0 -> 369.0	5.6	0.0	35.8

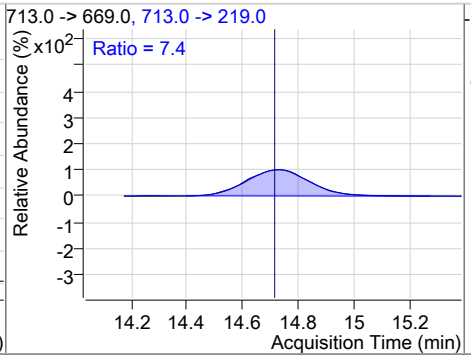


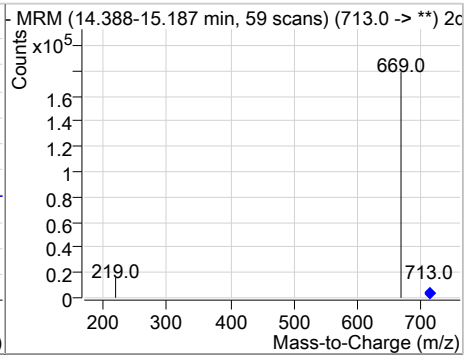




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	99.90	14.74	0.01	127831	713.0 -> 219.0	7.4	0.0	37.4

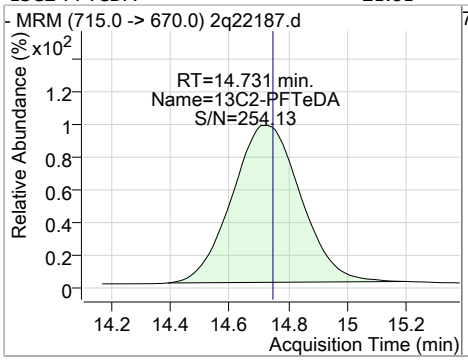


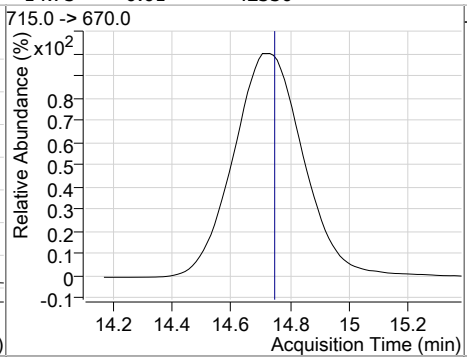


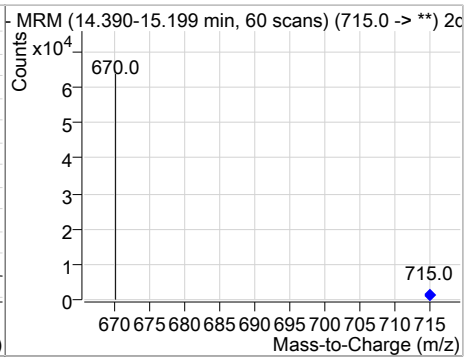


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.81	14.73	-0.01	42330				







Manual Integration Approval Summary

Sample Number: S2Q350-IC350
Lab FileID: 2Q22187.D
Injection Time: 10/16/18 12:50
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.52	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/17/18 15:31

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22189.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/16/2018 1:37:08 PM
Sample Name : icv350-20
Vial : Vial 10
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q350.batch.bin
Sample Information : op71813,S2Q350,2.01,,,1.0,1,soil

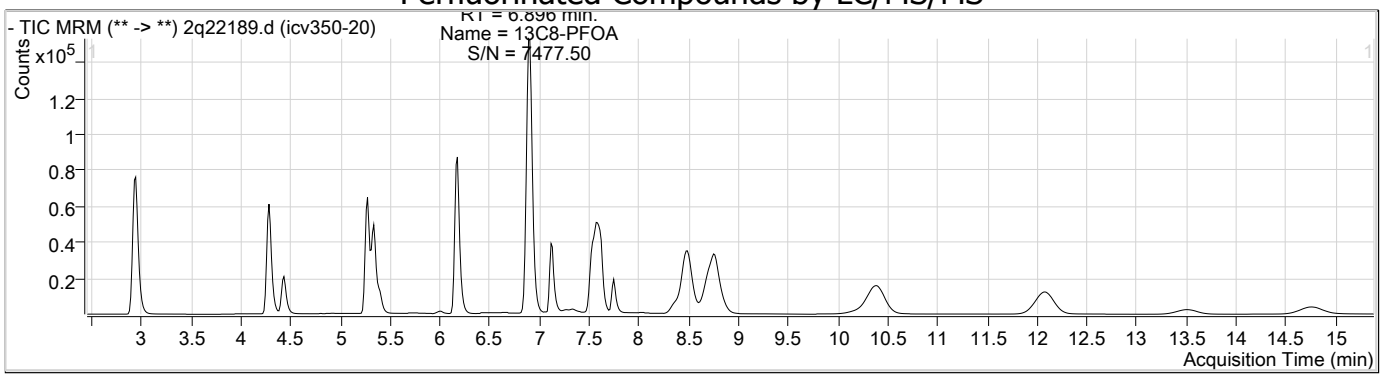
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.898	415.0 -> 370.0	151102	20.00	µg/L	0.000
13C4-PFOS	7.536	503.0 -> 80.0	60339	20.00	µg/L	0.000
M4-PFBA	2.941	217.0 -> 172.0	272108	20.00	µg/L	0.000
M5-PFPeA	4.287	268.0 -> 223.0	117604	20.00	µg/L	0.000
M5-PFHxA	5.339	318.0 -> 273.0	116204	20.00	µg/L	0.000
M4-PFHpA	6.179	367.0 -> 322.0	133893	20.00	µg/L	0.000
M8-PFOA	6.896	421.0 -> 376.0	116766	20.00	µg/L	0.000
M9-PFNA	7.589	472.0 -> 427.0	109002	20.00	µg/L	0.000
M6-PFDA	8.491	519.0 -> 474.0	201174	20.00	µg/L	0.013
M7-PFUnDA	10.392	570.0 -> 525.0	143827	20.00	µg/L	0.025
M2-PFDoDA	12.078	615.0 -> 570.0	117625	20.00	µg/L	0.025
M2-PFTeDA	14.756	715.0 -> 670.0	43816	20.00	µg/L	0.013
M8-FOSA	7.117	506.0 -> 78.0	82194	20.00	µg/L	0.000
M3-PFBS	4.430	302.0 -> 99.0	28384	20.00	µg/L	0.000
M3-PFHxS	6.173	402.0 -> 99.0	36330	20.00	µg/L	0.000
M8-PFOS	7.533	507.0 -> 99.0	37466	20.00	µg/L	0.000
M2-4:2FTS	5.272	329.0 -> 309.0	132798	20.00	µg/L	0.000
M2-6:2FTS	6.918	429.0 -> 409.0	179601	20.00	µg/L	0.013
M2-8:2FTS	8.750	529.0 -> 509.0	211750	20.00	µg/L	0.000
M3-MeFOSAA	7.620	573.0 -> 419.0	49169	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.272	329.0 -> 309.0	132781	20.16	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C2-6:2FTS	6.918	429.0 -> 409.0	179623	20.34	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C2-8:2FTS	8.750	529.0 -> 509.0	210912	20.07	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C2-PFDoDA	12.078	615.0 -> 570.0	117186	21.19	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.0%		
13C2-PFTeDA	14.756	715.0 -> 670.0	41641	21.45	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.3%		
13C3-PFBS	4.430	302.0 -> 99.0	28383	20.29	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C3-PFHxS	6.173	402.0 -> 99.0	36336	20.40	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C4-PFBA	2.941	217.0 -> 172.0	272039	20.23	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C4-PFHpA	6.179	367.0 -> 322.0	133888	20.81	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C5-PFHxA	5.339	318.0 -> 273.0	116215	21.11	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%		
13C5-PFPeA	4.287	268.0 -> 223.0	117558	20.57	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C6-PFDA	8.491	519.0 -> 474.0	200721	21.57	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.9%		

Perfluorinated Compounds by LC/MS/MS

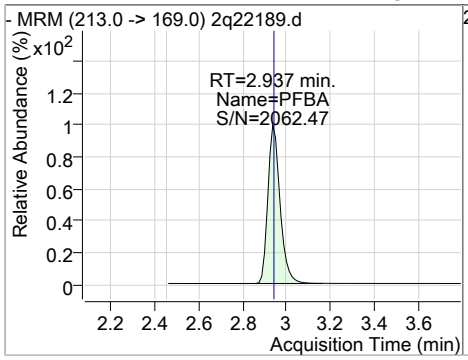
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.392	570.0 -> 525.0	143078	20.89	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.5%			
13C8-FOSA	7.117	506.0 -> 78.0	82177	21.17	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.9%			
13C8-PFOA	6.896	421.0 -> 376.0	116773	21.73	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.7%			
13C8-PFOS	7.533	507.0 -> 99.0	37459	20.64	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%			
13C9-PFNA	7.589	472.0 -> 427.0	108900	22.15	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.8%			
d3-MeFOSAA	7.620	573.0 -> 419.0	49160	21.14	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.7%			
M2-PFOA	6.898	415.0 -> 370.0	151135	20.00	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.536	503.0 -> 80.0	60350	20.01	ng/ml		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.274	327.0 -> 307.0	57766	16.25	µg/L		98
6:2FTS	6.907	427.0 -> 407.0	72673	19.45	µg/L		99
8:2FTS	8.752	527.0 -> 507.0	85659	16.56	µg/L		99
EtFOSAA	7.744	584.0 -> 419.0	19025	16.98	µg/L		97
FOSA	7.120	498.0 -> 78.0	34267	17.60	µg/L		99
MeFOSAA	7.622	570.0 -> 419.0	21689	17.29	µg/L		93
PFBA	2.937	213.0 -> 169.0	28335	17.37	µg/L		100
PFBS	4.434	299.0 -> 80.0	30202	14.72	µg/L		100
PFDA	8.481	513.0 -> 469.0	47572	15.52	µg/L		98
PFDoDA	12.084	613.0 -> 569.0	44251	18.17	µg/L		99
PFDS	10.187	599.0 -> 80.0	12645	16.18	µg/L		99
PFHpA	6.170	363.0 -> 319.0	90809	17.86	µg/L		100
PFHpS	6.866	449.0 -> 80.0	24377	16.59	µg/L		98
PFHxA	5.341	313.0 -> 269.0	28415	15.27	µg/L		100
PFHxS	6.176	399.0 -> 80.0	26609	15.02	µg/L	m	99
PFNA	7.590	463.0 -> 419.0	45379	15.15	µg/L		98
PFNS	8.359	549.0 -> 80.0	22284	16.47	µg/L		95
PFOA	6.899	413.0 -> 369.0	50023	16.56	µg/L		97
PFOS	7.537	499.0 -> 80.0	26684	16.61	µg/L	m	92
PFPeA	4.291	263.0 -> 219.0	90517	16.41	µg/L		100
PFPeS	5.396	349.0 -> 80.0	19384	14.58	µg/L		98
PFTeDA	14.762	713.0 -> 669.0	20606	15.91	µg/L		100
PFTrDA	13.504	663.0 -> 619.0	35307	18.64	µg/L		100
PFUnDA	10.384	563.0 -> 519.0	47302	17.70	µg/L		97

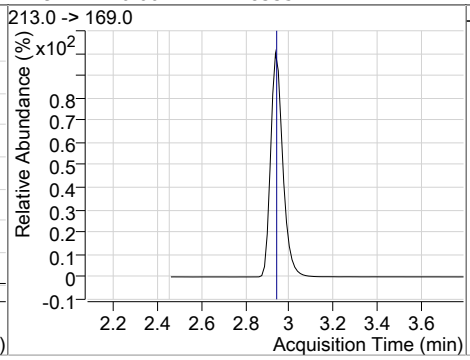
 # = Qualifier out of range, m = manually integrated, + = Area summed

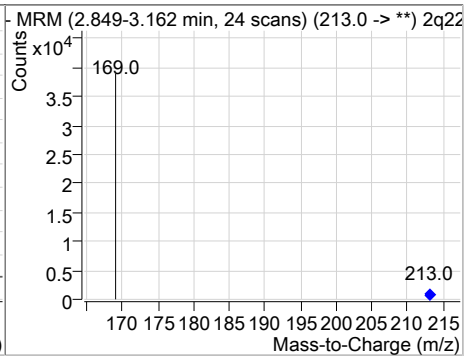
Perfluorinated Compounds by LC/MS/MS



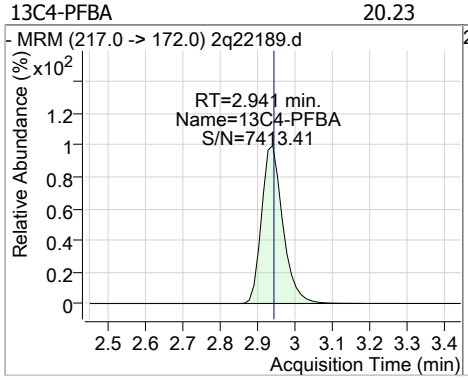
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	17.37	2.94	0.00	28335				

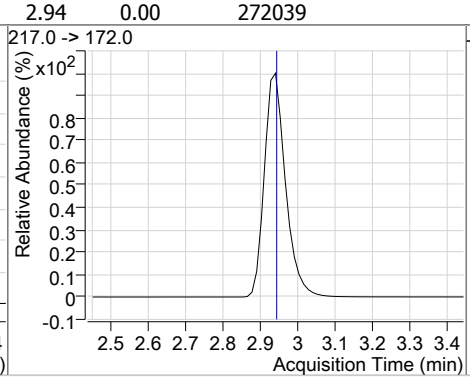


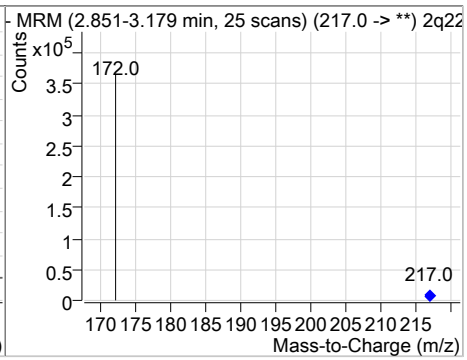




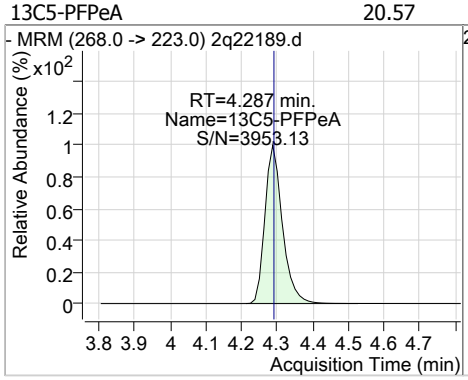
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.23	2.94	0.00	272039				

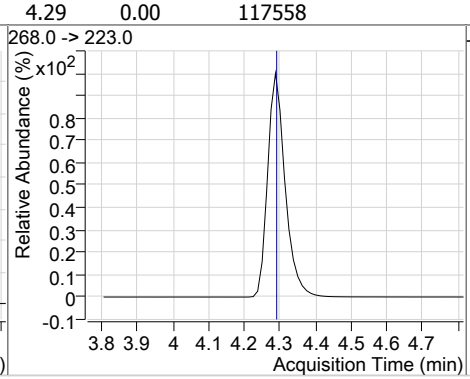


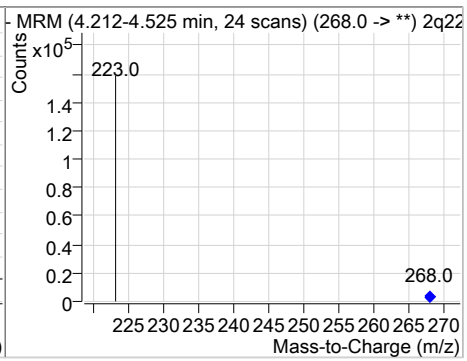




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.57	4.29	0.00	117558				

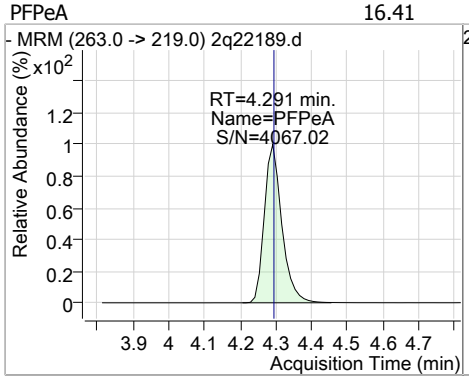


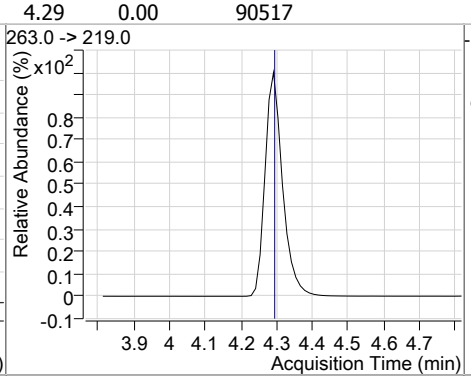


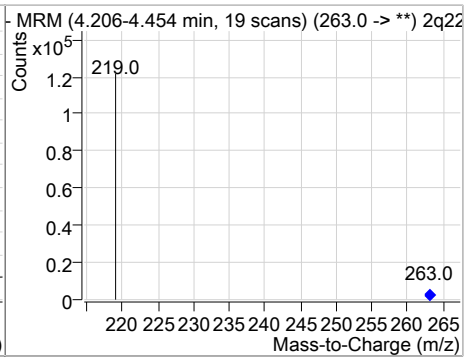


Perfluorinated Compounds by LC/MS/MS

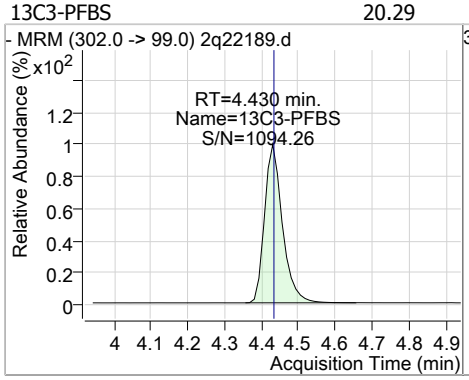
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	16.41	4.29	0.00	90517				

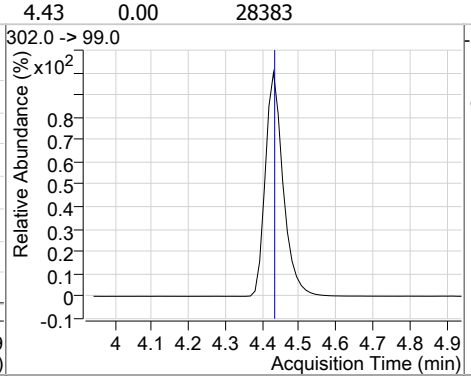


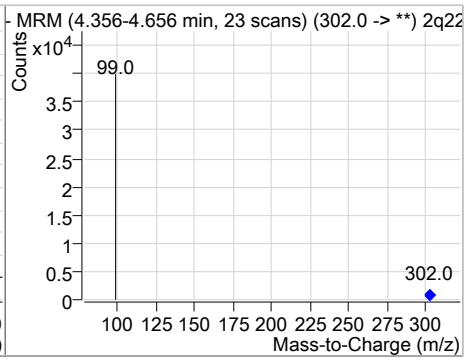




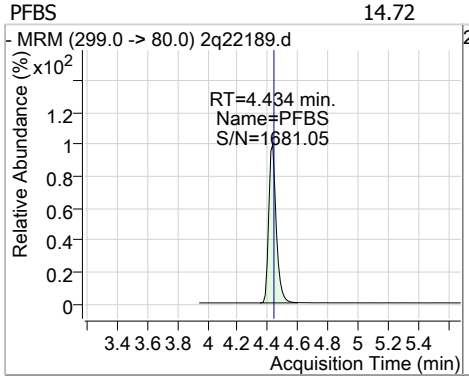
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.29	4.43	0.00	28383				

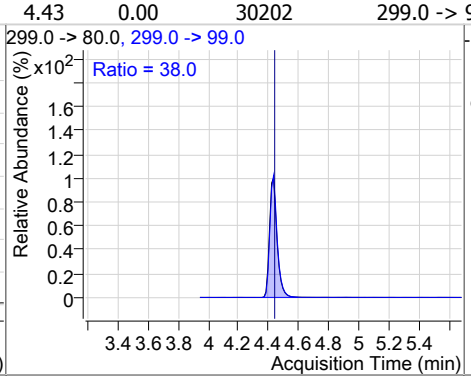


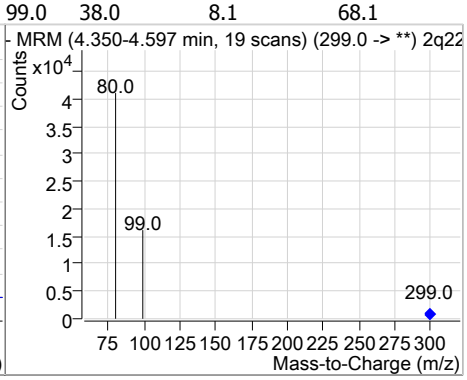




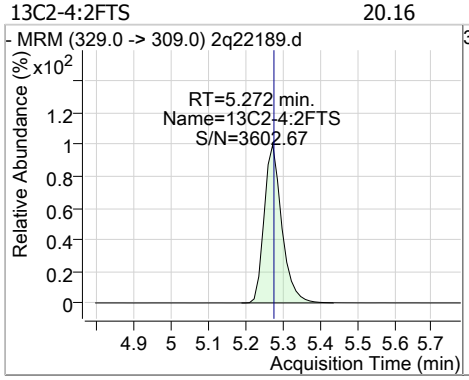
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	14.72	4.43	0.00	30202	299.0 -> 99.0	38.0	8.1	68.1

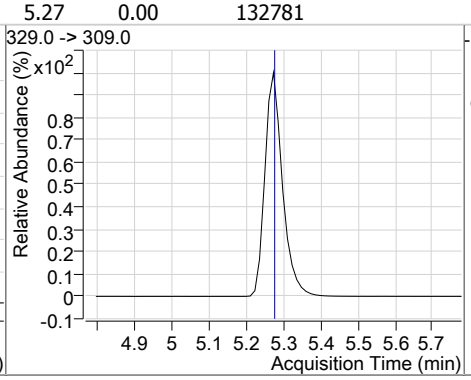


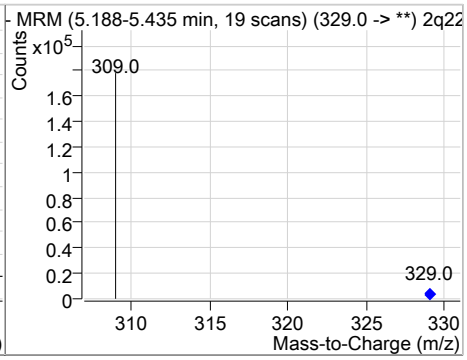




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.16	5.27	0.00	132781				

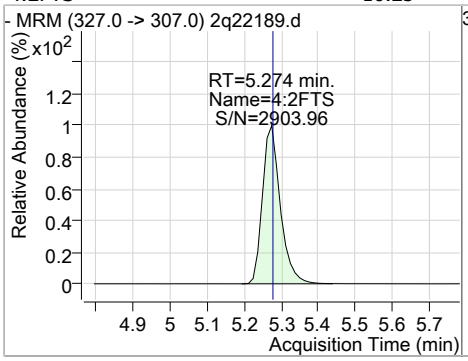


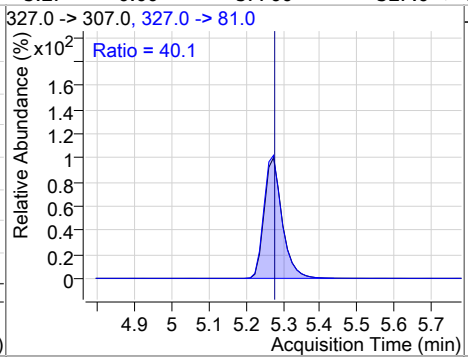


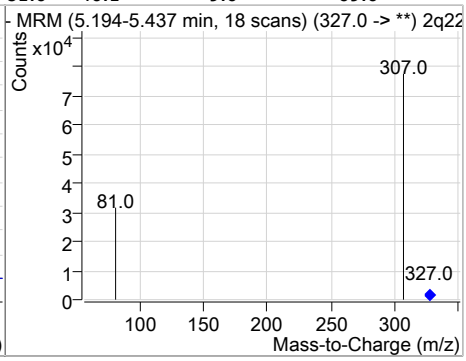


Perfluorinated Compounds by LC/MS/MS

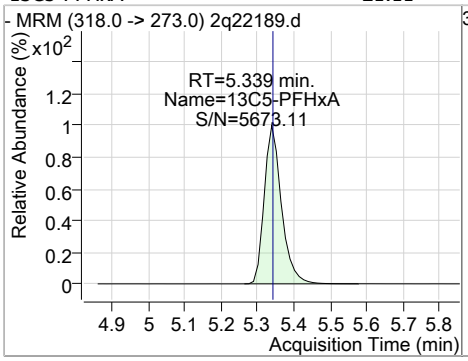
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	16.25	5.27	0.00	57766	327.0 -> 81.0	40.1	9.0	69.0

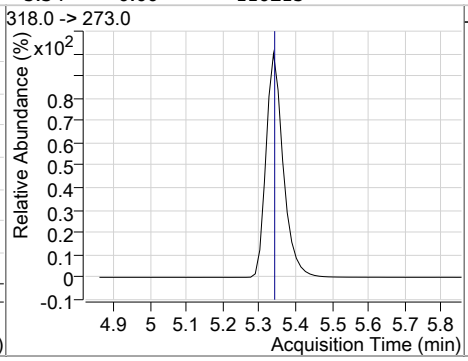


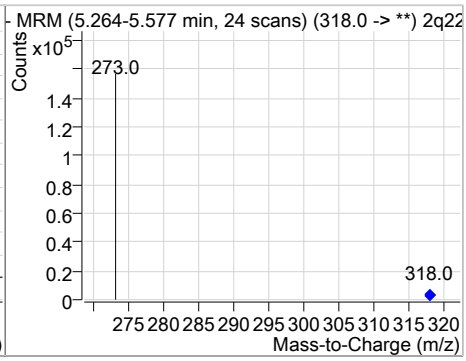




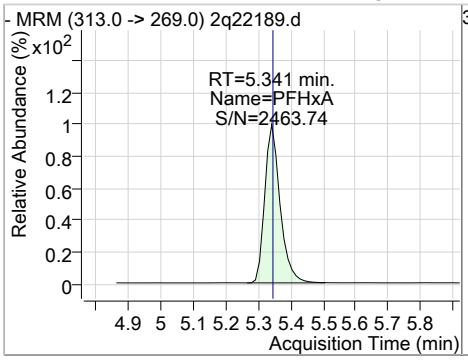
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.11	5.34	0.00	116215				

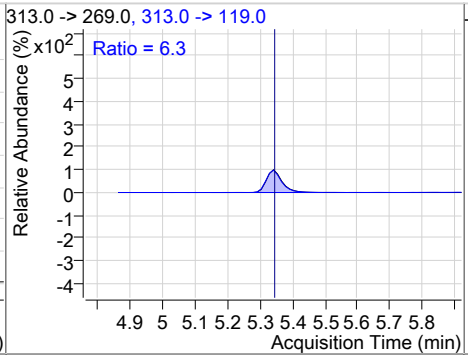


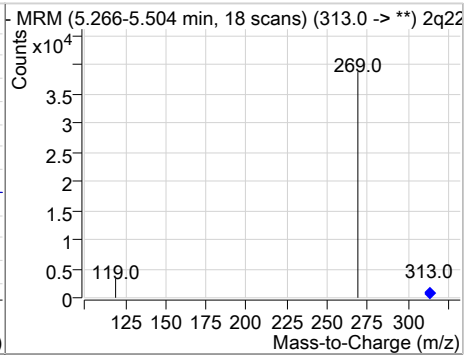




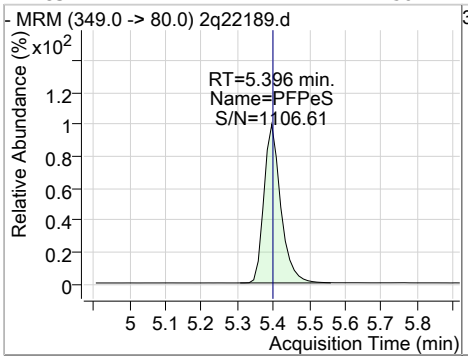
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	15.27	5.34	0.00	28415	313.0 -> 119.0	6.3	0.0	36.4

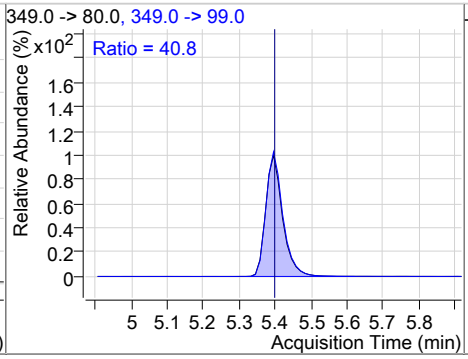


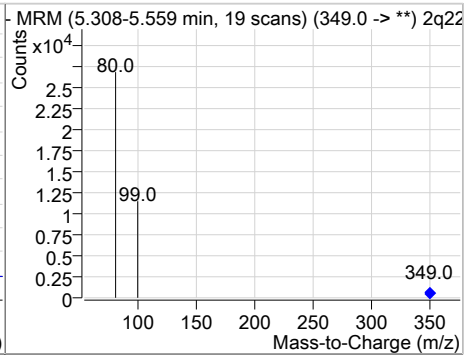




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	14.58	5.40	0.00	19384	349.0 -> 99.0	40.8	9.5	69.5

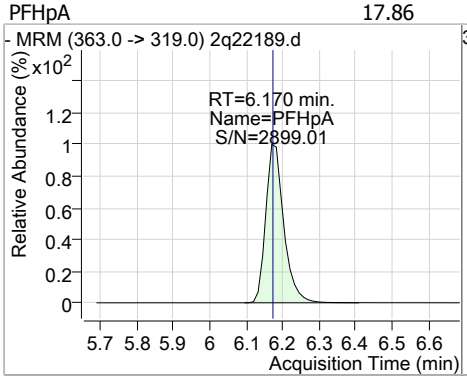


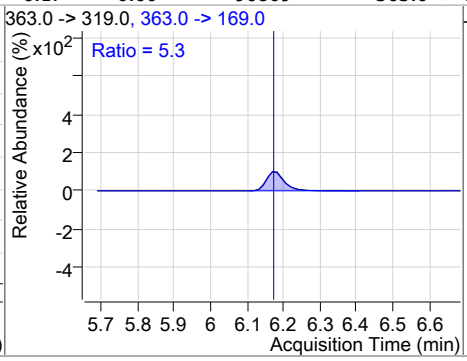


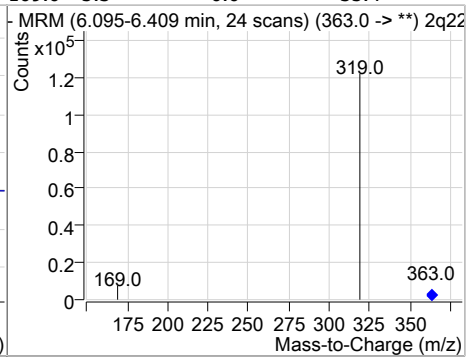


Perfluorinated Compounds by LC/MS/MS

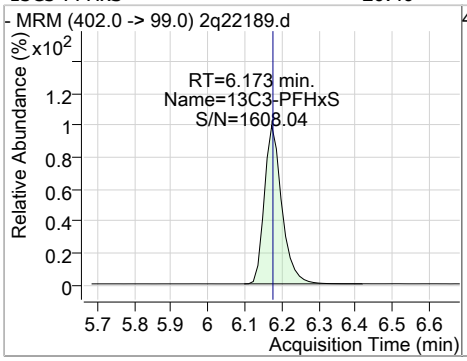
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	17.86	6.17	0.00	90809	363.0 -> 169.0	5.3	0.0	35.4

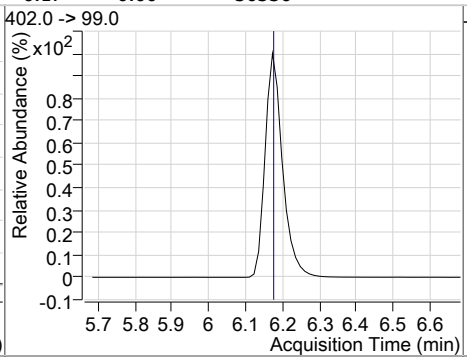


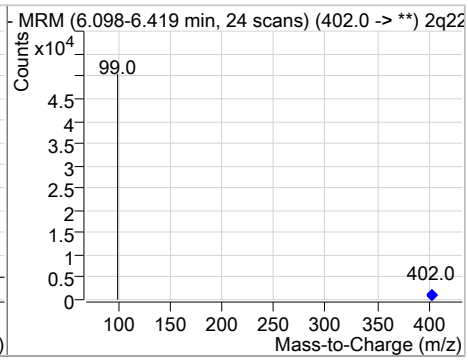




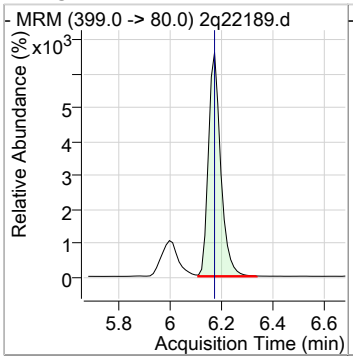
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.40	6.17	0.00	36336				

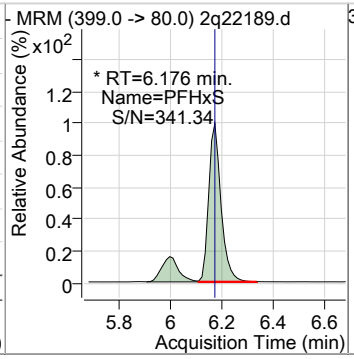


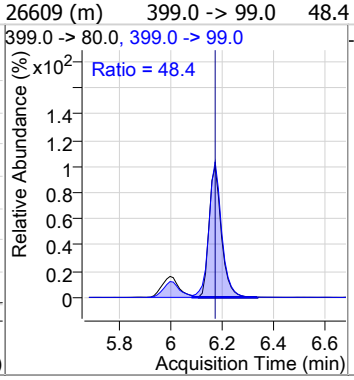


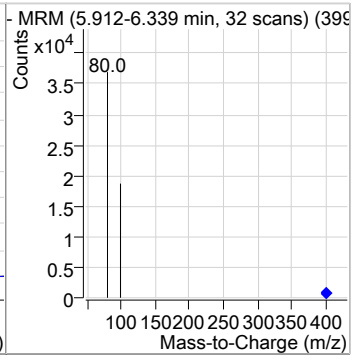


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	15.02	6.18	0.00	26609 (m)	399.0 -> 99.0	48.4	17.7	77.7

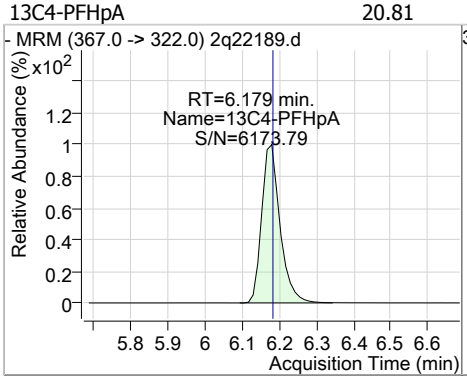


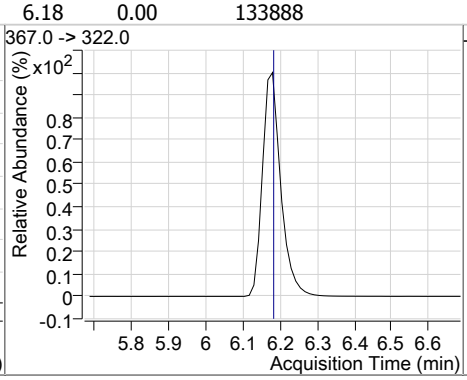


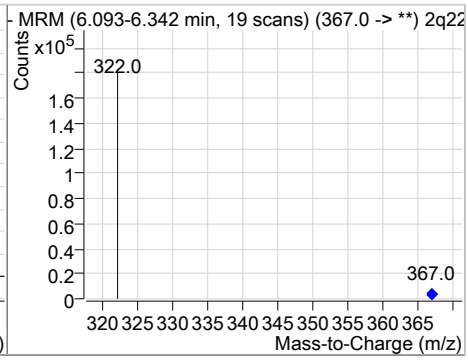




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.81	6.18	0.00	133888				

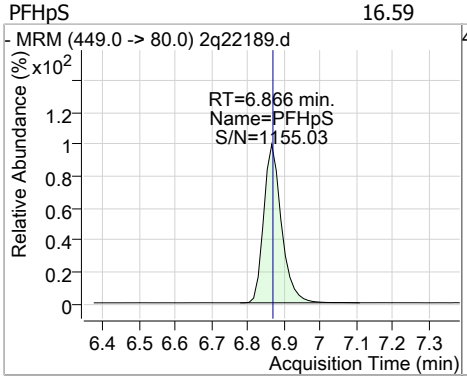


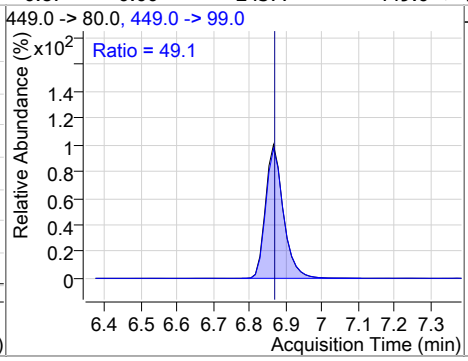


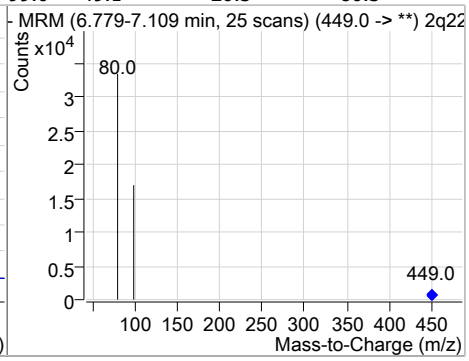


Perfluorinated Compounds by LC/MS/MS

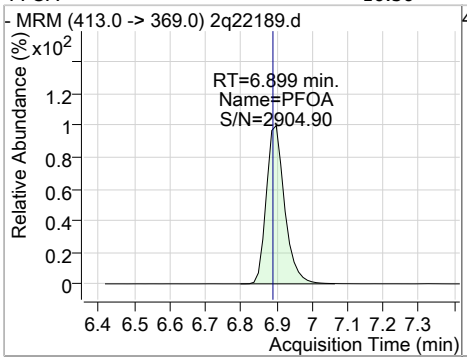
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	16.59	6.87	0.00	24377	449.0 -> 99.0	49.1	20.3	80.3

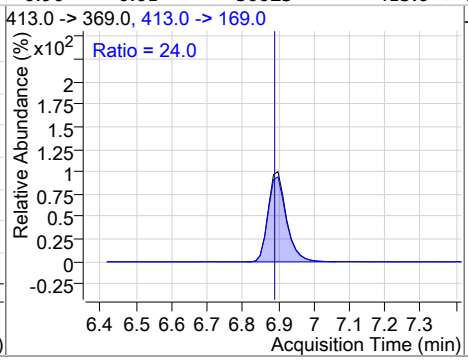


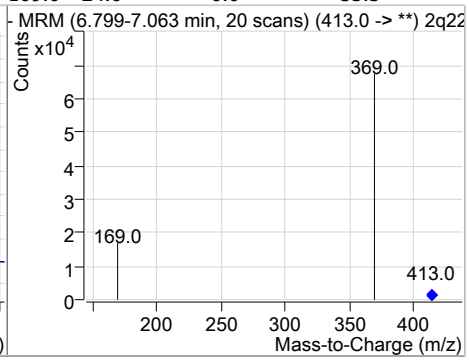




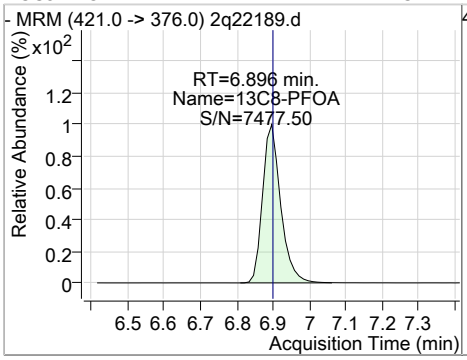
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	16.56	6.90	0.01	50023	413.0 -> 169.0	24.0	0.0	55.3

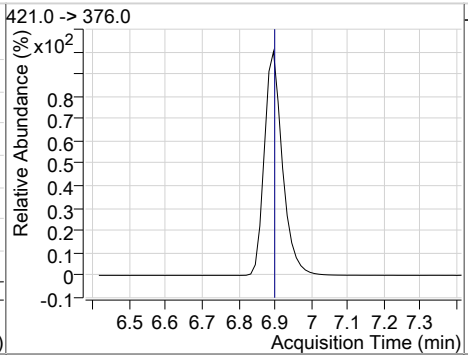


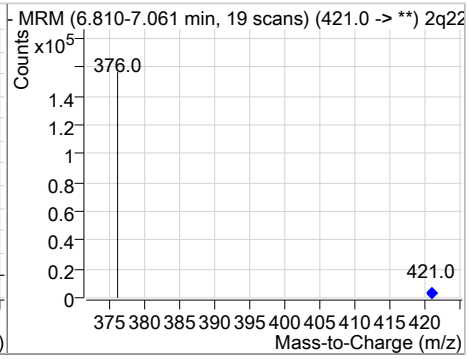




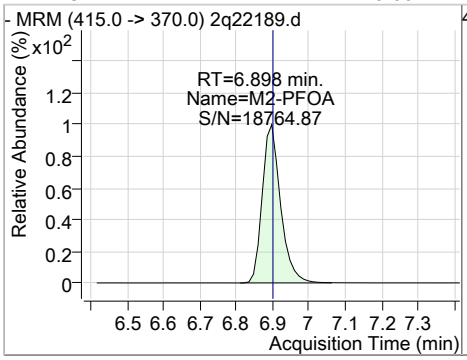
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.73	6.90	0.00	116773				

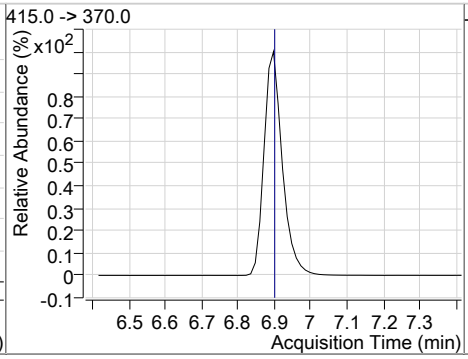


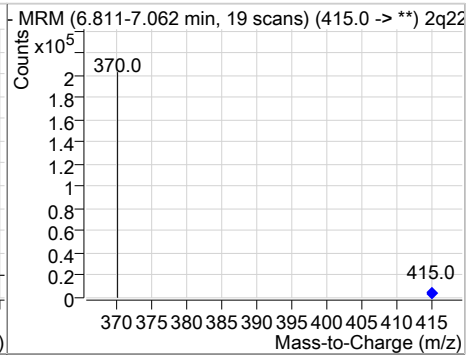




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.90	0.00	151135				

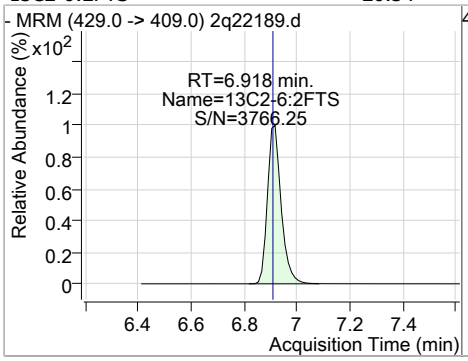


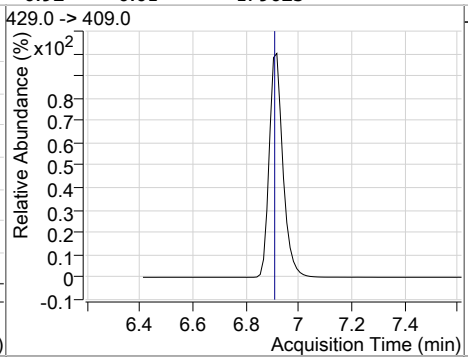


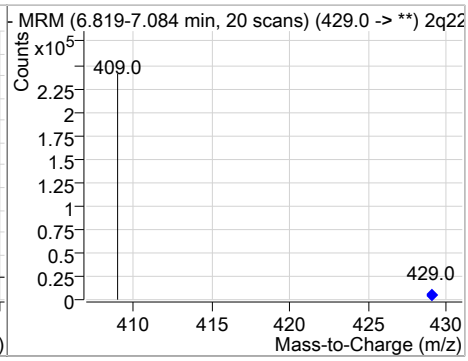


Perfluorinated Compounds by LC/MS/MS

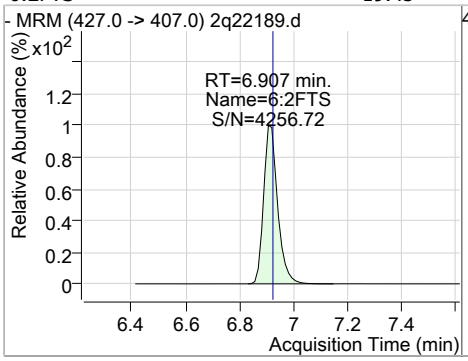
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.34	6.92	0.01	179623				

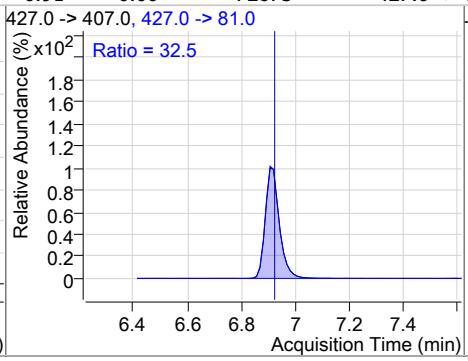


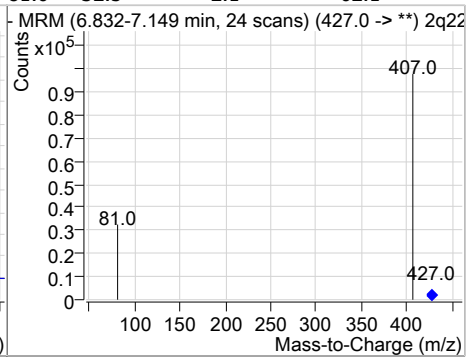




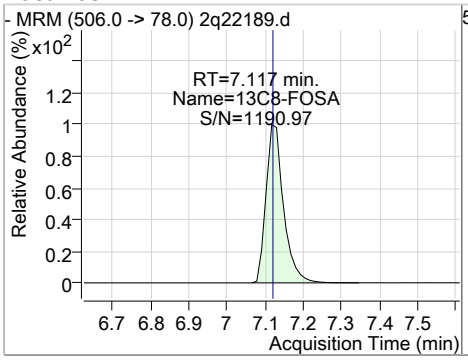
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.45	6.91	0.00	72673	427.0 -> 81.0	32.5	2.1	62.1

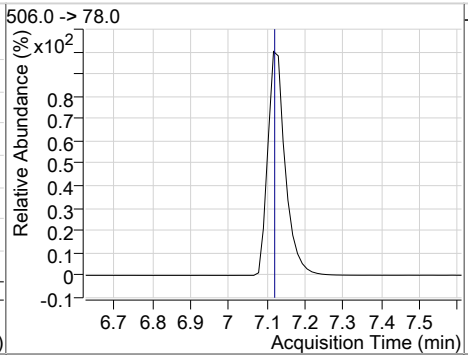


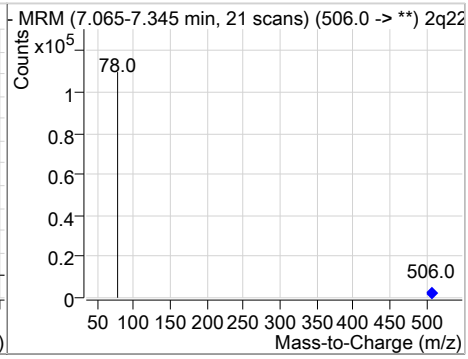




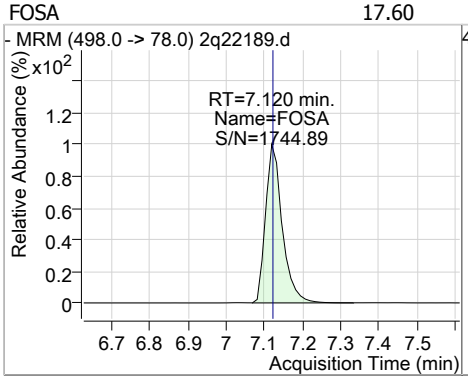
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.17	7.12	0.00	82177				

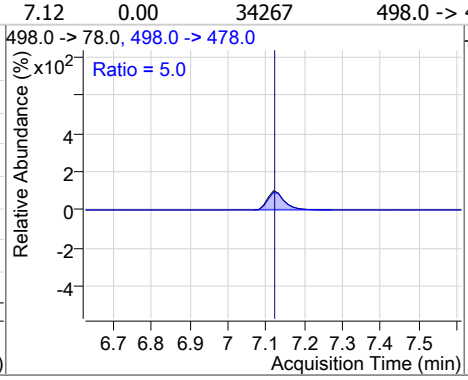


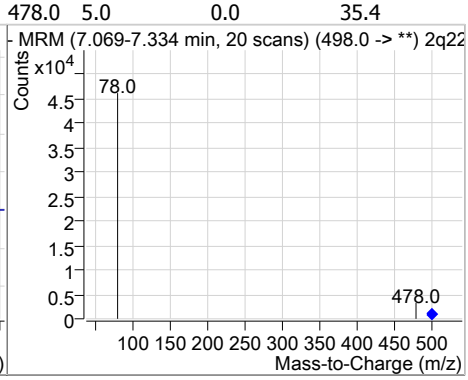




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	17.60	7.12	0.00	34267	498.0 -> 478.0	5.0	0.0	35.4

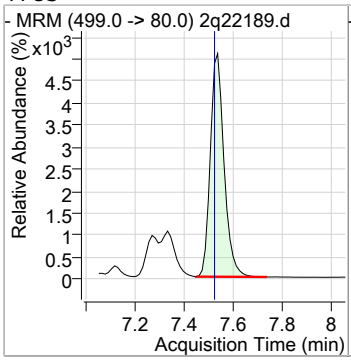


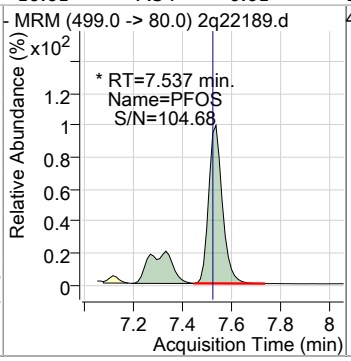


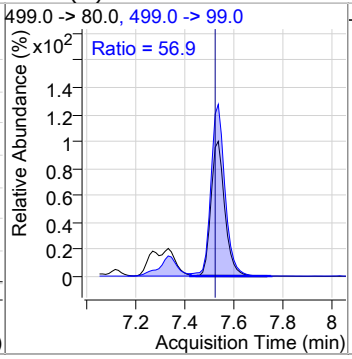


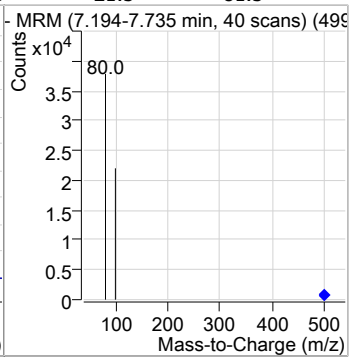
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	16.61	7.54	0.01	26684 (m)	499.0 -> 99.0	56.9	21.5	81.5

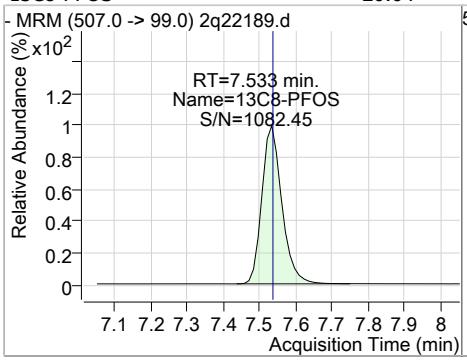


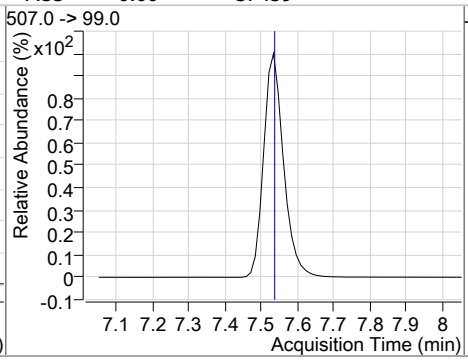


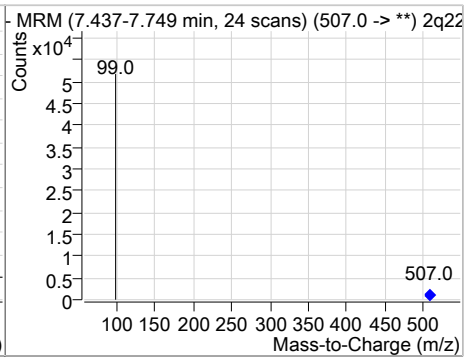




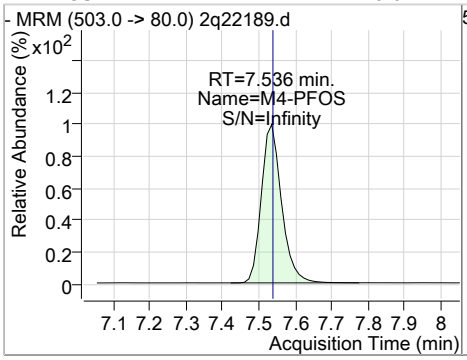
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.64	7.53	0.00	37459				

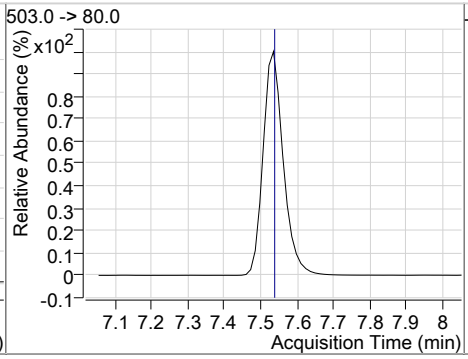


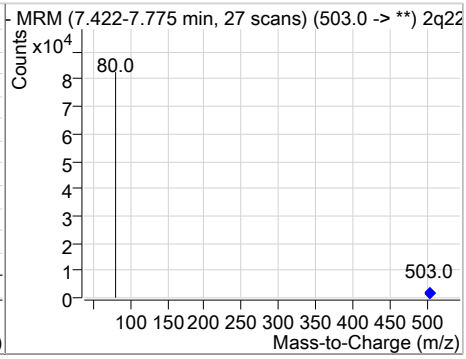




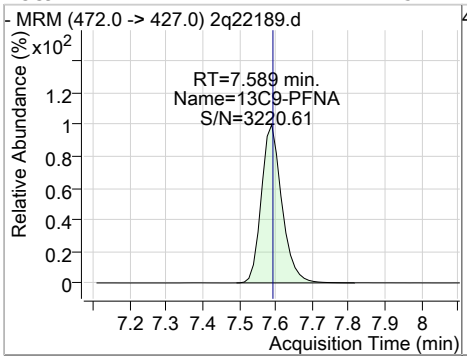
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.54	0.00	60350				

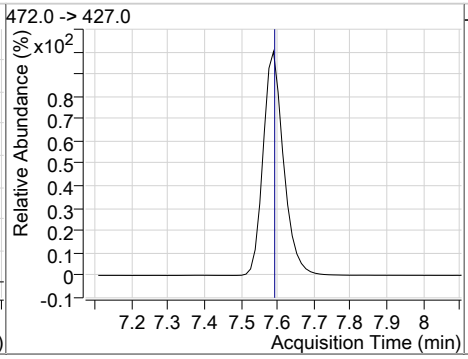


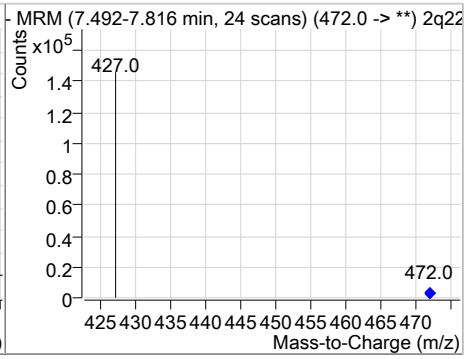




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	22.15	7.59	0.00	108900				

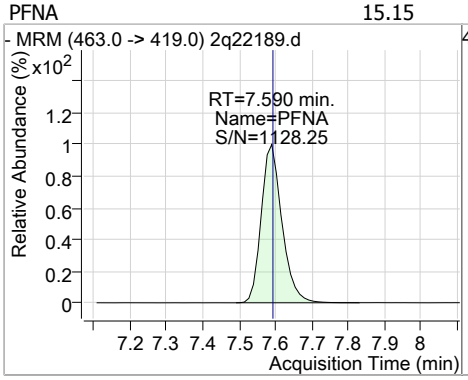


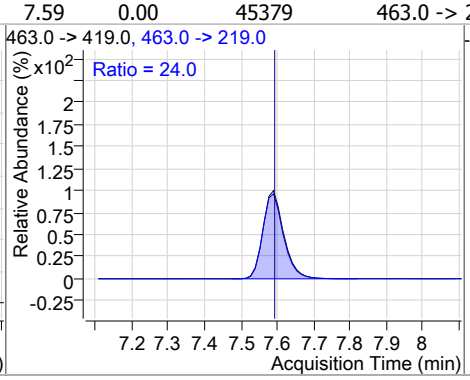


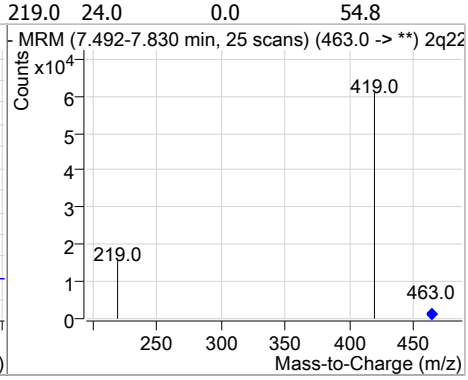


Perfluorinated Compounds by LC/MS/MS

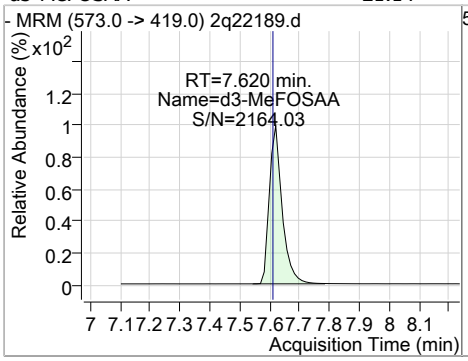
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	15.15	7.59	0.00	45379	463.0 -> 219.0	24.0	0.0	54.8

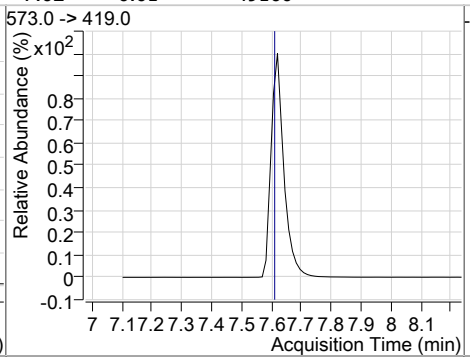


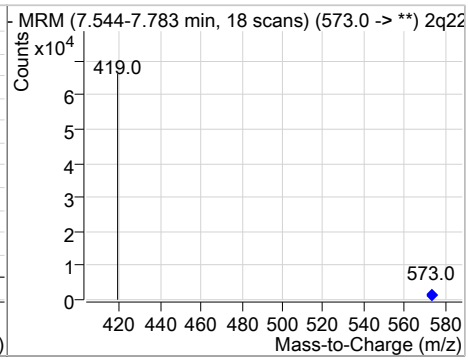




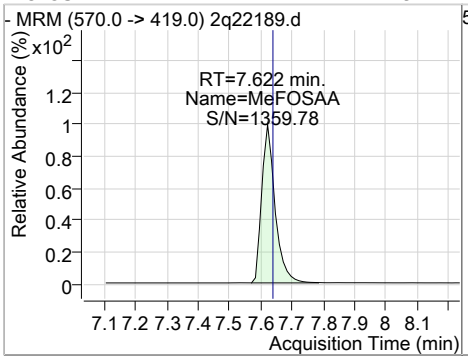
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.14	7.62	0.01	49160				

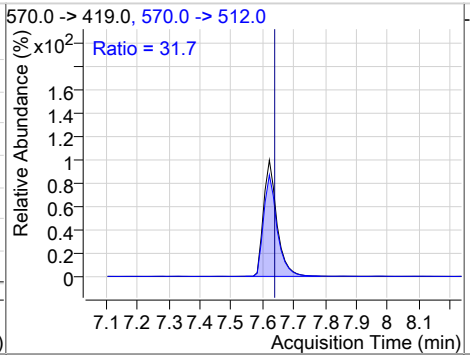


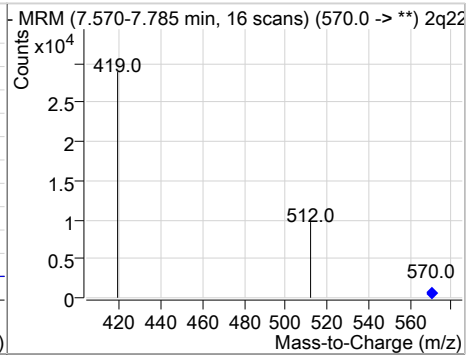




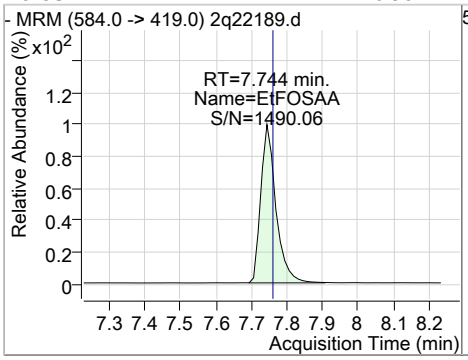
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.29	7.62	0.00	21689	570.0 -> 512.0	31.7	5.9	65.9

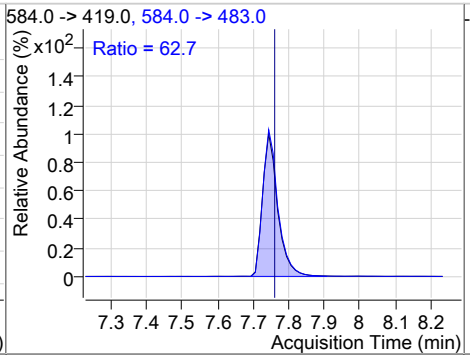


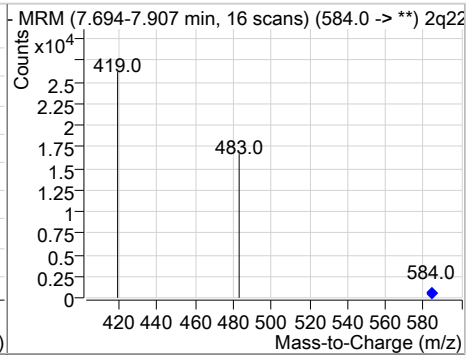




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	16.98	7.74	0.00	19025	584.0 -> 483.0	62.7	30.5	90.5

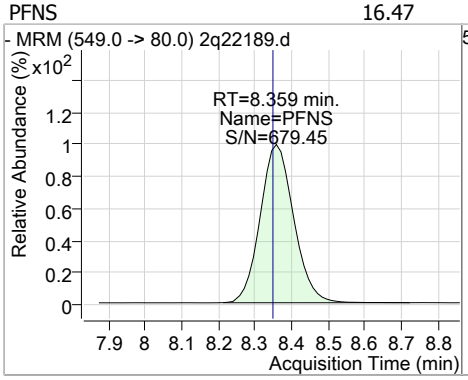


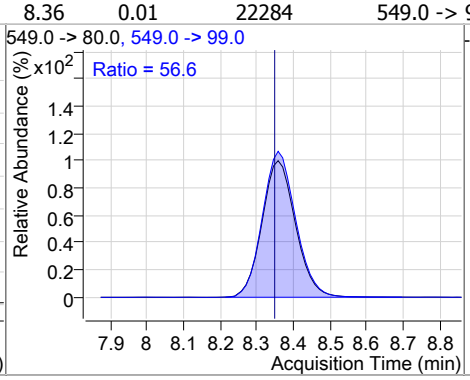


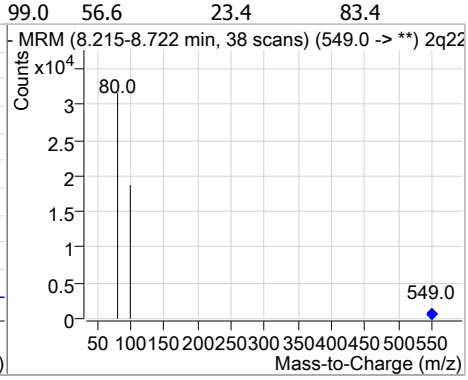


Perfluorinated Compounds by LC/MS/MS

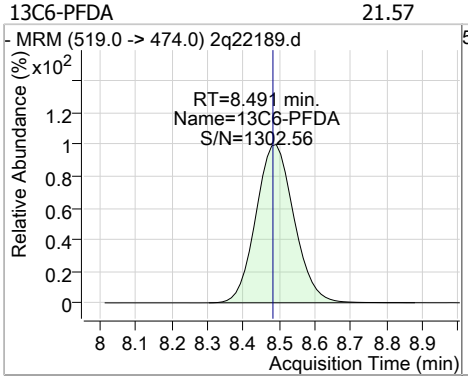
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	16.47	8.36	0.01	22284	549.0 -> 99.0	56.6	23.4	83.4

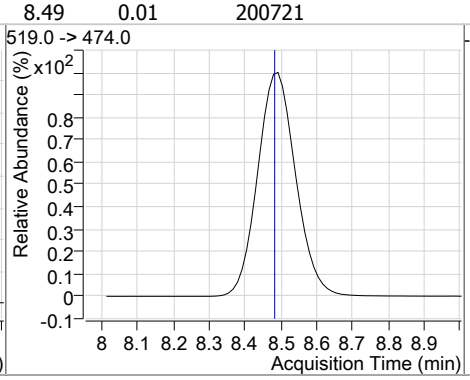


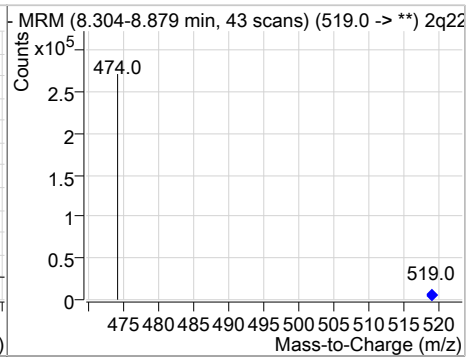




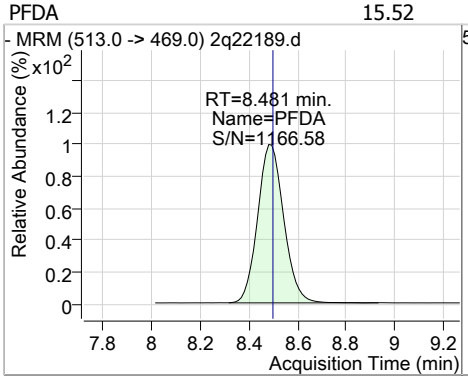
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.57	8.49	0.01	200721				

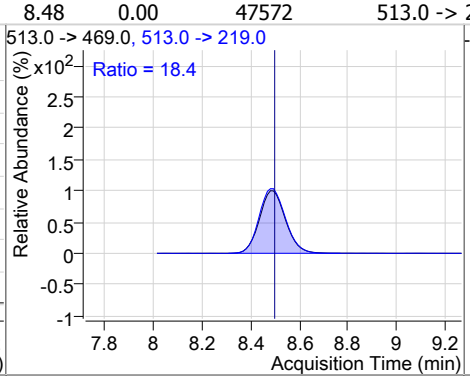


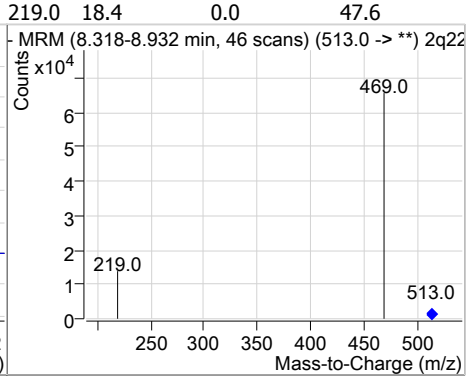




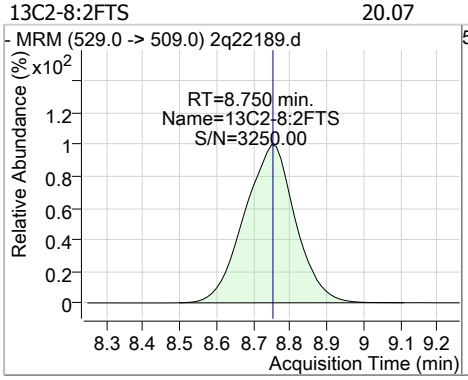
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	15.52	8.48	0.00	47572	513.0 -> 219.0	18.4	0.0	47.6

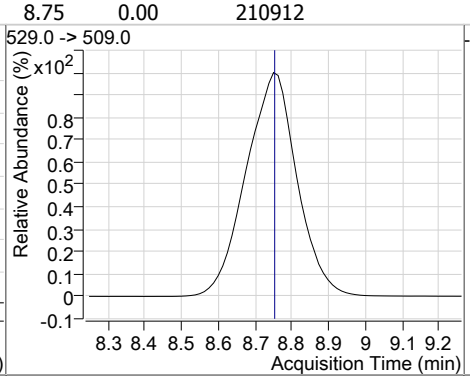


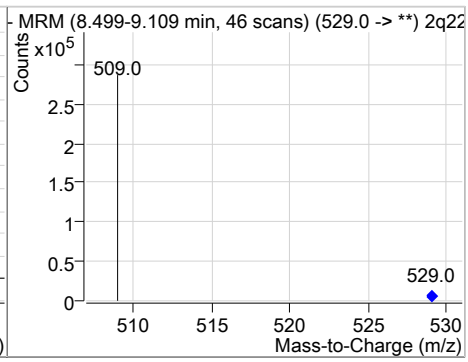




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.07	8.75	0.00	210912				

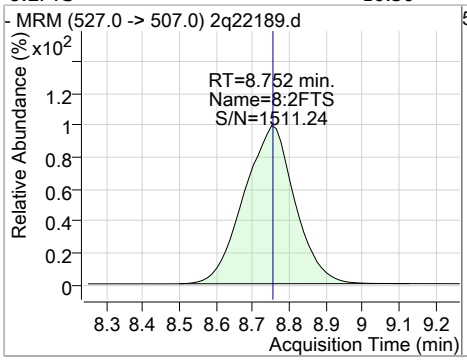


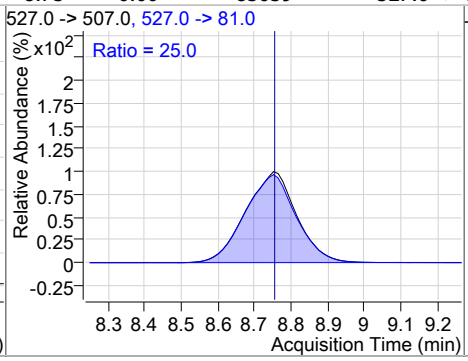


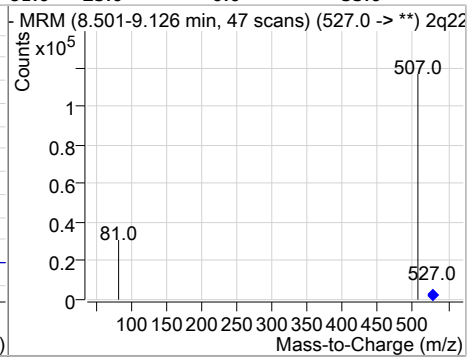


Perfluorinated Compounds by LC/MS/MS

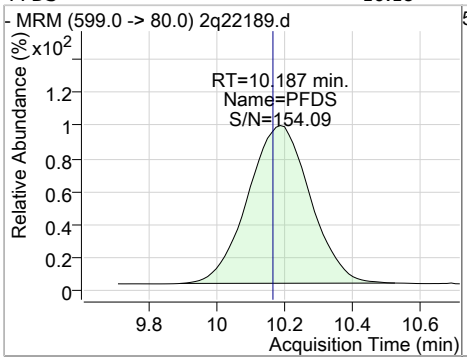
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	16.56	8.75	0.00	85659	527.0 -> 81.0	25.0	0.0	55.6

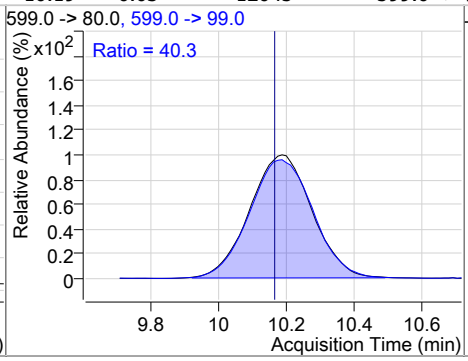


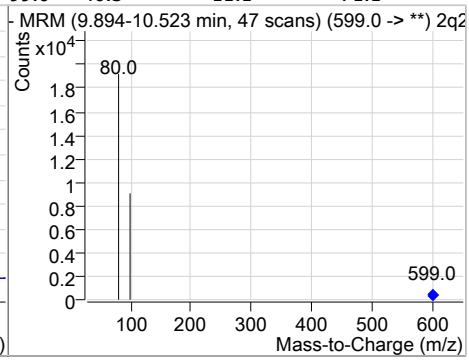




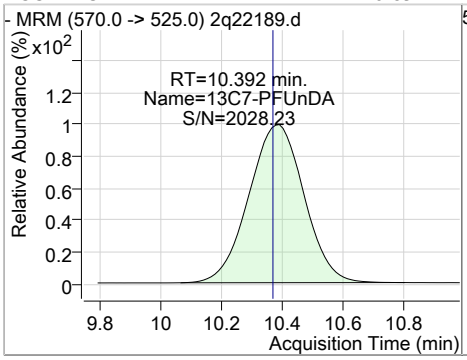
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	16.18	10.19	0.03	12645	599.0 -> 99.0	40.3	11.1	71.1

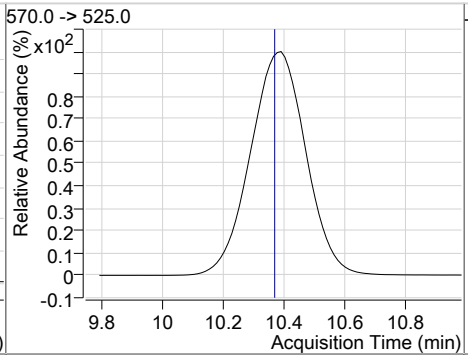


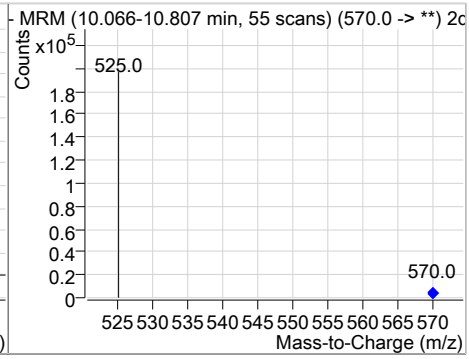




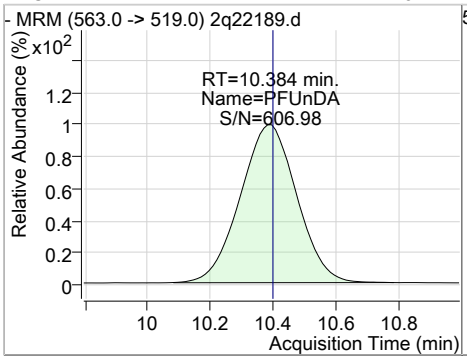
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.89	10.39	0.03	143078				

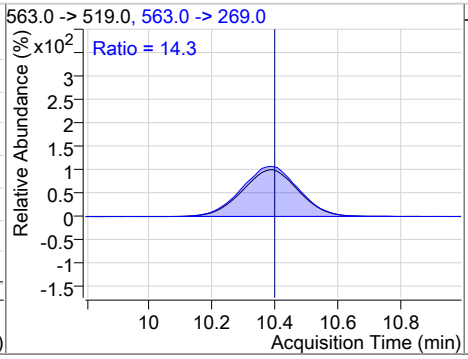


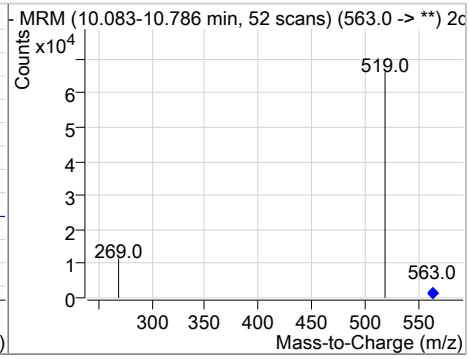




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	17.70	10.38	0.01	47302	563.0 -> 269.0	14.3	0.0	43.1

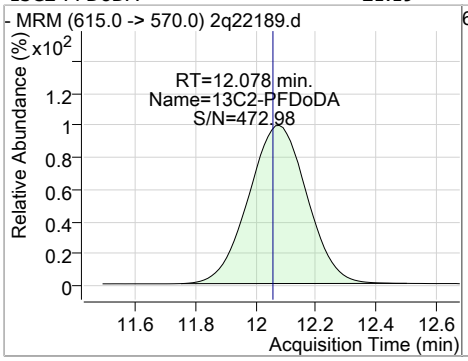


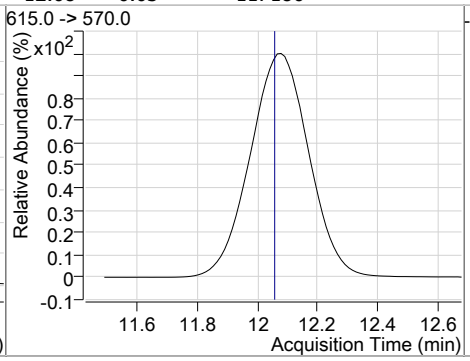


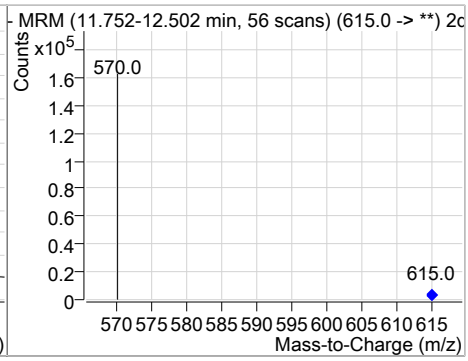


Perfluorinated Compounds by LC/MS/MS

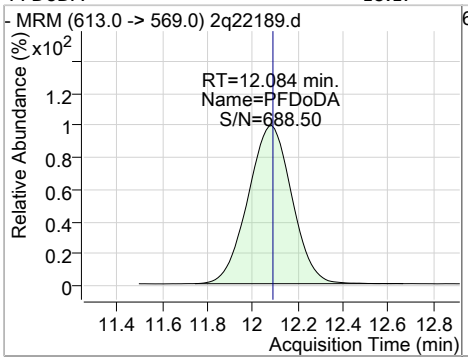
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.19	12.08	0.03	117186				

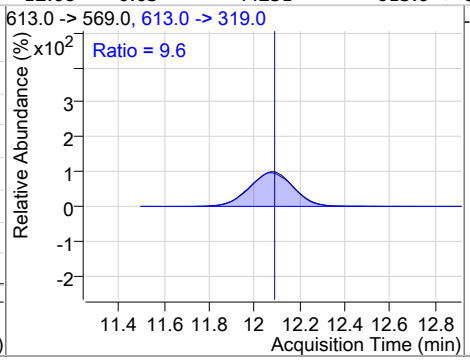


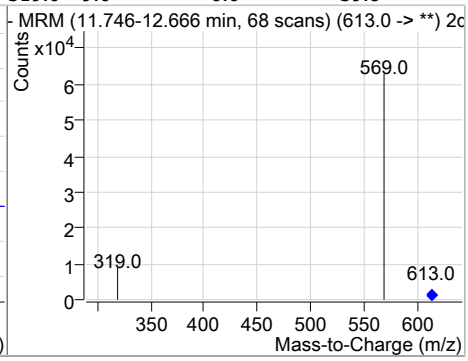




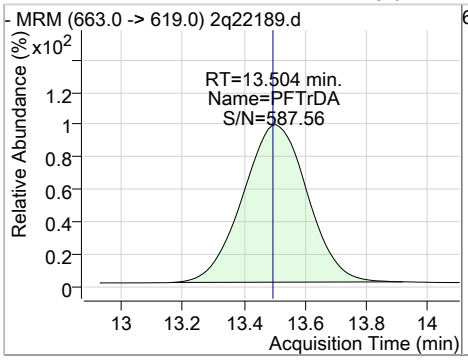
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	18.17	12.08	0.03	44251	613.0 -> 319.0	9.6	0.0	39.8

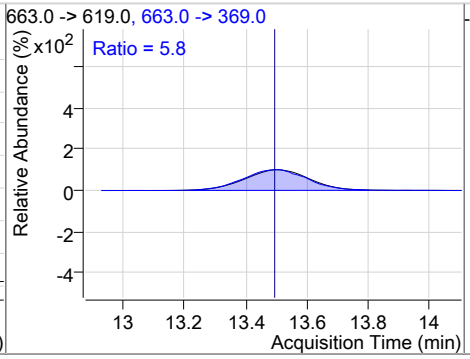


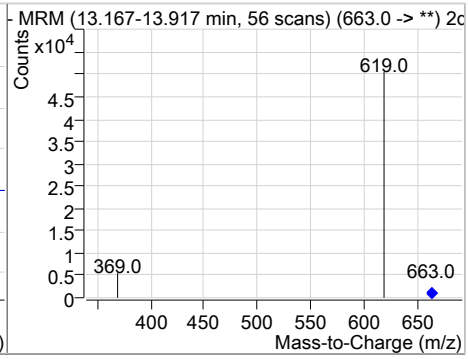




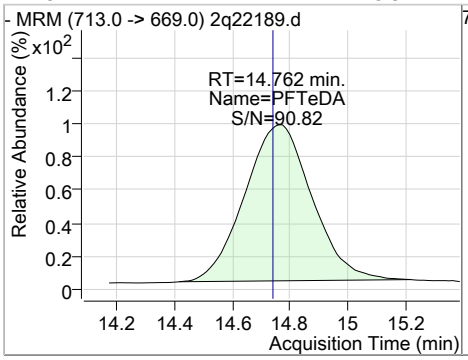
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	18.64	13.50	0.03	35307	663.0 -> 369.0	5.8	0.0	35.8

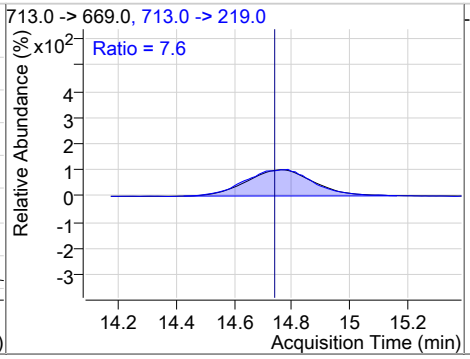


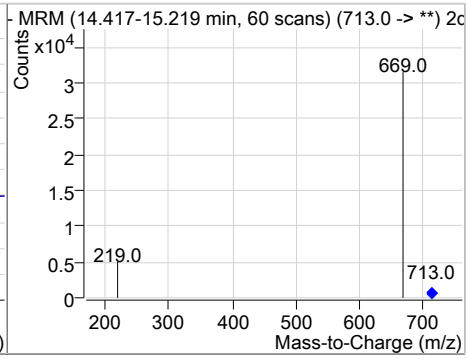




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	15.91	14.76	0.04	20606	713.0 -> 219.0	7.6	0.0	37.4

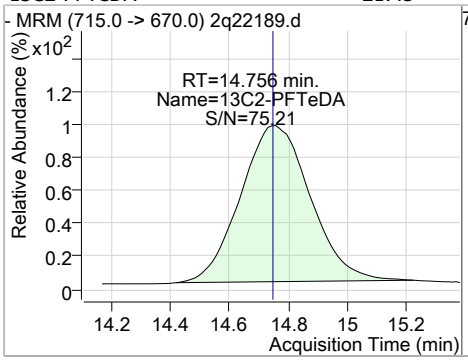


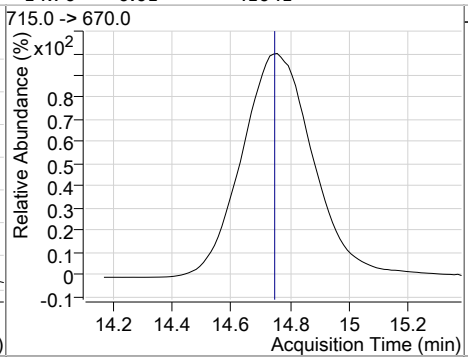


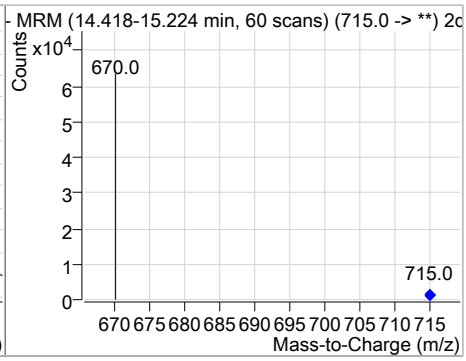


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.45	14.76	0.01	41641				







Manual Integration Approval Summary

Sample Number: S2Q350-ICV350
Lab FileID: 2Q22189.D
Injection Time: 10/16/18 13:37
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/17/18 08:47 Natasha Gumtie
Supervisor approved: 10/17/18 15:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.54	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/22/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22410.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 7:21:10 PM
Sample Name : cc350-1
Vial : Vial 3
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op71956,S2Q352,130,,,1.0,1,water

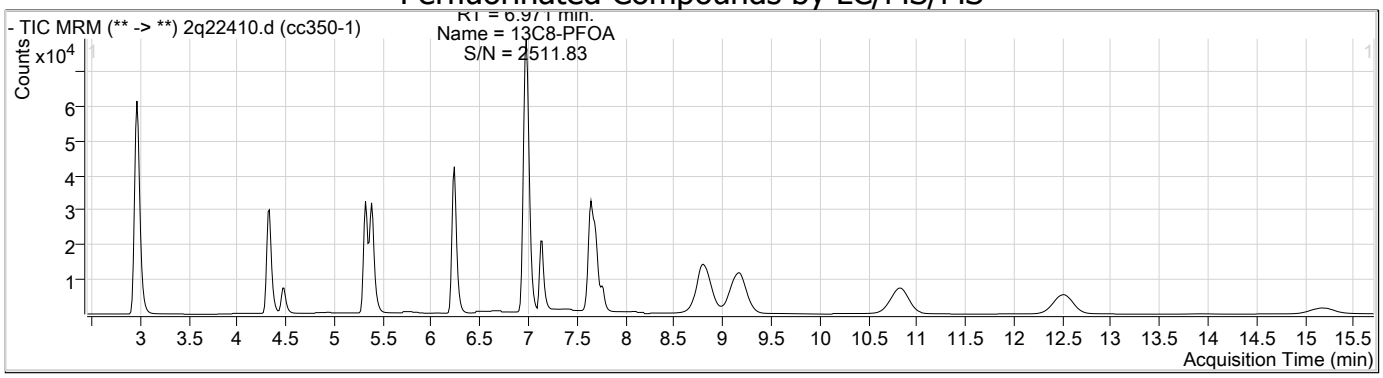
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	108130	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	44942	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	234523	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	99796	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	94390	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	107570	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	84681	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	76854	20.00	µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	145642	20.00	µg/L	0.025
M7-PFUnDA	10.830	570.0 -> 525.0	95532	20.00	µg/L	0.050
M2-PFDoDA	12.503	615.0 -> 570.0	78565	20.00	µg/L	0.050
M2-PFTeDA	15.168	715.0 -> 670.0	28479	20.00	µg/L	0.050
M8-FOSA	7.142	506.0 -> 78.0	61283	20.00	µg/L	0.013
M3-PFBS	4.481	302.0 -> 99.0	22907	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	28438	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	28185	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	101912	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	128018	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	133527	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	32456	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	101877	15.47	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.4%		
13C2-6:2FTS	6.993	429.0 -> 409.0	128016	14.50	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.5%		
13C2-8:2FTS	9.160	529.0 -> 509.0	132553	12.61	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 63.1%		
13C2-PFDoDA	12.503	615.0 -> 570.0	77811	14.07	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.4%		
13C2-PFTeDA	15.168	715.0 -> 670.0	27356	14.09	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.5%		
13C3-PFBS	4.481	302.0 -> 99.0	22908	16.38	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.9%		
13C3-PFHxS	6.235	402.0 -> 99.0	28438	15.97	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.8%		
13C4-PFBA	2.966	217.0 -> 172.0	234424	17.43	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.2%		
13C4-PFHpA	6.242	367.0 -> 322.0	107581	16.72	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.6%		
13C5-PFHxA	5.390	318.0 -> 273.0	94478	17.16	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.8%		
13C5-PFPeA	4.337	268.0 -> 223.0	99777	17.46	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.3%		
13C6-PFDA	8.804	519.0 -> 474.0	144543	15.54	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.7%		

Perfluorinated Compounds by LC/MS/MS

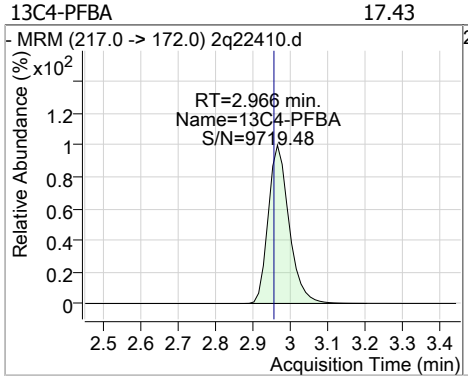
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.830	570.0 -> 525.0	94982	13.87	µg/L		0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.4%			
13C8-FOSA	7.142	506.0 -> 78.0	61279	15.79	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.9%			
13C8-PFOA	6.971	421.0 -> 376.0	84702	15.76	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.8%			
13C8-PFOS	7.634	507.0 -> 99.0	28194	15.54	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.7%			
13C9-PFNA	7.702	472.0 -> 427.0	76913	15.65	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.2%			
d3-MeFOSAA	7.645	573.0 -> 419.0	32449	13.95	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.8%			
M2-PFOA	6.973	415.0 -> 370.0	108129	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	44946	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.325	327.0 -> 307.0	2943	1.24	µg/L		84
6:2FTS	6.995	427.0 -> 407.0	3418	1.28	µg/L		99
8:2FTS	9.151	527.0 -> 507.0	3685	1.31	µg/L		99
EtFOSAA	7.769	584.0 -> 419.0	754	1.02	µg/L		85
FOSA	7.132	498.0 -> 78.0	1614	1.11	µg/L		100
MeFOSAA	7.646	570.0 -> 419.0	933	1.13	µg/L		100
PFBA	2.974	213.0 -> 169.0	1431	1.02	µg/L		100
PFBS	4.472	299.0 -> 80.0	1789	1.08	µg/L		97
PFDA	8.806	513.0 -> 469.0	2326	1.05	µg/L		98
PFDoDA	12.521	613.0 -> 569.0	1796	1.10	µg/L		99
PFDS	10.625	599.0 -> 80.0	647	1.10	µg/L		99
PFHpA	6.245	363.0 -> 319.0	4461	1.09	µg/L		100
PFHpS	6.941	449.0 -> 80.0	1162	1.01	µg/L		98
PFHxA	5.393	313.0 -> 269.0	1664	1.10	µg/L		99
PFHxS	6.238	399.0 -> 80.0	1494	1.08	µg/L	m	97
PFNA	7.704	463.0 -> 419.0	2240	1.06	µg/L		98
PFNS	8.621	549.0 -> 80.0	1418	1.39	µg/L		100
PFOA	6.974	413.0 -> 369.0	2293	1.05	µg/L		99
PFOS	7.637	499.0 -> 80.0	1373	1.14	µg/L	m	97
PFPeA	4.328	263.0 -> 219.0	5703	1.22	µg/L		100
PFPeS	5.446	349.0 -> 80.0	1256	1.17	µg/L		98
PFTeDA	15.200	713.0 -> 669.0	945	1.12	µg/L		98
PFTrDA	13.917	663.0 -> 619.0	1311	1.06	µg/L		99
PFUnDA	10.821	563.0 -> 519.0	1920	1.08	µg/L		98

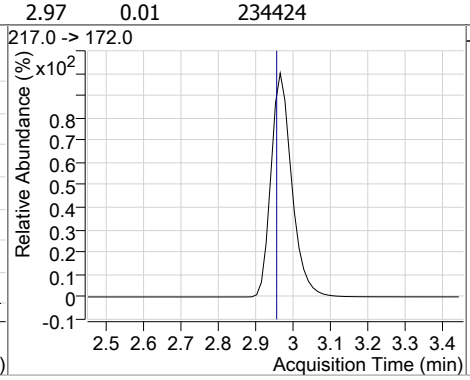
 # = Qualifier out of range, m = manually integrated, + = Area summed

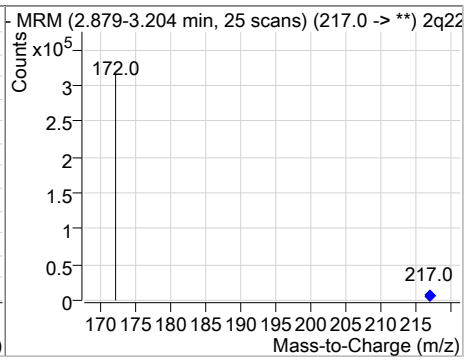
Perfluorinated Compounds by LC/MS/MS



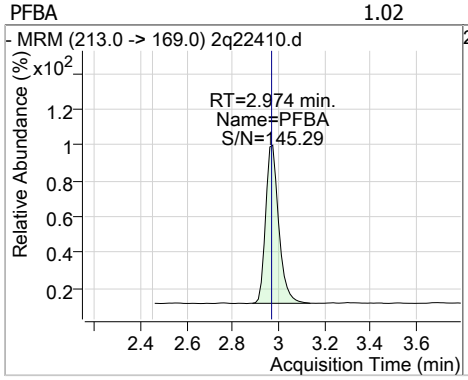
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.43	2.97	0.01	234424				

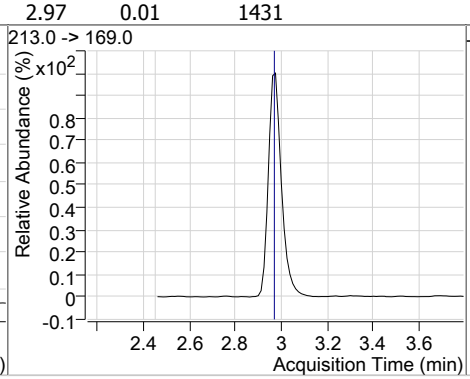


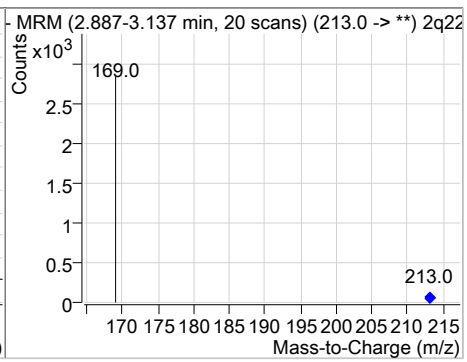




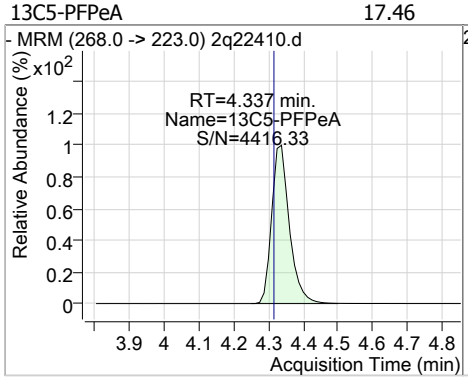
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.02	2.97	0.01	1431				

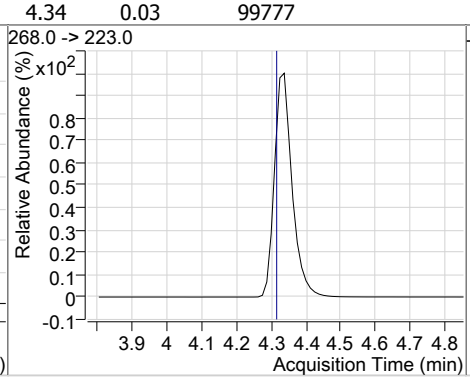


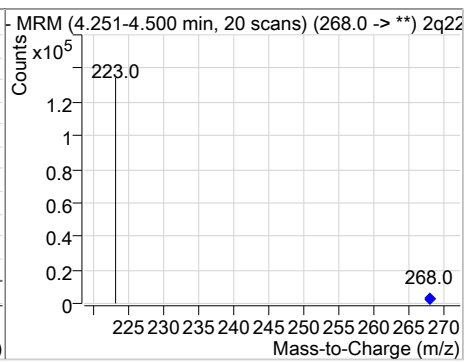




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.46	4.34	0.03	99777				

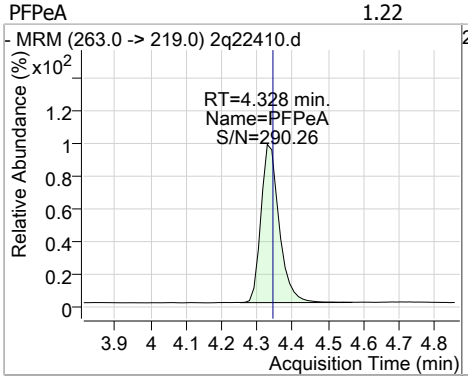


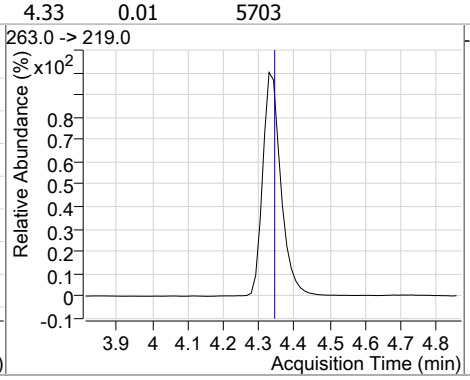


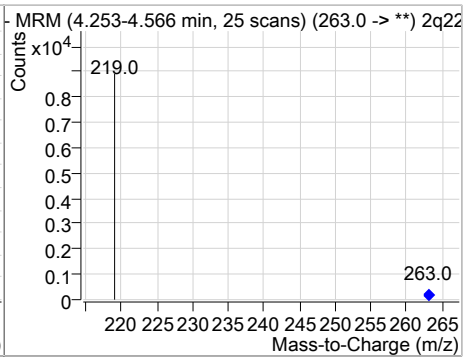


Perfluorinated Compounds by LC/MS/MS

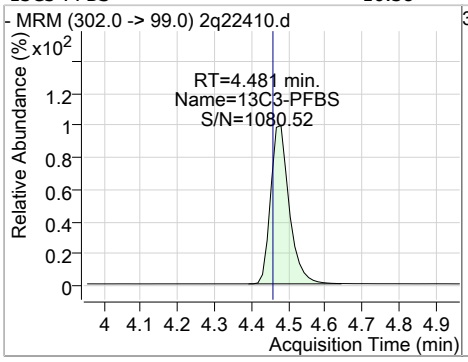
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.22	4.33	0.01	5703				

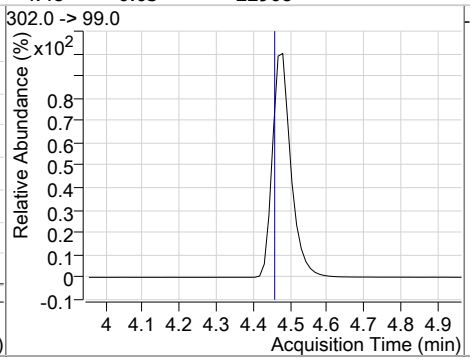


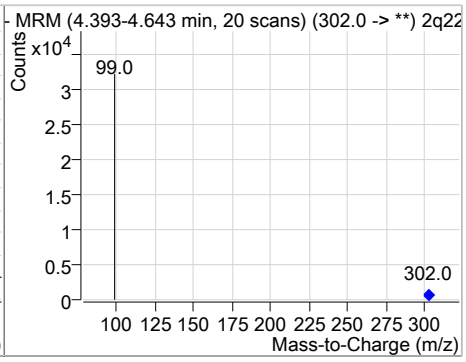




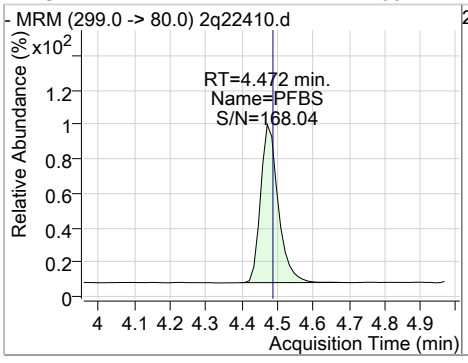
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	16.38	4.48	0.03	22908				

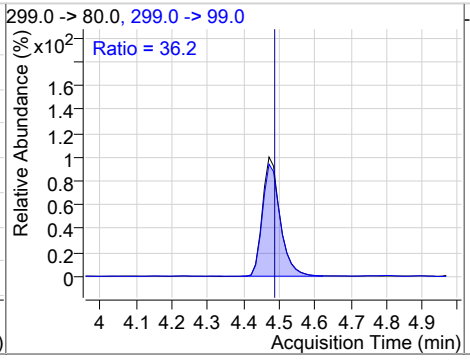


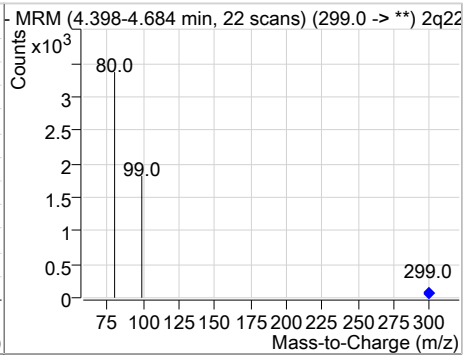




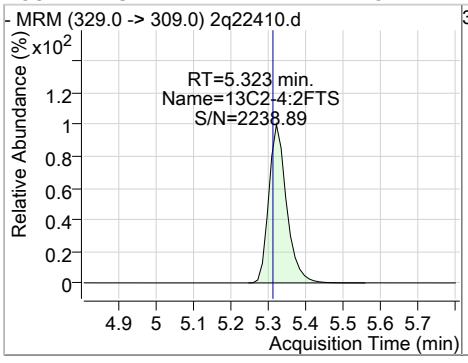
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.08	4.47	0.01	1789	299.0 -> 99.0	36.2	8.1	68.1

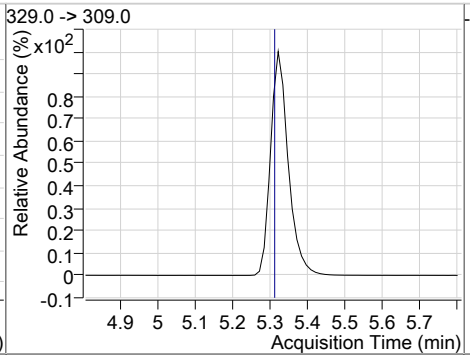


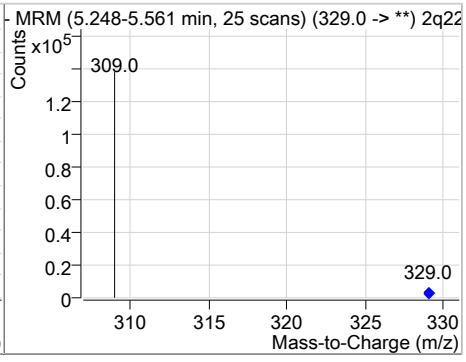




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	15.47	5.32	0.01	101877				

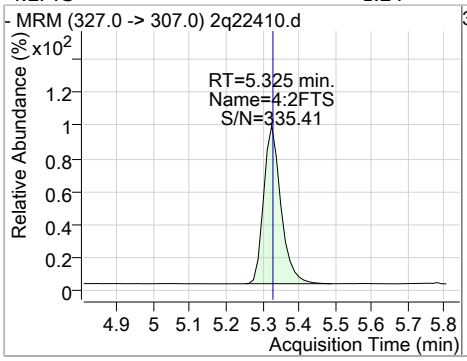


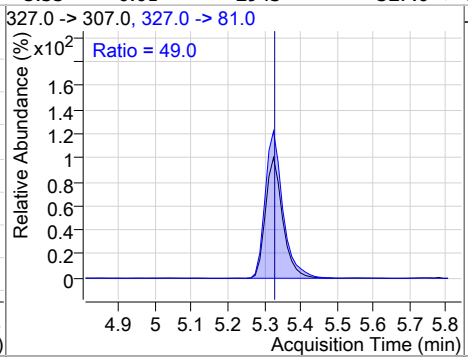


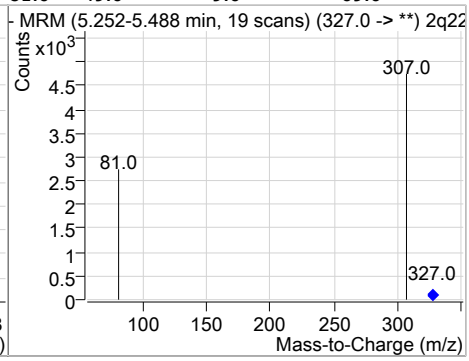


Perfluorinated Compounds by LC/MS/MS

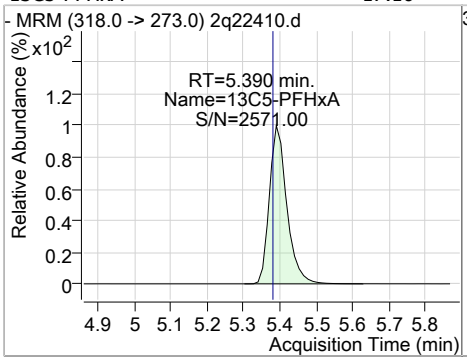
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.24	5.33	0.01	2943	327.0 -> 81.0	49.0	9.0	69.0

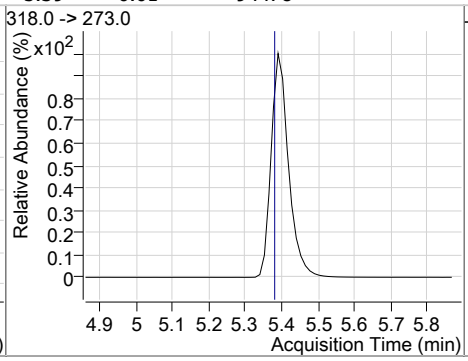


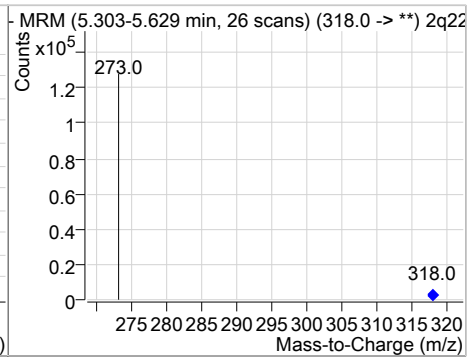




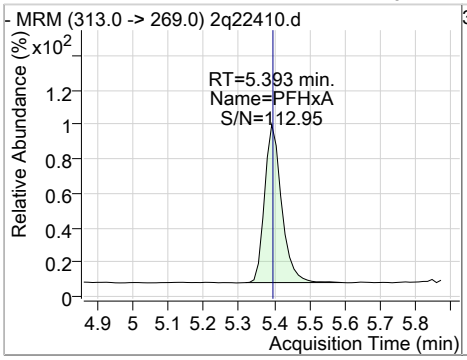
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.16	5.39	0.01	94478				

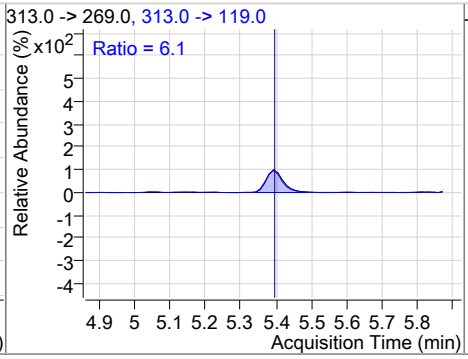


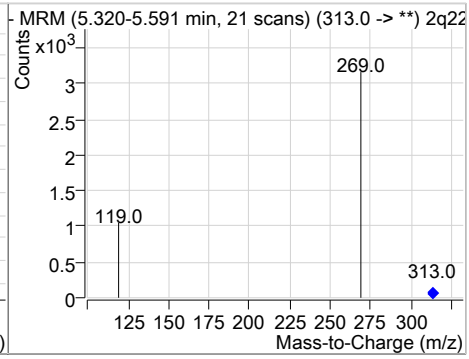




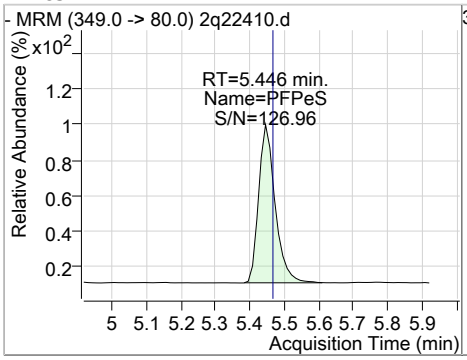
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.10	5.39	0.01	1664	313.0 -> 119.0	6.1	0.0	36.4

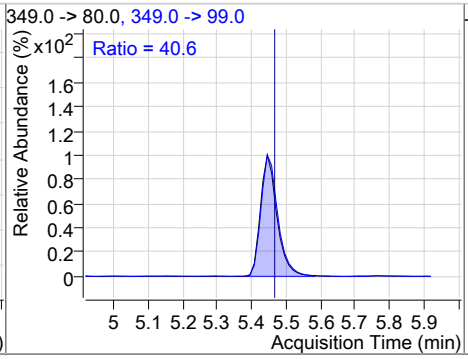


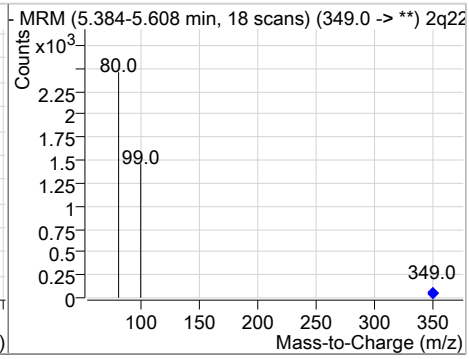




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.17	5.45	0.01	1256	349.0 -> 99.0	40.6	9.5	69.5

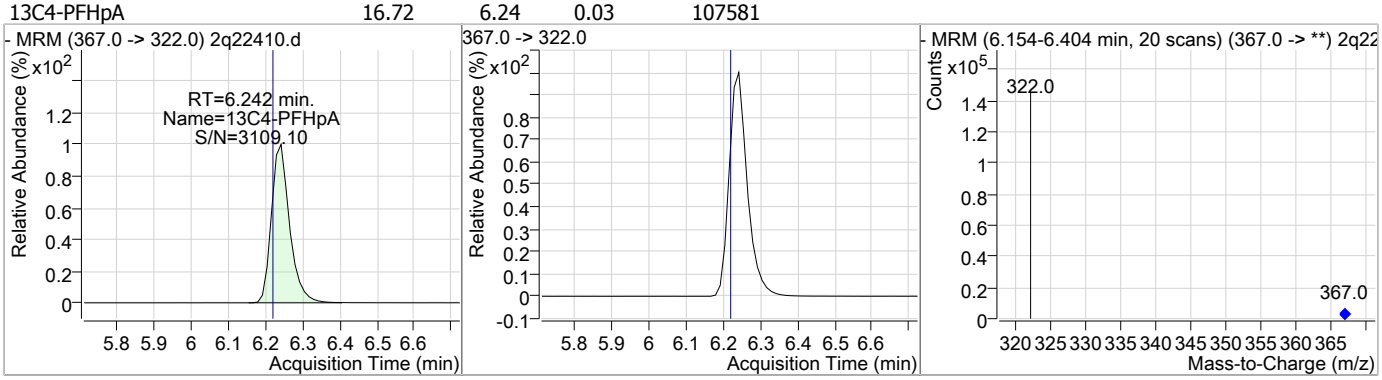




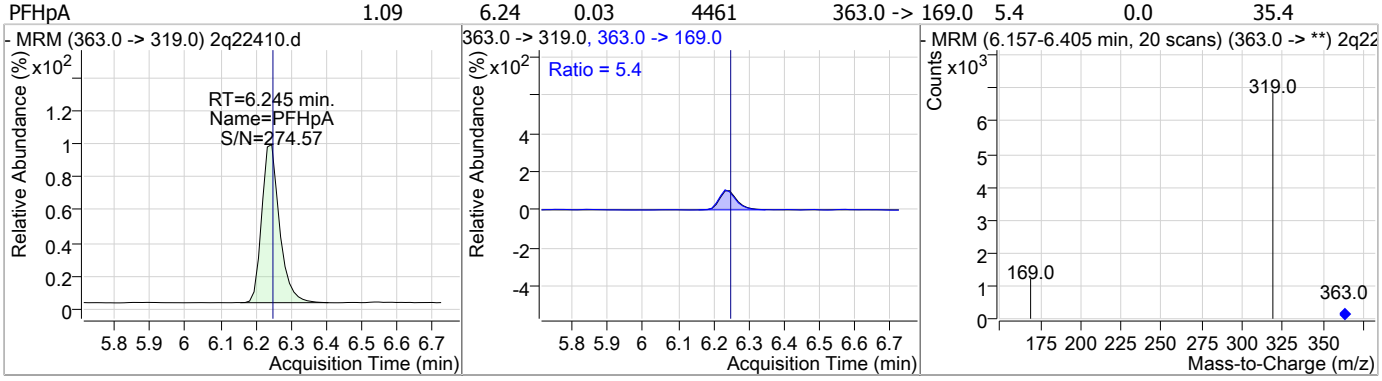


Perfluorinated Compounds by LC/MS/MS

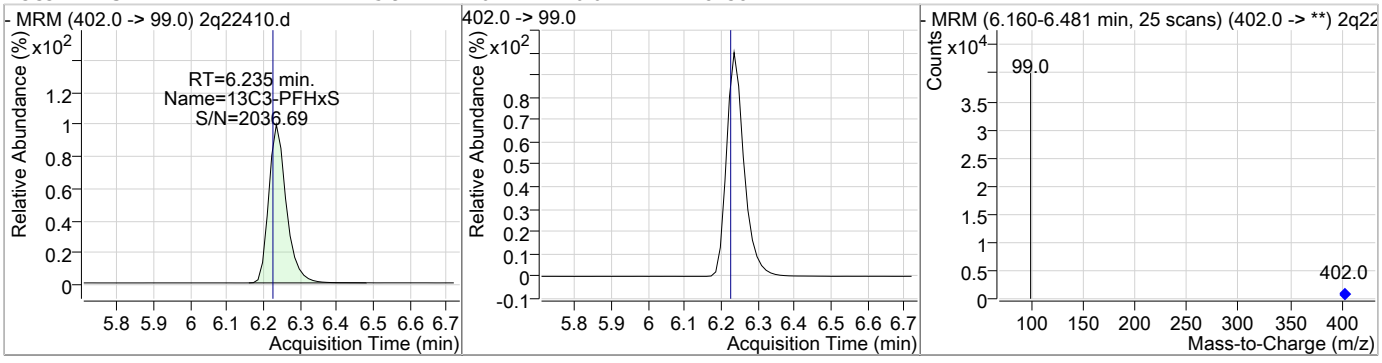
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.72	6.24	0.03	107581				



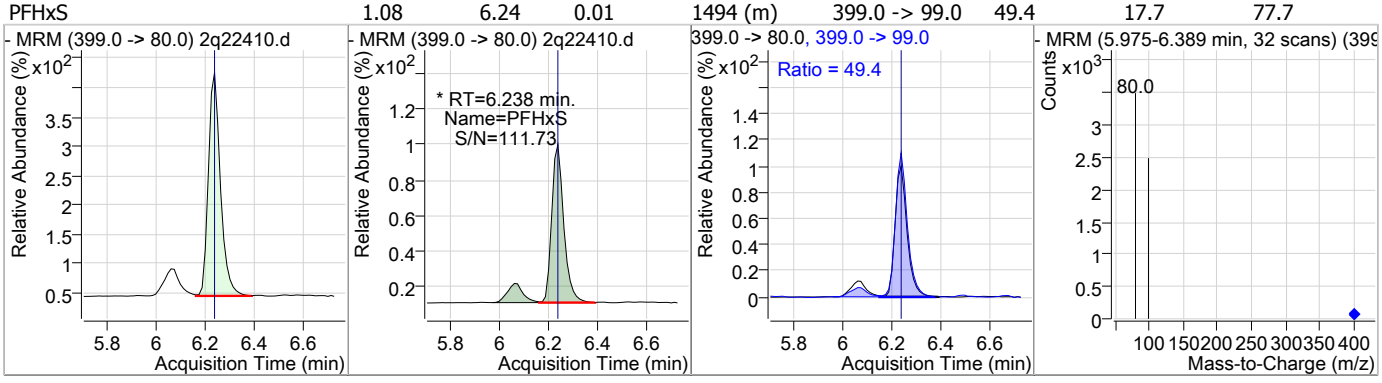
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.09	6.24	0.03	4461	363.0 -> 169.0	5.4	0.0	35.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.97	6.24	0.01	28438				

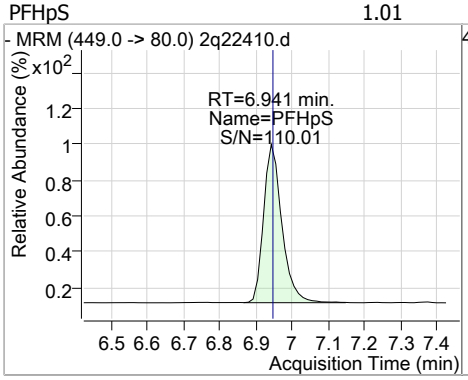


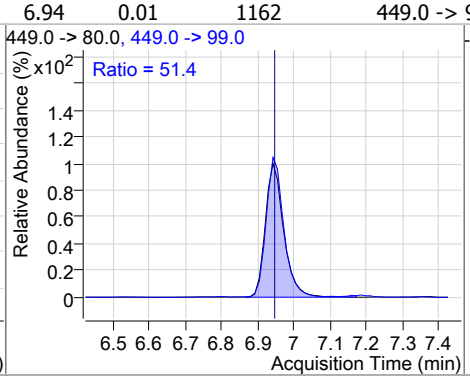
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.08	6.24	0.01	1494 (m)	399.0 -> 99.0	49.4	17.7	77.7

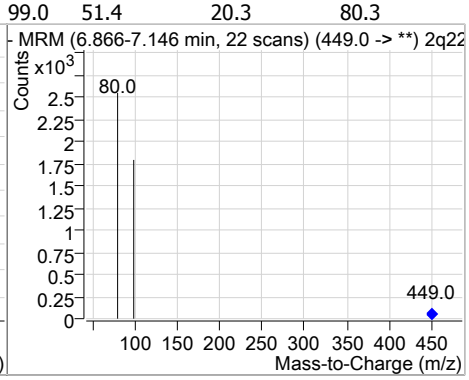


Perfluorinated Compounds by LC/MS/MS

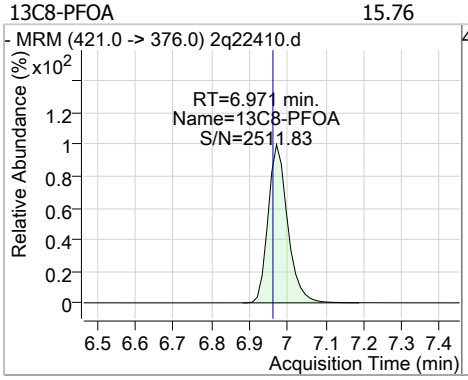
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.01	6.94	0.01	1162	449.0 -> 99.0	51.4	20.3	80.3

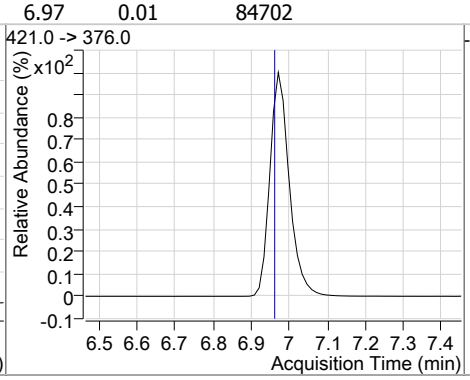


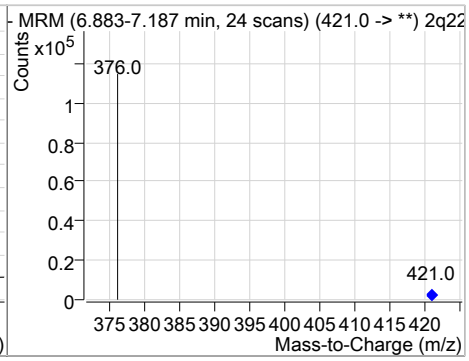




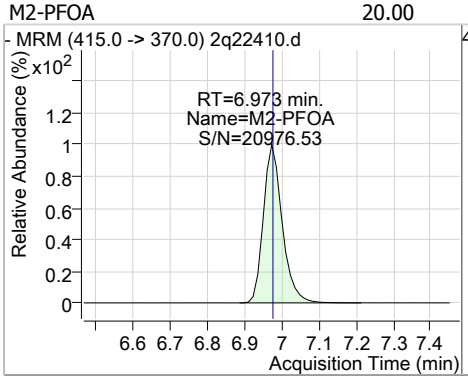
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.76	6.97	0.01	84702				

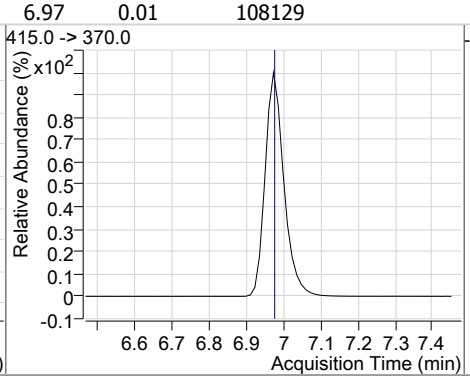


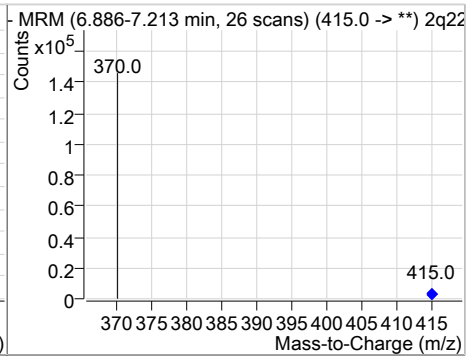




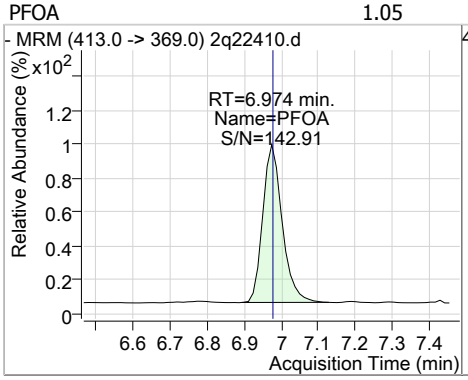
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	108129				

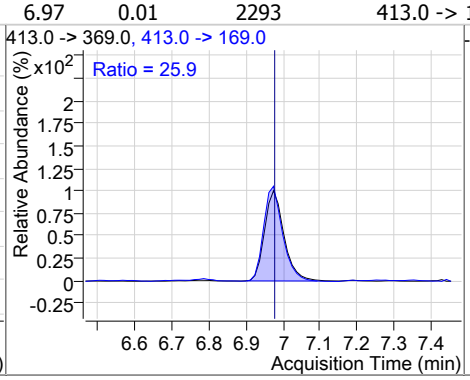


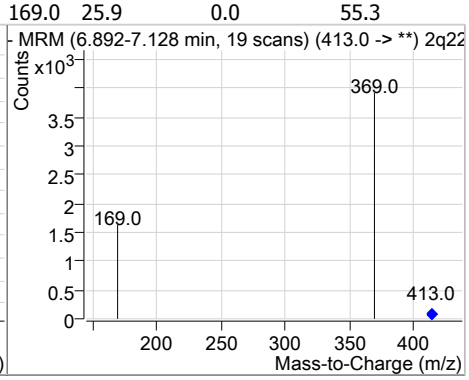




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.05	6.97	0.01	2293	413.0 -> 169.0	25.9	0.0	55.3

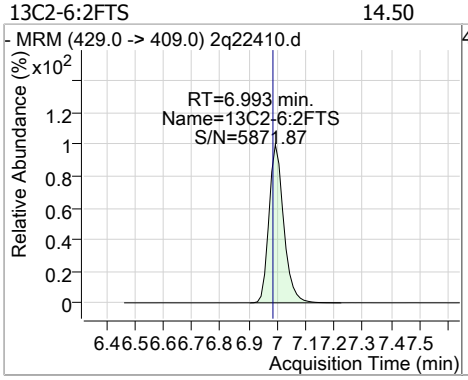


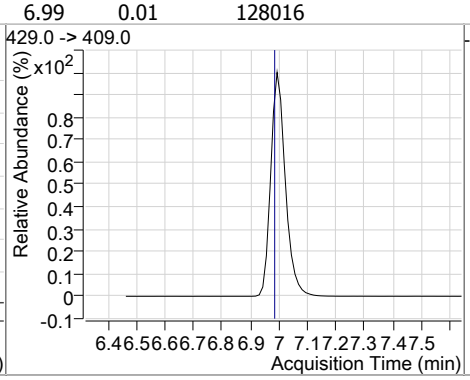


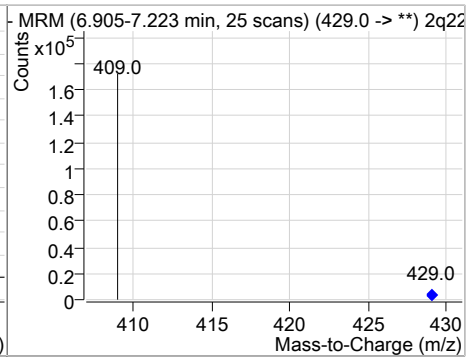


Perfluorinated Compounds by LC/MS/MS

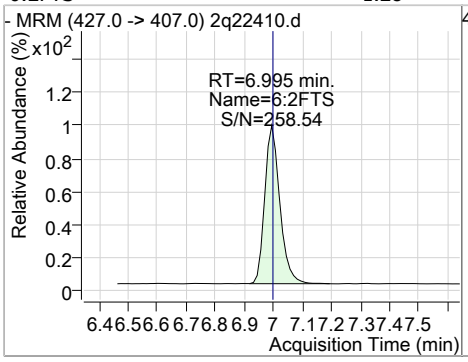
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	14.50	6.99	0.01	128016				

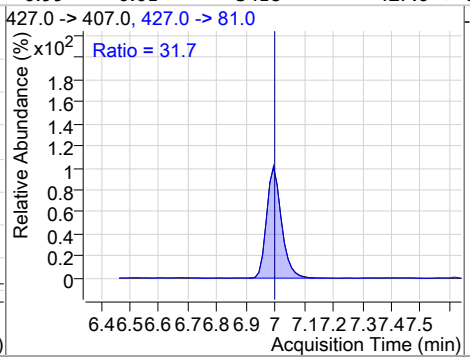


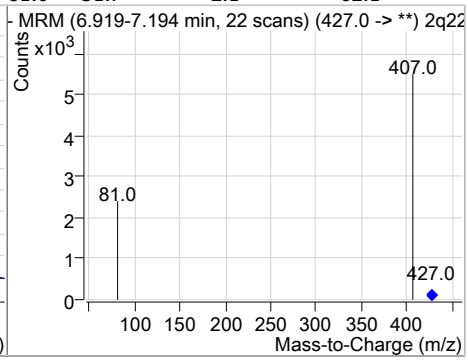




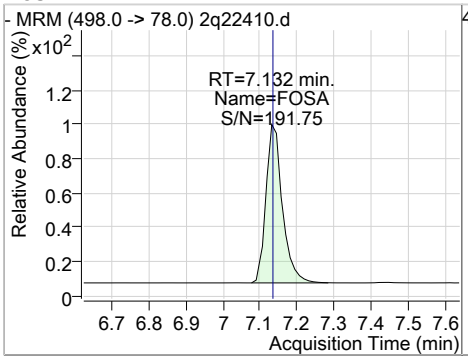
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.28	6.99	0.01	3418	427.0 -> 81.0	31.7	2.1	62.1

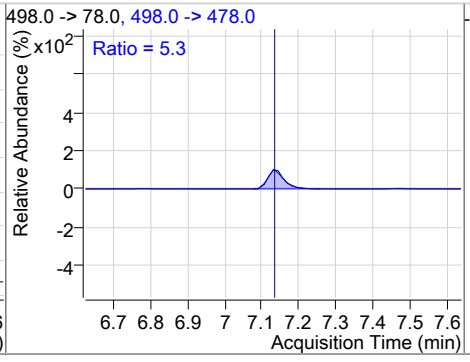


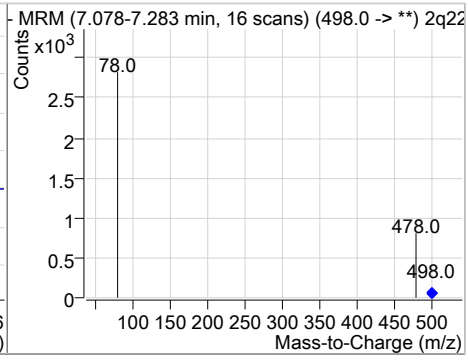




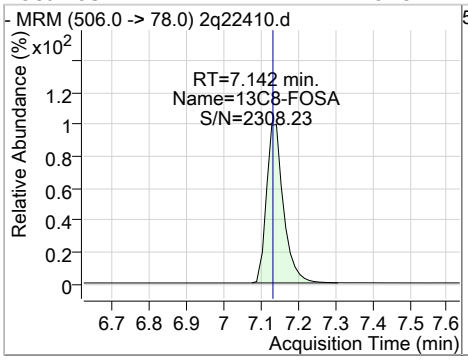
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.11	7.13	0.01	1614	498.0 -> 478.0	5.3	0.0	35.4

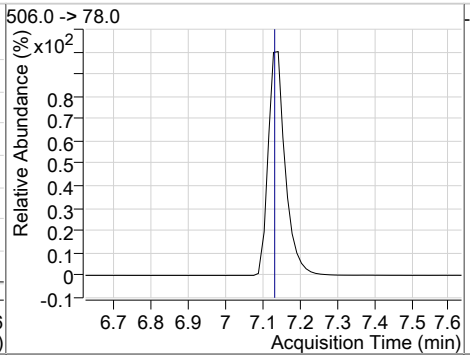


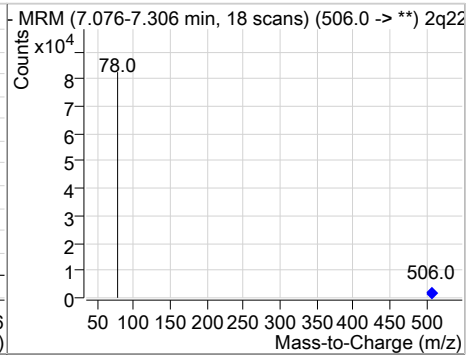




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	15.79	7.14	0.01	61279				

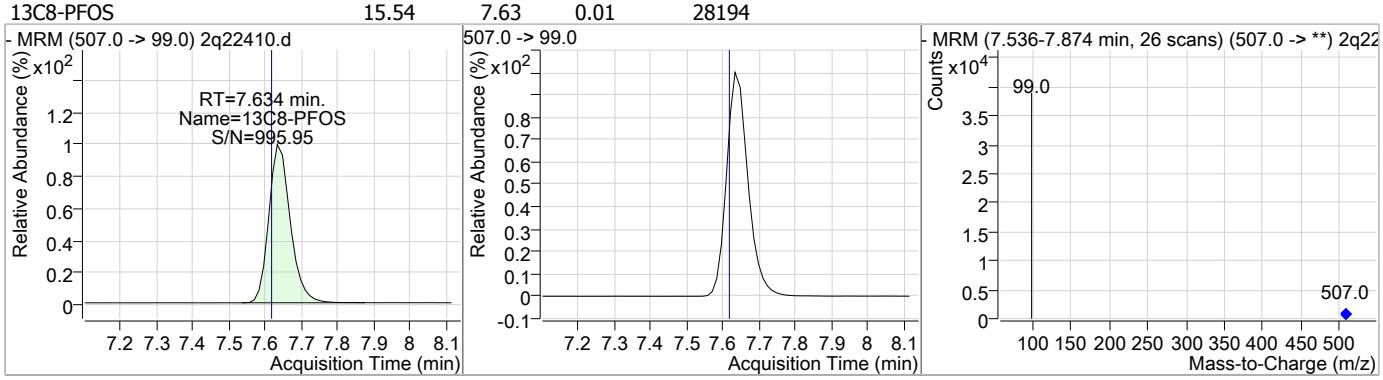




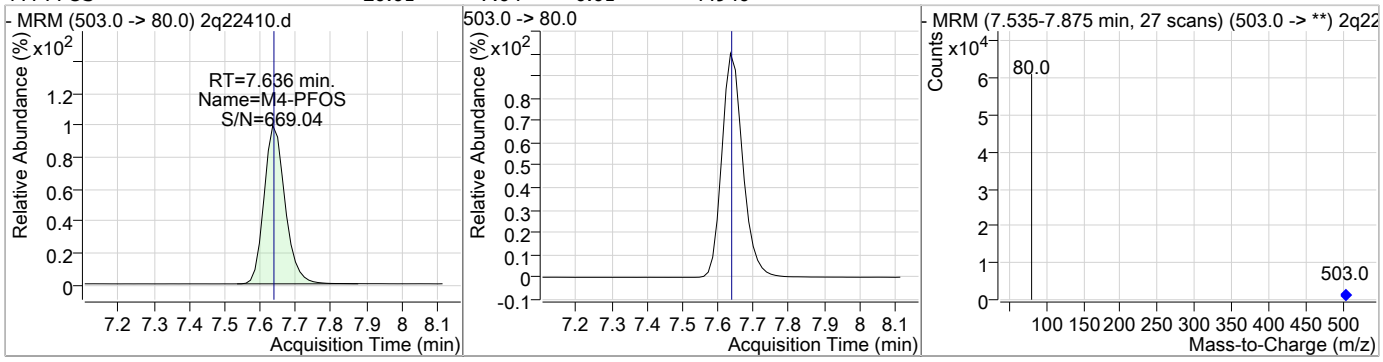


Perfluorinated Compounds by LC/MS/MS

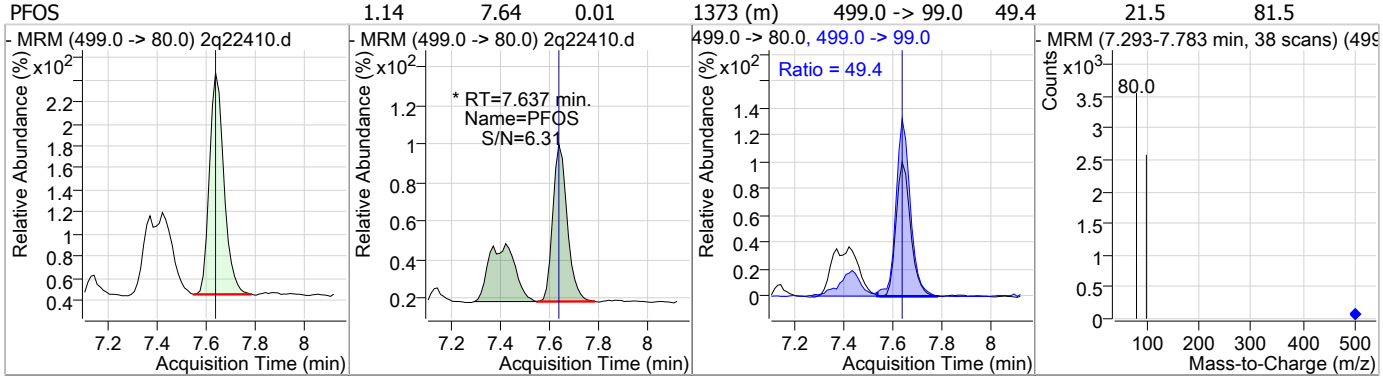
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.54	7.63	0.01	28194				



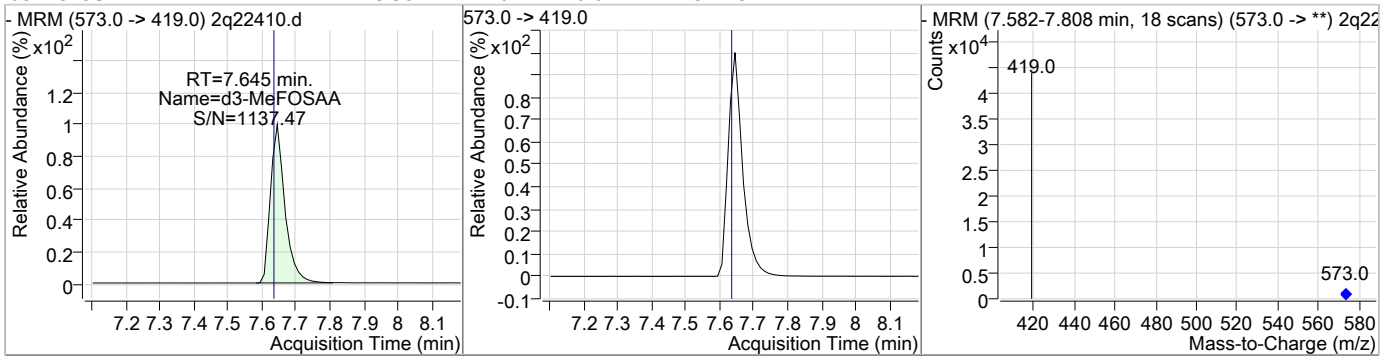
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.64	0.01	44946				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.14	7.64	0.01	1373 (m)	499.0 -> 99.0	49.4	21.5	81.5

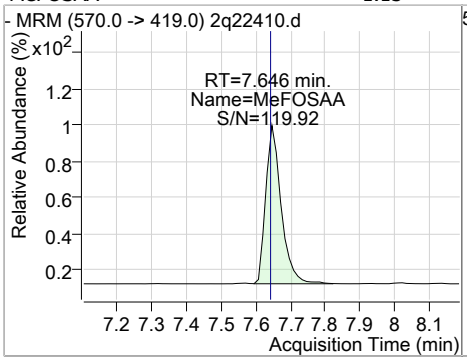


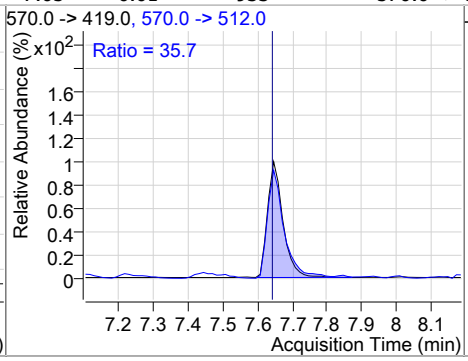
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.95	7.64	0.01	32449				

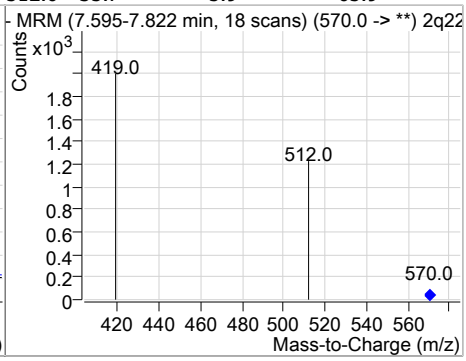


Perfluorinated Compounds by LC/MS/MS

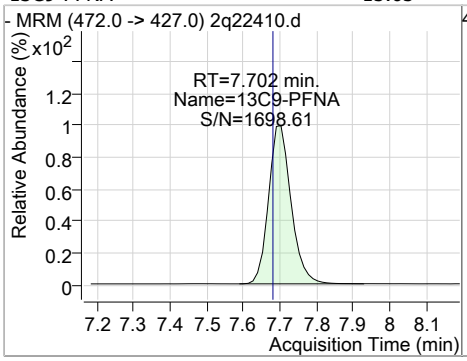
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.13	7.65	0.01	933	570.0 -> 512.0	35.7	5.9	65.9

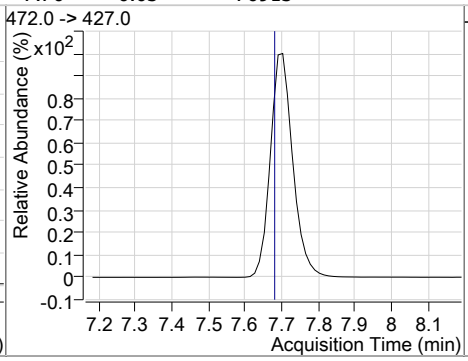


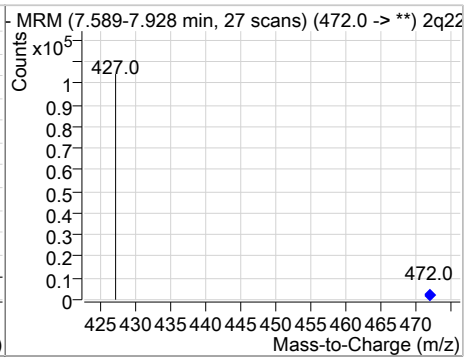




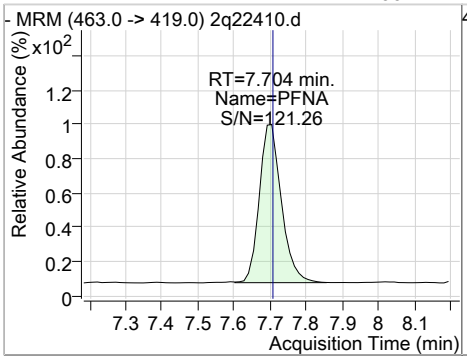
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.65	7.70	0.03	76913				

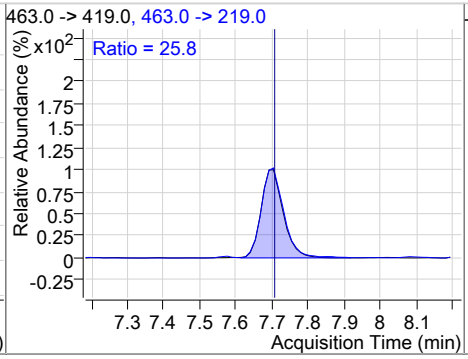


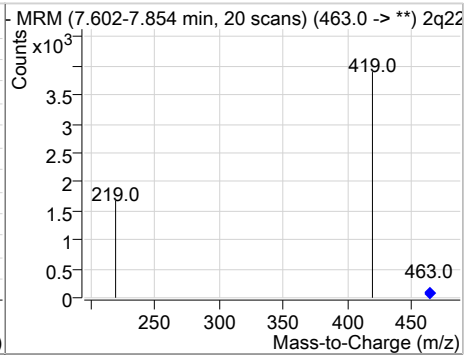




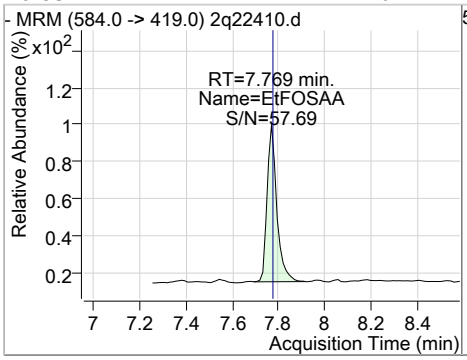
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.06	7.70	0.03	2240	463.0 -> 219.0	25.8	0.0	54.8

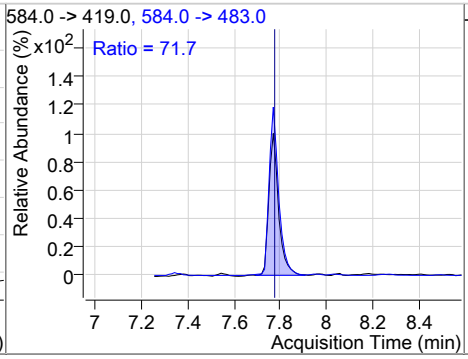


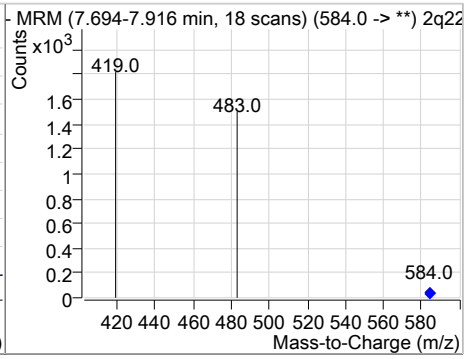




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.02	7.77	0.01	754	584.0 -> 483.0	71.7	30.5	90.5

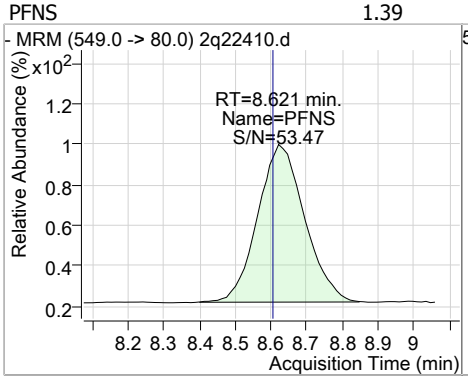


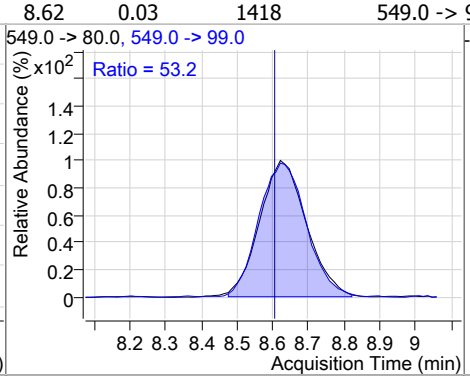


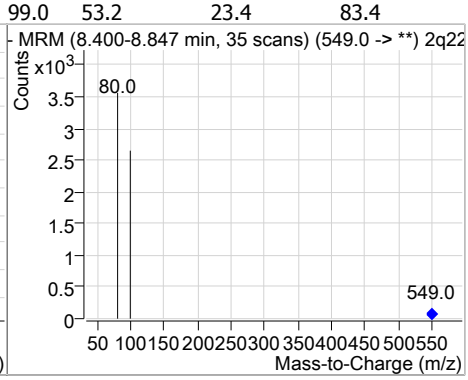


Perfluorinated Compounds by LC/MS/MS

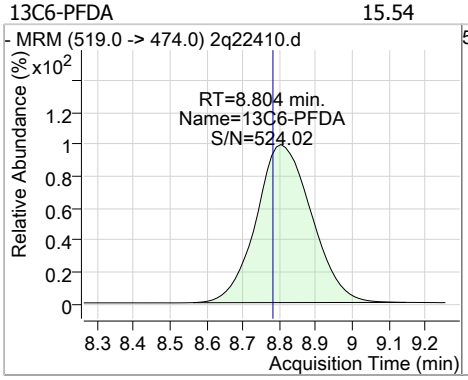
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.39	8.62	0.03	1418	549.0 -> 99.0	53.2	23.4	83.4

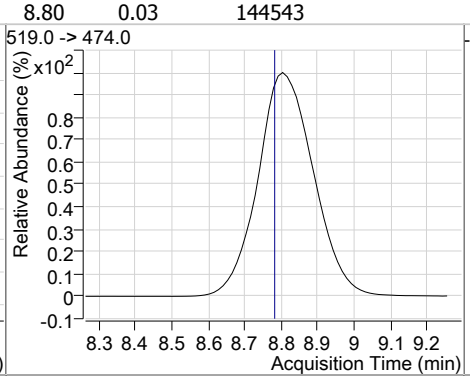


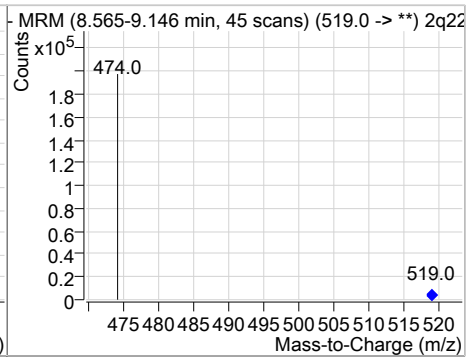




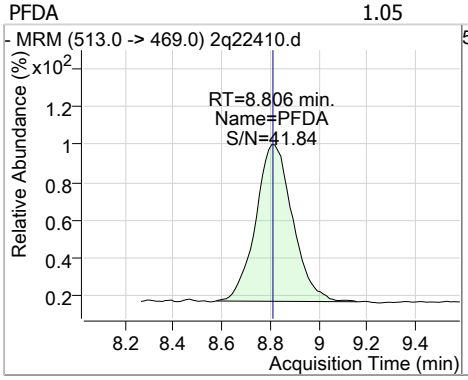
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.54	8.80	0.03	144543				

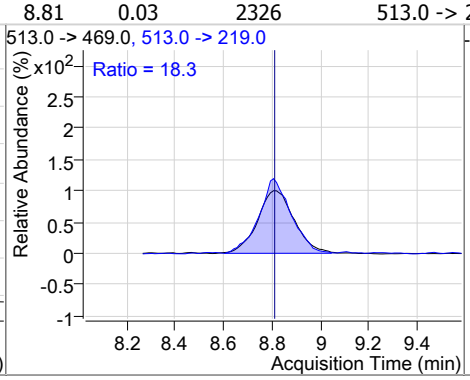


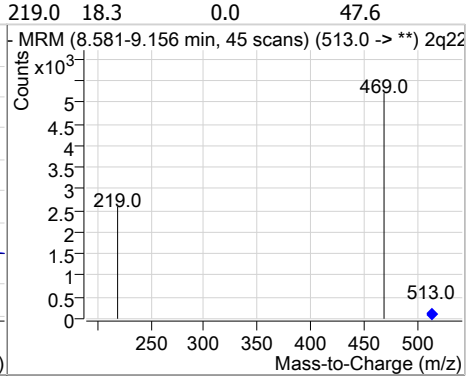




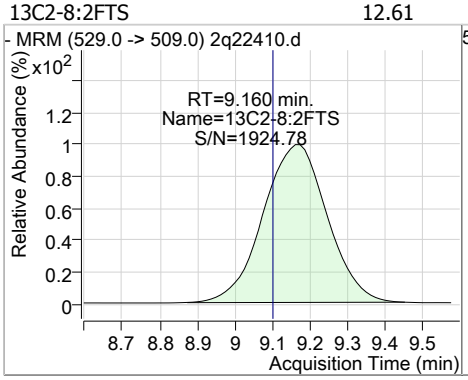
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.05	8.81	0.03	2326	513.0 -> 219.0	18.3	0.0	47.6

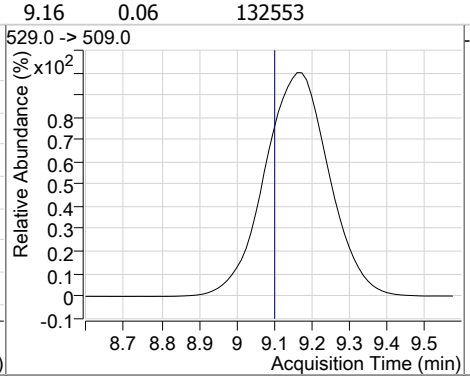


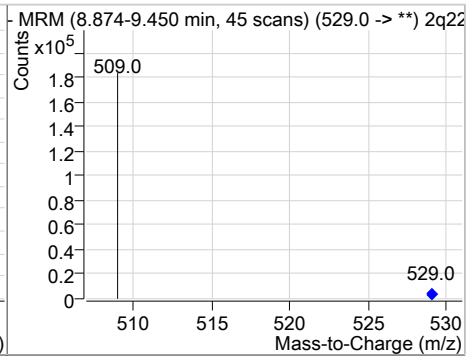




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	12.61	9.16	0.06	132553				

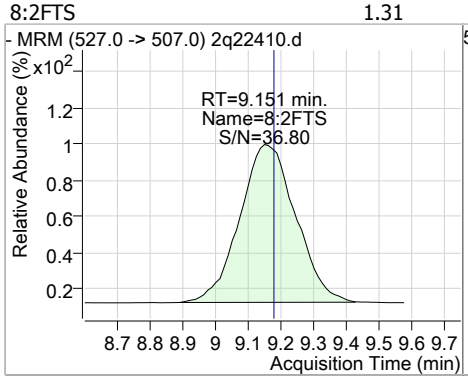


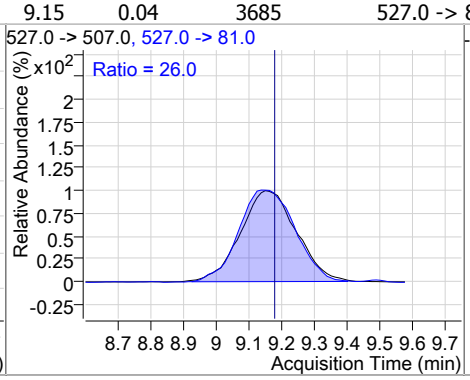


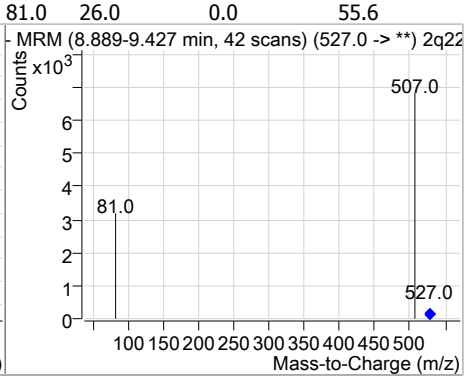


Perfluorinated Compounds by LC/MS/MS

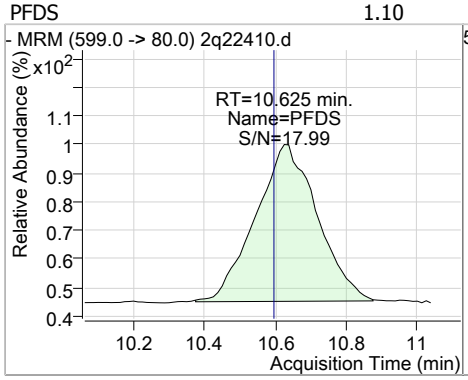
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.31	9.15	0.04	3685	527.0 -> 81.0	26.0	0.0	55.6

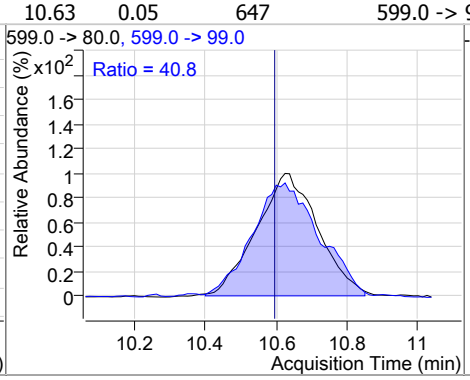


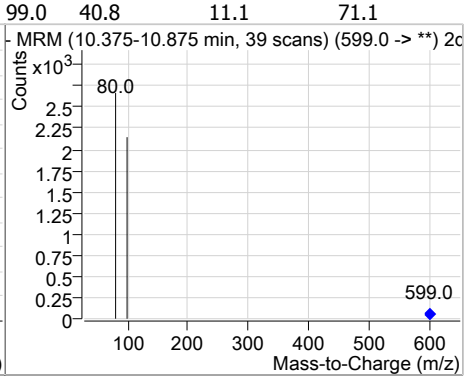




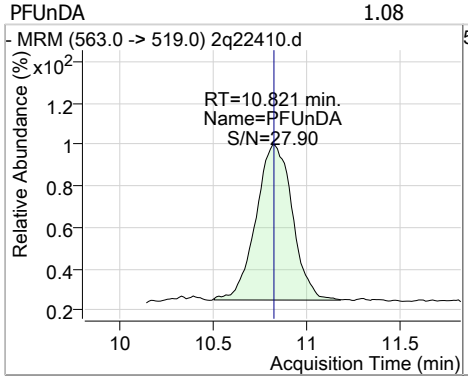
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.10	10.63	0.05	647	599.0 -> 99.0	40.8	11.1	71.1

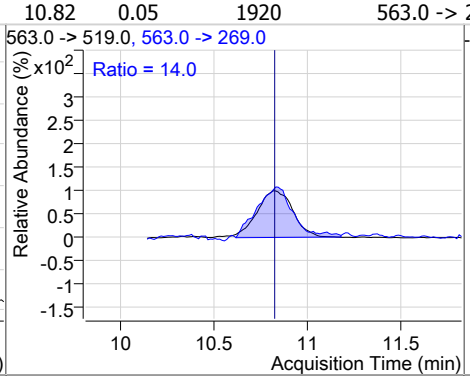


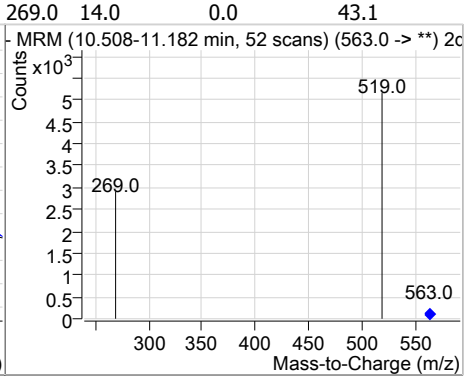




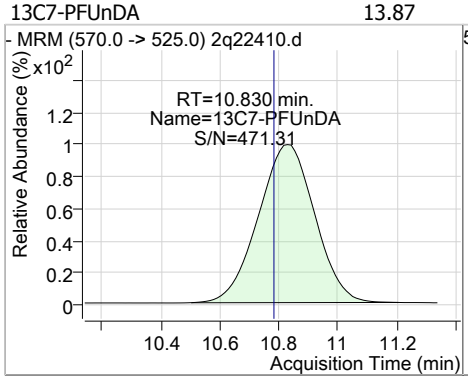
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.08	10.82	0.05	1920	563.0 -> 269.0	14.0	0.0	43.1

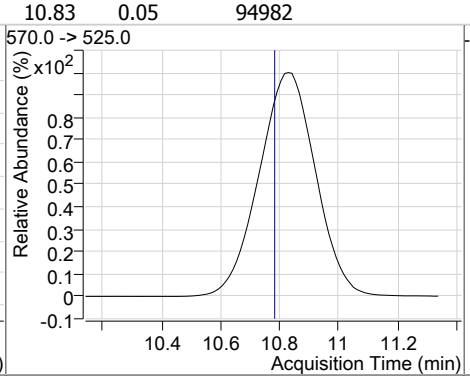


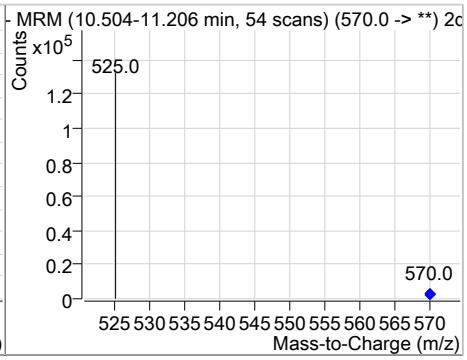




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.87	10.83	0.05	94982				

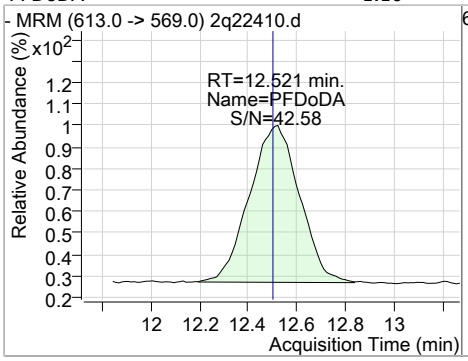


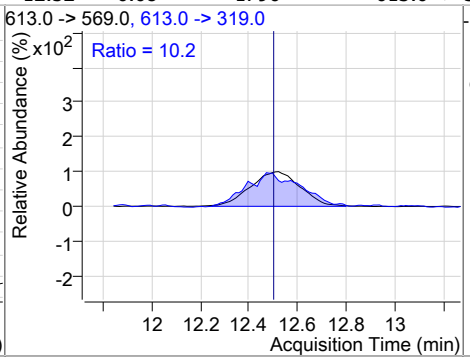


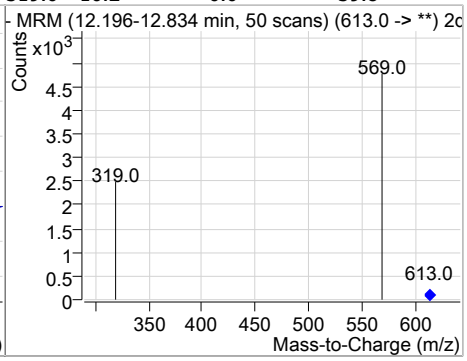


Perfluorinated Compounds by LC/MS/MS

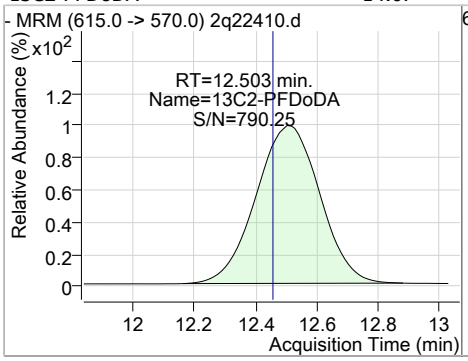
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.10	12.52	0.08	1796	613.0 -> 319.0	10.2	0.0	39.8

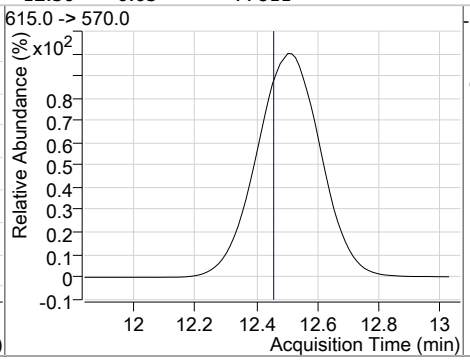


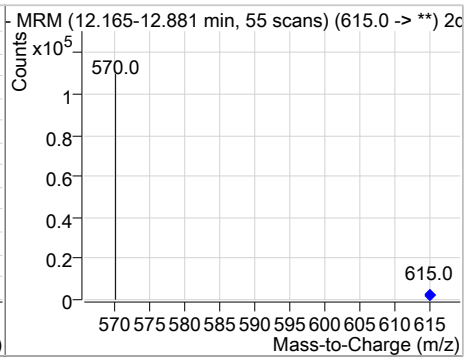




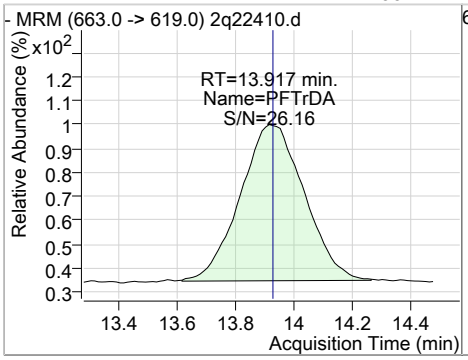
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	14.07	12.50	0.05	77811				

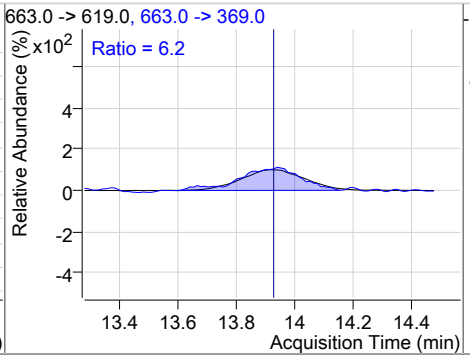


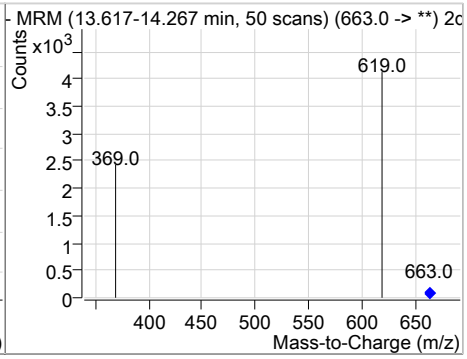




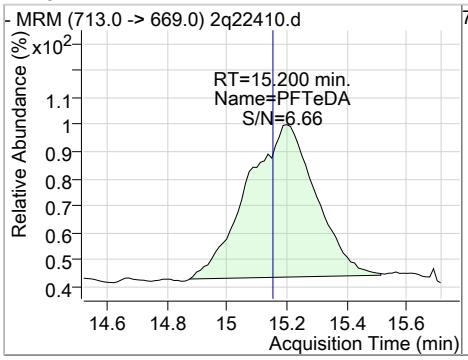
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.06	13.92	0.04	1311	663.0 -> 369.0	6.2	0.0	35.8

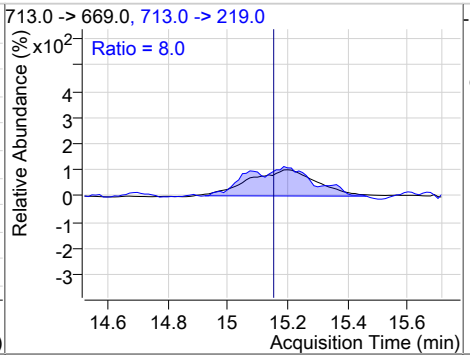


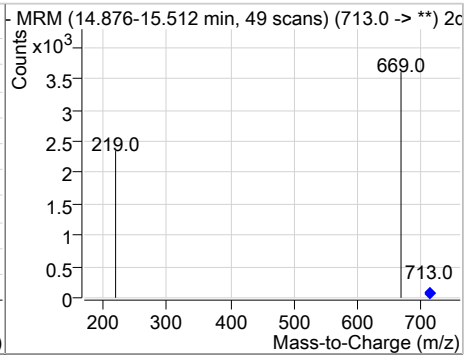




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.12	15.20	0.10	945	713.0 -> 219.0	8.0	0.0	37.4

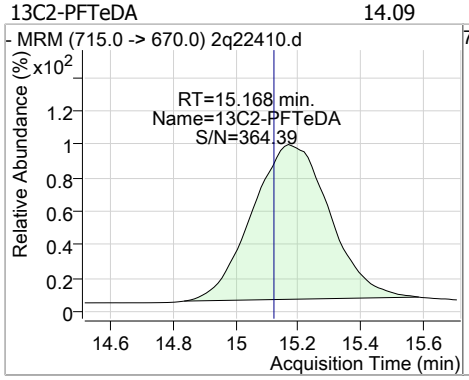


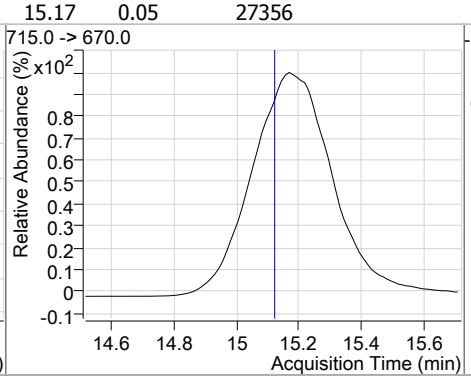


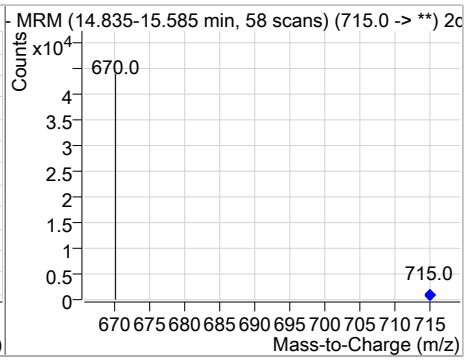


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	14.09	15.17	0.05	27356				







Manual Integration Approval Summary

Sample Number: S2Q352-CC350
Lab FileID: 2Q22410.D
Injection Time: 10/19/18 19:21
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 12:40 Natasha Gumtie
Supervisor approved: 10/22/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/22/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22411.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 7:42:25 PM
Sample Name : cc350-20
Vial : Vial 7
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op71956,S2Q352,130,,,1.0,1,water

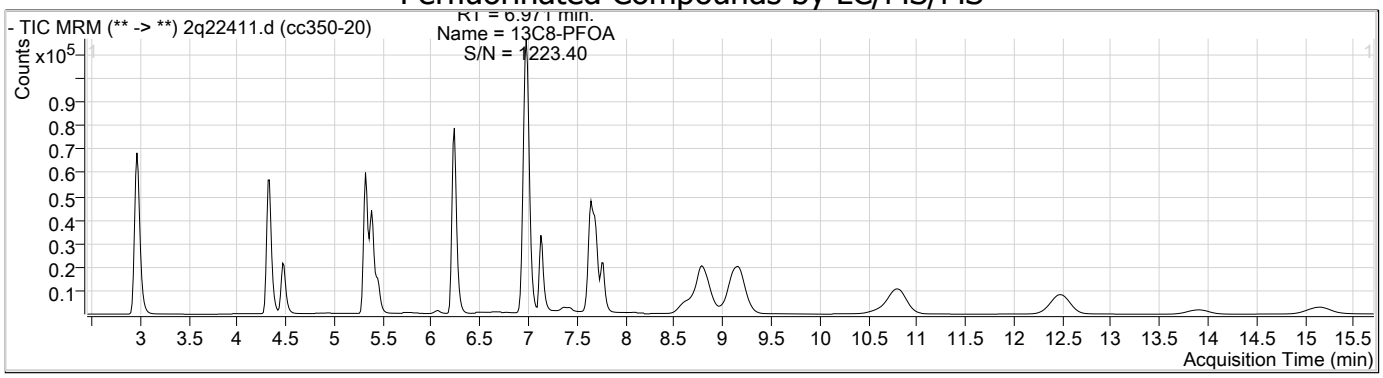
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	106407	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	44481	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	234917	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	100860	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	94209	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	108044	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	83791	20.00	µg/L	0.013
M9-PFNA	7.690	472.0 -> 427.0	78625	20.00	µg/L	0.013
M6-PFDA	8.791	519.0 -> 474.0	145238	20.00	µg/L	0.013
M7-PFUnDA	10.805	570.0 -> 525.0	95379	20.00	µg/L	0.025
M2-PFDoDA	12.478	615.0 -> 570.0	78894	20.00	µg/L	0.025
M2-PFTeDA	15.156	715.0 -> 670.0	29163	20.00	µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	62714	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	23014	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	28356	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	27862	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	108478	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	135390	20.00	µg/L	0.013
M2-8:2FTS	9.147	529.0 -> 509.0	143984	20.00	µg/L	0.050
M3-MeFOSAA	7.645	573.0 -> 419.0	31695	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	108477	16.47	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.4%		
13C2-6:2FTS	6.993	429.0 -> 409.0	135351	15.33	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.6%		
13C2-8:2FTS	9.147	529.0 -> 509.0	142577	13.57	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.8%		
13C2-PFDoDA	12.478	615.0 -> 570.0	78507	14.20	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.0%		
13C2-PFTeDA	15.156	715.0 -> 670.0	28371	14.62	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.1%		
13C3-PFBS	4.481	302.0 -> 99.0	23004	16.45	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.2%		
13C3-PFHxS	6.235	402.0 -> 99.0	28371	15.93	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.7%		
13C4-PFBA	2.966	217.0 -> 172.0	234836	17.47	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.3%		
13C4-PFHpA	6.242	367.0 -> 322.0	108028	16.79	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.0%		
13C5-PFHxA	5.390	318.0 -> 273.0	94199	17.11	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.6%		
13C5-PFPeA	4.337	268.0 -> 223.0	100845	17.64	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.2%		
13C6-PFDA	8.791	519.0 -> 474.0	144684	15.55	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.8%		

Perfluorinated Compounds by LC/MS/MS

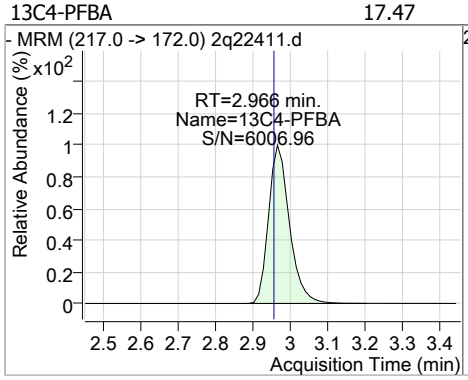
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.805	570.0 -> 525.0	95037	13.88	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.4%			
13C8-FOSA	7.129	506.0 -> 78.0	62703	16.16	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.8%			
13C8-PFOA	6.971	421.0 -> 376.0	83792	15.59	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.0%			
13C8-PFOS	7.634	507.0 -> 99.0	27854	15.35	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.7%			
13C9-PFNA	7.690	472.0 -> 427.0	78567	15.98	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.9%			
d3-MeFOSAA	7.645	573.0 -> 419.0	31701	13.63	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 68.2%			
M2-PFOA	6.973	415.0 -> 370.0	106345	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%			
M4-PFOS	7.636	503.0 -> 80.0	44478	20.01	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.325	327.0 -> 307.0	63391	25.15	µg/L		99
6:2FTS	6.995	427.0 -> 407.0	70679	25.09	µg/L		97
8:2FTS	9.151	527.0 -> 507.0	76581	25.31	µg/L		96
EtFOSAA	7.769	584.0 -> 419.0	16070	22.24	µg/L		98
FOSA	7.132	498.0 -> 78.0	32970	22.20	µg/L		99
MeFOSAA	7.646	570.0 -> 419.0	17679	21.86	µg/L		92
PFBA	2.974	213.0 -> 169.0	28960	20.56	µg/L		100
PFBS	4.472	299.0 -> 80.0	36460	21.91	µg/L		99
PFDA	8.794	513.0 -> 469.0	48946	22.12	µg/L		100
PFDoDA	12.471	613.0 -> 569.0	36076	22.08	µg/L		100
PFDS	10.613	599.0 -> 80.0	13339	22.95	µg/L		98
PFHpA	6.245	363.0 -> 319.0	88328	21.52	µg/L		99
PFHpS	6.941	449.0 -> 80.0	24835	21.66	µg/L		98
PFHxA	5.393	313.0 -> 269.0	32479	21.53	µg/L		100
PFHxS	6.238	399.0 -> 80.0	30369	21.96	µg/L	m	100
PFNA	7.691	463.0 -> 419.0	44113	20.41	µg/L		98
PFNS	8.608	549.0 -> 80.0	27280	27.12	µg/L		97
PFOA	6.974	413.0 -> 369.0	46052	21.24	µg/L		97
PFOS	7.637	499.0 -> 80.0	26101	21.85	µg/L	m	98
PFPeA	4.328	263.0 -> 219.0	102143	21.60	µg/L		100
PFPeS	5.446	349.0 -> 80.0	25467	23.63	µg/L		99
PFTeDA	15.150	713.0 -> 669.0	18684	21.68	µg/L		100
PFTrDA	13.904	663.0 -> 619.0	27038	21.44	µg/L		100
PFUnDA	10.809	563.0 -> 519.0	38880	21.94	µg/L		97

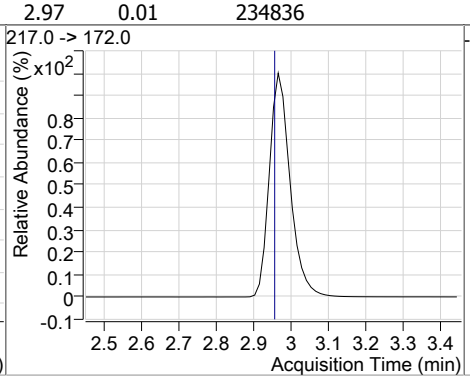
 # = Qualifier out of range, m = manually integrated, + = Area summed

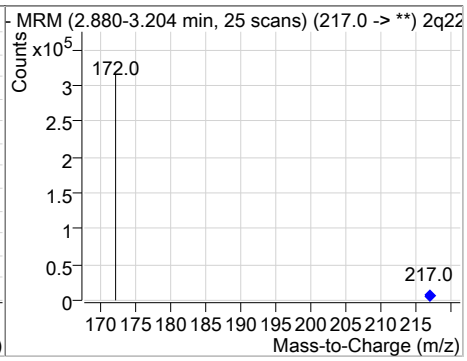
Perfluorinated Compounds by LC/MS/MS



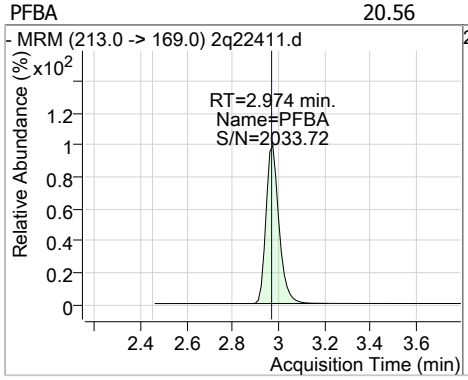
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.47	2.97	0.01	234836				

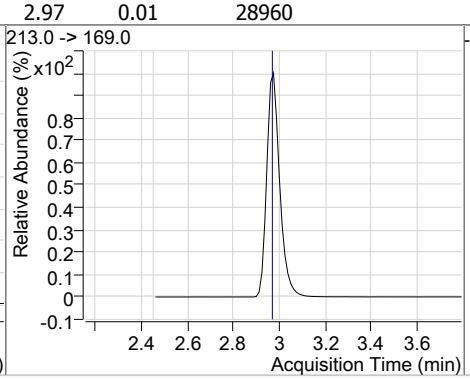


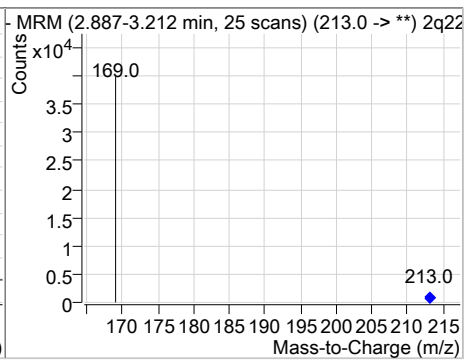




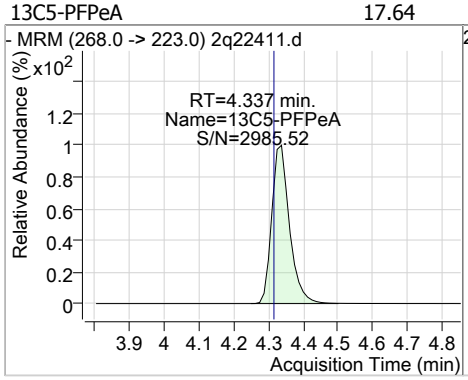
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.56	2.97	0.01	28960				

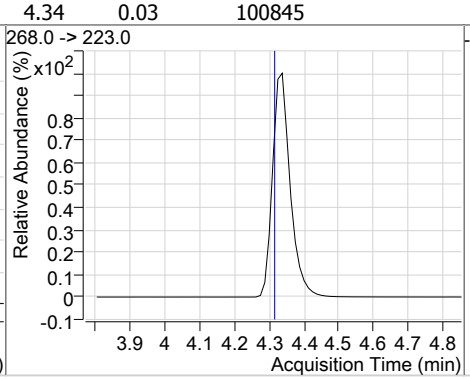


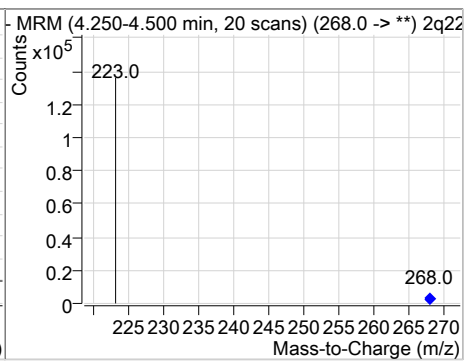




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.64	4.34	0.03	100845				

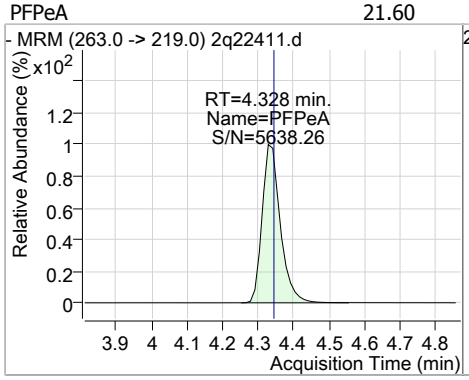


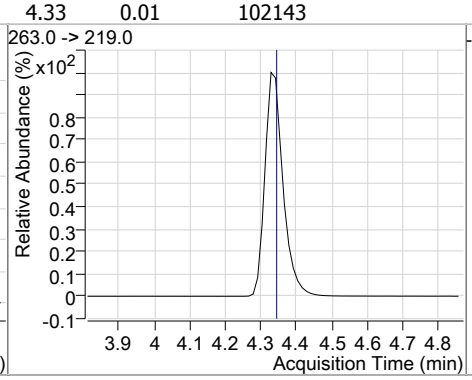


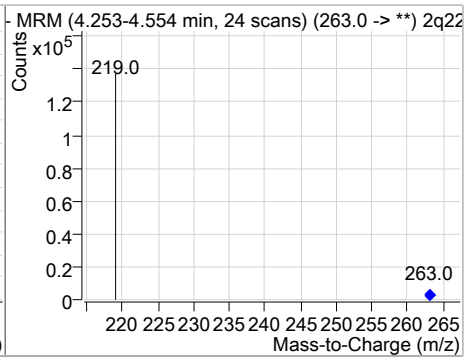


Perfluorinated Compounds by LC/MS/MS

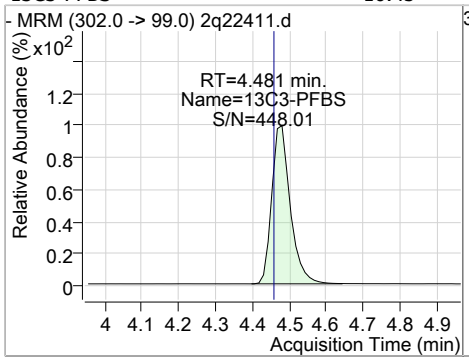
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	21.60	4.33	0.01	102143				

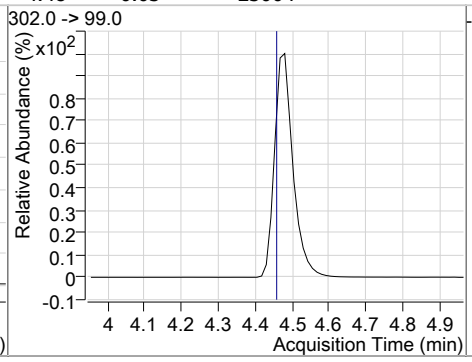


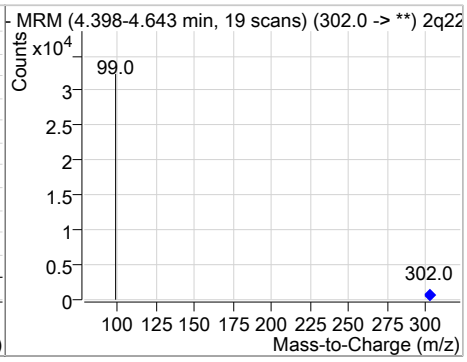




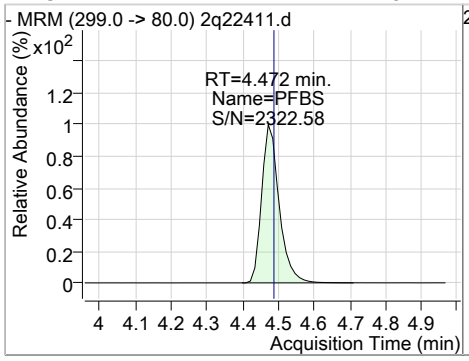
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	16.45	4.48	0.03	23004				

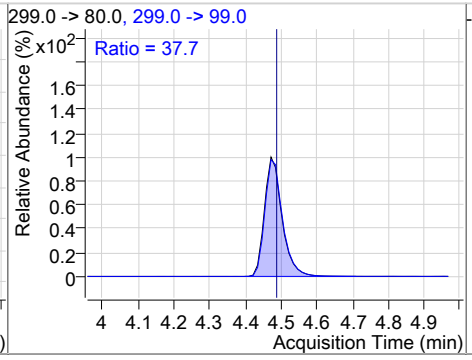


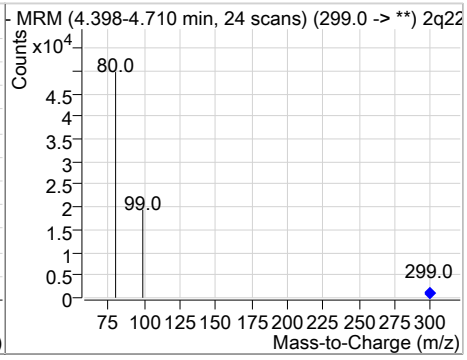




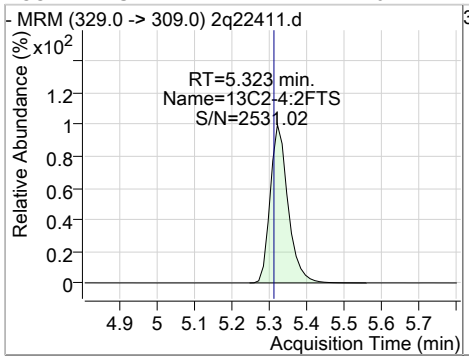
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.91	4.47	0.01	36460	299.0 -> 99.0	37.7	8.1	68.1

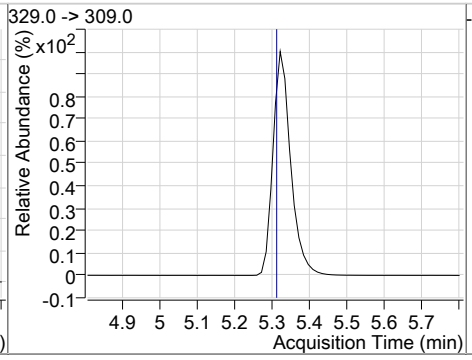


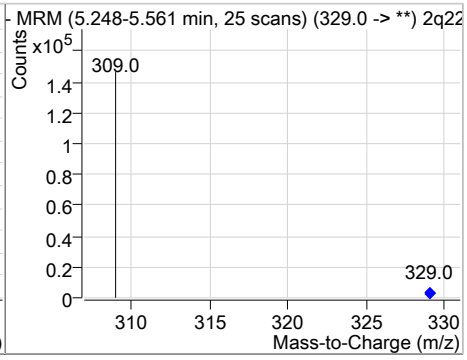




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.47	5.32	0.01	108477				

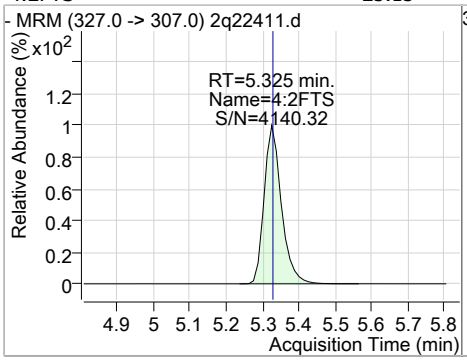


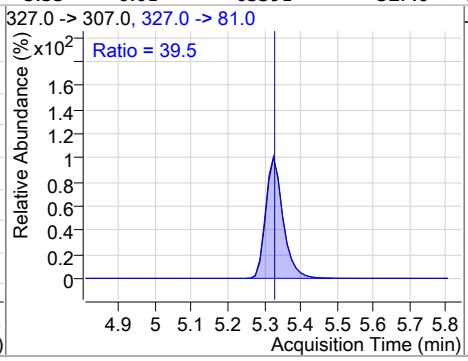


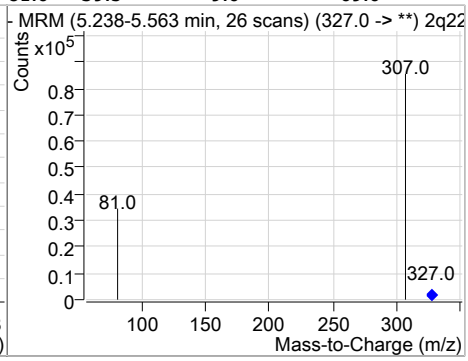


Perfluorinated Compounds by LC/MS/MS

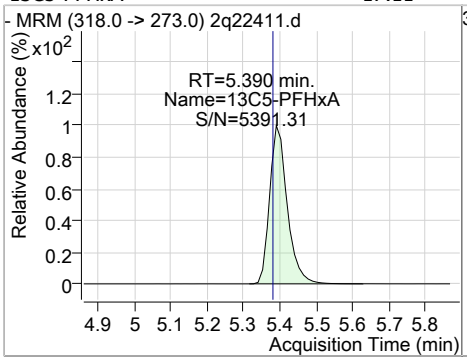
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	25.15	5.33	0.01	63391	327.0 -> 81.0	39.5	9.0	69.0

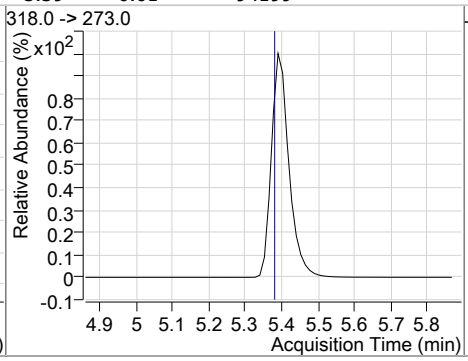


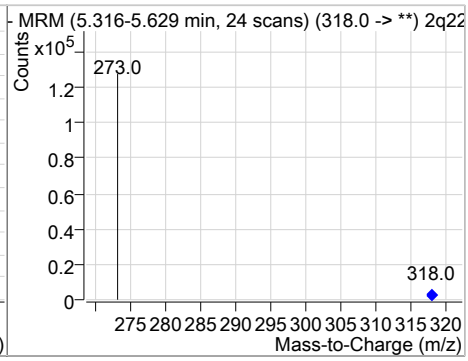




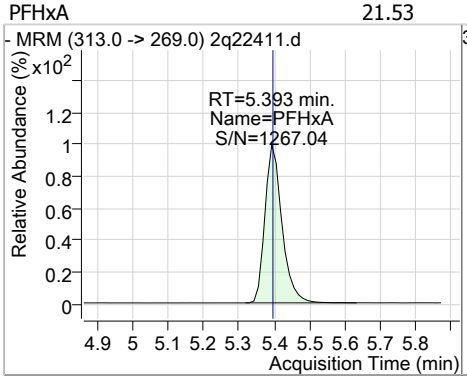
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.11	5.39	0.01	94199				

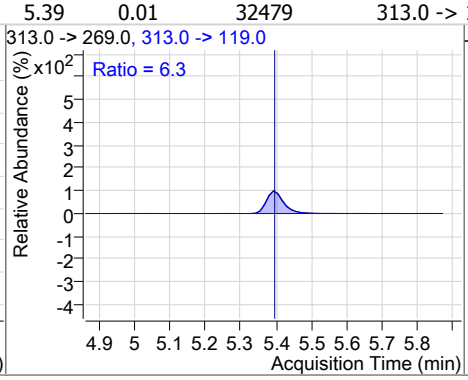


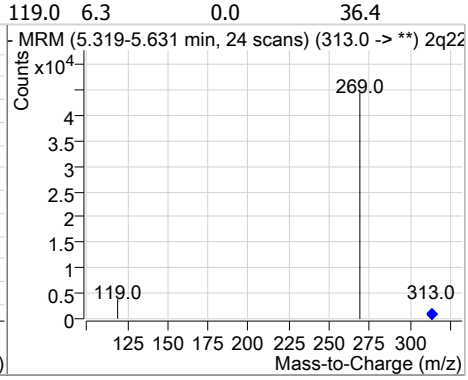




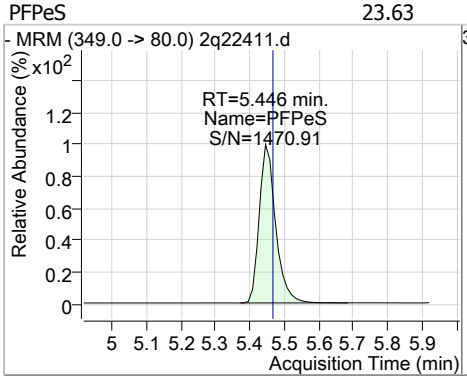
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.53	5.39	0.01	32479	313.0 -> 119.0	6.3	0.0	36.4

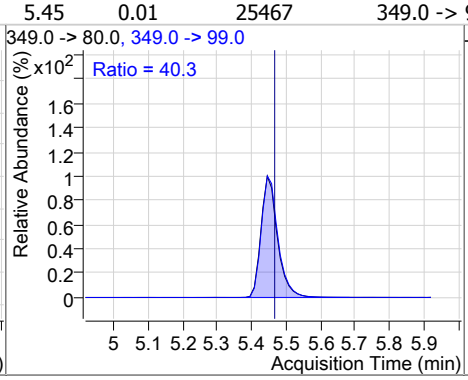


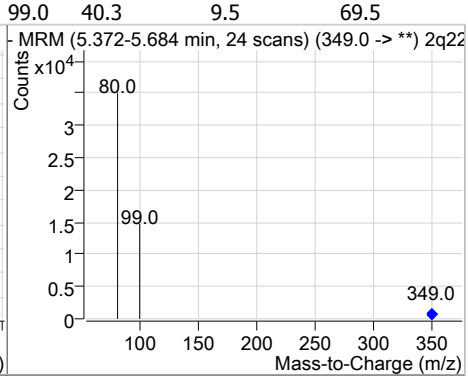




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	23.63	5.45	0.01	25467	349.0 -> 99.0	40.3	9.5	69.5

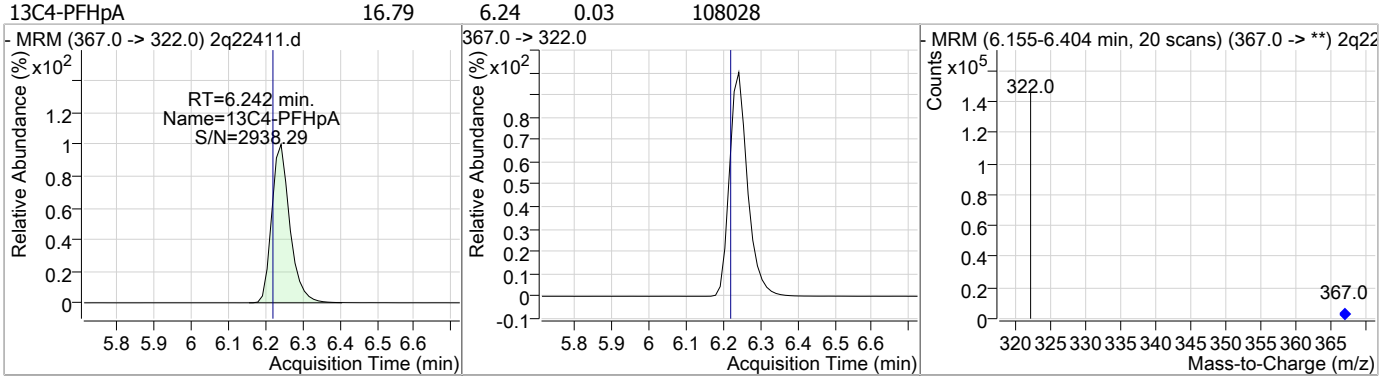




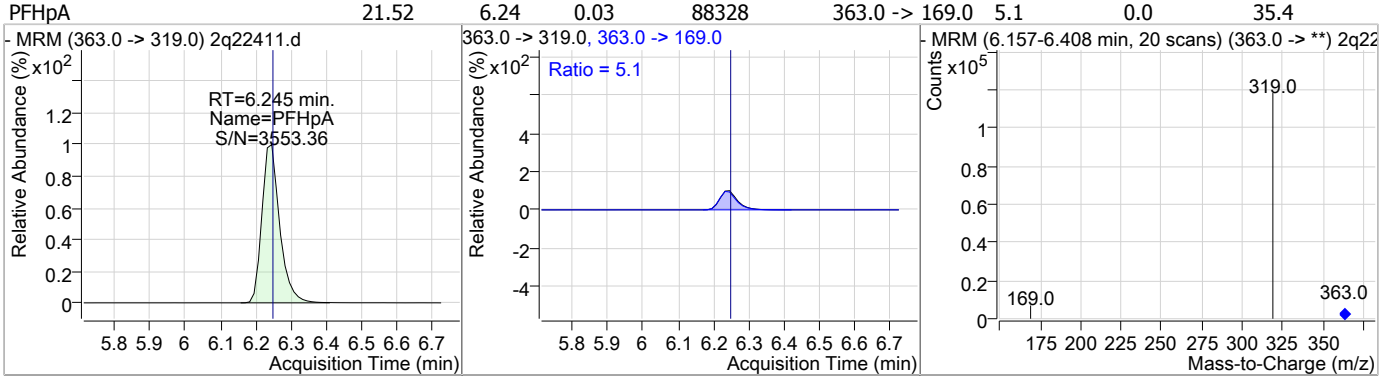


Perfluorinated Compounds by LC/MS/MS

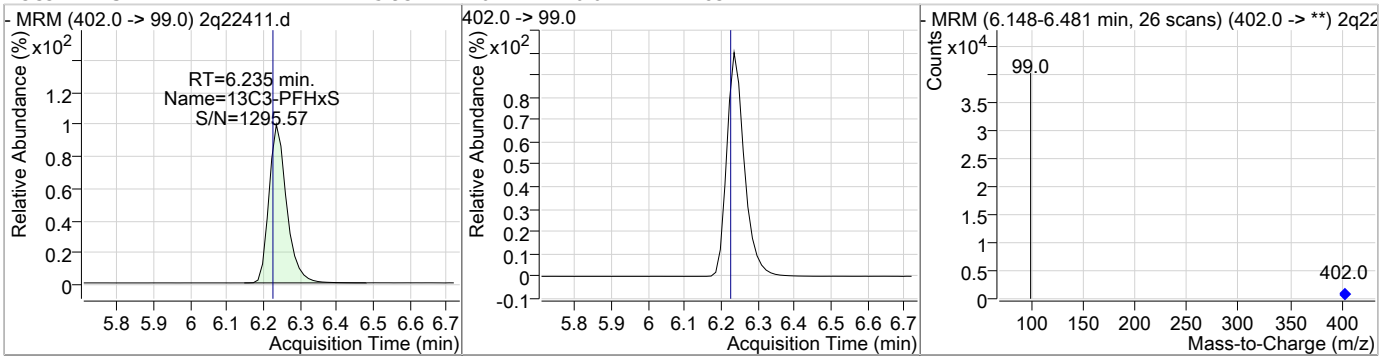
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.79	6.24	0.03	108028				



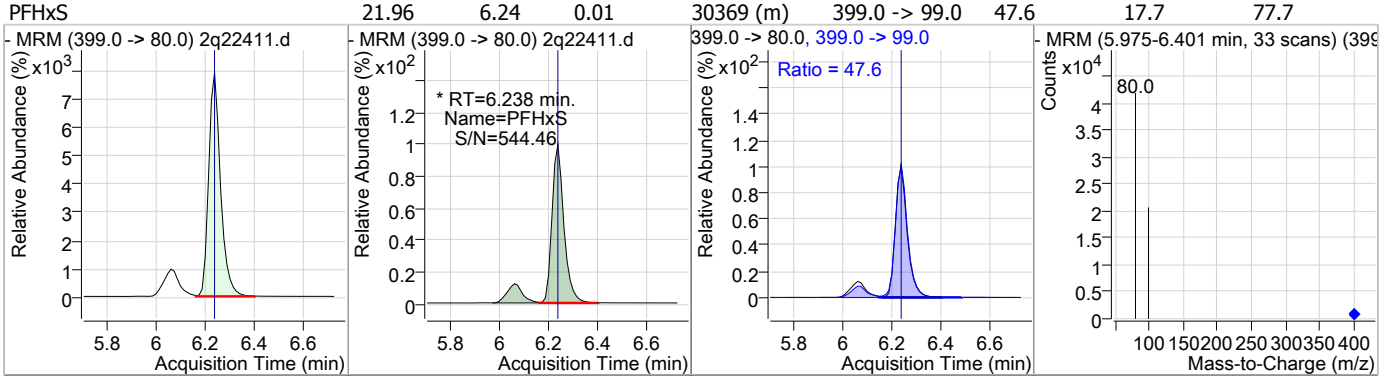
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.52	6.24	0.03	88328	363.0 -> 169.0	5.1	0.0	35.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	15.93	6.24	0.01	28371				

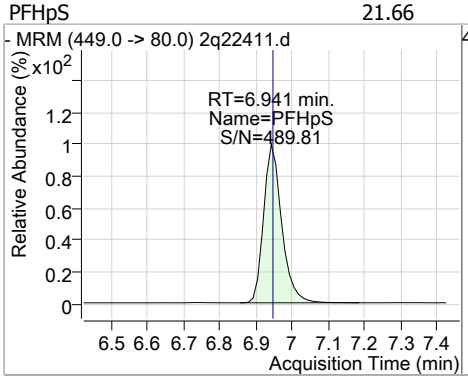


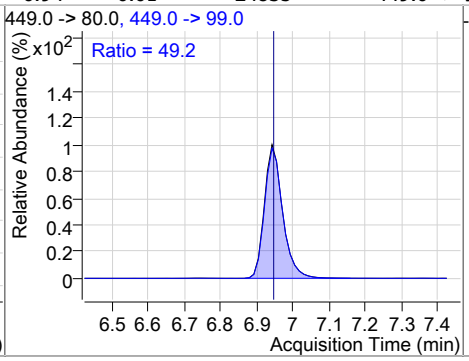
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.96	6.24	0.01	30369 (m)	399.0 -> 99.0	47.6	17.7	77.7

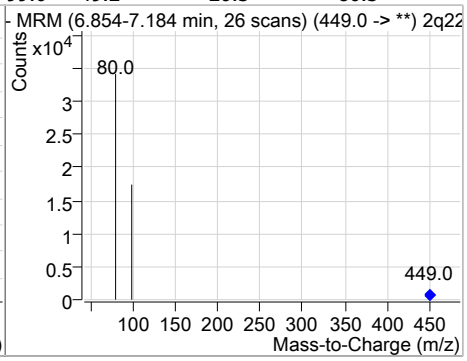


Perfluorinated Compounds by LC/MS/MS

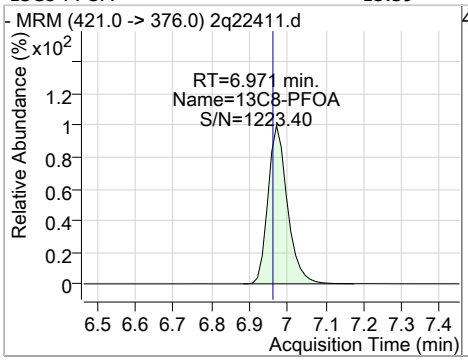
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	21.66	6.94	0.01	24835	449.0 -> 99.0	49.2	20.3	80.3

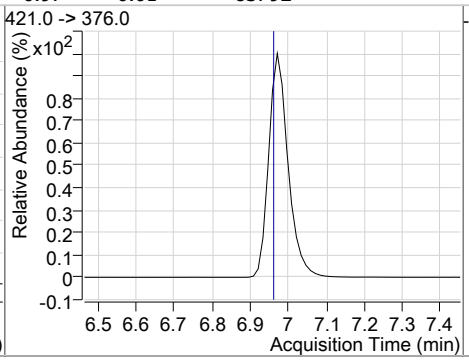


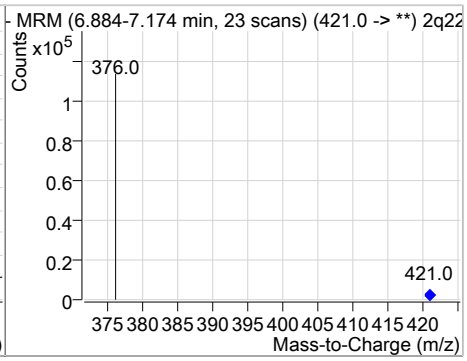




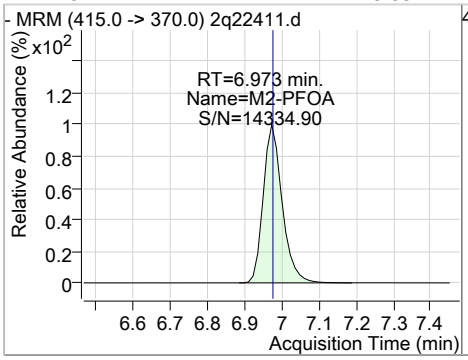
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.59	6.97	0.01	83792				

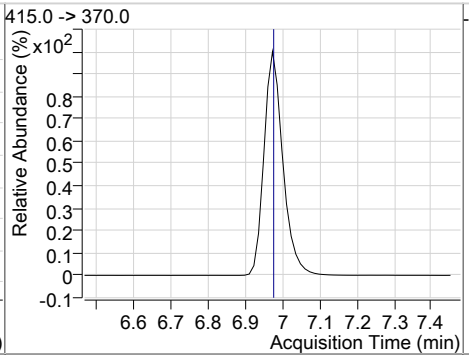


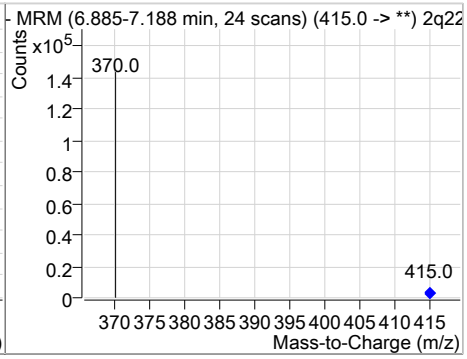




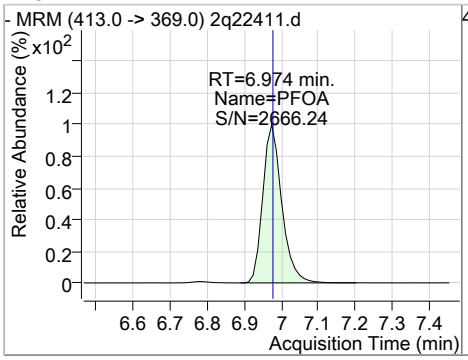
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.97	0.01	106345				

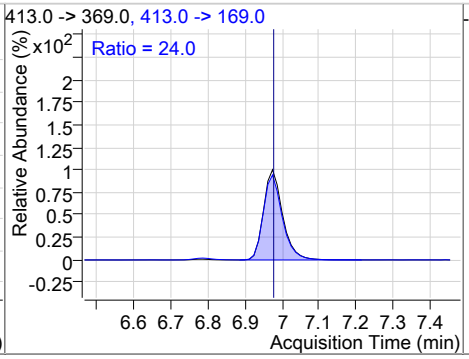


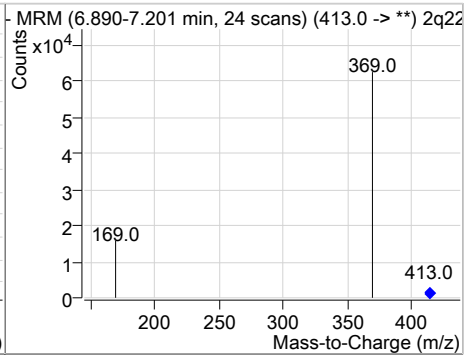




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.24	6.97	0.01	46052	413.0 -> 169.0	24.0	0.0	55.3

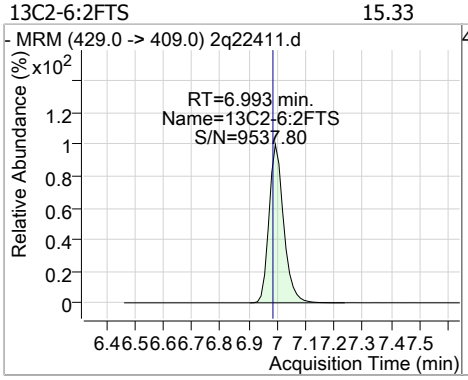


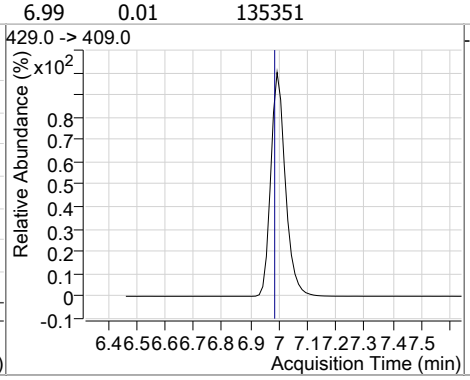


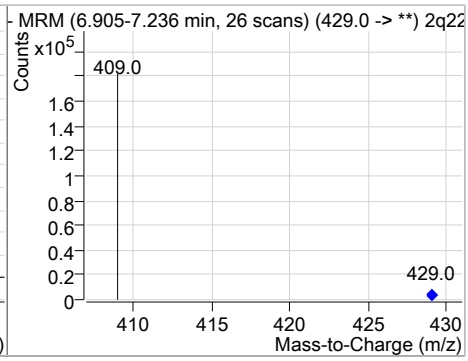


Perfluorinated Compounds by LC/MS/MS

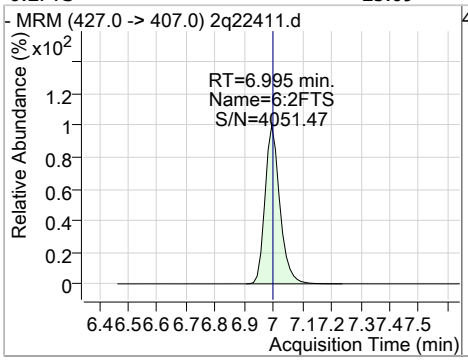
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.33	6.99	0.01	135351				

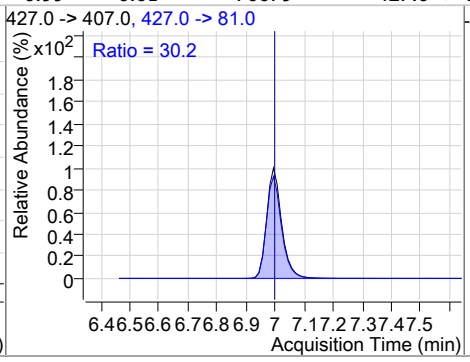


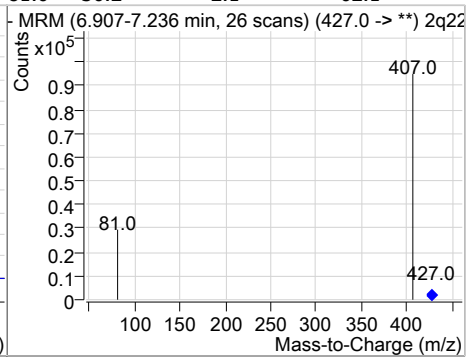




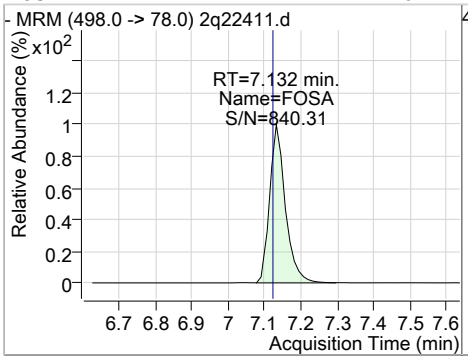
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	25.09	6.99	0.01	70679	427.0 -> 81.0	30.2	2.1	62.1

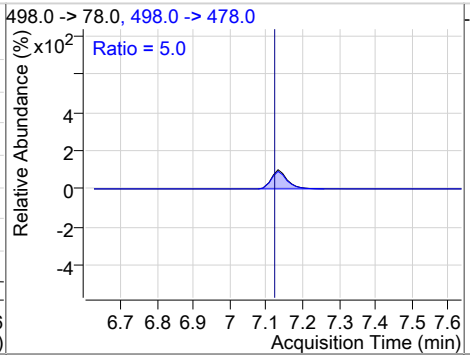


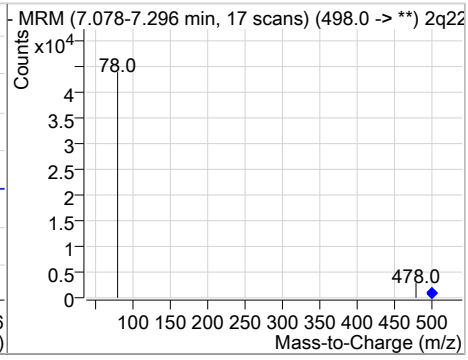




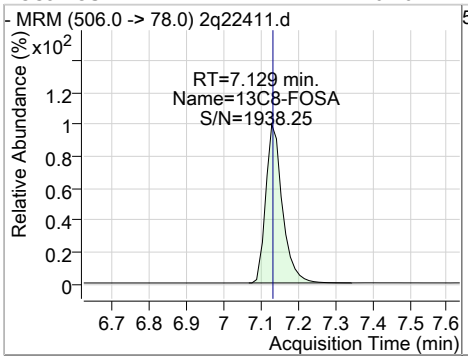
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	22.20	7.13	0.01	32970	498.0 -> 478.0	5.0	0.0	35.4

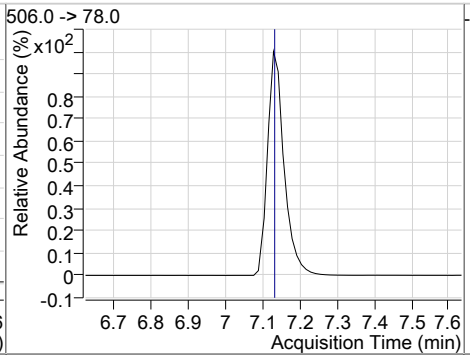


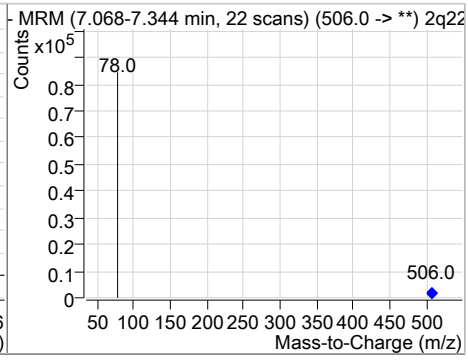




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	16.16	7.13	0.00	62703				

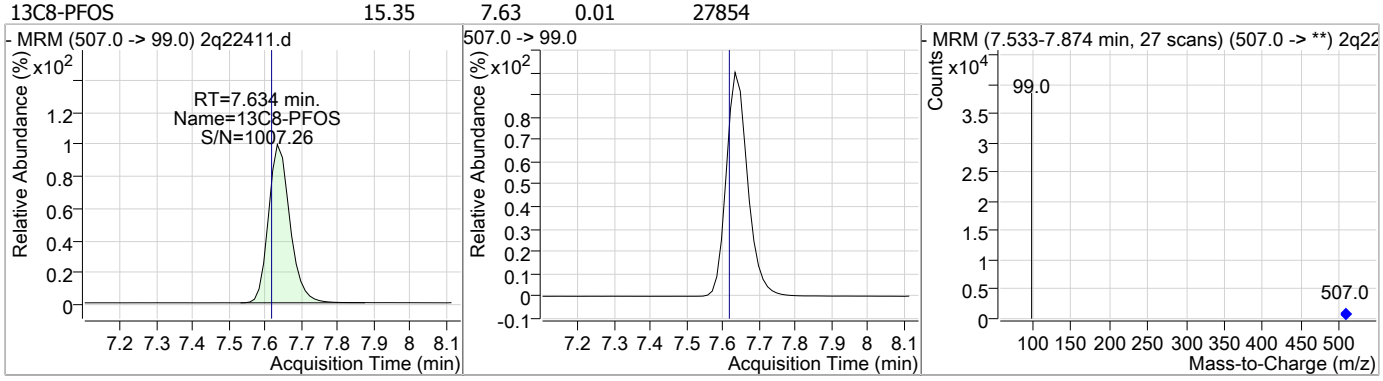




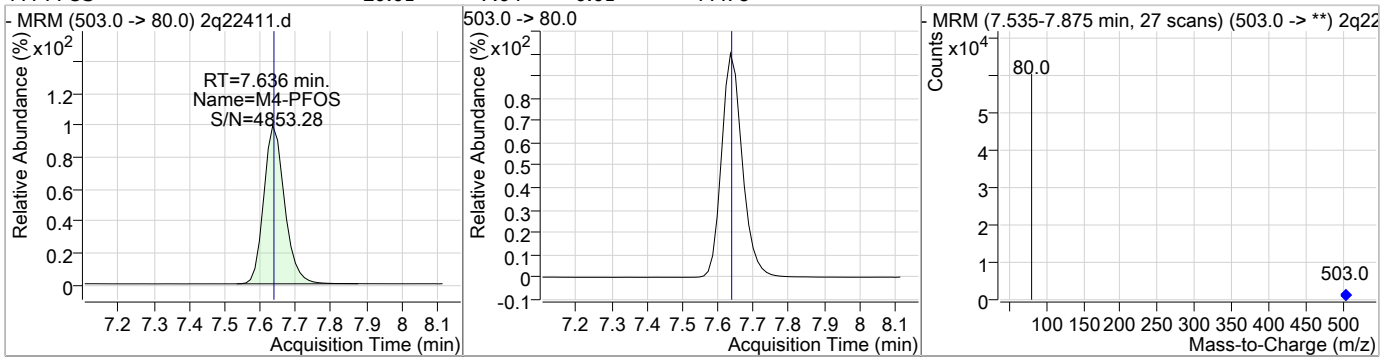


Perfluorinated Compounds by LC/MS/MS

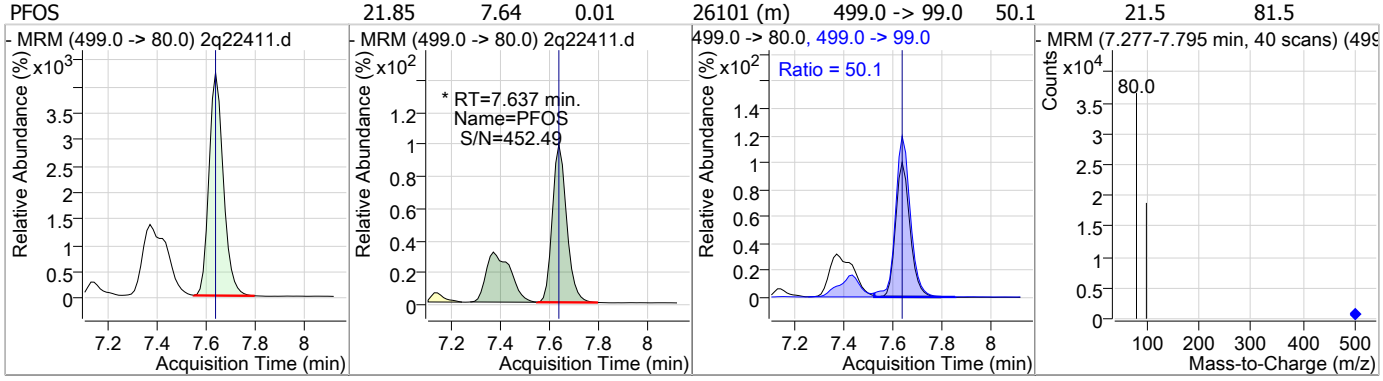
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.35	7.63	0.01	27854				



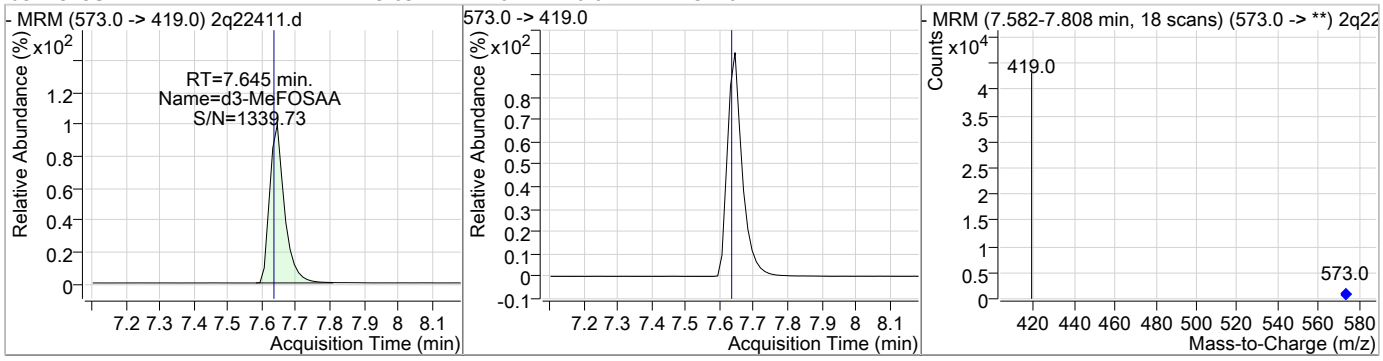
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.64	0.01	44478				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.85	7.64	0.01	26101 (m)	499.0 -> 99.0	50.1	21.5	81.5

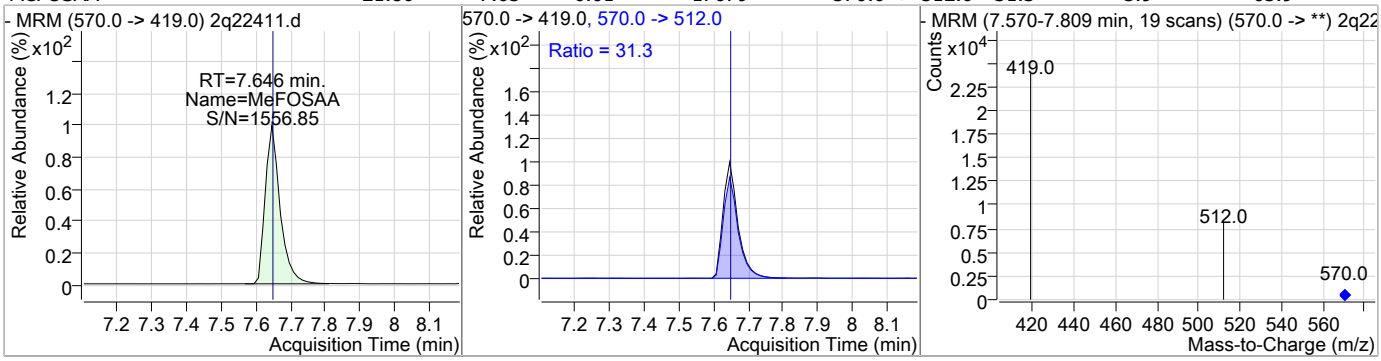


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.63	7.64	0.01	31701				

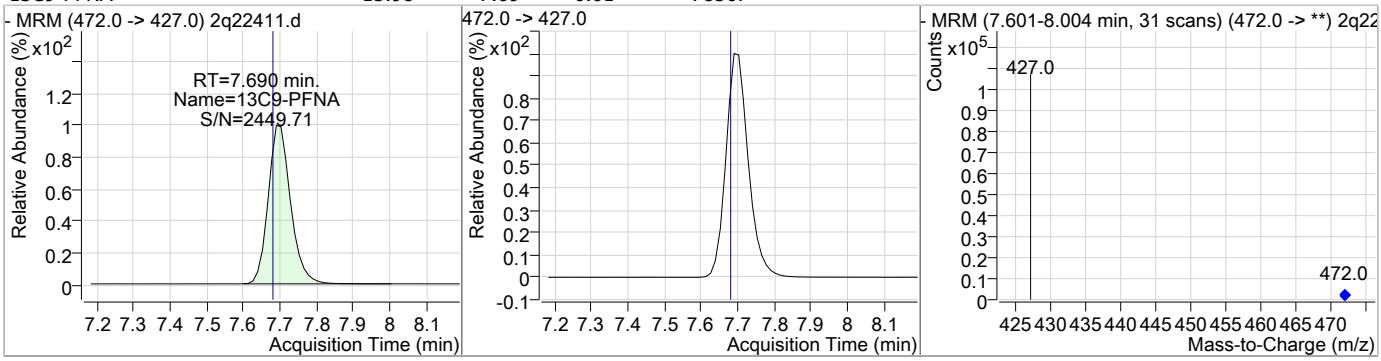


Perfluorinated Compounds by LC/MS/MS

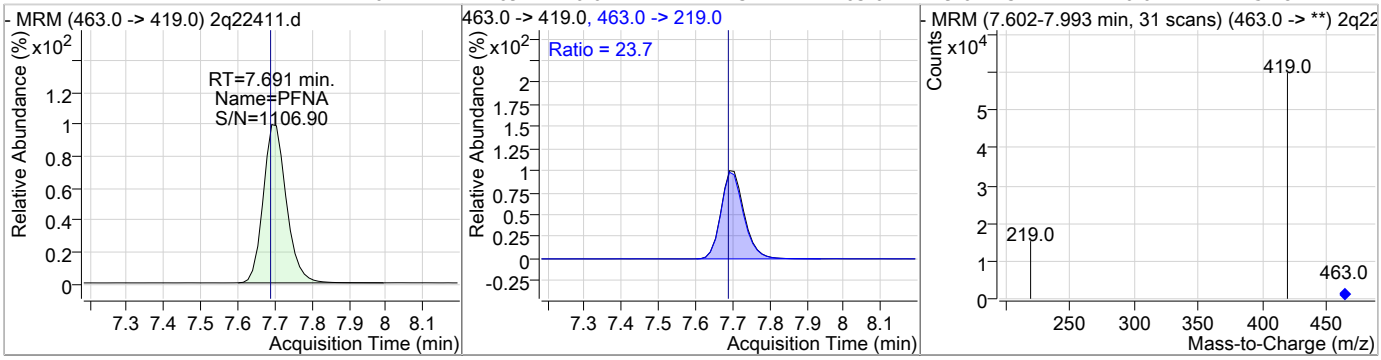
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	21.86	7.65	0.01	17679	570.0 -> 512.0	31.3	5.9	65.9



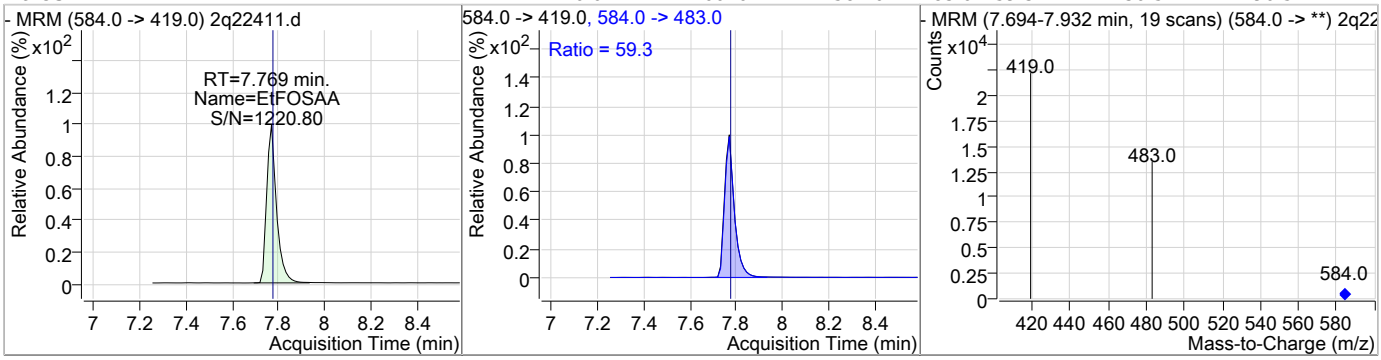
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	15.98	7.69	0.01	78567				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.41	7.69	0.01	44113	463.0 -> 219.0	23.7	0.0	54.8

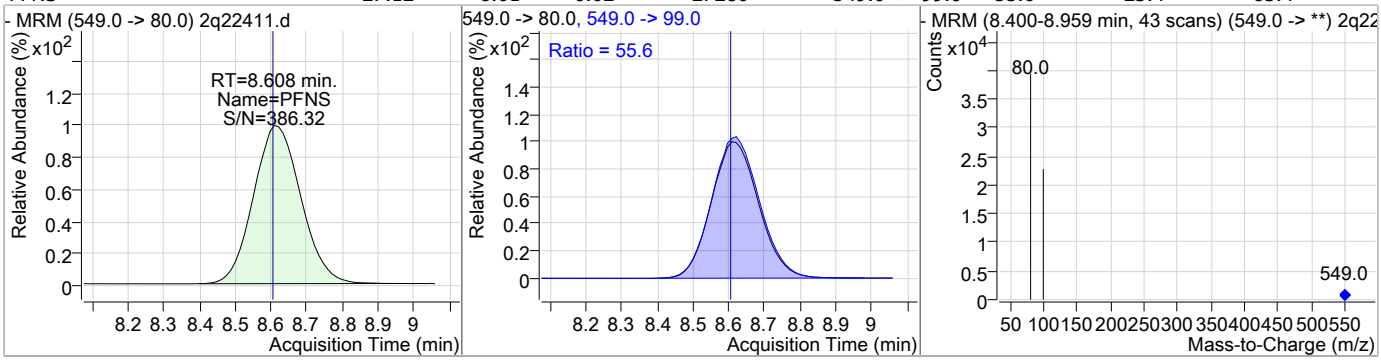


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.24	7.77	0.01	16070	584.0 -> 483.0	59.3	30.5	90.5

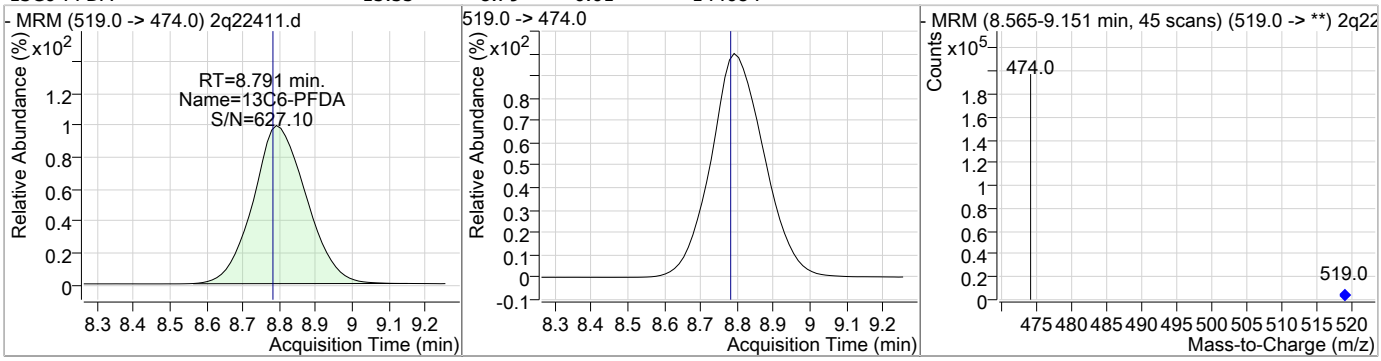


Perfluorinated Compounds by LC/MS/MS

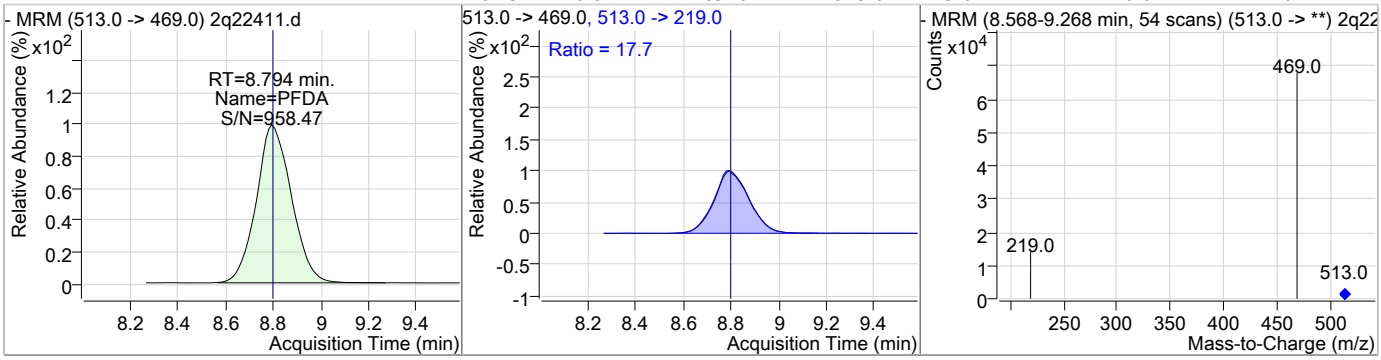
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	27.12	8.61	0.02	27280	549.0 -> 99.0	55.6	23.4	83.4



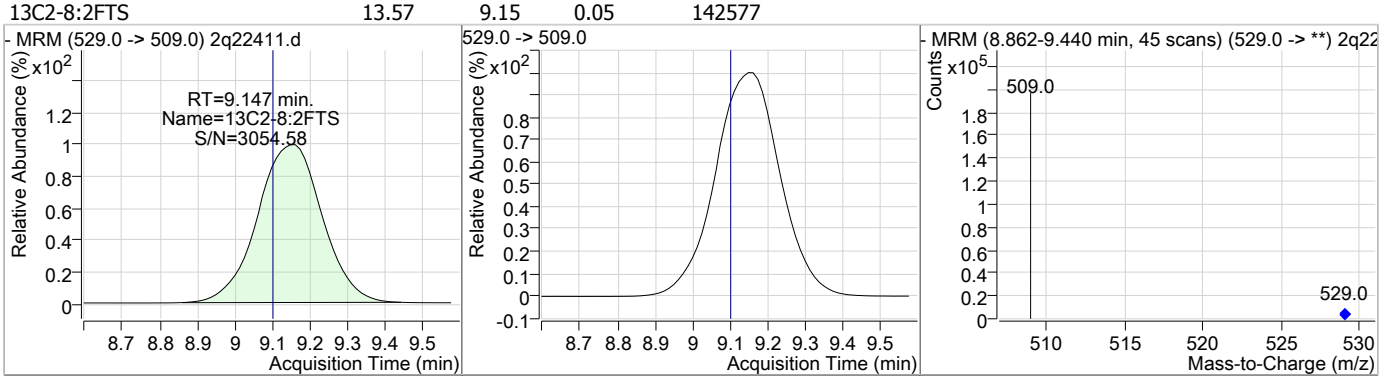
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.55	8.79	0.01	144684				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	22.12	8.79	0.01	48946	513.0 -> 219.0	17.7	0.0	47.6

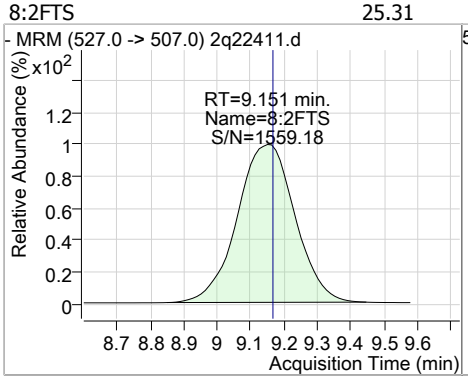


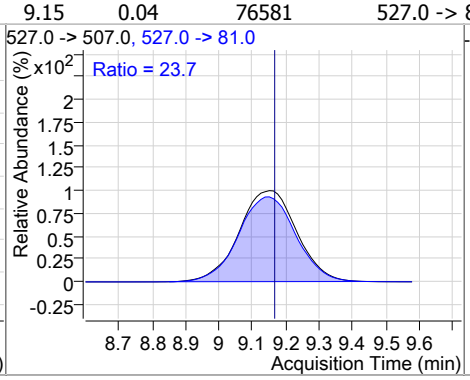
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	13.57	9.15	0.05	142577				

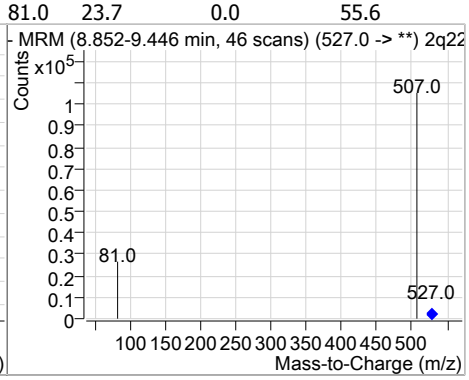


Perfluorinated Compounds by LC/MS/MS

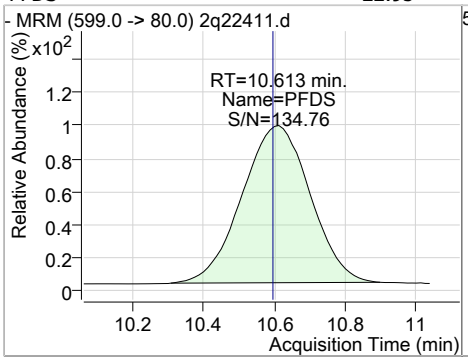
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	25.31	9.15	0.04	76581	527.0 -> 81.0	23.7	0.0	55.6

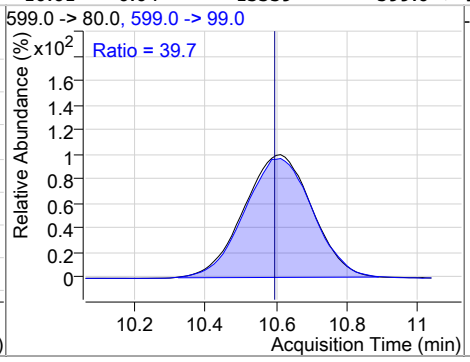


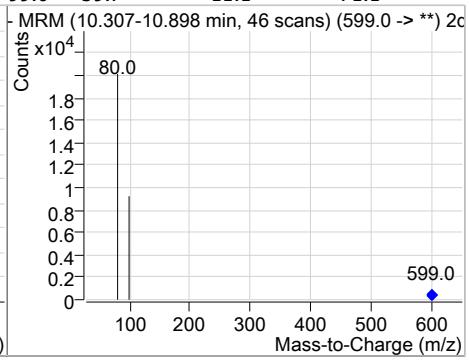




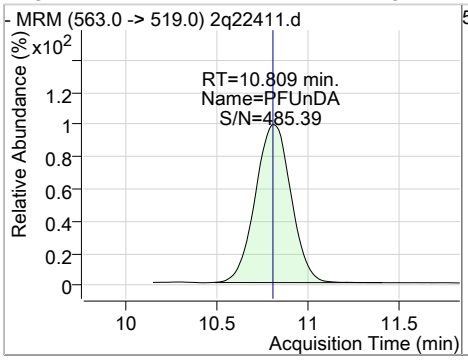
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	22.95	10.61	0.04	13339	599.0 -> 99.0	39.7	11.1	71.1

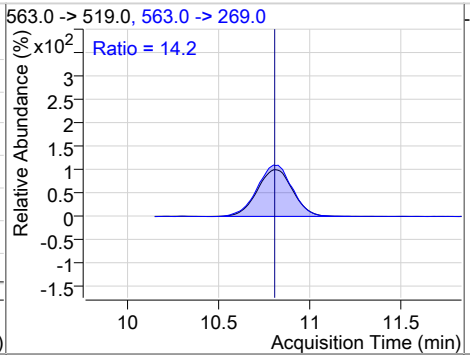


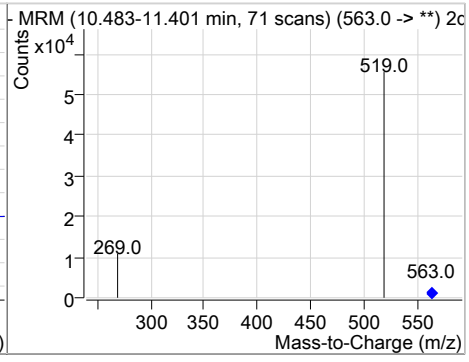




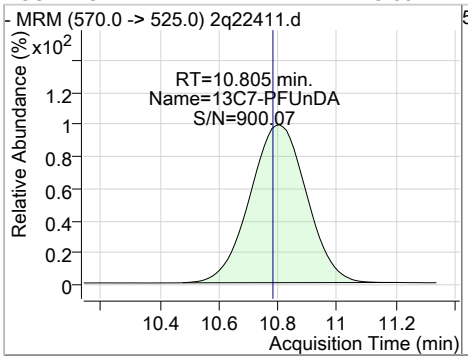
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.94	10.81	0.04	38880	563.0 -> 269.0	14.2	0.0	43.1

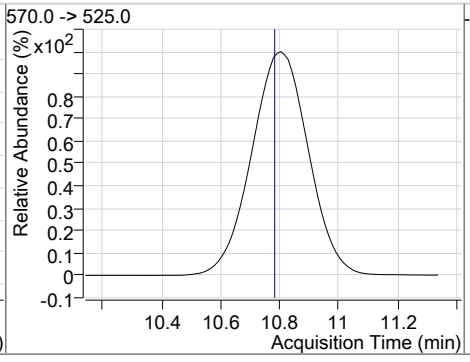


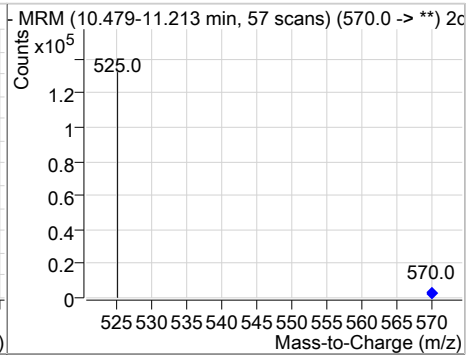




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.88	10.80	0.03	95037				

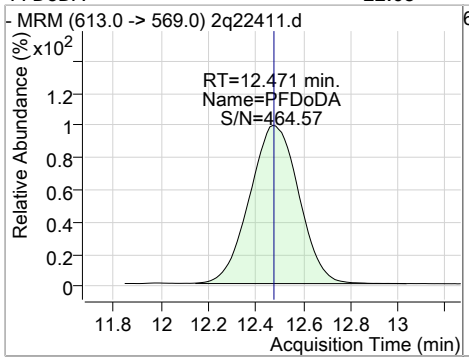


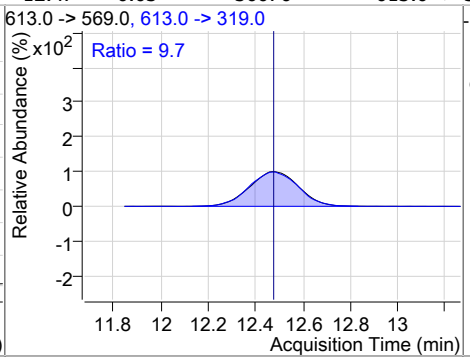


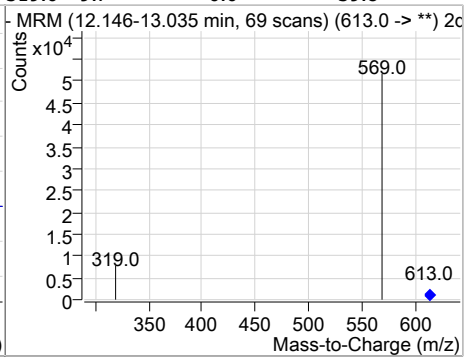


Perfluorinated Compounds by LC/MS/MS

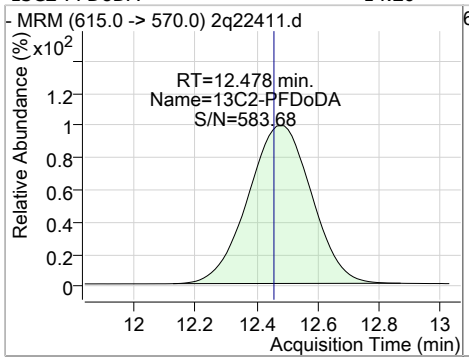
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	22.08	12.47	0.03	36076	613.0 -> 319.0	9.7	0.0	39.8

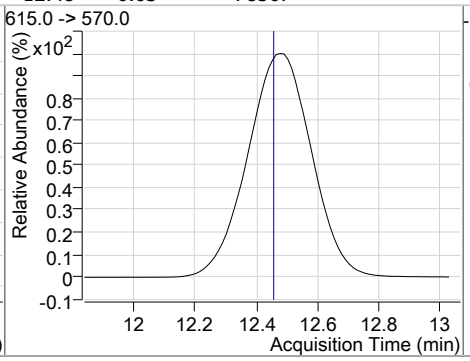


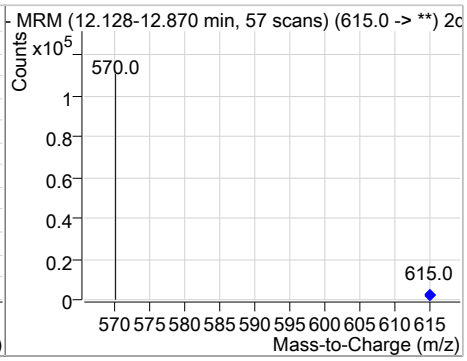




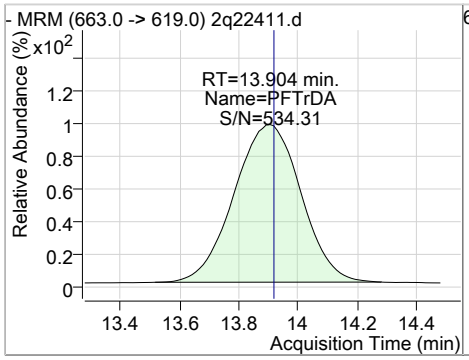
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	14.20	12.48	0.03	78507				

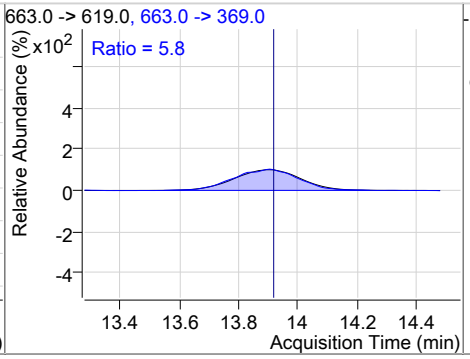


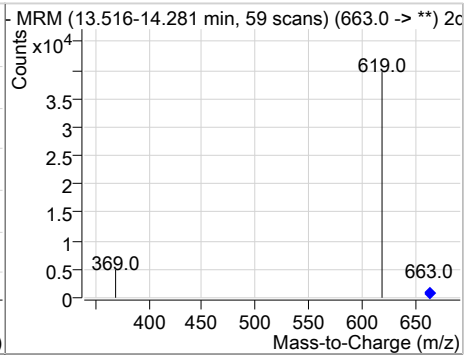




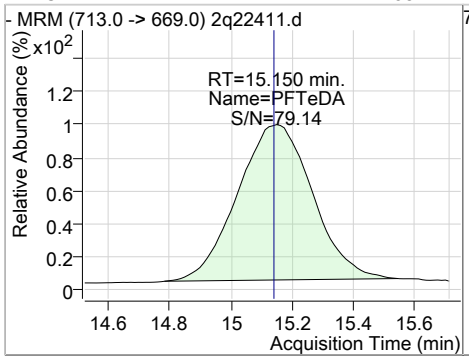
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	21.44	13.90	0.03	27038	663.0 -> 369.0	5.8	0.0	35.8

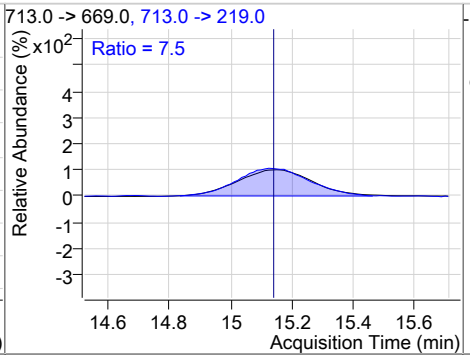


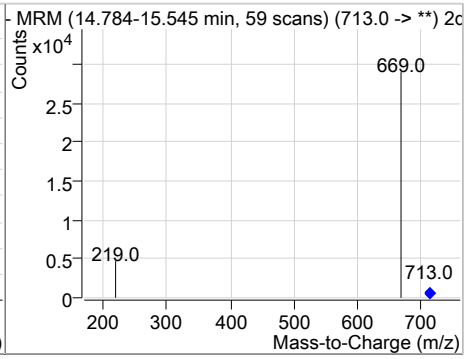




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	21.68	15.15	0.05	18684	713.0 -> 219.0	7.5	0.0	37.4

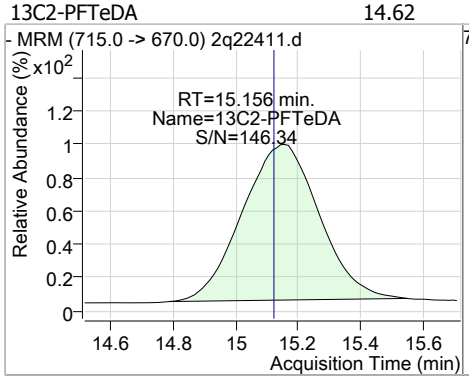


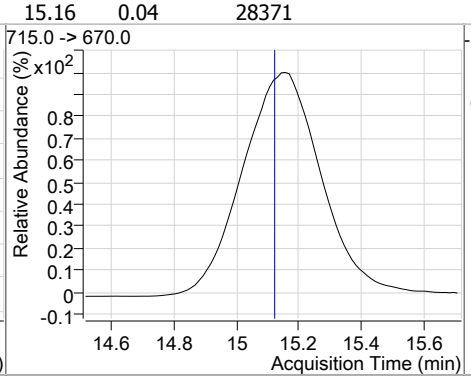


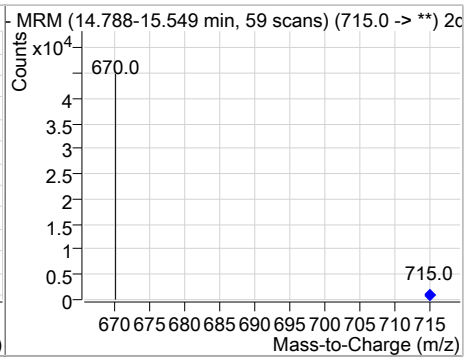


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	14.62	15.16	0.04	28371				







Manual Integration Approval Summary

Sample Number: S2Q352-CC350
Lab FileID: 2Q22411.D
Injection Time: 10/19/18 19:42
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 12:40 Natasha Gumtie
Supervisor approved: 10/22/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/22/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22423.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/19/2018 11:57:23 PM
Sample Name : cc350-20
Vial : Vial 7
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op71956,S2Q352,130,,,1.0,1,water

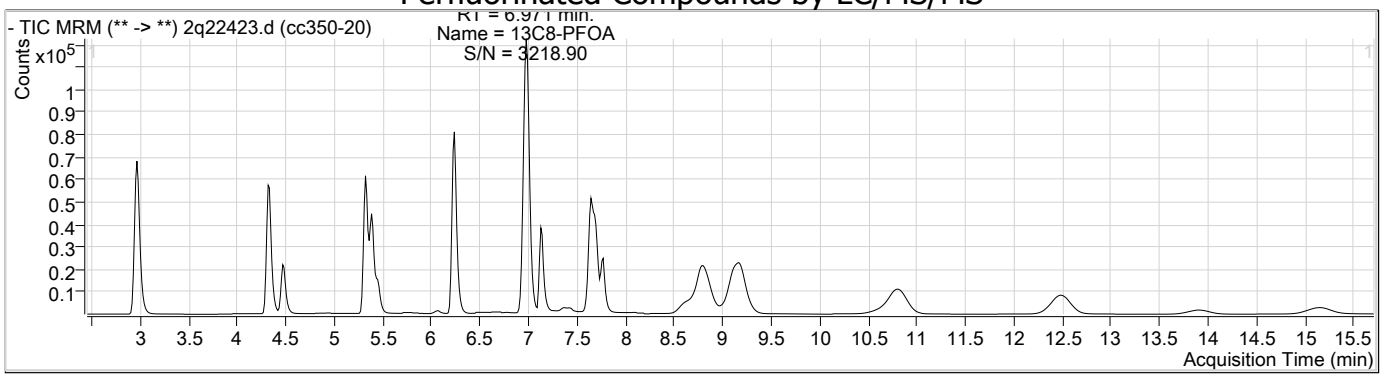
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	110104	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	46300	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	234126	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	100090	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	95723	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	111378	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	86593	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	80945	20.00	µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	156754	20.00	µg/L	0.025
M7-PFUnDA	10.805	570.0 -> 525.0	100095	20.00	µg/L	0.025
M2-PFDoDA	12.490	615.0 -> 570.0	80918	20.00	µg/L	0.038
M2-PFTeDA	15.156	715.0 -> 670.0	29938	20.00	µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	73483	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	23461	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	29151	20.00	µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	29199	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	111975	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	144667	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	162642	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	35541	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	111985	17.01	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.0%		
13C2-6:2FTS	6.993	429.0 -> 409.0	144670	16.39	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.9%		
13C2-8:2FTS	9.160	529.0 -> 509.0	161145	15.33	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.7%		
13C2-PFDoDA	12.490	615.0 -> 570.0	80350	14.53	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.7%		
13C2-PFTeDA	15.156	715.0 -> 670.0	28090	14.47	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.4%		
13C3-PFBS	4.481	302.0 -> 99.0	23468	16.78	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.9%		
13C3-PFHxS	6.235	402.0 -> 99.0	29167	16.38	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.9%		
13C4-PFBA	2.966	217.0 -> 172.0	233975	17.40	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.0%		
13C4-PFHpA	6.242	367.0 -> 322.0	111375	17.31	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.6%		
13C5-PFHxA	5.390	318.0 -> 273.0	95716	17.39	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.9%		
13C5-PFPeA	4.337	268.0 -> 223.0	100084	17.51	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.5%		
13C6-PFDA	8.804	519.0 -> 474.0	156313	16.80	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.0%		

Perfluorinated Compounds by LC/MS/MS

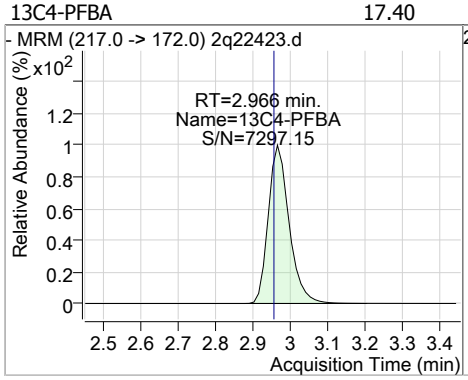
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.805	570.0 -> 525.0	99358	14.51	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.6%			
13C8-FOSA	7.129	506.0 -> 78.0	73436	18.92	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%			
13C8-PFOA	6.971	421.0 -> 376.0	86592	16.11	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.6%			
13C8-PFOS	7.633	507.0 -> 99.0	29236	16.11	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.6%			
13C9-PFNA	7.702	472.0 -> 427.0	80924	16.46	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.3%			
d3-MeFOSAA	7.645	573.0 -> 419.0	35579	15.30	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.5%			
M2-PFOA	6.973	415.0 -> 370.0	109944	19.97	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%			
M4-PFOS	7.636	503.0 -> 80.0	46261	19.99	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.325	327.0 -> 307.0	64978	24.97	µg/L		99
6:2FTS	6.995	427.0 -> 407.0	75796	25.18	µg/L		97
8:2FTS	9.163	527.0 -> 507.0	86346	25.26	µg/L		96
EtFOSAA	7.769	584.0 -> 419.0	18073	22.31	µg/L		99
FOSA	7.132	498.0 -> 78.0	38887	22.34	µg/L		99
MeFOSAA	7.646	570.0 -> 419.0	20485	22.59	µg/L		94
PFBA	2.974	213.0 -> 169.0	28823	20.54	µg/L		100
PFBS	4.472	299.0 -> 80.0	37148	21.90	µg/L		98
PFDA	8.806	513.0 -> 469.0	52629	22.04	µg/L		100
PFDoDA	12.484	613.0 -> 569.0	36263	21.64	µg/L		100
PFDS	10.625	599.0 -> 80.0	13125	21.55	µg/L		99
PFHpA	6.245	363.0 -> 319.0	90146	21.31	µg/L		99
PFHpS	6.941	449.0 -> 80.0	25650	21.76	µg/L		99
PFHxA	5.393	313.0 -> 269.0	33094	21.59	µg/L		100
PFHxS	6.238	399.0 -> 80.0	30884	21.72	µg/L	m	100
PFNA	7.704	463.0 -> 419.0	47303	21.26	µg/L		99
PFNS	8.621	549.0 -> 80.0	27558	26.14	µg/L		98
PFOA	6.974	413.0 -> 369.0	48267	21.54	µg/L		99
PFOS	7.637	499.0 -> 80.0	26616	21.26	µg/L	m	99
PFPeA	4.328	263.0 -> 219.0	102976	21.94	µg/L		100
PFPeS	5.446	349.0 -> 80.0	25727	23.42	µg/L		99
PFTeDA	15.149	713.0 -> 669.0	18622	21.05	µg/L		100
PFTrDA	13.904	663.0 -> 619.0	26921	20.80	µg/L		100
PFUnDA	10.809	563.0 -> 519.0	39834	21.42	µg/L		96

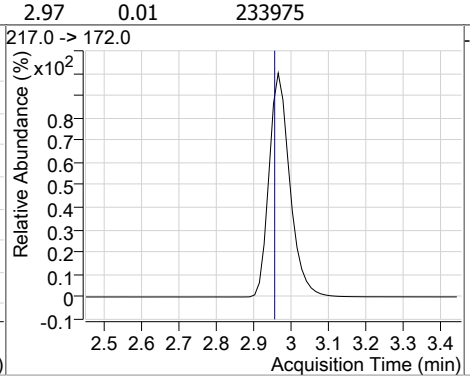
 # = Qualifier out of range, m = manually integrated, + = Area summed

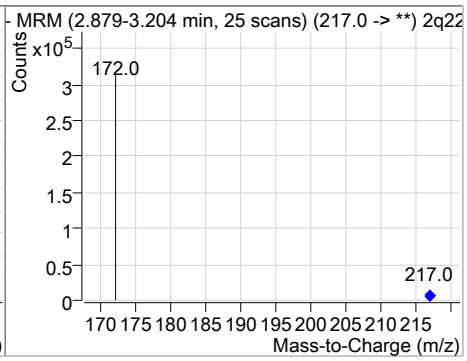
Perfluorinated Compounds by LC/MS/MS



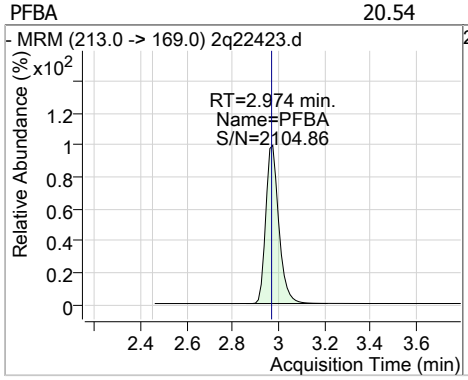
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.40	2.97	0.01	233975				

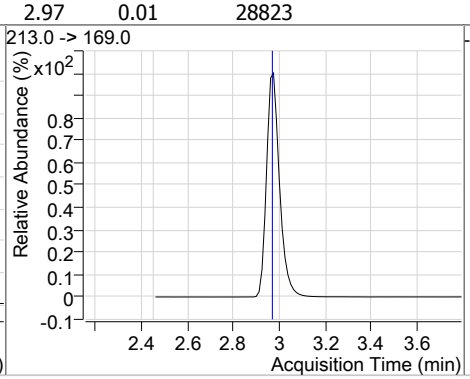


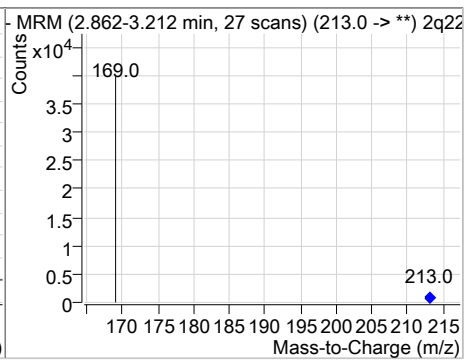




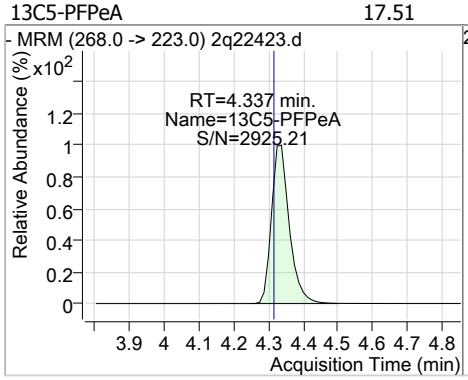
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.54	2.97	0.01	28823				

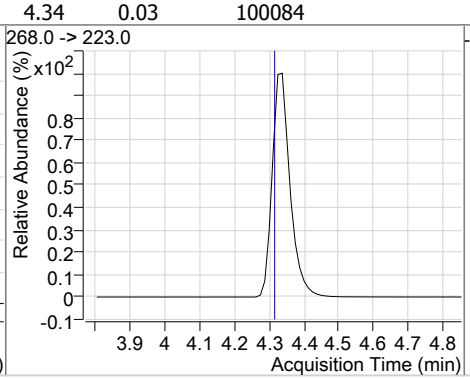


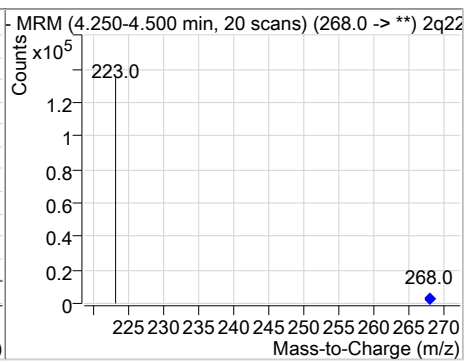




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.51	4.34	0.03	100084				

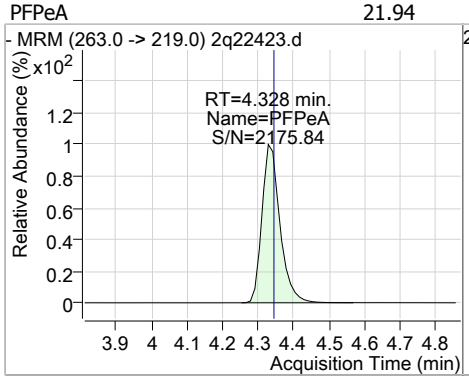


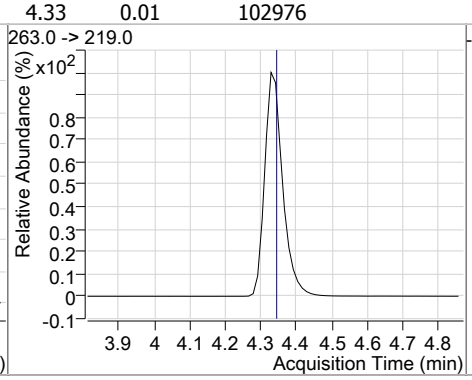


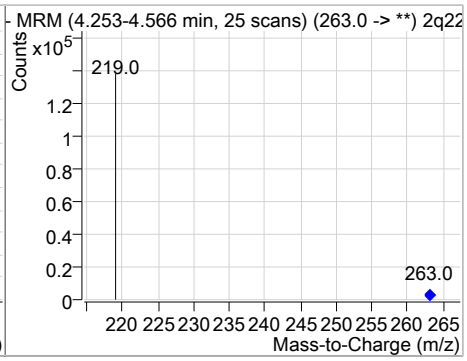


Perfluorinated Compounds by LC/MS/MS

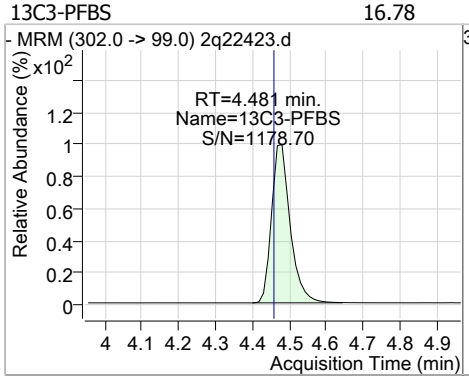
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	21.94	4.33	0.01	102976				

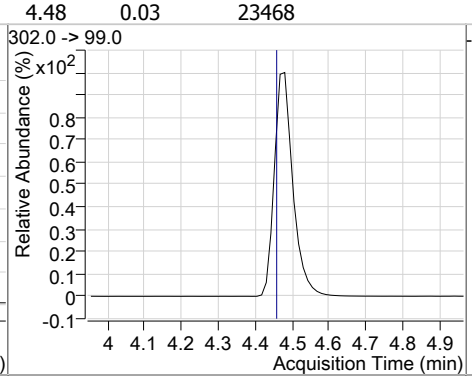


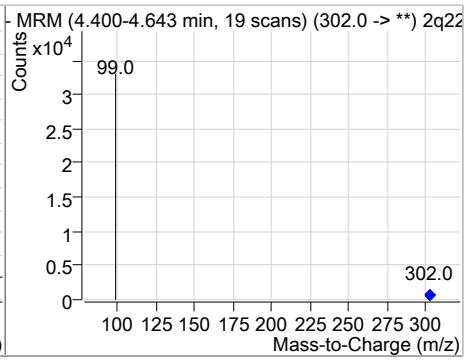




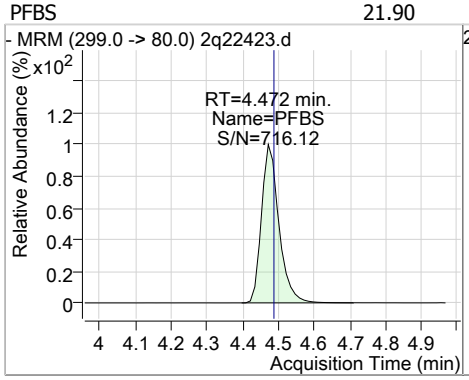
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	16.78	4.48	0.03	23468				

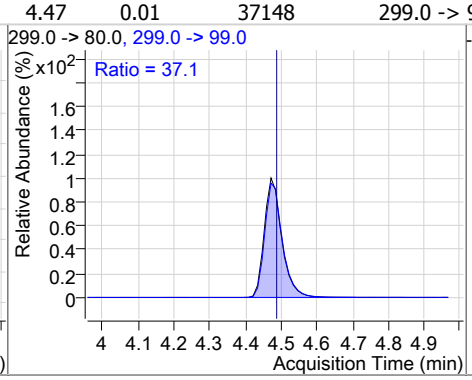


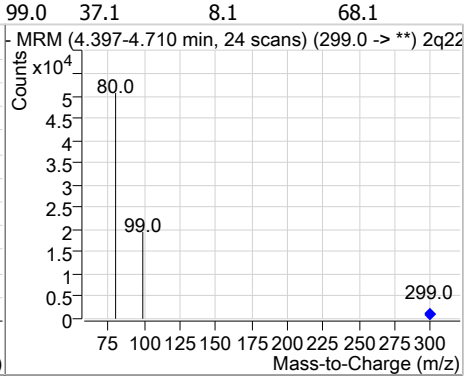




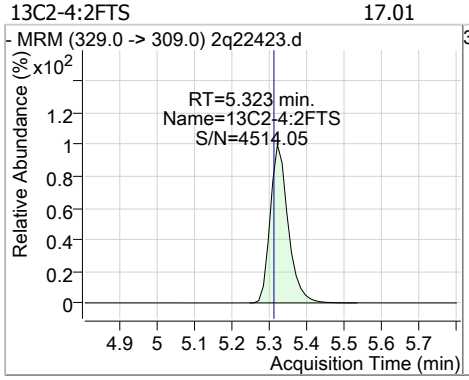
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.90	4.47	0.01	37148	299.0 -> 99.0	37.1	8.1	68.1

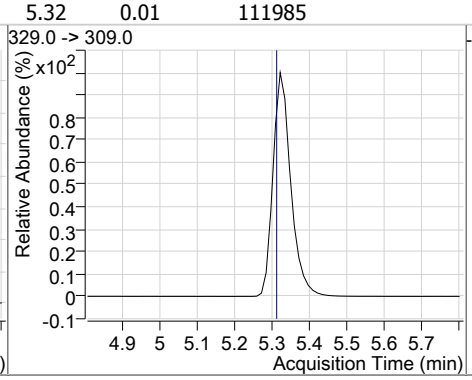


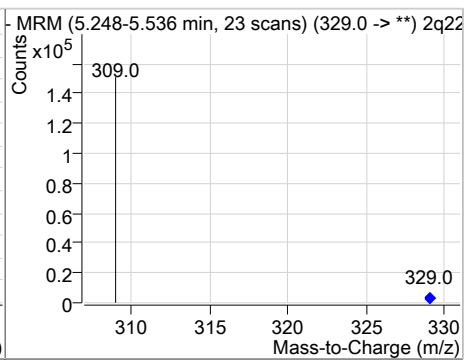




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.01	5.32	0.01	111985				

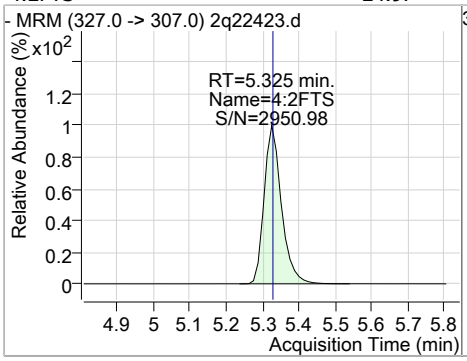


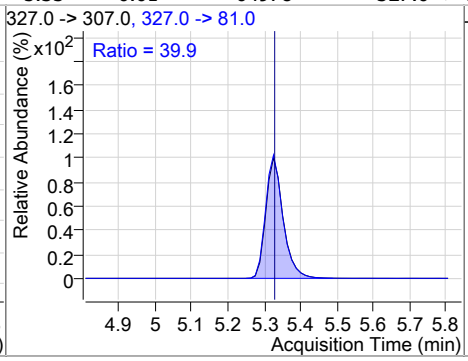


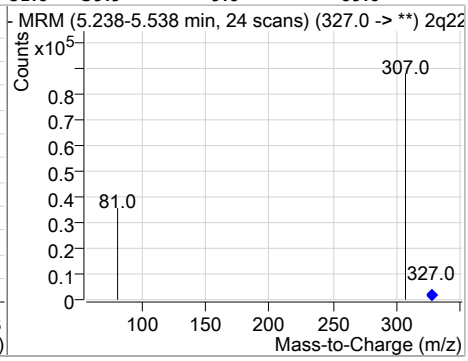


Perfluorinated Compounds by LC/MS/MS

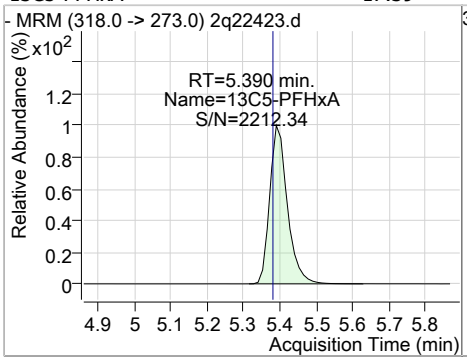
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	24.97	5.33	0.01	64978	327.0 -> 81.0	39.9	9.0	69.0

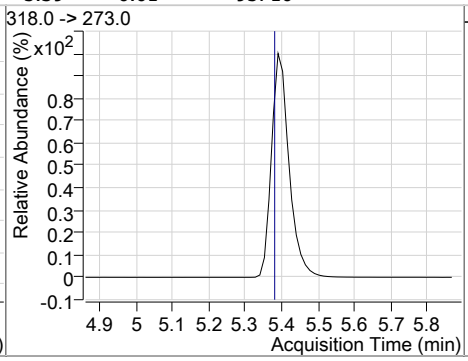


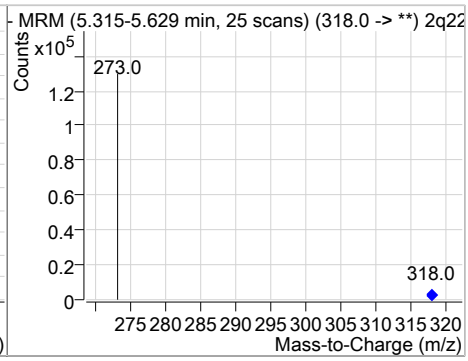




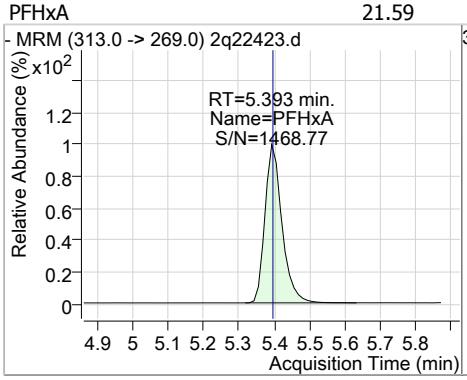
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.39	5.39	0.01	95716				

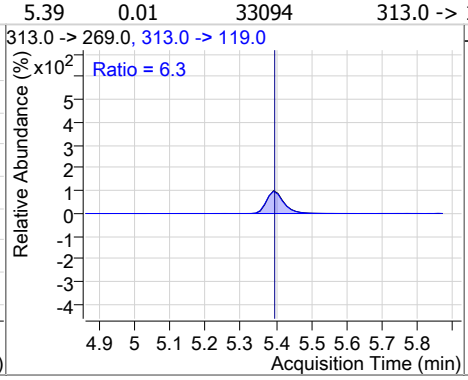


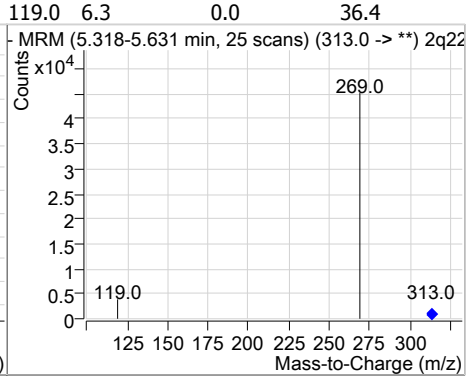




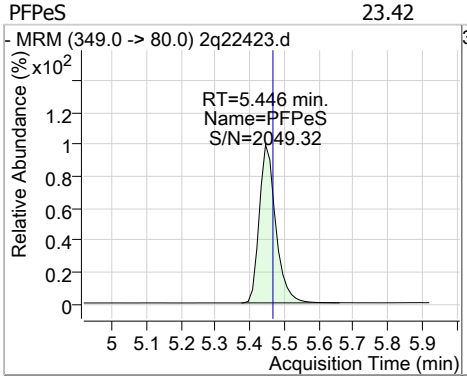
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.59	5.39	0.01	33094	313.0 -> 119.0	6.3	0.0	36.4

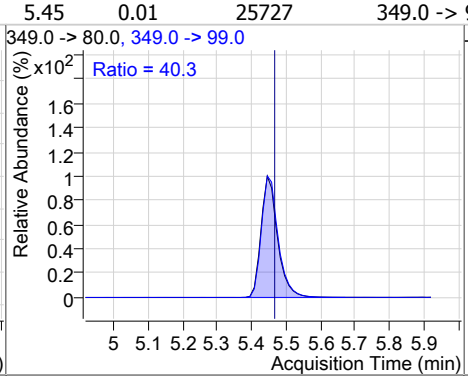


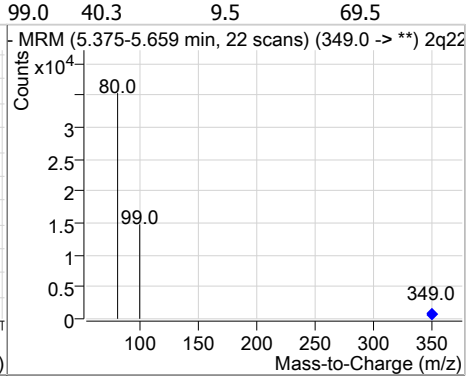




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	23.42	5.45	0.01	25727	349.0 -> 99.0	40.3	9.5	69.5

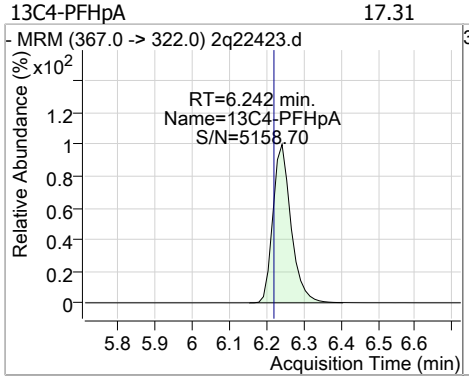


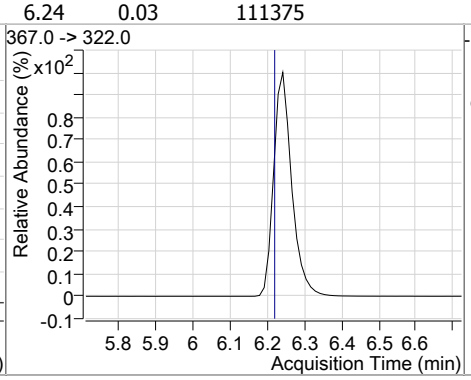


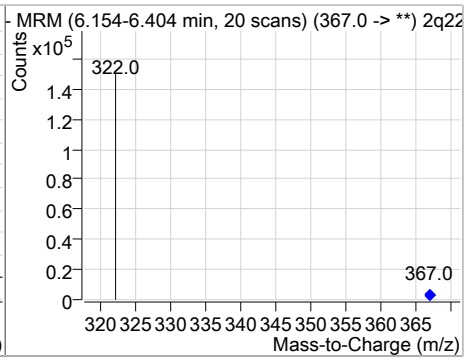


Perfluorinated Compounds by LC/MS/MS

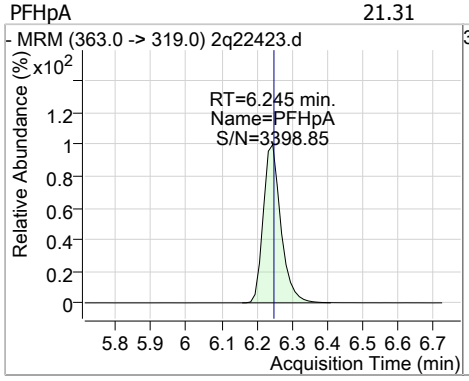
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.31	6.24	0.03	111375				

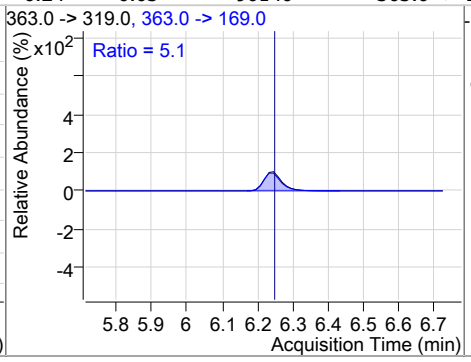


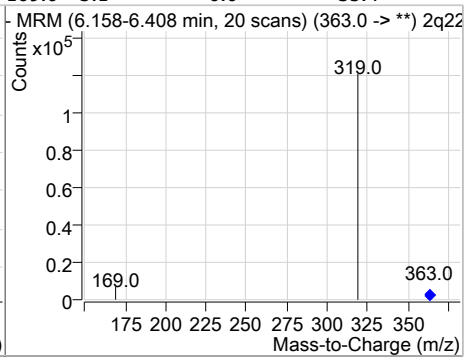




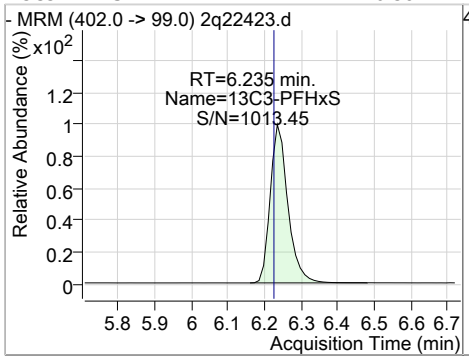
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.31	6.24	0.03	90146	363.0 -> 169.0	5.1	0.0	35.4

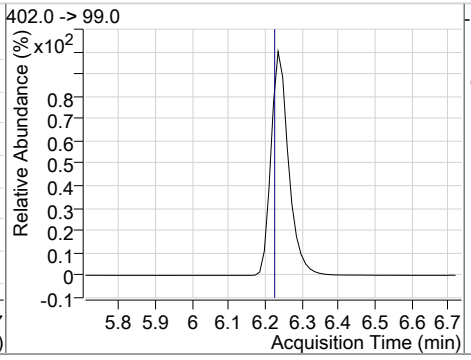


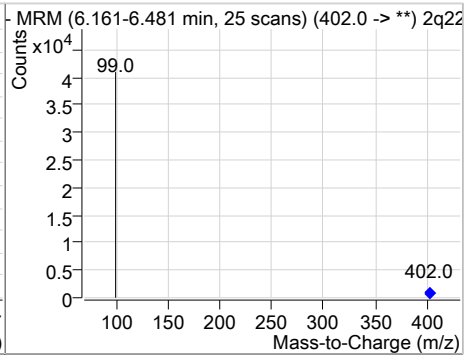




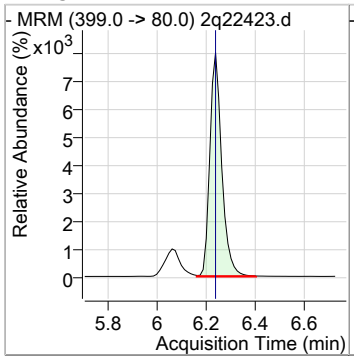
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.38	6.24	0.01	29167				

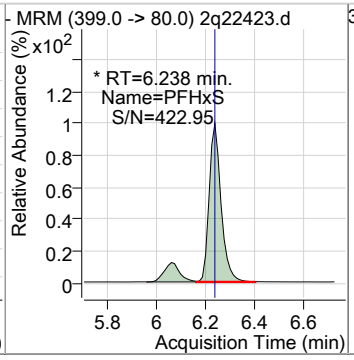


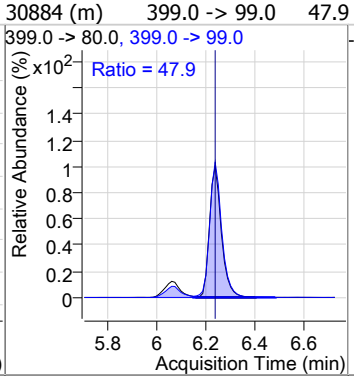


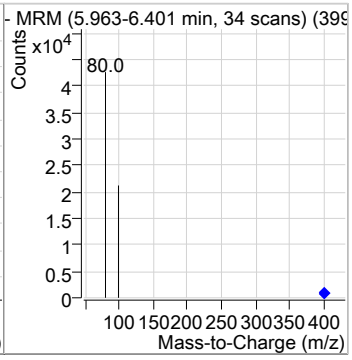


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.72	6.24	0.01	30884 (m)	399.0 -> 99.0	47.9	17.7	77.7



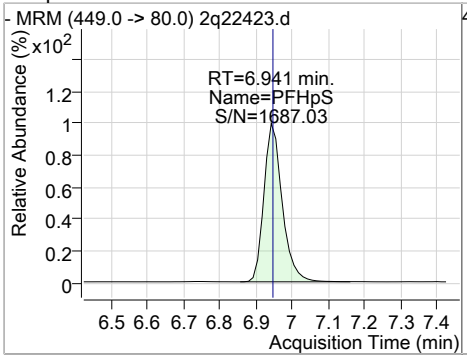


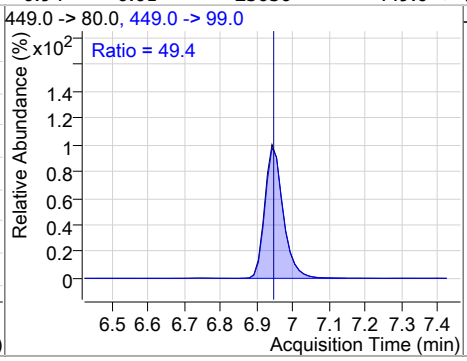


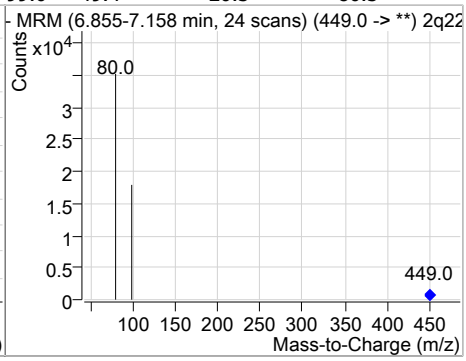


Perfluorinated Compounds by LC/MS/MS

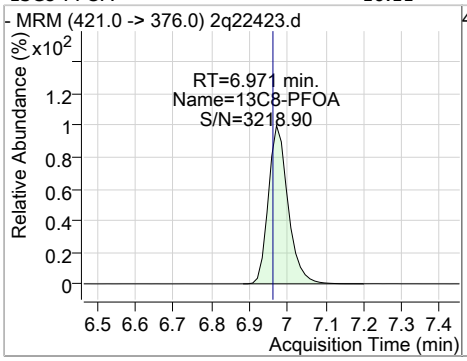
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	21.76	6.94	0.01	25650	449.0 -> 99.0	49.4	20.3	80.3

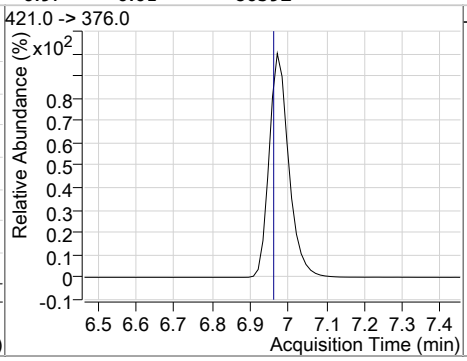


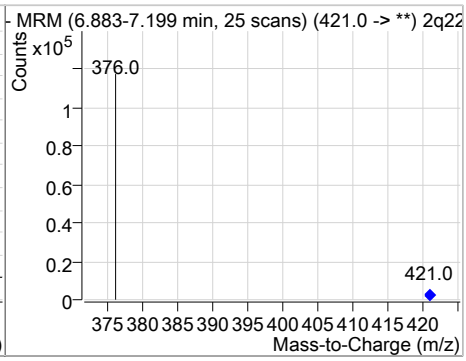




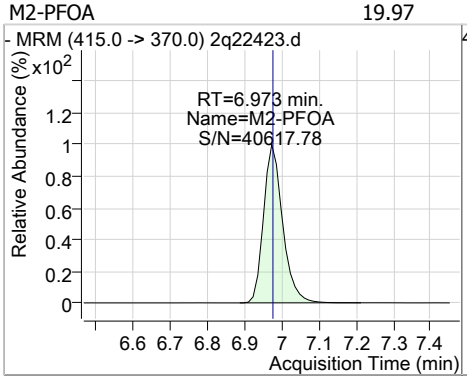
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	16.11	6.97	0.01	86592				

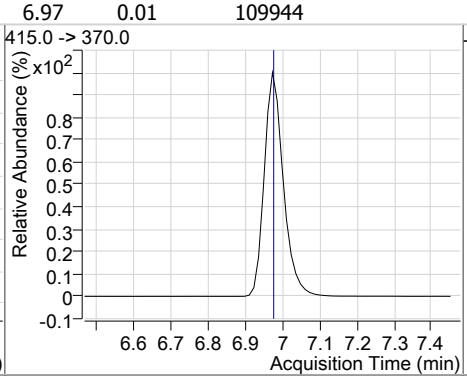


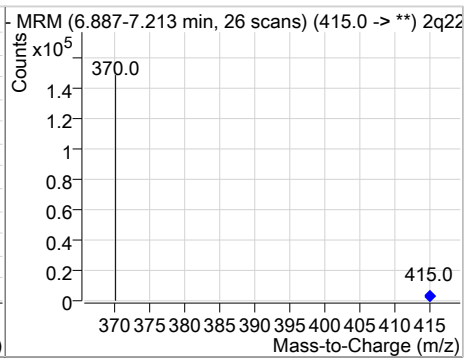




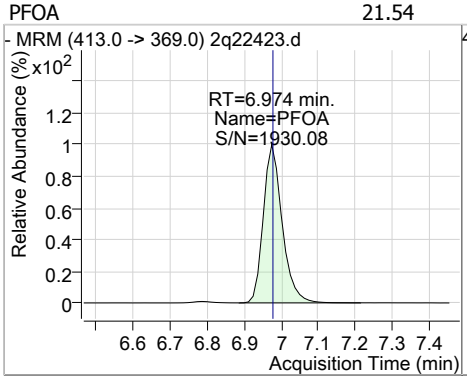
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.97	6.97	0.01	109944				

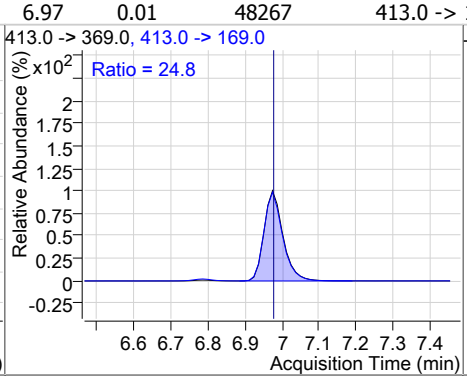


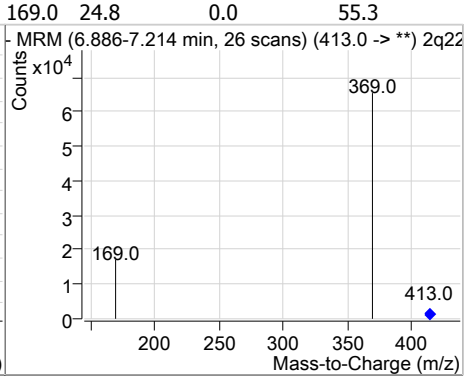




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.54	6.97	0.01	48267	413.0 -> 169.0	24.8	0.0	55.3

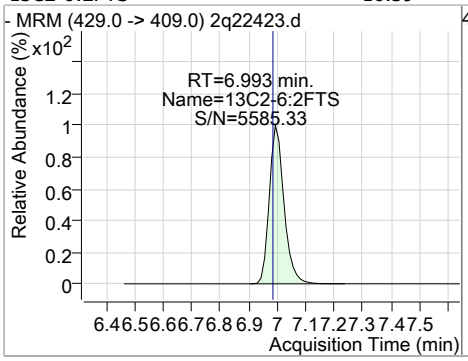


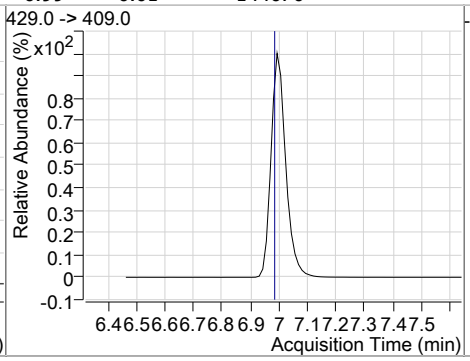


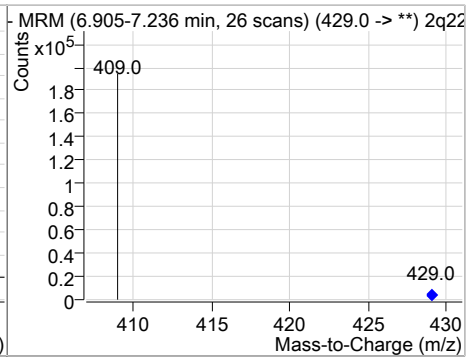


Perfluorinated Compounds by LC/MS/MS

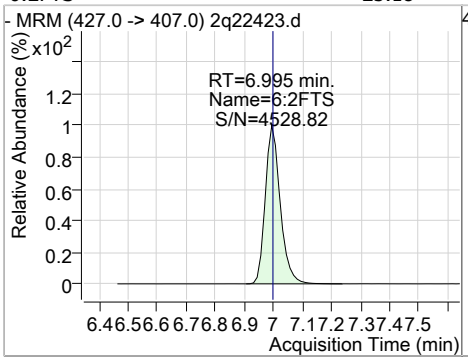
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	16.39	6.99	0.01	144670				

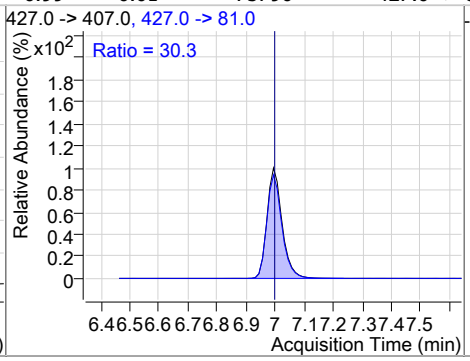


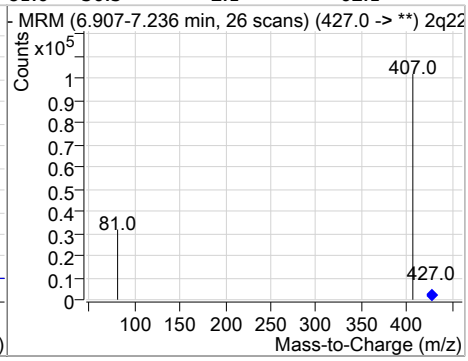




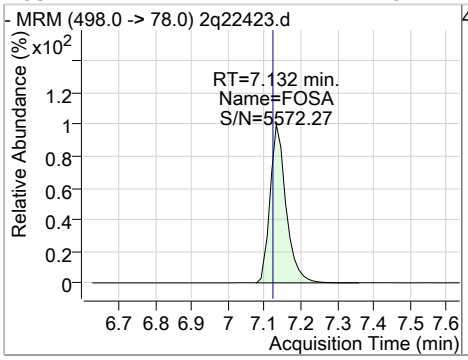
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	25.18	6.99	0.01	75796	427.0 -> 81.0	30.3	2.1	62.1

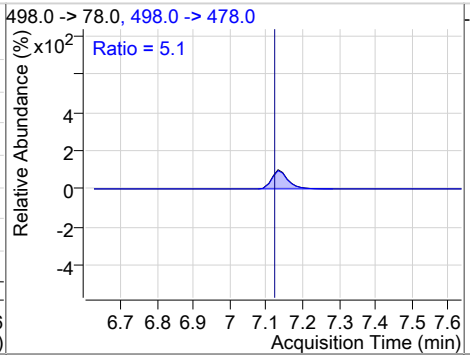


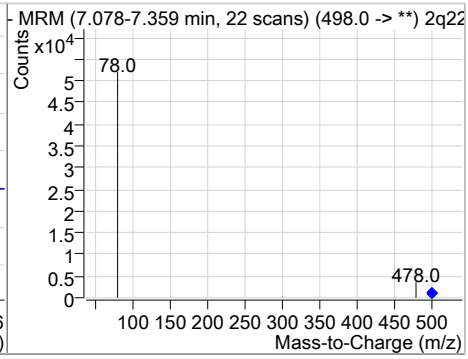




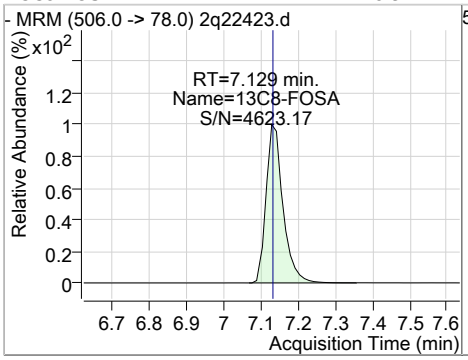
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	22.34	7.13	0.01	38887	498.0 -> 478.0	5.1	0.0	35.4

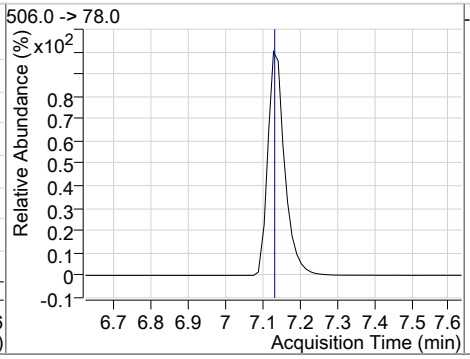


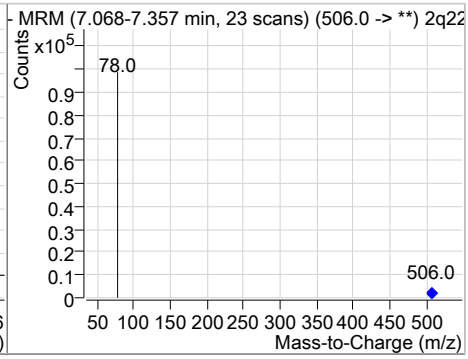




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.92	7.13	0.00	73436				

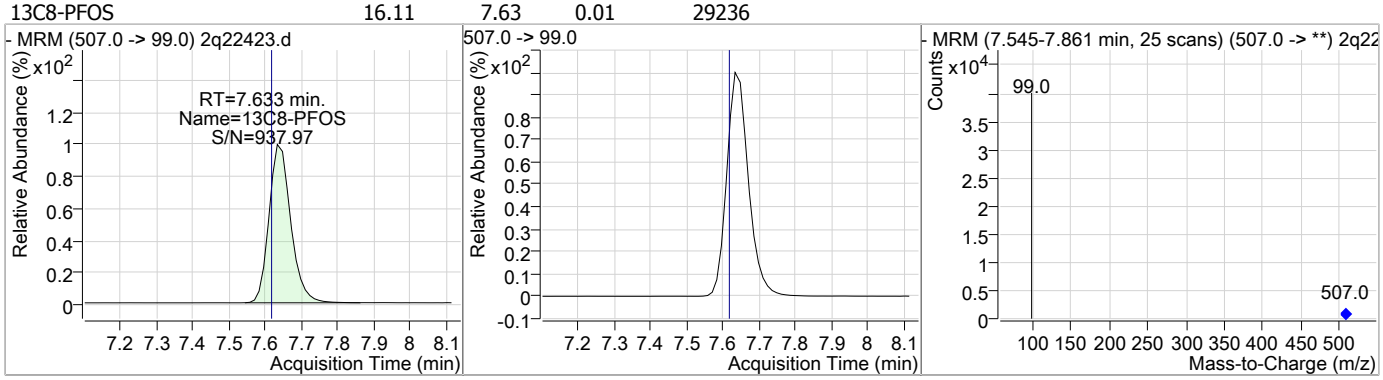




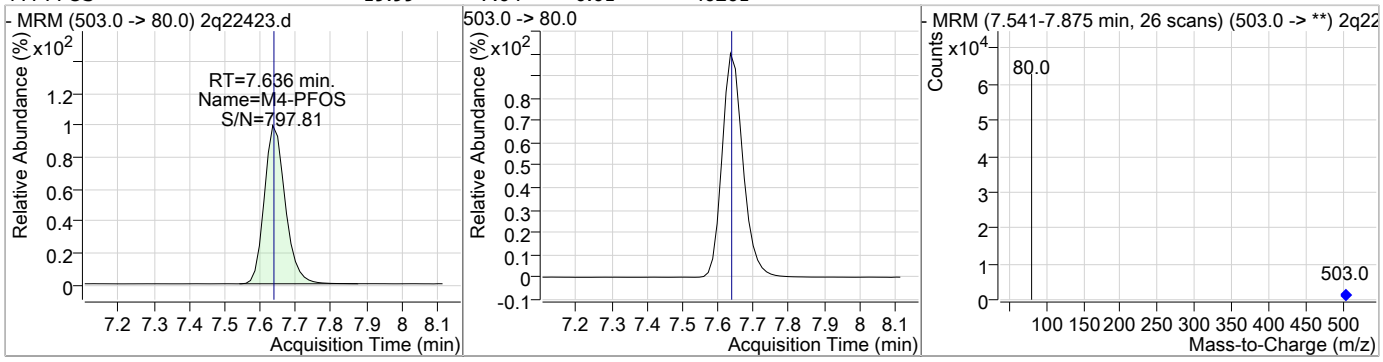


Perfluorinated Compounds by LC/MS/MS

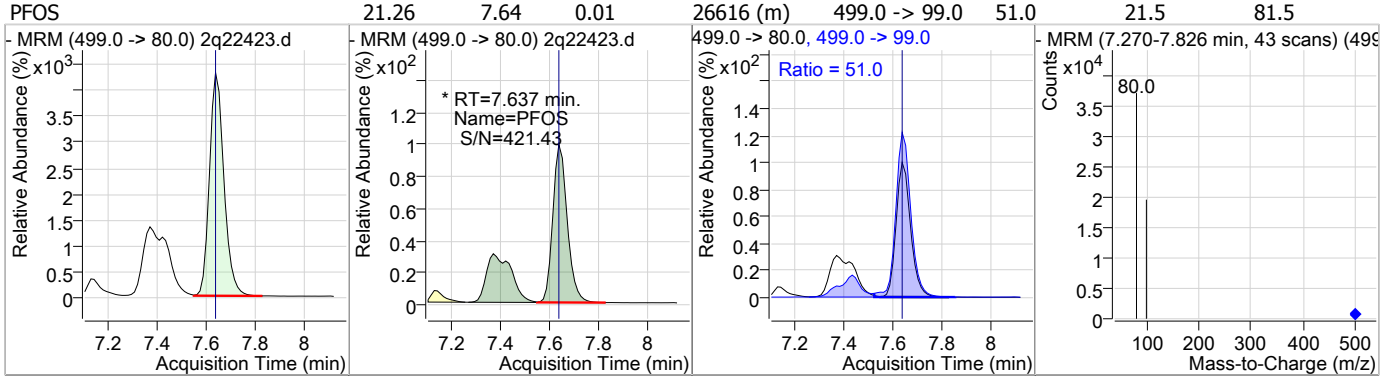
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	16.11	7.63	0.01	29236				



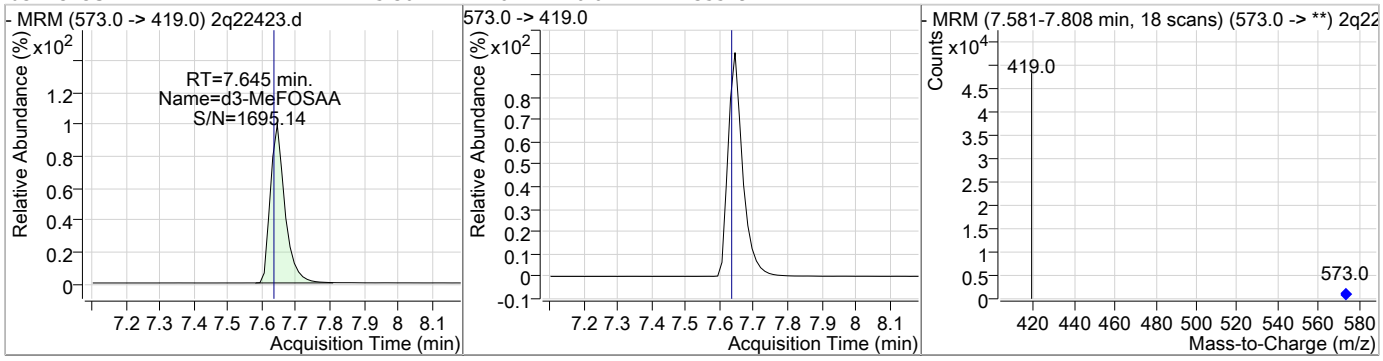
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.64	0.01	46261				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.26	7.64	0.01	26616 (m)	499.0 -> 99.0	51.0	21.5	81.5

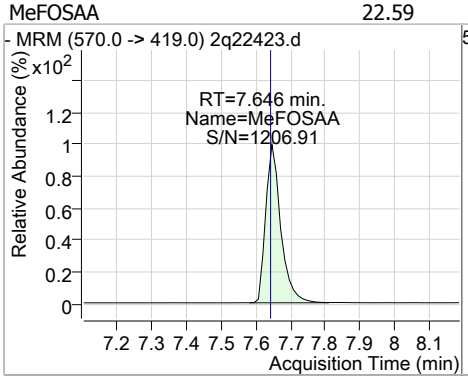


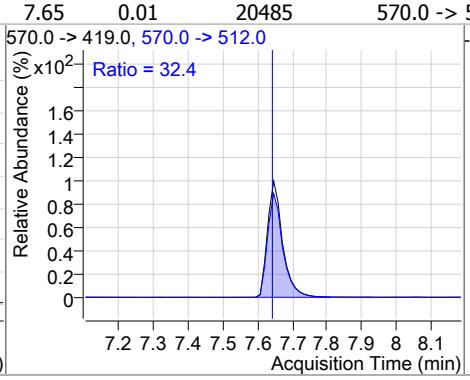
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	15.30	7.64	0.01	35579				

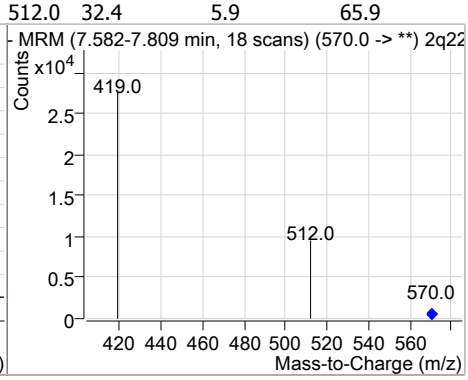


Perfluorinated Compounds by LC/MS/MS

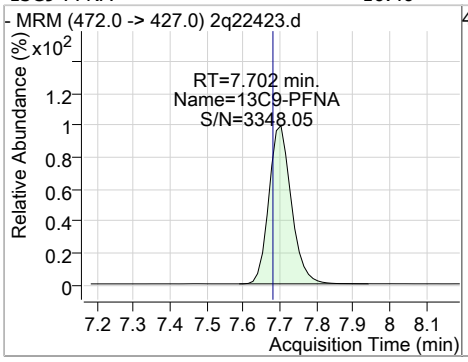
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	22.59	7.65	0.01	20485	570.0 -> 512.0	32.4	5.9	65.9

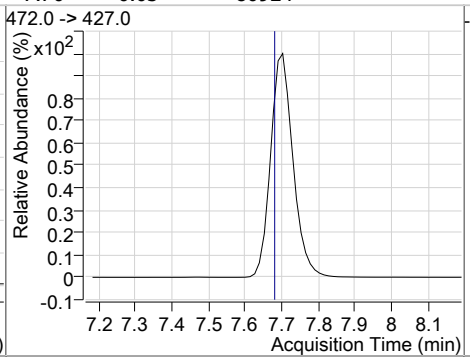


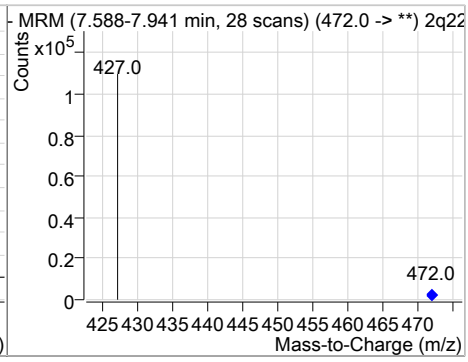




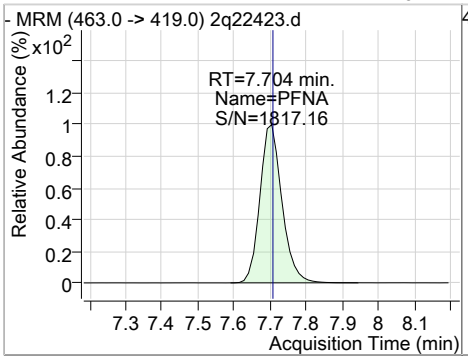
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	16.46	7.70	0.03	80924				

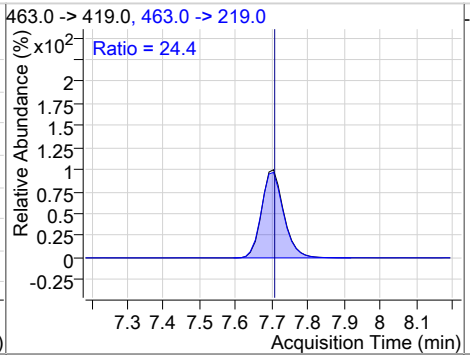


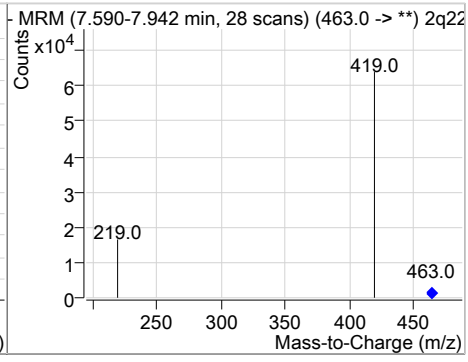




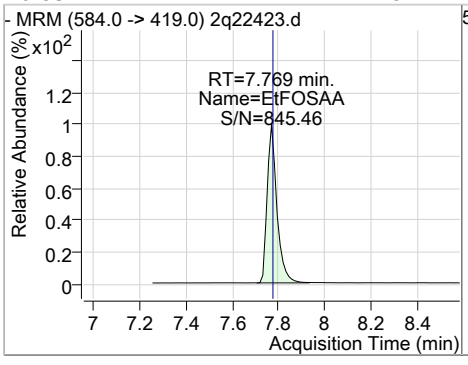
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.26	7.70	0.03	47303	463.0 -> 219.0	24.4	0.0	54.8

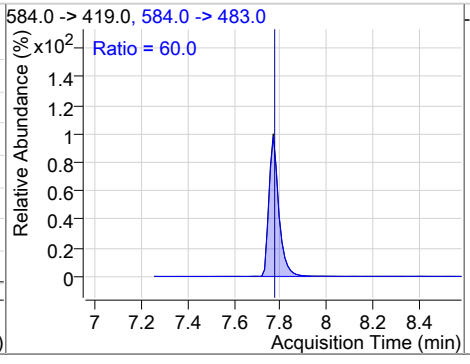


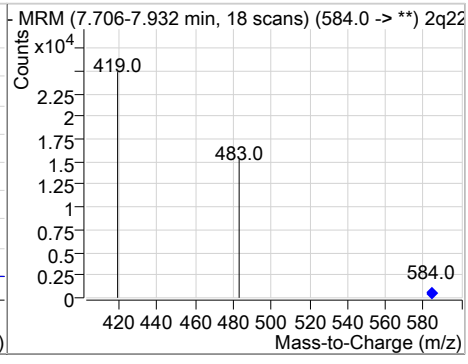




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.31	7.77	0.01	18073	584.0 -> 483.0	60.0	30.5	90.5

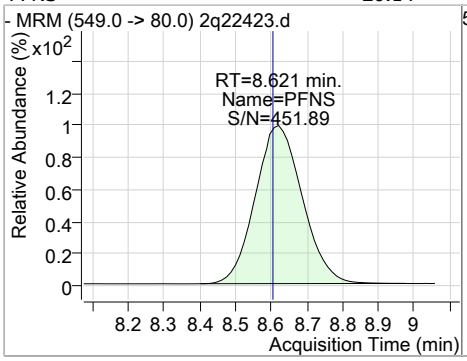


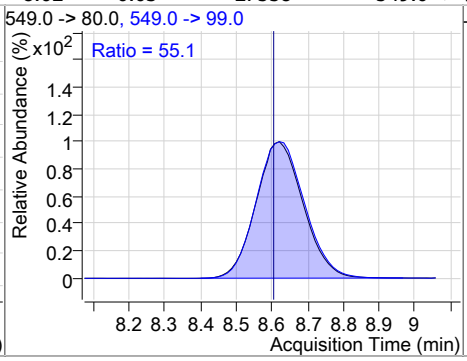


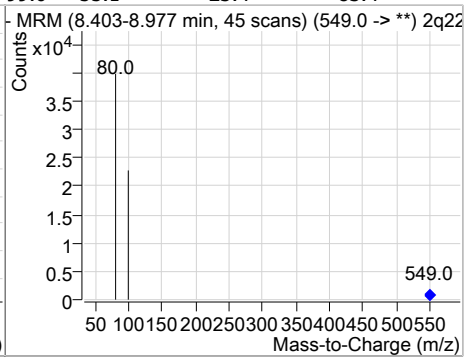


Perfluorinated Compounds by LC/MS/MS

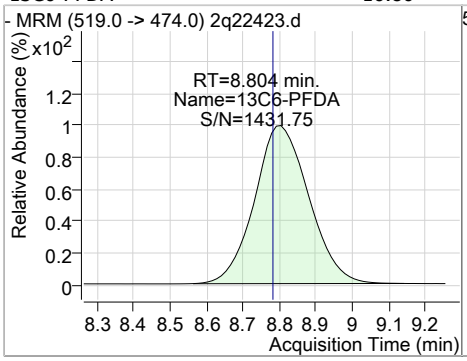
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	26.14	8.62	0.03	27558	549.0 -> 99.0	55.1	23.4	83.4

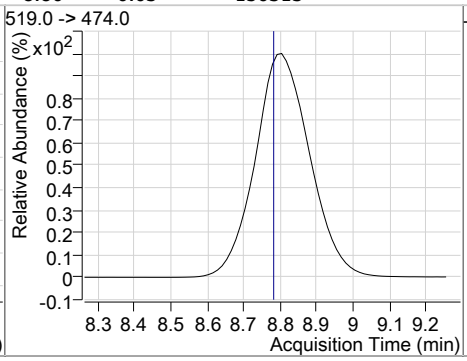


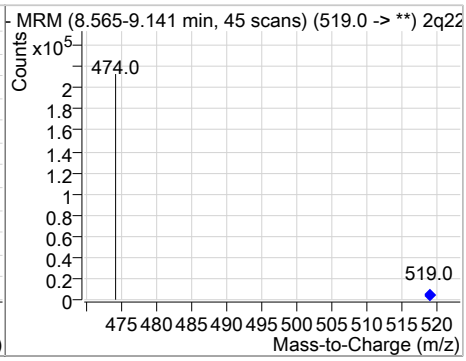




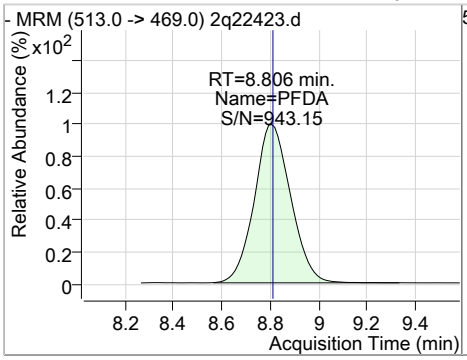
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.80	8.80	0.03	156313				

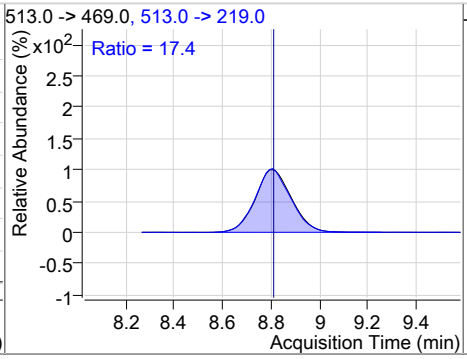


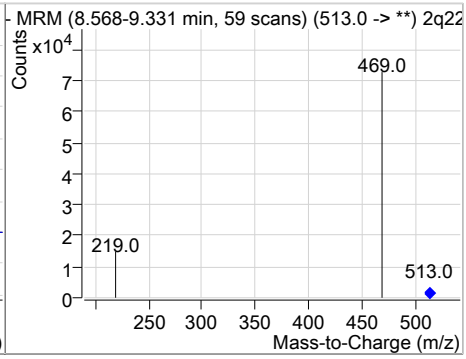




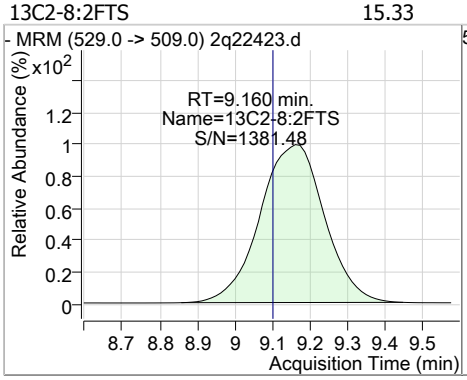
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	22.04	8.81	0.03	52629	513.0 -> 219.0	17.4	0.0	47.6

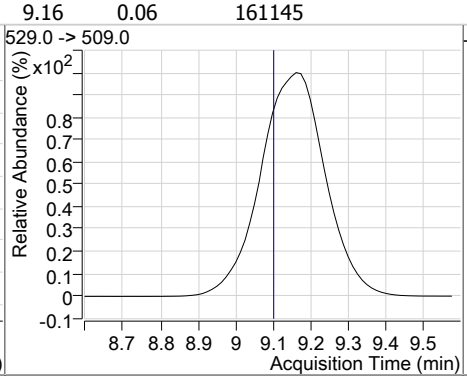


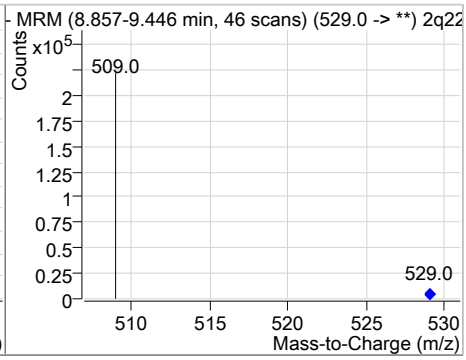




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	15.33	9.16	0.06	161145				

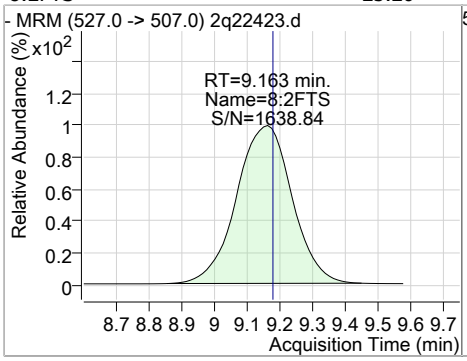


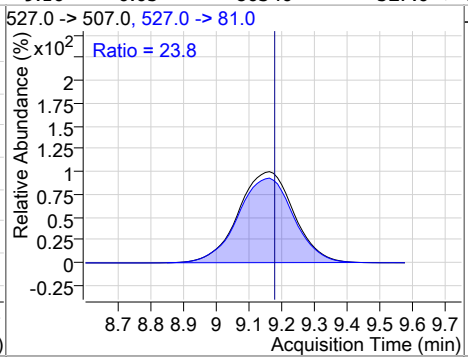


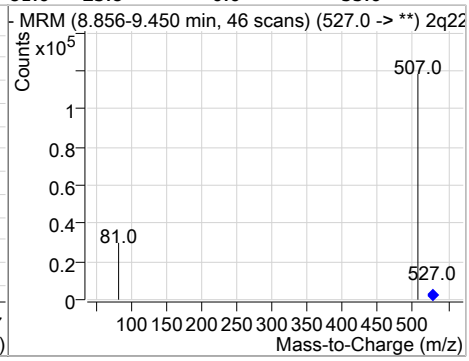


Perfluorinated Compounds by LC/MS/MS

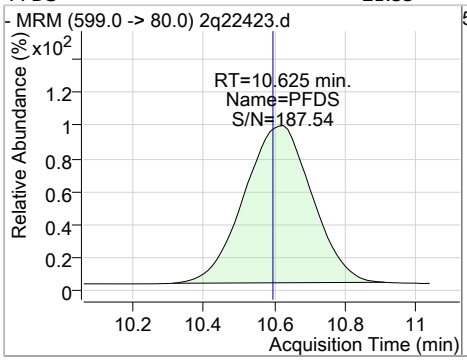
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	25.26	9.16	0.05	86346	527.0 -> 81.0	23.8	0.0	55.6

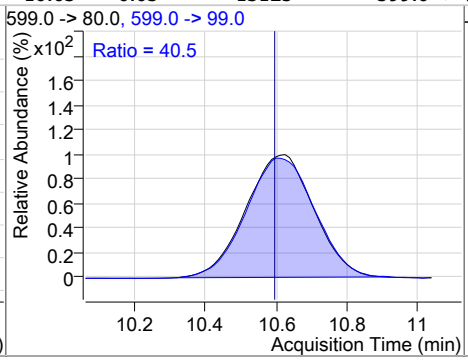


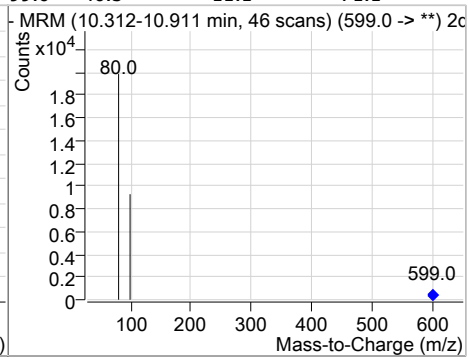




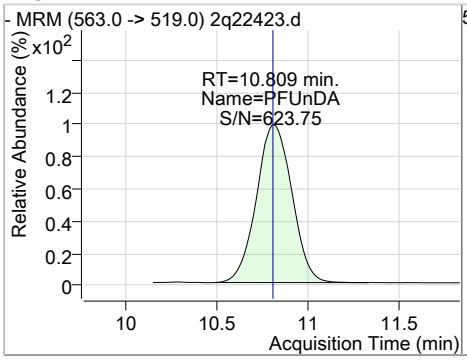
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	21.55	10.63	0.05	13125	599.0 -> 99.0	40.5	11.1	71.1

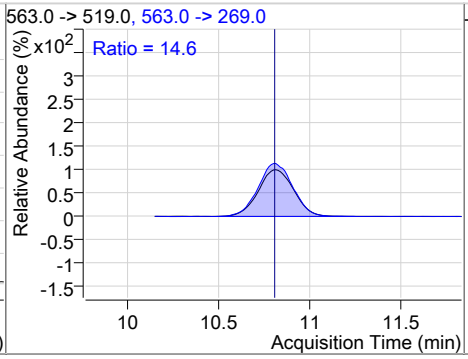


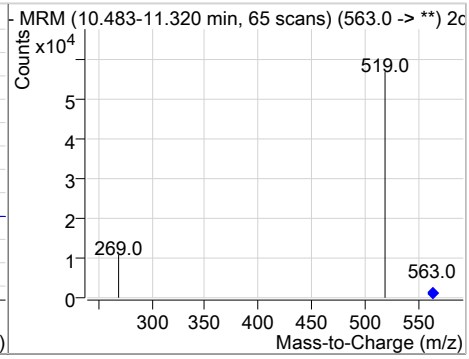




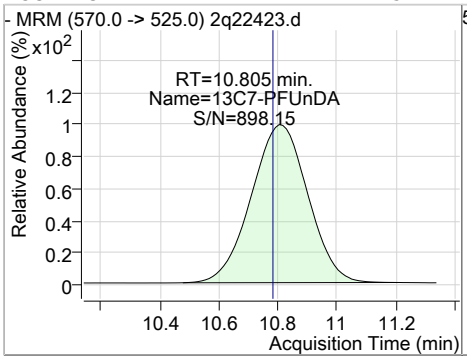
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.42	10.81	0.04	39834	563.0 -> 269.0	14.6	0.0	43.1

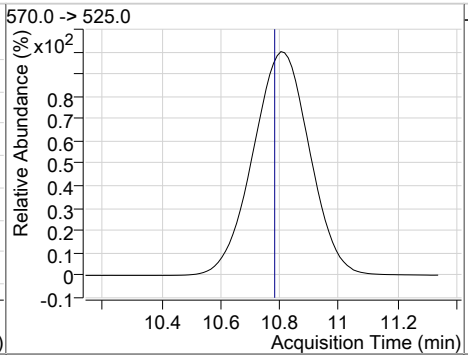


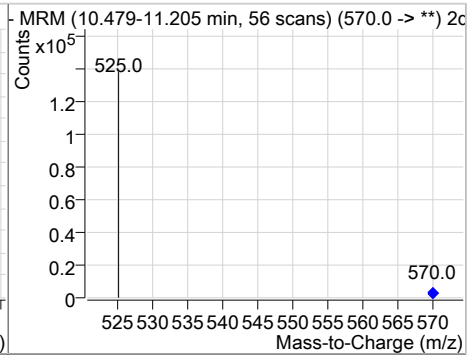




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	14.51	10.80	0.03	99358				

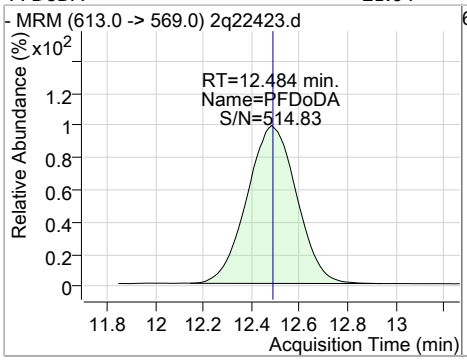


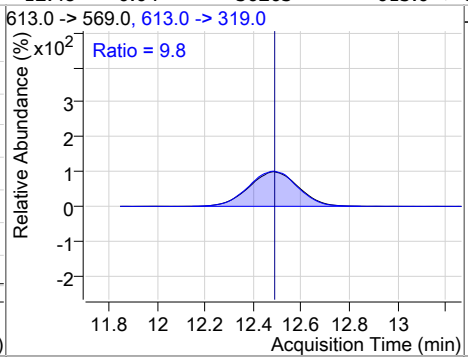


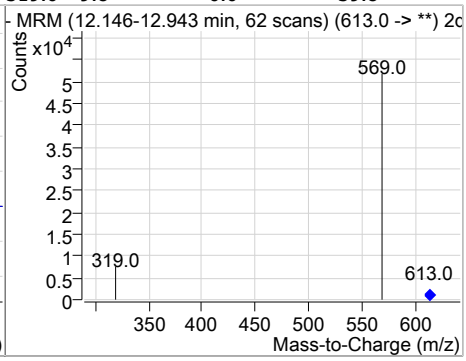


Perfluorinated Compounds by LC/MS/MS

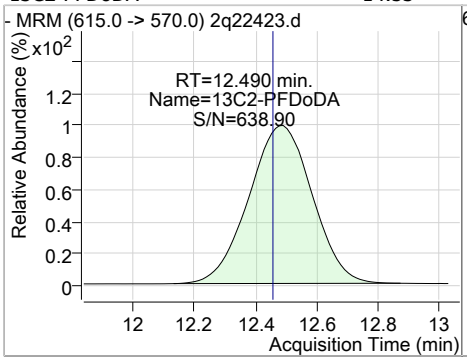
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	21.64	12.48	0.04	36263	613.0 -> 319.0	9.8	0.0	39.8

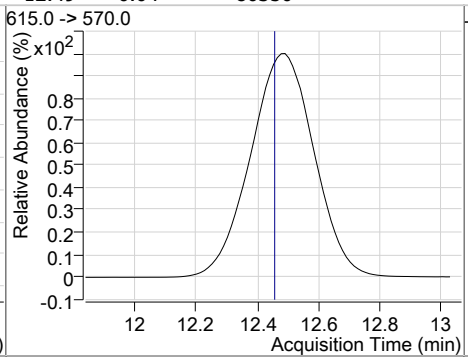


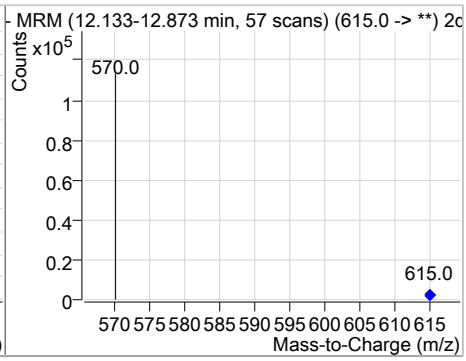




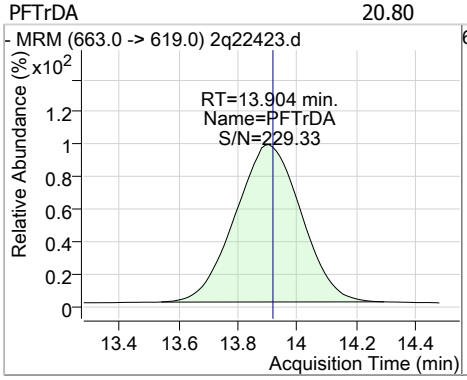
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	14.53	12.49	0.04	80350				

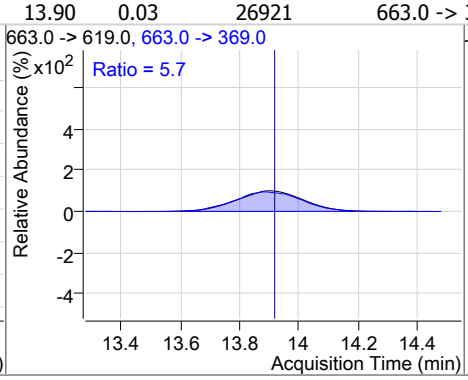


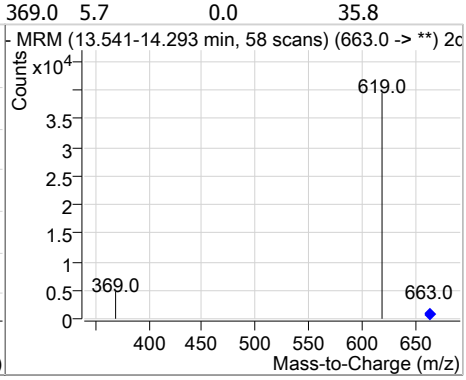




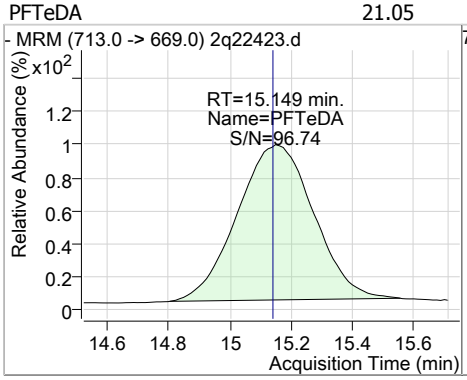
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.80	13.90	0.03	26921	663.0 -> 369.0	5.7	0.0	35.8

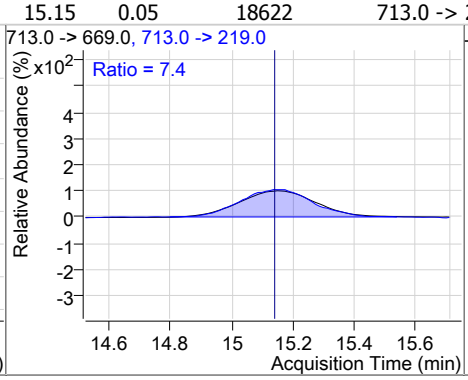


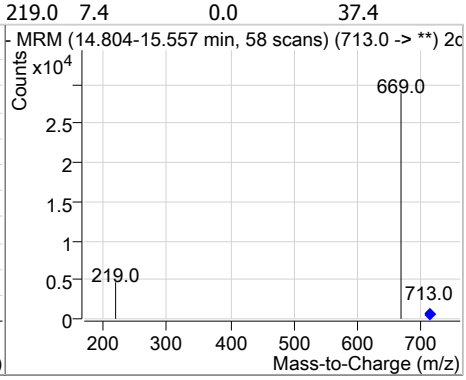




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	21.05	15.15	0.05	18622	713.0 -> 219.0	7.4	0.0	37.4

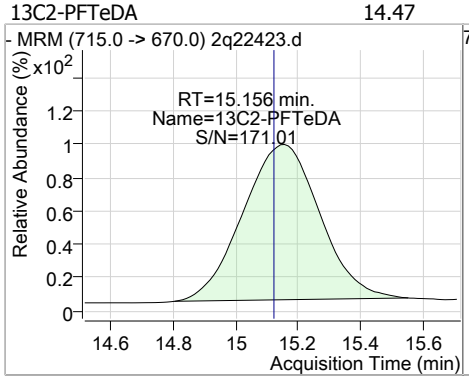


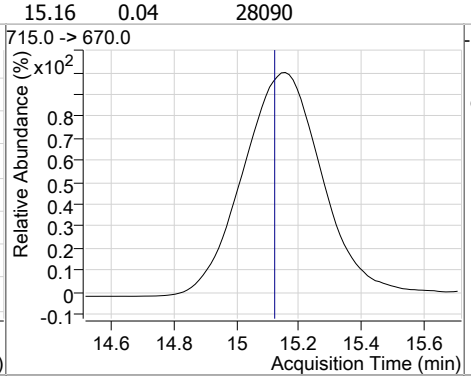


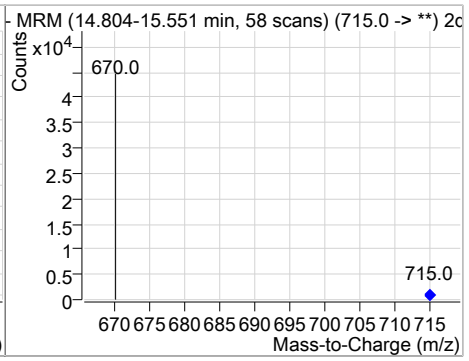


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	14.47	15.16	0.04	28090				







Manual Integration Approval Summary

Sample Number: S2Q352-CC350
Lab FileID: 2Q22423.D
Injection Time: 10/19/18 23:57
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 12:40 Natasha Gumtie
Supervisor approved: 10/22/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/22/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22432.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/20/2018 3:08:34 AM
Sample Name : cc350-1
Vial : Vial 3
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op71956,S2Q352,130,,,1.0,1,water

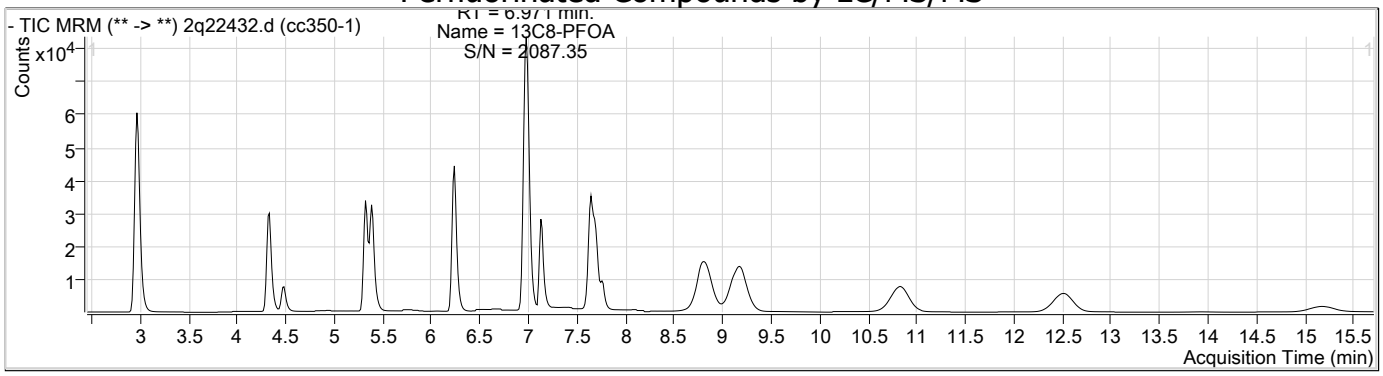
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	112260	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	45620	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	231824	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	99669	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	96294	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	113188	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	88390	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	83608	20.00	µg/L	0.025
M6-PFDA	8.816	519.0 -> 474.0	158779	20.00	µg/L	0.038
M7-PFUnDA	10.830	570.0 -> 525.0	99192	20.00	µg/L	0.050
M2-PFDoDA	12.515	615.0 -> 570.0	79406	20.00	µg/L	0.063
M2-PFTeDA	15.168	715.0 -> 670.0	29294	20.00	µg/L	0.050
M8-FOSA	7.129	506.0 -> 78.0	80353	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	23473	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	29311	20.00	µg/L	0.013
M8-PFOS	7.633	507.0 -> 99.0	28745	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	106312	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	140670	20.00	µg/L	0.013
M2-8:2FTS	9.172	529.0 -> 509.0	156159	20.00	µg/L	0.075
M3-MeFOSAA	7.645	573.0 -> 419.0	38390	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	106319	16.15	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.7%		
13C2-6:2FTS	6.993	429.0 -> 409.0	140678	15.93	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.7%		
13C2-8:2FTS	9.172	529.0 -> 509.0	154641	14.71	µg/L	0.075
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.6%		
13C2-PFDoDA	12.515	615.0 -> 570.0	79014	14.29	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.5%		
13C2-PFTeDA	15.168	715.0 -> 670.0	27214	14.02	µg/L	0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.1%		
13C3-PFBS	4.481	302.0 -> 99.0	23463	16.78	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.9%		
13C3-PFHxS	6.235	402.0 -> 99.0	29305	16.46	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.3%		
13C4-PFBA	2.966	217.0 -> 172.0	231641	17.23	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.1%		
13C4-PFHpA	6.242	367.0 -> 322.0	113190	17.59	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.0%		
13C5-PFHxA	5.390	318.0 -> 273.0	96250	17.48	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.4%		
13C5-PFPeA	4.337	268.0 -> 223.0	99676	17.44	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.2%		
13C6-PFDA	8.816	519.0 -> 474.0	158241	17.01	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.0%		

Perfluorinated Compounds by LC/MS/MS

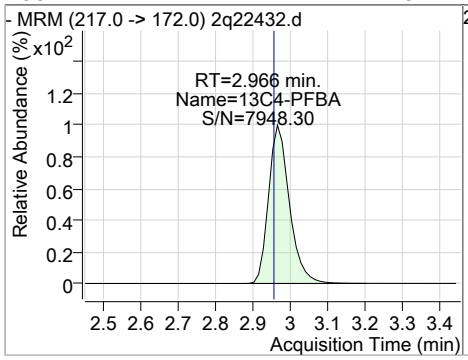
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.830	570.0 -> 525.0	98862	14.44	µg/L		0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.2%			
13C8-FOSA	7.129	506.0 -> 78.0	80364	20.71	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%			
13C8-PFOA	6.971	421.0 -> 376.0	88384	16.45	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.2%			
13C8-PFOS	7.633	507.0 -> 99.0	28732	15.83	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.2%			
13C9-PFNA	7.702	472.0 -> 427.0	83629	17.01	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.1%			
d3-MeFOSAA	7.645	573.0 -> 419.0	38464	16.54	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.7%			
M2-PFOA	6.973	415.0 -> 370.0	112295	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	45593	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
Target Compounds							**QValue**
4:2FTS	5.325	327.0 -> 307.0	3169	1.28	µg/L		89
6:2FTS	6.995	427.0 -> 407.0	3858	1.32	µg/L		95
8:2FTS	9.176	527.0 -> 507.0	4212	1.28	µg/L		100
EtFOSAA	7.769	584.0 -> 419.0	902	1.03	µg/L		93
FOSA	7.132	498.0 -> 78.0	2002	1.05	µg/L		99
MeFOSAA	7.646	570.0 -> 419.0	1081	1.10	µg/L		96
PFBA	2.974	213.0 -> 169.0	1394	1.00	µg/L		100
PFBS	4.472	299.0 -> 80.0	1814	1.07	µg/L		97
PFDA	8.806	513.0 -> 469.0	2585	1.07	µg/L		99
PFDoDA	12.496	613.0 -> 569.0	1778	1.08	µg/L		98
PFDS	10.663	599.0 -> 80.0	602	1.00	µg/L		99
PFHpA	6.245	363.0 -> 319.0	4422	1.03	µg/L		100
PFHpS	6.941	449.0 -> 80.0	1241	1.05	µg/L		96
PFHxA	5.393	313.0 -> 269.0	1603	1.04	µg/L		98
PFHxS	6.238	399.0 -> 80.0	1531	1.07	µg/L	m	95
PFNA	7.704	463.0 -> 419.0	2304	1.00	µg/L		99
PFNS	8.608	549.0 -> 80.0	1331	1.28	µg/L		97
PFOA	6.974	413.0 -> 369.0	2591	1.13	µg/L		95
PFOS	7.637	499.0 -> 80.0	1343	1.09	µg/L	m	96
PFPeA	4.328	263.0 -> 219.0	5692	1.22	µg/L		100
PFPeS	5.446	349.0 -> 80.0	1210	1.10	µg/L		99
PFTeDA	15.124	713.0 -> 669.0	914	1.06	µg/L		99
PFTrDA	13.929	663.0 -> 619.0	1307	1.03	µg/L		100
PFUnDA	10.834	563.0 -> 519.0	2050	1.11	µg/L		95

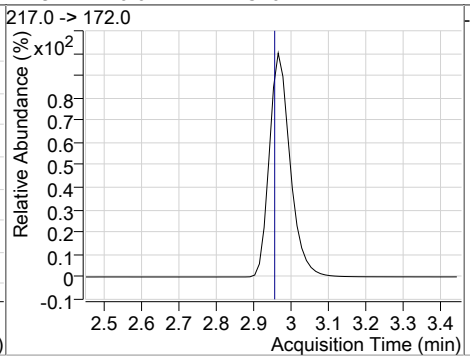
 # = Qualifier out of range, m = manually integrated, + = Area summed

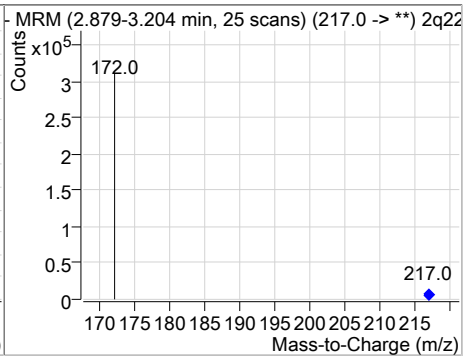
Perfluorinated Compounds by LC/MS/MS



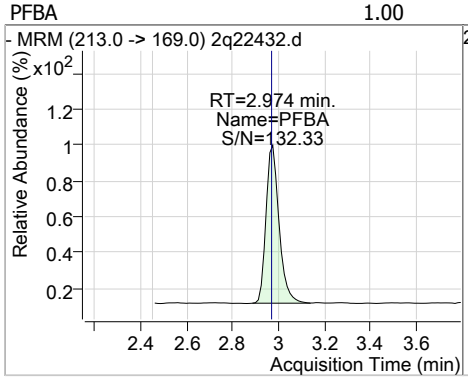
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.23	2.97	0.01	231641				

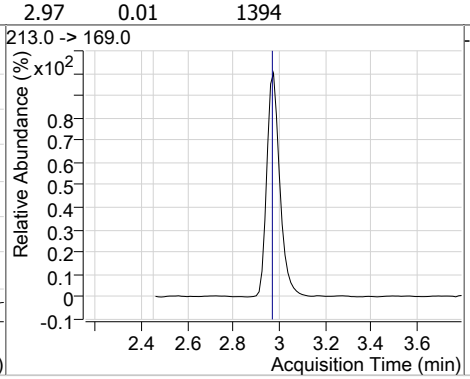


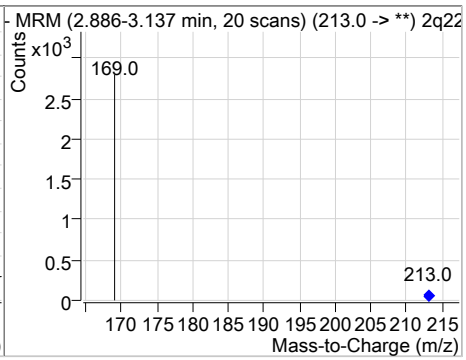




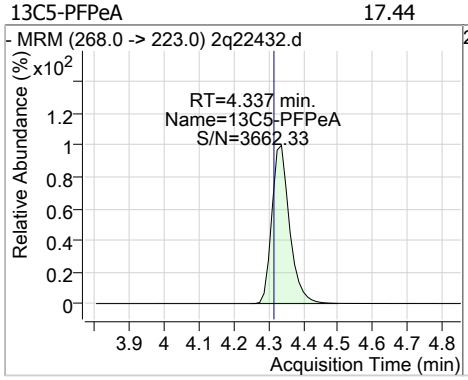
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.00	2.97	0.01	1394				

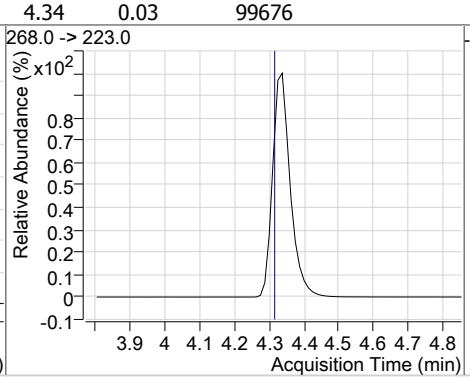


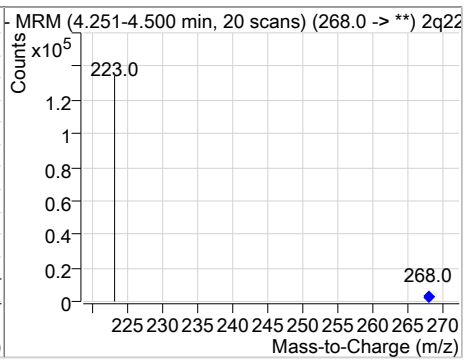




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.44	4.34	0.03	99676				

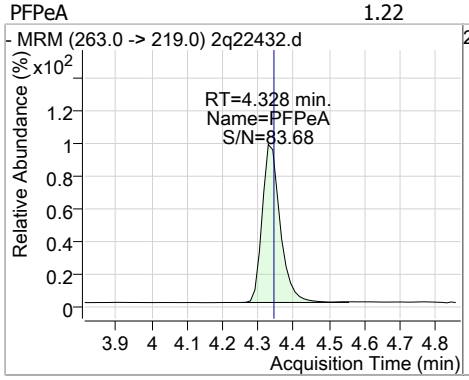


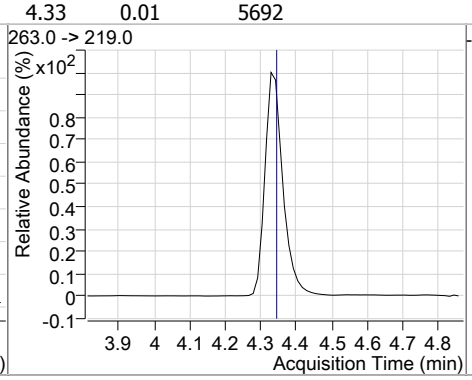


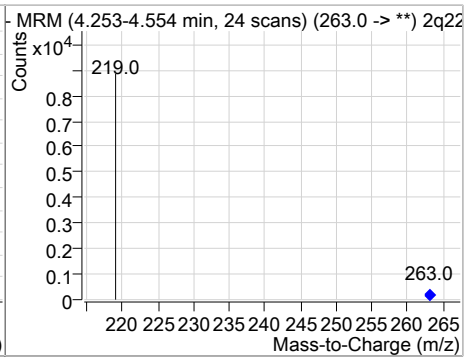


Perfluorinated Compounds by LC/MS/MS

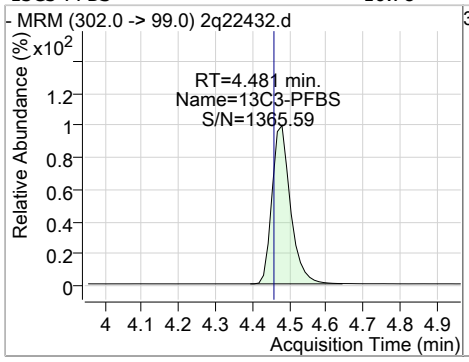
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.22	4.33	0.01	5692				

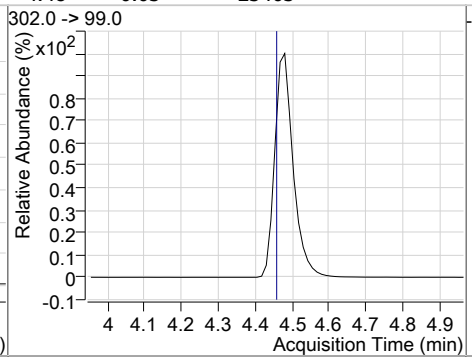


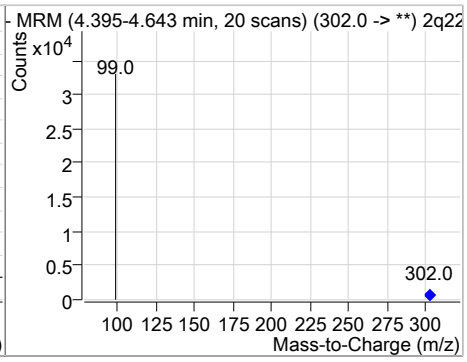




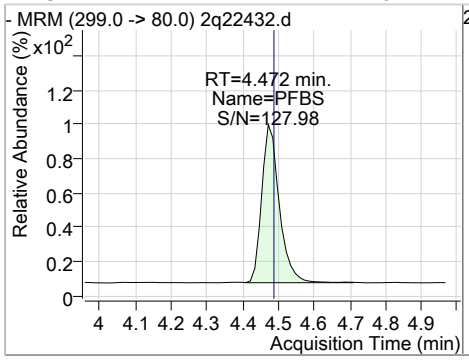
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	16.78	4.48	0.03	23463				

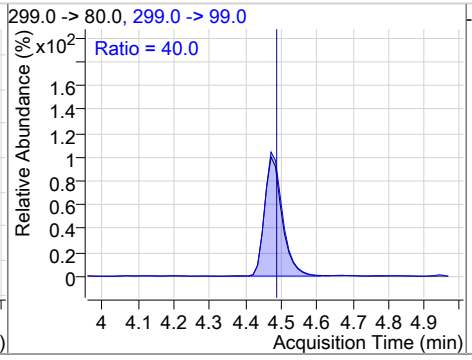


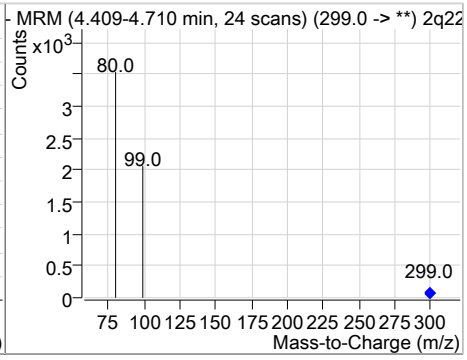




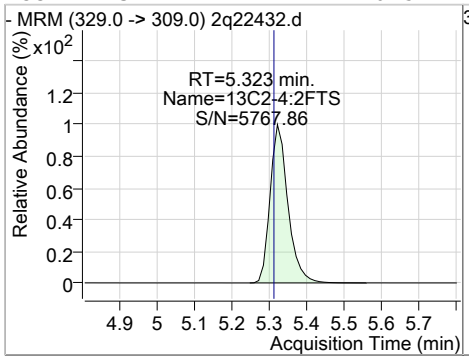
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.07	4.47	0.01	1814	299.0 -> 99.0	40.0	8.1	68.1

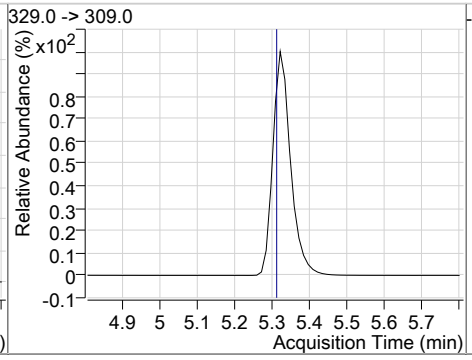


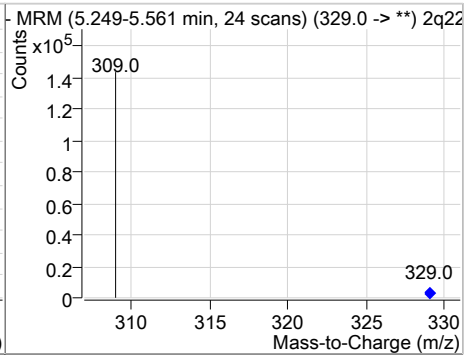




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.15	5.32	0.01	106319				

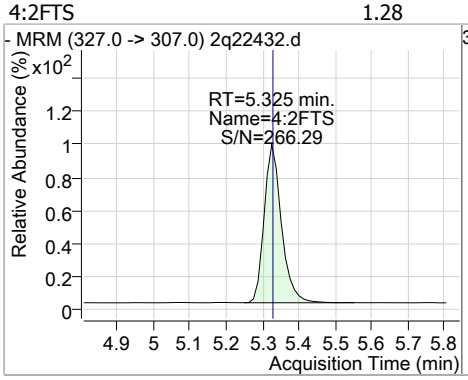


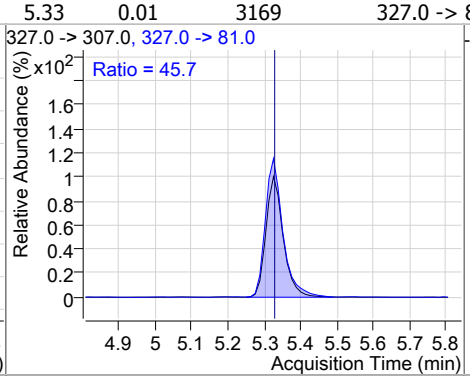


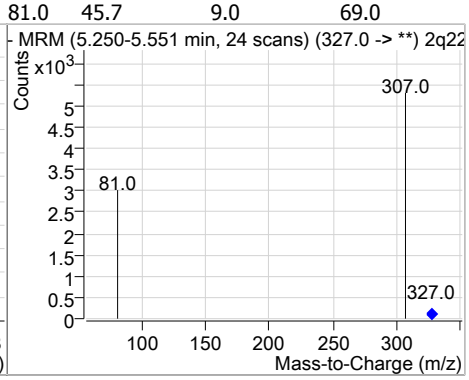


Perfluorinated Compounds by LC/MS/MS

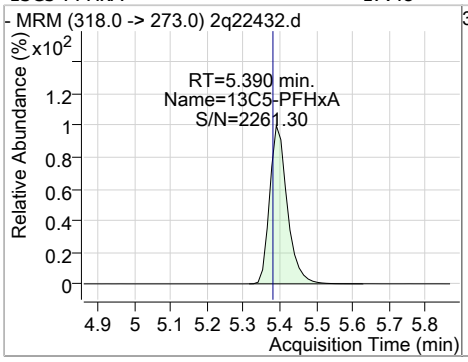
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.28	5.33	0.01	3169	327.0 -> 81.0	45.7	9.0	69.0

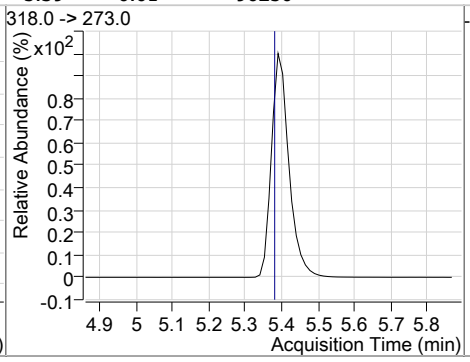


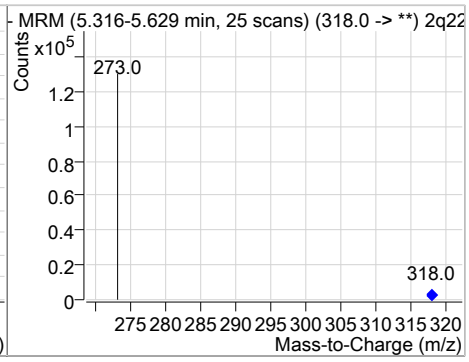




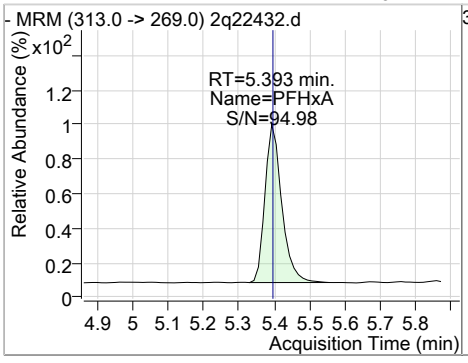
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.48	5.39	0.01	96250				

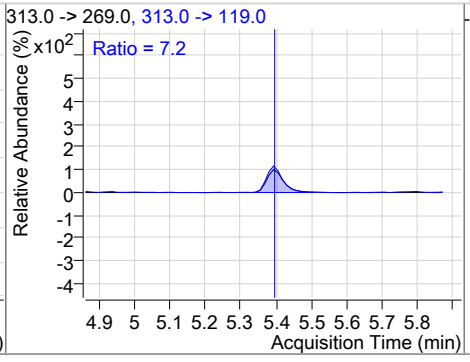


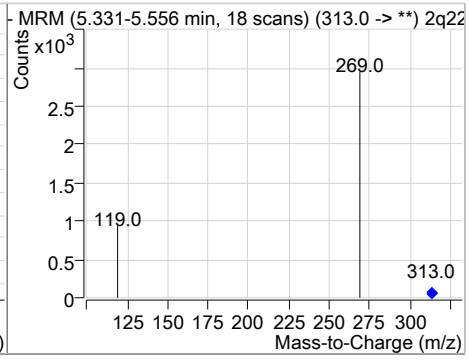




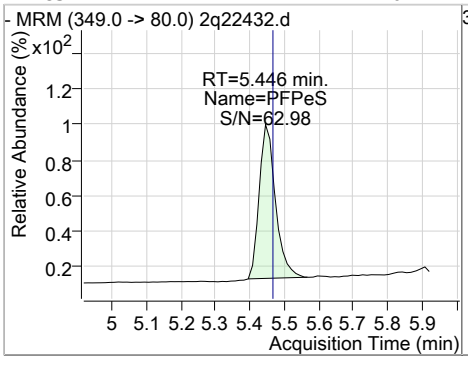
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.04	5.39	0.01	1603	313.0 -> 119.0	7.2	0.0	36.4

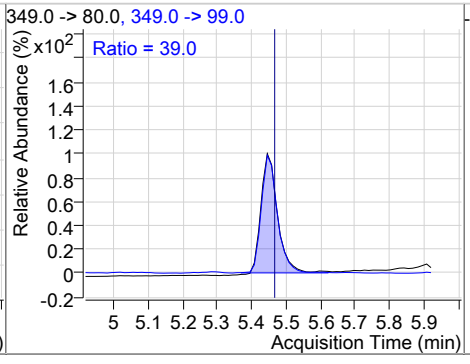


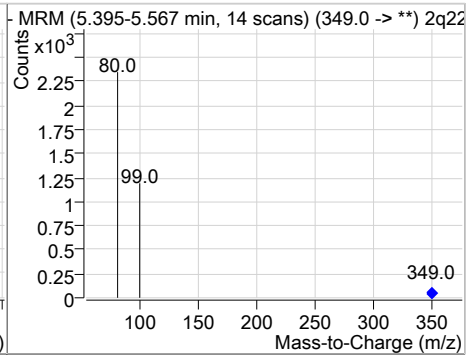




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.10	5.45	0.01	1210	349.0 -> 99.0	39.0	9.5	69.5

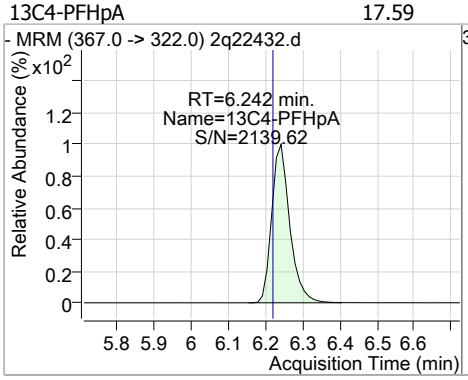


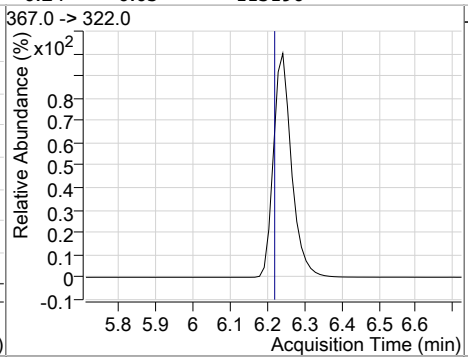


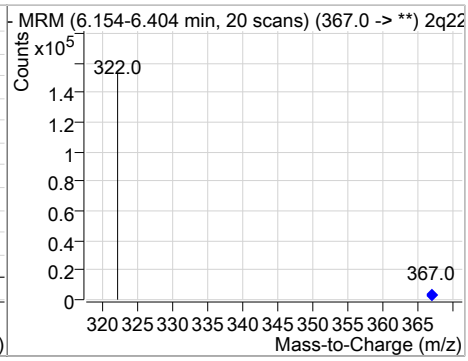


Perfluorinated Compounds by LC/MS/MS

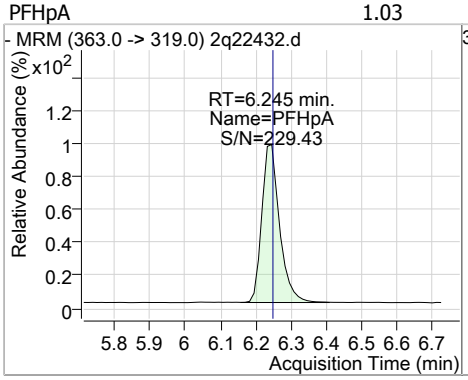
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.59	6.24	0.03	113190				

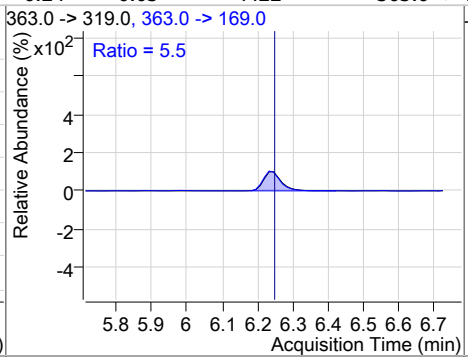


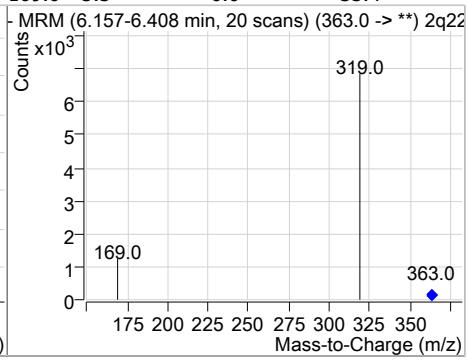




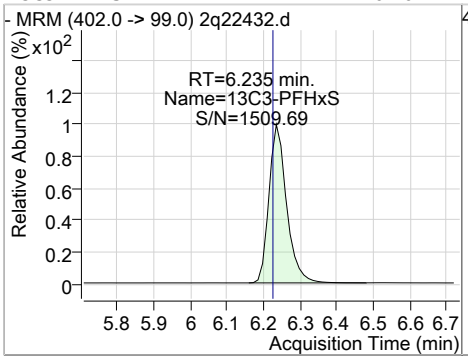
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.03	6.24	0.03	4422	363.0 -> 169.0	5.5	0.0	35.4

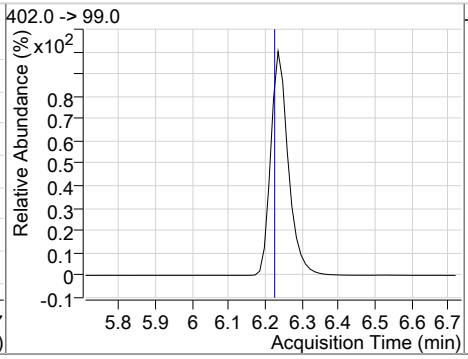


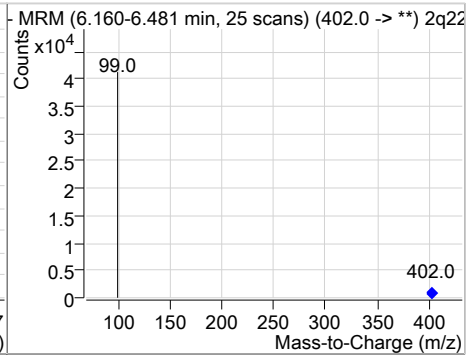




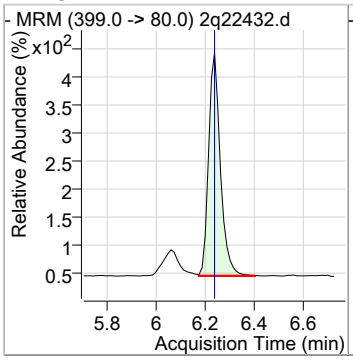
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.46	6.24	0.01	29305				

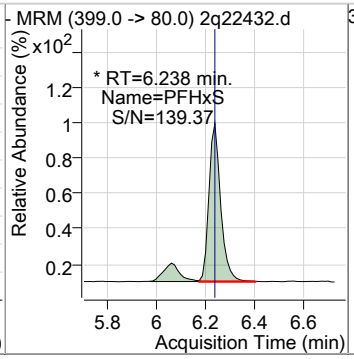


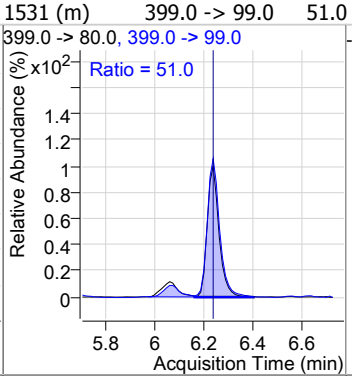


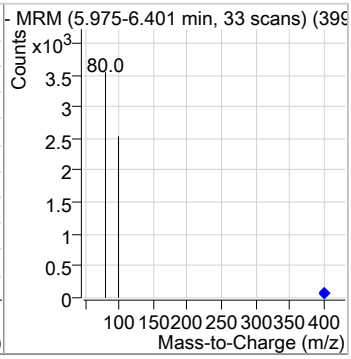


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.07	6.24	0.01	1531 (m)	399.0 -> 99.0	51.0	17.7	77.7



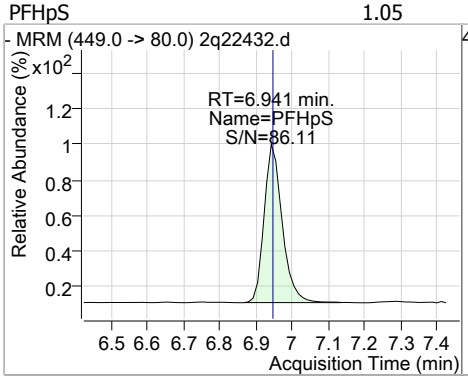


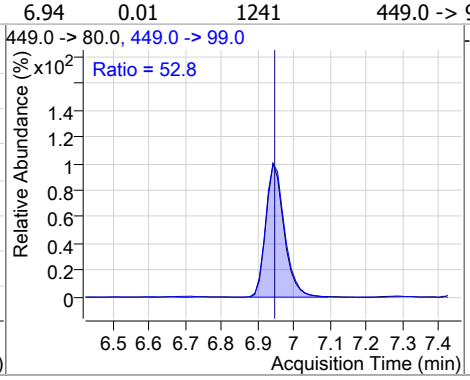


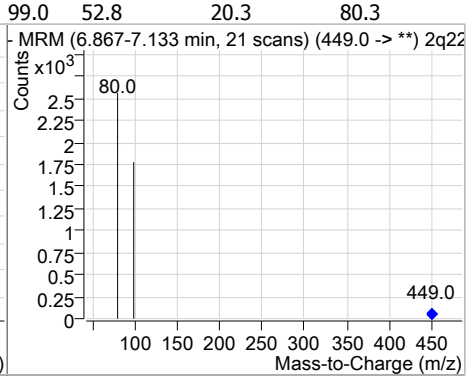


Perfluorinated Compounds by LC/MS/MS

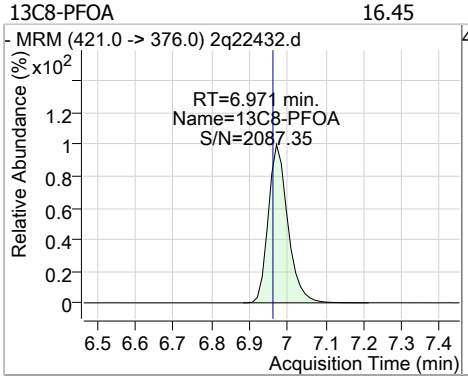
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.05	6.94	0.01	1241	449.0 -> 99.0	52.8	20.3	80.3

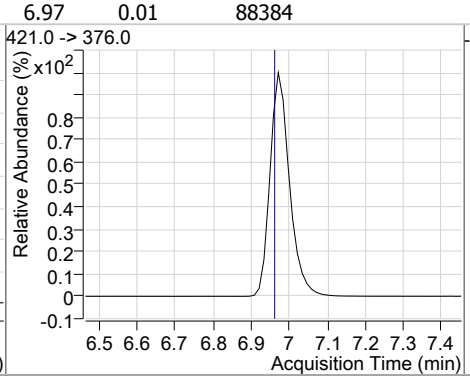


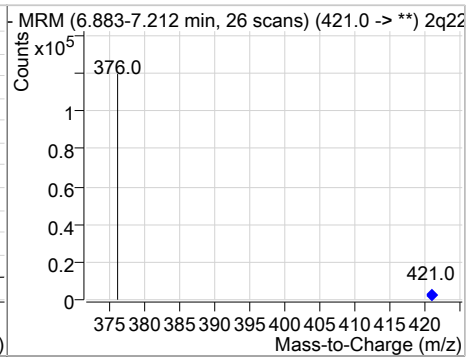




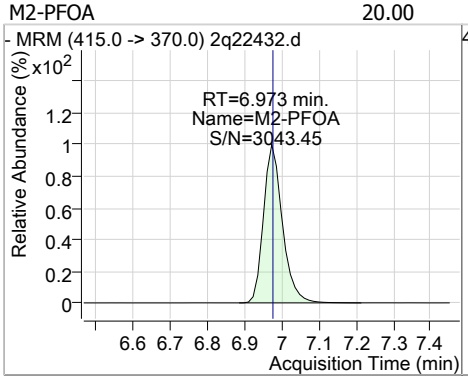
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	16.45	6.97	0.01	88384				

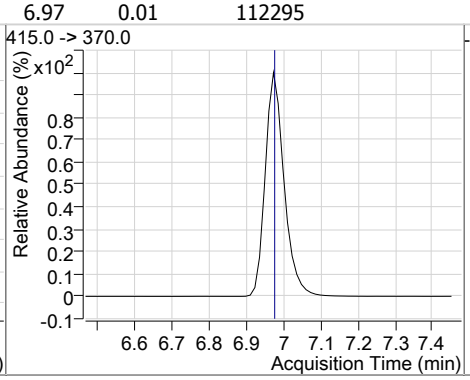


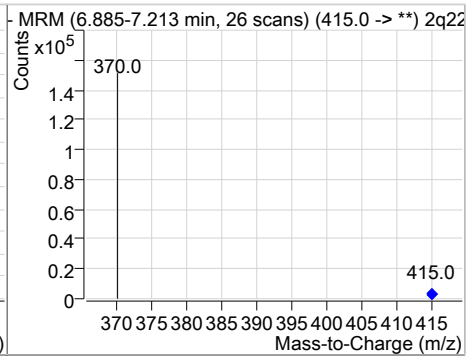




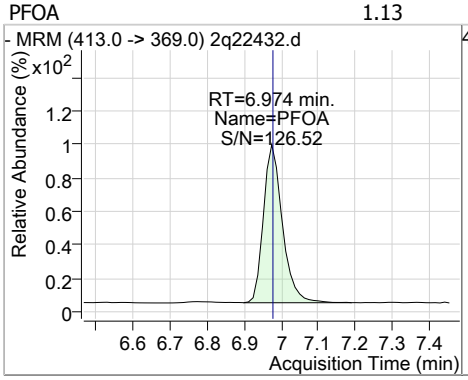
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	112295				

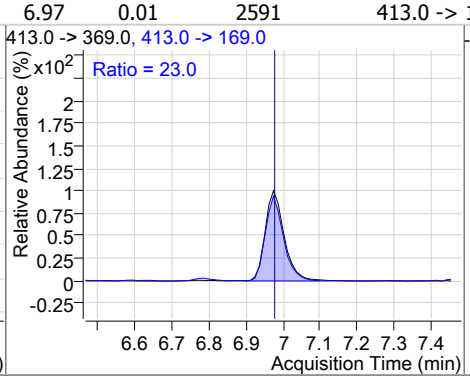


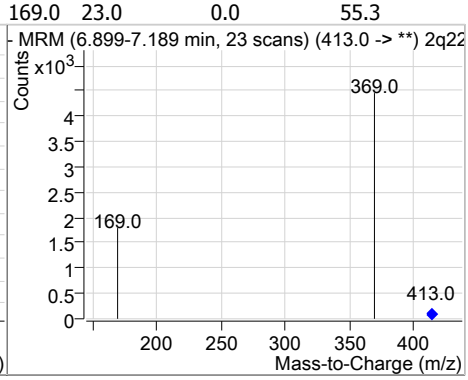




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.13	6.97	0.01	2591	413.0 -> 169.0	23.0	0.0	55.3

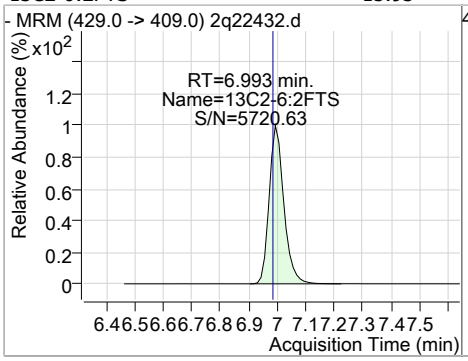


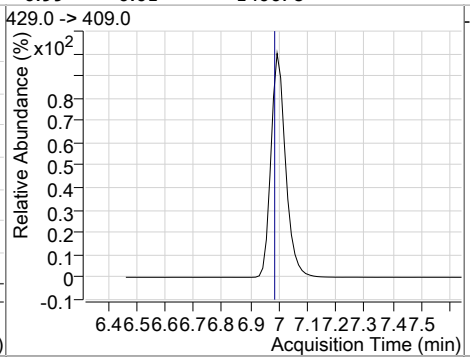


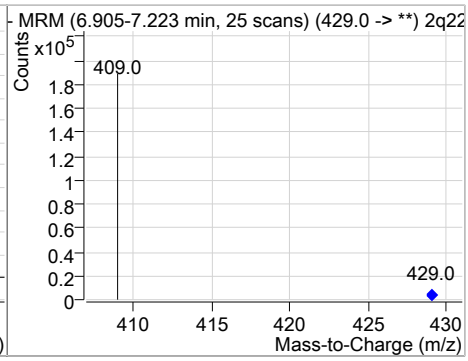


Perfluorinated Compounds by LC/MS/MS

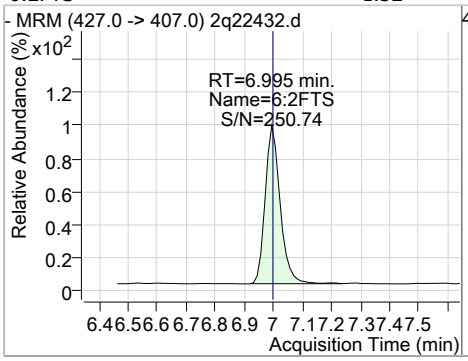
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	15.93	6.99	0.01	140678				

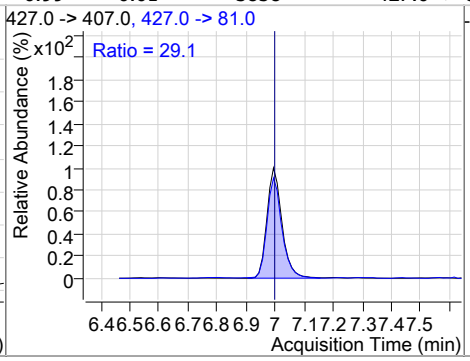


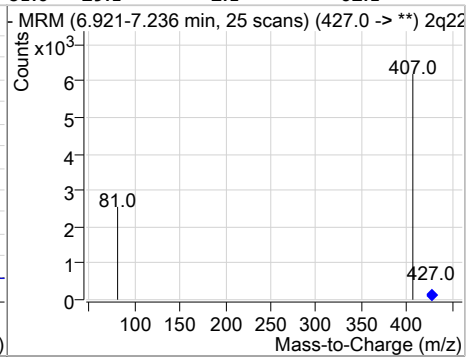




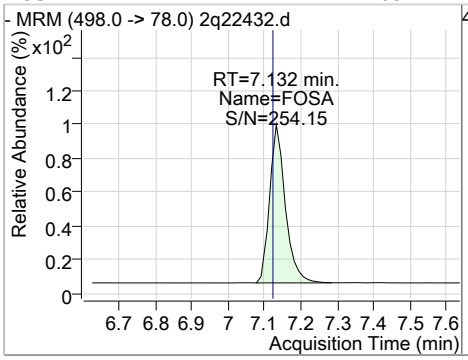
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.32	6.99	0.01	3858	427.0 -> 81.0	29.1	2.1	62.1

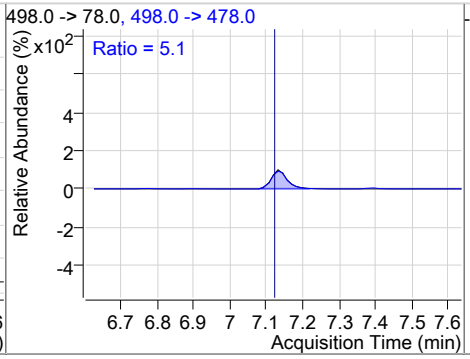


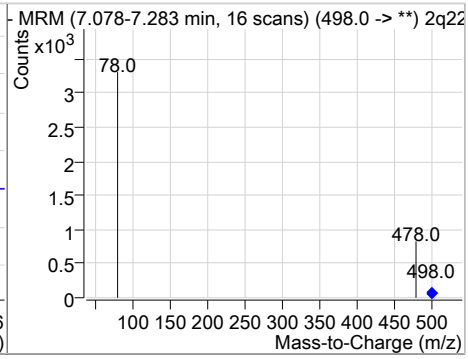




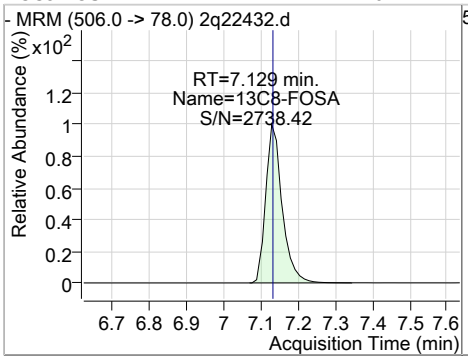
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.05	7.13	0.01	2002	498.0 -> 478.0	5.1	0.0	35.4

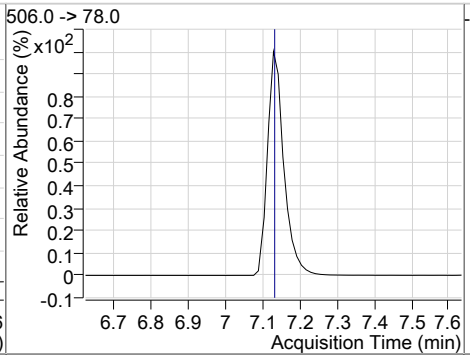


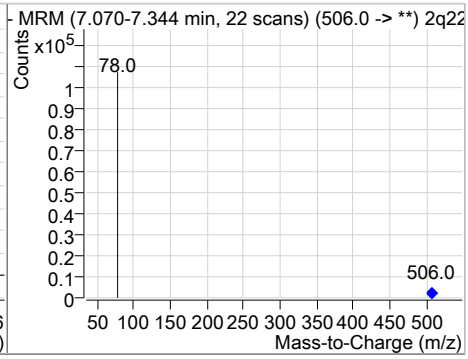




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.71	7.13	0.00	80364				

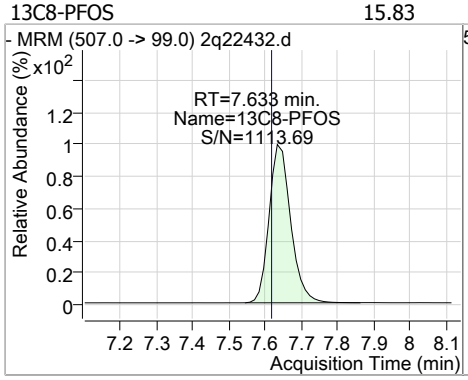


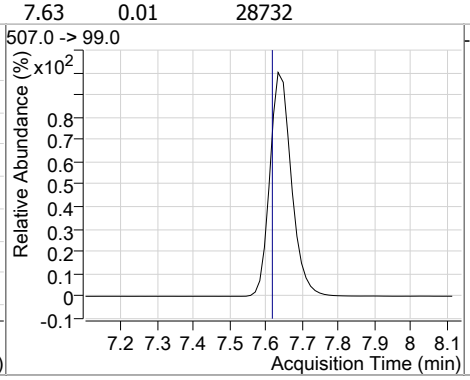


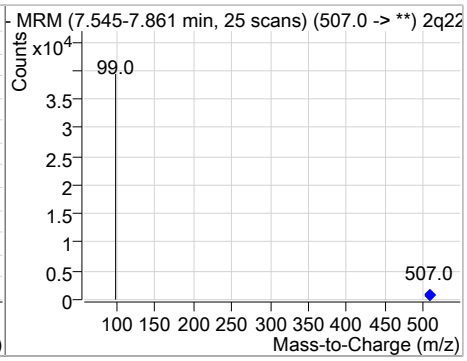


Perfluorinated Compounds by LC/MS/MS

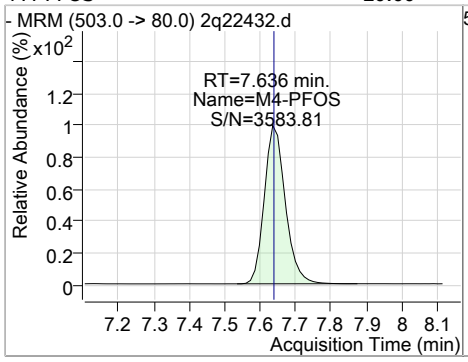
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.83	7.63	0.01	28732				

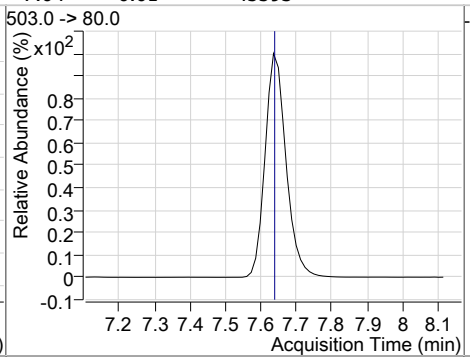


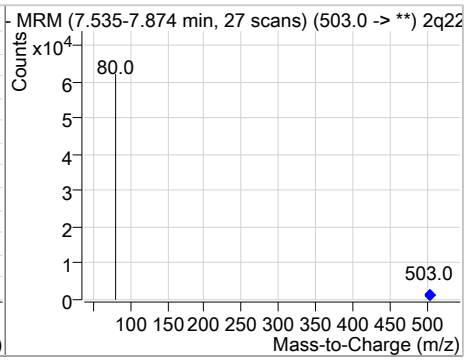




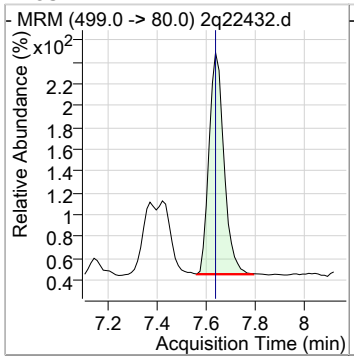
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.64	0.01	45593				

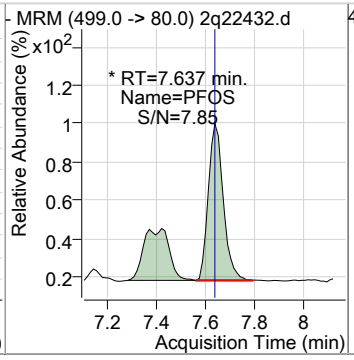


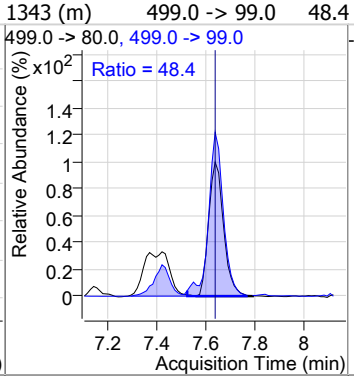


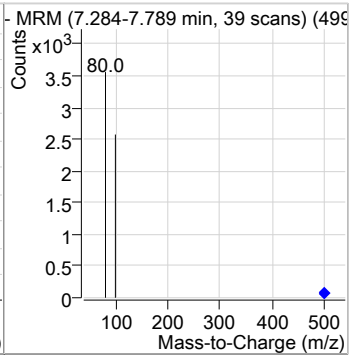


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.09	7.64	0.01	1343 (m)	499.0 -> 99.0	48.4	21.5	81.5

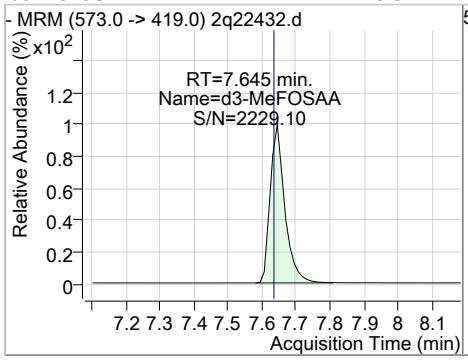


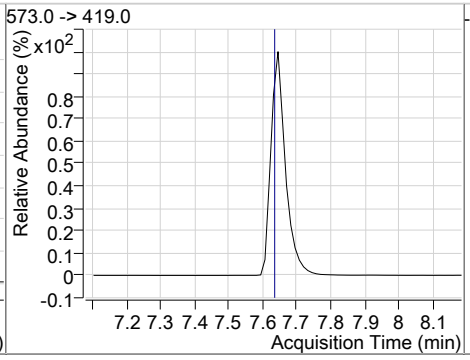


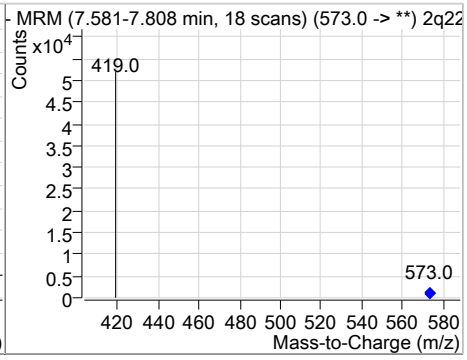




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	16.54	7.64	0.01	38464				

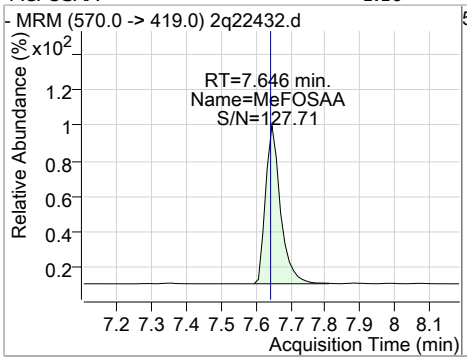


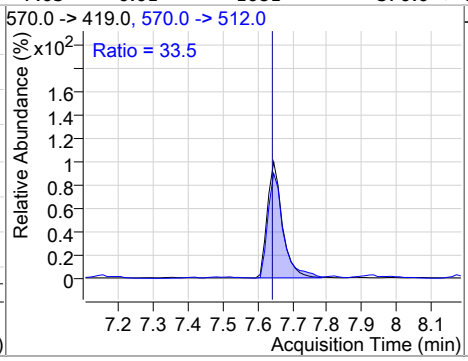


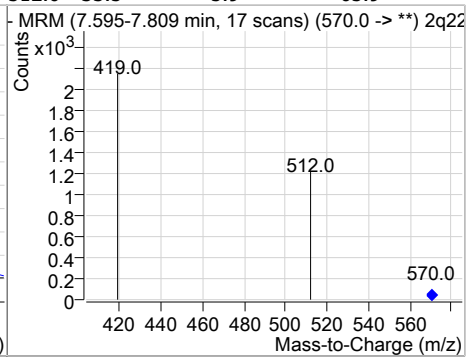


Perfluorinated Compounds by LC/MS/MS

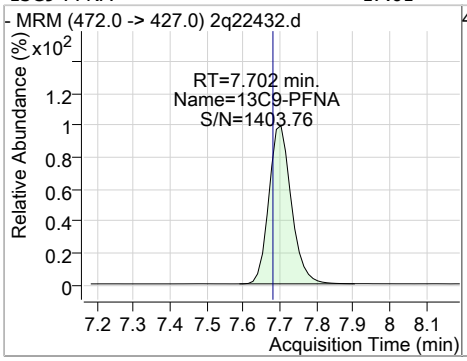
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.10	7.65	0.01	1081	570.0 -> 512.0	33.5	5.9	65.9

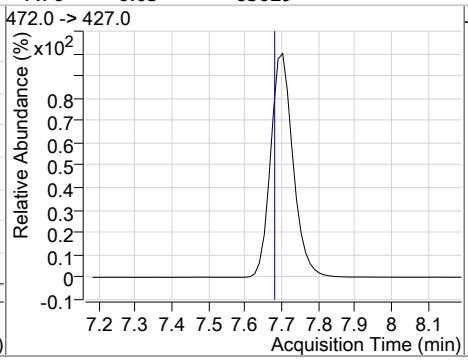


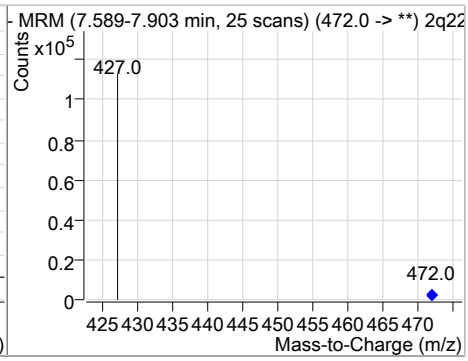




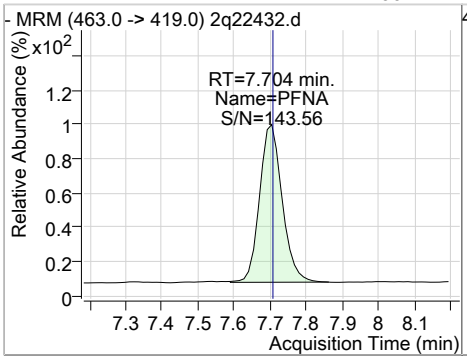
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.01	7.70	0.03	83629				

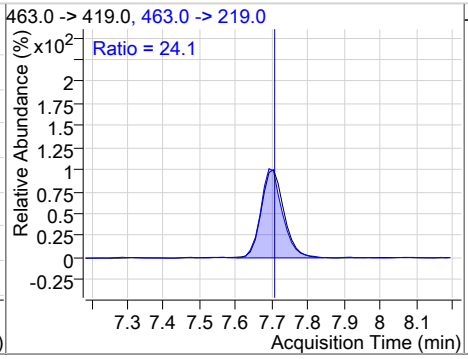


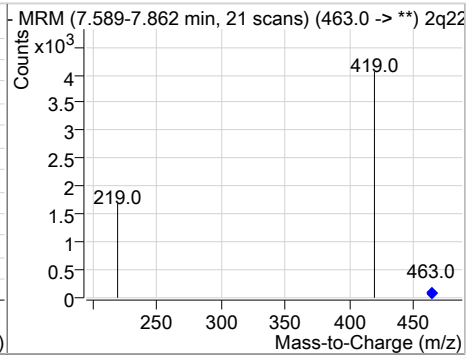




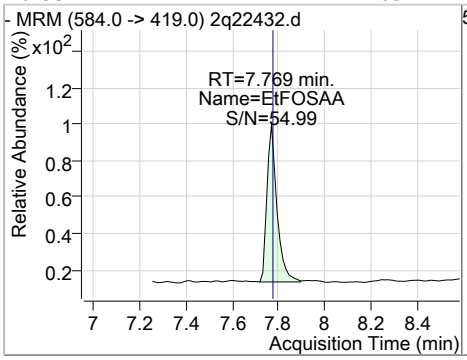
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.00	7.70	0.03	2304	463.0 -> 219.0	24.1	0.0	54.8

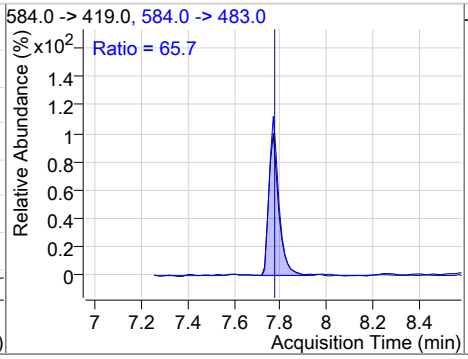


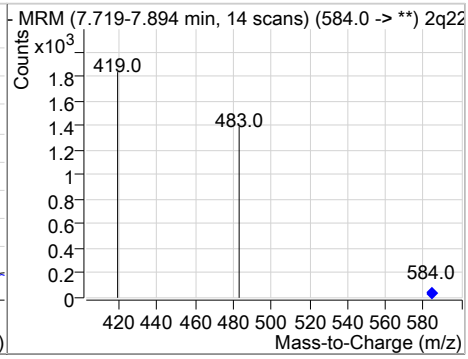




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.03	7.77	0.01	902	584.0 -> 483.0	65.7	30.5	90.5

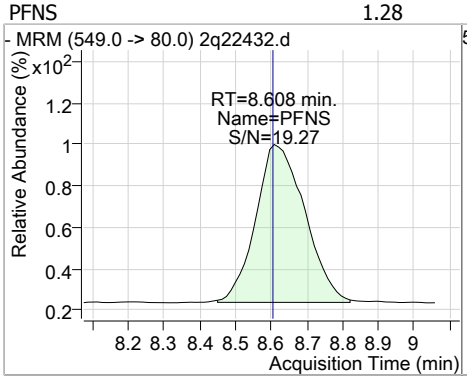


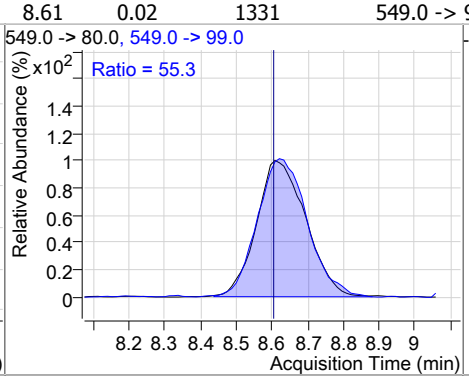


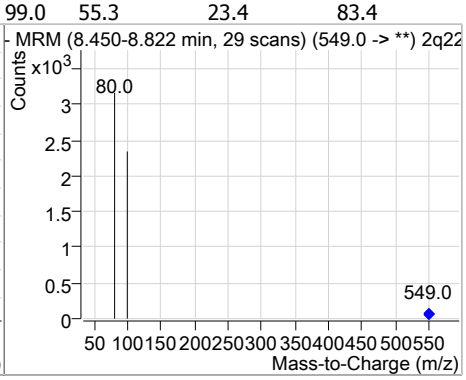


Perfluorinated Compounds by LC/MS/MS

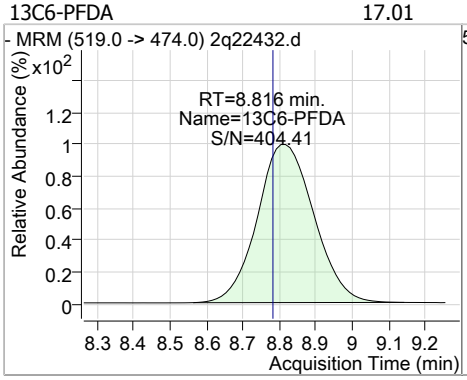
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.28	8.61	0.02	1331	549.0 -> 99.0	55.3	23.4	83.4

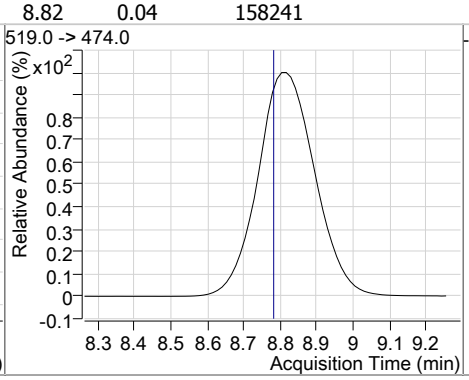


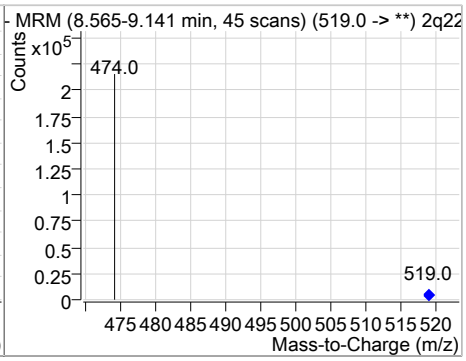




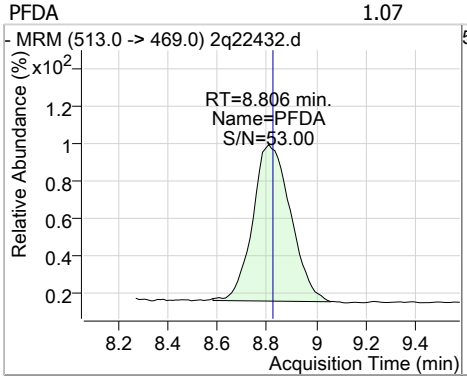
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.01	8.82	0.04	158241				

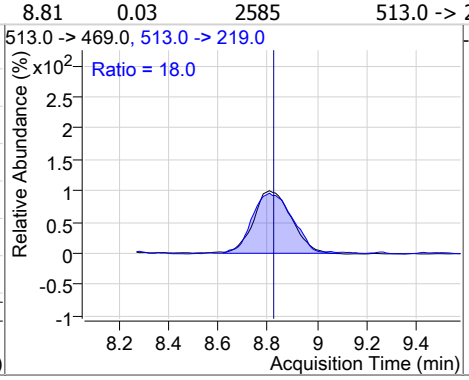


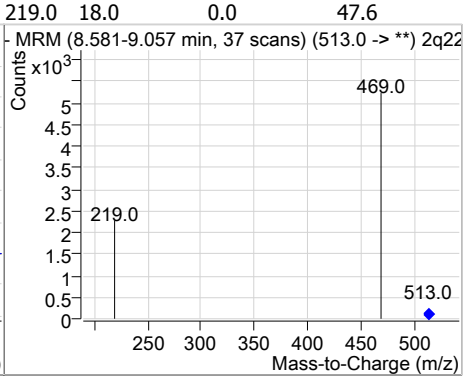




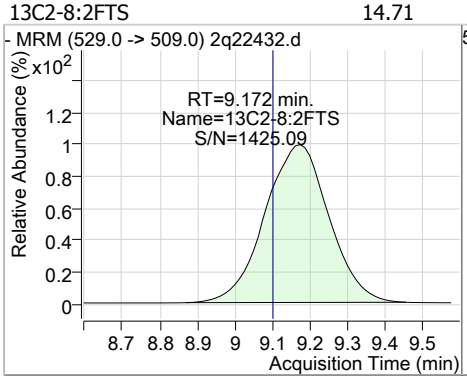
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.07	8.81	0.03	2585	513.0 -> 219.0	18.0	0.0	47.6

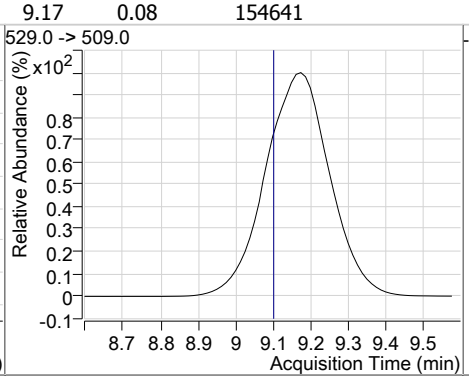


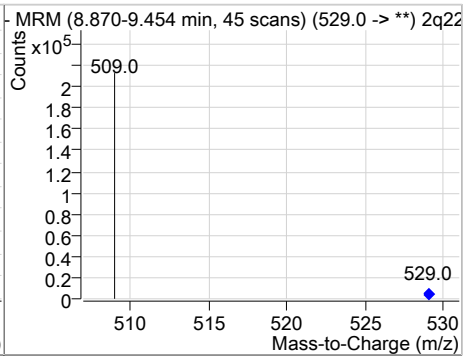




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	14.71	9.17	0.08	154641				

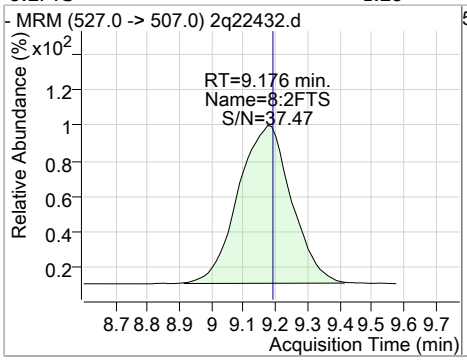


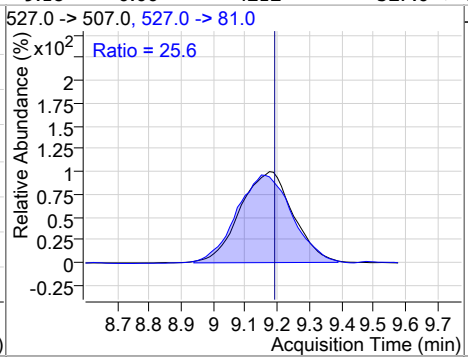


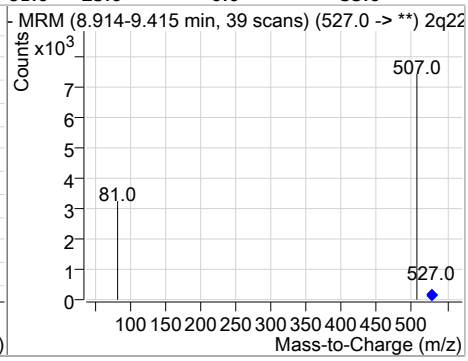


Perfluorinated Compounds by LC/MS/MS

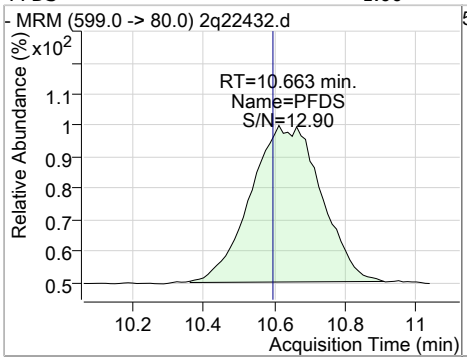
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.28	9.18	0.06	4212	527.0 -> 81.0	25.6	0.0	55.6

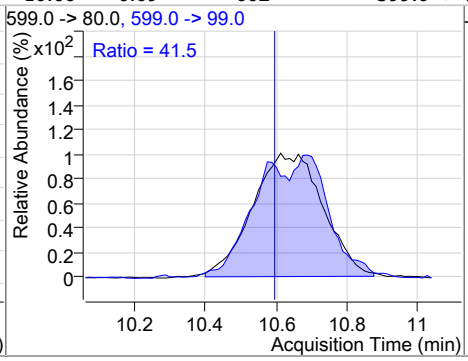


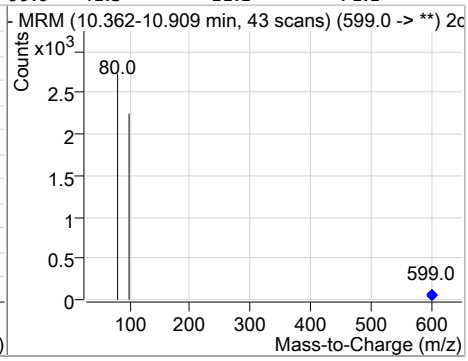




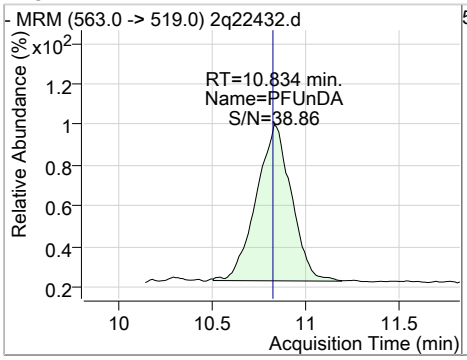
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.00	10.66	0.09	602	599.0 -> 99.0	41.5	11.1	71.1

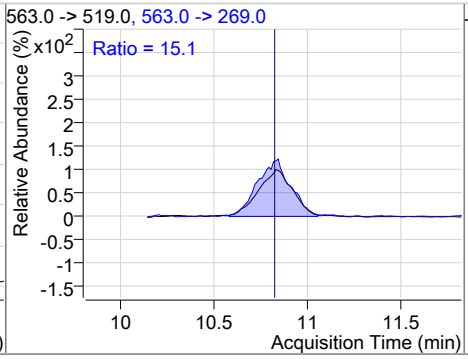


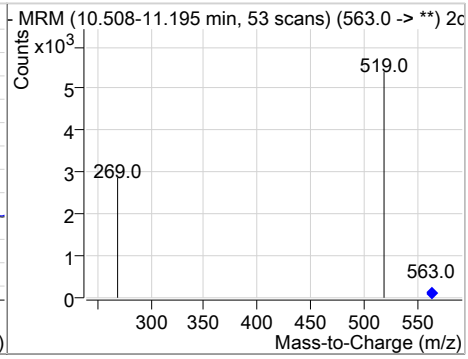




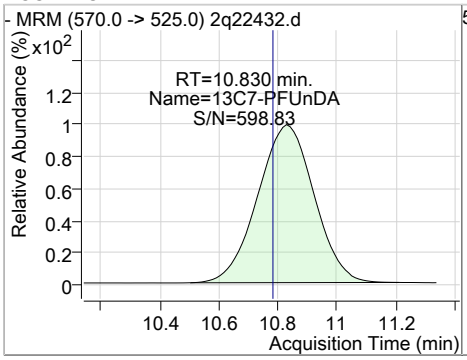
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.11	10.83	0.06	2050	563.0 -> 269.0	15.1	0.0	43.1

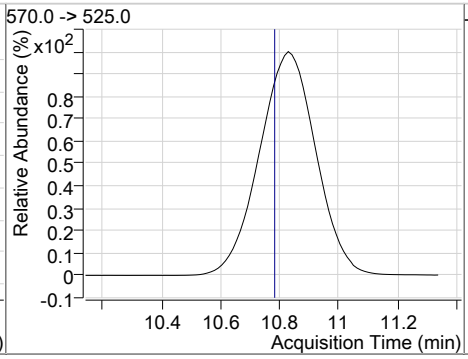


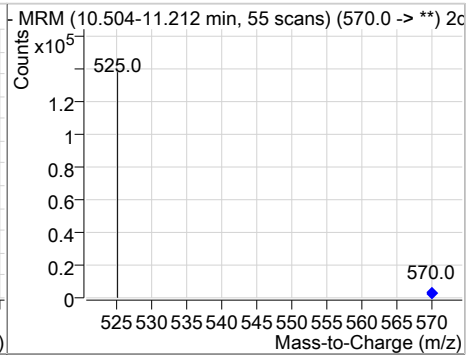




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	14.44	10.83	0.05	98862				

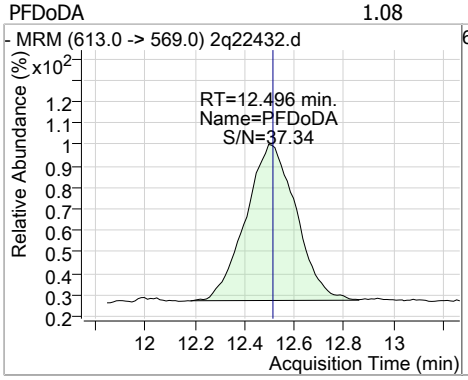


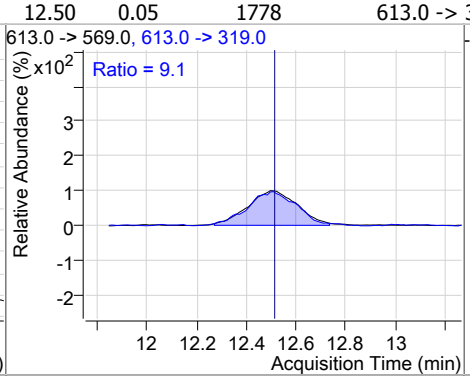


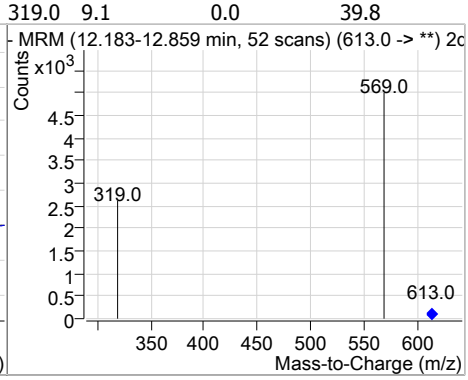


Perfluorinated Compounds by LC/MS/MS

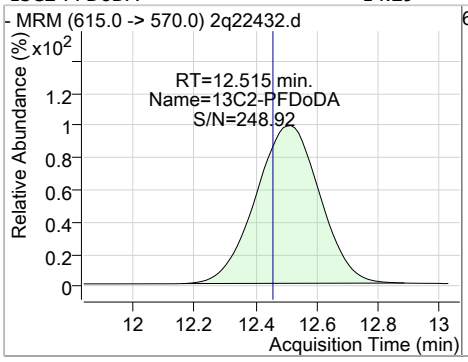
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.08	12.50	0.05	1778	613.0 -> 319.0	9.1	0.0	39.8

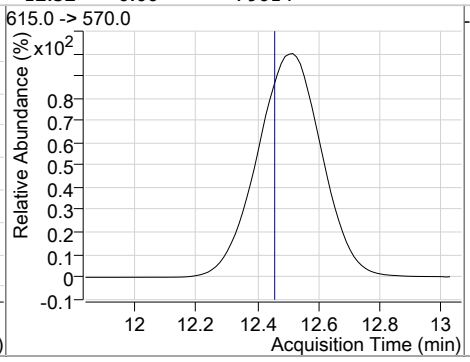


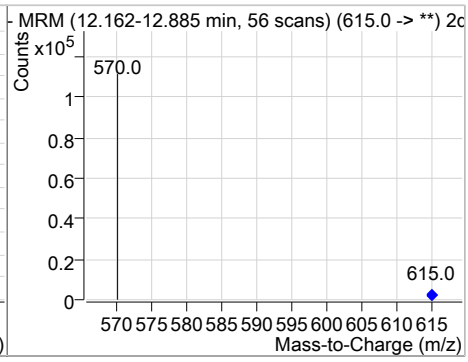




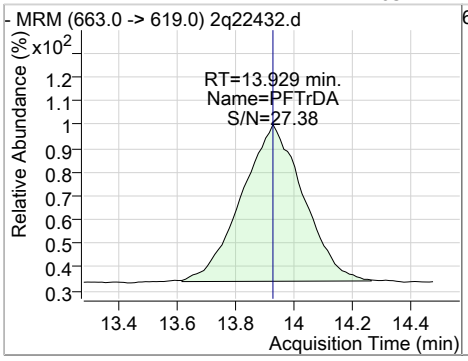
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	14.29	12.52	0.06	79014				

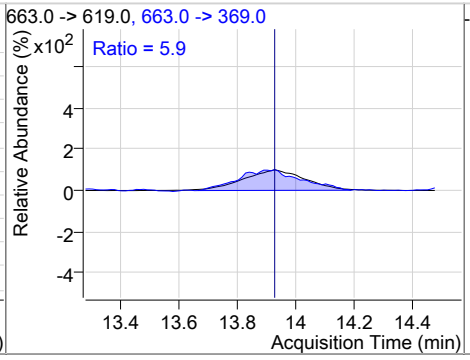


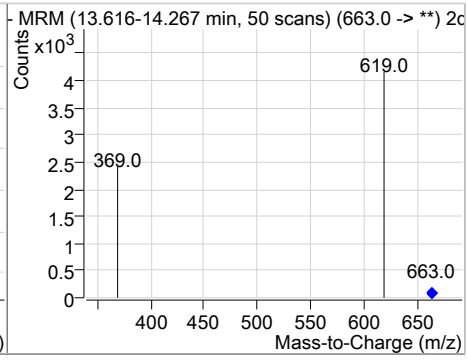




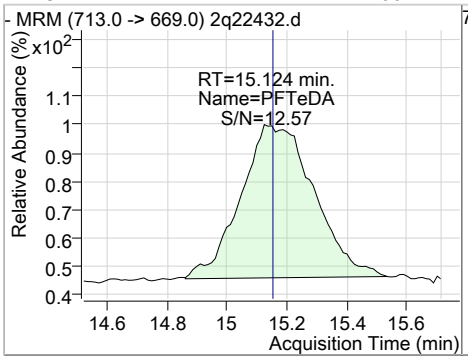
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.03	13.93	0.05	1307	663.0 -> 369.0	5.9	0.0	35.8

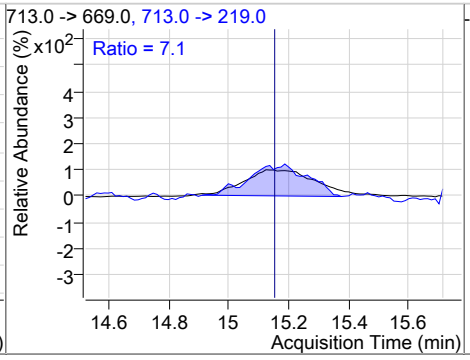


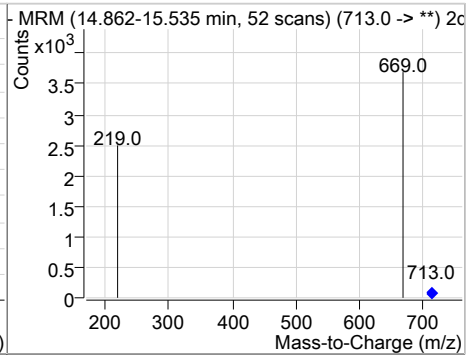




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.06	15.12	0.03	914	713.0 -> 219.0	7.1	0.0	37.4

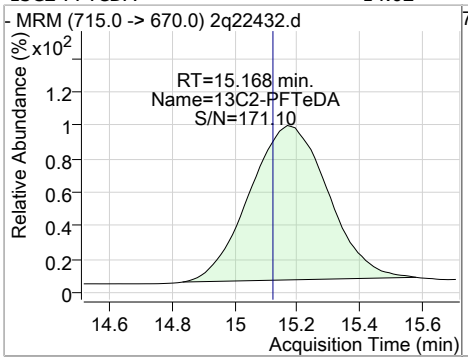


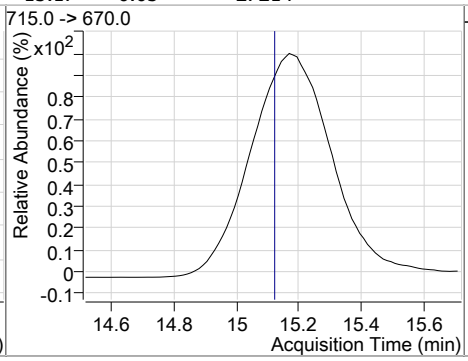


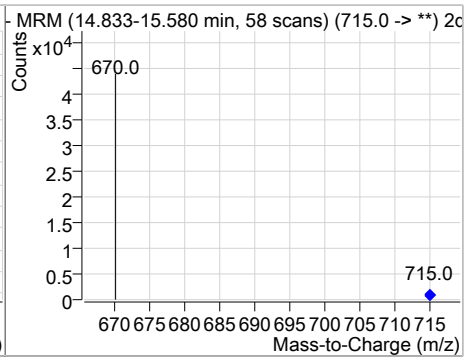


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	14.02	15.17	0.05	27214				







Manual Integration Approval Summary

Sample Number: S2Q352-CC350
Lab FileID: 2Q22432.D
Injection Time: 10/20/18 03:08
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 12:40 Natasha Gumtie
Supervisor approved: 10/22/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/22/18 15:57

Perfluorinated Compounds by LC/MS/MS

Data File : 2q22433.d
Operator : NATASHAG
Acq. Method : dMRM_ID_PFC.m
Acq. Date-Time : 10/20/2018 3:29:48 AM
Sample Name : cc350-20
Vial : Vial 7
DA Method File : PFC_ID_101618_S2Q350.quantmethod.xml
Batch Name : s2q352.batch.bin
Sample Information : op71956,S2Q352,130,,,1.0,1,water

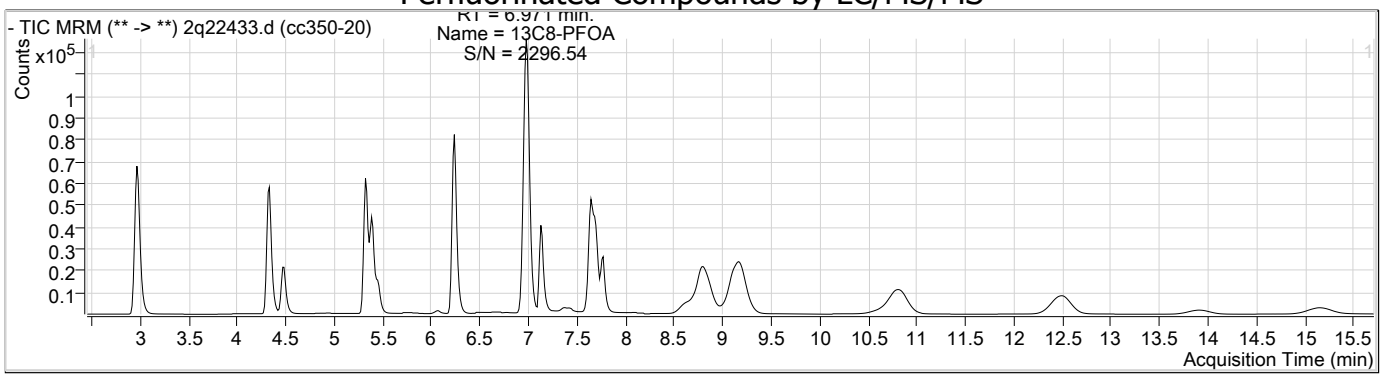
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.973	415.0 -> 370.0	113696	20.00	µg/L	0.013
13C4-PFOS	7.636	503.0 -> 80.0	46016	20.00	µg/L	0.013
M4-PFBA	2.966	217.0 -> 172.0	233330	20.00	µg/L	0.013
M5-PFPeA	4.337	268.0 -> 223.0	100485	20.00	µg/L	0.025
M5-PFHxA	5.390	318.0 -> 273.0	95641	20.00	µg/L	0.013
M4-PFHpA	6.242	367.0 -> 322.0	111864	20.00	µg/L	0.025
M8-PFOA	6.971	421.0 -> 376.0	88566	20.00	µg/L	0.013
M9-PFNA	7.702	472.0 -> 427.0	81530	20.00	µg/L	0.025
M6-PFDA	8.804	519.0 -> 474.0	158412	20.00	µg/L	0.025
M7-PFUnDA	10.805	570.0 -> 525.0	100946	20.00	µg/L	0.025
M2-PFDoDA	12.490	615.0 -> 570.0	81763	20.00	µg/L	0.038
M2-PFTeDA	15.156	715.0 -> 670.0	30253	20.00	µg/L	0.038
M8-FOSA	7.129	506.0 -> 78.0	77470	20.00	µg/L	0.000
M3-PFBS	4.481	302.0 -> 99.0	23507	20.00	µg/L	0.025
M3-PFHxS	6.235	402.0 -> 99.0	29326	20.00	µg/L	0.013
M8-PFOS	7.634	507.0 -> 99.0	28722	20.00	µg/L	0.013
M2-4:2FTS	5.323	329.0 -> 309.0	113524	20.00	µg/L	0.013
M2-6:2FTS	6.993	429.0 -> 409.0	150506	20.00	µg/L	0.013
M2-8:2FTS	9.160	529.0 -> 509.0	169784	20.00	µg/L	0.063
M3-MeFOSAA	7.645	573.0 -> 419.0	37811	20.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	5.323	329.0 -> 309.0	113496	17.24	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.2%		
13C2-6:2FTS	6.993	429.0 -> 409.0	150513	17.05	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.2%		
13C2-8:2FTS	9.160	529.0 -> 509.0	168646	16.05	µg/L	0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.2%		
13C2-PFDoDA	12.490	615.0 -> 570.0	81232	14.69	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.5%		
13C2-PFTeDA	15.156	715.0 -> 670.0	28330	14.60	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.0%		
13C3-PFBS	4.481	302.0 -> 99.0	23507	16.81	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.0%		
13C3-PFHxS	6.235	402.0 -> 99.0	29327	16.47	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.3%		
13C4-PFBA	2.966	217.0 -> 172.0	233153	17.34	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.7%		
13C4-PFHpA	6.242	367.0 -> 322.0	111956	17.40	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.0%		
13C5-PFHxA	5.390	318.0 -> 273.0	95638	17.37	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.9%		
13C5-PFPeA	4.337	268.0 -> 223.0	100485	17.58	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.9%		
13C6-PFDA	8.804	519.0 -> 474.0	157978	16.98	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.9%		

Perfluorinated Compounds by LC/MS/MS

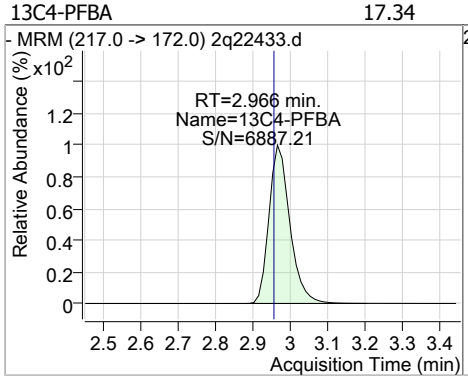
Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
13C7-PFUnDA	10.805	570.0 -> 525.0	100618	14.69	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 73.5%			
13C8-FOSA	7.129	506.0 -> 78.0	77468	19.96	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%			
13C8-PFOA	6.971	421.0 -> 376.0	88528	16.47	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.4%			
13C8-PFOS	7.634	507.0 -> 99.0	28719	15.83	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.1%			
13C9-PFNA	7.702	472.0 -> 427.0	81531	16.59	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.9%			
d3-MeFOSAA	7.645	573.0 -> 419.0	37833	16.27	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.3%			
M2-PFOA	6.973	415.0 -> 370.0	113707	20.00	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%			
M4-PFOS	7.636	503.0 -> 80.0	46038	20.02	ng/ml		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%			
Target Compounds							**QValue**
4:2FTS	5.325	327.0 -> 307.0	66270	25.12	µg/L		98
6:2FTS	6.995	427.0 -> 407.0	78494	25.06	µg/L		97
8:2FTS	9.163	527.0 -> 507.0	89998	25.22	µg/L		96
EtFOSAA	7.769	584.0 -> 419.0	19063	22.12	µg/L		100
FOSA	7.132	498.0 -> 78.0	40280	21.95	µg/L		100
MeFOSAA	7.646	570.0 -> 419.0	21609	22.40	µg/L		95
PFBA	2.974	213.0 -> 169.0	28661	20.49	µg/L		100
PFBS	4.472	299.0 -> 80.0	37292	21.94	µg/L		99
PFDA	8.806	513.0 -> 469.0	52036	21.56	µg/L		100
PFDoDA	12.496	613.0 -> 569.0	36744	21.70	µg/L		100
PFDS	10.613	599.0 -> 80.0	12837	21.43	µg/L		98
PFHpA	6.245	363.0 -> 319.0	91699	21.58	µg/L		99
PFHpS	6.941	449.0 -> 80.0	25545	21.54	µg/L		99
PFHxA	5.393	313.0 -> 269.0	32563	21.26	µg/L		99
PFHxS	6.238	399.0 -> 80.0	31244	21.84	µg/L	m	99
PFNA	7.704	463.0 -> 419.0	48033	21.44	µg/L		97
PFNS	8.621	549.0 -> 80.0	27295	26.32	µg/L		98
PFOA	6.974	413.0 -> 369.0	48350	21.10	µg/L		98
PFOS	7.637	499.0 -> 80.0	26889	21.84	µg/L	m	99
PFPeA	4.341	263.0 -> 219.0	103397	21.95	µg/L		100
PFPeS	5.446	349.0 -> 80.0	25907	23.54	µg/L		99
PFTeDA	15.150	713.0 -> 669.0	18750	20.97	µg/L		100
PFTrDA	13.904	663.0 -> 619.0	27567	21.08	µg/L		100
PFUnDA	10.821	563.0 -> 519.0	41009	21.87	µg/L		97

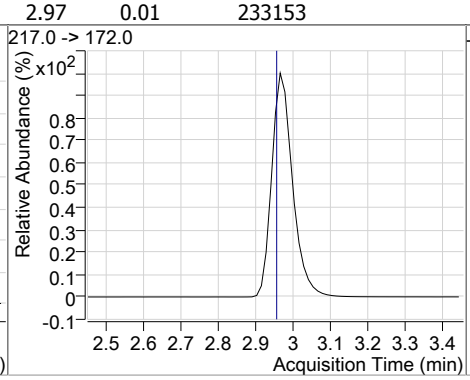
 # = Qualifier out of range, m = manually integrated, + = Area summed

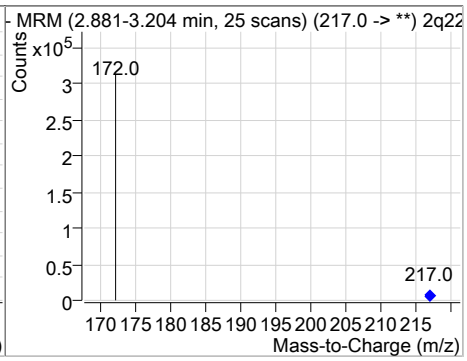
Perfluorinated Compounds by LC/MS/MS



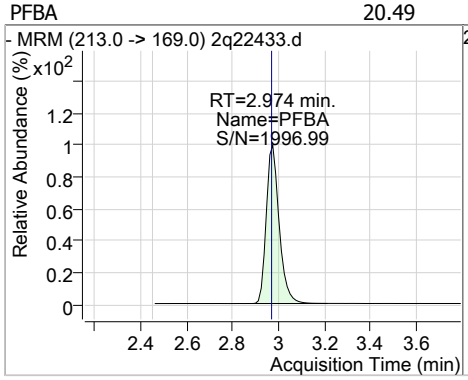
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.34	2.97	0.01	233153				

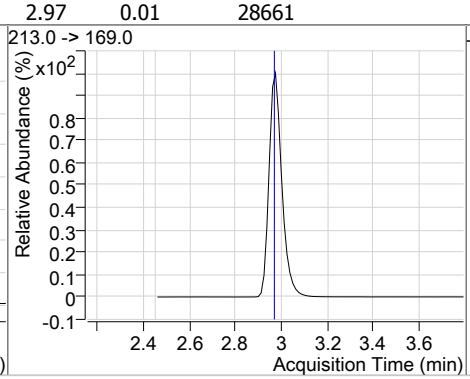


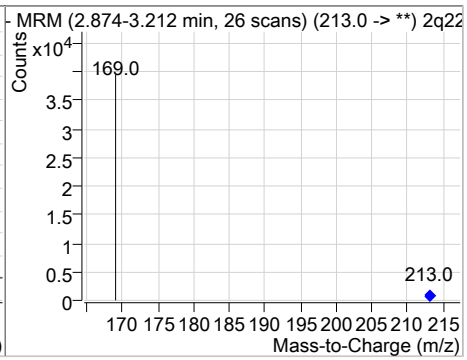




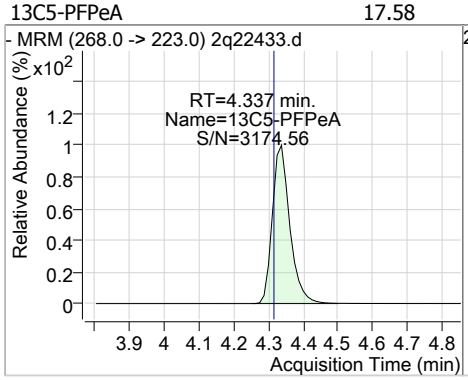
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.49	2.97	0.01	28661				

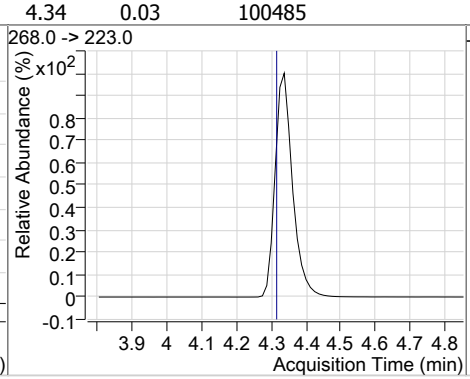


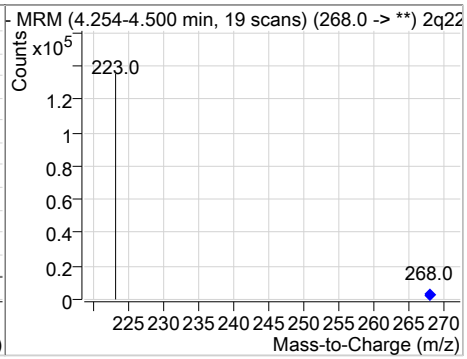




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.58	4.34	0.03	100485				

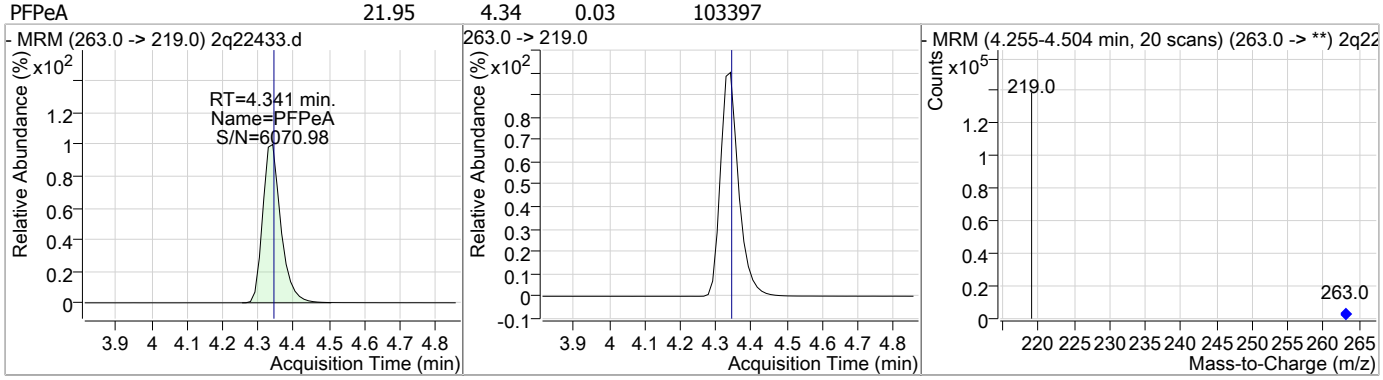




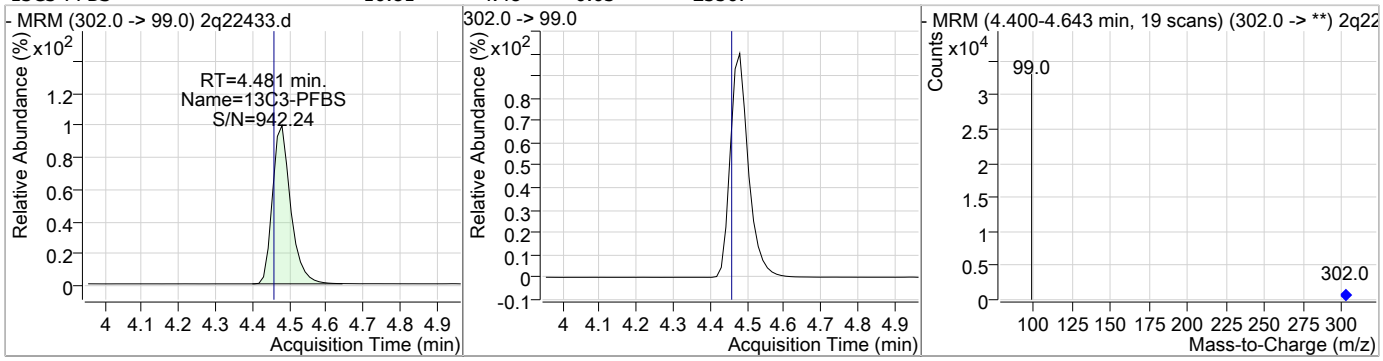


Perfluorinated Compounds by LC/MS/MS

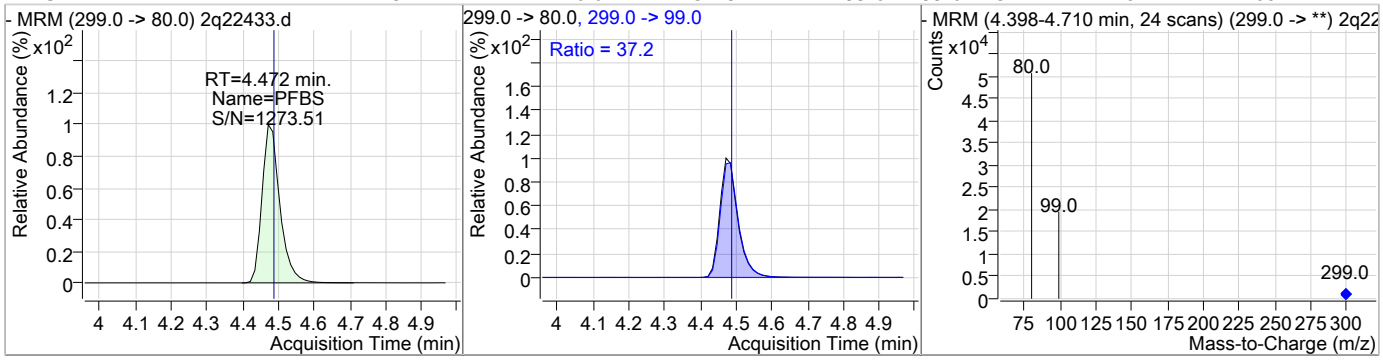
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	21.95	4.34	0.03	103397				



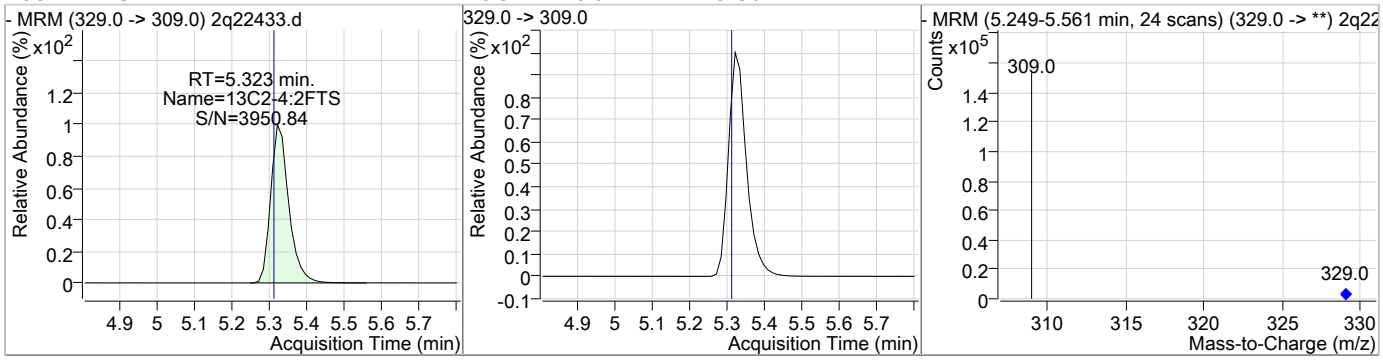
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	16.81	4.48	0.03	23507				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.94	4.47	0.01	37292	299.0 -> 99.0	37.2	8.1	68.1

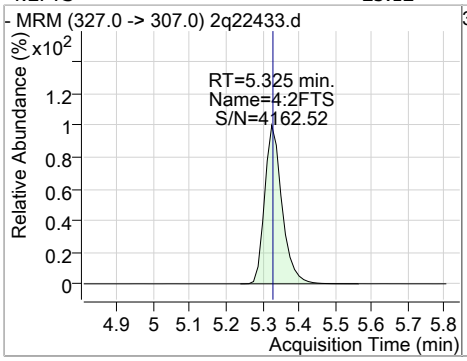


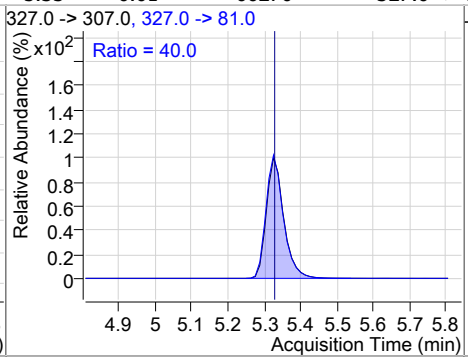
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.24	5.32	0.01	113496				

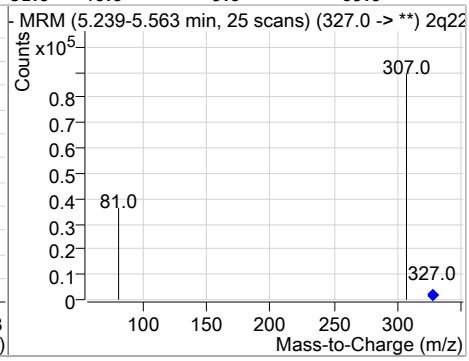


Perfluorinated Compounds by LC/MS/MS

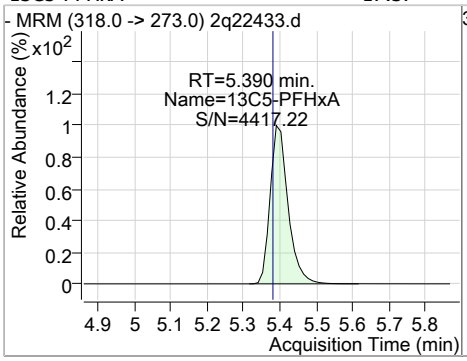
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	25.12	5.33	0.01	66270	327.0 -> 81.0	40.0	9.0	69.0

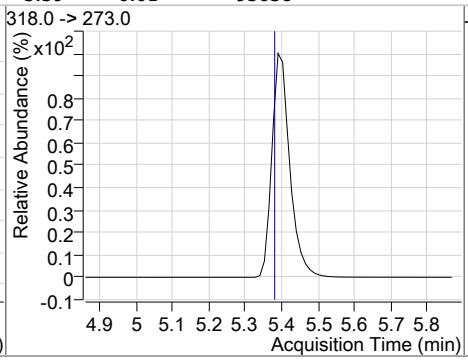


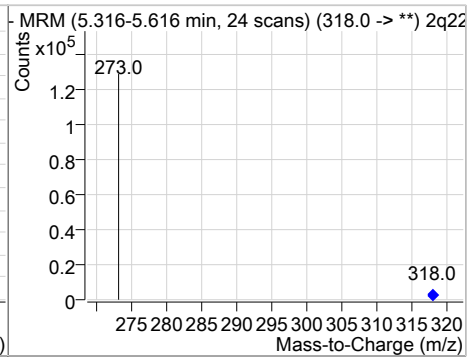




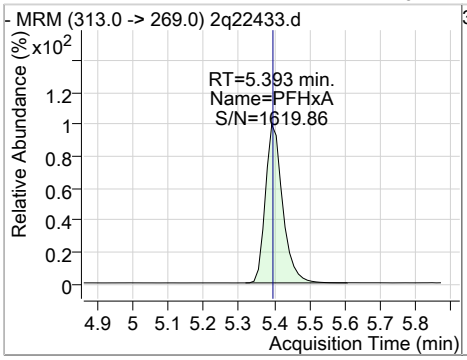
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.37	5.39	0.01	95638				

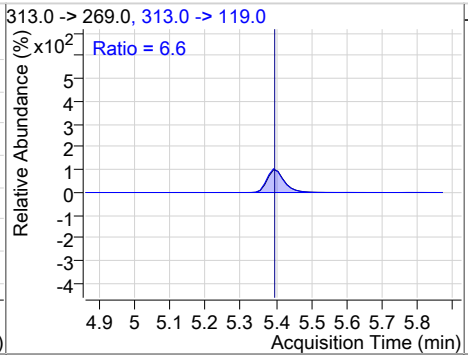


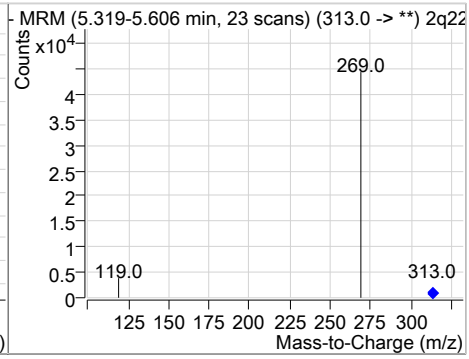




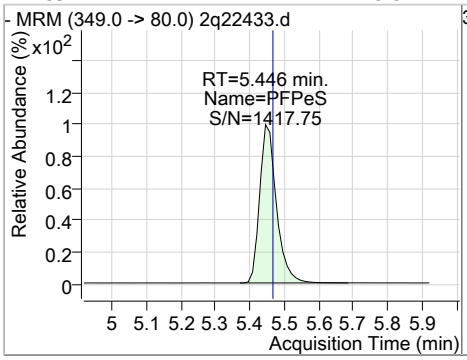
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.26	5.39	0.01	32563	313.0 -> 119.0	6.6	0.0	36.4

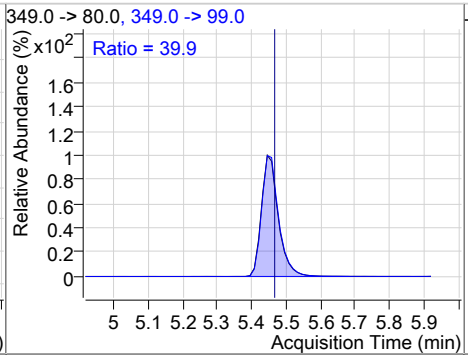


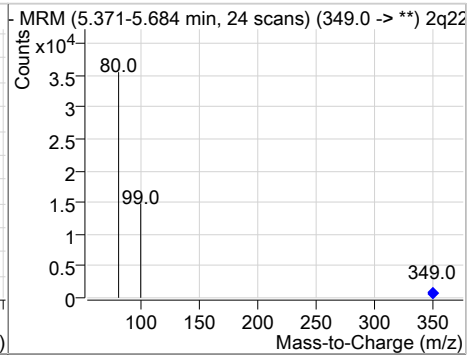




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	23.54	5.45	0.01	25907	349.0 -> 99.0	39.9	9.5	69.5

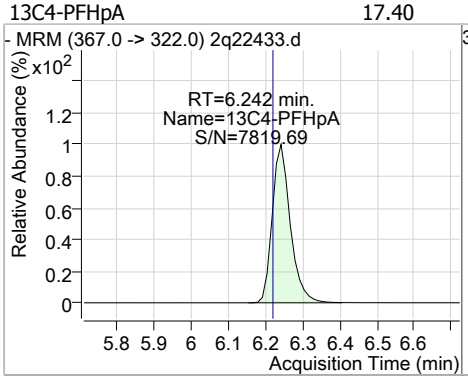


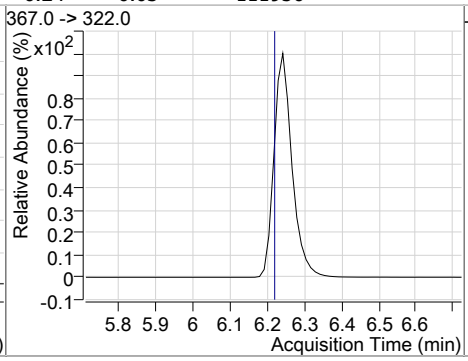


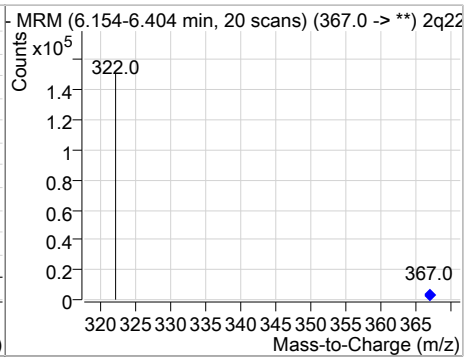


Perfluorinated Compounds by LC/MS/MS

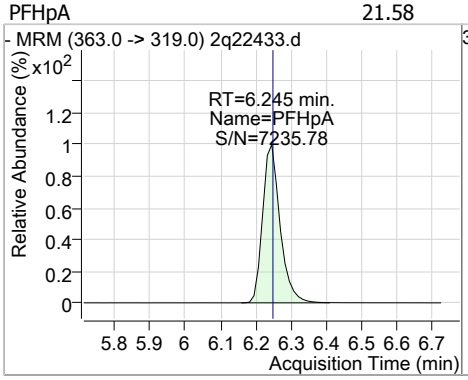
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.40	6.24	0.03	111956				

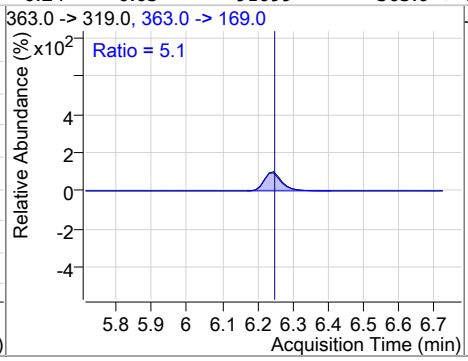


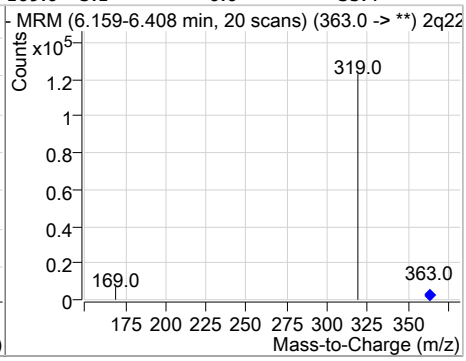




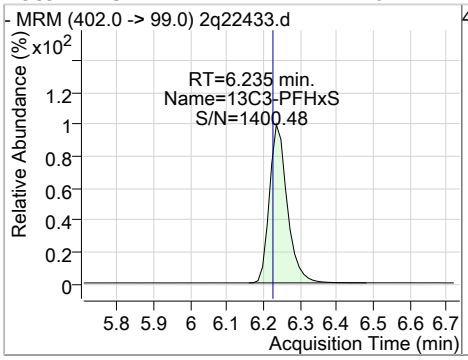
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.58	6.24	0.03	91699	363.0 -> 169.0	5.1	0.0	35.4

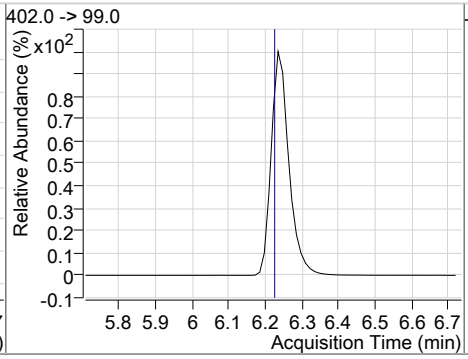


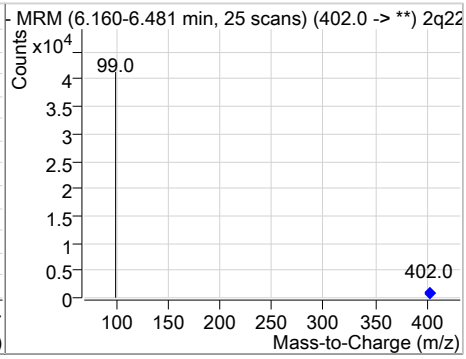




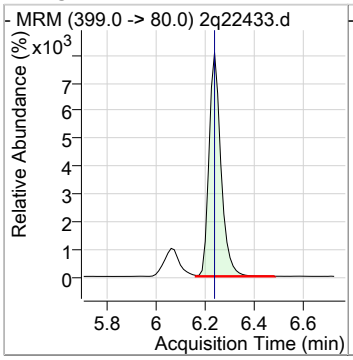
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.47	6.24	0.01	29327				

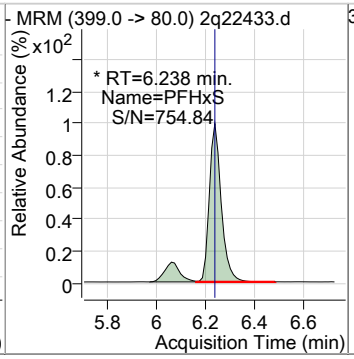


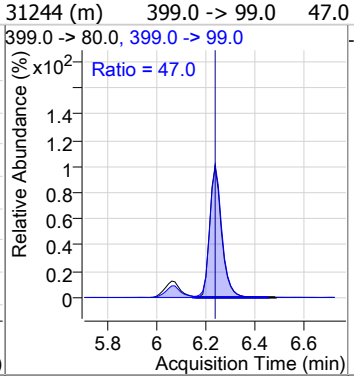


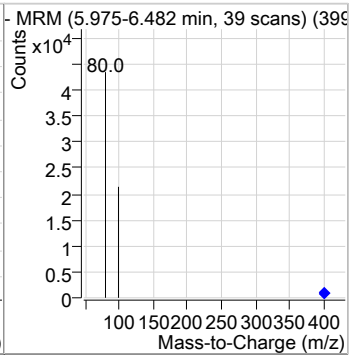


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.84	6.24	0.01	31244 (m)	399.0 -> 99.0	47.0	17.7	77.7



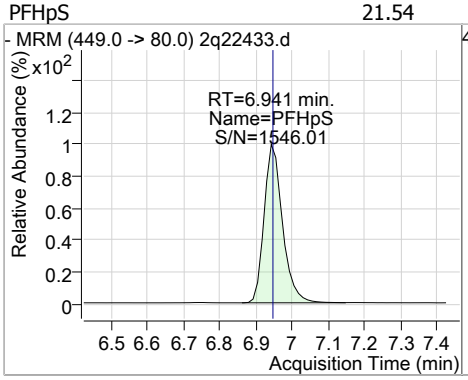


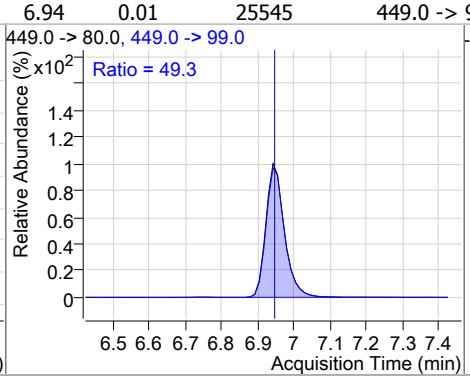


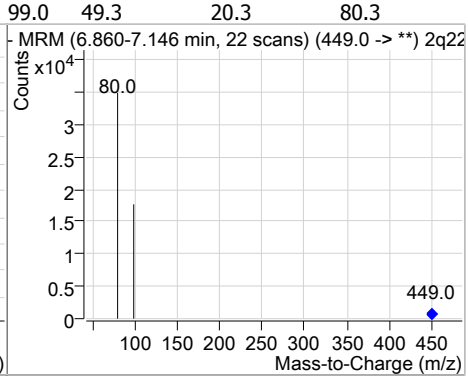


Perfluorinated Compounds by LC/MS/MS

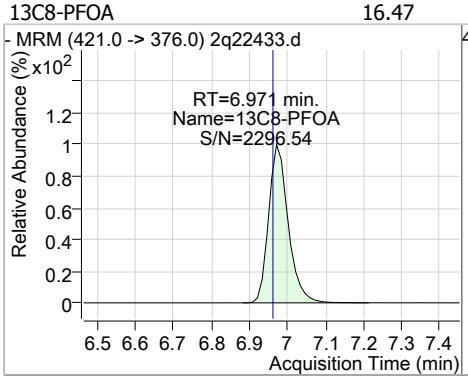
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	21.54	6.94	0.01	25545	449.0 -> 99.0	49.3	20.3	80.3

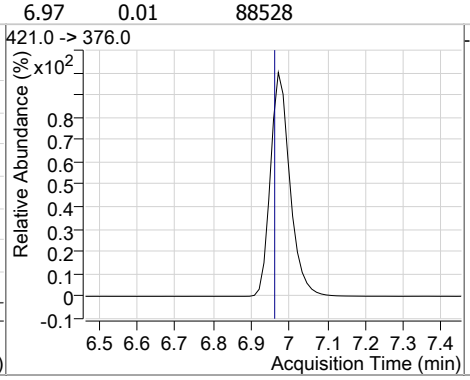


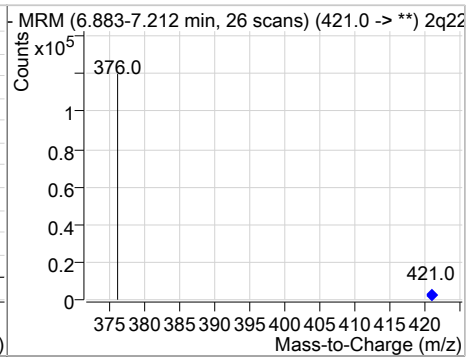




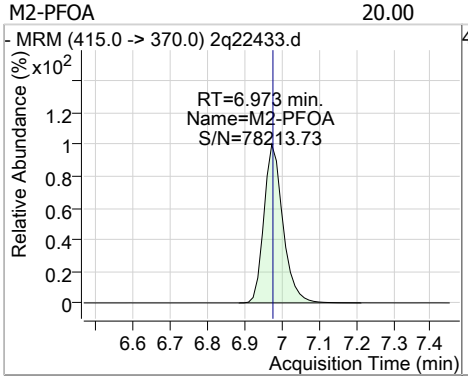
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	16.47	6.97	0.01	88528				

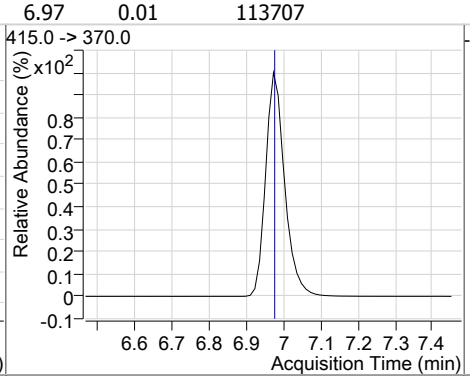


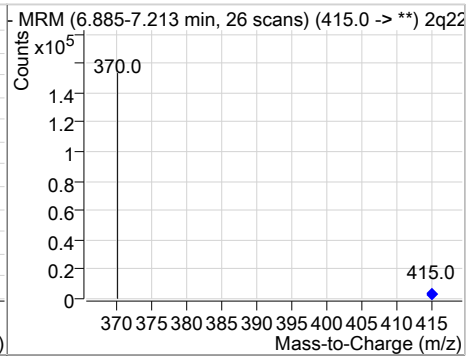




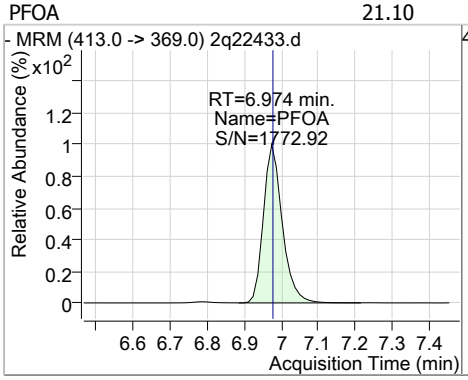
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.97	0.01	113707				

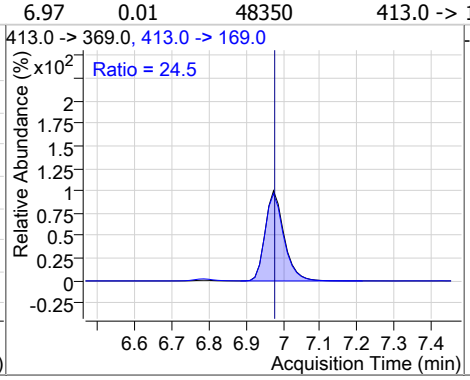


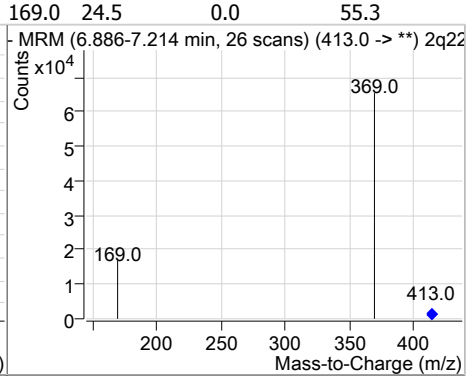




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.10	6.97	0.01	48350	413.0 -> 169.0	24.5	0.0	55.3

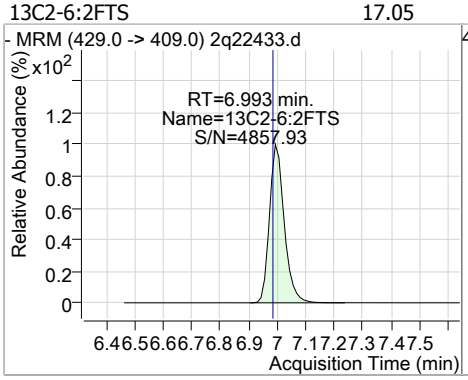


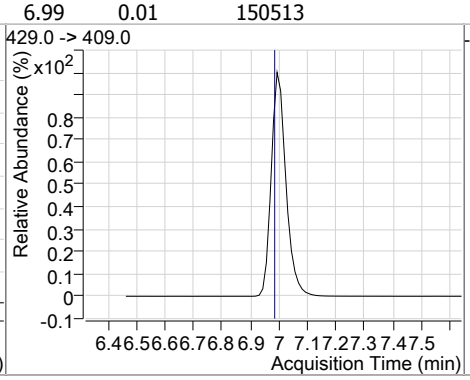


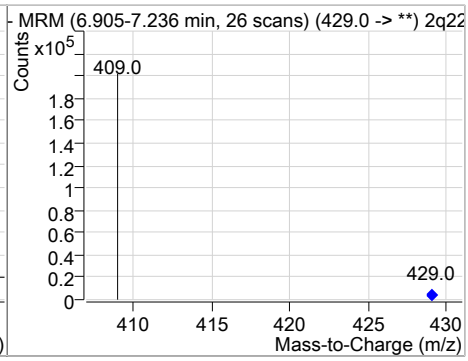


Perfluorinated Compounds by LC/MS/MS

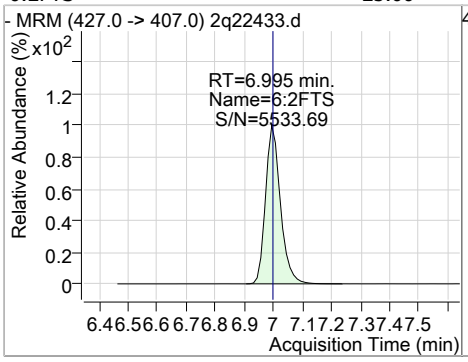
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.05	6.99	0.01	150513				

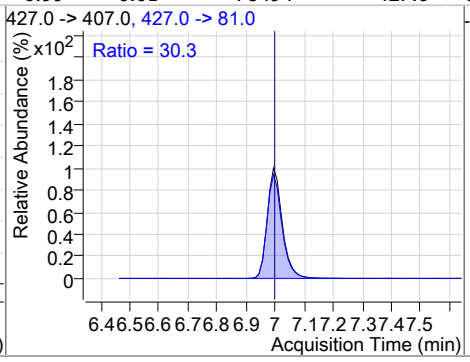


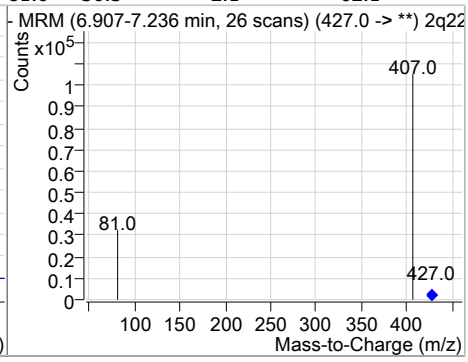




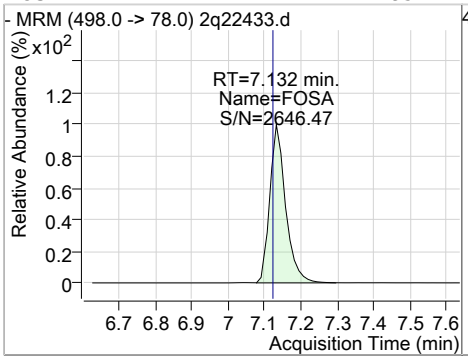
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	25.06	6.99	0.01	78494	427.0 -> 81.0	30.3	2.1	62.1

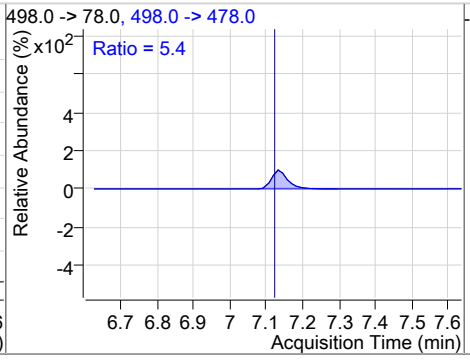


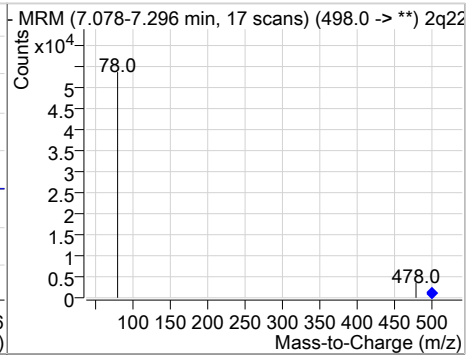




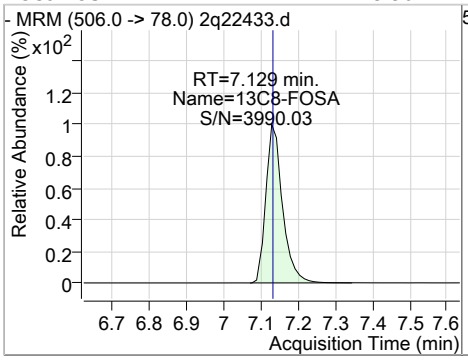
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	21.95	7.13	0.01	40280	498.0 -> 478.0	5.4	0.0	35.4

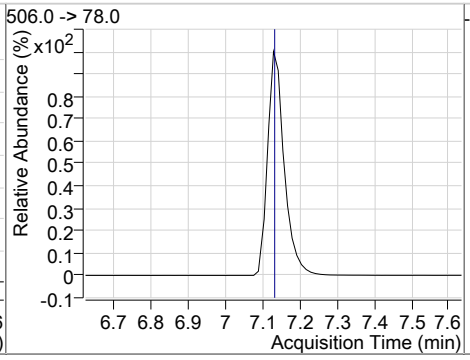


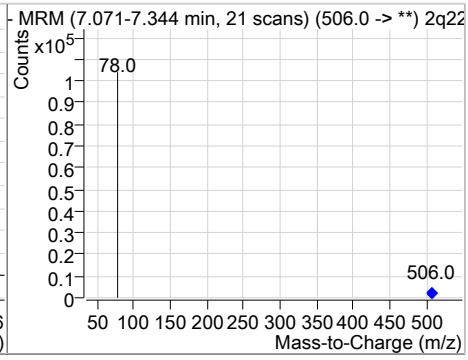




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.96	7.13	0.00	77468				

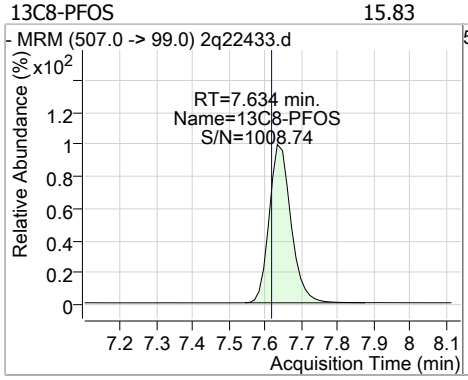


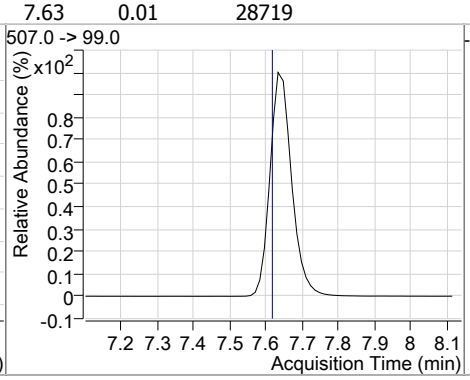


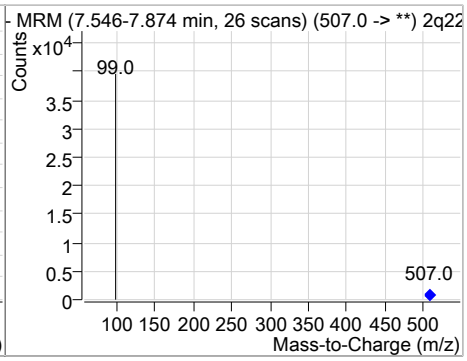


Perfluorinated Compounds by LC/MS/MS

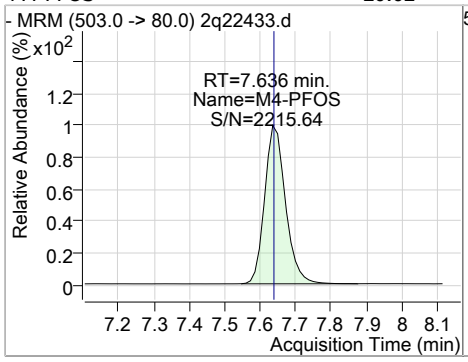
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	15.83	7.63	0.01	28719				

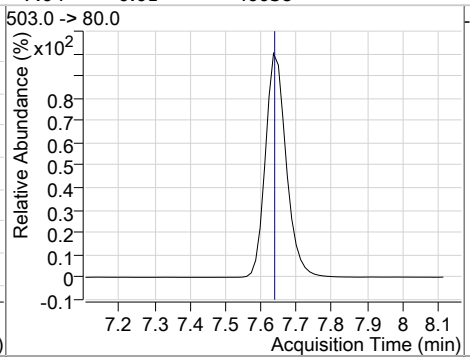


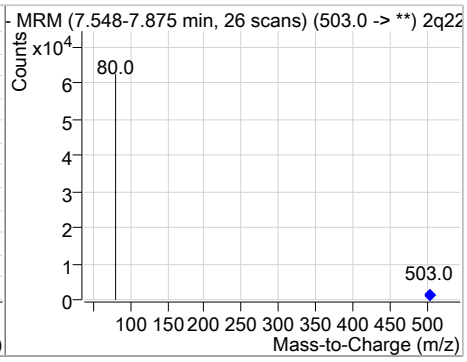




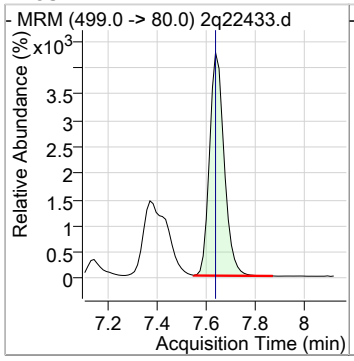
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.64	0.01	46038				

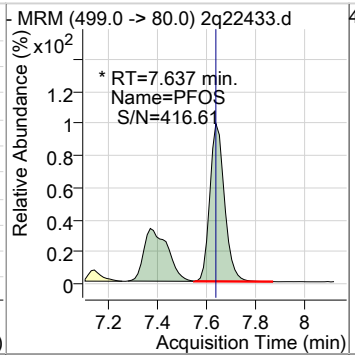


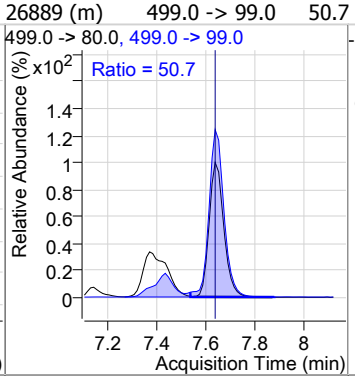


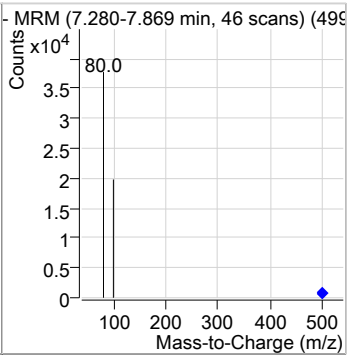


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.84	7.64	0.01	26889 (m)	499.0 -> 99.0	50.7	21.5	81.5

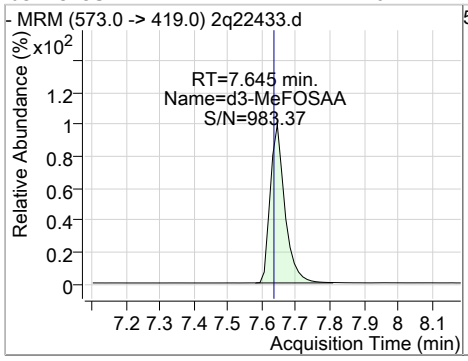


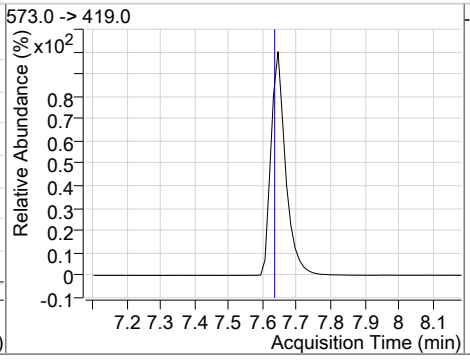


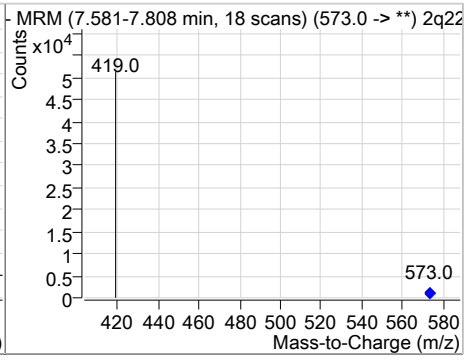




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	16.27	7.64	0.01	37833				

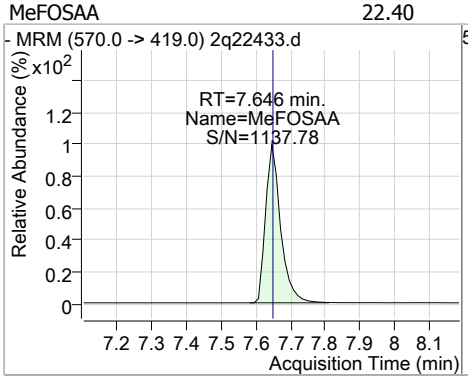


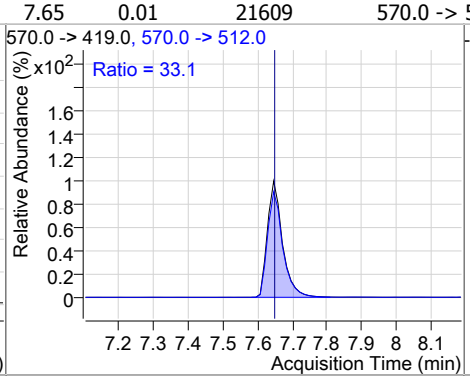


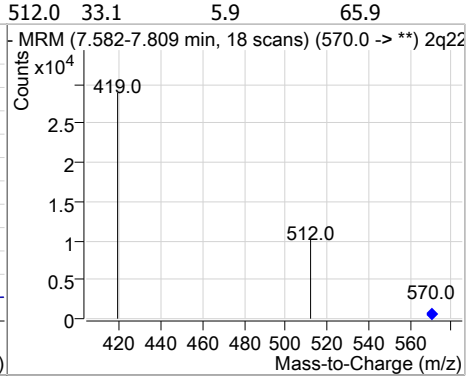


Perfluorinated Compounds by LC/MS/MS

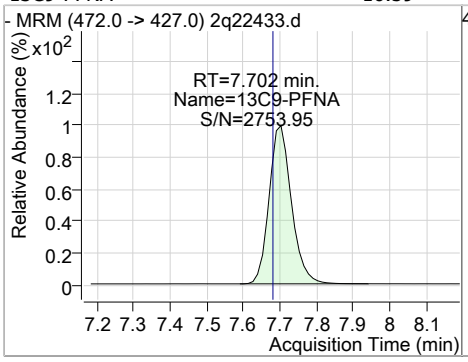
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	22.40	7.65	0.01	21609	570.0 -> 512.0	33.1	5.9	65.9

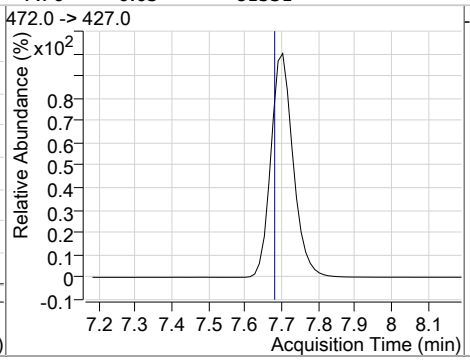


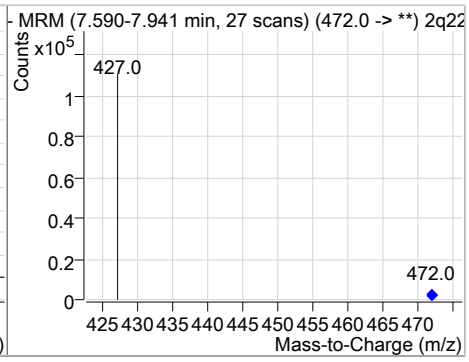




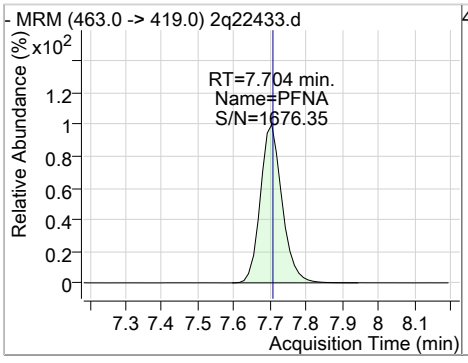
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	16.59	7.70	0.03	81531				

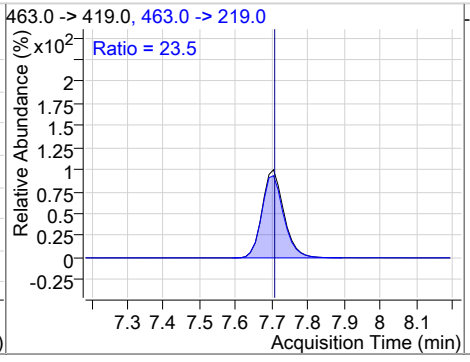


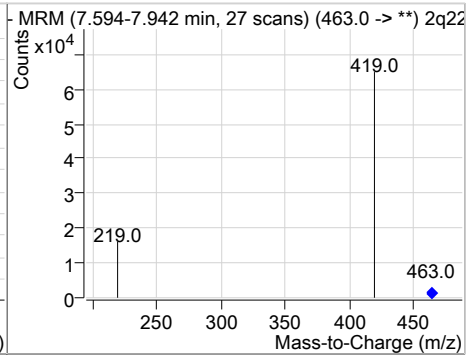




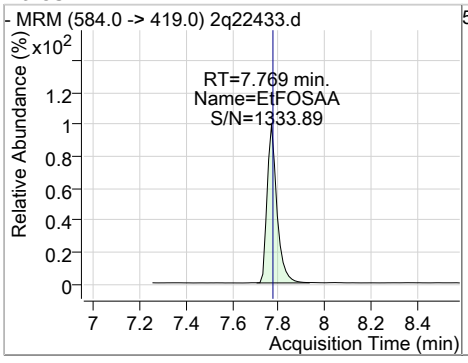
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	21.44	7.70	0.03	48033	463.0 -> 219.0	23.5	0.0	54.8

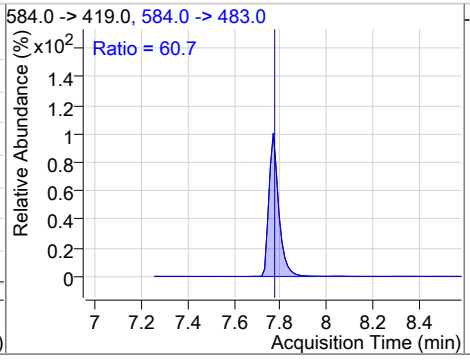


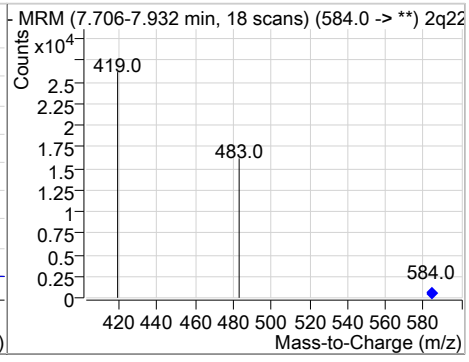




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.12	7.77	0.01	19063	584.0 -> 483.0	60.7	30.5	90.5

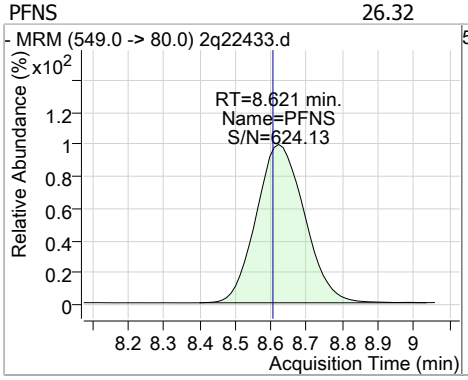


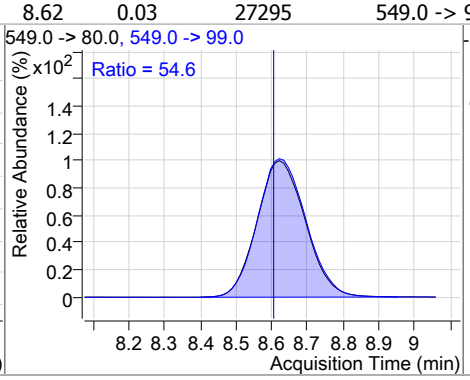


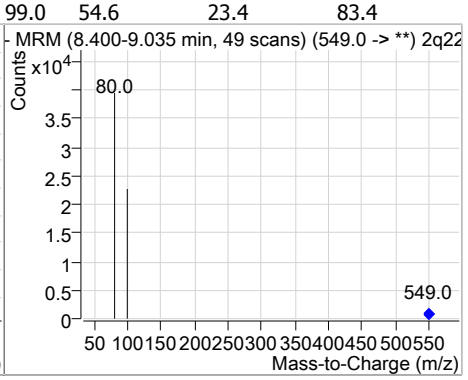


Perfluorinated Compounds by LC/MS/MS

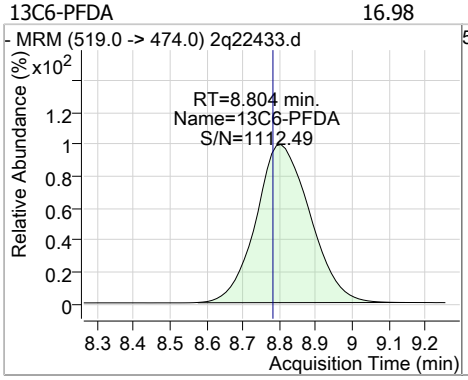
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	26.32	8.62	0.03	27295	549.0 -> 99.0	54.6	23.4	83.4

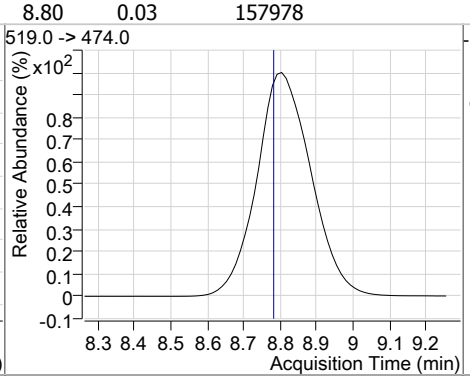


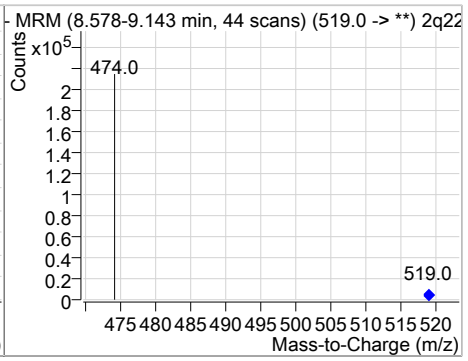




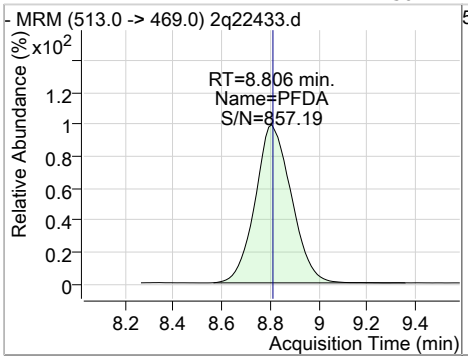
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	16.98	8.80	0.03	157978				

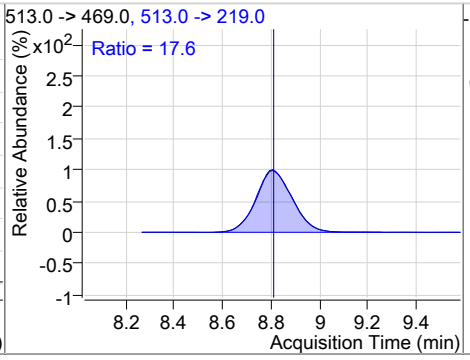


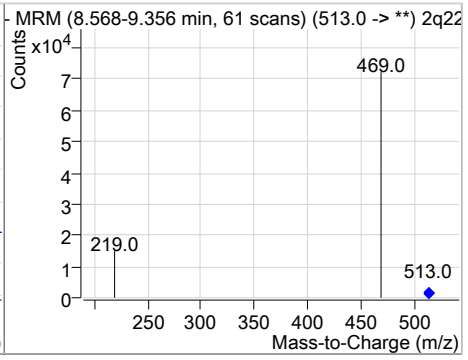




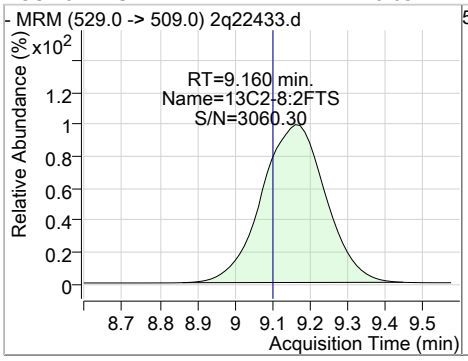
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	21.56	8.81	0.03	52036	513.0 -> 219.0	17.6	0.0	47.6

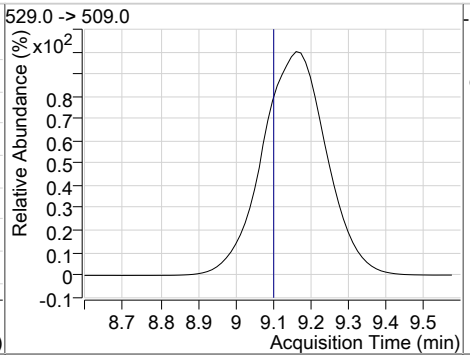


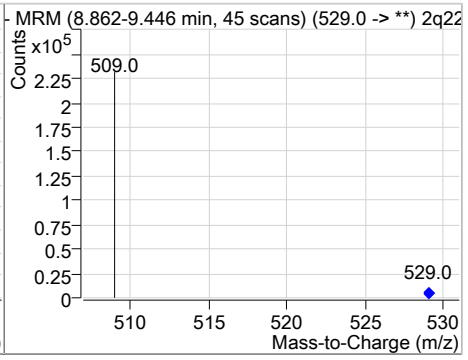




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.05	9.16	0.06	168646				

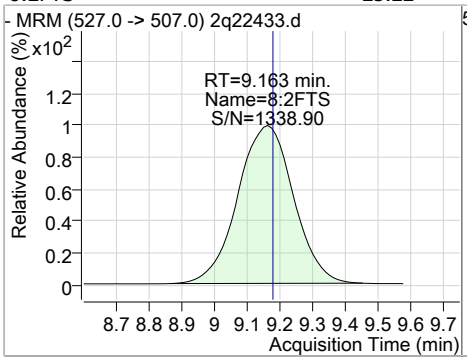


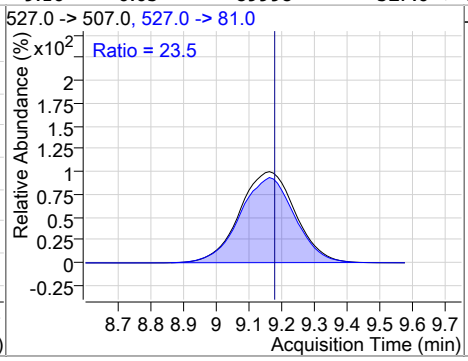


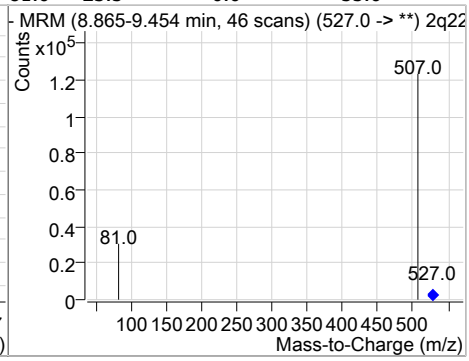


Perfluorinated Compounds by LC/MS/MS

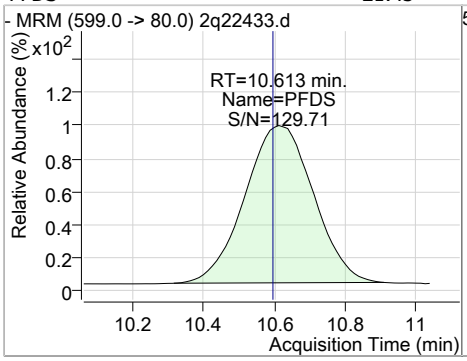
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	25.22	9.16	0.05	89998	527.0 -> 81.0	23.5	0.0	55.6

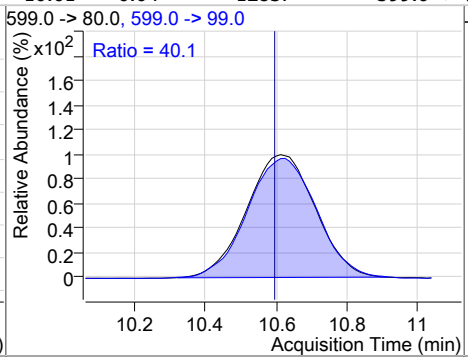


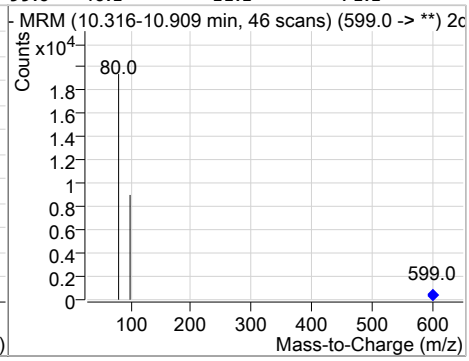




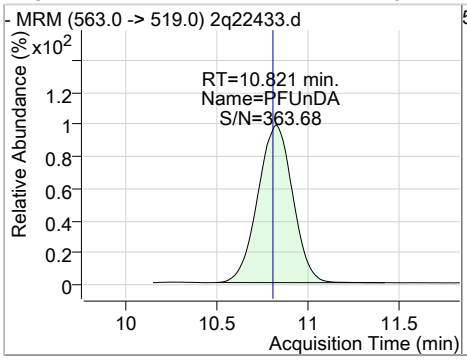
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	21.43	10.61	0.04	12837	599.0 -> 99.0	40.1	11.1	71.1

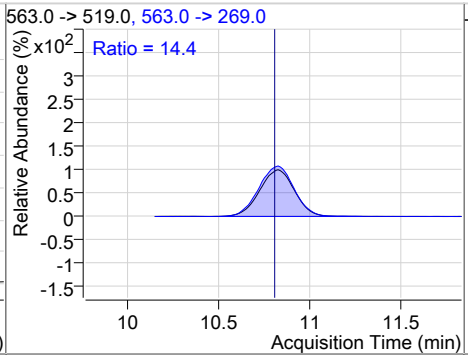


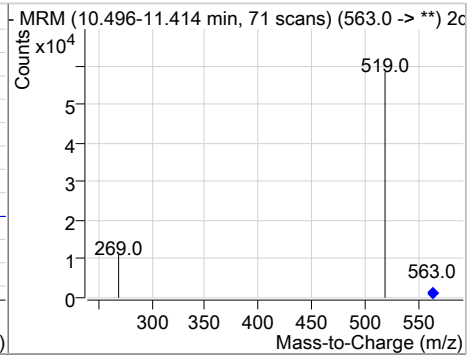




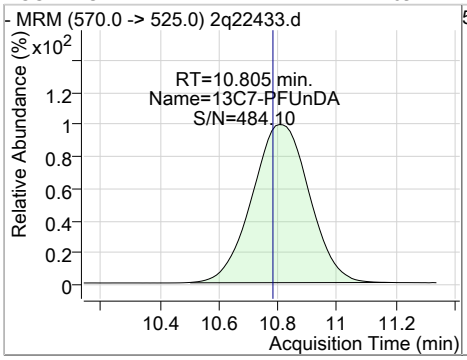
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.87	10.82	0.05	41009	563.0 -> 269.0	14.4	0.0	43.1

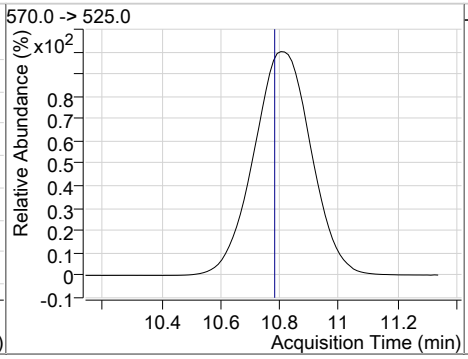


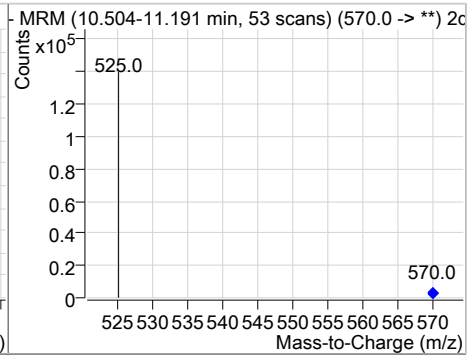




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	14.69	10.80	0.03	100618				

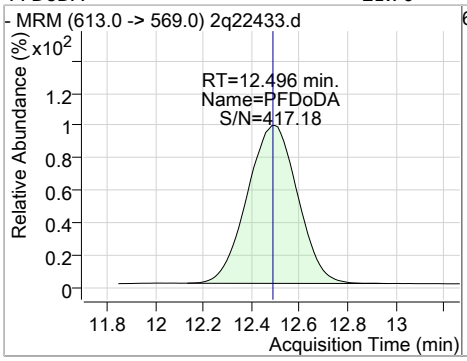


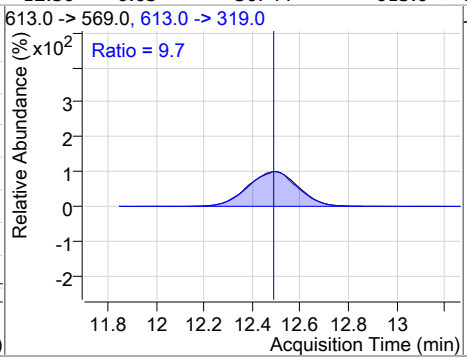


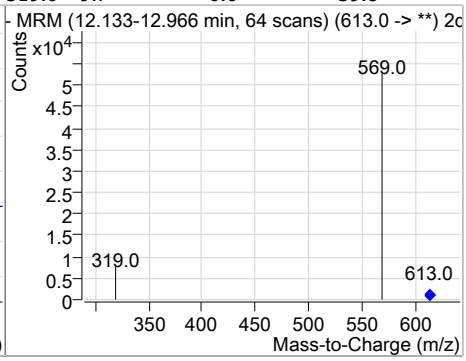


Perfluorinated Compounds by LC/MS/MS

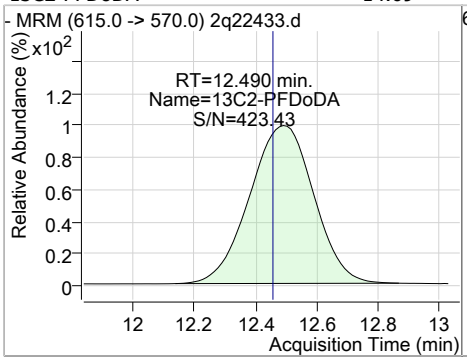
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	21.70	12.50	0.05	36744	613.0 -> 319.0	9.7	0.0	39.8

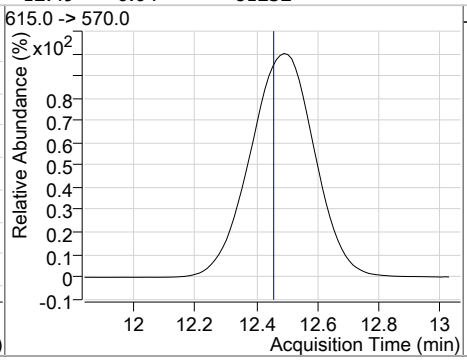


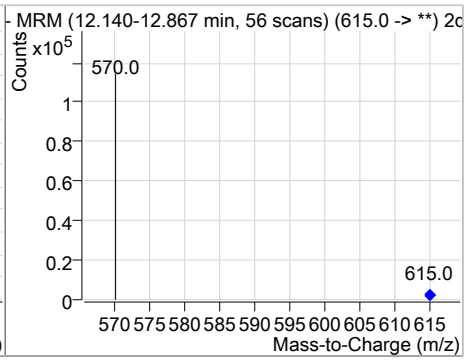




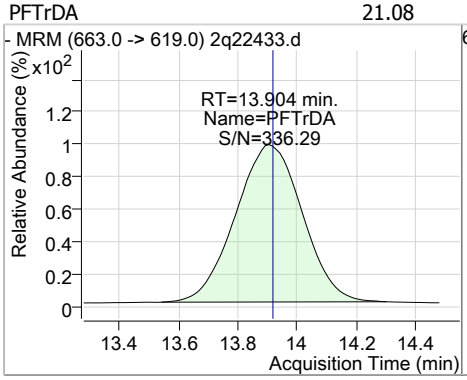
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	14.69	12.49	0.04	81232				

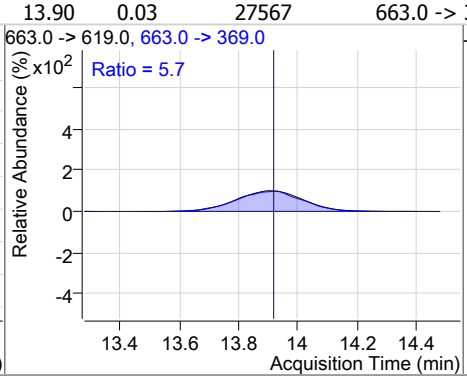


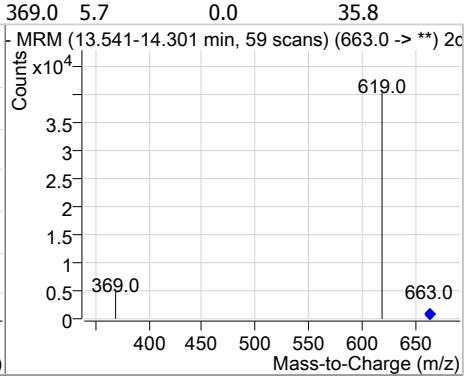




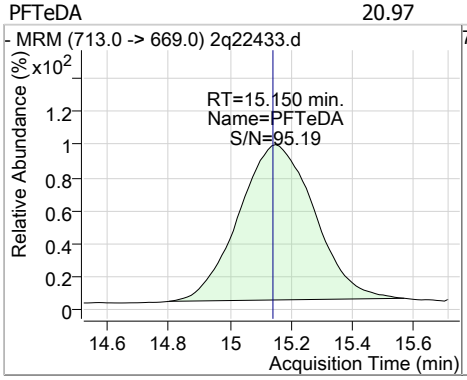
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	21.08	13.90	0.03	27567	663.0 -> 369.0	5.7	0.0	35.8

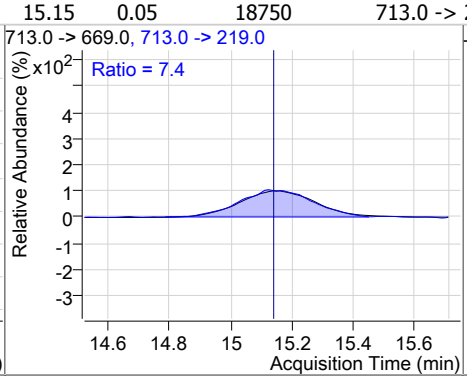


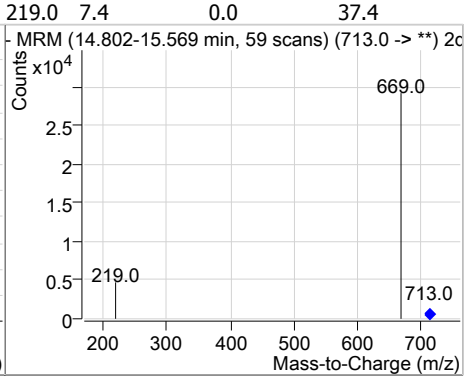




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.97	15.15	0.05	18750	713.0 -> 219.0	7.4	0.0	37.4

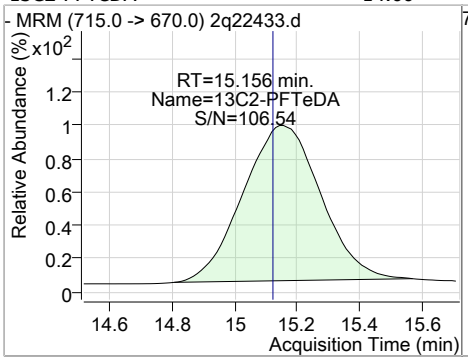


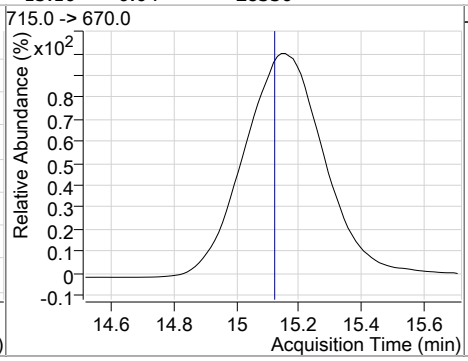


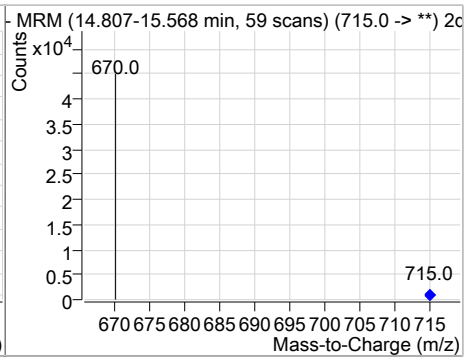


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	14.60	15.16	0.04	28330				







Manual Integration Approval Summary

Sample Number: S2Q352-CC350
Lab FileID: 2Q22433.D
Injection Time: 10/20/18 03:29
Method: EPA 537M QSM5.1 B-15
Analyst approved: 10/22/18 12:40 Natasha Gumtie
Supervisor approved: 10/22/18 15:57 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.64	Split peak

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE: 10/15/18	METHODS: 537-ID	ANALYST: NG
COLUMN TYPE: Poroshell EC18	ACQ. METHOD: dMRM-ID-PFC	ELUENT A LOT #: 184661 w/Acetic Acid
AMOUNT INJECTED: 5 ul	PROC. METHOD: PFC-ID-101518-S2Q349	ELUENT B LOT #: 183018
INSTRUMENT: LCMS2-2Q	CALIB. DATE: 10/15/18	WATER LOT #: 184661
HEAD PRESSURE: 325	RUN BATCH: S2Q 349	ISTD Lot #: LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22118	1	ccb	PFC-ID	—					—
2Q 19	1	ccb		—					—
2Q 20	7	rt		—					—
2Q 21	1	ccb		—					—
2Q 22	2	ic349-0.5		LC1148	2.5/500				updated
2Q 23	3	-1			5/500				
2Q 24	4	-2			10/500				
2Q 25	5	-5			25/500				
2Q 26	6	-10			50/500				
2Q 27	7	icc349-20			100/500				
2Q 28	8	ic349-50			250/500				
2Q 29	9	-100			1X				
2Q 30	1	ibik		—					✓
2Q 31	10	icv349-20		LC1144	5/500				pass
2Q 32	11	OP71994-bs		OP71994	1X				✓
2Q 33	12	-mb							Istds redo Bas
2Q 34	13	FA57914-1							
2Q 35	14	-2							
2Q 36	15	-3							
2Q 37	16	-4							

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

LCMS2_2Q_log.xls ME rev. 06/16

18 of 100

Analyst's Signature: [signature]

SGS ACCUTEST-ORLANDO

DATE:	10/15/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	S37-ID
ACQ. METHOD:	JMRM-ID-PFC
PROC. METHOD:	PFC-ID-101518-S2Q349
CALIB. DATE:	10/15/18
RUN BATCH: S2Q	349

ANALYST:	NG
ELUENT A LOT #:	184661 w/ Acetic Acid
ELUENT B LOT #:	183018
WATER LOT #:	184661
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22138	17	OP71994-ms	PFC-ID	OP71994	1X				redo Batch
2Q 39	18	-msd							
2Q 40	19	FA57914-5							
2Q 41	20	-6							
2Q 42	7	CC349-20		LC1148	100/500				pass
2Q 43	1	ccb							
2Q 44	21	FA57914-7		OP71994	1X				redo Batch
2Q 45	22	-8							
2Q 46	23	-9							
2Q 47	24	-10							
2Q 48	25	-11							
2Q 49	26	-12							
2Q 50	27	-13							
2Q 51	28	-14							
2Q 52	29	-15							
2Q 53	7	CC349-20		LC1148	100/500				pass
2Q 54	1	ccb							
2Q 55	30	FA57668-5		OP71867	25X				rr 1000x ✓ redo MB
2Q 56	31	-5			100X				✓
2Q 57	32	-6			1X				rr 1x clo

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration.
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS ACCUTEST-ORLANDO

DATE:	10/15/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	S37-ID
ACQ. METHOD:	dURH-ID-PFC
PROC. METHOD:	PFC-ID-10/15/18-S2Q349
CALIB. DATE:	10/15/18
RUN BATCH:	S2Q 349

ANALYST:	NS
ELUENT A LOT #:	184661 w/ Acetic Acid
ELUENT B LOT #:	185018
WATER LOT #:	184661
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22158	33	FA57668-14	PFC-ID	OP71867	5X				redo MB
2Q 59	34	OP71867-ms			5X				
2Q 60	35	-msd			5X				
2Q 61	36	FA57668-15			1X				
2Q 62	37	-30		OP71869	25X				✓
2Q 63	38	-30			100X				✓
2Q 64	7	CC349-20		LC1148	100/500				pass
2Q 65	1	Ccb			—				—
2Q 66	39	FA57668-42		OP71897	2X				✓
2Q 67	40	-42			100X				✓
2Q 68	41	-45			2X				✓
2Q 69	42	-46			10X				✓
2Q 70	7	CC349-20		LC1148	100/500				pass
2Q 71	1	Ccb			—				—
2Q 72	43	FA57668-47		OP71897	10X				✓
2Q 73	44	-49			2X				✓
2Q 74	45	OP71897-ms			2X				✓
2Q 75	46	-msd			2X				✓
2Q 76	7	CC349-20		LC1148	100/500				pass
2Q 77	1	Ccb			—				—

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS ACCUTEST-ORLANDO

DATE:	10/16/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	S37-ID
ACQ. METHOD:	dMRM-ID-PFC
PROC. METHOD:	PFC-ID-101618-S2Q350
CALIB. DATE:	10/16/18
RUN BATCH: S2Q	350

350 Q 349 NS 10/16/18

ANALYST:	NS
ELUENT A LOT #:	184666 W/ Acetic Acid
ELUENT B LOT #:	183018
WATER LOT #:	184666
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22178	1	ccb	PFC-ID	—	—				—
2Q 79	1	ccb		—	—				—
2Q 80	2	ic350-0.5		LC1148	2.5/500				updated
2Q 81	3	-1			5/500				
2Q 82	4	-2			10/500				
2Q 83	5	-5			25/500				
2Q 84	6	-10			50/500				
2Q 85	7	icc350-20			100/500				
2Q 86	8	ic350-50			250/500				
2Q 87	9	-100			1X				
2Q 88	1	iblk		—	—				✓
2Q 89	10	icv350-20		LC1144	5/500	1:37pm			pass
2Q 90	11	OP71956-bs		OP71956	1X	DOD	PASS		✓
2Q 91	12	-mb							✓
2Q 92	13	FA57829-1							✓
2Q 93	14	-14							✓
2Q 94	15	-15							✓
2Q 95	16	-16							✓
2Q 96	17	-17							✓
2Q 97	18	-18							✓

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration.
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature: Natasha M.

SGS ACCUTEST-ORLANDO

DATE:	10/16/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	537-ID
ACQ. METHOD:	dMRM-ID-PFC
PROC. METHOD:	PFC-ID-101618-S2Q350
CALIB. DATE:	10/16/18
RUN BATCH: S2Q	350

ANALYST:	NB
ELUENT A LOT #:	184666 w/ Acetic Acid
ELUENT B LOT #:	183018
WATER LOT #:	184666
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22198	3	CC350-1	PFC-ID	LC1148	5/500	4:54pm			pass
2Q 199	7	-20			100/500				pass
2Q 22200	1	Ccb			—				—
2Q 01	19	OP71951-bs		OP71951	1x	DOD			✓ RESTPFOS
2Q 02	20	-mb							✓
2Q 03	21	FA57881-1							✓
2Q 04	22	-2							✓
2Q 05	23	-3							✓
2Q 06	24	-4							✓
2Q 07	25	FA57829-2							✓
2Q 08	26	OP71951-ms1							✓
2Q 09	27	-msd1							✓
2Q 10	28	FA57829-3							✓
2Q 11	7	CC350-20		LC1148	100/500				pass
2Q 12	1	Ccb			—				—
2Q 13	29	FA57829-4		OP71951	1x	DOD			✓
2Q 14	30	-5							✓
2Q 15	31	-6							✓
2Q 16	32	-7							✓
2Q 17	33	-8							✓

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	10/16/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	537-ID
ACQ. METHOD:	QNRM-ID-PFC
PROC. METHOD:	PFC-ID-101618-S2Q350
CALIB. DATE:	10/16/18
RUN BATCH: S2Q	350

ANALYST:	NG
ELUENT A LOT #:	184666 w/ Acetic Acid
ELUENT B LOT #:	183018
WATER LOT #:	184666
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22218	34	OP71951-ms2	PFC-ID	OP71951	1x	DOD			✓
2Q 19	35	↓ -msd2	↓	↓	↓	↓			✓
2Q 20	36	FA57829-9							✓
2Q 21	37	↓ -10							✓
2Q 22	38	↓ -11		↓	↓	↓			✓
2Q 23	7	CC350-20		LC1148	100/500				pass
2Q 24	1	ccb		—	—				—
2Q 25	39	OP72048-bs		OP72048	1x	NONDOD	PASS		✓
2Q 26	40	↓ -mb		↓	↓	↓			✓
2Q 27	41	FA58217-1							✓
2Q 28	42	↓ -2							✓
2Q 29	43	OP72048-ms							✓
2Q 30	44	FA58217-3							✓
2Q 31	45	OP72048-dup							✓
2Q 32	46	FA58217-4							✓
2Q 33	47	↓ -5							✓
2Q 34	48	↓ -6		↓	↓	↓			✓
2Q 35	7	CC350-20		LC1148	100/500				pass
2Q 36	1	ccb		—	—				—
2Q ↓ 37	49	JC74906-25	↓	OP72048	5x	NONDOD			✓ rrax

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration.
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	10/16/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	537-ID
ACQ. METHOD:	QMRM-ID-PFC
PROC. METHOD:	PFC-ID-101618-S2Q350
CALIB. DATE:	10/16/18
RUN BATCH: S2Q	350

ANALYST:	NG
ELUENT A LOT #:	184661 w/ Acetic Acid
ELUENT B LOT #:	183018
WATER LOT #:	184661
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22238	50	JC74906-27	PFC-ID	OP72048	1X	NONDOD			✓
2Q 39	7	CC350-20		LC1148	100/500				pass
2Q 40	1	ccb		—					—
2Q 41	1	ccb		—					—
2Q 42	1	ccb		—					—
2Q 43	49	JC74906-25		OP72048	2X	NONDOD			✓
2Q 44	7	CC350-20		LC1148	100/500				pass
2Q 45	3	↓ -1		↓	5/500				pass
2Q 46	19	OP71951-bs		OP71951	1X	DOD			✓
2Q 47	7	CC350-20		LC1148	100/500				pass
2Q ↓ 48	1	ccb	↓	—					—
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									

NG 10/16/18

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS ACCUTEST-ORLANDO

DATE:	10/19/18
COLUMN TYPE:	poroshell/ECIR
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	537-ID
ACQ. METHOD:	dMRM-ID-PFC
PROC. METHOD:	PFC-ID-101618-S2Q350
CALIB. DATE:	10/16/18
RUN BATCH: S2Q	352

ANALYST:	NG
ELUENT A LOT #:	184606 w/ ACETIC ACID
ELUENT B LOT #:	183818
WATER LOT #:	184606
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22388	7	test	PFC-ID	—	—				—
2Q 89	1	ccb		—	—				—
2Q 90	9	high std		—	—				—
2Q 91	1	lcbk		—	—				✓
2Q 92	3	CC350-1		LC1148	5/500				pass
2Q 93	7	↓ -20		↓	100/500				PFNS↑
2Q 94	15	OP72192-bs		OP72192	1X		PASS		✓
2Q 95	16	↓ -mb		↓	↓				✓
2Q 96	17	FA57912-21		↓	↓				✓
2Q 97	43	FA57479-1		OP72161	10X				rr 2x
2Q 98	45	↓ -2		↓	↓				✓
2Q 99	46	↓ -3		↓	↓				rr 2x
2Q 22400	44	OP72161-dup		↓	↓				rr 2x
2Q 01	7	CC350-20		LC1148	100/500		NG 10/22/18 ~~d3-MeFOSAA~~ ↓, PFNS↑		
2Q 02	1	ccb		—	—				—
2Q 03	99	FA57671-3R		OP72220	5X		004		✓ redo
2Q 04	100	↓ -4R		↓	2X		004		✓
2Q 05	11	OP72220-ms		↓	2X				✓
2Q 06	12	FA57671-5R		↓	10X		004		✓
2Q 07	13	OP72220-dup		↓	10X				✓

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature: Natalie M.

SGS ACCUTEST-ORLANDO

DATE:	10/19/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	S37-ID
ACQ. METHOD:	MRM-ID-PFC
PROC. METHOD:	PFC-ID-10168-S2Q352
CALIB. DATE:	10/16/18
RUN BATCH: S2Q	352

ANALYST:	NG
ELUENT A LOT #:	184661 w/ Acetic Acid
ELUENT B LOT #:	183018
WATER LOT #:	184661
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22408	14	FA57671-6R	PFC-ID	OP72220	1X		004		↓ Istds
2Q 09	72	FA57668-5		OP71867	250X				✓
2Q 10	3	CC350-1		LC1148	1/500				8:2↑, PFNS↑
2Q 11	7	↓ -20		↓	100/500				PFNS↑
2Q 12	1	Cob		—					—
2Q 13	28	OP72234-bs		OP72234	1X		PASS		✓
2Q 14	29	↓ -mb					↓ TEPA		✓
2Q 15	30	FA57914-1							✓
2Q 16	31	-2							✓
2Q 17	32	-3							✓
2Q 18	33	-4							✓
2Q 19	34	OP72234-ms							✓
2Q 20	35	↓ -msd							✓
2Q 21	36	FA57914-5							↓ Istds
2Q 22	37	↓ -6		↓	↓				✓
2Q 23	7	CC350-20		LC1148	100/500				PFNS↑
2Q 24	1	Cob		—	—				—
2Q 25	38	FA57914-7		OP72234	1X				✓
2Q 26	39	↓ -9							✓
2Q 27	40	↓ -11	↓	↓	↓				✓

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration.

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature:

Instrument Run Log S2Q352 page 3 of 5

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE: 10/19/18	METHODS: S37-ID	ANALYST: NG	
COLUMN TYPE: Poroshell EC18	ACQ. METHOD: dMRM-ID-PFC	ELUENT A LOT #: 184661 w/ Acetic Acid	
AMOUNT INJECTED: 5 ul	PROC. METHOD: PFC-ID-10618-S2Q250	ELUENT B LOT #: 183018 ↓	
INSTRUMENT: LCMS2-2Q	CALIB. DATE: 10/16/18	WATER LOT #: 184661	
HEAD PRESSURE: 325	RUN BATCH: S2Q 352	ISTD Lot #: LC1145	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22428	47	FA57914-12	PFC-ID	OP72234	1X				✓
2Q 29	48	↓ -13	↓	↓	↓				✓
2Q 30	49	↓ -14	↓	↓	↓				✓
2Q 31	50	↓ -15	↓	↓	↓				✓
2Q 32	3	CC350-1	↓	LC1148	5/500				6:2 ↑
2Q 33	7	↓ -20	↓	↓	100/500				PFNS ↑
2Q 34	1	ccb	↓	—					—
2Q 35	15	OP72192-bs	↓	OP72192	1X		PASS		✓
2Q 36	16	↓ -mb	↓	↓	↓				✓
2Q 37	18	FA58289-1	↓	↓	↓				✓
2Q 38	19	↓ -2	↓	↓	↓				✓
2Q 39	20	↓ -3	↓	↓	↓				✓
2Q 40	21	↓ -4	↓	↓	↓				✓
2Q 41	22	FA58328-1	↓	↓	↓				✓
2Q 42	23	OP72192-ms	↓	↓	↓				✓
2Q 43	24	↓ -msd	↓	↓	↓				✓
2Q 44	7	CC350-20	↓	LC1148	100/500				pass
2Q 45	1	ccb	↓	—					—
2Q 46	25	FA58328-2	↓	OP72192	1X				✓
2Q 47	26	↓ -3	↓	↓	↓		↓ TEDA		✓

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

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LCMS2_2Q_log.xls ME rev. 06/16

Analyst's Signature: Natasha H.

SGS ACCUTEST-ORLANDO

DATE:	10/19/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	537-ID
ACQ. METHOD:	MRM-ID-PFC
PROC. METHOD:	PFC-ID-101618-S2Q350
CALIB. DATE:	10/16/18
RUN BATCH: S2Q	352

ANALYST:	NG
ELUENT A LOT #:	184(6)(6) w/AceticAcid
ELUENT B LOT #:	183018
WATER LOT #:	184(6)(6)
ISTD Lot #:	CC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 22448	27	FAS8328-4	PFC-ID	OP72492	1X		↓TeDA		rr 2X PFOS 2X
2Q 49	3	CC350-1		LC1148	5/500				8:2↑
2Q 50	7	↓ -20		↓	100/500				pass
2Q 51	1	Ccb		—					—
2Q 52	51	OP72036-bs		OP72036	1X		PFTrDA↑		✓
2Q 53	52	↓ -mb							✓
2Q 54	53	FAS8000-1							✓
2Q 55	54	-2							✓
2Q 56	55	-3							✓
2Q 57	56	-4							✓
2Q 58	57	-5							✓
2Q 59	58	OP72036-ms							✓
2Q 60	59	↓ -msd							✓
2Q 61	60	FAS8000-6							✓
2Q 62	7	CC350-20		LC1148	100/500				PFNS↑
2Q 63	1	Ccb		—					—
2Q 64	61	FAS8059-2		OP72036	1X				✓
2Q 65	62	↓ -4		↓	↓				✓
2Q 66	63	FAS8061-1		↓	↓		recmb		rr 10X 10X
2Q 67	3	CC350-1		LC1148	5/500				8:2↑, PFNS↑

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS ACCUTEST-ORLANDO

DATE:	10/19/18
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	325

LCMS2-2Q ANALYSIS LOG

METHODS:	S37-ID
ACQ. METHOD:	QMRM-ID-PFC
PROC. METHOD:	PFC-ID-101618-S2Q350
CALIB. DATE:	10/16/18
RUN BATCH: S2Q	352

ANALYST:	NG
ELUENT A LOT #:	184661 w/Acetic Acid
ELUENT B LOT #:	183018
WATER LOT #:	184661
ISTD Lot #:	LC1145

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 224668	7	CC350-20	PFC-ID	LC1148	100/500				pass
2Q 69	1	Cob							
2Q 70	64	OP72240-ls		OP72240	1X		PASS		✓
2Q 71	65	↓ -mb							✓
2Q 72	66	FA57994-2							✓
2Q 73	67	↓ -3							✓
2Q 74	68	JC75965-1							✓
2Q 75	69	OP72240-ms							✓
2Q 76	70	↓ -msd							✓
2Q 77	71	JC75965-2		↓	↓				✓
2Q 78	7	CC350-20		LC1148	100/500				pass
2Q 79	1	Cob							
2Q 80	73	FA57479-1		OP72161	2X				✓
2Q 81	74	↓ -3		↓	↓				✓
2Q 82	75	OP72161-dup							✓
2Q 83	7	CC350-20		LC1148	100/500				PFNS
2Q 84	1	Cob							
2Q					NG 10/19/18				
2Q									
2Q									

*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration

All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 09/29/18 0800 (Started) {mm/dd/yy 24:00}

Date/Time: 10/03/18 1045 (Finished) {mm/dd/yy 24:00}

Prep Method: 3535A or 537 or (537MOD) (circle)

Analytical Method: LC537 ID

Batch#: OP-71994 Ext. By: AF Conc. By: MB Vialed By: AF

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 71994 MB		120	6	N.A.	20 µl		1	A	
OP 71994 BS		120	↓	↓	↓	50 µl	↓		
FA57914-1	1	120	↓	↓	↓	↓	↓		
-2	1	120	↓	↓	↓	↓	↓		
-3	1	120	↓	↓	↓	↓	↓		
-4	1	120	↓	↓	↓	↓	↓		MS, MSD
-5	1	120	↓	↓	↓	↓	↓		
-6	1	120	↓	↓	↓	↓	↓		
-7	1	120	↓	↓	↓	↓	↓		
-8	1	120	↓	↓	↓	↓	↓		
-9	1	120	↓	↓	↓	↓	↓		
-10	1	120	↓	↓	↓	↓	↓		
-11	1	120	↓	↓	↓	↓	↓		
-12	1	120	↓	↓	↓	↓	↓		
-13	1	120	↓	↓	↓	↓	↓		
-14	1	120	↓	↓	↓	↓	↓		
-15	1	120	↓	↓	↓	↓	↓		
				MB 10/05/18					
FA57914-4MS	2	120	6	N.A.	20 µl	50 µl	1	A	
FA57914-4MSD	3	120	↓	↓	↓	↓	↓	↓	
DUP									

Comments:

Surr.1 ID: LC1146A Conc: 1.0 PPM Exp. Date: 09/18/19 Inj. By: AF Ver. By AF

Spk.1 ID: LC1150 Conc: 400 PPB Exp. Date: 03/24/19 Inj. By: AF Ver. By AF

Spk.2 ID: - Conc: - Exp. Date: - Inj. By: - Ver. By -

Spk.3 ID: - Conc: - Exp. Date: - Inj. By: - Ver. By -

TurboVap Temp (Therm ID): TV #12 N-Evap Temp (Therm ID): /

Observed Temp °C: 45°C Corr. Temp °C: / Observed Temp °C: / Corr. Temp °C: /

Methanol Lot # 183018 SPE Lot # S214-0079 pH Paper # 2/22/18

Acetonitrile Lot # - Syringe filter Lot # - Reagent # NH4OH 2%-MeOH

Water Lot# OP-71681 Pre-filter Lot# - Reagent # 7117051/183018

Solvent# - Carbon Lot# 107563 Other -

Relinquished By: Date: 10/03/18

Accepted By: Date: 10/03/18 @ 10:49

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 10/17/18 12:30 Started {mm/dd/yy 24:00}

Date/Time: 10/18/18 15:05 Finished {mm/dd/yy 24:00}

Prep Method: 3535A or 537 or 537MOD (circle)

Analytical Method: LC537 Re-Extracts

Batch#: OP72234 Ext. By: LW Conc. By: LV Vialed By: ____

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 72234 MB	—	130	6	N/A	20ul		1ml	A	
OP 72234 BS	—	130	↓	↓	↓	50ul	↓	↓	
FA57914-1	2	130	↓	↓	↓	↓	↓	↓	
-2	2	130	↓	↓	↓	↓	↓	↓	
-3	2	130	↓	↓	↓	↓	↓	↓	
-4	2	130	↓	↓	↓	↓	↓	↓	
-5	2	130	↓	↓	↓	↓	↓	↓	
-6	2	130	↓	↓	↓	↓	↓	↓	
-7	2	130	↓	↓	↓	↓	↓	↓	
-9	2	130	↓	↓	↓	↓	↓	↓	
-10									
-11	2	130	6	N/A	20ul		1ml	B	
-12	2	120	↓	↓	↓	↓	↓	↓	
-13	2	130	↓	↓	↓	↓	↓	↓	
-14	2	130	↓	↓	↓	↓	↓	↓	
-15	2	130	↓	↓	↓	↓	↓	↓	
FA57914-4MS	5	130	6	N/A	20ul	50ul	1ml	A	
↓ MSD	6	130	↓	↓	↓	↓	↓	↓	
DUP									

Comments:

Surr.1 ID: LC1159A Conc: 1.0 ppm Exp. Date: 10/12/19 Inj. By: LW Ver. By MB

Spk.1 ID: LC1160 Conc: 400 ppb Exp. Date: 04/12/19 Inj. By: LW Ver. By MB

Spk.2 ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

Spk.3 ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

TurboVap Temp (Therm ID): TV # 12

Observed Temp °C: 45 Corr. Temp °C: —

N-Evap Temp (Therm ID): —

Observed Temp °C: — Corr. Temp °C: —

Methanol Lot # 183018

Acetonitrile Lot # —

Water Lot# OP71681

Solvent# —

SPE Lot # S214-0079

Syringe filter Lot # —

Pre-filter Lot# —

Carbon Lot# 107563

pH Paper # 212218

Reagent # 2% MeOH 183018

Reagent # NH4OH 7117051

Other —

Relinquished By: _____ Date: 10/18/18

Accepted By: _____ Date: 10/18/18 @ 15:07

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

NOREAS, Inc.
16361 Scientific Way
Irvine, CA 92618
ATTN: Ms. Sevda Aleckson

December 6, 2018

SUBJECT: REVISED MCAS El Toro, Site 18 & 24, Event #36, Data Validation

Dear Ms. Aleckson,

Enclosed is the revised validation report for the fraction listed below. This SDG was received on October 26, 2018. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #43545_RV1:

SDG #	Fraction
FA57914	Perfluoroalkyl & Polyfluoroalkyl Substances

These data validations were performed under Stage 4 guidelines. These analyses were validated using the following documents, as applicable to each method:

- Final Addendum 4 to the Final Performance Monitoring and Sampling and Analysis Plan for OU1 and OU2A Groundwater Remedy, Former MCAS El Toro, Irvine, California; March 2015 & FCRF-2438-002; August 2018
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1; 2017
- USEPA National Functional Guidelines for Organic Superfund Methods Data Review; January 2017

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng
Project Manager/Senior Chemist

NEDD/NIRIS Client Select Stage 4

LDC #43545 (Noreas, Inc.-Irvine, CA/ El Toro, Sites 18 & 24 Event #36)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PFAs (537M)																															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	FA57914	10/26/18	11/16/18	15	0																														
Total	J/PG			15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS/MSD, and DUPs L:\Noreas\El Toro\43545ST-18-24.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: El Toro, Sites 18 & 24

LDC Report Date: December 6, 2018

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: SGS North America, Inc.

Sample Delivery Group (SDG): FA57914

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
18BGMP6A	FA57914-1	Water	09/24/18
18BGMP6B	FA57914-2	Water	09/24/18
FD1	FA57914-3	Water	09/24/18
18BGMP6C	FA57914-4	Water	09/24/18
18BGMP6D	FA57914-5	Water	09/24/18
18BGMP6E	FA57914-6	Water	09/24/18
QCEB1	FA57914-7	Water	09/24/18
QCEB2	FA57914-8	Water	09/25/18
18BGMW19A	FA57914-9	Water	09/25/18
QCEB3	FA57914-10	Water	09/25/18
18BGMW19B	FA57914-11	Water	09/25/18
QCEB4	FA57914-12	Water	09/25/18
18BGMW19C	FA57914-13	Water	09/25/18
18BGMW19D	FA57914-14	Water	09/25/18
18BGMW19E	FA57914-15	Water	09/25/18
18BGMPCMS	FA57914-4MS	Water	09/24/18
18BGMPCMSD	FA57914-4MSD	Water	09/24/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Addendum 4 to the Final Performance Monitoring and Sampling and Analysis Plan for OU1 and OU2A Groundwater Remedy, Former MCAS El Toro, Irvine, California (March 2015) and FCRF-2438-002 (August 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537M QSM5.1 B-15 via LC/MS/MS.

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Codes

1 Holding Times Exceeded
2 Sample Preservation / Cooler Temperature Exceeded Acceptance Criteria
3 Sample Custody Potentially Compromised Sample Integrity
4 Missing/Incomplete Deliverables
5 Calibration Did Not Meet Method Criteria
6 Equipment/Field Blank Contamination
7 Laboratory Method or Calibration Blank Contamination
8 Matrix Spike % Recovery Exceeded Acceptance Criteria
9 Matrix Spike Duplicate (RPD or Duplicate Sample Analysis) Exceeded Acceptance Criteria
10A Laboratory Control Sample % Recovery Exceeded Acceptance Criteria
10B Laboratory Control Sample Duplicate (RPD) Exceeded Acceptance Criteria
11 ICP Interference Check Analysis Exceeded Method Criteria
12 RPD Between Two Columns (Pesticides/PCBs only)
13 Surrogate Recoveries Exceeded Acceptance Criteria
14 Field Duplicates RPD Exceeded Project Criteria
15 Peak Resolution did not meet method criteria
16 Serial Dilution Analysis Exceeded Method Criteria
17 Chemical Recoveries Exceeded Acceptance Criteria
18 Trip Blank Contamination
19 Internal Standards Did Not Meet Method Criteria
20 Calibration Range exceeded Method Criteria
21 Potential False Positives
22 Do not use, other result more technically sound (overall assessment)
23 Estimated Maximum Possible Concentration
24 Trace Detection Below the LOQ (RL) and Above the DL (MDL)
25 Other

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Finding
18BGMP6A 18BGMP6B FD1 18BGMP6C 18BGMP6E QCEB1 18BGMW19A 18BGMW19B QCEB4 18BGMW19C 18BGMW19D 18BGMW19E	All compounds	Samples were extracted beyond the project hold time of 14 days, but met the 28 day hold time per the laboratory SOP.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration standard, all compounds were within 70-130% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Affected Compound	Flag	A or P
10/19/18	13C7-PFUnA d3-MeFOSAA	30.6 31.8	18BGMP6A 18BGMP6B FD1 18BGMP6C 18BGMP6E	Perfluoroundecanoic acid MeFOSAA	UJ (all non-detects) UJ (all non-detects)	P

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the instrument sensitivity check (ISC) were less than or equal to 30.0% for all compounds.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Samples QCEB1, QCEB2, QCEB3, and QCEB4 were identified as equipment blanks. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
18BGMPCMS/MSD (18BGMP6C)	Perfluorohexanoic acid	56 (70-130)	-	J (all detects)	A
	Perfluoroheptanoic acid	66 (70-130)	-	UJ (all non-detects)	
	Perfluorooctanoic acid	62 (70-130)	-		
	Perfluorononanoic acid	56 (70-130)	-		
	Perfluorodecanoic acid	58 (70-130)	-		
	Perfluoroundecanoic acid	66 (70-130)	-		
	Perfluorododecanoic acid	68 (70-130)	-		
	Perfluorotetradecanoic acid	57 (70-130)	-		
	Perfluorobutanesulfonic acid	64 (70-130)	-		
	Perfluorohexanesulfonic acid	62 (70-130)	-		
	Perfluorooctanesulfonic acid	69 (70-130)	-		
	MeFOSAA	65 (70-130)	-		
	EtFOSAA	62 (70-130)	-		

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
18BGMPCMS/MSD (18BGMP6C)	Perfluorohexanoic acid Perfluoroheptanoic acid Perfluorononanoic acid Perfluorodecanoic acid Perfluoroundecanoic acid Perfluorododecanoic acid Perfluorotridecanoic acid Perfluorotetradecanoic acid Perfluorobutanesulfonic acid Perfluorooctanesulfonic acid MeFOSAA EtFOSAA	48 (≤30) 49 (≤30) 50 (≤30) 49 (≤30) 49 (≤30) 48 (≤30) 50 (≤30) 49 (≤30) 49 (≤30) 50 (≤30) 48 (≤30) 50 (≤30)	NA	-
18BGMPCMS/MSD (18BGMP6C)	Perfluorooctanoic acid Perfluorohexanesulfonic acid	48 (≤30) 49 (≤30)	J (all detects) J (all detects)	A

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
OP71994-BS	Perfluorotridecanoic acid	183 (52-130)	18BGMP6D QCEB2 QCEB3	NA	-

IX. Field Duplicates

Samples 18BGMP6B and FD1 were identified as field duplicates. No results were detected in any of the samples.

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits with the following exceptions:

Sample	Labeled Compound	%R (Limits)	Affected Compound	Flag	A or P
QCEB3	13C2-PFTeDA	34 (50-150)	Perfluorotridecanoic acid Perfluorotetradecanoic acid	UJ (all non-detects) UJ (all non-detects)	P

XI. Compound Quantitation

All compound quantitations met validation criteria.

The laboratory indicated that PFAs are currently being reported as the sum of the branched and linear isomers so both peaks were integrated.

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method, DoD QSM version 5.1, and project SAP. This review also included verification of analytes, methods, reporting limits, instrument performance and method QC acceptance limits, which were found to be compliant with the project documents. No results were rejected.

Due to continuing calibration %D, MS/MSD %R and RPD, and labeled compounds %R, data were qualified as estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

El Toro, Sites 18 & 24
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG FA57914

Sample	Compound	Flag	A or P	Reason (Code)
18BGMP6A 18BGMP6B FD1 18BGMP6C 18BGMP6E	Perfluoroundecanoic acid MeFOSAA	UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (%D) (5)
18BGMP6C	Perfluorohexanoic acid Perfluoroheptanoic acid Perfluorooctanoic acid Perfluorononanoic acid Perfluorodecanoic acid Perfluoroundecanoic acid Perfluorododecanoic acid Perfluorotetradecanoic acid Perfluorobutanesulfonic acid Perfluorohexanesulfonic acid Perfluorooctanesulfonic acid MeFOSAA EtFOSAA	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (8)
18BGMP6C	Perfluorooctanoic acid Perfluorohexanesulfonic acid	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD) (9)
QCEB3	Perfluorotridecanoic acid Perfluorotetradecanoic acid	UJ (all non-detects) UJ (all non-detects)	P	Labeled compounds (%R) (25)

El Toro, Sites 18 & 24
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification Summary - SDG FA57914

No Sample Data Qualified in this SDG

El Toro, Sites 18 & 24
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG FA57914

No Sample Data Qualified in this SDG

LDC #: 43545A96
SDG #: FA57914
Laboratory: SGS North America, Inc.

VALIDATION COMPLETENESS WORKSHEET
Stage 4

Date: 11/2/18
Page: 1 of 2
Reviewer: [illegible]
2nd Reviewer: JVG

METHOD: LC/MS Perfluoroalkyl and Polyfluoroalkyl Substances (EPA Method 537M)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / TW	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 20%. r^2. TMC / ICV ≤ 30%
IV.	Continuing calibration/ISC	TW / A	CCV / ISC ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB = 7.8.10.12
VII.	Matrix spike/Matrix spike duplicates	TW	
VIII.	Laboratory control samples	TW	LCS
IX.	Field duplicates	ND	D = 2+3
X.	Labeled Compounds	TW	
XI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	A	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1 1	18BGMP6A	FA57914-1	Water	09/24/18
2 1	18BGMP6B	FA57914-2	Water	09/24/18
3 1	FD1	FA57914-3	Water	09/24/18
4 1	18BGMP~~C~~6C	FA57914-4	Water	09/24/18
5 2	18BGMP6D	FA57914-5	Water	09/24/18
6 1	18BGMP6E	FA57914-6	Water	09/24/18
7 1	QCEB1	FA57914-7	Water	09/24/18
8 2	QCEB2	FA57914-8	Water	09/25/18
9 1	18BGMW19A	FA57914-9	Water	09/25/18
10 2	QCEB3	FA57914-10	Water	09/25/18
11 1	18BGMW19B	FA57914-11	Water	09/25/18
12 1	QCEB4	FA57914-12	Water	09/25/18
13 1	18BGMW19C	FA57914-13	Water	09/25/18
14 1	18BGMW19D	FA57914-14	Water	09/25/18
15 1	18BGMW19E	FA57914-15	Water	09/25/18

LDC #: 43545A96 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/6/18
SDG #: FA57914 Stage 4 Page: 2 of 2
Laboratory: SGS North America, Inc. Reviewer: Q
2nd Reviewer: SM

METHOD: LC/MS Perfluoroalkyl and Polyfluoroalkyl Substances (EPA Method 537M)

	Client ID	Lab ID	Matrix	Date
16	18BGMPCMS1	FA57914-4MS1	Water	09/24/18
17	18BGMPCMSD1	FA57914-4MSD1	Water	09/24/18
~~18~~	~~18BGMPCMS2~~	~~FA57914-4MS2~~	~~Water~~	~~09/24/18~~
~~19~~	~~18BGMPCMSD2~~	~~FA57914-4MSD2~~	~~Water~~	~~09/24/18~~
20				
21				
22				

Notes:

	520352	1	OPT2234				
	520349	2	OPT1994				

LDC #: 43615A96

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer:
2nd Reviewer: JVG

Method: LCMS (EPA Method 537 Modified)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit criteria of ≥ 0.990?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) of the continuing calibration ≤ 30%?		✓		
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were all percent differences (%D) of the Instrument Sensitivity Check ≤ 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	✓			

LDC #: 43545A96

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: 4
2nd Reviewer: JVC

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?		✓		
XI. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?		✓		
XII. Compound quantitation				
Did the laboratory reporting limits (RL) meet the QAPP RLs?	✓			
Did reported results include both branched and linear isomers?	✓			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 6:2FTS			
S. 8:2 FTS			
T. ~~N-methyl perfluorooctanesulfonamidoacetic acid (~~NMeFOSAA)			
U. ~~N-Ethyl perfluorooctanesulfonamidoacetic acid (~~NEtFOSAA)			

LDC #: ~~135[5A]96~~

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: 9
2nd Reviewer: JM

Method: LC/MS PFOS/PFOAs (EPA Method 537M)

All circled dates have exceeded the technical holding times.
(Y)/N N/A Were all cooler temperatures within validation criteria?

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
1-4.6-7.	Sample extracted beyond project holdtime of						
9.11-15	14 days. but meet 28 day HT per lab SOP.						

TECHNICAL HOLDING TIME CRITERIA

Water: Extracted within 14 days, analyzed within 28 days.
Soil: Extracted within 14 days, analyzed within 28 days.

LDC #: 43515A96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JM6

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed after every 10 injections for each instrument?

Y N N/A Were all continuing calibration percent differences (%D) ≤30 %?

#	Date	Standard ID	Compound	Finding %D (Limit: <30.0%)	Finding RRF (Limit:)	Associated Samples	Qualifications (5)
	10/9/18	29-32411	13C7-PFHxDA	30.6		1-4. 6. 16-17 (ND)	J/UJ/P (F)
			d3-MeFOSAA	31.8			J (T)

CONCAL-LCMS.wpd

Privileged and Confidential

LDC #: 43545A96

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates/Duplicates

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: JVG

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) or duplicate sample analyzed for each matrix in this SDG?
Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?
Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?
Y N N/A Were all duplicate sample relative percent differences (RPD) or differences within QC limits?

#	Date	MS/MSD/DUP ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		5459 16/17	A	56 (70-130)			A (dets + ND)	J+ UJ/A (8)
			B	66				
			C	62				
			D	56				
			E	58				
			F	66				
			G	68				
			I	57				
			J	64				
			K	62				
			M	69				
			MeFOSAA	65				
			Et FOSAA	62				
			A			48 (=30)	A (ND)	J+ dets/A (9)
			B			49		
			C			48	(dets)	
			D			50	(ND)	
			E			49		
			F			49		
			G			48		
			H			50		
			I			49		
			J			49		
			K			49	(dets)	
			M			50	(ND)	
			MeFOSAA			48		
			Et FOSAA			50		

LDC #: 43545A96

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JM

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a LCS required?

Y N N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	OPT1994-BS	H	183 (52-130)	( )	( )	5, 8, 10, MB	J+ (all det.) / P (10A)
			( )	( )	( )	(ND)	
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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LDC #: 43545A46

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

Reviewer: 9
2nd Reviewer: JM6

METHOD: LC/MS PFAS (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all labeled compound recoveries within the QC criteria?

#	Date	Lab ID/Reference	Internal Standard	% Recovery	Qualifications
		10 (ND)	13C3-PFTeDA	34 (50-150)	J/UJ/P (H.I)
				( )	
				( )	
		OPT1994-MB	13C7-PFUnDA	49 ( )	J/UJ/P
			13C2-PFDoDA	37 ( )	
			13C2-PFTeDA	13 ( )	
				( )	
		OPT2234-MB	13C2-PFTeDA	41 ( )	
				( )	
				( )	
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LDC #: 43315A96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JVG

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	2g22131	10/15/18	PFOA (1st internal standard)	20.00	17.265	17.254	13.7	13.7
			PFOS (2nd internal standard)	↓	17.551	17.547	12.2	12.3
			(3rd internalstandard)					
2	2g22142	10/15/18	PFOA (1st internal standard)	20.00	19.987	19.989	0.1	0.1
			PFOS (2nd internal standard)	↓	20.015	20.017	0.1	0.1
			(3rd internalstandard)					
3	2g22411	10/19/18	PFOA (1st internal standard)	20.00	21.243	21.243	6.2	6.2
			PFOS (2nd internal standard)	↓	21.851	21.857	9.3	9.3
			(3rd internalstandard)					
4	2g22423	10/19/18	PFOA (1st internal standard)	20.00	21.544	21.544	7.7	7.7
			PFOS (2nd internal standard)	↓	21.261	21.234	6.3	6.2
			(3rd internalstandard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
10/15/2018	PFOA	1	0.025	0.0152702
		2	0.050	0.0251121
		3	0.100	0.0518202
		4	0.250	0.1267787
		5	0.500	0.2361787
		6	1.000	0.4943067
		7	2.500	1.2247611
		8	5.000	2.4593516

Linear through the origin

	calculated	***Reported***
Constant	*0.000000*	0.0000
X Coefficient(s)	*0.49145859*	0.49138
Correlation Coefficient	*0.999990*	0.99997
Coefficient of Determination (r^2)	*0.999981*	

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
10/15/2018	PFOS	1	0.025	0.0266789
		2	0.050	0.0445071
		3	0.100	0.0920981
		4	0.250	0.2040065
		5	0.500	0.3936366
		6	1.000	0.8154291
		7	2.500	2.0954192
		8	5.000	4.2474952

Linear through the origin

	calculated	***Reported***
Constant	*0.000000*	0.0000
X Coefficient(s)	*0.84576659*	0.84572
Correlation Coefficient	*0.999944*	0.99983
Coefficient of Determination (r^2)	*0.999887*	

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
10/17/2018	PFOA	1	0.025	0.0143953
		2	0.050	0.0268475
		3	0.100	0.0523568
		4	0.250	0.1264986
		5	0.500	0.2397894
		6	1.000	0.5147561
		7	2.500	1.2925915
		8	5.000	2.5900942

Linear through the origin

	calculated	***Reported***
Constant	*0.000000*	0.0000
X Coefficient(s)	*0.51741642*	0.51745
Correlation Coefficient	*0.999978*	0.99993
Coefficient of Determination (r^2)	*0.999956*	

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
1017/18	PFOS	1	0.025	0.0234894
		2	0.050	0.0400130
		3	0.100	0.0850734
		4	0.250	0.2125783
		5	0.500	0.3966071
		6	1.000	0.8420321
		7	2.500	2.1159123
		8	5.000	4.3079523

Linear through the origin

	calculated	***Reported***
Constant	*0.000000*	0.0000
X Coefficient(s)	*0.85751594*	0.85746
Correlation Coefficient	*0.999948*	0.99984
Coefficient of Determination (r^2)	*0.999896*	

LDC #: 45545A90

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: JM

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = I MSC - MSC I * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: ~~13~~ 16/17

Compound	Spike Added (ng/L)		Sample Concentration (ng/L)	Spiked Sample Concentration (ng/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
~~PFOA~~	0.154	0.154	0.00513	0.101	0.164	62	62	103	103	~~48~~	~~48~~
~~PFOS~~	0.142	0.142	ND	0.0980	0.164	69	69	115	115	50	50

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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LDC #: [illegible]

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: JVG

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: [illegible]

Compound	Spike Added ( )		Spike Concentration ( )		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFOA	0.16T	NA	0.17T	NA	106	106				
PFOS	0.154	↓	0.181	↓	11T	11T				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43545A96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 4 , e :

Conc. = $\frac{(1541)(20.0)(1)(1)(\quad)}{(89380)(0.5175)(130)(\quad)(\quad)}$

= 0.00513 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration ( )	Qualification
	4	PFOA	0.00513		

El Toro, Sites 18 and 24 - LDC 43545

SDG: FA57914

Sample ID	18BGMP6A									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180924	20181019	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180924	20181019	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180924	20181019	0.015	UG_L	U	UJ	5	0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0029
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180924	20181019	0.0038	UG_L	U	UJ	5	0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019

Sample ID	18BGMP6B									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180924	20181019	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180924	20181019	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180924	20181019	0.015	UG_L	U	UJ	5	0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019

SDG: FA57914

Sample ID	18BGMP6B									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0029
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180924	20181019	0.0038	UG_L	U	UJ	5	0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019

Sample ID	18BGMP6C									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180924	20181019	0.0077	UG_L	U	UJ	8	0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180924	20181019	0.015	UG_L	U	UJ	8	0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180924	20181019	0.015	UG_L	U	UJ	5,8	0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180924	20181019	0.0038	UG_L	U	UJ	8	0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180924	20181019	0.0038	UG_L	U	UJ	8	0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180924	20181019	0.0038	UG_L	U	UJ	8	0.0038	0.0029
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180924	20181019	0.0038	UG_L	U	UJ	8	0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180924	20181019	0.0019	UG_L	J	J	8,9	0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180924	20181019	0.0038	UG_L	U	UJ	8	0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180924	20181019	0.0038	UG_L	U	UJ	8	0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180924	20181019	0.00513	UG_L	J	J	8,9	0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180924	20181019	0.0038	UG_L	U	UJ	8	0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180924	20181019	0.0038	UG_L	U	UJ	5,8	0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019

SDG: FA57914

Sample ID	18BGMP6D									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180924	20181015	0.0083	UG_L	U	U		0.0083	0.0042
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180924	20181015	0.017	UG_L	U	U		0.017	0.0083
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180924	20181015	0.017	UG_L	U	U		0.017	0.0083
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0031
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180924	20181015	0.0042	UG_L	U	U		0.0042	0.0021

Sample ID	18BGMP6E									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180924	20181019	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180924	20181019	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180924	20181019	0.015	UG_L	U	UJ	5	0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180924	20181019	0.00257	UG_L	J	J		0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0029

SDG: FA57914

Sample ID	18BGMP6E									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180924	20181019	0.00468	UG_L	J	J		0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180924	20181019	0.0038	UG_L	U	UJ	5	0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019

Sample ID	18BGMW19A									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180925	20181020	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0029
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019

SDG: FA57914

Sample ID	18BGMW19B									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180925	20181020	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0029
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180925	20181020	0.00364	UG_L	J	J		0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019

Sample ID	18BGMW19C									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180925	20181020	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180925	20181020	0.0108	UG_L				0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0029

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Sample ID	18BGMW19C									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180925	20181020	0.00806	UG_L				0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180925	20181020	0.0318	UG_L				0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180925	20181020	0.0385	UG_L				0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180925	20181020	0.0456	UG_L				0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019

Sample ID	18BGMW19D									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180925	20181020	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180925	20181020	0.0114	UG_L				0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0029
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180925	20181020	0.00632	UG_L	J	J		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180925	20181020	0.0214	UG_L				0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180925	20181020	0.00196	UG_L	J	J		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019

Sample ID	18BGMW19E									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180925	20181020	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180925	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0029
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180925	20181020	0.0038	UG_L	U	U		0.0038	0.0019

Sample ID	FD1									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180924	20181019	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180924	20181019	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180924	20181019	0.015	UG_L	U	UJ	5	0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0029

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Sample ID	FD1									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180924	20181019	0.0038	UG_L	U	UJ	5	0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180924	20181019	0.0038	UG_L	U	U		0.0038	0.0019

Sample ID	QCEB1									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180924	20181020	0.0077	UG_L	U	U		0.0077	0.0038
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180924	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180924	20181020	0.015	UG_L	U	U		0.015	0.0077
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0029
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180924	20181020	0.0038	UG_L	U	U		0.0038	0.0019

SDG: FA57914

Sample ID	Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
QCEB2	537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180925	20181015	0.0083	UG_L	U	U		0.0083	0.0042
	537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180925	20181015	0.017	UG_L	U	U		0.017	0.0083
	537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180925	20181015	0.017	UG_L	U	U		0.017	0.0083
	537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0031
	537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021

Sample ID	Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
QCEB3	537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180925	20181015	0.0083	UG_L	U	U		0.0083	0.0042
	537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180925	20181015	0.017	UG_L	U	U		0.017	0.0083
	537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180925	20181015	0.017	UG_L	U	U		0.017	0.0083
	537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0031

SDG: FA57914

Sample ID	Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
QCEB3	537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180925	20181015	0.0042	UG_L	U	UJ	25	0.0042	0.0021
	537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180925	20181015	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180925	20181015	0.0042	UG_L	U	UJ	25	0.0042	0.0021

Sample ID	Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
QCEB4	537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20180925	20181020	0.0083	UG_L	U	U		0.0083	0.0042
	537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20180925	20181020	0.017	UG_L	U	U		0.017	0.0083
	537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20180925	20181020	0.017	UG_L	U	U		0.017	0.0083
	537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORODECANOIC ACID (PFDA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0031
	537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUORONONANOIC ACID (PFNA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021
	537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20180925	20181020	0.0042	UG_L	U	U		0.0042	0.0021

INSTALLATION_ID	SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_DESC	SDG
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914

INSTALLATION_ID	SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_DESC	SDG
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914

INSTALLATION_ID	SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_DESC	SDG
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914

INSTALLATION_ID	SITE_NAME	LOCATION_NAME	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX_DESC	COLLECT_DATE	ANALYTICAL_METHOD_GRP_DESC	SDG
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19D	Well	6104530.16	2194461.14	18BGMW19D	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06E	Well	6100696.37	2194455.32	18BGMP6E	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMW19E	Well	6104549.27	2194466.74	18BGMW19E	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB2-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06B	Well	6100696.37	2194455.32	18BGMP6B-FD1	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06C	Well	6100696.37	2194455.32	18BGMP6C	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19C	Well	6104540.8	2194471.73	18BGMW19C	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMP06A	Well	6100696.37	2194455.32	18BGMP6A	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19B	Monitoring well			18BGMW19B	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB3-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB1-092418	Water for QC samples	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00018	18_BGMW19A	Well	6104549.5	2194455.26	18BGMW19A	Ground water	25-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS	SITE 00024	18_BGMP06D	Well	6100696.37	2194455.32	18BGMP6D	Ground water	24-Sep-18	Perfluoroalkyl Compounds	FA57914
EL_TORO_MCAS						QCEB4-092518	Water for QC samples	25-Sep-18	Perfluoroalkyl Compounds	FA57914