NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Level 4 Laboratory Report, Data Validation Report, Sample Location Report, SDG FA62561

MCAS
El Toro, CA
April 2021

SGS

Orlando, FL

04/03/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

NOREAS, Inc.

APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

SGS Job Number: FA62561

Sampling Date: 03/19/19

Report to:

NOREAS, Inc
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Total number of pages in report: **1033**

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.

Caitlin Brice, M.S.
General Manager

Client Service contact: Andrea Colby 407-425-6700

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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SGS North America Inc.

Sample Summary

NOREAS, Inc.

Job No: FA62561

APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA62561-1	03/19/19	08:45	RRML	03/21/19	AQ	Water	24MW16E
FA62561-2	03/19/19	09:15	RRML	03/21/19	AQ	Water	24MW16C
FA62561-3	03/19/19	09:35	RRML	03/21/19	AQ	Water	24MW16B
FA62561-4	03/19/19	11:35	RRML	03/21/19	AQ	Water	24MW17E
FA62561-5	03/19/19	12:10	RRML	03/21/19	AQ	Water	24MW17C
FA62561-6	03/19/19	13:10	RRML	03/21/19	AQ	Water	24MW17B

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: NOREAS,Inc. **Job No:** FA62561

Site: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24 **Report Date:** 4/3/2019 8:01:56 PM

6 Samples were collected on 03/19/2019 and were received at SGS North America Inc - Orlando on 03/21/2019 properly preserved, at 4.4 Deg. C and intact. These samples received an SGS Orlando job number of FA62561. 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:** OP74263

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA62561-3MS, FA62561-6DUP, FA62561-3MS were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

RPD(s) for Duplicate for Perfluorobutanesulfonic acid, Perfluorononanoic acid are outside control limits for sample OP74263-DUP. Probable cause is due to sample non-homogeneity.

Sample(s) FA62561-3, FA62561-5, FA62561-6 have surrogates outside control limits.

FA62561-3 for 13C7-PFUnDA: Outside control limits. However, sample was ND.

FA62561-3 for Perfluoroundecanoic acid: Associated ID Standard outside control limits high, however sample is ND.

FA62561-5 for 13C2-PFDoDA: Outside control limits. However, sample was ND.

FA62561-5 for 13C7-PFUnDA: Outside control limits. However, sample was ND.

FA62561-5 for Perfluorododecanoic acid: Associated ID Standard outside control limits high, however sample is ND.

FA62561-5 for Perfluoroundecanoic acid: Associated ID Standard outside control limits high, however sample is ND.

FA62561-6 for 13C7-PFUnDA: Outside control limits. However, sample was ND.

FA62561-6 for Perfluoroundecanoic acid: Associated ID Standard outside control limits high, however sample is ND.

Matrix: AQ **Batch ID:** OP74376

FA62561-4: Confirmation run.

FA62561-5: Confirmation run.

Matrix: AQ **Batch ID:** OP74392

Sample(s) FA62561-1, FA62561-2 have surrogates outside control limits.

FA62561-1: Confirmation run.

FA62561-2: Confirmation run.

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 Hartney, Client Services *(Signature on File)*

Summary of Hits

Job Number: FA62561
Account: NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 03/19/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA62561-1	**24MW16E**					
Perfluorohexanoic acid		0.00284 J	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanoic acid		0.00606 J	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid		0.00555 J	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanesulfonic acid		0.00458 J	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
FA62561-2	**24MW16C**					
Perfluorohexanoic acid		0.188	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluoroheptanoic acid		0.0436	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanoic acid		0.204	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorobutanesulfonic acid		0.0591	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid		0.222	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanesulfonic acid		0.0998	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
FA62561-3	**24MW16B**					
Perfluorohexanoic acid		0.152	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluoroheptanoic acid		0.0246	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanoic acid		0.0409	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorobutanesulfonic acid		0.0408	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid		0.0426	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
FA62561-4	**24MW17E**					
Perfluorohexanoic acid		0.00282 J	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanoic acid		0.0117	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid		0.00571 J	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
FA62561-5	**24MW17C**					
Perfluorohexanoic acid		0.794	0.080	0.040	ug/l	EPA 537M QSM5.1 B-15
Perfluoroheptanoic acid		0.257	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanoic acid		5.23	0.080	0.040	ug/l	EPA 537M QSM5.1 B-15
Perfluorononanoic acid		0.00349 J	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorobutanesulfonic acid		0.128	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid		1.31	0.080	0.040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanesulfonic acid		0.0771	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
FA62561-6	**24MW17B**					
Perfluorohexanoic acid		0.105	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluoroheptanoic acid		0.0418	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanoic acid		1.81	0.040	0.020	ug/l	EPA 537M QSM5.1 B-15

Summary of Hits

Job Number: FA62561
Account: NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 03/19/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
Perfluorononanoic acid		0.00271 J	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorobutanesulfonic acid		0.0175	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorohexanesulfonic acid		0.266	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15
Perfluorooctanesulfonic acid		0.661	0.0080	0.0040	ug/l	EPA 537M QSM5.1 B-15

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	24MW16E		
Lab Sample ID:	FA62561-1	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	2Q28174.D	1	03/26/19 18:26	NG	03/22/19 13:15	OP74263	S2Q449
Run #2 [a]	2Q28528.D	1	04/02/19 14:05	NG	04/02/19 09:00	OP74392	S2Q453

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2	125 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.00284	0.0080	0.0040	0.0020	ug/l	J
375-85-9	Perfluoroheptanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.00606	0.0080	0.0040	0.0020	ug/l	J
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.00555	0.0080	0.0040	0.0020	ug/l	J
1763-23-1	Perfluorooctanesulfonic acid	0.00458	0.0080	0.0040	0.0030	ug/l	J
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	104%	67%	50-150%
	13C4-PFHpA	105%	70%	50-150%
	13C8-PFOA	116%	74%	50-150%
	13C9-PFNA	106%	73%	50-150%
	13C6-PFDA	101%	67%	50-150%
	13C7-PFUnDA	117%	58%	50-150%
	13C2-PFDoDA	86%	43%	50-150%
	13C2-PFTeDA	90%	26%	50-150%
	13C3-PFBS	101%	63%	50-150%
	13C3-PFHxS	101%	65%	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

SGS North America Inc.

Report of Analysis

Client Sample ID:	24MW16E		
Lab Sample ID:	FA62561-1	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	94%	56%	50-150%
	d3-MeFOSAA	89%	57%	50-150%

(a) 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:	24MW16C		
Lab Sample ID:	FA62561-2	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	2Q28060.D	1	03/24/19 23:13	NG	03/22/19 13:15	OP74263	S2Q447
Run #2 [a]	2Q28529.D	1	04/02/19 14:21	NG	04/02/19 09:00	OP74392	S2Q453

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2	125 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.188	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0436	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.204	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0591	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.222	0.0080	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0998	0.0080	0.0040	0.0030	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	117%	85%	50-150%
	13C4-PFHpA	118%	88%	50-150%
	13C8-PFOA	136%	92%	50-150%
	13C9-PFNA	121%	89%	50-150%
	13C6-PFDA	119%	79%	50-150%
	13C7-PFUnDA	133%	70%	50-150%
	13C2-PFDoDA	119%	56%	50-150%
	13C2-PFTeDA	88%	48%	50-150%
	13C3-PFBS	115%	80%	50-150%
	13C3-PFHxS	114%	81%	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

SGS North America Inc.

Report of Analysis

Client Sample ID:	24MW16C		
Lab Sample ID:	FA62561-2	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	108%	66%	50-150%
	d3-MeFOSAA	98%	67%	50-150%

(a) 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:	24MW16B		
Lab Sample ID:	FA62561-3	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	2Q28061.D	1	03/24/19 23:28	NG	03/22/19 13:15	OP74263	S2Q447
Run #2							

	Initial Volume	Final Volume
Run #1	125 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	0.152	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0246	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.0409	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid [a]	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0408	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.0426	0.0080	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	118%		50-150%
	13C4-PFHpA	121%		50-150%
	13C8-PFOA	140%		50-150%
	13C9-PFNA	128%		50-150%
	13C6-PFDA	130%		50-150%
	13C7-PFUnDA	168% [b]		50-150%
	13C2-PFDoDA	146%		50-150%
	13C2-PFTeDA	97%		50-150%
	13C3-PFBS	113%		50-150%
	13C3-PFHxS	115%		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

SGS North America Inc.

Report of Analysis

Client Sample ID:	24MW16B		
Lab Sample ID:	FA62561-3	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	115%		50-150%
	d3-MeFOSAA	107%		50-150%

(a) Associated ID Standard outside control limits high, however sample is ND.
(b) Outside control limits. However, sample was ND.

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:	24MW17E		
Lab Sample ID:	FA62561-4	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	2Q28062.D	1	03/24/19 23:44	NG	03/22/19 13:15	OP74263	S2Q447
Run #2 [a]	2Q28450.D	1	04/01/19 10:58	NG	03/29/19 15:00	OP74376	S2Q452

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2	125 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.00282	0.0080	0.0040	0.0020	ug/l	J
375-85-9	Perfluoroheptanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	0.0117	0.0080	0.0040	0.0020	ug/l	
375-95-1	Perfluorononanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.00571	0.0080	0.0040	0.0020	ug/l	J
1763-23-1	Perfluorooctanesulfonic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	120%	101%	50-150%
	13C4-PFHpA	122%	103%	50-150%
	13C8-PFOA	142%	104%	50-150%
	13C9-PFNA	123%	102%	50-150%
	13C6-PFDA	120%	98%	50-150%
	13C7-PFUnDA	136%	99%	50-150%
	13C2-PFDoDA	133%	83%	50-150%
	13C2-PFTeDA	91%	85%	50-150%
	13C3-PFBS	117%	98%	50-150%
	13C3-PFHxS	118%	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

SGS North America Inc.

Report of Analysis

Client Sample ID:	24MW17E		
Lab Sample ID:	FA62561-4	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	111%	95%	50-150%
	d3-MeFOSAA	100%	93%	50-150%

(a) 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:	24MW17C		
Lab Sample ID:	FA62561-5	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	2Q28064.D	1	03/25/19 00:16	NG	03/22/19 13:15	OP74263	S2Q447
Run #2 [a]	2Q28451.D	1	04/01/19 11:14	NG	03/29/19 15:00	OP74376	S2Q452
Run #3	2Q28102.D	10	03/25/19 16:54	NAF	03/22/19 13:15	OP74263	S2Q448
Run #4 [a]	2Q28454.D	10	04/01/19 12:02	NG	03/29/19 15:00	OP74376	S2Q452

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2	125 ml	1.0 ml
Run #3	125 ml	1.0 ml
Run #4	125 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.794 [b]	0.080	0.040	0.020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.257	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	5.23 [b]	0.080	0.040	0.020	ug/l	
375-95-1	Perfluorononanoic acid	0.00349	0.0080	0.0040	0.0020	ug/l	J
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid [c]	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid [c]	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.128	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	1.31 [b]	0.080	0.040	0.020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0771	0.0080	0.0040	0.0030	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
	13C5-PFHxA	115%	100%	116%	50-150%
	13C4-PFHpA	116%	103%	118%	50-150%
	13C8-PFOA	101%	88%	123%	50-150%
	13C9-PFNA	134%	106%	118%	50-150%
	13C6-PFDA	133%	105%	116%	50-150%
	13C7-PFUnDA	169% [d]	107%	120%	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

SGS North America Inc.

Report of Analysis

Client Sample ID:	24MW17C		
Lab Sample ID:	FA62561-5	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	Run# 3	Limits
	13C2-PFDoDA	155% [d]	89%	94%	50-150%
	13C2-PFTeDA	95%	93%	83%	50-150%
	13C3-PFBS	118%	100%	115%	50-150%
	13C3-PFHxS	107%	97%	114%	50-150%
	13C8-PFOS	116%	98%	108%	50-150%
	d3-MeFOSAA	107%	100%	97%	50-150%

(a) Confirmation run.
(b) Result is from Run# 3
(c) Associated ID Standard outside control limits high, however sample is ND.
(d) Outside control limits. However, sample was ND.

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:	24MW17B		
Lab Sample ID:	FA62561-6	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	2Q28065.D	1	03/25/19 00:31	NG	03/22/19 13:15	OP74263	S2Q447
Run #2	2Q28104.D	5	03/25/19 17:14	NAF	03/22/19 13:15	OP74263	S2Q448

	Initial Volume	Final Volume
Run #1	125 ml	1.0 ml
Run #2	125 ml	1.0 ml

EPA 537 Method List

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS							
307-24-4	Perfluorohexanoic acid	0.105	0.0080	0.0040	0.0020	ug/l	
375-85-9	Perfluoroheptanoic acid	0.0418	0.0080	0.0040	0.0020	ug/l	
335-67-1	Perfluorooctanoic acid	1.81 [a]	0.040	0.020	0.010	ug/l	
375-95-1	Perfluorononanoic acid	0.00271	0.0080	0.0040	0.0020	ug/l	J
335-76-2	Perfluorodecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
2058-94-8	Perfluoroundecanoic acid [b]	0.0040 U	0.0080	0.0040	0.0020	ug/l	
307-55-1	Perfluorododecanoic acid	0.0040 U	0.0080	0.0040	0.0030	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.0080	0.0040	0.0020	ug/l	
PERFLUOROALKYLSULFONATES							
375-73-5	Perfluorobutanesulfonic acid	0.0175	0.0080	0.0040	0.0020	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.266	0.0080	0.0040	0.0020	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.661	0.0080	0.0040	0.0030	ug/l	
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS							
2355-31-9	MeFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	
2991-50-6	EtFOSAA	0.016 U	0.040	0.016	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C5-PFHxA	120%	113%	50-150%
	13C4-PFHpA	120%	113%	50-150%
	13C8-PFOA	118%	124%	50-150%
	13C9-PFNA	122%	115%	50-150%
	13C6-PFDA	132%	117%	50-150%
	13C7-PFUnDA	168% [c]	117%	50-150%
	13C2-PFDoDA	144%	99%	50-150%
	13C2-PFTeDA	103%	89%	50-150%
	13C3-PFBS	115%	107%	50-150%
	13C3-PFHxS	115%	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

SGS North America Inc.

Report of Analysis

Client Sample ID:	24MW17B		
Lab Sample ID:	FA62561-6	**Date Sampled:**	03/19/19
Matrix:	AQ - Water	**Date Received:**	03/21/19
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	113%	104%	50-150%
	d3-MeFOSAA	110%	103%	50-150%

(a) Result is from Run# 2

(b) Associated ID Standard outside control limits high, however sample is ND.

(c) Outside control limits. However, sample was ND.

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
Environmental Engineering and Science

CHAIN-OF-CUSTODY RECORD

COC No. ET1824-002
PAGE 1 of 1

Project Name/No:	Groundwater Sampling Event 37	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:	Andrea Colby
Address:	16361 Scientific Way Irvine, CA 92618	Laboratory Address:	4405 Vineland Road, Ste C-15 Orlando, FL 32811
Project Manager:	Jinny Hong	Laboratory Phone:	407-426-6700
Phone/Fax No.	(949) 467-9104		X14911
Project Contact:	Sevda Aleckson	Airbill No.	
Contact Phone:	(949) 510-8610		COURIER

Laboratory SDG No: FA62561

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
24MW16E 1	24MW16E	05/14/19	0845	W		X		2	X	
24MW16C 2	24MW16C		0915	W		X		2	X	
24MW16B 3	24MW16B		0935	W		X		2	X	
24MW17E 4	24MW17E		1135	W		X		2	X	
24MW17C 5	24MW17C		1210	W		X		2	X	
~~24MW17A~~	~~24MW17A~~			W		X		2	X	
24MW17B 6	24MW17B		1310	W		X		2	X	

Special Instructions: PFAS-Free Water:

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

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

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

Relinquished By (signature):		Date	3/19/19	Received By (signature)	FedEx
Company	NOREAS	Time	1515	Company	
Relinquished By (signature):		Date		Received By (signature)	
Company	Fed Ex	Time		Company	SGS
Relinquished By (signature):		Date		Received By (signature)	
Company		Time		Company	

Date	
Time	
Date	
Time	915
Date	03/21/19
Time	

Sample Condition Upon Receipt (For Laboratory Use)
Cooler Temp (°C): 4.4
Sample Condition: ☐ Intact ☐ Broken
Cooler Seal: ☐ Intact ☐ Broken

DISTRIBUTION: White - Laboratory; Blue - Project File

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FA62561: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: FA62561 **Client:** NOREAS **Project:** 18095

Date / Time Received: 3/21/2019 9:15:00 AM **Delivery Method:** FED EX **Airbill #'s:** 1002239523010003281100814392118653

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

Cooler Temps (Raw Measured) °C: Cooler 1: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (4.4);

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: SHAYLAP Date: 3/21/2019 9:15:00 AM Reviewer: _____ Date: _____

5.1
5

FA62561: Chain of Custody
Page 2 of 2

QC Evaluation: DOD QSM5 Limits

Job Number: FA62561
Account: NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Collected: 03/19/19

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

No Exceptions found.

* Sample used for QC is not from job FA62561

MS Semi-volatiles

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: FA62561
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
S2Q447-IBLK	2Q28018.D	1	03/24/19	NG	n/a	n/a	S2Q447

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

FA62561-2, FA62561-3, FA62561-4, FA62561-5, FA62561-6

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	0.0040	0.0015	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
	13C4-PFBA	113%	50-150%
	13C5-PFPeA	111%	50-150%
	13C5-PFHxA	112%	50-150%
	13C4-PFHpA	110%	50-150%
	13C8-PFOA	109%	50-150%
	13C9-PFNA	104%	50-150%
	13C6-PFDA	100%	50-150%
	13C7-PFUnDA	96%	50-150%
	13C2-PFDoDA	92%	50-150%
	13C2-PFTeDA	94%	50-150%
	13C3-PFBS	112%	50-150%
	13C3-PFHxS	112%	50-150%
	13C8-PFOS	111%	50-150%
	13C8-FOSA	116%	50-150%
	d3-MeFOSAA	96%	50-150%
	13C2-4:2FTS	102%	50-150%
	13C2-6:2FTS	97%	50-150%
	13C2-8:2FTS	84%	50-150%

Raw Data: 2Q28079.D

Instrument Blank

Job Number: FA62561
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
S2Q448-IBLK	2Q28079.D	1	03/25/19	NAF	n/a	n/a	S2Q448

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

FA62561-5, FA62561-6

CAS No.	Compound	Result	RL	MDL	Units	Q
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	107%	50-150%
	13C5-PFPeA	101%	50-150%
	13C5-PFHxA	103%	50-150%
	13C4-PFHpA	105%	50-150%
	13C8-PFOA	102%	50-150%
	13C9-PFNA	100%	50-150%
	13C6-PFDA	102%	50-150%
	13C7-PFUnDA	99%	50-150%
	13C2-PFDoDA	97%	50-150%
	13C2-PFTeDA	94%	50-150%
	13C3-PFBS	103%	50-150%
	13C3-PFHxS	103%	50-150%
	13C8-PFOS	103%	50-150%
	13C8-FOSA	109%	50-150%
	d3-MeFOSAA	98%	50-150%
	13C2-4:2FTS	97%	50-150%
	13C2-6:2FTS	94%	50-150%
	13C2-8:2FTS	87%	50-150%

Instrument Blank

Job Number: FA62561
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
S2Q449-IBLK	2Q28169.D	1	03/26/19	NG	n/a	n/a	S2Q449

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

FA62561-1

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	0.0040	0.0015	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
	13C4-PFBA	93%	50-150%
	13C5-PFPeA	94%	50-150%
	13C5-PFHxA	94%	50-150%
	13C4-PFHpA	95%	50-150%
	13C8-PFOA	98%	50-150%
	13C9-PFNA	96%	50-150%
	13C6-PFDA	99%	50-150%
	13C7-PFUnDA	97%	50-150%
	13C2-PFDoDA	95%	50-150%
	13C2-PFTeDA	93%	50-150%
	13C3-PFBS	93%	50-150%
	13C3-PFHxS	95%	50-150%
	13C8-PFOS	97%	50-150%
	13C8-FOSA	99%	50-150%
	d3-MeFOSAA	96%	50-150%
	13C2-4:2FTS	88%	50-150%
	13C2-6:2FTS	92%	50-150%
	13C2-8:2FTS	90%	50-150%

Raw Data: 2Q28058.D

Method Blank Summary

Job Number: FA62561
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
OP74263-MB	2Q28058.D	1	03/24/19	NG	03/22/19	OP74263	S2Q447

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

FA62561-1, FA62561-2, FA62561-3, FA62561-4, FA62561-5, FA62561-6

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	0.0077	0.0029	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
	13C4-PFBA	118%	50-150%
	13C5-PFPeA	111%	50-150%
	13C5-PFHxA	111%	50-150%
	13C4-PFHpA	111%	50-150%
	13C8-PFOA	118%	50-150%
	13C9-PFNA	111%	50-150%
	13C6-PFDA	110%	50-150%
	13C7-PFUnDA	115%	50-150%
	13C2-PFDoDA	105%	50-150%
	13C2-PFTeDA	80%	50-150%
	13C3-PFBS	109%	50-150%
	13C3-PFHxS	110%	50-150%
	13C8-PFOS	104%	50-150%
	13C8-FOSA	113%	50-150%
	d3-MeFOSAA	95%	50-150%
	13C2-4:2FTS	105%	50-150%
	13C2-6:2FTS	111%	50-150%
	13C2-8:2FTS	96%	50-150%

Blank Spike Summary

Job Number: FA62561
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
OP74263-BS	2Q28057.D	1	03/24/19	NG	03/22/19	OP74263	S2Q447

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

FA62561-1, FA62561-2, FA62561-3, FA62561-4, FA62561-5, FA62561-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
307-24-4	Perfluorohexanoic acid	0.154	0.148	96	67-133
375-85-9	Perfluoroheptanoic acid	0.154	0.151	98	72-133
335-67-1	Perfluorooctanoic acid	0.154	0.147	96	71-133
375-95-1	Perfluorononanoic acid	0.154	0.143	93	67-131
335-76-2	Perfluorodecanoic acid	0.154	0.144	94	68-135
2058-94-8	Perfluoroundecanoic acid	0.154	0.151	98	67-133
307-55-1	Perfluorododecanoic acid	0.154	0.152	99	68-131
72629-94-8	Perfluorotridecanoic acid	0.154	0.159	103	65-140
376-06-7	Perfluorotetradecanoic acid	0.154	0.156	101	65-129
375-73-5	Perfluorobutanesulfonic acid	0.154	0.148	96	72-129
355-46-4	Perfluorohexanesulfonic acid	0.154	0.146	95	70-134
1763-23-1	Perfluorooctanesulfonic acid	0.154	0.148	96	65-140
2355-31-9	MeFOSAA	0.154	0.149	97	66-132
2991-50-6	EtFOSAA	0.154	0.149	97	61-133

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	117%	50-150%
	13C5-PFPeA	110%	50-150%
	13C5-PFHxA	110%	50-150%
	13C4-PFHpA	109%	50-150%
	13C8-PFOA	111%	50-150%
	13C9-PFNA	107%	50-150%
	13C6-PFDA	103%	50-150%
	13C7-PFUnDA	107%	50-150%
	13C2-PFDoDA	99%	50-150%
	13C2-PFTeDA	80%	50-150%
	13C3-PFBS	108%	50-150%
	13C3-PFHxS	107%	50-150%
	13C8-PFOS	102%	50-150%
	13C8-FOSA	108%	50-150%
	d3-MeFOSAA	87%	50-150%
	13C2-4:2FTS	112%	50-150%
	13C2-6:2FTS	109%	50-150%
	13C2-8:2FTS	98%	50-150%

* = Outside of Control Limits.

Raw Data: 2Q28063.D

Matrix Spike Summary

Job Number: FA62561
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
OP74263-MS	2Q28063.D	1	03/25/19	NG	03/22/19	OP74263	S2Q447
FA62561-3	2Q28061.D	1	03/24/19	NG	03/22/19	OP74263	S2Q447

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

FA62561-1, FA62561-2, FA62561-3, FA62561-4, FA62561-5, FA62561-6

CAS No.	Compound	FA62561-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
307-24-4	Perfluorohexanoic acid	0.152		0.16	0.277	78	67-133
375-85-9	Perfluoroheptanoic acid	0.0246		0.16	0.158	83	72-133
335-67-1	Perfluorooctanoic acid	0.0409		0.16	0.176	84	71-133
375-95-1	Perfluorononanoic acid	0.0080	U	0.16	0.129	81	67-131
335-76-2	Perfluorodecanoic acid	0.0080	U	0.16	0.131	82	68-135
2058-94-8	Perfluoroundecanoic acid	0.0080	U	0.16	0.136	85	67-133
307-55-1	Perfluorododecanoic acid	0.0080	U	0.16	0.140	88	68-131
72629-94-8	Perfluorotridecanoic acid	0.0080	U	0.16	0.132	83	65-140
376-06-7	Perfluorotetradecanoic acid	0.0080	U	0.16	0.139	87	65-129
375-73-5	Perfluorobutanesulfonic acid	0.0408		0.16	0.169	80	72-129
355-46-4	Perfluorohexanesulfonic acid	0.0426		0.16	0.174	82	70-134
1763-23-1	Perfluorooctanesulfonic acid	0.0080	U	0.16	0.136	85	65-140
2355-31-9	MeFOSAA	0.040	U	0.16	0.134	84	66-132
2991-50-6	EtFOSAA	0.040	U	0.16	0.135	84	61-133

CAS No.	ID Standard Recoveries	MS	FA62561-3	Limits
	13C4-PFBA	139%		50-150%
	13C5-PFPeA	131%		50-150%
	13C5-PFHxA	130%	118%	50-150%
	13C4-PFHpA	130%	121%	50-150%
	13C8-PFOA	146%	140%	50-150%
	13C9-PFNA	134%	128%	50-150%
	13C6-PFDA	134%	130%	50-150%
	13C7-PFUnDA	168%* [b]	168%* [a]	50-150%
	13C2-PFDoDA	168%* [b]	146%	50-150%
	13C2-PFTeDA	111%	97%	50-150%
	13C3-PFBS	127%	113%	50-150%
	13C3-PFHxS	127%	115%	50-150%
	13C8-PFOS	126%	115%	50-150%
	13C8-FOSA	133%		50-150%
	d3-MeFOSAA	119%	107%	50-150%
	13C2-4:2FTS	139%		50-150%
	13C2-6:2FTS	153%* [b]		50-150%
	13C2-8:2FTS	124%		50-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA62561
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
OP74263-MS	2Q28063.D	1	03/25/19	NG	03/22/19	OP74263	S2Q447
FA62561-3	2Q28061.D	1	03/24/19	NG	03/22/19	OP74263	S2Q447

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

FA62561-1, FA62561-2, FA62561-3, FA62561-4, FA62561-5, FA62561-6

(a) Outside control limits. However, sample was ND.
(b) Outside control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA62561
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
OP74263-DUP	2Q28105.D	10	03/25/19	NAF	03/22/19	OP74263	S2Q448
FA62561-6	2Q28065.D	1	03/25/19	NG	03/22/19	OP74263	S2Q447
FA62561-6	2Q28104.D	5	03/25/19	NAF	03/22/19	OP74263	S2Q448

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

FA62561-1, FA62561-2, FA62561-3, FA62561-4, FA62561-5, FA62561-6

CAS No.	Compound	FA62561-6 ug/l	Q	DUP ug/l	Q	RPD	Limits
307-24-4	Perfluorohexanoic acid	0.105		0.0963		9	30
375-85-9	Perfluoroheptanoic acid	0.0418		0.0384	J	8	30
335-67-1	Perfluorooctanoic acid	1.81 [a]		1.71		6	30
375-95-1	Perfluorononanoic acid	0.00271	J	ND		200*	30
335-76-2	Perfluorodecanoic acid	0.0080	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0080	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0080	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0080	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0080	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0175		ND		200*	30
355-46-4	Perfluorohexanesulfonic acid	0.266		0.246		8	30
1763-23-1	Perfluorooctanesulfonic acid	0.661		0.585		12	30
2355-31-9	MeFOSAA	0.040	U	ND		nc	30
2991-50-6	EtFOSAA	0.040	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FA62561-6	FA62561-6	Limits
	13C4-PFBA	125%			50-150%
	13C5-PFPeA	115%			50-150%
	13C5-PFHxA	117%	120%	113%	50-150%
	13C4-PFHpA	117%	120%	113%	50-150%
	13C8-PFOA	128%	118%	124%	50-150%
	13C9-PFNA	117%	122%	115%	50-150%
	13C6-PFDA	115%	132%	117%	50-150%
	13C7-PFUnDA	137%	168%* [b]	117%	50-150%
	13C2-PFDoDA	108%	144%	99%	50-150%
	13C2-PFTeDA	85%	103%	89%	50-150%
	13C3-PFBS	116%	115%	107%	50-150%
	13C3-PFHxS	114%	115%	109%	50-150%
	13C8-PFOS	104%	113%	104%	50-150%
	13C8-FOSA	127%			50-150%
	d3-MeFOSAA	102%	110%	103%	50-150%
	13C2-4:2FTS	112%			50-150%
	13C2-6:2FTS	134%			50-150%
	13C2-8:2FTS	102%			50-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA62561
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
OP74263-DUP	2Q28105.D	10	03/25/19	NAF	03/22/19	OP74263	S2Q448
FA62561-6	2Q28065.D	1	03/25/19	NG	03/22/19	OP74263	S2Q447
FA62561-6	2Q28104.D	5	03/25/19	NAF	03/22/19	OP74263	S2Q448

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

FA62561-1, FA62561-2, FA62561-3, FA62561-4, FA62561-5, FA62561-6

(a) Result is from Run #2.
(b) Outside control limits. However, sample was ND.

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q447-CC445	**Injection Date:**	03/24/19
Lab File ID:	2Q28055.D	**Injection Time:**	21:54
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	238518	6.41	43071	7.01
Check Std [b]	269251	6.41	47321	7.01
Upper Limit [c]	357777	7.41	64607	8.01
Lower Limit [d]	119259	5.41	21536	6.01

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
OP74263-BS	296131	6.41	53524	7.01
OP74263-MB	295817	6.41	51186	7.01
ZZZZZZ	343396	6.41	53018	7.01
FA62561-2	345484	6.42	56447	7.01
FA62561-3	357537	6.42	58535	7.01
FA62561-4	358592*	6.42	57269	7.01
OP74263-MS	341595	6.42	57496	7.01
FA62561-5	260707	6.41	59232	7.01
FA62561-6	295629	6.41	54303	7.01

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

(a) Initial Cal is: S2Q445-ICC445 2Q27862.D 03/21/19 12:42
(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.

Injection Standard Area Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q448-CC445	**Injection Date:**	03/25/19
Lab File ID:	2Q28096.D	**Injection Time:**	15:20
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	238518	6.41	43071	7.01
Check Std [b]	261776	6.42	45047	7.02
Upper Limit [c]	357777	7.42	64607	8.02
Lower Limit [d]	119259	5.42	21536	6.02

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
FA62561-5	319991	6.42	53333	7.02
FA62561-6	327209	6.42	52806	7.02
OP74263-DUP	332618	6.42	53082	7.02

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

(a) Initial Cal is: S2Q445-ICC445 2Q27862.D 03/21/19 12:42
(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.

Injection Standard Area Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q449-ICC449	**Injection Date:**	03/26/19
Lab File ID:	2Q28166.D	**Injection Time:**	16:17
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	390599	6.45	58145	7.05
Check Std [b]	390599	6.45	58145	7.05
Upper Limit [c]	585899	7.45	87218	8.05
Lower Limit [d]	195300	5.45	29073	6.05

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
S2Q449-IBLK	358195	6.45	55393	7.05
S2Q449-IBLK	358195	6.45	55393	7.05
FA62561-1	412929	6.46	58074	7.05
ZZZZZZ	391462	6.45	52197	7.06
ZZZZZZ	294934	6.45	40160	7.05
ZZZZZZ	346159	6.45	51459	7.05
ZZZZZZ	385690	6.45	52801	7.05
ZZZZZZ	379327	6.45	55256	7.05

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

(a) Initial Cal is: S2Q449-ICC449 2Q28166.D 03/26/19 16:17
(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.

Injection Standard Area Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q452-CC450	**Injection Date:**	04/01/19
Lab File ID:	2Q28446.D	**Injection Time:**	09:47
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	445659	6.41	63130	7.02
Check Std [b]	420897	6.40	57964	7.01
Upper Limit [c]	668489	7.40	94695	8.01
Lower Limit [d]	222830	5.40	31565	6.01

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
OP74376-BS	381124	6.41	52385	7.02
OP74376-MB	423780	6.41	58199	7.02
FA62561-4 [e]	438604	6.42	59118	7.02
FA62561-5 [e]	369367	6.40	59755	7.02
FA62714-1	415862	6.41	56886	7.02
OP74376-MS	422435	6.41	57590	7.02
FA62561-5 [e]	390301	6.41	53592	7.02

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

(a) Initial Cal is: S2Q450-ICC450 2Q28327.D 03/28/19 15:49
(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.

Injection Standard Area Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Check Std:	S2Q453-CC450	**Injection Date:**	04/02/19
Lab File ID:	2Q28523.D	**Injection Time:**	12:38
Instrument ID:	GCMS2Q	**Method:**	EPA 537M QSM5.1 B-15

	IS 1 AREA	RT	IS 2 AREA	RT
Initial Cal [a]	445659	6.41	63130	7.02
Check Std [b]	491301	6.37	64781	6.99
Upper Limit [c]	668489	7.37	94695	7.99
Lower Limit [d]	222830	5.37	31565	5.99

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT
OP74392-BS [e]	217085[f]	6.41	28737[f]	7.04
OP74392-MB	224723	6.41	29497[f]	7.04
ZZZZZZ	217885[f]	6.41	28046[f]	7.04
FA62561-1 [g]	213435[f]	6.41	27031[f]	7.04
FA62561-2 [g]	234063	6.41	30176[f]	7.04

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

(a) Initial Cal is: S2Q450-ICC450 2Q28327.D 03/28/19 15:49
(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) Insufficient sample for MS/MSD.
(f) Outside control limits.
(g) Confirmation run.

Isotope Dilution Standard Recovery Summary

Job Number: FA62561
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
FA62561-1	2Q28528.D	67	70	74	73	67	58	43*	26*
FA62561-1	2Q28174.D	104	105	116	106	101	117	86	90
FA62561-2	2Q28529.D	85	88	92	89	79	70	56	48*
FA62561-2	2Q28060.D	117	118	136	121	119	133	119	88
FA62561-3	2Q28061.D	118	121	140	128	130	168* [a]	146	97
FA62561-4	2Q28450.D	101	103	104	102	98	99	83	85
FA62561-4	2Q28062.D	120	122	142	123	120	136	133	91
FA62561-5	2Q28451.D	100	103	88	106	105	107	89	93
FA62561-5	2Q28454.D	102	104	103	107	104	100	91	88
FA62561-5	2Q28064.D	115	116	101	134	133	169* [a]	155* [a]	95
FA62561-5	2Q28102.D	116	118	123	118	116	120	94	83
FA62561-6	2Q28065.D	120	120	118	122	132	168* [a]	144	103
FA62561-6	2Q28104.D	113	113	124	115	117	117	99	89
OP74263-BS	2Q28057.D	110	109	111	107	103	107	99	80
OP74263-DUP	2Q28105.D	117	117	128	117	115	137	108	85
OP74263-MB	2Q28058.D	111	111	118	111	110	115	105	80
OP74263-MS	2Q28063.D	130	130	146	134	134	168* [b]	168* [b]	111
S2Q447-IBLK	2Q28018.D	112	110	109	104	100	96	92	94
S2Q448-IBLK	2Q28079.D	103	105	102	100	102	99	97	94
S2Q449-IBLK	2Q28169.D	94	95	98	96	99	97	95	93

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. However, sample was ND.
(b) Outside control limits.

Isotope Dilution Standard Recovery Summary

Job Number: FA62561
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
FA62561-1	2Q28528.D	63	65	56	57
FA62561-1	2Q28174.D	101	101	94	89
FA62561-2	2Q28529.D	80	81	66	67
FA62561-2	2Q28060.D	115	114	108	98
FA62561-3	2Q28061.D	113	115	115	107
FA62561-4	2Q28450.D	98	98	95	93
FA62561-4	2Q28062.D	117	118	111	100
FA62561-5	2Q28451.D	100	97	98	100
FA62561-5	2Q28454.D	101	102	97	103
FA62561-5	2Q28064.D	118	107	116	107
FA62561-5	2Q28102.D	115	114	108	97
FA62561-6	2Q28065.D	115	115	113	110
FA62561-6	2Q28104.D	107	109	104	103
OP74263-BS	2Q28057.D	108	107	102	87
OP74263-DUP	2Q28105.D	116	114	104	102
OP74263-MB	2Q28058.D	109	110	104	95
OP74263-MS	2Q28063.D	127	127	126	119
S2Q447-IBLK	2Q28018.D	112	112	111	96
S2Q448-IBLK	2Q28079.D	103	103	103	98
S2Q449-IBLK	2Q28169.D	93	95	97	96

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%

Raw Data: 2Q27857.D 2Q27858.D 2Q27859.D 2Q27860.D 2Q27861.D 2Q27862.D 2Q27863.D 2Q27864.D

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICC445
Lab FileID: 2Q27862.D

Initial Calibration Report

Method Path	D:\MassHunter\damethods
Method File	ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name	D:\MassHunter\Data\0321_ID_GENX_S2Q445\QuantResults\S2Q445.batch.bin
Last Calib Update	3/22/2019 9:03:21 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d	3/21/2019 11:07:46 AM	3/22/2019 9:03:21 AM
2	D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d	3/21/2019 11:39:33 AM	3/22/2019 9:03:21 AM
3	D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d	3/21/2019 11:55:16 AM	3/22/2019 9:03:21 AM
4	D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d	3/21/2019 12:11:00 PM	3/22/2019 9:03:21 AM
5	D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d	3/21/2019 12:26:43 PM	3/22/2019 9:03:21 AM
6	D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d	3/21/2019 12:42:27 PM	3/22/2019 9:03:21 AM
7	D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d	3/21/2019 12:58:10 PM	3/22/2019 9:03:21 AM
8	D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d	3/21/2019 1:13:54 PM	3/22/2019 9:03:21 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
S 13C4-PFBA	Linear	7137	6503	6903	6971	6423	6063	6513	5785	6537	7.051
S 13C5-PFPeA	Linear	6116	5577	5807	5844	5383	5065	5445	4775	5501	7.920
S 13C3-PFBS	Linear	1139	1063	1081	1078	1005	948.0	1008	886.0	1026	7.935
S 13C2-4:2FTS	Linear	2987	2807	2823	2874	2671	2590	3042	2976	2846	5.537
S 13C5-PFHxA	Linear	8286	7635	7801	7903	7243	6820	7226	6369	7411	8.394
S 13C3-HFPO-DA	Linear	1885	1741	1818	1800	1666	1522	1559	1345	1667	10.868
S 13C4-PFHpA	Linear	11626	10888	10944	10985	10122	9486	10003	8649	10338	9.311
S 13C3-PFHxS	Linear	1243	1171	1178	1178	1087	1025	1074	935.1	1111	9.018
S 13C2-6:2FTS	Linear	3272	3103	3054	3082	2853	2769	3053	2924	3014	5.268
S 13C8-PFOA	Linear	11840	11201	10998	11003	10131	9499	9615	8155	10305	11.546
S 13C8-FOSA	Linear	5092	4843	4797	4798	4431	4171	4232	3519	4485	11.276
S 13C8-PFOS	Linear	1607	1508	1514	1508	1402	1334	1364	1203	1430	9.019
S 13C9-PFNA	Linear	11695	11333	11098	11085	10243	9556	9916	8461	10423	10.402
S d3-MeFOSAA	Linear	1950	1931	1822	1818	1718	1618	1687	1485	1754	9.017
S 13C6-PFDA	Linear	15849	15289	14580	14774	13547	12578	12746	10611	13747	12.537
S 13C2-8:2FTS	Linear	2320	2337	2127	2195	2084	1990	2212	2121	2173	5.406
S 13C7-PFUnDA	Linear	19888	19304	18518	18474	17190	15852	16209	13618	17382	11.985
S 13C2-PFDoDA	Linear	20434	20235	18653	18742	17446	16278	17164	14851	17975	10.677
S 13C2-PFTeDA	Linear	13319	13235	12470	12400	11469	10767	11474	10024	11895	9.816
I 13C2-PFOA						ISTD					
S M2-PFOA	Linear	1.0002	1.0006	1.0003	1.0006	1.0003	1.0004	1.0005	1.0006	1.0005	0.014
I 13C4-PFOS						ISTD					
S M4-PFOS	Linear	1.0019	1.0002	1.0006	1.0004	1.0018	1.0008	1.0002	1.0011	1.0009	0.070
I M4-PFBA						ISTD					
T PFBA	Linear	0.2223	0.1948	0.1945	0.1912	0.1910	0.1887	0.1938	0.1963	0.1966	5.432
I M5-PFPeA						ISTD					
T PFPeA	Linear	0.9845	0.9029	0.8649	0.8512	0.8442	0.8517	0.8801	0.8970	0.8846	5.182

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICC445
Lab FileID: 2Q27862.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-PFHxA						ISTD					
T PFHxA	Linear	0.4003	0.3584	0.3408	0.3385	0.3297	0.3361	0.3450	0.3504	0.3499	6.338
I M4-PFHpA						ISTD					
T PFHpA	Linear	0.9485	0.8780	0.8674	0.8595	0.8565	0.8650	0.8886	0.9006	0.8830	3.444
I M8-PFOA						ISTD					
T ADONA	Quadratic	1.0746	0.9705	1.0039	0.9909	0.9976	0.9982	1.0709	1.1230	1.0287	5.211
T PFOA	Linear	0.6097	0.5300	0.5241	0.5199	0.5101	0.5173	0.5334	0.5393	0.5355	5.869
I M9-PFNA						ISTD					
T PFNA	Linear	0.7147	0.6483	0.6350	0.6231	0.6221	0.6307	0.6452	0.6617	0.6476	4.670
I M6-PFDA						ISTD					
T 9Cl-PF3ONS	Quadratic	0.0855	0.0717	0.0817	0.0774	0.0776	0.0780	0.0866	0.0892	0.0810	7.212
T PFDA	Linear	0.4555	0.4571	0.4208	0.4134	0.4077	0.4173	0.4234	0.4372	0.4290	4.396
I M7-PFUnDA						ISTD					
T PFUnDA	Linear	0.4607	0.4050	0.3929	0.3927	0.3922	0.3994	0.4089	0.4173	0.4086	5.593
I M2-PFDoDA						ISTD					
T 11Cl-PF3OUdS	Linear	0.3064	0.2748	0.2927	0.2883	0.2848	0.2891	0.3009	0.3060	0.2929	3.756
T PFDoDA	Linear	0.4972	0.4480	0.4518	0.4385	0.4395	0.4429	0.4517	0.4615	0.4539	4.197
I M2-PFTeDA						ISTD					
T PFTrDA	Linear	0.8435	0.7885	0.7689	0.7601	0.7586	0.7558	0.7808	0.7732	0.7787	3.664
T PFTeDA	Linear	0.7656	0.6920	0.6618	0.6571	0.6563	0.6605	0.6808	0.6885	0.6828	5.333
I M8-FOSA						ISTD					
T FOSA	Quadratic	0.5157	0.4712	0.4346	0.4611	0.4450	0.4598	0.4669	0.4730	0.4659	5.155
I M3-PFBS						ISTD					
T PFBS	Linear	1.7923	1.6527	1.6419	1.5769	1.5602	1.5531	1.6159	1.6254	1.6273	4.689
T PFPeS	Linear	1.0765	1.0826	1.0132	1.0209	1.0190	0.9943	1.0391	1.0389	1.0356	2.968
I M3-PFHxS						ISTD					
T PFHxS	Linear	1.2061	1.1071	1.0822	1.0632	1.0722	1.0498	1.0936	1.1111	1.0982	4.407
T PFHpS	Linear	0.9881	0.9274	0.9485	0.9271	0.9236	0.9098	0.9388	0.9351	0.9373	2.504
I M8-PFOS						ISTD					
T PFOS	Linear	1.0935	1.0556	1.0098	0.9657	0.9376	0.9232	0.9875	0.9860	0.9948	5.766
T PFNS	Linear	0.7801	0.6986	0.6986	0.6797	0.6941	0.6674	0.6921	0.6805	0.6989	4.944
T PFDS	Linear	0.3804	0.3860	0.3663	0.3392	0.3440	0.3223	0.3488	0.3366	0.3530	6.353
I M2-4:2FTS						ISTD					
T 4:2FTS	Avg RF	0.6775	0.6309	0.6180	0.5924	0.5893	0.5682	0.5376	0.4919	0.5882	9.735
I M2-6:2FTS						ISTD					

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICC445
Lab FileID: 2Q27862.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T 6:2FTS	Avg RF	0.5948	0.5235	0.5181	0.5145	0.5104	0.4809	0.4710	0.4233	0.5046	9.795
I M2-8:2FTS				---------- ISTD ----------							
T 8:2FTS	Avg RF	0.6196	0.5911	0.5665	0.5294	0.5139	0.4962	0.4722	0.4326	0.5277	11.832
I M3-MeFOSAA				---------- ISTD ----------							
T MeFOSAA	Quadratic	0.6289	0.5501	0.5626	0.4823	0.4991	0.5009	0.5359	0.5279	0.5360	8.660
T EtFOSAA	Quadratic	0.5632	0.4530	0.4644	0.4558	0.4136	0.4320	0.4356	0.4303	0.4560	10.162
I M3-HFPO-DA				---------- ISTD ----------							
T HFPO-DA	Linear	1.2792	1.2128	1.1947	1.1842	1.1587	1.1601	1.1767	1.1623	1.1911	3.380

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

Initial Calibration Summary

Job Number: FA62561 **Sample:** S2Q445-ICC445
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 2Q27862.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

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 = 0.195527 * x	0.999894
S 13C4-PFBA	Linear	y = 6537.345363 * x	0.000000
S 13C5-PFPeA	Linear	y = 5501.457574 * x	0.000000
T PFPeA	Linear	y = 0.891869 * x	0.999779
S 13C3-PFBS	Linear	y = 1026.002515 * x	0.000000
T PFBS	Linear	y = 1.620764 * x	0.999889
S 13C2-4:2FTS	Linear	y = 2846.165539 * x	0.000000
S 13C5-PFHxA	Linear	y = 7410.578395 * x	0.000000
T PFHxA	Linear	y = 0.348721 * x	0.999843
T PFPeS	Linear	y = 1.037404 * x	0.999912
T HFPO-DA	Linear	y = 1.165006 * x	0.999962
S 13C3-HFPO-DA	Linear	y = 1666.947236 * x	0.000000
S 13C4-PFHpA	Linear	y = 10338.028628 * x	0.000000
T PFHpA	Linear	y = 0.896757 * x	0.999869
T PFHxS	Linear	y = 1.105442 * x	0.999805
S 13C3-PFHxS	Linear	y = 1111.388863 * x	0.000000
T ADONA	Quadratic	y = 0.024565 * x ^ 2 + 1.001015 * x	0.999952
S 13C2-6:2FTS	Linear	y = 3013.795574 * x	0.000000
S 13C8-PFOA	Linear	y = 10305.219139 * x	0.000000
S M2-PFOA	Linear	y = 1.000451 * x	0.000000
T PFOA	Linear	y = 0.537238 * x	0.999871
T PFHpS	Linear	y = 0.934916 * x	0.999959
S 13C8-FOSA	Linear	y = 4485.457794 * x	0.000000
T FOSA	Quadratic	y = 0.003050 * x ^ 2 + 0.457895 * x	0.999985
S 13C8-PFOS	Linear	y = 1429.940550 * x	0.000000
S M4-PFOS	Linear	y = 1.000880 * x	0.000000
T PFOS	Linear	y = 0.983933 * x	0.999787
S 13C9-PFNA	Linear	y = 10423.379931 * x	0.000000
T PFNA	Linear	y = 0.657232 * x	0.999733
T 9Cl-PF3ONS	Quadratic	y = 0.001709 * x ^ 2 + 0.080779 * x	0.999768
S d3-MeFOSAA	Linear	y = 1753.524081 * x	0.000000
T MeFOSAA	Quadratic	y = 7.515304E-004 * x ^ 2 + 0.525057 * x	0.999760
T PFNS	Linear	y = 0.682457 * x	0.999905
S 13C6-PFDA	Linear	y = 13746.687429 * x	0.000000
T PFDA	Linear	y = 0.433634 * x	0.999648
T EtFOSAA	Quadratic	y = -0.001236 * x ^ 2 + 0.436667 * x	0.999948
S 13C2-8:2FTS	Linear	y = 2173.327029 * x	0.000000
T PFDS	Linear	y = 0.338576 * x	0.999576
S 13C7-PFUnDA	Linear	y = 17381.752017 * x	0.000000
T PFUnDA	Linear	y = 0.414877 * x	0.999794
T 11Cl-PF3OUdS	Linear	y = 0.300991 * x	0.999385
S 13C2-PFDoDA	Linear	y = 17975.264757 * x	0.000000
T PFDoDA	Linear	y = 0.458812 * x	0.999811

Generated at 9:03 AM on 3/22/2019

Initial Calibration Report

T PFTrDA	Linear	y = 0.773986 * x	0.999945
T PFTeDA	Linear	y = 0.685807 * x	0.999877
S 13C2-PFTeDA	Linear	y = 11894.867024 * x	0.000000

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

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICC445
Lab FileID: 2Q27862.D

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICV445
Lab FileID: 2Q27866.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0321_ID_GENX_S2Q445\S2Q445.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q27866
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	17.527	-12.4	87.6
13C2-6:2FTS	20.000	18.032	-9.8	90.2
13C2-8:2FTS	20.000	17.941	-10.3	89.7
13C2-PFDoDA	20.000	18.521	-7.4	92.6
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	18.569	-7.2	92.8
13C3-PFBS	20.000	18.576	-7.1	92.9
13C3-PFHxS	20.000	18.513	-7.4	92.6
13C4-PFBA	20.000	18.856	-5.7	94.3
13C4-PFHpA	20.000	18.773	-6.1	93.9
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	18.682	-6.6	93.4
13C5-PFPeA	20.000	18.599	-7.0	93.0
13C6-PFDA	20.000	19.083	-4.6	95.4
13C7-PFUnDA	20.000	19.140	-4.3	95.7
13C8-FOSA	20.000	19.504	-2.5	97.5
13C8-PFOA	20.000	18.979	-5.1	94.9
13C8-PFOS	20.000	18.769	-6.2	93.8
13C9-PFNA	20.000	18.832	-5.8	94.2
4:2FTS	20.000	0.000	# -100.0	0.0
6:2FTS	20.000	0.000	# -100.0	0.0
8:2FTS	20.000	0.000	# -100.0	0.0
d3-MeFOSAA	20.000	18.483	-7.6	92.4
M2-PFOA	20.000	20.016	0.1	100.1
EtFOSAA	20.000	16.058	-19.7	80.3
FOSA	20.000	0.000	# -100.0	0.0
MeFOSAA	20.000	17.968	-10.2	89.8
PFBA	20.000	0.000	# -100.0	0.0
PFBS	20.000	0.000	# -100.0	0.0
PFDA	20.000	0.000	# -100.0	0.0
PFDoDA	20.000	0.000	# -100.0	0.0
PFDS	20.000	0.000	# -100.0	0.0
PFHpA	20.000	0.000	# -100.0	0.0
PFHpS	20.000	0.000	# -100.0	0.0
PFHxA	20.000	0.000	# -100.0	0.0
PFHxS	20.000	0.000	# -100.0	0.0
PFNA	20.000	0.000	# -100.0	0.0

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICV445
Lab FileID: 2Q27866.D

PFNS	20.000	0.000	# -100.0	0.0
PFOA	20.000	17.055	-14.7	85.3
PFOS	20.000	19.604	-2.0	98.0
PFPeA	20.000	0.000	# -100.0	0.0
PFPeS	20.000	0.000	# -100.0	0.0
PFTeDA	20.000	0.000	# -100.0	0.0
PFTrDA	20.000	0.000	# -100.0	0.0
PFUnDA	20.000	0.000	# -100.0	0.0
M4-PFOS	20.000	19.982	-0.1	99.9
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--		
11Cl-PF3OUdS	20.000	0.000	# -100.0	0.0
13C3-HFPO-DA	100.000	102.729	2.7	102.7
9Cl-PF3ONS	20.000	0.000	# -100.0	0.0
ADONA	20.000	0.000	# -100.0	0.0
HFPO-DA	100.000	0.000	# -100.0	0.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICV445
Lab FileID: 2Q27867.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0321_ID_GENX_S2Q445\S2Q445.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q27867
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	18.436	-7.8	92.2
13C2-6:2FTS	20.000	18.881	-5.6	94.4
13C2-8:2FTS	20.000	18.794	-6.0	94.0
13C2-PFDoDA	20.000	18.641	-6.8	93.2
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	18.601	-7.0	93.0
13C3-PFBS	20.000	18.742	-6.3	93.7
13C3-PFHxS	20.000	18.777	-6.1	93.9
13C4-PFBA	20.000	18.787	-6.1	93.9
13C4-PFHpA	20.000	18.753	-6.2	93.8
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	18.656	-6.7	93.3
13C5-PFPeA	20.000	18.638	-6.8	93.2
13C6-PFDA	20.000	19.072	-4.6	95.4
13C7-PFUnDA	20.000	18.750	-6.3	93.7
13C8-FOSA	20.000	18.978	-5.1	94.9
13C8-PFOA	20.000	18.829	-5.9	94.1
13C8-PFOS	20.000	18.869	-5.7	94.3
13C9-PFNA	20.000	18.952	-5.2	94.8
4:2FTS	20.000	17.554	-12.2	87.8
6:2FTS	20.000	17.942	-10.3	89.7
8:2FTS	20.000	17.557	-12.2	87.8
d3-MeFOSAA	20.000	18.712	-6.4	93.6
M2-PFOA	20.000	20.000	0.0	100.0
EtFOSAA	20.000	20.273	1.4	101.4
FOSA	20.000	19.761	-1.2	98.8
MeFOSAA	20.000	19.757	-1.2	98.8
PFBA	20.000	18.640	-6.8	93.2
PFBS	20.000	15.917	-20.4	79.6
PFDA	20.000	17.024	-14.9	85.1
PFDoDA	20.000	19.236	-3.8	96.2
PFDS	20.000	17.461	-12.7	87.3
PFHpA	20.000	19.723	-1.4	98.6
PFHpS	20.000	18.154	-9.2	90.8
PFHxA	20.000	16.805	-16.0	84.0
PFHxS	20.000	16.170	-19.1	80.9
PFNA	20.000	17.386	-13.1	86.9

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICV445
Lab FileID: 2Q27867.D

PFNS	20.000	18.224	-8.9	91.1
PFOA	20.000	18.862	-5.7	94.3
PFOS	20.000	18.526	-7.4	92.6
PFPeA	20.000	17.868	-10.7	89.3
PFPeS	20.000	15.862	-20.7	79.3
PFTeDA	20.000	17.343	-13.3	86.7
PFTrDA	20.000	21.022	5.1	105.1
PFUnDA	20.000	19.134	-4.3	95.7
M4-PFOS	20.000	19.981	-0.1	99.9
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--		
11Cl-PF3OUdS	20.000	0.000	# -100.0	0.0
13C3-HFPO-DA	100.000	100.886	0.9	100.9
9Cl-PF3ONS	20.000	0.000	# -100.0	0.0
ADONA	20.000	0.000	# -100.0	0.0
HFPO-DA	100.000	0.000	# -100.0	0.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICV445
Lab FileID: 2Q27868.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0321_ID_GENX_S2Q445\S2Q445.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q27868
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	18.560	-7.2	92.8
13C2-6:2FTS	20.000	18.676	-6.6	93.4
13C2-8:2FTS	20.000	18.455	-7.7	92.3
13C2-PFDoDA	20.000	19.110	-4.4	95.6
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	19.072	-4.6	95.4
13C3-PFBS	20.000	19.262	-3.7	96.3
13C3-PFHxS	20.000	19.215	-3.9	96.1
13C4-PFBA	20.000	19.583	-2.1	97.9
13C4-PFHpA	20.000	19.403	-3.0	97.0
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	19.312	-3.4	96.6
13C5-PFPeA	20.000	19.512	-2.4	97.6
13C6-PFDA	20.000	19.747	-1.3	98.7
13C7-PFUnDA	20.000	19.648	-1.8	98.2
13C8-FOSA	20.000	20.040	0.2	100.2
13C8-PFOA	20.000	19.931	-0.3	99.7
13C8-PFOS	20.000	19.222	-3.9	96.1
13C9-PFNA	20.000	19.306	-3.5	96.5
4:2FTS	20.000	0.000	# -100.0	0.0
6:2FTS	20.000	0.000	# -100.0	0.0
8:2FTS	20.000	0.000	# -100.0	0.0
d3-MeFOSAA	20.000	19.383	-3.1	96.9
M2-PFOA	20.000	20.007	0.0	100.0
EtFOSAA	20.000	18.629	-6.9	93.1
FOSA	20.000	0.000	# -100.0	0.0
MeFOSAA	20.000	17.536	-12.3	87.7
PFBA	20.000	0.000	# -100.0	0.0
PFBS	20.000	18.826	-5.9	94.1
PFDA	20.000	18.685	-6.6	93.4
PFDoDA	20.000	18.608	-7.0	93.0
PFDS	20.000	0.000	# -100.0	0.0
PFHpA	20.000	19.004	-5.0	95.0
PFHpS	20.000	0.000	# -100.0	0.0
PFHxA	20.000	18.699	-6.5	93.5
PFHxS	20.000	18.971	-5.1	94.9
PFNA	20.000	19.717	-1.4	98.6

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q445-ICV445
Lab FileID: 2Q27868.D

PFNS	20.000	0.000	# -100.0	0.0
PFOA	20.000	19.204	-4.0	96.0
PFOS	20.000	18.422	-7.9	92.1
PFPeA	20.000	0.000	# -100.0	0.0
PFPeS	20.000	0.000	# -100.0	0.0
PFTeDA	20.000	18.985	-5.1	94.9
PFTrDA	20.000	19.626	-1.9	98.1
PFUnDA	20.000	18.831	-5.8	94.2
M4-PFOS	20.000	20.017	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--		
11Cl-PF3OUdS	20.000	20.133	0.7	100.7
13C3-HFPO-DA	100.000	102.014	2.0	102.0
9Cl-PF3ONS	20.000	19.572	-2.1	97.9
ADONA	20.000	19.457	-2.7	97.3
HFPO-DA	20.000	19.471	-2.6	97.4
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Raw Data: 2Q28055.D

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q447-CC445
Lab FileID: 2Q28055.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0324_ID_GENX_S2Q447\s2q447.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q28055
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.609	3.0	103.0
13C2-6:2FTS	20.000	20.293	1.5	101.5
13C2-8:2FTS	20.000	18.941	-5.3	94.7
13C2-PFDoDA	20.000	19.701	-1.5	98.5
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	18.330	-8.4	91.6
13C3-PFBS	20.000	20.412	2.1	102.1
13C3-PFHxS	20.000	20.403	2.0	102.0
13C4-PFBA	20.000	20.964	4.8	104.8
13C4-PFHpA	20.000	20.460	2.3	102.3
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.666	3.3	103.3
13C5-PFPeA	20.000	20.549	2.7	102.7
13C6-PFDA	20.000	20.642	3.2	103.2
13C7-PFUnDA	20.000	19.764	-1.2	98.8
13C8-FOSA	20.000	21.650	8.3	108.3
13C8-PFOA	20.000	20.705	3.5	103.5
13C8-PFOS	20.000	20.256	1.3	101.3
13C9-PFNA	20.000	20.339	1.7	101.7
4:2FTS	20.000	19.217	-3.9	96.1
6:2FTS	20.000	19.087	-4.6	95.4
8:2FTS	20.000	19.404	-3.0	97.0
d3-MeFOSAA	20.000	19.714	-1.4	98.6
M2-PFOA	20.000	19.999	0.0	100.0
EtFOSAA	20.000	19.065	-4.7	95.3
FOSA	20.000	19.703	-1.5	98.5
MeFOSAA	20.000	19.738	-1.3	98.7
PFBA	20.000	19.150	-4.2	95.8
PFBS	20.000	19.569	-2.2	97.8
PFDA	20.000	18.680	-6.6	93.4
PFDoDA	20.000	19.262	-3.7	96.3
PFDS	20.000	19.677	-1.6	98.4
PFHpA	20.000	19.508	-2.5	97.5
PFHpS	20.000	19.794	-1.0	99.0
PFHxA	20.000	18.812	-5.9	94.1
PFHxS	20.000	19.185	-4.1	95.9
PFNA	20.000	18.731	-6.3	93.7

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q447-CC445
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28055.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	20.090	0.4	100.4
PFOA	20.000	19.217	-3.9	96.1
PFOS	20.000	19.081	-4.6	95.4
PFPeA	20.000	19.199	-4.0	96.0
PFPeS	20.000	19.769	-1.2	98.8
PFTeDA	20.000	19.115	-4.4	95.6
PFTrDA	20.000	19.607	-2.0	98.0
PFUnDA	20.000	19.321	-3.4	96.6
M4-PFOS	20.000	19.995	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--		
11Cl-PF3OUdS	20.000	20.059	0.3	100.3
13C3-HFPO-DA	100.000	100.898	0.9	100.9
9Cl-PF3ONS	20.000	18.234	-8.8	91.2
ADONA	20.000	19.579	-2.1	97.9
HFPO-DA	100.000	89.388	-10.6	89.4
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q447-CC445
Lab FileID: 2Q28066.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0324_ID_GENX_S2Q447\s2q447.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q28066
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.612	3.1	103.1
13C2-6:2FTS	20.000	20.157	0.8	100.8
13C2-8:2FTS	20.000	19.676	-1.6	98.4
13C2-PFDoDA	20.000	20.591	3.0	103.0
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	19.969	-0.2	99.8
13C3-PFBS	20.000	20.333	1.7	101.7
13C3-PFHxS	20.000	20.499	2.5	102.5
13C4-PFBA	20.000	20.950	4.7	104.7
13C4-PFHpA	20.000	20.508	2.5	102.5
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.816	4.1	104.1
13C5-PFPeA	20.000	20.768	3.8	103.8
13C6-PFDA	20.000	20.845	4.2	104.2
13C7-PFUnDA	20.000	20.318	1.6	101.6
13C8-FOSA	20.000	21.168	5.8	105.8
13C8-PFOA	20.000	20.760	3.8	103.8
13C8-PFOS	20.000	20.147	0.7	100.7
13C9-PFNA	20.000	20.458	2.3	102.3
4:2FTS	20.000	18.947	-5.3	94.7
6:2FTS	20.000	19.156	-4.2	95.8
8:2FTS	20.000	19.072	-4.6	95.4
d3-MeFOSAA	20.000	20.181	0.9	100.9
M2-PFOA	20.000	20.042	0.2	100.2
EtFOSAA	20.000	19.849	-0.8	99.2
FOSA	20.000	19.532	-2.3	97.7
MeFOSAA	20.000	19.638	-1.8	98.2
PFBA	20.000	19.334	-3.3	96.7
PFBS	20.000	19.336	-3.3	96.7
PFDA	20.000	18.836	-5.8	94.2
PFDoDA	20.000	19.264	-3.7	96.3
PFDS	20.000	19.790	-1.1	98.9
PFHpA	20.000	19.415	-2.9	97.1
PFHpS	20.000	19.662	-1.7	98.3
PFHxA	20.000	18.690	-6.5	93.5
PFHxS	20.000	19.128	-4.4	95.6
PFNA	20.000	18.830	-5.9	94.1

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q447-CC445
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28066.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	20.167	0.8	100.8
PFOA	20.000	19.147	-4.3	95.7
PFOS	20.000	19.154	-4.2	95.8
PFPeA	20.000	18.841	-5.8	94.2
PFPeS	20.000	19.715	-1.4	98.6
PFTeDA	20.000	19.005	-5.0	95.0
PFTrDA	20.000	19.482	-2.6	97.4
PFUnDA	20.000	19.346	-3.3	96.7
M4-PFOS	20.000	19.994	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--		
11Cl-PF3OUdS	20.000	18.931	-5.3	94.7
13C3-HFPO-DA	100.000	101.167	1.2	101.2
9Cl-PF3ONS	20.000	18.935	-5.3	94.7
ADONA	20.000	19.425	-2.9	97.1
HFPO-DA	100.000	89.148	-10.9	89.1
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Sample: S2Q447-CC445
Lab FileID: 2Q28070.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0324_ID_GENX_S2Q447\s2q447.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q28070
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.257	1.3	101.3
13C2-6:2FTS	20.000	20.122	0.6	100.6
13C2-8:2FTS	20.000	19.851	-0.7	99.3
13C2-PFDoDA	20.000	20.812	4.1	104.1
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	20.108	0.5	100.5
13C3-PFBS	20.000	20.464	2.3	102.3
13C3-PFHxS	20.000	20.281	1.4	101.4
13C4-PFBA	20.000	20.935	4.7	104.7
13C4-PFHpA	20.000	20.376	1.9	101.9
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.547	2.7	102.7
13C5-PFPeA	20.000	20.706	3.5	103.5
13C6-PFDA	20.000	20.946	4.7	104.7
13C7-PFUnDA	20.000	20.695	3.5	103.5
13C8-FOSA	20.000	20.763	3.8	103.8
13C8-PFOA	20.000	20.649	3.2	103.2
13C8-PFOS	20.000	20.343	1.7	101.7
13C9-PFNA	20.000	20.432	2.2	102.2
4:2FTS	20.000	19.316	-3.4	96.6
6:2FTS	20.000	19.292	-3.5	96.5
8:2FTS	20.000	18.772	-6.1	93.9
d3-MeFOSAA	20.000	20.069	0.3	100.3
M2-PFOA	20.000	20.047	0.2	100.2
EtFOSAA	20.000	20.062	0.3	100.3
FOSA	20.000	19.611	-1.9	98.1
MeFOSAA	20.000	20.213	1.1	101.1
PFBA	20.000	19.359	-3.2	96.8
PFBS	20.000	19.152	-4.2	95.8
PFDA	20.000	18.693	-6.5	93.5
PFDoDA	20.000	19.220	-3.9	96.1
PFDS	20.000	19.770	-1.2	98.8
PFHpA	20.000	19.512	-2.4	97.6
PFHpS	20.000	19.711	-1.4	98.6
PFHxA	20.000	19.255	-3.7	96.3
PFHxS	20.000	19.106	-4.5	95.5
PFNA	20.000	18.760	-6.2	93.8

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q447-CC445
Lab FileID: 2Q28070.D

PFNS	20.000	19.927	-0.4	99.6
PFOA	20.000	19.241	-3.8	96.2
PFOS	20.000	19.089	-4.6	95.4
PFPeA	20.000	19.002	-5.0	95.0
PFPeS	20.000	19.523	-2.4	97.6
PFTeDA	20.000	18.975	-5.1	94.9
PFTrDA	20.000	19.727	-1.4	98.6
PFUnDA	20.000	19.118	-4.4	95.6
M4-PFOS	20.000	19.974	-0.1	99.9
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--		
11Cl-PF3OUdS	20.000	18.860	-5.7	94.3
13C3-HFPO-DA	100.000	100.562	0.6	100.6
9Cl-PF3ONS	20.000	18.694	-6.5	93.5
ADONA	20.000	19.495	-2.5	97.5
HFPO-DA	100.000	90.535	-9.5	90.5
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q448-CC445
Lab FileID: 2Q28096.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0325_ID_GENX_S2Q448\s2q448.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q28096
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.365	1.8	101.8
13C2-6:2FTS	20.000	19.401	-3.0	97.0
13C2-8:2FTS	20.000	19.023	-4.9	95.1
13C2-PFDoDA	20.000	20.209	1.0	101.0
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	18.569	-7.2	92.8
13C3-PFBS	20.000	19.839	-0.8	99.2
13C3-PFHxS	20.000	19.602	-2.0	98.0
13C4-PFBA	20.000	20.775	3.9	103.9
13C4-PFHpA	20.000	20.198	1.0	101.0
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.209	1.0	101.0
13C5-PFPeA	20.000	19.766	-1.2	98.8
13C6-PFDA	20.000	20.473	2.4	102.4
13C7-PFUnDA	20.000	20.198	1.0	101.0
13C8-FOSA	20.000	21.781	8.9	108.9
13C8-PFOA	20.000	19.969	-0.2	99.8
13C8-PFOS	20.000	19.450	-2.8	97.2
13C9-PFNA	20.000	20.006	0.0	100.0
4:2FTS	20.000	19.126	-4.4	95.6
6:2FTS	20.000	19.345	-3.3	96.7
8:2FTS	20.000	18.941	-5.3	94.7
d3-MeFOSAA	20.000	20.055	0.3	100.3
M2-PFOA	20.000	19.991	0.0	100.0
EtFOSAA	20.000	19.948	-0.3	99.7
FOSA	20.000	19.599	-2.0	98.0
MeFOSAA	20.000	19.222	-3.9	96.1
PFBA	20.000	18.680	-6.6	93.4
PFBS	20.000	19.319	-3.4	96.6
PFDA	20.000	18.471	-7.6	92.4
PFDoDA	20.000	19.236	-3.8	96.2
PFDS	20.000	20.463	2.3	102.3
PFHpA	20.000	19.096	-4.5	95.5
PFHpS	20.000	20.066	0.3	100.3
PFHxA	20.000	18.135	-9.3	90.7
PFHxS	20.000	19.227	-3.9	96.1
PFNA	20.000	18.588	-7.1	92.9

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q448-CC445
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28096.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	19.981	-0.1	99.9
PFOA	20.000	19.488	-2.6	97.4
PFOS	20.000	19.135	-4.3	95.7
PFPeA	20.000	19.612	-1.9	98.1
PFPeS	20.000	19.688	-1.6	98.4
PFTeDA	20.000	18.992	-5.0	95.0
PFTrDA	20.000	20.364	1.8	101.8
PFUnDA	20.000	18.753	-6.2	93.8
M4-PFOS	20.000	19.991	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--		
11Cl-PF3OUdS	20.000	19.066	-4.7	95.3
13C3-HFPO-DA	100.000	92.986	-7.0	93.0
9Cl-PF3ONS	20.000	18.212	-8.9	91.1
ADONA	20.000	19.939	-0.3	99.7
HFPO-DA	100.000	102.609	2.6	102.6
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q448-CC445
Lab FileID: 2Q28106.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0325_ID_GENX_S2Q448\s2q448.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q28106
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.635	3.2	103.2
13C2-6:2FTS	20.000	19.831	-0.8	99.2
13C2-8:2FTS	20.000	19.431	-2.8	97.2
13C2-PFDoDA	20.000	20.763	3.8	103.8
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	19.078	-4.6	95.4
13C3-PFBS	20.000	20.172	0.9	100.9
13C3-PFHxS	20.000	19.924	-0.4	99.6
13C4-PFBA	20.000	21.087	5.4	105.4
13C4-PFHpA	20.000	20.570	2.9	102.9
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.715	3.6	103.6
13C5-PFPeA	20.000	20.188	0.9	100.9
13C6-PFDA	20.000	20.905	4.5	104.5
13C7-PFUnDA	20.000	20.611	3.1	103.1
13C8-FOSA	20.000	22.271	11.4	111.4
13C8-PFOA	20.000	20.515	2.6	102.6
13C8-PFOS	20.000	19.639	-1.8	98.2
13C9-PFNA	20.000	20.591	3.0	103.0
4:2FTS	20.000	19.146	-4.3	95.7
6:2FTS	20.000	19.270	-3.7	96.3
8:2FTS	20.000	19.501	-2.5	97.5
d3-MeFOSAA	20.000	20.765	3.8	103.8
M2-PFOA	20.000	20.005	0.0	100.0
EtFOSAA	20.000	20.105	0.5	100.5
FOSA	20.000	19.804	-1.0	99.0
MeFOSAA	20.000	19.268	-3.7	96.3
PFBA	20.000	18.566	-7.2	92.8
PFBS	20.000	19.369	-3.2	96.8
PFDA	20.000	18.473	-7.6	92.4
PFDoDA	20.000	19.159	-4.2	95.8
PFDS	20.000	20.981	4.9	104.9
PFHpA	20.000	19.282	-3.6	96.4
PFHpS	20.000	19.834	-0.8	99.2
PFHxA	20.000	18.218	-8.9	91.1
PFHxS	20.000	19.594	-2.0	98.0
PFNA	20.000	18.356	-8.2	91.8

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q448-CC445
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28106.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	20.630	3.2	103.2
PFOA	20.000	19.232	-3.8	96.2
PFOS	20.000	19.304	-3.5	96.5
PFPeA	20.000	19.597	-2.0	98.0
PFPeS	20.000	19.579	-2.1	97.9
PFTeDA	20.000	18.962	-5.2	94.8
PFTrDA	20.000	20.508	2.5	102.5
PFUnDA	20.000	19.056	-4.7	95.3
M4-PFOS	20.000	19.975	-0.1	99.9
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--		
11Cl-PF3OUdS	20.000	18.838	-5.8	94.2
13C3-HFPO-DA	100.000	89.095	-10.9	89.1
9Cl-PF3ONS	20.000	18.500	-7.5	92.5
ADONA	20.000	19.913	-0.4	99.6
HFPO-DA	100.000	100.949	0.9	100.9
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q448-CC445
Lab FileID: 2Q28108.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0325_ID_GENX_S2Q448\s2q448.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27857.d
2:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27858.d
3:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27859.d
4:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27860.d
5:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27861.d
6:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27862.d
7:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27863.d
8:D:\MassHunter\Data\0321_ID_GENX_S2Q445\2Q27864.d

Data File: 2Q28108
Type : QC
Level : 2

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.155	0.8	100.8
13C2-6:2FTS	20.000	20.080	0.4	100.4
13C2-8:2FTS	20.000	19.856	-0.7	99.3
13C2-PFDoDA	20.000	21.437	7.2	107.2
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	19.464	-2.7	97.3
13C3-PFBS	20.000	20.650	3.3	103.3
13C3-PFHxS	20.000	20.332	1.7	101.7
13C4-PFBA	20.000	21.700	8.5	108.5
13C4-PFHpA	20.000	21.340	6.7	106.7
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	21.602	8.0	108.0
13C5-PFPeA	20.000	20.783	3.9	103.9
13C6-PFDA	20.000	22.468	12.3	112.3
13C7-PFUnDA	20.000	22.080	10.4	110.4
13C8-FOSA	20.000	23.327	16.6	116.6
13C8-PFOA	20.000	21.744	8.7	108.7
13C8-PFOS	20.000	20.157	0.8	100.8
13C9-PFNA	20.000	21.422	7.1	107.1
4:2FTS	1.000	1.021	2.1	102.1
6:2FTS	1.000	1.163	16.3	116.3
8:2FTS	1.000	0.993	-0.7	99.3
d3-MeFOSAA	20.000	21.101	5.5	105.5
M2-PFOA	20.000	20.001	0.0	100.0
EtFOSAA	1.000	1.136	13.6	113.6
FOSA	1.000	1.058	5.8	105.8
MeFOSAA	1.000	0.946	-5.4	94.6
PFBA	1.000	0.961	-3.9	96.1
PFBS	1.000	0.992	-0.8	99.2
PFDA	1.000	0.919	-8.1	91.9
PFDoDA	1.000	0.999	-0.1	99.9
PFDS	1.000	1.035	3.5	103.5
PFHpA	1.000	1.003	0.3	100.3
PFHpS	1.000	1.024	2.4	102.4
PFHxA	1.000	0.975	-2.5	97.5
PFHxS	1.000	1.088	8.8	108.8
PFNA	1.000	0.943	-5.7	94.3

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q448-CC445
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28108.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	1.000	1.124	12.4	112.4
PFOA	1.000	0.993	-0.7	99.3
PFOS	1.000	1.045	4.5	104.5
PFPeA	1.000	1.031	3.1	103.1
PFPeS	1.000	1.007	0.7	100.7
PFTeDA	1.000	0.987	-1.3	98.7
PFTrDA	1.000	1.055	5.5	105.5
PFUnDA	1.000	0.966	-3.4	96.6
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--		
11Cl-PF3OUdS	1.000	0.944	-5.6	94.4
13C3-HFPO-DA	100.000	92.778	-7.2	92.8
9Cl-PF3ONS	1.000	0.878	-12.2	87.8
ADONA	1.000	0.998	-0.2	99.8
HFPO-DA	5.000	5.152	3.0	103.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Raw Data: 2Q28161.D 2Q28162.D 2Q28163.D 2Q28164.D 2Q28165.D 2Q28166.D 2Q28167.D 2Q28168.D

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-ICC449
Lab FileID: 2Q28166.D

Initial Calibration Report

Method Path	D:\MassHunter\damethods
Method File	ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name	D:\MassHunter\Data\0326_ID_GENX_S2Q449\QuantResults\s2q449.batch.bin
Last Calib Update	3/27/2019 12:34:18 PM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28161.d	3/26/2019 2:58:01 PM	3/27/2019 12:34:18 PM
2	D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28162.d	3/26/2019 3:13:44 PM	3/27/2019 12:34:18 PM
3	D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28163.d	3/26/2019 3:29:43 PM	3/27/2019 12:34:18 PM
4	D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28164.d	3/26/2019 3:45:26 PM	3/27/2019 12:34:18 PM
5	D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28165.d	3/26/2019 4:01:25 PM	3/27/2019 12:34:18 PM
6	D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28166.d	3/26/2019 4:17:09 PM	3/27/2019 12:34:18 PM
7	D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28167.d	3/26/2019 4:36:16 PM	3/27/2019 12:34:18 PM
8	D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28168.d	3/26/2019 4:52:00 PM	3/27/2019 12:34:18 PM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
S 13C4-PFBA	Linear	7679	7768	7652	7643	7546	8698	7322	7457	7721	5.427
S 13C5-PFPeA	Linear	6464	6579	6525	6449	6459	7408	6299	6304	6561	5.420
S 13C3-PFBS	Linear	1113	1135	1119	1120	1103	1268	1075	1071	1125	5.502
S 13C2-4:2FTS	Linear	3831	3882	3868	3883	3909	4620	4267	4783	4131	9.219
S 13C5-PFHxA	Linear	9392	9515	9378	9328	9266	10582	9050	9000	9439	5.229
S 13C3-HFPO-DA	Linear	1748	1832	1809	1765	1751	1994	1594	1513	1751	8.384
S 13C4-PFHpA	Linear	13353	13480	13319	13229	13071	14945	12651	12329	13297	5.800
S 13C3-PFHxS	Linear	1247	1255	1217	1221	1207	1378	1161	1138	1228	5.904
S 13C2-6:2FTS	Linear	4329	4452	4381	4336	4362	5058	4553	4861	4541	6.018
S 13C8-PFOA	Linear	14021	14182	14180	14008	13820	15539	12861	12148	13845	7.223
S 13C8-FOSA	Linear	5931	6042	5959	5952	5839	6521	5226	4656	5766	9.889
S 13C8-PFOS	Linear	1621	1637	1581	1615	1582	1820	1522	1448	1603	6.664
S 13C9-PFNA	Linear	14415	14491	14480	14348	14255	16139	13397	12929	14307	6.559
S d3-MeFOSAA	Linear	2377	2416	2423	2372	2426	2755	2304	2226	2412	6.406
S 13C6-PFDA	Linear	19847	20083	19926	19822	19584	21828	17908	16706	19463	7.888
S 13C2-8:2FTS	Linear	3141	3195	3183	3220	3241	3753	3460	3753	3368	7.599
S 13C7-PFUnDA	Linear	25143	25320	25131	24938	24668	27720	23118	21621	24707	7.163
S 13C2-PFDoDA	Linear	27303	27576	27447	27397	27537	30939	26329	24988	27439	6.089
S 13C2-PFTeDA	Linear	18753	18468	18783	18712	18873	21431	18384	17707	18889	5.783
I 13C2-PFOA						ISTD					
S M2-PFOA	Linear	1.0010	1.0026	1.0005	1.0010	1.0005	1.0011	1.0039	1.0014	1.0015	0.117
I 13C4-PFOS						ISTD					
S M4-PFOS	Linear	1.0015	1.0021	1.0010	0.9419	0.9999	1.0030	1.0005	1.0006	0.9938	2.111
I M4-PFBA						ISTD					
T PFBA	Linear	0.2120	0.1958	0.1921	0.1864	0.1863	0.1853	0.1902	0.1924	0.1926	4.494
I M5-PFPeA						ISTD					
T PFPeA	Linear	1.0007	0.9117	0.8652	0.8643	0.8433	0.8518	0.8771	0.8901	0.8880	5.675

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Initial Calibration Summary

Job Number: FA62561 **Sample:** S2Q449-ICC449
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 2Q28166.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	0.4026	0.3329	0.3199	0.3180	0.3150	0.3176	0.3276	0.3280	0.3327	8.692
I M4-PFHpA						ISTD					
T PFHpA	Linear	0.9487	0.8839	0.8720	0.8597	0.8608	0.8488	0.8778	0.8924	0.8805	3.516
I M8-PFOA						ISTD					
T ADONA	Quadratic	1.0289	0.9489	0.9443	0.9385	0.9378	0.9616	1.0185	1.0727	0.9814	5.244
T PFOA	Linear	0.6113	0.5365	0.5189	0.5090	0.5138	0.5120	0.5269	0.5356	0.5330	6.254
I M9-PFNA						ISTD					
T PFNA	Linear	0.6662	0.6175	0.6013	0.5974	0.5858	0.5888	0.6125	0.6145	0.6105	4.156
I M6-PFDA						ISTD					
T 9Cl-PF3ONS	Quadratic	0.0700	0.0721	0.0661	0.0659	0.0641	0.0666	0.0726	0.0760	0.0692	5.973
T PFDA	Linear	0.4482	0.4159	0.4009	0.3926	0.3937	0.3939	0.4100	0.4079	0.4079	4.519
I M7-PFUnDA						ISTD					
T PFUnDA	Linear	0.4468	0.4076	0.3974	0.3948	0.4015	0.3979	0.4085	0.4173	0.4090	4.150
I M2-PFDoDA						ISTD					
T 11Cl-PF3OUdS	Linear	0.2747	0.2438	0.2363	0.2342	0.2360	0.2386	0.2454	0.2528	0.2452	5.464
T PFDoDA	Linear	0.5014	0.4469	0.4403	0.4393	0.4380	0.4401	0.4569	0.4601	0.4529	4.707
I M2-PFTeDA						ISTD					
T PFTrDA	Linear	0.8409	0.7672	0.7389	0.7373	0.7470	0.7402	0.7588	0.7596	0.7612	4.472
T PFTeDA	Linear	0.7431	0.6673	0.6390	0.6282	0.6341	0.6384	0.6580	0.6613	0.6587	5.608
I M8-FOSA						ISTD					
T FOSA	Quadratic	0.5386	0.4593	0.4722	0.4506	0.4612	0.4555	0.4769	0.4819	0.4745	5.916
I M3-PFBS						ISTD					
T PFBS	Linear	1.7544	1.6493	1.6473	1.5903	1.5604	1.5639	1.6064	1.6224	1.6243	3.844
T PFPeS	Linear	1.2337	1.0925	1.1500	1.0656	1.0612	1.0397	1.0808	1.0685	1.0990	5.767
I M3-PFHxS						ISTD					
T PFHxS	Linear	1.2422	1.1799	1.1136	1.1157	1.0931	1.0993	1.1381	1.1547	1.1421	4.360
T PFHpS	Linear	1.1434	1.0552	1.0323	1.0204	0.9908	0.9833	1.0224	0.9949	1.0303	5.004
I M8-PFOS						ISTD					
T PFOS	Linear	1.1841	1.0449	0.9763	0.9745	0.9806	0.9407	0.9890	1.0214	1.0139	7.460
T PFNS	Linear	0.9073	0.7971	0.7715	0.7325	0.7168	0.7245	0.7512	0.7513	0.7690	8.016
T PFDS	Linear	0.3861	0.3871	0.3722	0.3675	0.3732	0.3745	0.3781	0.3806	0.3774	1.822
I M2-4:2FTS						ISTD					
T 4:2FTS	Avg RF	0.6883	0.6253	0.6035	0.5935	0.5681	0.5539	0.5338	0.4806	0.5809	10.761
I M2-6:2FTS						ISTD					

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-ICC449
Lab FileID: 2Q28166.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T 6:2FTS	Avg RF	0.6032	0.5979	0.5202	0.5115	0.4922	0.4830	0.4663	0.4147	0.5111	12.497
I M2-8:2FTS				---------- ISTD ----------							
T 8:2FTS	Avg RF	0.6645	0.5722	0.5352	0.5146	0.5012	0.5082	0.4813	0.4223	0.5249	13.510
I M3-MeFOSAA				---------- ISTD ----------							
T MeFOSAA	Quadratic	0.7115	0.5359	0.5151	0.5195	0.4946	0.5035	0.5191	0.5427	0.5427	12.888
T EtFOSAA	Quadratic	0.5567	0.4674	0.4566	0.4386	0.4134	0.4030	0.4124	0.4065	0.4443	11.556
I M3-HFPO-DA				---------- ISTD ----------							
T HFPO-DA	Linear	1.4065	1.2719	1.2317	1.2247	1.1938	1.1885	1.2336	1.2108	1.2452	5.639

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

Initial Calibration Summary

Job Number: FA62561 **Sample:** S2Q449-ICC449
Account: NOREASCA NOREAS, Inc. **Lab FileID:** 2Q28166.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

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 = 7720.638576 * x	0.000000
T PFBA	Linear	y = 0.191697 * x	0.999905
T PFPeA	Linear	y = 0.886035 * x	0.999848
S 13C5-PFPeA	Linear	y = 6560.837346 * x	0.000000
T PFBS	Linear	y = 1.617017 * x	0.999909
S 13C3-PFBS	Linear	y = 1125.473892 * x	0.000000
S 13C2-4:2FTS	Linear	y = 4130.541839 * x	0.000000
S 13C5-PFHxA	Linear	y = 9438.927658 * x	0.000000
T PFHxA	Linear	y = 0.327441 * x	0.999935
T PFPeS	Linear	y = 1.069961 * x	0.999927
S 13C3-HFPO-DA	Linear	y = 1750.716241 * x	0.000000
T HFPO-DA	Linear	y = 1.214365 * x	0.999891
T PFHpA	Linear	y = 0.887974 * x	0.999829
S 13C4-PFHpA	Linear	y = 13297.207690 * x	0.000000
S 13C3-PFHxS	Linear	y = 1228.018210 * x	0.000000
T PFHxS	Linear	y = 1.149269 * x	0.999829
T ADONA	Quadratic	y = 0.024294 * x ^ 2 + 0.951813 * x	0.999974
S 13C2-6:2FTS	Linear	y = 4541.400367 * x	0.000000
S 13C8-PFOA	Linear	y = 13844.887865 * x	0.000000
S M2-PFOA	Linear	y = 1.001493 * x	0.000000
T PFOA	Linear	y = 0.532981 * x	0.999841
T PFHpS	Linear	y = 0.999836 * x	0.999806
T FOSA	Quadratic	y = 0.003631 * x ^ 2 + 0.464095 * x	0.999948
S 13C8-FOSA	Linear	y = 5765.863851 * x	0.000000
S 13C8-PFOS	Linear	y = 1603.290336 * x	0.000000
S M4-PFOS	Linear	y = 0.993804 * x	0.000000
T PFOS	Linear	y = 1.012264 * x	0.999508
S 13C9-PFNA	Linear	y = 14306.879513 * x	0.000000
T PFNA	Linear	y = 0.613084 * x	0.999896
T 9Cl-PF3ONS	Quadratic	y = 0.001758 * x ^ 2 + 0.067269 * x	0.999873
S d3-MeFOSAA	Linear	y = 2412.260516 * x	0.000000
T MeFOSAA	Quadratic	y = 0.009502 * x ^ 2 + 0.495155 * x	0.999988
T PFNS	Linear	y = 0.750129 * x	0.999916
S 13C6-PFDA	Linear	y = 19463.001766 * x	0.000000
T PFDA	Linear	y = 0.407706 * x	0.999919
T EtFOSAA	Quadratic	y = -0.001547 * x ^ 2 + 0.414394 * x	0.999945
S 13C2-8:2FTS	Linear	y = 3368.224373 * x	0.000000
T PFDS	Linear	y = 0.379866 * x	0.999973
S 13C7-PFUnDA	Linear	y = 24707.345984 * x	0.000000
T PFUnDA	Linear	y = 0.414815 * x	0.999797
T 11Cl-PF3OUdS	Linear	y = 0.247748 * x	0.999301
T PFDoDA	Linear	y = 0.458649 * x	0.999879
S 13C2-PFDoDA	Linear	y = 27439.354330 * x	0.000000

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Initial Calibration Report

T PFTrDA	Linear	y = 0.758678 * x	0.999965
T PFTeDA	Linear	y = 0.659679 * x	0.999918
S 13C2-PFTeDA	Linear	y = 18888.744585 * x	0.000000

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

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-ICC449
Lab FileID: 2Q28166.D

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-ICV449
Lab FileID: 2Q28170.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0326_ID_GENX_S2Q449\s2q449.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28161.d
2:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28162.d
3:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28163.d
4:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28164.d
5:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28165.d
6:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28166.d
7:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28167.d
8:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28168.d

Data File: 2Q28170
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	17.674	-11.6	88.4
13C2-6:2FTS	20.000	18.227	-8.9	91.1
13C2-8:2FTS	20.000	18.090	-9.5	90.5
13C2-PFDoDA	20.000	18.969	-5.2	94.8
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	18.754	-6.2	93.8
13C3-PFBS	20.000	18.822	-5.9	94.1
13C3-PFHxS	20.000	18.985	-5.1	94.9
13C4-PFBA	20.000	18.705	-6.5	93.5
13C4-PFHpA	20.000	19.154	-4.2	95.8
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	18.944	-5.3	94.7
13C5-PFPeA	20.000	18.967	-5.2	94.8
13C6-PFDA	20.000	19.756	-1.2	98.8
13C7-PFUnDA	20.000	19.463	-2.7	97.3
13C8-FOSA	20.000	19.849	-0.8	99.2
13C8-PFOA	20.000	19.406	-3.0	97.0
13C8-PFOS	20.000	19.130	-4.4	95.6
13C9-PFNA	20.000	19.274	-3.6	96.4
4:2FTS	20.000	0.000	# -100.0	0.0
6:2FTS	20.000	0.000	# -100.0	0.0
8:2FTS	20.000	0.000	# -100.0	0.0
d3-MeFOSAA	20.000	18.752	-6.2	93.8
M2-PFOA	20.000	19.988	-0.1	99.9
EtFOSAA	20.000	17.838	-10.8	89.2
FOSA	20.000	0.000	# -100.0	0.0
MeFOSAA	20.000	18.598	-7.0	93.0
PFBA	20.000	0.000	# -100.0	0.0
PFBS	20.000	0.000	# -100.0	0.0
PFDA	20.000	0.000	# -100.0	0.0
PFDoDA	20.000	0.000	# -100.0	0.0
PFDS	20.000	0.000	# -100.0	0.0
PFHpA	20.000	0.000	# -100.0	0.0
PFHpS	20.000	0.000	# -100.0	0.0
PFHxA	20.000	0.000	# -100.0	0.0
PFHxS	20.000	0.000	# -100.0	0.0
PFNA	20.000	0.000	# -100.0	0.0

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-ICV449
Lab FileID: 2Q28170.D

PFNS	20.000	0.000	# -100.0	0.0
PFOA	20.000	17.010	-14.9	85.1
PFOS	20.000	19.073	-4.6	95.4
PFPeA	20.000	0.000	# -100.0	0.0
PFPeS	20.000	0.000	# -100.0	0.0
PFTeDA	20.000	0.000	# -100.0	0.0
PFTrDA	20.000	0.000	# -100.0	0.0
PFUnDA	20.000	0.000	# -100.0	0.0
M4-PFOS	20.000	20.140	0.7	100.7
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--		
11Cl-PF3OUdS	20.000	0.000	# -100.0	0.0
13C3-HFPO-DA	100.000	101.449	1.4	101.4
9Cl-PF3ONS	20.000	0.000	# -100.0	0.0
ADONA	20.000	0.000	# -100.0	0.0
HFPO-DA	100.000	0.000	# -100.0	0.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Sample: S2Q449-ICV449
Lab FileID: 2Q28171.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0326_ID_GENX_S2Q449\s2q449.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28161.d
2:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28162.d
3:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28163.d
4:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28164.d
5:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28165.d
6:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28166.d
7:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28167.d
8:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28168.d

Data File: 2Q28171
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	18.087	-9.6	90.4
13C2-6:2FTS	20.000	18.342	-8.3	91.7
13C2-8:2FTS	20.000	18.253	-8.7	91.3
13C2-PFDoDA	20.000	18.572	-7.1	92.9
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	18.674	-6.6	93.4
13C3-PFBS	20.000	18.362	-8.2	91.8
13C3-PFHxS	20.000	18.638	-6.8	93.2
13C4-PFBA	20.000	18.255	-8.7	91.3
13C4-PFHpA	20.000	18.392	-8.0	92.0
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	18.533	-7.3	92.7
13C5-PFPeA	20.000	18.364	-8.2	91.8
13C6-PFDA	20.000	18.580	-7.1	92.9
13C7-PFUnDA	20.000	18.598	-7.0	93.0
13C8-FOSA	20.000	18.555	-7.2	92.8
13C8-PFOA	20.000	18.467	-7.7	92.3
13C8-PFOS	20.000	18.736	-6.3	93.7
13C9-PFNA	20.000	18.544	-7.3	92.7
4:2FTS	20.000	17.285	-13.6	86.4
6:2FTS	20.000	17.996	-10.0	90.0
8:2FTS	20.000	18.063	-9.7	90.3
d3-MeFOSAA	20.000	18.367	-8.2	91.8
M2-PFOA	20.000	19.982	-0.1	99.9
EtFOSAA	20.000	20.031	0.2	100.2
FOSA	20.000	19.592	-2.0	98.0
MeFOSAA	20.000	20.641	3.2	103.2
PFBA	20.000	18.839	-5.8	94.2
PFBS	20.000	16.072	-19.6	80.4
PFDA	20.000	17.493	-12.5	87.5
PFDoDA	20.000	19.569	-2.2	97.8
PFDS	20.000	17.451	-12.7	87.3
PFHpA	20.000	19.610	-1.9	98.1
PFHpS	20.000	18.347	-8.3	91.7
PFHxA	20.000	16.915	-15.4	84.6
PFHxS	20.000	16.054	-19.7	80.3
PFNA	20.000	17.602	-12.0	88.0

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-ICV449
Lab FileID: 2Q28171.D

PFNS	20.000	17.733	-11.3	88.7
PFOA	20.000	18.684	-6.6	93.4
PFOS	20.000	18.132	-9.3	90.7
PFPeA	20.000	17.893	-10.5	89.5
PFPeS	20.000	15.721	-21.4	78.6
PFTeDA	20.000	17.477	-12.6	87.4
PFTrDA	20.000	20.893	4.5	104.5
PFUnDA	20.000	19.005	-5.0	95.0
M4-PFOS	20.000	20.178	0.9	100.9
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--		
11Cl-PF3OUdS	20.000	0.000	# -100.0	0.0
13C3-HFPO-DA	100.000	96.026	-4.0	96.0
9Cl-PF3ONS	20.000	0.000	# -100.0	0.0
ADONA	20.000	0.000	# -100.0	0.0
HFPO-DA	100.000	0.000	# -100.0	0.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Raw Data: 2Q28172.D

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-ICV449
Lab FileID: 2Q28172.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0326_ID_GENX_S2Q449\s2q449.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28161.d
2:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28162.d
3:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28163.d
4:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28164.d
5:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28165.d
6:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28166.d
7:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28167.d
8:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28168.d

Data File: 2Q28172
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	17.632	-11.8	88.2
13C2-6:2FTS	20.000	18.213	-8.9	91.1
13C2-8:2FTS	20.000	17.980	-10.1	89.9
13C2-PFDoDA	20.000	19.118	-4.4	95.6
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	19.185	-4.1	95.9
13C3-PFBS	20.000	18.736	-6.3	93.7
13C3-PFHxS	20.000	18.655	-6.7	93.3
13C4-PFBA	20.000	18.757	-6.2	93.8
13C4-PFHpA	20.000	18.819	-5.9	94.1
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	18.690	-6.5	93.5
13C5-PFPeA	20.000	18.996	-5.0	95.0
13C6-PFDA	20.000	19.349	-3.3	96.7
13C7-PFUnDA	20.000	19.284	-3.6	96.4
13C8-FOSA	20.000	19.857	-0.7	99.3
13C8-PFOA	20.000	19.440	-2.8	97.2
13C8-PFOS	20.000	19.130	-4.3	95.7
13C9-PFNA	20.000	18.858	-5.7	94.3
4:2FTS	20.000	0.000	# -100.0	0.0
6:2FTS	20.000	0.000	# -100.0	0.0
8:2FTS	20.000	0.000	# -100.0	0.0
d3-MeFOSAA	20.000	19.342	-3.3	96.7
M2-PFOA	20.000	19.990	0.0	100.0
EtFOSAA	20.000	17.612	-11.9	88.1
FOSA	20.000	0.000	# -100.0	0.0
MeFOSAA	20.000	18.085	-9.6	90.4
PFBA	20.000	0.000	# -100.0	0.0
PFBS	20.000	18.667	-6.7	93.3
PFDA	20.000	18.868	-5.7	94.3
PFDoDA	20.000	18.648	-6.8	93.2
PFDS	20.000	0.000	# -100.0	0.0
PFHpA	20.000	18.995	-5.0	95.0
PFHpS	20.000	0.000	# -100.0	0.0
PFHxA	20.000	18.737	-6.3	93.7
PFHxS	20.000	19.313	-3.4	96.6
PFNA	20.000	19.903	-0.5	99.5

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-ICV449
Lab FileID: 2Q28172.D

PFNS	20.000	0.000	# -100.0	0.0
PFOA	20.000	19.156	-4.2	95.8
PFOS	20.000	17.955	-10.2	89.8
PFPeA	20.000	0.000	# -100.0	0.0
PFPeS	20.000	0.000	# -100.0	0.0
PFTeDA	20.000	18.924	-5.4	94.6
PFTrDA	20.000	19.553	-2.2	97.8
PFUnDA	20.000	18.732	-6.3	93.7
M4-PFOS	20.000	20.145	0.7	100.7
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--		
11Cl-PF3OUdS	20.000	19.728	-1.4	98.6
13C3-HFPO-DA	100.000	94.839	-5.2	94.8
9Cl-PF3ONS	20.000	20.025	0.1	100.1
ADONA	20.000	19.510	-2.5	97.5
HFPO-DA	20.000	19.017	-5.0	95.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q449-CC449
Lab FileID: 2Q28180.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0326_ID_GENX_S2Q449\s2q449.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28161.d
2:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28162.d
3:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28163.d
4:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28164.d
5:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28165.d
6:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28166.d
7:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28167.d
8:D:\MassHunter\Data\0326_ID_GENX_S2Q449\2Q28168.d

Data File: 2Q28180
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	22.983	14.9	114.9
13C2-6:2FTS	20.000	23.178	15.9	115.9
13C2-8:2FTS	20.000	22.980	14.9	114.9
13C2-PFDoDA	20.000	22.645	13.2	113.2
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	22.138	10.7	110.7
13C3-PFBS	20.000	23.300	16.5	116.5
13C3-PFHxS	20.000	23.405	17.0	117.0
13C4-PFBA	20.000	23.350	16.7	116.7
13C4-PFHpA	20.000	23.144	15.7	115.7
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	23.232	16.2	116.2
13C5-PFPeA	20.000	23.309	16.5	116.5
13C6-PFDA	20.000	23.013	15.1	115.1
13C7-PFUnDA	20.000	23.033	15.2	115.2
13C8-FOSA	20.000	22.987	14.9	114.9
13C8-PFOA	20.000	23.238	16.2	116.2
13C8-PFOS	20.000	23.494	17.5	117.5
13C9-PFNA	20.000	23.058	15.3	115.3
4:2FTS	20.000	19.351	-3.2	96.8
6:2FTS	20.000	18.785	-6.1	93.9
8:2FTS	20.000	19.540	-2.3	97.7
d3-MeFOSAA	20.000	23.338	16.7	116.7
M2-PFOA	20.000	19.980	-0.1	99.9
EtFOSAA	20.000	20.004	0.0	100.0
FOSA	20.000	19.595	-2.0	98.0
MeFOSAA	20.000	20.321	1.6	101.6
PFBA	20.000	19.175	-4.1	95.9
PFBS	20.000	19.253	-3.7	96.3
PFDA	20.000	19.277	-3.6	96.4
PFDoDA	20.000	19.210	-3.9	96.1
PFDS	20.000	19.358	-3.2	96.8
PFHpA	20.000	19.325	-3.4	96.6
PFHpS	20.000	19.688	-1.6	98.4
PFHxA	20.000	19.077	-4.6	95.4
PFHxS	20.000	18.987	-5.1	94.9
PFNA	20.000	19.499	-2.5	97.5

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q449-CC449
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28180.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	18.878	-5.6	94.4
PFOA	20.000	19.346	-3.3	96.7
PFOS	20.000	18.593	-7.0	93.0
PFPeA	20.000	19.235	-3.8	96.2
PFPeS	20.000	19.394	-3.0	97.0
PFTeDA	20.000	19.293	-3.5	96.5
PFTrDA	20.000	20.023	0.1	100.1
PFUnDA	20.000	19.207	-4.0	96.0
M4-PFOS	20.000	20.126	0.6	100.6
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--		
11Cl-PF3OUdS	20.000	19.715	-1.4	98.6
13C3-HFPO-DA	100.000	111.332	11.3	111.3
9Cl-PF3ONS	20.000	19.617	-1.9	98.1
ADONA	20.000	19.739	-1.3	98.7
HFPO-DA	100.000	93.113	-6.9	93.1
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Raw Data: 2Q28322.D 2Q28323.D 2Q28324.D 2Q28325.D 2Q28326.D 2Q28327.D 2Q28328.D 2Q28329.D

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q450-ICC450
Lab FileID: 2Q28327.D

Initial Calibration Report

Method Path	D:\MassHunter\damethods
Method File	ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	D:\MassHunter\Data\0328_ID_GENX_S2Q450\QuantResults\s2q450.batch.bin
Last Calib Update	3/29/2019 8:42:10 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d	3/28/2019 2:31:13 PM	3/29/2019 8:42:10 AM
2	D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d	3/28/2019 2:46:56 PM	3/29/2019 8:42:10 AM
3	D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28324.d	3/28/2019 3:02:40 PM	3/29/2019 8:42:10 AM
4	D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d	3/28/2019 3:18:24 PM	3/29/2019 8:42:10 AM
5	D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d	3/28/2019 3:34:07 PM	3/29/2019 8:42:10 AM
6	D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d	3/28/2019 3:49:51 PM	3/29/2019 8:42:10 AM
7	D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d	3/28/2019 4:05:34 PM	3/29/2019 8:42:10 AM
8	D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d	3/28/2019 4:21:18 PM	3/29/2019 8:42:10 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
S 13C4-PFBA	Linear	6812	7447	7576	7569	7577	7592	7411	7783	7471	3.861
S 13C5-PFPeA	Linear	6138	6703	6829	6851	6807	6829	6702	7026	6736	3.884
S 13C3-PFBS	Linear	1009	1098	1127	1111	1120	1120	1089	1135	1101	3.648
S 13C2-4:2FTS	Linear	4570	4983	5063	5094	5206	5321	5581	6559	5297	11.067
S 13C5-PFHxA	Linear	9242	10212	10259	10298	10419	10367	9963	10409	10146	3.877
S 13C3-HFPO-DA	Linear	1844	1999	2031	2045	1992	1925	1830	1792	1932	5.127
S 13C4-PFHpA	Linear	14145	15468	15693	15719	15806	15712	15061	15517	15390	3.606
S 13C3-PFHxS	Linear	1150	1256	1263	1264	1272	1251	1206	1242	1238	3.313
S 13C2-6:2FTS	Linear	6270	6796	6867	6844	6967	7062	7160	7948	6989	6.719
S 13C8-PFOA	Linear	15245	16521	16730	16667	16762	16537	15543	15575	16198	3.881
S 13C8-FOSA	Linear	5364	5829	5916	5927	5778	5660	5096	4746	5539	7.792
S 13C8-PFOS	Linear	1565	1691	1745	1733	1726	1727	1686	1704	1697	3.367
S 13C9-PFNA	Linear	16879	18401	18611	18572	18623	18498	17595	17915	18137	3.472
S d3-MeFOSAA	Linear	3115	3433	3487	3511	3540	3448	3340	3442	3415	3.960
S 13C6-PFDA	Linear	24127	26480	26817	26803	26685	26311	24433	24181	25730	4.827
S 13C2-8:2FTS	Linear	5430	5929	5971	6060	6229	6329	6503	7468	6240	9.467
S 13C7-PFUnDA	Linear	31760	34711	35140	34989	35513	34826	32892	33095	34116	3.949
S 13C2-PFDoDA	Linear	39219	42355	42976	43061	43290	42736	41211	42417	42158	3.200
S 13C2-PFTeDA	Linear	27623	30254	30692	30840	31458	31379	30382	31600	30528	4.180
I 13C2-PFOA				---------- ISTD ----------							
S M2-PFOA	Linear	1.0010	1.0003	1.0010	1.0005	1.0005	1.0006	1.0012	1.0004	1.0007	0.035
I 13C4-PFOS				---------- ISTD ----------							
S M4-PFOS	Linear	0.9990	1.0006	1.0007	1.0004	0.9990	1.0013	1.0009	1.0012	1.0004	0.092
I M4-PFBA				---------- ISTD ----------							
T PFBA	Linear	0.2206	0.2111	0.2047	0.1939	0.1796	0.1966	0.1971	0.1994	0.2004	6.089
I M5-PFPeA				---------- ISTD ----------							
T PFPeA	Linear	1.0278	0.9537	0.9187	0.8621	0.8051	0.8866	0.8855	0.8893	0.9036	7.292

Generated at 8:43 AM on 3/29/2019

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q450-ICC450
Lab FileID: 2Q28327.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-PFHxA						ISTD					
T PFHxA	Linear	0.3765	0.3666	0.3624	0.3369	0.3100	0.3408	0.3491	0.3505	0.3491	5.916
I M4-PFHpA						ISTD					
T PFHpA	Linear	0.9711	0.9087	0.8804	0.8438	0.7832	0.8642	0.8738	0.8790	0.8755	6.094
I M8-PFOA						ISTD					
T ADONA	Linear	0.9644	0.9536	0.9242	0.8963	0.8348	0.9279	0.9592	1.0008	0.9327	5.405
T PFOA	Linear	0.6088	0.5710	0.5514	0.5168	0.4809	0.5291	0.5313	0.5382	0.5409	7.005
I M9-PFNA						ISTD					
T PFNA	Linear	0.7142	0.6659	0.6769	0.6354	0.5956	0.6509	0.6592	0.6584	0.6571	5.154
I M6-PFDA						ISTD					
T 9Cl-PF3ONS	Linear	0.0620	0.0586	0.0543	0.0525	0.0497	0.0543	0.0579	0.0603	0.0562	7.484
T PFDA	Linear	0.4918	0.4719	0.4461	0.4182	0.3922	0.4341	0.4362	0.4396	0.4413	6.922
I M7-PFUnDA						ISTD					
T PFUnDA	Linear	0.4579	0.4335	0.4124	0.4002	0.3672	0.4104	0.4117	0.4172	0.4138	6.277
I M2-PFDoDA						ISTD					
T 11Cl-PF3OUdS	Linear	0.1926	0.1821	0.1781	0.1685	0.1565	0.1772	0.1805	0.1811	0.1771	6.002
T PFDoDA	Linear	0.5078	0.4750	0.4610	0.4454	0.4132	0.4557	0.4607	0.4617	0.4601	5.772
I M2-PFTeDA						ISTD					
T PFTrDA	Linear	0.7117	0.6642	0.6485	0.6230	0.5809	0.6446	0.6499	0.6522	0.6469	5.687
T PFTeDA	Linear	0.7896	0.7219	0.6920	0.6582	0.6163	0.6811	0.6882	0.6894	0.6921	7.209
I M8-FOSA						ISTD					
T FOSA	Linear	0.5115	0.5047	0.5114	0.4726	0.4352	0.4764	0.4865	0.4813	0.4849	5.236
I M3-PFBS						ISTD					
T PFBS	Linear	1.8927	1.7722	1.6775	1.6076	1.4610	1.6186	1.6118	1.6304	1.6590	7.703
T PFPeS	Linear	1.3445	1.2247	1.1246	1.1113	1.0192	1.1394	1.1268	1.1396	1.1538	8.241
I M3-PFHxS						ISTD					
T PFHxS	Linear	1.3754	1.2328	1.2175	1.1362	1.0574	1.1637	1.1819	1.1894	1.1943	7.624
T PFHpS	Linear	1.1381	1.1092	1.0905	1.0477	0.9605	1.0699	1.0473	1.0258	1.0611	5.153
I M8-PFOS						ISTD					
T PFOS	Linear	1.1666	1.1494	1.0432	0.9532	0.8790	0.9579	0.9528	0.9770	1.0099	10.080
T PFNS	Linear	0.8880	0.8055	0.8404	0.7773	0.6979	0.7670	0.7573	0.7559	0.7862	7.399
T PFDS	Linear	0.4737	0.4423	0.4362	0.3856	0.3565	0.3961	0.3796	0.3826	0.4066	9.762
I M2-4:2FTS						ISTD					
T 4:2FTS	Avg RF	0.6757	0.6304	0.6264	0.5782	0.5334	0.5773	0.5413	0.4796	0.5803	10.819
I M2-6:2FTS						ISTD					

Generated at 8:43 AM on 3/29/2019

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q450-ICC450
Lab FileID: 2Q28327.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T 6:2FTS	Avg RF	0.5863	0.5564	0.5369	0.5003	0.4765	0.5023	0.4685	0.4190	0.5058	10.523
I M2-8:2FTS				---------- ISTD ----------							
T 8:2FTS	Avg RF	0.5812	0.5495	0.5554	0.5320	0.4795	0.5214	0.4901	0.4261	0.5169	9.615
I M3-MeFOSAA				---------- ISTD ----------							
T MeFOSAA	Linear	0.5822	0.5810	0.5314	0.4942	0.4684	0.5262	0.5343	0.5347	0.5315	7.266
T EtFOSAA	Linear	0.4978	0.4837	0.4553	0.4245	0.3920	0.4350	0.4139	0.3862	0.4360	9.299
I M3-HFPO-DA				---------- ISTD ----------							
T HFPO-DA	Linear	1.3293	1.2750	1.2299	1.1706	1.0731	1.1946	1.1896	1.2018	1.2080	6.244

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

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q450-ICC450
Lab FileID: 2Q28327.D

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 = 0.198752 * x	0.999850
S 13C4-PFBA	Linear	y = 7471.065284 * x	0.000000
S 13C5-PFPeA	Linear	y = 6735.562642 * x	0.000000
T PFPeA	Linear	y = 0.887849 * x	0.999890
T PFBS	Linear	y = 1.625123 * x	0.999847
S 13C3-PFBS	Linear	y = 1101.059267 * x	0.000000
S 13C2-4:2FTS	Linear	y = 5297.177657 * x	0.000000
S 13C5-PFHxA	Linear	y = 10146.168160 * x	0.000000
T PFHxA	Linear	y = 0.349621 * x	0.999809
T PFPeS	Linear	y = 1.136198 * x	0.999843
S 13C3-HFPO-DA	Linear	y = 1932.412238 * x	0.000000
T HFPO-DA	Linear	y = 1.198239 * x	0.999845
S 13C4-PFHpA	Linear	y = 15390.362872 * x	0.000000
T PFHpA	Linear	y = 0.876750 * x	0.999844
S 13C3-PFHxS	Linear	y = 1238.164145 * x	0.000000
T PFHxS	Linear	y = 1.186089 * x	0.999829
T ADONA	Linear	y = 0.989092 * x	0.999100
S 13C2-6:2FTS	Linear	y = 6989.236195 * x	0.000000
S M2-PFOA	Linear	y = 1.000694 * x	0.000000
T PFOA	Linear	y = 0.536110 * x	0.999823
T PFHpS	Linear	y = 1.030812 * x	0.999772
S 13C8-PFOA	Linear	y = 16197.762788 * x	0.000000
T FOSA	Linear	y = 0.481819 * x	0.999854
S 13C8-FOSA	Linear	y = 5539.406509 * x	0.000000
S M4-PFOS	Linear	y = 1.000376 * x	0.000000
T PFOS	Linear	y = 0.971024 * x	0.999733
S 13C8-PFOS	Linear	y = 1696.982234 * x	0.000000
S 13C9-PFNA	Linear	y = 18136.840517 * x	0.000000
T PFNA	Linear	y = 0.657808 * x	0.999885
T 9Cl-PF3ONS	Linear	y = 0.059597 * x	0.998878
S d3-MeFOSAA	Linear	y = 3414.630199 * x	0.000000
T MeFOSAA	Linear	y = 0.533786 * x	0.999797
T PFNS	Linear	y = 0.756155 * x	0.999911
T EtFOSAA	Linear	y = 0.393146 * x	0.998225
S 13C6-PFDA	Linear	y = 25729.638257 * x	0.000000
T PFDA	Linear	y = 0.438351 * x	0.999844
S 13C2-8:2FTS	Linear	y = 6240.033013 * x	0.000000
T PFDS	Linear	y = 0.382293 * x	0.999857
S 13C7-PFUnDA	Linear	y = 34115.832917 * x	0.000000
T PFUnDA	Linear	y = 0.415516 * x	0.999789
T 11Cl-PF3OUdS	Linear	y = 0.180637 * x	0.999759
T PFDoDA	Linear	y = 0.460933 * x	0.999863
S 13C2-PFDoDA	Linear	y = 42158.217254 * x	0.000000

Generated at 8:43 AM on 3/29/2019

Initial Calibration Report

T PFTrDA	Linear	y = 0.650942 * x	0.999851
T PFTeDA	Linear	y = 0.688284 * x	0.999859
S 13C2-PFTeDA	Linear	y = 30528.473638 * x	0.000000

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

Initial Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS, Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q450-ICC450
Lab FileID: 2Q28327.D

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q450-ICV450
Lab FileID: 2Q28331.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0328_ID_GENX_S2Q450\s2q450.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d
2:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d
3:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28324.d
4:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d
5:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d
6:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d
7:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d
8:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d

Data File: 2Q28331
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	16.855	-15.7	84.3
13C2-6:2FTS	20.000	17.315	-13.4	86.6
13C2-8:2FTS	20.000	17.284	-13.6	86.4
13C2-PFDoDA	20.000	18.228	-8.9	91.1
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	18.426	-7.9	92.1
13C3-PFBS	20.000	17.959	-10.2	89.8
13C3-PFHxS	20.000	17.983	-10.1	89.9
13C4-PFBA	20.000	17.897	-10.5	89.5
13C4-PFHpA	20.000	18.256	-8.7	91.3
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	17.892	-10.5	89.5
13C5-PFPeA	20.000	18.099	-9.5	90.5
13C6-PFDA	20.000	18.626	-6.9	93.1
13C7-PFUnDA	20.000	18.722	-6.4	93.6
13C8-FOSA	20.000	19.185	-4.1	95.9
13C8-PFOA	20.000	18.418	-7.9	92.1
13C8-PFOS	20.000	18.198	-9.0	91.0
13C9-PFNA	20.000	18.296	-8.5	91.5
4:2FTS	20.000			
6:2FTS	20.000			
8:2FTS	20.000			
d3-MeFOSAA	20.000	18.225	-8.9	91.1
M2-PFOA	20.000	20.015	0.1	100.1
EtFOSAA	20.000	17.803	-11.0	89.0
FOSA	20.000			
MeFOSAA	20.000	18.557	-7.2	92.8
PFBA	20.000			
PFBS	20.000			
PFDA	20.000			
PFDoDA	20.000			
PFDS	20.000			
PFHpA	20.000			
PFHpS	20.000			
PFHxA	20.000			
PFHxS	20.000			
PFNA	20.000			

Initial Calibration Verification

Job Number: FA62561 **Sample:** S2Q450-ICV450
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28331.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000			
PFOA	20.000	18.649	-6.8	93.2
PFOS	20.000	21.081	5.4	105.4
PFPeA	20.000			
PFPeS	20.000			
PFTeDA	20.000			
PFTrDA	20.000			
PFUnDA	20.000			
M4-PFOS	20.000	20.001	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--		
11Cl-PF3OUdS	20.000			
13C3-HFPO-DA	100.000	91.464	-8.5	91.5
9Cl-PF3ONS	20.000			
ADONA	20.000			
HFPO-DA	100.000			
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q450-ICV450
Lab FileID: 2Q28332.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0328_ID_GENX_S2Q450\s2q450.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d
2:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d
3:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28324.d
4:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d
5:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d
6:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d
7:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d
8:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d

Data File: 2Q28332
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	19.384	-3.1	96.9
13C2-6:2FTS	20.000	19.406	-3.0	97.0
13C2-8:2FTS	20.000	19.769	-1.2	98.8
13C2-PFDoDA	20.000	20.505	2.5	102.5
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	20.708	3.5	103.5
13C3-PFBS	20.000	19.612	-1.9	98.1
13C3-PFHxS	20.000	19.748	-1.3	98.7
13C4-PFBA	20.000	19.757	-1.2	98.8
13C4-PFHpA	20.000	19.852	-0.7	99.3
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	19.714	-1.4	98.6
13C5-PFPeA	20.000	19.727	-1.4	98.6
13C6-PFDA	20.000	20.013	0.1	100.1
13C7-PFUnDA	20.000	20.403	2.0	102.0
13C8-FOSA	20.000	20.049	0.2	100.2
13C8-PFOA	20.000	20.080	0.4	100.4
13C8-PFOS	20.000	19.443	-2.8	97.2
13C9-PFNA	20.000	19.970	-0.1	99.9
4:2FTS	20.000	16.493	-17.5	82.5
6:2FTS	20.000	17.166	-14.2	85.8
8:2FTS	20.000	16.814	-15.9	84.1
d3-MeFOSAA	20.000	19.918	-0.4	99.6
M2-PFOA	20.000	20.003	0.0	100.0
EtFOSAA	20.000	19.787	-1.1	98.9
FOSA	20.000	17.700	-11.5	88.5
MeFOSAA	20.000	18.021	-9.9	90.1
PFBA	20.000	17.289	-13.6	86.4
PFBS	20.000	14.974	-25.1	74.9
PFDA	20.000	16.106	-19.5	80.5
PFDoDA	20.000	18.196	-9.0	91.0
PFDS	20.000	17.091	-14.5	85.5
PFHpA	20.000	18.238	-8.8	91.2
PFHpS	20.000	16.974	-15.1	84.9
PFHxA	20.000	15.759	-21.2	78.8
PFHxS	20.000	15.059	-24.7	75.3
PFNA	20.000	16.227	-18.9	81.1

Initial Calibration Verification

Job Number: FA62561 **Sample:** S2Q450-ICV450
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28332.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	17.505	-12.5	87.5
PFOA	20.000	17.487	-12.6	87.4
PFOS	20.000	17.928	-10.4	89.6
PFPeA	20.000	16.592	-17.0	83.0
PFPeS	20.000	14.546	-27.3	72.7
PFTeDA	20.000	16.185	-19.1	80.9
PFTrDA	20.000	18.880	-5.6	94.4
PFUnDA	20.000	17.805	-11.0	89.0
M4-PFOS	20.000	19.919	-0.4	99.6
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--		
11Cl-PF3OUdS	20.000			
13C3-HFPO-DA	100.000	99.564	-0.4	99.6
9Cl-PF3ONS	20.000			
ADONA	20.000			
HFPO-DA	100.000			
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q450-ICV450
Lab FileID: 2Q28333.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0328_ID_GENX_S2Q450\s2q450.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d
2:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d
3:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28324.d
4:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d
5:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d
6:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d
7:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d
8:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d

Data File: 2Q28333
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	19.051	-4.7	95.3
13C2-6:2FTS	20.000	19.248	-3.8	96.2
13C2-8:2FTS	20.000	19.283	-3.6	96.4
13C2-PFDoDA	20.000	20.573	2.9	102.9
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	20.944	4.7	104.7
13C3-PFBS	20.000	20.033	0.2	100.2
13C3-PFHxS	20.000	19.858	-0.7	99.3
13C4-PFBA	20.000	20.041	0.2	100.2
13C4-PFHpA	20.000	20.014	0.1	100.1
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.064	0.3	100.3
13C5-PFPeA	20.000	20.201	1.0	101.0
13C6-PFDA	20.000	20.667	3.3	103.3
13C7-PFUnDA	20.000	21.040	5.2	105.2
13C8-FOSA	20.000	21.088	5.4	105.4
13C8-PFOA	20.000	20.512	2.6	102.6
13C8-PFOS	20.000	19.875	-0.6	99.4
13C9-PFNA	20.000	20.150	0.8	100.8
4:2FTS	20.000			
6:2FTS	20.000			
8:2FTS	20.000			
d3-MeFOSAA	20.000	20.684	3.4	103.4
M2-PFOA	20.000	20.006	0.0	100.0
EtFOSAA	20.000	16.680	-16.6	83.4
FOSA	20.000			
MeFOSAA	20.000	15.966	-20.2	79.8
PFBA	20.000			
PFBS	20.000	17.831	-10.8	89.2
PFDA	20.000	17.943	-10.3	89.7
PFDoDA	20.000	17.825	-10.9	89.1
PFDS	20.000			
PFHpA	20.000	18.288	-8.6	91.4
PFHpS	20.000			
PFHxA	20.000	17.942	-10.3	89.7
PFHxS	20.000	18.193	-9.0	91.0
PFNA	20.000	18.895	-5.5	94.5

Initial Calibration Verification

Job Number: FA62561 **Sample:** S2Q450-ICV450
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28333.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000			
PFOA	20.000	18.510	-7.4	92.6
PFOS	20.000	18.200	-9.0	91.0
PFPeA	20.000			
PFPeS	20.000			
PFTeDA	20.000	17.936	-10.3	89.7
PFTrDA	20.000	18.094	-9.5	90.5
PFUnDA	20.000	17.950	-10.3	89.7
M4-PFOS	20.000	19.979	-0.1	99.9
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--		
11Cl-PF3OUdS	20.000	18.408	-8.0	92.0
13C3-HFPO-DA	100.000	103.263	3.3	103.3
9Cl-PF3ONS	20.000	17.442	-12.8	87.2
ADONA	20.000	17.655	-11.7	88.3
HFPO-DA	20.000	18.475	-7.6	92.4
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q452-CC450
Lab FileID: 2Q28446.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0401_ID_GENX_S2Q452\s2q452.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d
2:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d
3:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28324.d
4:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d
5:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d
6:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d
7:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d
8:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d

Data File: 2Q28446
Type : QC
Level : 2

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	20.064	0.3	100.3
13C2-6:2FTS	20.000	21.327	6.6	106.6
13C2-8:2FTS	20.000	21.361	6.8	106.8
13C2-PFDoDA	20.000	20.114	0.6	100.6
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	20.051	0.3	100.3
13C3-PFBS	20.000	18.906	-5.5	94.5
13C3-PFHxS	20.000	19.192	-4.0	96.0
13C4-PFBA	20.000	18.979	-5.1	94.9
13C4-PFHpA	20.000	19.368	-3.2	96.8
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	19.105	-4.5	95.5
13C5-PFPeA	20.000	18.635	-6.8	93.2
13C6-PFDA	20.000	20.006	0.0	100.0
13C7-PFUnDA	20.000	20.423	2.1	102.1
13C8-FOSA	20.000	17.400	-13.0	87.0
13C8-PFOA	20.000	19.545	-2.3	97.7
13C8-PFOS	20.000	19.253	-3.7	96.3
13C9-PFNA	20.000	19.802	-1.0	99.0
4:2FTS	1.000	1.097	9.7	109.7
6:2FTS	1.000	1.067	6.7	106.7
8:2FTS	1.000	1.135	13.5	113.5
d3-MeFOSAA	20.000	19.543	-2.3	97.7
M2-PFOA	20.000	20.011	0.1	100.1
EtFOSAA	1.000	1.221	22.1	122.1
FOSA	1.000	1.112	11.2	111.2
MeFOSAA	1.000	1.092	9.2	109.2
PFBA	1.000	1.064	6.4	106.4
PFBS	1.000	1.046	4.6	104.6
PFDA	1.000	1.044	4.4	104.4
PFDoDA	1.000	1.035	3.5	103.5
PFDS	1.000	1.108	10.8	110.8
PFHpA	1.000	1.056	5.6	105.6
PFHpS	1.000	1.040	4.0	104.0
PFHxA	1.000	1.083	8.3	108.3
PFHxS	1.000	1.060	6.0	106.0
PFNA	1.000	1.057	5.7	105.7

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q452-CC450
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28446.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	1.000	1.181	18.1	118.1
PFOA	1.000	1.060	6.0	106.0
PFOS	1.000	1.147	14.7	114.7
PFPeA	1.000	1.100	10.0	110.0
PFPeS	1.000	1.086	8.6	108.6
PFTeDA	1.000	1.100	10.0	110.0
PFTrDA	1.000	1.131	13.1	113.1
PFUnDA	1.000	1.023	2.3	102.3
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--		
11Cl-PF3OUdS	1.000	1.034	3.4	103.4
13C3-HFPO-DA	100.000	102.985	3.0	103.0
9Cl-PF3ONS	1.000	0.994	-0.6	99.4
ADONA	1.000	0.969	-3.1	96.9
HFPO-DA	5.000	5.702	14.0	114.0
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Raw Data: 2Q28447.D

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q452-CC450
Lab FileID: 2Q28447.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0401_ID_GENX_S2Q452\s2q452.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d
2:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d
3:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28324.d
4:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d
5:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d
6:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d
7:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d
8:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d

Data File: 2Q28447
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	21.825	9.1	109.1
13C2-6:2FTS	20.000	23.000	15.0	115.0
13C2-8:2FTS	20.000	23.816	19.1	119.1
13C2-PFDoDA	20.000	21.876	9.4	109.4
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	21.963	9.8	109.8
13C3-PFBS	20.000	19.696	-1.5	98.5
13C3-PFHxS	20.000	20.175	0.9	100.9
13C4-PFBA	20.000	19.595	-2.0	98.0
13C4-PFHpA	20.000	20.178	0.9	100.9
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	19.700	-1.5	98.5
13C5-PFPeA	20.000	19.529	-2.4	97.6
13C6-PFDA	20.000	20.982	4.9	104.9
13C7-PFUnDA	20.000	21.477	7.4	107.4
13C8-FOSA	20.000	17.622	-11.9	88.1
13C8-PFOA	20.000	20.205	1.0	101.0
13C8-PFOS	20.000	19.933	-0.3	99.7
13C9-PFNA	20.000	20.580	2.9	102.9
4:2FTS	20.000	19.812	-0.9	99.1
6:2FTS	20.000	19.820	-0.9	99.1
8:2FTS	20.000	20.212	1.1	101.1
d3-MeFOSAA	20.000	21.086	5.4	105.4
M2-PFOA	20.000	19.997	0.0	100.0
EtFOSAA	20.000	22.778	13.9	113.9
FOSA	20.000	19.912	-0.4	99.6
MeFOSAA	20.000	19.968	-0.2	99.8
PFBA	20.000	19.594	-2.0	98.0
PFBS	20.000	19.897	-0.5	99.5
PFDA	20.000	19.903	-0.5	99.5
PFDoDA	20.000	19.573	-2.1	97.9
PFDS	20.000	21.213	6.1	106.1
PFHpA	20.000	19.937	-0.3	99.7
PFHpS	20.000	20.334	1.7	101.7
PFHxA	20.000	20.084	0.4	100.4
PFHxS	20.000	19.443	-2.8	97.2
PFNA	20.000	20.508	2.5	102.5

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q452-CC450
Lab FileID: 2Q28447.D

PFNS	20.000	20.873	4.4	104.4
PFOA	20.000	19.941	-0.3	99.7
PFOS	20.000	19.853	-0.7	99.3
PFPeA	20.000	20.252	1.3	101.3
PFPeS	20.000	20.028	0.1	100.1
PFTeDA	20.000	20.363	1.8	101.8
PFTrDA	20.000	21.274	6.4	106.4
PFUnDA	20.000	19.618	-1.9	98.1
M4-PFOS	20.000	20.009	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--		
11Cl-PF3OUdS	20.000	19.143	-4.3	95.7
13C3-HFPO-DA	100.000	104.944	4.9	104.9
9Cl-PF3ONS	20.000	17.458	-12.7	87.3
ADONA	20.000	18.889	-5.6	94.4
HFPO-DA	100.000	106.090	6.1	106.1
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Sample: S2Q452-CC450
Lab FileID: 2Q28455.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0401_ID_GENX_S2Q452\s2q452.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d
2:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d
3:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28324.d
4:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d
5:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d
6:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d
7:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d
8:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d

Data File: 2Q28455
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	22.691	13.5	113.5
13C2-6:2FTS	20.000	23.882	19.4	119.4
13C2-8:2FTS	20.000	24.818	24.1	124.1
13C2-PFDoDA	20.000	23.206	16.0	116.0
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	22.871	14.4	114.4
13C3-PFBS	20.000	19.945	-0.3	99.7
13C3-PFHxS	20.000	20.393	2.0	102.0
13C4-PFBA	20.000	20.408	2.0	102.0
13C4-PFHpA	20.000	20.864	4.3	104.3
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	20.744	3.7	103.7
13C5-PFPeA	20.000	20.314	1.6	101.6
13C6-PFDA	20.000	21.923	9.6	109.6
13C7-PFUnDA	20.000	22.732	13.7	113.7
13C8-FOSA	20.000	19.091	-4.5	95.5
13C8-PFOA	20.000	20.991	5.0	105.0
13C8-PFOS	20.000	20.311	1.6	101.6
13C9-PFNA	20.000	21.509	7.5	107.5
4:2FTS	20.000	19.775	-1.1	98.9
6:2FTS	20.000	19.849	-0.8	99.2
8:2FTS	20.000	20.302	1.5	101.5
d3-MeFOSAA	20.000	22.622	13.1	113.1
M2-PFOA	20.000	20.009	0.0	100.0
EtFOSAA	20.000	22.420	12.1	112.1
FOSA	20.000	20.036	0.2	100.2
MeFOSAA	20.000	19.679	-1.6	98.4
PFBA	20.000	19.723	-1.4	98.6
PFBS	20.000	19.844	-0.8	99.2
PFDA	20.000	20.021	0.1	100.1
PFDoDA	20.000	19.599	-2.0	98.0
PFDS	20.000	21.342	6.7	106.7
PFHpA	20.000	19.960	-0.2	99.8
PFHpS	20.000	20.664	3.3	103.3
PFHxA	20.000	19.804	-1.0	99.0
PFHxS	20.000	19.584	-2.1	97.9
PFNA	20.000	20.379	1.9	101.9

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q452-CC450
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28455.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	20.884	4.4	104.4
PFOA	20.000	19.873	-0.6	99.4
PFOS	20.000	19.740	-1.3	98.7
PFPeA	20.000	20.202	1.0	101.0
PFPeS	20.000	20.437	2.2	102.2
PFTeDA	20.000	20.118	0.6	100.6
PFTrDA	20.000	21.600	8.0	108.0
PFUnDA	20.000	19.554	-2.2	97.8
M4-PFOS	20.000	19.953	-0.2	99.8
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--		
11Cl-PF3OUdS	20.000	18.168	-9.2	90.8
13C3-HFPO-DA	100.000	108.013	8.0	108.0
9Cl-PF3ONS	20.000	17.256	-13.7	86.3
ADONA	20.000	18.732	-6.3	93.7
HFPO-DA	100.000	106.089	6.1	106.1
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561
Account: NOREASCA NOREAS,Inc.
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24
Sample: S2Q453-CC450
Lab FileID: 2Q28523.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0402_ID_GENX_S2Q453\s2q453.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d
2:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d
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4:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d
5:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d
6:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d
7:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d
8:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d

Data File: 2Q28523
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	24.306	21.5	121.5
13C2-6:2FTS	20.000	25.814	29.1	129.1
13C2-8:2FTS	20.000	27.800	# 39.0	139.0
13C2-PFDoDA	20.000	25.864	29.3	129.3
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	27.009	# 35.0	135.0
13C3-PFBS	20.000	20.566	2.8	102.8
13C3-PFHxS	20.000	20.963	4.8	104.8
13C4-PFBA	20.000	21.325	6.6	106.6
13C4-PFHpA	20.000	22.184	10.9	110.9
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	21.811	9.1	109.1
13C5-PFPeA	20.000	21.570	7.8	107.8
13C6-PFDA	20.000	23.641	18.2	118.2
13C7-PFUnDA	20.000	25.481	27.4	127.4
13C8-FOSA	20.000	21.576	7.9	107.9
13C8-PFOA	20.000	22.475	12.4	112.4
13C8-PFOS	20.000	20.965	4.8	104.8
13C9-PFNA	20.000	23.286	16.4	116.4
4:2FTS	20.000	19.908	-0.5	99.5
6:2FTS	20.000	19.742	-1.3	98.7
8:2FTS	20.000	19.935	-0.3	99.7
d3-MeFOSAA	20.000	25.003	25.0	125.0
M2-PFOA	20.000	19.991	0.0	100.0
EtFOSAA	20.000	23.162	15.8	115.8
FOSA	20.000	19.298	-3.5	96.5
MeFOSAA	20.000	19.773	-1.1	98.9
PFBA	20.000	19.365	-3.2	96.8
PFBS	20.000	19.892	-0.5	99.5
PFDA	20.000	19.720	-1.4	98.6
PFDoDA	20.000	19.828	-0.9	99.1
PFDS	20.000	21.472	7.4	107.4
PFHpA	20.000	19.862	-0.7	99.3
PFHpS	20.000	20.068	0.3	100.3
PFHxA	20.000	19.678	-1.6	98.4
PFHxS	20.000	19.585	-2.1	97.9
PFNA	20.000	19.982	-0.1	99.9

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q453-CC450
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28523.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	21.148	5.7	105.7
PFOA	20.000	19.741	-1.3	98.7
PFOS	20.000	19.378	-3.1	96.9
PFPeA	20.000	19.841	-0.8	99.2
PFPeS	20.000	20.149	0.7	100.7
PFTeDA	20.000	19.719	-1.4	98.6
PFTrDA	20.000	20.134	0.7	100.7
PFUnDA	20.000	19.437	-2.8	97.2
M4-PFOS	20.000	19.937	-0.3	99.7
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--		
11Cl-PF3OUdS	20.000	16.510	-17.4	82.6
13C3-HFPO-DA	100.000	105.936	5.9	105.9
9Cl-PF3ONS	20.000	16.295	-18.5	81.5
ADONA	20.000	18.252	-8.7	91.3
HFPO-DA	100.000	110.926	10.9	110.9
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q453-CC450
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28530.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

Continuing Calibration Report

Batch: D:\MassHunter\Data\0402_ID_GENX_S2Q453\s2q453.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28322.d
2:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28323.d
3:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28324.d
4:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28325.d
5:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28326.d
6:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28327.d
7:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28328.d
8:D:\MassHunter\Data\0328_ID_GENX_S2Q450\2Q28329.d

Data File: 2Q28530
Type : QC
Level : 6

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	20.000	24.030	20.2	120.2
13C2-6:2FTS	20.000	25.517	27.6	127.6
13C2-8:2FTS	20.000	27.892	# 39.5	139.5
13C2-PFDoDA	20.000	26.118	# 30.6	130.6
13C2-PFOA	---	--ISTD--		
13C2-PFTeDA	20.000	26.531	# 32.7	132.7
13C3-PFBS	20.000	20.585	2.9	102.9
13C3-PFHxS	20.000	20.911	4.6	104.6
13C4-PFBA	20.000	21.500	7.5	107.5
13C4-PFHpA	20.000	22.421	12.1	112.1
13C4-PFOS	---	--ISTD--		
13C5-PFHxA	20.000	21.991	10.0	110.0
13C5-PFPeA	20.000	21.688	8.4	108.4
13C6-PFDA	20.000	24.515	22.6	122.6
13C7-PFUnDA	20.000	25.421	27.1	127.1
13C8-FOSA	20.000	21.312	6.6	106.6
13C8-PFOA	20.000	22.869	14.3	114.3
13C8-PFOS	20.000	21.331	6.7	106.7
13C9-PFNA	20.000	23.612	18.1	118.1
4:2FTS	20.000	20.011	0.1	100.1
6:2FTS	20.000	19.708	-1.5	98.5
8:2FTS	20.000	19.902	-0.5	99.5
d3-MeFOSAA	20.000	25.962	29.8	129.8
M2-PFOA	20.000	20.008	0.0	100.0
EtFOSAA	20.000	22.315	11.6	111.6
FOSA	20.000	19.549	-2.3	97.7
MeFOSAA	20.000	19.474	-2.6	97.4
PFBA	20.000	19.316	-3.4	96.6
PFBS	20.000	19.923	-0.4	99.6
PFDA	20.000	19.750	-1.3	98.7
PFDoDA	20.000	19.668	-1.7	98.3
PFDS	20.000	20.906	4.5	104.5
PFHpA	20.000	19.857	-0.7	99.3
PFHpS	20.000	20.898	4.5	104.5
PFHxA	20.000	19.652	-1.7	98.3
PFHxS	20.000	19.598	-2.0	98.0
PFNA	20.000	20.190	1.0	101.0

Continuing Calibration Summary

Job Number: FA62561 **Sample:** S2Q453-CC450
Account: NOREASCA NOREAS,Inc. **Lab FileID:** 2Q28530.D
Project: APTIM: Fmr MCAS EL Toro IRP Sites 18 and 24

PFNS	20.000	20.758	3.8	103.8
PFOA	20.000	19.677	-1.6	98.4
PFOS	20.000	19.409	-3.0	97.0
PFPeA	20.000	19.838	-0.8	99.2
PFPeS	20.000	20.783	3.9	103.9
PFTeDA	20.000	19.598	-2.0	98.0
PFTrDA	20.000	21.408	7.0	107.0
PFUnDA	20.000	19.589	-2.1	97.9
M4-PFOS	20.000	20.009	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--		
11Cl-PF3OUdS	20.000	16.844	-15.8	84.2
13C3-HFPO-DA	100.000	107.022	7.0	107.0
9Cl-PF3ONS	20.000	15.936	-20.3	79.7
ADONA	20.000	18.236	-8.8	91.2
HFPO-DA	100.000	109.700	9.7	109.7
M3-HFPO-DA	---	--ISTD--		

CC Criteria: +/- 30%

MS Semi-volatiles

Raw Data

Sample Results: 2Q28174.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28174.d
Operator	:	natashag
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	3/26/2019 6:26:22 PM
Sample Name	:	FA62561-1
Vial	:	Vial 14
DA Method File	:	ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name	:	s2q449.batch.bin
Sample Information	:	op74263,S2Q449,125,,,1.0,1,water

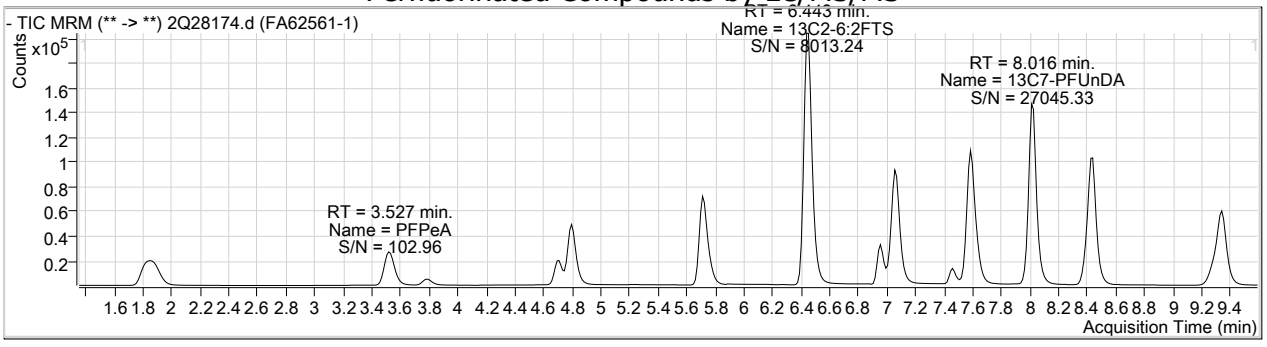
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.460	415.0 -> 370.0	412929	20.00 µg/L	0.013
13C4-PFOS	7.049	503.0 -> 80.0	58074	20.00 µg/L	0.000
M4-PFBA	1.852	217.0 -> 172.0	165788	20.00 µg/L	-0.013
M5-PFPeA	3.524	268.0 -> 223.0	135184	20.00 µg/L	-0.013
M5-PFHxA	4.801	318.0 -> 273.0	196280	20.00 µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	278908	20.00 µg/L	0.000
M8-PFOA	6.459	421.0 -> 376.0	322287	20.00 µg/L	0.013
M9-PFNA	7.078	472.0 -> 427.0	302652	20.00 µg/L	0.013
M6-PFDA	7.594	519.0 -> 474.0	394737	20.00 µg/L	0.000
M7-PFUnDA	8.016	570.0 -> 525.0	580620	20.00 µg/L	-0.038
M2-PFDoDA	8.441	615.0 -> 570.0	470310	20.00 µg/L	-0.038
M2-PFTeDA	9.340	715.0 -> 670.0	338374	20.00 µg/L	-0.013
M8-FOSA	6.959	506.0 -> 78.0	114360	20.00 µg/L	0.000
M3-PFBS	3.780	302.0 -> 99.0	22676	20.00 µg/L	-0.013
M3-PFHxS	5.761	402.0 -> 99.0	24902	20.00 µg/L	0.013
M8-PFOS	7.047	507.0 -> 99.0	30160	20.00 µg/L	0.000
M2-4:2FTS	4.709	329.0 -> 309.0	82277	20.00 µg/L	0.013
M2-6:2FTS	6.443	429.0 -> 409.0	106946	20.00 µg/L	0.013
M2-8:2FTS	7.630	529.0 -> 509.0	64975	20.00 µg/L	-0.013
M3-MeFOSAA	7.460	573.0 -> 419.0	42960	20.00 µg/L	0.000
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.709	329.0 -> 309.0	82219	19.91 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C2-6:2FTS	6.443	429.0 -> 409.0	106862	23.53 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.7%	
13C2-8:2FTS	7.630	529.0 -> 509.0	64998	19.30 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C2-PFDoDA	8.441	615.0 -> 570.0	470459	17.15 µg/L	-0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.7%	
13C2-PFTeDA	9.340	715.0 -> 670.0	338379	17.91 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.6%	
13C3-PFBS	3.780	302.0 -> 99.0	22691	20.16 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C3-PFHxS	5.761	402.0 -> 99.0	24908	20.28 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C4-PFBA	1.852	217.0 -> 172.0	165276	21.41 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C4-PFHpA	5.717	367.0 -> 322.0	278661	20.96 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C5-PFHxA	4.801	318.0 -> 273.0	196096	20.78 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
13C5-PFPeA	3.524	268.0 -> 223.0	135014	20.58 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C6-PFDA	7.594	519.0 -> 474.0	394818	20.29 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

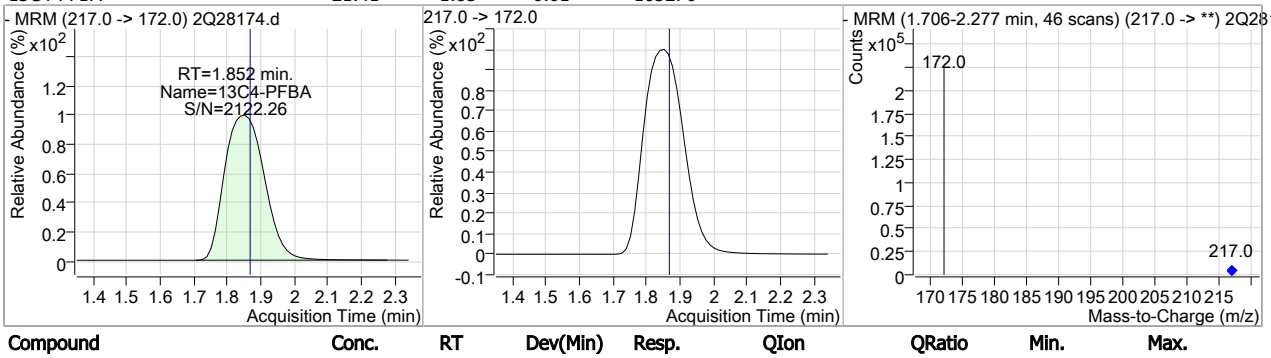
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C7-PFUnDA	8.016	570.0 -> 525.0	580480	23.49 µg/L		-0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.5%		
13C8-FOSA	6.959	506.0 -> 78.0	114351	19.83 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C8-PFOA	6.459	421.0 -> 376.0	322181	23.27 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.4%		
13C8-PFOS	7.047	507.0 -> 99.0	30167	18.82 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C9-PFNA	7.078	472.0 -> 427.0	302636	21.15 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
d3-MeFOSAA	7.460	573.0 -> 419.0	42948	17.80 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.0%		
M2-PFOA	6.460	415.0 -> 370.0	413166	19.98 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.049	503.0 -> 80.0	57977	20.09 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
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	1.860	213.0 -> 169.0	389	0.25 µg/L		100
PFBS	3.783	299.0 -> 80.0	264	0.14 µg/L	m	93
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.720	363.0 -> 319.0	2883	0.23 µg/L	m	100
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.803	313.0 -> 269.0	1140	0.35 µg/L		98
PFHxS	5.763	399.0 -> 80.0	993	0.69 µg/L	m	97
PFNA	-	463.0 -> 419.0	-	N.D.		
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.449	413.0 -> 369.0	6506	0.76 µg/L	m	100
PFOS	7.050	499.0 -> 80.0	873	0.57 µg/L	m	98
PFPeA	3.527	263.0 -> 219.0	2084	0.35 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.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

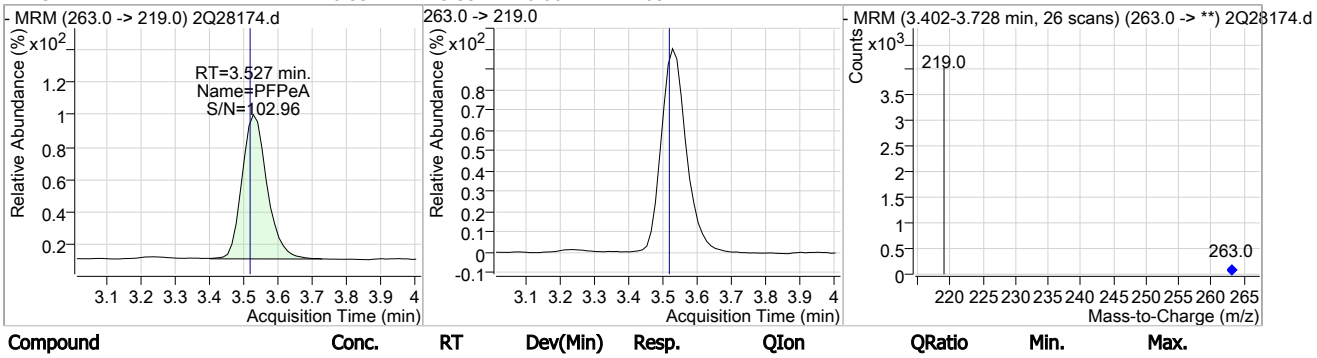
Perfluorinated Compounds by LC/MS/MS



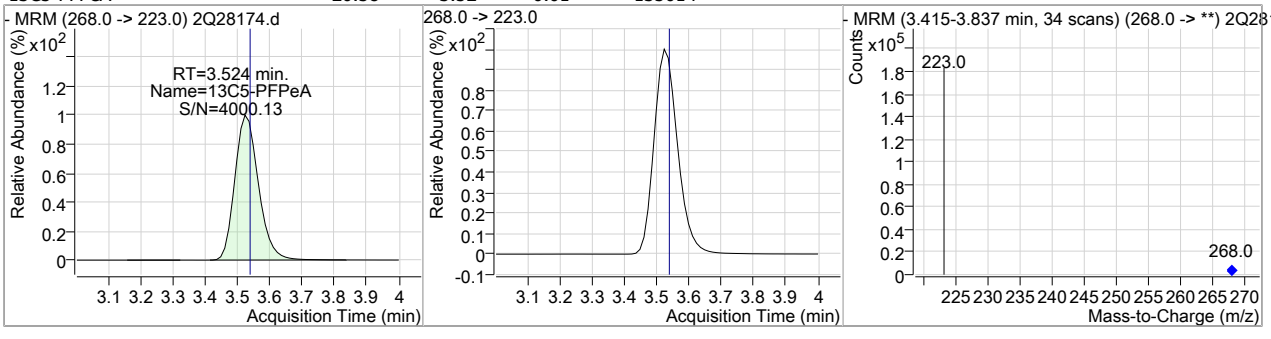
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.41	1.85	-0.01	165276				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.35	3.53	0.00	2084				

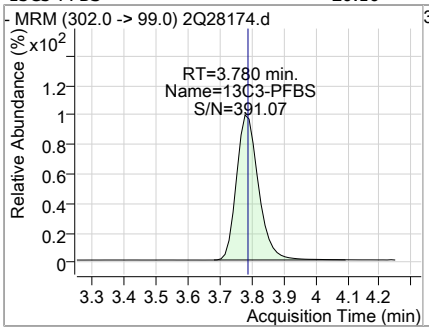


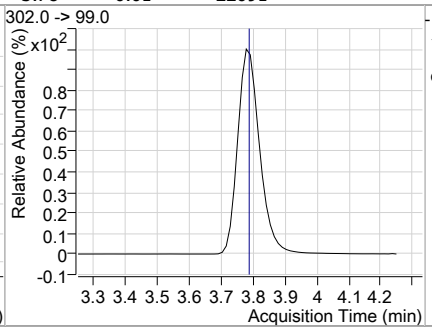
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.58	3.52	-0.01	135014				

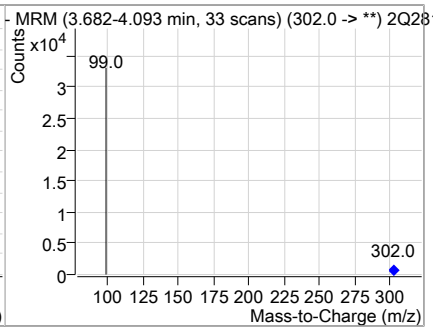


Perfluorinated Compounds by LC/MS/MS

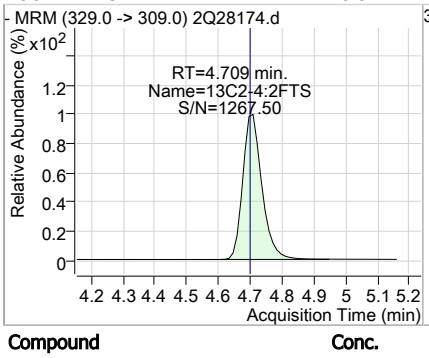
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.16	3.78	-0.01	22691				

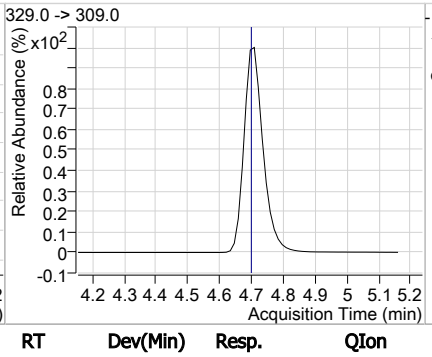


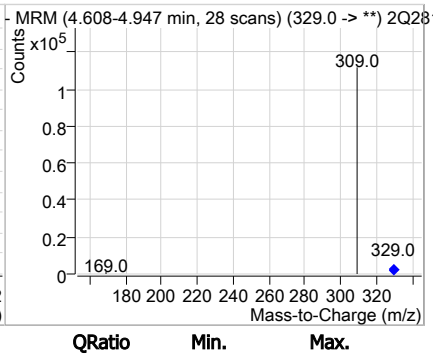




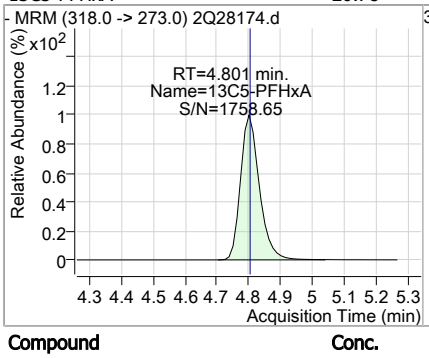
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.91	4.71	0.01	82219				

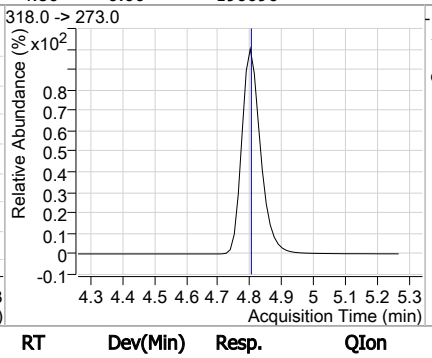


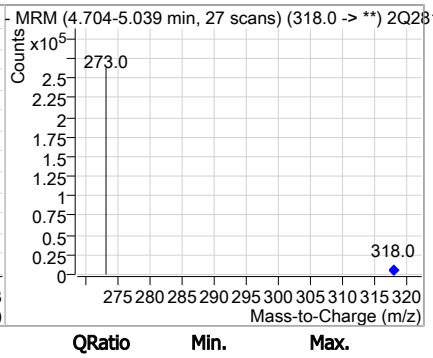




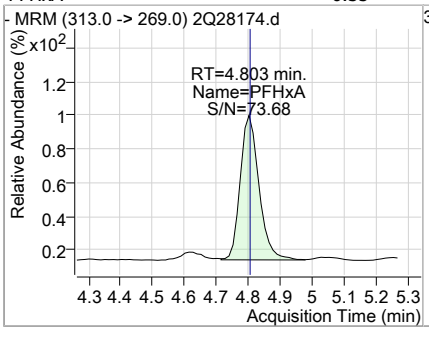
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.78	4.80	0.00	196096				

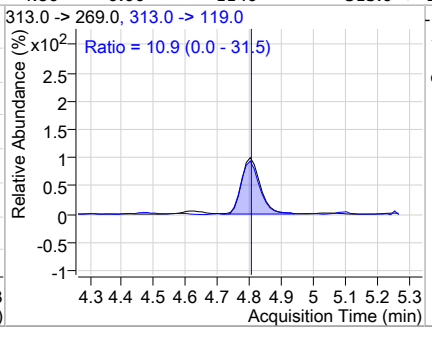


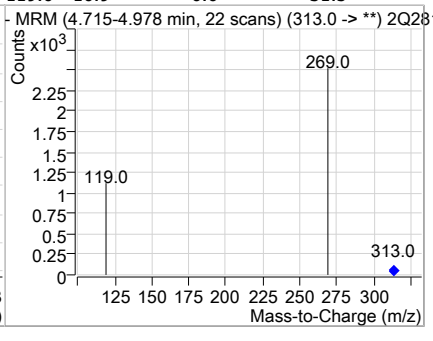




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.35	4.80	0.00	1140	313.0 -> 119.0	10.9	0.0	31.5

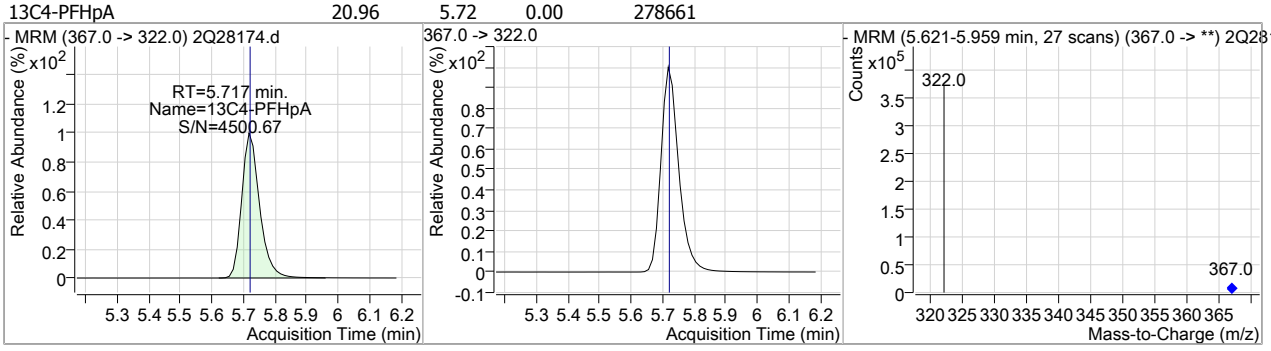




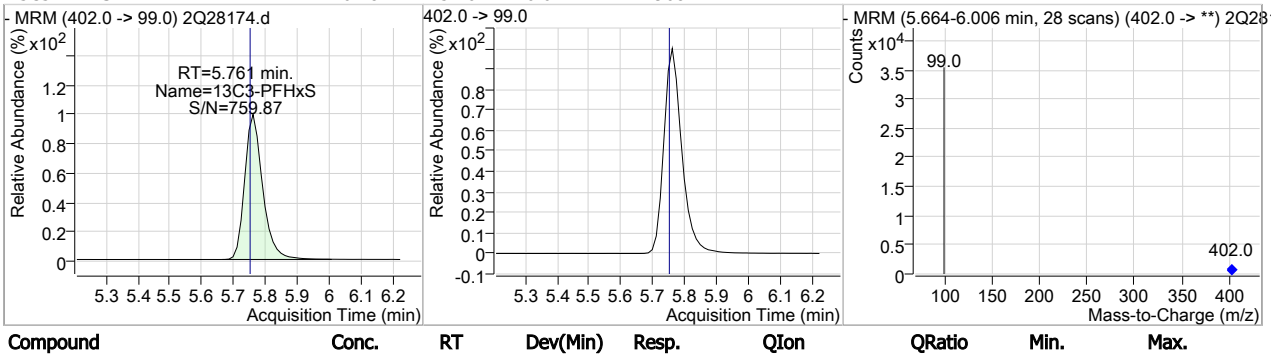


Perfluorinated Compounds by LC/MS/MS

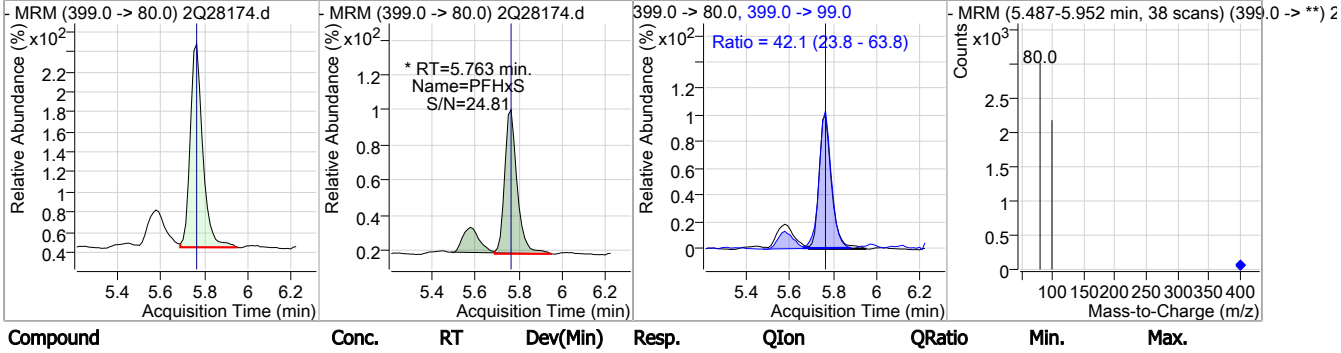
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.96	5.72	0.00	278661				



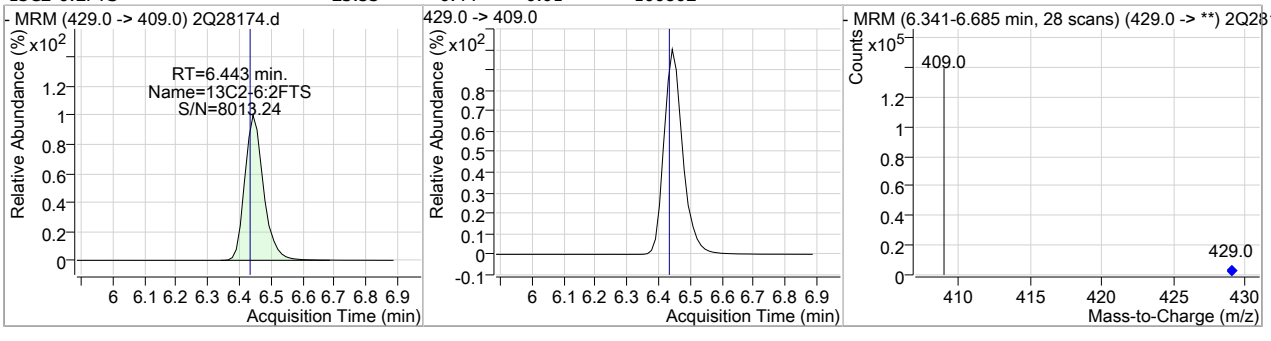
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.28	5.76	0.01	24908				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.69	5.76	0.01	993 (m)	399.0 -> 99.0	42.1	23.8	63.8

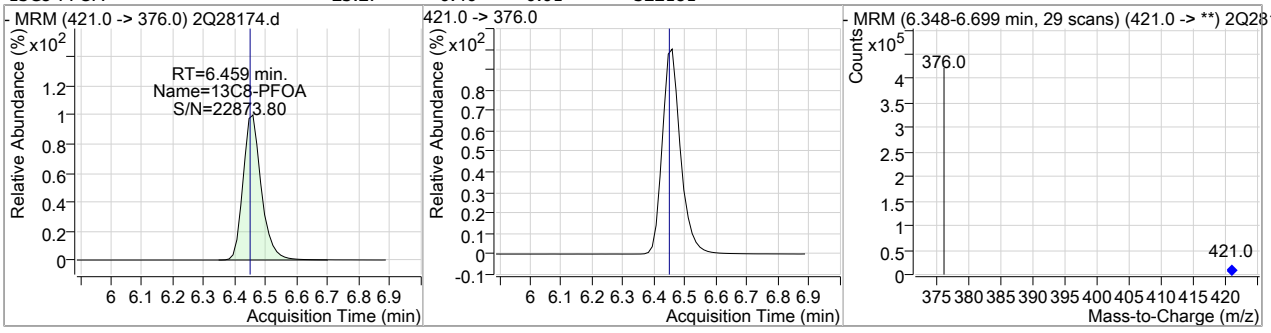


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	23.53	6.44	0.01	106862				

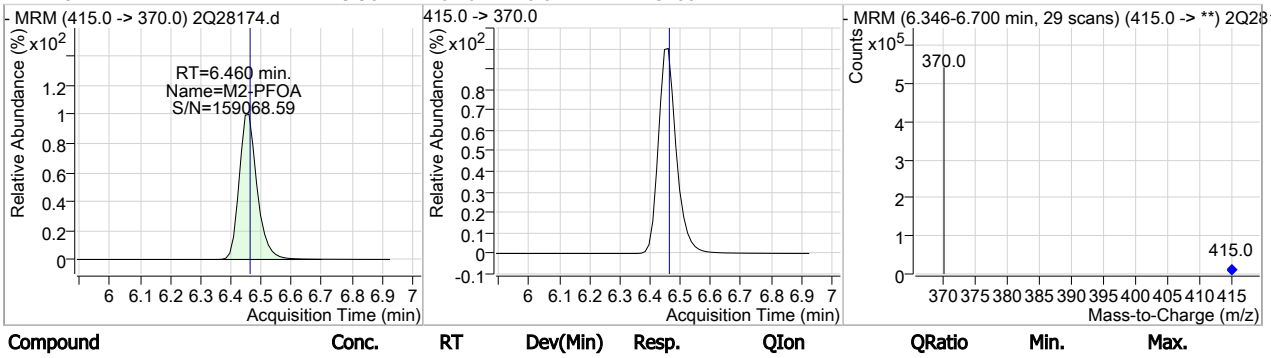


Perfluorinated Compounds by LC/MS/MS

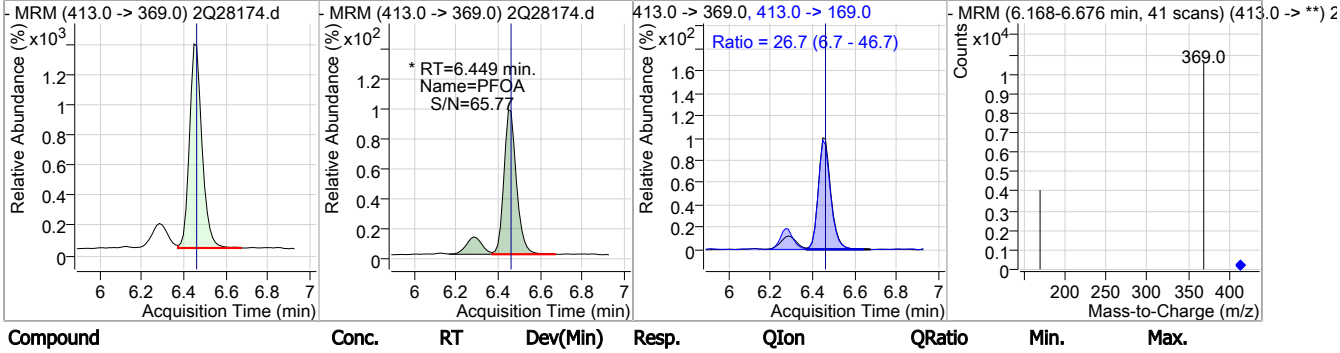
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	23.27	6.46	0.01	322181				



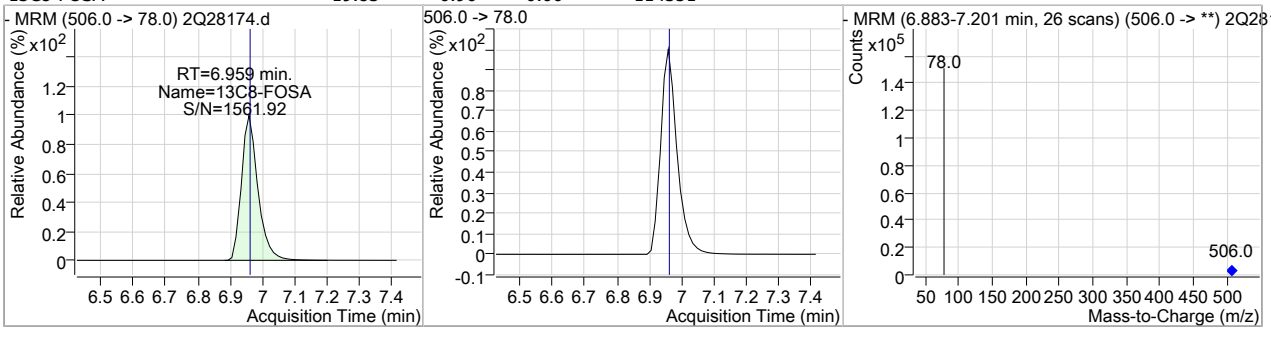
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.98	6.46	0.01	413166				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.76	6.45	0.00	6506 (m)	413.0 -> 169.0	26.7	6.7	46.7

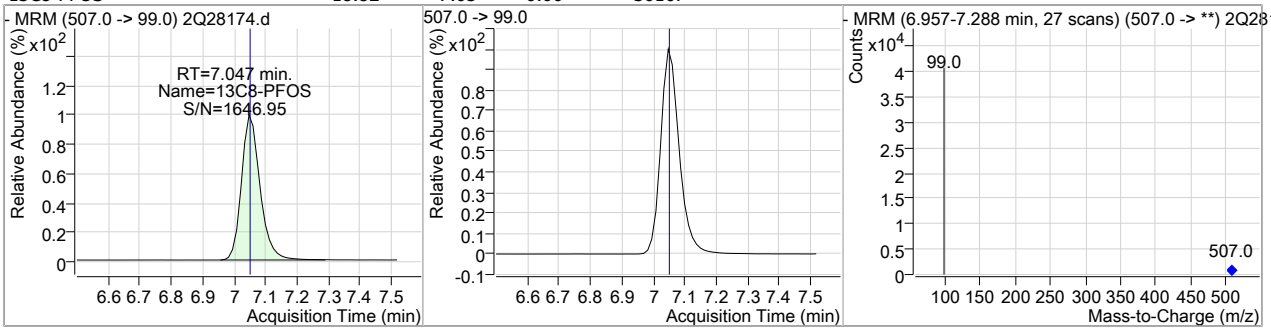


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.83	6.96	0.00	114351				

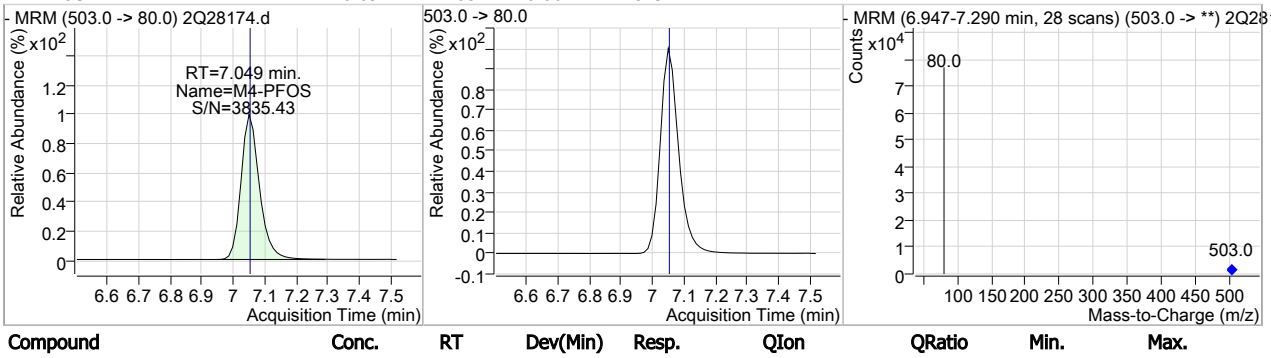


Perfluorinated Compounds by LC/MS/MS

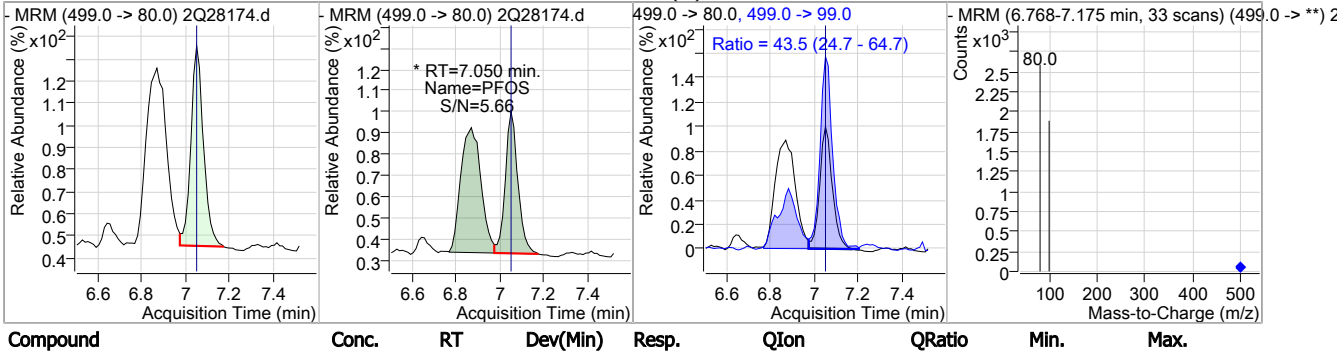
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.82	7.05	0.00	30167				



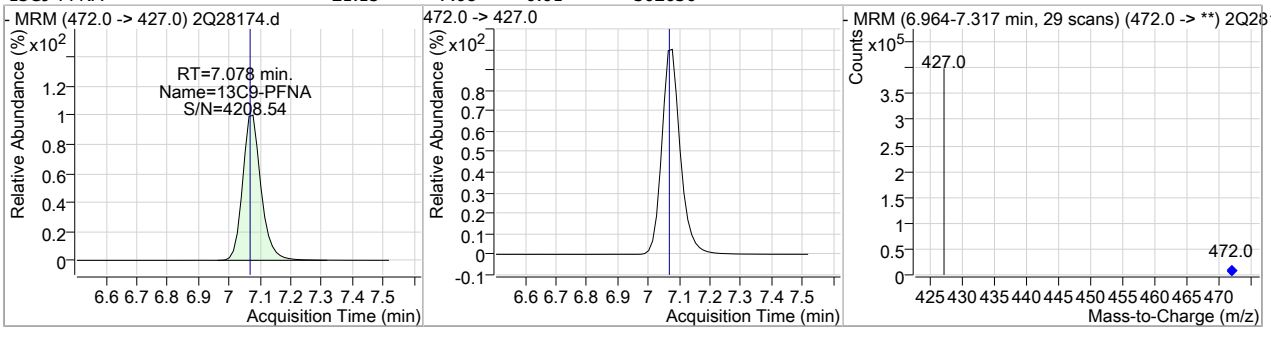
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.09	7.05	0.00	57977				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.57	7.05	0.00	873 (m)	499.0 -> 99.0	43.5	24.7	64.7

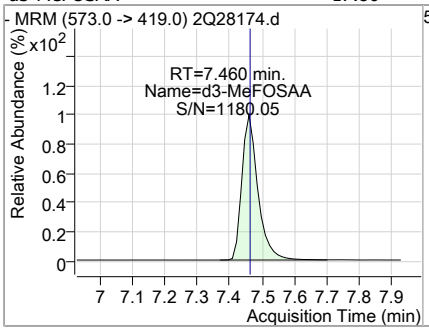


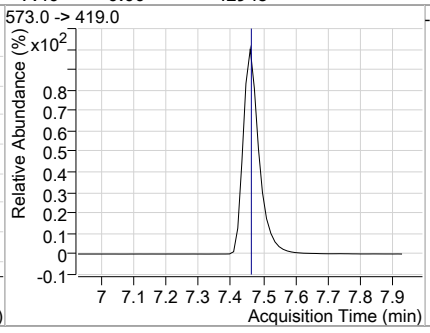
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.15	7.08	0.01	302636				

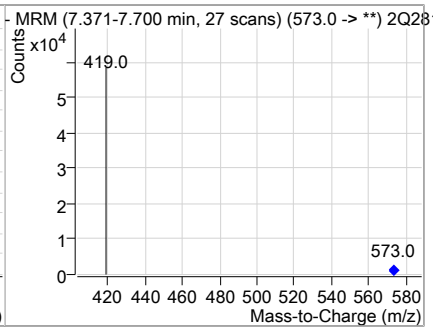


Perfluorinated Compounds by LC/MS/MS

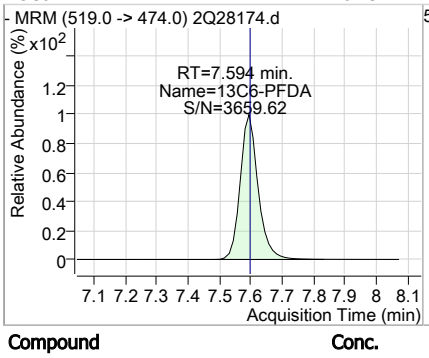
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	17.80	7.46	0.00	42948				

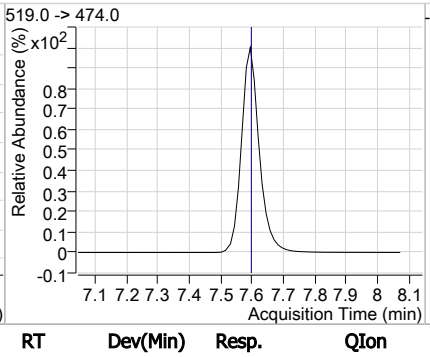


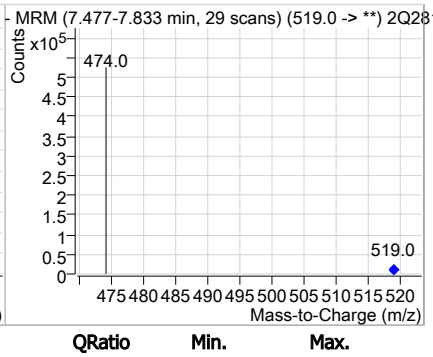




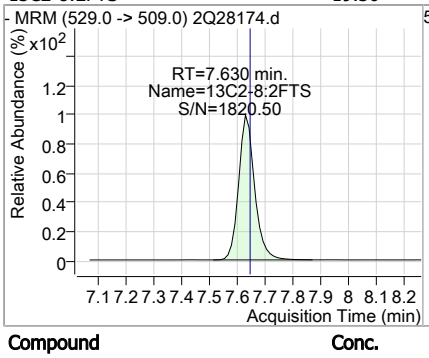
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.29	7.59	0.00	394818				

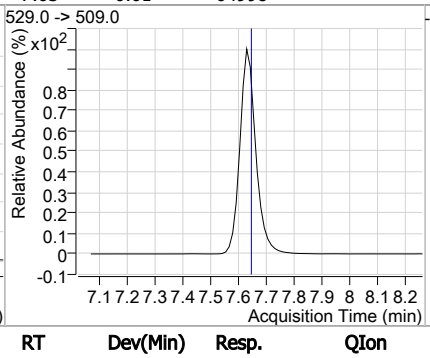


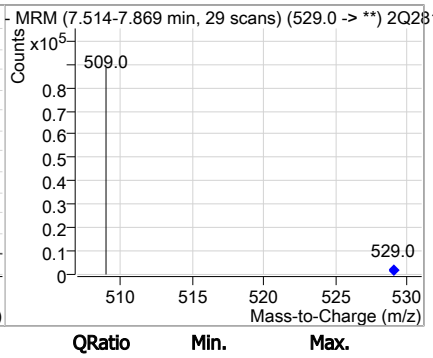




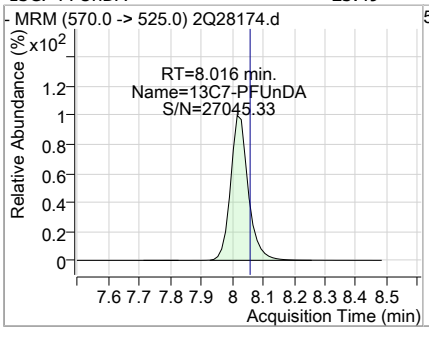
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.30	7.63	-0.01	64998				

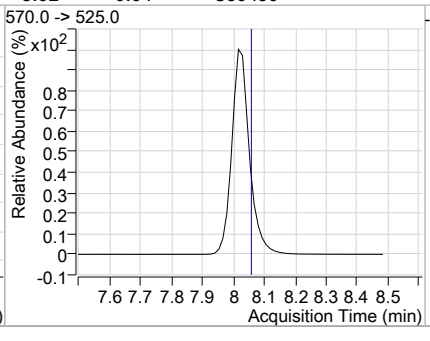


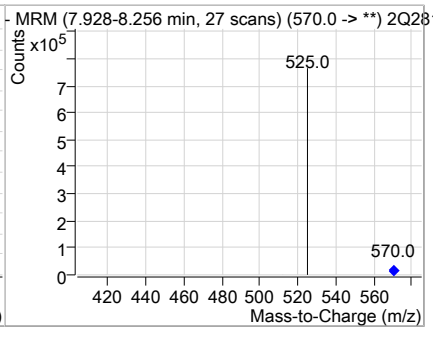




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	23.49	8.02	-0.04	580480				



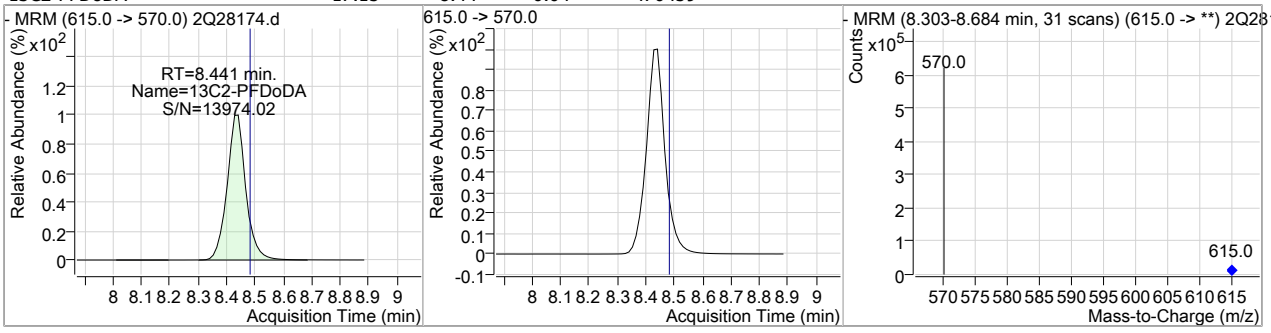




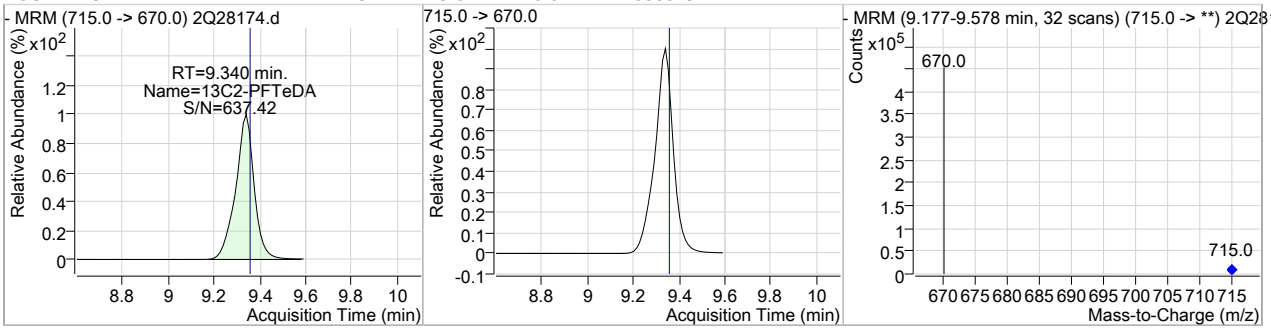
Sample Results: 2Q28174.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	17.15	8.44	-0.04	470459				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	17.91	9.34	-0.01	338379				



7.1.1

7

Manual Integration Approval Summary

Sample Number: FA62561-1
Lab FileID: 2Q28174.D
Injection Time: 03/26/19 18:26
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:32 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		3.78	Split peak
Perfluoroheptanoic acid	375-85-9		5.72	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.76	Split peak
Perfluorooctanoic acid	335-67-1		6.45	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Sample Results: **2Q28528.D**

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:31

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28528.d
Operator	:	natashag
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	4/2/2019 2:05:48 PM
Sample Name	:	fa62561-1
Vial	:	Vial 94
DA Method File	:	ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	:	s2q453.batch.bin
Sample Information	:	op74392,S2Q453,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.410	415.0 -> 370.0	213435	20.00 µg/L	-0.013
13C4-PFOS	7.035	503.0 -> 80.0	27031	20.00 µg/L	-0.002
M4-PFBA	1.840	217.0 -> 172.0	99887	20.00 µg/L	-0.025
M5-PFPeA	3.499	268.0 -> 223.0	90901	20.00 µg/L	-0.025
M5-PFHxA	4.764	318.0 -> 273.0	135583	20.00 µg/L	-0.013
M4-PFHpA	5.680	367.0 -> 322.0	216425	20.00 µg/L	-0.013
M8-PFOA	6.409	421.0 -> 376.0	240841	20.00 µg/L	-0.013
M9-PFNA	7.051	472.0 -> 427.0	263981	20.00 µg/L	-0.015
M6-PFDA	7.594	519.0 -> 474.0	342750	20.00 µg/L	-0.013
M7-PFUnDA	8.076	570.0 -> 525.0	393581	20.00 µg/L	-0.016
M2-PFDoDA	8.577	615.0 -> 570.0	360806	20.00 µg/L	-0.026
M2-PFTeDA	9.815	715.0 -> 670.0	163024	20.00 µg/L	-0.025
M8-FOSA	6.905	506.0 -> 78.0	70674	20.00 µg/L	-0.016
M3-PFBS	3.755	302.0 -> 99.0	13980	20.00 µg/L	-0.013
M3-PFHxS	5.723	402.0 -> 99.0	15985	20.00 µg/L	-0.013
M8-PFOS	7.032	507.0 -> 99.0	19055	20.00 µg/L	-0.002
M2-4:2FTS	4.671	329.0 -> 309.0	76691	20.00 µg/L	-0.013
M2-6:2FTS	6.406	429.0 -> 409.0	112410	20.00 µg/L	-0.013
M2-8:2FTS	7.642	529.0 -> 509.0	88847	20.00 µg/L	-0.013
M3-MeFOSAA	7.421	573.0 -> 419.0	38913	20.00 µg/L	-0.013
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.671	329.0 -> 309.0	76465	14.44 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.2%	
13C2-6:2FTS	6.406	429.0 -> 409.0	112382	16.08 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.4%	
13C2-8:2FTS	7.642	529.0 -> 509.0	88842	14.24 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 71.2%	
13C2-PFDoDA	8.577	615.0 -> 570.0	360368	8.55 µg/L	-0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 42.7%	
13C2-PFTeDA	9.815	715.0 -> 670.0	161642	5.29 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 26.5%	
13C3-PFBS	3.755	302.0 -> 99.0	13973	12.69 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 63.5%	
13C3-PFHxS	5.723	402.0 -> 99.0	15987	12.91 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 64.6%	
13C4-PFBA	1.840	217.0 -> 172.0	99787	13.36 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.8%	
13C4-PFHpA	5.680	367.0 -> 322.0	216237	14.05 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 70.3%	
13C5-PFHxA	4.764	318.0 -> 273.0	135497	13.35 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.8%	
13C5-PFPeA	3.499	268.0 -> 223.0	90805	13.48 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.4%	
13C6-PFDA	7.594	519.0 -> 474.0	342746	13.32 µg/L	-0.013

Sample Results: **2Q28528.D**

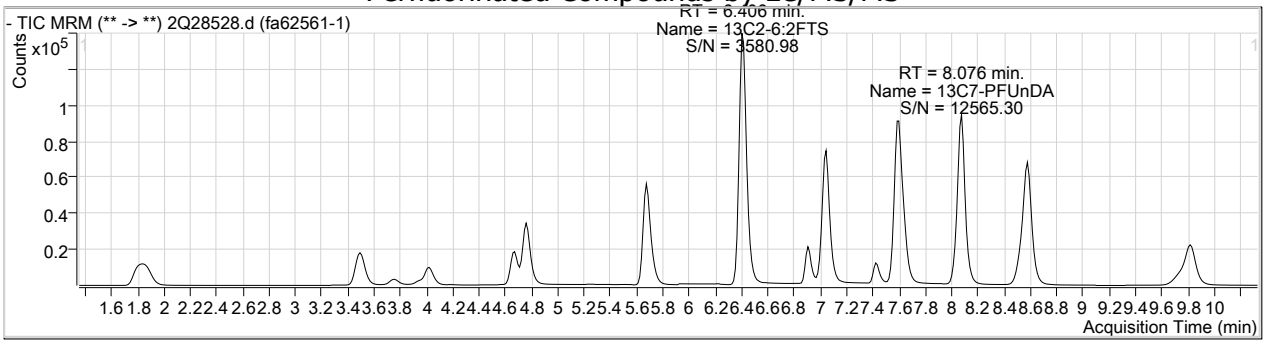
Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 66.6%		
13C7-PFUnDA	8.076	570.0 -> 525.0	393631	11.54 µg/L		-0.016
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.7%		
13C8-FOSA	6.905	506.0 -> 78.0	70727	12.77 µg/L		-0.016
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 63.8%		
13C8-PFOA	6.409	421.0 -> 376.0	240688	14.86 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 74.3%		
13C8-PFOS	7.032	507.0 -> 99.0	19052	11.23 µg/L		-0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 56.1%		
13C9-PFNA	7.051	472.0 -> 427.0	264073	14.56 µg/L		-0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 72.8%		
d3-MeFOSAA	7.421	573.0 -> 419.0	38911	11.40 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 57.0%		
M2-PFOA	6.410	415.0 -> 370.0	213287	19.97 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.035	503.0 -> 80.0	27075	20.02 µg/L		-0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
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	1.848	213.0 -> 169.0	832	0.84 µg/L		100
PFBS	3.721	299.0 -> 80.0	2295	2.02 µg/L	#	45
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.683	363.0 -> 319.0	2769	0.29 µg/L	m	100
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.765	313.0 -> 269.0	1147	0.48 µg/L		68
PFHxS	5.713	399.0 -> 80.0	842	0.89 µg/L	m	90
PFNA	-	463.0 -> 419.0	-	N.D.		
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.412	413.0 -> 369.0	5713	0.88 µg/L	m	93
PFOS	7.036	499.0 -> 80.0	604	0.65 µg/L	#m	71
PFPeA	3.502	263.0 -> 219.0	1754	0.43 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.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

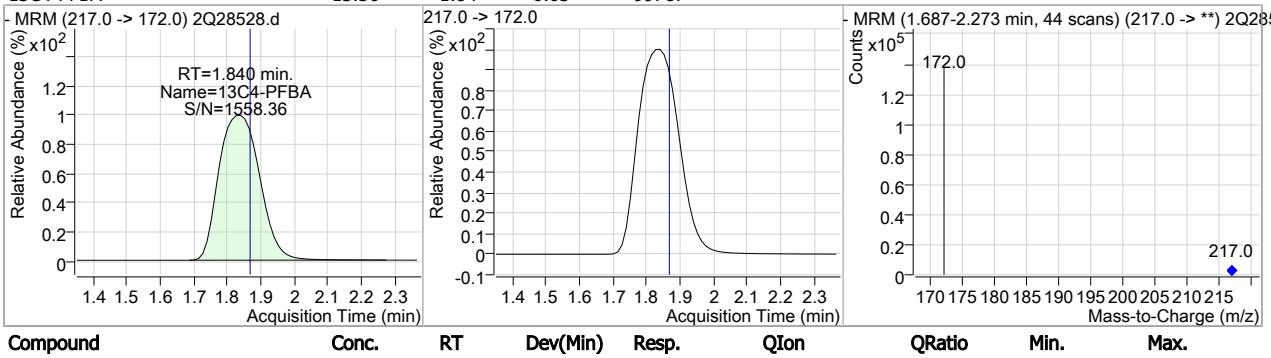
 # = Qualifier out of range, m = manually integrated, + = Area summed

Sample Results: **2Q28528.D**

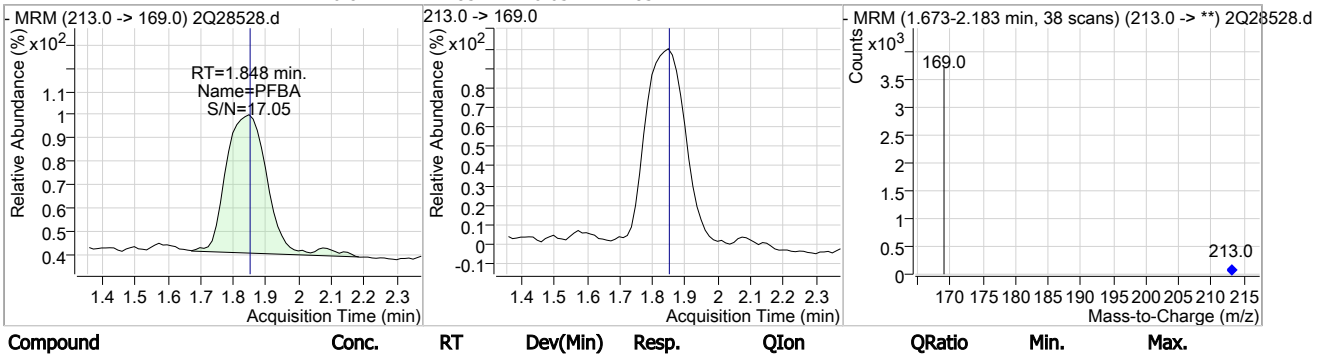
Perfluorinated Compounds by LC/MS/MS



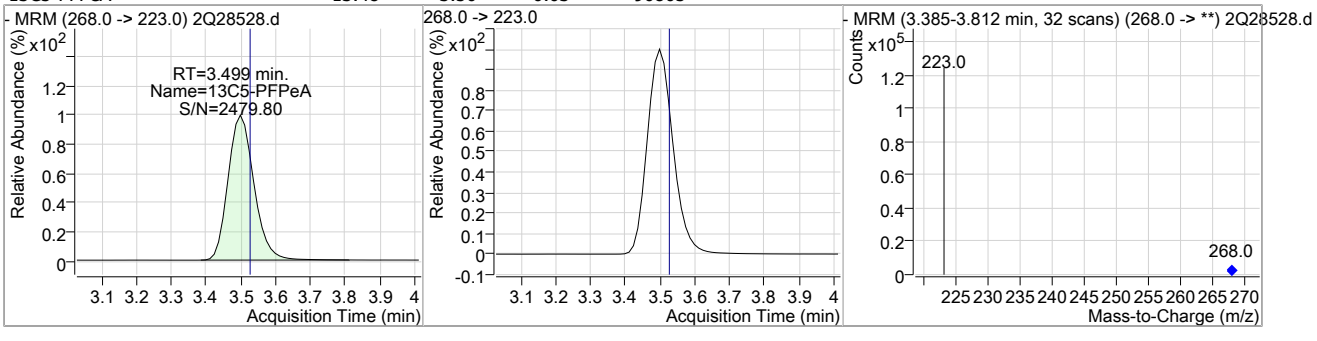
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	13.36	1.84	-0.03	99787				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.84	1.85	-0.03	832				

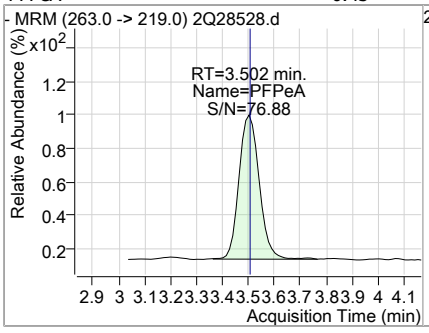


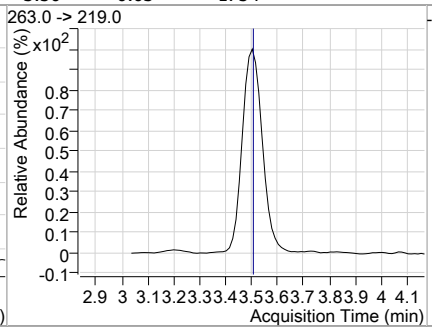
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	13.48	3.50	-0.03	90805				

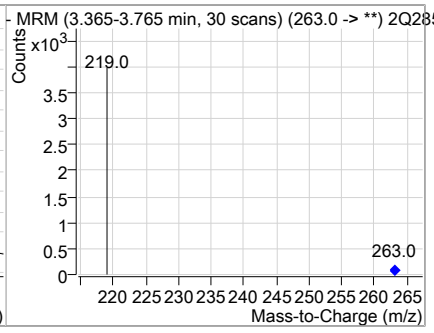


Perfluorinated Compounds by LC/MS/MS

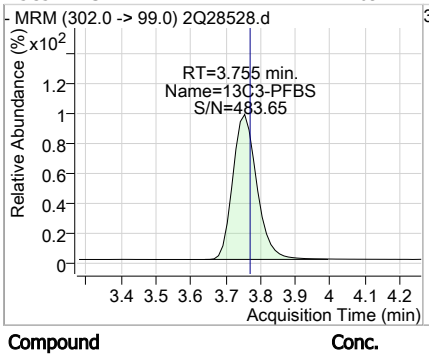
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.43	3.50	-0.03	1754				

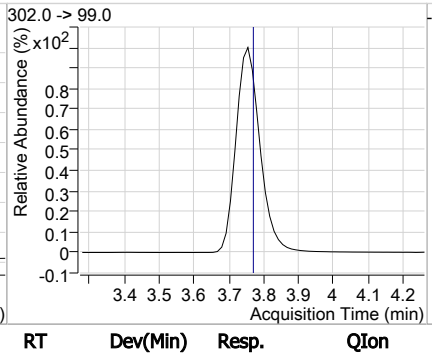


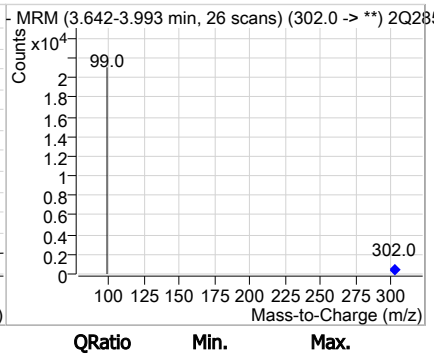




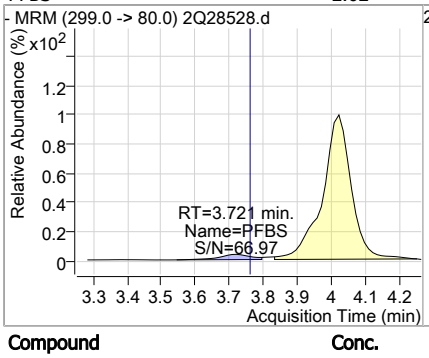
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	12.69	3.75	-0.01	13973				

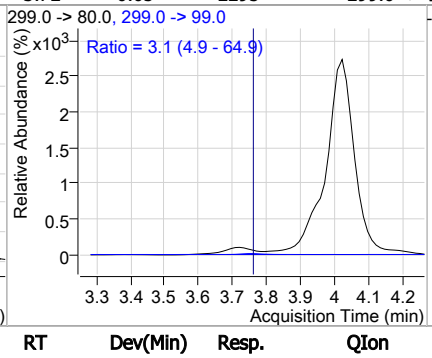


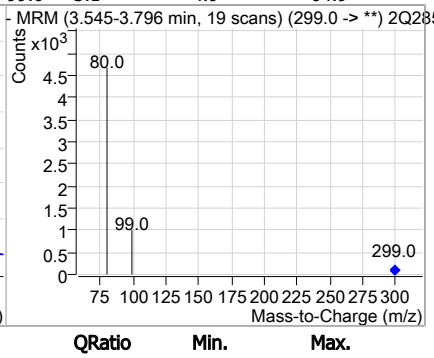




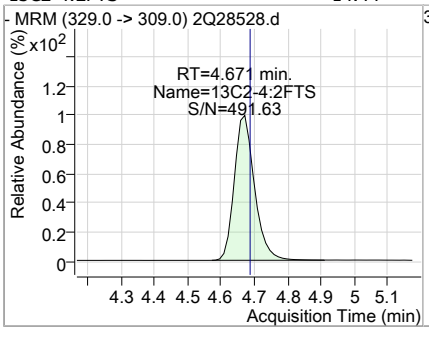
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.02	3.72	-0.05	2295	299.0 -> 99.0	3.1	4.9	64.9

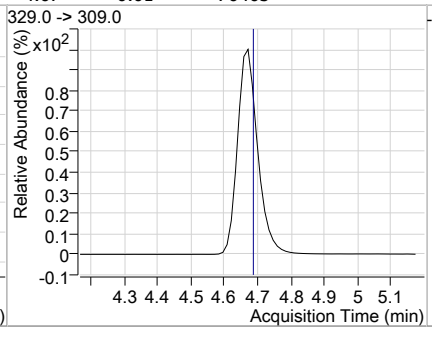


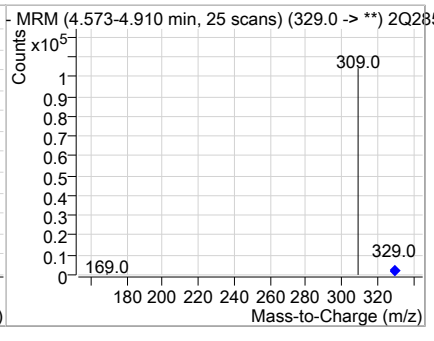




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	14.44	4.67	-0.01	76465				



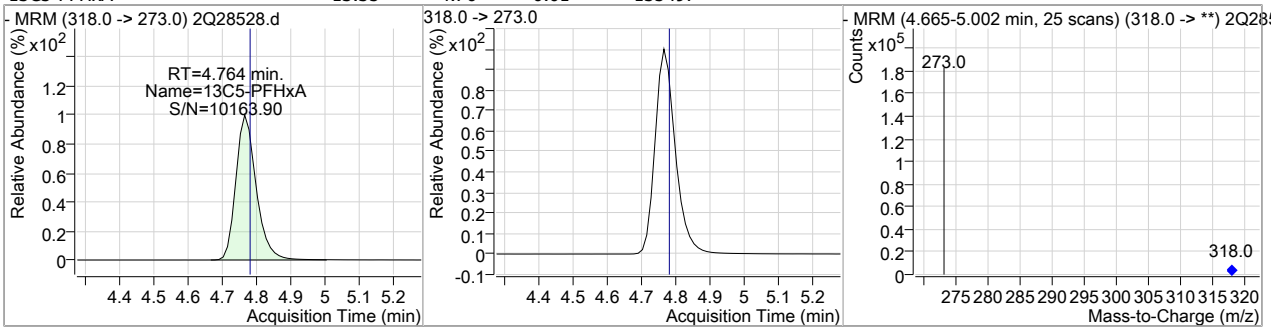




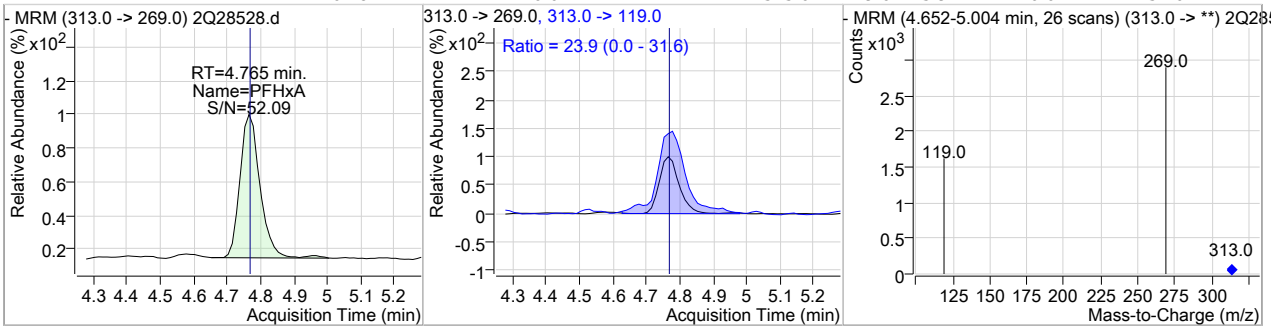
Sample Results: **2Q28528.D**

Perfluorinated Compounds by LC/MS/MS

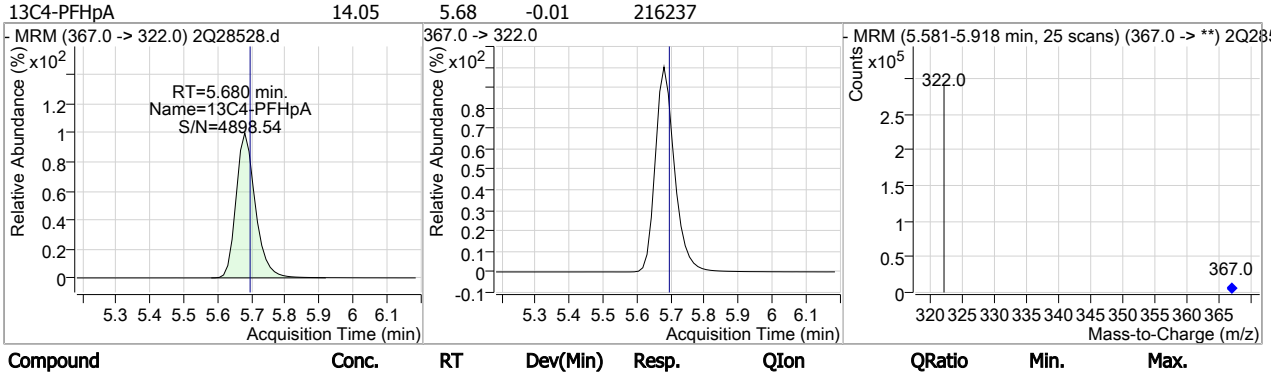
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	13.35	4.76	-0.01	135497				



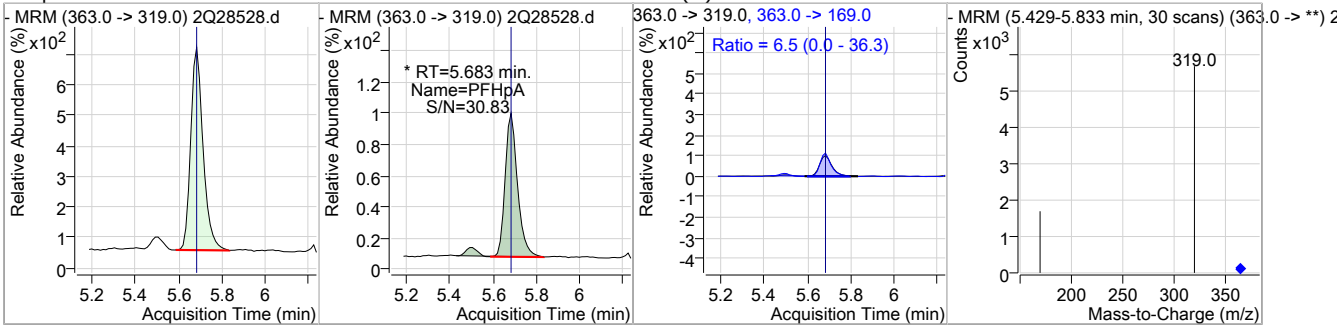
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.48	4.77	-0.01	1147	313.0 -> 119.0	23.9	0.0	31.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	14.05	5.68	-0.01	216237				

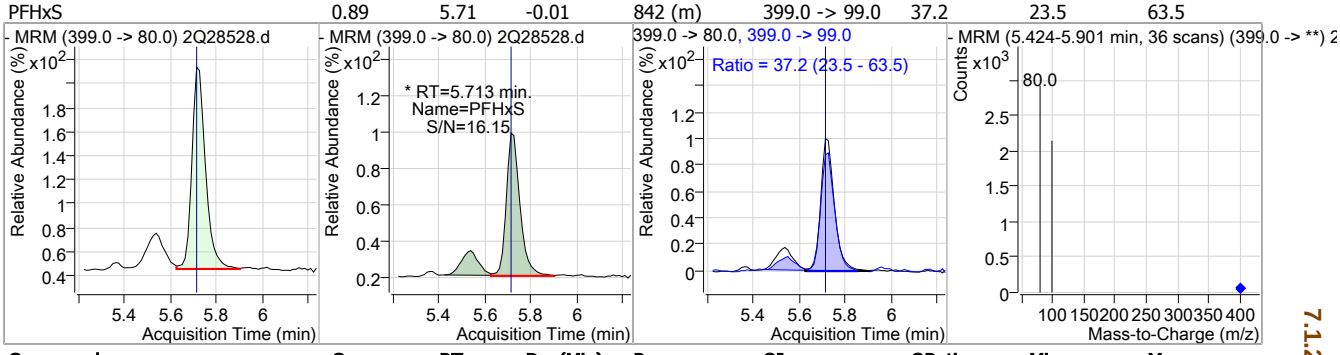


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.29	5.68	-0.01	2769 (m)	363.0 -> 169.0	6.5	0.0	36.3

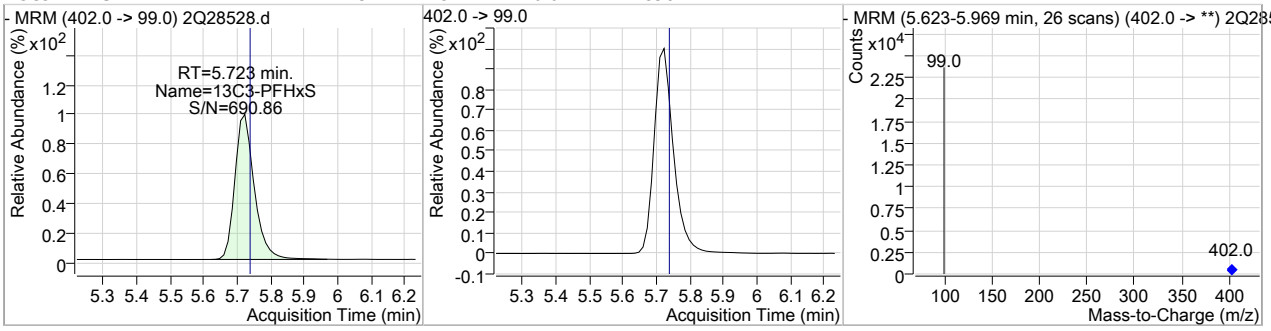


Perfluorinated Compounds by LC/MS/MS

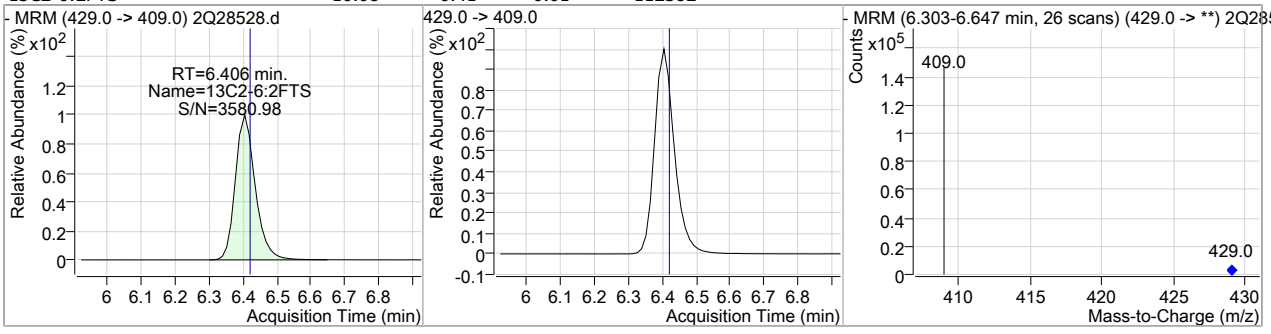
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.89	5.71	-0.01	842 (m)	399.0 -> 99.0	37.2	23.5	63.5



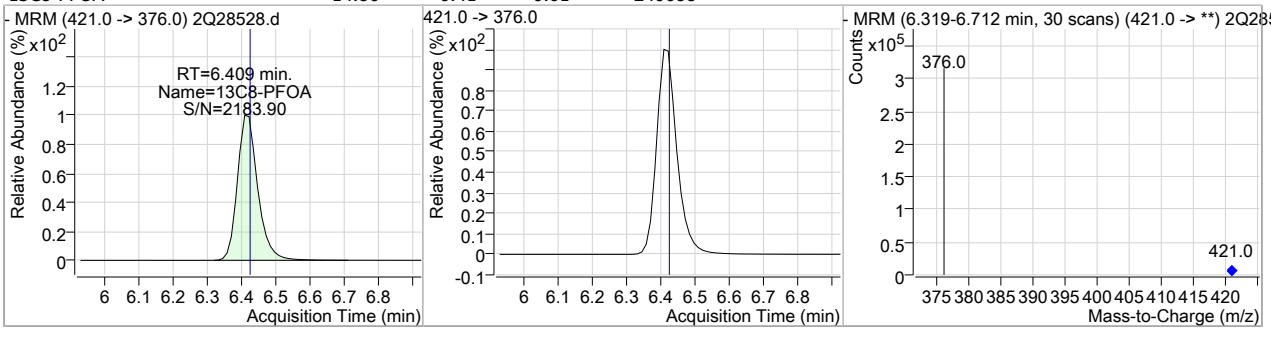
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	12.91	5.72	-0.01	15987				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	16.08	6.41	-0.01	112382				

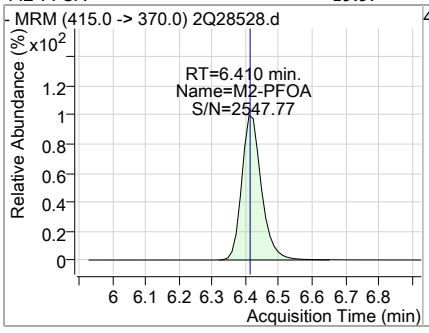


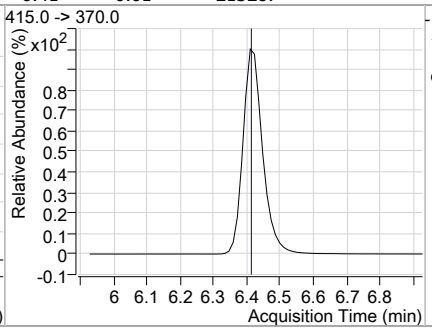
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	14.86	6.41	-0.01	240688				

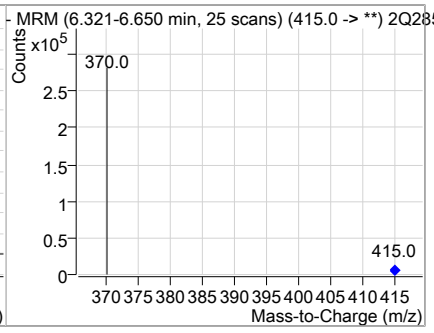


Perfluorinated Compounds by LC/MS/MS

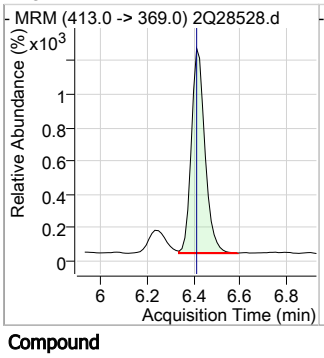
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.97	6.41	-0.01	213287				

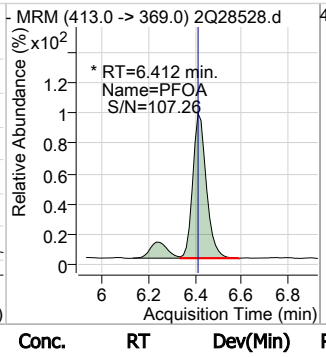


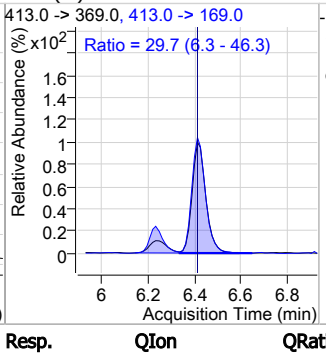


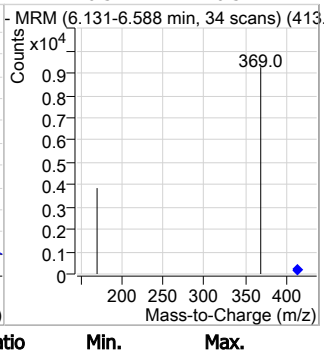


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.88	6.41	-0.01	5713 (m)	413.0 -> 169.0	29.7	6.3	46.3

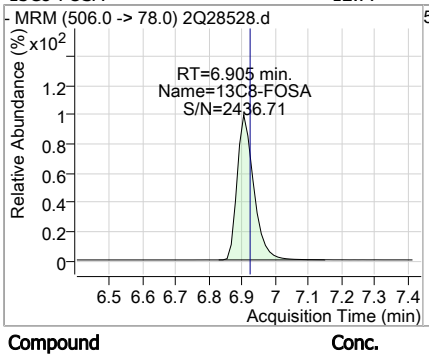


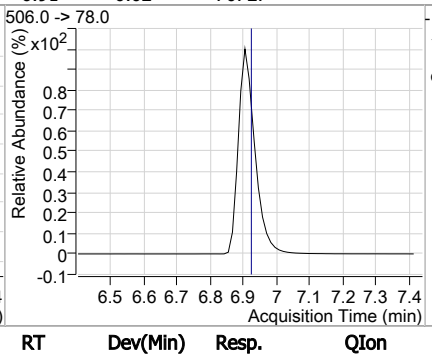


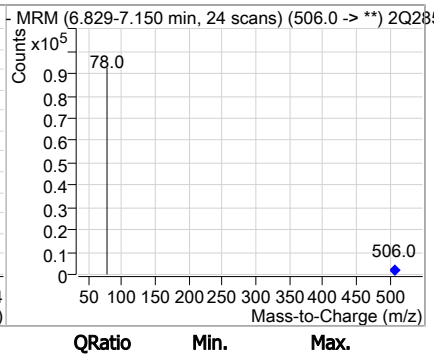




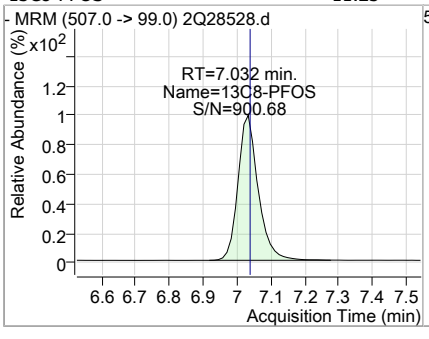
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	12.77	6.91	-0.02	70727				

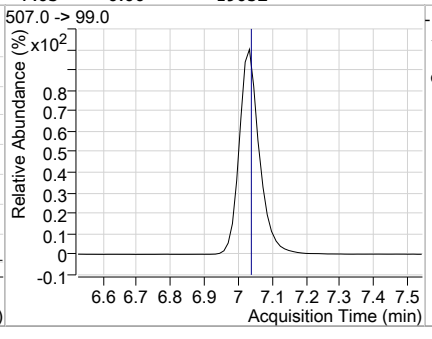


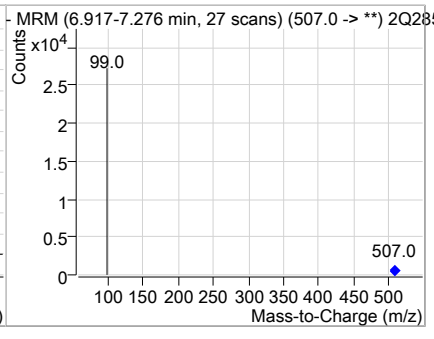




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	11.23	7.03	0.00	19052				

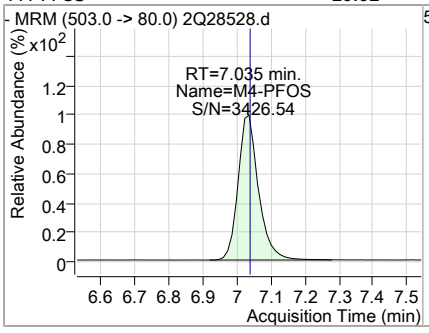


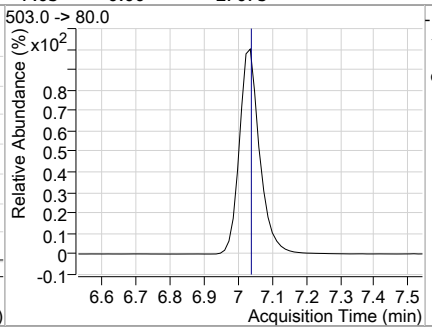


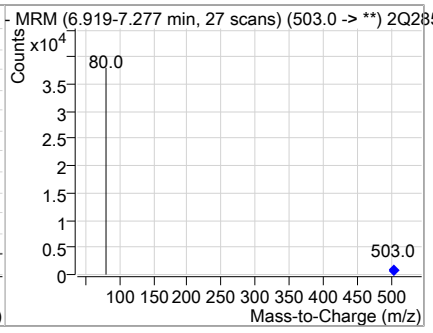


Perfluorinated Compounds by LC/MS/MS

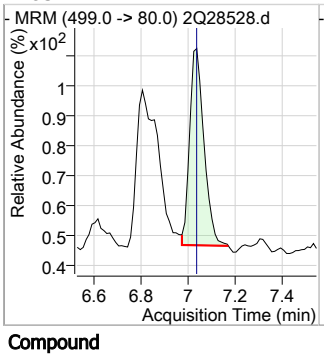
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.03	0.00	27075				

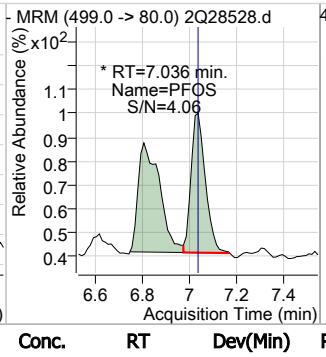


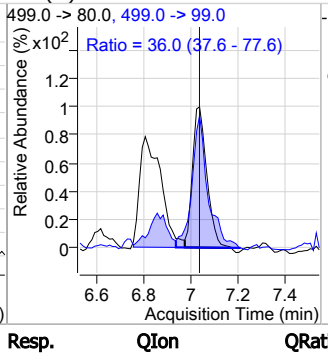


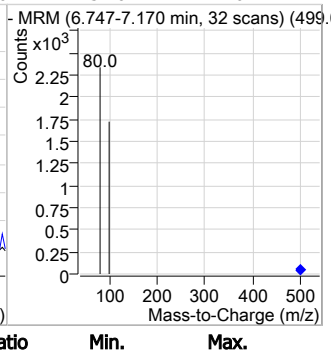


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.65	7.04	0.00	604 (m)	499.0 -> 99.0	36.0	37.6	77.6

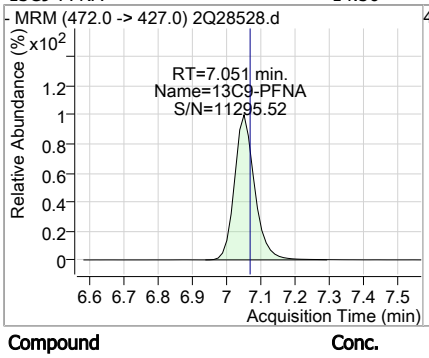


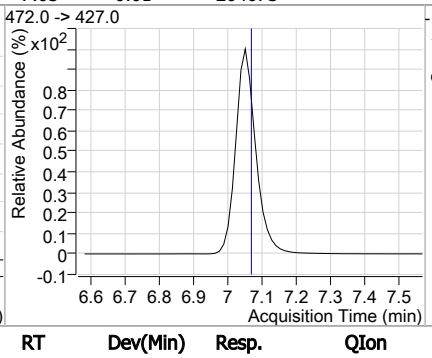


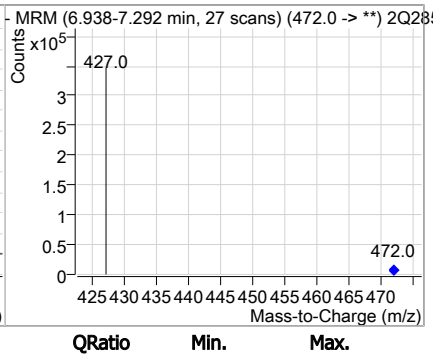




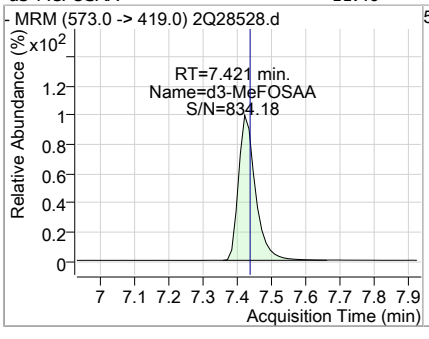
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	14.56	7.05	-0.01	264073				

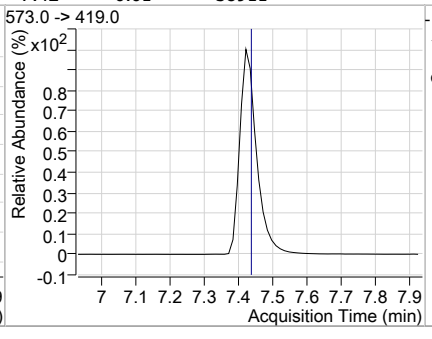


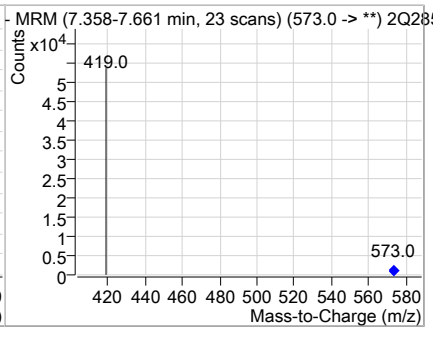




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	11.40	7.42	-0.01	38911				

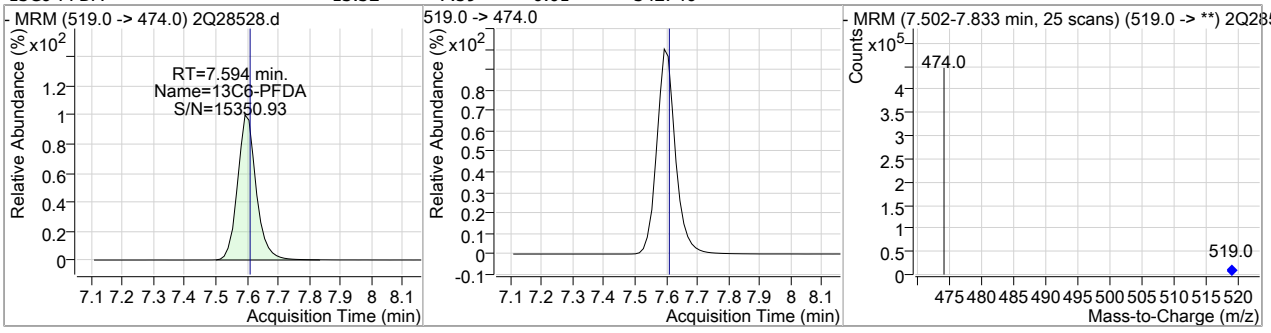




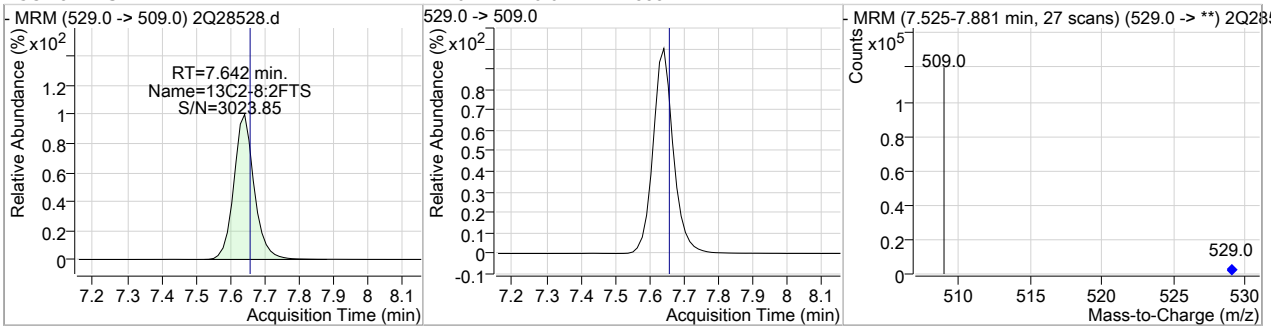


Perfluorinated Compounds by LC/MS/MS

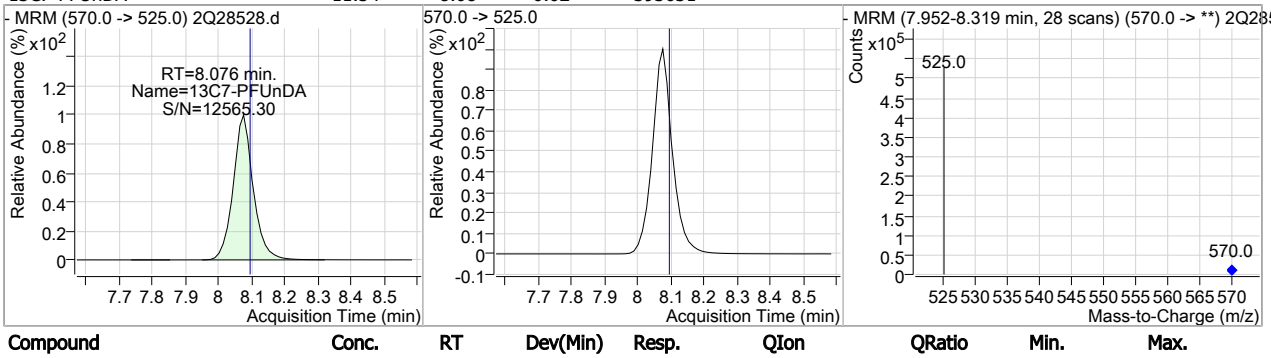
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	13.32	7.59	-0.01	342746				



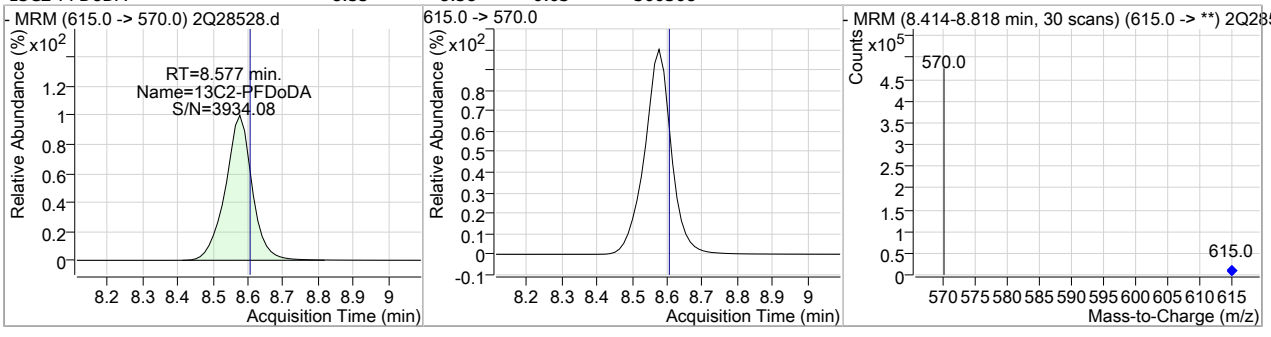
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	14.24	7.64	-0.01	88842				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	11.54	8.08	-0.02	393631				



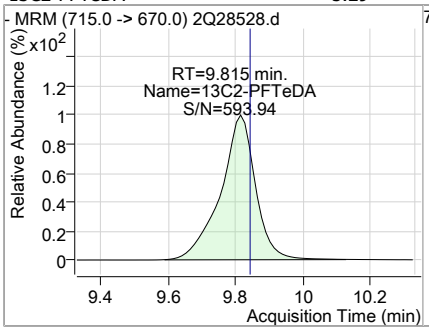
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	8.55	8.58	-0.03	360368				

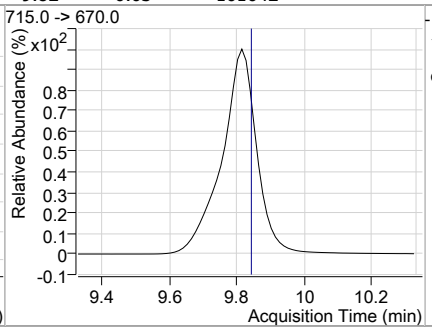


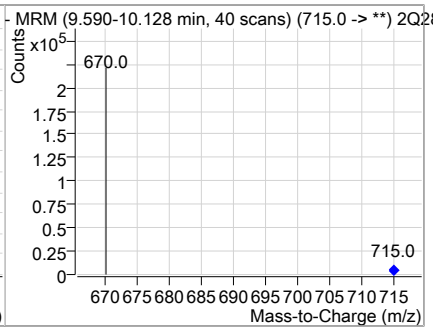
Sample Results: **2Q28528.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	5.29	9.82	-0.03	161642				







7.1.2

7

Manual Integration Approval Summary

Sample Number: FA62561-1
Lab FileID: 2Q28528.D
Injection Time: 04/02/19 14:05
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 16:31 Mike Eger
Supervisor approved: 04/03/19 16:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		5.68	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.71	Split peak
Perfluorooctanoic acid	335-67-1		6.41	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Sample Results: 2Q28060.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28060.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/24/2019 11:13:06 PM
Sample Name : fa62561-2
Vial : Vial 44
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74263,S2Q447,125,,,1.0,1,water

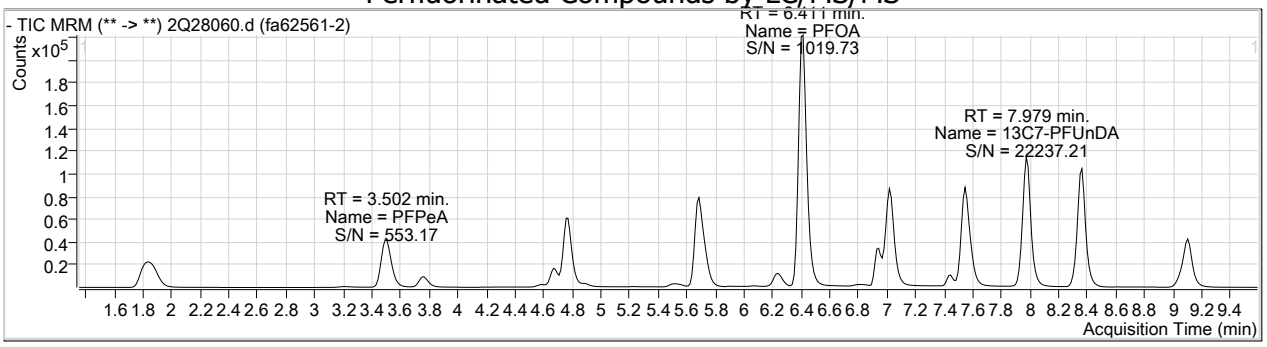
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.422	415.0 -> 370.0	345484	20.00 µg/L	0.025
13C4-PFOS	7.011	503.0 -> 80.0	56447	20.00 µg/L	0.013
M4-PFBA	1.840	217.0 -> 172.0	165959	20.00 µg/L	-0.013
M5-PFPeA	3.499	268.0 -> 223.0	129399	20.00 µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	173594	20.00 µg/L	0.012
M4-PFHpA	5.692	367.0 -> 322.0	244665	20.00 µg/L	0.012
M8-PFOA	6.419	421.0 -> 376.0	280897	20.00 µg/L	0.025
M9-PFNA	7.027	472.0 -> 427.0	252199	20.00 µg/L	0.013
M6-PFDA	7.556	519.0 -> 474.0	327240	20.00 µg/L	0.014
M7-PFUnDA	7.979	570.0 -> 525.0	463390	20.00 µg/L	-0.012
M2-PFDoDA	8.366	615.0 -> 570.0	427965	20.00 µg/L	-0.011
M2-PFTeDA	9.102	715.0 -> 670.0	209387	20.00 µg/L	0.000
M8-FOSA	6.946	506.0 -> 78.0	121523	20.00 µg/L	0.027
M3-PFBS	3.755	302.0 -> 99.0	23635	20.00 µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	25402	20.00 µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	30983	20.00 µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	64639	20.00 µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	84202	20.00 µg/L	0.012
M2-8:2FTS	7.592	529.0 -> 509.0	43431	20.00 µg/L	0.012
M3-MeFOSAA	7.446	573.0 -> 419.0	34521	20.00 µg/L	0.013
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.671	329.0 -> 309.0	64614	22.70 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
13C2-6:2FTS	6.403	429.0 -> 409.0	84154	27.92 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 139.6%	
13C2-8:2FTS	7.592	529.0 -> 509.0	43422	19.98 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C2-PFDoDA	8.366	615.0 -> 570.0	427916	23.81 µg/L	-0.011
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.0%	
13C2-PFTeDA	9.102	715.0 -> 670.0	208927	17.56 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.8%	
13C3-PFBS	3.755	302.0 -> 99.0	23637	23.04 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.2%	
13C3-PFHxS	5.723	402.0 -> 99.0	25389	22.84 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
13C4-PFBA	1.840	217.0 -> 172.0	165529	25.32 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 126.6%	
13C4-PFHpA	5.692	367.0 -> 322.0	244450	23.65 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 118.2%	
13C5-PFHxA	4.776	318.0 -> 273.0	173548	23.42 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.1%	
13C5-PFPeA	3.499	268.0 -> 223.0	129400	23.52 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.6%	
13C6-PFDA	7.556	519.0 -> 474.0	327079	23.79 µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

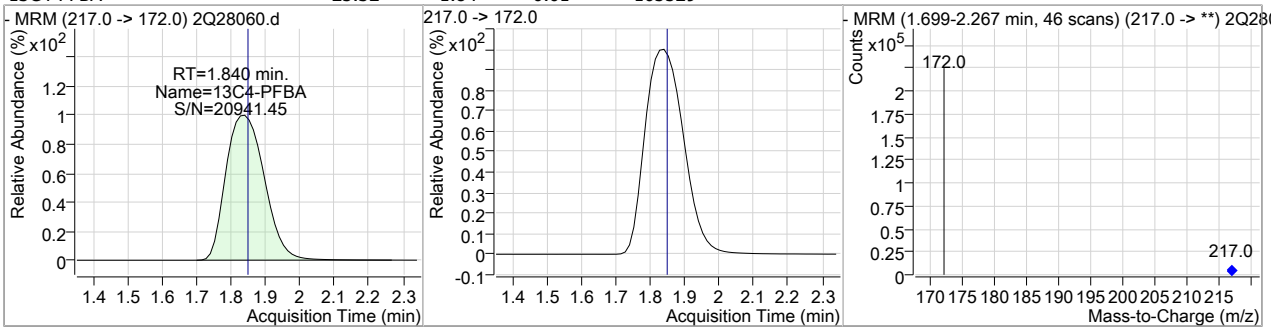
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.0%		
13C7-PFUnDA	7.979	570.0 -> 525.0	463457	26.66 µg/L		-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 133.3%		
13C8-FOSA	6.946	506.0 -> 78.0	121540	27.10 µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 135.5%		
13C8-PFOA	6.419	421.0 -> 376.0	280790	27.25 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 136.2%		
13C8-PFOS	7.008	507.0 -> 99.0	30962	21.65 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.3%		
13C9-PFNA	7.027	472.0 -> 427.0	251737	24.15 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.8%		
d3-MeFOSAA	7.446	573.0 -> 419.0	34493	19.67 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.4%		
M2-PFOA	6.422	415.0 -> 370.0	345549	19.99 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.011	503.0 -> 80.0	56422	19.97 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
Target Compounds						**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.		
6:2FTS	6.405	427.0 -> 407.0	13590	6.40 µg/L		98
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	1.835	213.0 -> 169.0	8871	5.47 µg/L		100
PFBS	3.758	299.0 -> 80.0	14159	7.39 µg/L		100
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.683	363.0 -> 319.0	59803	5.45 µg/L	m	98
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.765	313.0 -> 269.0	71138	23.50 µg/L		99
PFHxS	5.726	399.0 -> 80.0	38915	27.72 µg/L	m	98
PFNA	7.041	463.0 -> 419.0	1744	0.21 µg/L		92
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.411	413.0 -> 369.0	192440	25.50 µg/L	m	94
PFOS	7.012	499.0 -> 80.0	19013	12.47 µg/L	m	99
PFPeA	3.502	263.0 -> 219.0	83715	14.51 µg/L	m	100
PFPeS	4.895	349.0 -> 80.0	7261	5.92 µg/L	m	98
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

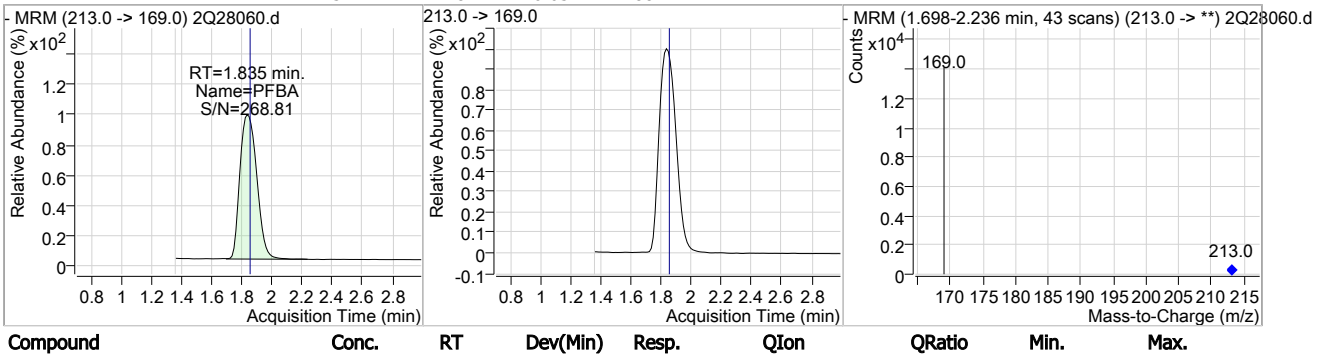
Perfluorinated Compounds by LC/MS/MS



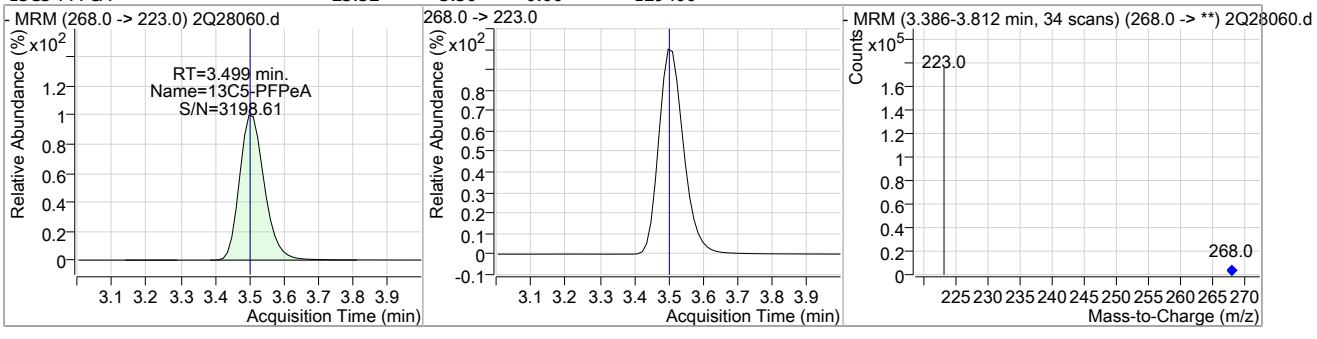
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	25.32	1.84	-0.01	165529				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	5.47	1.84	-0.03	8871				

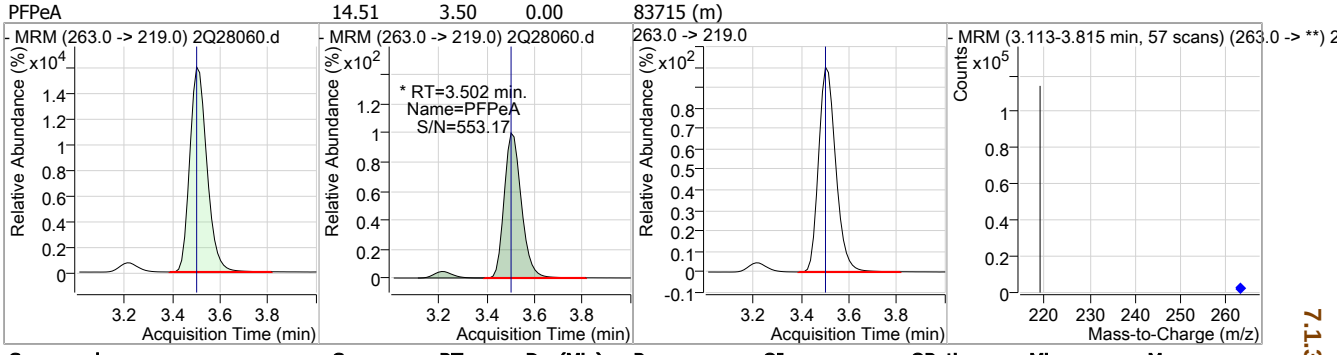


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	23.52	3.50	0.00	129400				

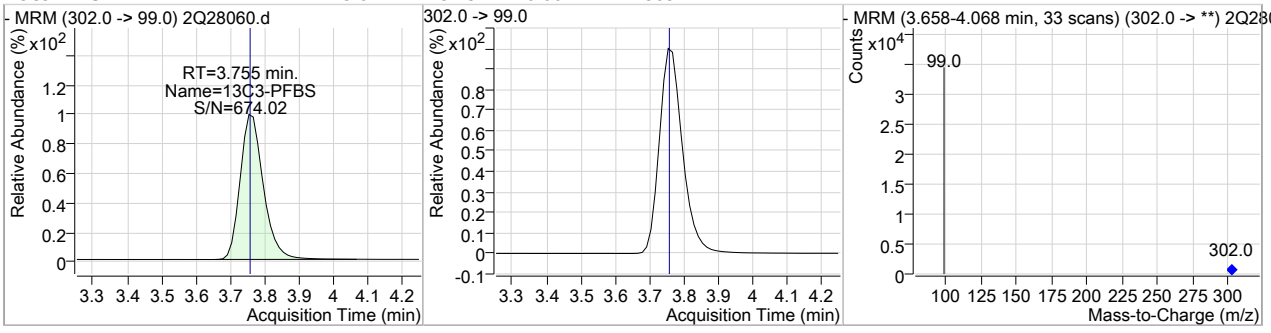


Perfluorinated Compounds by LC/MS/MS

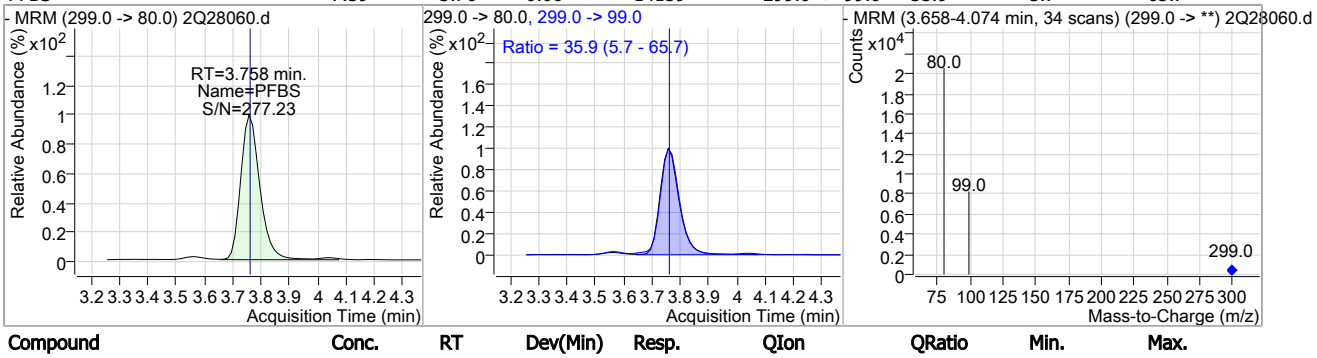
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	14.51	3.50	0.00	83715 (m)				



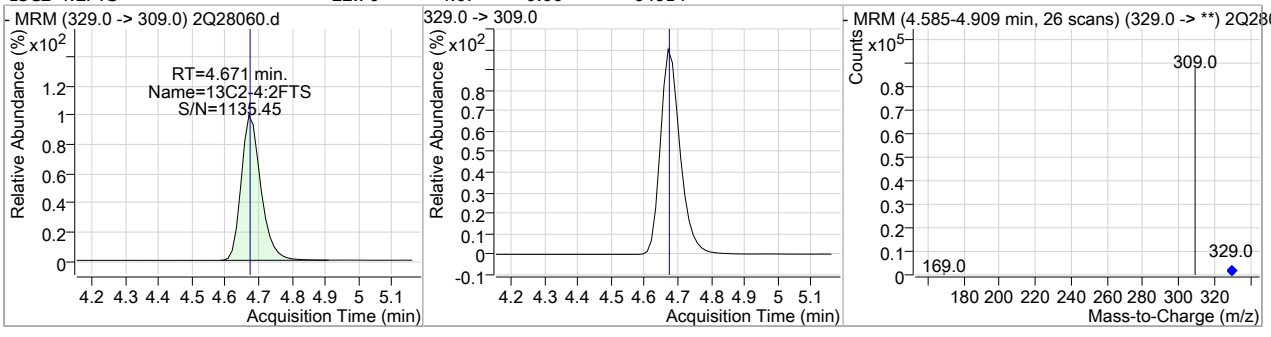
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	23.04	3.75	0.00	23637				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	7.39	3.76	0.00	14159	299.0 -> 99.0	35.9	5.7	65.7

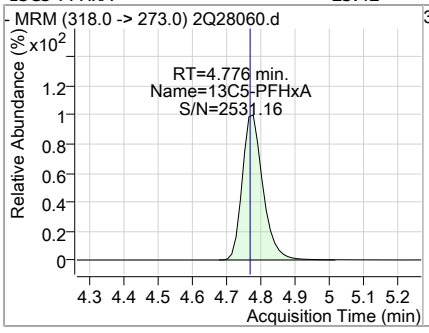


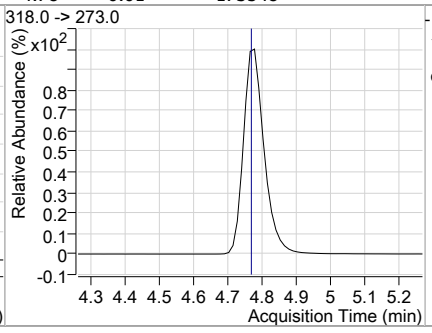
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	22.70	4.67	0.00	64614				

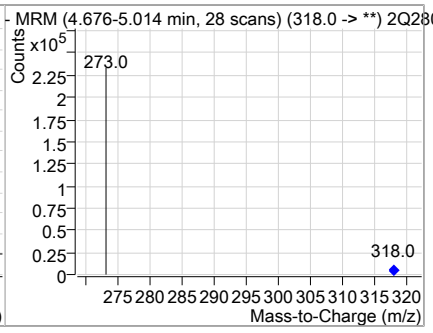


Perfluorinated Compounds by LC/MS/MS

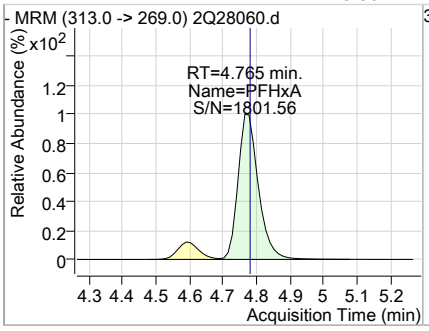
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	23.42	4.78	0.01	173548				

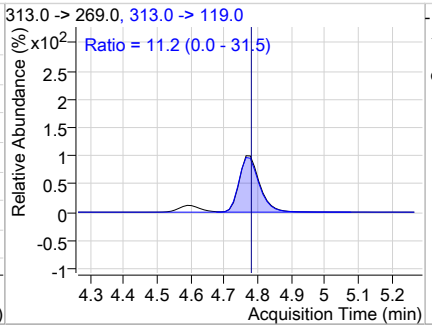


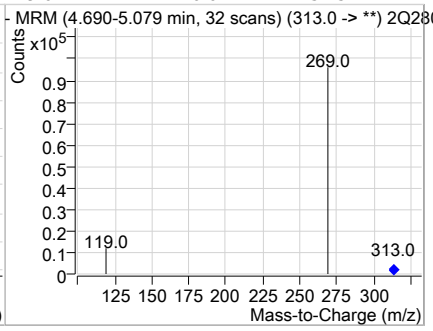




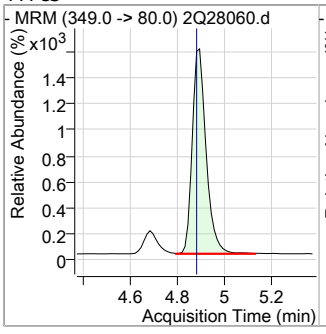
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	23.50	4.77	0.00	71138	313.0 -> 119.0	11.2	0.0	31.5

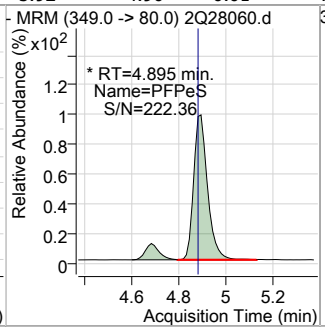


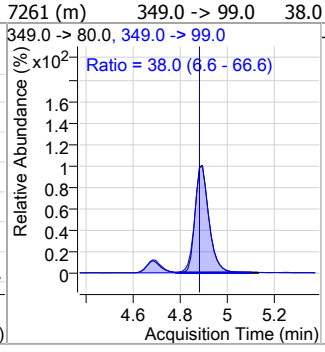


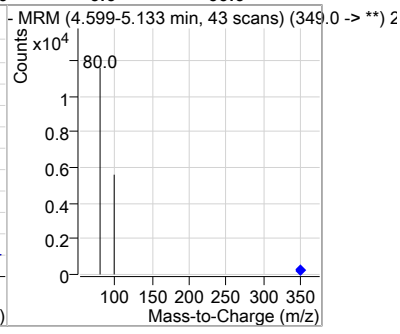


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	5.92	4.90	0.01	7261 (m)	349.0 -> 99.0	38.0	6.6	66.6

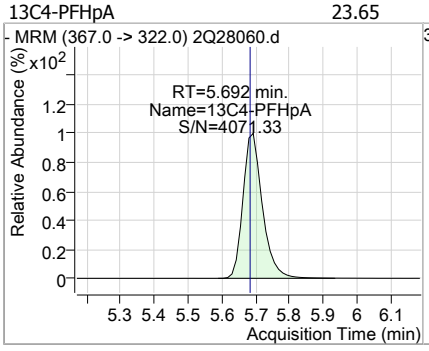


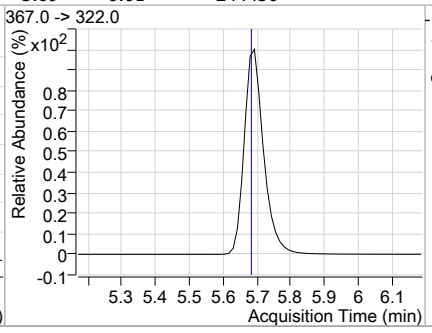


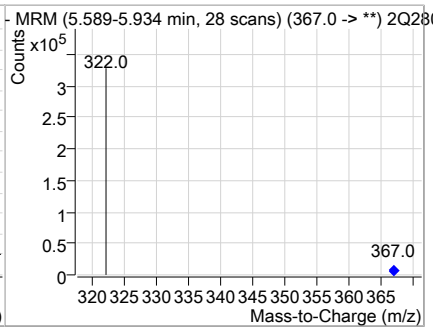




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	23.65	5.69	0.01	244450				

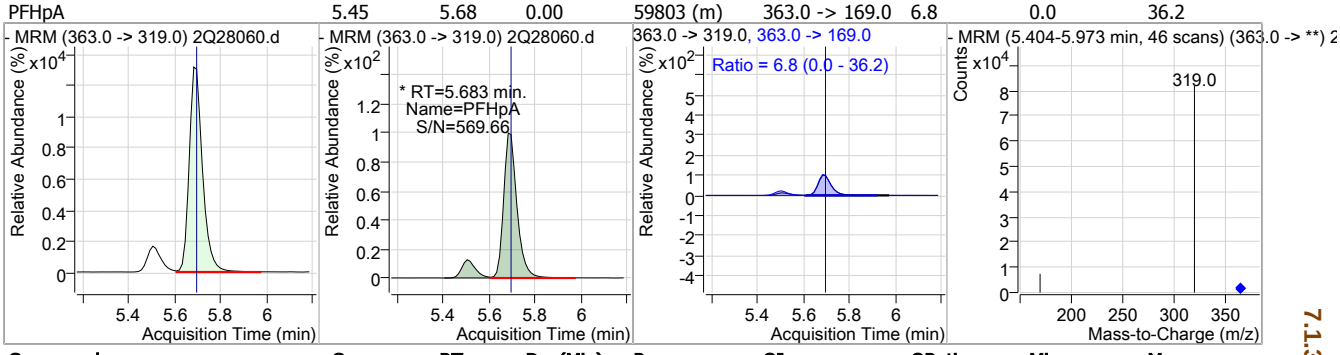




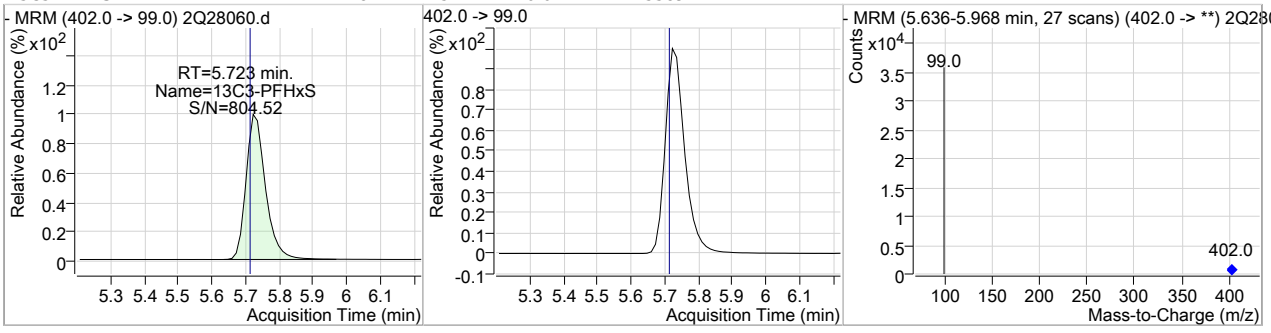


Perfluorinated Compounds by LC/MS/MS

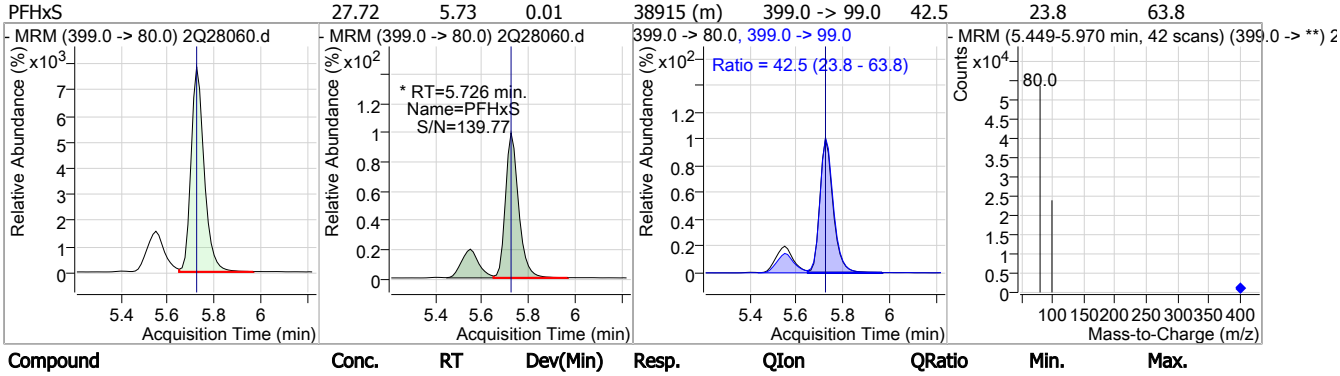
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.45	5.68	0.00	59803 (m)	363.0 -> 169.0	6.8	0.0	36.2



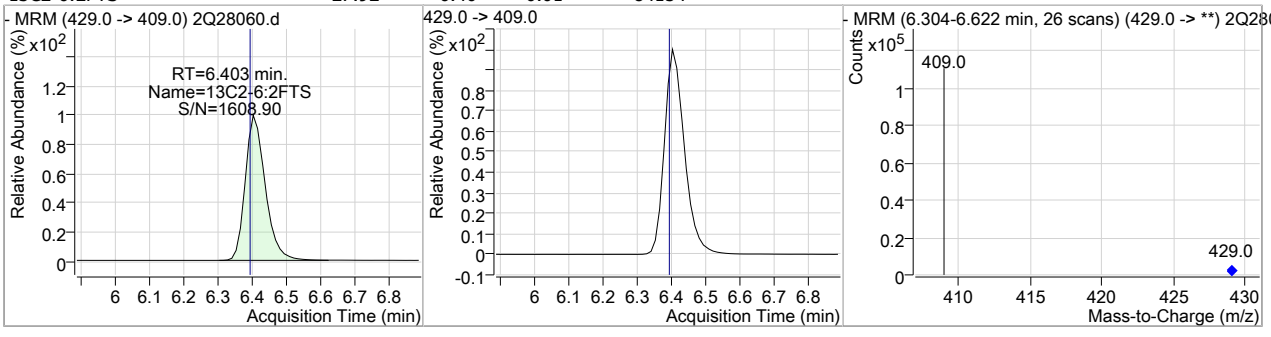
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	22.84	5.72	0.01	25389				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	27.72	5.73	0.01	38915 (m)	399.0 -> 99.0	42.5	23.8	63.8

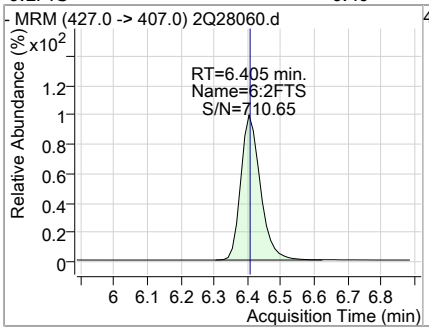


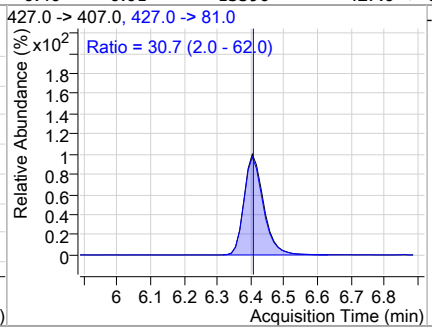
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	27.92	6.40	0.01	84154				

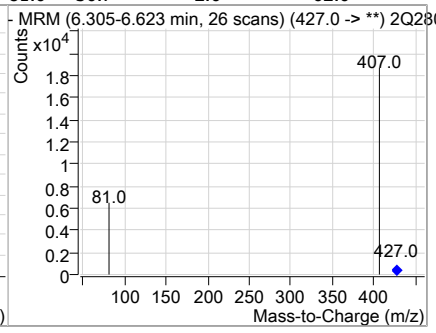


Perfluorinated Compounds by LC/MS/MS

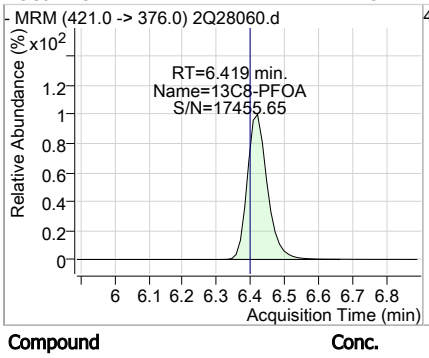
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	6.40	6.40	0.01	13590	427.0 -> 81.0	30.7	2.0	62.0

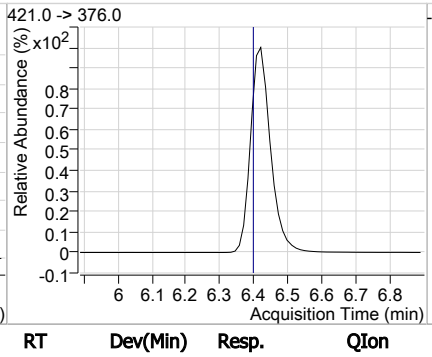


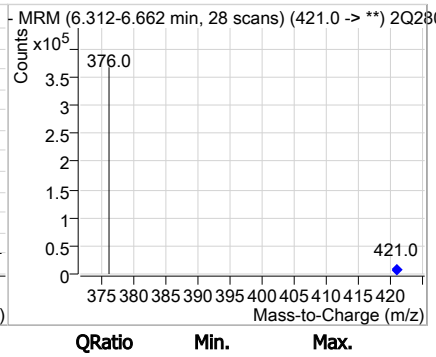




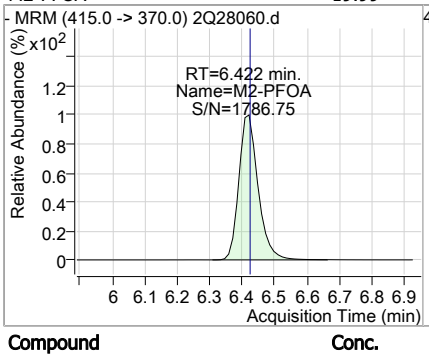
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	27.25	6.42	0.02	280790				

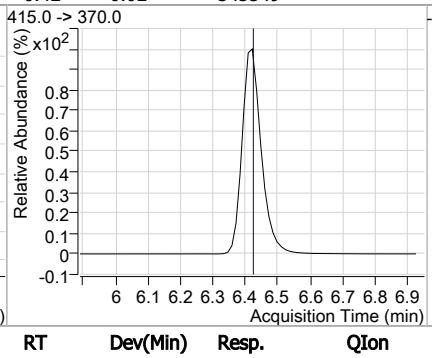


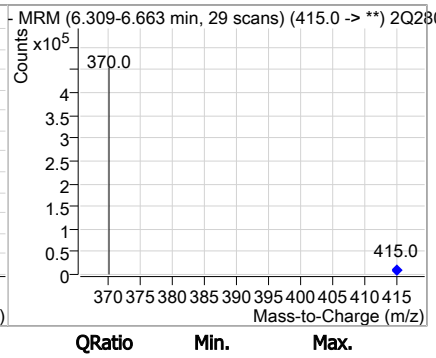




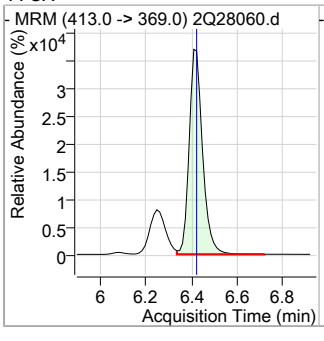
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.42	0.02	345549				

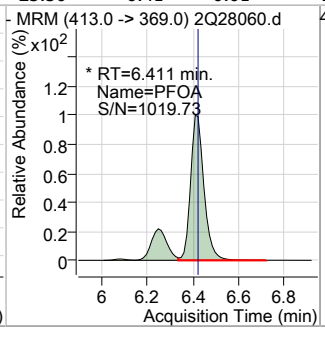


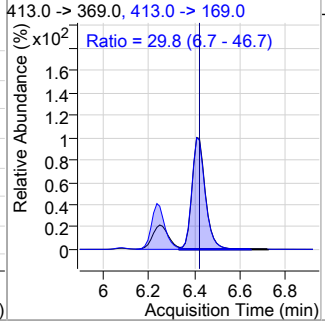


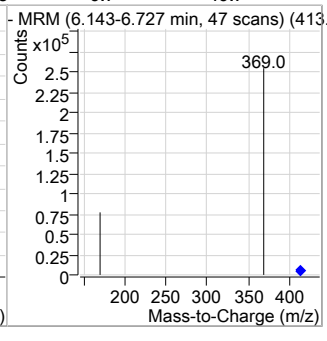


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	25.50	6.41	0.01	192440 (m)	413.0 -> 169.0	29.8	6.7	46.7



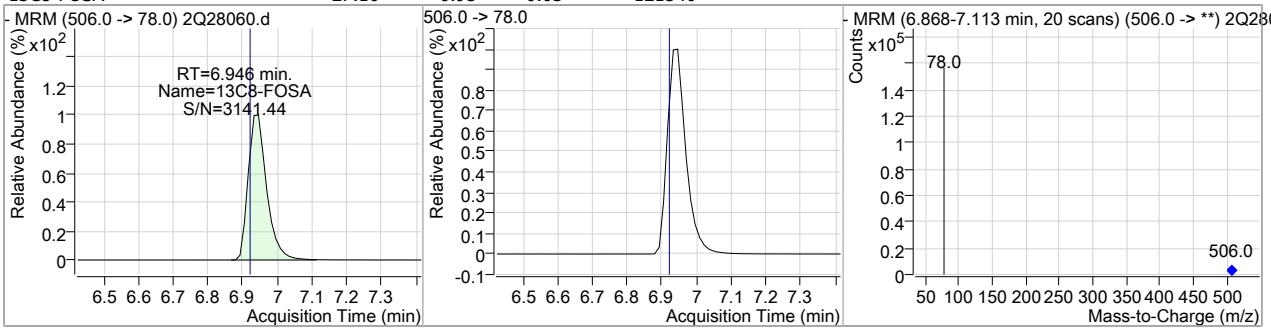




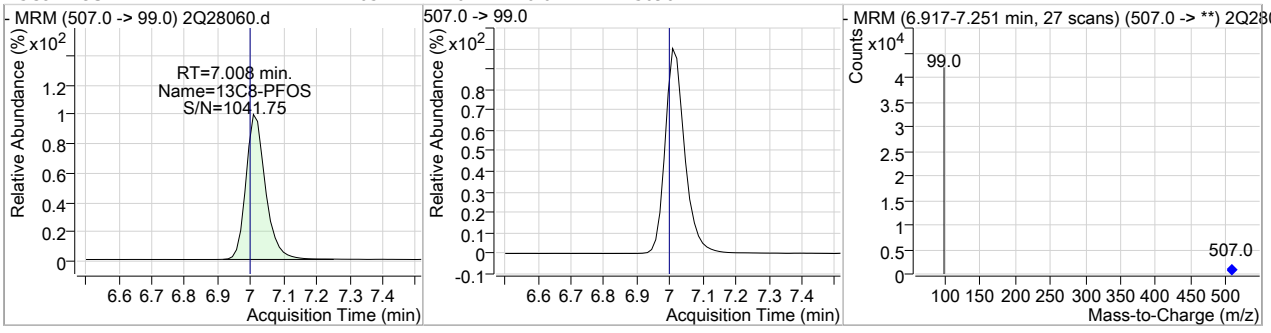


Perfluorinated Compounds by LC/MS/MS

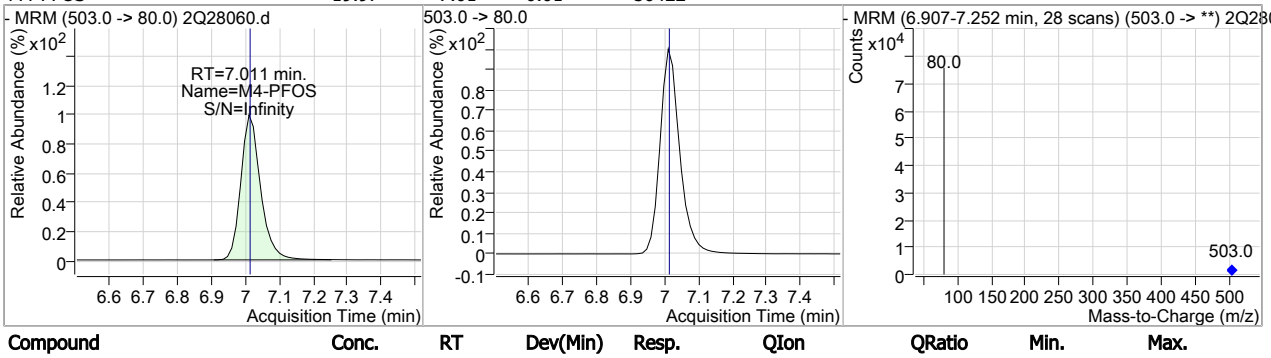
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	27.10	6.95	0.03	121540				



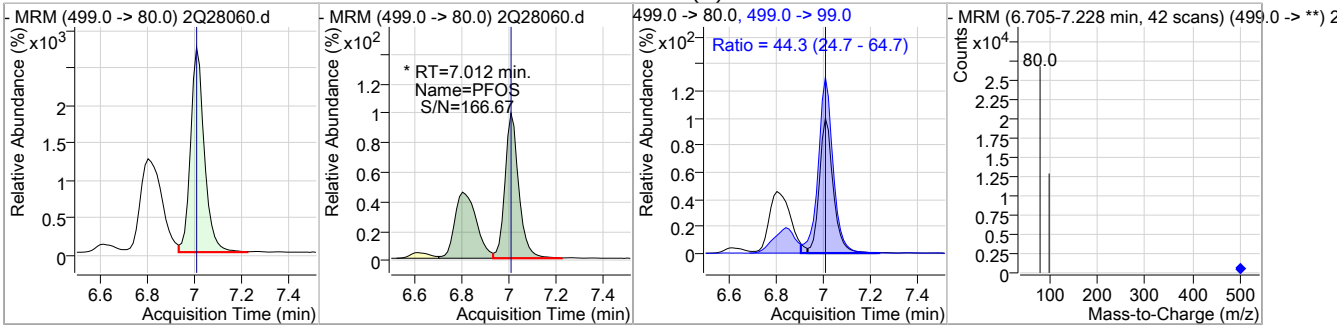
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.65	7.01	0.01	30962				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.97	7.01	0.01	56422				

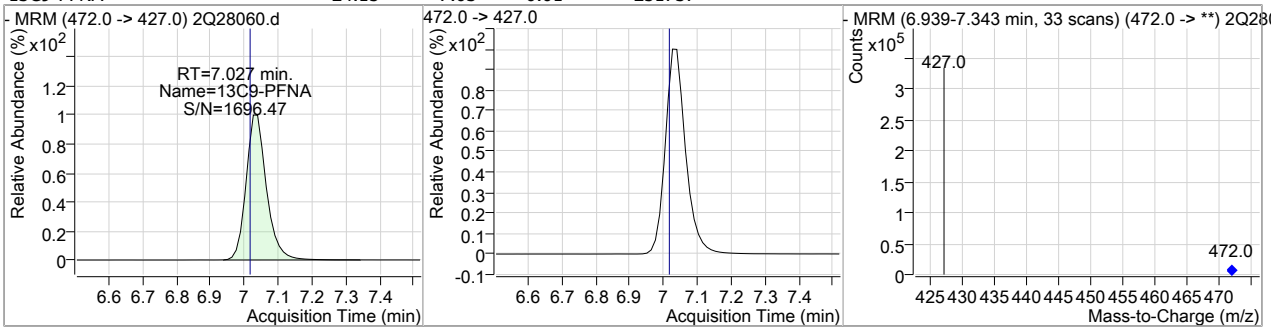


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	12.47	7.01	0.01	19013 (m)	499.0 -> 99.0	44.3	24.7	64.7

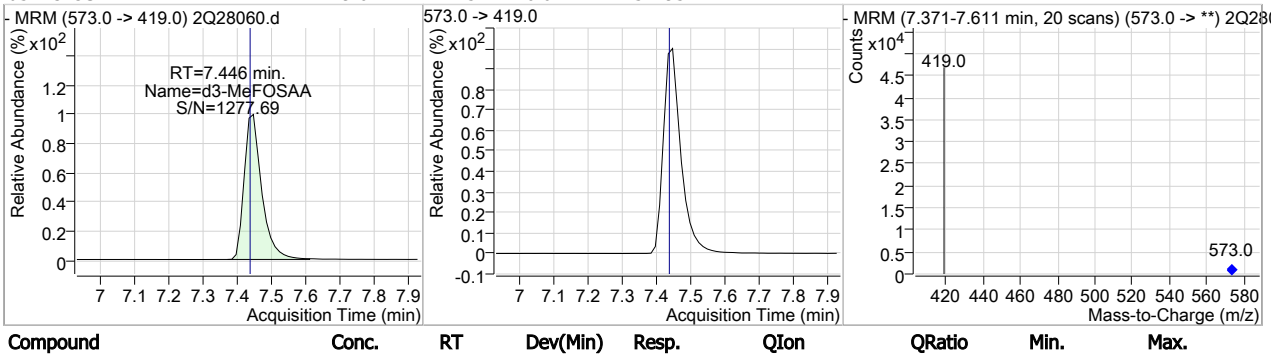


Perfluorinated Compounds by LC/MS/MS

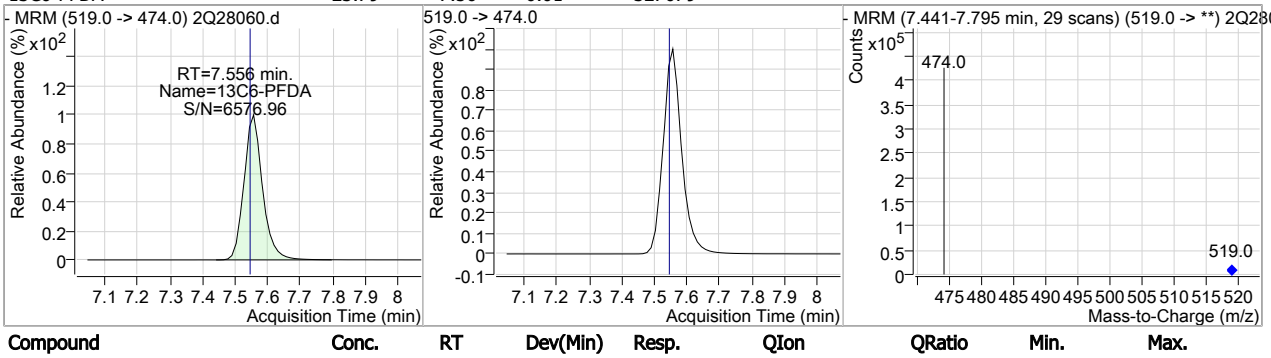
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	24.15	7.03	0.01	251737				



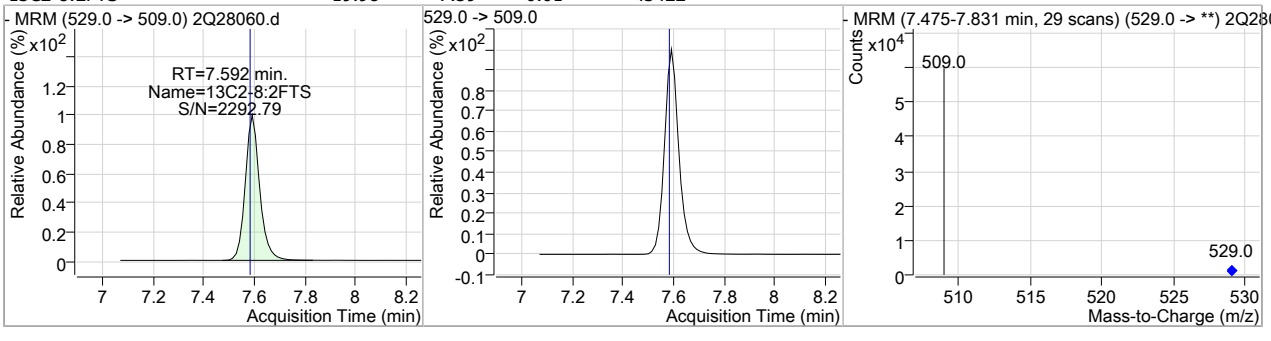
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.67	7.45	0.01	34493				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	23.79	7.56	0.01	327079				

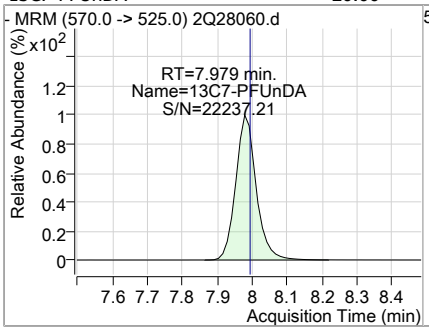


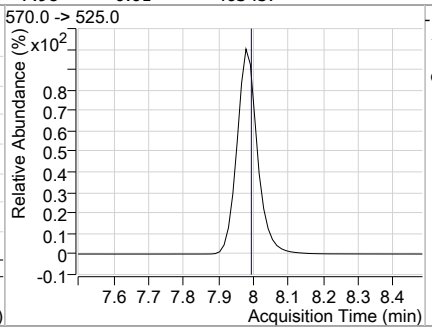
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.98	7.59	0.01	43422				

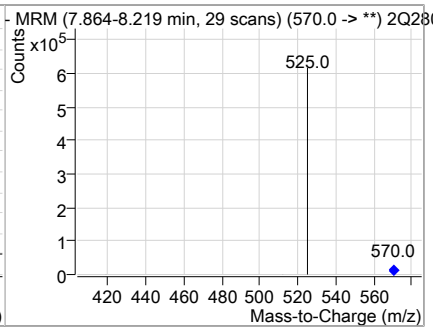


Perfluorinated Compounds by LC/MS/MS

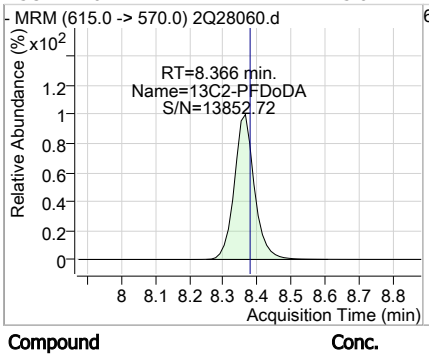
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	26.66	7.98	-0.01	463457				

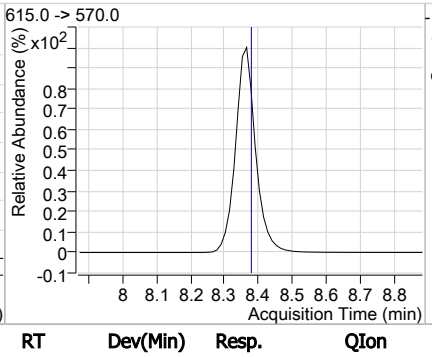


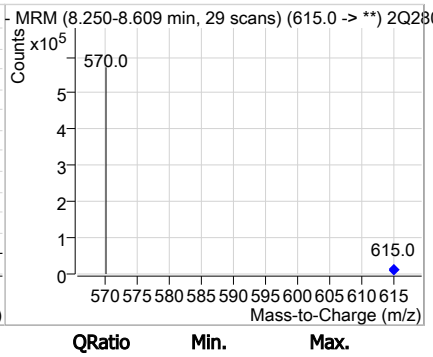




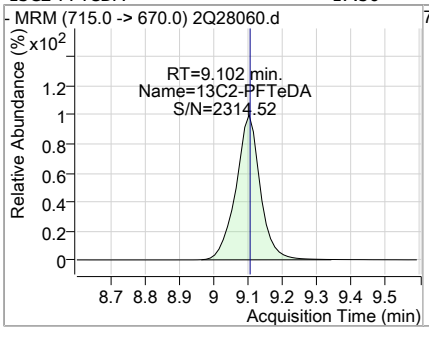
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	23.81	8.37	-0.01	427916				

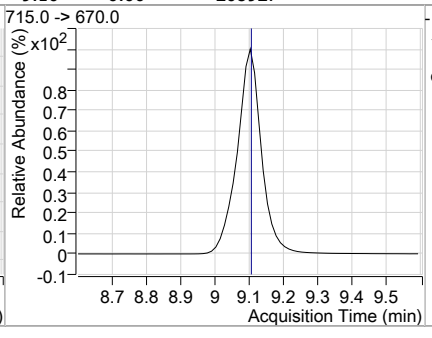


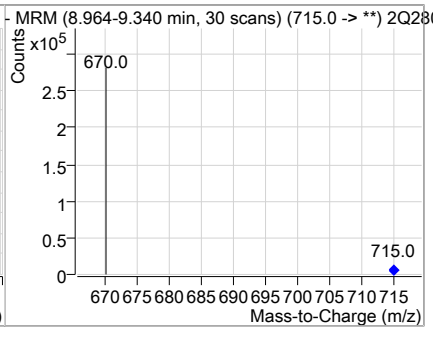




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	17.56	9.10	0.00	208927				







Manual Integration Approval Summary

Sample Number: FA62561-2
Lab FileID: 2Q28060.D
Injection Time: 03/24/19 23:13
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:31 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		3.50	Split peak
Perfluoropentanesulfonic acid	2706-91-4		4.89	Split peak
Perfluoroheptanoic acid	375-85-9		5.68	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanoic acid	335-67-1		6.41	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Sample Results: **2Q28529.D**

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:31

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28529.d
Operator	:	natashag
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	4/2/2019 2:21:30 PM
Sample Name	:	fa62561-2
Vial	:	Vial 95
DA Method File	:	ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	:	s2q453.batch.bin
Sample Information	:	op74392,S2Q453,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.410	415.0 -> 370.0	234063	20.00 µg/L	-0.013
13C4-PFOS	7.035	503.0 -> 80.0	30176	20.00 µg/L	-0.002
M4-PFBA	1.840	217.0 -> 172.0	127399	20.00 µg/L	-0.025
M5-PFPeA	3.499	268.0 -> 223.0	114617	20.00 µg/L	-0.025
M5-PFHxA	4.764	318.0 -> 273.0	171953	20.00 µg/L	-0.013
M4-PFHpA	5.680	367.0 -> 322.0	272655	20.00 µg/L	-0.013
M8-PFOA	6.421	421.0 -> 376.0	298992	20.00 µg/L	0.000
M9-PFNA	7.051	472.0 -> 427.0	324700	20.00 µg/L	-0.015
M6-PFDA	7.606	519.0 -> 474.0	407965	20.00 µg/L	0.000
M7-PFUnDA	8.076	570.0 -> 525.0	476124	20.00 µg/L	-0.016
M2-PFDoDA	8.591	615.0 -> 570.0	474834	20.00 µg/L	-0.013
M2-PFTeDA	9.815	715.0 -> 670.0	295698	20.00 µg/L	-0.025
M8-FOSA	6.905	506.0 -> 78.0	89374	20.00 µg/L	-0.016
M3-PFBS	3.755	302.0 -> 99.0	17595	20.00 µg/L	-0.013
M3-PFHxS	5.723	402.0 -> 99.0	19971	20.00 µg/L	-0.013
M8-PFOS	7.032	507.0 -> 99.0	22311	20.00 µg/L	-0.002
M2-4:2FTS	4.671	329.0 -> 309.0	96028	20.00 µg/L	-0.013
M2-6:2FTS	6.406	429.0 -> 409.0	141974	20.00 µg/L	-0.013
M2-8:2FTS	7.642	529.0 -> 509.0	103878	20.00 µg/L	-0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	46011	20.00 µg/L	0.000
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.671	329.0 -> 309.0	96264	18.17 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.9%	
13C2-6:2FTS	6.406	429.0 -> 409.0	141898	20.30 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C2-8:2FTS	7.642	529.0 -> 509.0	103839	16.64 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.2%	
13C2-PFDoDA	8.591	615.0 -> 570.0	474048	11.24 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 56.2%	
13C2-PFTeDA	9.815	715.0 -> 670.0	292978	9.60 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 48.0%	
13C3-PFBS	3.755	302.0 -> 99.0	17576	15.96 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.8%	
13C3-PFHxS	5.723	402.0 -> 99.0	19970	16.13 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.6%	
13C4-PFBA	1.840	217.0 -> 172.0	127088	17.01 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.1%	
13C4-PFHpA	5.680	367.0 -> 322.0	272288	17.69 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.5%	
13C5-PFHxA	4.764	318.0 -> 273.0	171801	16.93 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.7%	
13C5-PFPeA	3.499	268.0 -> 223.0	114713	17.03 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.2%	
13C6-PFDA	7.606	519.0 -> 474.0	407912	15.85 µg/L	0.000

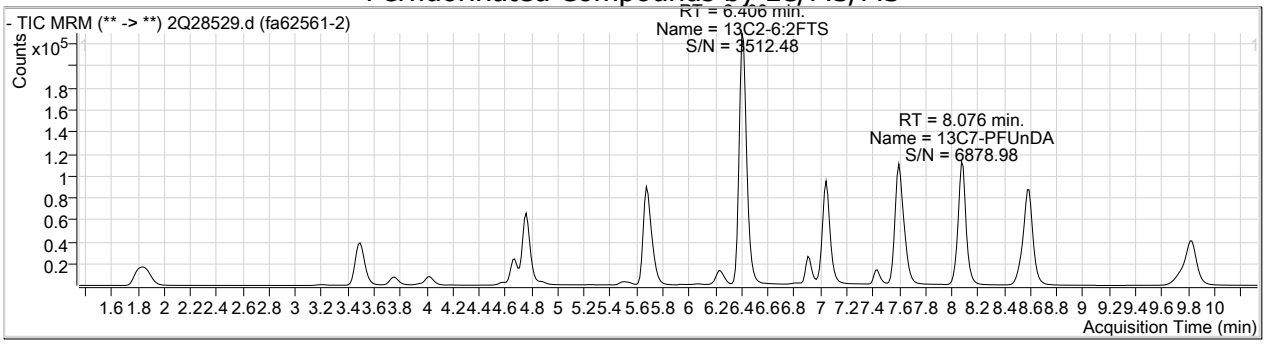
Sample Results: **2Q28529.D**

Perfluorinated Compounds by LC/MS/MS

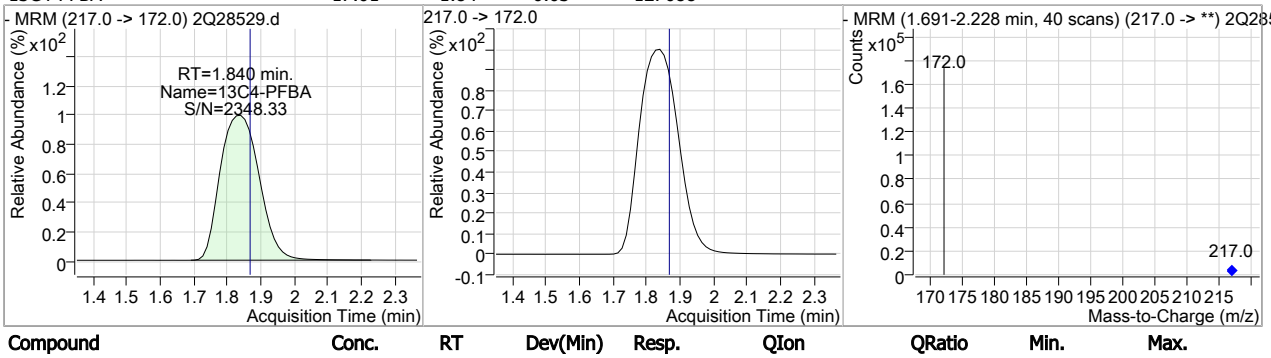
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.3%		
13C7-PFUnDA	8.076	570.0 -> 525.0	475801	13.95 µg/L		-0.016
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 69.7%		
13C8-FOSA	6.905	506.0 -> 78.0	89370	16.13 µg/L		-0.016
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.7%		
13C8-PFOA	6.421	421.0 -> 376.0	298827	18.45 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%		
13C8-PFOS	7.032	507.0 -> 99.0	22308	13.15 µg/L		-0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 65.7%		
13C9-PFNA	7.051	472.0 -> 427.0	324583	17.90 µg/L		-0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.5%		
d3-MeFOSAA	7.434	573.0 -> 419.0	46009	13.47 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 67.4%		
M2-PFOA	6.410	415.0 -> 370.0	235085	20.07 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
M4-PFOS	7.035	503.0 -> 80.0	30164	19.98 µg/L		-0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	903	0.32 µg/L		94
6:2FTS	6.407	427.0 -> 407.0	25113	6.99 µg/L		100
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	1.835	213.0 -> 169.0	8672	6.85 µg/L		100
PFBS	3.746	299.0 -> 80.0	14272	9.98 µg/L		93
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.683	363.0 -> 319.0	75263	6.30 µg/L	m	99
PFHpS	6.417	449.0 -> 80.0	368	0.36 µg/L	m	98
PFHxA	4.765	313.0 -> 269.0	84616	28.15 µg/L		100
PFHxS	5.713	399.0 -> 80.0	37698	31.83 µg/L	m	98
PFNA	7.052	463.0 -> 419.0	2663	0.25 µg/L		99
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.412	413.0 -> 369.0	234513	29.26 µg/L	m	95
PFOS	7.036	499.0 -> 80.0	16738	15.45 µg/L	m	84
PFPeA	3.502	263.0 -> 219.0	83208	16.35 µg/L		100
PFPeS	4.883	349.0 -> 80.0	7029	7.03 µg/L	m	94
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

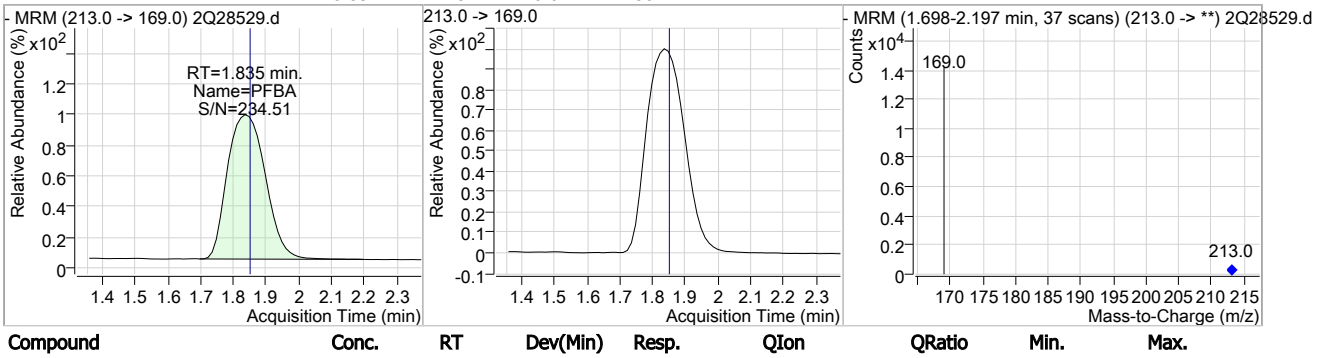
Perfluorinated Compounds by LC/MS/MS



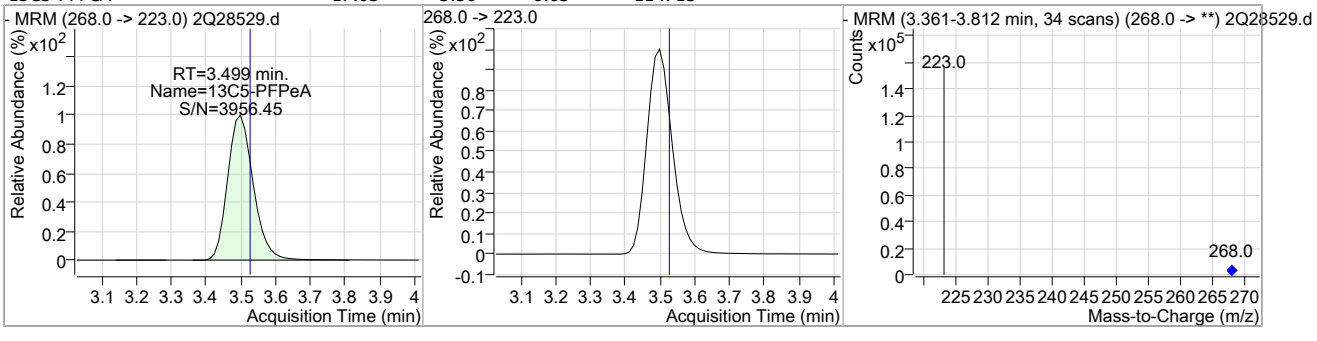
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.01	1.84	-0.03	127088				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	6.85	1.84	-0.04	8672				

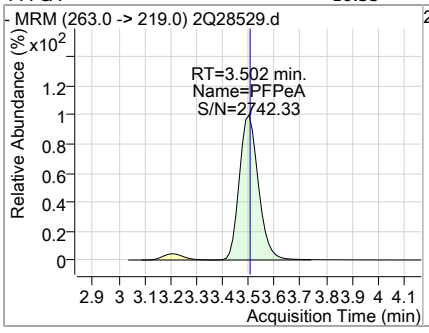


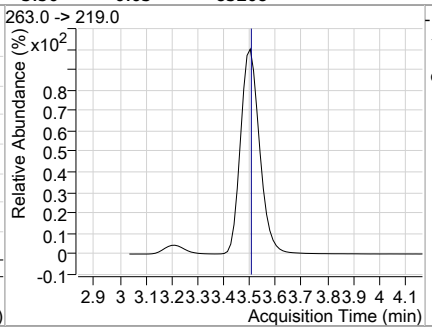
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.03	3.50	-0.03	114713				

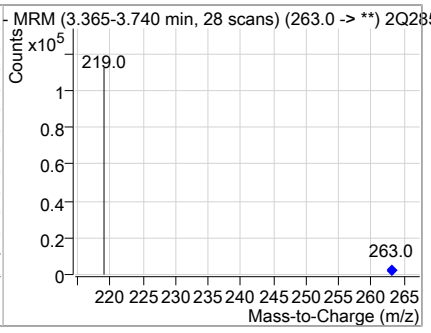


Perfluorinated Compounds by LC/MS/MS

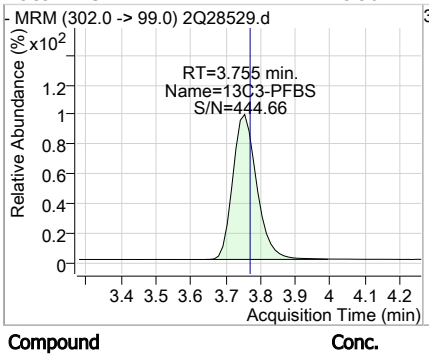
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	16.35	3.50	-0.03	83208				

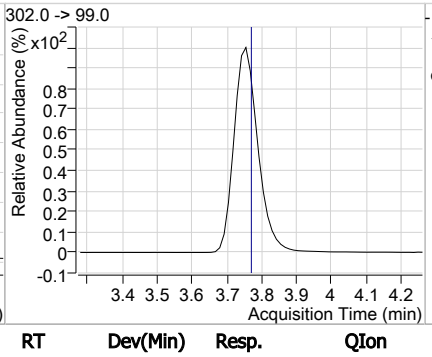


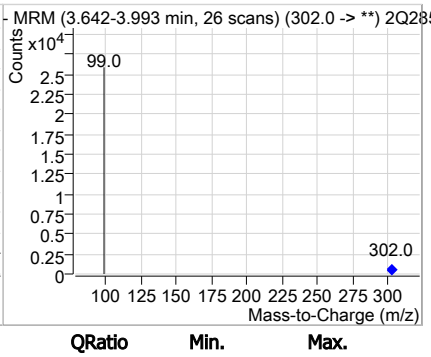




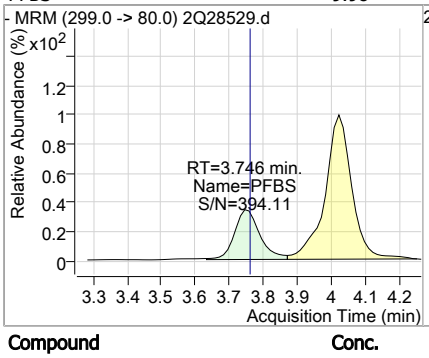
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	15.96	3.75	-0.01	17576				

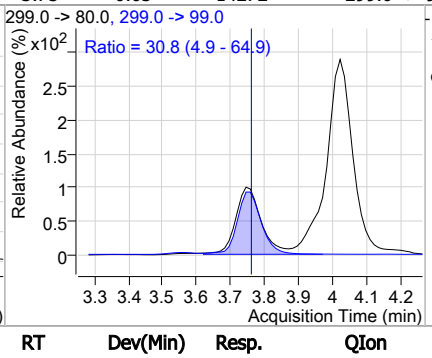


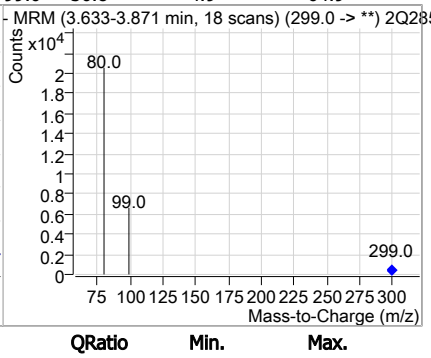




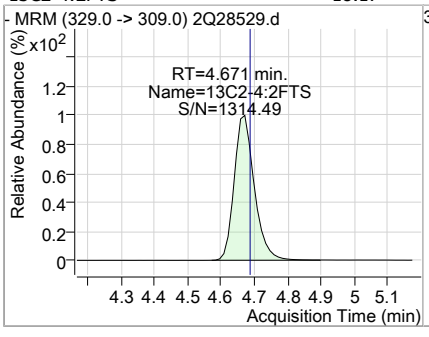
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	9.98	3.75	-0.03	14272	299.0 -> 99.0	30.8	4.9	64.9

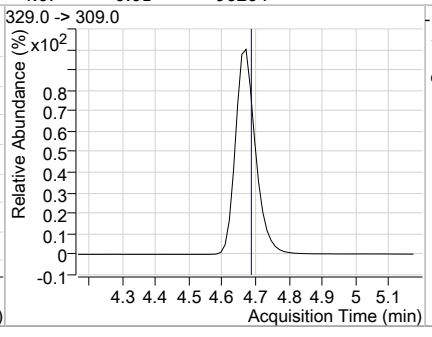


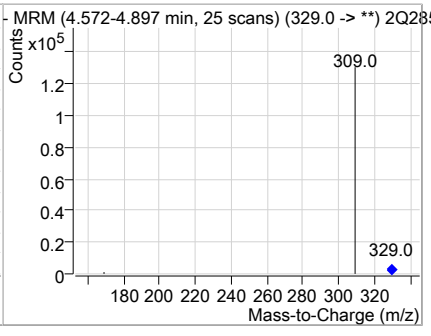




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.17	4.67	-0.01	96264				

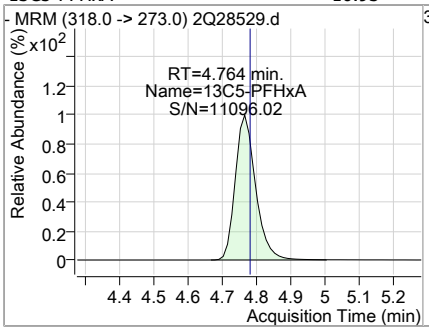


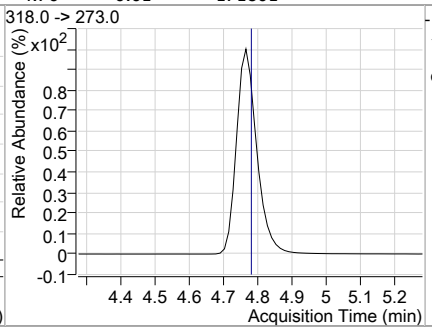


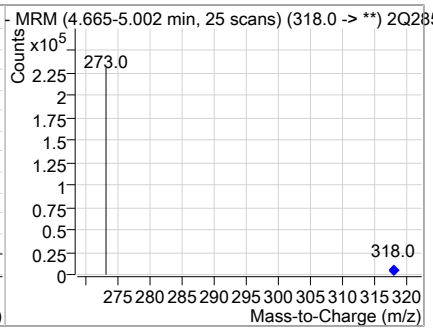


Perfluorinated Compounds by LC/MS/MS

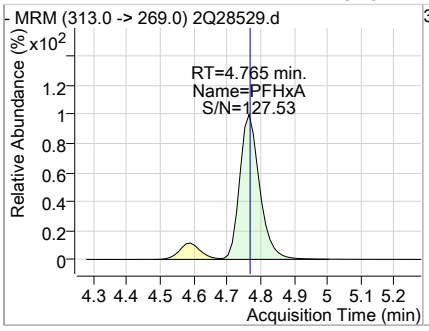
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	16.93	4.76	-0.01	171801				

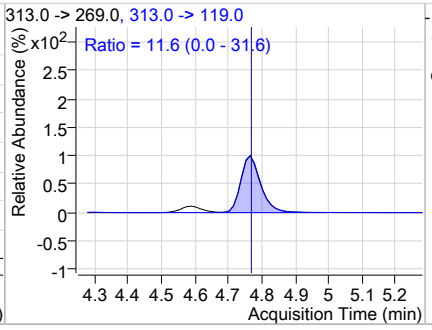


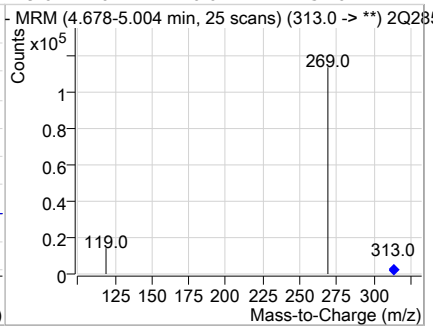




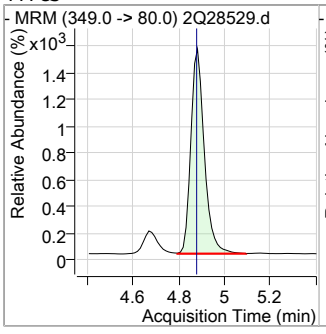
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	28.15	4.77	-0.01	84616	313.0 -> 119.0	11.6	0.0	31.6

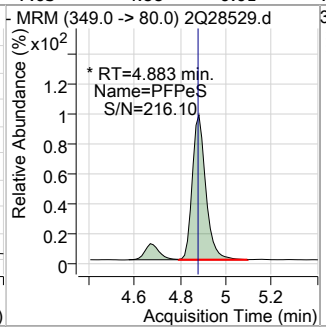


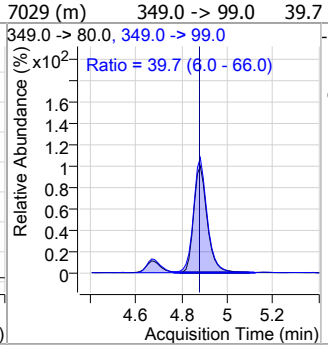


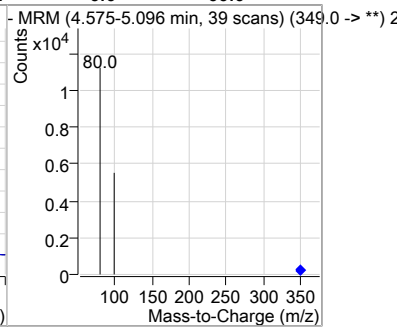


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	7.03	4.88	-0.01	7029 (m)	349.0 -> 99.0	39.7	6.0	66.0

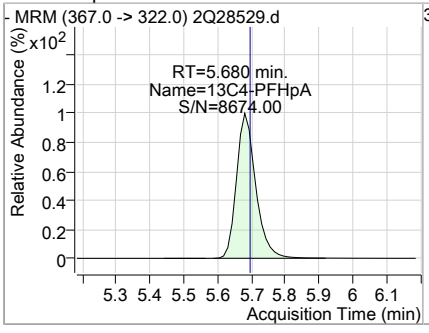


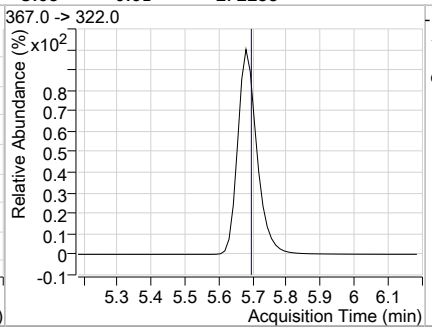


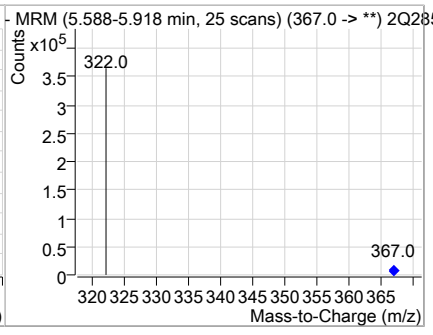




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	17.69	5.68	-0.01	272288				

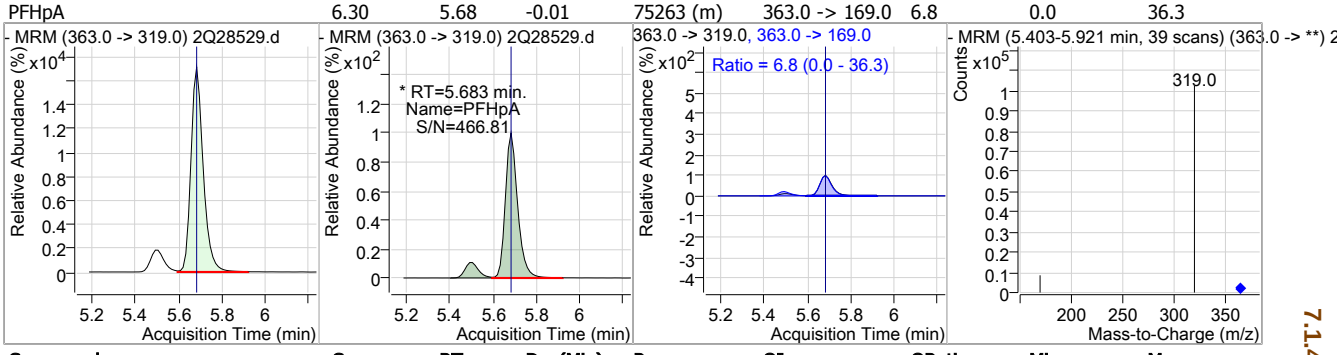




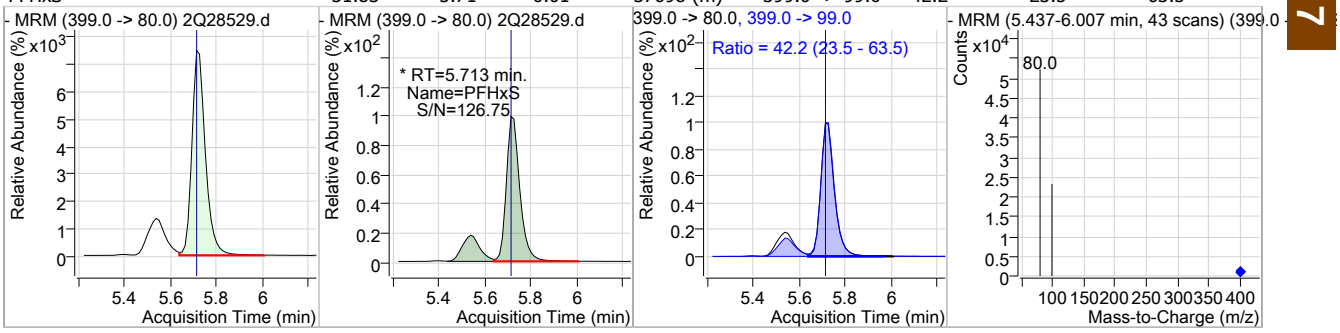


Perfluorinated Compounds by LC/MS/MS

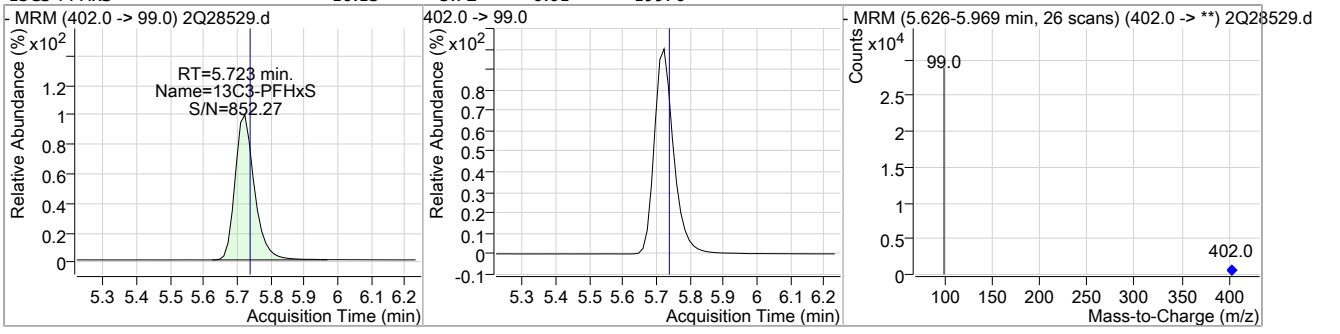
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	6.30	5.68	-0.01	75263 (m)	363.0 -> 169.0	6.8	0.0	36.3



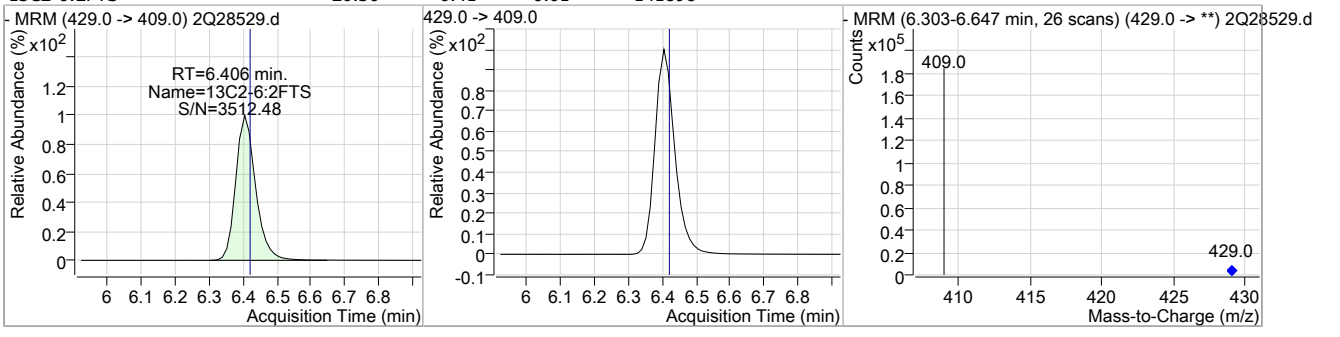
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	31.83	5.71	-0.01	37698 (m)	399.0 -> 99.0	42.2	23.5	63.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.13	5.72	-0.01	19970				

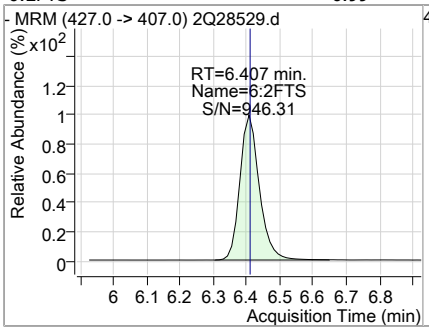


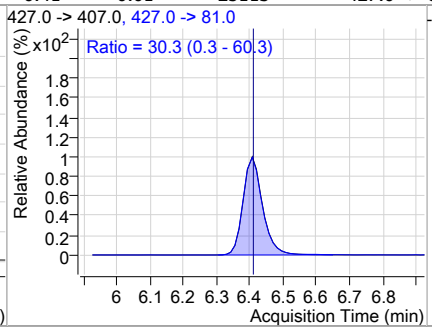
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.30	6.41	-0.01	141898				

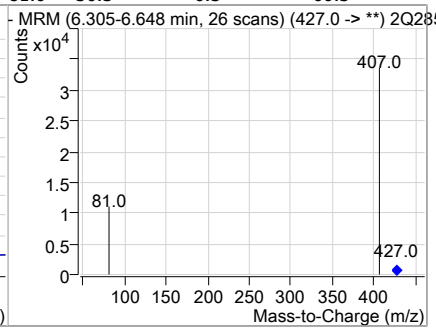


Perfluorinated Compounds by LC/MS/MS

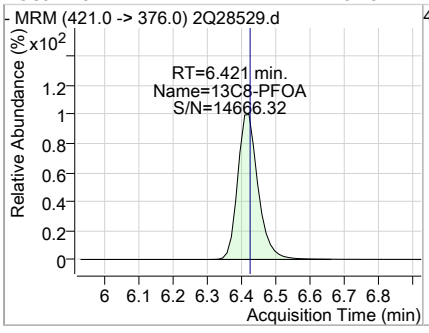
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	6.99	6.41	-0.01	25113	427.0 -> 81.0	30.3	0.3	60.3

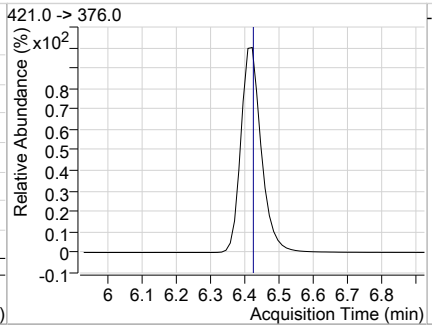


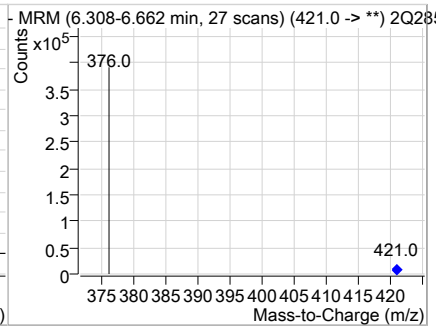




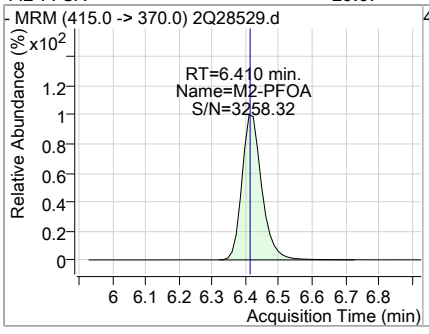
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.45	6.42	0.00	298827				

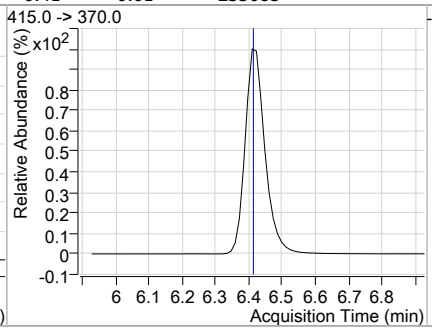


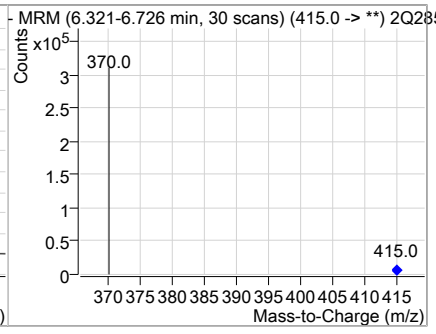




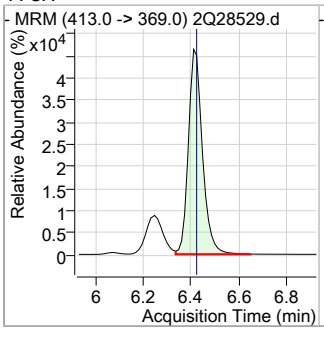
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.07	6.41	-0.01	235085				

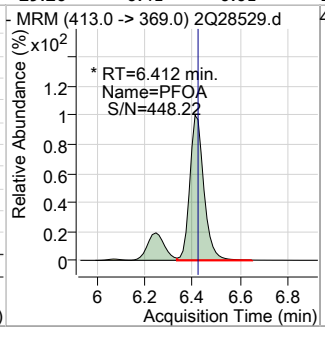


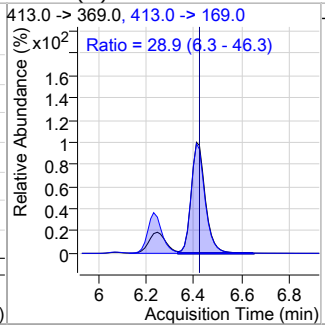


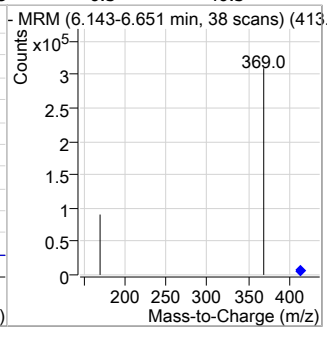


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	29.26	6.41	-0.01	234513 (m)	413.0 -> 169.0	28.9	6.3	46.3



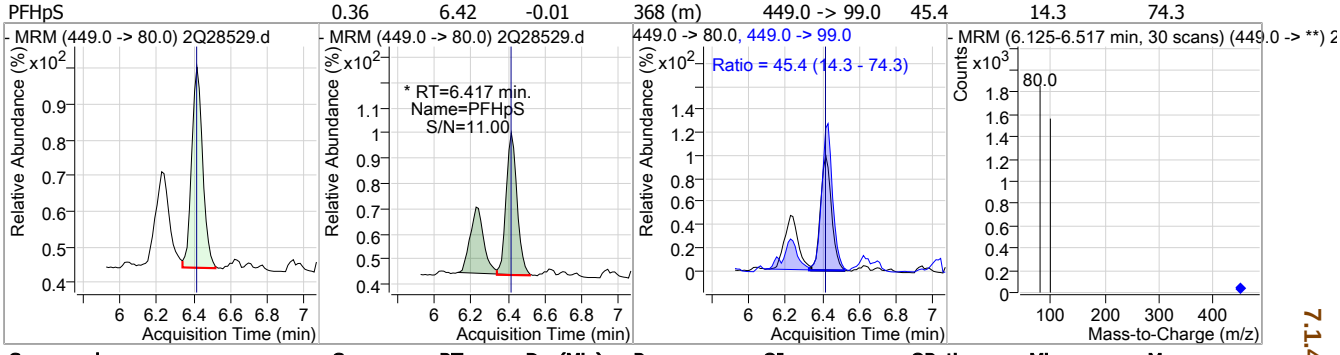




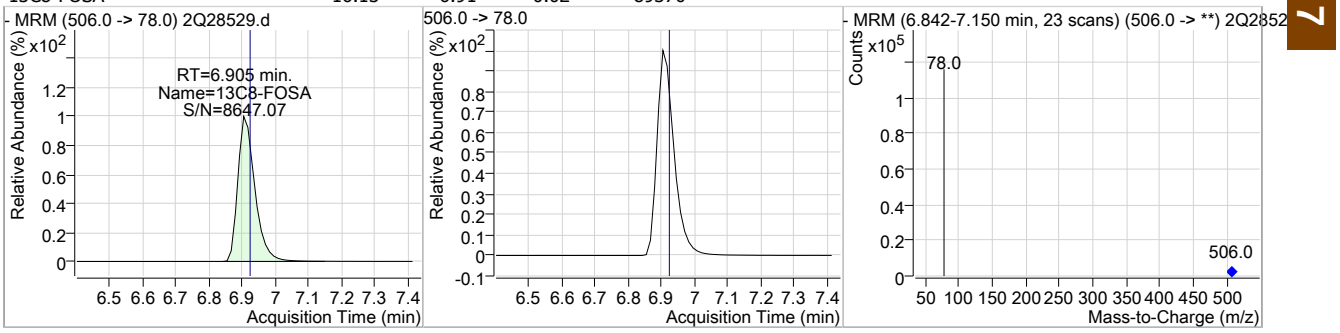


Perfluorinated Compounds by LC/MS/MS

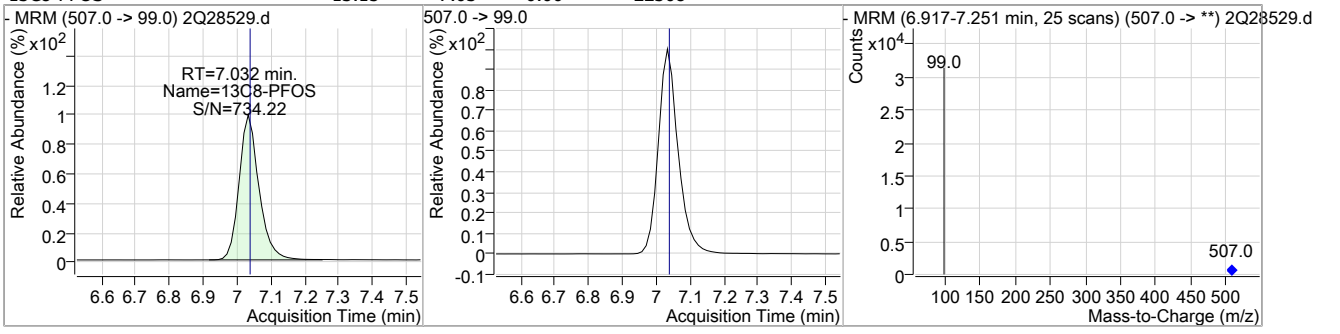
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.36	6.42	-0.01	368 (m)	449.0 -> 99.0	45.4	14.3	74.3



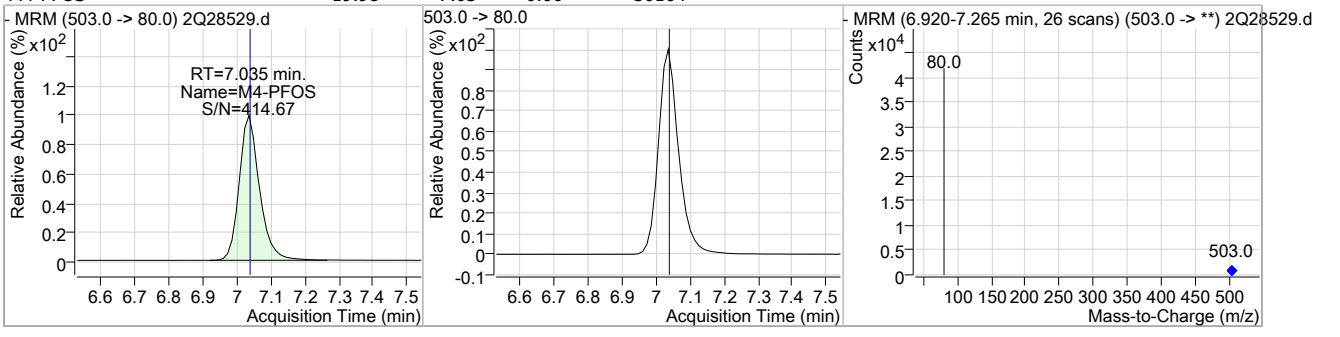
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	16.13	6.91	-0.02	89370				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	13.15	7.03	0.00	22308				



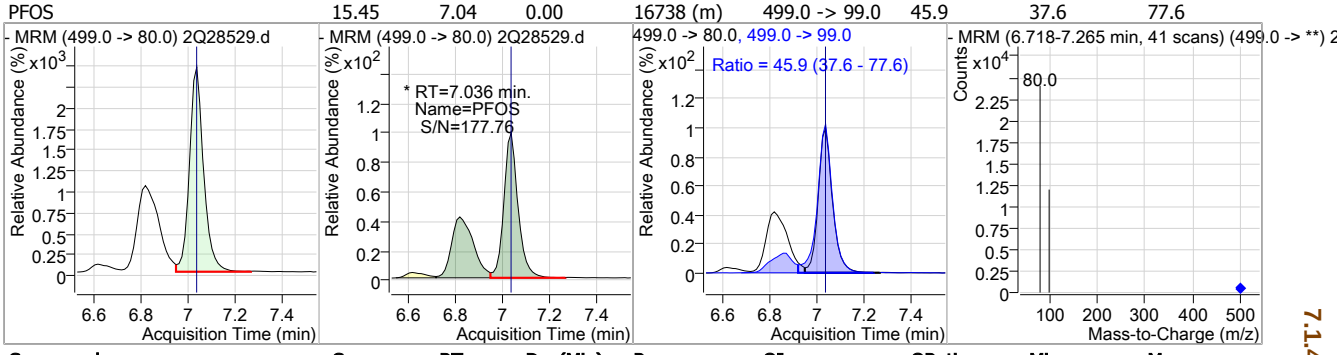
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.03	0.00	30164				



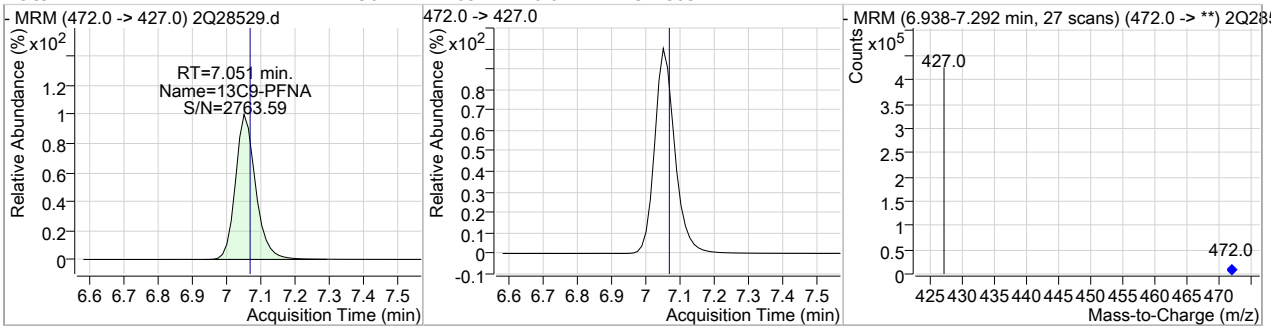
Sample Results: **2Q28529.D**

Perfluorinated Compounds by LC/MS/MS

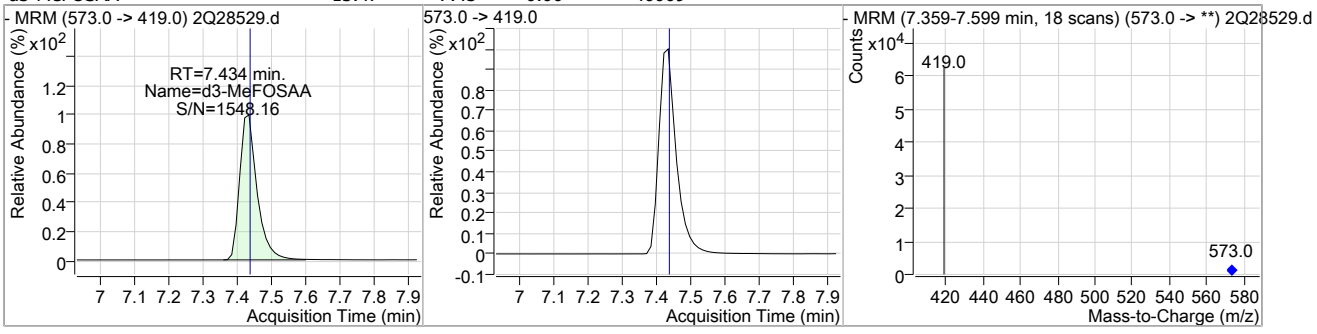
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	15.45	7.04	0.00	16738 (m)	499.0 -> 99.0	45.9	37.6	77.6



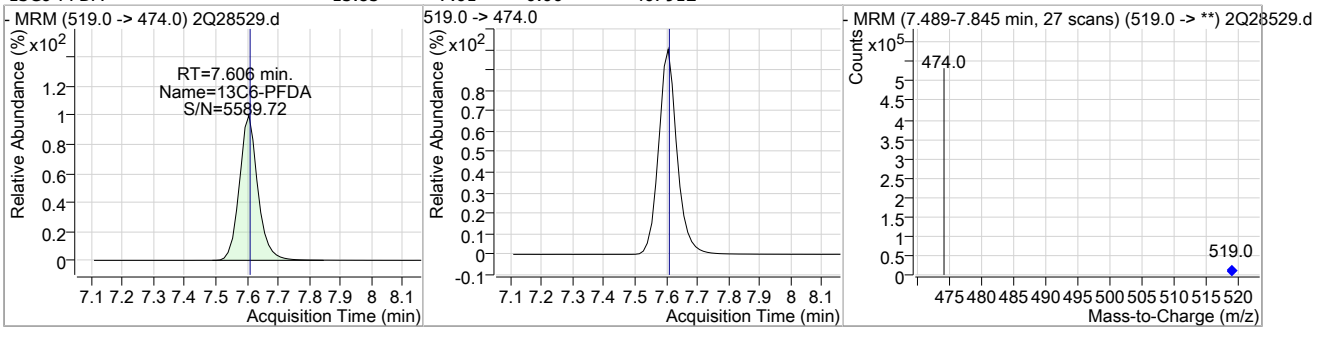
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	17.90	7.05	-0.01	324583				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	13.47	7.43	0.00	46009				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.85	7.61	0.00	407912				

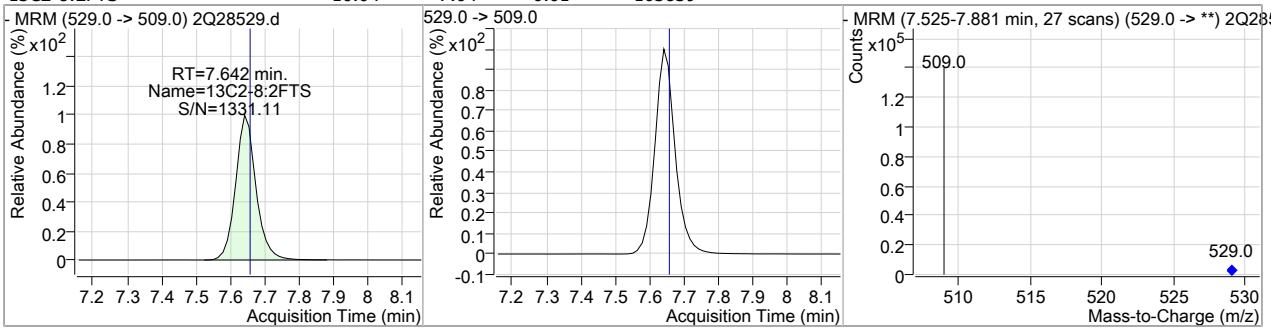


7.1.4

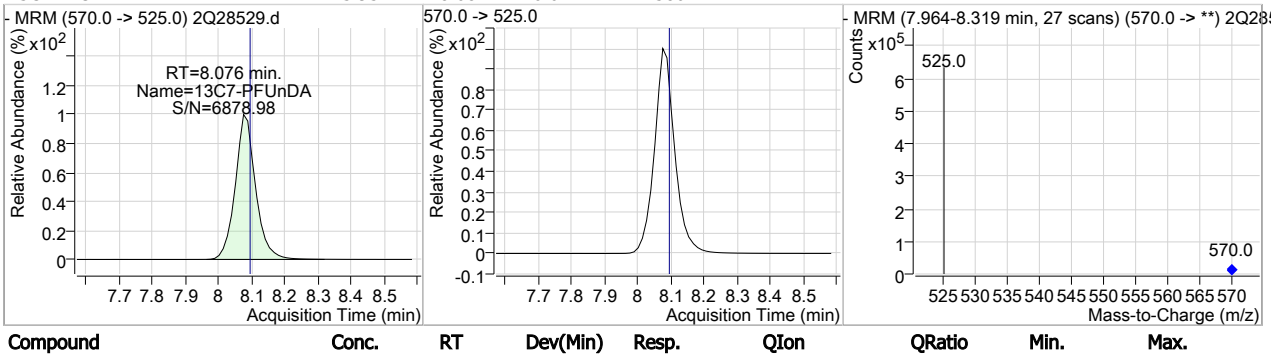
7

Perfluorinated Compounds by LC/MS/MS

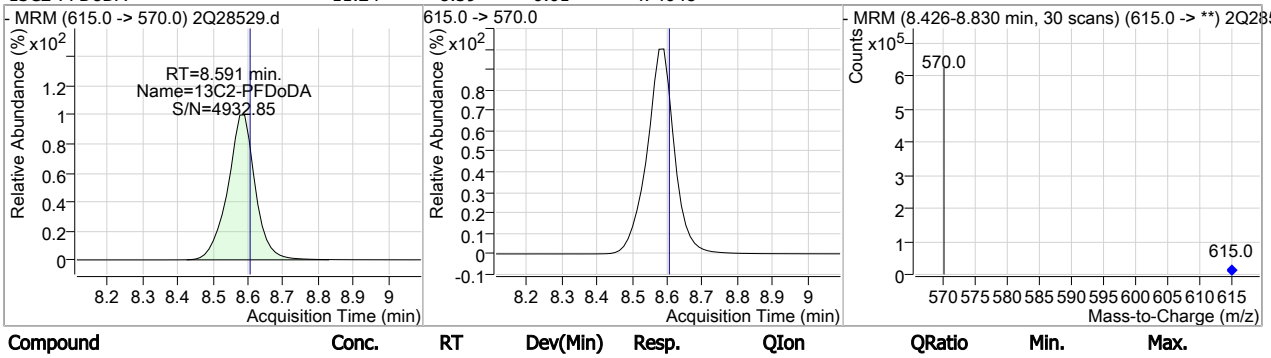
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.64	7.64	-0.01	103839				



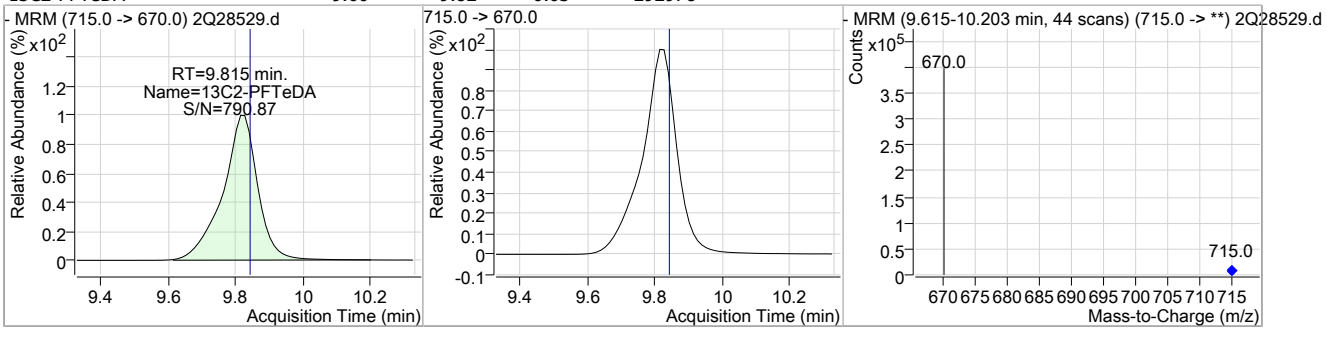
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	13.95	8.08	-0.02	475801				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	11.24	8.59	-0.01	474048				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	9.60	9.82	-0.03	292978				



Manual Integration Approval Summary

Sample Number: FA62561-2 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28529.D **Analyst approved:** 04/03/19 16:31 Mike Eger
Injection Time: 04/02/19 14:21 **Supervisor approved:** 04/03/19 16:31 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanesulfonic acid	2706-91-4		4.88	Split peak
Perfluoroheptanoic acid	375-85-9		5.68	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.71	Split peak
Perfluorooctanoic acid	335-67-1		6.41	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Sample Results: 2Q28061.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28061.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/24/2019 11:28:50 PM
Sample Name : fa62561-3
Vial : Vial 45
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74263,S2Q447,125,,,1.0,1,water

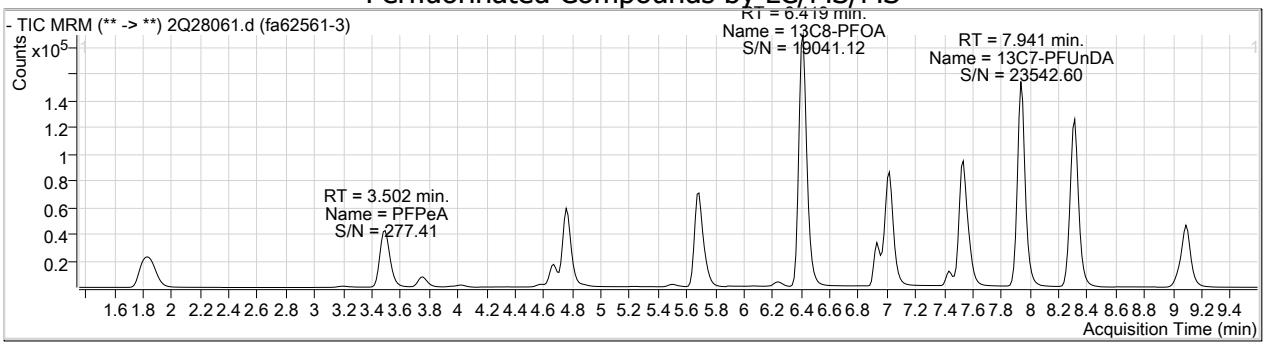
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.422	415.0 -> 370.0	357537	20.00 µg/L	0.025
13C4-PFOS	7.011	503.0 -> 80.0	58535	20.00 µg/L	0.013
M4-PFBA	1.827	217.0 -> 172.0	164912	20.00 µg/L	-0.025
M5-PFPeA	3.499	268.0 -> 223.0	131156	20.00 µg/L	0.000
M5-PFHxA	4.763	318.0 -> 273.0	174592	20.00 µg/L	0.000
M4-PFHpA	5.692	367.0 -> 322.0	250293	20.00 µg/L	0.012
M8-PFOA	6.419	421.0 -> 376.0	288853	20.00 µg/L	0.025
M9-PFNA	7.027	472.0 -> 427.0	266564	20.00 µg/L	0.013
M6-PFDA	7.544	519.0 -> 474.0	357042	20.00 µg/L	0.001
M7-PFUnDA	7.941	570.0 -> 525.0	584774	20.00 µg/L	-0.050
M2-PFDoDA	8.315	615.0 -> 570.0	525991	20.00 µg/L	-0.061
M2-PFTeDA	9.089	715.0 -> 670.0	230514	20.00 µg/L	-0.012
M8-FOSA	6.933	506.0 -> 78.0	114731	20.00 µg/L	0.015
M3-PFBS	3.755	302.0 -> 99.0	23243	20.00 µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	25503	20.00 µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	32909	20.00 µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	68258	20.00 µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	84879	20.00 µg/L	0.012
M2-8:2FTS	7.579	529.0 -> 509.0	50106	20.00 µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	37500	20.00 µg/L	0.000
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.671	329.0 -> 309.0	68101	23.93 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.6%	
13C2-6:2FTS	6.403	429.0 -> 409.0	84814	28.14 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 140.7%	
13C2-8:2FTS	7.579	529.0 -> 509.0	50138	23.07 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.3%	
13C2-PFDoDA	8.315	615.0 -> 570.0	525877	29.26 µg/L	-0.061
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 146.3%	
13C2-PFTeDA	9.089	715.0 -> 670.0	230409	19.37 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C3-PFBS	3.755	302.0 -> 99.0	23190	22.60 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.0%	
13C3-PFHxS	5.723	402.0 -> 99.0	25595	23.03 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.1%	
13C4-PFBA	1.827	217.0 -> 172.0	164518	25.17 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 125.8%	
13C4-PFHpA	5.692	367.0 -> 322.0	250280	24.21 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 121.0%	
13C5-PFHxA	4.763	318.0 -> 273.0	174445	23.54 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.7%	
13C5-PFPeA	3.499	268.0 -> 223.0	131350	23.88 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.4%	
13C6-PFDA	7.544	519.0 -> 474.0	357001	25.97 µg/L	0.001

Perfluorinated Compounds by LC/MS/MS

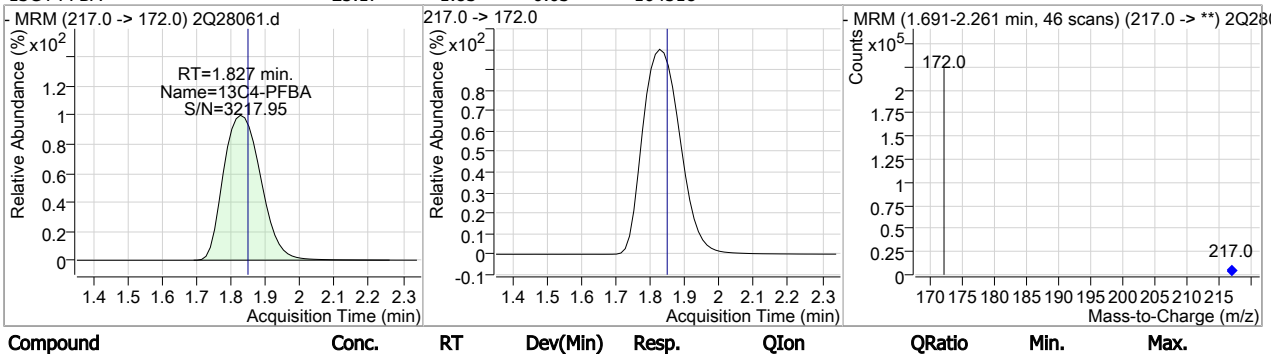
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 129.8%		
13C7-PFUnDA	7.941	570.0 -> 525.0	584712	33.64 µg/L		-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 168.2%		
13C8-FOSA	6.933	506.0 -> 78.0	114691	25.57 µg/L		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 127.8%		
13C8-PFOA	6.419	421.0 -> 376.0	288703	28.02 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 140.1%		
13C8-PFOS	7.008	507.0 -> 99.0	32918	23.02 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.1%		
13C9-PFNA	7.027	472.0 -> 427.0	266374	25.56 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 127.8%		
d3-MeFOSAA	7.434	573.0 -> 419.0	37533	21.40 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.0%		
M2-PFOA	6.422	415.0 -> 370.0	358142	20.02 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
M4-PFOS	7.011	503.0 -> 80.0	58555	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
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	1.835	213.0 -> 169.0	8921	5.53 µg/L		100
PFBS	3.746	299.0 -> 80.0	9612	5.10 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	5.683	363.0 -> 319.0	34508	3.07 µg/L	m	97
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.765	313.0 -> 269.0	57802	18.99 µg/L		100
PFHxS	5.726	399.0 -> 80.0	7513	5.33 µg/L	m	95
PFNA	-	463.0 -> 419.0	-	N.D.		
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.424	413.0 -> 369.0	39647	5.11 µg/L	m	89
PFOS	7.012	499.0 -> 80.0	526	0.32 µg/L	m	92
PFPeA	3.502	263.0 -> 219.0	84731	14.49 µg/L	m	100
PFPeS	4.883	349.0 -> 80.0	3306	2.74 µg/L	m	98
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

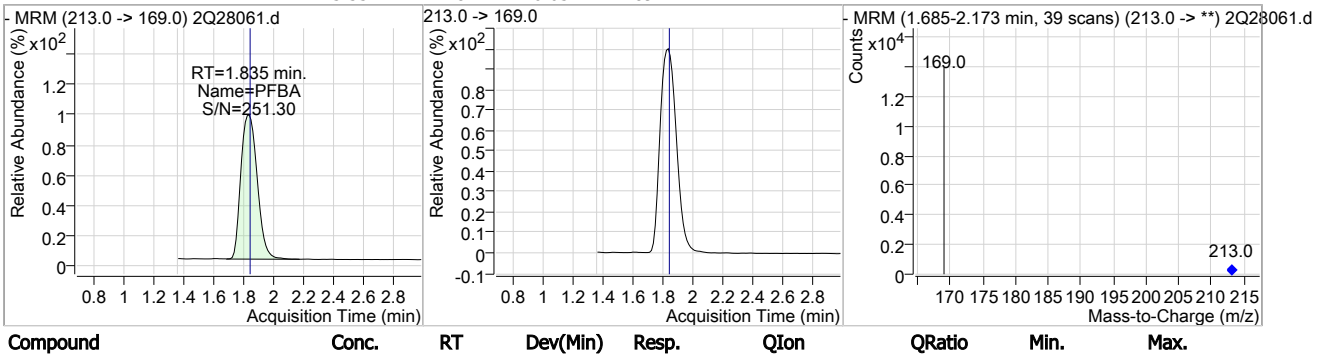
Perfluorinated Compounds by LC/MS/MS



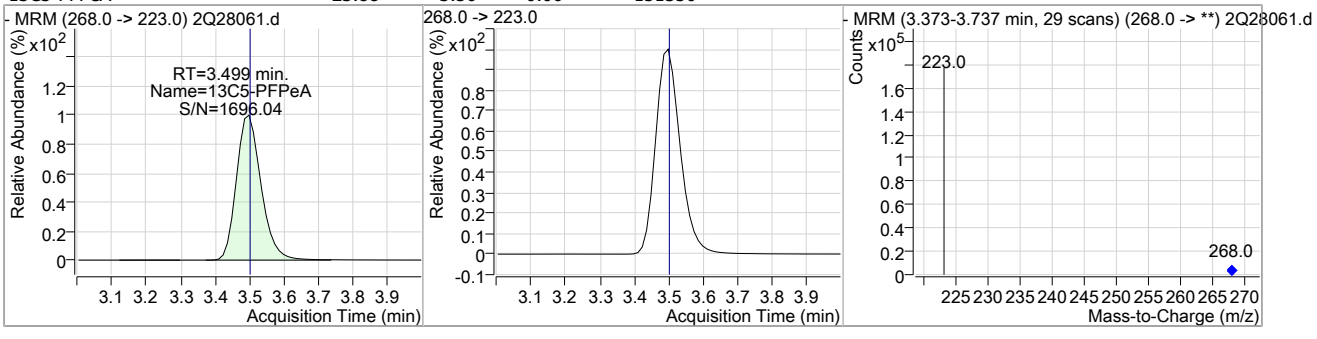
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	25.17	1.83	-0.03	164518				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	5.53	1.84	-0.03	8921				

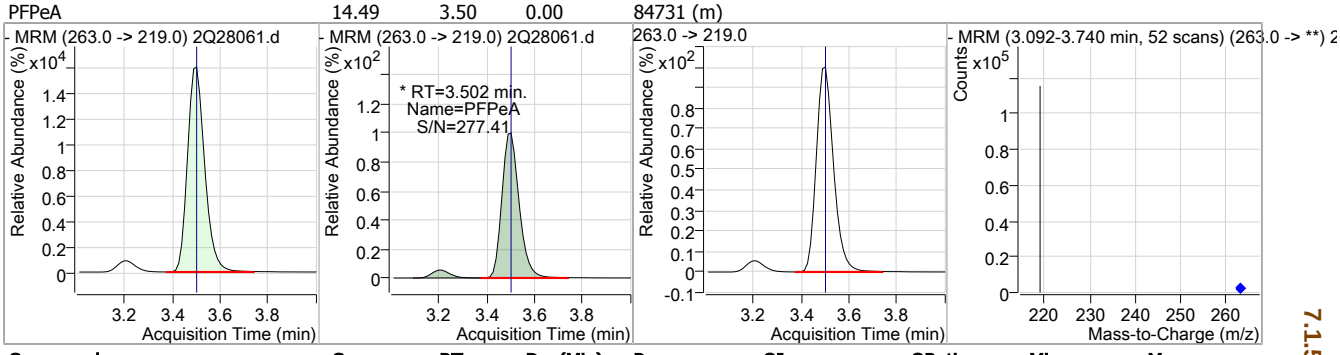


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	23.88	3.50	0.00	131350				

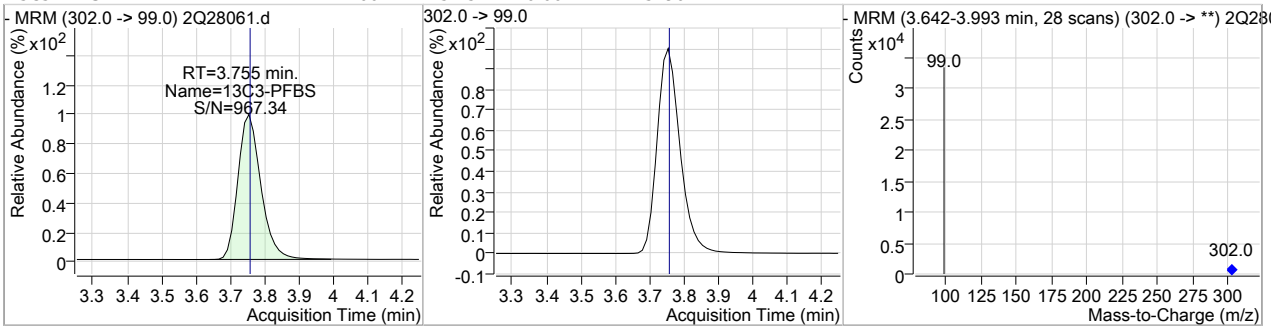


Perfluorinated Compounds by LC/MS/MS

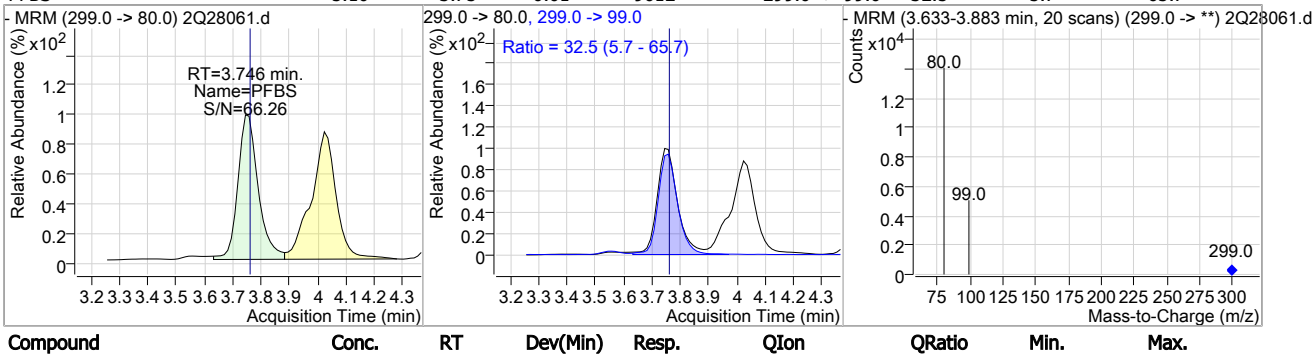
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	14.49	3.50	0.00	84731 (m)				



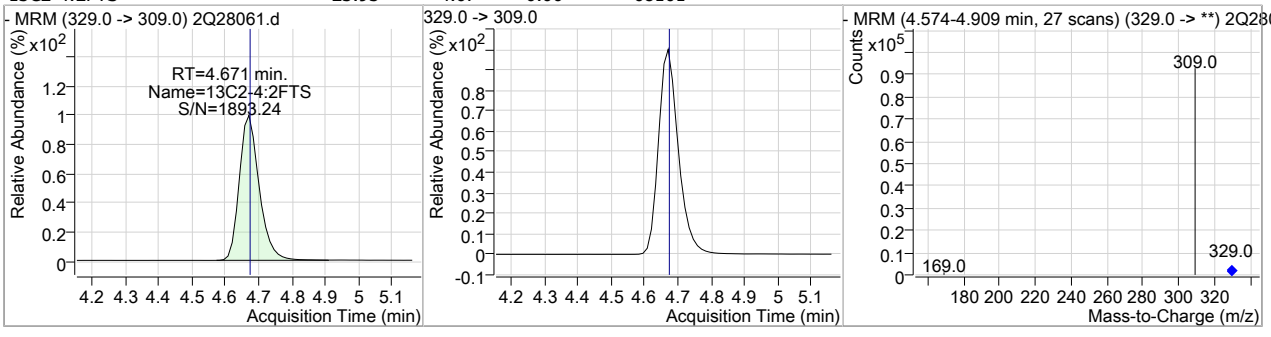
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	22.60	3.75	0.00	23190				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	5.10	3.75	-0.01	9612	299.0 -> 99.0	32.5	5.7	65.7

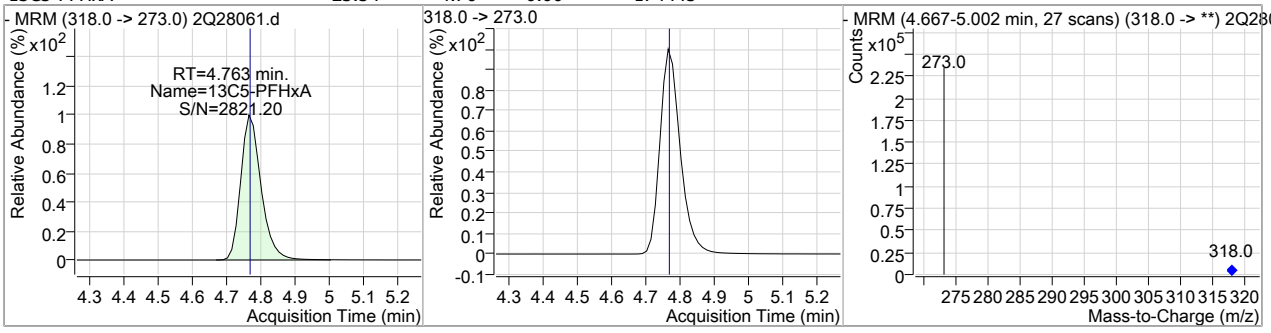


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	23.93	4.67	0.00	68101				

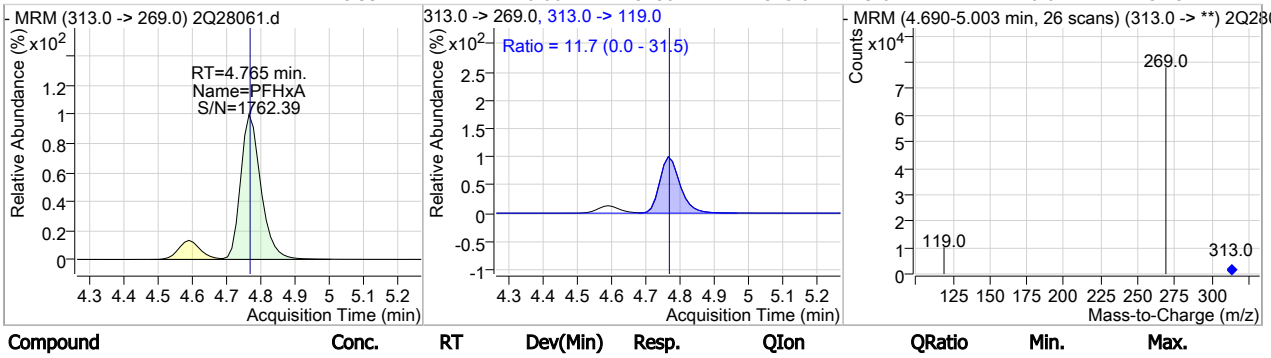


Perfluorinated Compounds by LC/MS/MS

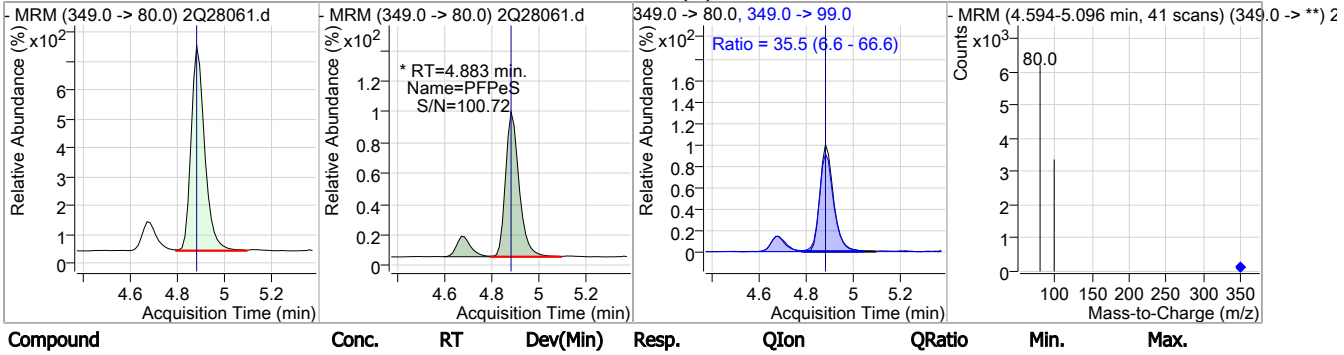
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	23.54	4.76	0.00	174445				



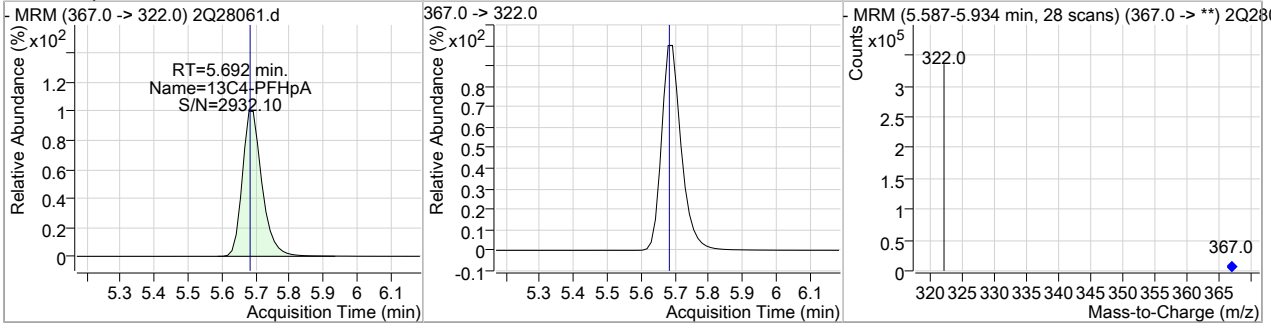
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.99	4.77	0.00	57802	313.0 -> 119.0	11.7	0.0	31.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.74	4.88	0.00	3306 (m)	349.0 -> 99.0	35.5	6.6	66.6

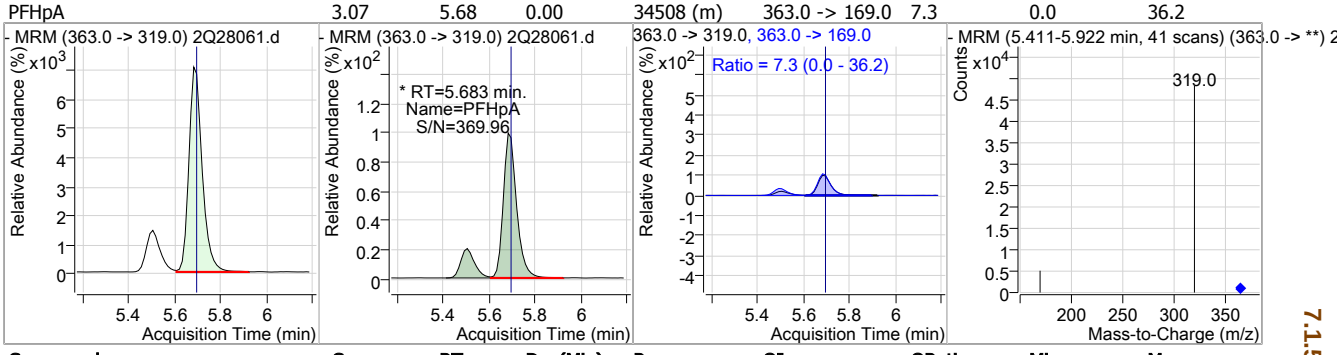


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	24.21	5.69	0.01	250280				

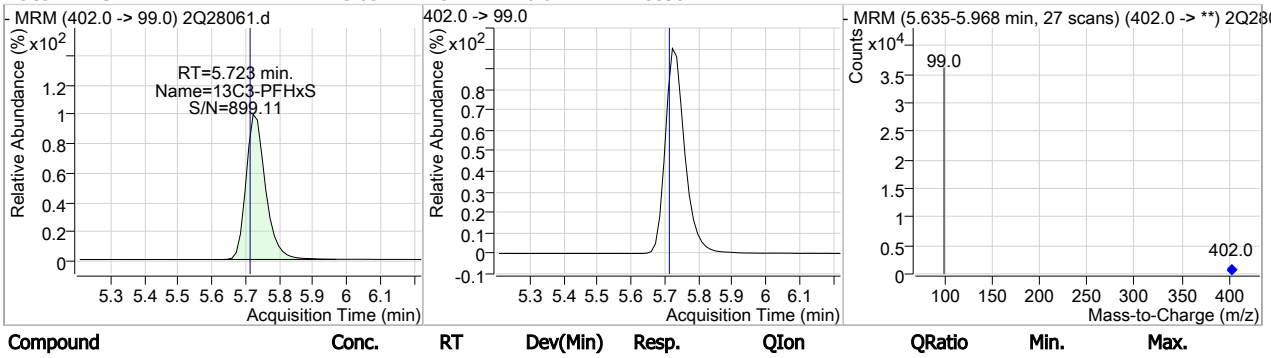


Perfluorinated Compounds by LC/MS/MS

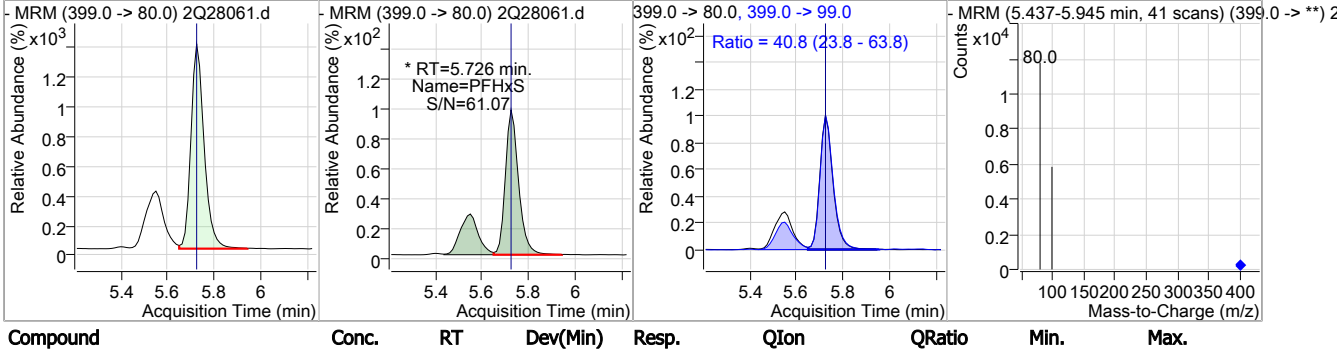
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	3.07	5.68	0.00	34508 (m)	363.0 -> 169.0	7.3	0.0	36.2



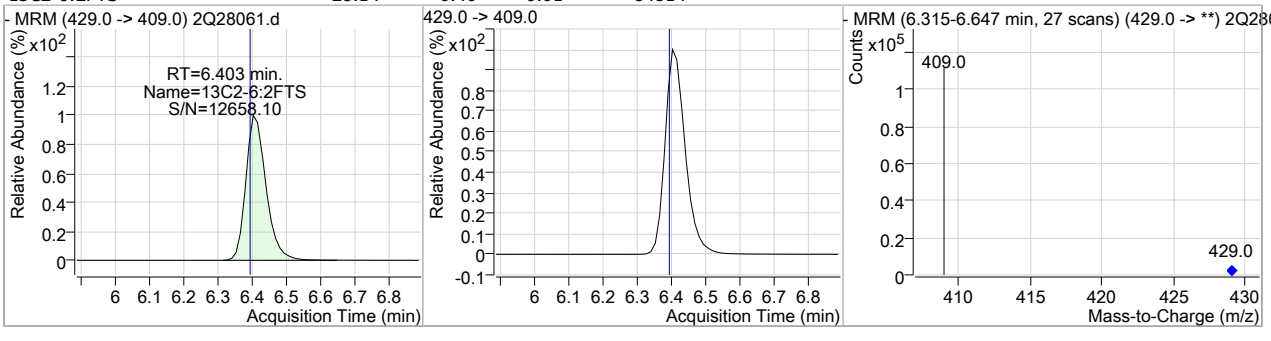
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	23.03	5.72	0.01	25595				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	5.33	5.73	0.01	7513 (m)	399.0 -> 99.0	40.8	23.8	63.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	28.14	6.40	0.01	84814				



7.1.5

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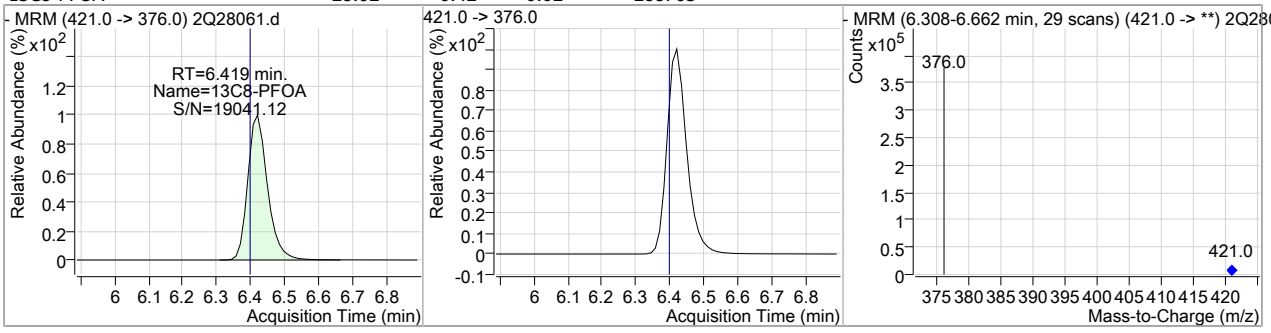
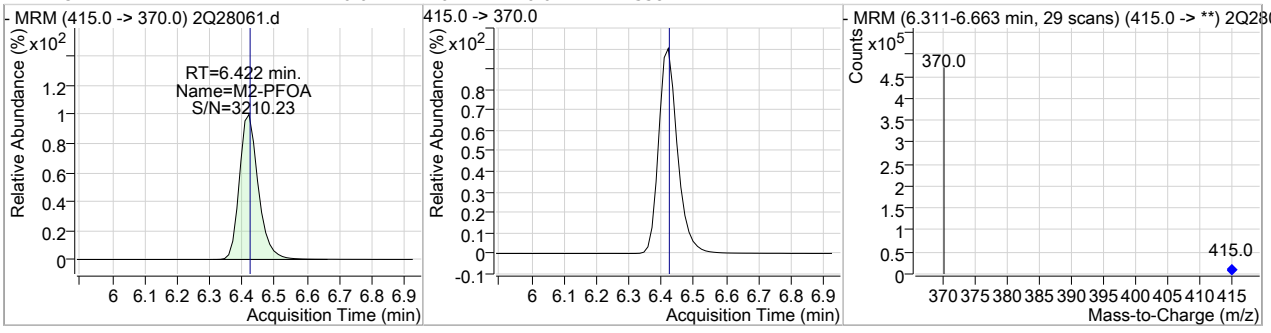
Perfluorinated Compounds by LC/MS/MS

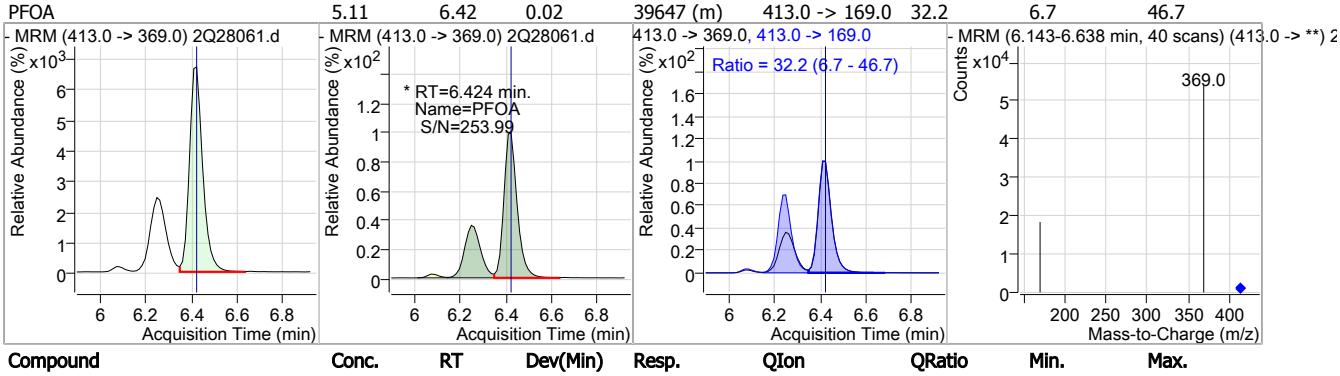
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	28.02	6.42	0.02	288703				



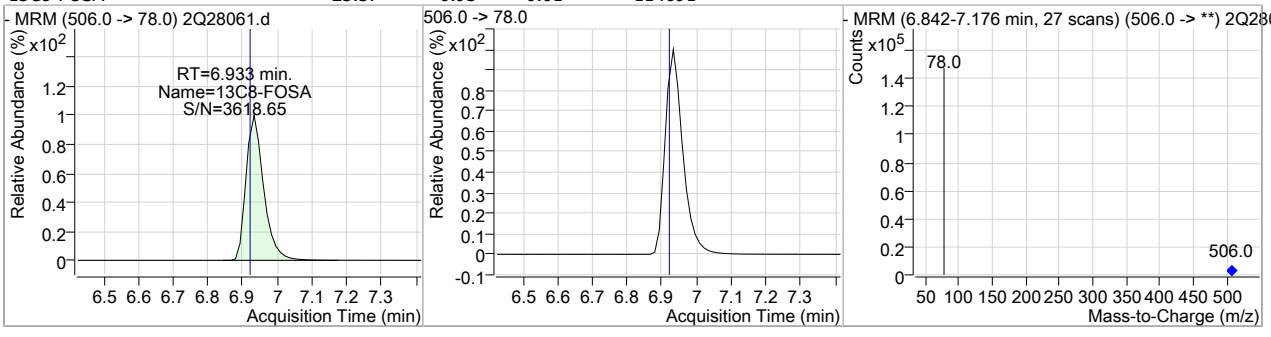
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.02	6.42	0.02	358142				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.11	6.42	0.02	39647 (m)	413.0 -> 169.0	32.2	6.7	46.7

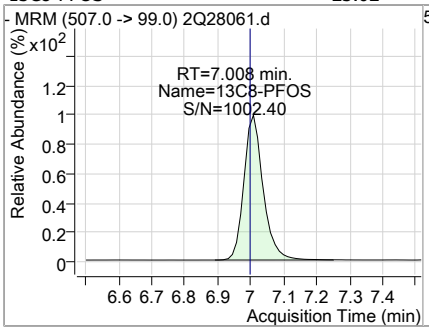


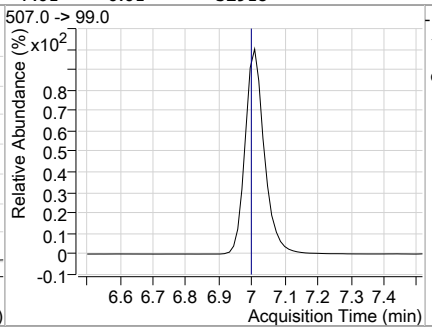
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	25.57	6.93	0.01	114691				

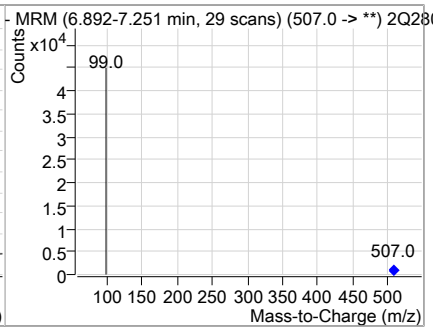


Perfluorinated Compounds by LC/MS/MS

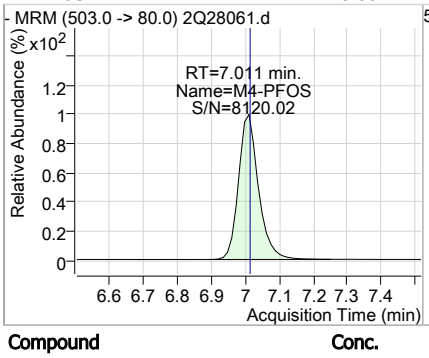
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	23.02	7.01	0.01	32918				

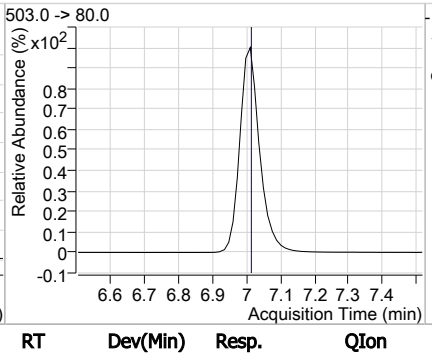


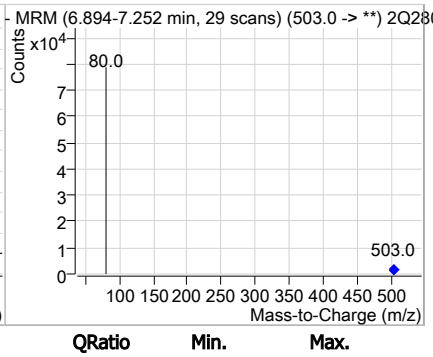




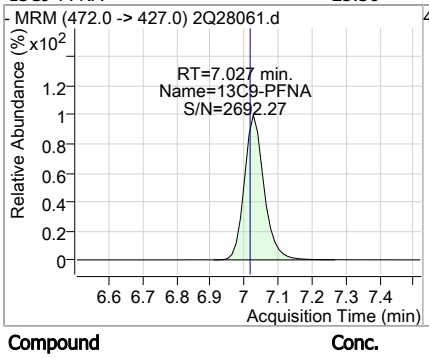
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.01	58555				

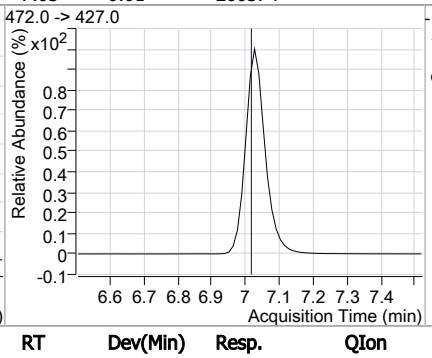


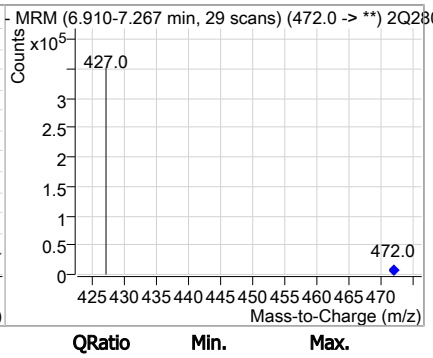




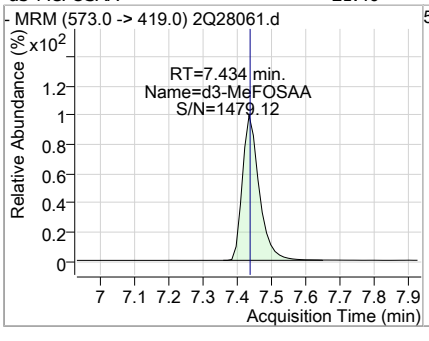
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	25.56	7.03	0.01	266374				

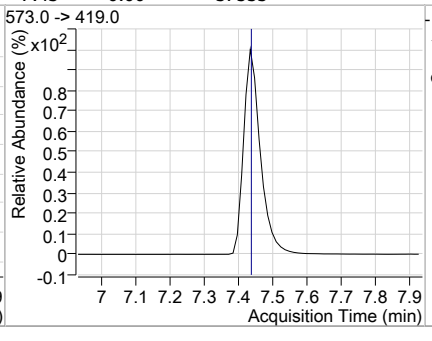


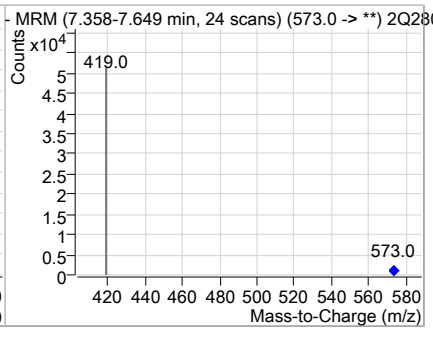




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.40	7.43	0.00	37533				

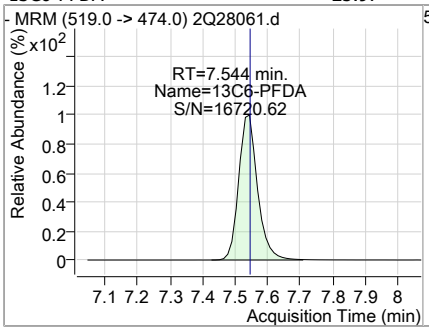


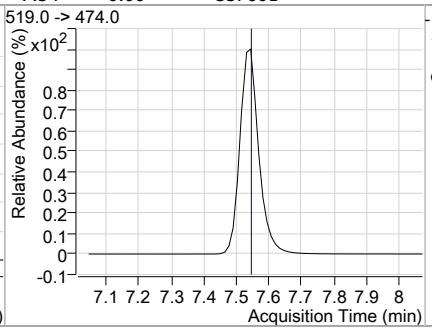


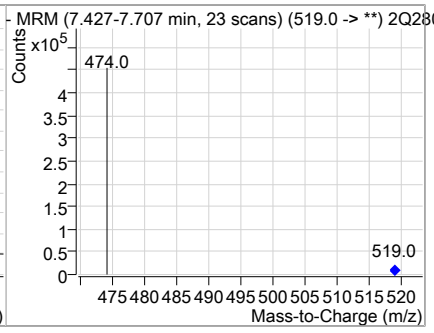


Perfluorinated Compounds by LC/MS/MS

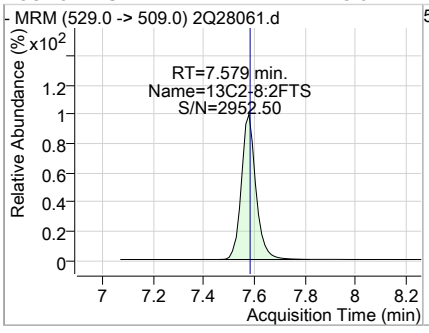
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	25.97	7.54	0.00	357001				

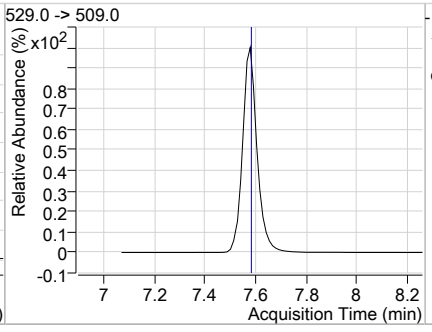


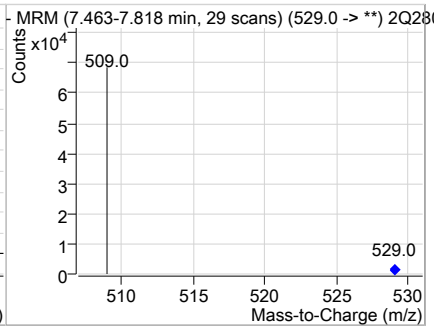




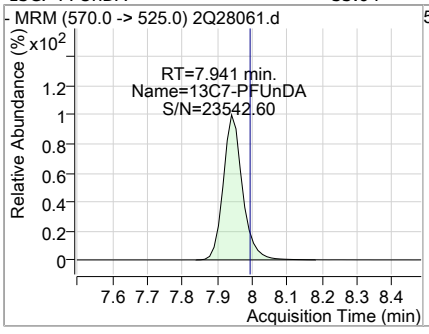
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	23.07	7.58	0.00	50138				

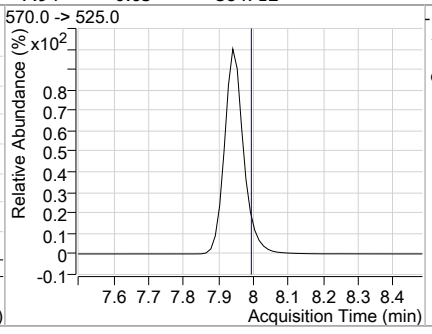


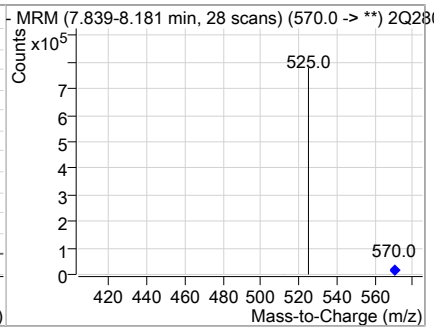




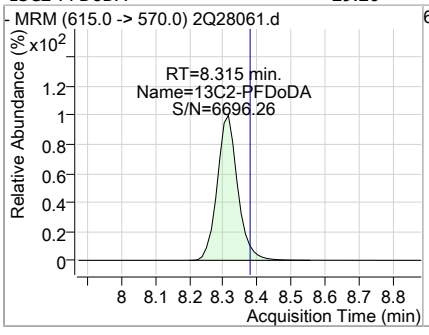
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	33.64	7.94	-0.05	584712				

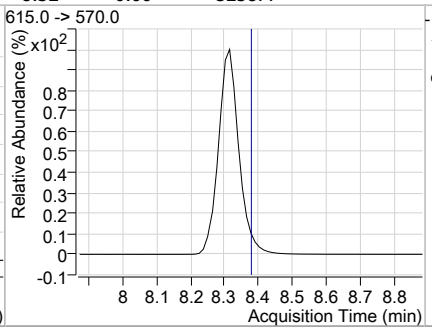


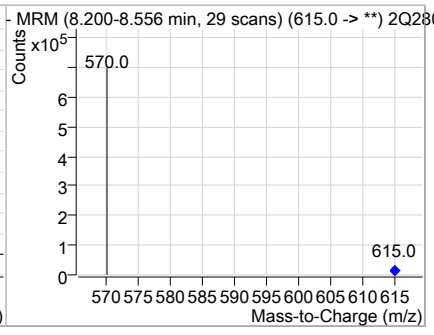




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	29.26	8.32	-0.06	525877				



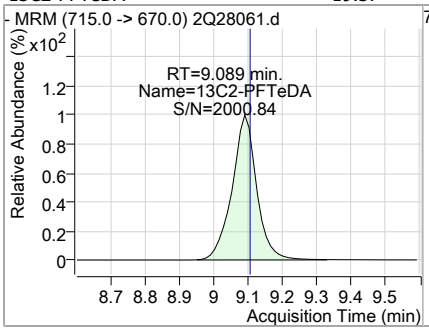


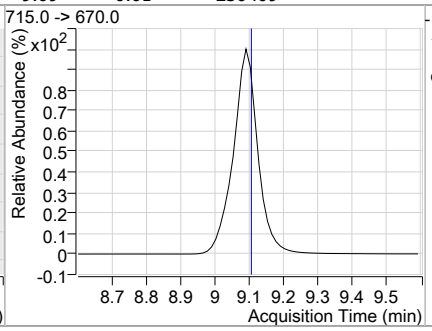


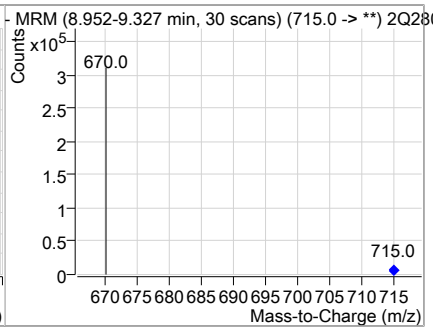
Sample Results: 2Q28061.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.37	9.09	-0.01	230409				







7.1.5

7

Manual Integration Approval Summary

Sample Number: FA62561-3
Lab FileID: 2Q28061.D
Injection Time: 03/24/19 23:28
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:31 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		3.50	Split peak
Perfluoropentanesulfonic acid	2706-91-4		4.88	Split peak
Perfluoroheptanoic acid	375-85-9		5.68	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanoic acid	335-67-1		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Sample Results: 2Q28062.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28062.d
Operator	:	natashag
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	3/24/2019 11:44:34 PM
Sample Name	:	fa62561-4
Vial	:	Vial 46
DA Method File	:	ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name	:	s2q447.batch.bin
Sample Information	:	op74263,S2Q447,125,,,1.0,1,water

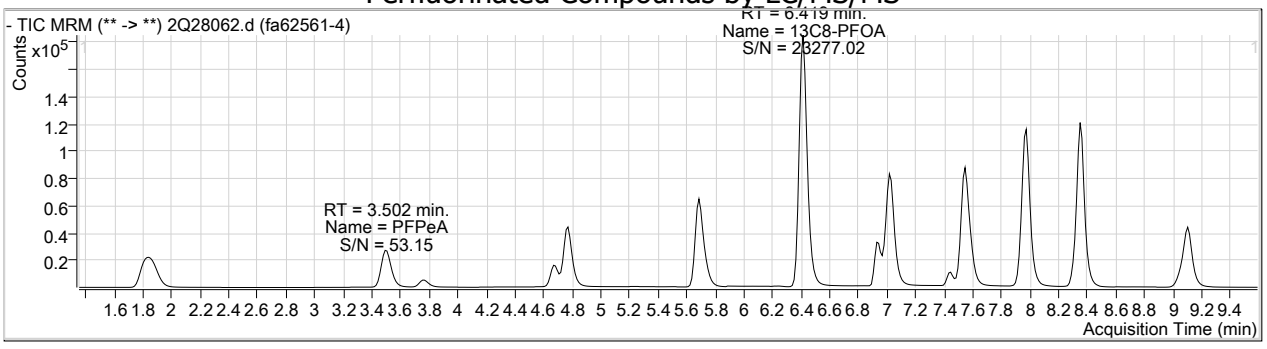
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.422	415.0 -> 370.0	358592	20.00 µg/L	0.025
13C4-PFOS	7.011	503.0 -> 80.0	57269	20.00 µg/L	0.013
M4-PFBA	1.840	217.0 -> 172.0	168230	20.00 µg/L	-0.013
M5-PFPeA	3.499	268.0 -> 223.0	132346	20.00 µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	178377	20.00 µg/L	0.012
M4-PFHpA	5.692	367.0 -> 322.0	251546	20.00 µg/L	0.012
M8-PFOA	6.419	421.0 -> 376.0	292341	20.00 µg/L	0.025
M9-PFNA	7.039	472.0 -> 427.0	257367	20.00 µg/L	0.025
M6-PFDA	7.556	519.0 -> 474.0	330592	20.00 µg/L	0.014
M7-PFUnDA	7.979	570.0 -> 525.0	474152	20.00 µg/L	-0.012
M2-PFDoDA	8.353	615.0 -> 570.0	479476	20.00 µg/L	-0.023
M2-PFTeDA	9.102	715.0 -> 670.0	217433	20.00 µg/L	0.000
M8-FOSA	6.933	506.0 -> 78.0	117840	20.00 µg/L	0.015
M3-PFBS	3.755	302.0 -> 99.0	23979	20.00 µg/L	0.000
M3-PFHxS	5.735	402.0 -> 99.0	26318	20.00 µg/L	0.025
M8-PFOS	7.008	507.0 -> 99.0	31791	20.00 µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	65436	20.00 µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	87767	20.00 µg/L	0.012
M2-8:2FTS	7.592	529.0 -> 509.0	44688	20.00 µg/L	0.012
M3-MeFOSAA	7.446	573.0 -> 419.0	34886	20.00 µg/L	0.013
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.671	329.0 -> 309.0	65463	23.00 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.0%	
13C2-6:2FTS	6.403	429.0 -> 409.0	87804	29.13 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 145.7%	
13C2-8:2FTS	7.592	529.0 -> 509.0	44661	20.55 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C2-PFDoDA	8.353	615.0 -> 570.0	479414	26.67 µg/L	-0.023
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 133.4%	
13C2-PFTeDA	9.102	715.0 -> 670.0	217039	18.25 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.2%	
13C3-PFBS	3.755	302.0 -> 99.0	23974	23.37 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.8%	
13C3-PFHxS	5.735	402.0 -> 99.0	26271	23.64 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 118.2%	
13C4-PFBA	1.840	217.0 -> 172.0	167859	25.68 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 128.4%	
13C4-PFHpA	5.692	367.0 -> 322.0	251279	24.31 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 121.5%	
13C5-PFHxA	4.776	318.0 -> 273.0	178179	24.04 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.2%	
13C5-PFPeA	3.499	268.0 -> 223.0	132436	24.07 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.4%	
13C6-PFDA	7.556	519.0 -> 474.0	330528	24.04 µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

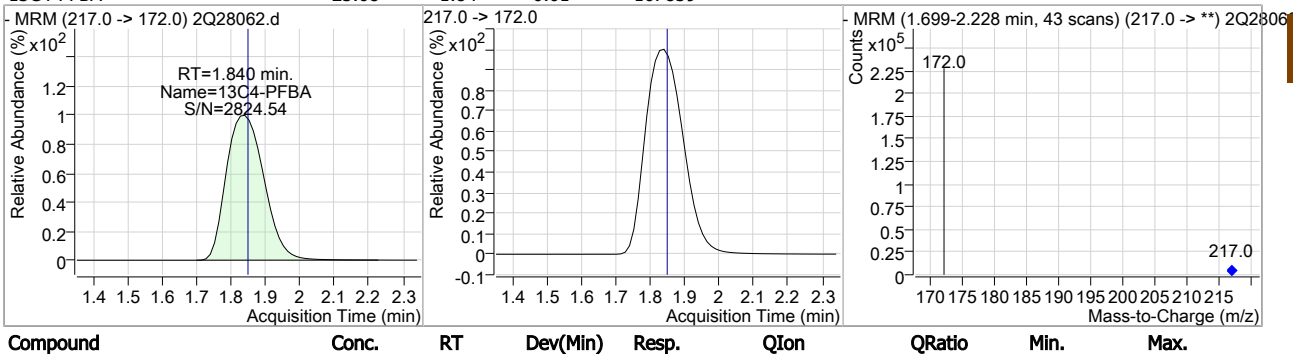
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.2%		
13C7-PFUnDA	7.979	570.0 -> 525.0	473982	27.27 µg/L		-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 136.3%		
13C8-FOSA	6.933	506.0 -> 78.0	117742	26.25 µg/L		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 131.2%		
13C8-PFOA	6.419	421.0 -> 376.0	292149	28.35 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 141.7%		
13C8-PFOS	7.008	507.0 -> 99.0	31823	22.25 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.3%		
13C9-PFNA	7.039	472.0 -> 427.0	257348	24.69 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 123.4%		
d3-MeFOSAA	7.446	573.0 -> 419.0	34961	19.94 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
M2-PFOA	6.422	415.0 -> 370.0	358733	20.00 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.011	503.0 -> 80.0	57268	19.98 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
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	-	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	-	363.0 -> 319.0	-	N.D.		
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.778	313.0 -> 269.0	1098	0.35 µg/L		94
PFHxS	5.726	399.0 -> 80.0	1038	0.71 µg/L	m	99
PFNA	-	463.0 -> 419.0	-	N.D.		
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.424	413.0 -> 369.0	11473	1.46 µg/L	m	96
PFOS	6.831	499.0 -> 80.0	362	0.23 µg/L	m	84
PFPeA	3.502	263.0 -> 219.0	1623	0.28 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.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

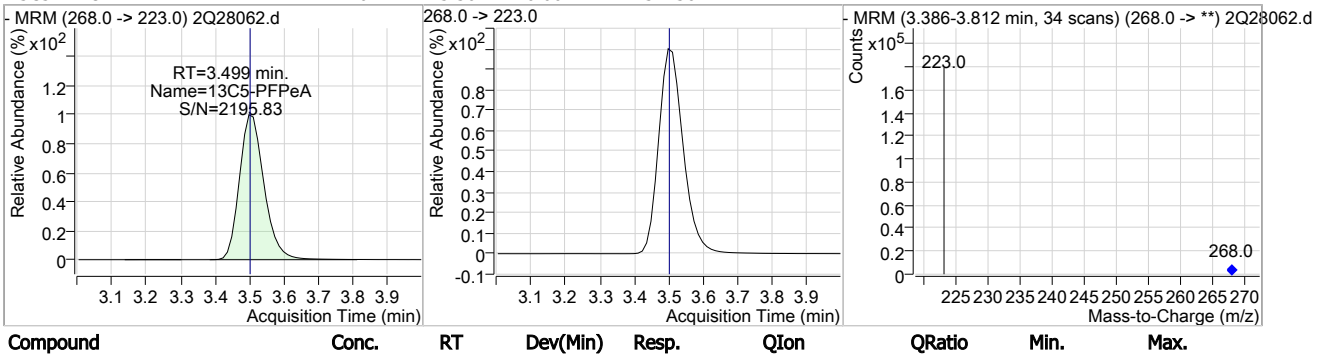
Perfluorinated Compounds by LC/MS/MS



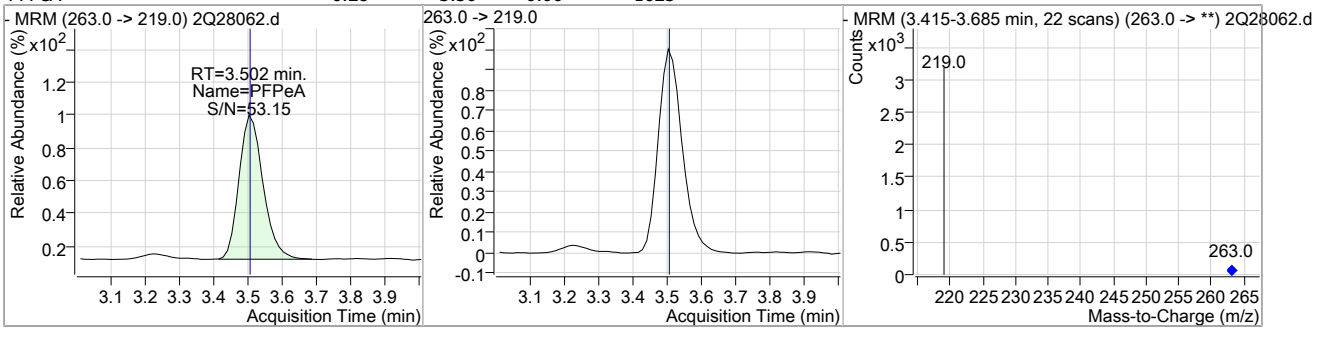
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	25.68	1.84	-0.01	167859				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	24.07	3.50	0.00	132436				

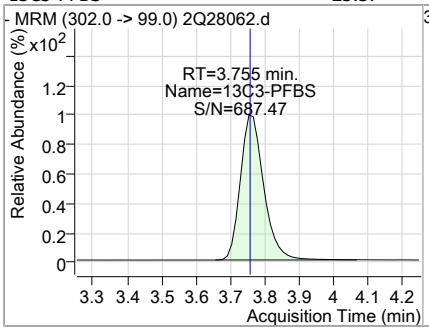


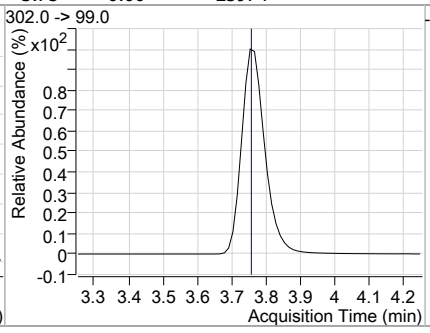
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.28	3.50	0.00	1623				

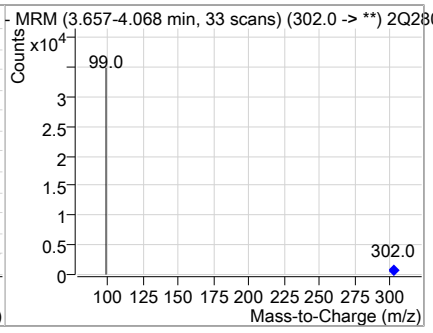


Perfluorinated Compounds by LC/MS/MS

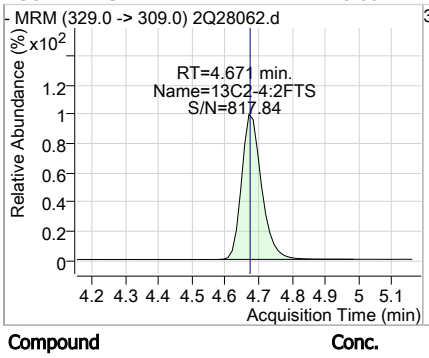
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	23.37	3.75	0.00	23974				

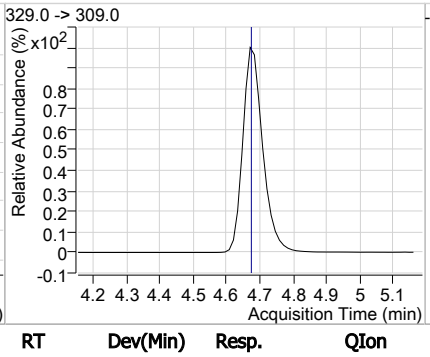


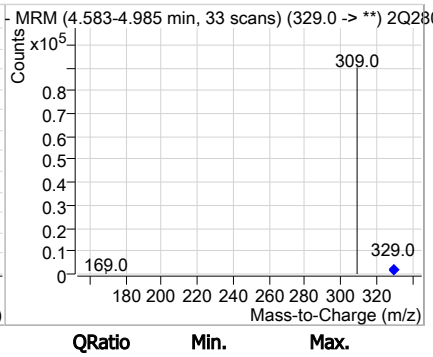




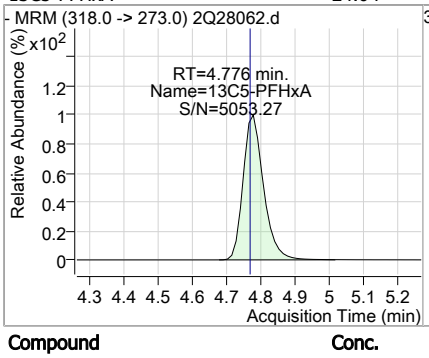
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	23.00	4.67	0.00	65463				

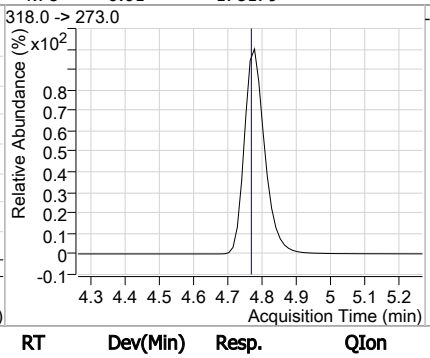


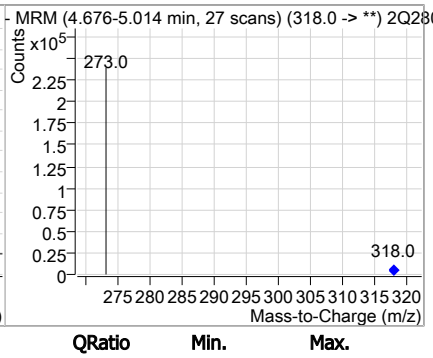




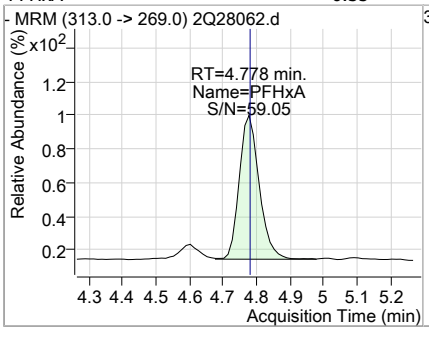
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	24.04	4.78	0.01	178179				

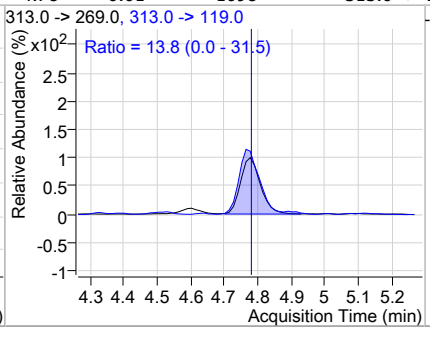


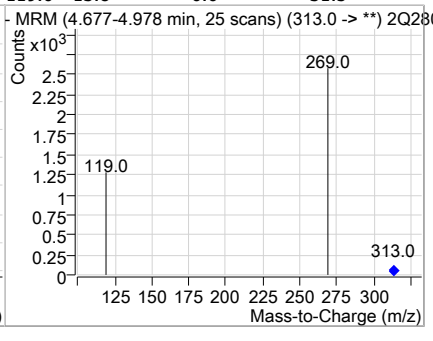




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.35	4.78	0.01	1098	313.0 -> 119.0	13.8	0.0	31.5

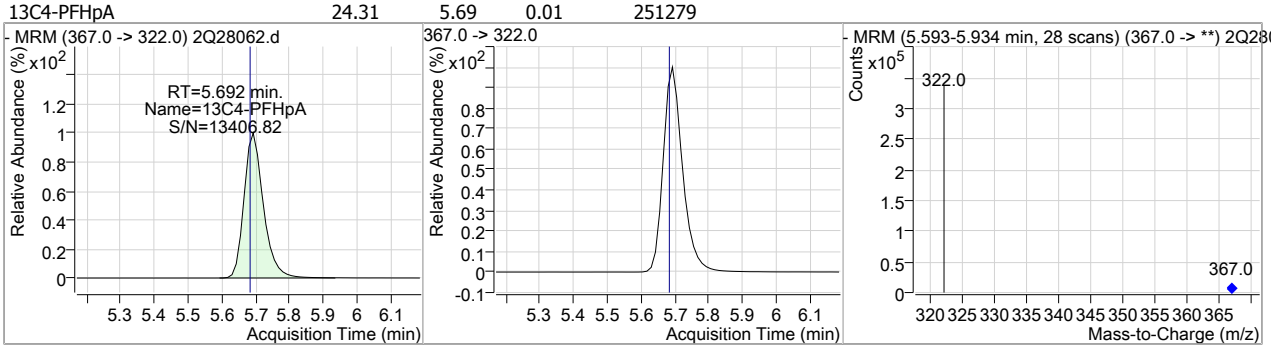




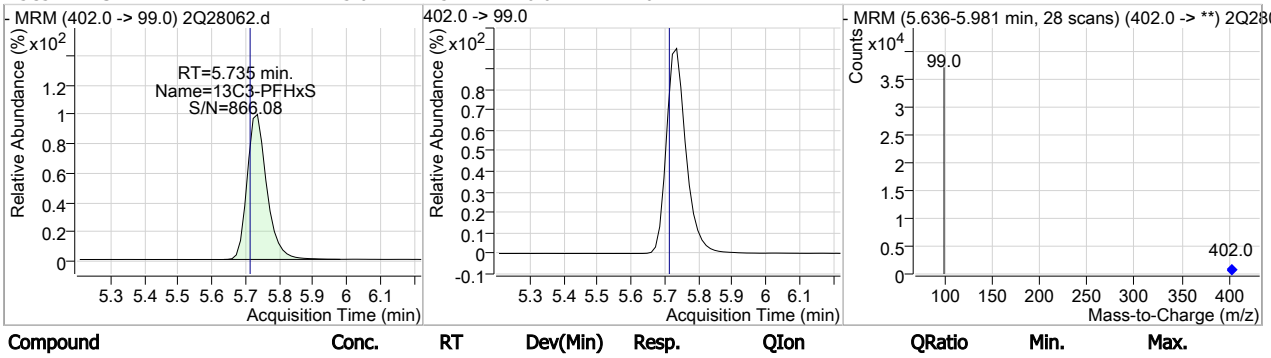


Perfluorinated Compounds by LC/MS/MS

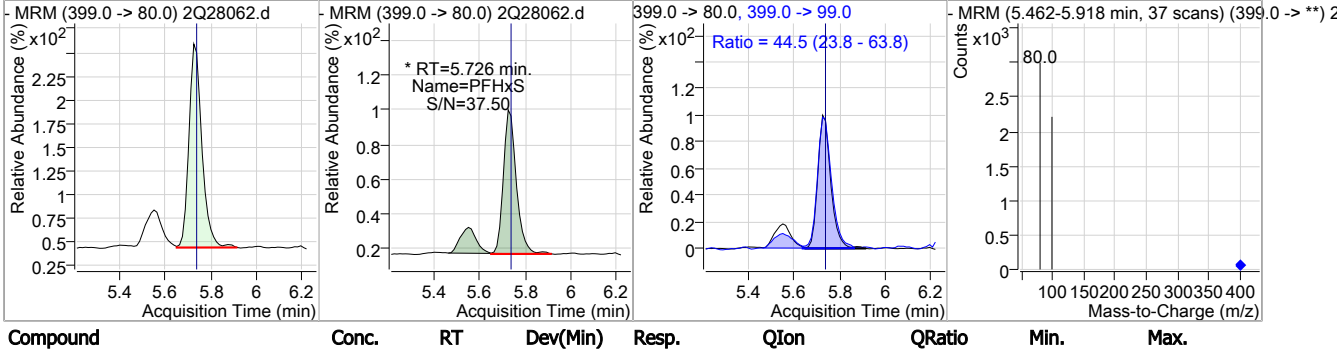
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	24.31	5.69	0.01	251279				



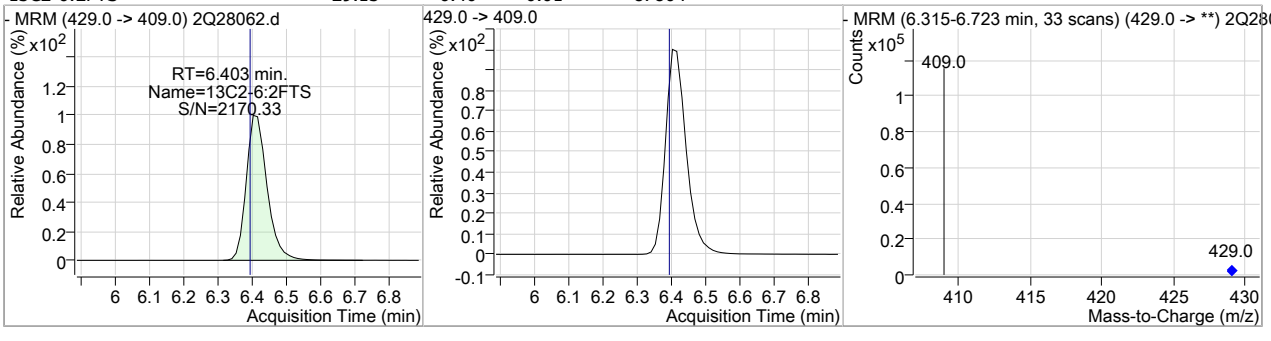
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	23.64	5.74	0.02	26271				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.71	5.73	0.01	1038 (m)	399.0 -> 99.0	44.5	23.8	63.8

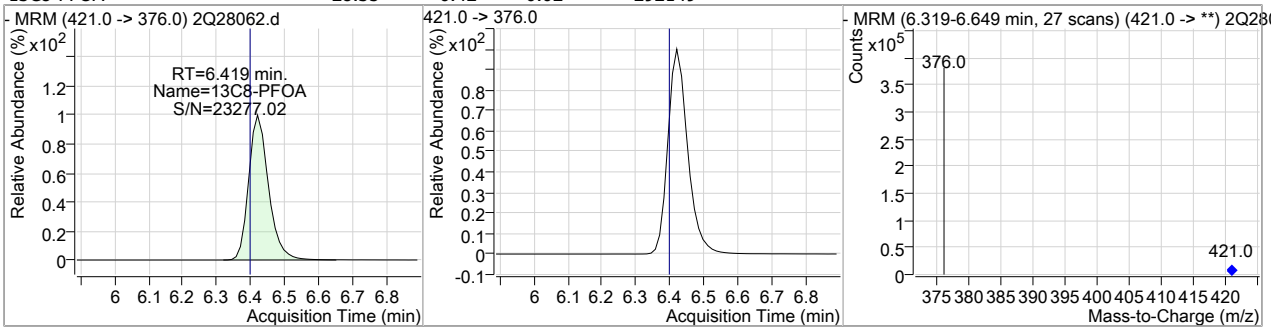


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	29.13	6.40	0.01	87804				

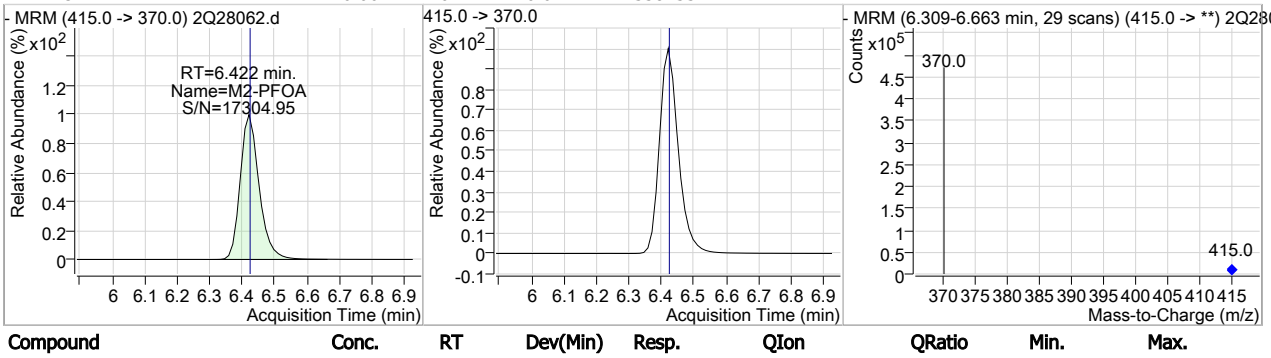


Perfluorinated Compounds by LC/MS/MS

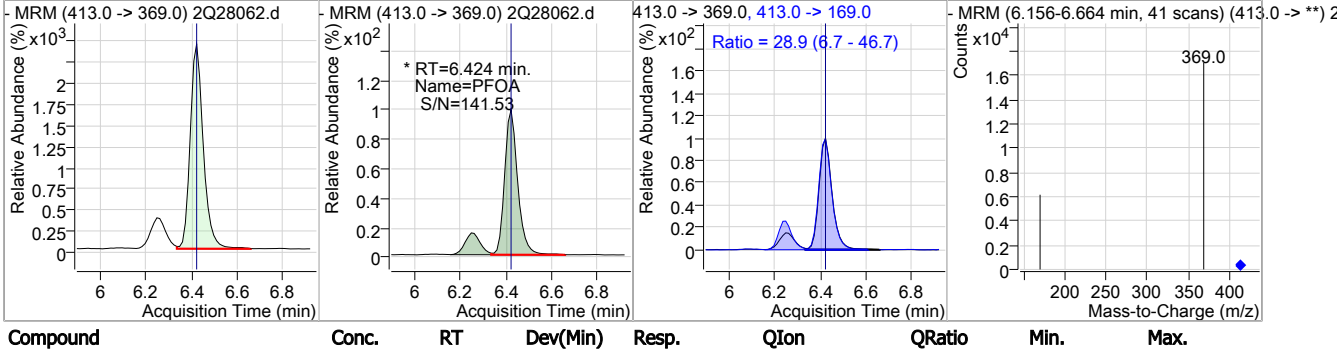
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	28.35	6.42	0.02	292149				



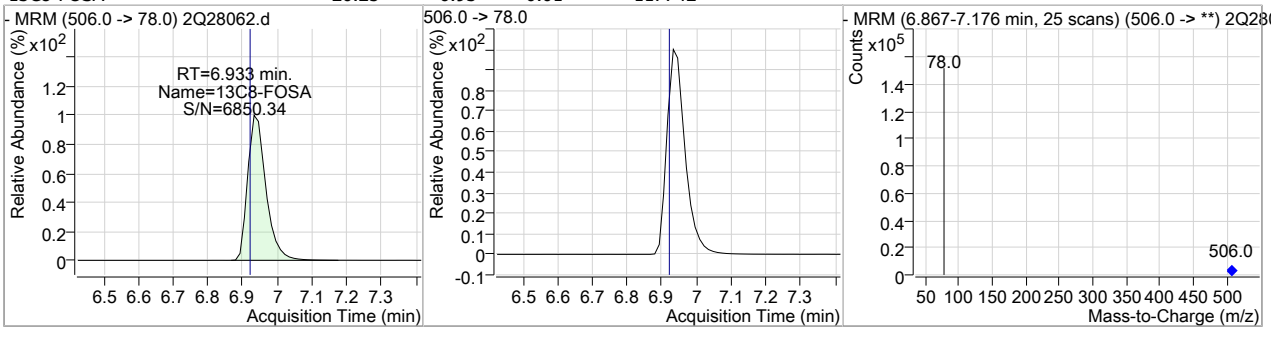
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.42	0.02	358733				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.46	6.42	0.02	11473 (m)	413.0 -> 169.0	28.9	6.7	46.7

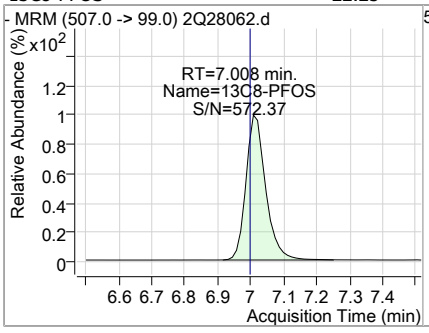


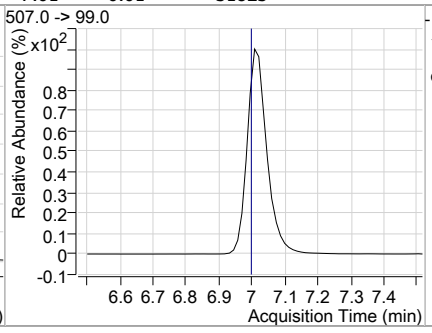
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	26.25	6.93	0.01	117742				

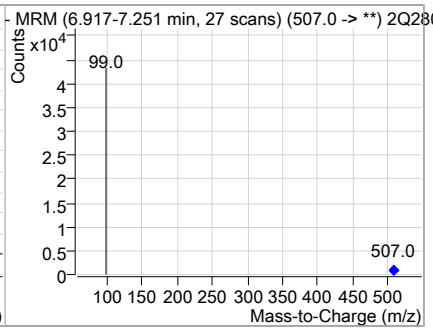


Perfluorinated Compounds by LC/MS/MS

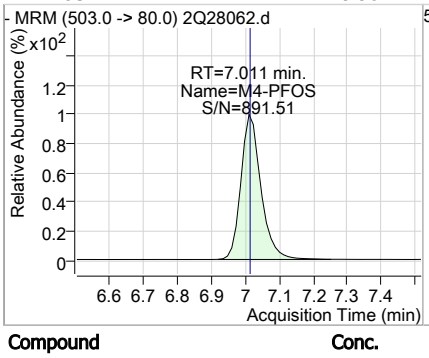
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	22.25	7.01	0.01	31823				

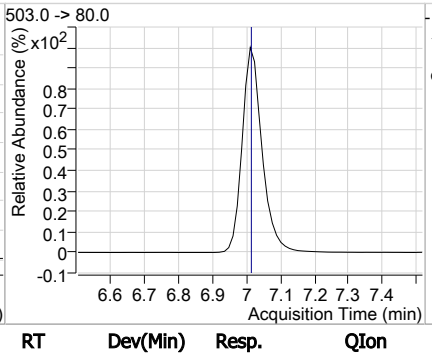


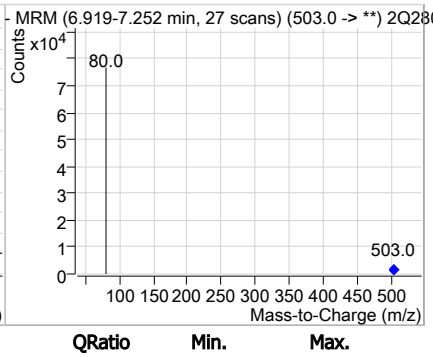




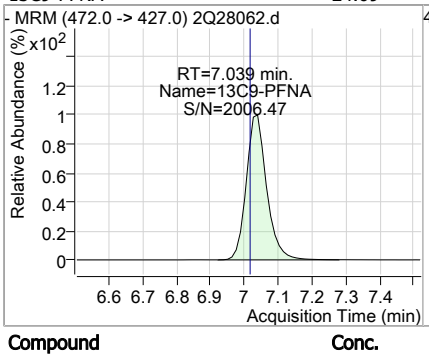
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.01	0.01	57268				

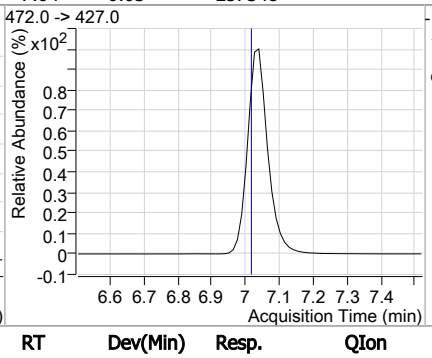


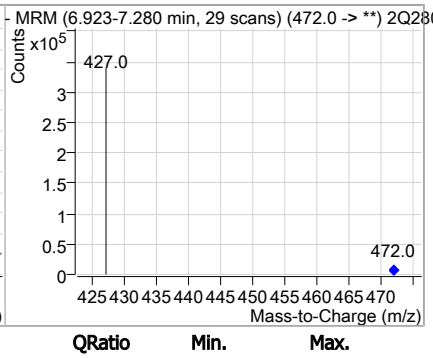




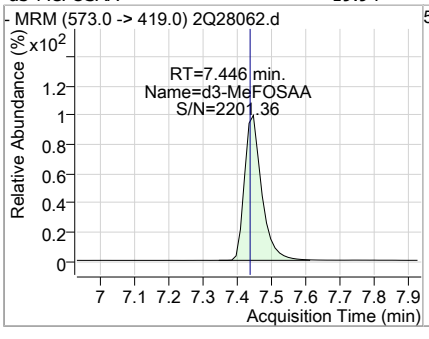
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	24.69	7.04	0.03	257348				

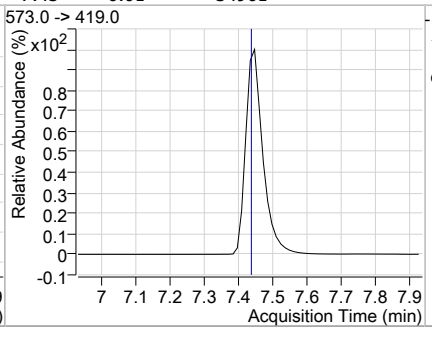


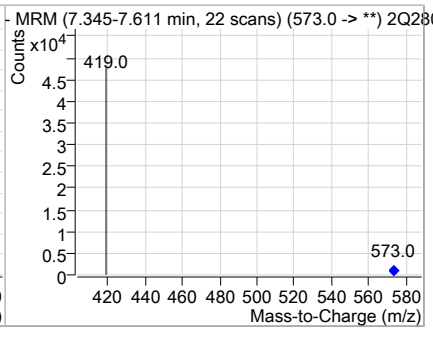




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.94	7.45	0.01	34961				

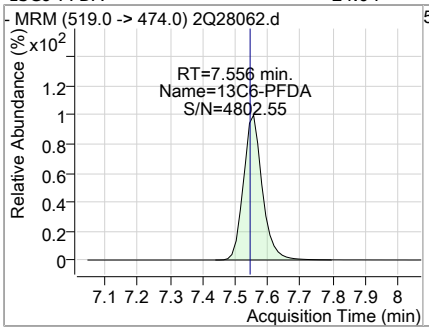


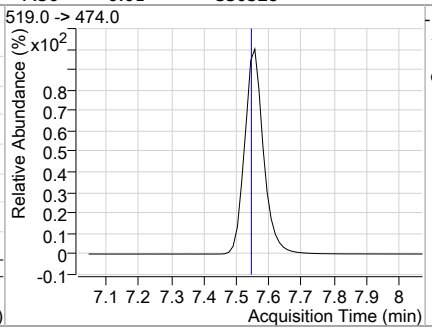


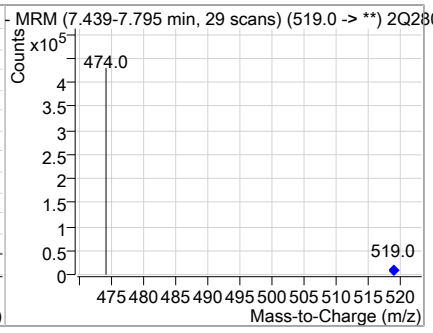


Perfluorinated Compounds by LC/MS/MS

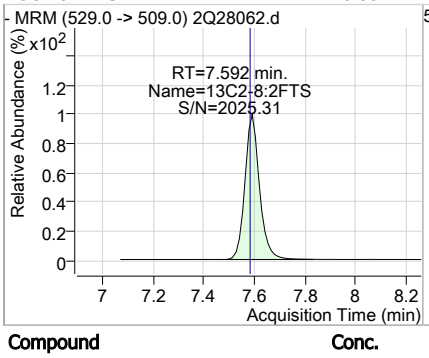
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	24.04	7.56	0.01	330528				

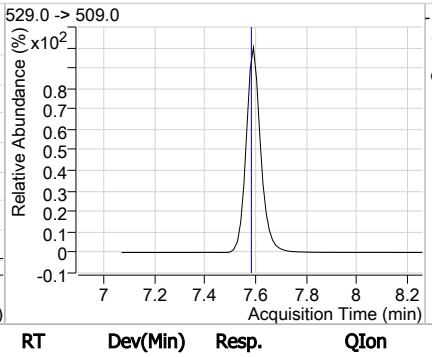


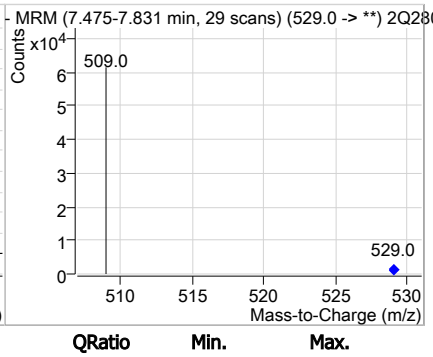




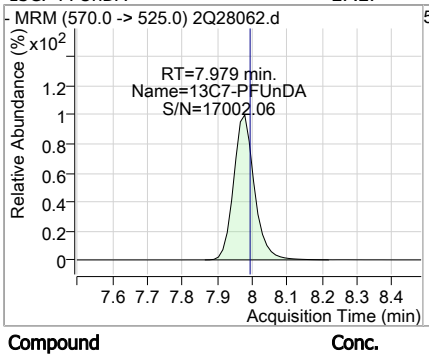
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.55	7.59	0.01	44661				

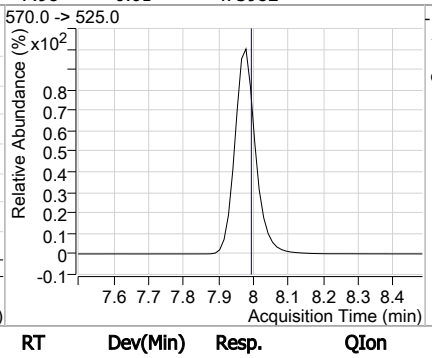


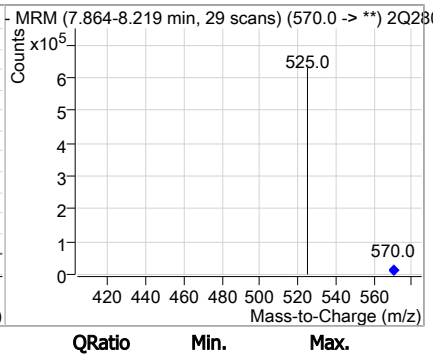




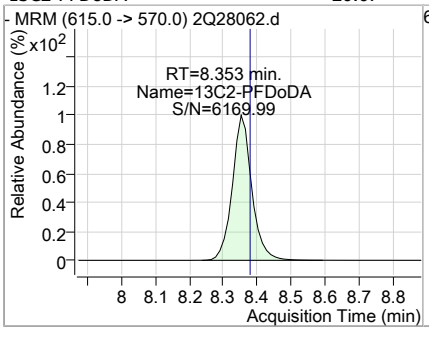
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	27.27	7.98	-0.01	473982				

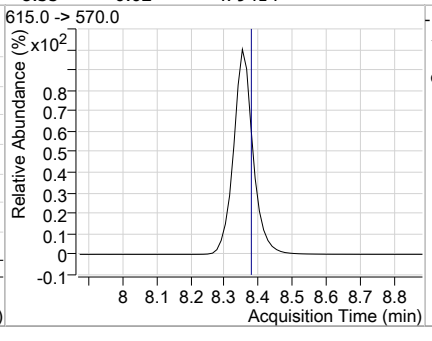


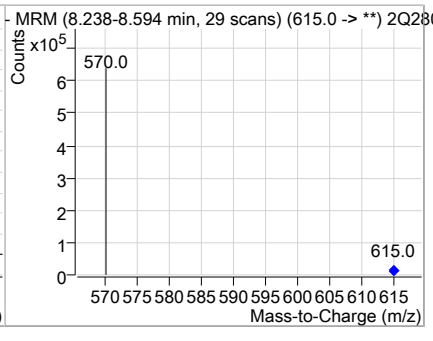




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	26.67	8.35	-0.02	479414				

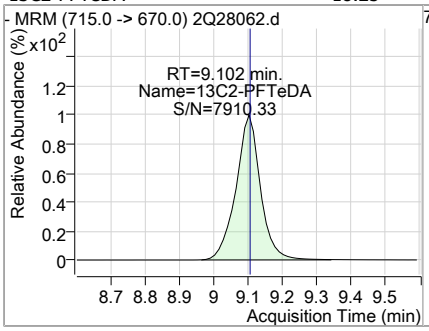


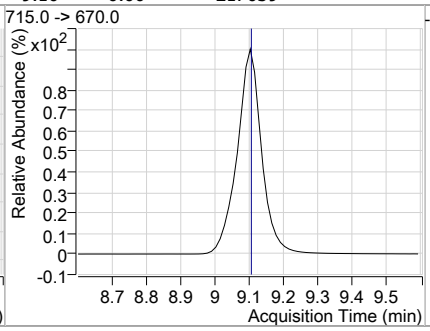


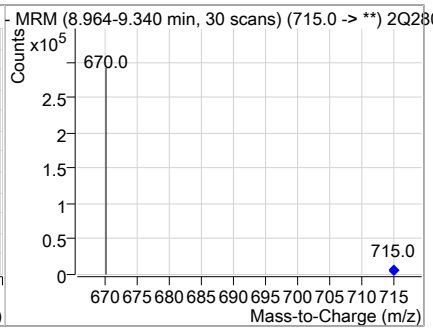


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.25	9.10	0.00	217039				







7.1.6

7

Manual Integration Approval Summary

Sample Number: FA62561-4
Lab FileID: 2Q28062.D
Injection Time: 03/24/19 23:44
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:31 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanoic acid	335-67-1		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.83	Split peak

Sample Results: **2Q28450.D**

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28450.d
Operator	:	natashag
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	4/1/2019 10:58:20 AM
Sample Name	:	fa62561-4
Vial	:	Vial 45
DA Method File	:	ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	:	s2q452.batch.bin
Sample Information	:	op74376,S2Q452,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.423	415.0 -> 370.0	438604	20.00	µg/L	0.051
13C4-PFOS	7.024	503.0 -> 80.0	59118	20.00	µg/L	0.039
M4-PFBA	1.852	217.0 -> 172.0	153850	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	135255	20.00	µg/L	0.013
M5-PFHxA	4.776	318.0 -> 273.0	204837	20.00	µg/L	0.038
M4-PFHpA	5.680	367.0 -> 322.0	317007	20.00	µg/L	0.026
M8-PFOA	6.421	421.0 -> 376.0	337881	20.00	µg/L	0.052
M9-PFNA	7.053	472.0 -> 427.0	371932	20.00	µg/L	0.038
M6-PFDA	7.594	519.0 -> 474.0	504291	20.00	µg/L	0.038
M7-PFUnDA	8.055	570.0 -> 525.0	676000	20.00	µg/L	0.013
M2-PFDoDA	8.527	615.0 -> 570.0	698606	20.00	µg/L	-0.013
M2-PFTeDA	9.803	715.0 -> 670.0	520990	20.00	µg/L	0.025
M8-FOSA	6.894	506.0 -> 78.0	85106	20.00	µg/L	0.013
M3-PFBS	3.767	302.0 -> 99.0	21604	20.00	µg/L	0.025
M3-PFHxS	5.723	402.0 -> 99.0	24279	20.00	µg/L	0.038
M8-PFOS	7.022	507.0 -> 99.0	32183	20.00	µg/L	0.039
M2-4:2FTS	4.671	329.0 -> 309.0	113097	20.00	µg/L	0.025
M2-6:2FTS	6.406	429.0 -> 409.0	157860	20.00	µg/L	0.040
M2-8:2FTS	7.630	529.0 -> 509.0	131467	20.00	µg/L	0.025
M3-MeFOSAA	7.409	573.0 -> 419.0	63509	20.00	µg/L	0.013
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	113435	21.41	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.1%		
13C2-6:2FTS	6.406	429.0 -> 409.0	157755	22.57	µg/L	0.040
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.9%		
13C2-8:2FTS	7.630	529.0 -> 509.0	131501	21.07	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C2-PFDoDA	8.527	615.0 -> 570.0	698090	16.56	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.8%		
13C2-PFTeDA	9.803	715.0 -> 670.0	521511	17.08	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.4%		
13C3-PFBS	3.767	302.0 -> 99.0	21599	19.62	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C3-PFHxS	5.723	402.0 -> 99.0	24275	19.61	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C4-PFBA	1.852	217.0 -> 172.0	153359	20.53	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C4-PFHpA	5.680	367.0 -> 322.0	316565	20.57	µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C5-PFHxA	4.776	318.0 -> 273.0	204631	20.17	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C5-PFPeA	3.511	268.0 -> 223.0	135479	20.11	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C6-PFDA	7.594	519.0 -> 474.0	503724	19.58	µg/L	0.038

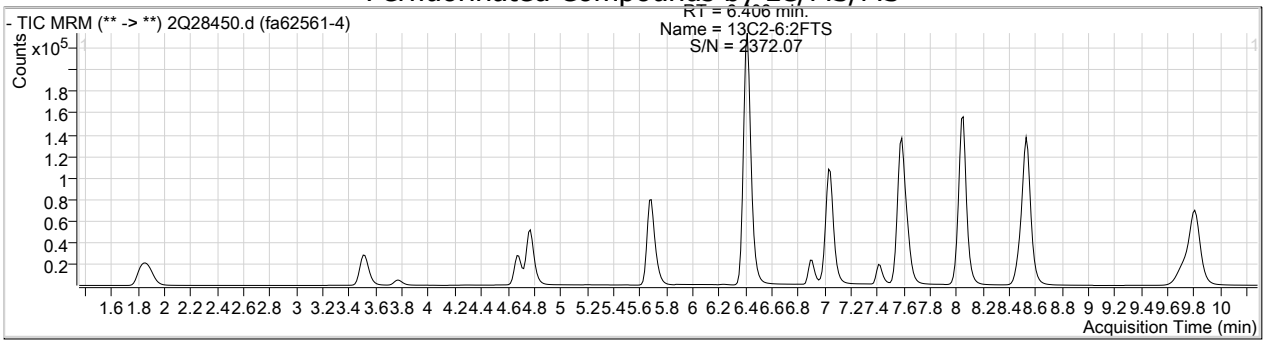
Sample Results: **2Q28450.D**

Perfluorinated Compounds by LC/MS/MS

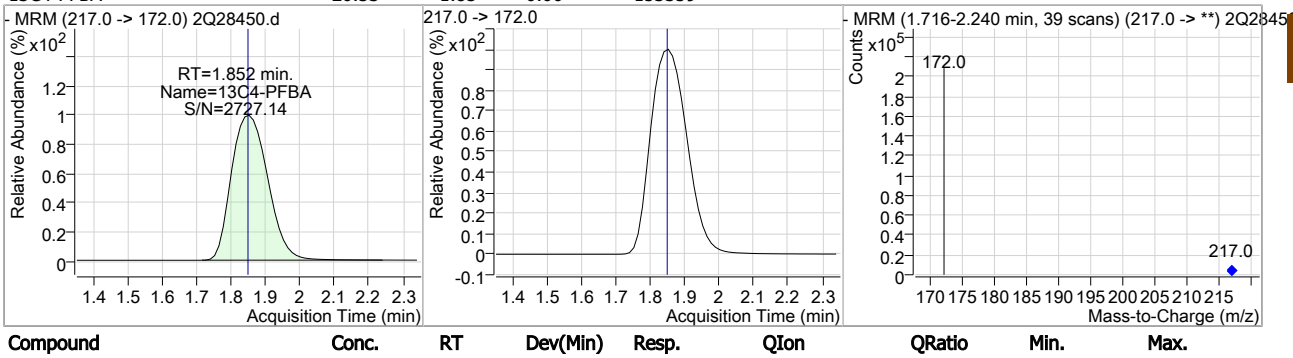
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C7-PFUnDA	8.055	570.0 -> 525.0	675902	19.81 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C8-FOSA	6.894	506.0 -> 78.0	85083	15.36 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 76.8%		
13C8-PFOA	6.421	421.0 -> 376.0	337635	20.84 µg/L		0.052
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C8-PFOS	7.022	507.0 -> 99.0	32182	18.96 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.8%		
13C9-PFNA	7.053	472.0 -> 427.0	371707	20.49 µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
d3-MeFOSAA	7.409	573.0 -> 419.0	63460	18.58 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
M2-PFOA	6.423	415.0 -> 370.0	438944	20.00 µg/L		0.051
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.024	503.0 -> 80.0	59122	19.99 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
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	1.860	213.0 -> 169.0	258	0.17 µg/L		100
PFBS	3.771	299.0 -> 80.0	171	0.10 µg/L	m	93
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.683	363.0 -> 319.0	2829	0.20 µg/L	m	99
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.778	313.0 -> 269.0	1478	0.41 µg/L		96
PFHxS	5.726	399.0 -> 80.0	1227	0.85 µg/L	m	100
PFNA	-	463.0 -> 419.0	-	N.D.		
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.424	413.0 -> 369.0	15123	1.67 µg/L	m	95
PFOS	-	499.0 -> 80.0	-	N.D.		
PFPeA	3.515	263.0 -> 219.0	1927	0.32 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.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

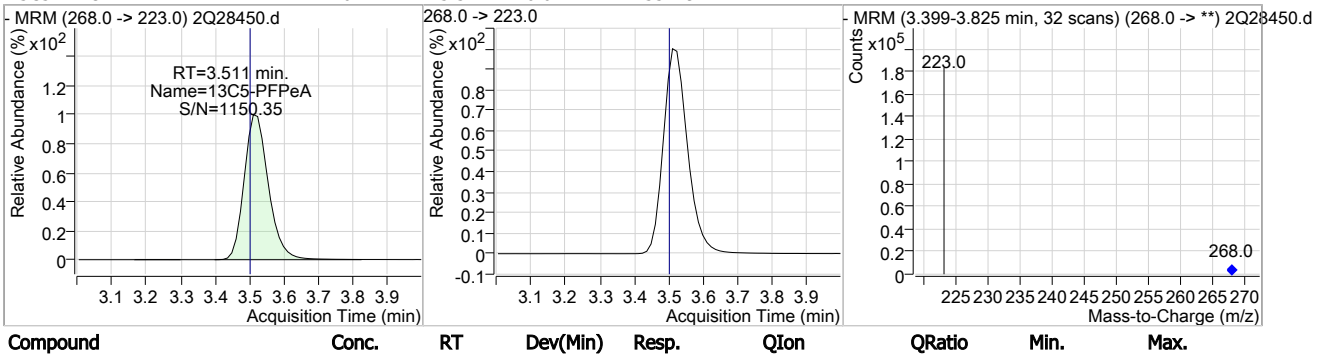
Perfluorinated Compounds by LC/MS/MS



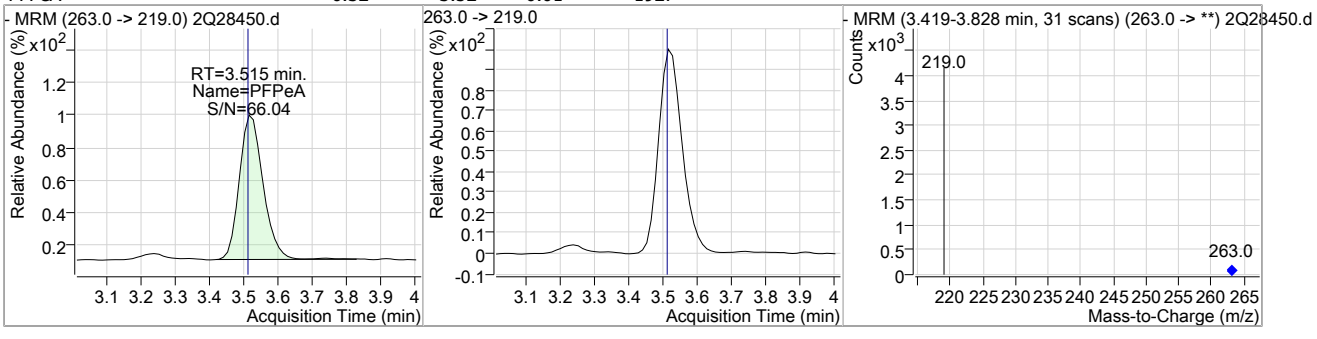
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.53	1.85	0.00	153359				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.11	3.51	0.01	135479				

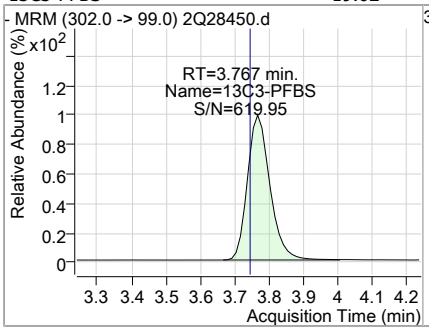


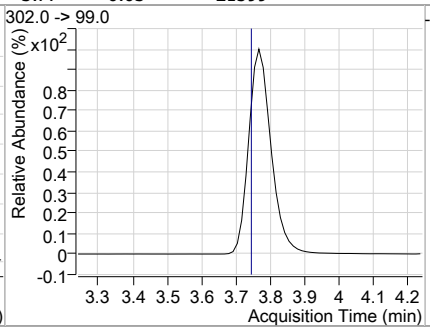
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.32	3.52	0.01	1927				

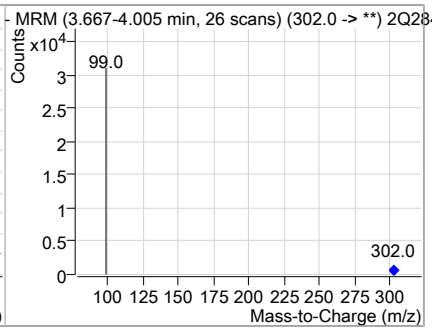


Perfluorinated Compounds by LC/MS/MS

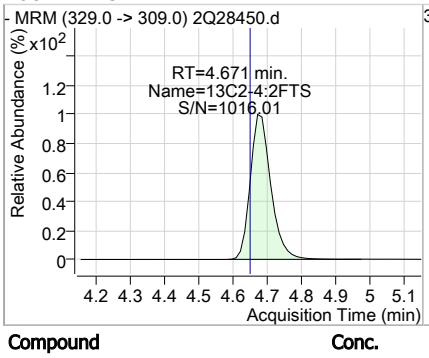
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.62	3.77	0.03	21599				

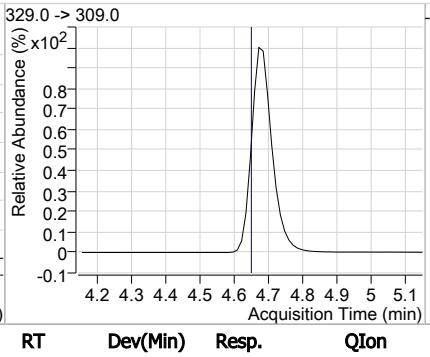


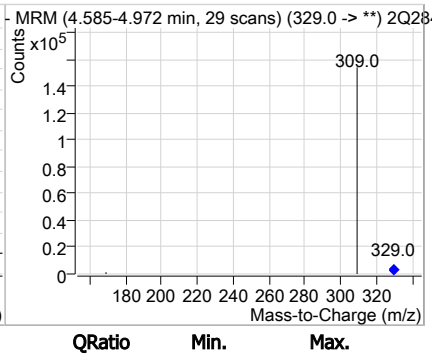




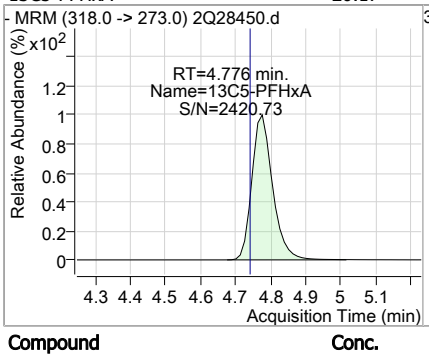
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	21.41	4.67	0.03	113435				

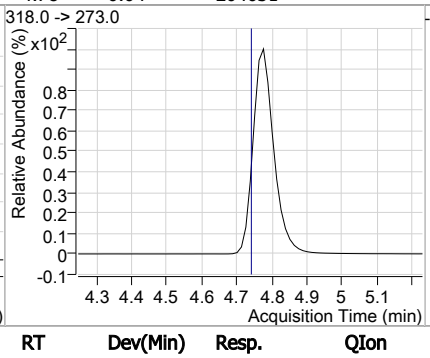


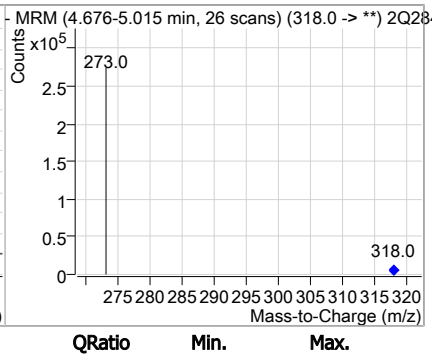




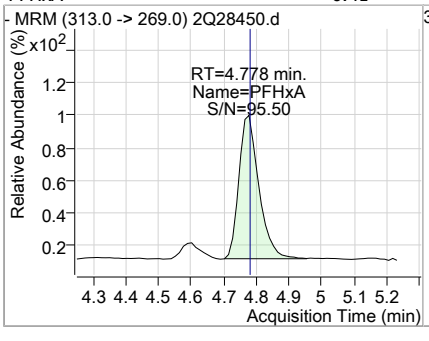
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.17	4.78	0.04	204631				

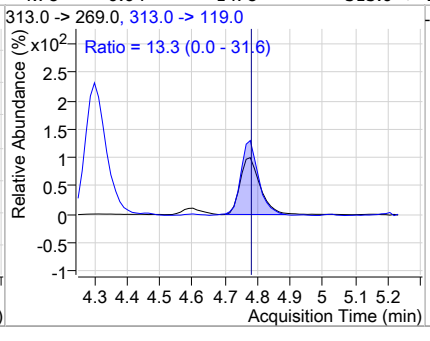


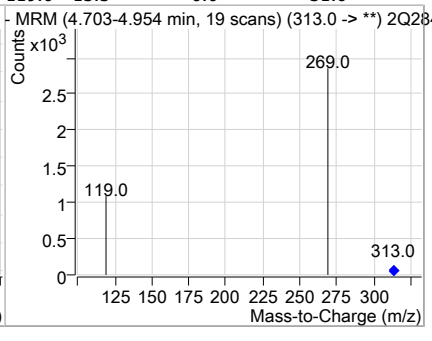




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.41	4.78	0.04	1478	313.0 -> 119.0	13.3	0.0	31.6

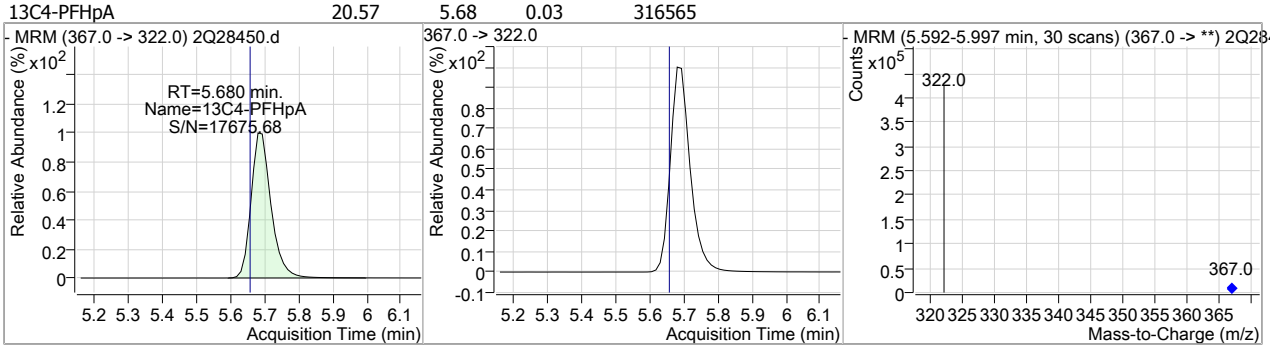




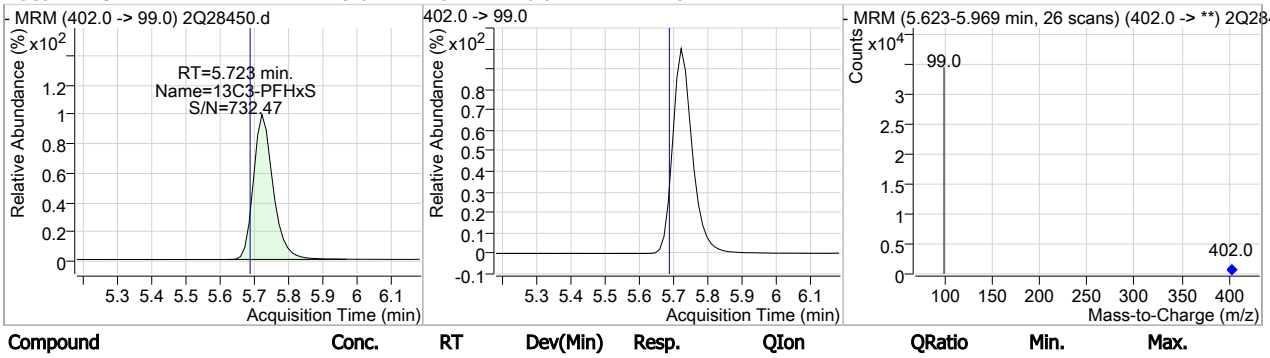


Perfluorinated Compounds by LC/MS/MS

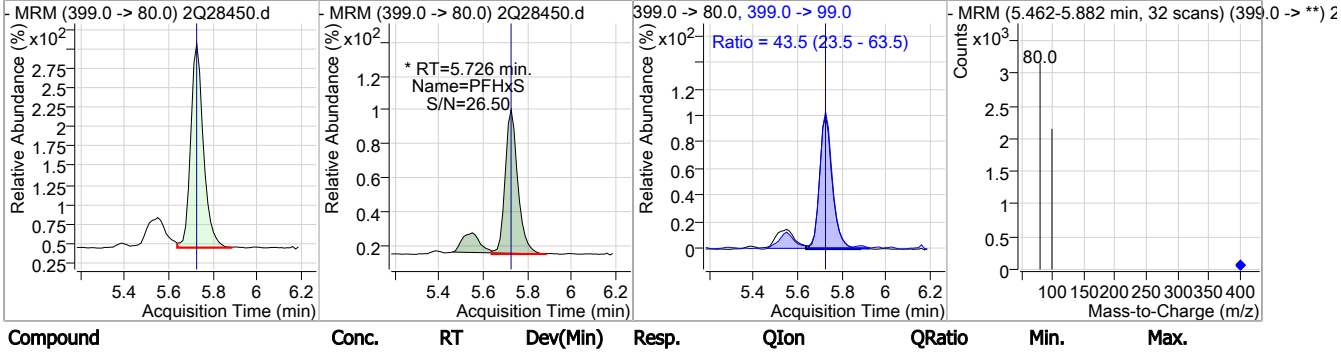
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.57	5.68	0.03	316565				



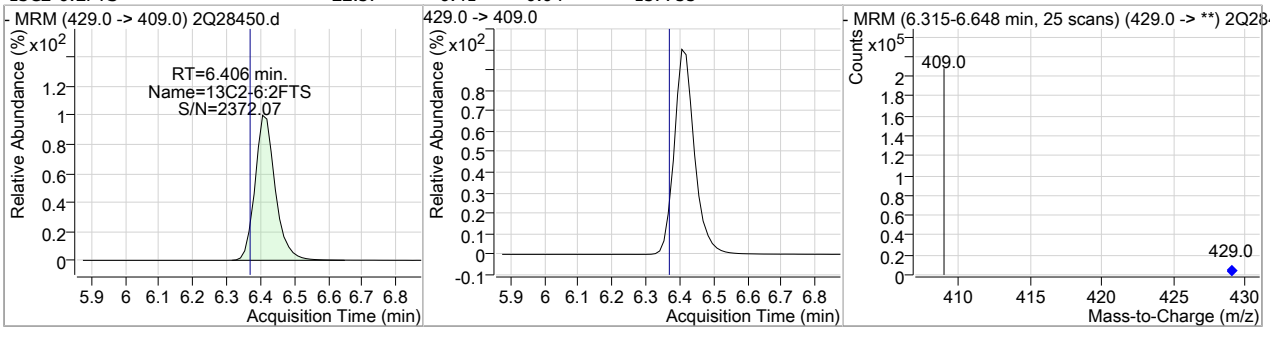
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.61	5.72	0.04	24275				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.85	5.73	0.04	1227 (m)	399.0 -> 99.0	43.5	23.5	63.5



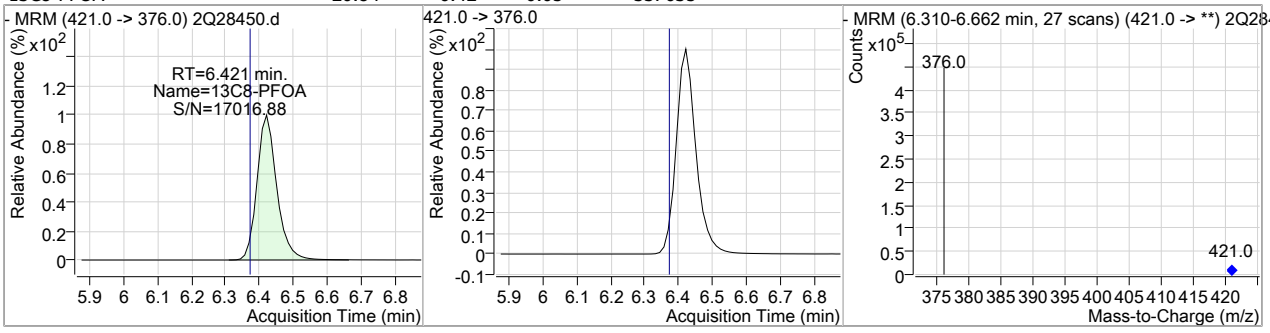
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	22.57	6.41	0.04	157755				



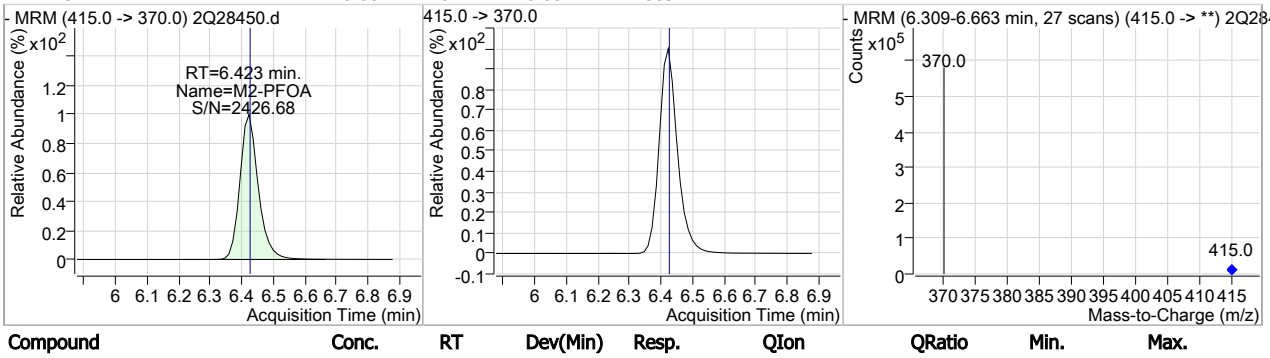
Sample Results: **2Q28450.D**

Perfluorinated Compounds by LC/MS/MS

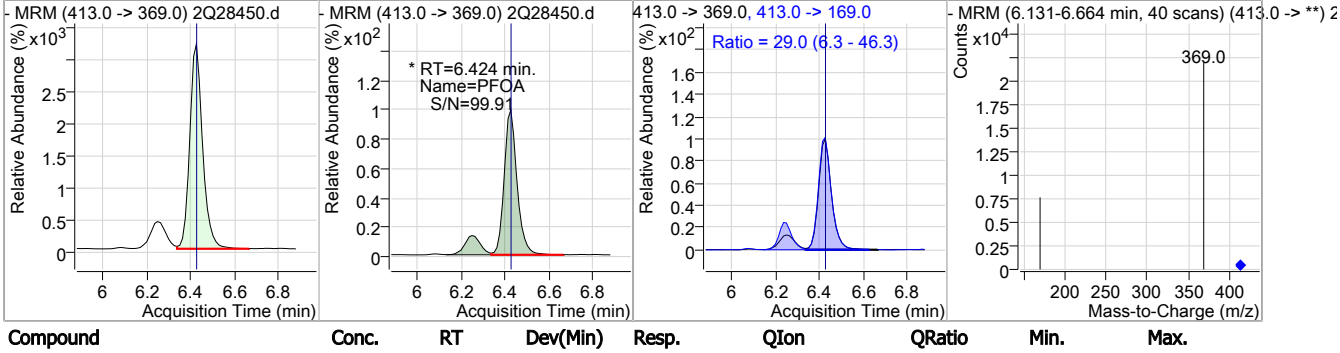
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.84	6.42	0.05	337635				



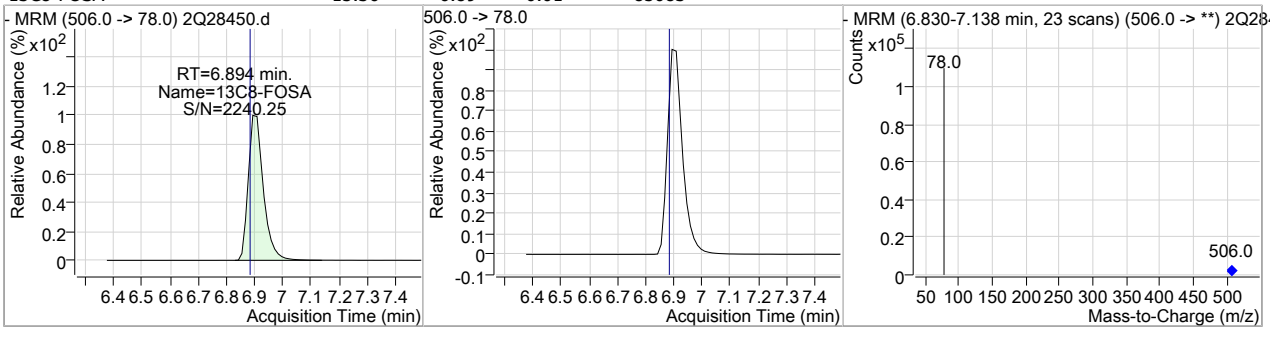
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.42	0.05	438944				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.67	6.42	0.05	15123 (m)	413.0 -> 169.0	29.0	6.3	46.3

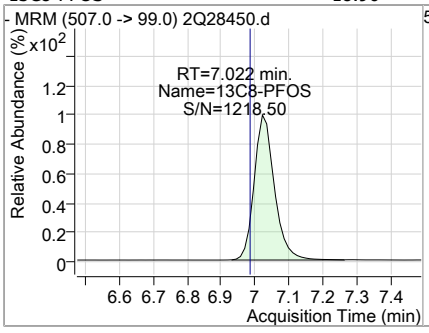


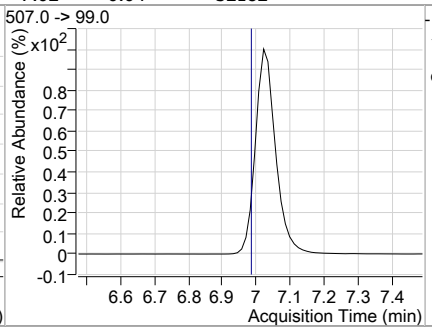
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	15.36	6.89	0.01	85083				

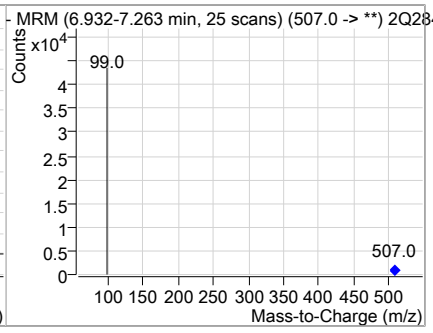


Perfluorinated Compounds by LC/MS/MS

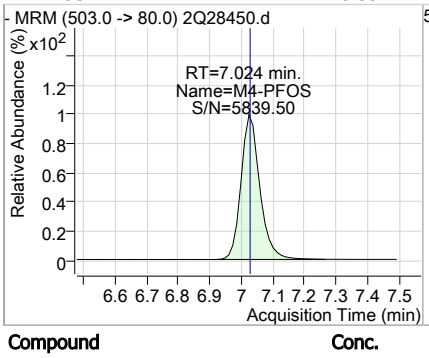
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.96	7.02	0.04	32182				

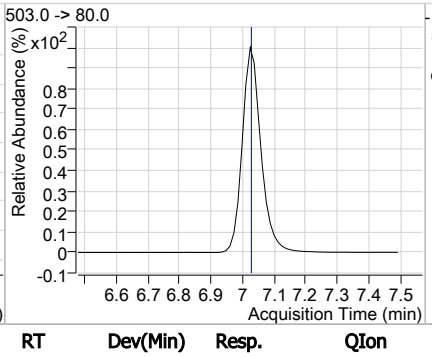


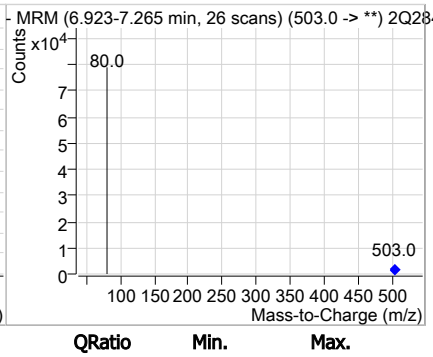




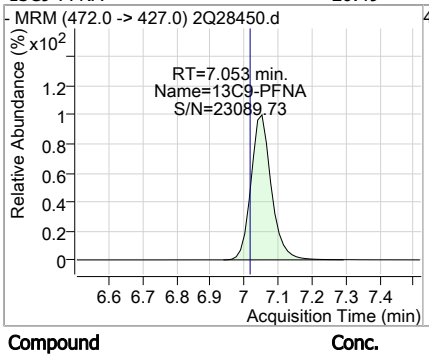
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.02	0.04	59122				

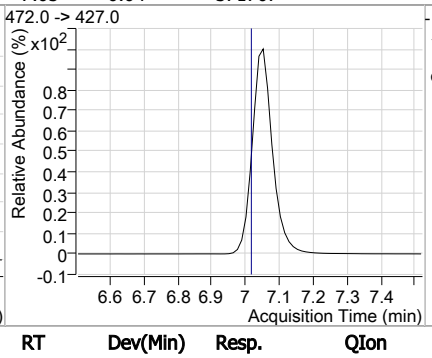


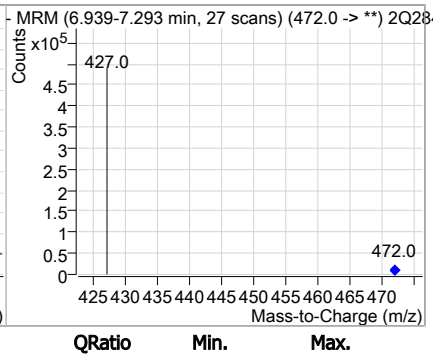




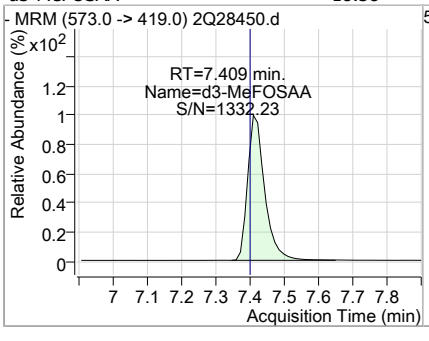
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.49	7.05	0.04	371707				

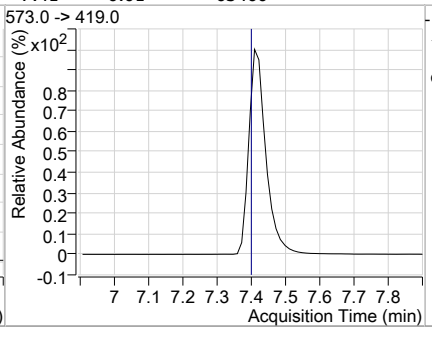


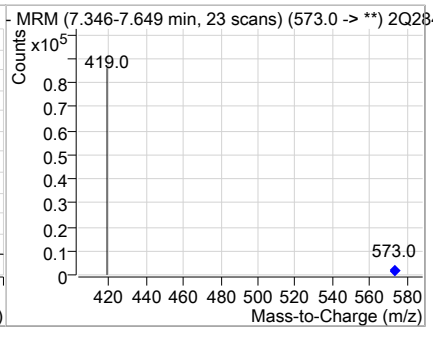




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.58	7.41	0.01	63460				

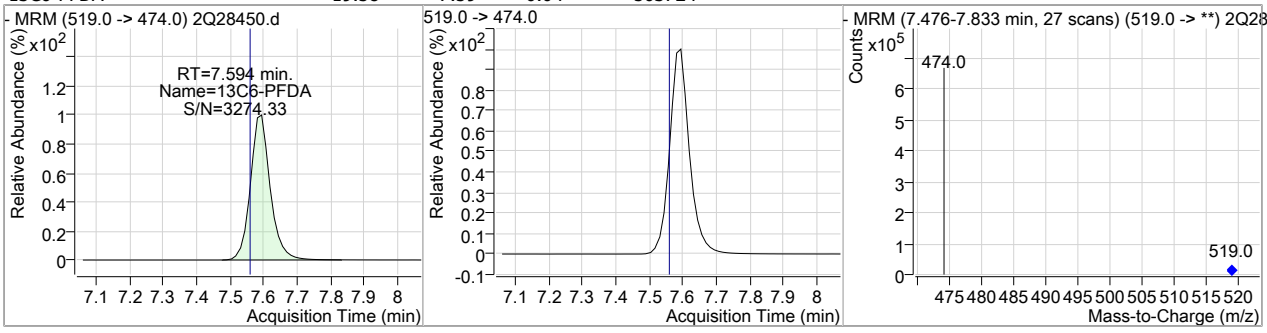




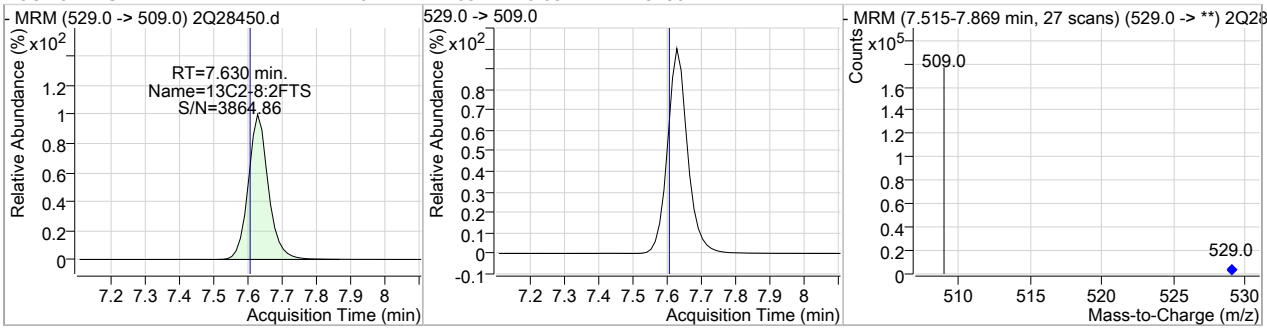


Perfluorinated Compounds by LC/MS/MS

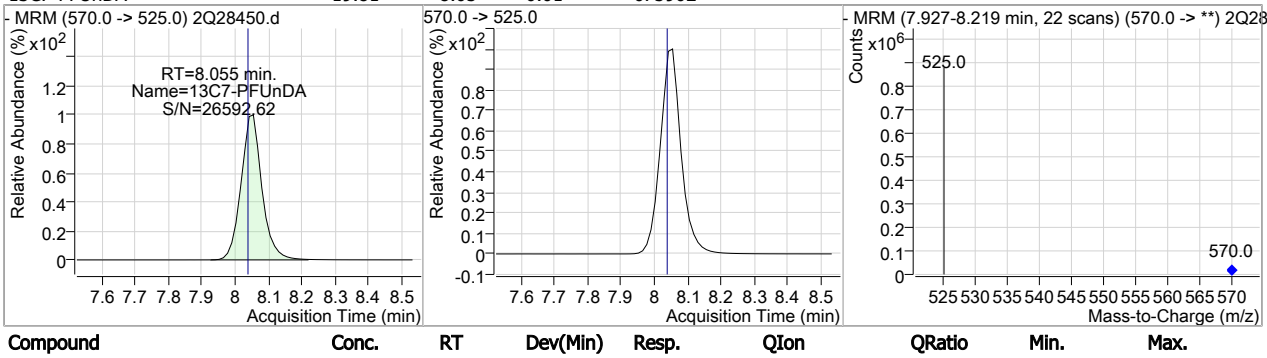
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.58	7.59	0.04	503724				



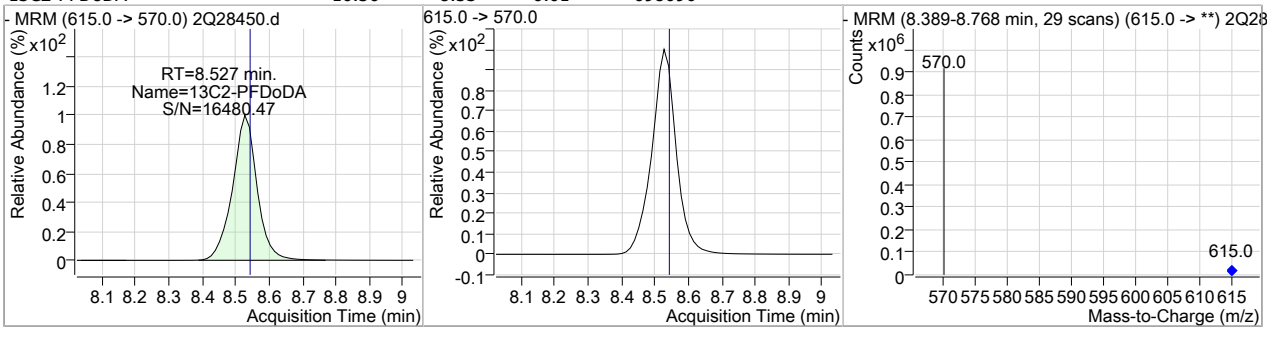
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	21.07	7.63	0.03	131501				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.81	8.05	0.01	675902				



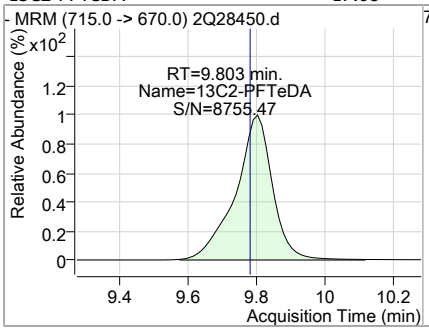
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	16.56	8.53	-0.01	698090				

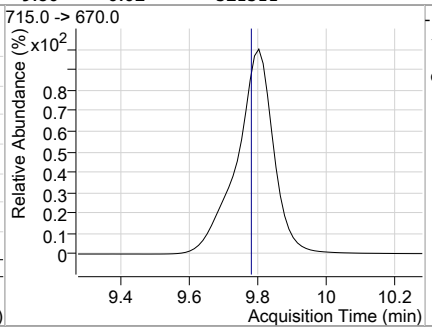


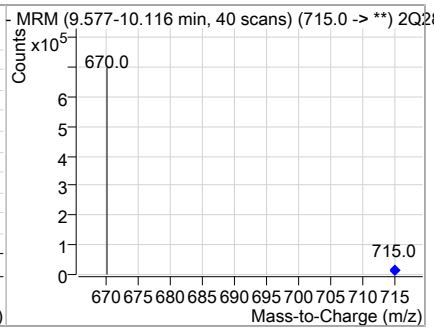
Sample Results: **2Q28450.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	17.08	9.80	0.02	521511				







7.1.7

7

Manual Integration Approval Summary

Sample Number: FA62561-4 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28450.D **Analyst approved:** 04/01/19 13:48 Natasha Gumtie
Injection Time: 04/01/19 10:58 **Supervisor approved:** 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		3.77	Split peak
Perfluoroheptanoic acid	375-85-9		5.68	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanoic acid	335-67-1		6.42	Split peak

Sample Results: 2Q28064.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28064.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 12:16:03 AM
Sample Name : fa62561-5
Vial : Vial 48
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74263,S2Q447,125,,,1.0,1,water

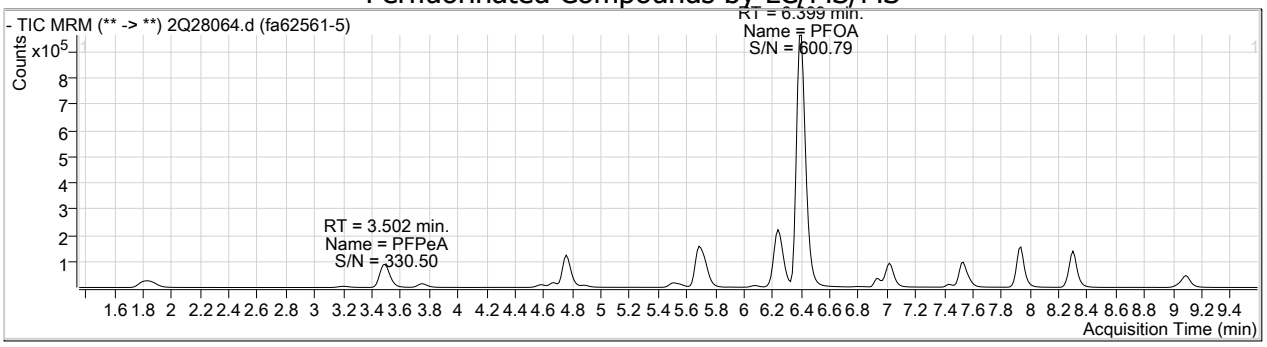
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.409	415.0 -> 370.0	260707	20.00 µg/L	0.012
13C4-PFOS	7.011	503.0 -> 80.0	59232	20.00 µg/L	0.013
M4-PFBA	1.827	217.0 -> 172.0	170937	20.00 µg/L	-0.025
M5-PFPeA	3.499	268.0 -> 223.0	131737	20.00 µg/L	0.000
M5-PFHxA	4.763	318.0 -> 273.0	170046	20.00 µg/L	0.000
M4-PFHpA	5.692	367.0 -> 322.0	240793	20.00 µg/L	0.012
M8-PFOA	6.407	421.0 -> 376.0	209074	20.00 µg/L	0.012
M9-PFNA	7.027	472.0 -> 427.0	278793	20.00 µg/L	0.013
M6-PFDA	7.531	519.0 -> 474.0	365008	20.00 µg/L	-0.011
M7-PFUnDA	7.941	570.0 -> 525.0	588926	20.00 µg/L	-0.050
M2-PFDoDA	8.303	615.0 -> 570.0	557843	20.00 µg/L	-0.073
M2-PFTeDA	9.089	715.0 -> 670.0	226962	20.00 µg/L	-0.012
M8-FOSA	6.933	506.0 -> 78.0	121631	20.00 µg/L	0.015
M3-PFBS	3.755	302.0 -> 99.0	24210	20.00 µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	23792	20.00 µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	33284	20.00 µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	66658	20.00 µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	56707	20.00 µg/L	0.012
M2-8:2FTS	7.579	529.0 -> 509.0	50337	20.00 µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	37397	20.00 µg/L	0.000
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.671	329.0 -> 309.0	66677	23.43 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.1%	
13C2-6:2FTS	6.403	429.0 -> 409.0	56767	18.84 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.2%	
13C2-8:2FTS	7.579	529.0 -> 509.0	50358	23.17 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.9%	
13C2-PFDoDA	8.303	615.0 -> 570.0	557674	31.02 µg/L	-0.073
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 155.1%	
13C2-PFTeDA	9.089	715.0 -> 670.0	226447	19.04 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
13C3-PFBS	3.755	302.0 -> 99.0	24180	23.57 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.8%	
13C3-PFHxS	5.723	402.0 -> 99.0	23790	21.41 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C4-PFBA	1.827	217.0 -> 172.0	170466	26.08 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 130.4%	
13C4-PFHpA	5.692	367.0 -> 322.0	240513	23.26 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.3%	
13C5-PFHxA	4.763	318.0 -> 273.0	169883	22.92 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.6%	
13C5-PFPeA	3.499	268.0 -> 223.0	131735	23.95 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.7%	
13C6-PFDA	7.531	519.0 -> 474.0	365186	26.57 µg/L	-0.011

Perfluorinated Compounds by LC/MS/MS

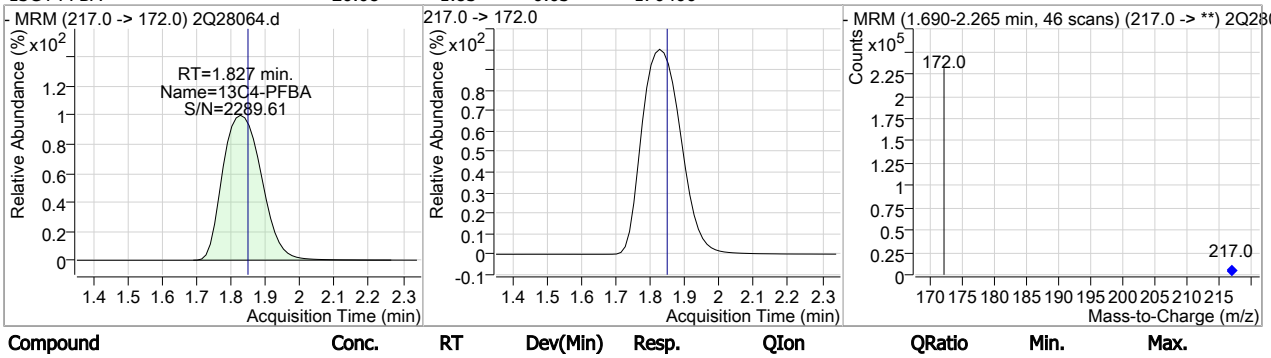
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 132.8%		
13C7-PFUnDA	7.941	570.0 -> 525.0	588763	33.87 µg/L		-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 169.4%		
13C8-FOSA	6.933	506.0 -> 78.0	121652	27.12 µg/L		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 135.6%		
13C8-PFOA	6.407	421.0 -> 376.0	208986	20.28 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C8-PFOS	7.008	507.0 -> 99.0	33276	23.27 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.4%		
13C9-PFNA	7.027	472.0 -> 427.0	278677	26.74 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 133.7%		
d3-MeFOSAA	7.434	573.0 -> 419.0	37431	21.35 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
M2-PFOA	6.409	415.0 -> 370.0	261191	20.03 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
M4-PFOS	7.011	503.0 -> 80.0	59255	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	898	0.46 µg/L		100
6:2FTS	6.392	427.0 -> 407.0	12179	8.51 µg/L		100
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	1.835	213.0 -> 169.0	31284	18.72 µg/L		100
PFBS	3.746	299.0 -> 80.0	31490	16.05 µg/L	m	97
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.695	363.0 -> 319.0	346664	32.11 µg/L	m	98
PFHpS	6.429	449.0 -> 80.0	3253	2.93 µg/L	m	90
PFHxA	4.765	313.0 -> 269.0	306365	103.33 µg/L		100
PFHxS	5.726	399.0 -> 80.0	222187	168.96 µg/L	m	98
PFNA	7.028	463.0 -> 419.0	4000	0.44 µg/L	m	84
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.399	413.0 -> 369.0	3815974	679.47 µg/L	m	96
PFOS	6.806	499.0 -> 80.0	15772	9.63 µg/L	m	81
PFPeA	3.502	263.0 -> 219.0	337338	57.42 µg/L	m	100
PFPeS	4.883	349.0 -> 80.0	21584	17.19 µg/L	m	97
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

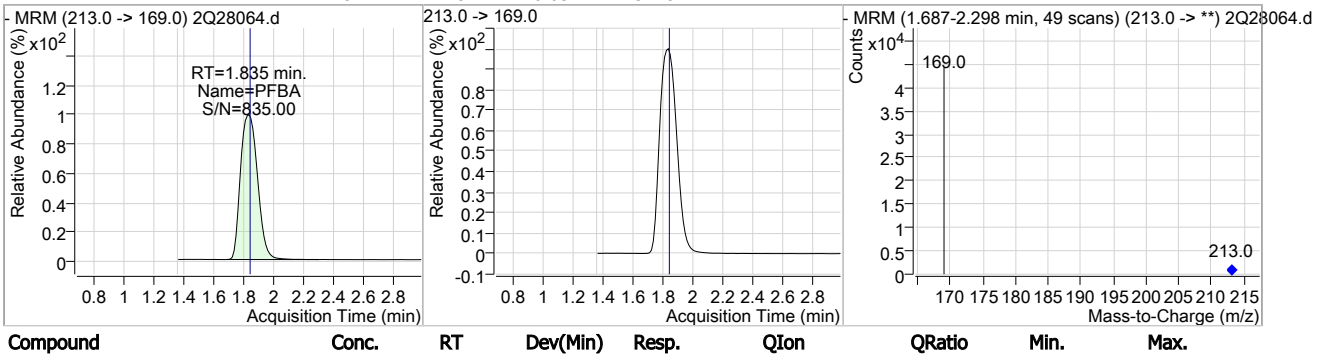
Perfluorinated Compounds by LC/MS/MS



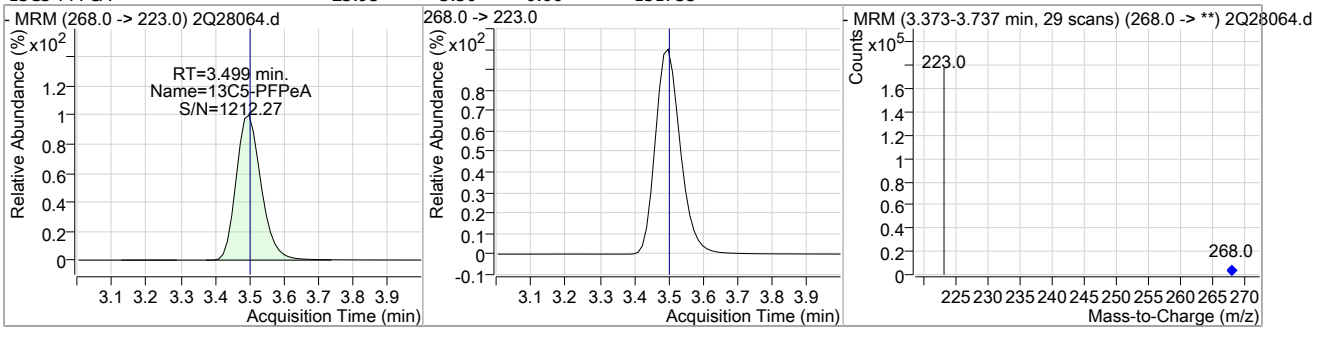
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	26.08	1.83	-0.03	170466				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.72	1.84	-0.03	31284				

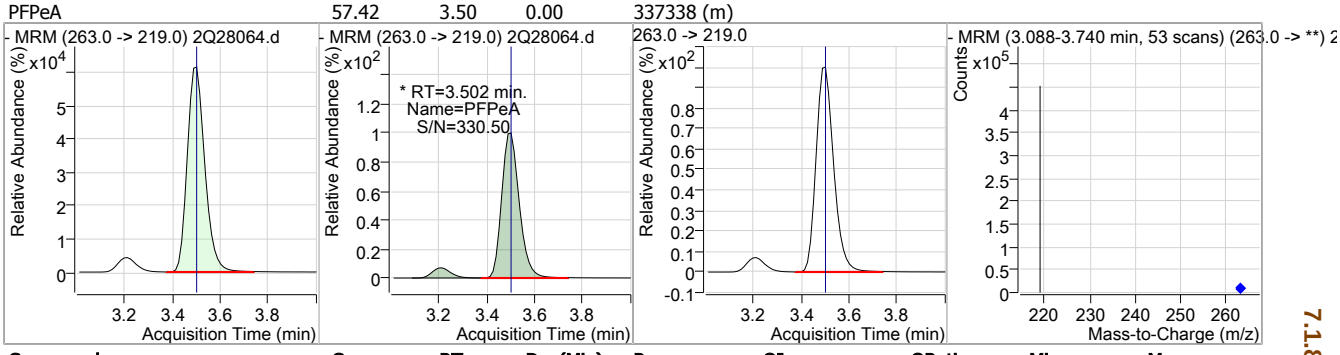


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	23.95	3.50	0.00	131735				

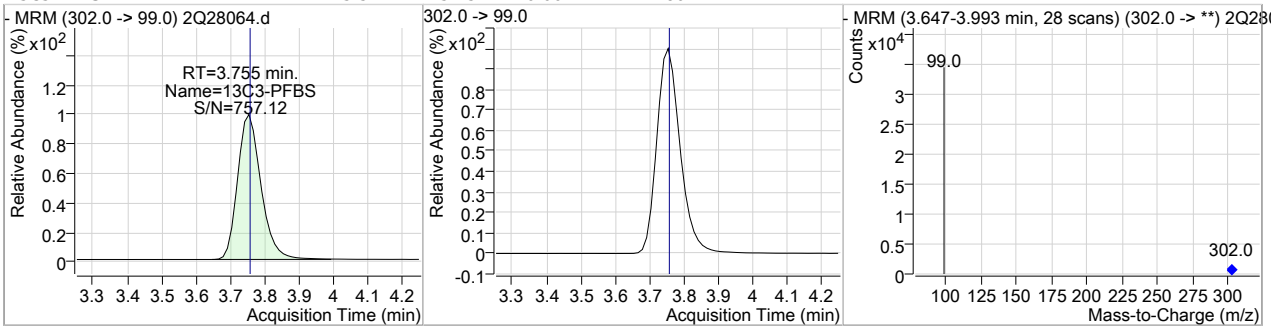


Perfluorinated Compounds by LC/MS/MS

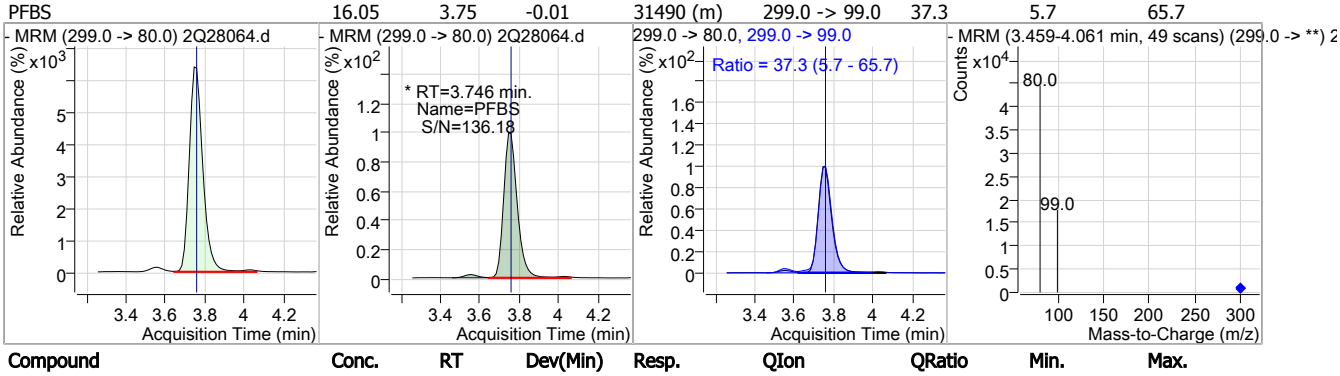
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	57.42	3.50	0.00	337338 (m)				



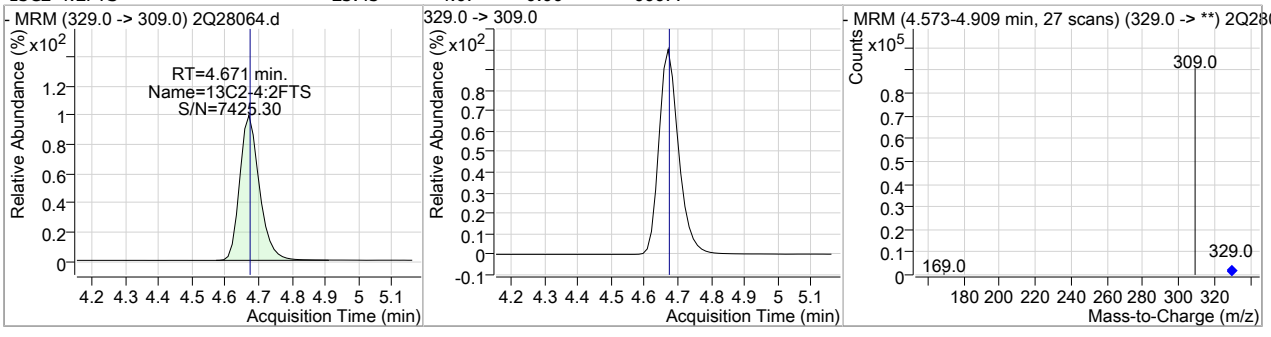
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	23.57	3.75	0.00	24180				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	16.05	3.75	-0.01	31490 (m)	299.0 -> 99.0	37.3	5.7	65.7

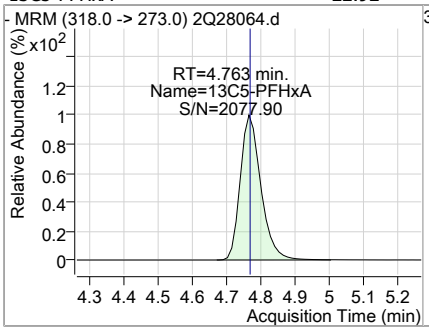


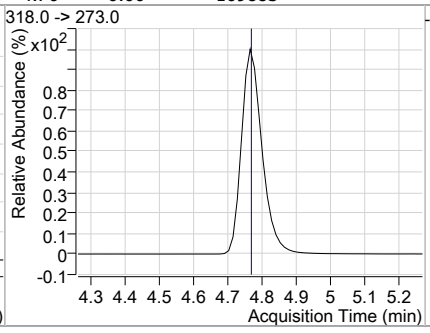
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	23.43	4.67	0.00	66677				

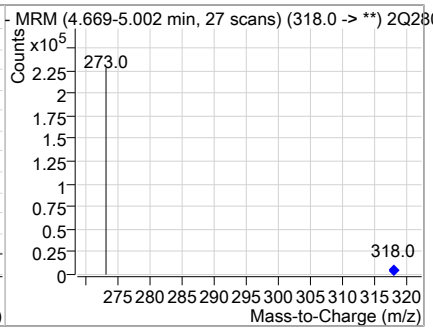


Perfluorinated Compounds by LC/MS/MS

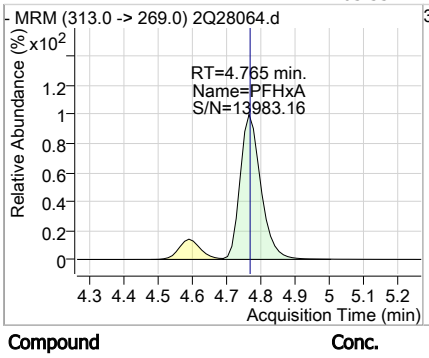
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	22.92	4.76	0.00	169883				

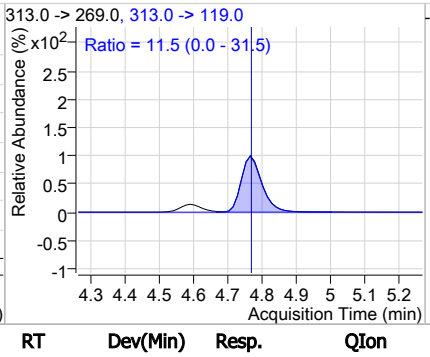


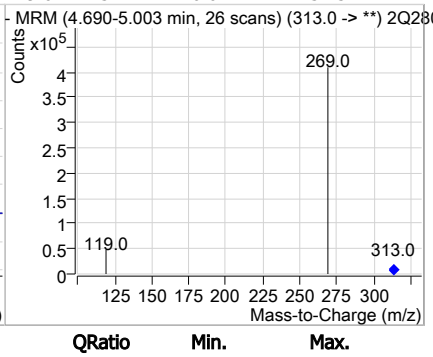




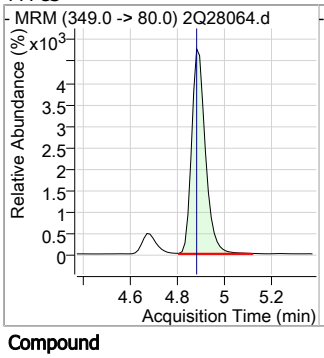
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	103.33	4.77	0.00	306365	313.0 -> 119.0	11.5	0.0	31.5

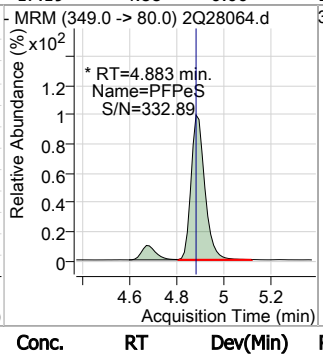


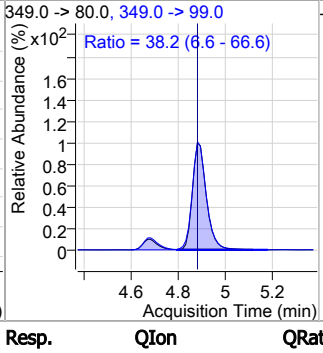


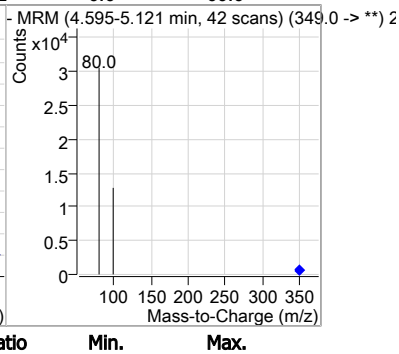


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	17.19	4.88	0.00	21584 (m)	349.0 -> 99.0	38.2	6.6	66.6

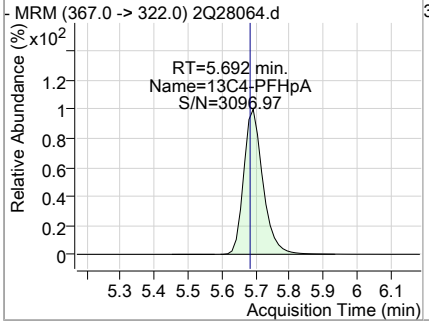


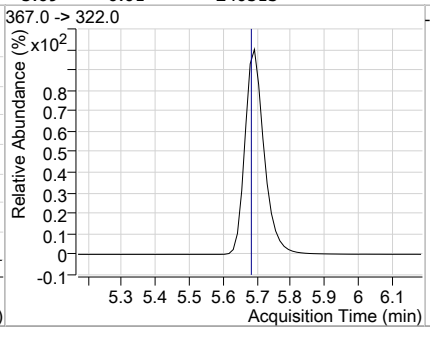


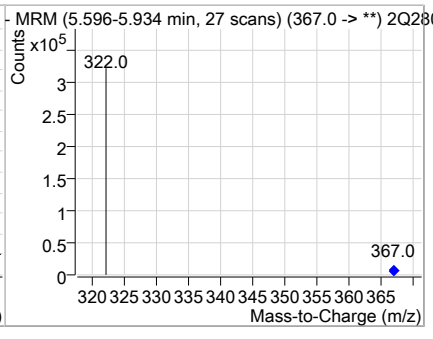




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	23.26	5.69	0.01	240513				

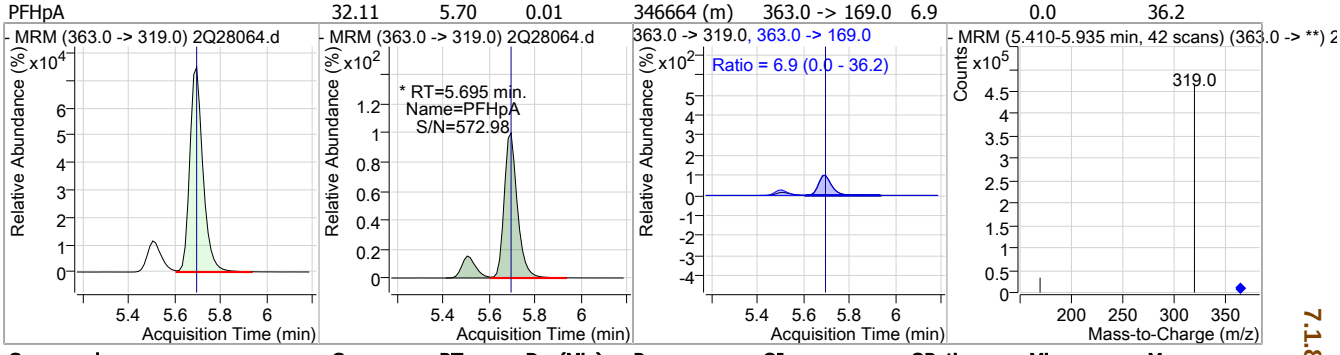




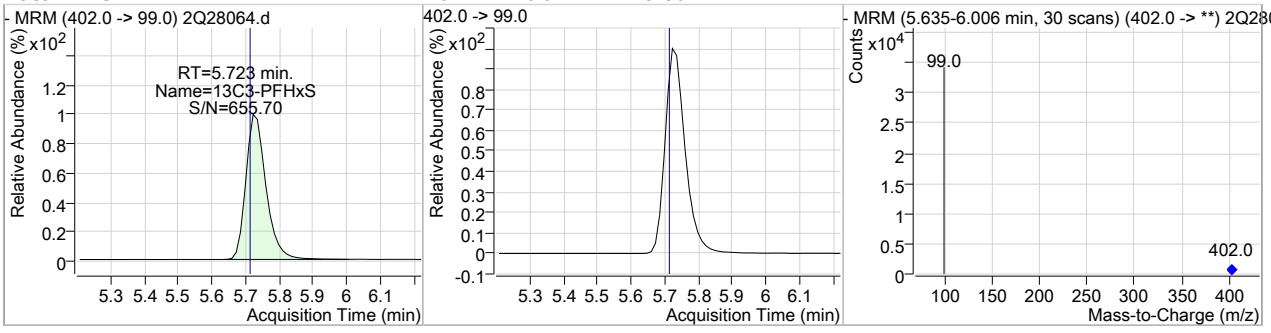


Perfluorinated Compounds by LC/MS/MS

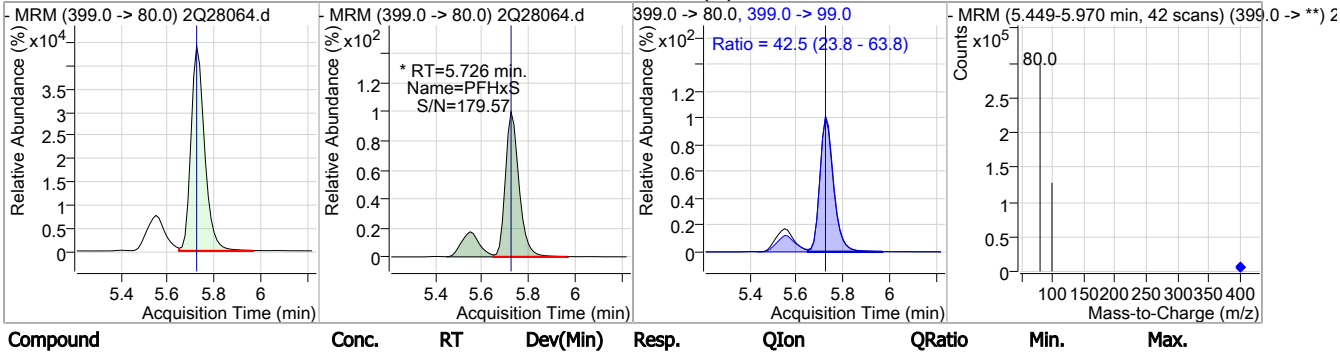
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	32.11	5.70	0.01	346664 (m)	363.0 -> 169.0	6.9	0.0	36.2



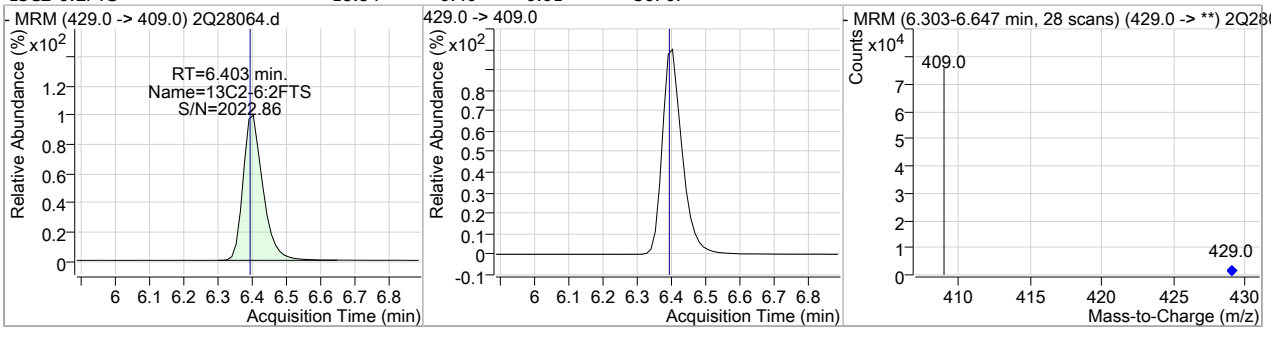
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.41	5.72	0.01	23790				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	168.96	5.73	0.01	222187 (m)	399.0 -> 99.0	42.5	23.8	63.8

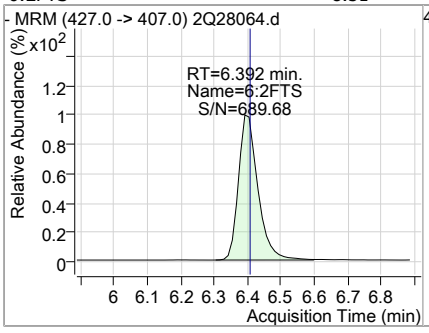


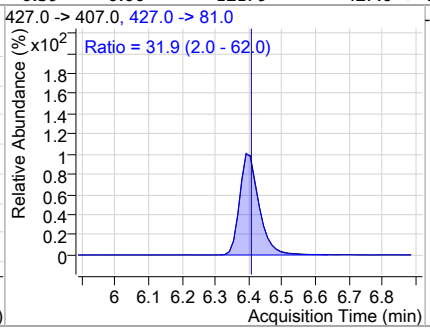
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.84	6.40	0.01	56767				

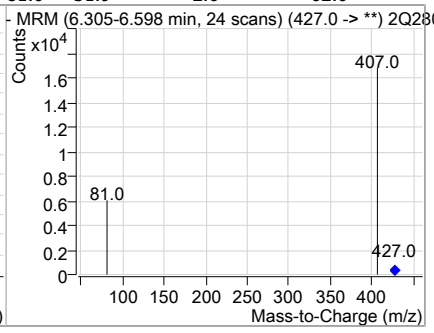


Perfluorinated Compounds by LC/MS/MS

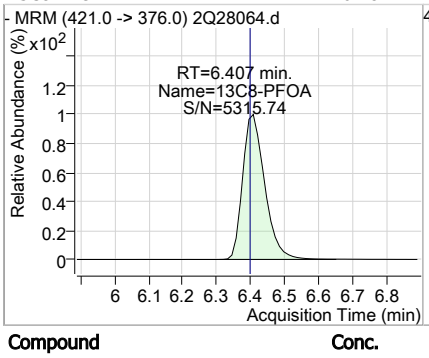
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	8.51	6.39	0.00	12179	427.0 -> 81.0	31.9	2.0	62.0

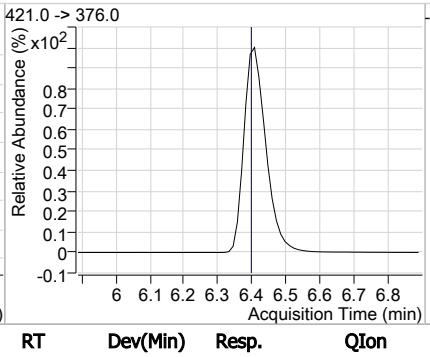


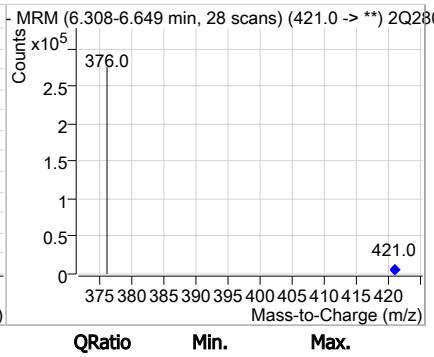




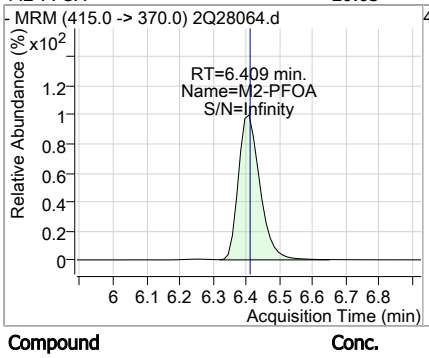
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.28	6.41	0.01	208986				

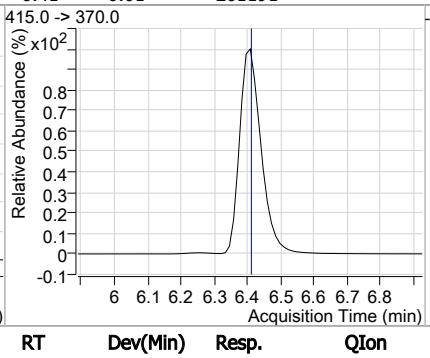


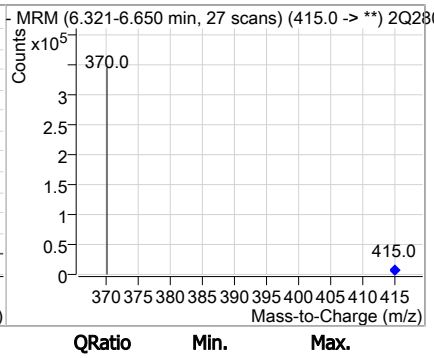




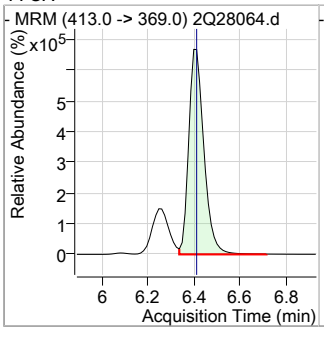
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.03	6.41	0.01	261191				

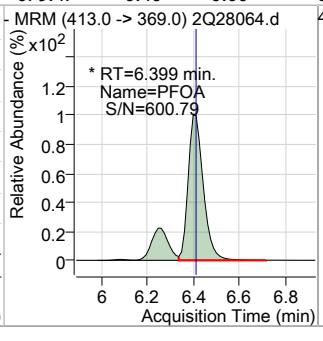


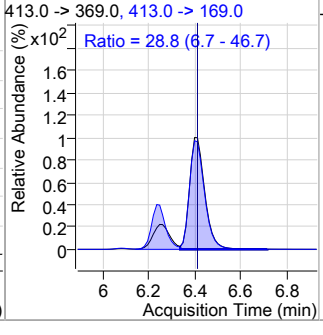


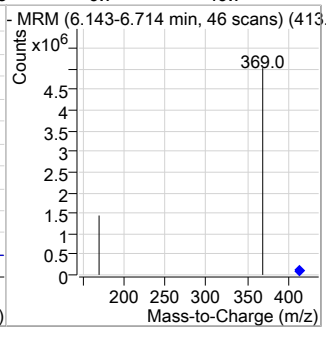


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	679.47	6.40	0.00	3815974 (m)	413.0 -> 169.0	28.8	6.7	46.7







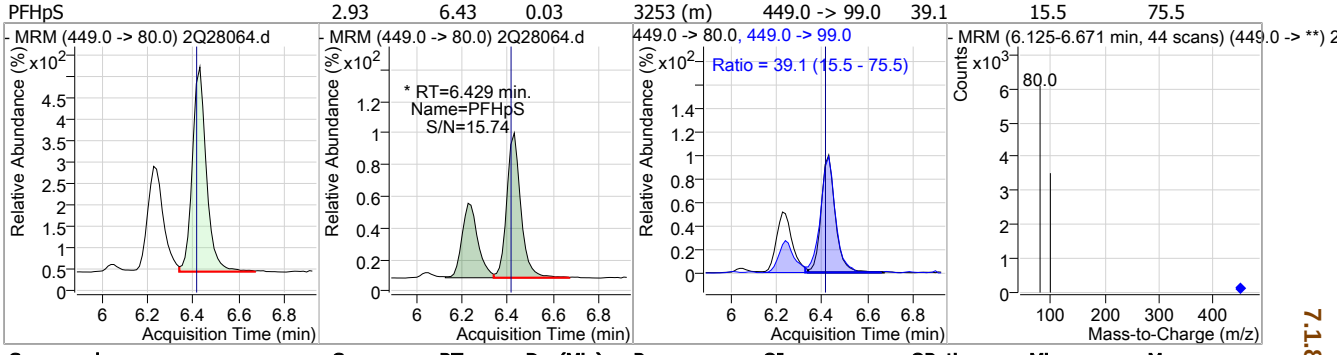


7.1.8

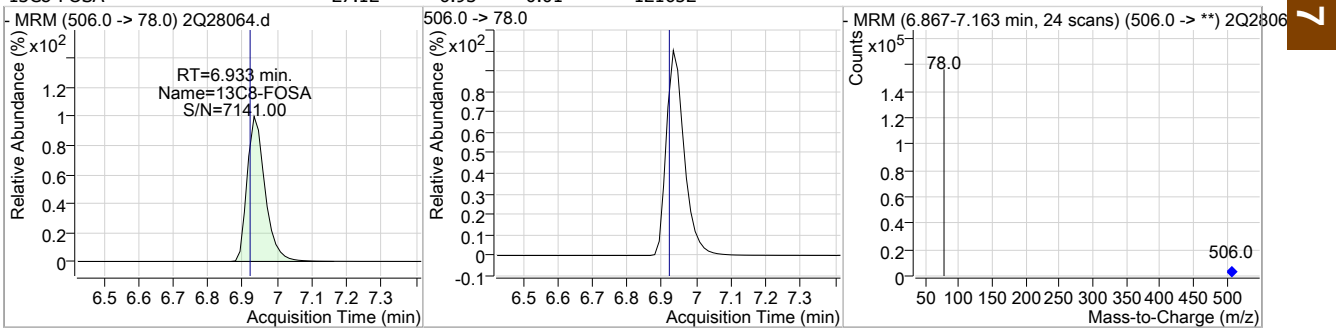
7

Perfluorinated Compounds by LC/MS/MS

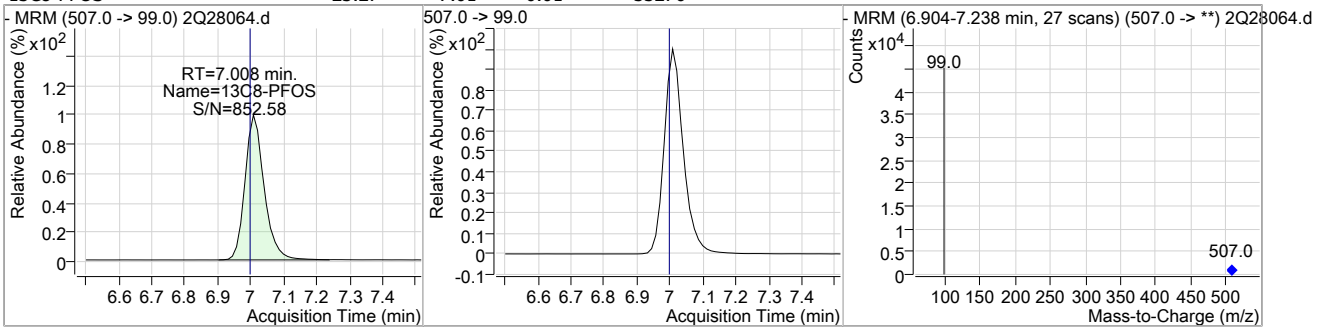
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.93	6.43	0.03	3253 (m)	449.0 -> 99.0	39.1	15.5	75.5



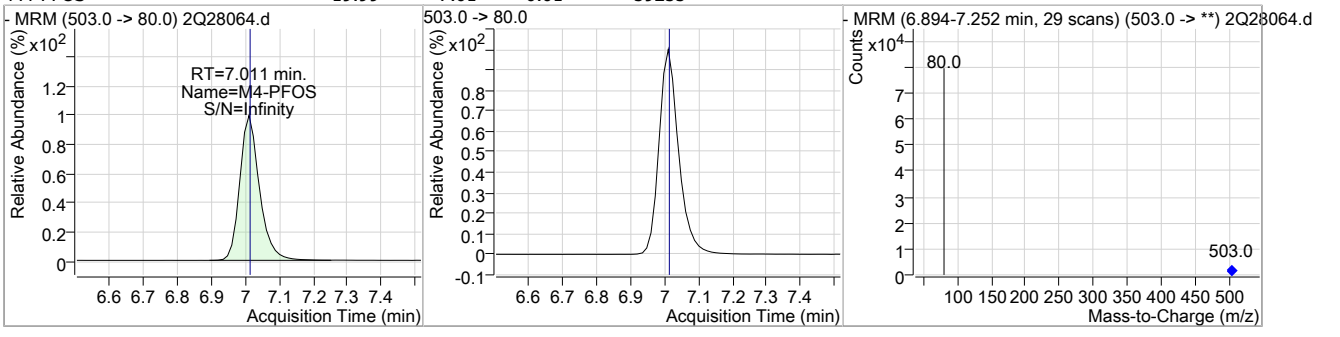
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	27.12	6.93	0.01	121652				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	23.27	7.01	0.01	33276				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.01	59255				

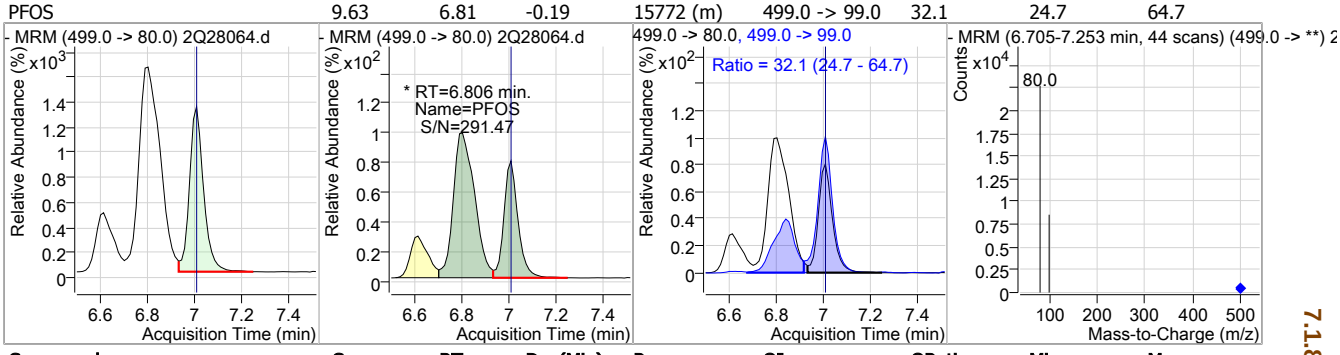


7.1.8

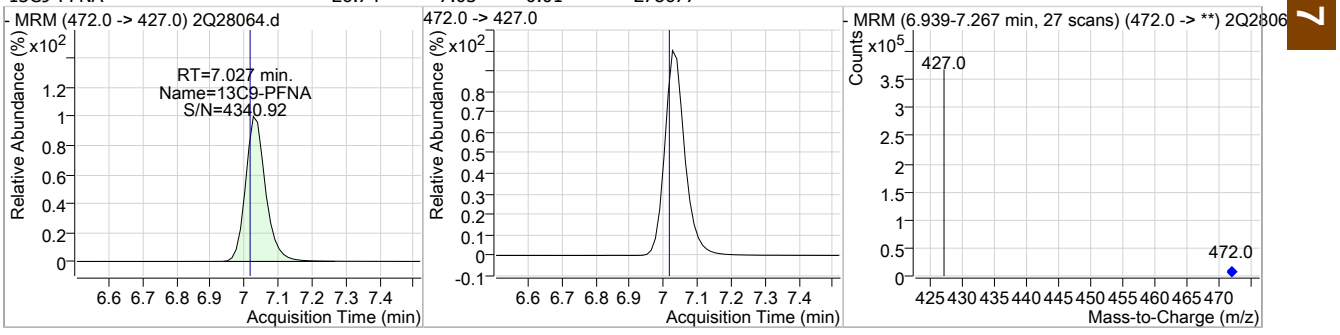
7

Perfluorinated Compounds by LC/MS/MS

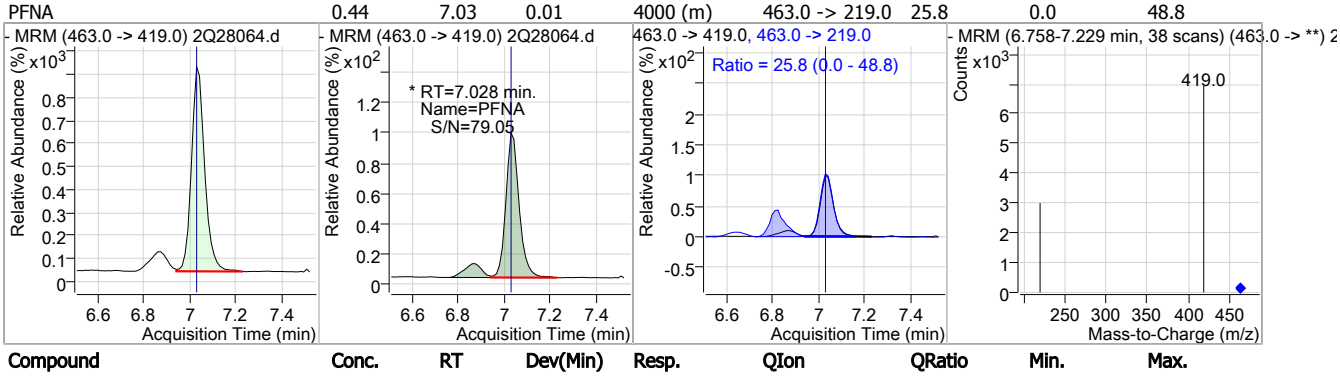
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.63	6.81	-0.19	15772 (m)	499.0 -> 99.0	32.1	24.7	64.7



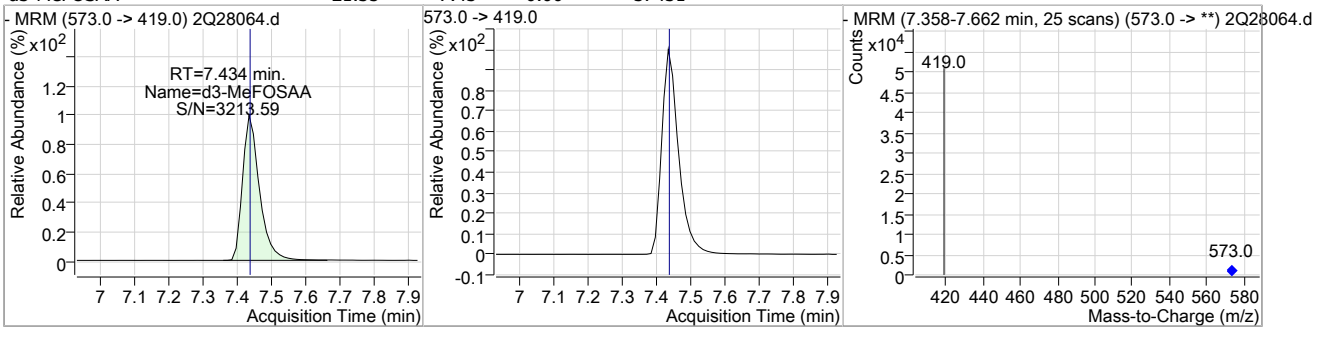
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	26.74	7.03	0.01	278677				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.44	7.03	0.01	4000 (m)	463.0 -> 219.0	25.8	0.0	48.8

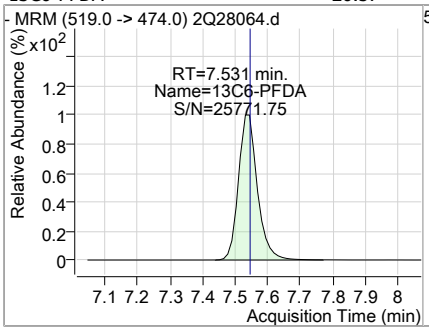


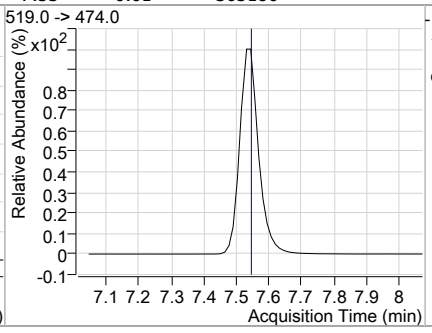
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.35	7.43	0.00	37431				

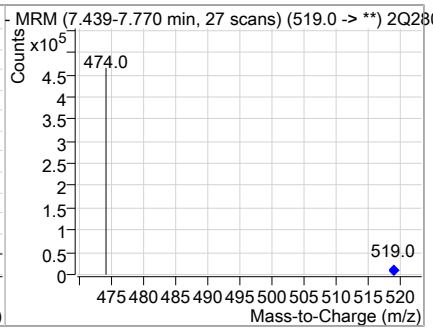


Perfluorinated Compounds by LC/MS/MS

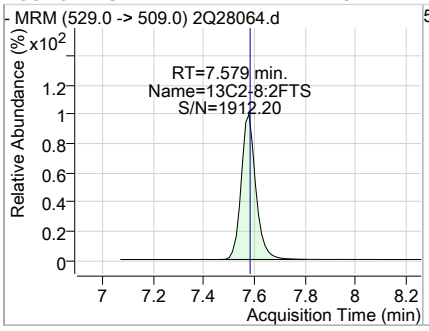
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	26.57	7.53	-0.01	365186				

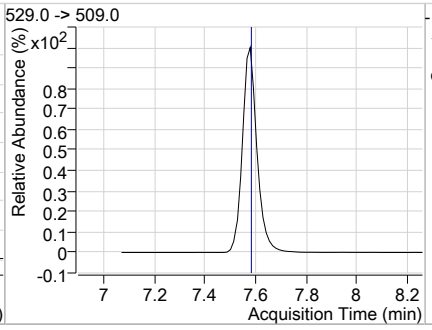


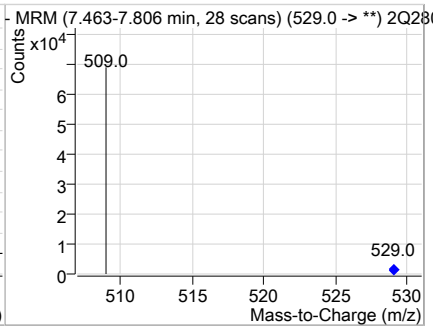




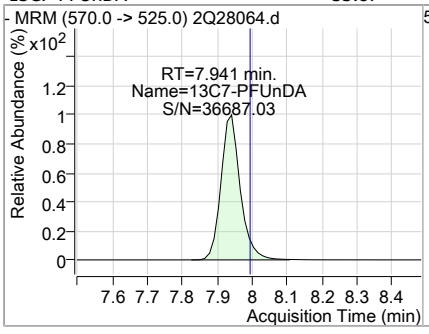
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	23.17	7.58	0.00	50358				

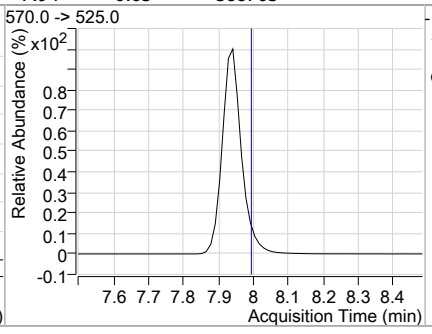


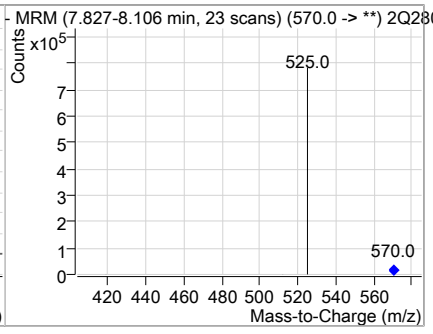




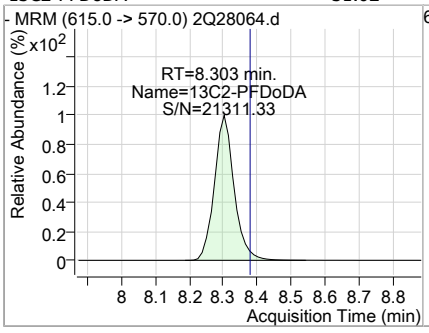
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	33.87	7.94	-0.05	588763				

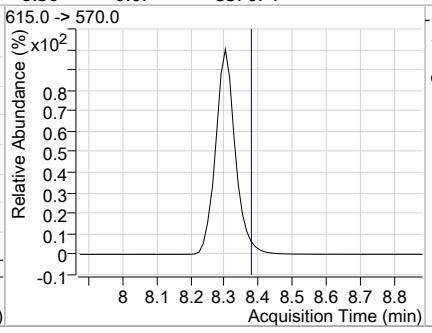


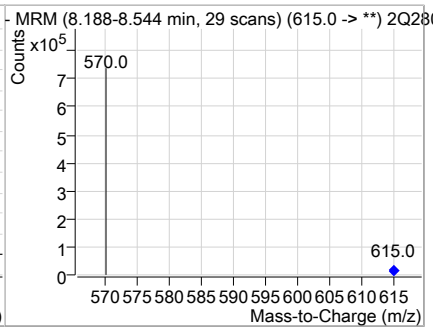




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	31.02	8.30	-0.07	557674				

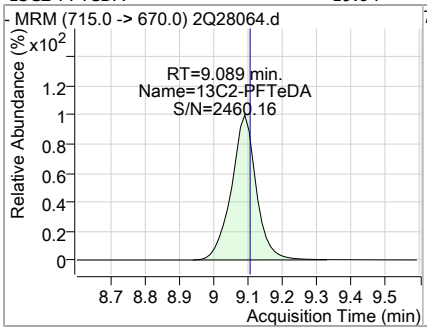


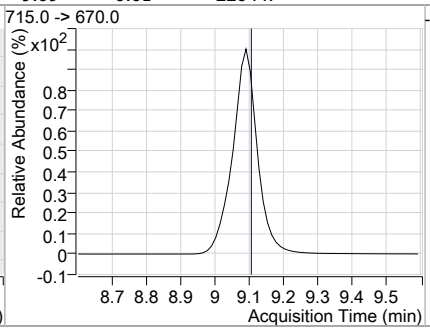


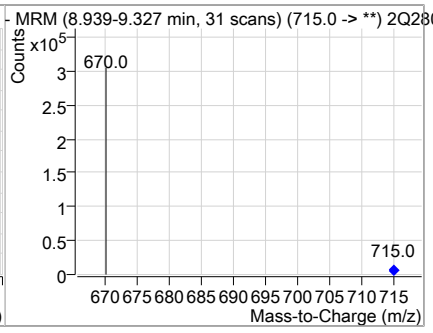


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.04	9.09	-0.01	226447				







7.1.8

7

Manual Integration Approval Summary

Sample Number: FA62561-5
Lab FileID: 2Q28064.D
Injection Time: 03/25/19 00:16
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:31 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		3.50	Split peak
Perfluorobutanesulfonic acid	375-73-5		3.75	Split peak
Perfluoropentanesulfonic acid	2706-91-4		4.88	Split peak
Perfluoroheptanoic acid	375-85-9		5.70	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanoic acid	335-67-1		6.40	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.43	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.81	Split peak
Perfluorononanoic acid	375-95-1		7.03	Split peak

Sample Results: **2Q28102.D**

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28102.d
Operator	:	nancyf
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	3/25/2019 4:54:29 PM
Sample Name	:	FA62561-5
Vial	:	Vial 70
DA Method File	:	ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name	:	s2q448.batch.bin
Sample Information	:	op74263,S2Q448,125,,,1.0,10,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.422	415.0 -> 370.0	319991	20.00 µg/L	0.025
13C4-PFOS	7.023	503.0 -> 80.0	53333	20.00 µg/L	0.026
M4-PFBA	1.852	217.0 -> 172.0	16336	20.00 µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	12633	20.00 µg/L	0.012
M5-PFHxA	4.788	318.0 -> 273.0	17141	20.00 µg/L	0.025
M4-PFHpA	5.692	367.0 -> 322.0	24460	20.00 µg/L	0.012
M8-PFOA	6.419	421.0 -> 376.0	25370	20.00 µg/L	0.025
M9-PFNA	7.039	472.0 -> 427.0	24620	20.00 µg/L	0.025
M6-PFDA	7.569	519.0 -> 474.0	31886	20.00 µg/L	0.027
M7-PFUnDA	7.991	570.0 -> 525.0	41702	20.00 µg/L	0.000
M2-PFDoDA	8.378	615.0 -> 570.0	33837	20.00 µg/L	0.002
M2-PFTeDA	9.115	715.0 -> 670.0	19761	20.00 µg/L	0.013
M8-FOSA	6.946	506.0 -> 78.0	11323	20.00 µg/L	0.027
M3-PFBS	3.767	302.0 -> 99.0	2357	20.00 µg/L	0.012
M3-PFHxS	5.735	402.0 -> 99.0	2530	20.00 µg/L	0.025
M8-PFOS	7.021	507.0 -> 99.0	3101	20.00 µg/L	0.026
M2-4:2FTS	4.684	329.0 -> 309.0	6213	20.00 µg/L	0.012
M2-6:2FTS	6.415	429.0 -> 409.0	7548	20.00 µg/L	0.025
M2-8:2FTS	7.604	529.0 -> 509.0	4489	20.00 µg/L	0.025
M3-MeFOSAA	7.446	573.0 -> 419.0	3410	20.00 µg/L	0.013
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.684	329.0 -> 309.0	6181	2.17 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.9%	
13C2-6:2FTS	6.415	429.0 -> 409.0	7546	2.50 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 12.5%	
13C2-8:2FTS	7.604	529.0 -> 509.0	4486	2.06 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.3%	
13C2-PFDoDA	8.378	615.0 -> 570.0	33831	1.88 µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 9.4%	
13C2-PFTeDA	9.115	715.0 -> 670.0	19733	1.66 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 8.3%	
13C3-PFBS	3.767	302.0 -> 99.0	2355	2.30 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.5%	
13C3-PFHxS	5.735	402.0 -> 99.0	2528	2.27 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.4%	
13C4-PFBA	1.852	217.0 -> 172.0	16287	2.49 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 12.5%	
13C4-PFHpA	5.692	367.0 -> 322.0	24491	2.37 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.8%	
13C5-PFHxA	4.788	318.0 -> 273.0	17126	2.31 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.6%	
13C5-PFPeA	3.511	268.0 -> 223.0	12639	2.30 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.5%	
13C6-PFDA	7.569	519.0 -> 474.0	31887	2.32 µg/L	0.027

Sample Results: **2Q28102.D**

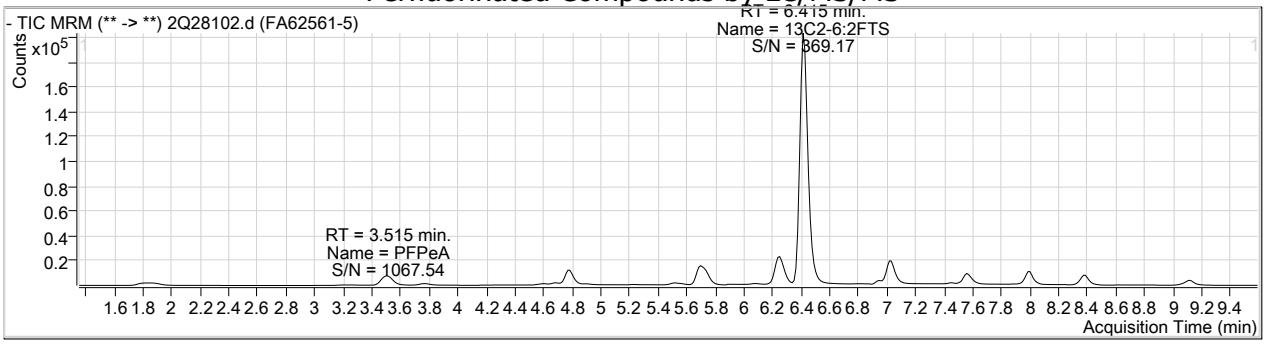
Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.6%			
13C7-PFUnDA	7.991	570.0 -> 525.0	41680	2.40	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 12.0%			
13C8-FOSA	6.946	506.0 -> 78.0	11319	2.52	µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 12.6%			
13C8-PFOA	6.419	421.0 -> 376.0	25409	2.47	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 12.3%			
13C8-PFOS	7.021	507.0 -> 99.0	3103	2.17	µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.8%			
13C9-PFNA	7.039	472.0 -> 427.0	24606	2.36	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.8%			
d3-MeFOSAA	7.446	573.0 -> 419.0	3411	1.95	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 9.7%			
M2-PFOA	6.422	415.0 -> 370.0	320280	2.00	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%			
M4-PFOS	7.023	503.0 -> 80.0	53362	2.00	µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%			
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.			
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	6.417	427.0 -> 407.0	1609	0.85	µg/L		99
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	1.860	213.0 -> 169.0	2947	1.84	µg/L		100
PFBS	3.771	299.0 -> 80.0	3068	1.61	µg/L	m	96
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	5.695	363.0 -> 319.0	34362	3.13	µg/L	m	98
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	4.790	313.0 -> 269.0	29677	9.93	µg/L		98
PFHxS	5.738	399.0 -> 80.0	22948	16.41	µg/L	m	98
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.424	413.0 -> 369.0	445325	65.35	µg/L	m	95
PFOS	6.806	499.0 -> 80.0	1494	0.98	µg/L	m	80
PFPeA	3.515	263.0 -> 219.0	30329	5.38	µg/L		100
PFPeS	4.908	349.0 -> 80.0	2032	1.66	µg/L	m	96
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
HFPO-DA	-	329.0 -> 169.0	-	N.D.			

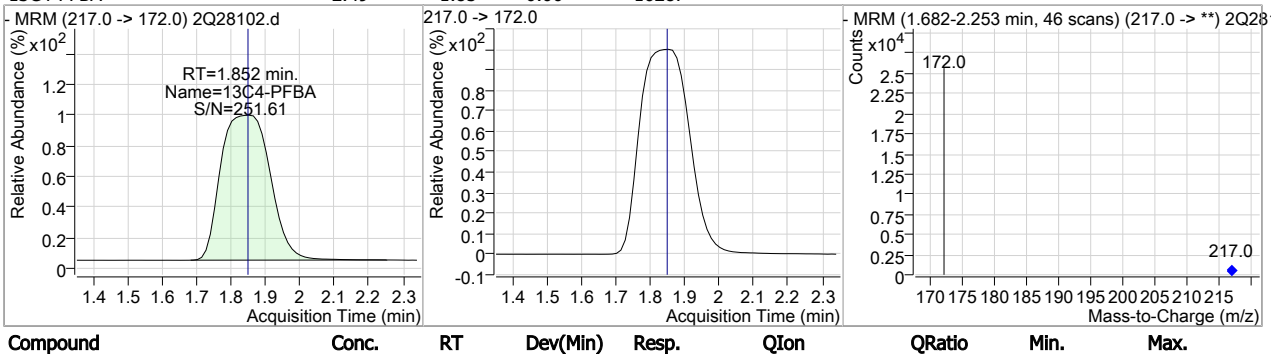
 # = Qualifier out of range, m = manually integrated, + = Area summed

Sample Results: **2Q28102.D**

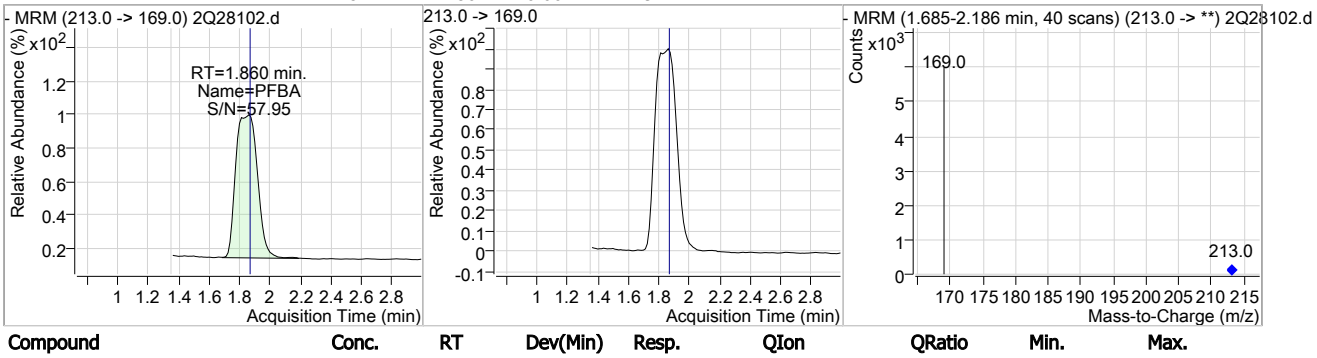
Perfluorinated Compounds by LC/MS/MS



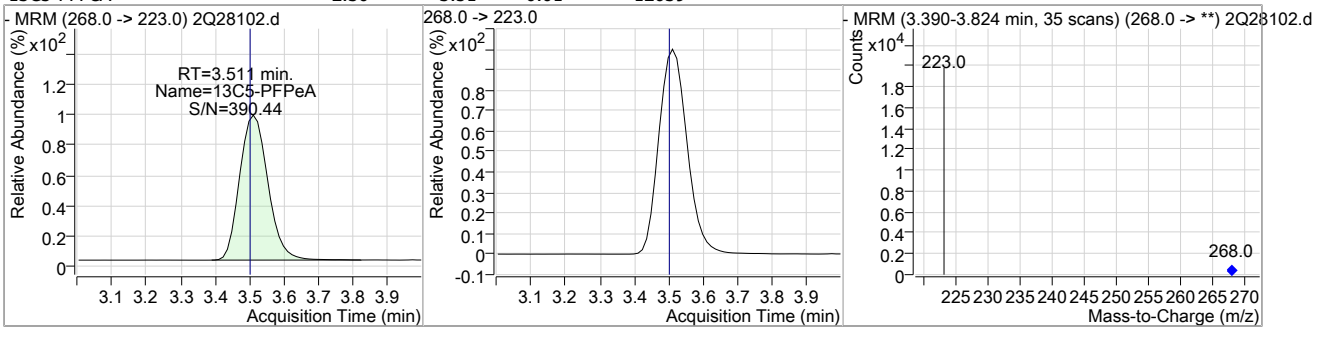
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	2.49	1.85	0.00	16287				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.84	1.86	0.00	2947				



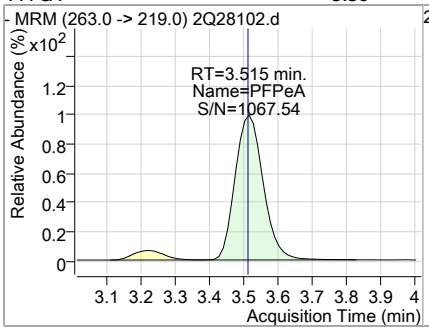
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	2.30	3.51	0.01	12639				

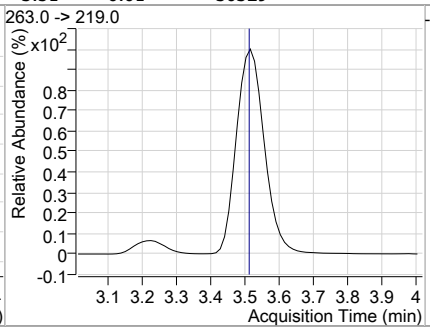


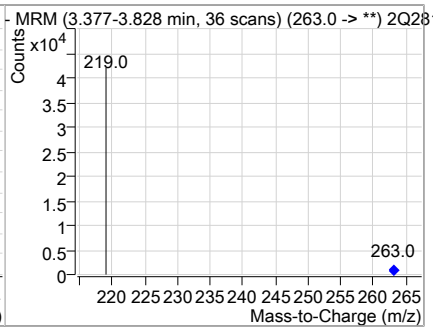
Sample Results: **2Q28102.D**

Perfluorinated Compounds by LC/MS/MS

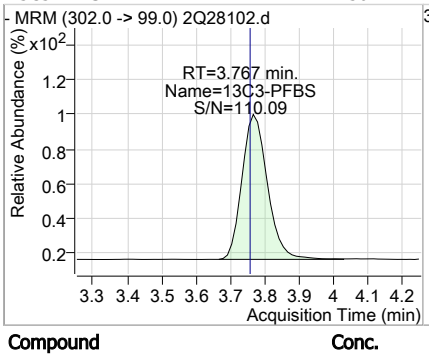
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.38	3.51	0.01	30329				

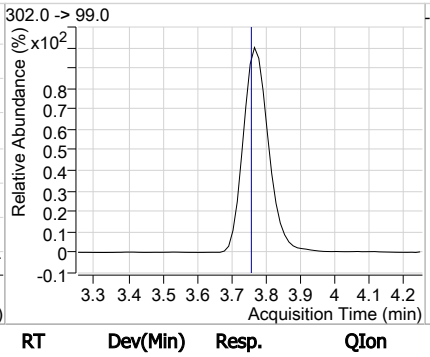


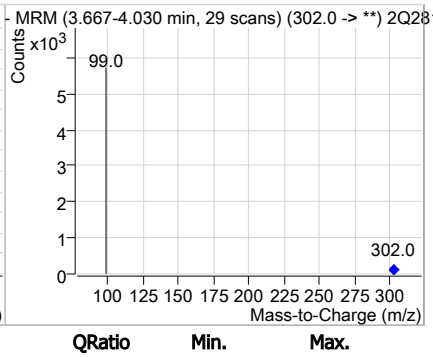




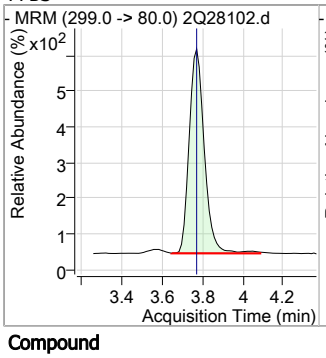
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.30	3.77	0.01	2355				

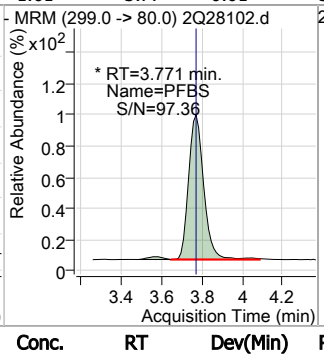


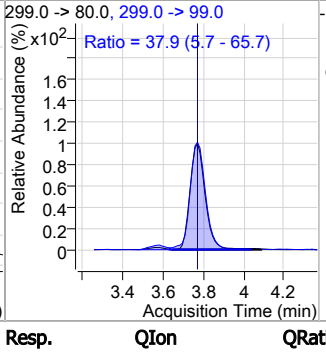


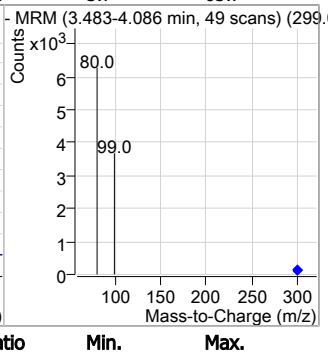


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.61	3.77	0.01	3068 (m)	299.0 -> 99.0	37.9	5.7	65.7

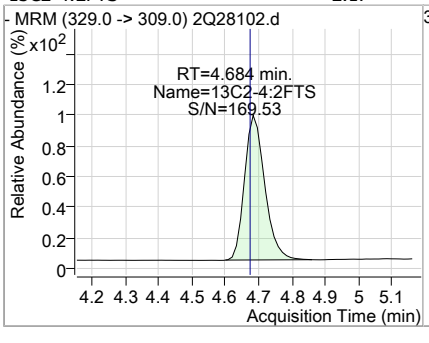


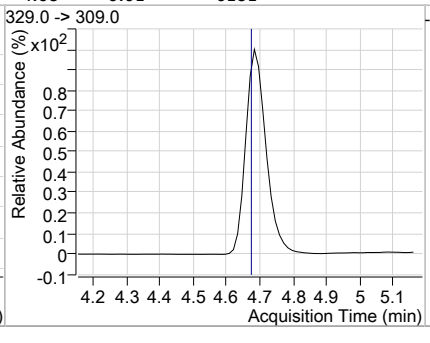


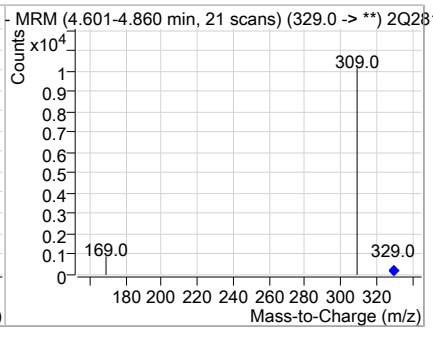




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	2.17	4.68	0.01	6181				



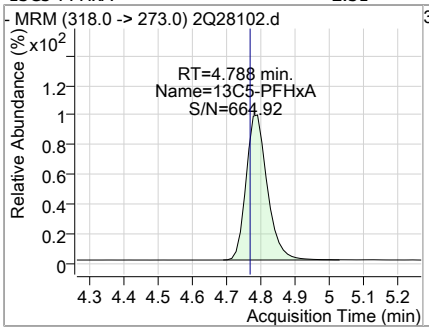


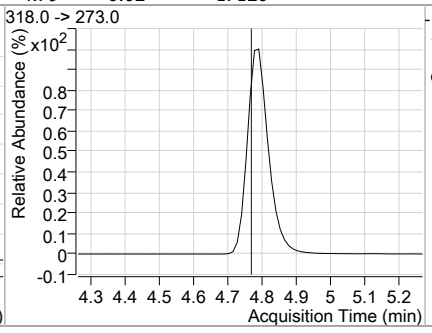


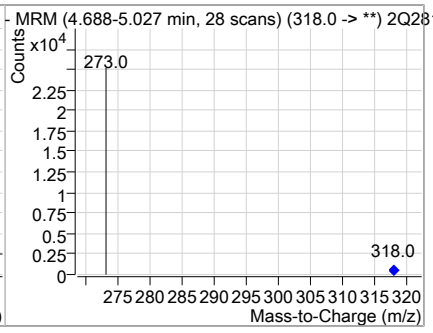
Sample Results: **2Q28102.D**

Perfluorinated Compounds by LC/MS/MS

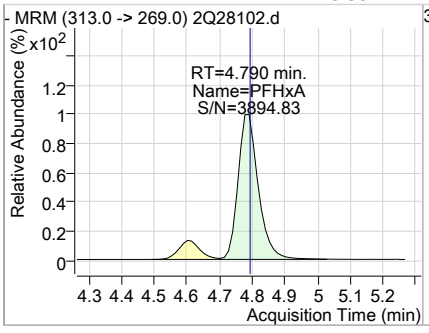
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.31	4.79	0.02	17126				

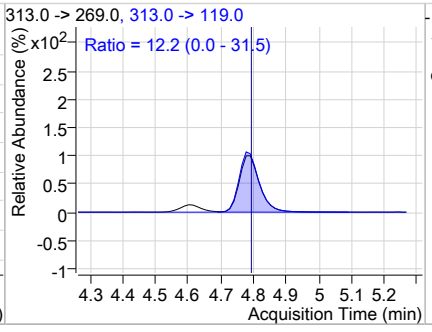


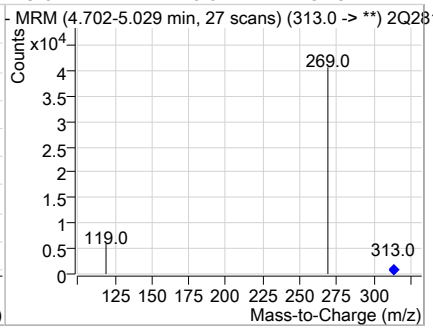




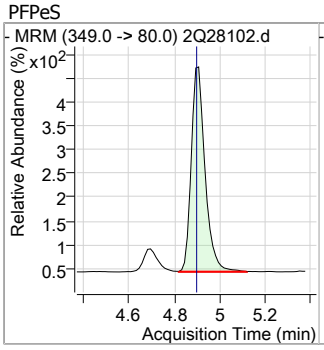
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	9.93	4.79	0.02	29677	313.0 -> 119.0	12.2	0.0	31.5

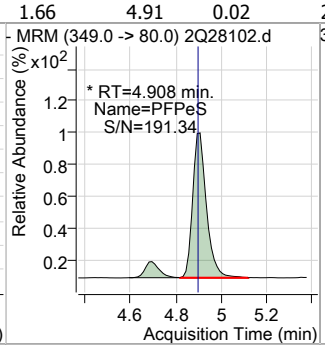


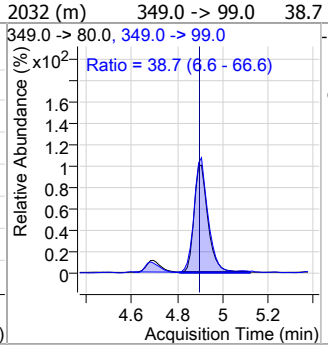


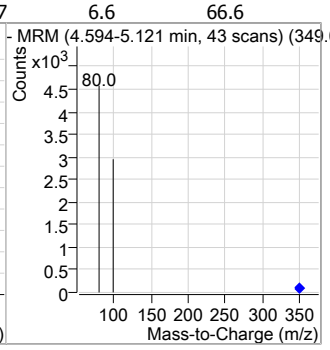


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.66	4.91	0.02	2032 (m)	349.0 -> 99.0	38.7	6.6	66.6

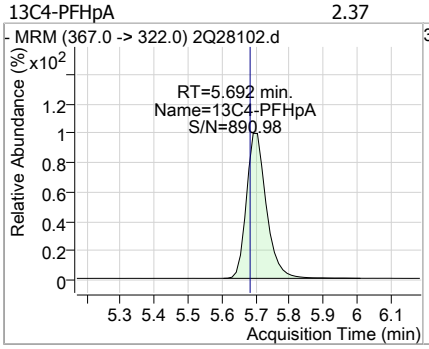


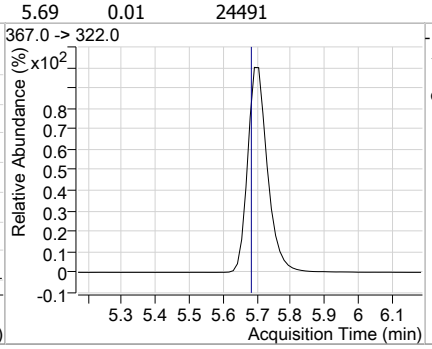


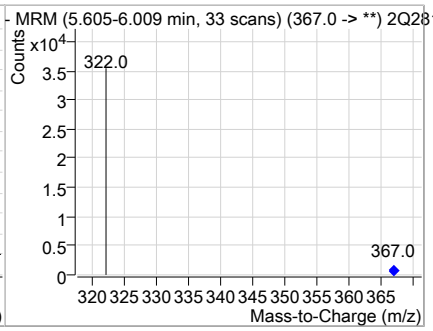




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.37	5.69	0.01	24491				





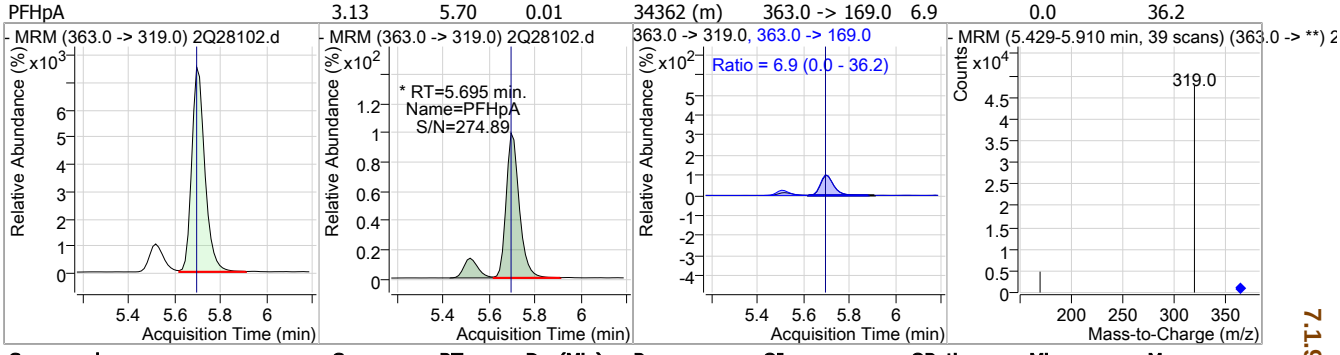


7.1.9

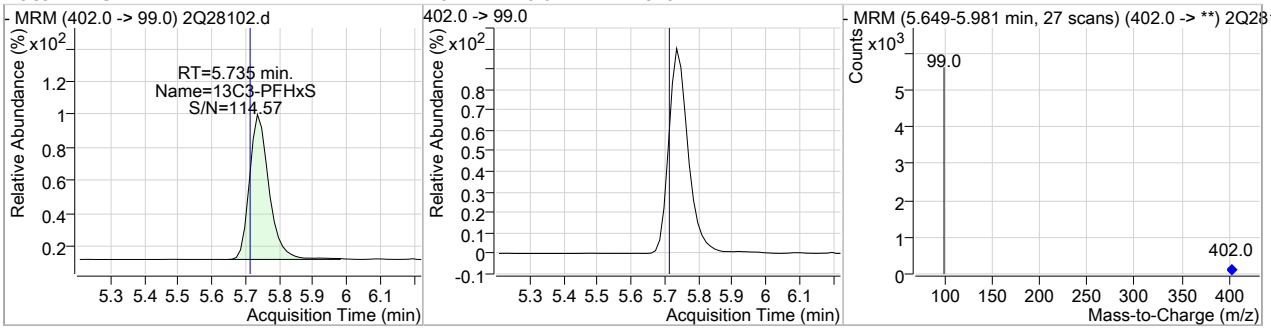
Sample Results: **2Q28102.D**

Perfluorinated Compounds by LC/MS/MS

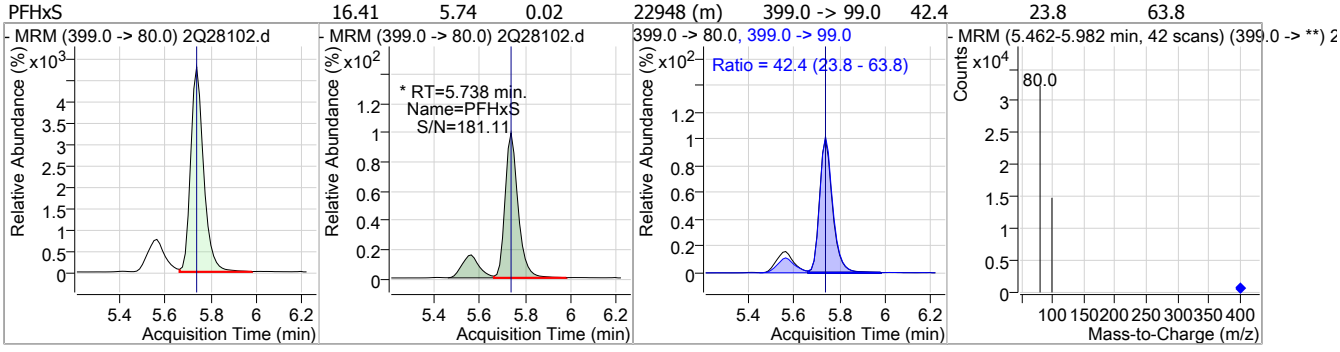
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	3.13	5.70	0.01	34362 (m)	363.0 -> 169.0	6.9	0.0	36.2



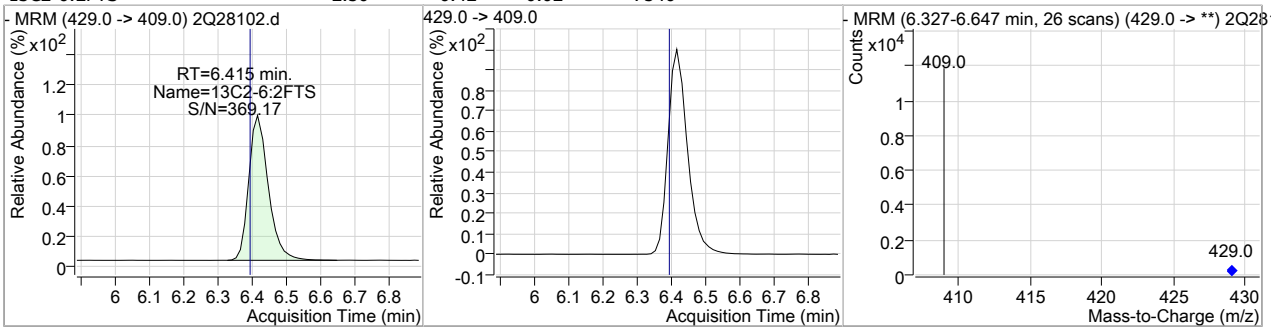
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.27	5.74	0.02	2528				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	16.41	5.74	0.02	22948 (m)	399.0 -> 99.0	42.4	23.8	63.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	2.50	6.42	0.02	7546				

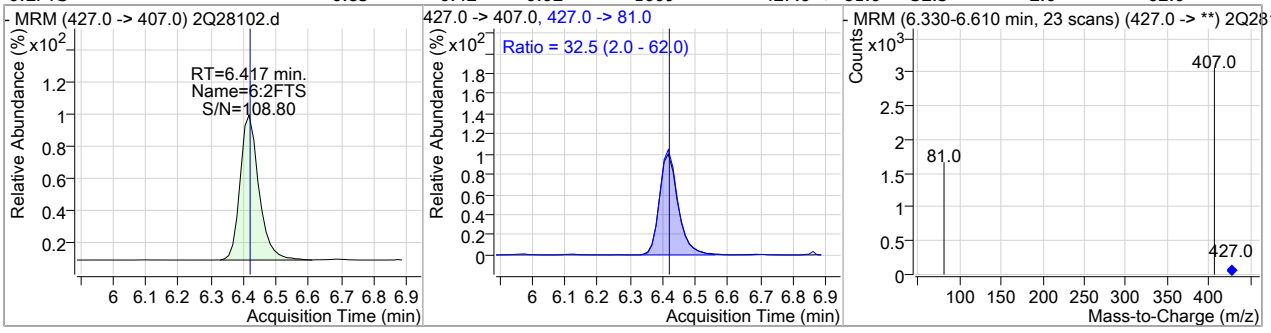


7.1.9

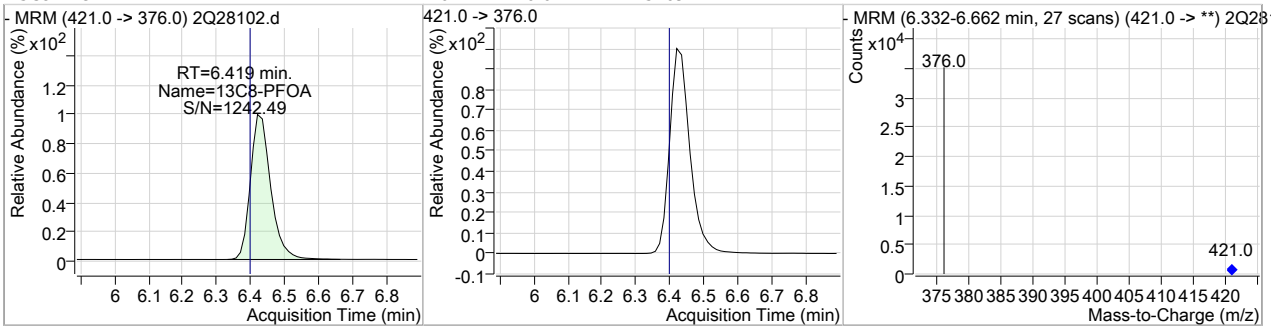
Sample Results: **2Q28102.D**

Perfluorinated Compounds by LC/MS/MS

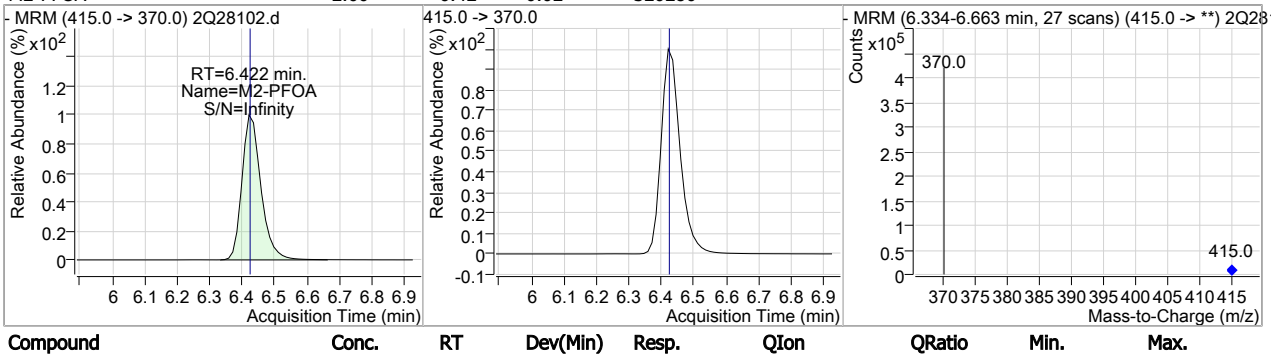
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.85	6.42	0.02	1609	427.0 -> 81.0	32.5	2.0	62.0



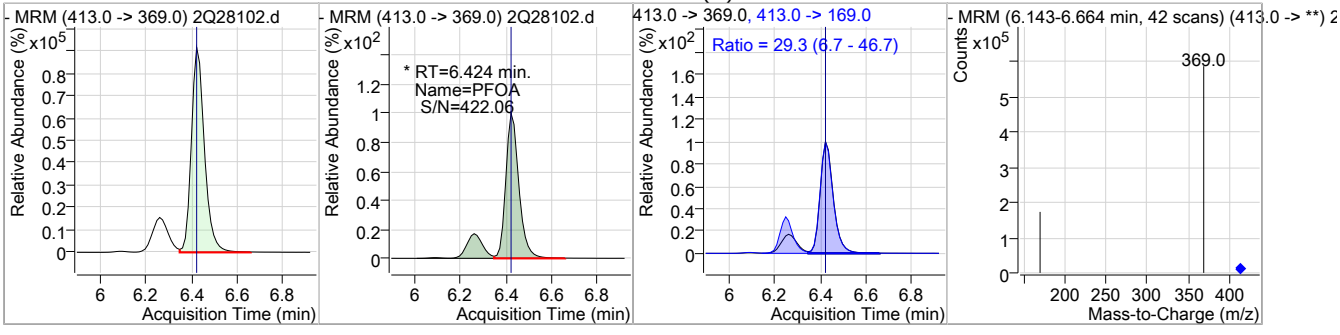
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.47	6.42	0.02	25409				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	2.00	6.42	0.02	320280				



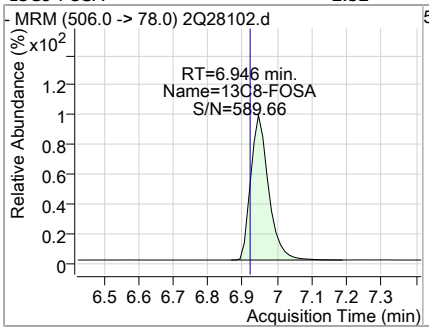
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	65.35	6.42	0.02	445325 (m)	413.0 -> 169.0	29.3	6.7	46.7

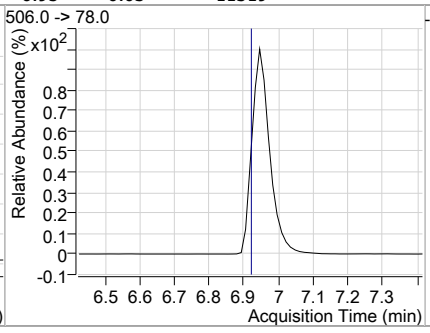


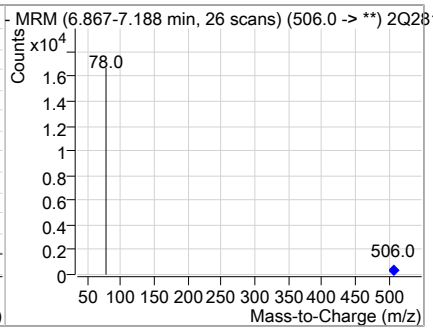
Sample Results: **2Q28102.D**

Perfluorinated Compounds by LC/MS/MS

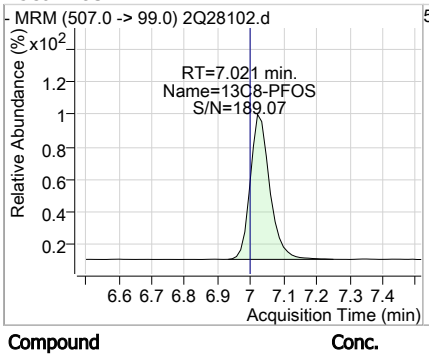
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	6.95	0.03	11319				

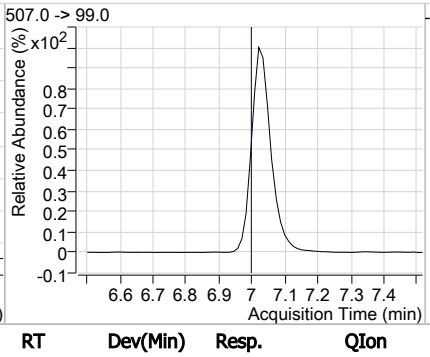


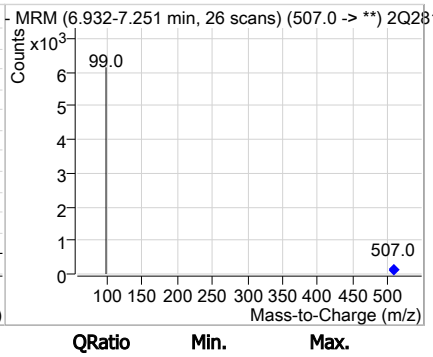




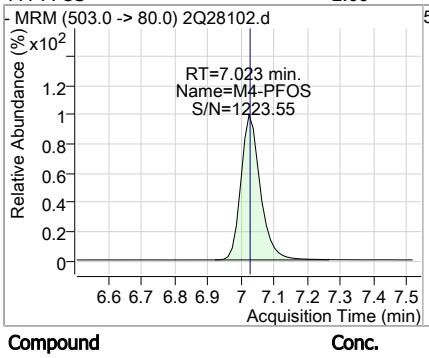
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.17	7.02	0.03	3103				

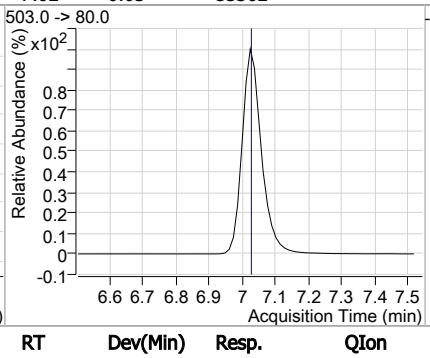


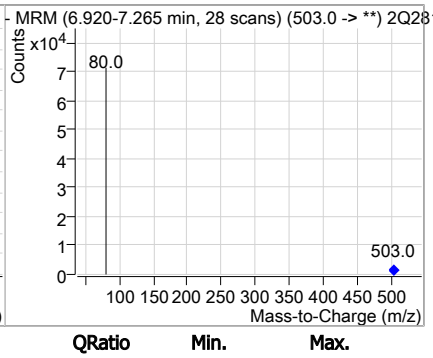




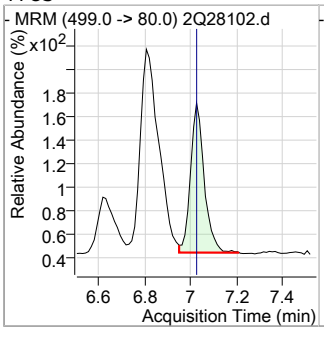
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	2.00	7.02	0.03	53362				

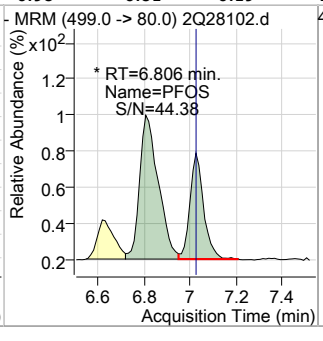


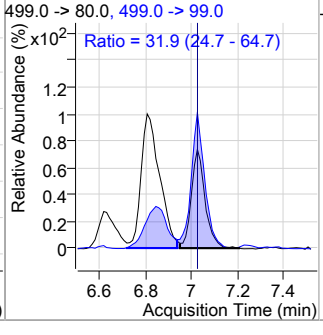


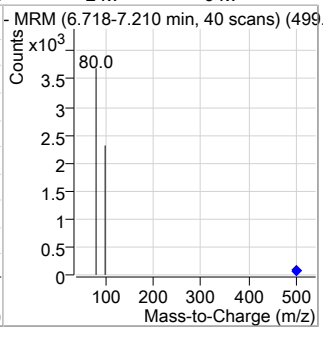


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.98	6.81	-0.19	1494 (m)	499.0 -> 99.0	31.9	24.7	64.7





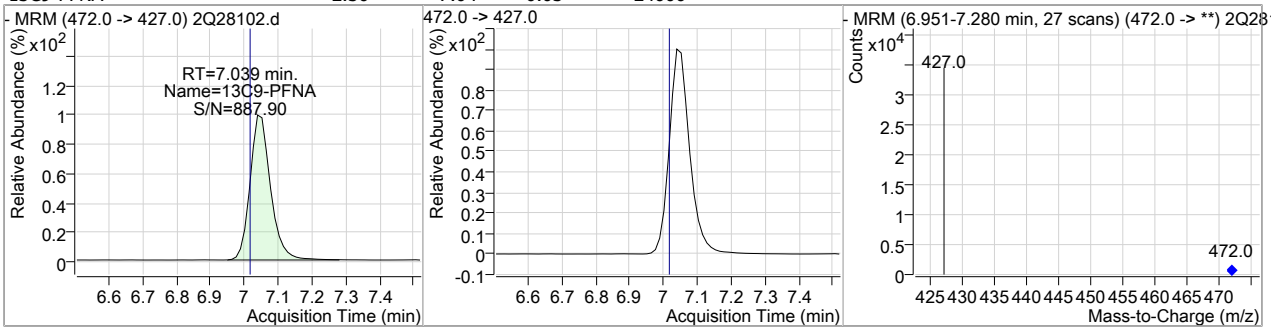




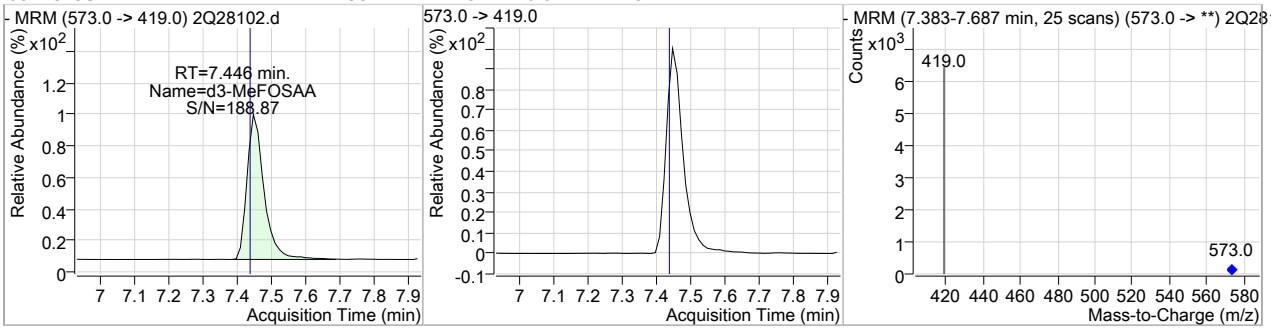
7.1.9

Perfluorinated Compounds by LC/MS/MS

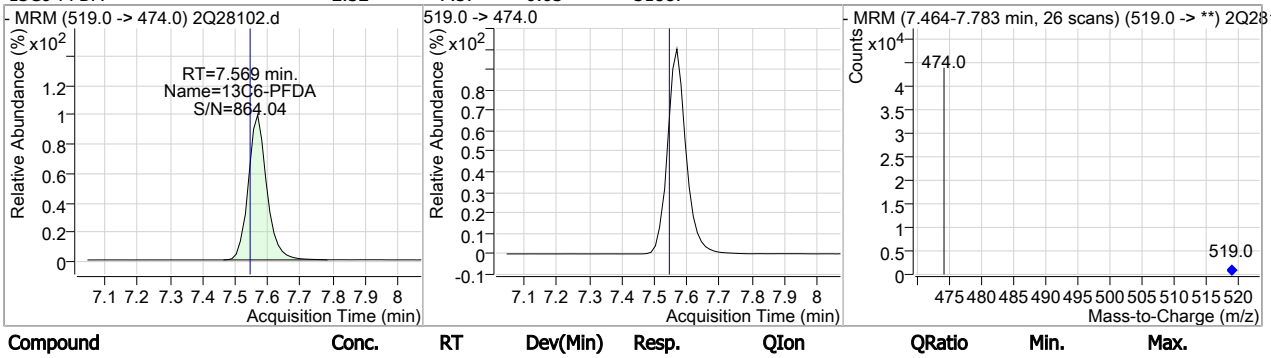
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	2.36	7.04	0.03	24606				



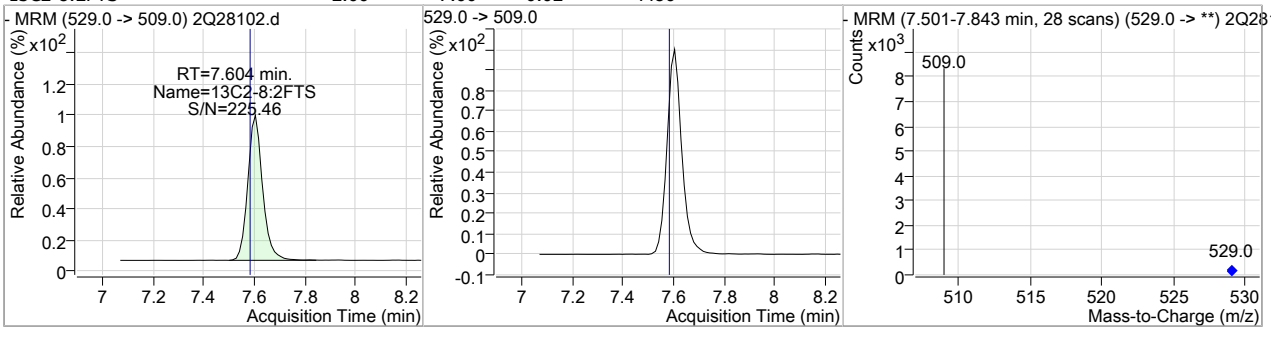
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	1.95	7.45	0.01	3411				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	2.32	7.57	0.03	31887				



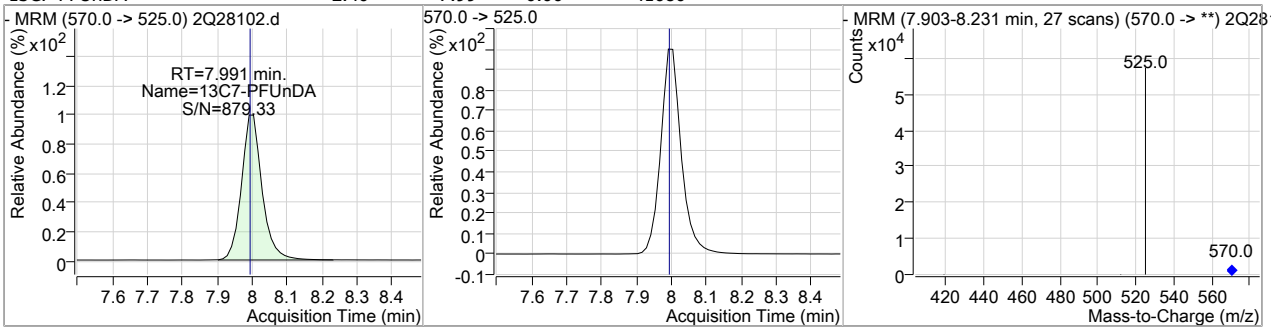
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	2.06	7.60	0.02	4486				



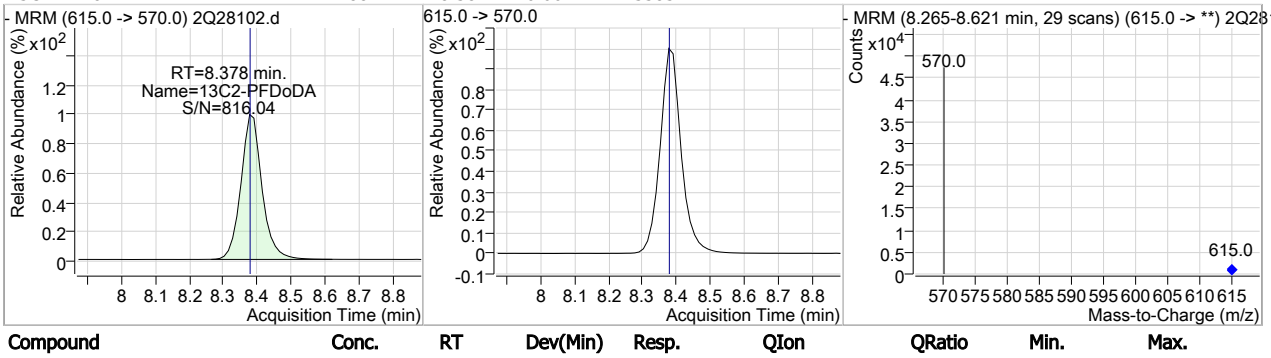
Sample Results: **2Q28102.D**

Perfluorinated Compounds by LC/MS/MS

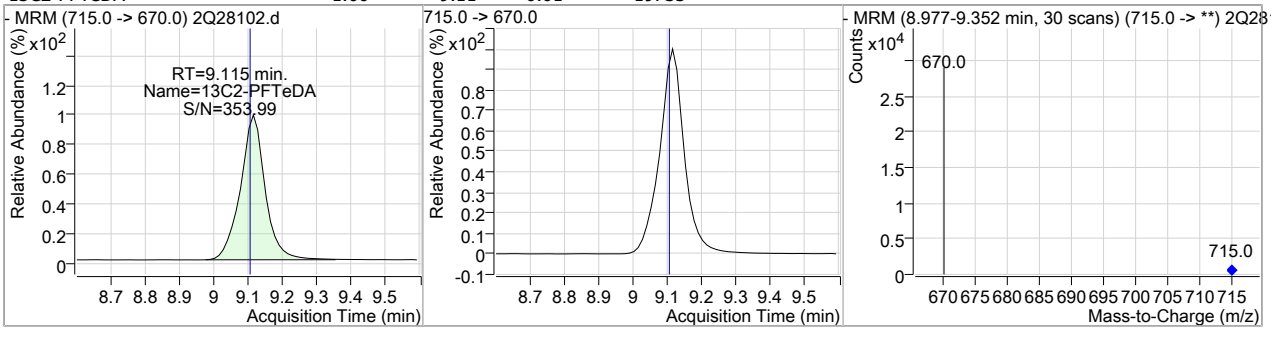
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	2.40	7.99	0.00	41680				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.88	8.38	0.00	33831				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.66	9.11	0.01	19733				



7.1.9

7

Manual Integration Approval Summary

Sample Number: FA62561-5
Lab FileID: 2Q28102.D
Injection Time: 03/25/19 16:54
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:32 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		3.77	Split peak
Perfluoropentanesulfonic acid	2706-91-4		4.91	Split peak
Perfluoroheptanoic acid	375-85-9		5.70	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanoic acid	335-67-1		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.81	Split peak

Sample Results: **2Q28451.D**

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28451.d
Operator	:	natashag
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	4/1/2019 11:14:03 AM
Sample Name	:	fa62561-5
Vial	:	Vial 46
DA Method File	:	ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	:	s2q452.batch.bin
Sample Information	:	op74376,S2Q452,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.398	415.0 -> 370.0	369367	20.00 µg/L	0.026
13C4-PFOS	7.024	503.0 -> 80.0	59755	20.00 µg/L	0.039
M4-PFBA	1.840	217.0 -> 172.0	157494	20.00 µg/L	-0.013
M5-PFPeA	3.511	268.0 -> 223.0	136495	20.00 µg/L	0.013
M5-PFHxA	4.764	318.0 -> 273.0	203779	20.00 µg/L	0.025
M4-PFHpA	5.680	367.0 -> 322.0	316510	20.00 µg/L	0.026
M8-PFOA	6.396	421.0 -> 376.0	283636	20.00 µg/L	0.026
M9-PFNA	7.040	472.0 -> 427.0	385935	20.00 µg/L	0.026
M6-PFDA	7.582	519.0 -> 474.0	539328	20.00 µg/L	0.025
M7-PFUnDA	8.029	570.0 -> 525.0	726738	20.00 µg/L	-0.012
M2-PFDoDA	8.489	615.0 -> 570.0	751266	20.00 µg/L	-0.051
M2-PFTeDA	9.790	715.0 -> 670.0	572878	20.00 µg/L	0.012
M8-FOSA	6.894	506.0 -> 78.0	100774	20.00 µg/L	0.013
M3-PFBS	3.755	302.0 -> 99.0	22005	20.00 µg/L	0.013
M3-PFHxS	5.711	402.0 -> 99.0	24000	20.00 µg/L	0.025
M8-PFOS	7.022	507.0 -> 99.0	33408	20.00 µg/L	0.039
M2-4:2FTS	4.671	329.0 -> 309.0	114216	20.00 µg/L	0.025
M2-6:2FTS	6.393	429.0 -> 409.0	128403	20.00 µg/L	0.028
M2-8:2FTS	7.630	529.0 -> 509.0	138930	20.00 µg/L	0.025
M3-MeFOSAA	7.409	573.0 -> 419.0	68638	20.00 µg/L	0.013
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.671	329.0 -> 309.0	113950	21.51 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C2-6:2FTS	6.393	429.0 -> 409.0	128406	18.37 µg/L	0.028
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.9%	
13C2-8:2FTS	7.630	529.0 -> 509.0	138921	22.26 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.3%	
13C2-PFDoDA	8.489	615.0 -> 570.0	750833	17.81 µg/L	-0.051
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
13C2-PFTeDA	9.790	715.0 -> 670.0	568059	18.61 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C3-PFBS	3.755	302.0 -> 99.0	22019	20.00 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C3-PFHxS	5.711	402.0 -> 99.0	23991	19.38 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C4-PFBA	1.840	217.0 -> 172.0	157105	21.03 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C4-PFHpA	5.680	367.0 -> 322.0	315941	20.53 µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	4.764	318.0 -> 273.0	203549	20.06 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFPeA	3.511	268.0 -> 223.0	136615	20.28 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C6-PFDA	7.582	519.0 -> 474.0	539521	20.97 µg/L	0.025

Sample Results: **2Q28451.D**

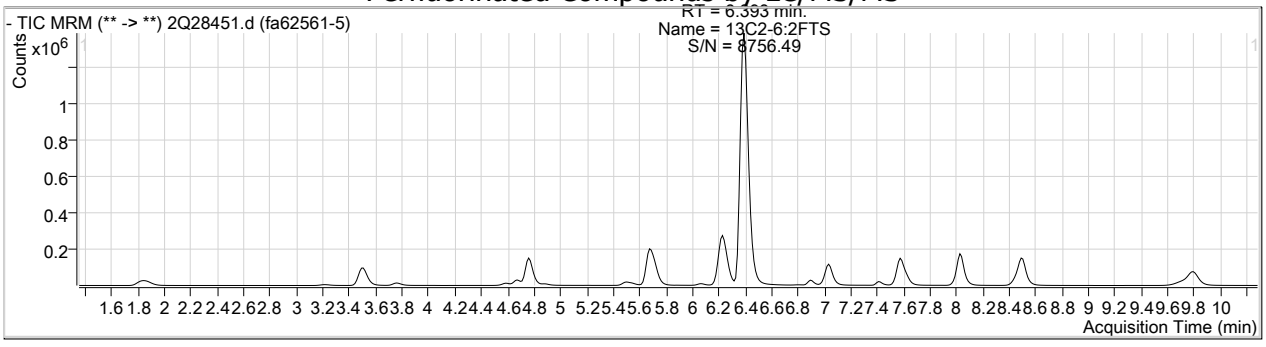
Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C7-PFUnDA	8.029	570.0 -> 525.0	726955	21.31 µg/L		-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.5%		
13C8-FOSA	6.894	506.0 -> 78.0	100780	18.19 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.0%		
13C8-PFOA	6.396	421.0 -> 376.0	283511	17.50 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.5%		
13C8-PFOS	7.022	507.0 -> 99.0	33369	19.66 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C9-PFNA	7.040	472.0 -> 427.0	385801	21.27 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.4%		
d3-MeFOSAA	7.409	573.0 -> 419.0	68624	20.10 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
M2-PFOA	6.398	415.0 -> 370.0	369389	19.99 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.024	503.0 -> 80.0	59817	20.01 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	1318	0.40 µg/L		89
6:2FTS	6.395	427.0 -> 407.0	27420	8.44 µg/L		99
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	1.848	213.0 -> 169.0	28361	18.12 µg/L		100
PFBS	3.758	299.0 -> 80.0	28475	15.93 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	5.683	363.0 -> 319.0	430957	31.06 µg/L	m	99
PFHpS	6.417	449.0 -> 80.0	3337	2.70 µg/L	m	92
PFHxA	4.765	313.0 -> 269.0	364059	102.20 µg/L		99
PFHxS	5.713	399.0 -> 80.0	233756	164.23 µg/L	m	98
PFNA	7.041	463.0 -> 419.0	6479	0.51 µg/L	m	89
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.399	413.0 -> 369.0	5157988	678.41 µg/L	m	94
PFOS	6.807	499.0 -> 80.0	15334	9.45 µg/L	#m	66
PFPeA	3.502	263.0 -> 219.0	326739	53.92 µg/L		100
PFPeS	4.883	349.0 -> 80.0	21037	16.83 µg/L	m	94
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

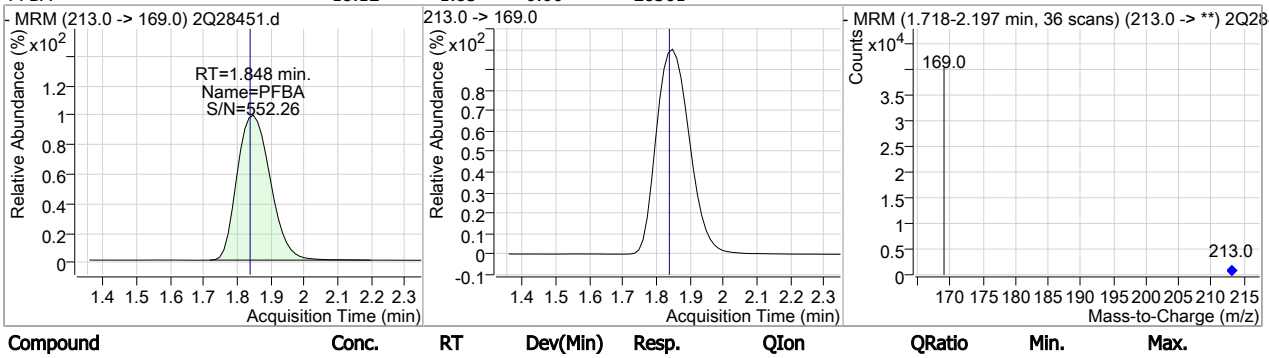
 # = Qualifier out of range, m = manually integrated, + = Area summed

Sample Results: **2Q28451.D**

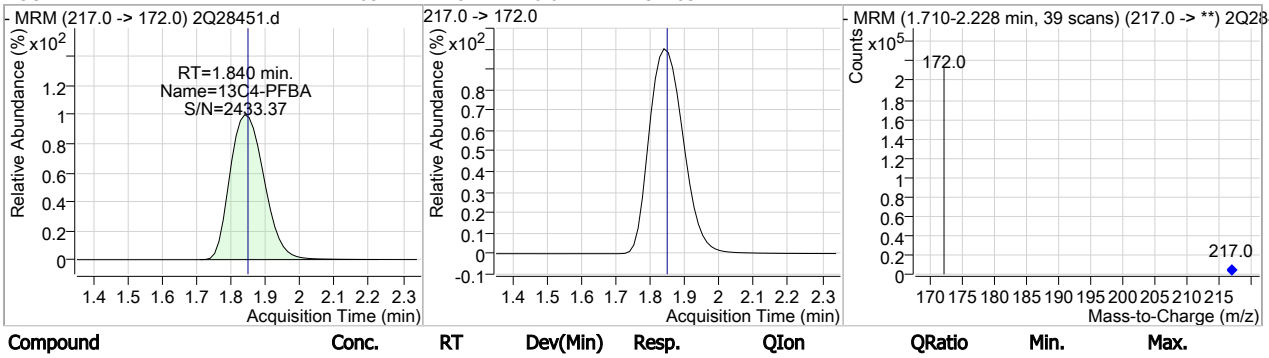
Perfluorinated Compounds by LC/MS/MS



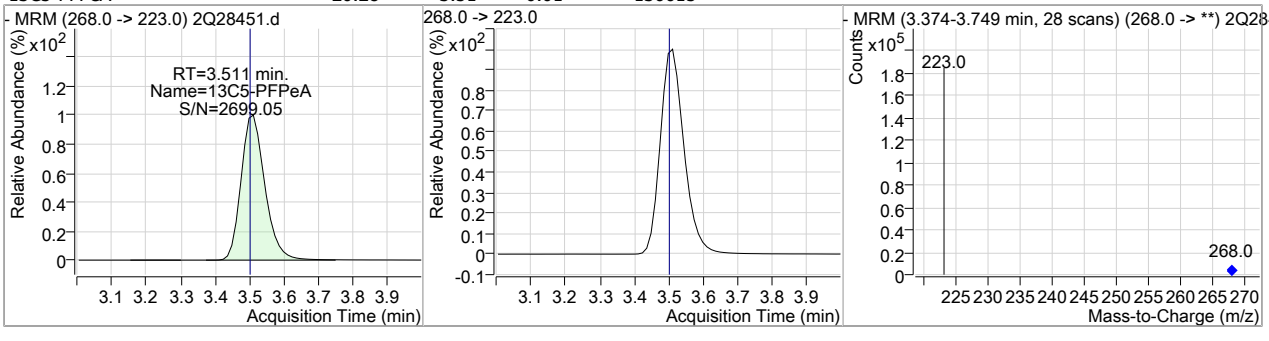
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.12	1.85	0.00	28361				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.03	1.84	-0.01	157105				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.28	3.51	0.01	136615				



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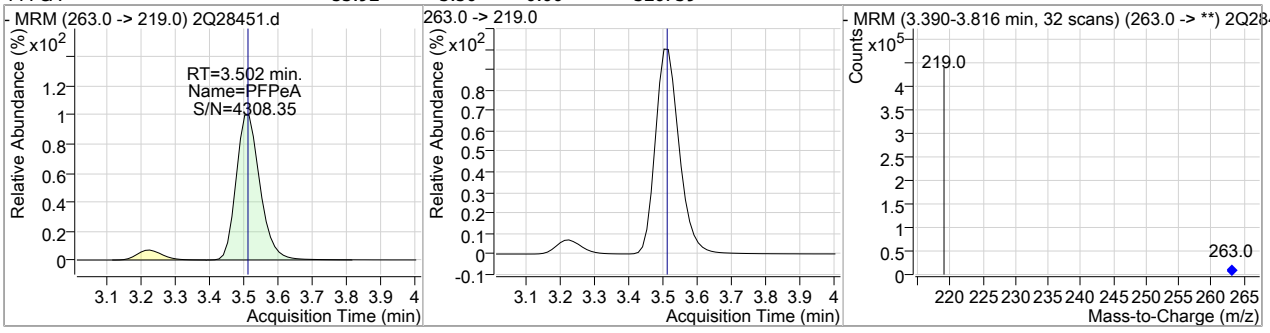
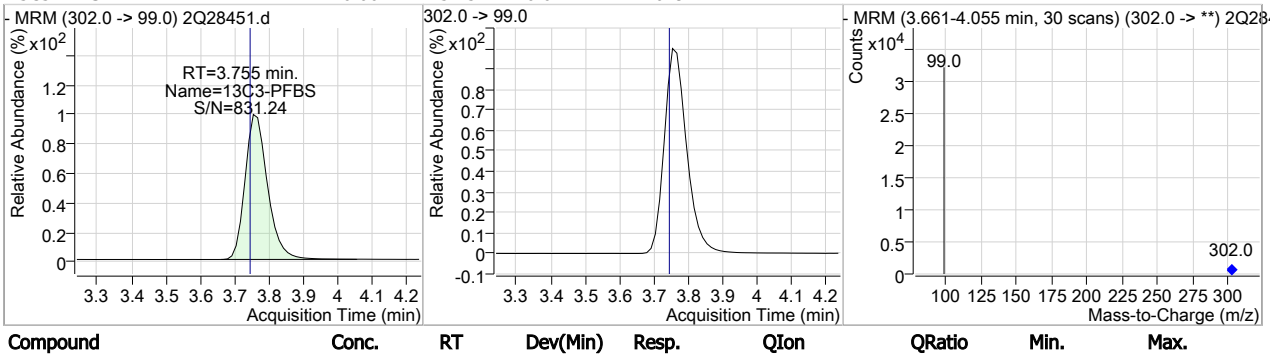
Sample Results: **2Q28451.D**

Perfluorinated Compounds by LC/MS/MS

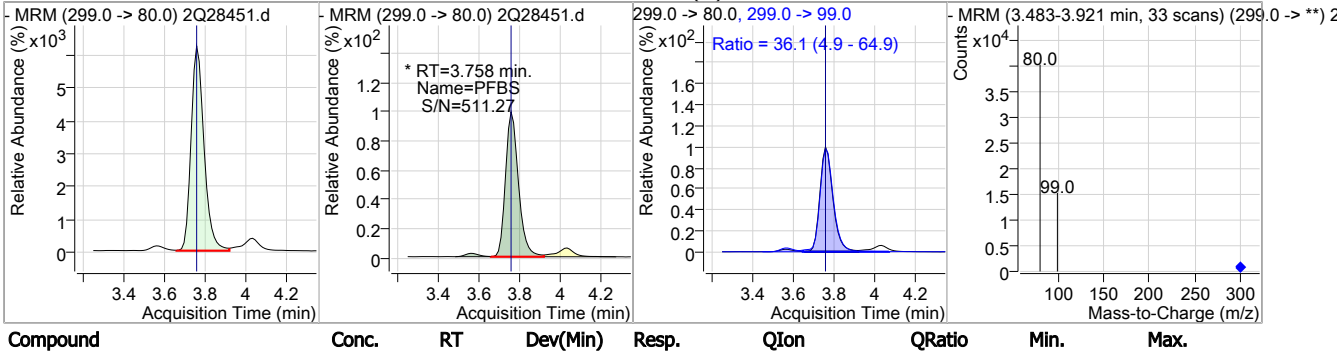
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	53.92	3.50	0.00	326739				



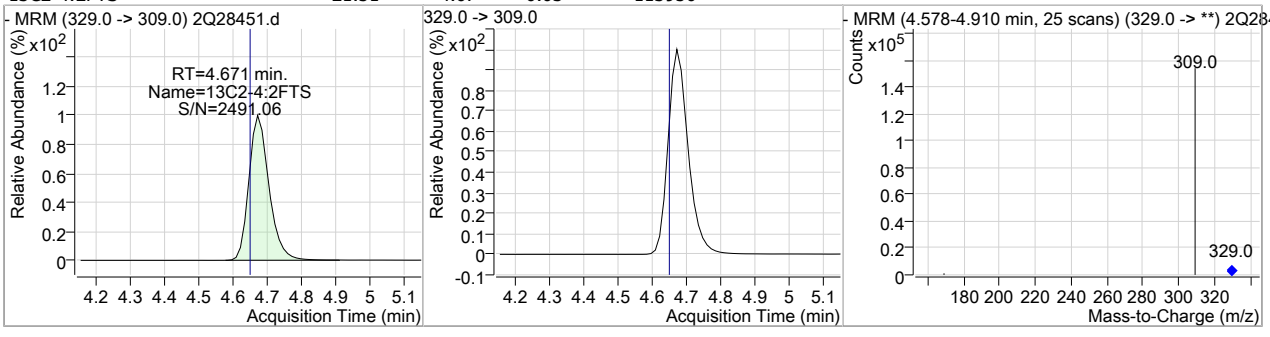
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.00	3.75	0.01	22019				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	15.93	3.76	0.01	28475 (m)	299.0 -> 99.0	36.1	4.9	64.9

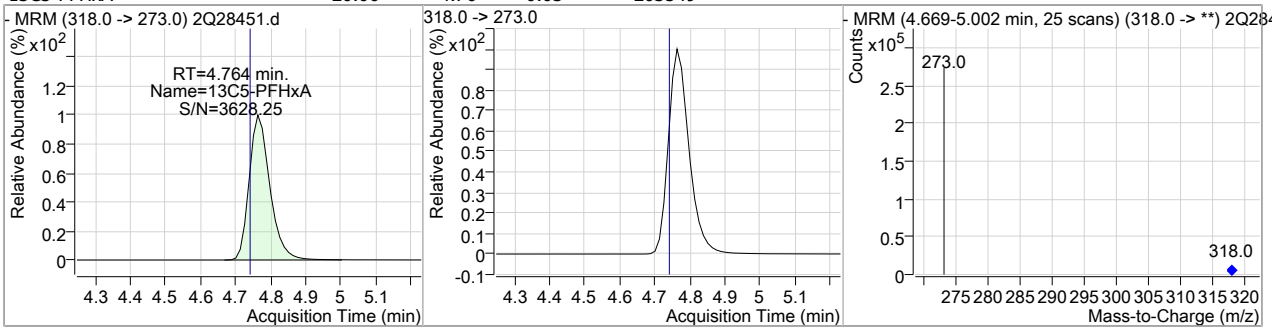


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	21.51	4.67	0.03	113950				

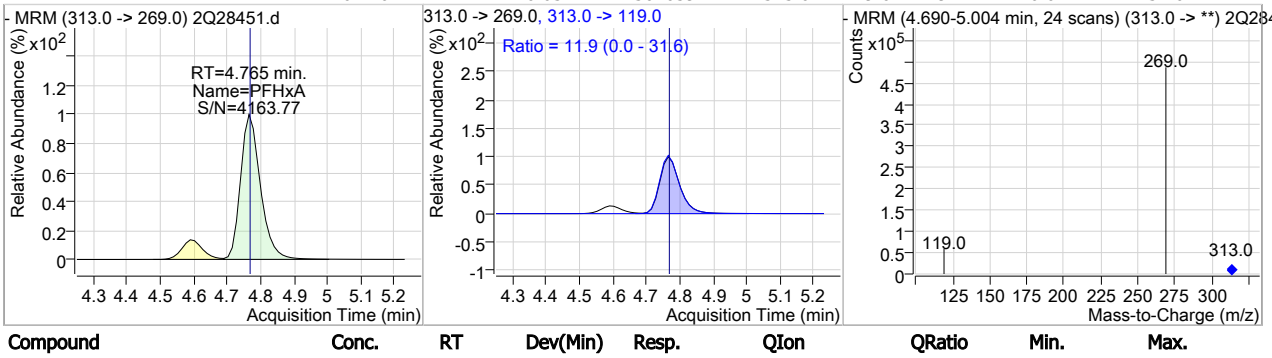


Perfluorinated Compounds by LC/MS/MS

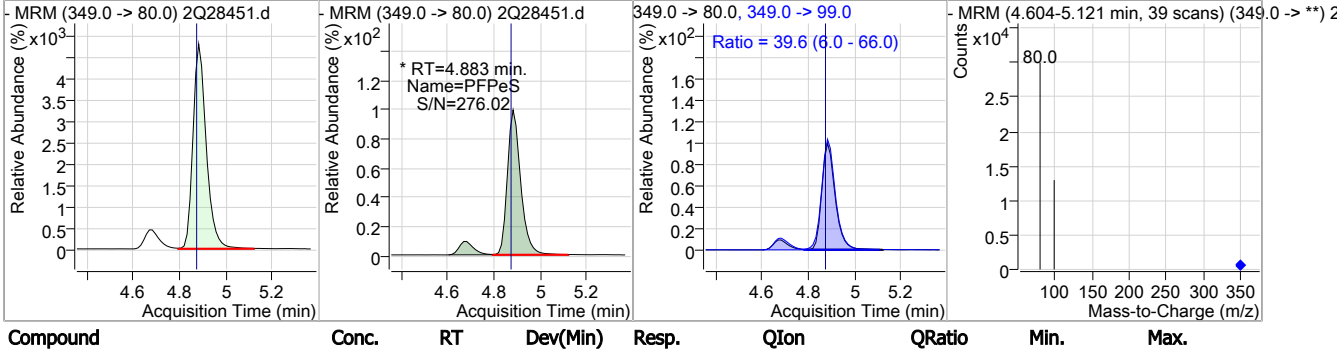
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.06	4.76	0.03	203549				



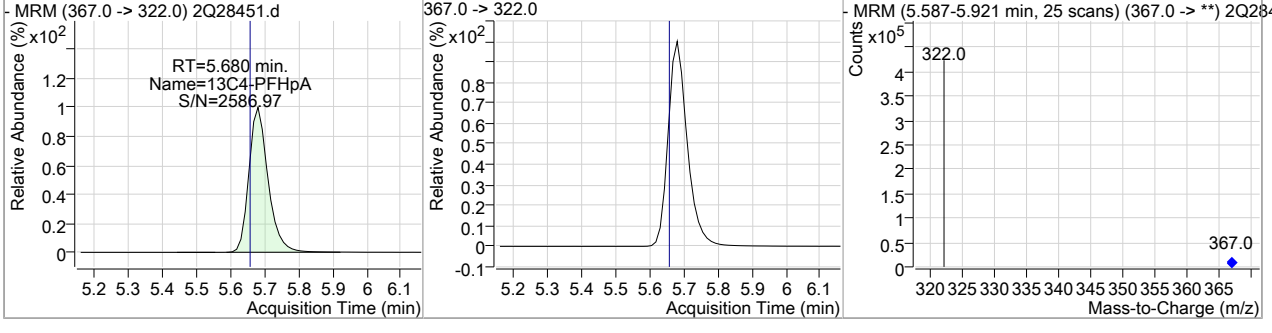
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	102.20	4.77	0.03	364059	313.0 -> 119.0	11.9	0.0	31.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	16.83	4.88	0.03	21037 (m)	349.0 -> 99.0	39.6	6.0	66.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.53	5.68	0.03	315941				



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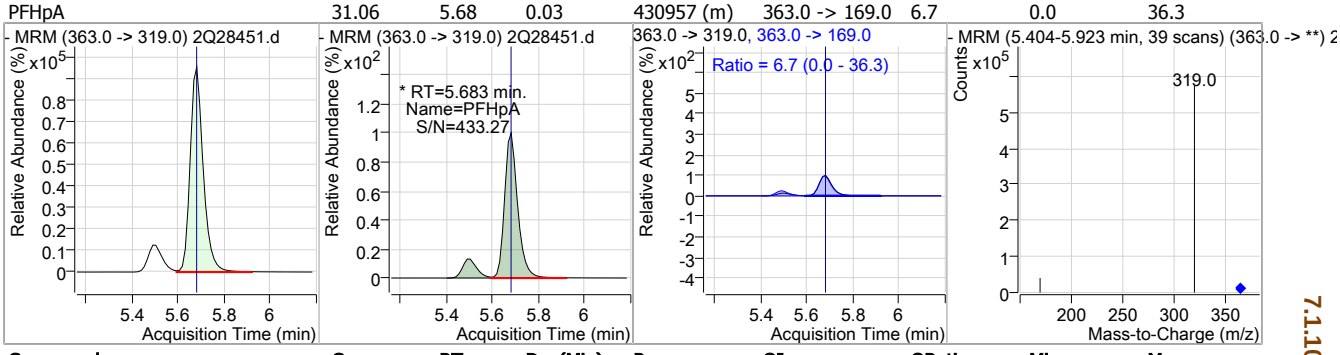
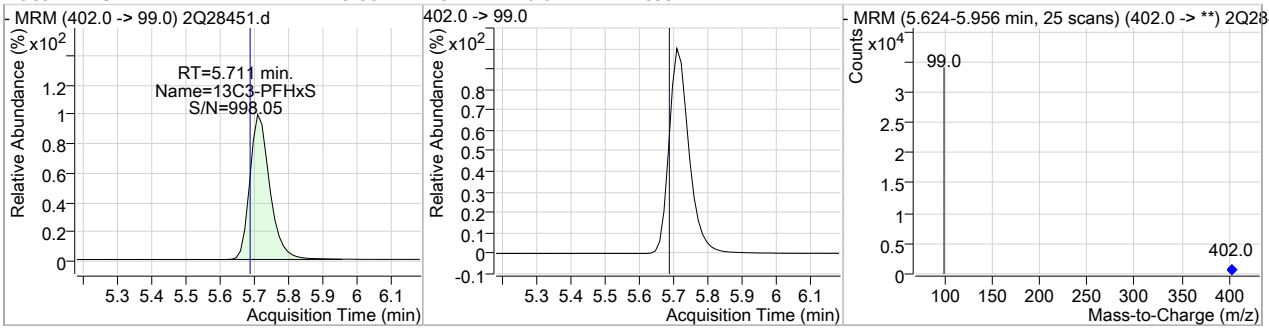
Perfluorinated Compounds by LC/MS/MS

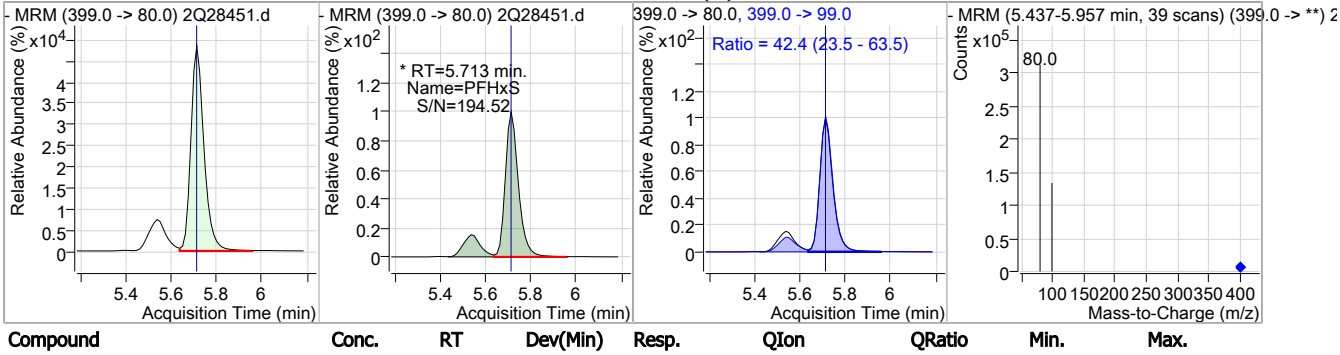
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	31.06	5.68	0.03	430957 (m)	363.0 -> 169.0	6.7	0.0	36.3



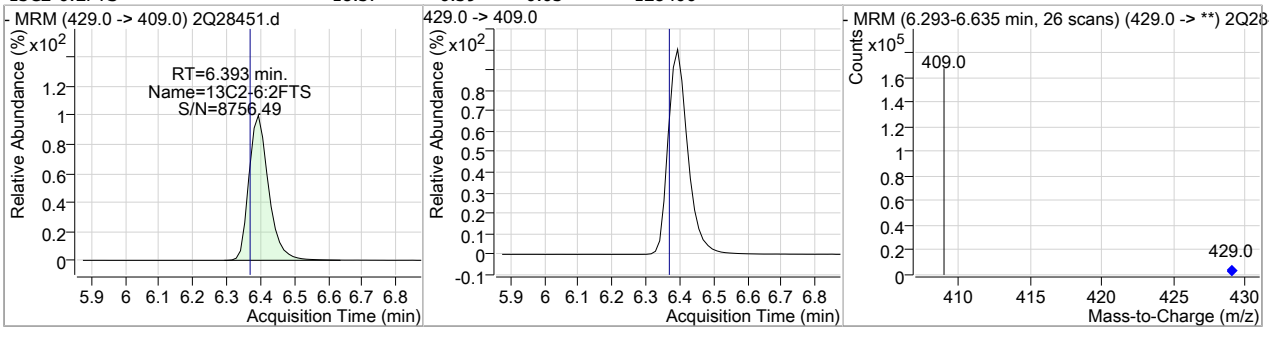
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.38	5.71	0.02	23991				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	164.23	5.71	0.03	233756 (m)	399.0 -> 99.0	42.4	23.5	63.5

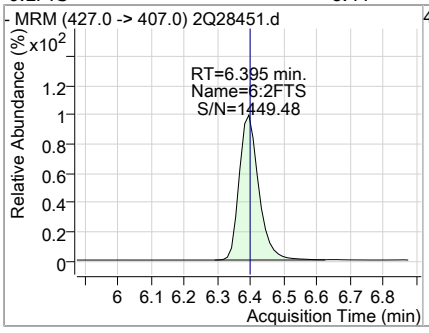


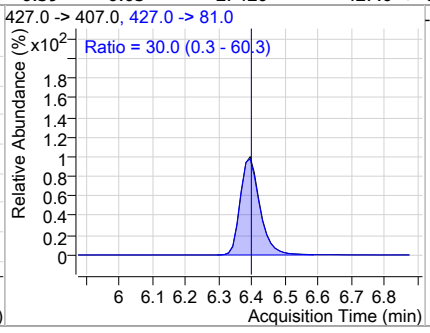
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.37	6.39	0.03	128406				

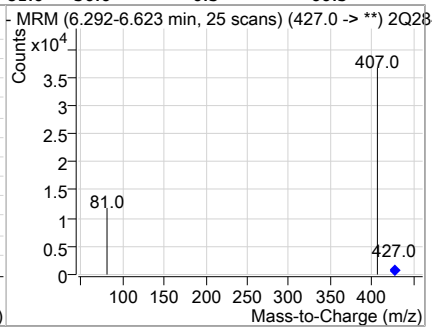


Perfluorinated Compounds by LC/MS/MS

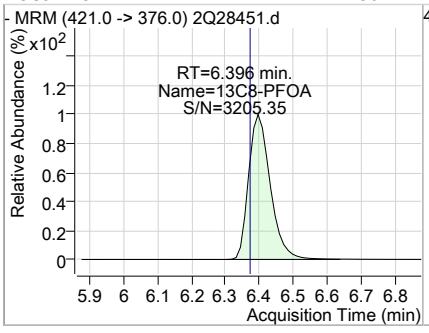
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	8.44	6.39	0.03	27420	427.0 -> 81.0	30.0	0.3	60.3

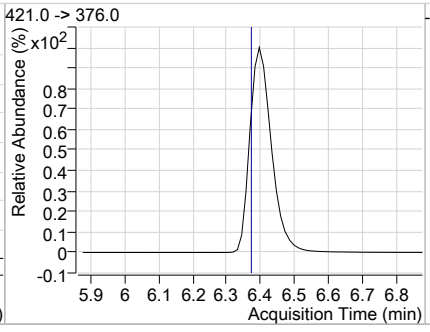


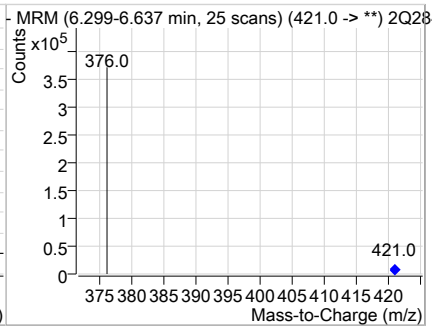




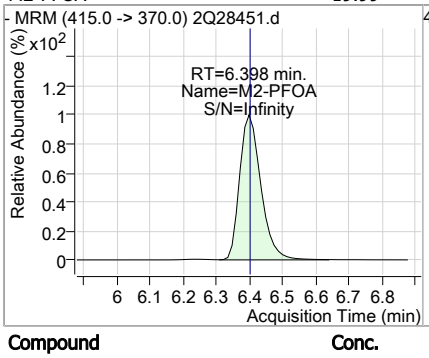
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	17.50	6.40	0.03	283511				

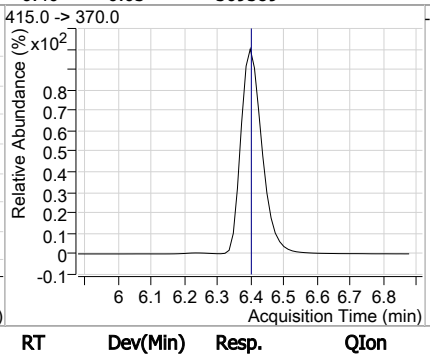


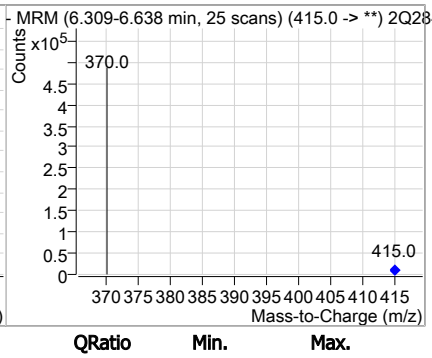




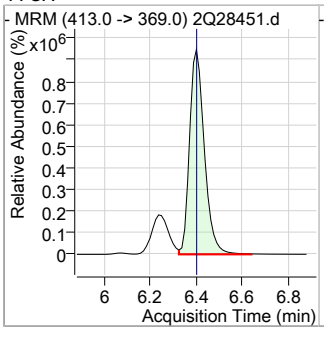
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.40	0.03	369389				

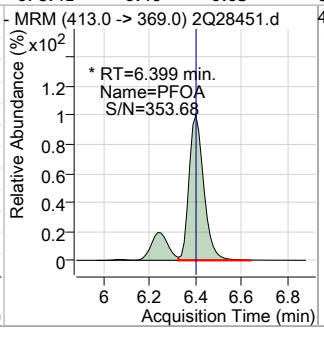


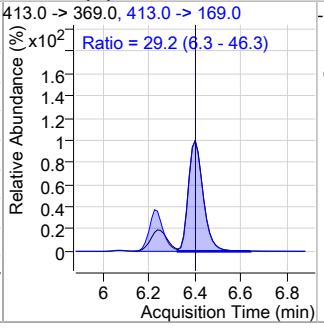


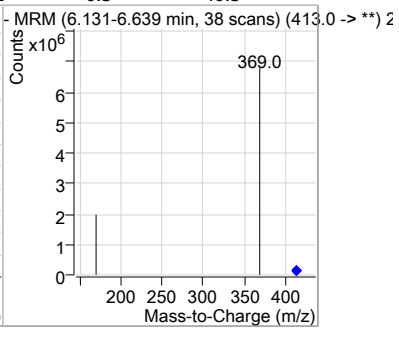


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	678.41	6.40	0.03	5157988 (m)	413.0 -> 169.0	29.2	6.3	46.3









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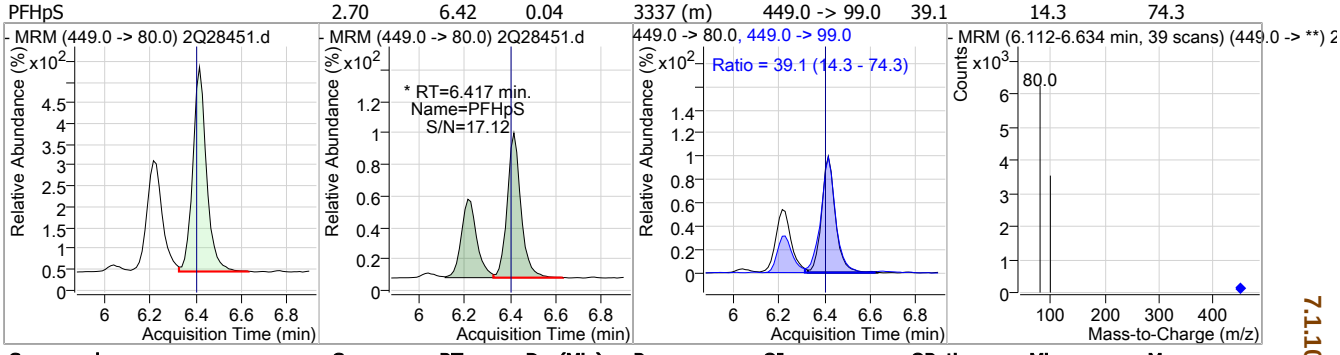
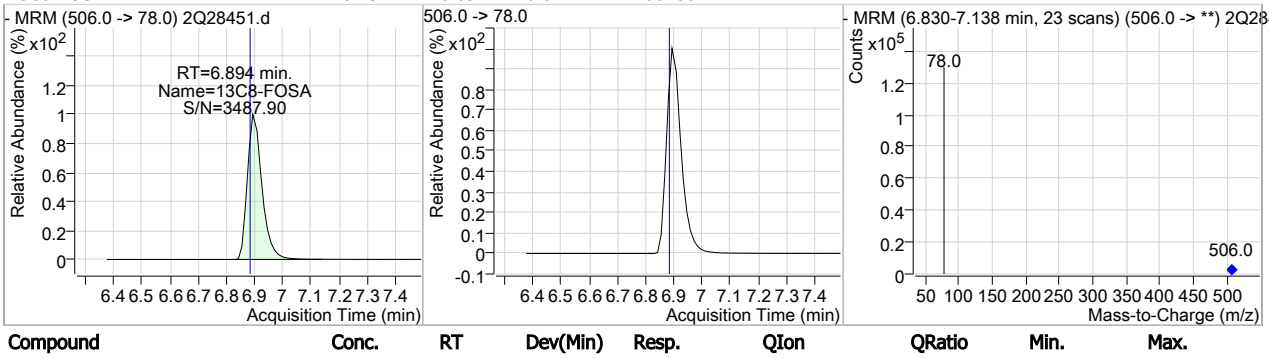
Perfluorinated Compounds by LC/MS/MS

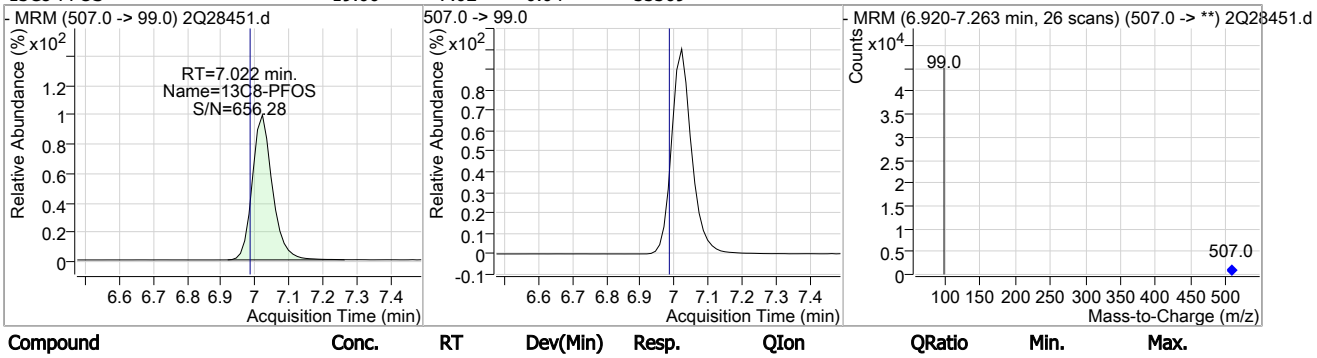
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.70	6.42	0.04	3337 (m)	449.0 -> 99.0	39.1	14.3	74.3



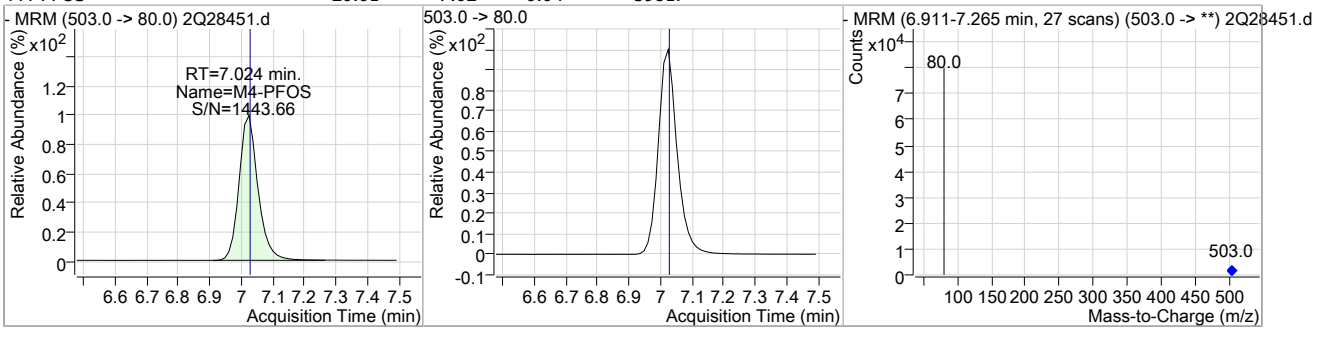
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.19	6.89	0.01	100780				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.66	7.02	0.04	33369				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.02	0.04	59817				



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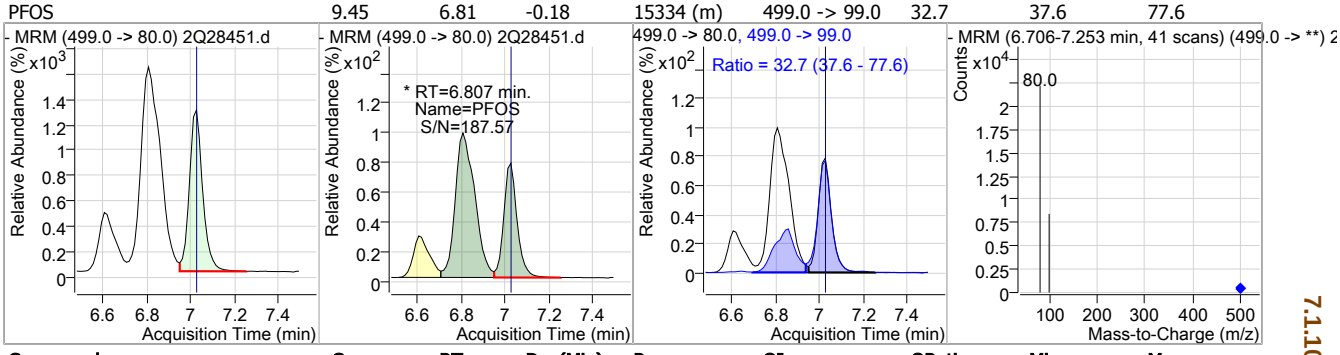
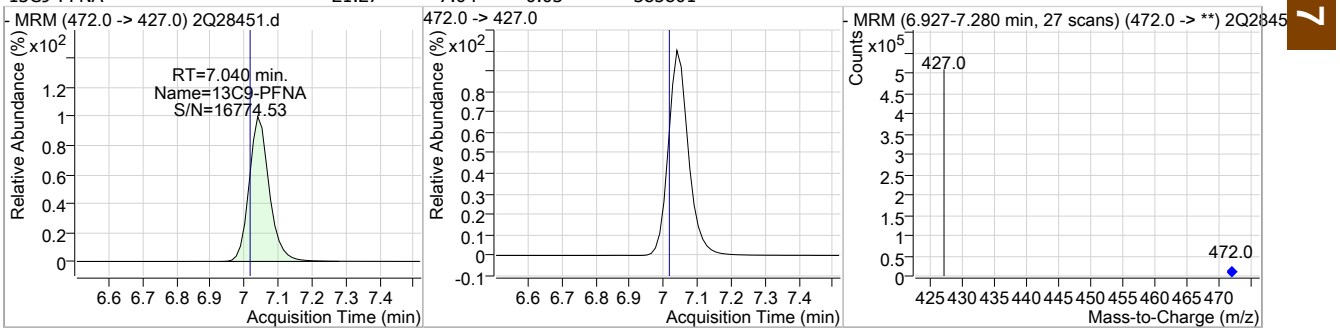
Perfluorinated Compounds by LC/MS/MS

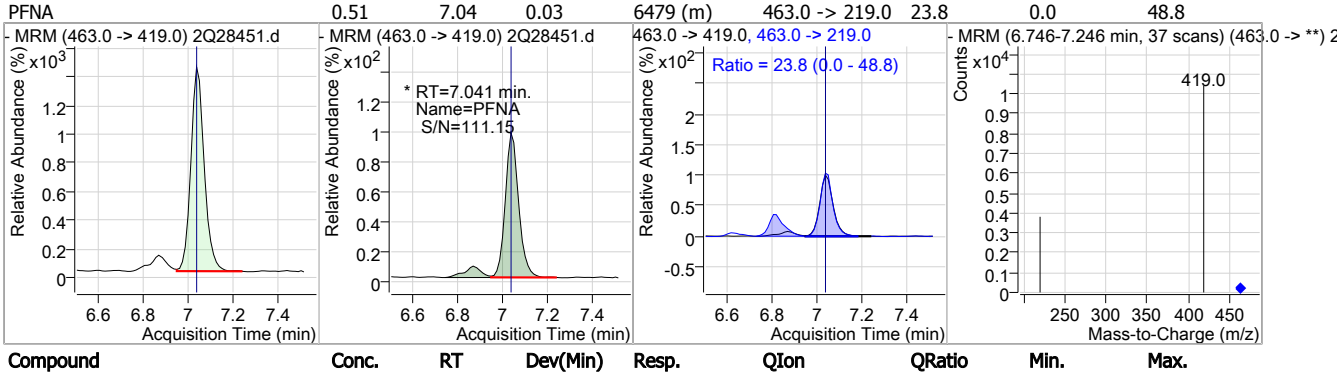
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.45	6.81	-0.18	15334 (m)	499.0 -> 99.0	32.7	37.6	77.6



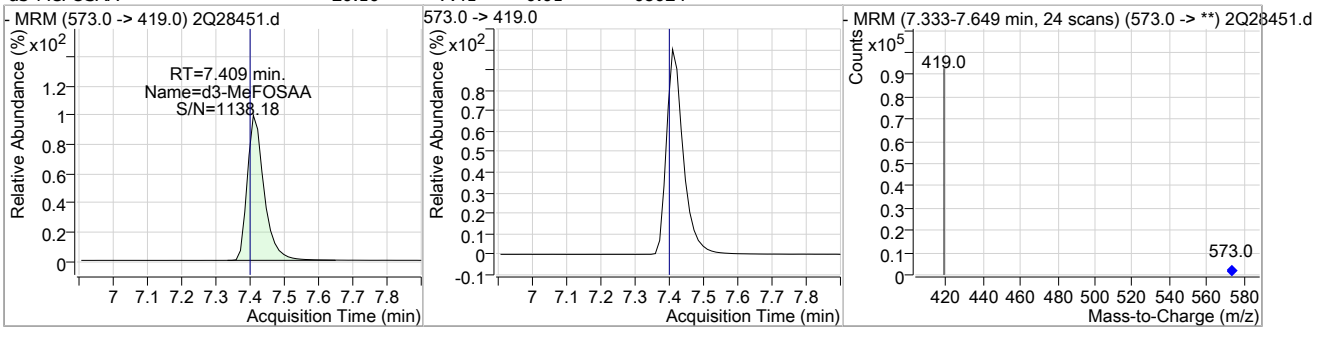
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.27	7.04	0.03	385801				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.51	7.04	0.03	6479 (m)	463.0 -> 219.0	23.8	0.0	48.8

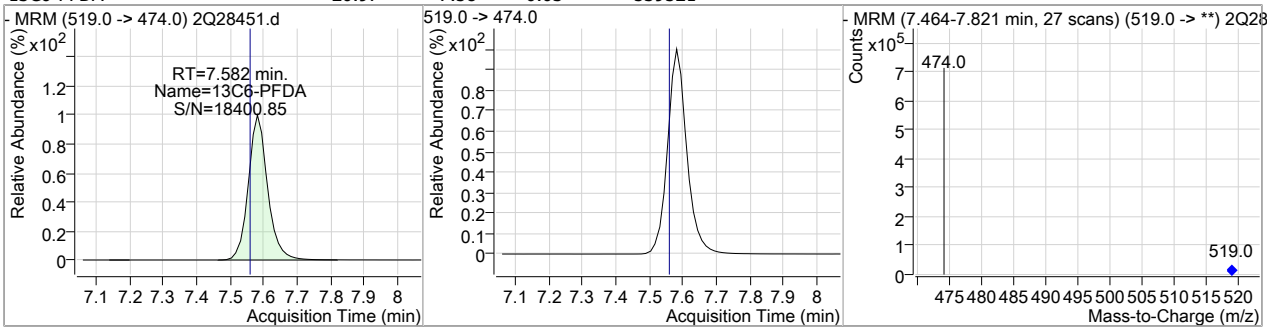


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.10	7.41	0.01	68624				

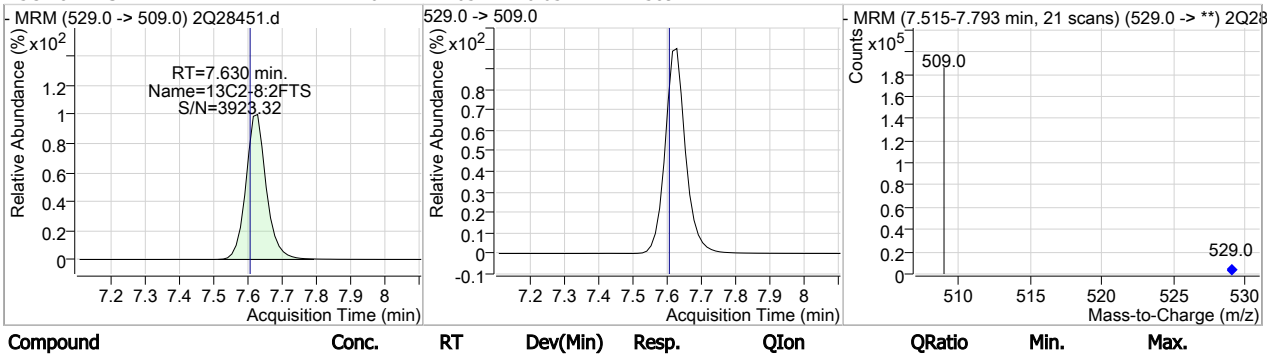


Perfluorinated Compounds by LC/MS/MS

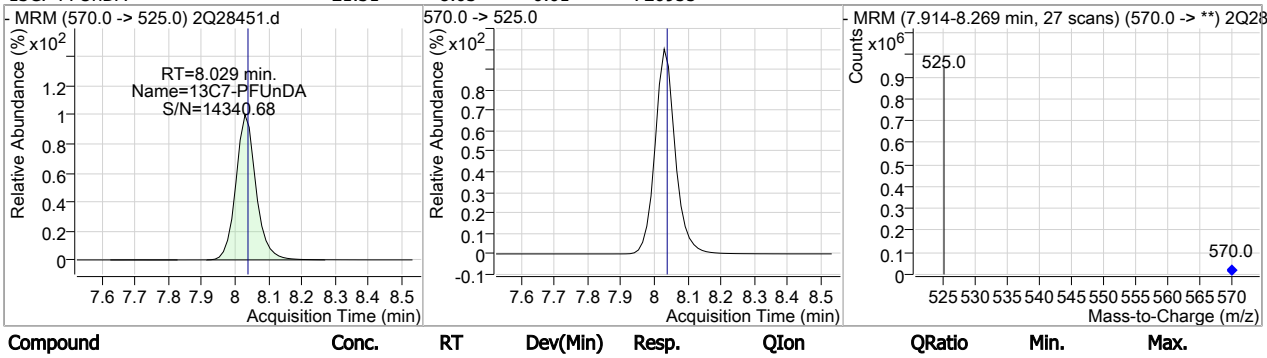
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.97	7.58	0.03	539521				



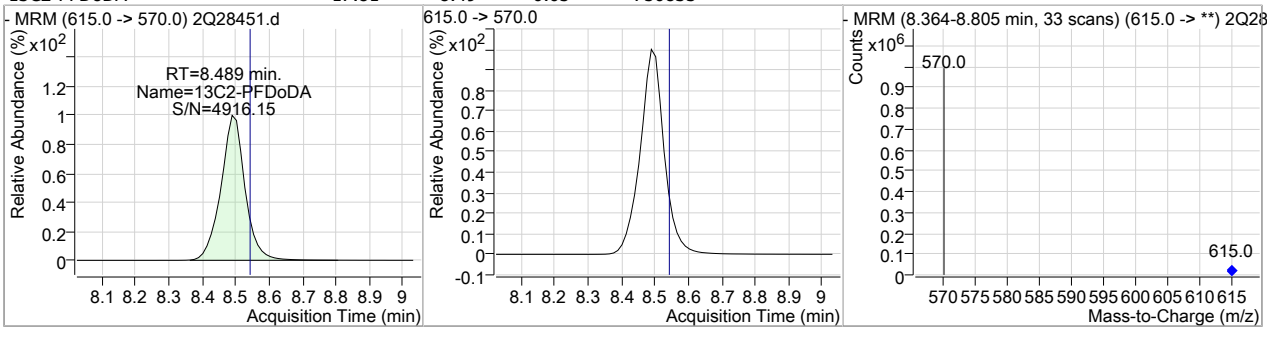
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	22.26	7.63	0.03	138921				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	21.31	8.03	-0.01	726955				



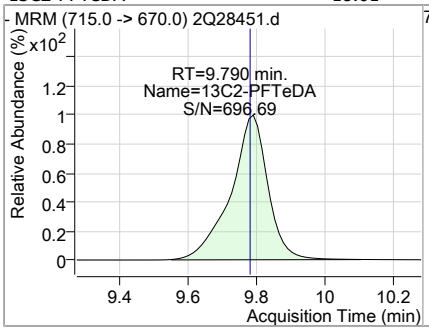
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	17.81	8.49	-0.05	750833				

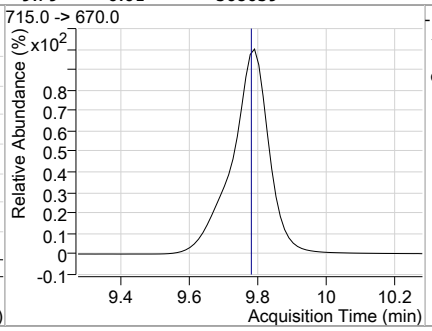


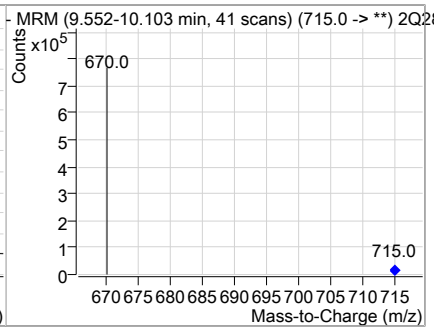
Sample Results: **2Q28451.D**

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.61	9.79	0.01	568059				







7.1.10

7

Manual Integration Approval Summary

Sample Number: FA62561-5
Lab FileID: 2Q28451.D
Injection Time: 04/01/19 11:14
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/01/19 13:48 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		3.76	Split peak
Perfluoropentanesulfonic acid	2706-91-4		4.88	Split peak
Perfluoroheptanoic acid	375-85-9		5.68	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.71	Split peak
Perfluorooctanoic acid	335-67-1		6.40	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.81	Split peak
Perfluorononanoic acid	375-95-1		7.04	Split peak

Sample Results: **2Q28454.D**

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28454.d
Operator	:	natashag
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	4/1/2019 12:02:03 PM
Sample Name	:	fa62561-5
Vial	:	Vial 49
DA Method File	:	ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	:	s2q452.batch.bin
Sample Information	:	op74376,S2Q452,125,,,1.0,10,water

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.410	415.0 -> 370.0	390301	20.00	µg/L	0.039
13C4-PFOS	7.024	503.0 -> 80.0	53592	20.00	µg/L	0.039
M4-PFBA	1.827	217.0 -> 172.0	15779	20.00	µg/L	-0.025
M5-PFPeA	3.511	268.0 -> 223.0	13796	20.00	µg/L	0.013
M5-PFHxA	4.764	318.0 -> 273.0	20649	20.00	µg/L	0.025
M4-PFHpA	5.680	367.0 -> 322.0	31940	20.00	µg/L	0.026
M8-PFOA	6.409	421.0 -> 376.0	33455	20.00	µg/L	0.039
M9-PFNA	7.053	472.0 -> 427.0	38980	20.00	µg/L	0.038
M6-PFDA	7.594	519.0 -> 474.0	53660	20.00	µg/L	0.038
M7-PFUnDA	8.080	570.0 -> 525.0	68490	20.00	µg/L	0.038
M2-PFDoDA	8.578	615.0 -> 570.0	76683	20.00	µg/L	0.039
M2-PFTeDA	9.815	715.0 -> 670.0	54159	20.00	µg/L	0.037
M8-FOSA	6.909	506.0 -> 78.0	10516	20.00	µg/L	0.028
M3-PFBS	3.767	302.0 -> 99.0	2233	20.00	µg/L	0.025
M3-PFHxS	5.723	402.0 -> 99.0	2513	20.00	µg/L	0.038
M8-PFOS	7.035	507.0 -> 99.0	3273	20.00	µg/L	0.052
M2-4:2FTS	4.671	329.0 -> 309.0	11799	20.00	µg/L	0.025
M2-6:2FTS	6.406	429.0 -> 409.0	16030	20.00	µg/L	0.040
M2-8:2FTS	7.642	529.0 -> 509.0	13744	20.00	µg/L	0.038
M3-MeFOSAA	7.421	573.0 -> 419.0	7028	20.00	µg/L	0.025
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	11646	2.20	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.0%		
13C2-6:2FTS	6.406	429.0 -> 409.0	16028	2.29	µg/L	0.040
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.5%		
13C2-8:2FTS	7.642	529.0 -> 509.0	13743	2.20	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.0%		
13C2-PFDoDA	8.578	615.0 -> 570.0	76594	1.82	µg/L	0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 9.1%		
13C2-PFTeDA	9.815	715.0 -> 670.0	53920	1.77	µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 8.8%		
13C3-PFBS	3.767	302.0 -> 99.0	2231	2.03	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.1%		
13C3-PFHxS	5.723	402.0 -> 99.0	2516	2.03	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.2%		
13C4-PFBA	1.827	217.0 -> 172.0	15761	2.11	µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.5%		
13C4-PFHpA	5.680	367.0 -> 322.0	31959	2.08	µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.4%		
13C5-PFHxA	4.764	318.0 -> 273.0	20674	2.04	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.2%		
13C5-PFPeA	3.511	268.0 -> 223.0	13785	2.05	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.2%		
13C6-PFDA	7.594	519.0 -> 474.0	53627	2.08	µg/L	0.038

Sample Results: **2Q28454.D**

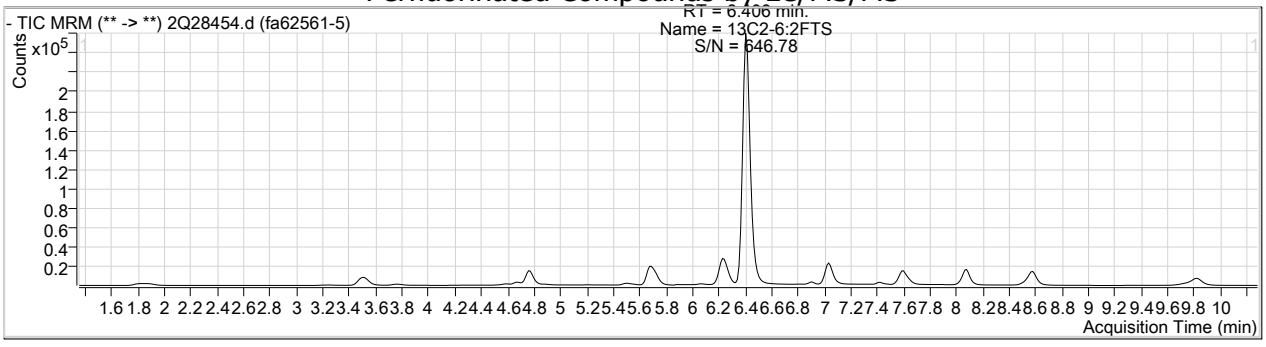
Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.4%			
13C7-PFUnDA	8.080	570.0 -> 525.0	68499	2.01	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%			
13C8-FOSA	6.909	506.0 -> 78.0	10510	1.90	µg/L		0.028
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 9.5%			
13C8-PFOA	6.409	421.0 -> 376.0	33448	2.06	µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.3%			
13C8-PFOS	7.035	507.0 -> 99.0	3280	1.93	µg/L		0.052
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 9.7%			
13C9-PFNA	7.053	472.0 -> 427.0	38989	2.15	µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.7%			
d3-MeFOSAA	7.421	573.0 -> 419.0	7034	2.06	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.3%			
M2-PFOA	6.410	415.0 -> 370.0	390766	2.00	µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%			
M4-PFOS	7.024	503.0 -> 80.0	53576	2.00	µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%			
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.			
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	6.407	427.0 -> 407.0	3550	0.88	µg/L		98
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	1.860	213.0 -> 169.0	2898	1.85	µg/L		100
PFBS	3.758	299.0 -> 80.0	2845	1.57	µg/L	m	97
PFDA	-	513.0 -> 469.0	-	N.D.			
PFDoDA	-	613.0 -> 569.0	-	N.D.			
PFDS	-	599.0 -> 80.0	-	N.D.			
PFHpA	5.683	363.0 -> 319.0	43907	3.14	µg/L	m	99
PFHpS	6.417	449.0 -> 80.0	362	0.28	µg/L	m	86
PFHxA	4.765	313.0 -> 269.0	37623	10.42	µg/L		100
PFHxS	5.726	399.0 -> 80.0	23996	16.10	µg/L	m	99
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.412	413.0 -> 369.0	584276	65.15	µg/L	m	95
PFOS	6.807	499.0 -> 80.0	1527	0.96	µg/L	#m	65
PFPeA	3.515	263.0 -> 219.0	32444	5.30	µg/L		100
PFPeS	4.883	349.0 -> 80.0	2105	1.66	µg/L	m	94
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
HFPO-DA	-	329.0 -> 169.0	-	N.D.			

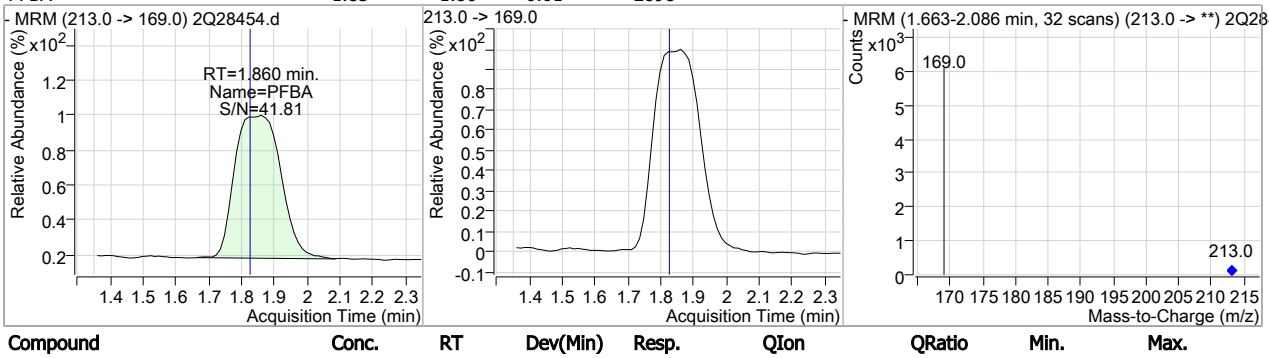
 # = Qualifier out of range, m = manually integrated, + = Area summed

Sample Results: **2Q28454.D**

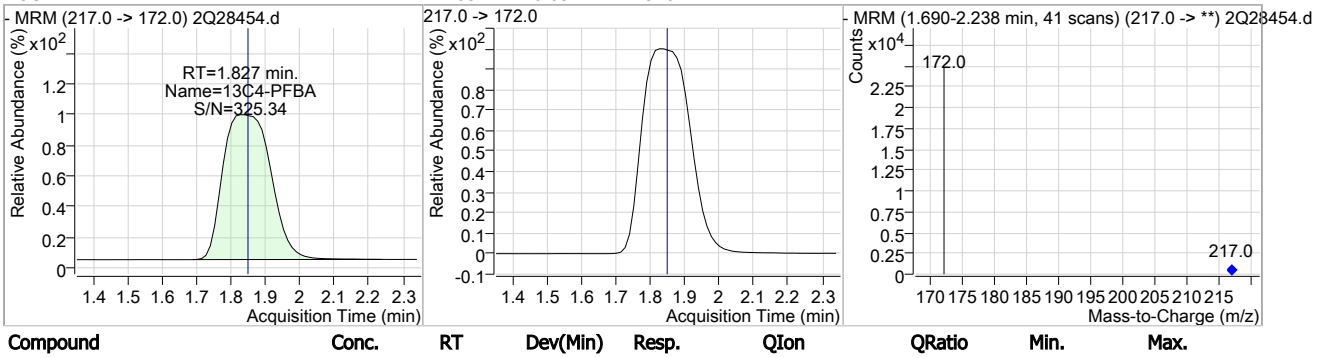
Perfluorinated Compounds by LC/MS/MS



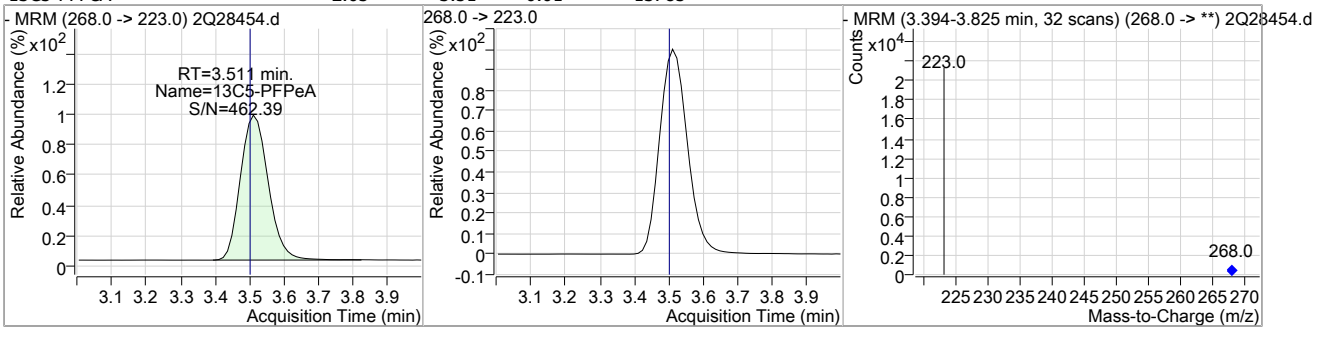
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.85	1.86	0.01	2898				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	2.11	1.83	-0.03	15761				

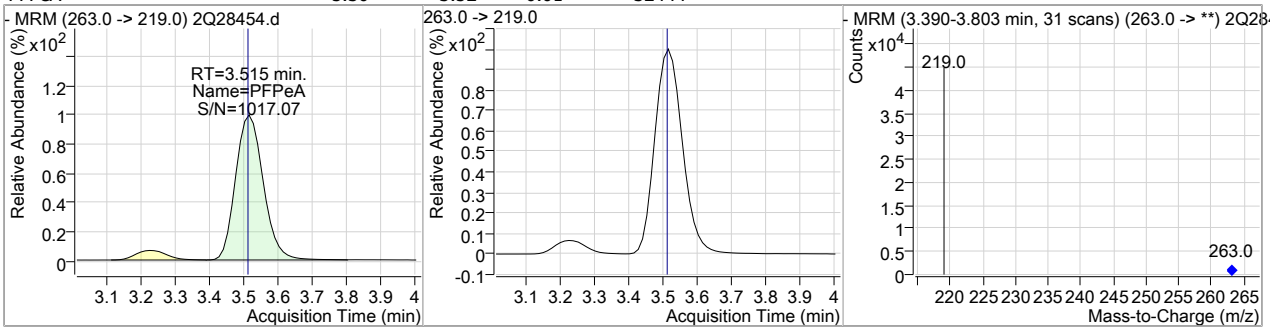


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	2.05	3.51	0.01	13785				

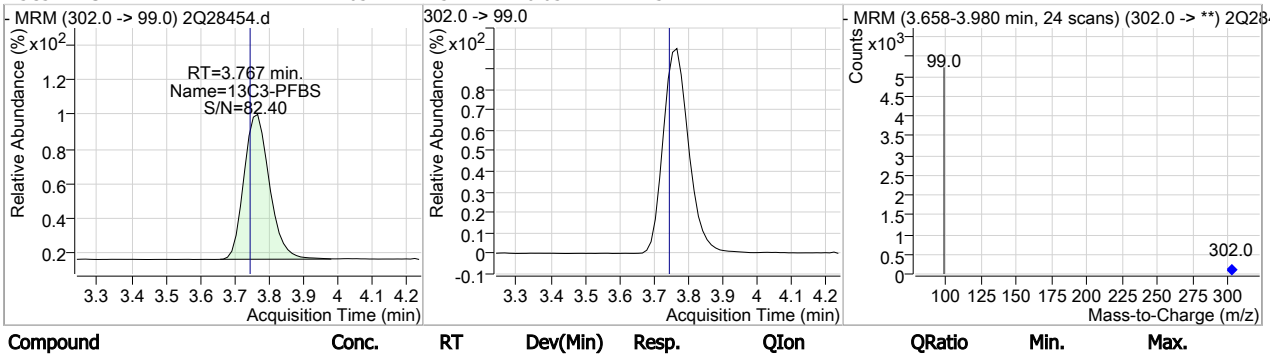


Perfluorinated Compounds by LC/MS/MS

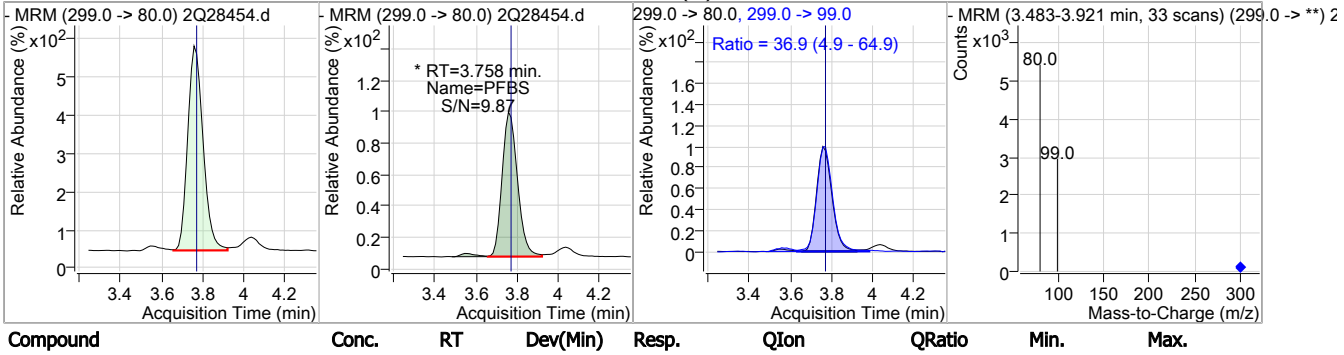
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.30	3.52	0.01	32444				



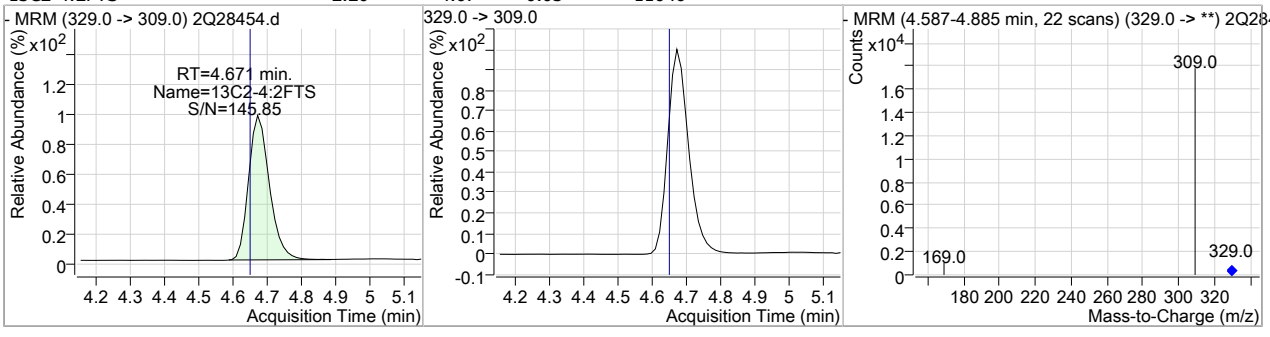
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.03	3.77	0.03	2231				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.57	3.76	0.01	2845 (m)	299.0 -> 99.0	36.9	4.9	64.9

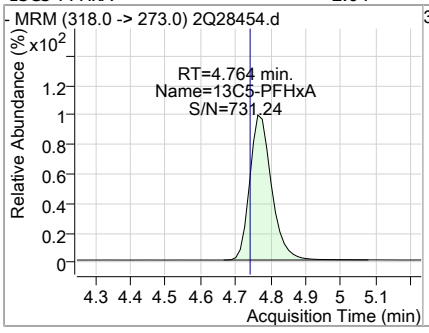


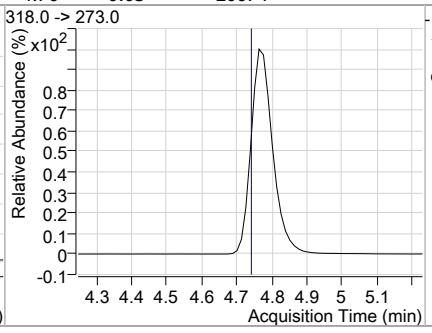
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	2.20	4.67	0.03	11646				

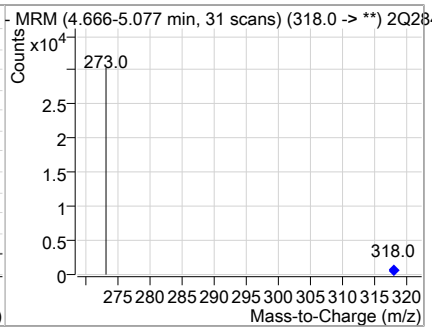


Perfluorinated Compounds by LC/MS/MS

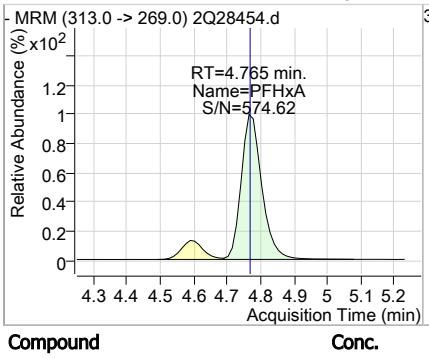
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.04	4.76	0.03	20674				

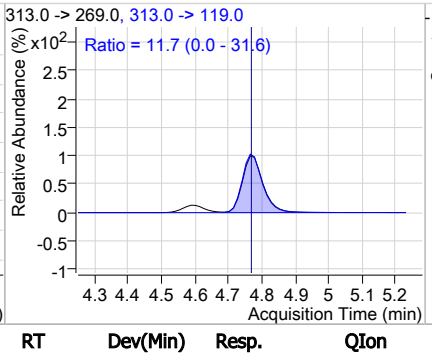


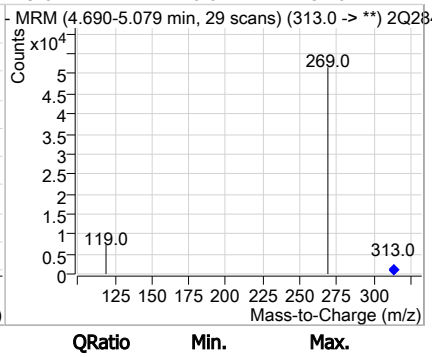




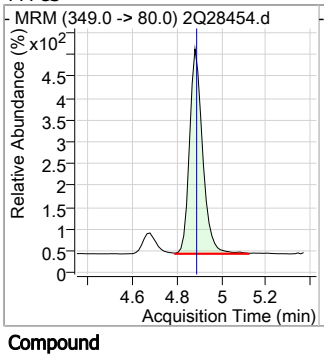
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	10.42	4.77	0.03	37623	313.0 -> 119.0	11.7	0.0	31.6

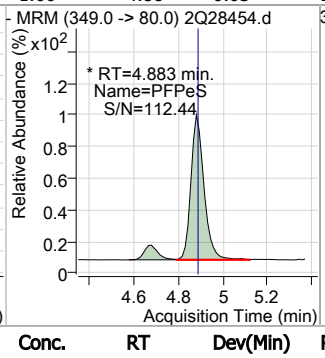


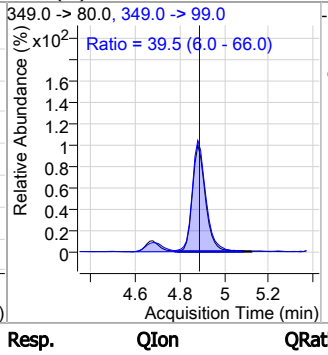


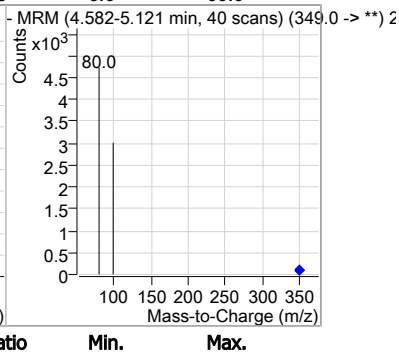


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.66	4.88	0.03	2105 (m)	349.0 -> 99.0	39.5	6.0	66.0

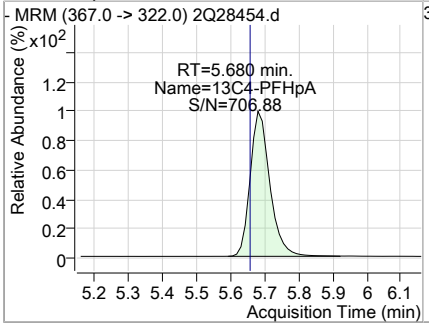


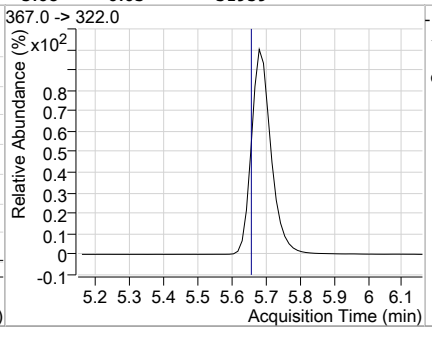


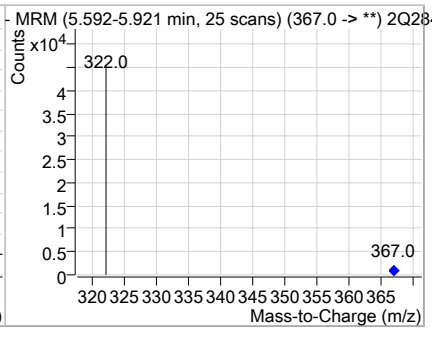




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.08	5.68	0.03	31959				



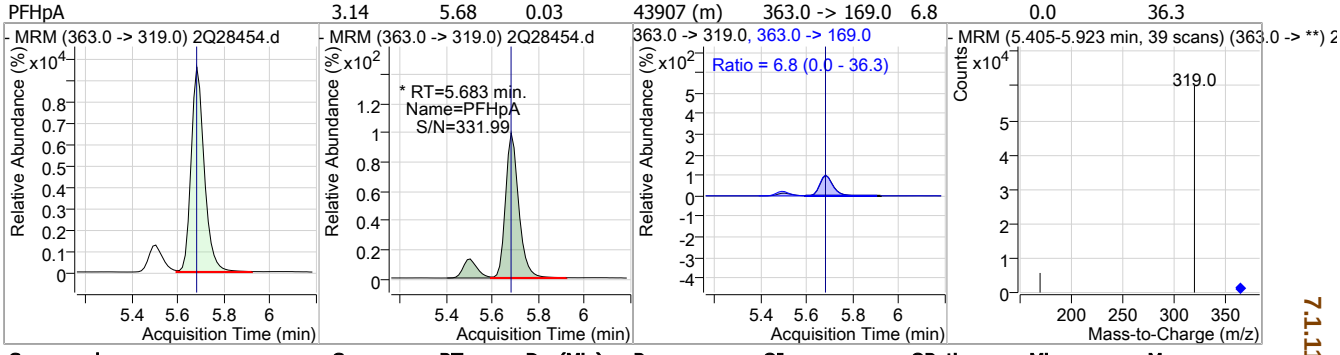




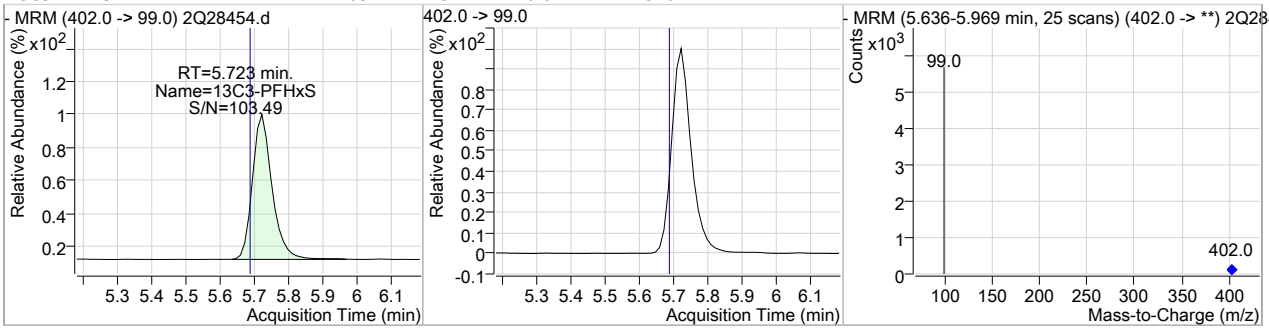
Sample Results: **2Q28454.D**

Perfluorinated Compounds by LC/MS/MS

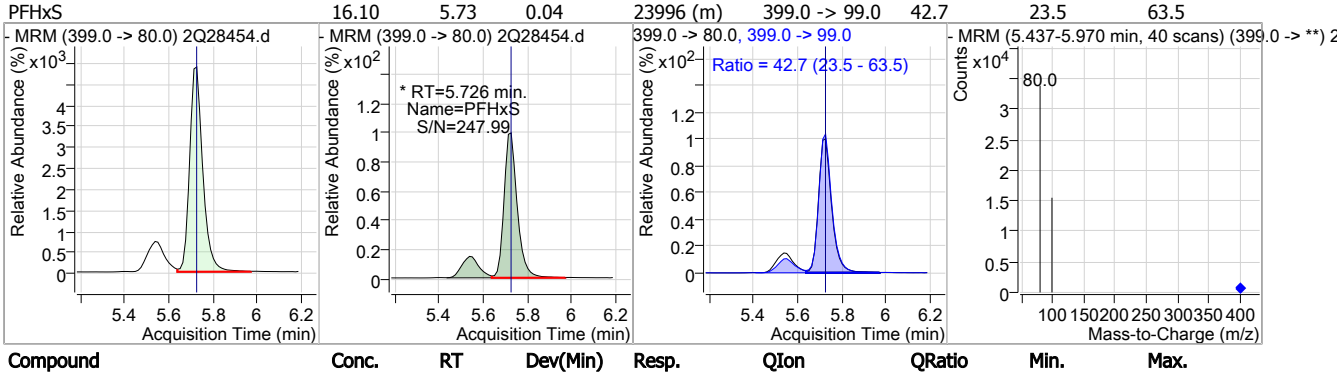
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	3.14	5.68	0.03	43907 (m)	363.0 -> 169.0	6.8	0.0	36.3



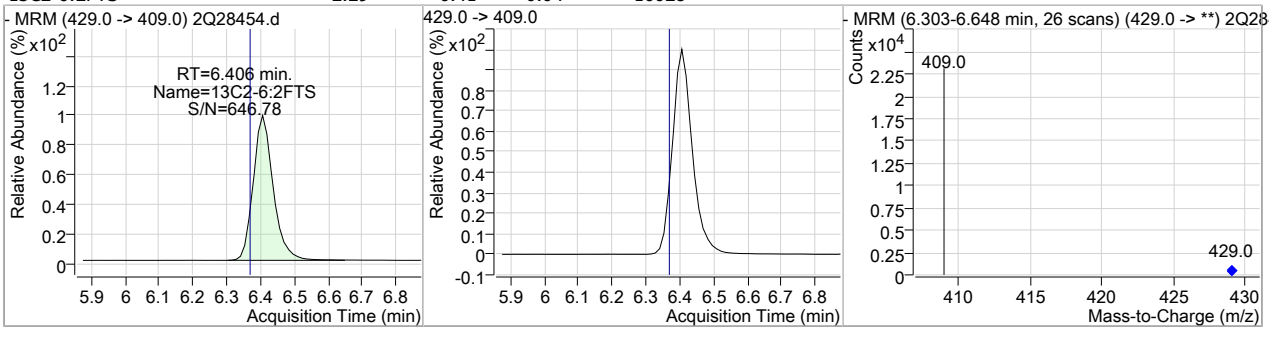
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.03	5.72	0.04	2516				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	16.10	5.73	0.04	23996 (m)	399.0 -> 99.0	42.7	23.5	63.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	2.29	6.41	0.04	16028				



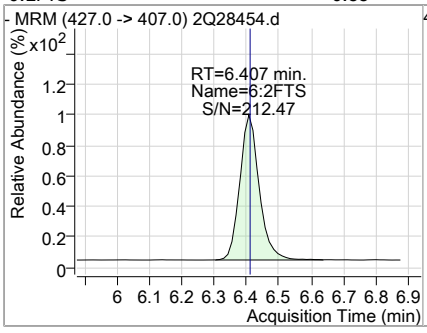
7.1.11

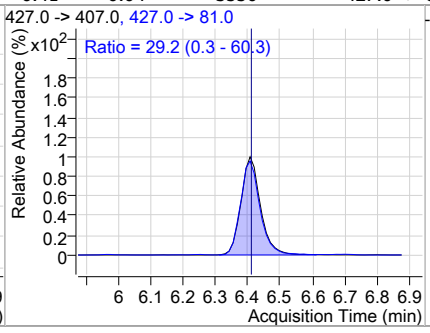
7

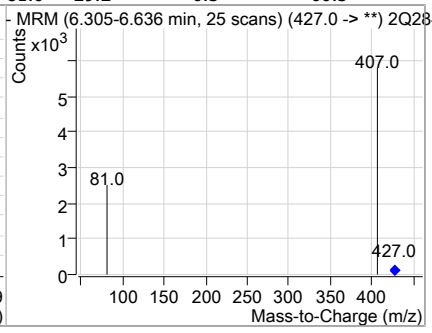
Sample Results: **2Q28454.D**

Perfluorinated Compounds by LC/MS/MS

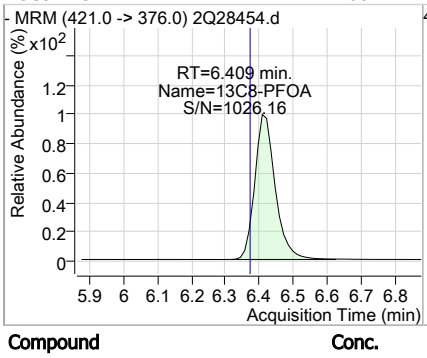
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.88	6.41	0.04	3550	427.0 -> 81.0	29.2	0.3	60.3

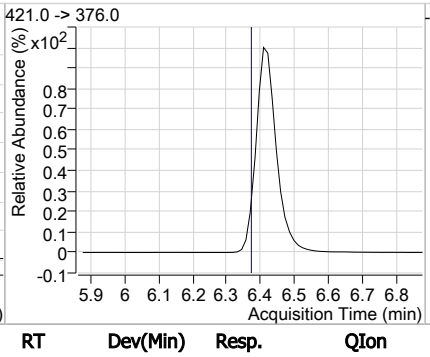


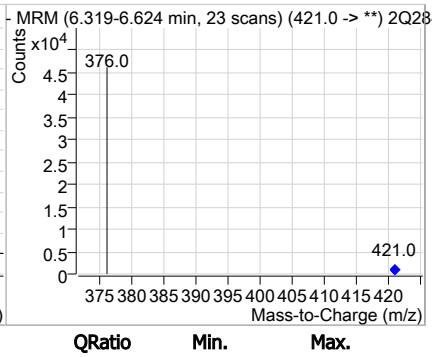




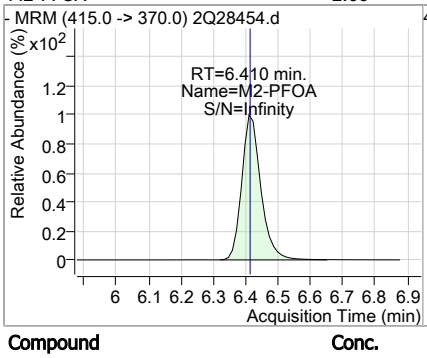
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.06	6.41	0.04	33448				

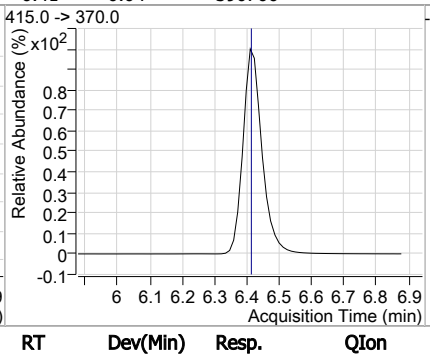


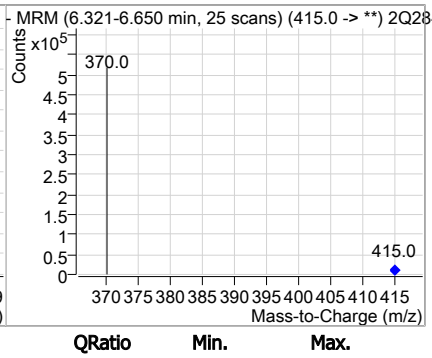




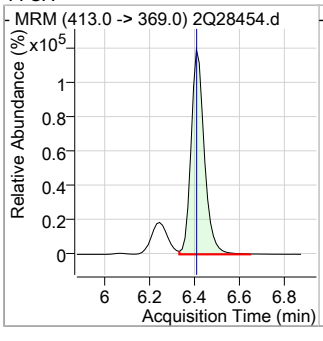
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	2.00	6.41	0.04	390766				

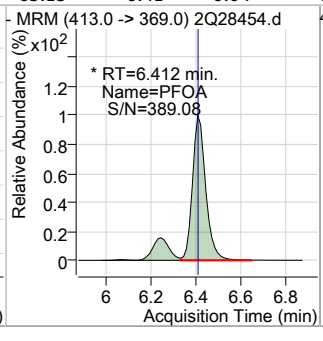


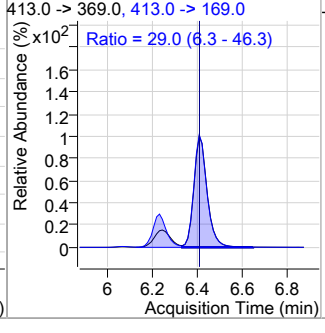


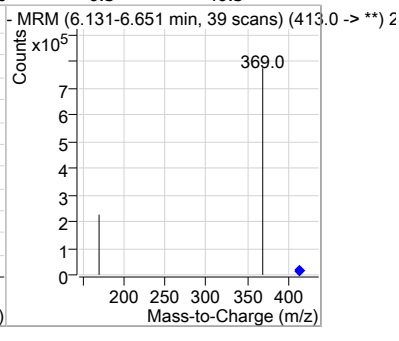


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	65.15	6.41	0.04	584276 (m)	413.0 -> 169.0	29.0	6.3	46.3









7.1.11

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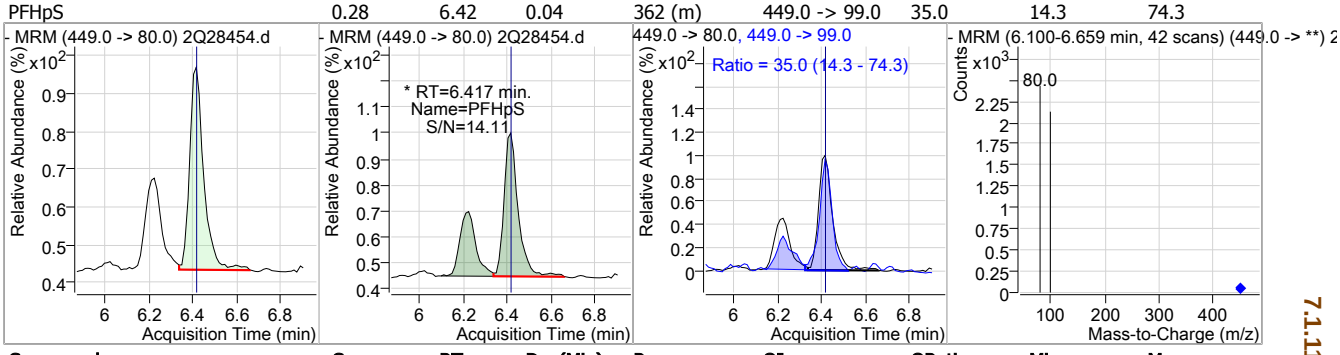
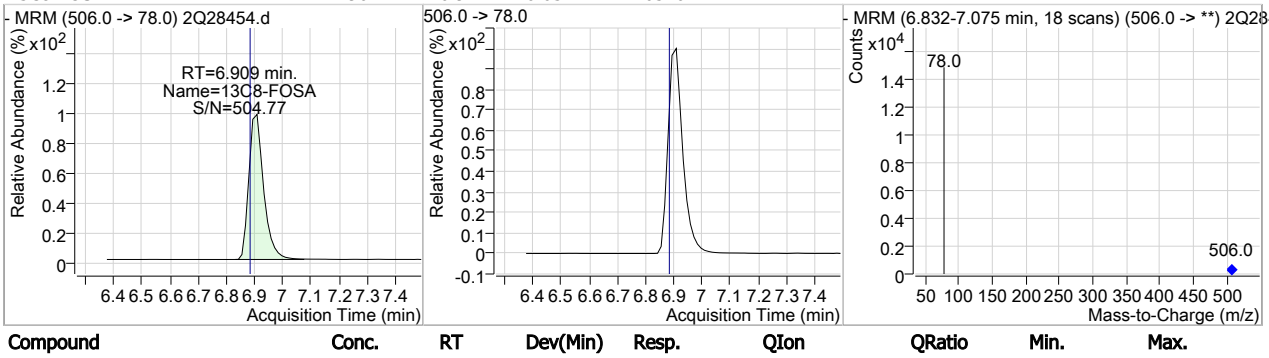
Sample Results: **2Q28454.D**

Perfluorinated Compounds by LC/MS/MS

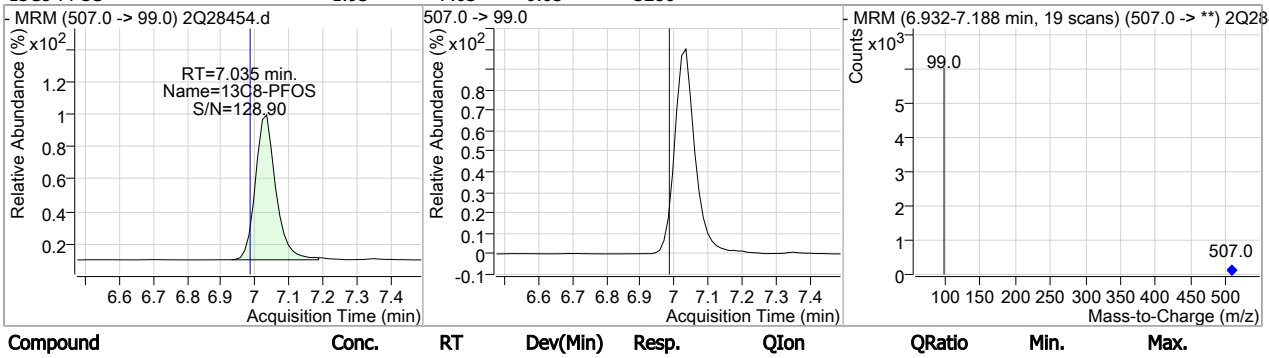
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.28	6.42	0.04	362 (m)	449.0 -> 99.0	35.0	14.3	74.3



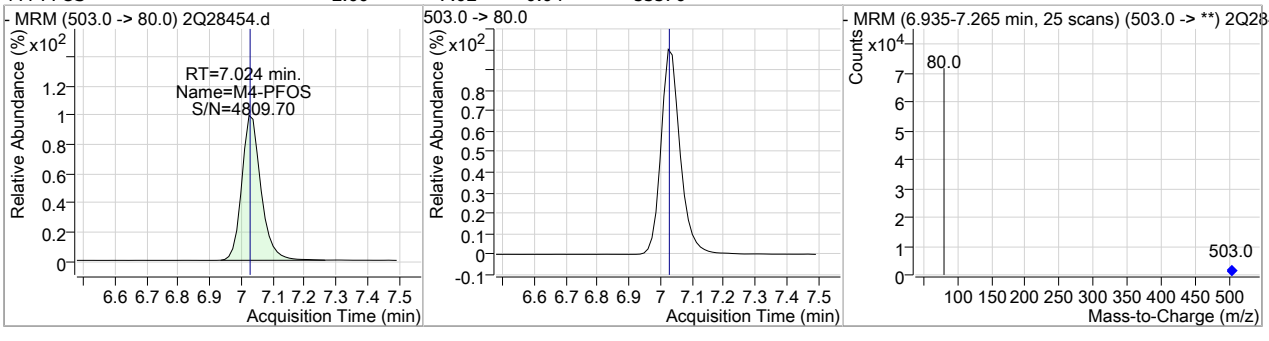
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.90	6.91	0.03	10510				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	1.93	7.03	0.05	3280				

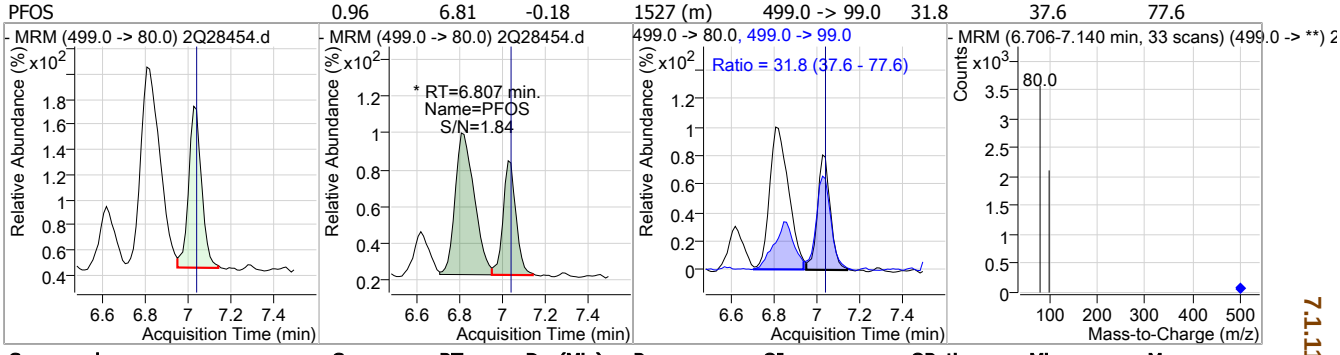


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	2.00	7.02	0.04	53576				

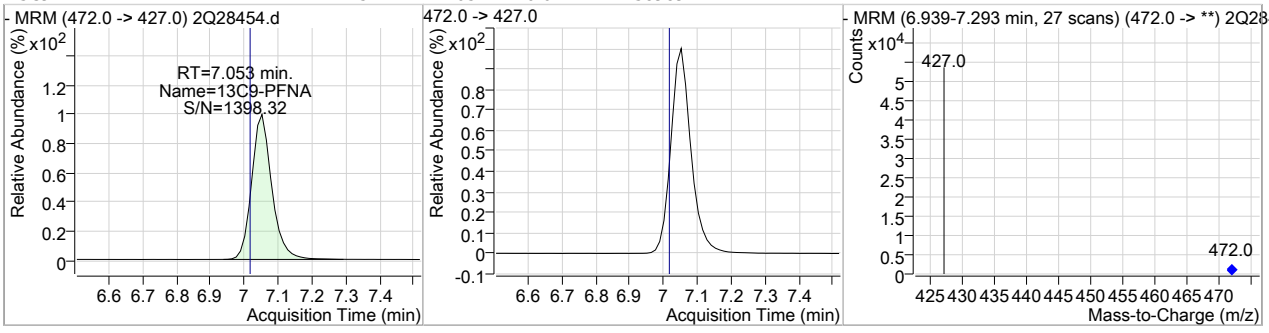


Perfluorinated Compounds by LC/MS/MS

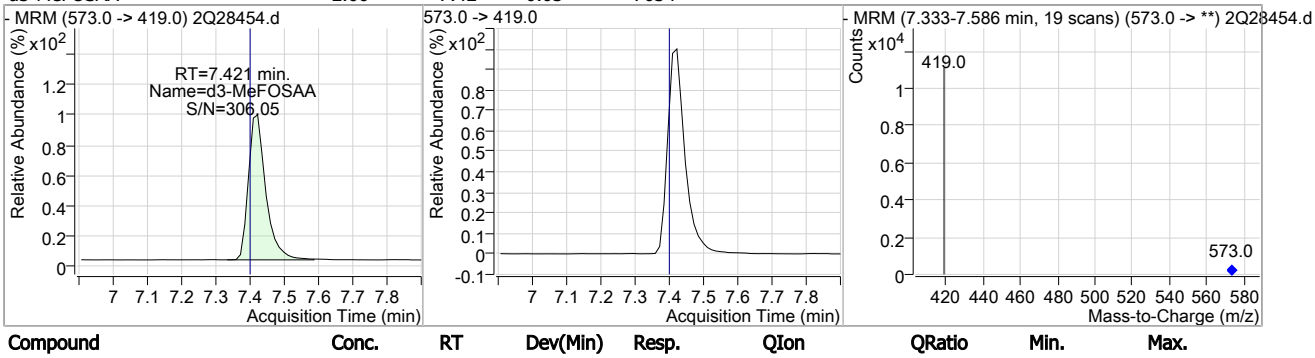
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.96	6.81	-0.18	1527 (m)	499.0 -> 99.0	31.8	37.6	77.6



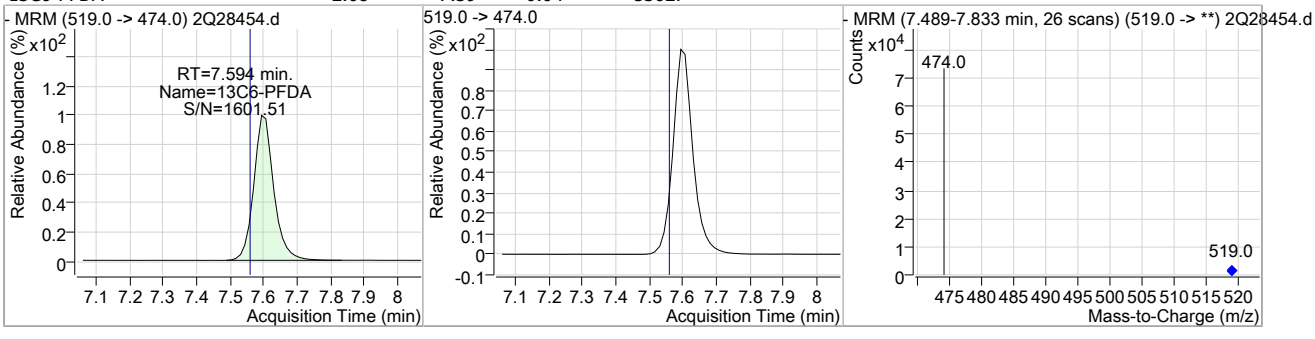
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	2.15	7.05	0.04	38989				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	2.06	7.42	0.03	7034				



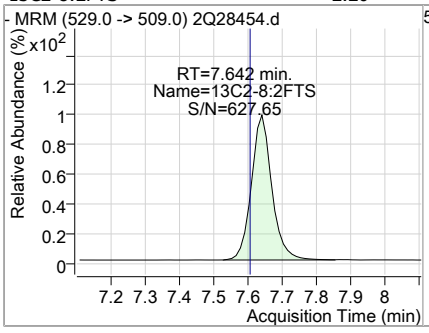
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	2.08	7.59	0.04	53627				

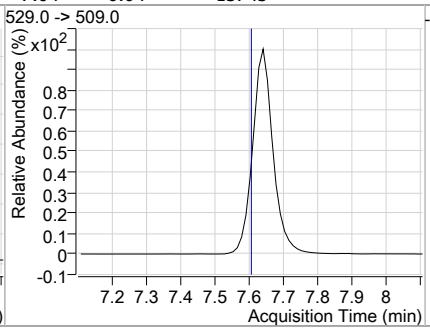


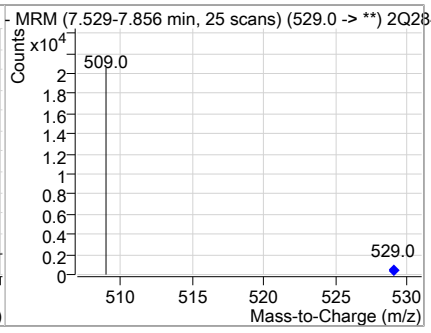
Sample Results: **2Q28454.D**

Perfluorinated Compounds by LC/MS/MS

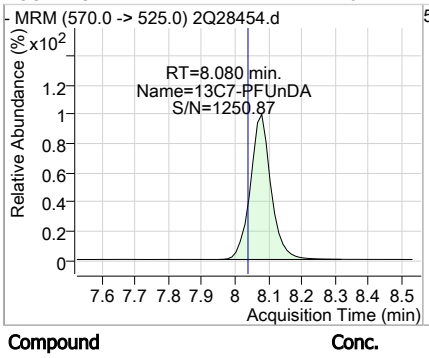
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	2.20	7.64	0.04	13743				

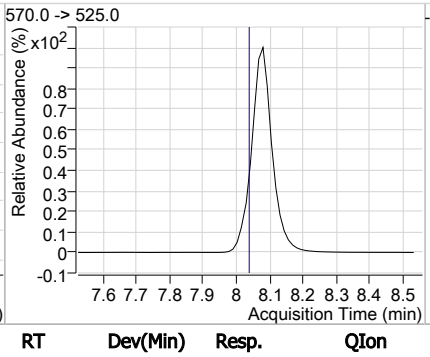


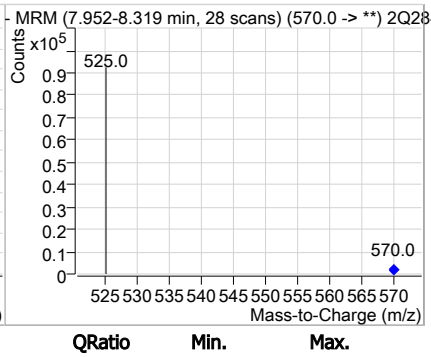




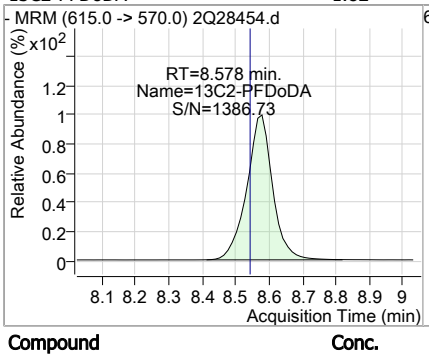
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	2.01	8.08	0.04	68499				

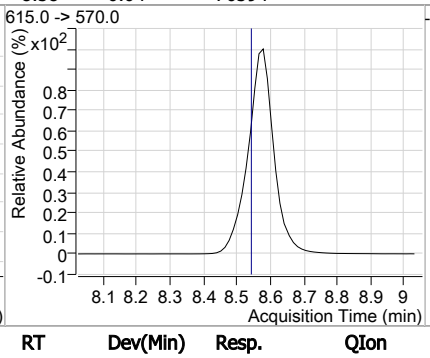


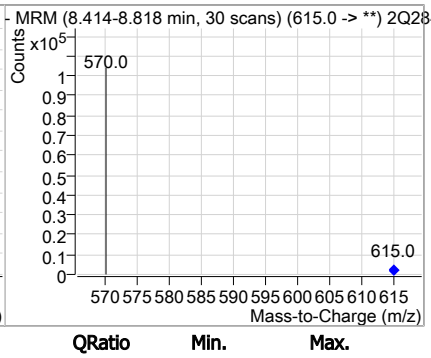




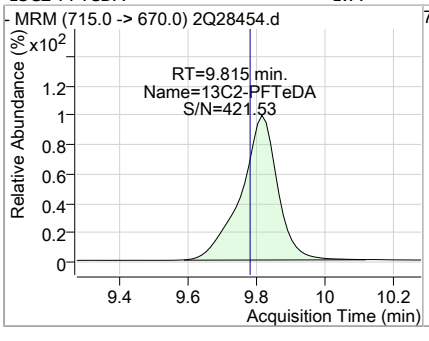
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.82	8.58	0.04	76594				

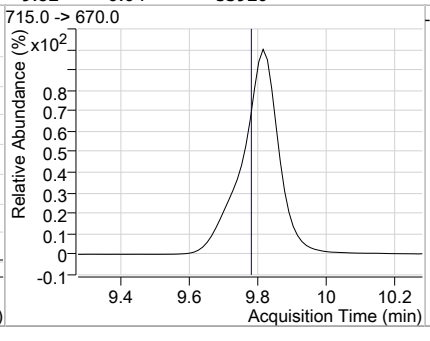


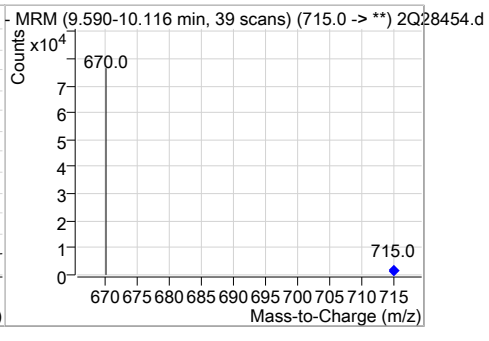




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.77	9.82	0.04	53920				







Manual Integration Approval Summary

Sample Number: FA62561-5
Lab FileID: 2Q28454.D
Injection Time: 04/01/19 12:02
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/01/19 13:48 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		3.76	Split peak
Perfluoropentanesulfonic acid	2706-91-4		4.88	Split peak
Perfluoroheptanoic acid	375-85-9		5.68	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanoic acid	335-67-1		6.41	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.81	Split peak

Sample Results: 2Q28065.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File	:	2Q28065.d
Operator	:	natashag
Acq. Method	:	dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	:	3/25/2019 12:31:48 AM
Sample Name	:	fa62561-6
Vial	:	Vial 49
DA Method File	:	ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name	:	s2q447.batch.bin
Sample Information	:	op74263,S2Q447,125,,,1.0,1,water

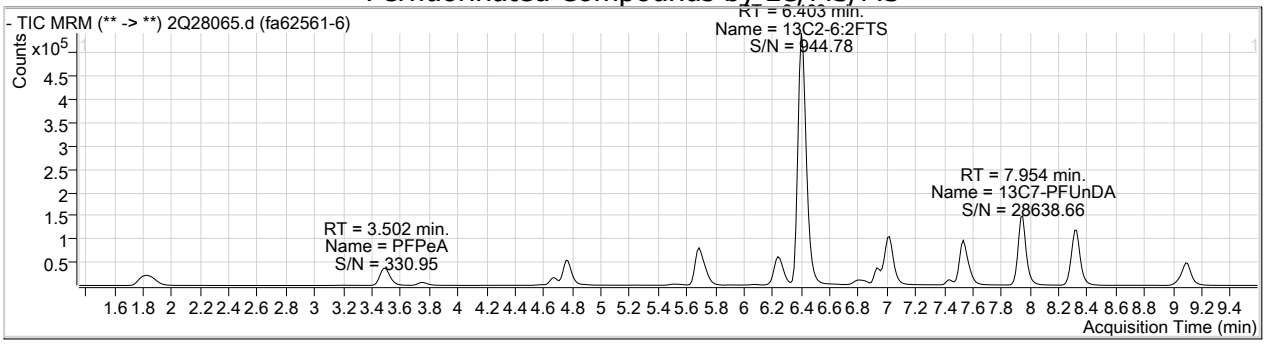
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.409	415.0 -> 370.0	295629	20.00 µg/L	0.012
13C4-PFOS	7.011	503.0 -> 80.0	54303	20.00 µg/L	0.013
M4-PFBA	1.827	217.0 -> 172.0	166637	20.00 µg/L	-0.025
M5-PFPeA	3.499	268.0 -> 223.0	131449	20.00 µg/L	0.000
M5-PFHxA	4.763	318.0 -> 273.0	177379	20.00 µg/L	0.000
M4-PFHpA	5.692	367.0 -> 322.0	248886	20.00 µg/L	0.012
M8-PFOA	6.407	421.0 -> 376.0	243211	20.00 µg/L	0.012
M9-PFNA	7.027	472.0 -> 427.0	254588	20.00 µg/L	0.013
M6-PFDA	7.544	519.0 -> 474.0	364253	20.00 µg/L	0.001
M7-PFUnDA	7.954	570.0 -> 525.0	584461	20.00 µg/L	-0.037
M2-PFDoDA	8.315	615.0 -> 570.0	518796	20.00 µg/L	-0.061
M2-PFTeDA	9.089	715.0 -> 670.0	245115	20.00 µg/L	-0.012
M8-FOSA	6.933	506.0 -> 78.0	125660	20.00 µg/L	0.015
M3-PFBS	3.755	302.0 -> 99.0	23674	20.00 µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	25647	20.00 µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	32182	20.00 µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	66992	20.00 µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	69696	20.00 µg/L	0.012
M2-8:2FTS	7.579	529.0 -> 509.0	49707	20.00 µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	38746	20.00 µg/L	0.000
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.671	329.0 -> 309.0	66966	23.53 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.6%	
13C2-6:2FTS	6.403	429.0 -> 409.0	69685	23.12 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.6%	
13C2-8:2FTS	7.579	529.0 -> 509.0	49706	22.87 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C2-PFDoDA	8.315	615.0 -> 570.0	518628	28.85 µg/L	-0.061
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 144.3%	
13C2-PFTeDA	9.089	715.0 -> 670.0	244718	20.57 µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%	
13C3-PFBS	3.755	302.0 -> 99.0	23623	23.02 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.1%	
13C3-PFHxS	5.723	402.0 -> 99.0	25610	23.04 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.2%	
13C4-PFBA	1.827	217.0 -> 172.0	166139	25.41 µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 127.1%	
13C4-PFHpA	5.692	367.0 -> 322.0	248747	24.06 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.3%	
13C5-PFHxA	4.763	318.0 -> 273.0	177280	23.92 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.6%	
13C5-PFPeA	3.499	268.0 -> 223.0	131118	23.83 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.2%	
13C6-PFDA	7.544	519.0 -> 474.0	363993	26.48 µg/L	0.001

Perfluorinated Compounds by LC/MS/MS

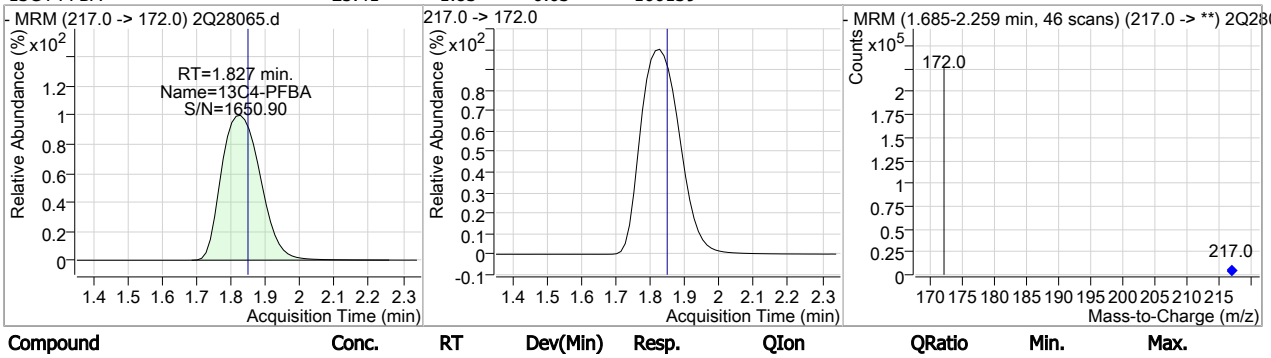
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 132.4%		
13C7-PFUnDA	7.954	570.0 -> 525.0	584404	33.62 µg/L		-0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 168.1%		
13C8-FOSA	6.933	506.0 -> 78.0	125624	28.01 µg/L		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 140.0%		
13C8-PFOA	6.407	421.0 -> 376.0	243066	23.59 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.9%		
13C8-PFOS	7.008	507.0 -> 99.0	32180	22.50 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.5%		
13C9-PFNA	7.027	472.0 -> 427.0	254557	24.42 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 122.1%		
d3-MeFOSAA	7.434	573.0 -> 419.0	38727	22.09 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.4%		
M2-PFOA	6.409	415.0 -> 370.0	295398	19.98 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.011	503.0 -> 80.0	54311	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
Target Compounds						**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.		
6:2FTS	6.405	427.0 -> 407.0	9373	5.33 µg/L		98
8:2FTS	7.580	527.0 -> 507.0	317	0.24 µg/L		84
EtFOSAA	-	584.0 -> 419.0	-	N.D.		
FOSA	-	498.0 -> 78.0	-	N.D.		
MeFOSAA	-	570.0 -> 419.0	-	N.D.		
PFBA	1.823	213.0 -> 169.0	5086	3.12 µg/L		100
PFBS	3.746	299.0 -> 80.0	4188	2.18 µg/L		98
PFDA	-	513.0 -> 469.0	-	N.D.		
PFDoDA	-	613.0 -> 569.0	-	N.D.		
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.695	363.0 -> 319.0	58328	5.23 µg/L	m	98
PFHpS	6.413	449.0 -> 80.0	2061	1.72 µg/L	m	95
PFHxA	4.765	313.0 -> 269.0	40626	13.14 µg/L		99
PFHxS	5.726	399.0 -> 80.0	47075	33.21 µg/L	m	99
PFNA	7.028	463.0 -> 419.0	2832	0.34 µg/L	m	70
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.411	413.0 -> 369.0	1517697	232.31 µg/L	m	97
PFOS	7.012	499.0 -> 80.0	130870	82.66 µg/L	m	97
PFPeA	3.502	263.0 -> 219.0	56765	9.68 µg/L	m	100
PFPeS	4.883	349.0 -> 80.0	2912	2.37 µg/L	m	99
PFTeDA	-	713.0 -> 669.0	-	N.D.		
PFTrDA	-	663.0 -> 619.0	-	N.D.		
PFUnDA	-	563.0 -> 519.0	-	N.D.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

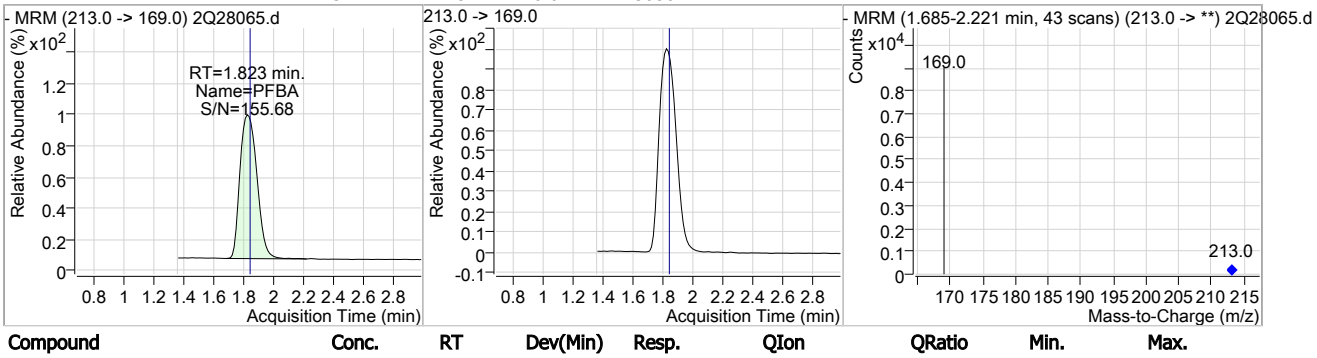
Perfluorinated Compounds by LC/MS/MS



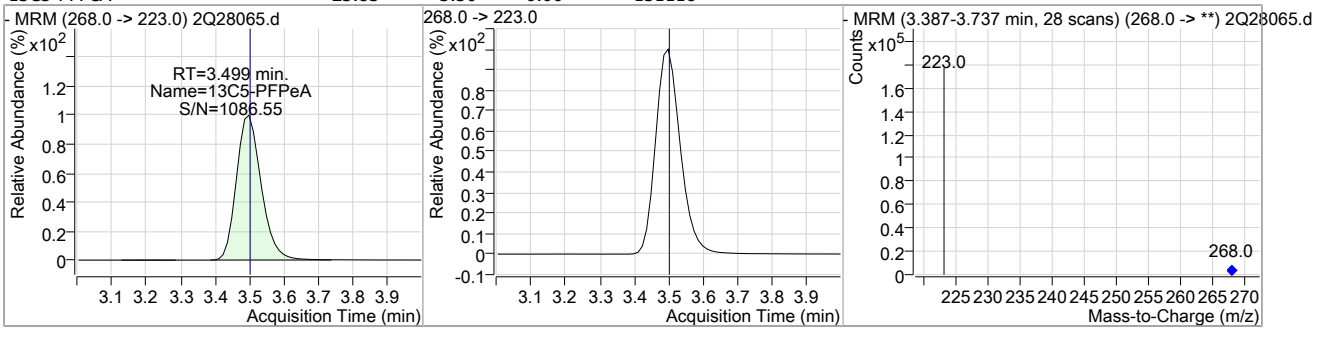
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	25.41	1.83	-0.03	166139				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	3.12	1.82	-0.04	5086				



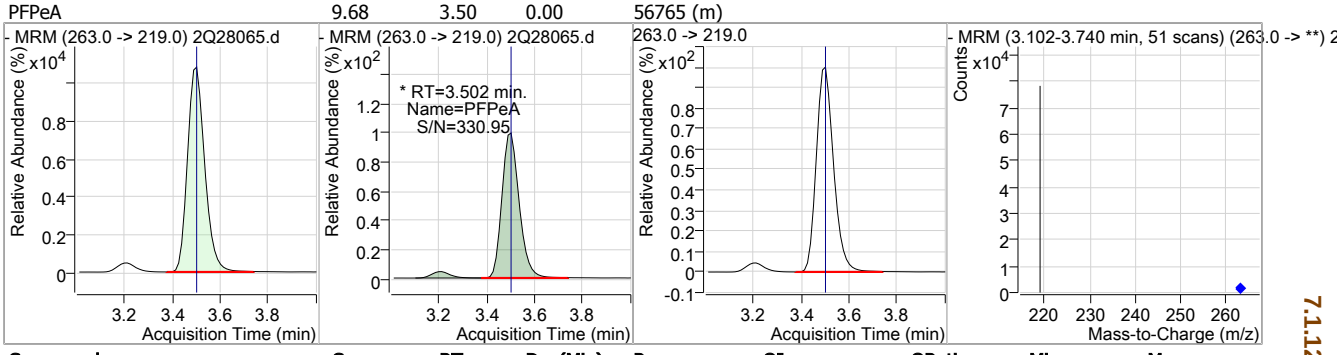
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	23.83	3.50	0.00	131118				



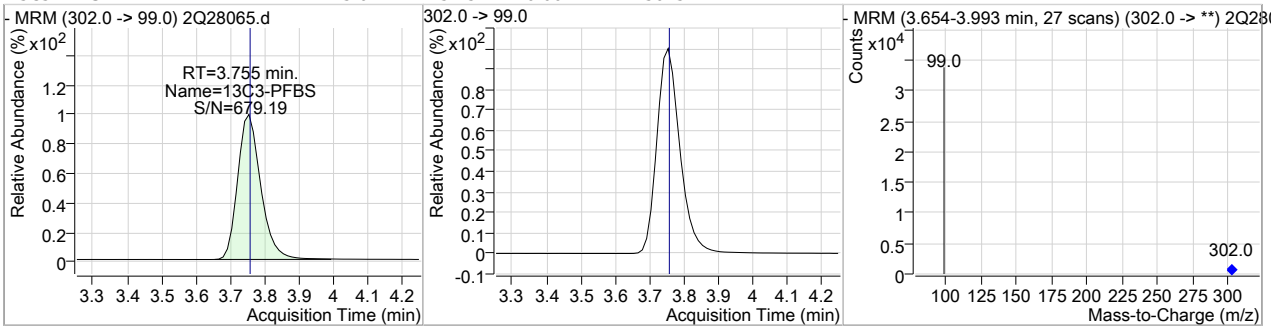
7.1.12

Perfluorinated Compounds by LC/MS/MS

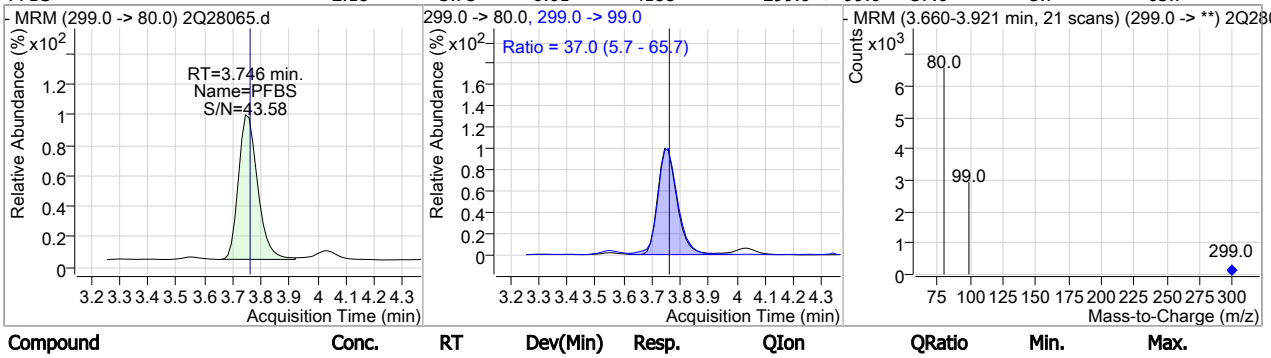
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.68	3.50	0.00	56765 (m)				



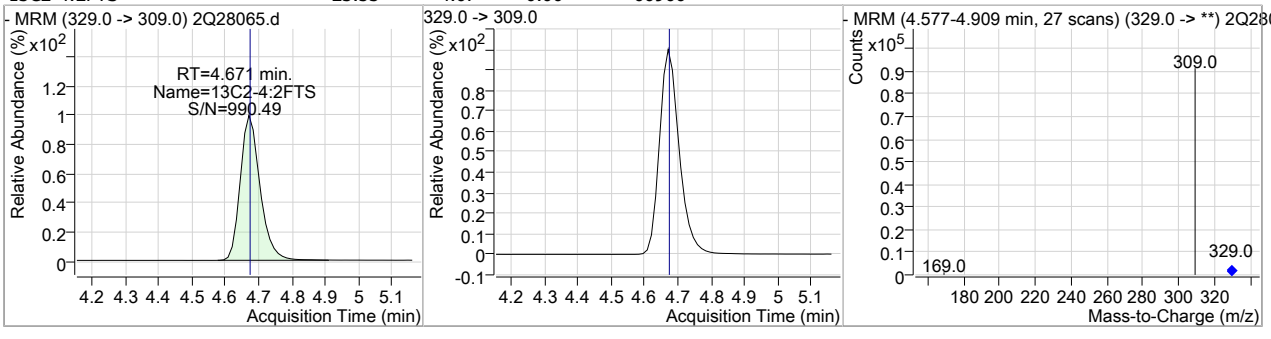
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	23.02	3.75	0.00	23623				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.18	3.75	-0.01	4188	299.0 -> 99.0	37.0	5.7	65.7

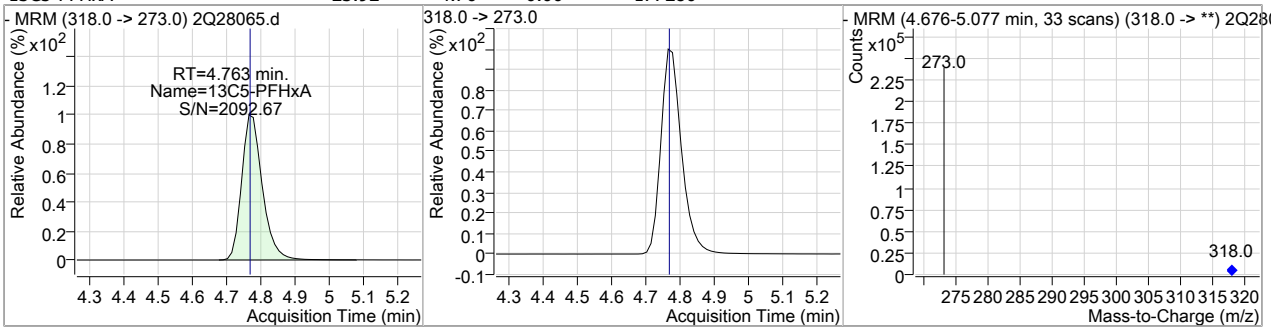


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	23.53	4.67	0.00	66966				

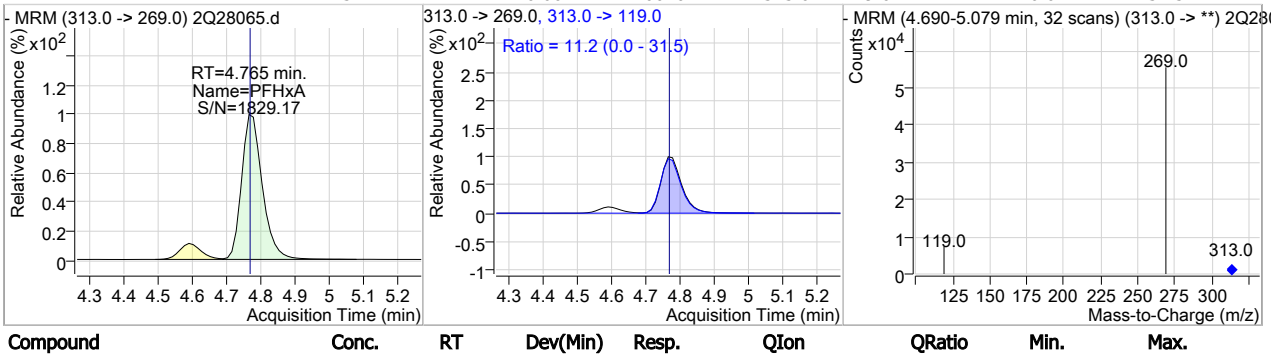


Perfluorinated Compounds by LC/MS/MS

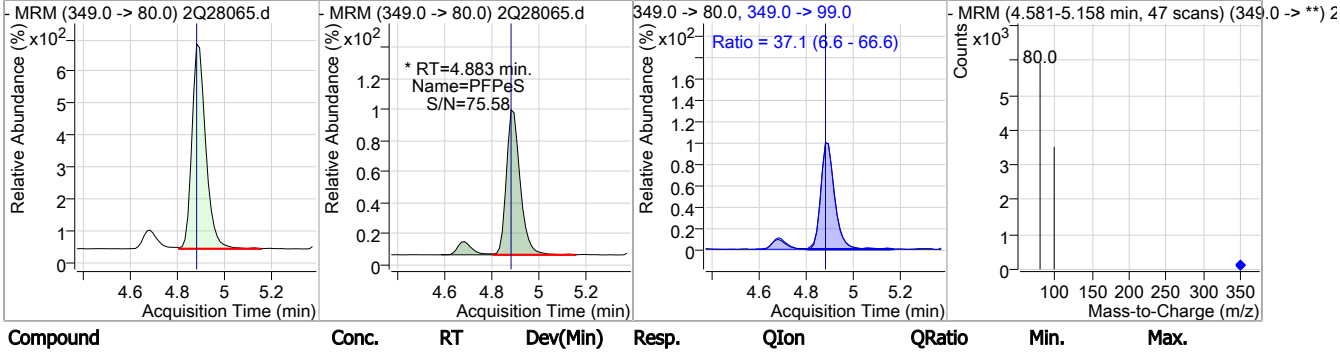
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	23.92	4.76	0.00	177280				



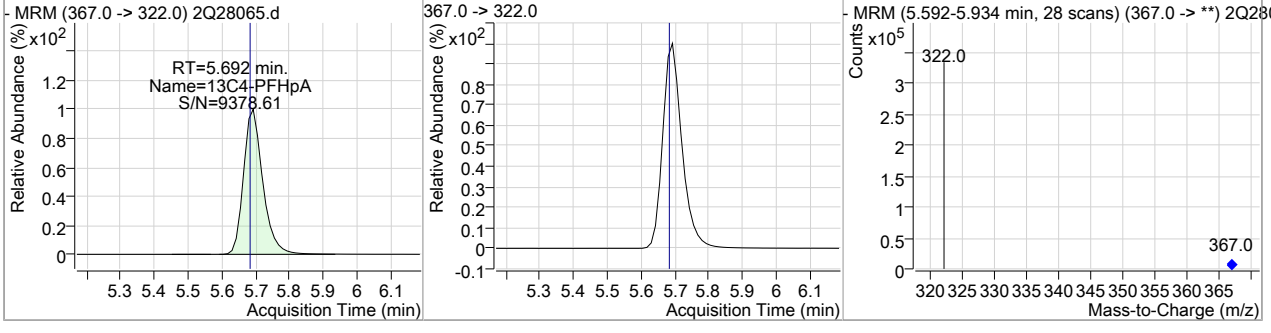
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.14	4.77	0.00	40626	313.0 -> 119.0	11.2	0.0	31.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.37	4.88	0.00	2912 (m)	349.0 -> 99.0	37.1	6.6	66.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	24.06	5.69	0.01	248747				



7.1.12

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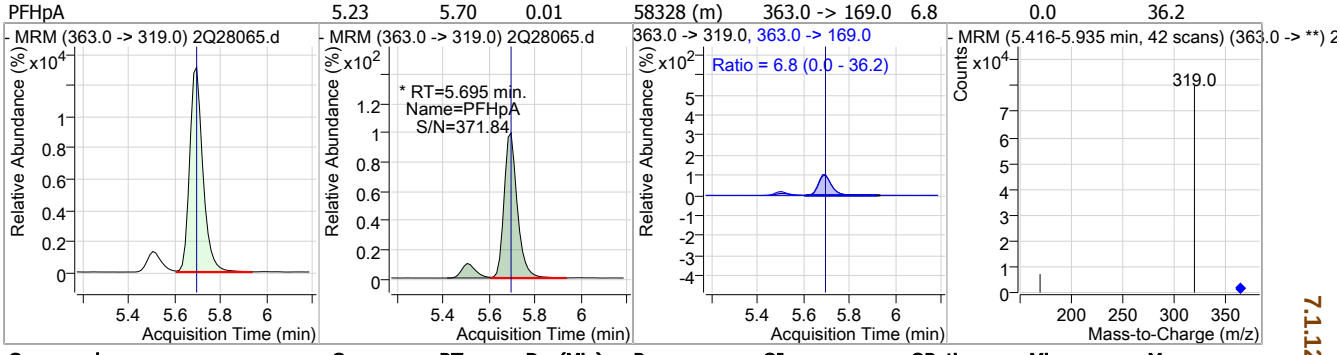
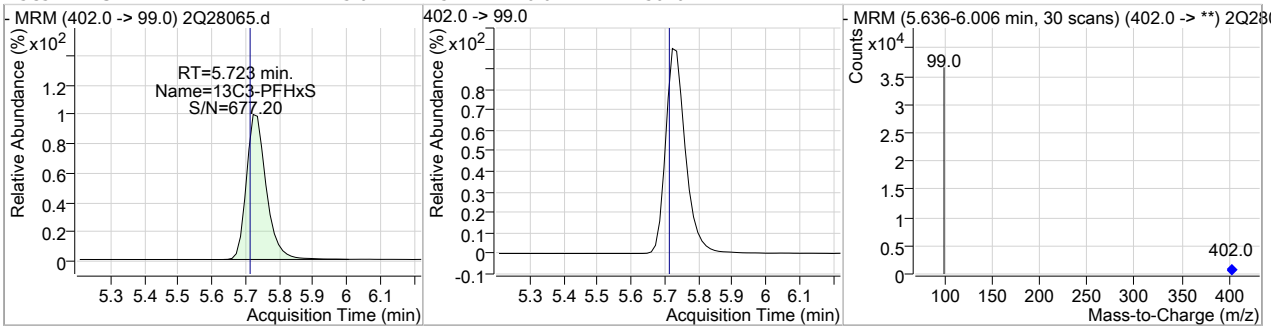
Perfluorinated Compounds by LC/MS/MS

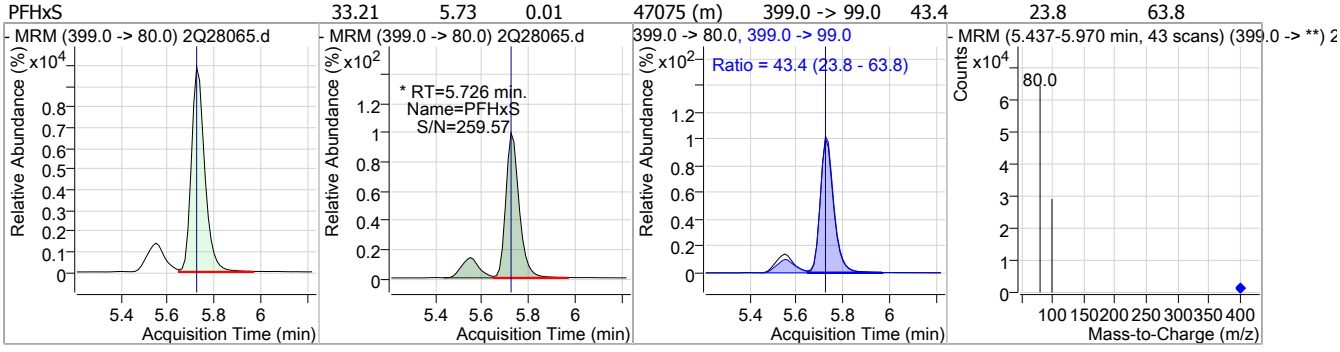
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.23	5.70	0.01	58328 (m)	363.0 -> 169.0	6.8	0.0	36.2



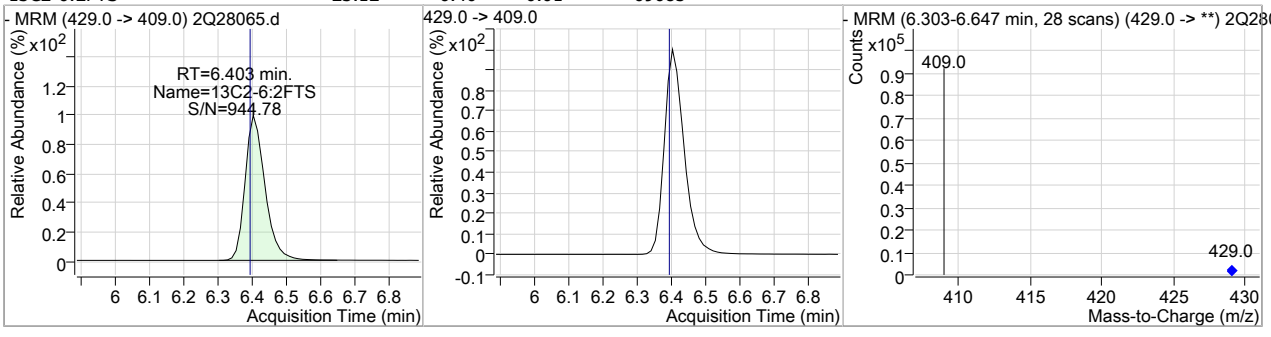
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	23.04	5.72	0.01	25610				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	33.21	5.73	0.01	47075 (m)	399.0 -> 99.0	43.4	23.8	63.8

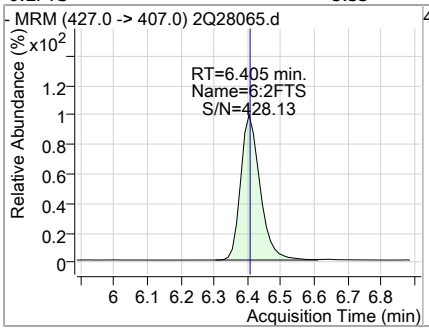


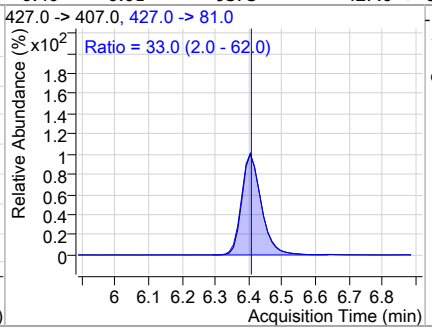
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	23.12	6.40	0.01	69685				

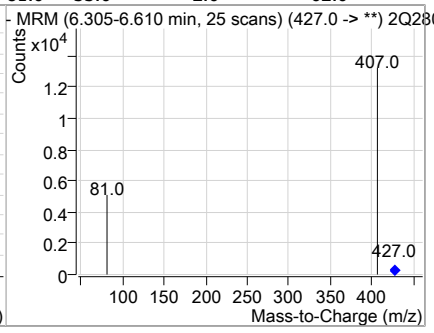


Perfluorinated Compounds by LC/MS/MS

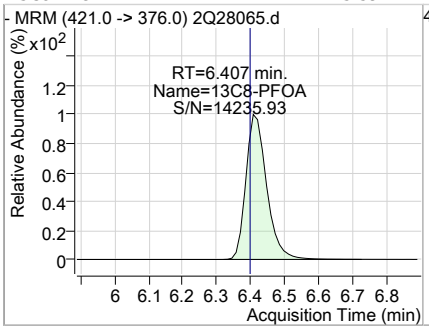
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.33	6.40	0.01	9373	427.0 -> 81.0	33.0	2.0	62.0

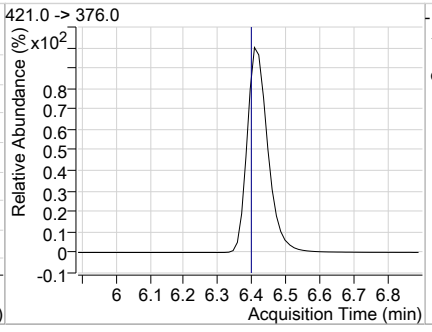


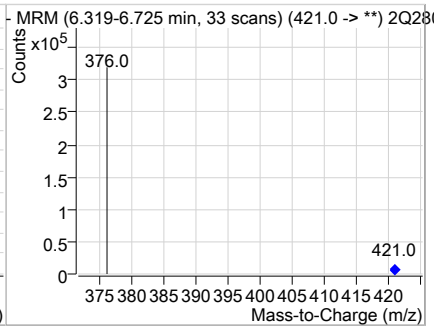




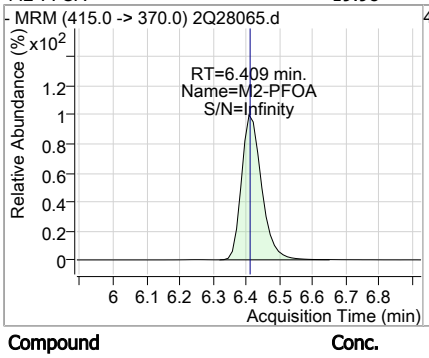
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	23.59	6.41	0.01	243066				

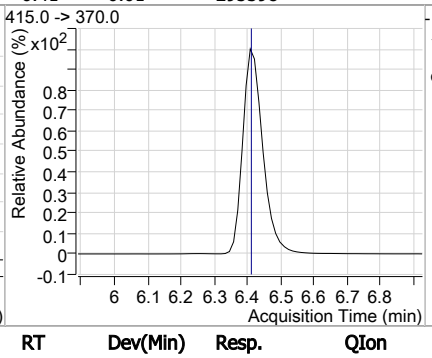


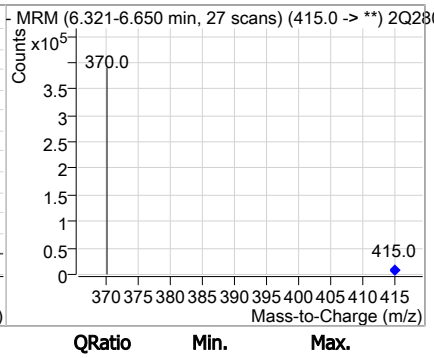




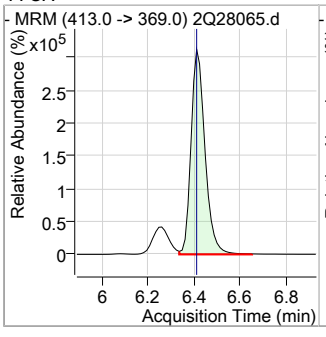
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.98	6.41	0.01	295398				

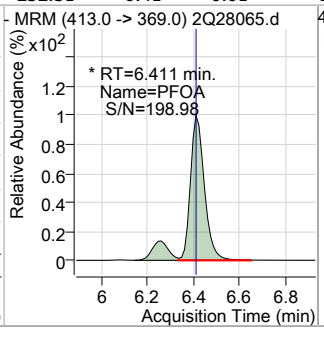


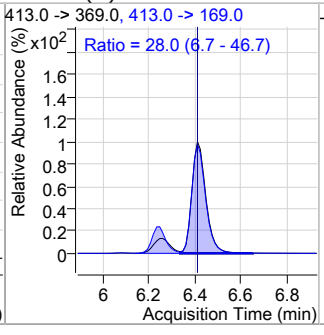


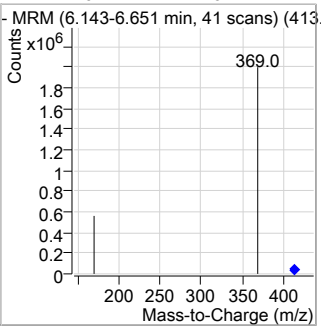


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	232.31	6.41	0.01	1517697 (m)	413.0 -> 169.0	28.0	6.7	46.7



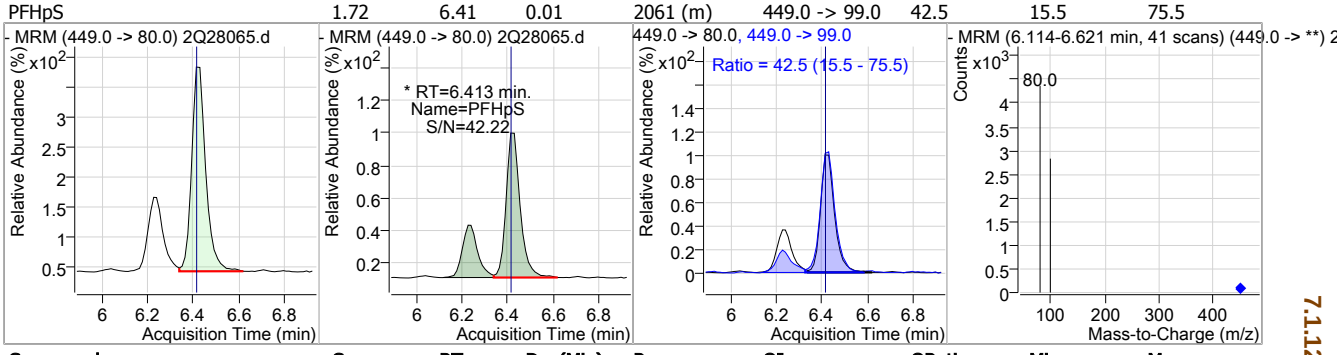




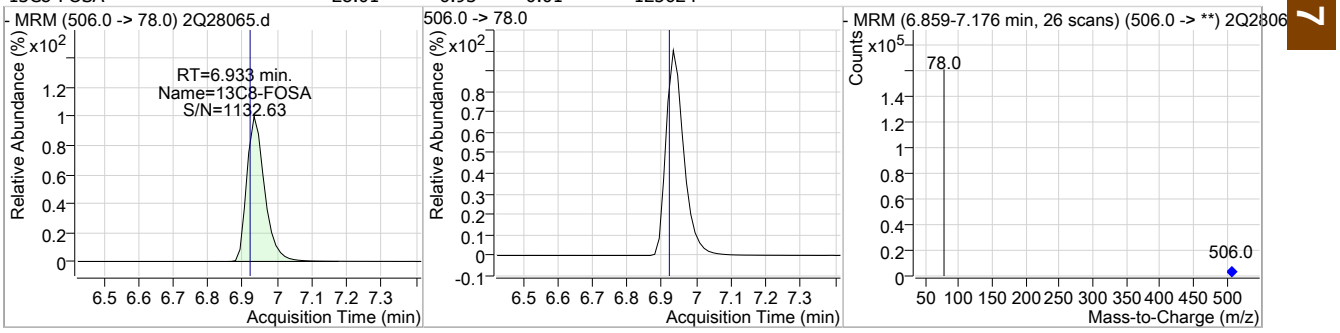


Perfluorinated Compounds by LC/MS/MS

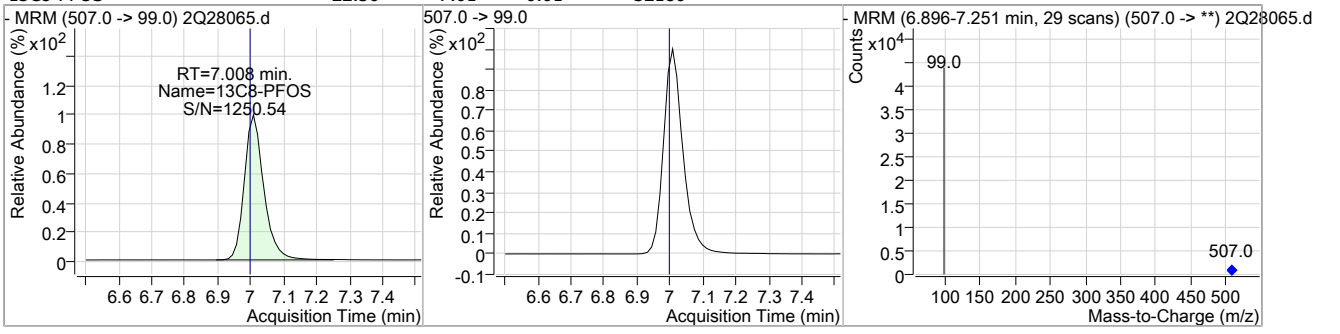
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.72	6.41	0.01	2061 (m)	449.0 -> 99.0	42.5	15.5	75.5



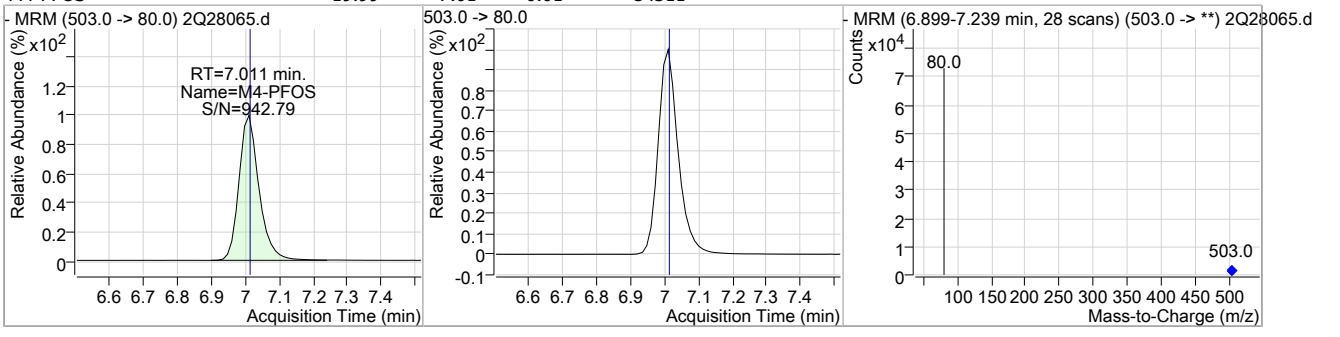
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	28.01	6.93	0.01	125624				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	22.50	7.01	0.01	32180				

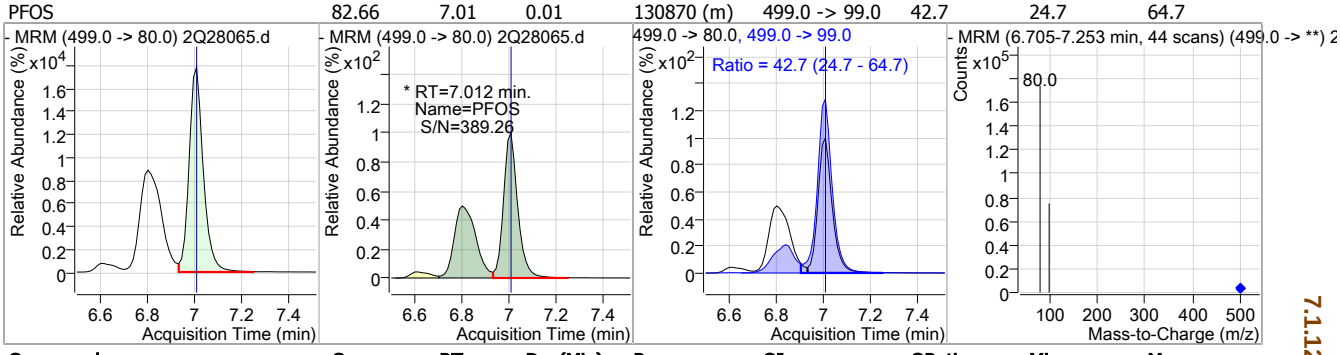


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.01	54311				

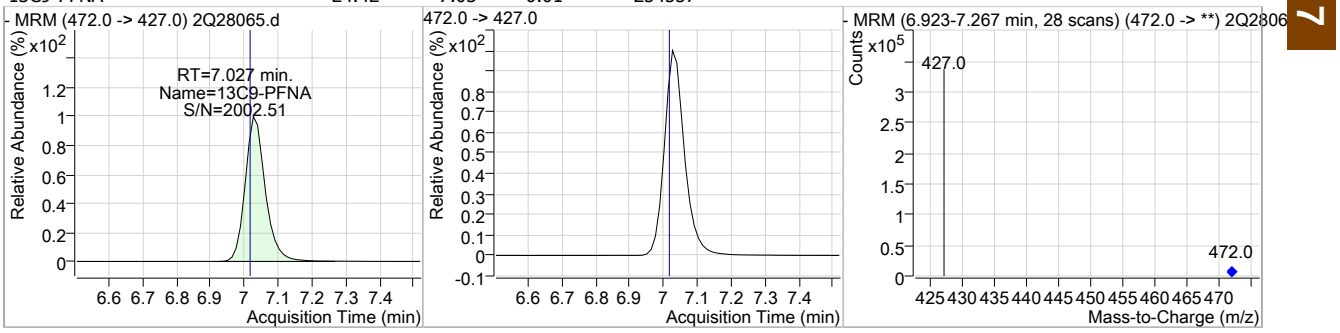


Perfluorinated Compounds by LC/MS/MS

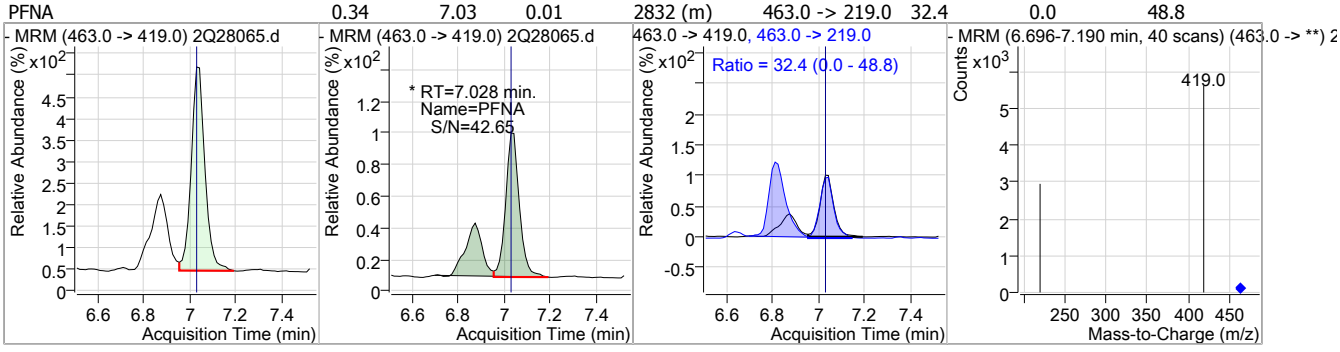
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	82.66	7.01	0.01	130870 (m)	499.0 -> 99.0	42.7	24.7	64.7



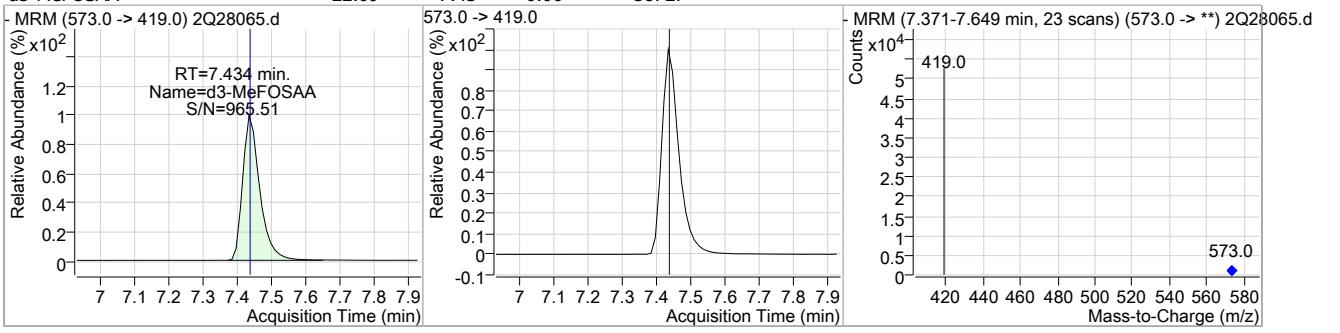
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	24.42	7.03	0.01	254557				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.34	7.03	0.01	2832 (m)	463.0 -> 219.0	32.4	0.0	48.8

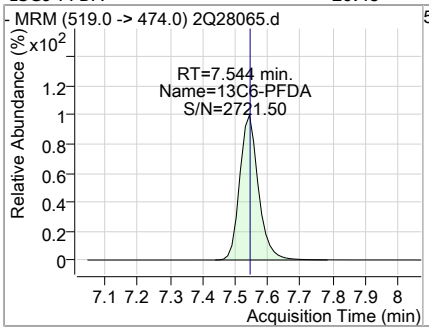


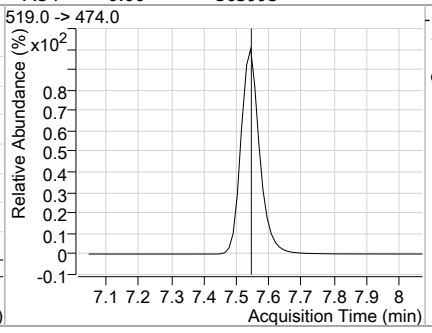
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	22.09	7.43	0.00	38727				

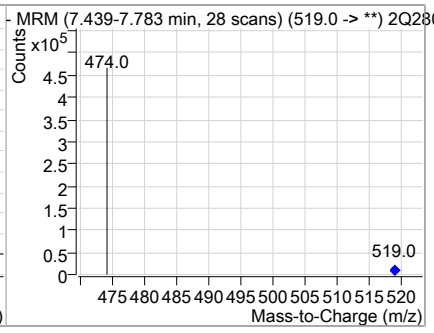


Perfluorinated Compounds by LC/MS/MS

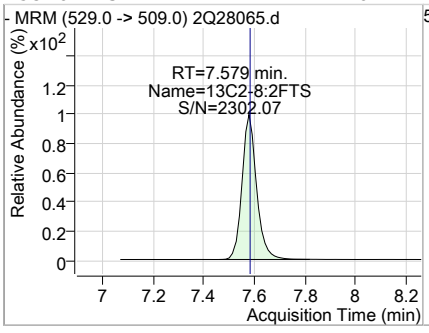
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	26.48	7.54	0.00	363993				

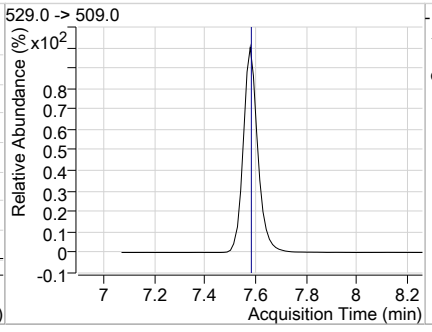


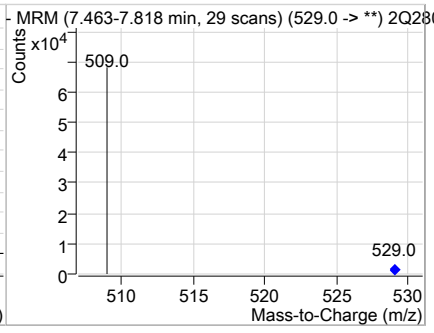




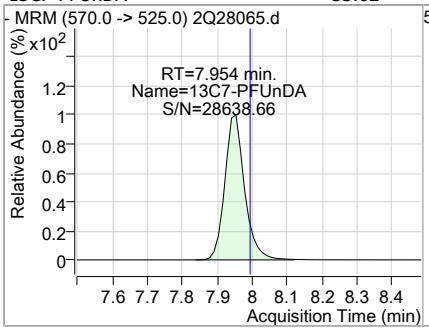
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	22.87	7.58	0.00	49706				

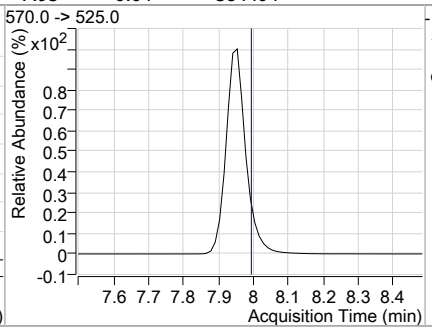


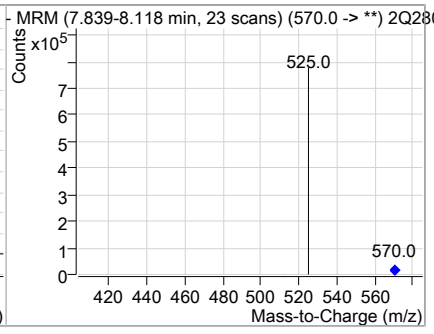




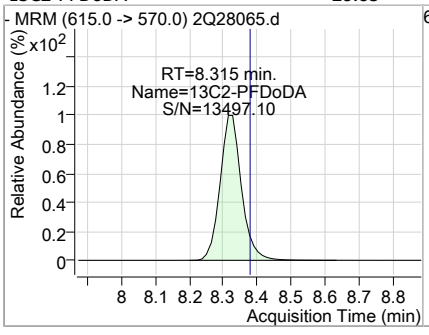
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	33.62	7.95	-0.04	584404				

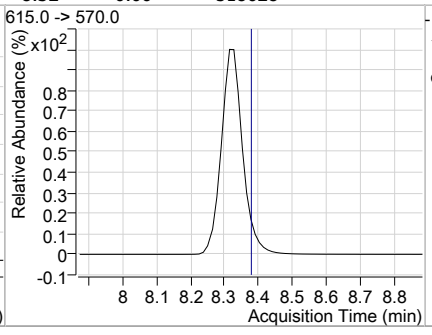


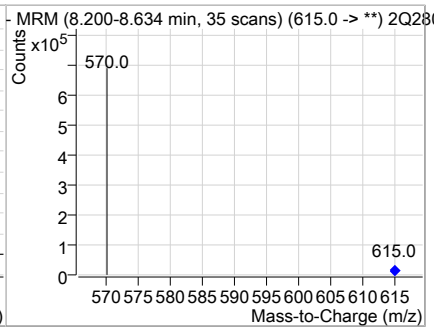




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	28.85	8.32	-0.06	518628				



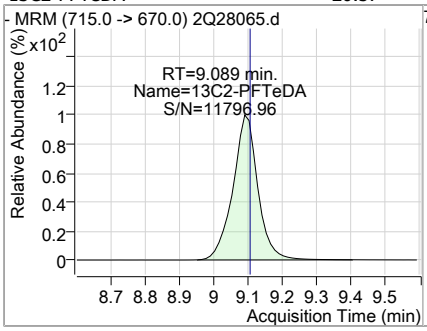


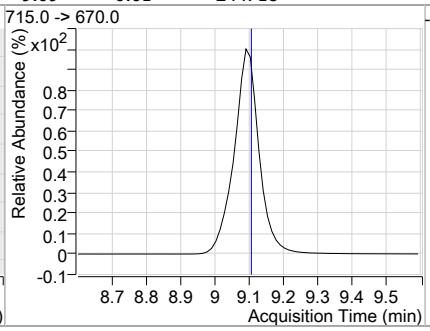


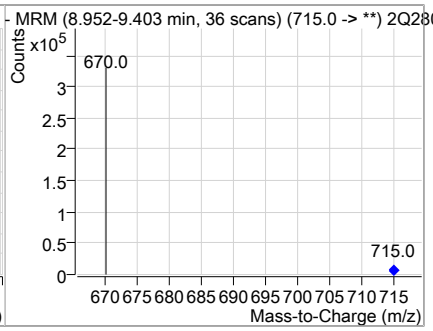
Sample Results: 2Q28065.D

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.57	9.09	-0.01	244718				







7.1.12

7

Manual Integration Approval Summary

Sample Number: FA62561-6
Lab FileID: 2Q28065.D
Injection Time: 03/25/19 00:31
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:31 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoropentanoic acid	2706-90-3		3.50	Split peak
Perfluoropentanesulfonic acid	2706-91-4		4.88	Split peak
Perfluoroheptanoic acid	375-85-9		5.70	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanoic acid	335-67-1		6.41	Split peak
Perfluoroheptanesulfonic acid	375-92-8		6.41	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak
Perfluorononanoic acid	375-95-1		7.03	Split peak

Sample Results: **2Q28104.D**

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28104.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 5:14:56 PM
Sample Name : FA62561-6
Vial : Vial 72
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q448.batch.bin
Sample Information : op74263,S2Q448,125,,,1.0,5,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.422	415.0 -> 370.0	327209	20.00 µg/L	0.025
13C4-PFOS	7.023	503.0 -> 80.0	52806	20.00 µg/L	0.026
M4-PFBA	1.840	217.0 -> 172.0	30398	20.00 µg/L	-0.013
M5-PFPeA	3.511	268.0 -> 223.0	23787	20.00 µg/L	0.012
M5-PFHxA	4.788	318.0 -> 273.0	33259	20.00 µg/L	0.025
M4-PFHpA	5.705	367.0 -> 322.0	46654	20.00 µg/L	0.025
M8-PFOA	6.434	421.0 -> 376.0	51123	20.00 µg/L	0.039
M9-PFNA	7.039	472.0 -> 427.0	47815	20.00 µg/L	0.025
M6-PFDA	7.569	519.0 -> 474.0	64261	20.00 µg/L	0.027
M7-PFUnDA	7.991	570.0 -> 525.0	81208	20.00 µg/L	0.000
M2-PFDoDA	8.378	615.0 -> 570.0	71396	20.00 µg/L	0.002
M2-PFTeDA	9.115	715.0 -> 670.0	42336	20.00 µg/L	0.013
M8-FOSA	6.946	506.0 -> 78.0	23610	20.00 µg/L	0.027
M3-PFBS	3.780	302.0 -> 99.0	4388	20.00 µg/L	0.025
M3-PFHxS	5.735	402.0 -> 99.0	4837	20.00 µg/L	0.025
M8-PFOS	7.021	507.0 -> 99.0	5968	20.00 µg/L	0.026
M2-4:2FTS	4.696	329.0 -> 309.0	12459	20.00 µg/L	0.025
M2-6:2FTS	6.415	429.0 -> 409.0	15077	20.00 µg/L	0.025
M2-8:2FTS	7.604	529.0 -> 509.0	8788	20.00 µg/L	0.025
M3-MeFOSAA	7.446	573.0 -> 419.0	7231	20.00 µg/L	0.013
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
System Monitoring Compounds					
13C2-4:2FTS	4.696	329.0 -> 309.0	12473	4.38 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 21.9%	
13C2-6:2FTS	6.415	429.0 -> 409.0	15219	5.05 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 25.2%	
13C2-8:2FTS	7.604	529.0 -> 509.0	8789	4.04 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 20.2%	
13C2-PFDoDA	8.378	615.0 -> 570.0	71396	3.97 µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 19.9%	
13C2-PFTeDA	9.115	715.0 -> 670.0	42242	3.55 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 17.8%	
13C3-PFBS	3.780	302.0 -> 99.0	4389	4.28 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 21.4%	
13C3-PFHxS	5.735	402.0 -> 99.0	4847	4.36 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 21.8%	
13C4-PFBA	1.840	217.0 -> 172.0	30265	4.63 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 23.1%	
13C4-PFHpA	5.705	367.0 -> 322.0	46828	4.53 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 22.6%	
13C5-PFHxA	4.788	318.0 -> 273.0	33366	4.50 µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 22.5%	
13C5-PFPeA	3.511	268.0 -> 223.0	23758	4.32 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 21.6%	
13C6-PFDA	7.569	519.0 -> 474.0	64272	4.68 µg/L	0.027

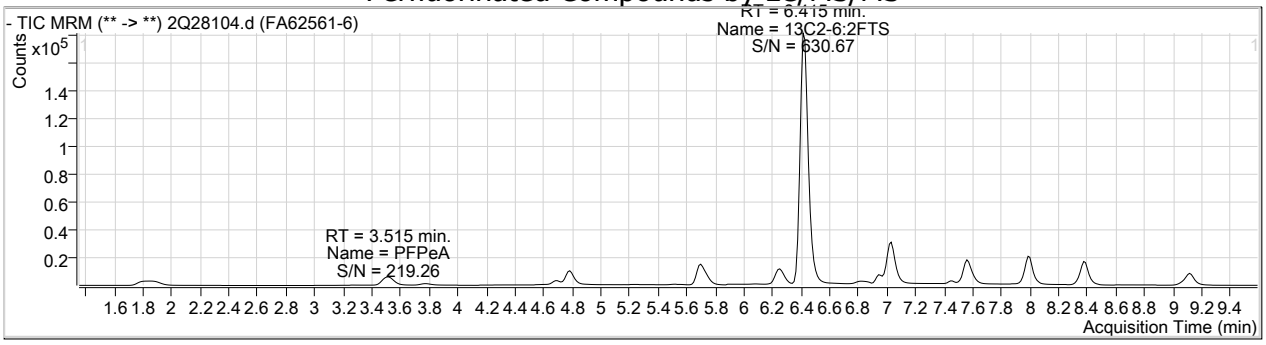
Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc.	Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 23.4%			
13C7-PFUnDA	7.991	570.0 -> 525.0	81255	4.67	µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 23.4%			
13C8-FOSA	6.946	506.0 -> 78.0	23630	5.27	µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 26.3%			
13C8-PFOA	6.434	421.0 -> 376.0	51103	4.96	µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 24.8%			
13C8-PFOS	7.021	507.0 -> 99.0	5968	4.17	µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 20.9%			
13C9-PFNA	7.039	472.0 -> 427.0	47929	4.60	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 23.0%			
d3-MeFOSAA	7.446	573.0 -> 419.0	7252	4.14	µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 20.7%			
M2-PFOA	6.422	415.0 -> 370.0	327237	4.00	µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 20.0%			
M4-PFOS	7.023	503.0 -> 80.0	52812	4.00	µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 20.0%			
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.			
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%			
Target Compounds							**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.			
6:2FTS	6.417	427.0 -> 407.0	2112	1.11	µg/L		98
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	1.848	213.0 -> 169.0	963	0.65	µg/L		100
PFBS	3.771	299.0 -> 80.0	829	0.47	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	5.695	363.0 -> 319.0	10380	0.99	µg/L	m	98
PFHpS	-	449.0 -> 80.0	-	N.D.			
PFHxA	4.790	313.0 -> 269.0	7198	2.48	µg/L		98
PFHxS	5.738	399.0 -> 80.0	8805	6.59	µg/L	m	99
PFNA	-	463.0 -> 419.0	-	N.D.			
PFNS	-	549.0 -> 80.0	-	N.D.			
PFOA	6.424	413.0 -> 369.0	310966	45.29	µg/L	m	96
PFOS	7.025	499.0 -> 80.0	23886	16.27	µg/L	m	98
PFPeA	3.515	263.0 -> 219.0	10079	1.90	µg/L		100
PFPeS	4.908	349.0 -> 80.0	534	0.47	µg/L	m	99
PFTeDA	-	713.0 -> 669.0	-	N.D.			
PFTrDA	-	663.0 -> 619.0	-	N.D.			
PFUnDA	-	563.0 -> 519.0	-	N.D.			
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.			
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.			
ADONA	-	377.0 -> 251.0	-	N.D.			
HFPO-DA	-	329.0 -> 169.0	-	N.D.			

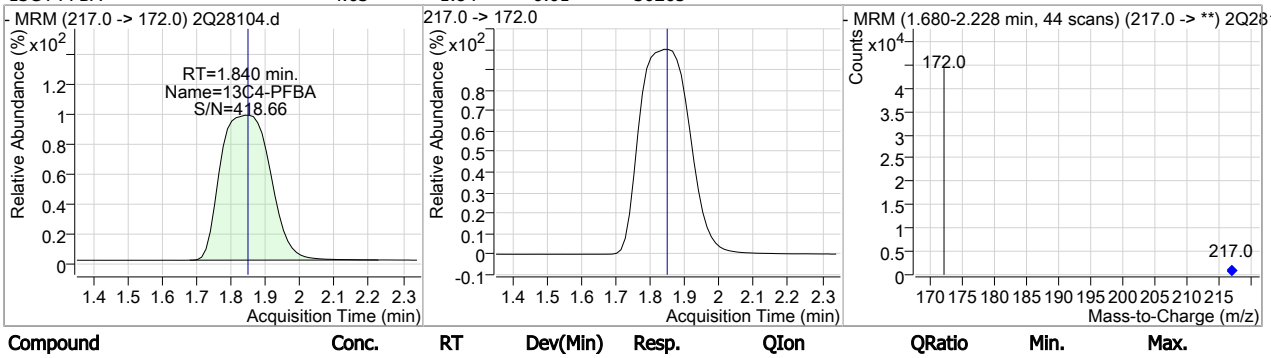
 # = Qualifier out of range, m = manually integrated, + = Area summed

Sample Results: **2Q28104.D**

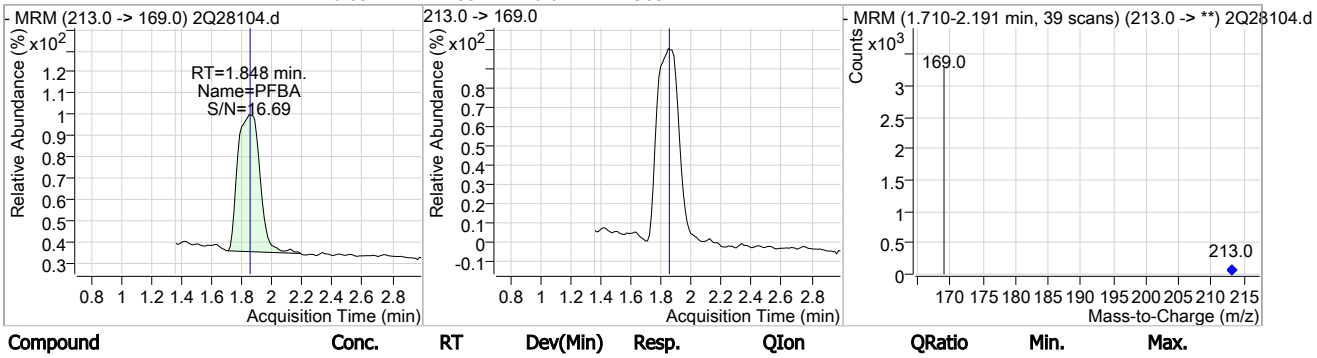
Perfluorinated Compounds by LC/MS/MS



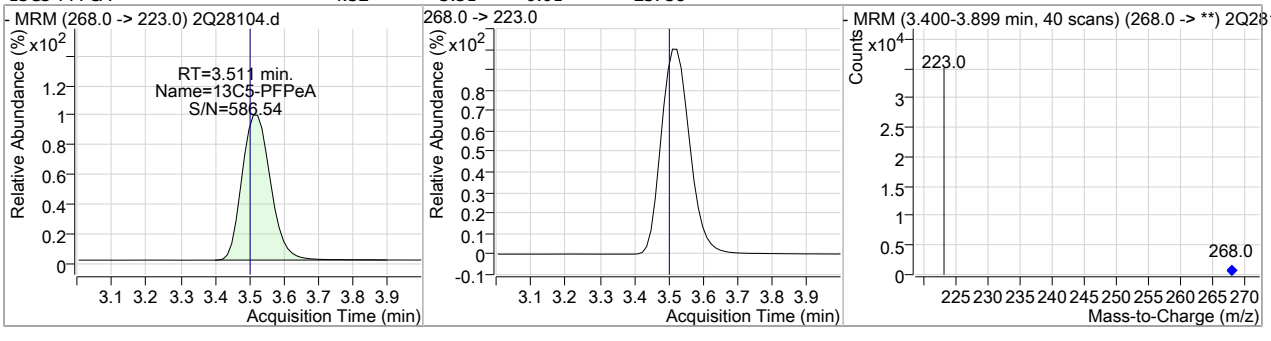
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	4.63	1.84	-0.01	30265				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.65	1.85	-0.01	963				

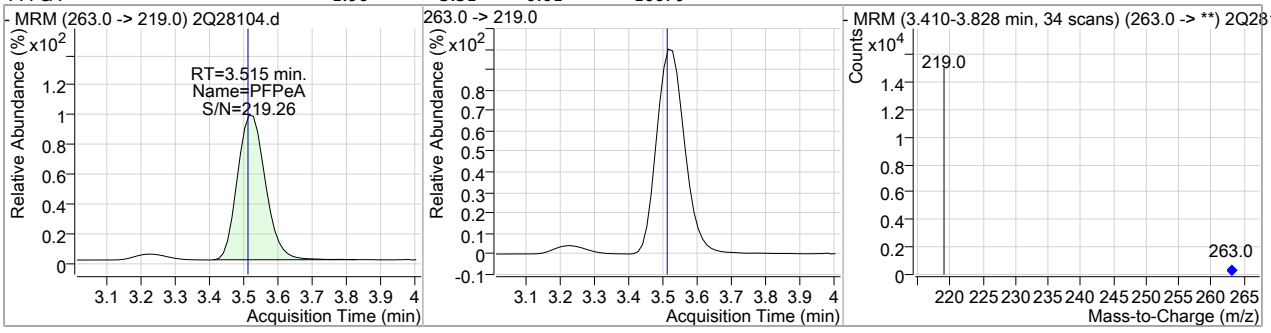


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.32	3.51	0.01	23758				

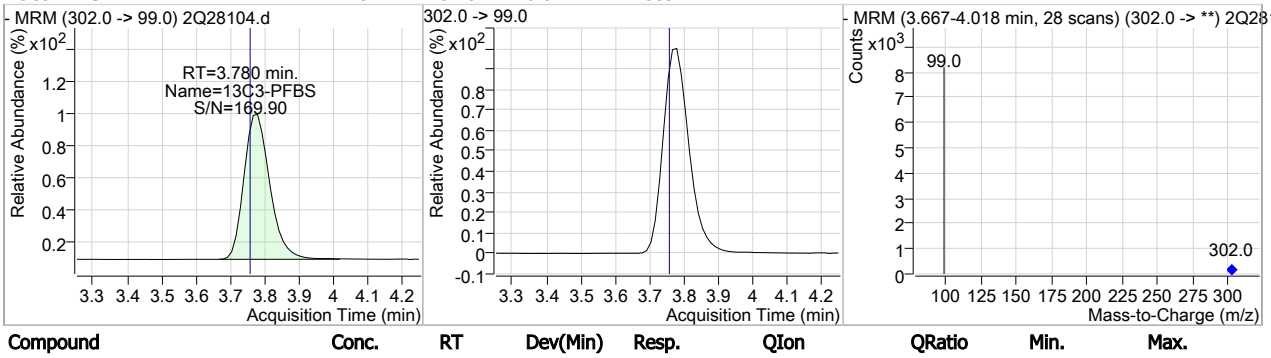


Perfluorinated Compounds by LC/MS/MS

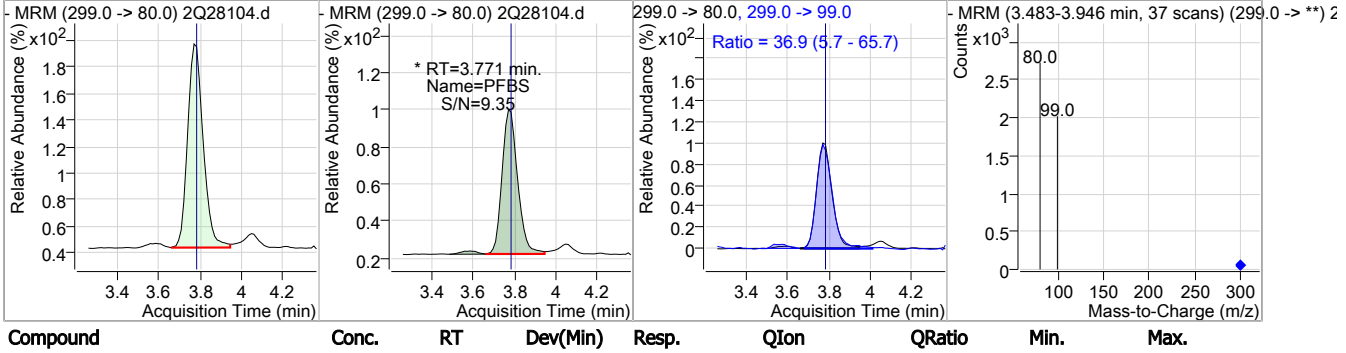
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.90	3.51	0.01	10079				



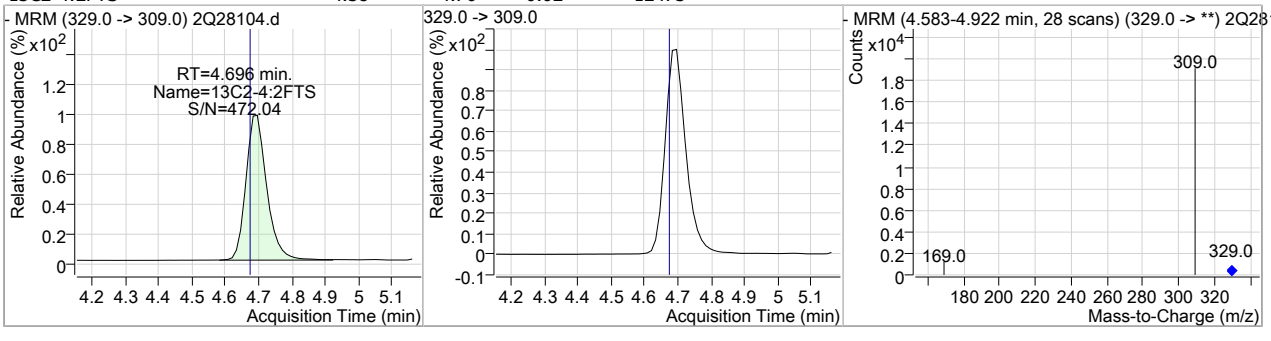
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	4.28	3.78	0.02	4389				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.47	3.77	0.01	829 (m)	299.0 -> 99.0	36.9	5.7	65.7



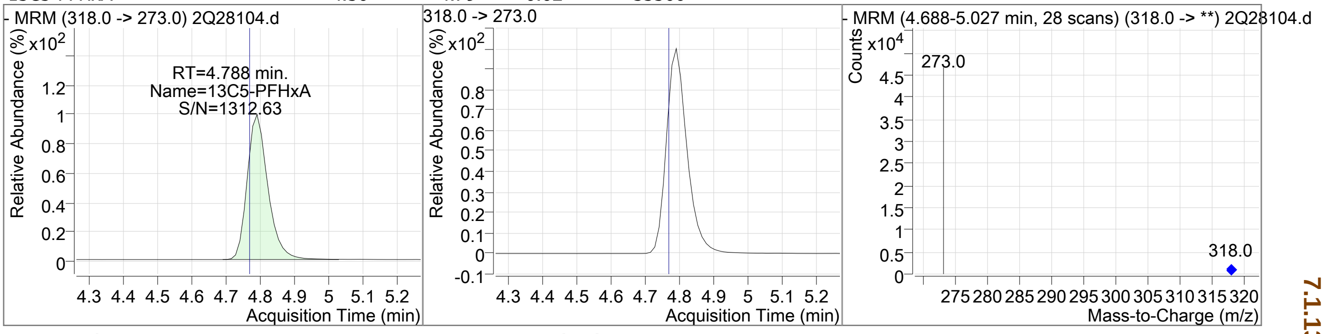
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	4.38	4.70	0.02	12473				



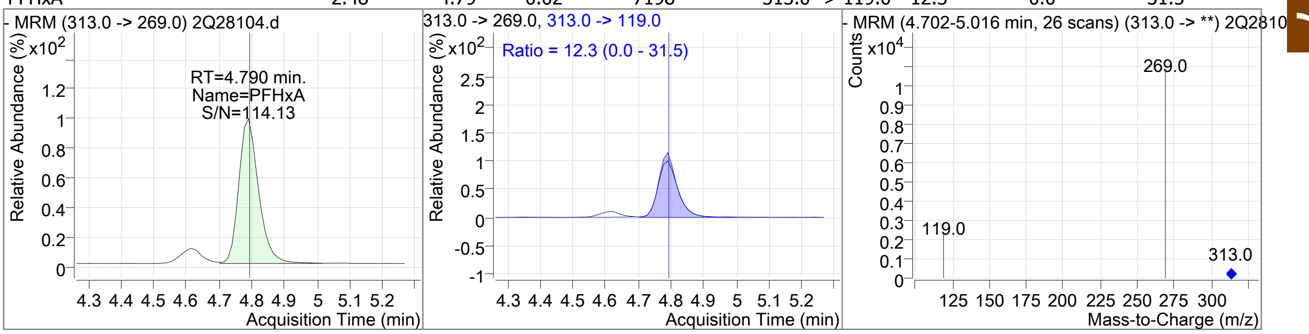
Sample Results: **2Q28104.D**

Perfluorinated Compounds by LC/MS/MS

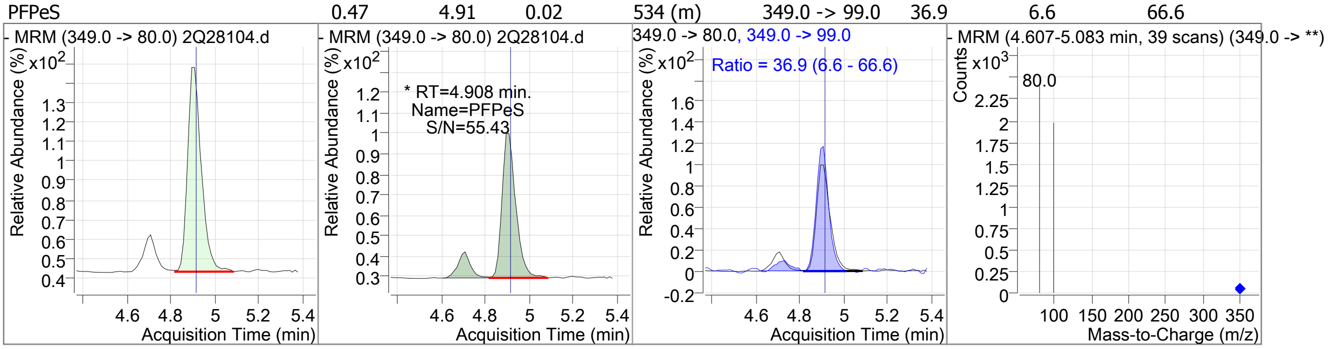
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	4.50	4.79	0.02	33366				



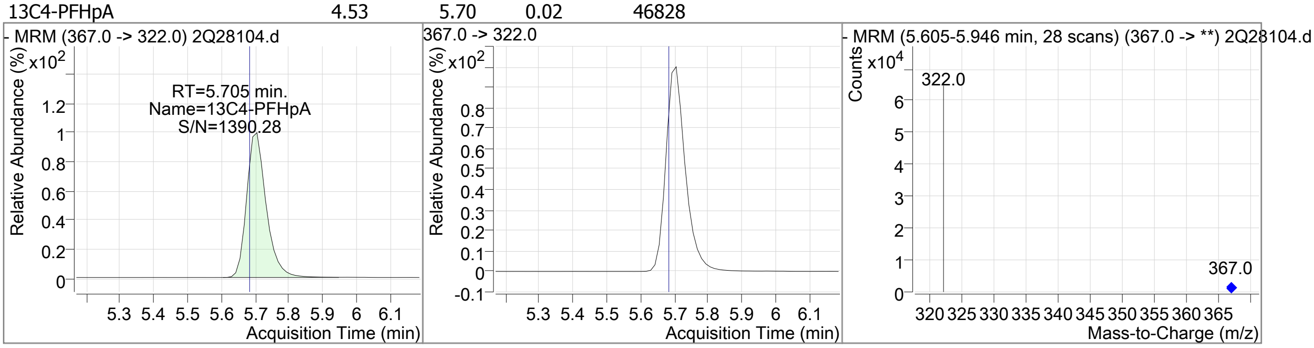
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.48	4.79	0.02	7198	313.0 -> 119.0	12.3	0.0	31.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.47	4.91	0.02	534 (m)	349.0 -> 99.0	36.9	6.6	66.6



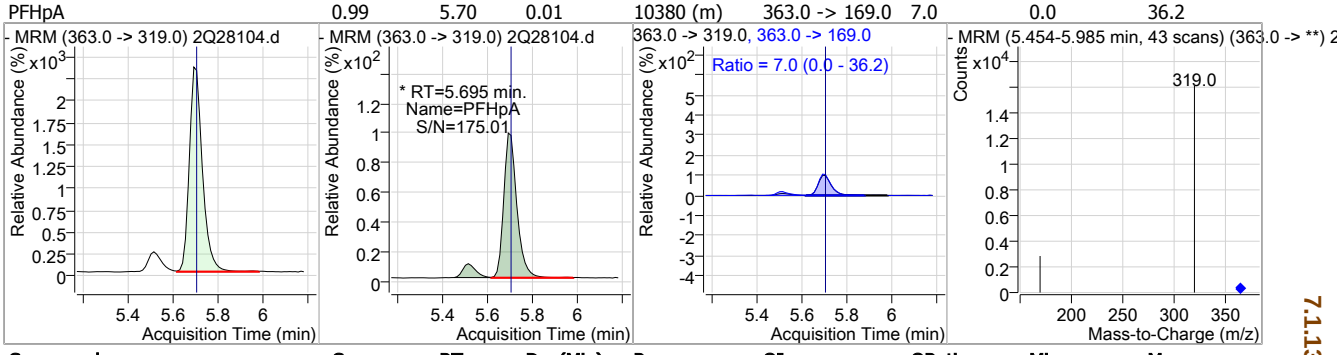
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	4.53	5.70	0.02	46828				



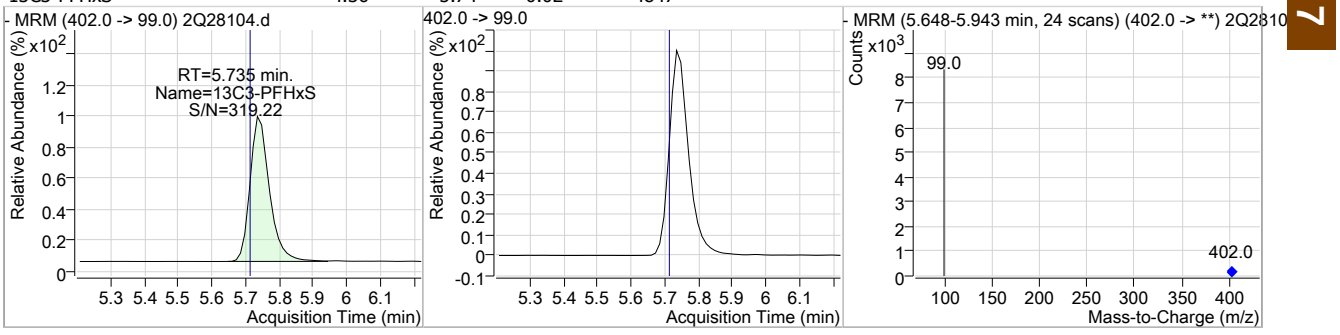
7.1.13 7

Perfluorinated Compounds by LC/MS/MS

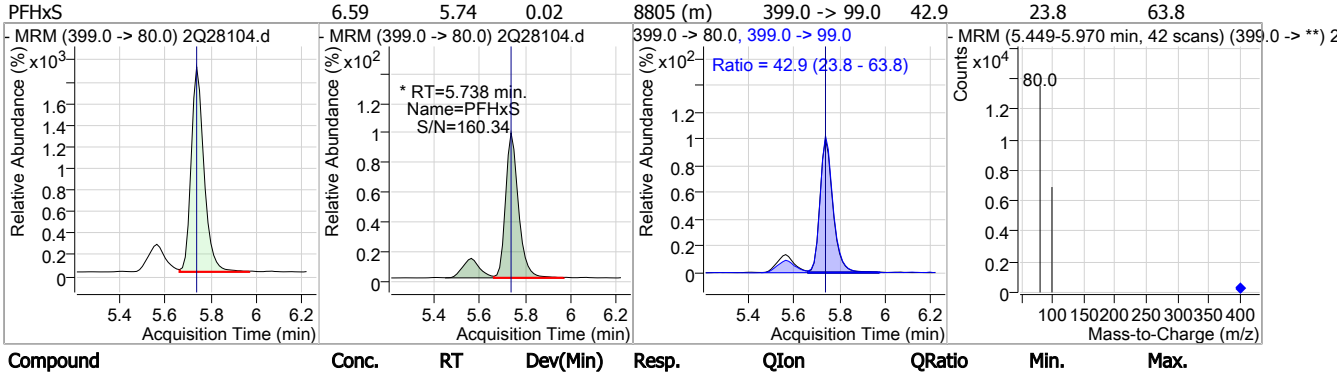
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.99	5.70	0.01	10380 (m)	363.0 -> 169.0	7.0	0.0	36.2



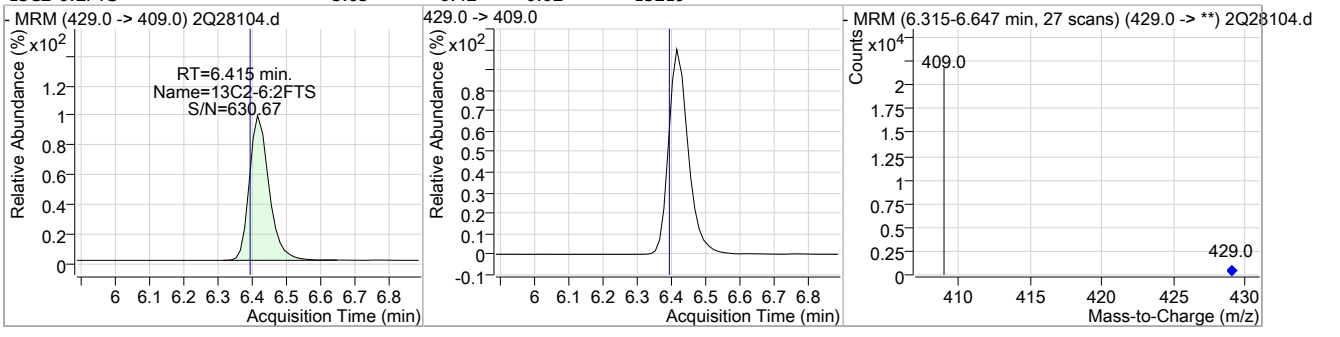
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	4.36	5.74	0.02	4847				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	6.59	5.74	0.02	8805 (m)	399.0 -> 99.0	42.9	23.8	63.8

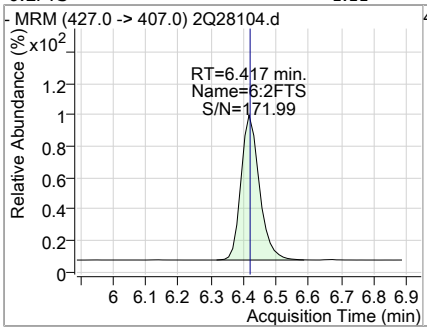


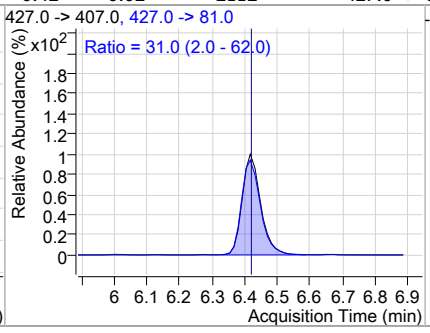
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.05	6.42	0.02	15219				

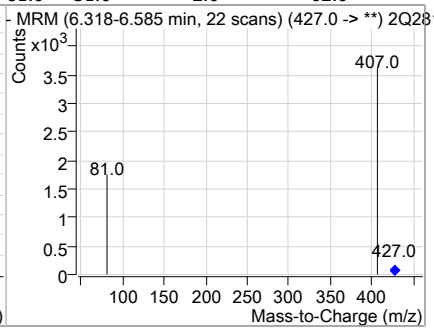


Perfluorinated Compounds by LC/MS/MS

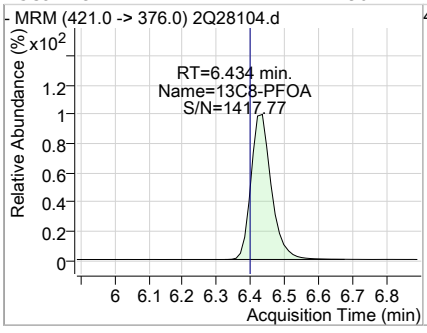
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.11	6.42	0.02	2112	427.0 -> 81.0	31.0	2.0	62.0

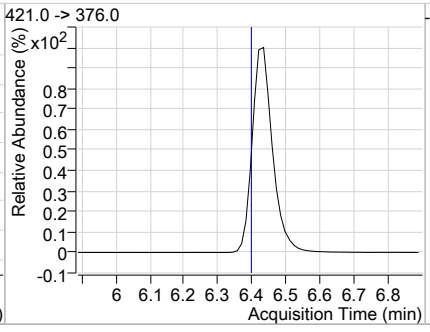


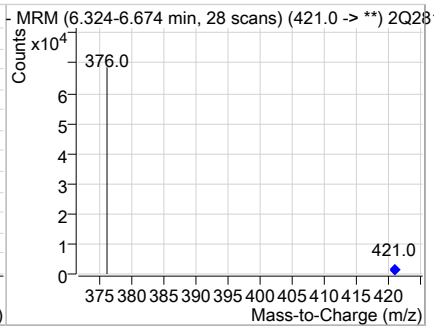




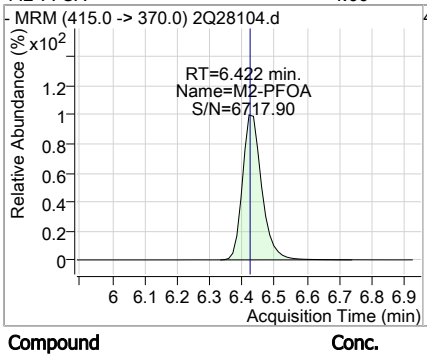
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	4.96	6.43	0.04	51103				

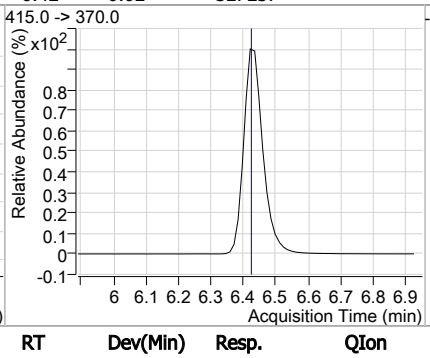


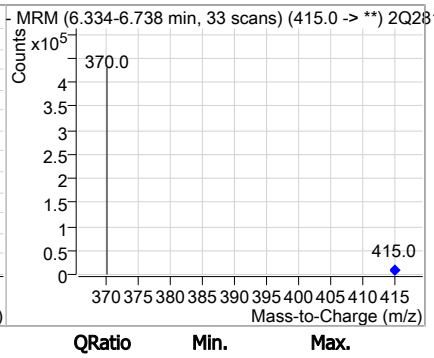




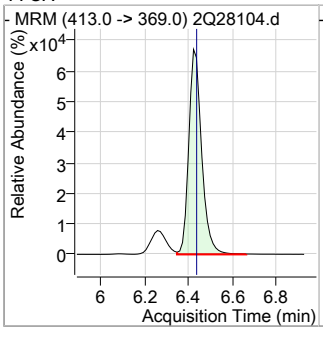
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	4.00	6.42	0.02	327237				

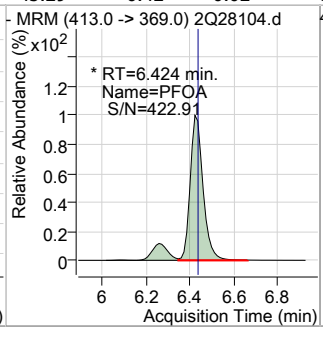


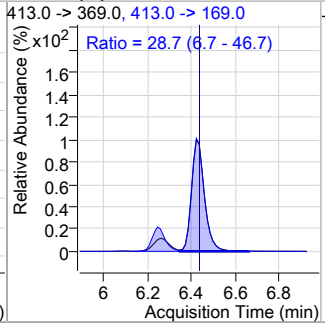


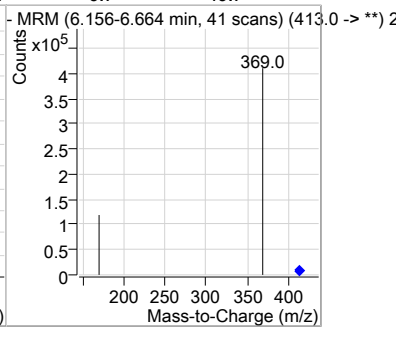


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	45.29	6.42	0.02	310966 (m)	413.0 -> 169.0	28.7	6.7	46.7









7.1.13

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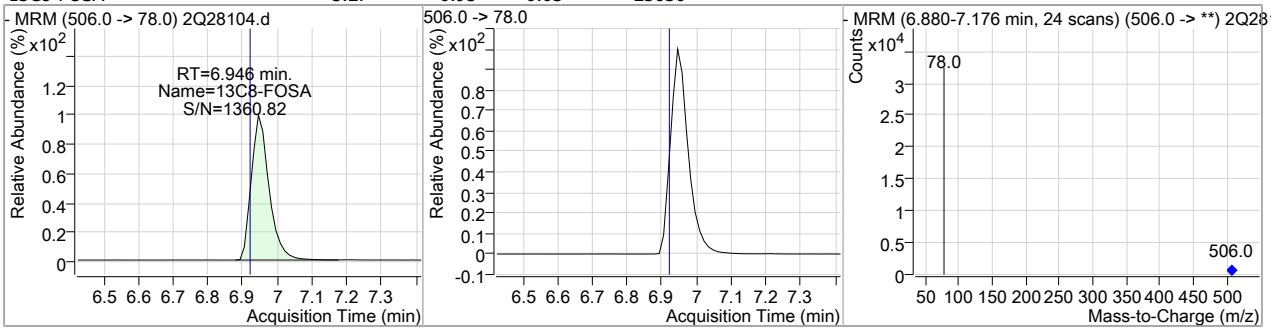
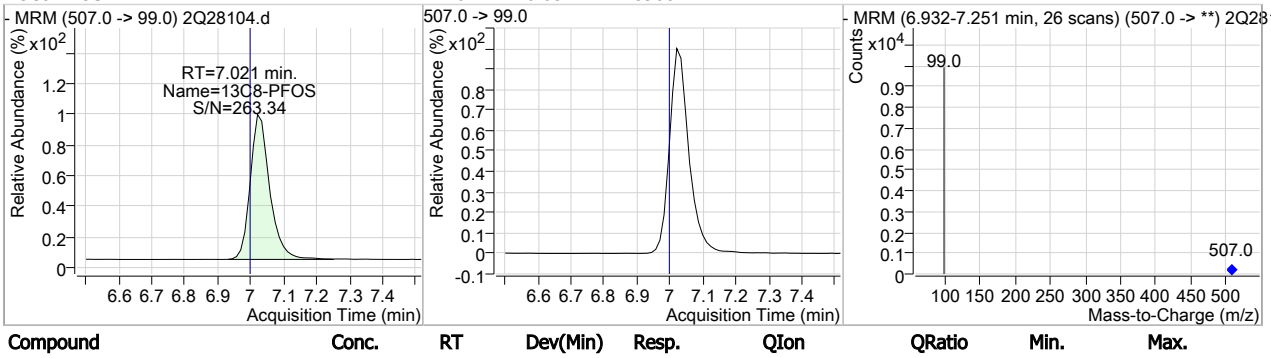
Perfluorinated Compounds by LC/MS/MS

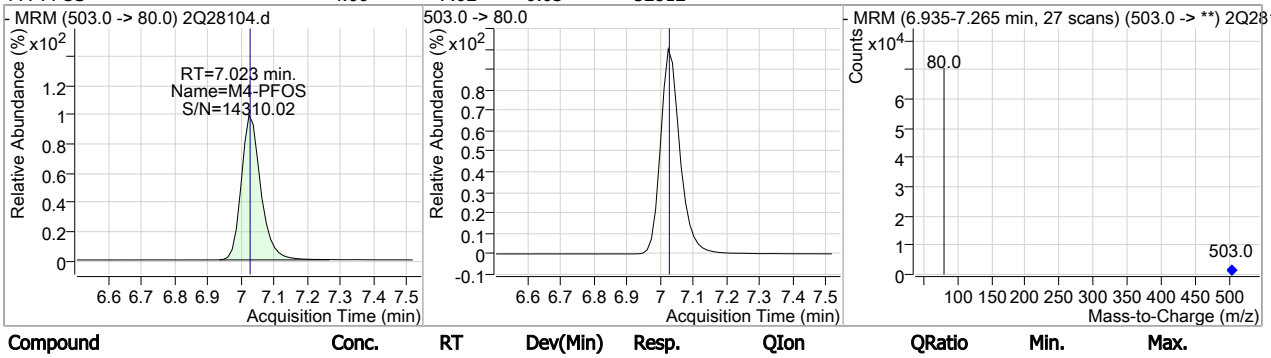
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	5.27	6.95	0.03	23630				



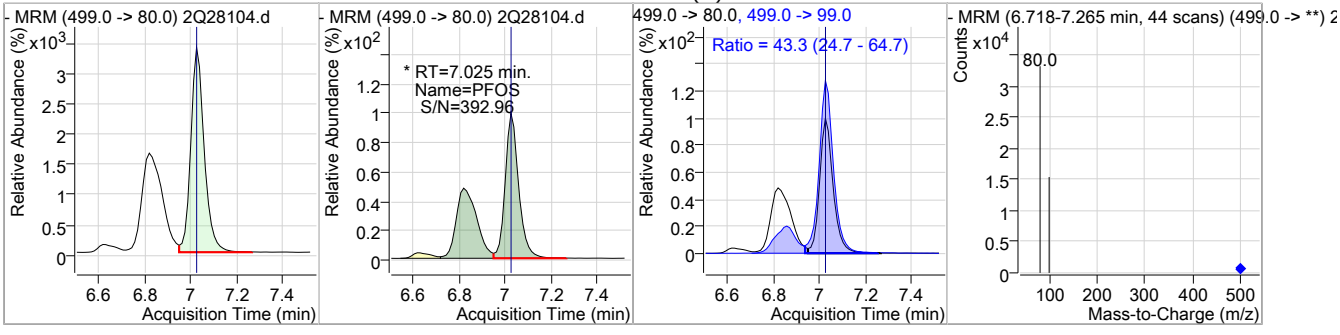
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	4.17	7.02	0.03	5968				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	4.00	7.02	0.03	52812				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	16.27	7.02	0.03	23886 (m)	499.0 -> 99.0	43.3	24.7	64.7

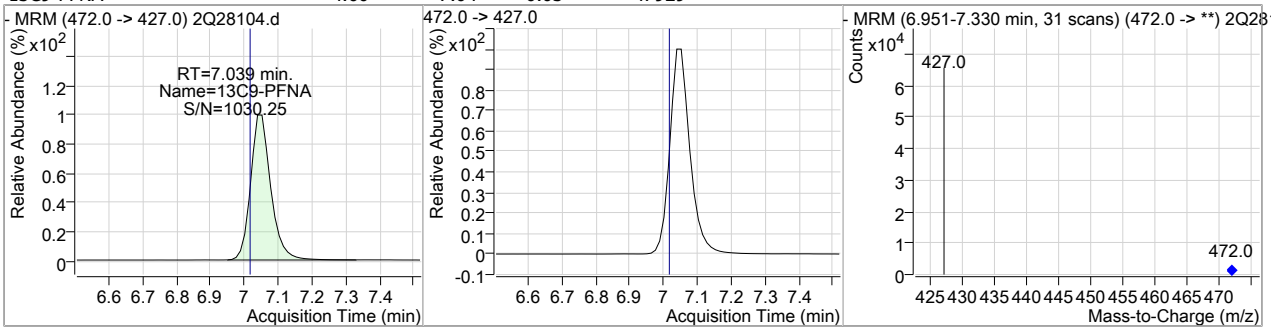


7.1.13

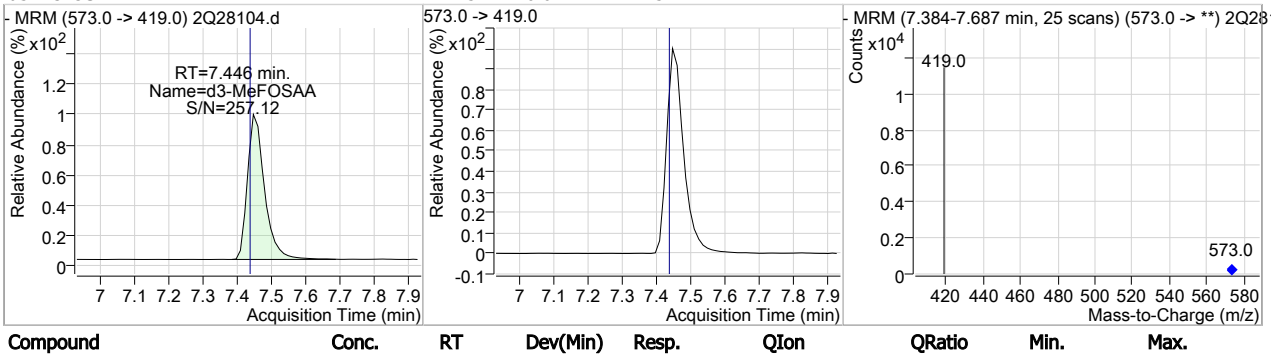
7

Perfluorinated Compounds by LC/MS/MS

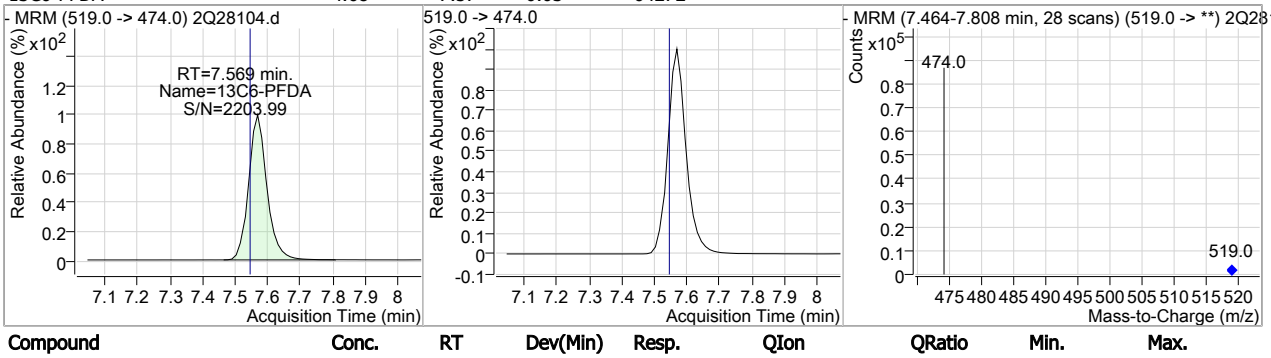
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	4.60	7.04	0.03	47929				



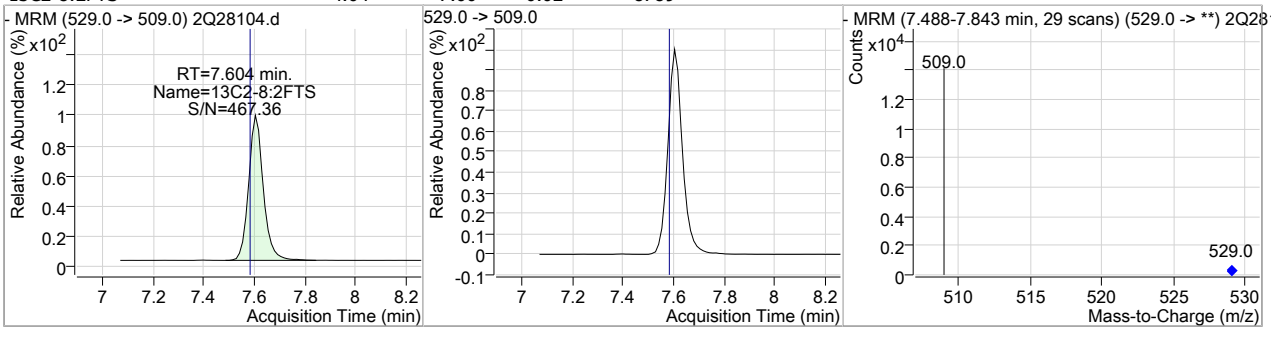
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.14	7.45	0.01	7252				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	4.68	7.57	0.03	64272				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	4.04	7.60	0.02	8789				



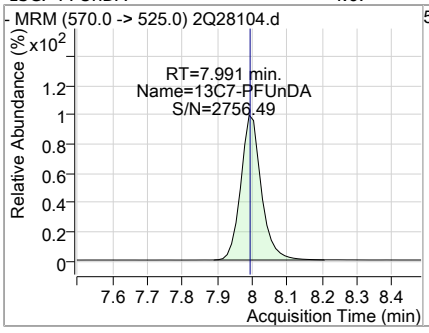
7.1.13

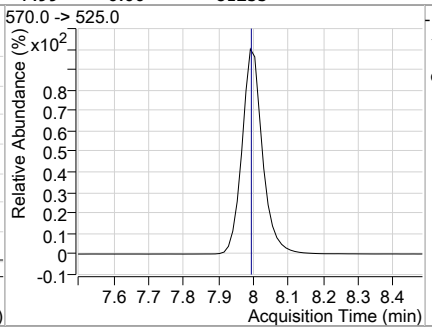
7

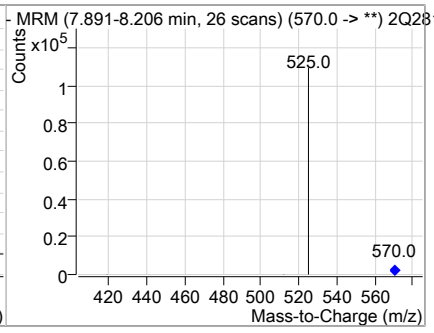
Sample Results: **2Q28104.D**

Perfluorinated Compounds by LC/MS/MS

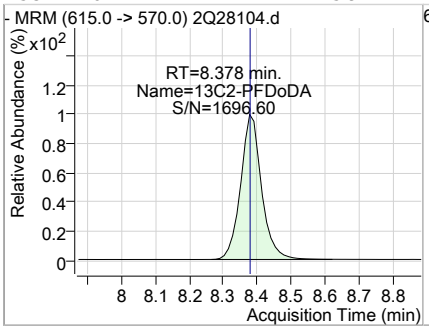
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	4.67	7.99	0.00	81255				

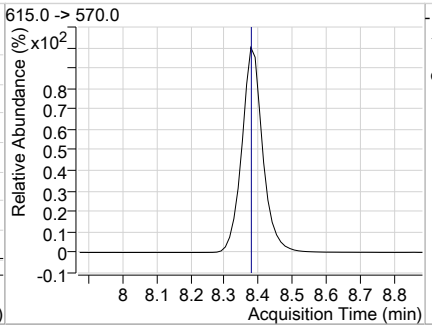


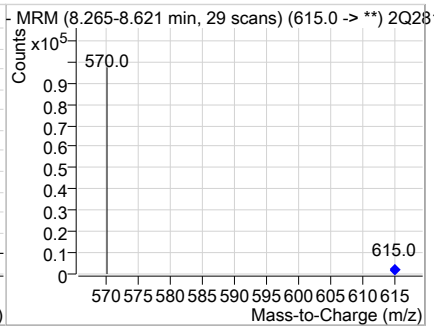




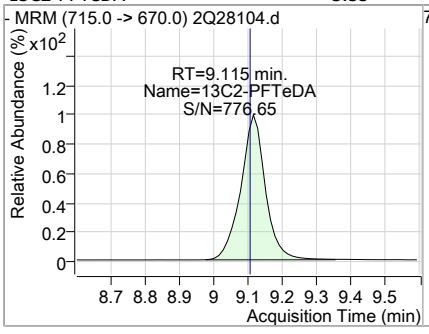
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	3.97	8.38	0.00	71396				

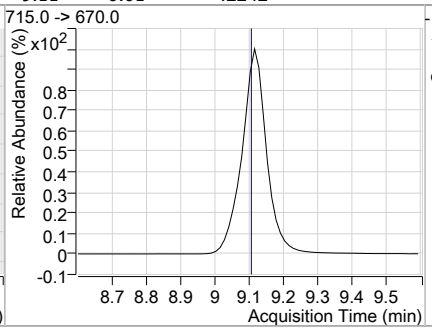


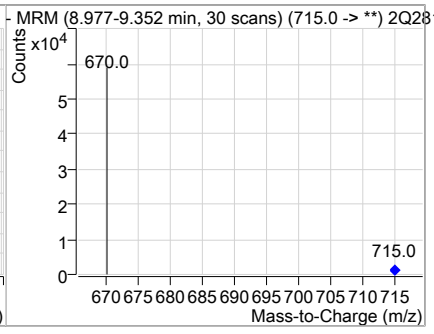




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	3.55	9.11	0.01	42242				







Manual Integration Approval Summary

Sample Number: FA62561-6 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28104.D **Analyst approved:** 04/03/19 15:31 Natasha Gumtie
Injection Time: 03/25/19 17:14 **Supervisor approved:** 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanesulfonic acid	375-73-5		3.77	Split peak
Perfluoropentanesulfonic acid	2706-91-4		4.91	Split peak
Perfluoroheptanoic acid	375-85-9		5.70	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanoic acid	335-67-1		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.03	Split peak

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28058.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/24/2019 10:41:38 PM
Sample Name : op74263-mb
Vial : Vial 42
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74263,S2Q447,130,,,1.0,1,water

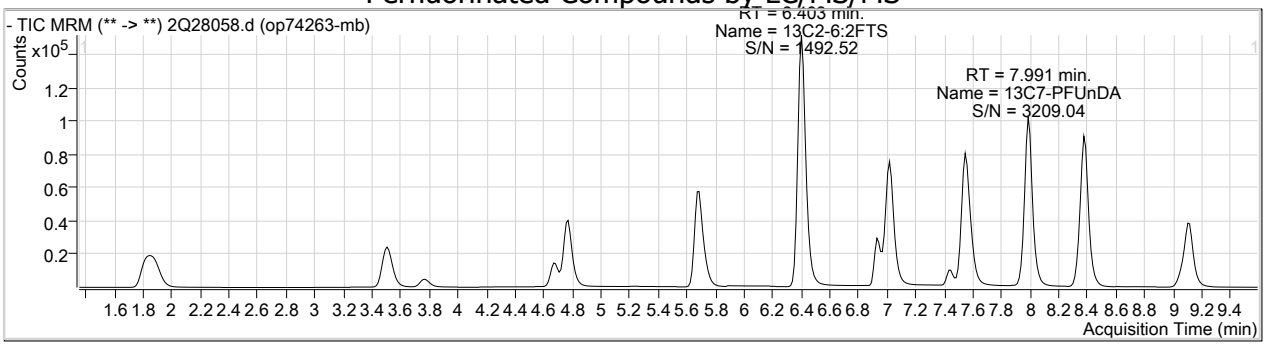
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	295817	20.00	µg/L	0.012
13C4-PFOS	7.011	503.0 -> 80.0	51186	20.00	µg/L	0.013
M4-PFBA	1.840	217.0 -> 172.0	155083	20.00	µg/L	-0.013
M5-PFPeA	3.511	268.0 -> 223.0	122239	20.00	µg/L	0.012
M5-PFHxA	4.776	318.0 -> 273.0	164503	20.00	µg/L	0.012
M4-PFHpA	5.680	367.0 -> 322.0	230775	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	244006	20.00	µg/L	0.012
M9-PFNA	7.027	472.0 -> 427.0	230475	20.00	µg/L	0.013
M6-PFDA	7.556	519.0 -> 474.0	303416	20.00	µg/L	0.014
M7-PFUnDA	7.991	570.0 -> 525.0	399615	20.00	µg/L	0.000
M2-PFDoDA	8.378	615.0 -> 570.0	379592	20.00	µg/L	0.002
M2-PFTeDA	9.102	715.0 -> 670.0	191895	20.00	µg/L	0.000
M8-FOSA	6.933	506.0 -> 78.0	101827	20.00	µg/L	0.015
M3-PFBS	3.767	302.0 -> 99.0	22404	20.00	µg/L	0.012
M3-PFHxS	5.723	402.0 -> 99.0	24381	20.00	µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	29804	20.00	µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	59451	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	67126	20.00	µg/L	0.012
M2-8:2FTS	7.592	529.0 -> 509.0	41780	20.00	µg/L	0.012
M3-MeFOSAA	7.434	573.0 -> 419.0	33206	20.00	µg/L	0.000
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	59555	20.92	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%		
13C2-6:2FTS	6.403	429.0 -> 409.0	67096	22.26	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.3%		
13C2-8:2FTS	7.592	529.0 -> 509.0	41784	19.23	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C2-PFDoDA	8.378	615.0 -> 570.0	379266	21.10	µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C2-PFTeDA	9.102	715.0 -> 670.0	191407	16.09	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.5%		
13C3-PFBS	3.767	302.0 -> 99.0	22406	21.84	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.2%		
13C3-PFHxS	5.723	402.0 -> 99.0	24404	21.96	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.8%		
13C4-PFBA	1.840	217.0 -> 172.0	154624	23.65	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 118.3%		
13C4-PFHpA	5.680	367.0 -> 322.0	230485	22.29	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.5%		
13C5-PFHxA	4.776	318.0 -> 273.0	164340	22.18	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.9%		
13C5-PFPeA	3.511	268.0 -> 223.0	122468	22.26	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.3%		
13C6-PFDA	7.556	519.0 -> 474.0	303296	22.06	µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

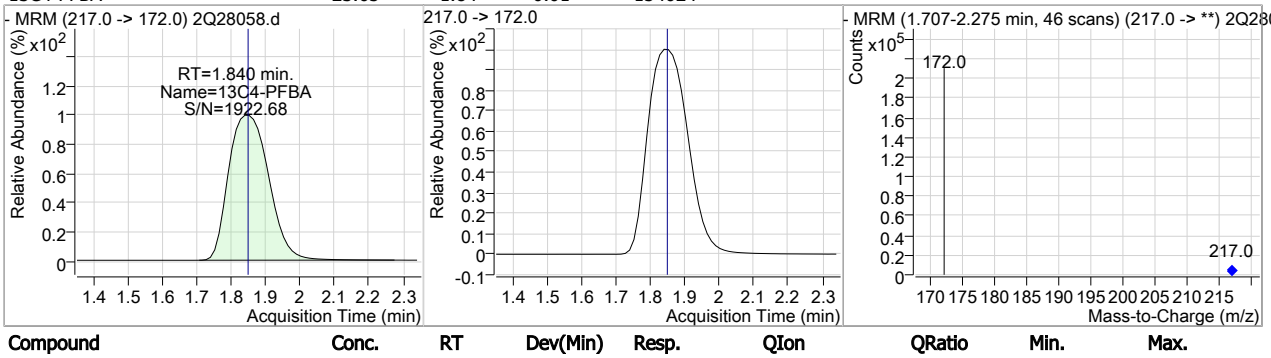
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.3%	
13C7-PFUnDA	7.991	570.0 -> 525.0	399494	22.98 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.9%	
13C8-FOSA	6.933	506.0 -> 78.0	101733	22.68 µg/L	0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.4%	
13C8-PFOA	6.407	421.0 -> 376.0	243803	23.66 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 118.3%	
13C8-PFOS	7.008	507.0 -> 99.0	29790	20.83 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C9-PFNA	7.027	472.0 -> 427.0	230387	22.10 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
d3-MeFOSAA	7.434	573.0 -> 419.0	33175	18.92 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
M2-PFOA	6.409	415.0 -> 370.0	295995	20.00 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.011	503.0 -> 80.0	51203	19.99 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.	
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%	
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	-	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	-	363.0 -> 319.0	-	N.D.	
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	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
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.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

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

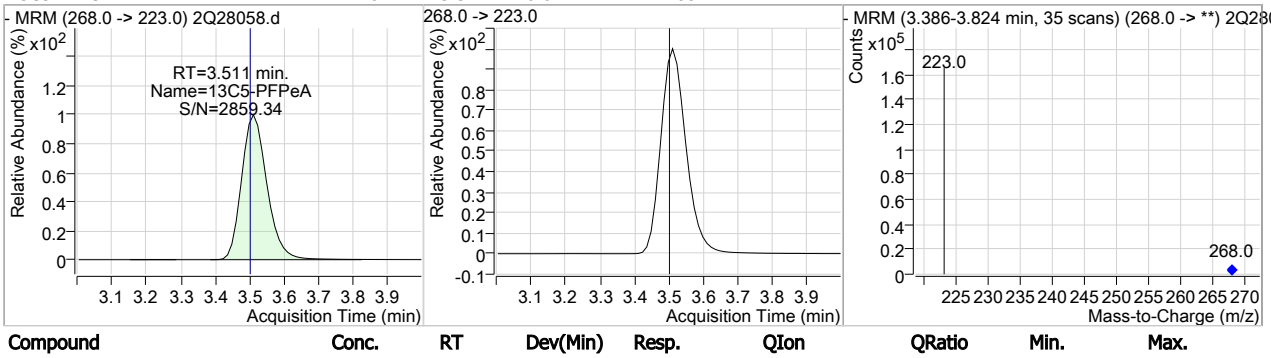
Perfluorinated Compounds by LC/MS/MS



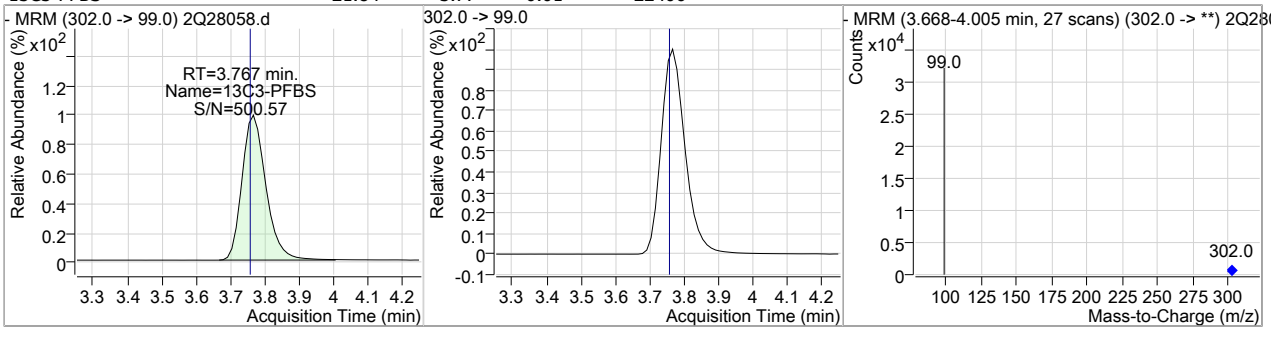
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	23.65	1.84	-0.01	154624				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	22.26	3.51	0.01	122468				

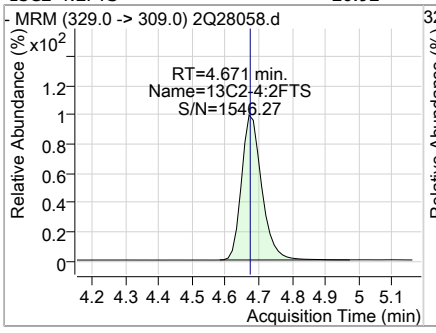


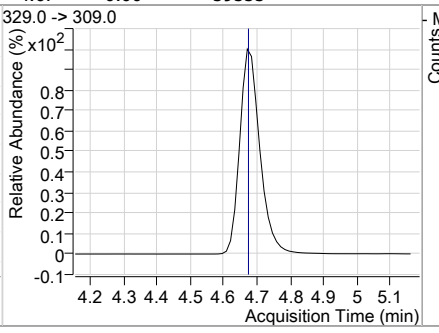
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	21.84	3.77	0.01	22406				

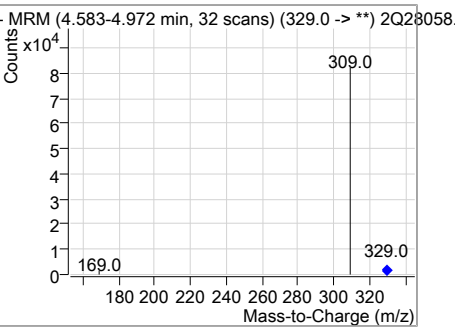


Perfluorinated Compounds by LC/MS/MS

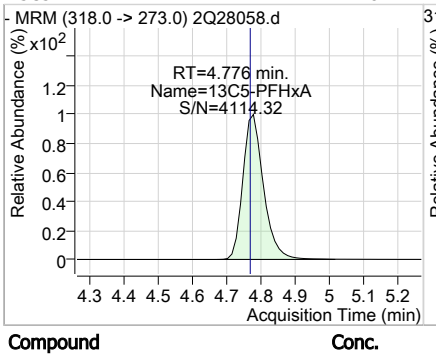
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.92	4.67	0.00	59555				

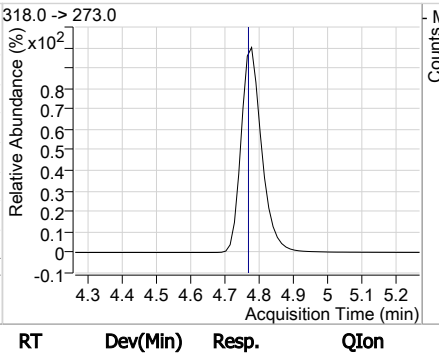


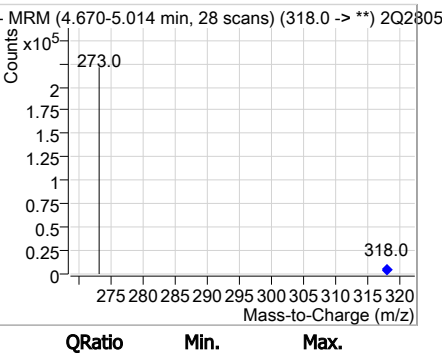




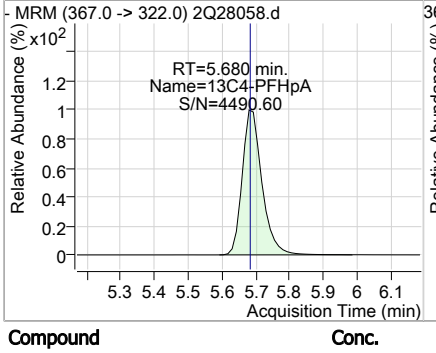
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	22.18	4.78	0.01	164340				

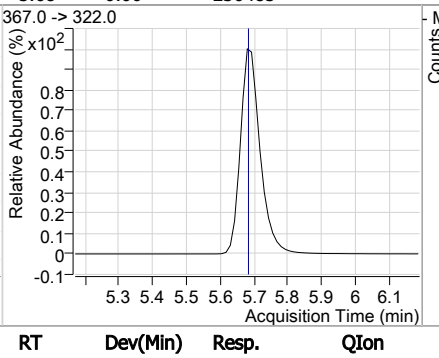


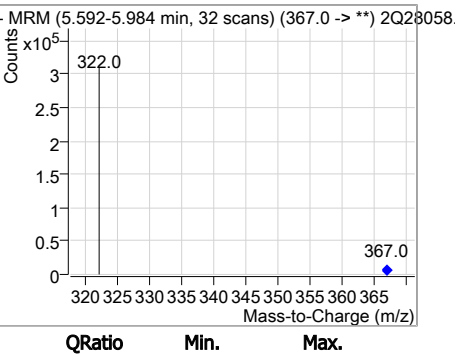




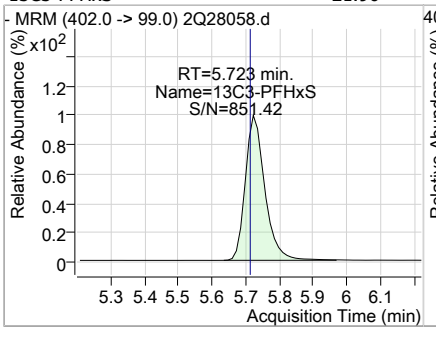
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	22.29	5.68	0.00	230485				

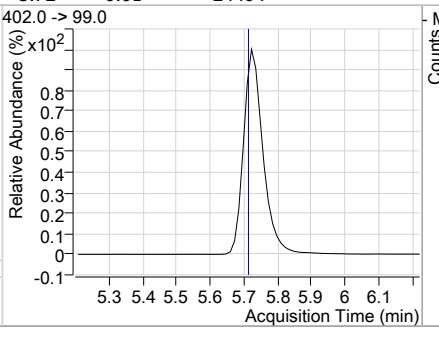


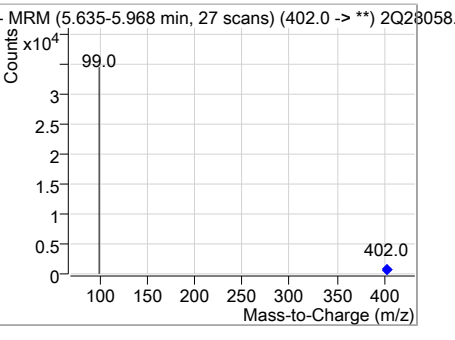




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.96	5.72	0.01	24404				

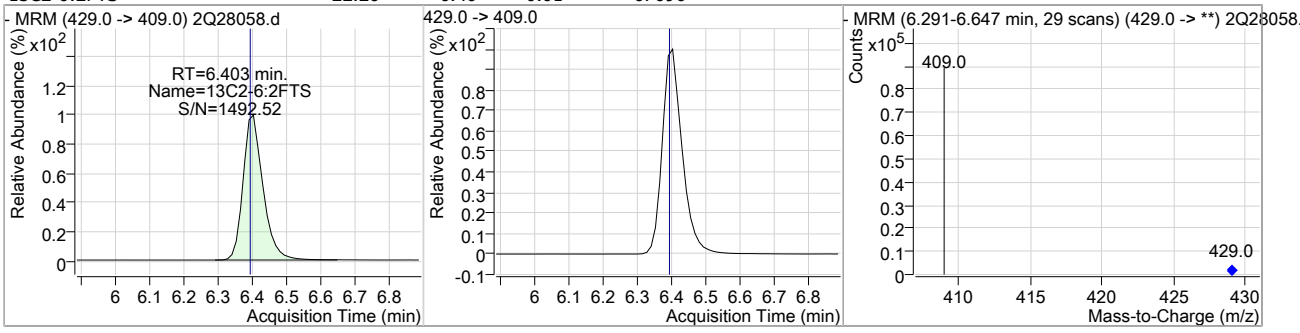




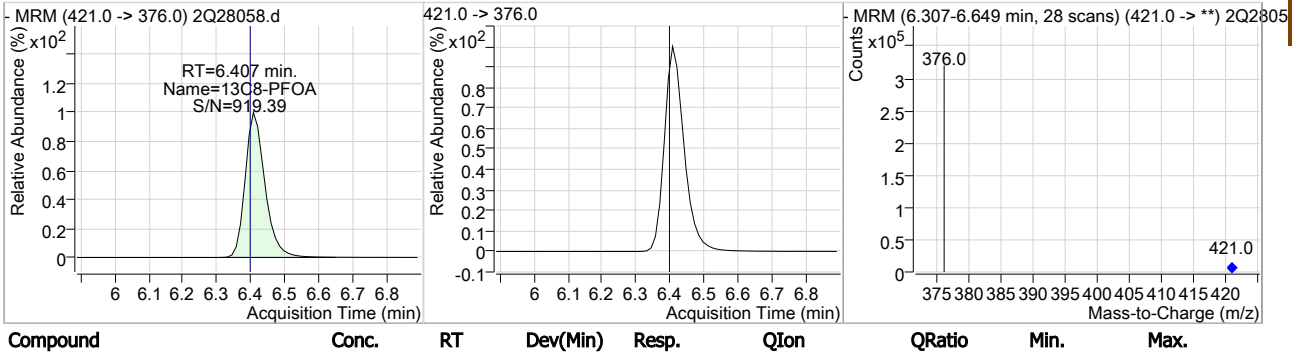


Perfluorinated Compounds by LC/MS/MS

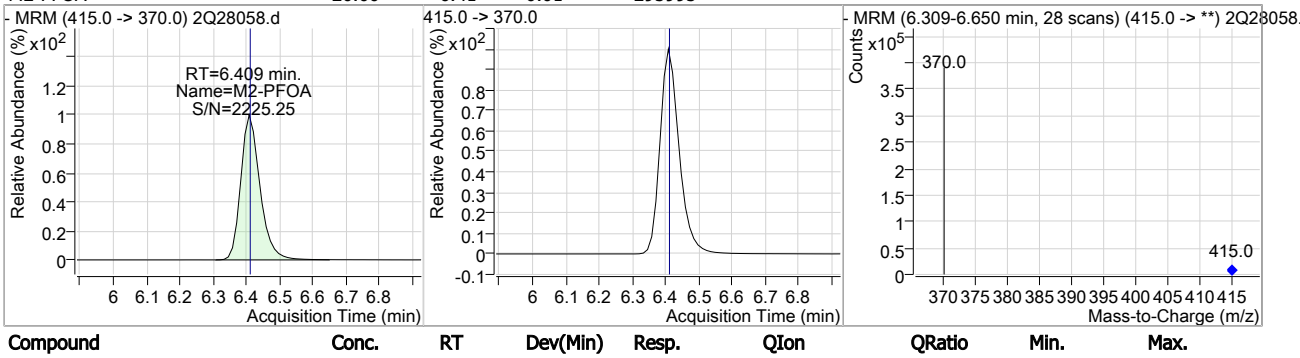
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	22.26	6.40	0.01	67096				



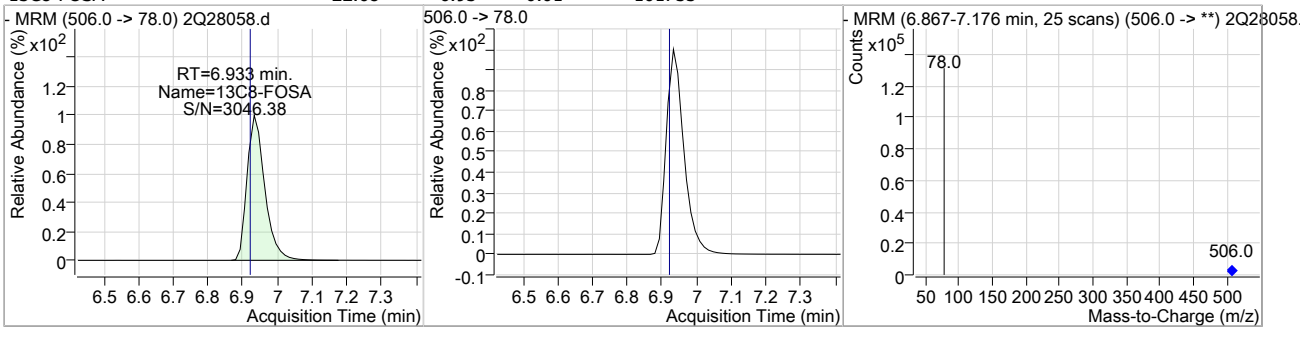
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	23.66	6.41	0.01	243803				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.01	295995				

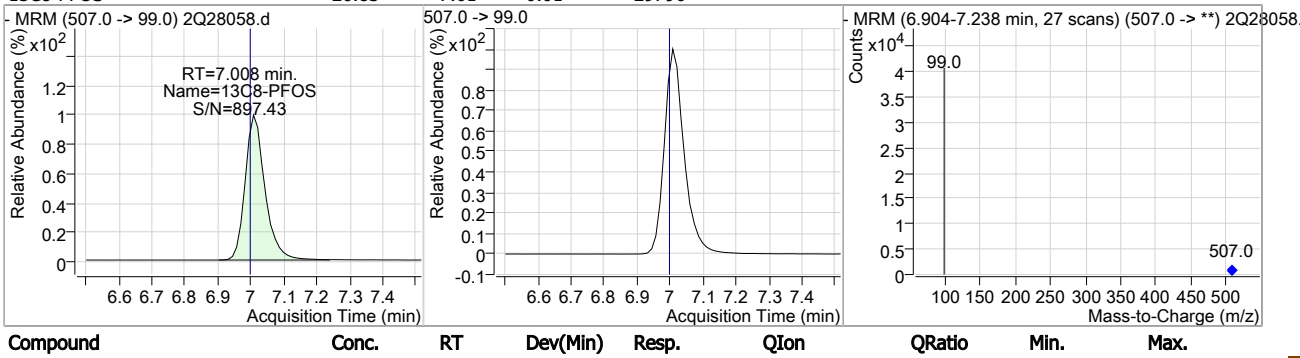


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	22.68	6.93	0.01	101733				

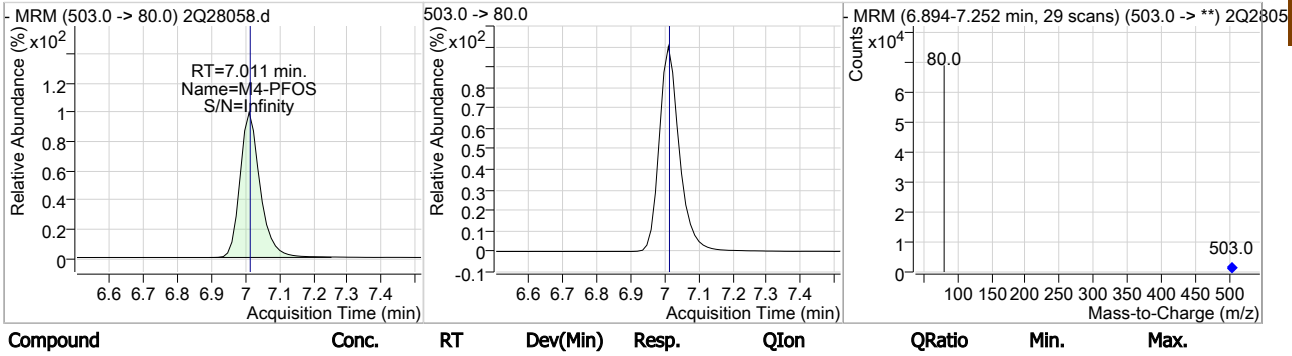


Perfluorinated Compounds by LC/MS/MS

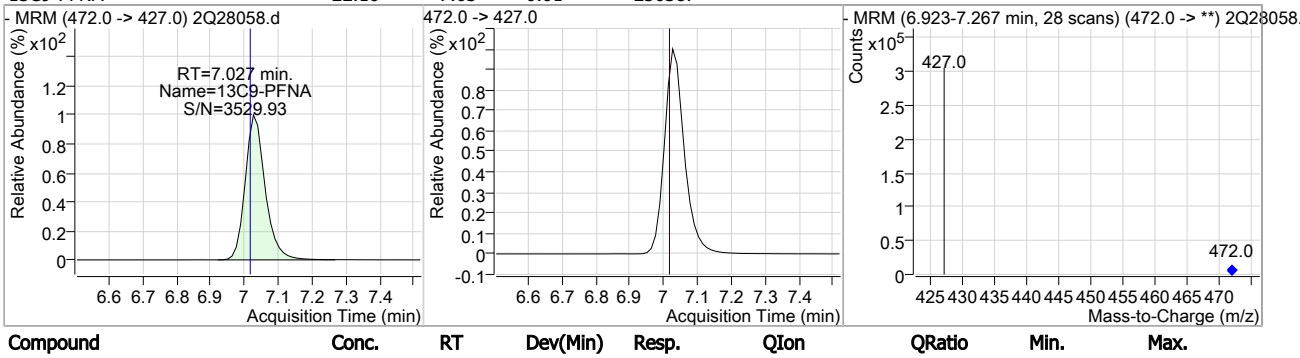
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.83	7.01	0.01	29790				



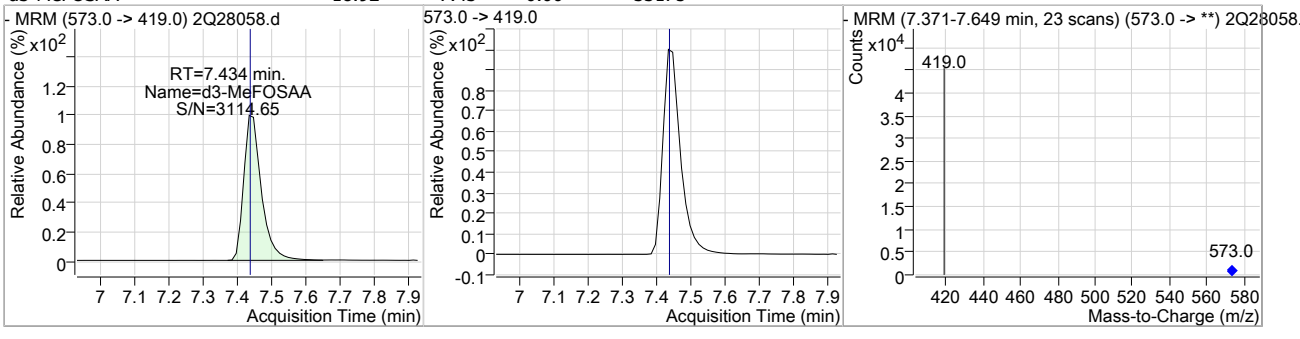
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.01	51203				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	22.10	7.03	0.01	230387				



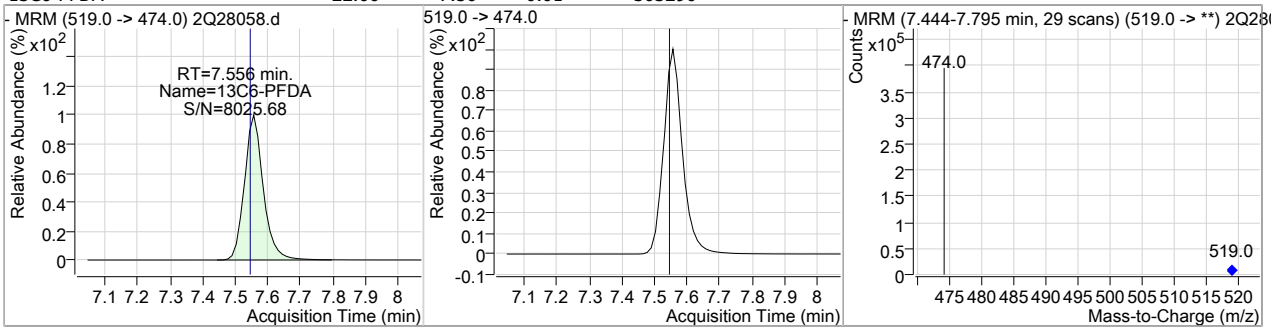
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.92	7.43	0.00	33175				



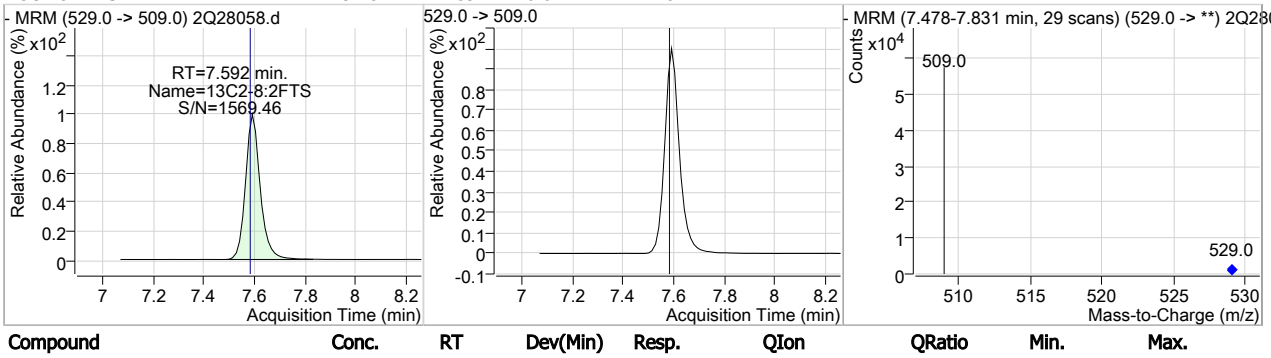
7.2.1

Perfluorinated Compounds by LC/MS/MS

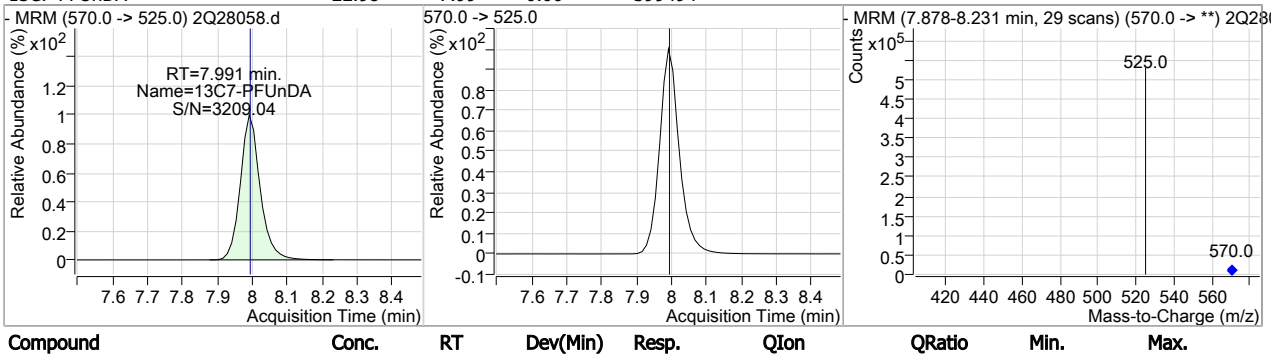
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	22.06	7.56	0.01	303296				



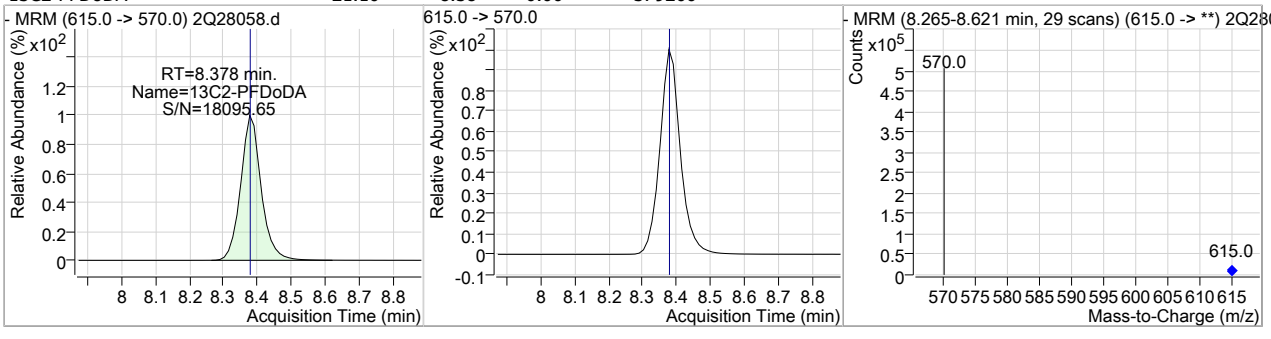
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.23	7.59	0.01	41784				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	22.98	7.99	0.00	399494				

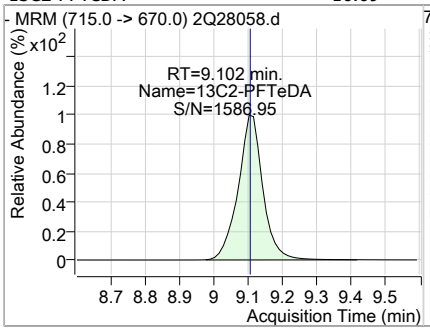


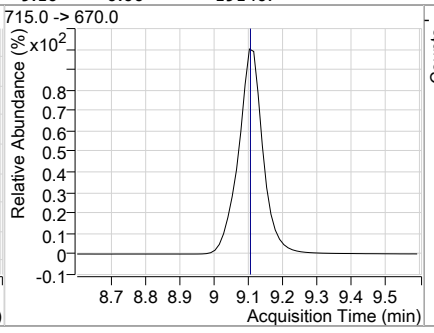
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.10	8.38	0.00	379266				

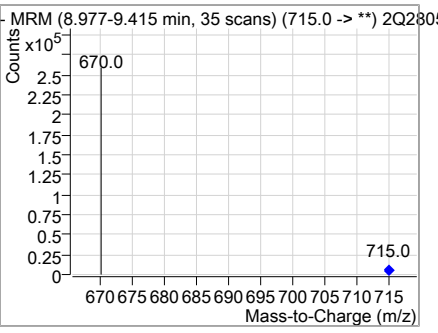


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	16.09	9.10	0.00	191407				







7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28018.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/24/2019 12:11:37 PM
Sample Name : IBLK
Vial : Vial 1
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74164,S2Q447,250,,,1.0,1,water

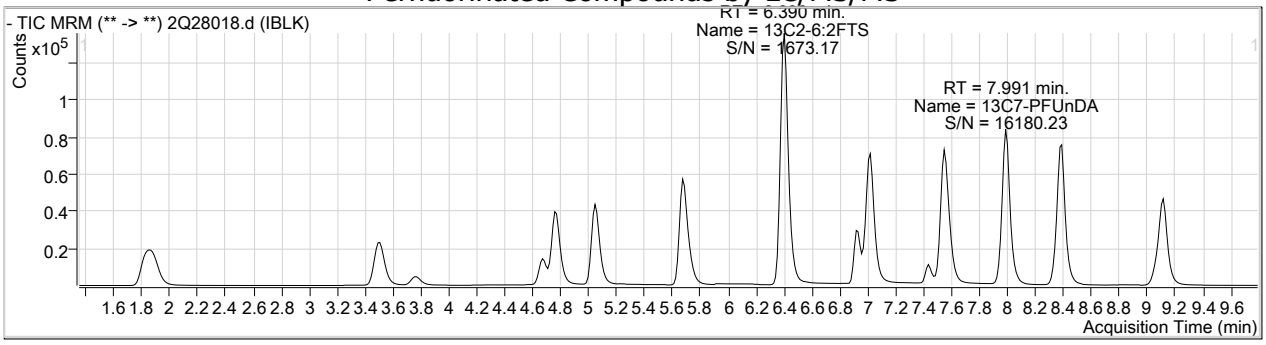
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	271517	20.00	µg/L	0.013
13C4-PFOS	7.010	503.0 -> 80.0	49733	20.00	µg/L	0.013
M4-PFBA	1.852	217.0 -> 172.0	149176	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	122101	20.00	µg/L	0.013
M5-PFHxA	4.764	318.0 -> 273.0	165846	20.00	µg/L	0.000
M4-PFHpA	5.680	367.0 -> 322.0	227044	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	224040	20.00	µg/L	0.013
M9-PFNA	7.027	472.0 -> 427.0	216160	20.00	µg/L	0.013
M6-PFDA	7.555	519.0 -> 474.0	274337	20.00	µg/L	0.013
M7-PFUnDA	7.991	570.0 -> 525.0	333056	20.00	µg/L	0.000
M2-PFDoDA	8.389	615.0 -> 570.0	329778	20.00	µg/L	0.013
M2-PFTeDA	9.114	715.0 -> 670.0	224969	20.00	µg/L	0.013
M8-FOSA	6.919	506.0 -> 78.0	104257	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	23032	20.00	µg/L	0.013
M3-PFHxS	5.723	402.0 -> 99.0	25013	20.00	µg/L	0.013
M8-PFOS	7.008	507.0 -> 99.0	31734	20.00	µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	58463	20.00	µg/L	0.000
M2-6:2FTS	6.390	429.0 -> 409.0	58502	20.00	µg/L	0.000
M2-8:2FTS	7.592	529.0 -> 509.0	36747	20.00	µg/L	0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	33610	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	178958	100.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	58298	20.48	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C2-6:2FTS	6.390	429.0 -> 409.0	58481	19.40	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C2-8:2FTS	7.592	529.0 -> 509.0	36729	16.90	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.5%		
13C2-PFDoDA	8.389	615.0 -> 570.0	329440	18.33	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.6%		
13C2-PFTeDA	9.114	715.0 -> 670.0	224740	18.89	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.5%		
13C3-PFBS	3.767	302.0 -> 99.0	22937	22.36	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.8%		
13C3-PFHxS	5.723	402.0 -> 99.0	24960	22.46	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.3%		
13C4-PFBA	1.852	217.0 -> 172.0	148347	22.69	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.5%		
13C4-PFHpA	5.680	367.0 -> 322.0	226847	21.94	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.7%		
13C5-PFHxA	4.764	318.0 -> 273.0	165479	22.33	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.7%		
13C5-PFPeA	3.511	268.0 -> 223.0	122099	22.19	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.0%		
13C6-PFDA	7.555	519.0 -> 474.0	274278	19.95	µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

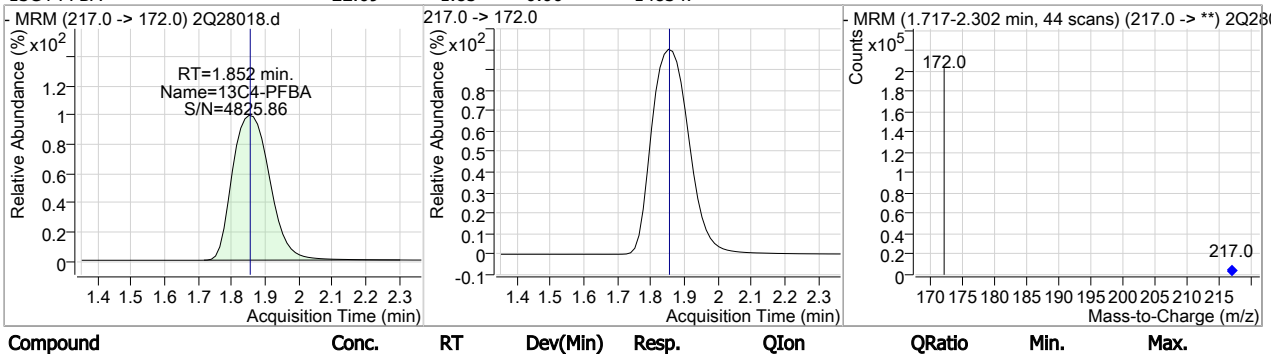
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C7-PFUnDA	7.991	570.0 -> 525.0	332928	19.15 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-FOSA	6.919	506.0 -> 78.0	104264	23.24 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.2%	
13C8-PFOA	6.407	421.0 -> 376.0	223958	21.73 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C8-PFOS	7.008	507.0 -> 99.0	31749	22.20 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C9-PFNA	7.027	472.0 -> 427.0	216240	20.75 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%	
d3-MeFOSAA	7.434	573.0 -> 419.0	33588	19.15 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%	
M2-PFOA	6.409	415.0 -> 370.0	271855	20.02 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
M4-PFOS	7.010	503.0 -> 80.0	49770	20.00 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C3-HFPO-DA	5.056	287.0 -> 169.0	178958	107.36 µg/L	0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
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	-	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	-	363.0 -> 319.0	-	N.D.	
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	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
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.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

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

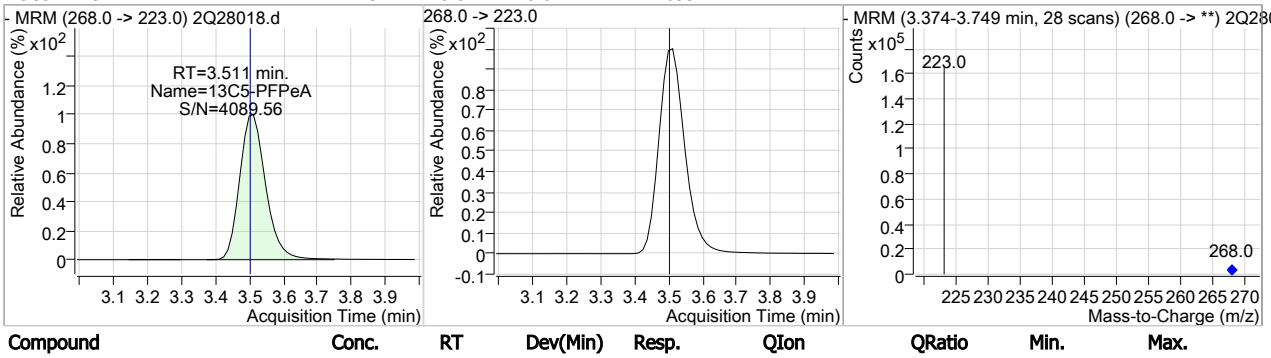
Perfluorinated Compounds by LC/MS/MS



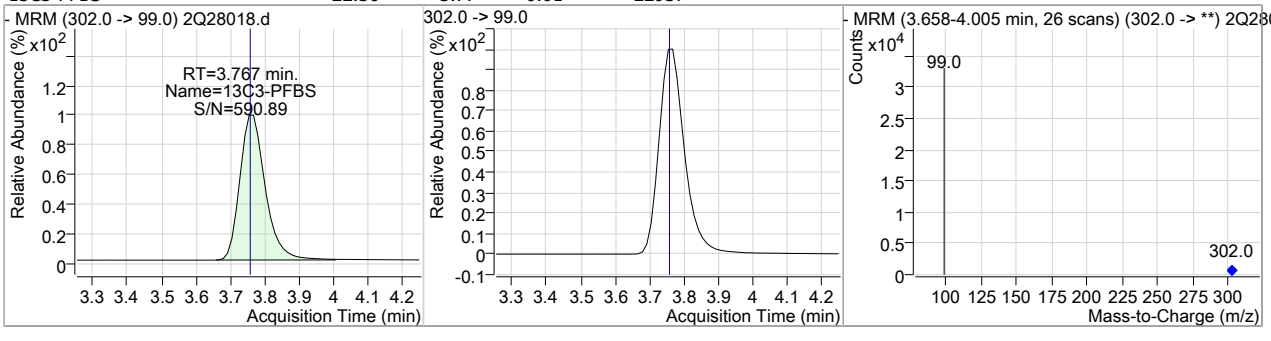
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	22.69	1.85	0.00	148347				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	22.19	3.51	0.01	122099				

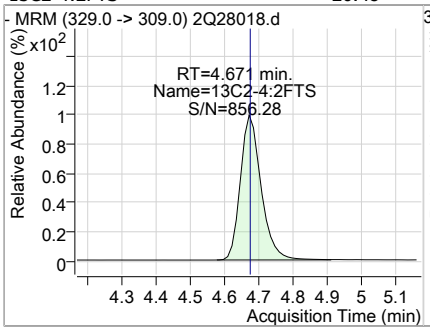


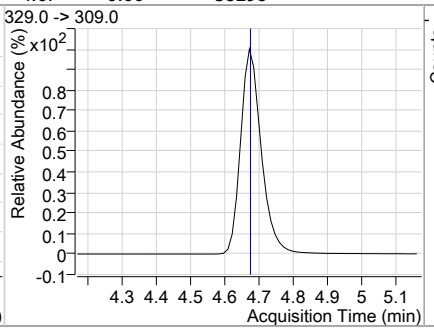
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	22.36	3.77	0.01	22937				

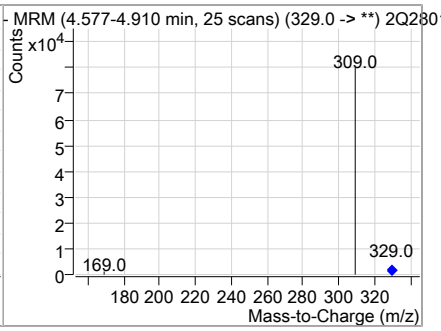


Perfluorinated Compounds by LC/MS/MS

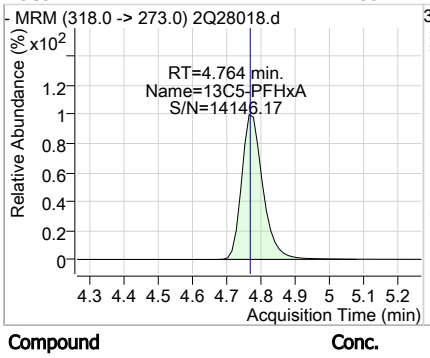
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.48	4.67	0.00	58298				

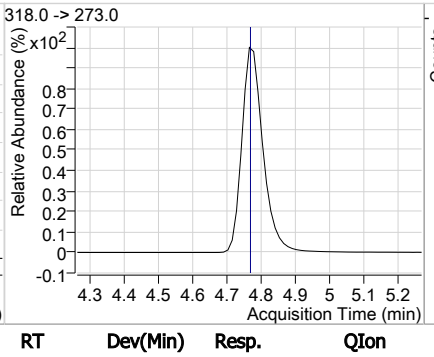


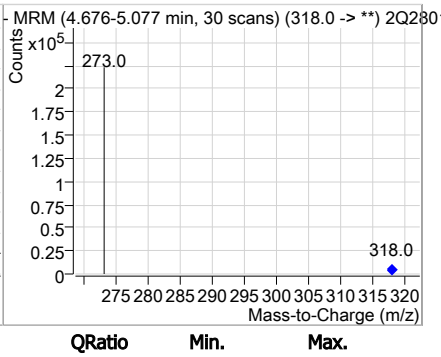




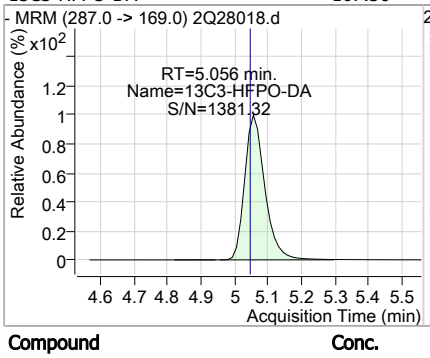
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	22.33	4.76	0.00	165479				

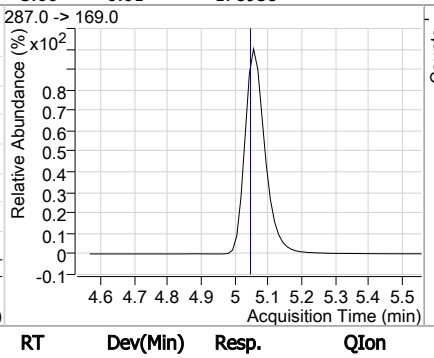


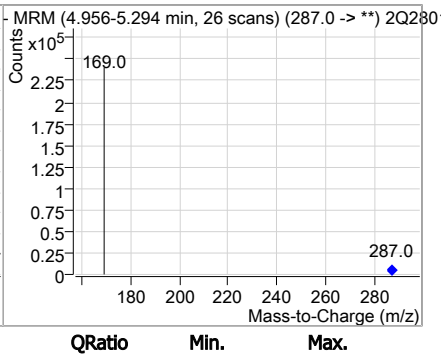




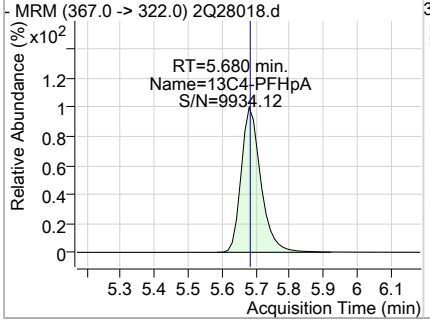
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	107.36	5.06	0.01	178958				

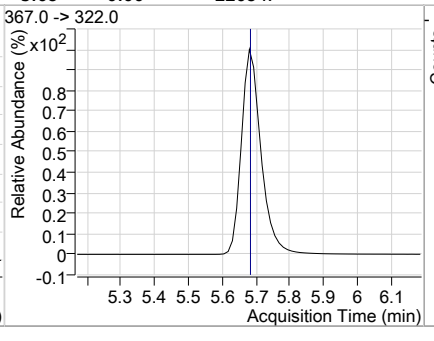


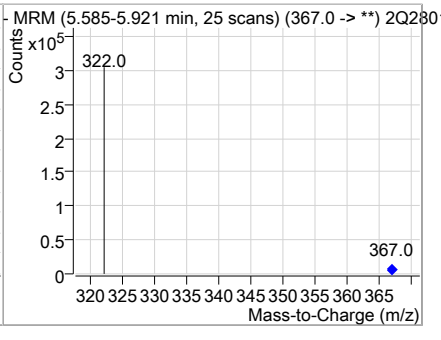




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.94	5.68	0.00	226847				

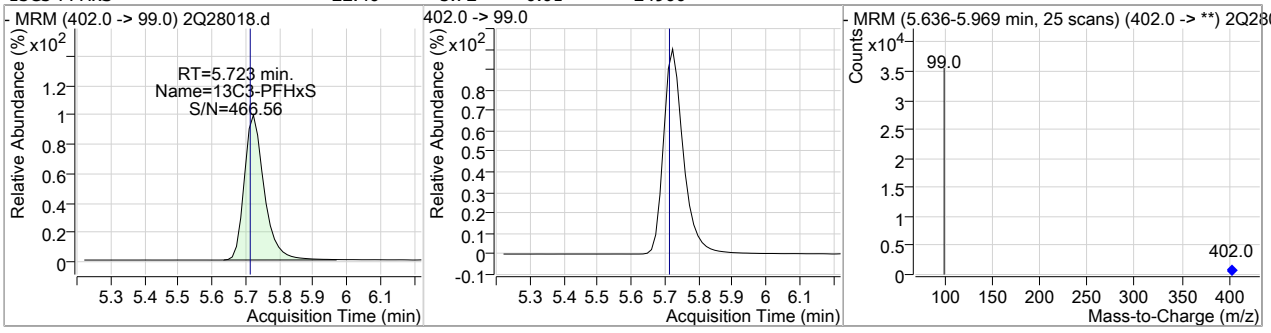




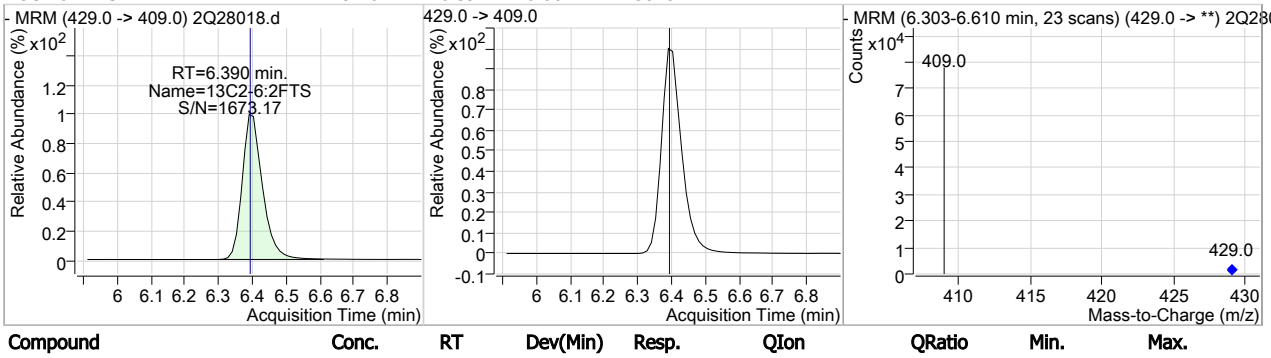


Perfluorinated Compounds by LC/MS/MS

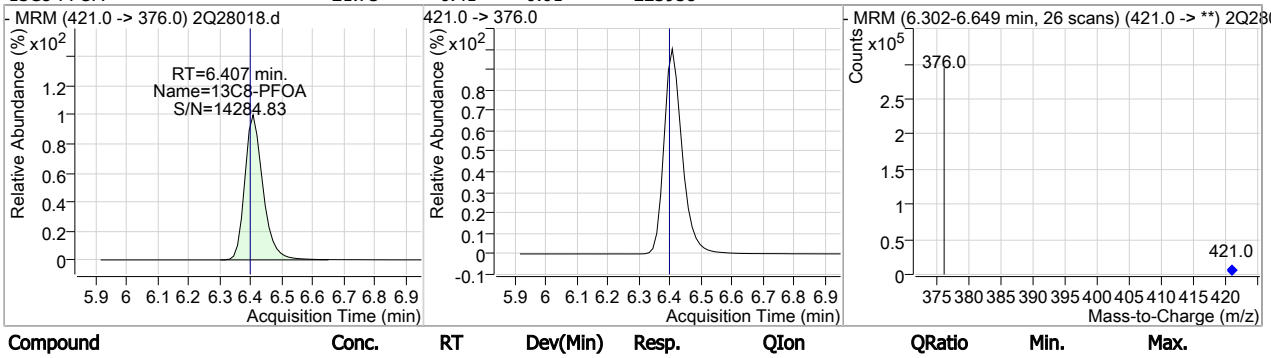
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	22.46	5.72	0.01	24960				



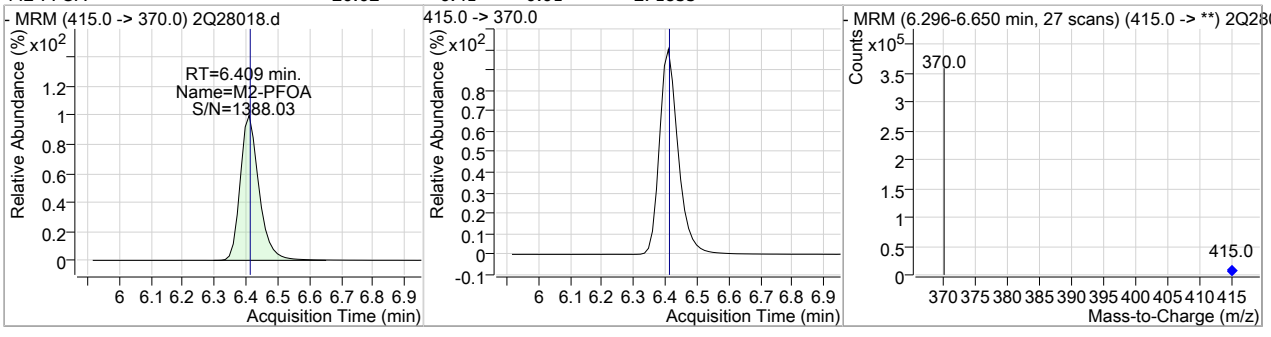
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.40	6.39	0.00	58481				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.73	6.41	0.01	223958				

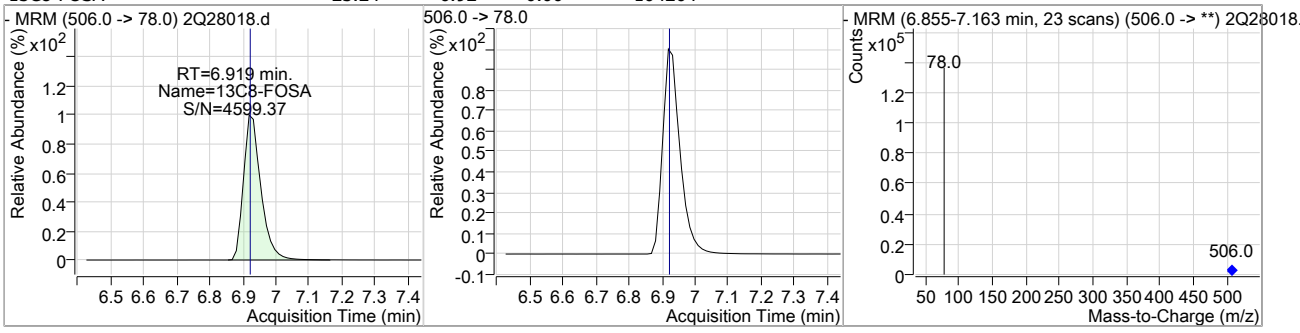


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.02	6.41	0.01	271855				

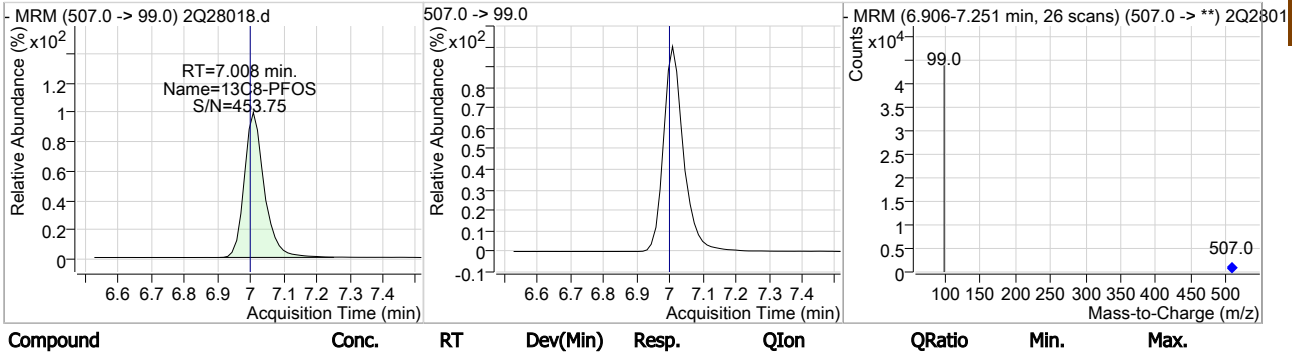


Perfluorinated Compounds by LC/MS/MS

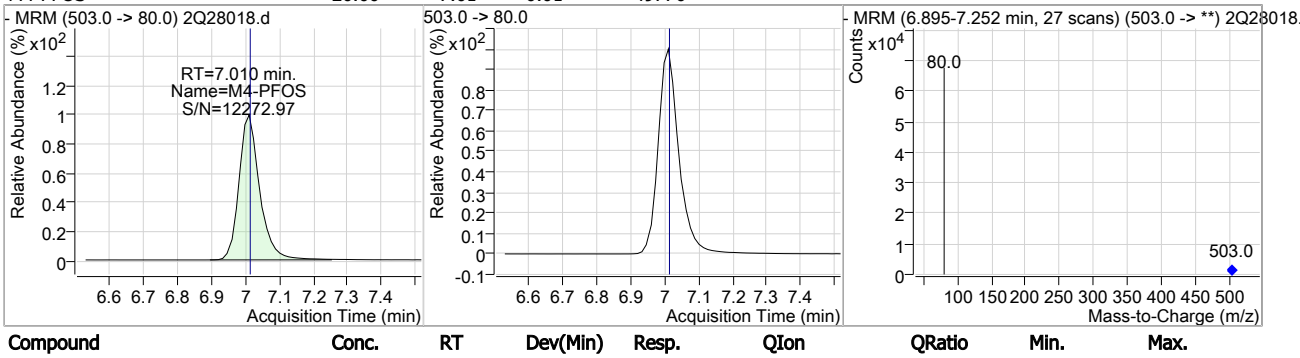
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	23.24	6.92	0.00	104264				



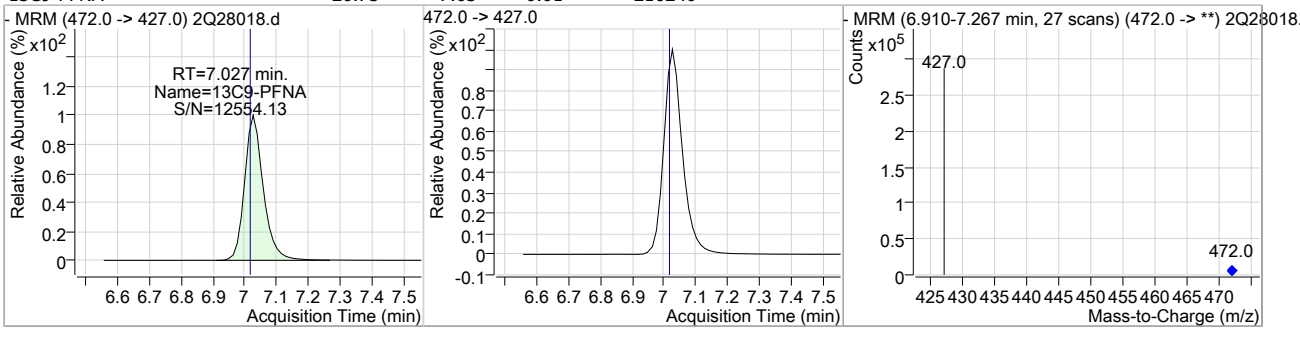
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	22.20	7.01	0.01	31749				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.01	0.01	49770				

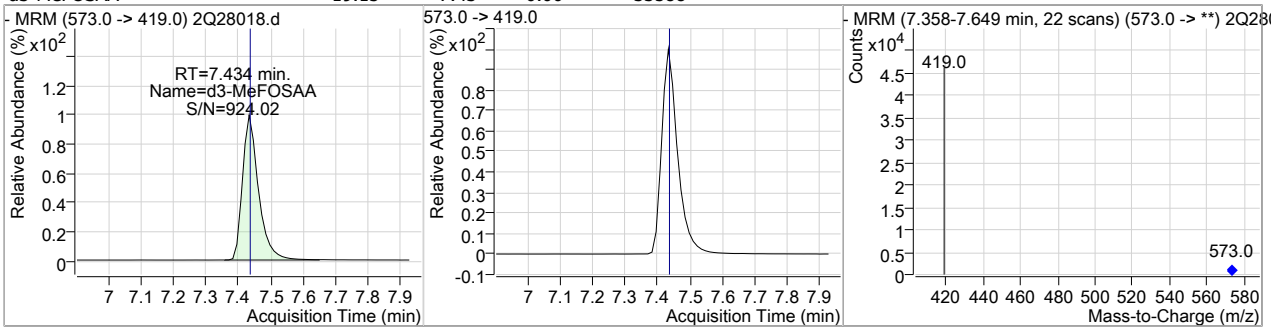


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.75	7.03	0.01	216240				

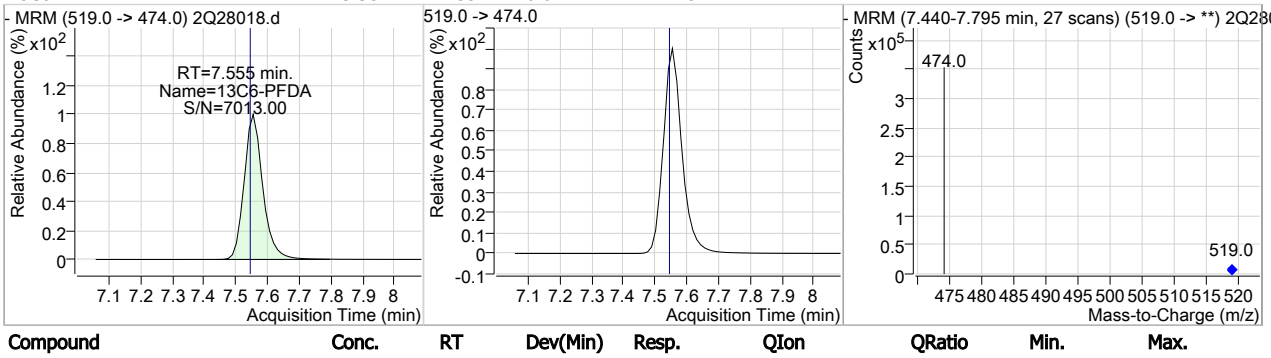


Perfluorinated Compounds by LC/MS/MS

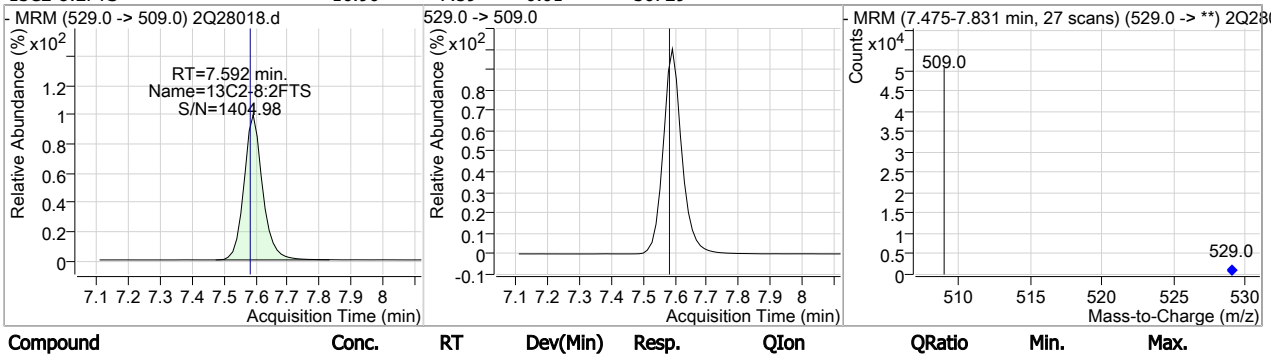
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.15	7.43	0.00	33588				



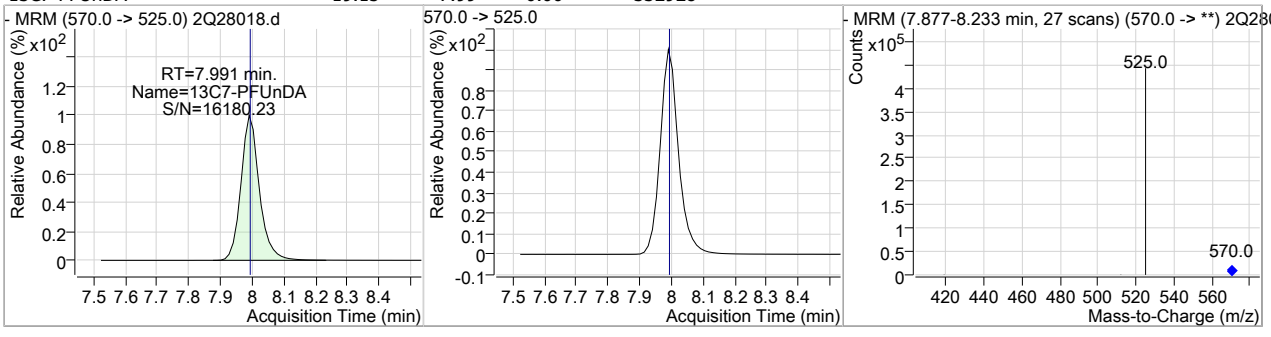
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.95	7.55	0.01	274278				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	16.90	7.59	0.01	36729				

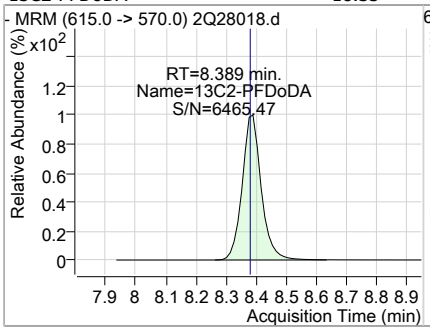


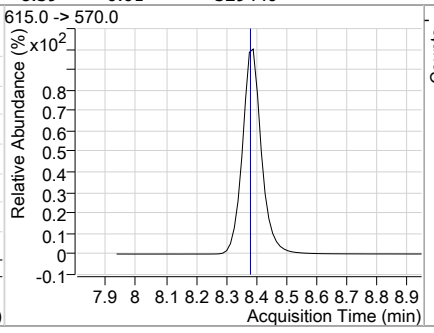
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.15	7.99	0.00	332928				

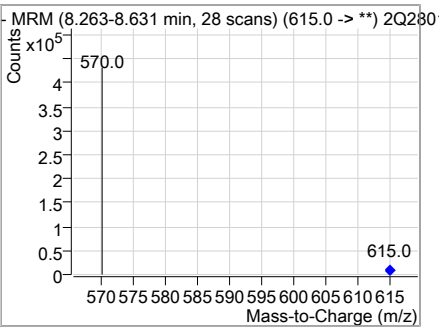


Perfluorinated Compounds by LC/MS/MS

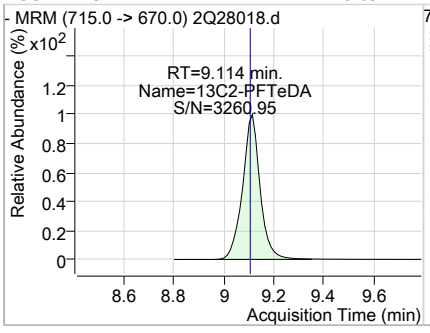
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.33	8.39	0.01	329440				

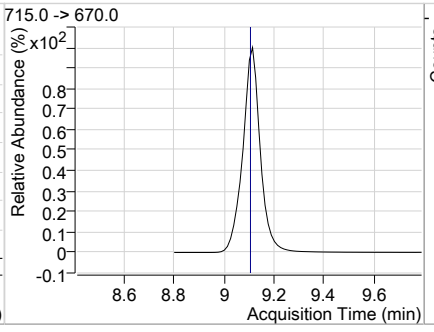


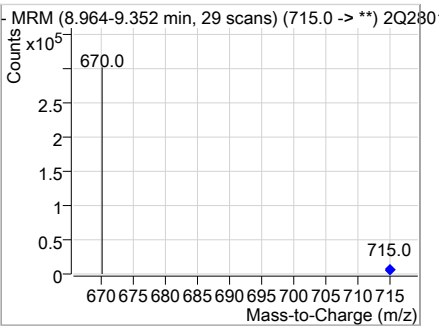




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.89	9.11	0.01	224740				







7.2.2

7

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28079.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 10:12:29 AM
Sample Name : IBLK
Vial : Vial 1
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q448.batch.bin
Sample Information : op74164,S2Q448,250,,,1.0,1,water

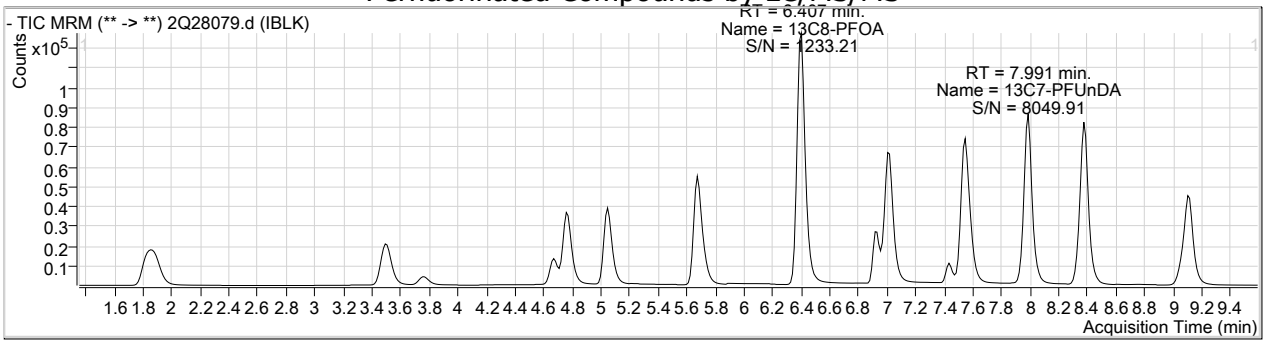
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	259334	20.00	µg/L	0.012
13C4-PFOS	7.011	503.0 -> 80.0	46327	20.00	µg/L	0.013
M4-PFBA	1.852	217.0 -> 172.0	140369	20.00	µg/L	0.000
M5-PFPeA	3.499	268.0 -> 223.0	110720	20.00	µg/L	0.000
M5-PFHxA	4.763	318.0 -> 273.0	153130	20.00	µg/L	0.000
M4-PFHpA	5.680	367.0 -> 322.0	217041	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	211279	20.00	µg/L	0.012
M9-PFNA	7.027	472.0 -> 427.0	209055	20.00	µg/L	0.013
M6-PFDA	7.556	519.0 -> 474.0	281337	20.00	µg/L	0.014
M7-PFUnDA	7.991	570.0 -> 525.0	345065	20.00	µg/L	0.000
M2-PFDoDA	8.378	615.0 -> 570.0	348523	20.00	µg/L	0.002
M2-PFTeDA	9.102	715.0 -> 670.0	224732	20.00	µg/L	0.000
M8-FOSA	6.918	506.0 -> 78.0	97691	20.00	µg/L	-0.001
M3-PFBS	3.755	302.0 -> 99.0	21193	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	22969	20.00	µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	29395	20.00	µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	55138	20.00	µg/L	0.000
M2-6:2FTS	6.390	429.0 -> 409.0	56738	20.00	µg/L	0.000
M2-8:2FTS	7.592	529.0 -> 509.0	37760	20.00	µg/L	0.012
M3-MeFOSAA	7.434	573.0 -> 419.0	34306	20.00	µg/L	0.000
M3-HFPO-DA	5.055	287.0 -> 169.0	159921	100.00	µg/L	0.012
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	54977	19.32	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C2-6:2FTS	6.390	429.0 -> 409.0	56732	18.82	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C2-8:2FTS	7.592	529.0 -> 509.0	37745	17.37	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.8%		
13C2-PFDoDA	8.378	615.0 -> 570.0	348814	19.41	µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C2-PFTeDA	9.102	715.0 -> 670.0	224136	18.84	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.2%		
13C3-PFBS	3.755	302.0 -> 99.0	21168	20.63	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C3-PFHxS	5.723	402.0 -> 99.0	22900	20.61	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C4-PFBA	1.852	217.0 -> 172.0	139561	21.35	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C4-PFHpA	5.680	367.0 -> 322.0	217017	20.99	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C5-PFHxA	4.763	318.0 -> 273.0	152777	20.62	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C5-PFPeA	3.499	268.0 -> 223.0	110733	20.13	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C6-PFDA	7.556	519.0 -> 474.0	281234	20.46	µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

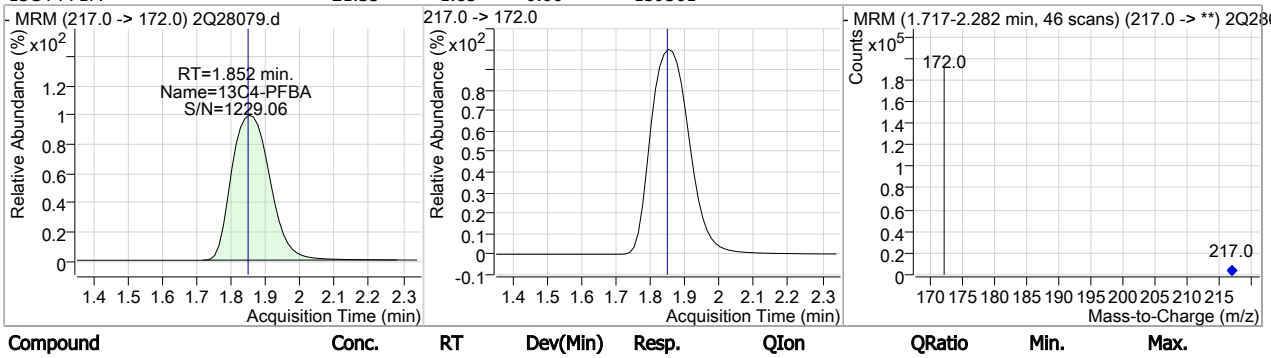
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C7-PFUnDA	7.991	570.0 -> 525.0	344913	19.84 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-FOSA	6.918	506.0 -> 78.0	97752	21.79 µg/L	-0.001
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C8-PFOA	6.407	421.0 -> 376.0	211059	20.48 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C8-PFOS	7.008	507.0 -> 99.0	29352	20.53 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.027	472.0 -> 427.0	208954	20.05 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSAA	7.434	573.0 -> 419.0	34337	19.58 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
M2-PFOA	6.409	415.0 -> 370.0	259635	20.01 µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
M4-PFOS	7.011	503.0 -> 80.0	46371	20.00 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C3-HFPO-DA	5.055	287.0 -> 169.0	159921	95.94 µg/L	0.012
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
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	-	213.0 -> 169.0	-	N.D.	
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	-	363.0 -> 319.0	-	N.D.	
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	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
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.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

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

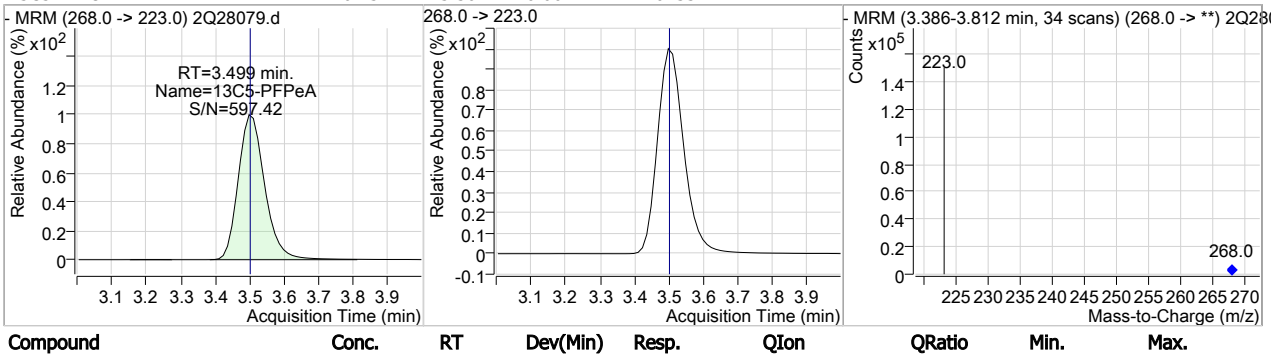
Perfluorinated Compounds by LC/MS/MS



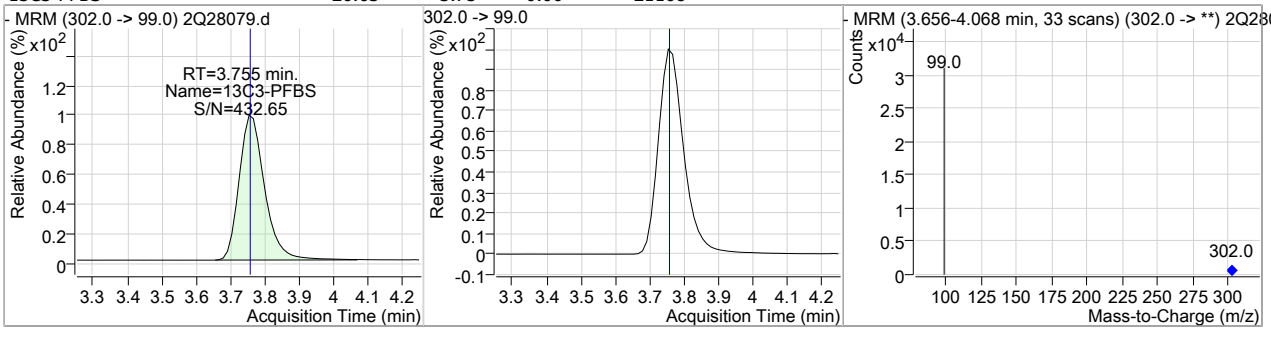
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.35	1.85	0.00	139561				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.13	3.50	0.00	110733				

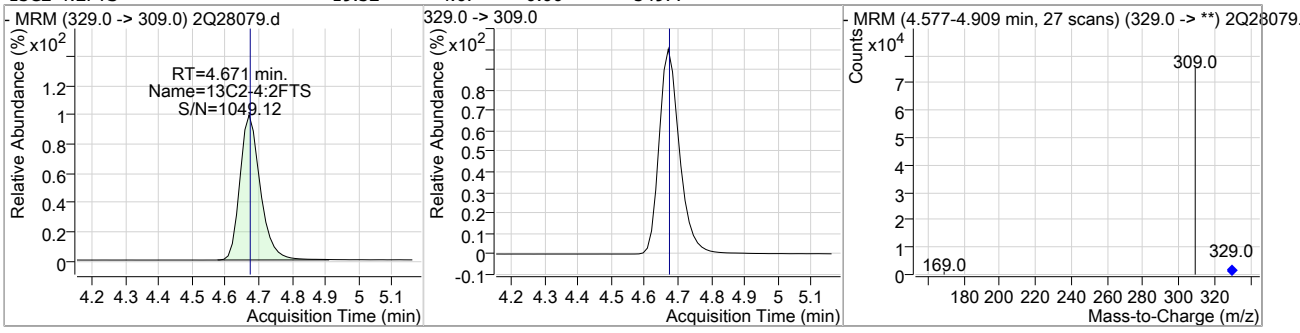


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.63	3.75	0.00	21168				

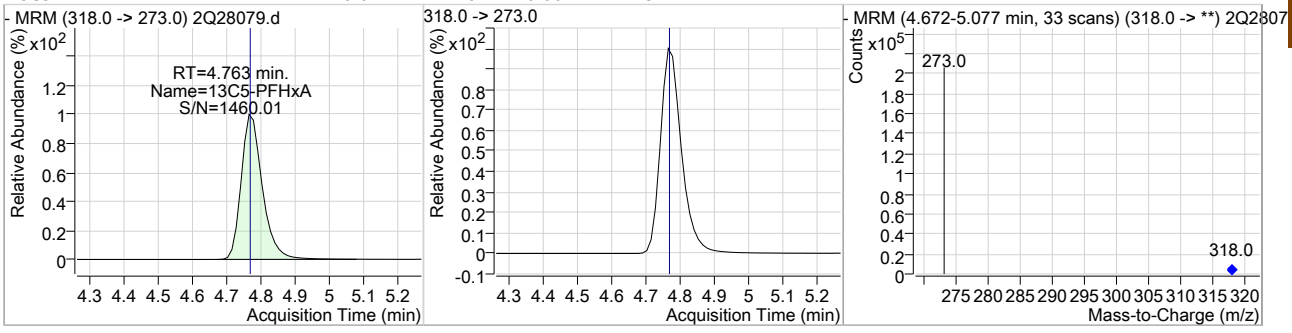


Perfluorinated Compounds by LC/MS/MS

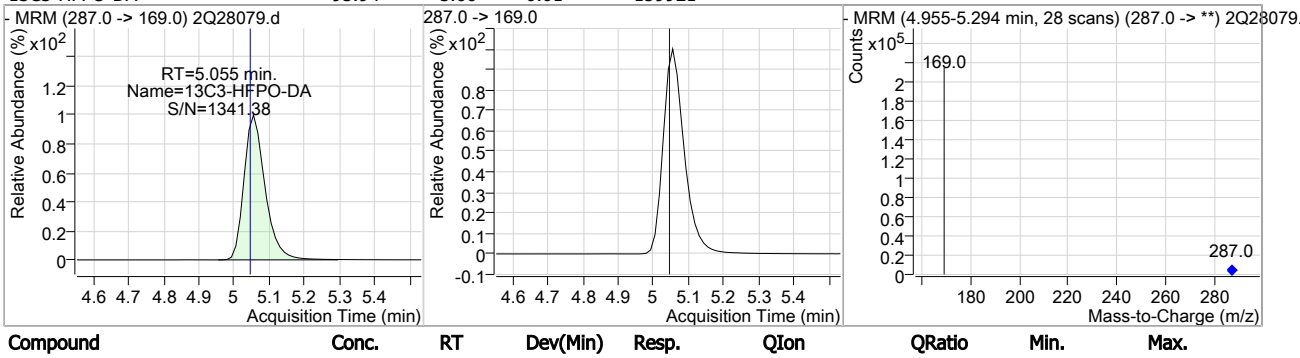
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.32	4.67	0.00	54977				



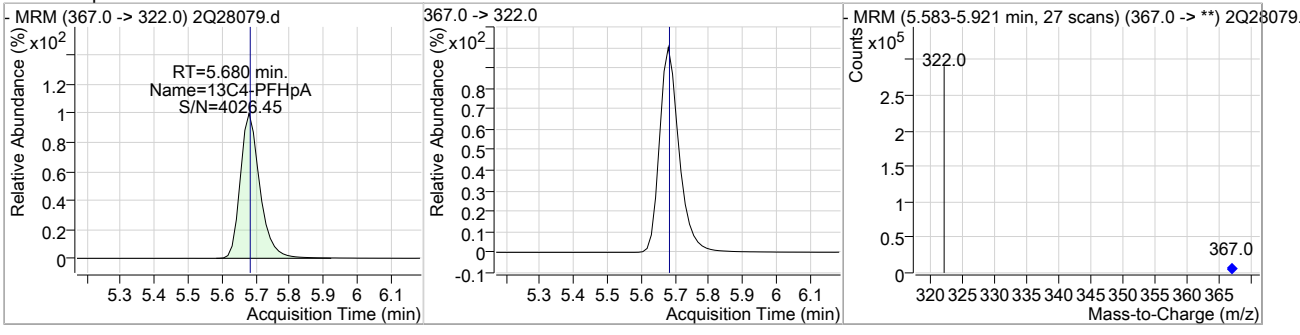
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.62	4.76	0.00	152777				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	95.94	5.06	0.01	159921				

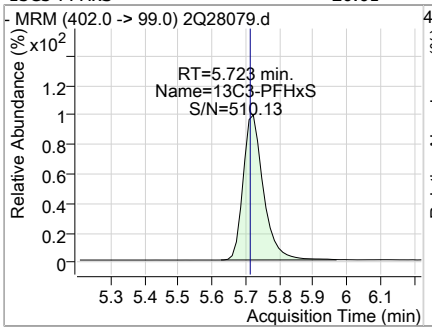


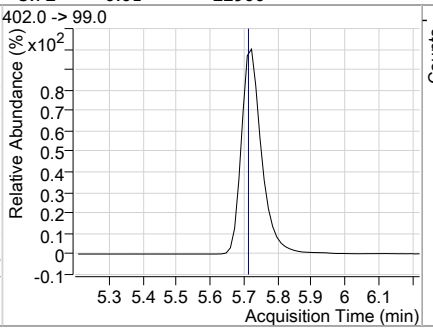
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.99	5.68	0.00	217017				

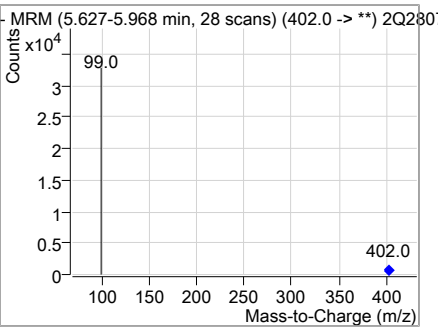


Perfluorinated Compounds by LC/MS/MS

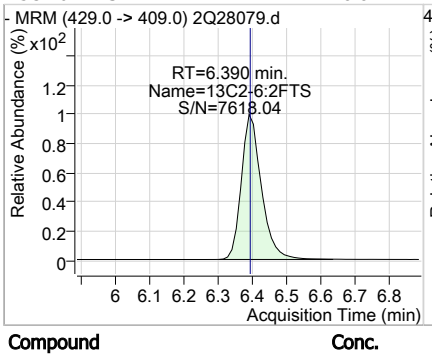
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.61	5.72	0.01	22900				

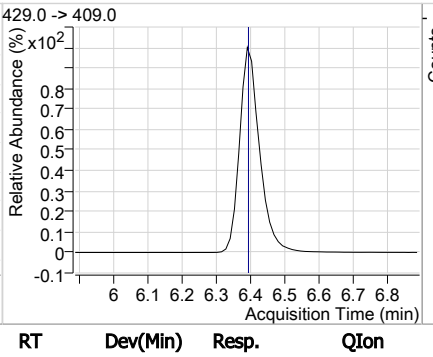


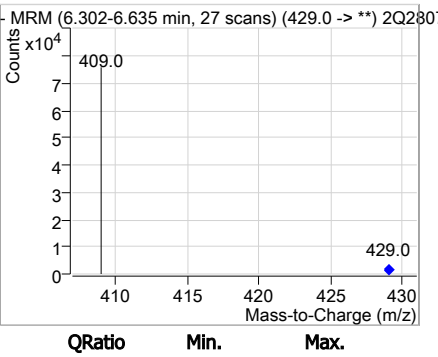




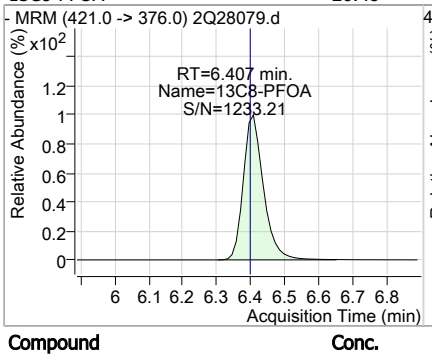
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.82	6.39	0.00	56732				

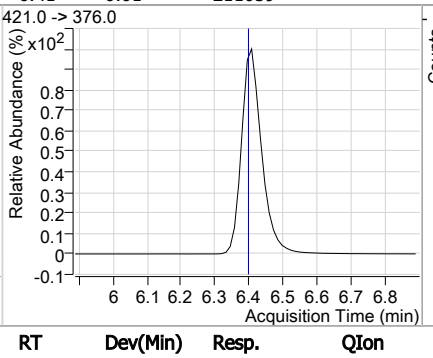


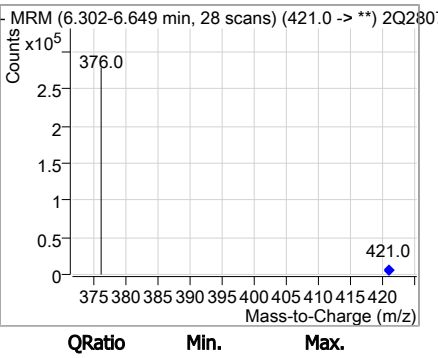




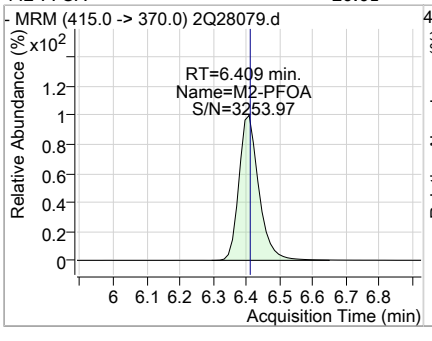
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.48	6.41	0.01	211059				

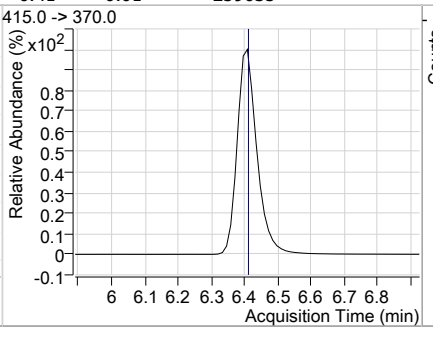


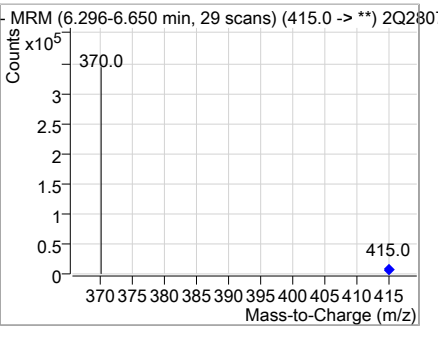




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.41	0.01	259635				

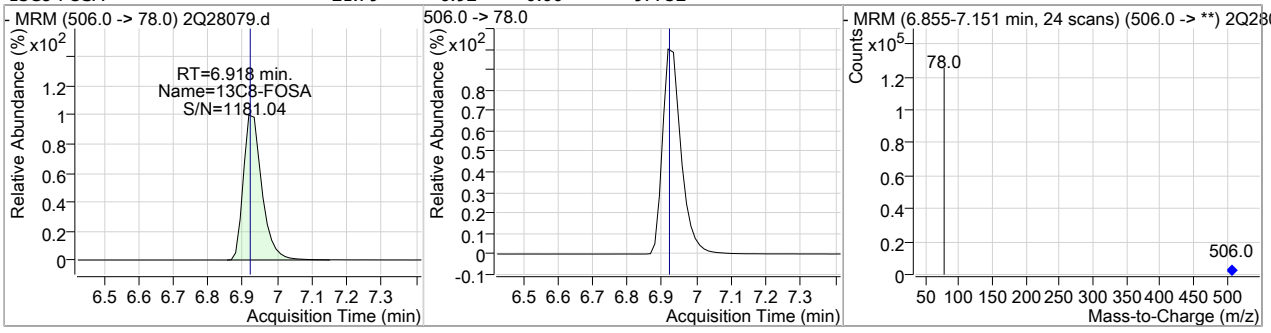




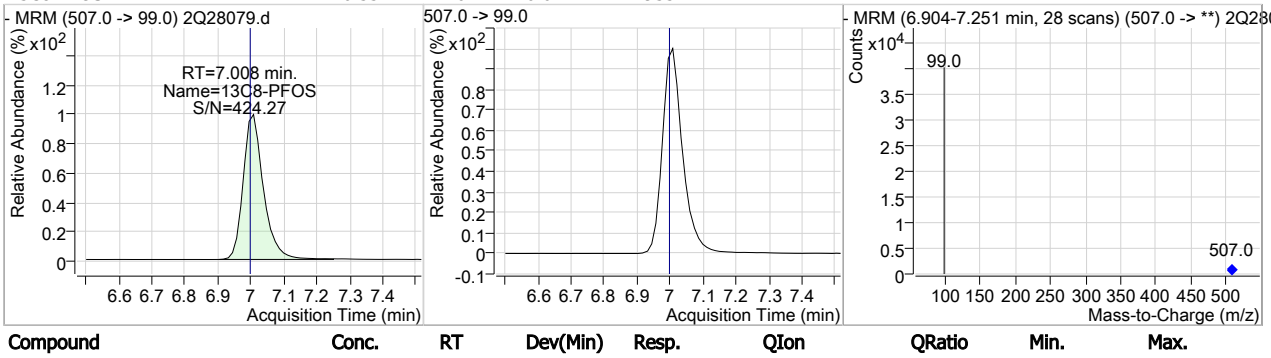


Perfluorinated Compounds by LC/MS/MS

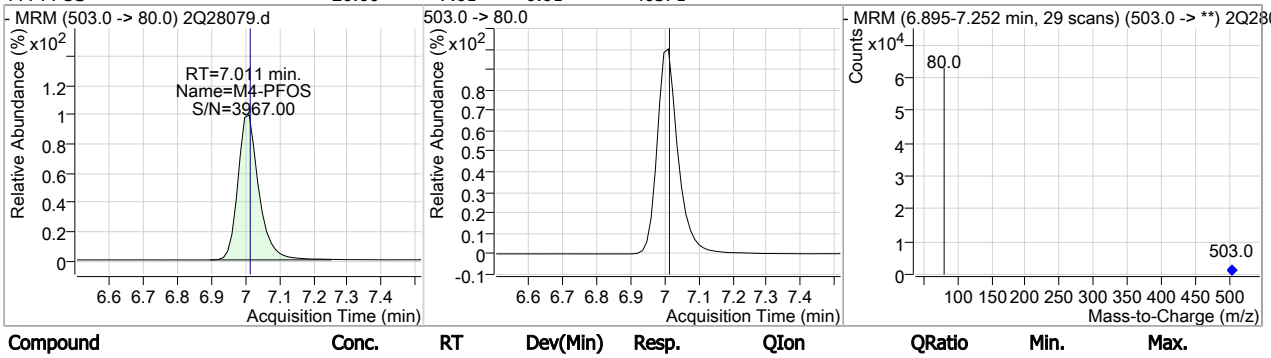
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.79	6.92	0.00	97752				



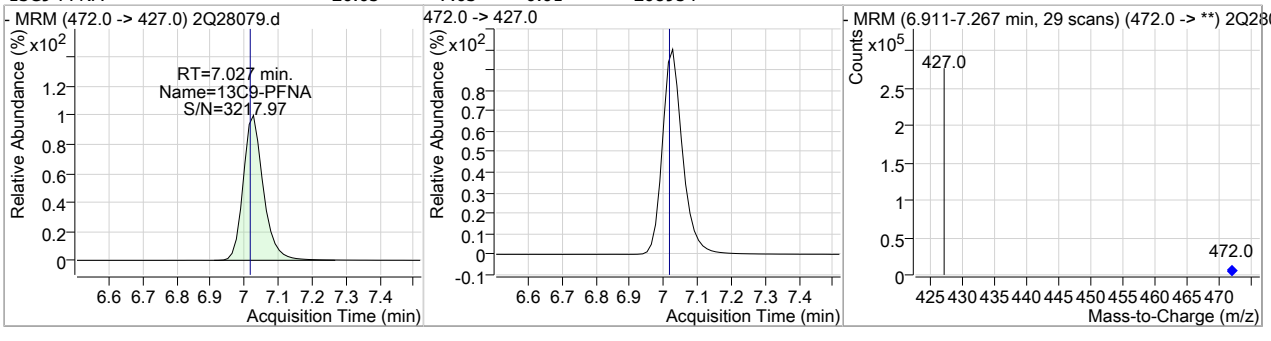
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.53	7.01	0.01	29352				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.01	0.01	46371				



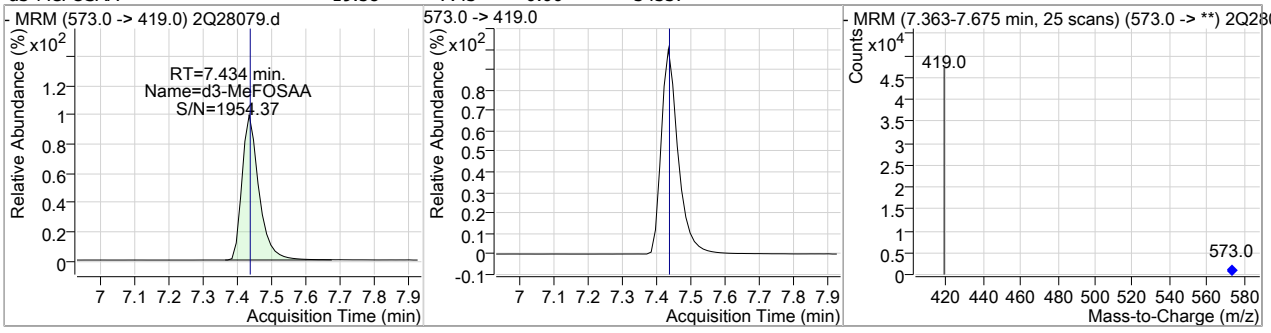
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.05	7.03	0.01	208954				



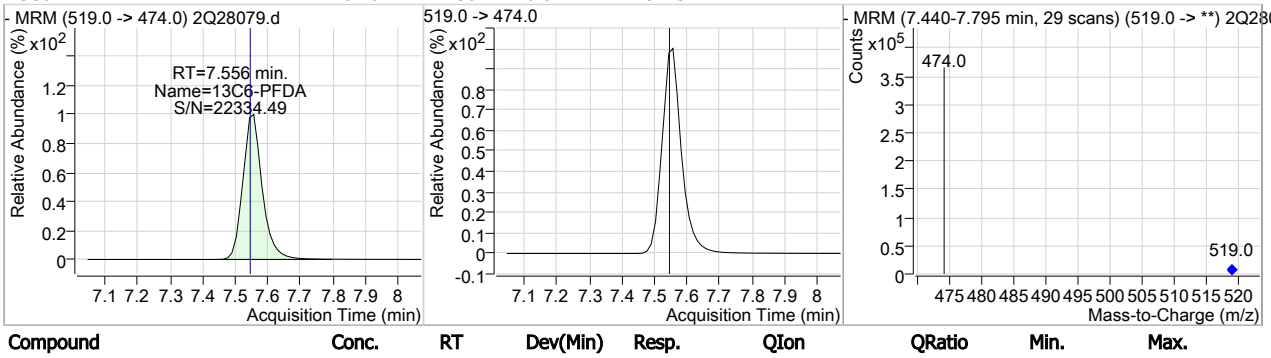
7.2.3

Perfluorinated Compounds by LC/MS/MS

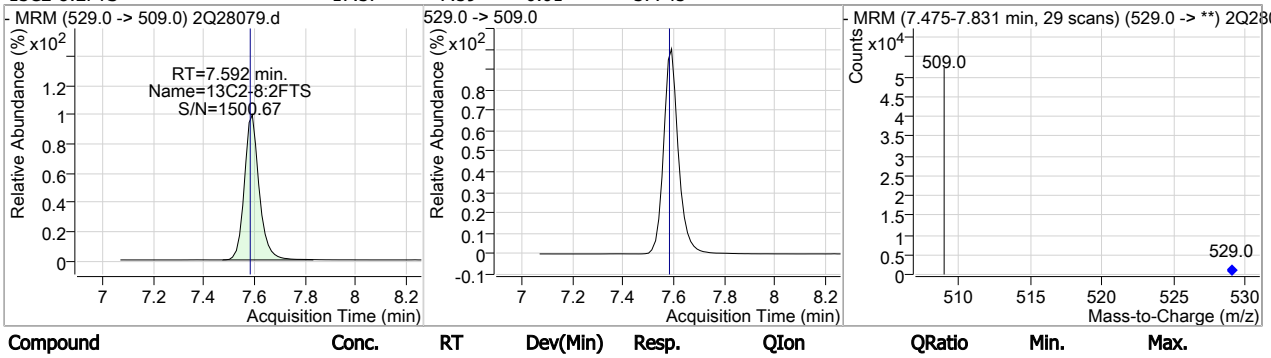
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.58	7.43	0.00	34337				



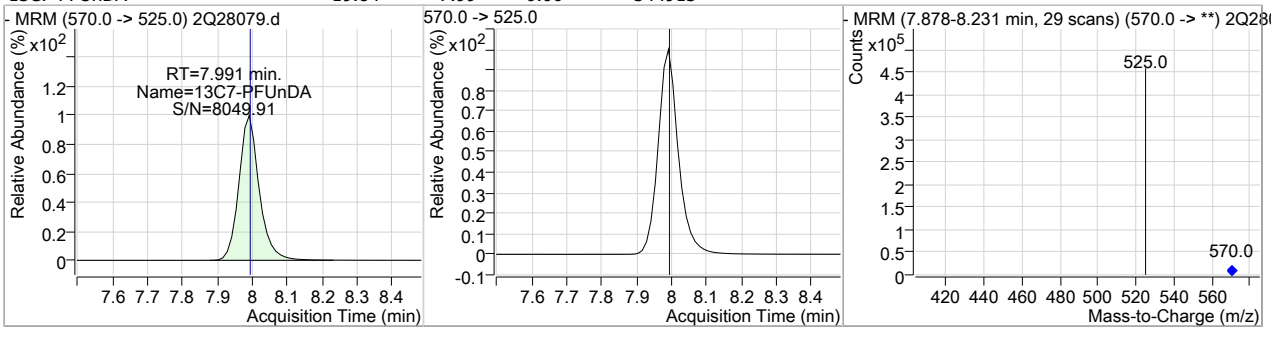
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.46	7.56	0.01	281234				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.37	7.59	0.01	37745				



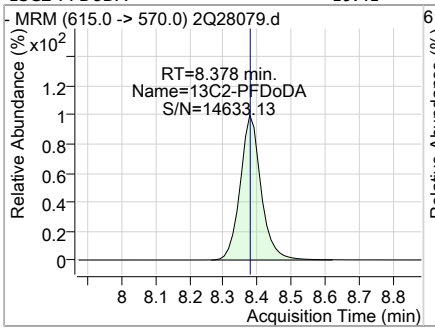
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.84	7.99	0.00	344913				

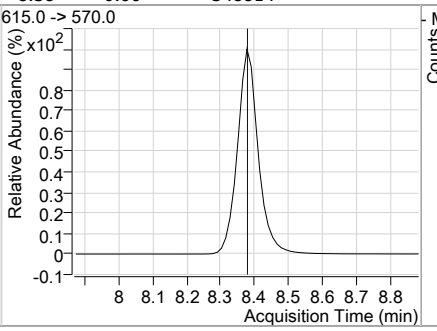


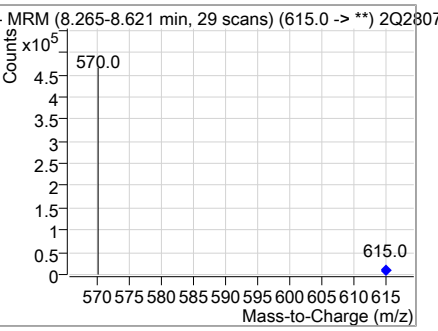
7.2.3

Perfluorinated Compounds by LC/MS/MS

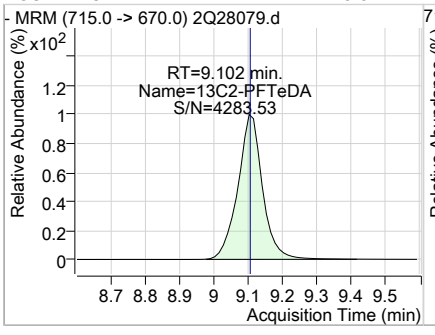
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.41	8.38	0.00	348814				

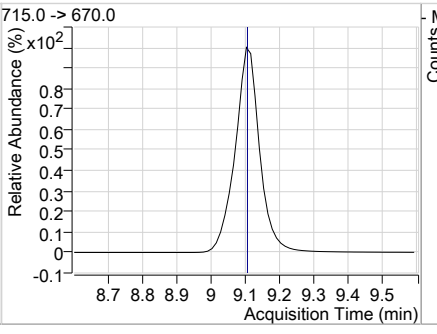


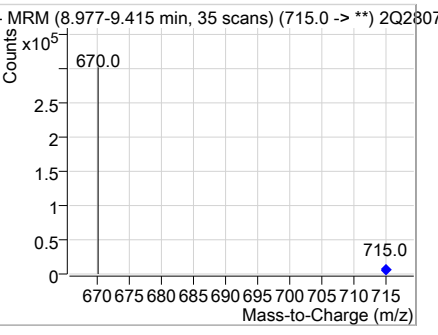




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.84	9.10	0.00	224136				







7.2.3

7

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28169.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 5:07:43 PM
Sample Name : iblk
Vial : Vial 1
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

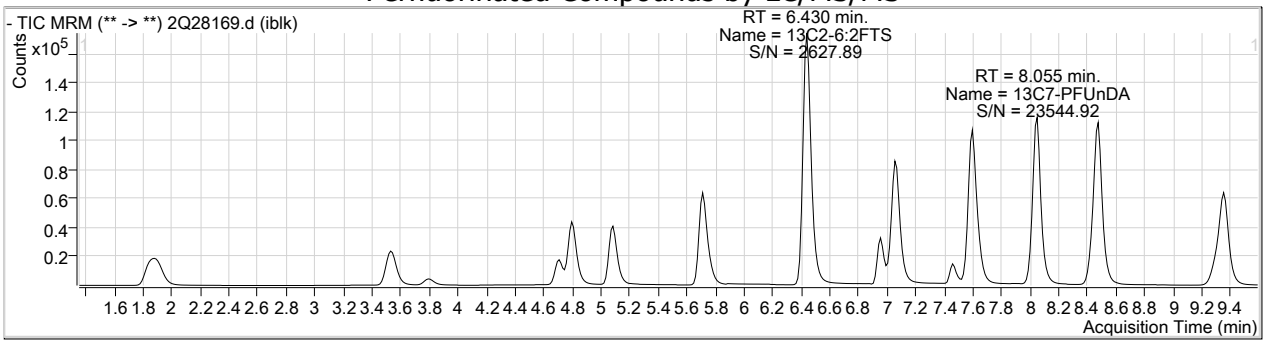
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.448	415.0 -> 370.0	358195	20.00 µg/L	0.000
13C4-PFOS	7.049	503.0 -> 80.0	55393	20.00 µg/L	0.000
M4-PFBA	1.877	217.0 -> 172.0	144802	20.00 µg/L	0.013
M5-PFPeA	3.536	268.0 -> 223.0	123030	20.00 µg/L	0.000
M5-PFHxA	4.801	318.0 -> 273.0	178451	20.00 µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	252271	20.00 µg/L	0.000
M8-PFOA	6.446	421.0 -> 376.0	272248	20.00 µg/L	0.000
M9-PFNA	7.078	472.0 -> 427.0	275683	20.00 µg/L	0.013
M6-PFDA	7.607	519.0 -> 474.0	387397	20.00 µg/L	0.013
M7-PFUnDA	8.055	570.0 -> 525.0	477923	20.00 µg/L	0.000
M2-PFDoDA	8.479	615.0 -> 570.0	523127	20.00 µg/L	0.000
M2-PFTeDA	9.352	715.0 -> 670.0	351453	20.00 µg/L	0.000
M8-FOSA	6.959	506.0 -> 78.0	113987	20.00 µg/L	0.000
M3-PFBS	3.792	302.0 -> 99.0	21062	20.00 µg/L	0.000
M3-PFHxS	5.761	402.0 -> 99.0	23325	20.00 µg/L	0.013
M8-PFOS	7.047	507.0 -> 99.0	31318	20.00 µg/L	0.000
M2-4:2FTS	4.709	329.0 -> 309.0	72698	20.00 µg/L	0.013
M2-6:2FTS	6.430	429.0 -> 409.0	83555	20.00 µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	60830	20.00 µg/L	0.000
M3-MeFOSAA	7.460	573.0 -> 419.0	46419	20.00 µg/L	0.000
M3-HFPO-DA	5.093	287.0 -> 169.0	167457	100.00 µg/L	0.013
System Monitoring Compounds					
13C2-4:2FTS	4.709	329.0 -> 309.0	72383	17.52 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.6%	
13C2-6:2FTS	6.430	429.0 -> 409.0	83563	18.40 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C2-8:2FTS	7.642	529.0 -> 509.0	60848	18.07 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.3%	
13C2-PFDoDA	8.479	615.0 -> 570.0	523981	19.10 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C2-PFTeDA	9.352	715.0 -> 670.0	351455	18.61 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
13C3-PFBS	3.792	302.0 -> 99.0	21043	18.70 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C3-PFHxS	5.761	402.0 -> 99.0	23252	18.93 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C4-PFBA	1.877	217.0 -> 172.0	144063	18.66 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
13C4-PFHpA	5.717	367.0 -> 322.0	251933	18.95 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C5-PFHxA	4.801	318.0 -> 273.0	178060	18.86 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C5-PFPeA	3.536	268.0 -> 223.0	123016	18.75 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C6-PFDA	7.607	519.0 -> 474.0	387156	19.89 µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

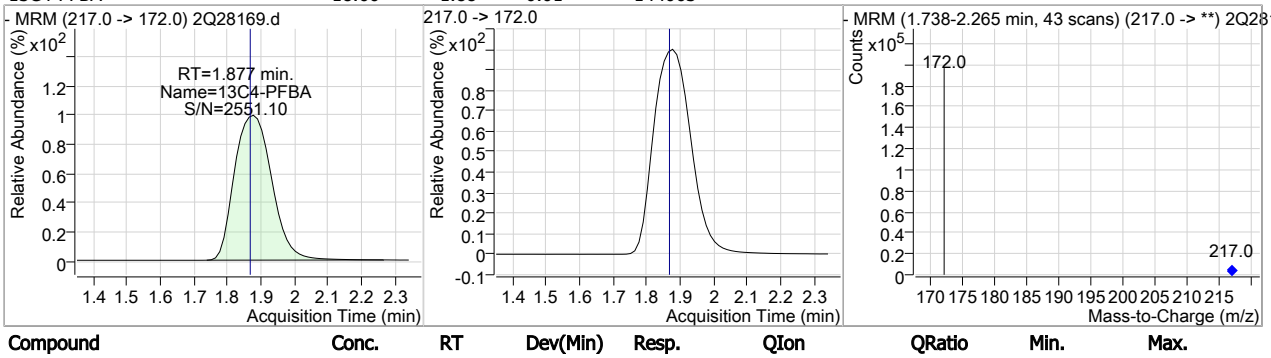
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C7-PFUnDA	8.055	570.0 -> 525.0	477474	19.33 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C8-FOSA	6.959	506.0 -> 78.0	113991	19.77 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOA	6.446	421.0 -> 376.0	271967	19.64 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOS	7.047	507.0 -> 99.0	31259	19.50 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.5%	
13C9-PFNA	7.078	472.0 -> 427.0	275659	19.27 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSAA	7.460	573.0 -> 419.0	46407	19.24 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
M2-PFOA	6.448	415.0 -> 370.0	358629	19.99 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
M4-PFOS	7.049	503.0 -> 80.0	55434	20.14 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C3-HFPO-DA	5.093	287.0 -> 169.0	167457	95.65 µg/L	0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
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	7.598	584.0 -> 419.0	325	0.34 µg/L	89
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.473	570.0 -> 419.0	261	0.23 µg/L	95
PFBA	-	213.0 -> 169.0	-	N.D.	
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	-	363.0 -> 319.0	-	N.D.	
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	-	413.0 -> 369.0	-	N.D.	
PFOS	-	499.0 -> 80.0	-	N.D.	
PFPeA	-	263.0 -> 219.0	-	N.D.	
PFPeS	-	349.0 -> 80.0	-	N.D.	
PFTeDA	9.359	713.0 -> 669.0	1323	0.11 µg/L	99
PFTrDA	8.935	663.0 -> 619.0	1093	0.08 µg/L	99
PFUnDA	-	563.0 -> 519.0	-	N.D.	
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.	
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.	
ADONA	-	377.0 -> 251.0	-	N.D.	
HFPO-DA	-	329.0 -> 169.0	-	N.D.	

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

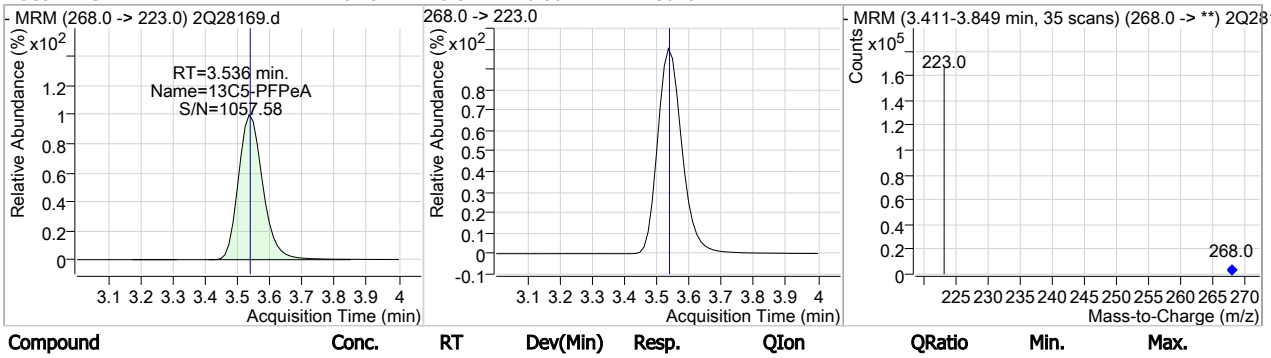
Perfluorinated Compounds by LC/MS/MS



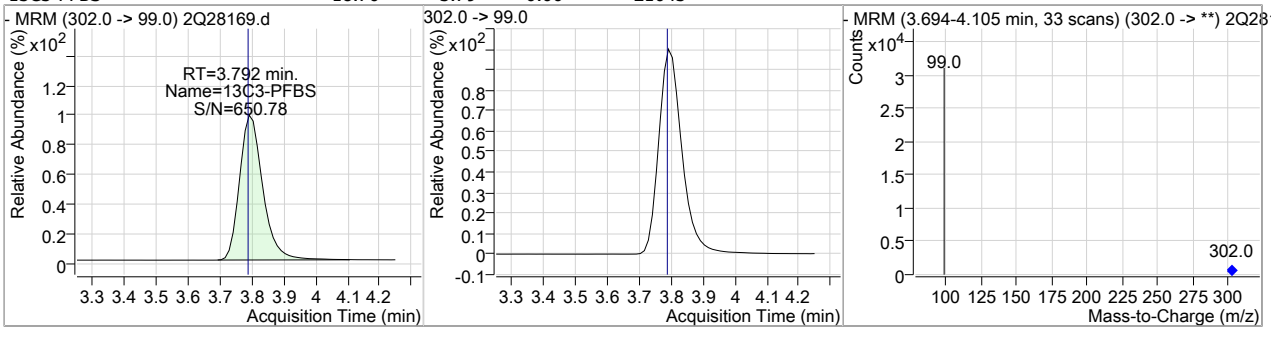
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.66	1.88	0.01	144063				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.75	3.54	0.00	123016				

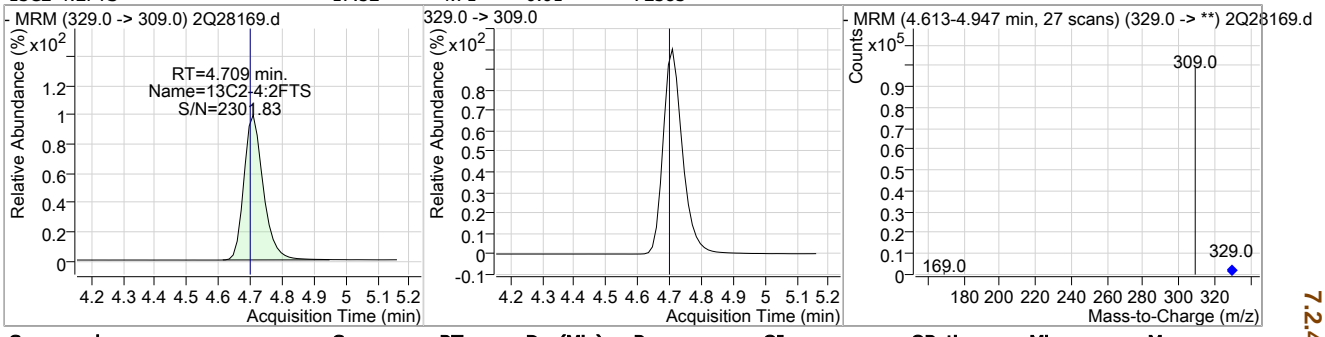


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.70	3.79	0.00	21043				

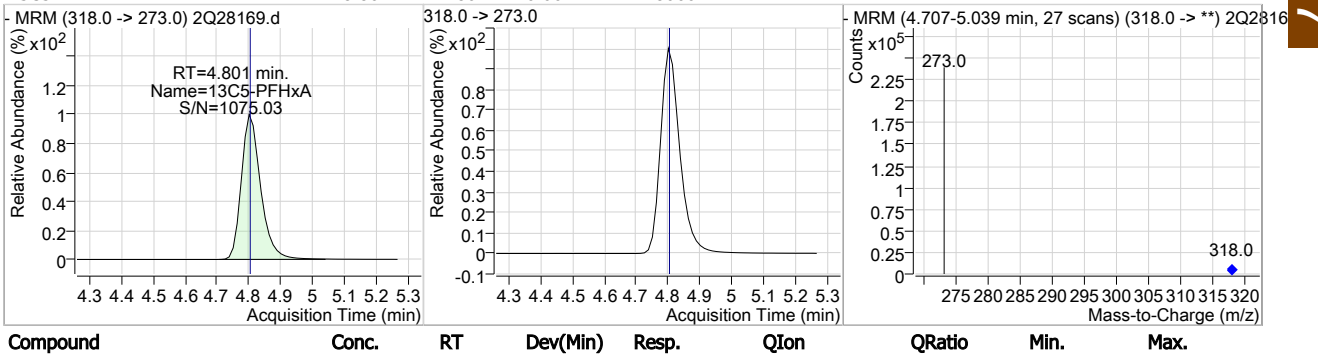


Perfluorinated Compounds by LC/MS/MS

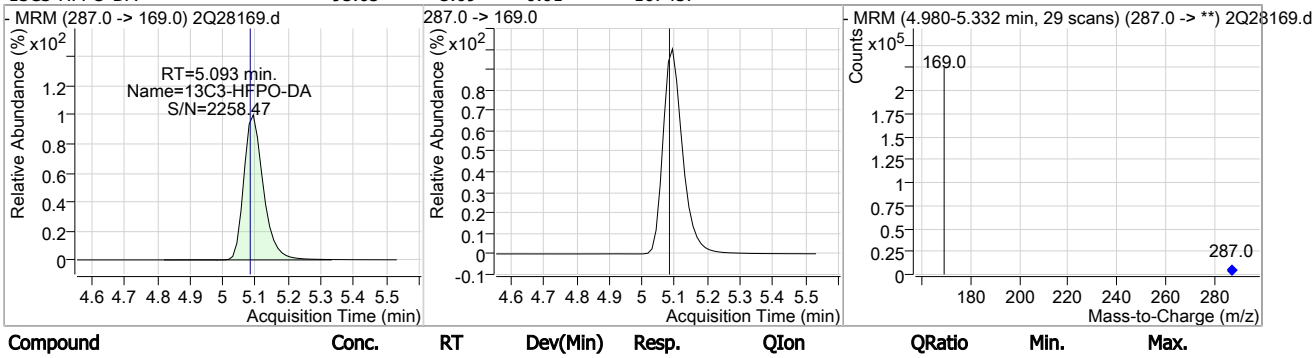
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.52	4.71	0.01	72383				



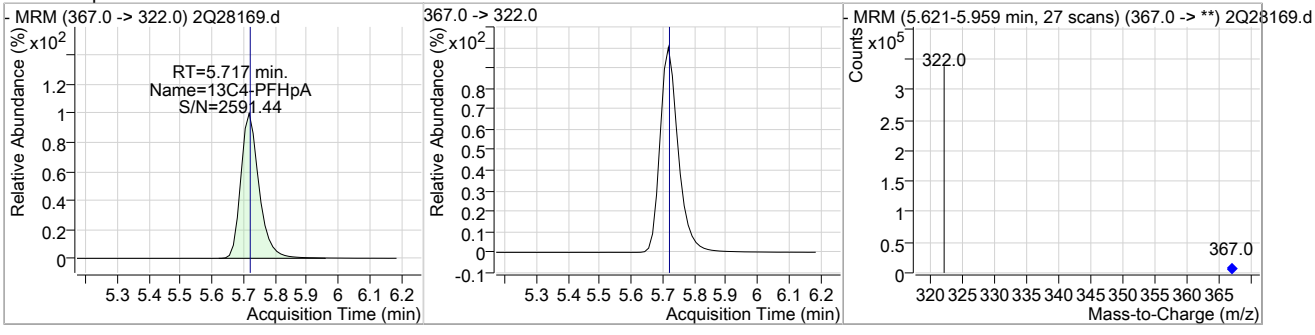
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.86	4.80	0.00	178060				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	95.65	5.09	0.01	167457				



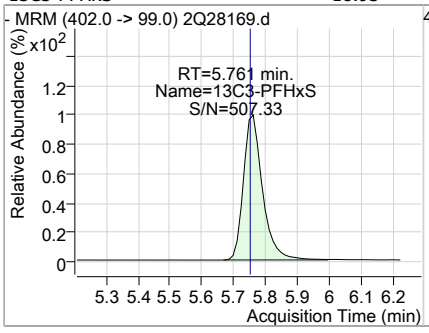
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.95	5.72	0.00	251933				

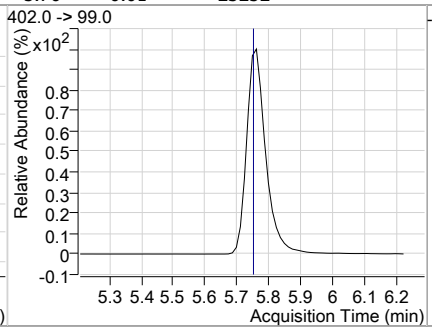


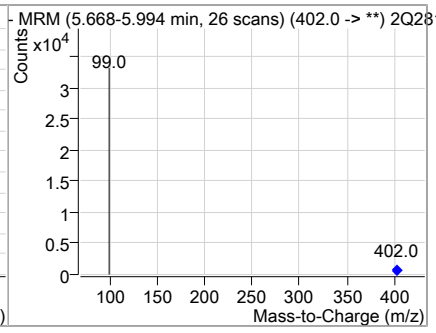
7.2.4

Perfluorinated Compounds by LC/MS/MS

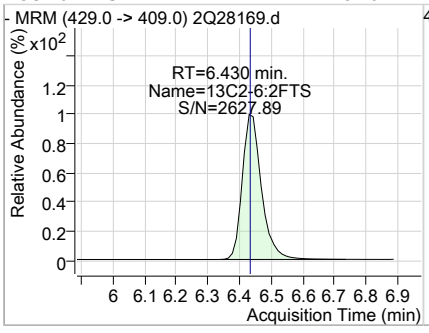
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.93	5.76	0.01	23252				

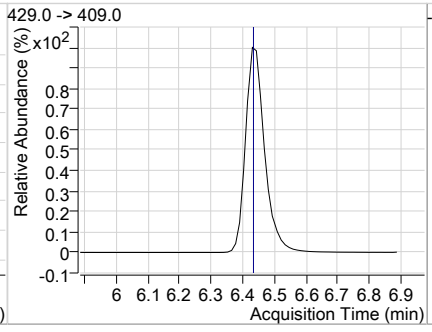


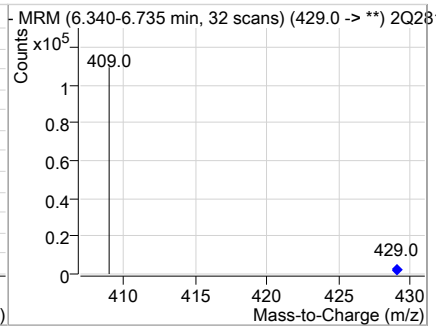




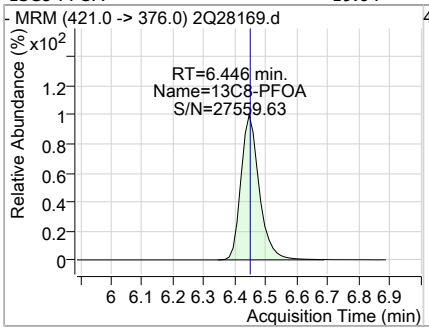
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.40	6.43	0.00	83563				

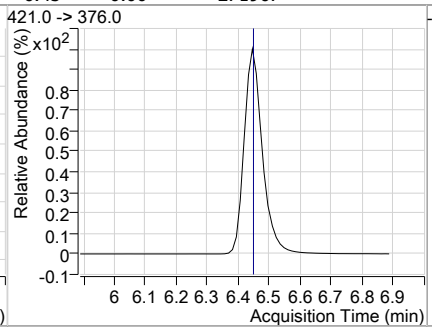


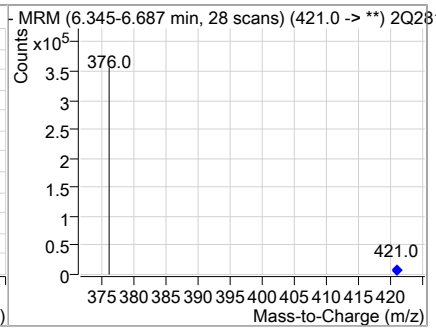




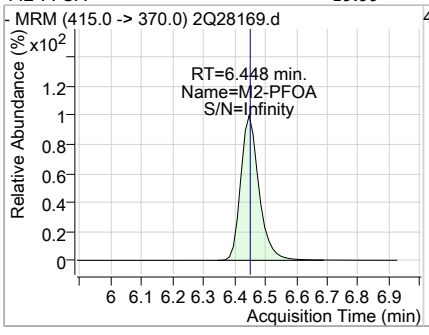
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.64	6.45	0.00	271967				

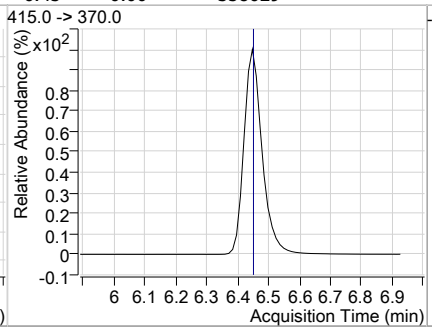


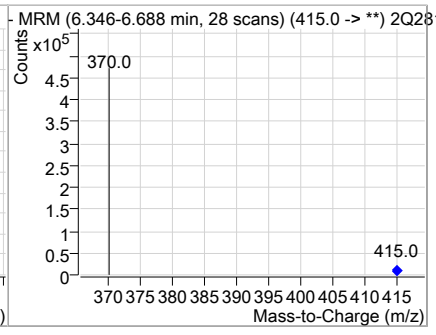




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.45	0.00	358629				

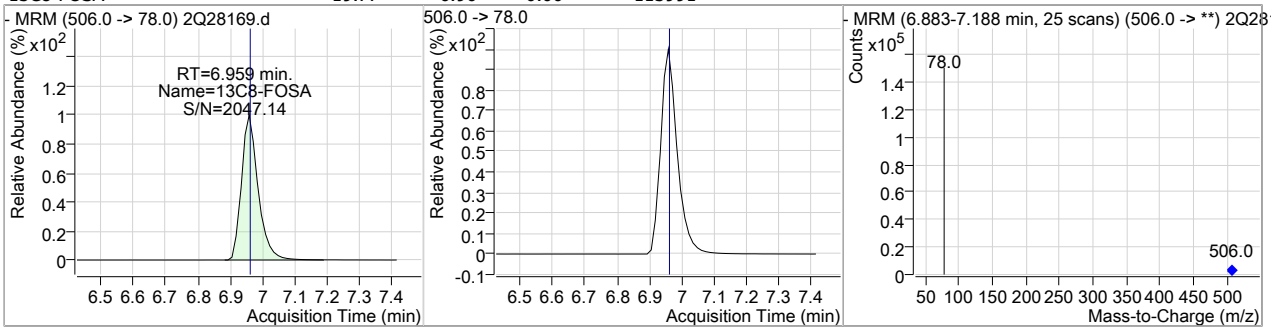




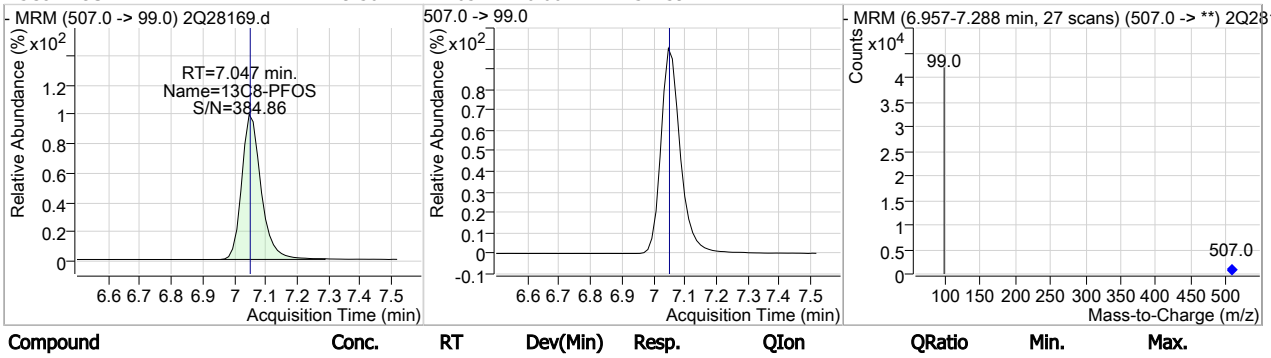


Perfluorinated Compounds by LC/MS/MS

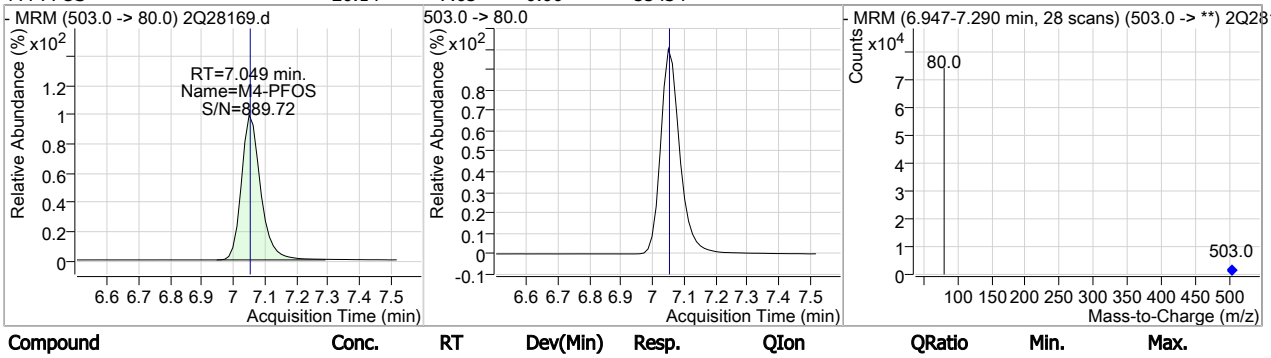
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.77	6.96	0.00	113991				



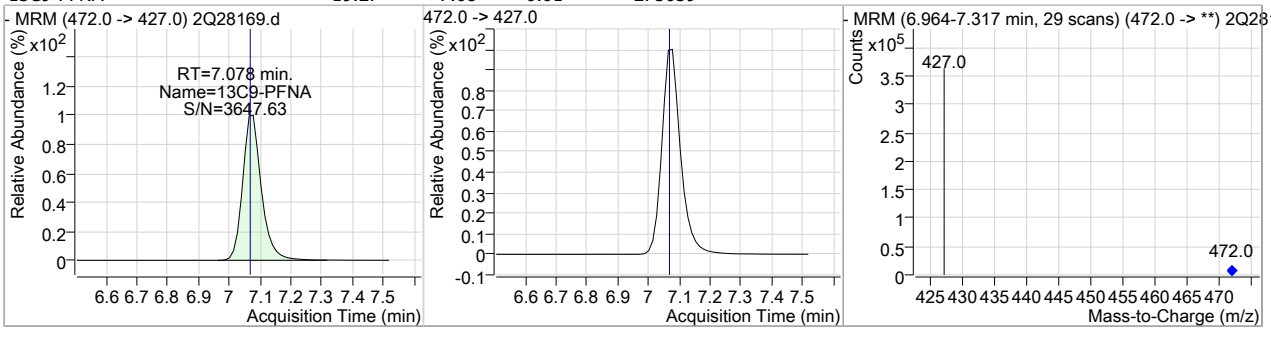
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.50	7.05	0.00	31259				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.14	7.05	0.00	55434				



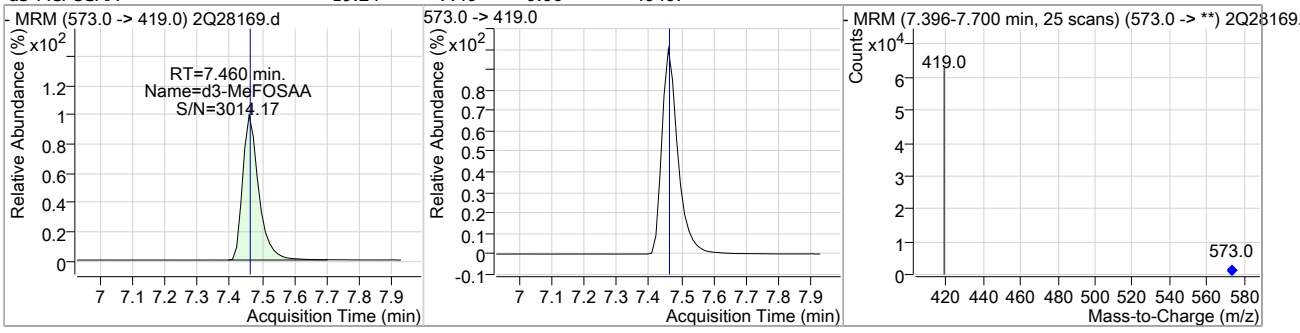
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.27	7.08	0.01	275659				



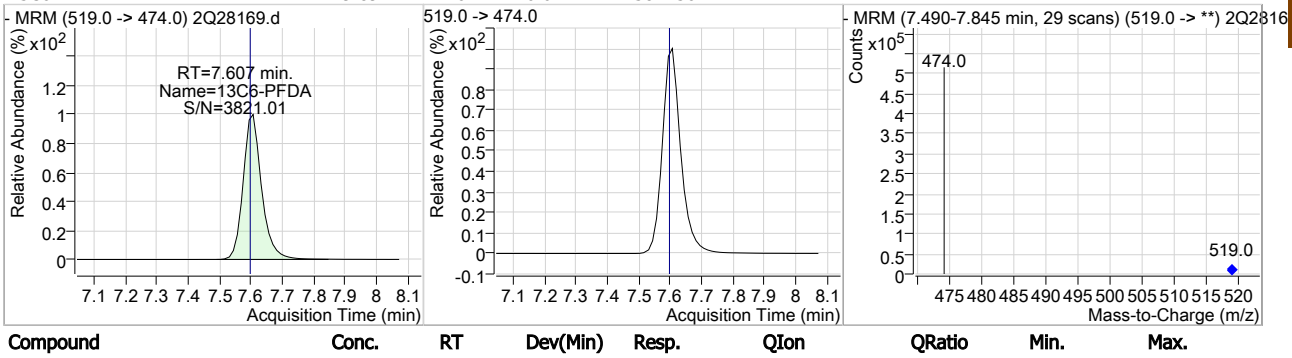
7.2.4

Perfluorinated Compounds by LC/MS/MS

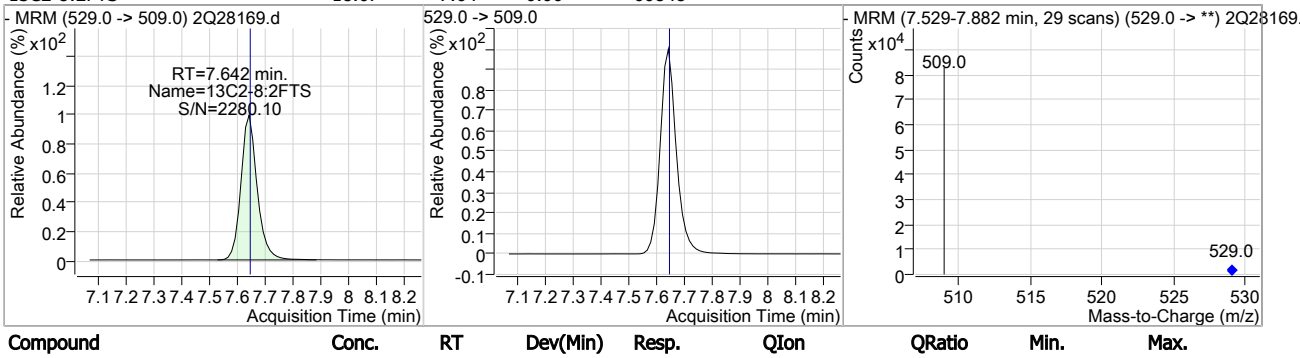
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.24	7.46	0.00	46407				



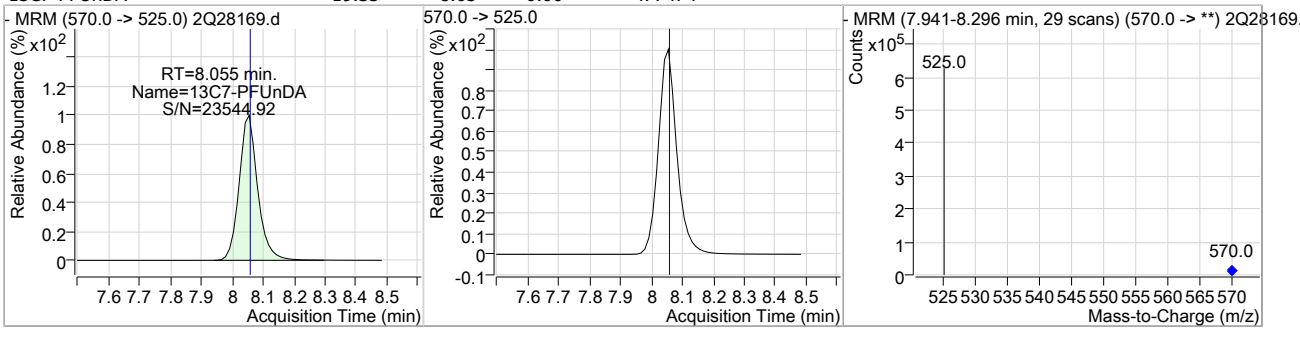
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.89	7.61	0.01	387156				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.07	7.64	0.00	60848				



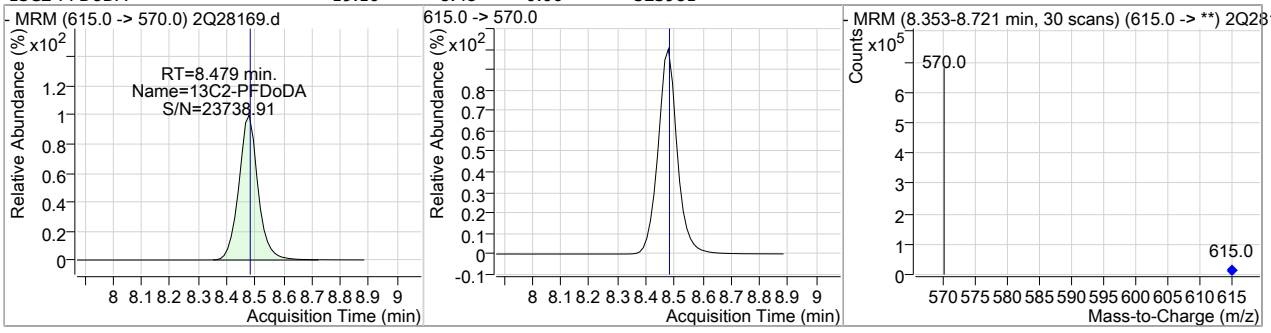
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.33	8.05	0.00	477474				



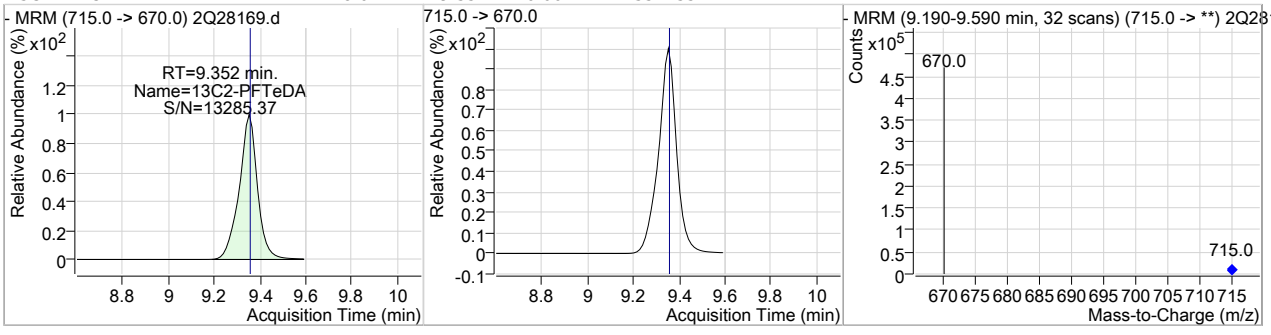
7.2.4

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.10	8.48	0.00	523981				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.61	9.35	0.00	351455				



7.2.4

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/26/19 08:32

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28057.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/24/2019 10:25:55 PM
Sample Name : op74263-bs
Vial : Vial 41
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74263,S2Q447,130,,,1.0,1,water

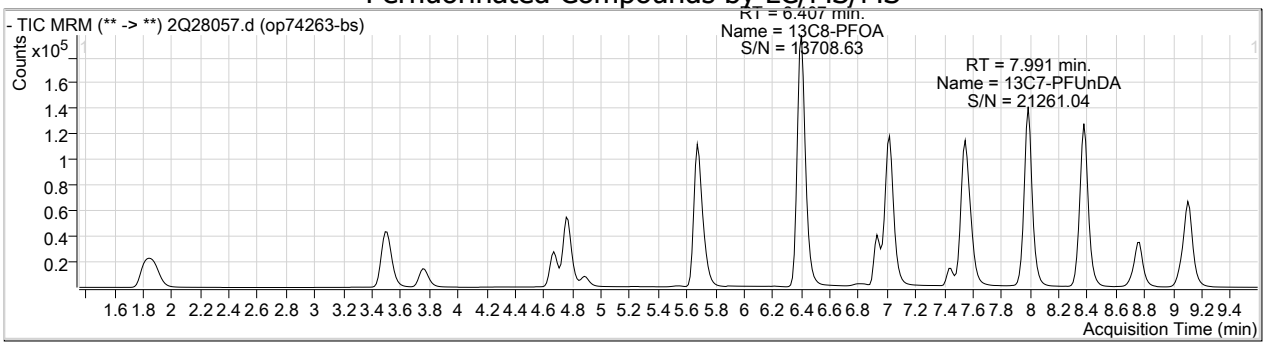
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	296131	20.00	µg/L	0.012
13C4-PFOS	7.011	503.0 -> 80.0	53524	20.00	µg/L	0.013
M4-PFBA	1.840	217.0 -> 172.0	154063	20.00	µg/L	-0.013
M5-PFPeA	3.499	268.0 -> 223.0	121279	20.00	µg/L	0.000
M5-PFHxA	4.763	318.0 -> 273.0	162752	20.00	µg/L	0.000
M4-PFHpA	5.680	367.0 -> 322.0	224635	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	228396	20.00	µg/L	0.012
M9-PFNA	7.027	472.0 -> 427.0	223220	20.00	µg/L	0.013
M6-PFDA	7.556	519.0 -> 474.0	284108	20.00	µg/L	0.014
M7-PFUnDA	7.991	570.0 -> 525.0	372427	20.00	µg/L	0.000
M2-PFDoDA	8.378	615.0 -> 570.0	356666	20.00	µg/L	0.002
M2-PFTeDA	9.102	715.0 -> 670.0	191006	20.00	µg/L	0.000
M8-FOSA	6.933	506.0 -> 78.0	97165	20.00	µg/L	0.015
M3-PFBS	3.755	302.0 -> 99.0	22210	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	23818	20.00	µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	29095	20.00	µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	63816	20.00	µg/L	0.000
M2-6:2FTS	6.390	429.0 -> 409.0	65586	20.00	µg/L	0.000
M2-8:2FTS	7.592	529.0 -> 509.0	42476	20.00	µg/L	0.012
M3-MeFOSAA	7.434	573.0 -> 419.0	30670	20.00	µg/L	0.000
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	63785	22.41	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.1%		
13C2-6:2FTS	6.390	429.0 -> 409.0	65587	21.76	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.8%		
13C2-8:2FTS	7.592	529.0 -> 509.0	42465	19.54	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C2-PFDoDA	8.378	615.0 -> 570.0	356614	19.84	µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C2-PFTeDA	9.102	715.0 -> 670.0	190584	16.02	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.1%		
13C3-PFBS	3.755	302.0 -> 99.0	22201	21.64	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.2%		
13C3-PFHxS	5.723	402.0 -> 99.0	23819	21.43	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.2%		
13C4-PFBA	1.840	217.0 -> 172.0	153591	23.49	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.5%		
13C4-PFHpA	5.680	367.0 -> 322.0	224521	21.72	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.6%		
13C5-PFHxA	4.763	318.0 -> 273.0	162698	21.95	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.8%		
13C5-PFPeA	3.499	268.0 -> 223.0	121272	22.04	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.2%		
13C6-PFDA	7.556	519.0 -> 474.0	283892	20.65	µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

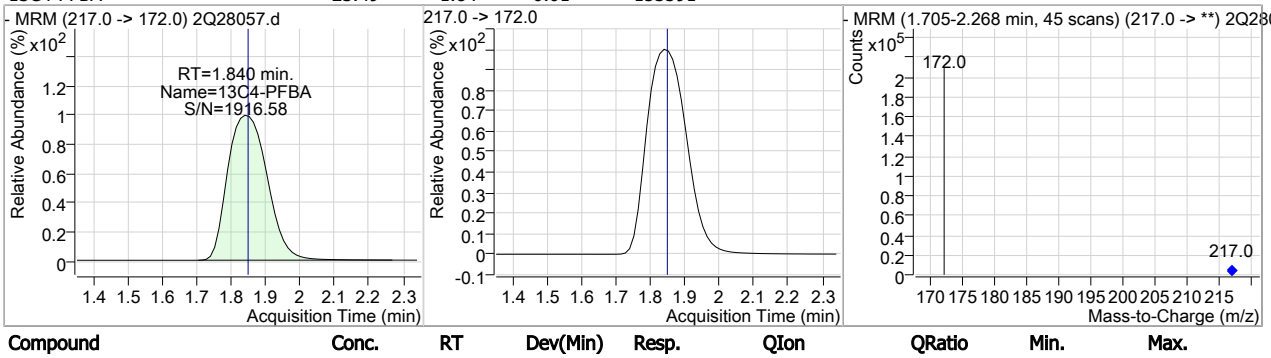
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C7-PFUnDA	7.991	570.0 -> 525.0	372251	21.42 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.1%		
13C8-FOSA	6.933	506.0 -> 78.0	97156	21.66 µg/L		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.3%		
13C8-PFOA	6.407	421.0 -> 376.0	228162	22.14 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.7%		
13C8-PFOS	7.008	507.0 -> 99.0	29084	20.34 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C9-PFNA	7.027	472.0 -> 427.0	223293	21.42 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.1%		
d3-MeFOSAA	7.434	573.0 -> 419.0	30633	17.47 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.3%		
M2-PFOA	6.409	415.0 -> 370.0	296180	19.99 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.011	503.0 -> 80.0	53553	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	36129	19.25 µg/L		100
6:2FTS	6.392	427.0 -> 407.0	31662	19.14 µg/L		99
8:2FTS	7.593	527.0 -> 507.0	21672	19.34 µg/L		98
EtFOSAA	7.585	584.0 -> 419.0	12966	19.42 µg/L		98
FOSA	6.937	498.0 -> 78.0	43608	19.48 µg/L		100
MeFOSAA	7.447	570.0 -> 419.0	15667	19.43 µg/L		99
PFBA	1.848	213.0 -> 169.0	28989	19.25 µg/L		100
PFBS	3.758	299.0 -> 80.0	34738	19.30 µg/L		99
PFDA	7.557	513.0 -> 469.0	115374	18.73 µg/L		99
PFDoDA	8.380	613.0 -> 569.0	161857	19.78 µg/L		100
PFDS	7.951	599.0 -> 80.0	7924	16.09 µg/L		99
PFHpA	5.683	363.0 -> 319.0	197397	19.60 µg/L		100
PFHpS	6.413	449.0 -> 80.0	22155	19.90 µg/L		97
PFHxA	4.765	313.0 -> 269.0	54416	19.18 µg/L		99
PFHxS	5.726	399.0 -> 80.0	24947	18.95 µg/L	m	99
PFNA	7.028	463.0 -> 419.0	136499	18.61 µg/L		99
PFNS	7.527	549.0 -> 80.0	16525	16.65 µg/L		100
PFOA	6.411	413.0 -> 369.0	117547	19.16 µg/L		100
PFOS	7.012	499.0 -> 80.0	27558	19.25 µg/L	m	100
PFPeA	3.502	263.0 -> 219.0	103748	19.18 µg/L		100
PFPeS	4.883	349.0 -> 80.0	22349	19.40 µg/L		99
PFTeDA	9.106	713.0 -> 669.0	132609	20.25 µg/L		100
PFTrDA	8.769	663.0 -> 619.0	153083	20.71 µg/L		100
PFUnDA	7.992	563.0 -> 519.0	151663	19.63 µg/L		100
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

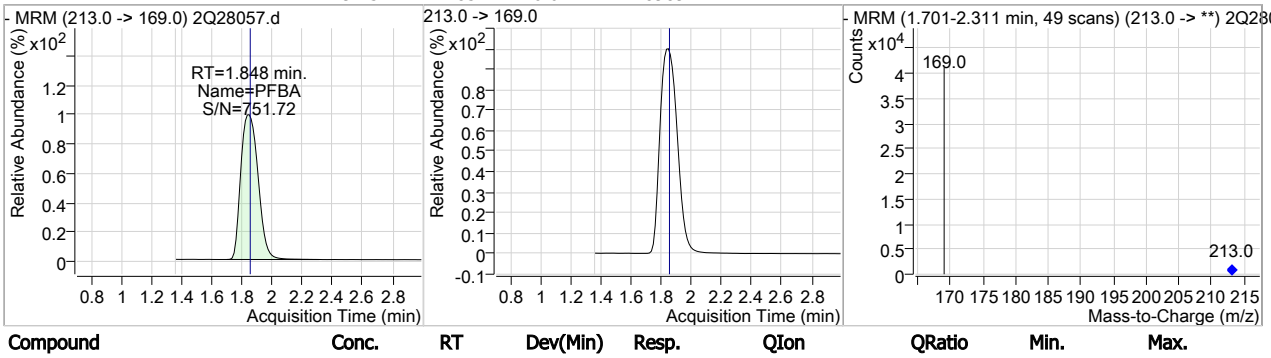
Perfluorinated Compounds by LC/MS/MS



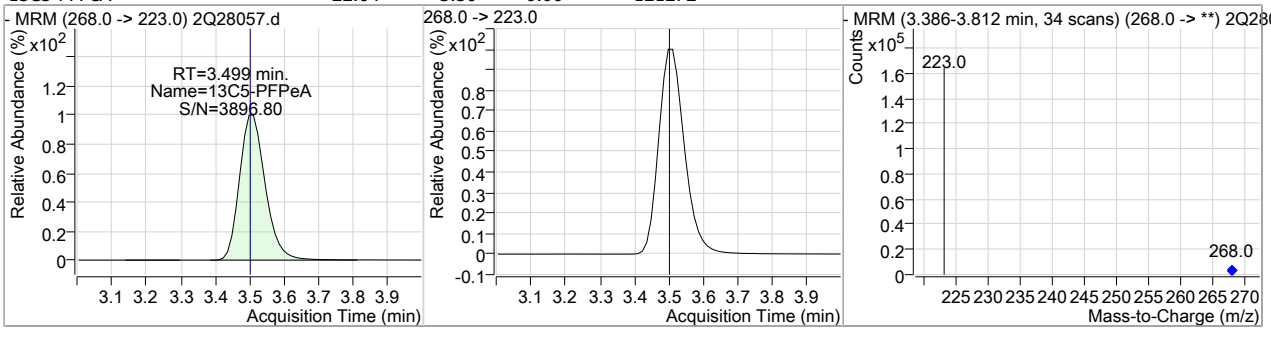
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	23.49	1.84	-0.01	153591				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.25	1.85	-0.01	28989				

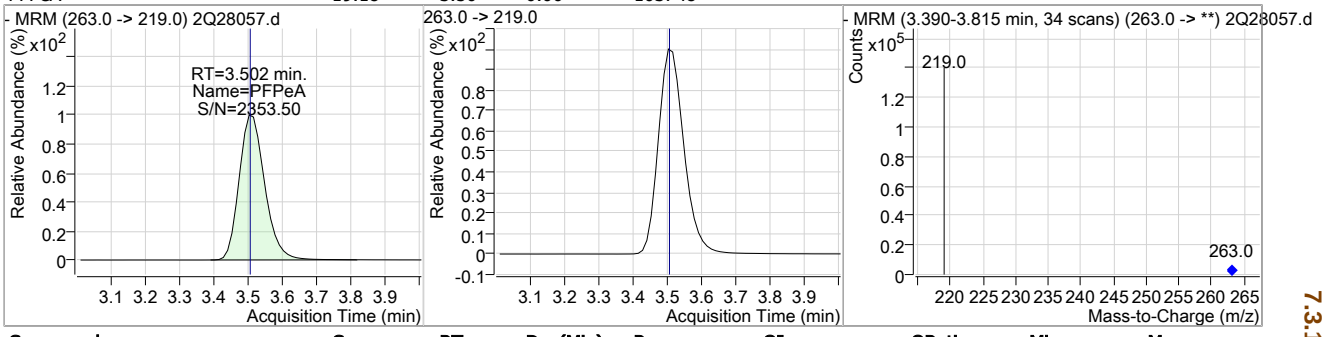


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	22.04	3.50	0.00	121272				

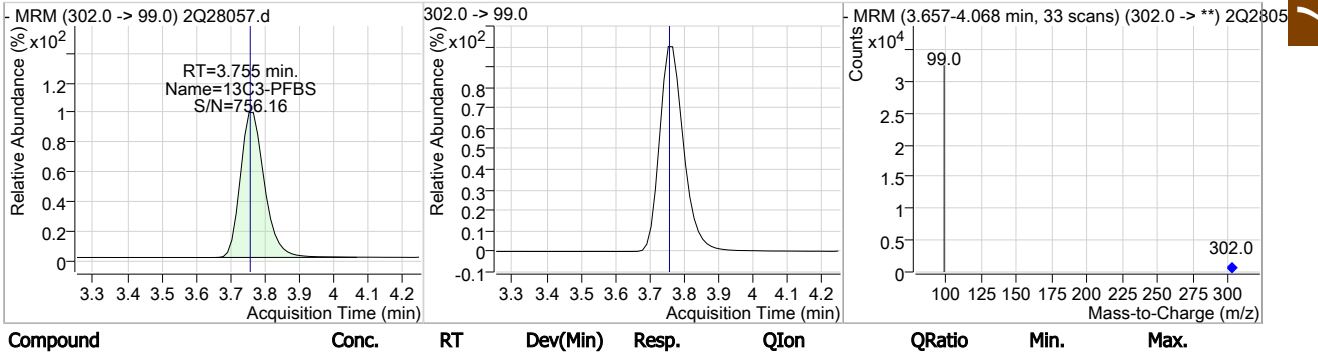


Perfluorinated Compounds by LC/MS/MS

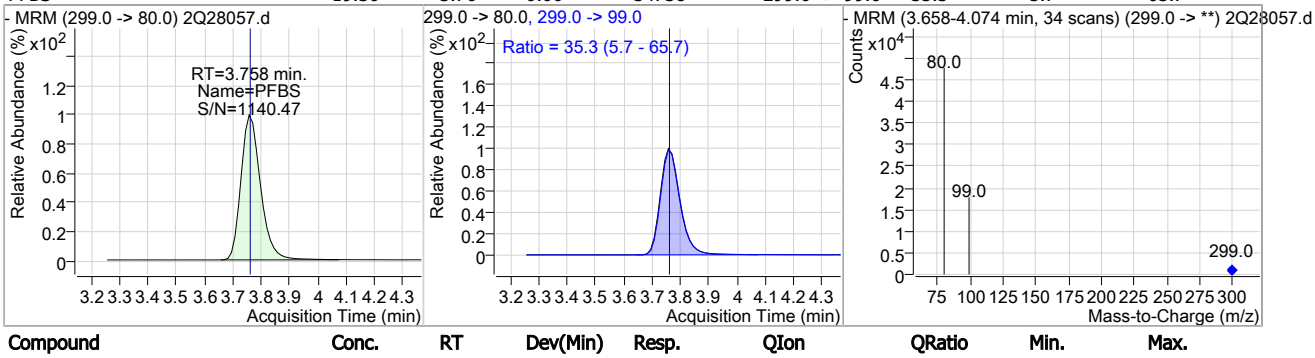
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.18	3.50	0.00	103748				



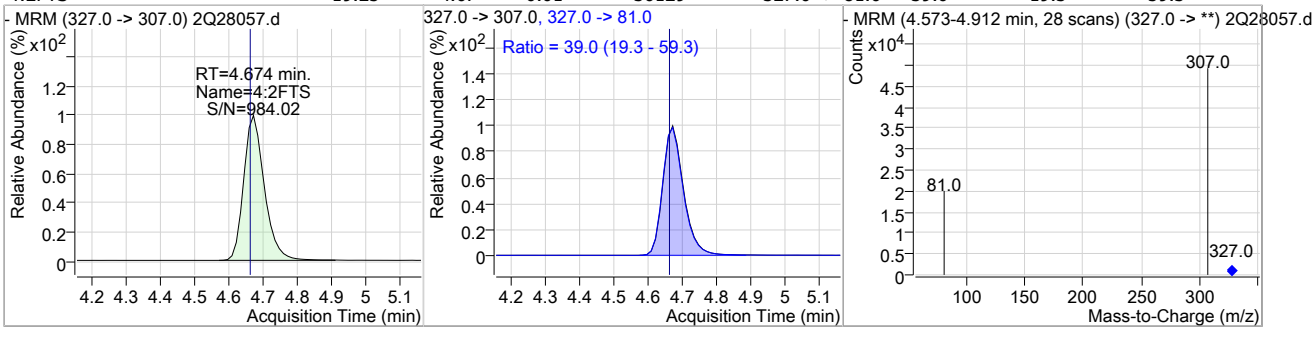
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	21.64	3.75	0.00	22201				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.30	3.76	0.00	34738	299.0 -> 99.0	35.3	5.7	65.7



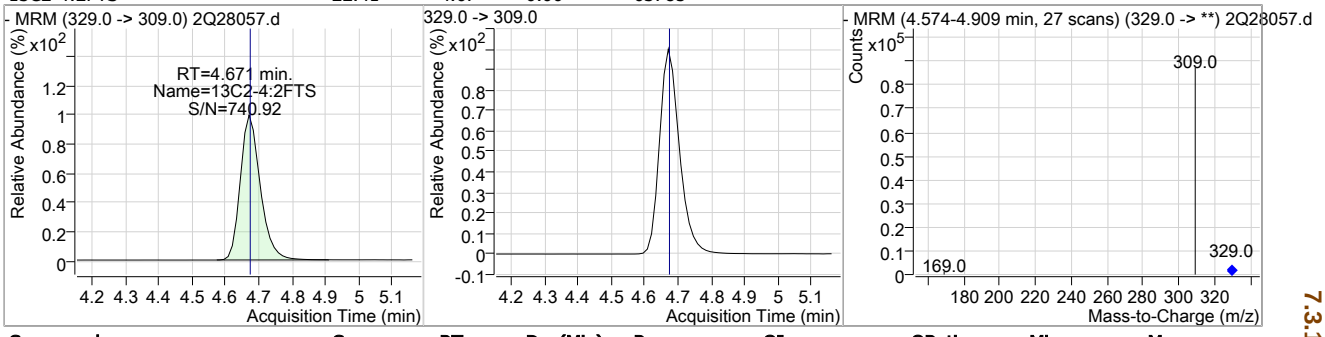
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.25	4.67	0.01	36129	327.0 -> 81.0	39.0	19.3	59.3



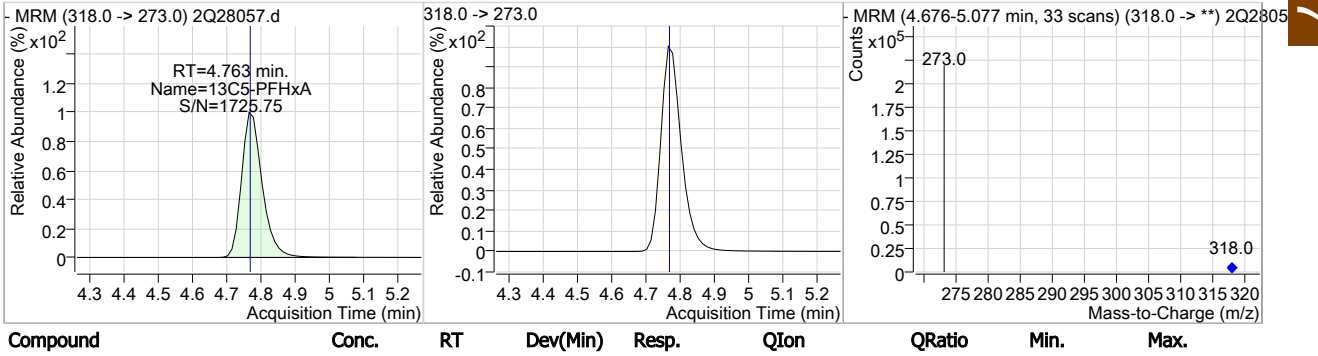
7.3.1

Perfluorinated Compounds by LC/MS/MS

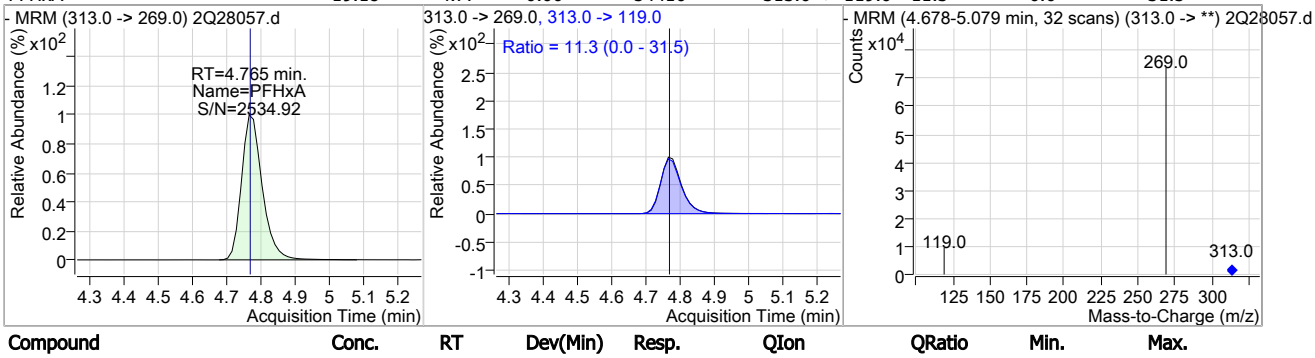
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	22.41	4.67	0.00	63785				



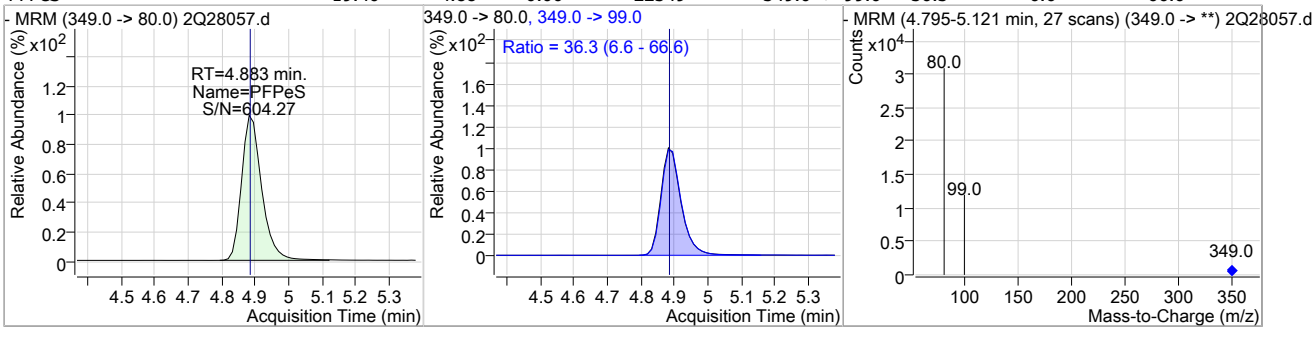
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.95	4.76	0.00	162698				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.18	4.77	0.00	54416	313.0 -> 119.0	11.3	0.0	31.5

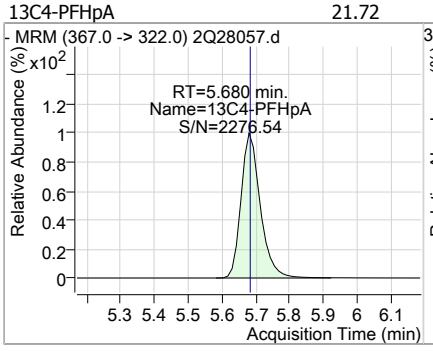


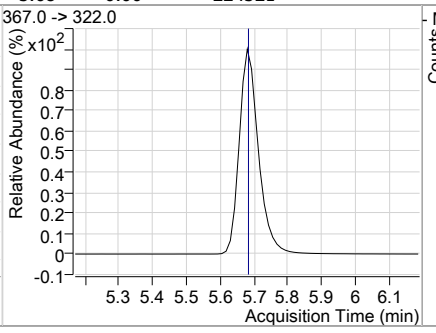
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.40	4.88	0.00	22349	349.0 -> 99.0	36.3	6.6	66.6

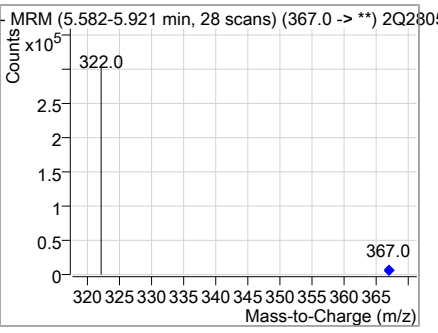


Perfluorinated Compounds by LC/MS/MS

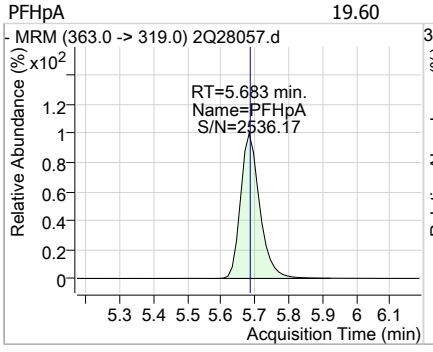
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.72	5.68	0.00	224521				

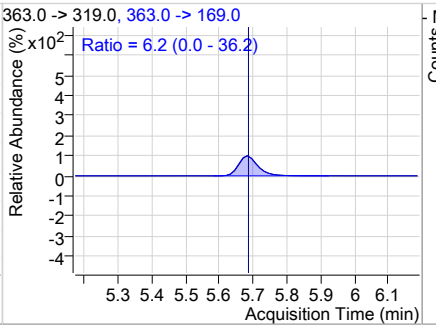


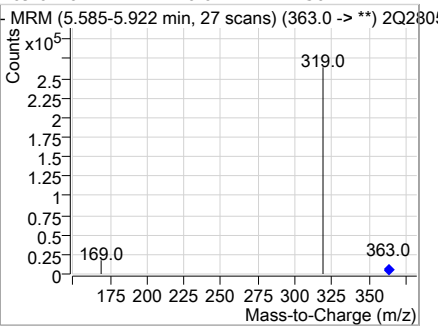




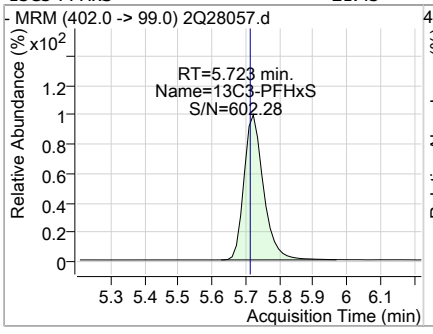
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.60	5.68	0.00	197397	363.0 -> 169.0	6.2	0.0	36.2

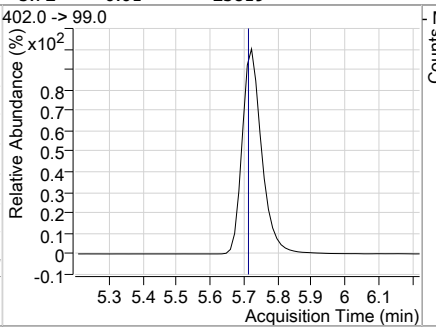


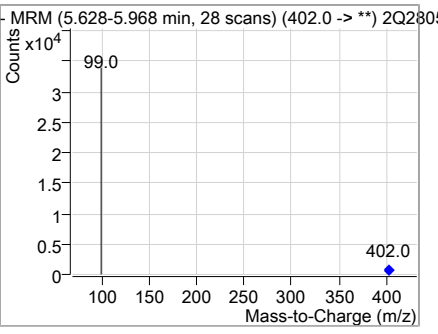




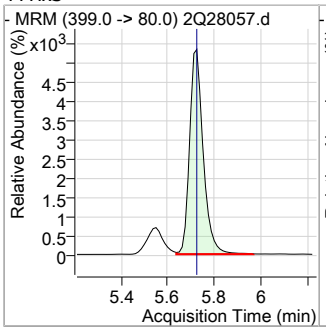
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.43	5.72	0.01	23819				

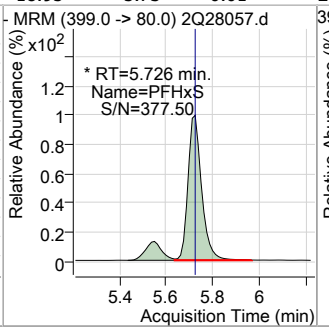


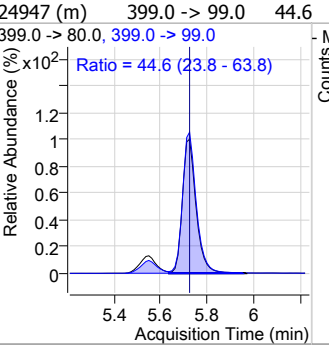


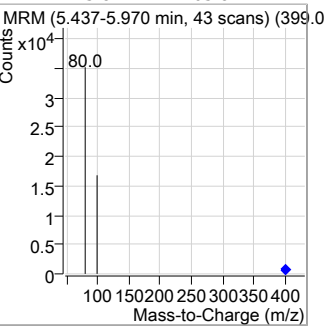


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.95	5.73	0.01	24947 (m)	399.0 -> 99.0	44.6	23.8	63.8



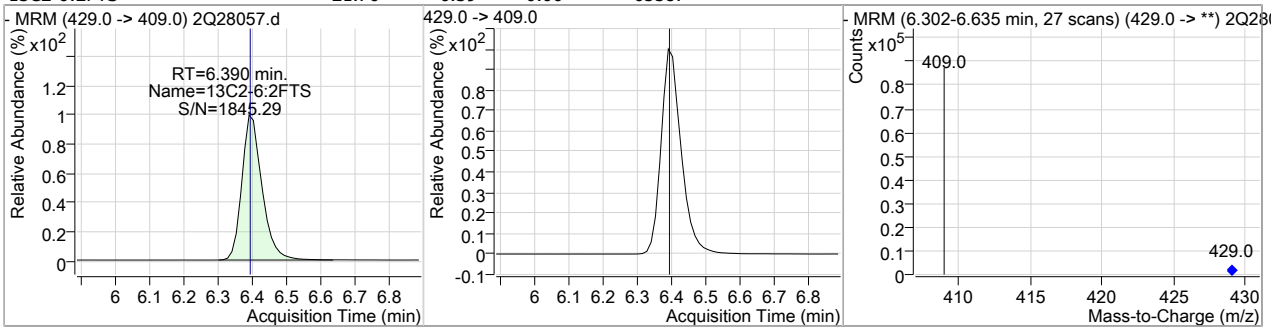




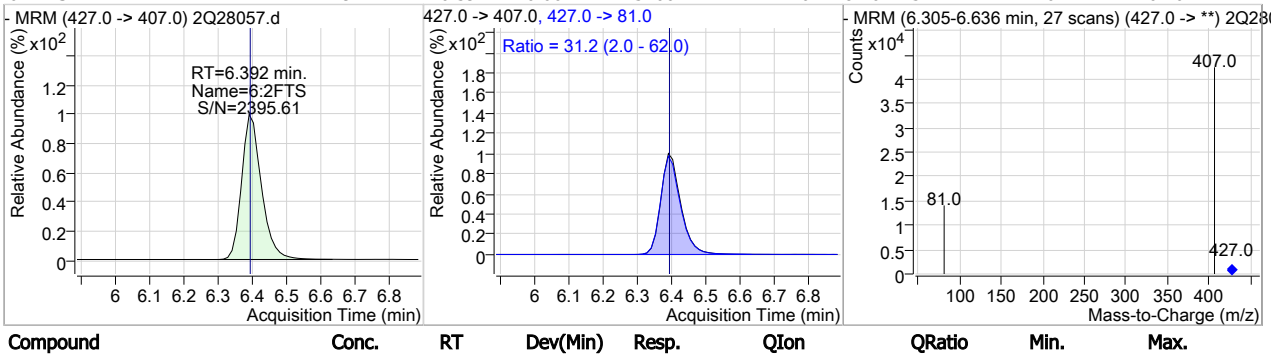


Perfluorinated Compounds by LC/MS/MS

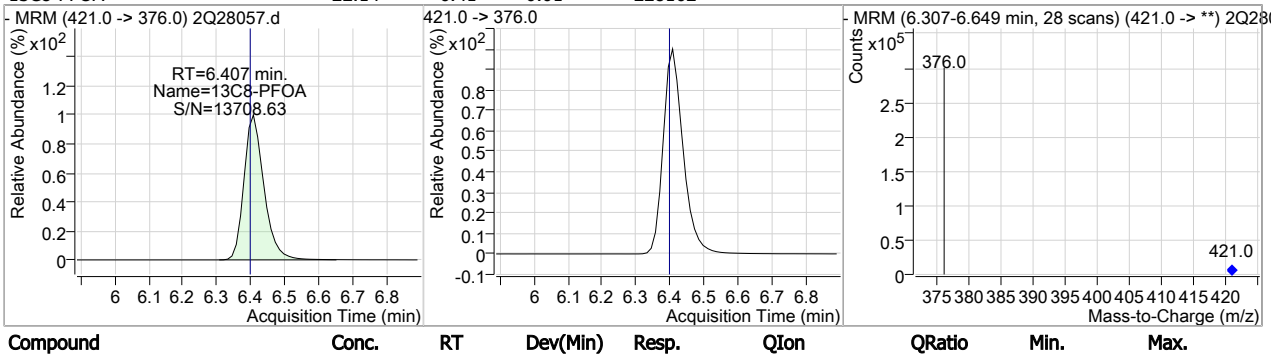
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.76	6.39	0.00	65587				



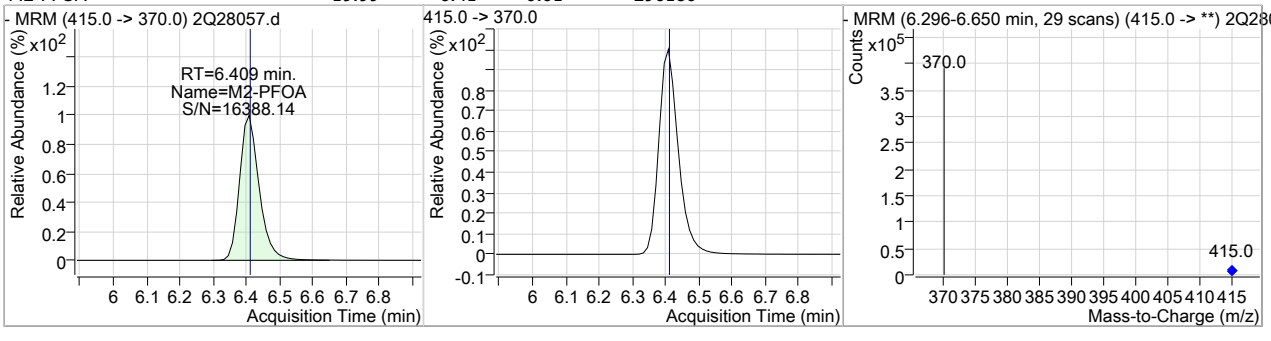
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.14	6.39	0.00	31662	427.0 -> 81.0	31.2	2.0	62.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	22.14	6.41	0.01	228162				



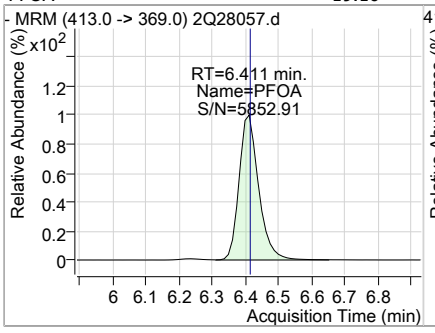
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.41	0.01	296180				

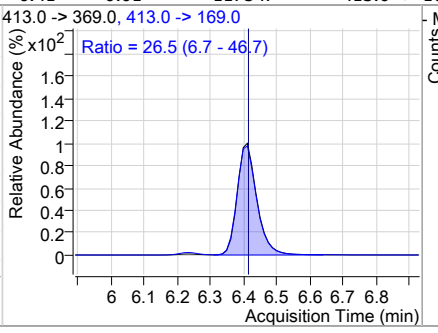


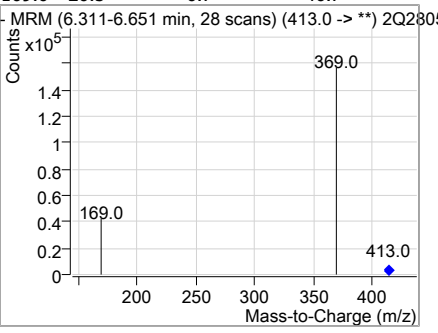
7.3.1

Perfluorinated Compounds by LC/MS/MS

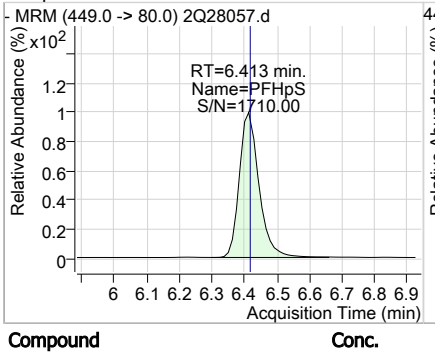
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.16	6.41	0.01	117547	413.0 -> 169.0	26.5	6.7	46.7

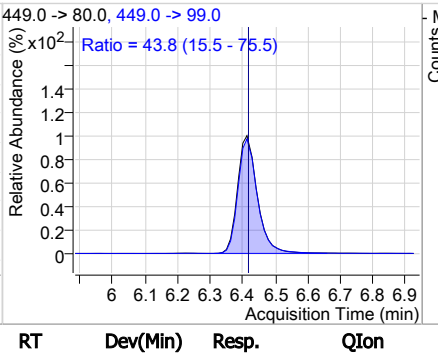


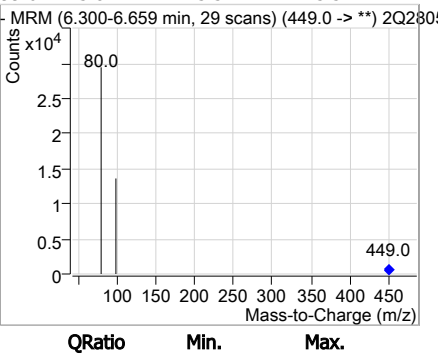




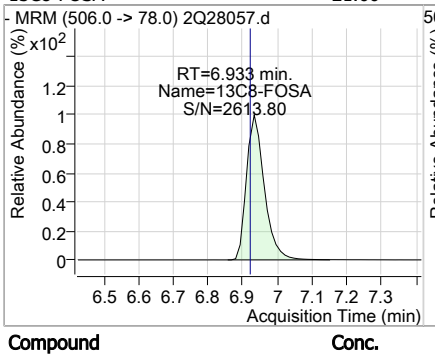
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.90	6.41	0.01	22155	449.0 -> 99.0	43.8	15.5	75.5

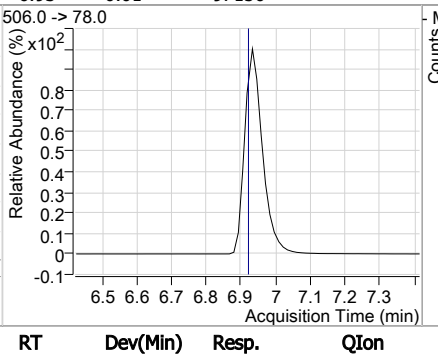


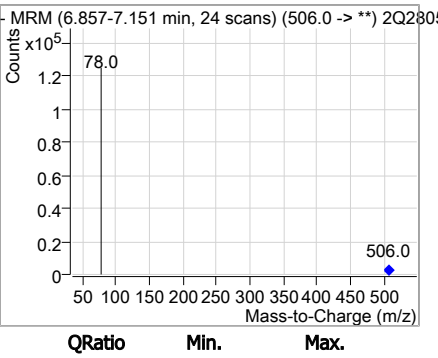




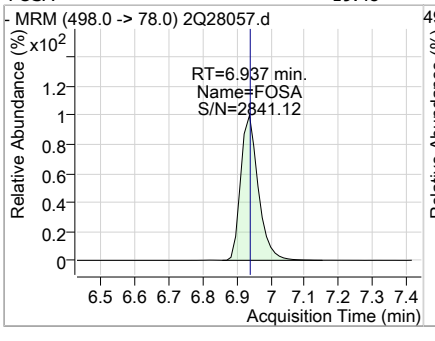
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.66	6.93	0.01	97156				

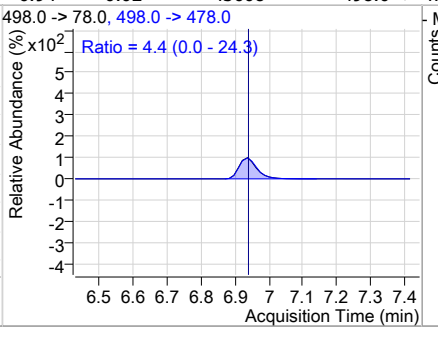


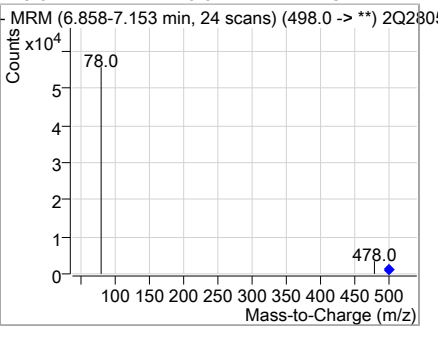




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.48	6.94	0.02	43608	498.0 -> 478.0	4.4	0.0	24.3

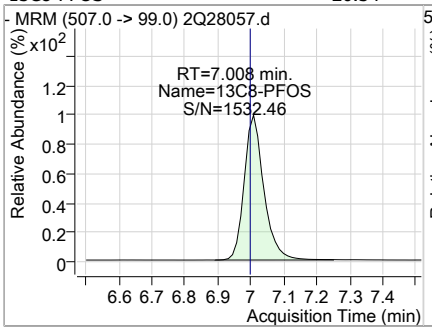


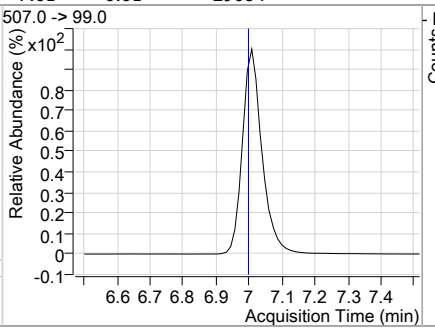


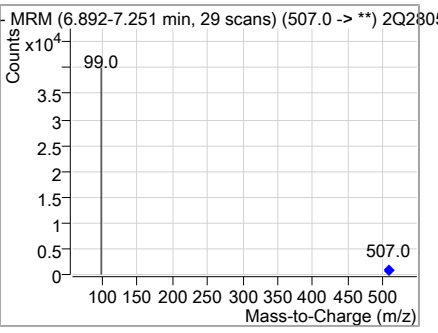


Perfluorinated Compounds by LC/MS/MS

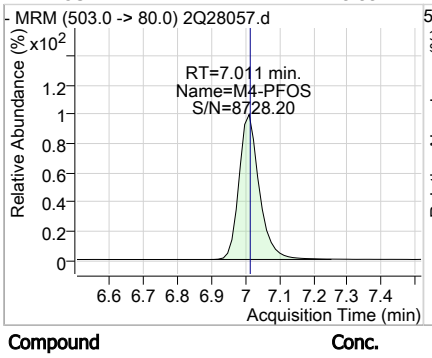
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.34	7.01	0.01	29084				

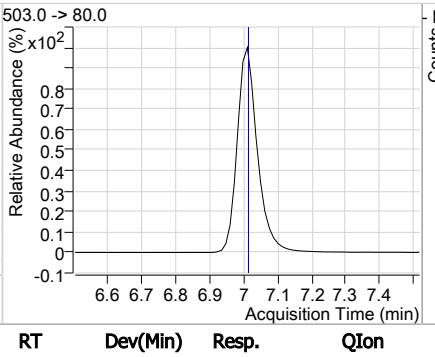


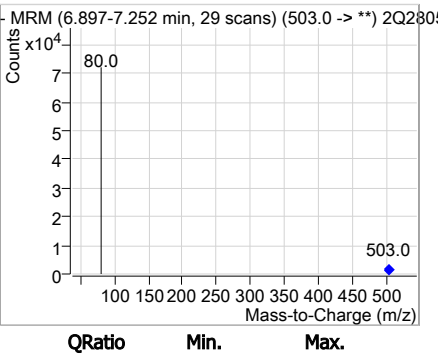




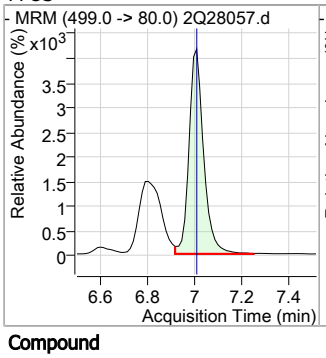
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.01	53553				

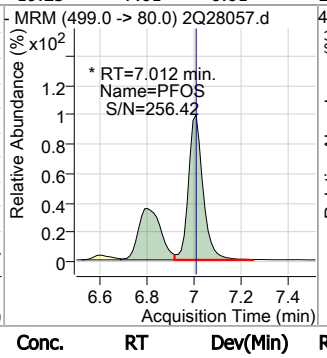


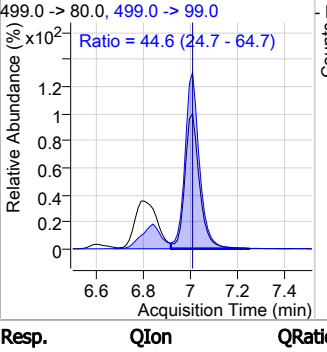


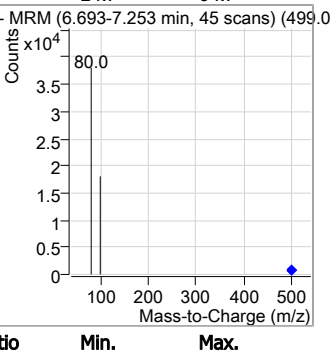


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.25	7.01	0.01	27558 (m)	499.0 -> 99.0	44.6	24.7	64.7

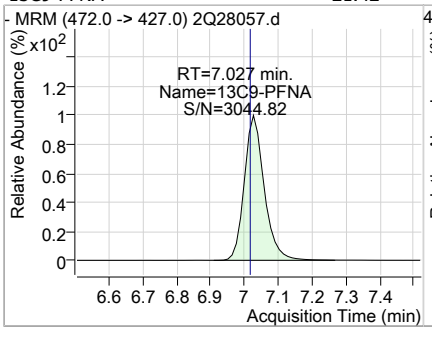


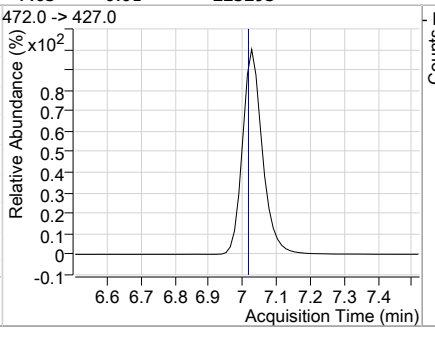


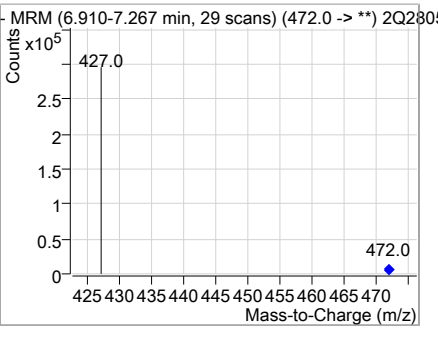




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.42	7.03	0.01	223293				

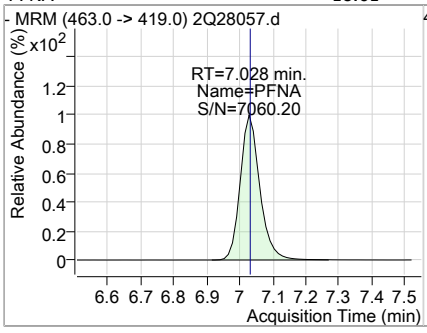


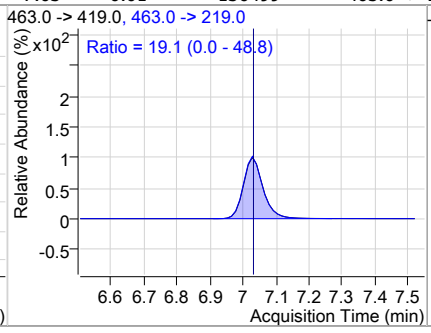


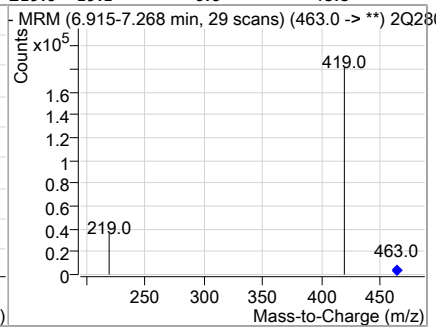


Perfluorinated Compounds by LC/MS/MS

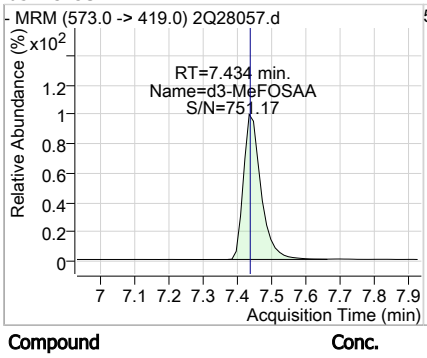
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.61	7.03	0.01	136499	463.0 -> 219.0	19.1	0.0	48.8

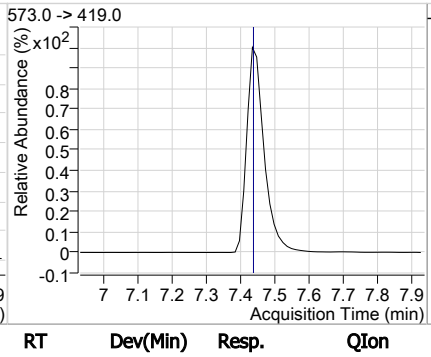


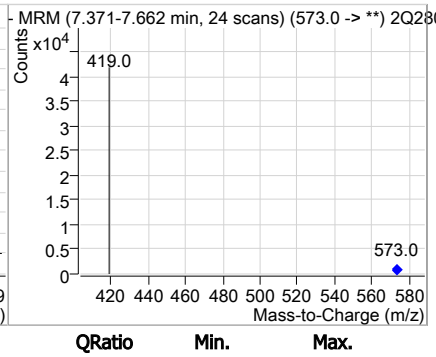




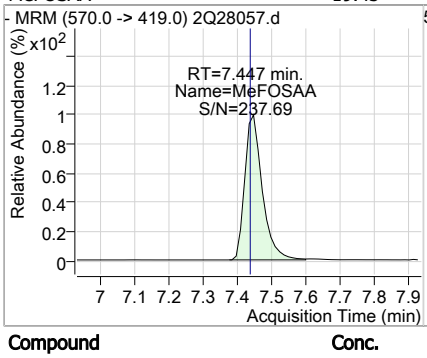
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	17.47	7.43	0.00	30633				

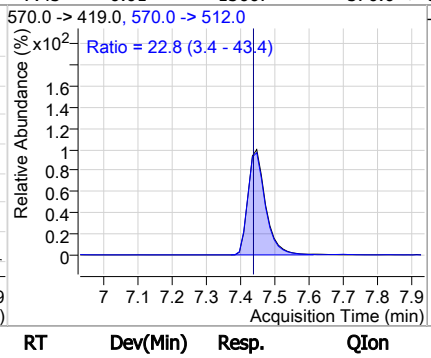


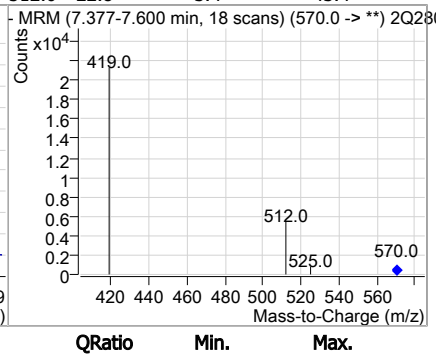




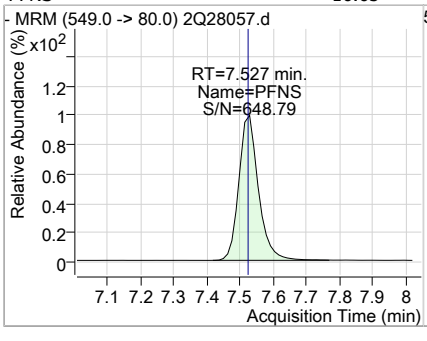
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.43	7.45	0.01	15667	570.0 -> 512.0	22.8	3.4	43.4

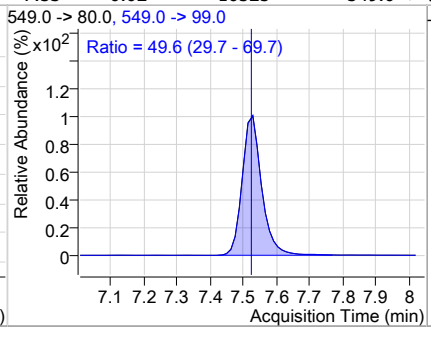


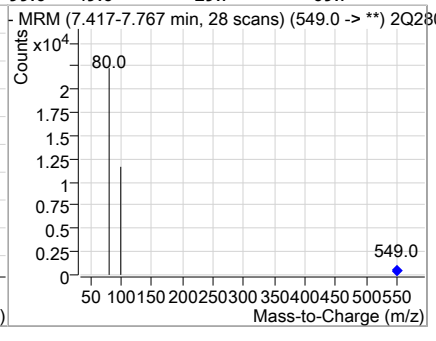




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	16.65	7.53	0.02	16525	549.0 -> 99.0	49.6	29.7	69.7

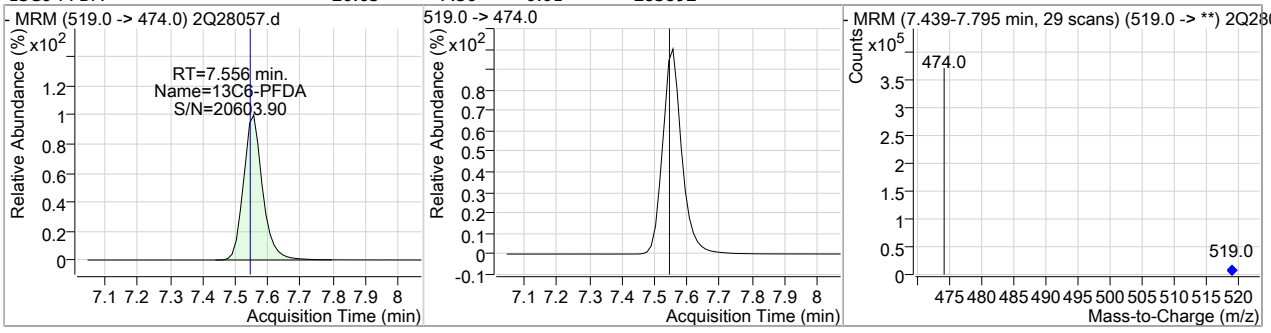




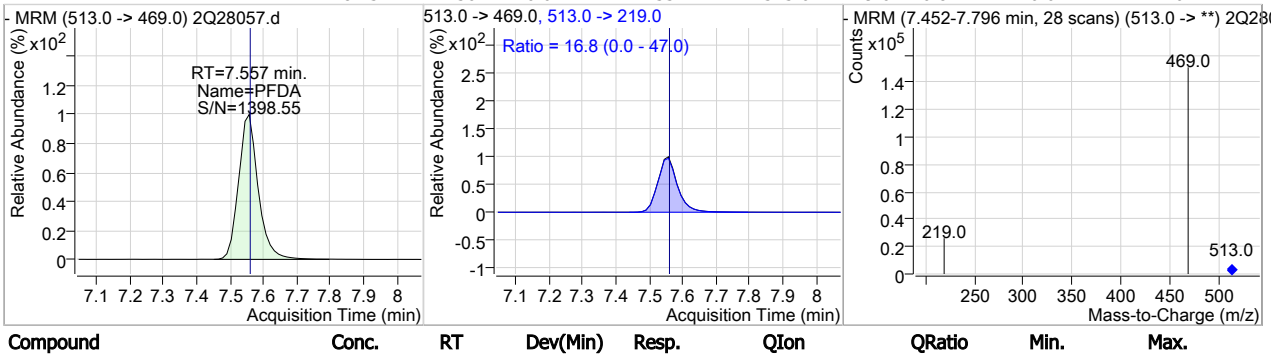


Perfluorinated Compounds by LC/MS/MS

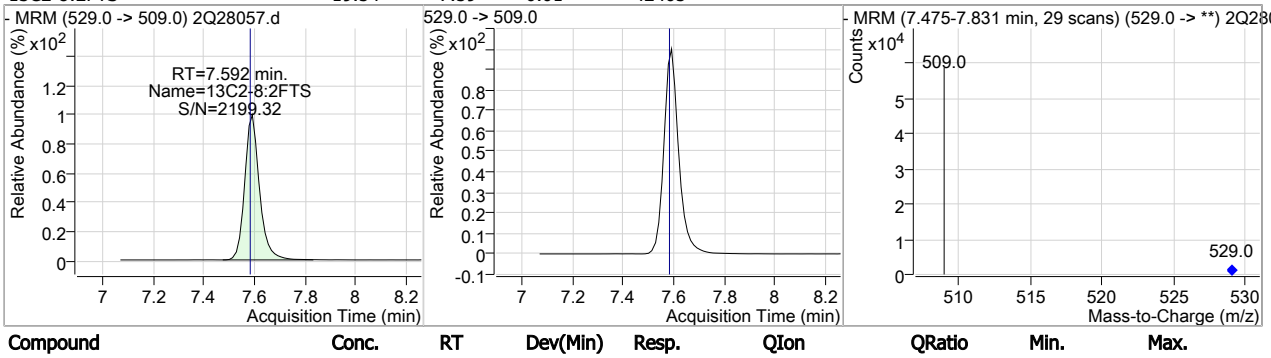
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.65	7.56	0.01	283892				



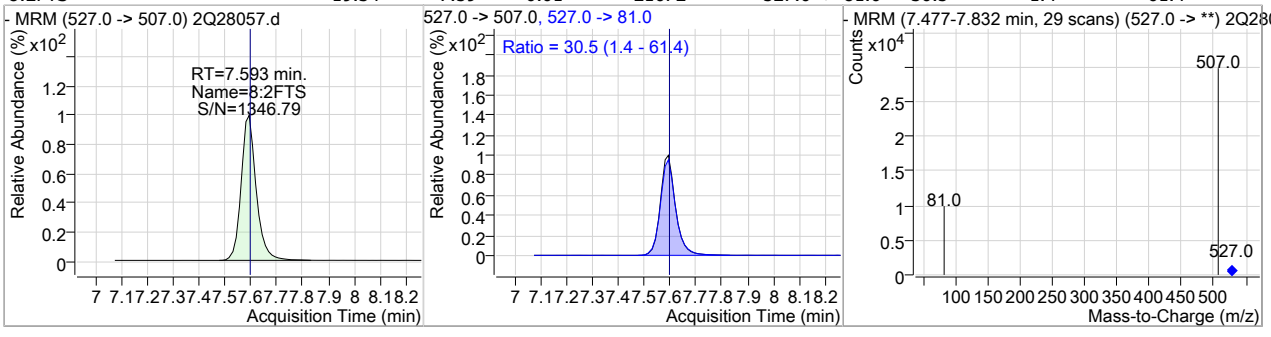
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.73	7.56	0.01	115374	513.0 -> 219.0	16.8	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.54	7.59	0.01	42465				



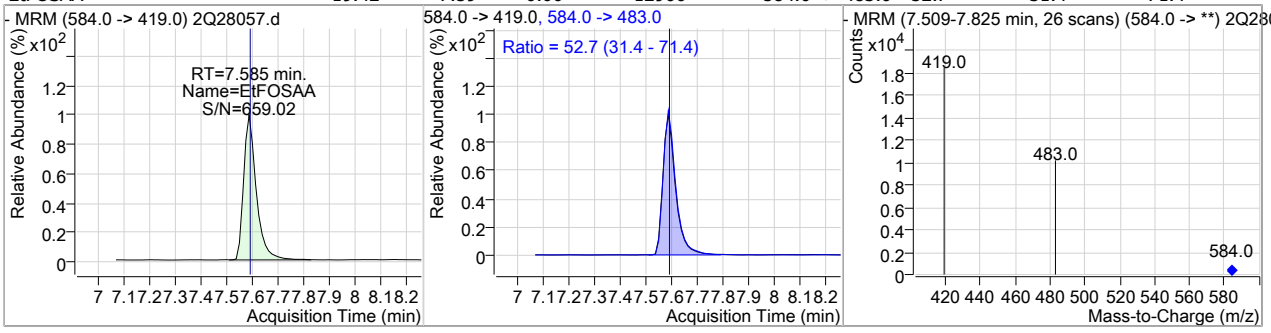
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.34	7.59	0.01	21672	527.0 -> 81.0	30.5	1.4	61.4



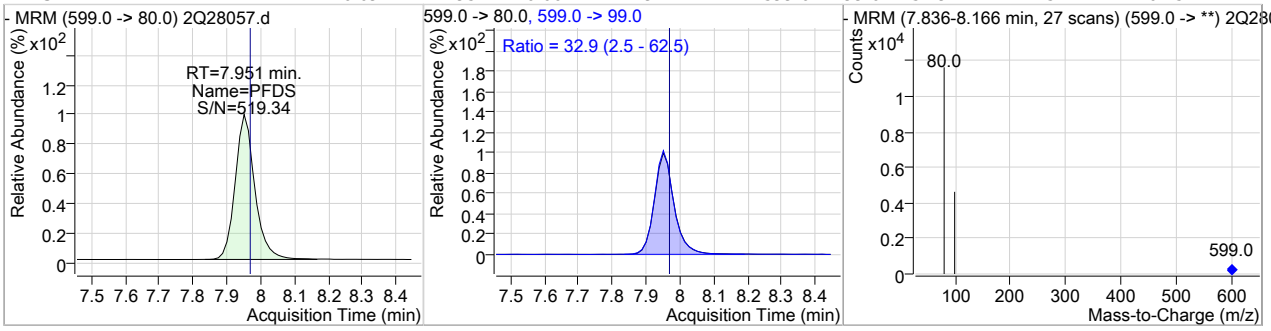
7.3.1

Perfluorinated Compounds by LC/MS/MS

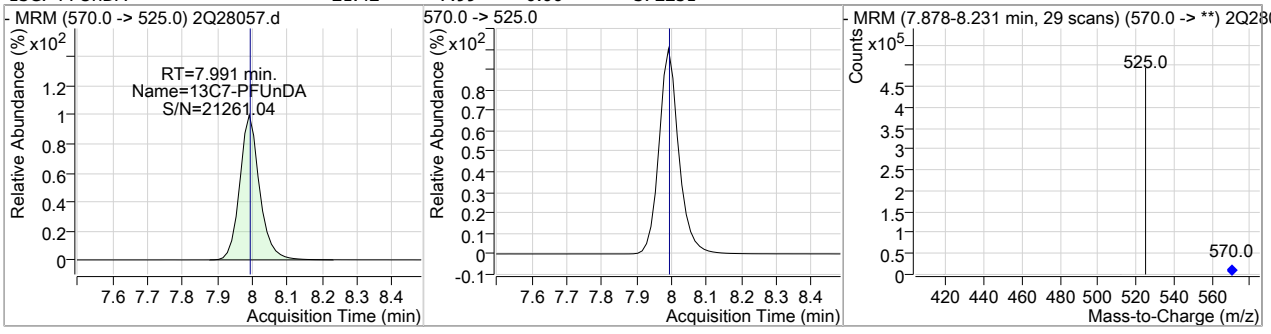
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.42	7.59	0.00	12966	584.0 -> 483.0	52.7	31.4	71.4



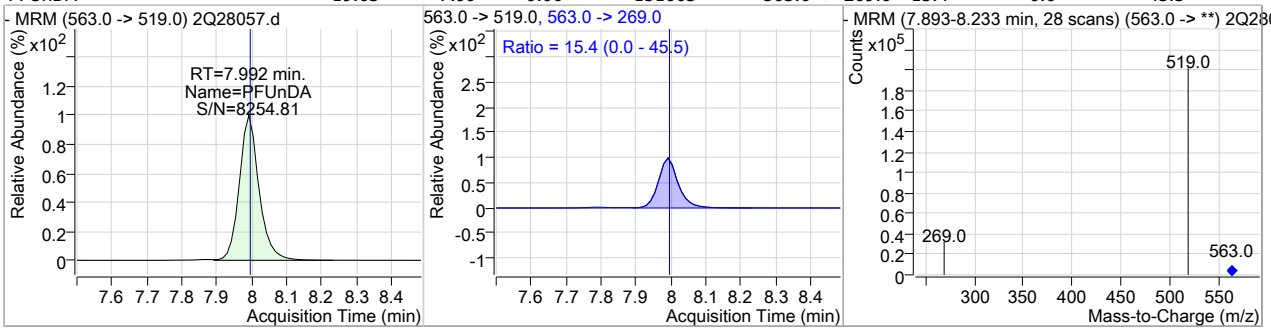
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	16.09	7.95	0.00	7924	599.0 -> 99.0	32.9	2.5	62.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	21.42	7.99	0.00	372251				

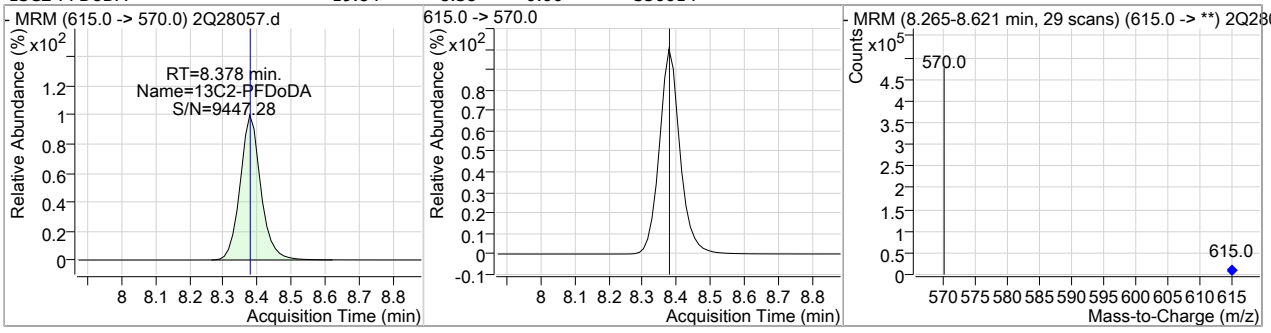


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.63	7.99	0.00	151663	563.0 -> 269.0	15.4	0.0	45.5

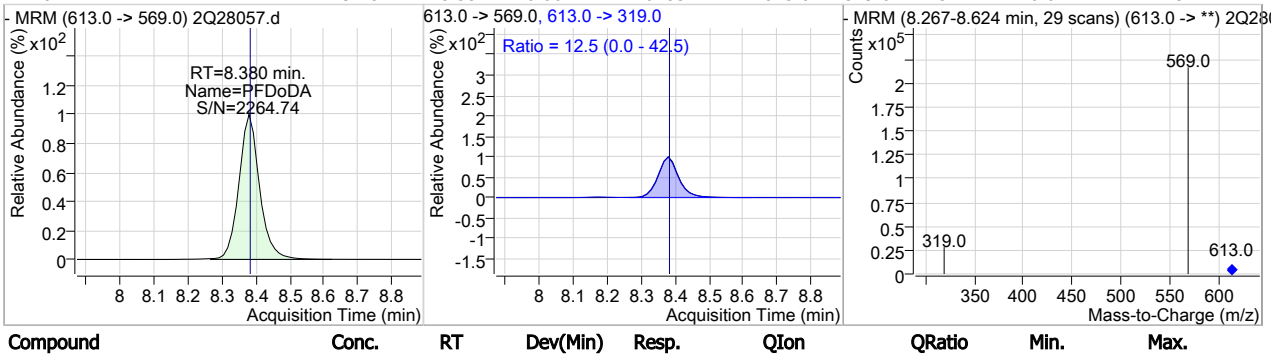


Perfluorinated Compounds by LC/MS/MS

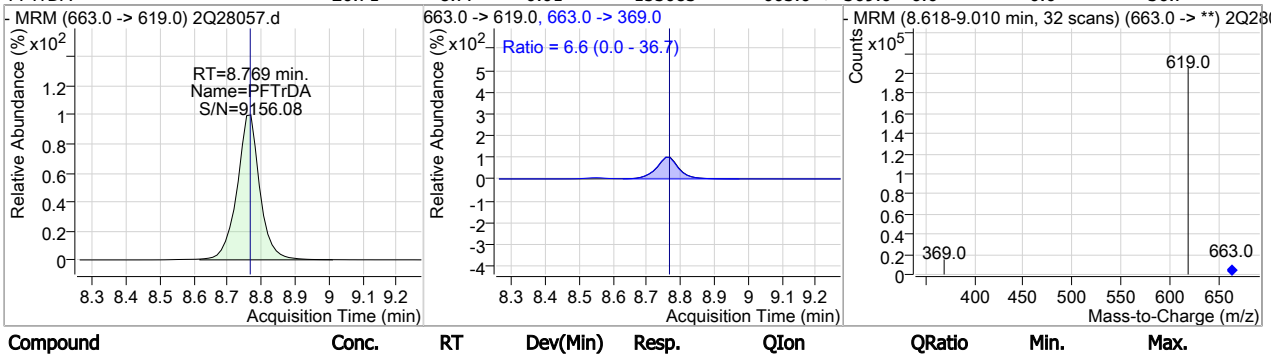
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.84	8.38	0.00	356614				



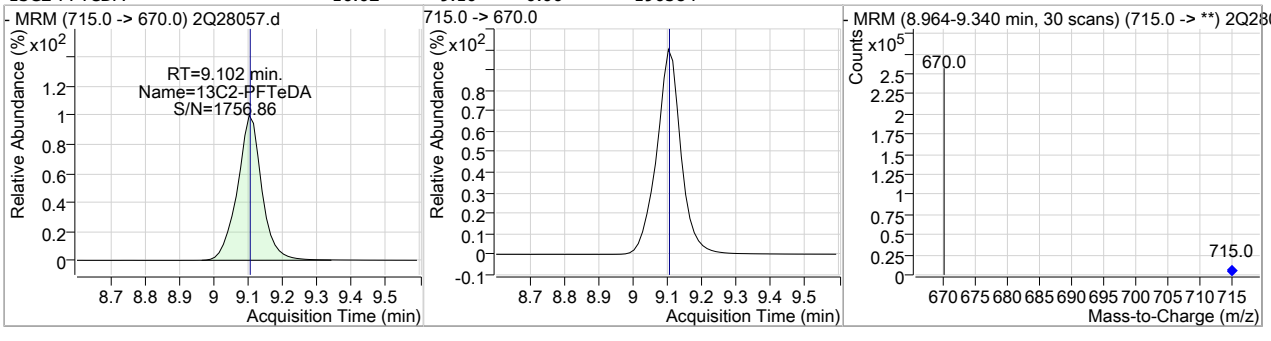
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.78	8.38	0.00	161857	613.0 -> 319.0	12.5	0.0	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.71	8.77	0.01	153083	663.0 -> 369.0	6.6	0.0	36.7



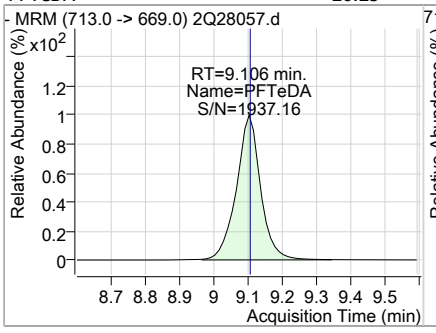
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	16.02	9.10	0.00	190584				

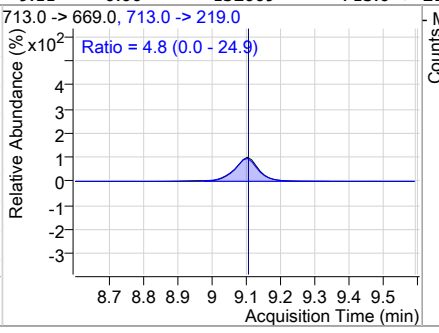


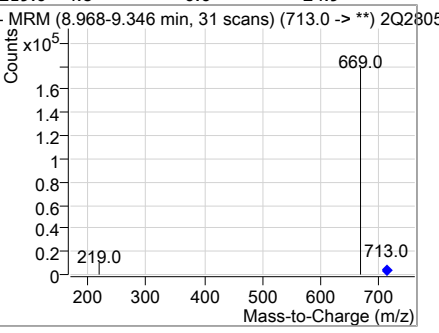
7.3.1

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.25	9.11	0.00	132609	713.0 -> 219.0	4.8	0.0	24.9







7.3.1

7

Manual Integration Approval Summary

Sample Number: OP74263-BS
Lab FileID: 2Q28057.D
Injection Time: 03/24/19 22:25
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/25/19 12:07 Nancy Saunders
Supervisor approved: 03/26/19 08:32 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28063.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 12:00:18 AM
Sample Name : op74263-ms
Vial : Vial 47
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74263,S2Q447,125,,,1.0,1,water

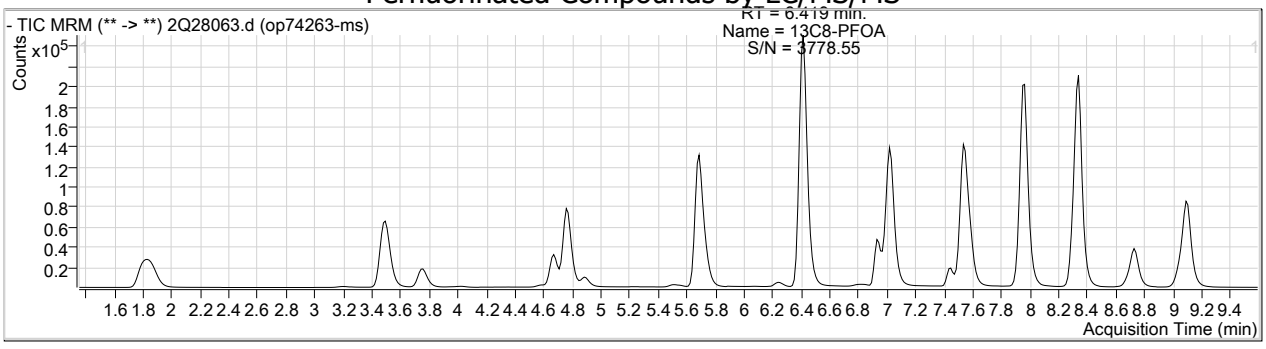
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.422	415.0 -> 370.0	341595	20.00	µg/L	0.025
13C4-PFOS	7.011	503.0 -> 80.0	57496	20.00	µg/L	0.013
M4-PFBA	1.827	217.0 -> 172.0	182415	20.00	µg/L	-0.025
M5-PFPeA	3.499	268.0 -> 223.0	143868	20.00	µg/L	0.000
M5-PFHxA	4.763	318.0 -> 273.0	192189	20.00	µg/L	0.000
M4-PFHpA	5.692	367.0 -> 322.0	269707	20.00	µg/L	0.012
M8-PFOA	6.419	421.0 -> 376.0	301395	20.00	µg/L	0.025
M9-PFNA	7.027	472.0 -> 427.0	279566	20.00	µg/L	0.013
M6-PFDA	7.544	519.0 -> 474.0	367689	20.00	µg/L	0.001
M7-PFUnDA	7.966	570.0 -> 525.0	583749	20.00	µg/L	-0.025
M2-PFDoDA	8.340	615.0 -> 570.0	604044	20.00	µg/L	-0.036
M2-PFTeDA	9.089	715.0 -> 670.0	264771	20.00	µg/L	-0.012
M8-FOSA	6.933	506.0 -> 78.0	119258	20.00	µg/L	0.015
M3-PFBS	3.755	302.0 -> 99.0	26081	20.00	µg/L	0.000
M3-PFHxS	5.735	402.0 -> 99.0	28275	20.00	µg/L	0.025
M8-PFOS	7.008	507.0 -> 99.0	35969	20.00	µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	78958	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	92271	20.00	µg/L	0.012
M2-8:2FTS	7.579	529.0 -> 509.0	53938	20.00	µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	41612	20.00	µg/L	0.000
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	78971	27.75	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 138.7%		
13C2-6:2FTS	6.403	429.0 -> 409.0	92258	30.61	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 153.1%		
13C2-8:2FTS	7.579	529.0 -> 509.0	53960	24.83	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 124.1%		
13C2-PFDoDA	8.340	615.0 -> 570.0	603886	33.60	µg/L	-0.036
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 168.0%		
13C2-PFTeDA	9.089	715.0 -> 670.0	264533	22.24	µg/L	-0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.2%		
13C3-PFBS	3.755	302.0 -> 99.0	26085	25.42	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 127.1%		
13C3-PFHxS	5.735	402.0 -> 99.0	28280	25.45	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 127.2%		
13C4-PFBA	1.827	217.0 -> 172.0	181866	27.82	µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 139.1%		
13C4-PFHpA	5.692	367.0 -> 322.0	269532	26.07	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 130.4%		
13C5-PFHxA	4.763	318.0 -> 273.0	191974	25.91	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 129.5%		
13C5-PFPeA	3.499	268.0 -> 223.0	144098	26.19	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 131.0%		
13C6-PFDA	7.544	519.0 -> 474.0	367676	26.75	µg/L	0.001

Perfluorinated Compounds by LC/MS/MS

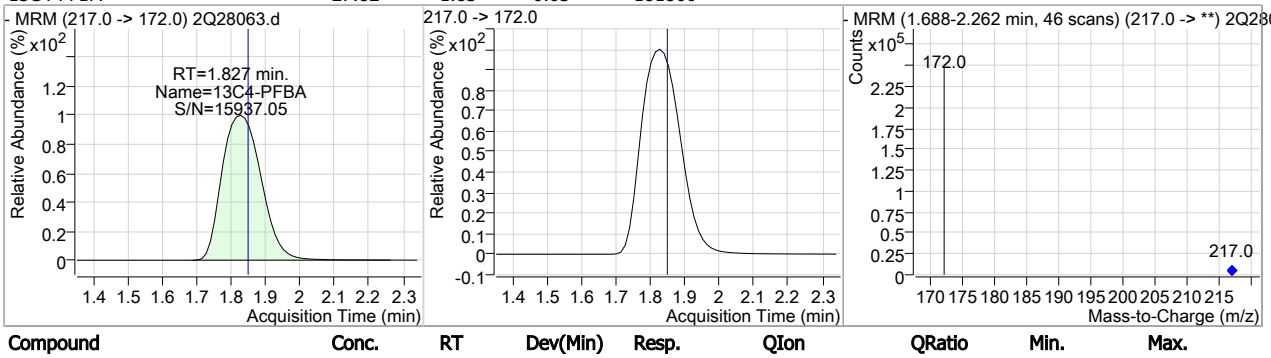
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 133.7%		
13C7-PFUnDA	7.966	570.0 -> 525.0	583497	33.57 µg/L		-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 167.8%		
13C8-FOSA	6.933	506.0 -> 78.0	119214	26.58 µg/L		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 132.9%		
13C8-PFOA	6.419	421.0 -> 376.0	301168	29.22 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 146.1%		
13C8-PFOS	7.008	507.0 -> 99.0	35978	25.16 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 125.8%		
13C9-PFNA	7.027	472.0 -> 427.0	279512	26.82 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 134.1%		
d3-MeFOSAA	7.434	573.0 -> 419.0	41609	23.73 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 118.6%		
M2-PFOA	6.422	415.0 -> 370.0	341873	20.01 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.011	503.0 -> 80.0	57501	19.98 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	38470	16.57 µg/L		99
6:2FTS	6.405	427.0 -> 407.0	39869	17.13 µg/L		99
8:2FTS	7.580	527.0 -> 507.0	23987	16.85 µg/L		100
EtFOSAA	7.585	584.0 -> 419.0	15268	16.85 µg/L		97
FOSA	6.937	498.0 -> 78.0	46882	17.07 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	18352	16.78 µg/L		99
PFBA	1.823	213.0 -> 169.0	39021	21.88 µg/L		100
PFBS	3.746	299.0 -> 80.0	44621	21.11 µg/L		99
PFDA	7.545	513.0 -> 469.0	130283	16.34 µg/L		99
PFDoDA	8.342	613.0 -> 569.0	241944	17.46 µg/L		100
PFDS	7.925	599.0 -> 80.0	10597	17.40 µg/L		97
PFHpA	5.695	363.0 -> 319.0	238321	19.71 µg/L	m	99
PFHpS	6.429	449.0 -> 80.0	23438	17.73 µg/L		99
PFHxA	4.765	313.0 -> 269.0	116124	34.65 µg/L		100
PFHxS	5.726	399.0 -> 80.0	34063	21.80 µg/L	m	99
PFNA	7.028	463.0 -> 419.0	147898	16.10 µg/L		99
PFNS	7.513	549.0 -> 80.0	19405	15.81 µg/L		99
PFOA	6.424	413.0 -> 369.0	178006	21.99 µg/L	m	97
PFOS	7.012	499.0 -> 80.0	30070	16.99 µg/L	m	99
PFPeA	3.502	263.0 -> 219.0	189477	29.53 µg/L		100
PFPeS	4.883	349.0 -> 80.0	26315	19.45 µg/L		98
PFTeDA	9.094	713.0 -> 669.0	157872	17.39 µg/L		100
PFTrDA	8.731	663.0 -> 619.0	168975	16.49 µg/L		100
PFUnDA	7.967	563.0 -> 519.0	205601	16.98 µg/L		100
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

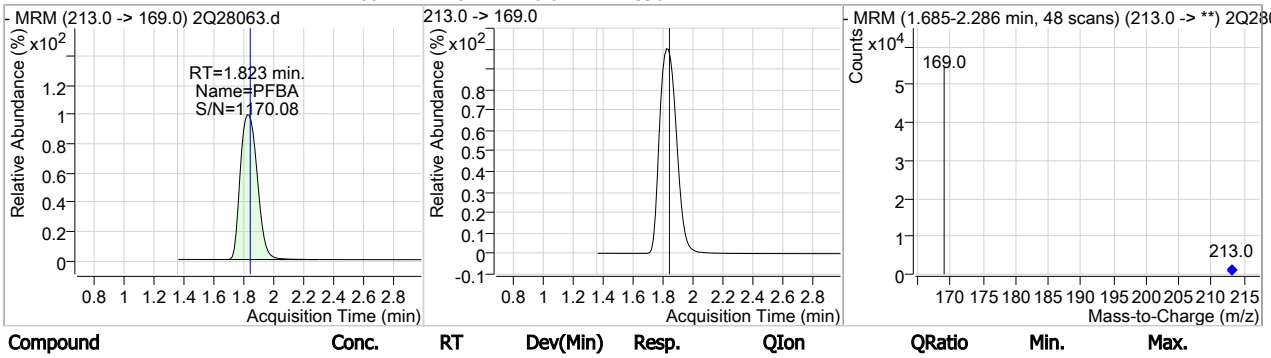
Perfluorinated Compounds by LC/MS/MS



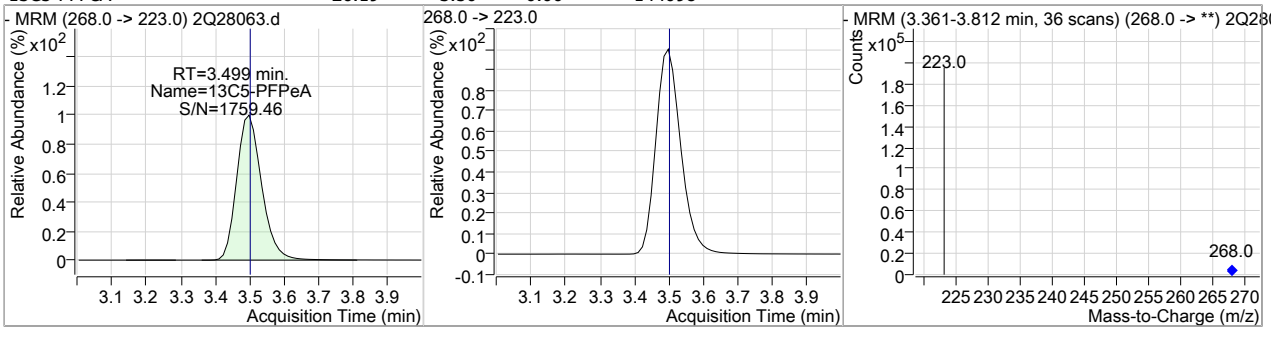
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	27.82	1.83	-0.03	181866				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	21.88	1.82	-0.04	39021				

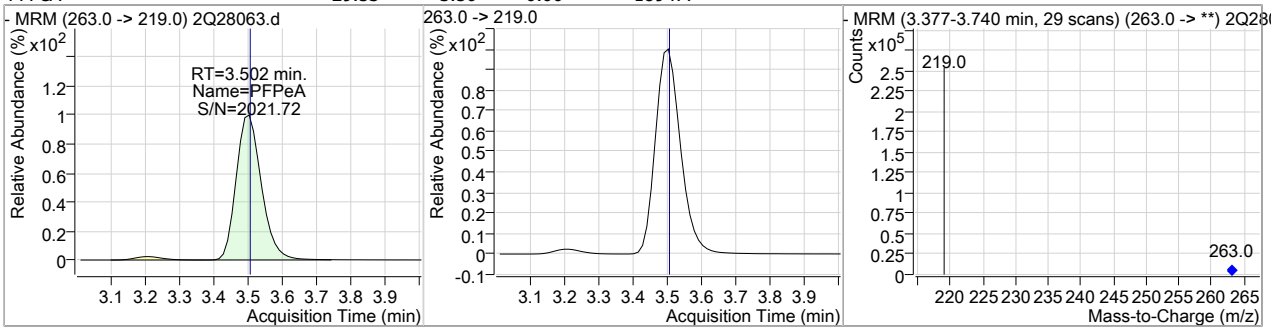


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	26.19	3.50	0.00	144098				

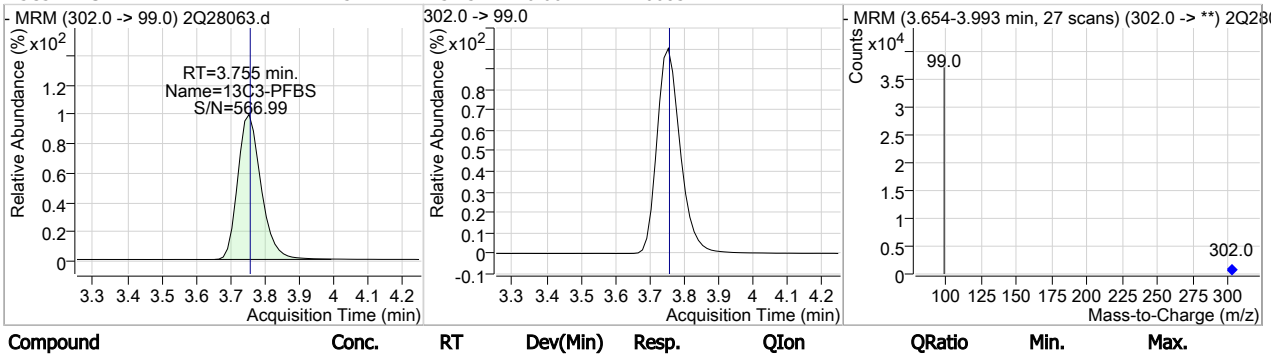


Perfluorinated Compounds by LC/MS/MS

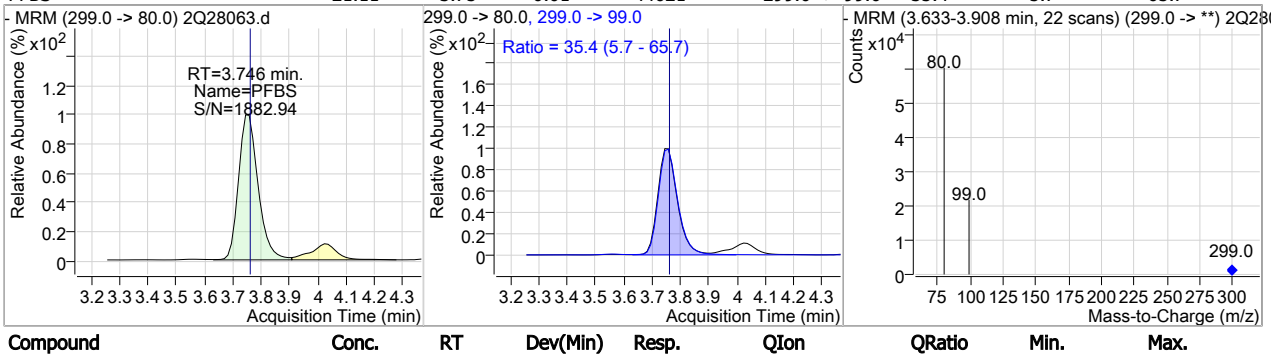
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	29.53	3.50	0.00	189477				



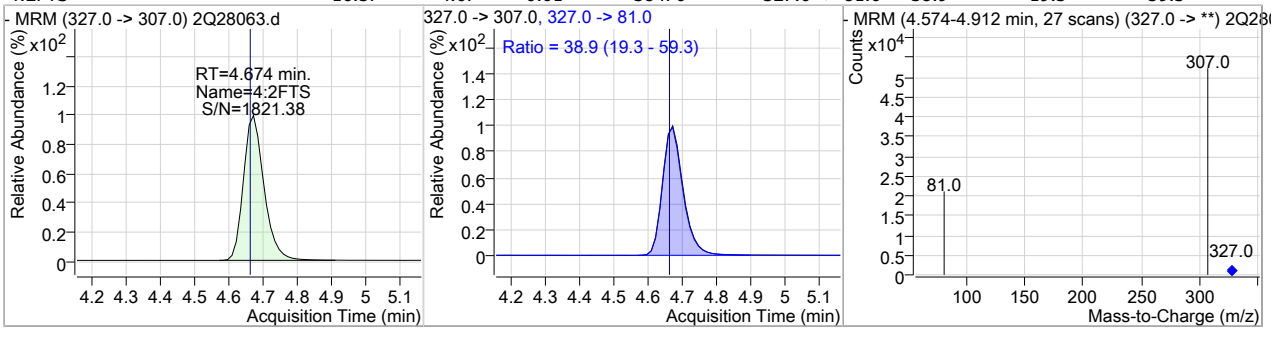
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	25.42	3.75	0.00	26085				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.11	3.75	-0.01	44621	299.0 -> 99.0	35.4	5.7	65.7

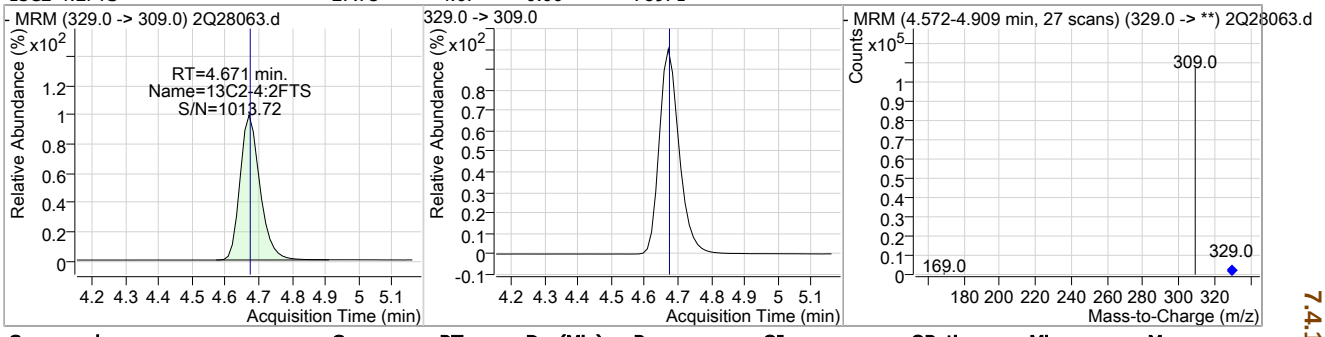


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	16.57	4.67	0.01	38470	327.0 -> 81.0	38.9	19.3	59.3

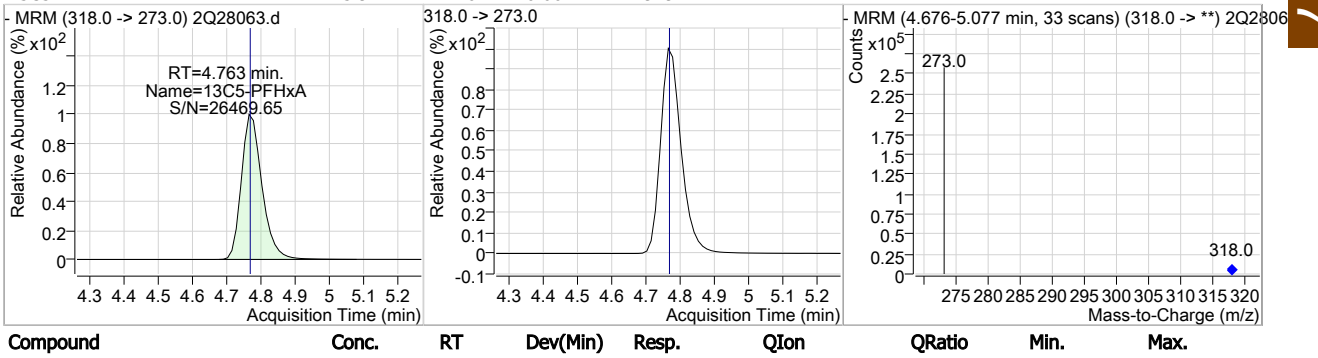


Perfluorinated Compounds by LC/MS/MS

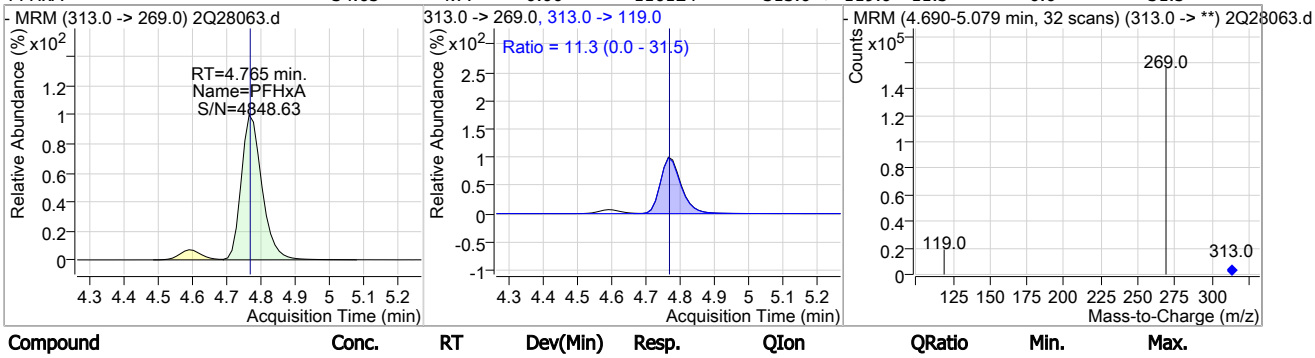
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	27.75	4.67	0.00	78971				



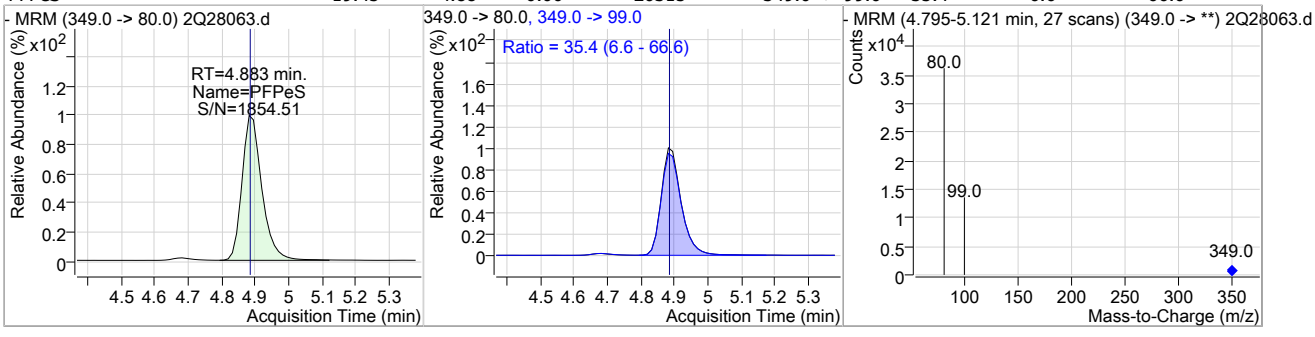
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	25.91	4.76	0.00	191974				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	34.65	4.77	0.00	116124	313.0 -> 119.0	11.3	0.0	31.5

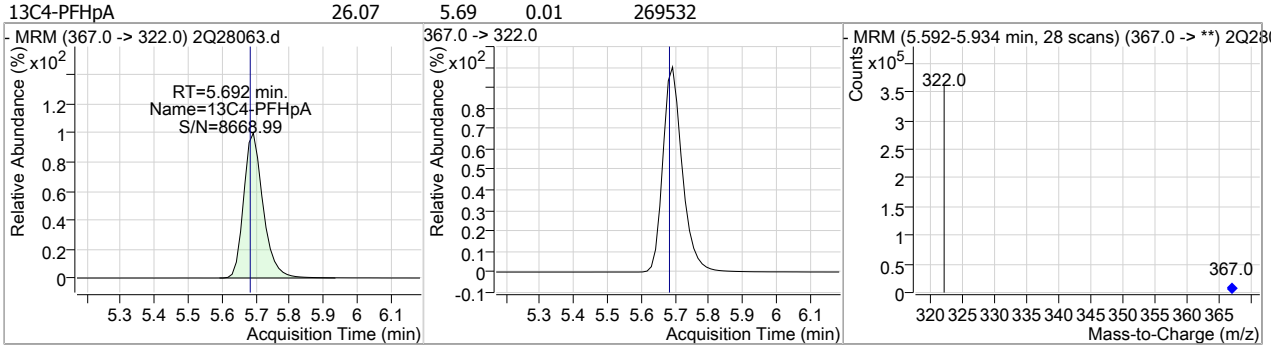


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.45	4.88	0.00	26315	349.0 -> 99.0	35.4	6.6	66.6

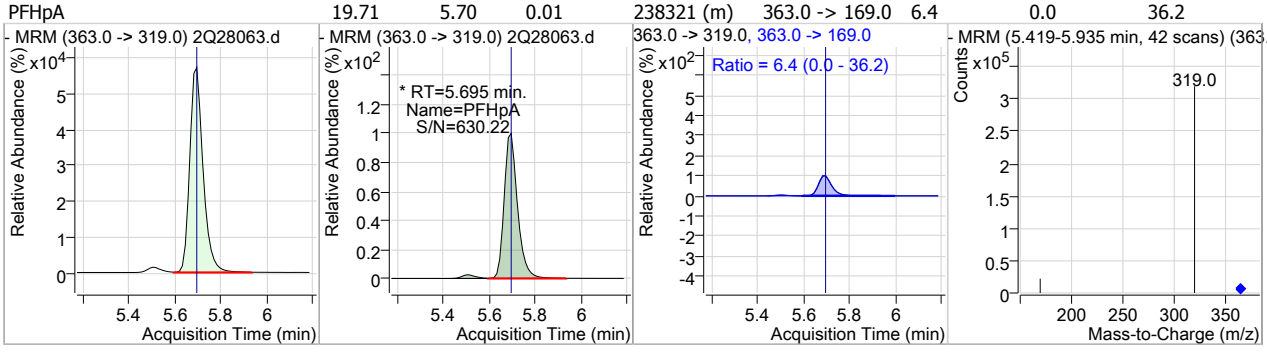


Perfluorinated Compounds by LC/MS/MS

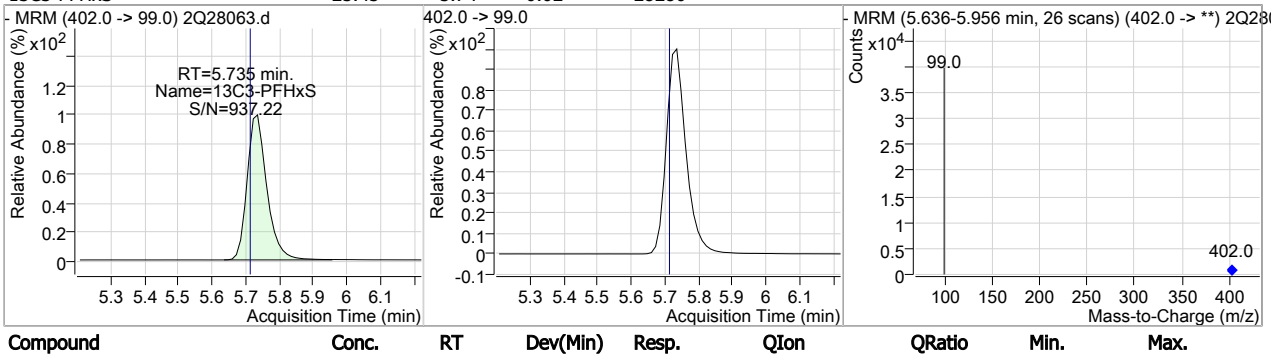
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	26.07	5.69	0.01	269532				



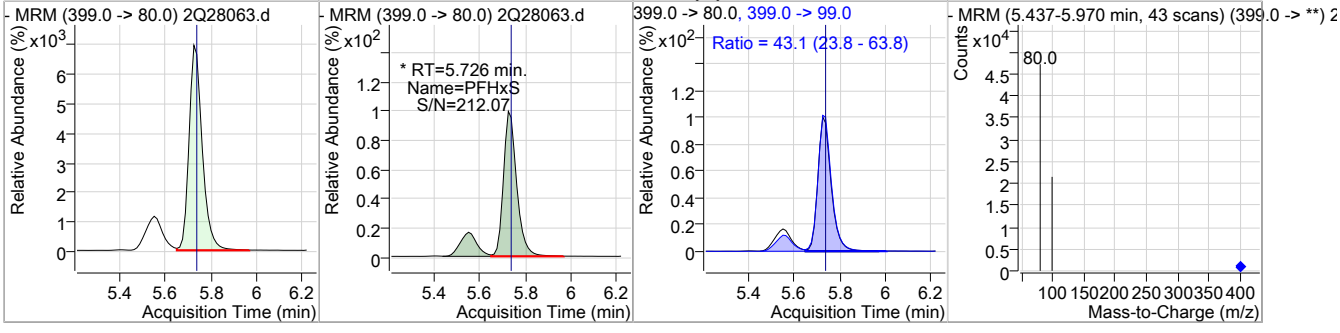
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.71	5.70	0.01	238321 (m)	363.0 -> 169.0	6.4	0.0	36.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	25.45	5.74	0.02	28280				

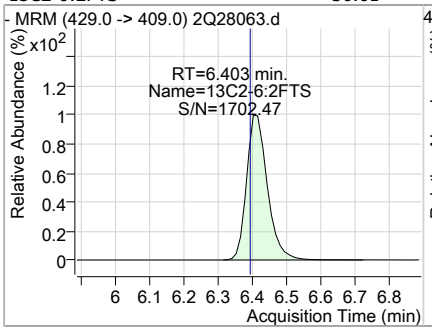


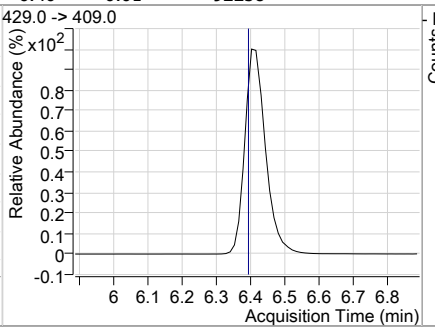
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	21.80	5.73	0.01	34063 (m)	399.0 -> 99.0	43.1	23.8	63.8

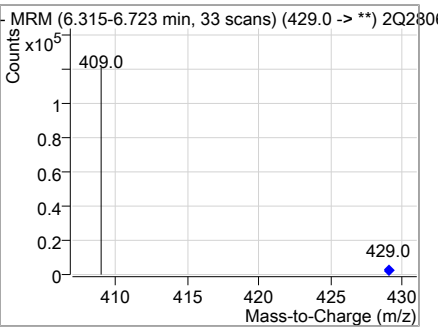


Perfluorinated Compounds by LC/MS/MS

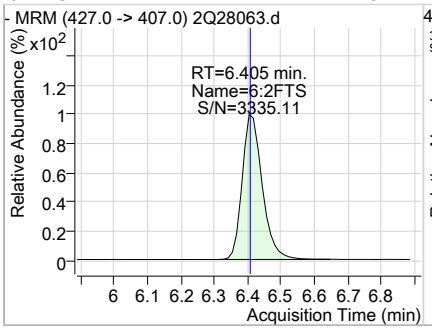
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	30.61	6.40	0.01	92258				

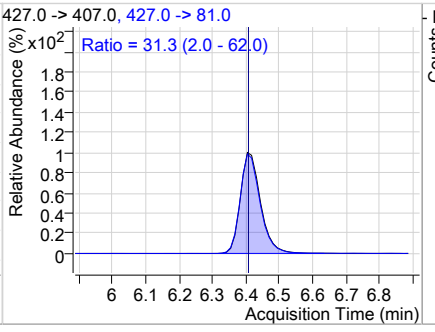


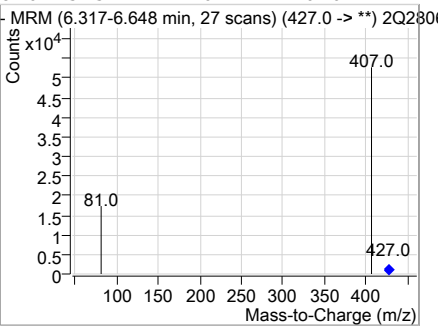




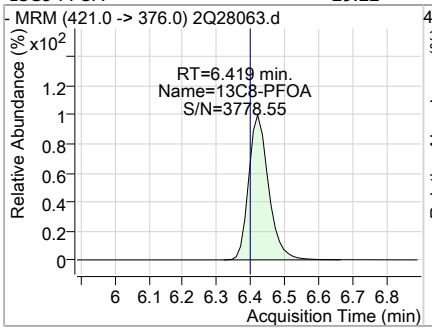
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	17.13	6.40	0.01	39869	427.0 -> 81.0	31.3	2.0	62.0

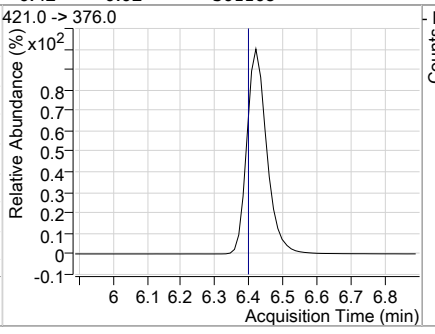


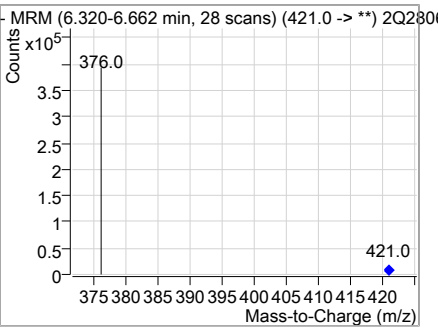




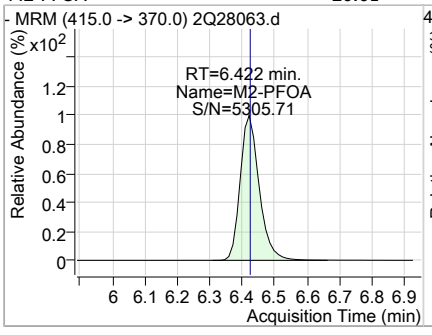
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	29.22	6.42	0.02	301168				

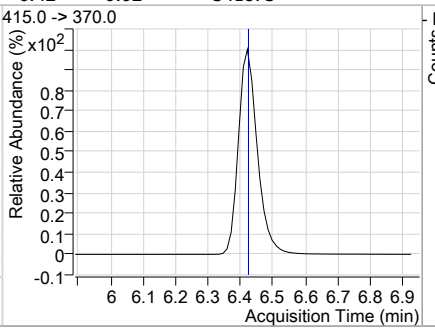


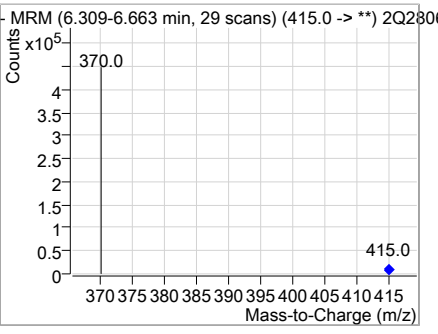




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.42	0.02	341873				

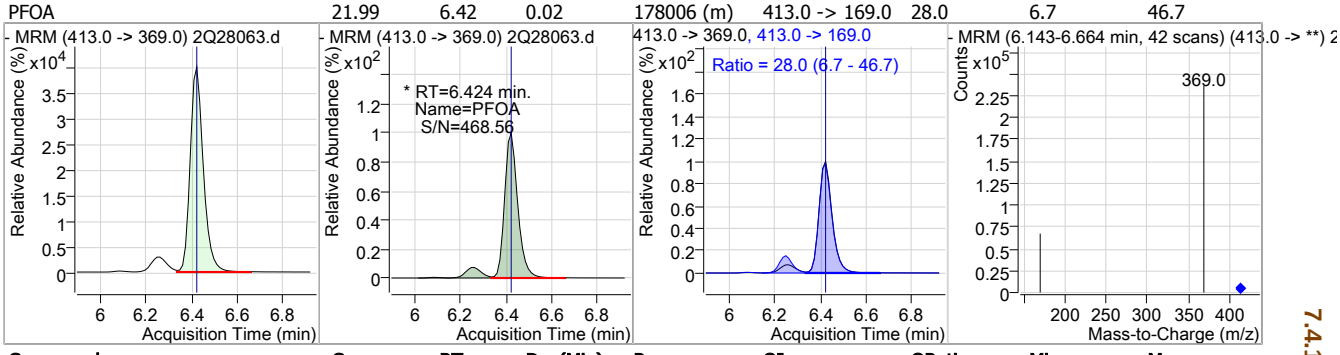




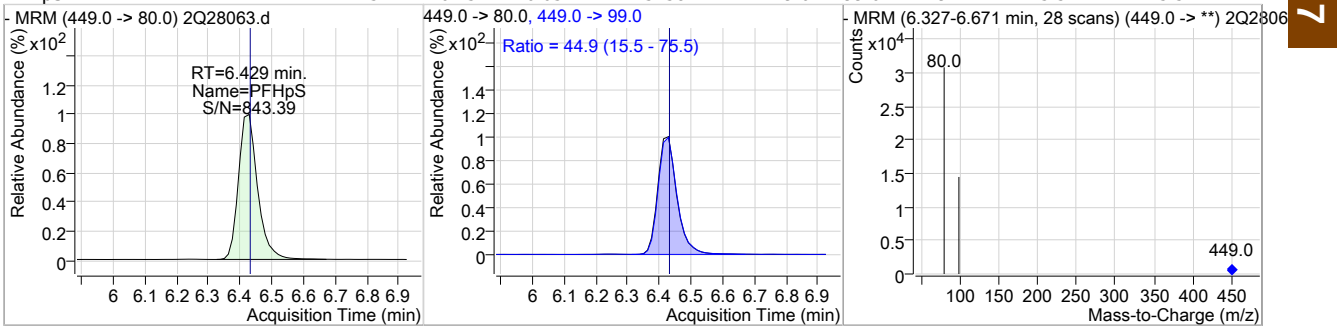


Perfluorinated Compounds by LC/MS/MS

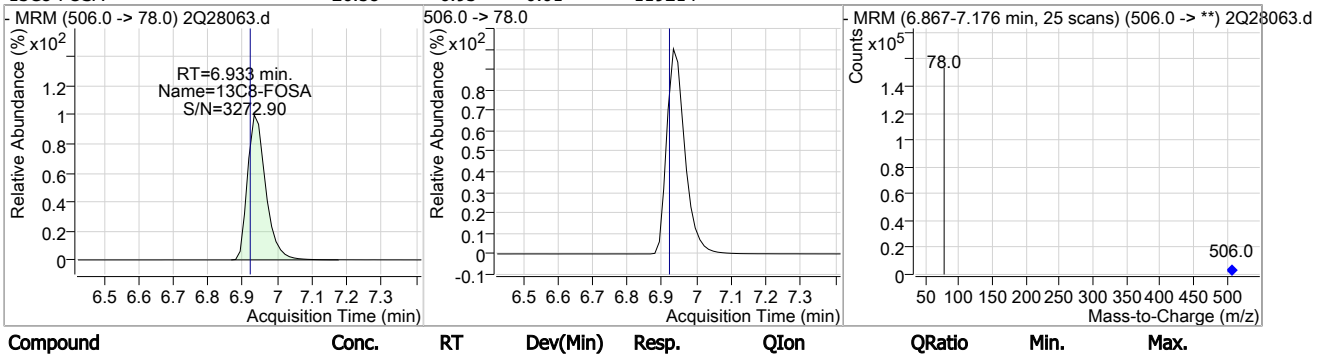
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.99	6.42	0.02	178006 (m)	413.0 -> 169.0	28.0	6.7	46.7



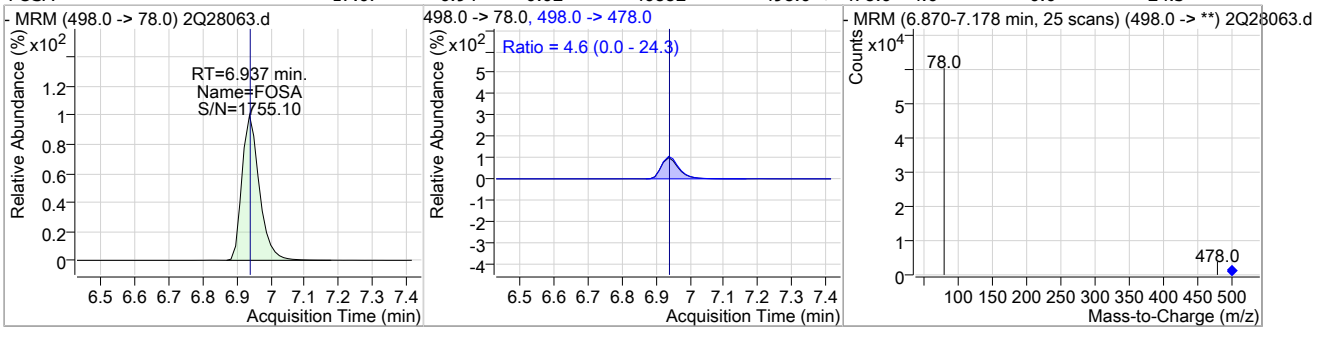
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	17.73	6.43	0.03	23438	449.0 -> 99.0	44.9	15.5	75.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	26.58	6.93	0.01	119214				

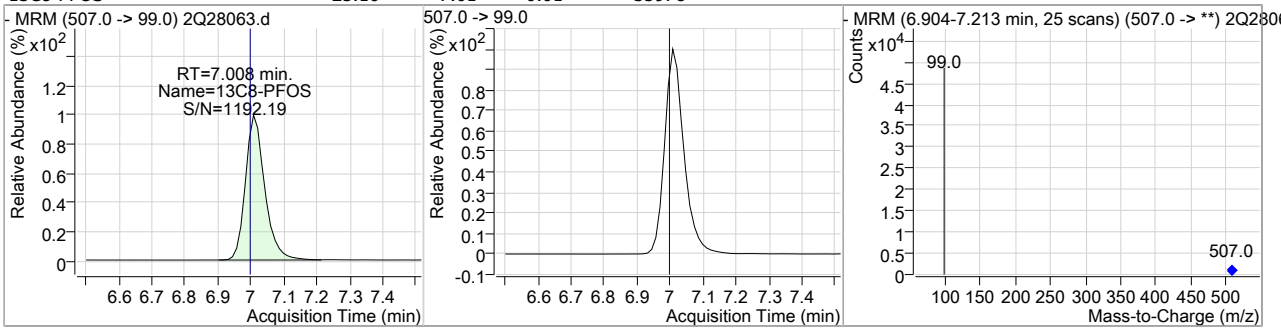


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	17.07	6.94	0.02	46882	498.0 -> 478.0	4.6	0.0	24.3

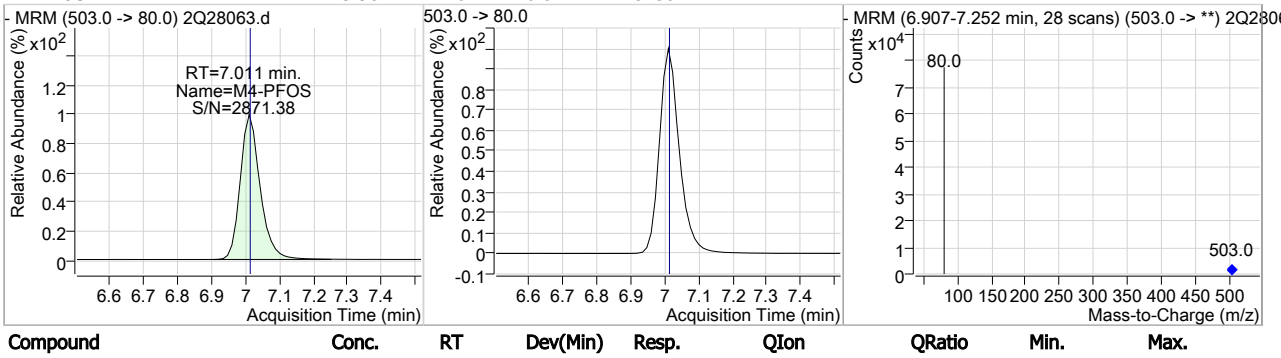


Perfluorinated Compounds by LC/MS/MS

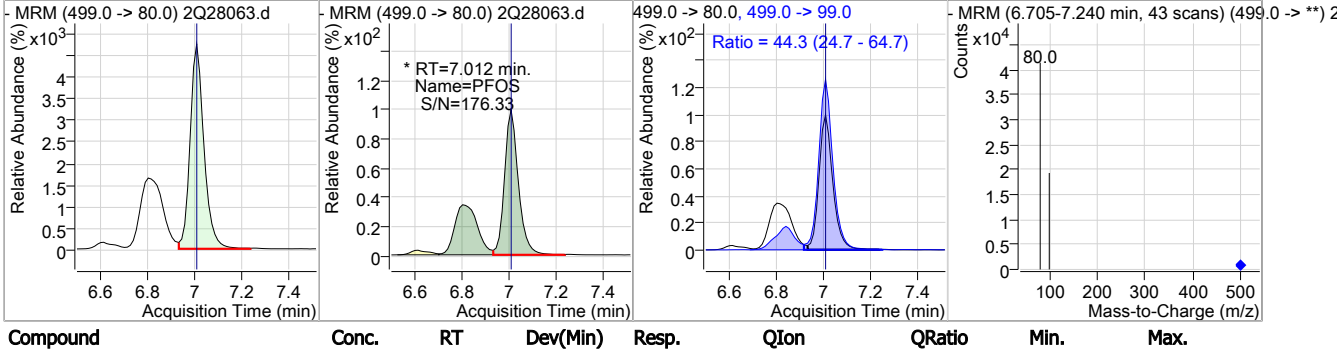
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	25.16	7.01	0.01	35978				



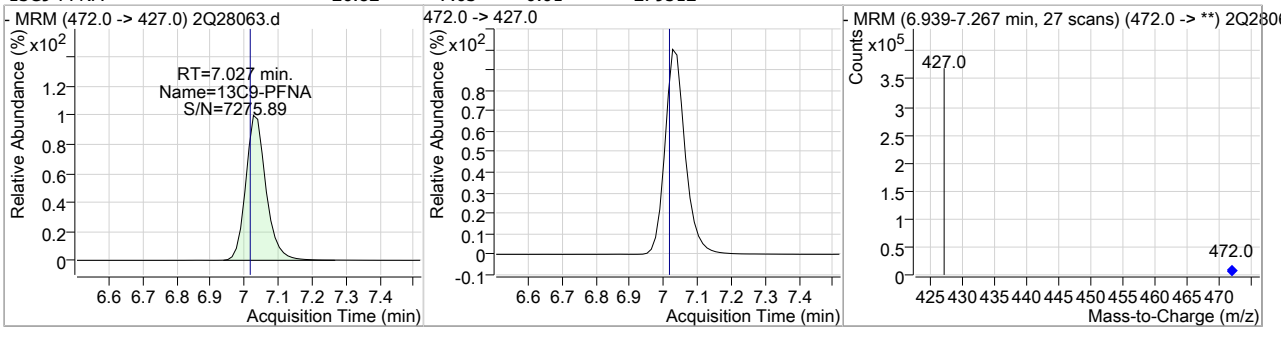
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.01	0.01	57501				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	16.99	7.01	0.01	30070 (m)	499.0 -> 99.0	44.3	24.7	64.7



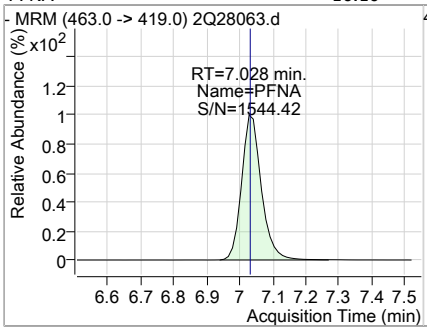
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	26.82	7.03	0.01	279512				

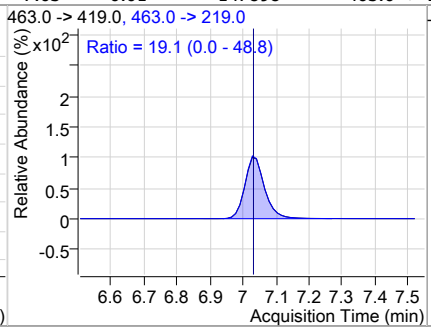


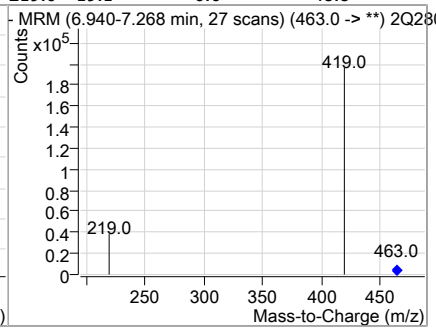
7.4.1

Perfluorinated Compounds by LC/MS/MS

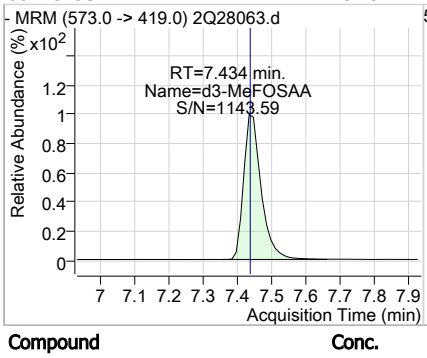
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	16.10	7.03	0.01	147898	463.0 -> 219.0	19.1	0.0	48.8

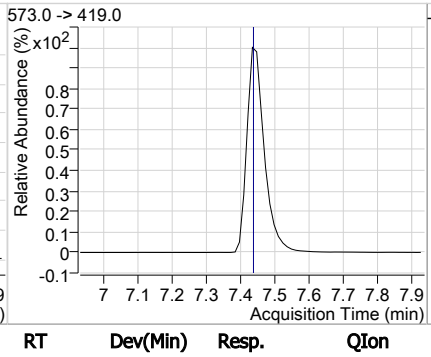


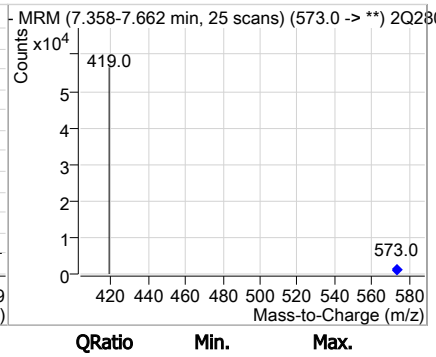




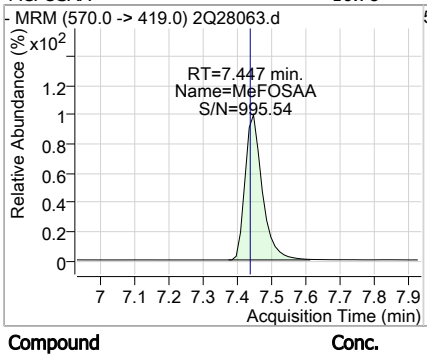
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	23.73	7.43	0.00	41609				

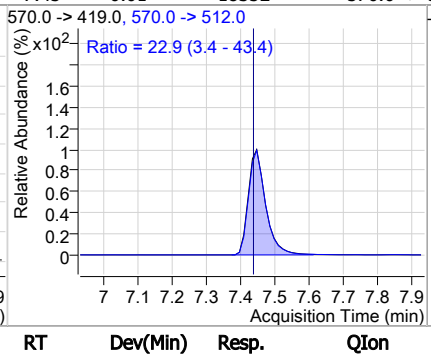


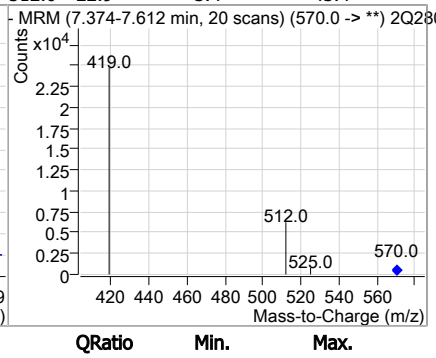




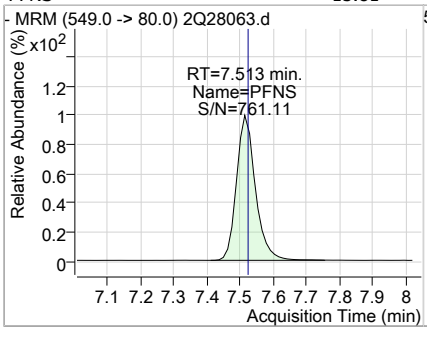
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	16.78	7.45	0.01	18352	570.0 -> 512.0	22.9	3.4	43.4

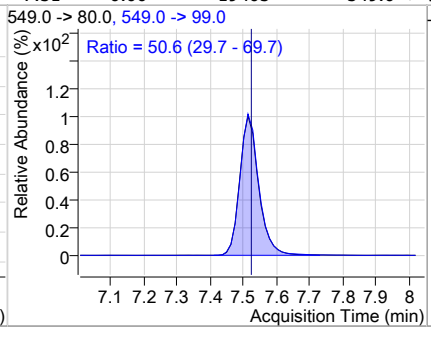


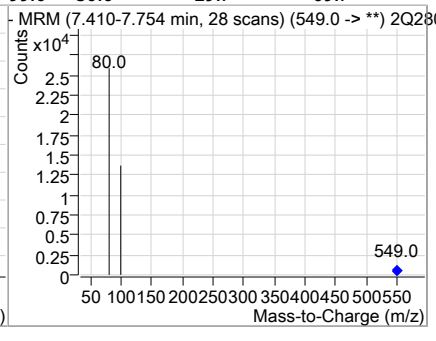




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	15.81	7.51	0.00	19405	549.0 -> 99.0	50.6	29.7	69.7

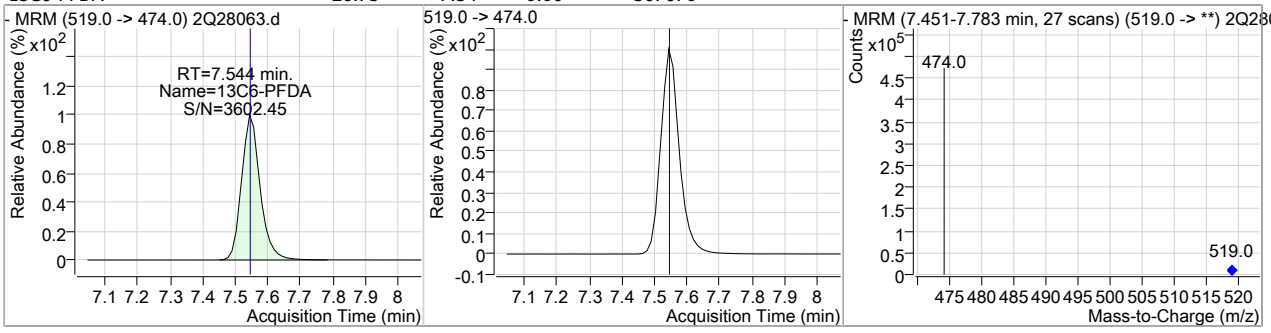




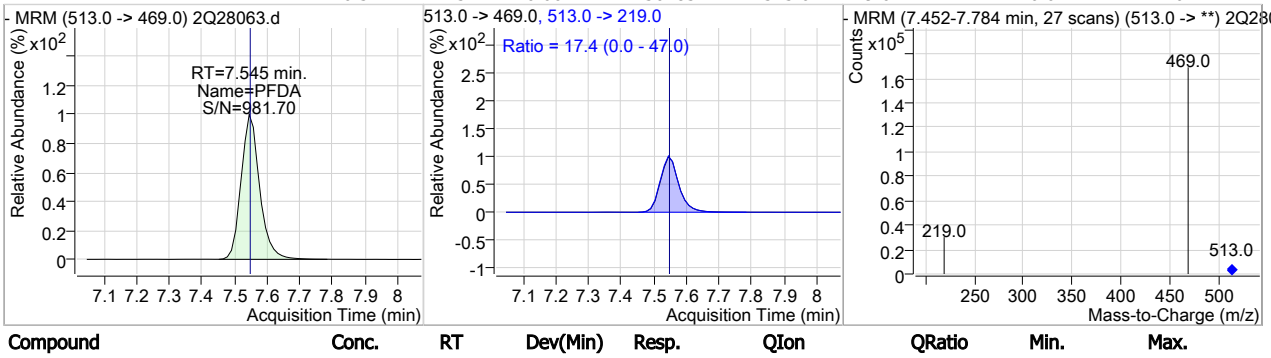


Perfluorinated Compounds by LC/MS/MS

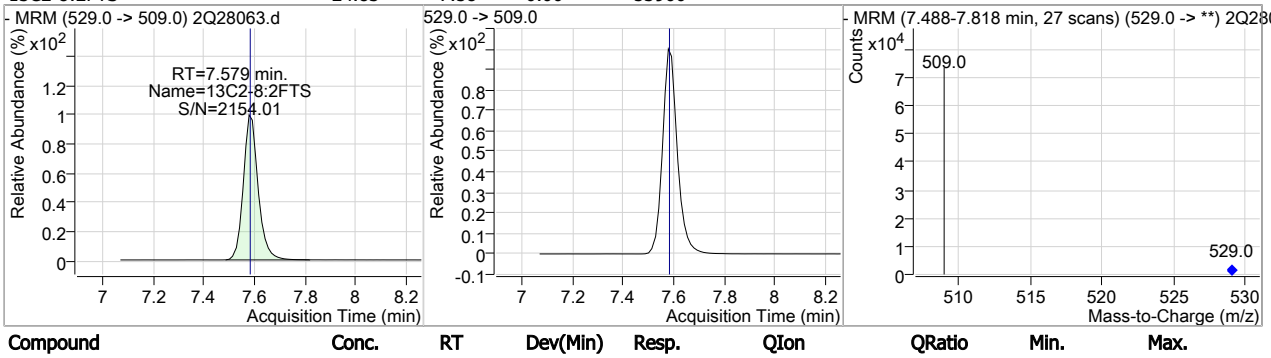
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	26.75	7.54	0.00	367676				



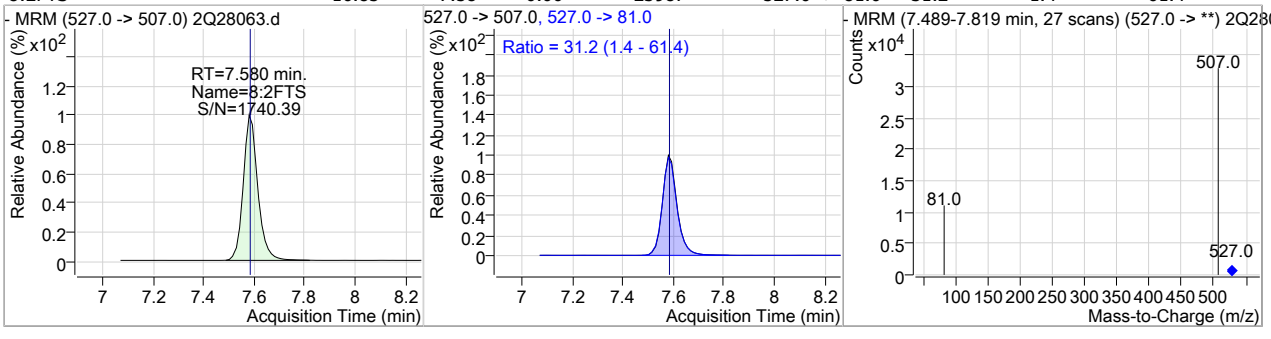
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	16.34	7.54	0.00	130283	513.0 -> 219.0	17.4	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	24.83	7.58	0.00	53960				

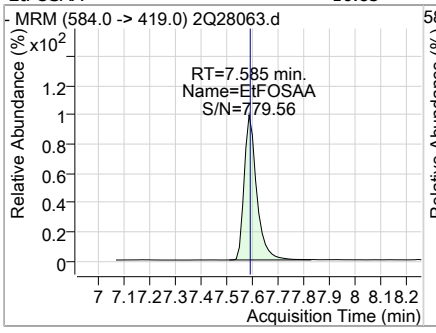


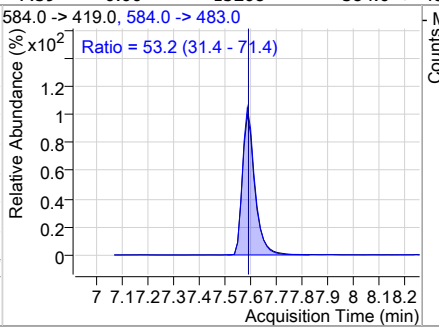
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	16.85	7.58	0.00	23987	527.0 -> 81.0	31.2	1.4	61.4

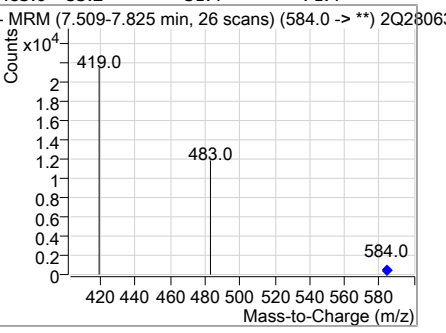


Perfluorinated Compounds by LC/MS/MS

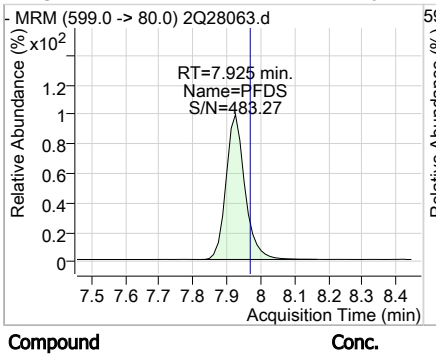
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	16.85	7.59	0.00	15268	584.0 -> 483.0	53.2	31.4	71.4

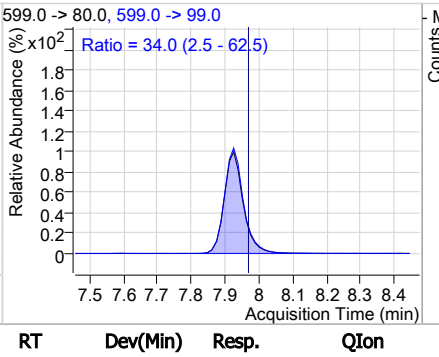


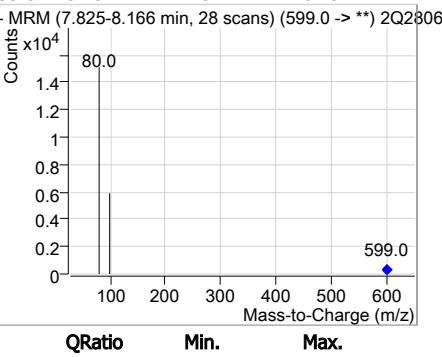




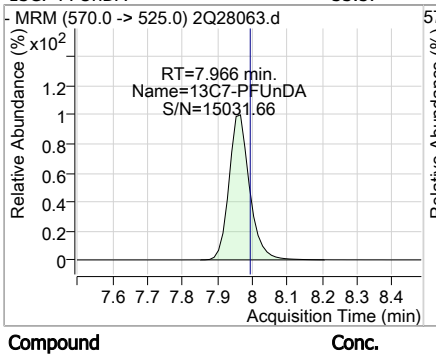
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	17.40	7.93	-0.03	10597	599.0 -> 99.0	34.0	2.5	62.5

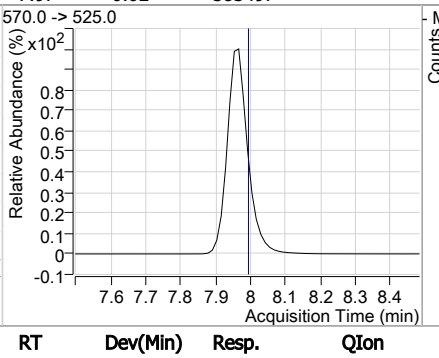


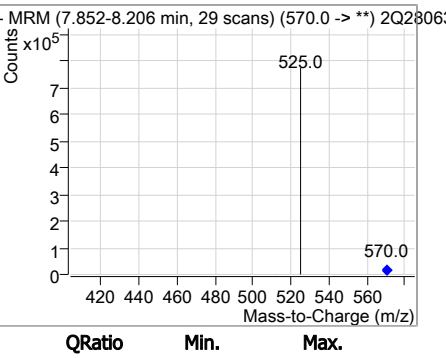




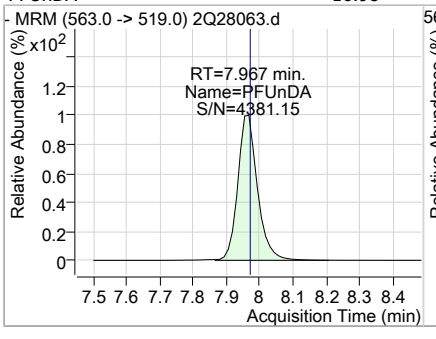
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	33.57	7.97	-0.02	583497				

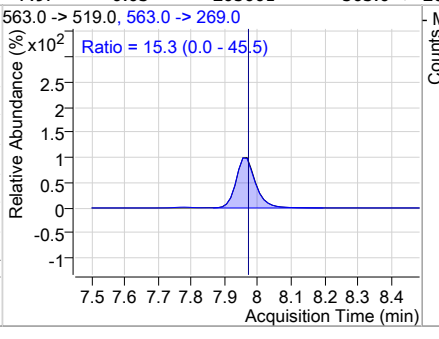


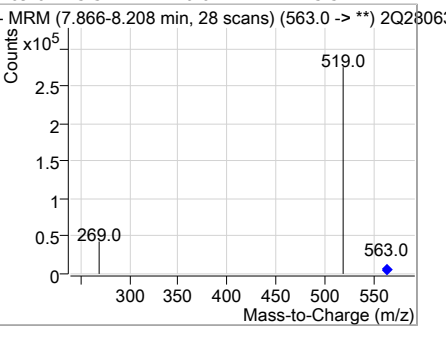




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	16.98	7.97	-0.03	205601	563.0 -> 269.0	15.3	0.0	45.5

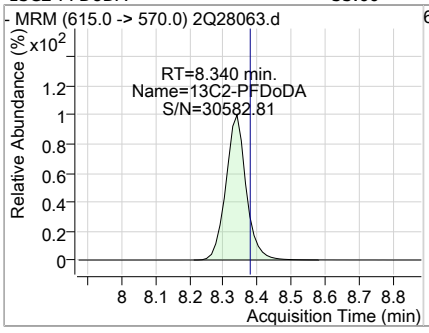


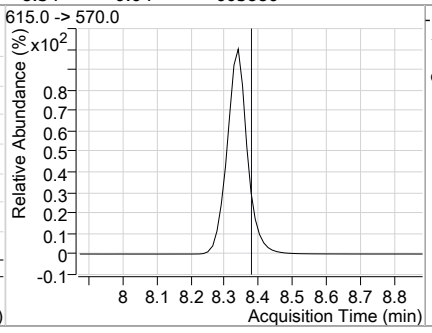


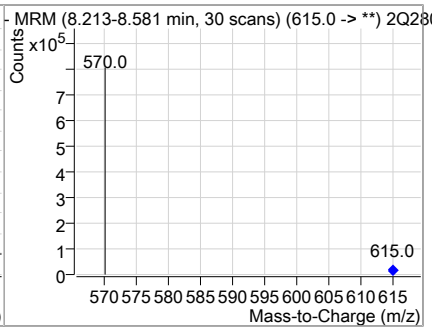


Perfluorinated Compounds by LC/MS/MS

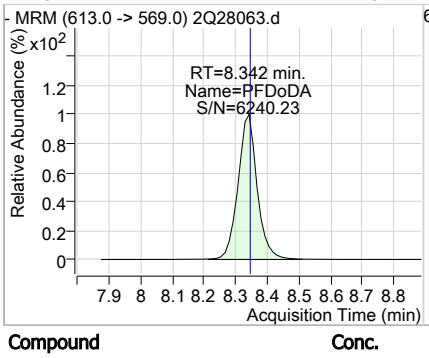
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	33.60	8.34	-0.04	603886				

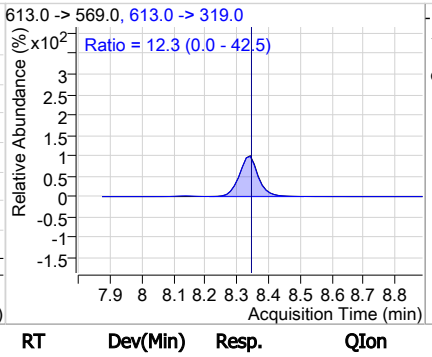


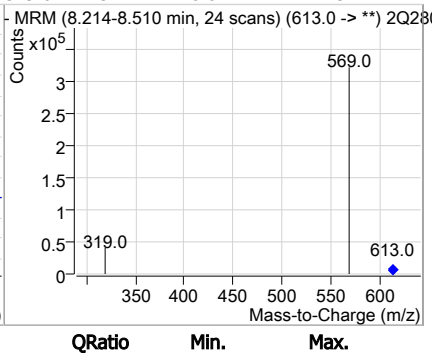




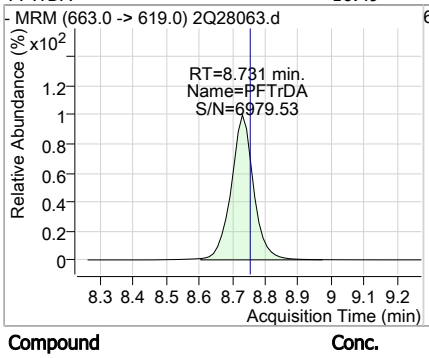
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	17.46	8.34	-0.04	241944	613.0 -> 319.0	12.3	0.0	42.5

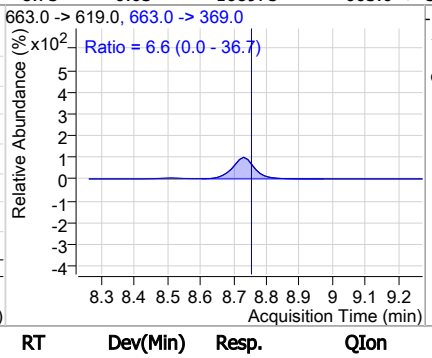


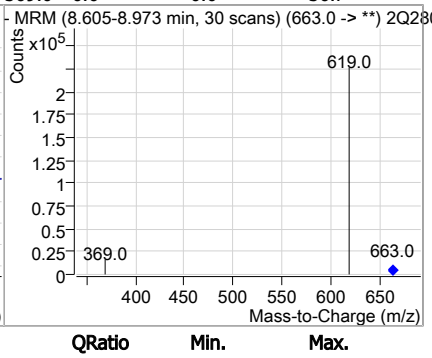




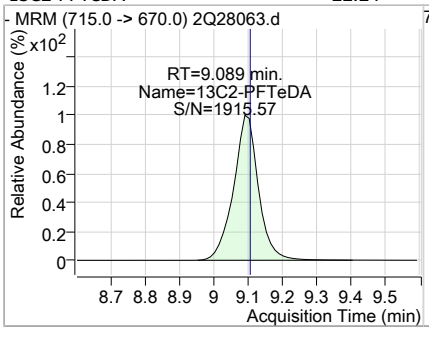
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	16.49	8.73	-0.03	168975	663.0 -> 369.0	6.6	0.0	36.7

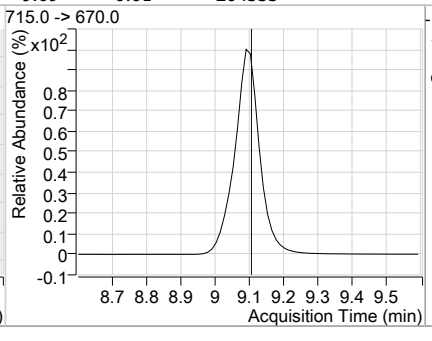


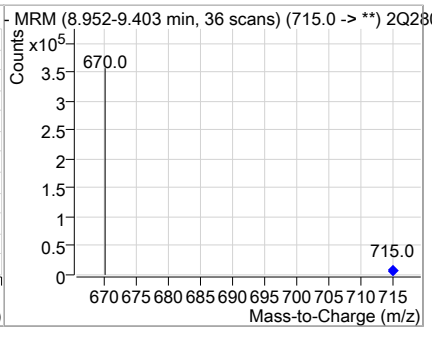




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	22.24	9.09	-0.01	264533				

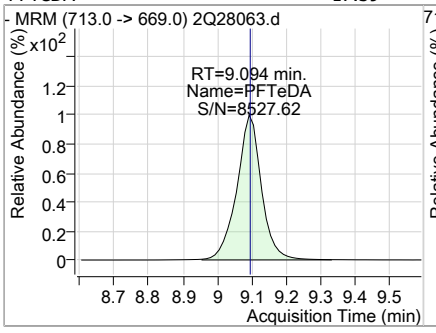


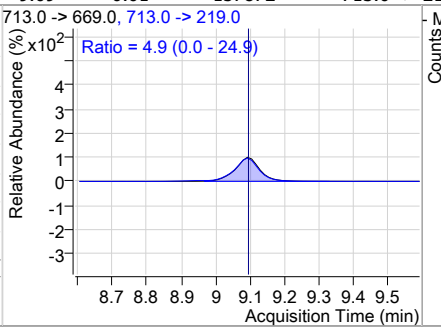


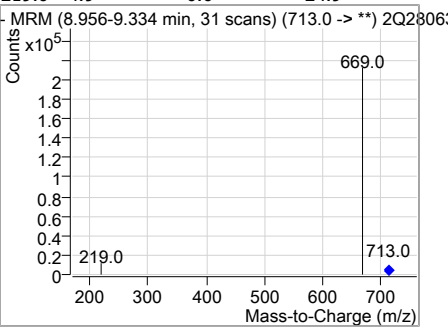


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	17.39	9.09	-0.01	157872	713.0 -> 219.0	4.9	0.0	24.9







7.4.1

7

Manual Integration Approval Summary

Sample Number: OP74263-MS
Lab FileID: 2Q28063.D
Injection Time: 03/25/19 00:00
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:31 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		5.70	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanoic acid	335-67-1		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
04/03/19 16:27

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28105.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 5:30:41 PM
Sample Name : OP74263-DUP
Vial : Vial 73
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q448.batch.bin
Sample Information : op74263,S2Q448,125,,,1.0,10,water

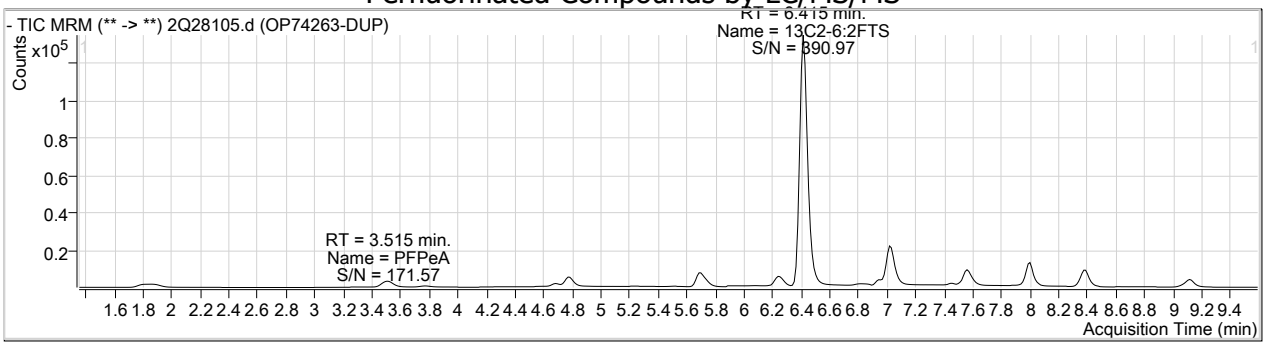
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.422	415.0 -> 370.0	332618	20.00	µg/L	0.025
13C4-PFOS	7.023	503.0 -> 80.0	53082	20.00	µg/L	0.026
M4-PFBA	1.852	217.0 -> 172.0	16365	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	12672	20.00	µg/L	0.012
M5-PFHxA	4.776	318.0 -> 273.0	17346	20.00	µg/L	0.012
M4-PFHpA	5.692	367.0 -> 322.0	24217	20.00	µg/L	0.012
M8-PFOA	6.419	421.0 -> 376.0	26360	20.00	µg/L	0.025
M9-PFNA	7.039	472.0 -> 427.0	24400	20.00	µg/L	0.025
M6-PFDA	7.569	519.0 -> 474.0	31739	20.00	µg/L	0.027
M7-PFUnDA	8.004	570.0 -> 525.0	47482	20.00	µg/L	0.013
M2-PFDoDA	8.378	615.0 -> 570.0	38689	20.00	µg/L	0.002
M2-PFTeDA	9.115	715.0 -> 670.0	20304	20.00	µg/L	0.013
M8-FOSA	6.946	506.0 -> 78.0	11436	20.00	µg/L	0.027
M3-PFBS	3.767	302.0 -> 99.0	2393	20.00	µg/L	0.012
M3-PFHxS	5.735	402.0 -> 99.0	2534	20.00	µg/L	0.025
M8-PFOS	7.021	507.0 -> 99.0	2979	20.00	µg/L	0.026
M2-4:2FTS	4.684	329.0 -> 309.0	6493	20.00	µg/L	0.012
M2-6:2FTS	6.415	429.0 -> 409.0	8019	20.00	µg/L	0.025
M2-8:2FTS	7.604	529.0 -> 509.0	4440	20.00	µg/L	0.025
M3-MeFOSAA	7.446	573.0 -> 419.0	3555	20.00	µg/L	0.013
M3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	6388	2.24	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.2%		
13C2-6:2FTS	6.415	429.0 -> 409.0	8048	2.67	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 13.4%		
13C2-8:2FTS	7.604	529.0 -> 509.0	4438	2.04	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.2%		
13C2-PFDoDA	8.378	615.0 -> 570.0	38674	2.15	µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.8%		
13C2-PFTeDA	9.115	715.0 -> 670.0	20309	1.71	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 8.5%		
13C3-PFBS	3.767	302.0 -> 99.0	2387	2.33	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.6%		
13C3-PFHxS	5.735	402.0 -> 99.0	2532	2.28	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.4%		
13C4-PFBA	1.852	217.0 -> 172.0	16337	2.50	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 12.5%		
13C4-PFHpA	5.692	367.0 -> 322.0	24209	2.34	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.7%		
13C5-PFHxA	4.776	318.0 -> 273.0	17331	2.34	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.7%		
13C5-PFPeA	3.511	268.0 -> 223.0	12647	2.30	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.5%		
13C6-PFDA	7.569	519.0 -> 474.0	31742	2.31	µg/L	0.027

Perfluorinated Compounds by LC/MS/MS

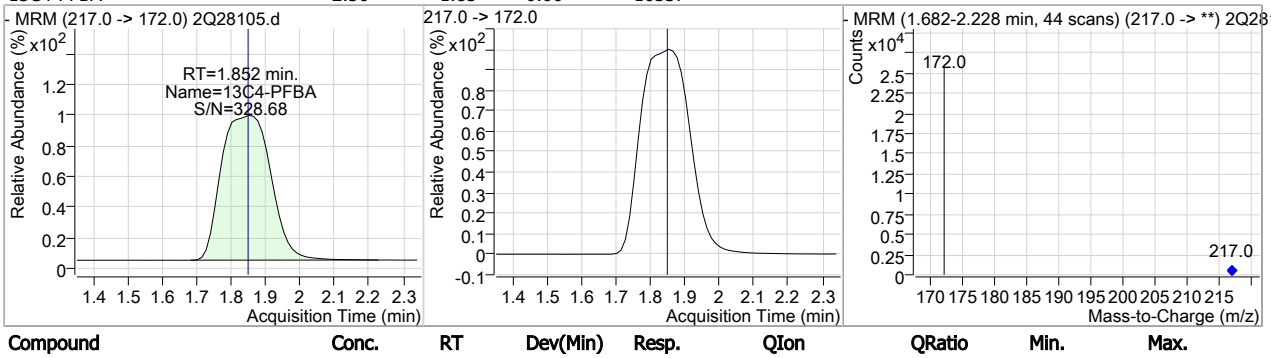
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.5%		
13C7-PFUnDA	8.004	570.0 -> 525.0	47500	2.73 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 13.7%		
13C8-FOSA	6.946	506.0 -> 78.0	11437	2.55 µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 12.7%		
13C8-PFOA	6.419	421.0 -> 376.0	26359	2.56 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 12.8%		
13C8-PFOS	7.021	507.0 -> 99.0	2981	2.08 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.4%		
13C9-PFNA	7.039	472.0 -> 427.0	24395	2.34 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 11.7%		
d3-MeFOSAA	7.446	573.0 -> 419.0	3562	2.03 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.2%		
M2-PFOA	6.422	415.0 -> 370.0	333538	2.00 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%		
M4-PFOS	7.023	503.0 -> 80.0	53127	2.00 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 10.0%		
13C3-HFPO-DA	-	287.0 -> 169.0	-	N.D.		
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = NA%		
Target Compounds						**QValue**
4:2FTS	-	327.0 -> 307.0	-	N.D.		
6:2FTS	6.417	427.0 -> 407.0	1020	0.50 µg/L		98
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	1.810	213.0 -> 169.0	472	0.29 µg/L		100
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	5.695	363.0 -> 319.0	5208	0.48 µg/L	m	99
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.778	313.0 -> 269.0	3641	1.20 µg/L		97
PFHxS	5.738	399.0 -> 80.0	4315	3.08 µg/L	m	100
PFNA	-	463.0 -> 419.0	-	N.D.		
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.424	413.0 -> 369.0	151231	21.36 µg/L	m	97
PFOS	7.025	499.0 -> 80.0	10723	7.32 µg/L	m	99
PFPeA	3.515	263.0 -> 219.0	5071	0.90 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.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

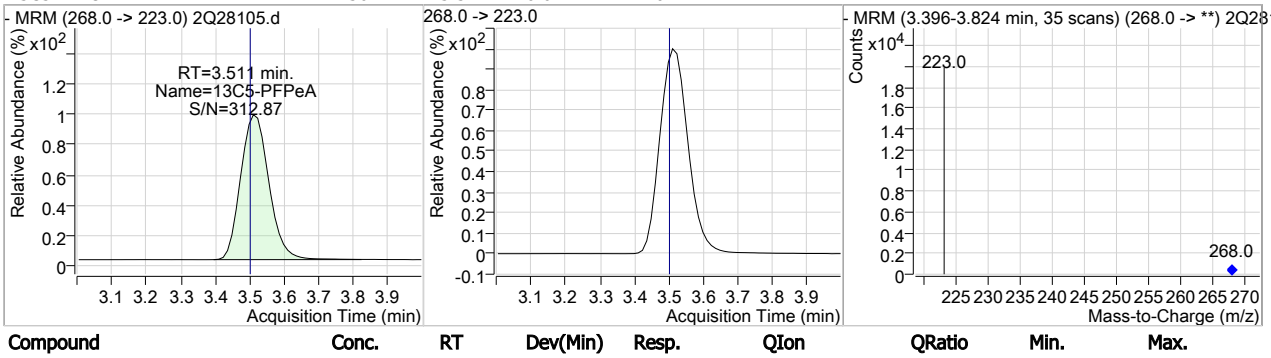
Perfluorinated Compounds by LC/MS/MS



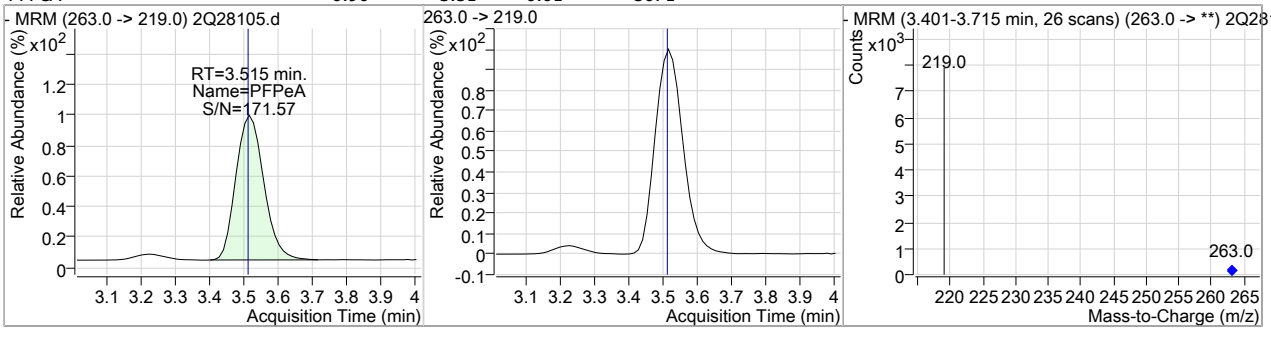
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	2.50	1.85	0.00	16337				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	2.30	3.51	0.01	12647				

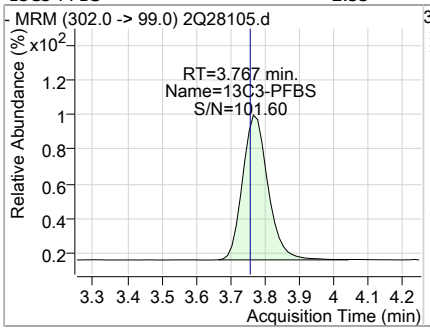


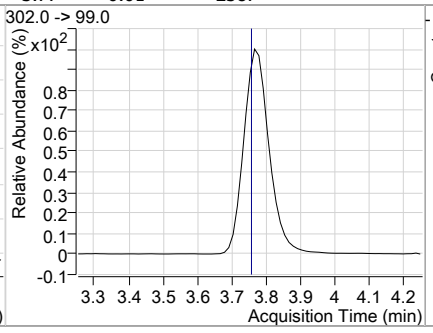
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.90	3.51	0.01	5071				

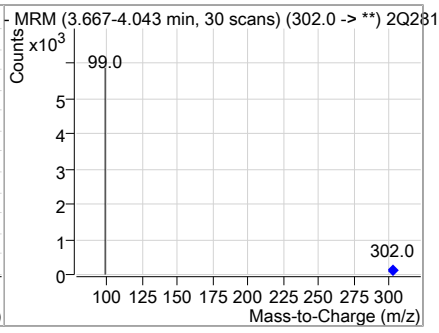


Perfluorinated Compounds by LC/MS/MS

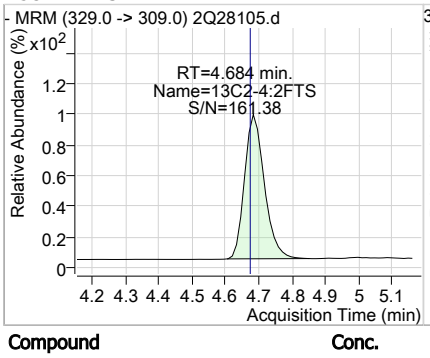
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.33	3.77	0.01	2387				

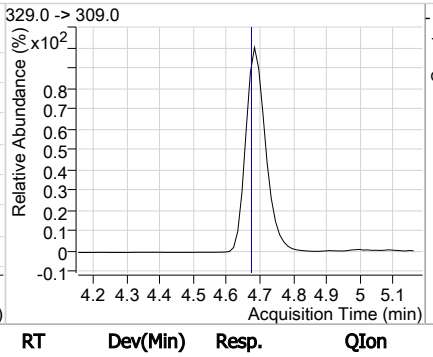


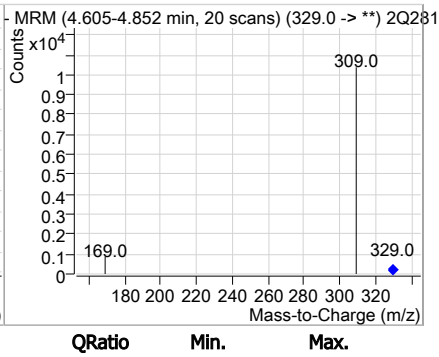




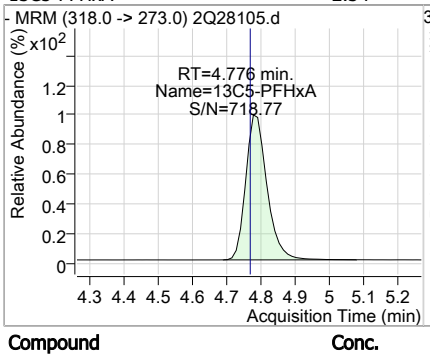
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	2.24	4.68	0.01	6388				

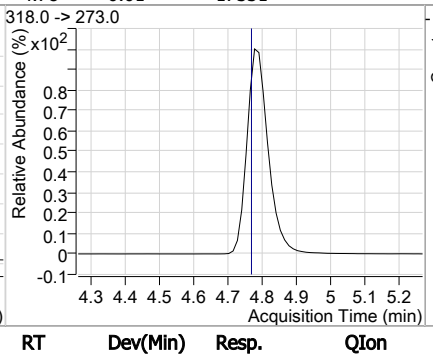


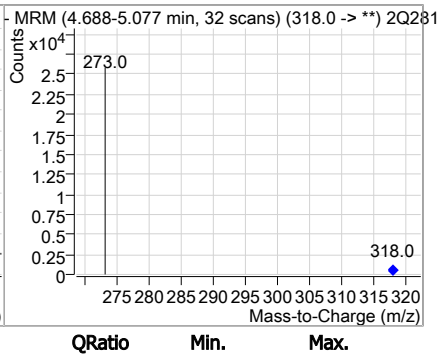




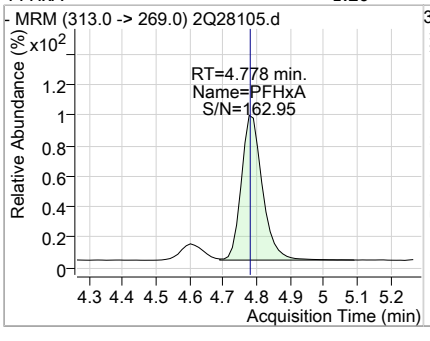
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.34	4.78	0.01	17331				

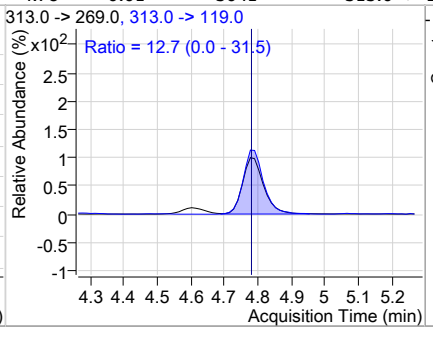


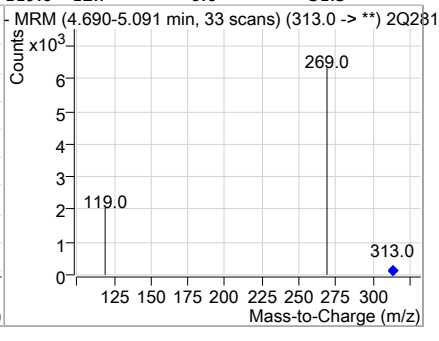




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.20	4.78	0.01	3641	313.0 -> 119.0	12.7	0.0	31.5

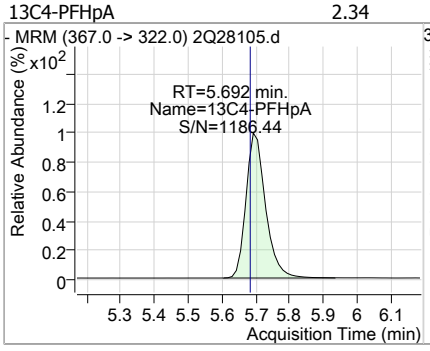


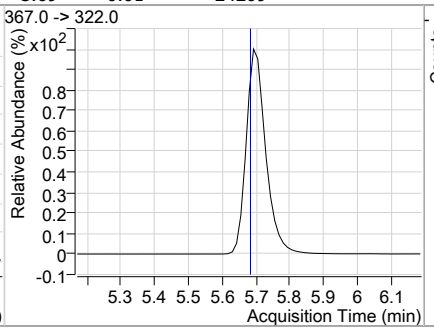


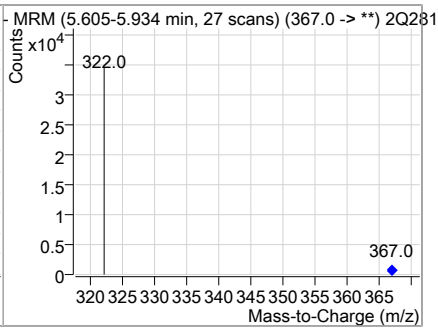


Perfluorinated Compounds by LC/MS/MS

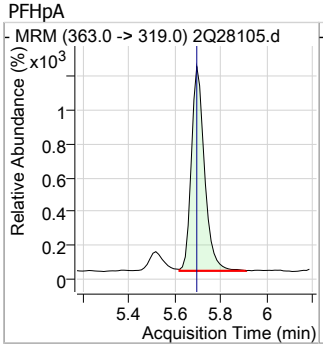
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.34	5.69	0.01	24209				

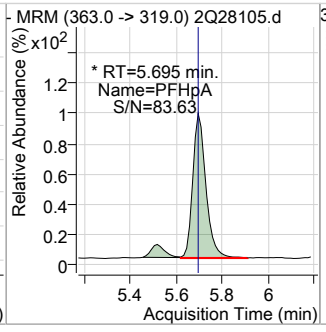


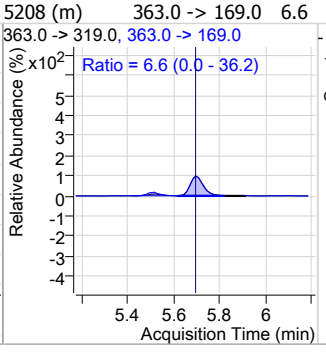


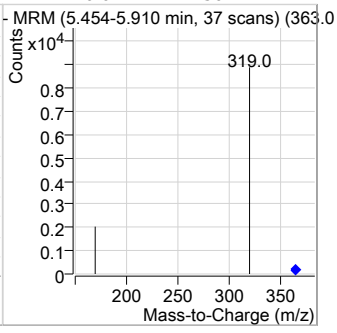


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.48	5.70	0.01	5208 (m)	363.0 -> 169.0	6.6	0.0	36.2

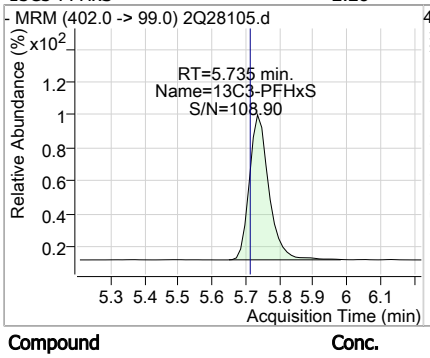


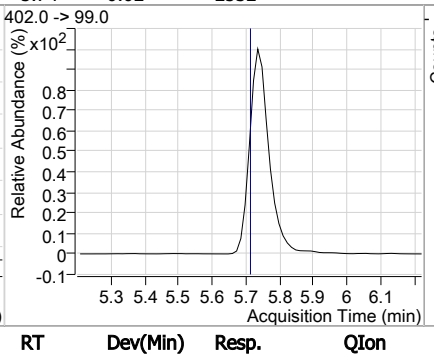


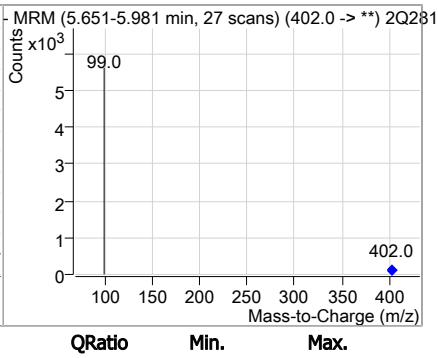




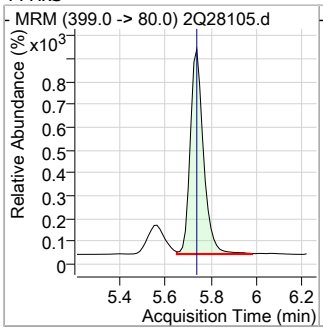
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.28	5.74	0.02	2532				

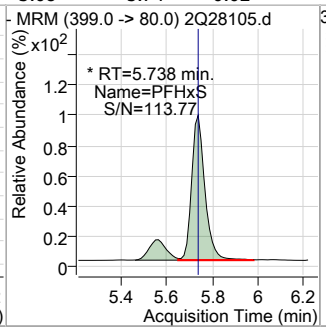


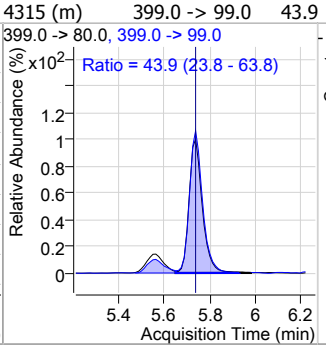


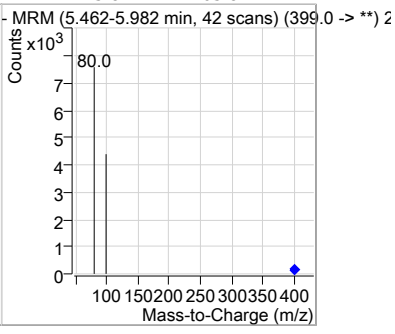


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	3.08	5.74	0.02	4315 (m)	399.0 -> 99.0	43.9	23.8	63.8



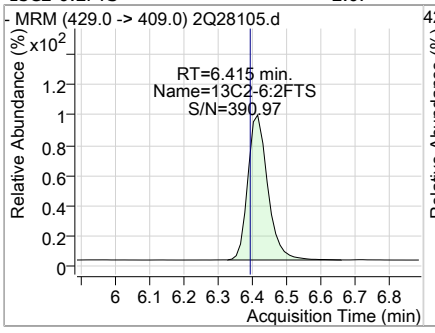


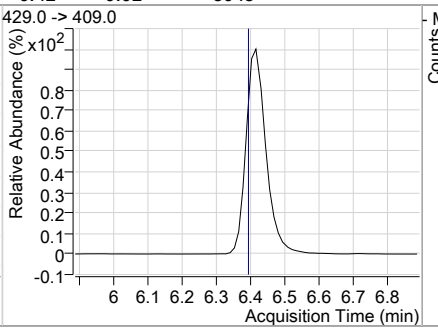


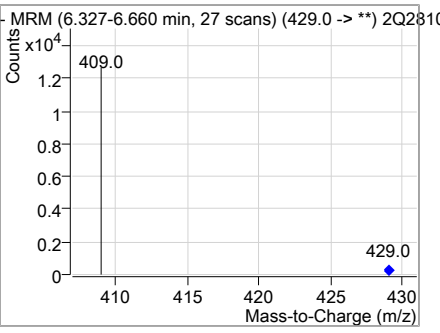


Perfluorinated Compounds by LC/MS/MS

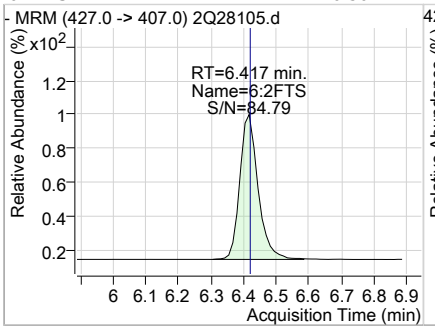
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	2.67	6.42	0.02	8048				

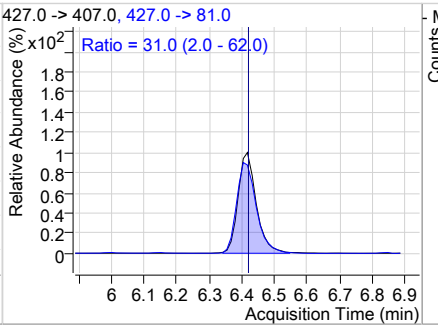


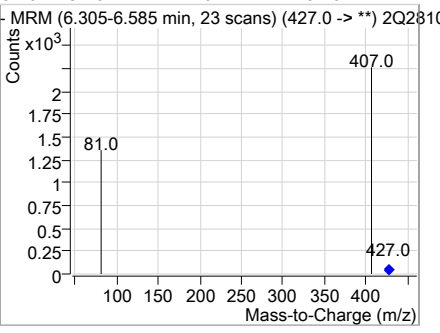




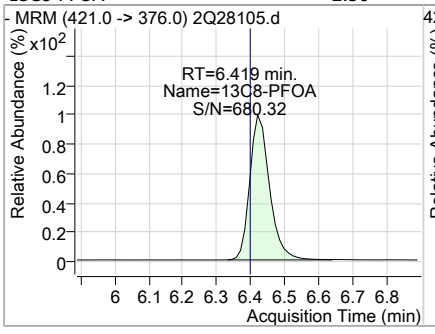
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.50	6.42	0.02	1020	427.0 -> 81.0	31.0	2.0	62.0

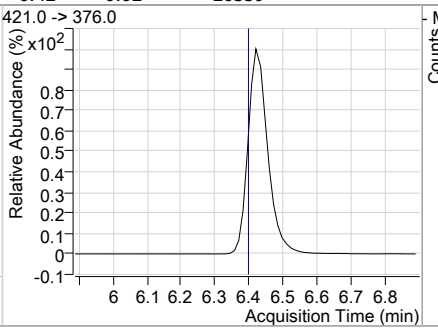


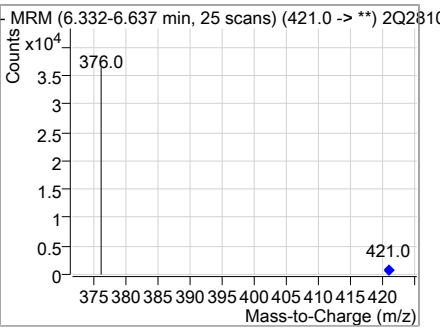




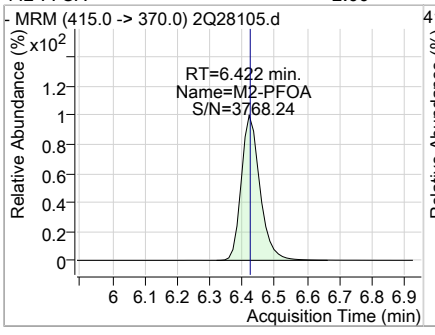
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.56	6.42	0.02	26359				

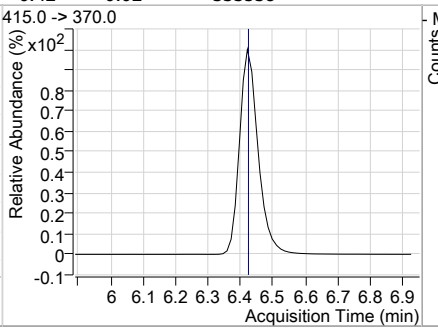


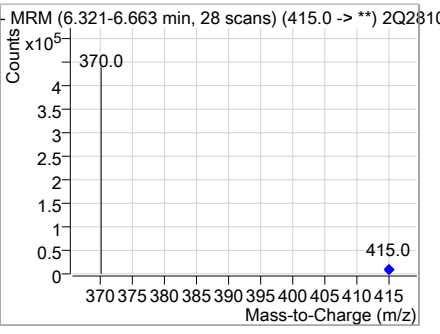




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	2.00	6.42	0.02	333538				

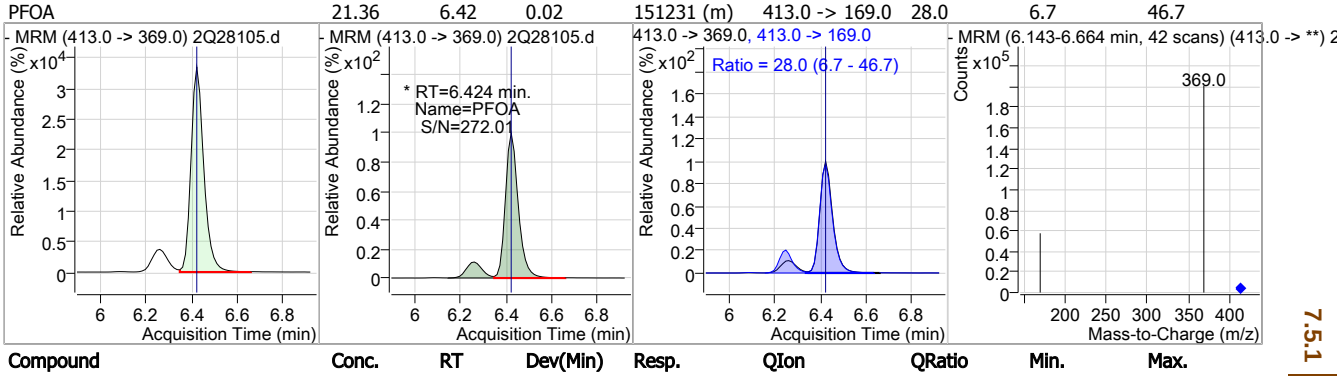




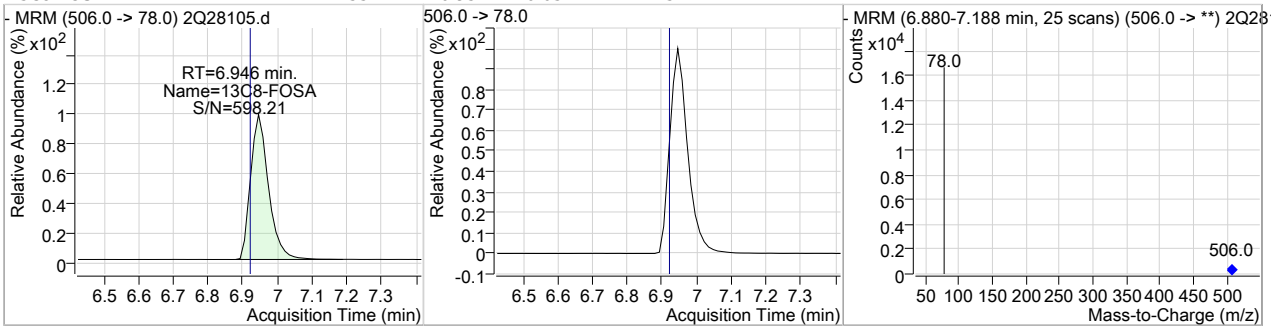


Perfluorinated Compounds by LC/MS/MS

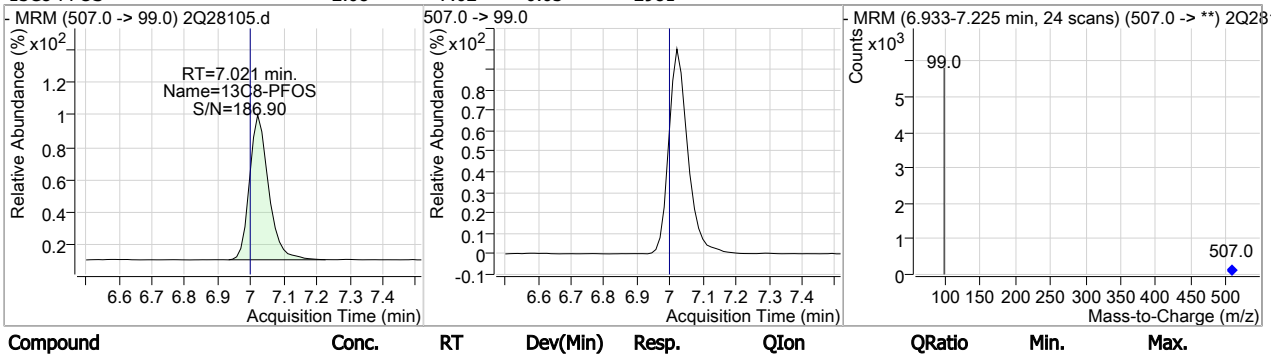
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.36	6.42	0.02	151231 (m)	413.0 -> 169.0	28.0	6.7	46.7



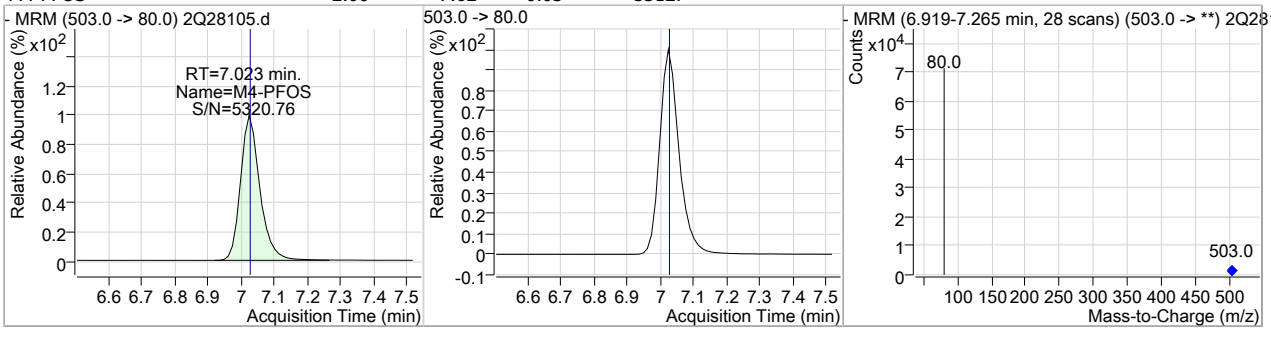
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.55	6.95	0.03	11437				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.08	7.02	0.03	2981				

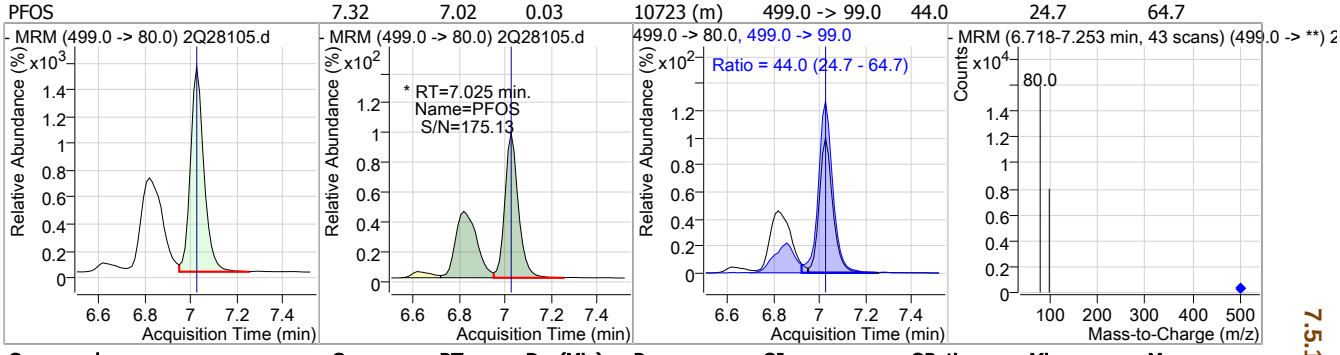


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	2.00	7.02	0.03	53127				

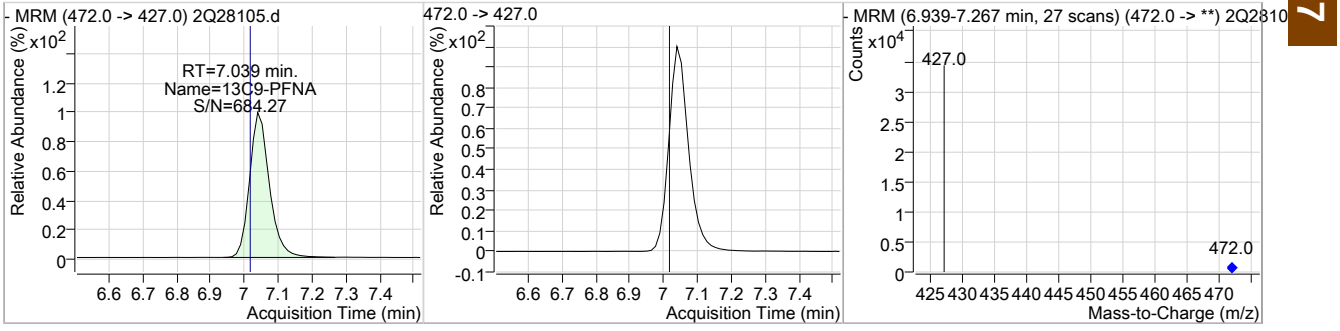


Perfluorinated Compounds by LC/MS/MS

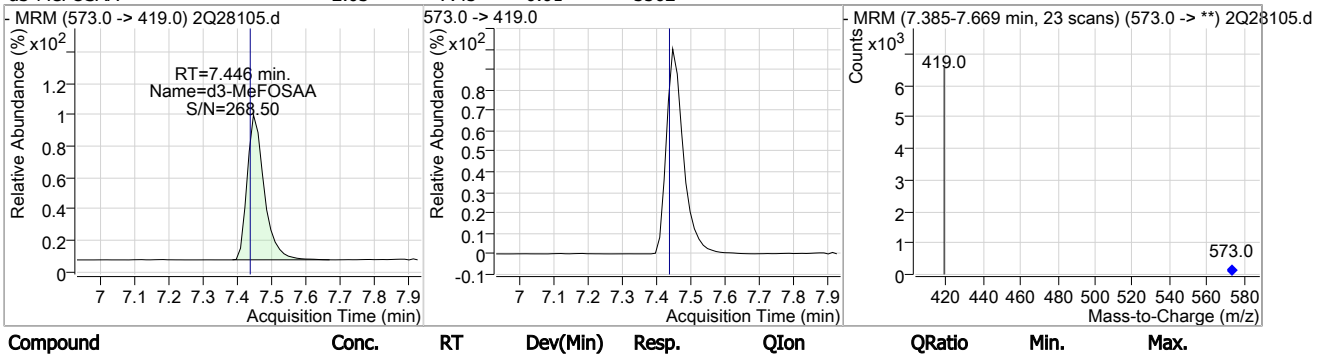
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	7.32	7.02	0.03	10723 (m)	499.0 -> 99.0	44.0	24.7	64.7



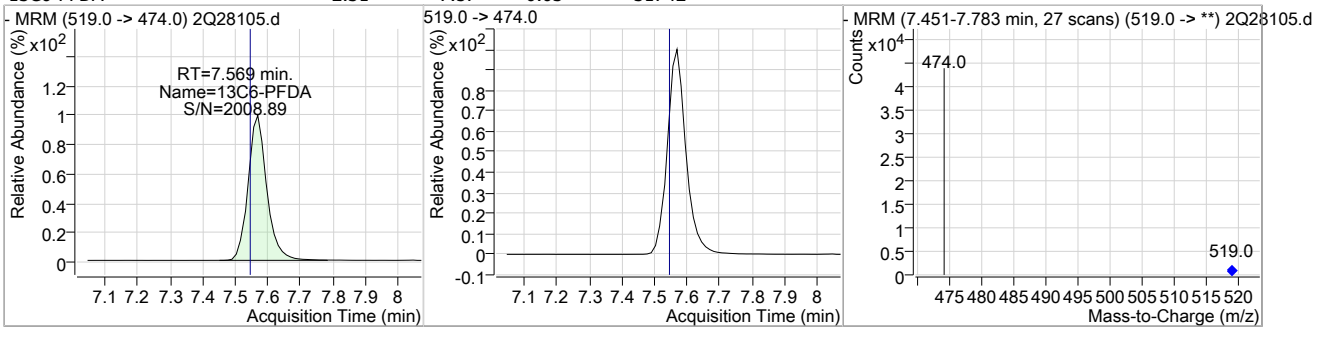
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	2.34	7.04	0.03	24395				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	2.03	7.45	0.01	3562				



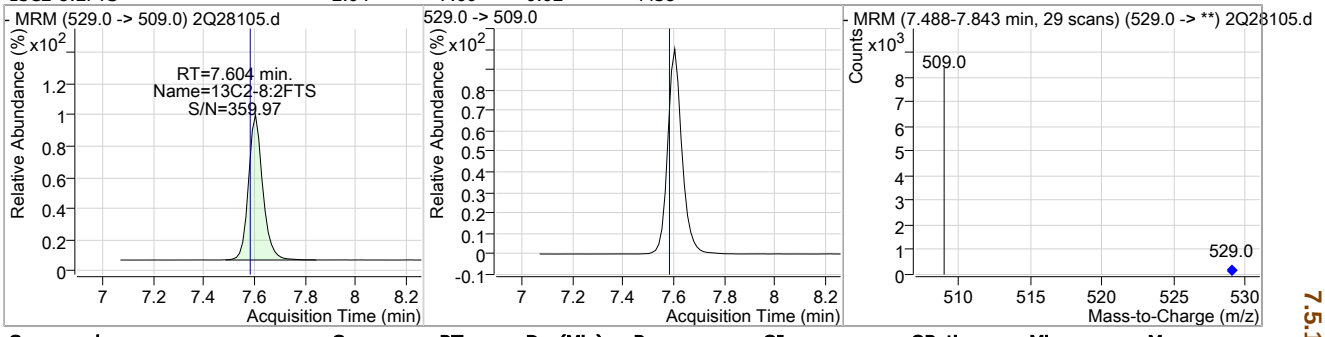
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	2.31	7.57	0.03	31742				



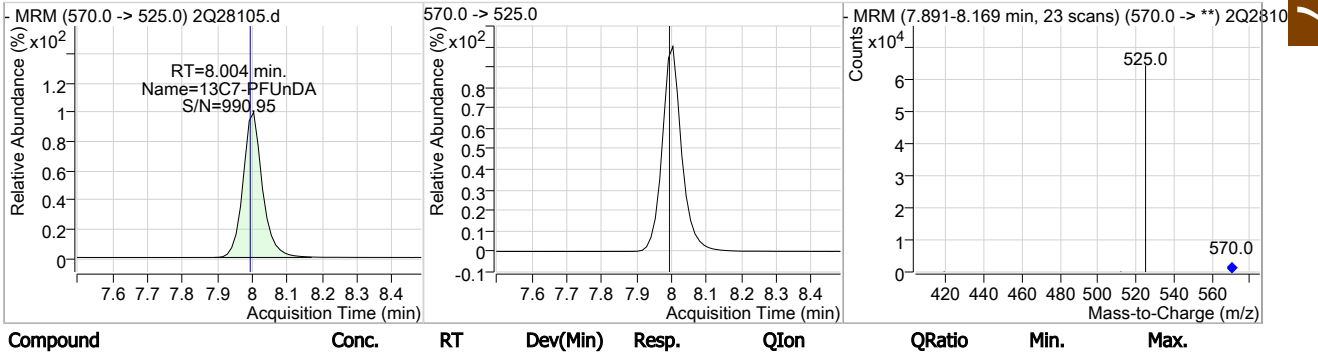
7.5.1

Perfluorinated Compounds by LC/MS/MS

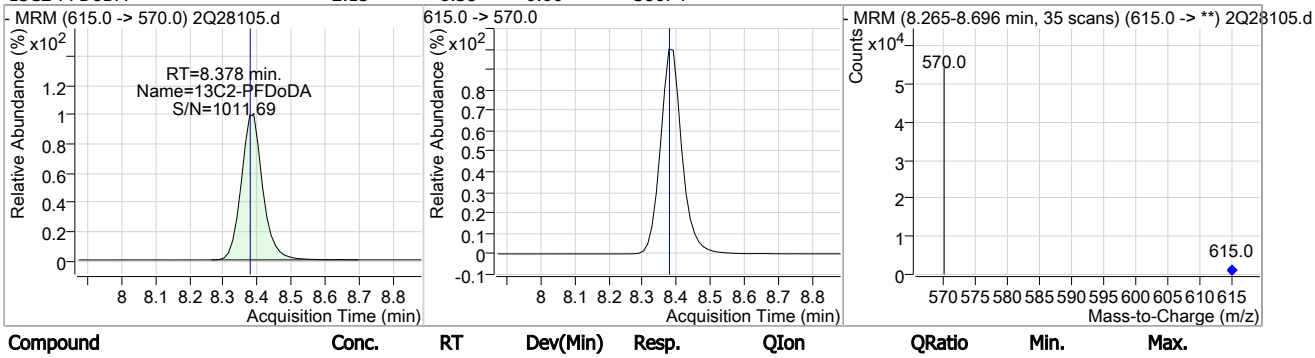
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	2.04	7.60	0.02	4438				



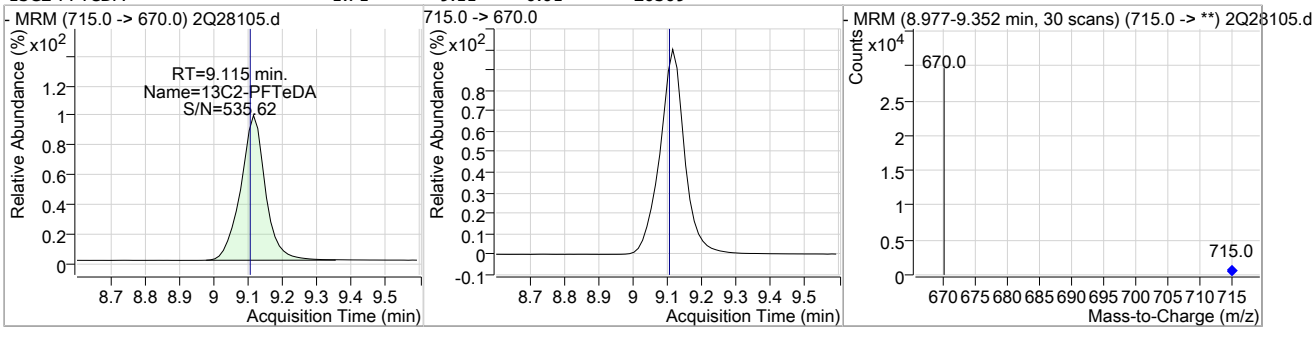
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	2.73	8.00	0.01	47500				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	2.15	8.38	0.00	38674				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.71	9.11	0.01	20309				



Manual Integration Approval Summary

Sample Number: OP74263-DUP
Lab FileID: 2Q28105.D
Injection Time: 03/25/19 17:30
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/03/19 15:32 Natasha Gumtie
Supervisor approved: 04/03/19 16:27 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		5.70	Split peak
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanoic acid	335-67-1		6.42	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.03	Split peak

Cal Report: 2Q27857.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q27857.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/21/2019 11:07:46 AM
Sample Name : IC445-0.5
Vial : Vial 2
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : S2Q445.batch.bin
Sample Information : op74164,S2Q445,250,,,1.0,1,water

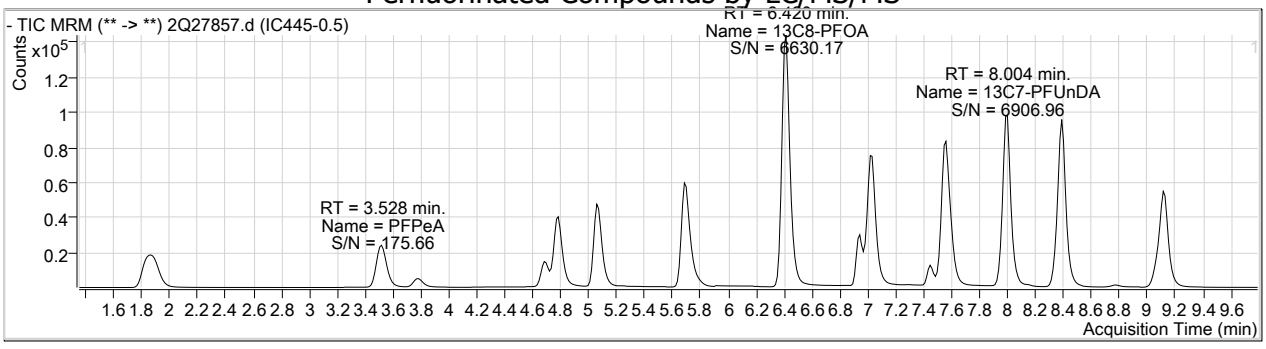
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.422	415.0 -> 370.0	289183	20.00	µg/L	0.013
13C4-PFOS	7.023	503.0 -> 80.0	50417	20.00	µg/L	0.013
M4-PFBA	1.865	217.0 -> 172.0	143393	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	122296	20.00	µg/L	0.013
M5-PFHxA	4.789	318.0 -> 273.0	165964	20.00	µg/L	0.013
M4-PFHpA	5.693	367.0 -> 322.0	232373	20.00	µg/L	0.000
M8-PFOA	6.420	421.0 -> 376.0	236911	20.00	µg/L	0.013
M9-PFNA	7.039	472.0 -> 427.0	233861	20.00	µg/L	0.013
M6-PFDA	7.555	519.0 -> 474.0	317015	20.00	µg/L	0.000
M7-PFUnDA	8.004	570.0 -> 525.0	397835	20.00	µg/L	0.013
M2-PFDoDA	8.389	615.0 -> 570.0	408840	20.00	µg/L	0.013
M2-PFTeDA	9.114	715.0 -> 670.0	266640	20.00	µg/L	0.000
M8-FOSA	6.944	506.0 -> 78.0	101800	20.00	µg/L	0.013
M3-PFBS	3.780	302.0 -> 99.0	22874	20.00	µg/L	0.013
M3-PFHxS	5.736	402.0 -> 99.0	24904	20.00	µg/L	0.000
M8-PFOS	7.020	507.0 -> 99.0	32108	20.00	µg/L	0.013
M2-4:2FTS	4.684	329.0 -> 309.0	59742	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	65444	20.00	µg/L	0.000
M2-8:2FTS	7.605	529.0 -> 509.0	46396	20.00	µg/L	0.013
M3-MeFOSAA	7.446	573.0 -> 419.0	39025	20.00	µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	188466	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	59732	20.99	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C2-6:2FTS	6.403	429.0 -> 409.0	65448	21.72	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.6%		
13C2-8:2FTS	7.605	529.0 -> 509.0	46391	21.35	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C2-PFDoDA	8.389	615.0 -> 570.0	408685	22.74	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.7%		
13C2-PFTeDA	9.114	715.0 -> 670.0	266376	22.39	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.0%		
13C3-PFBS	3.780	302.0 -> 99.0	22785	22.21	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.0%		
13C3-PFHxS	5.736	402.0 -> 99.0	24862	22.37	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.9%		
13C4-PFBA	1.865	217.0 -> 172.0	142739	21.83	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.2%		
13C4-PFHpA	5.693	367.0 -> 322.0	232526	22.49	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.5%		
13C5-PFHxA	4.789	318.0 -> 273.0	165729	22.36	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.8%		
13C5-PFPeA	3.524	268.0 -> 223.0	122313	22.23	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.2%		
13C6-PFDA	7.555	519.0 -> 474.0	316986	23.06	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

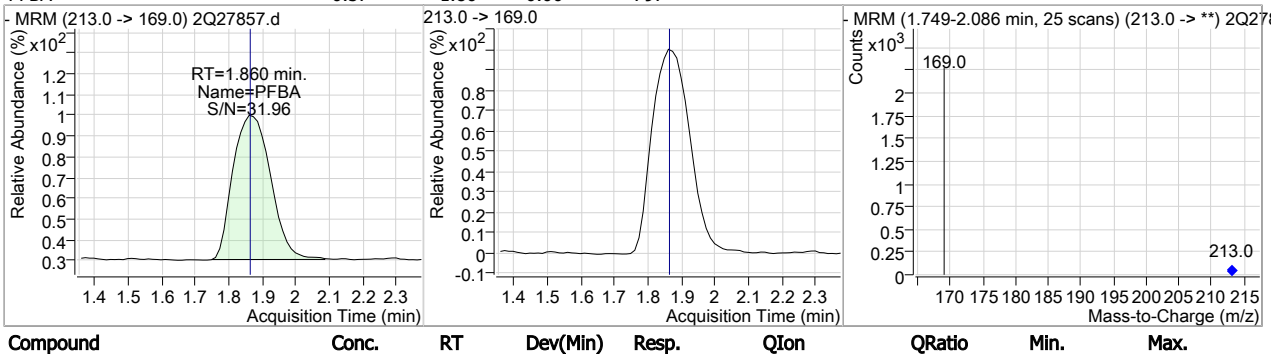
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.3%		
13C7-PFUnDA	8.004	570.0 -> 525.0	397760	22.88 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.4%		
13C8-FOSA	6.944	506.0 -> 78.0	101837	22.70 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.5%		
13C8-PFOA	6.420	421.0 -> 376.0	236807	22.98 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.9%		
13C8-PFOS	7.020	507.0 -> 99.0	32130	22.47 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.3%		
13C9-PFNA	7.039	472.0 -> 427.0	233895	22.44 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.2%		
d3-MeFOSAA	7.446	573.0 -> 419.0	39005	22.24 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.2%		
M2-PFOA	6.422	415.0 -> 370.0	289253	20.00 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	50516	20.02 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	188466	113.06 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 113.1%		
Target Compounds						**QValue**
4:2FTS	4.687	327.0 -> 307.0	1012	0.58 µg/L		97
6:2FTS	6.405	427.0 -> 407.0	973	0.59 µg/L		100
8:2FTS	7.593	527.0 -> 507.0	719	0.59 µg/L		96
EtFOSAA	7.598	584.0 -> 419.0	550	0.64 µg/L		93
FOSA	6.934	498.0 -> 78.0	1312	0.56 µg/L		94
MeFOSAA	7.447	570.0 -> 419.0	614	0.60 µg/L		96
PFBA	1.860	213.0 -> 169.0	797	0.57 µg/L		100
PFBS	3.771	299.0 -> 80.0	1025	0.55 µg/L		99
PFDA	7.556	513.0 -> 469.0	3610	0.53 µg/L		97
PFDoDA	8.391	613.0 -> 569.0	5082	0.54 µg/L		98
PFDS	7.963	599.0 -> 80.0	305	0.56 µg/L		91
PFHpA	5.695	363.0 -> 319.0	5510	0.53 µg/L		98
PFHpS	6.429	449.0 -> 80.0	615	0.53 µg/L		99
PFHxA	4.790	313.0 -> 269.0	1661	0.57 µg/L		98
PFHxS	5.739	399.0 -> 80.0	751	0.55 µg/L	m	99
PFNA	7.041	463.0 -> 419.0	4179	0.54 µg/L		97
PFNS	7.527	549.0 -> 80.0	626	0.57 µg/L		90
PFOA	6.424	413.0 -> 369.0	3611	0.57 µg/L		97
PFOS	7.024	499.0 -> 80.0	878	0.56 µg/L	m	99
PFPeA	3.528	263.0 -> 219.0	3010	0.55 µg/L		100
PFPeS	4.895	349.0 -> 80.0	616	0.52 µg/L		92
PFTeDA	9.119	713.0 -> 669.0	5104	0.56 µg/L		99
PFTrDA	8.776	663.0 -> 619.0	5623	0.54 µg/L		100
PFUnDA	8.005	563.0 -> 519.0	4582	0.56 µg/L		98
11Cl-PF3OUdS	8.149	631.0 -> 451.0	3131	0.51 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	678	0.53 µg/L		100
ADONA	5.791	377.0 -> 251.0	6365	0.54 µg/L		100
HFPO-DA	5.073	329.0 -> 169.0	6027	2.75 µg/L		96

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

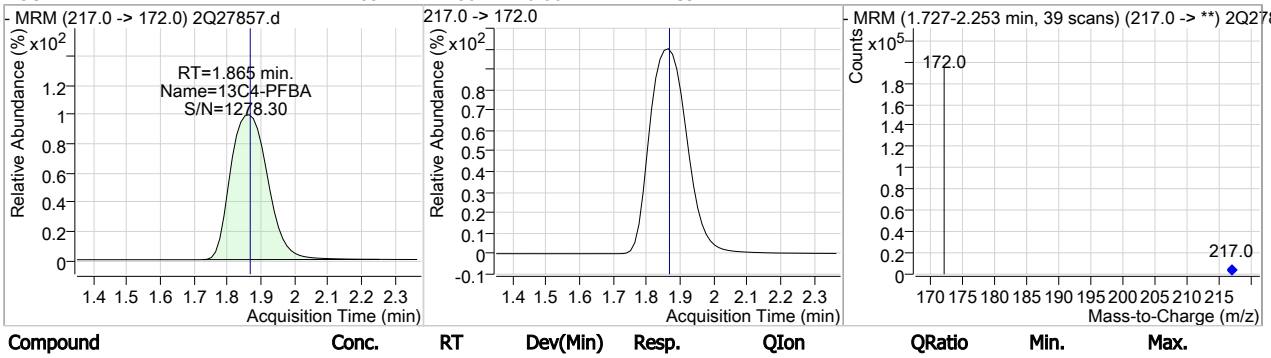
Perfluorinated Compounds by LC/MS/MS



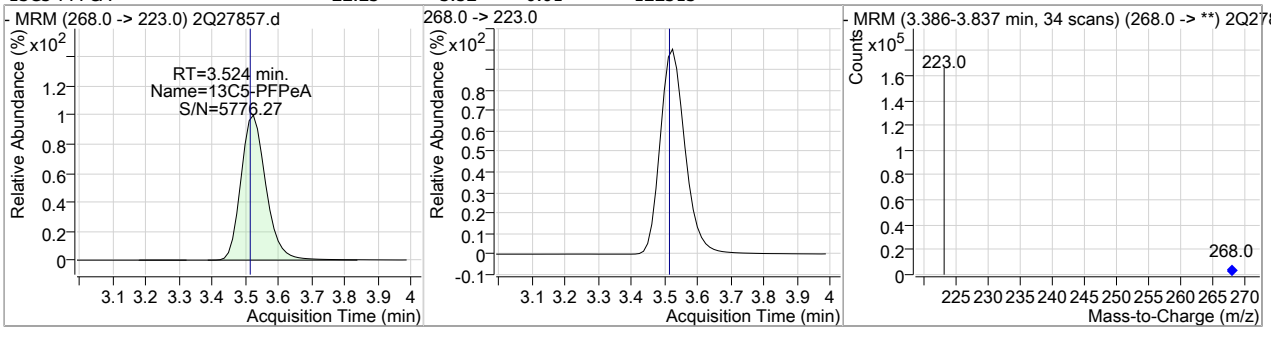
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.57	1.86	0.00	797				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.83	1.86	0.00	142739				

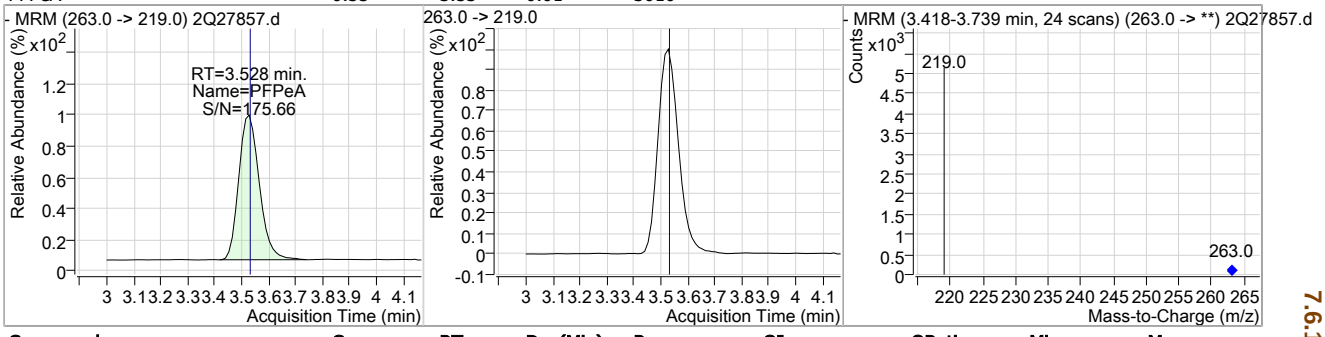


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	22.23	3.52	0.01	122313				

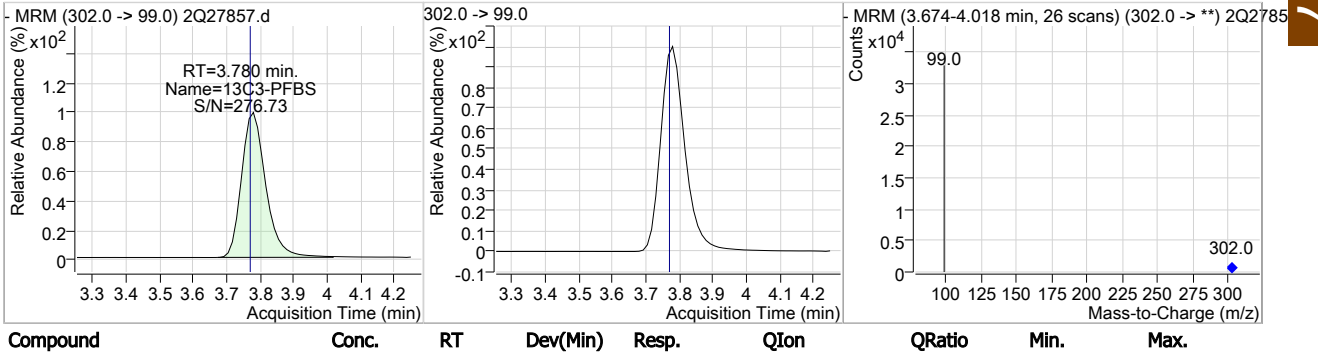


Perfluorinated Compounds by LC/MS/MS

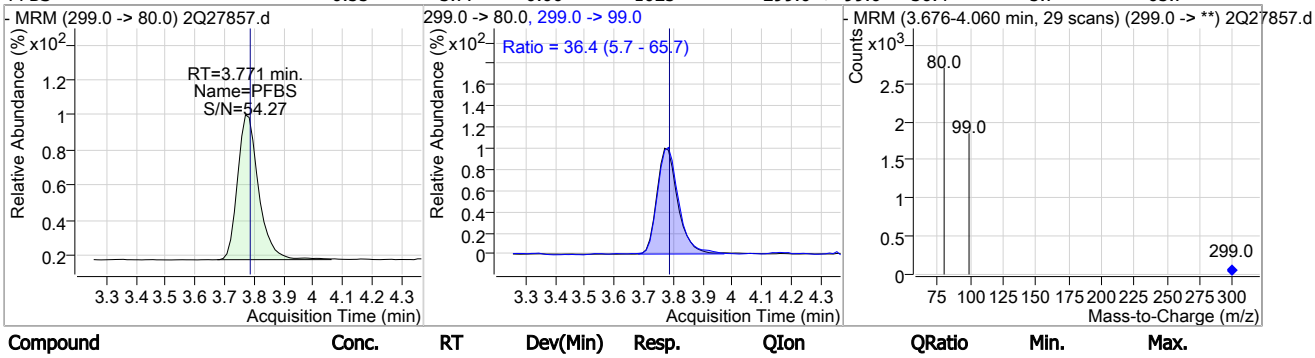
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.55	3.53	0.01	3010				



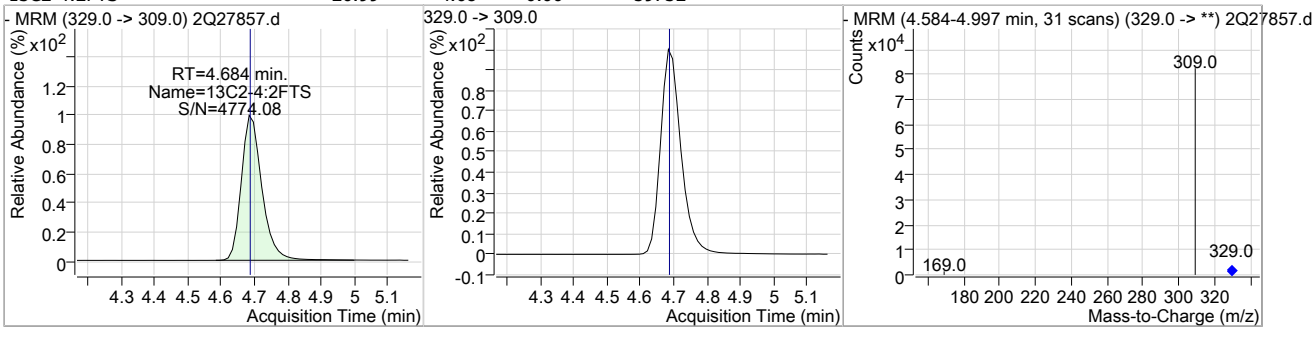
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	22.21	3.78	0.01	22785				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.55	3.77	0.00	1025	299.0 -> 99.0	36.4	5.7	65.7

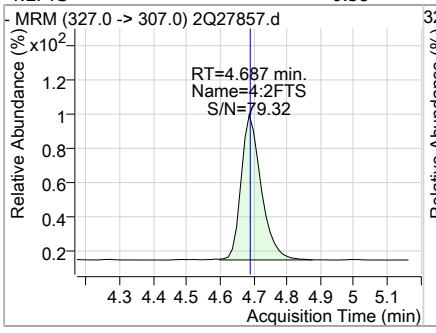


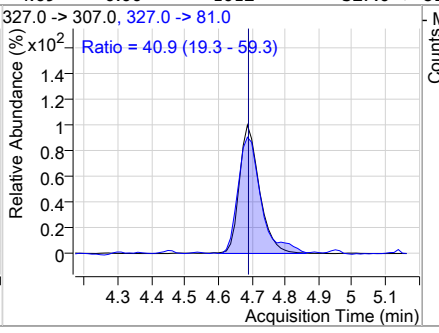
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.99	4.68	0.00	59732				

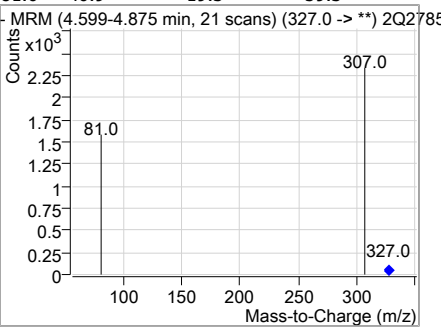


Perfluorinated Compounds by LC/MS/MS

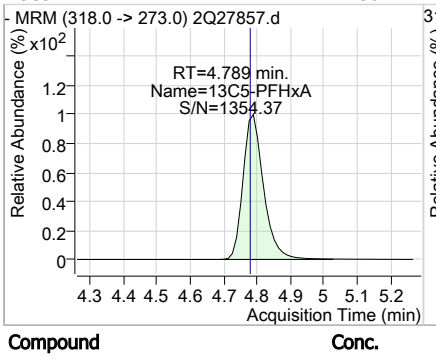
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.58	4.69	0.00	1012	327.0 -> 81.0	40.9	19.3	59.3

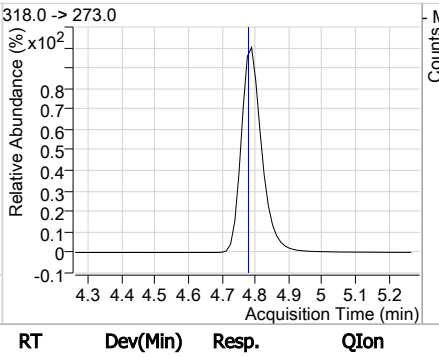


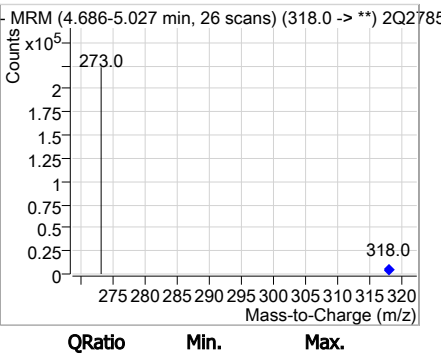




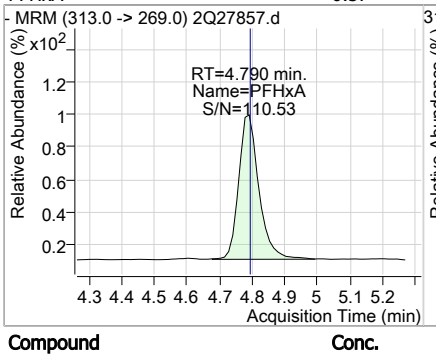
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	22.36	4.79	0.01	165729				

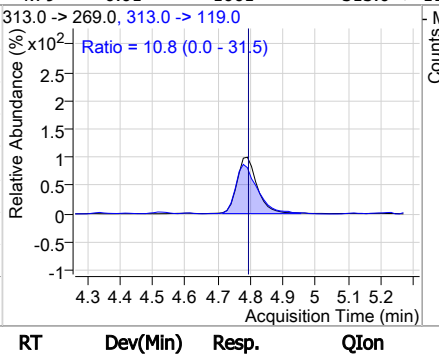


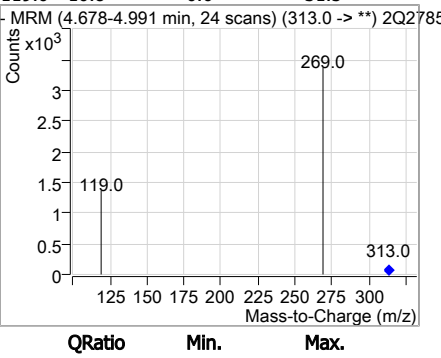




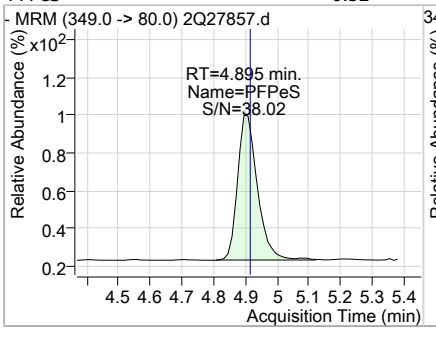
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.57	4.79	0.01	1661	313.0 -> 119.0	10.8	0.0	31.5

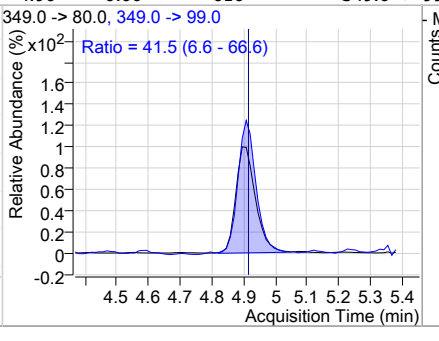


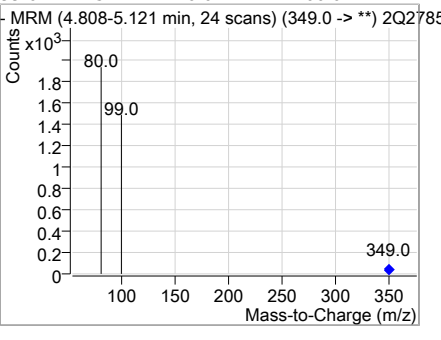




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.52	4.90	0.00	616	349.0 -> 99.0	41.5	6.6	66.6

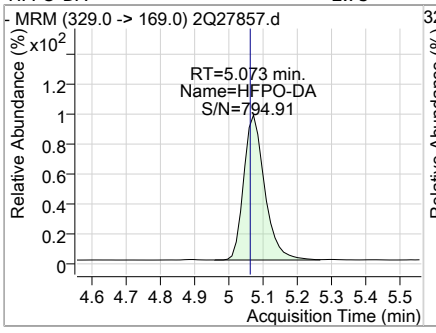


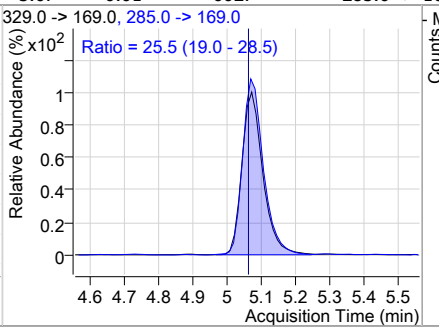


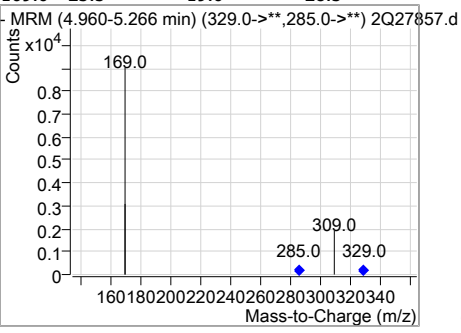


Perfluorinated Compounds by LC/MS/MS

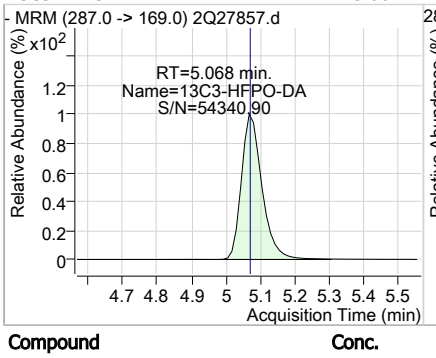
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.75	5.07	0.01	6027	285.0 -> 169.0	25.5	19.0	28.5

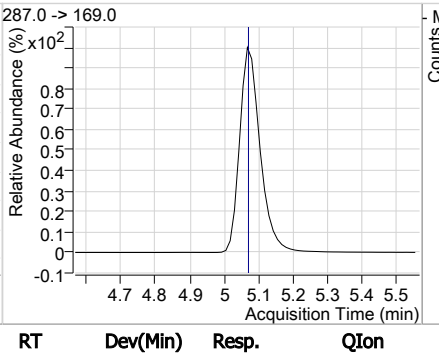


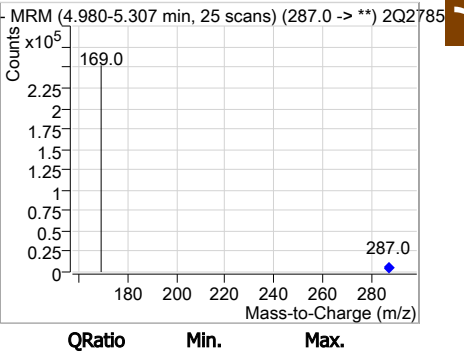




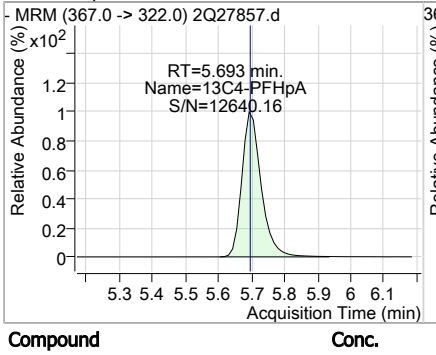
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	113.06	5.07	0.00	188466				

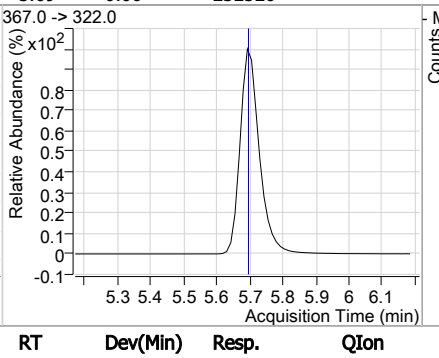


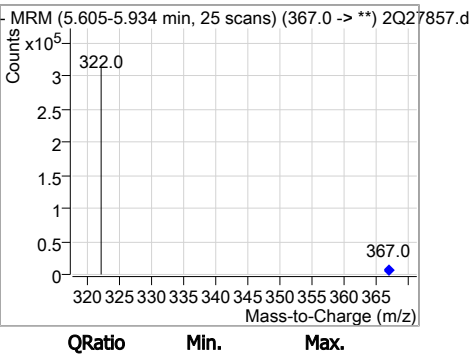




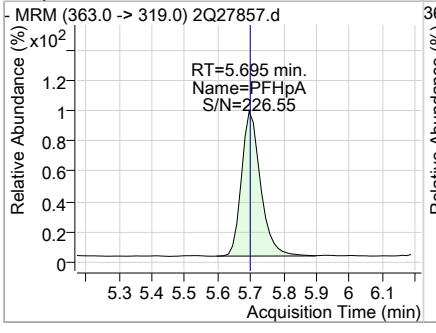
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	22.49	5.69	0.00	232526				

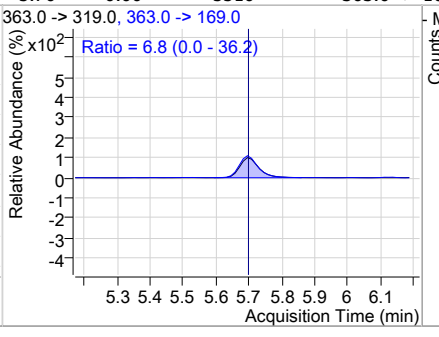


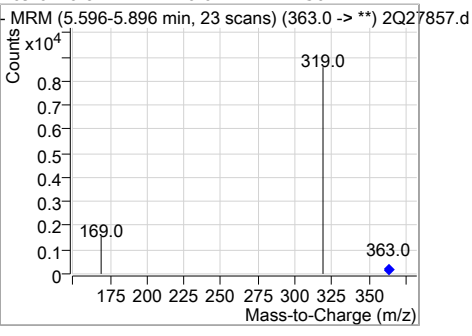




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.53	5.70	0.00	5510	363.0 -> 169.0	6.8	0.0	36.2

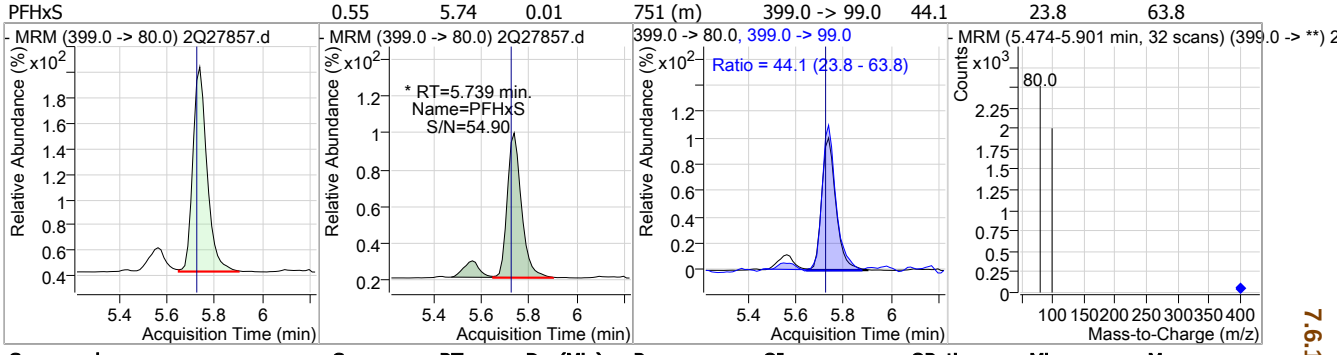




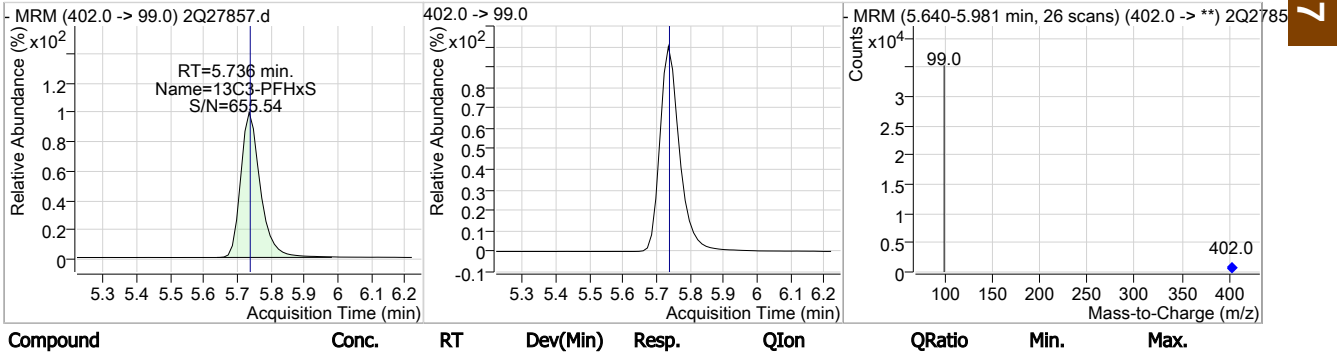


Perfluorinated Compounds by LC/MS/MS

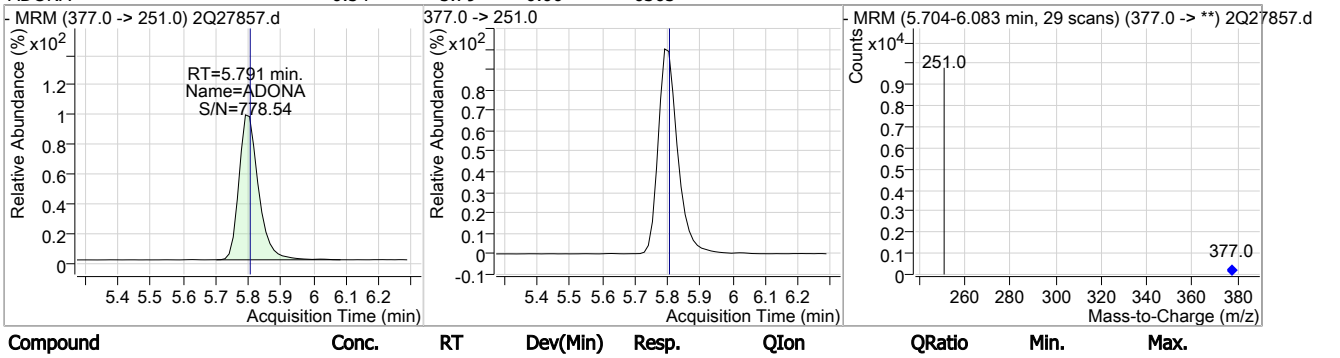
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.55	5.74	0.01	751 (m)	399.0 -> 99.0	44.1	23.8	63.8



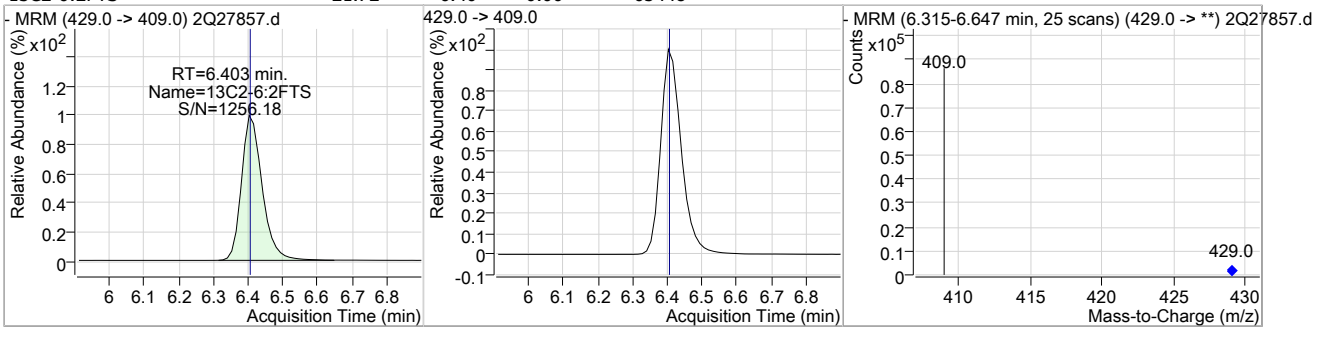
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	22.37	5.74	0.00	24862				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.54	5.79	0.00	6365				

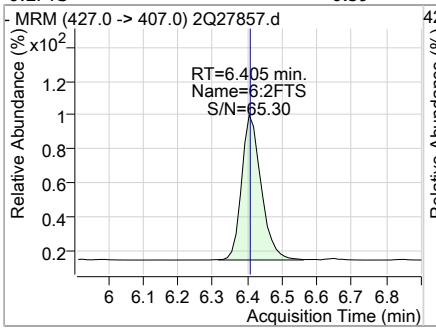


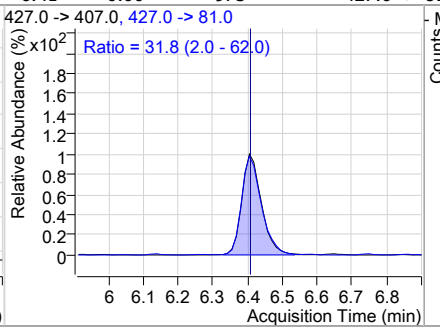
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.72	6.40	0.00	65448				

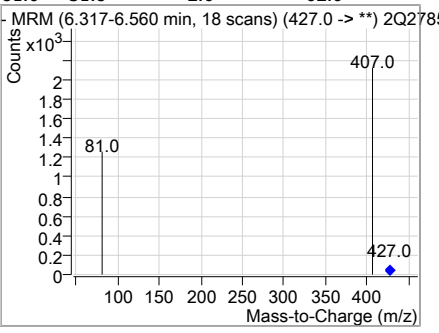


Perfluorinated Compounds by LC/MS/MS

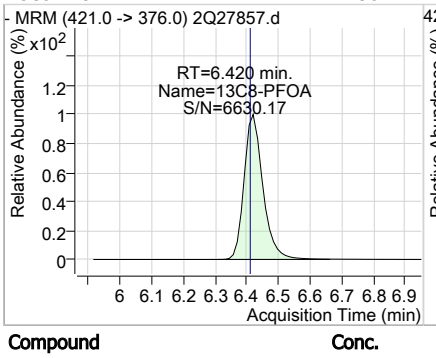
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.59	6.41	0.00	973	427.0 -> 81.0	31.8	2.0	62.0

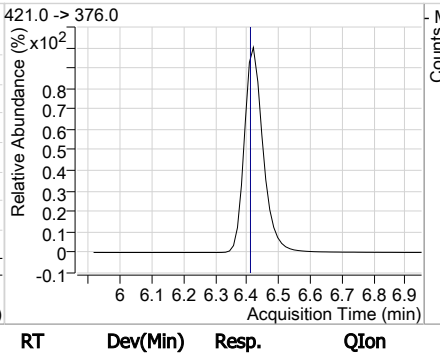


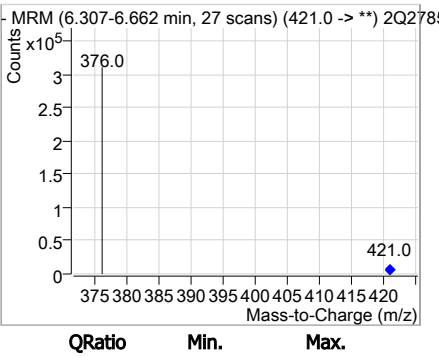




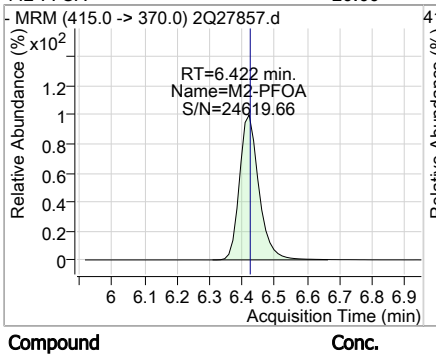
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	22.98	6.42	0.01	236807				

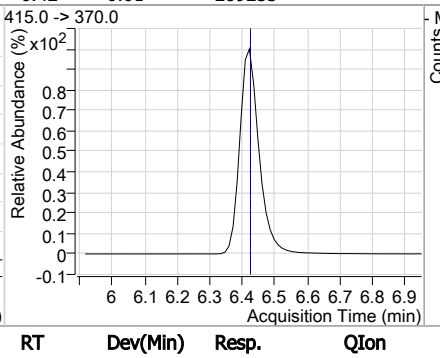


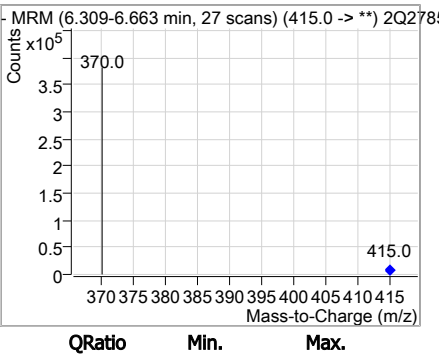




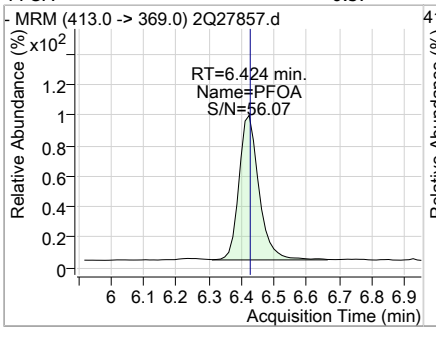
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.42	0.01	289253				

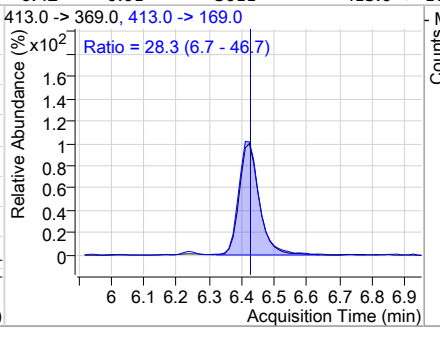


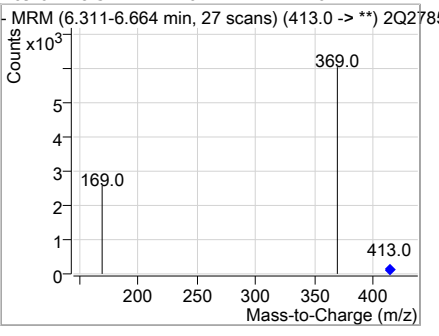




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.57	6.42	0.01	3611	413.0 -> 169.0	28.3	6.7	46.7



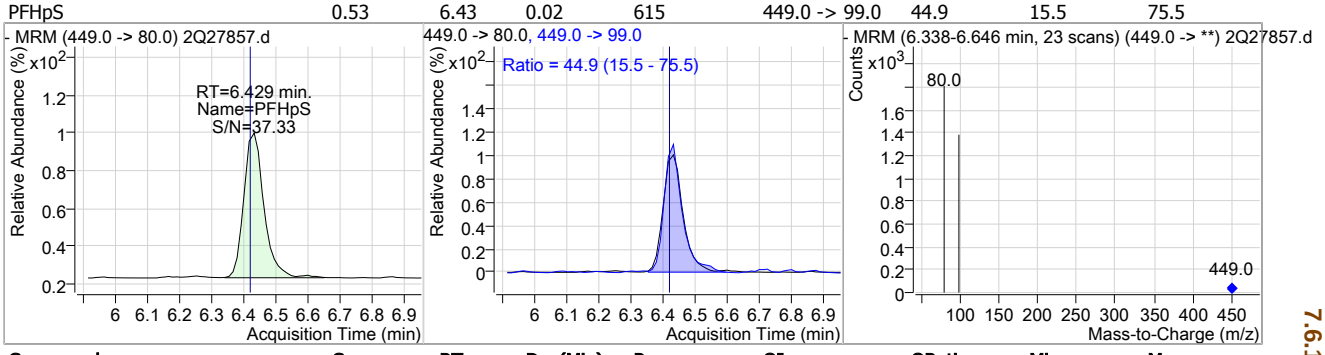




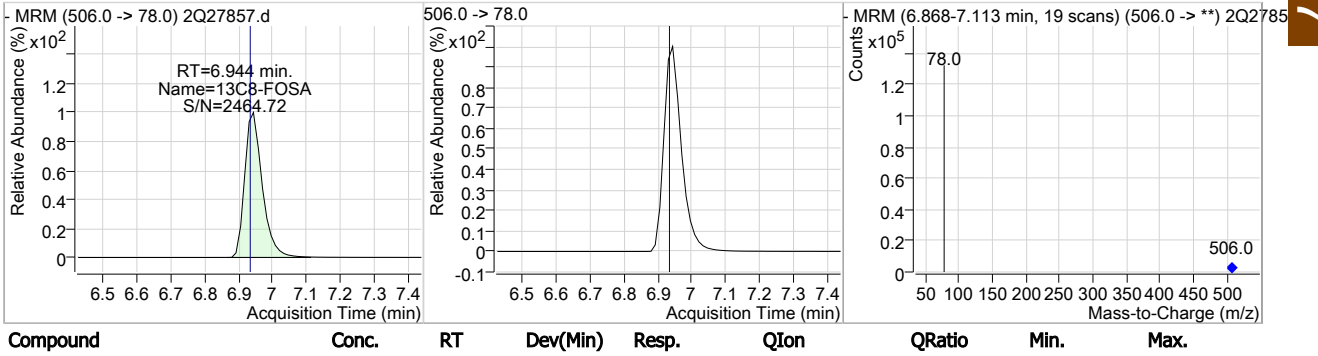
7.6.1

Perfluorinated Compounds by LC/MS/MS

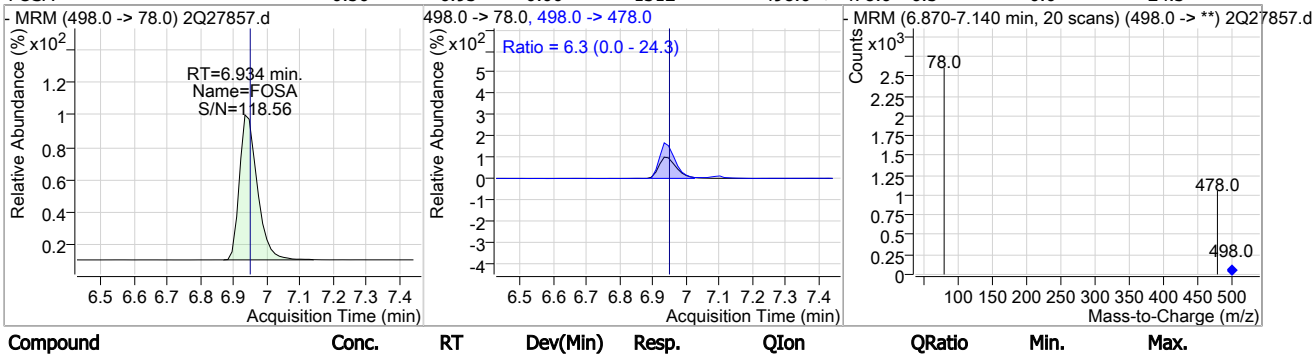
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.53	6.43	0.02	615	449.0 -> 99.0	44.9	15.5	75.5



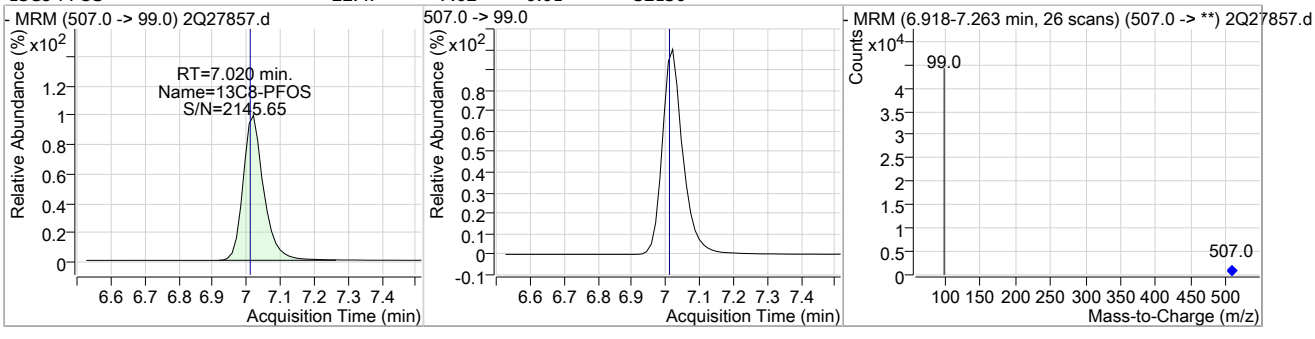
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	22.70	6.94	0.01	101837				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.56	6.93	0.00	1312	498.0 -> 478.0	6.3	0.0	24.3



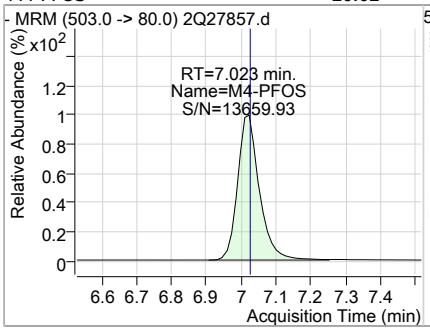
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	22.47	7.02	0.01	32130				

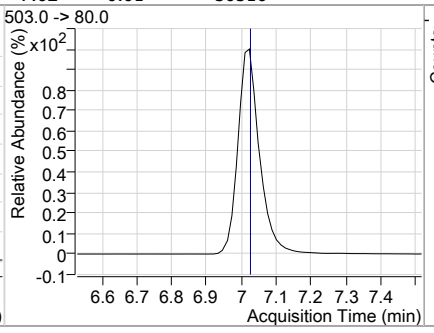


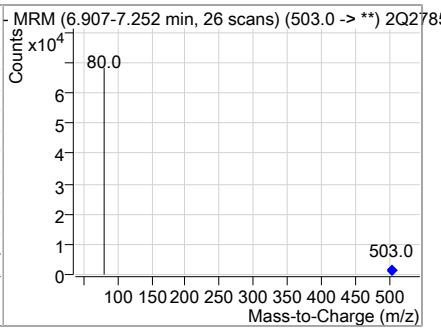
7.6.1

Perfluorinated Compounds by LC/MS/MS

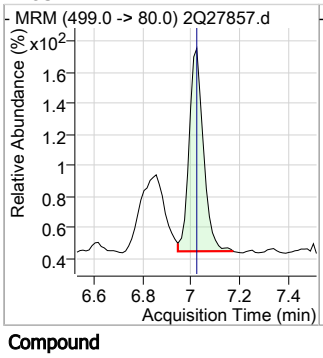
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.02	0.01	50516				

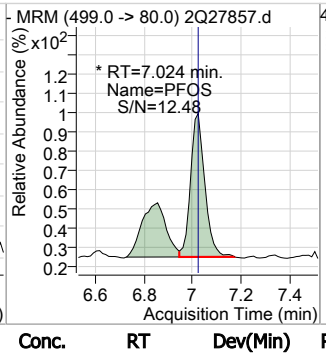


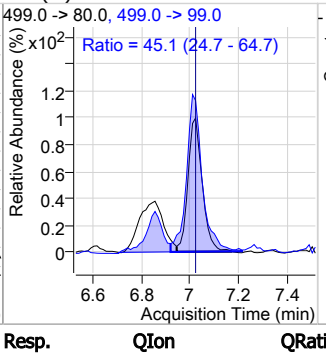


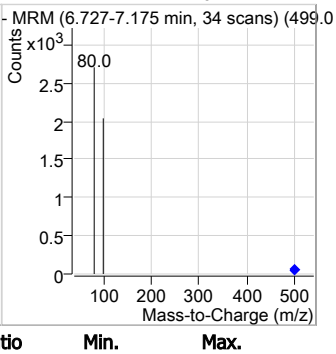


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.56	7.02	0.01	878 (m)	499.0 -> 99.0	45.1	24.7	64.7

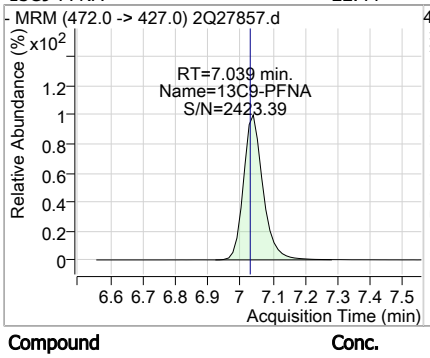


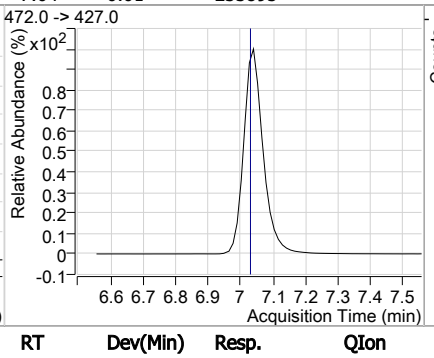


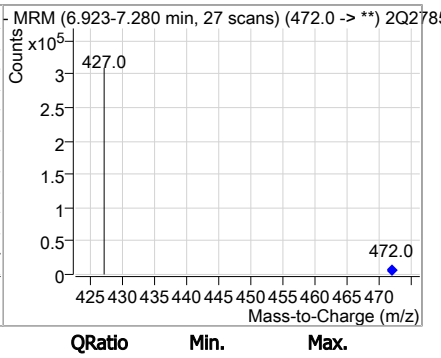




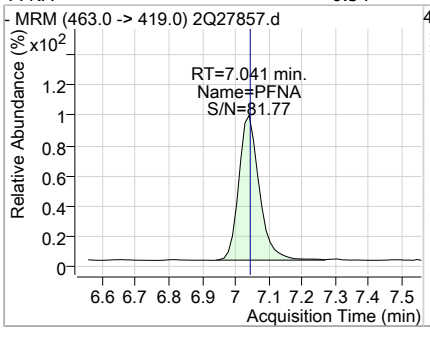
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	22.44	7.04	0.01	233895				

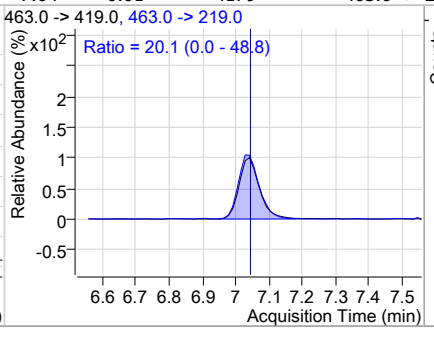


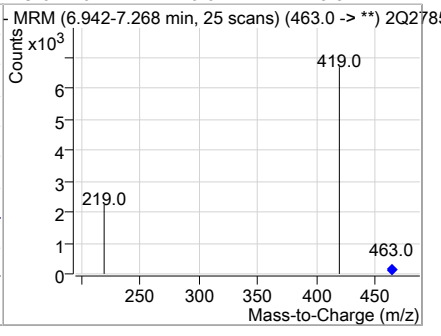




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.54	7.04	0.01	4179	463.0 -> 219.0	20.1	0.0	48.8

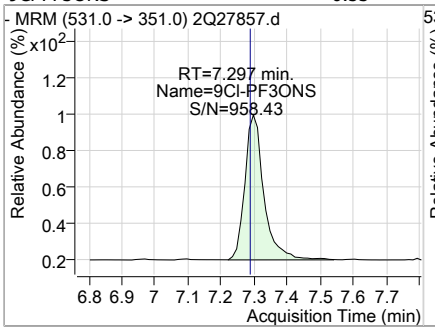


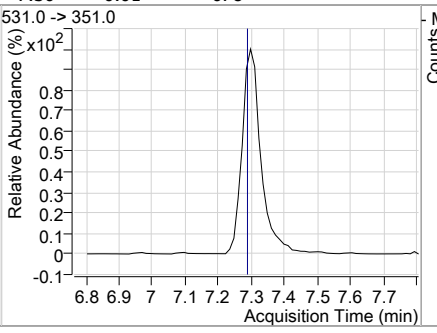


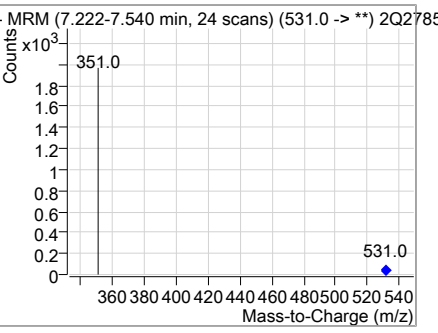


Perfluorinated Compounds by LC/MS/MS

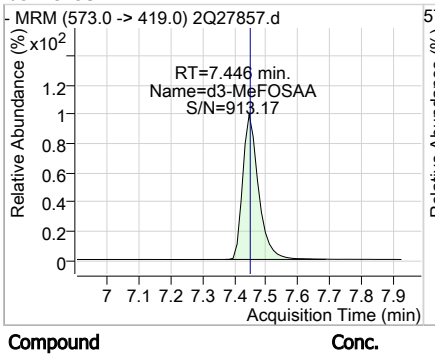
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.53	7.30	0.01	678				

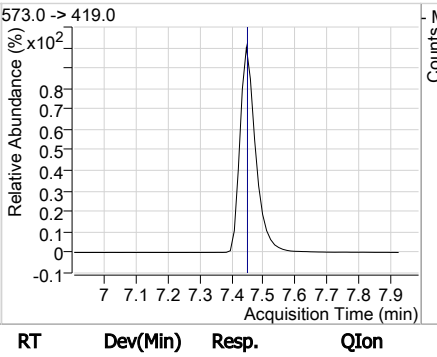


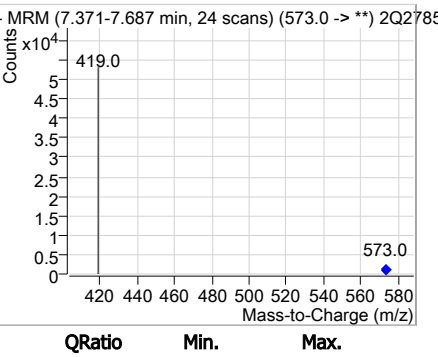




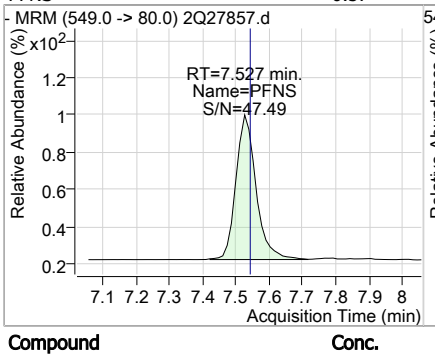
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	22.24	7.45	0.00	39005				

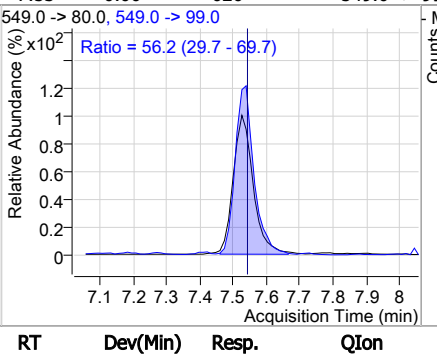


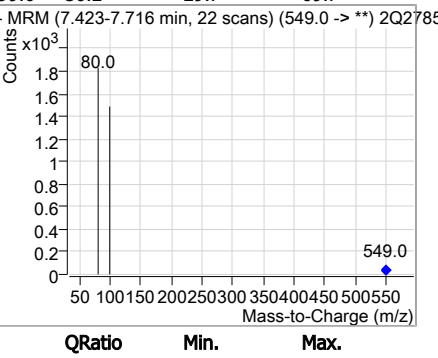




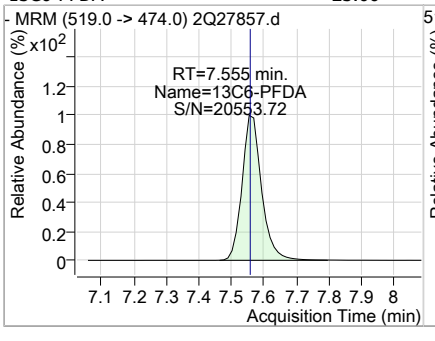
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.57	7.53	0.00	626	549.0 -> 99.0	56.2	29.7	69.7

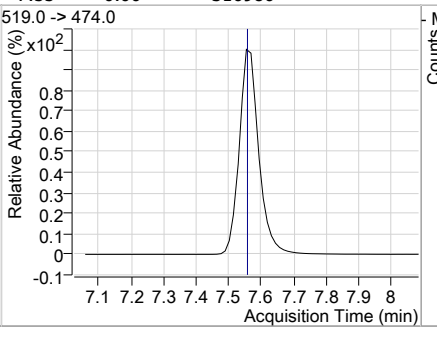


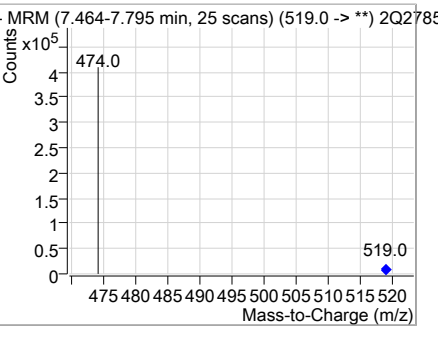




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	23.06	7.55	0.00	316986				

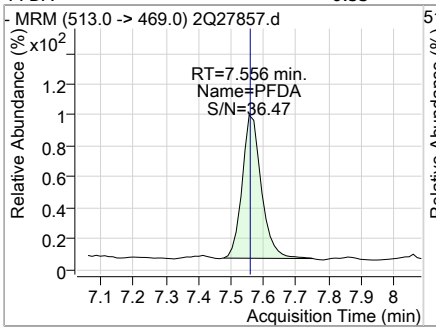


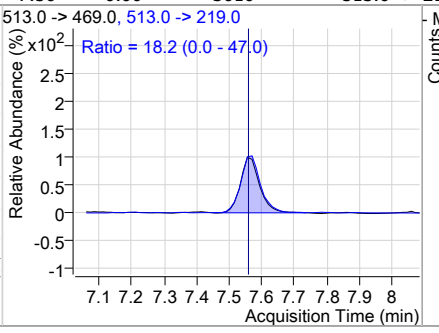


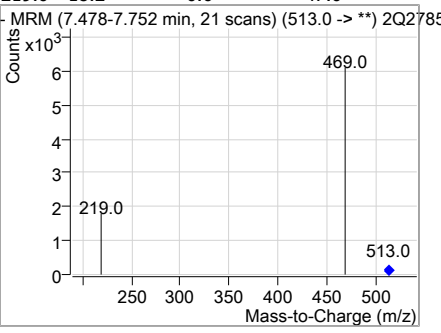


Perfluorinated Compounds by LC/MS/MS

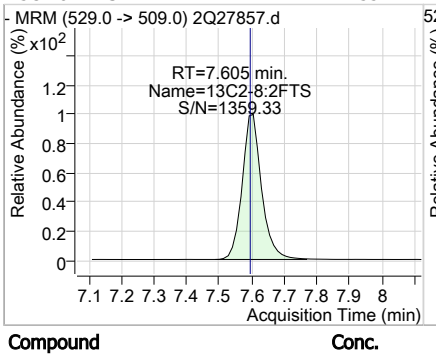
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.53	7.56	0.00	3610	513.0 -> 219.0	18.2	0.0	47.0

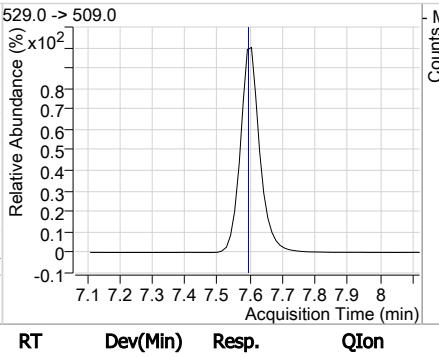


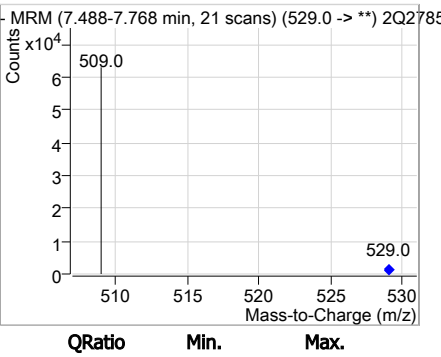




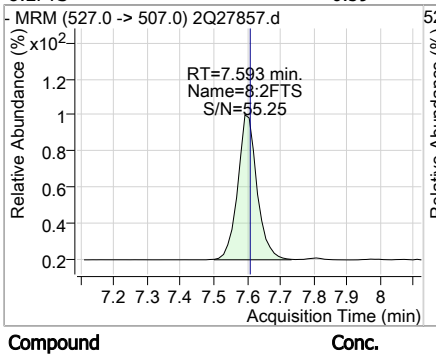
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	21.35	7.60	0.01	46391				

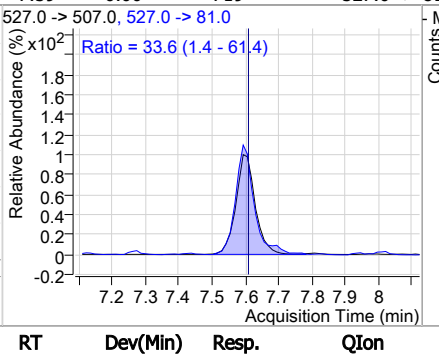


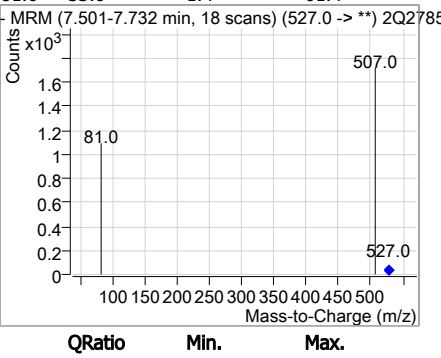




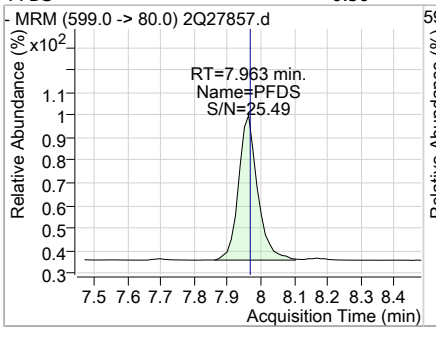
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.59	7.59	0.00	719	527.0 -> 81.0	33.6	1.4	61.4

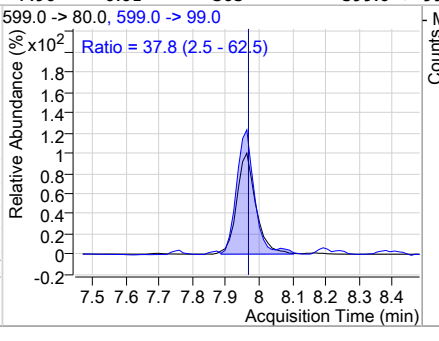


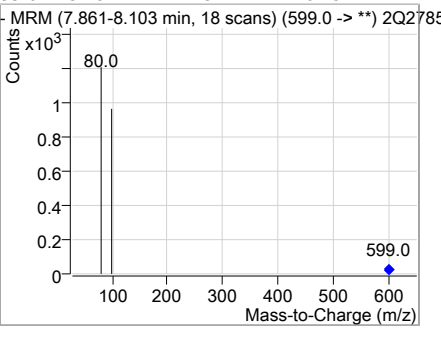




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.56	7.96	0.01	305	599.0 -> 99.0	37.8	2.5	62.5

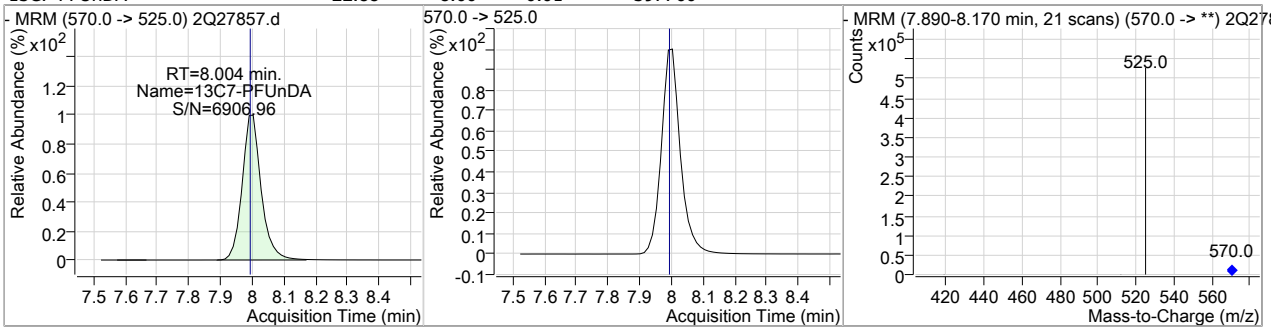




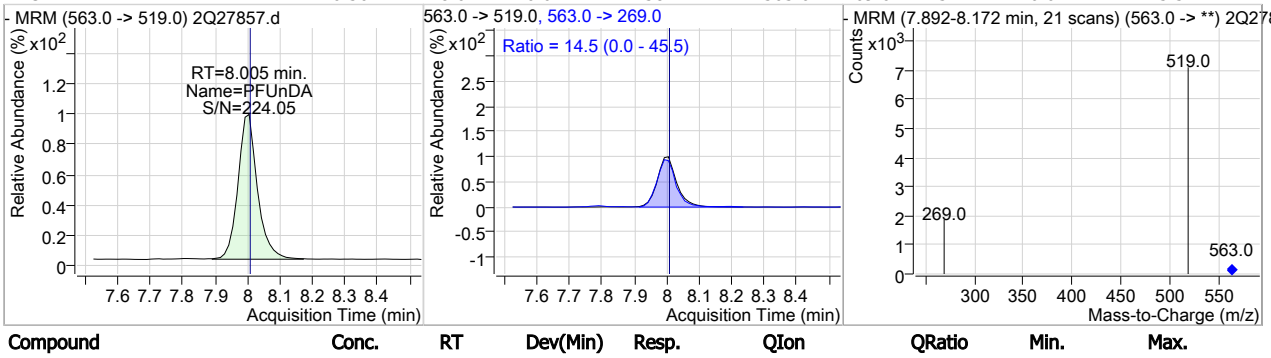


Perfluorinated Compounds by LC/MS/MS

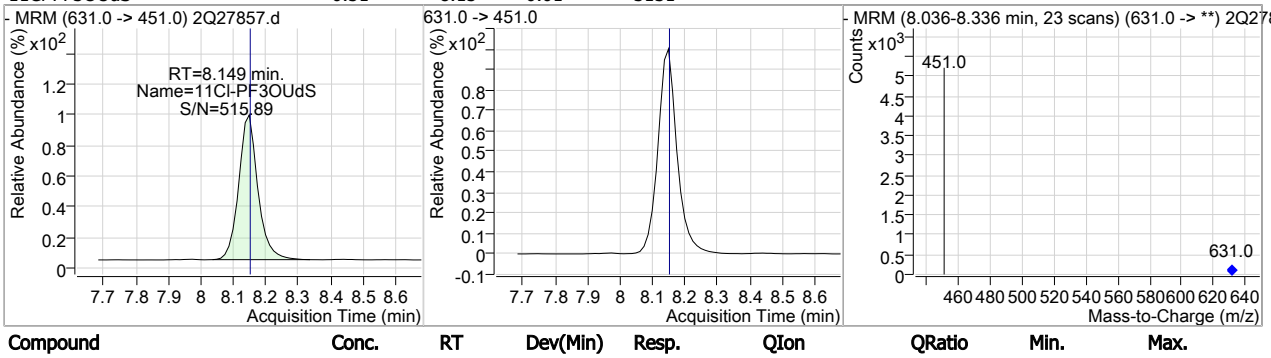
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	22.88	8.00	0.01	397760				



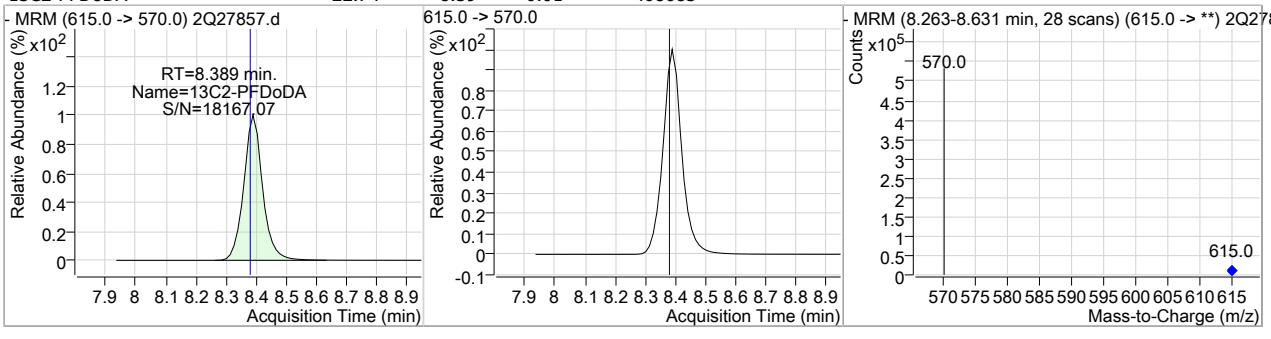
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.56	8.01	0.01	4582	563.0 -> 269.0	14.5	0.0	45.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.51	8.15	0.01	3131				

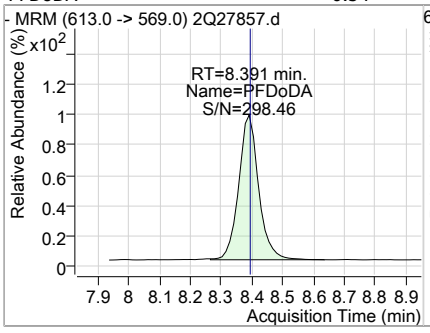


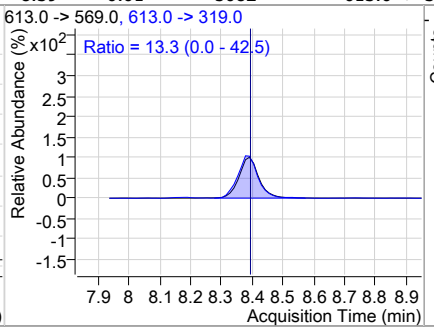
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	22.74	8.39	0.01	408685				

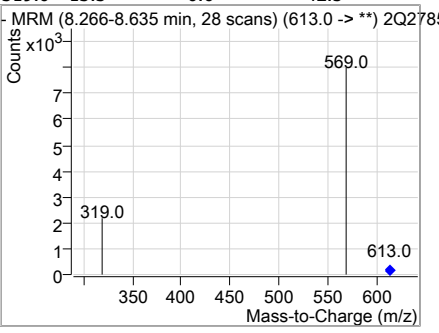


Perfluorinated Compounds by LC/MS/MS

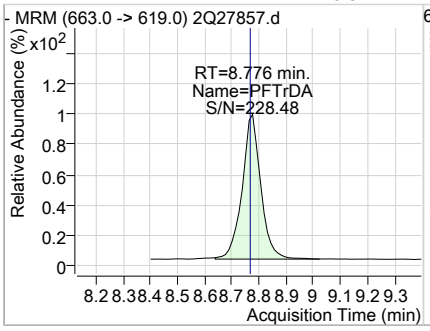
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.54	8.39	0.01	5082	613.0 -> 319.0	13.3	0.0	42.5

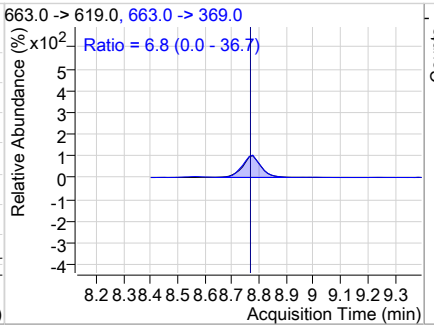


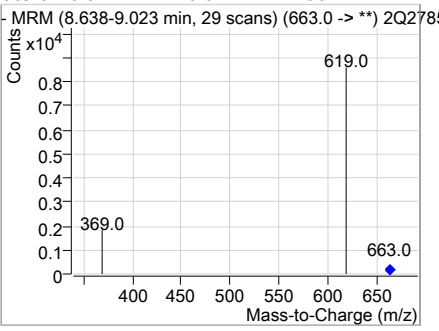




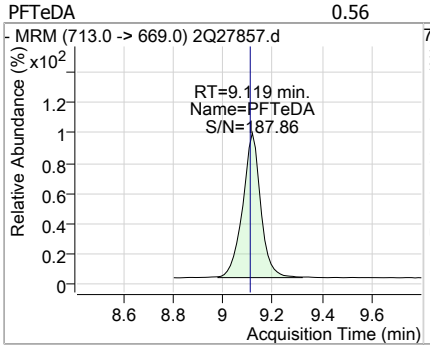
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.54	8.78	0.01	5623	663.0 -> 369.0	6.8	0.0	36.7

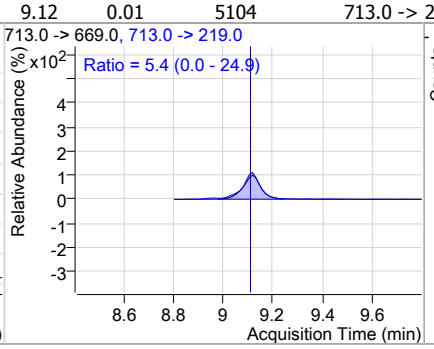


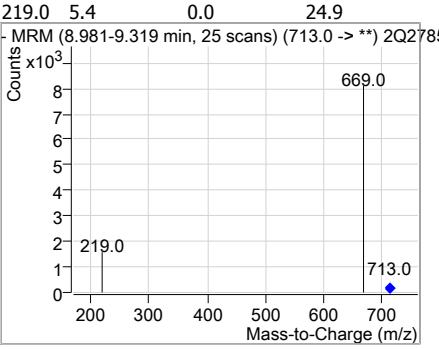




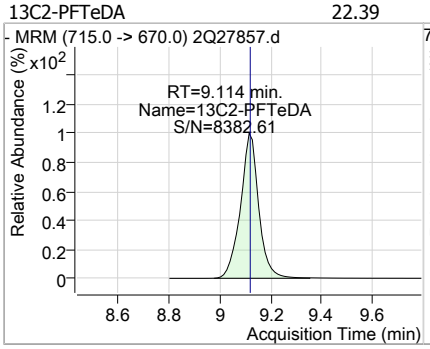
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.56	9.12	0.01	5104	713.0 -> 219.0	5.4	0.0	24.9

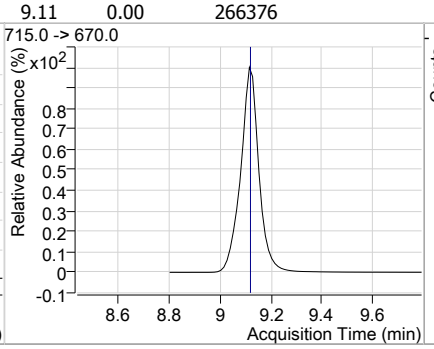


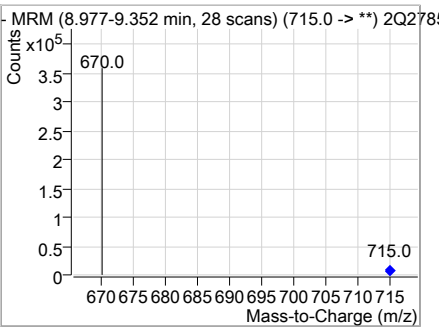




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	22.39	9.11	0.00	266376				







Manual Integration Approval Summary

Sample Number: S2Q445-IC445
Lab FileID: 2Q27857.D
Injection Time: 03/21/19 11:07
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/22/19 16:23 Nancy Saunders
Supervisor approved: 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak

Cal Report: 2Q27858.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q27858.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/21/2019 11:39:33 AM
Sample Name : IC445-1.0
Vial : Vial 3
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : S2Q445.batch.bin
Sample Information : op74164,S2Q445,250,,,1.0,1,water

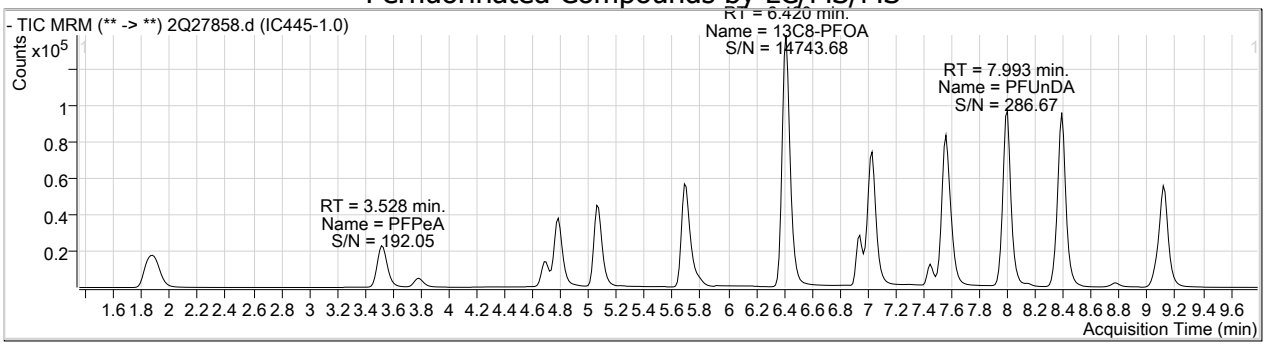
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.422	415.0 -> 370.0	273169	20.00	µg/L	0.013
13C4-PFOS	7.023	503.0 -> 80.0	48061	20.00	µg/L	0.013
M4-PFBA	1.877	217.0 -> 172.0	130654	20.00	µg/L	0.013
M5-PFPeA	3.524	268.0 -> 223.0	111525	20.00	µg/L	0.013
M5-PFHxA	4.789	318.0 -> 273.0	152633	20.00	µg/L	0.013
M4-PFHpA	5.693	367.0 -> 322.0	218082	20.00	µg/L	0.000
M8-PFOA	6.420	421.0 -> 376.0	224283	20.00	µg/L	0.013
M9-PFNA	7.039	472.0 -> 427.0	226766	20.00	µg/L	0.013
M6-PFDA	7.569	519.0 -> 474.0	303959	20.00	µg/L	0.014
M7-PFUnDA	8.004	570.0 -> 525.0	385840	20.00	µg/L	0.013
M2-PFDoDA	8.389	615.0 -> 570.0	404914	20.00	µg/L	0.013
M2-PFTeDA	9.114	715.0 -> 670.0	264956	20.00	µg/L	0.000
M8-FOSA	6.944	506.0 -> 78.0	96886	20.00	µg/L	0.013
M3-PFBS	3.780	302.0 -> 99.0	21234	20.00	µg/L	0.013
M3-PFHxS	5.736	402.0 -> 99.0	23445	20.00	µg/L	0.000
M8-PFOS	7.020	507.0 -> 99.0	30178	20.00	µg/L	0.013
M2-4:2FTS	4.684	329.0 -> 309.0	55948	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	62073	20.00	µg/L	0.000
M2-8:2FTS	7.605	529.0 -> 509.0	46758	20.00	µg/L	0.013
M3-MeFOSAA	7.446	573.0 -> 419.0	38610	20.00	µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	174097	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	56131	19.72	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C2-6:2FTS	6.403	429.0 -> 409.0	62066	20.59	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C2-8:2FTS	7.605	529.0 -> 509.0	46749	21.51	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.6%		
13C2-PFDoDA	8.389	615.0 -> 570.0	404703	22.51	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.6%		
13C2-PFTeDA	9.114	715.0 -> 670.0	264709	22.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.3%		
13C3-PFBS	3.780	302.0 -> 99.0	21257	20.72	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C3-PFHxS	5.736	402.0 -> 99.0	23411	21.06	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.3%		
13C4-PFBA	1.877	217.0 -> 172.0	130058	19.89	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C4-PFHpA	5.693	367.0 -> 322.0	217759	21.06	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.3%		
13C5-PFHxA	4.789	318.0 -> 273.0	152704	20.61	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C5-PFPeA	3.524	268.0 -> 223.0	111545	20.28	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C6-PFDA	7.569	519.0 -> 474.0	305774	22.24	µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

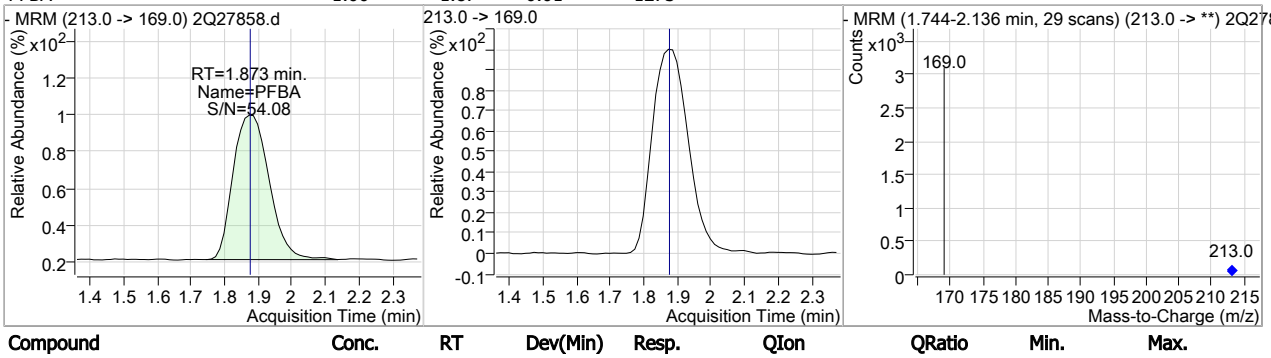
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.2%		
13C7-PFUnDA	8.004	570.0 -> 525.0	386086	22.21 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.1%		
13C8-FOSA	6.944	506.0 -> 78.0	96867	21.60 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.0%		
13C8-PFOA	6.420	421.0 -> 376.0	224029	21.74 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.7%		
13C8-PFOS	7.020	507.0 -> 99.0	30165	21.10 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C9-PFNA	7.039	472.0 -> 427.0	226651	21.74 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.7%		
d3-MeFOSAA	7.446	573.0 -> 419.0	38613	22.02 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.1%		
M2-PFOA	6.422	415.0 -> 370.0	273330	20.00 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	48071	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	174097	104.44 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 104.4%		
Target Compounds						**QValue**
4:2FTS	4.687	327.0 -> 307.0	1765	1.07 µg/L		95
6:2FTS	6.405	427.0 -> 407.0	1625	1.04 µg/L		95
8:2FTS	7.606	527.0 -> 507.0	1382	1.12 µg/L		95
EtFOSAA	7.598	584.0 -> 419.0	875	1.04 µg/L		99
FOSA	6.934	498.0 -> 78.0	2282	1.03 µg/L		97
MeFOSAA	7.447	570.0 -> 419.0	1062	1.05 µg/L		96
PFBA	1.873	213.0 -> 169.0	1273	1.00 µg/L		100
PFBS	3.783	299.0 -> 80.0	1755	1.02 µg/L		96
PFDA	7.570	513.0 -> 469.0	6947	1.05 µg/L		100
PFDoDA	8.391	613.0 -> 569.0	9070	0.98 µg/L		100
PFDS	7.963	599.0 -> 80.0	582	1.14 µg/L		89
PFHpA	5.695	363.0 -> 319.0	9574	0.98 µg/L		99
PFHpS	6.429	449.0 -> 80.0	1087	0.99 µg/L		94
PFHxA	4.790	313.0 -> 269.0	2735	1.03 µg/L		99
PFHxS	5.739	399.0 -> 80.0	1298	1.00 µg/L	m	98
PFNA	7.041	463.0 -> 419.0	7350	0.99 µg/L		99
PFNS	7.527	549.0 -> 80.0	1054	1.02 µg/L		95
PFOA	6.424	413.0 -> 369.0	5943	0.99 µg/L		99
PFOS	7.024	499.0 -> 80.0	1593	1.07 µg/L	m	96
PFPeA	3.528	263.0 -> 219.0	5035	1.01 µg/L		100
PFPeS	4.908	349.0 -> 80.0	1149	1.04 µg/L		96
PFTeDA	9.119	713.0 -> 669.0	9168	1.01 µg/L		100
PFTrDA	8.776	663.0 -> 619.0	10445	1.02 µg/L		100
PFUnDA	7.993	563.0 -> 519.0	7812	0.98 µg/L		99
11Cl-PF3OUdS	8.149	631.0 -> 451.0	5563	0.91 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	1089	0.89 µg/L		100
ADONA	5.804	377.0 -> 251.0	10883	0.97 µg/L		100
HFPO-DA	5.073	329.0 -> 169.0	10557	5.21 µg/L		98

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

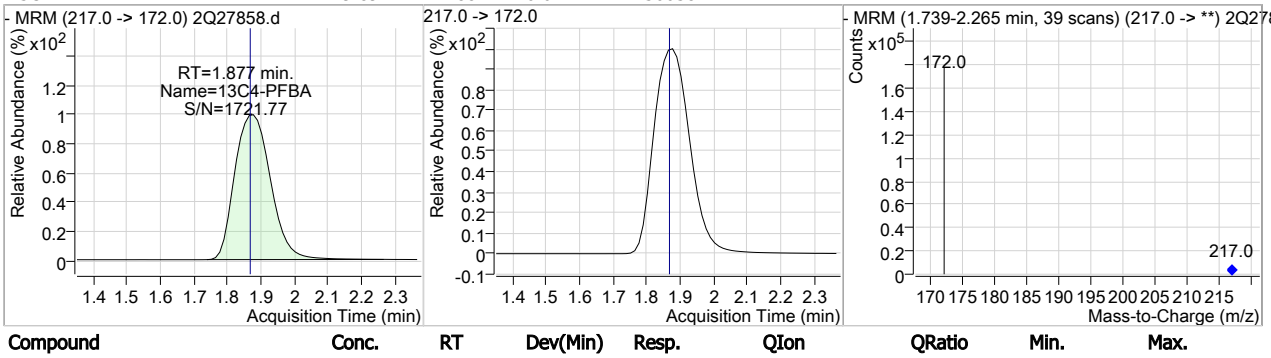
Perfluorinated Compounds by LC/MS/MS



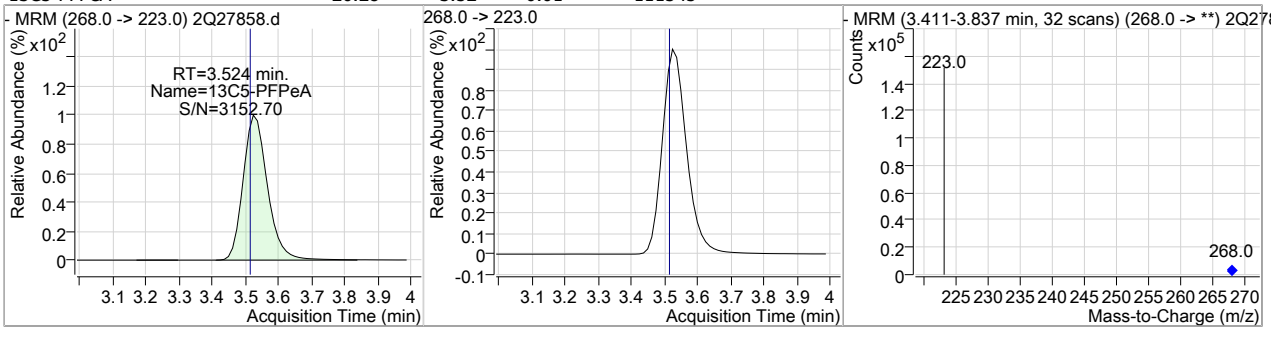
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.00	1.87	0.01	1273				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.89	1.88	0.01	130058				

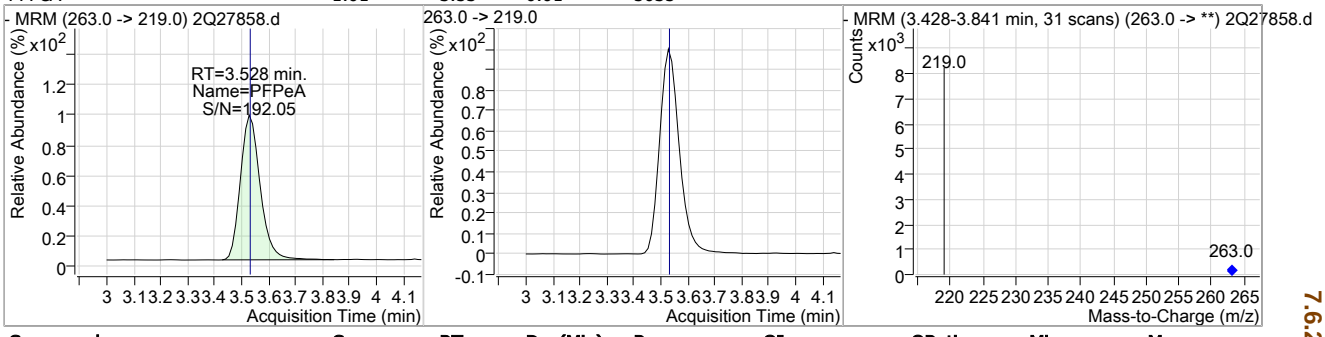


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.28	3.52	0.01	111545				

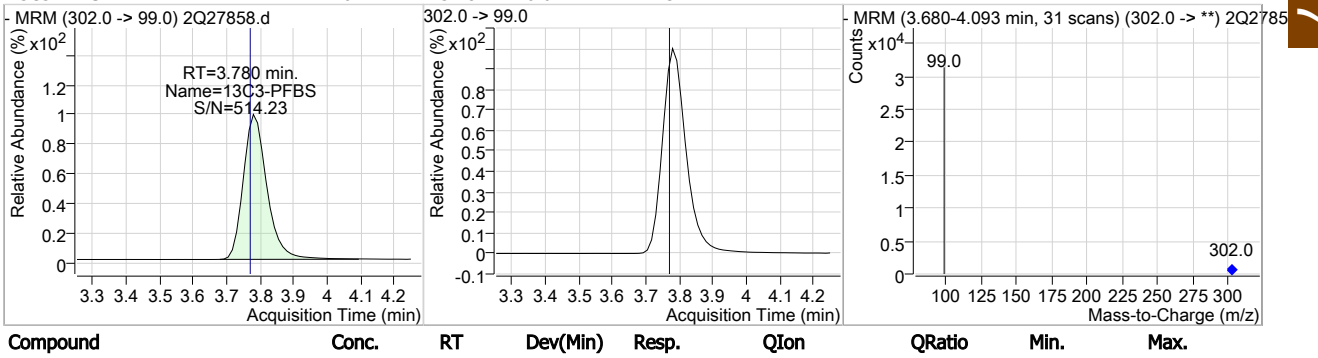


Perfluorinated Compounds by LC/MS/MS

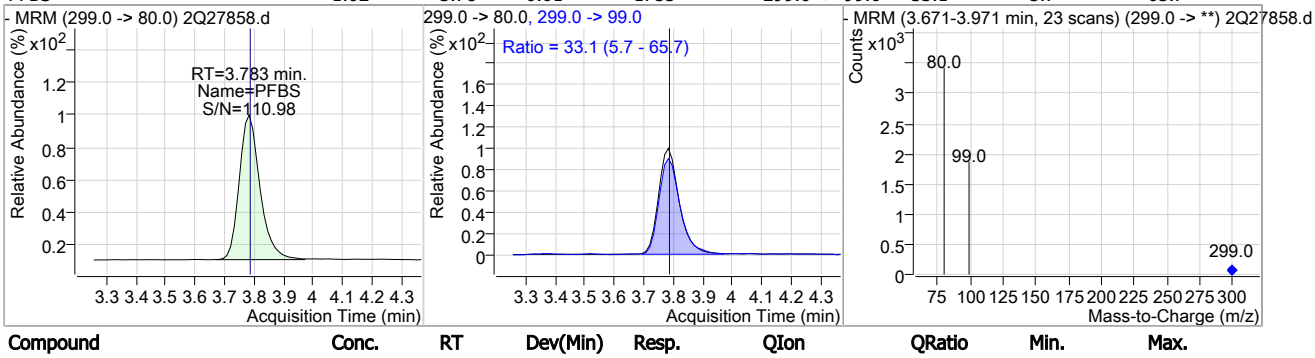
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.01	3.53	0.01	5035				



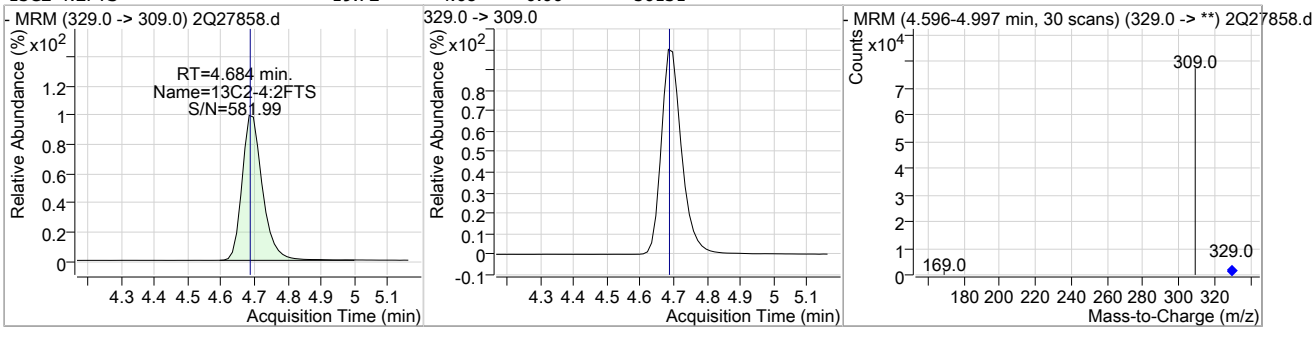
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.72	3.78	0.01	21257				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.02	3.78	0.01	1755	299.0 -> 99.0	33.1	5.7	65.7

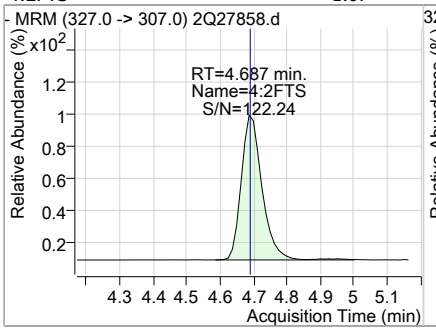


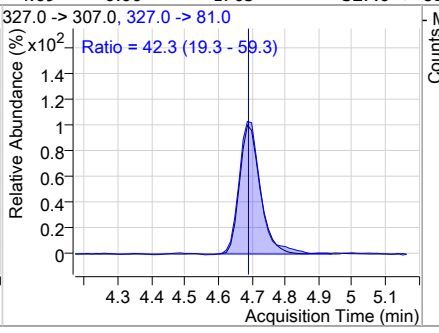
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.72	4.68	0.00	56131				

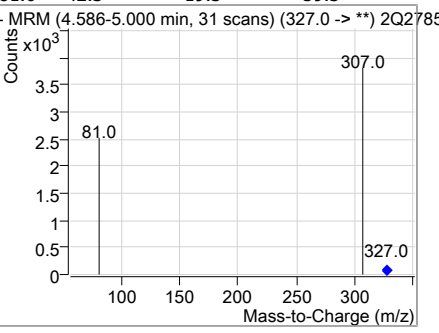


Perfluorinated Compounds by LC/MS/MS

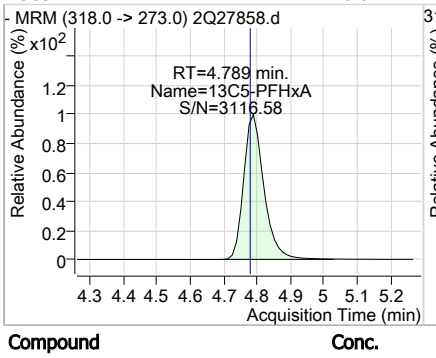
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.07	4.69	0.00	1765	327.0 -> 81.0	42.3	19.3	59.3

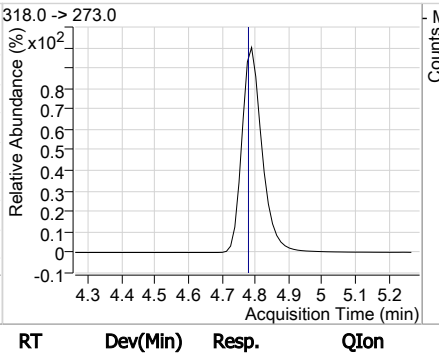


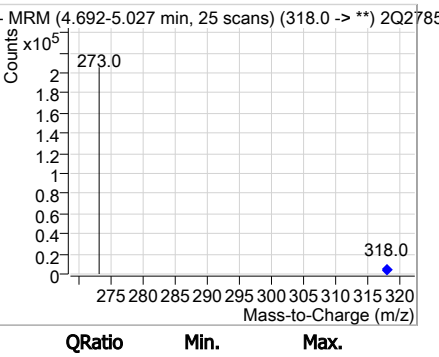




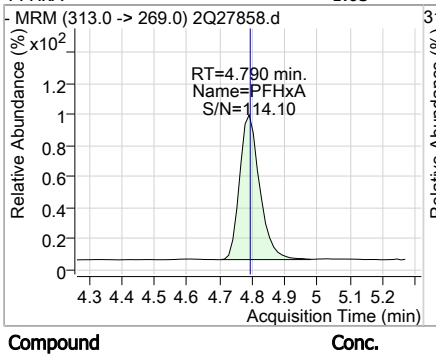
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.61	4.79	0.01	152704				

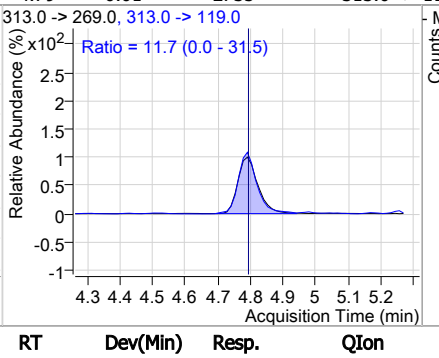


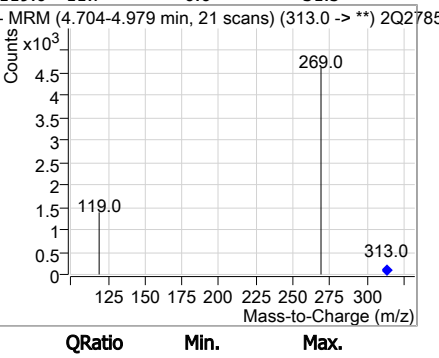




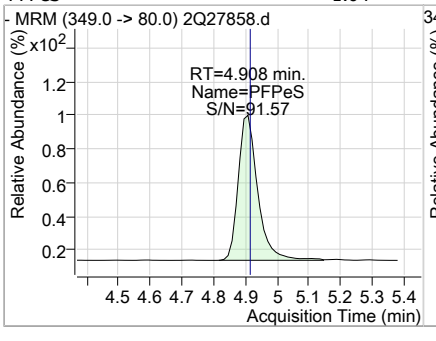
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.03	4.79	0.01	2735	313.0 -> 119.0	11.7	0.0	31.5

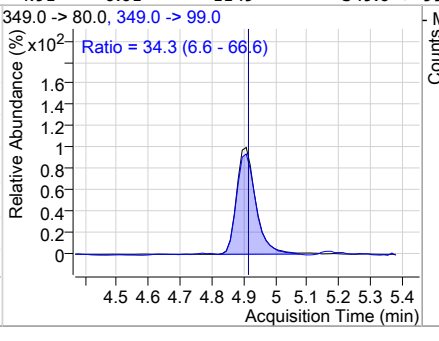


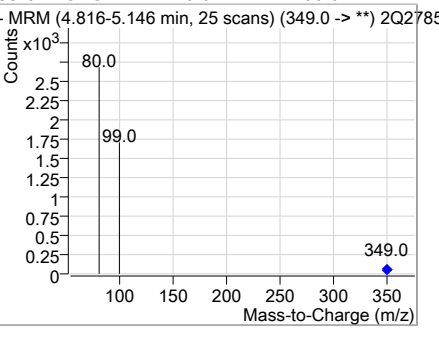




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.04	4.91	0.01	1149	349.0 -> 99.0	34.3	6.6	66.6

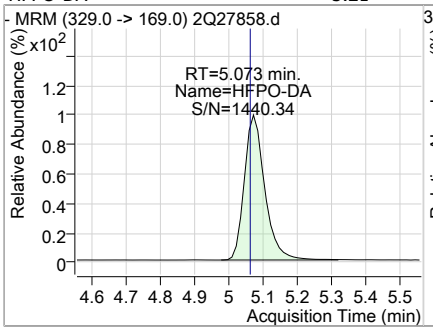


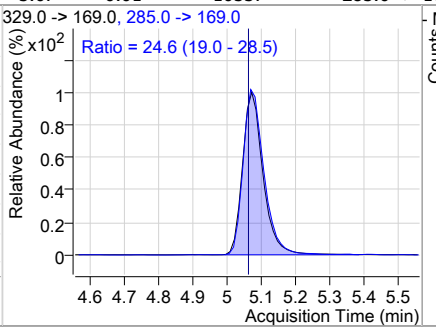


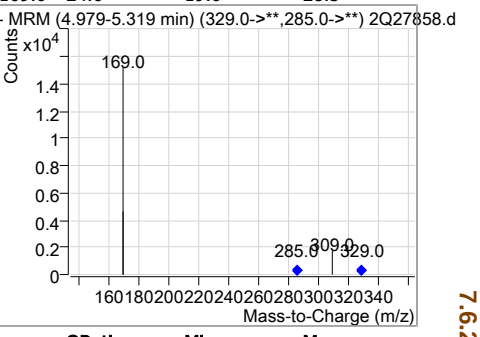


Perfluorinated Compounds by LC/MS/MS

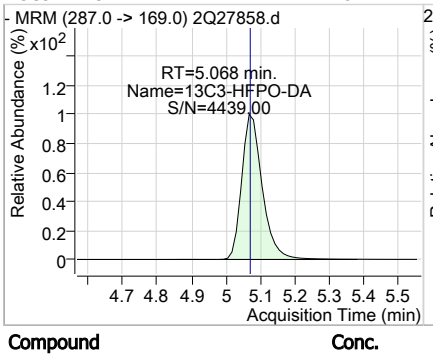
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.21	5.07	0.01	10557	285.0 -> 169.0	24.6	19.0	28.5

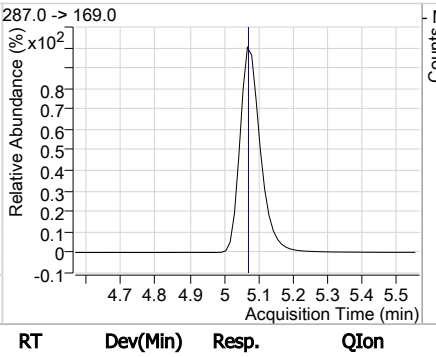


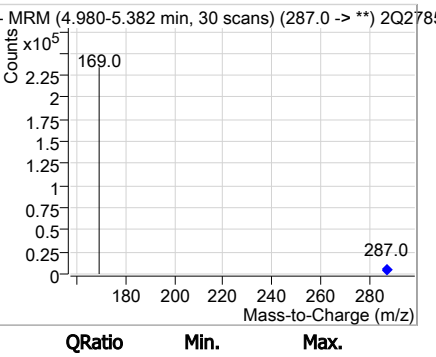




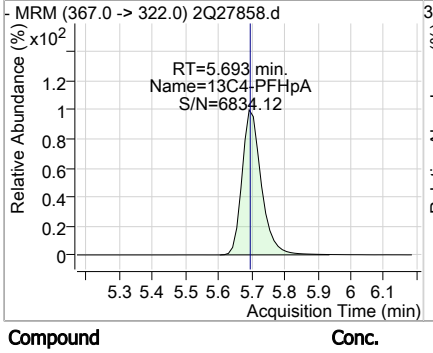
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	104.44	5.07	0.00	174097				

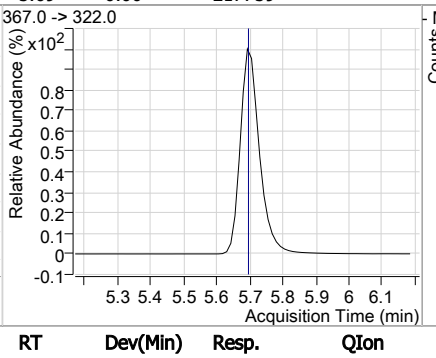


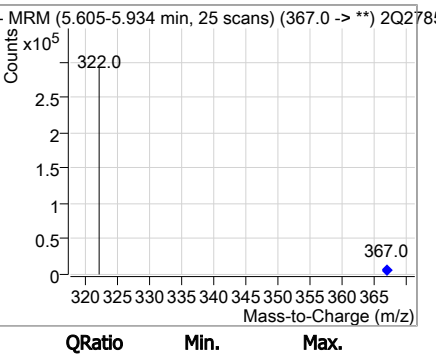




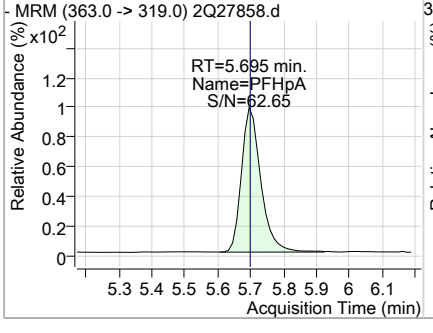
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.06	5.69	0.00	217759				

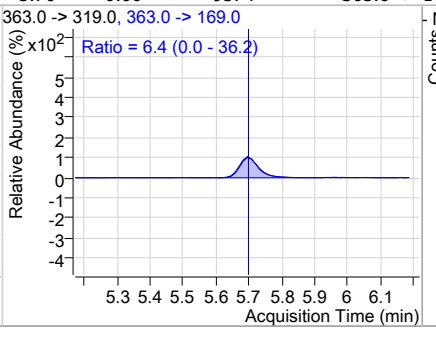


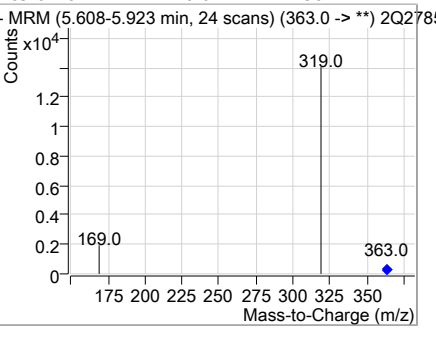




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.98	5.70	0.00	9574	363.0 -> 169.0	6.4	0.0	36.2

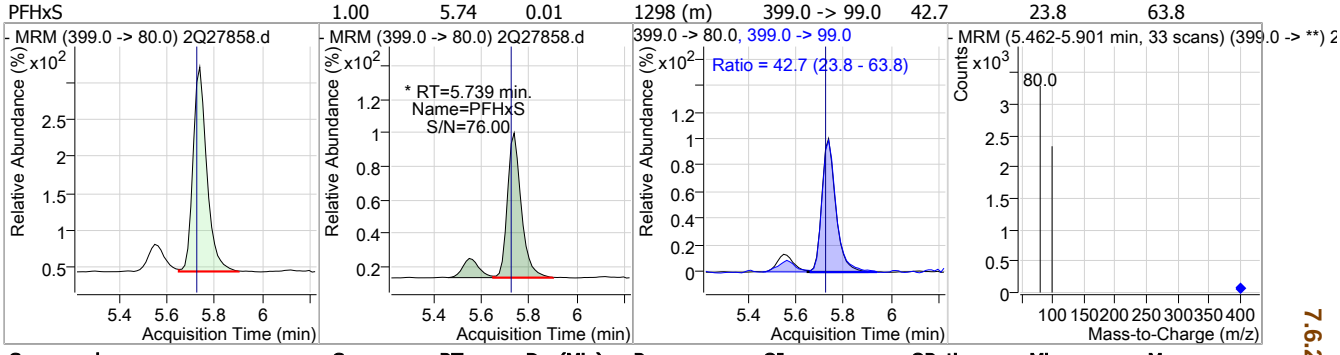




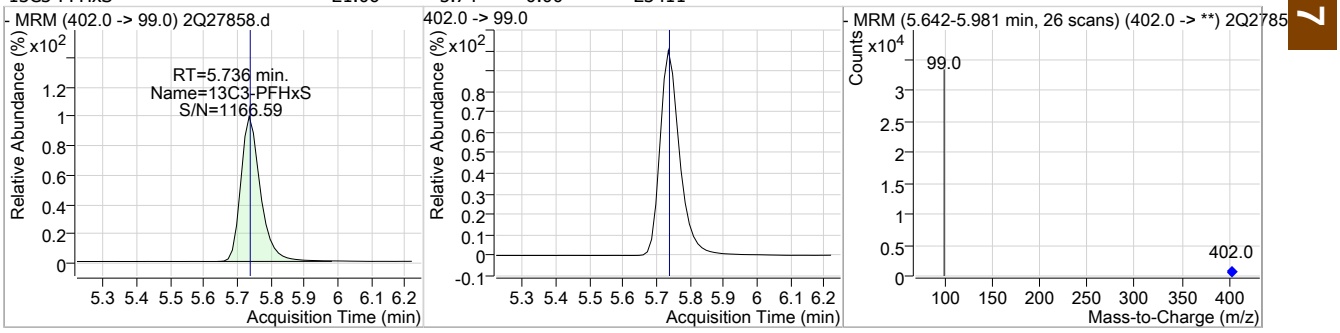


Perfluorinated Compounds by LC/MS/MS

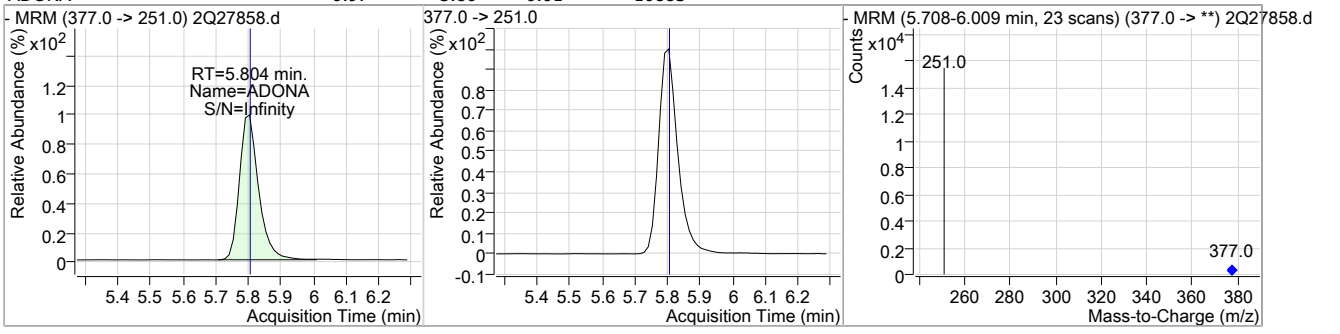
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.00	5.74	0.01	1298 (m)	399.0 -> 99.0	42.7	23.8	63.8



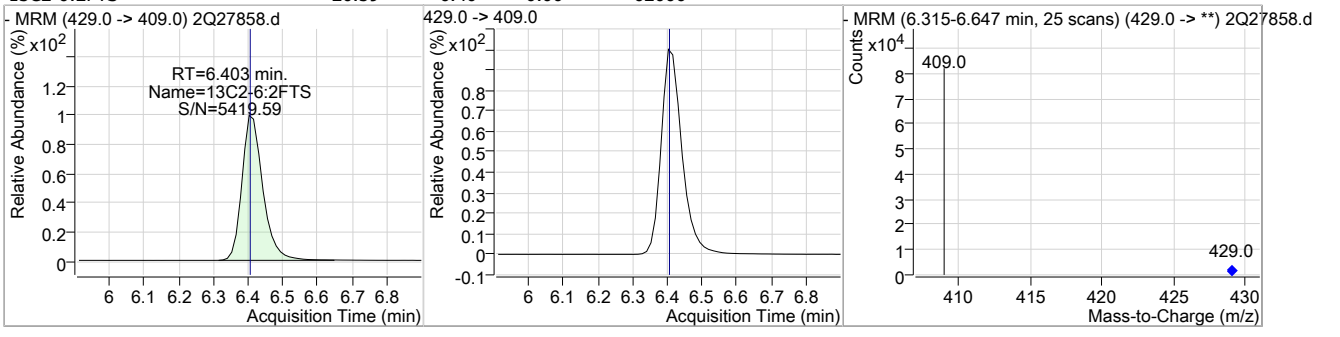
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.06	5.74	0.00	23411				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.97	5.80	0.01	10883				



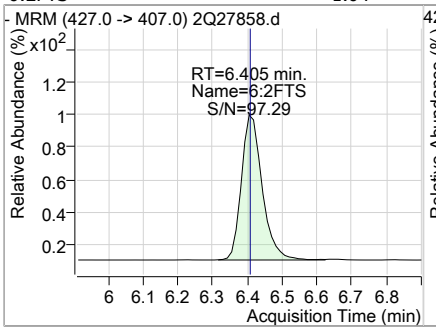
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.59	6.40	0.00	62066				

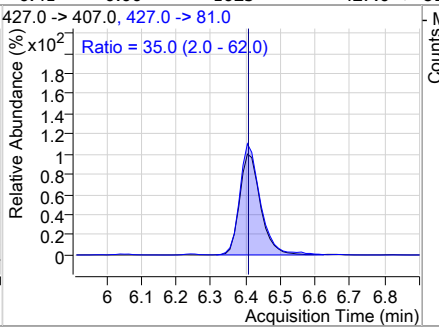


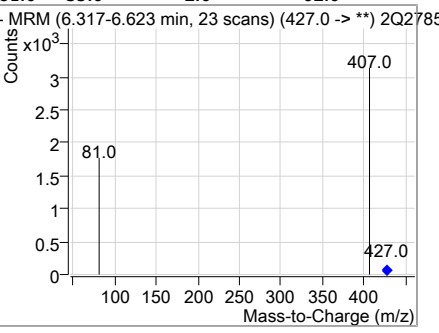
7.6.2

Perfluorinated Compounds by LC/MS/MS

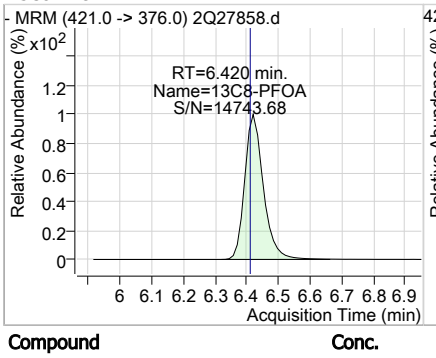
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.04	6.41	0.00	1625	427.0 -> 81.0	35.0	2.0	62.0

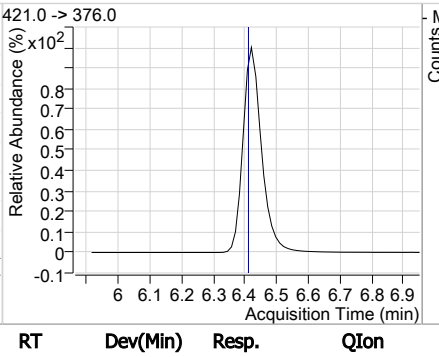


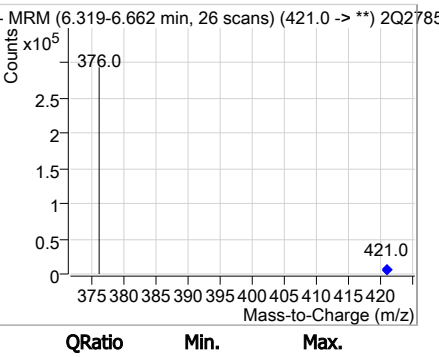




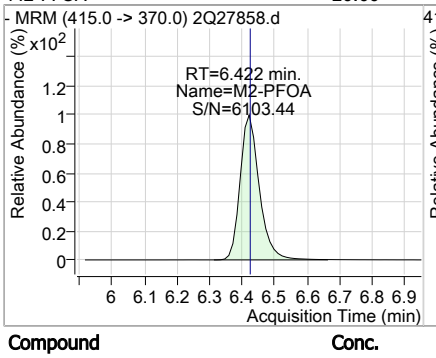
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.74	6.42	0.01	224029				

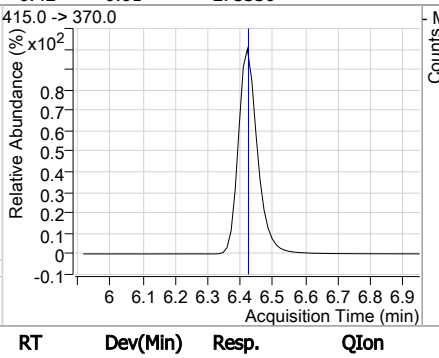


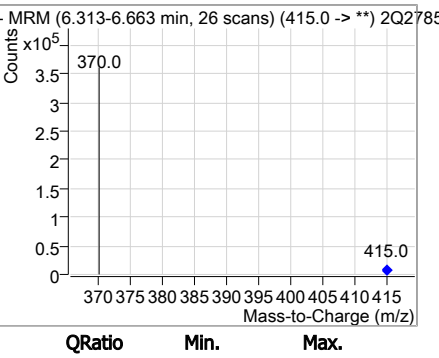




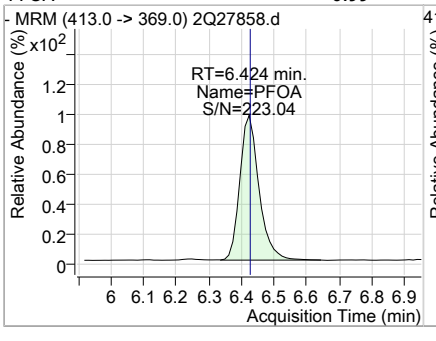
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.42	0.01	273330				

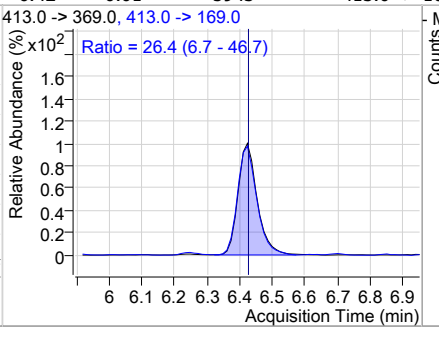


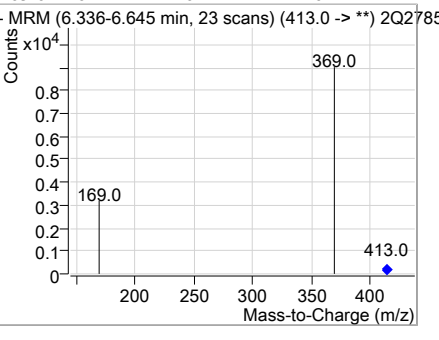




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.99	6.42	0.01	5943	413.0 -> 169.0	26.4	6.7	46.7

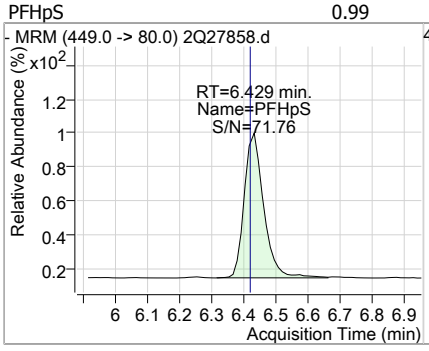


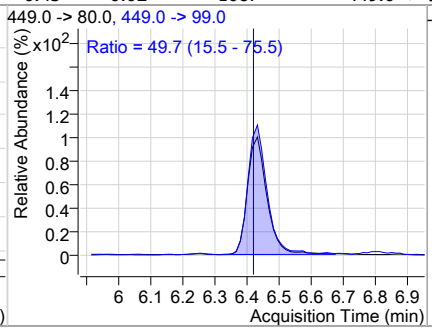


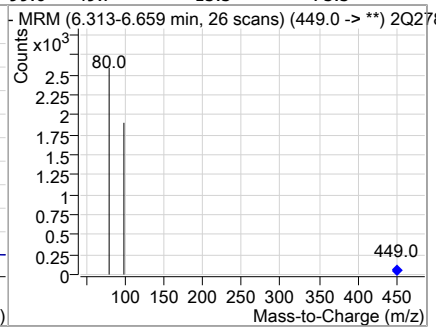


Perfluorinated Compounds by LC/MS/MS

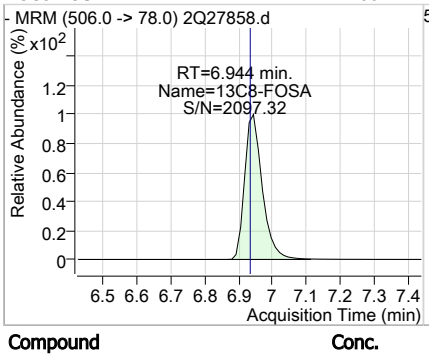
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.99	6.43	0.02	1087	449.0 -> 99.0	49.7	15.5	75.5

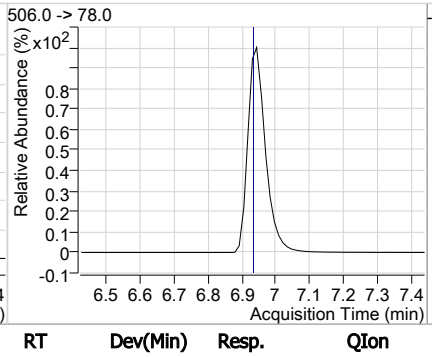


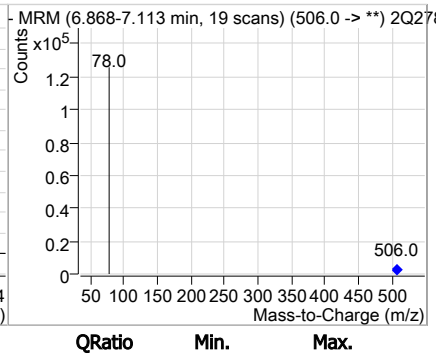




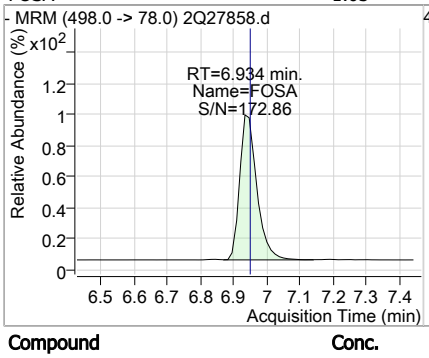
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.60	6.94	0.01	96867				

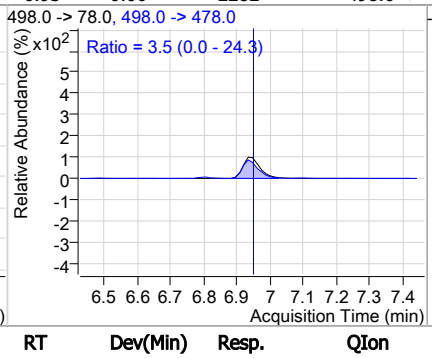


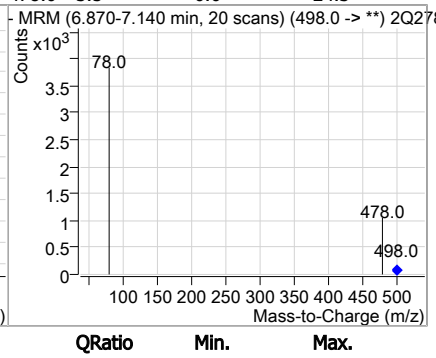




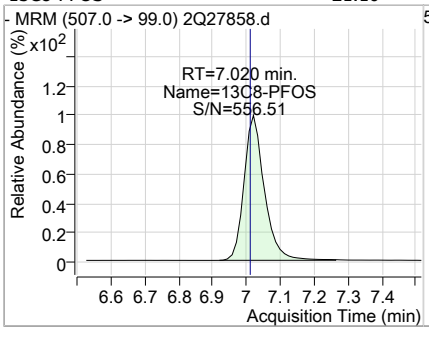
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.03	6.93	0.00	2282	498.0 -> 478.0	3.5	0.0	24.3

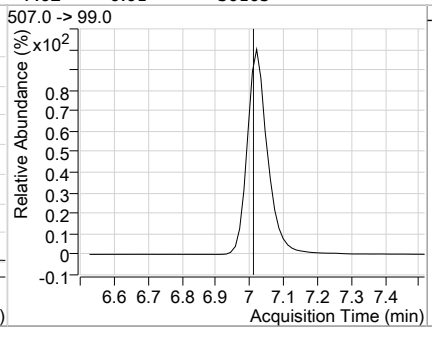


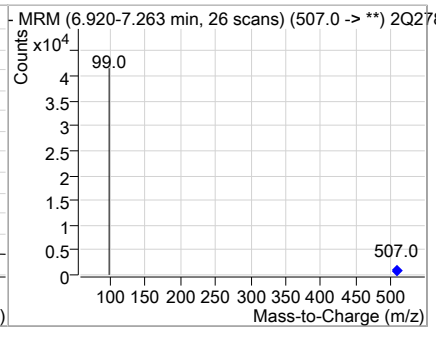




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.10	7.02	0.01	30165				



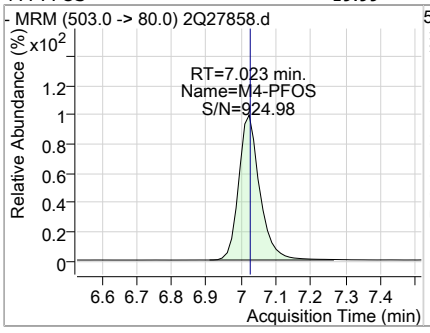


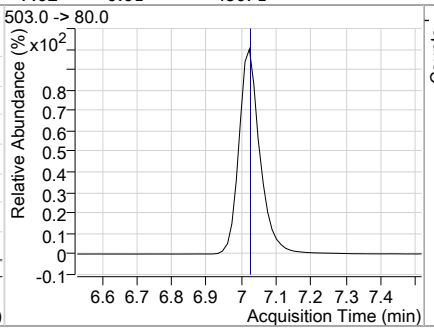


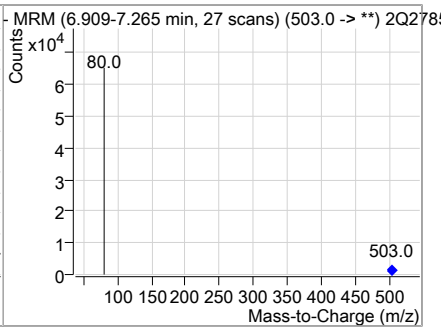
7.6.2

Perfluorinated Compounds by LC/MS/MS

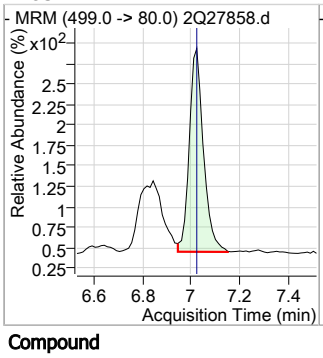
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.02	0.01	48071				

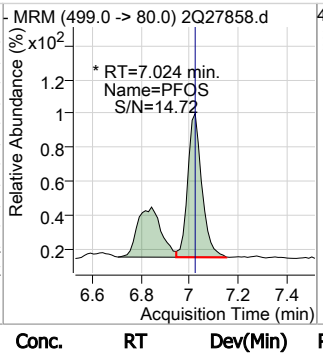


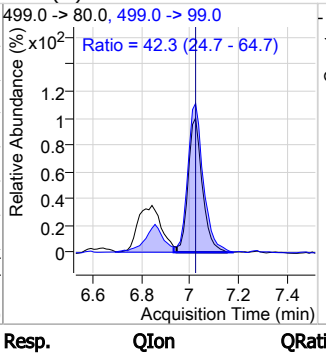


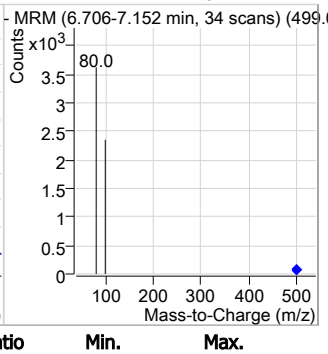


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.07	7.02	0.01	1593 (m)	499.0 -> 99.0	42.3	24.7	64.7

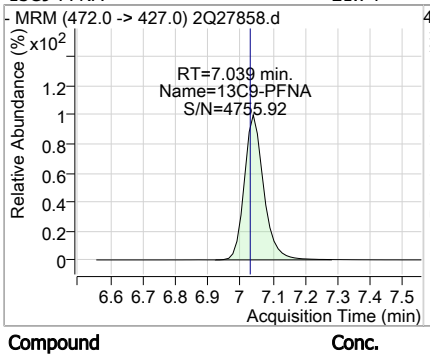


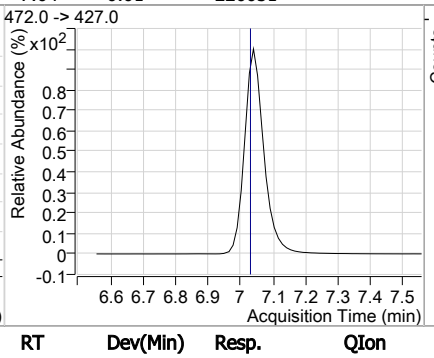


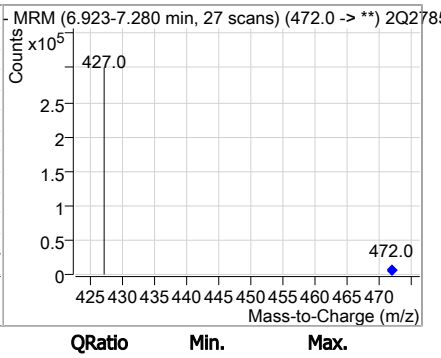




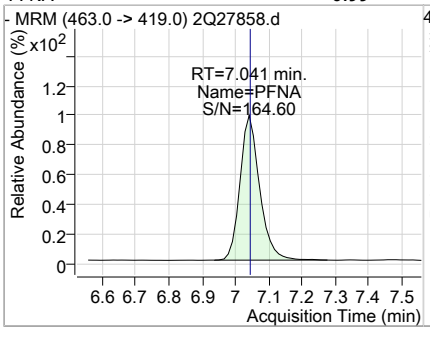
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.74	7.04	0.01	226651				

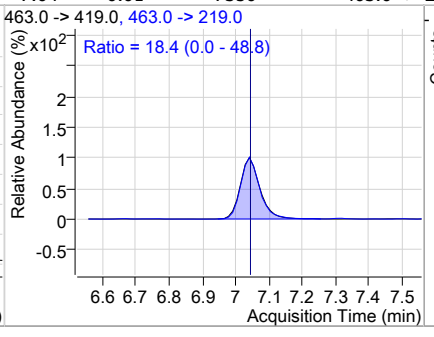


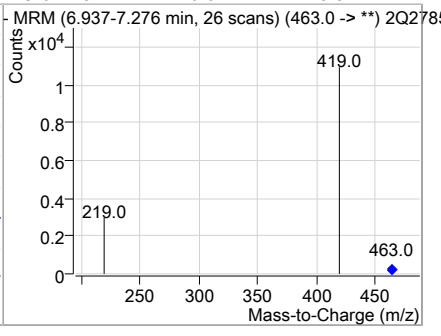




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.99	7.04	0.01	7350	463.0 -> 219.0	18.4	0.0	48.8

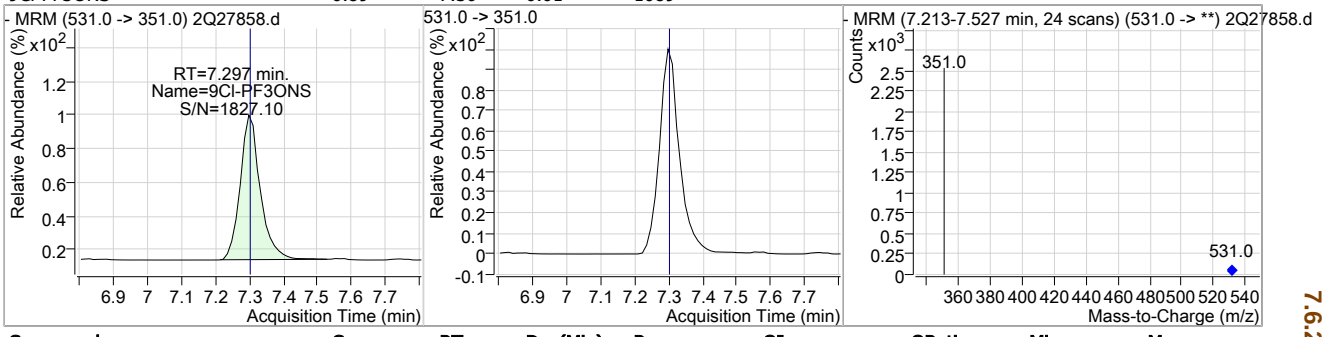




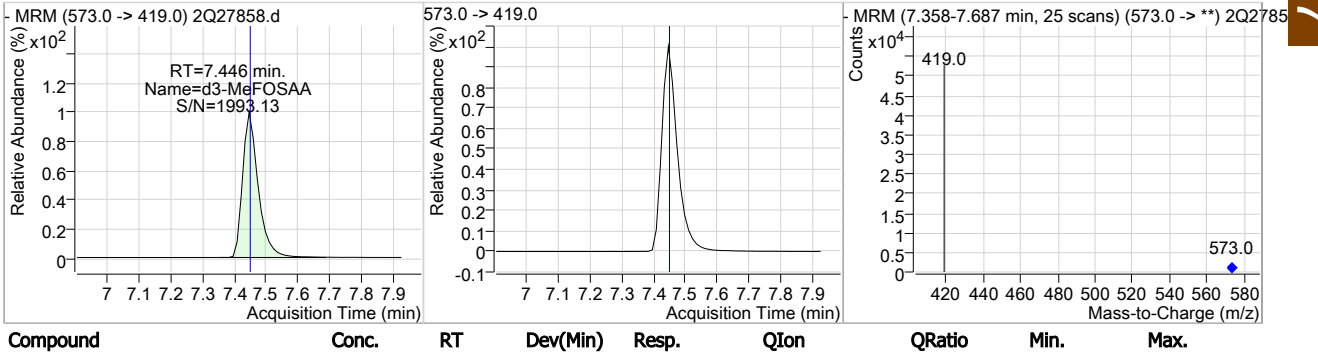


Perfluorinated Compounds by LC/MS/MS

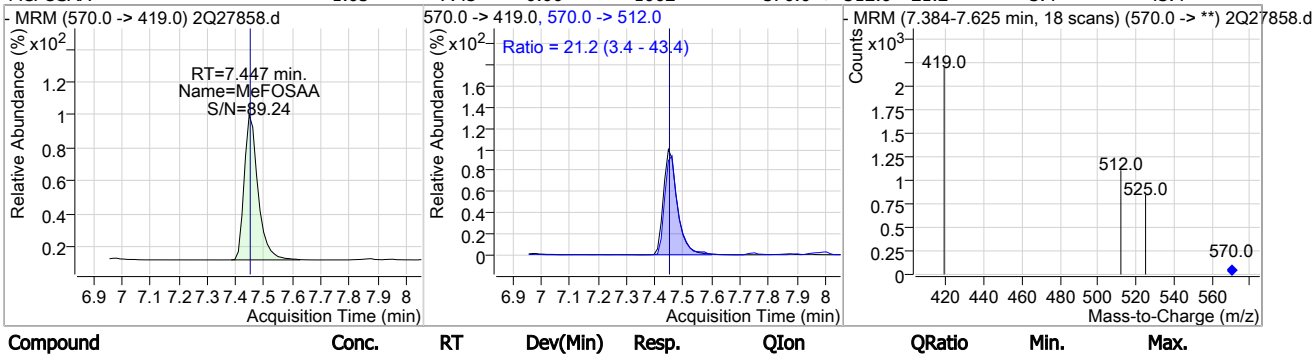
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.89	7.30	0.01	1089				



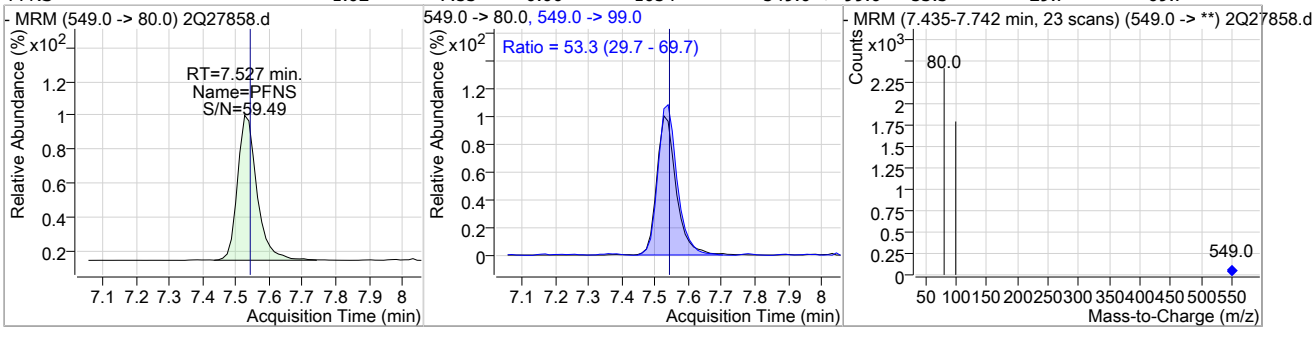
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	22.02	7.45	0.00	38613				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.05	7.45	0.00	1062	570.0 -> 512.0	21.2	3.4	43.4

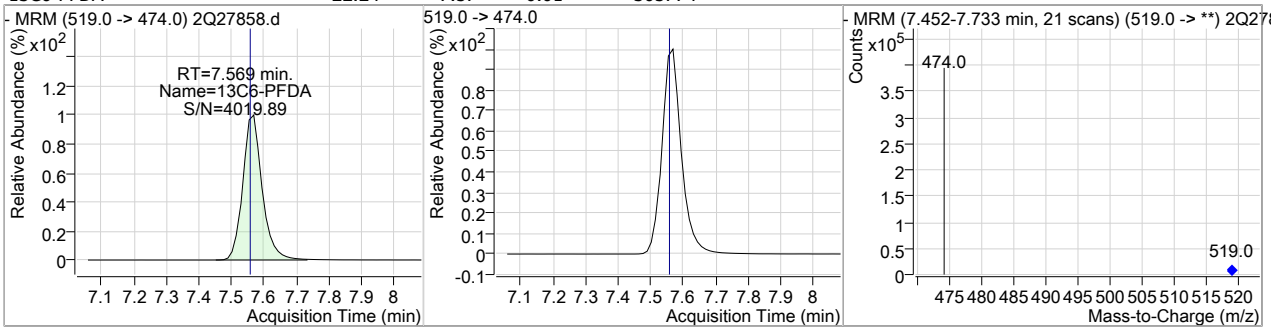


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.02	7.53	0.00	1054	549.0 -> 99.0	53.3	29.7	69.7

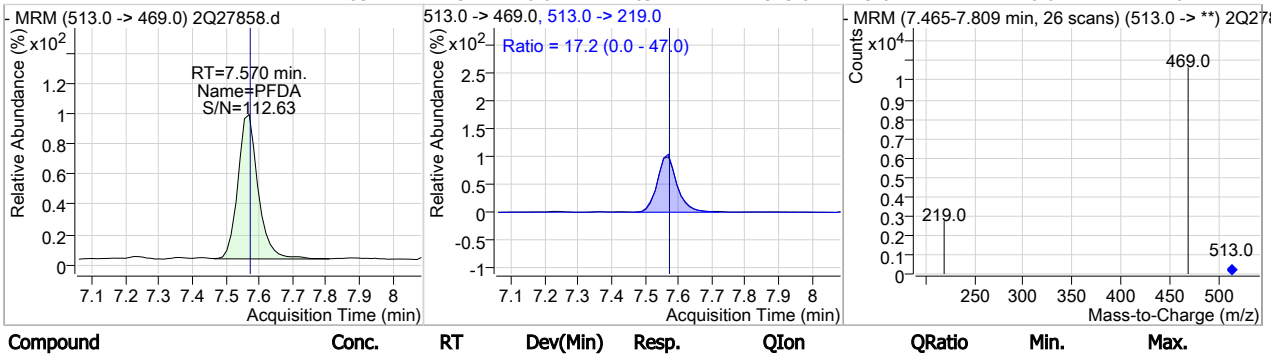


Perfluorinated Compounds by LC/MS/MS

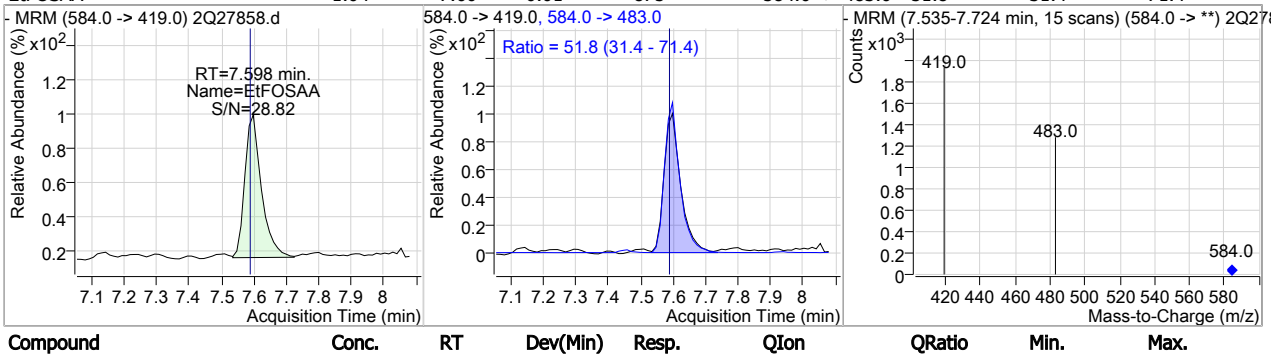
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	22.24	7.57	0.01	305774				



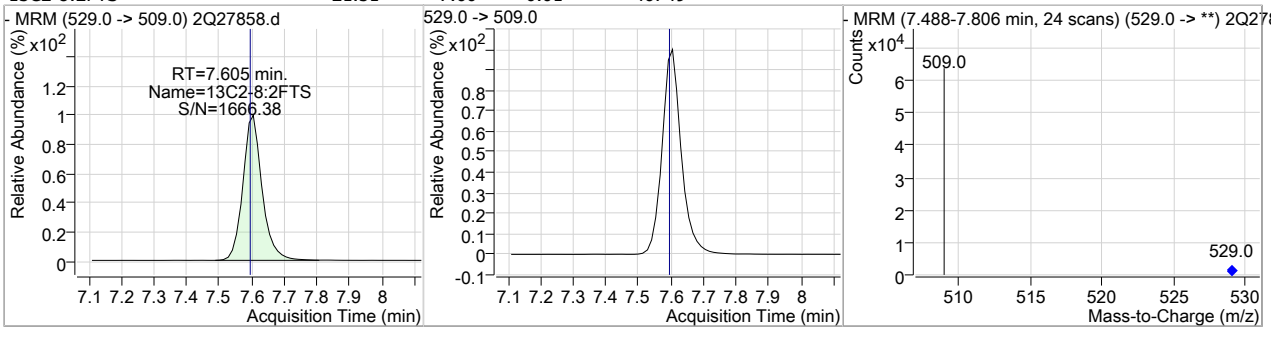
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.05	7.57	0.01	6947	513.0 -> 219.0	17.2	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.04	7.60	0.01	875	584.0 -> 483.0	51.8	31.4	71.4

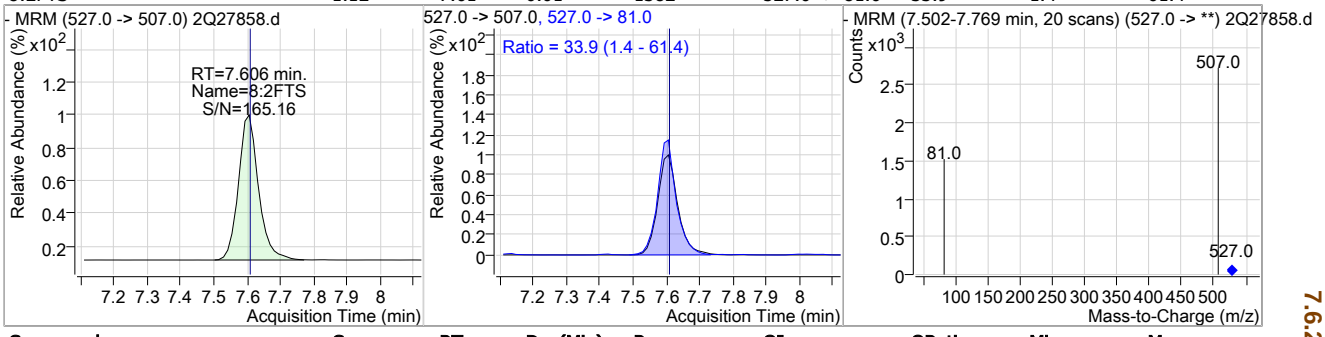


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	21.51	7.60	0.01	46749				

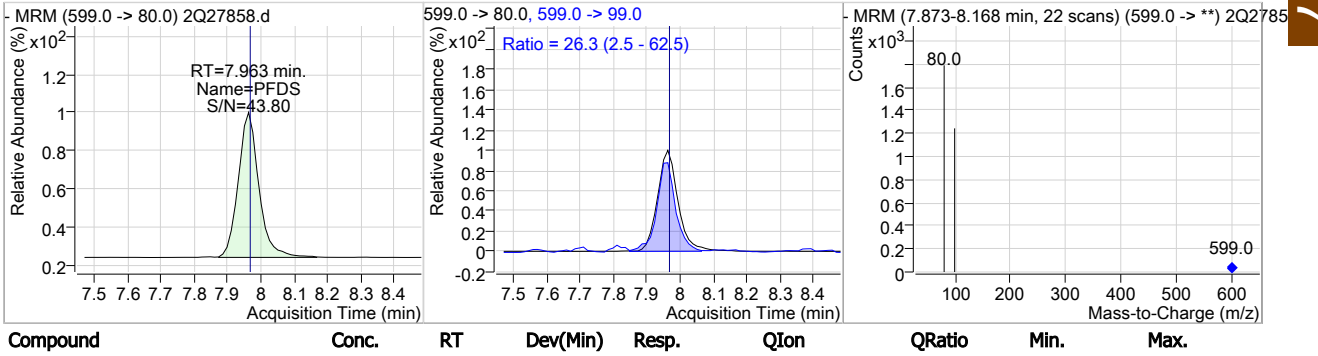


Perfluorinated Compounds by LC/MS/MS

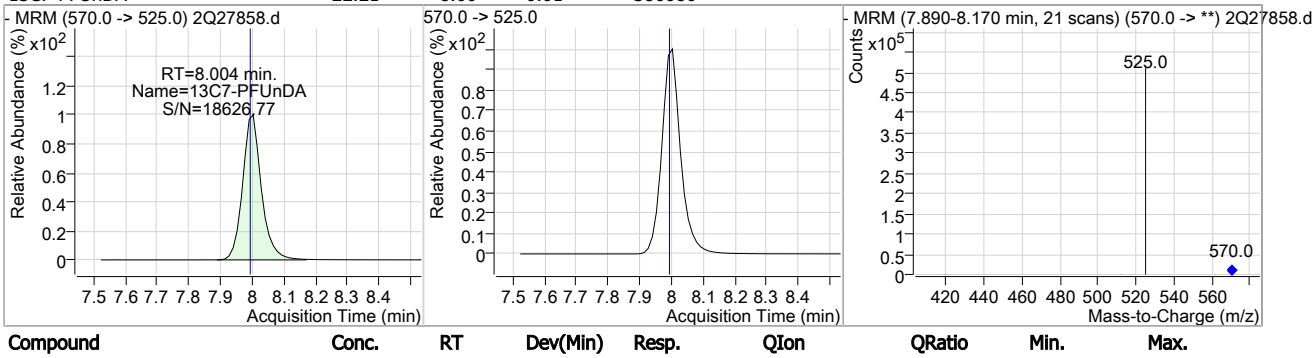
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.12	7.61	0.01	1382	527.0 -> 81.0	33.9	1.4	61.4



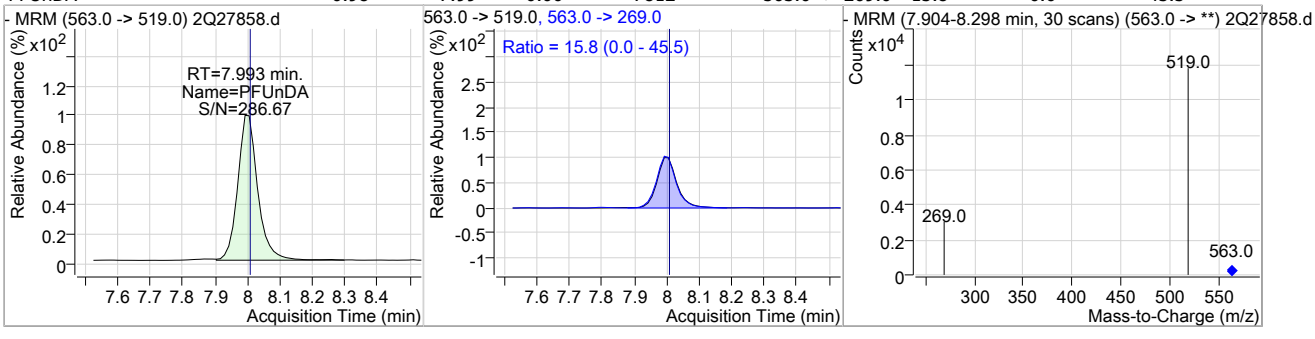
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.14	7.96	0.01	582	599.0 -> 99.0	26.3	2.5	62.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	22.21	8.00	0.01	386086				

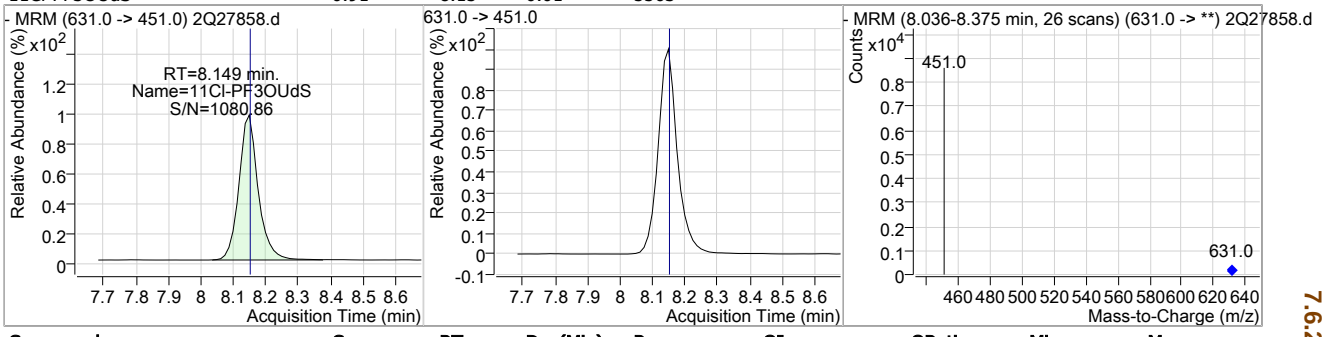


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.98	7.99	0.00	7812	563.0 -> 269.0	15.8	0.0	45.5

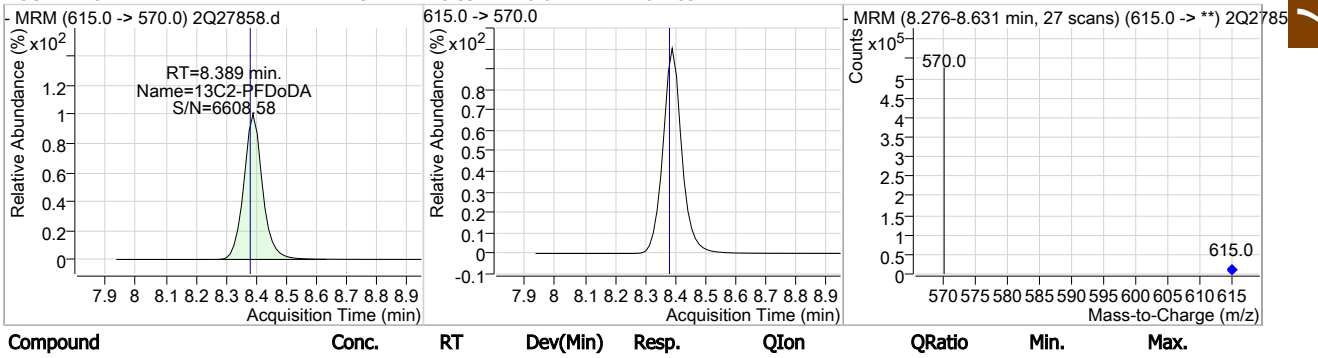


Perfluorinated Compounds by LC/MS/MS

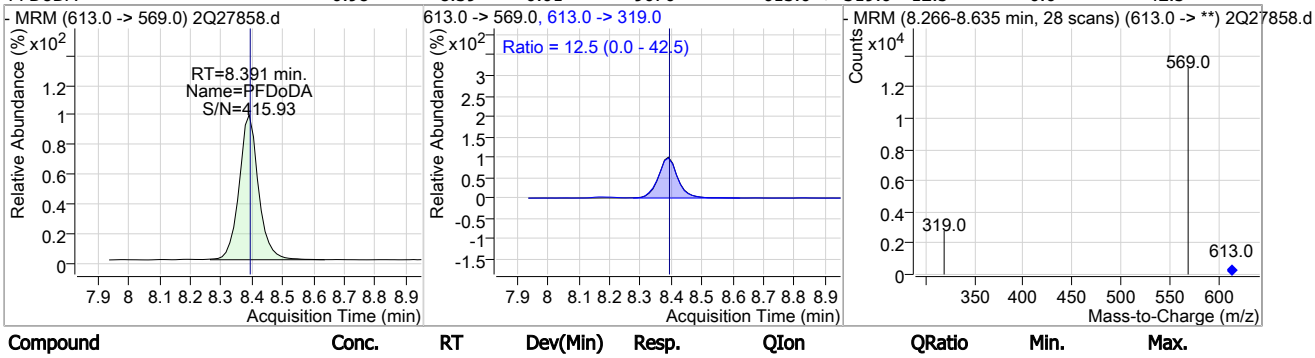
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.91	8.15	0.01	5563				



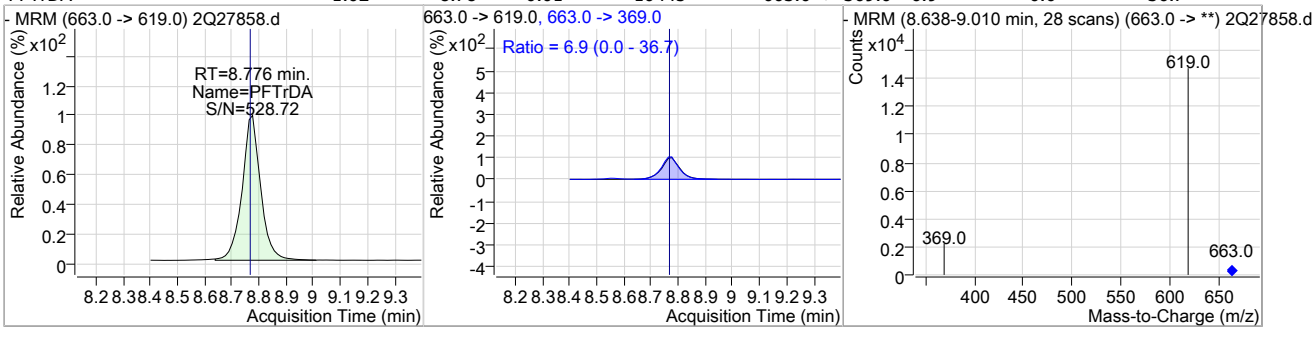
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	22.51	8.39	0.01	404703				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.98	8.39	0.01	9070	613.0 -> 319.0	12.5	0.0	42.5

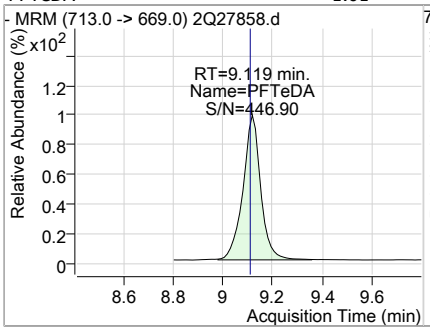


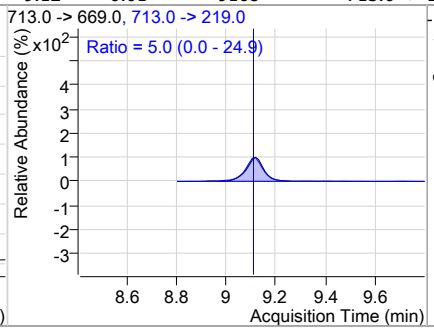
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.02	8.78	0.01	10445	663.0 -> 369.0	6.9	0.0	36.7

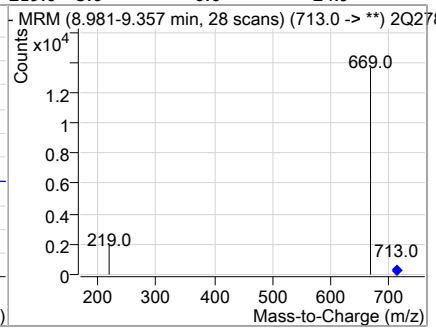


Perfluorinated Compounds by LC/MS/MS

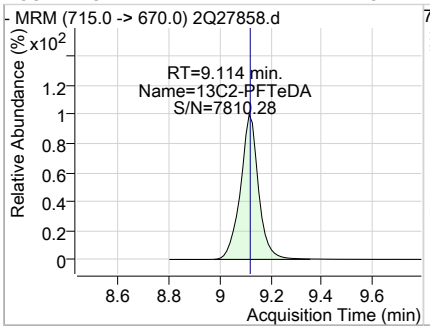
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.01	9.12	0.01	9168	713.0 -> 219.0	5.0	0.0	24.9

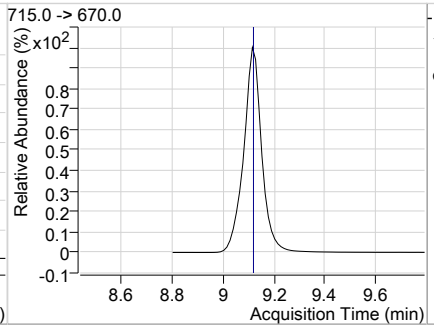


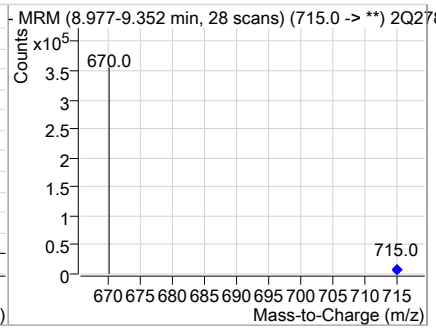




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	22.25	9.11	0.00	264709				







7.6.2

7

Manual Integration Approval Summary

Sample Number: S2Q445-IC445
Lab FileID: 2Q27858.D
Injection Time: 03/21/19 11:39
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/22/19 16:23 Nancy Saunders
Supervisor approved: 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak

Cal Report: 2Q27859.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q27859.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/21/2019 11:55:16 AM
Sample Name : IC445-2.0
Vial : Vial 4
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : S2Q445.batch.bin
Sample Information : op74164,S2Q445,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.422	415.0 -> 370.0	272843	20.00	µg/L	0.013
13C4-PFOS	7.023	503.0 -> 80.0	48167	20.00	µg/L	0.013
M4-PFBA	1.865	217.0 -> 172.0	138690	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	116124	20.00	µg/L	0.013
M5-PFHxA	4.789	318.0 -> 273.0	156264	20.00	µg/L	0.013
M4-PFHpA	5.693	367.0 -> 322.0	219083	20.00	µg/L	0.000
M8-PFOA	6.420	421.0 -> 376.0	220190	20.00	µg/L	0.013
M9-PFNA	7.039	472.0 -> 427.0	221985	20.00	µg/L	0.013
M6-PFDA	7.569	519.0 -> 474.0	291642	20.00	µg/L	0.014
M7-PFUnDA	8.004	570.0 -> 525.0	370518	20.00	µg/L	0.013
M2-PFDoDA	8.389	615.0 -> 570.0	373358	20.00	µg/L	0.013
M2-PFTeDA	9.114	715.0 -> 670.0	249669	20.00	µg/L	0.000
M8-FOSA	6.944	506.0 -> 78.0	95949	20.00	µg/L	0.013
M3-PFBS	3.780	302.0 -> 99.0	21701	20.00	µg/L	0.013
M3-PFHxS	5.736	402.0 -> 99.0	23578	20.00	µg/L	0.000
M8-PFOS	7.020	507.0 -> 99.0	30282	20.00	µg/L	0.013
M2-4:2FTS	4.684	329.0 -> 309.0	56471	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	61159	20.00	µg/L	0.000
M2-8:2FTS	7.605	529.0 -> 509.0	42550	20.00	µg/L	0.013
M3-MeFOSAA	7.446	573.0 -> 419.0	36395	20.00	µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	181819	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	56451	19.83	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C2-6:2FTS	6.403	429.0 -> 409.0	61077	20.27	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C2-8:2FTS	7.605	529.0 -> 509.0	42550	19.58	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C2-PFDoDA	8.389	615.0 -> 570.0	373055	20.75	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C2-PFTeDA	9.114	715.0 -> 670.0	249408	20.97	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C3-PFBS	3.780	302.0 -> 99.0	21623	21.08	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C3-PFHxS	5.736	402.0 -> 99.0	23566	21.20	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.0%		
13C4-PFBA	1.865	217.0 -> 172.0	138068	21.12	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%		
13C4-PFHpA	5.693	367.0 -> 322.0	218887	21.17	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C5-PFHxA	4.789	318.0 -> 273.0	156021	21.05	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.3%		
13C5-PFPeA	3.524	268.0 -> 223.0	116139	21.11	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.6%		
13C6-PFDA	7.569	519.0 -> 474.0	291603	21.21	µg/L	0.014

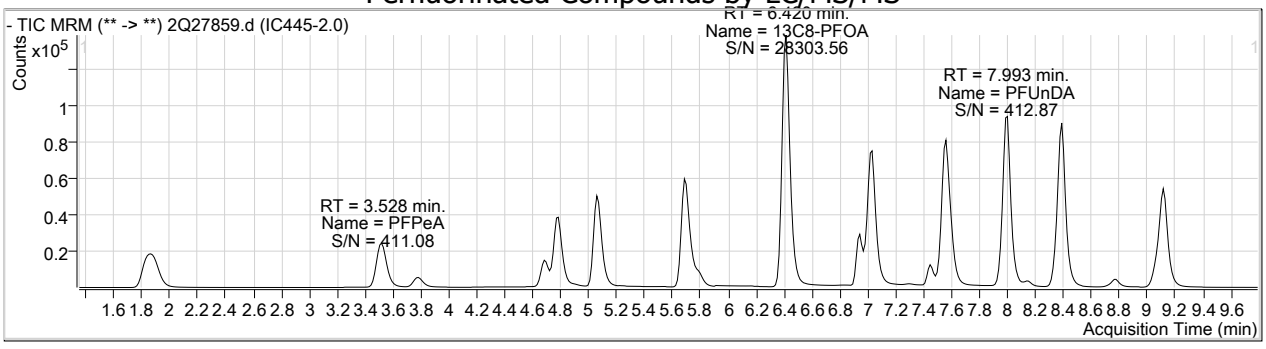
Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.1%		
13C7-PFUnDA	8.004	570.0 -> 525.0	370358	21.31 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.5%		
13C8-FOSA	6.944	506.0 -> 78.0	95940	21.39 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C8-PFOA	6.420	421.0 -> 376.0	219958	21.34 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C8-PFOS	7.020	507.0 -> 99.0	30287	21.18 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C9-PFNA	7.039	472.0 -> 427.0	221969	21.30 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.5%		
d3-MeFOSAA	7.446	573.0 -> 419.0	36432	20.78 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%		
M2-PFOA	6.422	415.0 -> 370.0	272933	20.00 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	48194	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	181819	109.07 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 109.1%		
Target Compounds						**QValue**
4:2FTS	4.687	327.0 -> 307.0	3490	2.10 µg/L		99
6:2FTS	6.405	427.0 -> 407.0	3169	2.05 µg/L		97
8:2FTS	7.606	527.0 -> 507.0	2410	2.15 µg/L		97
EtFOSAA	7.598	584.0 -> 419.0	1690	2.13 µg/L		98
FOSA	6.947	498.0 -> 78.0	4170	1.90 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	2047	2.14 µg/L		93
PFBA	1.860	213.0 -> 169.0	2697	1.99 µg/L		100
PFBS	3.771	299.0 -> 80.0	3563	2.03 µg/L		100
PFDA	7.556	513.0 -> 469.0	12271	1.94 µg/L		99
PFDoDA	8.391	613.0 -> 569.0	16869	1.97 µg/L		98
PFDS	7.963	599.0 -> 80.0	1109	2.16 µg/L		98
PFHpA	5.695	363.0 -> 319.0	19004	1.93 µg/L		100
PFHpS	6.429	449.0 -> 80.0	2236	2.03 µg/L		100
PFHxA	4.790	313.0 -> 269.0	5325	1.95 µg/L		100
PFHxS	5.739	399.0 -> 80.0	2552	1.96 µg/L	m	99
PFNA	7.041	463.0 -> 419.0	14097	1.93 µg/L		98
PFNS	7.527	549.0 -> 80.0	2115	2.05 µg/L		100
PFOA	6.424	413.0 -> 369.0	11539	1.95 µg/L		99
PFOS	7.024	499.0 -> 80.0	3058	2.05 µg/L	m	98
PFPeA	3.528	263.0 -> 219.0	10043	1.94 µg/L		100
PFPeS	4.908	349.0 -> 80.0	2199	1.95 µg/L		99
PFTeDA	9.119	713.0 -> 669.0	16522	1.93 µg/L		100
PFTrDA	8.776	663.0 -> 619.0	19198	1.99 µg/L		99
PFUnDA	7.993	563.0 -> 519.0	14556	1.89 µg/L		99
11Cl-PF3OUdS	8.149	631.0 -> 451.0	10928	1.94 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	2382	2.02 µg/L		100
ADONA	5.791	377.0 -> 251.0	22104	2.00 µg/L		100
HFPO-DA	5.073	329.0 -> 169.0	21722	10.26 µg/L		99

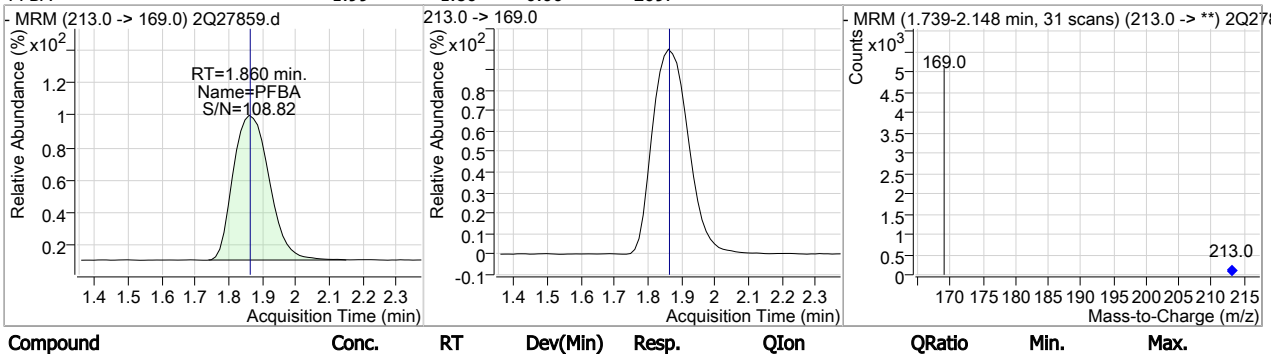
 # = Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 2Q27859.D

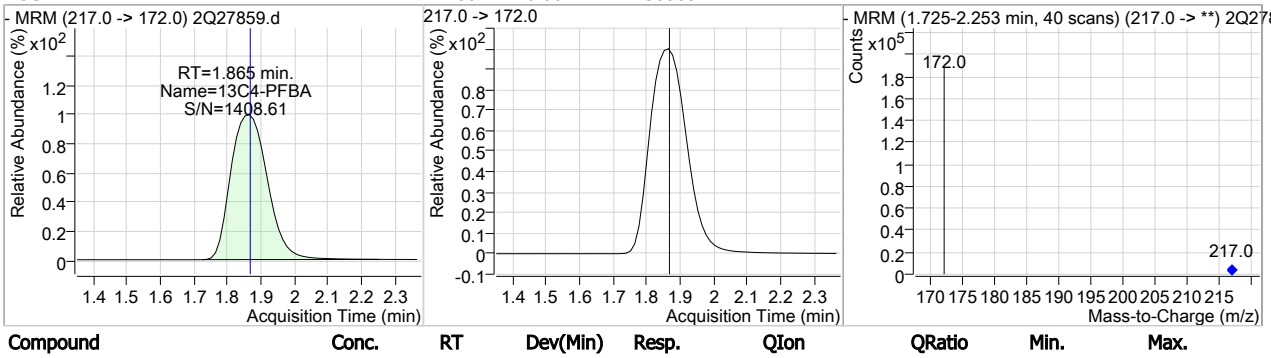
Perfluorinated Compounds by LC/MS/MS



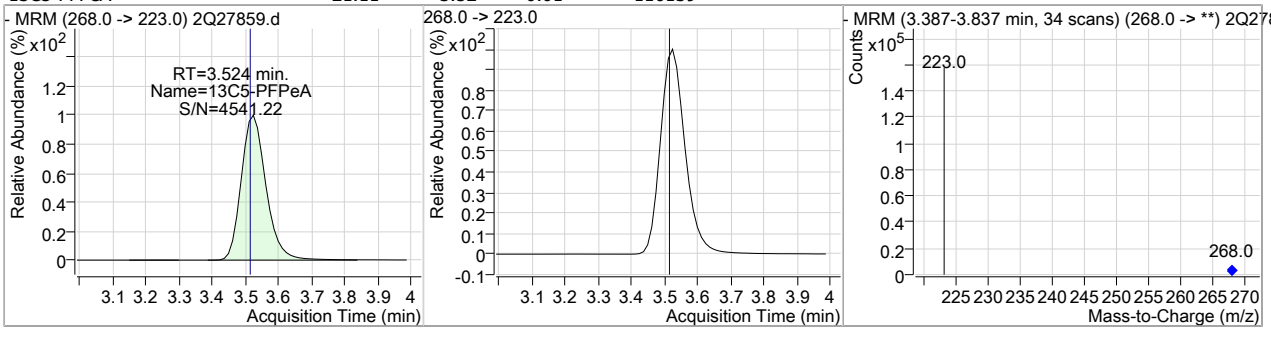
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.99	1.86	0.00	2697				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.12	1.86	0.00	138068				

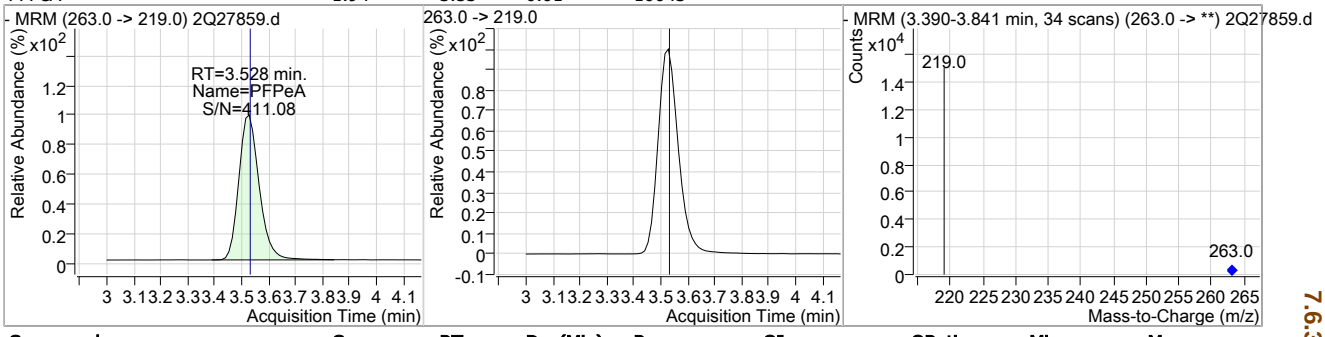


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	21.11	3.52	0.01	116139				

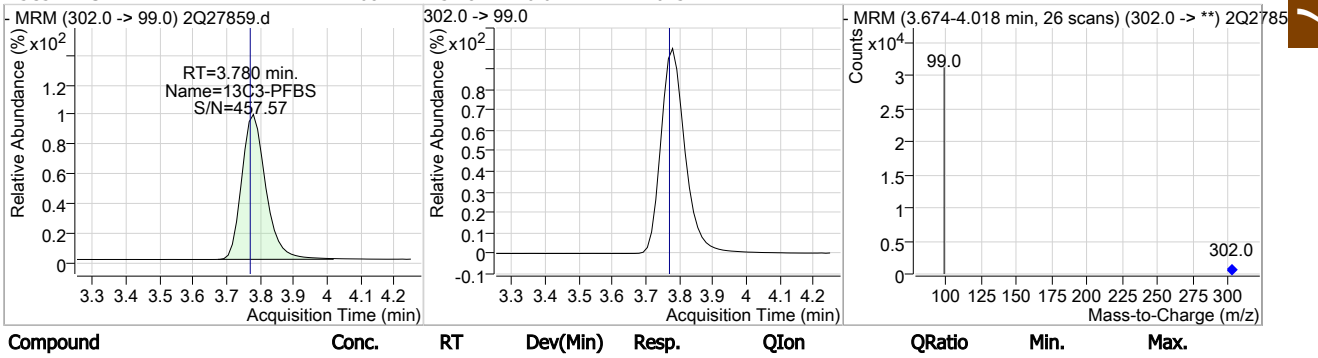


Perfluorinated Compounds by LC/MS/MS

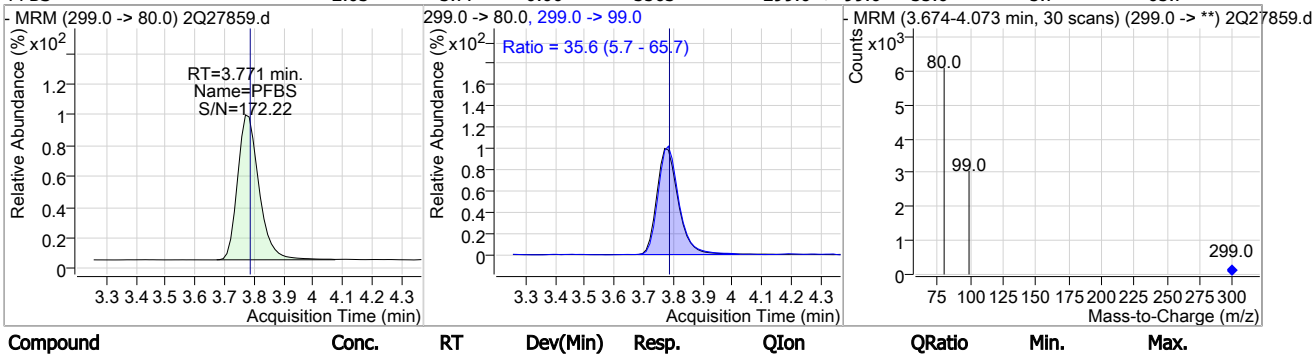
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.94	3.53	0.01	10043				



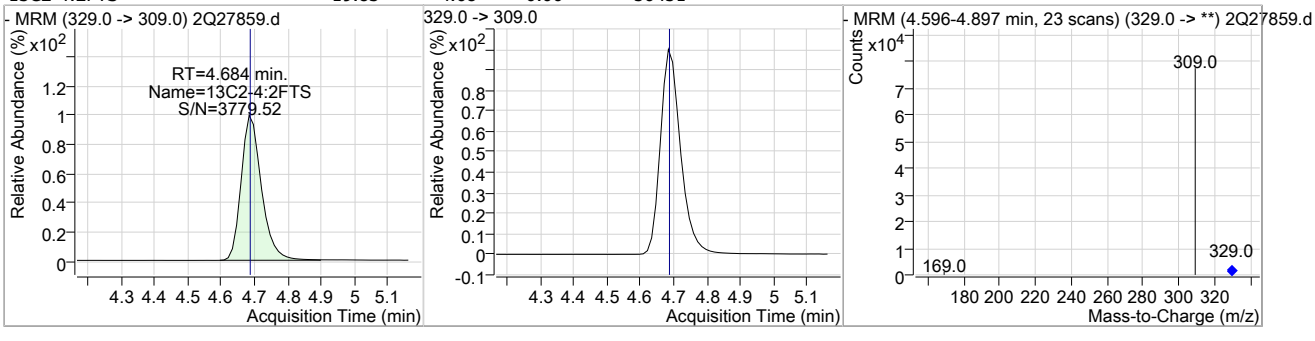
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	21.08	3.78	0.01	21623				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.03	3.77	0.00	3563	299.0 -> 99.0	35.6	5.7	65.7

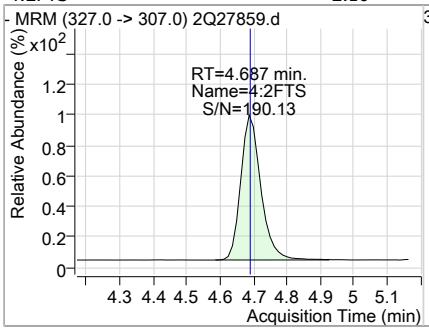


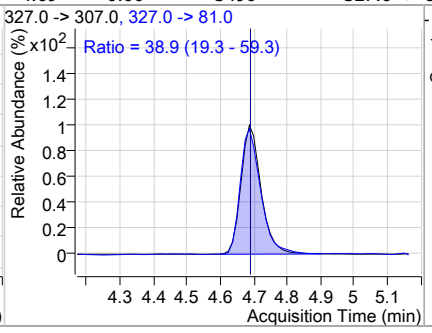
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.83	4.68	0.00	56451				

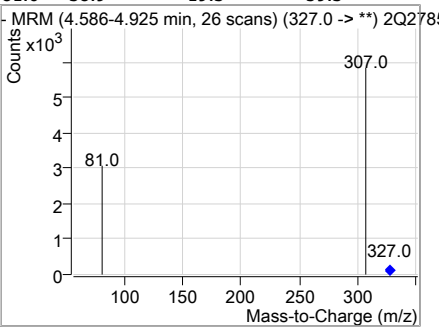


Perfluorinated Compounds by LC/MS/MS

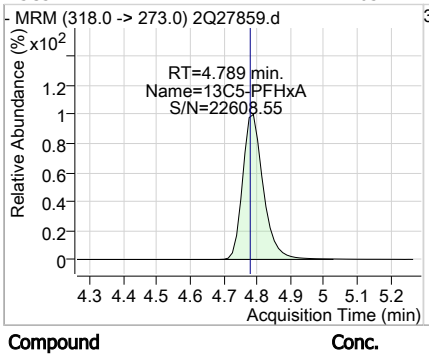
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	2.10	4.69	0.00	3490	327.0 -> 81.0	38.9	19.3	59.3

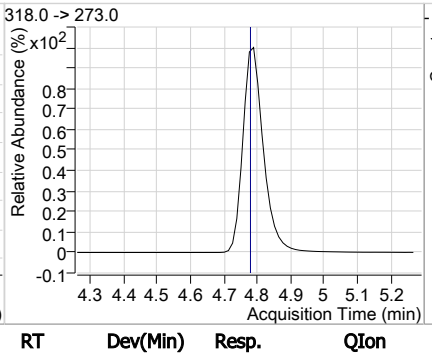


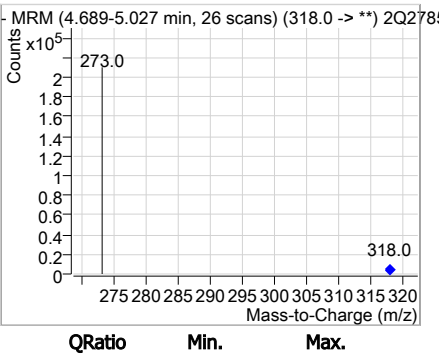




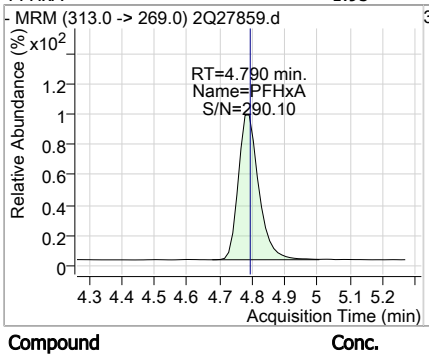
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.05	4.79	0.01	156021				

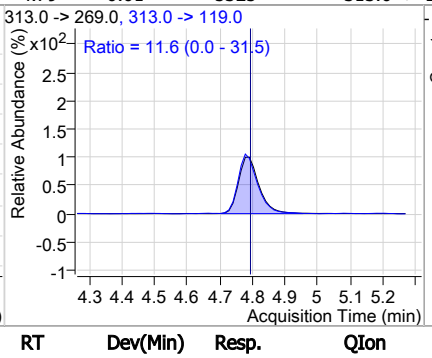


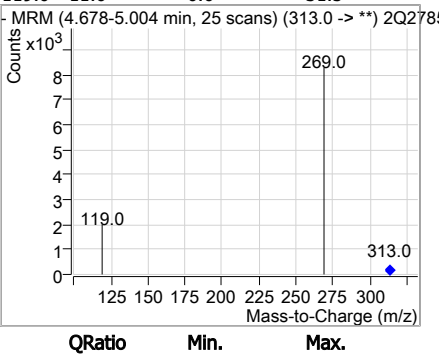




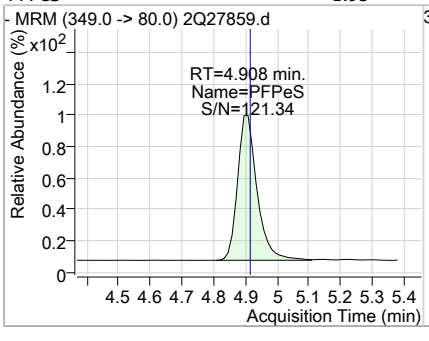
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.95	4.79	0.01	5325	313.0 -> 119.0	11.6	0.0	31.5

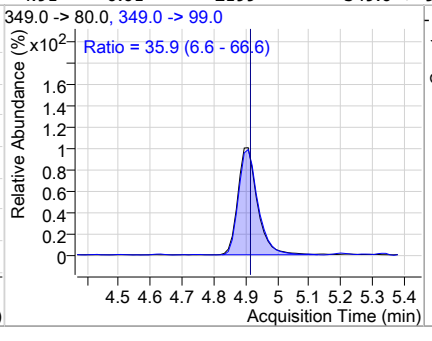


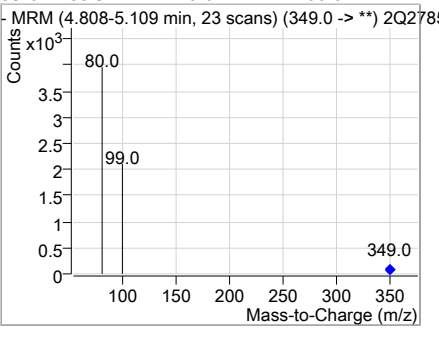




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.95	4.91	0.01	2199	349.0 -> 99.0	35.9	6.6	66.6



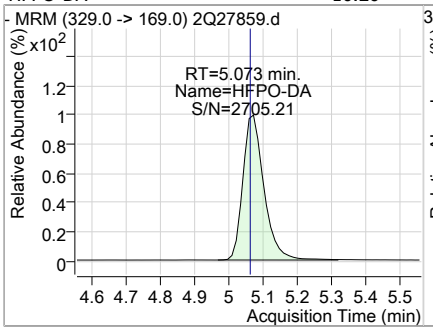


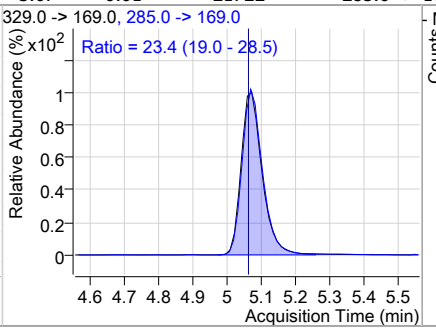


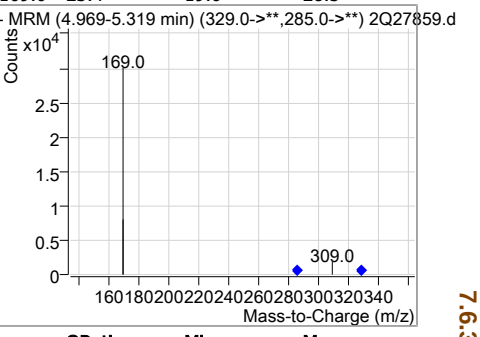
7.6.3

Perfluorinated Compounds by LC/MS/MS

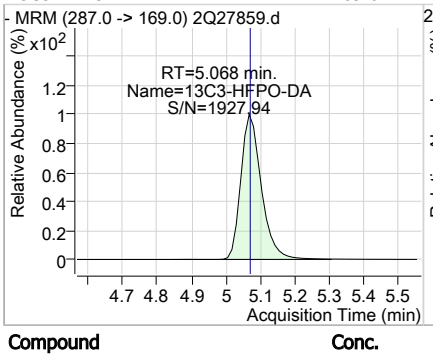
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.26	5.07	0.01	21722	285.0 -> 169.0	23.4	19.0	28.5

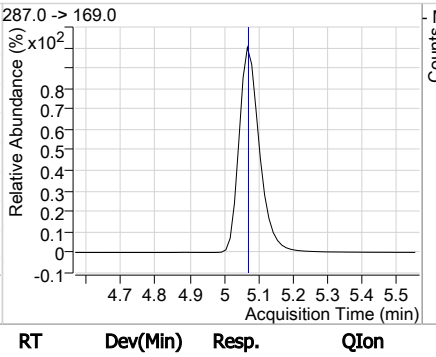


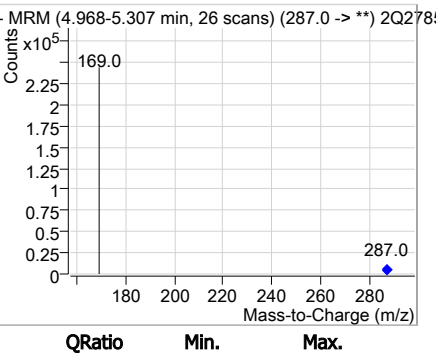




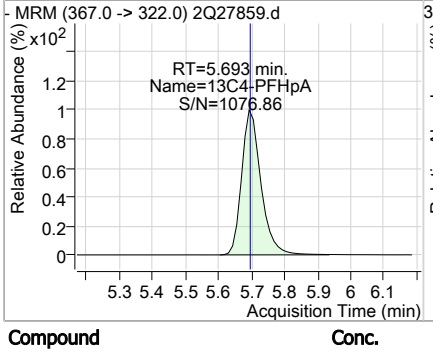
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	109.07	5.07	0.00	181819				

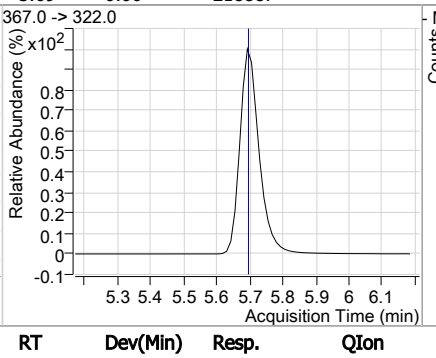


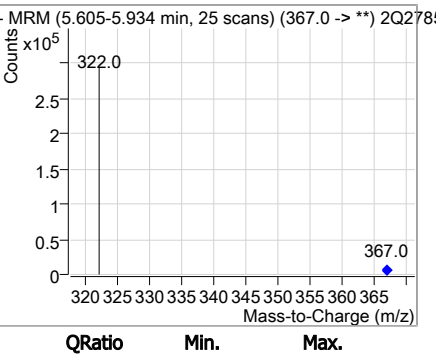




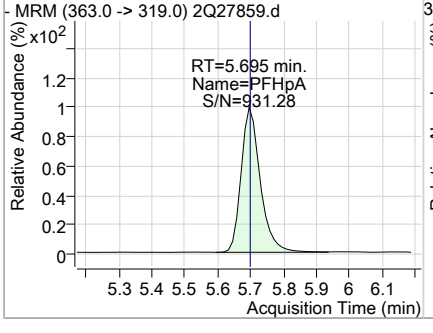
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.17	5.69	0.00	218887				

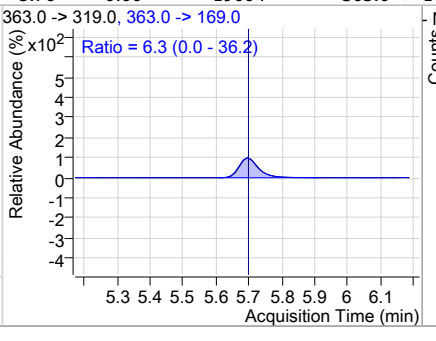


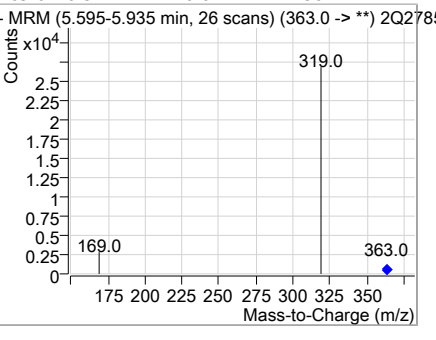




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.93	5.70	0.00	19004	363.0 -> 169.0	6.3	0.0	36.2

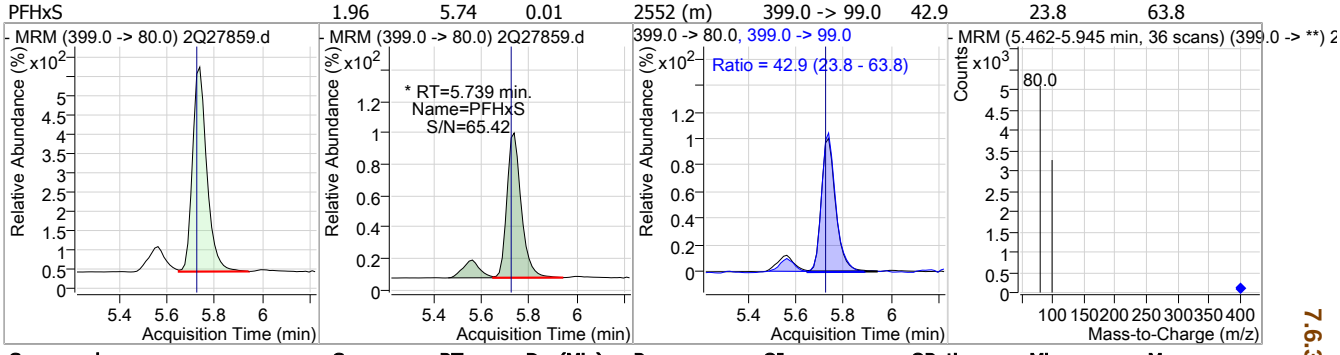




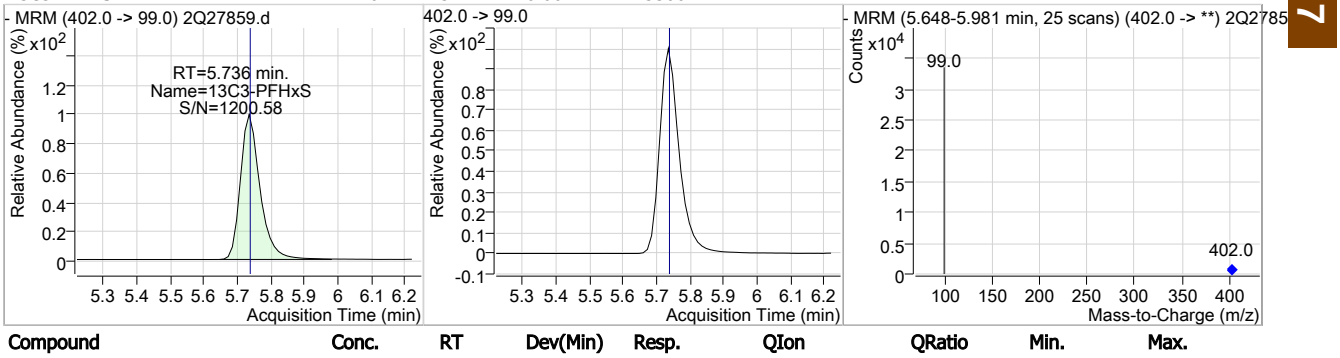


Perfluorinated Compounds by LC/MS/MS

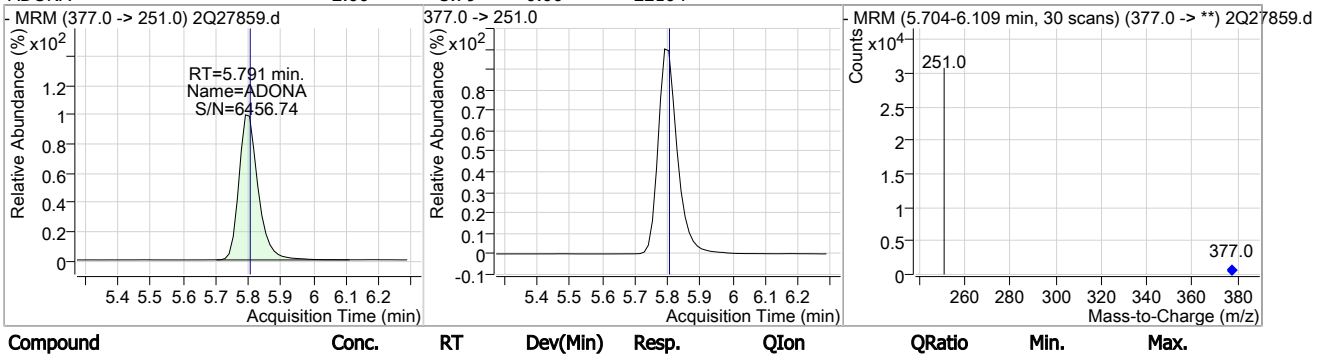
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.96	5.74	0.01	2552 (m)	399.0 -> 99.0	42.9	23.8	63.8



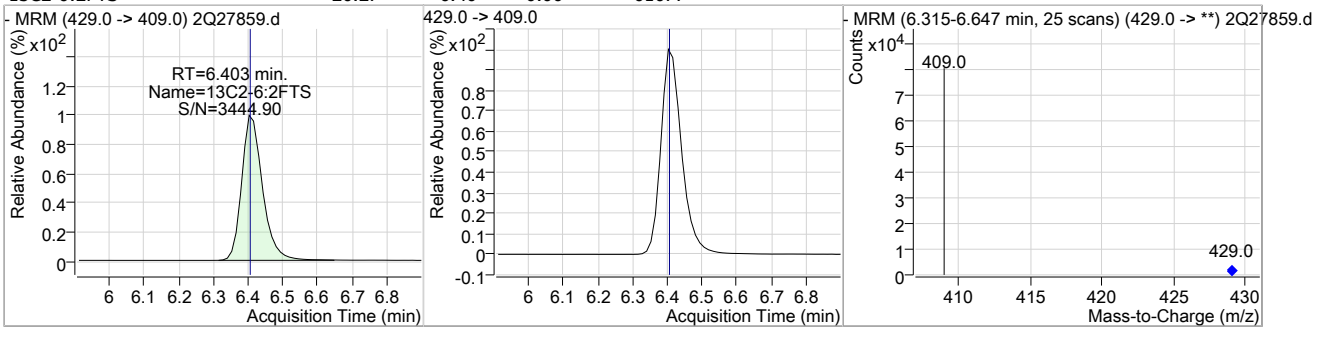
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.20	5.74	0.00	23566				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	2.00	5.79	0.00	22104				

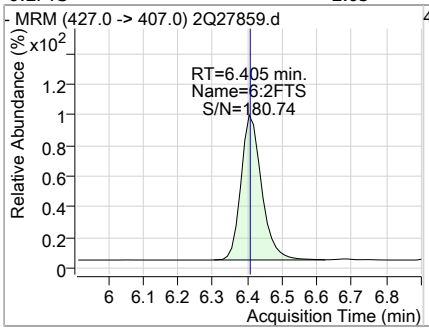


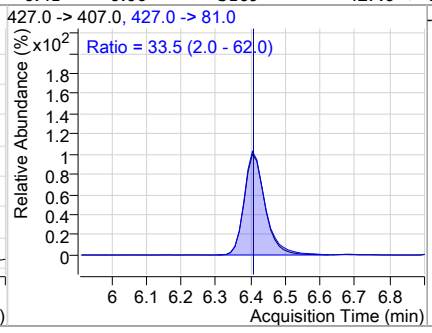
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.27	6.40	0.00	61077				

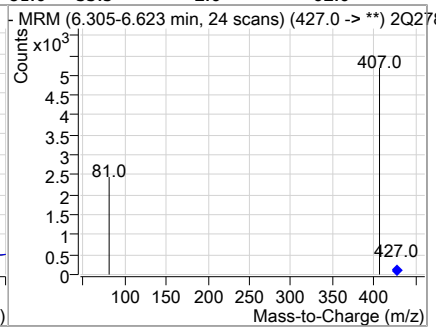


Perfluorinated Compounds by LC/MS/MS

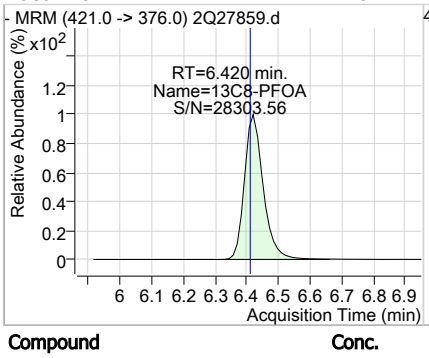
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.05	6.41	0.00	3169	427.0 -> 81.0	33.5	2.0	62.0

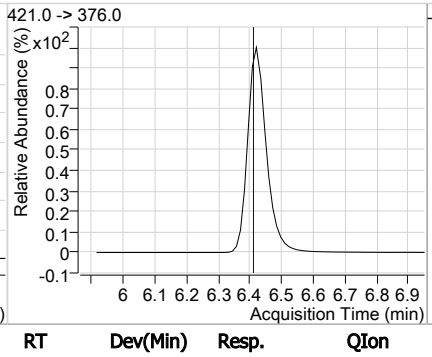


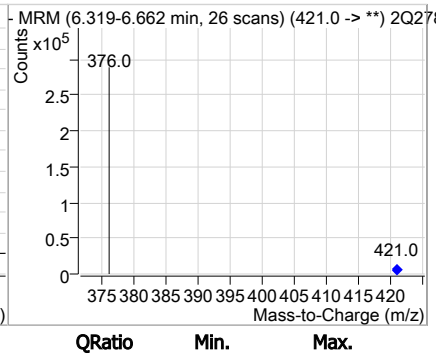




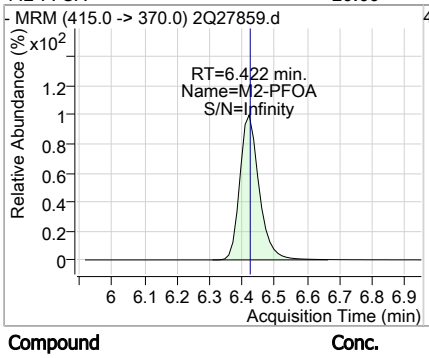
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.34	6.42	0.01	219958				

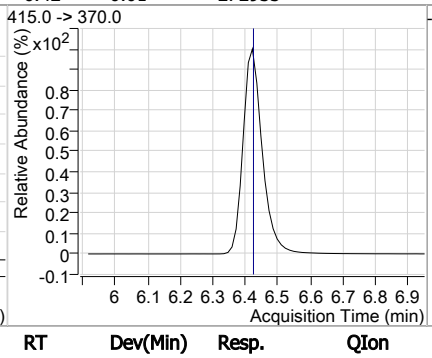


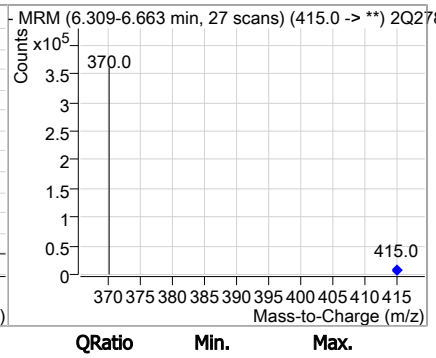




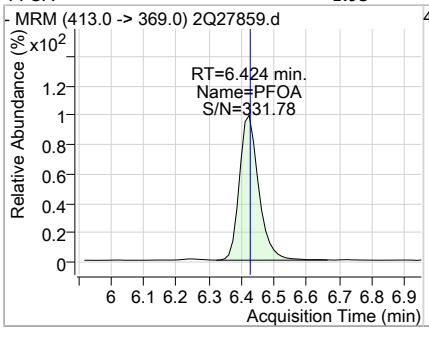
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.42	0.01	272933				

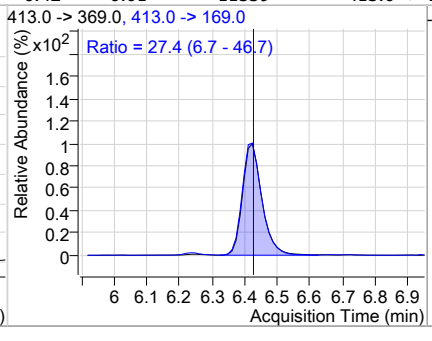


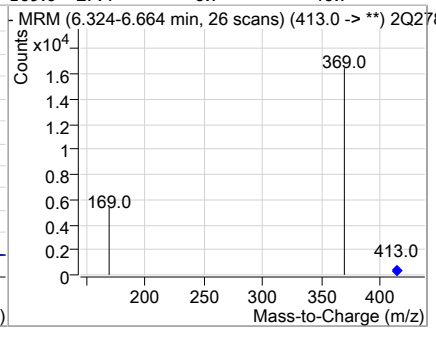




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.95	6.42	0.01	11539	413.0 -> 169.0	27.4	6.7	46.7

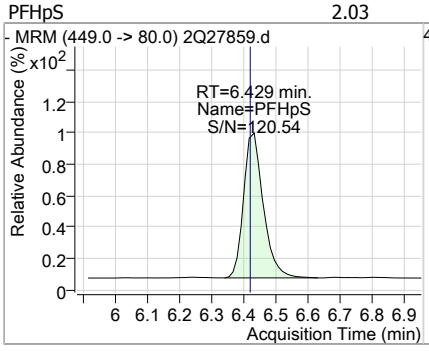


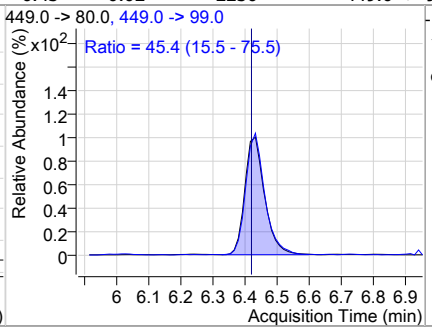


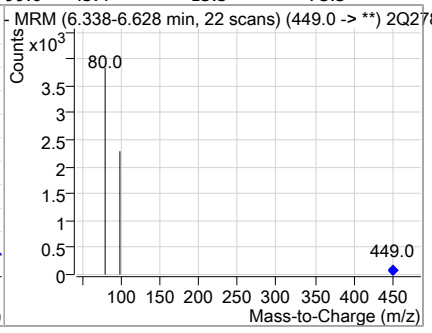


Perfluorinated Compounds by LC/MS/MS

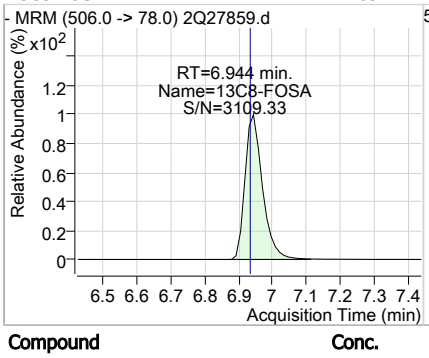
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.03	6.43	0.02	2236	449.0 -> 99.0	45.4	15.5	75.5

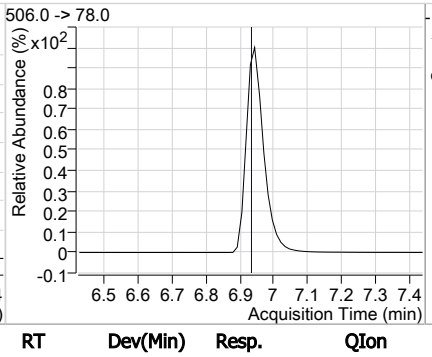


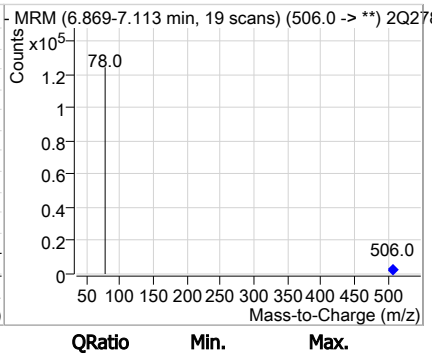




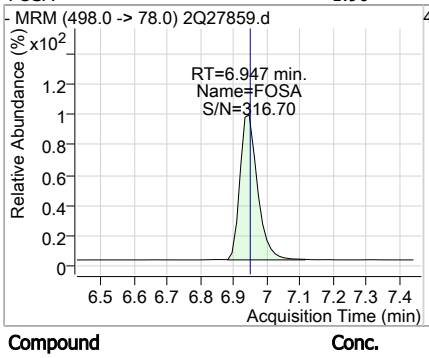
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.39	6.94	0.01	95940				

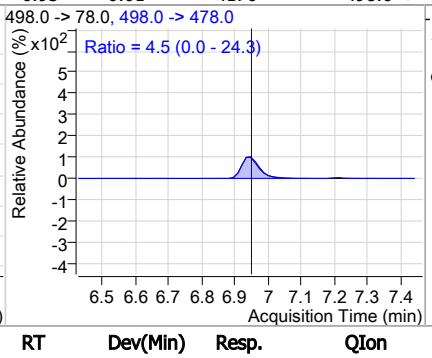


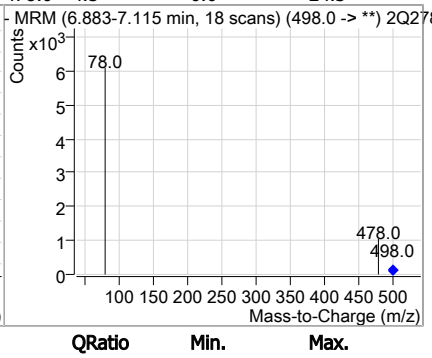




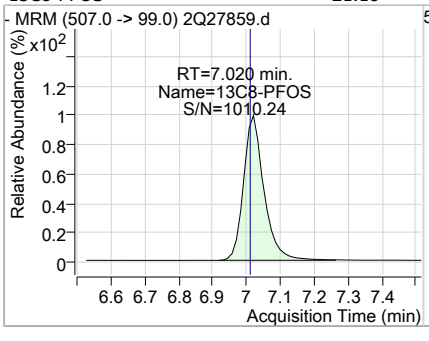
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.90	6.95	0.01	4170	498.0 -> 478.0	4.5	0.0	24.3

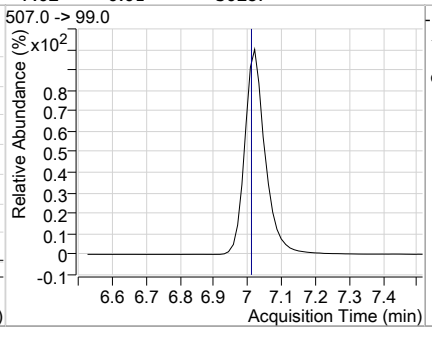


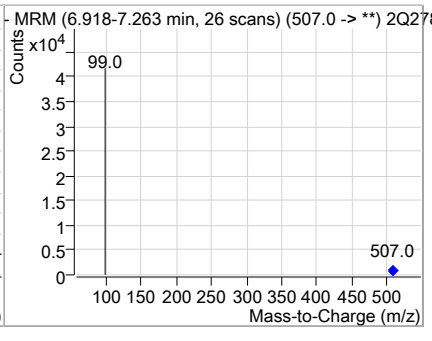




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.18	7.02	0.01	30287				



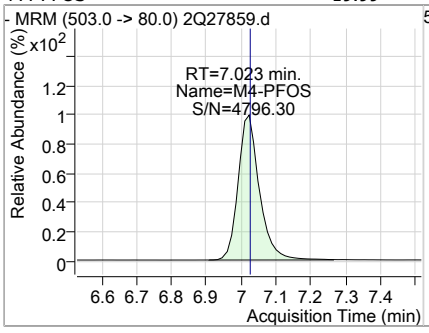


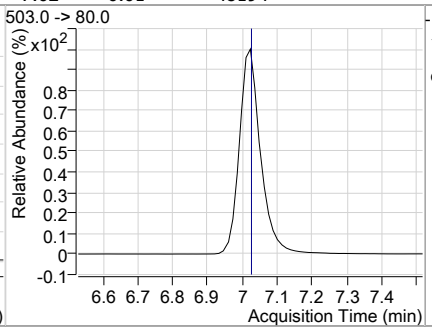


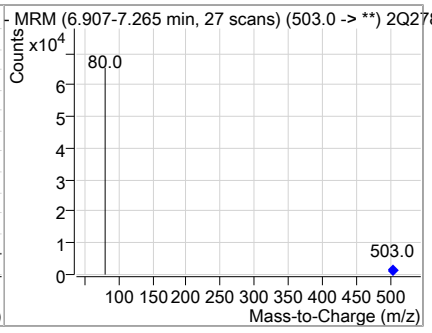
7.6.3

Perfluorinated Compounds by LC/MS/MS

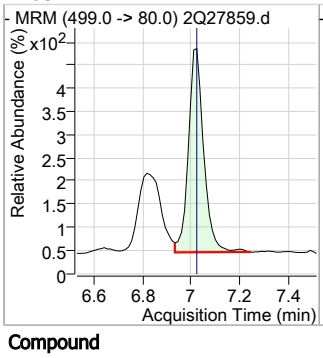
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.02	0.01	48194				

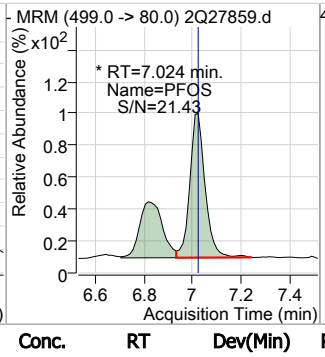


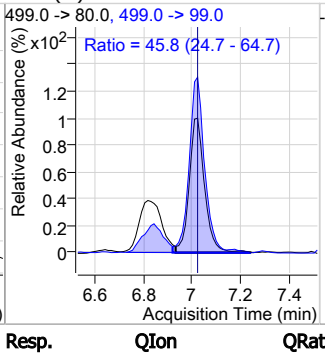


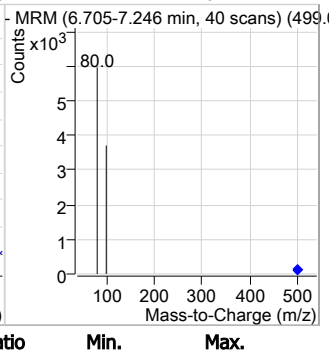


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.05	7.02	0.01	3058 (m)	499.0 -> 99.0	45.8	24.7	64.7

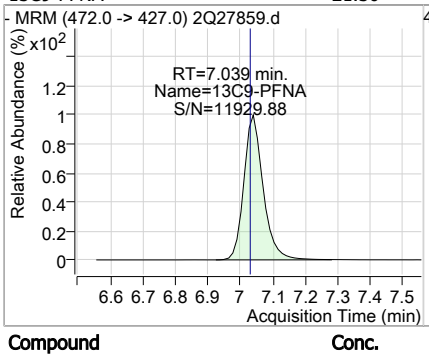


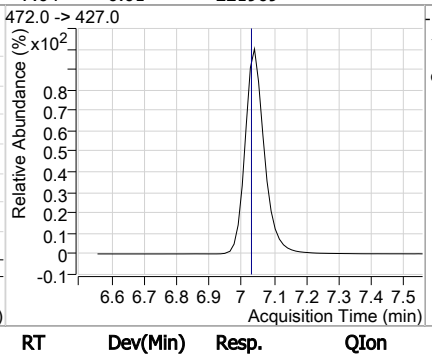


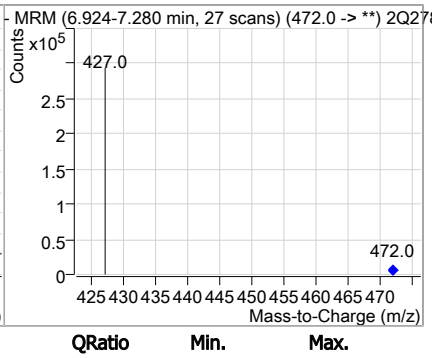




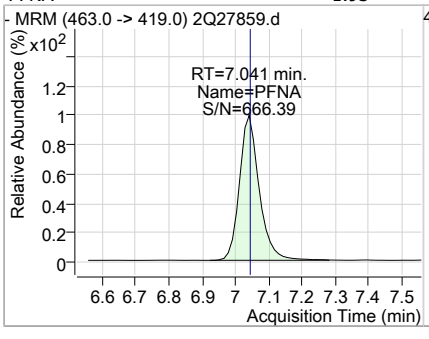
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.30	7.04	0.01	221969				

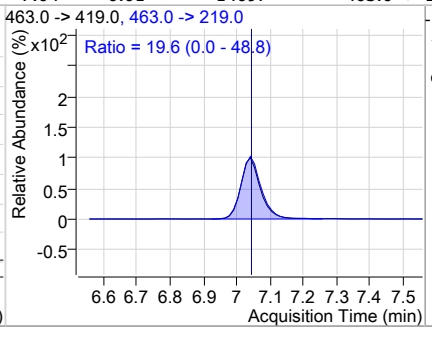


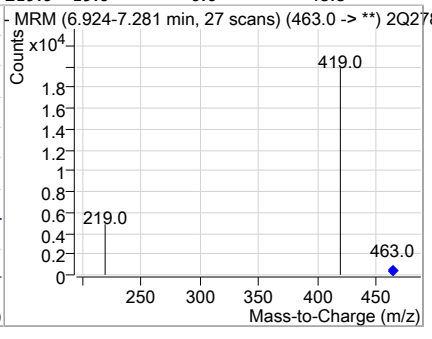




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.93	7.04	0.01	14097	463.0 -> 219.0	19.6	0.0	48.8

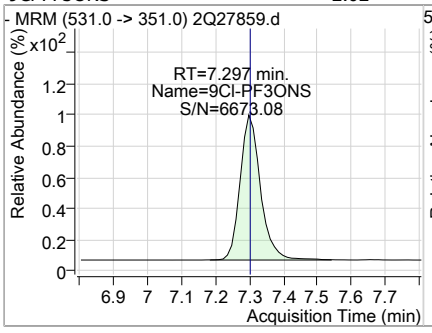


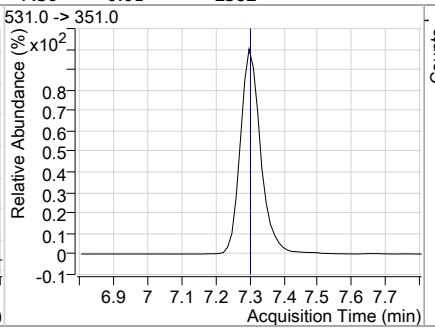


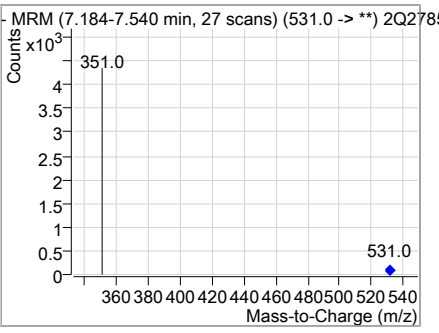


Perfluorinated Compounds by LC/MS/MS

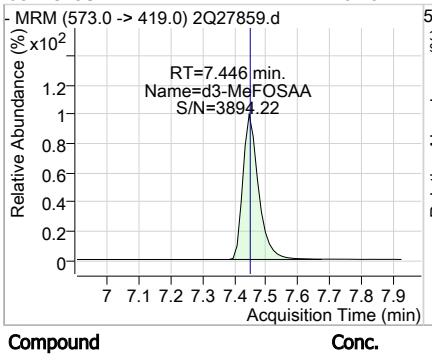
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	2.02	7.30	0.01	2382				

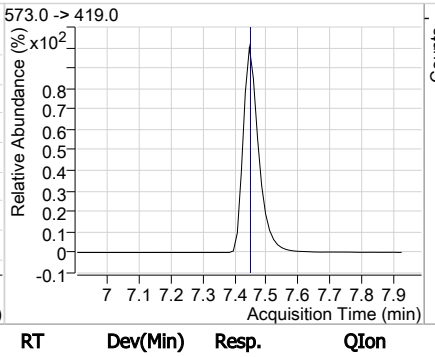


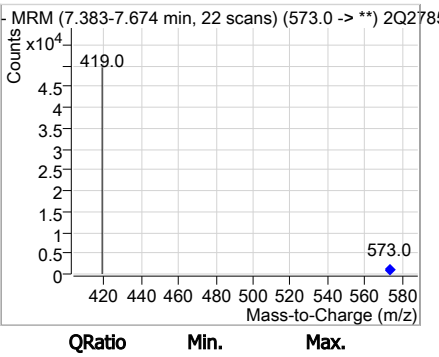




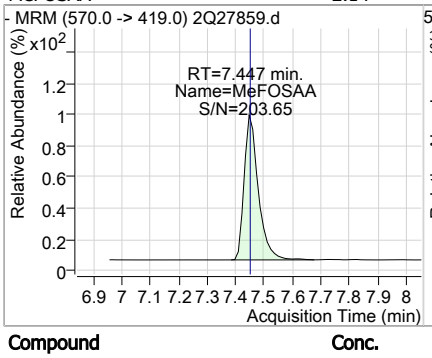
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.78	7.45	0.00	36432				

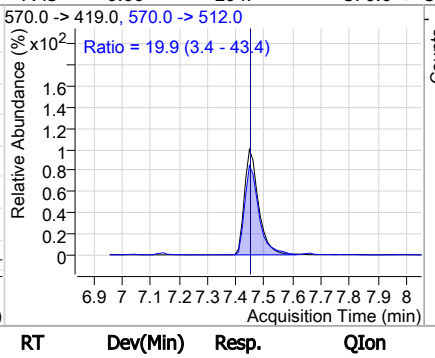


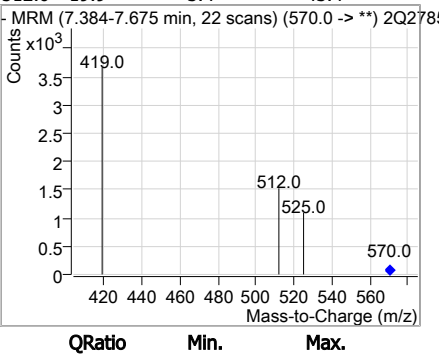




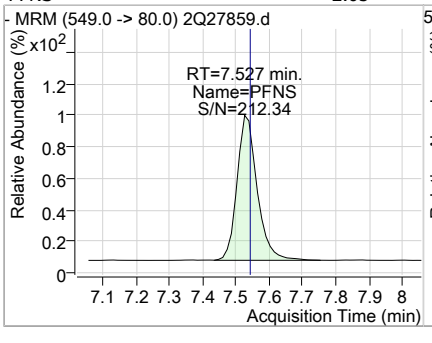
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.14	7.45	0.00	2047	570.0 -> 512.0	19.9	3.4	43.4

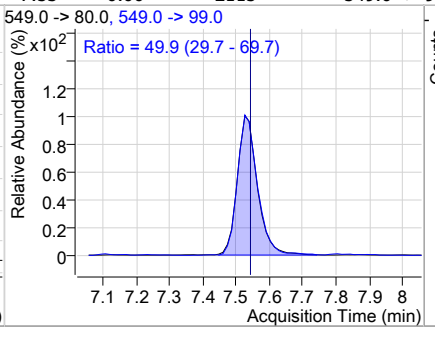


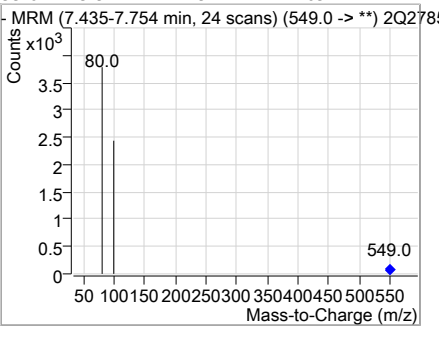




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.05	7.53	0.00	2115	549.0 -> 99.0	49.9	29.7	69.7



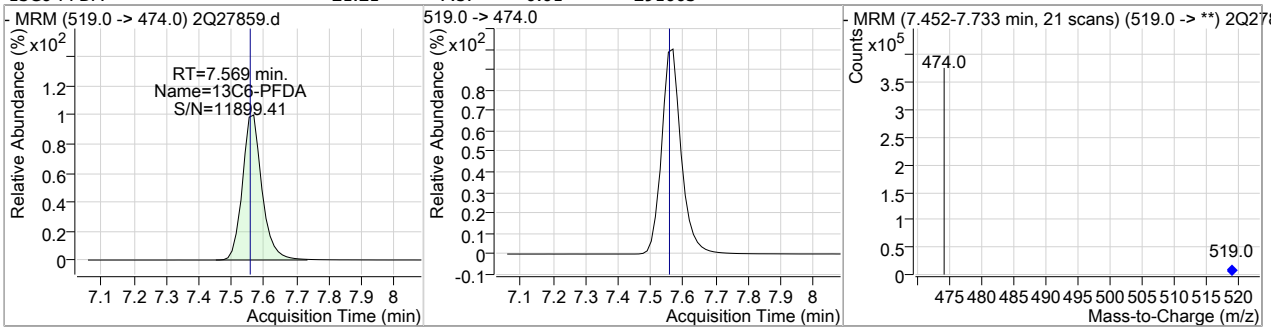




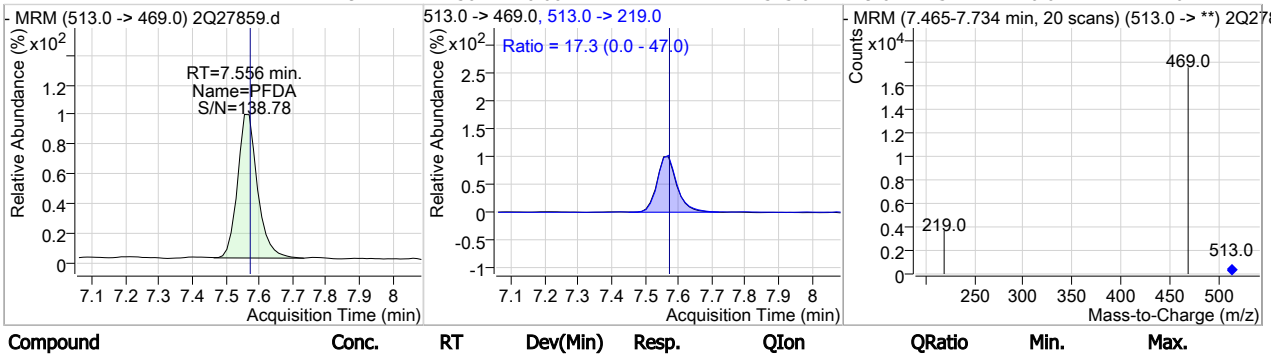
7.6.3

Perfluorinated Compounds by LC/MS/MS

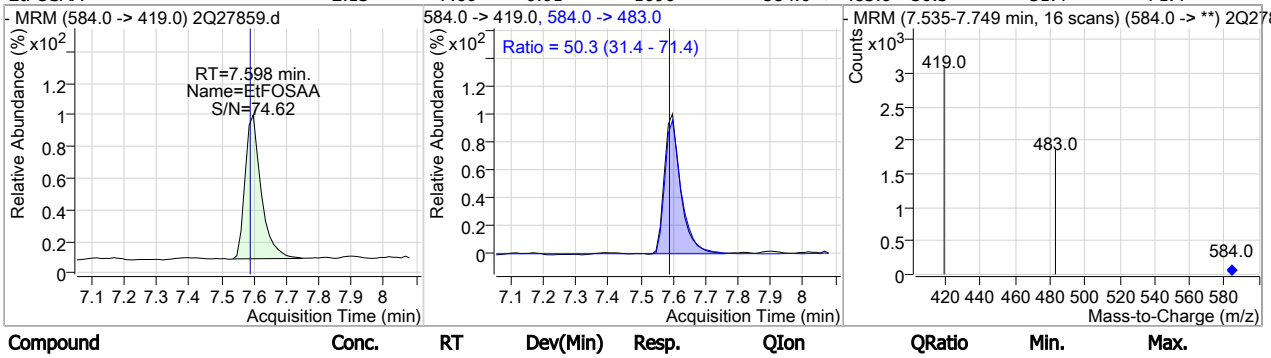
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.21	7.57	0.01	291603				



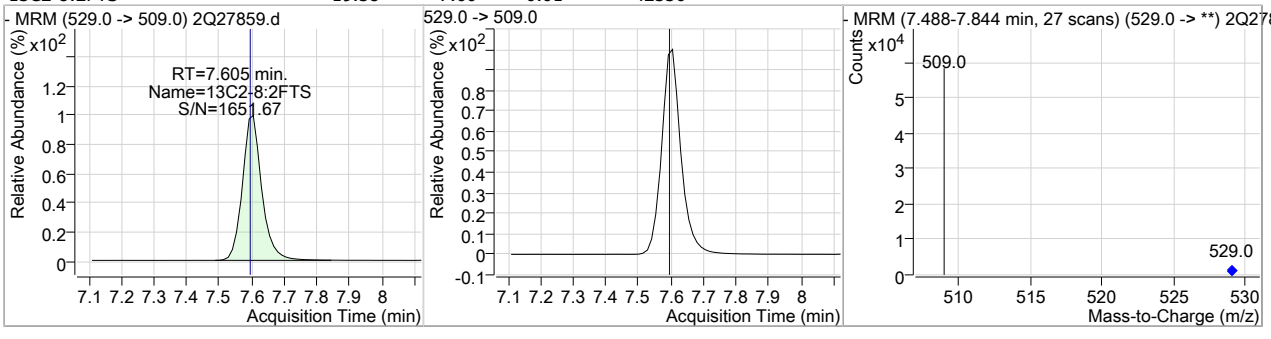
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.94	7.56	0.00	12271	513.0 -> 219.0	17.3	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.13	7.60	0.01	1690	584.0 -> 483.0	50.3	31.4	71.4

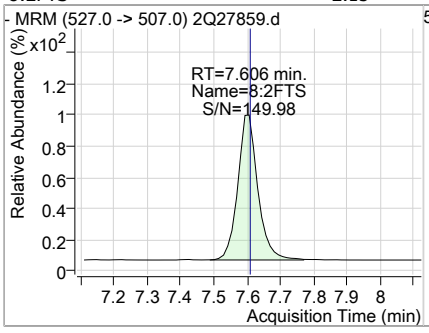


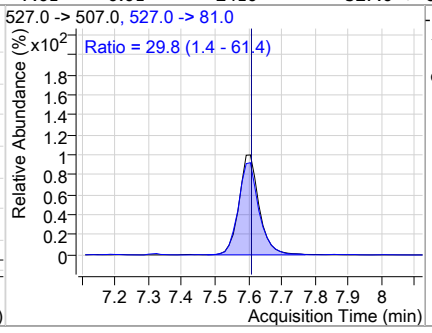
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.58	7.60	0.01	42550				

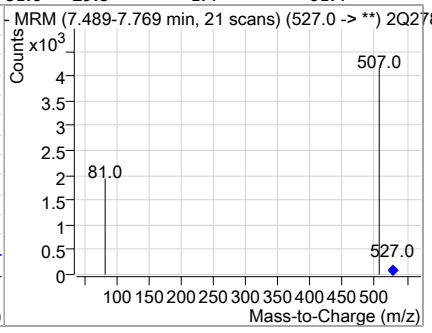


Perfluorinated Compounds by LC/MS/MS

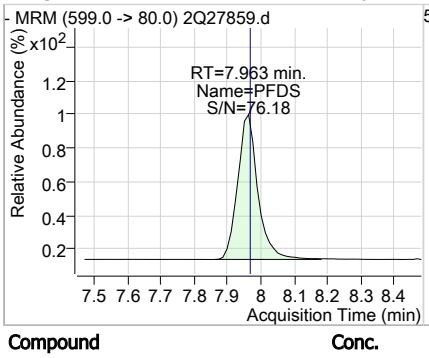
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.15	7.61	0.01	2410	527.0 -> 81.0	29.8	1.4	61.4

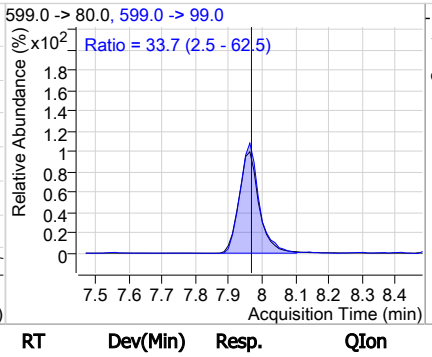


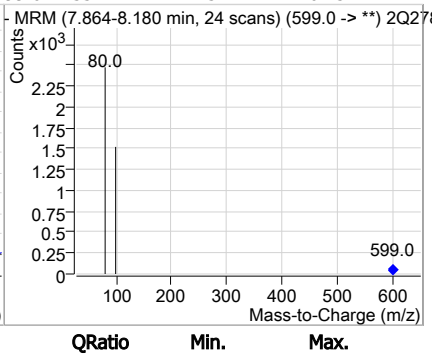




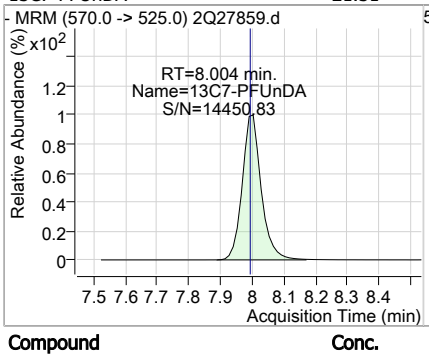
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.16	7.96	0.01	1109	599.0 -> 99.0	33.7	2.5	62.5

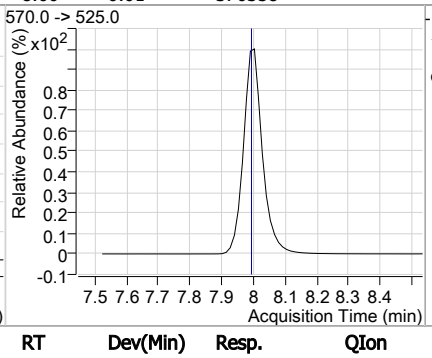


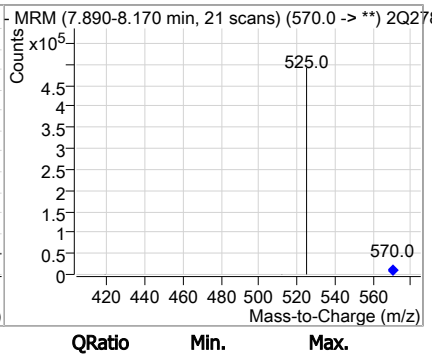




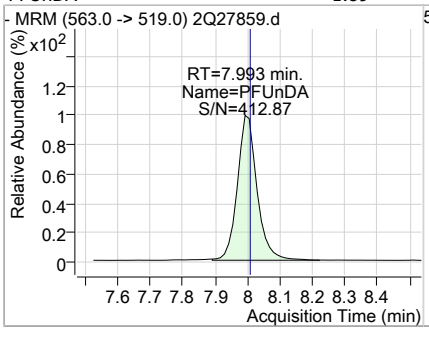
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	21.31	8.00	0.01	370358				

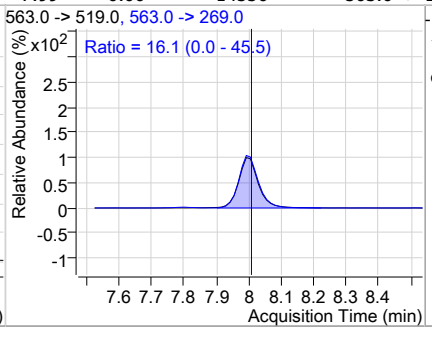


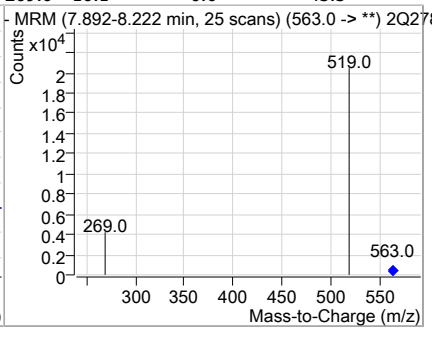




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.89	7.99	0.00	14556	563.0 -> 269.0	16.1	0.0	45.5

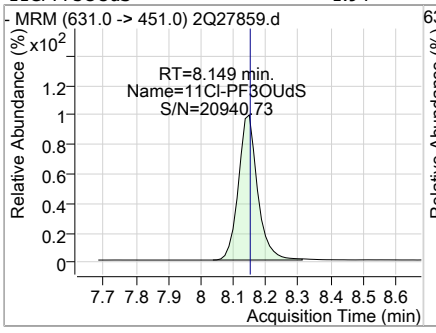


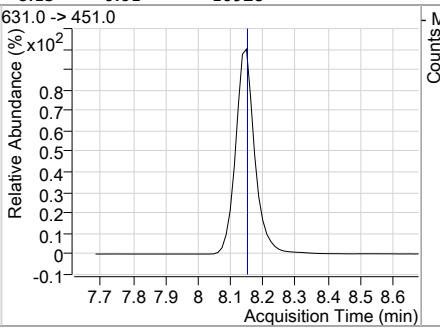


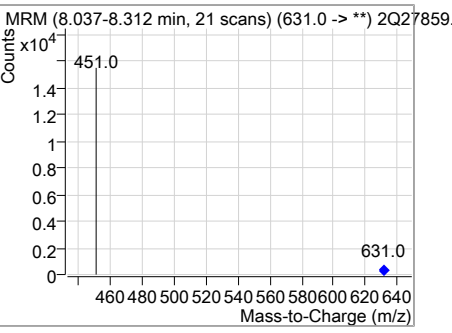


Perfluorinated Compounds by LC/MS/MS

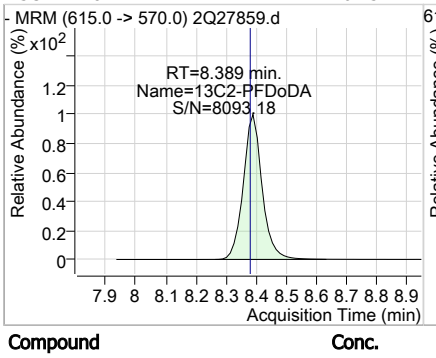
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.94	8.15	0.01	10928				

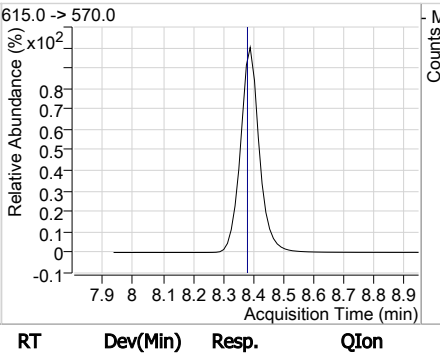


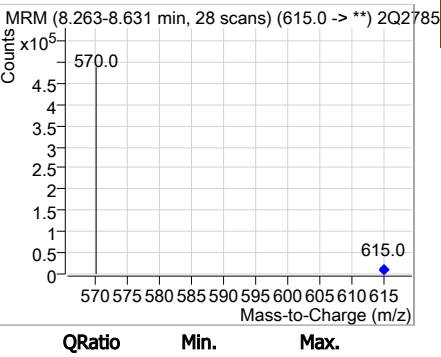




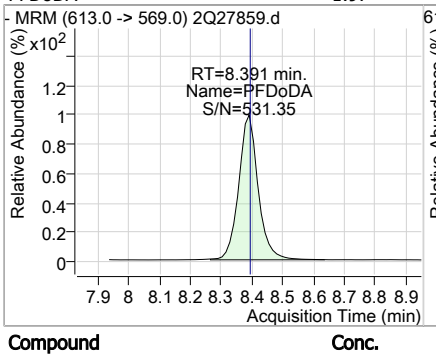
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.75	8.39	0.01	373055				

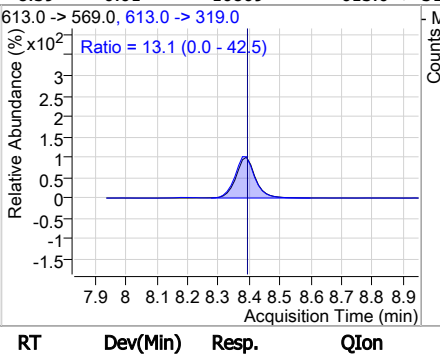


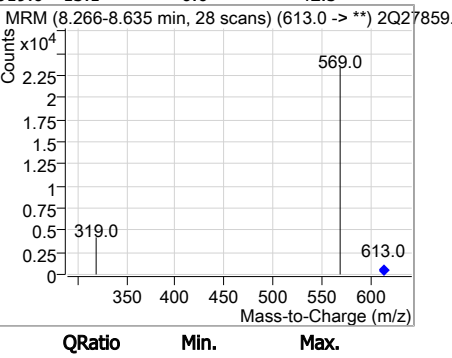




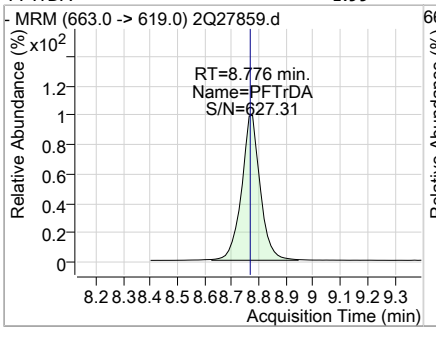
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.97	8.39	0.01	16869	613.0 -> 319.0	13.1	0.0	42.5

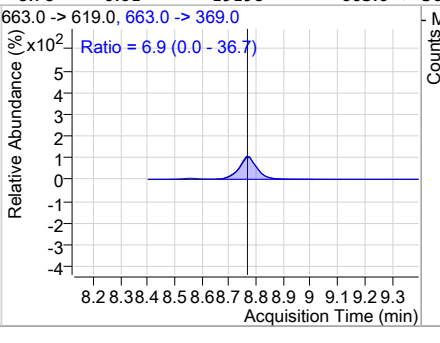


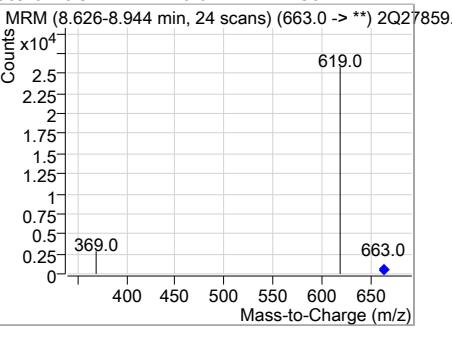




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.99	8.78	0.01	19198	663.0 -> 369.0	6.9	0.0	36.7

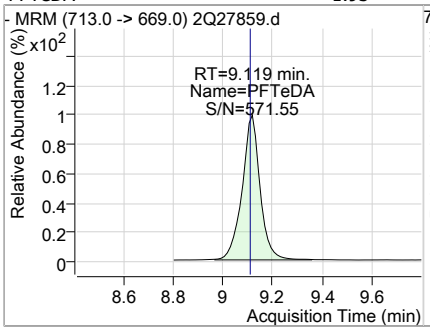


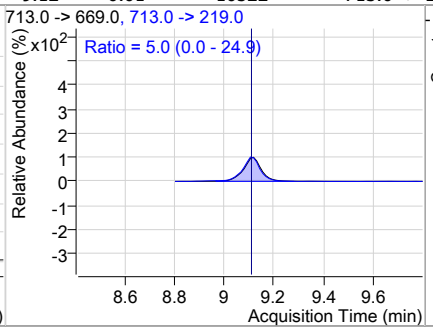


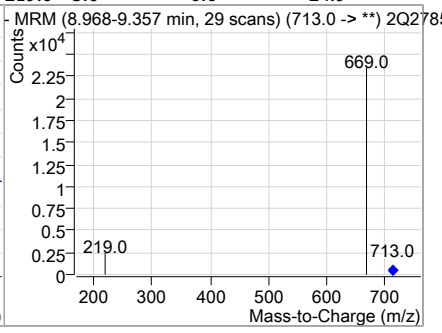


Perfluorinated Compounds by LC/MS/MS

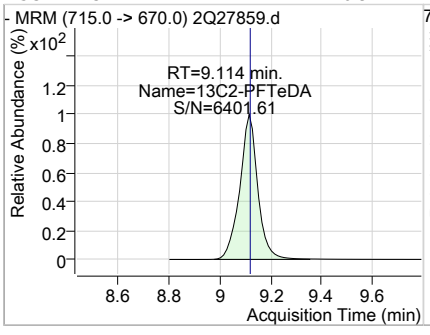
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.93	9.12	0.01	16522	713.0 -> 219.0	5.0	0.0	24.9

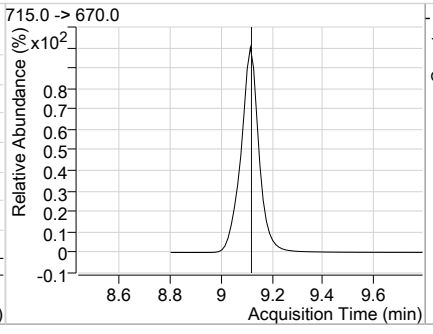


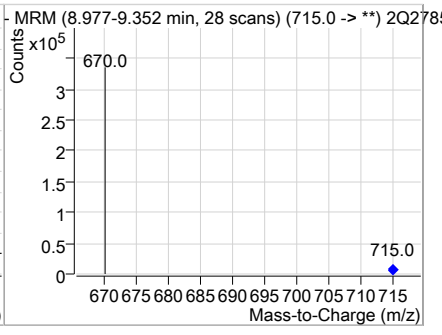




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.97	9.11	0.00	249408				







7.6.3

7

Manual Integration Approval Summary

Sample Number: S2Q445-IC445
Lab FileID: 2Q27859.D
Injection Time: 03/21/19 11:55
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/22/19 16:23 Nancy Saunders
Supervisor approved: 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak

Cal Report: 2Q27860.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q27860.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/21/2019 12:11:00 PM
Sample Name : IC445-5.0
Vial : Vial 5
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : S2Q445.batch.bin
Sample Information : op74164,S2Q445,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.409	415.0 -> 370.0	274050	20.00 µg/L	0.000
13C4-PFOS	7.010	503.0 -> 80.0	49385	20.00 µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	140064	20.00 µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	116874	20.00 µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	158084	20.00 µg/L	0.000
M4-PFHpA	5.693	367.0 -> 322.0	220006	20.00 µg/L	0.000
M8-PFOA	6.420	421.0 -> 376.0	220276	20.00 µg/L	0.013
M9-PFNA	7.039	472.0 -> 427.0	221879	20.00 µg/L	0.013
M6-PFDA	7.555	519.0 -> 474.0	295717	20.00 µg/L	0.000
M7-PFUnDA	7.991	570.0 -> 525.0	369509	20.00 µg/L	0.000
M2-PFDoDA	8.389	615.0 -> 570.0	374646	20.00 µg/L	0.013
M2-PFTeDA	9.114	715.0 -> 670.0	248243	20.00 µg/L	0.000
M8-FOSA	6.931	506.0 -> 78.0	96009	20.00 µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	21662	20.00 µg/L	0.000
M3-PFHxS	5.736	402.0 -> 99.0	23601	20.00 µg/L	0.000
M8-PFOS	7.020	507.0 -> 99.0	30234	20.00 µg/L	0.013
M2-4:2FTS	4.684	329.0 -> 309.0	57682	20.00 µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	61545	20.00 µg/L	0.000
M2-8:2FTS	7.592	529.0 -> 509.0	43914	20.00 µg/L	0.000
M3-MeFOSAA	7.446	573.0 -> 419.0	36307	20.00 µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	179983	100.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	4.684	329.0 -> 309.0	57490	20.20 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C2-6:2FTS	6.403	429.0 -> 409.0	61635	20.45 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C2-8:2FTS	7.592	529.0 -> 509.0	43904	20.20 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C2-PFDoDA	8.389	615.0 -> 570.0	374830	20.85 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C2-PFTeDA	9.114	715.0 -> 670.0	248006	20.85 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C3-PFBS	3.767	302.0 -> 99.0	21562	21.02 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
13C3-PFHxS	5.736	402.0 -> 99.0	23562	21.20 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C4-PFBA	1.865	217.0 -> 172.0	139429	21.33 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.6%	
13C4-PFHpA	5.693	367.0 -> 322.0	219702	21.25 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C5-PFHxA	4.776	318.0 -> 273.0	158068	21.33 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%	
13C5-PFPeA	3.511	268.0 -> 223.0	116876	21.24 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C6-PFDA	7.555	519.0 -> 474.0	295481	21.49 µg/L	0.000

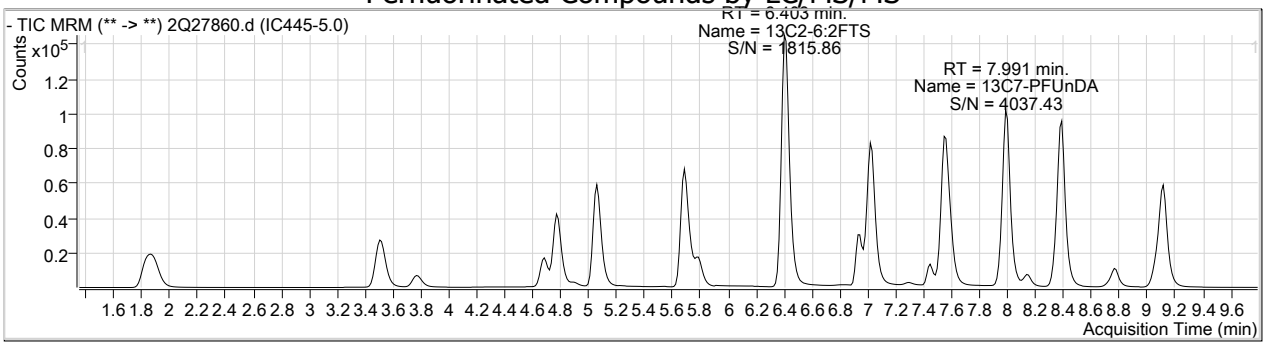
Perfluorinated Compounds by LC/MS/MS

Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.5%		
13C7-PFUnDA	7.991	570.0 -> 525.0	369487	21.26 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.3%		
13C8-FOSA	6.931	506.0 -> 78.0	95953	21.39 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C8-PFOA	6.420	421.0 -> 376.0	220069	21.36 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.8%		
13C8-PFOS	7.020	507.0 -> 99.0	30159	21.09 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
13C9-PFNA	7.039	472.0 -> 427.0	221702	21.27 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.3%		
d3-MeFOSAA	7.446	573.0 -> 419.0	36363	20.74 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%		
M2-PFOA	6.409	415.0 -> 370.0	274204	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.010	503.0 -> 80.0	49403	19.99 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	179983	107.97 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 108.0%		
Target Compounds						QValue
4:2FTS	4.687	327.0 -> 307.0	8542	5.04 µg/L		98
6:2FTS	6.405	427.0 -> 407.0	7916	5.10 µg/L		98
8:2FTS	7.593	527.0 -> 507.0	5812	5.02 µg/L		98
EtFOSAA	7.585	584.0 -> 419.0	4137	5.22 µg/L		96
FOSA	6.934	498.0 -> 78.0	11068	5.03 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	4378	4.59 µg/L		98
PFBA	1.873	213.0 -> 169.0	6693	4.89 µg/L		100
PFBS	3.771	299.0 -> 80.0	8539	4.86 µg/L		98
PFDA	7.556	513.0 -> 469.0	30565	4.77 µg/L		99
PFDoDA	8.391	613.0 -> 569.0	41073	4.78 µg/L		99
PFDS	7.951	599.0 -> 80.0	2564	5.01 µg/L		99
PFHpA	5.695	363.0 -> 319.0	47272	4.79 µg/L		100
PFHpS	6.413	449.0 -> 80.0	5470	4.96 µg/L		99
PFHxA	4.778	313.0 -> 269.0	13377	4.85 µg/L		98
PFHxS	5.726	399.0 -> 80.0	6273	4.81 µg/L	m	99
PFNA	7.041	463.0 -> 419.0	34562	4.74 µg/L		99
PFNS	7.527	549.0 -> 80.0	5137	4.98 µg/L		98
PFOA	6.411	413.0 -> 369.0	28630	4.84 µg/L		100
PFOS	7.012	499.0 -> 80.0	7299	4.91 µg/L	m	98
PFPeA	3.515	263.0 -> 219.0	24872	4.77 µg/L		100
PFPeS	4.895	349.0 -> 80.0	5528	4.92 µg/L		99
PFTeDA	9.119	713.0 -> 669.0	40778	4.79 µg/L		100
PFTrDA	8.764	663.0 -> 619.0	47170	4.91 µg/L		99
PFUnDA	7.993	563.0 -> 519.0	36275	4.73 µg/L		99
11Cl-PF3OUdS	8.137	631.0 -> 451.0	27006	4.79 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	5723	4.77 µg/L		100
ADONA	5.791	377.0 -> 251.0	54568	4.92 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	53286	25.41 µg/L		99

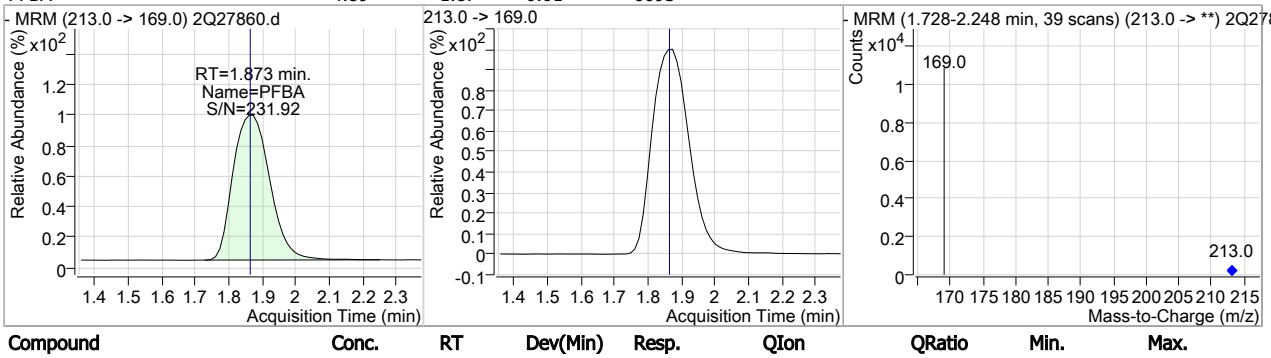
 # = Qualifier out of range, m = manually integrated, + = Area summed

Cal Report: 2Q27860.D

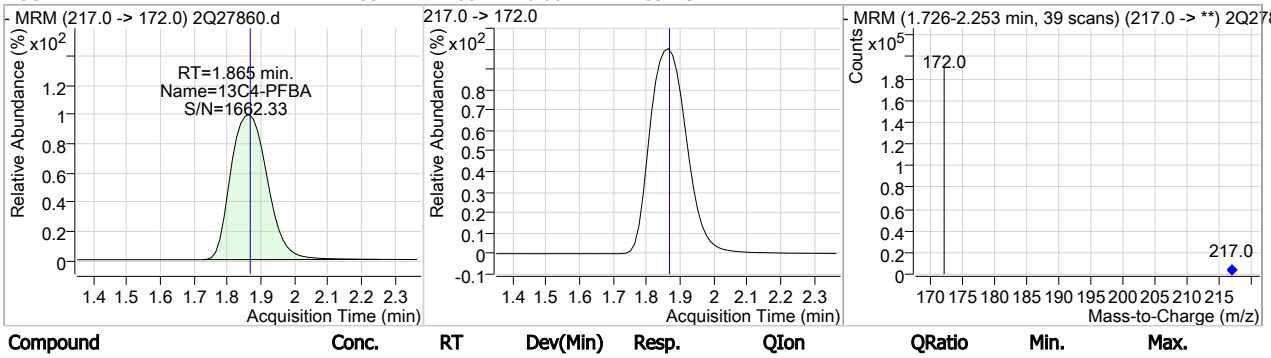
Perfluorinated Compounds by LC/MS/MS



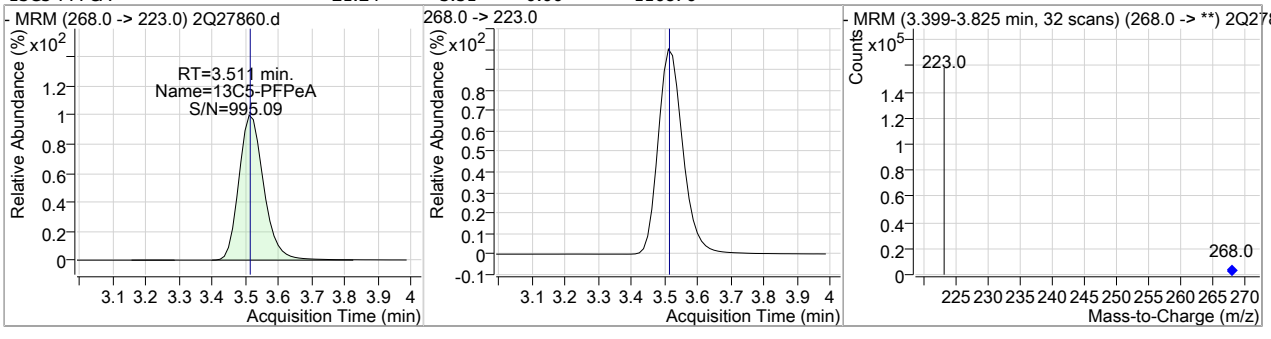
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	4.89	1.87	0.01	6693				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.33	1.86	0.00	139429				

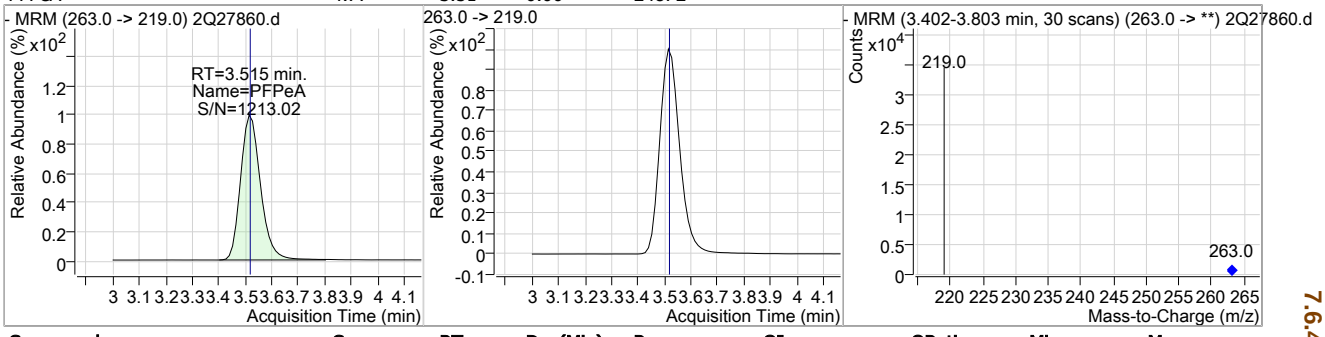


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	21.24	3.51	0.00	116876				

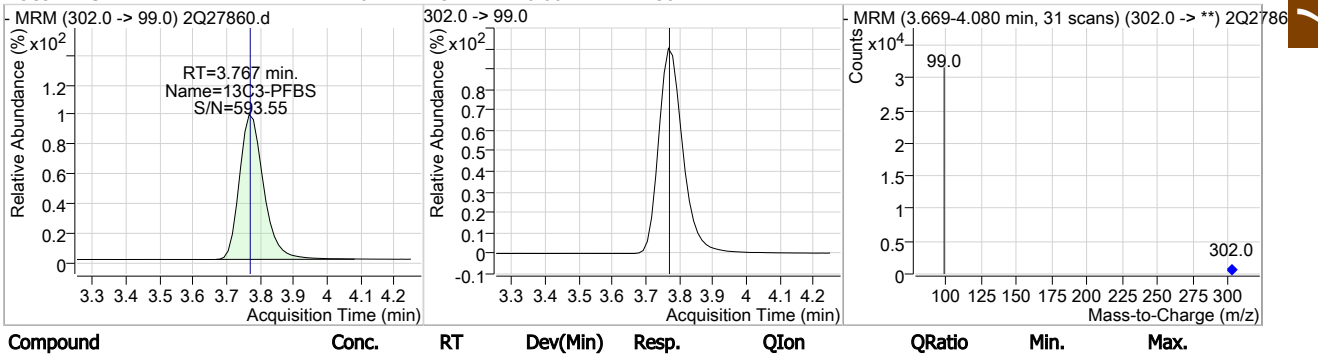


Perfluorinated Compounds by LC/MS/MS

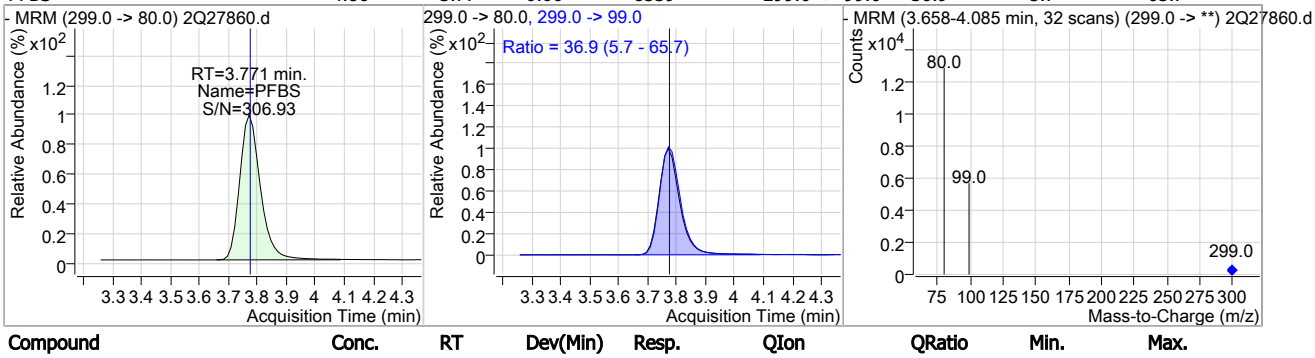
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.77	3.51	0.00	24872				



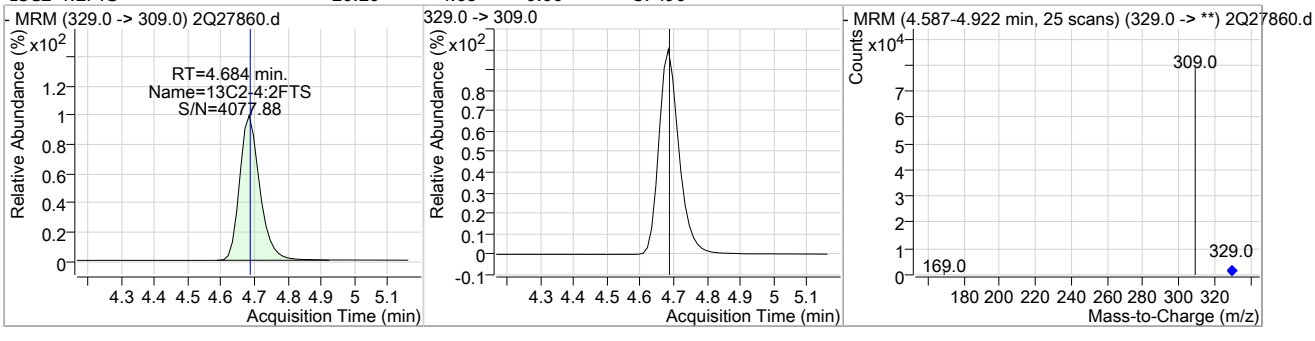
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	21.02	3.77	0.00	21562				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.86	3.77	0.00	8539	299.0 -> 99.0	36.9	5.7	65.7

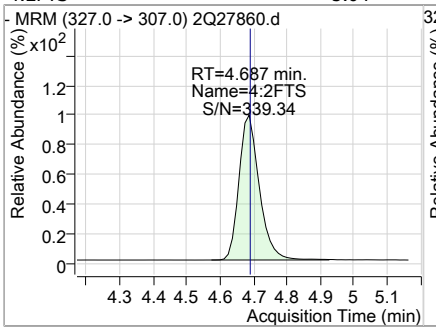


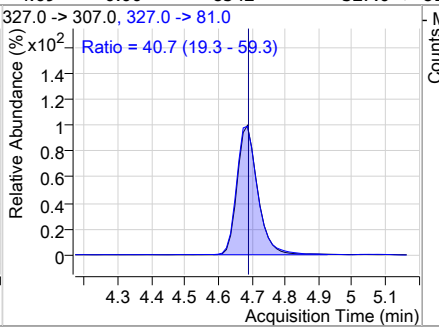
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.20	4.68	0.00	57490				

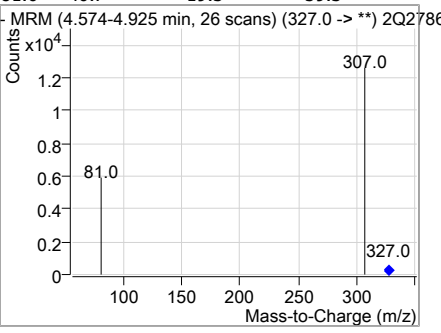


Perfluorinated Compounds by LC/MS/MS

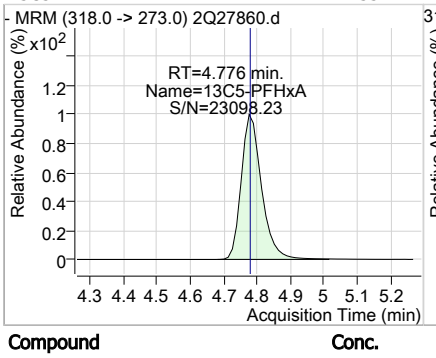
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	5.04	4.69	0.00	8542	327.0 -> 81.0	40.7	19.3	59.3

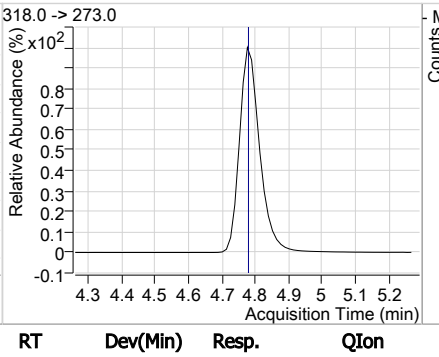


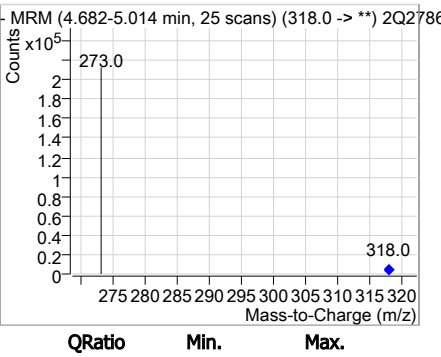




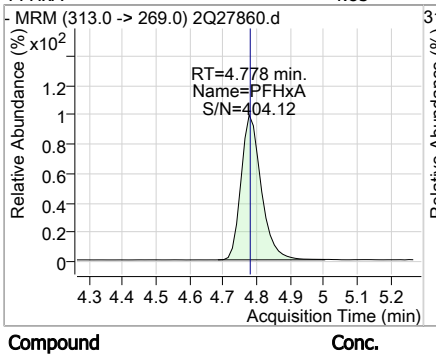
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.33	4.78	0.00	158068				

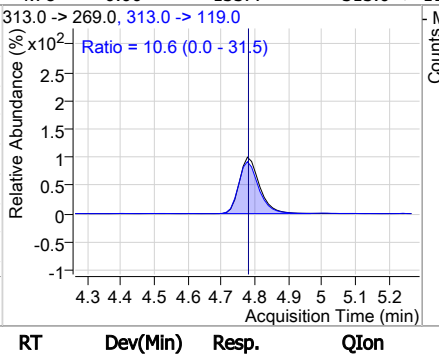


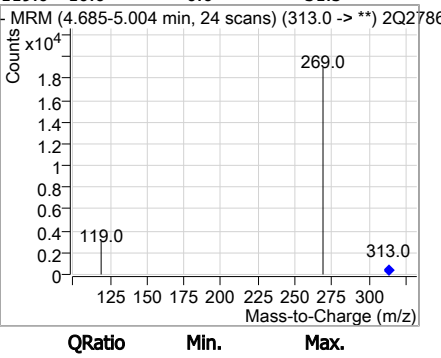




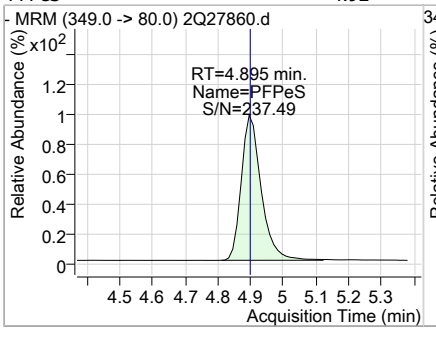
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.85	4.78	0.00	13377	313.0 -> 119.0	10.6	0.0	31.5

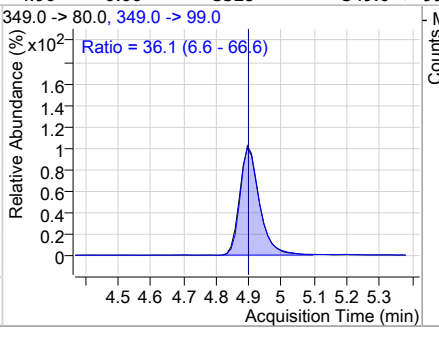


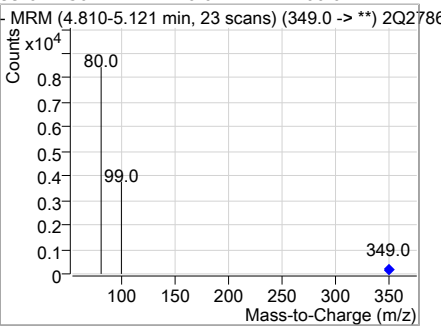




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	4.92	4.90	0.00	5528	349.0 -> 99.0	36.1	6.6	66.6



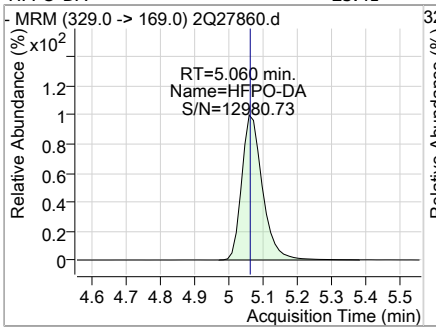


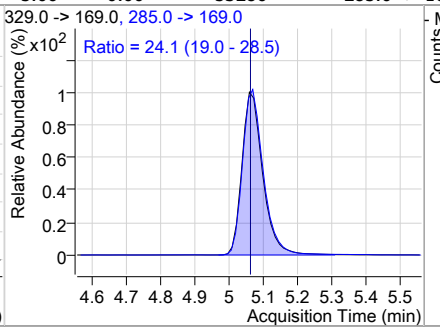


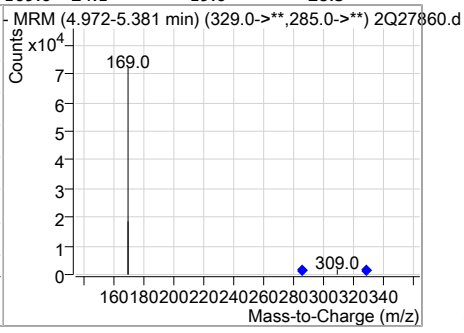
7.6.4

Perfluorinated Compounds by LC/MS/MS

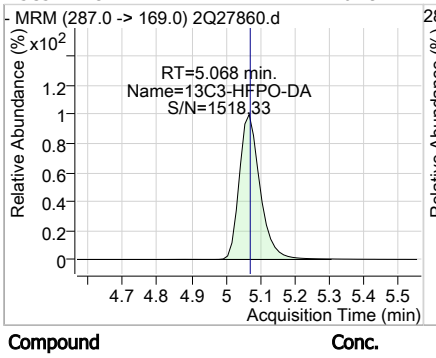
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.41	5.06	0.00	53286	285.0 -> 169.0	24.1	19.0	28.5

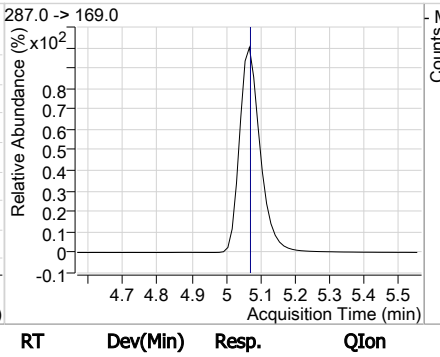


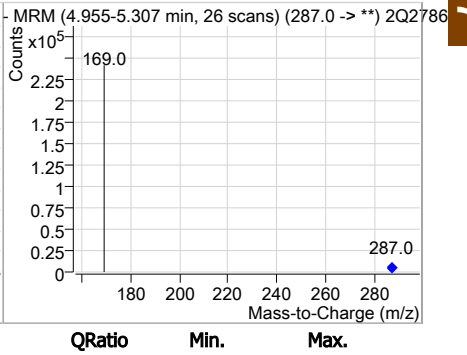




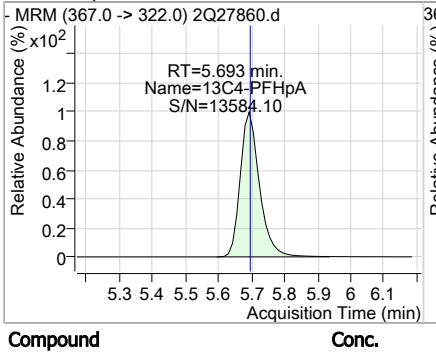
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	107.97	5.07	0.00	179983				

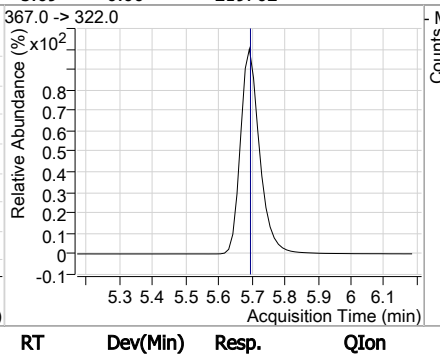


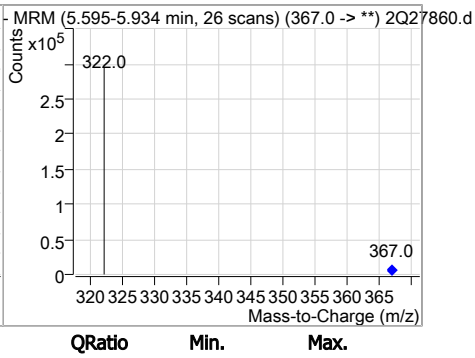




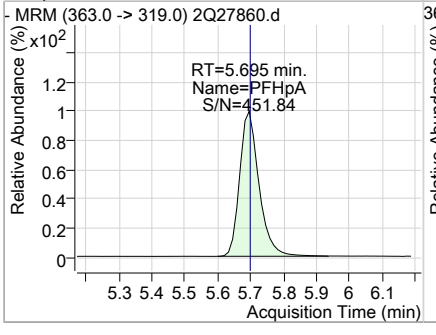
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.25	5.69	0.00	219702				

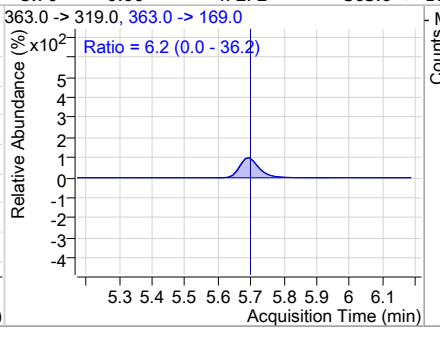


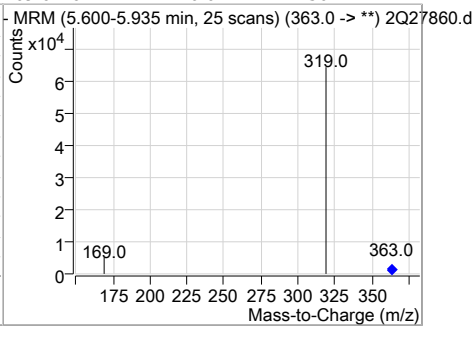




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.79	5.70	0.00	47272	363.0 -> 169.0	6.2	0.0	36.2

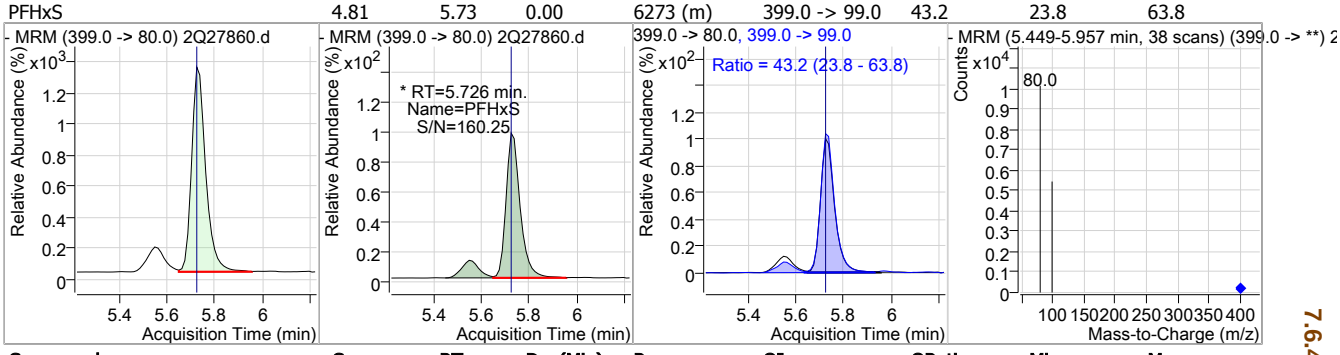




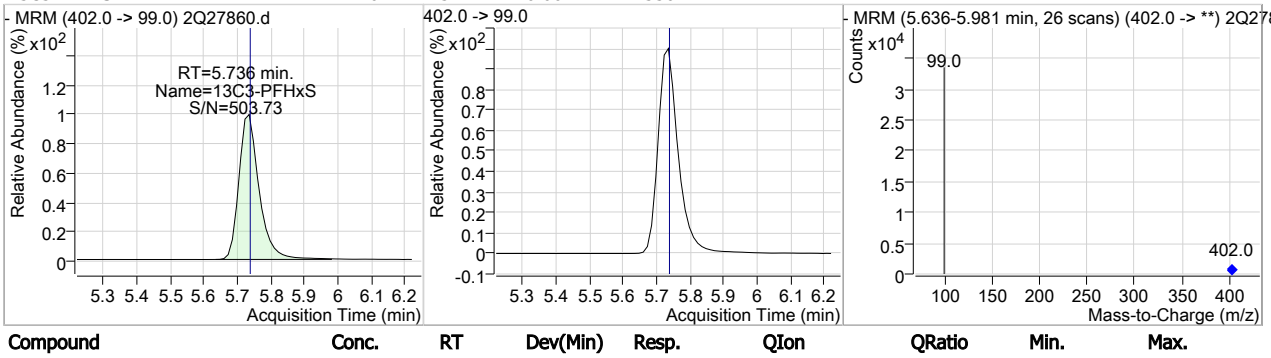


Perfluorinated Compounds by LC/MS/MS

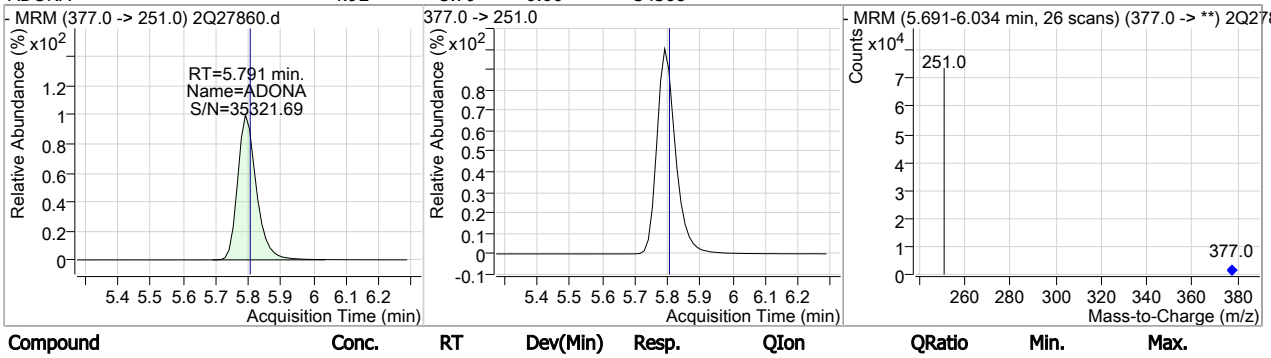
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.81	5.73	0.00	6273 (m)	399.0 -> 99.0	43.2	23.8	63.8



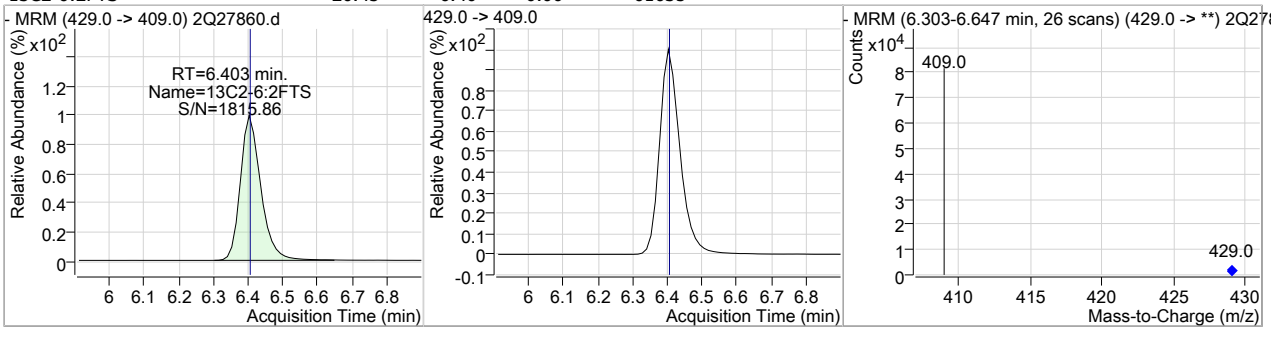
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	21.20	5.74	0.00	23562				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.92	5.79	0.00	54568				

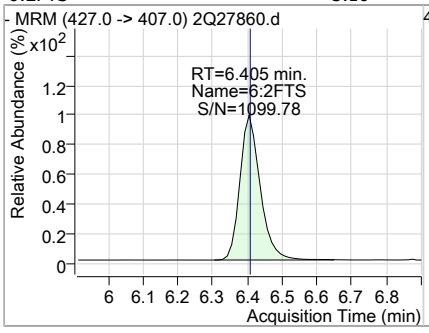


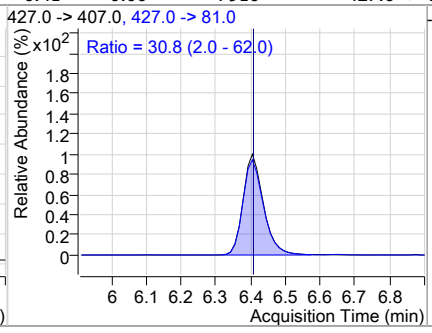
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.45	6.40	0.00	61635				

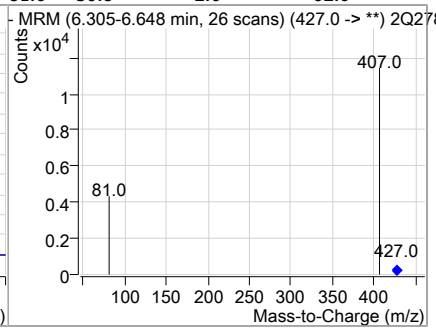


Perfluorinated Compounds by LC/MS/MS

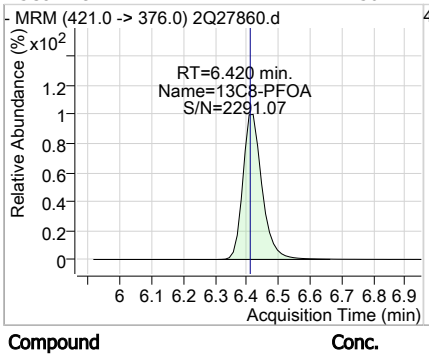
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.10	6.41	0.00	7916	427.0 -> 81.0	30.8	2.0	62.0

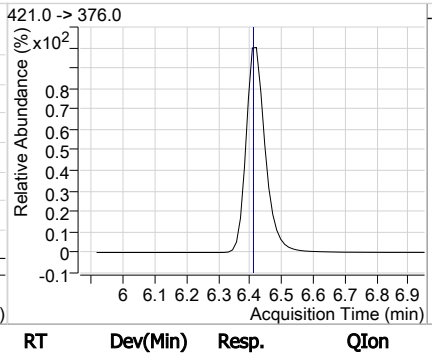


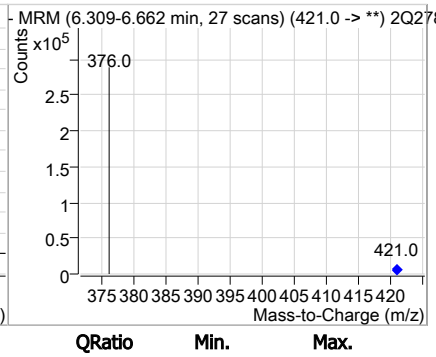




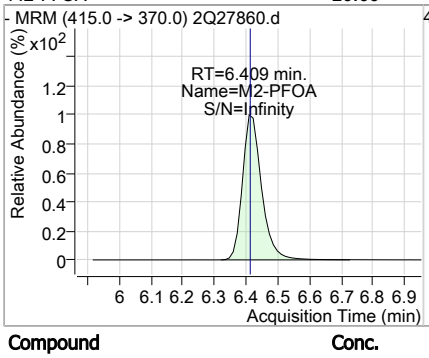
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.36	6.42	0.01	220069				

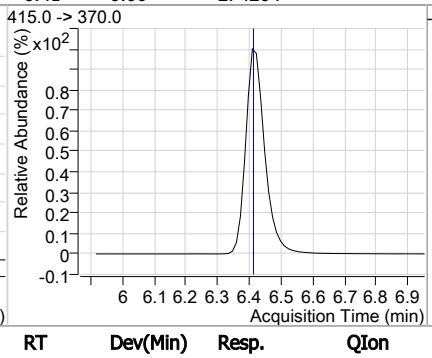


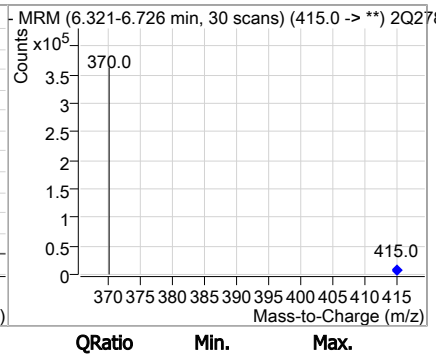




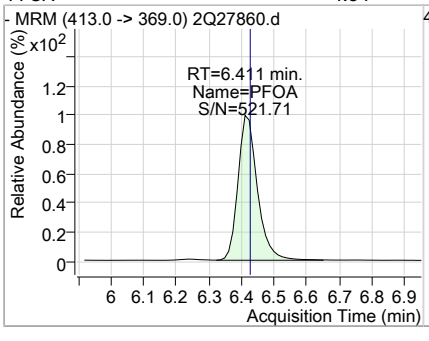
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	274204				

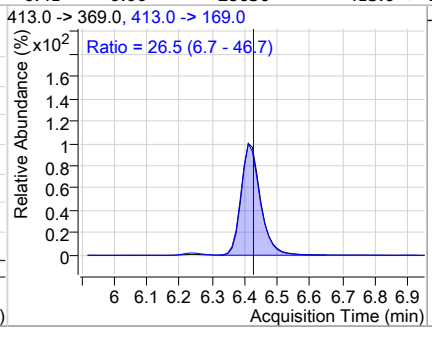


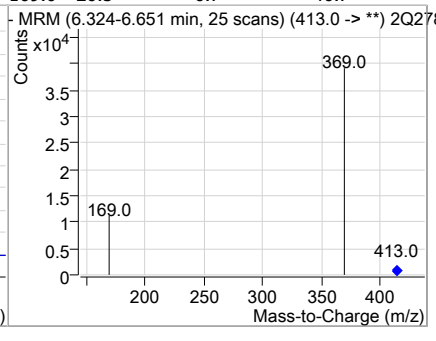




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.84	6.41	0.00	28630	413.0 -> 169.0	26.5	6.7	46.7



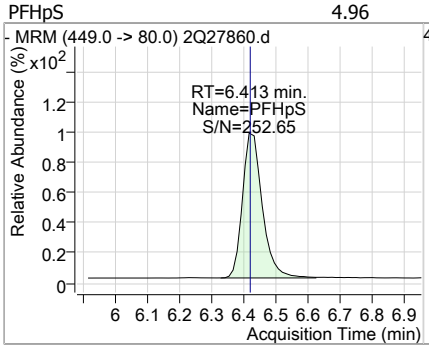


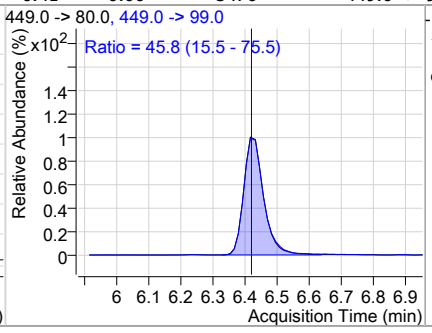


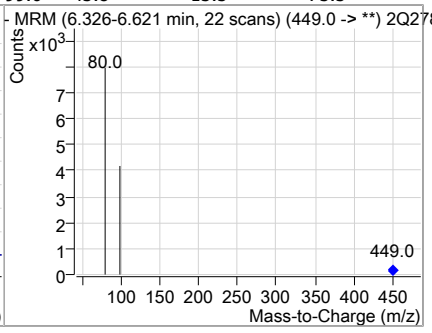
7.6.4

Perfluorinated Compounds by LC/MS/MS

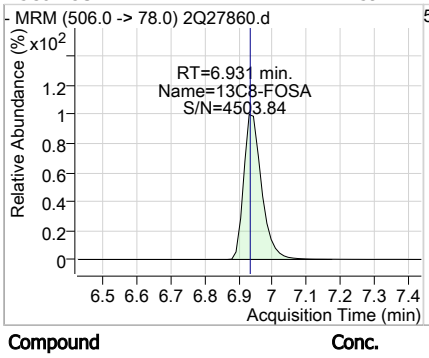
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.96	6.41	0.00	5470	449.0 -> 99.0	45.8	15.5	75.5

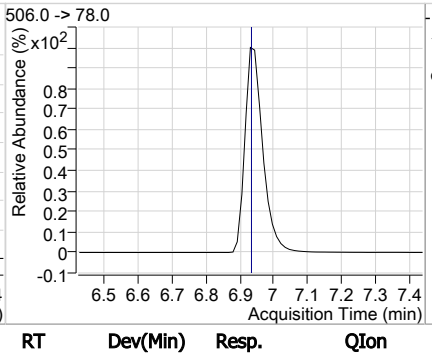


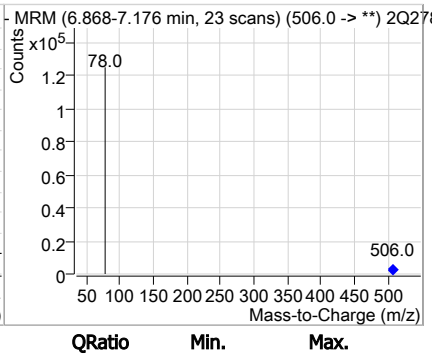




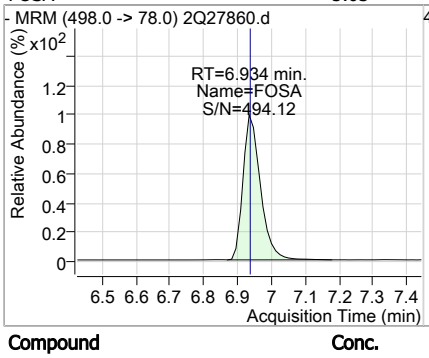
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.39	6.93	0.00	95953				

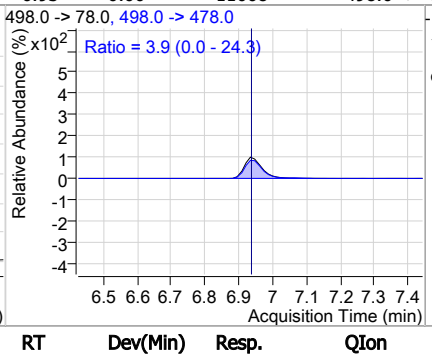


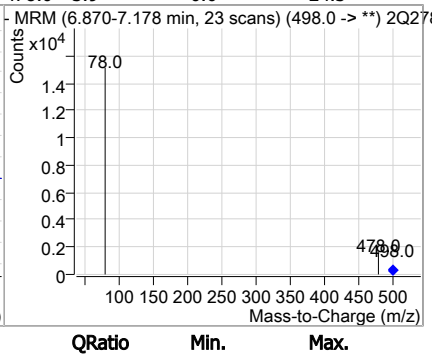




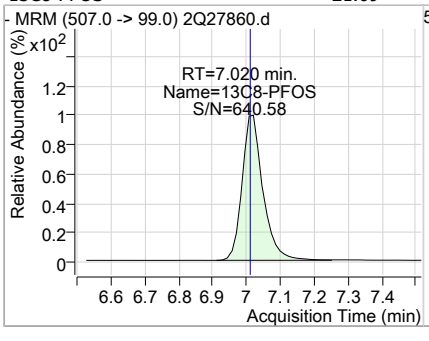
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	5.03	6.93	0.00	11068	498.0 -> 478.0	3.9	0.0	24.3

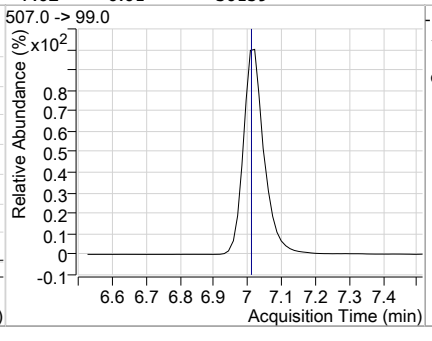


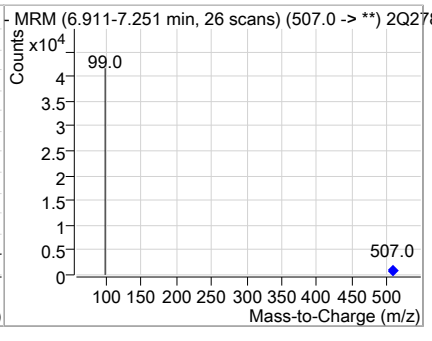




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.09	7.02	0.01	30159				



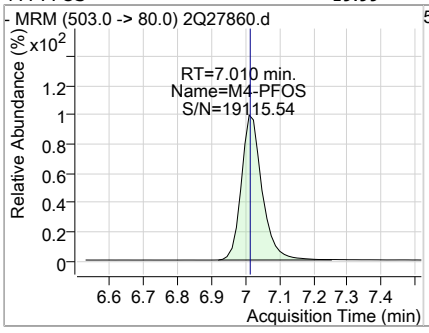


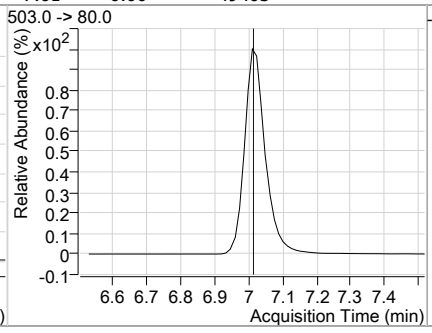


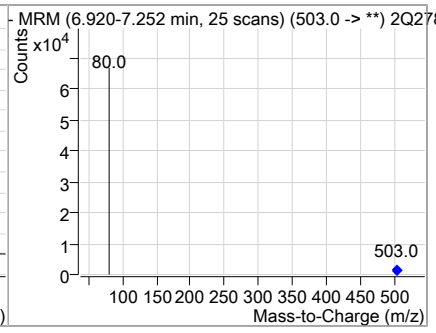
7.6.4

Perfluorinated Compounds by LC/MS/MS

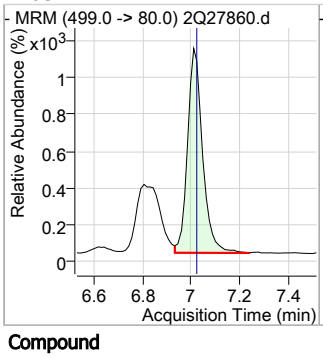
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.00	49403				

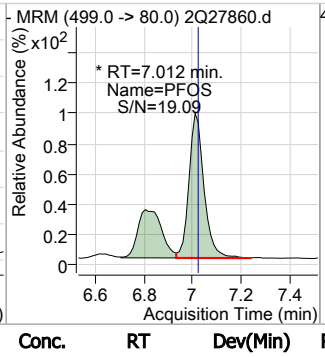


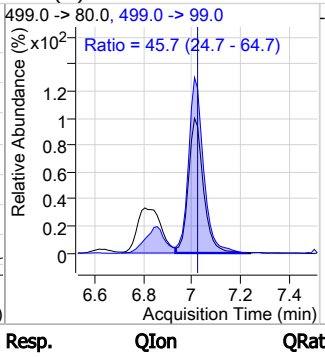


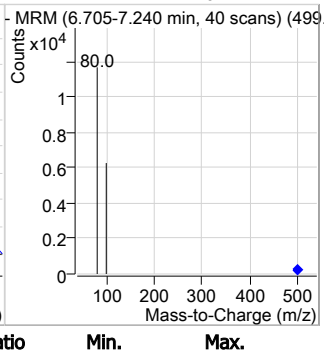


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.91	7.01	0.00	7299 (m)	499.0 -> 99.0	45.7	24.7	64.7

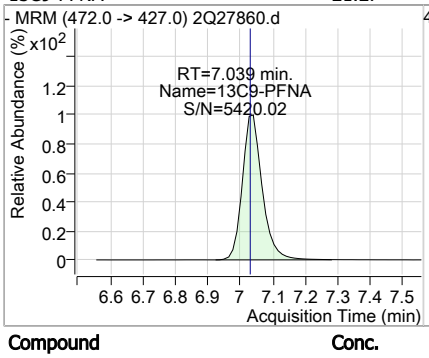


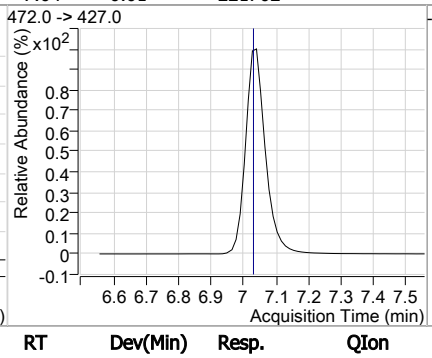


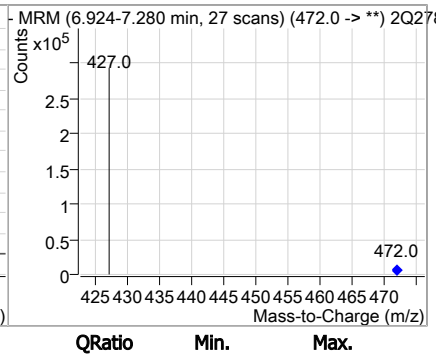




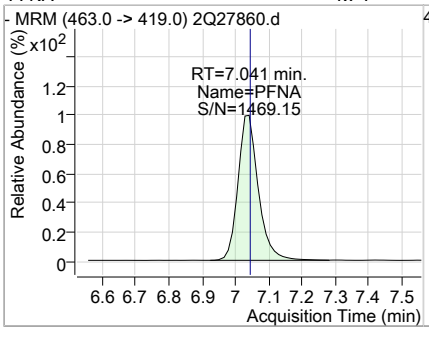
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.27	7.04	0.01	221702				

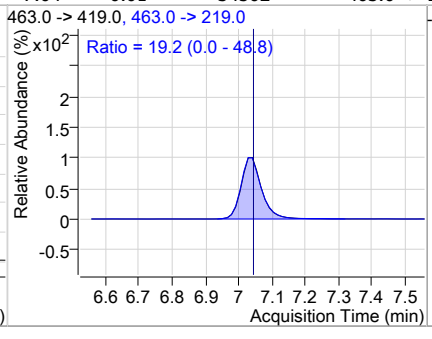


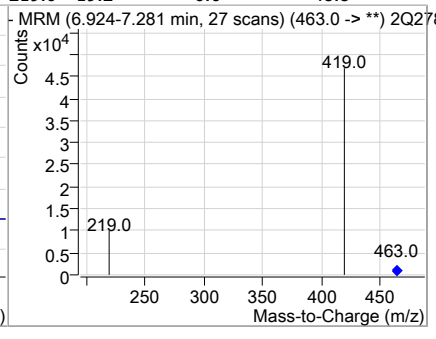




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.74	7.04	0.01	34562	463.0 -> 219.0	19.2	0.0	48.8

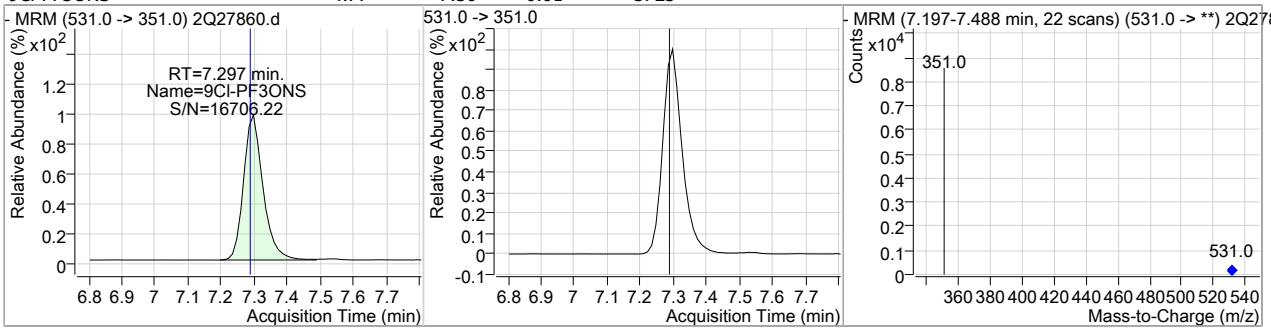




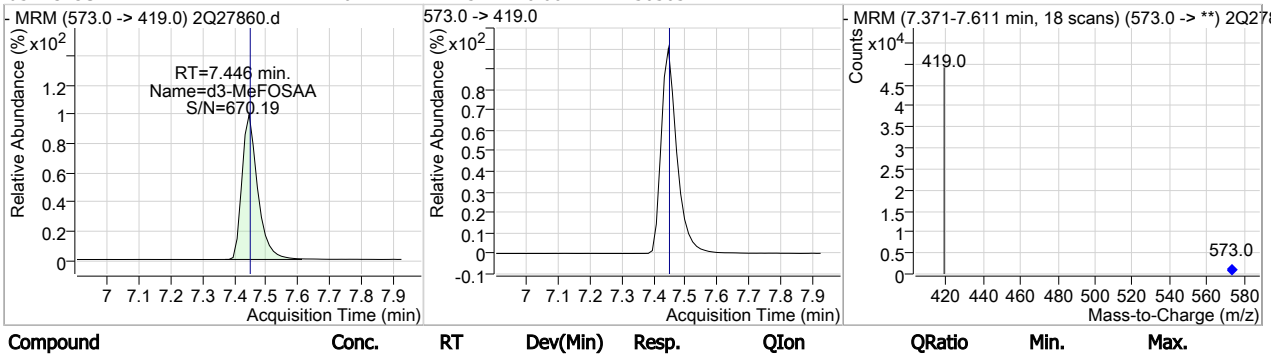


Perfluorinated Compounds by LC/MS/MS

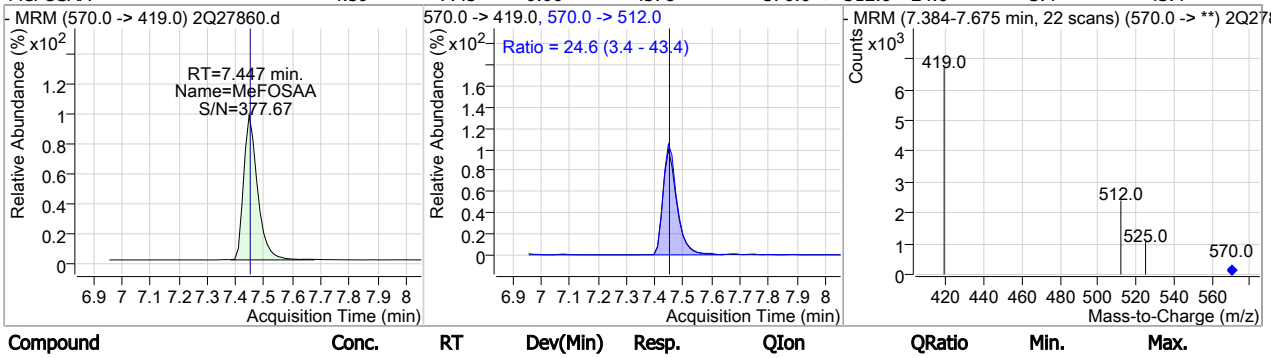
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.77	7.30	0.01	5723				



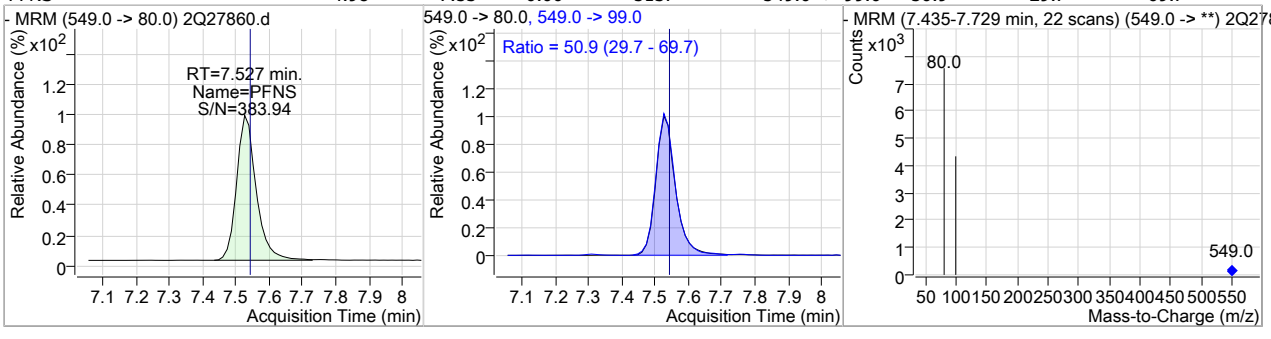
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.74	7.45	0.00	36363				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.59	7.45	0.00	4378	570.0 -> 512.0	24.6	3.4	43.4

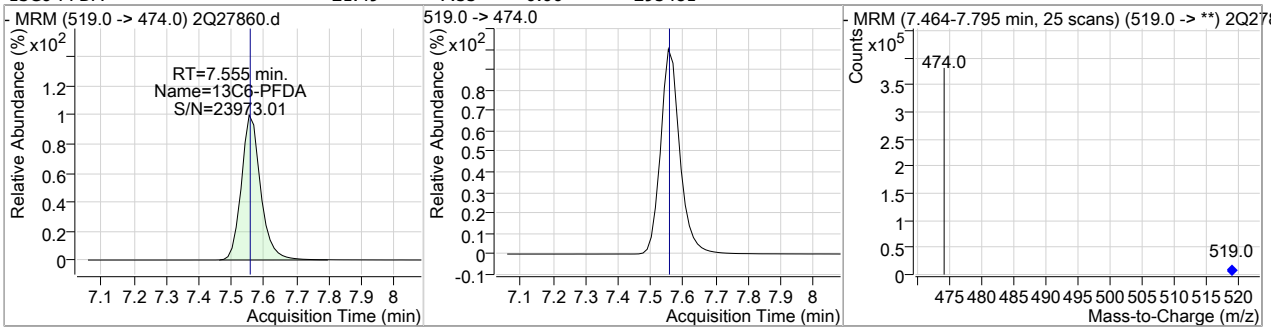


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	4.98	7.53	0.00	5137	549.0 -> 99.0	50.9	29.7	69.7

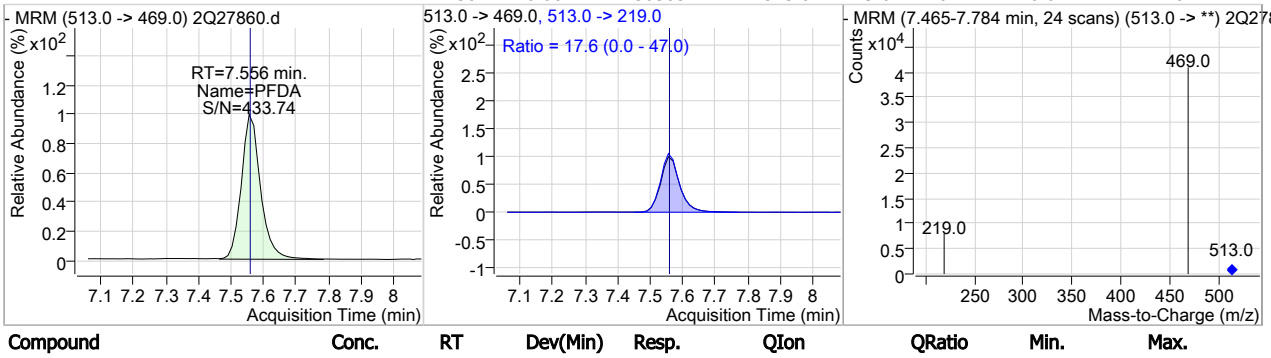


Perfluorinated Compounds by LC/MS/MS

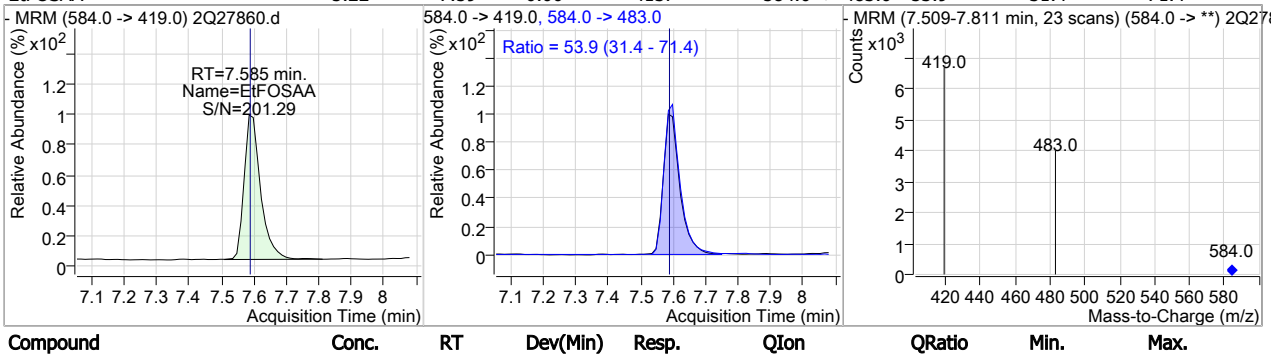
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.49	7.55	0.00	295481				



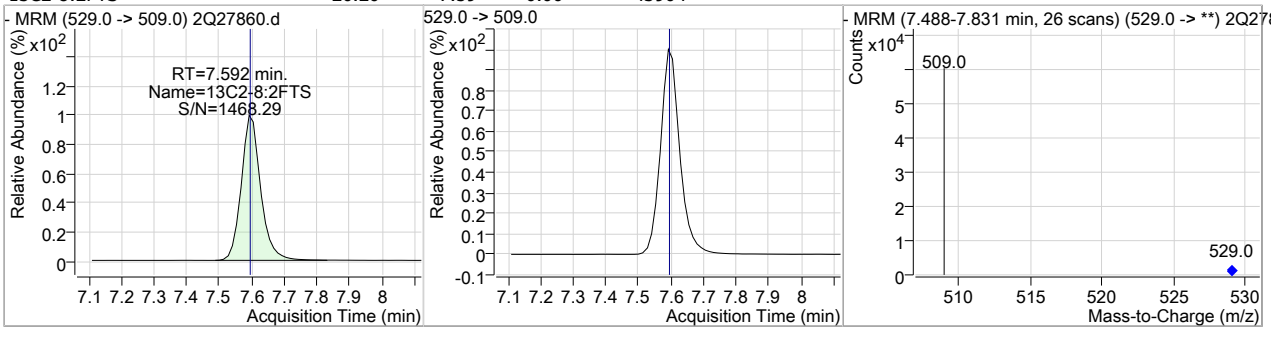
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.77	7.56	0.00	30565	513.0 -> 219.0	17.6	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	5.22	7.59	0.00	4137	584.0 -> 483.0	53.9	31.4	71.4



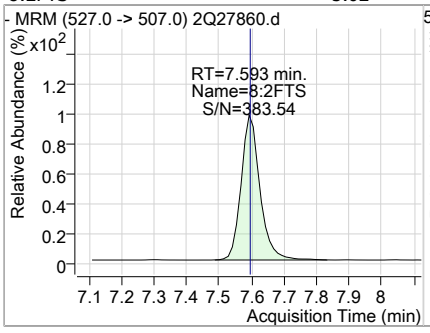
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.20	7.59	0.00	43904				

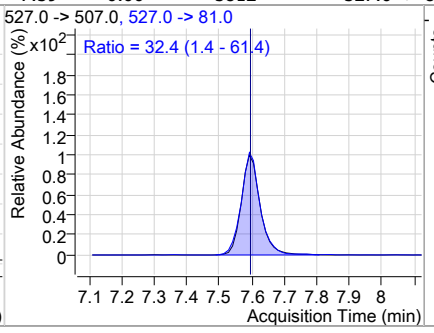


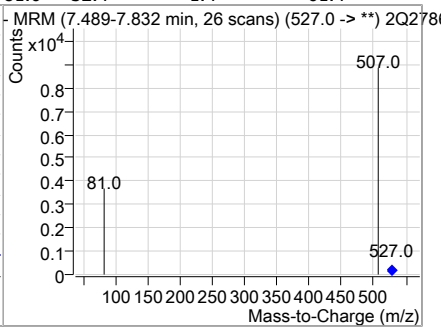
7.6.4

Perfluorinated Compounds by LC/MS/MS

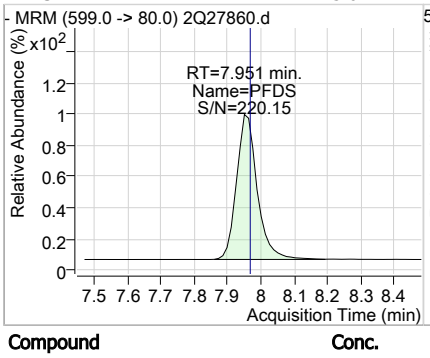
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.02	7.59	0.00	5812	527.0 -> 81.0	32.4	1.4	61.4

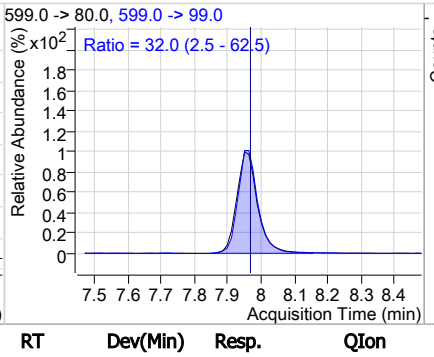


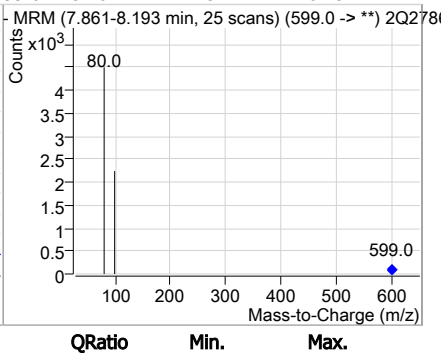




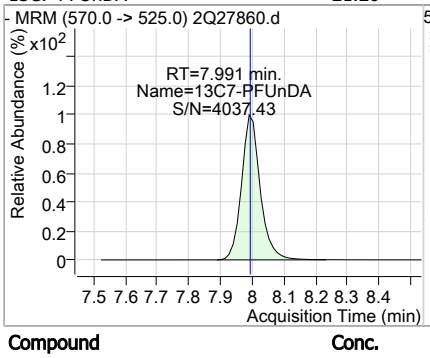
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	5.01	7.95	0.00	2564	599.0 -> 99.0	32.0	2.5	62.5

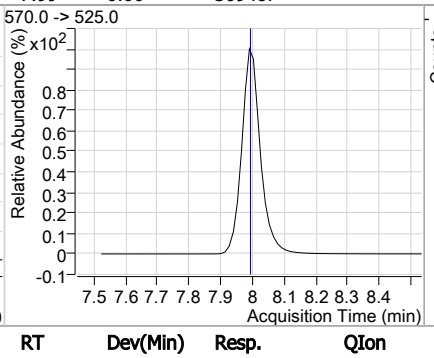


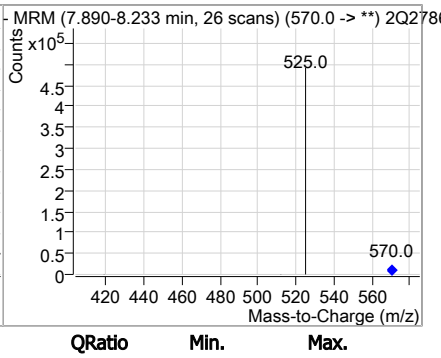




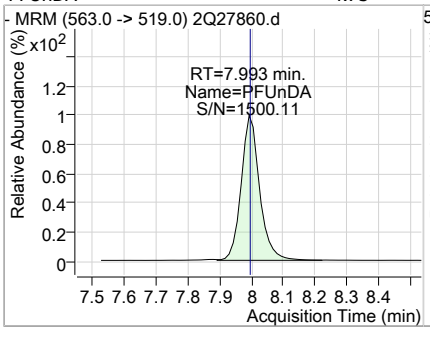
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	21.26	7.99	0.00	369487				

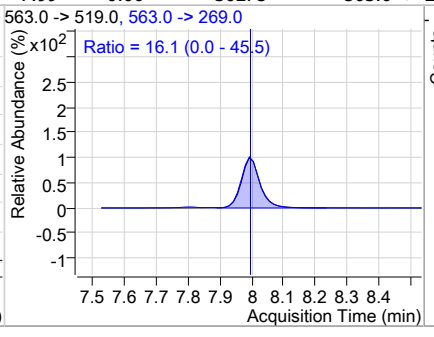


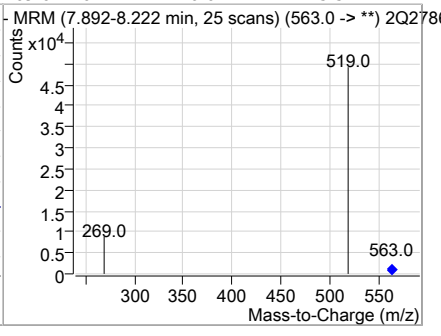




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.73	7.99	0.00	36275	563.0 -> 269.0	16.1	0.0	45.5





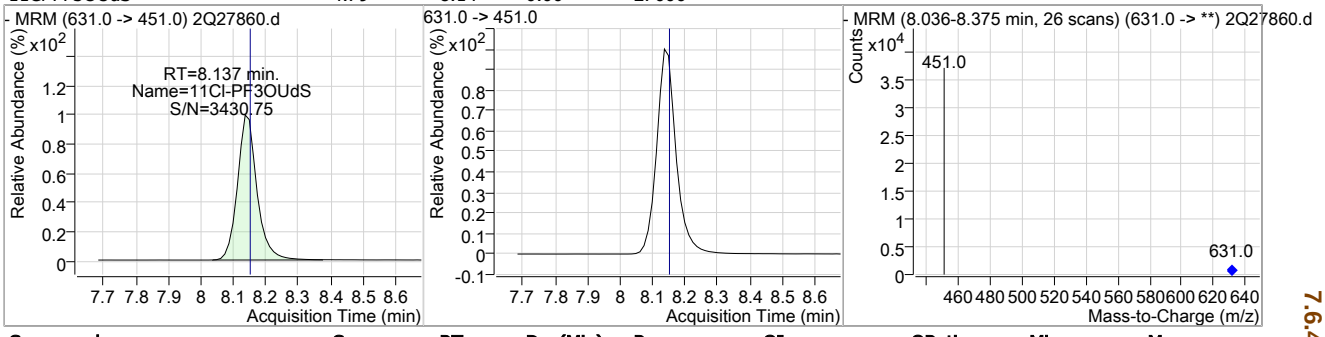


7.6.4

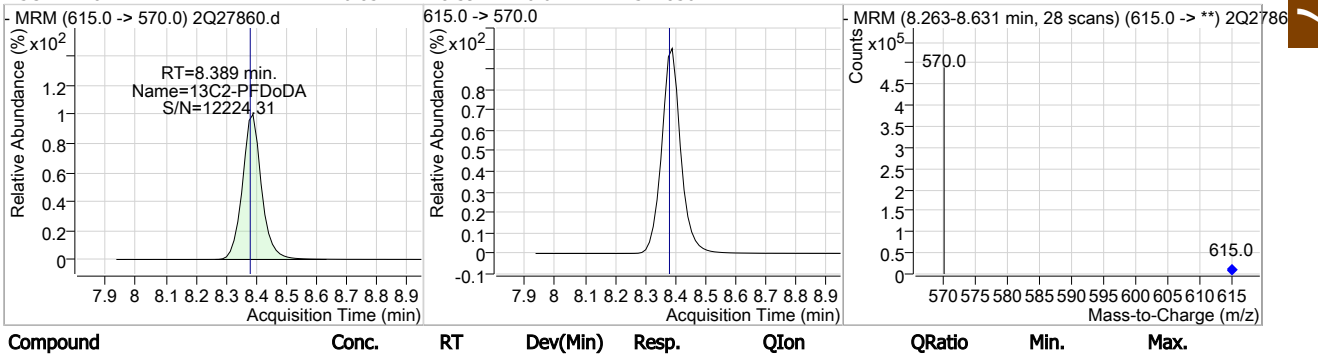
7

Perfluorinated Compounds by LC/MS/MS

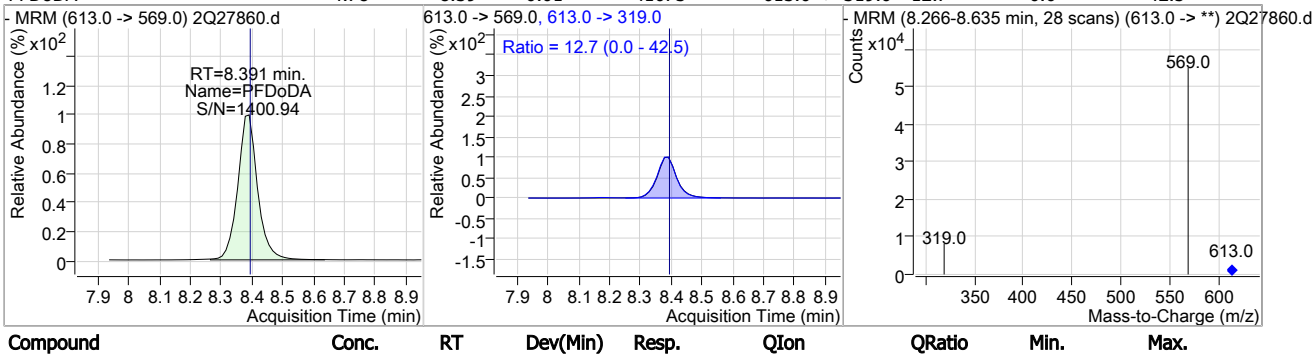
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.79	8.14	0.00	27006				



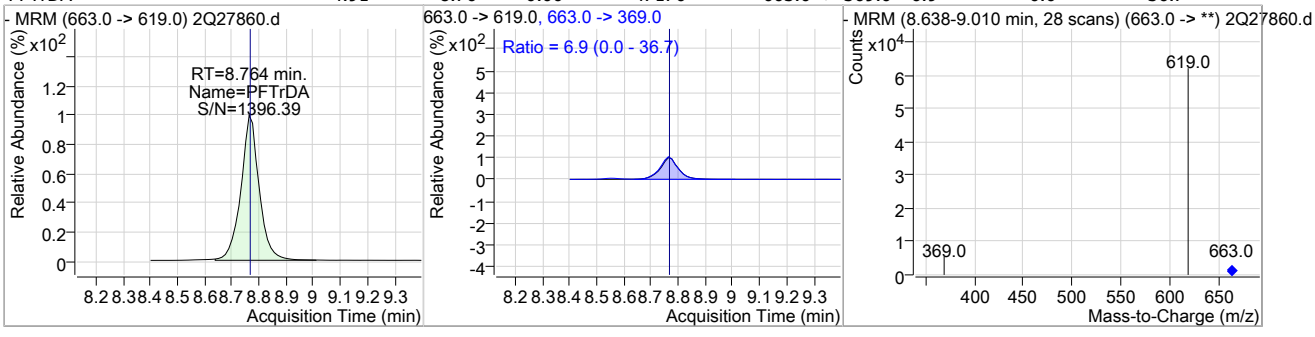
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.85	8.39	0.01	374830				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.78	8.39	0.01	41073	613.0 -> 319.0	12.7	0.0	42.5



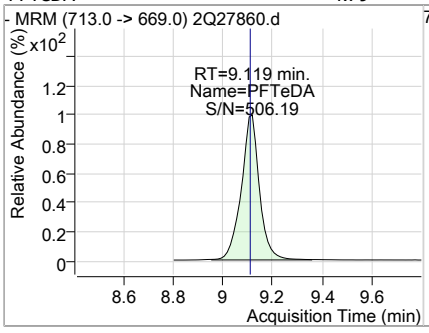
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.91	8.76	0.00	47170	663.0 -> 369.0	6.9	0.0	36.7

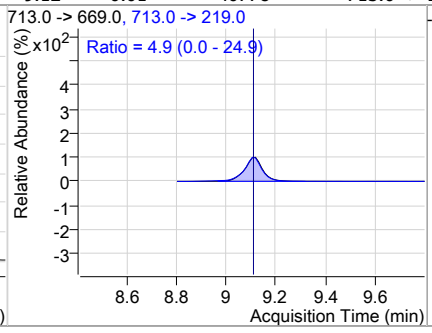


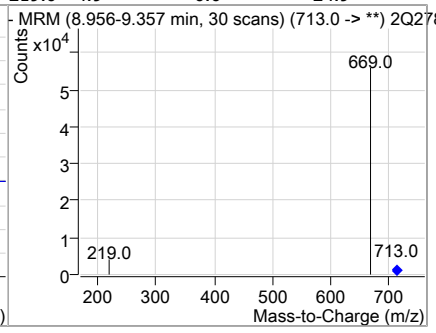
7.6.4

Perfluorinated Compounds by LC/MS/MS

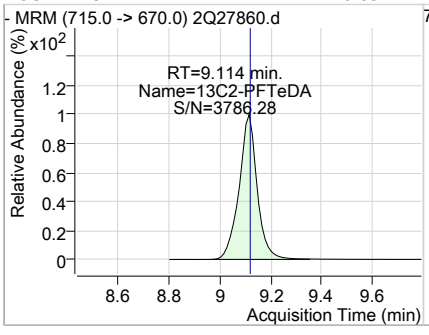
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.79	9.12	0.01	40778	713.0 -> 219.0	4.9	0.0	24.9

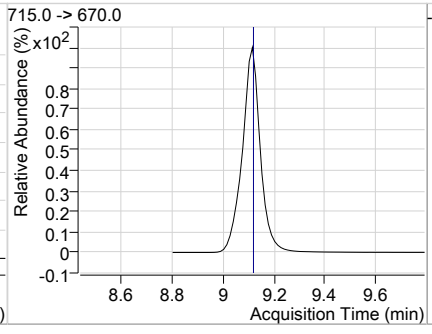


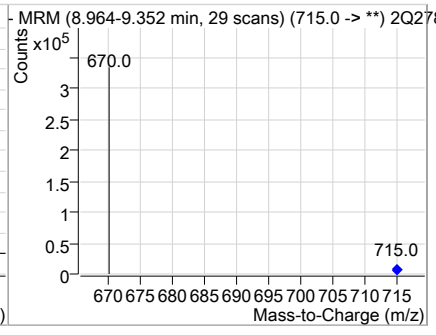




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.85	9.11	0.00	248006				







7.6.4

7

Manual Integration Approval Summary

Sample Number: S2Q445-IC445
Lab FileID: 2Q27860.D
Injection Time: 03/21/19 12:11
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/22/19 16:23 Nancy Saunders
Supervisor approved: 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q27861.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q27861.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/21/2019 12:26:43 PM
Sample Name : IC445-10
Vial : Vial 6
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : S2Q445.batch.bin
Sample Information : op74164,S2Q445,250,,,1.0,1,water

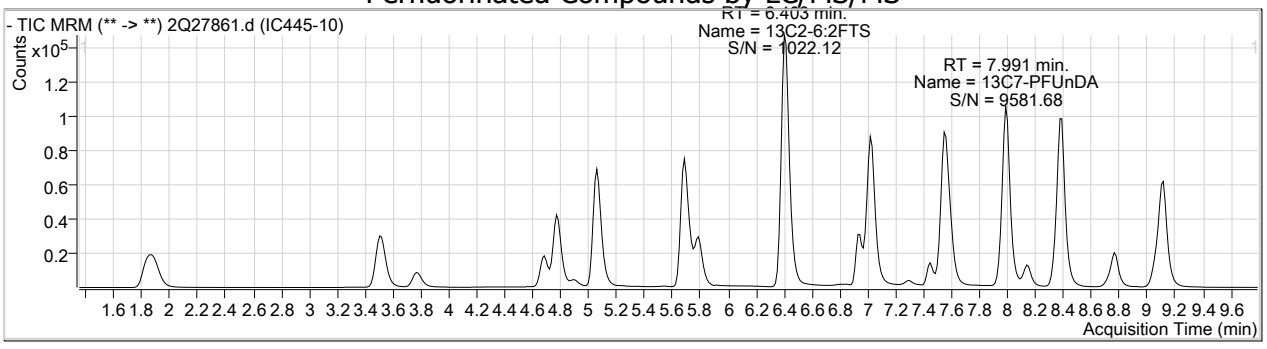
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	257104	20.00	µg/L	0.000
13C4-PFOS	7.010	503.0 -> 80.0	45703	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	129041	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	107630	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	145075	20.00	µg/L	0.000
M4-PFHpA	5.693	367.0 -> 322.0	202437	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	202647	20.00	µg/L	0.000
M9-PFNA	7.027	472.0 -> 427.0	204894	20.00	µg/L	0.000
M6-PFDA	7.555	519.0 -> 474.0	271005	20.00	µg/L	0.000
M7-PFUnDA	7.991	570.0 -> 525.0	343880	20.00	µg/L	0.000
M2-PFDoDA	8.389	615.0 -> 570.0	349070	20.00	µg/L	0.013
M2-PFTeDA	9.114	715.0 -> 670.0	229590	20.00	µg/L	0.000
M8-FOSA	6.931	506.0 -> 78.0	88599	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	20109	20.00	µg/L	0.000
M3-PFHxS	5.736	402.0 -> 99.0	21797	20.00	µg/L	0.000
M8-PFOS	7.008	507.0 -> 99.0	28019	20.00	µg/L	0.000
M2-4:2FTS	4.684	329.0 -> 309.0	53556	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	57130	20.00	µg/L	0.000
M2-8:2FTS	7.592	529.0 -> 509.0	41693	20.00	µg/L	0.000
M3-MeFOSAA	7.446	573.0 -> 419.0	34345	20.00	µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	166605	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	53424	18.77	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C2-6:2FTS	6.403	429.0 -> 409.0	57055	18.93	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
13C2-8:2FTS	7.592	529.0 -> 509.0	41673	19.17	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.9%		
13C2-PFDoDA	8.389	615.0 -> 570.0	348926	19.41	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C2-PFTeDA	9.114	715.0 -> 670.0	229382	19.28	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C3-PFBS	3.767	302.0 -> 99.0	20093	19.58	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C3-PFHxS	5.736	402.0 -> 99.0	21737	19.56	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C4-PFBA	1.865	217.0 -> 172.0	128462	19.65	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C4-PFHpA	5.693	367.0 -> 322.0	202434	19.58	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C5-PFHxA	4.776	318.0 -> 273.0	144863	19.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C5-PFPeA	3.511	268.0 -> 223.0	107663	19.57	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C6-PFDA	7.555	519.0 -> 474.0	270940	19.71	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

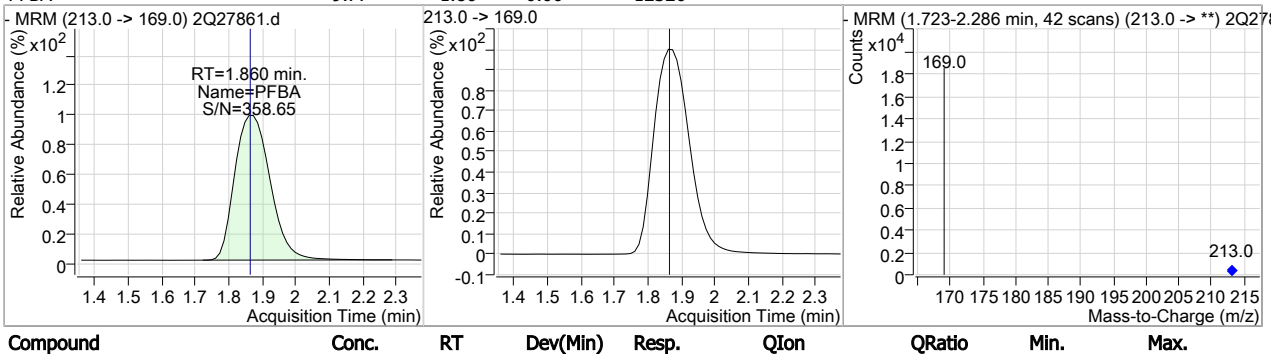
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.5%		
13C7-PFUnDA	7.991	570.0 -> 525.0	343803	19.78 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%		
13C8-FOSA	6.931	506.0 -> 78.0	88625	19.76 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C8-PFOA	6.407	421.0 -> 376.0	202612	19.66 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C8-PFOS	7.008	507.0 -> 99.0	28032	19.60 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C9-PFNA	7.027	472.0 -> 427.0	204852	19.65 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
d3-MeFOSAA	7.446	573.0 -> 419.0	34350	19.59 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
M2-PFOA	6.409	415.0 -> 370.0	257187	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.010	503.0 -> 80.0	45787	20.02 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	166605	99.95 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
Target Compounds						QValue
4:2FTS	4.687	327.0 -> 307.0	15782	10.02 µg/L		100
6:2FTS	6.405	427.0 -> 407.0	14579	10.11 µg/L		100
8:2FTS	7.593	527.0 -> 507.0	10714	9.74 µg/L		98
EtFOSAA	7.585	584.0 -> 419.0	7103	9.48 µg/L		93
FOSA	6.934	498.0 -> 78.0	19711	9.69 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	8571	9.50 µg/L		99
PFBA	1.860	213.0 -> 169.0	12326	9.77 µg/L		100
PFBS	3.771	299.0 -> 80.0	15687	9.63 µg/L		100
PFDA	7.556	513.0 -> 469.0	55242	9.40 µg/L		98
PFDoDA	8.379	613.0 -> 569.0	76717	9.58 µg/L		100
PFDS	7.951	599.0 -> 80.0	4819	10.16 µg/L		99
PFHpA	5.695	363.0 -> 319.0	86696	9.55 µg/L		100
PFHpS	6.413	449.0 -> 80.0	10066	9.88 µg/L		98
PFHxA	4.778	313.0 -> 269.0	23919	9.46 µg/L		99
PFHxS	5.726	399.0 -> 80.0	11686	9.70 µg/L	m	98
PFNA	7.028	463.0 -> 419.0	63735	9.47 µg/L		100
PFNS	7.527	549.0 -> 80.0	9724	10.17 µg/L		95
PFOA	6.411	413.0 -> 369.0	51682	9.49 µg/L		99
PFOS	7.012	499.0 -> 80.0	13136	9.53 µg/L	m	97
PFPeA	3.515	263.0 -> 219.0	45428	9.47 µg/L		100
PFPeS	4.895	349.0 -> 80.0	10245	9.82 µg/L		100
PFTeDA	9.106	713.0 -> 669.0	75344	9.57 µg/L		100
PFTrDA	8.764	663.0 -> 619.0	87082	9.80 µg/L		100
PFUnDA	7.993	563.0 -> 519.0	67431	9.45 µg/L		100
11Cl-PF3OUdS	8.137	631.0 -> 451.0	49709	9.46 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	10516	9.51 µg/L		100
ADONA	5.791	377.0 -> 251.0	101085	9.85 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	96526	49.73 µg/L		100

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

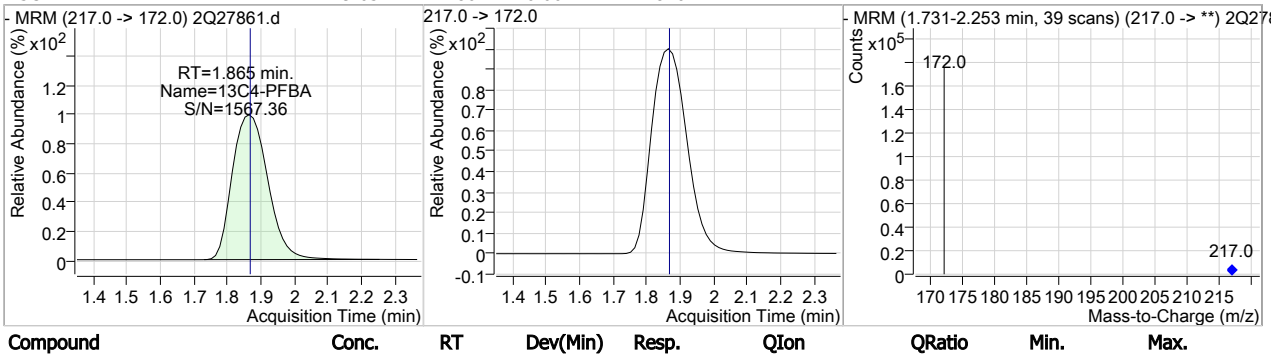
Perfluorinated Compounds by LC/MS/MS



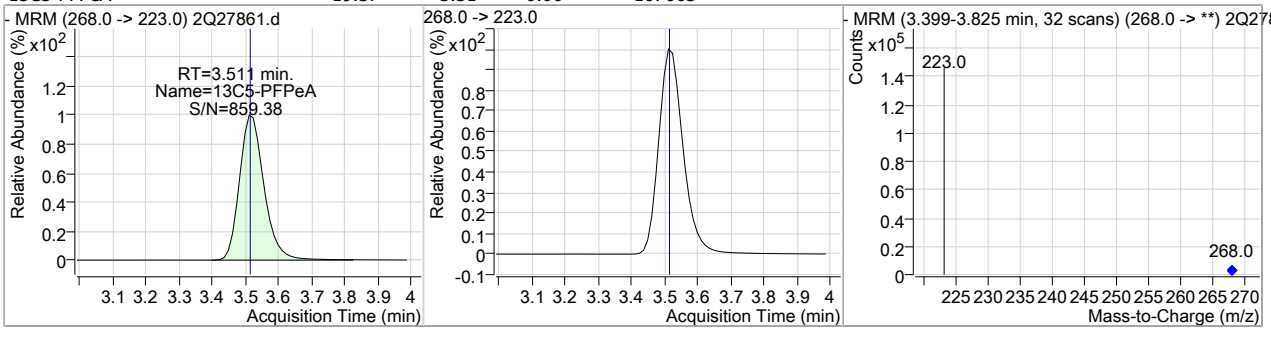
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.77	1.86	0.00	12326				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.65	1.86	0.00	128462				

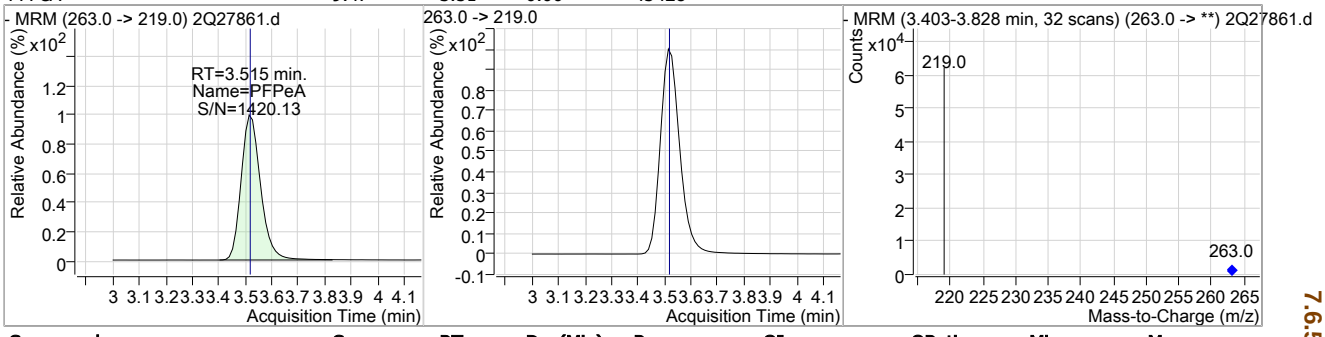


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.57	3.51	0.00	107663				

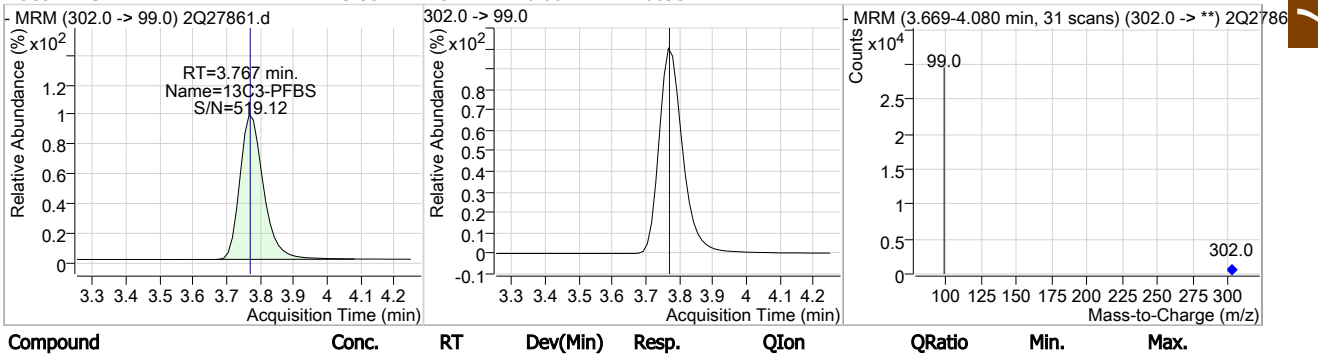


Perfluorinated Compounds by LC/MS/MS

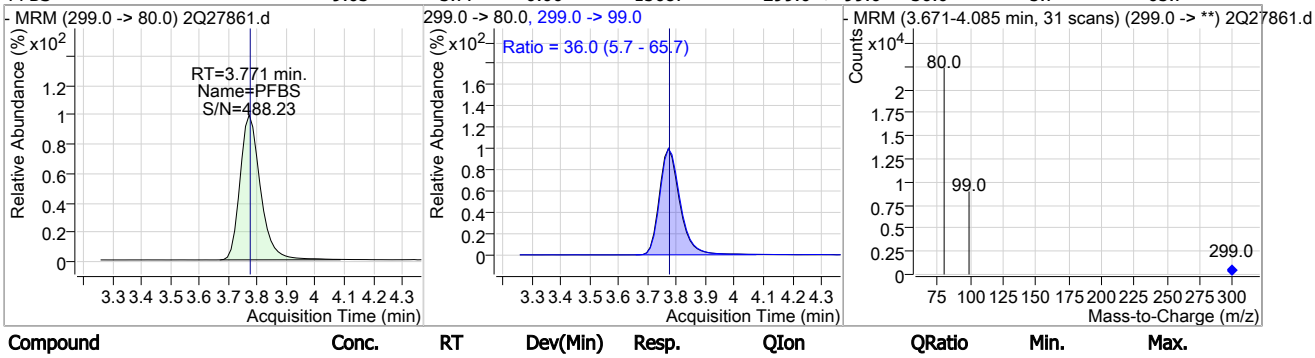
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.47	3.51	0.00	45428				



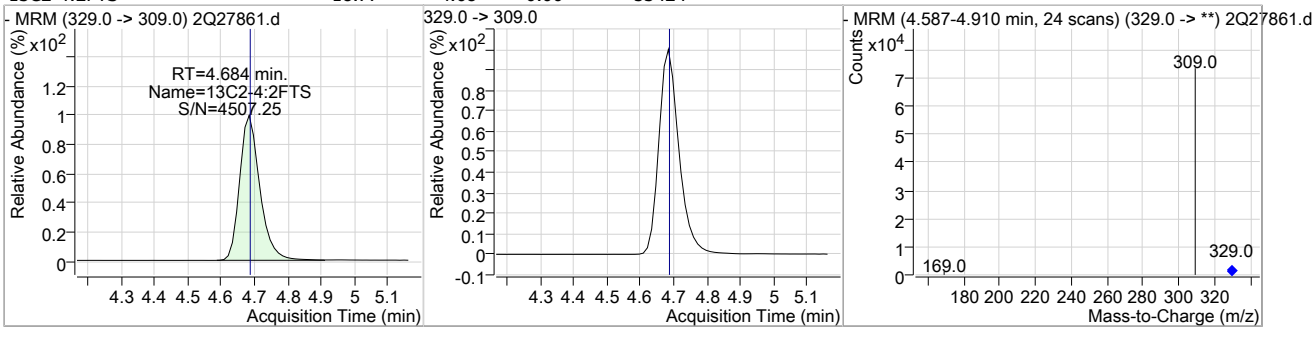
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.58	3.77	0.00	20093				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	9.63	3.77	0.00	15687	299.0 -> 99.0	36.0	5.7	65.7



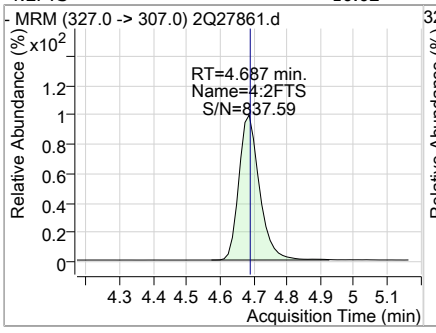
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.77	4.68	0.00	53424				

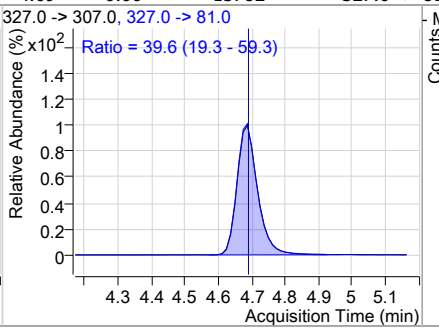


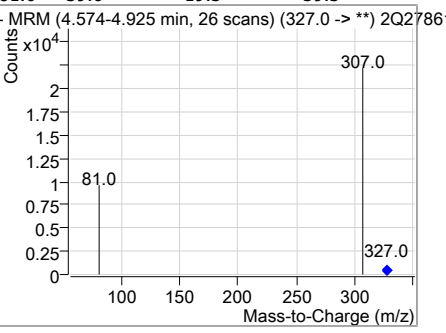
7.6.5

Perfluorinated Compounds by LC/MS/MS

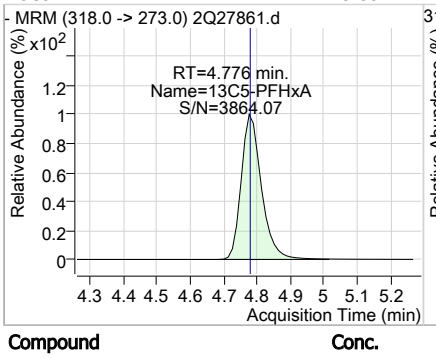
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	10.02	4.69	0.00	15782	327.0 -> 81.0	39.6	19.3	59.3

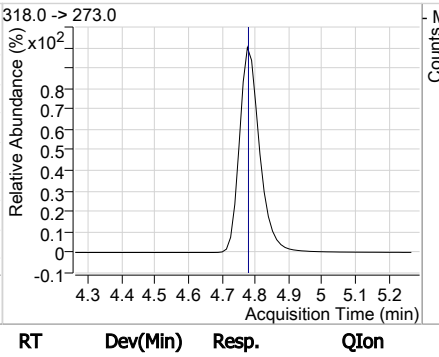


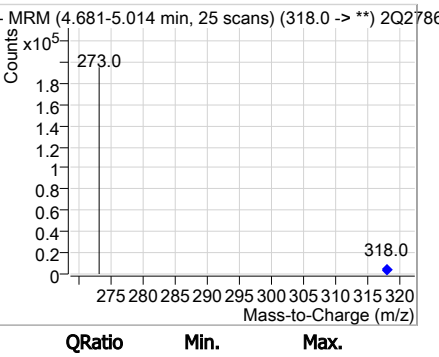




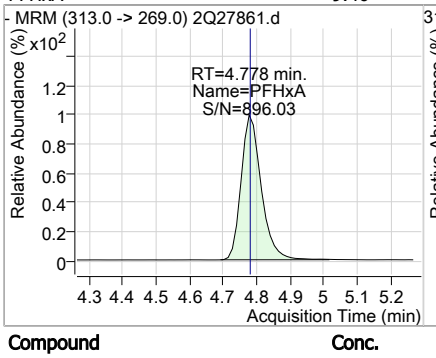
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.55	4.78	0.00	144863				

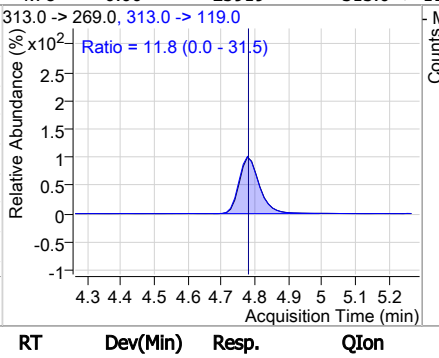


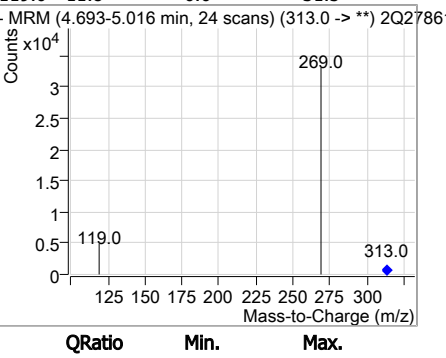




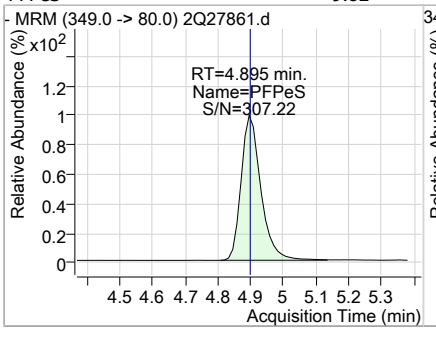
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	9.46	4.78	0.00	23919	313.0 -> 119.0	11.8	0.0	31.5

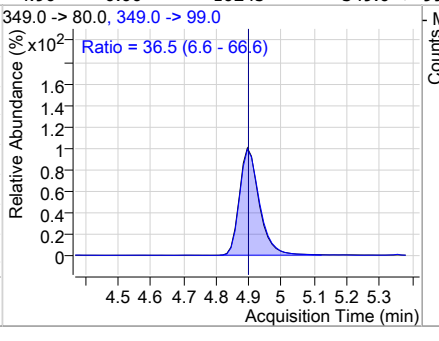


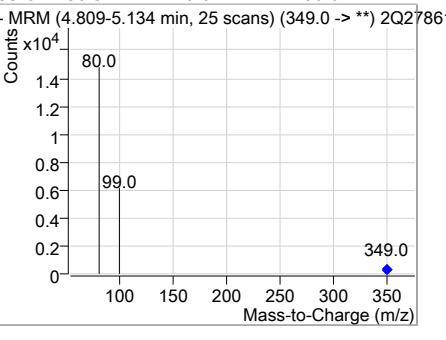




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	9.82	4.90	0.00	10245	349.0 -> 99.0	36.5	6.6	66.6



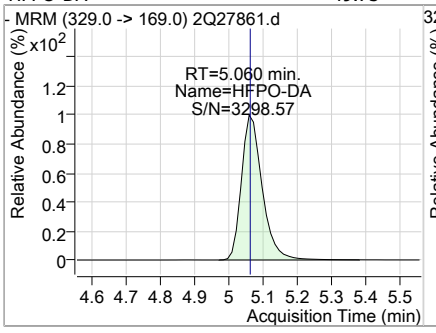


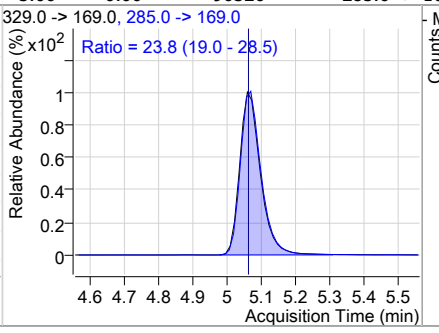


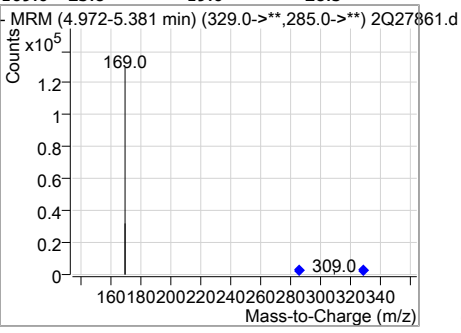
7.9.5

Perfluorinated Compounds by LC/MS/MS

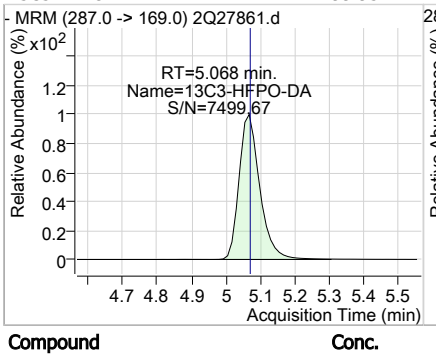
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	49.73	5.06	0.00	96526	285.0 -> 169.0	23.8	19.0	28.5

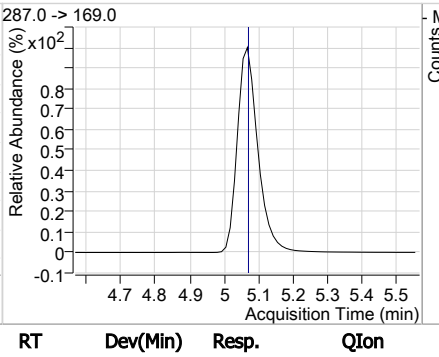


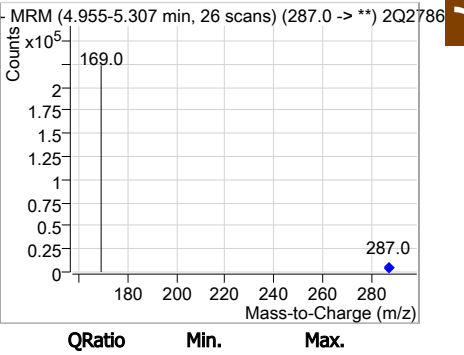




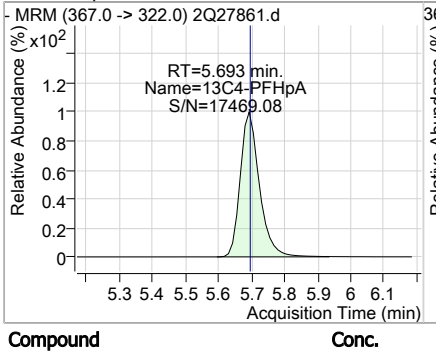
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	99.95	5.07	0.00	166605				

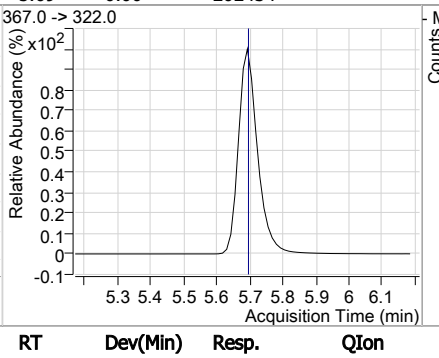


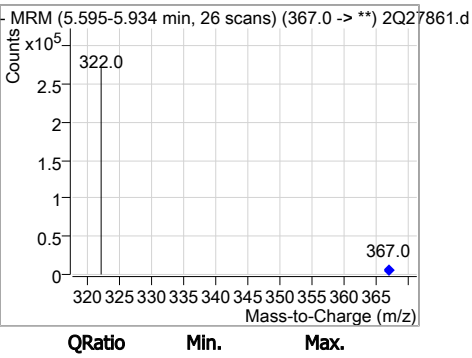




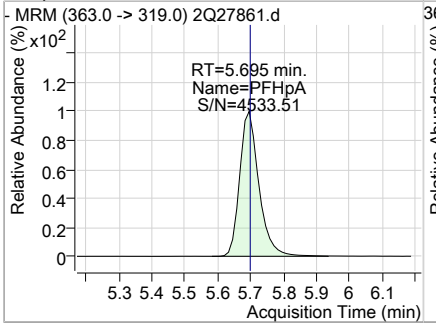
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.58	5.69	0.00	202434				

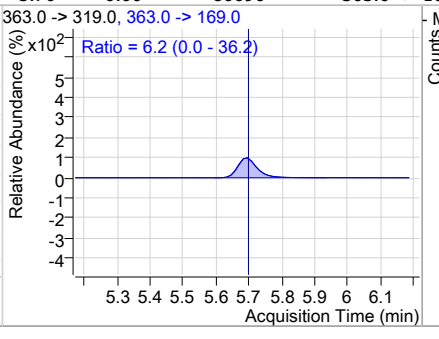


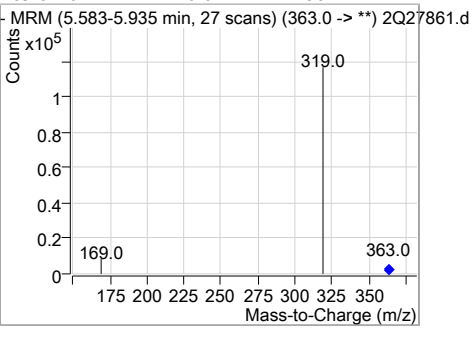




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	9.55	5.70	0.00	86696	363.0 -> 169.0	6.2	0.0	36.2



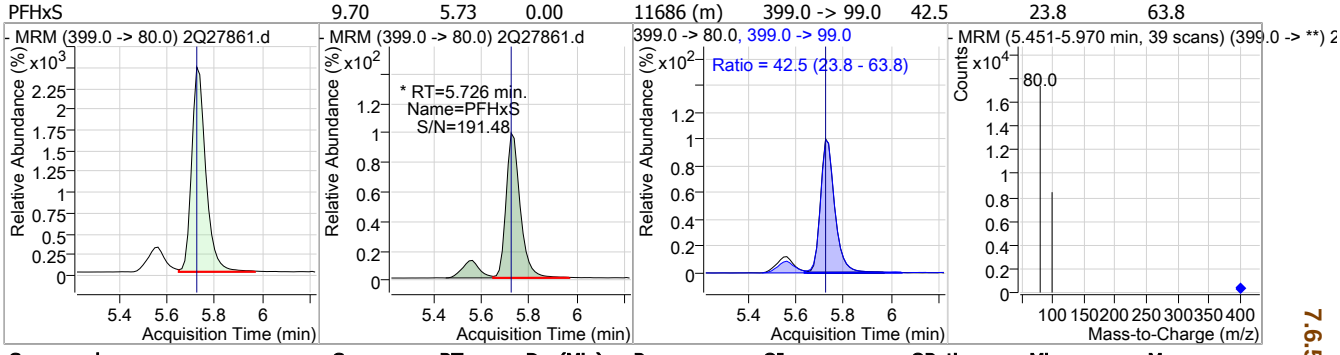




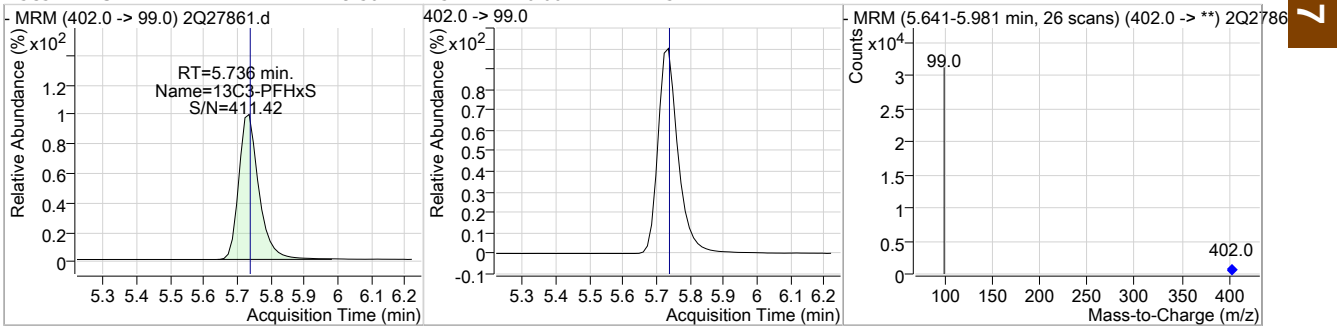
7.6.5

Perfluorinated Compounds by LC/MS/MS

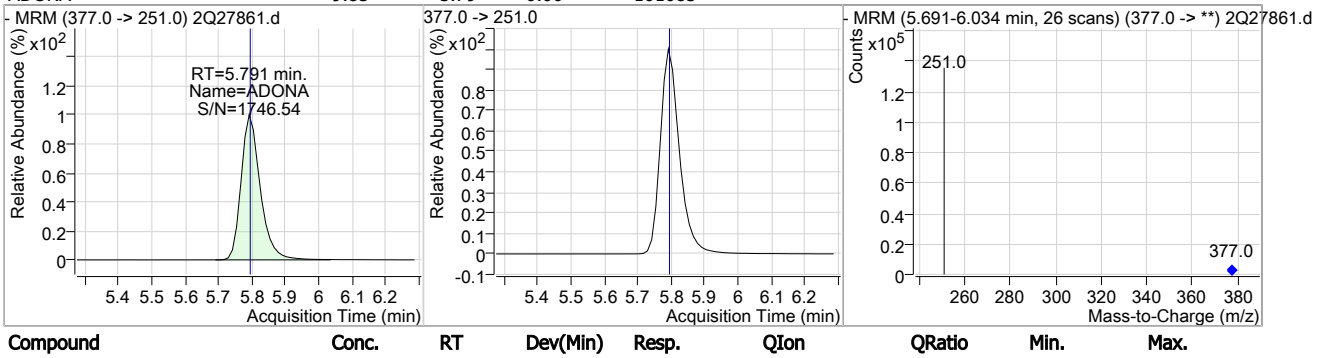
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.70	5.73	0.00	11686 (m)	399.0 -> 99.0	42.5	23.8	63.8



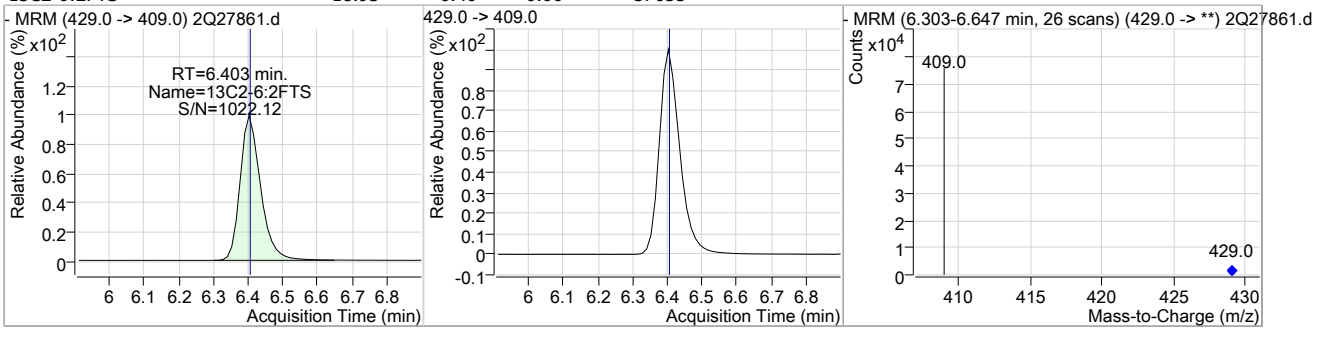
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.56	5.74	0.00	21737				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.85	5.79	0.00	101085				



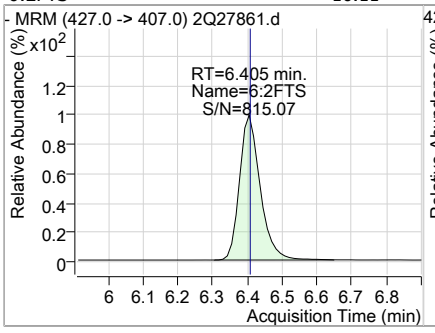
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.93	6.40	0.00	57055				

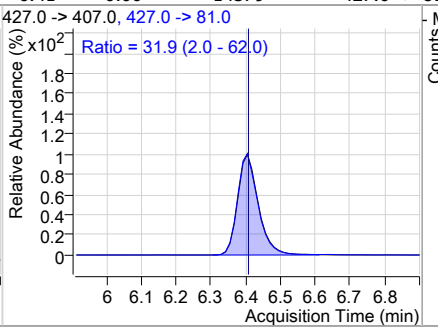


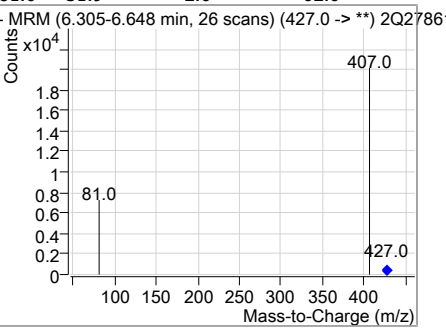
7.6.5

Perfluorinated Compounds by LC/MS/MS

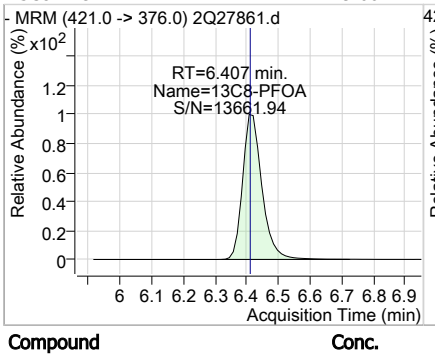
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	10.11	6.41	0.00	14579	427.0 -> 81.0	31.9	2.0	62.0

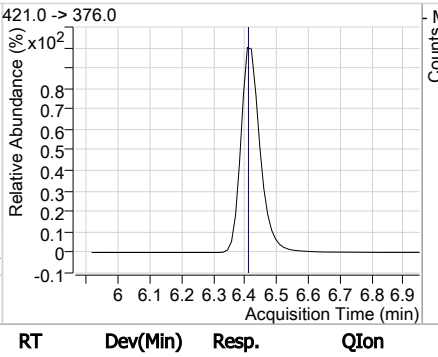


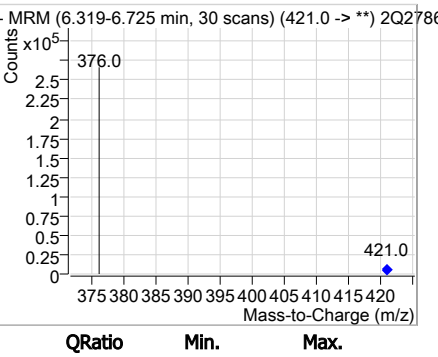




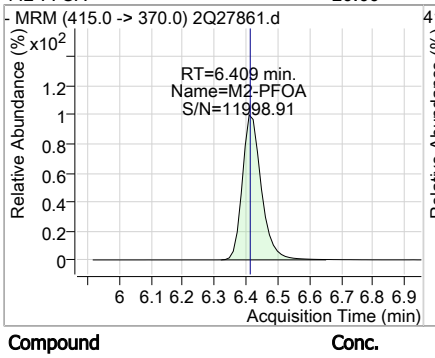
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.66	6.41	0.00	202612				

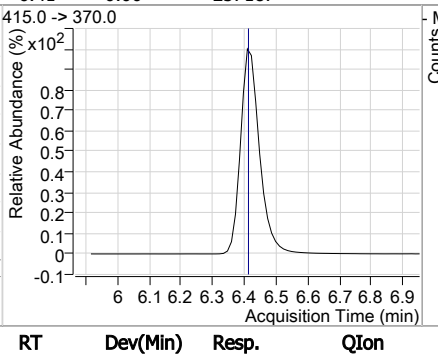


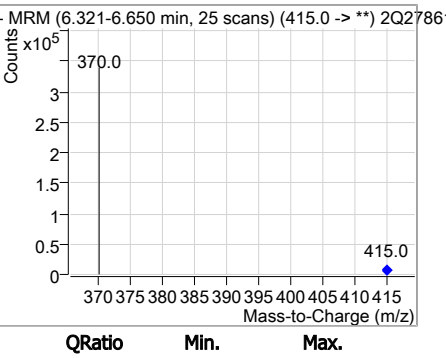




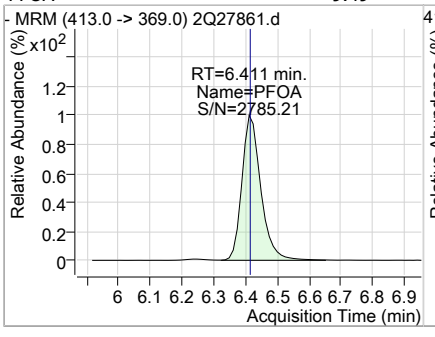
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	257187				

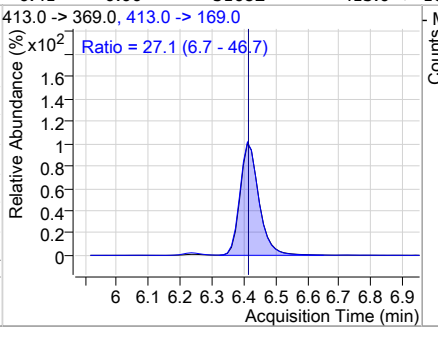


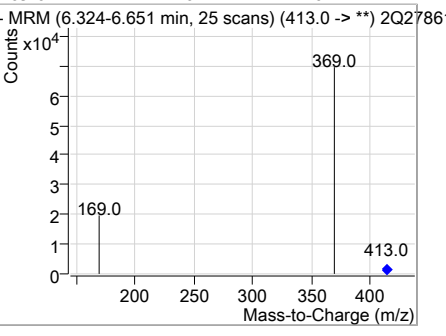




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	9.49	6.41	0.00	51682	413.0 -> 169.0	27.1	6.7	46.7



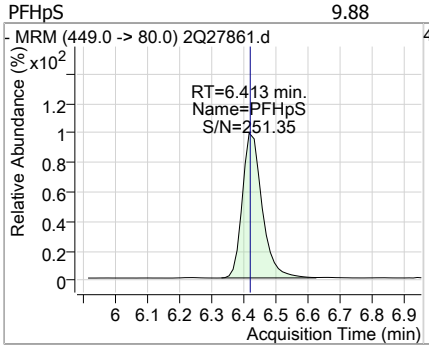


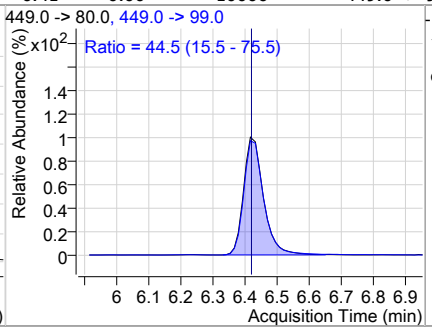


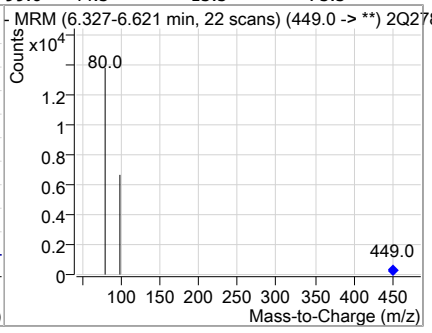
7.9.5

Perfluorinated Compounds by LC/MS/MS

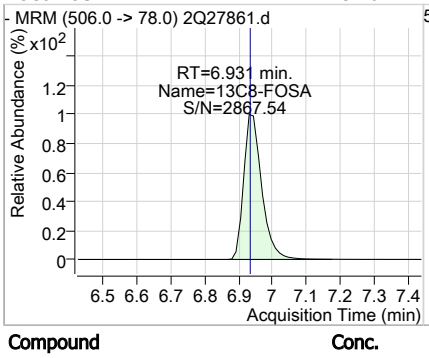
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	9.88	6.41	0.00	10066	449.0 -> 99.0	44.5	15.5	75.5

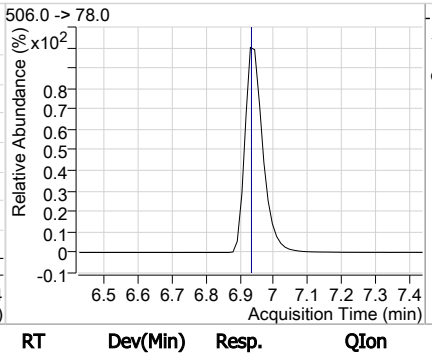


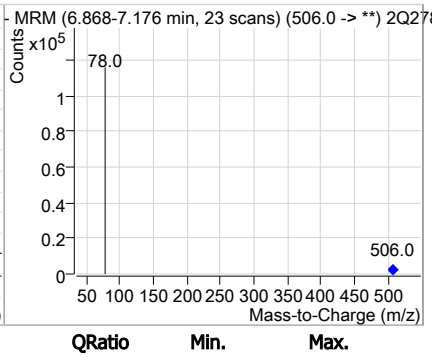




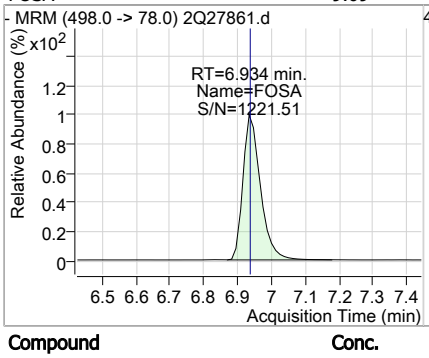
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.76	6.93	0.00	88625				

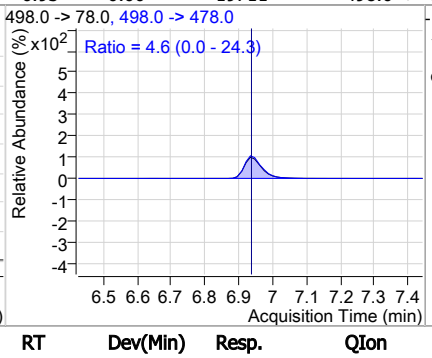


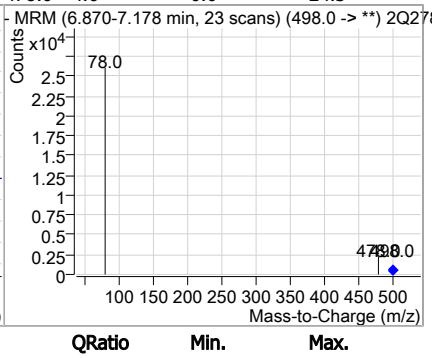




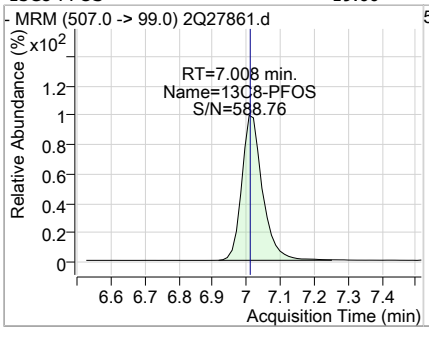
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	9.69	6.93	0.00	19711	498.0 -> 478.0	4.6	0.0	24.3

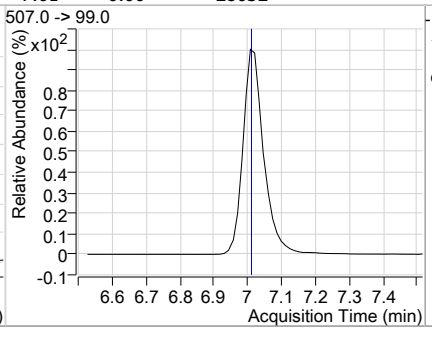


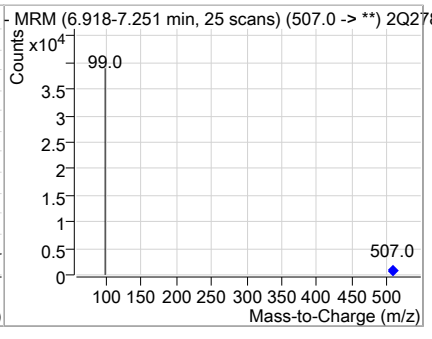




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.60	7.01	0.00	28032				

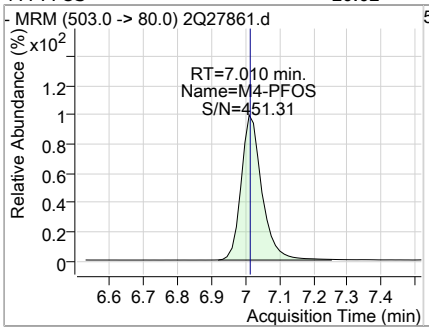


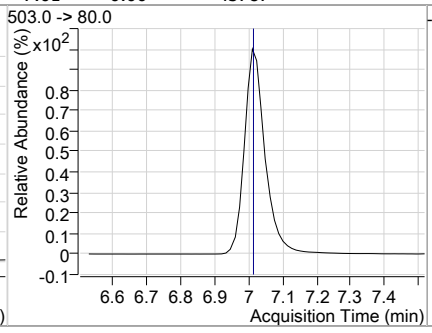


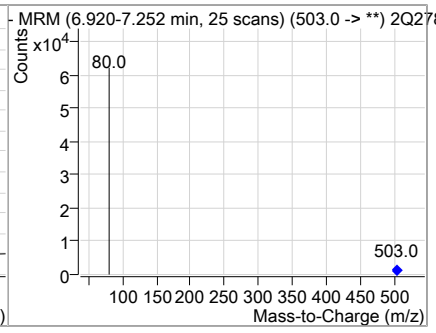


Perfluorinated Compounds by LC/MS/MS

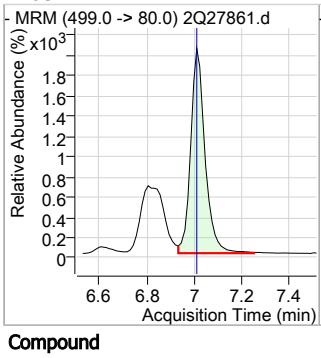
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.01	0.00	45787				

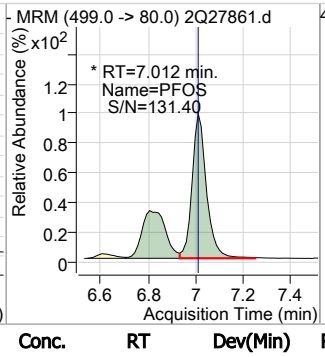


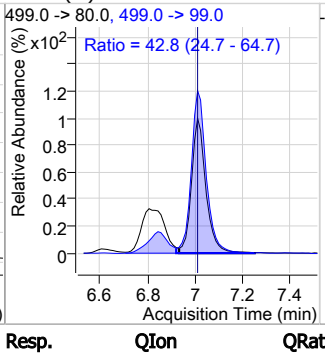


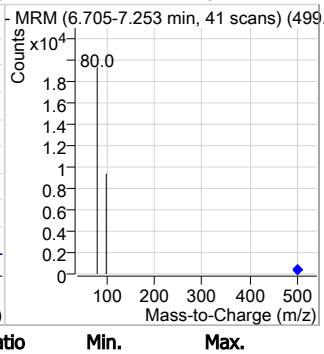


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.53	7.01	0.00	13136 (m)	499.0 -> 99.0	42.8	24.7	64.7

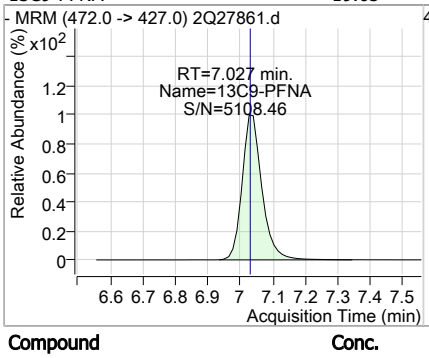


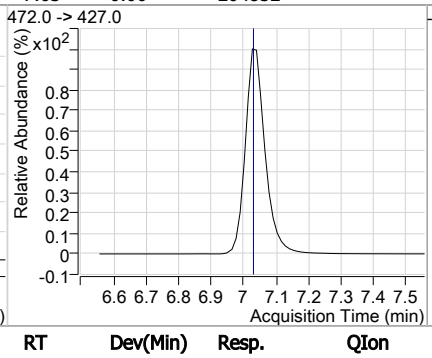


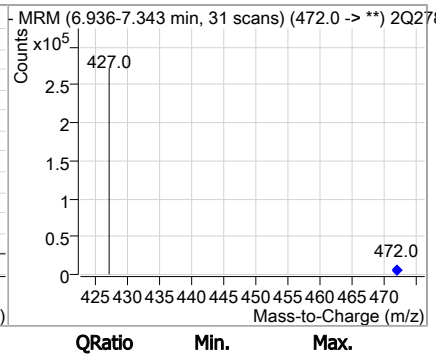




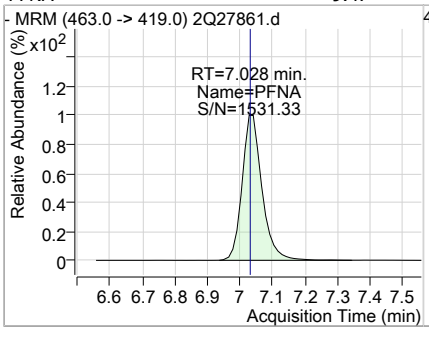
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.65	7.03	0.00	204852				

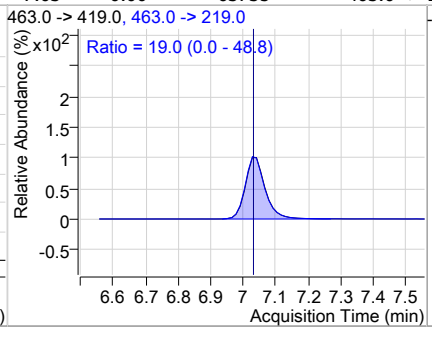


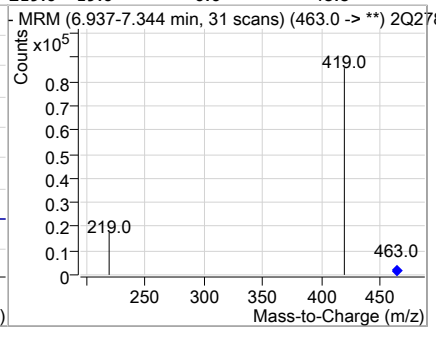




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	9.47	7.03	0.00	63735	463.0 -> 219.0	19.0	0.0	48.8

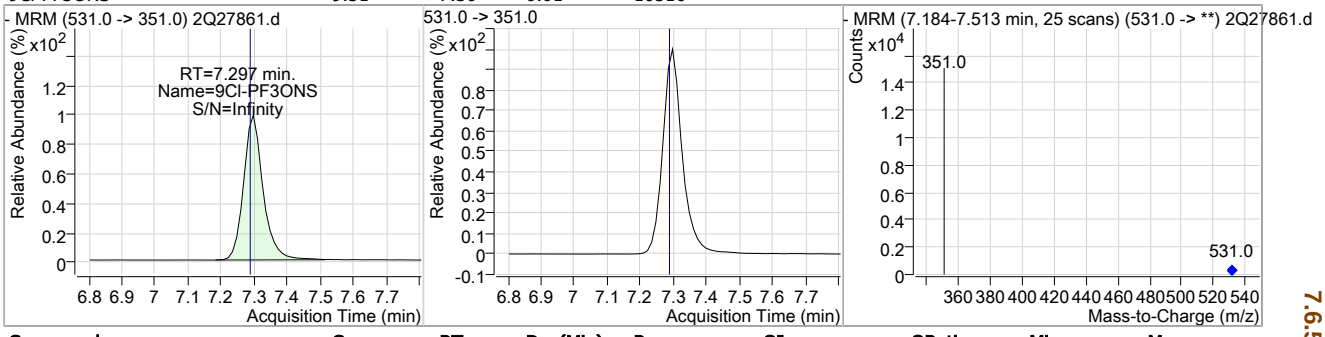




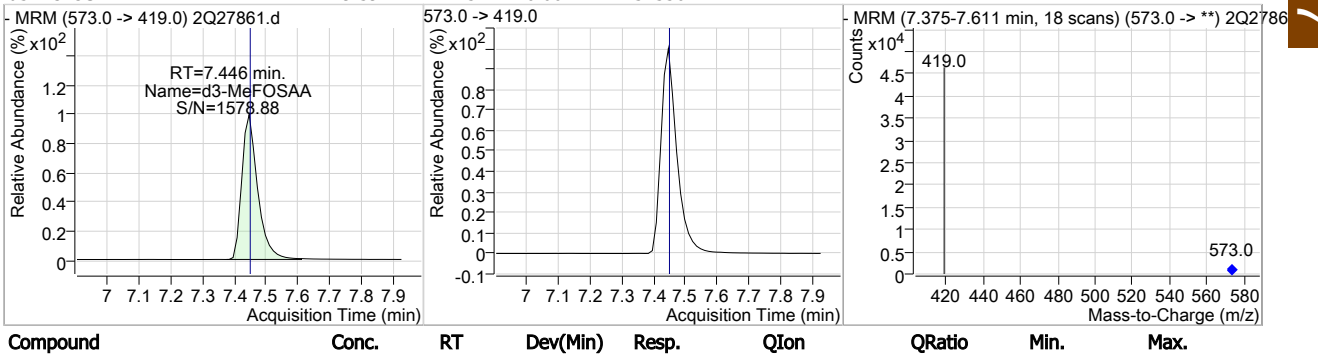


Perfluorinated Compounds by LC/MS/MS

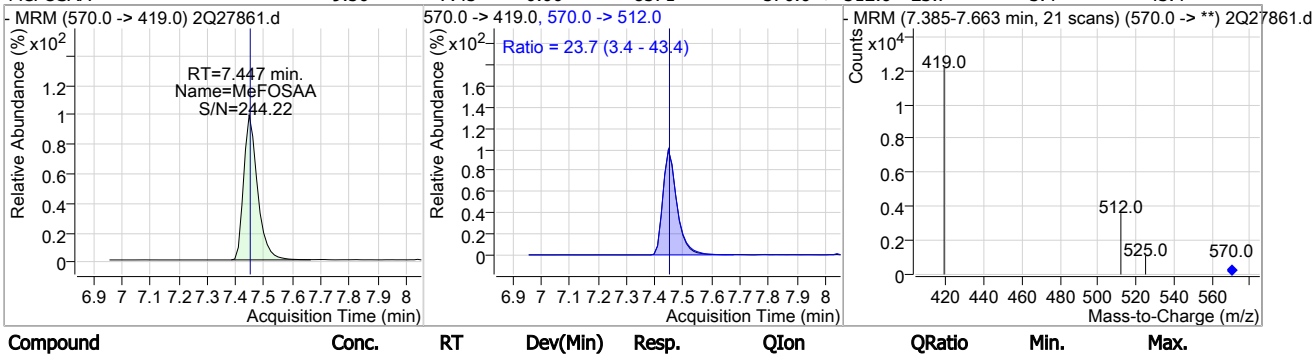
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	9.51	7.30	0.01	10516				



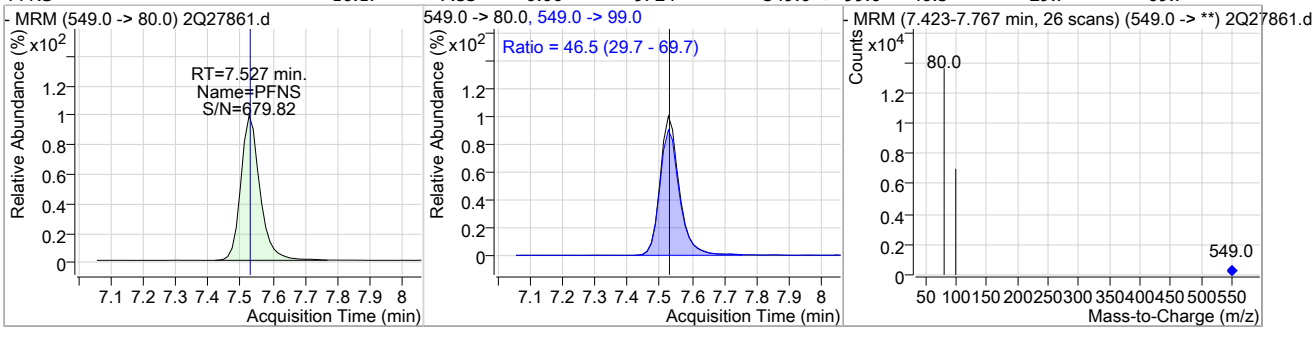
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.59	7.45	0.00	34350				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	9.50	7.45	0.00	8571	570.0 -> 512.0	23.7	3.4	43.4

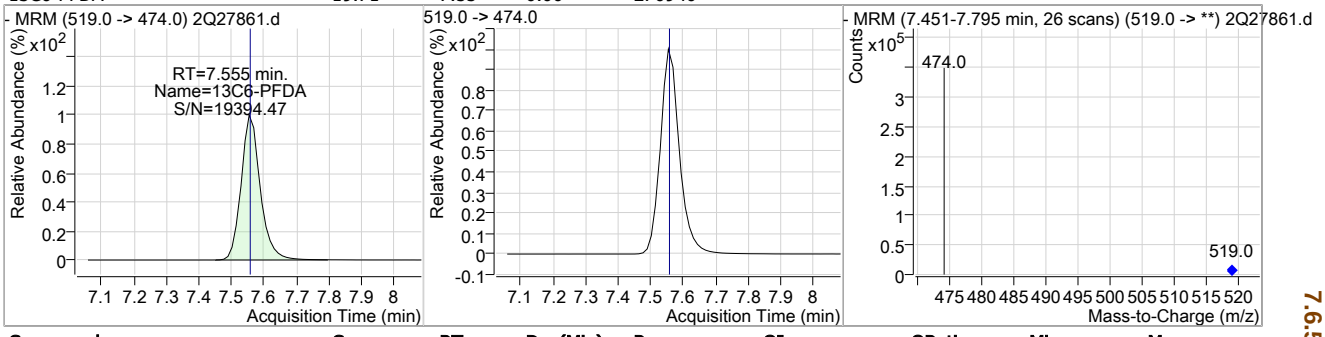


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	10.17	7.53	0.00	9724	549.0 -> 99.0	46.5	29.7	69.7

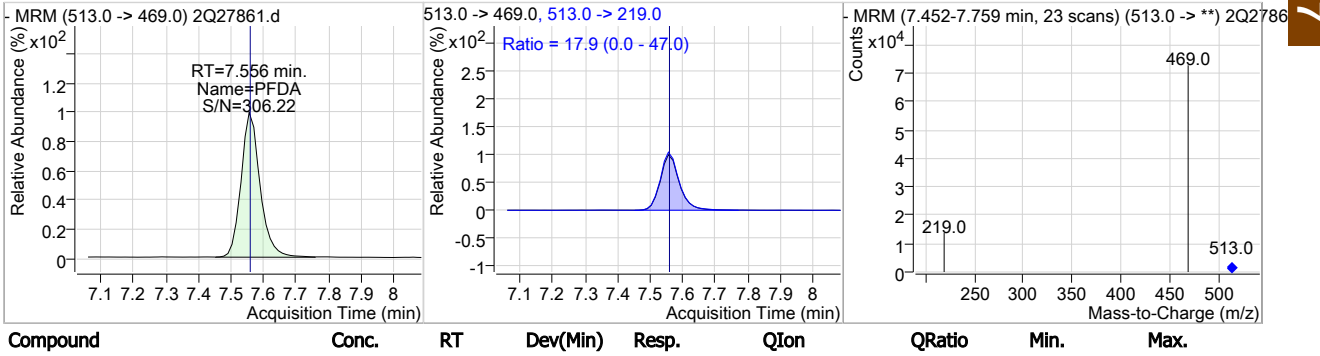


Perfluorinated Compounds by LC/MS/MS

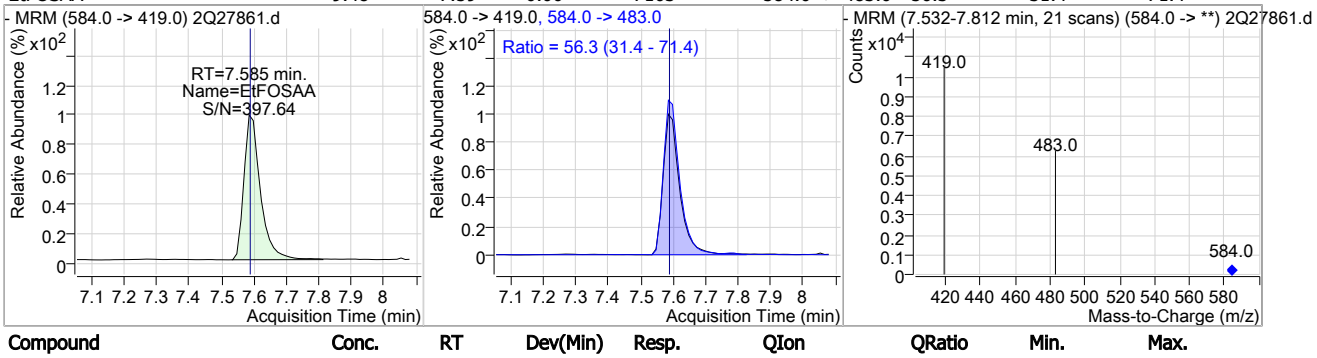
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.71	7.55	0.00	270940				



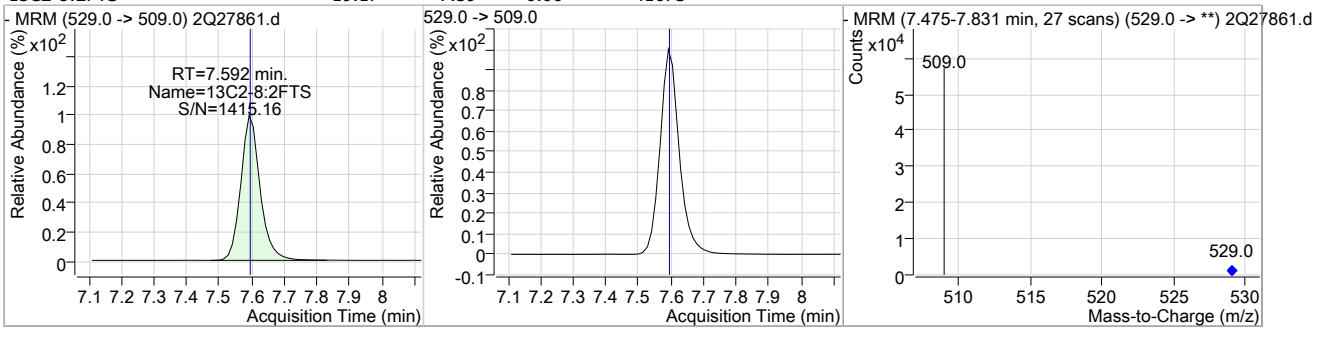
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	9.40	7.56	0.00	55242	513.0 -> 219.0	17.9	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	9.48	7.59	0.00	7103	584.0 -> 483.0	56.3	31.4	71.4



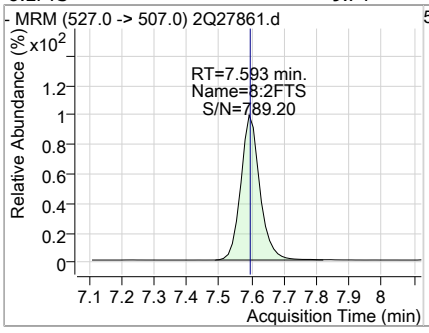
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.17	7.59	0.00	41673				

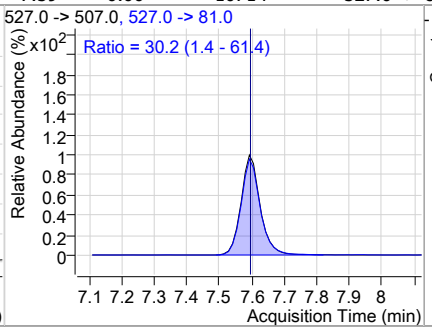


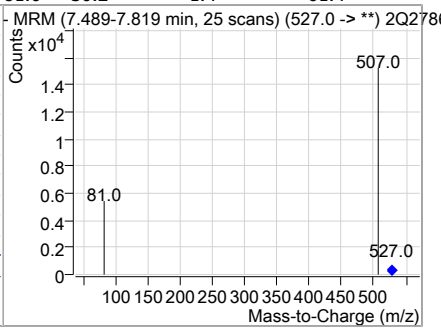
7.6.5

Perfluorinated Compounds by LC/MS/MS

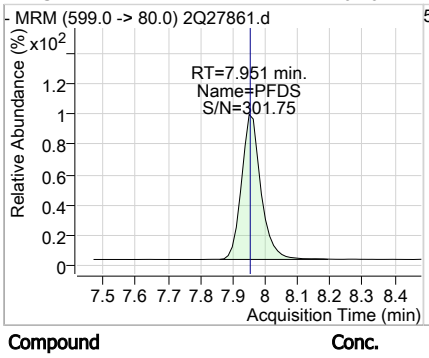
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.74	7.59	0.00	10714	527.0 -> 81.0	30.2	1.4	61.4

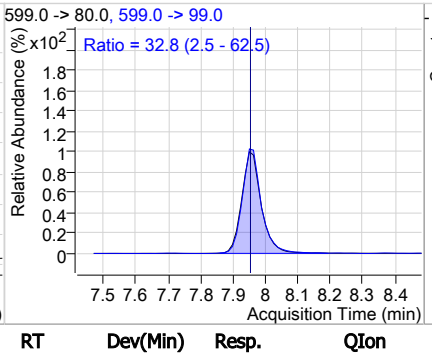


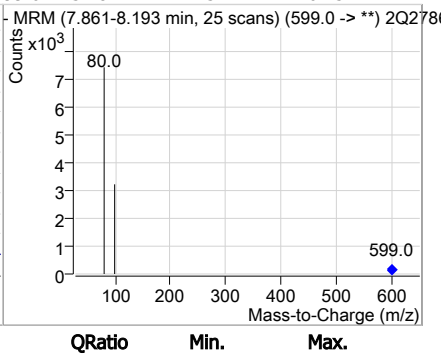




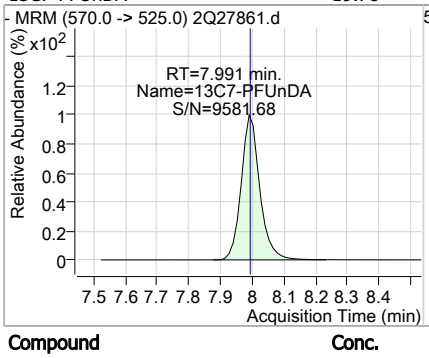
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	10.16	7.95	0.00	4819	599.0 -> 99.0	32.8	2.5	62.5

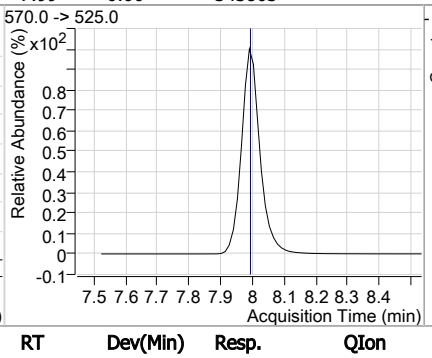


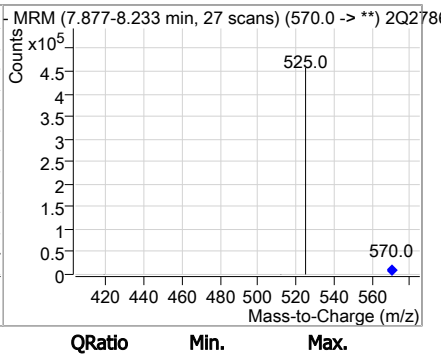




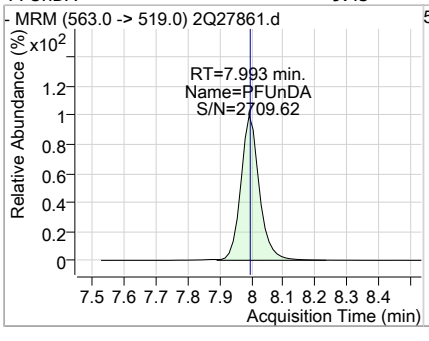
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.78	7.99	0.00	343803				

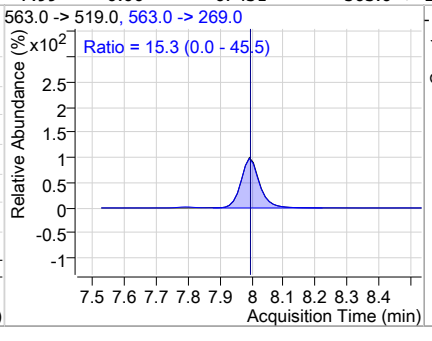


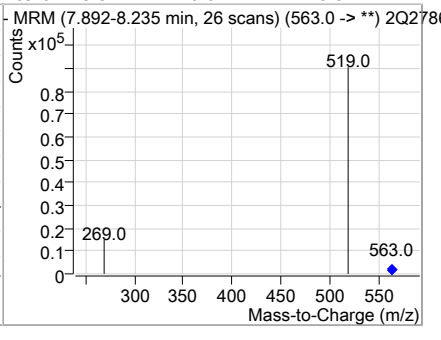




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.45	7.99	0.00	67431	563.0 -> 269.0	15.3	0.0	45.5





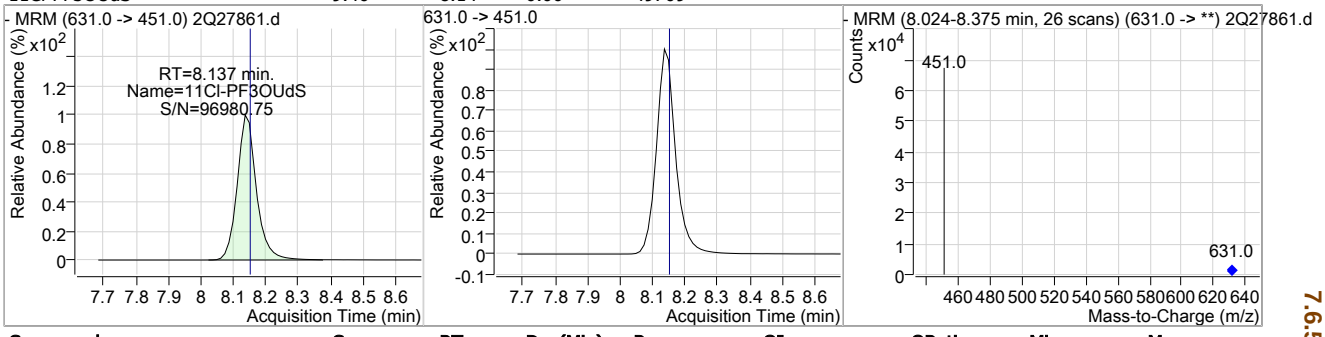


7.6.5

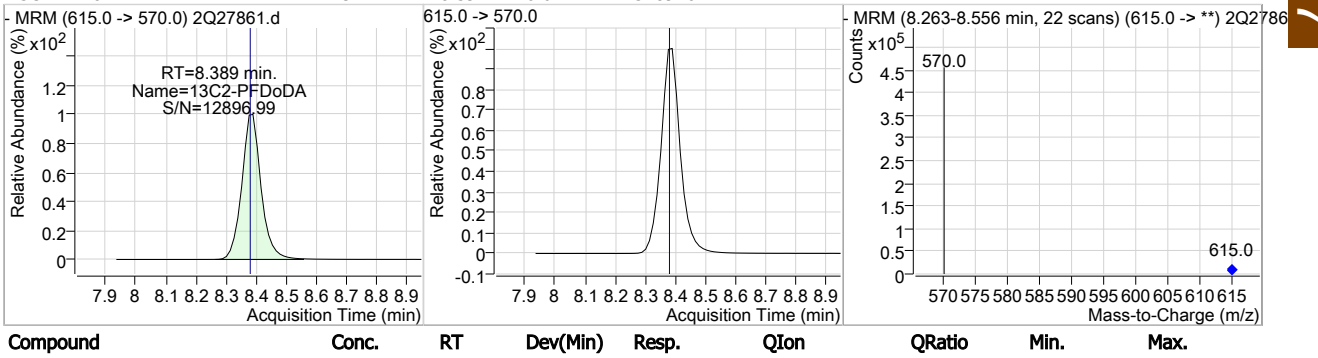
7

Perfluorinated Compounds by LC/MS/MS

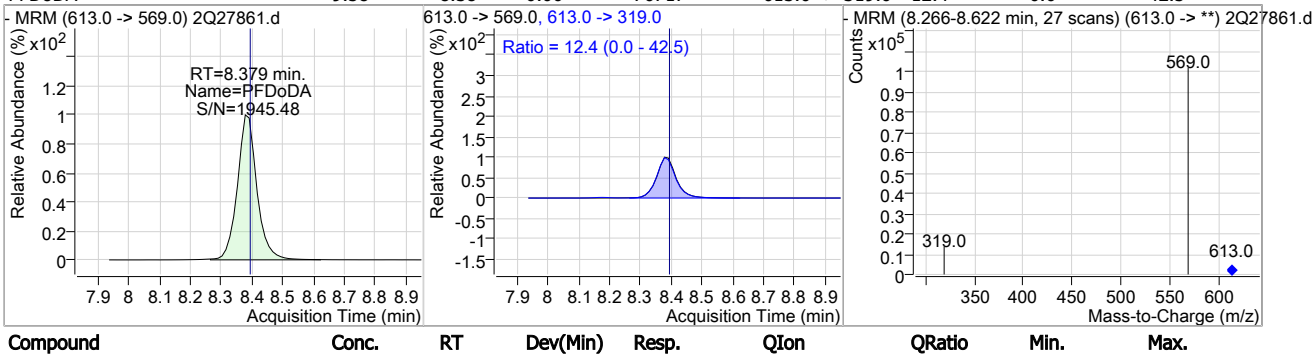
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.46	8.14	0.00	49709				



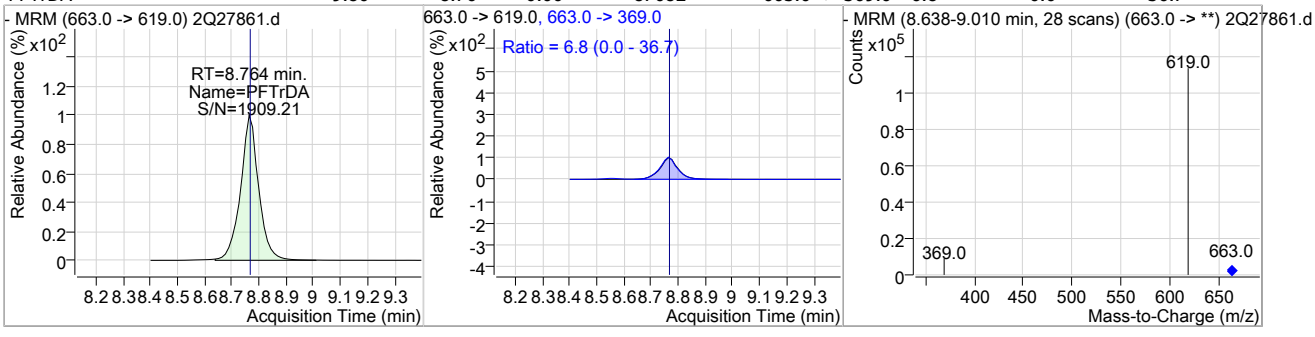
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.41	8.39	0.01	348926				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	9.58	8.38	0.00	76717	613.0 -> 319.0	12.4	0.0	42.5



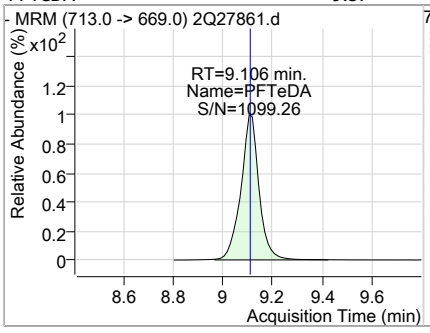
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	9.80	8.76	0.00	87082	663.0 -> 369.0	6.8	0.0	36.7

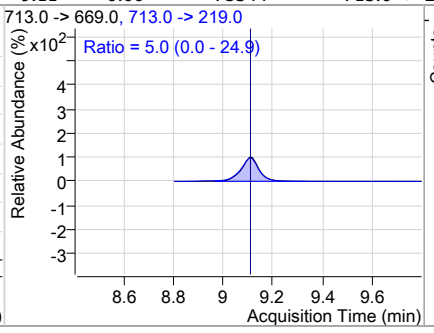


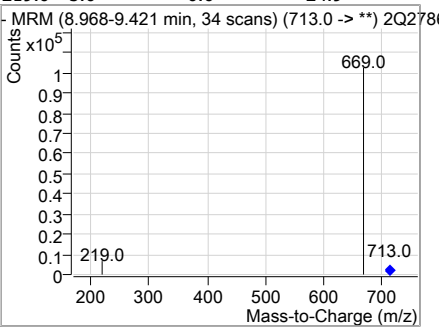
7.6.5

Perfluorinated Compounds by LC/MS/MS

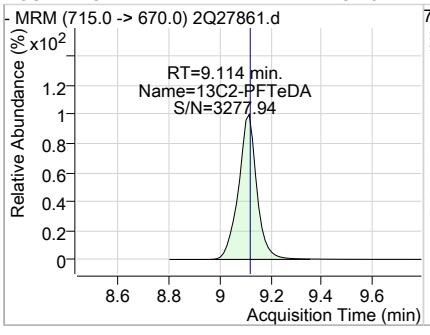
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.57	9.11	0.00	75344	713.0 -> 219.0	5.0	0.0	24.9

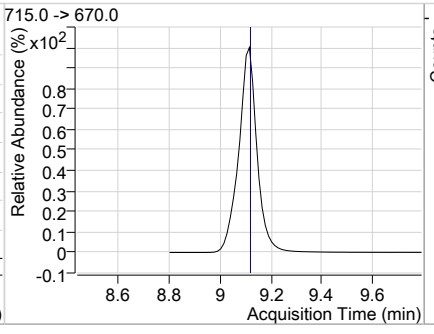


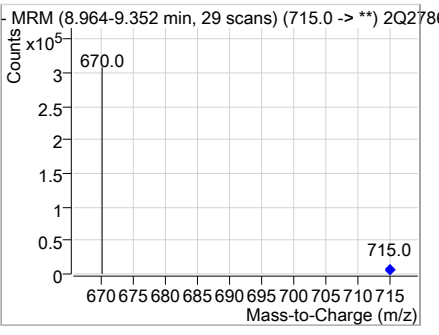




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.28	9.11	0.00	229382				







7.6.5

Manual Integration Approval Summary

Sample Number: S2Q445-IC445
Lab FileID: 2Q27861.D
Injection Time: 03/21/19 12:26
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/22/19 16:23 Nancy Saunders
Supervisor approved: 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q27862.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q27862.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/21/2019 12:42:27 PM
Sample Name : ICC445-20
Vial : Vial 7
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : S2Q445.batch.bin
Sample Information : op74164,S2Q445,250,,,1.0,1,water

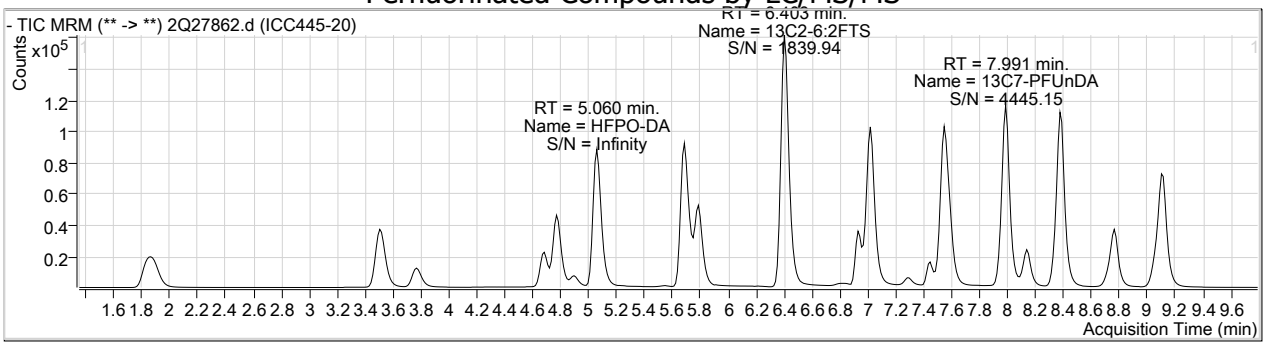
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	238518	20.00	µg/L	0.000
13C4-PFOS	7.010	503.0 -> 80.0	43071	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	121754	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	101094	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	136414	20.00	µg/L	0.000
M4-PFHpA	5.693	367.0 -> 322.0	189590	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	189988	20.00	µg/L	0.000
M9-PFNA	7.027	472.0 -> 427.0	191333	20.00	µg/L	0.000
M6-PFDA	7.555	519.0 -> 474.0	251754	20.00	µg/L	0.000
M7-PFUnDA	7.991	570.0 -> 525.0	316814	20.00	µg/L	0.000
M2-PFDoDA	8.376	615.0 -> 570.0	325704	20.00	µg/L	0.000
M2-PFTeDA	9.114	715.0 -> 670.0	215577	20.00	µg/L	0.000
M8-FOSA	6.931	506.0 -> 78.0	83437	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	19081	20.00	µg/L	0.000
M3-PFHxS	5.736	402.0 -> 99.0	20518	20.00	µg/L	0.000
M8-PFOS	7.008	507.0 -> 99.0	26727	20.00	µg/L	0.000
M2-4:2FTS	4.684	329.0 -> 309.0	51854	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	55408	20.00	µg/L	0.000
M2-8:2FTS	7.592	529.0 -> 509.0	39821	20.00	µg/L	0.000
M3-MeFOSAA	7.446	573.0 -> 419.0	32292	20.00	µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	152194	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	51806	18.20	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.0%		
13C2-6:2FTS	6.403	429.0 -> 409.0	55387	18.38	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.9%		
13C2-8:2FTS	7.592	529.0 -> 509.0	39807	18.32	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.6%		
13C2-PFDoDA	8.376	615.0 -> 570.0	325550	18.11	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.6%		
13C2-PFTeDA	9.114	715.0 -> 670.0	215339	18.10	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.5%		
13C3-PFBS	3.767	302.0 -> 99.0	18959	18.48	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.4%		
13C3-PFHxS	5.736	402.0 -> 99.0	20498	18.44	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%		
13C4-PFBA	1.865	217.0 -> 172.0	121263	18.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
13C4-PFHpA	5.693	367.0 -> 322.0	189729	18.35	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%		
13C5-PFHxA	4.776	318.0 -> 273.0	136405	18.41	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.0%		
13C5-PFPeA	3.511	268.0 -> 223.0	101295	18.41	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.1%		
13C6-PFDA	7.555	519.0 -> 474.0	251558	18.30	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

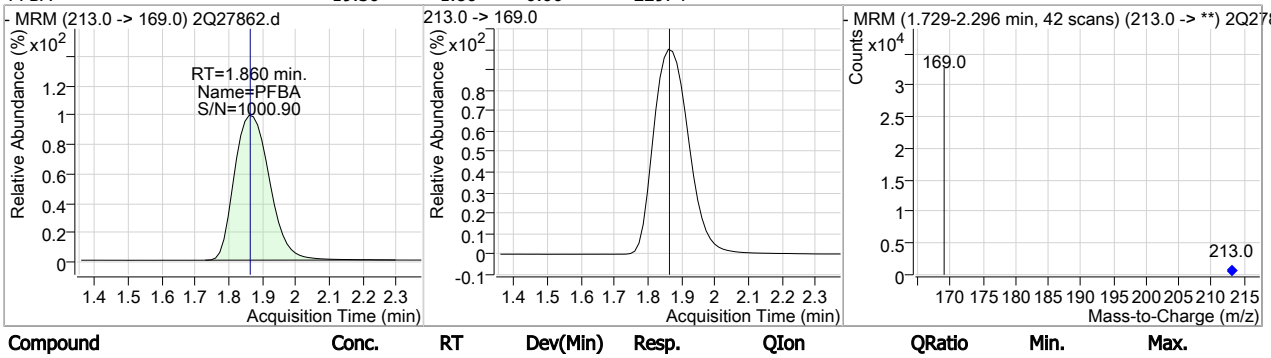
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.5%		
13C7-PFUnDA	7.991	570.0 -> 525.0	317048	18.24 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.2%		
13C8-FOSA	6.931	506.0 -> 78.0	83430	18.60 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C8-PFOA	6.407	421.0 -> 376.0	189974	18.43 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%		
13C8-PFOS	7.008	507.0 -> 99.0	26686	18.66 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C9-PFNA	7.027	472.0 -> 427.0	191123	18.34 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.7%		
d3-MeFOSAA	7.446	573.0 -> 419.0	32355	18.45 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.3%		
M2-PFOA	6.409	415.0 -> 370.0	238618	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.010	503.0 -> 80.0	43106	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	152194	91.30 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 91.3%		
Target Compounds						**QValue**
4:2FTS	4.687	327.0 -> 307.0	29465	19.32 µg/L		100
6:2FTS	6.405	427.0 -> 407.0	26648	19.06 µg/L		100
8:2FTS	7.593	527.0 -> 507.0	19759	18.81 µg/L		100
EtFOSAA	7.585	584.0 -> 419.0	13951	19.84 µg/L		100
FOSA	6.934	498.0 -> 78.0	38364	19.95 µg/L		100
MeFOSAA	7.447	570.0 -> 419.0	16174	19.05 µg/L		100
PFBA	1.860	213.0 -> 169.0	22974	19.30 µg/L		100
PFBS	3.771	299.0 -> 80.0	29635	19.17 µg/L		100
PFDA	7.556	513.0 -> 469.0	105050	19.25 µg/L		100
PFDoDA	8.379	613.0 -> 569.0	144262	19.31 µg/L		100
PFDS	7.951	599.0 -> 80.0	8613	19.04 µg/L		100
PFHpA	5.695	363.0 -> 319.0	164001	19.29 µg/L		100
PFHpS	6.413	449.0 -> 80.0	18666	19.46 µg/L		100
PFHxA	4.778	313.0 -> 269.0	45844	19.27 µg/L		100
PFHxS	5.726	399.0 -> 80.0	21540	18.99 µg/L	m	100
PFNA	7.028	463.0 -> 419.0	120678	19.19 µg/L		100
PFNS	7.527	549.0 -> 80.0	17838	19.56 µg/L		100
PFOA	6.411	413.0 -> 369.0	98285	19.26 µg/L		100
PFOS	7.012	499.0 -> 80.0	24674	18.77 µg/L	m	100
PFPeA	3.515	263.0 -> 219.0	86105	19.10 µg/L		100
PFPeS	4.895	349.0 -> 80.0	18972	19.17 µg/L		100
PFTeDA	9.106	713.0 -> 669.0	142399	19.26 µg/L		100
PFTrDA	8.764	663.0 -> 619.0	162936	19.53 µg/L		100
PFUnDA	7.993	563.0 -> 519.0	126526	19.25 µg/L		100
11Cl-PF3OUdS	8.137	631.0 -> 451.0	94161	19.21 µg/L		100
9Cl-PF3ONS	7.285	531.0 -> 351.0	19646	18.94 µg/L		100
ADONA	5.791	377.0 -> 251.0	189644	19.48 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	176564	99.58 µg/L		100

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

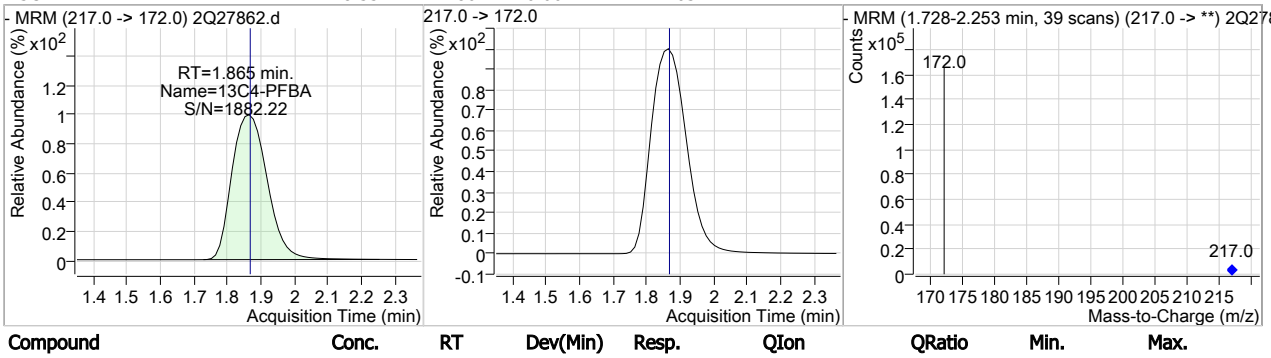
Perfluorinated Compounds by LC/MS/MS



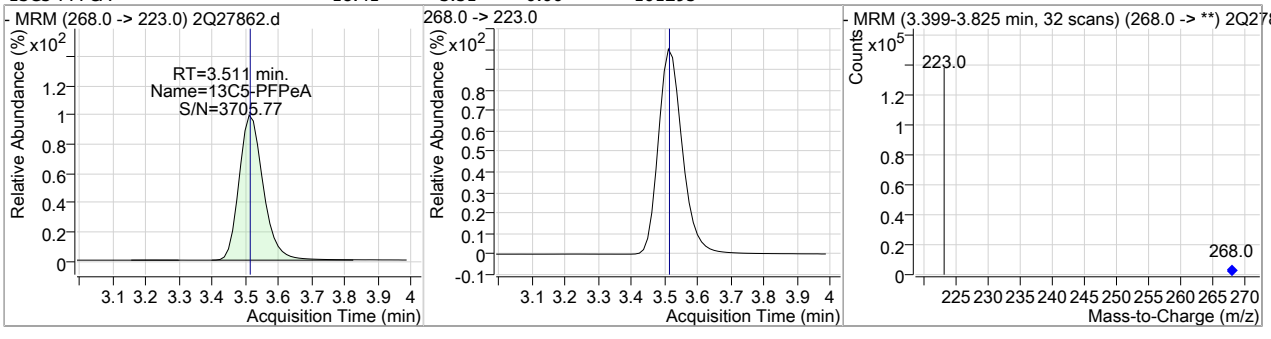
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.30	1.86	0.00	22974				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.55	1.86	0.00	121263				

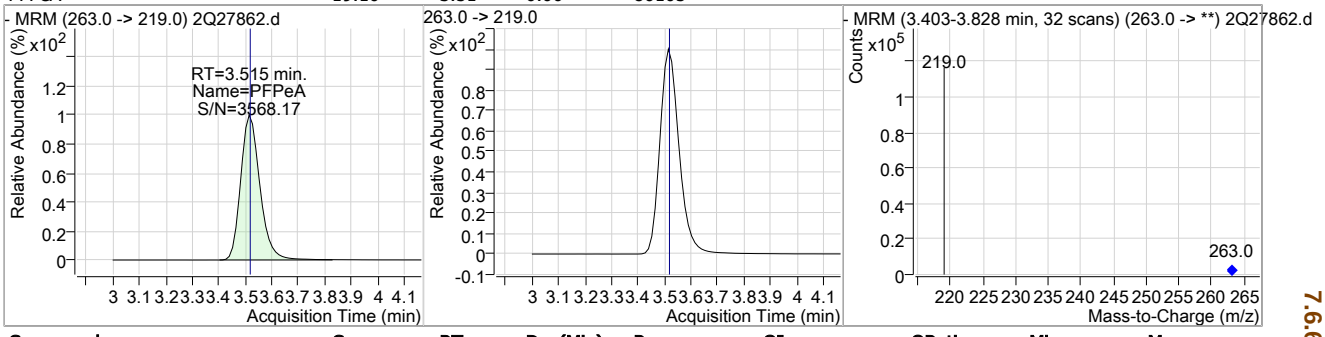


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.41	3.51	0.00	101295				

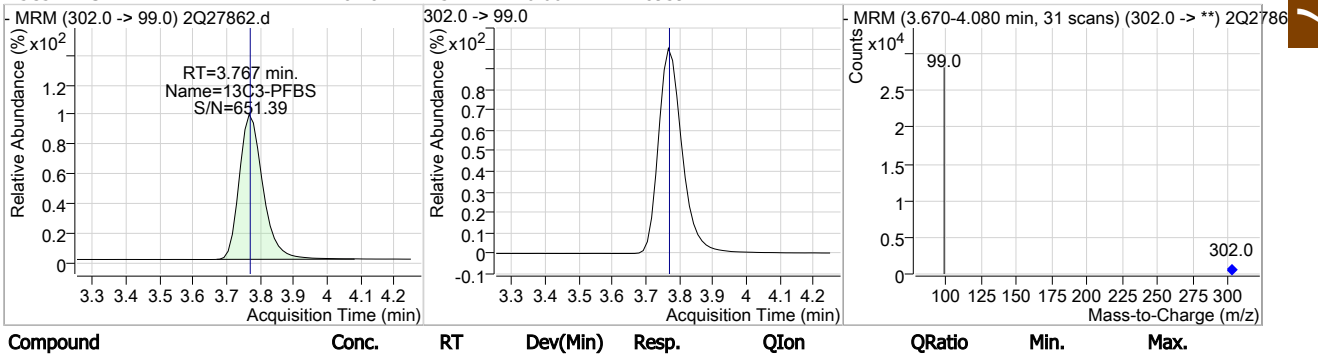


Perfluorinated Compounds by LC/MS/MS

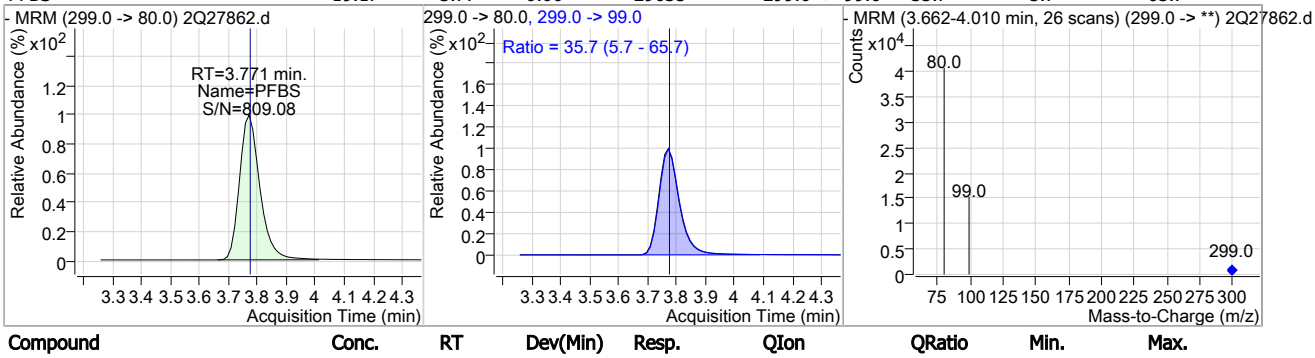
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.10	3.51	0.00	86105				



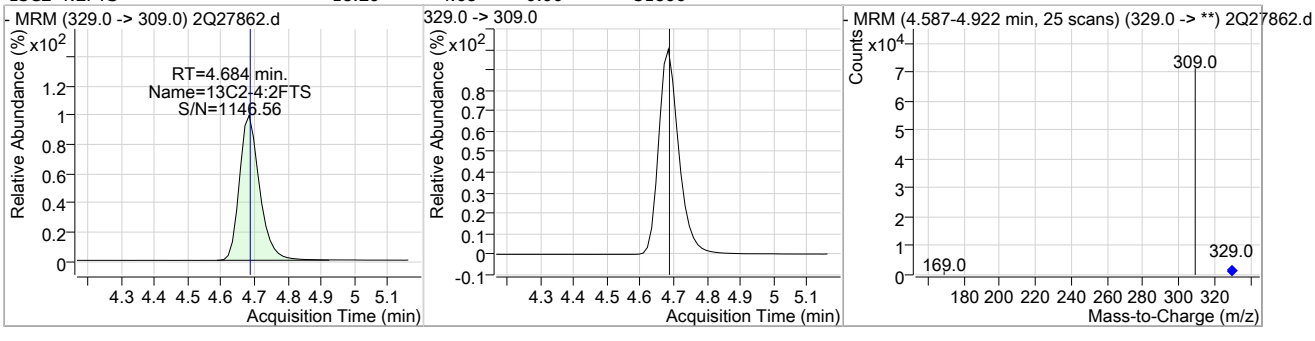
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.48	3.77	0.00	18959				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.17	3.77	0.00	29635	299.0 -> 99.0	35.7	5.7	65.7



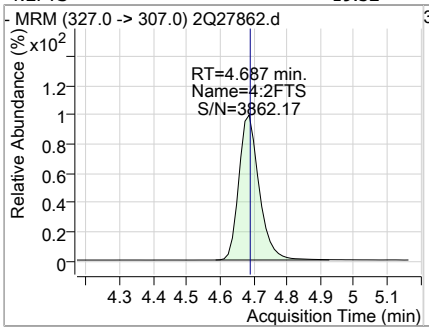
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.20	4.68	0.00	51806				

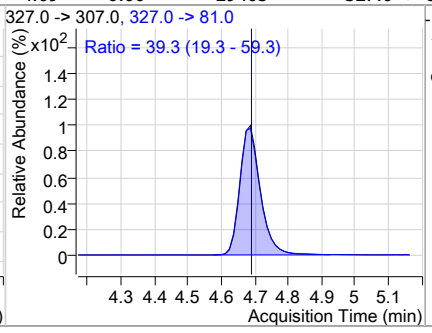


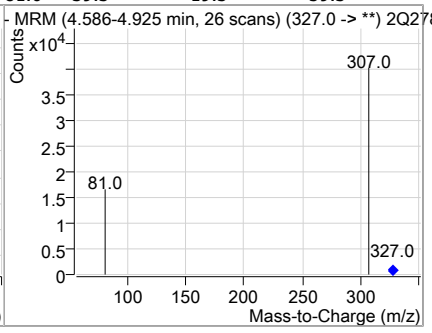
7.9.6

Perfluorinated Compounds by LC/MS/MS

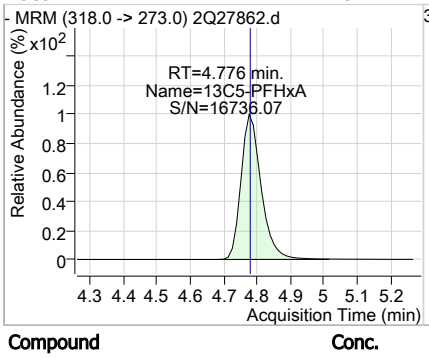
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.32	4.69	0.00	29465	327.0 -> 81.0	39.3	19.3	59.3

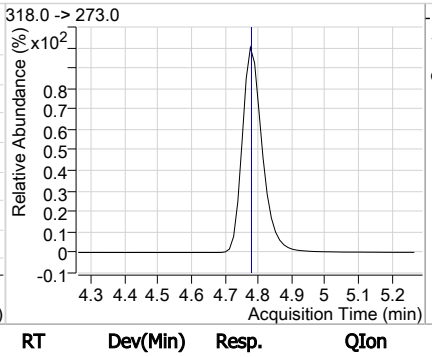


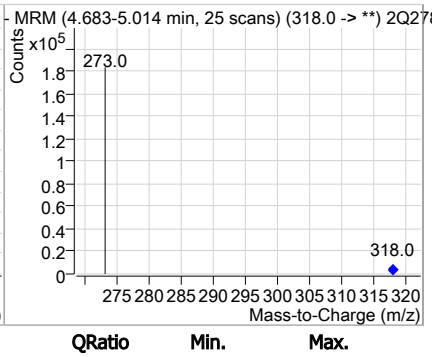




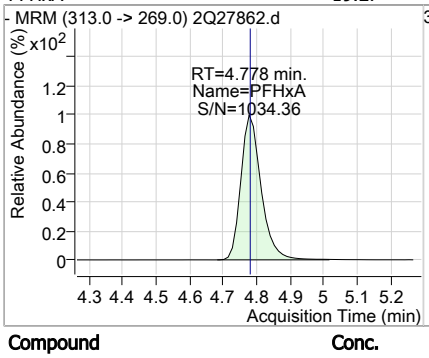
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.41	4.78	0.00	136405				

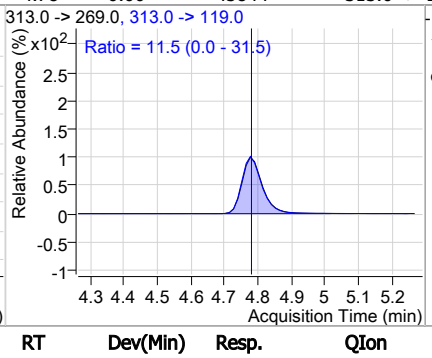


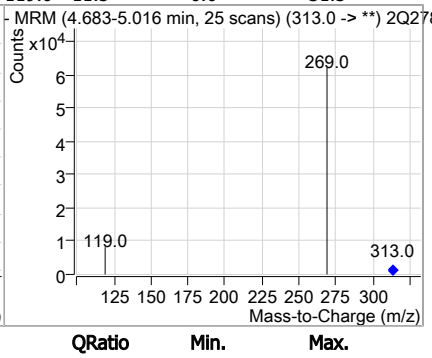




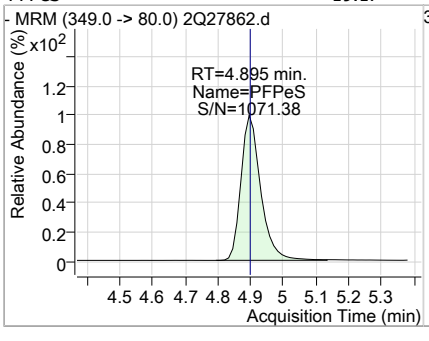
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.27	4.78	0.00	45844	313.0 -> 119.0	11.5	0.0	31.5

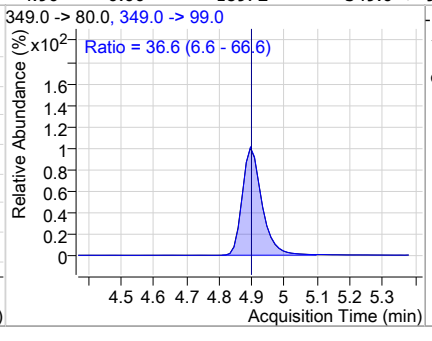


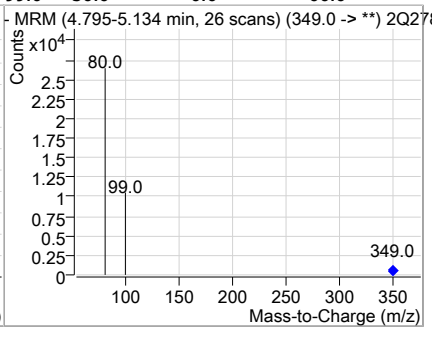




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.17	4.90	0.00	18972	349.0 -> 99.0	36.6	6.6	66.6



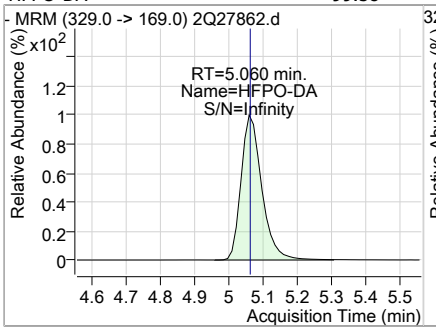


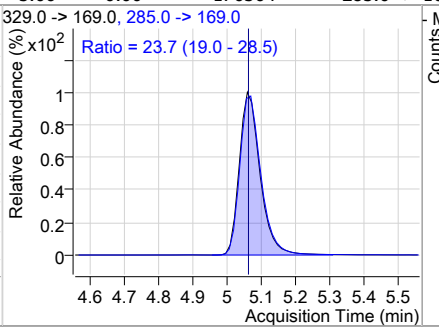


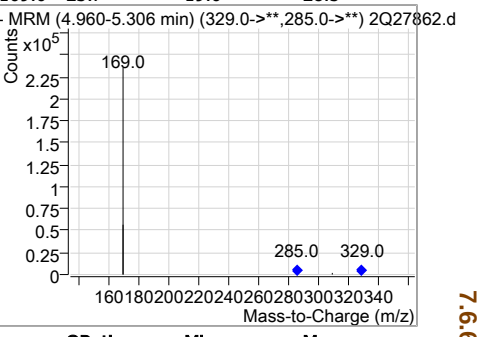
7.9.6

Perfluorinated Compounds by LC/MS/MS

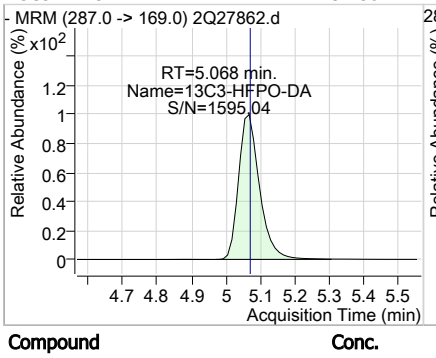
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	99.58	5.06	0.00	176564	285.0 -> 169.0	23.7	19.0	28.5

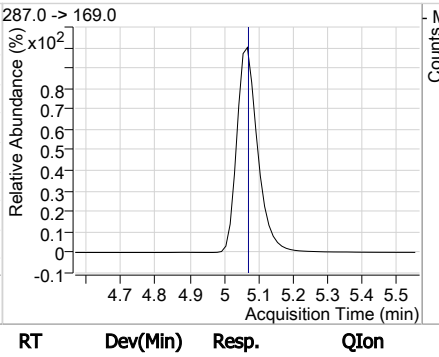


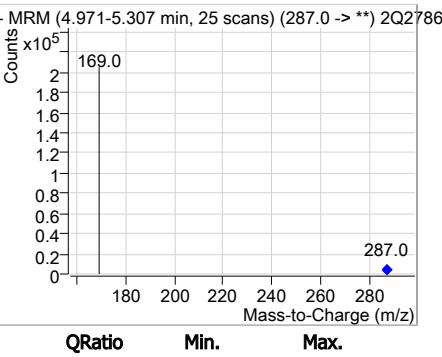




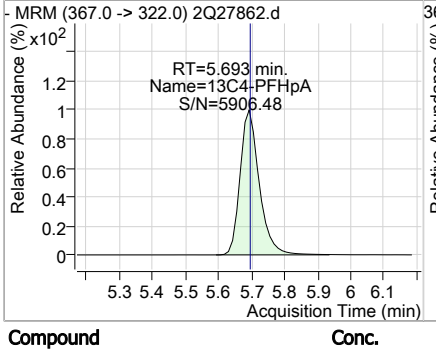
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	91.30	5.07	0.00	152194				

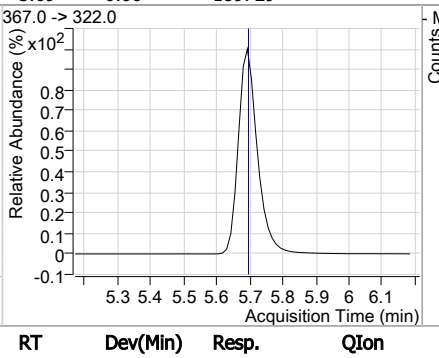


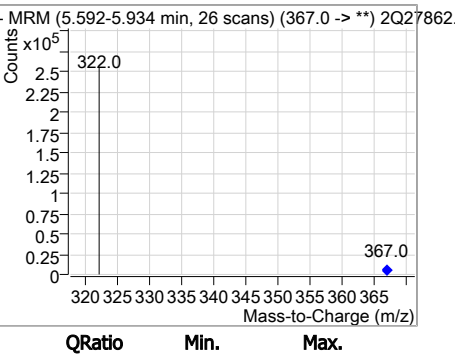




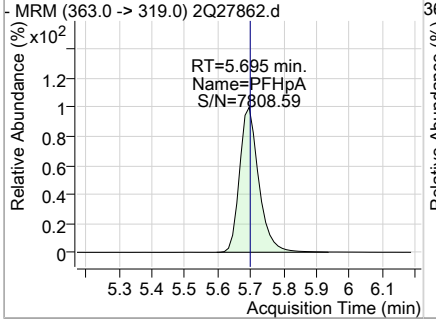
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.35	5.69	0.00	189729				

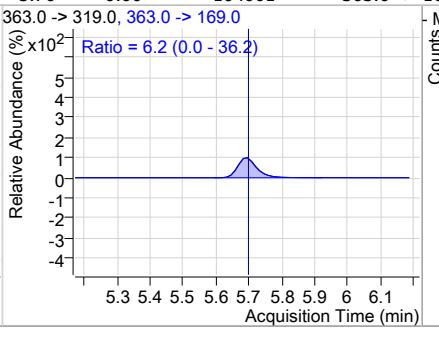


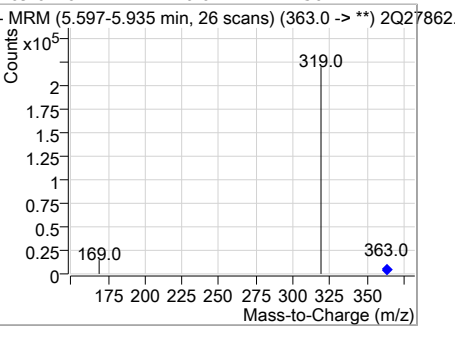




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.29	5.70	0.00	164001	363.0 -> 169.0	6.2	0.0	36.2



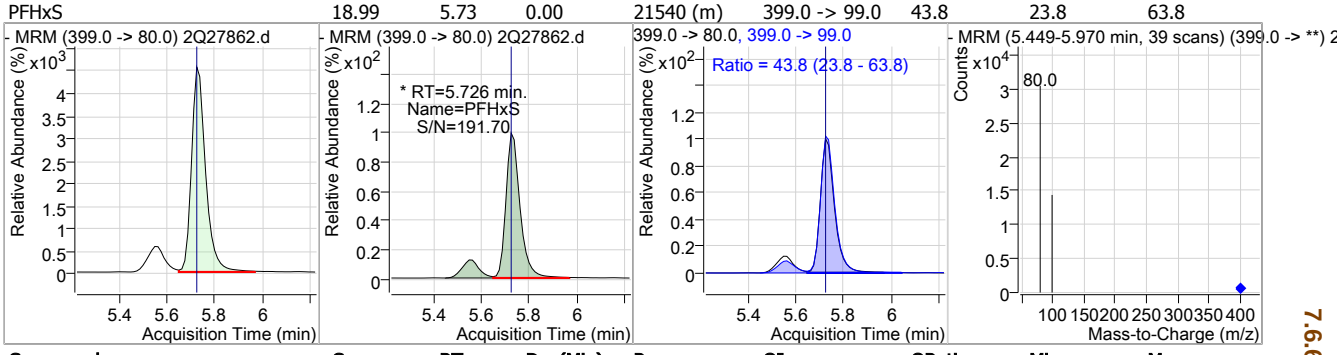




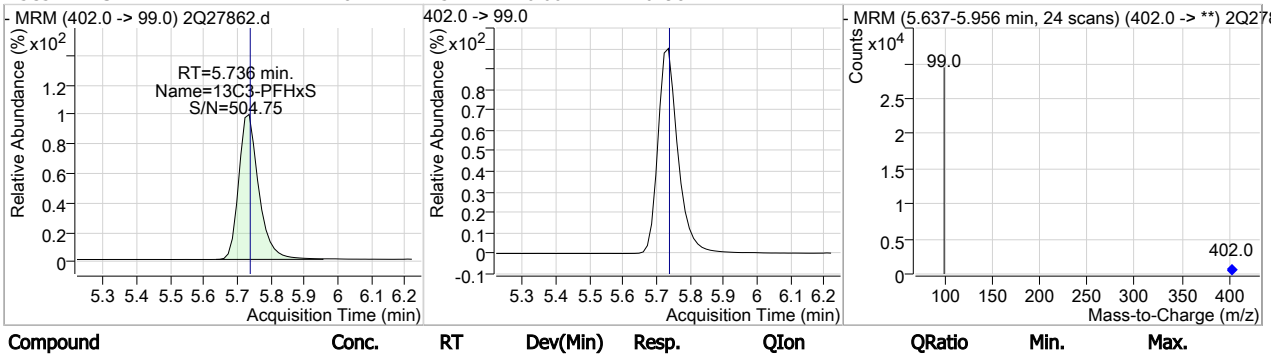
7.6.6

Perfluorinated Compounds by LC/MS/MS

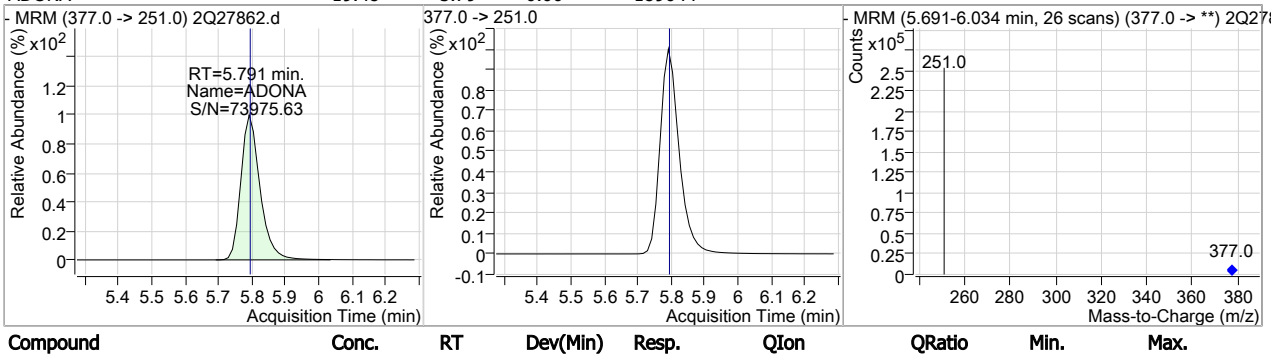
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.99	5.73	0.00	21540 (m)	399.0 -> 99.0	43.8	23.8	63.8



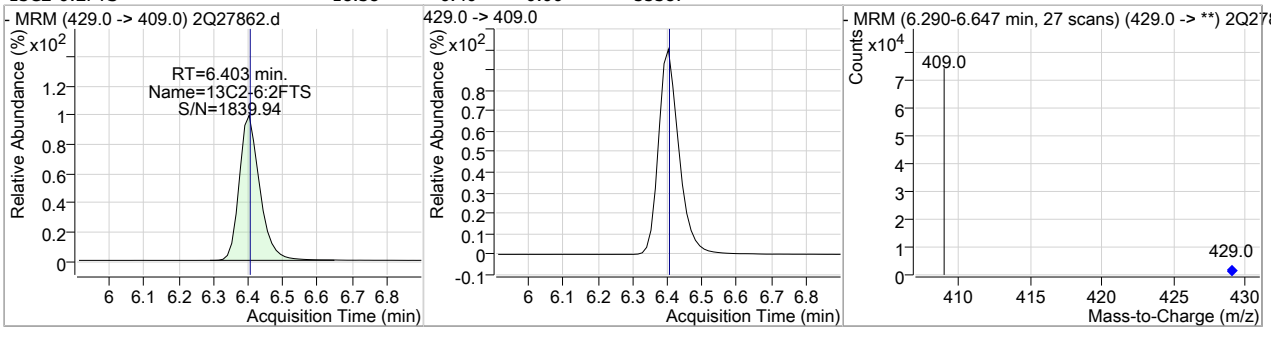
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.44	5.74	0.00	20498				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.48	5.79	0.00	189644				



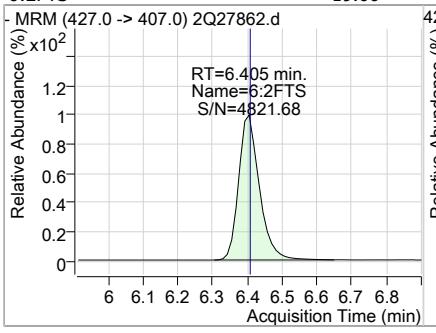
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.38	6.40	0.00	55387				

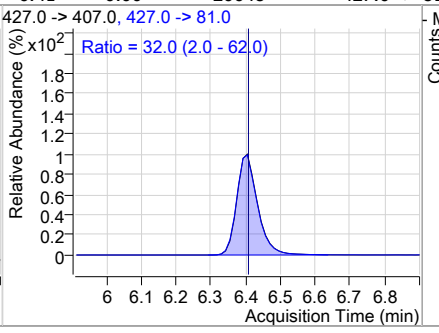


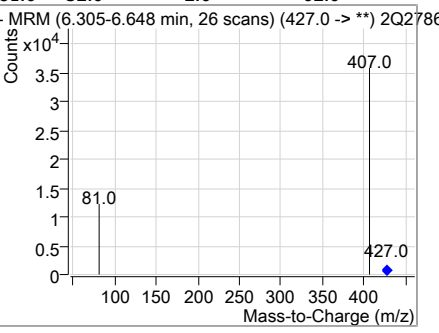
7.9.6

Perfluorinated Compounds by LC/MS/MS

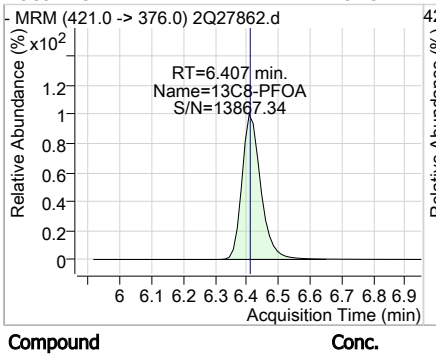
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.06	6.41	0.00	26648	427.0 -> 81.0	32.0	2.0	62.0

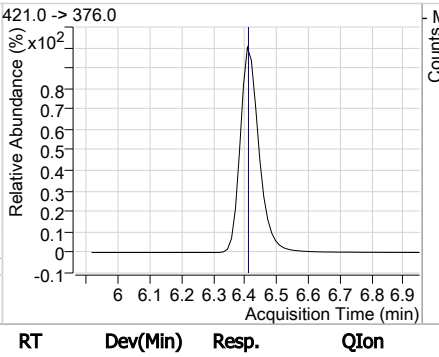


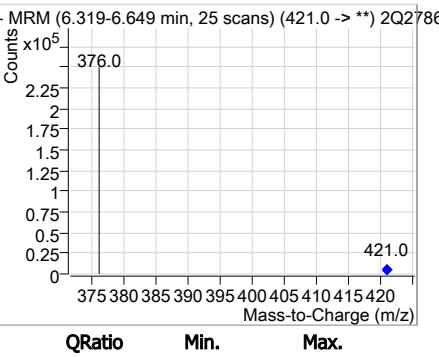




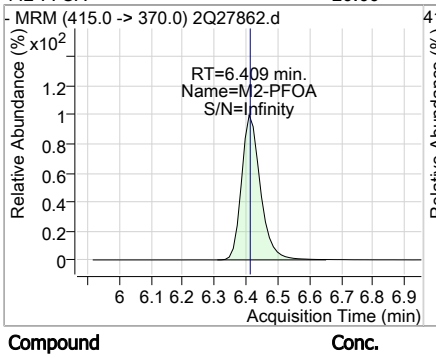
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.43	6.41	0.00	189974				

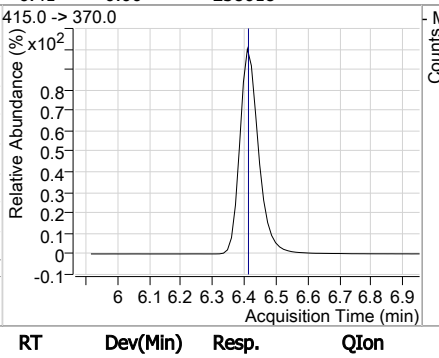


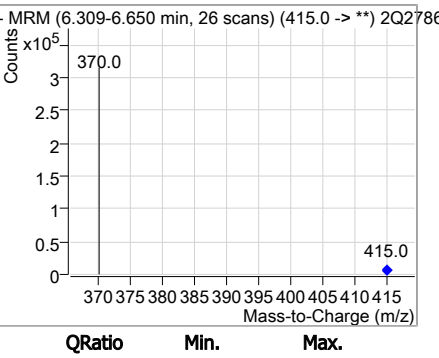




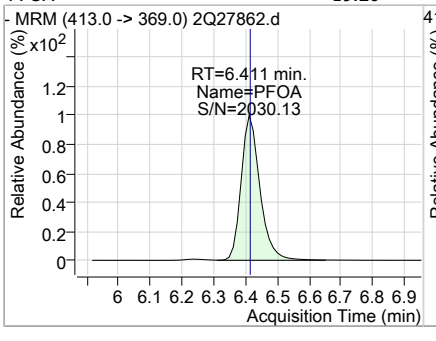
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	238618				

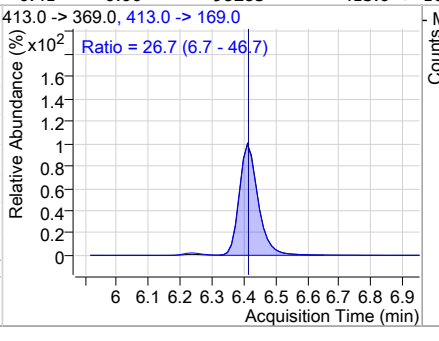


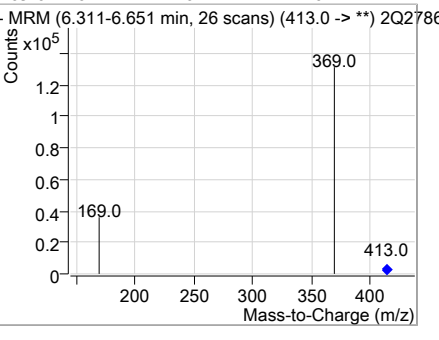




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.26	6.41	0.00	98285	413.0 -> 169.0	26.7	6.7	46.7

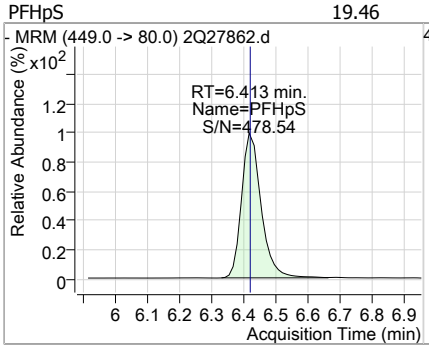


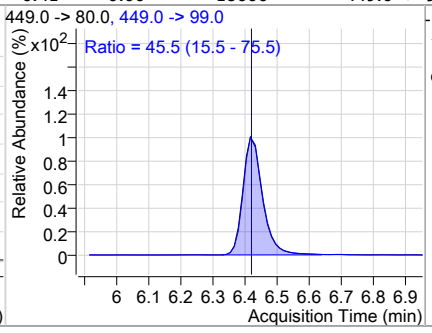


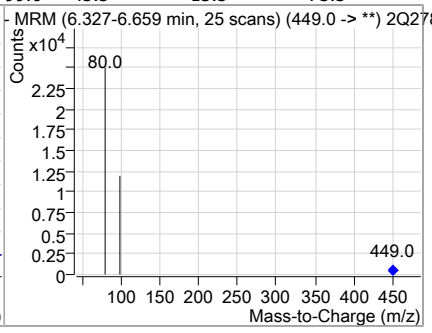


Perfluorinated Compounds by LC/MS/MS

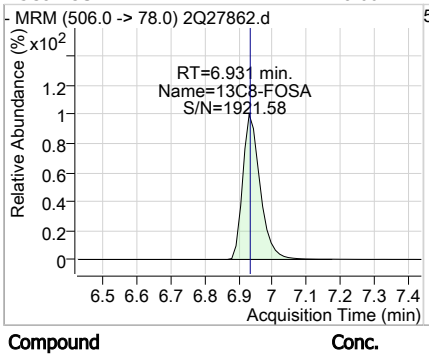
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.46	6.41	0.00	18666	449.0 -> 99.0	45.5	15.5	75.5

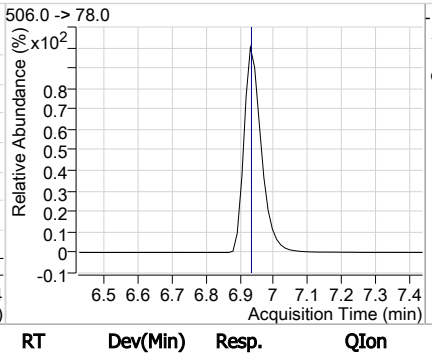


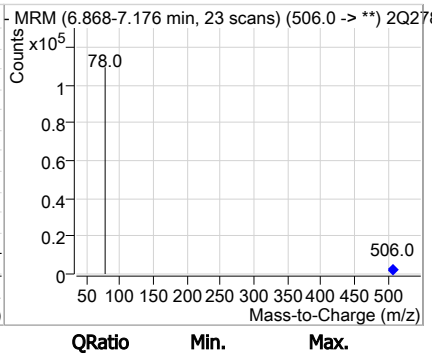




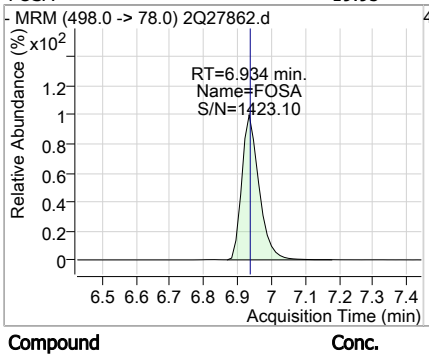
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.60	6.93	0.00	83430				

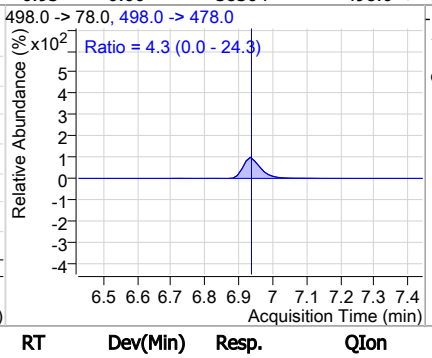


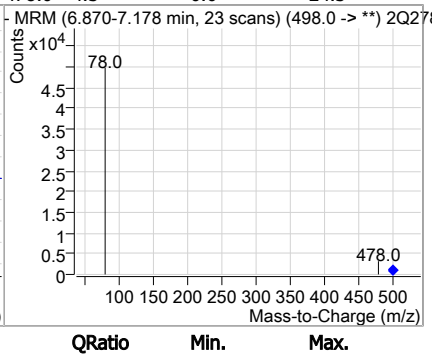




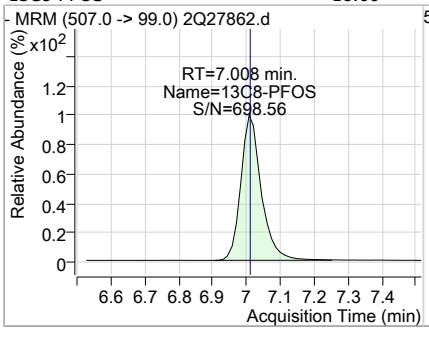
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.95	6.93	0.00	38364	498.0 -> 478.0	4.3	0.0	24.3

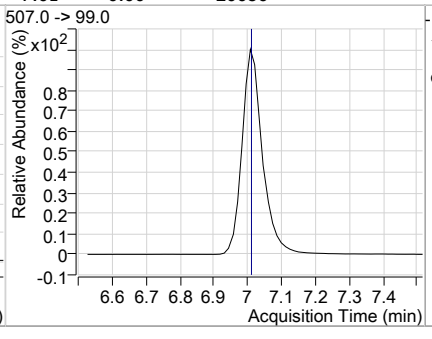


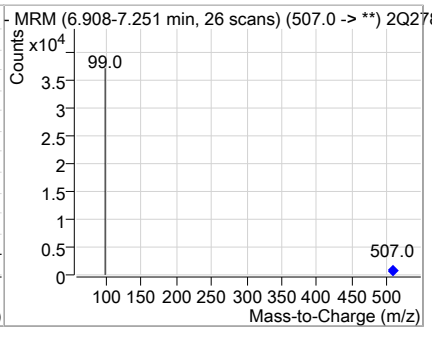




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.66	7.01	0.00	26686				



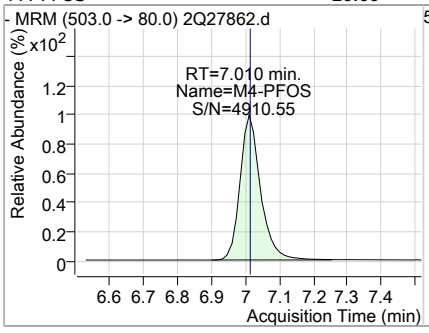


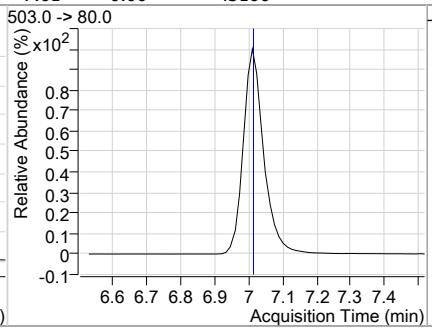


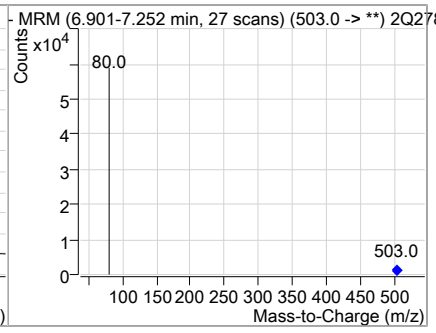
7.6.6

Perfluorinated Compounds by LC/MS/MS

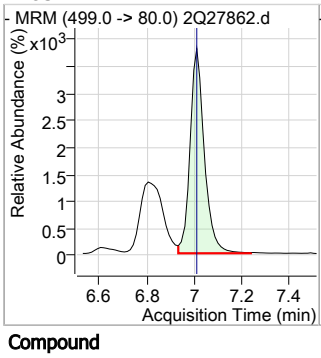
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.01	0.00	43106				

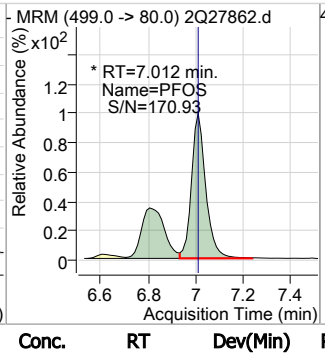


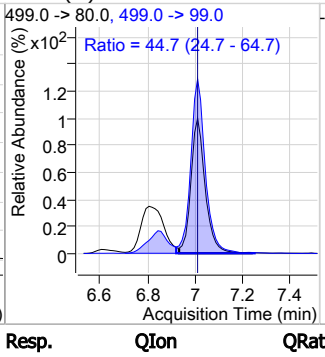


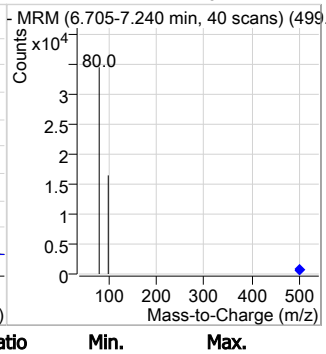


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.77	7.01	0.00	24674 (m)	499.0 -> 99.0	44.7	24.7	64.7

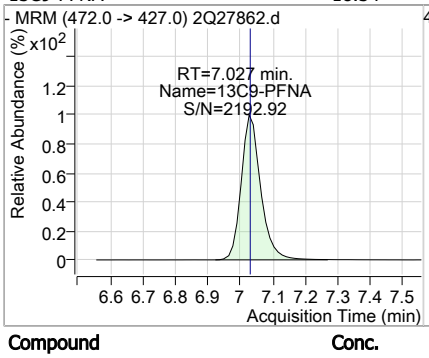


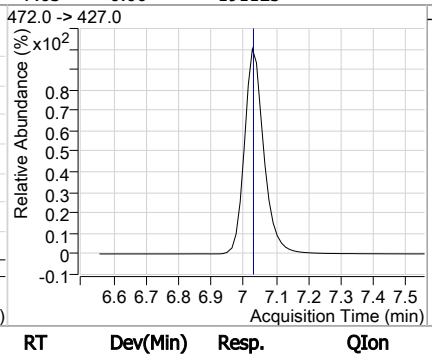


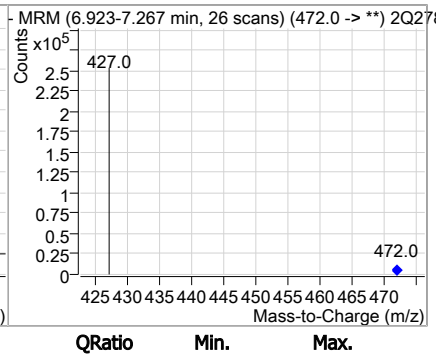




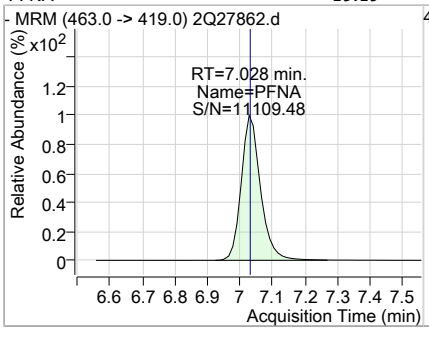
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.34	7.03	0.00	191123				

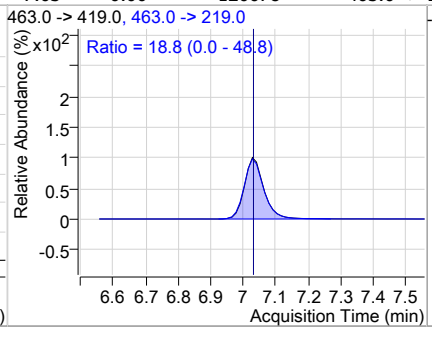


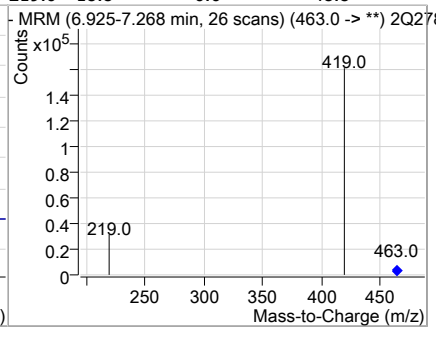




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.19	7.03	0.00	120678	463.0 -> 219.0	18.8	0.0	48.8



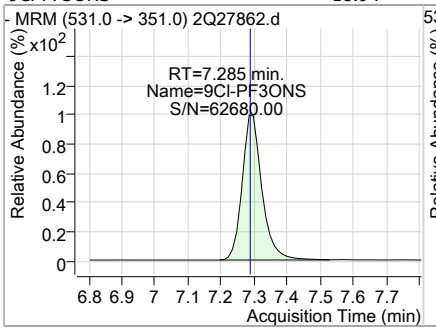


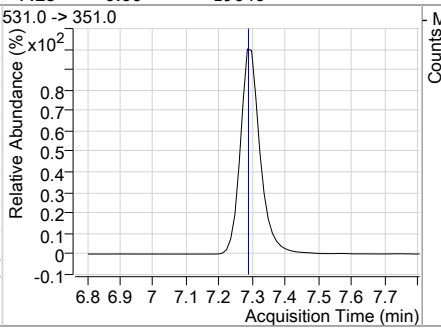


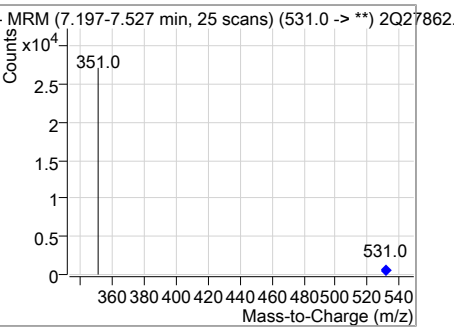
7.9.6

Perfluorinated Compounds by LC/MS/MS

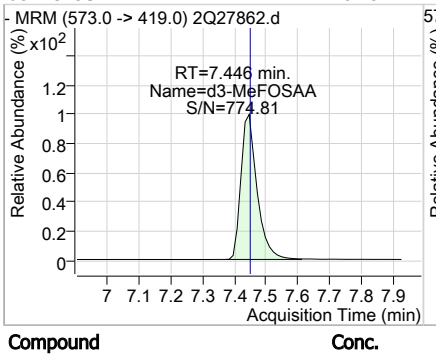
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.94	7.28	0.00	19646				

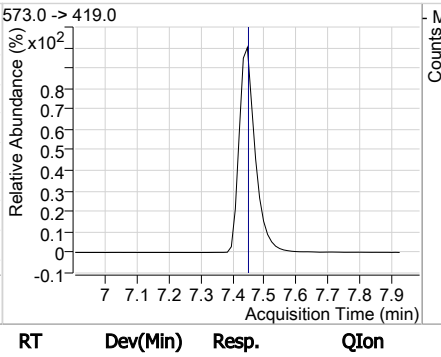


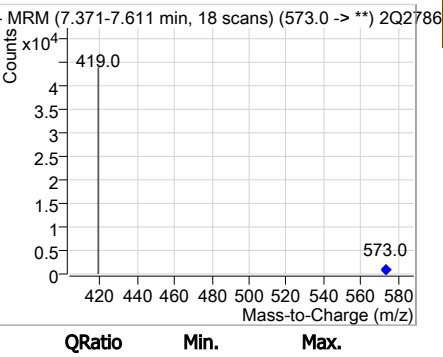




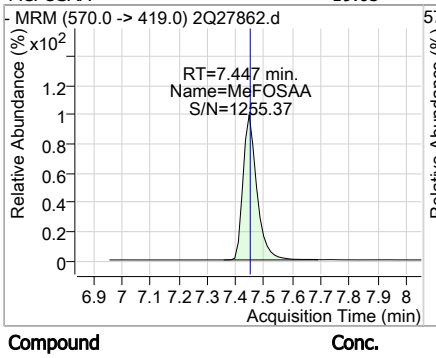
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.45	7.45	0.00	32355				

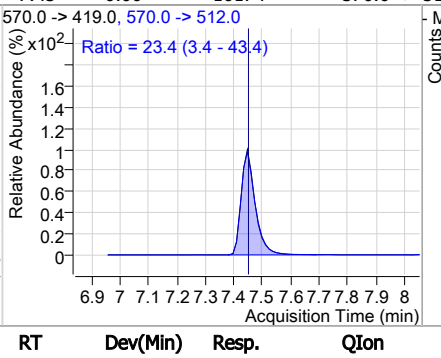


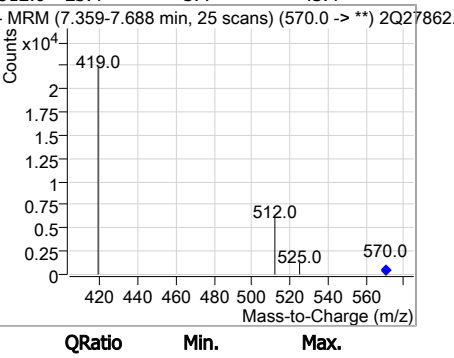




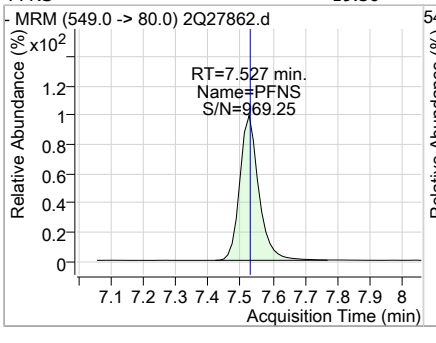
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.05	7.45	0.00	16174	570.0 -> 512.0	23.4	3.4	43.4

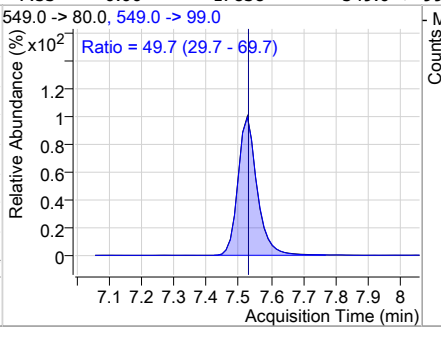


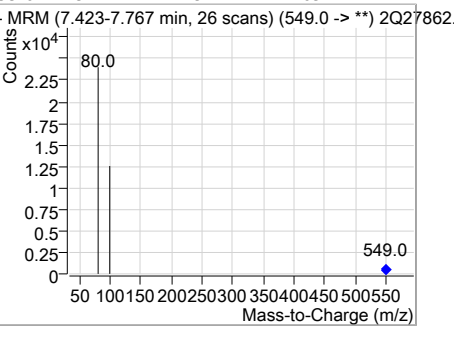




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	19.56	7.53	0.00	17838	549.0 -> 99.0	49.7	29.7	69.7



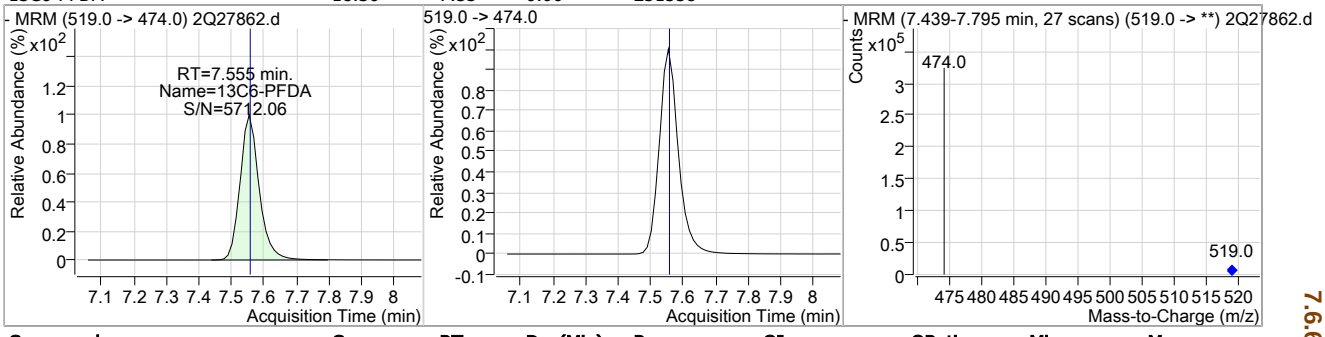




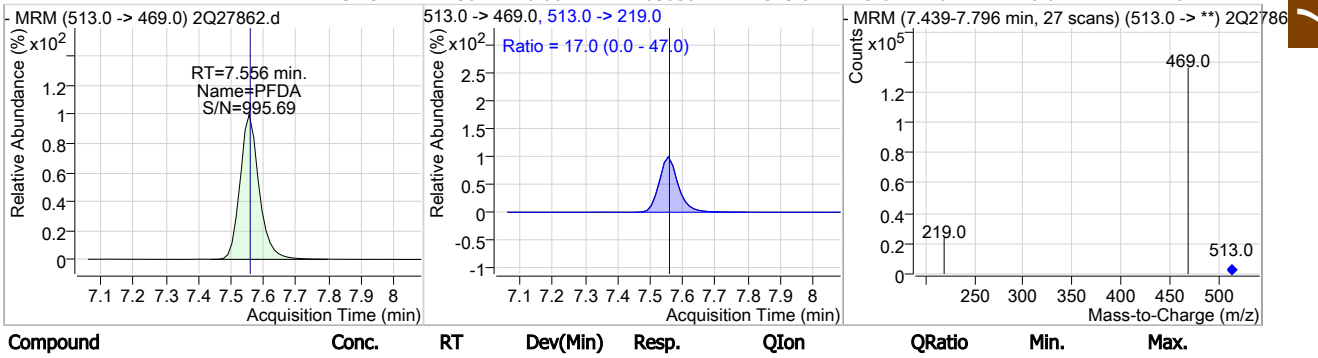
7.6.6

Perfluorinated Compounds by LC/MS/MS

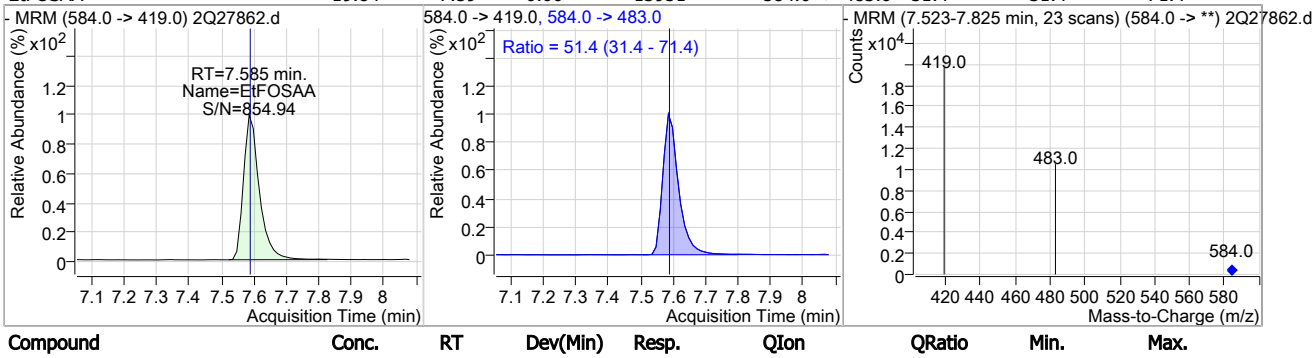
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.30	7.55	0.00	251558				



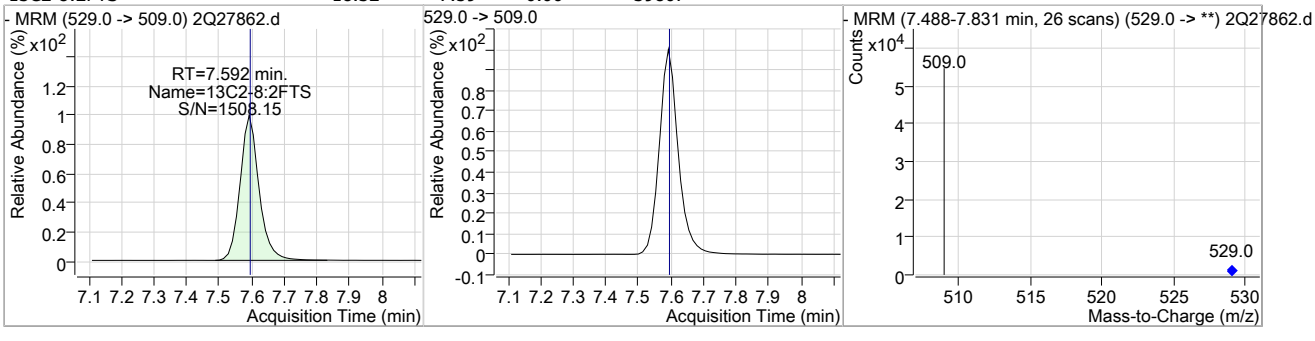
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.25	7.56	0.00	105050	513.0 -> 219.0	17.0	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.84	7.59	0.00	13951	584.0 -> 483.0	51.4	31.4	71.4



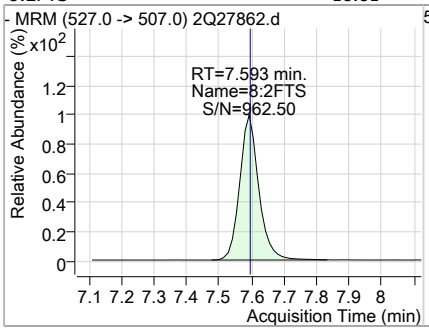
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.32	7.59	0.00	39807				

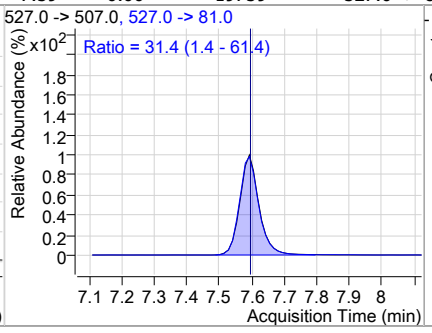


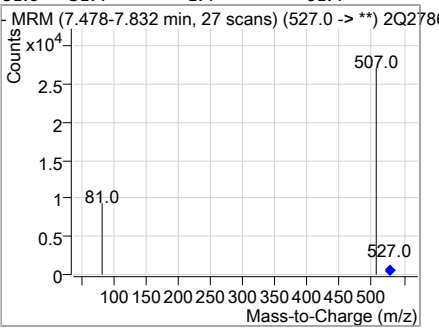
7.6.6

Perfluorinated Compounds by LC/MS/MS

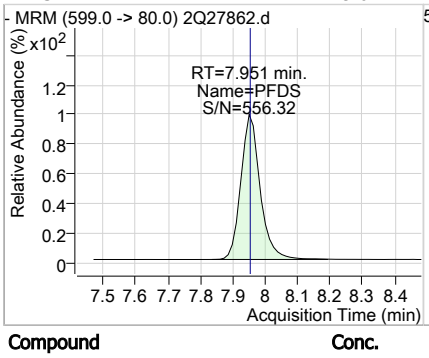
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	18.81	7.59	0.00	19759	527.0 -> 81.0	31.4	1.4	61.4

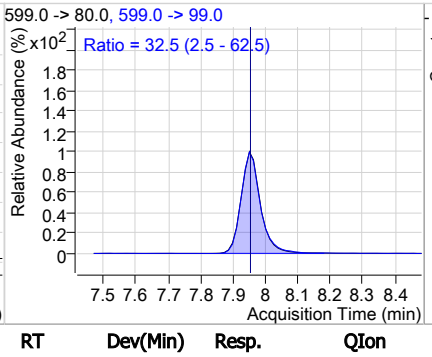


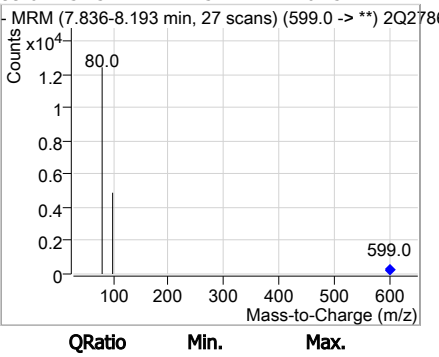




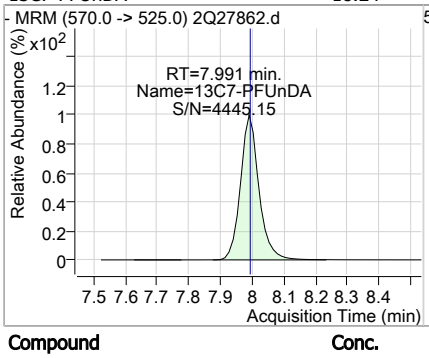
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.04	7.95	0.00	8613	599.0 -> 99.0	32.5	2.5	62.5

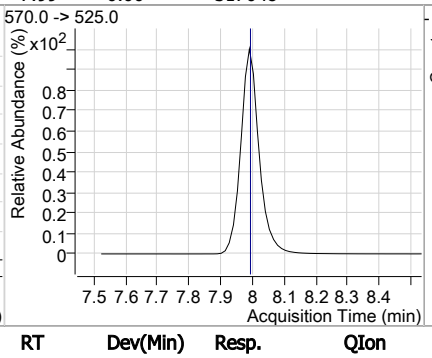


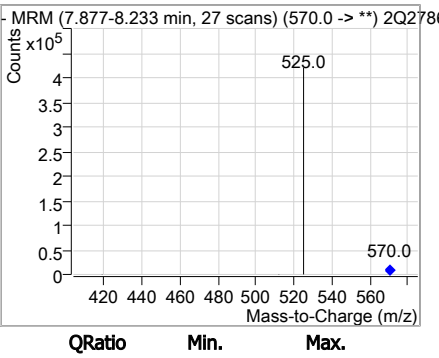




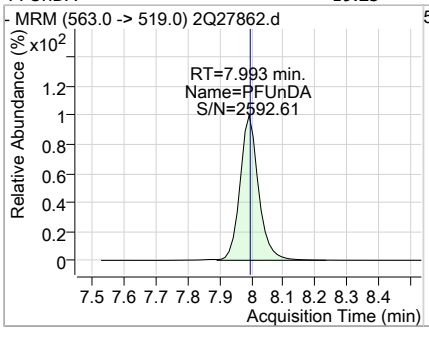
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.24	7.99	0.00	317048				

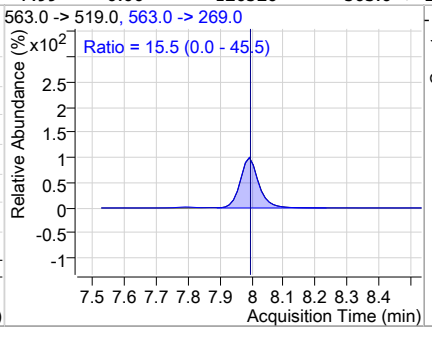


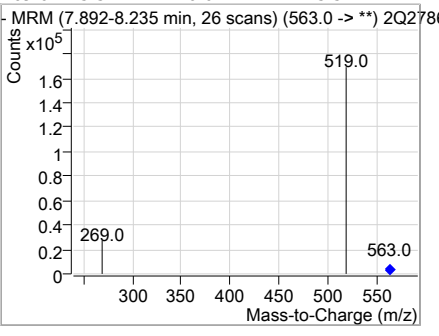




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.25	7.99	0.00	126526	563.0 -> 269.0	15.5	0.0	45.5



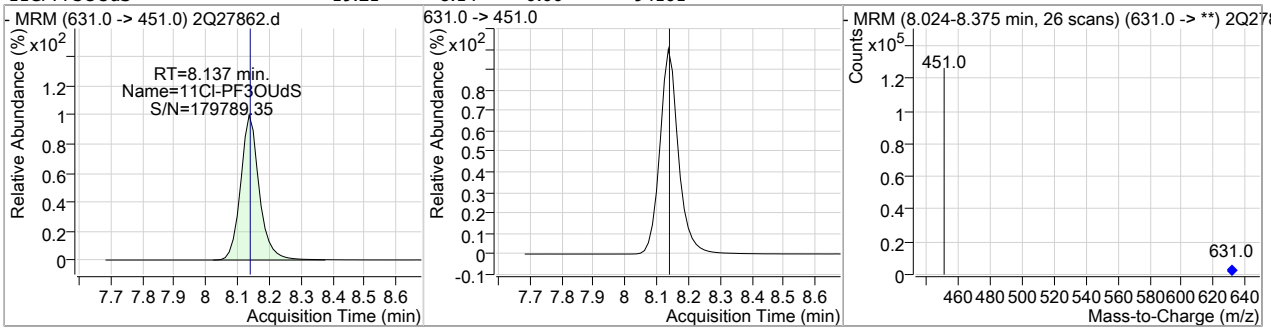




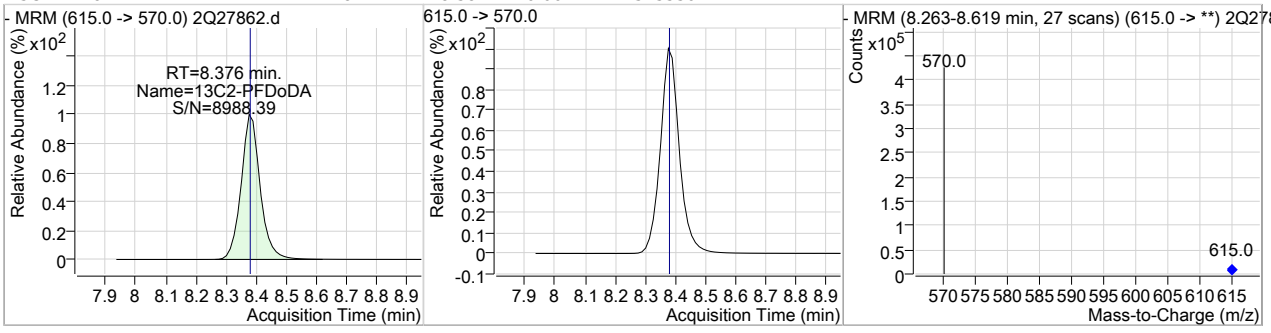
7.9.6

Perfluorinated Compounds by LC/MS/MS

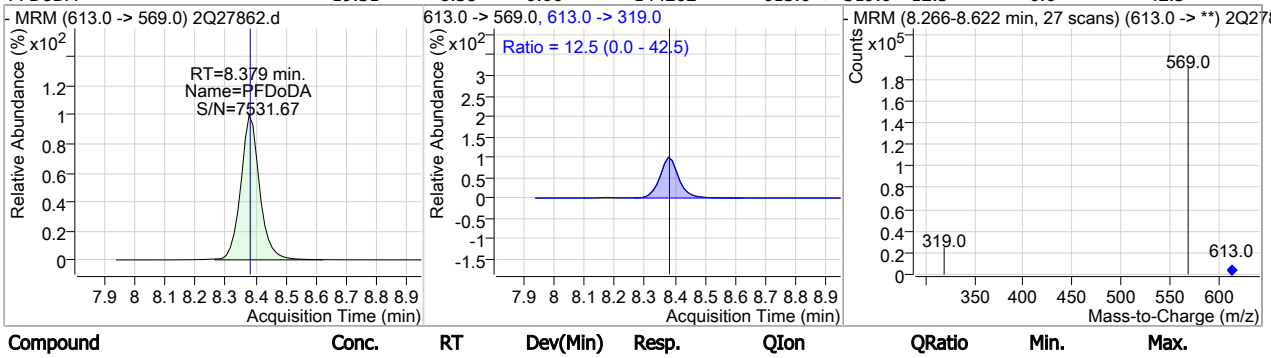
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.21	8.14	0.00	94161				



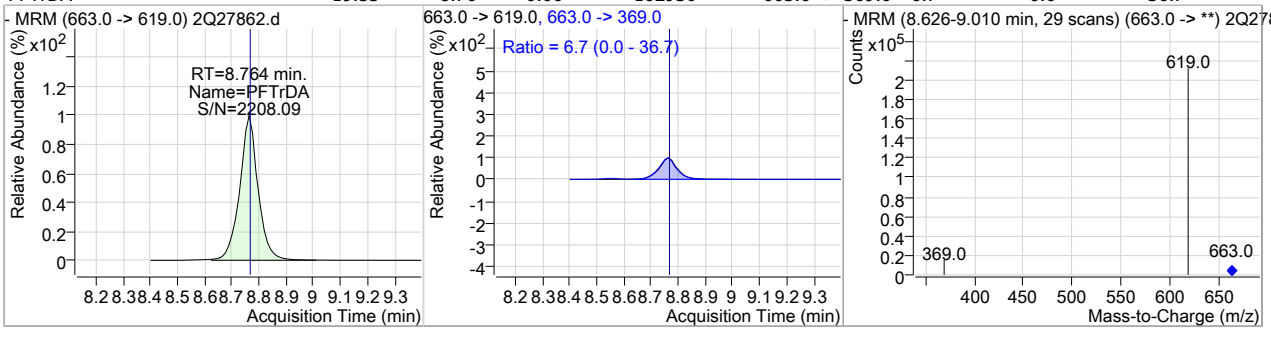
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.11	8.38	0.00	325550				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.31	8.38	0.00	144262	613.0 -> 319.0	12.5	0.0	42.5



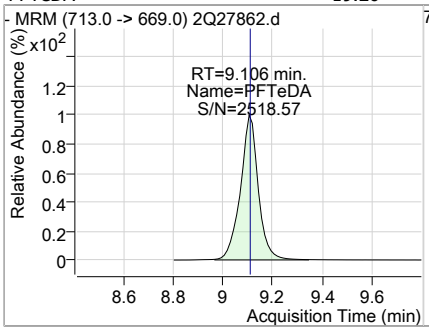
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.53	8.76	0.00	162936	663.0 -> 369.0	6.7	0.0	36.7

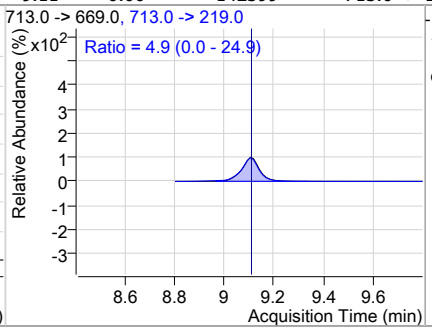


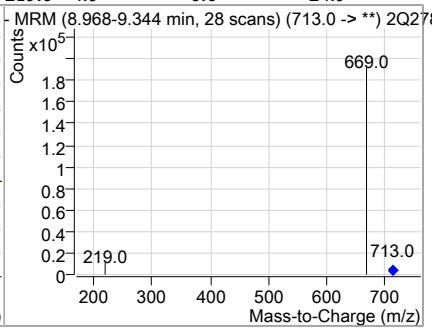
7.9.6

Perfluorinated Compounds by LC/MS/MS

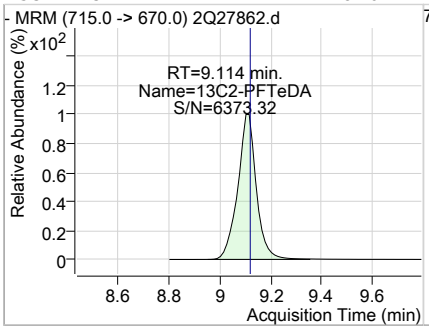
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.26	9.11	0.00	142399	713.0 -> 219.0	4.9	0.0	24.9

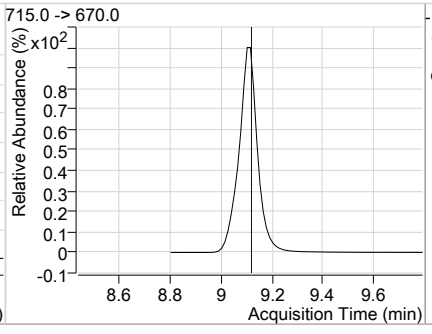


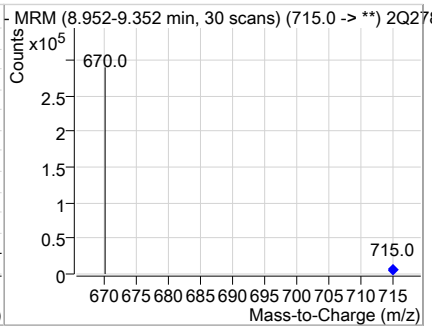




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.10	9.11	0.00	215339				







7.9.6

Manual Integration Approval Summary

Sample Number: S2Q445-ICC445 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q27862.D **Analyst approved:** 03/22/19 16:23 Nancy Saunders
Injection Time: 03/21/19 12:42 **Supervisor approved:** 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q27863.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File	: 2Q27863.d
Operator	: nancyf
Acq. Method	: dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	: 3/21/2019 12:58:10 PM
Sample Name	: IC445-50
Vial	: Vial 8
DA Method File	: ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name	: S2Q445.batch.bin
Sample Information	: op74164,S2Q445,250,,,1.0,1,water

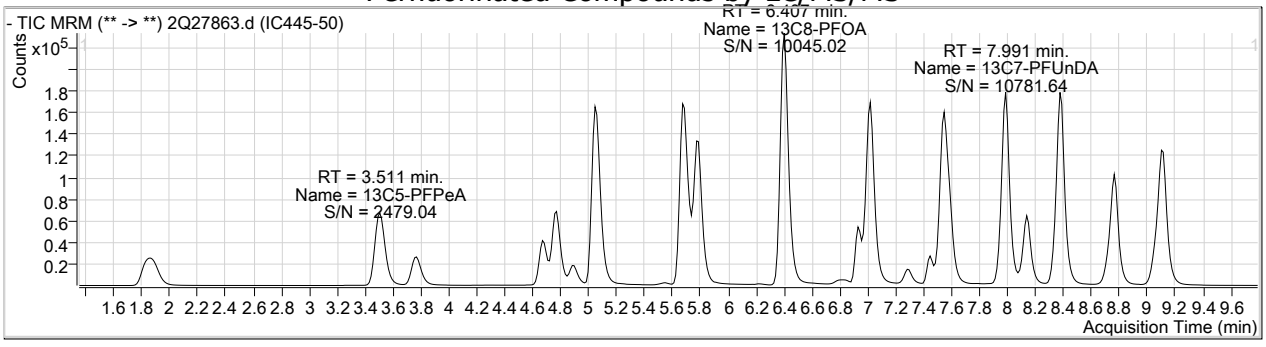
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	243765	20.00	µg/L	0.000
13C4-PFOS	7.010	503.0 -> 80.0	45490	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	130815	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	108902	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	144717	20.00	µg/L	0.000
M4-PFHpA	5.680	367.0 -> 322.0	200099	20.00	µg/L	-0.013
M8-PFOA	6.407	421.0 -> 376.0	192488	20.00	µg/L	0.000
M9-PFNA	7.027	472.0 -> 427.0	198353	20.00	µg/L	0.000
M6-PFDA	7.555	519.0 -> 474.0	255089	20.00	µg/L	0.000
M7-PFUnDA	7.991	570.0 -> 525.0	324163	20.00	µg/L	0.000
M2-PFDoDA	8.376	615.0 -> 570.0	343474	20.00	µg/L	0.000
M2-PFTeDA	9.114	715.0 -> 670.0	229747	20.00	µg/L	0.000
M8-FOSA	6.931	506.0 -> 78.0	84485	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	20189	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	21519	20.00	µg/L	-0.013
M8-PFOS	7.008	507.0 -> 99.0	27195	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	60873	20.00	µg/L	-0.013
M2-6:2FTS	6.390	429.0 -> 409.0	61079	20.00	µg/L	-0.013
M2-8:2FTS	7.592	529.0 -> 509.0	44246	20.00	µg/L	0.000
M3-MeFOSAA	7.446	573.0 -> 419.0	33689	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	155888	100.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	60833	21.37	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.9%		
13C2-6:2FTS	6.390	429.0 -> 409.0	61066	20.26	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C2-8:2FTS	7.592	529.0 -> 509.0	44237	20.35	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C2-PFDoDA	8.376	615.0 -> 570.0	343274	19.10	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%		
13C2-PFTeDA	9.114	715.0 -> 670.0	229481	19.29	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.5%		
13C3-PFBS	3.767	302.0 -> 99.0	20161	19.65	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C3-PFHxS	5.723	402.0 -> 99.0	21483	19.33	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C4-PFBA	1.865	217.0 -> 172.0	130252	19.92	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C4-PFHpA	5.680	367.0 -> 322.0	200069	19.35	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C5-PFHxA	4.776	318.0 -> 273.0	144522	19.50	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C5-PFPeA	3.511	268.0 -> 223.0	108898	19.79	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C6-PFDA	7.555	519.0 -> 474.0	254914	18.54	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

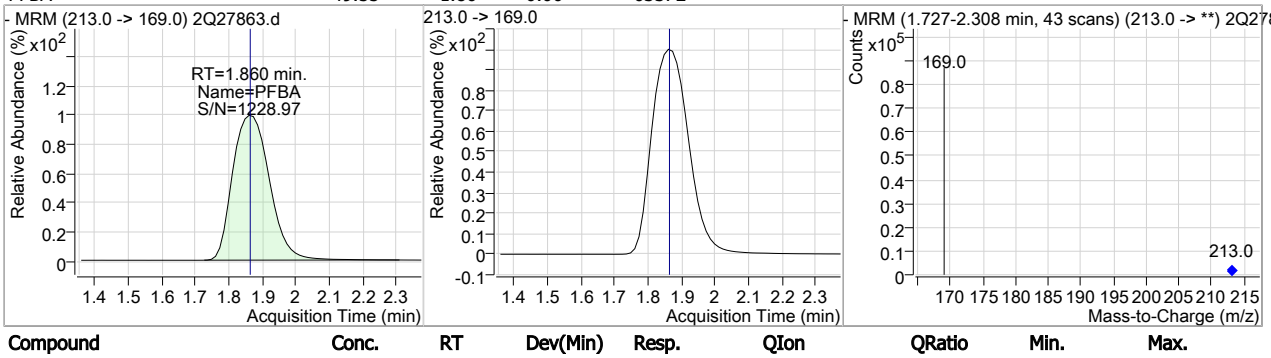
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
13C7-PFUnDA	7.991	570.0 -> 525.0	324174	18.65 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C8-FOSA	6.931	506.0 -> 78.0	84647	18.87 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.4%		
13C8-PFOA	6.407	421.0 -> 376.0	192296	18.66 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C8-PFOS	7.008	507.0 -> 99.0	27273	19.07 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C9-PFNA	7.027	472.0 -> 427.0	198322	19.03 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
d3-MeFOSAA	7.446	573.0 -> 419.0	33742	19.24 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%		
M2-PFOA	6.409	415.0 -> 370.0	243896	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.010	503.0 -> 80.0	45499	19.99 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	155888	93.52 µg/L		-0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	81812	45.70 µg/L		99
6:2FTS	6.392	427.0 -> 407.0	71927	46.68 µg/L		99
8:2FTS	7.593	527.0 -> 507.0	52231	44.74 µg/L		99
EtFOSAA	7.585	584.0 -> 419.0	36685	50.23 µg/L		99
FOSA	6.934	498.0 -> 78.0	98607	50.14 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	45132	50.84 µg/L		98
PFBA	1.860	213.0 -> 169.0	63372	49.55 µg/L		100
PFBS	3.771	299.0 -> 80.0	81560	49.85 µg/L		99
PFDA	7.556	513.0 -> 469.0	269992	48.82 µg/L		99
PFDoDA	8.379	613.0 -> 569.0	387902	49.23 µg/L		100
PFDS	7.951	599.0 -> 80.0	23715	51.51 µg/L		99
PFHpA	5.683	363.0 -> 319.0	444535	49.55 µg/L		100
PFHpS	6.413	449.0 -> 80.0	50505	50.21 µg/L		97
PFHxA	4.778	313.0 -> 269.0	124826	49.47 µg/L		100
PFHxS	5.726	399.0 -> 80.0	58833	49.46 µg/L	m	100
PFNA	7.028	463.0 -> 419.0	319949	49.09 µg/L		99
PFNS	7.527	549.0 -> 80.0	47056	50.71 µg/L		100
PFOA	6.411	413.0 -> 369.0	256694	49.65 µg/L		99
PFOS	7.012	499.0 -> 80.0	67140	50.18 µg/L	m	99
PFPeA	3.515	263.0 -> 219.0	239612	49.34 µg/L		100
PFPeS	4.895	349.0 -> 80.0	52445	50.08 µg/L		99
PFTeDA	9.106	713.0 -> 669.0	391002	49.63 µg/L		100
PFTrDA	8.764	663.0 -> 619.0	448461	50.44 µg/L		100
PFUnDA	7.993	563.0 -> 519.0	331406	49.28 µg/L		99
11Cl-PF3OUdS	8.137	631.0 -> 451.0	258414	49.99 µg/L		100
9Cl-PF3ONS	7.285	531.0 -> 351.0	55200	50.84 µg/L		100
ADONA	5.791	377.0 -> 251.0	515330	50.38 µg/L		100
HFPO-DA	5.048	329.0 -> 169.0	458580	252.51 µg/L		99

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

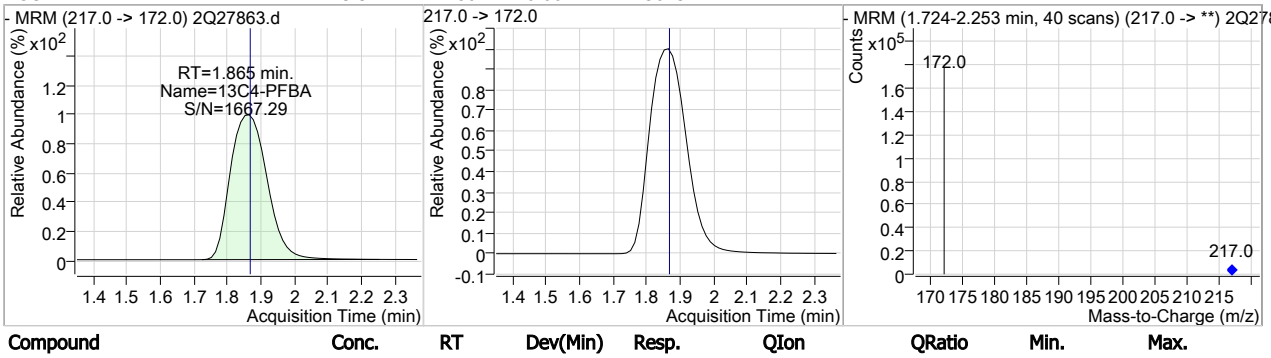
Perfluorinated Compounds by LC/MS/MS



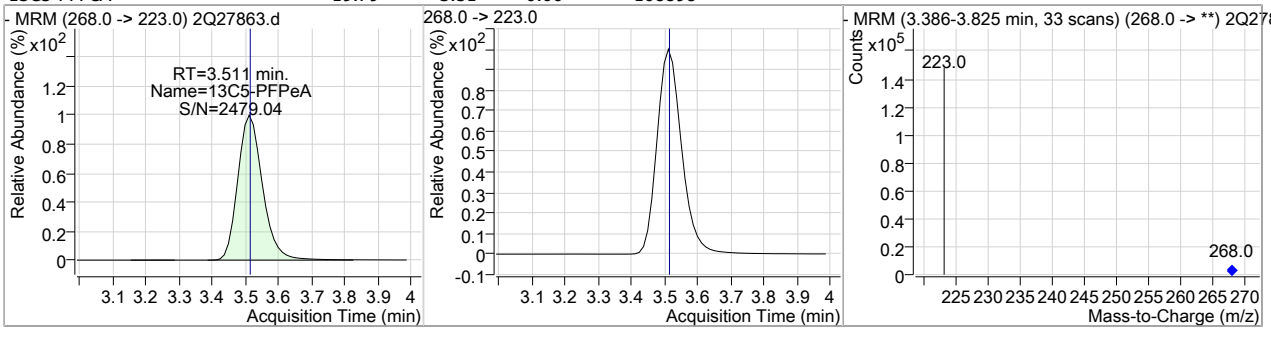
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	49.55	1.86	0.00	63372				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.92	1.86	0.00	130252				

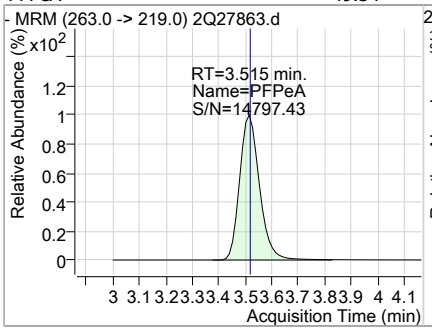


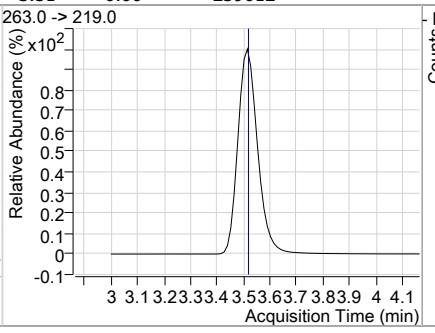
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.79	3.51	0.00	108898				

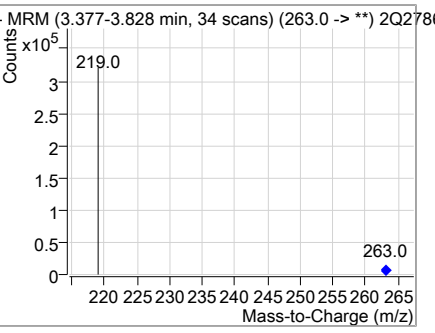


Perfluorinated Compounds by LC/MS/MS

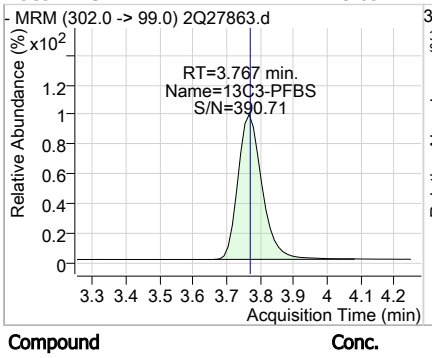
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.34	3.51	0.00	239612				

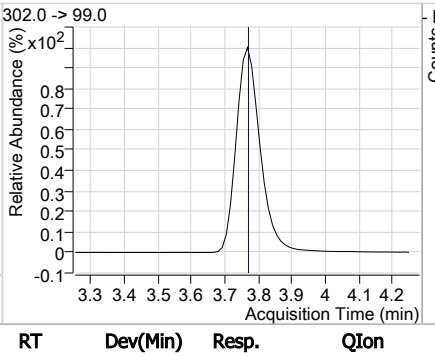


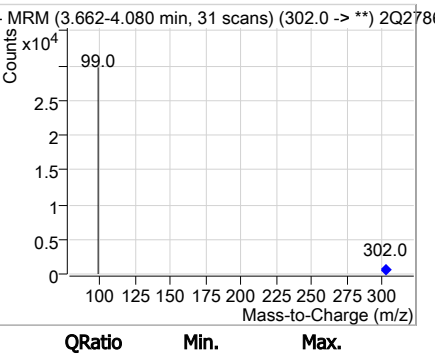




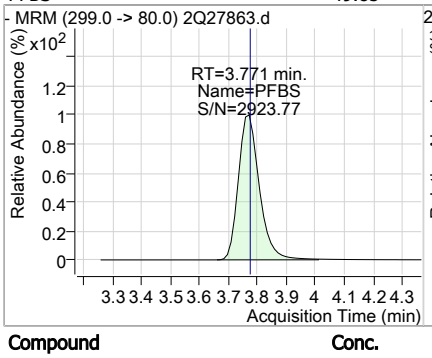
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.65	3.77	0.00	20161				

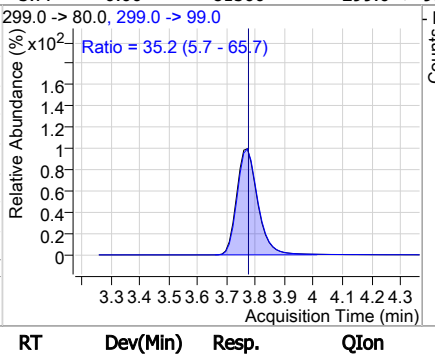


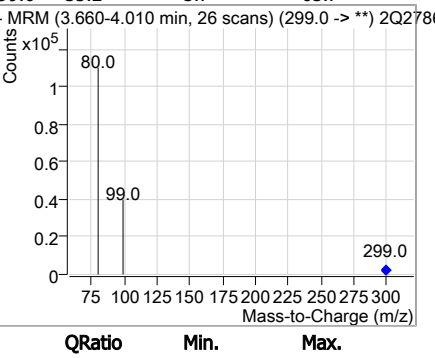




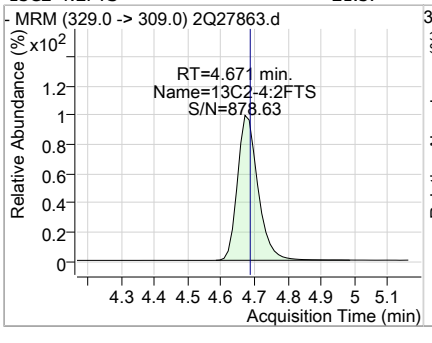
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	49.85	3.77	0.00	81560	299.0 -> 99.0	35.2	5.7	65.7

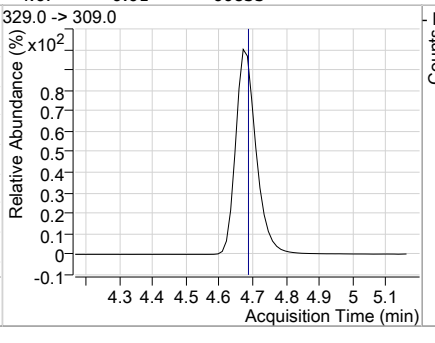


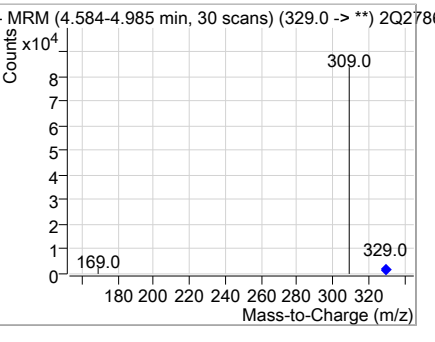




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	21.37	4.67	-0.01	60833				



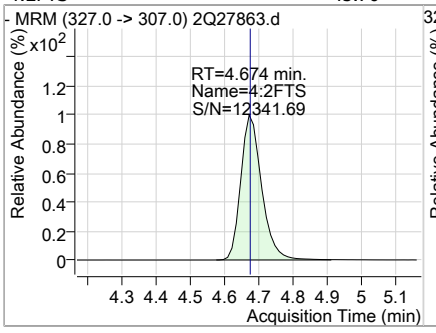


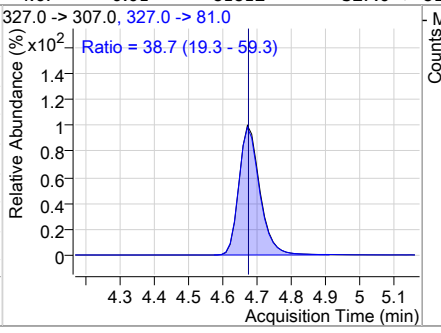


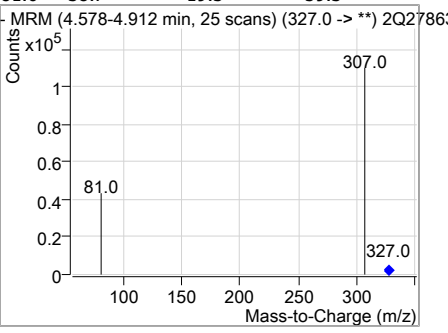
7.9.7

Perfluorinated Compounds by LC/MS/MS

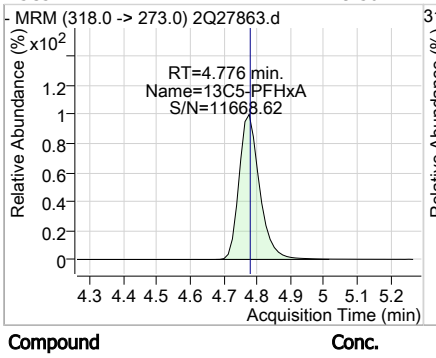
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	45.70	4.67	-0.01	81812	327.0 -> 81.0	38.7	19.3	59.3

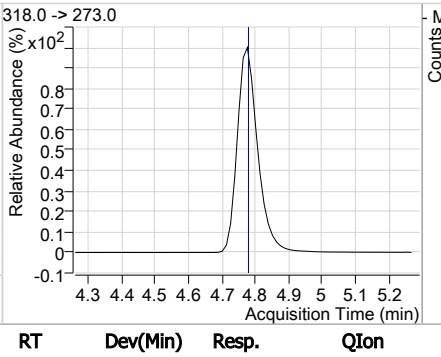


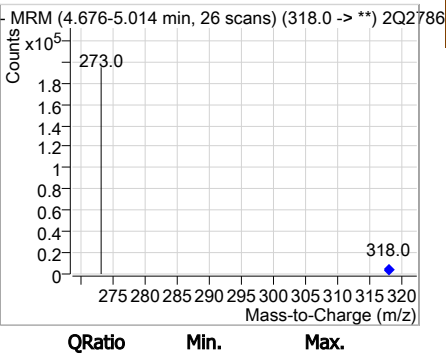




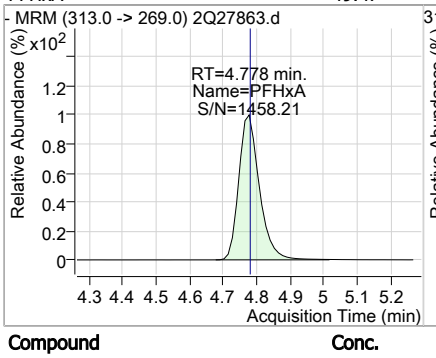
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.50	4.78	0.00	144522				

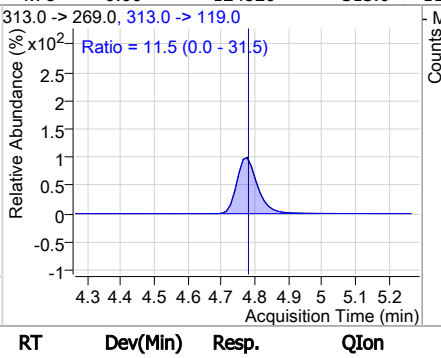


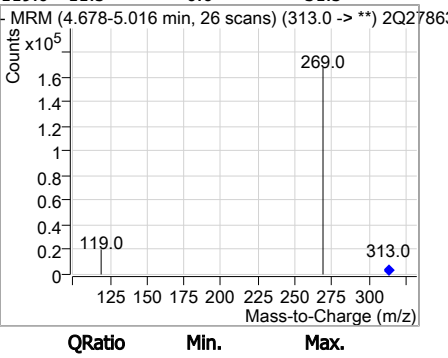




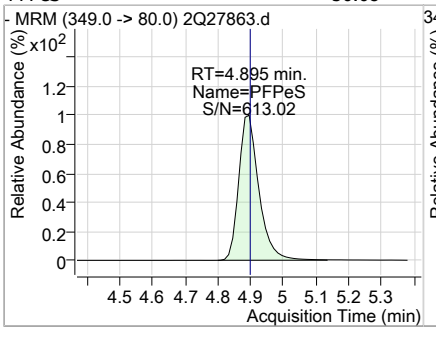
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.47	4.78	0.00	124826	313.0 -> 119.0	11.5	0.0	31.5

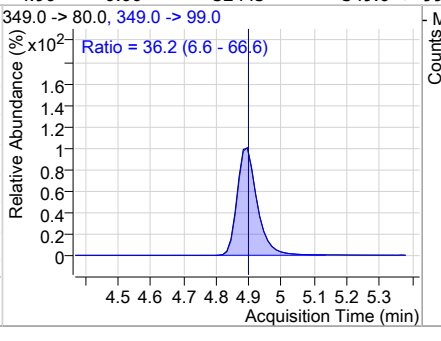


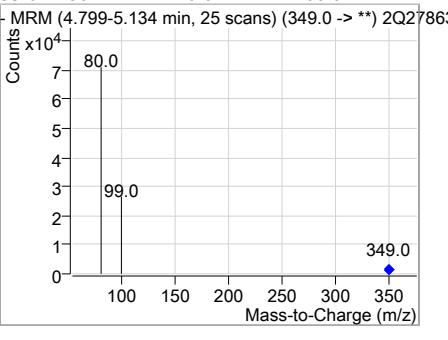




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	50.08	4.90	0.00	52445	349.0 -> 99.0	36.2	6.6	66.6



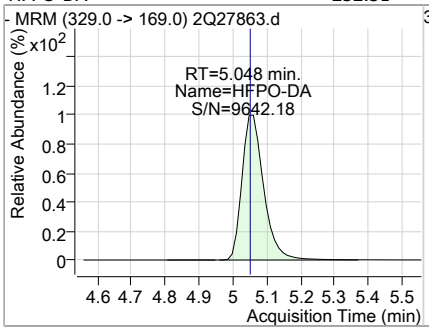


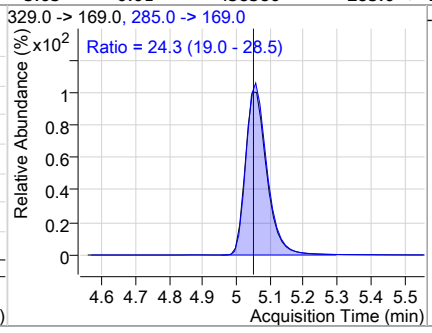


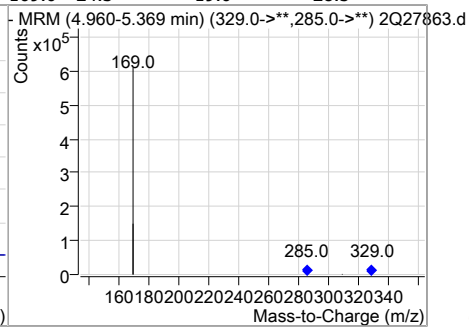
7.9.7

Perfluorinated Compounds by LC/MS/MS

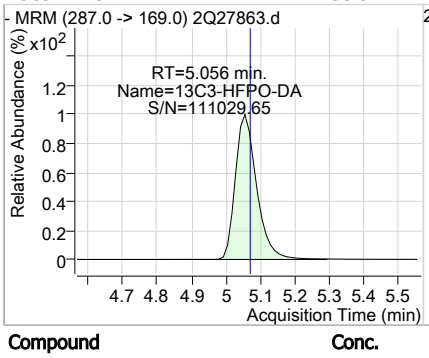
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	252.51	5.05	-0.01	458580	285.0 -> 169.0	24.3	19.0	28.5

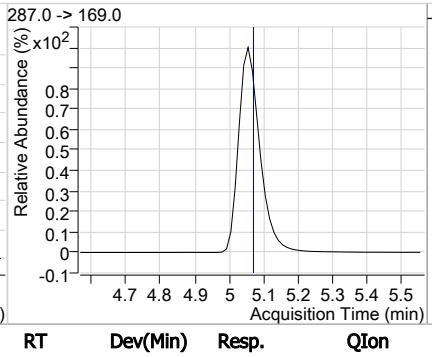


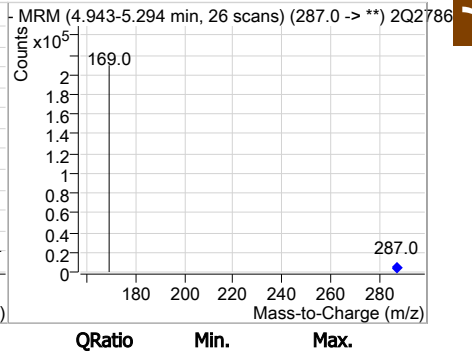




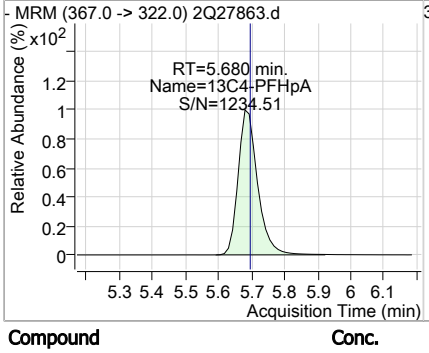
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	93.52	5.06	-0.01	155888				

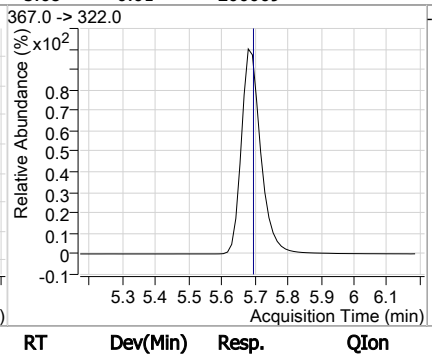


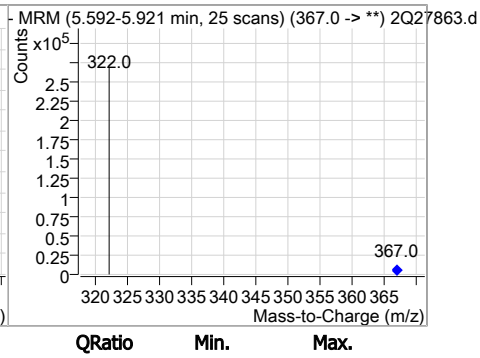




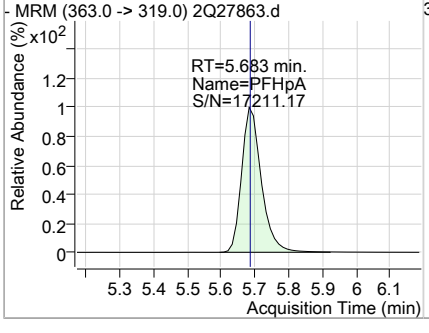
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.35	5.68	-0.01	200069				

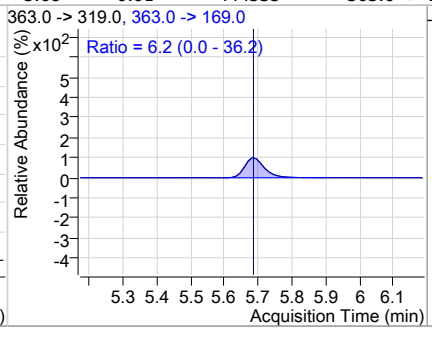


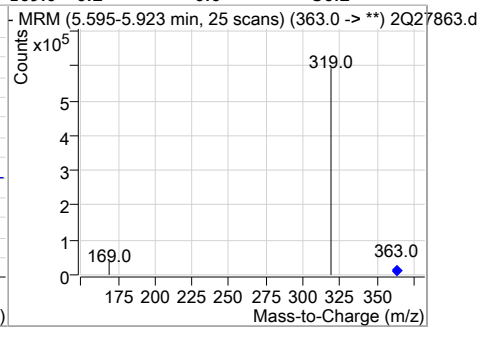




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.55	5.68	-0.01	444535	363.0 -> 169.0	6.2	0.0	36.2



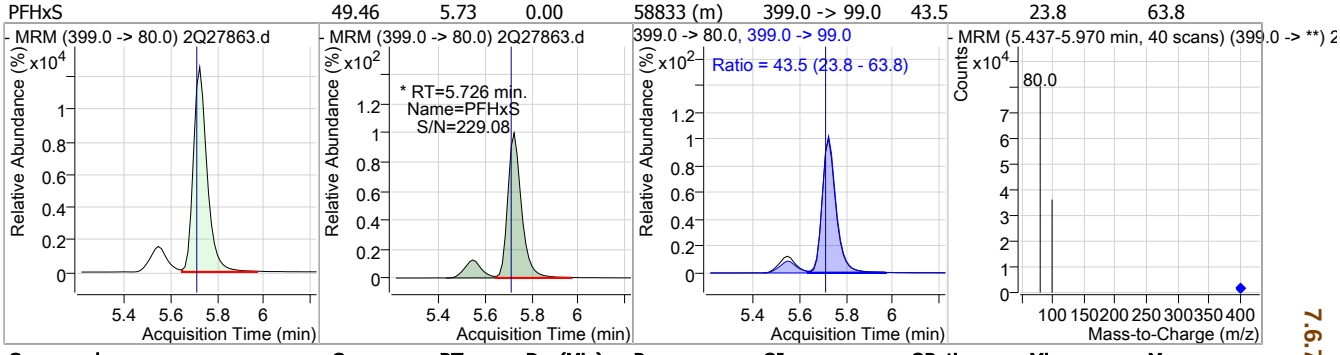




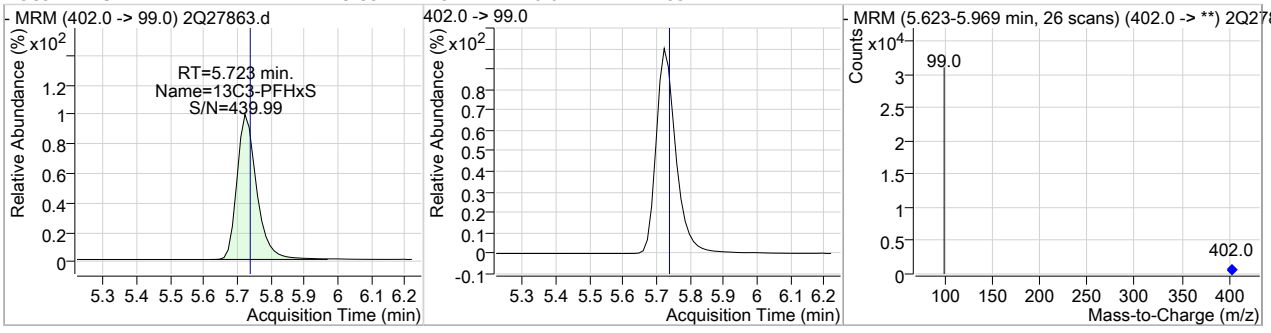
7.9.7

Perfluorinated Compounds by LC/MS/MS

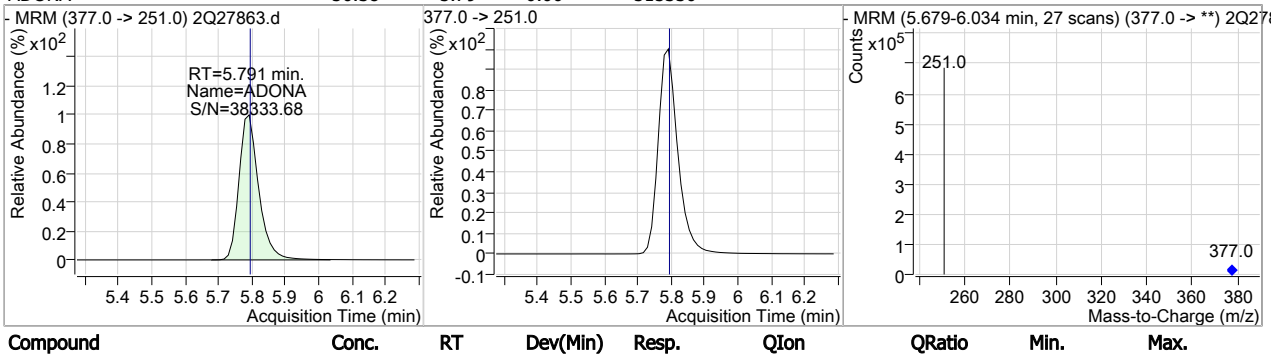
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.46	5.73	0.00	58833 (m)	399.0 -> 99.0	43.5	23.8	63.8



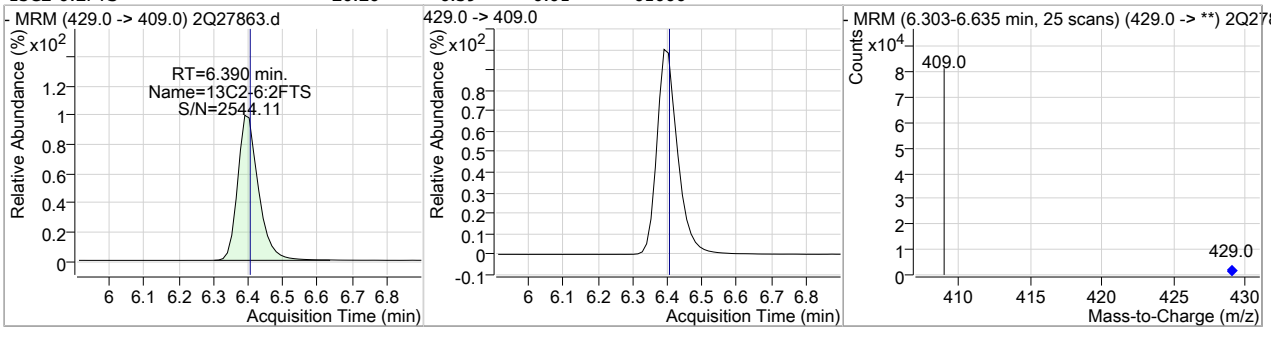
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.33	5.72	-0.01	21483				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	50.38	5.79	0.00	515330				

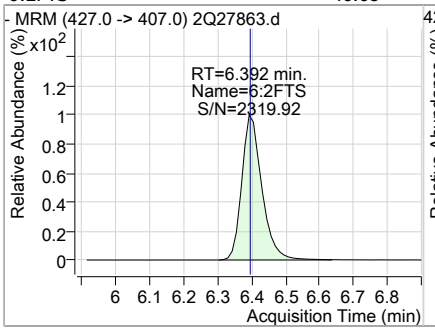


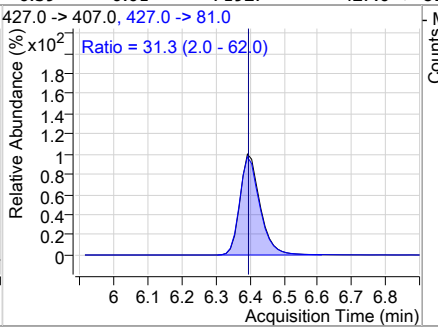
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.26	6.39	-0.01	61066				

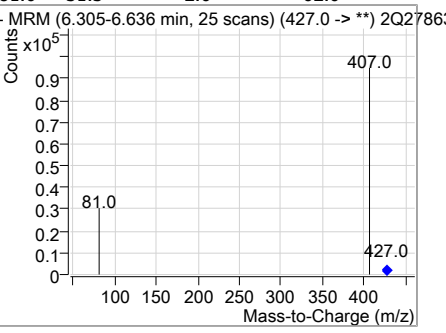


Perfluorinated Compounds by LC/MS/MS

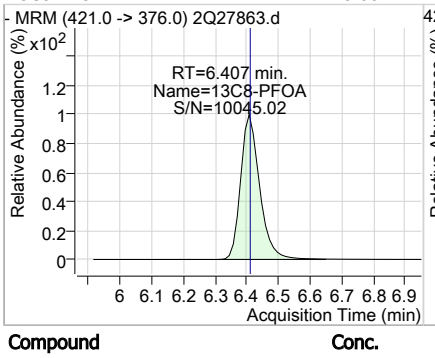
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	46.68	6.39	-0.01	71927	427.0 -> 81.0	31.3	2.0	62.0

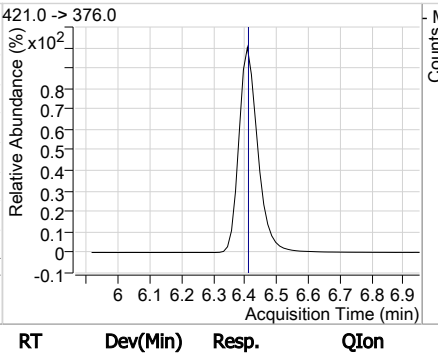


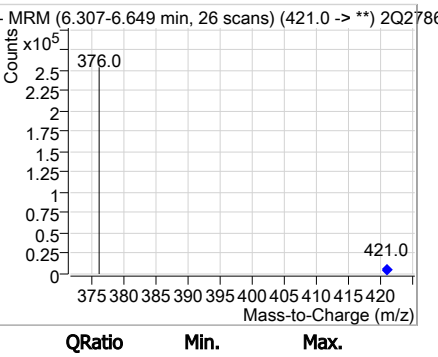




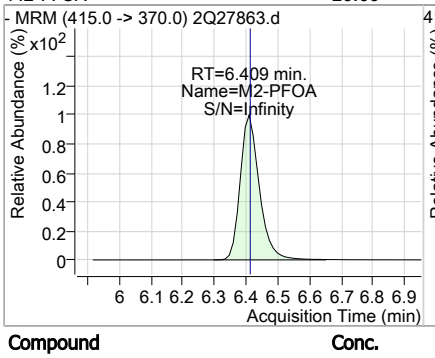
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.66	6.41	0.00	192296				

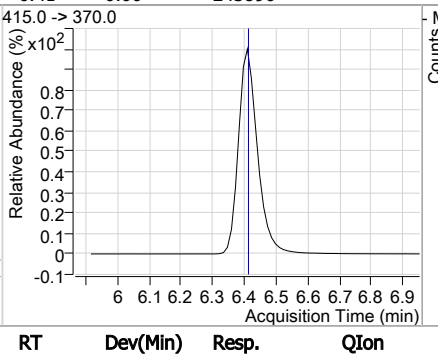


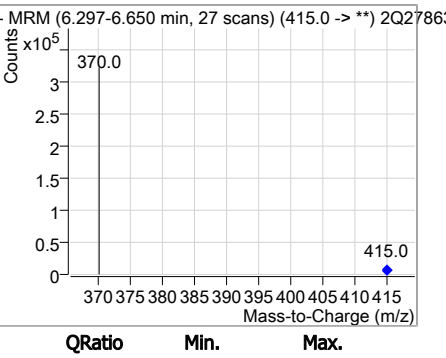




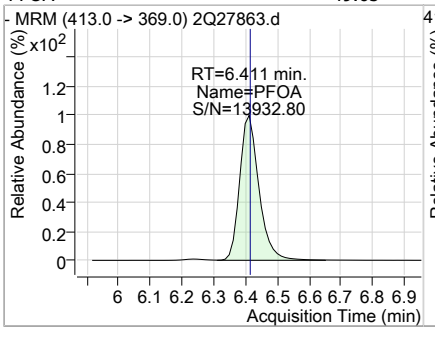
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	243896				

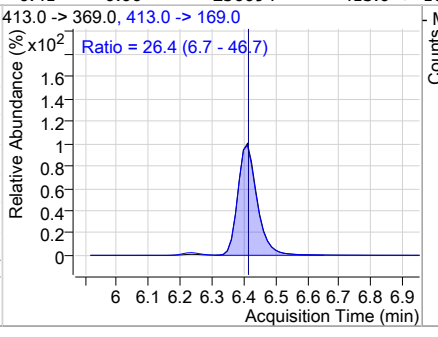


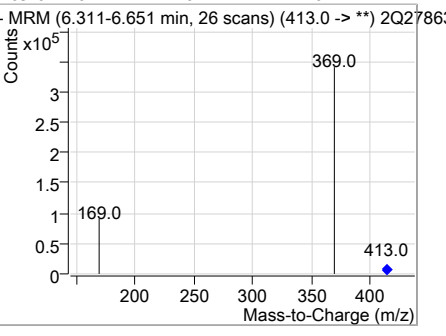




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.65	6.41	0.00	256694	413.0 -> 169.0	26.4	6.7	46.7

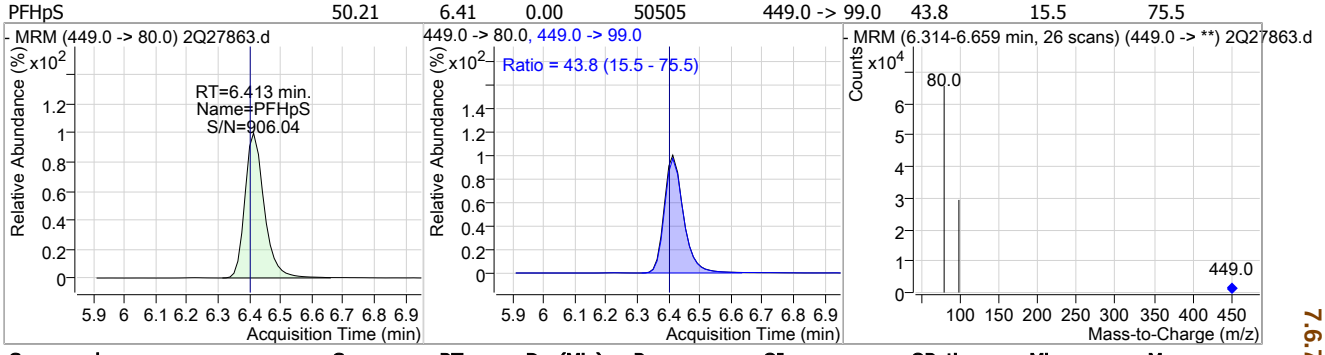




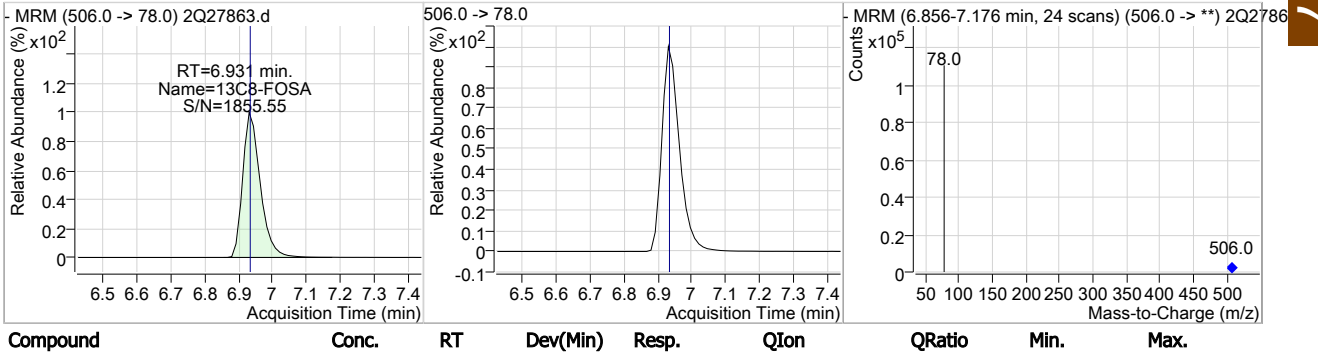


Perfluorinated Compounds by LC/MS/MS

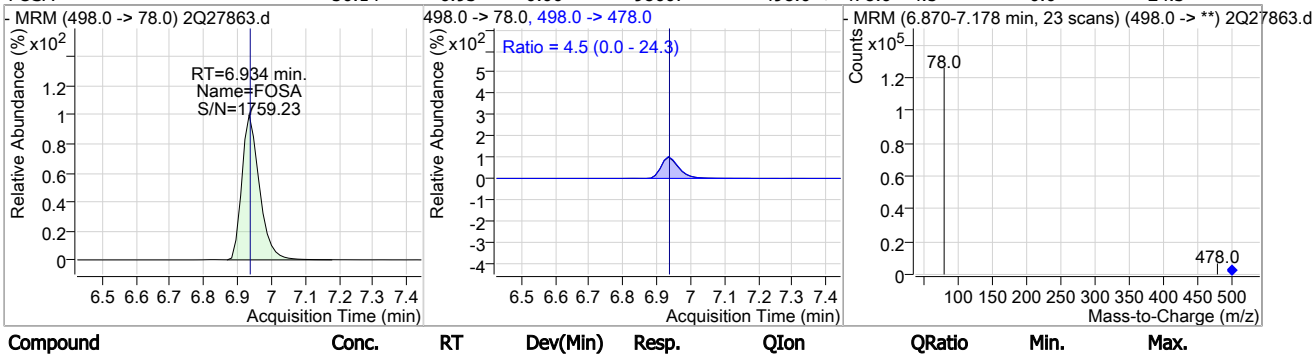
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	50.21	6.41	0.00	50505	449.0 -> 99.0	43.8	15.5	75.5



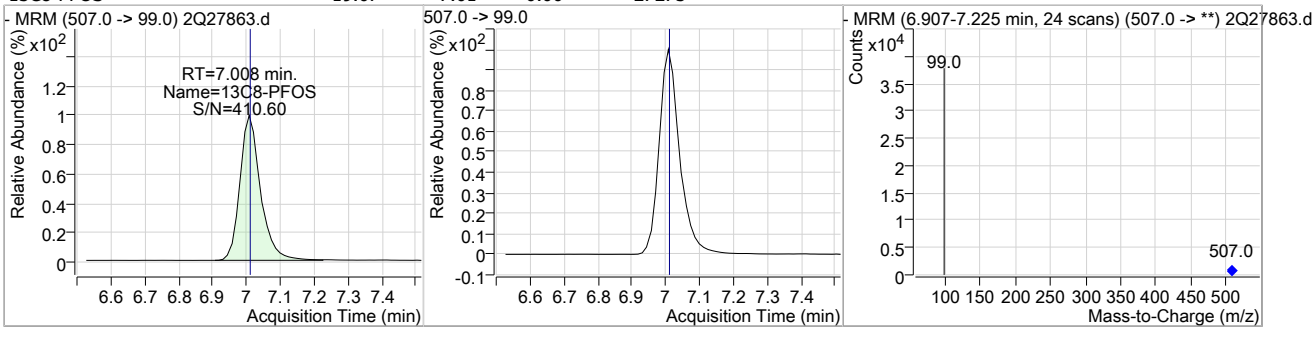
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.87	6.93	0.00	84647				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	50.14	6.93	0.00	98607	498.0 -> 478.0	4.5	0.0	24.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.07	7.01	0.00	27273				



7.6.7

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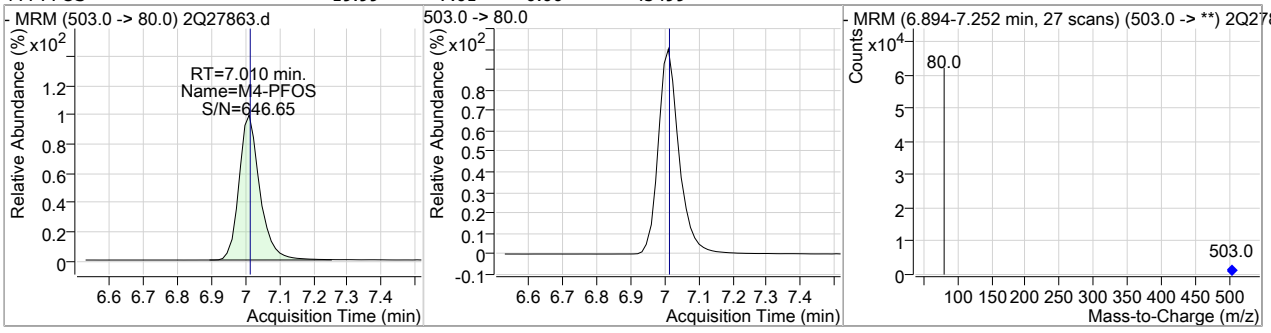
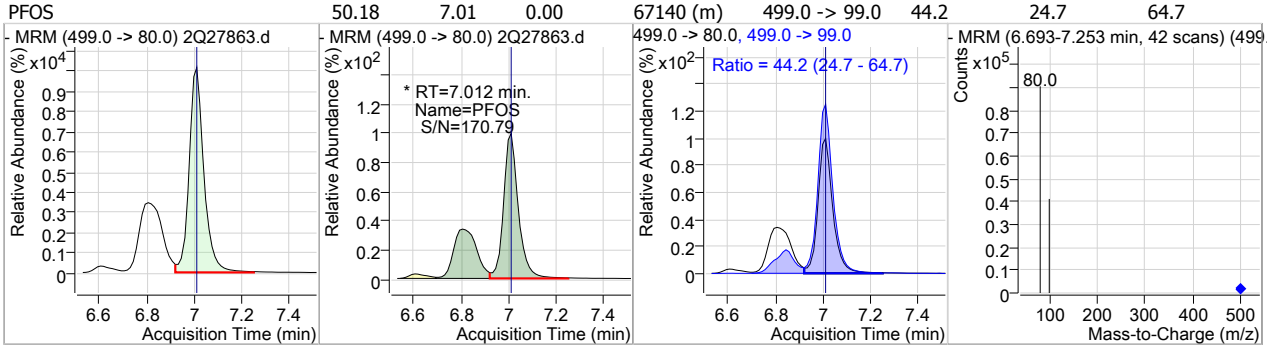
Perfluorinated Compounds by LC/MS/MS

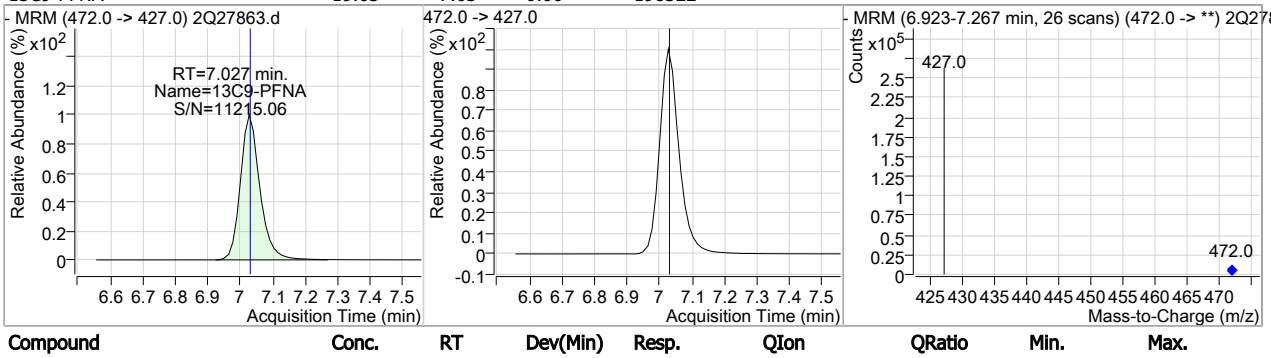
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.00	45499				



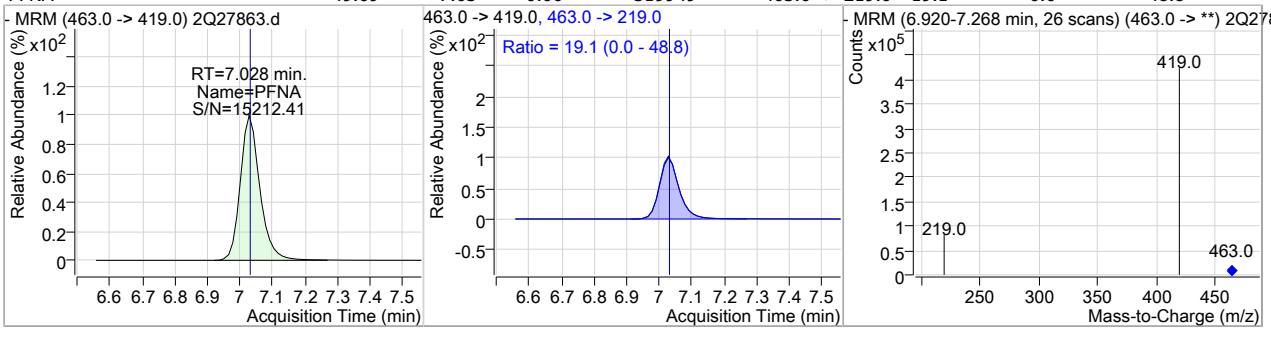
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	50.18	7.01	0.00	67140 (m)	499.0 -> 99.0	44.2	24.7	64.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.03	7.03	0.00	198322				



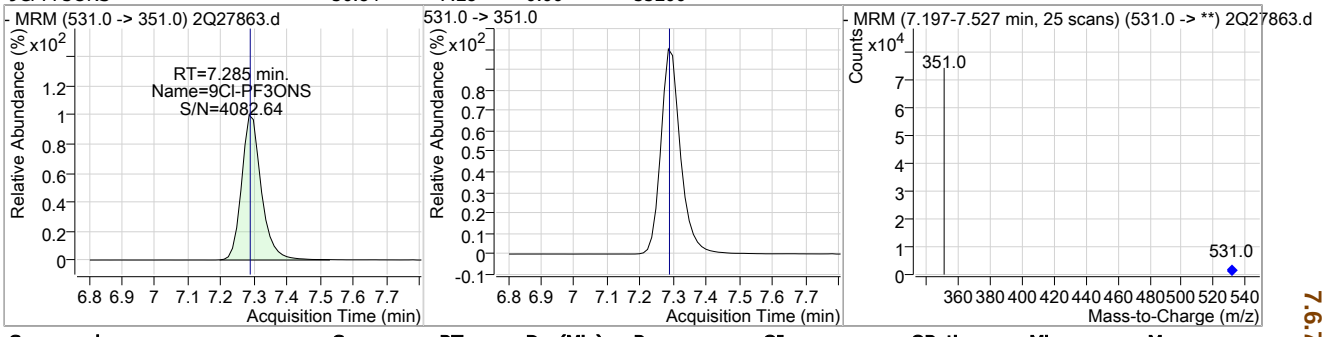
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	49.09	7.03	0.00	319949	463.0 -> 219.0	19.1	0.0	48.8



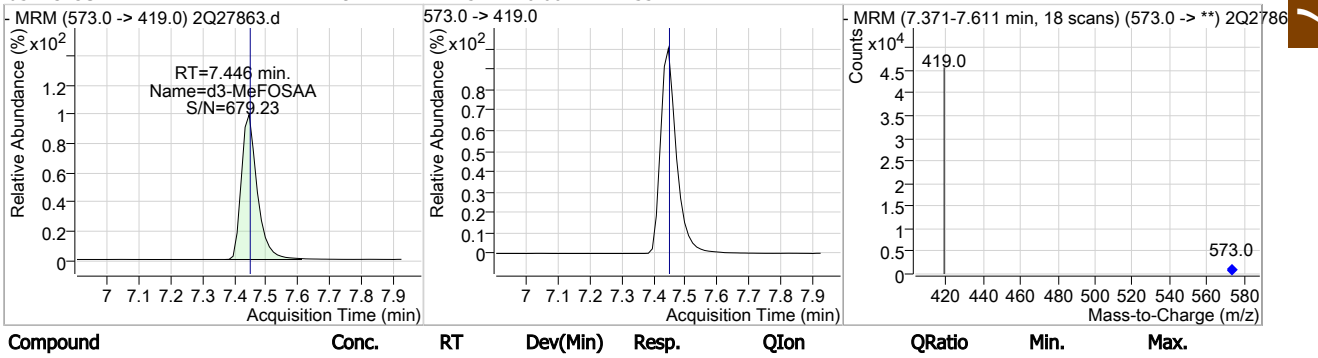
7.9.7

Perfluorinated Compounds by LC/MS/MS

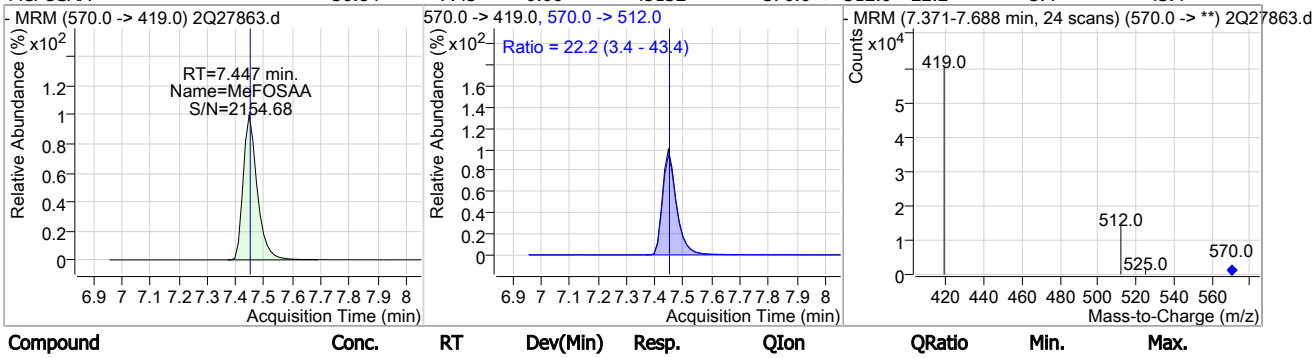
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	50.84	7.28	0.00	55200				



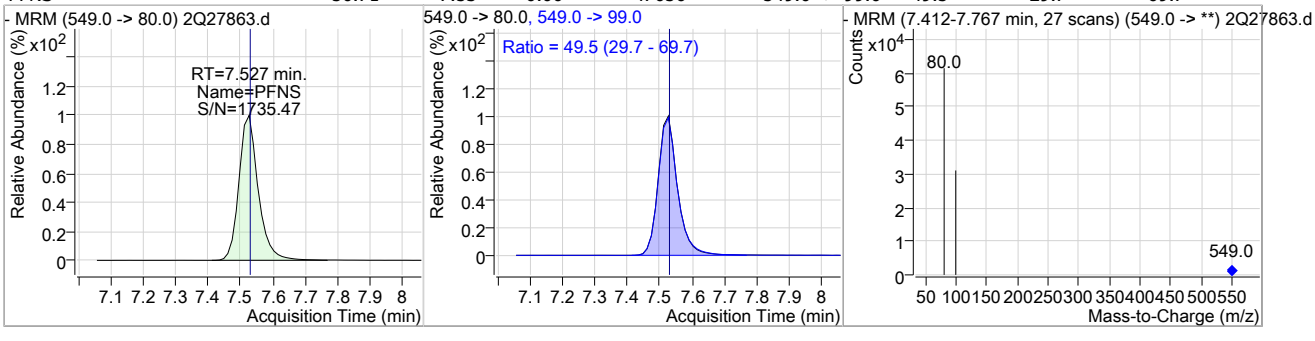
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.24	7.45	0.00	33742				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	50.84	7.45	0.00	45132	570.0 -> 512.0	22.2	3.4	43.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	50.71	7.53	0.00	47056	549.0 -> 99.0	49.5	29.7	69.7



7.9.7

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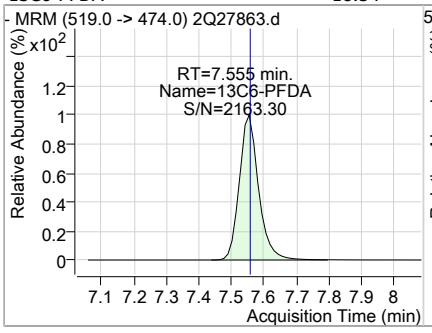
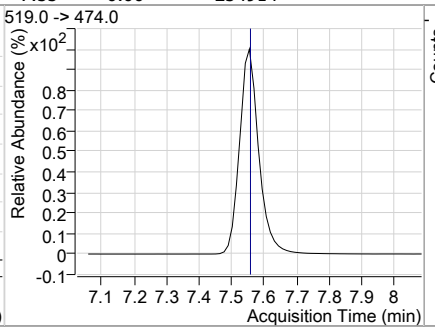
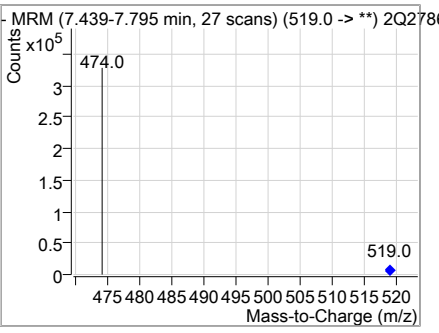
Perfluorinated Compounds by LC/MS/MS

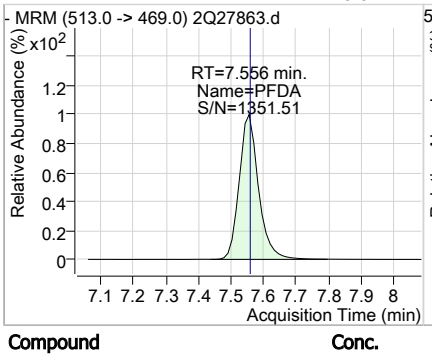
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.54	7.55	0.00	254914				

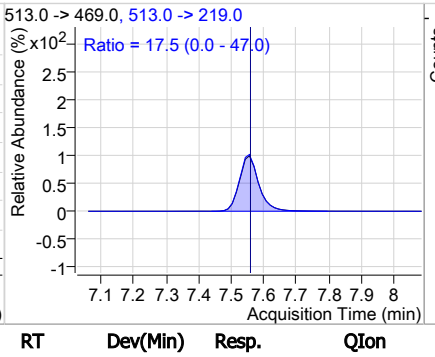


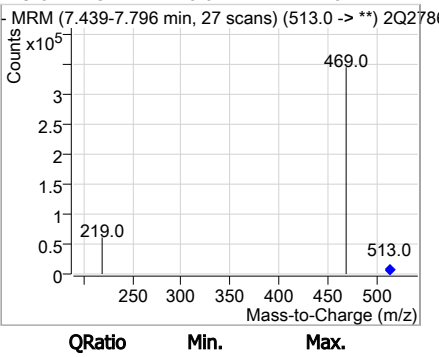




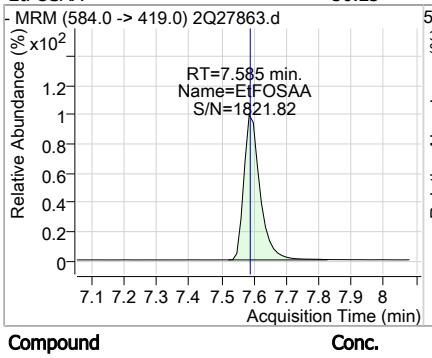
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	48.82	7.56	0.00	269992	513.0 -> 219.0	17.5	0.0	47.0

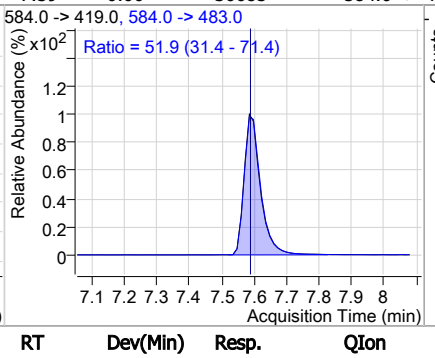


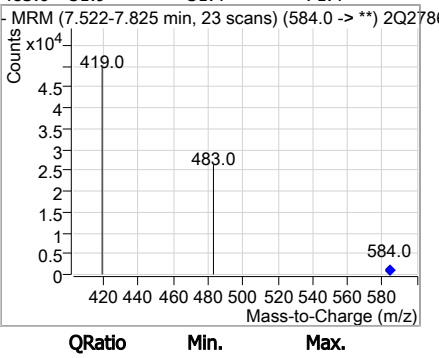




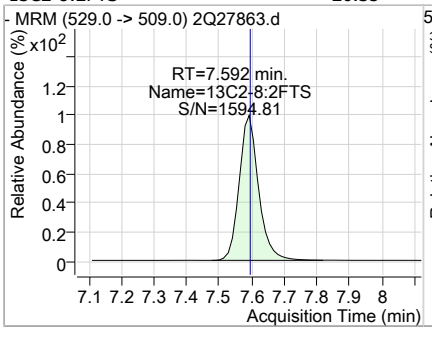
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	50.23	7.59	0.00	36685	584.0 -> 483.0	51.9	31.4	71.4

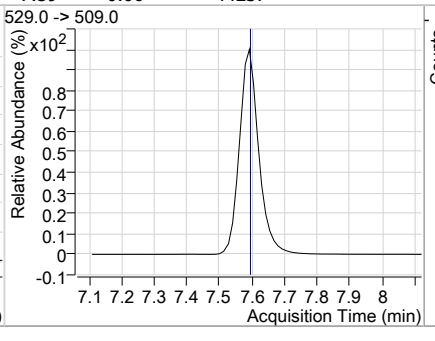


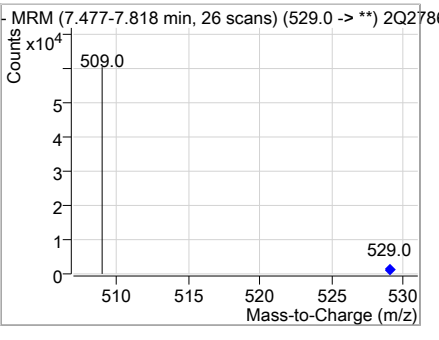




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.35	7.59	0.00	44237				



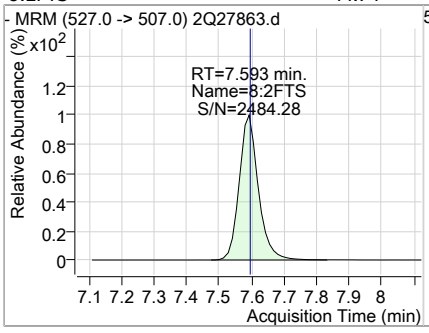


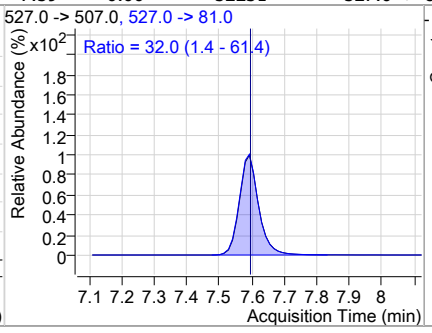


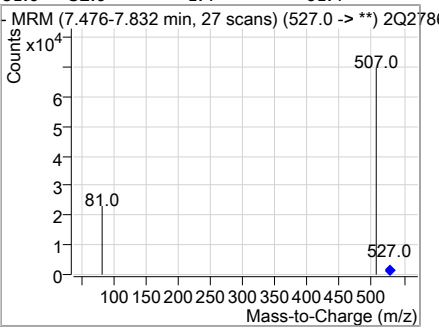
7.9.7

Perfluorinated Compounds by LC/MS/MS

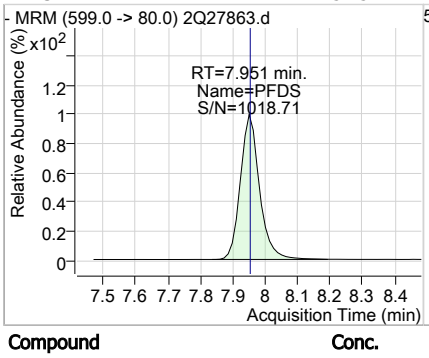
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	44.74	7.59	0.00	52231	527.0 -> 81.0	32.0	1.4	61.4

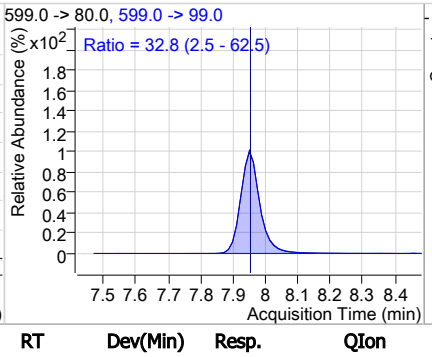


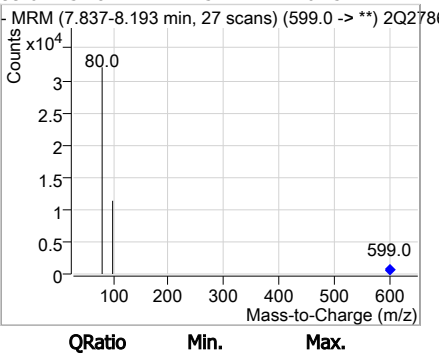




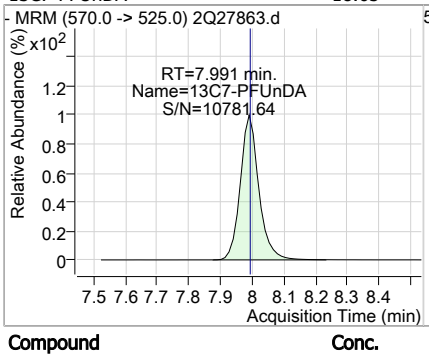
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	51.51	7.95	0.00	23715	599.0 -> 99.0	32.8	2.5	62.5

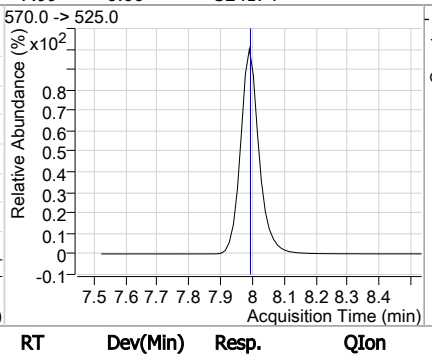


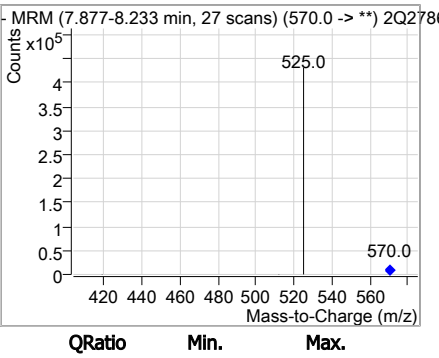




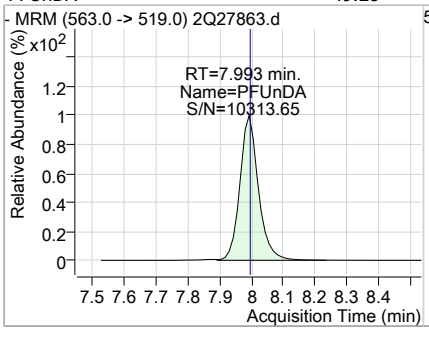
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.65	7.99	0.00	324174				

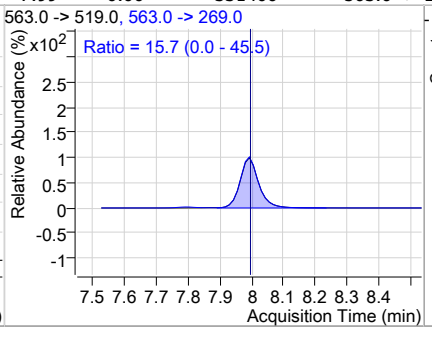


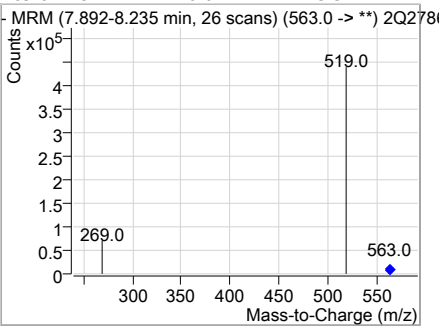




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	49.28	7.99	0.00	331406	563.0 -> 269.0	15.7	0.0	45.5



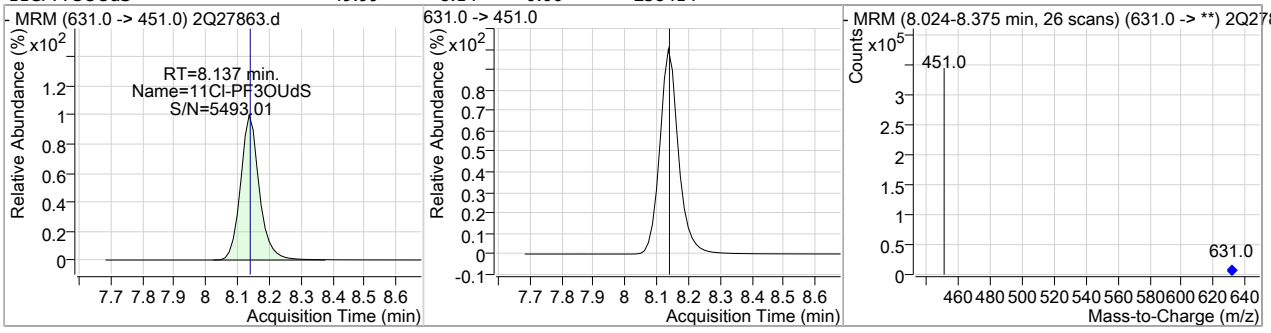




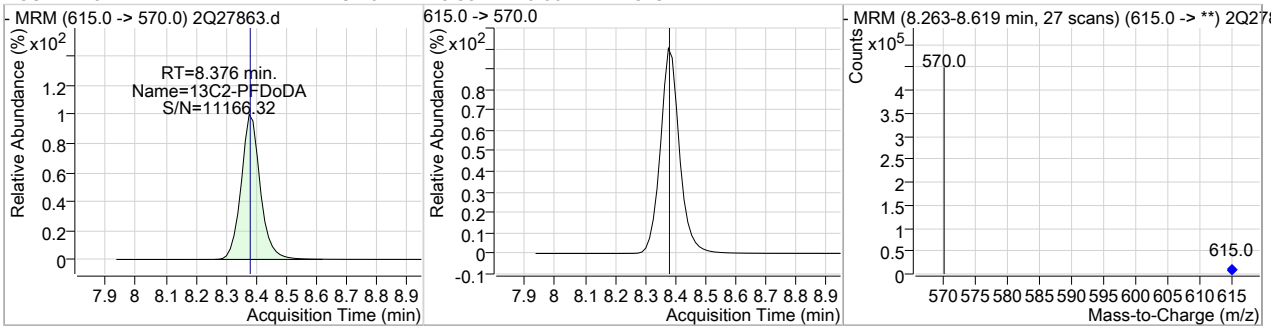
7.9.7

Perfluorinated Compounds by LC/MS/MS

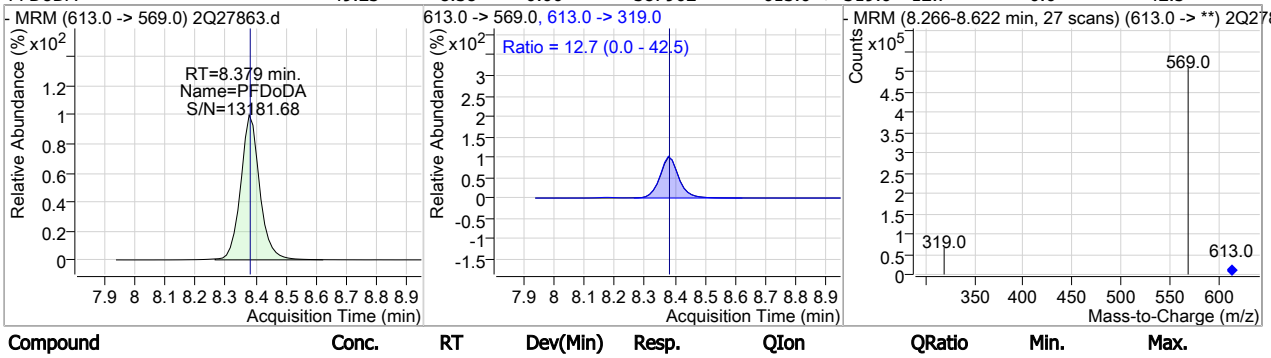
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	49.99	8.14	0.00	258414				



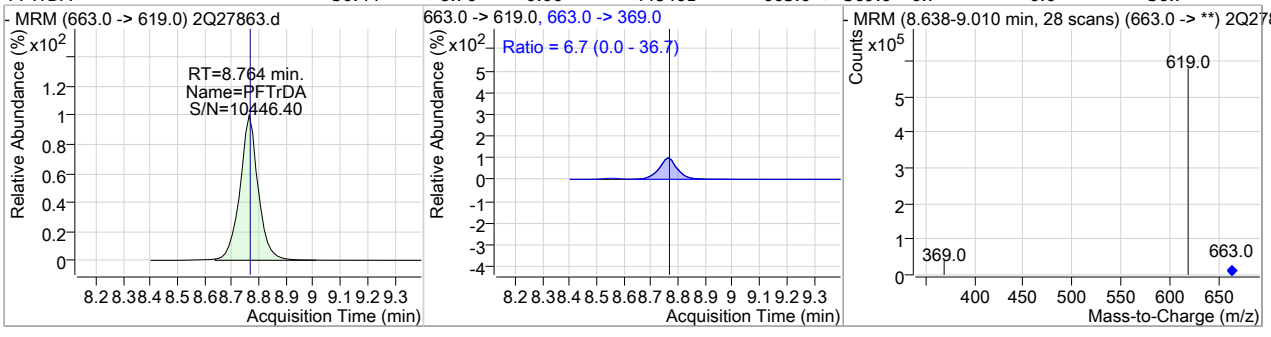
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.10	8.38	0.00	343274				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	49.23	8.38	0.00	387902	613.0 -> 319.0	12.7	0.0	42.5



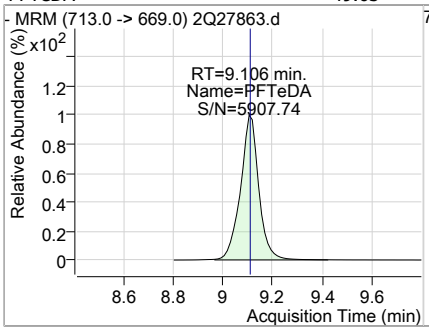
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	50.44	8.76	0.00	448461	663.0 -> 369.0	6.7	0.0	36.7

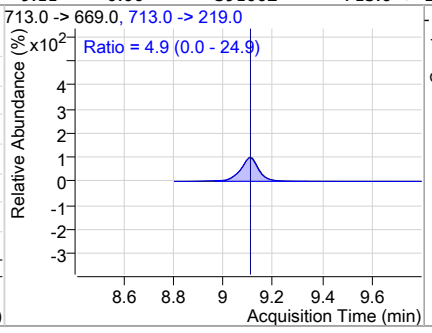


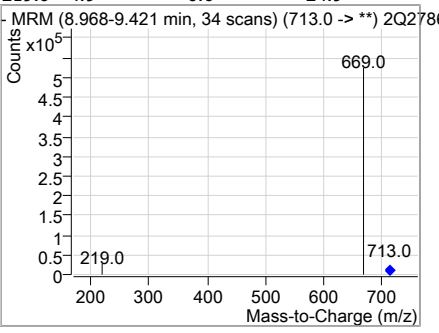
7.9.7

Perfluorinated Compounds by LC/MS/MS

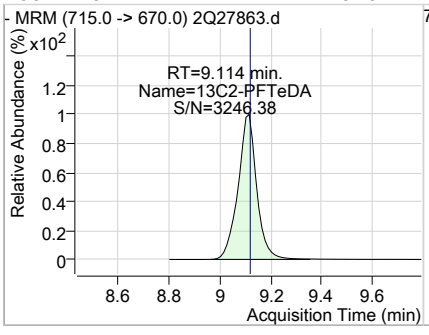
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	49.63	9.11	0.00	391002	713.0 -> 219.0	4.9	0.0	24.9

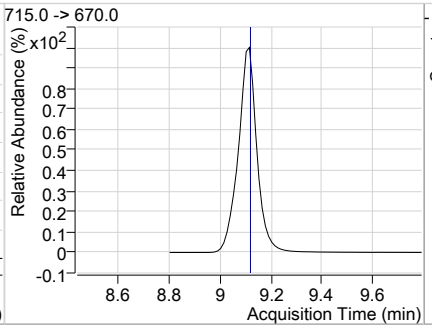


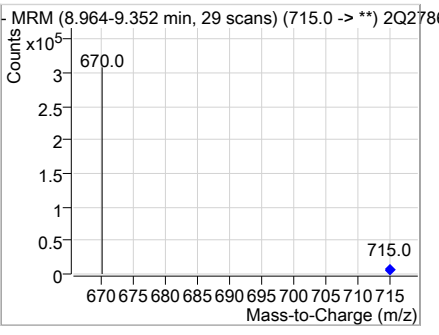




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.29	9.11	0.00	229481				







7.9.7

7

Manual Integration Approval Summary

Sample Number: S2Q445-IC445
Lab FileID: 2Q27863.D
Injection Time: 03/21/19 12:58
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/22/19 16:23 Nancy Saunders
Supervisor approved: 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q27864.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File	: 2Q27864.d
Operator	: nancyf
Acq. Method	: dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	: 3/21/2019 1:13:54 PM
Sample Name	: IC445-100
Vial	: Vial 9
DA Method File	: ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name	: S2Q445.batch.bin
Sample Information	: op74164,S2Q445,250,,,1.0,1,water

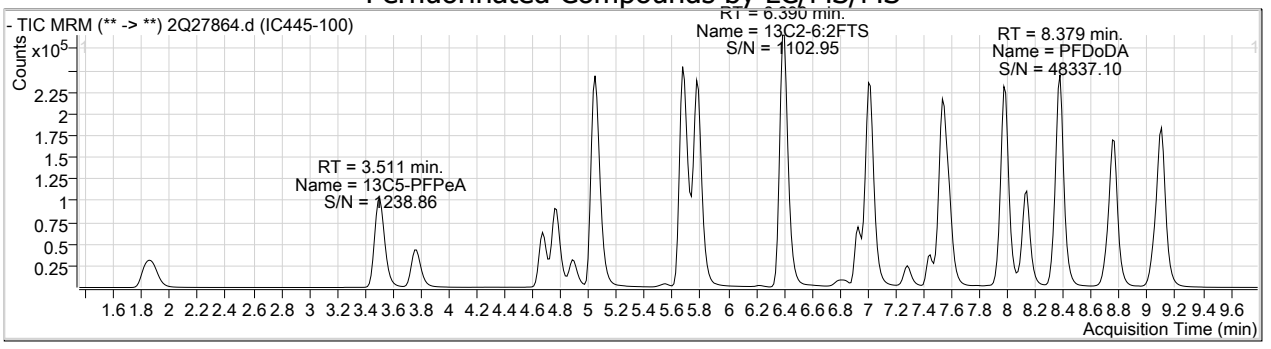
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	206747	20.00	µg/L	0.000
13C4-PFOS	6.998	503.0 -> 80.0	39693	20.00	µg/L	-0.013
M4-PFBA	1.852	217.0 -> 172.0	116288	20.00	µg/L	-0.013
M5-PFPeA	3.511	268.0 -> 223.0	95319	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	127615	20.00	µg/L	0.000
M4-PFHpA	5.680	367.0 -> 322.0	172976	20.00	µg/L	-0.013
M8-PFOA	6.407	421.0 -> 376.0	163198	20.00	µg/L	0.000
M9-PFNA	7.027	472.0 -> 427.0	169262	20.00	µg/L	0.000
M6-PFDA	7.542	519.0 -> 474.0	212151	20.00	µg/L	-0.013
M7-PFUnDA	7.978	570.0 -> 525.0	272297	20.00	µg/L	-0.013
M2-PFDoDA	8.376	615.0 -> 570.0	297102	20.00	µg/L	0.000
M2-PFTeDA	9.102	715.0 -> 670.0	200693	20.00	µg/L	-0.013
M8-FOSA	6.931	506.0 -> 78.0	70425	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	17785	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	18741	20.00	µg/L	-0.013
M8-PFOS	7.008	507.0 -> 99.0	24021	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	59400	20.00	µg/L	-0.013
M2-6:2FTS	6.390	429.0 -> 409.0	58486	20.00	µg/L	-0.013
M2-8:2FTS	7.579	529.0 -> 509.0	42410	20.00	µg/L	-0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	29700	20.00	µg/L	-0.013
M3-HFPO-DA	5.043	287.0 -> 169.0	134506	100.00	µg/L	-0.025
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	59519	20.91	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%		
13C2-6:2FTS	6.390	429.0 -> 409.0	58474	19.40	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C2-8:2FTS	7.579	529.0 -> 509.0	42423	19.52	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.6%		
13C2-PFDoDA	8.376	615.0 -> 570.0	297019	16.52	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 82.6%		
13C2-PFTeDA	9.102	715.0 -> 670.0	200478	16.85	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.3%		
13C3-PFBS	3.767	302.0 -> 99.0	17720	17.27	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.4%		
13C3-PFHxS	5.723	402.0 -> 99.0	18702	16.83	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.1%		
13C4-PFBA	1.852	217.0 -> 172.0	115705	17.70	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.5%		
13C4-PFHpA	5.680	367.0 -> 322.0	172979	16.73	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 83.7%		
13C5-PFHxA	4.776	318.0 -> 273.0	127381	17.19	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.9%		
13C5-PFPeA	3.511	268.0 -> 223.0	95504	17.36	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.8%		
13C6-PFDA	7.542	519.0 -> 474.0	212215	15.44	µg/L	-0.013

Perfluorinated Compounds by LC/MS/MS

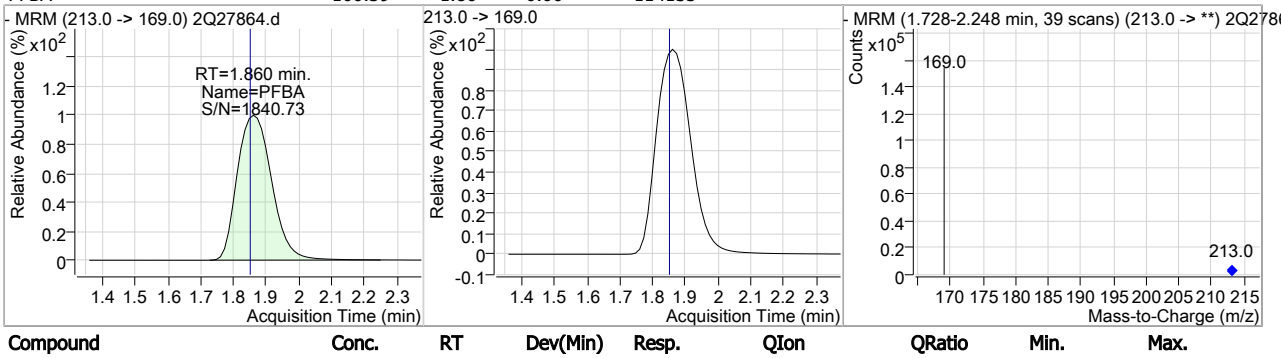
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 77.2%		
13C7-PFUnDA	7.978	570.0 -> 525.0	272365	15.67 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.3%		
13C8-FOSA	6.931	506.0 -> 78.0	70374	15.69 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 78.4%		
13C8-PFOA	6.407	421.0 -> 376.0	163090	15.83 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 79.1%		
13C8-PFOS	7.008	507.0 -> 99.0	24058	16.82 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.1%		
13C9-PFNA	7.027	472.0 -> 427.0	169226	16.24 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 81.2%		
d3-MeFOSAA	7.434	573.0 -> 419.0	29704	16.94 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.7%		
M2-PFOA	6.409	415.0 -> 370.0	206874	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	6.998	503.0 -> 80.0	39737	20.00 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.043	287.0 -> 169.0	134506	80.69 µg/L		-0.025
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 80.7%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	146084	83.62 µg/L		100
6:2FTS	6.392	427.0 -> 407.0	123791	83.90 µg/L		99
8:2FTS	7.580	527.0 -> 507.0	91728	81.98 µg/L		99
EtFOSAA	7.585	584.0 -> 419.0	63898	99.95 µg/L		99
FOSA	6.934	498.0 -> 78.0	166554	99.97 µg/L		100
MeFOSAA	7.447	570.0 -> 419.0	78398	99.83 µg/L		98
PFBA	1.860	213.0 -> 169.0	114133	100.39 µg/L		100
PFBS	3.758	299.0 -> 80.0	144534	100.29 µg/L		99
PFDA	7.543	513.0 -> 469.0	463726	100.81 µg/L		99
PFDoDA	8.379	613.0 -> 569.0	685506	100.58 µg/L		100
PFDS	7.951	599.0 -> 80.0	40427	99.42 µg/L		99
PFHpA	5.683	363.0 -> 319.0	778881	100.42 µg/L		100
PFHpS	6.413	449.0 -> 80.0	87620	100.02 µg/L		98
PFHxA	4.765	313.0 -> 269.0	223561	100.47 µg/L		100
PFHxS	5.726	399.0 -> 80.0	104111	100.51 µg/L	m	99
PFNA	7.028	463.0 -> 419.0	560038	100.69 µg/L		99
PFNS	7.512	549.0 -> 80.0	81734	99.72 µg/L		100
PFOA	6.399	413.0 -> 369.0	440069	100.39 µg/L		99
PFOS	6.999	499.0 -> 80.0	118418	100.21 µg/L	m	100
PFPeA	3.515	263.0 -> 219.0	427508	100.58 µg/L		100
PFPeS	4.883	349.0 -> 80.0	92386	100.15 µg/L		98
PFTeDA	9.106	713.0 -> 669.0	690840	100.39 µg/L		100
PFTrDA	8.751	663.0 -> 619.0	775878	99.90 µg/L		100
PFUnDA	7.980	563.0 -> 519.0	568110	100.58 µg/L		100
11Cl-PF3OUdS	8.137	631.0 -> 451.0	454635	101.68 µg/L		100
9Cl-PF3ONS	7.285	531.0 -> 351.0	94596	99.85 µg/L		100
ADONA	5.779	377.0 -> 251.0	916372	99.93 µg/L		100
HFPO-DA	5.048	329.0 -> 169.0	781666	498.83 µg/L		99

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

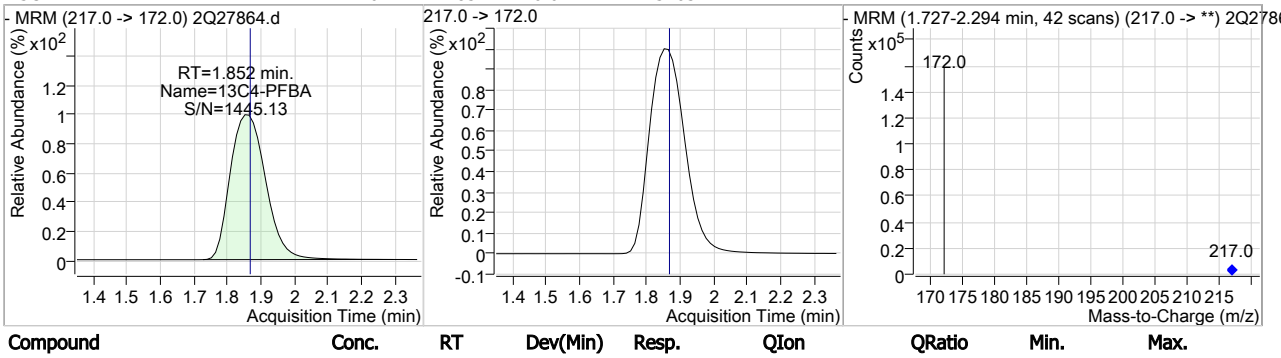
Perfluorinated Compounds by LC/MS/MS



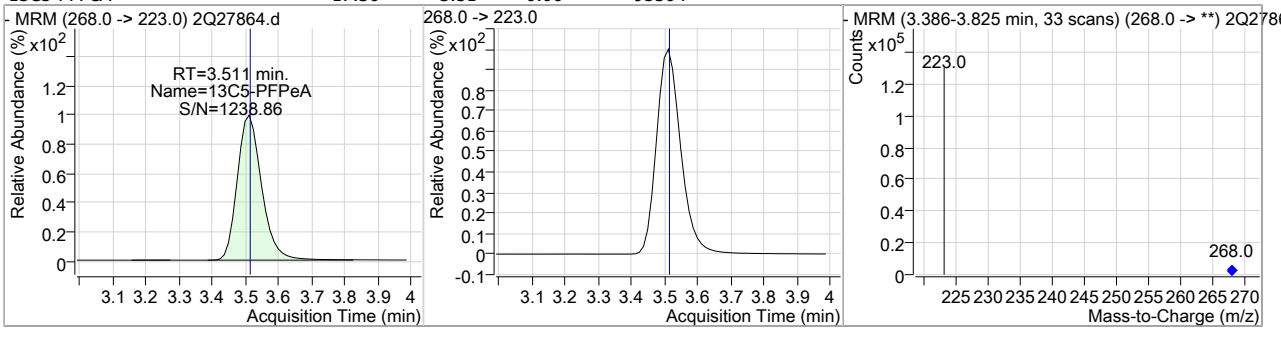
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	100.39	1.86	0.00	114133				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.70	1.85	-0.01	115705				

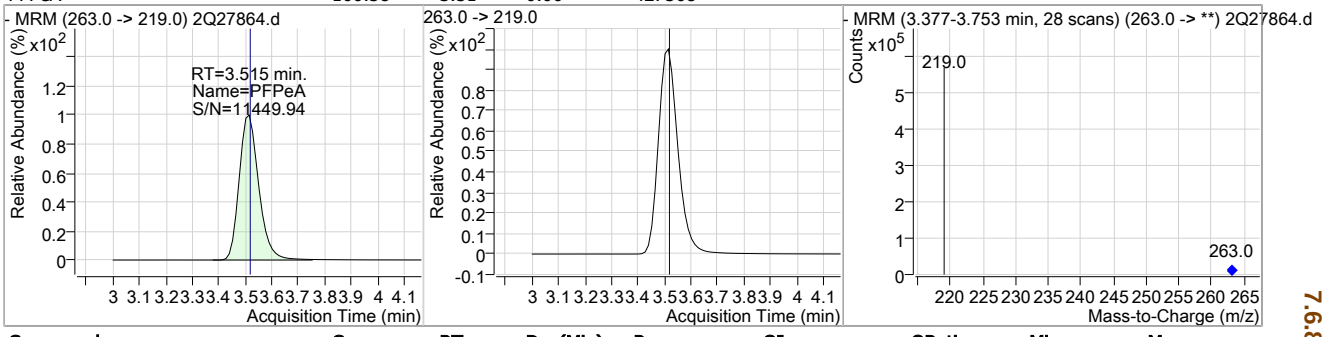


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	17.36	3.51	0.00	95504				

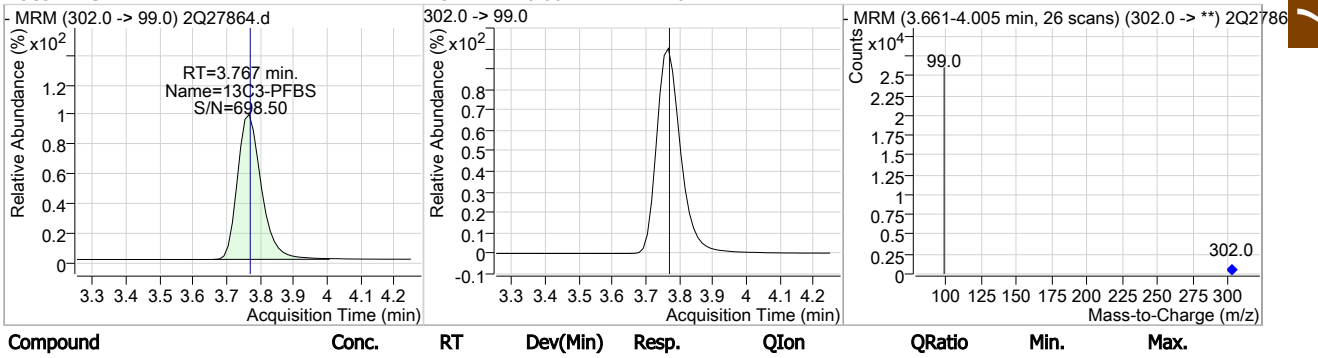


Perfluorinated Compounds by LC/MS/MS

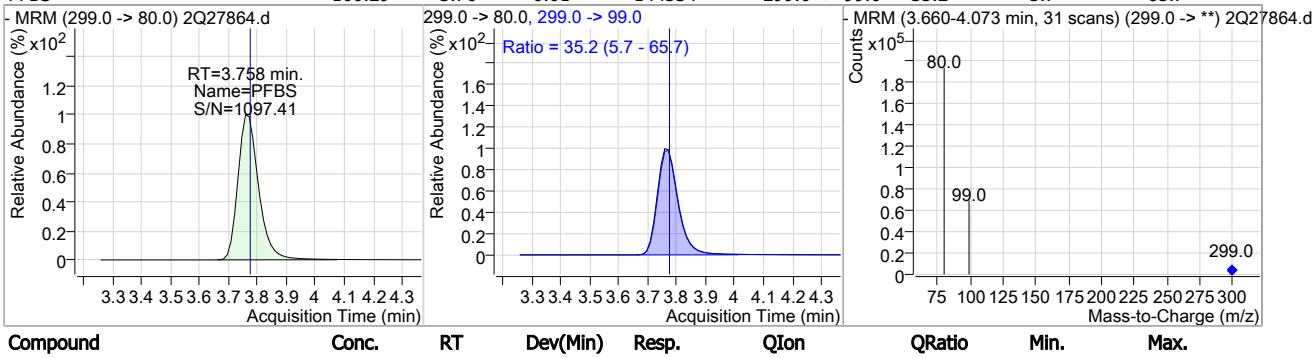
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.58	3.51	0.00	427508				



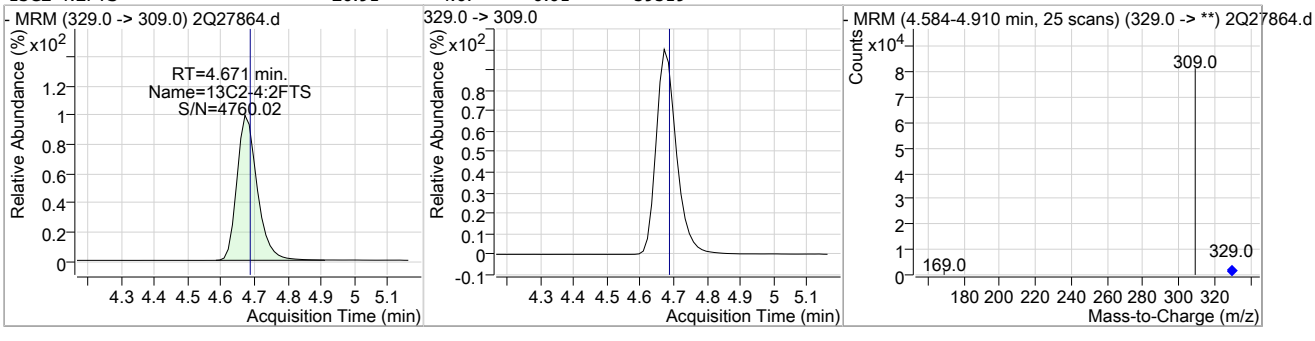
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.27	3.77	0.00	17720				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	100.29	3.76	-0.01	144534	299.0 -> 99.0	35.2	5.7	65.7



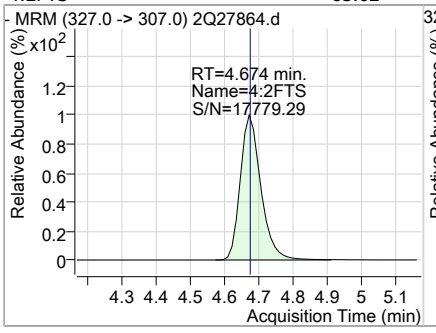
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.91	4.67	-0.01	59519				

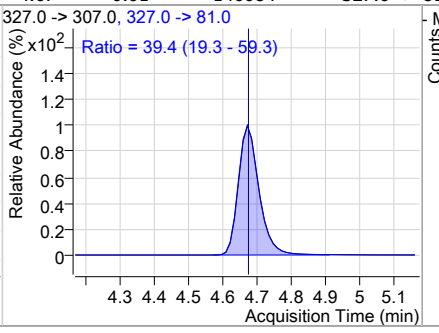


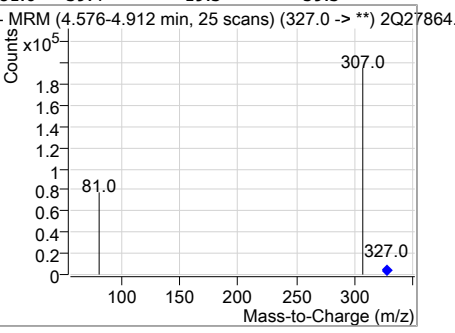
7.6.8

Perfluorinated Compounds by LC/MS/MS

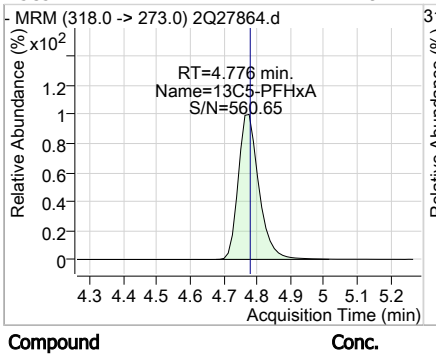
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	83.62	4.67	-0.01	146084	327.0 -> 81.0	39.4	19.3	59.3

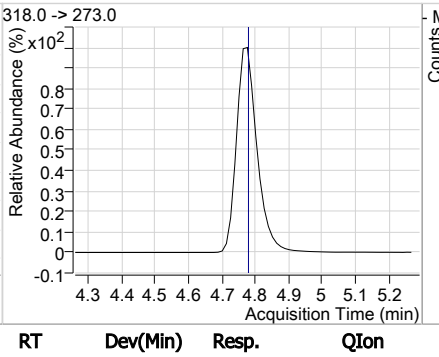


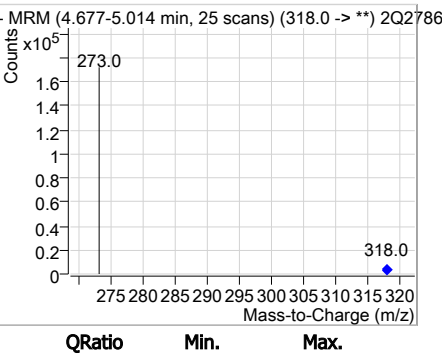




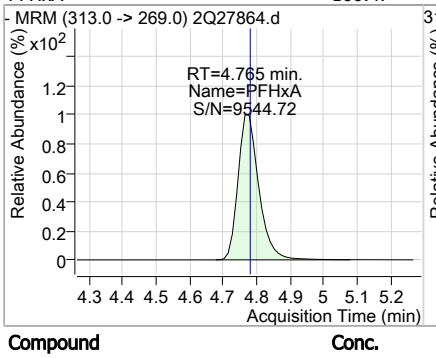
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.19	4.78	0.00	127381				

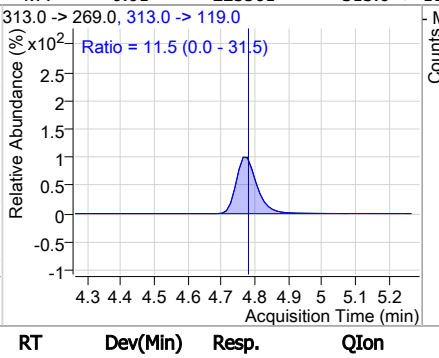


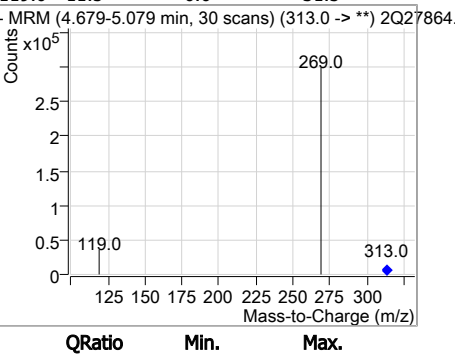




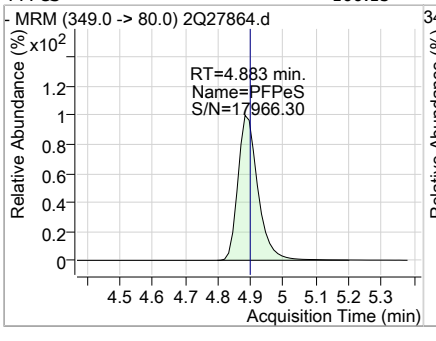
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.47	4.77	-0.01	223561	313.0 -> 119.0	11.5	0.0	31.5

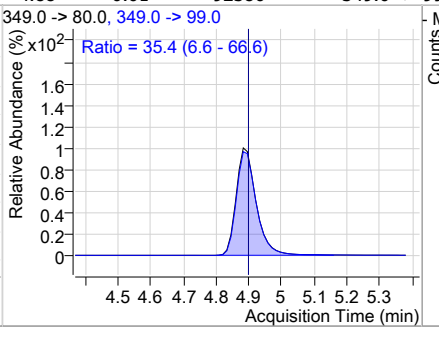


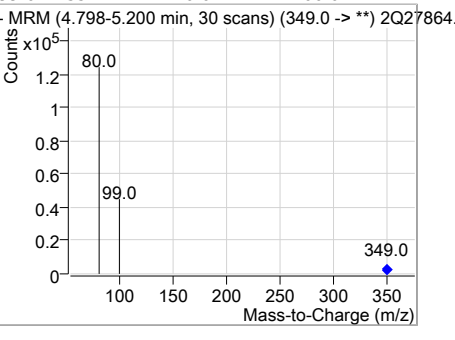




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	100.15	4.88	-0.01	92386	349.0 -> 99.0	35.4	6.6	66.6



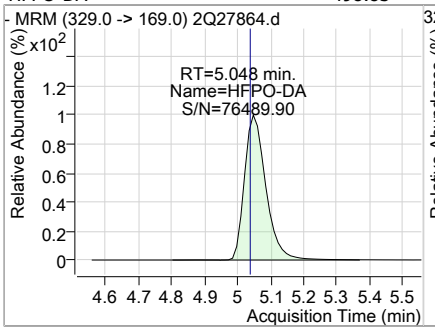


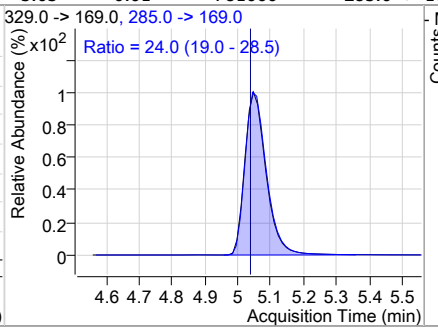


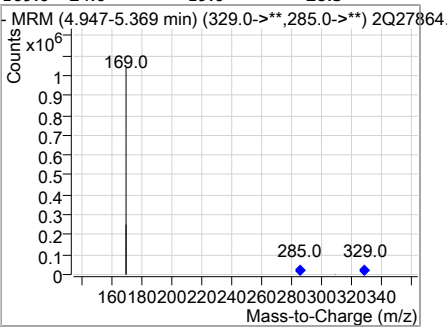
7.6.8

Perfluorinated Compounds by LC/MS/MS

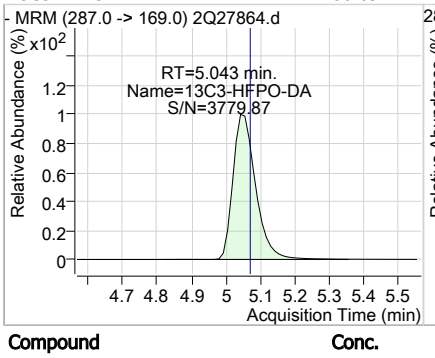
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	498.83	5.05	-0.01	781666	285.0 -> 169.0	24.0	19.0	28.5

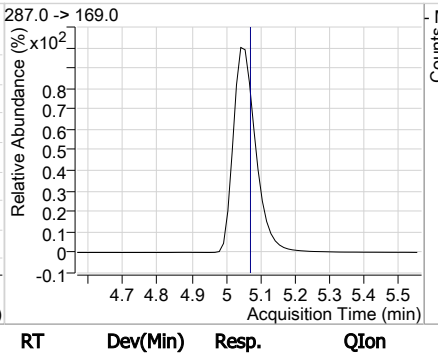


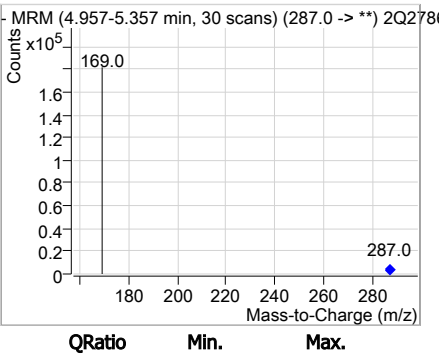




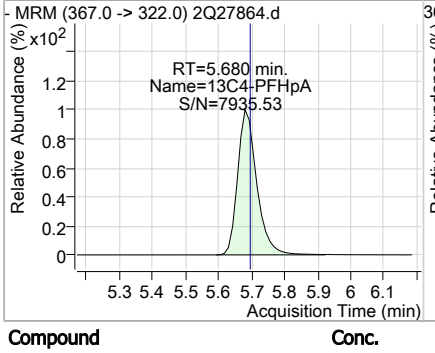
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	80.69	5.04	-0.03	134506				

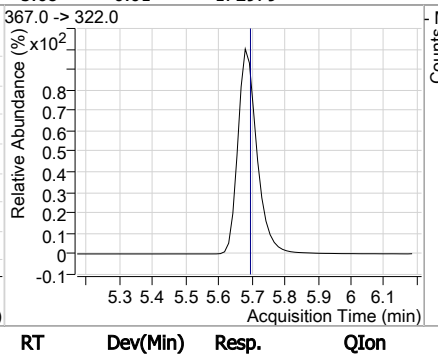


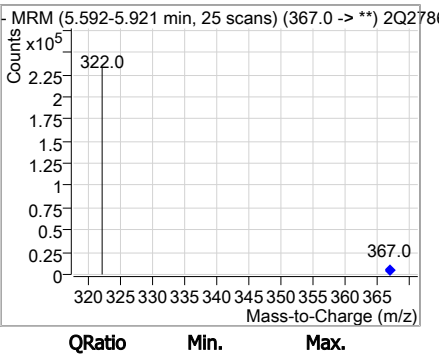




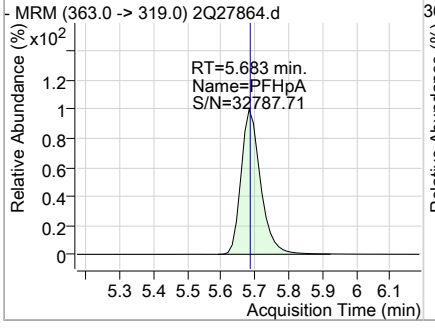
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	16.73	5.68	-0.01	172979				

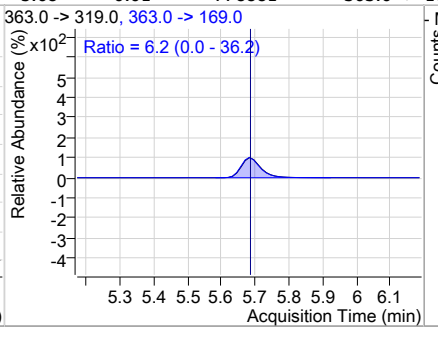


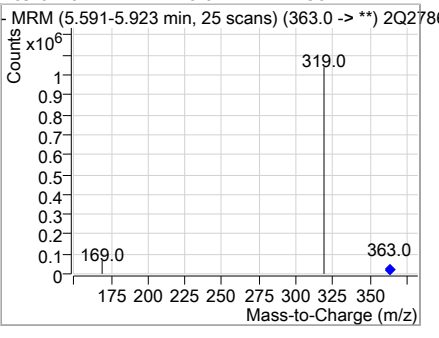




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.42	5.68	-0.01	778881	363.0 -> 169.0	6.2	0.0	36.2

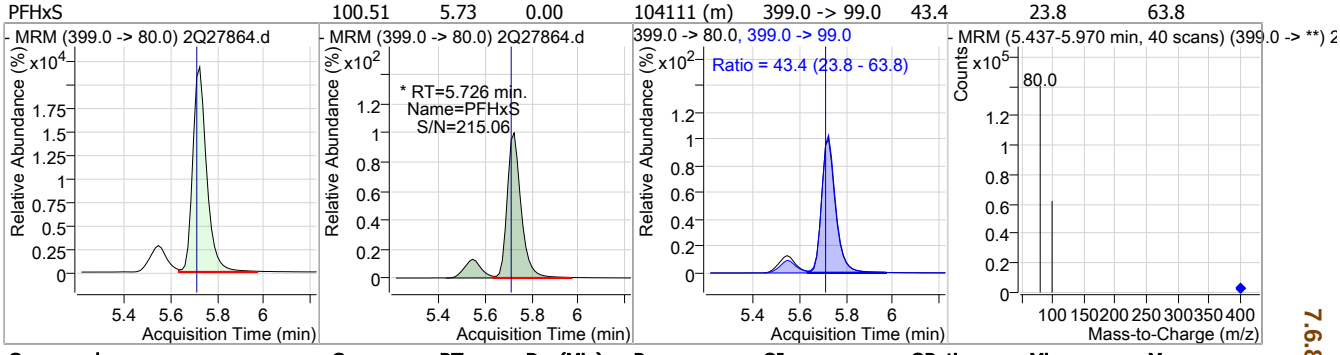




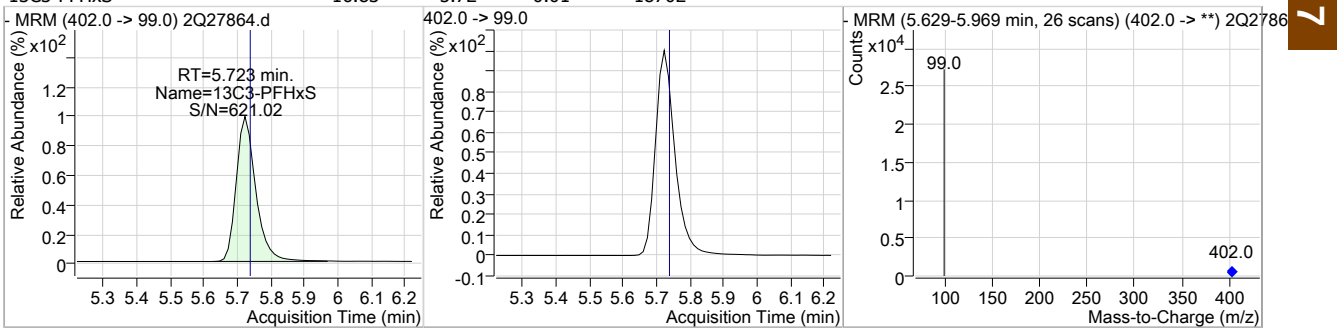


Perfluorinated Compounds by LC/MS/MS

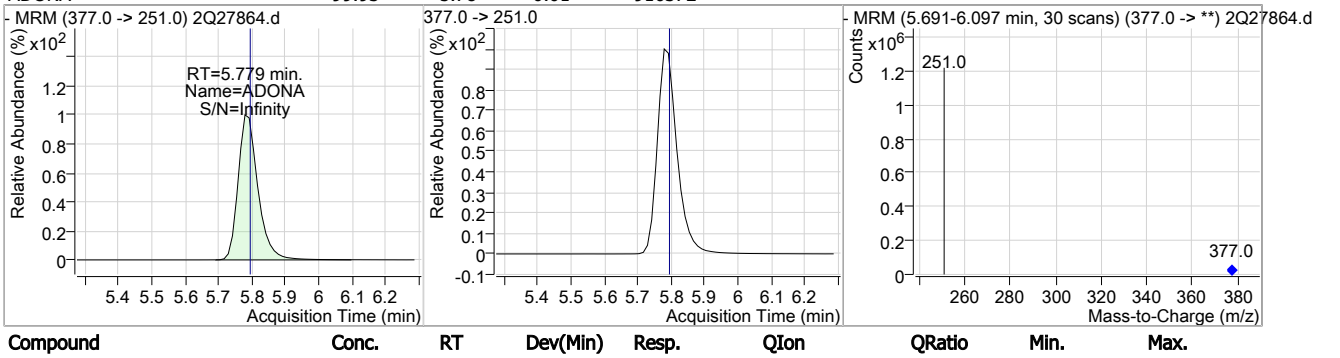
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	100.51	5.73	0.00	104111 (m)	399.0 -> 99.0	43.4	23.8	63.8



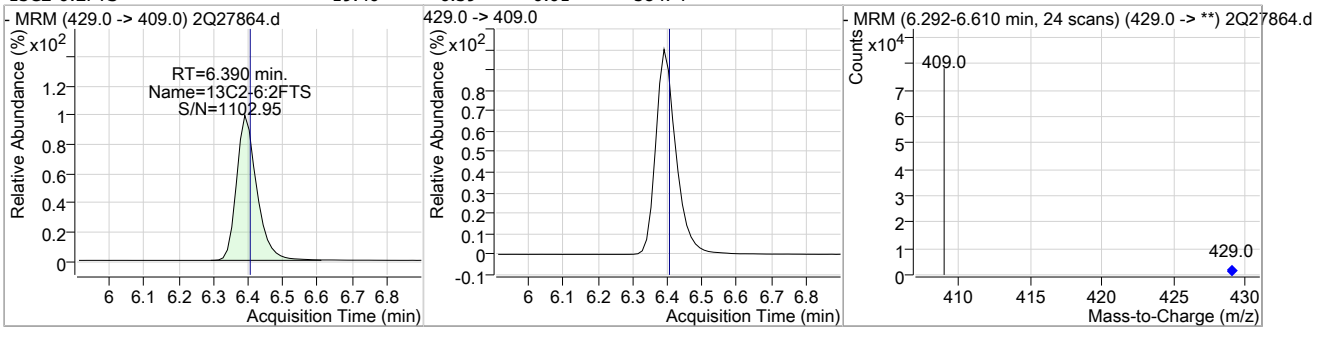
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	16.83	5.72	-0.01	18702				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	99.93	5.78	-0.01	916372				



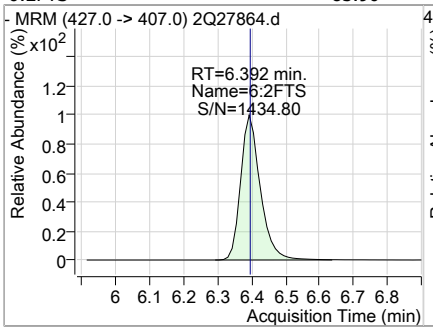
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.40	6.39	-0.01	58474				

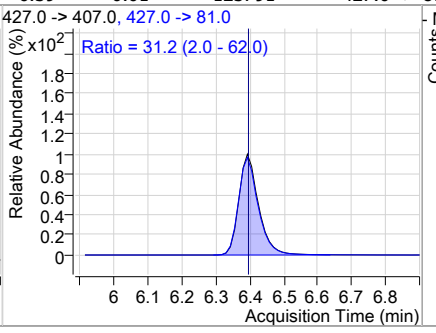


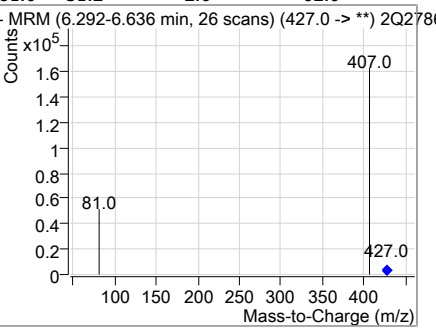
7.6.8

Perfluorinated Compounds by LC/MS/MS

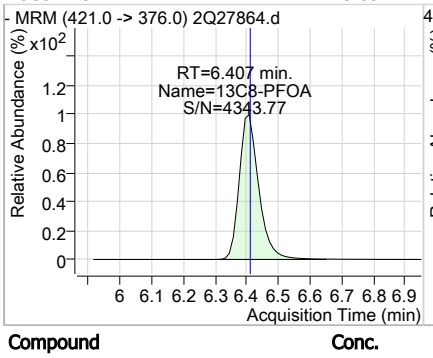
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	83.90	6.39	-0.01	123791	427.0 -> 81.0	31.2	2.0	62.0

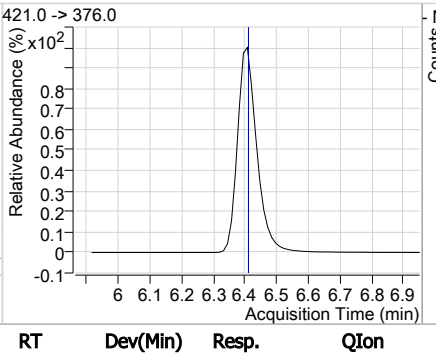


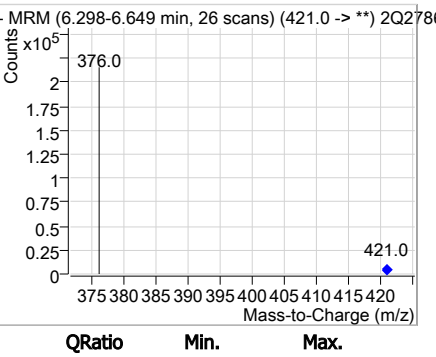




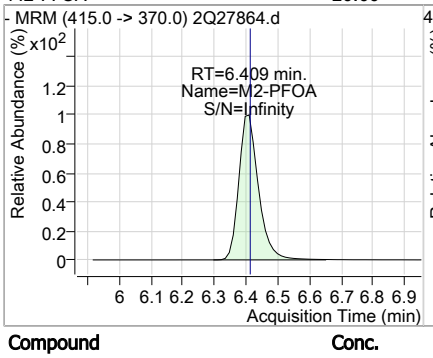
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	15.83	6.41	0.00	163090				

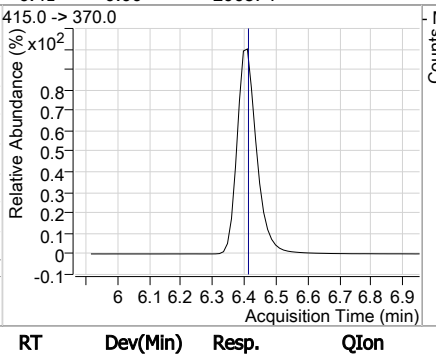


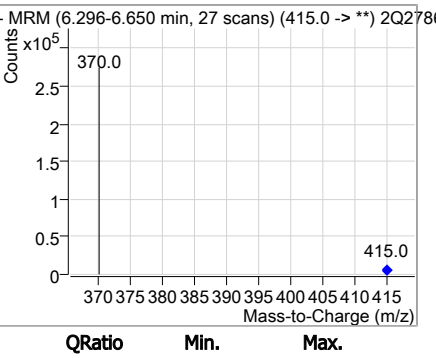




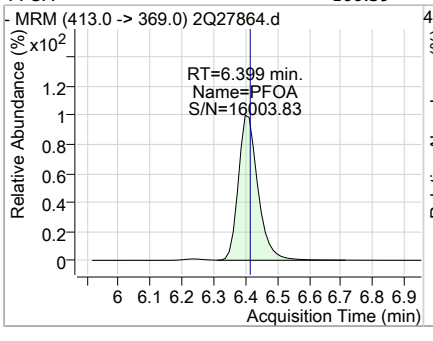
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	206874				

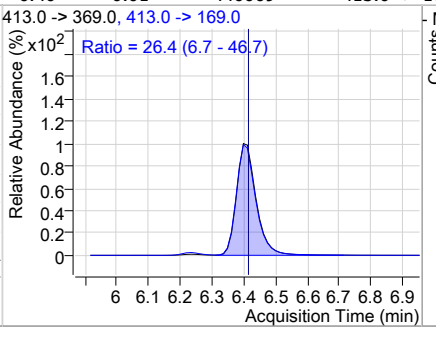


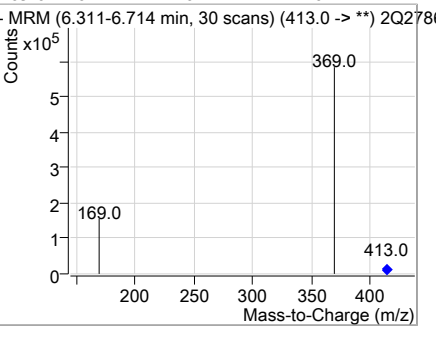




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.39	6.40	-0.01	440069	413.0 -> 169.0	26.4	6.7	46.7



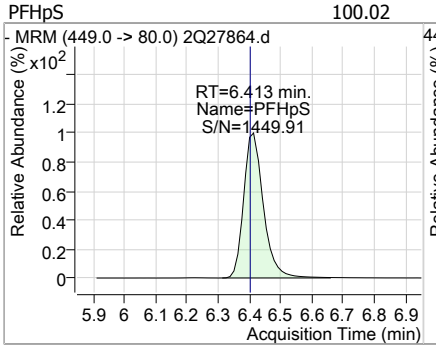


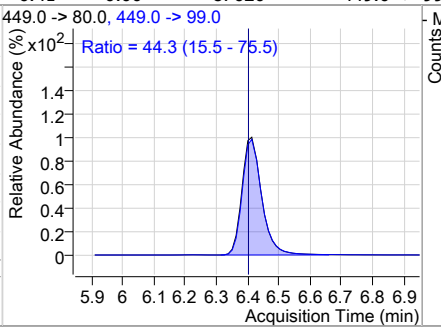


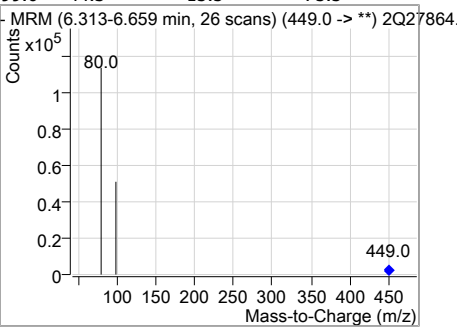
7.6.8

Perfluorinated Compounds by LC/MS/MS

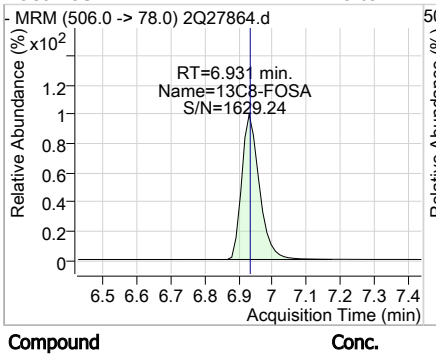
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	100.02	6.41	0.00	87620	449.0 -> 99.0	44.3	15.5	75.5

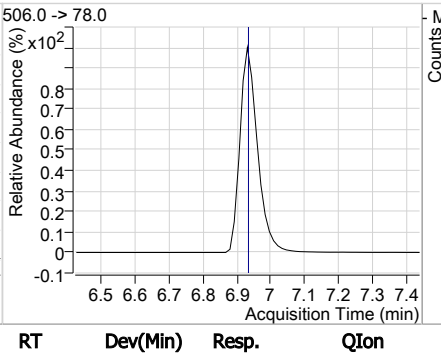


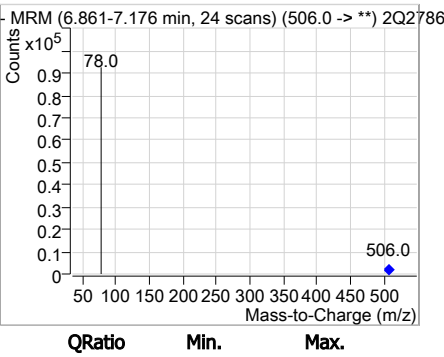




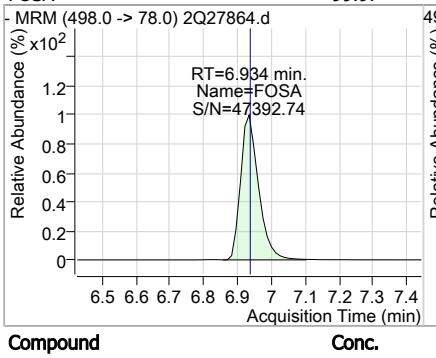
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	15.69	6.93	0.00	70374				

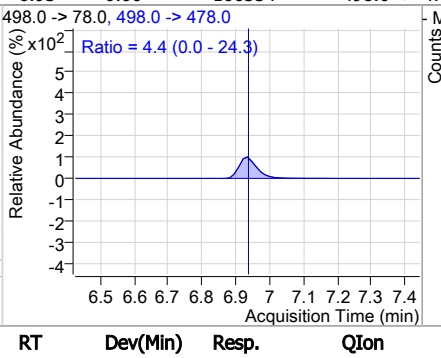


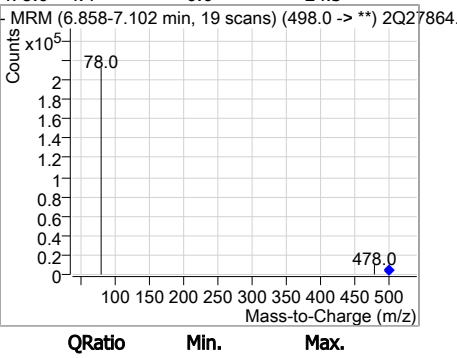




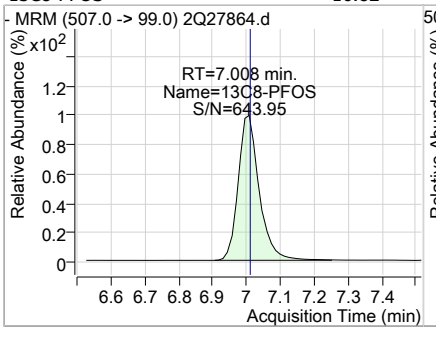
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	99.97	6.93	0.00	166554	498.0 -> 478.0	4.4	0.0	24.3

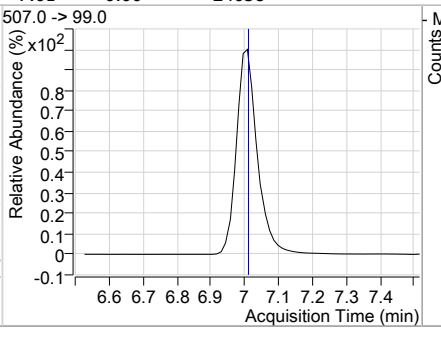


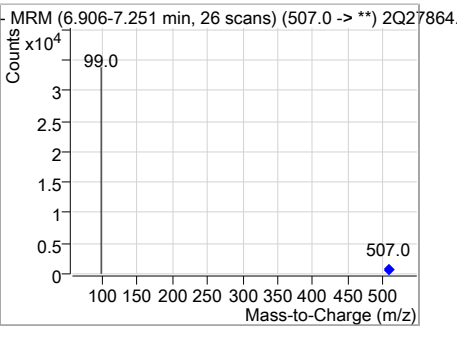




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	16.82	7.01	0.00	24058				



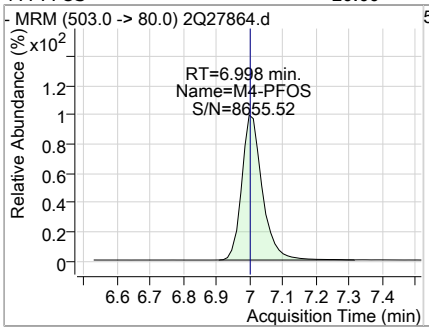


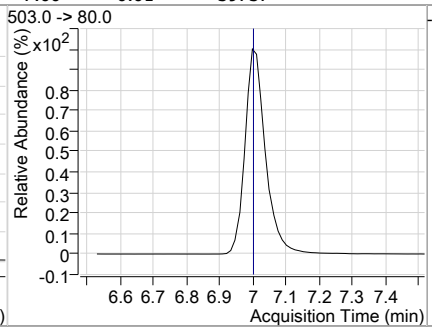


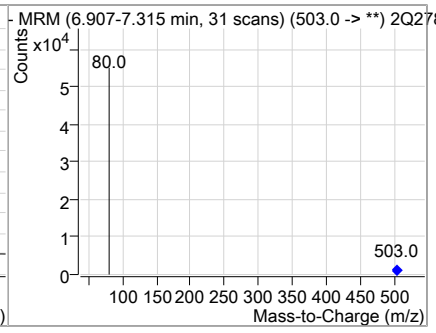
7.6.8

Perfluorinated Compounds by LC/MS/MS

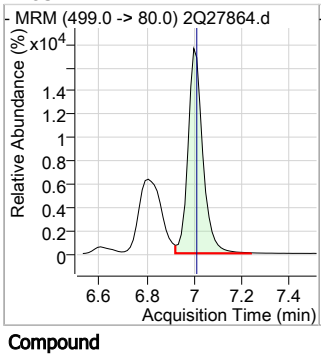
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.00	-0.01	39737				

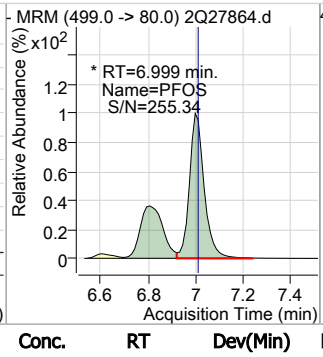


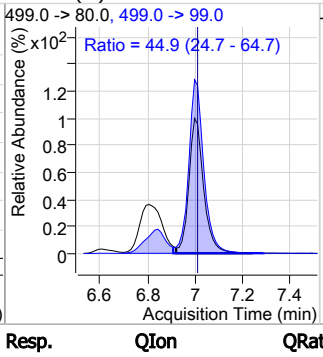


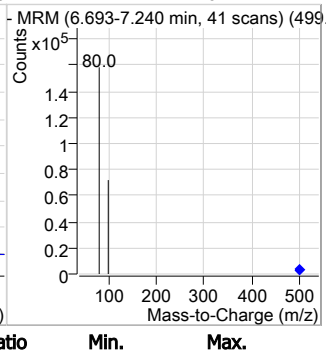


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	100.21	7.00	-0.01	118418 (m)	499.0 -> 99.0	44.9	24.7	64.7

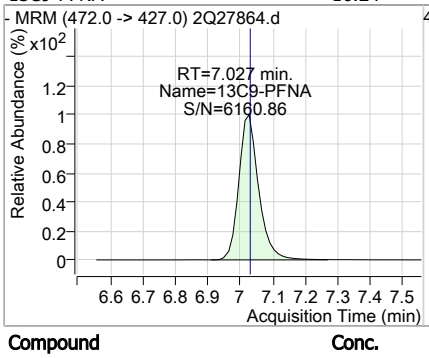


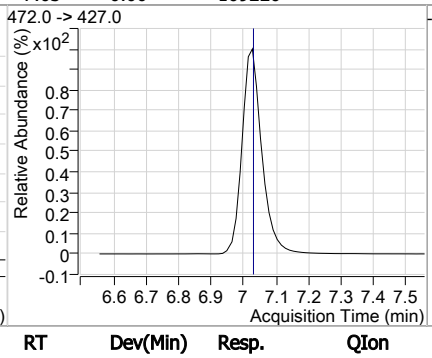


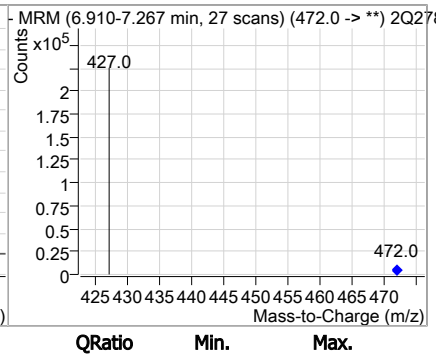




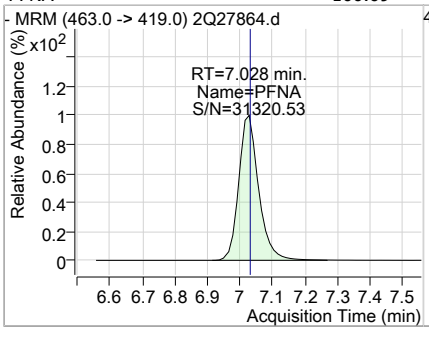
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	16.24	7.03	0.00	169226				

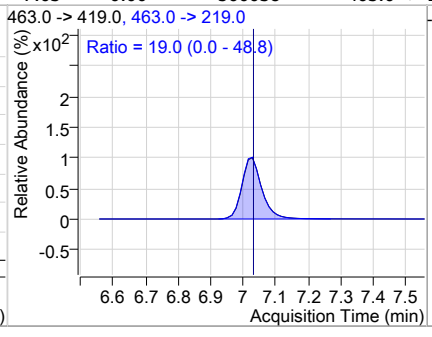


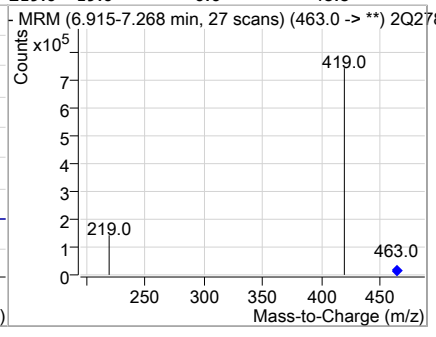




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	100.69	7.03	0.00	560038	463.0 -> 219.0	19.0	0.0	48.8

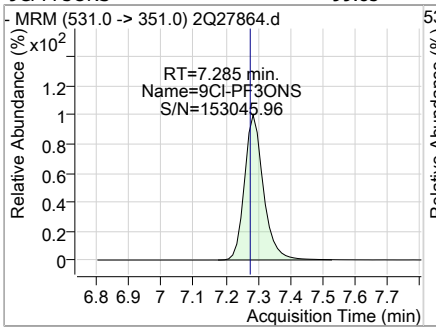


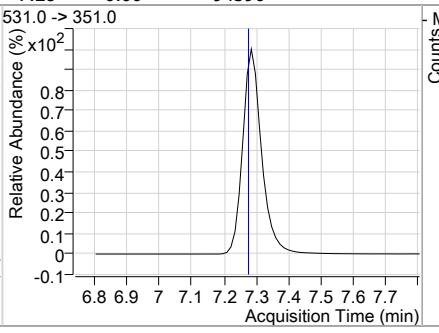


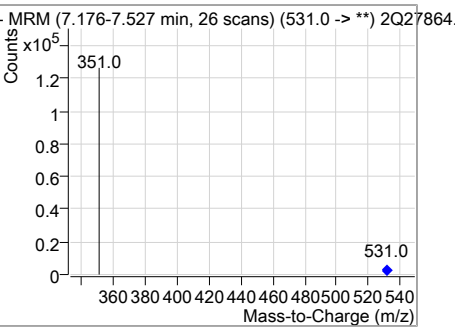


Perfluorinated Compounds by LC/MS/MS

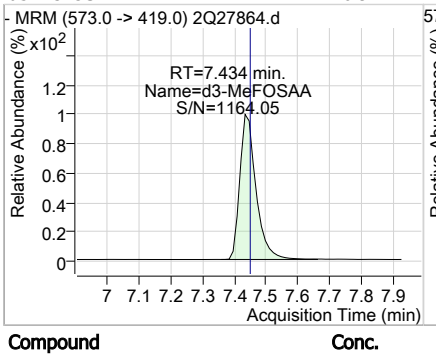
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	99.85	7.28	0.00	94596				

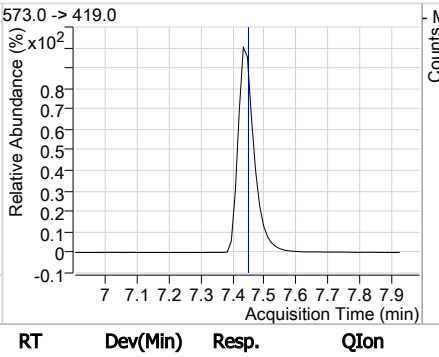


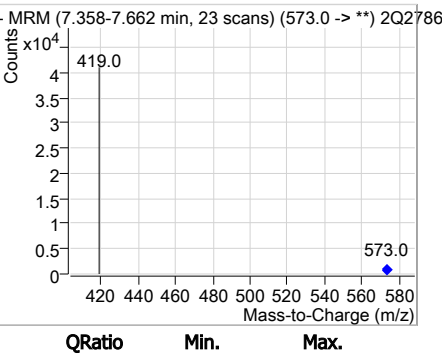




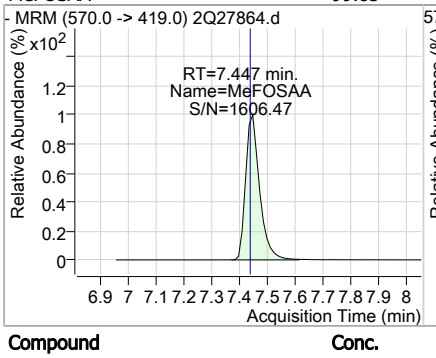
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	16.94	7.43	-0.01	29704				

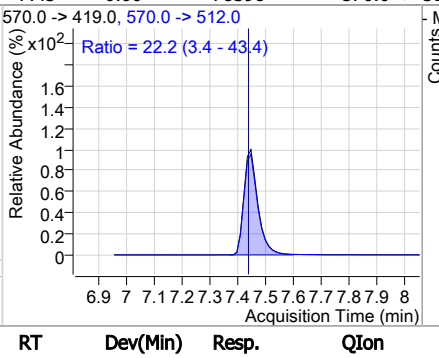


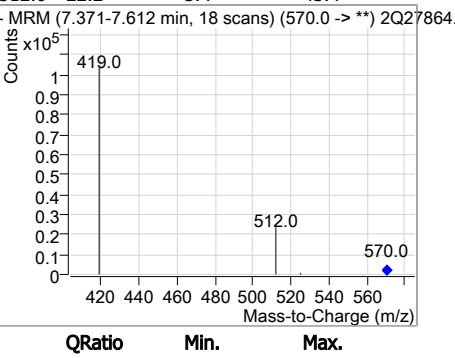




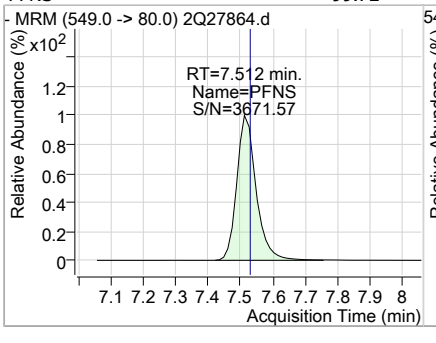
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	99.83	7.45	0.00	78398	570.0 -> 512.0	22.2	3.4	43.4

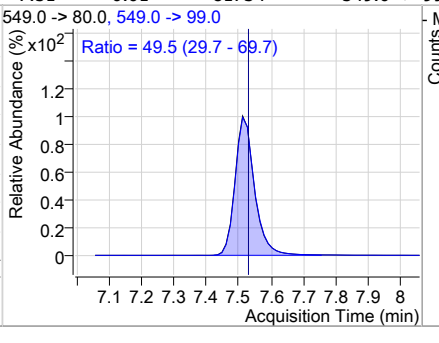


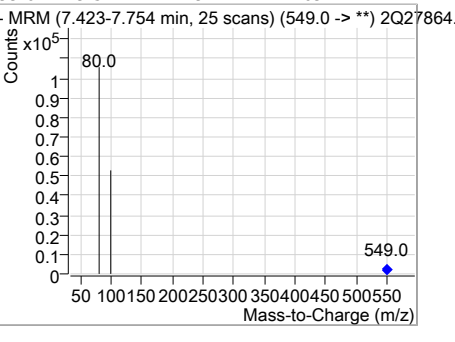




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	99.72	7.51	-0.01	81734	549.0 -> 99.0	49.5	29.7	69.7



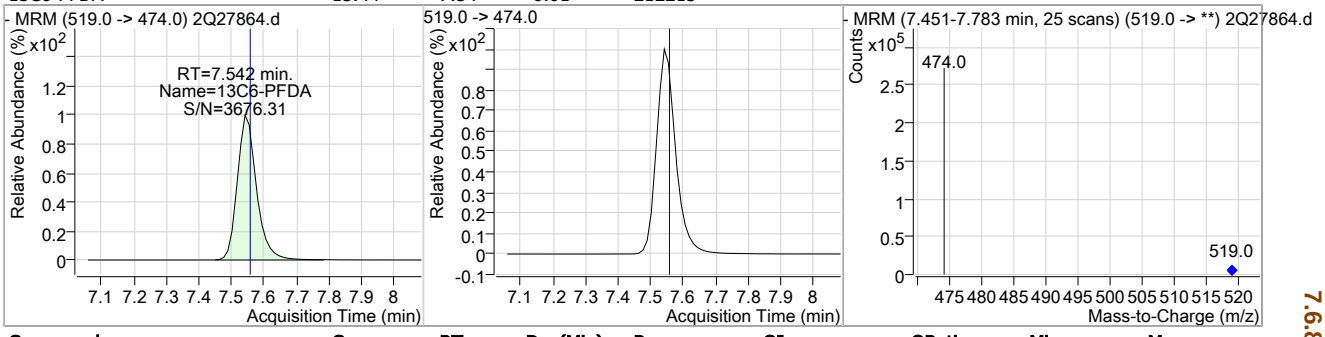




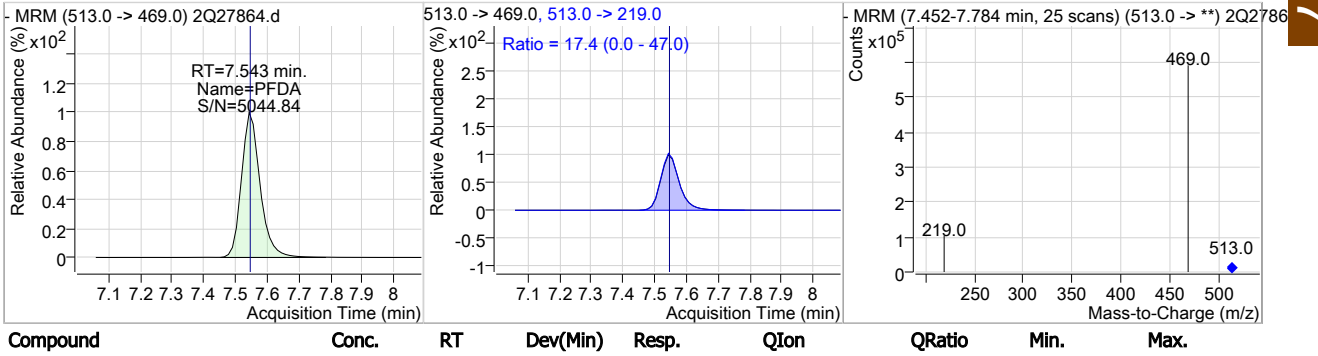
7.6.8

Perfluorinated Compounds by LC/MS/MS

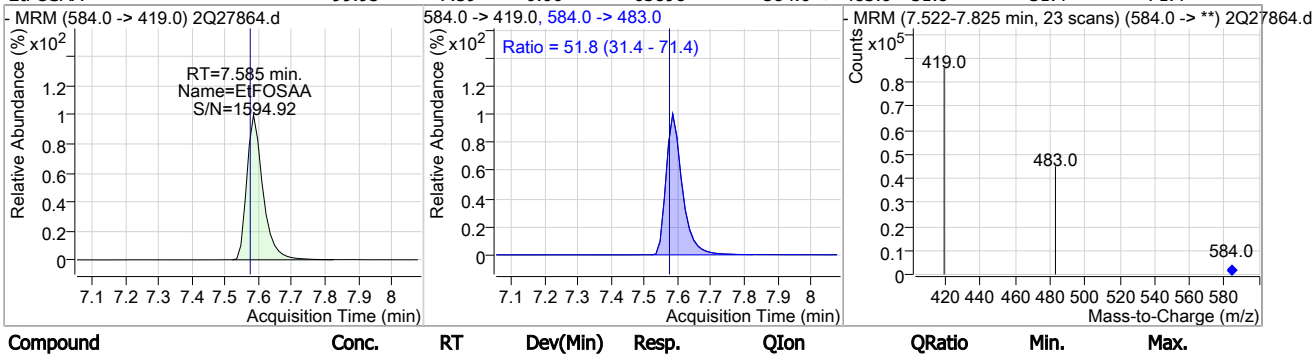
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	15.44	7.54	-0.01	212215				



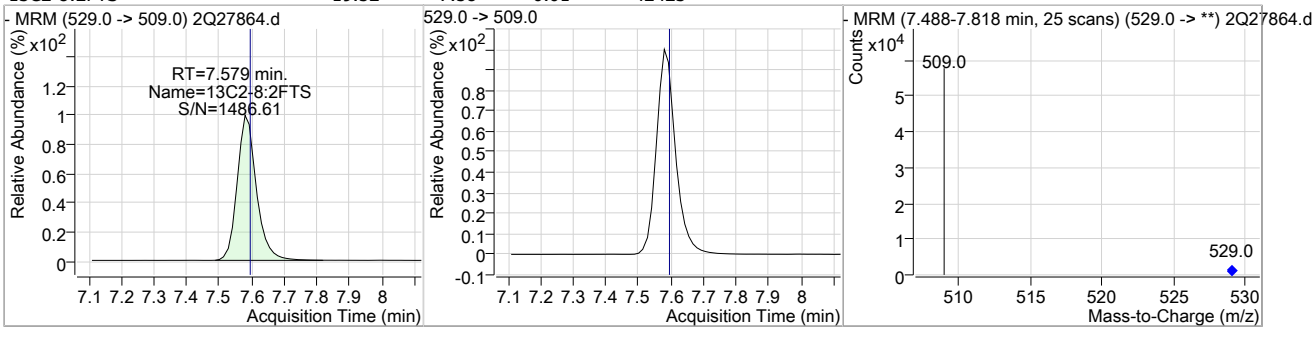
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.81	7.54	-0.01	463726	513.0 -> 219.0	17.4	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	99.95	7.59	0.00	63898	584.0 -> 483.0	51.8	31.4	71.4



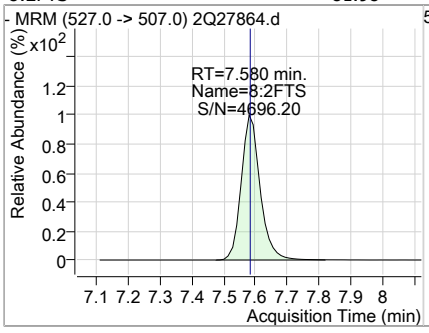
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.52	7.58	-0.01	42423				

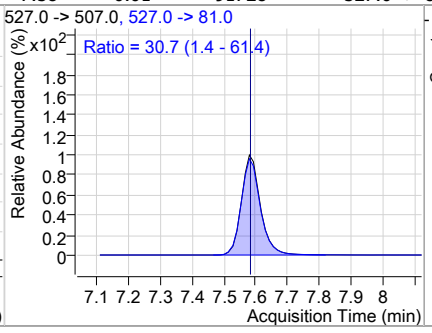


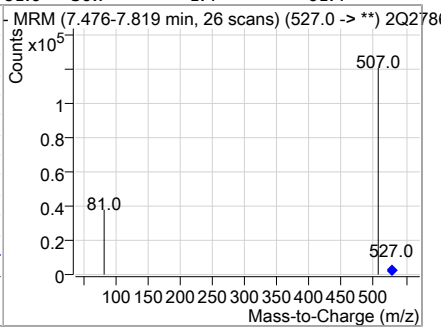
7.6.8

Perfluorinated Compounds by LC/MS/MS

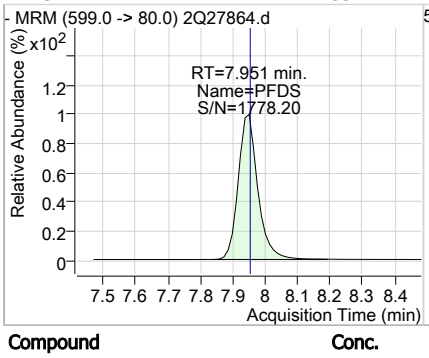
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	81.98	7.58	-0.01	91728	527.0 -> 81.0	30.7	1.4	61.4

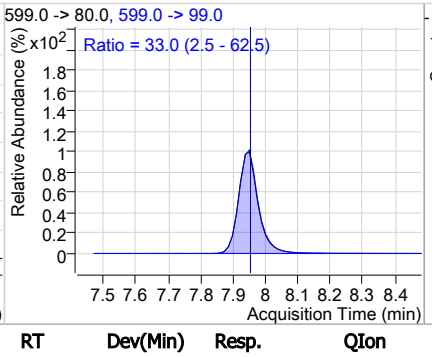


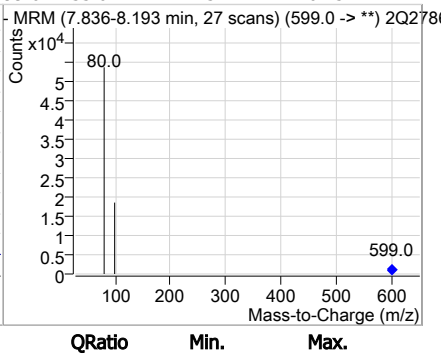




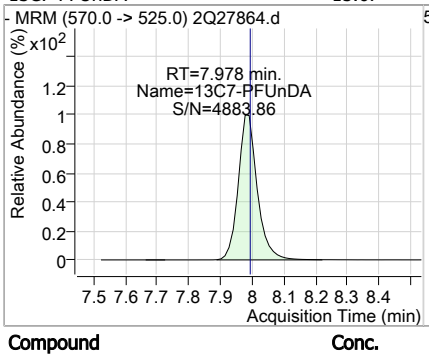
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	99.42	7.95	0.00	40427	599.0 -> 99.0	33.0	2.5	62.5

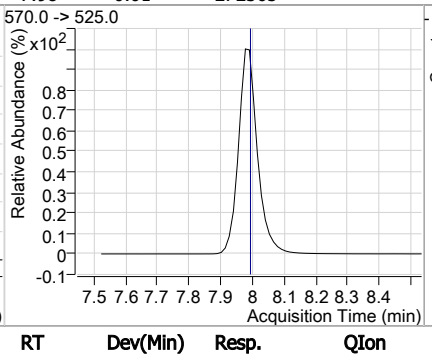


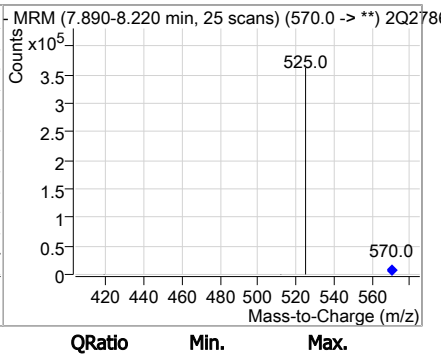




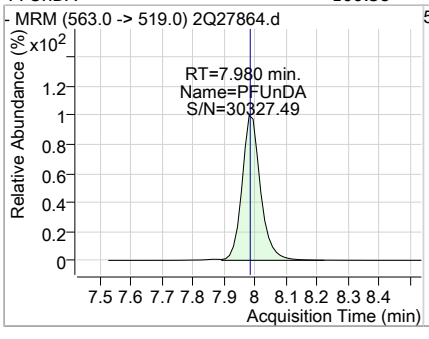
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	15.67	7.98	-0.01	272365				

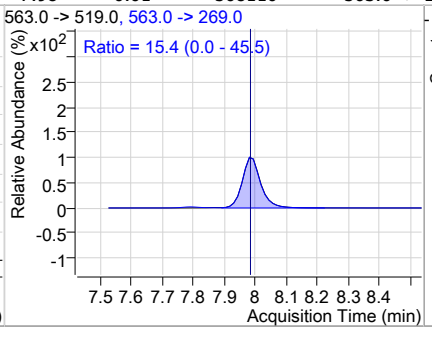


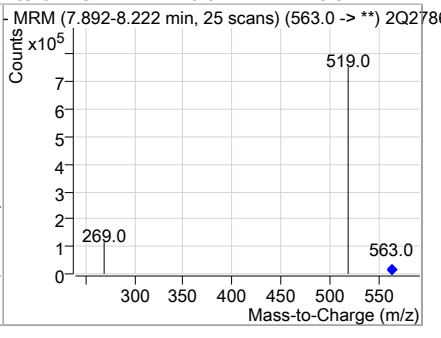




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	100.58	7.98	-0.01	568110	563.0 -> 269.0	15.4	0.0	45.5



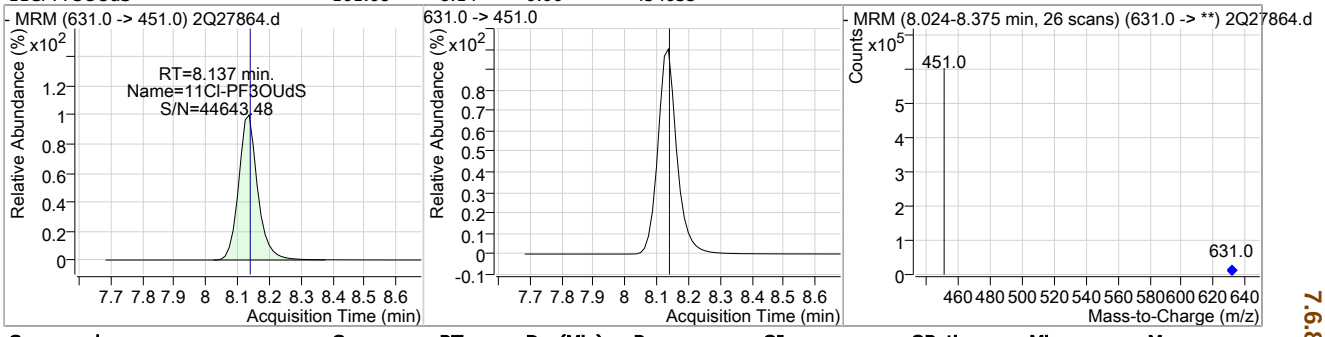




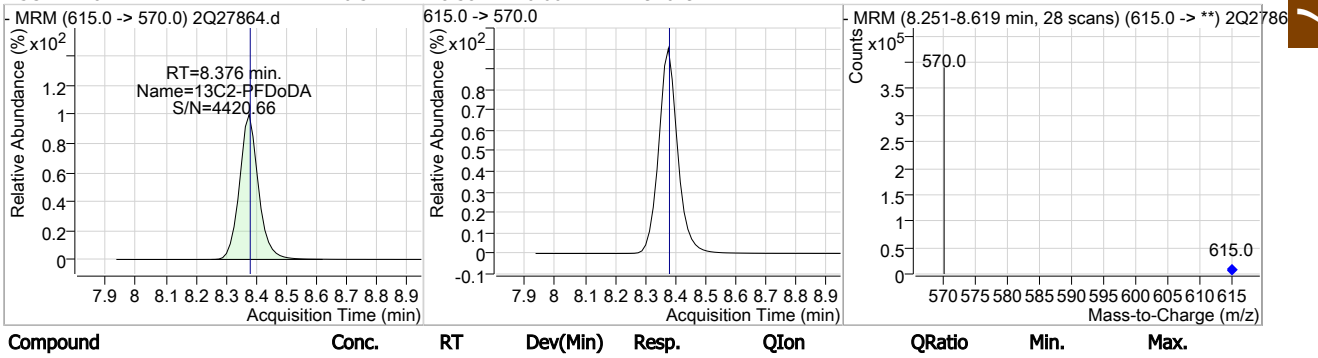
7.6.8

Perfluorinated Compounds by LC/MS/MS

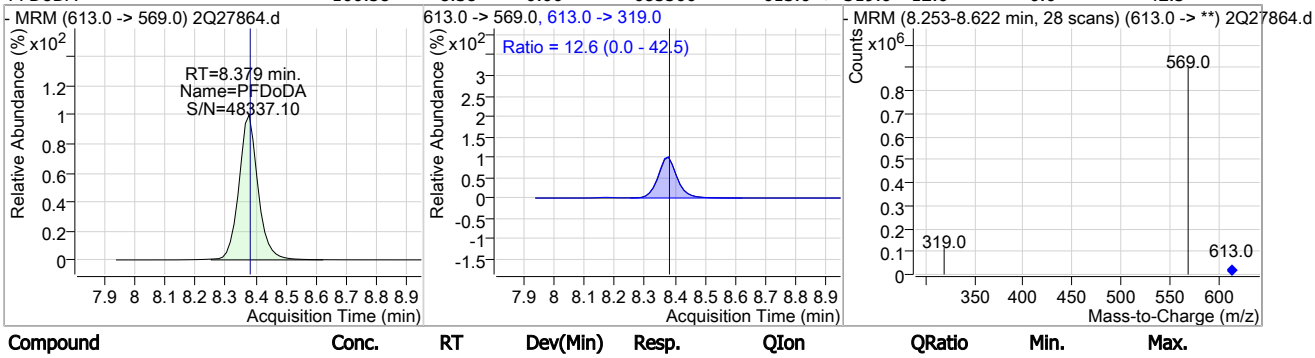
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	101.68	8.14	0.00	454635				



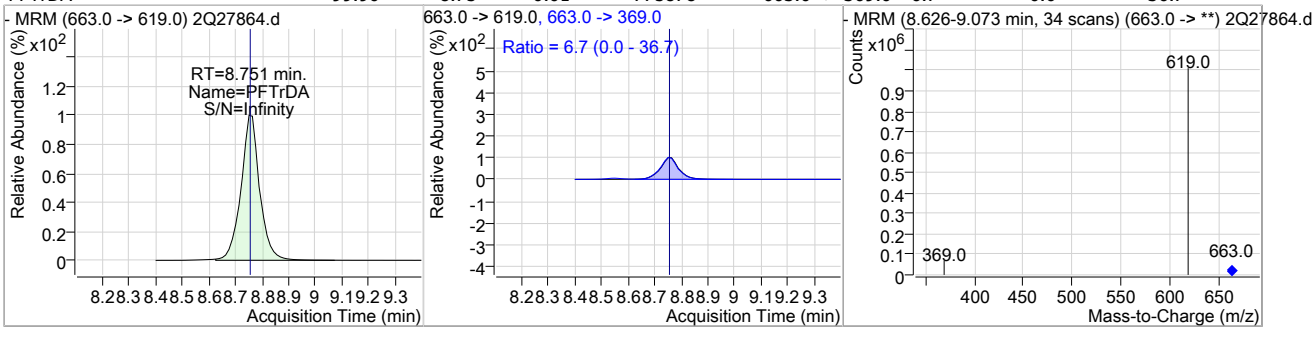
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	16.52	8.38	0.00	297019				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	100.58	8.38	0.00	685506	613.0 -> 319.0	12.6	0.0	42.5



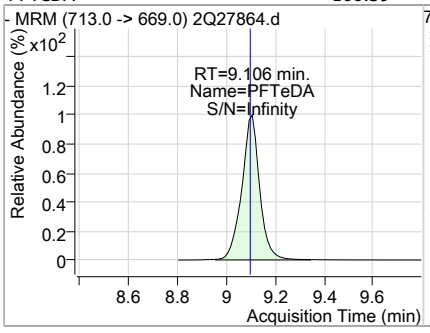
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	99.90	8.75	-0.01	775878	663.0 -> 369.0	6.7	0.0	36.7

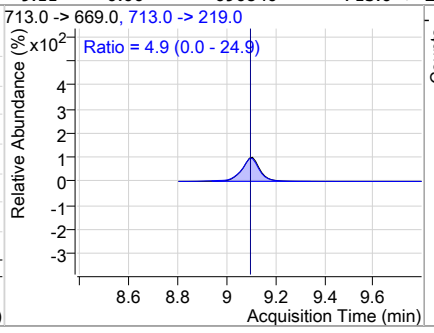


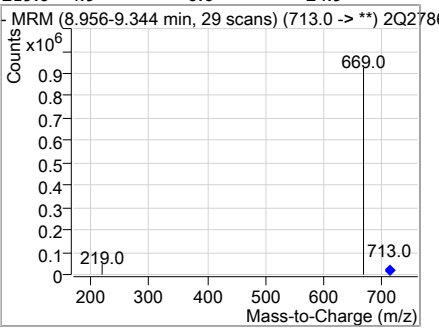
7.6.8

Perfluorinated Compounds by LC/MS/MS

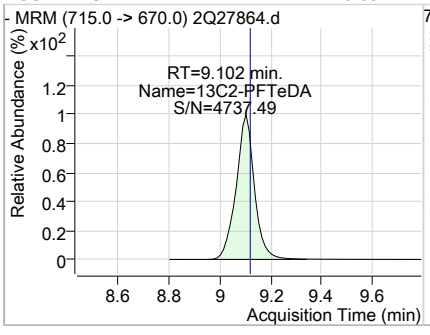
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	100.39	9.11	0.00	690840	713.0 -> 219.0	4.9	0.0	24.9

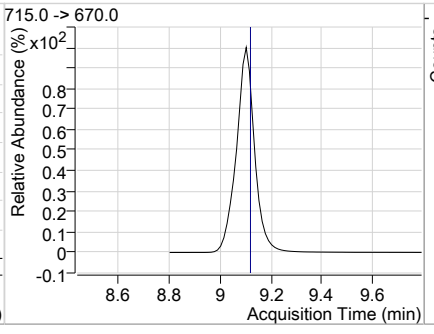


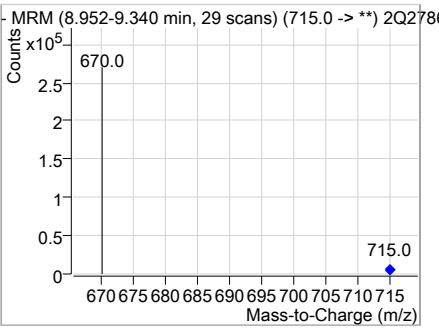




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	16.85	9.10	-0.01	200478				







7.6.8

Manual Integration Approval Summary

Sample Number: S2Q445-IC445
Lab FileID: 2Q27864.D
Injection Time: 03/21/19 13:13
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/22/19 16:23 Nancy Saunders
Supervisor approved: 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.00	Split peak

Cal Report: 2Q27866.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File	: 2Q27866.d
Operator	: nancyf
Acq. Method	: dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	: 3/21/2019 1:45:21 PM
Sample Name	: ICV445-20
Vial	: Vial 10
DA Method File	: ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name	: S2Q445.batch.bin
Sample Information	: op74164,S2Q445,250,,,1.0,1,water

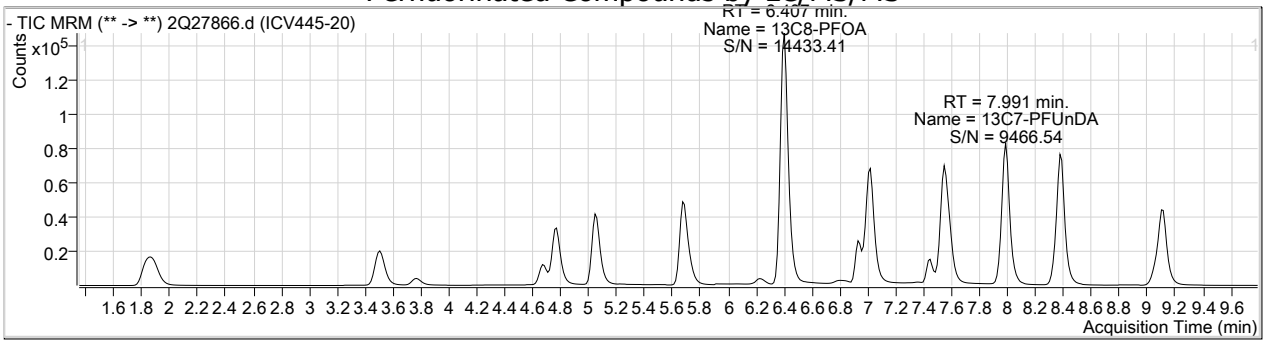
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	256713	20.00	µg/L	0.000
13C4-PFOS	7.010	503.0 -> 80.0	45191	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	123833	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	102315	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	138575	20.00	µg/L	0.000
M4-PFHpA	5.680	367.0 -> 322.0	194090	20.00	µg/L	-0.013
M8-PFOA	6.407	421.0 -> 376.0	195788	20.00	µg/L	0.000
M9-PFNA	7.027	472.0 -> 427.0	196375	20.00	µg/L	0.000
M6-PFDA	7.555	519.0 -> 474.0	262317	20.00	µg/L	0.000
M7-PFUnDA	7.991	570.0 -> 525.0	332296	20.00	µg/L	0.000
M2-PFDoDA	8.376	615.0 -> 570.0	333062	20.00	µg/L	0.000
M2-PFTeDA	9.102	715.0 -> 670.0	221221	20.00	µg/L	-0.013
M8-FOSA	6.931	506.0 -> 78.0	87472	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	19119	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	20571	20.00	µg/L	-0.013
M8-PFOS	7.008	507.0 -> 99.0	26788	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	49899	20.00	µg/L	-0.013
M2-6:2FTS	6.390	429.0 -> 409.0	54349	20.00	µg/L	-0.013
M2-8:2FTS	7.592	529.0 -> 509.0	38979	20.00	µg/L	0.000
M3-MeFOSAA	7.446	573.0 -> 419.0	32419	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	171244	100.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	49886	17.53	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.6%		
13C2-6:2FTS	6.390	429.0 -> 409.0	54346	18.03	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.2%		
13C2-8:2FTS	7.592	529.0 -> 509.0	38992	17.94	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.7%		
13C2-PFDoDA	8.376	615.0 -> 570.0	332924	18.52	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.6%		
13C2-PFTeDA	9.102	715.0 -> 670.0	220880	18.57	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C3-PFBS	3.767	302.0 -> 99.0	19060	18.58	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C3-PFHxS	5.723	402.0 -> 99.0	20575	18.51	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.6%		
13C4-PFBA	1.865	217.0 -> 172.0	123270	18.86	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C4-PFHpA	5.680	367.0 -> 322.0	194075	18.77	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C5-PFHxA	4.776	318.0 -> 273.0	138442	18.68	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.4%		
13C5-PFPeA	3.511	268.0 -> 223.0	102321	18.60	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C6-PFDA	7.555	519.0 -> 474.0	262324	19.08	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

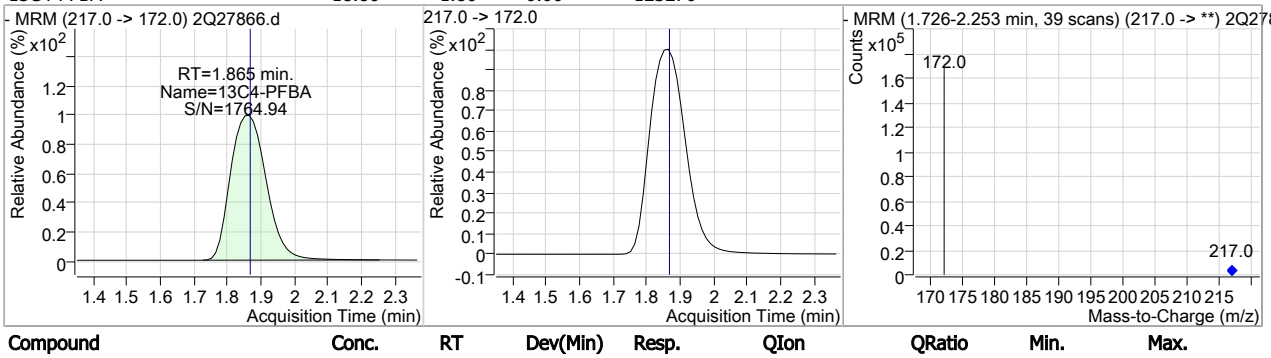
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C7-PFUnDA	7.991	570.0 -> 525.0	332689	19.14 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.7%		
13C8-FOSA	6.931	506.0 -> 78.0	87482	19.50 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C8-PFOA	6.407	421.0 -> 376.0	195579	18.98 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C8-PFOS	7.008	507.0 -> 99.0	26839	18.77 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C9-PFNA	7.027	472.0 -> 427.0	196297	18.83 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.2%		
d3-MeFOSAA	7.446	573.0 -> 419.0	32410	18.48 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.4%		
M2-PFOA	6.409	415.0 -> 370.0	257040	20.02 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
M4-PFOS	7.010	503.0 -> 80.0	45190	19.98 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	171244	102.73 µg/L		-0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
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	7.585	584.0 -> 419.0	11340	16.06 µg/L	m	92
FOSA	-	498.0 -> 78.0	-	N.D.		
MeFOSAA	7.447	570.0 -> 419.0	15312	17.97 µg/L	m	96
PFBA	-	213.0 -> 169.0	-	N.D.		
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	-	363.0 -> 319.0	-	N.D.		
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	-	313.0 -> 269.0	-	N.D.		
PFHxS	5.726	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	6.411	413.0 -> 369.0	89696	17.05 µg/L	m	96
PFOS	7.012	499.0 -> 80.0	25836	19.60 µg/L	m	93
PFPeA	-	263.0 -> 219.0	-	N.D.		
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.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

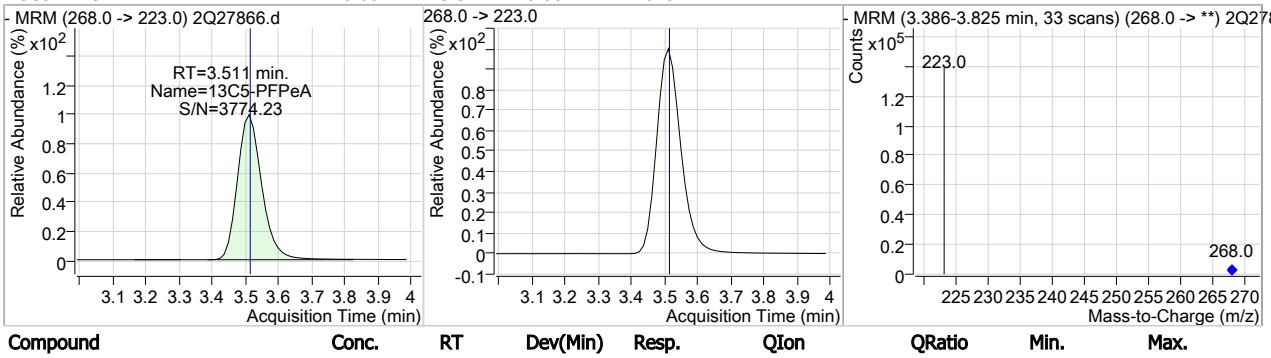
Perfluorinated Compounds by LC/MS/MS



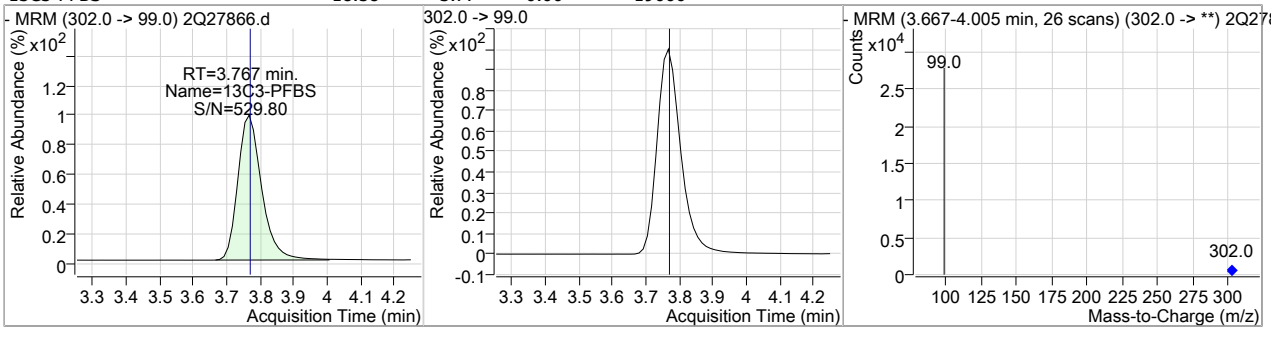
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.86	1.86	0.00	123270				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.60	3.51	0.00	102321				

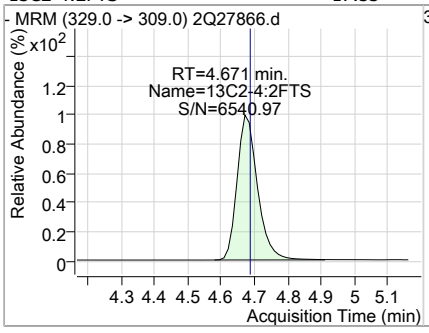


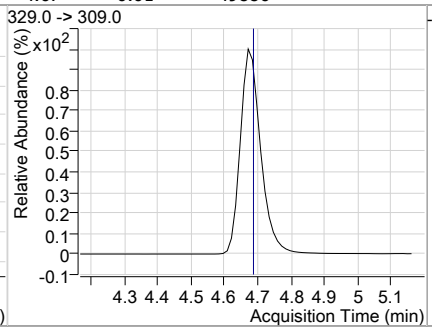
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.58	3.77	0.00	19060				

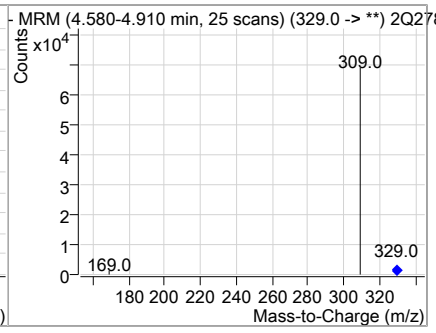


Perfluorinated Compounds by LC/MS/MS

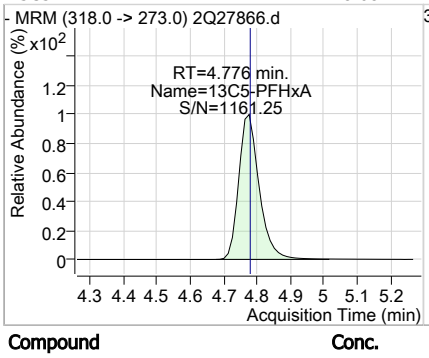
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.53	4.67	-0.01	49886				

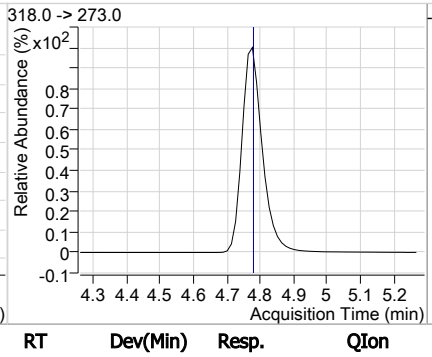


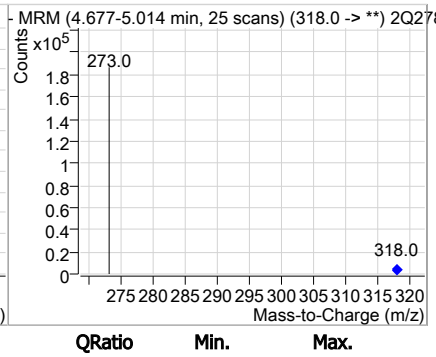




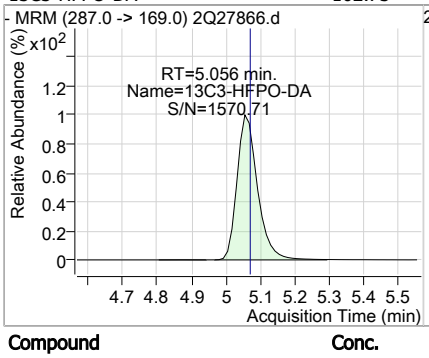
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.68	4.78	0.00	138442				

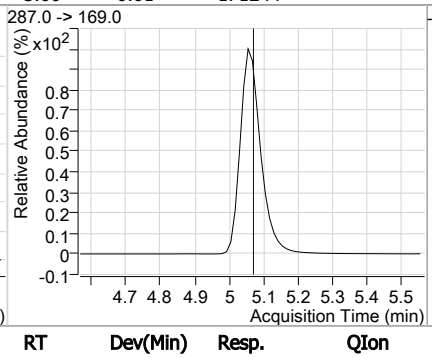


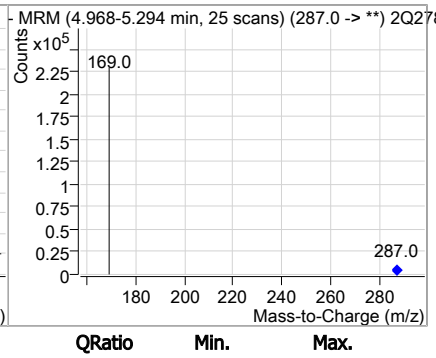




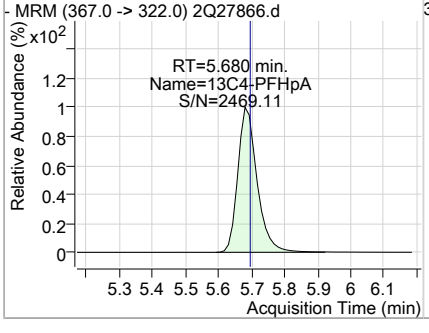
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	102.73	5.06	-0.01	171244				

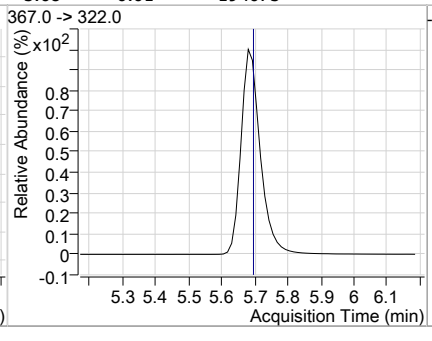


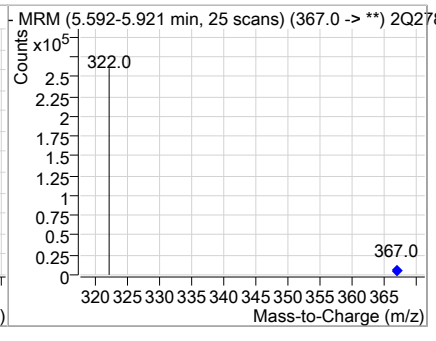




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.77	5.68	-0.01	194075				



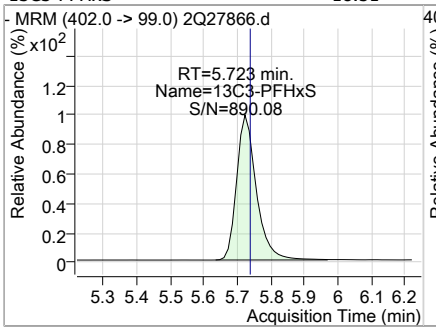


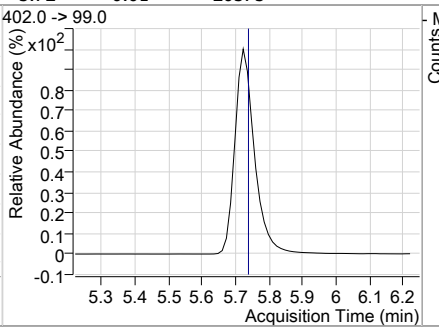


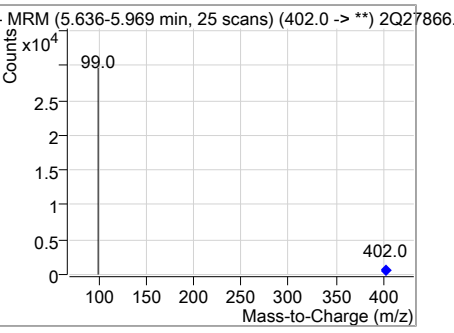
7.6.9

Perfluorinated Compounds by LC/MS/MS

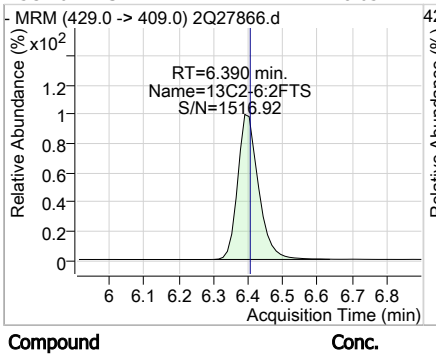
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.51	5.72	-0.01	20575				

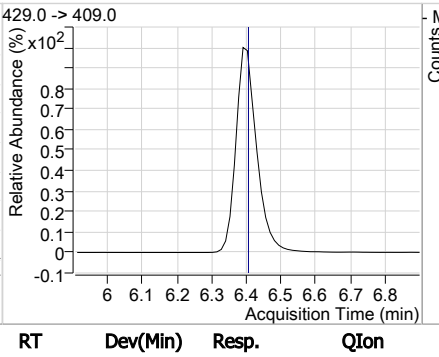


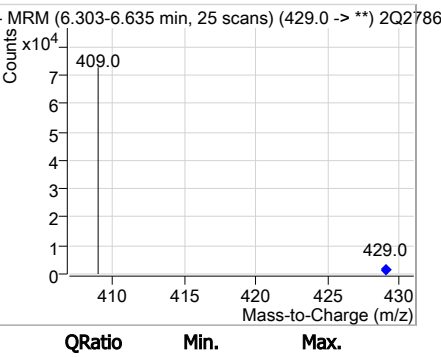




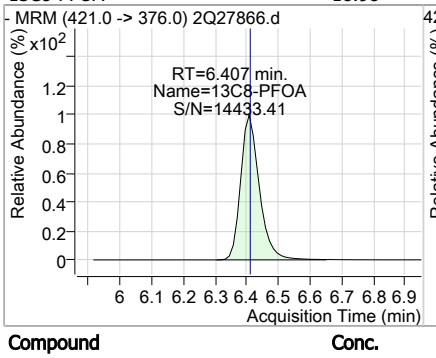
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.03	6.39	-0.01	54346				

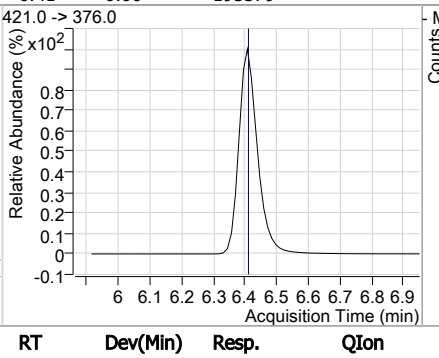


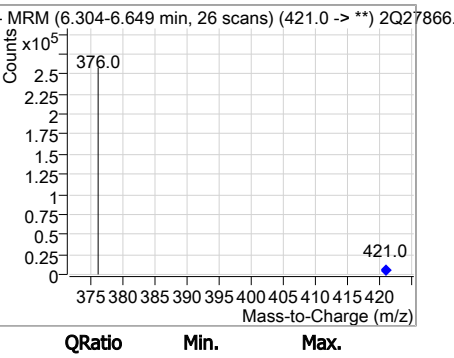




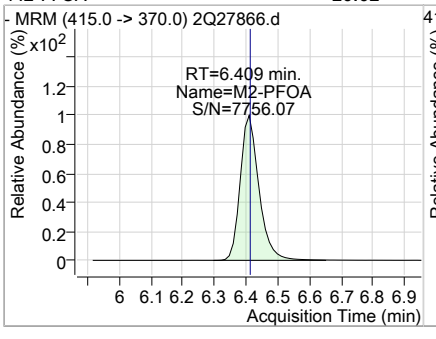
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.98	6.41	0.00	195579				

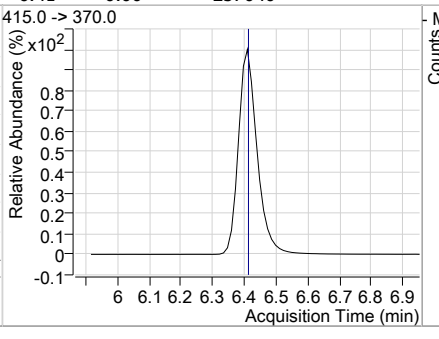


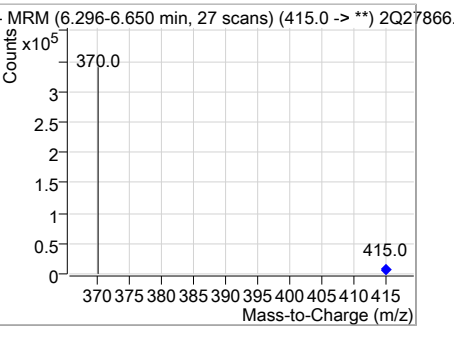




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.02	6.41	0.00	257040				







7.6.9

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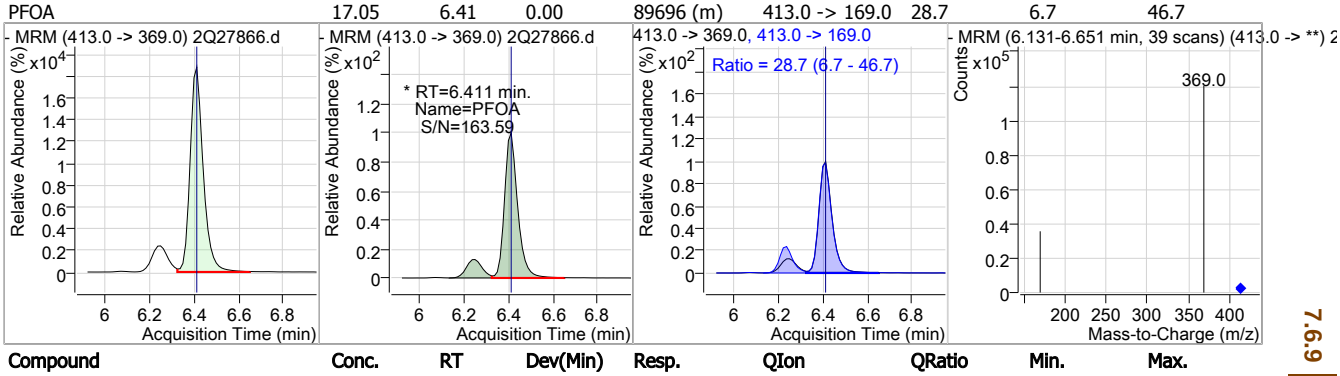
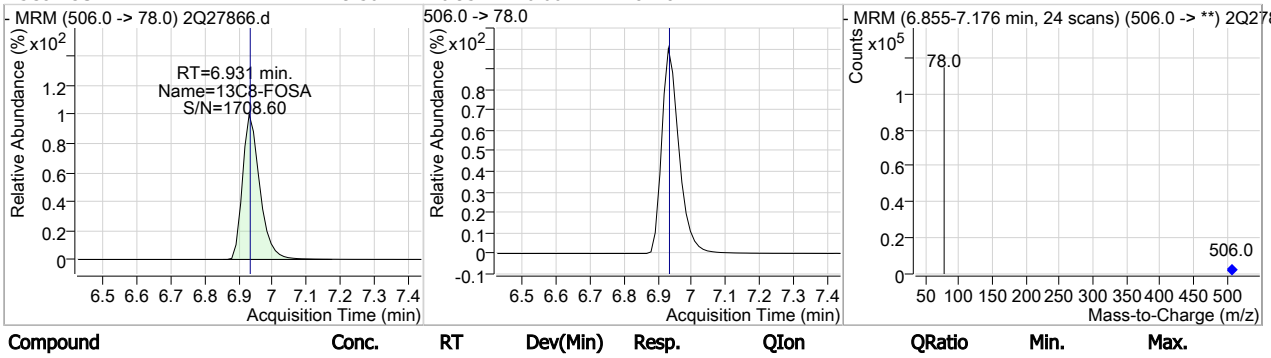
Perfluorinated Compounds by LC/MS/MS

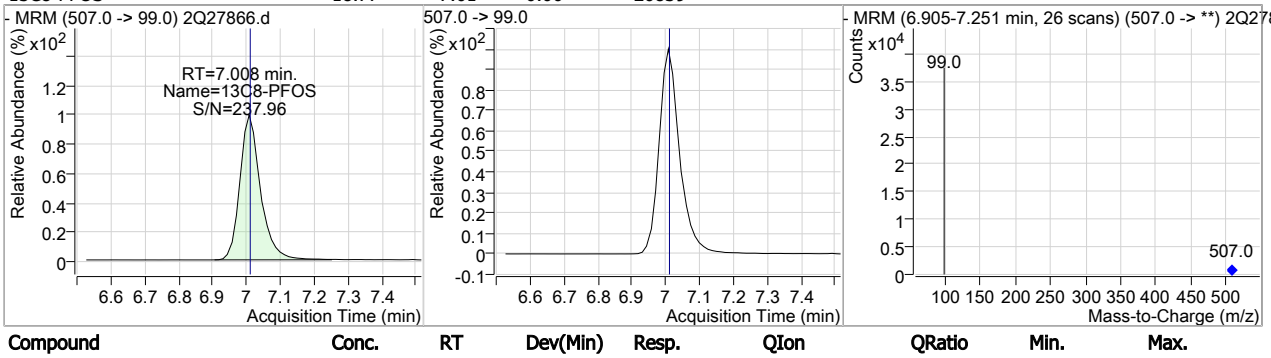
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	17.05	6.41	0.00	89696 (m)	413.0 -> 169.0	28.7	6.7	46.7



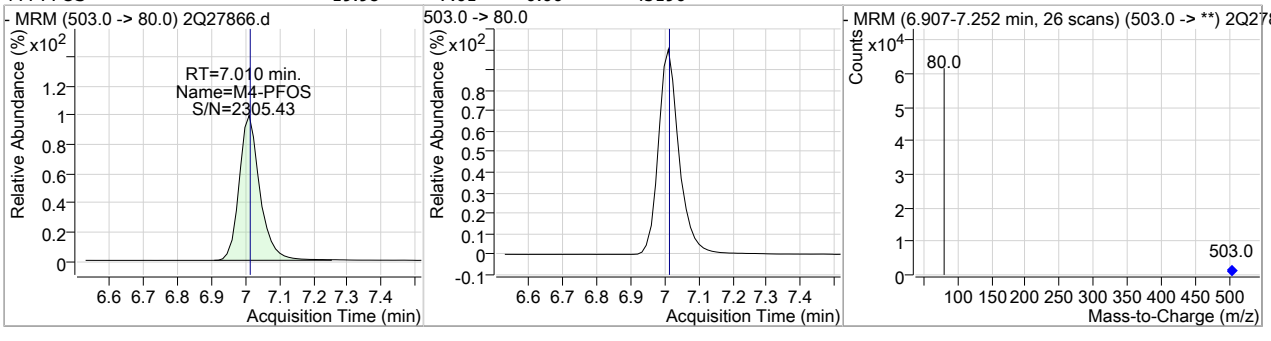
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.50	6.93	0.00	87482				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.77	7.01	0.00	26839				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.01	0.00	45190				



7.6.9

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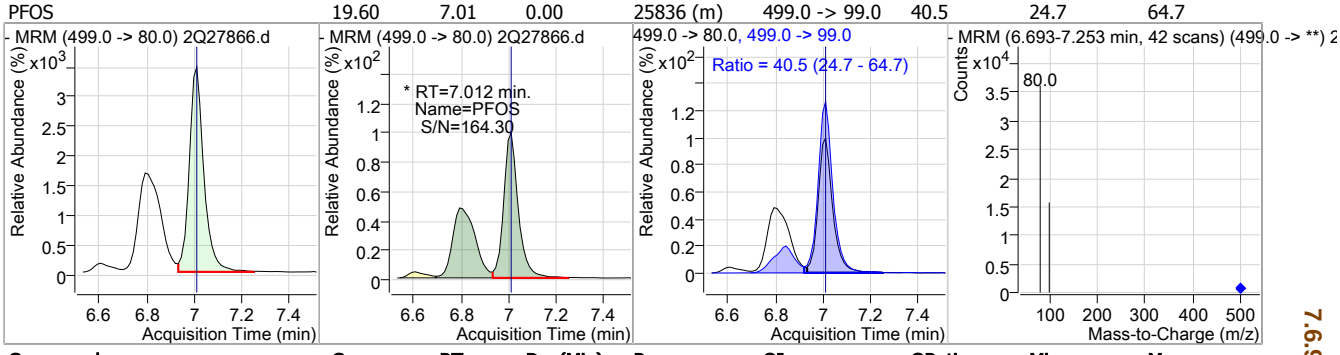
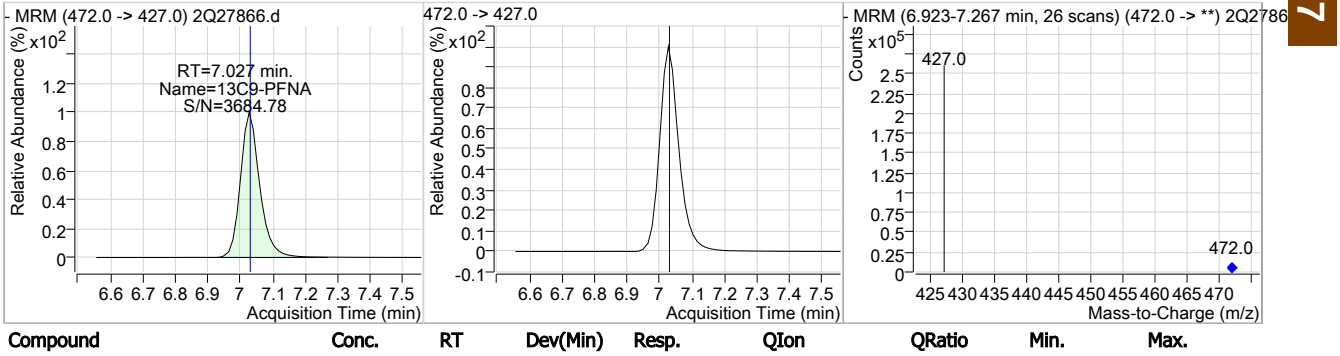
Perfluorinated Compounds by LC/MS/MS

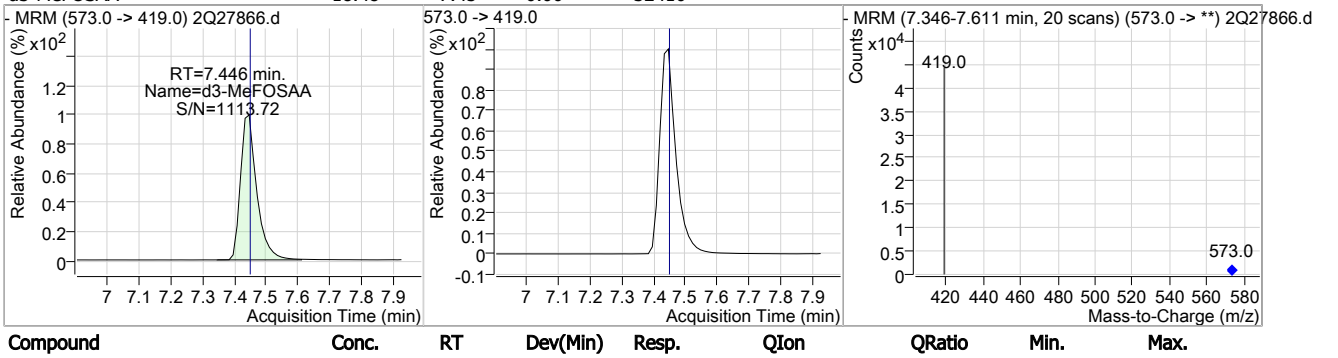
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.60	7.01	0.00	25836 (m)	499.0 -> 99.0	40.5	24.7	64.7



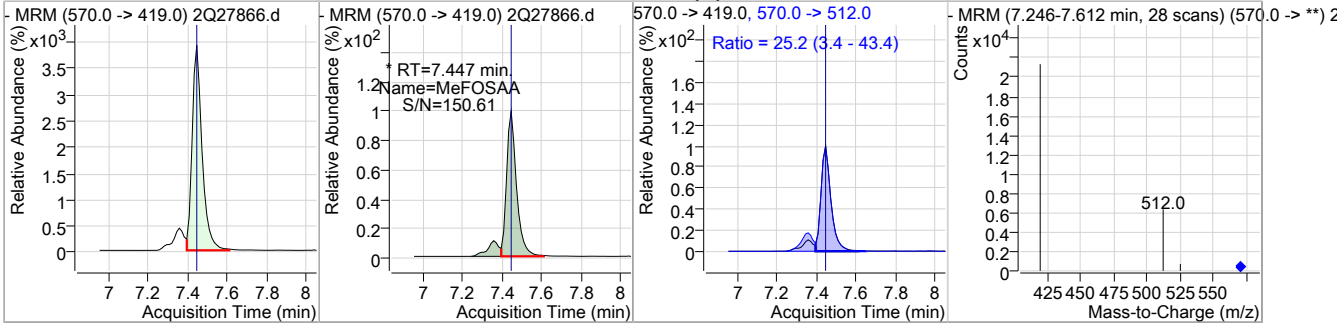
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.83	7.03	0.00	196297				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.48	7.45	0.00	32410				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.97	7.45	0.00	15312 (m)	570.0 -> 512.0	25.2	3.4	43.4

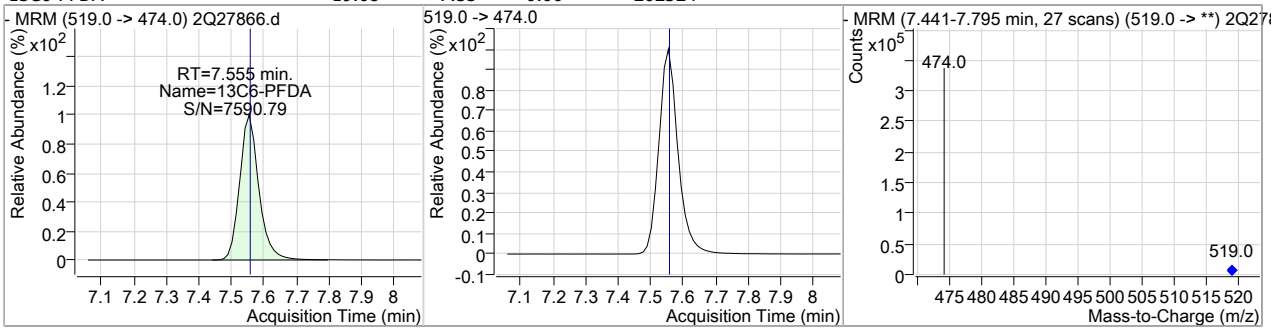


7.6.9

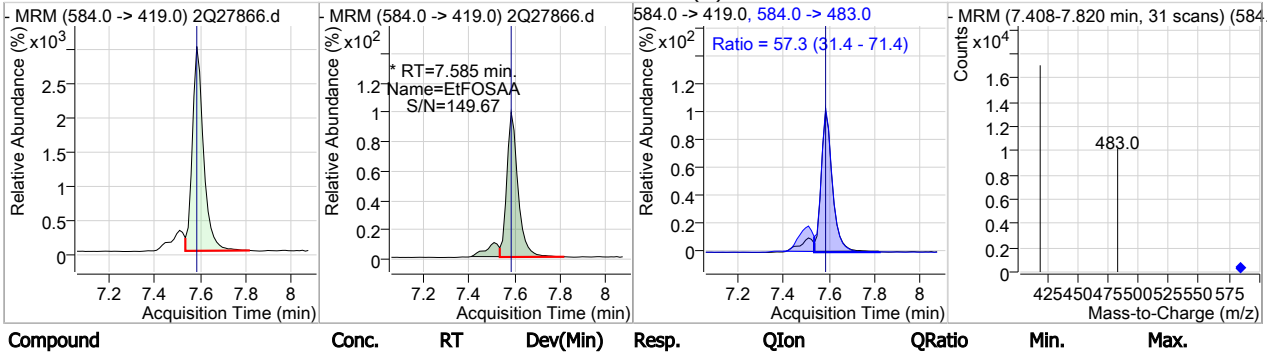
7

Perfluorinated Compounds by LC/MS/MS

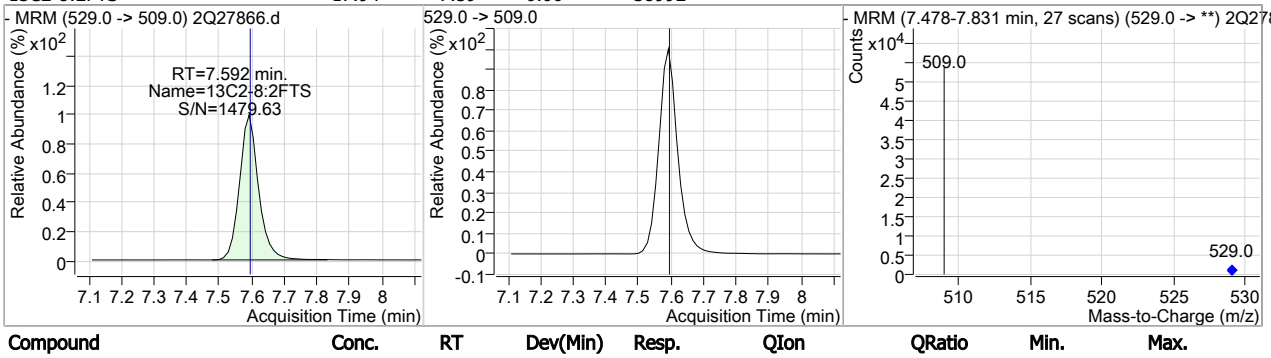
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.08	7.55	0.00	262324				



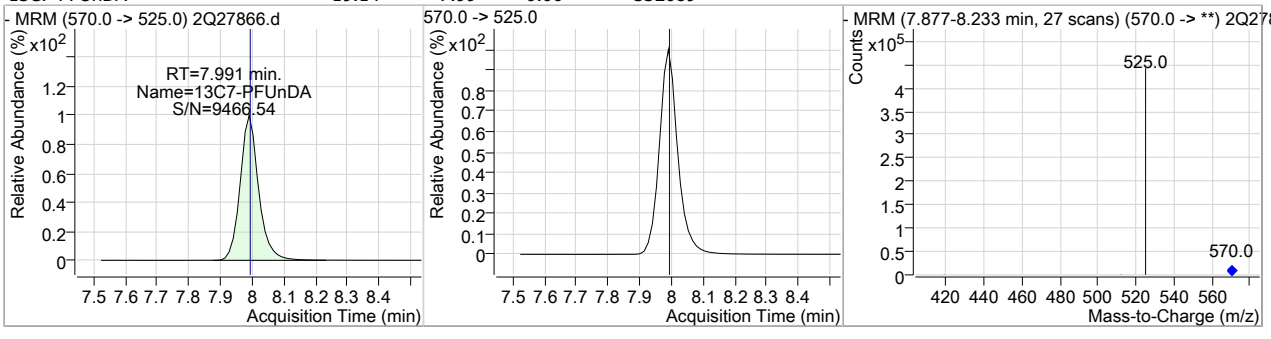
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	16.06	7.59	0.00	11340 (m)	584.0 -> 483.0	57.3	31.4	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.94	7.59	0.00	38992				



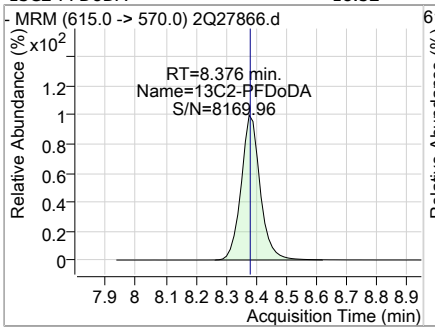
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.14	7.99	0.00	332689				

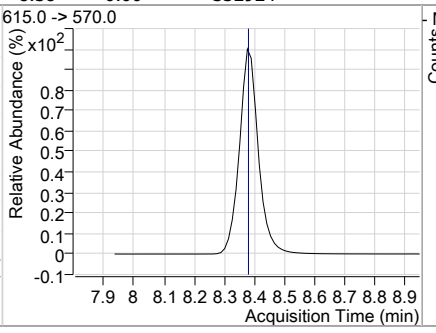


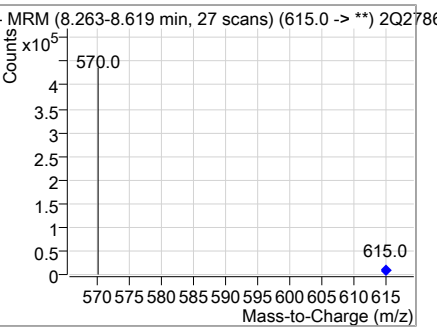
7.6.9

Perfluorinated Compounds by LC/MS/MS

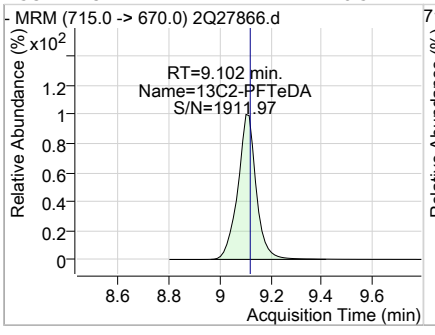
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.52	8.38	0.00	332924				

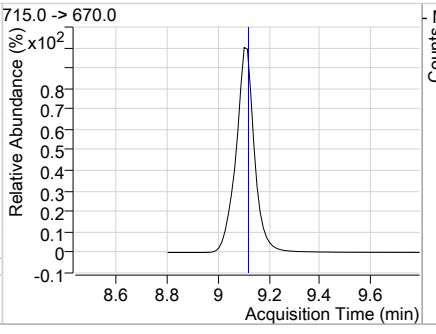


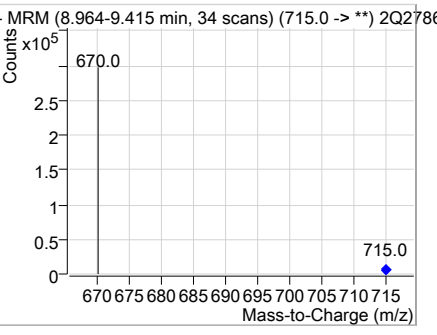




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.57	9.10	-0.01	220880				







7.6.9

Manual Integration Approval Summary

Sample Number: S2Q445-ICV445 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q27866.D **Analyst approved:** 03/22/19 16:23 Nancy Saunders
Injection Time: 03/21/19 13:45 **Supervisor approved:** 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.41	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak
MeFOSAA	2355-31-9		7.45	Split peak
EtFOSAA	2991-50-6		7.58	Split peak

Cal Report: 2Q27867.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q27867.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/21/2019 2:01:04 PM
Sample Name : ICV445-20
Vial : Vial 11
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : S2Q445.batch.bin
Sample Information : op74164,S2Q445,250,,,1.0,1,water

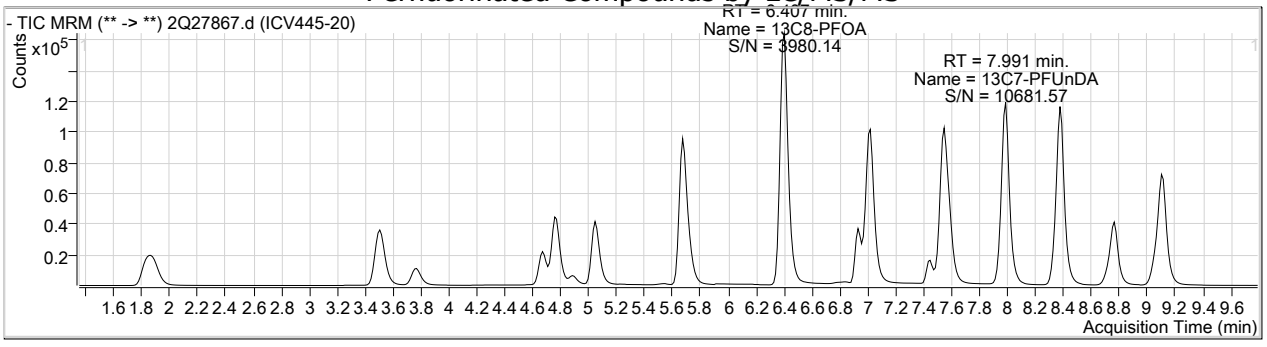
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	252966	20.00	µg/L	0.000
13C4-PFOS	7.010	503.0 -> 80.0	45337	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	123396	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	102529	20.00	µg/L	0.000
M5-PFHxA	4.764	318.0 -> 273.0	138543	20.00	µg/L	-0.013
M4-PFHpA	5.680	367.0 -> 322.0	193957	20.00	µg/L	-0.013
M8-PFOA	6.407	421.0 -> 376.0	194070	20.00	µg/L	0.000
M9-PFNA	7.027	472.0 -> 427.0	197531	20.00	µg/L	0.000
M6-PFDA	7.555	519.0 -> 474.0	262186	20.00	µg/L	0.000
M7-PFUnDA	7.991	570.0 -> 525.0	325978	20.00	µg/L	0.000
M2-PFDoDA	8.376	615.0 -> 570.0	335252	20.00	µg/L	0.000
M2-PFTeDA	9.102	715.0 -> 670.0	221512	20.00	µg/L	-0.013
M8-FOSA	6.931	506.0 -> 78.0	85164	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	19321	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	20870	20.00	µg/L	-0.013
M8-PFOS	7.008	507.0 -> 99.0	27023	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	52677	20.00	µg/L	-0.013
M2-6:2FTS	6.390	429.0 -> 409.0	56961	20.00	µg/L	-0.013
M2-8:2FTS	7.592	529.0 -> 509.0	40884	20.00	µg/L	0.000
M3-MeFOSAA	7.446	573.0 -> 419.0	32811	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	168171	100.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	52472	18.44	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%		
13C2-6:2FTS	6.390	429.0 -> 409.0	56902	18.88	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.4%		
13C2-8:2FTS	7.592	529.0 -> 509.0	40846	18.79	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C2-PFDoDA	8.376	615.0 -> 570.0	335074	18.64	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C2-PFTeDA	9.102	715.0 -> 670.0	221253	18.60	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C3-PFBS	3.767	302.0 -> 99.0	19230	18.74	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C3-PFHxS	5.723	402.0 -> 99.0	20869	18.78	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C4-PFBA	1.865	217.0 -> 172.0	122820	18.79	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.9%		
13C4-PFHpA	5.680	367.0 -> 322.0	193874	18.75	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C5-PFHxA	4.764	318.0 -> 273.0	138253	18.66	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C5-PFPeA	3.511	268.0 -> 223.0	102538	18.64	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C6-PFDA	7.555	519.0 -> 474.0	262180	19.07	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

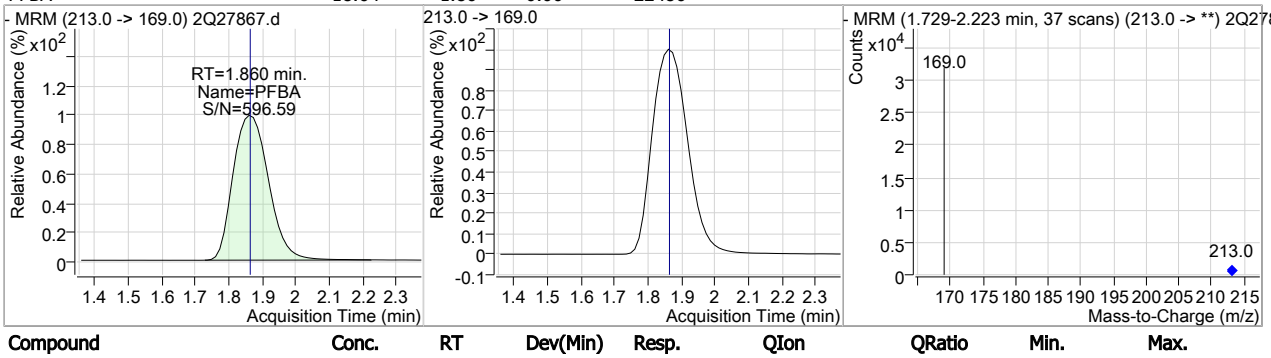
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C7-PFUnDA	7.991	570.0 -> 525.0	325902	18.75 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C8-FOSA	6.931	506.0 -> 78.0	85126	18.98 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C8-PFOA	6.407	421.0 -> 376.0	194040	18.83 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C8-PFOS	7.008	507.0 -> 99.0	26981	18.87 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
13C9-PFNA	7.027	472.0 -> 427.0	197544	18.95 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.8%		
d3-MeFOSAA	7.446	573.0 -> 419.0	32812	18.71 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
M2-PFOA	6.409	415.0 -> 370.0	253082	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.010	503.0 -> 80.0	45335	19.98 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	168171	100.89 µg/L		-0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	27196	17.55 µg/L		100
6:2FTS	6.392	427.0 -> 407.0	25783	17.94 µg/L		100
8:2FTS	7.593	527.0 -> 507.0	18938	17.56 µg/L		99
EtFOSAA	7.585	584.0 -> 419.0	14482	20.27 µg/L		98
FOSA	6.934	498.0 -> 78.0	38785	19.76 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	17043	19.76 µg/L		99
PFBA	1.860	213.0 -> 169.0	22486	18.64 µg/L		100
PFBS	3.771	299.0 -> 80.0	24921	15.92 µg/L		100
PFDA	7.556	513.0 -> 469.0	96776	17.02 µg/L		100
PFDoDA	8.379	613.0 -> 569.0	147938	19.24 µg/L		100
PFDS	7.951	599.0 -> 80.0	7988	17.46 µg/L		98
PFHpA	5.683	363.0 -> 319.0	171526	19.72 µg/L		100
PFHpS	6.413	449.0 -> 80.0	17710	18.15 µg/L		98
PFHxA	4.765	313.0 -> 269.0	40596	16.81 µg/L		100
PFHxS	5.726	399.0 -> 80.0	18653	16.17 µg/L	m	98
PFNA	7.028	463.0 -> 419.0	112858	17.39 µg/L		99
PFNS	7.527	549.0 -> 80.0	16805	18.22 µg/L		96
PFOA	6.411	413.0 -> 369.0	98330	18.86 µg/L		100
PFOS	7.012	499.0 -> 80.0	24630	18.53 µg/L	m	94
PFPeA	3.515	263.0 -> 219.0	81697	17.87 µg/L		100
PFPeS	4.883	349.0 -> 80.0	15897	15.86 µg/L		98
PFTeDA	9.106	713.0 -> 669.0	131736	17.34 µg/L		100
PFTrDA	8.764	663.0 -> 619.0	180212	21.02 µg/L		100
PFUnDA	7.993	563.0 -> 519.0	129387	19.13 µg/L		99
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

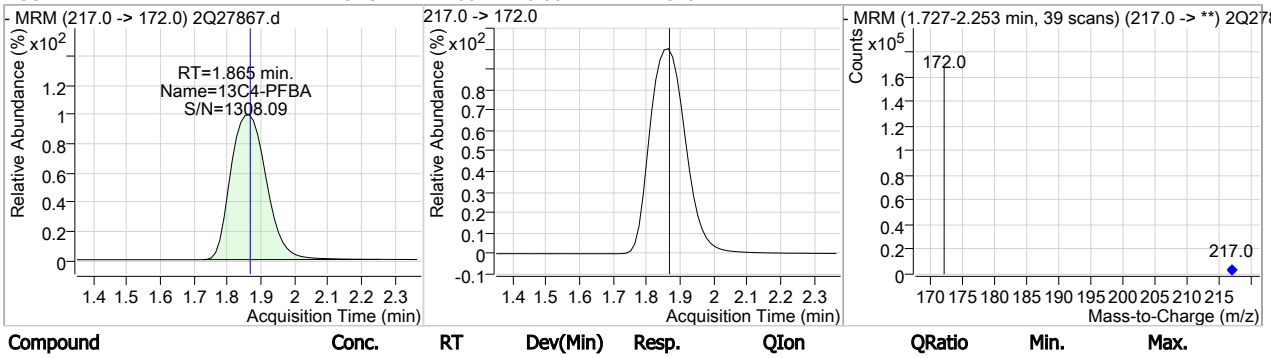
Perfluorinated Compounds by LC/MS/MS



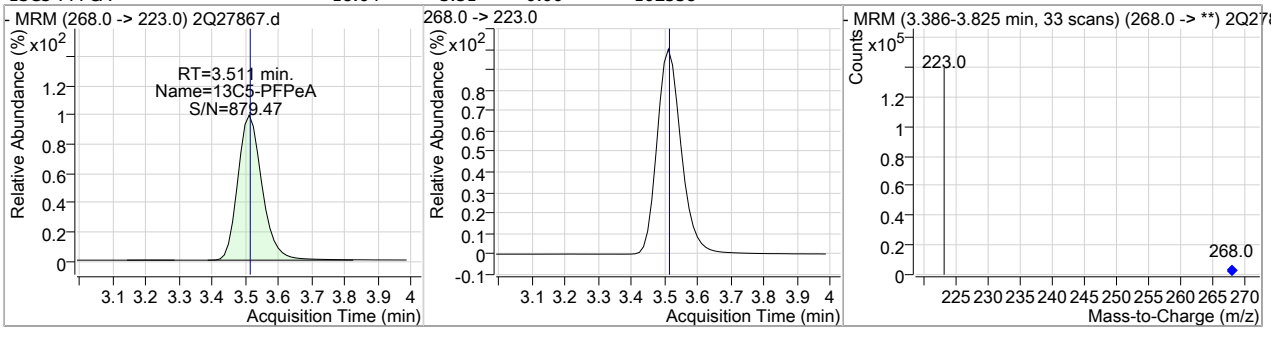
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.64	1.86	0.00	22486				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.79	1.86	0.00	122820				

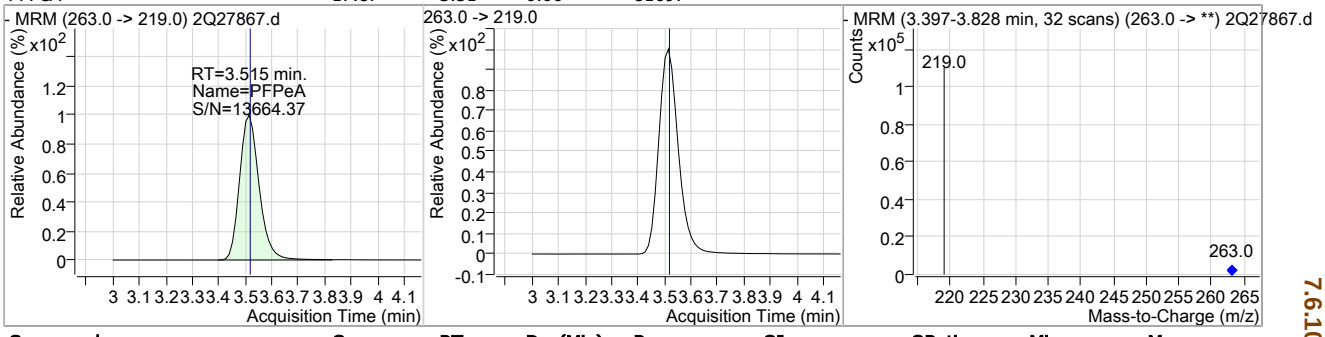


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.64	3.51	0.00	102538				

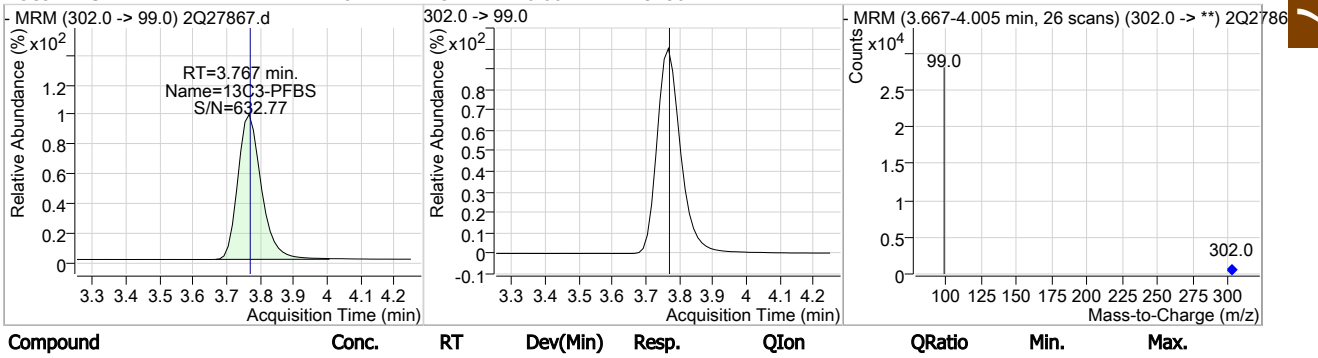


Perfluorinated Compounds by LC/MS/MS

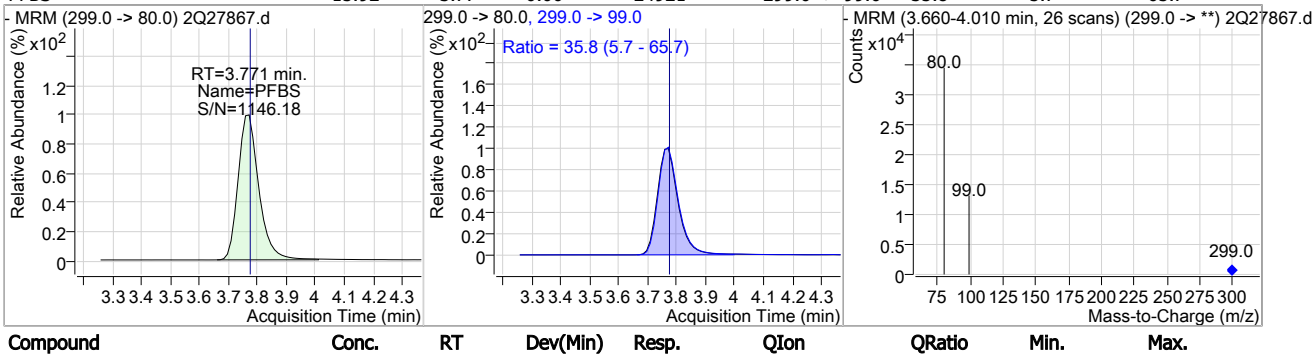
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	17.87	3.51	0.00	81697				



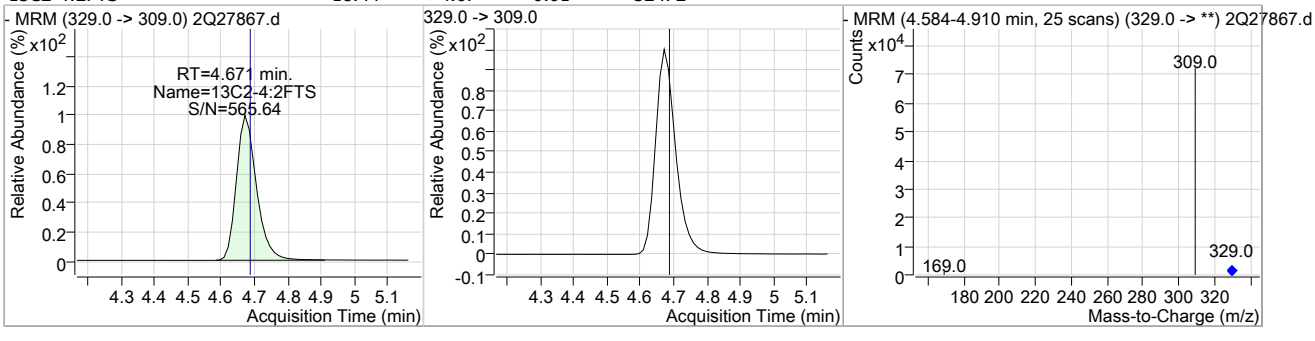
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.74	3.77	0.00	19230				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	15.92	3.77	0.00	24921	299.0 -> 99.0	35.8	5.7	65.7



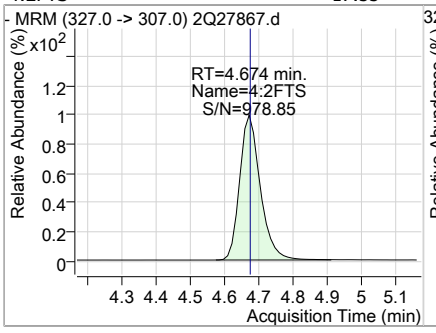
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.44	4.67	-0.01	52472				

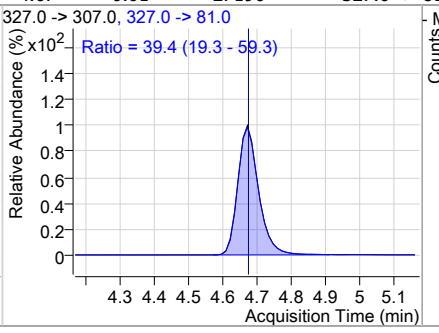


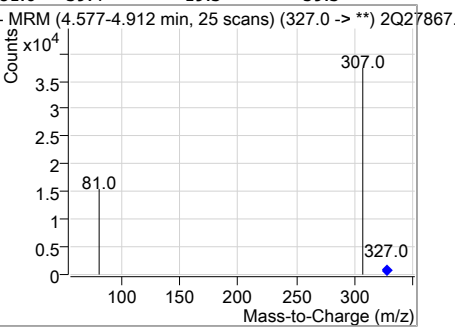
7.6.10

Perfluorinated Compounds by LC/MS/MS

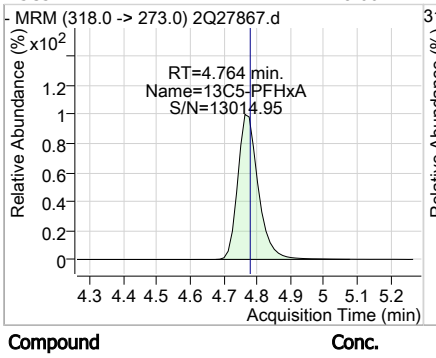
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	17.55	4.67	-0.01	27196	327.0 -> 81.0	39.4	19.3	59.3

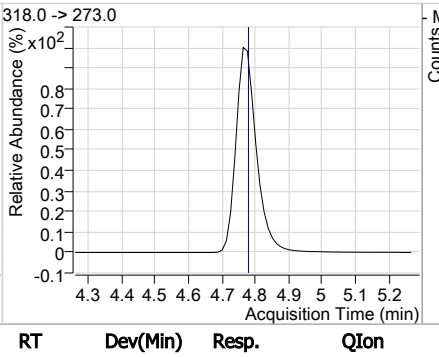


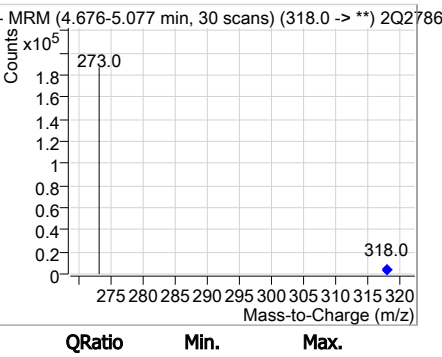




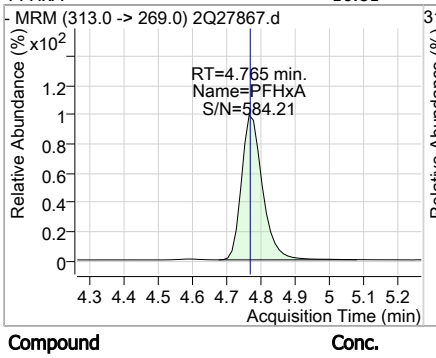
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.66	4.76	-0.01	138253				

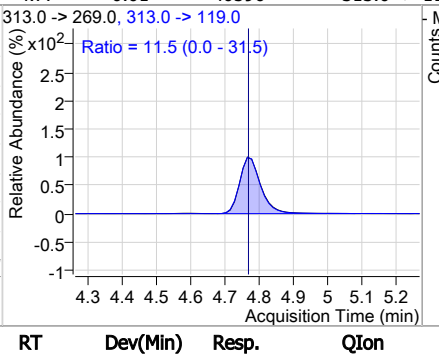


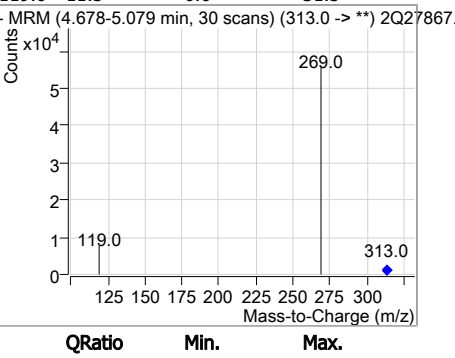




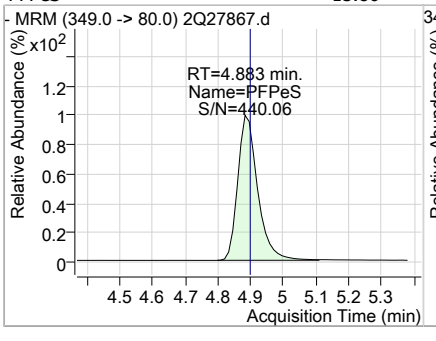
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	16.81	4.77	-0.01	40596	313.0 -> 119.0	11.5	0.0	31.5

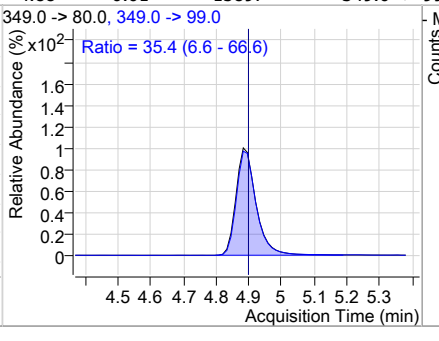


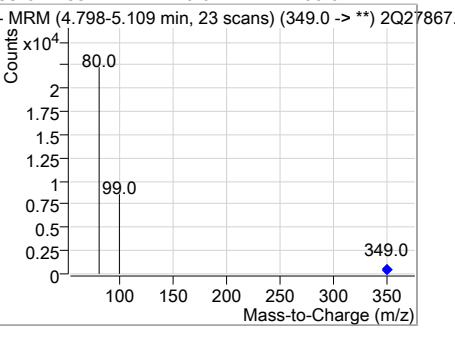




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	15.86	4.88	-0.01	15897	349.0 -> 99.0	35.4	6.6	66.6



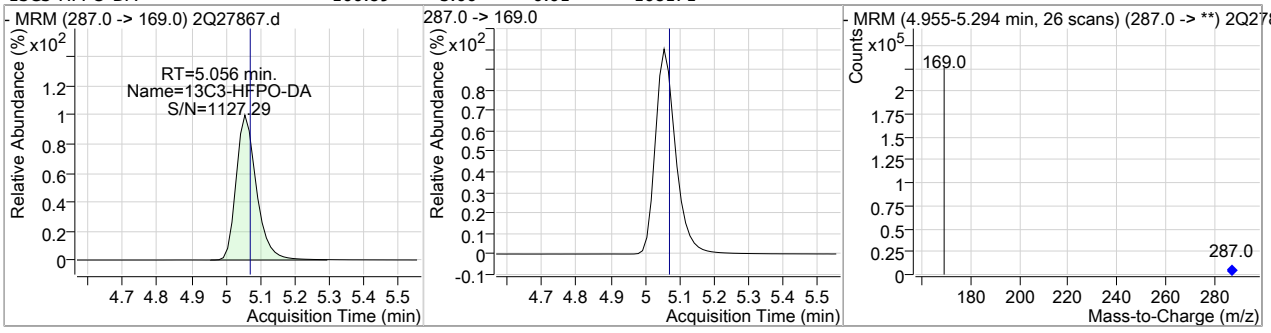




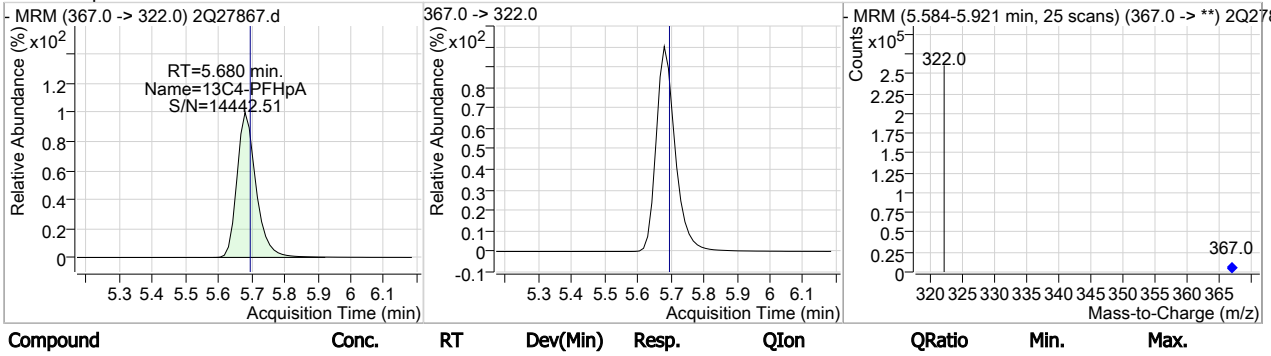
7.6.10

Perfluorinated Compounds by LC/MS/MS

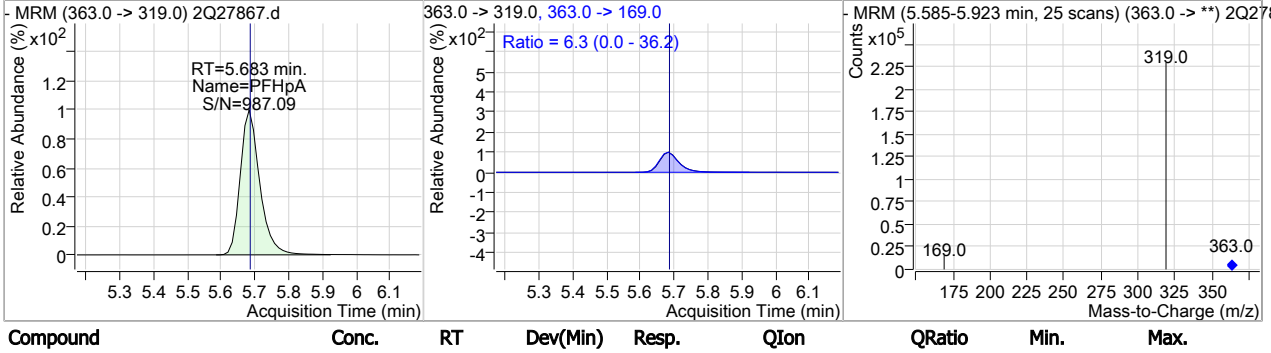
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	100.89	5.06	-0.01	168171				



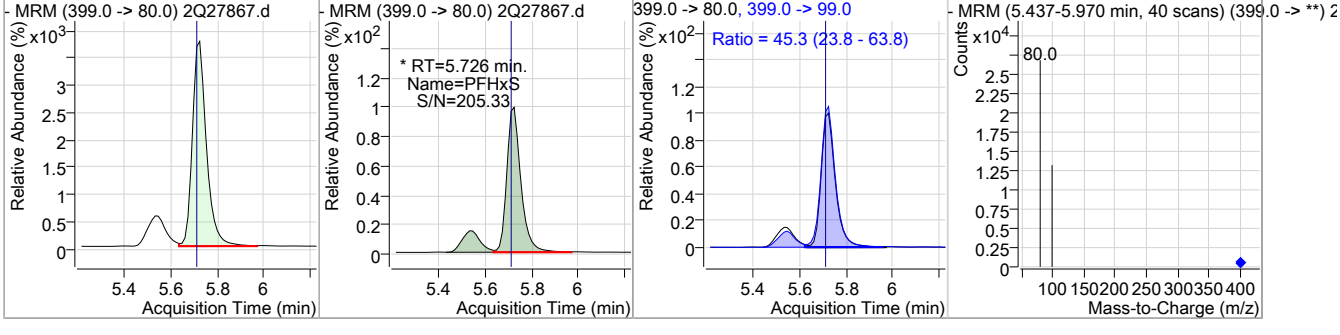
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.75	5.68	-0.01	193874				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.72	5.68	-0.01	171526	363.0 -> 169.0	6.3	0.0	36.2

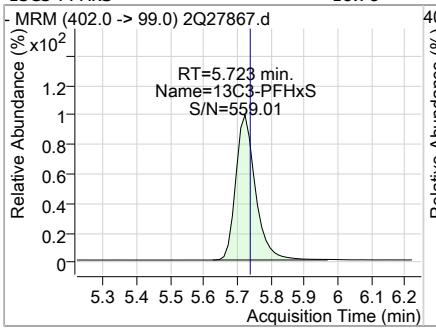


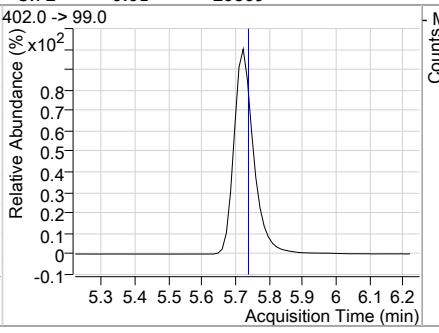
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	16.17	5.73	0.00	18653 (m)	399.0 -> 99.0	45.3	23.8	63.8

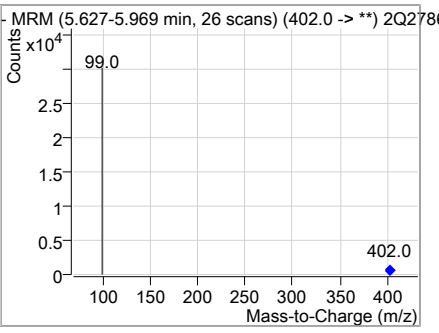


Perfluorinated Compounds by LC/MS/MS

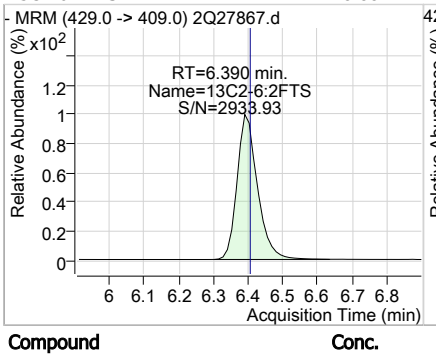
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.78	5.72	-0.01	20869				

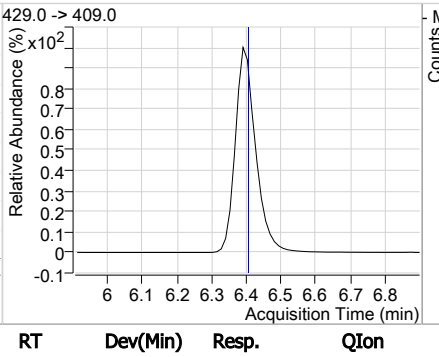


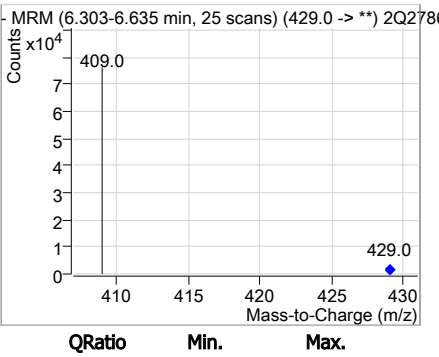




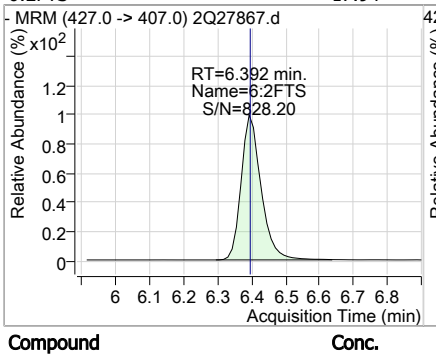
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.88	6.39	-0.01	56902				

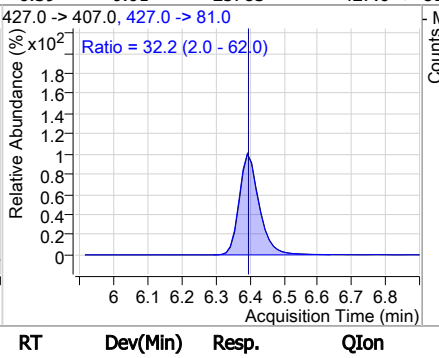


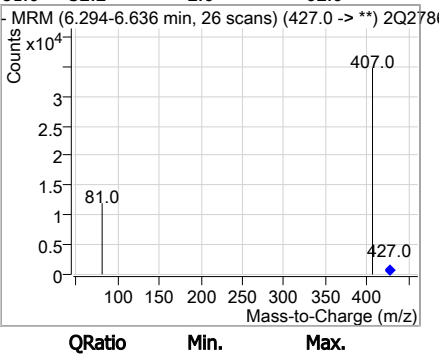




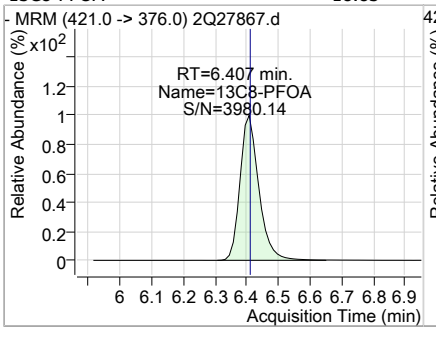
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	17.94	6.39	-0.01	25783	427.0 -> 81.0	32.2	2.0	62.0

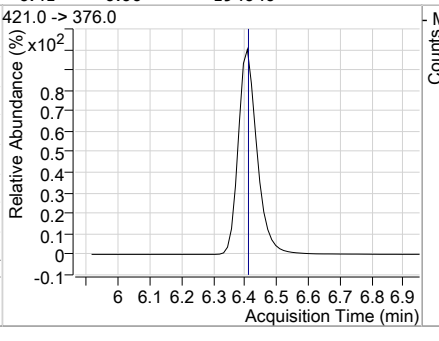


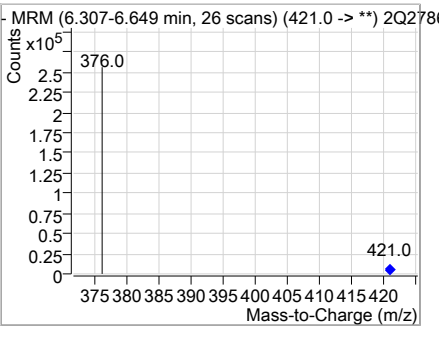




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.83	6.41	0.00	194040				



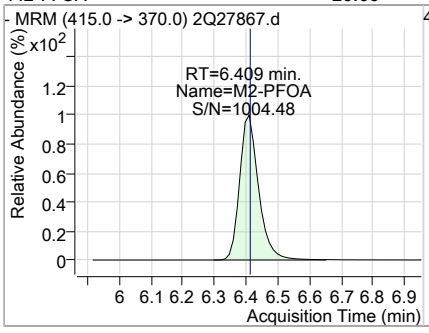


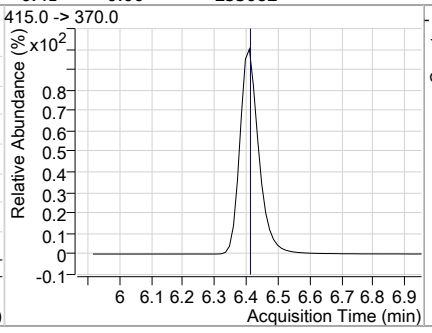


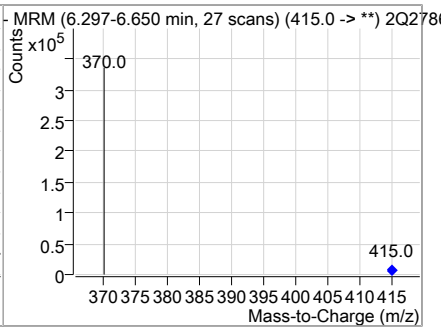
7.6.10

Perfluorinated Compounds by LC/MS/MS

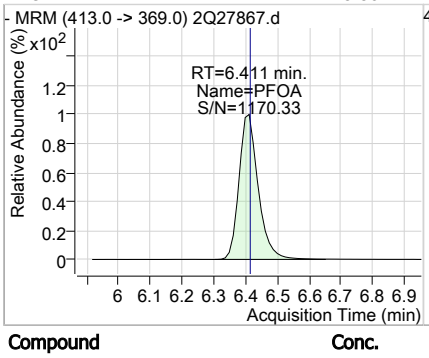
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	253082				

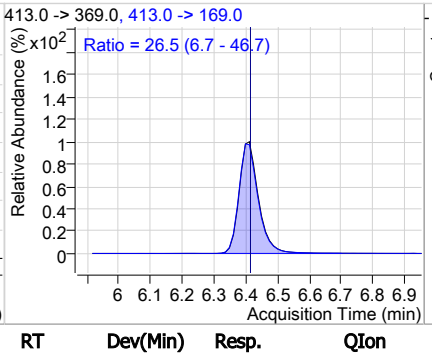


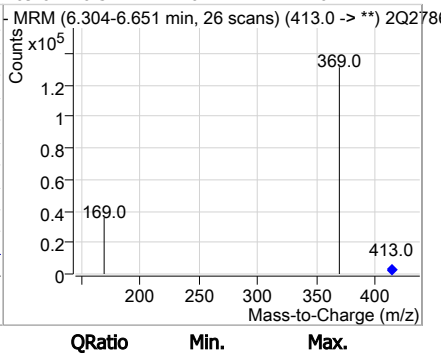




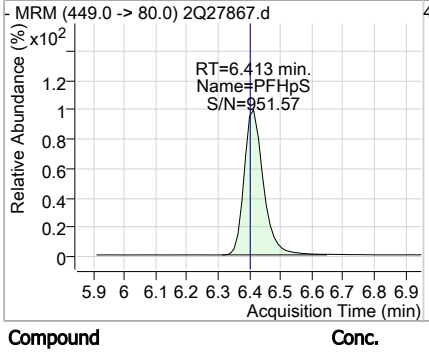
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.86	6.41	0.00	98330	413.0 -> 169.0	26.5	6.7	46.7

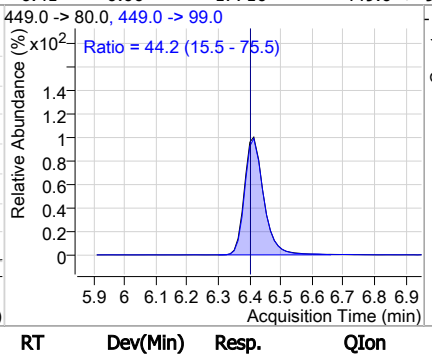


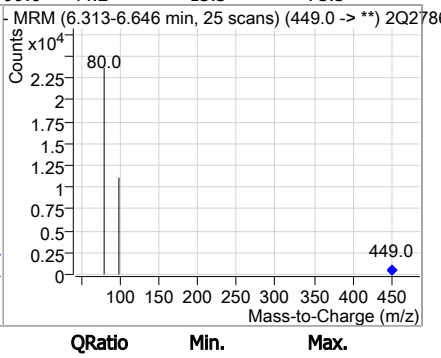




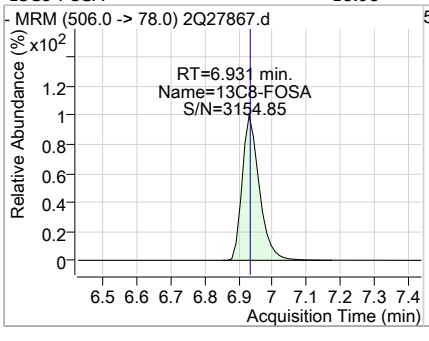
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.15	6.41	0.00	17710	449.0 -> 99.0	44.2	15.5	75.5

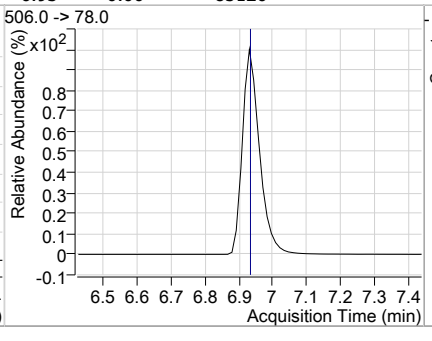


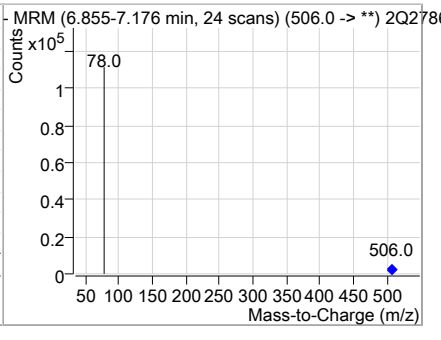




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.98	6.93	0.00	85126				



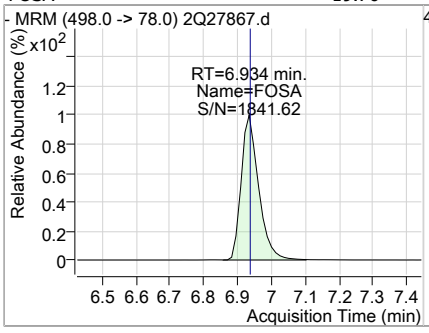


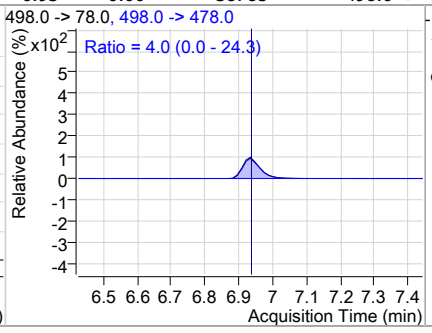


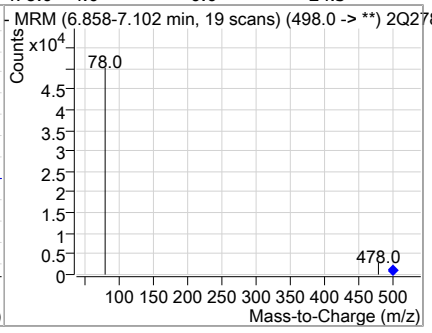
7.6.10

Perfluorinated Compounds by LC/MS/MS

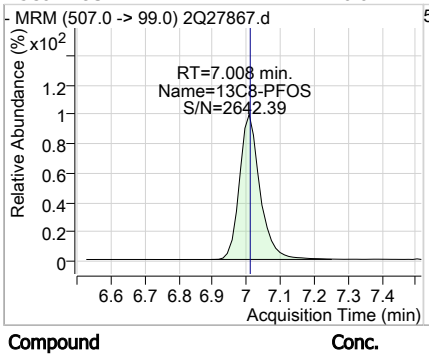
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.76	6.93	0.00	38785	498.0 -> 478.0	4.0	0.0	24.3

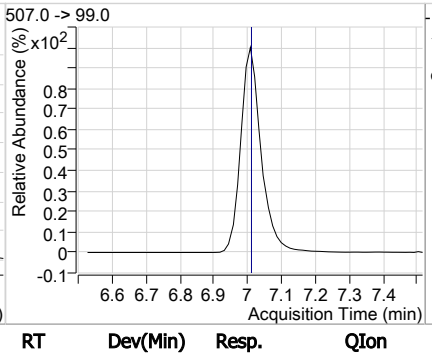


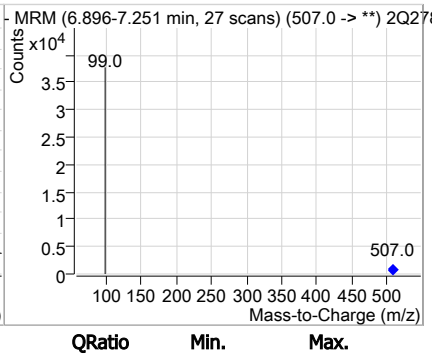




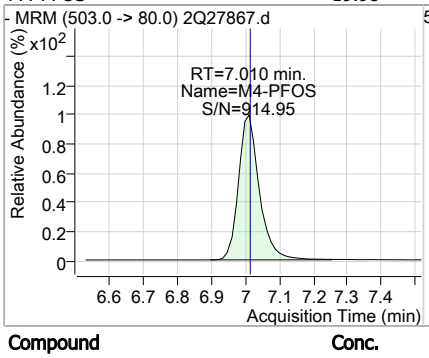
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.87	7.01	0.00	26981				

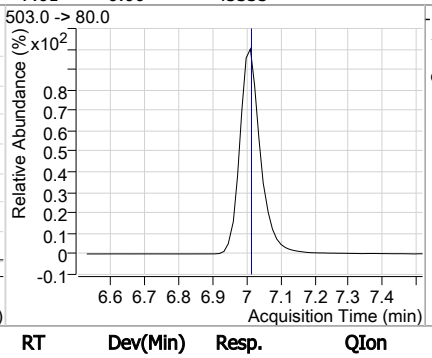


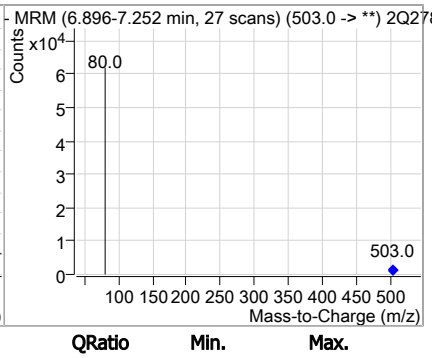




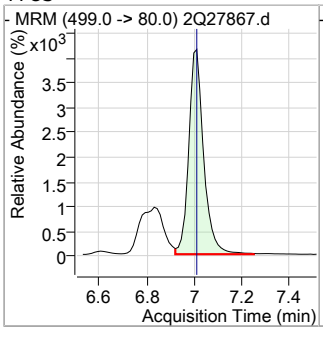
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.01	0.00	45335				

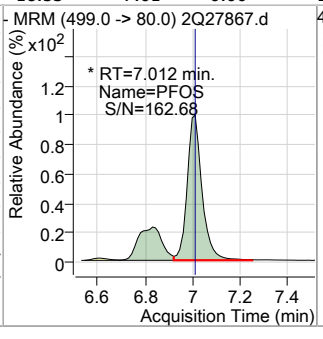


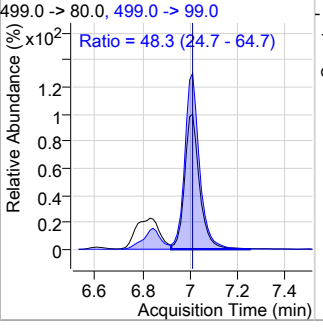


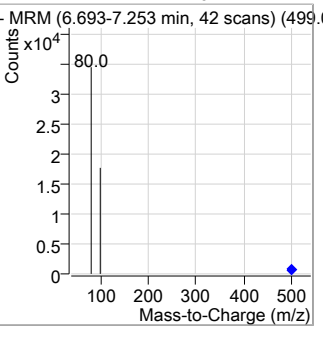


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.53	7.01	0.00	24630 (m)	499.0 -> 99.0	48.3	24.7	64.7



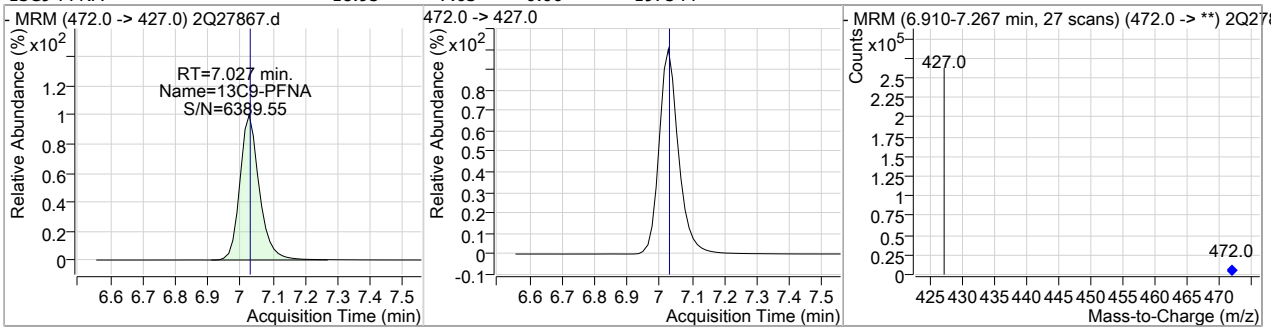




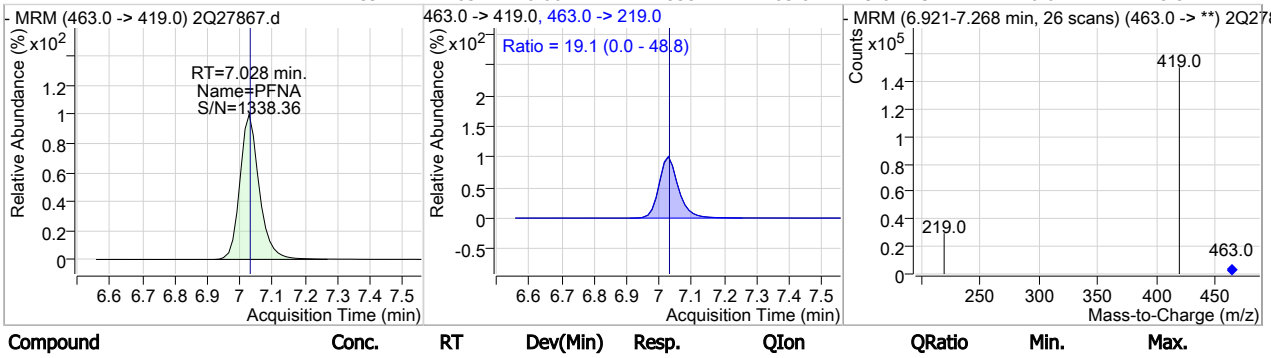


Perfluorinated Compounds by LC/MS/MS

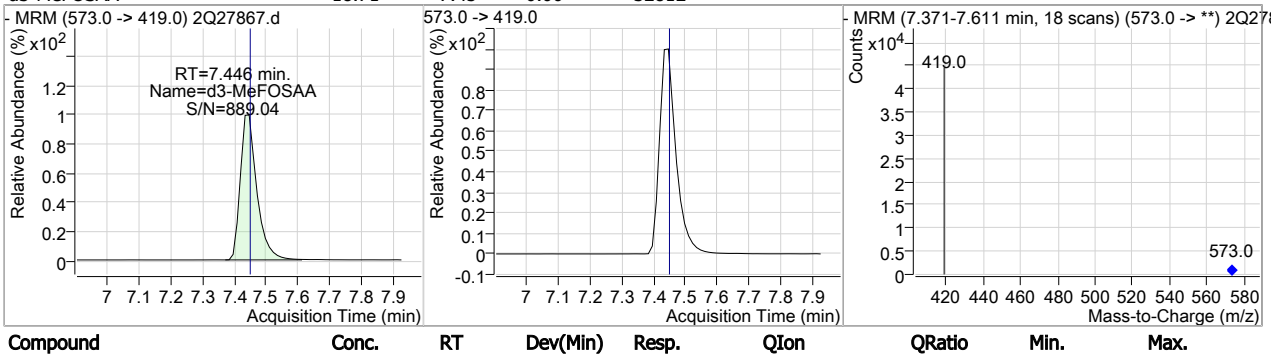
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.95	7.03	0.00	197544				



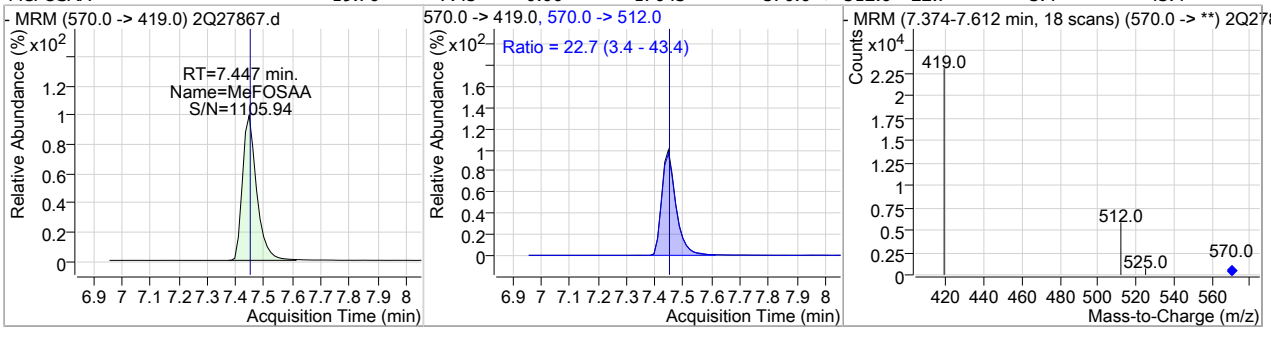
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	17.39	7.03	0.00	112858	463.0 -> 219.0	19.1	0.0	48.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.71	7.45	0.00	32812				

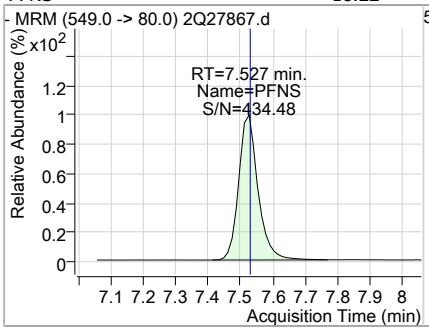


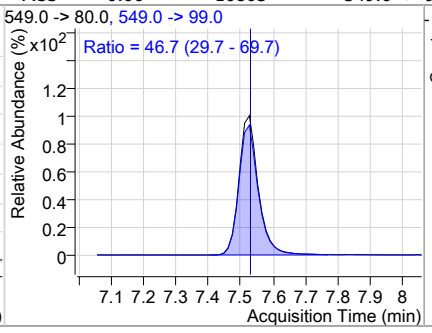
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.76	7.45	0.00	17043	570.0 -> 512.0	22.7	3.4	43.4

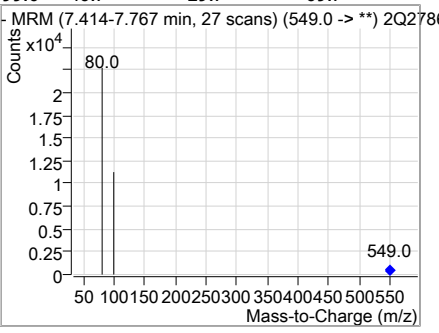


Perfluorinated Compounds by LC/MS/MS

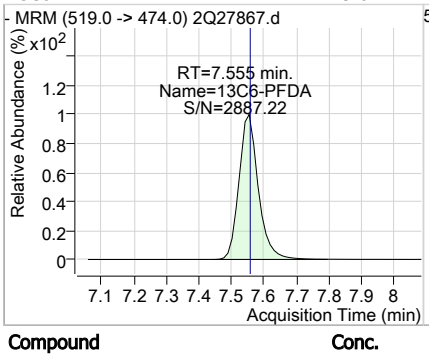
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	18.22	7.53	0.00	16805	549.0 -> 99.0	46.7	29.7	69.7

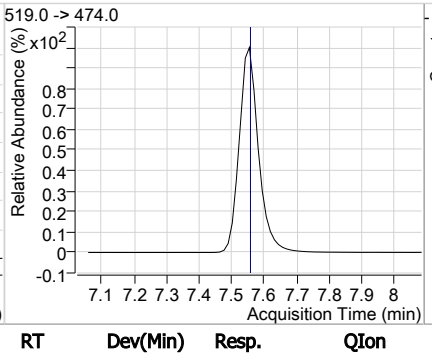


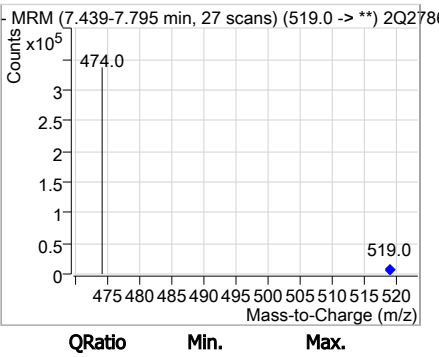




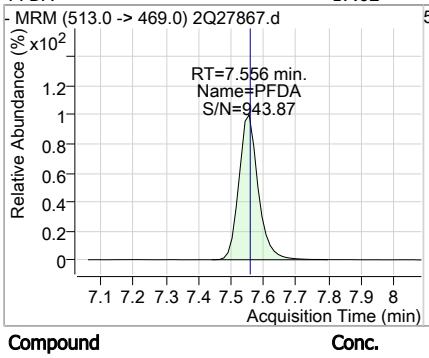
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.07	7.55	0.00	262180				

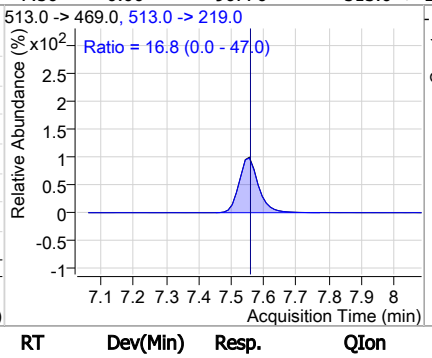


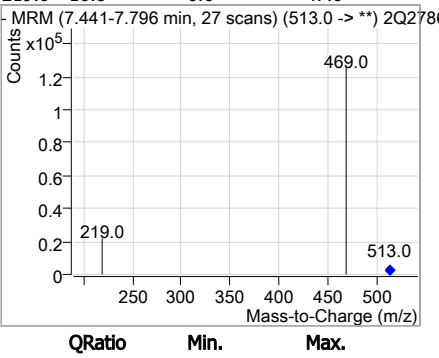




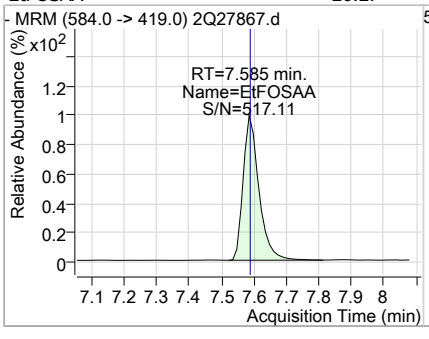
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	17.02	7.56	0.00	96776	513.0 -> 219.0	16.8	0.0	47.0

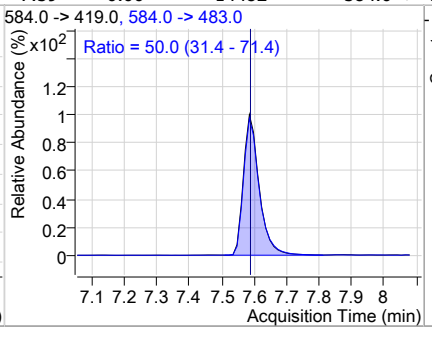


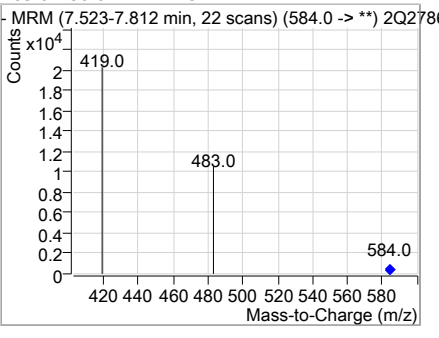




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.27	7.59	0.00	14482	584.0 -> 483.0	50.0	31.4	71.4







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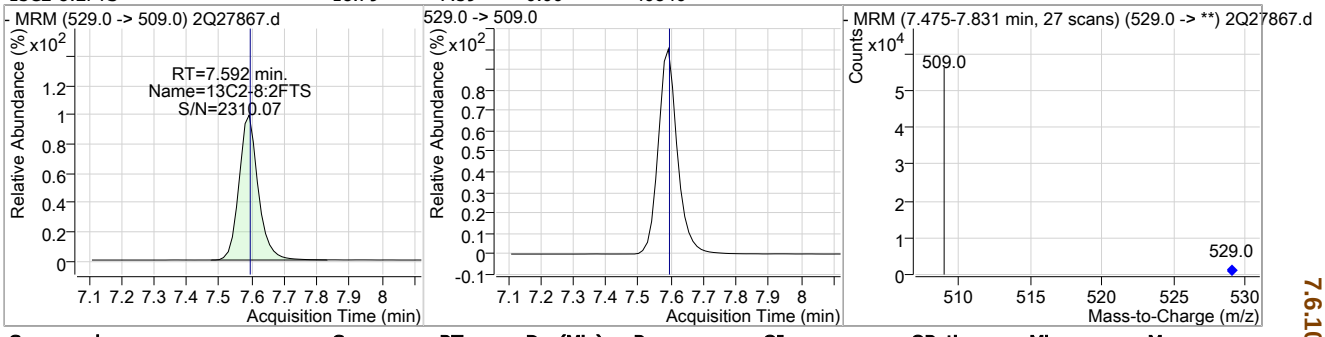
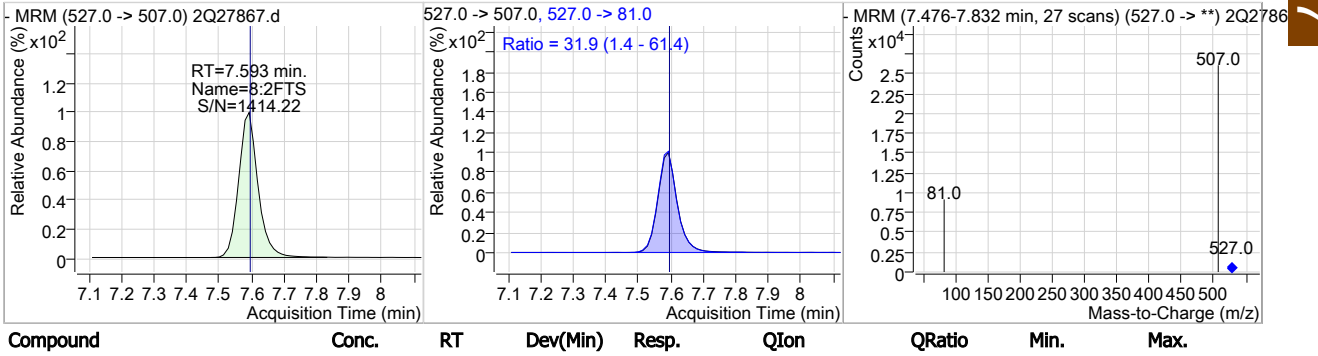
Perfluorinated Compounds by LC/MS/MS

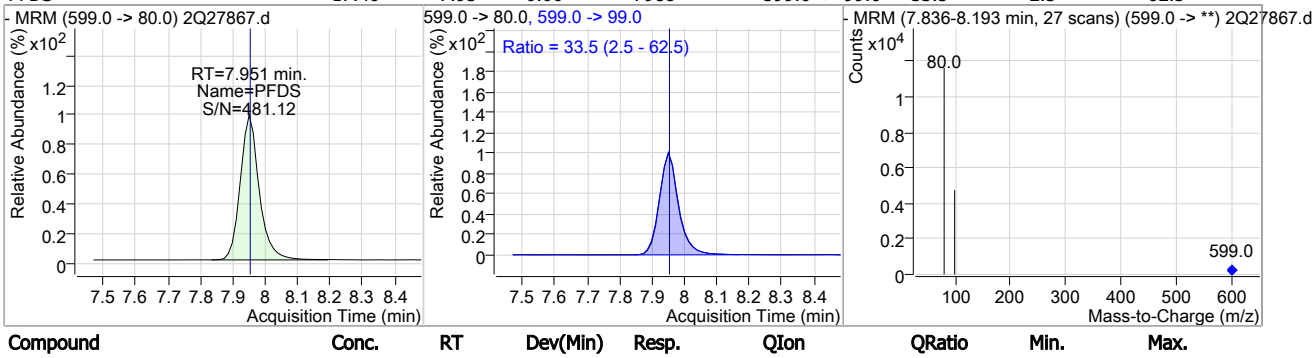
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.79	7.59	0.00	40846				



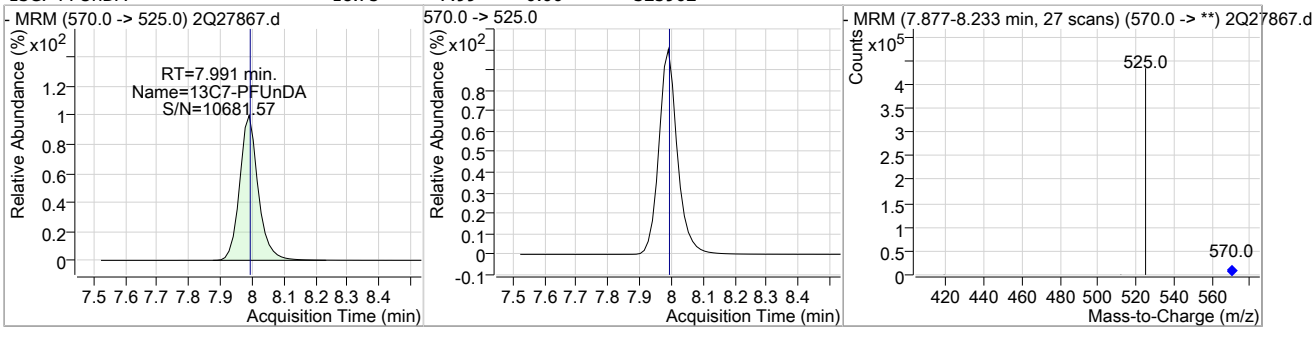
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	17.56	7.59	0.00	18938	527.0 -> 81.0	31.9	1.4	61.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	17.46	7.95	0.00	7988	599.0 -> 99.0	33.5	2.5	62.5



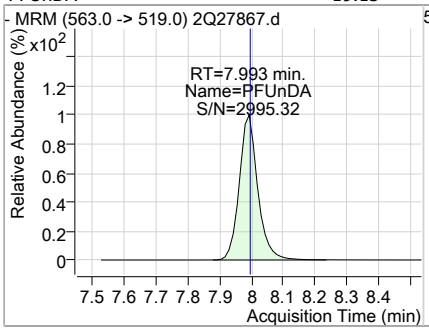
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.75	7.99	0.00	325902				

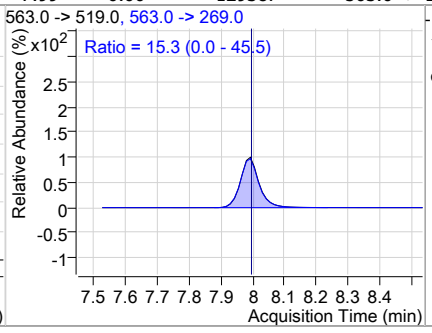


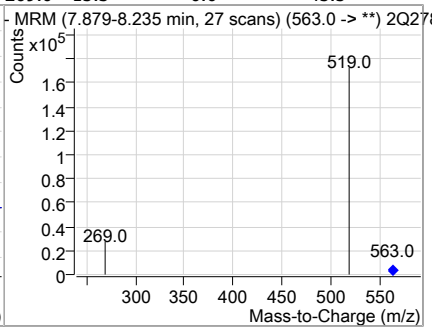
7.6.10

Perfluorinated Compounds by LC/MS/MS

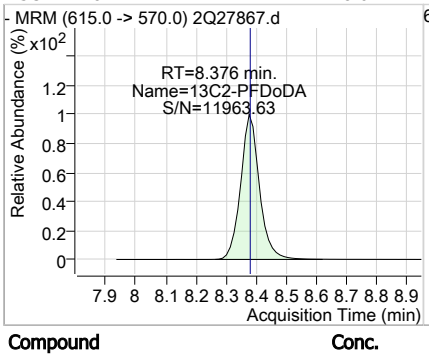
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.13	7.99	0.00	129387	563.0 -> 269.0	15.3	0.0	45.5

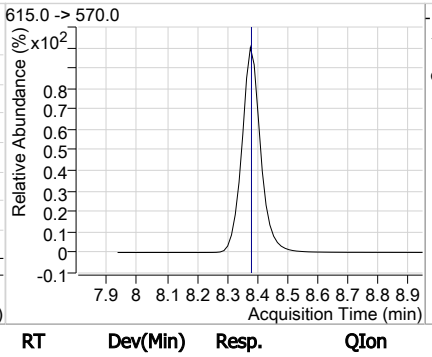


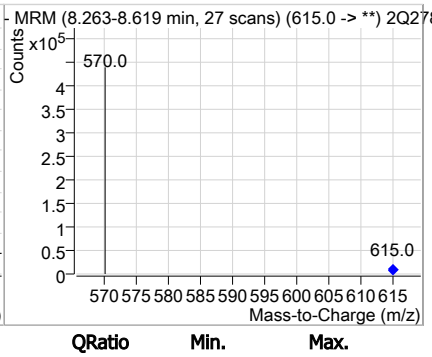




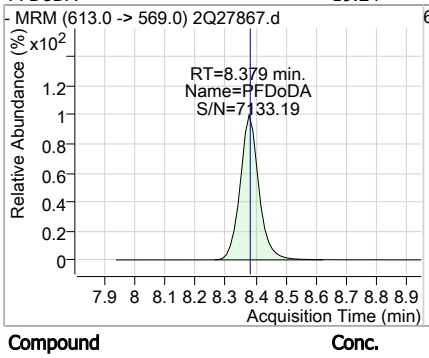
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.64	8.38	0.00	335074				

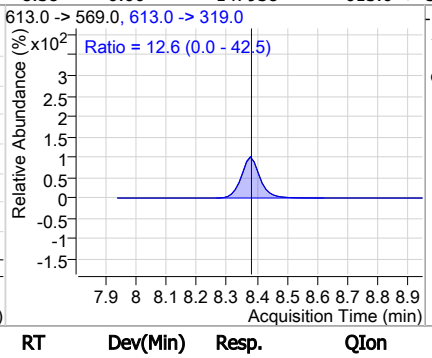


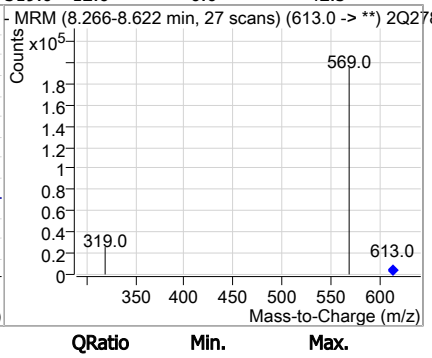




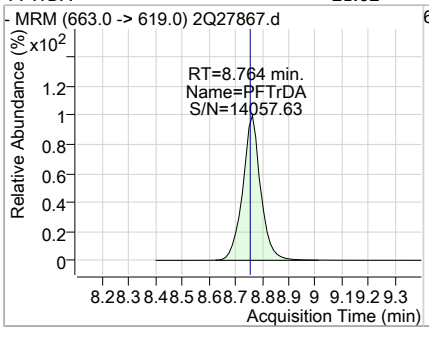
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.24	8.38	0.00	147938	613.0 -> 319.0	12.6	0.0	42.5

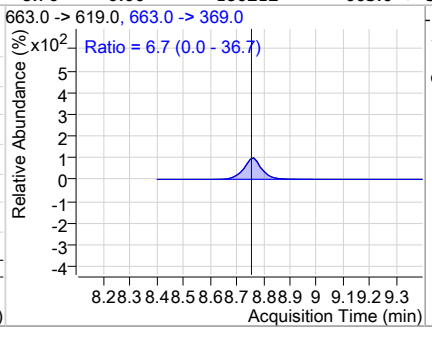


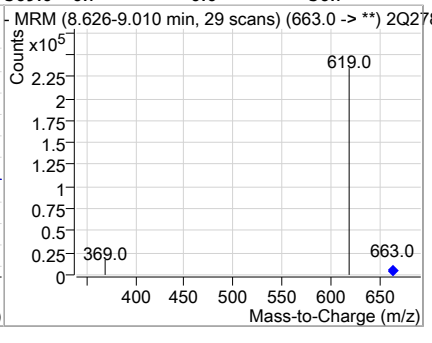




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	21.02	8.76	0.00	180212	663.0 -> 369.0	6.7	0.0	36.7







7.6.10

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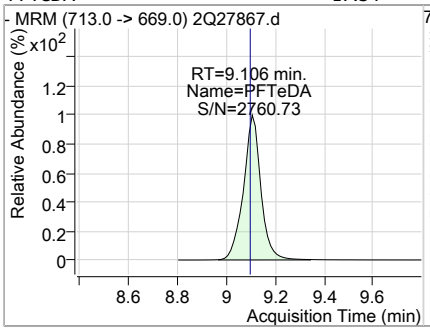
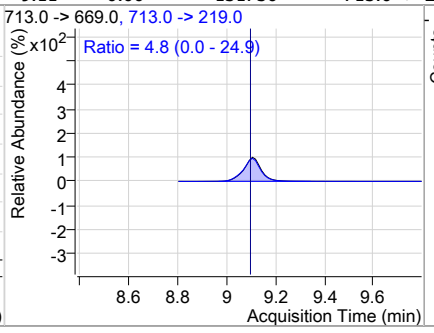
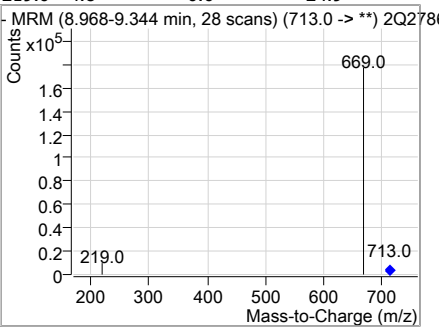
Perfluorinated Compounds by LC/MS/MS

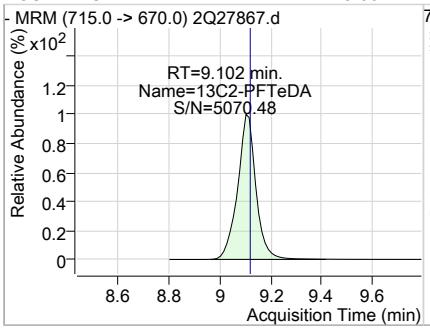
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	17.34	9.11	0.00	131736	713.0 -> 219.0	4.8	0.0	24.9

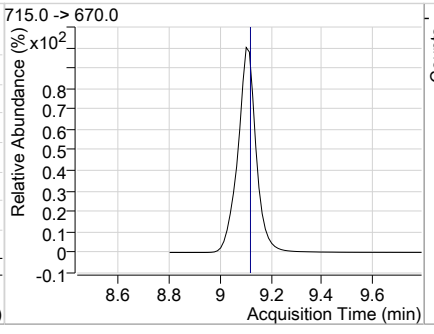


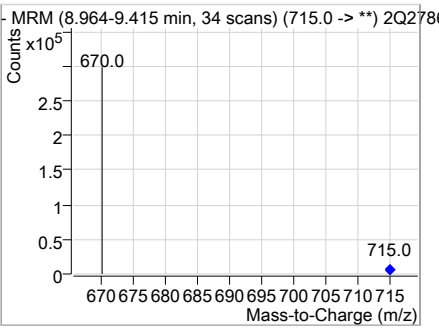




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.60	9.10	-0.01	221253				







7.6.10

7

Manual Integration Approval Summary

Sample Number: S2Q445-ICV445 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q27867.D **Analyst approved:** 03/22/19 16:23 Nancy Saunders
Injection Time: 03/21/19 14:01 **Supervisor approved:** 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q27868.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/24/19 19:33

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q27868.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/21/2019 2:17:10 PM
Sample Name : ICV445-20
Vial : Vial 12
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : S2Q445.batch.bin
Sample Information : op74164,S2Q445,250,,,1.0,1,water

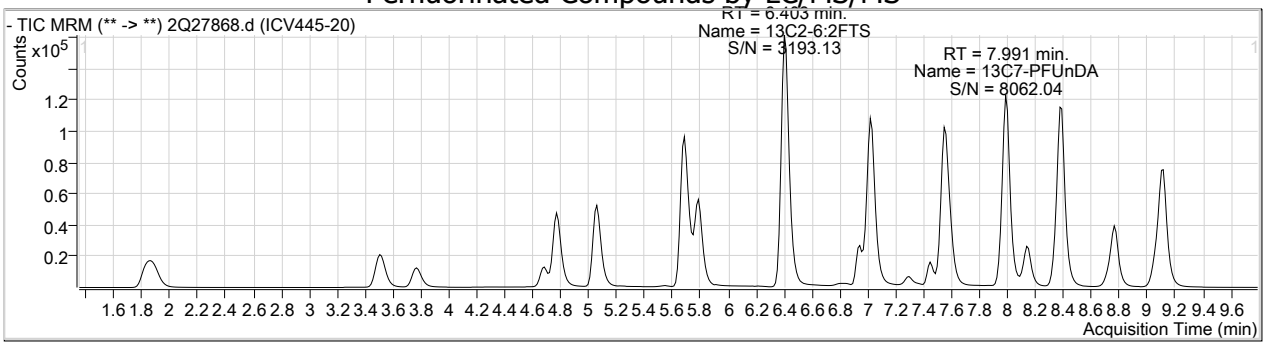
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	270054	20.00	µg/L	0.000
13C4-PFOS	7.010	503.0 -> 80.0	46498	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	128582	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	107351	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	143233	20.00	µg/L	0.000
M4-PFHpA	5.693	367.0 -> 322.0	200597	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	205451	20.00	µg/L	0.000
M9-PFNA	7.027	472.0 -> 427.0	201008	20.00	µg/L	0.000
M6-PFDA	7.555	519.0 -> 474.0	271567	20.00	µg/L	0.000
M7-PFUnDA	7.991	570.0 -> 525.0	341821	20.00	µg/L	0.000
M2-PFDoDA	8.389	615.0 -> 570.0	343669	20.00	µg/L	0.013
M2-PFTeDA	9.114	715.0 -> 670.0	227077	20.00	µg/L	0.000
M8-FOSA	6.944	506.0 -> 78.0	89901	20.00	µg/L	0.013
M3-PFBS	3.767	302.0 -> 99.0	19816	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	21337	20.00	µg/L	-0.013
M8-PFOS	7.008	507.0 -> 99.0	27463	20.00	µg/L	0.000
M2-4:2FTS	4.684	329.0 -> 309.0	52822	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	56271	20.00	µg/L	0.000
M2-8:2FTS	7.592	529.0 -> 509.0	40106	20.00	µg/L	0.000
M3-MeFOSAA	7.446	573.0 -> 419.0	33990	20.00	µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	170052	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	52824	18.56	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C2-6:2FTS	6.403	429.0 -> 409.0	56287	18.68	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.4%		
13C2-8:2FTS	7.592	529.0 -> 509.0	40108	18.45	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.3%		
13C2-PFDoDA	8.389	615.0 -> 570.0	343514	19.11	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.6%		
13C2-PFTeDA	9.114	715.0 -> 670.0	226861	19.07	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C3-PFBS	3.767	302.0 -> 99.0	19763	19.26	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C3-PFHxS	5.723	402.0 -> 99.0	21355	19.21	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C4-PFBA	1.865	217.0 -> 172.0	128019	19.58	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C4-PFHpA	5.693	367.0 -> 322.0	200591	19.40	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C5-PFHxA	4.776	318.0 -> 273.0	143117	19.31	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C5-PFPeA	3.511	268.0 -> 223.0	107343	19.51	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.6%		
13C6-PFDA	7.555	519.0 -> 474.0	271452	19.75	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

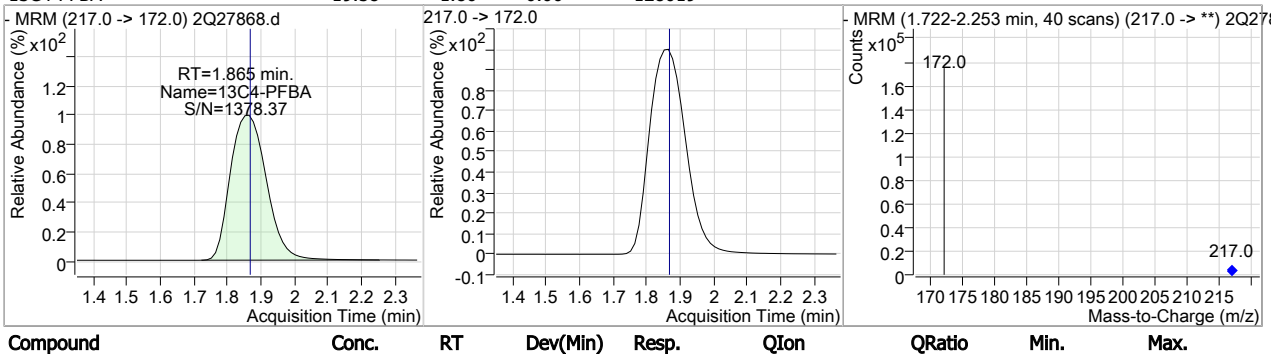
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C7-PFUnDA	7.991	570.0 -> 525.0	341525	19.65 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C8-FOSA	6.944	506.0 -> 78.0	89890	20.04 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C8-PFOA	6.407	421.0 -> 376.0	205395	19.93 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C8-PFOS	7.008	507.0 -> 99.0	27486	19.22 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C9-PFNA	7.027	472.0 -> 427.0	201230	19.31 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.5%		
d3-MeFOSAA	7.446	573.0 -> 419.0	33989	19.38 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.9%		
M2-PFOA	6.409	415.0 -> 370.0	270269	20.01 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.010	503.0 -> 80.0	46577	20.02 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	170052	102.01 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
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	7.598	584.0 -> 419.0	13788	18.63 µg/L	m	98
FOSA	-	498.0 -> 78.0	-	N.D.		
MeFOSAA	7.447	570.0 -> 419.0	15667	17.54 µg/L	m	98
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	3.771	299.0 -> 80.0	30232	18.83 µg/L		100
PFDA	7.556	513.0 -> 469.0	110015	18.68 µg/L		100
PFDoDA	8.379	613.0 -> 569.0	146709	18.61 µg/L		100
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.695	363.0 -> 319.0	170933	19.00 µg/L		100
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.778	313.0 -> 269.0	46700	18.70 µg/L		99
PFHxS	5.726	399.0 -> 80.0	22374	18.97 µg/L	m	100
PFNA	7.028	463.0 -> 419.0	130238	19.72 µg/L		99
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.411	413.0 -> 369.0	105982	19.20 µg/L		99
PFOS	7.012	499.0 -> 80.0	24890	18.42 µg/L	m	99
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
PFTeDA	9.106	713.0 -> 669.0	147830	18.99 µg/L		100
PFTrDA	8.764	663.0 -> 619.0	172465	19.63 µg/L		100
PFUnDA	7.993	563.0 -> 519.0	133525	18.83 µg/L		100
11Cl-PF3OUdS	8.137	631.0 -> 451.0	104131	20.13 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	21912	19.57 µg/L		100
ADONA	5.791	377.0 -> 251.0	204855	19.46 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	38574	19.47 µg/L		99

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

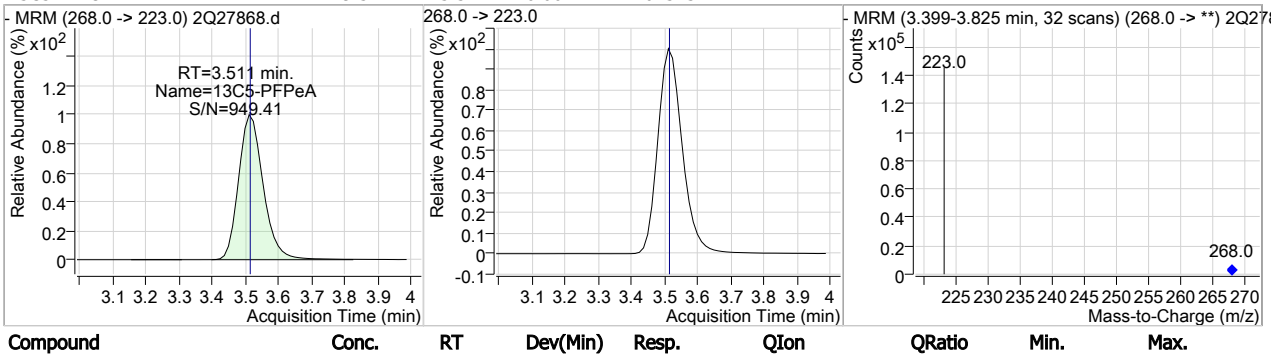
Perfluorinated Compounds by LC/MS/MS



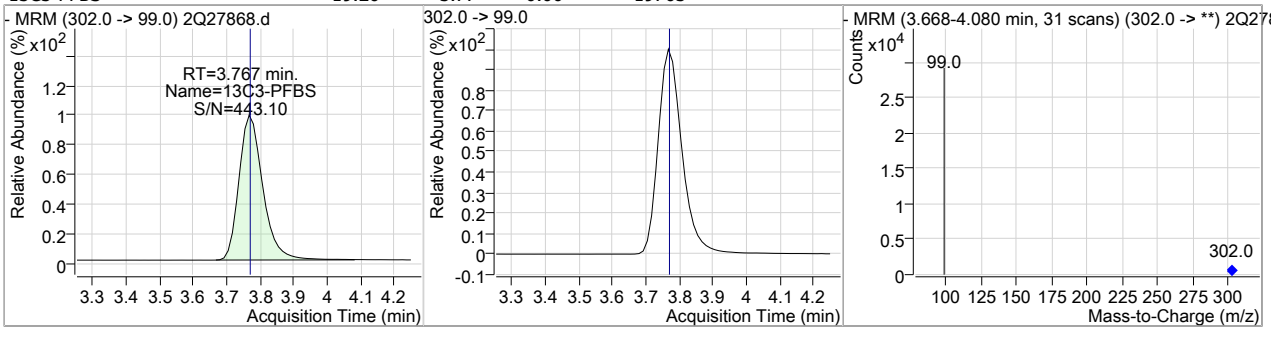
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.58	1.86	0.00	128019				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.51	3.51	0.00	107343				

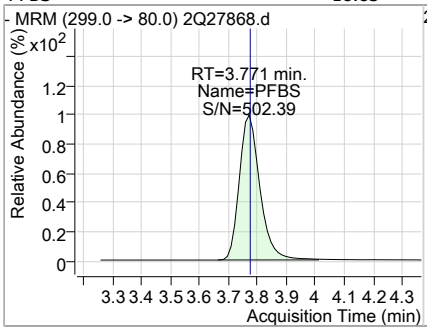


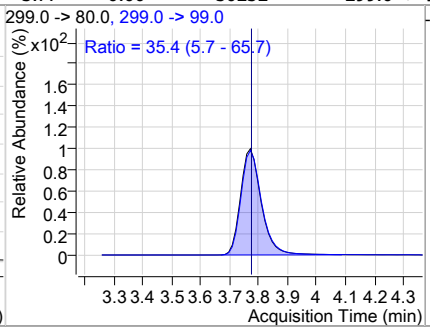
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.26	3.77	0.00	19763				

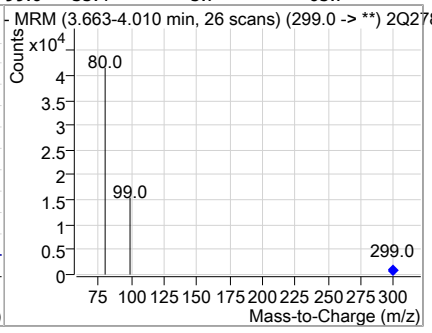


Perfluorinated Compounds by LC/MS/MS

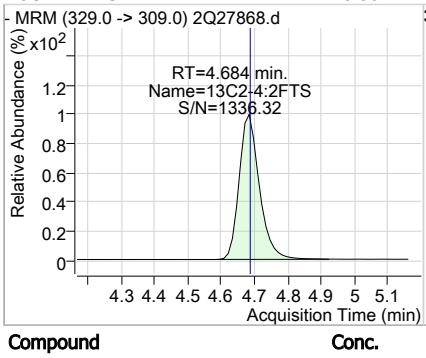
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.83	3.77	0.00	30232	299.0 -> 99.0	35.4	5.7	65.7

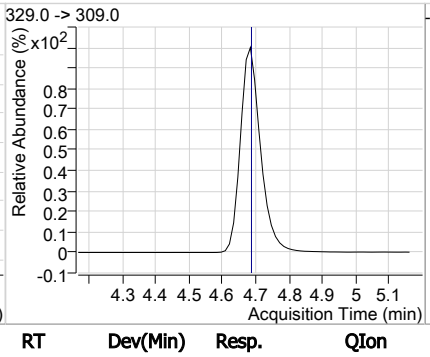


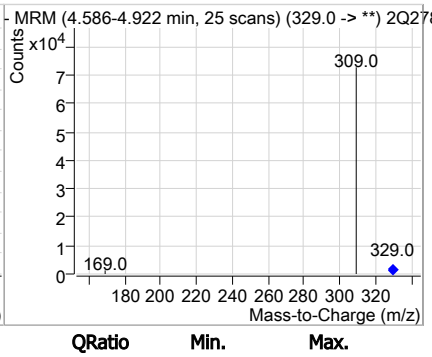




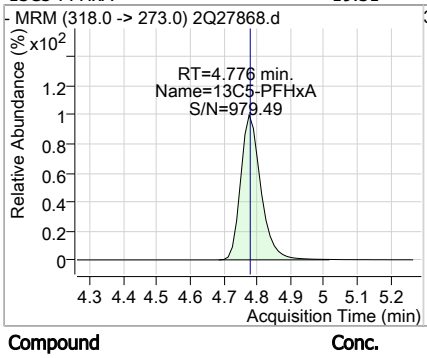
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.56	4.68	0.00	52824				

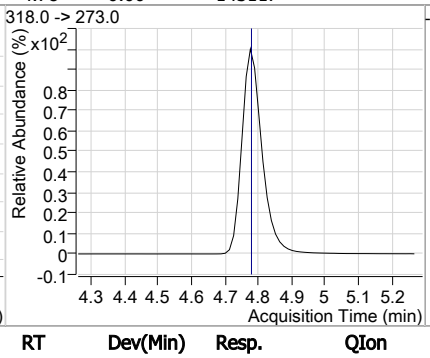


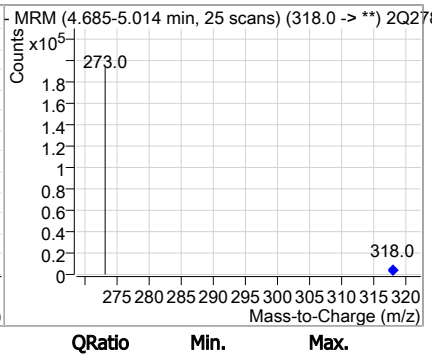




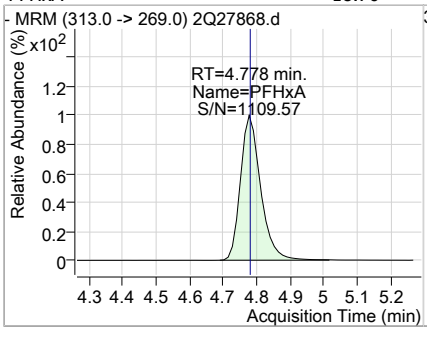
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.31	4.78	0.00	143117				

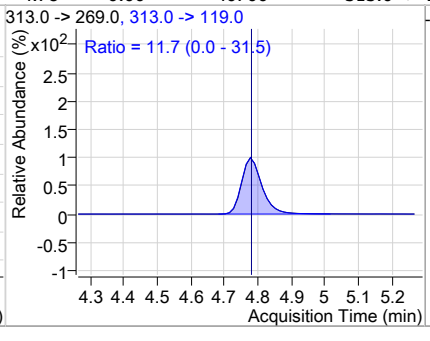


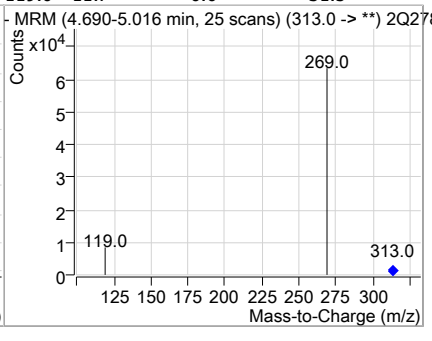




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.70	4.78	0.00	46700	313.0 -> 119.0	11.7	0.0	31.5



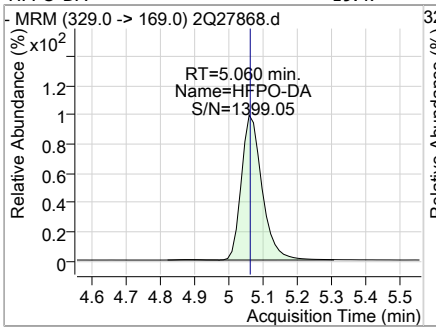


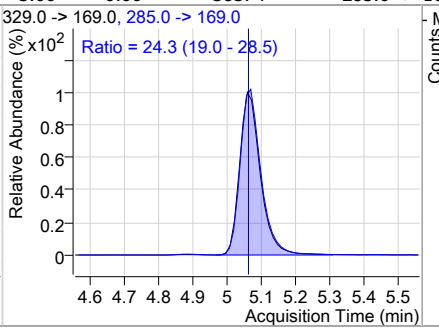


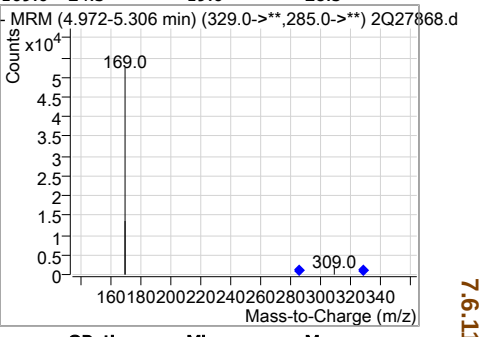
7.6.11

Perfluorinated Compounds by LC/MS/MS

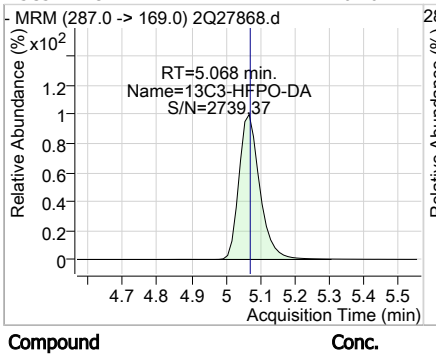
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.47	5.06	0.00	38574	285.0 -> 169.0	24.3	19.0	28.5

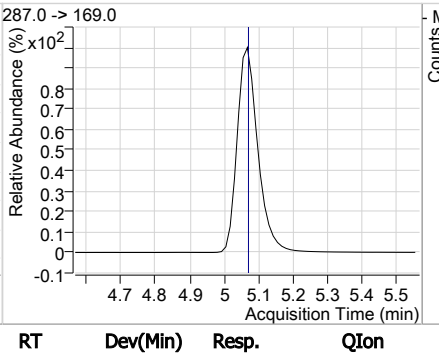


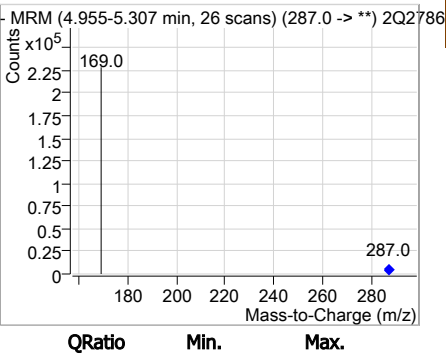




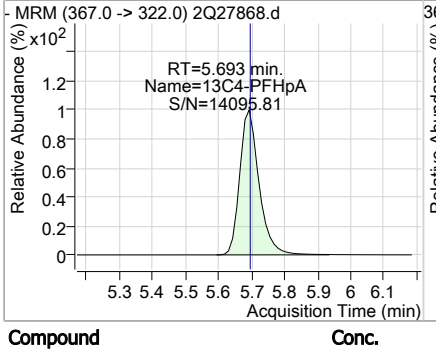
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	102.01	5.07	0.00	170052				

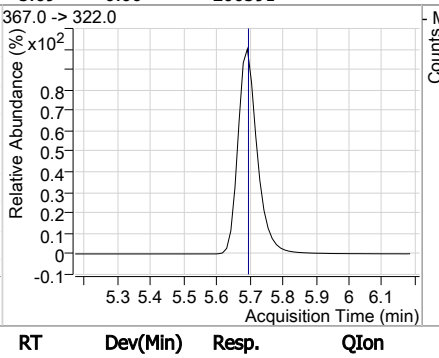


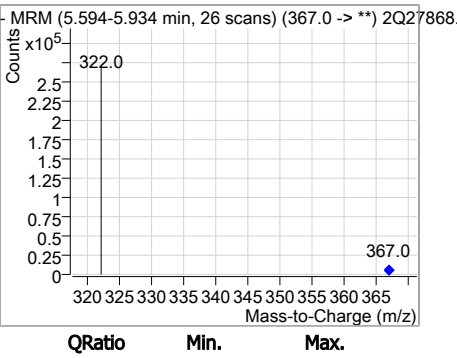




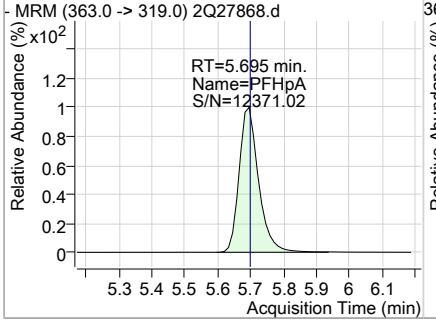
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.40	5.69	0.00	200591				

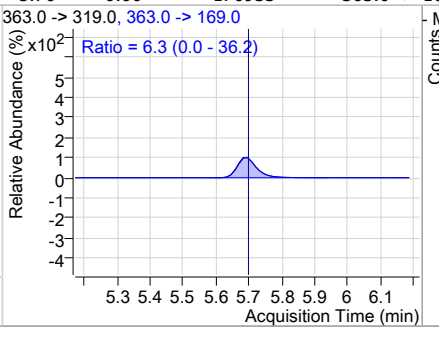


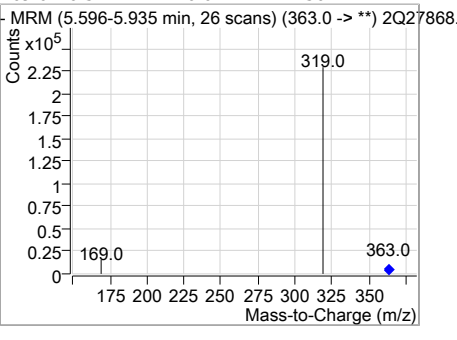




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.00	5.70	0.00	170933	363.0 -> 169.0	6.3	0.0	36.2

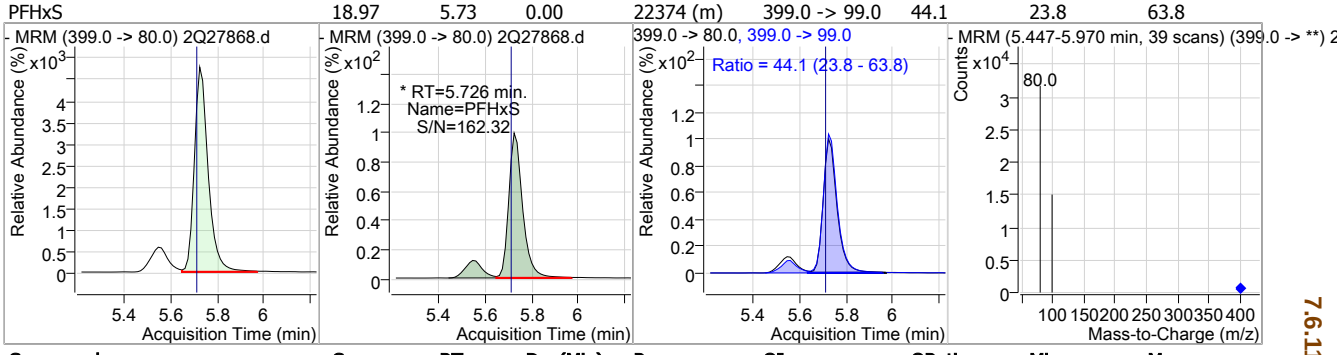




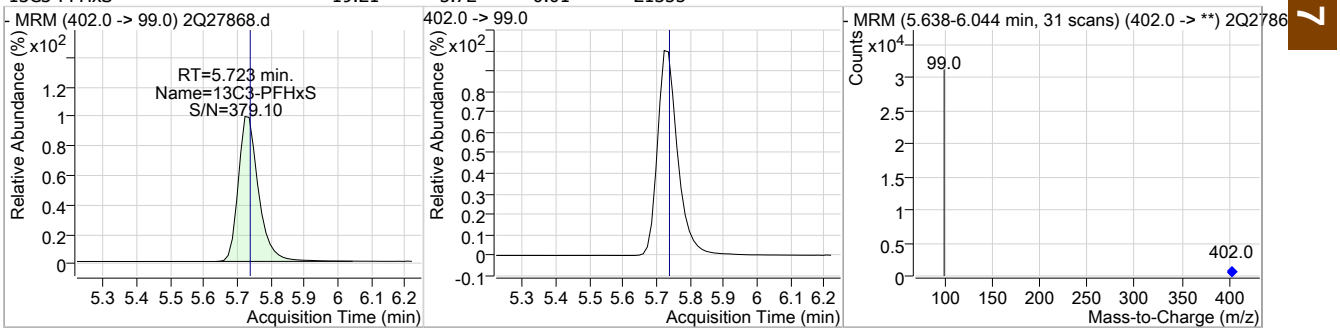


Perfluorinated Compounds by LC/MS/MS

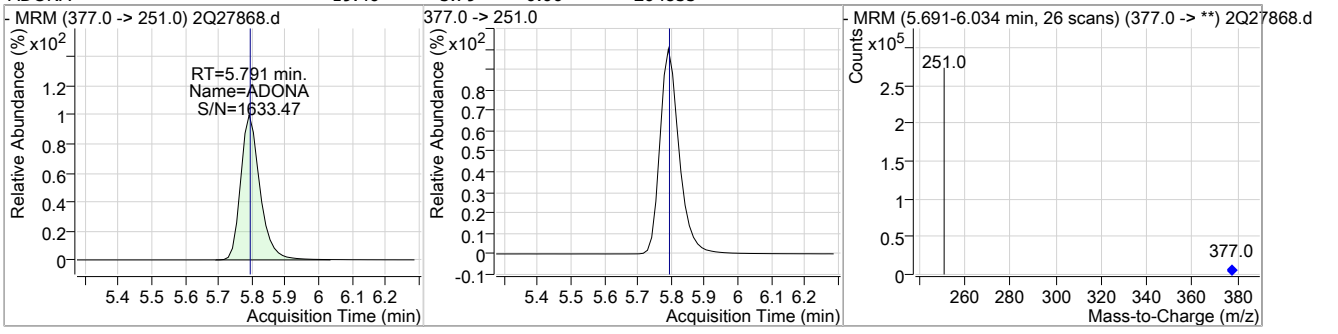
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.97	5.73	0.00	22374 (m)	399.0 -> 99.0	44.1	23.8	63.8



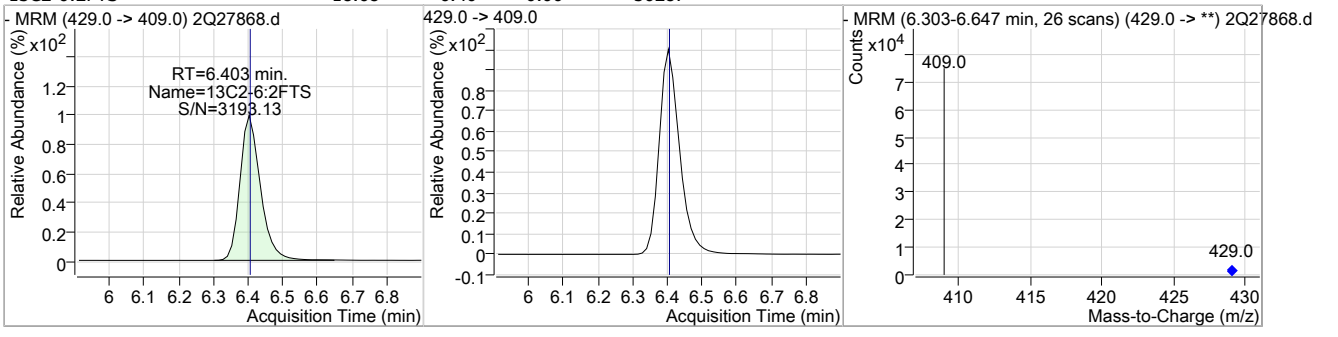
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.21	5.72	-0.01	21355				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.46	5.79	0.00	204855				

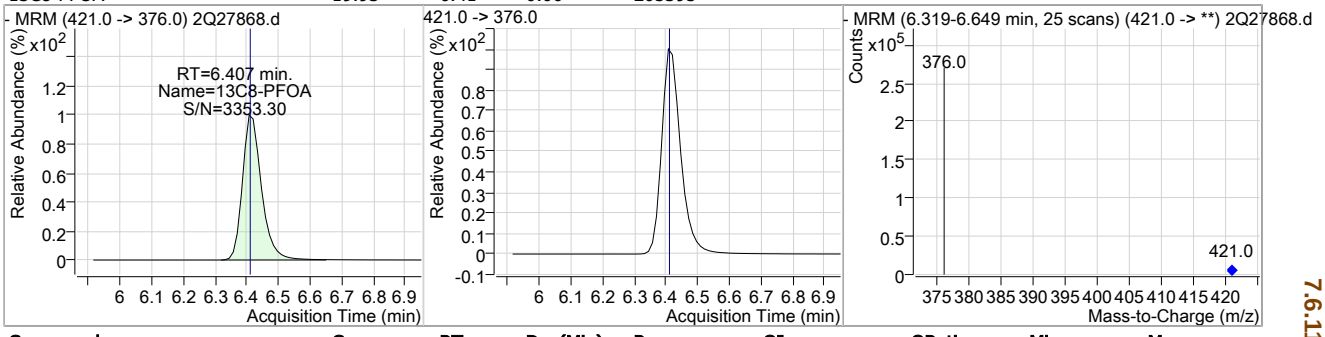


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.68	6.40	0.00	56287				

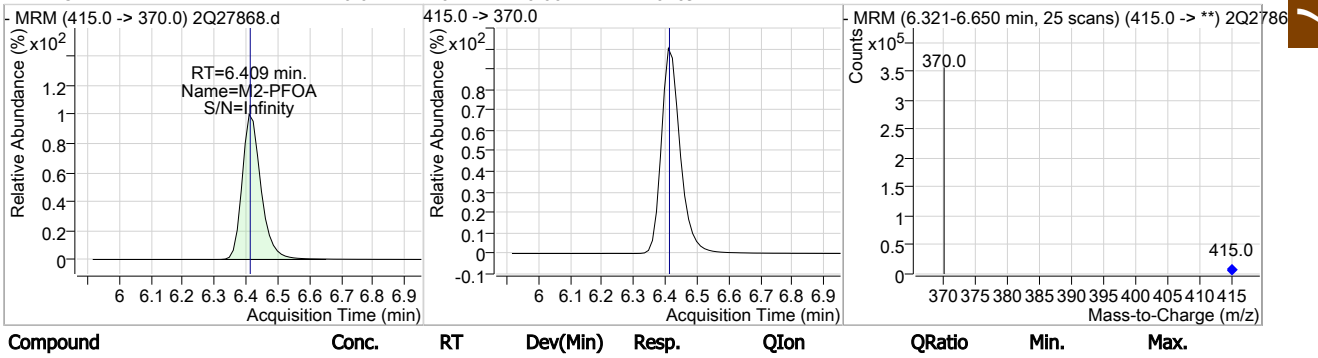


Perfluorinated Compounds by LC/MS/MS

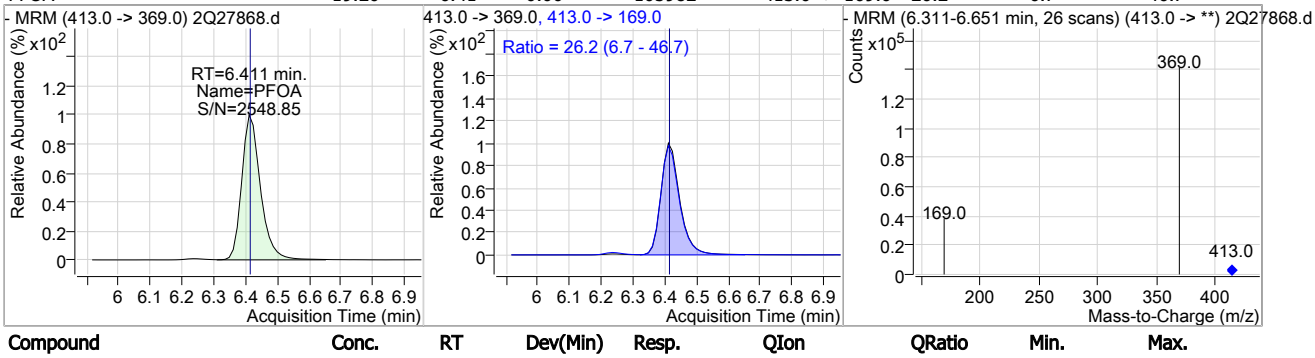
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.93	6.41	0.00	205395				



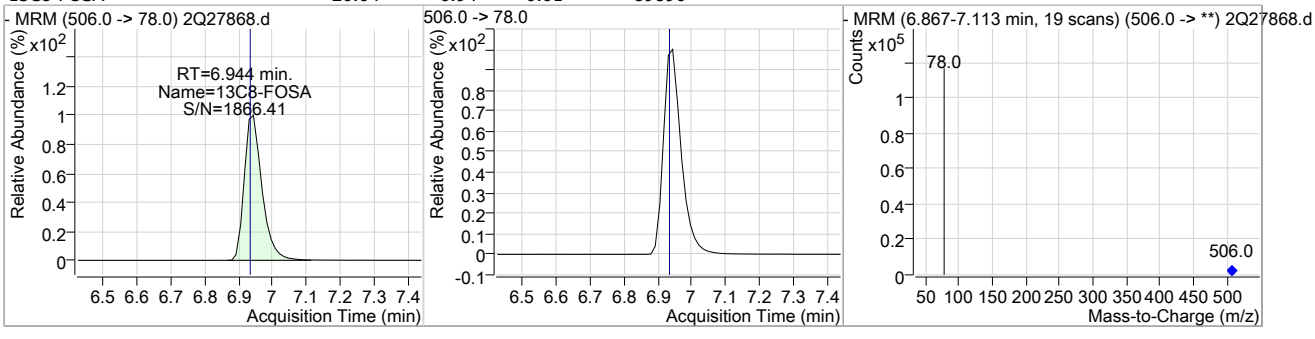
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.41	0.00	270269				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.20	6.41	0.00	105982	413.0 -> 169.0	26.2	6.7	46.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.04	6.94	0.01	89890				



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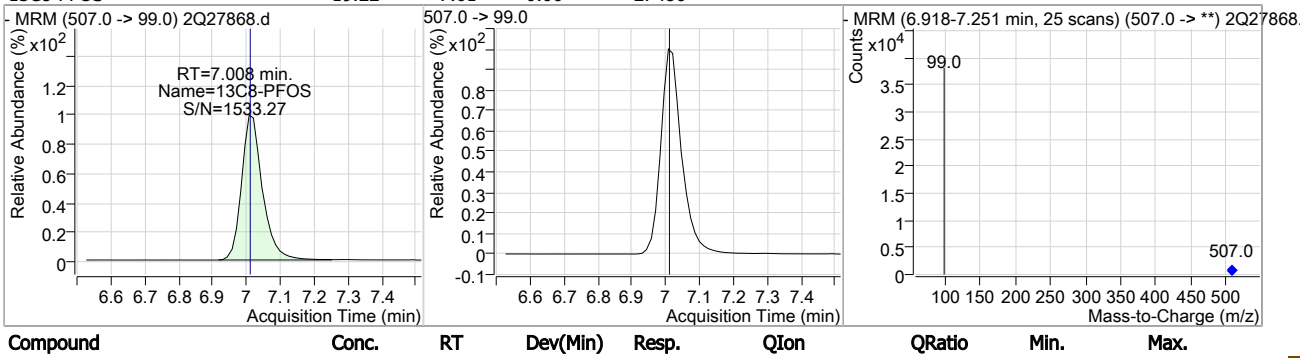
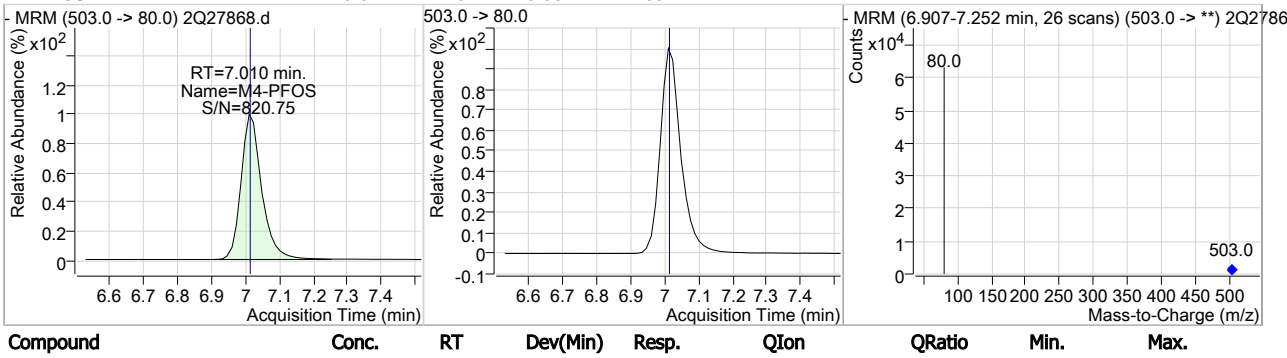
Perfluorinated Compounds by LC/MS/MS

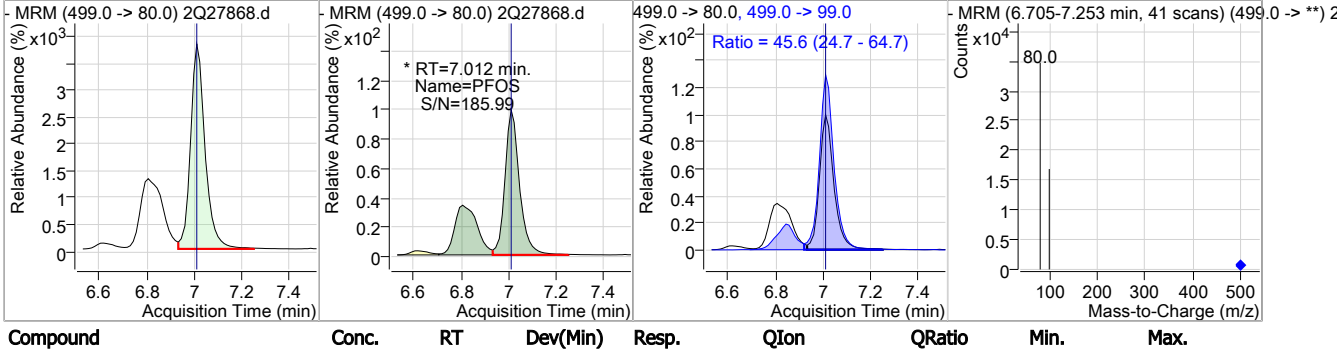
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.22	7.01	0.00	27486				



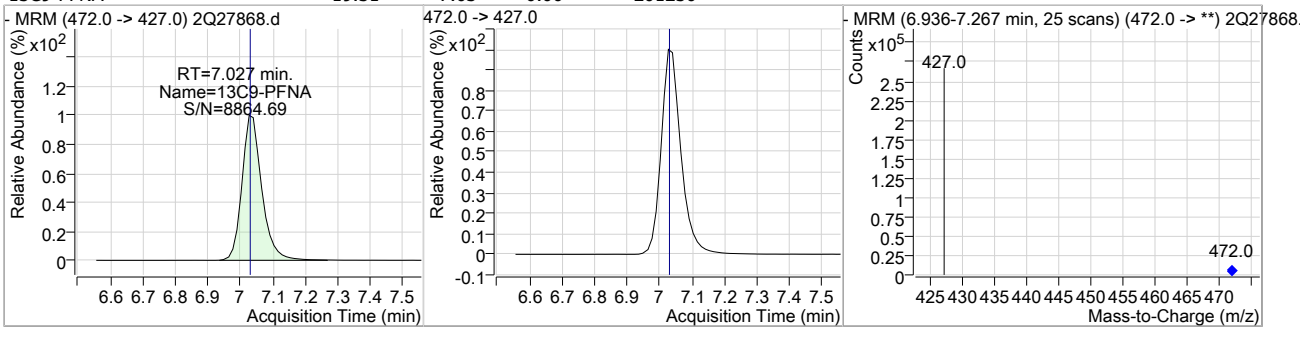
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.01	0.00	46577				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.42	7.01	0.00	24890 (m)	499.0 -> 99.0	45.6	24.7	64.7



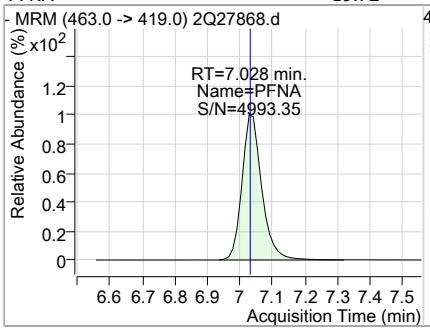
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.31	7.03	0.00	201230				

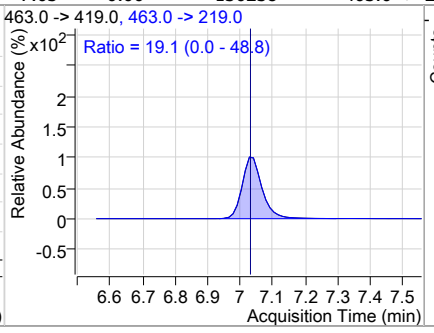


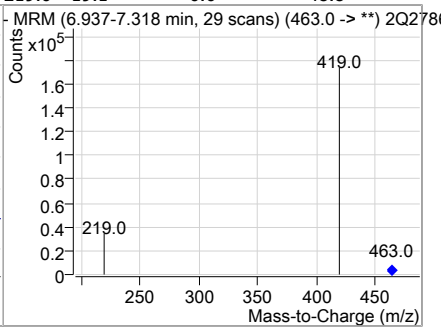
7.6.11

Perfluorinated Compounds by LC/MS/MS

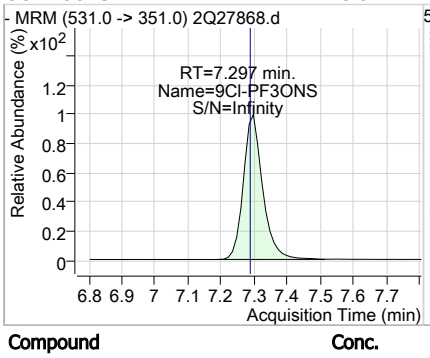
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.72	7.03	0.00	130238	463.0 -> 219.0	19.1	0.0	48.8

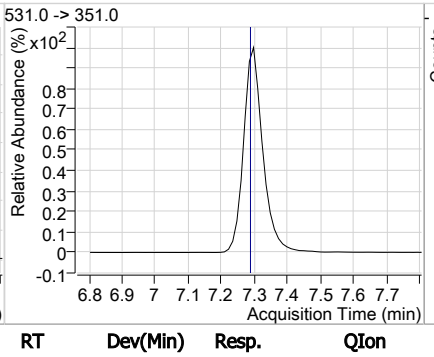


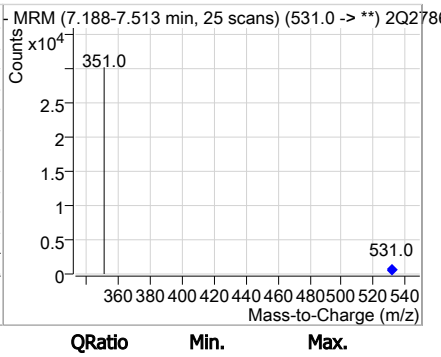




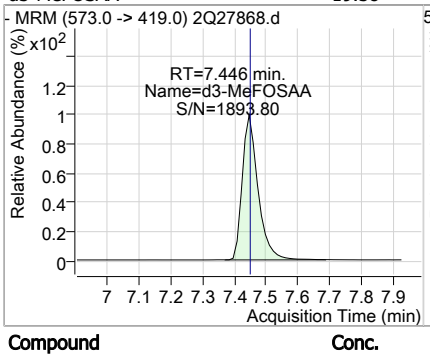
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.57	7.30	0.01	21912				

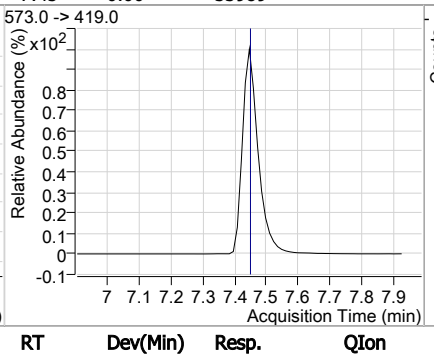


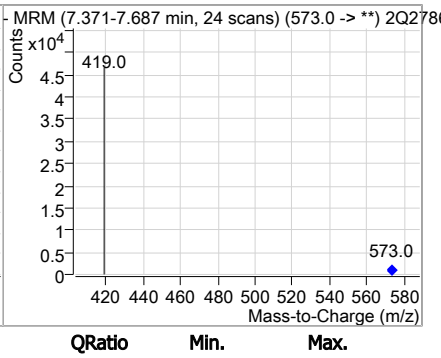




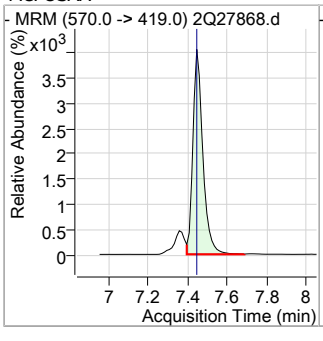
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.38	7.45	0.00	33989				

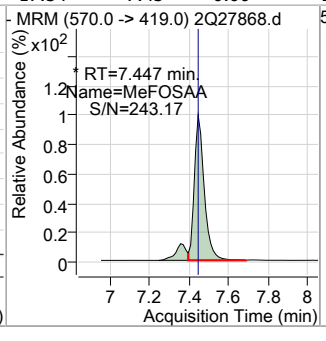


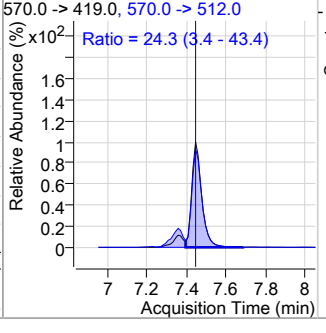


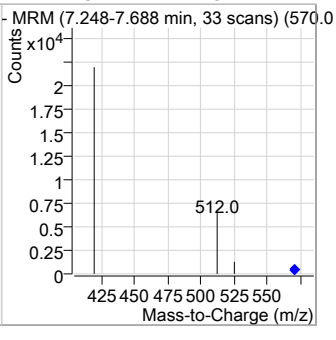


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	17.54	7.45	0.00	15667 (m)	570.0 -> 512.0	24.3	3.4	43.4









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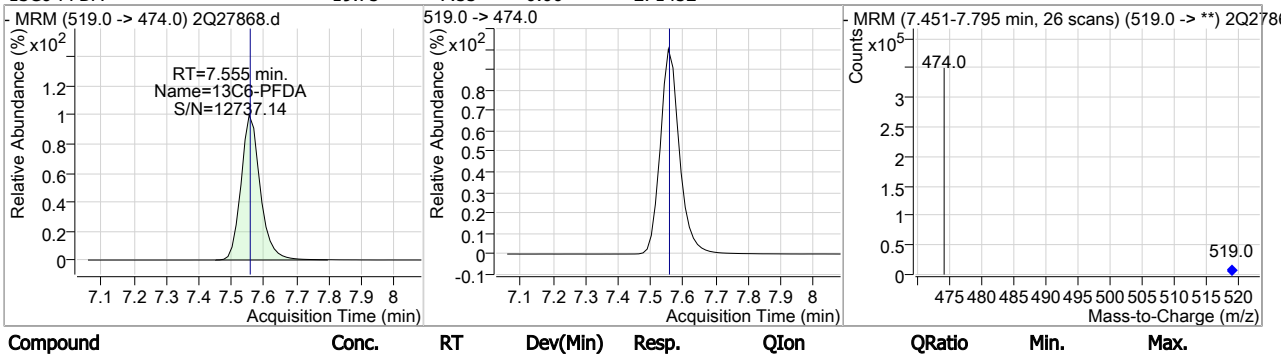
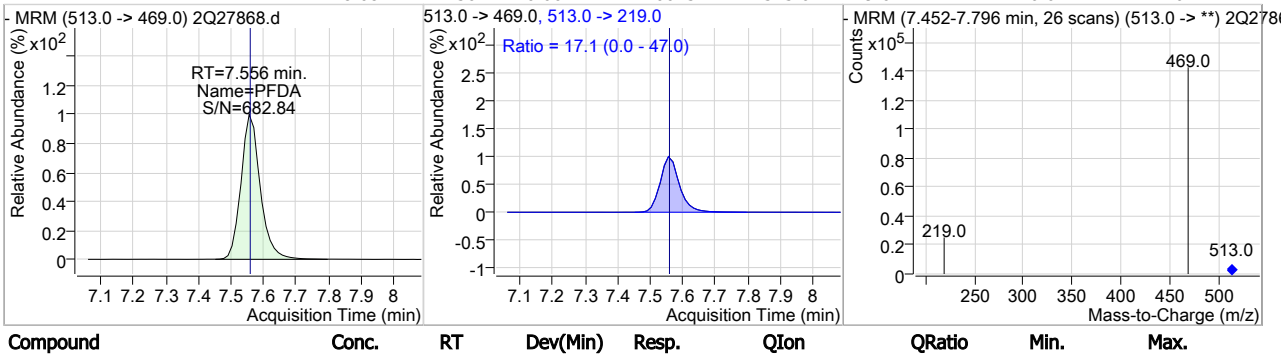
Perfluorinated Compounds by LC/MS/MS

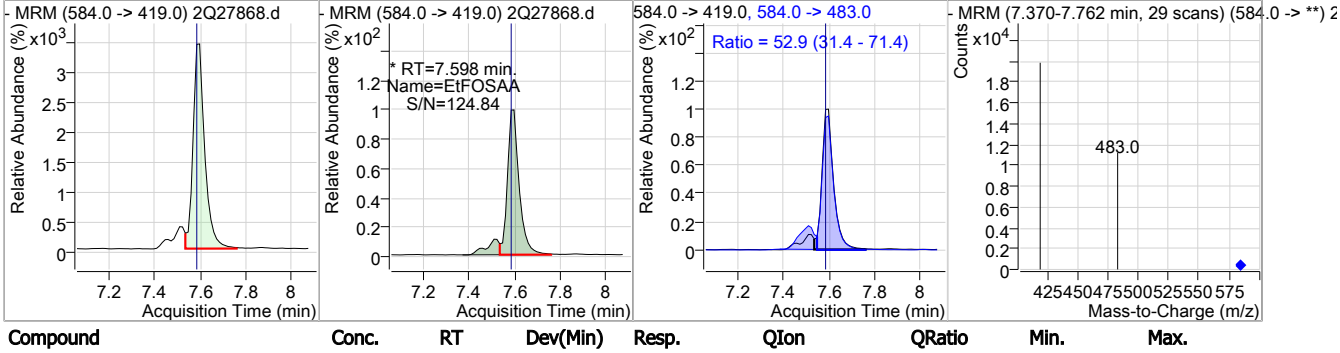
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.75	7.55	0.00	271452				



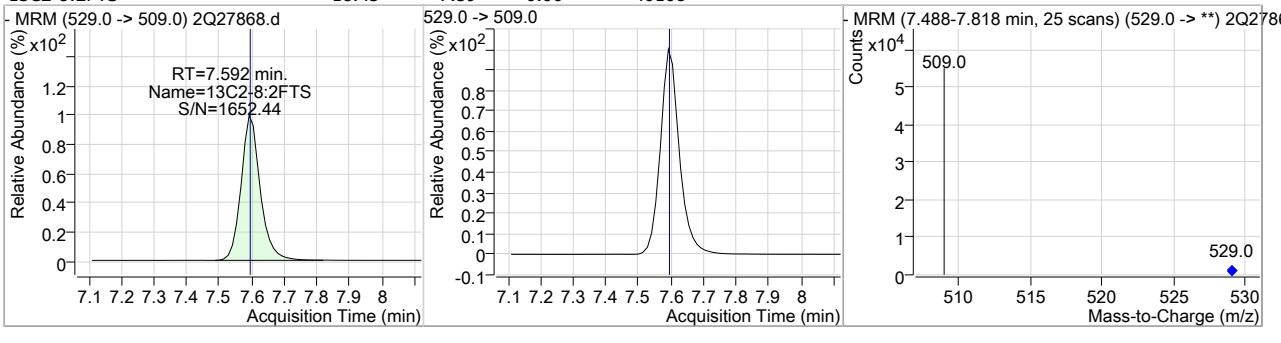
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.68	7.56	0.00	110015	513.0 -> 219.0	17.1	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	18.63	7.60	0.01	13788 (m)	584.0 -> 483.0	52.9	31.4	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.45	7.59	0.00	40108				



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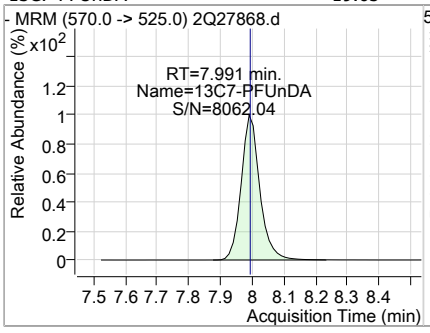
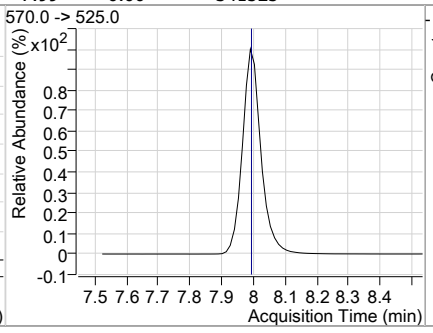
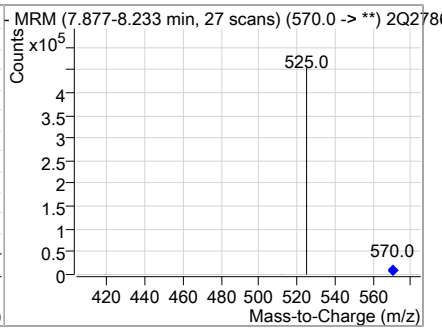
Perfluorinated Compounds by LC/MS/MS

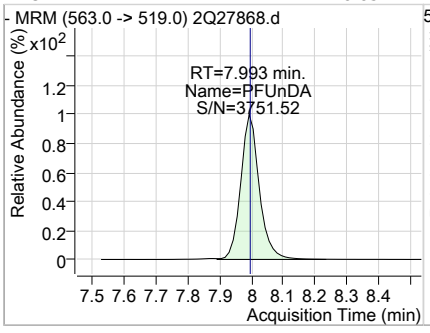
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.65	7.99	0.00	341525				

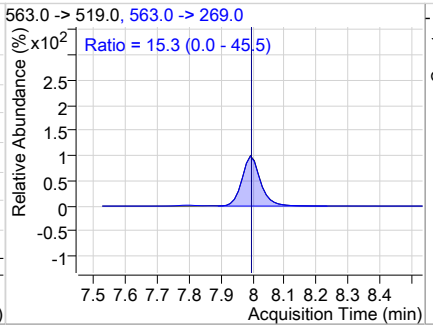


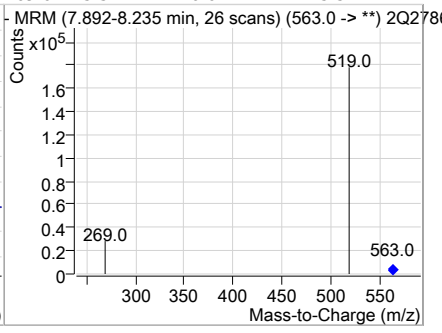




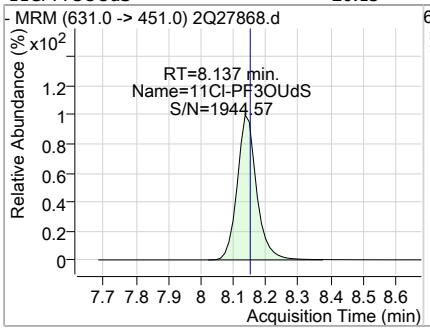
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	18.83	7.99	0.00	133525	563.0 -> 269.0	15.3	0.0	45.5

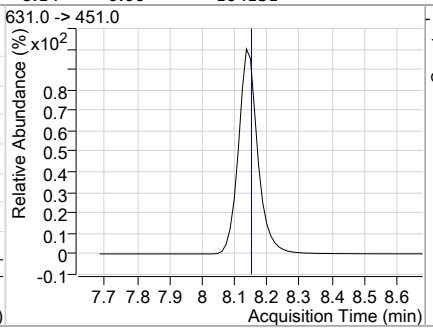


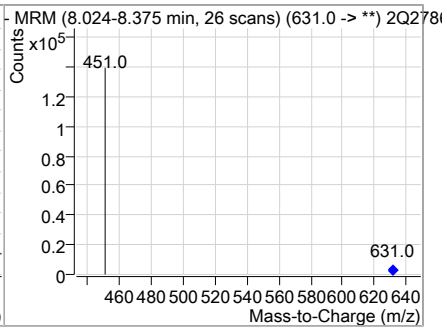




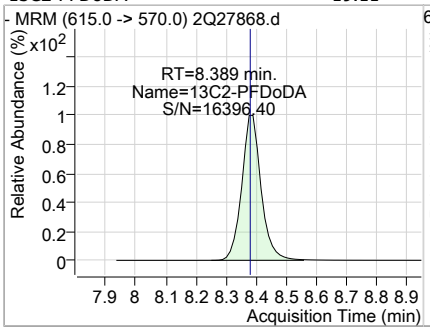
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.13	8.14	0.00	104131				

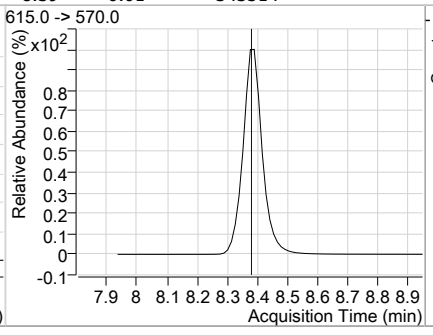


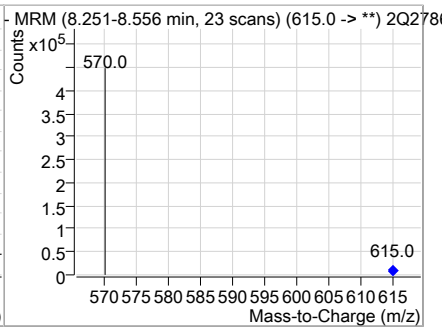




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.11	8.39	0.01	343514				







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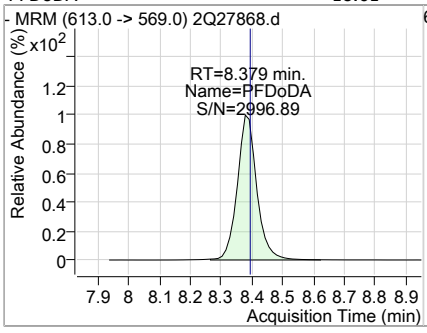
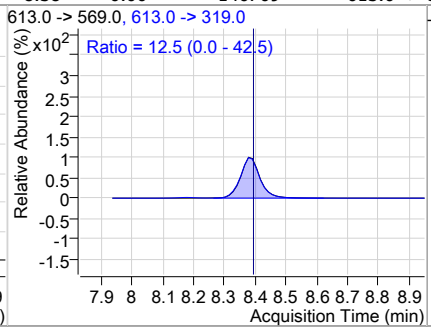
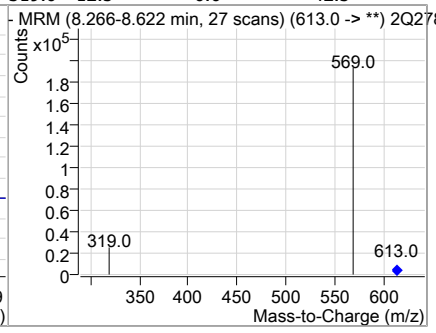
Perfluorinated Compounds by LC/MS/MS

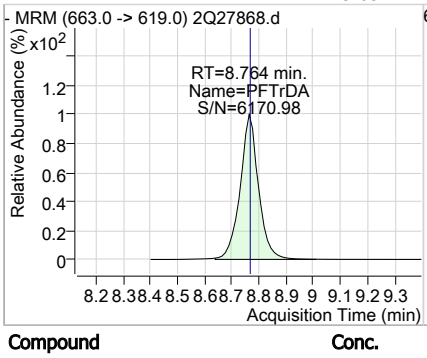
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	18.61	8.38	0.00	146709	613.0 -> 319.0	12.5	0.0	42.5

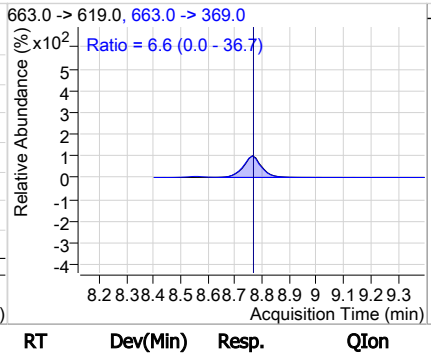


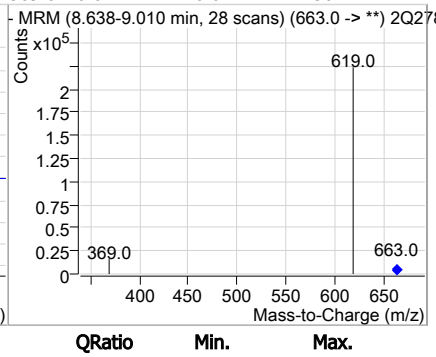




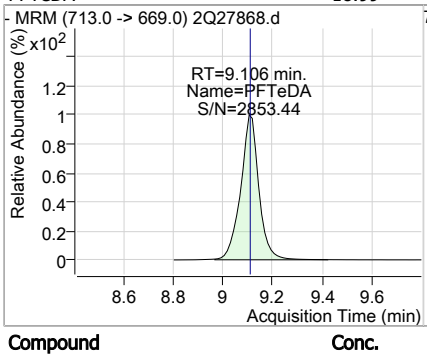
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.63	8.76	0.00	172465	663.0 -> 369.0	6.6	0.0	36.7

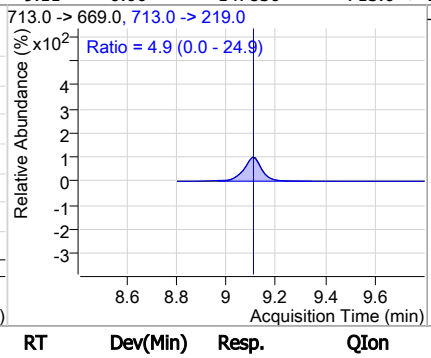


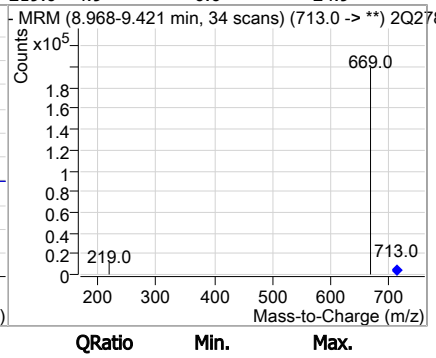




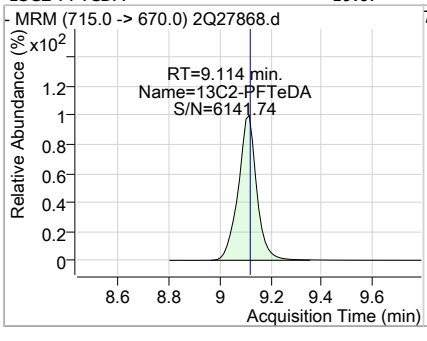
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.99	9.11	0.00	147830	713.0 -> 219.0	4.9	0.0	24.9

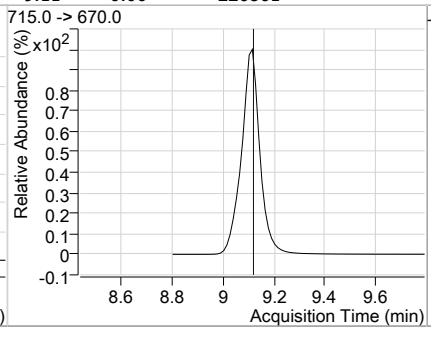


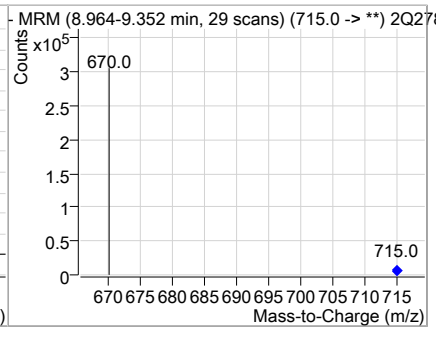




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.07	9.11	0.00	226861				







7.6.11

7

Manual Integration Approval Summary

Sample Number: S2Q445-ICV445 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q27868.D **Analyst approved:** 03/22/19 16:23 Nancy Saunders
Injection Time: 03/21/19 14:17 **Supervisor approved:** 03/24/19 19:33 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak
MeFOSAA	2355-31-9		7.45	Split peak
EtFOSAA	2991-50-6		7.60	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/26/19 08:11

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28055.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/24/2019 9:54:27 PM
Sample Name : cc445-20
Vial : Vial 7
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74245,S2Q447,125,,,1.0,1,water

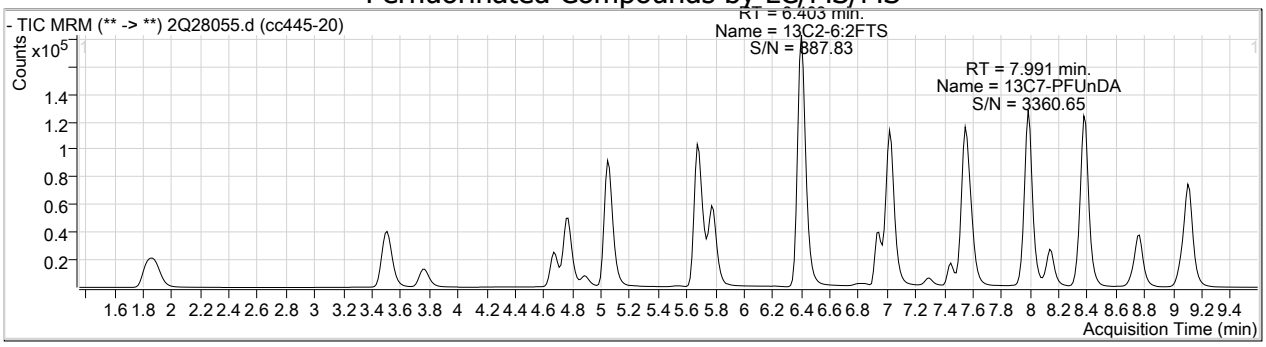
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	269251	20.00	µg/L	0.012
13C4-PFOS	7.011	503.0 -> 80.0	47321	20.00	µg/L	0.013
M4-PFBA	1.865	217.0 -> 172.0	137303	20.00	µg/L	0.013
M5-PFPeA	3.511	268.0 -> 223.0	113576	20.00	µg/L	0.012
M5-PFHxA	4.776	318.0 -> 273.0	153402	20.00	µg/L	0.012
M4-PFHpA	5.680	367.0 -> 322.0	211711	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	213685	20.00	µg/L	0.012
M9-PFNA	7.027	472.0 -> 427.0	211999	20.00	µg/L	0.013
M6-PFDA	7.556	519.0 -> 474.0	283758	20.00	µg/L	0.014
M7-PFUnDA	7.991	570.0 -> 525.0	343637	20.00	µg/L	0.000
M2-PFDoDA	8.378	615.0 -> 570.0	354276	20.00	µg/L	0.002
M2-PFTeDA	9.102	715.0 -> 670.0	218616	20.00	µg/L	0.000
M8-FOSA	6.946	506.0 -> 78.0	97099	20.00	µg/L	0.027
M3-PFBS	3.767	302.0 -> 99.0	20994	20.00	µg/L	0.012
M3-PFHxS	5.723	402.0 -> 99.0	22709	20.00	µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	28962	20.00	µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	58834	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	61227	20.00	µg/L	0.012
M2-8:2FTS	7.592	529.0 -> 509.0	41169	20.00	µg/L	0.012
M3-MeFOSAA	7.446	573.0 -> 419.0	34601	20.00	µg/L	0.013
M3-HFPO-DA	5.055	287.0 -> 169.0	168192	100.00	µg/L	0.012
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	58658	20.61	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C2-6:2FTS	6.403	429.0 -> 409.0	61160	20.29	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C2-8:2FTS	7.592	529.0 -> 509.0	41164	18.94	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
13C2-PFDoDA	8.378	615.0 -> 570.0	354134	19.70	µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.5%		
13C2-PFTeDA	9.102	715.0 -> 670.0	218031	18.33	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.6%		
13C3-PFBS	3.767	302.0 -> 99.0	20943	20.41	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C3-PFHxS	5.723	402.0 -> 99.0	22676	20.40	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C4-PFBA	1.865	217.0 -> 172.0	137047	20.96	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C4-PFHpA	5.680	367.0 -> 322.0	211518	20.46	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C5-PFHxA	4.776	318.0 -> 273.0	153146	20.67	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C5-PFPeA	3.511	268.0 -> 223.0	113047	20.55	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C6-PFDA	7.556	519.0 -> 474.0	283760	20.64	µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

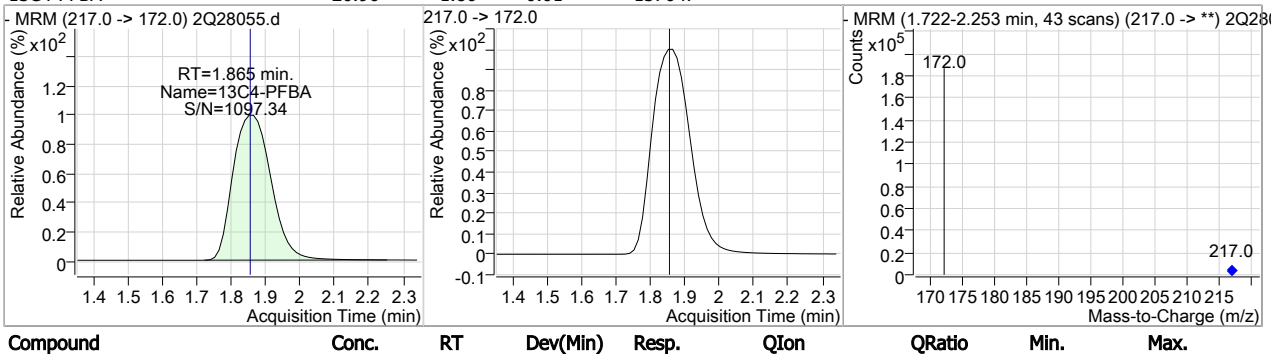
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C7-PFUnDA	7.991	570.0 -> 525.0	343533	19.76 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C8-FOSA	6.946	506.0 -> 78.0	97112	21.65 µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.3%		
13C8-PFOA	6.407	421.0 -> 376.0	213365	20.70 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C8-PFOS	7.008	507.0 -> 99.0	28964	20.26 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C9-PFNA	7.027	472.0 -> 427.0	212006	20.34 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
d3-MeFOSAA	7.446	573.0 -> 419.0	34569	19.71 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
M2-PFOA	6.409	415.0 -> 370.0	269353	20.00 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.011	503.0 -> 80.0	47350	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.055	287.0 -> 169.0	168192	100.90 µg/L		0.012
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	33254	19.22 µg/L		99
6:2FTS	6.392	427.0 -> 407.0	29484	19.09 µg/L		99
8:2FTS	7.593	527.0 -> 507.0	21077	19.40 µg/L		100
EtFOSAA	7.585	584.0 -> 419.0	14364	19.06 µg/L		97
FOSA	6.937	498.0 -> 78.0	44088	19.70 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	17955	19.74 µg/L		98
PFBA	1.860	213.0 -> 169.0	25706	19.15 µg/L		100
PFBS	3.758	299.0 -> 80.0	33294	19.57 µg/L		99
PFDA	7.557	513.0 -> 469.0	114928	18.68 µg/L		100
PFDoDA	8.380	613.0 -> 569.0	156547	19.26 µg/L		100
PFDS	7.951	599.0 -> 80.0	9648	19.68 µg/L		98
PFHpA	5.683	363.0 -> 319.0	185184	19.51 µg/L		100
PFHpS	6.413	449.0 -> 80.0	21012	19.79 µg/L		98
PFHxA	4.778	313.0 -> 269.0	50317	18.81 µg/L		100
PFHxS	5.726	399.0 -> 80.0	24081	19.19 µg/L	m	100
PFNA	7.028	463.0 -> 419.0	130494	18.73 µg/L		99
PFNS	7.527	549.0 -> 80.0	19854	20.09 µg/L		100
PFOA	6.411	413.0 -> 369.0	110306	19.22 µg/L		100
PFOS	7.012	499.0 -> 80.0	27188	19.08 µg/L	m	99
PFPeA	3.515	263.0 -> 219.0	97237	19.20 µg/L		100
PFPeS	4.883	349.0 -> 80.0	21528	19.77 µg/L		99
PFTeDA	9.106	713.0 -> 669.0	143291	19.11 µg/L		100
PFTrDA	8.769	663.0 -> 619.0	165877	19.61 µg/L		100
PFUnDA	7.992	563.0 -> 519.0	137730	19.32 µg/L		100
11Cl-PF3OUdS	8.137	631.0 -> 451.0	106948	20.06 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	21301	18.23 µg/L		100
ADONA	5.779	377.0 -> 251.0	214431	19.58 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	175152	89.39 µg/L		94

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

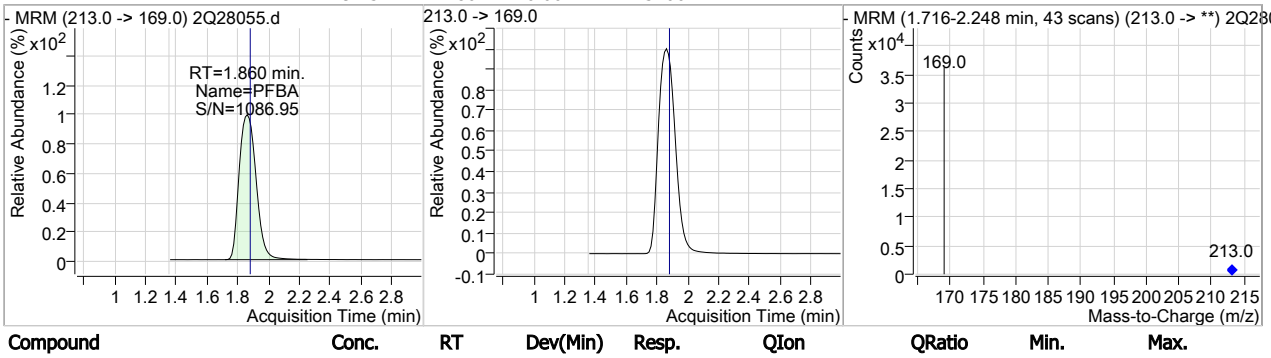
Perfluorinated Compounds by LC/MS/MS



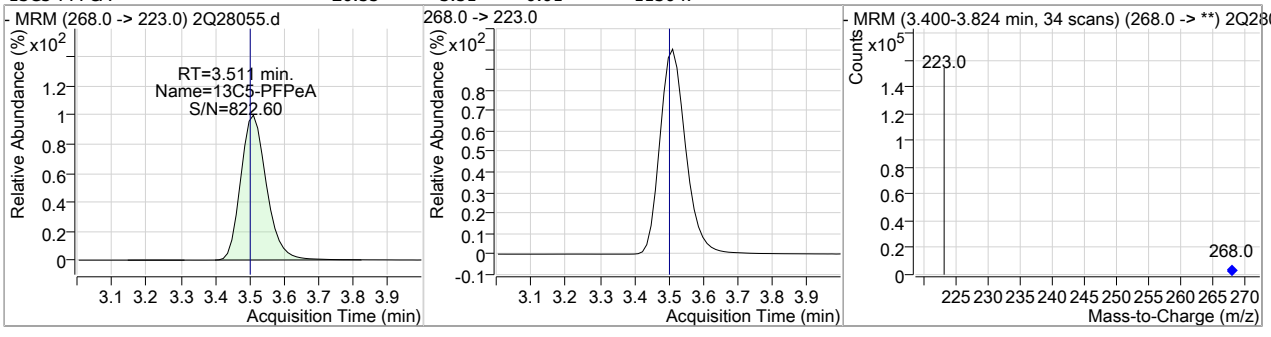
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.96	1.86	0.01	137047				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.15	1.86	0.00	25706				

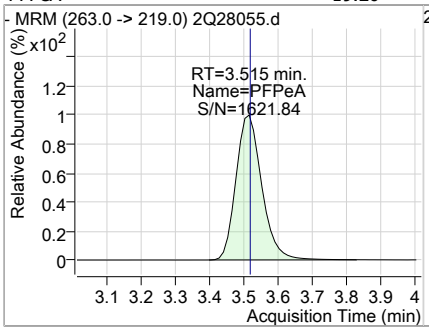


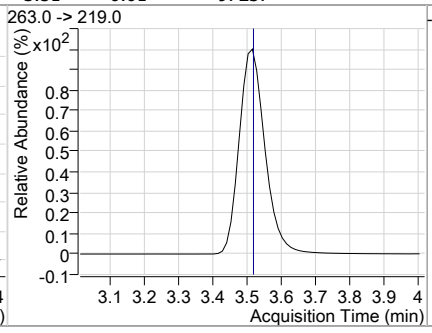
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.55	3.51	0.01	113047				

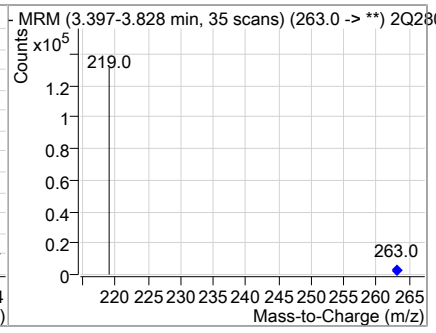


Perfluorinated Compounds by LC/MS/MS

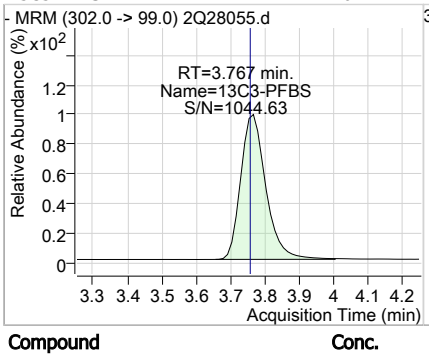
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.20	3.51	0.01	97237				

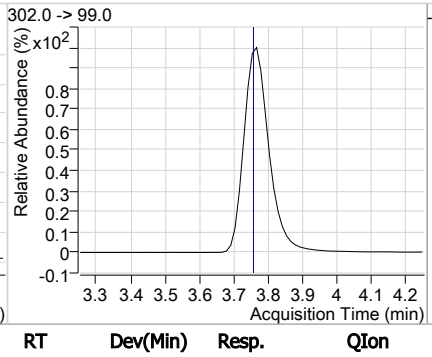


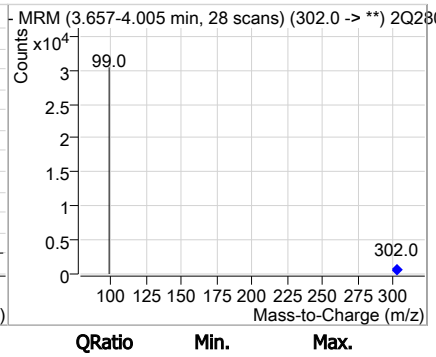




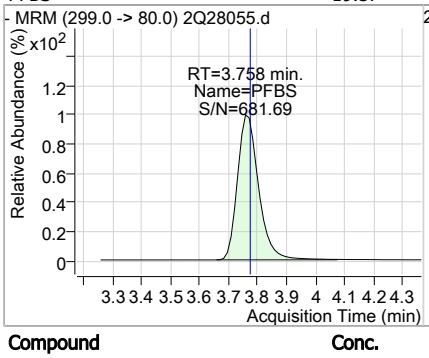
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.41	3.77	0.01	20943				

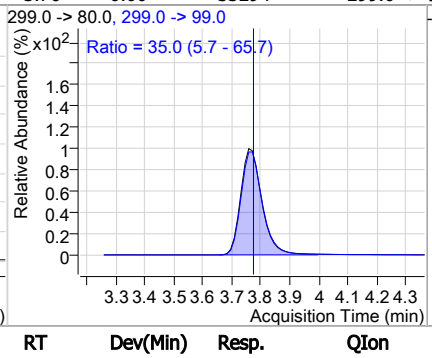


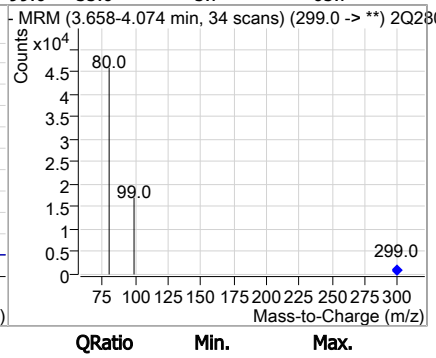




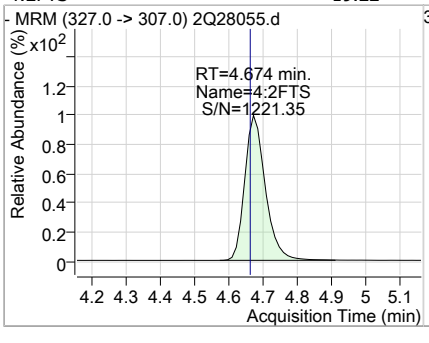
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.57	3.76	0.00	33294	299.0 -> 99.0	35.0	5.7	65.7

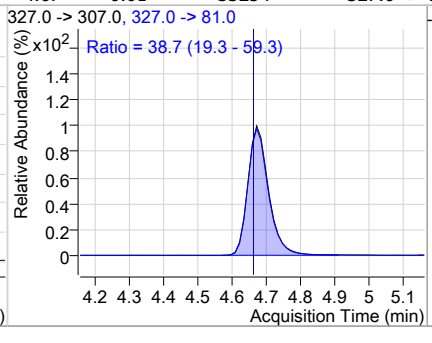


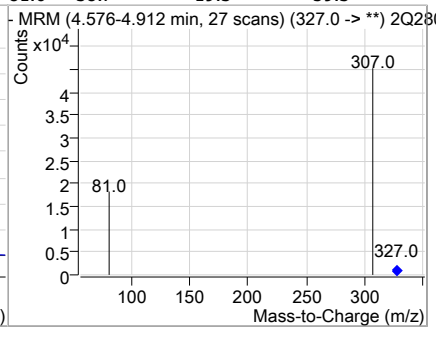




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.22	4.67	0.01	33254	327.0 -> 81.0	38.7	19.3	59.3



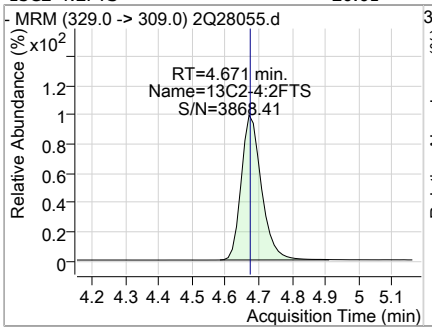


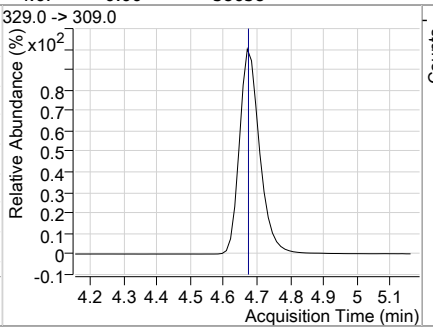


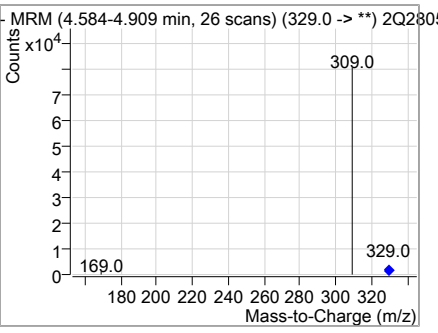
7.6.12

Perfluorinated Compounds by LC/MS/MS

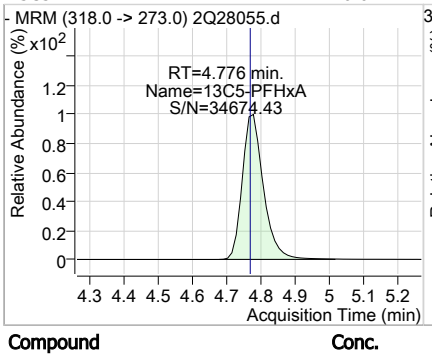
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.61	4.67	0.00	58658				

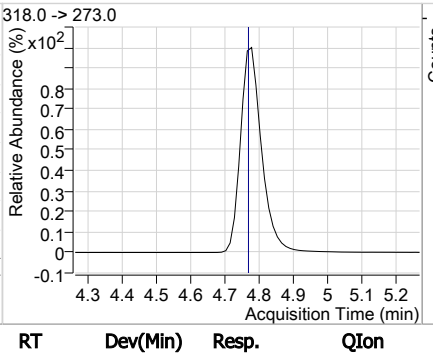


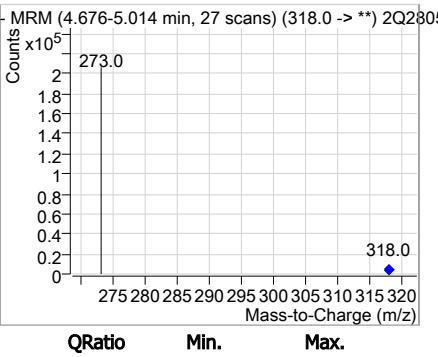




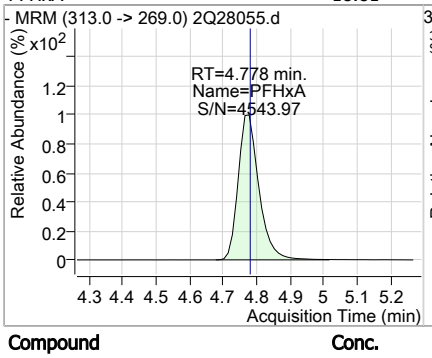
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.67	4.78	0.01	153146				

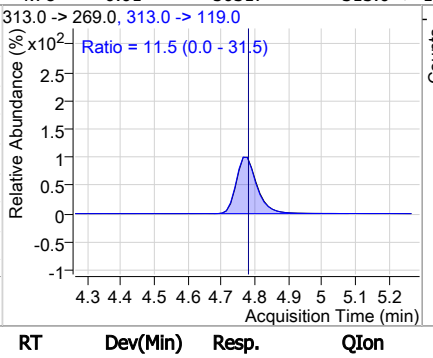


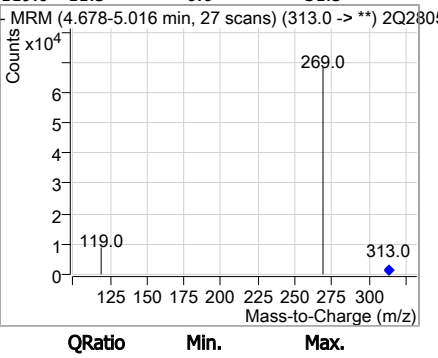




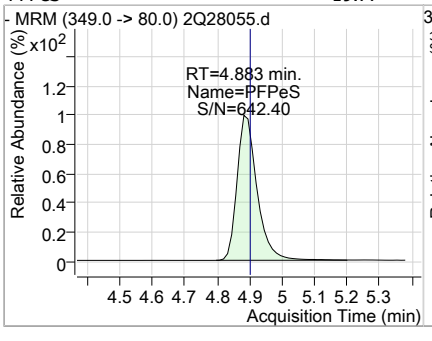
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.81	4.78	0.01	50317	313.0 -> 119.0	11.5	0.0	31.5

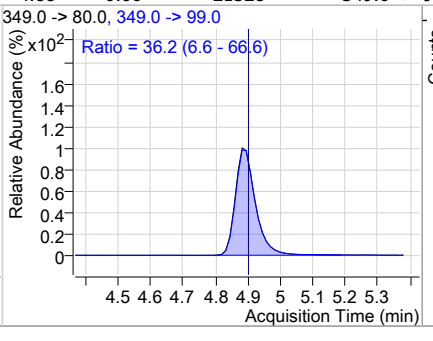


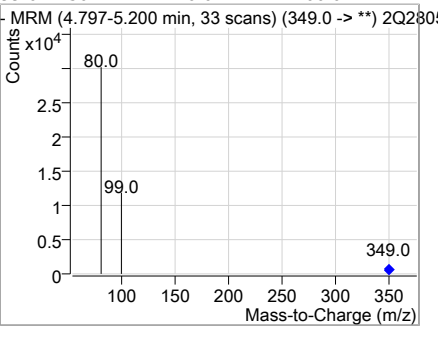




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.77	4.88	0.00	21528	349.0 -> 99.0	36.2	6.6	66.6



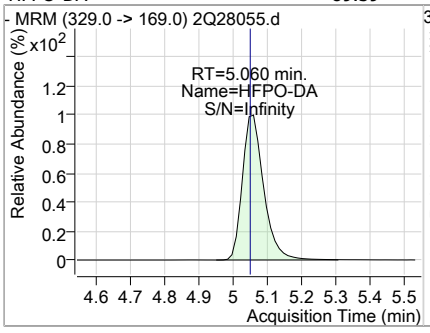


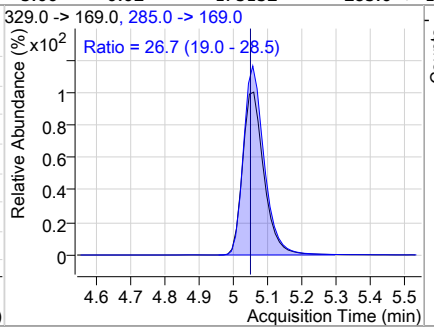


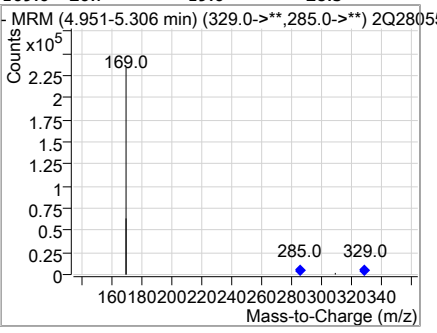
7.6.12

Perfluorinated Compounds by LC/MS/MS

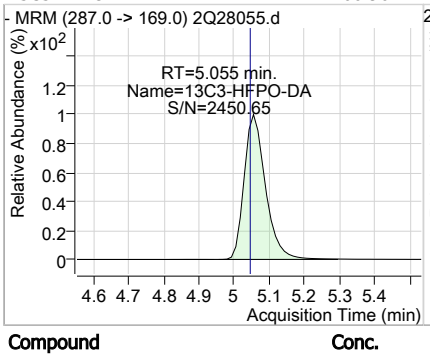
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	89.39	5.06	0.02	175152	285.0 -> 169.0	26.7	19.0	28.5

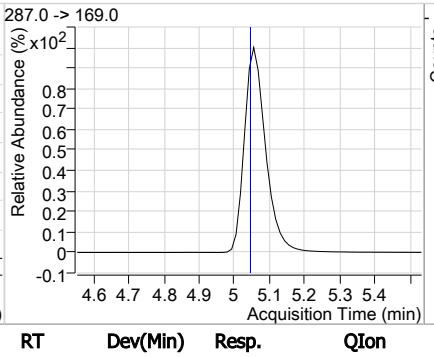


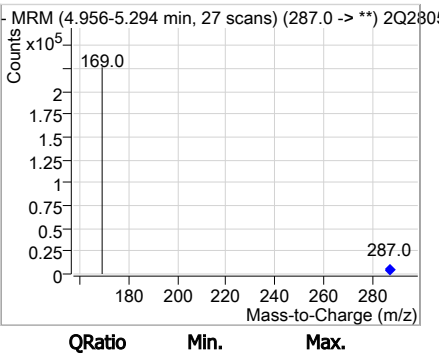




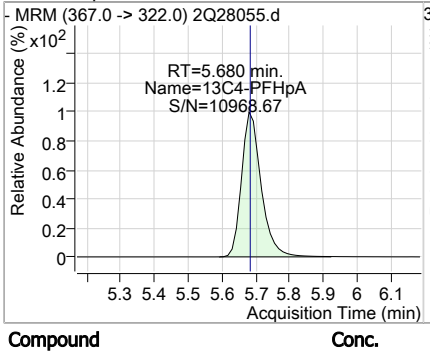
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	100.90	5.06	0.01	168192				

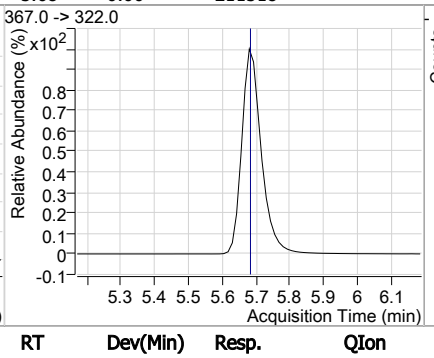


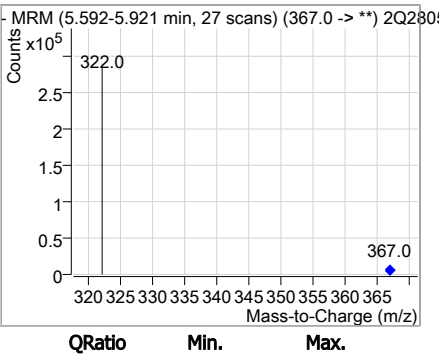




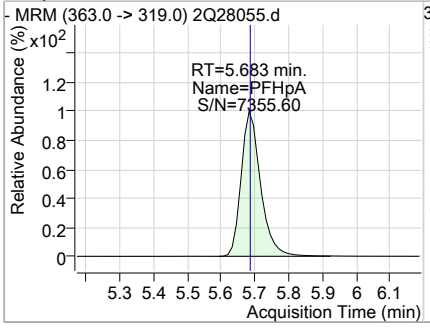
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.46	5.68	0.00	211518				

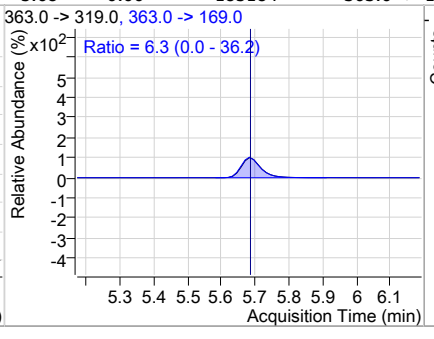


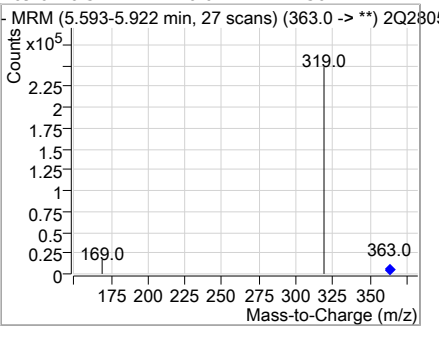




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.51	5.68	0.00	185184	363.0 -> 169.0	6.3	0.0	36.2

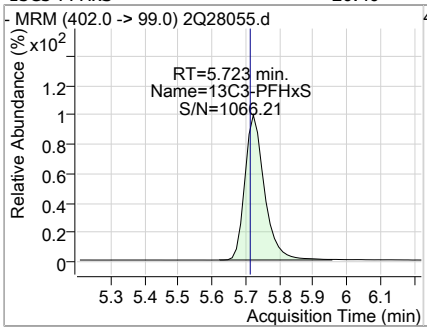


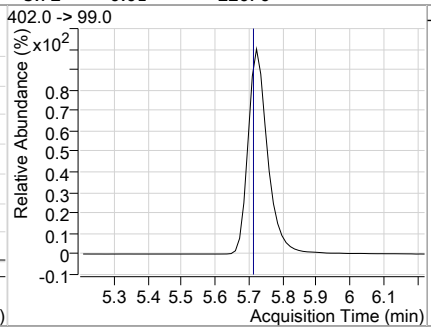


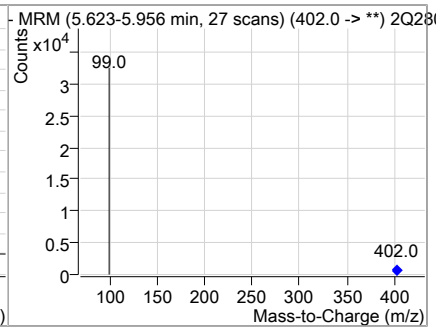


Perfluorinated Compounds by LC/MS/MS

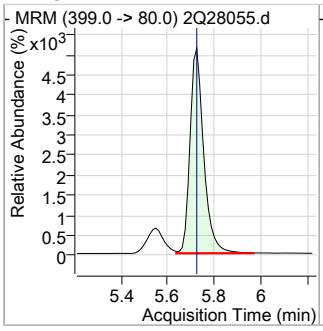
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.40	5.72	0.01	22676				

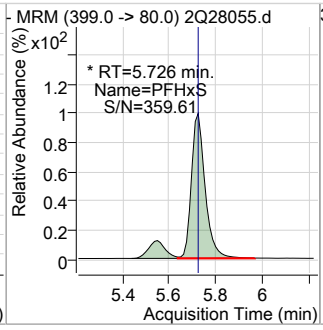


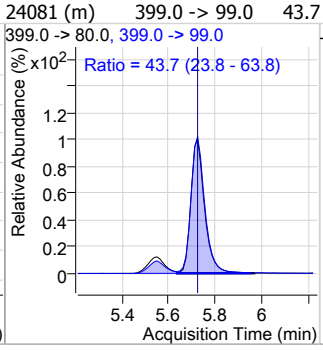


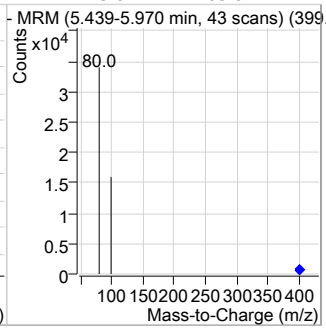


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.19	5.73	0.01	24081 (m)	399.0 -> 99.0	43.7	23.8	63.8

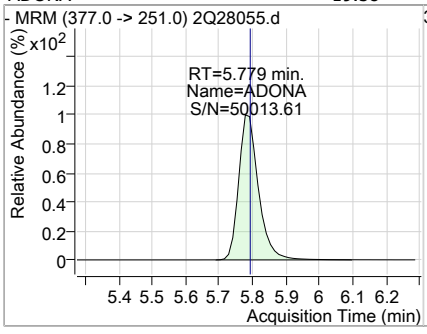


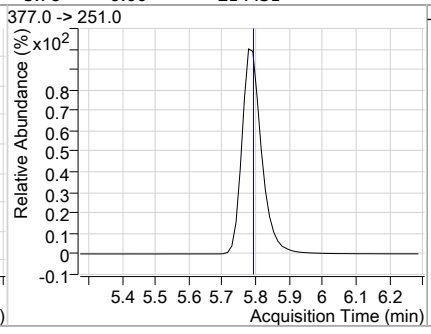


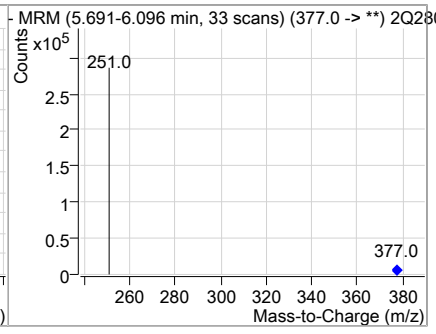




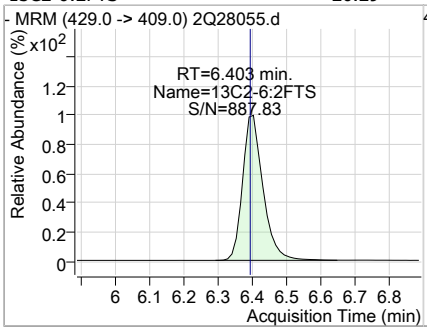
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.58	5.78	0.00	214431				

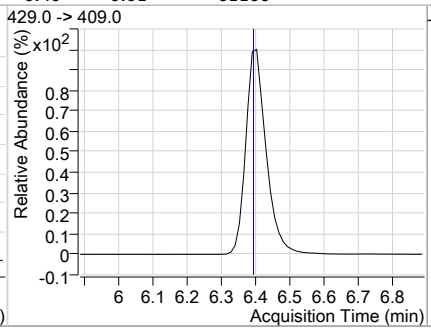


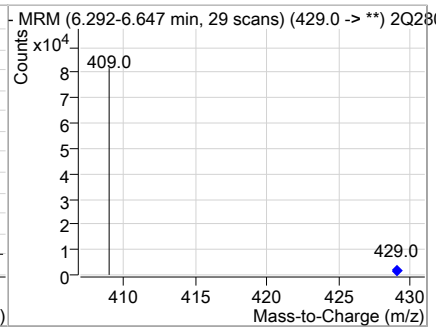




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.29	6.40	0.01	61160				



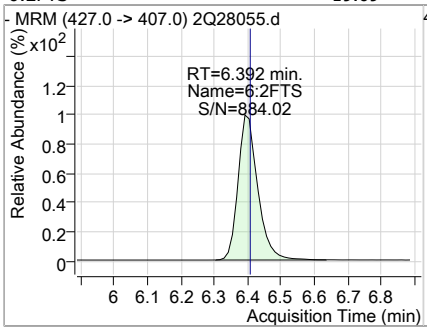


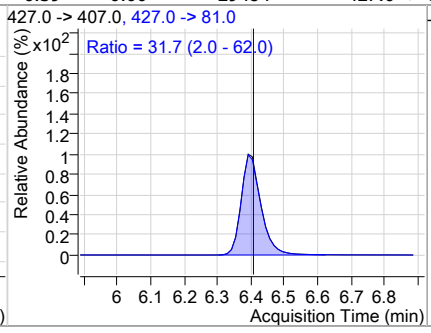


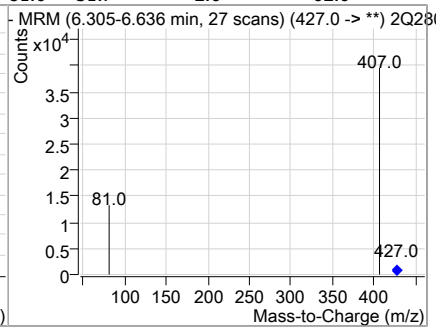
7.6.12

Perfluorinated Compounds by LC/MS/MS

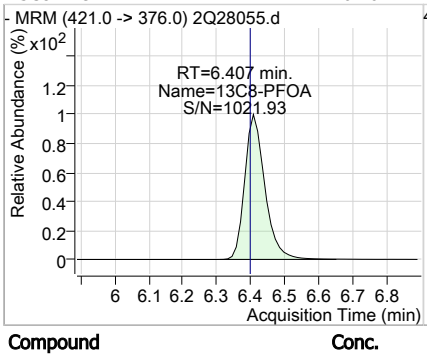
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.09	6.39	0.00	29484	427.0 -> 81.0	31.7	2.0	62.0

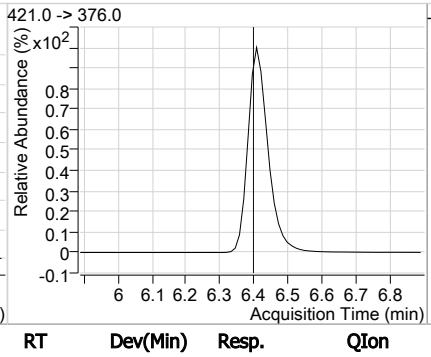


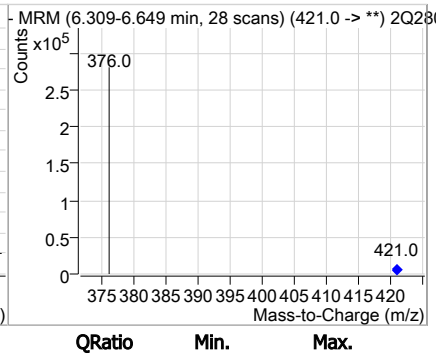




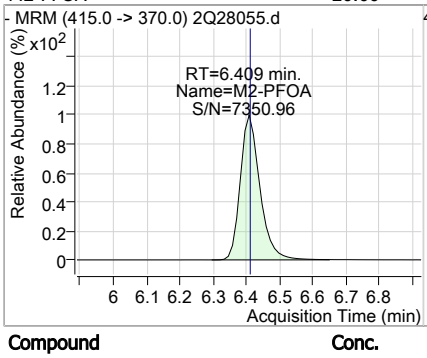
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.70	6.41	0.01	213365				

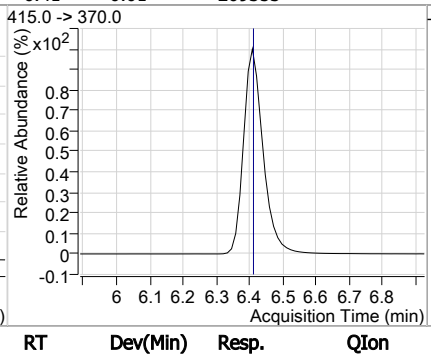


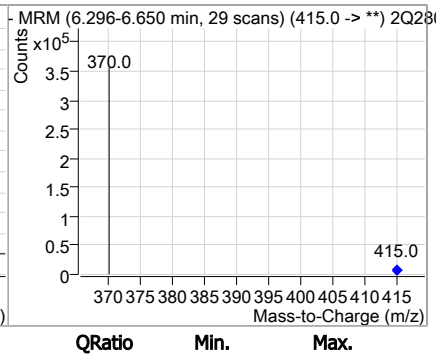




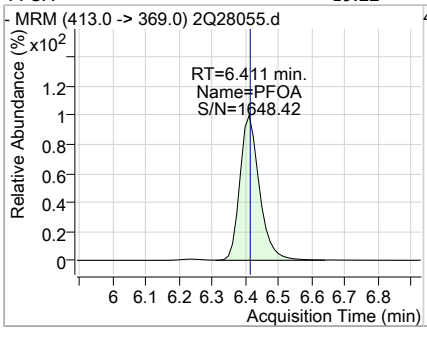
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.01	269353				

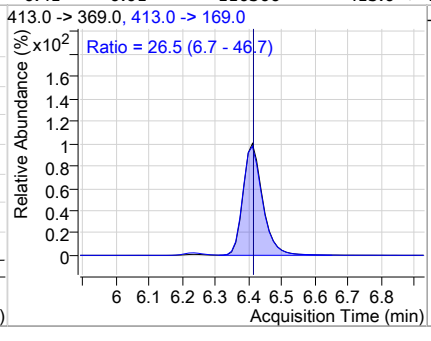


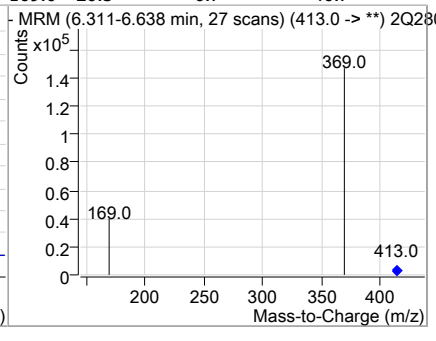




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.22	6.41	0.01	110306	413.0 -> 169.0	26.5	6.7	46.7



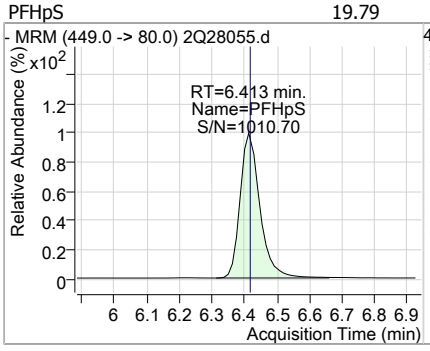


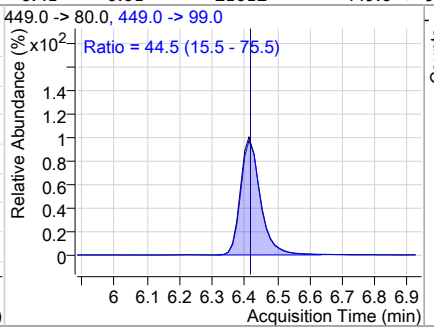


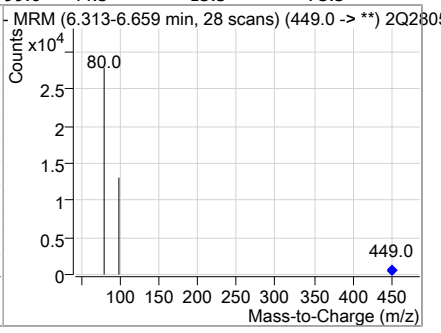
7.6.12

Perfluorinated Compounds by LC/MS/MS

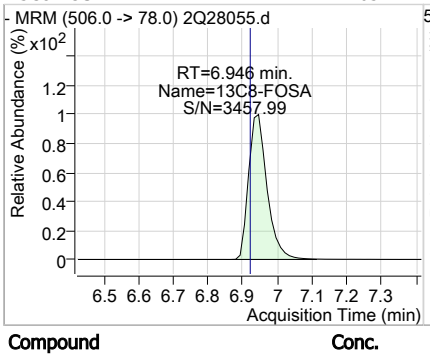
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.79	6.41	0.01	21012	449.0 -> 99.0	44.5	15.5	75.5

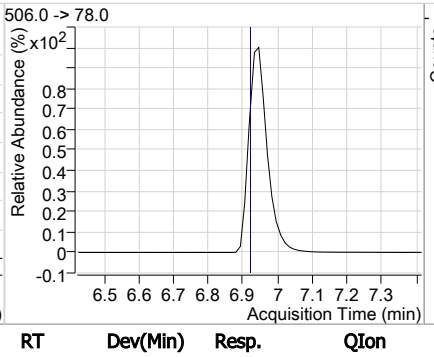


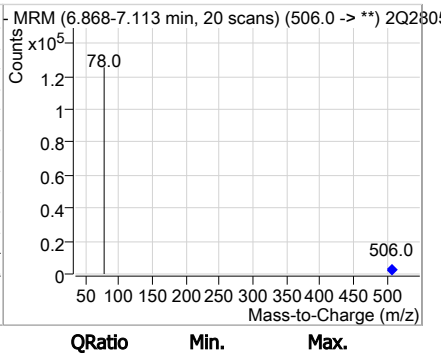




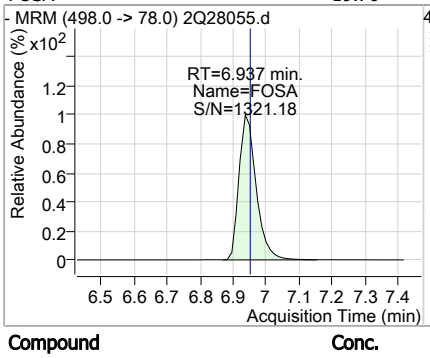
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.65	6.95	0.03	97112				

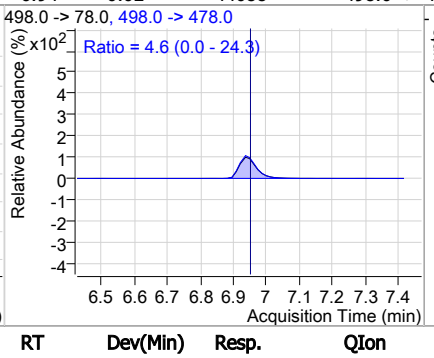


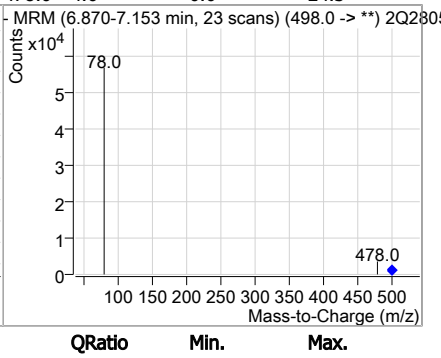




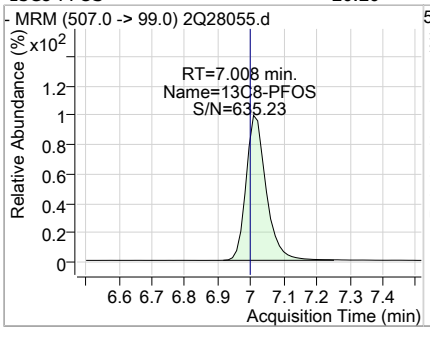
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.70	6.94	0.02	44088	498.0 -> 478.0	4.6	0.0	24.3

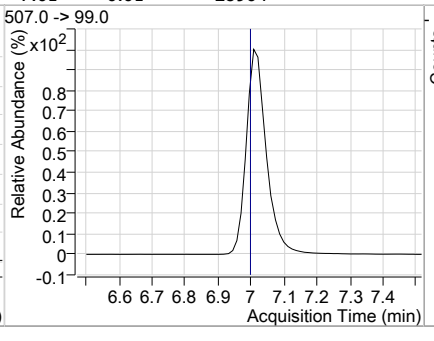


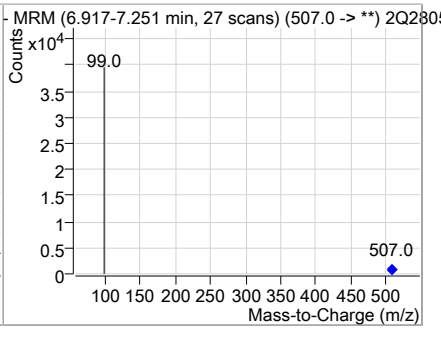




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.26	7.01	0.01	28964				



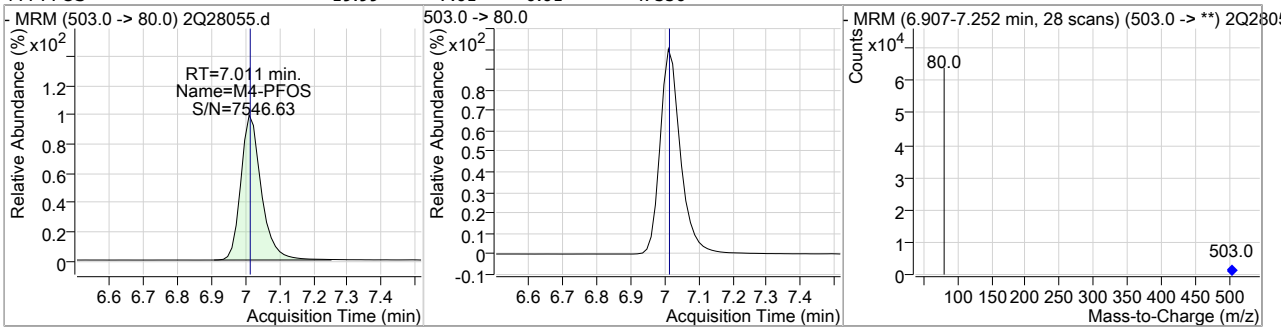




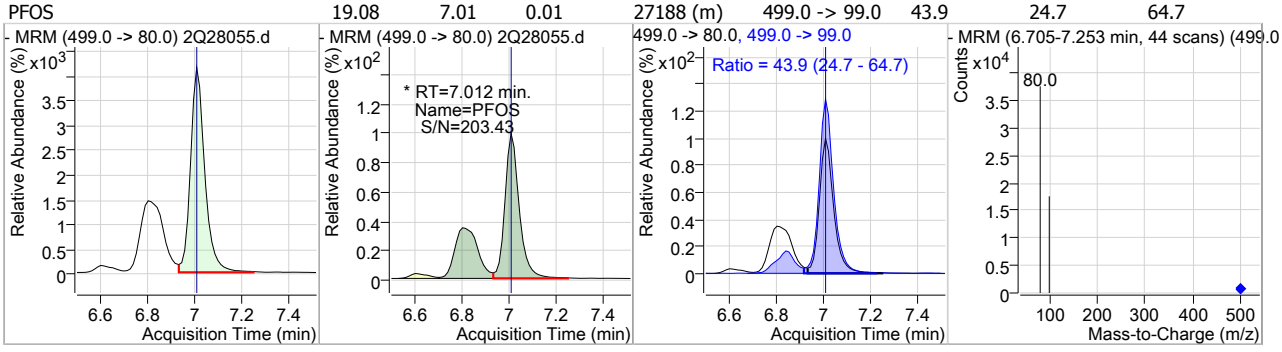
7.6.12

Perfluorinated Compounds by LC/MS/MS

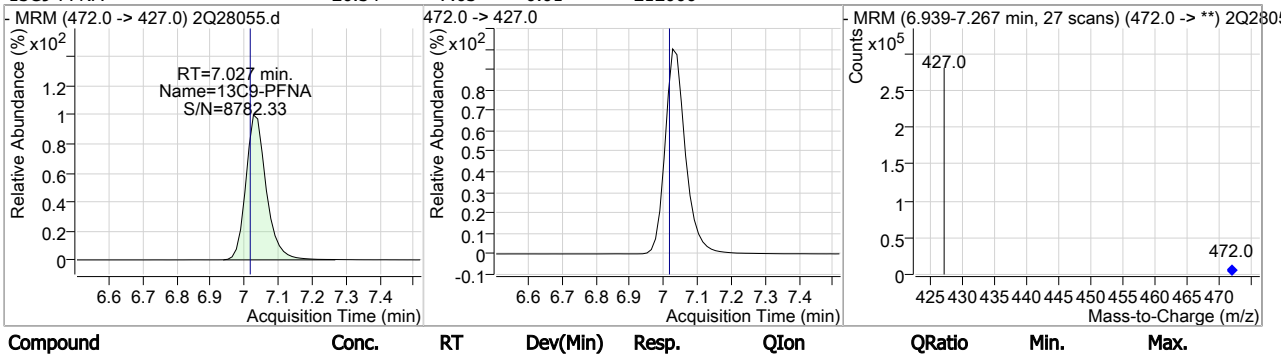
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.01	47350				



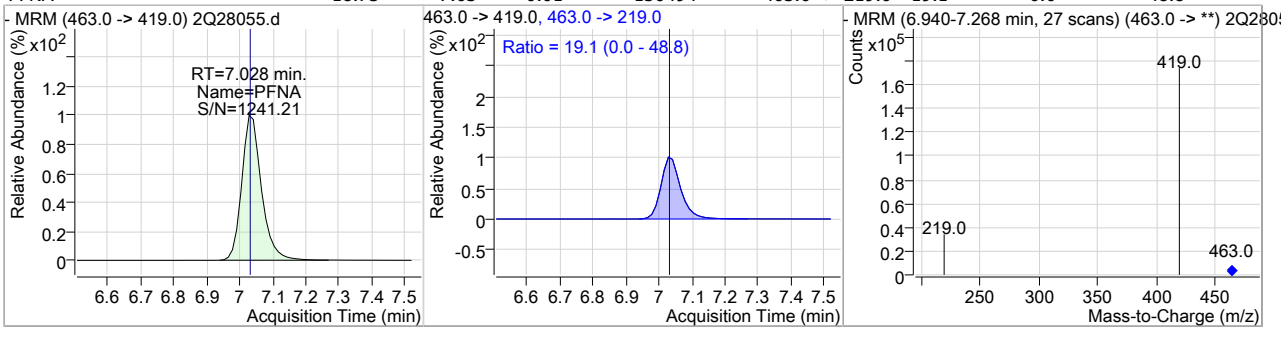
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.08	7.01	0.01	27188 (m)	499.0 -> 99.0	43.9	24.7	64.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.34	7.03	0.01	212006				



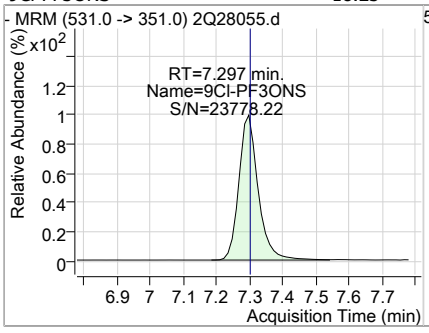
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.73	7.03	0.01	130494	463.0 -> 219.0	19.1	0.0	48.8

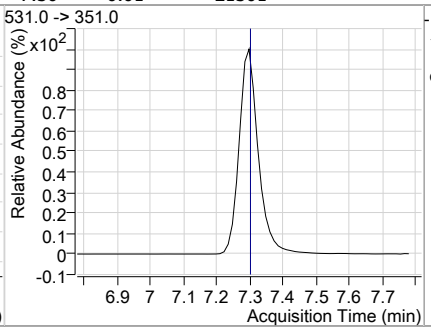


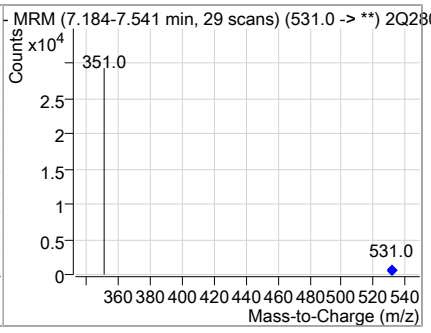
7.6.12

Perfluorinated Compounds by LC/MS/MS

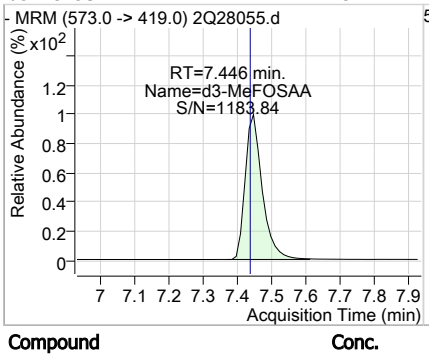
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.23	7.30	0.01	21301				

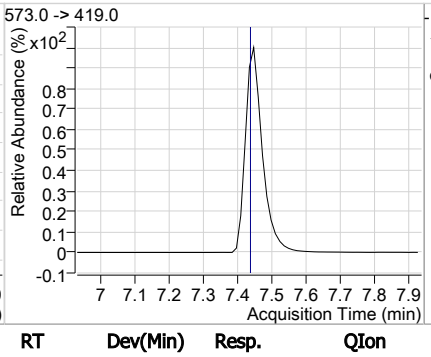


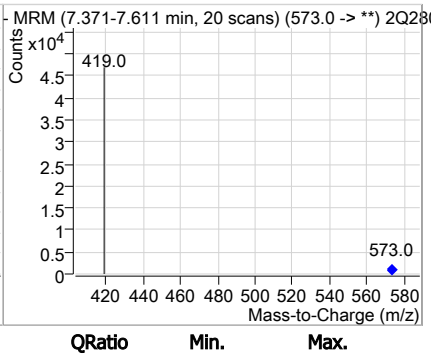




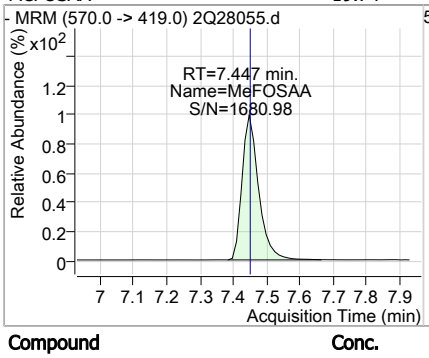
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.71	7.45	0.01	34569				

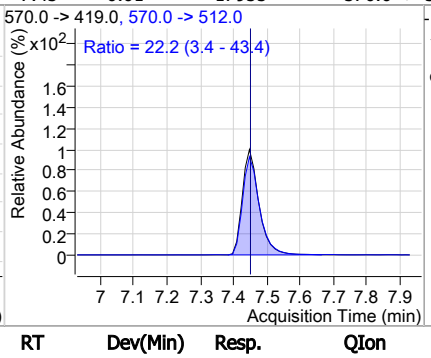


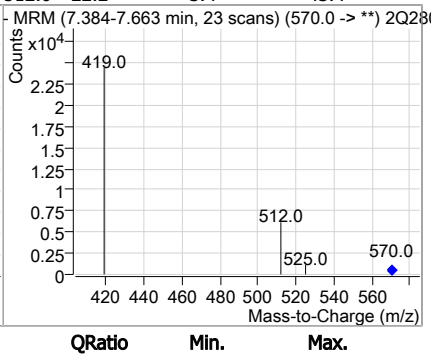




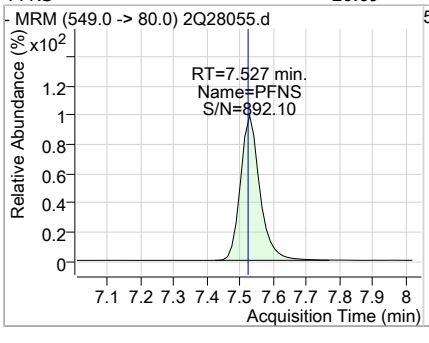
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.74	7.45	0.01	17955	570.0 -> 512.0	22.2	3.4	43.4

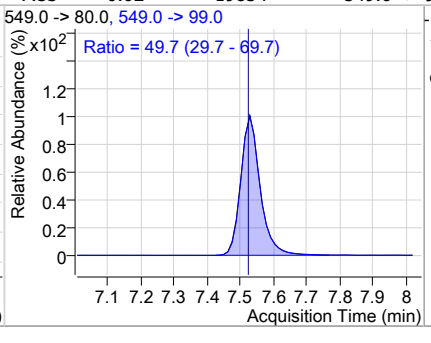


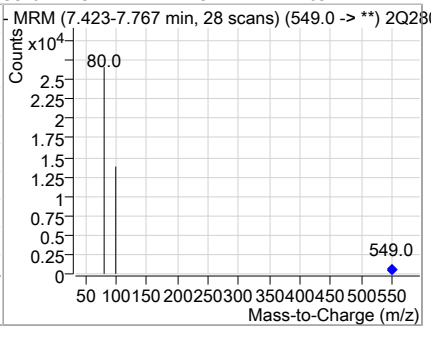




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.09	7.53	0.02	19854	549.0 -> 99.0	49.7	29.7	69.7



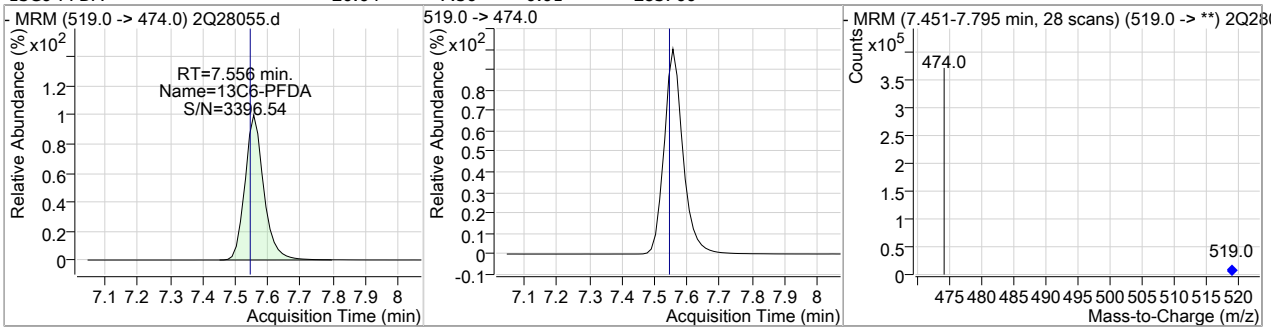




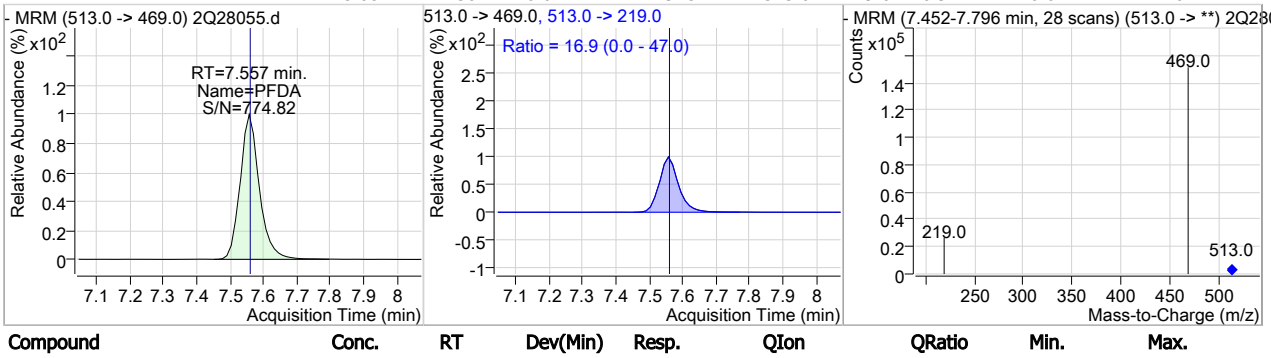
7.6.12

Perfluorinated Compounds by LC/MS/MS

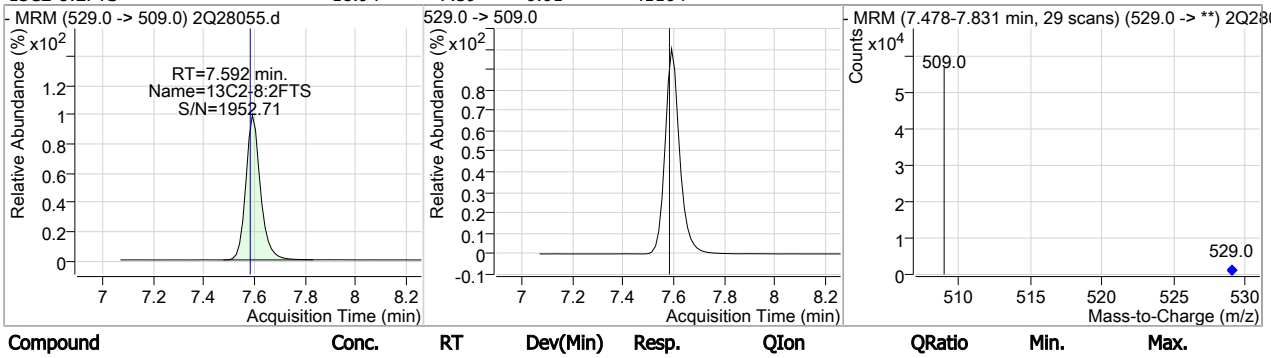
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.64	7.56	0.01	283760				



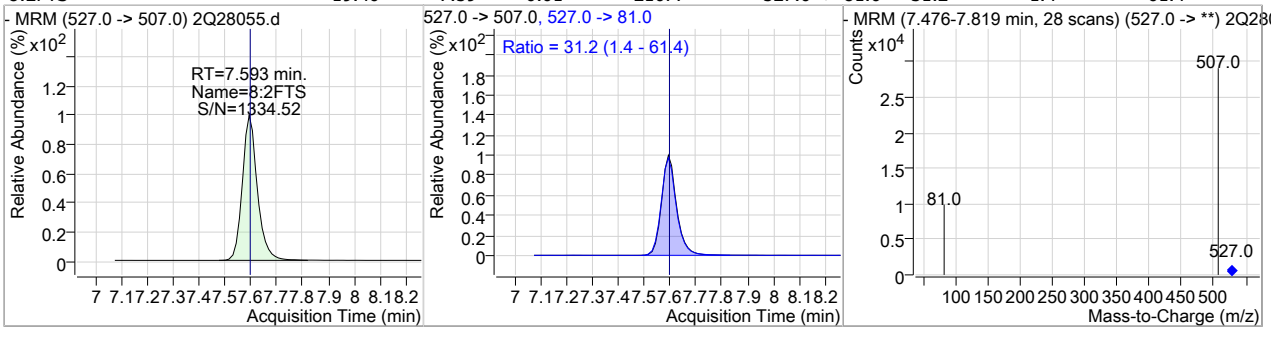
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.68	7.56	0.01	114928	513.0 -> 219.0	16.9	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.94	7.59	0.01	41164				



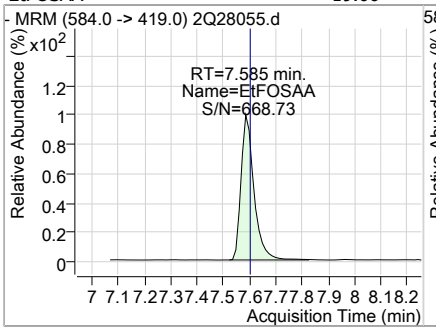
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.40	7.59	0.01	21077	527.0 -> 81.0	31.2	1.4	61.4

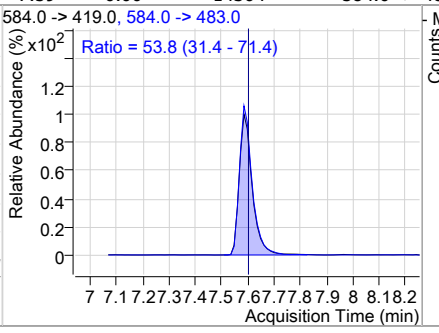


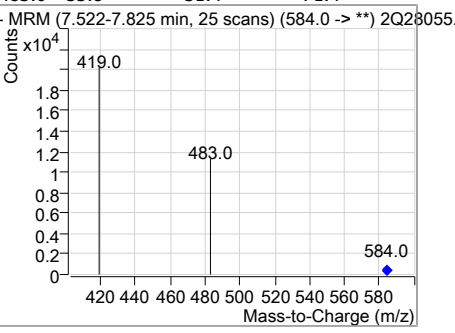
7.6.12

Perfluorinated Compounds by LC/MS/MS

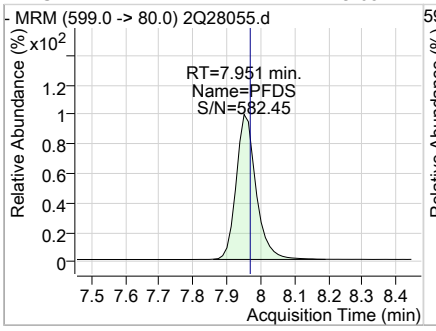
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.06	7.59	0.00	14364	584.0 -> 483.0	53.8	31.4	71.4

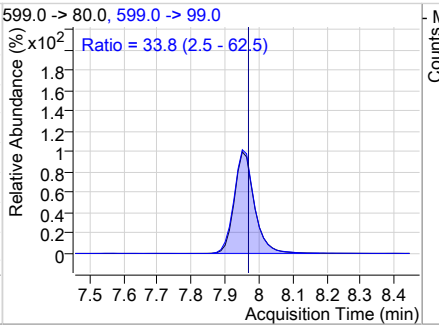


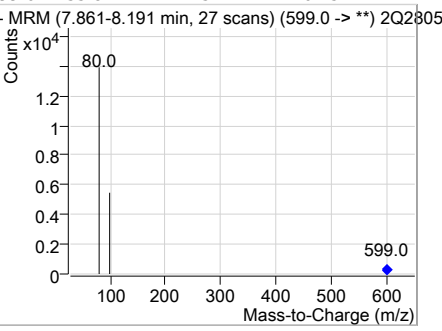




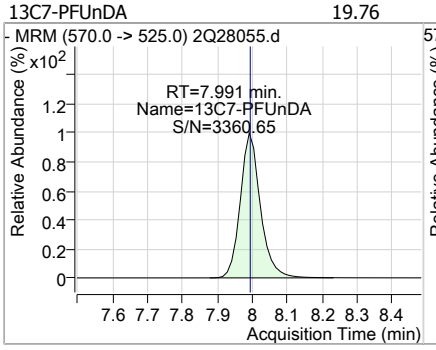
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.68	7.95	0.00	9648	599.0 -> 99.0	33.8	2.5	62.5

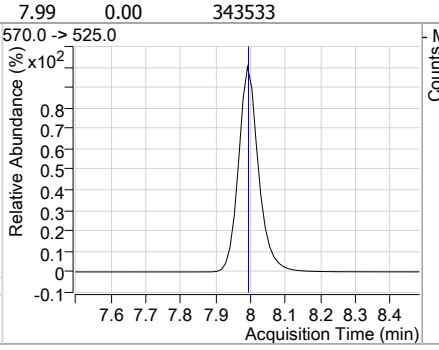


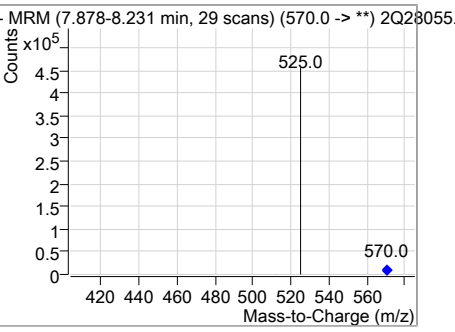




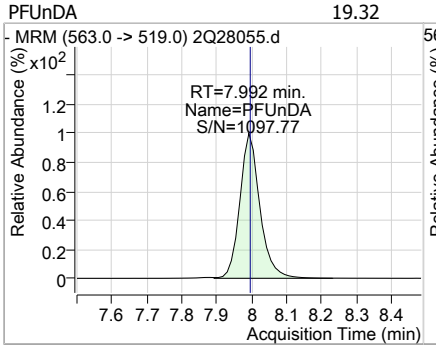
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.76	7.99	0.00	343533				

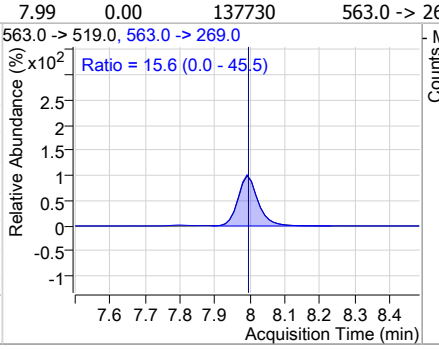


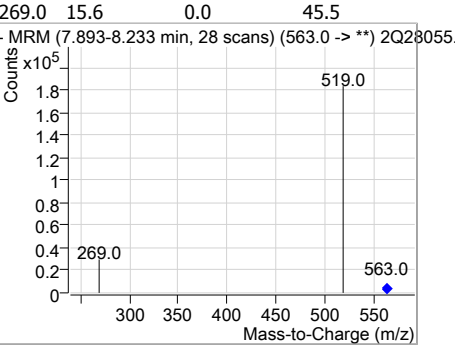




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.32	7.99	0.00	137730	563.0 -> 269.0	15.6	0.0	45.5



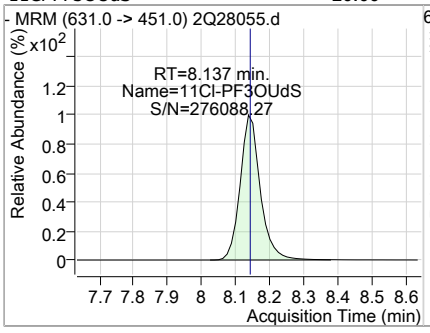


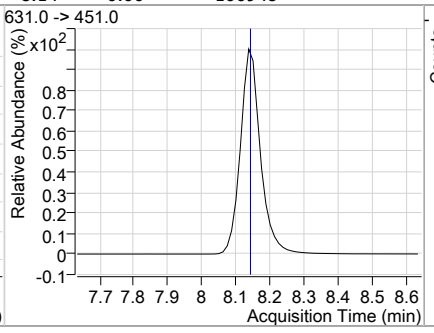


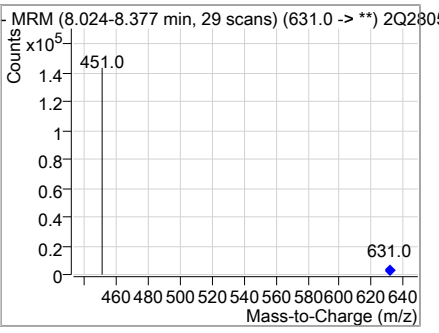
7.6.12

Perfluorinated Compounds by LC/MS/MS

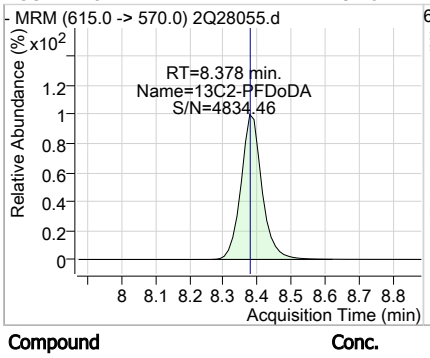
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	20.06	8.14	0.00	106948				

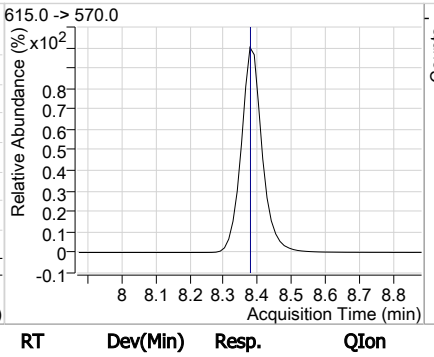


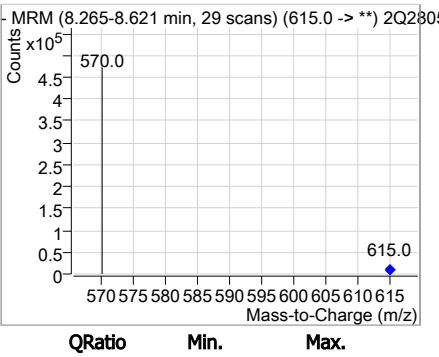




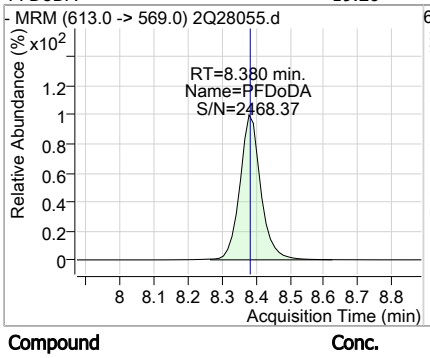
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.70	8.38	0.00	354134				

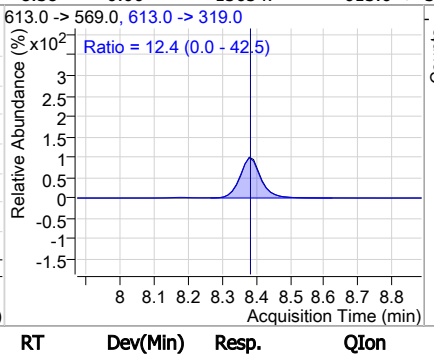


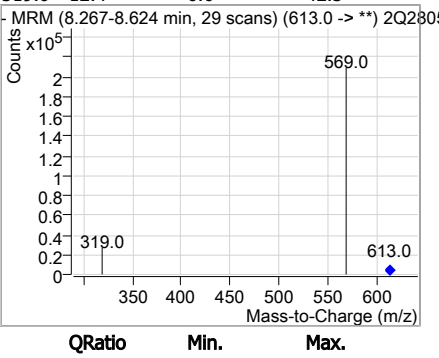




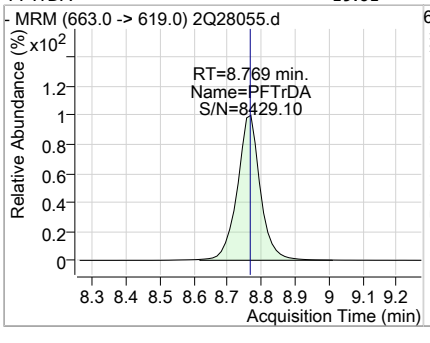
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.26	8.38	0.00	156547	613.0 -> 319.0	12.4	0.0	42.5

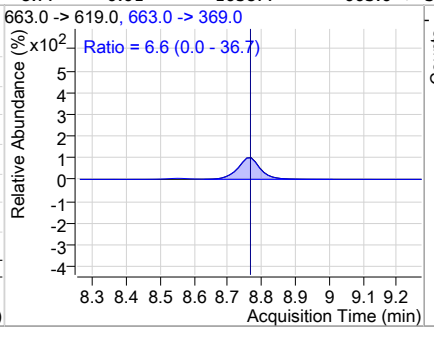


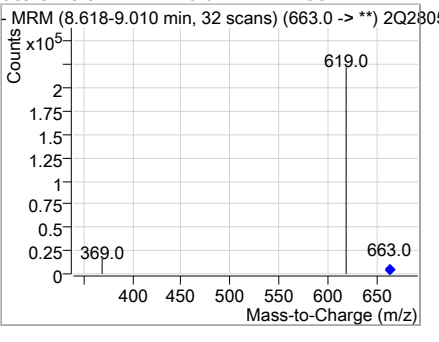




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.61	8.77	0.01	165877	663.0 -> 369.0	6.6	0.0	36.7





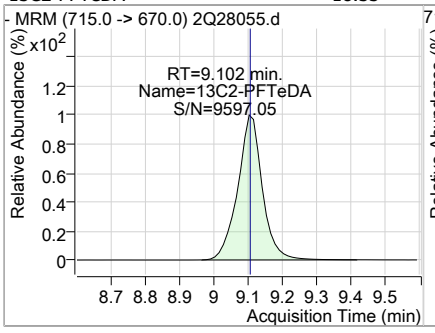


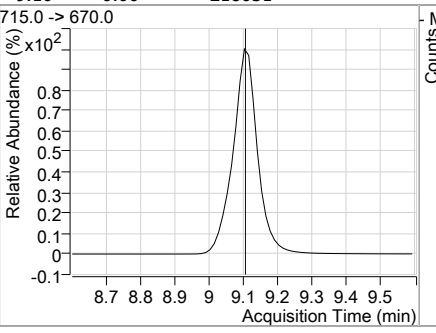
7.6.12

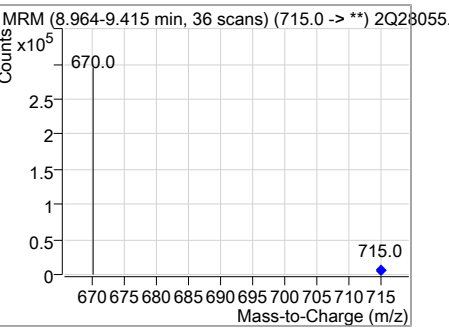
7

Perfluorinated Compounds by LC/MS/MS

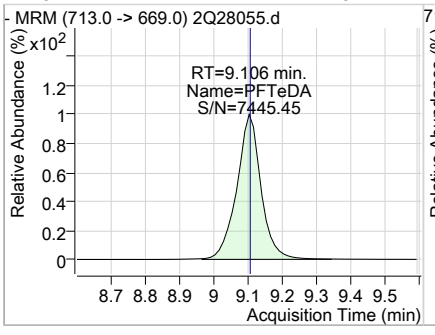
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.33	9.10	0.00	218031				

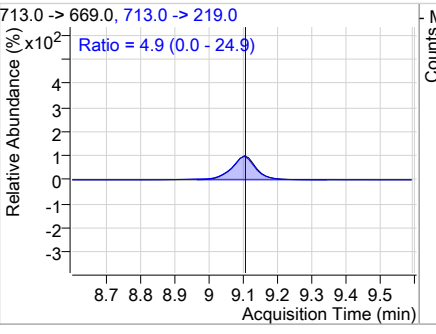


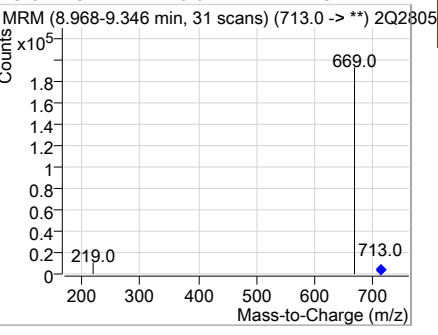




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.11	9.11	0.00	143291	713.0 -> 219.0	4.9	0.0	24.9







7.6.12

Manual Integration Approval Summary

Sample Number: S2Q447-CC445 **Method:** EPA 537M BY ID
Lab FileID: 2Q28055.D **Analyst approved:** 03/25/19 11:54 Nancy Saunders
Injection Time: 03/24/19 21:54 **Supervisor approved:** 03/26/19 08:11 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q28066.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/26/19 08:11

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28066.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 12:47:32 AM
Sample Name : cc445-20
Vial : Vial 7
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74245,S2Q447,125,,,1.0,1,water

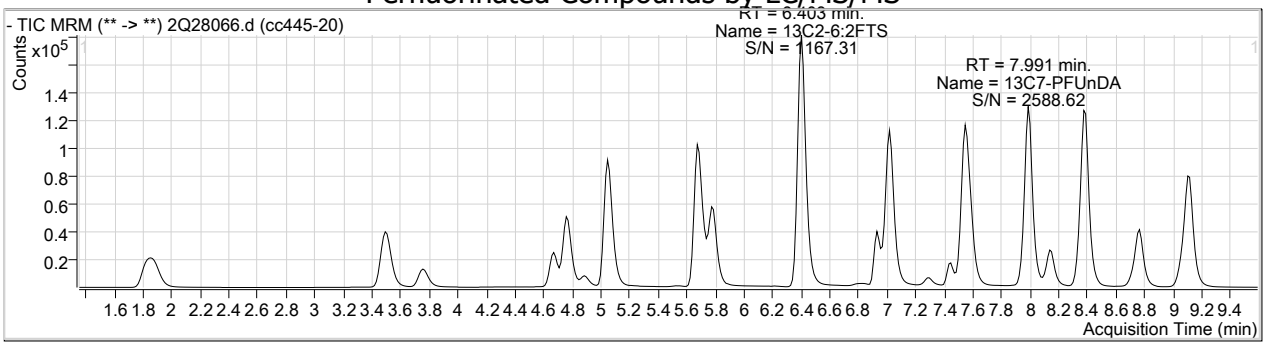
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	268932	20.00	µg/L	0.012
13C4-PFOS	7.011	503.0 -> 80.0	46907	20.00	µg/L	0.013
M4-PFBA	1.852	217.0 -> 172.0	137568	20.00	µg/L	0.000
M5-PFPeA	3.499	268.0 -> 223.0	114256	20.00	µg/L	0.000
M5-PFHxA	4.763	318.0 -> 273.0	154611	20.00	µg/L	0.000
M4-PFHpA	5.680	367.0 -> 322.0	212342	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	214135	20.00	µg/L	0.012
M9-PFNA	7.027	472.0 -> 427.0	213391	20.00	µg/L	0.013
M6-PFDA	7.556	519.0 -> 474.0	286683	20.00	µg/L	0.014
M7-PFUnDA	7.991	570.0 -> 525.0	353031	20.00	µg/L	0.000
M2-PFDoDA	8.378	615.0 -> 570.0	370325	20.00	µg/L	0.002
M2-PFTeDA	9.115	715.0 -> 670.0	238057	20.00	µg/L	0.013
M8-FOSA	6.933	506.0 -> 78.0	94943	20.00	µg/L	0.015
M3-PFBS	3.755	302.0 -> 99.0	20950	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	22711	20.00	µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	28821	20.00	µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	58694	20.00	µg/L	0.000
M2-6:2FTS	6.403	429.0 -> 409.0	60774	20.00	µg/L	0.012
M2-8:2FTS	7.592	529.0 -> 509.0	42777	20.00	µg/L	0.012
M3-MeFOSAA	7.434	573.0 -> 419.0	35444	20.00	µg/L	0.000
M3-HFPO-DA	5.055	287.0 -> 169.0	168640	100.00	µg/L	0.012
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	58666	20.61	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C2-6:2FTS	6.403	429.0 -> 409.0	60748	20.16	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C2-8:2FTS	7.592	529.0 -> 509.0	42762	19.68	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.4%		
13C2-PFDoDA	8.378	615.0 -> 570.0	370120	20.59	µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C2-PFTeDA	9.115	715.0 -> 670.0	237527	19.97	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C3-PFBS	3.755	302.0 -> 99.0	20862	20.33	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C3-PFHxS	5.723	402.0 -> 99.0	22783	20.50	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C4-PFBA	1.852	217.0 -> 172.0	136955	20.95	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%		
13C4-PFHpA	5.680	367.0 -> 322.0	212013	20.51	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C5-PFHxA	4.763	318.0 -> 273.0	154256	20.82	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C5-PFPeA	3.499	268.0 -> 223.0	114254	20.77	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C6-PFDA	7.556	519.0 -> 474.0	286555	20.85	µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

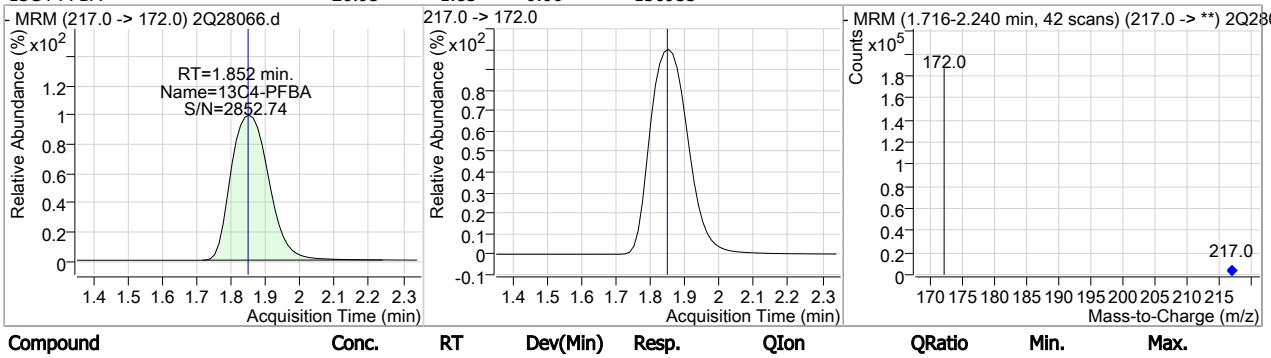
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C7-PFUnDA	7.991	570.0 -> 525.0	353170	20.32 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C8-FOSA	6.933	506.0 -> 78.0	94947	21.17 µg/L		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
13C8-PFOA	6.407	421.0 -> 376.0	213941	20.76 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C8-PFOS	7.008	507.0 -> 99.0	28809	20.15 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C9-PFNA	7.027	472.0 -> 427.0	213246	20.46 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
d3-MeFOSAA	7.434	573.0 -> 419.0	35388	20.18 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
M2-PFOA	6.409	415.0 -> 370.0	269614	20.04 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
M4-PFOS	7.011	503.0 -> 80.0	46933	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.055	287.0 -> 169.0	168640	101.17 µg/L		0.012
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	32707	18.95 µg/L		99
6:2FTS	6.392	427.0 -> 407.0	29371	19.16 µg/L		100
8:2FTS	7.593	527.0 -> 507.0	21526	19.07 µg/L		97
EtFOSAA	7.585	584.0 -> 419.0	15317	19.85 µg/L		99
FOSA	6.937	498.0 -> 78.0	42733	19.53 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	18299	19.64 µg/L		97
PFBA	1.860	213.0 -> 169.0	26002	19.33 µg/L		100
PFBS	3.758	299.0 -> 80.0	32827	19.34 µg/L		99
PFDA	7.557	513.0 -> 469.0	117082	18.84 µg/L		99
PFDoDA	8.380	613.0 -> 569.0	163657	19.26 µg/L		99
PFDS	7.951	599.0 -> 80.0	9656	19.79 µg/L		97
PFHpA	5.683	363.0 -> 319.0	184850	19.42 µg/L		100
PFHpS	6.413	449.0 -> 80.0	20874	19.66 µg/L		100
PFHxA	4.765	313.0 -> 269.0	50385	18.69 µg/L		100
PFHxS	5.726	399.0 -> 80.0	24011	19.13 µg/L	m	100
PFNA	7.028	463.0 -> 419.0	132040	18.83 µg/L		99
PFNS	7.527	549.0 -> 80.0	19833	20.17 µg/L		97
PFOA	6.411	413.0 -> 369.0	110137	19.15 µg/L		99
PFOS	7.012	499.0 -> 80.0	27158	19.15 µg/L	m	100
PFPeA	3.502	263.0 -> 219.0	95996	18.84 µg/L		100
PFPeS	4.883	349.0 -> 80.0	21424	19.71 µg/L		99
PFTeDA	9.106	713.0 -> 669.0	155135	19.00 µg/L		100
PFTrDA	8.769	663.0 -> 619.0	179481	19.48 µg/L		100
PFUnDA	7.992	563.0 -> 519.0	141677	19.35 µg/L		100
11Cl-PF3OUdS	8.137	631.0 -> 451.0	105508	18.93 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	22364	18.94 µg/L		100
ADONA	5.791	377.0 -> 251.0	213157	19.43 µg/L		100
HFPO-DA	5.047	329.0 -> 169.0	175146	89.15 µg/L		94

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

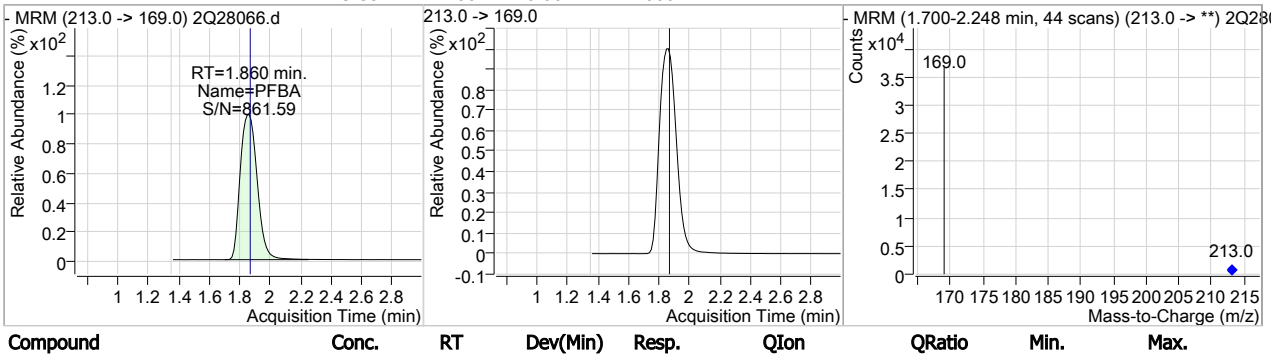
Perfluorinated Compounds by LC/MS/MS



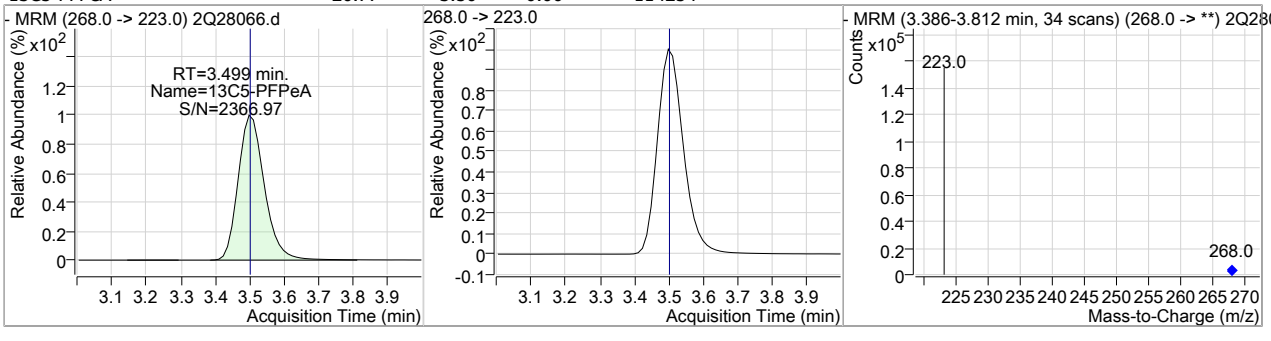
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.95	1.85	0.00	136955				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.33	1.86	0.00	26002				

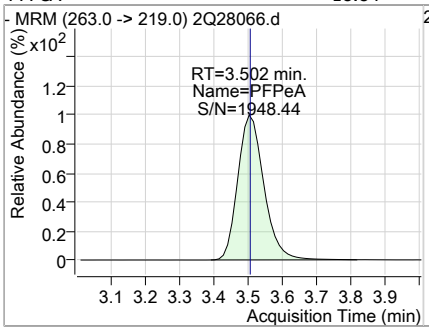


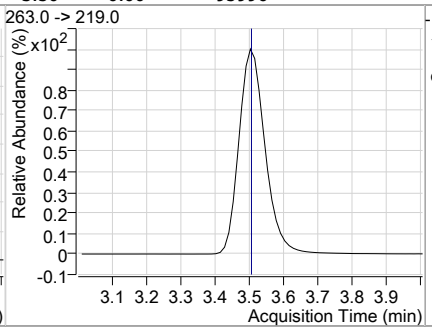
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.77	3.50	0.00	114254				

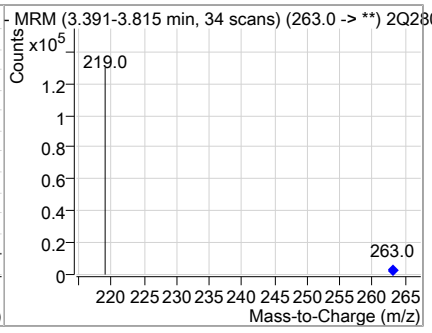


Perfluorinated Compounds by LC/MS/MS

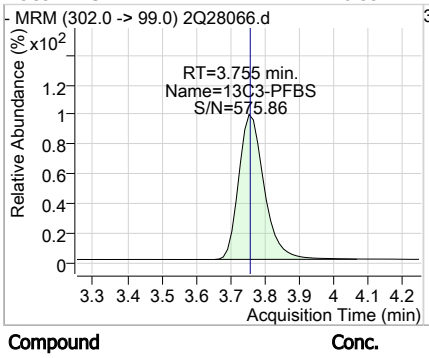
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	18.84	3.50	0.00	95996				

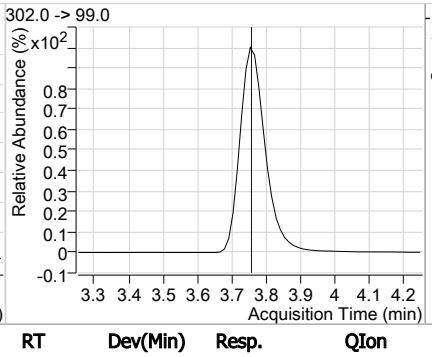


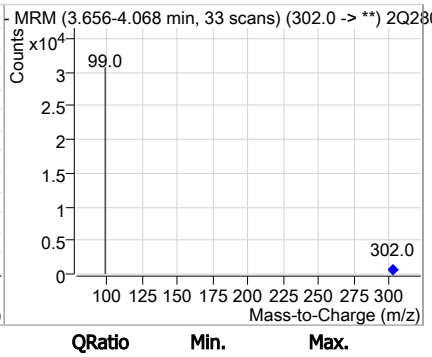




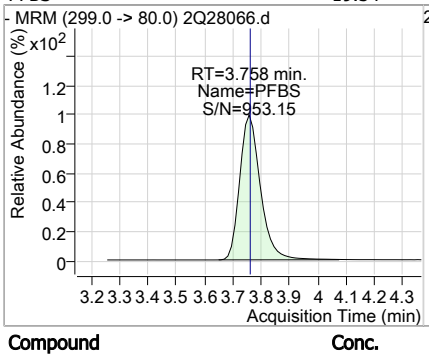
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.33	3.75	0.00	20862				

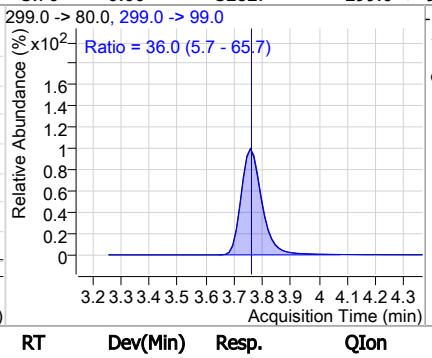


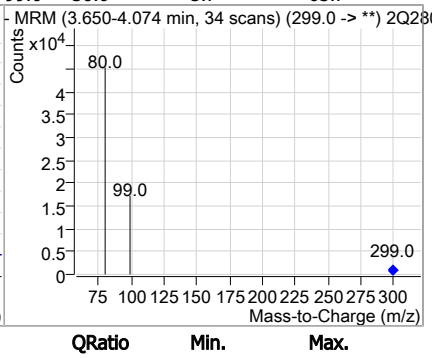




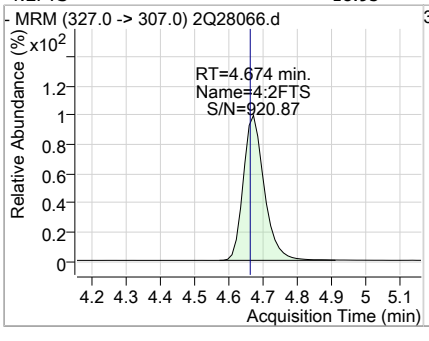
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.34	3.76	0.00	32827	299.0 -> 99.0	36.0	5.7	65.7

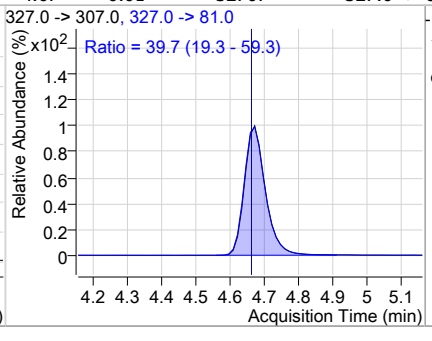


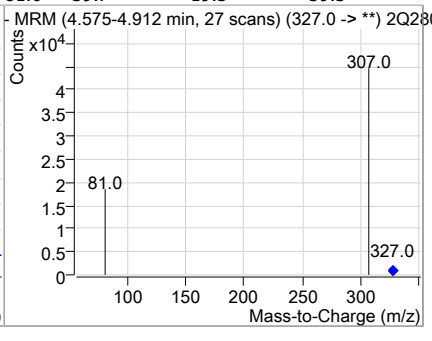




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.95	4.67	0.01	32707	327.0 -> 81.0	39.7	19.3	59.3

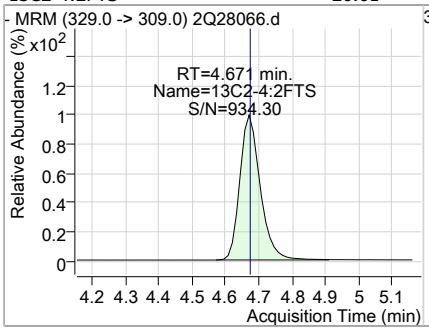


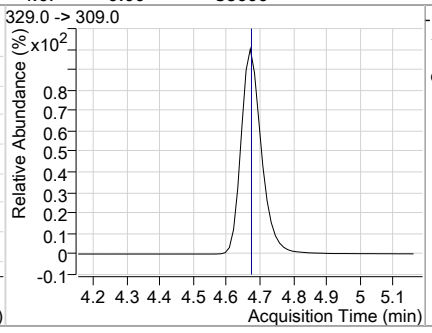


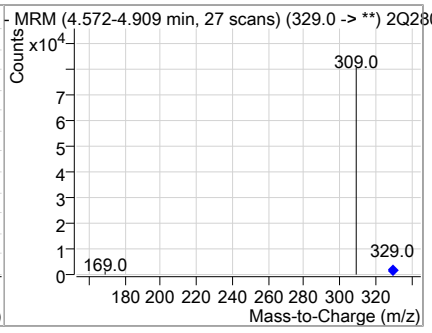


Perfluorinated Compounds by LC/MS/MS

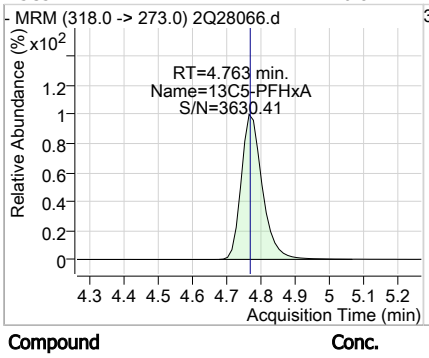
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.61	4.67	0.00	58666				

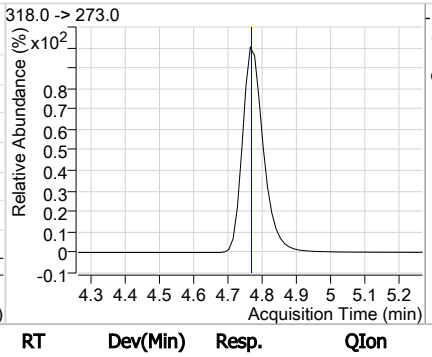


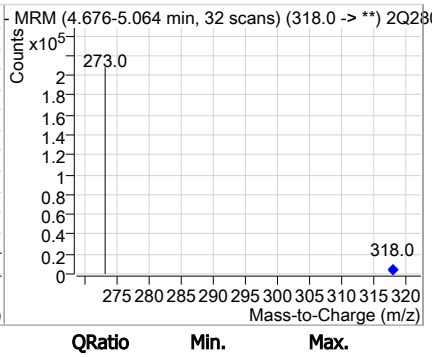




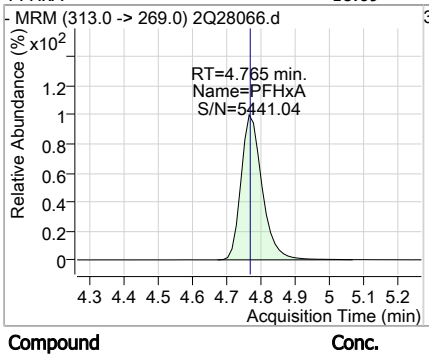
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.82	4.76	0.00	154256				

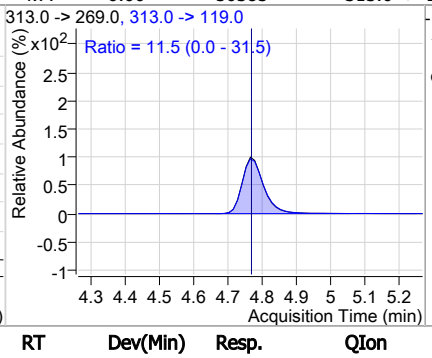


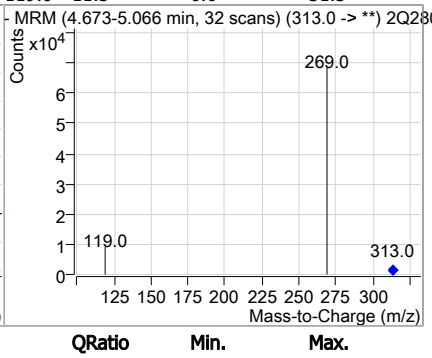




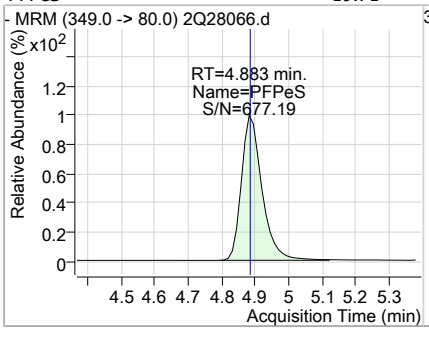
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.69	4.77	0.00	50385	313.0 -> 119.0	11.5	0.0	31.5

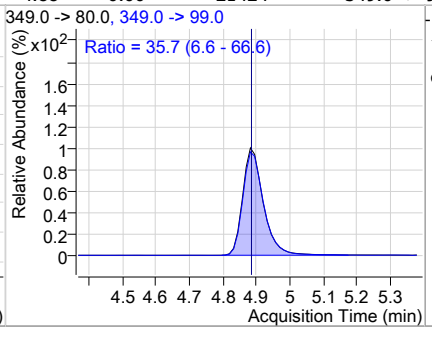


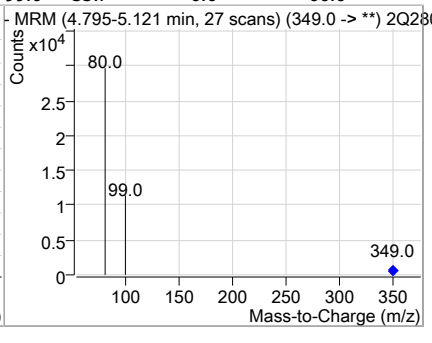




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.71	4.88	0.00	21424	349.0 -> 99.0	35.7	6.6	66.6



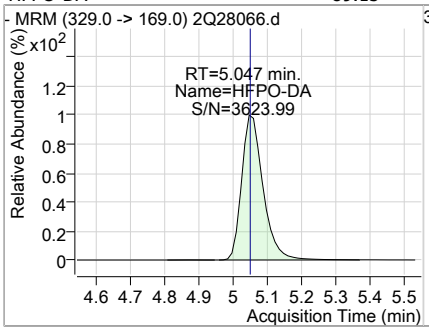


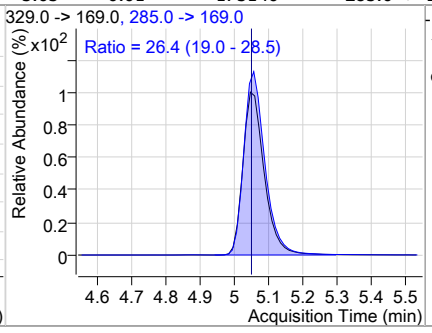


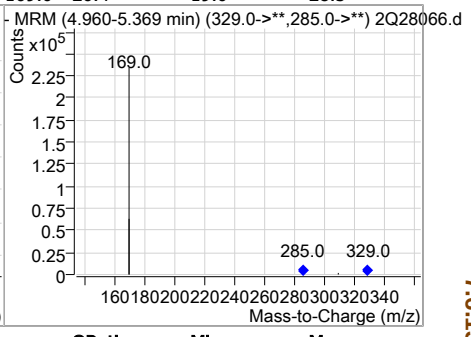
7.6.13

Perfluorinated Compounds by LC/MS/MS

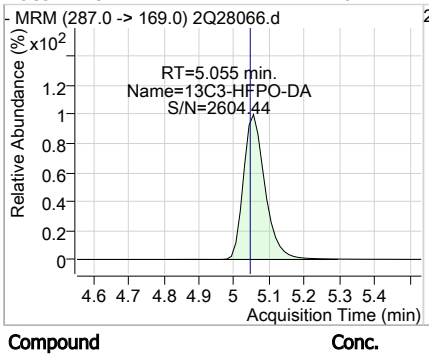
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	89.15	5.05	0.01	175146	285.0 -> 169.0	26.4	19.0	28.5

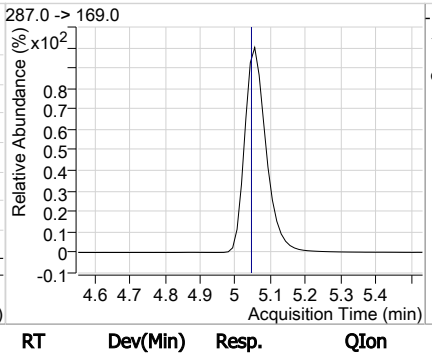


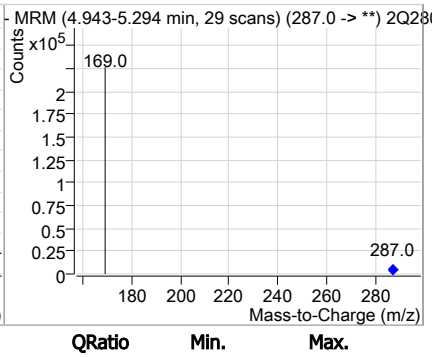




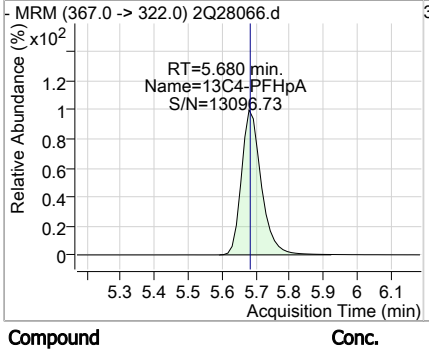
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	101.17	5.06	0.01	168640				

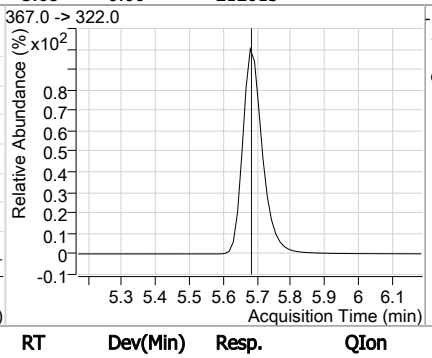


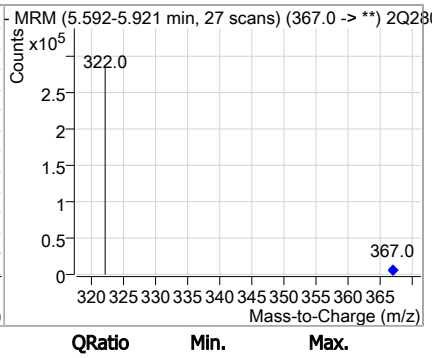




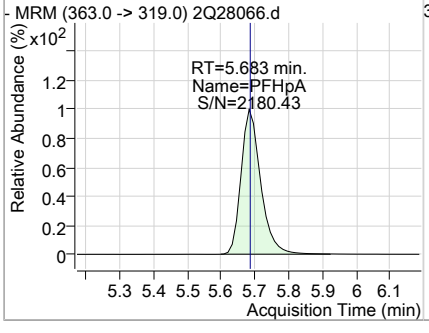
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.51	5.68	0.00	212013				

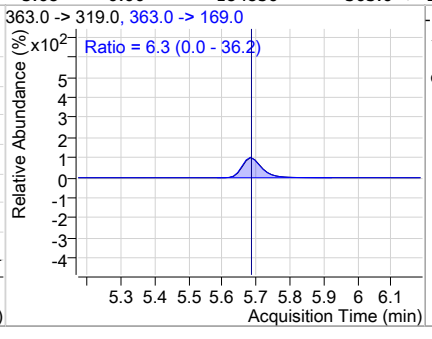


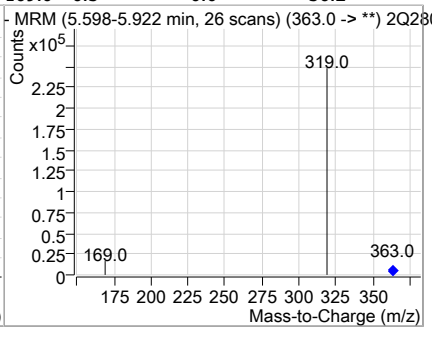




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.42	5.68	0.00	184850	363.0 -> 169.0	6.3	0.0	36.2

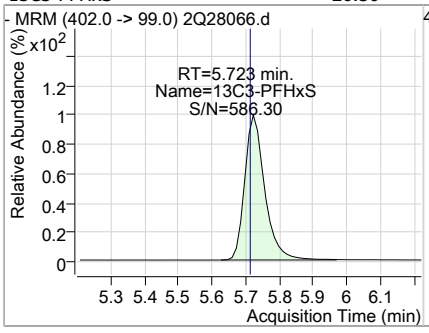


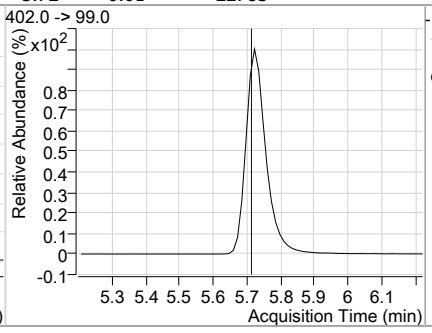


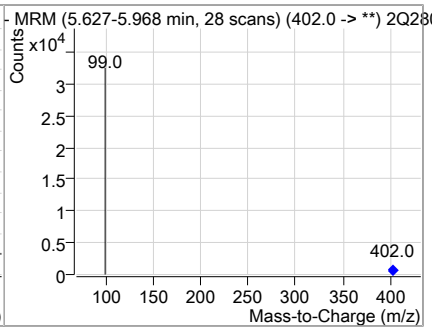


Perfluorinated Compounds by LC/MS/MS

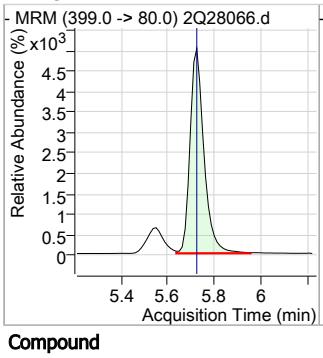
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.50	5.72	0.01	22783				

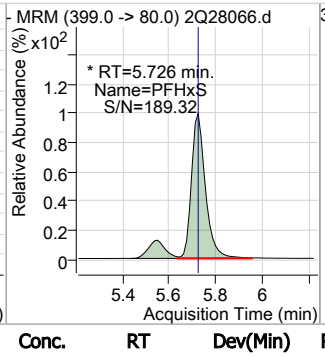


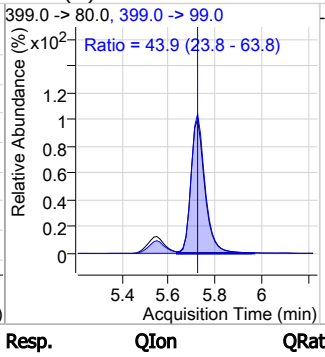


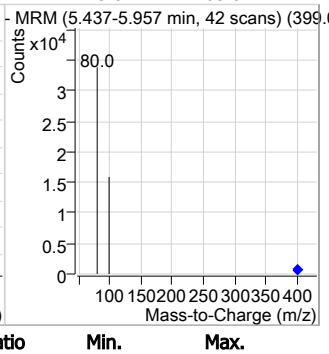


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.13	5.73	0.01	24011 (m)	399.0 -> 99.0	43.9	23.8	63.8

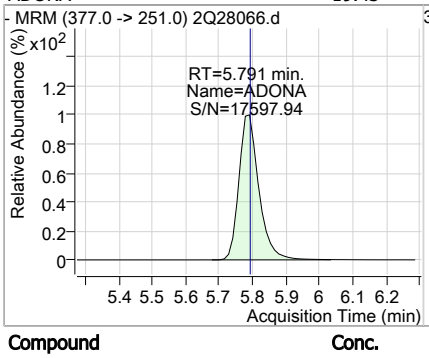


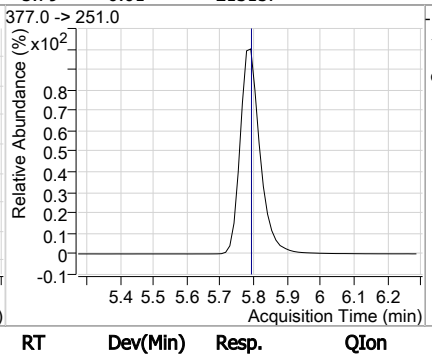


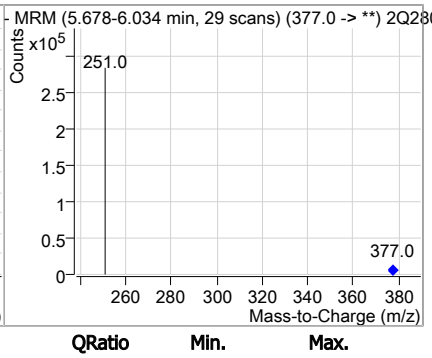




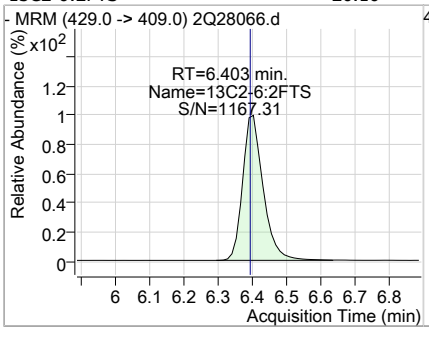
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.43	5.79	0.01	213157				

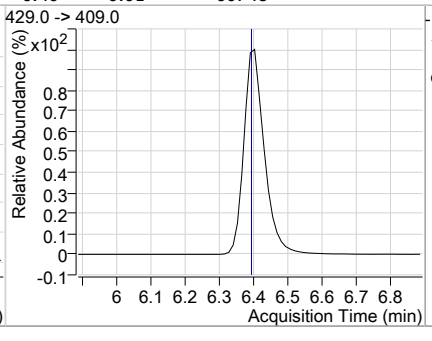


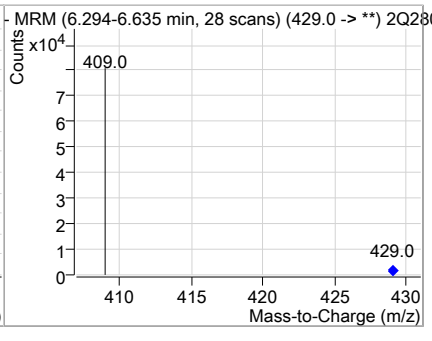




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.16	6.40	0.01	60748				



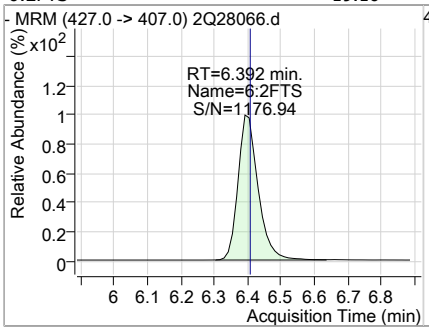


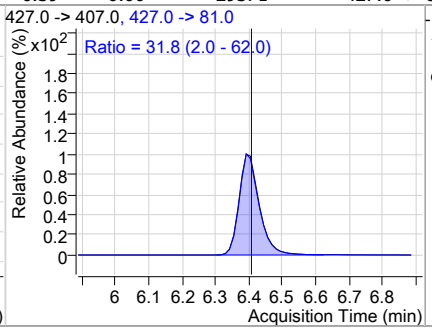


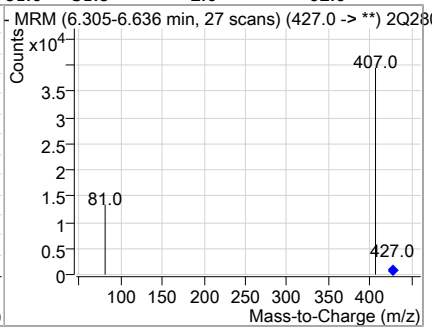
7.6.13

Perfluorinated Compounds by LC/MS/MS

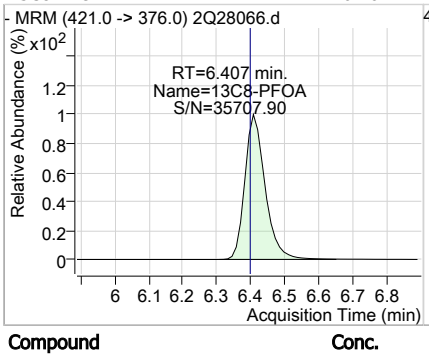
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.16	6.39	0.00	29371	427.0 -> 81.0	31.8	2.0	62.0

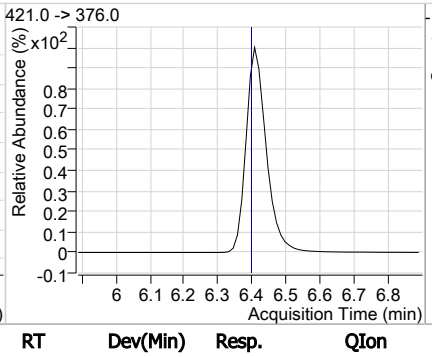


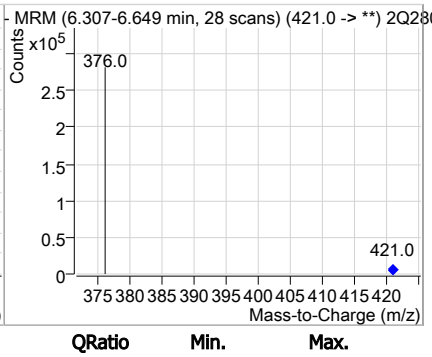




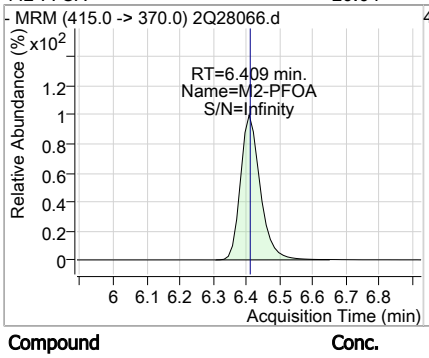
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.76	6.41	0.01	213941				

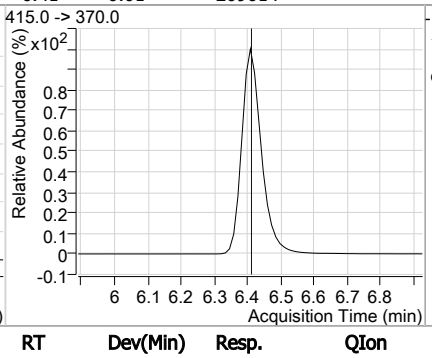


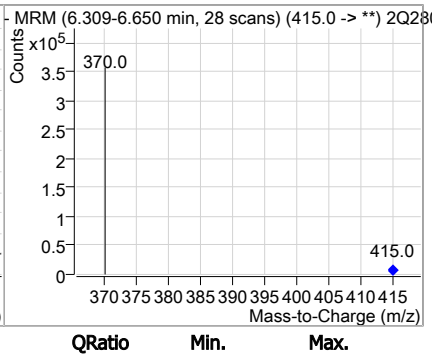




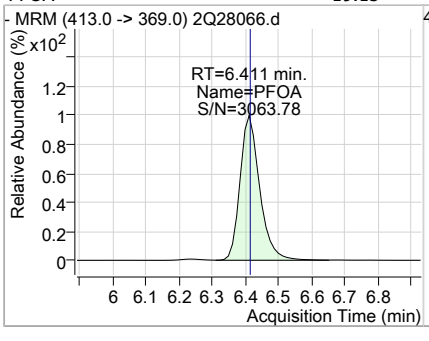
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.04	6.41	0.01	269614				

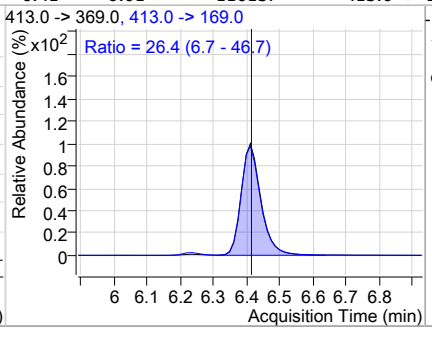


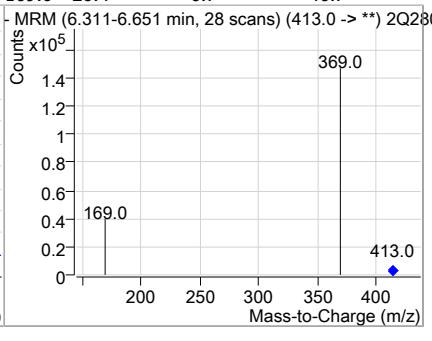




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.15	6.41	0.01	110137	413.0 -> 169.0	26.4	6.7	46.7



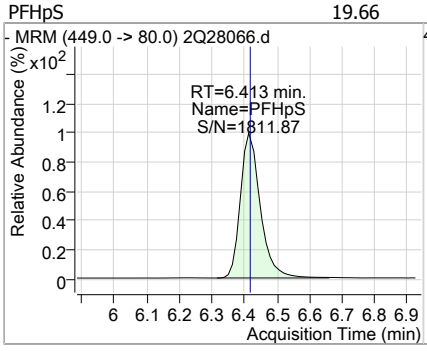


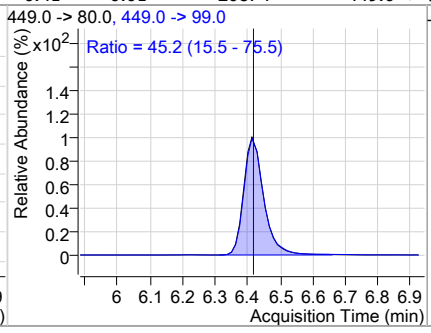


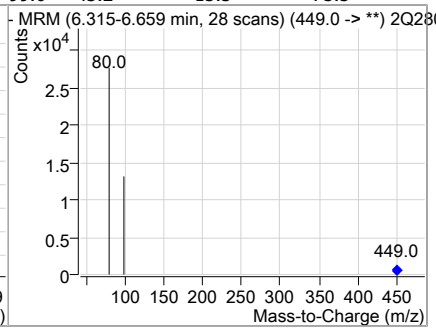
7.6.13

Perfluorinated Compounds by LC/MS/MS

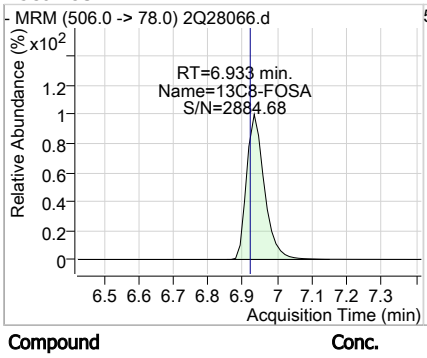
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.66	6.41	0.01	20874	449.0 -> 99.0	45.2	15.5	75.5

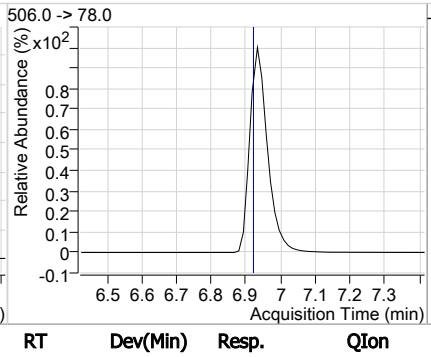


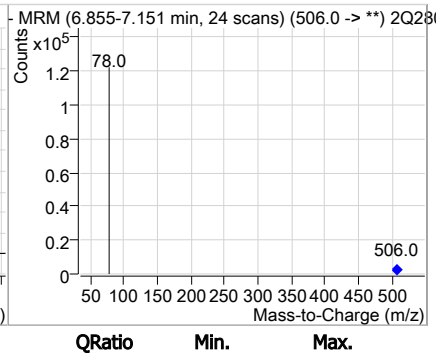




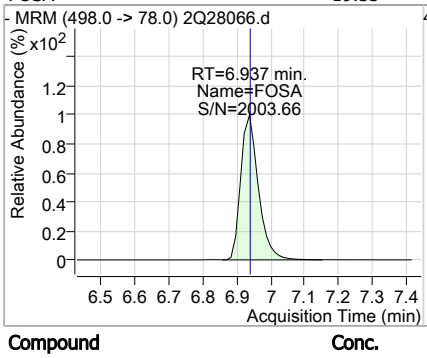
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.17	6.93	0.01	94947				

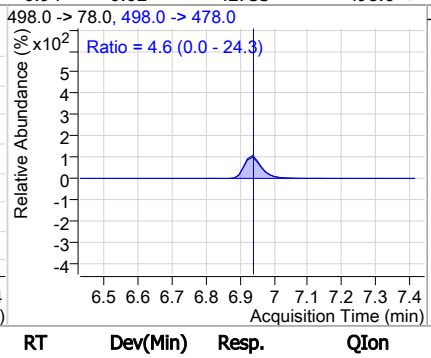


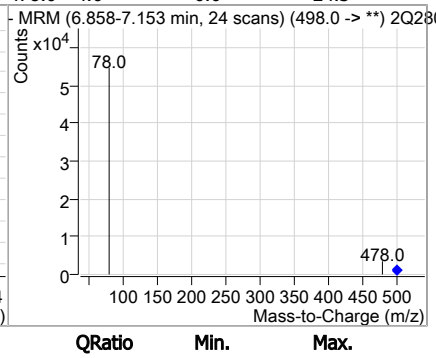




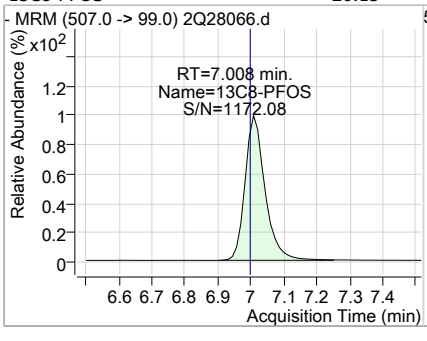
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.53	6.94	0.02	42733	498.0 -> 478.0	4.6	0.0	24.3

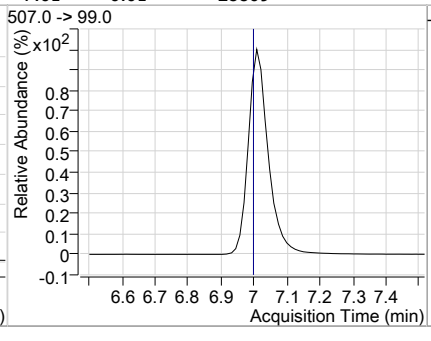


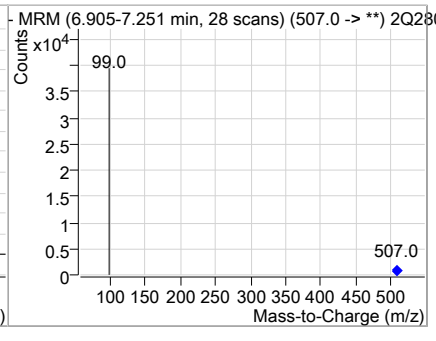




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.15	7.01	0.01	28809				



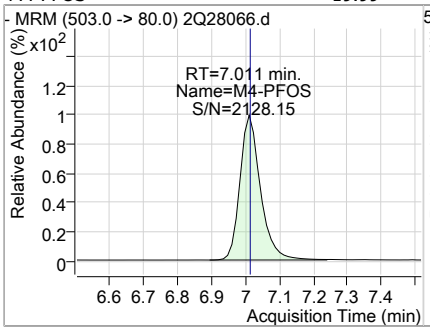


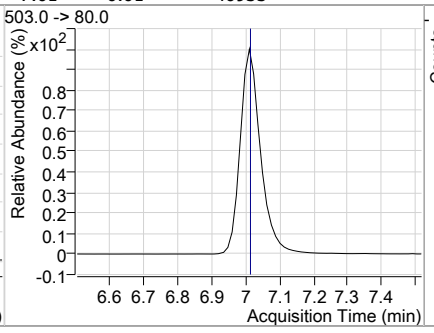


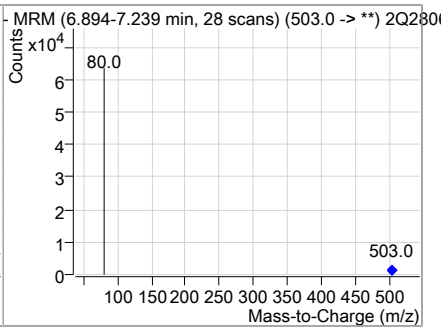
7.6.13

Perfluorinated Compounds by LC/MS/MS

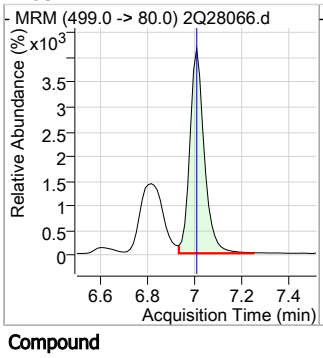
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.01	0.01	46933				

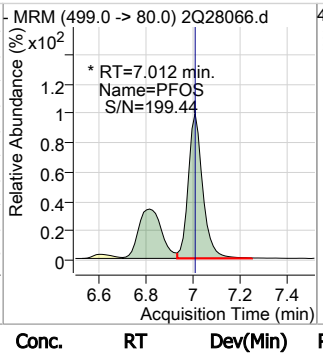


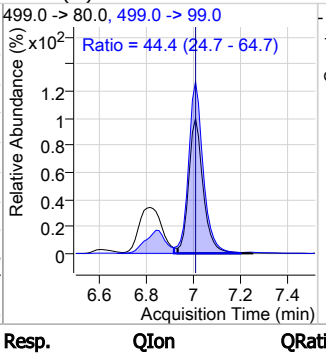


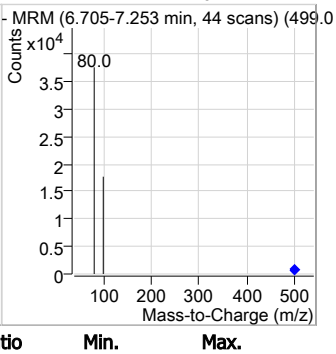


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.15	7.01	0.01	27158 (m)	499.0 -> 99.0	44.4	24.7	64.7

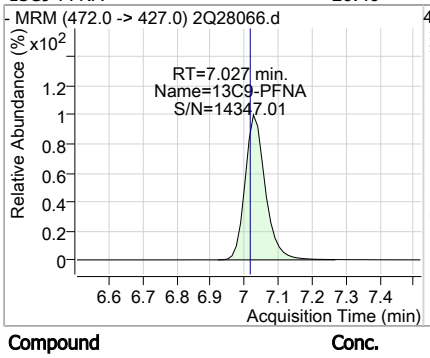


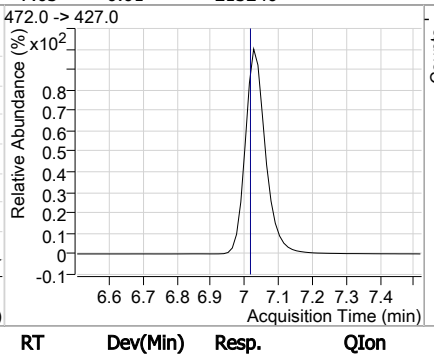


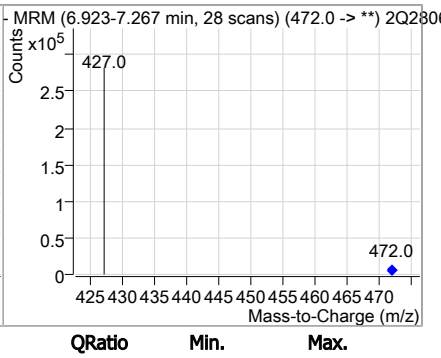




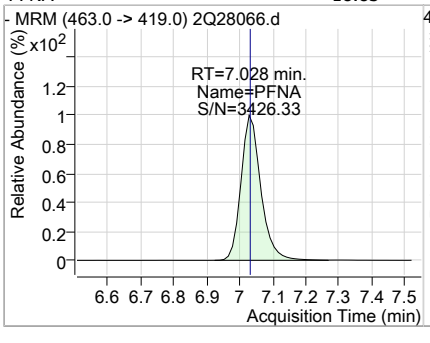
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.46	7.03	0.01	213246				

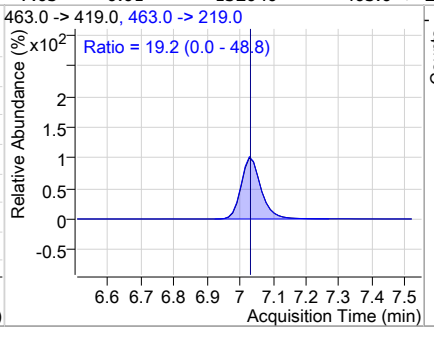


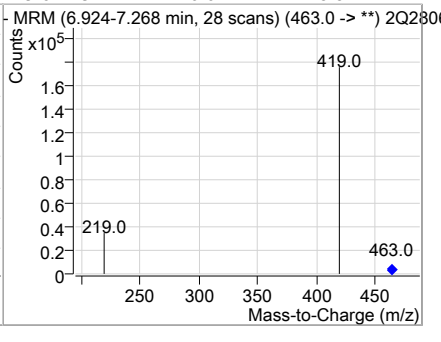




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.83	7.03	0.01	132040	463.0 -> 219.0	19.2	0.0	48.8

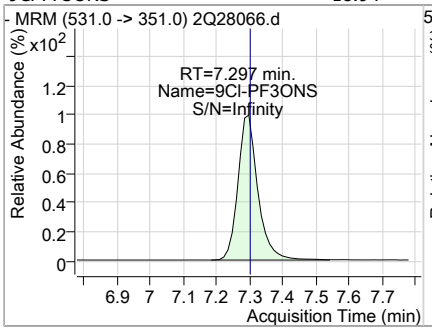


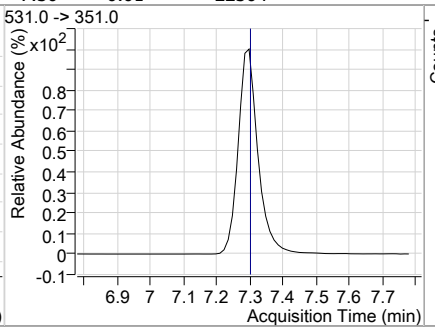


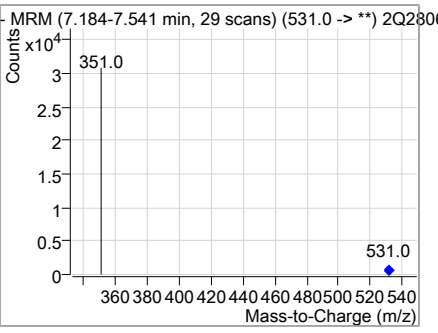


Perfluorinated Compounds by LC/MS/MS

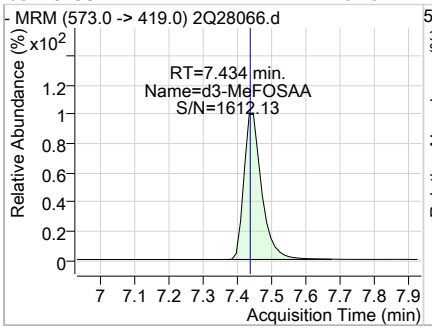
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.94	7.30	0.01	22364				

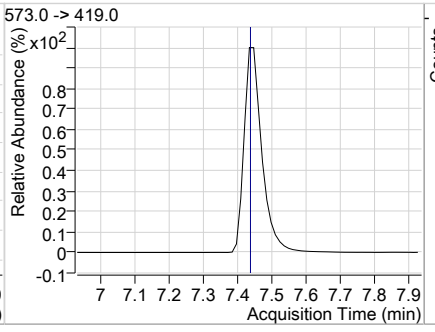


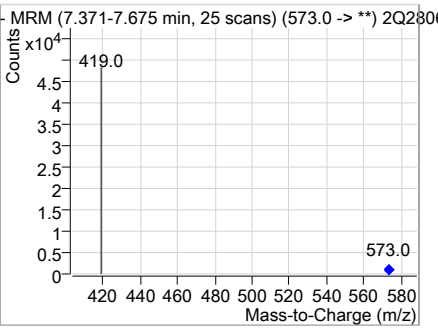




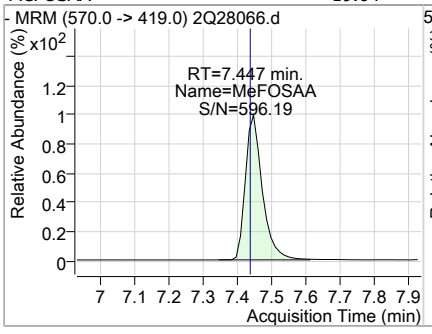
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.18	7.43	0.00	35388				

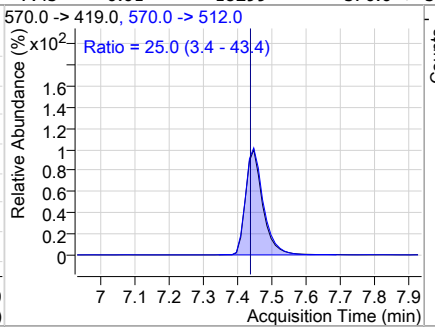


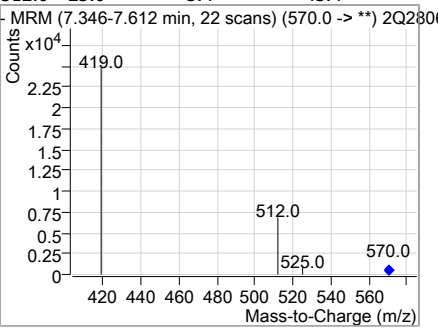




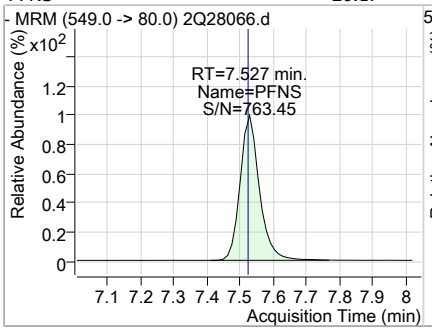
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.64	7.45	0.01	18299	570.0 -> 512.0	25.0	3.4	43.4

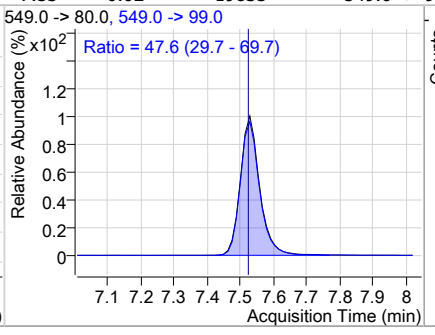


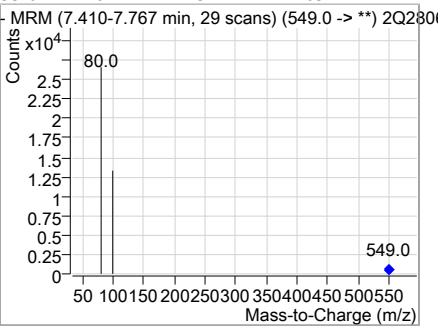




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.17	7.53	0.02	19833	549.0 -> 99.0	47.6	29.7	69.7

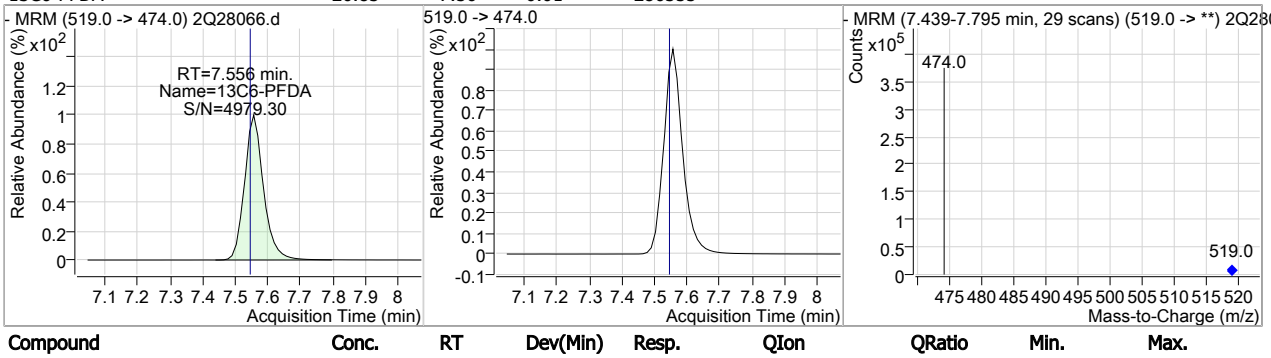




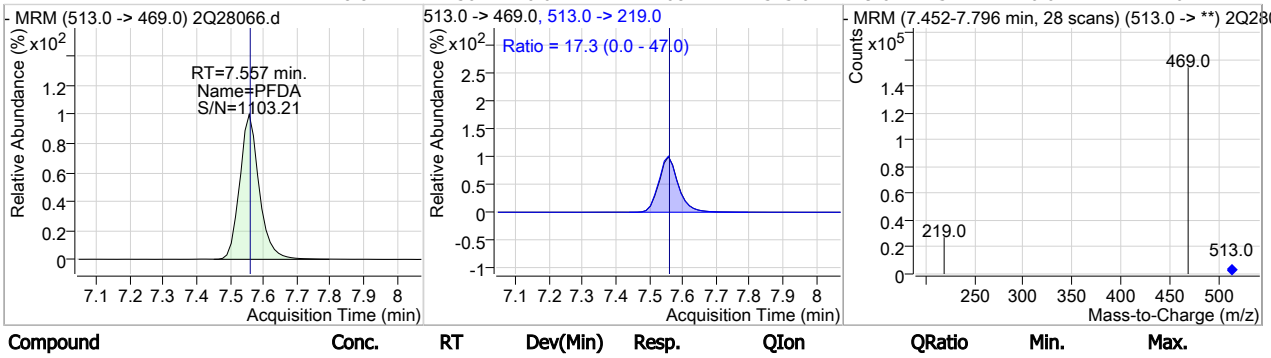


Perfluorinated Compounds by LC/MS/MS

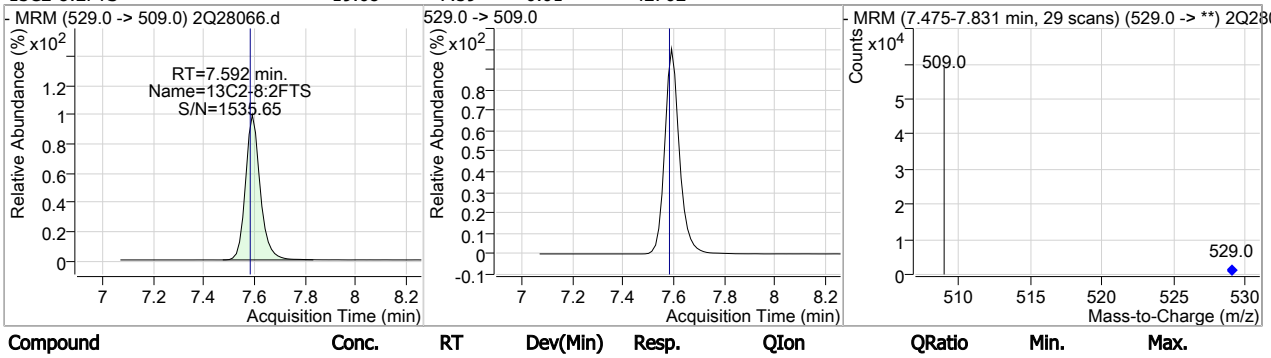
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.85	7.56	0.01	286555				



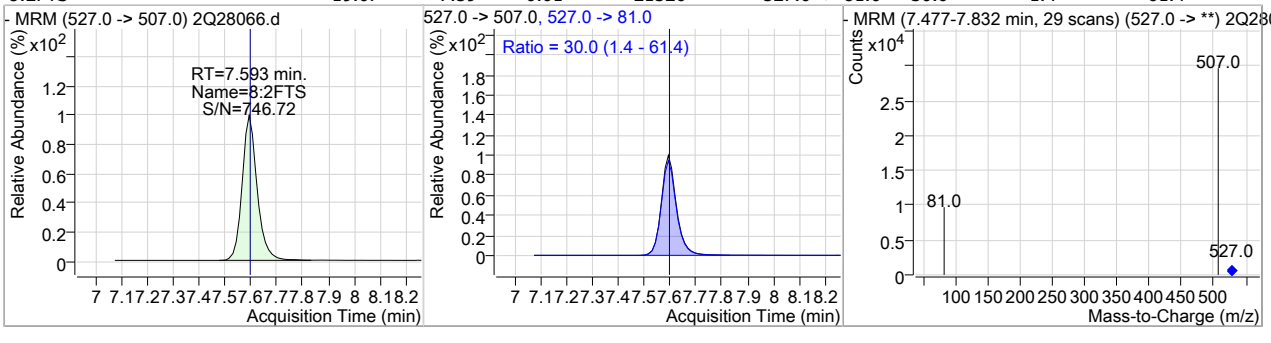
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.84	7.56	0.01	117082	513.0 -> 219.0	17.3	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.68	7.59	0.01	42762				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.07	7.59	0.01	21526	527.0 -> 81.0	30.0	1.4	61.4



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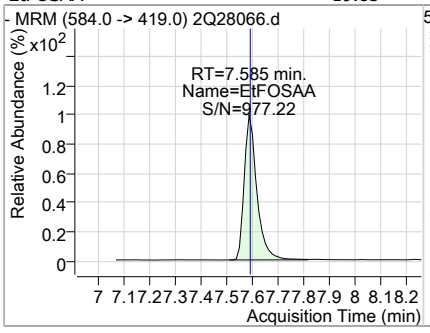
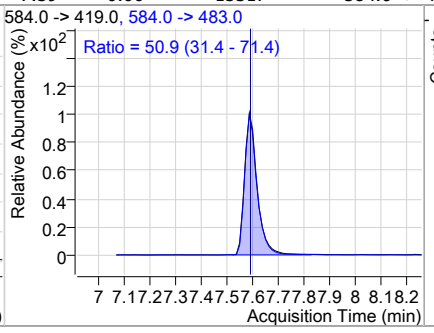
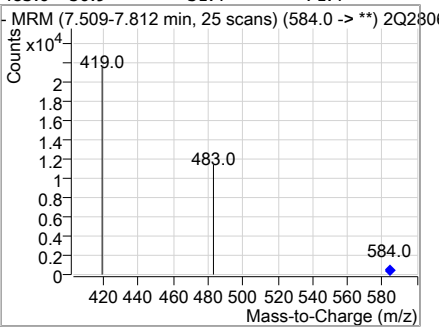
Perfluorinated Compounds by LC/MS/MS

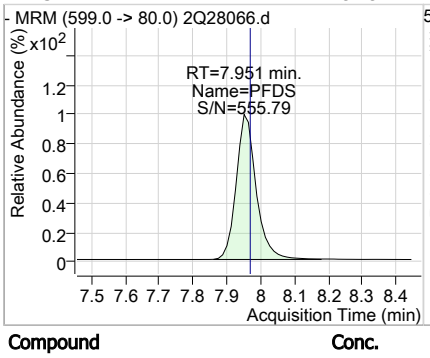
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.85	7.59	0.00	15317	584.0 -> 483.0	50.9	31.4	71.4

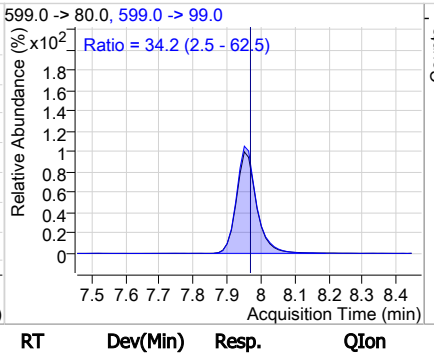


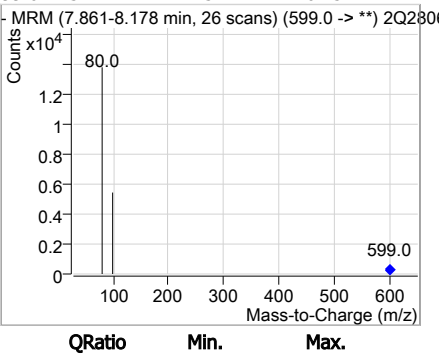




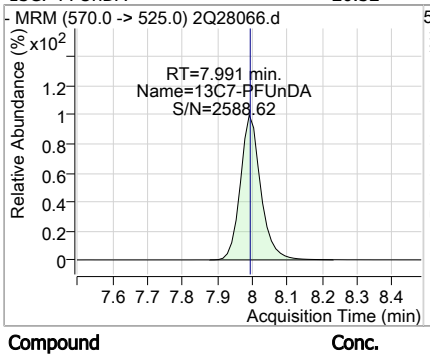
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.79	7.95	0.00	9656	599.0 -> 99.0	34.2	2.5	62.5

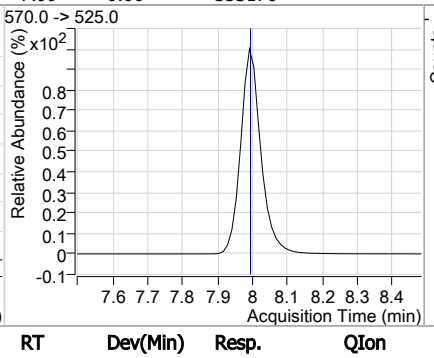


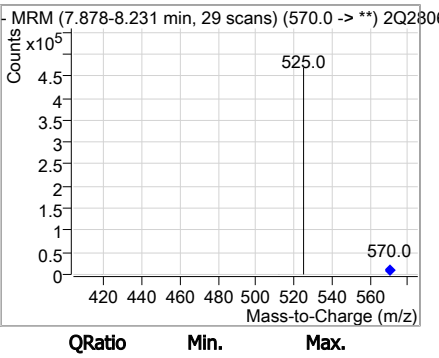




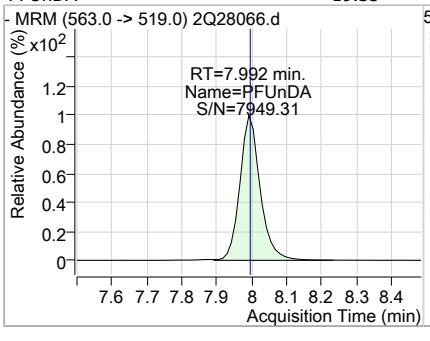
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.32	7.99	0.00	353170				

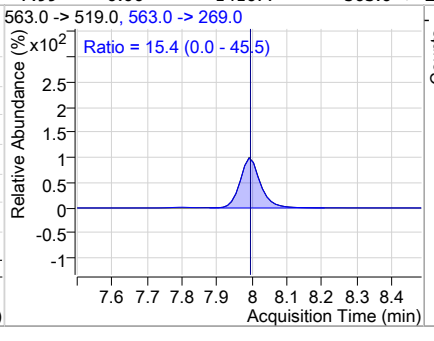


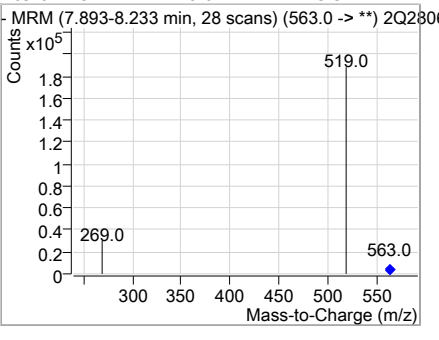




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.35	7.99	0.00	141677	563.0 -> 269.0	15.4	0.0	45.5



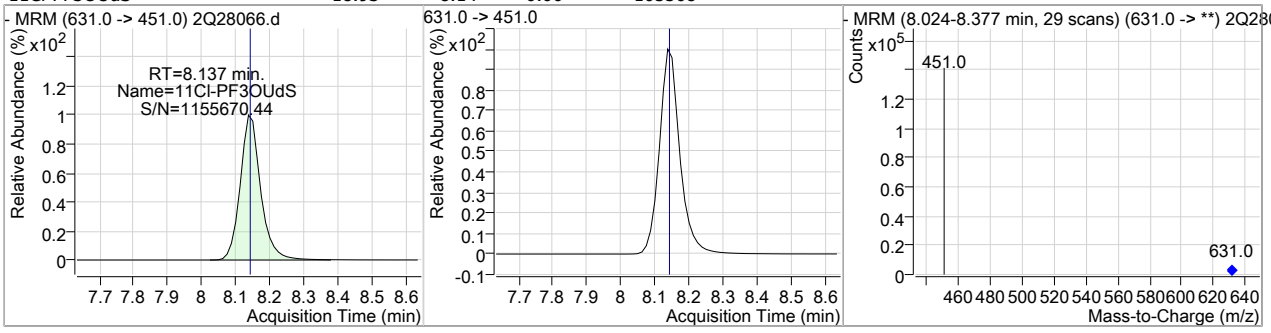




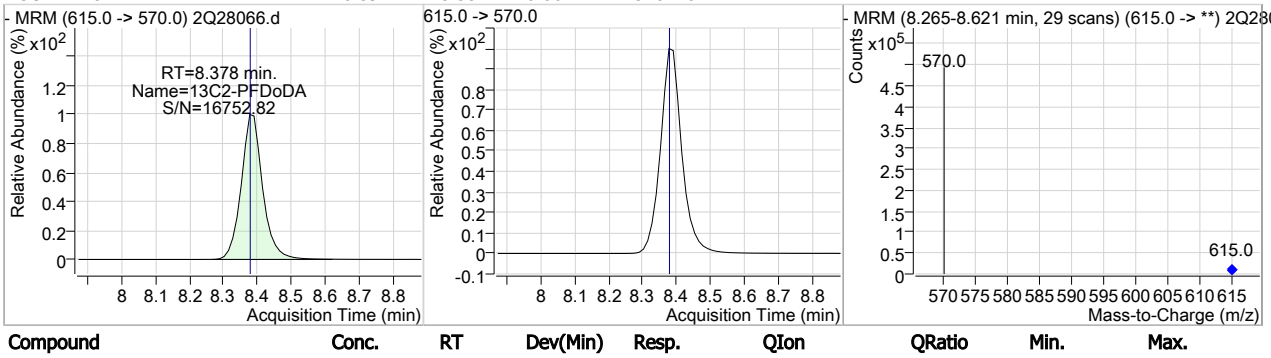
7.6.13

Perfluorinated Compounds by LC/MS/MS

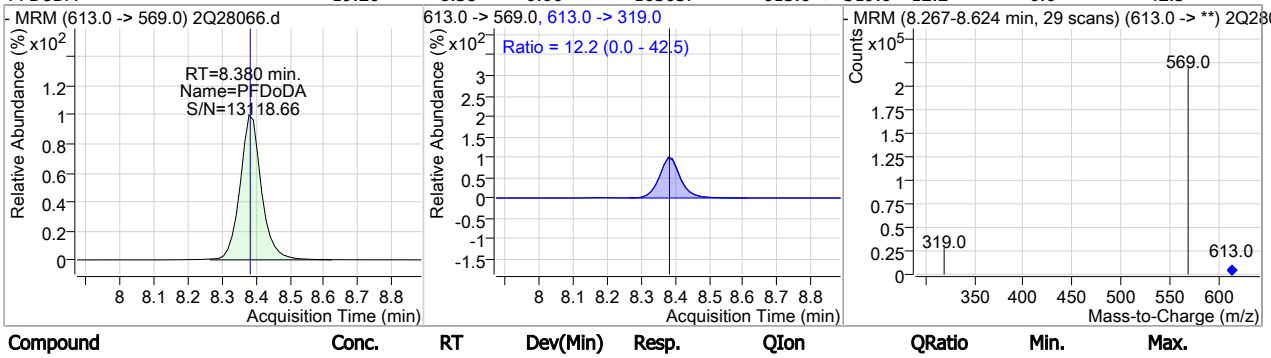
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.93	8.14	0.00	105508				



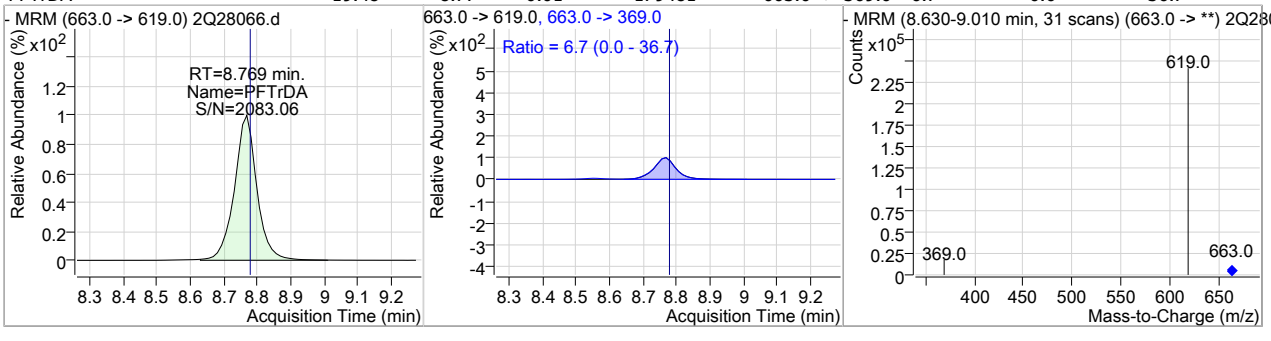
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.59	8.38	0.00	370120				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.26	8.38	0.00	163657	613.0 -> 319.0	12.2	0.0	42.5



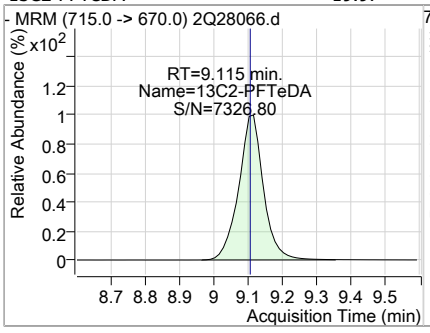
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.48	8.77	0.01	179481	663.0 -> 369.0	6.7	0.0	36.7

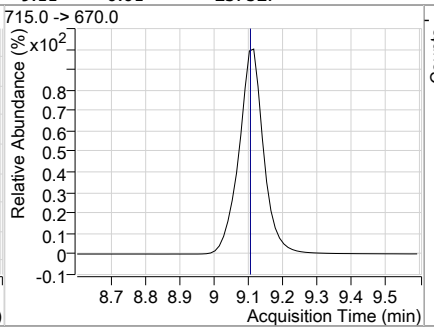


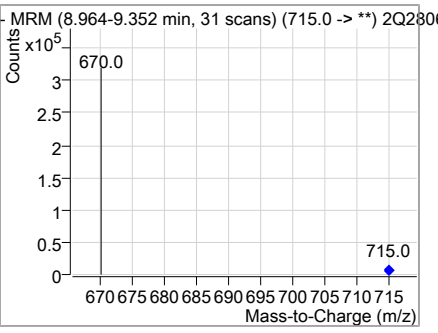
7.6.13

Perfluorinated Compounds by LC/MS/MS

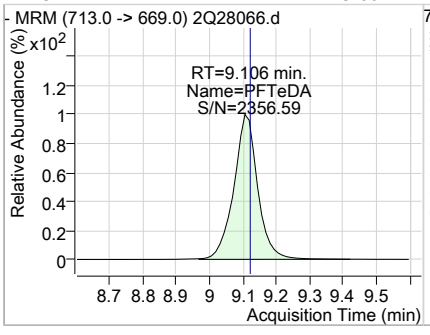
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.97	9.11	0.01	237527				

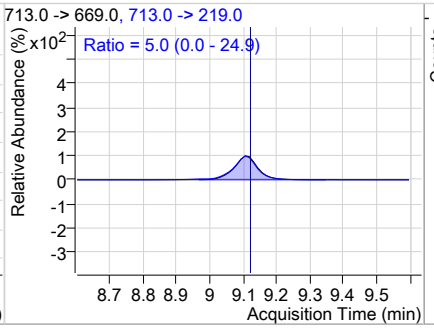


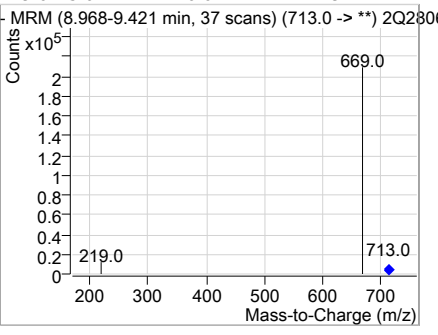




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.00	9.11	0.00	155135	713.0 -> 219.0	5.0	0.0	24.9







7.6.13

7

Manual Integration Approval Summary

Sample Number: S2Q447-CC445 **Method:** EPA 537M BY ID
Lab FileID: 2Q28066.D **Analyst approved:** 03/25/19 11:54 Nancy Saunders
Injection Time: 03/25/19 00:47 **Supervisor approved:** 03/26/19 08:11 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q28070.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/26/19 08:11

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28070.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 1:50:27 AM
Sample Name : cc445-20
Vial : Vial 7
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q447.batch.bin
Sample Information : op74245,S2Q447,125,,,1.0,1,water

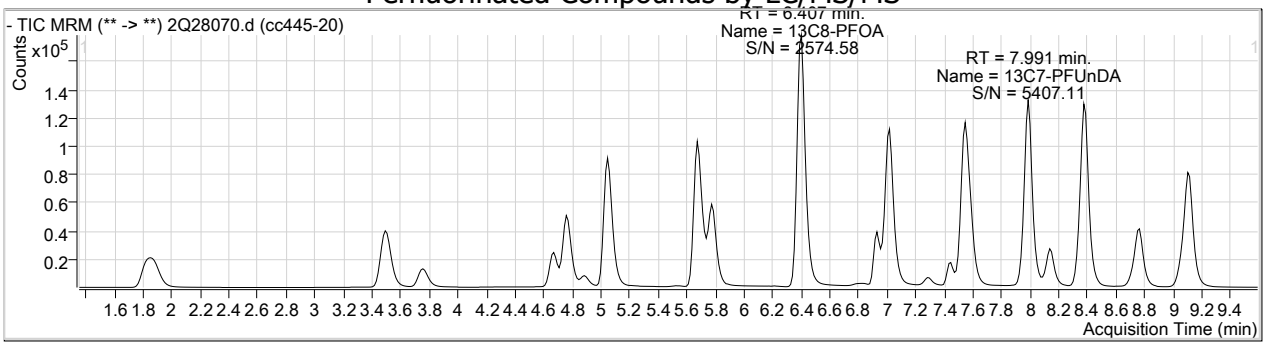
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.409	415.0 -> 370.0	266552	20.00	µg/L	0.012
13C4-PFOS	7.011	503.0 -> 80.0	47132	20.00	µg/L	0.013
M4-PFBA	1.852	217.0 -> 172.0	137488	20.00	µg/L	0.000
M5-PFPeA	3.499	268.0 -> 223.0	113771	20.00	µg/L	0.000
M5-PFHxA	4.763	318.0 -> 273.0	152382	20.00	µg/L	0.000
M4-PFHpA	5.680	367.0 -> 322.0	210725	20.00	µg/L	0.000
M8-PFOA	6.407	421.0 -> 376.0	213051	20.00	µg/L	0.012
M9-PFNA	7.027	472.0 -> 427.0	213045	20.00	µg/L	0.013
M6-PFDA	7.556	519.0 -> 474.0	287958	20.00	µg/L	0.014
M7-PFUnDA	7.991	570.0 -> 525.0	359773	20.00	µg/L	0.000
M2-PFDoDA	8.378	615.0 -> 570.0	374239	20.00	µg/L	0.002
M2-PFTeDA	9.102	715.0 -> 670.0	239456	20.00	µg/L	0.000
M8-FOSA	6.933	506.0 -> 78.0	93131	20.00	µg/L	0.015
M3-PFBS	3.755	302.0 -> 99.0	21073	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	22561	20.00	µg/L	0.012
M8-PFOS	7.008	507.0 -> 99.0	29072	20.00	µg/L	0.013
M2-4:2FTS	4.671	329.0 -> 309.0	57691	20.00	µg/L	0.000
M2-6:2FTS	6.390	429.0 -> 409.0	60701	20.00	µg/L	0.000
M2-8:2FTS	7.592	529.0 -> 509.0	43120	20.00	µg/L	0.012
M3-MeFOSAA	7.434	573.0 -> 419.0	35174	20.00	µg/L	0.000
M3-HFPO-DA	5.055	287.0 -> 169.0	167632	100.00	µg/L	0.012
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	57655	20.26	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C2-6:2FTS	6.390	429.0 -> 409.0	60643	20.12	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C2-8:2FTS	7.592	529.0 -> 509.0	43143	19.85	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C2-PFDoDA	8.378	615.0 -> 570.0	374105	20.81	µg/L	0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C2-PFTeDA	9.102	715.0 -> 670.0	239179	20.11	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C3-PFBS	3.755	302.0 -> 99.0	20996	20.46	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C3-PFHxS	5.723	402.0 -> 99.0	22540	20.28	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C4-PFBA	1.852	217.0 -> 172.0	136862	20.94	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%		
13C4-PFHpA	5.680	367.0 -> 322.0	210652	20.38	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C5-PFHxA	4.763	318.0 -> 273.0	152266	20.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C5-PFPeA	3.499	268.0 -> 223.0	113912	20.71	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C6-PFDA	7.556	519.0 -> 474.0	287941	20.95	µg/L	0.014

Perfluorinated Compounds by LC/MS/MS

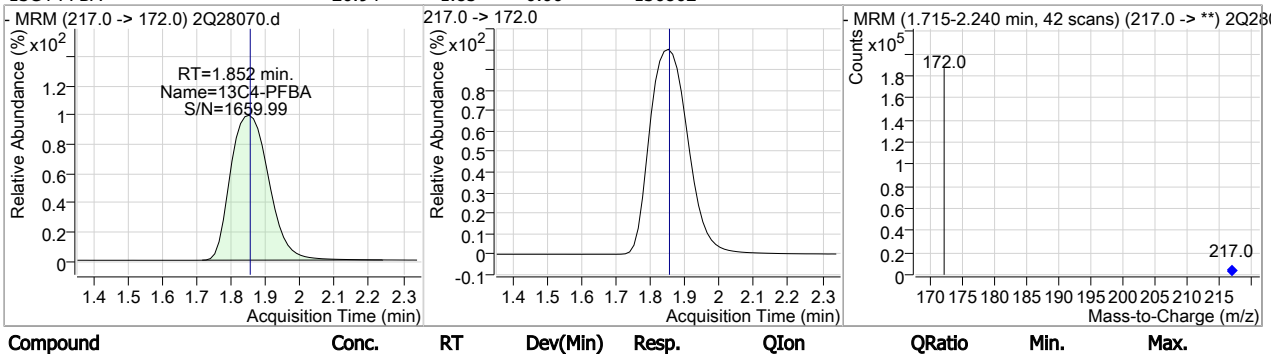
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%		
13C7-PFUnDA	7.991	570.0 -> 525.0	359708	20.69 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C8-FOSA	6.933	506.0 -> 78.0	93131	20.76 µg/L		0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C8-PFOA	6.407	421.0 -> 376.0	212792	20.65 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C8-PFOS	7.008	507.0 -> 99.0	29090	20.34 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C9-PFNA	7.027	472.0 -> 427.0	212966	20.43 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
d3-MeFOSAA	7.434	573.0 -> 419.0	35192	20.07 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
M2-PFOA	6.409	415.0 -> 370.0	267292	20.05 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
M4-PFOS	7.011	503.0 -> 80.0	47112	19.97 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.055	287.0 -> 169.0	167632	100.56 µg/L		0.012
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
Target Compounds						QValue
4:2FTS	4.674	327.0 -> 307.0	32776	19.32 µg/L		99
6:2FTS	6.392	427.0 -> 407.0	29544	19.29 µg/L		99
8:2FTS	7.593	527.0 -> 507.0	21357	18.77 µg/L		100
EtFOSAA	7.585	584.0 -> 419.0	15364	20.06 µg/L		97
FOSA	6.937	498.0 -> 78.0	42089	19.61 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	18692	20.21 µg/L		98
PFBA	1.848	213.0 -> 169.0	26021	19.36 µg/L		100
PFBS	3.758	299.0 -> 80.0	32706	19.15 µg/L		99
PFDA	7.557	513.0 -> 469.0	116710	18.69 µg/L		100
PFDoDA	8.380	613.0 -> 569.0	165009	19.22 µg/L		100
PFDS	7.951	599.0 -> 80.0	9730	19.77 µg/L		97
PFHpA	5.683	363.0 -> 319.0	184355	19.51 µg/L		100
PFHpS	6.413	449.0 -> 80.0	20788	19.71 µg/L		100
PFHxA	4.765	313.0 -> 269.0	51160	19.26 µg/L		99
PFHxS	5.726	399.0 -> 80.0	23824	19.11 µg/L	m	100
PFNA	7.028	463.0 -> 419.0	131340	18.76 µg/L		100
PFNS	7.527	549.0 -> 80.0	19768	19.93 µg/L		98
PFOA	6.411	413.0 -> 369.0	110113	19.24 µg/L		99
PFOS	7.012	499.0 -> 80.0	27302	19.09 µg/L	m	100
PFPeA	3.502	263.0 -> 219.0	96404	19.00 µg/L		100
PFPeS	4.883	349.0 -> 80.0	21340	19.52 µg/L		99
PFTeDA	9.106	713.0 -> 669.0	155802	18.97 µg/L		100
PFTrDA	8.769	663.0 -> 619.0	182805	19.73 µg/L		100
PFUnDA	7.992	563.0 -> 519.0	142676	19.12 µg/L		100
11Cl-PF3OUdS	8.137	631.0 -> 451.0	106219	18.86 µg/L		100
9Cl-PF3ONS	7.285	531.0 -> 351.0	22172	18.69 µg/L		100
ADONA	5.779	377.0 -> 251.0	212853	19.49 µg/L		100
HFPO-DA	5.047	329.0 -> 169.0	176808	90.54 µg/L		95

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

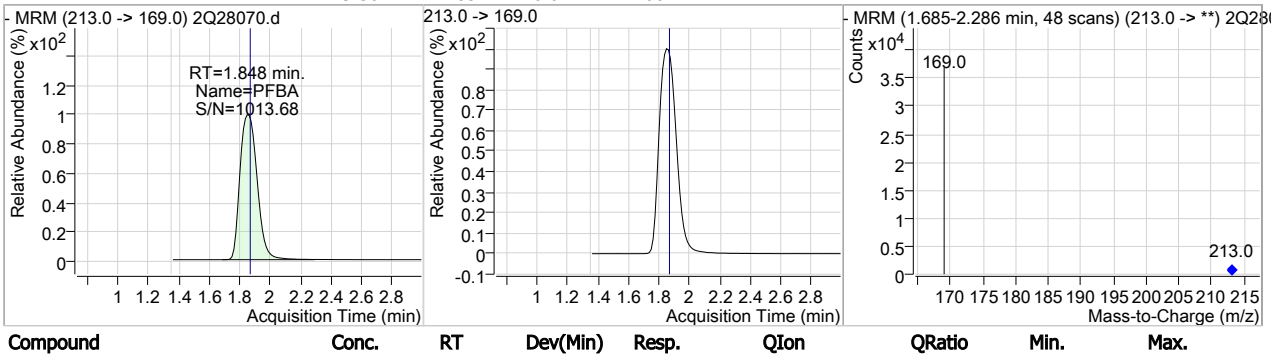
Perfluorinated Compounds by LC/MS/MS



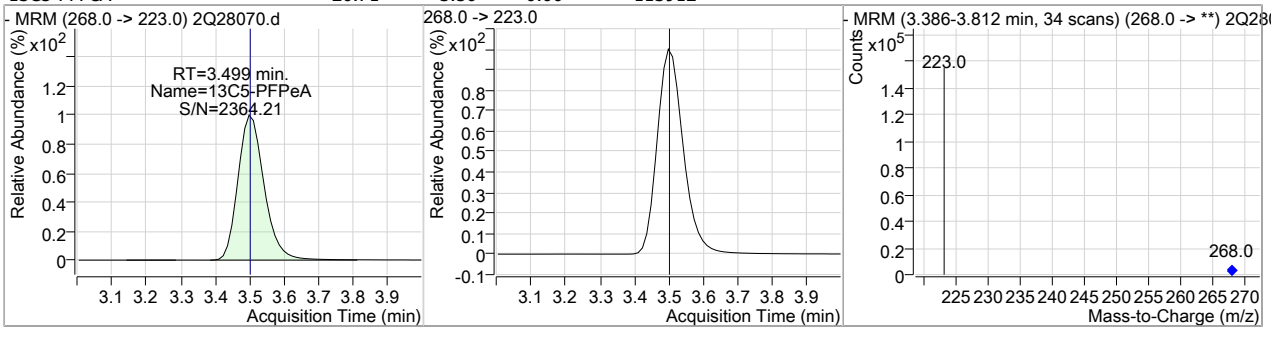
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.94	1.85	0.00	136862				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.36	1.85	-0.01	26021				

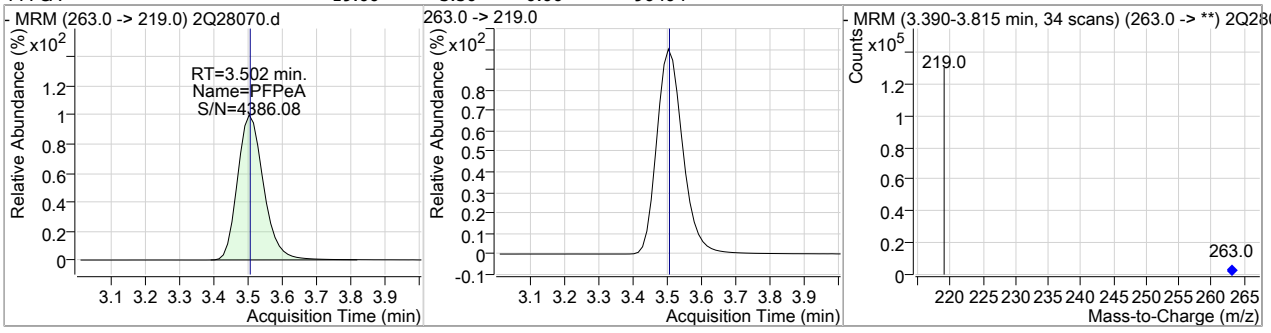


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.71	3.50	0.00	113912				

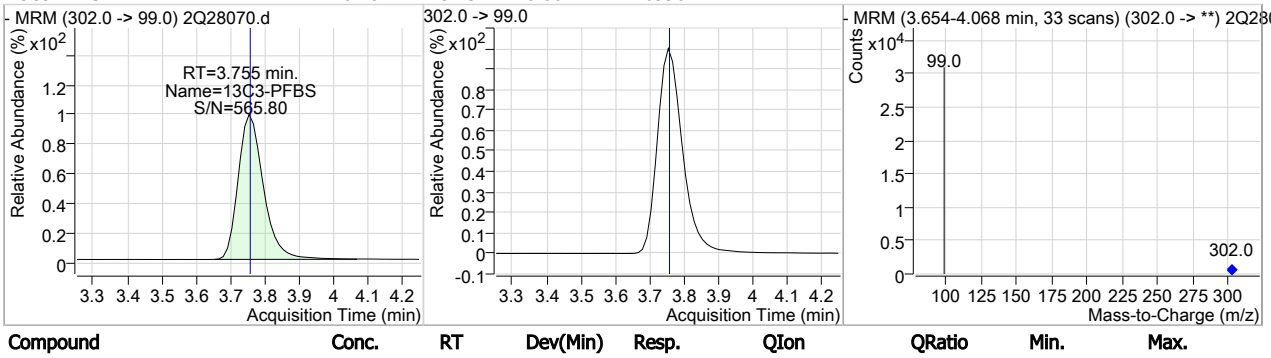


Perfluorinated Compounds by LC/MS/MS

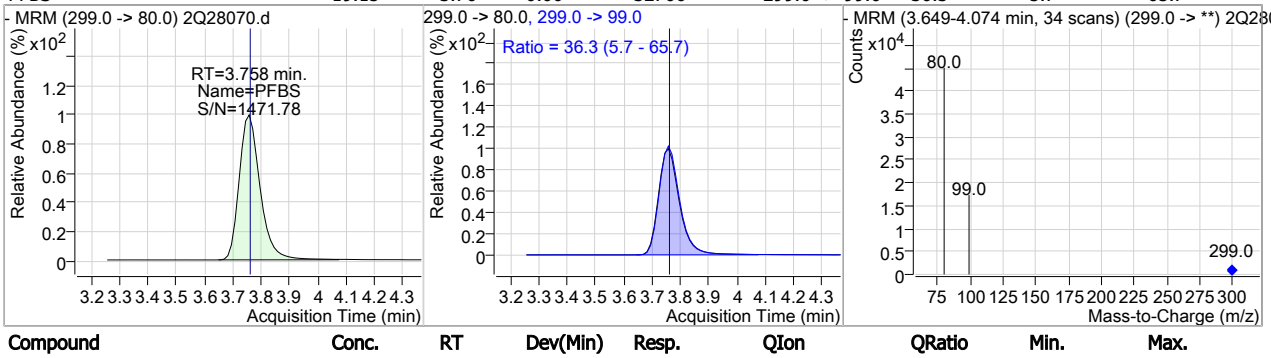
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.00	3.50	0.00	96404				



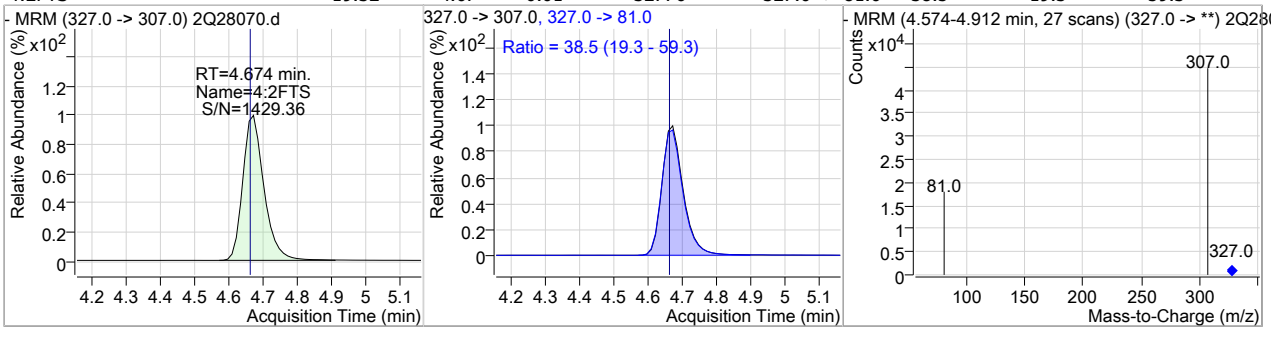
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.46	3.75	0.00	20996				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.15	3.76	0.00	32706	299.0 -> 99.0	36.3	5.7	65.7

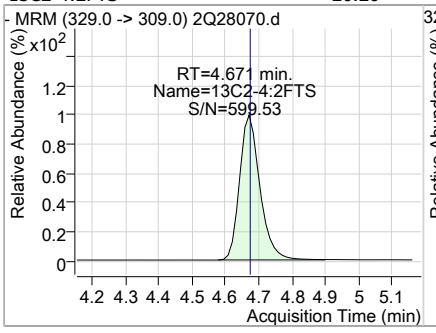


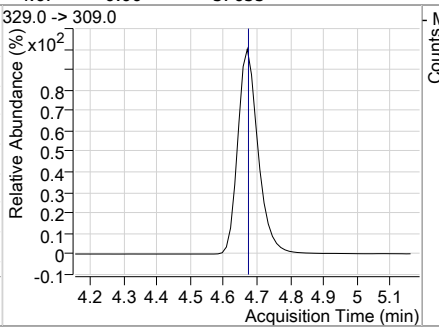
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.32	4.67	0.01	32776	327.0 -> 81.0	38.5	19.3	59.3

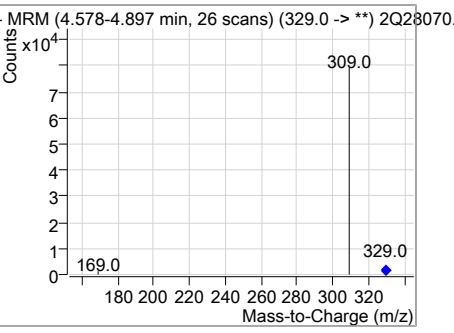


Perfluorinated Compounds by LC/MS/MS

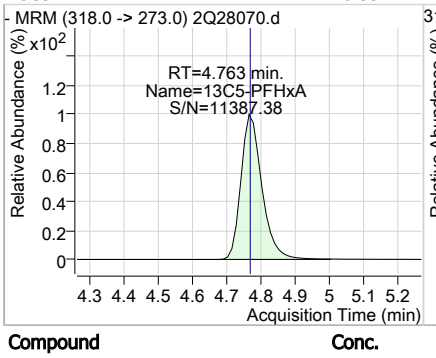
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.26	4.67	0.00	57655				

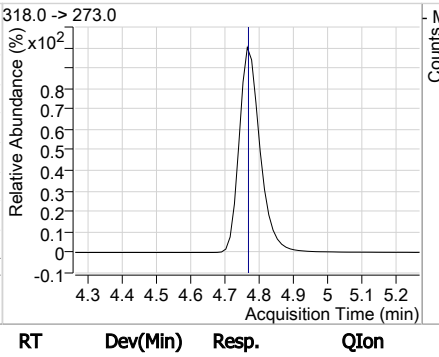


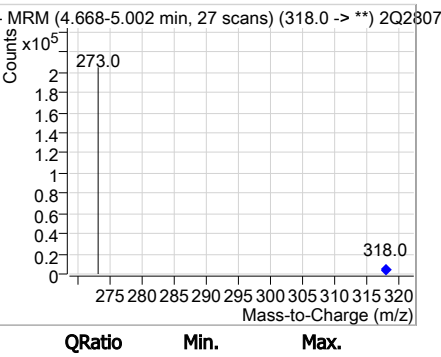




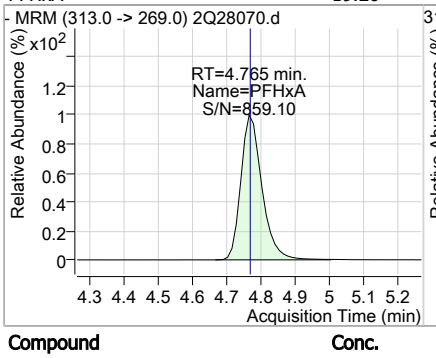
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.55	4.76	0.00	152266				

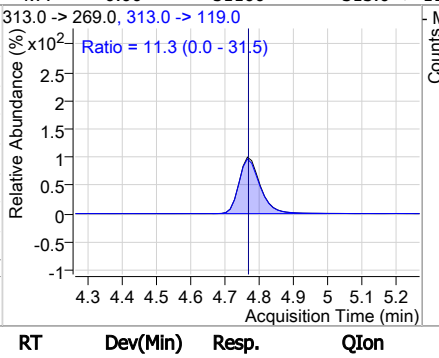


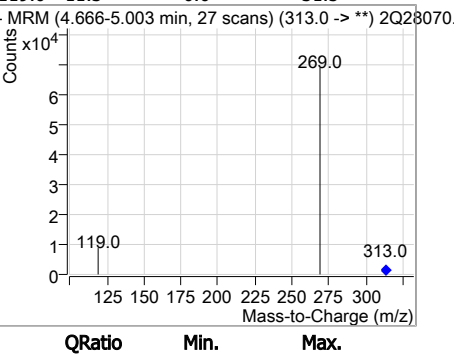




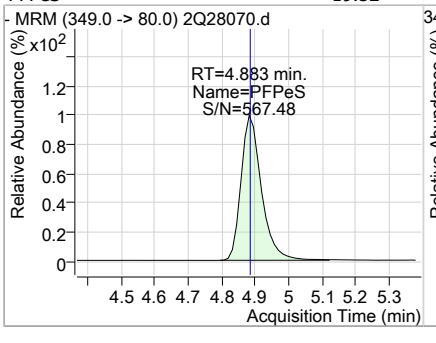
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.26	4.77	0.00	51160	313.0 -> 119.0	11.3	0.0	31.5

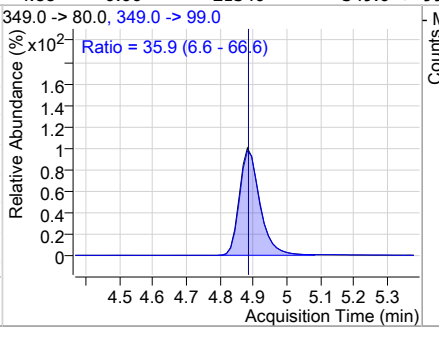


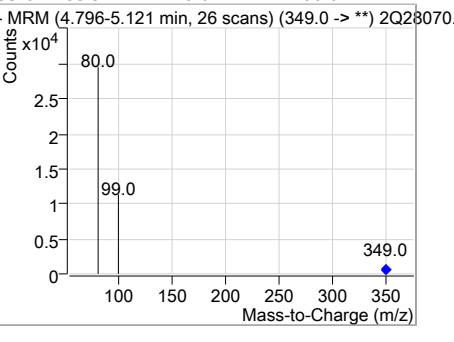




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.52	4.88	0.00	21340	349.0 -> 99.0	35.9	6.6	66.6



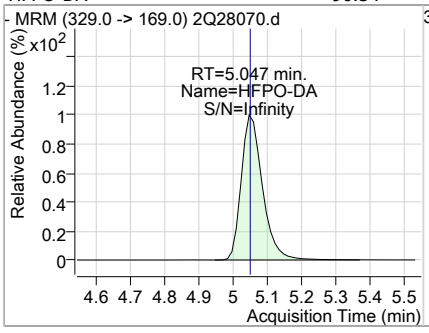


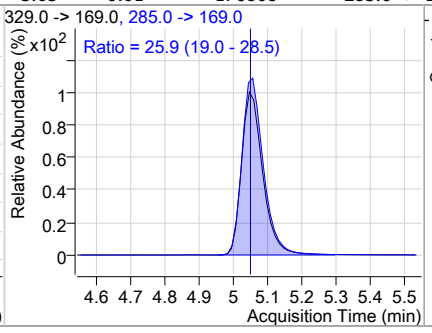


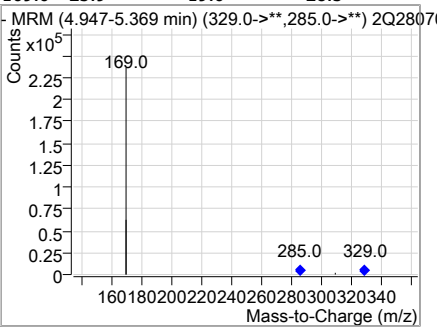
7.6.14

Perfluorinated Compounds by LC/MS/MS

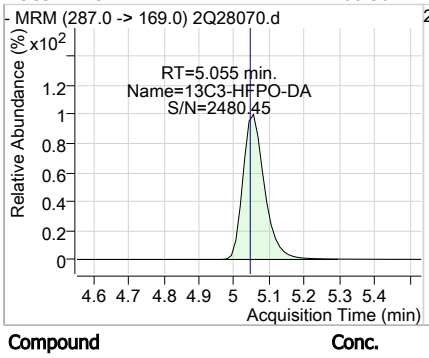
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	90.54	5.05	0.01	176808	285.0 -> 169.0	25.9	19.0	28.5

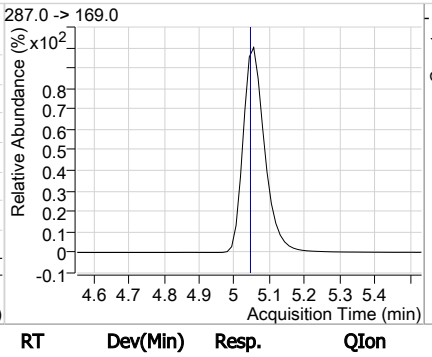


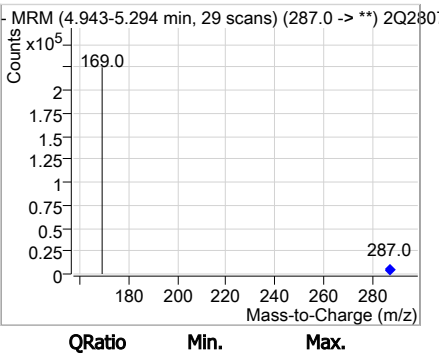




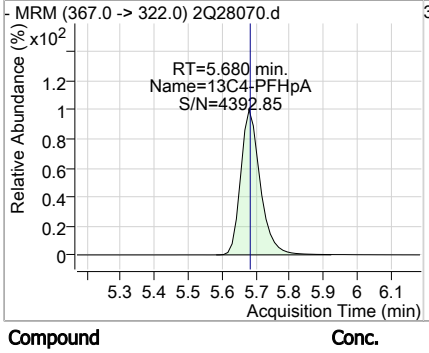
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	100.56	5.06	0.01	167632				

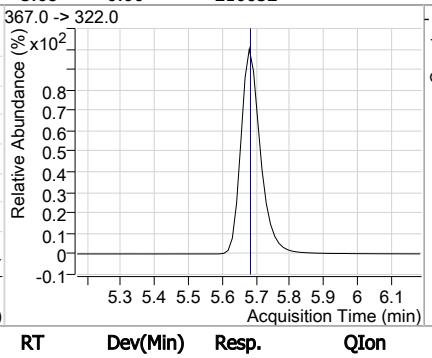


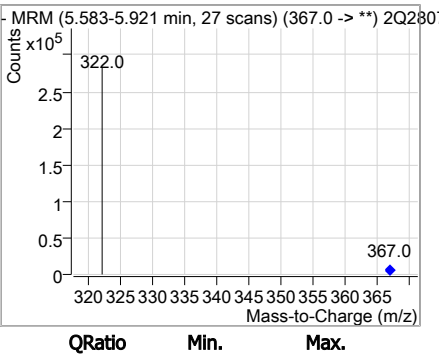




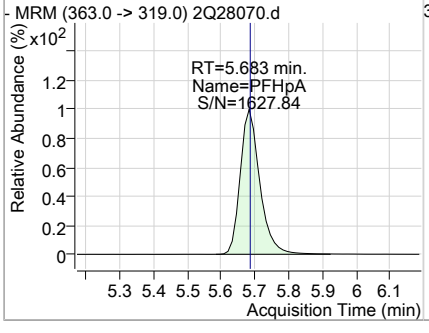
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.38	5.68	0.00	210652				

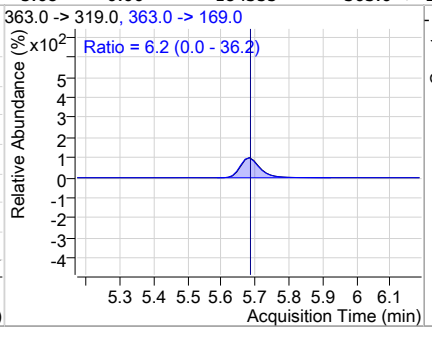


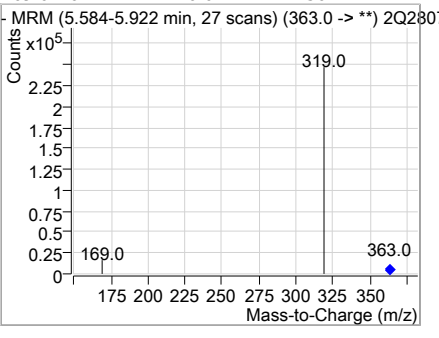




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.51	5.68	0.00	184355	363.0 -> 169.0	6.2	0.0	36.2

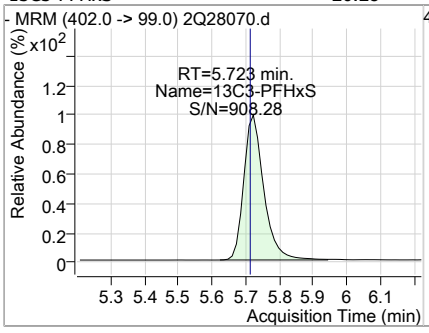


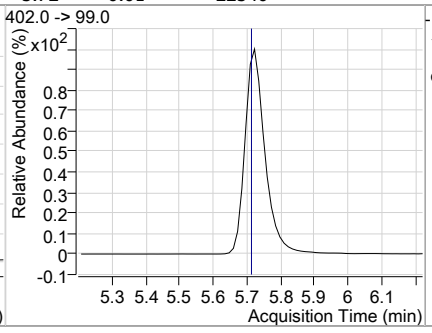


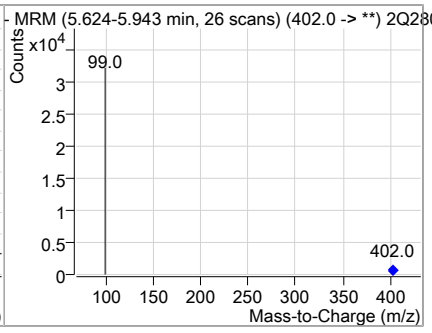


Perfluorinated Compounds by LC/MS/MS

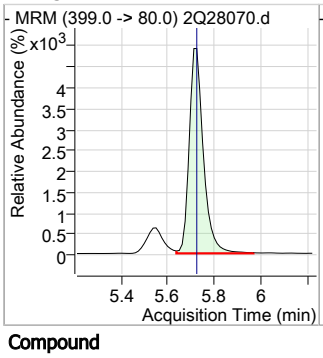
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.28	5.72	0.01	22540				

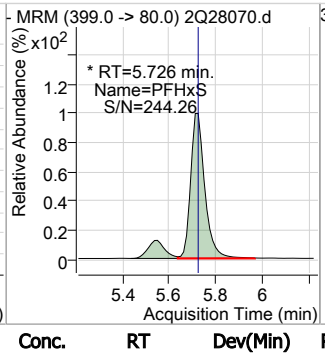


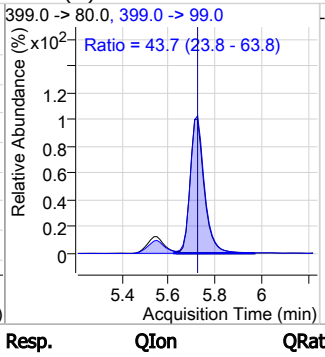


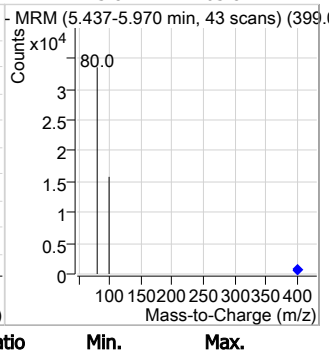


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.11	5.73	0.01	23824 (m)	399.0 -> 99.0	43.7	23.8	63.8

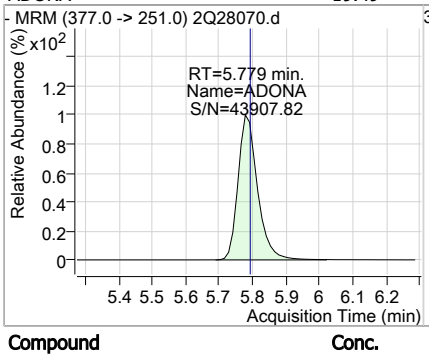


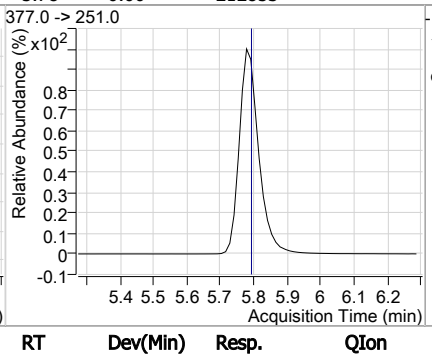


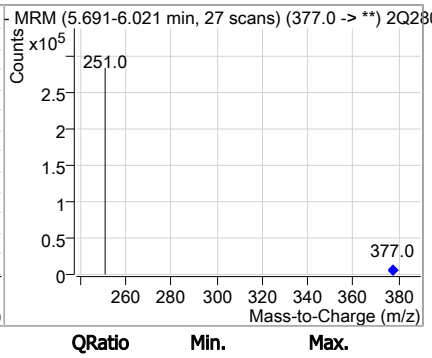




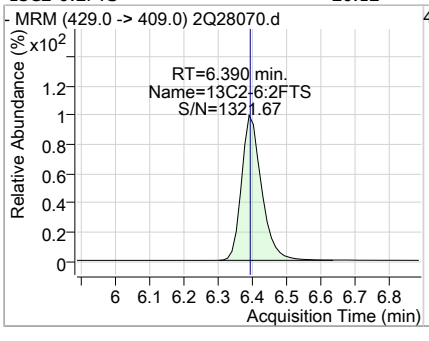
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.49	5.78	0.00	212853				

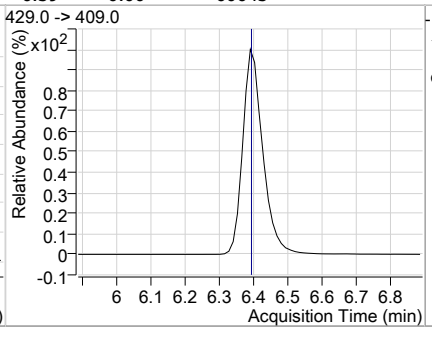


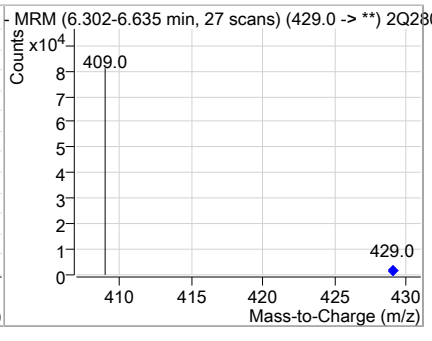




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.12	6.39	0.00	60643				

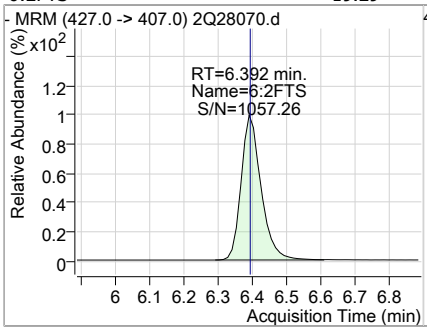


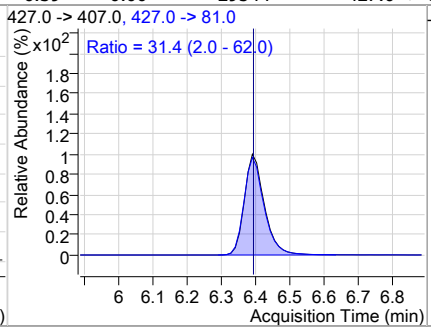


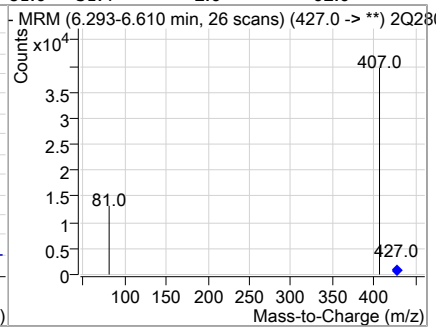


Perfluorinated Compounds by LC/MS/MS

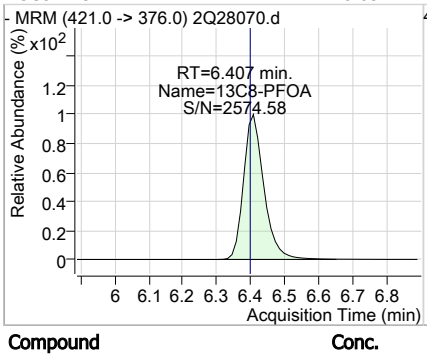
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.29	6.39	0.00	29544	427.0 -> 81.0	31.4	2.0	62.0

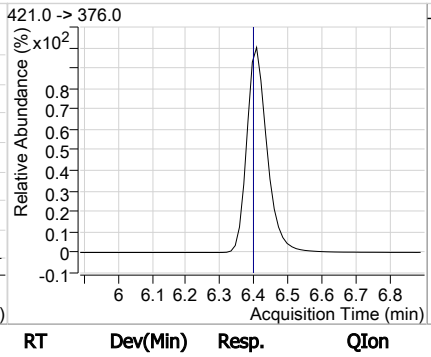


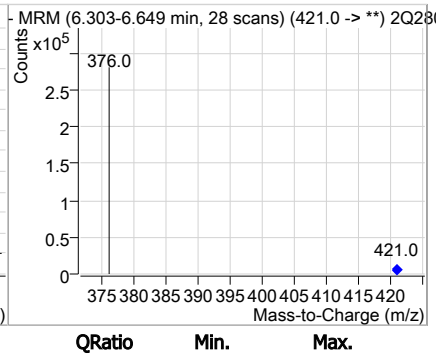




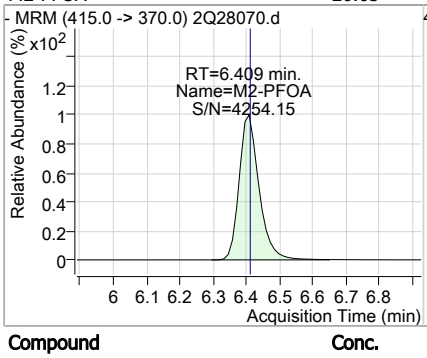
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.65	6.41	0.01	212792				

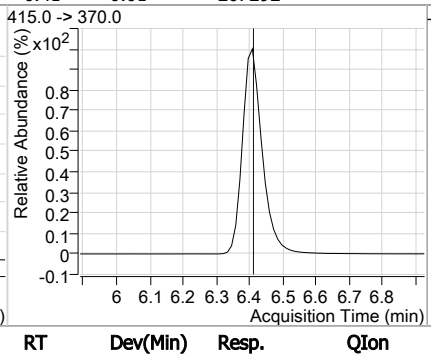


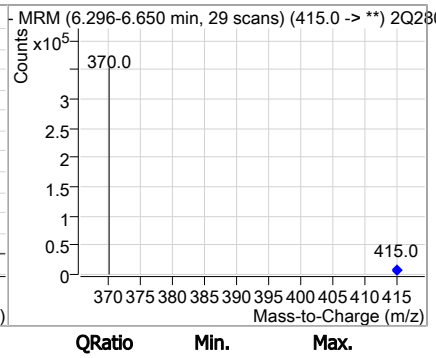




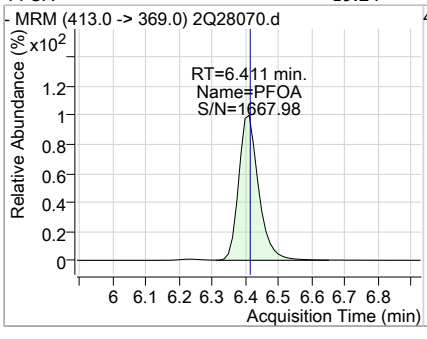
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.05	6.41	0.01	267292				

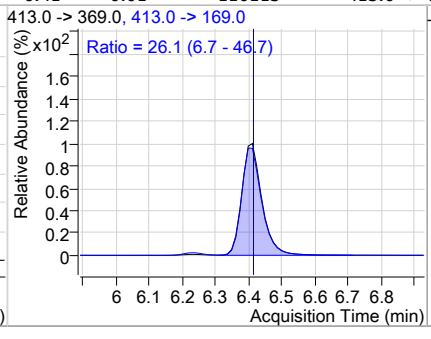


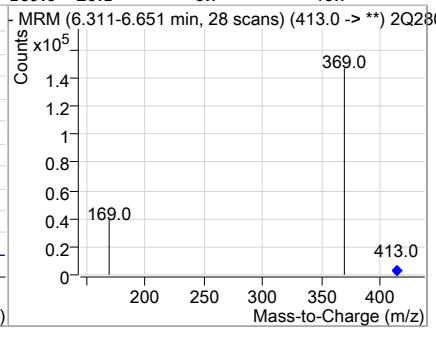




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.24	6.41	0.01	110113	413.0 -> 169.0	26.1	6.7	46.7



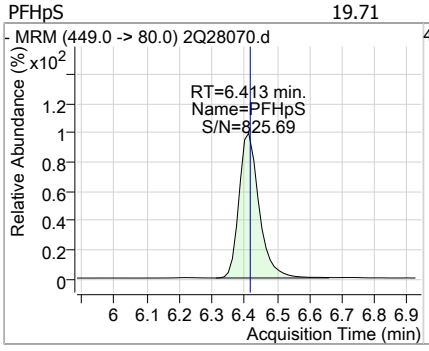


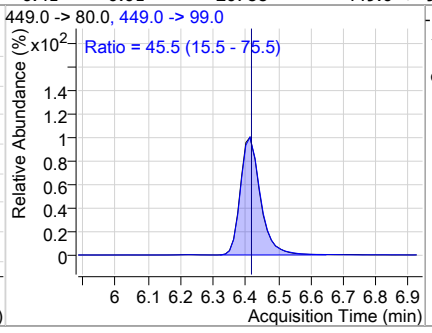


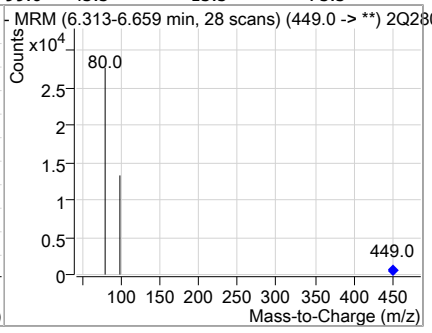
7.6.14

Perfluorinated Compounds by LC/MS/MS

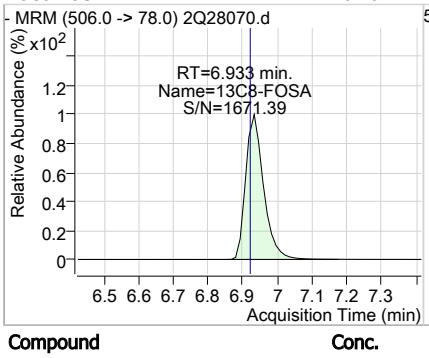
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.71	6.41	0.01	20788	449.0 -> 99.0	45.5	15.5	75.5

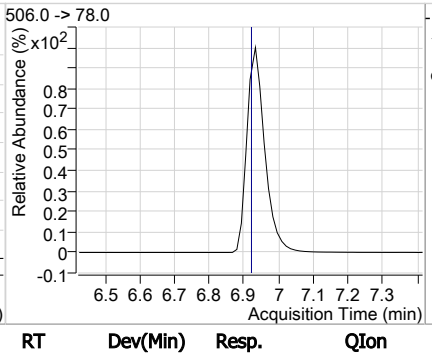


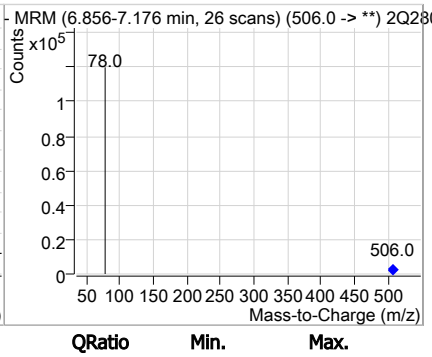




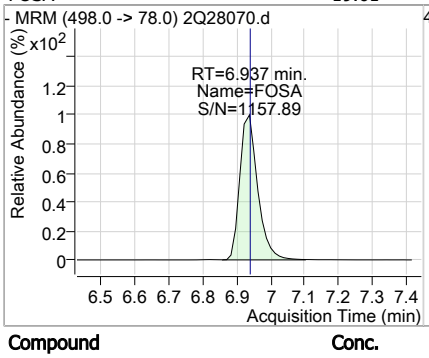
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.76	6.93	0.01	93131				

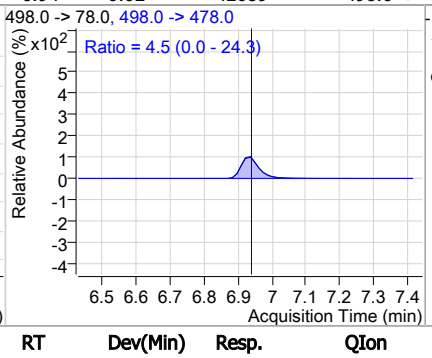


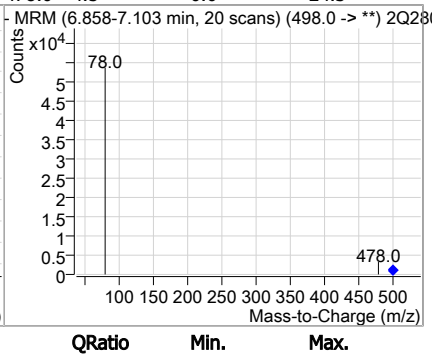




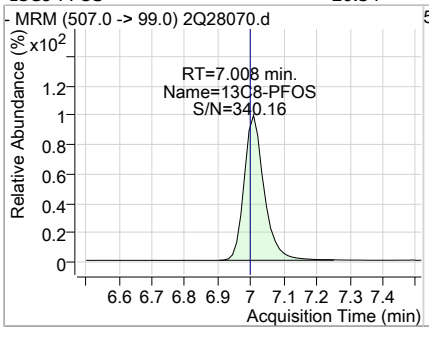
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.61	6.94	0.02	42089	498.0 -> 478.0	4.5	0.0	24.3

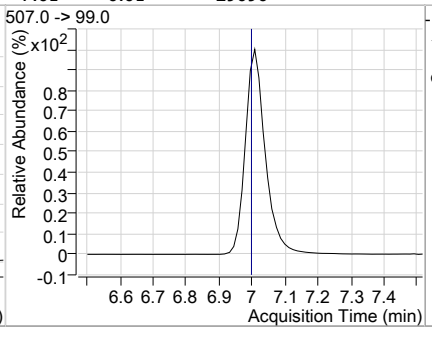


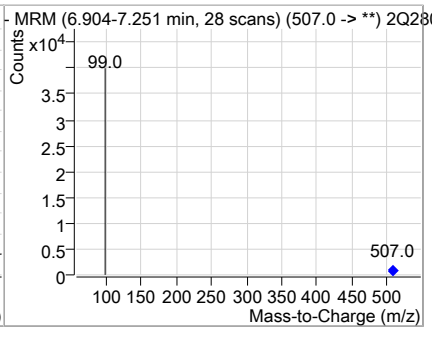




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.34	7.01	0.01	29090				



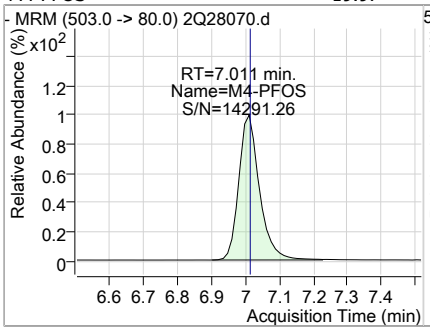


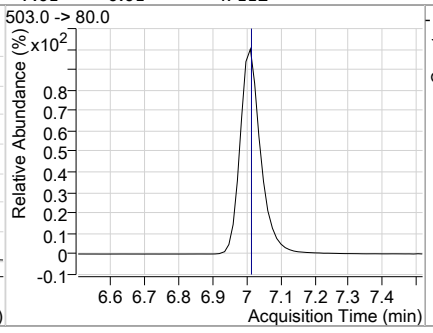


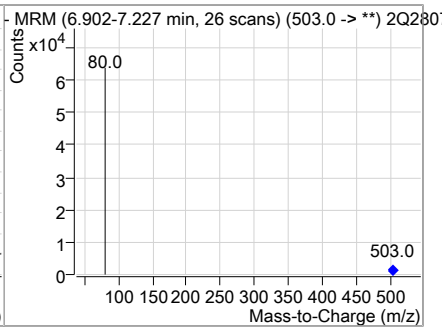
7.6.14

Perfluorinated Compounds by LC/MS/MS

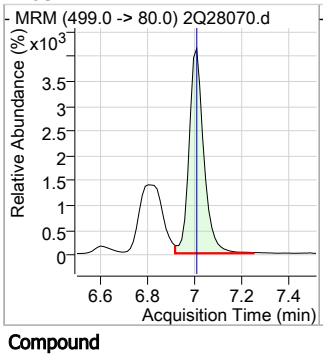
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.97	7.01	0.01	47112				

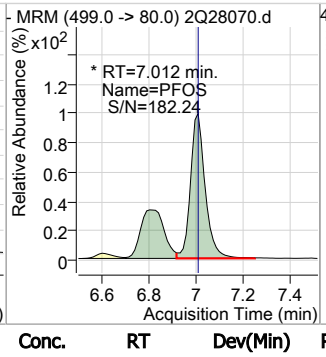


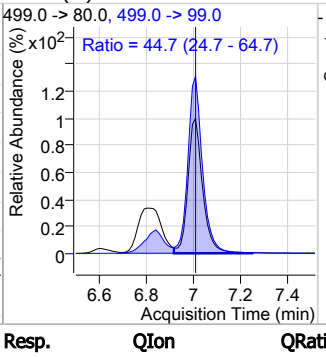


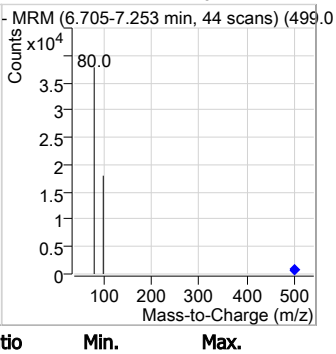


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.09	7.01	0.01	27302 (m)	499.0 -> 99.0	44.7	24.7	64.7

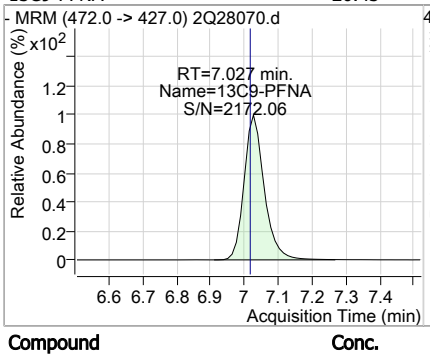


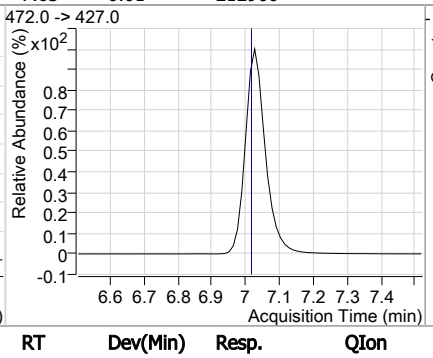


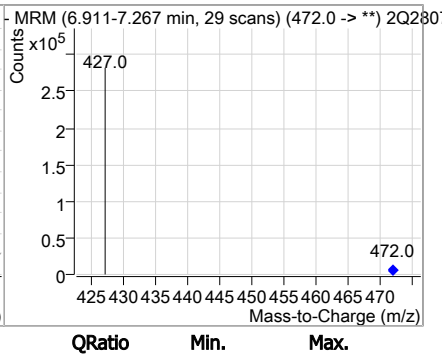




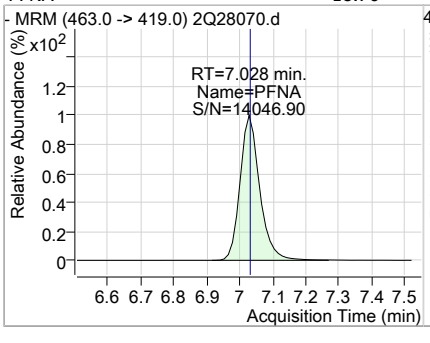
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.43	7.03	0.01	212966				

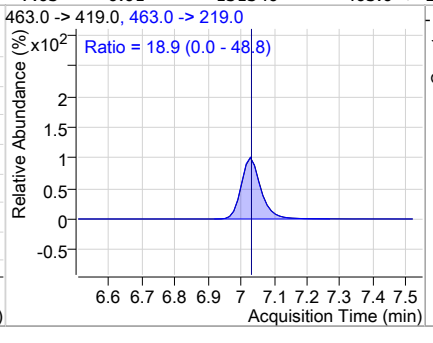


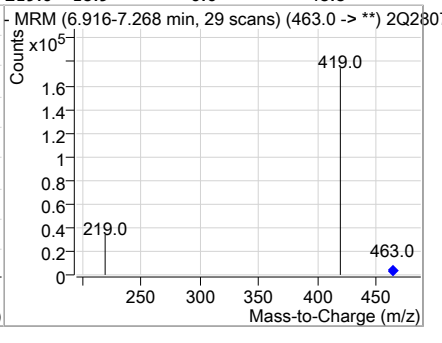




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.76	7.03	0.01	131340	463.0 -> 219.0	18.9	0.0	48.8



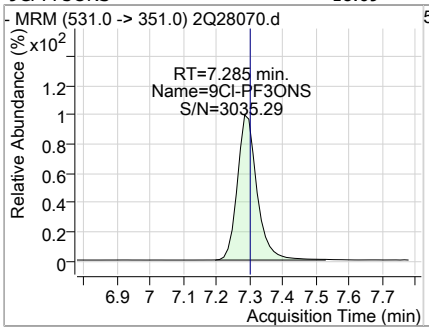


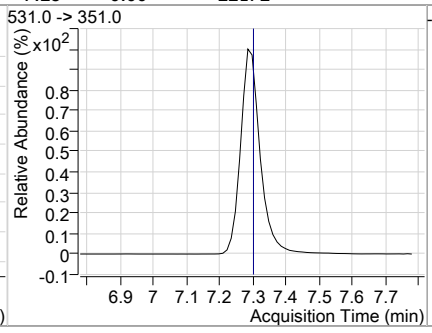


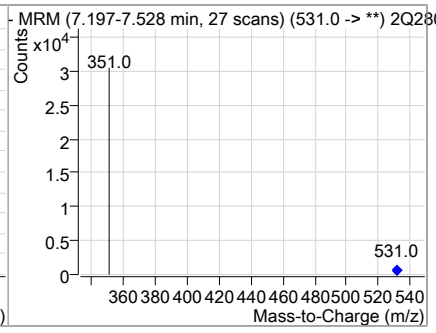
7.6.14

Perfluorinated Compounds by LC/MS/MS

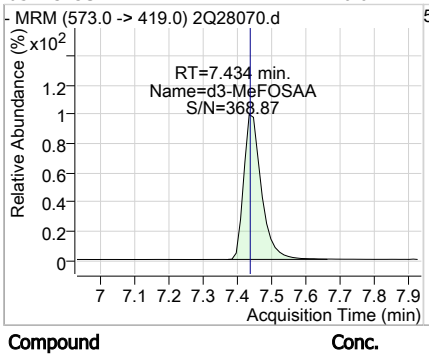
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.69	7.28	0.00	22172				

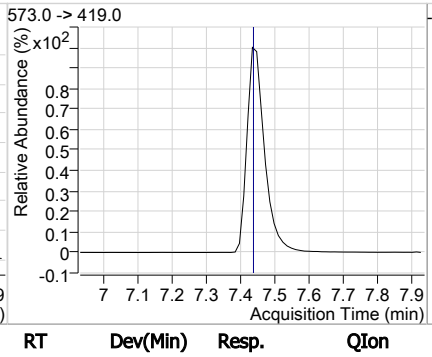


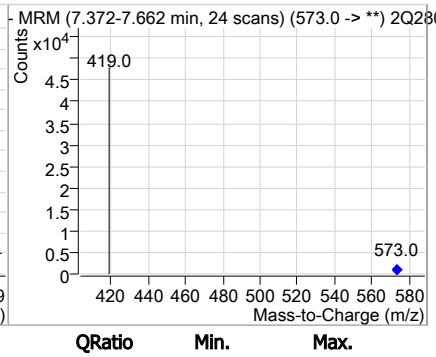




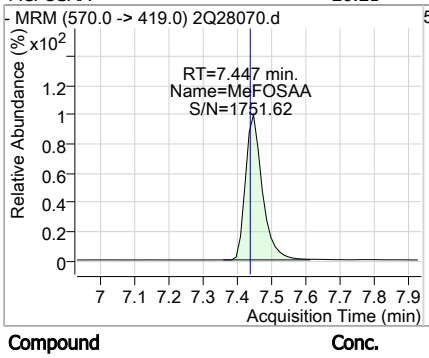
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.07	7.43	0.00	35192				

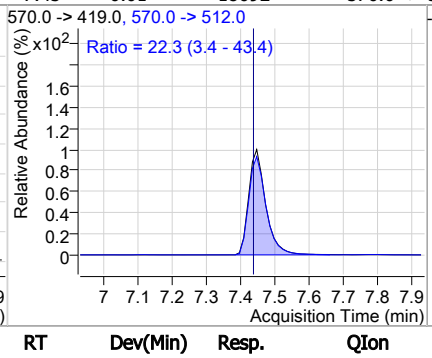


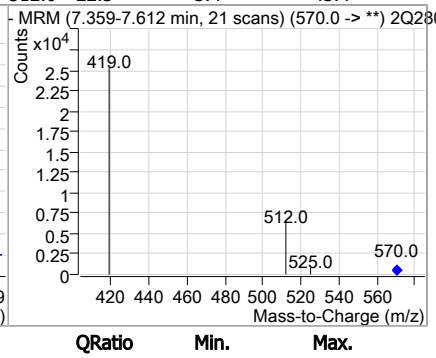




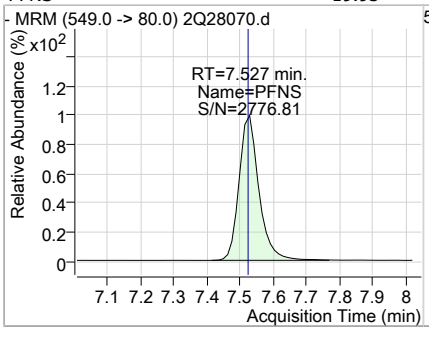
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.21	7.45	0.01	18692	570.0 -> 512.0	22.3	3.4	43.4

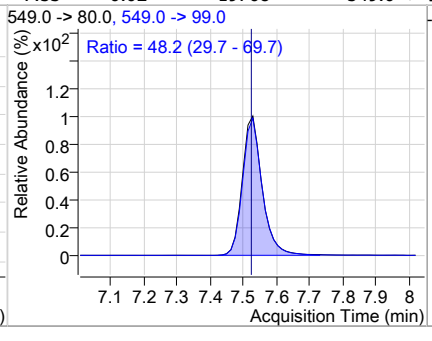


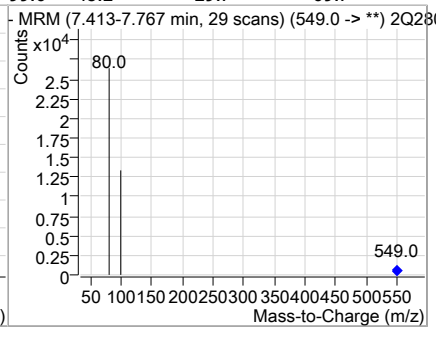




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	19.93	7.53	0.02	19768	549.0 -> 99.0	48.2	29.7	69.7

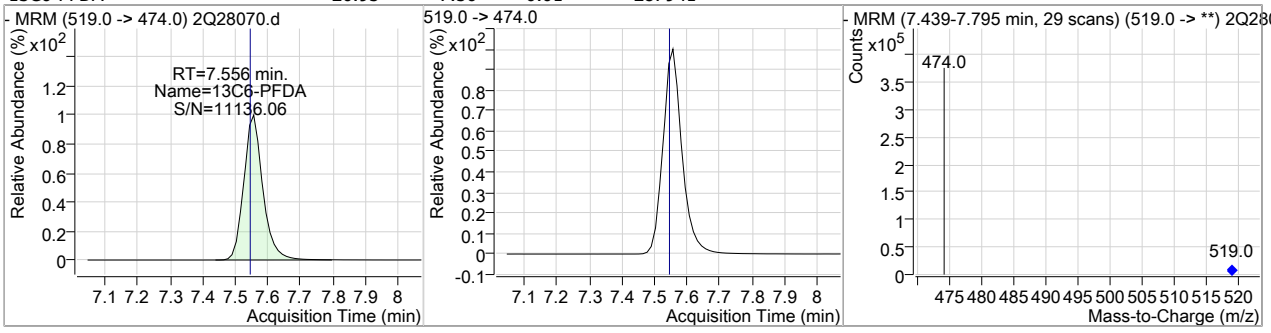




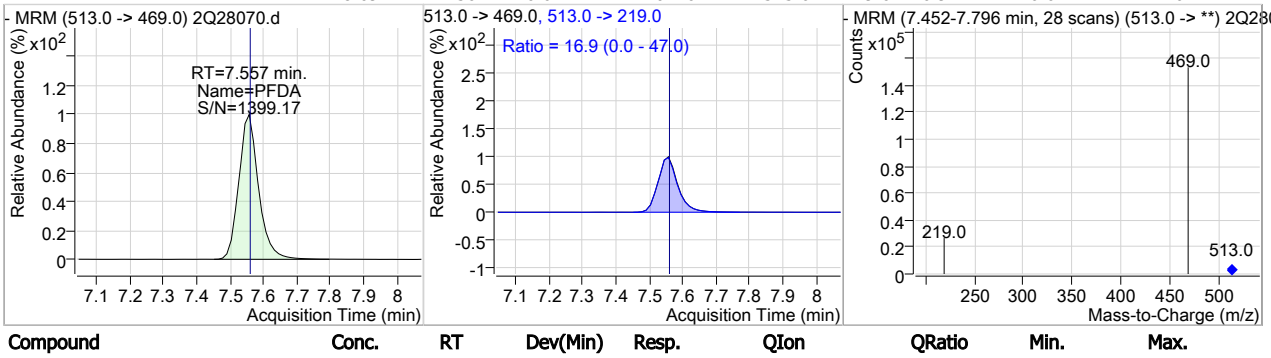


Perfluorinated Compounds by LC/MS/MS

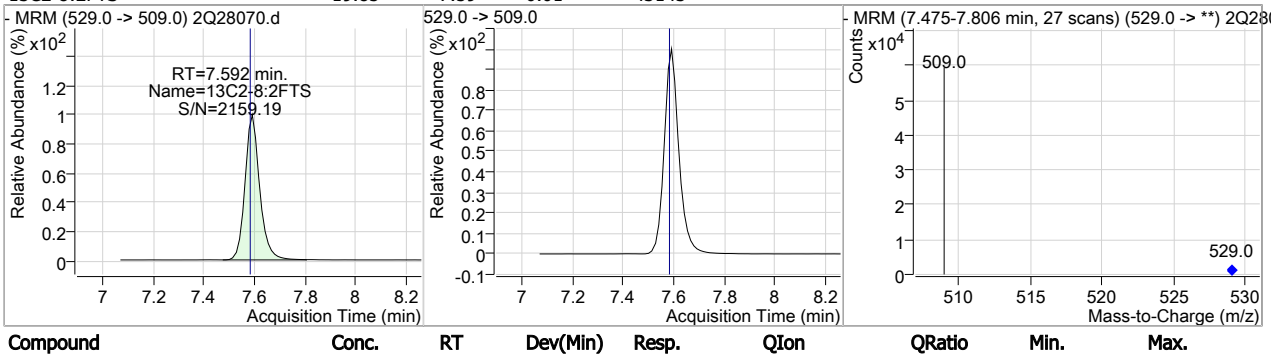
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.95	7.56	0.01	287941				



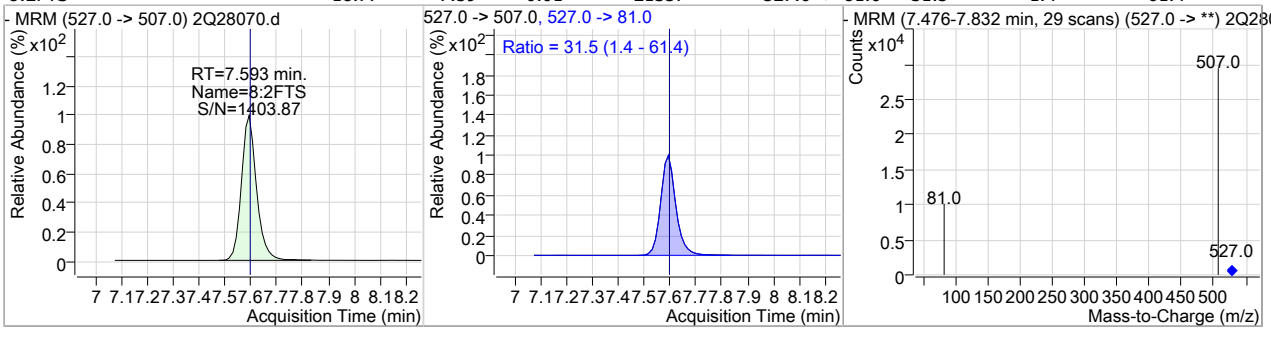
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.69	7.56	0.01	116710	513.0 -> 219.0	16.9	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.85	7.59	0.01	43143				



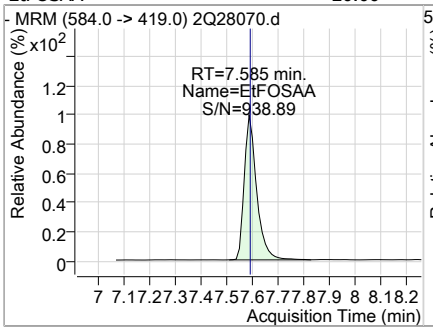
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	18.77	7.59	0.01	21357	527.0 -> 81.0	31.5	1.4	61.4

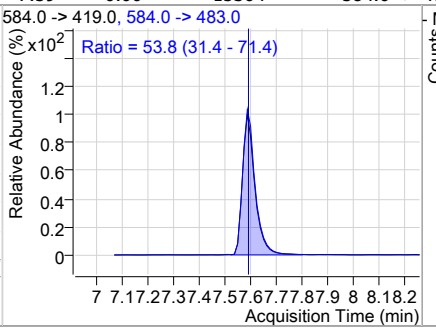


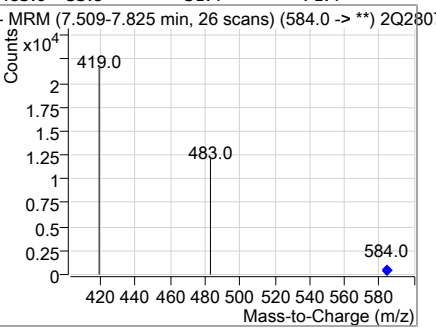
7.6.14

Perfluorinated Compounds by LC/MS/MS

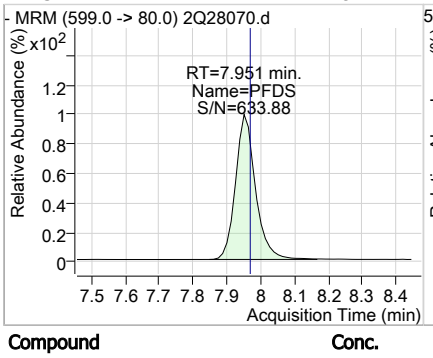
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.06	7.59	0.00	15364	584.0 -> 483.0	53.8	31.4	71.4

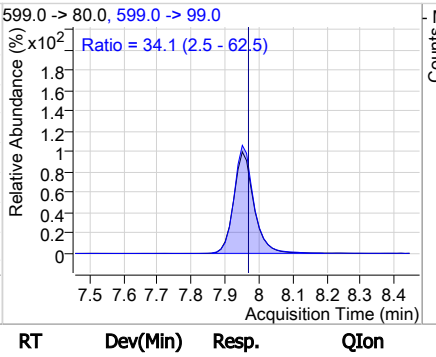


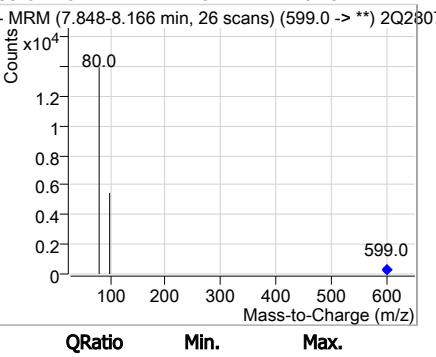




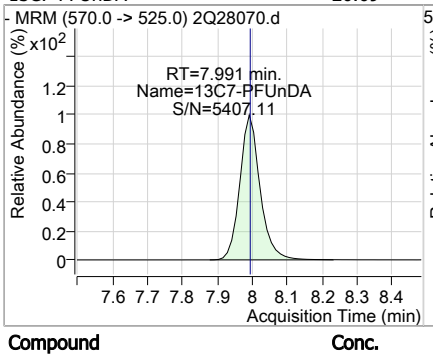
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.77	7.95	0.00	9730	599.0 -> 99.0	34.1	2.5	62.5

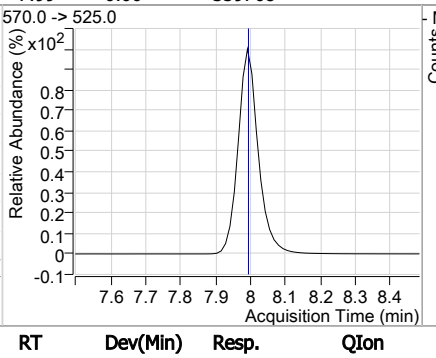


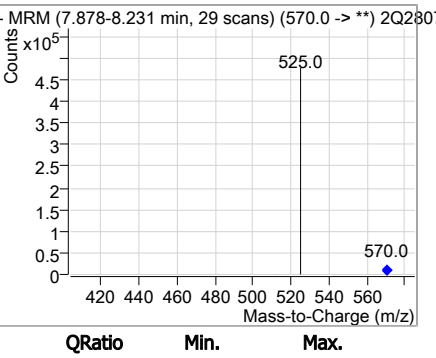




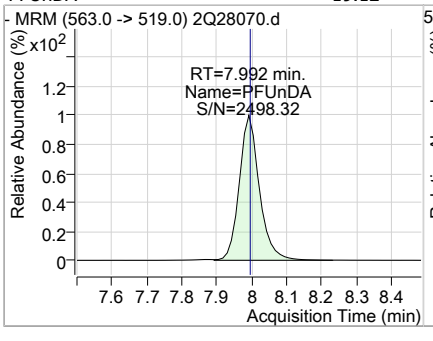
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.69	7.99	0.00	359708				

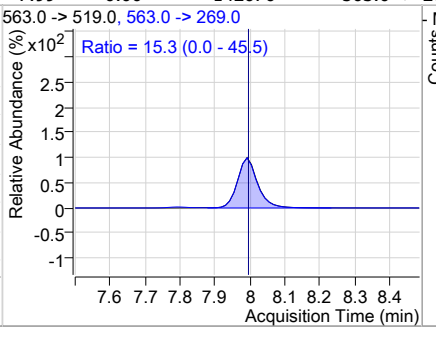


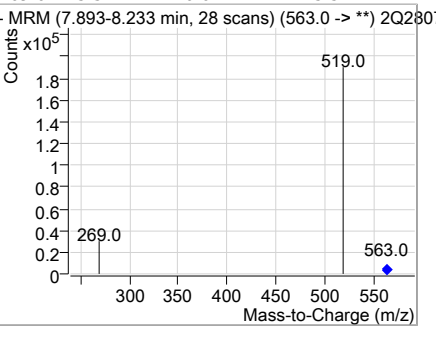




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.12	7.99	0.00	142676	563.0 -> 269.0	15.3	0.0	45.5

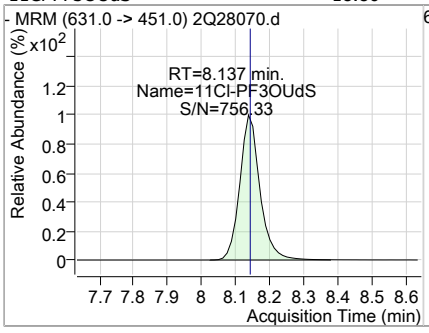


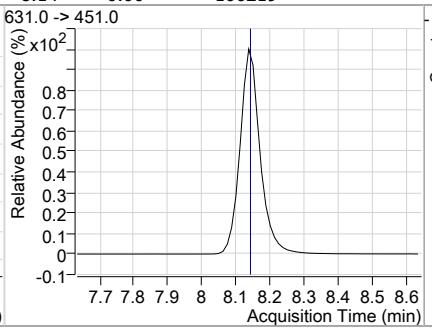


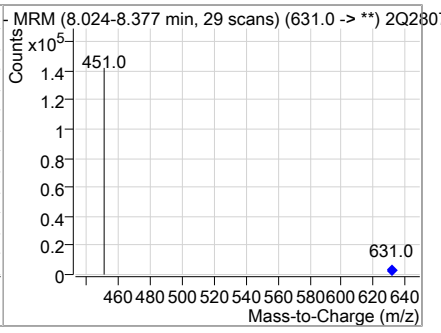


Perfluorinated Compounds by LC/MS/MS

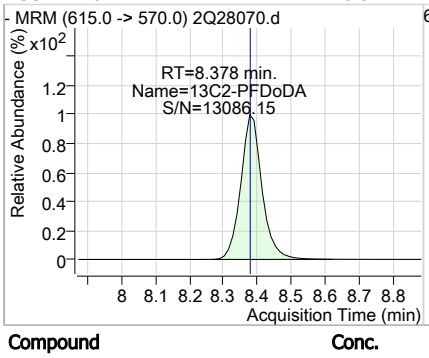
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.86	8.14	0.00	106219				

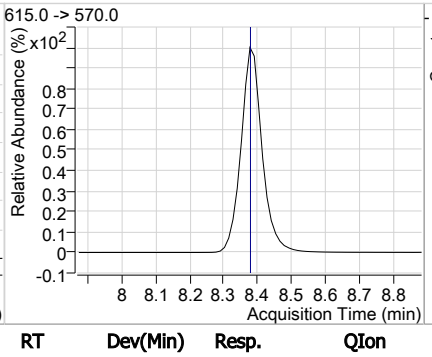


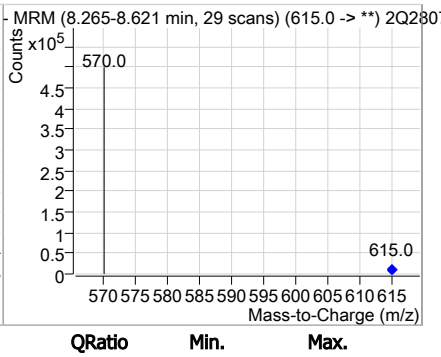




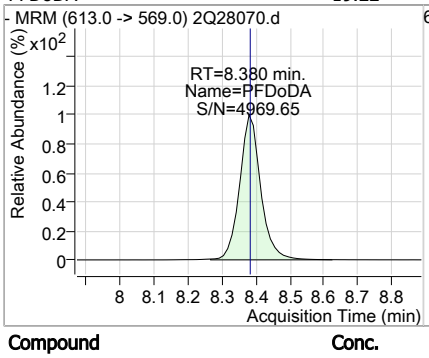
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.81	8.38	0.00	374105				

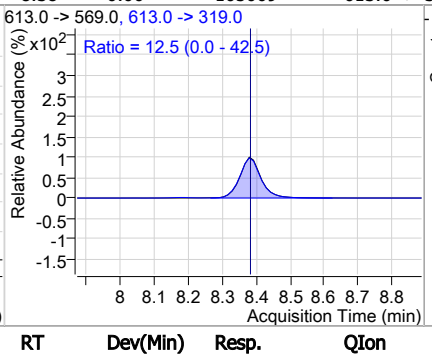


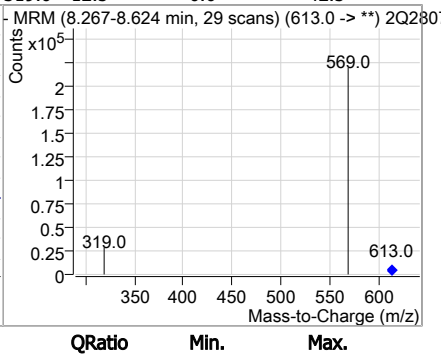




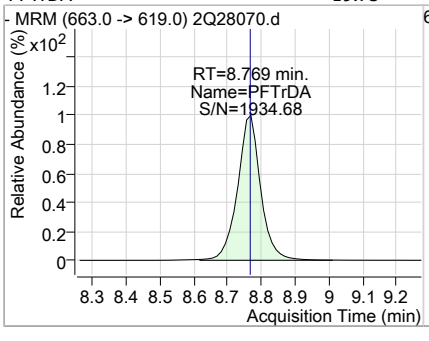
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.22	8.38	0.00	165009	613.0 -> 319.0	12.5	0.0	42.5

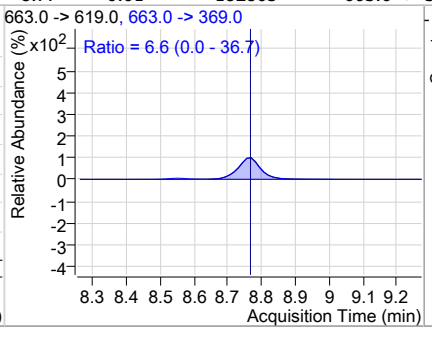


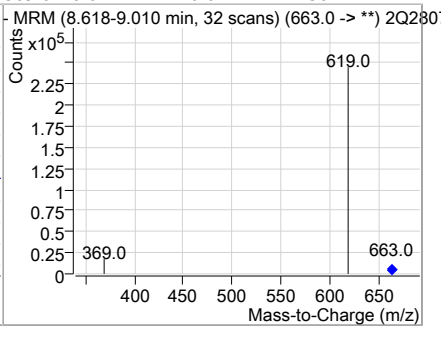




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.73	8.77	0.01	182805	663.0 -> 369.0	6.6	0.0	36.7



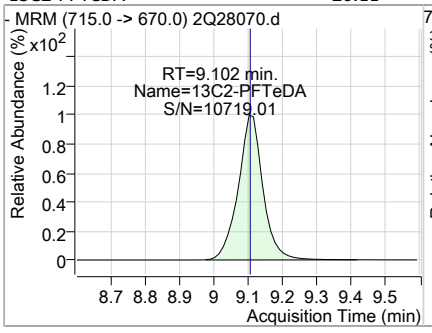


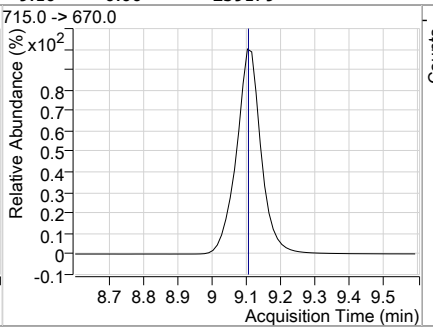


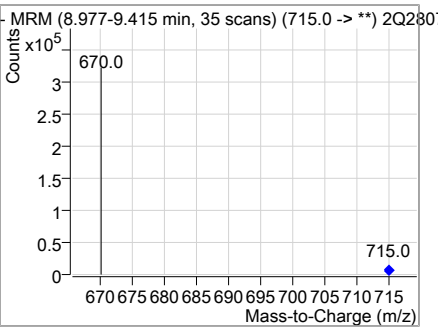
7.6.14

Perfluorinated Compounds by LC/MS/MS

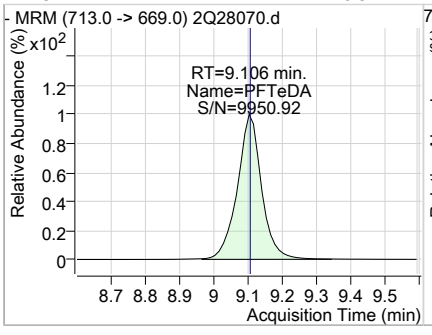
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.11	9.10	0.00	239179				

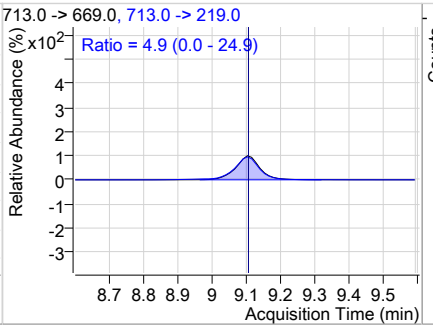


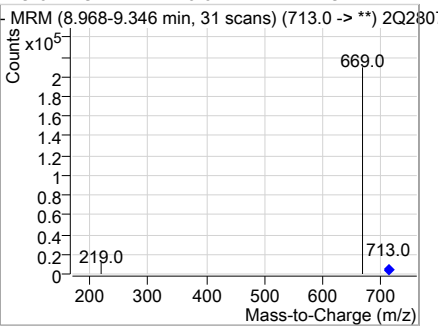




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.97	9.11	0.00	155802	713.0 -> 219.0	4.9	0.0	24.9







7.6.14

7

Manual Integration Approval Summary

Sample Number: S2Q447-CC445 **Method:** EPA 537M BY ID
Lab FileID: 2Q28070.D **Analyst approved:** 03/25/19 11:54 Nancy Saunders
Injection Time: 03/25/19 01:50 **Supervisor approved:** 03/26/19 08:11 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q28096.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/26/19 16:10

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28096.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 3:20:07 PM
Sample Name : CC445-20
Vial : Vial 7
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q448.batch.bin
Sample Information : op74164,S2Q448,250,,,1.0,1,water

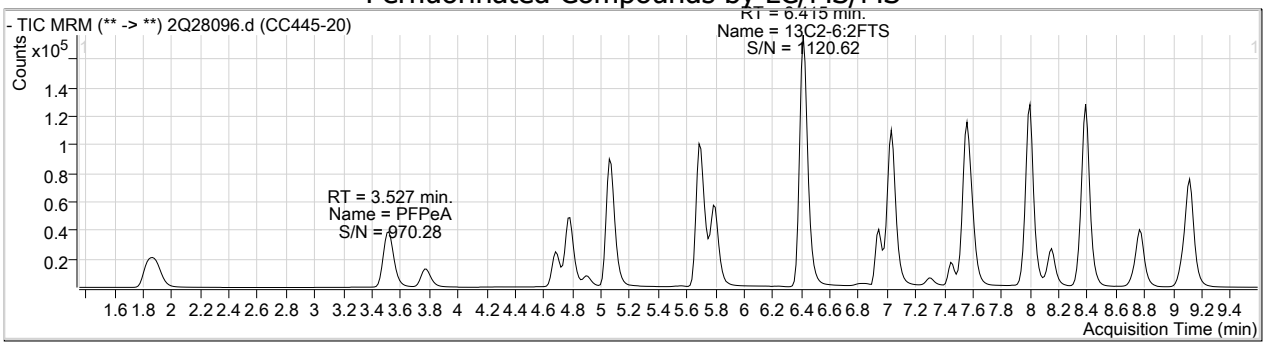
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.422	415.0 -> 370.0	261776	20.00	µg/L	0.025
13C4-PFOS	7.023	503.0 -> 80.0	45047	20.00	µg/L	0.026
M4-PFBA	1.865	217.0 -> 172.0	136388	20.00	µg/L	0.013
M5-PFPeA	3.524	268.0 -> 223.0	108740	20.00	µg/L	0.025
M5-PFHxA	4.788	318.0 -> 273.0	150005	20.00	µg/L	0.025
M4-PFHpA	5.692	367.0 -> 322.0	208968	20.00	µg/L	0.012
M8-PFOA	6.419	421.0 -> 376.0	206002	20.00	µg/L	0.025
M9-PFNA	7.039	472.0 -> 427.0	208606	20.00	µg/L	0.025
M6-PFDA	7.569	519.0 -> 474.0	281472	20.00	µg/L	0.027
M7-PFUnDA	8.004	570.0 -> 525.0	351229	20.00	µg/L	0.013
M2-PFDoDA	8.391	615.0 -> 570.0	363618	20.00	µg/L	0.014
M2-PFTeDA	9.115	715.0 -> 670.0	221348	20.00	µg/L	0.013
M8-FOSA	6.946	506.0 -> 78.0	97679	20.00	µg/L	0.027
M3-PFBS	3.780	302.0 -> 99.0	20375	20.00	µg/L	0.025
M3-PFHxS	5.735	402.0 -> 99.0	21815	20.00	µg/L	0.025
M8-PFOS	7.021	507.0 -> 99.0	27748	20.00	µg/L	0.026
M2-4:2FTS	4.684	329.0 -> 309.0	57981	20.00	µg/L	0.012
M2-6:2FTS	6.415	429.0 -> 409.0	58532	20.00	µg/L	0.025
M2-8:2FTS	7.604	529.0 -> 509.0	41318	20.00	µg/L	0.025
M3-MeFOSAA	7.446	573.0 -> 419.0	35141	20.00	µg/L	0.013
M3-HFPO-DA	5.068	287.0 -> 169.0	155003	100.00	µg/L	0.025
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	57962	20.37	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C2-6:2FTS	6.415	429.0 -> 409.0	58470	19.40	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C2-8:2FTS	7.604	529.0 -> 509.0	41344	19.02	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C2-PFDoDA	8.391	615.0 -> 570.0	363259	20.21	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C2-PFTeDA	9.115	715.0 -> 670.0	220874	18.57	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C3-PFBS	3.780	302.0 -> 99.0	20354	19.84	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C3-PFHxS	5.735	402.0 -> 99.0	21786	19.60	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C4-PFBA	1.865	217.0 -> 172.0	135815	20.78	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%		
13C4-PFHpA	5.692	367.0 -> 322.0	208811	20.20	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C5-PFHxA	4.788	318.0 -> 273.0	149764	20.21	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C5-PFPeA	3.524	268.0 -> 223.0	108741	19.77	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C6-PFDA	7.569	519.0 -> 474.0	281430	20.47	µg/L	0.027

Perfluorinated Compounds by LC/MS/MS

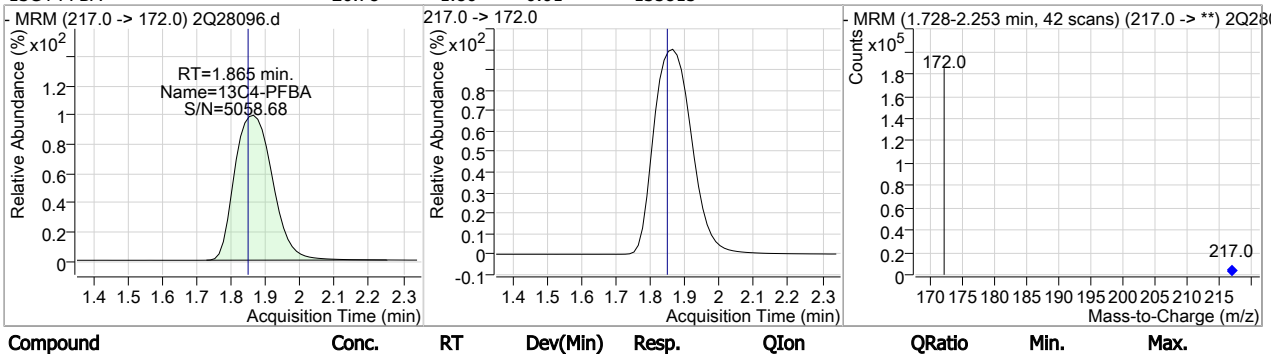
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C7-PFUnDA	8.004	570.0 -> 525.0	351071	20.20 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C8-FOSA	6.946	506.0 -> 78.0	97697	21.78 µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.9%		
13C8-PFOA	6.419	421.0 -> 376.0	205785	19.97 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C8-PFOS	7.021	507.0 -> 99.0	27812	19.45 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C9-PFNA	7.039	472.0 -> 427.0	208529	20.01 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
d3-MeFOSAA	7.446	573.0 -> 419.0	35168	20.06 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
M2-PFOA	6.422	415.0 -> 370.0	261775	19.99 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	45066	19.99 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	155003	92.99 µg/L		0.025
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
Target Compounds						**QValue**
4:2FTS	4.686	327.0 -> 307.0	32616	19.13 µg/L		99
6:2FTS	6.417	427.0 -> 407.0	28566	19.35 µg/L		99
8:2FTS	7.605	527.0 -> 507.0	20649	18.94 µg/L		100
EtFOSAA	7.598	584.0 -> 419.0	15262	19.95 µg/L		99
FOSA	6.950	498.0 -> 78.0	44116	19.60 µg/L		99
MeFOSAA	7.447	570.0 -> 419.0	17757	19.22 µg/L		99
PFBA	1.860	213.0 -> 169.0	24907	18.68 µg/L		100
PFBS	3.771	299.0 -> 80.0	31899	19.32 µg/L		99
PFDA	7.570	513.0 -> 469.0	112725	18.47 µg/L		100
PFDoDA	8.393	613.0 -> 569.0	160459	19.24 µg/L		100
PFDS	7.963	599.0 -> 80.0	9612	20.46 µg/L		98
PFHpA	5.695	363.0 -> 319.0	178926	19.10 µg/L		100
PFHpS	6.429	449.0 -> 80.0	20462	20.07 µg/L		99
PFHxA	4.790	313.0 -> 269.0	47431	18.13 µg/L		98
PFHxS	5.738	399.0 -> 80.0	23183	19.23 µg/L	m	99
PFNA	7.041	463.0 -> 419.0	127424	18.59 µg/L		100
PFNS	7.540	549.0 -> 80.0	18919	19.98 µg/L		99
PFOA	6.424	413.0 -> 369.0	107838	19.49 µg/L		99
PFOS	7.025	499.0 -> 80.0	26122	19.14 µg/L	m	98
PFPeA	3.527	263.0 -> 219.0	95099	19.61 µg/L		100
PFPeS	4.895	349.0 -> 80.0	20808	19.69 µg/L		98
PFTeDA	9.119	713.0 -> 669.0	144154	18.99 µg/L		100
PFTrDA	8.769	663.0 -> 619.0	174439	20.36 µg/L		100
PFUnDA	8.005	563.0 -> 519.0	136628	18.75 µg/L		99
11Cl-PF3OUdS	8.149	631.0 -> 451.0	104335	19.07 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	21104	18.21 µg/L		100
ADONA	5.804	377.0 -> 251.0	210615	19.94 µg/L		100
HFPO-DA	5.072	329.0 -> 169.0	185291	102.61 µg/L		99

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

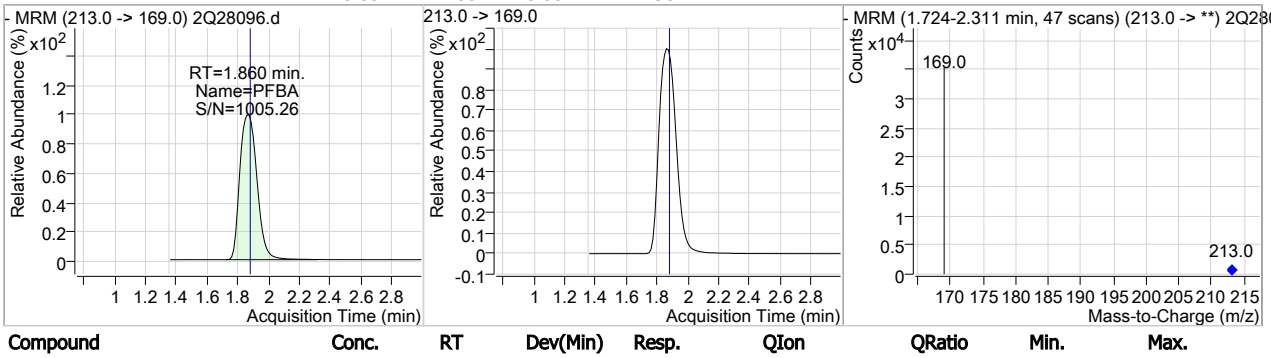
Perfluorinated Compounds by LC/MS/MS



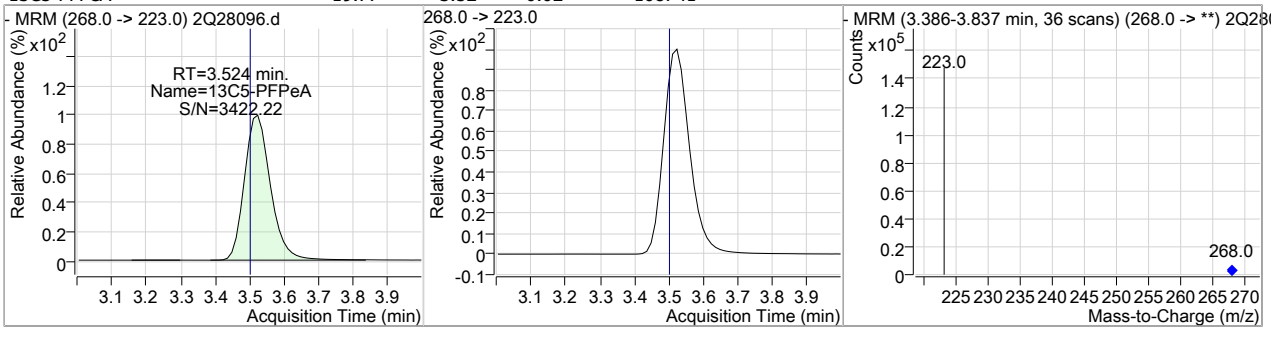
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.78	1.86	0.01	135815				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.68	1.86	0.00	24907				

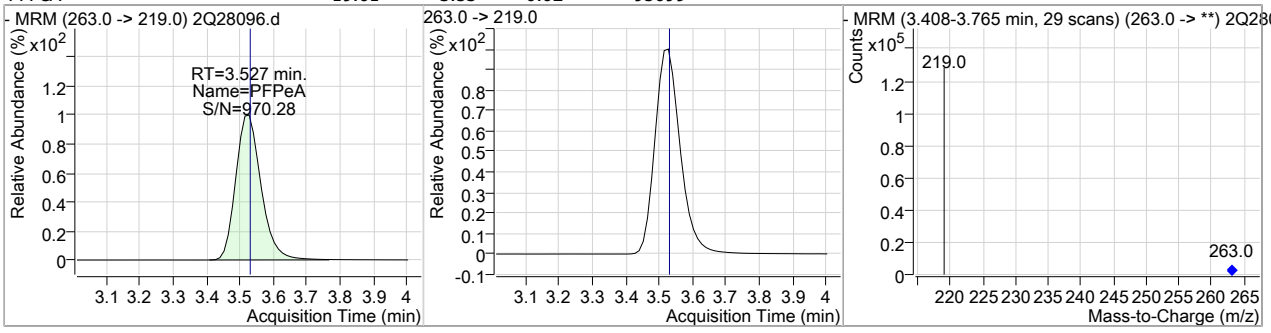


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.77	3.52	0.02	108741				

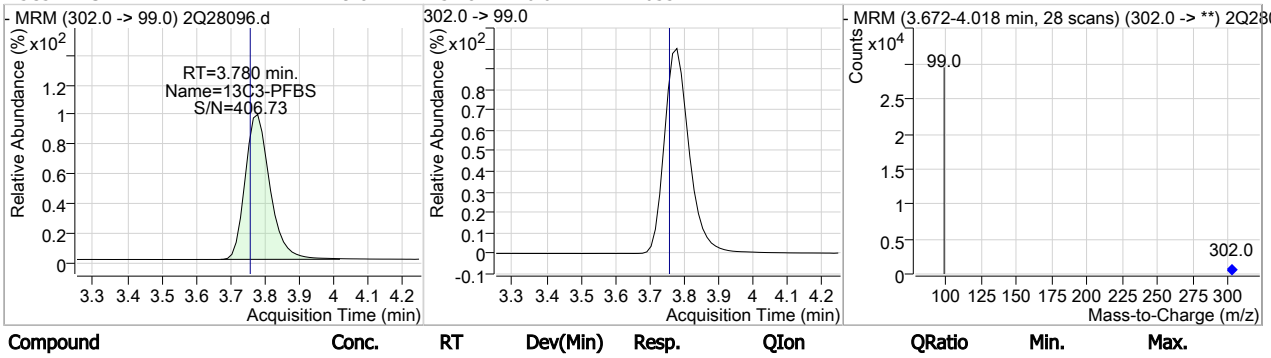


Perfluorinated Compounds by LC/MS/MS

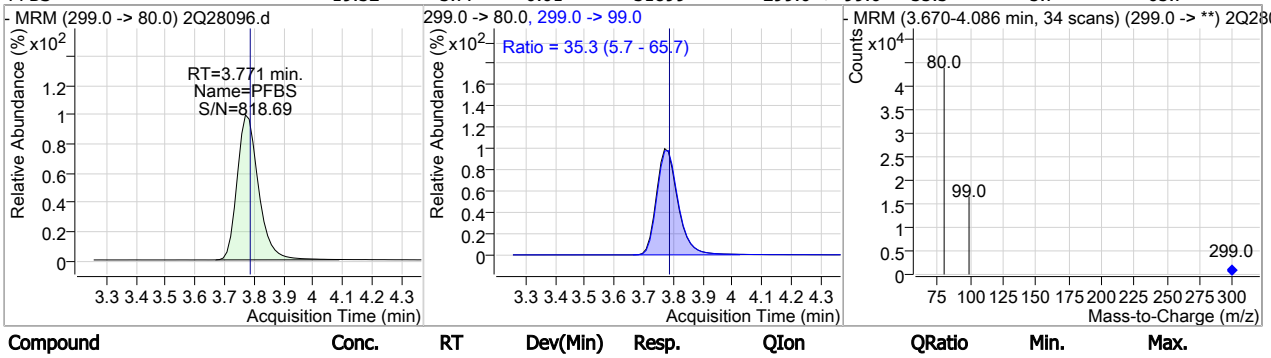
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.61	3.53	0.02	95099				



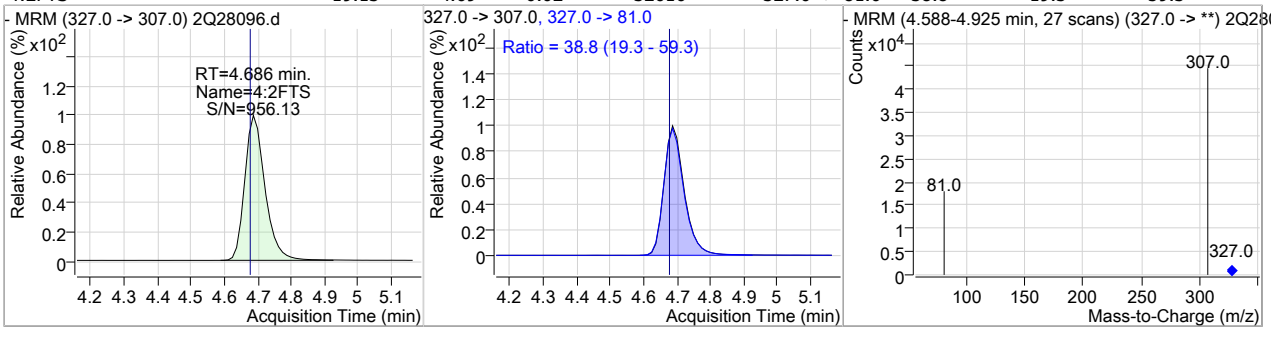
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.84	3.78	0.02	20354				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.32	3.77	0.01	31899	299.0 -> 99.0	35.3	5.7	65.7



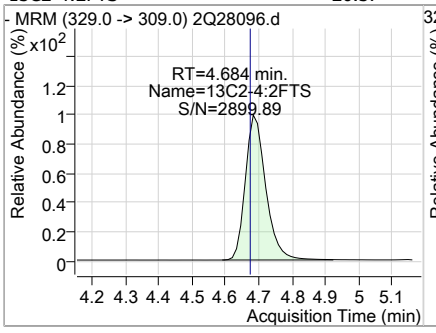
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.13	4.69	0.02	32616	327.0 -> 81.0	38.8	19.3	59.3

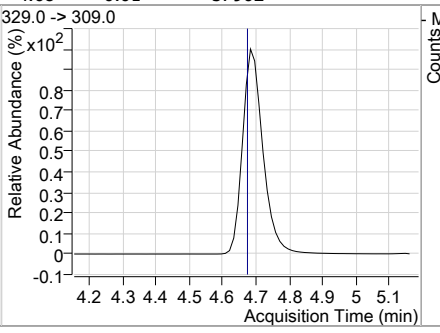


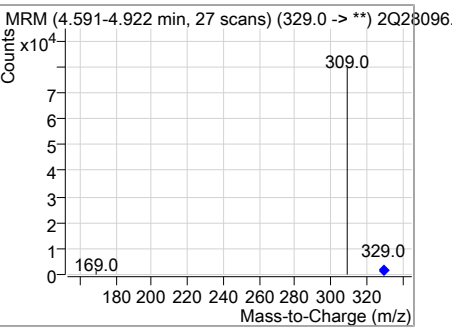
7.6.15

Perfluorinated Compounds by LC/MS/MS

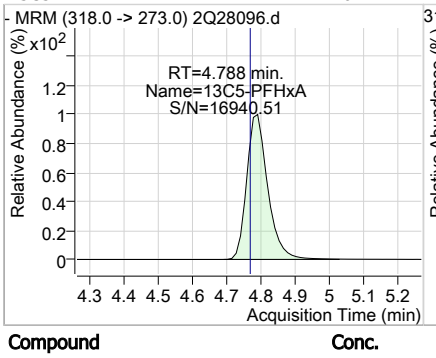
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.37	4.68	0.01	57962				

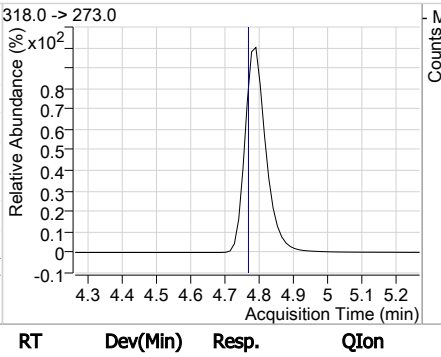


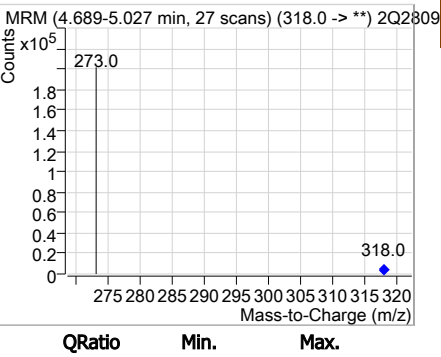




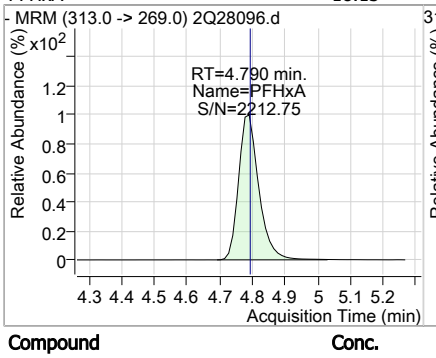
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.21	4.79	0.02	149764				

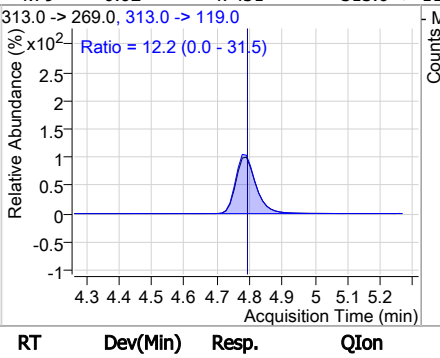


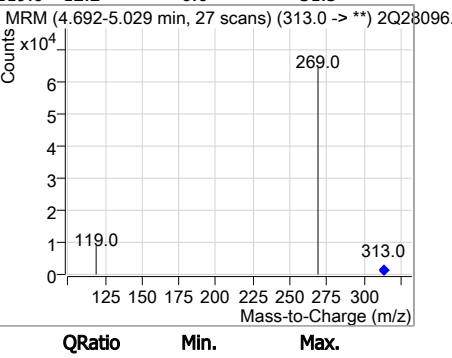




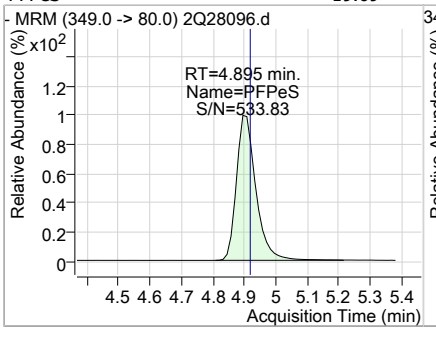
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.13	4.79	0.02	47431	313.0 -> 119.0	12.2	0.0	31.5

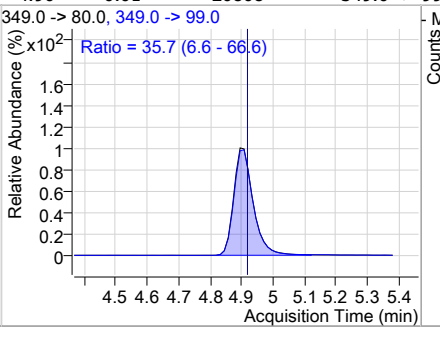


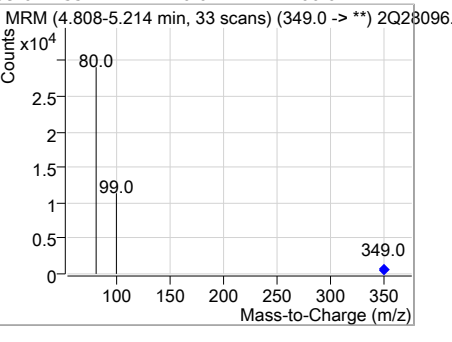




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.69	4.90	0.01	20808	349.0 -> 99.0	35.7	6.6	66.6



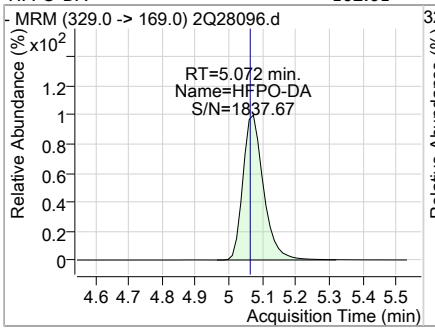


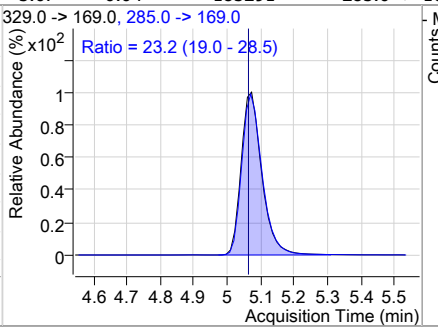


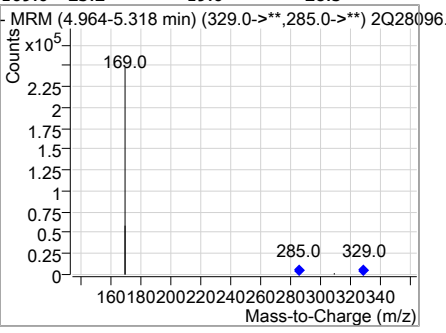
7.6.15

Perfluorinated Compounds by LC/MS/MS

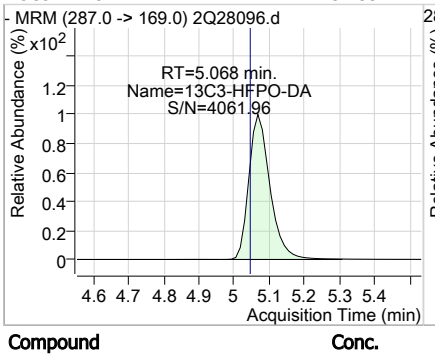
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	102.61	5.07	0.04	185291	285.0 -> 169.0	23.2	19.0	28.5

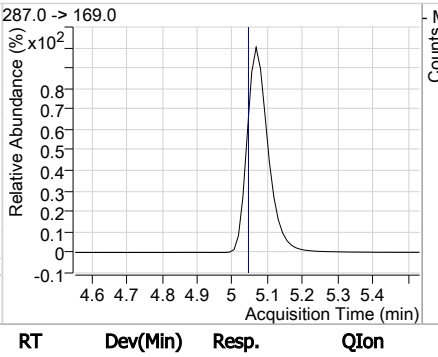


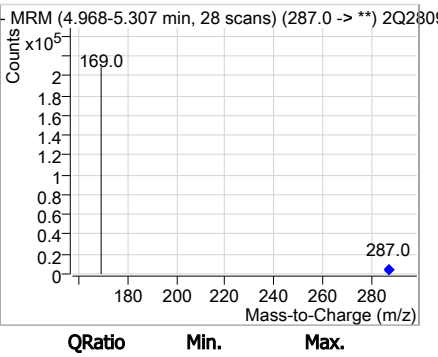




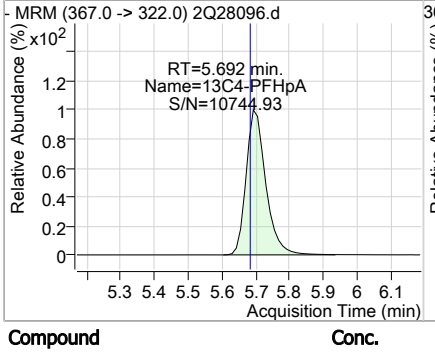
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	92.99	5.07	0.02	155003				

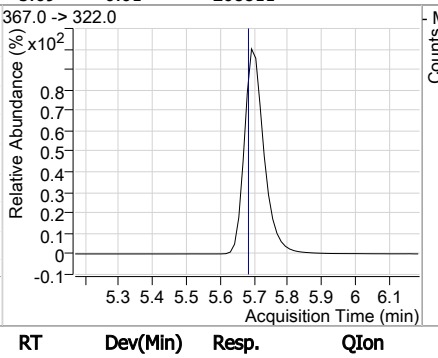


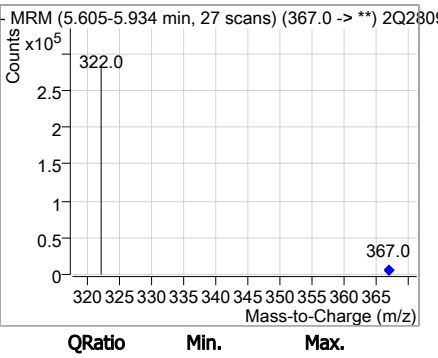




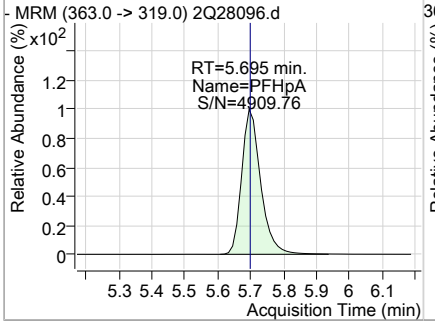
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.20	5.69	0.01	208811				

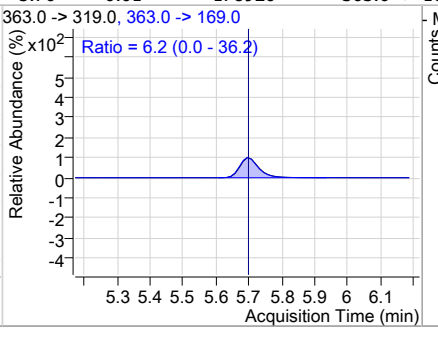


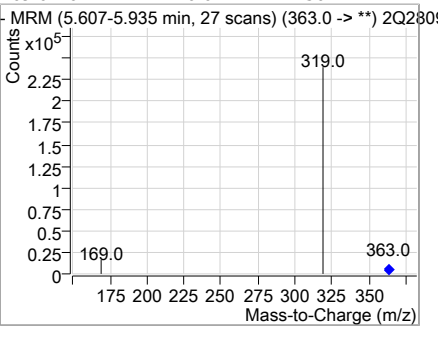




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.10	5.70	0.01	178926	363.0 -> 169.0	6.2	0.0	36.2

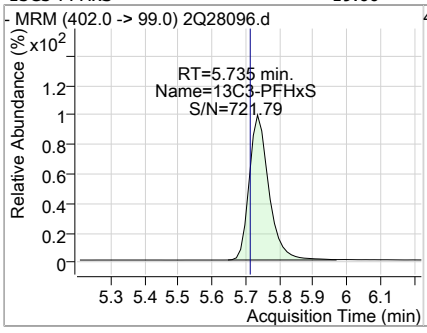


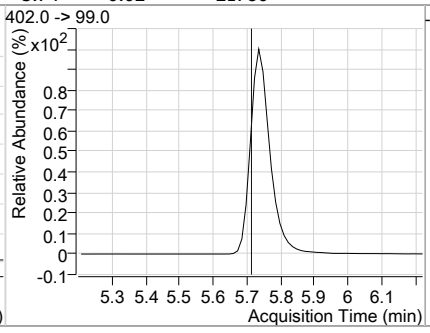


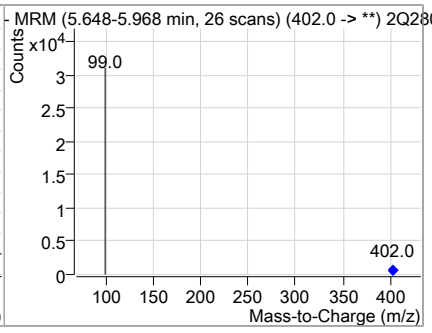


Perfluorinated Compounds by LC/MS/MS

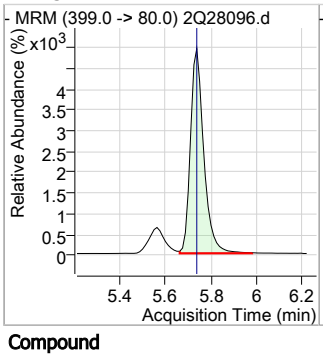
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.60	5.74	0.02	21786				

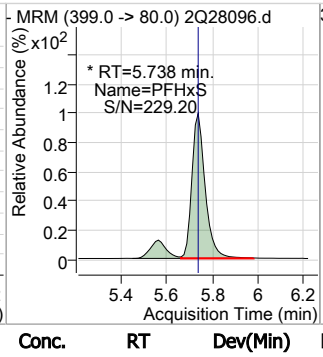


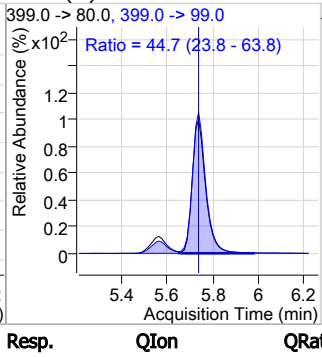


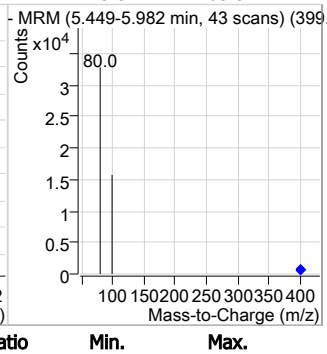


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.23	5.74	0.02	23183 (m)	399.0 -> 99.0	44.7	23.8	63.8

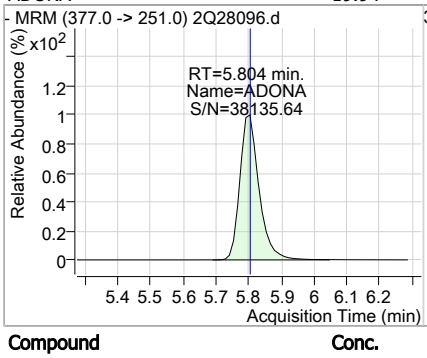


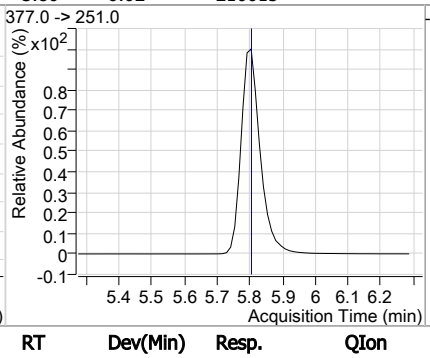


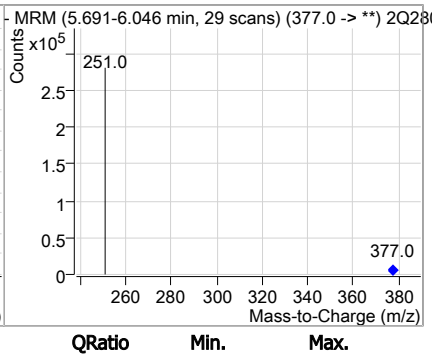




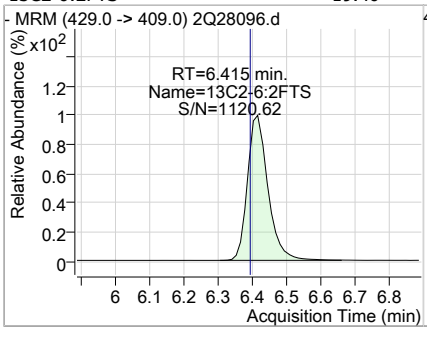
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.94	5.80	0.02	210615				

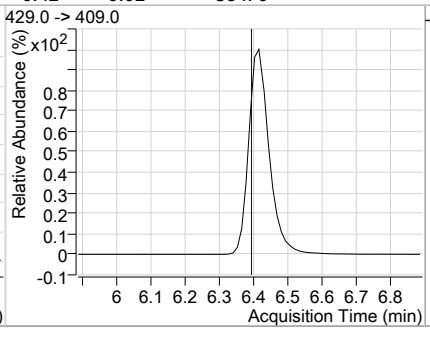


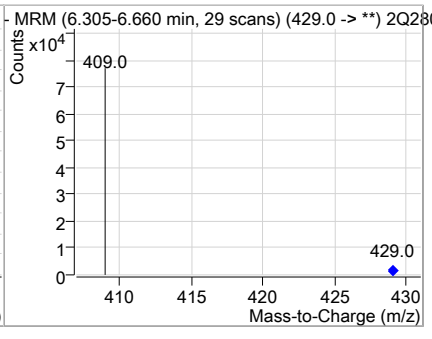




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.40	6.42	0.02	58470				



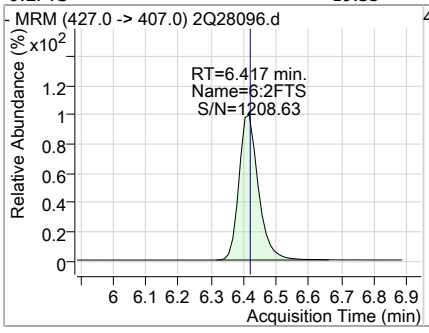


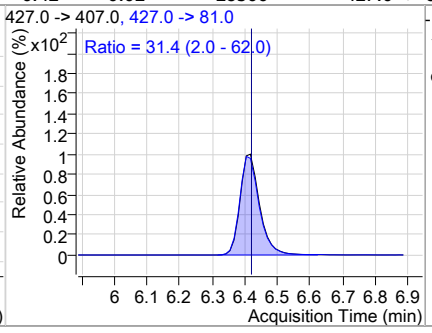


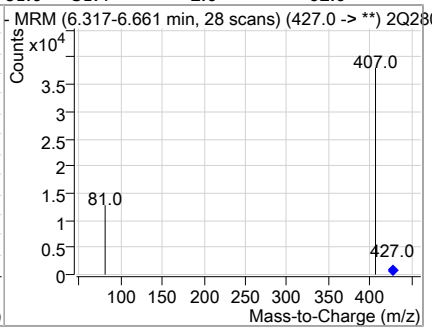
7.6.15

Perfluorinated Compounds by LC/MS/MS

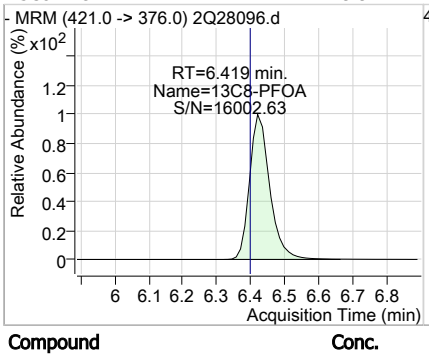
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.35	6.42	0.02	28566	427.0 -> 81.0	31.4	2.0	62.0

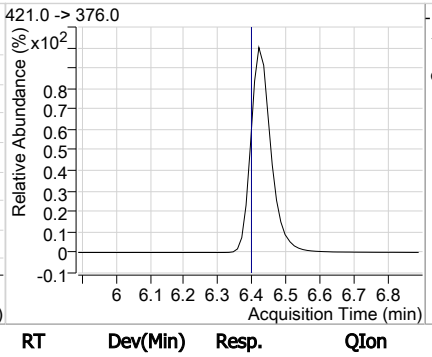


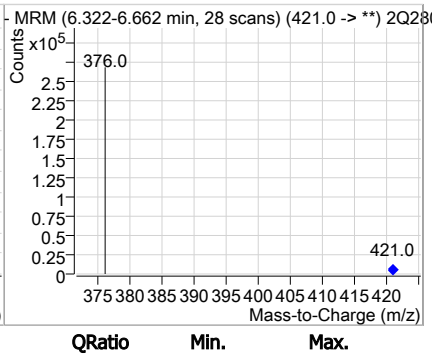




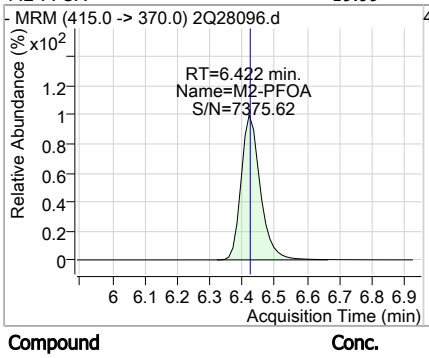
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.97	6.42	0.02	205785				

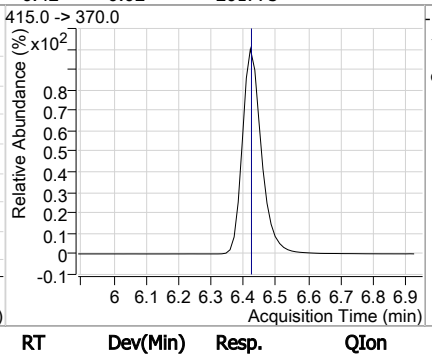


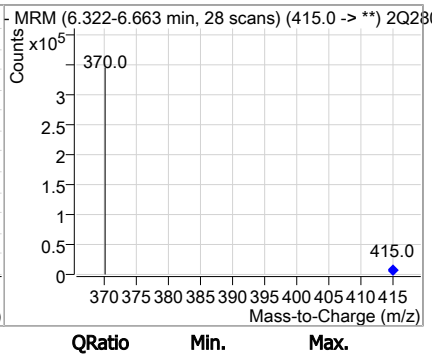




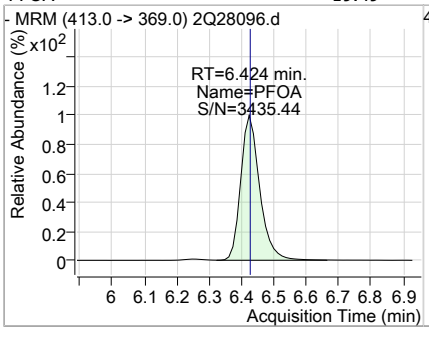
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.42	0.02	261775				

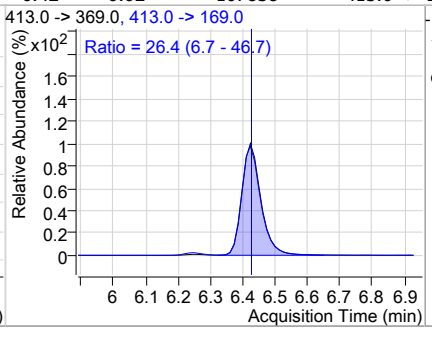


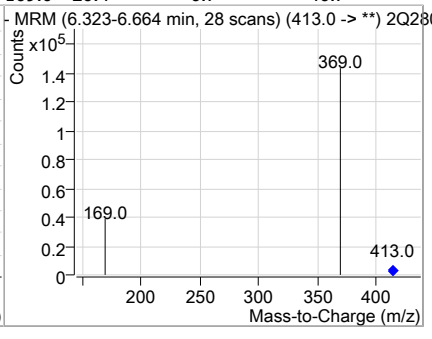




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.49	6.42	0.02	107838	413.0 -> 169.0	26.4	6.7	46.7



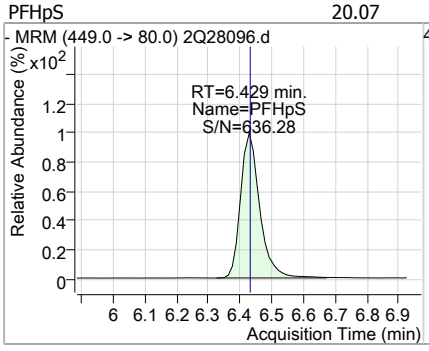


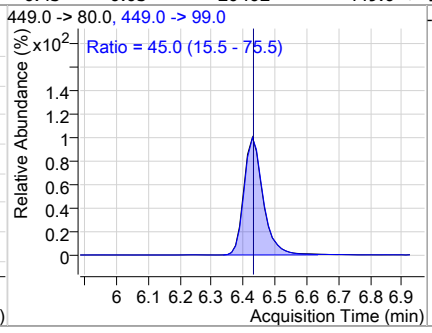


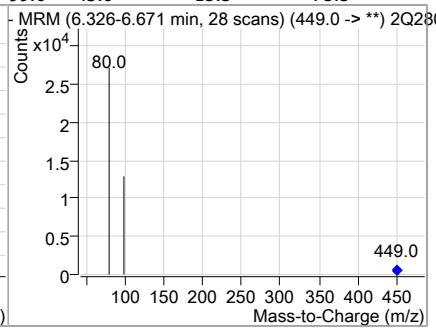
7.6.15

Perfluorinated Compounds by LC/MS/MS

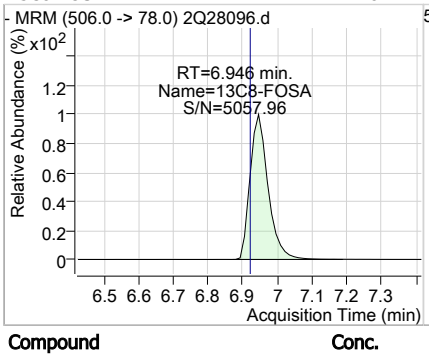
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.07	6.43	0.03	20462	449.0 -> 99.0	45.0	15.5	75.5

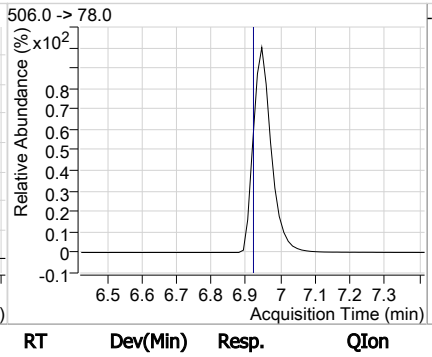


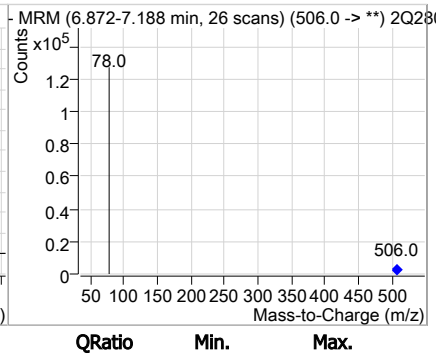




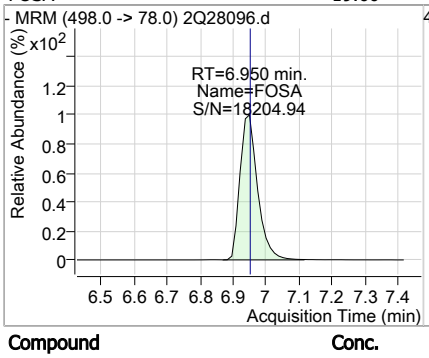
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.78	6.95	0.03	97697				

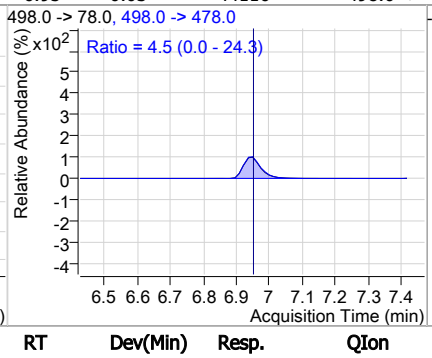


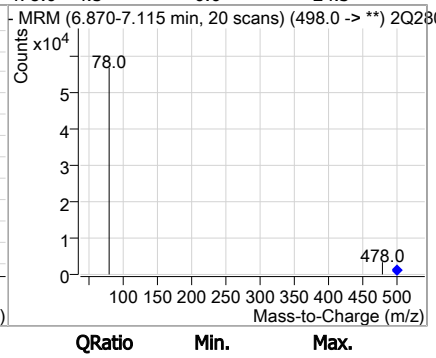




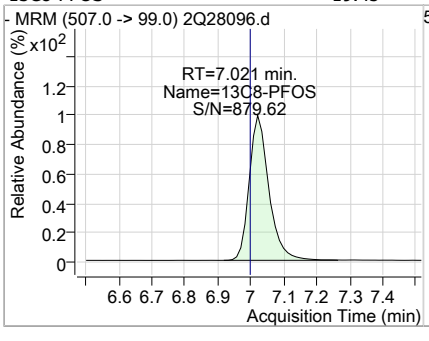
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.60	6.95	0.03	44116	498.0 -> 478.0	4.5	0.0	24.3

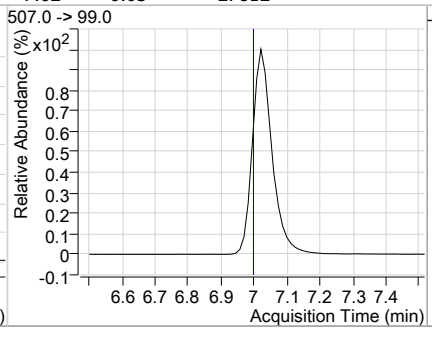


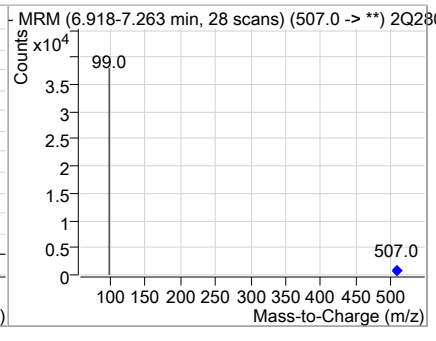




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.45	7.02	0.03	27812				



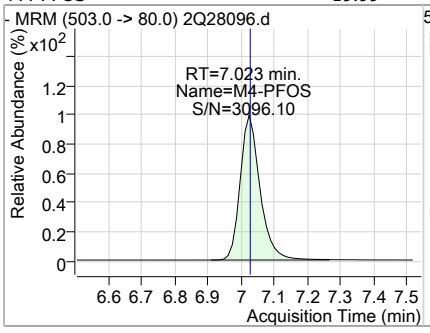


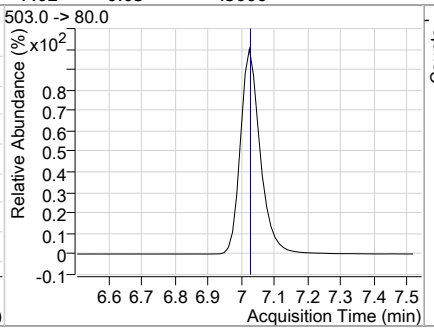


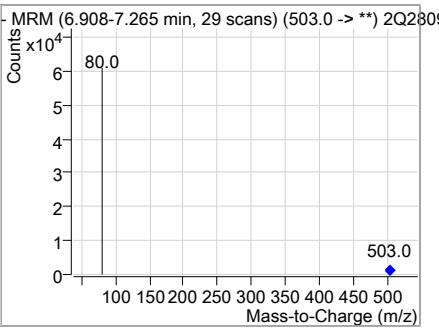
7.6.15

Perfluorinated Compounds by LC/MS/MS

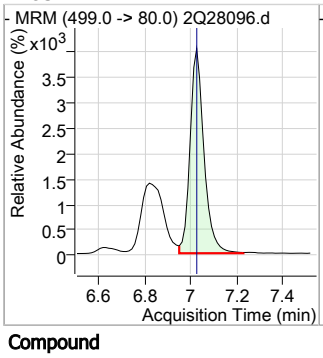
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.99	7.02	0.03	45066				

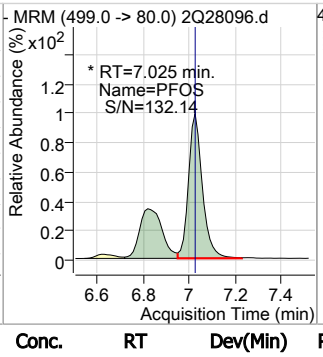


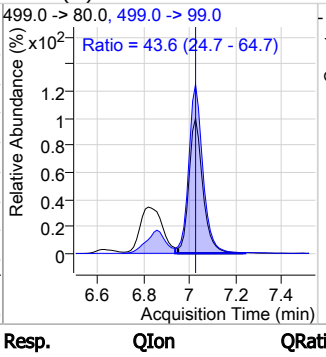


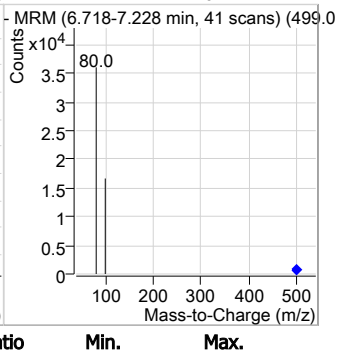


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.14	7.02	0.03	26122 (m)	499.0 -> 99.0	43.6	24.7	64.7

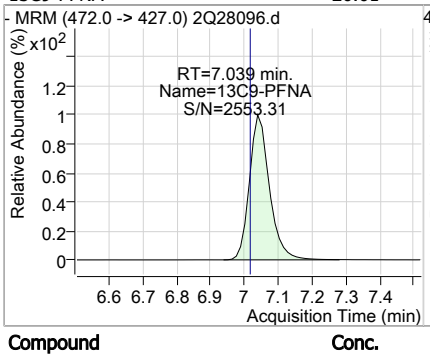


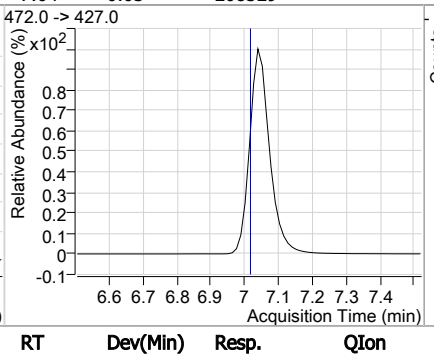


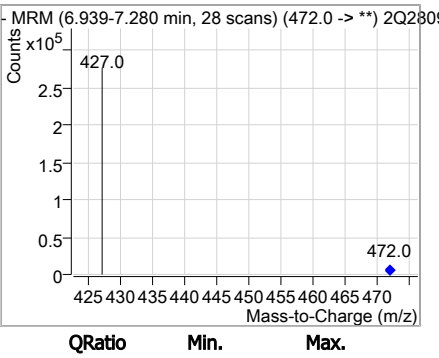




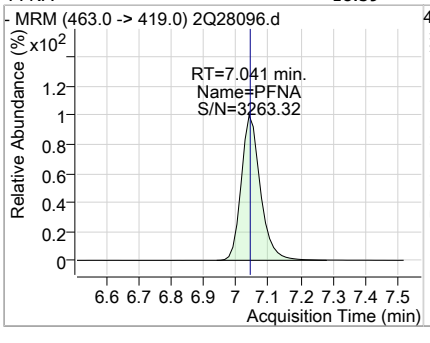
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.01	7.04	0.03	208529				

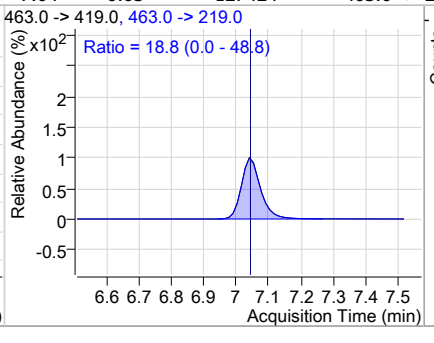


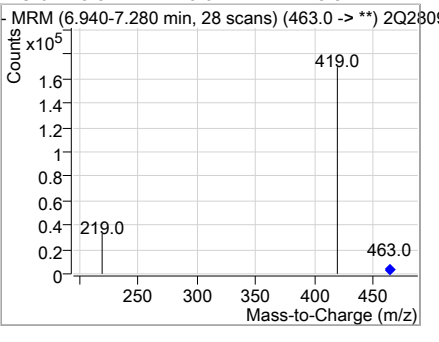




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.59	7.04	0.03	127424	463.0 -> 219.0	18.8	0.0	48.8



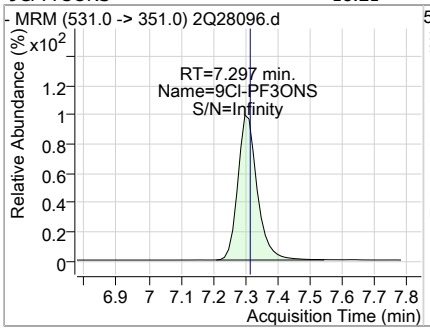


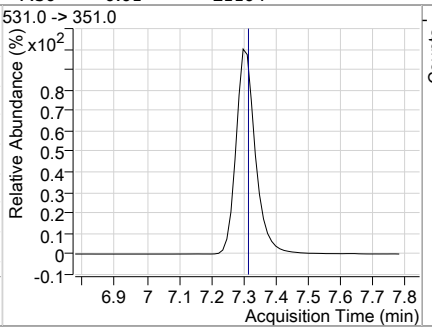


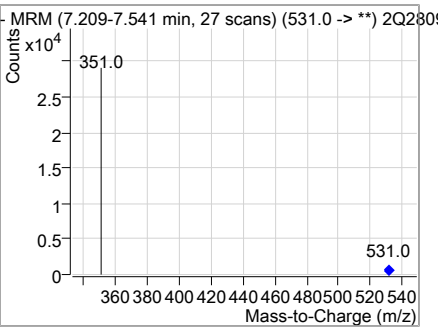
7.6.15

Perfluorinated Compounds by LC/MS/MS

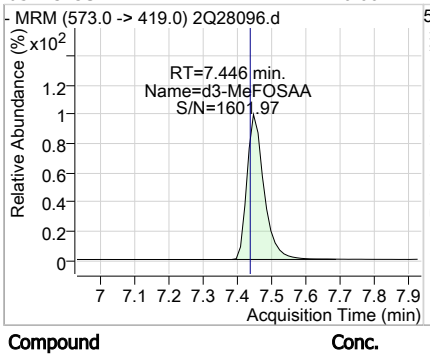
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.21	7.30	0.01	21104				

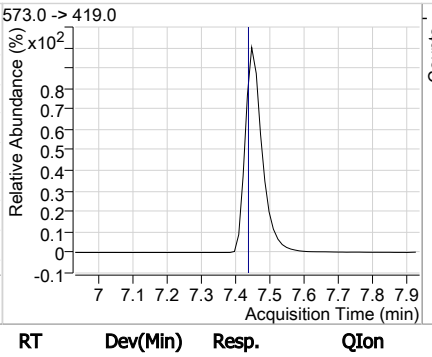


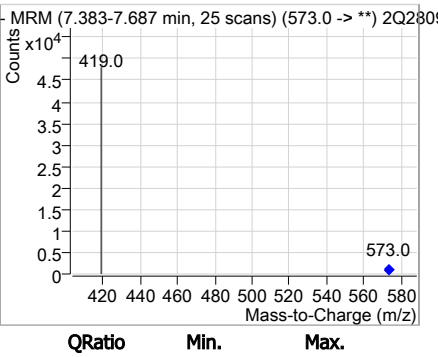




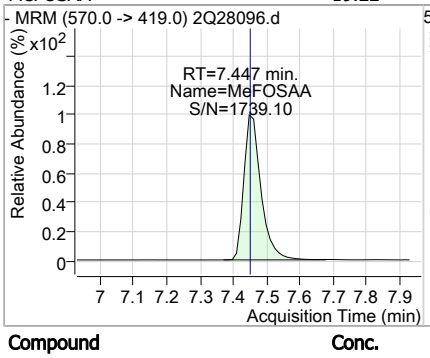
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.06	7.45	0.01	35168				

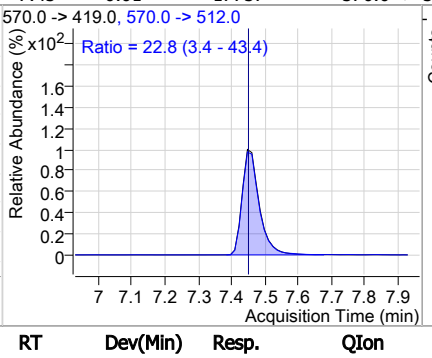


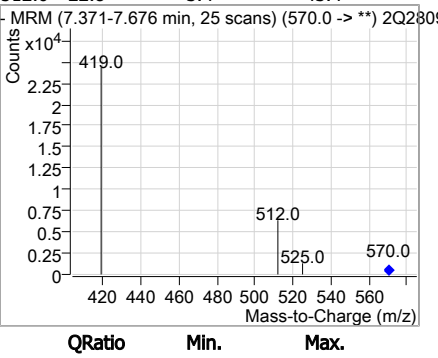




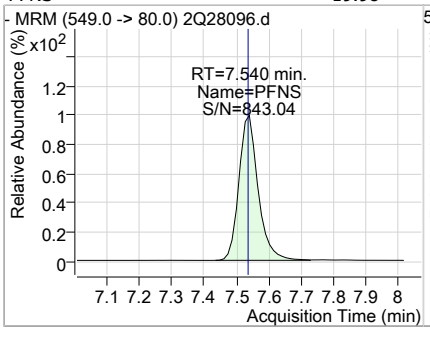
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.22	7.45	0.01	17757	570.0 -> 512.0	22.8	3.4	43.4

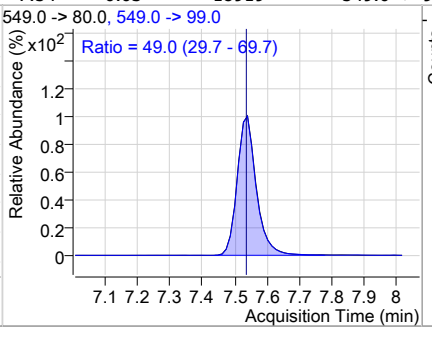


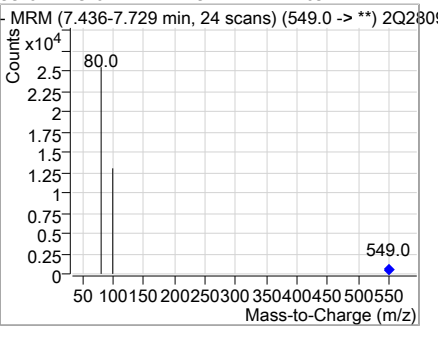




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	19.98	7.54	0.03	18919	549.0 -> 99.0	49.0	29.7	69.7



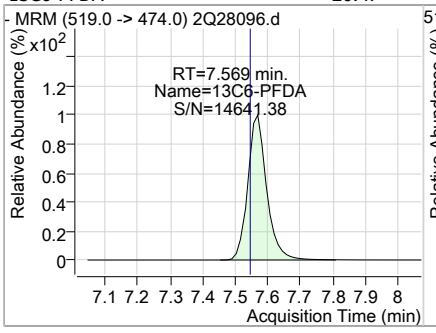


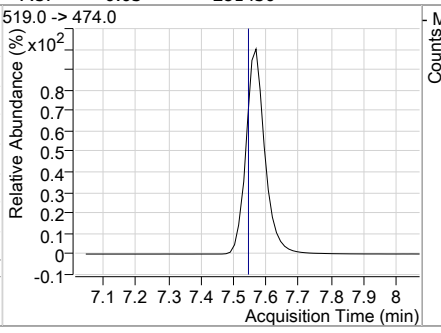


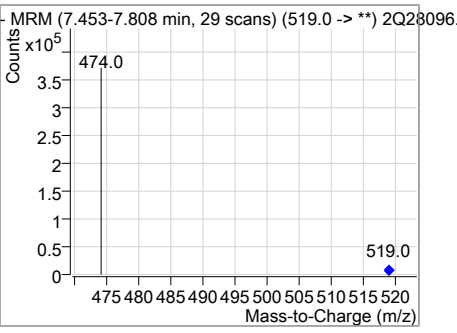
7.6.15

Perfluorinated Compounds by LC/MS/MS

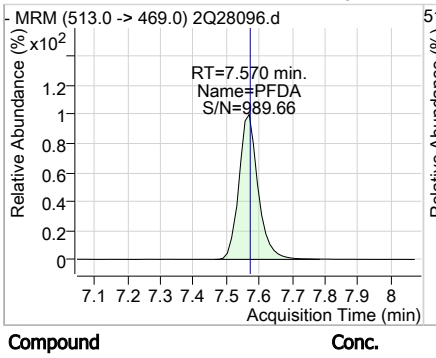
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.47	7.57	0.03	281430				

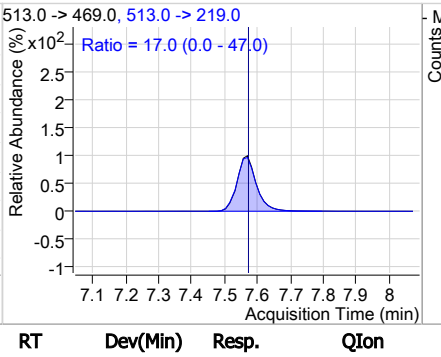


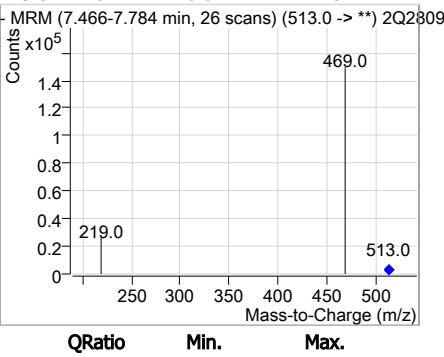




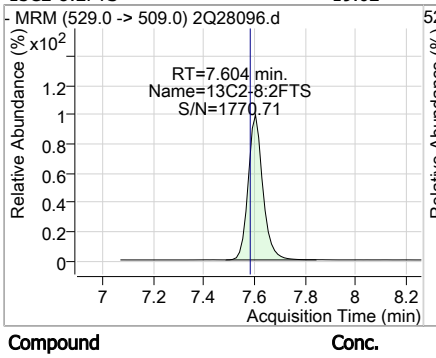
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.47	7.57	0.03	112725	513.0 -> 219.0	17.0	0.0	47.0

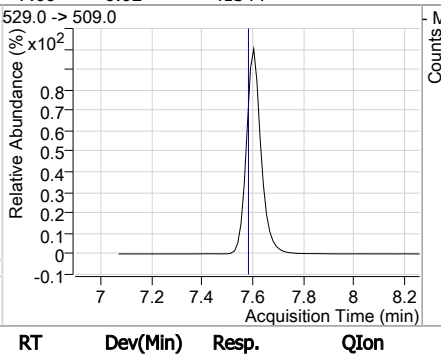


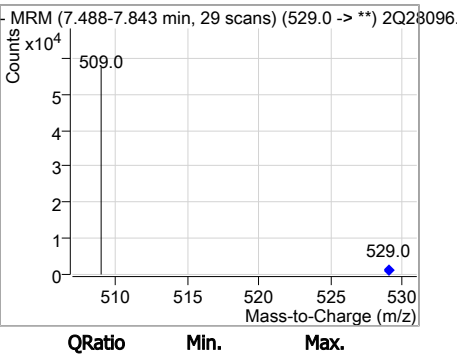




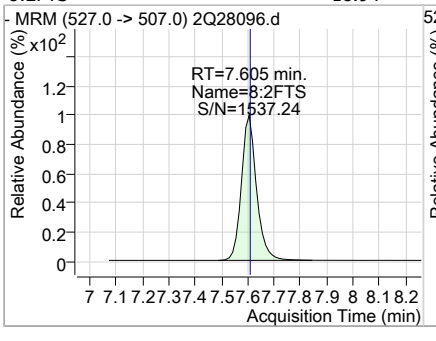
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.02	7.60	0.02	41344				

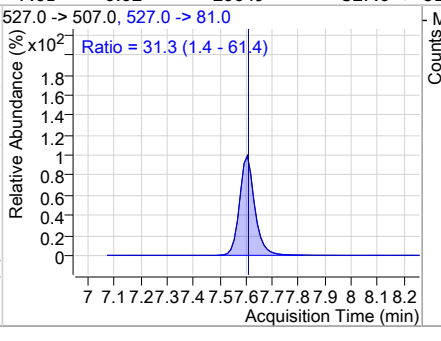


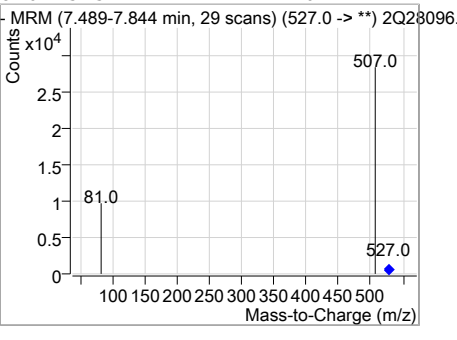




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	18.94	7.61	0.02	20649	527.0 -> 81.0	31.3	1.4	61.4



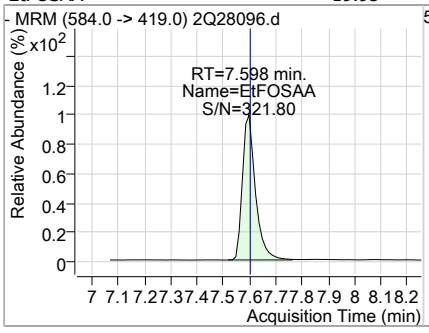


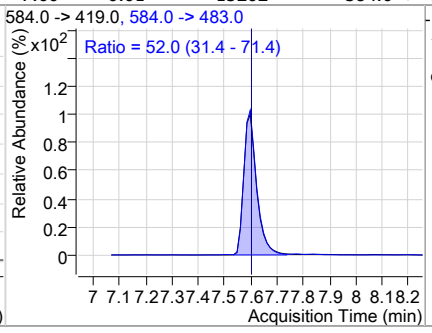


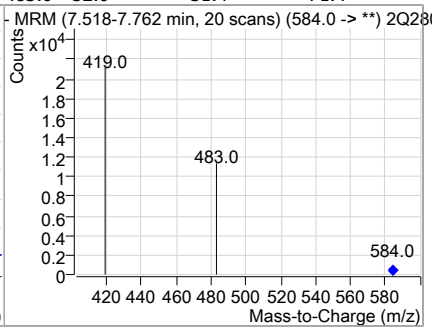
7.6.15

Perfluorinated Compounds by LC/MS/MS

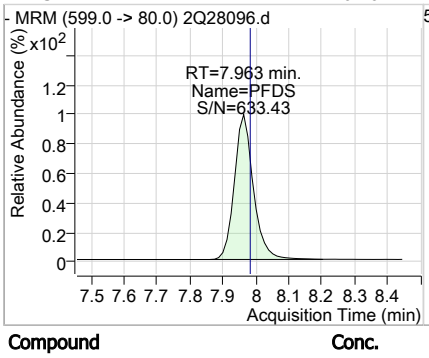
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.95	7.60	0.01	15262	584.0 -> 483.0	52.0	31.4	71.4

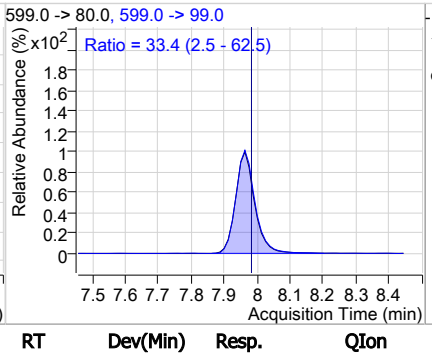


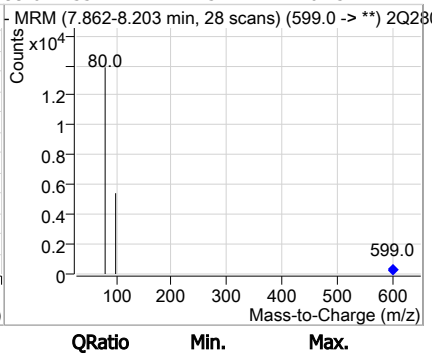




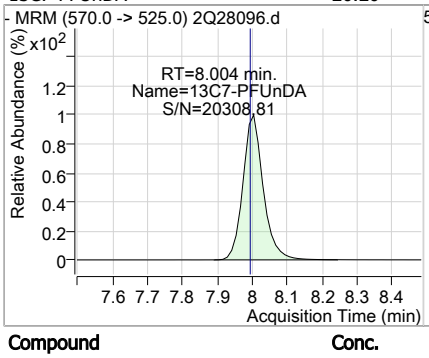
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	20.46	7.96	0.01	9612	599.0 -> 99.0	33.4	2.5	62.5

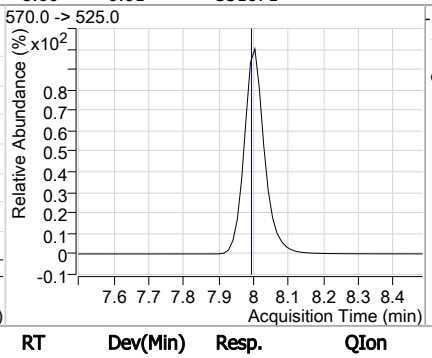


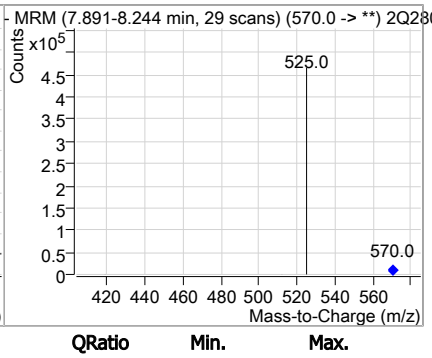




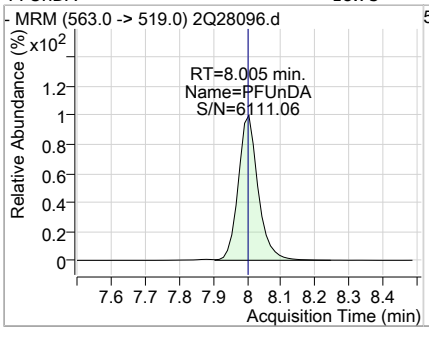
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.20	8.00	0.01	351071				

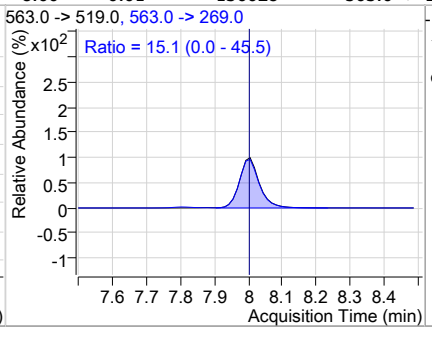


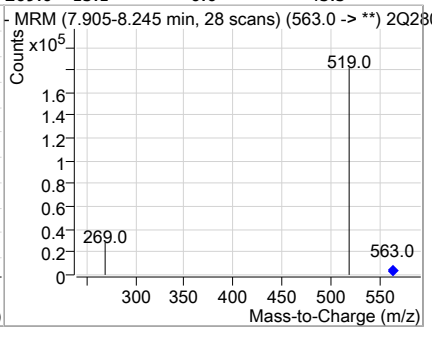




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	18.75	8.00	0.01	136628	563.0 -> 269.0	15.1	0.0	45.5



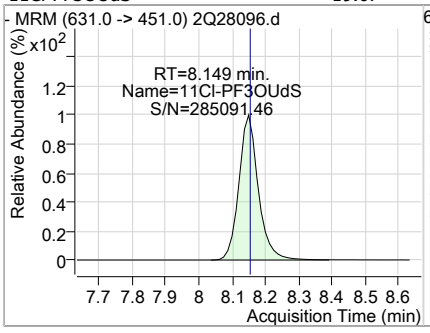


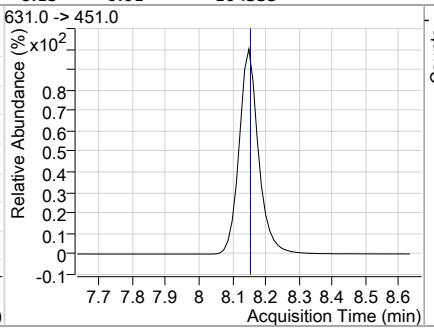


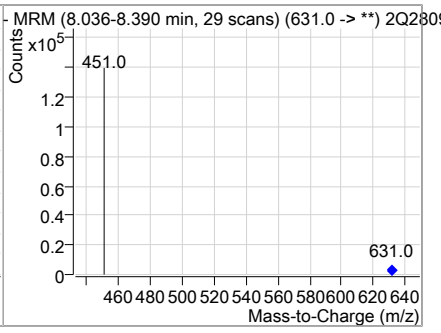
7.6.15

Perfluorinated Compounds by LC/MS/MS

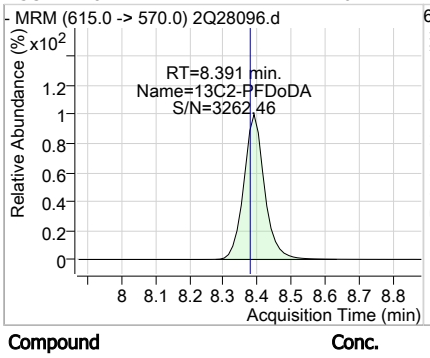
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.07	8.15	0.01	104335				

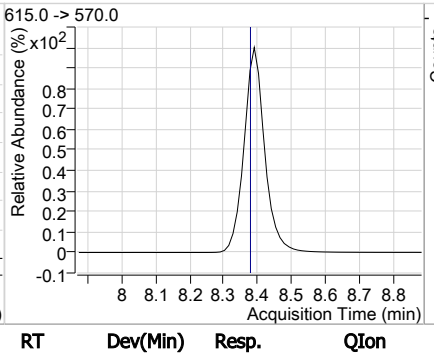


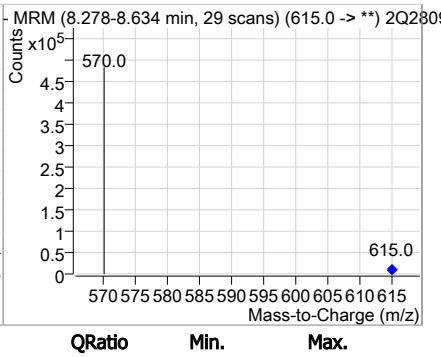




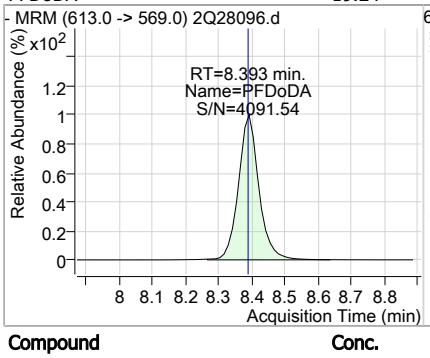
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.21	8.39	0.01	363259				

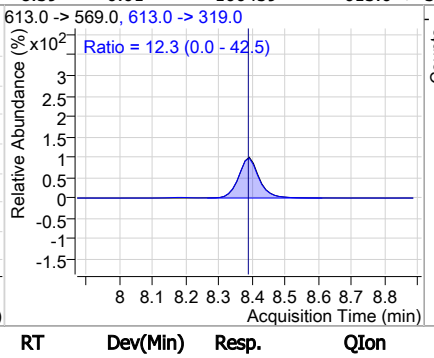


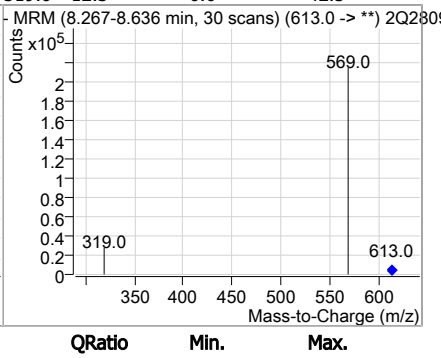




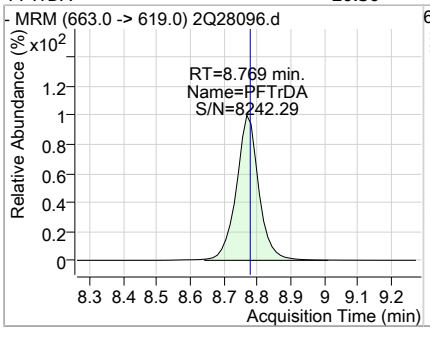
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.24	8.39	0.01	160459	613.0 -> 319.0	12.3	0.0	42.5

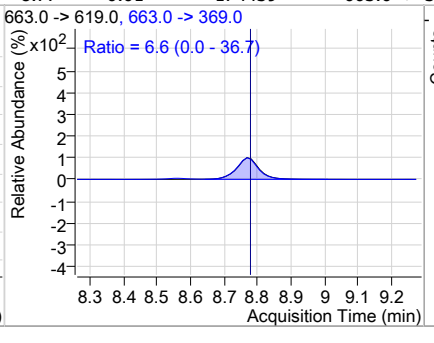


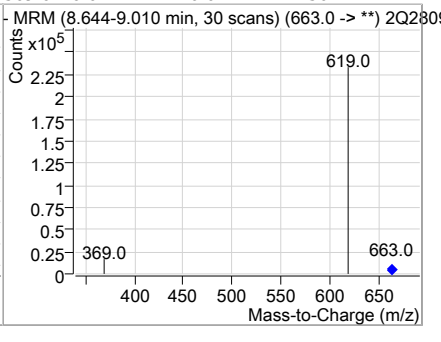




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.36	8.77	0.01	174439	663.0 -> 369.0	6.6	0.0	36.7



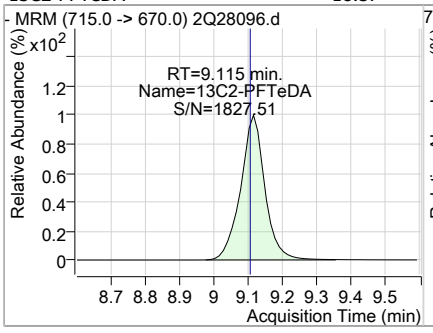


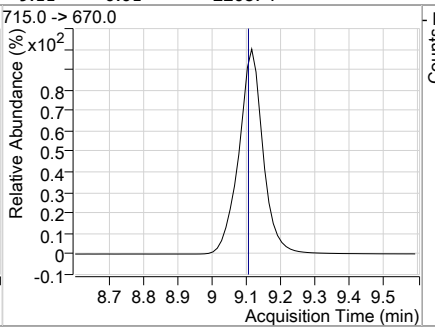


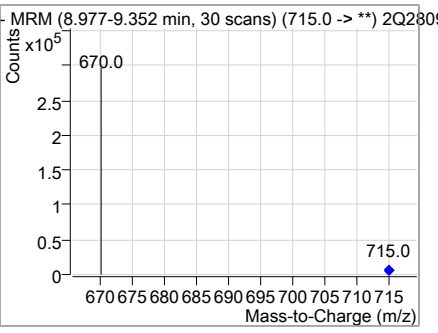
7.6.15

Perfluorinated Compounds by LC/MS/MS

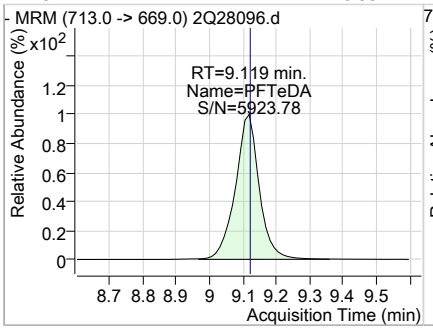
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.57	9.11	0.01	220874				

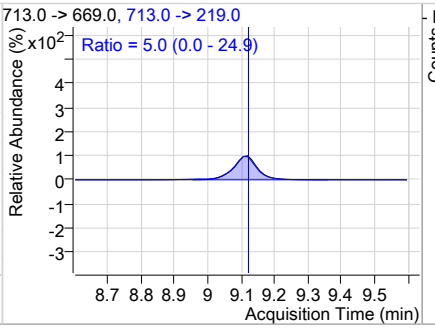


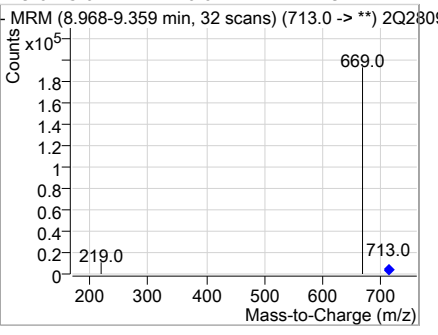




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.99	9.12	0.01	144154	713.0 -> 219.0	5.0	0.0	24.9







7.6.15

Manual Integration Approval Summary

Sample Number: S2Q448-CC445
Lab FileID: 2Q28096.D
Injection Time: 03/25/19 15:20
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/26/19 13:30 Natasha Gumtie
Supervisor approved: 03/26/19 16:10 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.03	Split peak

Cal Report: 2Q28106.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/26/19 16:10

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28106.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 5:46:25 PM
Sample Name : CC445-20
Vial : Vial 7
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q448.batch.bin
Sample Information : op74164,S2Q448,250,,,1.0,1,water

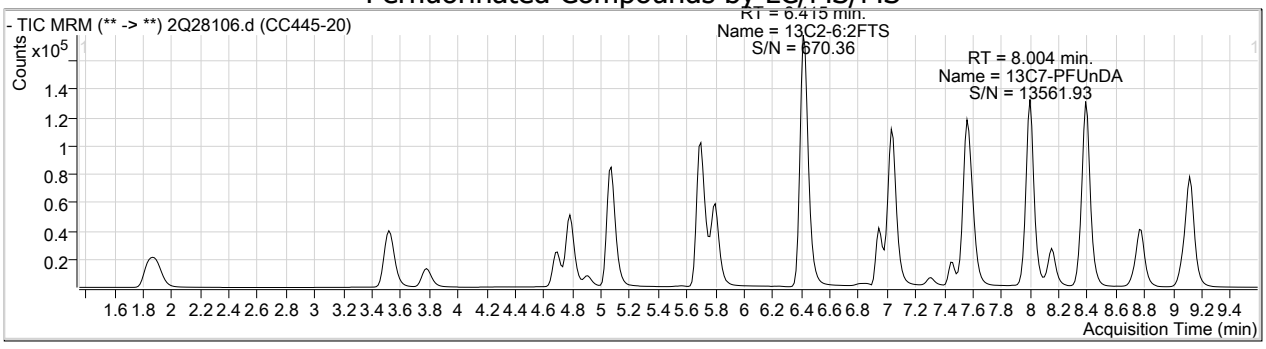
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.422	415.0 -> 370.0	269346	20.00	µg/L	0.025
13C4-PFOS	7.023	503.0 -> 80.0	45481	20.00	µg/L	0.026
M4-PFBA	1.865	217.0 -> 172.0	138574	20.00	µg/L	0.013
M5-PFPeA	3.524	268.0 -> 223.0	110867	20.00	µg/L	0.025
M5-PFHxA	4.788	318.0 -> 273.0	153689	20.00	µg/L	0.025
M4-PFHpA	5.705	367.0 -> 322.0	212941	20.00	µg/L	0.025
M8-PFOA	6.419	421.0 -> 376.0	211780	20.00	µg/L	0.025
M9-PFNA	7.039	472.0 -> 427.0	214806	20.00	µg/L	0.025
M6-PFDA	7.569	519.0 -> 474.0	287535	20.00	µg/L	0.027
M7-PFUnDA	8.004	570.0 -> 525.0	358519	20.00	µg/L	0.013
M2-PFDoDA	8.391	615.0 -> 570.0	373687	20.00	µg/L	0.014
M2-PFTeDA	9.115	715.0 -> 670.0	227187	20.00	µg/L	0.013
M8-FOSA	6.946	506.0 -> 78.0	99980	20.00	µg/L	0.027
M3-PFBS	3.780	302.0 -> 99.0	20801	20.00	µg/L	0.025
M3-PFHxS	5.735	402.0 -> 99.0	22146	20.00	µg/L	0.025
M8-PFOS	7.021	507.0 -> 99.0	28121	20.00	µg/L	0.026
M2-4:2FTS	4.696	329.0 -> 309.0	58936	20.00	µg/L	0.025
M2-6:2FTS	6.415	429.0 -> 409.0	59542	20.00	µg/L	0.025
M2-8:2FTS	7.604	529.0 -> 509.0	42218	20.00	µg/L	0.025
M3-MeFOSAA	7.446	573.0 -> 419.0	36336	20.00	µg/L	0.013
M3-HFPO-DA	5.068	287.0 -> 169.0	148516	100.00	µg/L	0.025
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	58730	20.63	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C2-6:2FTS	6.415	429.0 -> 409.0	59766	19.83	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C2-8:2FTS	7.604	529.0 -> 509.0	42229	19.43	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C2-PFDoDA	8.391	615.0 -> 570.0	373229	20.76	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
13C2-PFTeDA	9.115	715.0 -> 670.0	226927	19.08	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C3-PFBS	3.780	302.0 -> 99.0	20697	20.17	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C3-PFHxS	5.735	402.0 -> 99.0	22144	19.92	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C4-PFBA	1.865	217.0 -> 172.0	137854	21.09	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C4-PFHpA	5.705	367.0 -> 322.0	212658	20.57	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C5-PFHxA	4.788	318.0 -> 273.0	153509	20.71	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C5-PFPeA	3.524	268.0 -> 223.0	111065	20.19	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C6-PFDA	7.569	519.0 -> 474.0	287377	20.91	µg/L	0.027

Perfluorinated Compounds by LC/MS/MS

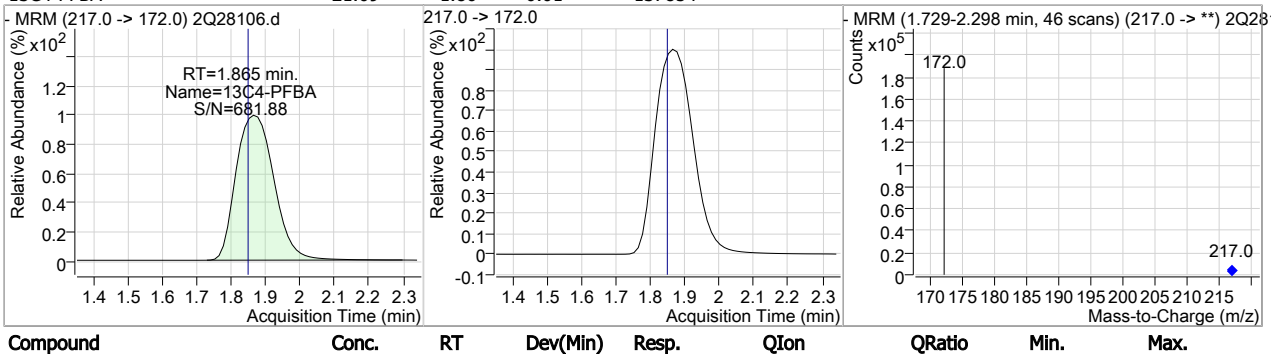
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.5%		
13C7-PFUnDA	8.004	570.0 -> 525.0	358260	20.61 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C8-FOSA	6.946	506.0 -> 78.0	99894	22.27 µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.4%		
13C8-PFOA	6.419	421.0 -> 376.0	211411	20.51 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C8-PFOS	7.021	507.0 -> 99.0	28083	19.64 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C9-PFNA	7.039	472.0 -> 427.0	214628	20.59 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
d3-MeFOSAA	7.446	573.0 -> 419.0	36411	20.76 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.8%		
M2-PFOA	6.422	415.0 -> 370.0	269533	20.00 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	45465	19.98 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	148516	89.09 µg/L		0.025
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 89.1%		
Target Compounds						**QValue**
4:2FTS	4.686	327.0 -> 307.0	33188	19.15 µg/L		100
6:2FTS	6.417	427.0 -> 407.0	28946	19.27 µg/L		100
8:2FTS	7.605	527.0 -> 507.0	21722	19.50 µg/L		98
EtFOSAA	7.598	584.0 -> 419.0	15905	20.11 µg/L		99
FOSA	6.950	498.0 -> 78.0	45630	19.80 µg/L		100
MeFOSAA	7.461	570.0 -> 419.0	18405	19.27 µg/L		100
PFBA	1.873	213.0 -> 169.0	25152	18.57 µg/L		100
PFBS	3.783	299.0 -> 80.0	32650	19.37 µg/L		99
PFDA	7.570	513.0 -> 469.0	115166	18.47 µg/L		99
PFDoDA	8.393	613.0 -> 569.0	164242	19.16 µg/L		100
PFDS	7.963	599.0 -> 80.0	9988	20.98 µg/L		99
PFHpA	5.695	363.0 -> 319.0	184106	19.28 µg/L		100
PFHpS	6.429	449.0 -> 80.0	20533	19.83 µg/L		99
PFHxA	4.790	313.0 -> 269.0	48820	18.22 µg/L		98
PFHxS	5.738	399.0 -> 80.0	23984	19.59 µg/L	m	100
PFNA	7.041	463.0 -> 419.0	129574	18.36 µg/L		100
PFNS	7.540	549.0 -> 80.0	19796	20.63 µg/L		99
PFOA	6.424	413.0 -> 369.0	109407	19.23 µg/L		100
PFOS	7.025	499.0 -> 80.0	26706	19.30 µg/L	m	99
PFPeA	3.527	263.0 -> 219.0	96884	19.60 µg/L		100
PFPeS	4.908	349.0 -> 80.0	21125	19.58 µg/L		99
PFTeDA	9.119	713.0 -> 669.0	147720	18.96 µg/L		100
PFTrDA	8.769	663.0 -> 619.0	180308	20.51 µg/L		99
PFUnDA	8.005	563.0 -> 519.0	141720	19.06 µg/L		100
11Cl-PF3OUdS	8.149	631.0 -> 451.0	105939	18.84 µg/L		100
9Cl-PF3ONS	7.310	531.0 -> 351.0	21905	18.50 µg/L		100
ADONA	5.804	377.0 -> 251.0	216227	19.91 µg/L		100
HFPO-DA	5.072	329.0 -> 169.0	174664	100.95 µg/L		100

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

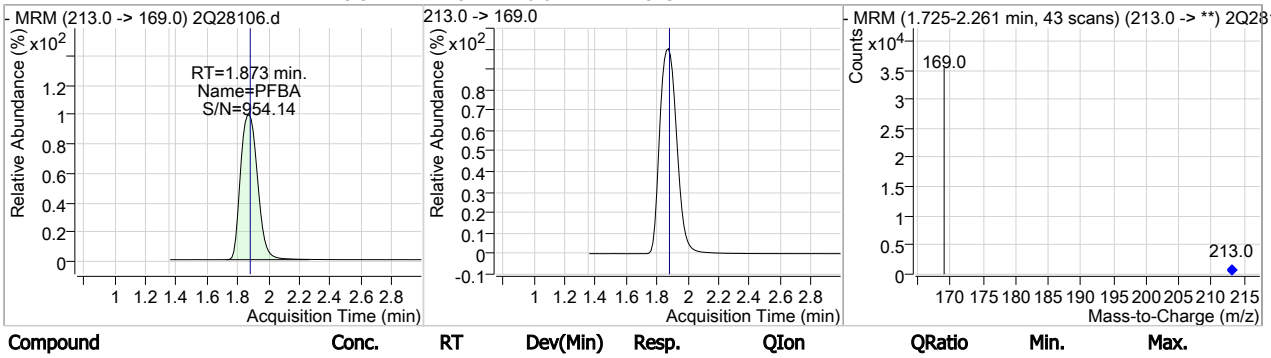
Perfluorinated Compounds by LC/MS/MS



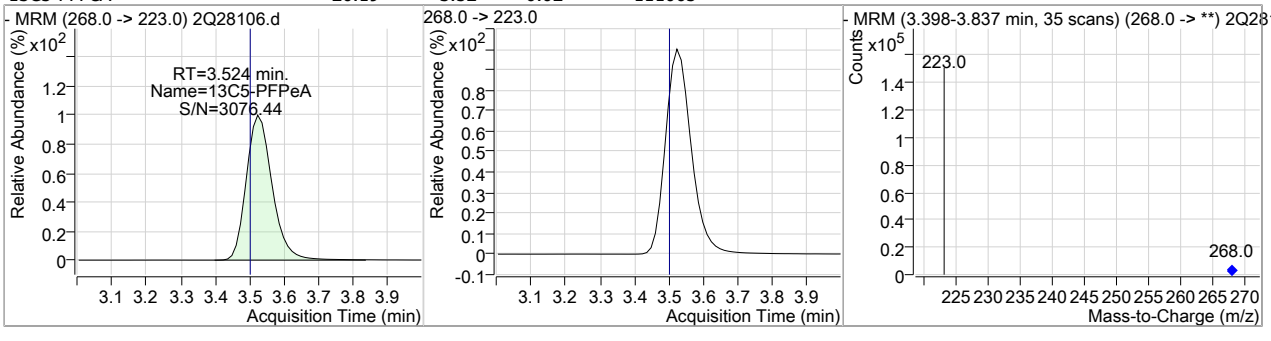
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.09	1.86	0.01	137854				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.57	1.87	0.01	25152				

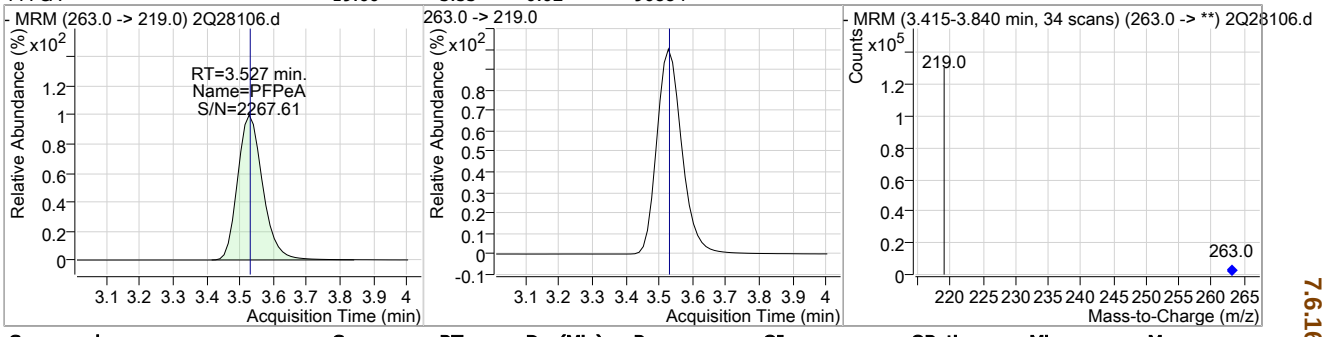


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.19	3.52	0.02	111065				

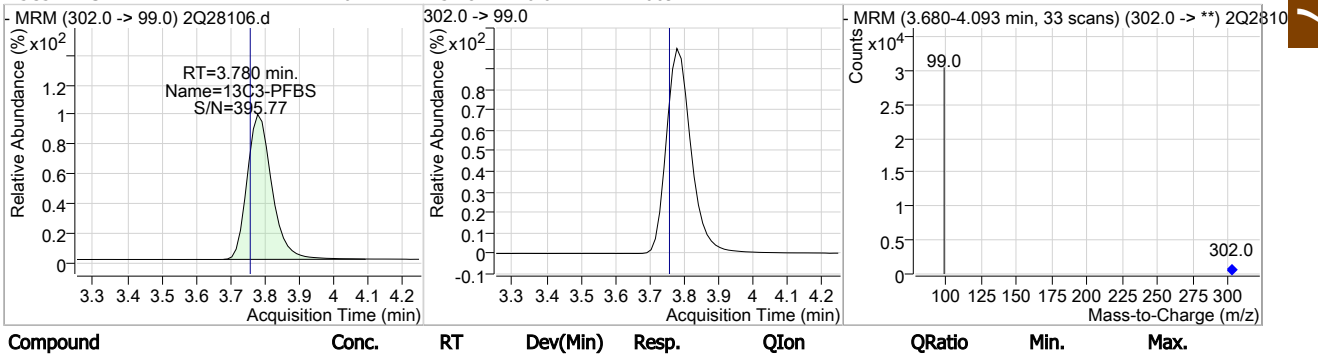


Perfluorinated Compounds by LC/MS/MS

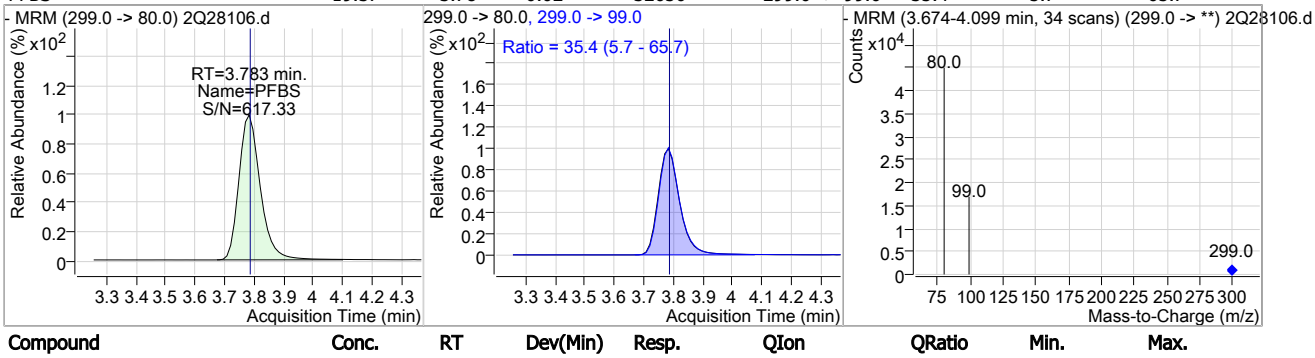
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.60	3.53	0.02	96884				



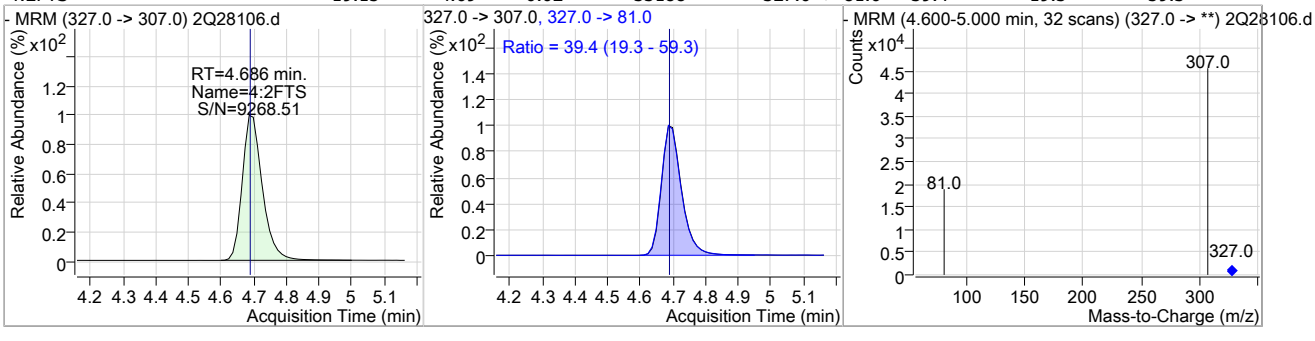
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.17	3.78	0.02	20697				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.37	3.78	0.02	32650	299.0 -> 99.0	35.4	5.7	65.7



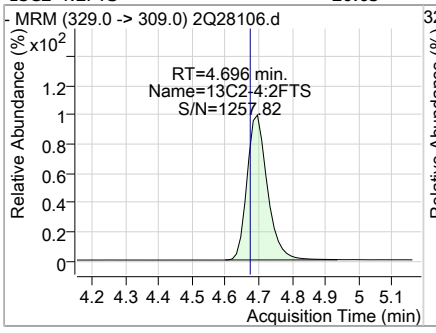
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.15	4.69	0.02	33188	327.0 -> 81.0	39.4	19.3	59.3

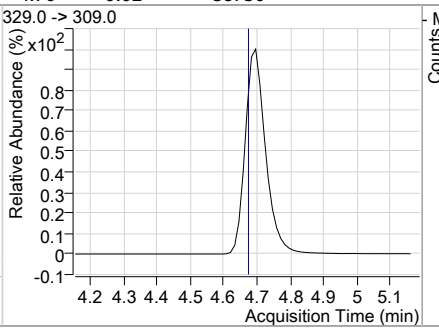


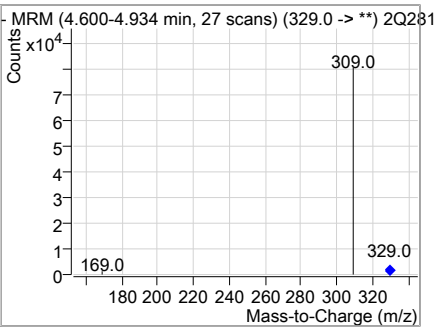
7.6.16

Perfluorinated Compounds by LC/MS/MS

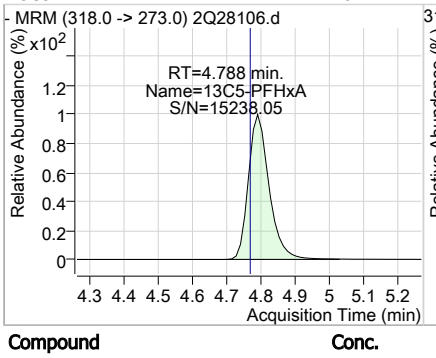
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.63	4.70	0.02	58730				

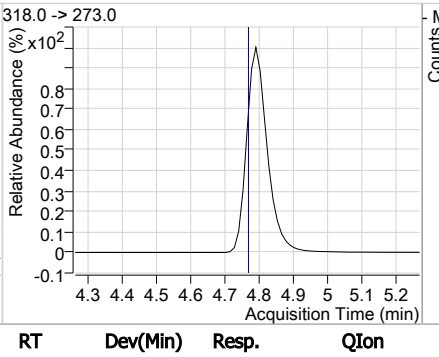


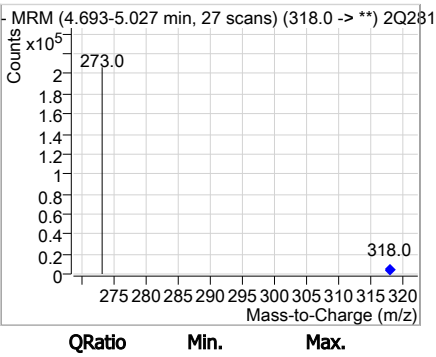




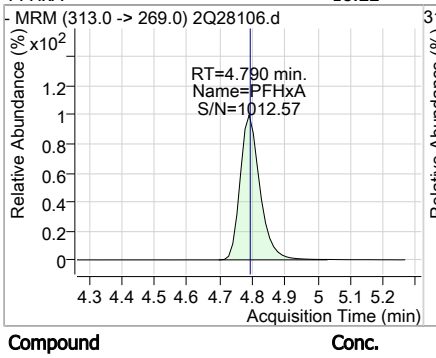
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.71	4.79	0.02	153509				

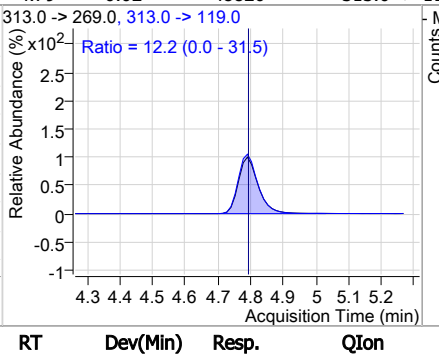


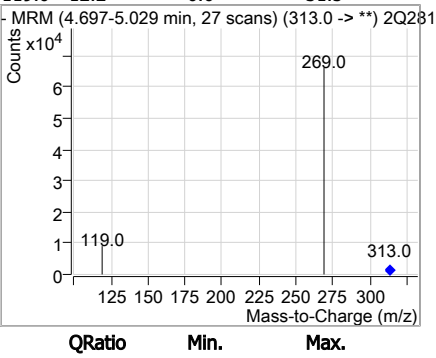




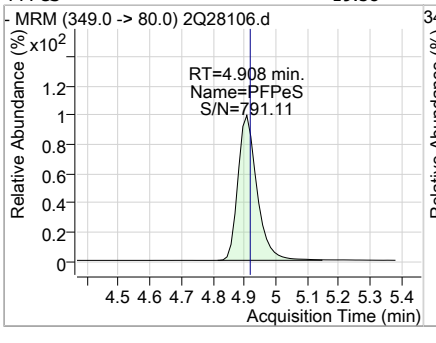
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.22	4.79	0.02	48820	313.0 -> 119.0	12.2	0.0	31.5

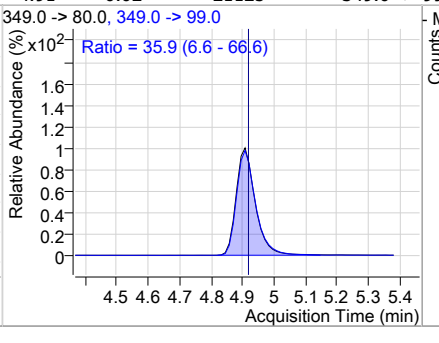


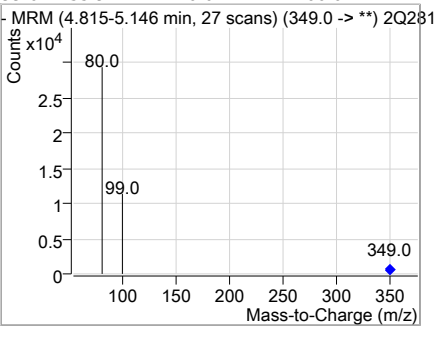




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.58	4.91	0.02	21125	349.0 -> 99.0	35.9	6.6	66.6



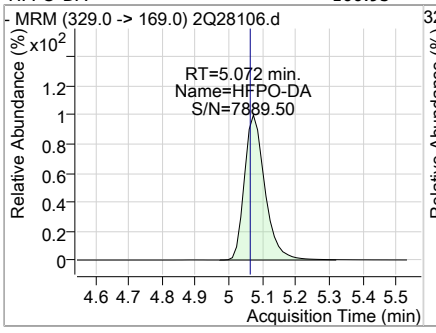


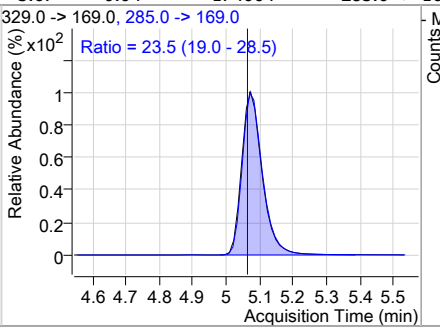


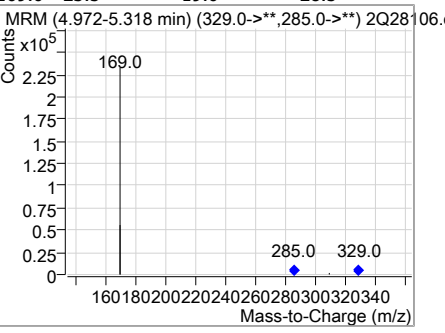
7.6.16

Perfluorinated Compounds by LC/MS/MS

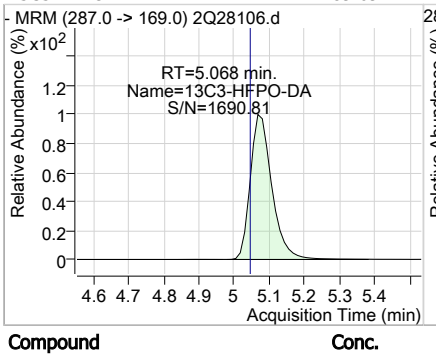
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	100.95	5.07	0.04	174664	285.0 -> 169.0	23.5	19.0	28.5

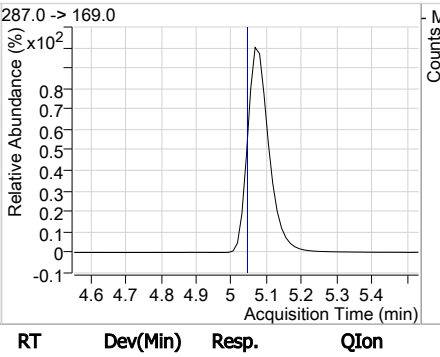


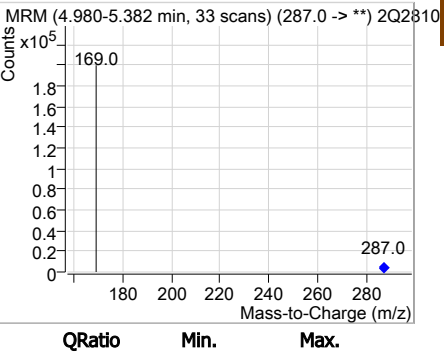




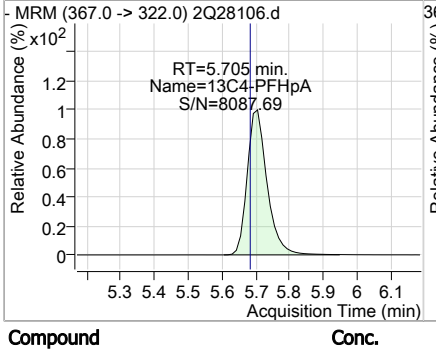
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	89.09	5.07	0.02	148516				

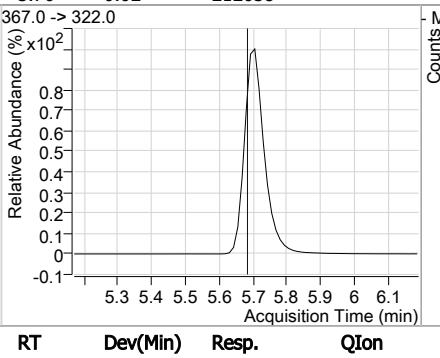


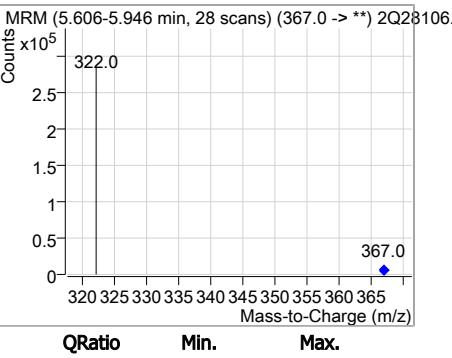




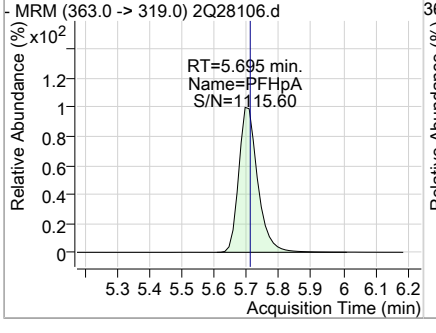
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.57	5.70	0.02	212658				

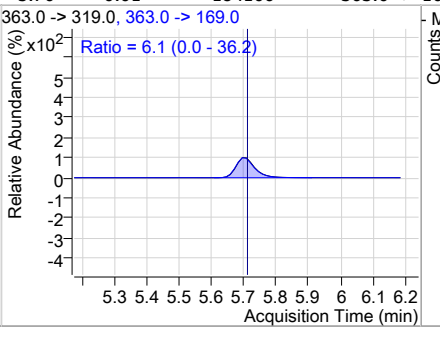


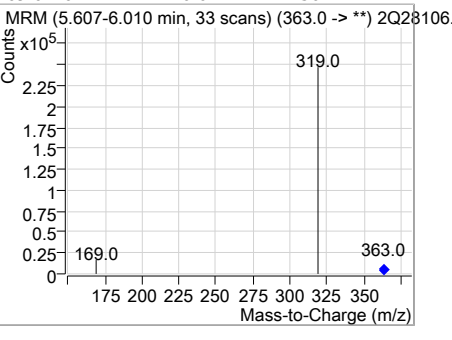




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.28	5.70	0.01	184106	363.0 -> 169.0	6.1	0.0	36.2

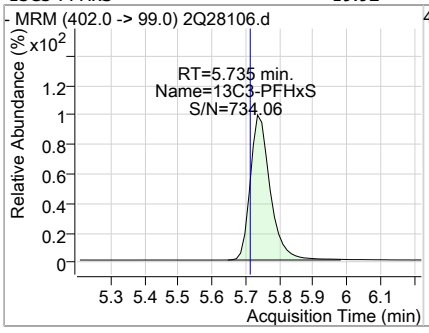


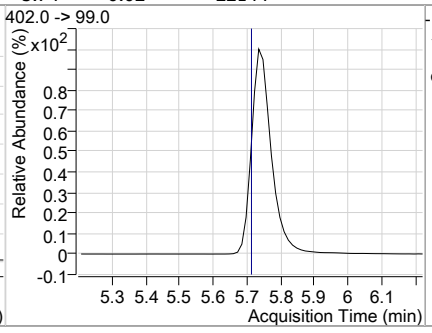


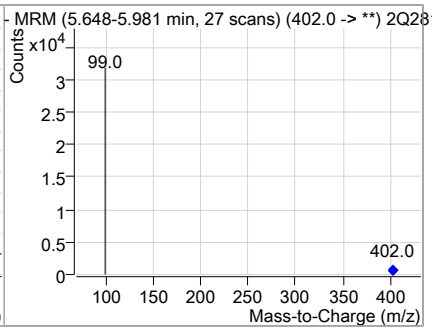


Perfluorinated Compounds by LC/MS/MS

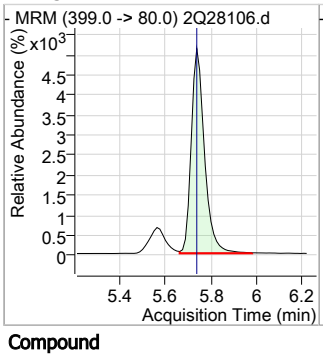
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.92	5.74	0.02	22144				

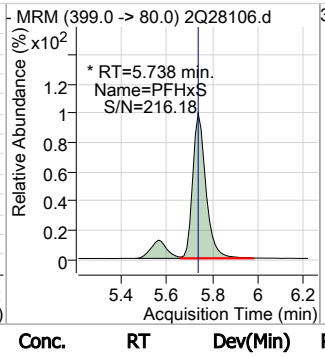


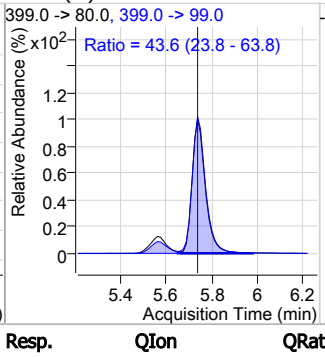


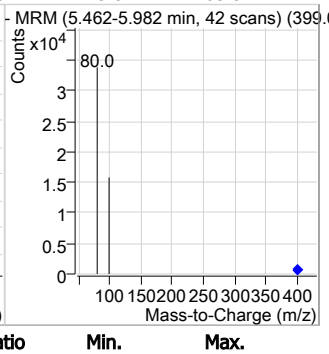


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.59	5.74	0.02	23984 (m)	399.0 -> 99.0	43.6	23.8	63.8

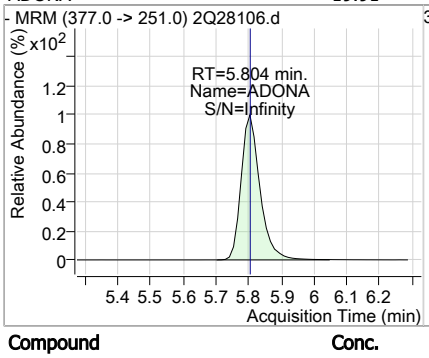


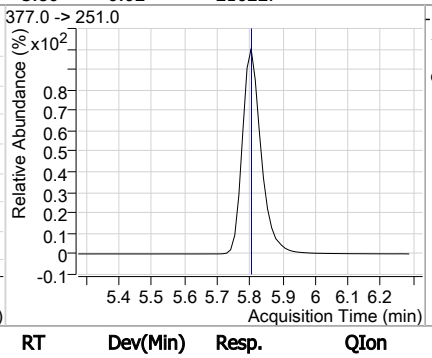


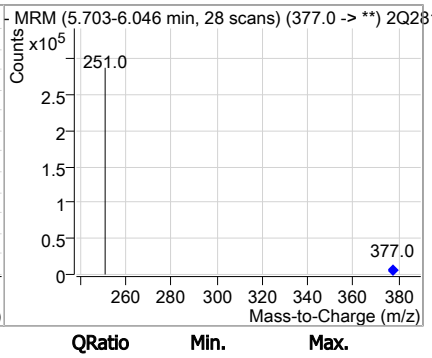




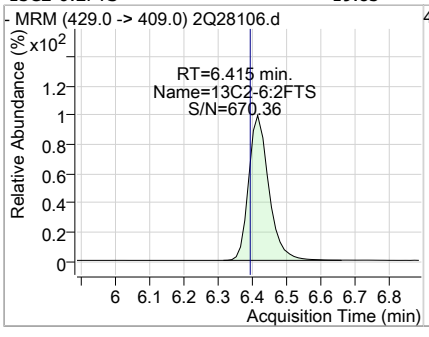
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.91	5.80	0.02	216227				

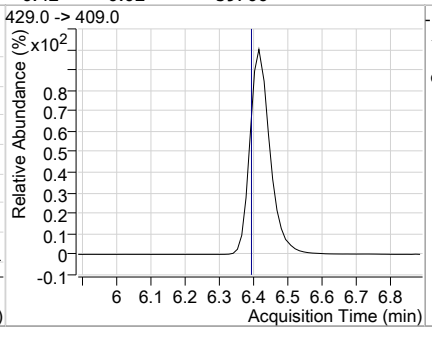


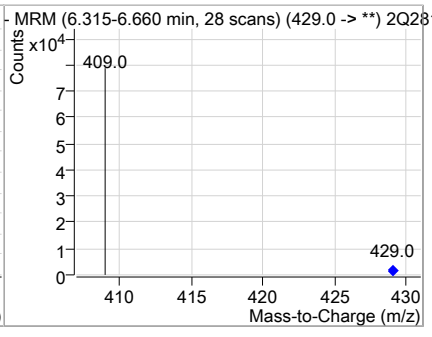




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.83	6.42	0.02	59766				



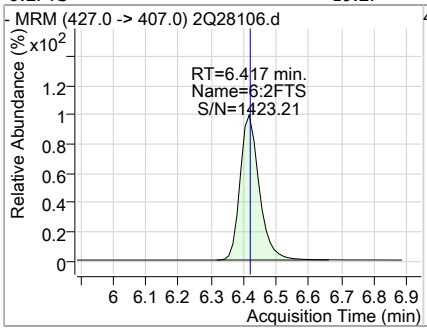


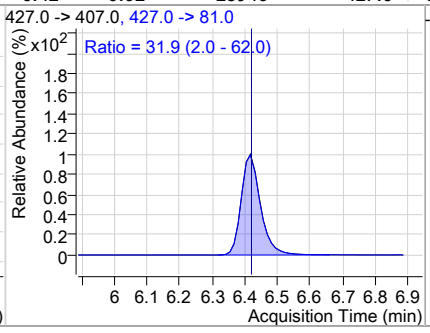


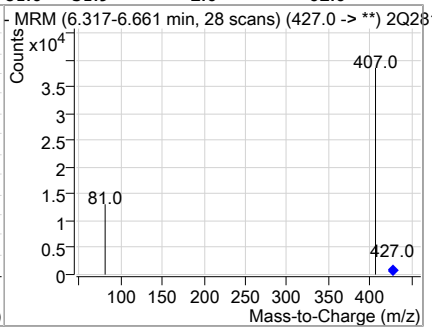
7.6.16

Perfluorinated Compounds by LC/MS/MS

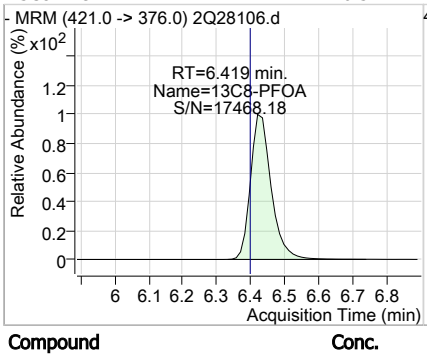
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.27	6.42	0.02	28946	427.0 -> 81.0	31.9	2.0	62.0

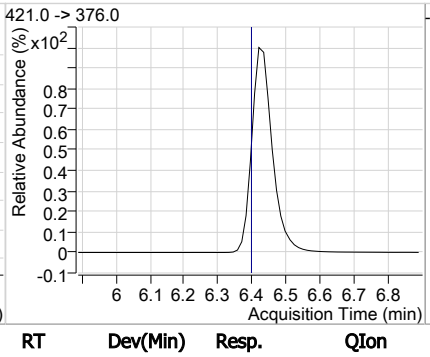


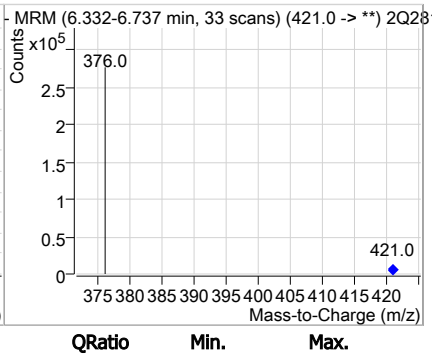




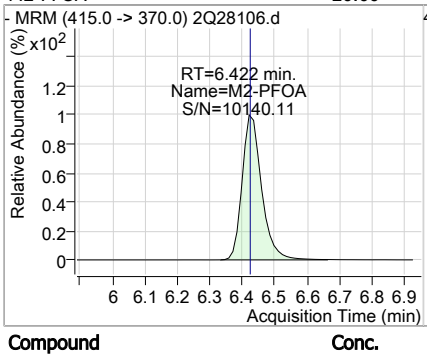
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.51	6.42	0.02	211411				

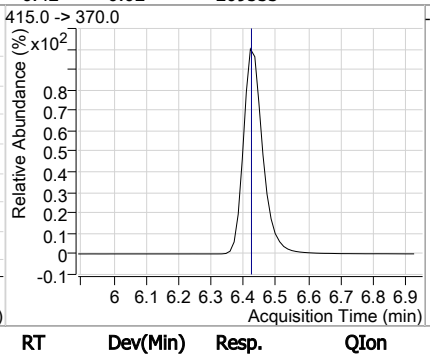


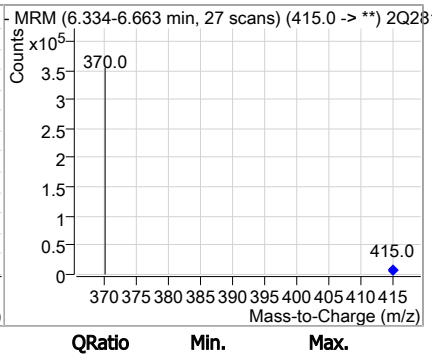




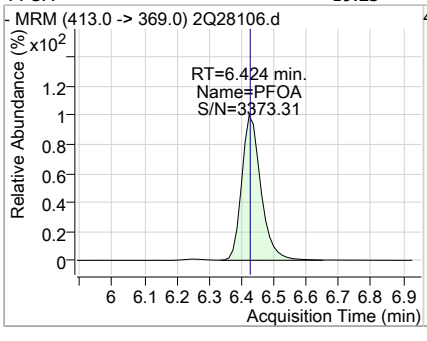
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.42	0.02	269533				

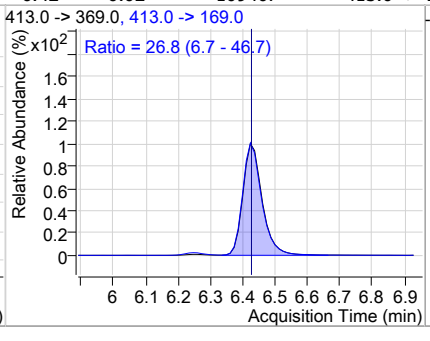


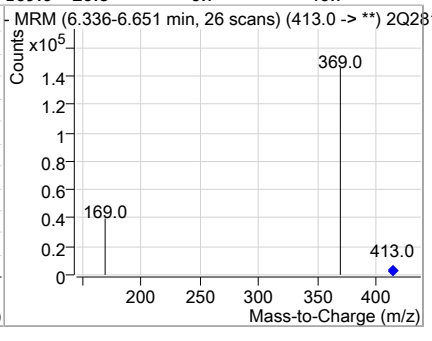




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.23	6.42	0.02	109407	413.0 -> 169.0	26.8	6.7	46.7



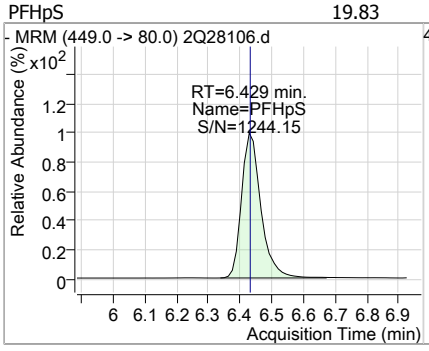


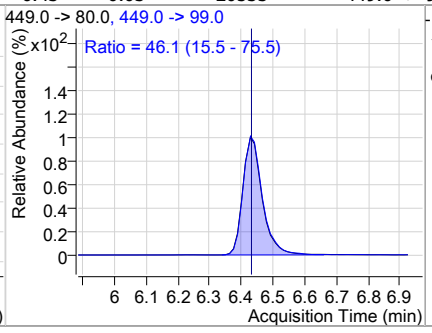


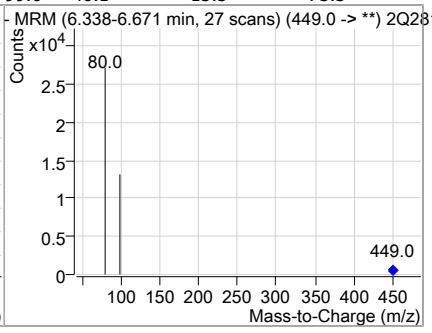
7.6.16

Perfluorinated Compounds by LC/MS/MS

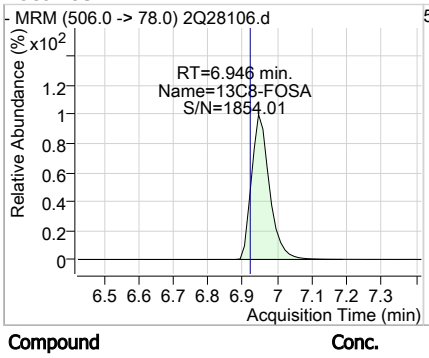
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.83	6.43	0.03	20533	449.0 -> 99.0	46.1	15.5	75.5

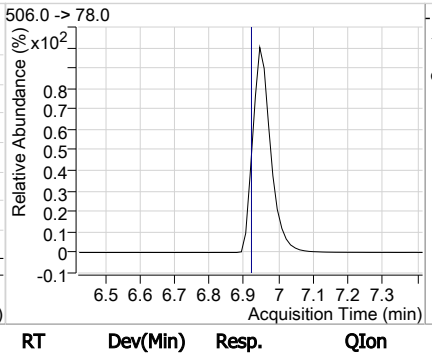


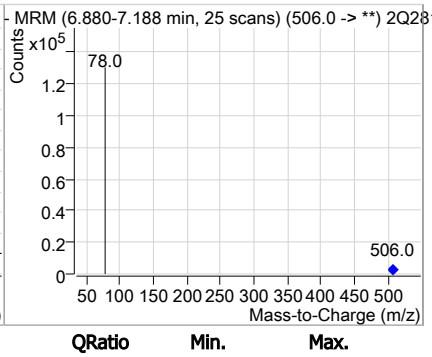




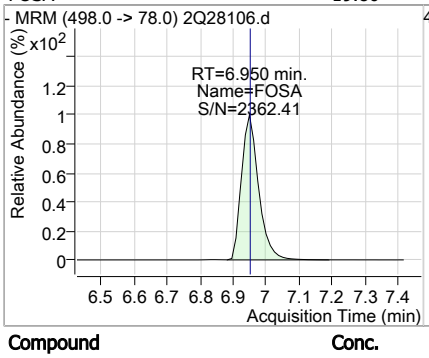
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	22.27	6.95	0.03	99894				

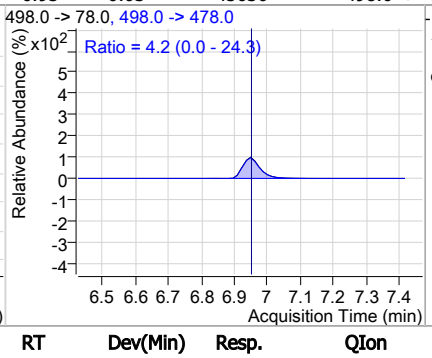


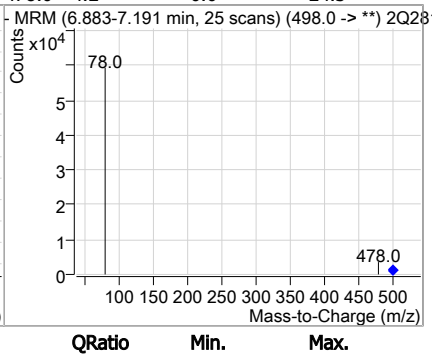




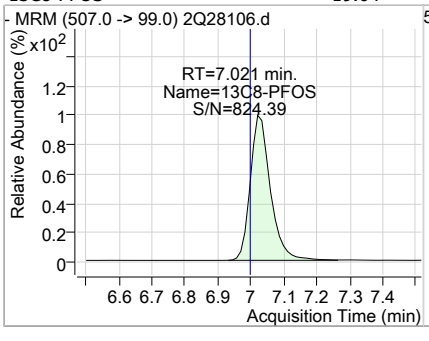
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.80	6.95	0.03	45630	498.0 -> 478.0	4.2	0.0	24.3

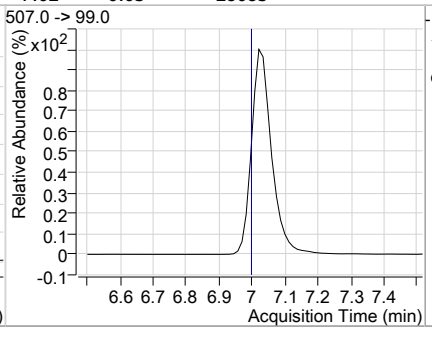


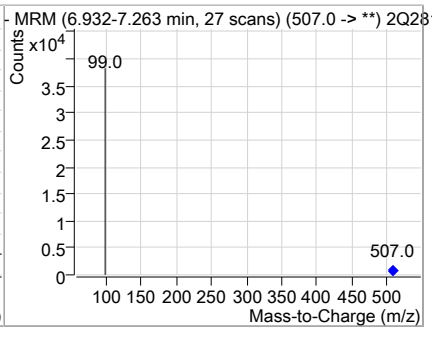




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.64	7.02	0.03	28083				



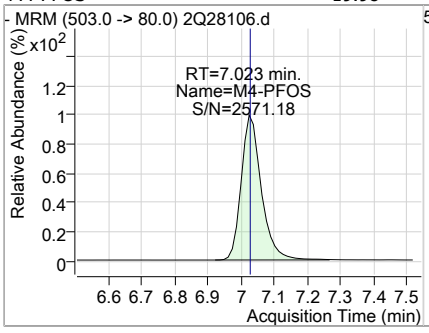


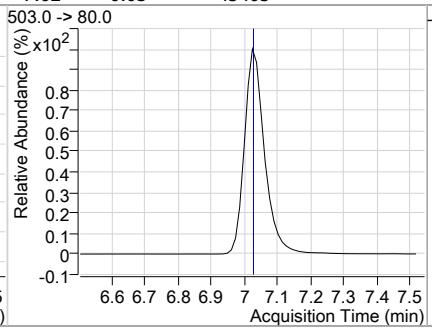


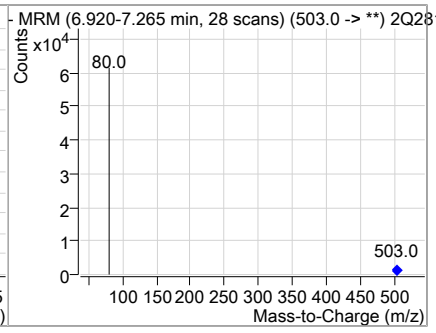
7.6.16

Perfluorinated Compounds by LC/MS/MS

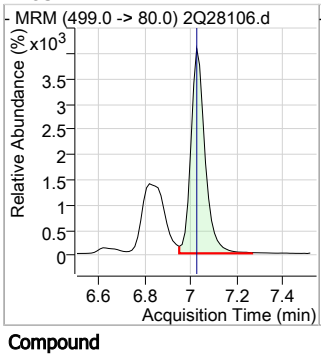
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.02	0.03	45465				

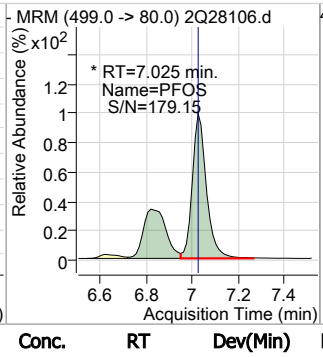


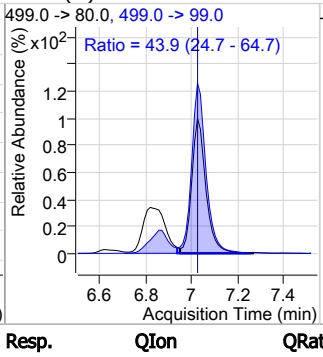


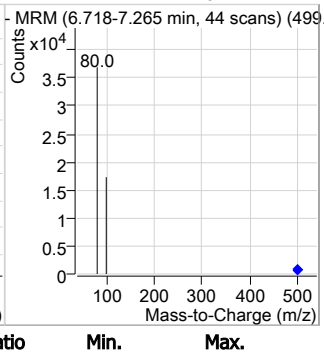


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.30	7.02	0.03	26706 (m)	499.0 -> 99.0	43.9	24.7	64.7

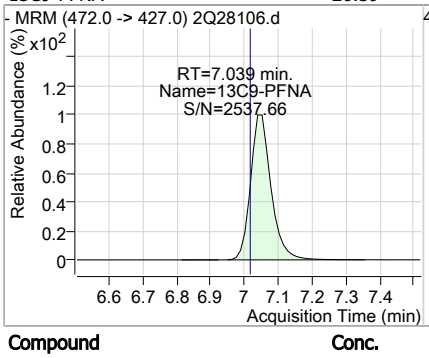


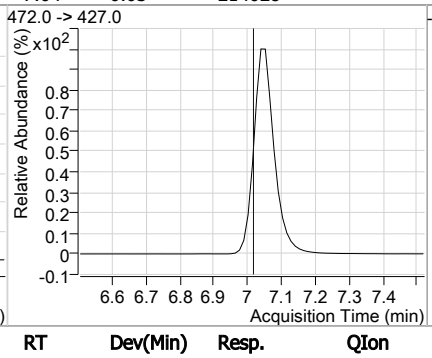


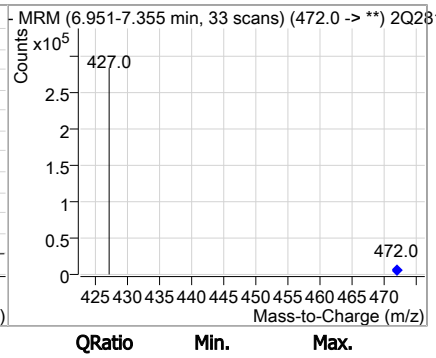




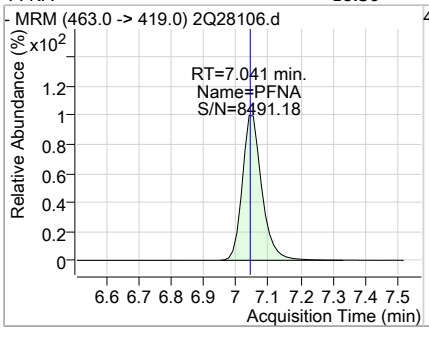
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.59	7.04	0.03	214628				

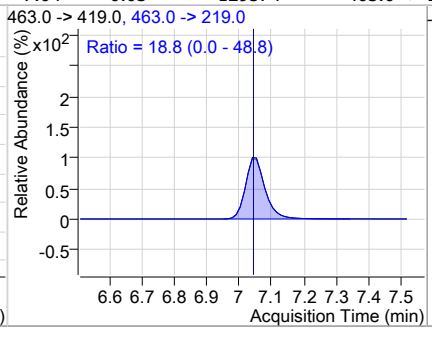


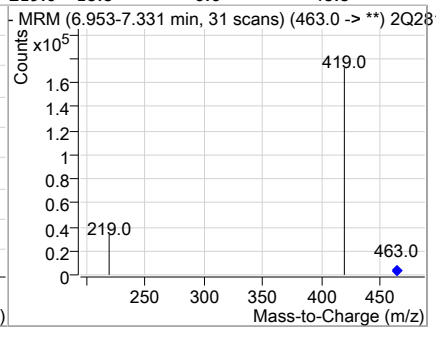




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.36	7.04	0.03	129574	463.0 -> 219.0	18.8	0.0	48.8



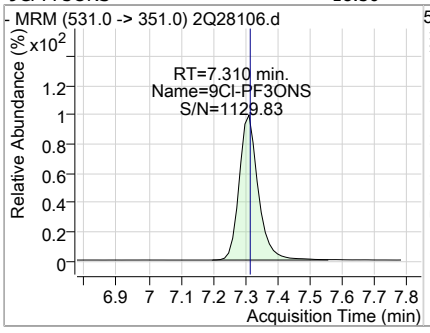


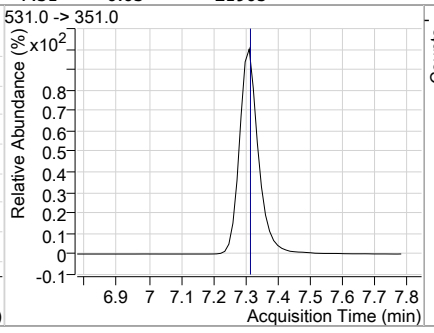


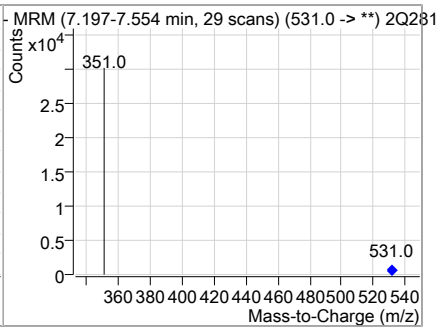
7.6.16

Perfluorinated Compounds by LC/MS/MS

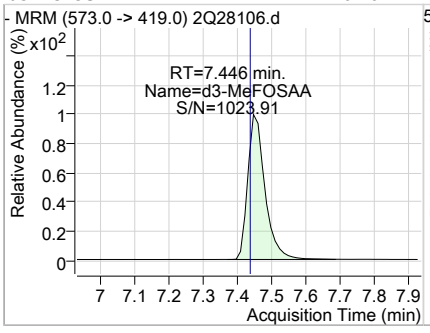
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.50	7.31	0.03	21905				

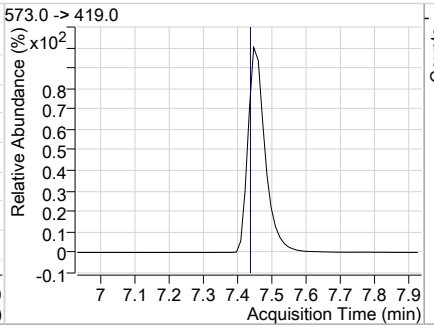


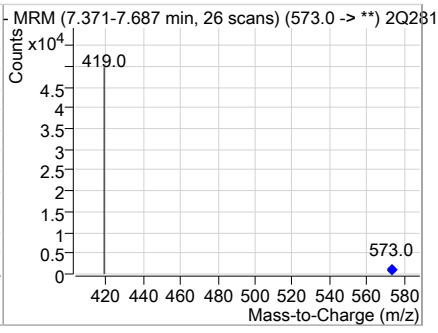




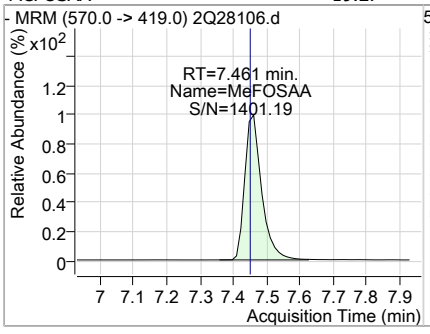
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.76	7.45	0.01	36411				

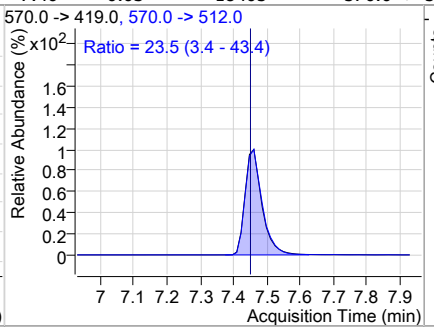


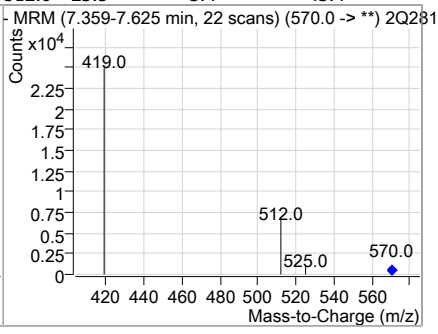




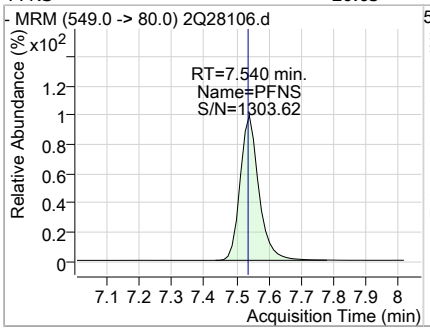
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.27	7.46	0.03	18405	570.0 -> 512.0	23.5	3.4	43.4

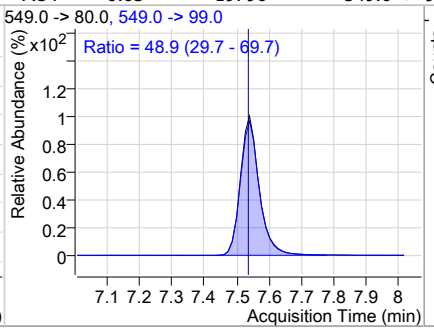


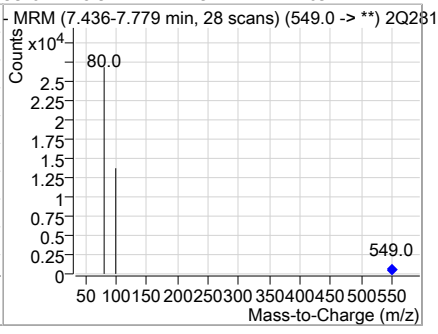




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.63	7.54	0.03	19796	549.0 -> 99.0	48.9	29.7	69.7



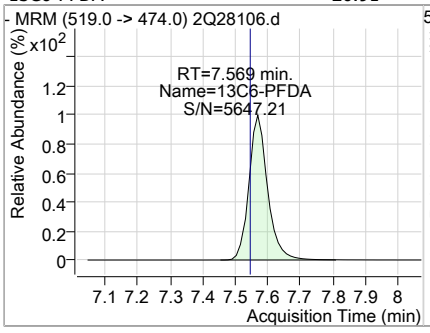


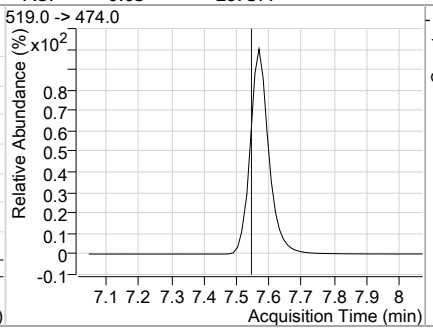


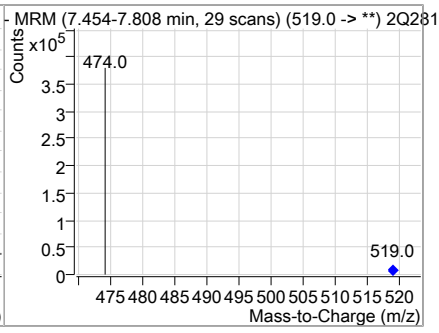
7.6.16

Perfluorinated Compounds by LC/MS/MS

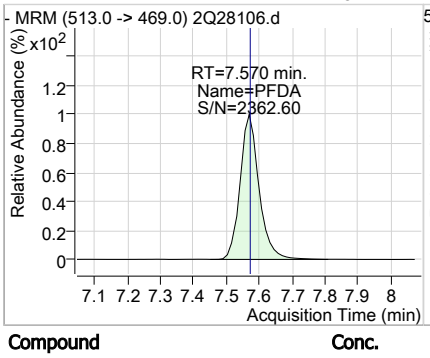
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.91	7.57	0.03	287377				

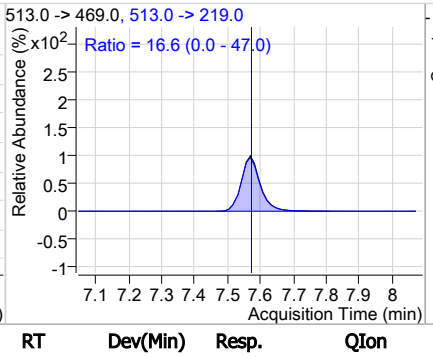


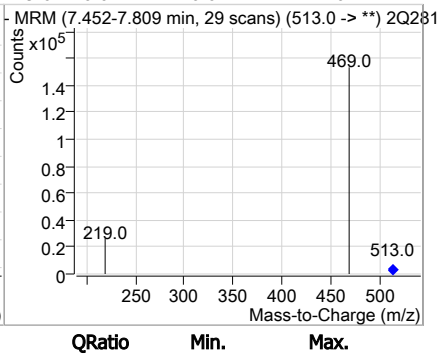




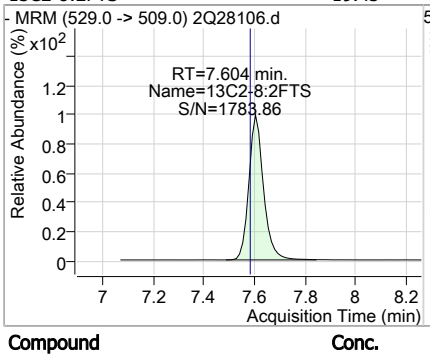
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.47	7.57	0.03	115166	513.0 -> 219.0	16.6	0.0	47.0

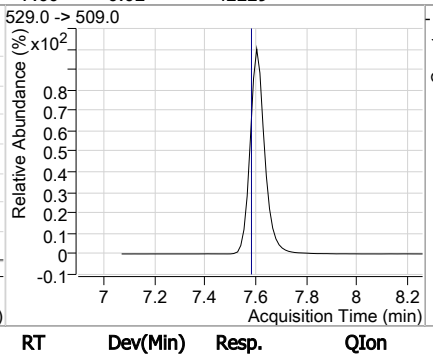


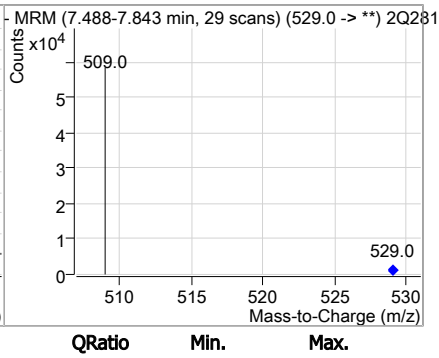




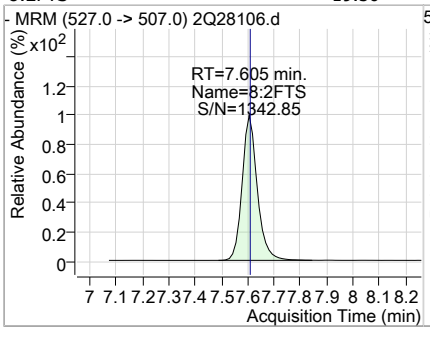
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.43	7.60	0.02	42229				

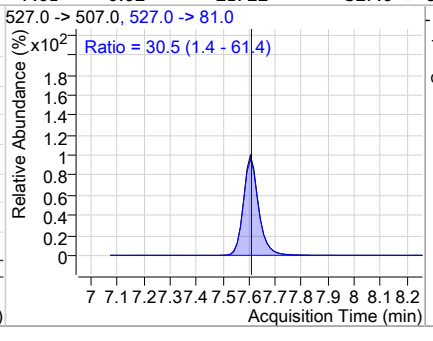


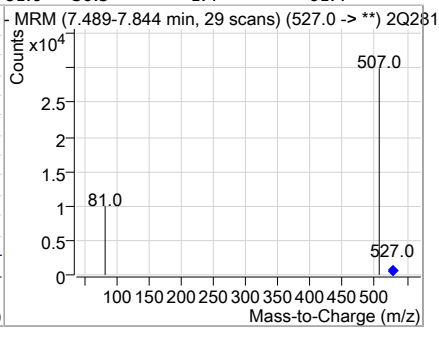




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.50	7.61	0.02	21722	527.0 -> 81.0	30.5	1.4	61.4



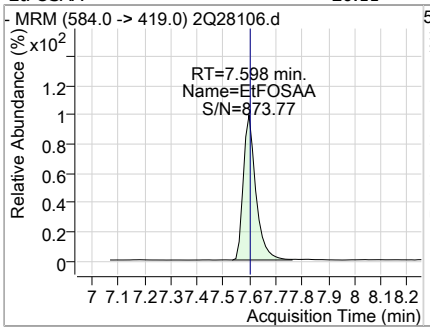


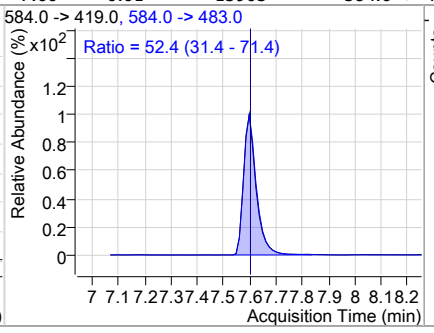


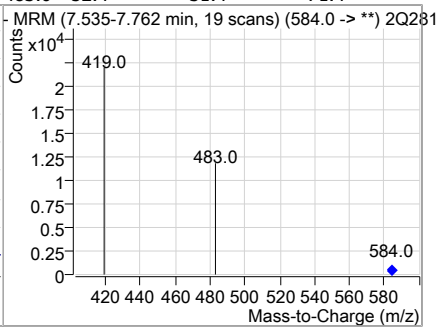
7.6.16

Perfluorinated Compounds by LC/MS/MS

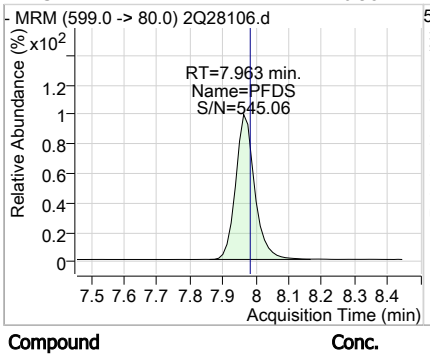
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.11	7.60	0.01	15905	584.0 -> 483.0	52.4	31.4	71.4

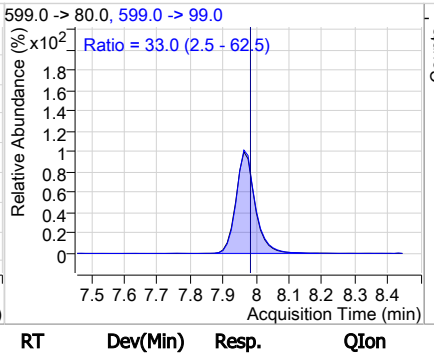


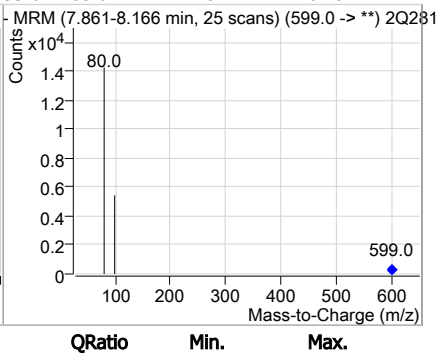




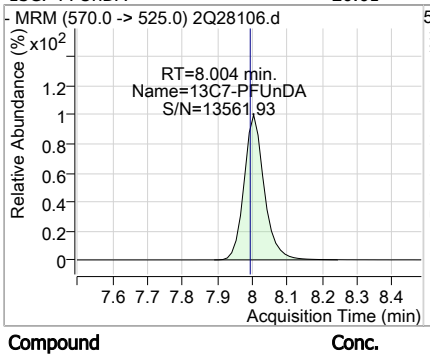
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	20.98	7.96	0.01	9988	599.0 -> 99.0	33.0	2.5	62.5

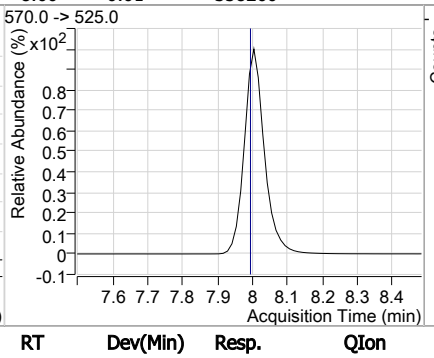


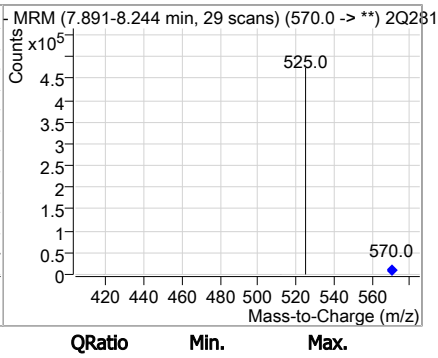




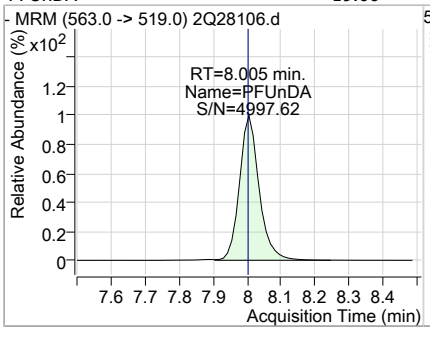
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.61	8.00	0.01	358260				

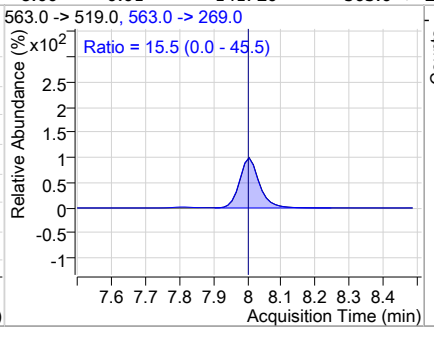


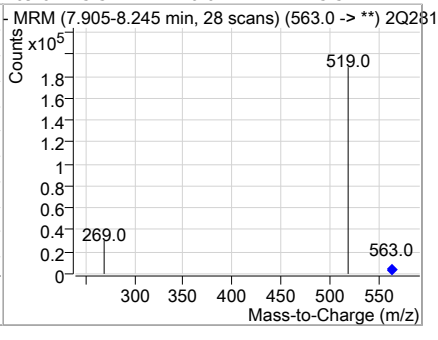




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.06	8.00	0.01	141720	563.0 -> 269.0	15.5	0.0	45.5



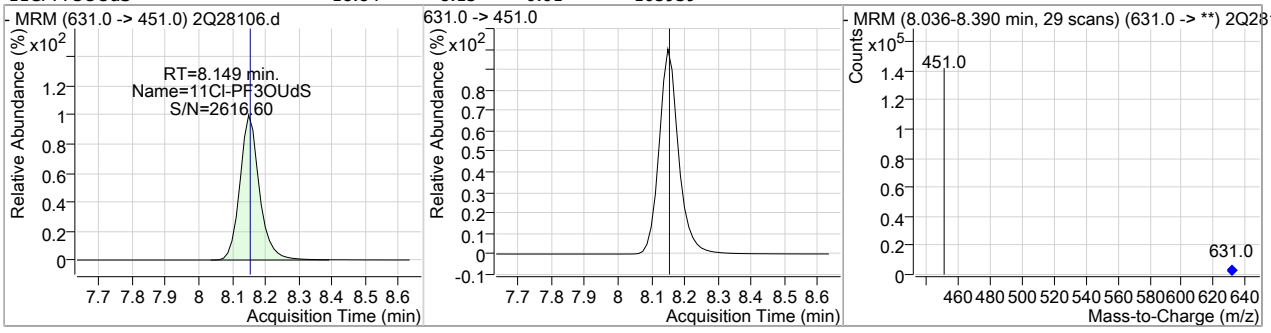




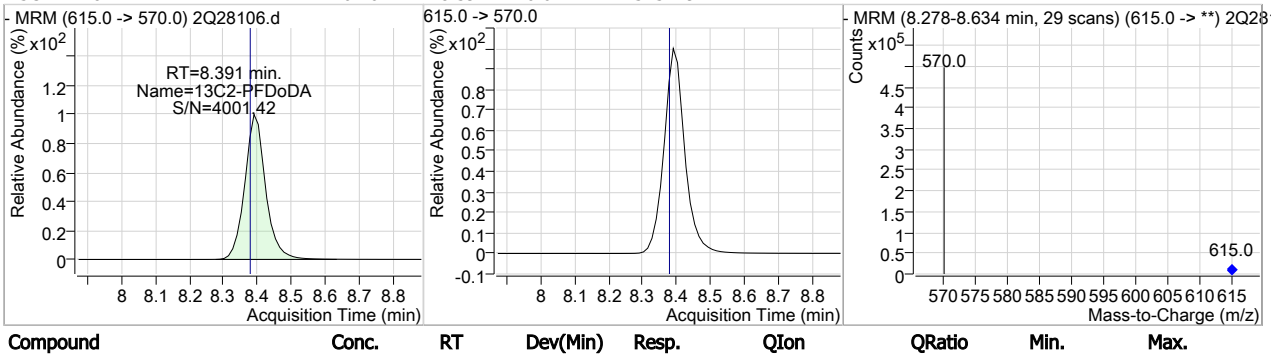
7.6.16

Perfluorinated Compounds by LC/MS/MS

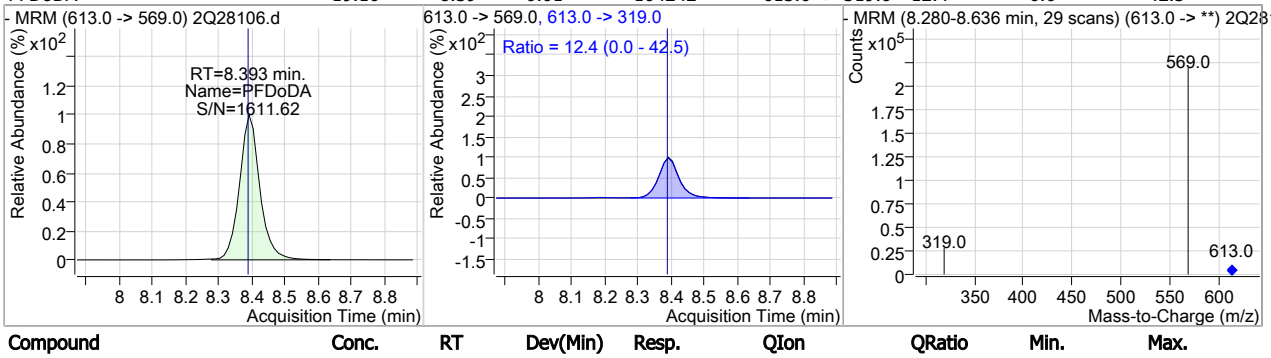
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.84	8.15	0.01	105939				



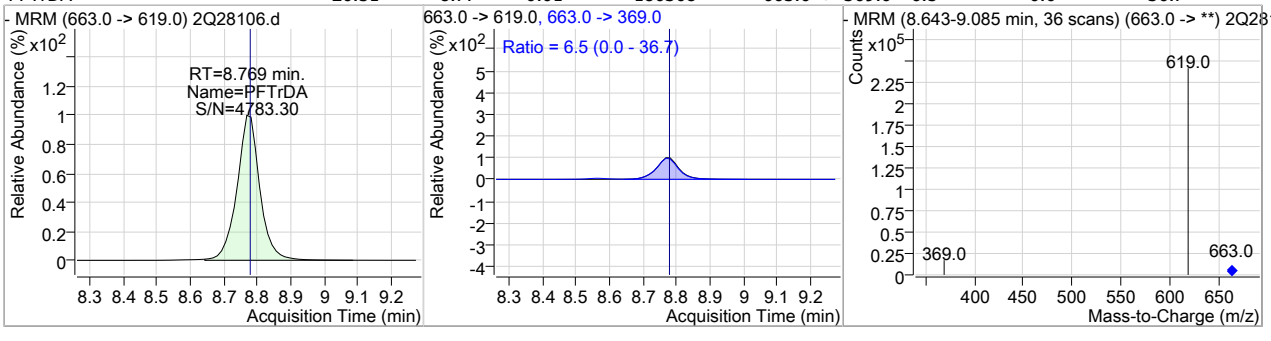
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.76	8.39	0.01	373229				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.16	8.39	0.01	164242	613.0 -> 319.0	12.4	0.0	42.5



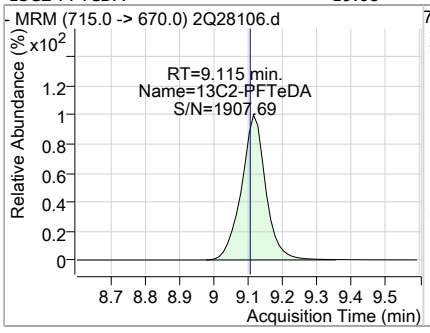
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.51	8.77	0.01	180308	663.0 -> 369.0	6.5	0.0	36.7

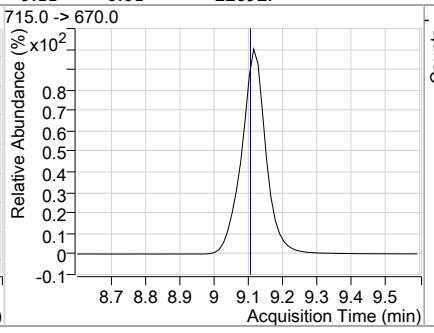


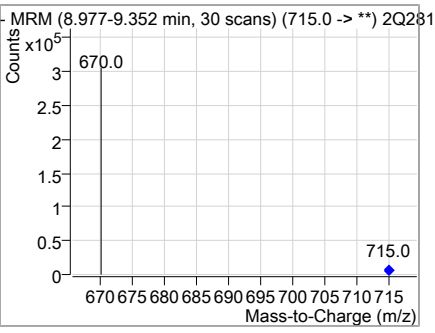
7.6.16

Perfluorinated Compounds by LC/MS/MS

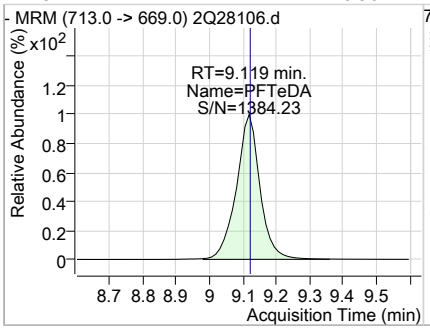
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.08	9.11	0.01	226927				

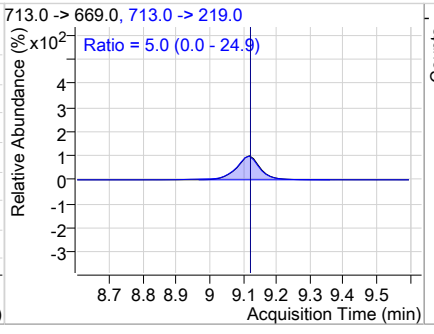


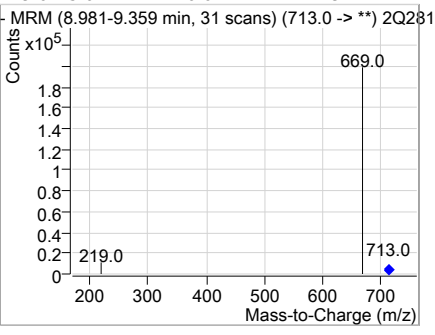




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.96	9.12	0.01	147720	713.0 -> 219.0	5.0	0.0	24.9







7.6.16

7

Manual Integration Approval Summary

Sample Number: S2Q448-CC445
Lab FileID: 2Q28106.D
Injection Time: 03/25/19 17:46
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/26/19 13:30 Natasha Gumtie
Supervisor approved: 03/26/19 16:10 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.03	Split peak

Cal Report: 2Q28108.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/26/19 16:10

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28108.d
Operator : nancyf
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/25/2019 6:17:51 PM
Sample Name : CC445-1.0
Vial : Vial 3
DA Method File : ID_GENX_032119_S2Q445.quantmethod.xml
Batch Name : s2q448.batch.bin
Sample Information : op74164,S2Q448,250,,,1.0,1,water

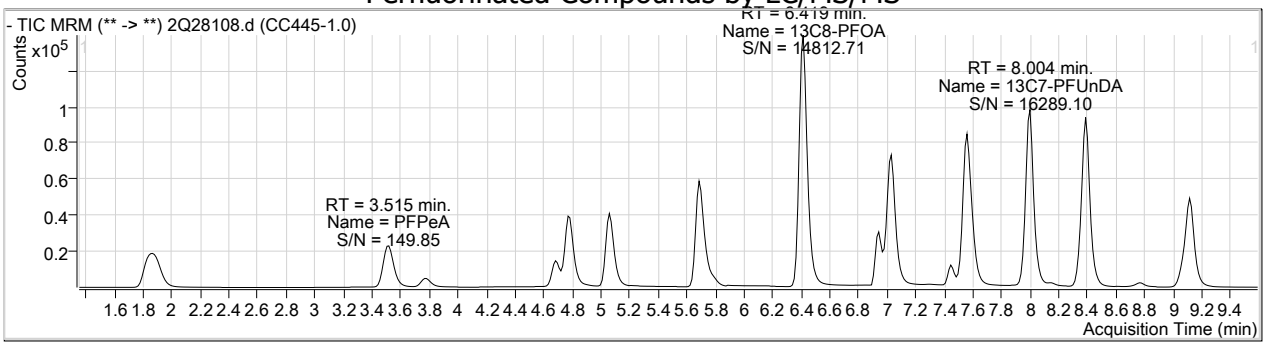
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.422	415.0 -> 370.0	276717	20.00	µg/L	0.025
13C4-PFOS	7.023	503.0 -> 80.0	45290	20.00	µg/L	0.026
M4-PFBA	1.865	217.0 -> 172.0	142518	20.00	µg/L	0.013
M5-PFPeA	3.524	268.0 -> 223.0	114337	20.00	µg/L	0.025
M5-PFHxA	4.776	318.0 -> 273.0	160452	20.00	µg/L	0.012
M4-PFHpA	5.692	367.0 -> 322.0	220880	20.00	µg/L	0.012
M8-PFOA	6.419	421.0 -> 376.0	224331	20.00	µg/L	0.025
M9-PFNA	7.039	472.0 -> 427.0	223424	20.00	µg/L	0.025
M6-PFDA	7.569	519.0 -> 474.0	309015	20.00	µg/L	0.027
M7-PFUnDA	8.004	570.0 -> 525.0	383302	20.00	µg/L	0.013
M2-PFDoDA	8.391	615.0 -> 570.0	385765	20.00	µg/L	0.014
M2-PFTeDA	9.115	715.0 -> 670.0	231744	20.00	µg/L	0.013
M8-FOSA	6.946	506.0 -> 78.0	104637	20.00	µg/L	0.027
M3-PFBS	3.767	302.0 -> 99.0	21206	20.00	µg/L	0.012
M3-PFHxS	5.735	402.0 -> 99.0	22584	20.00	µg/L	0.025
M8-PFOS	7.021	507.0 -> 99.0	28831	20.00	µg/L	0.026
M2-4:2FTS	4.684	329.0 -> 309.0	57556	20.00	µg/L	0.012
M2-6:2FTS	6.403	429.0 -> 409.0	60587	20.00	µg/L	0.012
M2-8:2FTS	7.604	529.0 -> 509.0	43115	20.00	µg/L	0.025
M3-MeFOSAA	7.446	573.0 -> 419.0	36997	20.00	µg/L	0.013
M3-HFPO-DA	5.068	287.0 -> 169.0	154657	100.00	µg/L	0.025
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	57364	20.15	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C2-6:2FTS	6.403	429.0 -> 409.0	60517	20.08	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C2-8:2FTS	7.604	529.0 -> 509.0	43154	19.86	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C2-PFDoDA	8.391	615.0 -> 570.0	385345	21.44	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.2%		
13C2-PFTeDA	9.115	715.0 -> 670.0	231516	19.46	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%		
13C3-PFBS	3.767	302.0 -> 99.0	21187	20.65	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C3-PFHxS	5.735	402.0 -> 99.0	22596	20.33	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C4-PFBA	1.865	217.0 -> 172.0	141859	21.70	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.5%		
13C4-PFHpA	5.692	367.0 -> 322.0	220611	21.34	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C5-PFHxA	4.776	318.0 -> 273.0	160083	21.60	µg/L	0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.0%		
13C5-PFPeA	3.524	268.0 -> 223.0	114335	20.78	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.9%		
13C6-PFDA	7.569	519.0 -> 474.0	308855	22.47	µg/L	0.027

Perfluorinated Compounds by LC/MS/MS

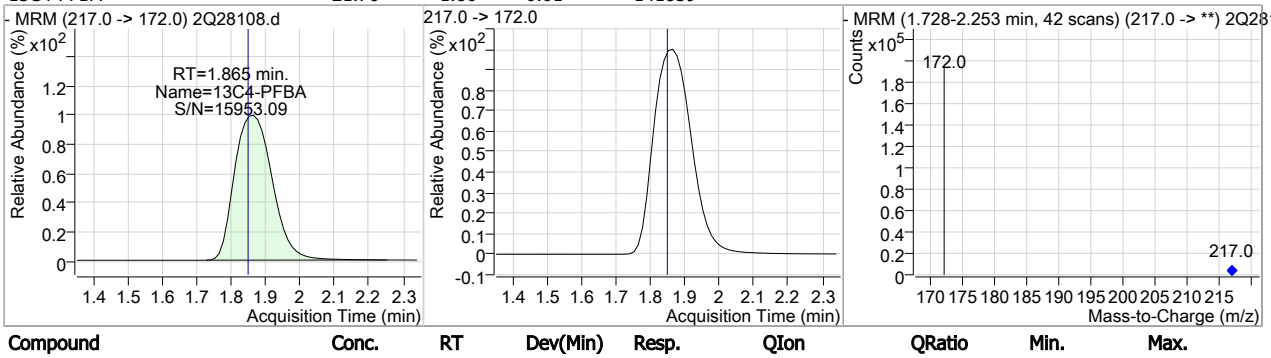
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.3%		
13C7-PFUnDA	8.004	570.0 -> 525.0	383793	22.08 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.4%		
13C8-FOSA	6.946	506.0 -> 78.0	104632	23.33 µg/L		0.027
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.6%		
13C8-PFOA	6.419	421.0 -> 376.0	224077	21.74 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.7%		
13C8-PFOS	7.021	507.0 -> 99.0	28824	20.16 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C9-PFNA	7.039	472.0 -> 427.0	223286	21.42 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.1%		
d3-MeFOSAA	7.446	573.0 -> 419.0	37001	21.10 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.5%		
M2-PFOA	6.422	415.0 -> 370.0	276861	20.00 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	45346	20.01 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	154657	92.78 µg/L		0.025
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 92.8%		
Target Compounds						**QValue**
4:2FTS	4.686	327.0 -> 307.0	1728	1.02 µg/L		97
6:2FTS	6.405	427.0 -> 407.0	1778	1.16 µg/L		95
8:2FTS	7.605	527.0 -> 507.0	1130	0.99 µg/L		97
EtFOSAA	7.598	584.0 -> 419.0	918	1.14 µg/L		96
FOSA	6.937	498.0 -> 78.0	2535	1.06 µg/L		96
MeFOSAA	7.447	570.0 -> 419.0	919	0.95 µg/L		97
PFBA	1.873	213.0 -> 169.0	1339	0.96 µg/L		100
PFBS	3.771	299.0 -> 80.0	1704	0.99 µg/L		96
PFDA	7.570	513.0 -> 469.0	6158	0.92 µg/L		99
PFDoDA	8.393	613.0 -> 569.0	8838	1.00 µg/L		99
PFDS	7.963	599.0 -> 80.0	505	1.03 µg/L		79
PFHpA	5.695	363.0 -> 319.0	9934	1.00 µg/L		99
PFHpS	6.429	449.0 -> 80.0	1081	1.02 µg/L		95
PFHxA	4.778	313.0 -> 269.0	2728	0.97 µg/L		99
PFHxS	5.726	399.0 -> 80.0	1358	1.09 µg/L	m	99
PFNA	7.041	463.0 -> 419.0	6921	0.94 µg/L		99
PFNS	7.540	549.0 -> 80.0	1106	1.12 µg/L		94
PFOA	6.424	413.0 -> 369.0	5982	0.99 µg/L		99
PFOS	7.025	499.0 -> 80.0	1483	1.05 µg/L	m	93
PFPeA	3.515	263.0 -> 219.0	5257	1.03 µg/L		100
PFPeS	4.908	349.0 -> 80.0	1107	1.01 µg/L		99
PFTeDA	9.119	713.0 -> 669.0	7845	0.99 µg/L		99
PFTrDA	8.769	663.0 -> 619.0	9459	1.05 µg/L		100
PFUnDA	8.005	563.0 -> 519.0	7679	0.97 µg/L		99
11Cl-PF3OUdS	8.149	631.0 -> 451.0	5482	0.94 µg/L		100
9Cl-PF3ONS	7.297	531.0 -> 351.0	1097	0.88 µg/L		100
ADONA	5.791	377.0 -> 251.0	11216	1.00 µg/L		100
HFPO-DA	5.072	329.0 -> 169.0	9282	5.15 µg/L		98

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

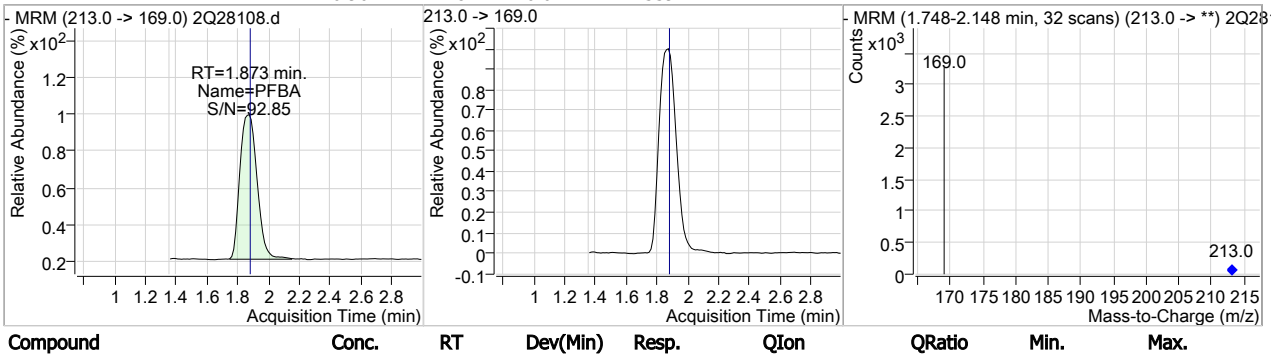
Perfluorinated Compounds by LC/MS/MS



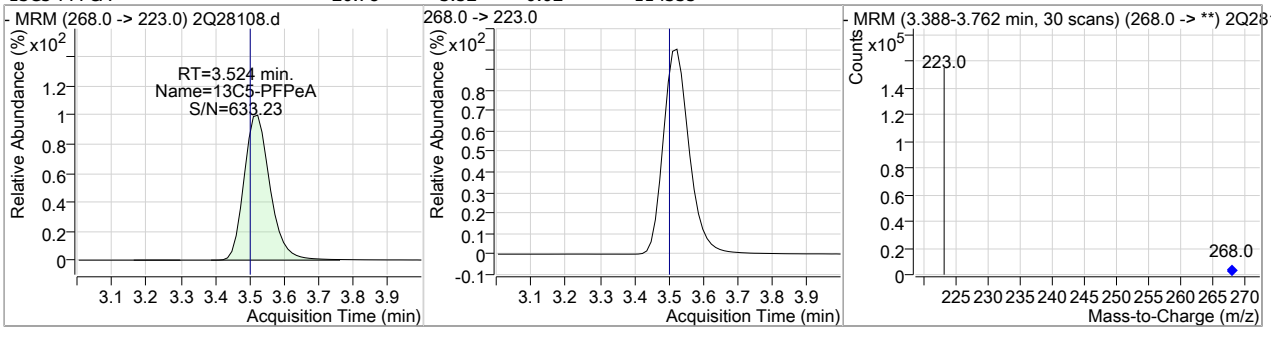
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.70	1.86	0.01	141859				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.96	1.87	0.01	1339				

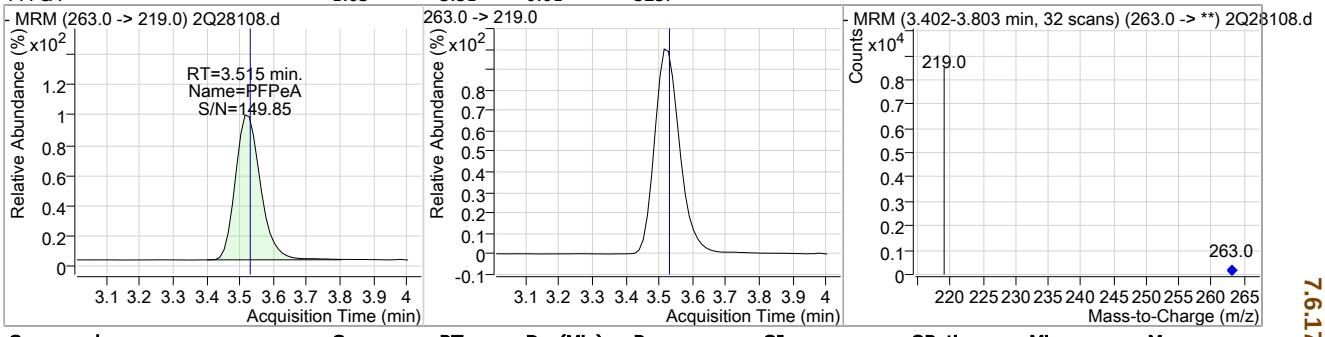


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.78	3.52	0.02	114335				

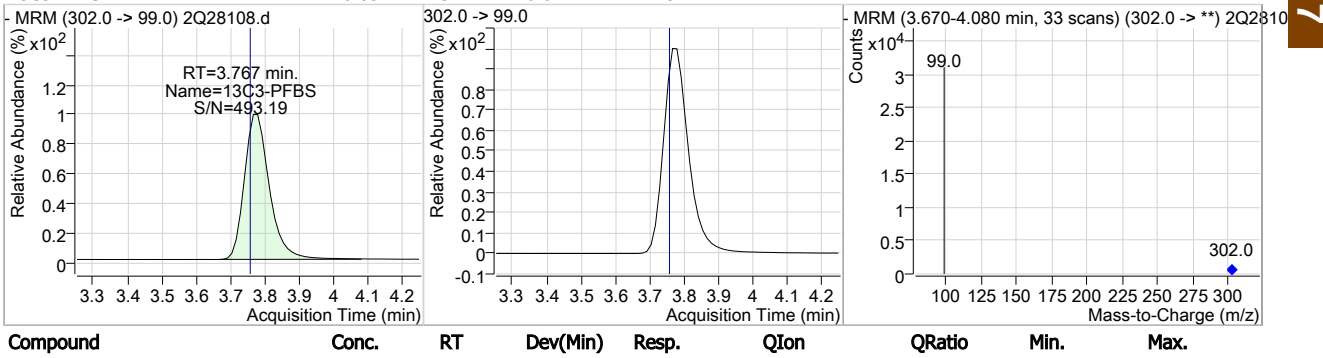


Perfluorinated Compounds by LC/MS/MS

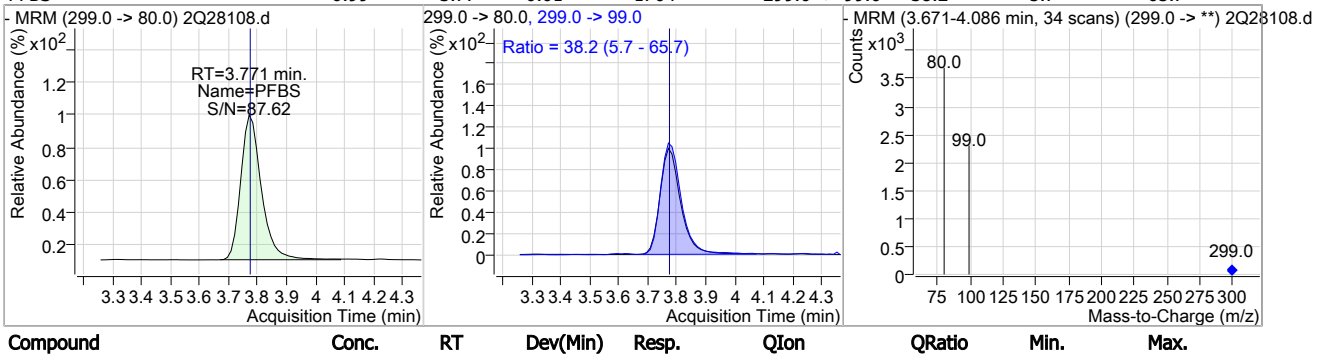
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.03	3.51	0.01	5257				



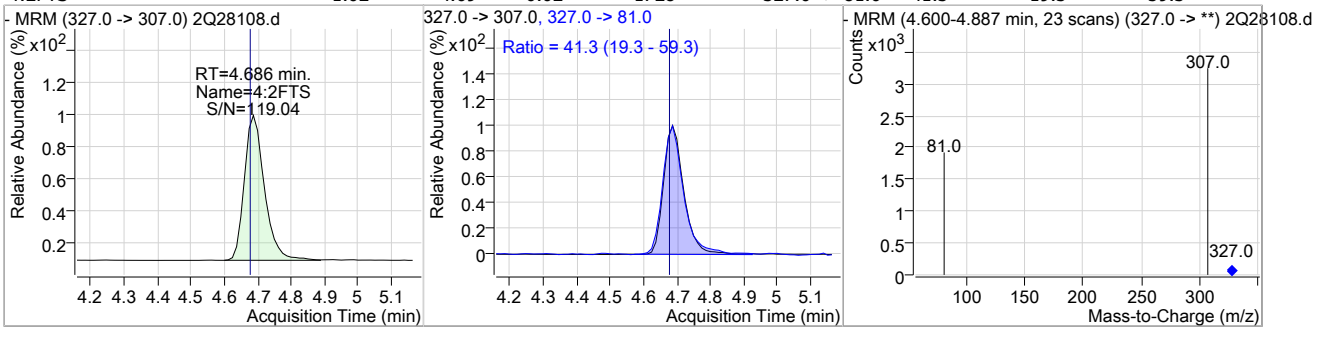
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.65	3.77	0.01	21187				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.99	3.77	0.01	1704	299.0 -> 99.0	38.2	5.7	65.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.02	4.69	0.02	1728	327.0 -> 81.0	41.3	19.3	59.3



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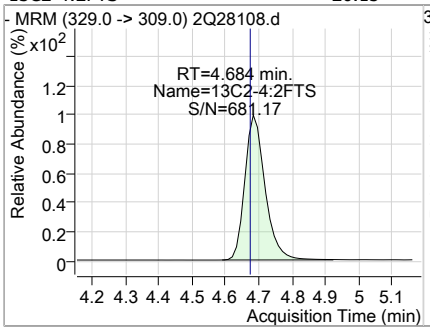
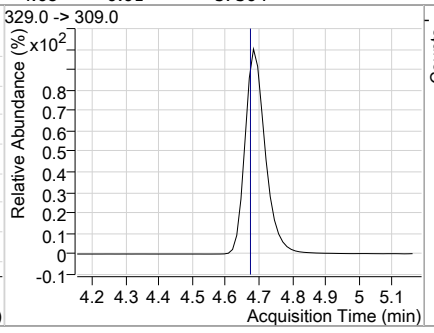
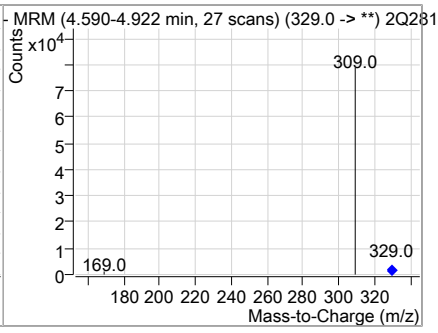
Perfluorinated Compounds by LC/MS/MS

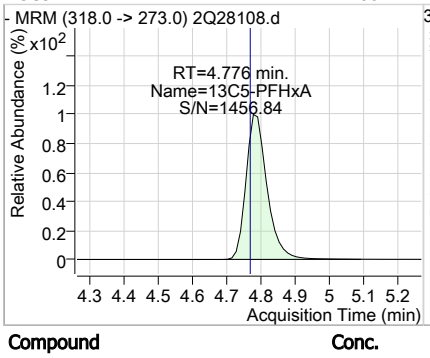
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.15	4.68	0.01	57364				

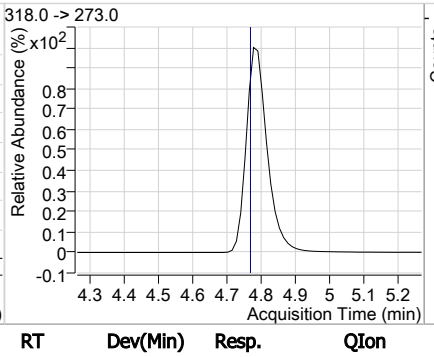


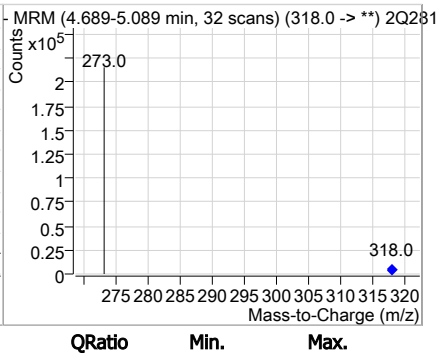




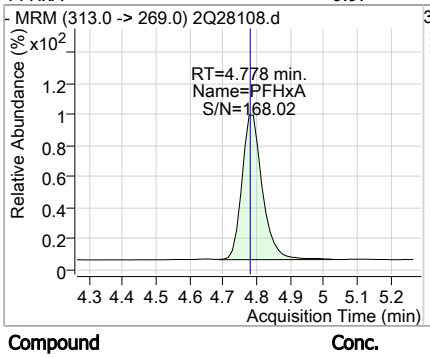
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.60	4.78	0.01	160083				

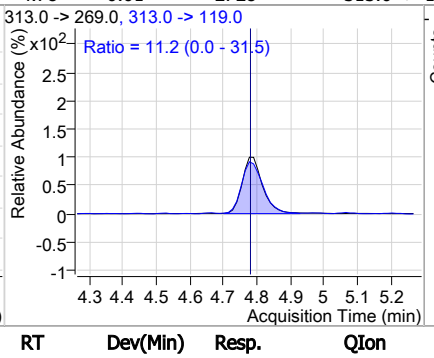


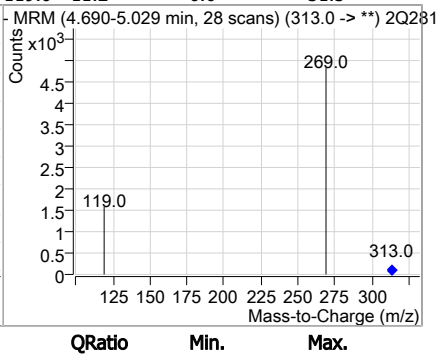




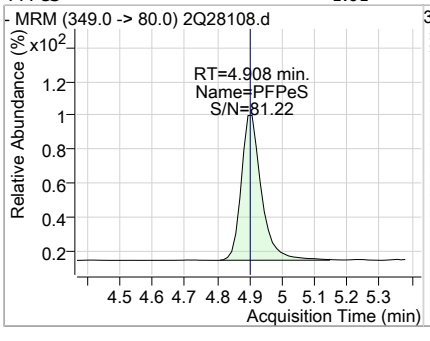
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.97	4.78	0.01	2728	313.0 -> 119.0	11.2	0.0	31.5

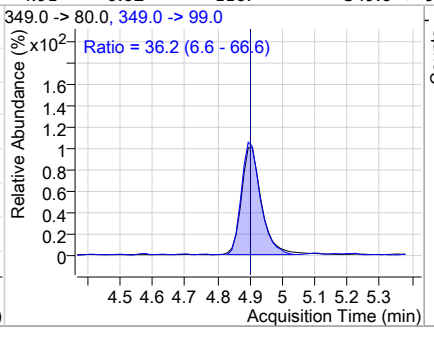


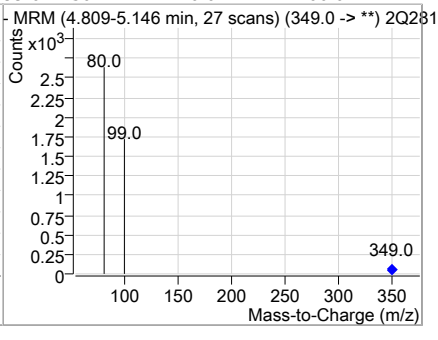




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.01	4.91	0.02	1107	349.0 -> 99.0	36.2	6.6	66.6



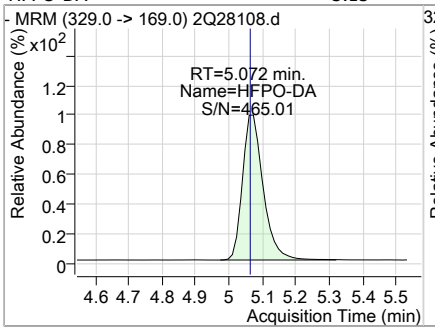


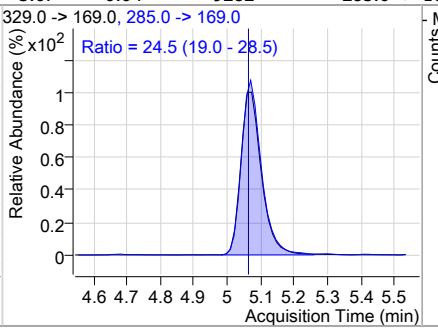


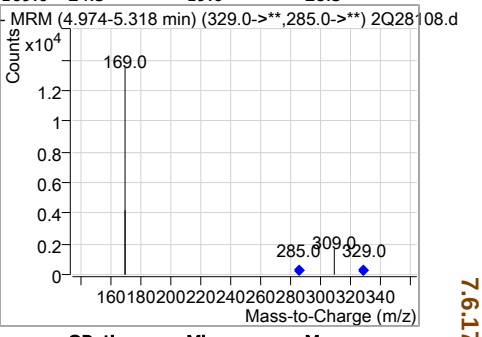
7.6.17

Perfluorinated Compounds by LC/MS/MS

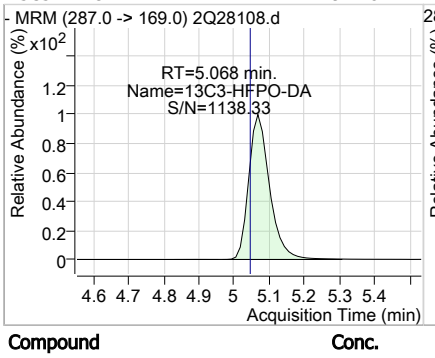
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.15	5.07	0.04	9282	285.0 -> 169.0	24.5	19.0	28.5

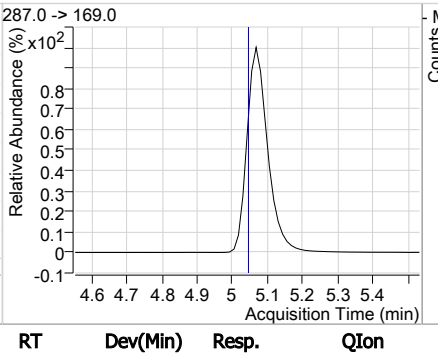


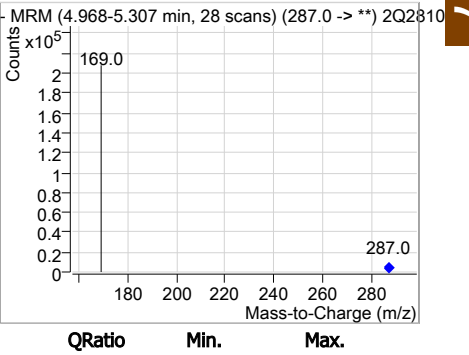




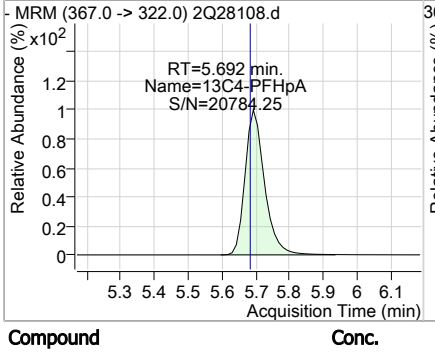
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	92.78	5.07	0.02	154657				

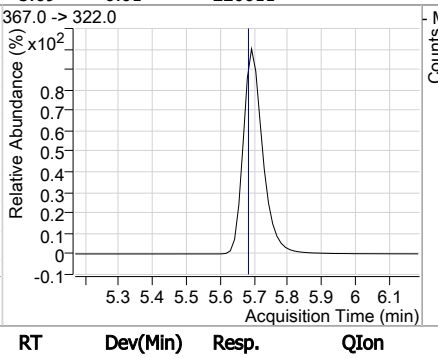


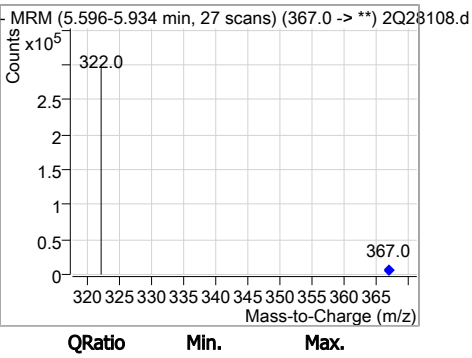




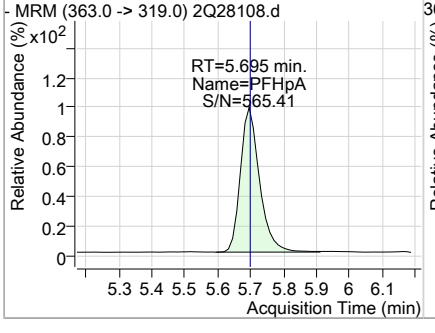
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	21.34	5.69	0.01	220611				

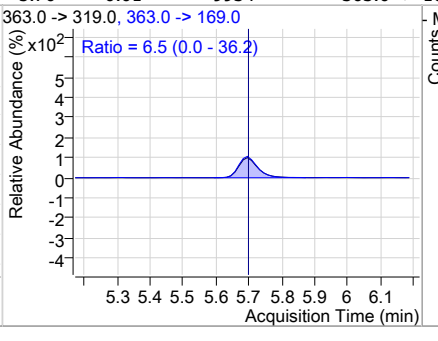


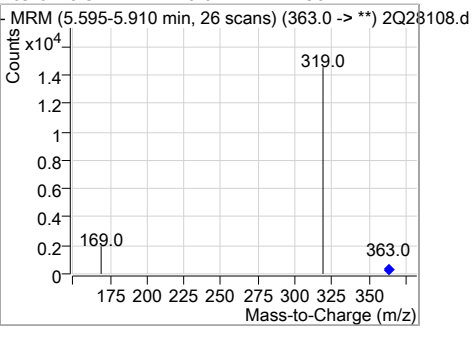




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.00	5.70	0.01	9934	363.0 -> 169.0	6.5	0.0	36.2







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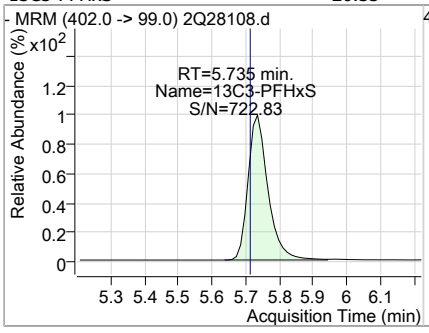
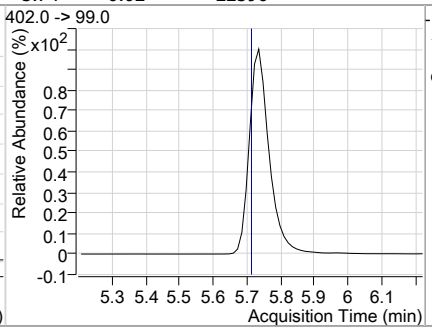
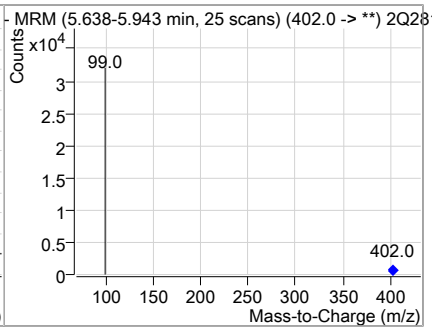
Perfluorinated Compounds by LC/MS/MS

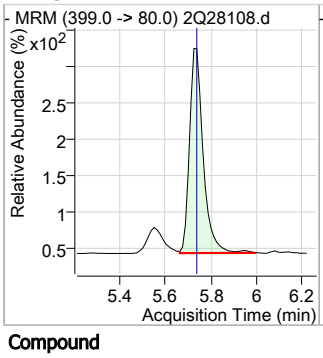
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.33	5.74	0.02	22596				

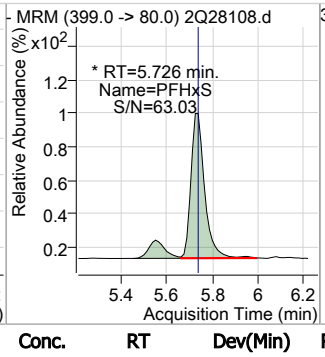


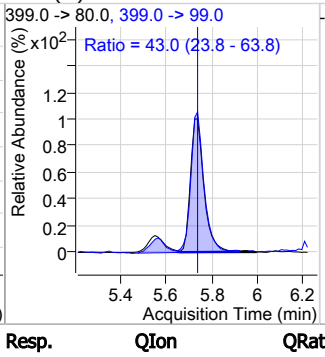


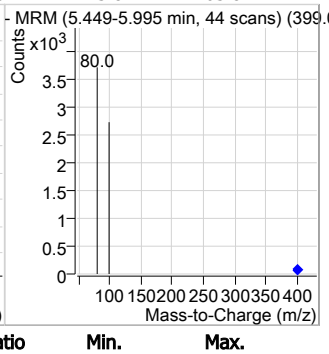


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.09	5.73	0.01	1358 (m)	399.0 -> 99.0	43.0	23.8	63.8

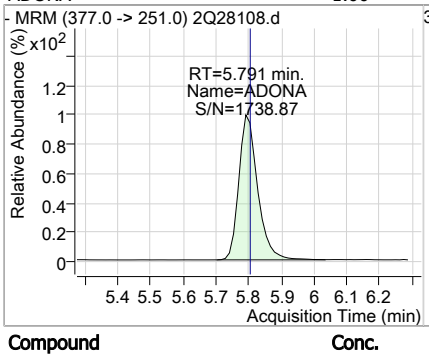


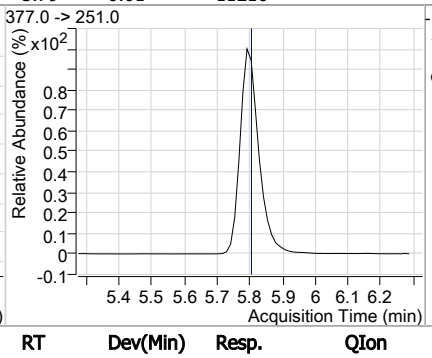


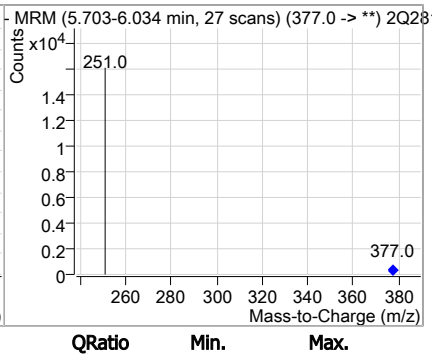




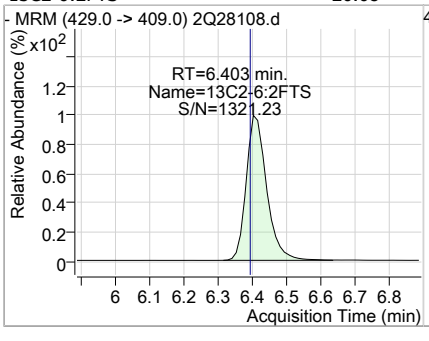
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.00	5.79	0.01	11216				

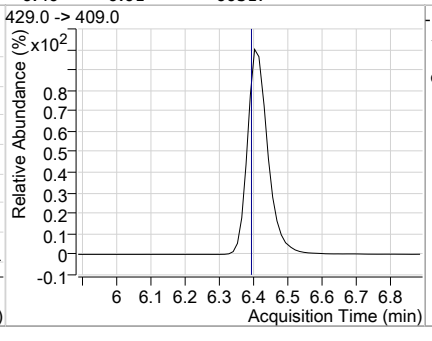


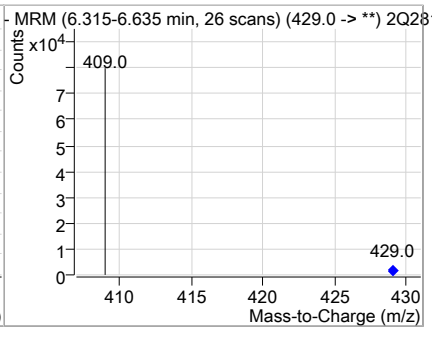




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.08	6.40	0.01	60517				

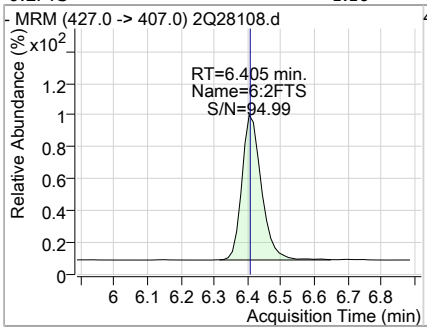


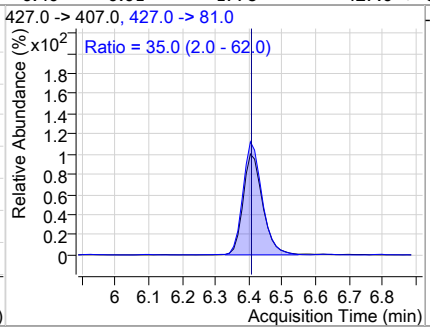


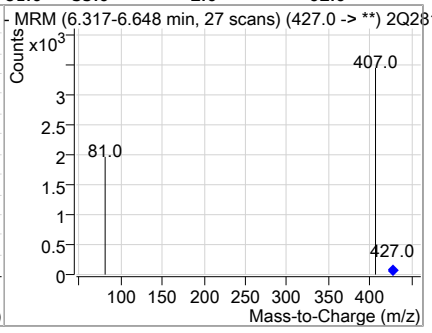


Perfluorinated Compounds by LC/MS/MS

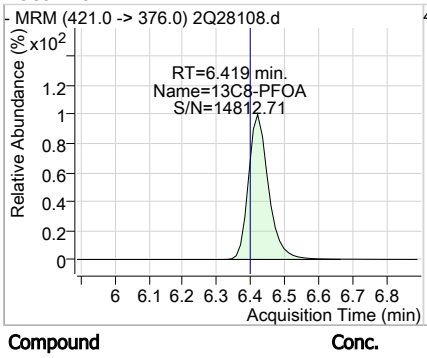
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.16	6.40	0.01	1778	427.0 -> 81.0	35.0	2.0	62.0

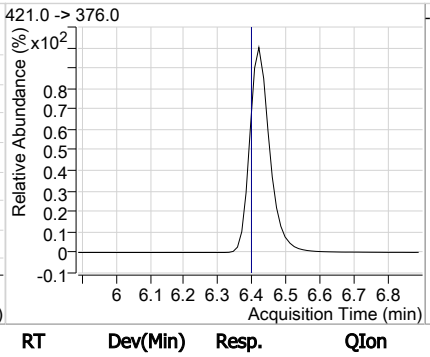


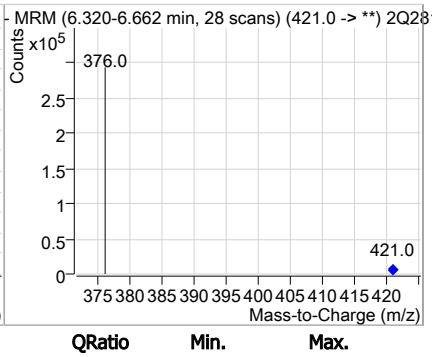




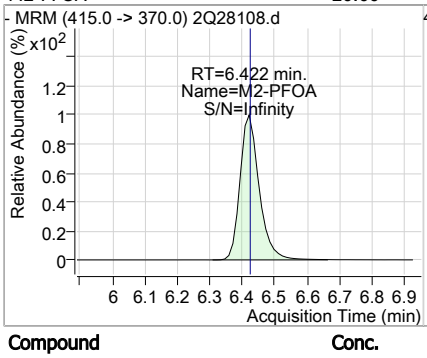
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	21.74	6.42	0.02	224077				

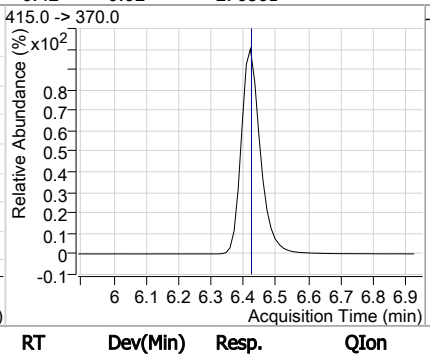


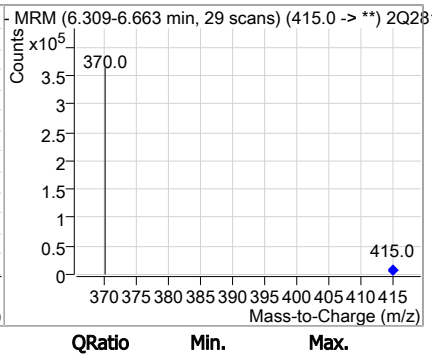




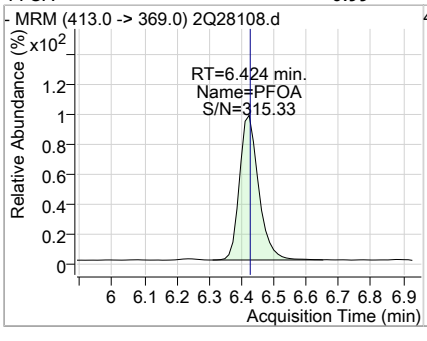
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.42	0.02	276861				

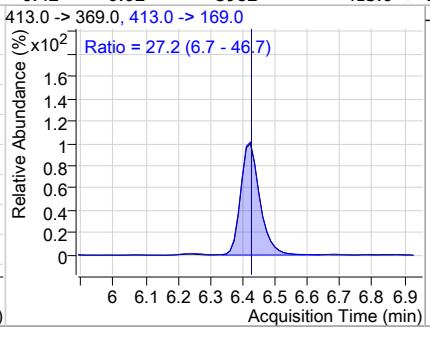


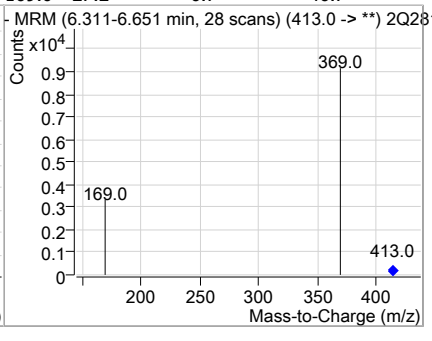




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.99	6.42	0.02	5982	413.0 -> 169.0	27.2	6.7	46.7







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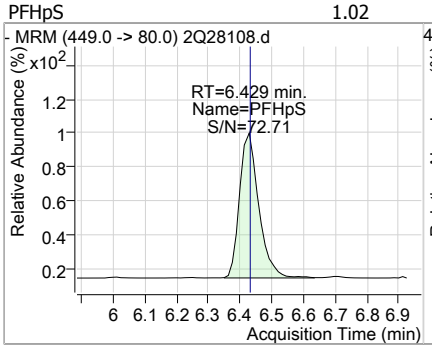
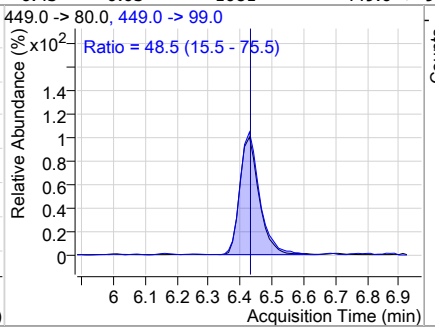
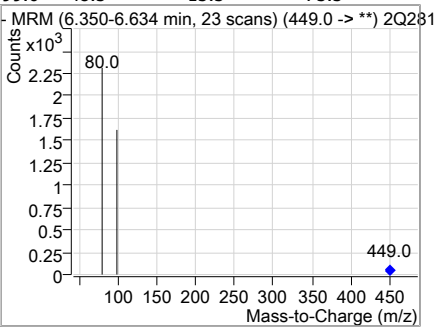
Perfluorinated Compounds by LC/MS/MS

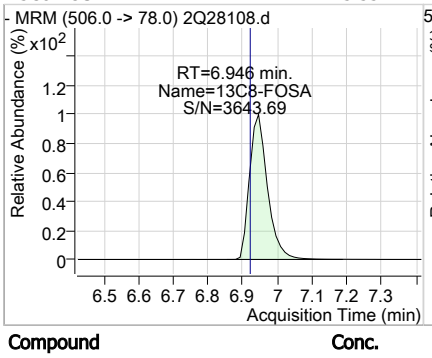
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.02	6.43	0.03	1081	449.0 -> 99.0	48.5	15.5	75.5

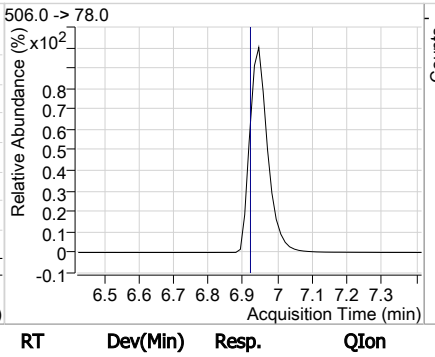


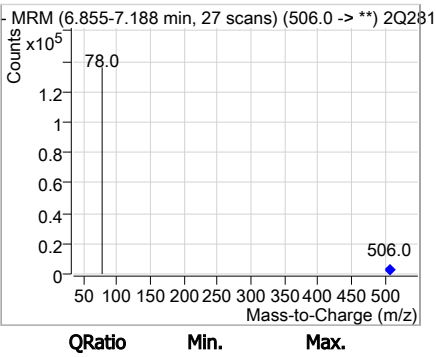




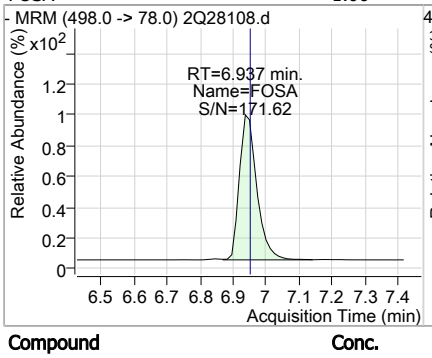
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	23.33	6.95	0.03	104632				

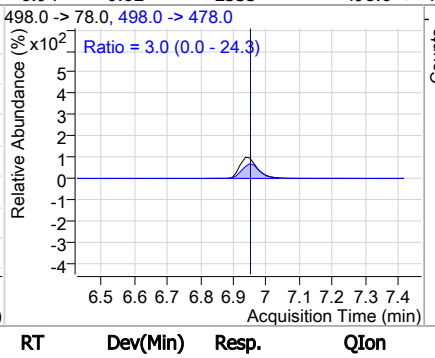


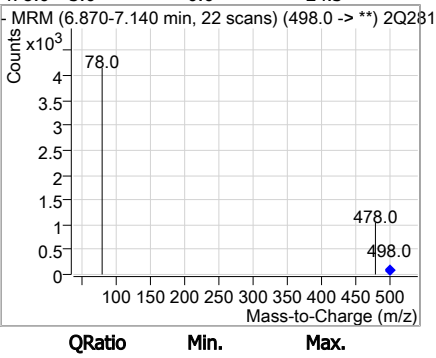




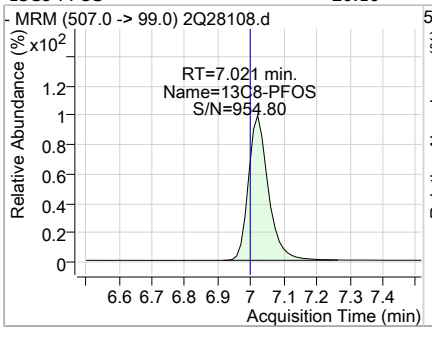
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.06	6.94	0.02	2535	498.0 -> 478.0	3.0	0.0	24.3

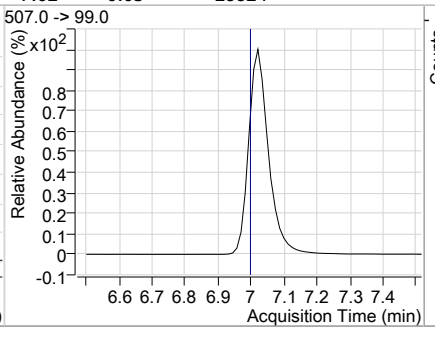


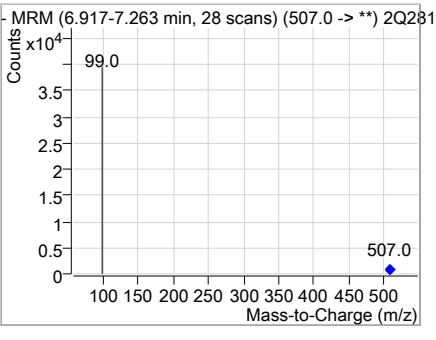




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.16	7.02	0.03	28824				







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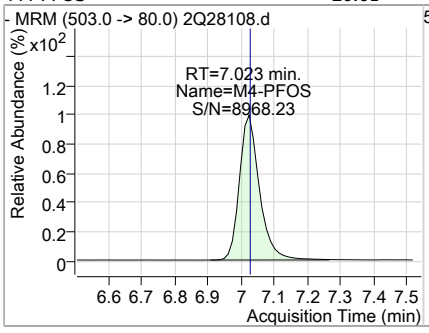
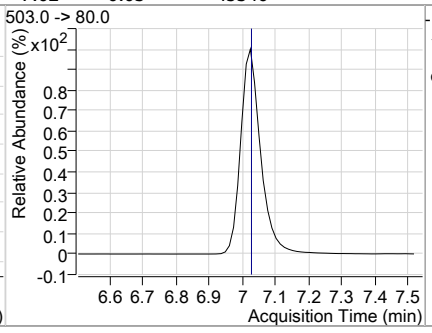
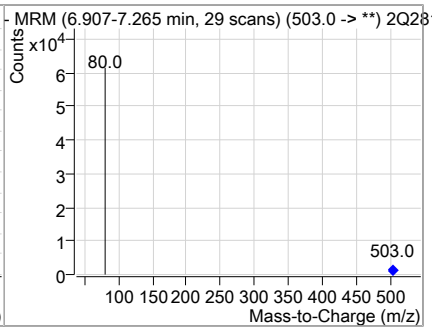
Perfluorinated Compounds by LC/MS/MS

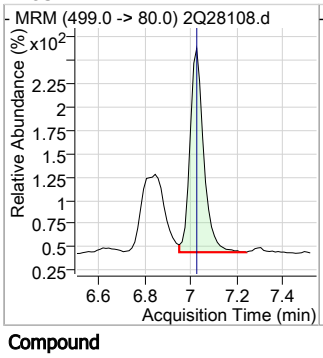
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.02	0.03	45346				

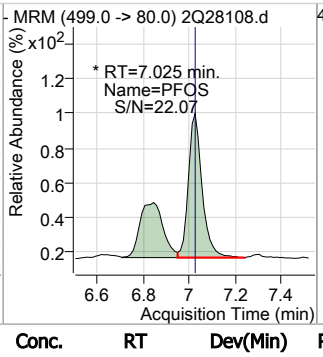


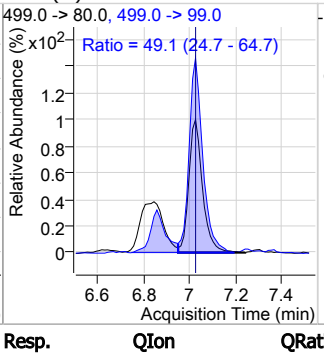


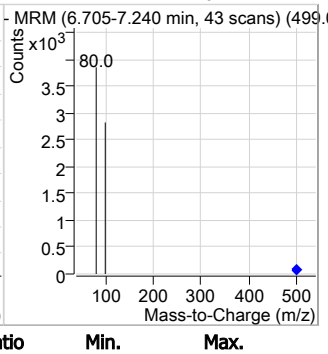


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.05	7.02	0.03	1483 (m)	499.0 -> 99.0	49.1	24.7	64.7

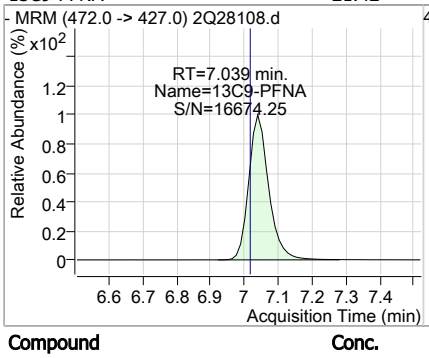


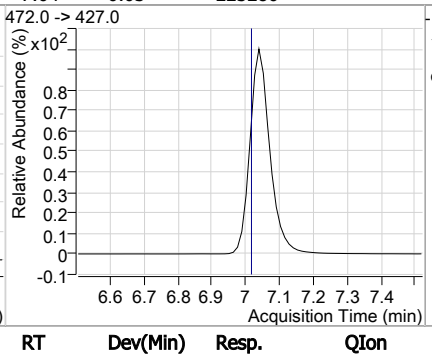


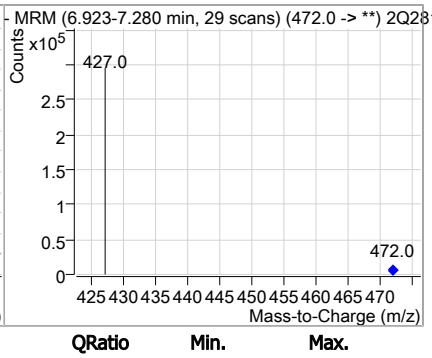




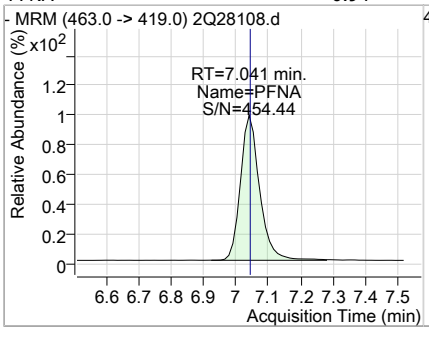
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.42	7.04	0.03	223286				

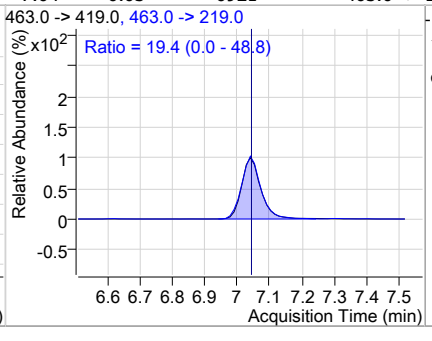


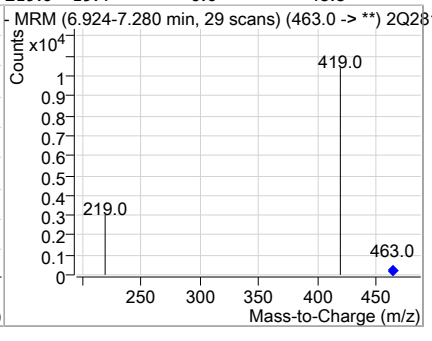




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.94	7.04	0.03	6921	463.0 -> 219.0	19.4	0.0	48.8



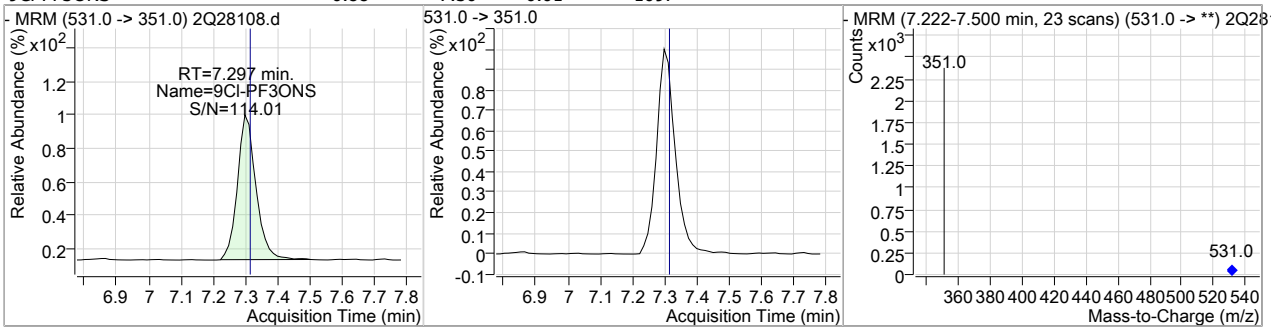




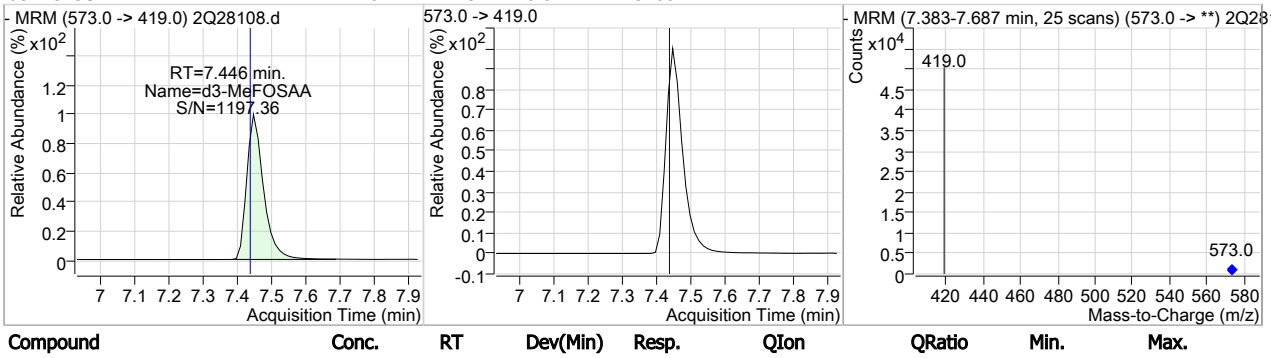
7.6.17

Perfluorinated Compounds by LC/MS/MS

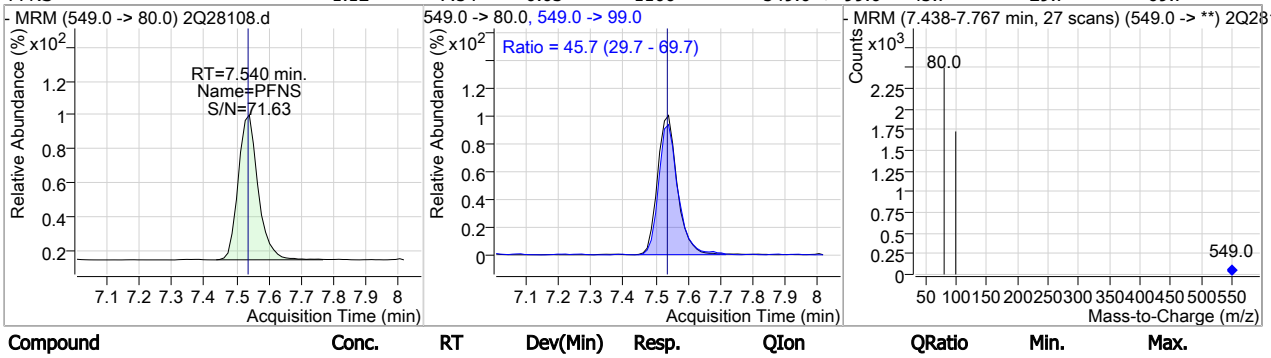
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.88	7.30	0.01	1097				



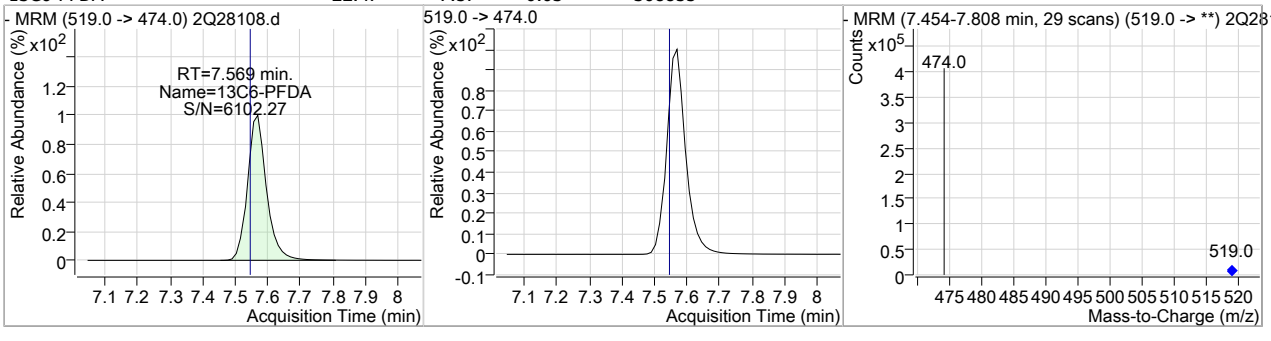
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.10	7.45	0.01	37001				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.12	7.54	0.03	1106	549.0 -> 99.0	45.7	29.7	69.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	22.47	7.57	0.03	308855				

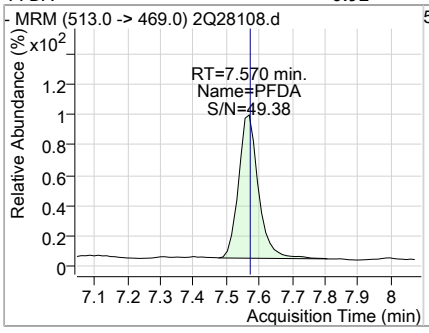


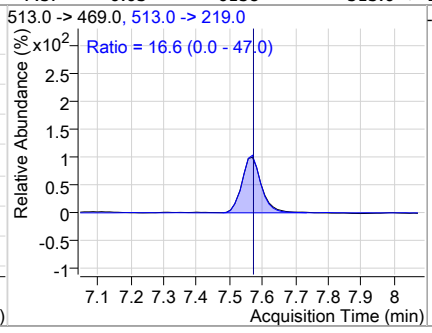
7.6.17

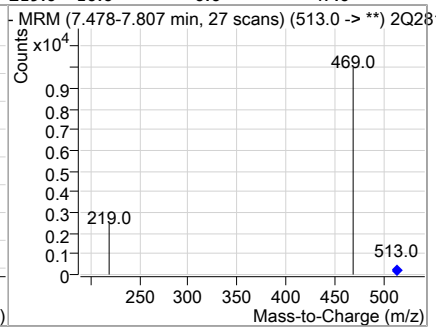
7

Perfluorinated Compounds by LC/MS/MS

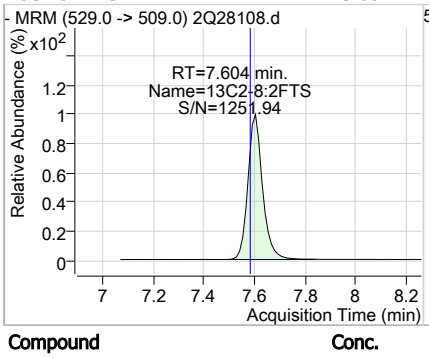
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.92	7.57	0.03	6158	513.0 -> 219.0	16.6	0.0	47.0

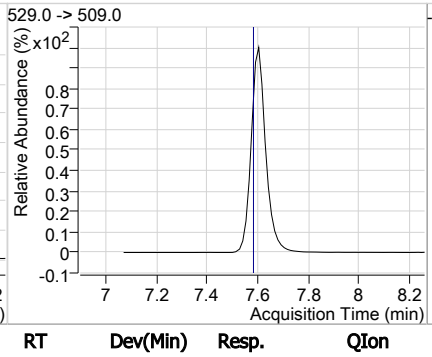


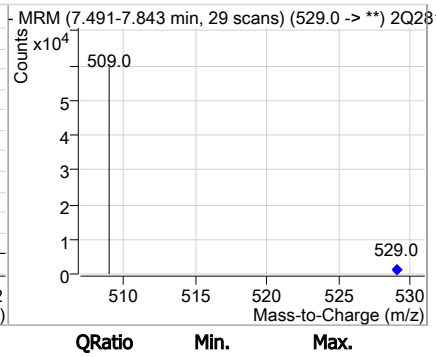




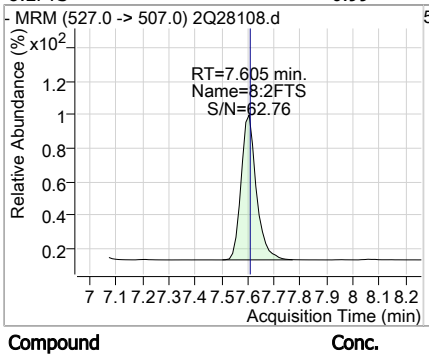
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.86	7.60	0.02	43154				

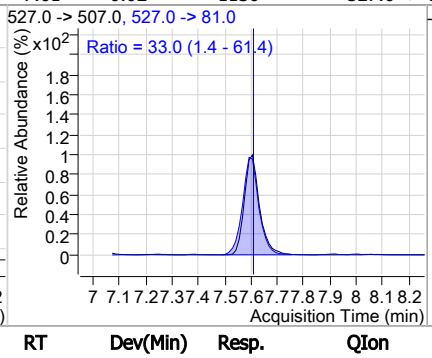


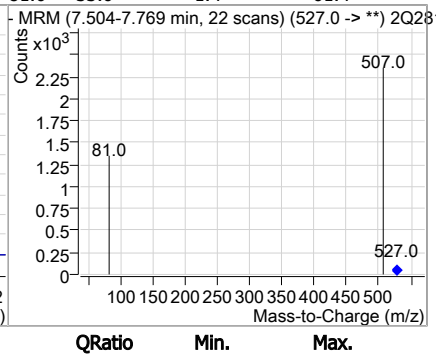




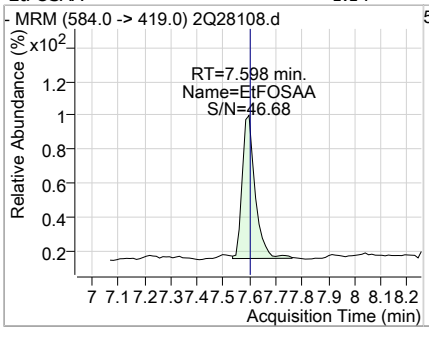
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.99	7.61	0.02	1130	527.0 -> 81.0	33.0	1.4	61.4

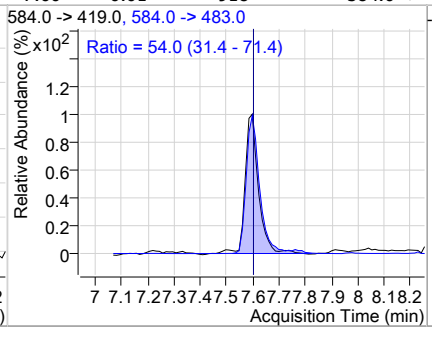


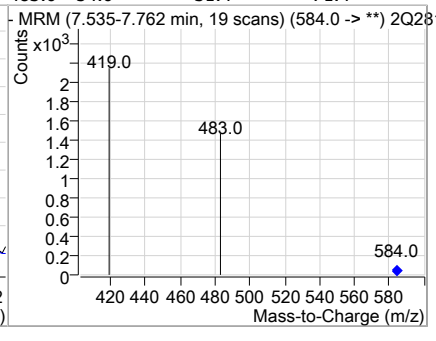




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.14	7.60	0.01	918	584.0 -> 483.0	54.0	31.4	71.4



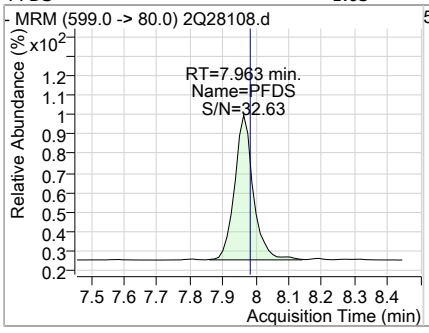


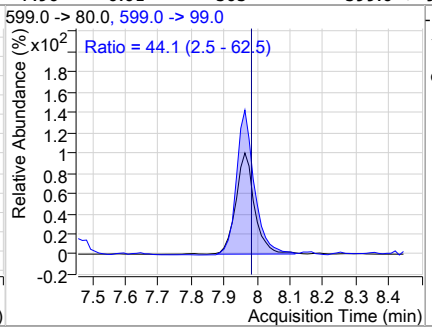


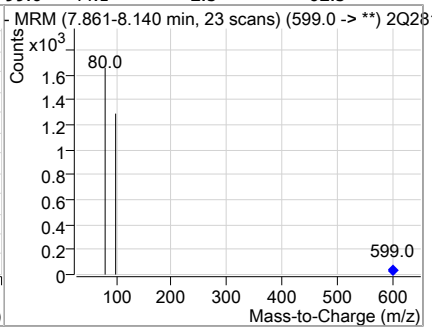
7.6.17

Perfluorinated Compounds by LC/MS/MS

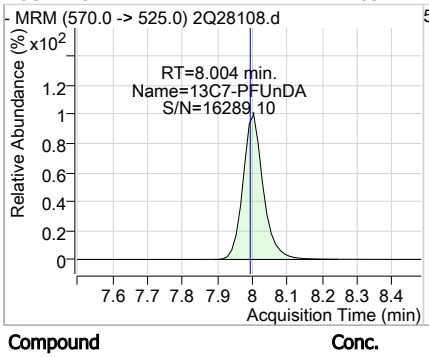
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.03	7.96	0.01	505	599.0 -> 99.0	44.1	2.5	62.5

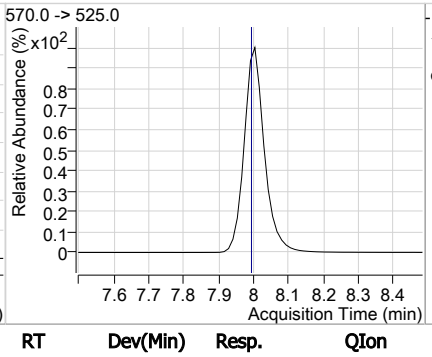


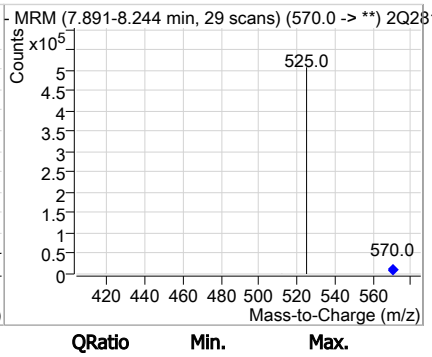




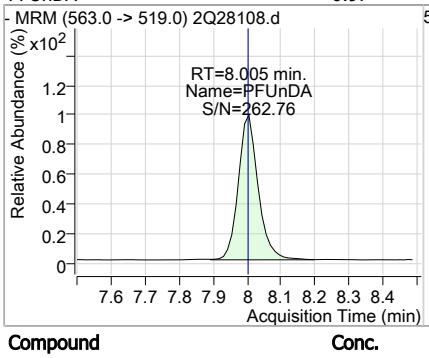
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	22.08	8.00	0.01	383793				

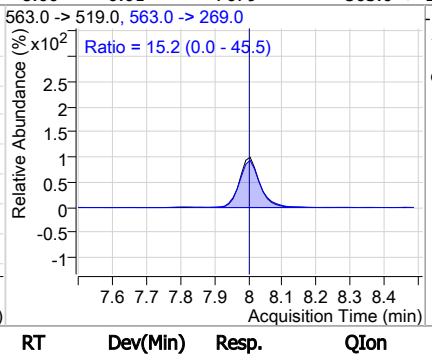


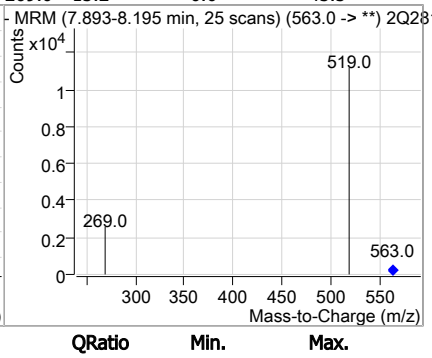




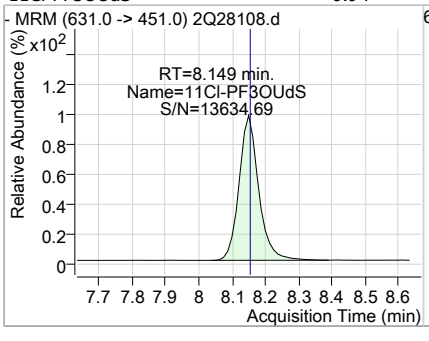
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.97	8.00	0.01	7679	563.0 -> 269.0	15.2	0.0	45.5

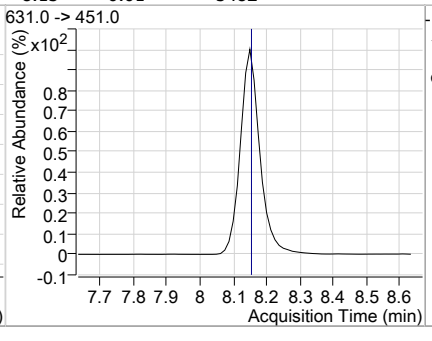


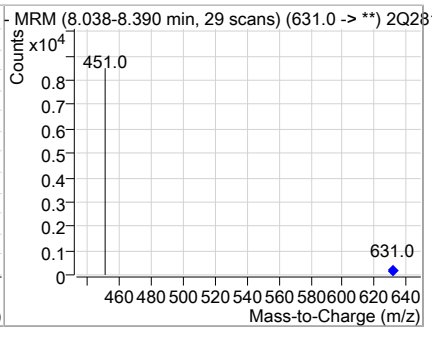




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.94	8.15	0.01	5482				

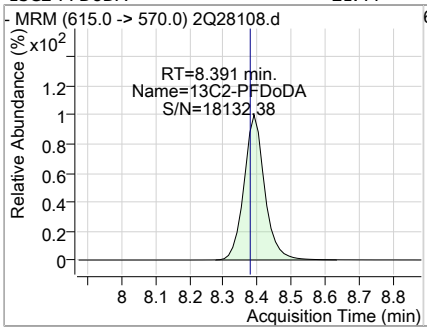


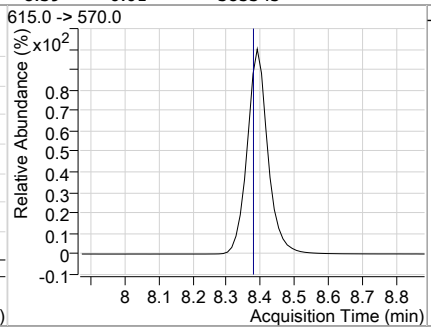


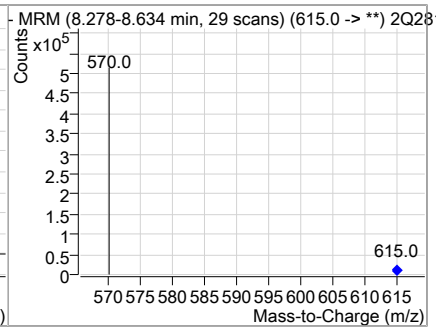


Perfluorinated Compounds by LC/MS/MS

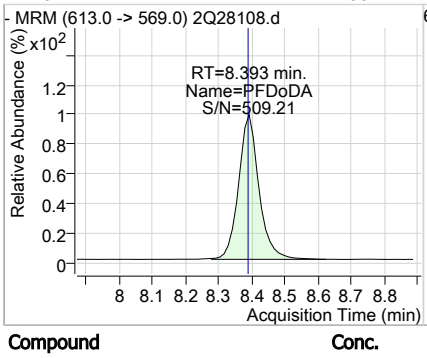
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.44	8.39	0.01	385345				

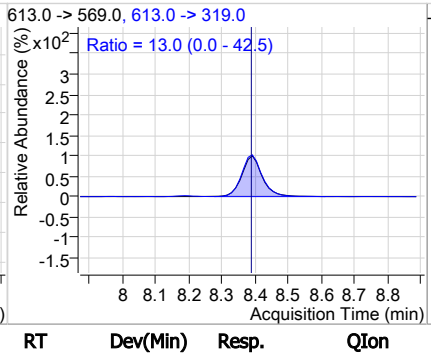


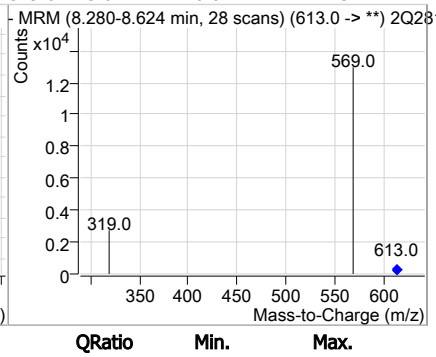




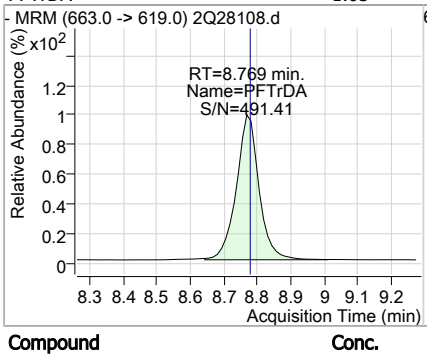
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.00	8.39	0.01	8838	613.0 -> 319.0	13.0	0.0	42.5

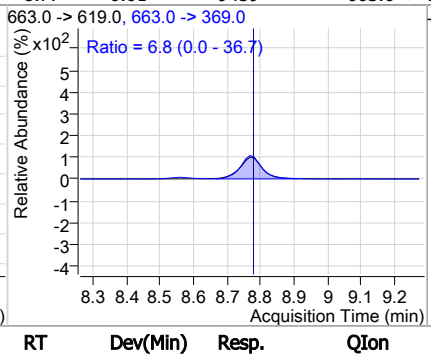


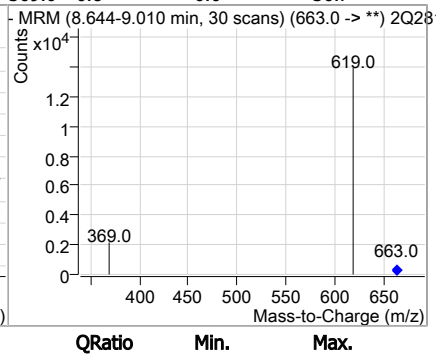




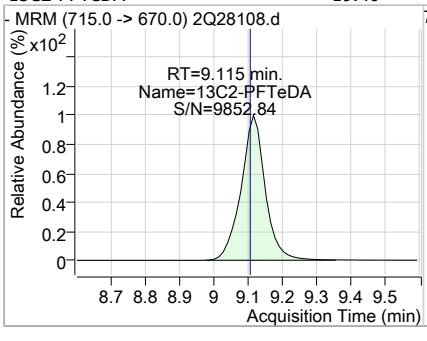
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.05	8.77	0.01	9459	663.0 -> 369.0	6.8	0.0	36.7

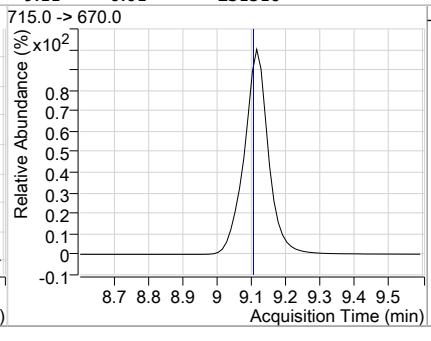


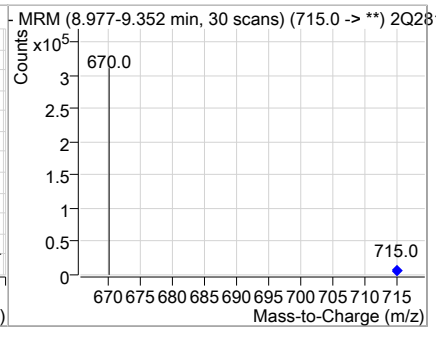




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.46	9.11	0.01	231516				

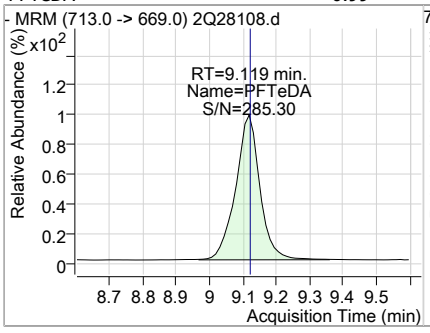


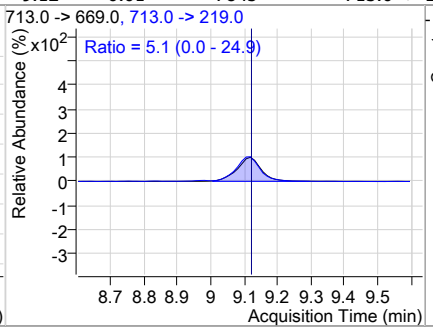


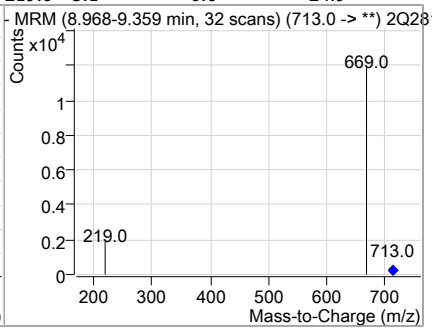


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.99	9.12	0.01	7845	713.0 -> 219.0	5.1	0.0	24.9







7.6.17

7

Manual Integration Approval Summary

Sample Number: S2Q448-CC445 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28108.D **Analyst approved:** 03/26/19 13:30 Natasha Gumtie
Injection Time: 03/25/19 18:17 **Supervisor approved:** 03/26/19 16:10 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.03	Split peak

Cal Report: 2Q28161.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28161.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 2:58:01 PM
Sample Name : ic449-0.5
Vial : Vial 2
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

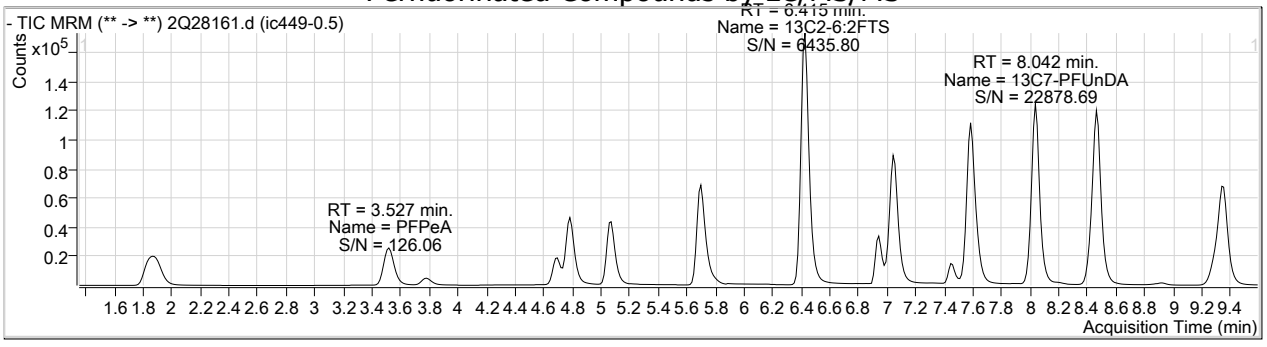
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.435	415.0 -> 370.0	340724	20.00	µg/L	-0.013
13C4-PFOS	7.036	503.0 -> 80.0	51070	20.00	µg/L	-0.014
M4-PFBA	1.865	217.0 -> 172.0	154480	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	130044	20.00	µg/L	-0.013
M5-PFHxA	4.788	318.0 -> 273.0	188019	20.00	µg/L	-0.013
M4-PFHpA	5.705	367.0 -> 322.0	267500	20.00	µg/L	-0.013
M8-PFOA	6.434	421.0 -> 376.0	280919	20.00	µg/L	-0.013
M9-PFNA	7.052	472.0 -> 427.0	288771	20.00	µg/L	-0.013
M6-PFDA	7.594	519.0 -> 474.0	397261	20.00	µg/L	0.000
M7-PFUnDA	8.042	570.0 -> 525.0	502485	20.00	µg/L	-0.013
M2-PFDoDA	8.466	615.0 -> 570.0	546081	20.00	µg/L	-0.013
M2-PFTeDA	9.340	715.0 -> 670.0	375011	20.00	µg/L	-0.013
M8-FOSA	6.946	506.0 -> 78.0	118610	20.00	µg/L	-0.013
M3-PFBS	3.780	302.0 -> 99.0	22343	20.00	µg/L	-0.013
M3-PFHxS	5.735	402.0 -> 99.0	24945	20.00	µg/L	-0.013
M8-PFOS	7.033	507.0 -> 99.0	32467	20.00	µg/L	-0.014
M2-4:2FTS	4.696	329.0 -> 309.0	76906	20.00	µg/L	0.000
M2-6:2FTS	6.415	429.0 -> 409.0	86681	20.00	µg/L	-0.015
M2-8:2FTS	7.630	529.0 -> 509.0	62817	20.00	µg/L	-0.013
M3-MeFOSAA	7.446	573.0 -> 419.0	47619	20.00	µg/L	-0.013
M3-HFPO-DA	5.081	287.0 -> 169.0	174836	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	76621	18.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
13C2-6:2FTS	6.415	429.0 -> 409.0	86578	19.06	µg/L	-0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
13C2-8:2FTS	7.630	529.0 -> 509.0	62818	18.65	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C2-PFDoDA	8.466	615.0 -> 570.0	546054	19.90	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C2-PFTeDA	9.340	715.0 -> 670.0	375060	19.86	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C3-PFBS	3.780	302.0 -> 99.0	22257	19.78	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%		
13C3-PFHxS	5.735	402.0 -> 99.0	24935	20.31	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C4-PFBA	1.865	217.0 -> 172.0	153588	19.89	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C4-PFHpA	5.705	367.0 -> 322.0	267070	20.08	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C5-PFHxA	4.788	318.0 -> 273.0	187836	19.90	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C5-PFPeA	3.524	268.0 -> 223.0	129286	19.71	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.5%		
13C6-PFDA	7.594	519.0 -> 474.0	396937	20.39	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

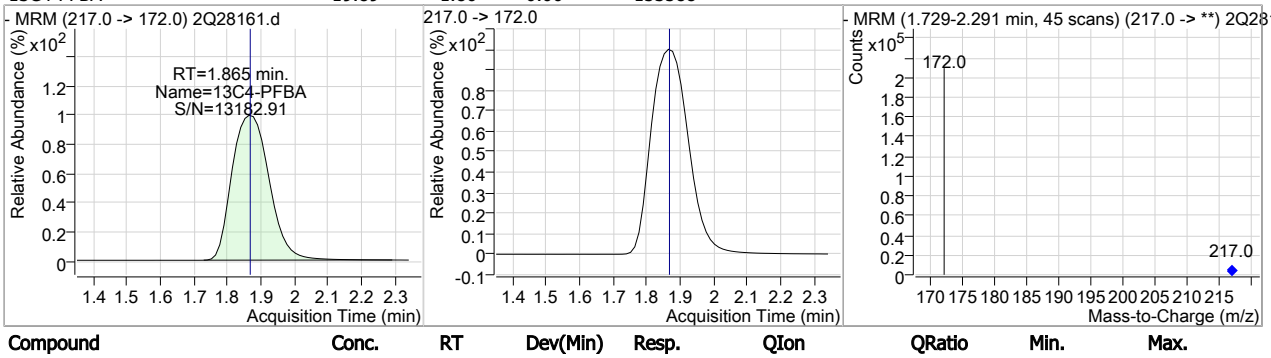
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C7-PFUnDA	8.042	570.0 -> 525.0	502857	20.35 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C8-FOSA	6.946	506.0 -> 78.0	118628	20.57 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C8-PFOA	6.434	421.0 -> 376.0	280424	20.25 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C8-PFOS	7.033	507.0 -> 99.0	32419	20.22 µg/L		-0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%		
13C9-PFNA	7.052	472.0 -> 427.0	288304	20.15 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
d3-MeFOSAA	7.446	573.0 -> 419.0	47540	19.71 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.5%		
M2-PFOA	6.435	415.0 -> 370.0	341053	19.99 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.036	503.0 -> 80.0	51146	20.15 µg/L		-0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	174836	99.87 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
Target Compounds						**QValue**
4:2FTS	4.699	327.0 -> 307.0	1323	0.59 µg/L		98
6:2FTS	6.417	427.0 -> 407.0	1307	0.59 µg/L		94
8:2FTS	7.631	527.0 -> 507.0	1044	0.63 µg/L		94
EtFOSAA	7.598	584.0 -> 419.0	663	0.67 µg/L		86
FOSA	6.937	498.0 -> 78.0	1597	0.58 µg/L		100
MeFOSAA	7.461	570.0 -> 419.0	847	0.72 µg/L		95
PFBA	1.860	213.0 -> 169.0	819	0.55 µg/L		100
PFBS	3.771	299.0 -> 80.0	980	0.54 µg/L		97
PFDA	7.595	513.0 -> 469.0	4452	0.55 µg/L		99
PFDoDA	8.469	613.0 -> 569.0	6845	0.55 µg/L		97
PFDS	8.001	599.0 -> 80.0	313	0.51 µg/L		93
PFHpA	5.708	363.0 -> 319.0	6344	0.53 µg/L		99
PFHpS	6.441	449.0 -> 80.0	713	0.57 µg/L		95
PFHxA	4.790	313.0 -> 269.0	1892	0.61 µg/L		97
PFHxS	5.738	399.0 -> 80.0	775	0.54 µg/L	m	95
PFNA	7.053	463.0 -> 419.0	4810	0.54 µg/L		99
PFNS	7.565	549.0 -> 80.0	736	0.60 µg/L		86
PFOA	6.437	413.0 -> 369.0	4293	0.57 µg/L		96
PFOS	7.037	499.0 -> 80.0	961	0.58 µg/L	m	97
PFPeA	3.527	263.0 -> 219.0	3253	0.56 µg/L		100
PFPeS	4.908	349.0 -> 80.0	689	0.58 µg/L		98
PFTeDA	9.346	713.0 -> 669.0	6967	0.56 µg/L		99
PFTrDA	8.923	663.0 -> 619.0	7884	0.55 µg/L		99
PFUnDA	8.043	563.0 -> 519.0	5613	0.54 µg/L		96
11Cl-PF3OUdS	8.200	631.0 -> 451.0	3750	0.55 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	696	0.52 µg/L		100
ADONA	5.804	377.0 -> 251.0	7226	0.54 µg/L		100
HFPO-DA	5.072	329.0 -> 169.0	6148	2.90 µg/L		98

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

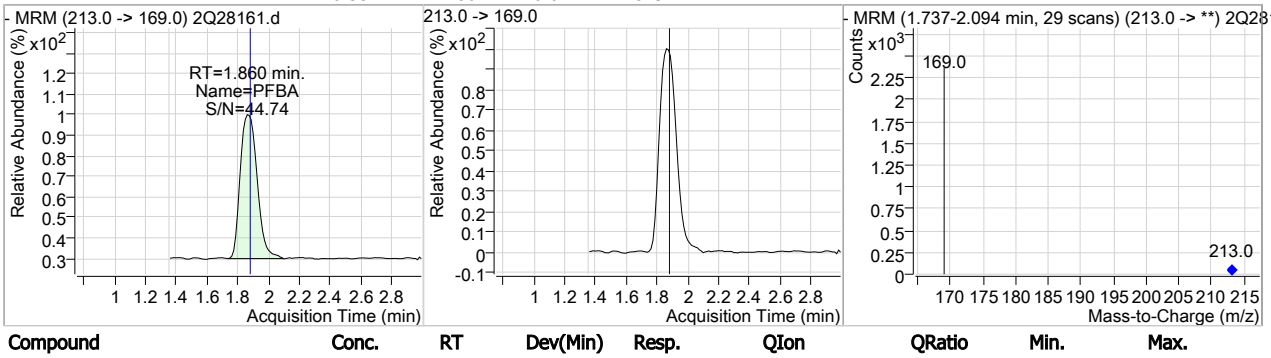
Perfluorinated Compounds by LC/MS/MS



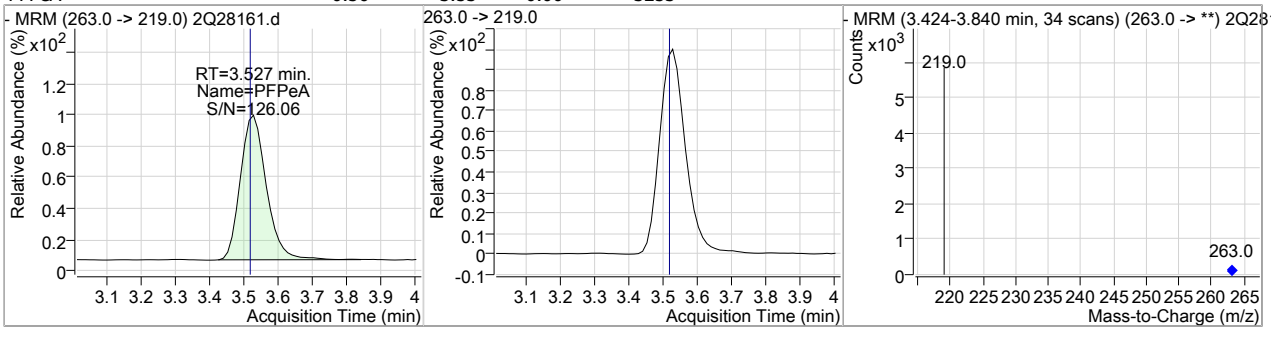
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.89	1.86	0.00	153588				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.55	1.86	-0.01	819				

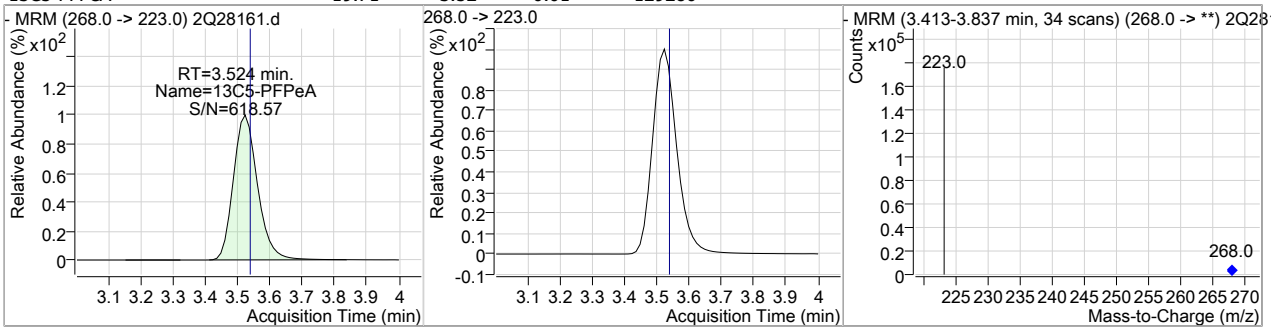


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.56	3.53	0.00	3253				

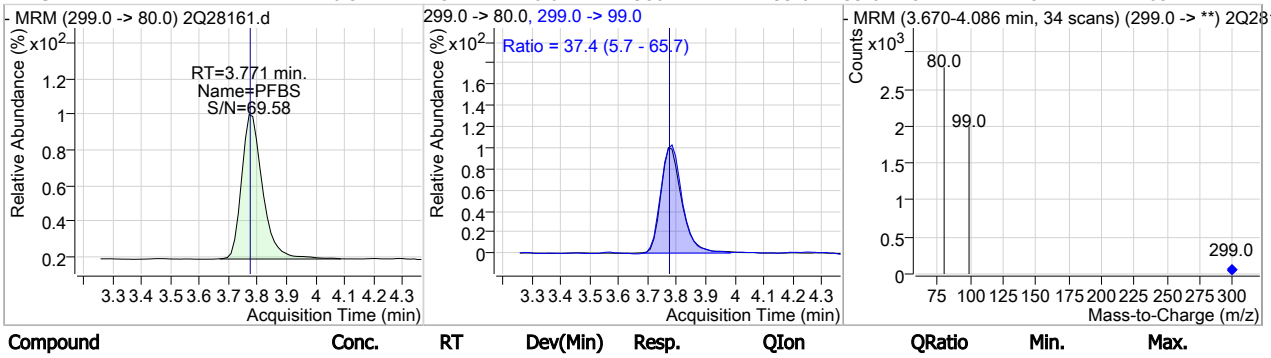


Perfluorinated Compounds by LC/MS/MS

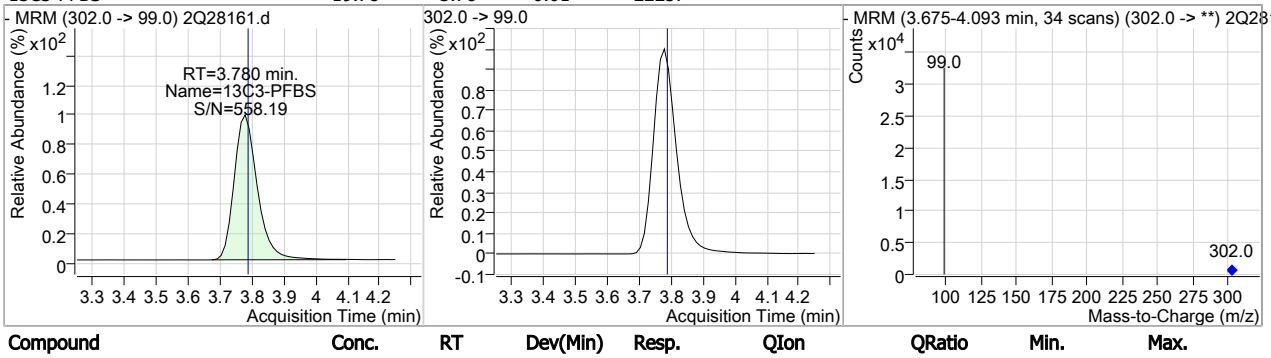
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.71	3.52	-0.01	129286				



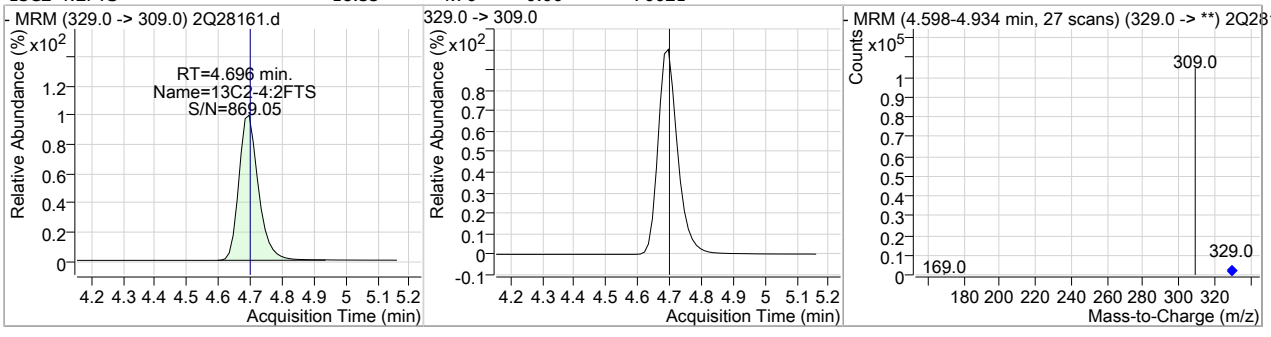
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.54	3.77	-0.01	980	299.0 -> 99.0	37.4	5.7	65.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.78	3.78	-0.01	22257				



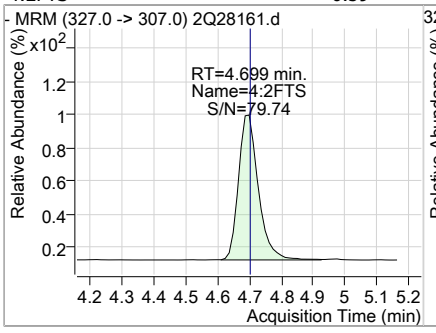
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.55	4.70	0.00	76621				

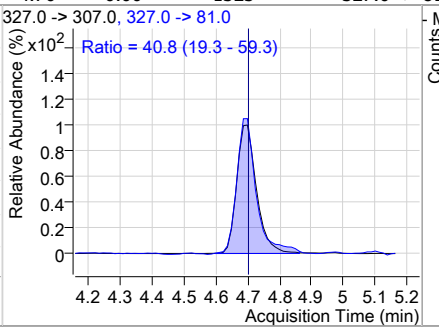


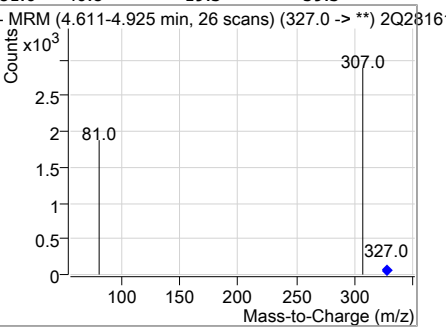
7.6.18

Perfluorinated Compounds by LC/MS/MS

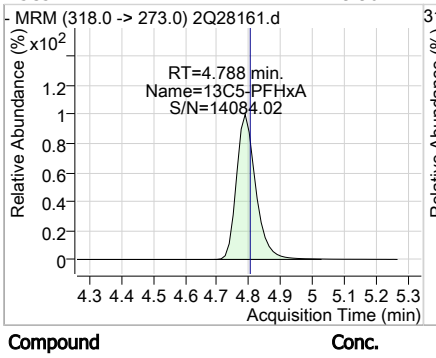
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.59	4.70	0.00	1323	327.0 -> 81.0	40.8	19.3	59.3

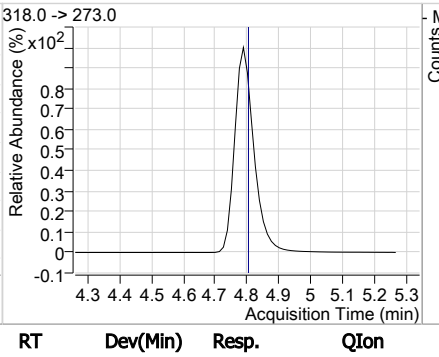


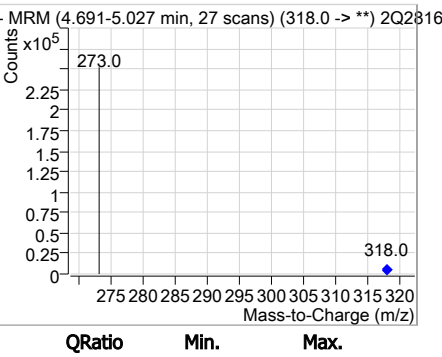




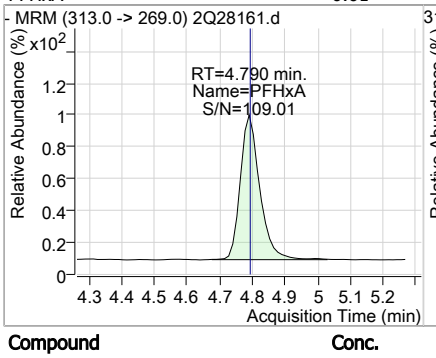
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.90	4.79	-0.01	187836				

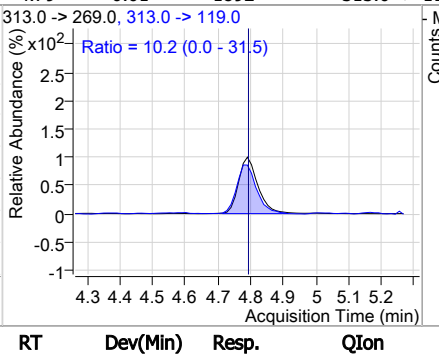


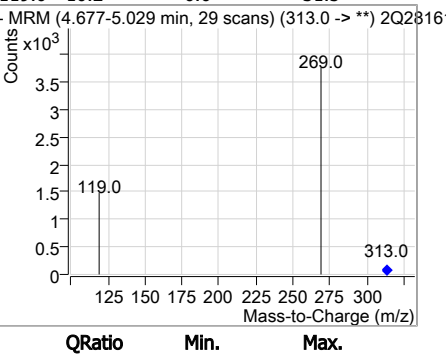




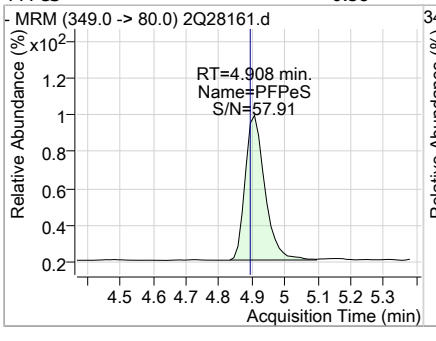
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.61	4.79	-0.01	1892	313.0 -> 119.0	10.2	0.0	31.5

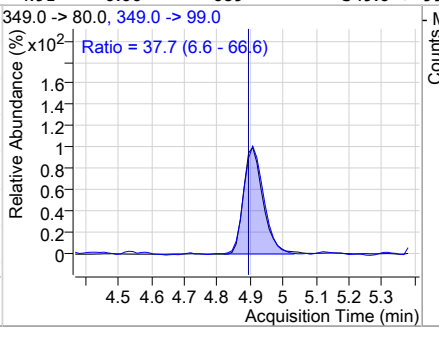


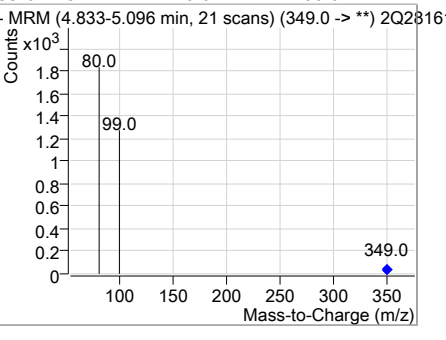




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.58	4.91	0.00	689	349.0 -> 99.0	37.7	6.6	66.6

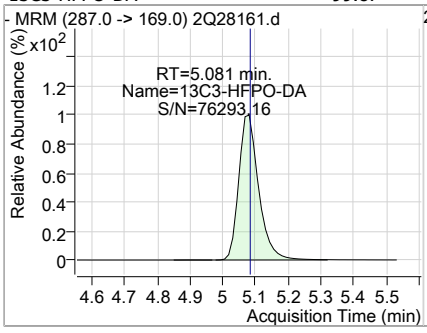


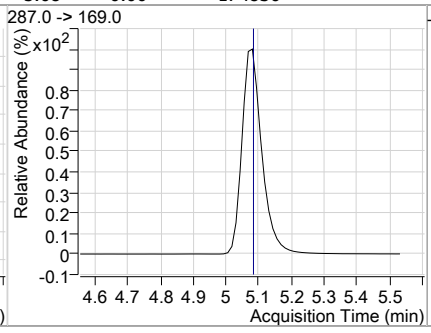


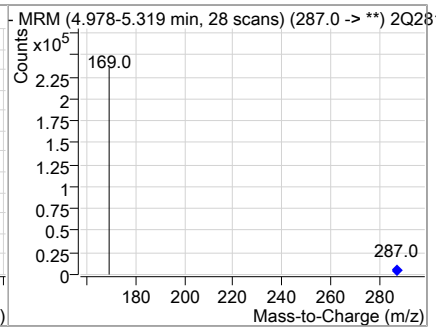


Perfluorinated Compounds by LC/MS/MS

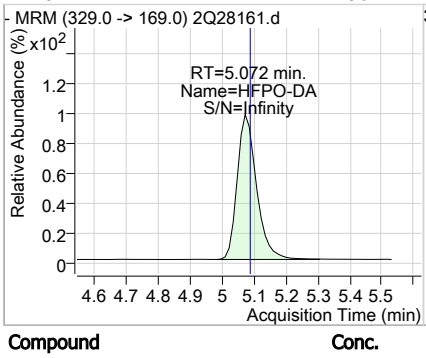
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	99.87	5.08	0.00	174836				

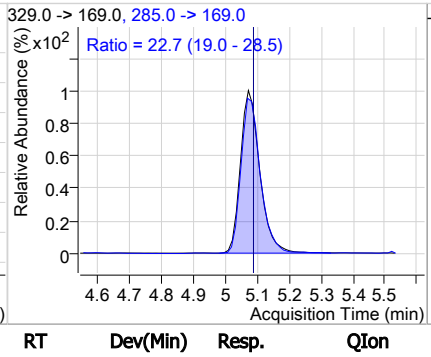


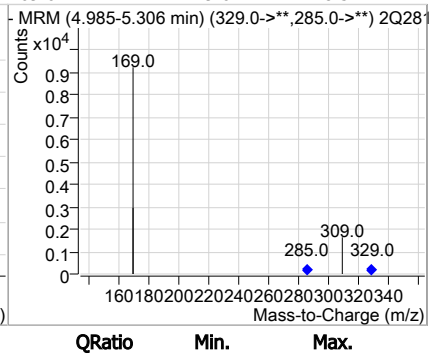




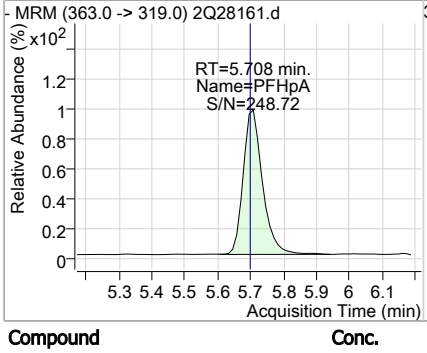
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.90	5.07	-0.01	6148	285.0 -> 169.0	22.7	19.0	28.5

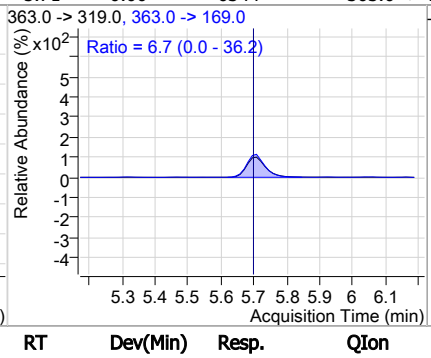


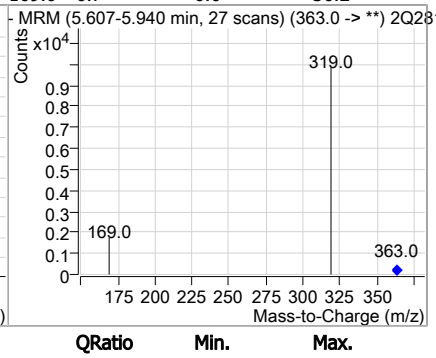




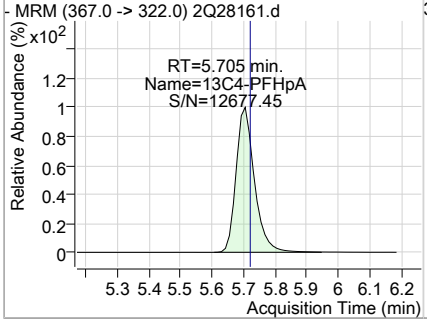
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.53	5.71	0.00	6344	363.0 -> 169.0	6.7	0.0	36.2

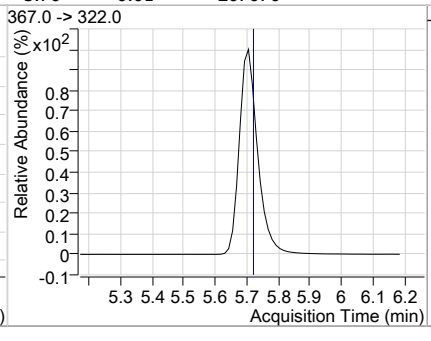


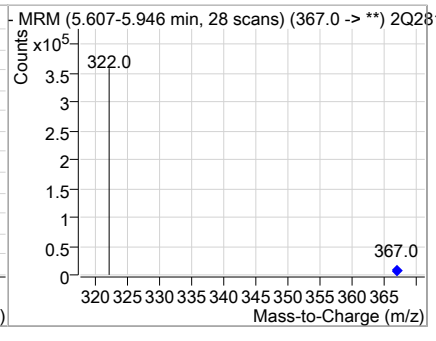




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.08	5.70	-0.01	267070				

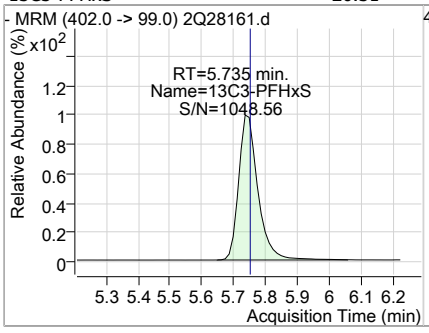


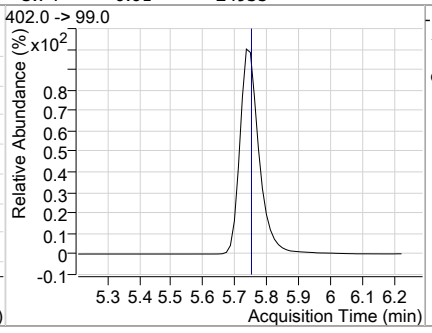


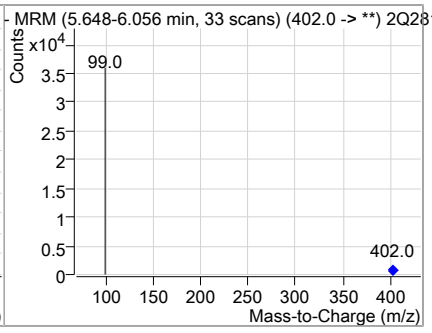


Perfluorinated Compounds by LC/MS/MS

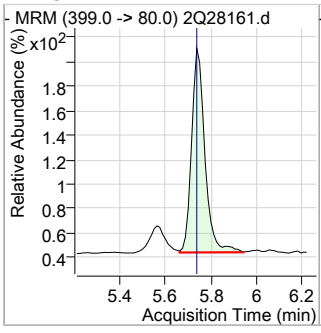
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.31	5.74	-0.01	24935				

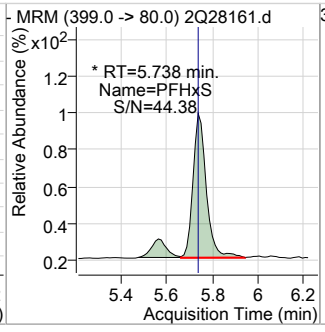


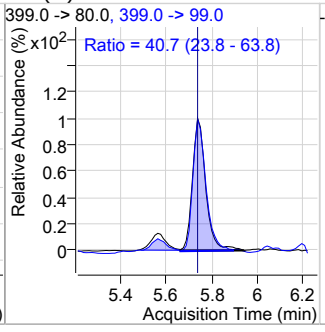


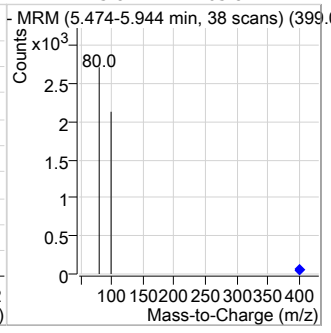


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.54	5.74	-0.01	775 (m)	399.0 -> 99.0	40.7	23.8	63.8

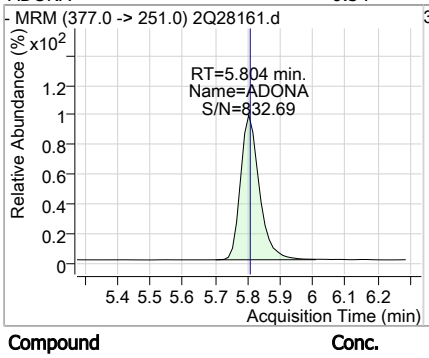


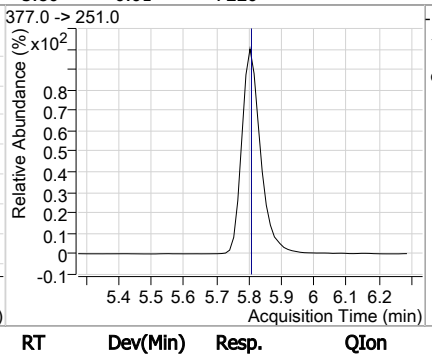


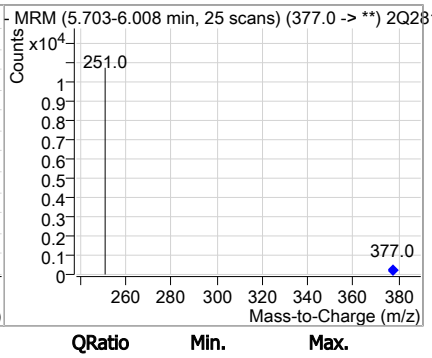




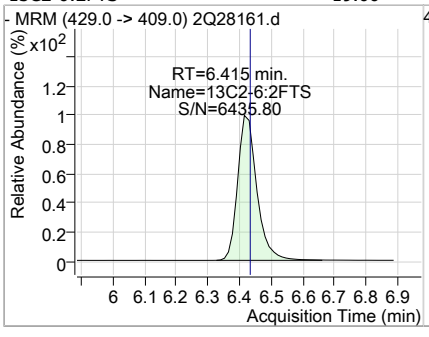
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.54	5.80	-0.01	7226				

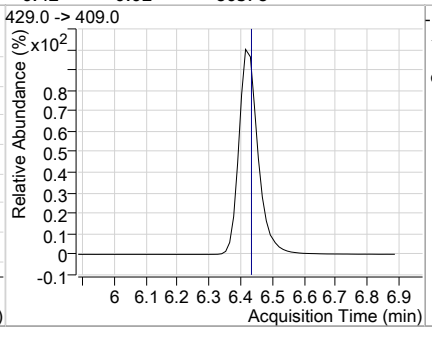


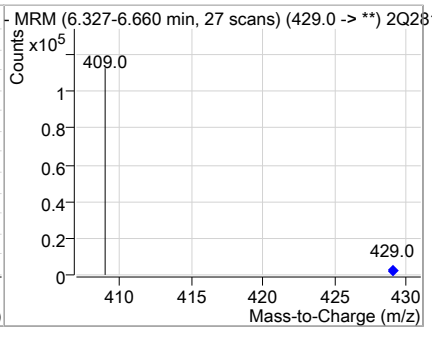




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.06	6.42	-0.02	86578				

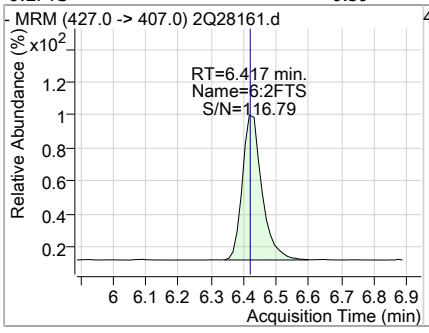


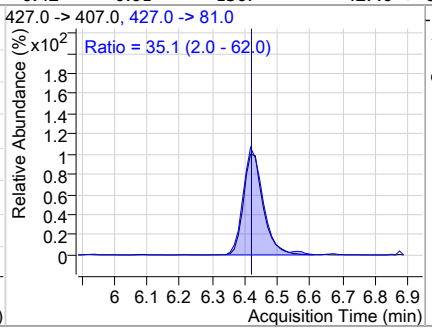


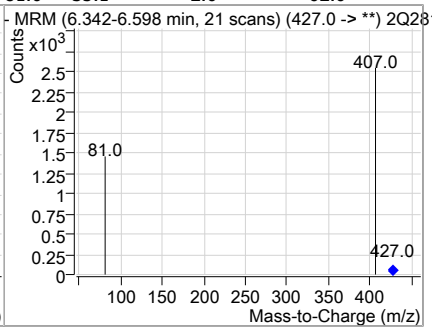


Perfluorinated Compounds by LC/MS/MS

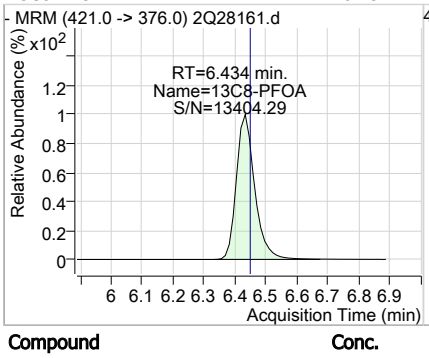
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.59	6.42	-0.01	1307	427.0 -> 81.0	35.1	2.0	62.0

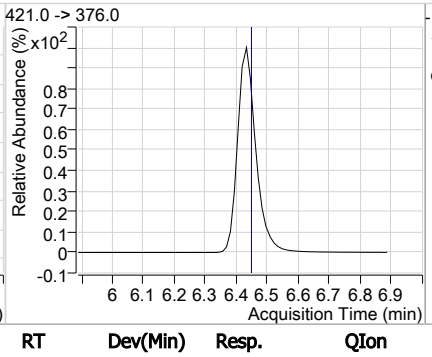


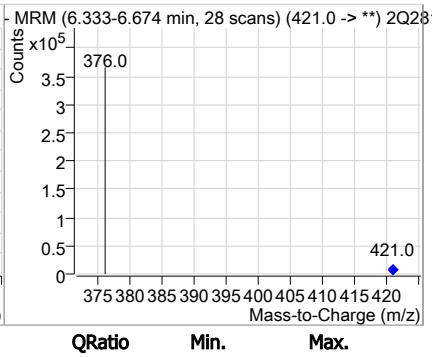




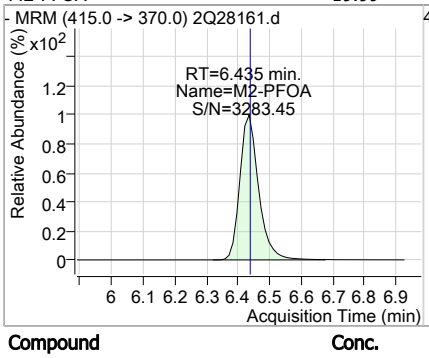
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.25	6.43	-0.01	280424				

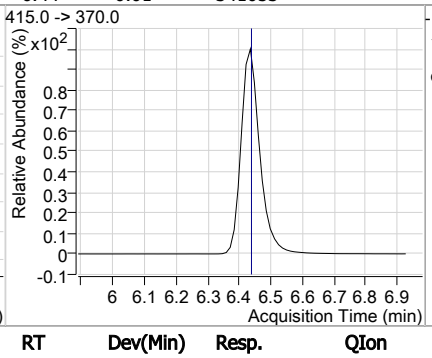


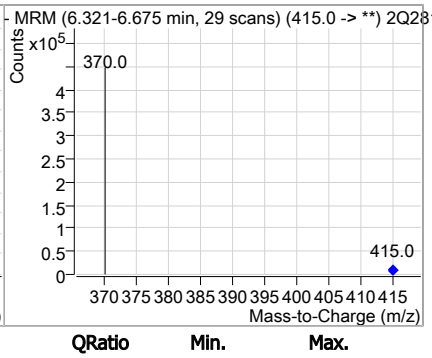




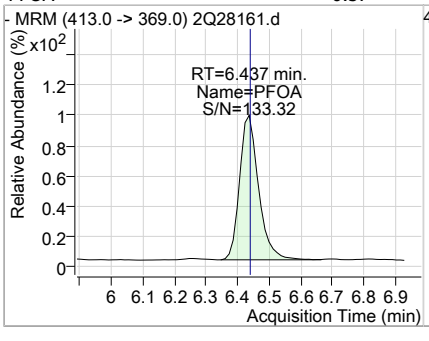
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.44	-0.01	341053				

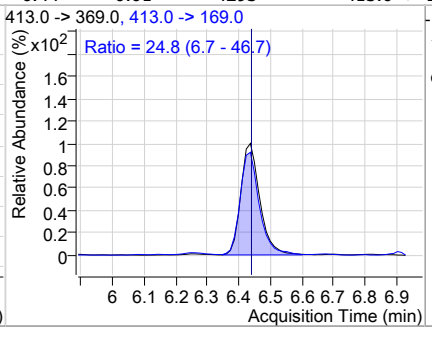


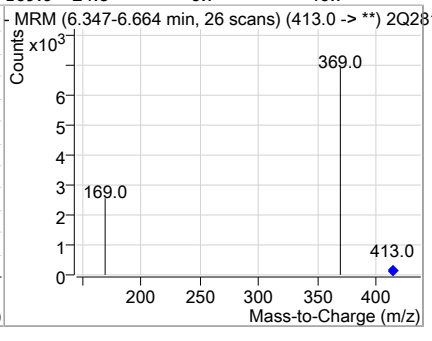




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.57	6.44	-0.01	4293	413.0 -> 169.0	24.8	6.7	46.7



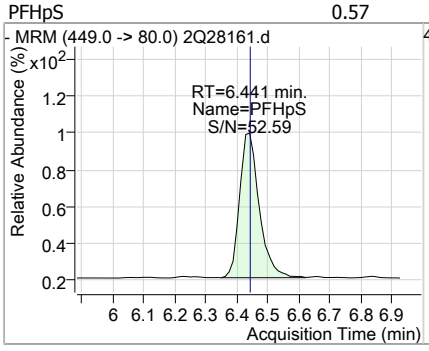


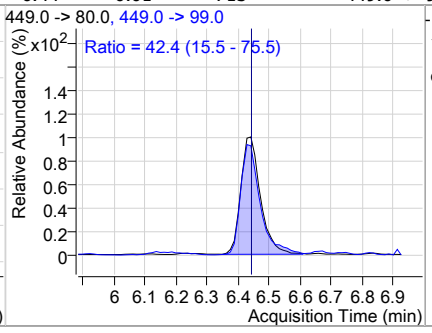


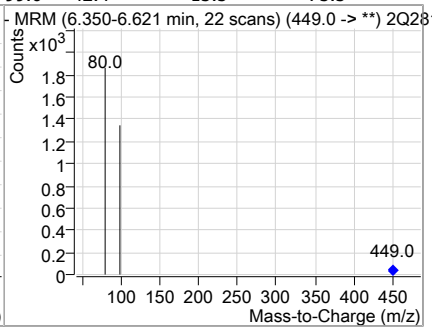
7.6.18

Perfluorinated Compounds by LC/MS/MS

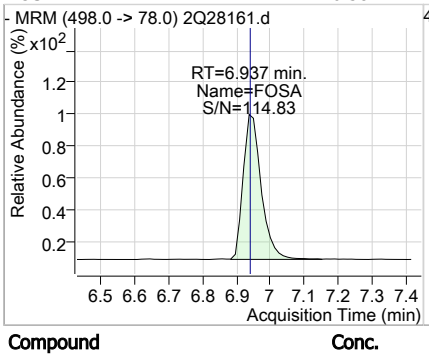
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.57	6.44	-0.01	713	449.0 -> 99.0	42.4	15.5	75.5

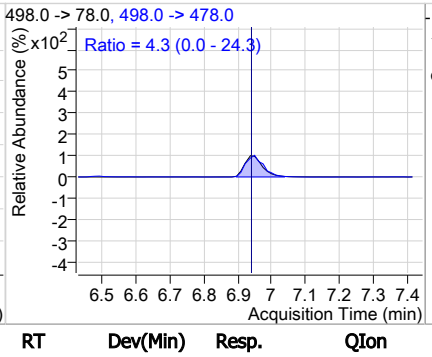


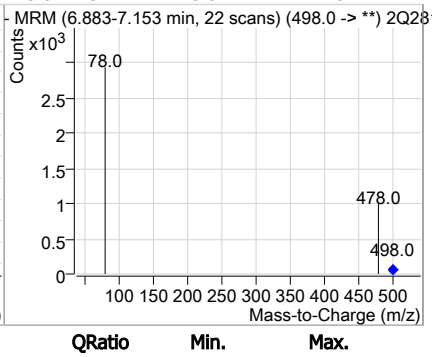




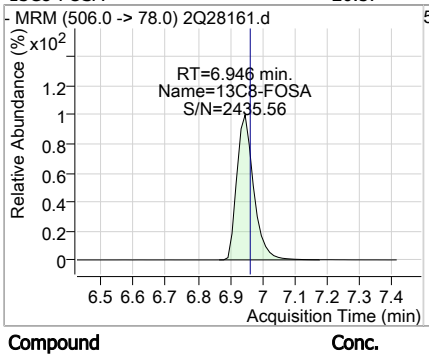
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.58	6.94	-0.01	1597	498.0 -> 478.0	4.3	0.0	24.3

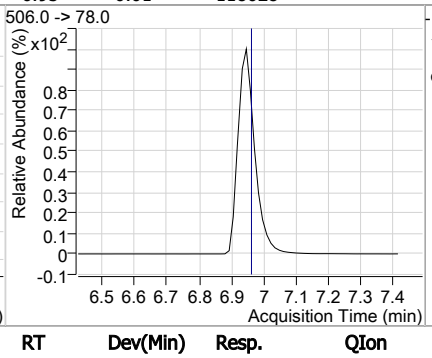


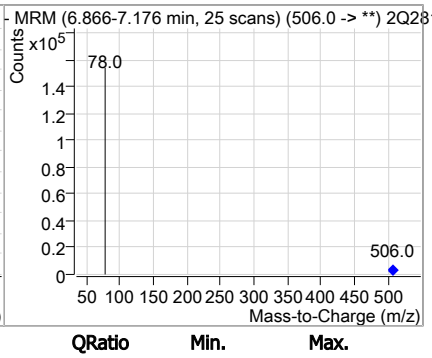




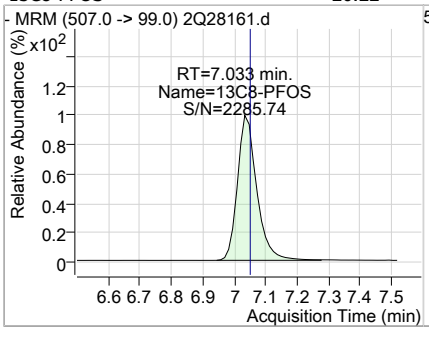
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.57	6.95	-0.01	118628				

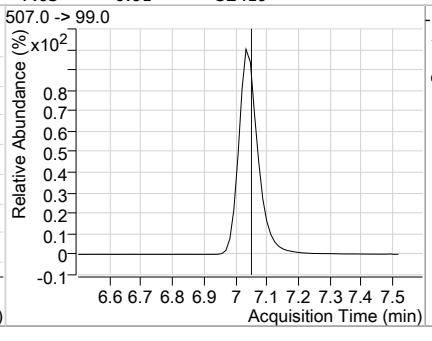


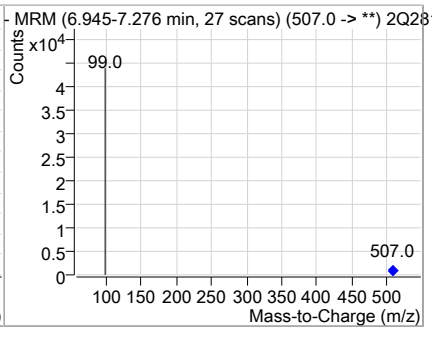




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.22	7.03	-0.01	32419				



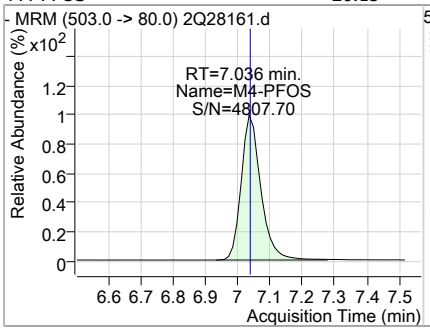


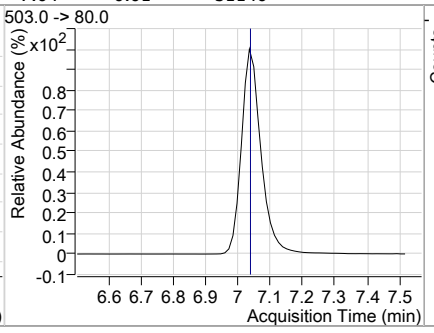


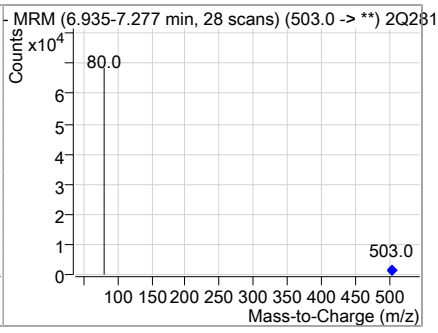
7.6.18

Perfluorinated Compounds by LC/MS/MS

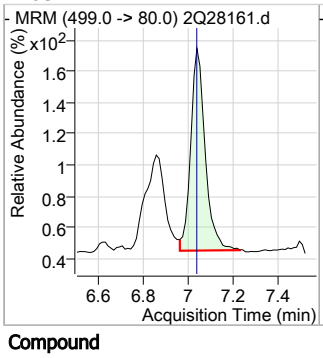
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.15	7.04	-0.01	51146				

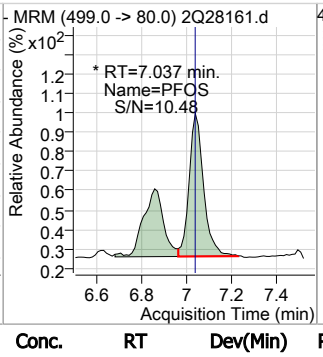


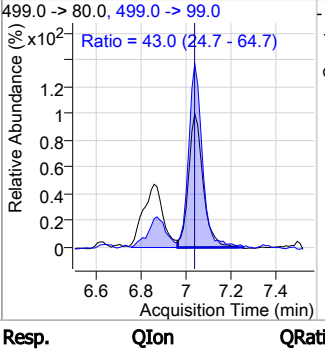


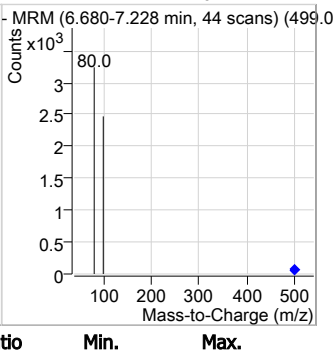


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.58	7.04	-0.01	961 (m)	499.0 -> 99.0	43.0	24.7	64.7

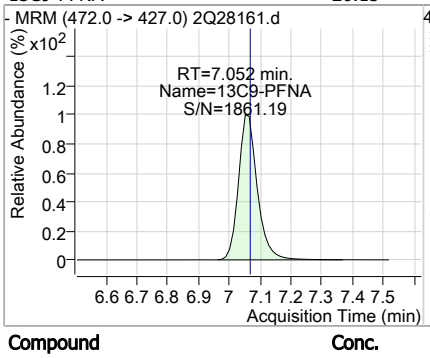


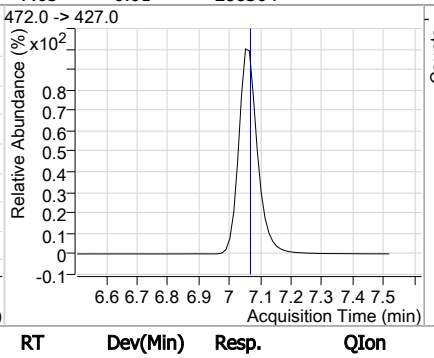


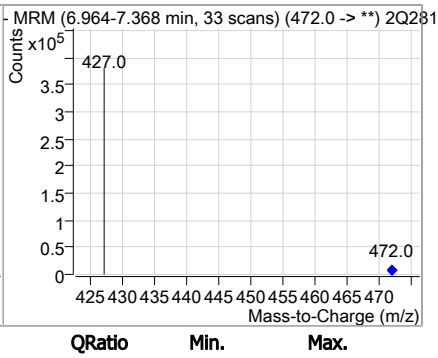




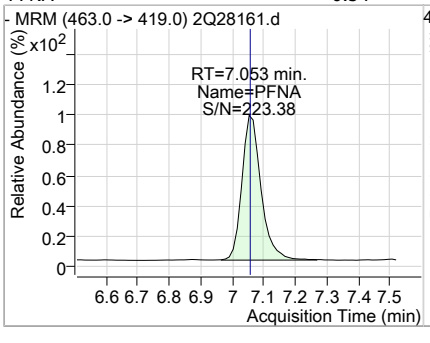
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.15	7.05	-0.01	288304				

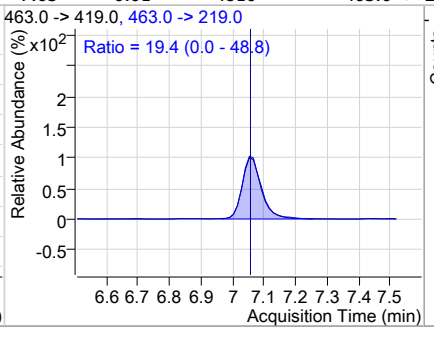


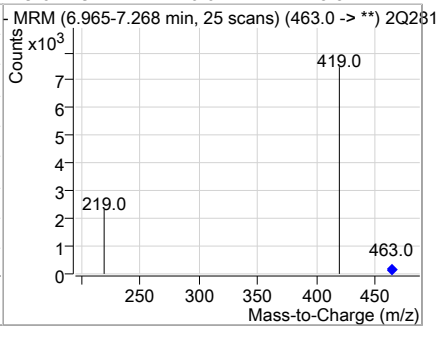




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.54	7.05	-0.01	4810	463.0 -> 219.0	19.4	0.0	48.8





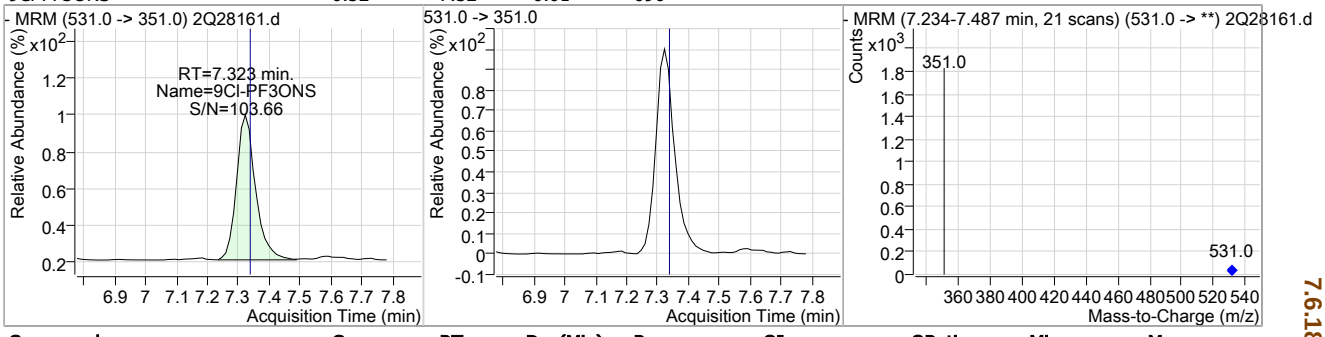


7.6.18

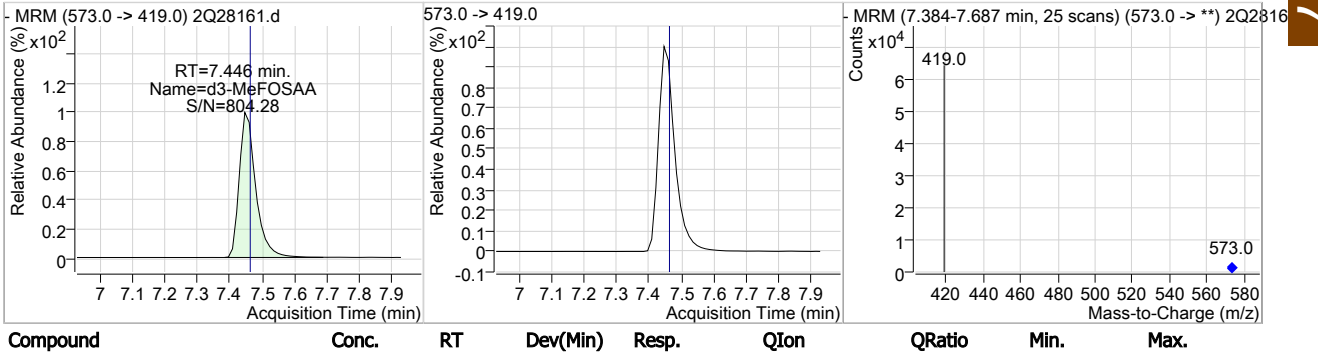
7

Perfluorinated Compounds by LC/MS/MS

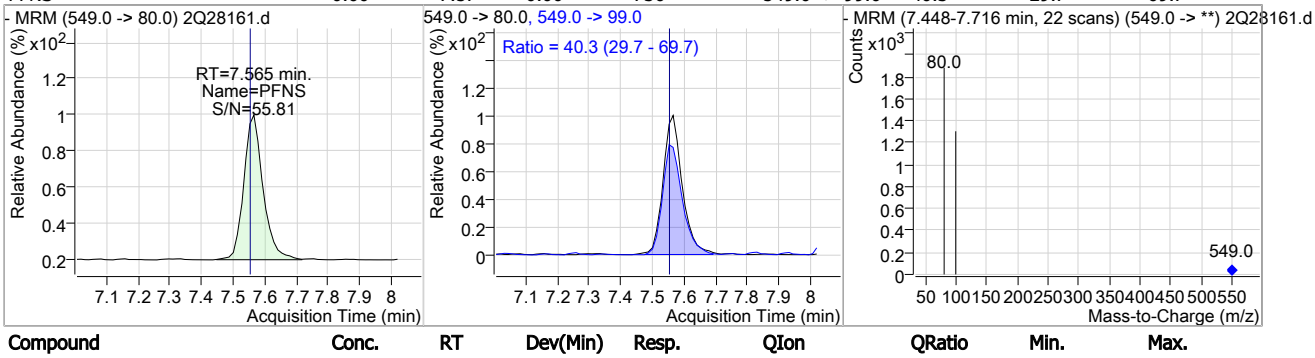
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.52	7.32	-0.01	696				



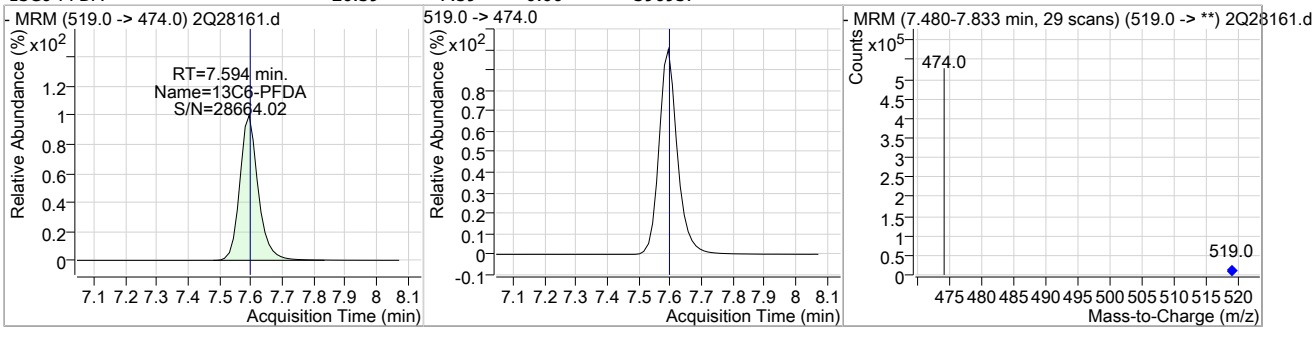
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.71	7.45	-0.01	47540				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.60	7.57	0.00	736	549.0 -> 99.0	40.3	29.7	69.7



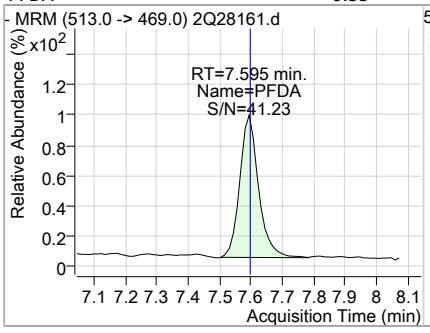
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.39	7.59	0.00	396937				

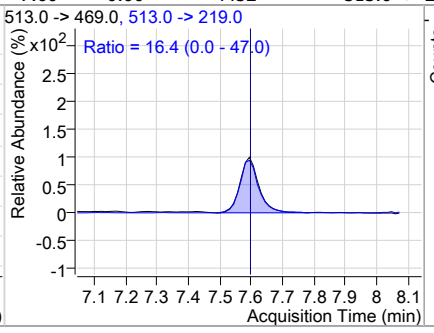


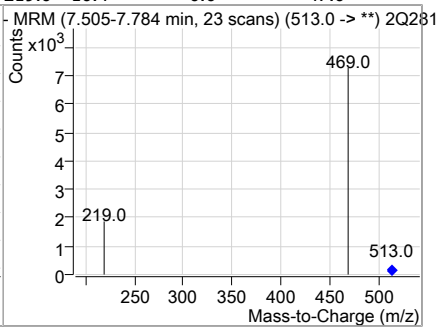
7.6.18

Perfluorinated Compounds by LC/MS/MS

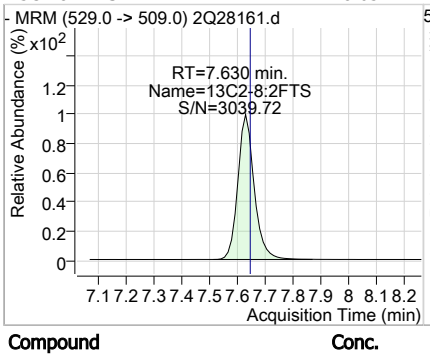
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.55	7.60	0.00	4452	513.0 -> 219.0	16.4	0.0	47.0

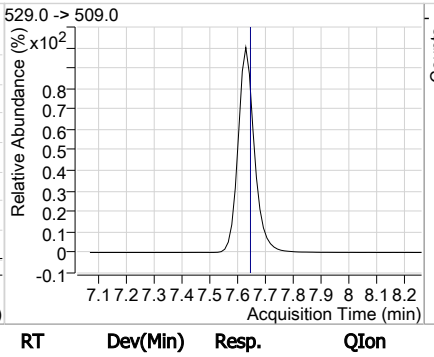


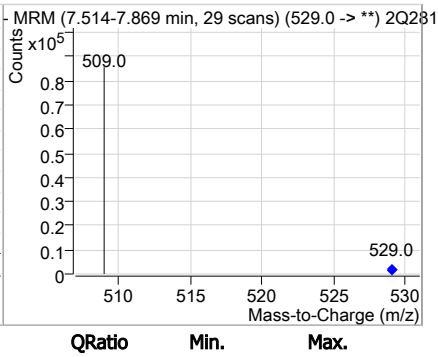




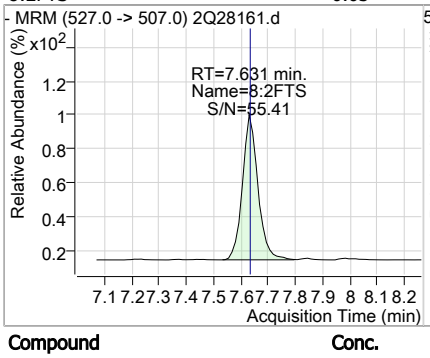
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.65	7.63	-0.01	62818				

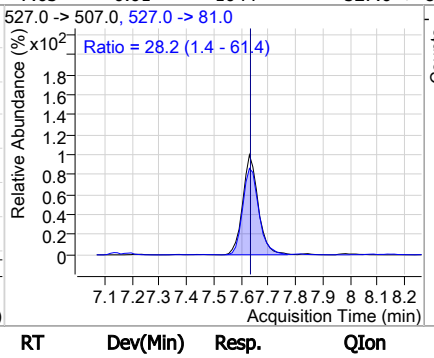


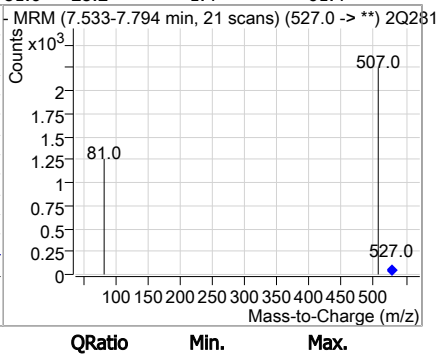




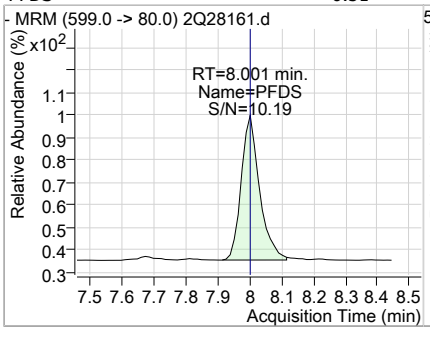
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.63	7.63	-0.01	1044	527.0 -> 81.0	28.2	1.4	61.4

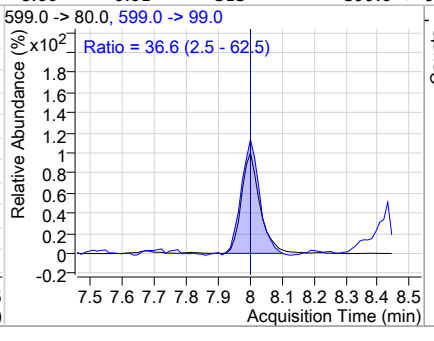


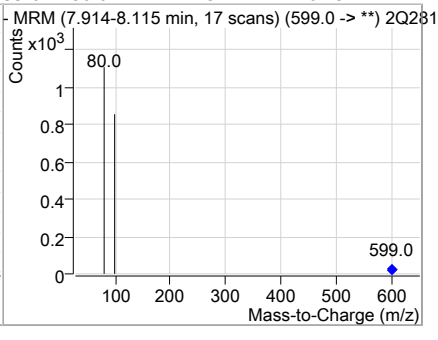




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.51	8.00	-0.01	313	599.0 -> 99.0	36.6	2.5	62.5







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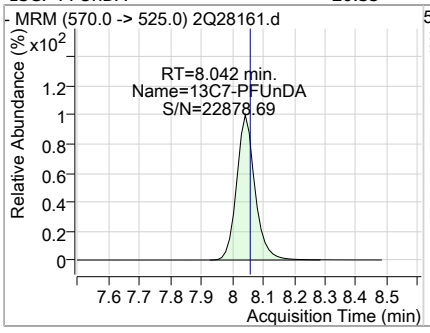
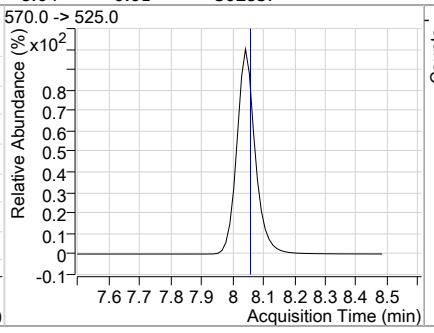
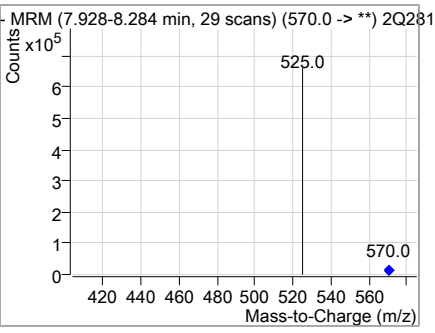
Perfluorinated Compounds by LC/MS/MS

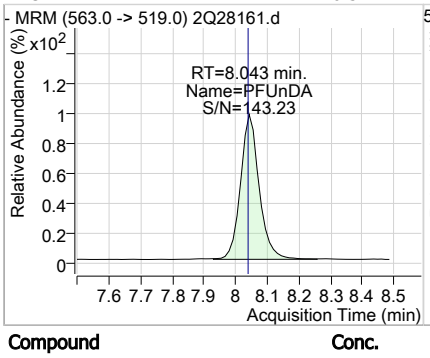
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.35	8.04	-0.01	502857				

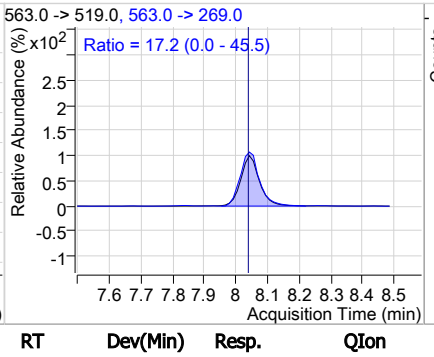


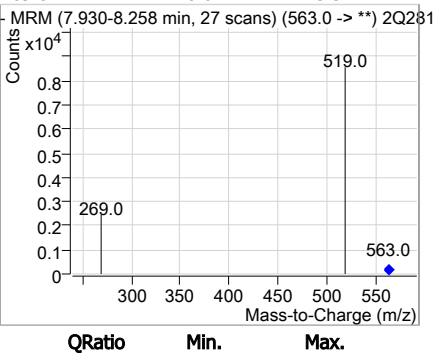




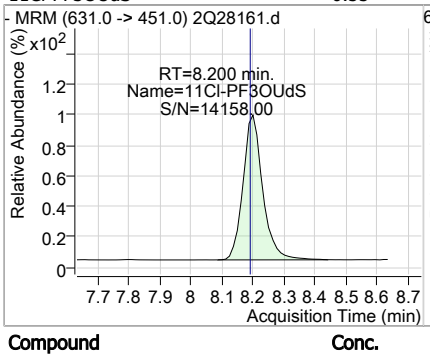
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.54	8.04	-0.01	5613	563.0 -> 269.0	17.2	0.0	45.5

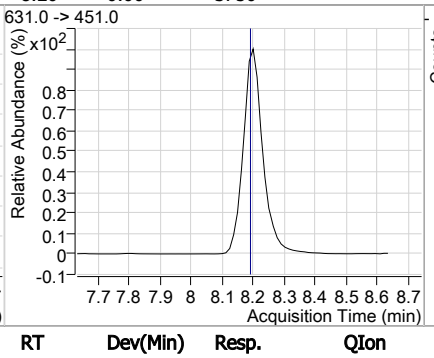


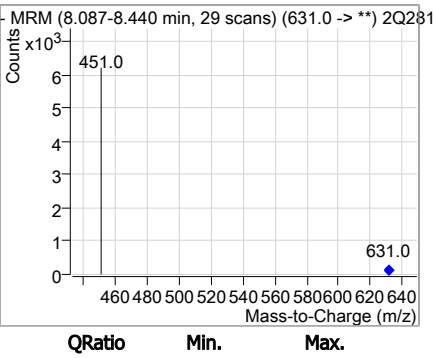




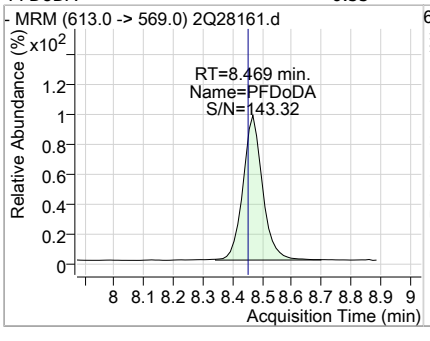
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.55	8.20	0.00	3750				

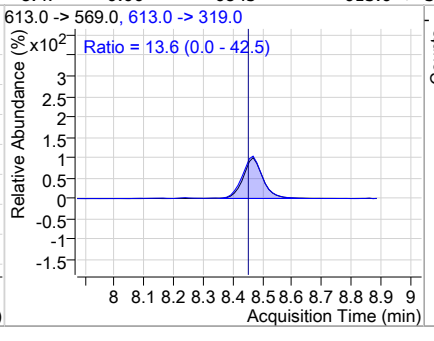


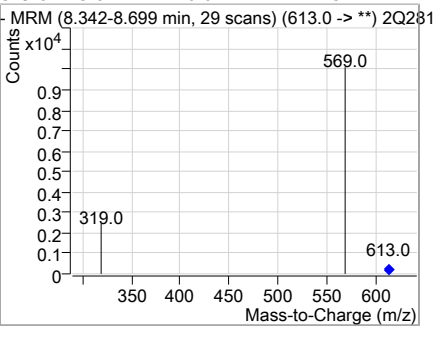




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.55	8.47	0.00	6845	613.0 -> 319.0	13.6	0.0	42.5



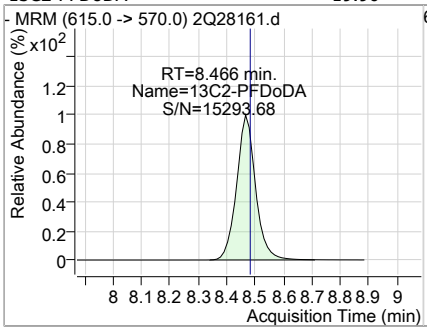


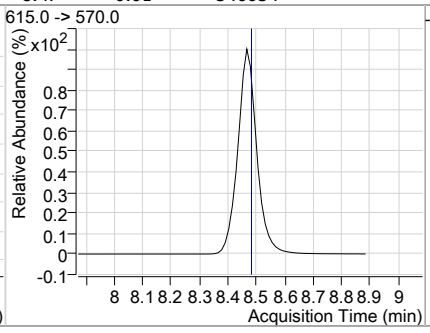


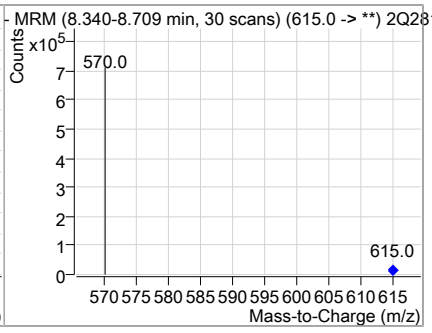
7.6.18

Perfluorinated Compounds by LC/MS/MS

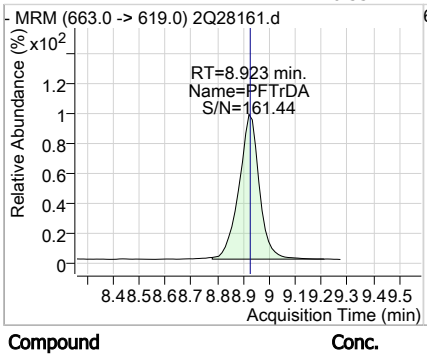
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.90	8.47	-0.01	546054				

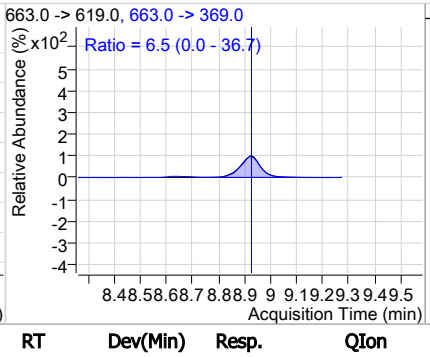


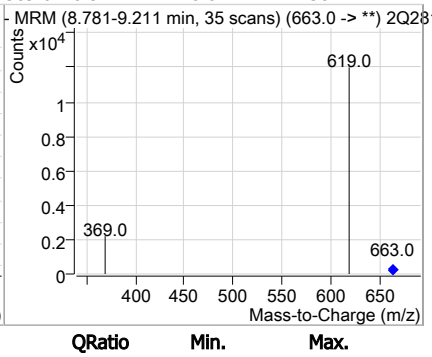




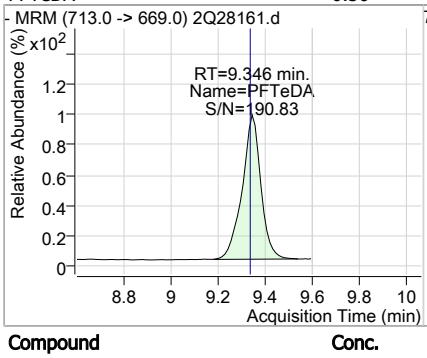
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.55	8.92	-0.01	7884	663.0 -> 369.0	6.5	0.0	36.7

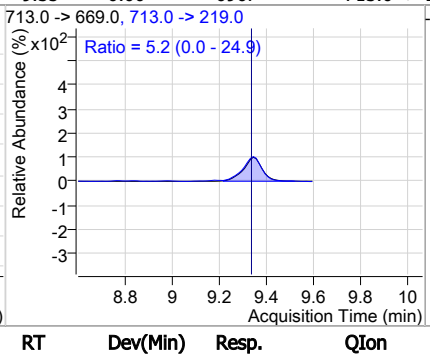


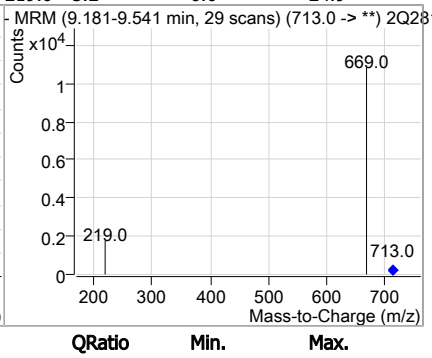




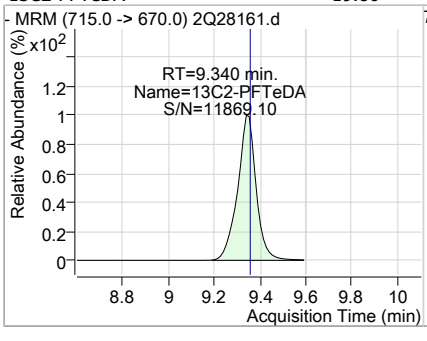
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.56	9.35	0.00	6967	713.0 -> 219.0	5.2	0.0	24.9

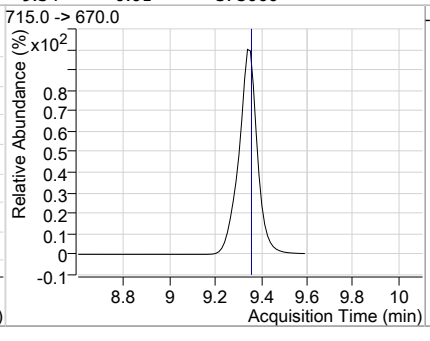


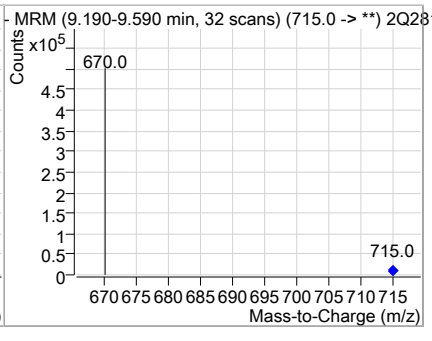




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.86	9.34	-0.01	375060				







Manual Integration Approval Summary

Sample Number: S2Q449-IC449
Lab FileID: 2Q28161.D
Injection Time: 03/26/19 14:58
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Cal Report: 2Q28162.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28162.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 3:13:44 PM
Sample Name : ic449-1
Vial : Vial 3
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

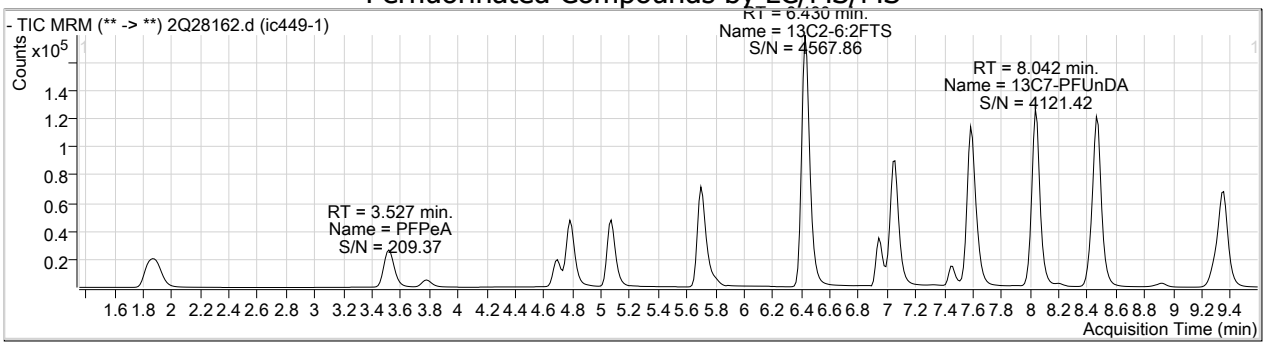
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.435	415.0 -> 370.0	347068	20.00	µg/L	-0.013
13C4-PFOS	7.036	503.0 -> 80.0	52696	20.00	µg/L	-0.014
M4-PFBA	1.865	217.0 -> 172.0	156193	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	131243	20.00	µg/L	-0.013
M5-PFHxA	4.788	318.0 -> 273.0	190582	20.00	µg/L	-0.013
M4-PFHpA	5.705	367.0 -> 322.0	269952	20.00	µg/L	-0.013
M8-PFOA	6.434	421.0 -> 376.0	283677	20.00	µg/L	-0.013
M9-PFNA	7.065	472.0 -> 427.0	289743	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	402050	20.00	µg/L	0.000
M7-PFUnDA	8.042	570.0 -> 525.0	506219	20.00	µg/L	-0.013
M2-PFDoDA	8.466	615.0 -> 570.0	551395	20.00	µg/L	-0.013
M2-PFTeDA	9.352	715.0 -> 670.0	369361	20.00	µg/L	0.000
M8-FOSA	6.946	506.0 -> 78.0	120858	20.00	µg/L	-0.013
M3-PFBS	3.780	302.0 -> 99.0	22738	20.00	µg/L	-0.013
M3-PFHxS	5.748	402.0 -> 99.0	25051	20.00	µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	32792	20.00	µg/L	0.000
M2-4:2FTS	4.696	329.0 -> 309.0	77836	20.00	µg/L	0.000
M2-6:2FTS	6.430	429.0 -> 409.0	89124	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	63920	20.00	µg/L	-0.013
M3-MeFOSAA	7.446	573.0 -> 419.0	48342	20.00	µg/L	-0.013
M3-HFPO-DA	5.081	287.0 -> 169.0	183159	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	77646	18.80	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C2-6:2FTS	6.430	429.0 -> 409.0	89033	19.60	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C2-8:2FTS	7.630	529.0 -> 509.0	63904	18.97	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C2-PFDoDA	8.466	615.0 -> 570.0	551526	20.10	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C2-PFTeDA	9.352	715.0 -> 670.0	369354	19.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C3-PFBS	3.780	302.0 -> 99.0	22699	20.17	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C3-PFHxS	5.748	402.0 -> 99.0	25106	20.44	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C4-PFBA	1.865	217.0 -> 172.0	155354	20.12	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C4-PFHpA	5.705	367.0 -> 322.0	269596	20.27	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C5-PFHxA	4.788	318.0 -> 273.0	190302	20.16	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C5-PFPeA	3.524	268.0 -> 223.0	131580	20.06	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C6-PFDA	7.594	519.0 -> 474.0	401651	20.64	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

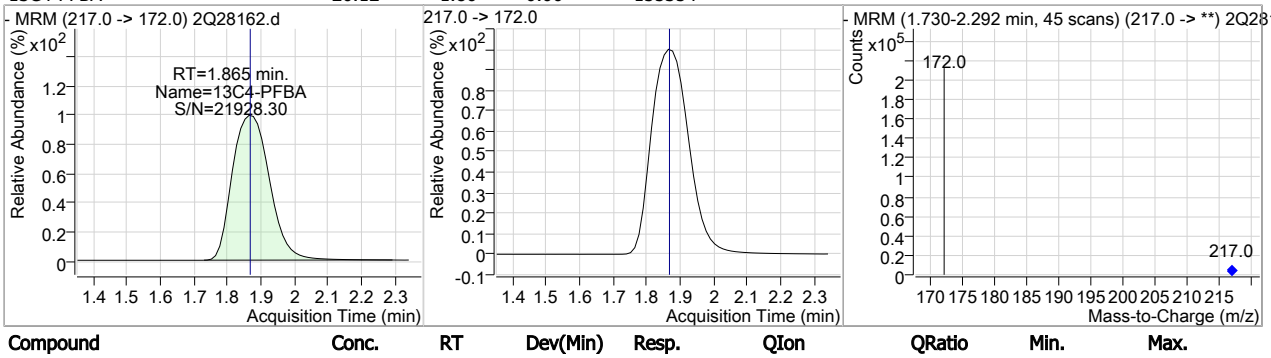
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C7-PFUnDA	8.042	570.0 -> 525.0	506398	20.50 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C8-FOSA	6.946	506.0 -> 78.0	120842	20.96 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C8-PFOA	6.434	421.0 -> 376.0	283633	20.49 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C8-PFOS	7.047	507.0 -> 99.0	32735	20.42 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C9-PFNA	7.065	472.0 -> 427.0	289829	20.26 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
d3-MeFOSAA	7.446	573.0 -> 419.0	48325	20.03 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
M2-PFOA	6.435	415.0 -> 370.0	347974	20.02 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
M4-PFOS	7.036	503.0 -> 80.0	52806	20.17 µg/L		-0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	183159	104.62 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 104.6%		
Target Compounds						**QValue**
4:2FTS	4.699	327.0 -> 307.0	2434	1.08 µg/L		99
6:2FTS	6.432	427.0 -> 407.0	2665	1.17 µg/L		99
8:2FTS	7.631	527.0 -> 507.0	1829	1.09 µg/L		92
EtFOSAA	7.598	584.0 -> 419.0	1130	1.13 µg/L		91
FOSA	6.950	498.0 -> 78.0	2775	0.99 µg/L		99
MeFOSAA	7.461	570.0 -> 419.0	1295	1.08 µg/L		100
PFBA	1.860	213.0 -> 169.0	1529	1.02 µg/L		100
PFBS	3.783	299.0 -> 80.0	1875	1.02 µg/L		98
PFDA	7.595	513.0 -> 469.0	8361	1.02 µg/L		99
PFDoDA	8.469	613.0 -> 569.0	12321	0.97 µg/L		99
PFDS	8.001	599.0 -> 80.0	635	1.02 µg/L		89
PFHpA	5.708	363.0 -> 319.0	11931	1.00 µg/L		99
PFHpS	6.441	449.0 -> 80.0	1322	1.06 µg/L		95
PFHxA	4.790	313.0 -> 269.0	3172	1.02 µg/L		98
PFHxS	5.738	399.0 -> 80.0	1478	1.03 µg/L	m	99
PFNA	7.066	463.0 -> 419.0	8945	1.01 µg/L		98
PFNS	7.565	549.0 -> 80.0	1307	1.06 µg/L		100
PFOA	6.437	413.0 -> 369.0	7610	1.01 µg/L		99
PFOS	7.037	499.0 -> 80.0	1713	1.03 µg/L	m	100
PFPeA	3.527	263.0 -> 219.0	5983	1.03 µg/L		100
PFPeS	4.908	349.0 -> 80.0	1242	1.02 µg/L		98
PFTeDA	9.346	713.0 -> 669.0	12324	1.01 µg/L		100
PFTrDA	8.923	663.0 -> 619.0	14168	1.01 µg/L		100
PFUnDA	8.043	563.0 -> 519.0	10318	0.98 µg/L		98
11Cl-PF3OUdS	8.200	631.0 -> 451.0	6721	0.98 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	1450	1.07 µg/L		100
ADONA	5.804	377.0 -> 251.0	13459	1.00 µg/L		100
HFPO-DA	5.072	329.0 -> 169.0	11648	5.24 µg/L		100

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

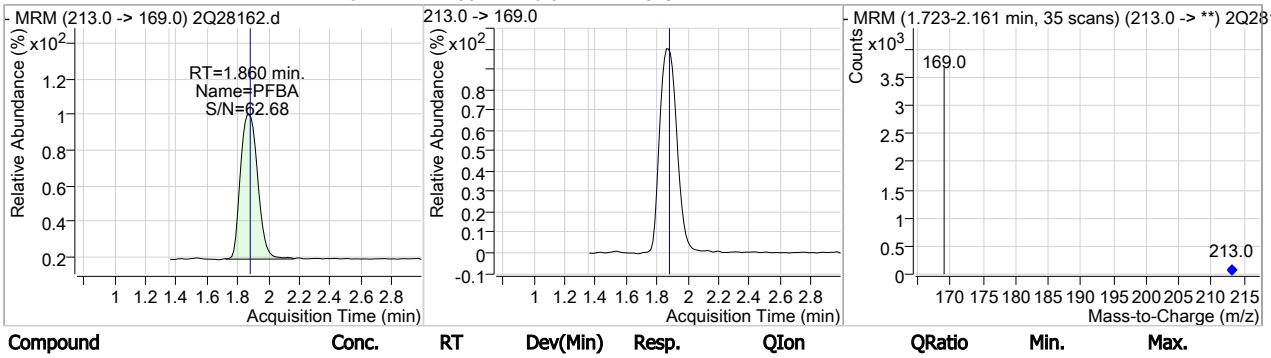
Perfluorinated Compounds by LC/MS/MS



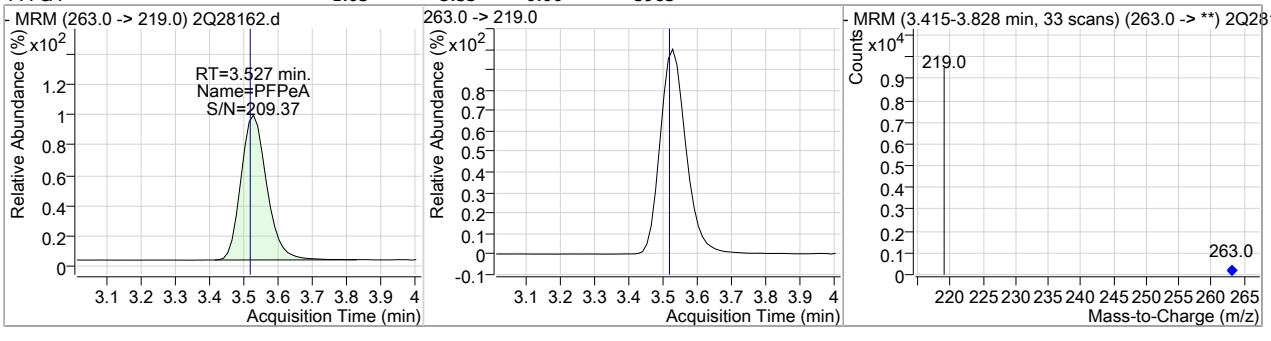
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.12	1.86	0.00	155354				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.02	1.86	-0.01	1529				

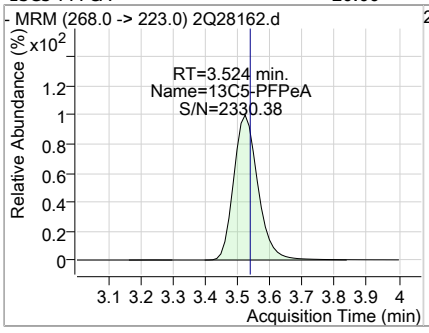


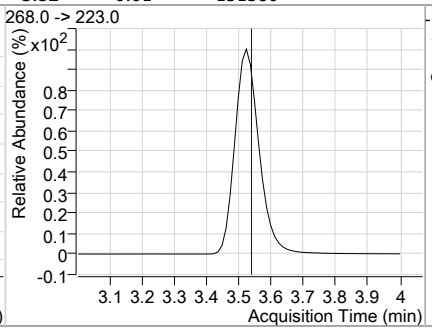
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.03	3.53	0.00	5983				

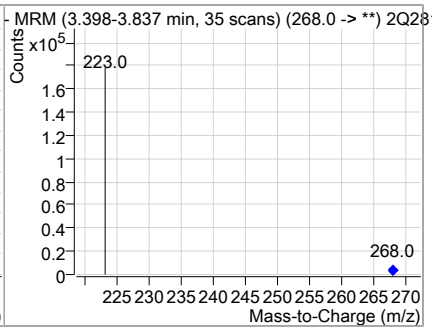


Perfluorinated Compounds by LC/MS/MS

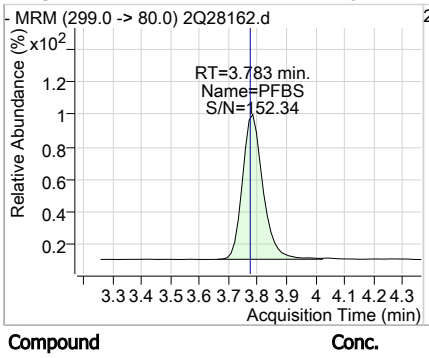
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.06	3.52	-0.01	131580				

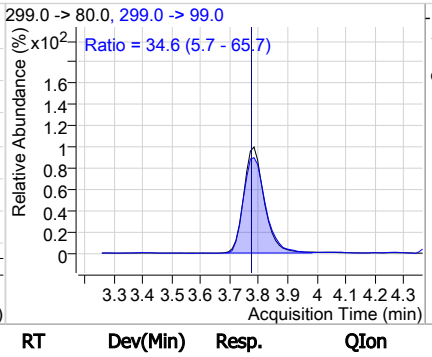


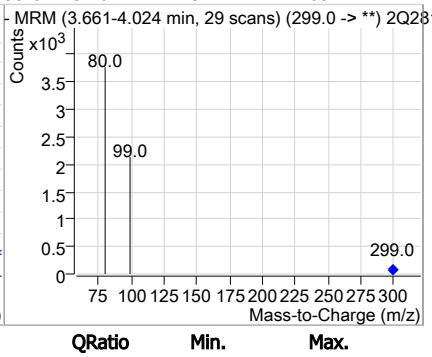




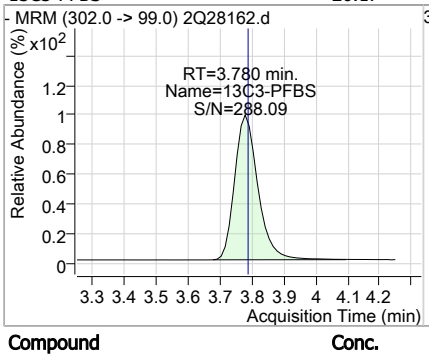
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.02	3.78	0.00	1875	299.0 -> 99.0	34.6	5.7	65.7

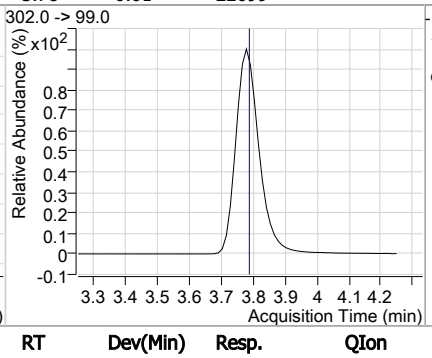


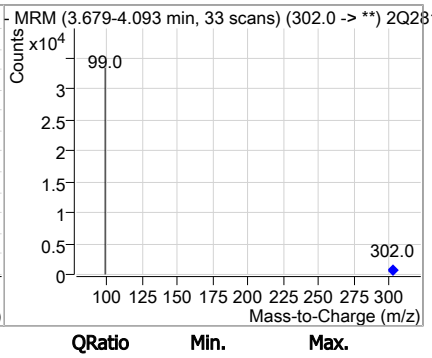




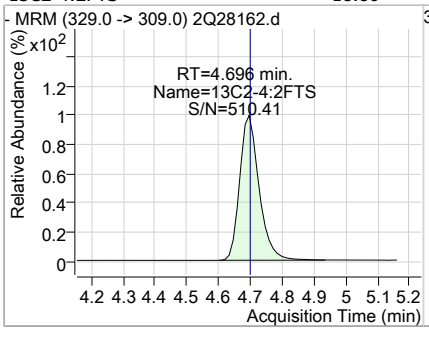
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.17	3.78	-0.01	22699				

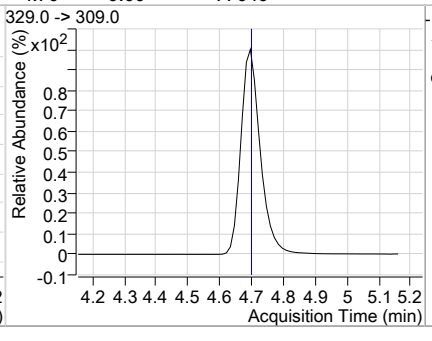


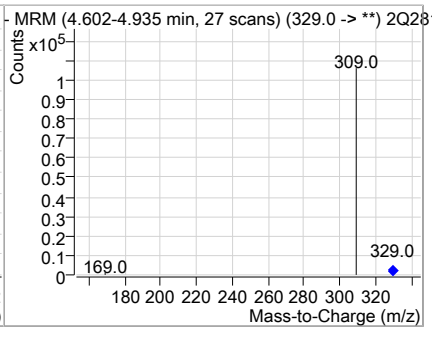




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.80	4.70	0.00	77646				



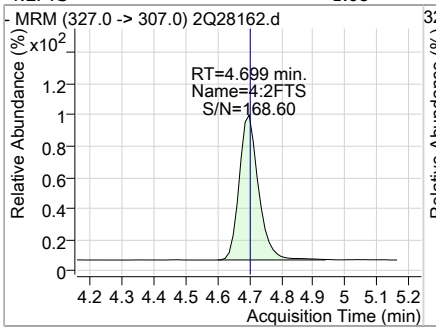


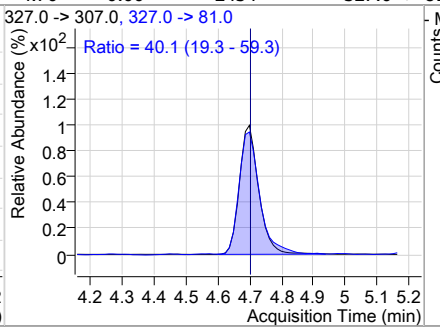


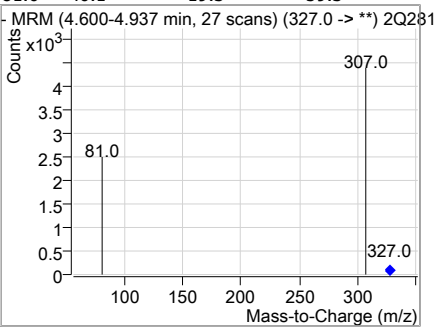
7.6.19

Perfluorinated Compounds by LC/MS/MS

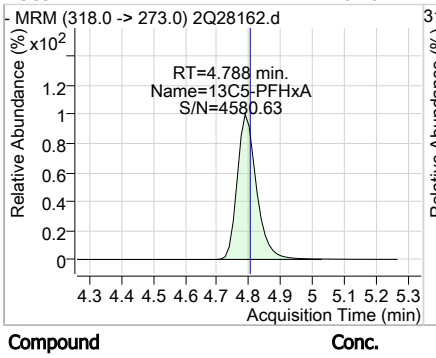
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.08	4.70	0.00	2434	327.0 -> 81.0	40.1	19.3	59.3

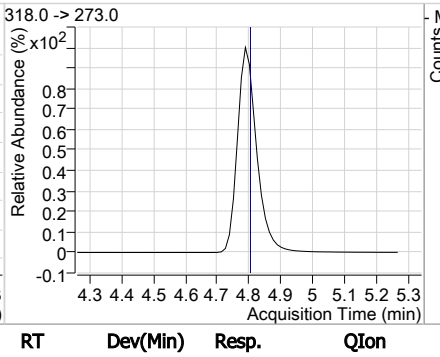


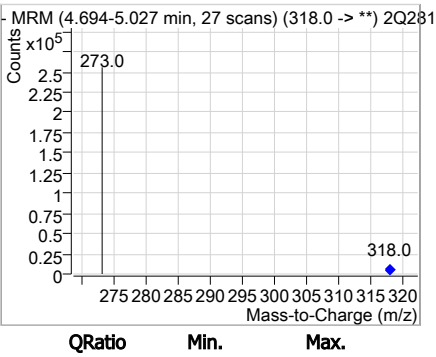




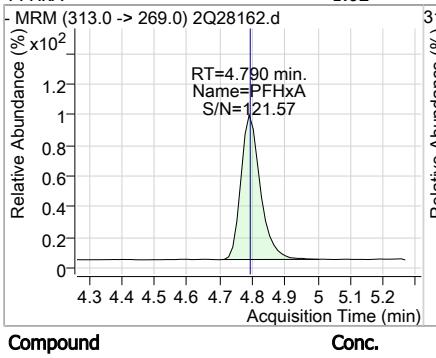
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.16	4.79	-0.01	190302				

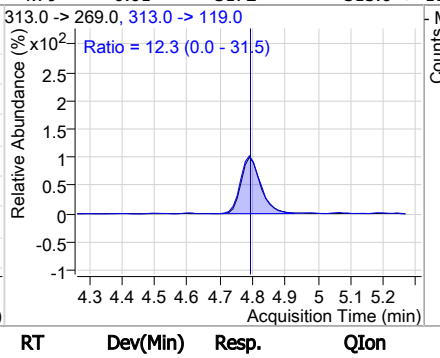


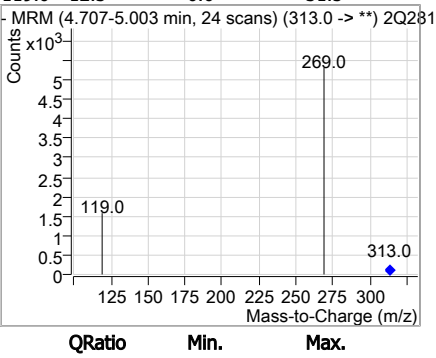




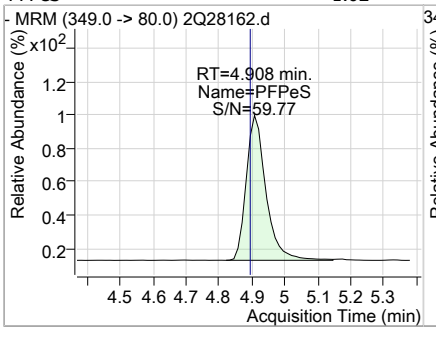
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.02	4.79	-0.01	3172	313.0 -> 119.0	12.3	0.0	31.5

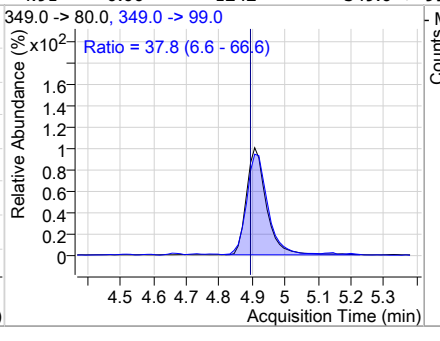


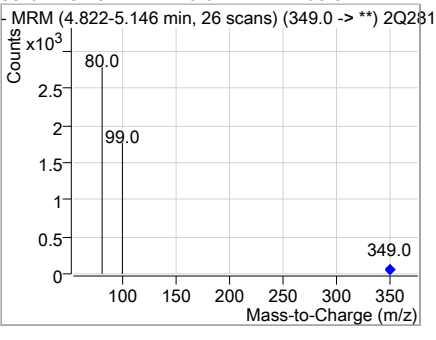




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.02	4.91	0.00	1242	349.0 -> 99.0	37.8	6.6	66.6



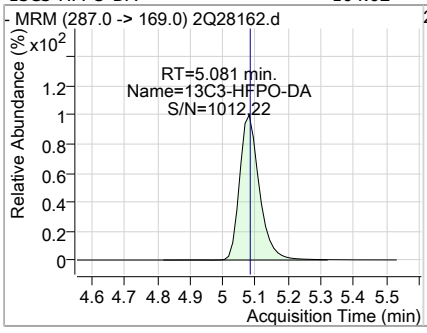


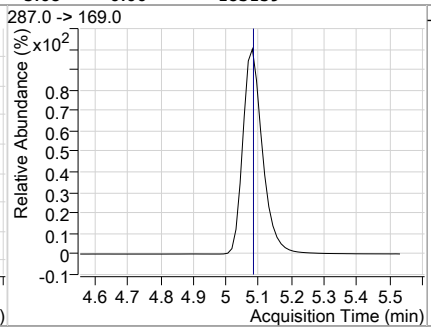


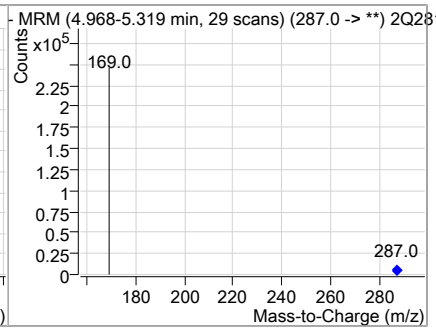
7.6.19

Perfluorinated Compounds by LC/MS/MS

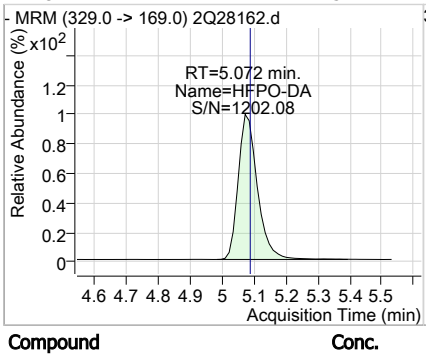
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	104.62	5.08	0.00	183159				

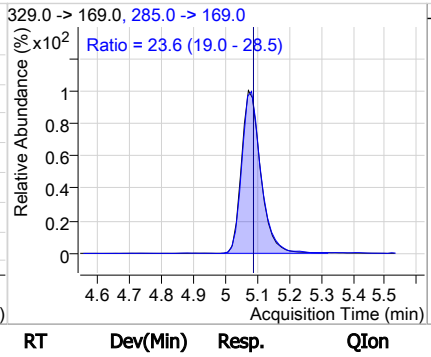


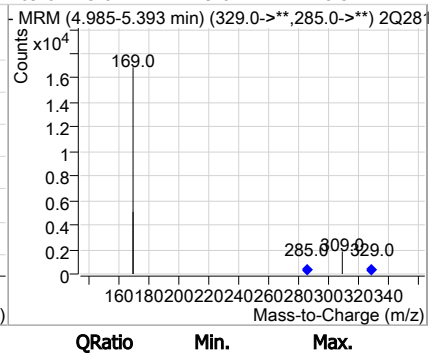




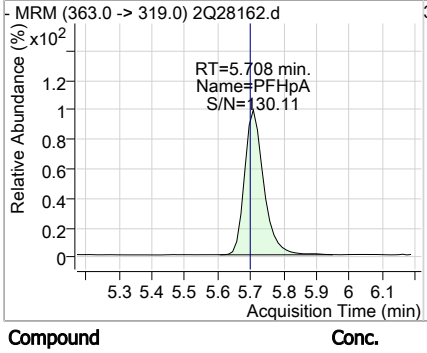
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.24	5.07	-0.01	11648	285.0 -> 169.0	23.6	19.0	28.5

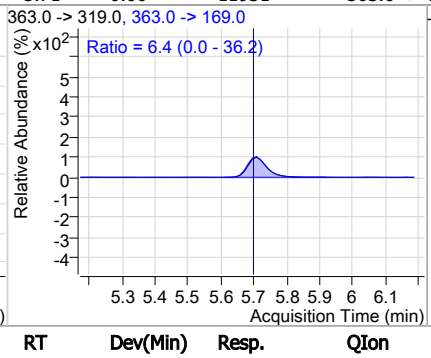


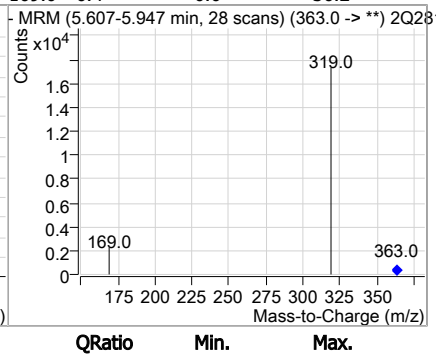




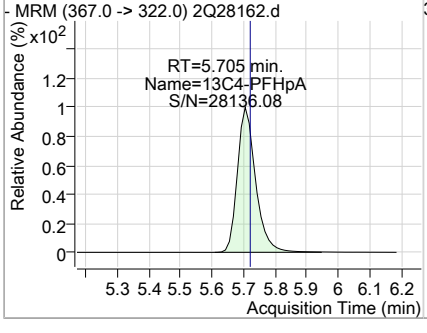
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.00	5.71	0.00	11931	363.0 -> 169.0	6.4	0.0	36.2

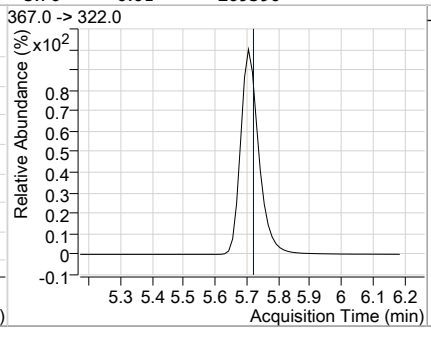


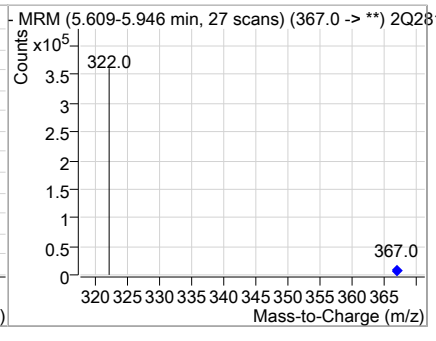




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.27	5.70	-0.01	269596				







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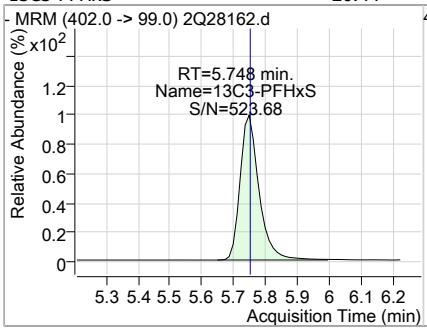
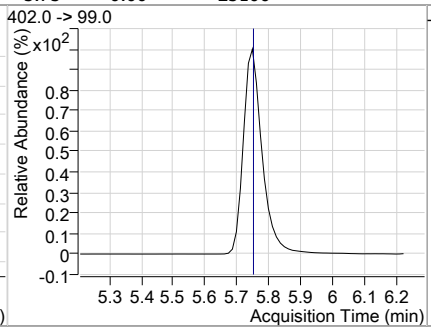
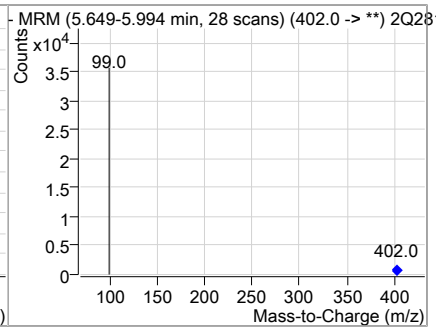
Perfluorinated Compounds by LC/MS/MS

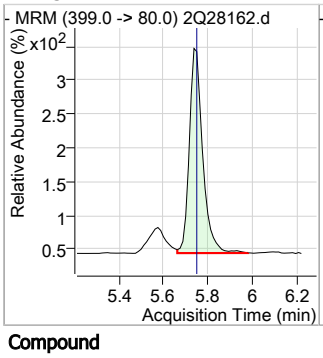
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.44	5.75	0.00	25106				

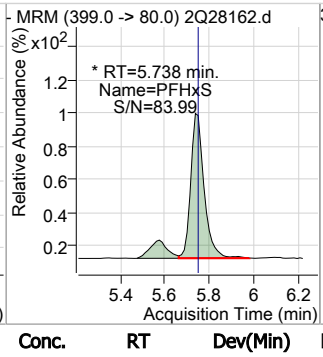


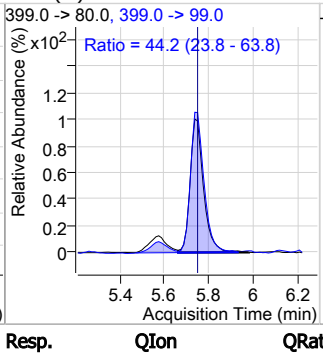


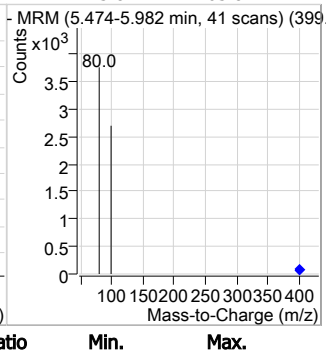


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.03	5.74	-0.01	1478 (m)	399.0 -> 99.0	44.2	23.8	63.8

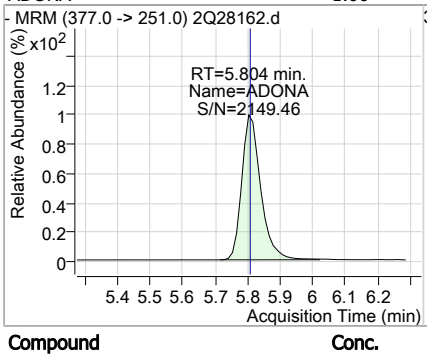


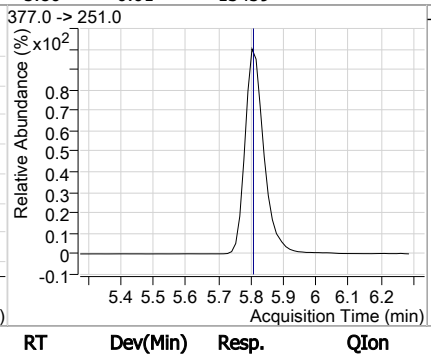


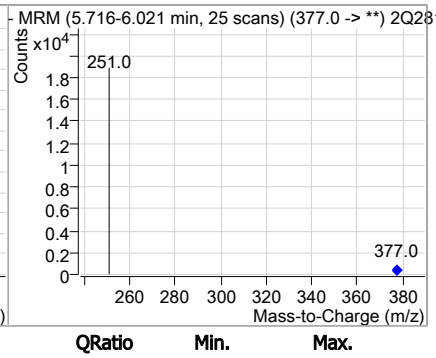




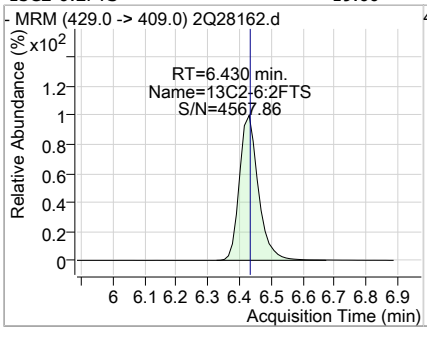
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.00	5.80	-0.01	13459				

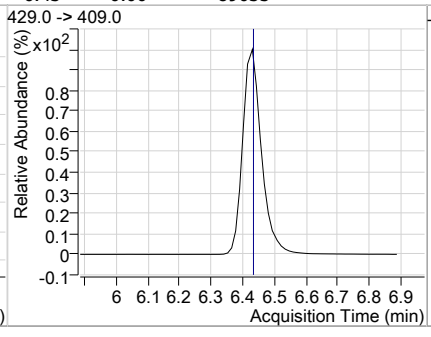


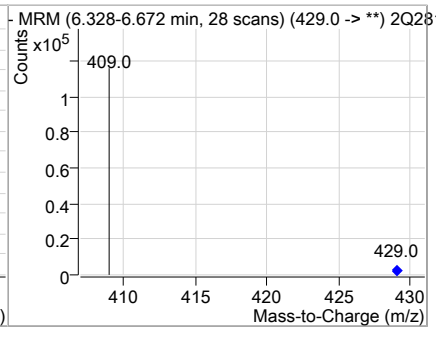




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.60	6.43	0.00	89033				

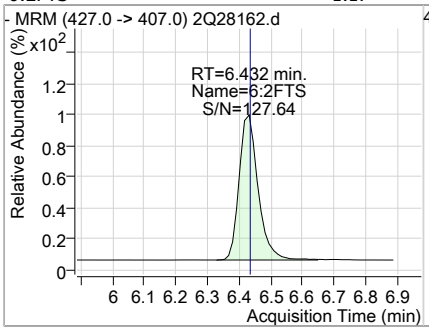


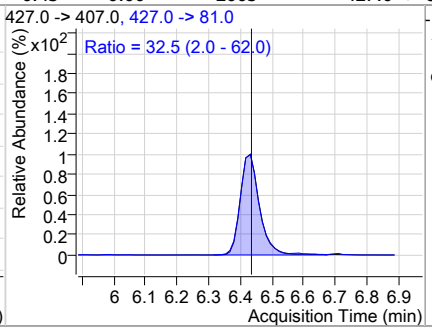


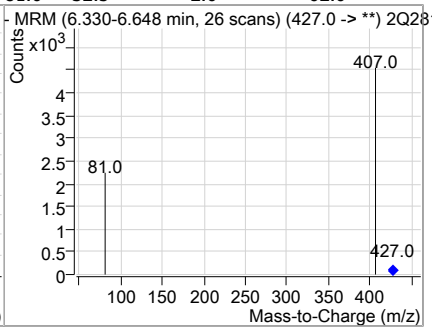


Perfluorinated Compounds by LC/MS/MS

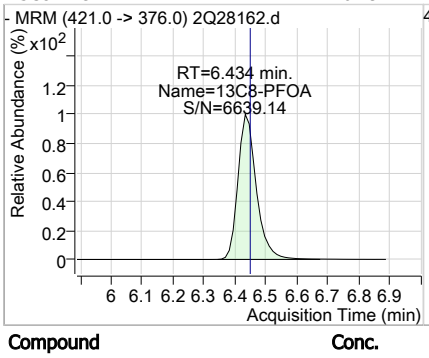
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.17	6.43	0.00	2665	427.0 -> 81.0	32.5	2.0	62.0

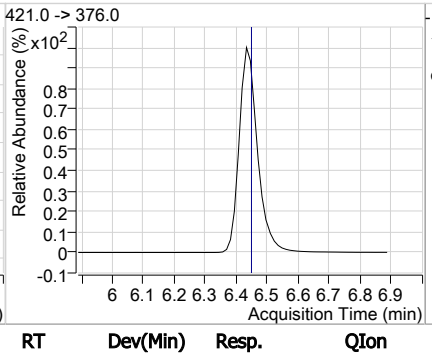


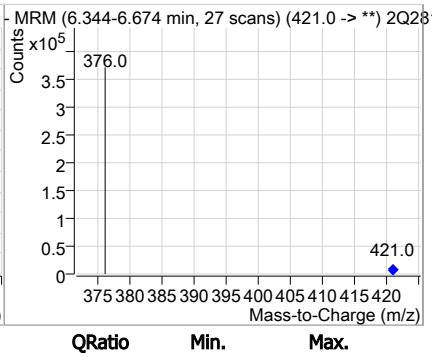




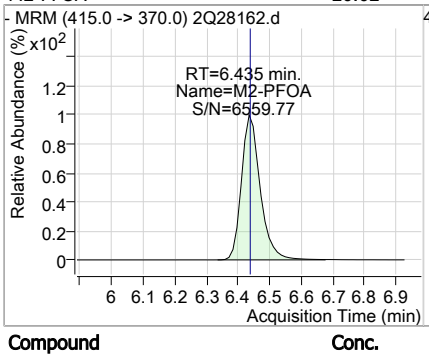
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.49	6.43	-0.01	283633				

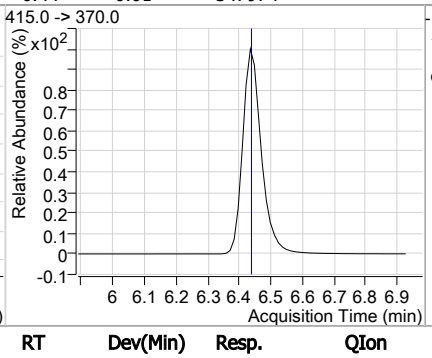


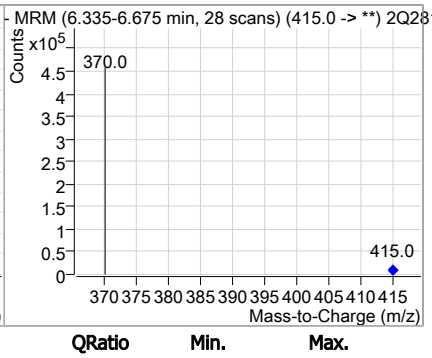




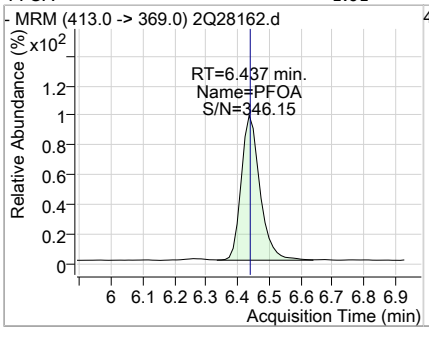
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.02	6.44	-0.01	347974				

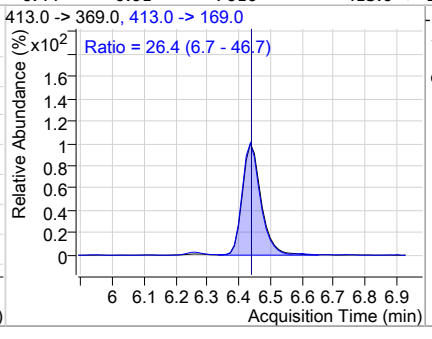


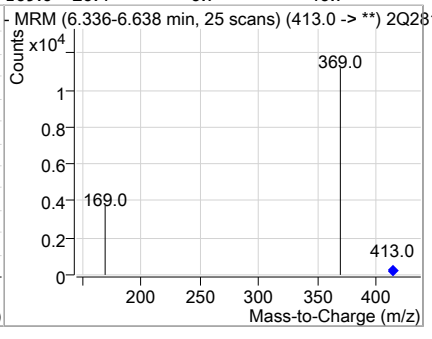




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.01	6.44	-0.01	7610	413.0 -> 169.0	26.4	6.7	46.7







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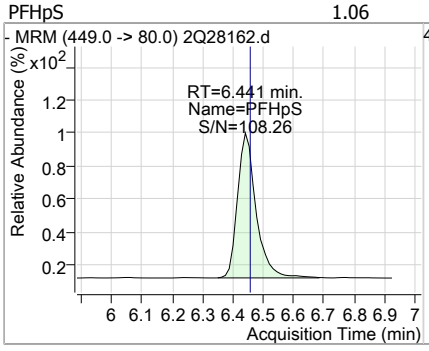
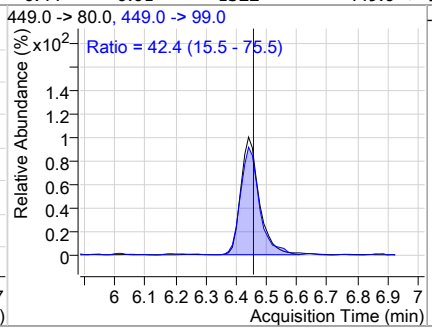
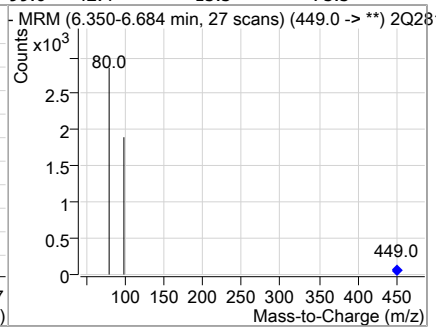
Perfluorinated Compounds by LC/MS/MS

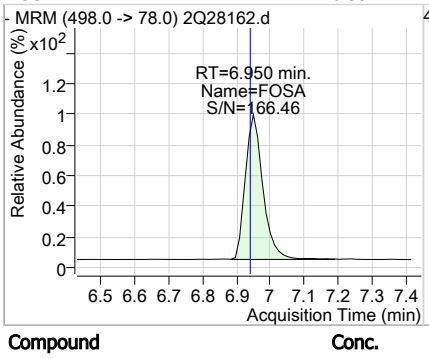
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.06	6.44	-0.01	1322	449.0 -> 99.0	42.4	15.5	75.5

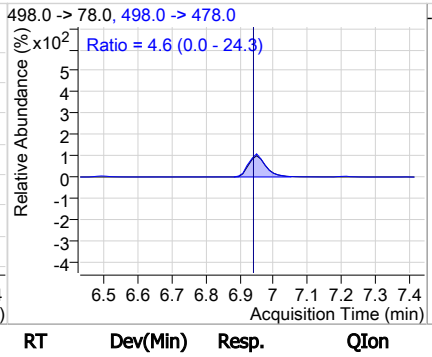


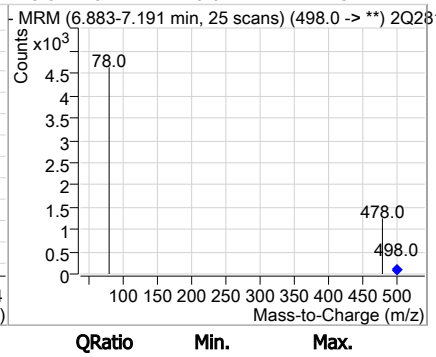




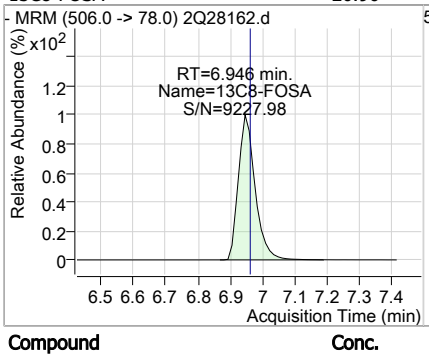
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.99	6.95	0.00	2775	498.0 -> 478.0	4.6	0.0	24.3

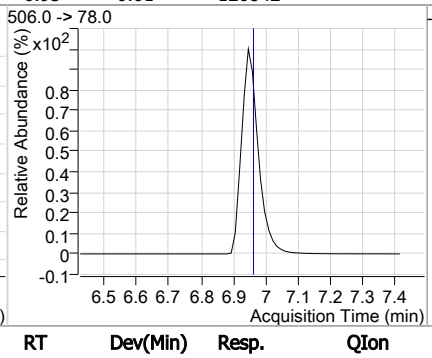


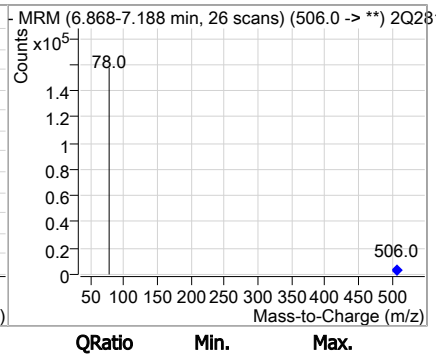




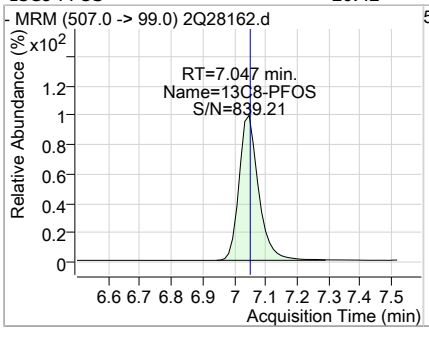
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.96	6.95	-0.01	120842				

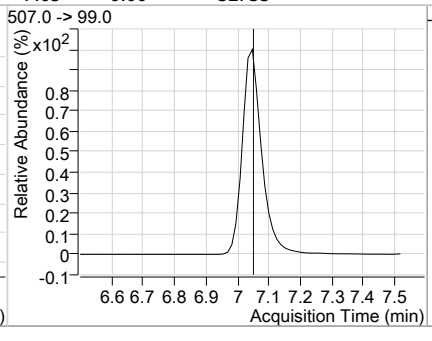


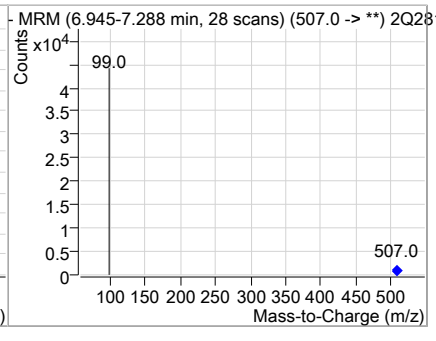




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.42	7.05	0.00	32735				







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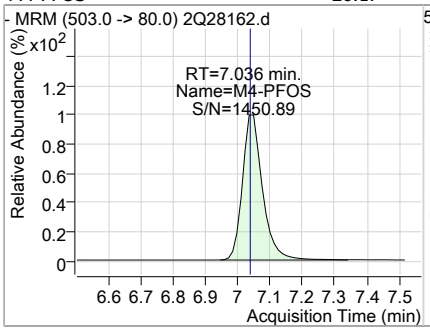
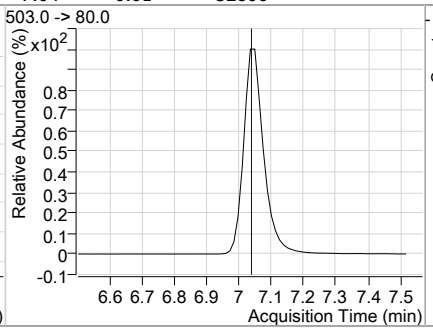
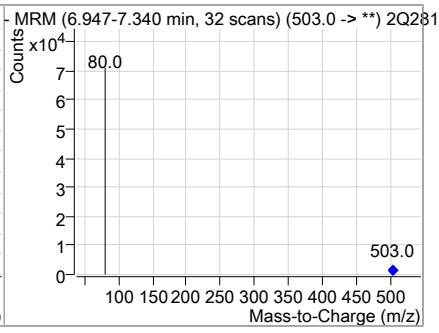
Perfluorinated Compounds by LC/MS/MS

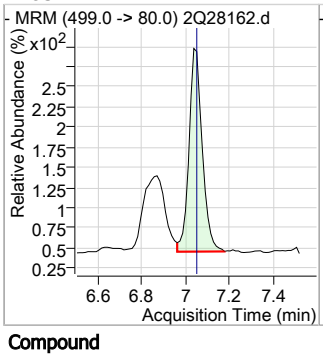
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.17	7.04	-0.01	52806				

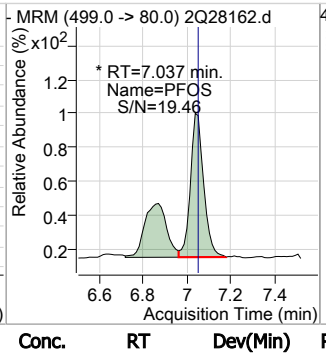


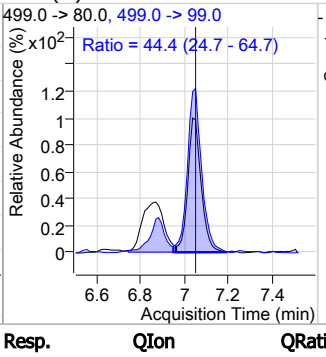


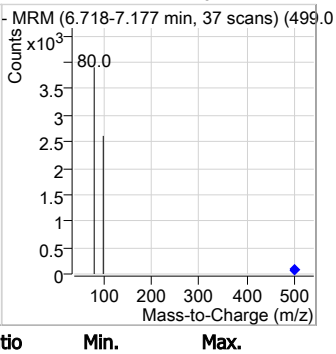


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.03	7.04	-0.01	1713 (m)	499.0 -> 99.0	44.4	24.7	64.7

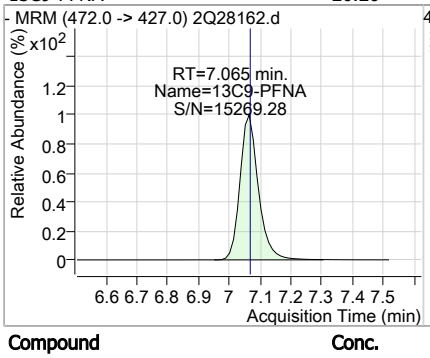


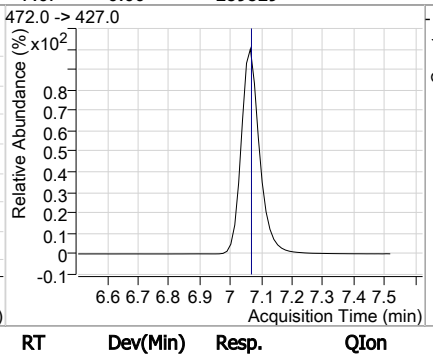


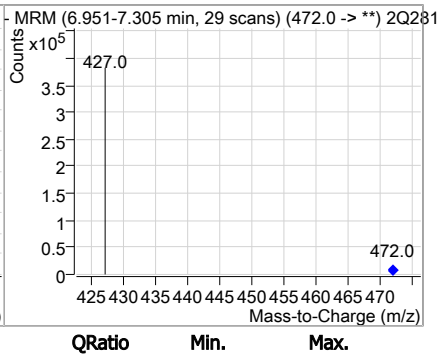




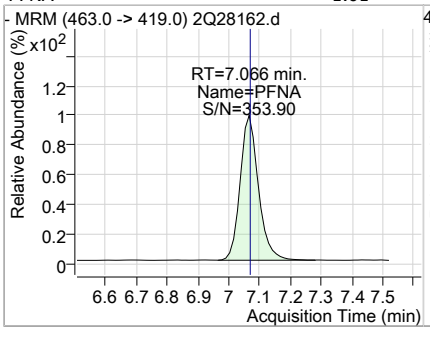
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.26	7.07	0.00	289829				

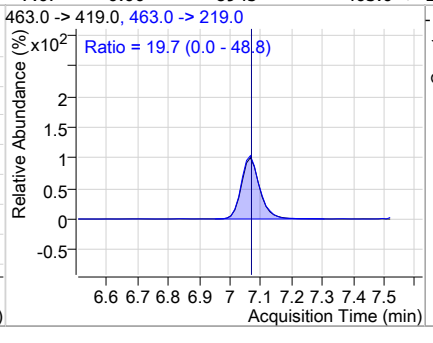


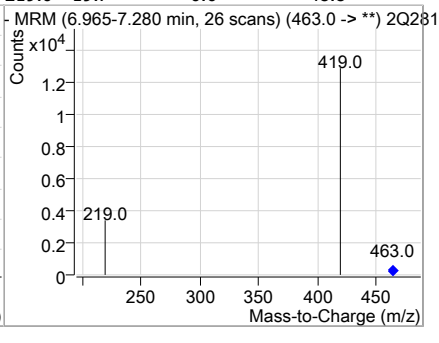




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.01	7.07	0.00	8945	463.0 -> 219.0	19.7	0.0	48.8







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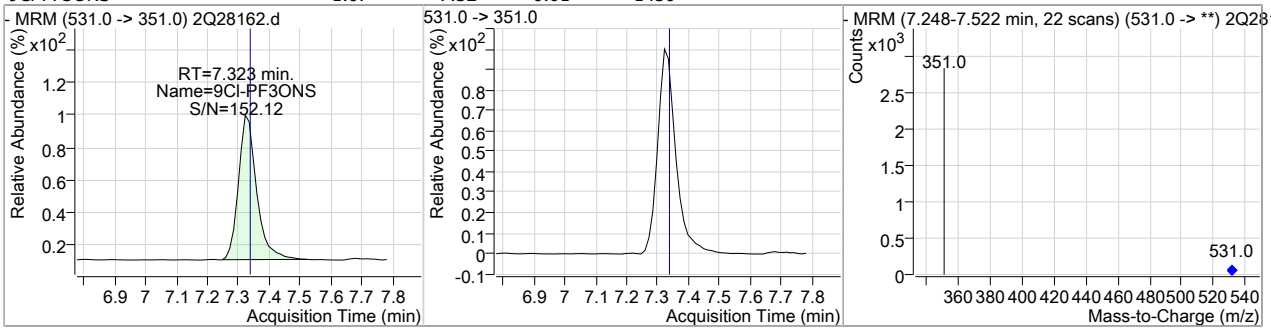
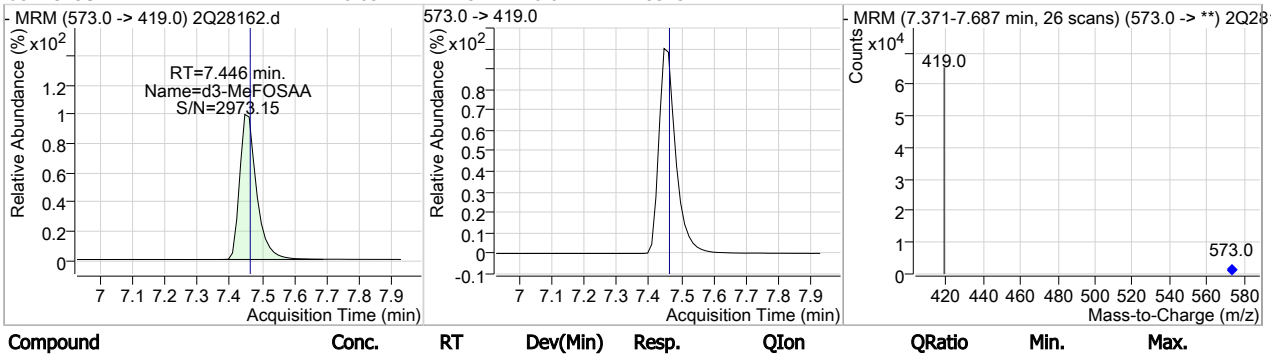
Perfluorinated Compounds by LC/MS/MS

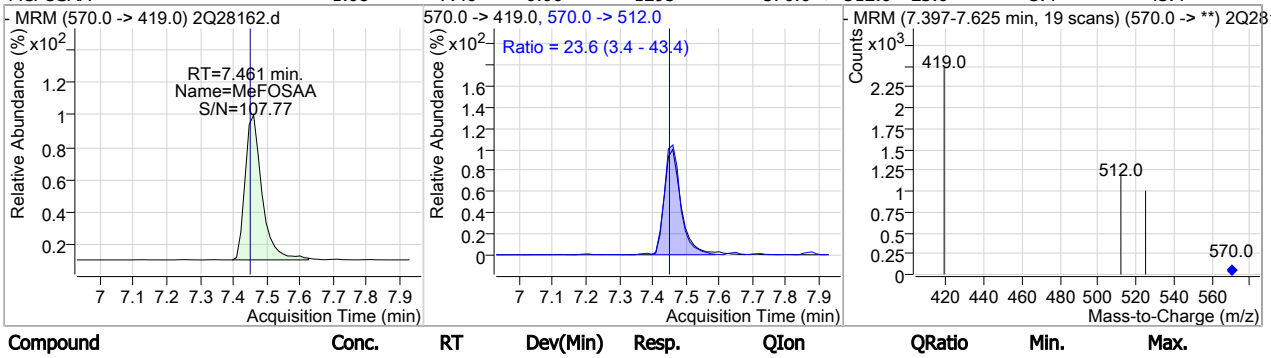
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.07	7.32	-0.01	1450				



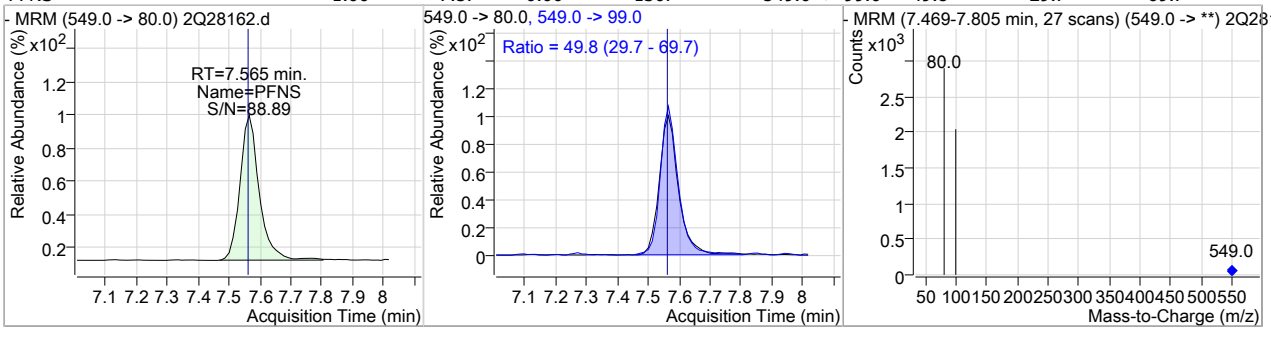
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.03	7.45	-0.01	48325				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.08	7.46	0.00	1295	570.0 -> 512.0	23.6	3.4	43.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.06	7.57	0.00	1307	549.0 -> 99.0	49.8	29.7	69.7



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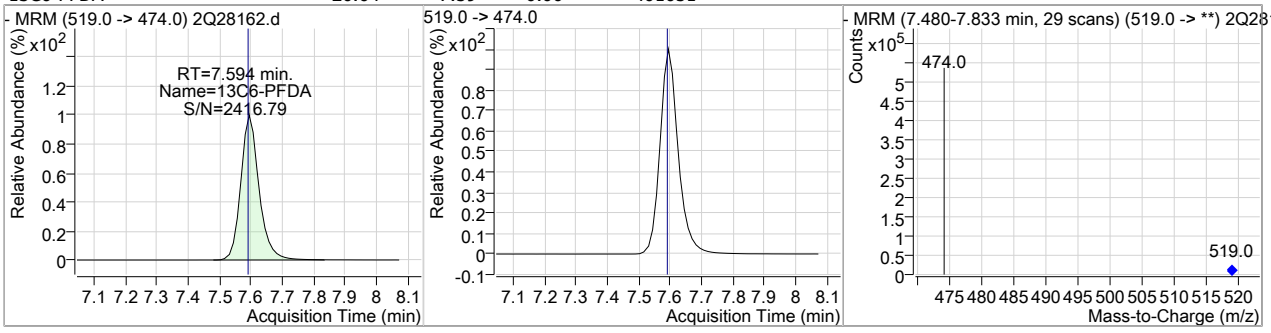
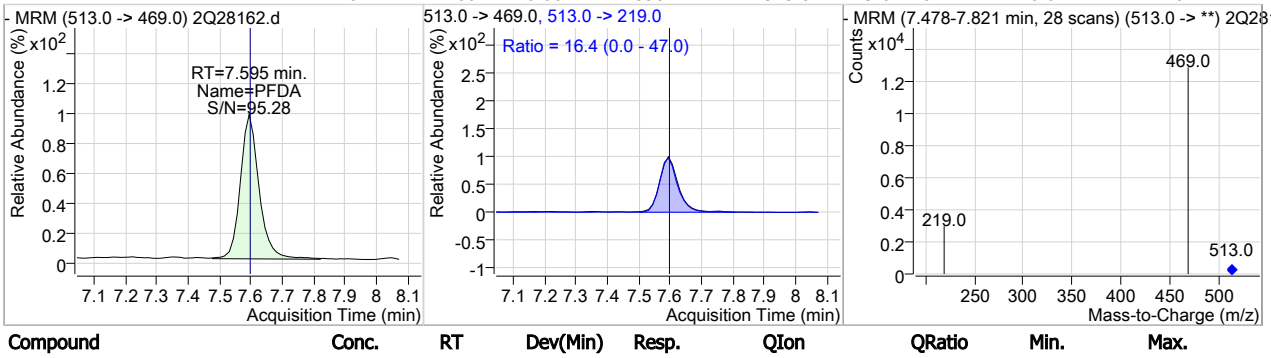
7

Perfluorinated Compounds by LC/MS/MS

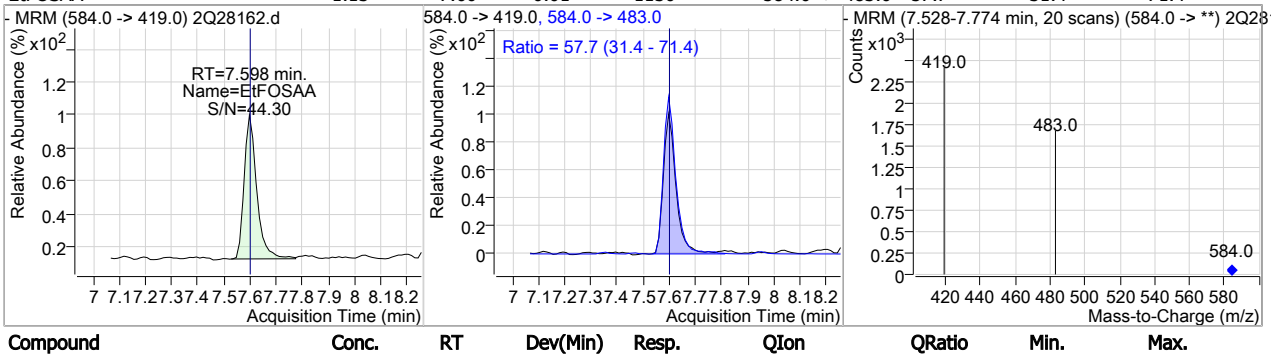
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.64	7.59	0.00	401651				



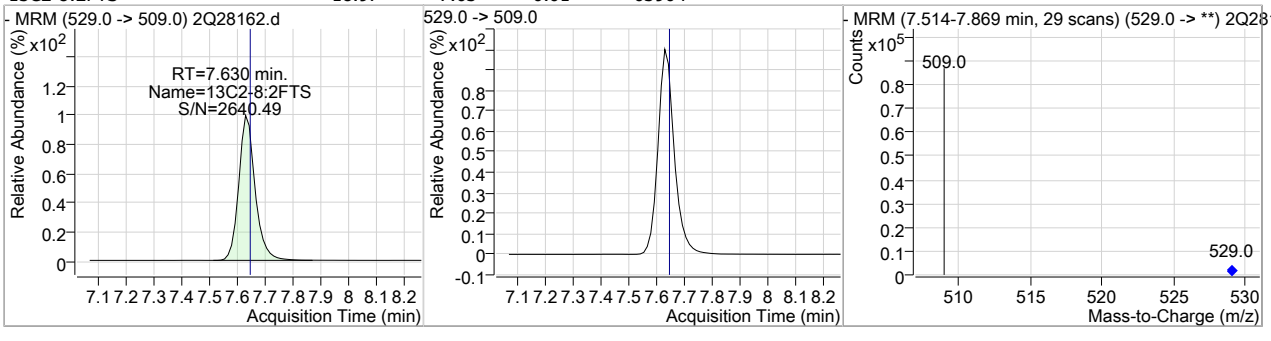
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.02	7.60	0.00	8361	513.0 -> 219.0	16.4	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.13	7.60	-0.01	1130	584.0 -> 483.0	57.7	31.4	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.97	7.63	-0.01	63904				



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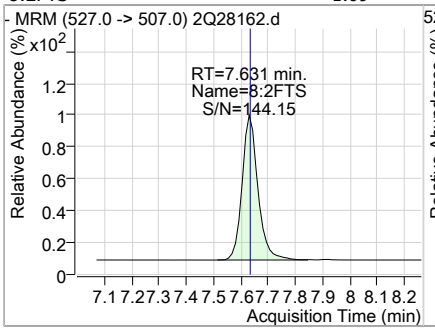
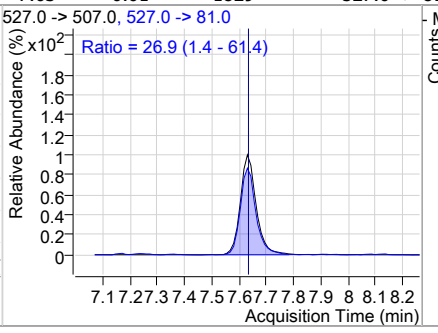
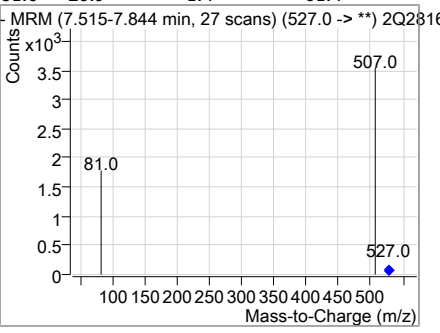
Perfluorinated Compounds by LC/MS/MS

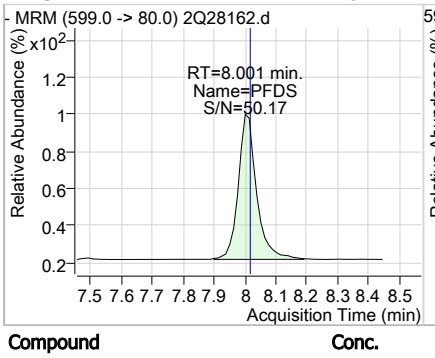
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.09	7.63	-0.01	1829	527.0 -> 81.0	26.9	1.4	61.4

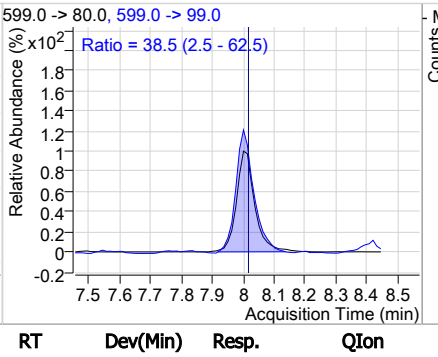


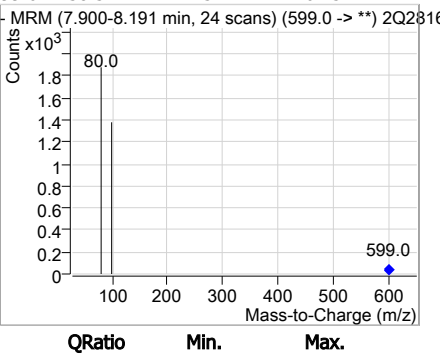




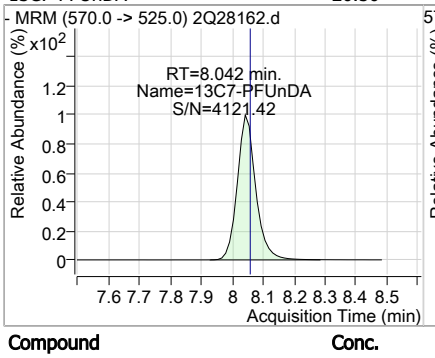
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.02	8.00	-0.01	635	599.0 -> 99.0	38.5	2.5	62.5

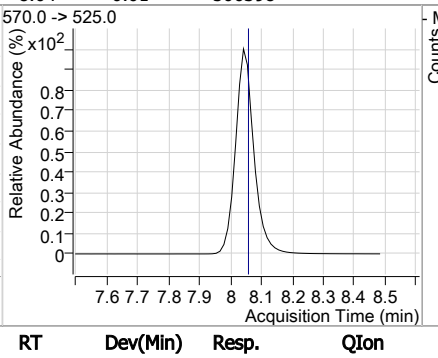


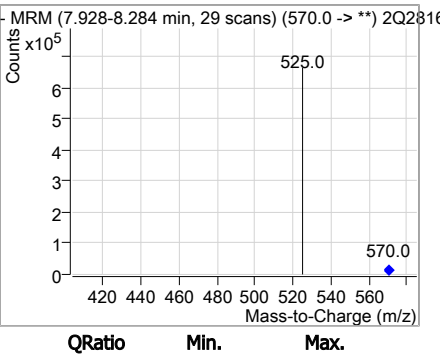




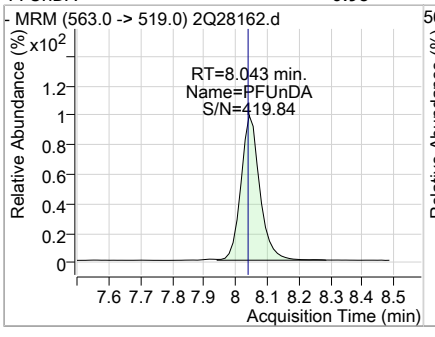
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.50	8.04	-0.01	506398				

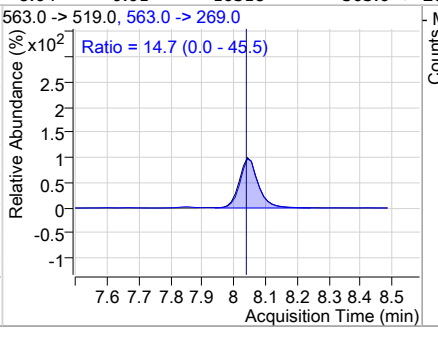


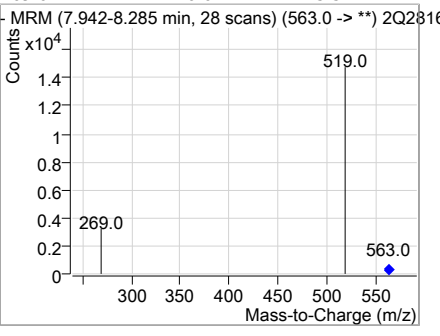




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.98	8.04	-0.01	10318	563.0 -> 269.0	14.7	0.0	45.5







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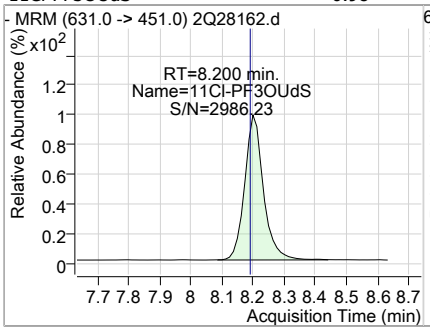
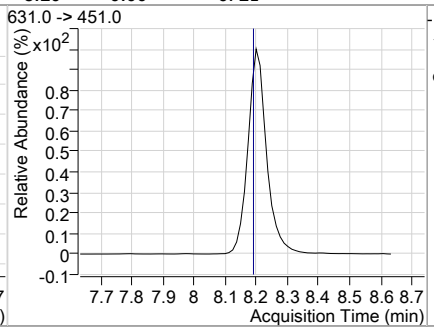
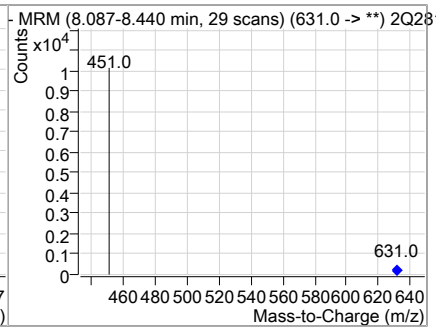
Perfluorinated Compounds by LC/MS/MS

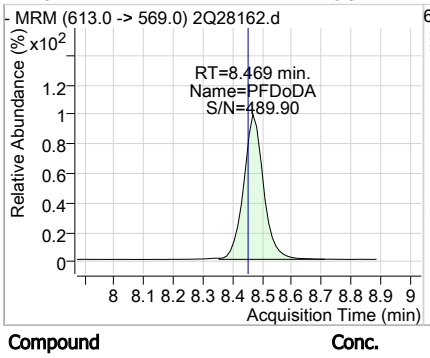
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.98	8.20	0.00	6721				

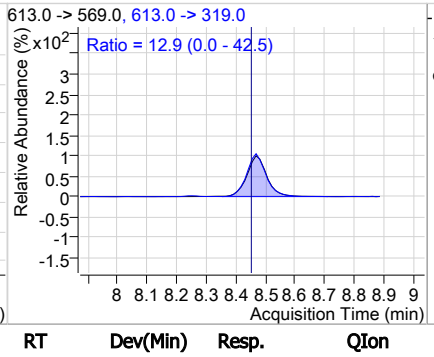


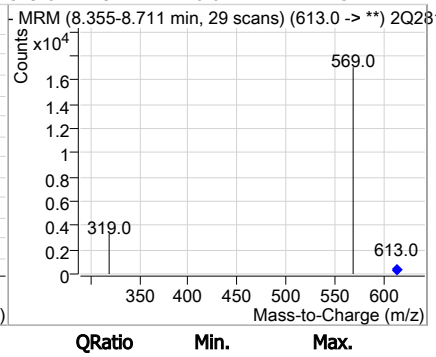




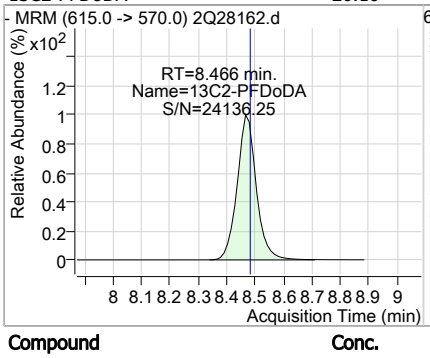
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.97	8.47	0.00	12321	613.0 -> 319.0	12.9	0.0	42.5

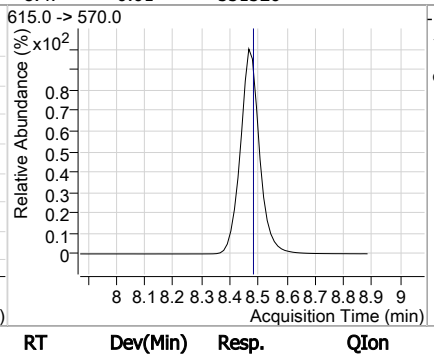


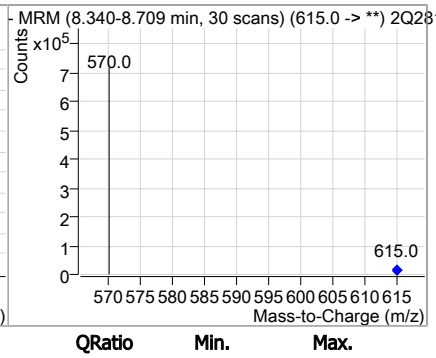




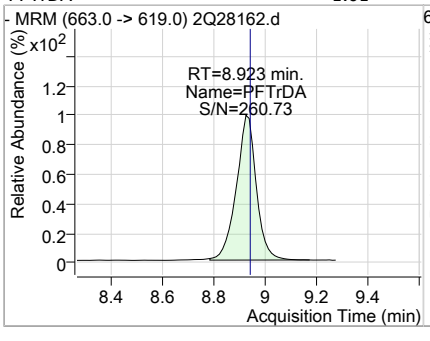
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.10	8.47	-0.01	551526				

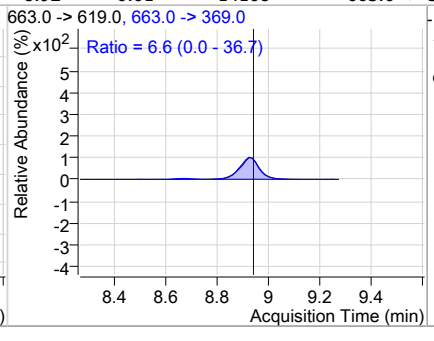


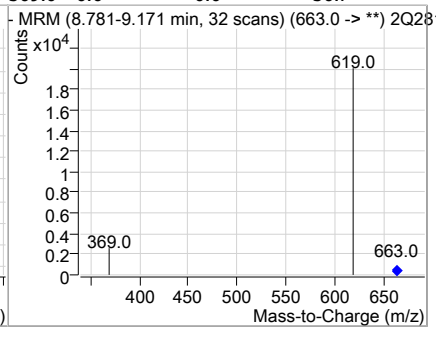




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.01	8.92	-0.01	14168	663.0 -> 369.0	6.6	0.0	36.7







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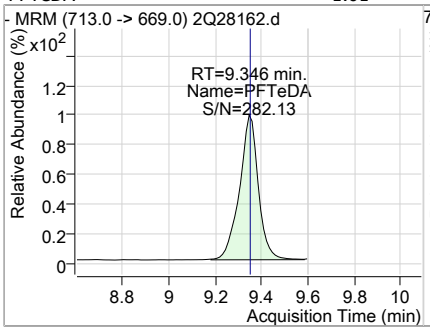
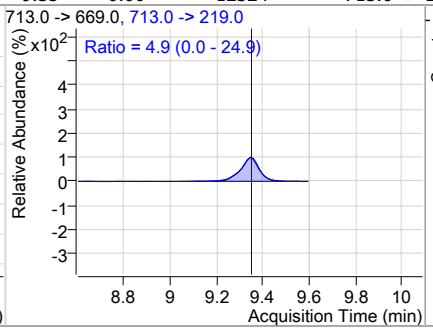
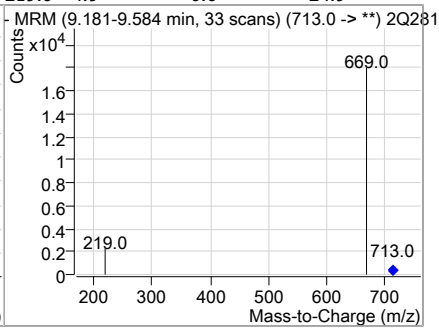
Perfluorinated Compounds by LC/MS/MS

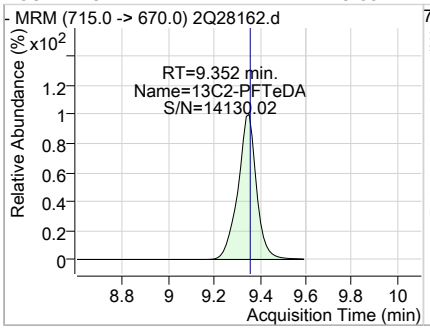
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.01	9.35	0.00	12324	713.0 -> 219.0	4.9	0.0	24.9

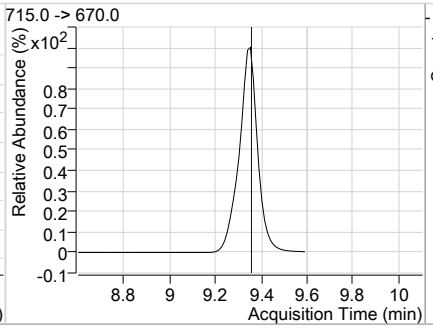


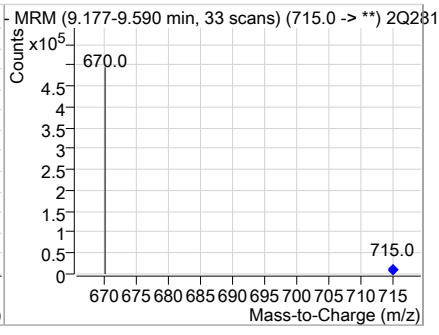




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.55	9.35	0.00	369354				







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Manual Integration Approval Summary

Sample Number: S2Q449-IC449
Lab FileID: 2Q28162.D
Injection Time: 03/26/19 15:13
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.74	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Cal Report: 2Q28163.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28163.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 3:29:43 PM
Sample Name : ic449-2
Vial : Vial 4
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

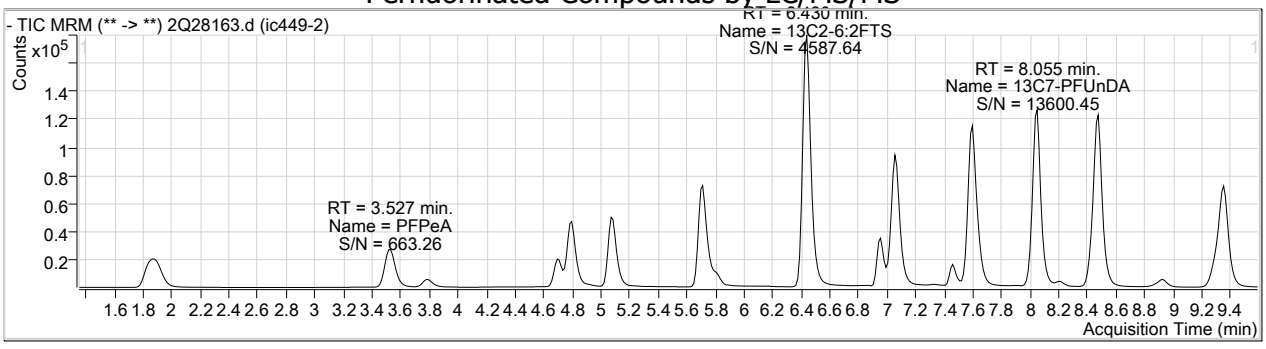
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.448	415.0 -> 370.0	346019	20.00	µg/L	0.000
13C4-PFOS	7.049	503.0 -> 80.0	52156	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	153922	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	130496	20.00	µg/L	-0.013
M5-PFHxA	4.801	318.0 -> 273.0	187832	20.00	µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	266770	20.00	µg/L	0.000
M8-PFOA	6.446	421.0 -> 376.0	283946	20.00	µg/L	0.000
M9-PFNA	7.065	472.0 -> 427.0	289912	20.00	µg/L	0.000
M6-PFDA	7.607	519.0 -> 474.0	398289	20.00	µg/L	0.013
M7-PFUnDA	8.055	570.0 -> 525.0	502416	20.00	µg/L	0.000
M2-PFDoDA	8.479	615.0 -> 570.0	548647	20.00	µg/L	0.000
M2-PFTeDA	9.352	715.0 -> 670.0	375576	20.00	µg/L	0.000
M8-FOSA	6.959	506.0 -> 78.0	119218	20.00	µg/L	0.000
M3-PFBS	3.780	302.0 -> 99.0	22383	20.00	µg/L	-0.013
M3-PFHxS	5.748	402.0 -> 99.0	24390	20.00	µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	31688	20.00	µg/L	0.000
M2-4:2FTS	4.696	329.0 -> 309.0	77381	20.00	µg/L	0.000
M2-6:2FTS	6.430	429.0 -> 409.0	87685	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	63672	20.00	µg/L	0.000
M3-MeFOSAA	7.460	573.0 -> 419.0	48475	20.00	µg/L	0.000
M3-HFPO-DA	5.081	287.0 -> 169.0	180931	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	77361	18.73	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
13C2-6:2FTS	6.430	429.0 -> 409.0	87614	19.29	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.5%		
13C2-8:2FTS	7.642	529.0 -> 509.0	63659	18.90	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.5%		
13C2-PFDoDA	8.479	615.0 -> 570.0	548945	20.01	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C2-PFTeDA	9.352	715.0 -> 670.0	375654	19.89	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C3-PFBS	3.780	302.0 -> 99.0	22373	19.88	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C3-PFHxS	5.748	402.0 -> 99.0	24334	19.82	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C4-PFBA	1.865	217.0 -> 172.0	153048	19.82	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C4-PFHpA	5.717	367.0 -> 322.0	266372	20.03	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C5-PFHxA	4.801	318.0 -> 273.0	187555	19.87	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C5-PFPeA	3.524	268.0 -> 223.0	130505	19.89	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C6-PFDA	7.607	519.0 -> 474.0	398527	20.48	µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

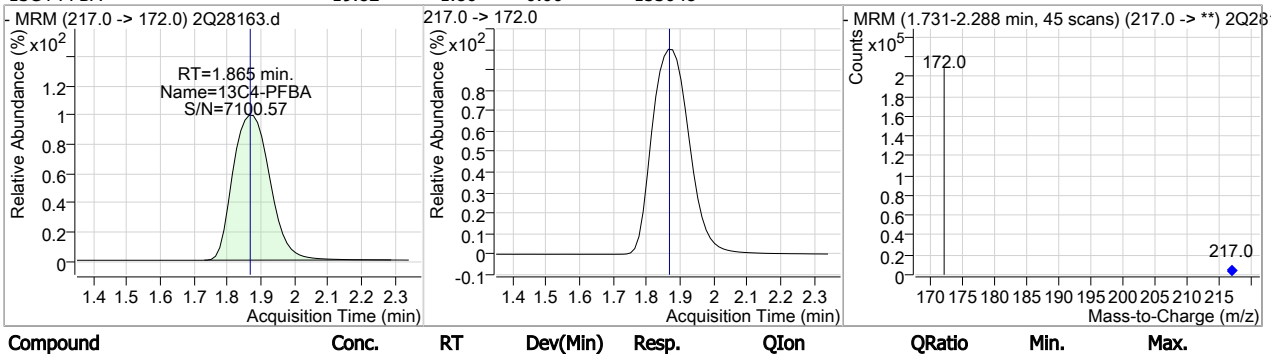
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C7-PFUnDA	8.055	570.0 -> 525.0	502613	20.34 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C8-FOSA	6.959	506.0 -> 78.0	119183	20.67 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%		
13C8-PFOA	6.446	421.0 -> 376.0	283600	20.48 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C8-PFOS	7.047	507.0 -> 99.0	31622	19.72 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C9-PFNA	7.065	472.0 -> 427.0	289600	20.24 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
d3-MeFOSAA	7.460	573.0 -> 419.0	48456	20.09 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
M2-PFOA	6.448	415.0 -> 370.0	346194	19.98 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.049	503.0 -> 80.0	52209	20.14 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	180931	103.35 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
Target Compounds						QValue
4:2FTS	4.699	327.0 -> 307.0	4670	2.08 µg/L		99
6:2FTS	6.432	427.0 -> 407.0	4561	2.04 µg/L		100
8:2FTS	7.643	527.0 -> 507.0	3408	2.04 µg/L		98
EtFOSAA	7.598	584.0 -> 419.0	2213	2.20 µg/L		98
FOSA	6.950	498.0 -> 78.0	5629	2.03 µg/L		98
MeFOSAA	7.461	570.0 -> 419.0	2497	2.08 µg/L		99
PFBA	1.873	213.0 -> 169.0	2957	2.00 µg/L		100
PFBS	3.783	299.0 -> 80.0	3687	2.04 µg/L		96
PFDA	7.595	513.0 -> 469.0	15967	1.97 µg/L		100
PFDoDA	8.481	613.0 -> 569.0	24157	1.92 µg/L		99
PFDS	8.014	599.0 -> 80.0	1180	1.96 µg/L		90
PFHpA	5.708	363.0 -> 319.0	23263	1.96 µg/L		100
PFHpS	6.454	449.0 -> 80.0	2518	2.06 µg/L		99
PFHxA	4.803	313.0 -> 269.0	6009	1.95 µg/L		98
PFHxS	5.751	399.0 -> 80.0	2716	1.94 µg/L	m	99
PFNA	7.066	463.0 -> 419.0	17433	1.96 µg/L		100
PFNS	7.565	549.0 -> 80.0	2445	2.06 µg/L		100
PFOA	6.449	413.0 -> 369.0	14734	1.95 µg/L		100
PFOS	7.050	499.0 -> 80.0	3094	1.93 µg/L	m	93
PFPeA	3.527	263.0 -> 219.0	11290	1.95 µg/L		100
PFPeS	4.920	349.0 -> 80.0	2574	2.15 µg/L		98
PFTeDA	9.346	713.0 -> 669.0	23999	1.94 µg/L		100
PFTrDA	8.935	663.0 -> 619.0	27749	1.95 µg/L		100
PFUnDA	8.056	563.0 -> 519.0	19968	1.92 µg/L		99
11Cl-PF3OUdS	8.212	631.0 -> 451.0	12963	1.91 µg/L		100
9Cl-PF3ONS	7.335	531.0 -> 351.0	2633	1.96 µg/L		100
ADONA	5.816	377.0 -> 251.0	26812	1.98 µg/L		100
HFPO-DA	5.085	329.0 -> 169.0	22286	10.14 µg/L		98

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

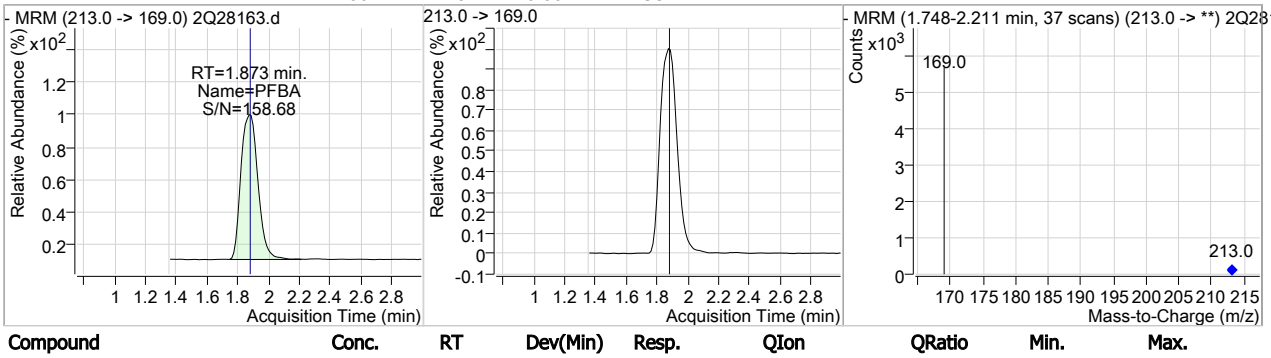
Perfluorinated Compounds by LC/MS/MS



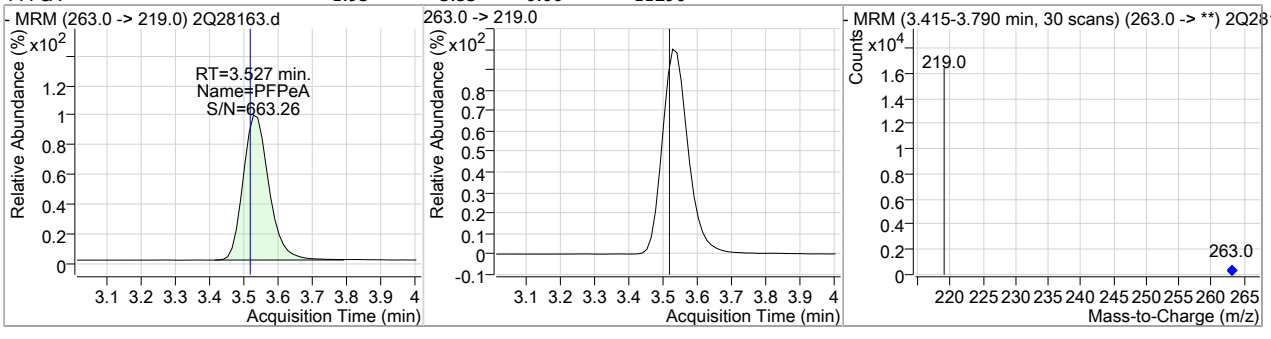
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.82	1.86	0.00	153048				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	2.00	1.87	0.00	2957				

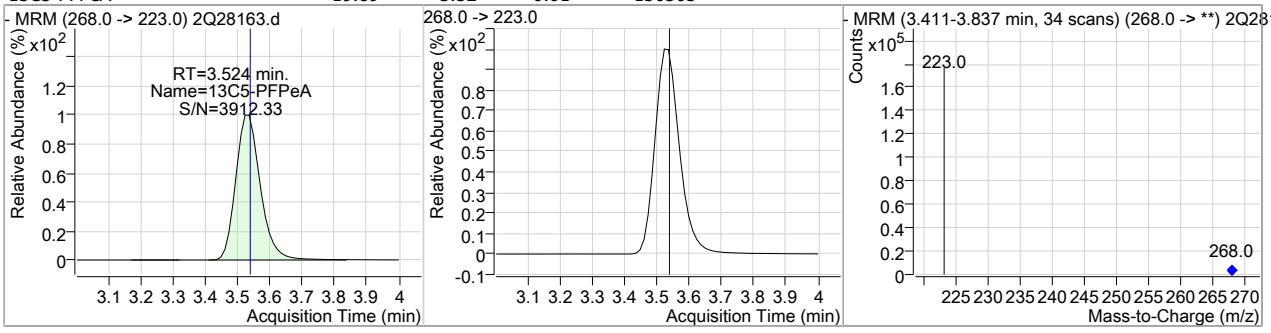


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.95	3.53	0.00	11290				

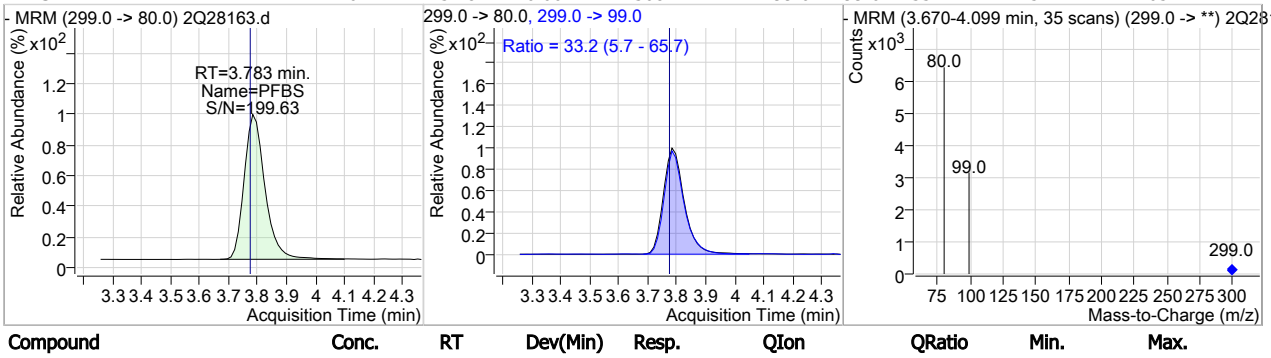


Perfluorinated Compounds by LC/MS/MS

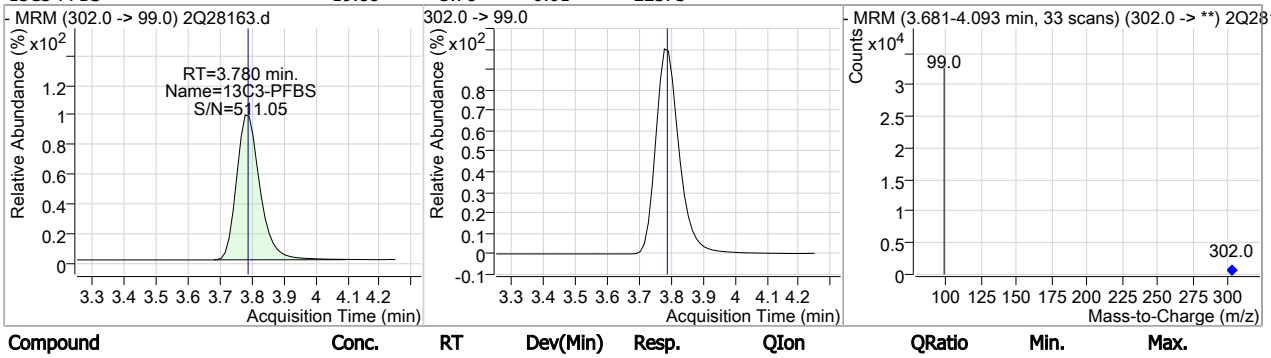
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.89	3.52	-0.01	130505				



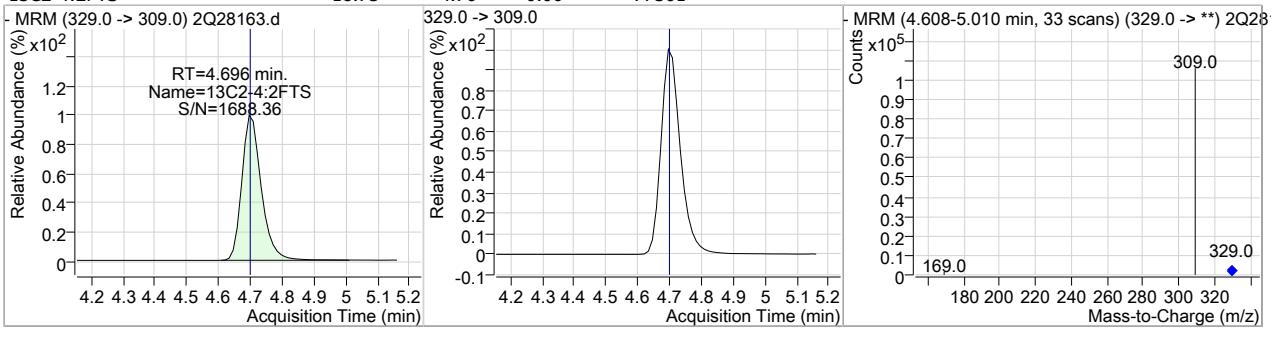
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.04	3.78	0.00	3687	299.0 -> 99.0	33.2	5.7	65.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.88	3.78	-0.01	22373				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.73	4.70	0.00	77361				



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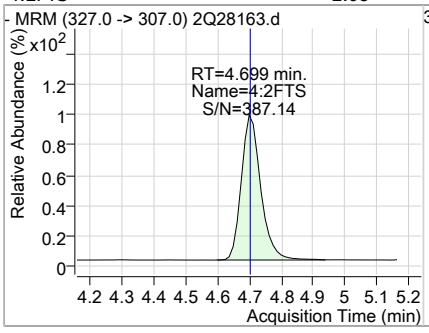
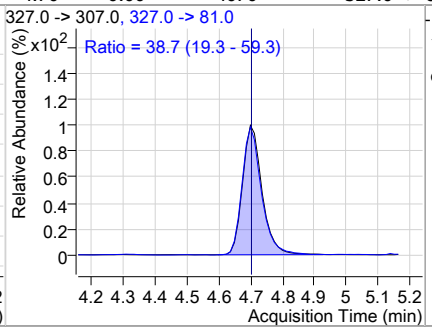
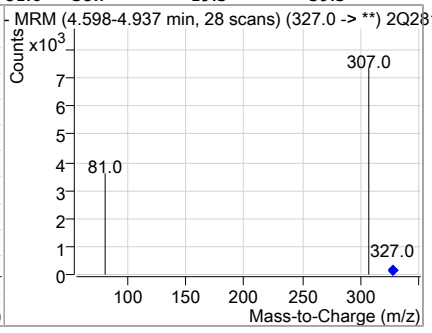
Perfluorinated Compounds by LC/MS/MS

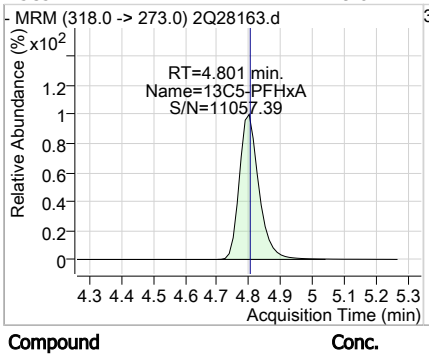
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	2.08	4.70	0.00	4670	327.0 -> 81.0	38.7	19.3	59.3

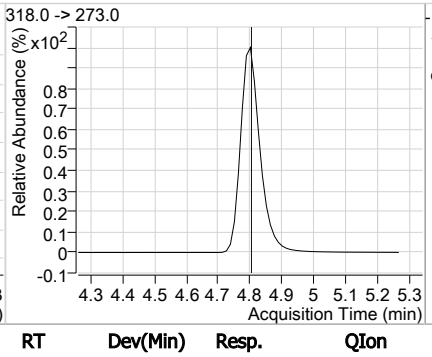


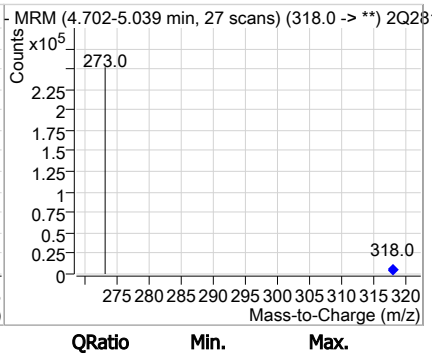




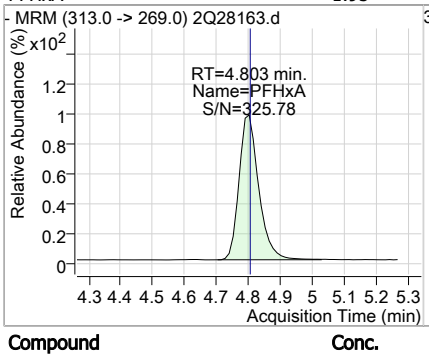
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.87	4.80	0.00	187555				

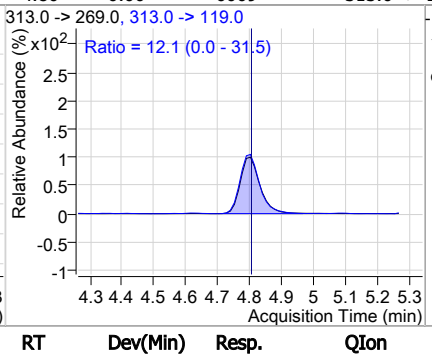


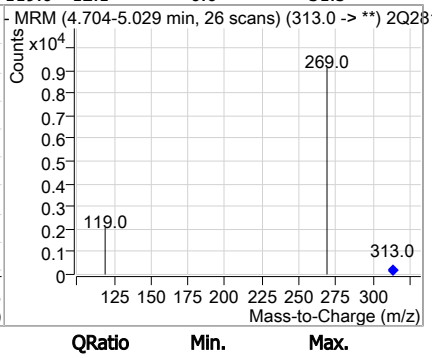




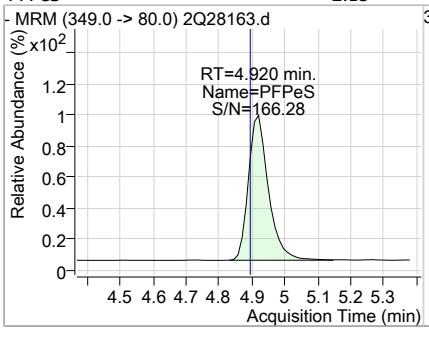
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.95	4.80	0.00	6009	313.0 -> 119.0	12.1	0.0	31.5

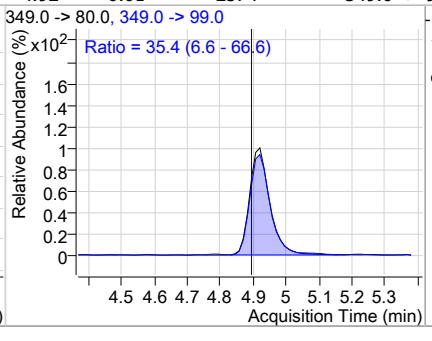


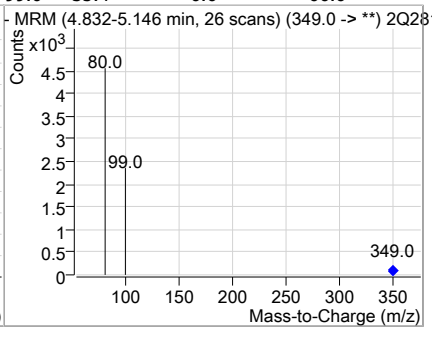




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.15	4.92	0.01	2574	349.0 -> 99.0	35.4	6.6	66.6

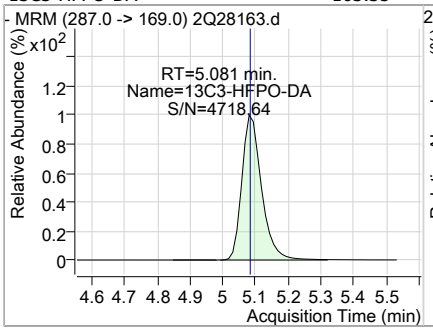


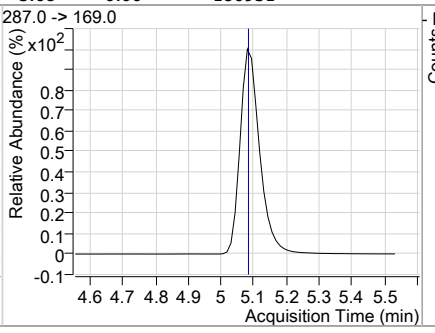


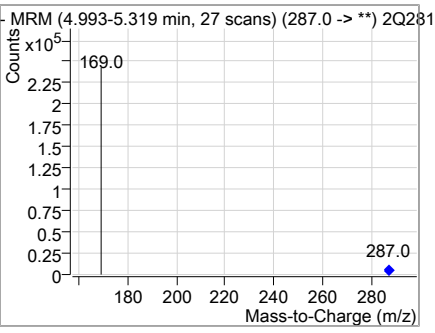


Perfluorinated Compounds by LC/MS/MS

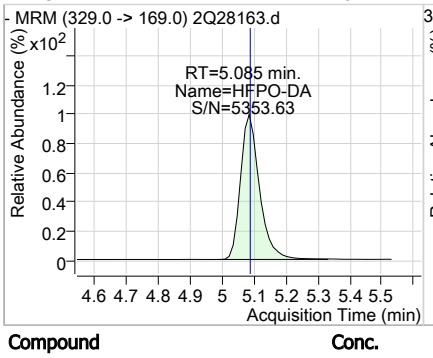
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	103.35	5.08	0.00	180931				

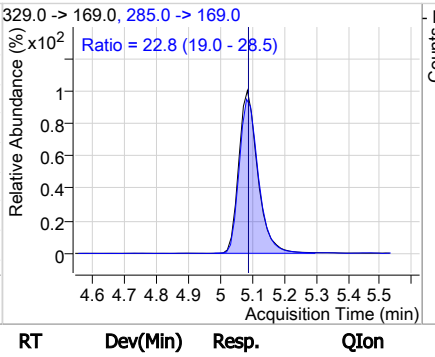


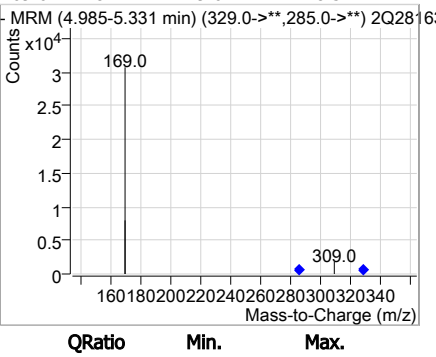




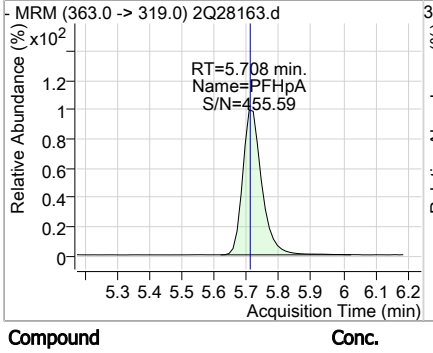
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.14	5.09	0.00	22286	285.0 -> 169.0	22.8	19.0	28.5

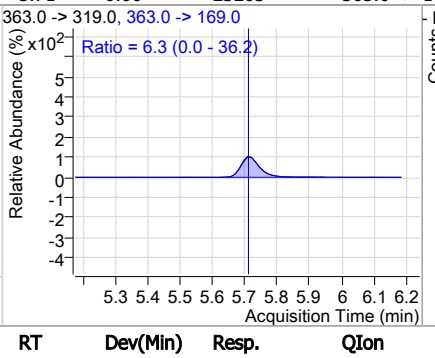


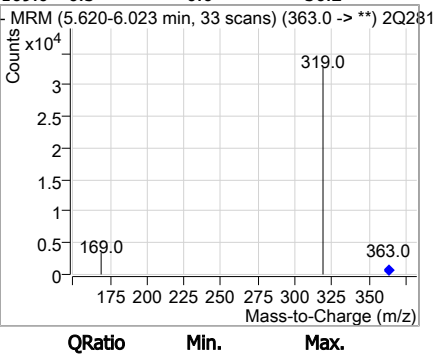




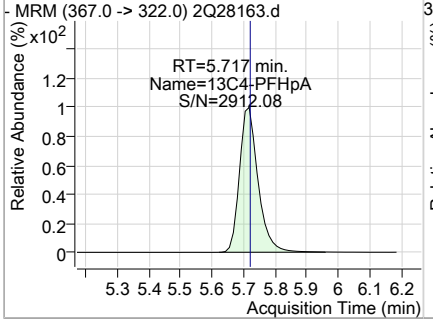
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.96	5.71	0.00	23263	363.0 -> 169.0	6.3	0.0	36.2

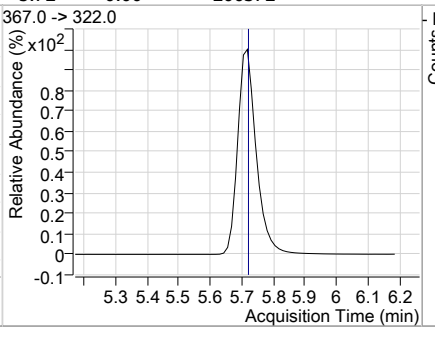


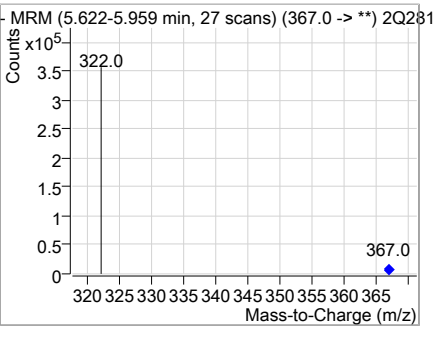




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.03	5.72	0.00	266372				

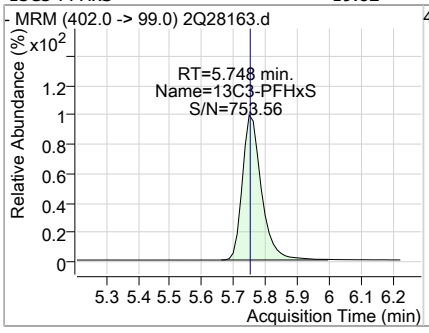


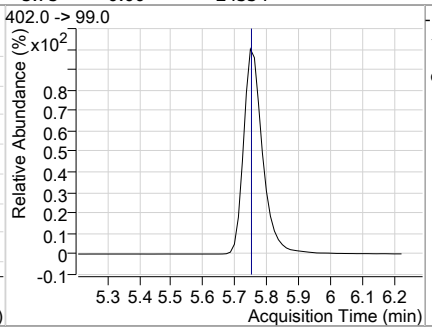


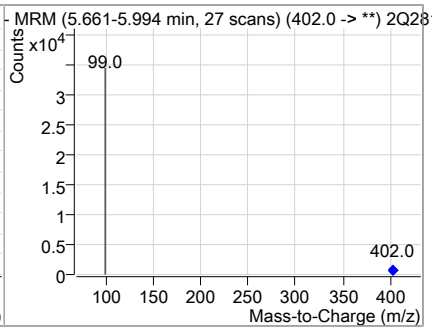


Perfluorinated Compounds by LC/MS/MS

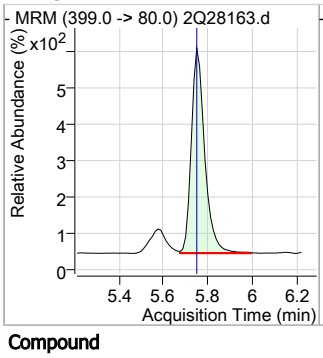
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.82	5.75	0.00	24334				

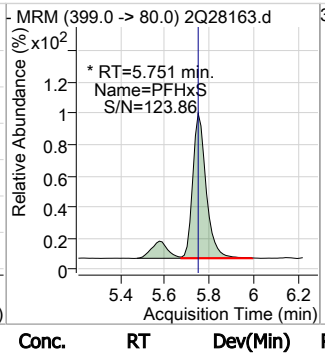


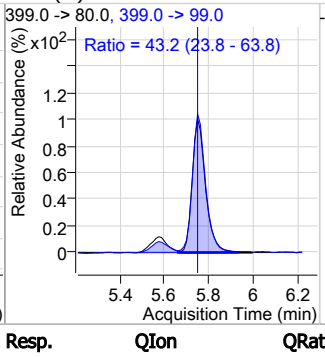


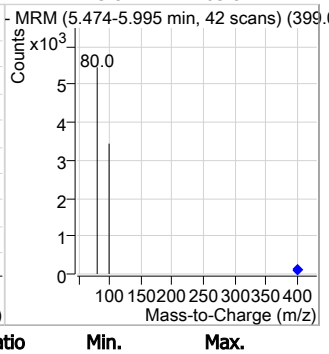


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.94	5.75	0.00	2716 (m)	399.0 -> 99.0	43.2	23.8	63.8

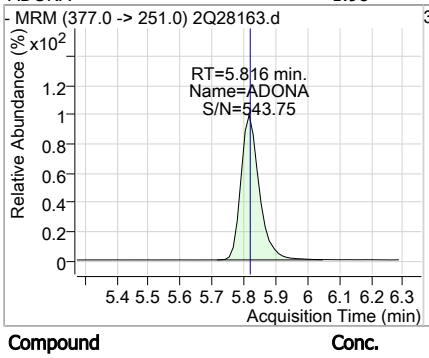


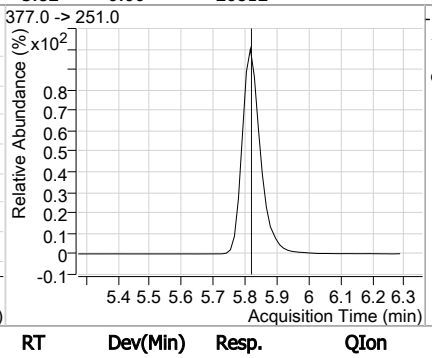


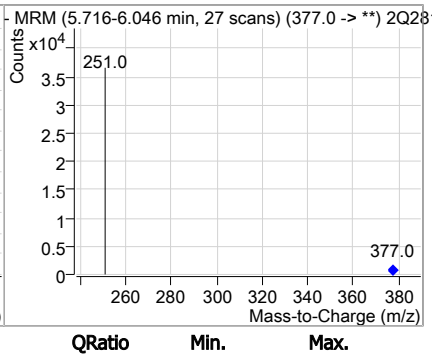




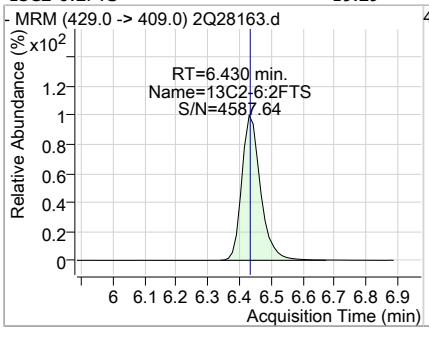
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.98	5.82	0.00	26812				

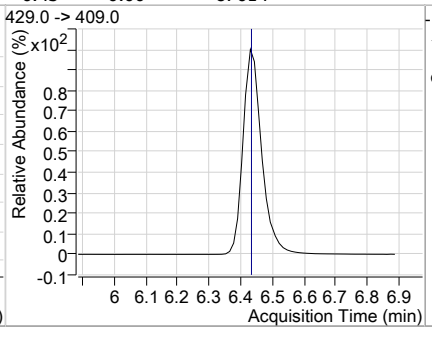


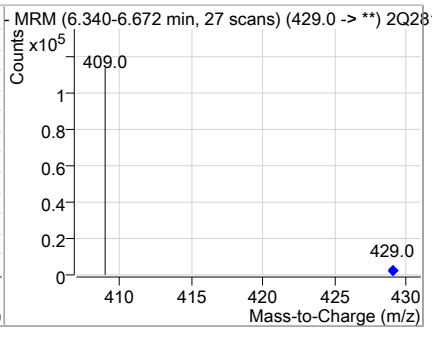




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.29	6.43	0.00	87614				







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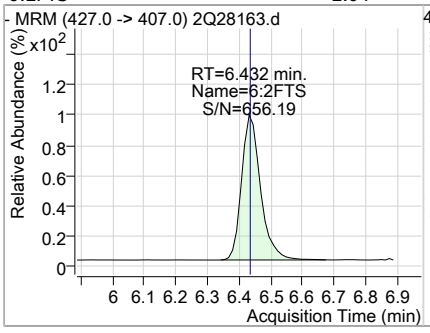
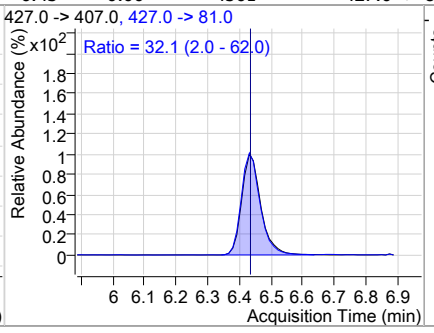
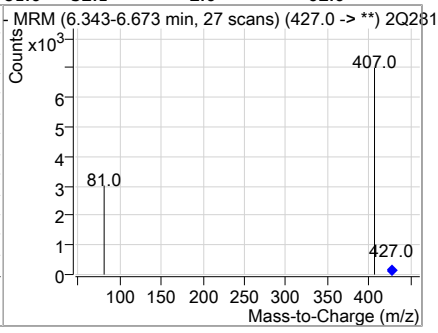
Perfluorinated Compounds by LC/MS/MS

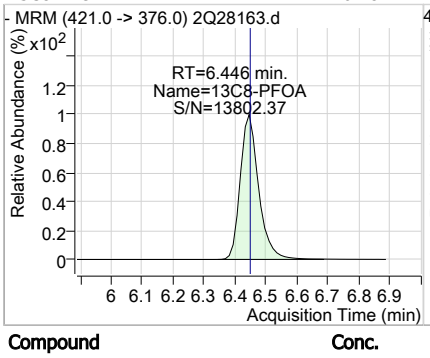
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.04	6.43	0.00	4561	427.0 -> 81.0	32.1	2.0	62.0

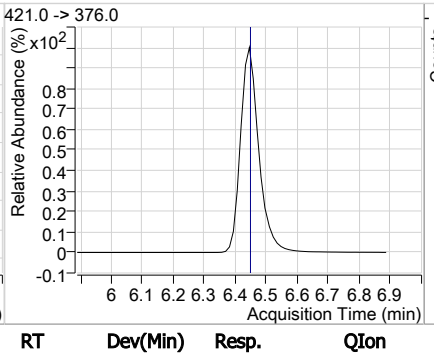


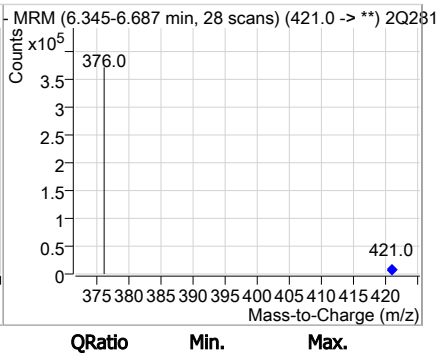




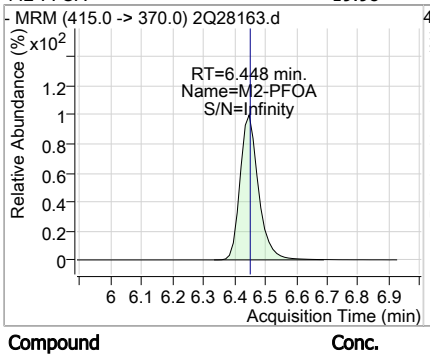
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.48	6.45	0.00	283600				

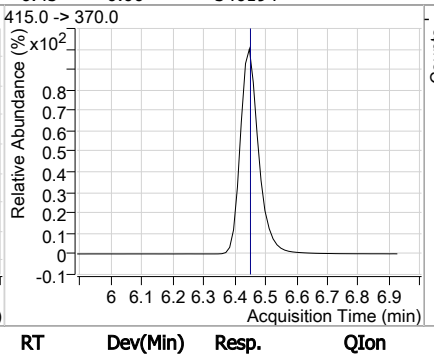


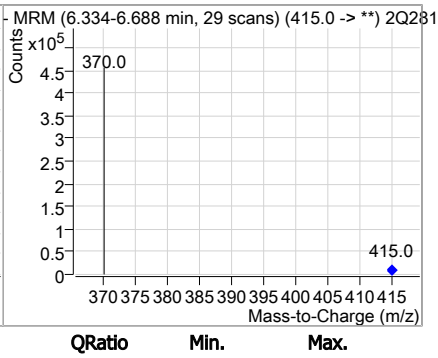




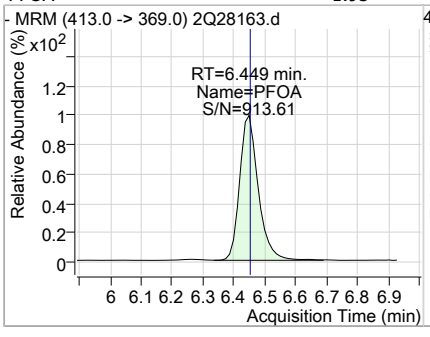
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.98	6.45	0.00	346194				

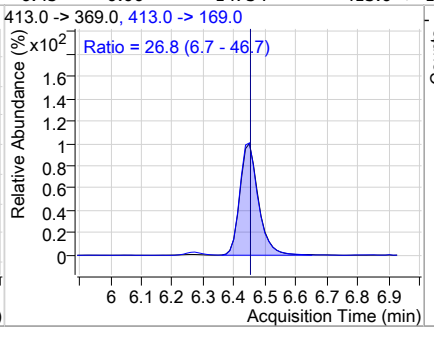


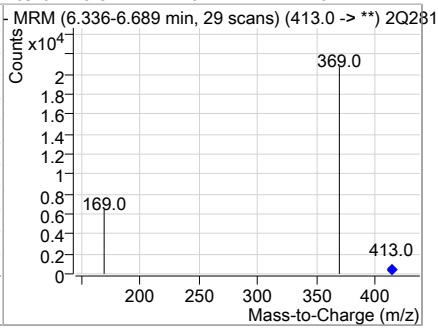




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.95	6.45	0.00	14734	413.0 -> 169.0	26.8	6.7	46.7

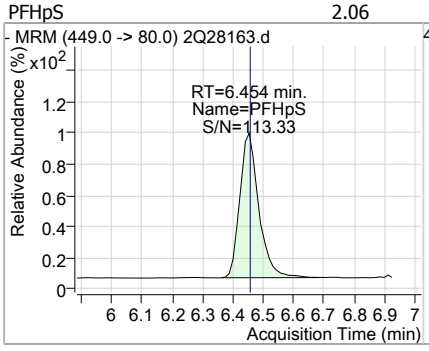


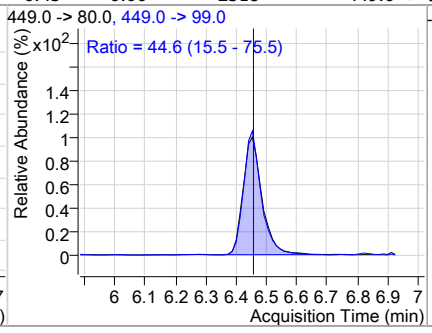


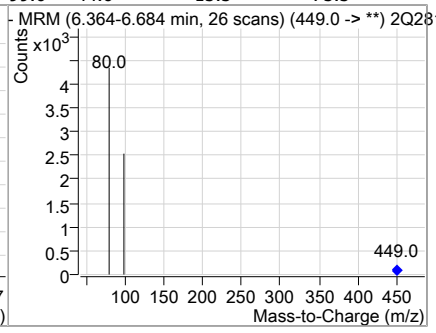


Perfluorinated Compounds by LC/MS/MS

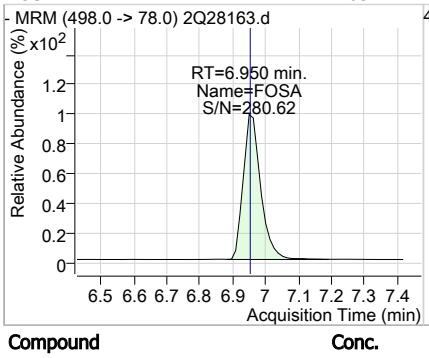
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.06	6.45	0.00	2518	449.0 -> 99.0	44.6	15.5	75.5

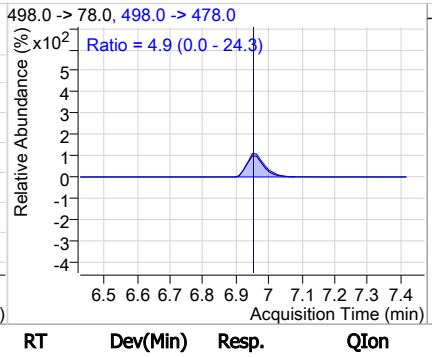


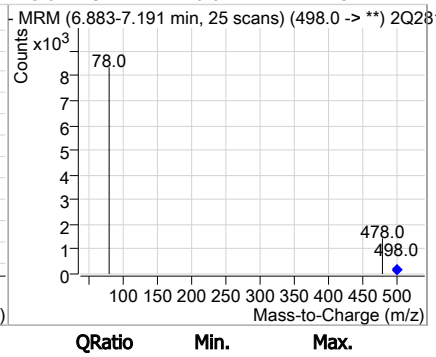




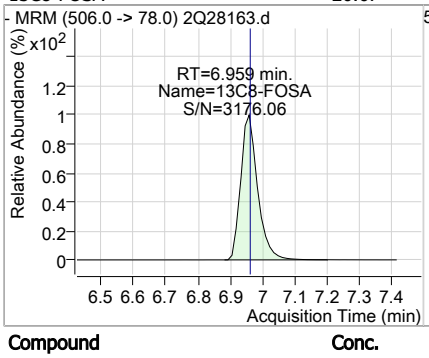
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.03	6.95	0.00	5629	498.0 -> 478.0	4.9	0.0	24.3

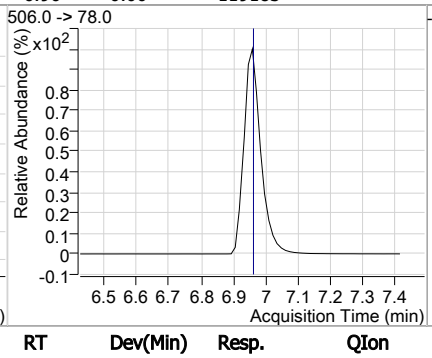


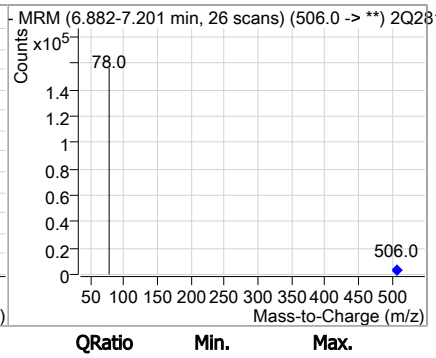




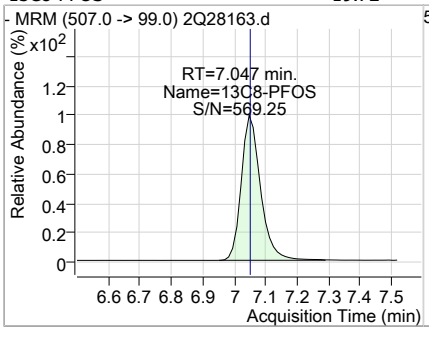
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.67	6.96	0.00	119183				

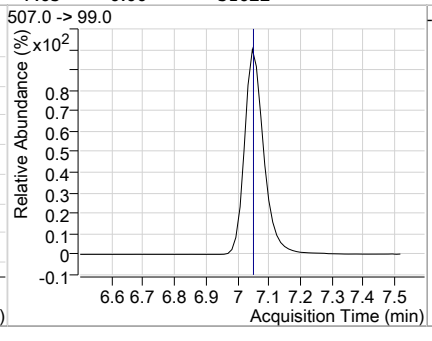


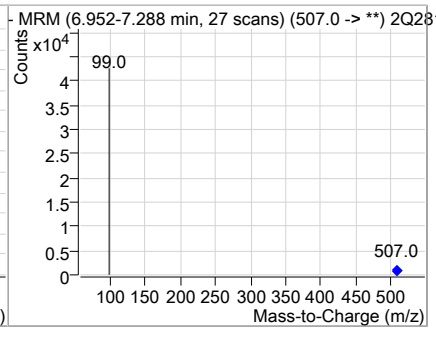




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.72	7.05	0.00	31622				



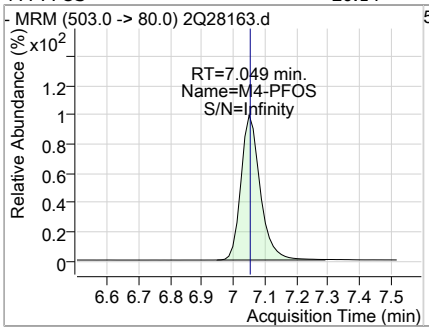


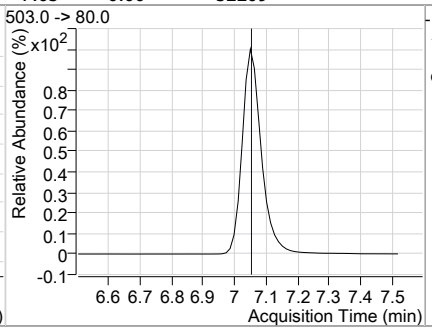


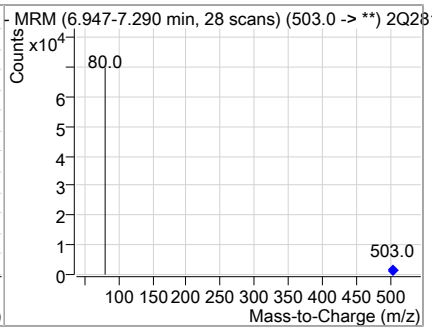
7.6.20

Perfluorinated Compounds by LC/MS/MS

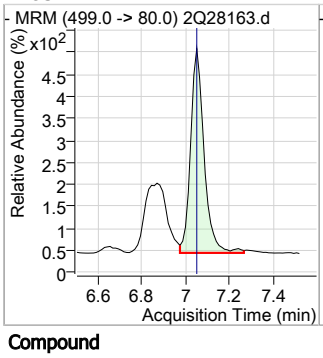
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.14	7.05	0.00	52209				

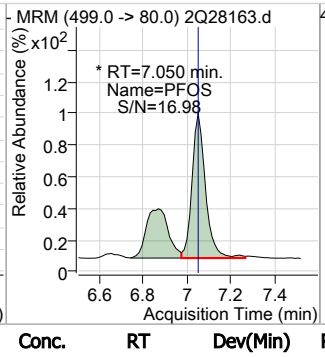


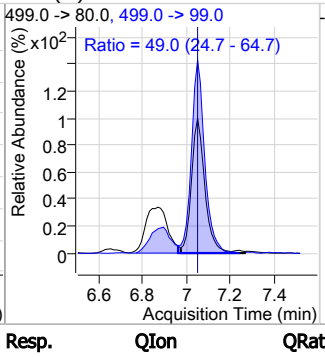


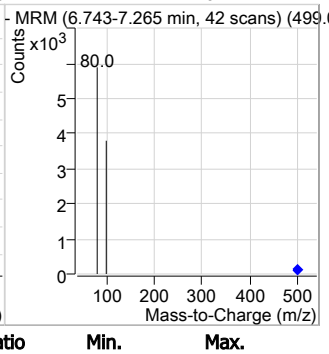


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.93	7.05	0.00	3094 (m)	499.0 -> 99.0	49.0	24.7	64.7

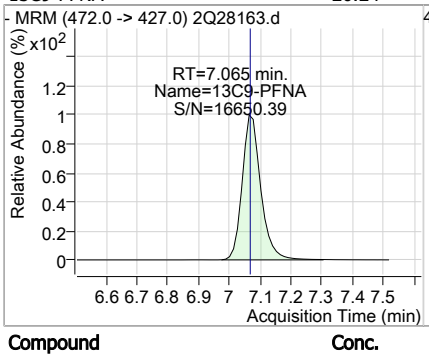


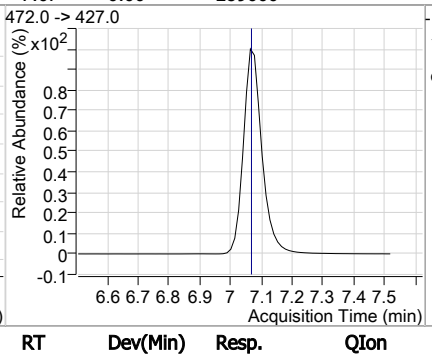


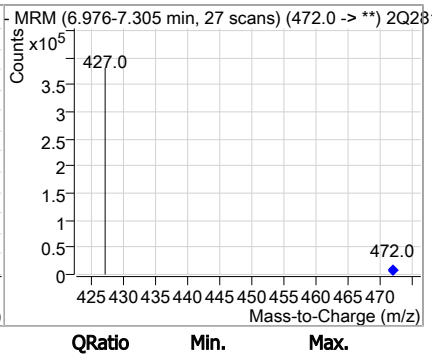




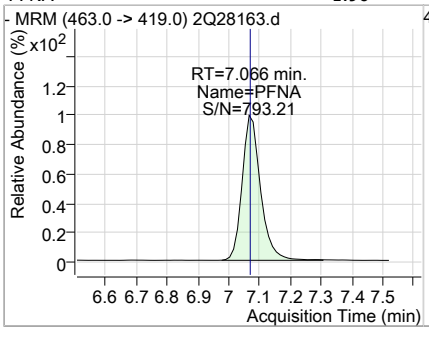
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.24	7.07	0.00	289600				

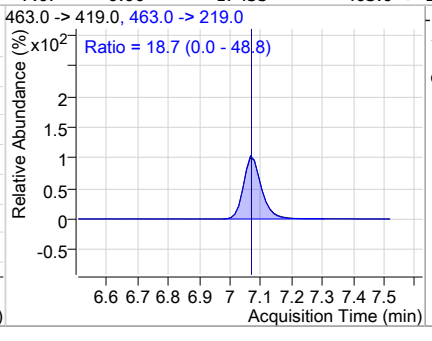


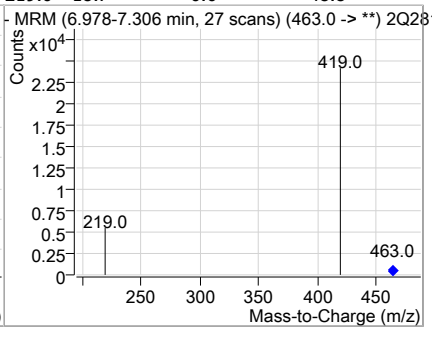




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.96	7.07	0.00	17433	463.0 -> 219.0	18.7	0.0	48.8

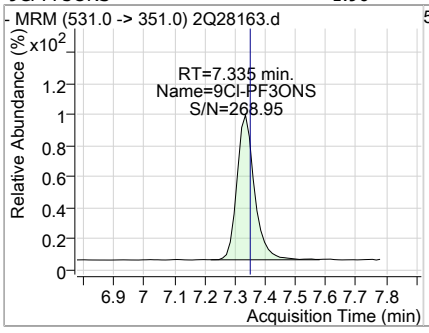


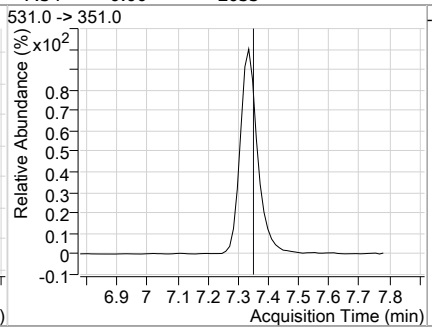


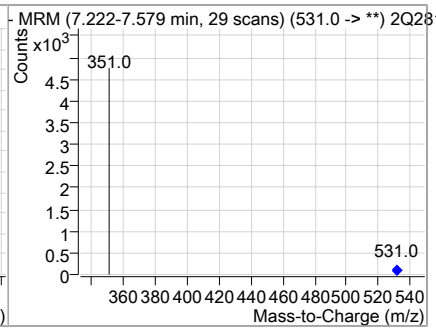


Perfluorinated Compounds by LC/MS/MS

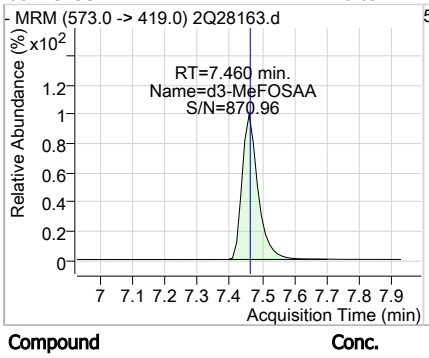
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.96	7.34	0.00	2633				

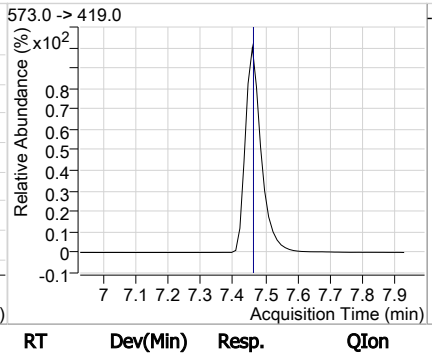


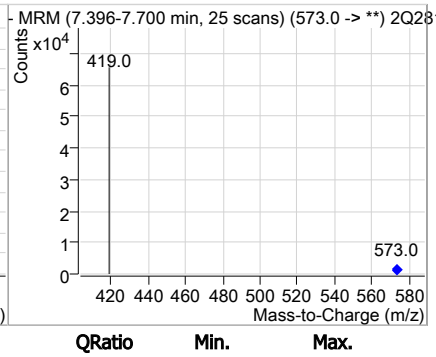




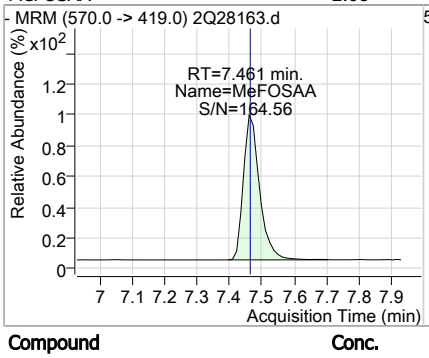
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.09	7.46	0.00	48456				

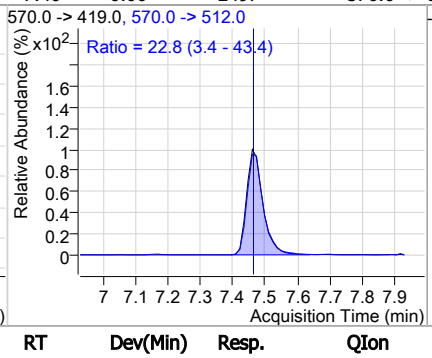


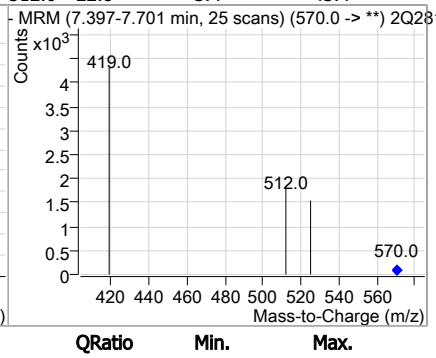




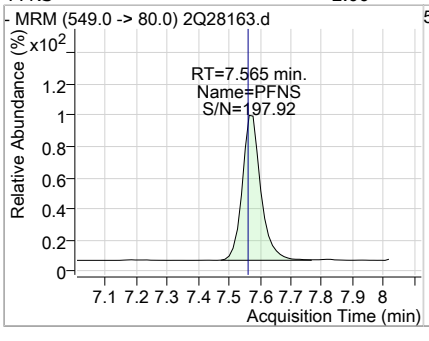
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.08	7.46	0.00	2497	570.0 -> 512.0	22.8	3.4	43.4

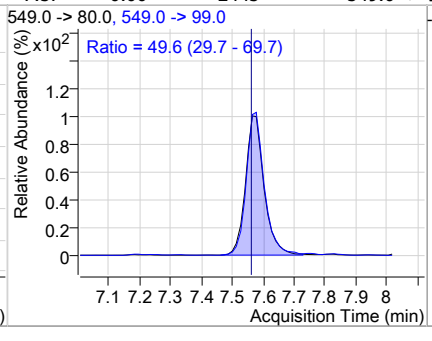


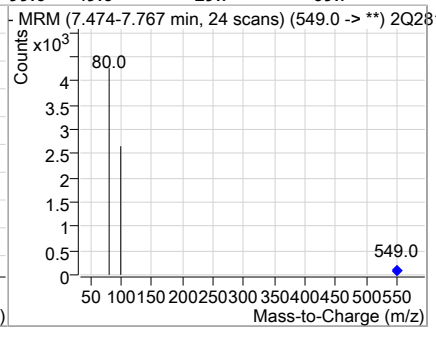




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.06	7.57	0.00	2445	549.0 -> 99.0	49.6	29.7	69.7







7.6.20

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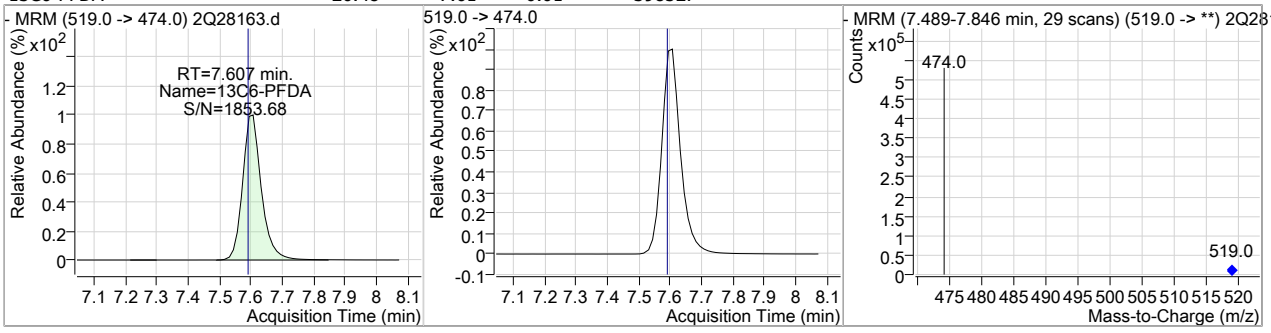
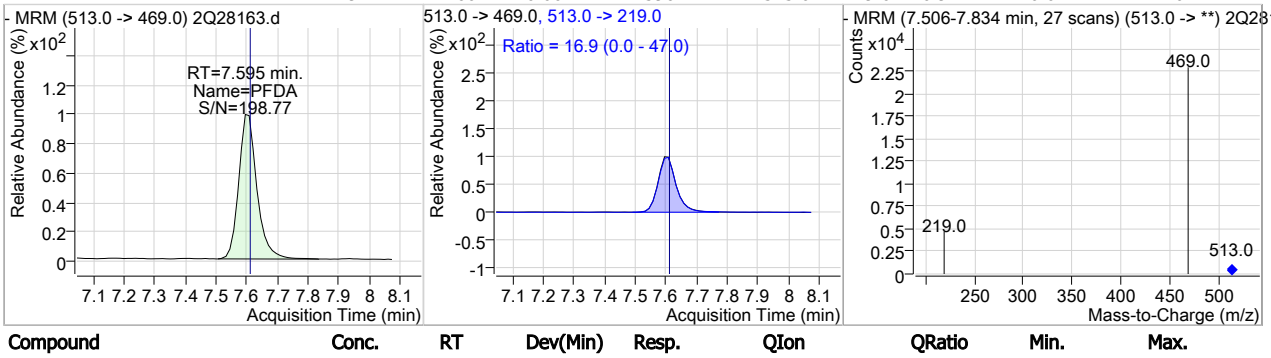
Perfluorinated Compounds by LC/MS/MS

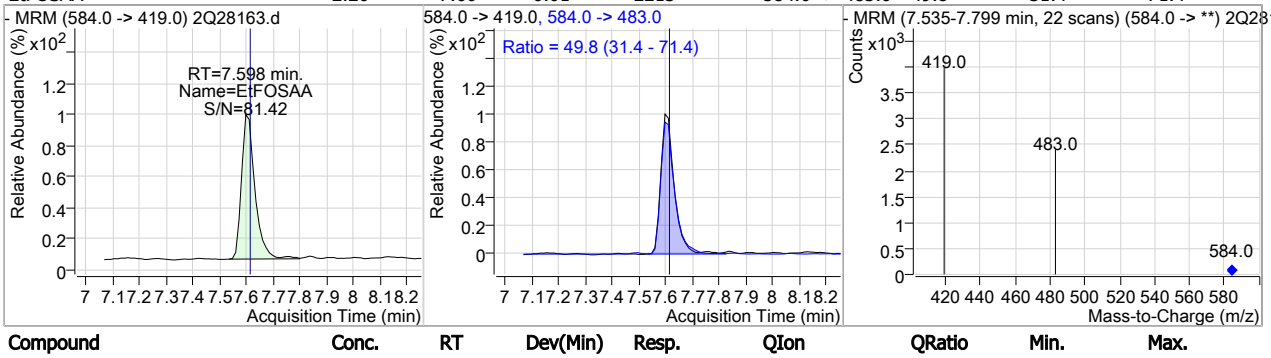
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.48	7.61	0.01	398527				



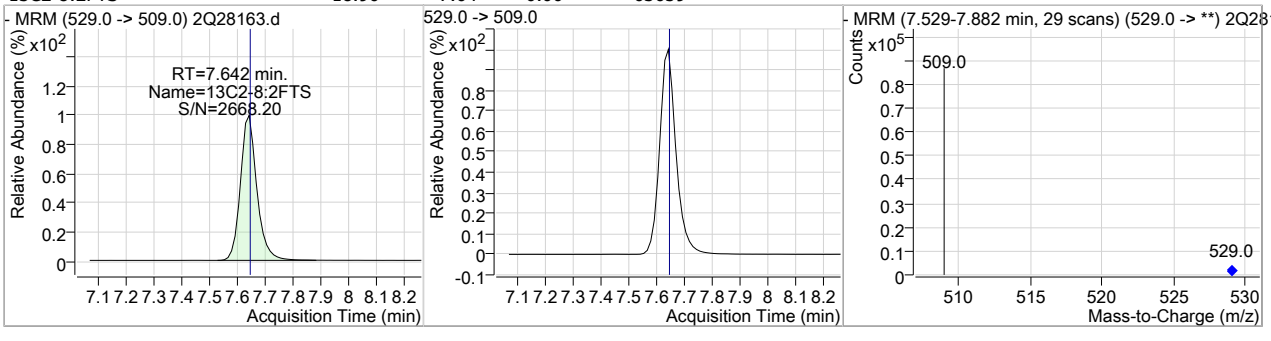
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.97	7.60	0.00	15967	513.0 -> 219.0	16.9	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.20	7.60	-0.01	2213	584.0 -> 483.0	49.8	31.4	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.90	7.64	0.00	63659				



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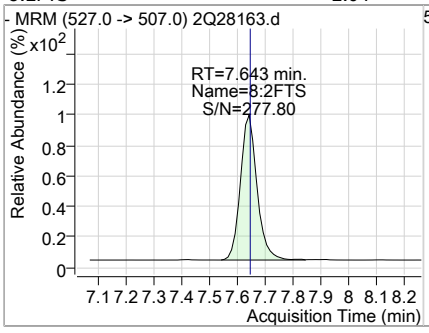
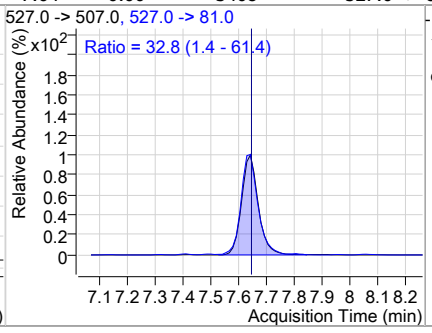
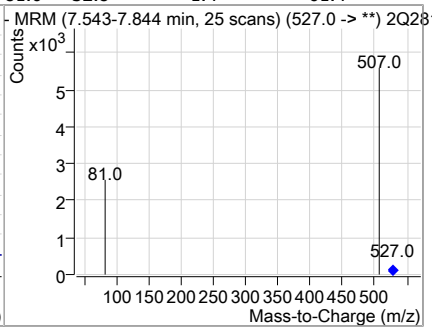
Perfluorinated Compounds by LC/MS/MS

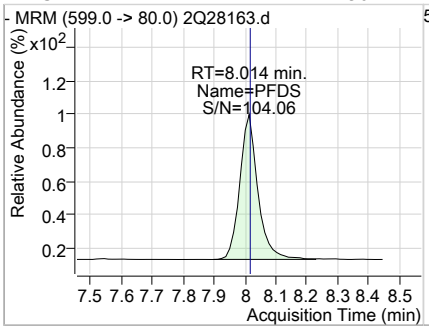
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.04	7.64	0.00	3408	527.0 -> 81.0	32.8	1.4	61.4

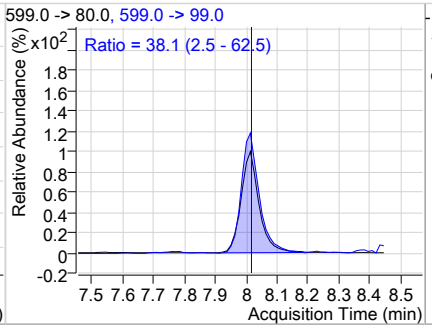


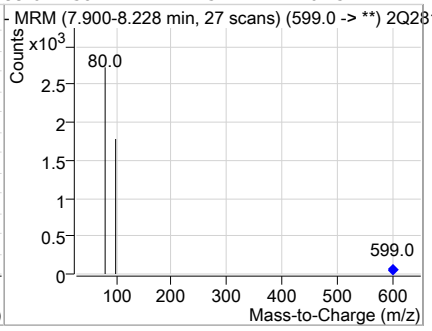




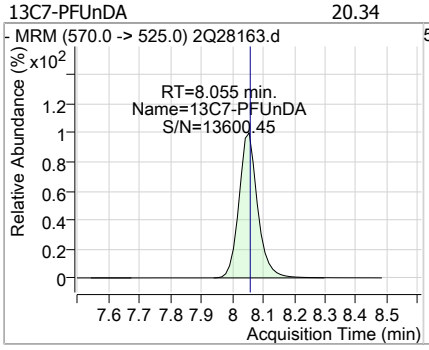
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.96	8.01	0.00	1180	599.0 -> 99.0	38.1	2.5	62.5

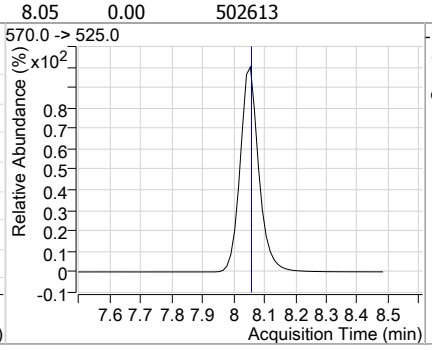


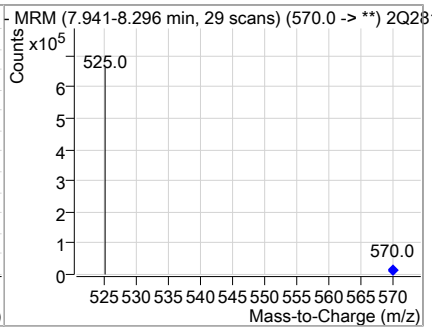




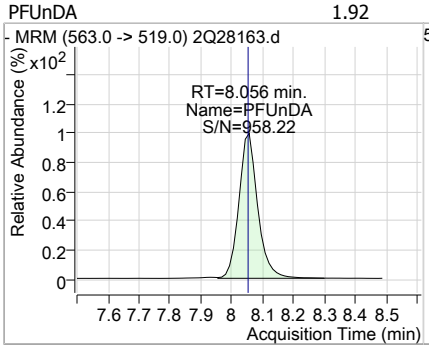
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.34	8.05	0.00	502613				

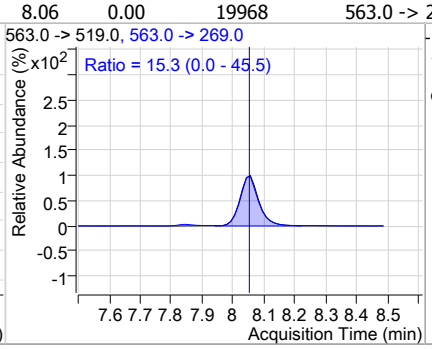


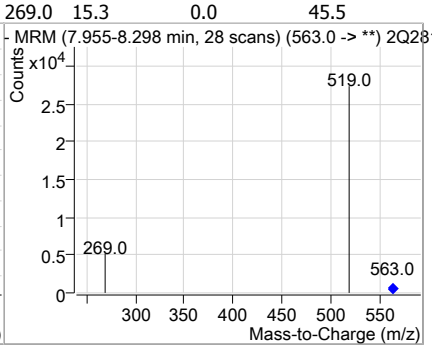




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.92	8.06	0.00	19968	563.0 -> 269.0	15.3	0.0	45.5

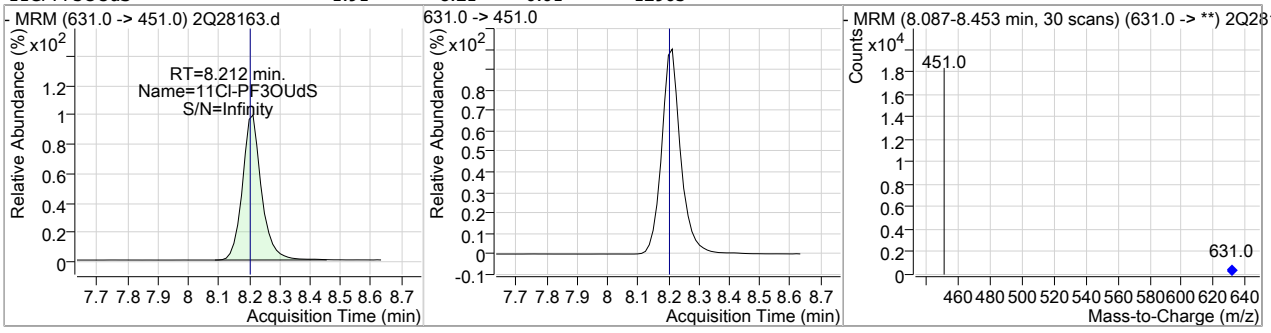




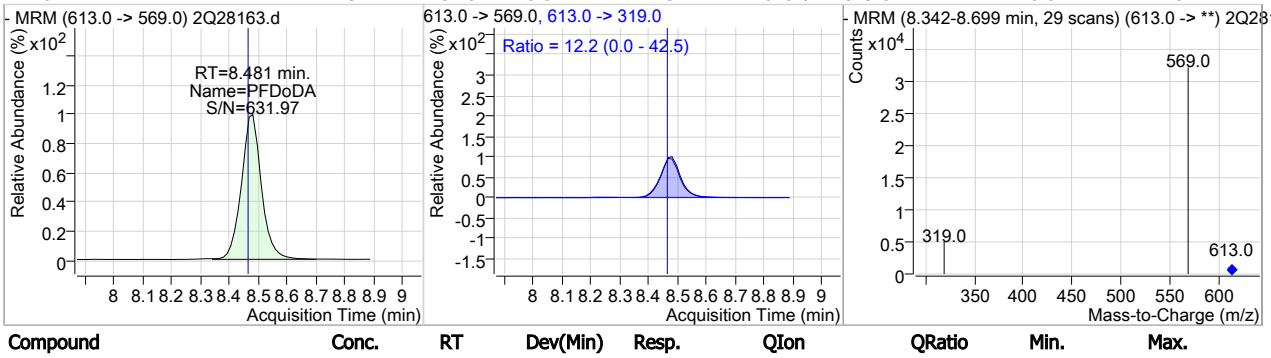


Perfluorinated Compounds by LC/MS/MS

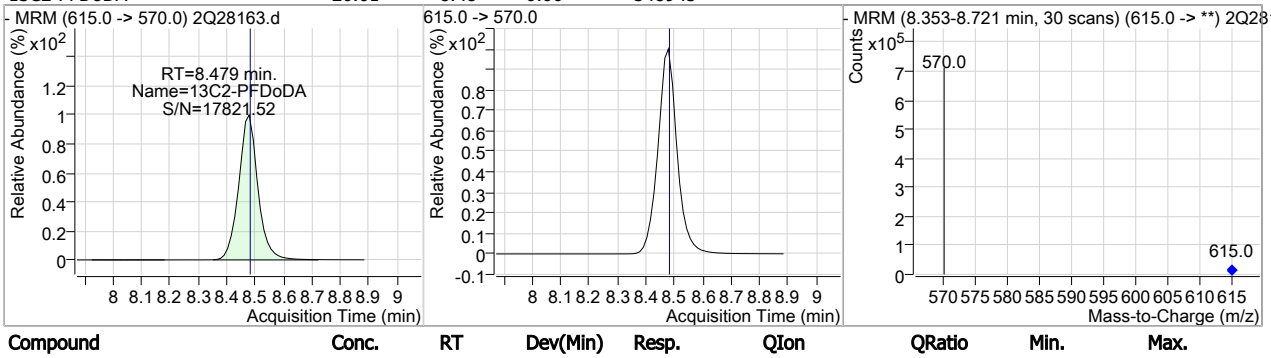
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.91	8.21	0.01	12963				



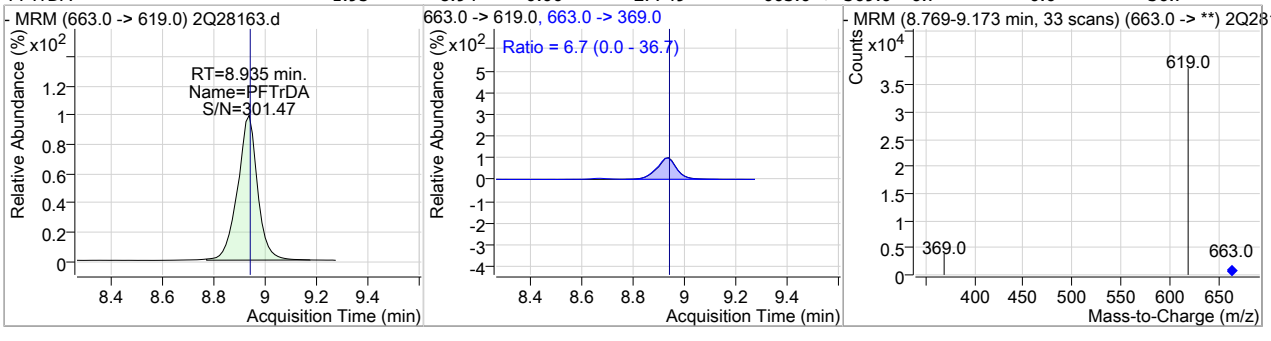
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.92	8.48	0.01	24157	613.0 -> 319.0	12.2	0.0	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.01	8.48	0.00	548945				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.95	8.94	0.00	27749	663.0 -> 369.0	6.7	0.0	36.7



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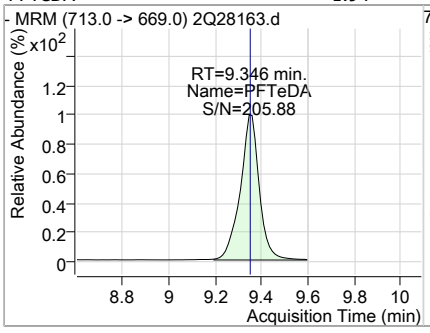
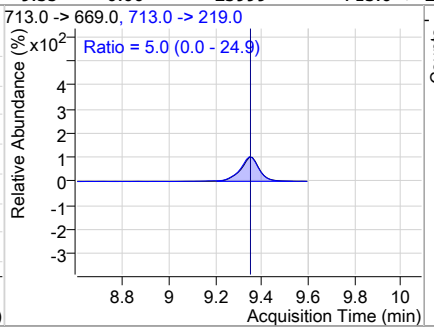
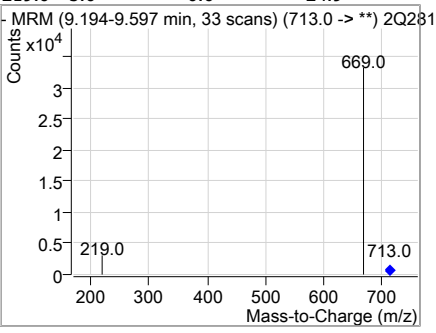
Cal Report: 2Q28163.D

Perfluorinated Compounds by LC/MS/MS

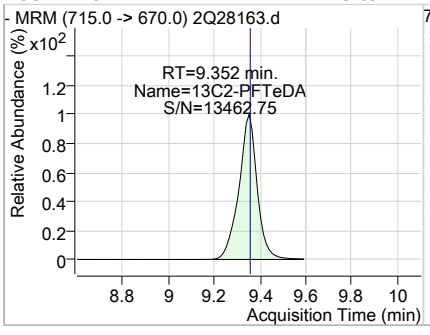
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.94	9.35	0.00	23999	713.0 -> 219.0	5.0	0.0	24.9

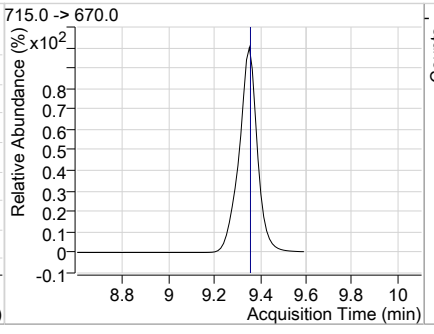


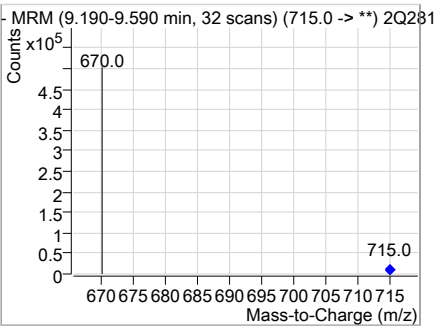




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.89	9.35	0.00	375654				







7.6.20

Manual Integration Approval Summary

Sample Number: S2Q449-IC449
Lab FileID: 2Q28163.D
Injection Time: 03/26/19 15:29
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Cal Report: 2Q28164.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28164.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 3:45:26 PM
Sample Name : ic449-5
Vial : Vial 5
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

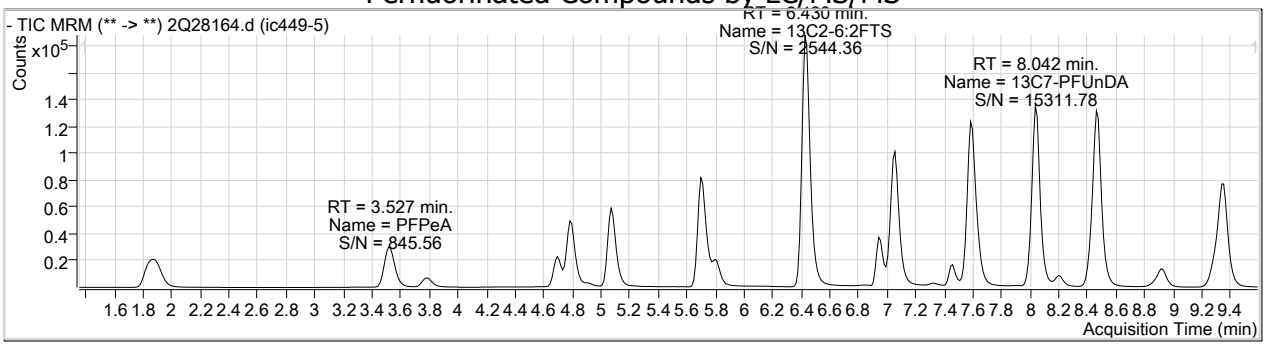
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.435	415.0 -> 370.0	347349	20.00	µg/L	-0.013
13C4-PFOS	7.049	503.0 -> 80.0	51450	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	153735	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	128958	20.00	µg/L	-0.013
M5-PFHxA	4.788	318.0 -> 273.0	186946	20.00	µg/L	-0.013
M4-PFHpA	5.705	367.0 -> 322.0	264900	20.00	µg/L	-0.013
M8-PFOA	6.434	421.0 -> 376.0	280615	20.00	µg/L	-0.013
M9-PFNA	7.065	472.0 -> 427.0	287035	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	396731	20.00	µg/L	0.000
M7-PFUnDA	8.042	570.0 -> 525.0	499303	20.00	µg/L	-0.013
M2-PFDoDA	8.466	615.0 -> 570.0	547934	20.00	µg/L	-0.013
M2-PFTeDA	9.352	715.0 -> 670.0	374234	20.00	µg/L	0.000
M8-FOSA	6.946	506.0 -> 78.0	119045	20.00	µg/L	-0.013
M3-PFBS	3.780	302.0 -> 99.0	22433	20.00	µg/L	-0.013
M3-PFHxS	5.748	402.0 -> 99.0	24440	20.00	µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	32297	20.00	µg/L	0.000
M2-4:2FTS	4.696	329.0 -> 309.0	77711	20.00	µg/L	0.000
M2-6:2FTS	6.430	429.0 -> 409.0	86809	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	64341	20.00	µg/L	-0.013
M3-MeFOSAA	7.460	573.0 -> 419.0	47439	20.00	µg/L	0.000
M3-HFPO-DA	5.081	287.0 -> 169.0	176524	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	77669	18.80	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C2-6:2FTS	6.430	429.0 -> 409.0	86717	19.09	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%		
13C2-8:2FTS	7.630	529.0 -> 509.0	64399	19.12	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.6%		
13C2-PFDoDA	8.466	615.0 -> 570.0	547932	19.97	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C2-PFTeDA	9.352	715.0 -> 670.0	374232	19.81	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C3-PFBS	3.780	302.0 -> 99.0	22403	19.91	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C3-PFHxS	5.748	402.0 -> 99.0	24425	19.89	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C4-PFBA	1.865	217.0 -> 172.0	152859	19.80	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C4-PFHpA	5.705	367.0 -> 322.0	264587	19.90	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C5-PFHxA	4.788	318.0 -> 273.0	186561	19.77	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C5-PFPeA	3.524	268.0 -> 223.0	128972	19.66	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C6-PFDA	7.594	519.0 -> 474.0	396433	20.37	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

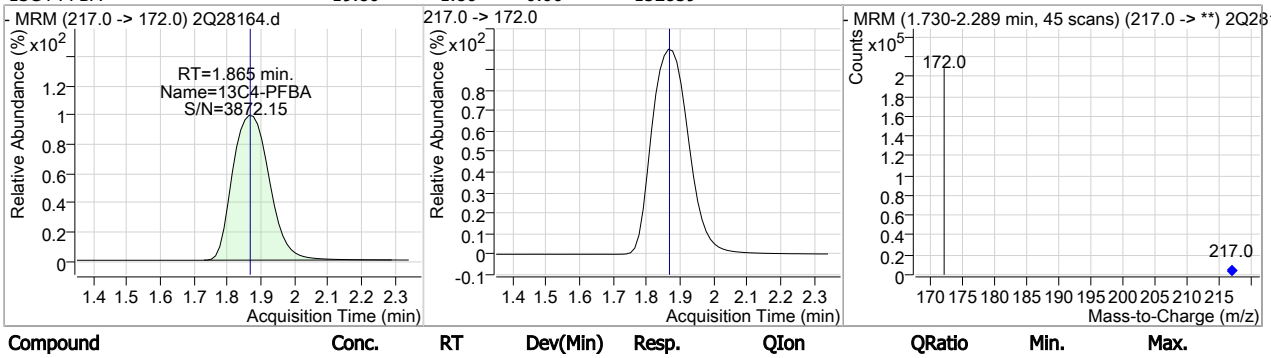
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
13C7-PFUnDA	8.042	570.0 -> 525.0	498761	20.19 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C8-FOSA	6.946	506.0 -> 78.0	119036	20.65 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C8-PFOA	6.434	421.0 -> 376.0	280156	20.24 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C8-PFOS	7.047	507.0 -> 99.0	32301	20.15 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C9-PFNA	7.065	472.0 -> 427.0	286958	20.06 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
d3-MeFOSAA	7.460	573.0 -> 419.0	47436	19.66 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
M2-PFOA	6.435	415.0 -> 370.0	347710	19.99 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.049	503.0 -> 80.0	48463	18.96 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.8%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	176524	100.83 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
Target Compounds						QValue
4:2FTS	4.699	327.0 -> 307.0	11530	5.11 µg/L		98
6:2FTS	6.432	427.0 -> 407.0	11101	5.00 µg/L		98
8:2FTS	7.631	527.0 -> 507.0	8278	4.90 µg/L		100
EtFOSAA	7.598	584.0 -> 419.0	5201	5.30 µg/L		100
FOSA	6.950	498.0 -> 78.0	13409	4.84 µg/L		100
MeFOSAA	7.461	570.0 -> 419.0	6161	5.22 µg/L		95
PFBA	1.873	213.0 -> 169.0	7165	4.86 µg/L		100
PFBS	3.783	299.0 -> 80.0	8919	4.92 µg/L		99
PFDA	7.595	513.0 -> 469.0	38943	4.82 µg/L		99
PFDoDA	8.469	613.0 -> 569.0	60178	4.79 µg/L		99
PFDS	8.001	599.0 -> 80.0	2967	4.84 µg/L		100
PFHpA	5.708	363.0 -> 319.0	56932	4.84 µg/L		100
PFHpS	6.441	449.0 -> 80.0	6235	5.10 µg/L		99
PFHxA	4.790	313.0 -> 269.0	14862	4.86 µg/L		99
PFHxS	5.751	399.0 -> 80.0	6817	4.85 µg/L	m	99
PFNA	7.066	463.0 -> 419.0	42871	4.87 µg/L		99
PFNS	7.565	549.0 -> 80.0	5914	4.88 µg/L		96
PFOA	6.437	413.0 -> 369.0	35710	4.78 µg/L		100
PFOS	7.050	499.0 -> 80.0	7869	4.81 µg/L	m	97
PFPeA	3.527	263.0 -> 219.0	27865	4.88 µg/L		100
PFPeS	4.908	349.0 -> 80.0	5976	4.98 µg/L		99
PFTeDA	9.346	713.0 -> 669.0	58775	4.76 µg/L		100
PFTrDA	8.923	663.0 -> 619.0	68983	4.86 µg/L		100
PFUnDA	8.043	563.0 -> 519.0	49276	4.76 µg/L		99
11Cl-PF3OUdS	8.200	631.0 -> 451.0	32082	4.73 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	6535	4.87 µg/L		100
ADONA	5.816	377.0 -> 251.0	65839	4.90 µg/L		100
HFPO-DA	5.085	329.0 -> 169.0	54049	25.21 µg/L		99

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

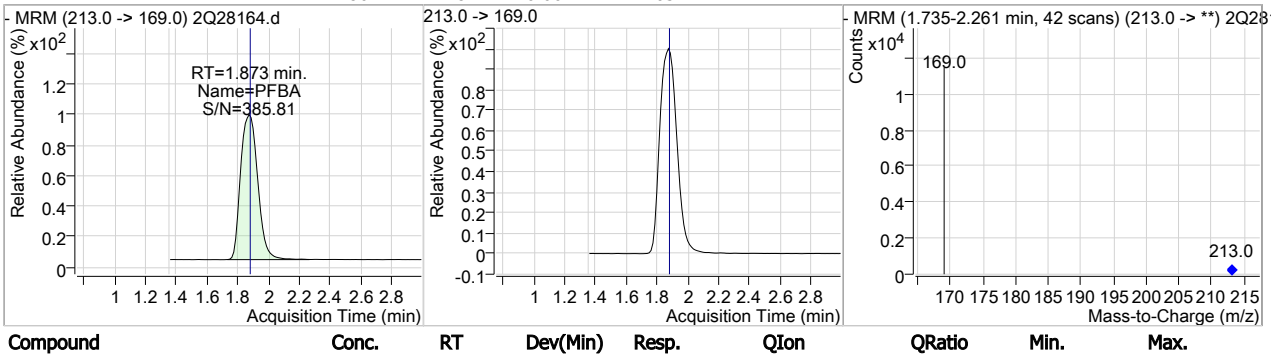
Perfluorinated Compounds by LC/MS/MS



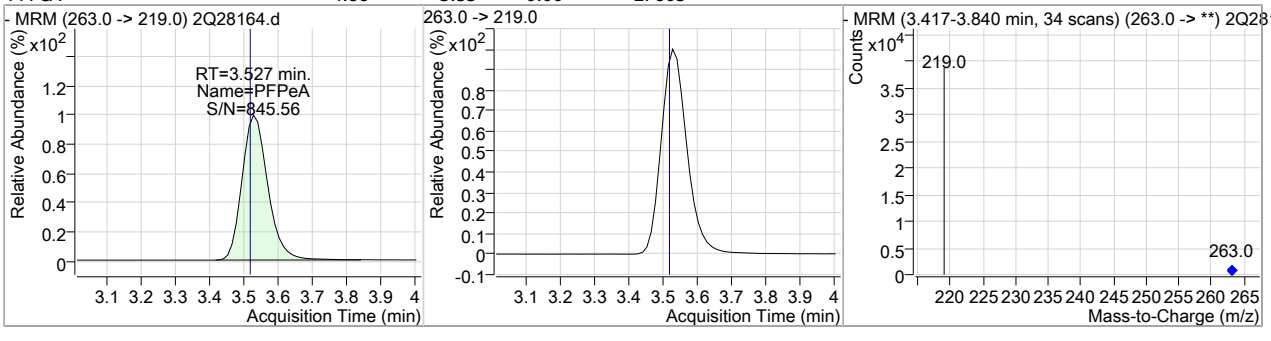
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.80	1.86	0.00	152859				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	4.86	1.87	0.00	7165				

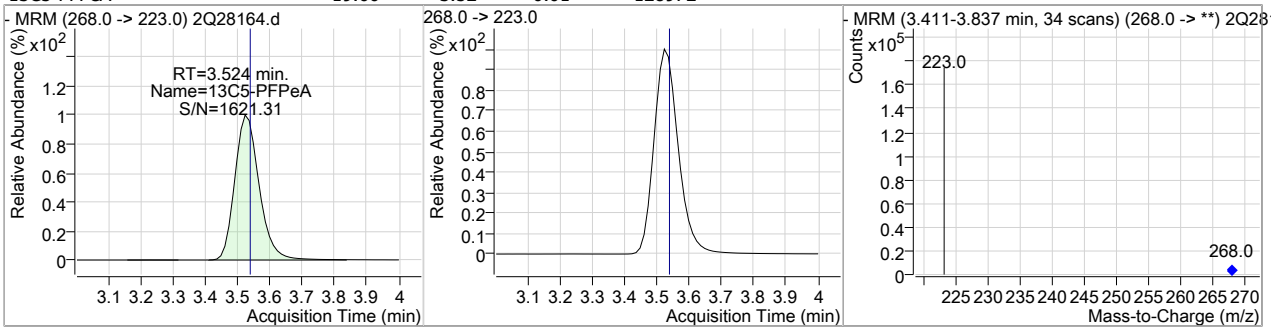


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.88	3.53	0.00	27865				

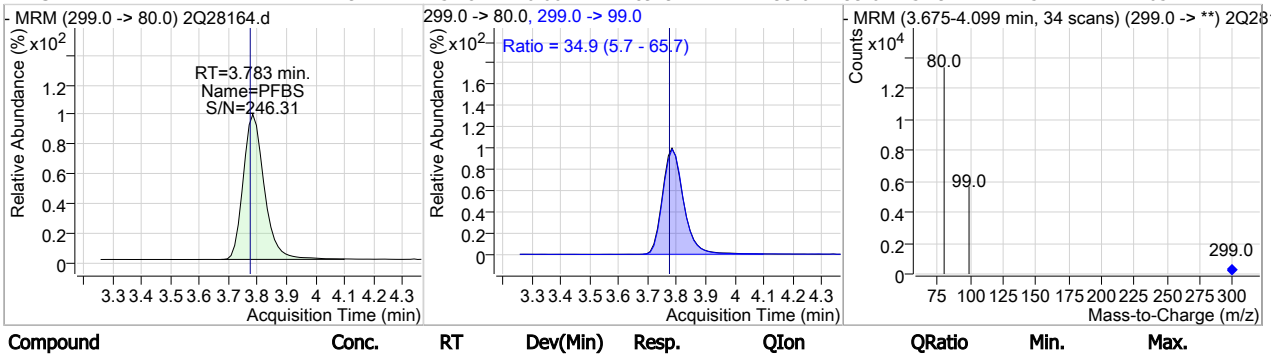


Perfluorinated Compounds by LC/MS/MS

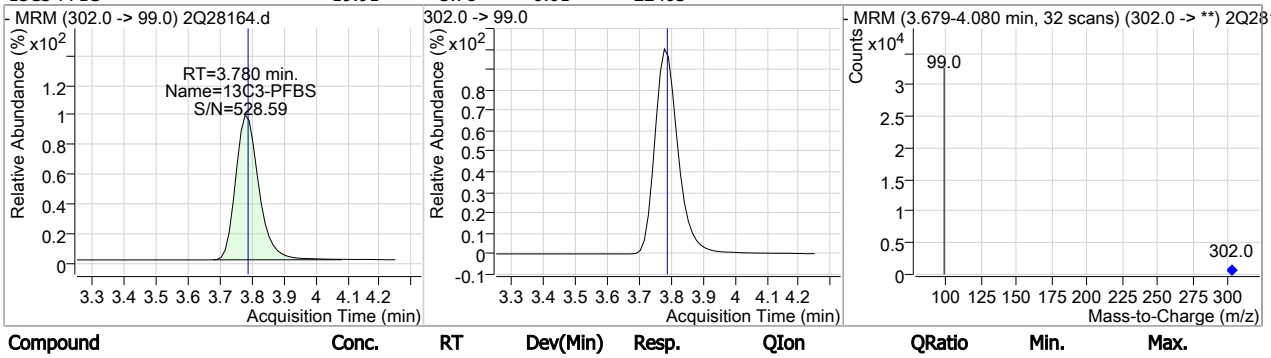
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.66	3.52	-0.01	128972				



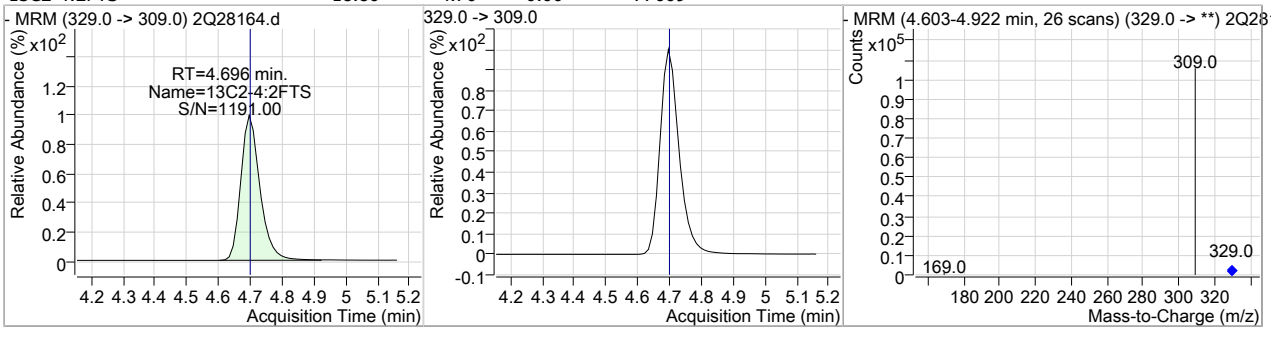
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.92	3.78	0.00	8919	299.0 -> 99.0	34.9	5.7	65.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.91	3.78	-0.01	22403				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.80	4.70	0.00	77669				



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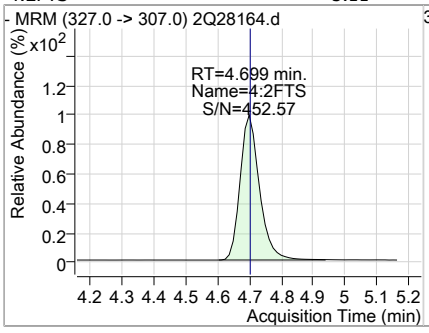
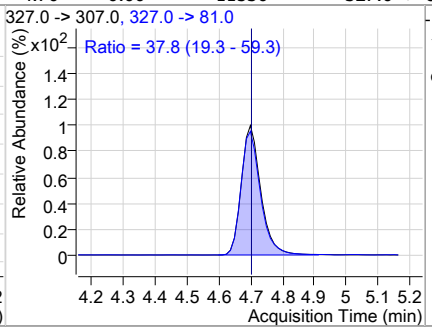
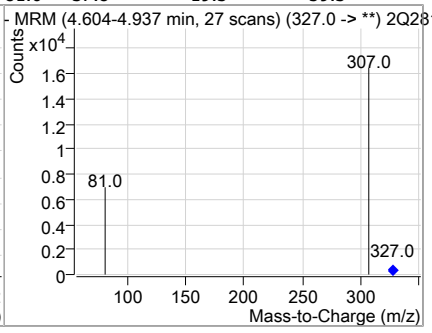
Perfluorinated Compounds by LC/MS/MS

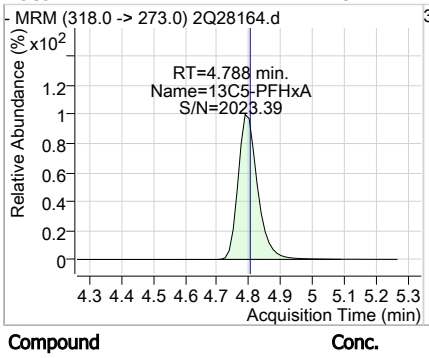
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	5.11	4.70	0.00	11530	327.0 -> 81.0	37.8	19.3	59.3

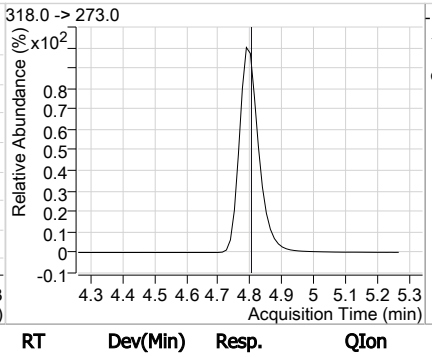


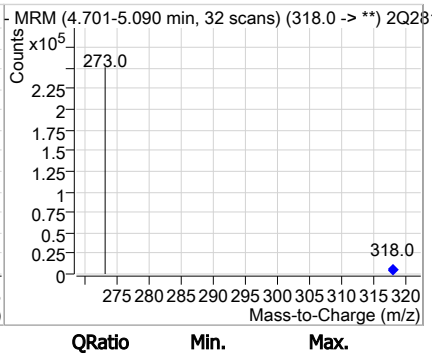




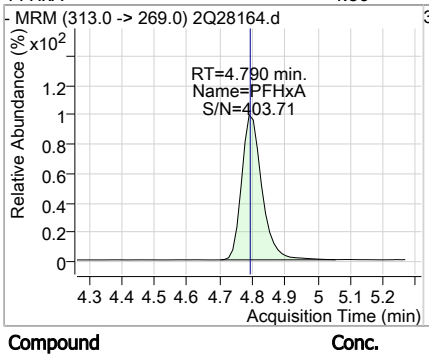
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.77	4.79	-0.01	186561				

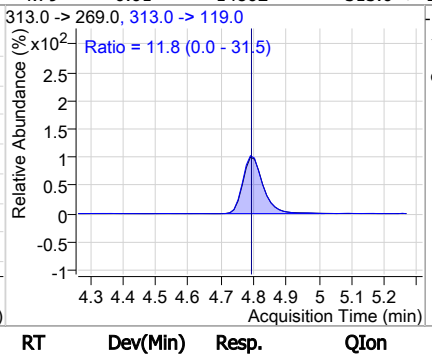


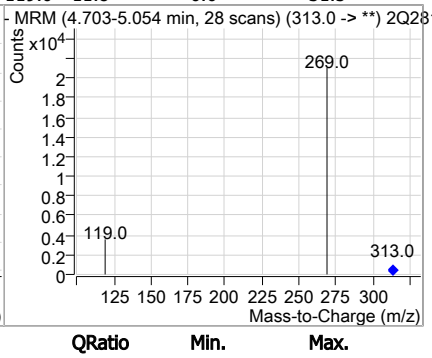




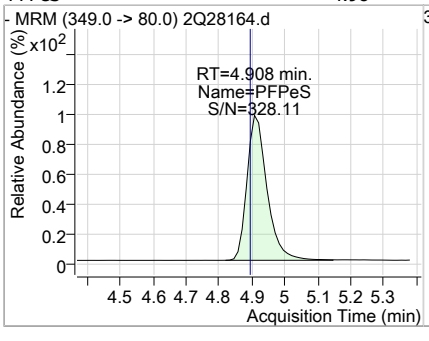
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.86	4.79	-0.01	14862	313.0 -> 119.0	11.8	0.0	31.5

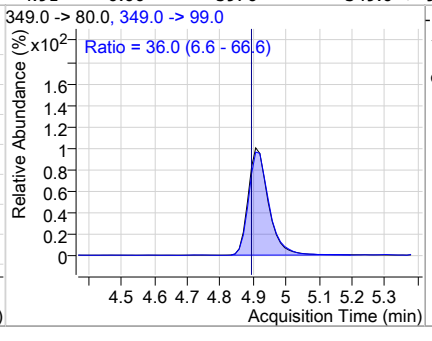


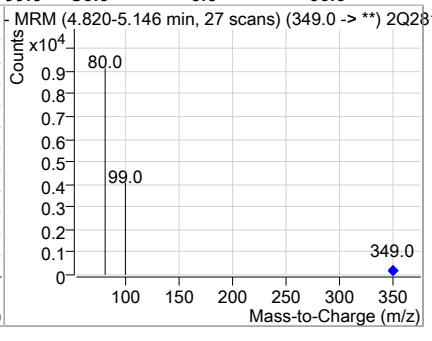




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	4.98	4.91	0.00	5976	349.0 -> 99.0	36.0	6.6	66.6







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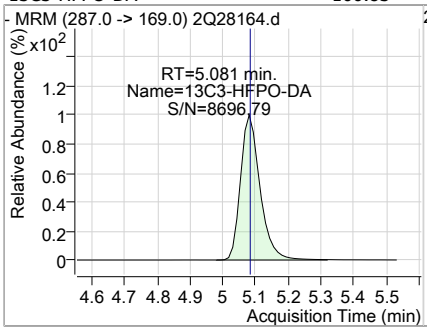
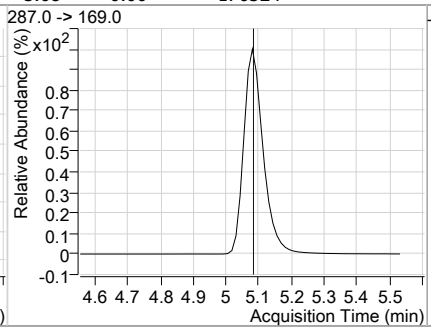
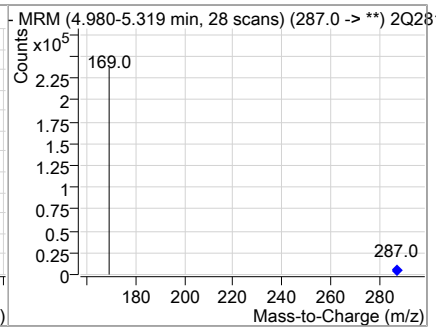
Perfluorinated Compounds by LC/MS/MS

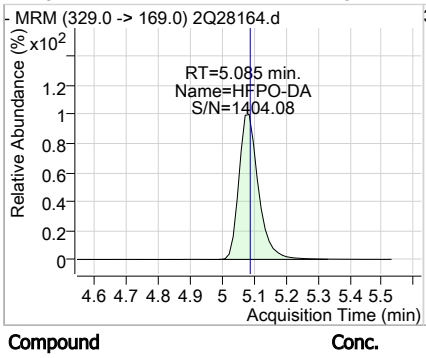
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	100.83	5.08	0.00	176524				

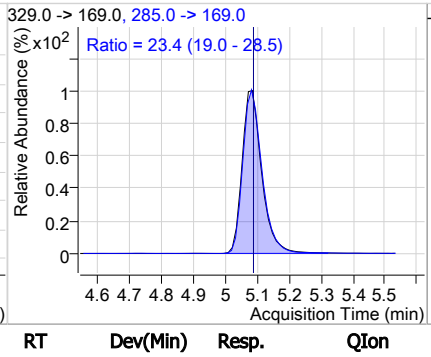


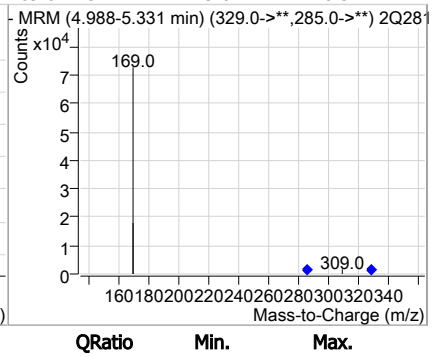




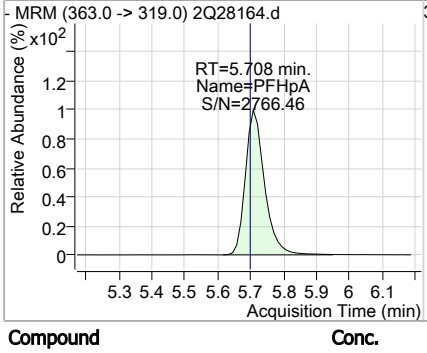
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	25.21	5.09	0.00	54049	285.0 -> 169.0	23.4	19.0	28.5

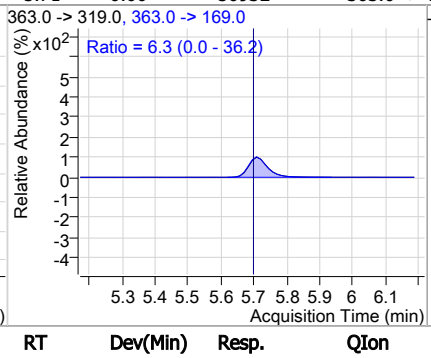


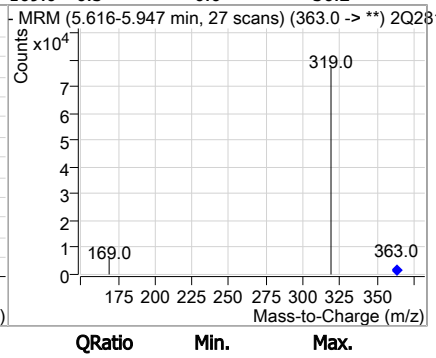




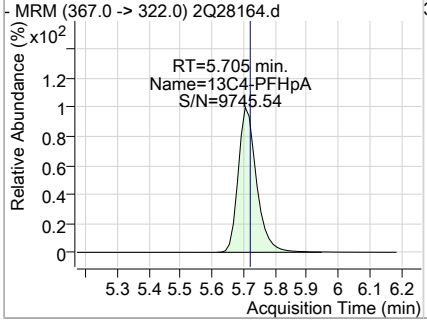
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.84	5.71	0.00	56932	363.0 -> 169.0	6.3	0.0	36.2

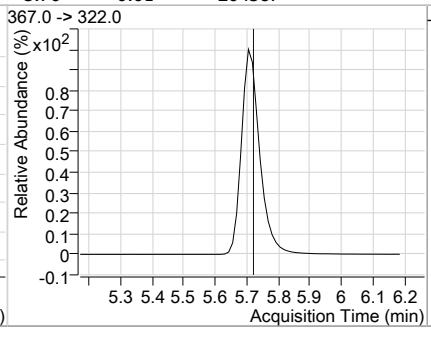


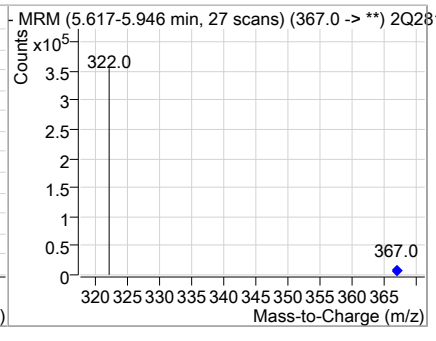




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.90	5.70	-0.01	264587				







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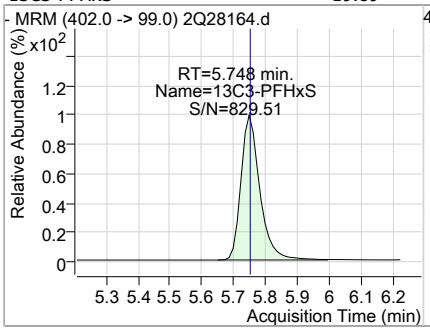
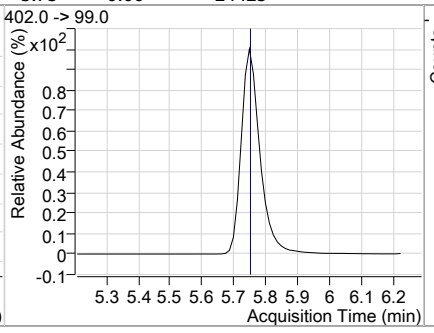
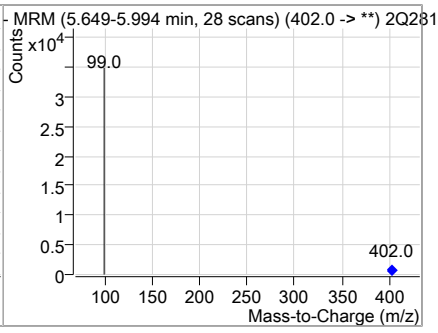
Perfluorinated Compounds by LC/MS/MS

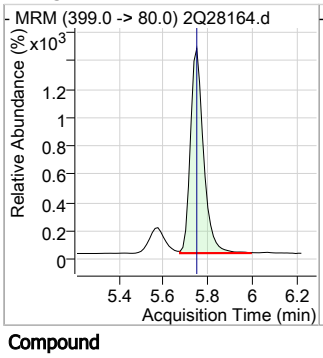
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.89	5.75	0.00	24425				

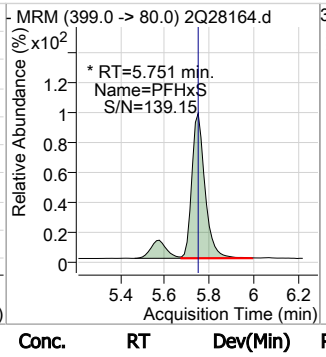


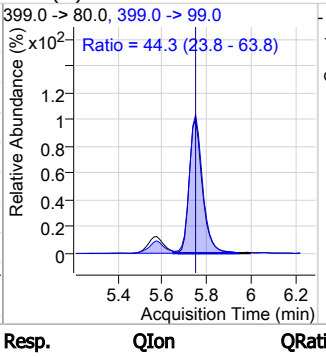


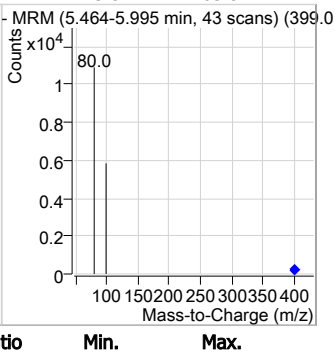


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.85	5.75	0.00	6817 (m)	399.0 -> 99.0	44.3	23.8	63.8

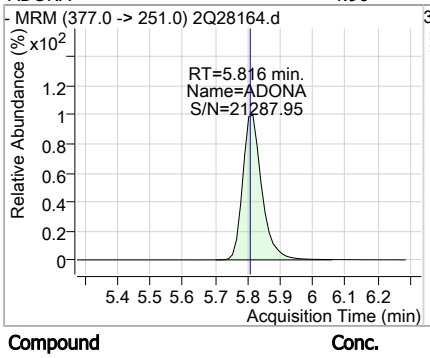


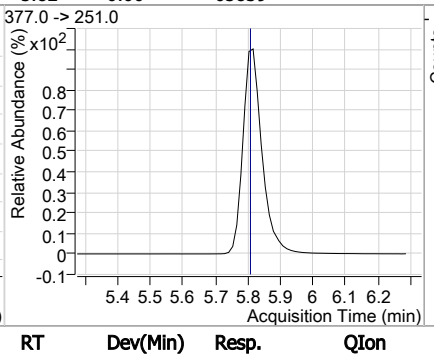


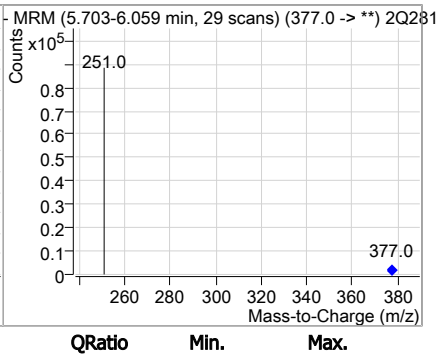




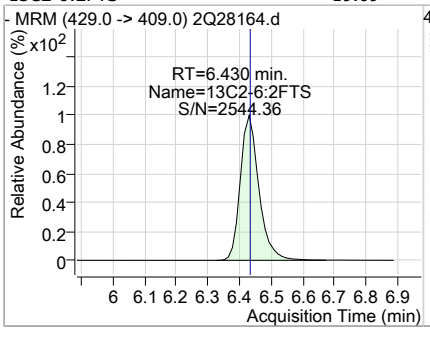
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.90	5.82	0.00	65839				

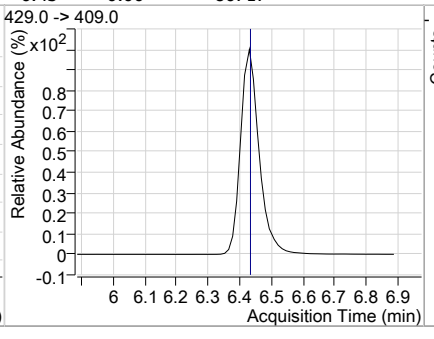


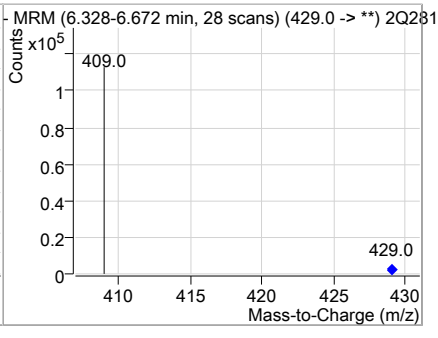




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.09	6.43	0.00	86717				







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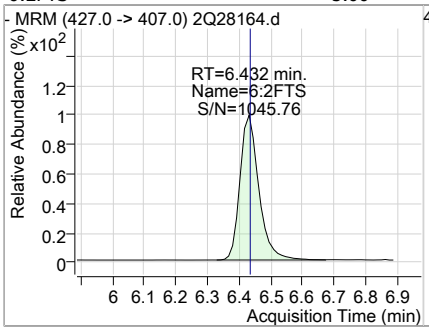
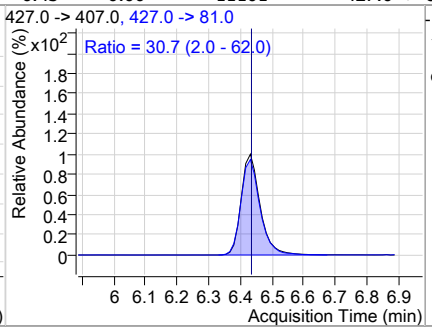
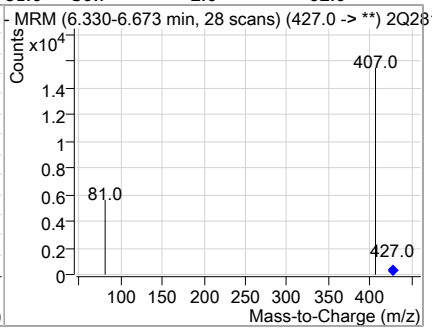
Perfluorinated Compounds by LC/MS/MS

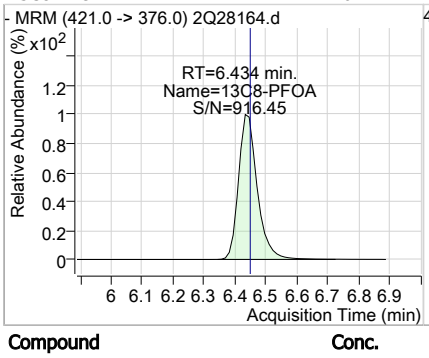
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	5.00	6.43	0.00	11101	427.0 -> 81.0	30.7	2.0	62.0

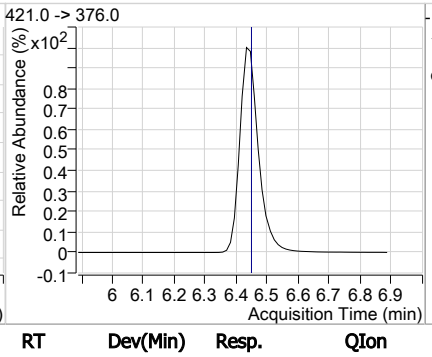


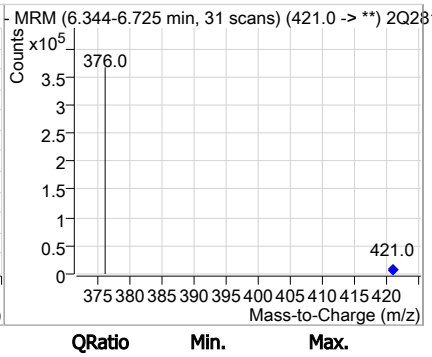




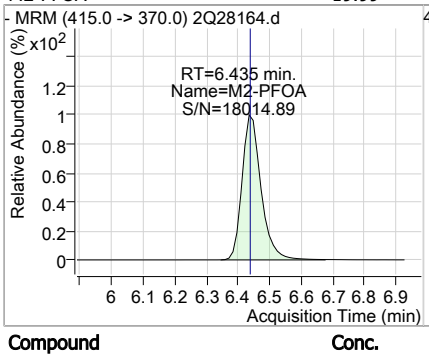
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.24	6.43	-0.01	280156				

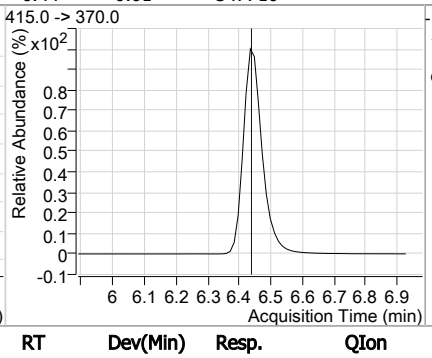


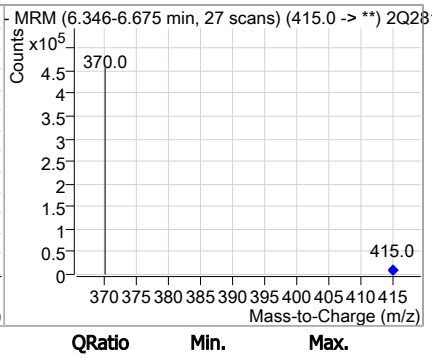




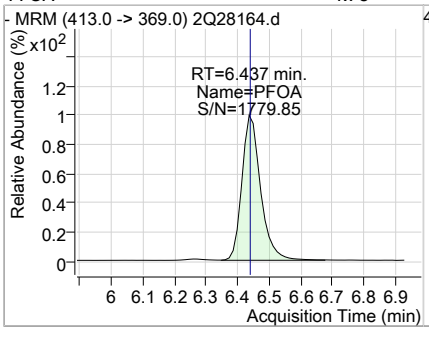
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.44	-0.01	347710				

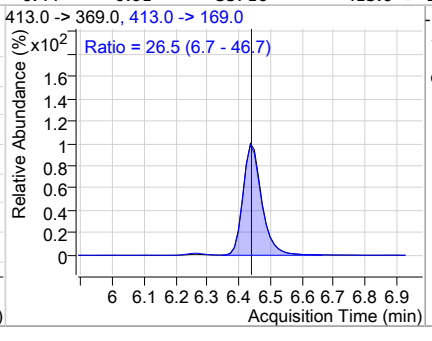


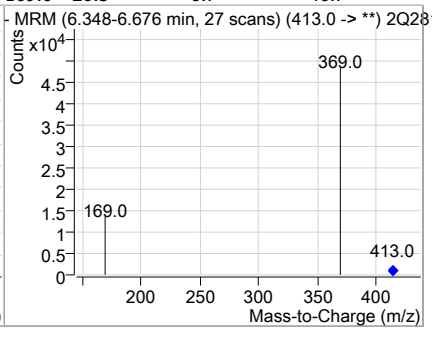




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.78	6.44	-0.01	35710	413.0 -> 169.0	26.5	6.7	46.7

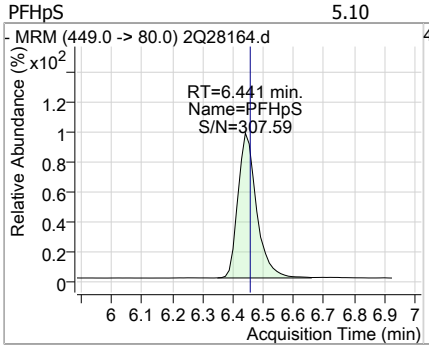


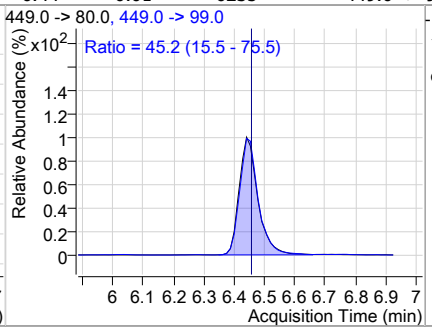


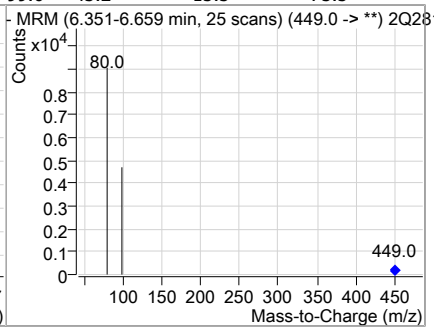


Perfluorinated Compounds by LC/MS/MS

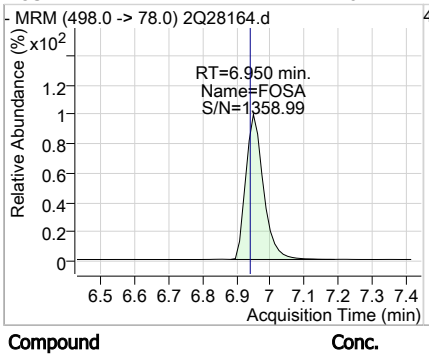
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	5.10	6.44	-0.01	6235	449.0 -> 99.0	45.2	15.5	75.5

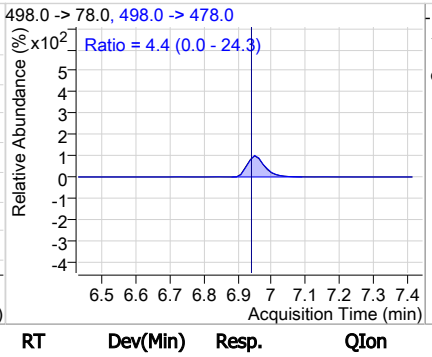


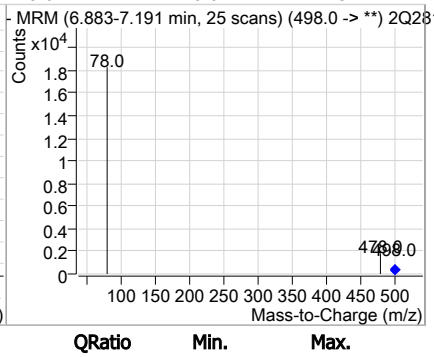




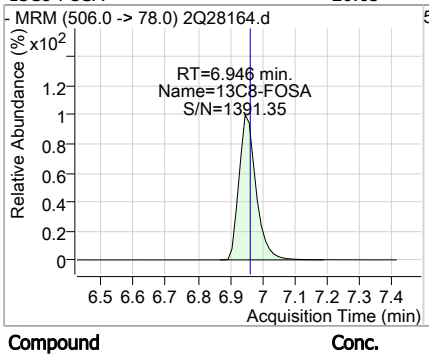
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.84	6.95	0.00	13409	498.0 -> 478.0	4.4	0.0	24.3

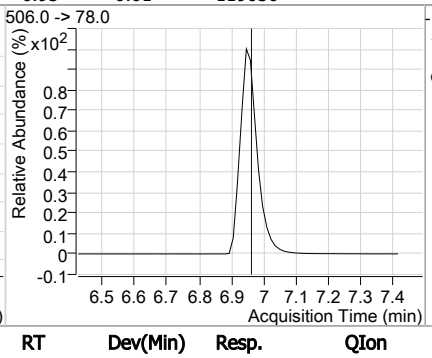


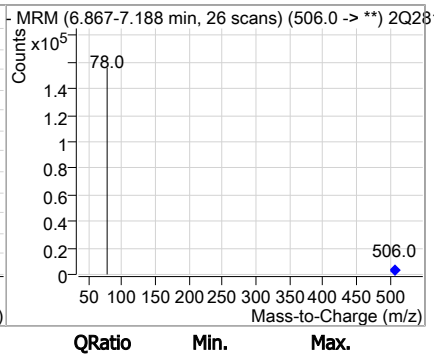




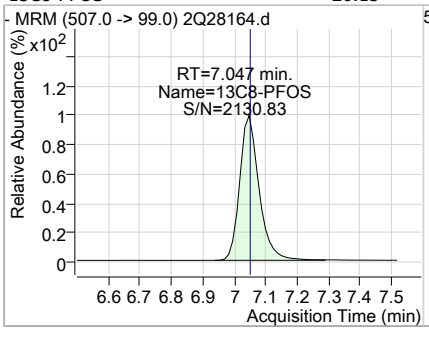
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.65	6.95	-0.01	119036				

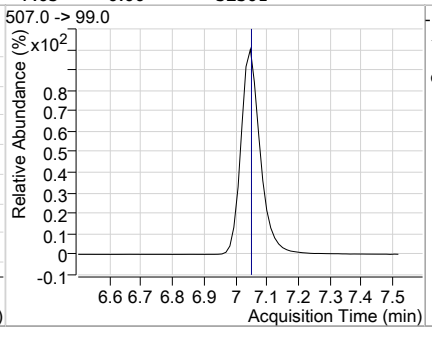


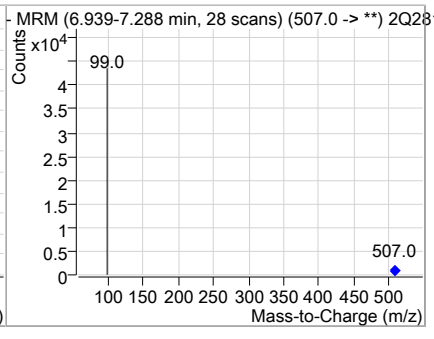




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.15	7.05	0.00	32301				







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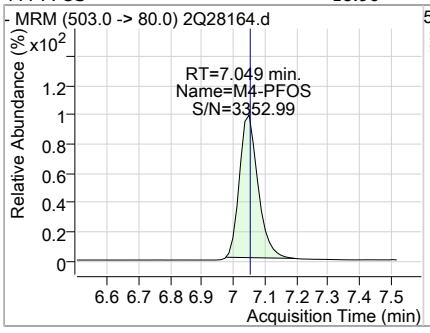
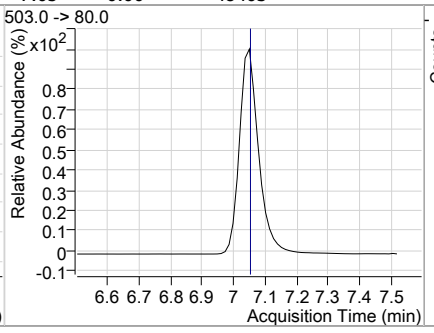
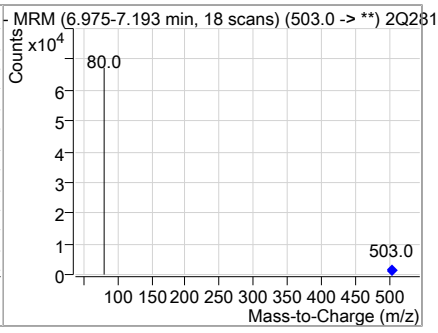
Perfluorinated Compounds by LC/MS/MS

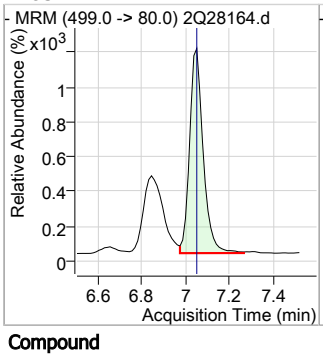
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	18.96	7.05	0.00	48463				

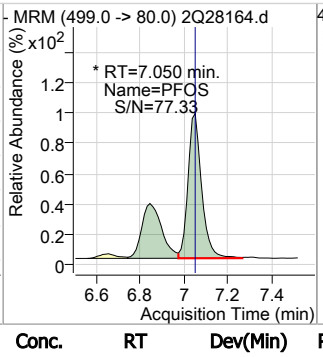


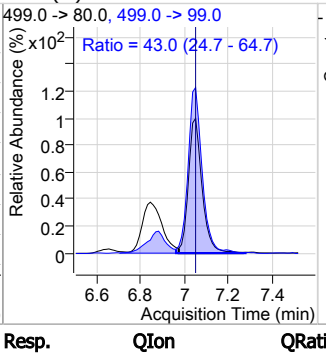


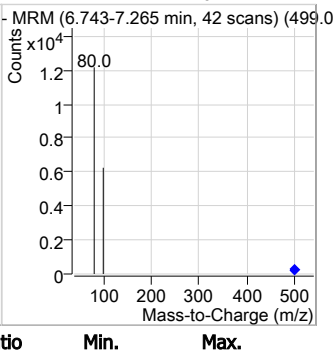


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.81	7.05	0.00	7869 (m)	499.0 -> 99.0	43.0	24.7	64.7

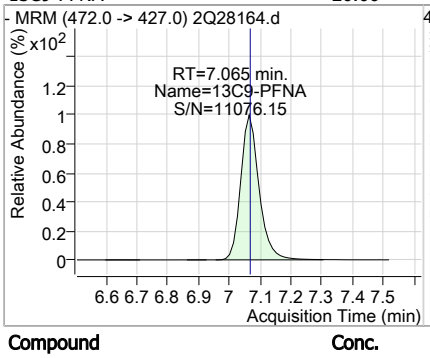


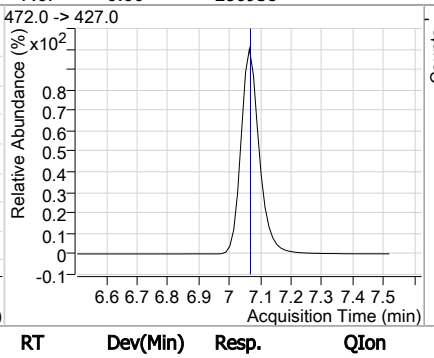


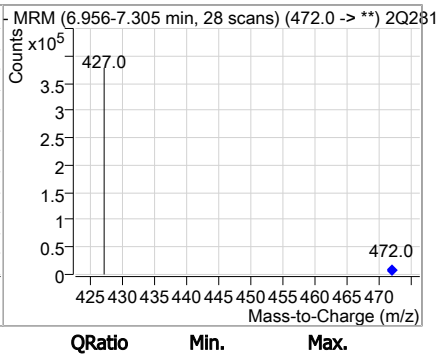




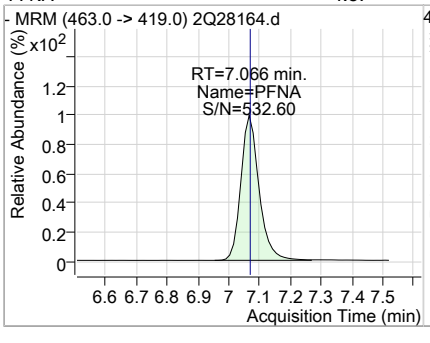
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.06	7.07	0.00	286958				

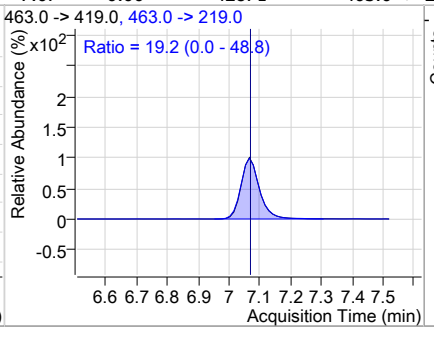


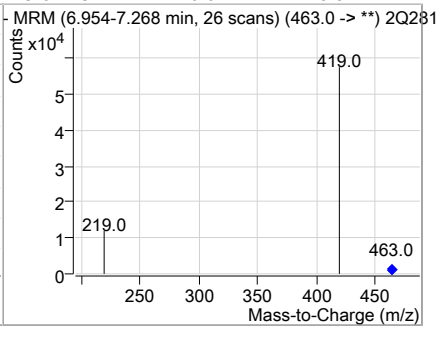




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.87	7.07	0.00	42871	463.0 -> 219.0	19.2	0.0	48.8







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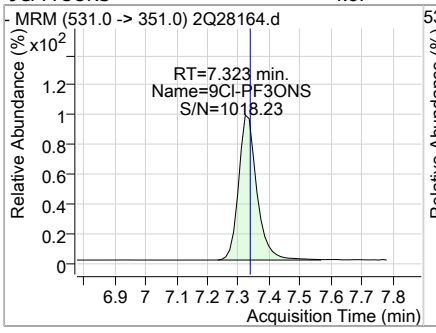
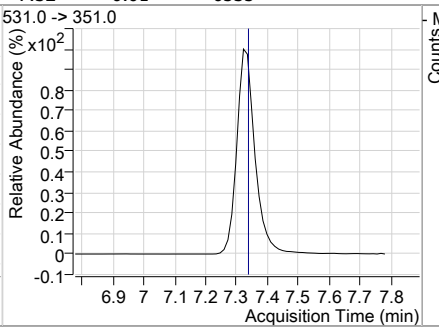
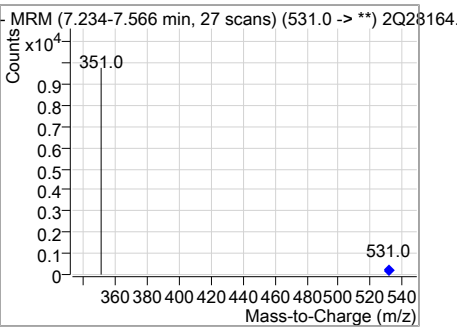
Perfluorinated Compounds by LC/MS/MS

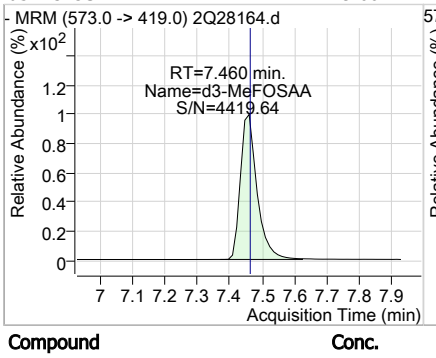
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.87	7.32	-0.01	6535				

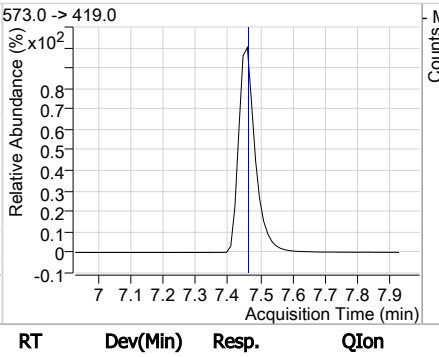


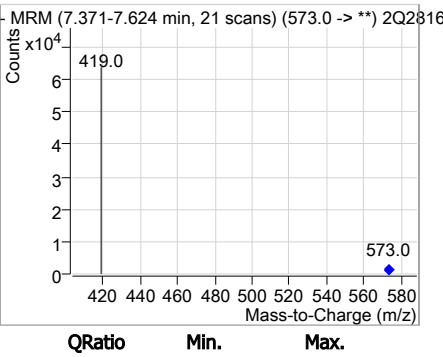




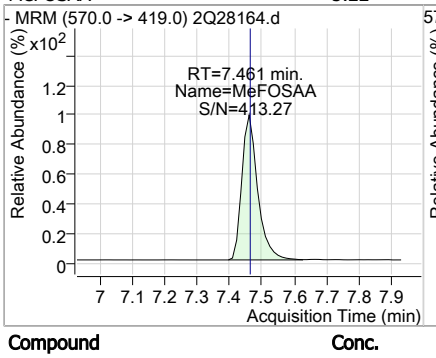
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.66	7.46	0.00	47436				

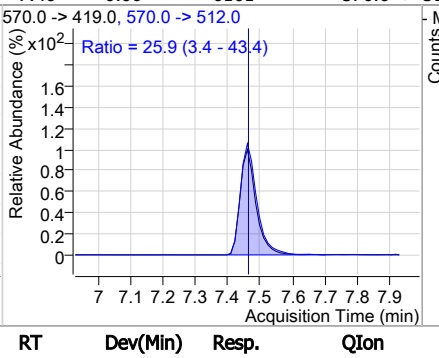


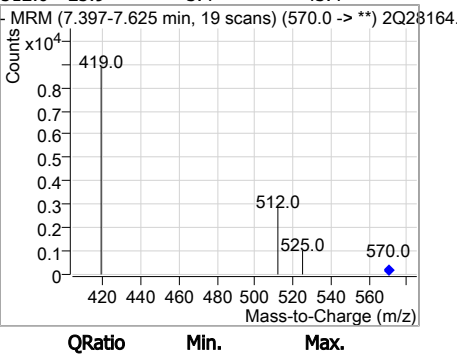




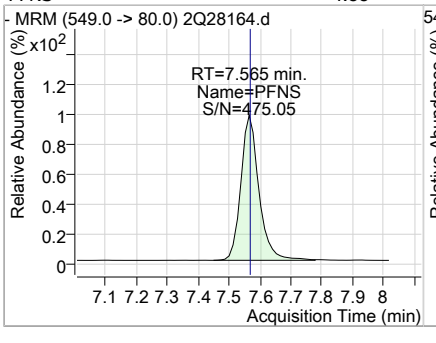
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	5.22	7.46	0.00	6161	570.0 -> 512.0	25.9	3.4	43.4

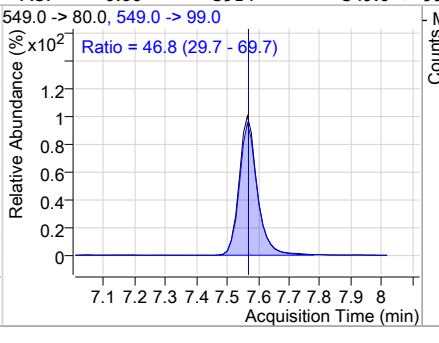


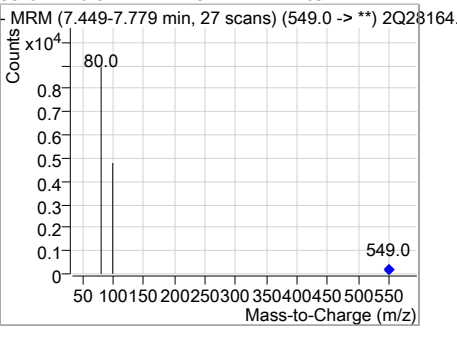




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	4.88	7.57	0.00	5914	549.0 -> 99.0	46.8	29.7	69.7







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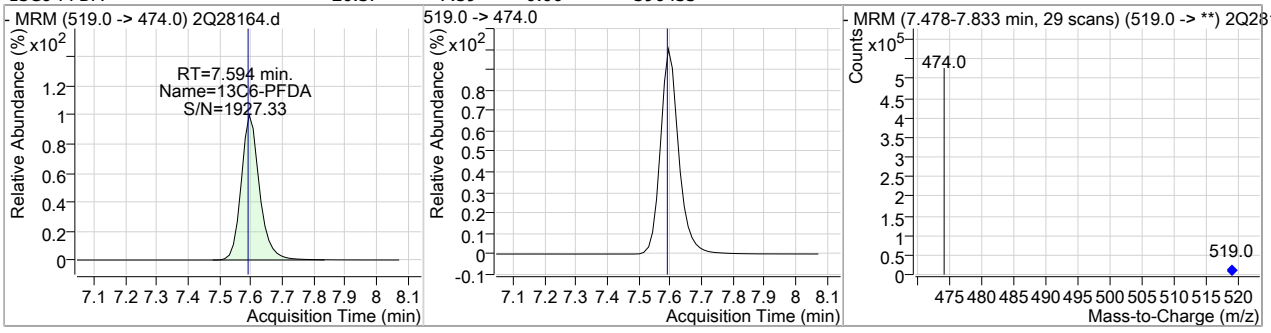
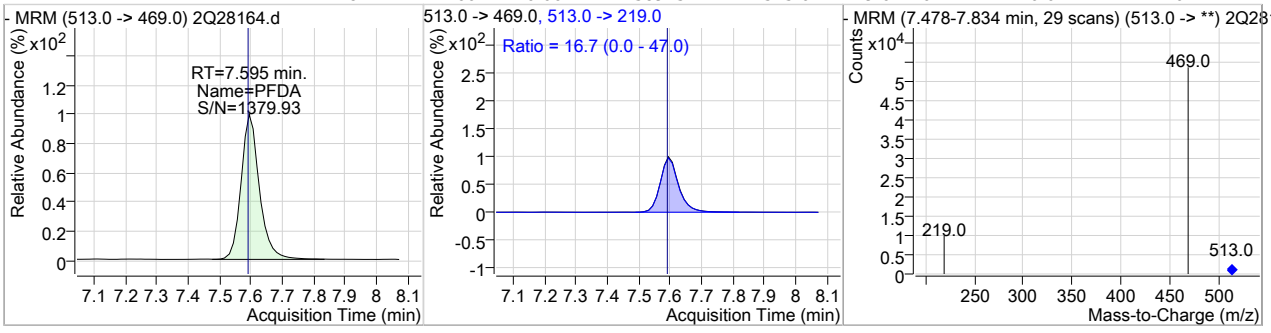
Perfluorinated Compounds by LC/MS/MS

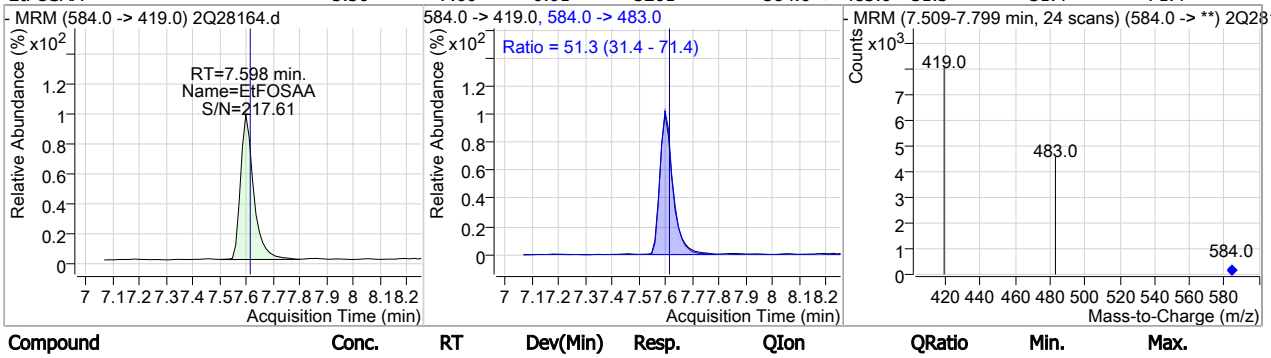
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.37	7.59	0.00	396433				



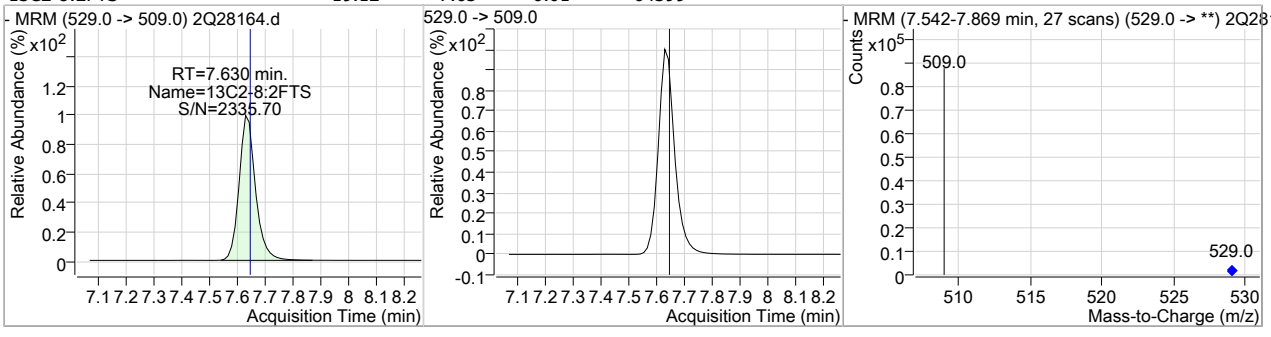
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.82	7.60	0.00	38943	513.0 -> 219.0	16.7	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	5.30	7.60	-0.01	5201	584.0 -> 483.0	51.3	31.4	71.4



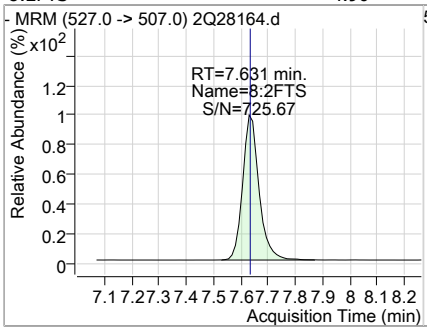
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.12	7.63	-0.01	64399				

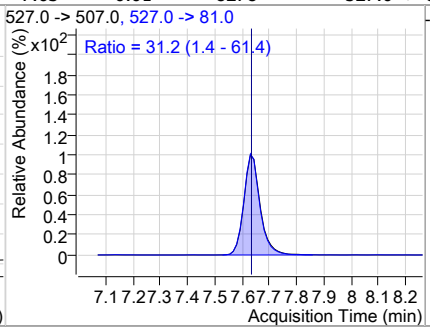


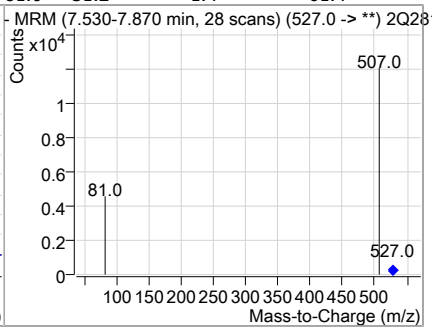
7.6.21

Perfluorinated Compounds by LC/MS/MS

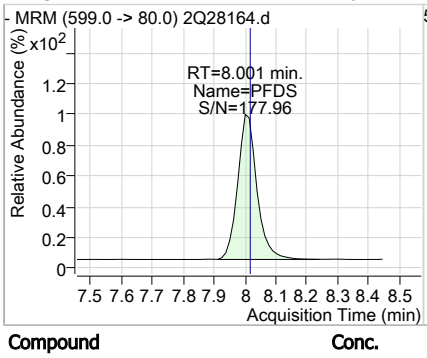
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	4.90	7.63	-0.01	8278	527.0 -> 81.0	31.2	1.4	61.4

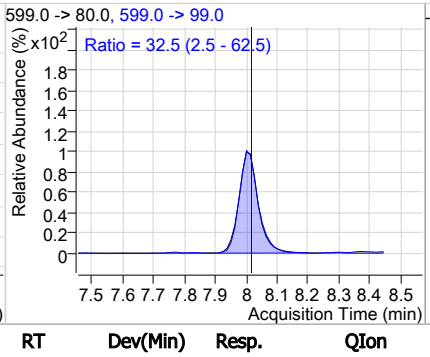


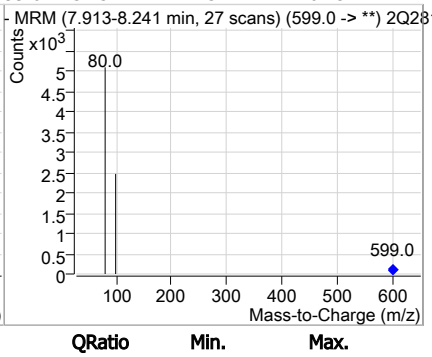




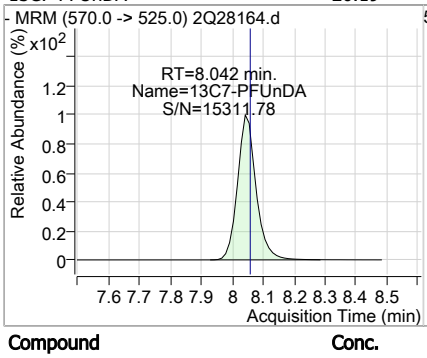
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	4.84	8.00	-0.01	2967	599.0 -> 99.0	32.5	2.5	62.5

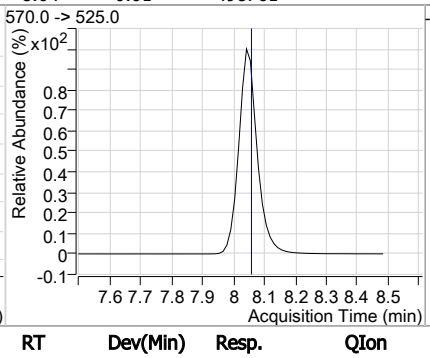


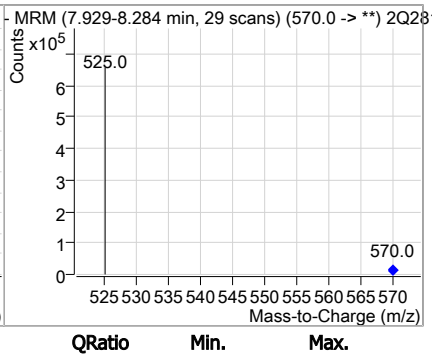




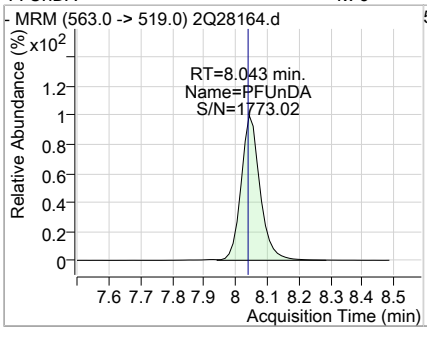
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.19	8.04	-0.01	498761				

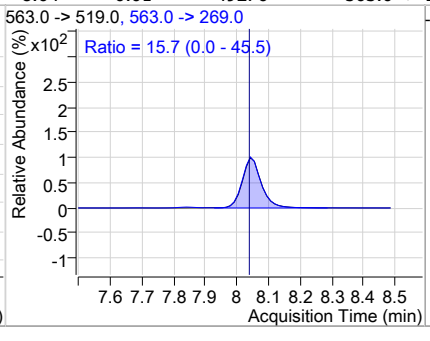


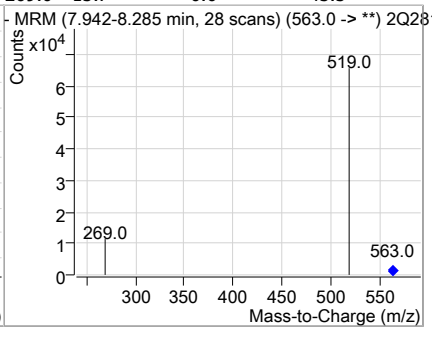




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.76	8.04	-0.01	49276	563.0 -> 269.0	15.7	0.0	45.5

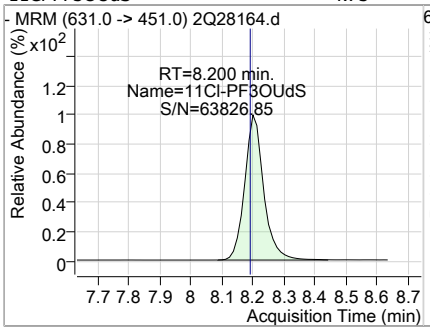


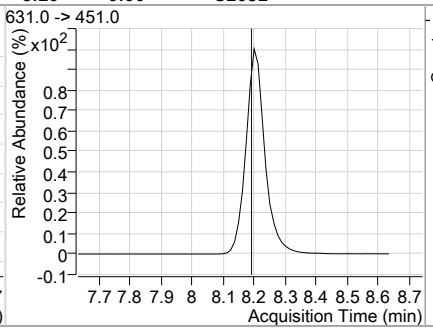


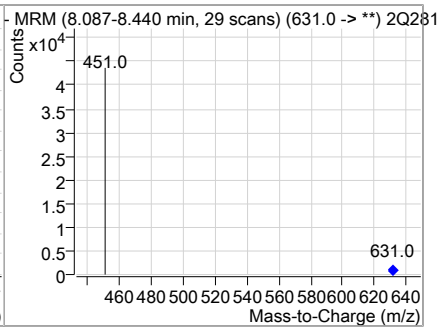


Perfluorinated Compounds by LC/MS/MS

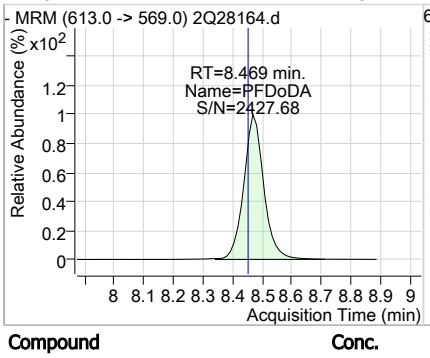
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.73	8.20	0.00	32082				

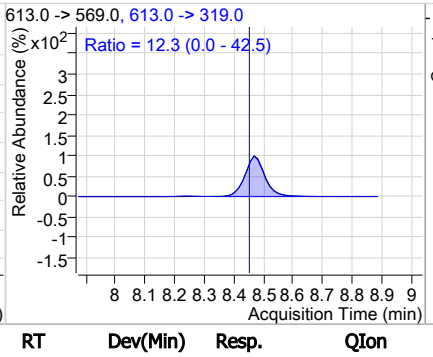


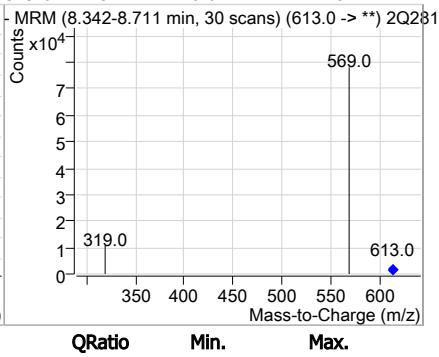




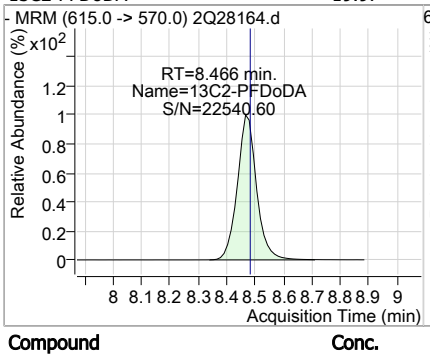
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.79	8.47	0.00	60178	613.0 -> 319.0	12.3	0.0	42.5

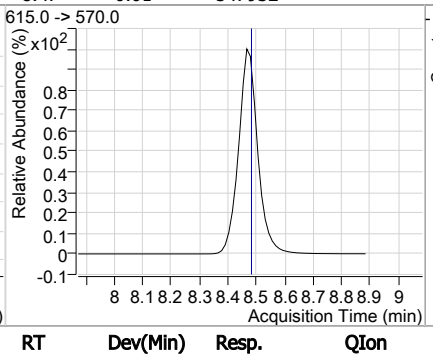


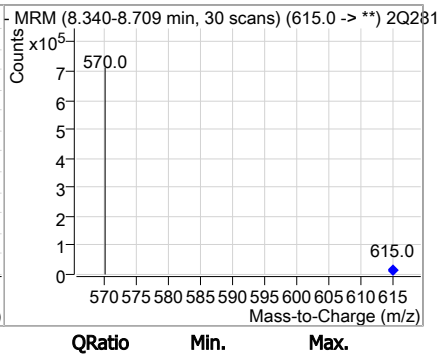




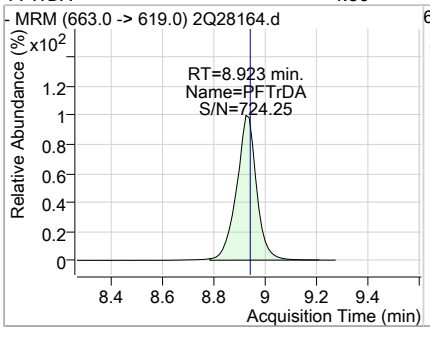
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.97	8.47	-0.01	547932				

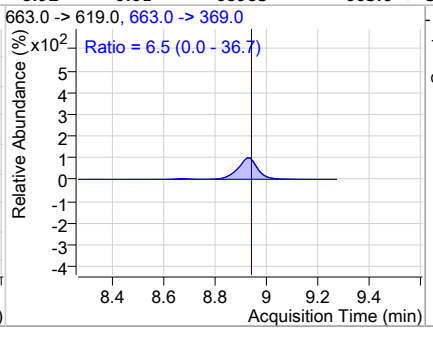


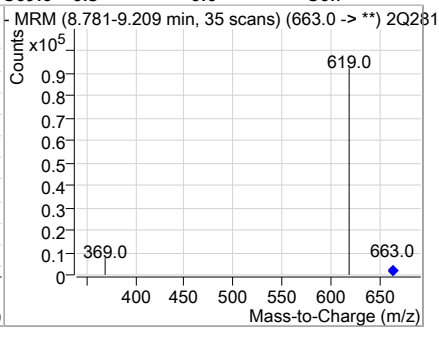




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.86	8.92	-0.01	68983	663.0 -> 369.0	6.5	0.0	36.7

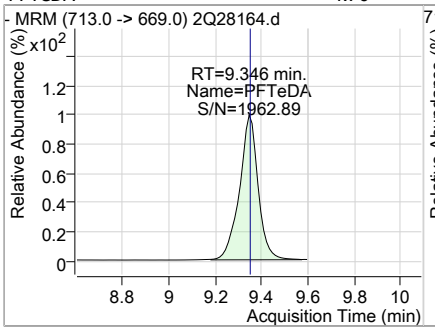


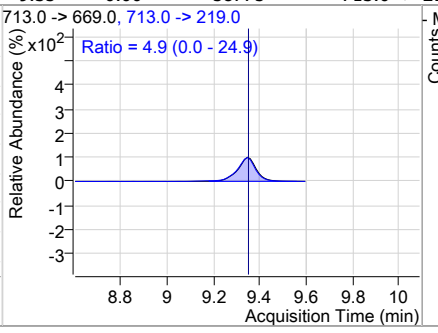


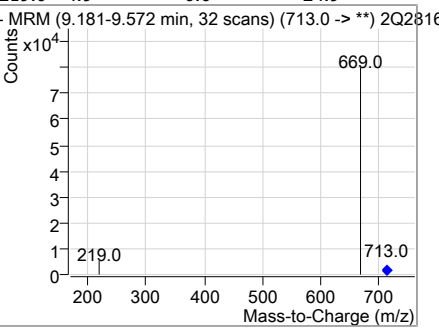


Perfluorinated Compounds by LC/MS/MS

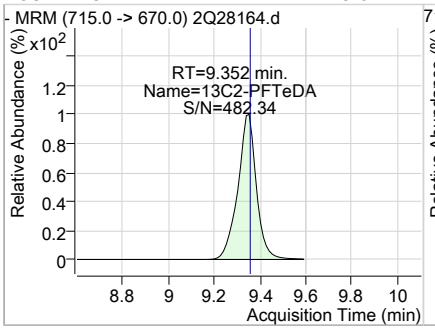
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.76	9.35	0.00	58775	713.0 -> 219.0	4.9	0.0	24.9

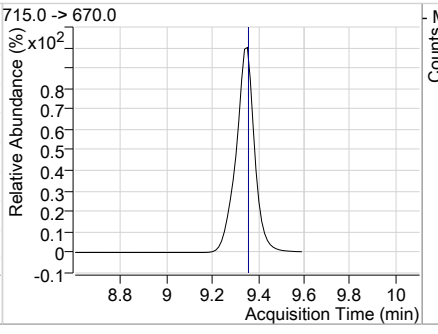


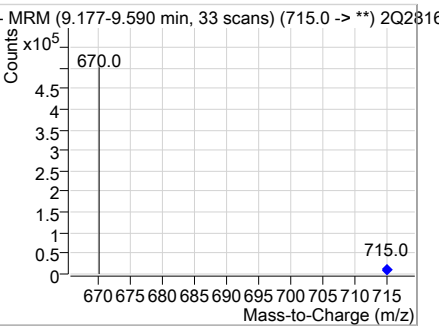




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.81	9.35	0.00	374232				







7.6.21

7

Manual Integration Approval Summary

Sample Number: S2Q449-IC449
Lab FileID: 2Q28164.D
Injection Time: 03/26/19 15:45
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Cal Report: 2Q28165.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28165.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 4:01:25 PM
Sample Name : ic449-10
Vial : Vial 6
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

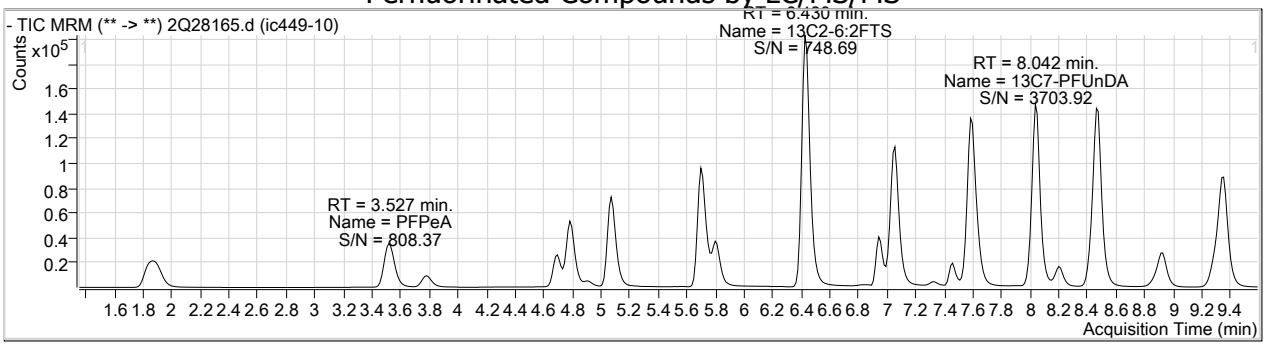
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.435	415.0 -> 370.0	347382	20.00	µg/L	-0.013
13C4-PFOS	7.049	503.0 -> 80.0	52502	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	151610	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	128911	20.00	µg/L	-0.013
M5-PFHxA	4.788	318.0 -> 273.0	185607	20.00	µg/L	-0.013
M4-PFHpA	5.705	367.0 -> 322.0	261740	20.00	µg/L	-0.013
M8-PFOA	6.434	421.0 -> 376.0	276539	20.00	µg/L	-0.013
M9-PFNA	7.065	472.0 -> 427.0	285449	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	391719	20.00	µg/L	0.000
M7-PFUnDA	8.042	570.0 -> 525.0	493386	20.00	µg/L	-0.013
M2-PFDoDA	8.466	615.0 -> 570.0	550647	20.00	µg/L	-0.013
M2-PFTeDA	9.352	715.0 -> 670.0	377283	20.00	µg/L	0.000
M8-FOSA	6.946	506.0 -> 78.0	116781	20.00	µg/L	-0.013
M3-PFBS	3.780	302.0 -> 99.0	22084	20.00	µg/L	-0.013
M3-PFHxS	5.748	402.0 -> 99.0	24123	20.00	µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	31624	20.00	µg/L	0.000
M2-4:2FTS	4.696	329.0 -> 309.0	78278	20.00	µg/L	0.000
M2-6:2FTS	6.430	429.0 -> 409.0	87312	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	64833	20.00	µg/L	-0.013
M3-MeFOSAA	7.460	573.0 -> 419.0	48519	20.00	µg/L	0.000
M3-HFPO-DA	5.081	287.0 -> 169.0	175071	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	78182	18.93	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%		
13C2-6:2FTS	6.430	429.0 -> 409.0	87242	19.21	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C2-8:2FTS	7.630	529.0 -> 509.0	64821	19.24	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%		
13C2-PFDoDA	8.466	615.0 -> 570.0	550732	20.07	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C2-PFTeDA	9.352	715.0 -> 670.0	377459	19.98	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-PFBS	3.780	302.0 -> 99.0	22069	19.61	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C3-PFHxS	5.748	402.0 -> 99.0	24137	19.66	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C4-PFBA	1.865	217.0 -> 172.0	150920	19.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C4-PFHpA	5.705	367.0 -> 322.0	261418	19.66	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C5-PFHxA	4.788	318.0 -> 273.0	185329	19.63	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C5-PFPeA	3.524	268.0 -> 223.0	129177	19.69	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.4%		
13C6-PFDA	7.594	519.0 -> 474.0	391685	20.12	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

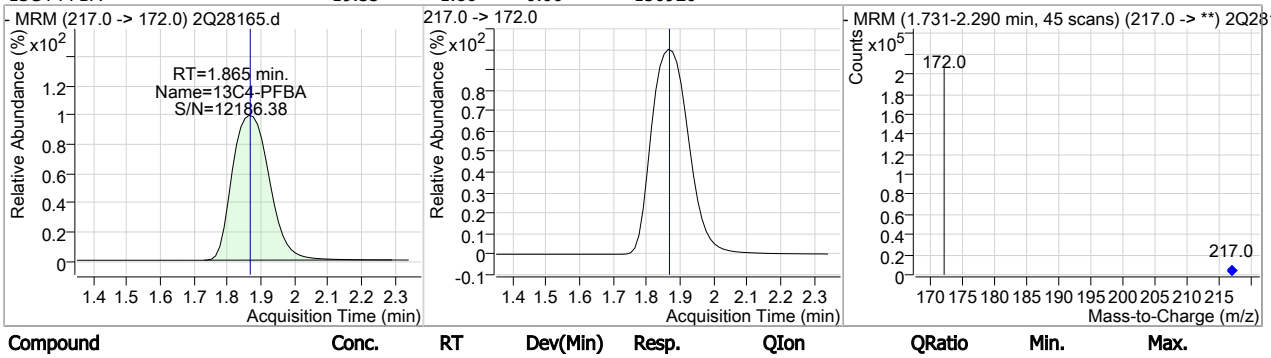
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C7-PFUnDA	8.042	570.0 -> 525.0	493357	19.97 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C8-FOSA	6.946	506.0 -> 78.0	116788	20.26 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C8-PFOA	6.434	421.0 -> 376.0	276399	19.96 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C8-PFOS	7.047	507.0 -> 99.0	31644	19.74 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C9-PFNA	7.065	472.0 -> 427.0	285106	19.93 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
d3-MeFOSAA	7.460	573.0 -> 419.0	48514	20.11 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
M2-PFOA	6.435	415.0 -> 370.0	347546	19.98 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.049	503.0 -> 80.0	52497	20.12 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	175071	100.00 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
Target Compounds						QValue
4:2FTS	4.699	327.0 -> 307.0	22236	9.78 µg/L		100
6:2FTS	6.432	427.0 -> 407.0	21487	9.63 µg/L		98
8:2FTS	7.631	527.0 -> 507.0	16247	9.55 µg/L		99
EtFOSAA	7.598	584.0 -> 419.0	10029	9.99 µg/L		97
FOSA	6.950	498.0 -> 78.0	26931	9.90 µg/L		99
MeFOSAA	7.461	570.0 -> 419.0	11998	9.89 µg/L		100
PFBA	1.873	213.0 -> 169.0	14121	9.72 µg/L		100
PFBS	3.783	299.0 -> 80.0	17230	9.65 µg/L		99
PFDA	7.595	513.0 -> 469.0	77100	9.66 µg/L		99
PFDoDA	8.469	613.0 -> 569.0	120595	9.55 µg/L		99
PFDS	8.001	599.0 -> 80.0	5902	9.83 µg/L		96
PFHpA	5.708	363.0 -> 319.0	112659	9.69 µg/L		100
PFHpS	6.441	449.0 -> 80.0	11950	9.91 µg/L		99
PFHxA	4.790	313.0 -> 269.0	29236	9.62 µg/L		99
PFHxS	5.751	399.0 -> 80.0	13184	9.51 µg/L	m	99
PFNA	7.066	463.0 -> 419.0	83615	9.56 µg/L		99
PFNS	7.565	549.0 -> 80.0	11335	9.56 µg/L		99
PFOA	6.437	413.0 -> 369.0	71046	9.64 µg/L		99
PFOS	7.050	499.0 -> 80.0	15506	9.69 µg/L	m	100
PFPeA	3.527	263.0 -> 219.0	54352	9.52 µg/L		100
PFPeS	4.908	349.0 -> 80.0	11718	9.92 µg/L		98
PFTeDA	9.346	713.0 -> 669.0	119611	9.61 µg/L		100
PFTrDA	8.935	663.0 -> 619.0	140918	9.85 µg/L		100
PFUnDA	8.043	563.0 -> 519.0	99051	9.68 µg/L		99
11Cl-PF3OUdS	8.200	631.0 -> 451.0	64970	9.52 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	12558	9.42 µg/L		100
ADONA	5.804	377.0 -> 251.0	129665	9.73 µg/L		100
HFPO-DA	5.072	329.0 -> 169.0	104497	49.15 µg/L		100

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

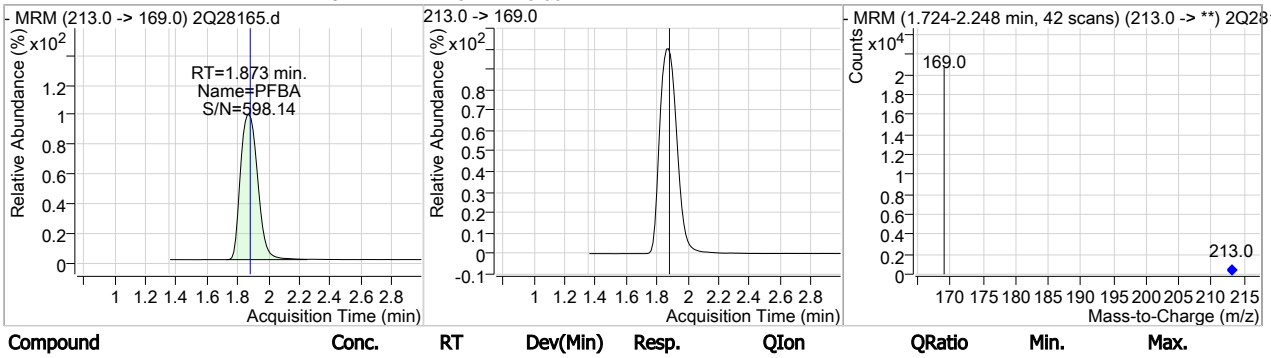
Perfluorinated Compounds by LC/MS/MS



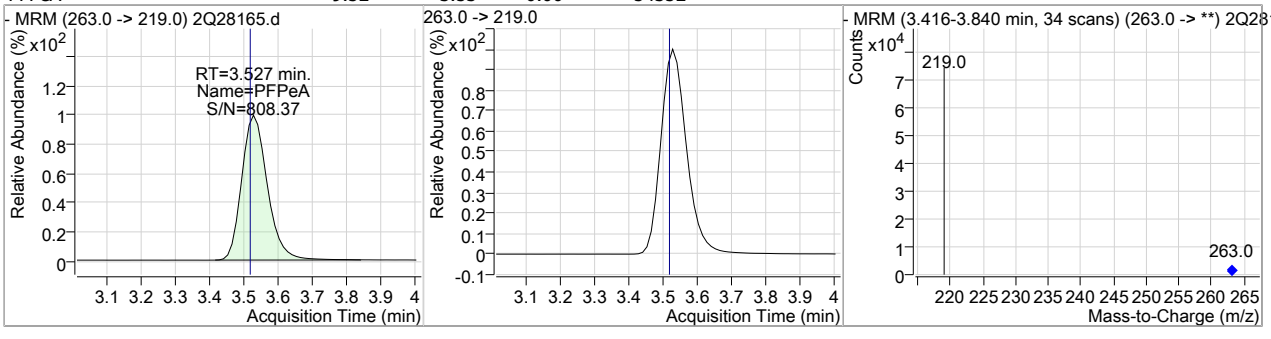
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.55	1.86	0.00	150920				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.72	1.87	0.00	14121				

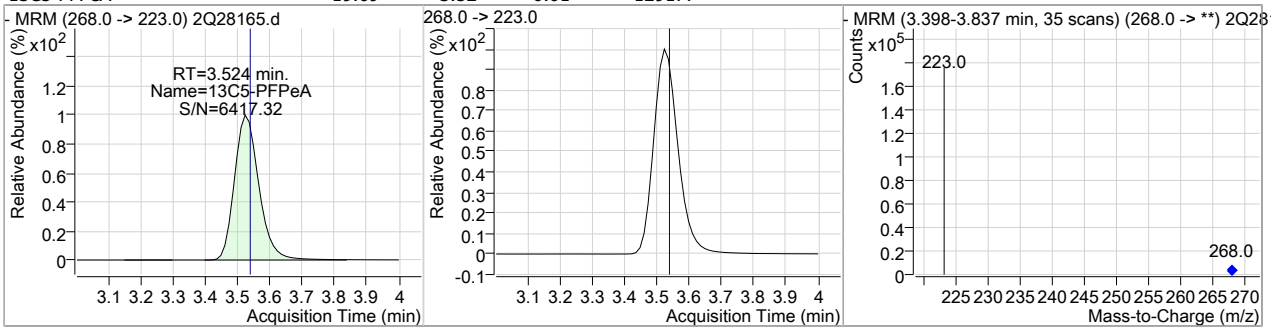


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.52	3.53	0.00	54352				

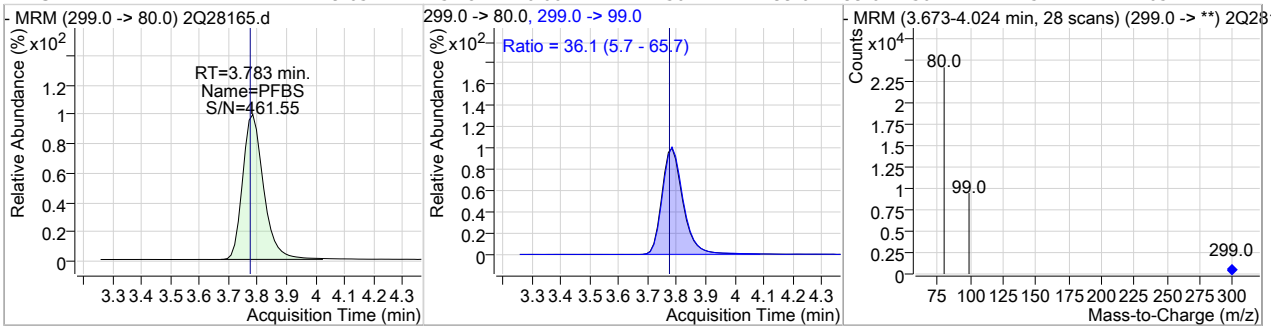


Perfluorinated Compounds by LC/MS/MS

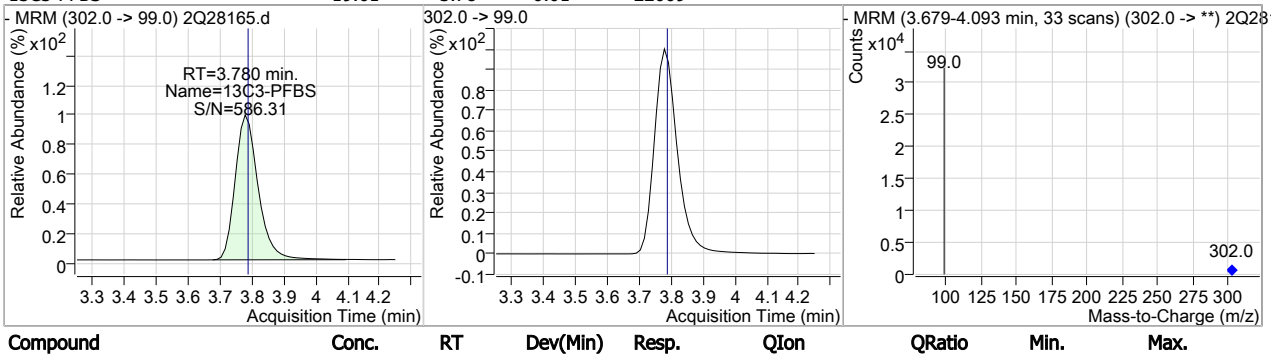
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.69	3.52	-0.01	129177				



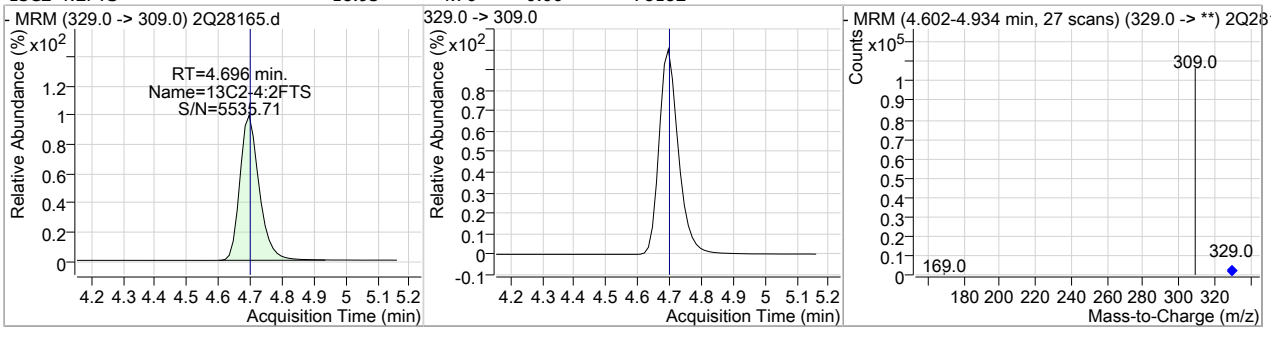
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	9.65	3.78	0.00	17230	299.0 -> 99.0	36.1	5.7	65.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.61	3.78	-0.01	22069				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.93	4.70	0.00	78182				



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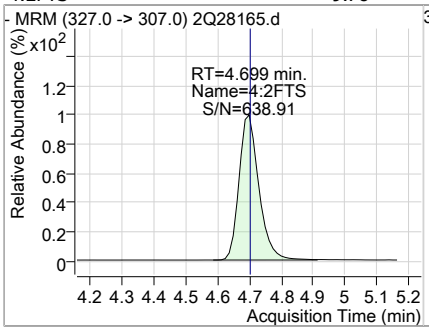
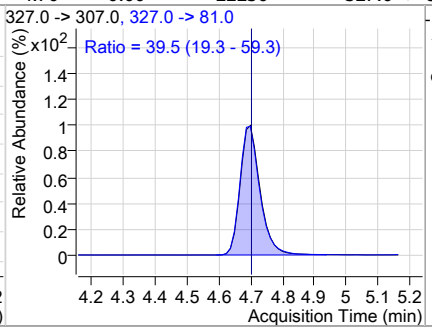
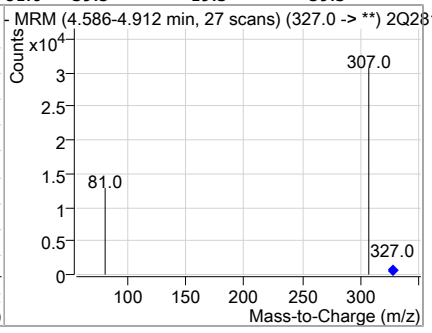
Perfluorinated Compounds by LC/MS/MS

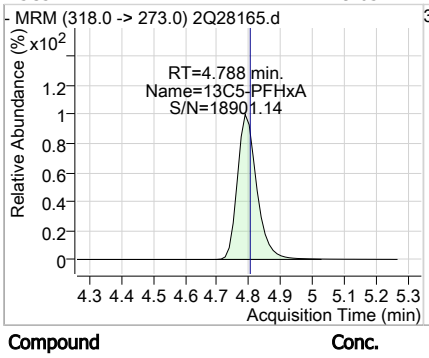
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.78	4.70	0.00	22236	327.0 -> 81.0	39.5	19.3	59.3

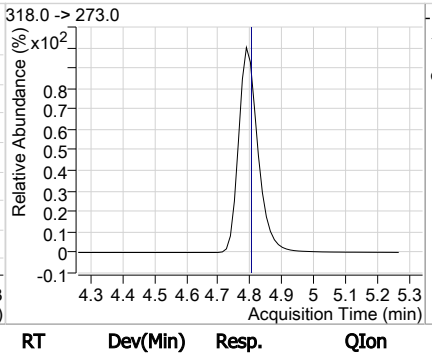


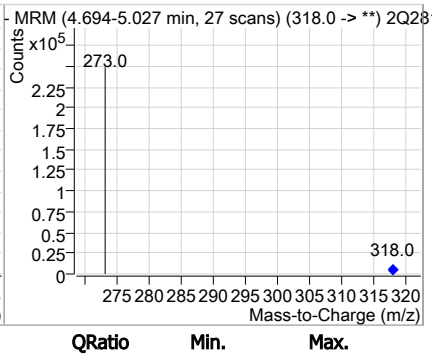




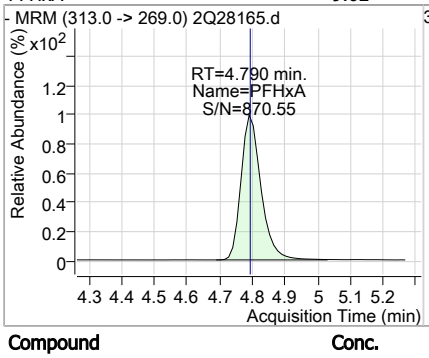
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.63	4.79	-0.01	185329				

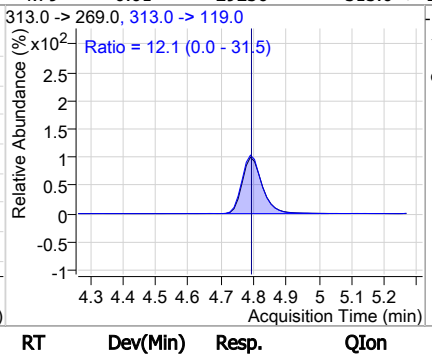


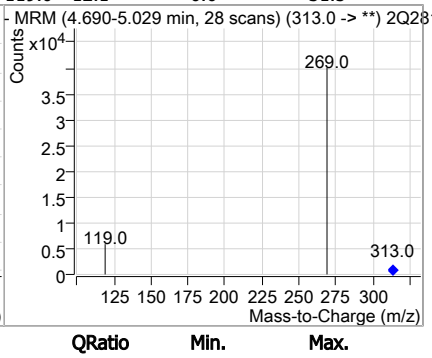




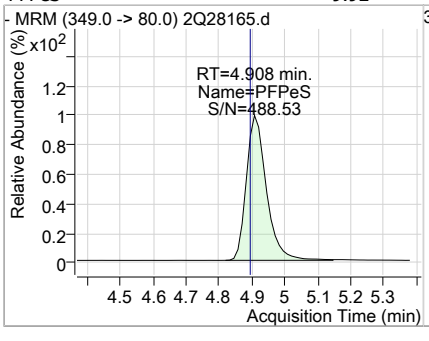
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	9.62	4.79	-0.01	29236	313.0 -> 119.0	12.1	0.0	31.5

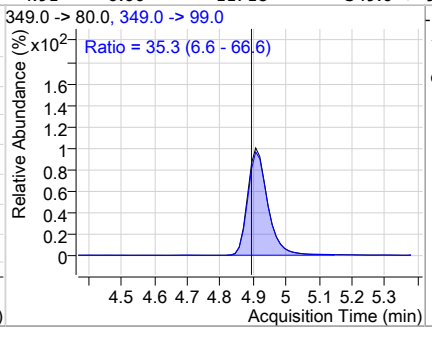


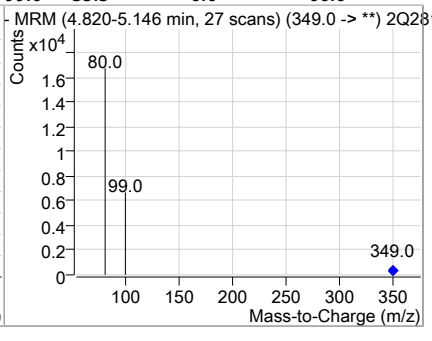




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	9.92	4.91	0.00	11718	349.0 -> 99.0	35.3	6.6	66.6







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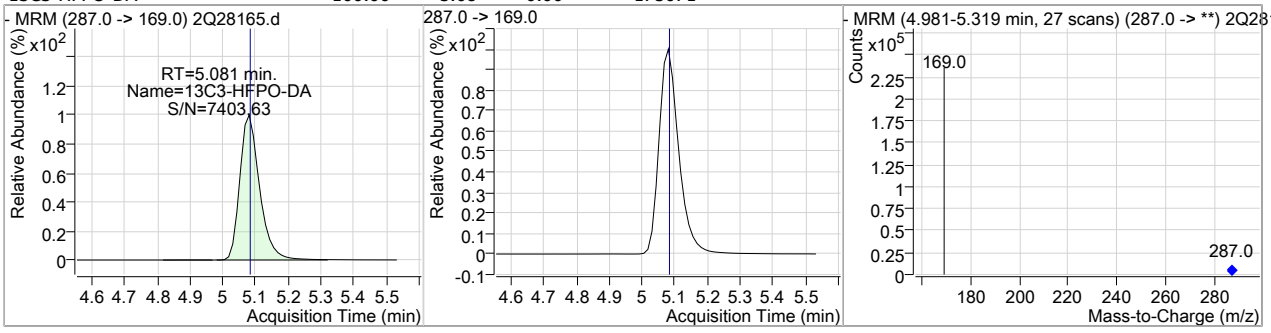
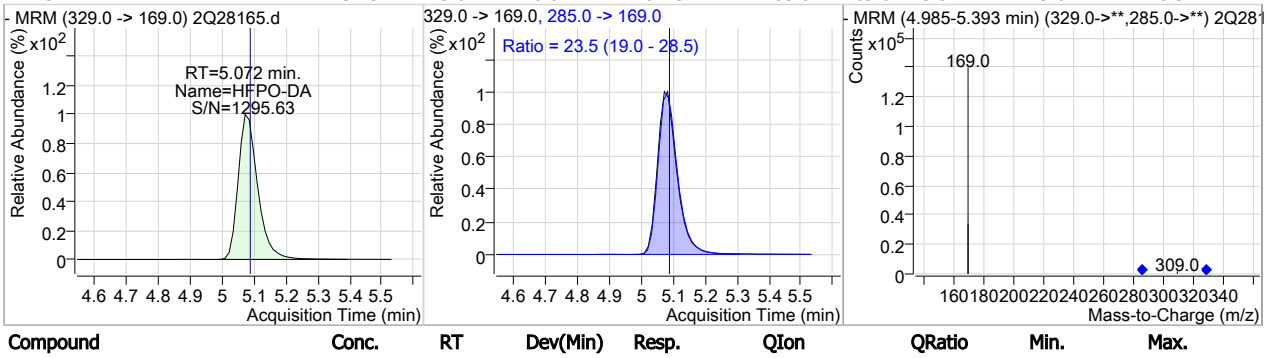
Perfluorinated Compounds by LC/MS/MS

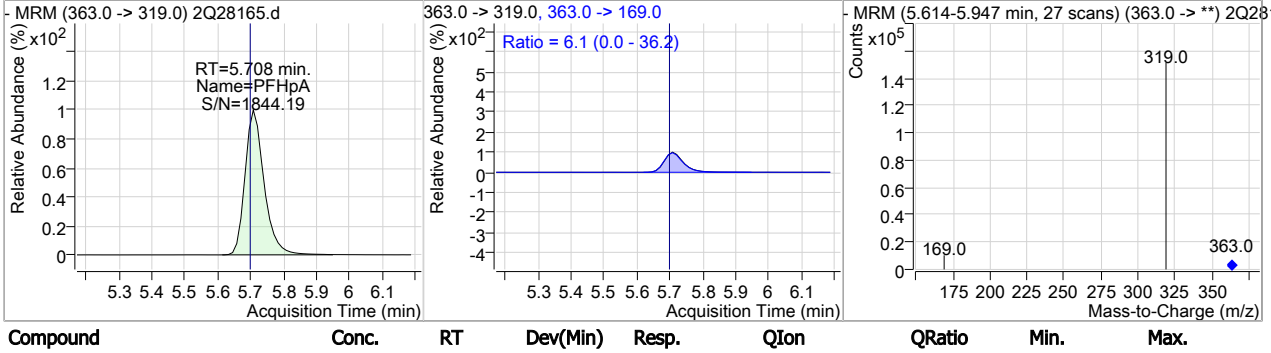
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	100.00	5.08	0.00	175071				



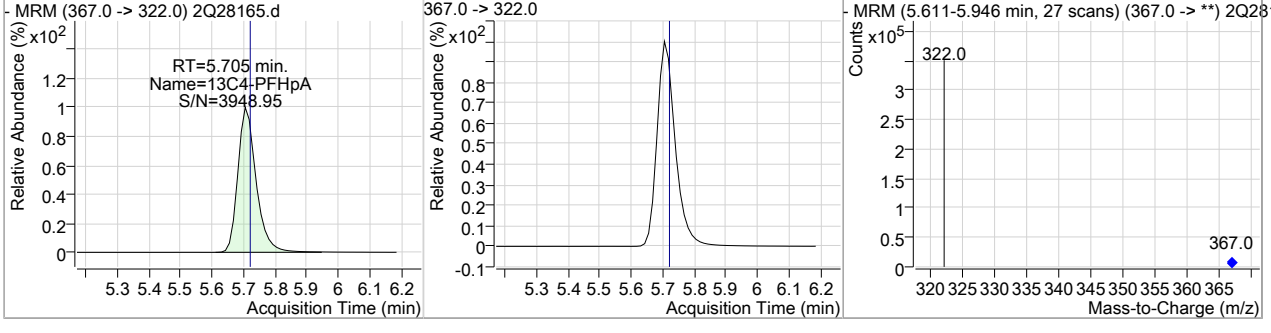
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	49.15	5.07	-0.01	104497	285.0 -> 169.0	23.5	19.0	28.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	9.69	5.71	0.00	112659	363.0 -> 169.0	6.1	0.0	36.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.66	5.70	-0.01	261418				



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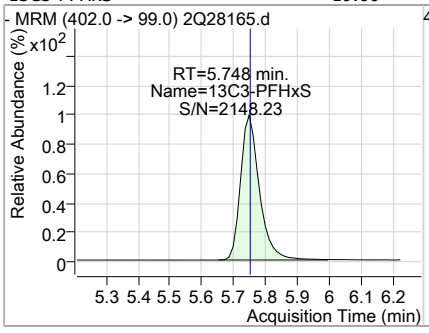
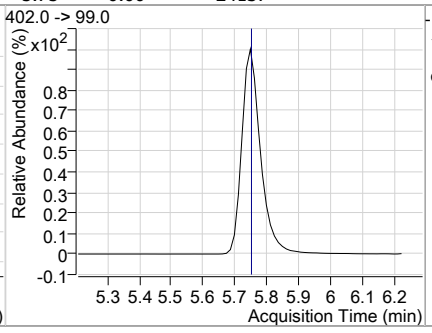
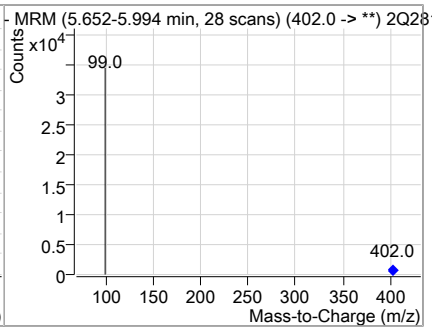
Perfluorinated Compounds by LC/MS/MS

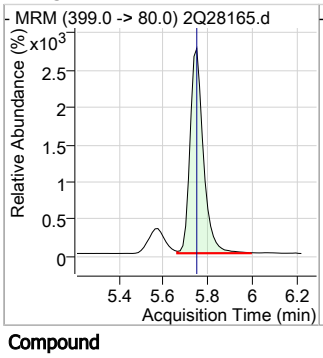
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.66	5.75	0.00	24137				

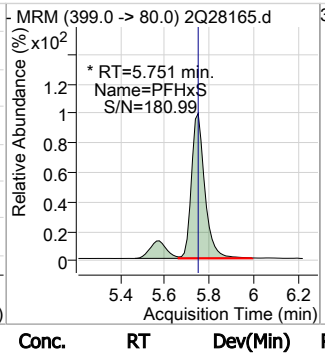


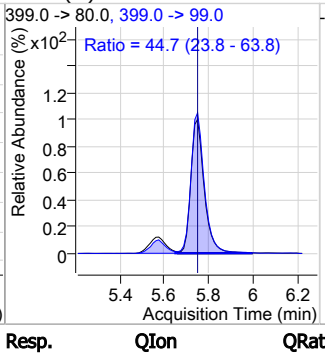


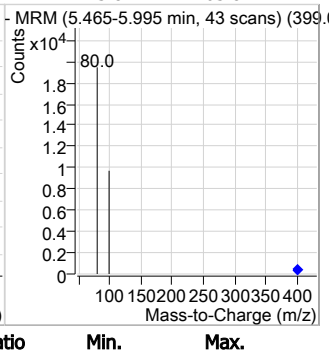


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.51	5.75	0.00	13184 (m)	399.0 -> 99.0	44.7	23.8	63.8

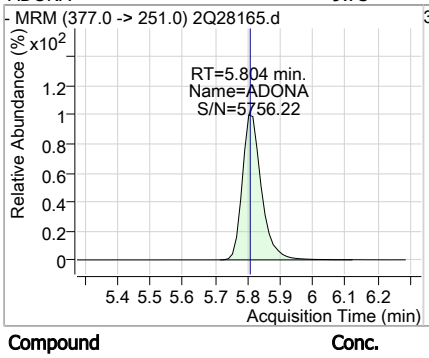


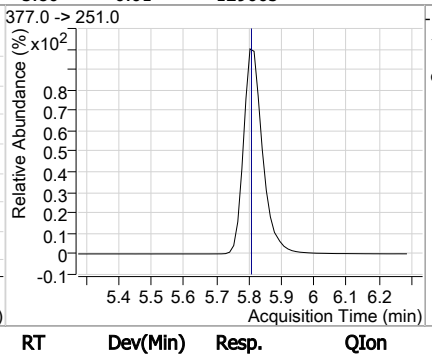


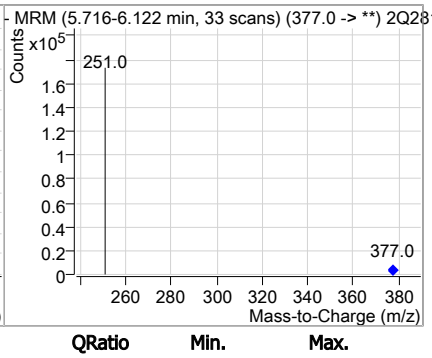




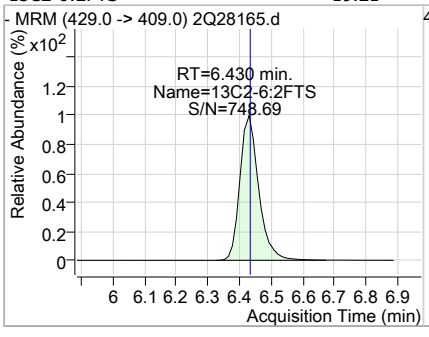
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	9.73	5.80	-0.01	129665				

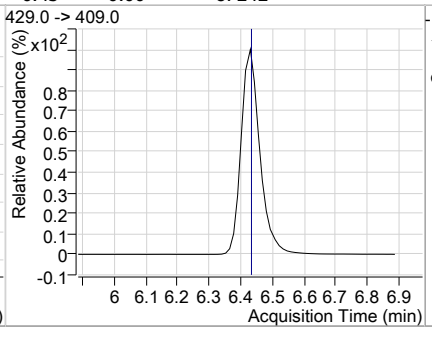


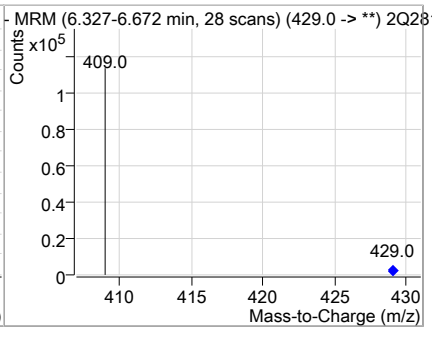




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.21	6.43	0.00	87242				







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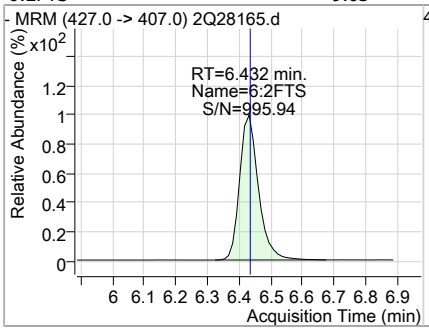
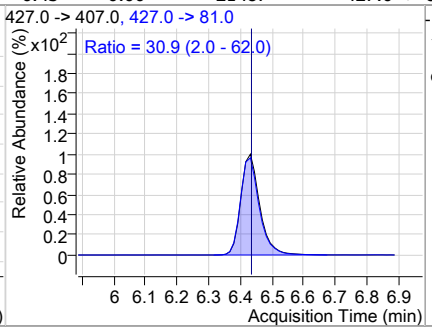
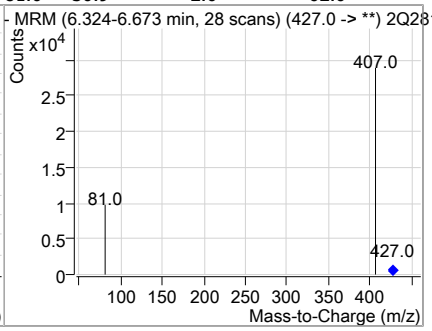
Perfluorinated Compounds by LC/MS/MS

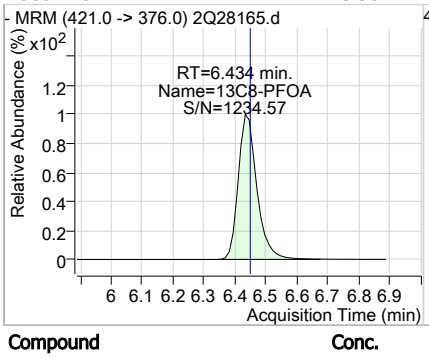
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.63	6.43	0.00	21487	427.0 -> 81.0	30.9	2.0	62.0

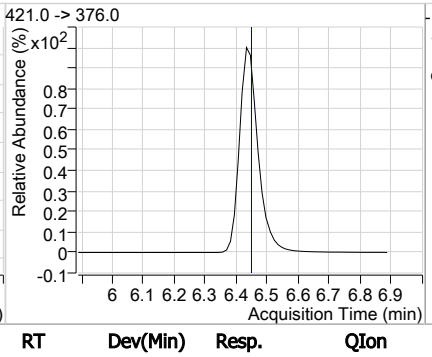


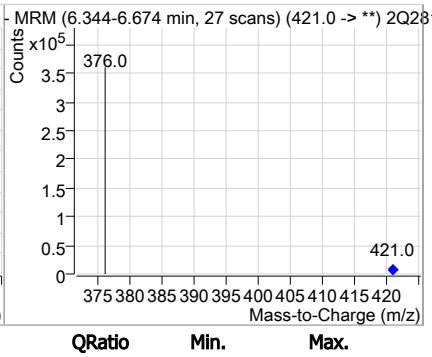




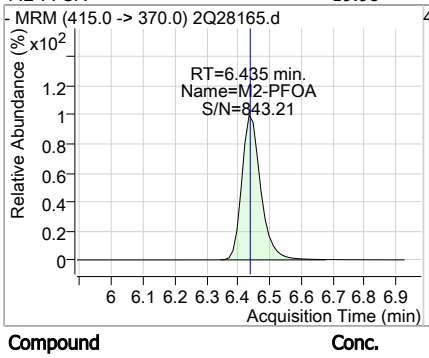
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.96	6.43	-0.01	276399				

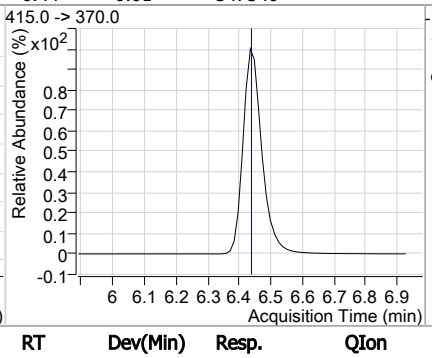


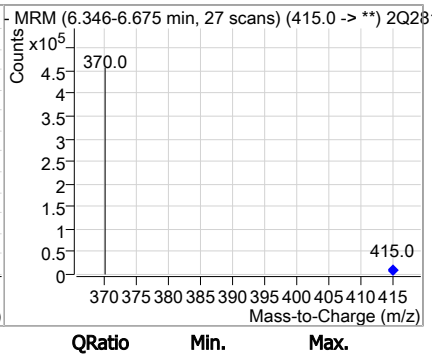




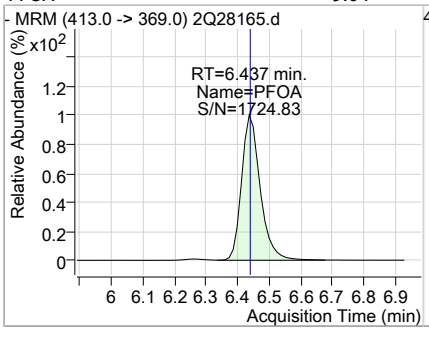
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.98	6.44	-0.01	347546				

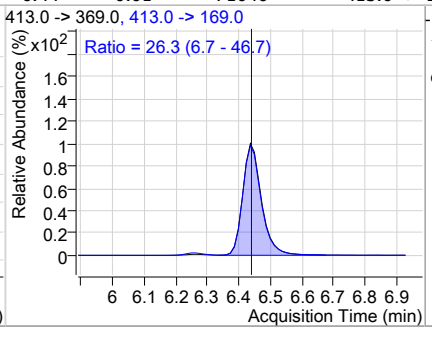


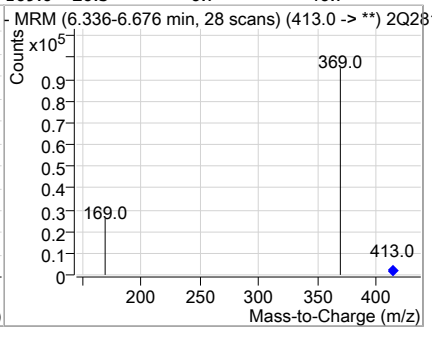




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	9.64	6.44	-0.01	71046	413.0 -> 169.0	26.3	6.7	46.7



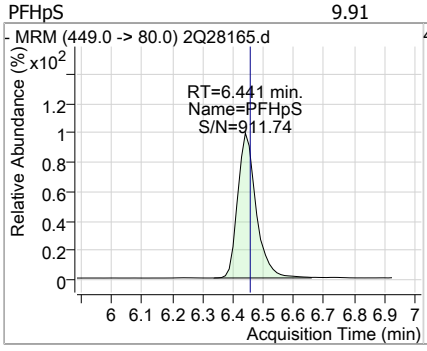


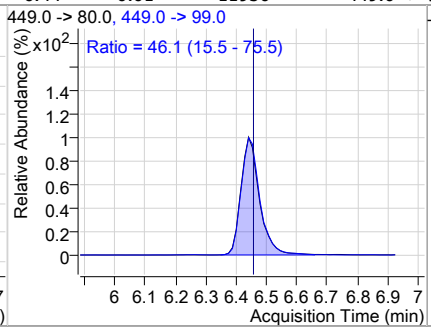


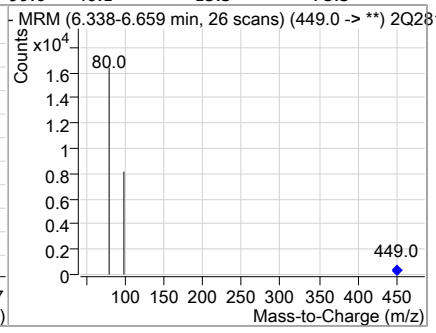
7.6.22

Perfluorinated Compounds by LC/MS/MS

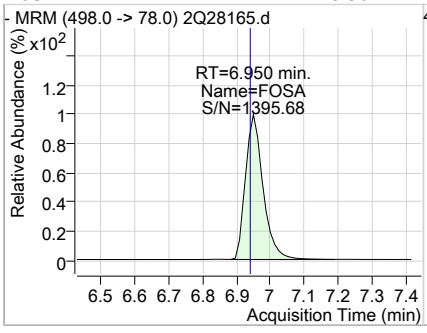
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	9.91	6.44	-0.01	11950	449.0 -> 99.0	46.1	15.5	75.5

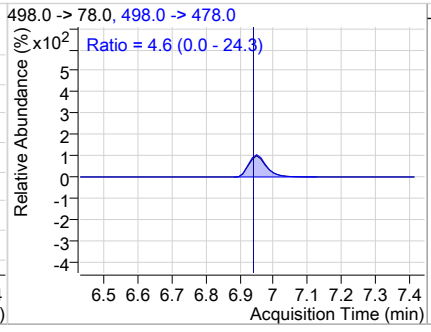


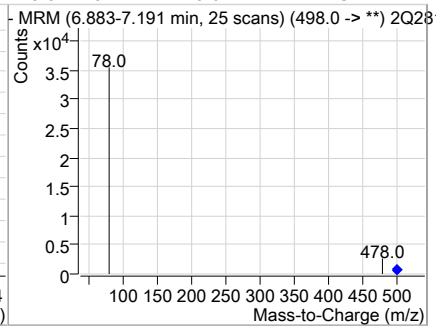




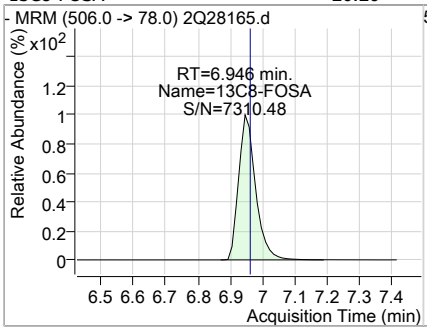
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	9.90	6.95	0.00	26931	498.0 -> 478.0	4.6	0.0	24.3

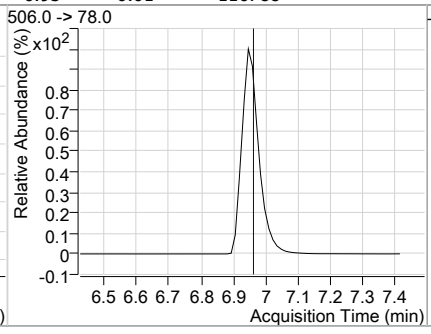


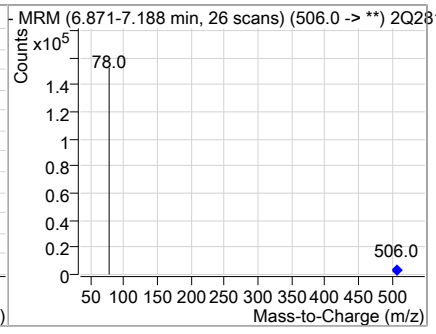




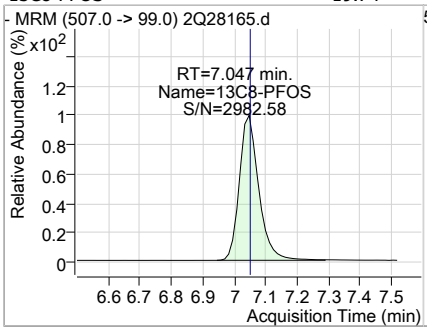
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.26	6.95	-0.01	116788				

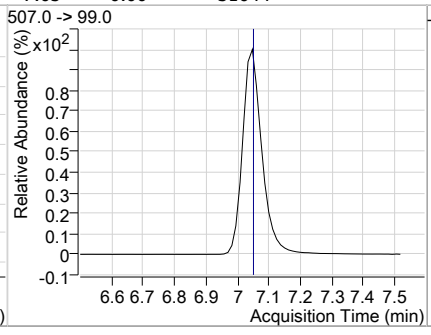


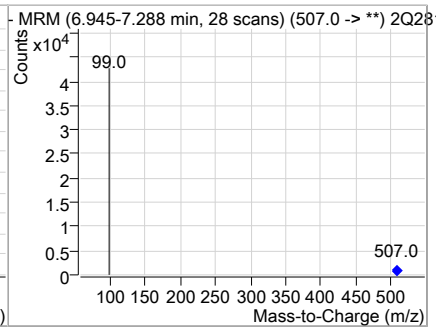




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.74	7.05	0.00	31644				



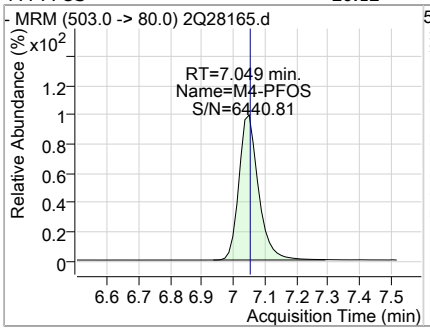


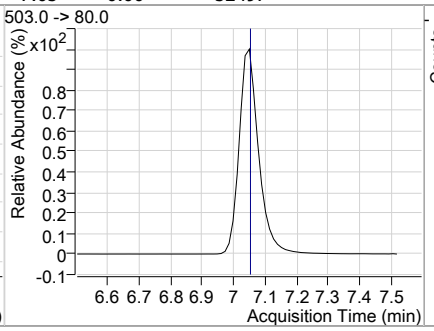


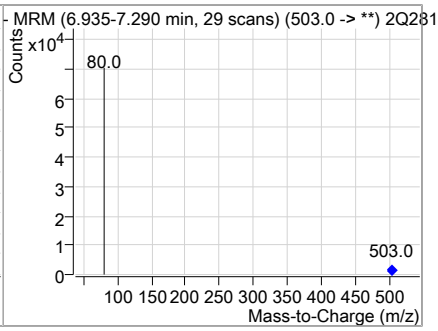
7.6.22

Perfluorinated Compounds by LC/MS/MS

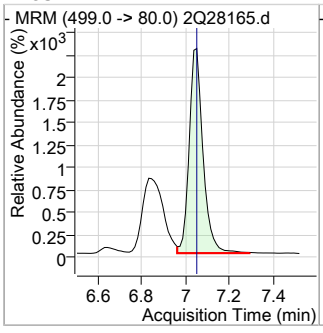
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.12	7.05	0.00	52497				

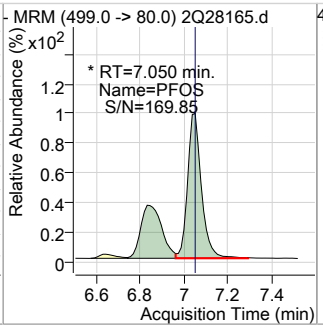


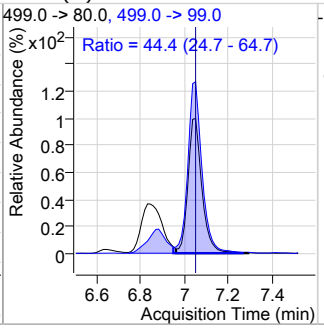


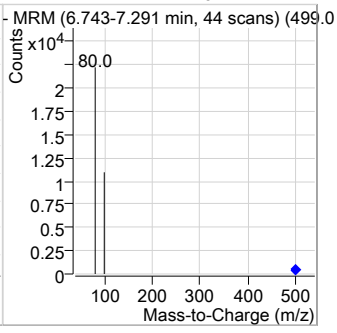


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.69	7.05	0.00	15506 (m)	499.0 -> 99.0	44.4	24.7	64.7

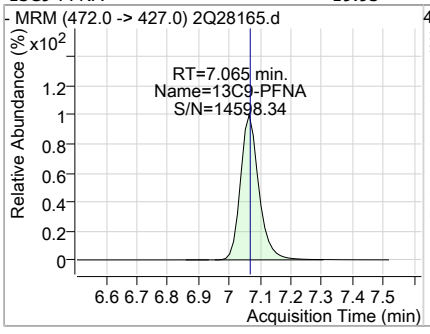


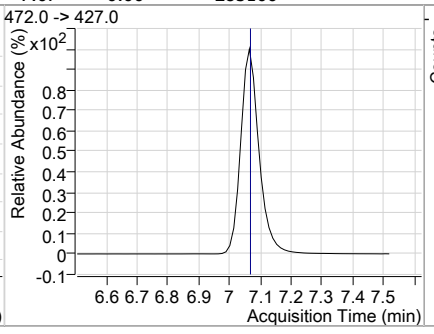


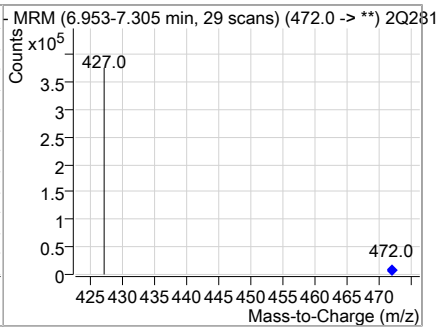




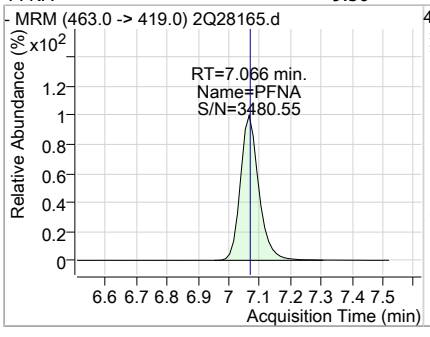
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.93	7.07	0.00	285106				

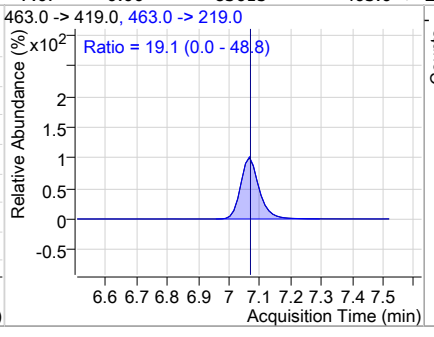


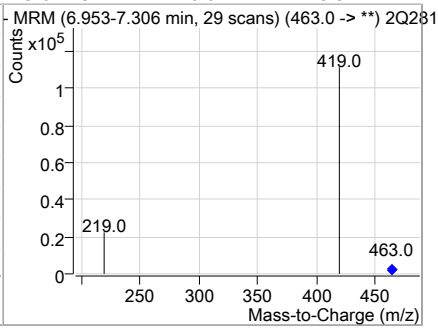




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	9.56	7.07	0.00	83615	463.0 -> 219.0	19.1	0.0	48.8

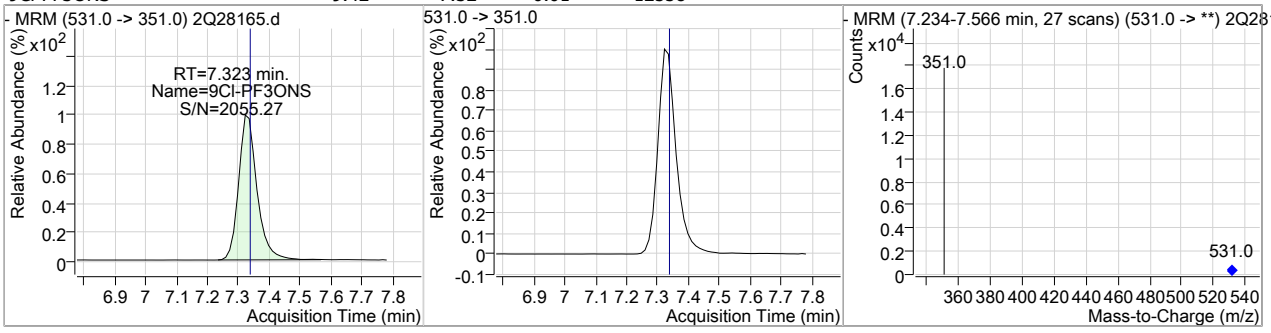




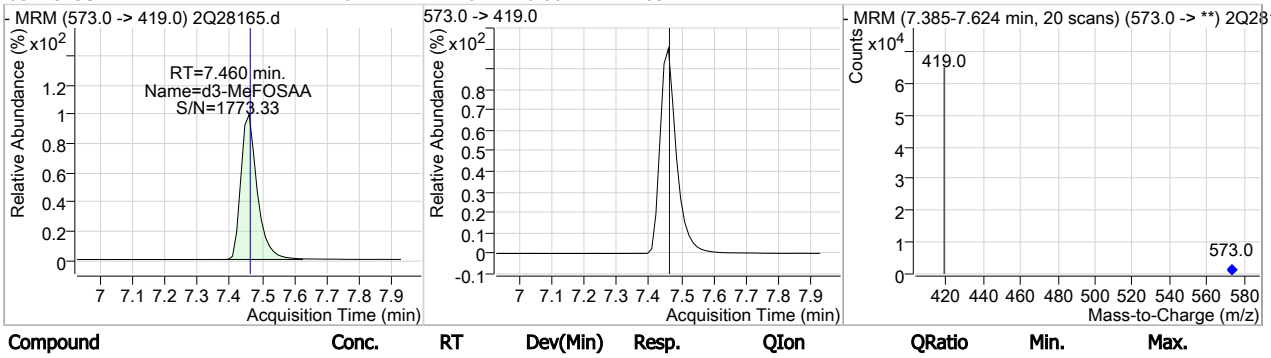


Perfluorinated Compounds by LC/MS/MS

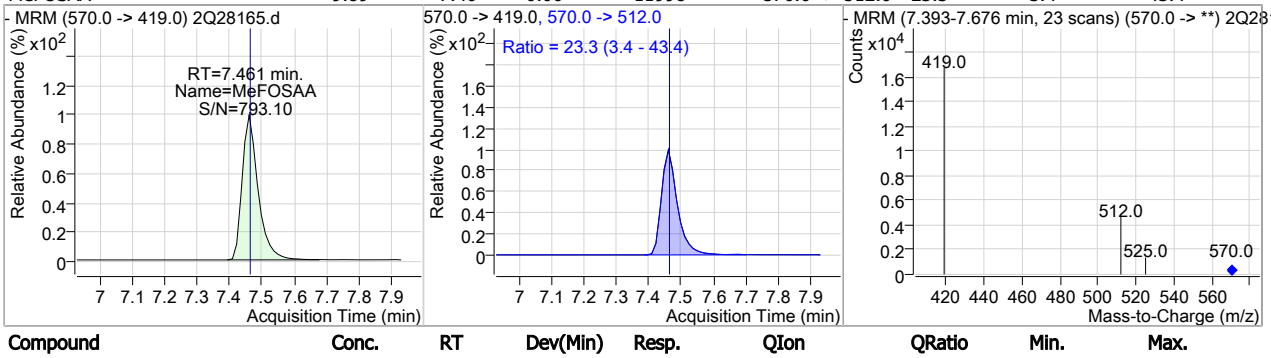
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	9.42	7.32	-0.01	12558				



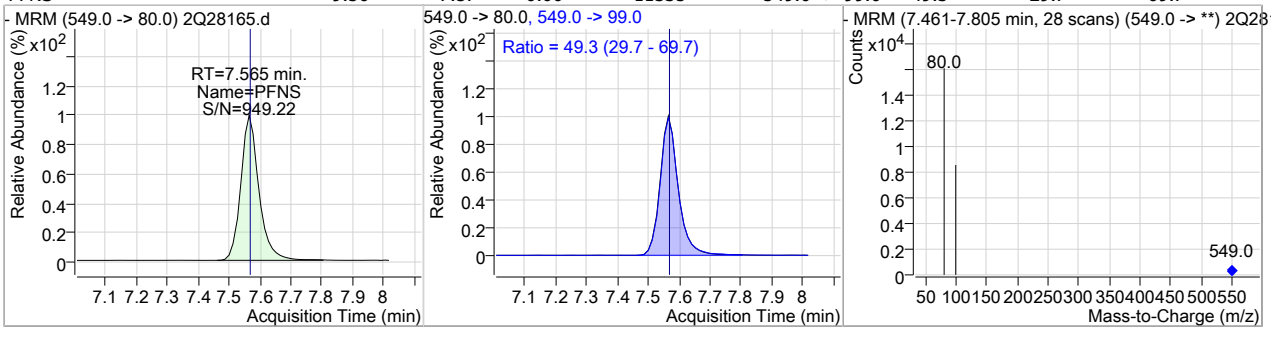
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.11	7.46	0.00	48514				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	9.89	7.46	0.00	11998	570.0 -> 512.0	23.3	3.4	43.4



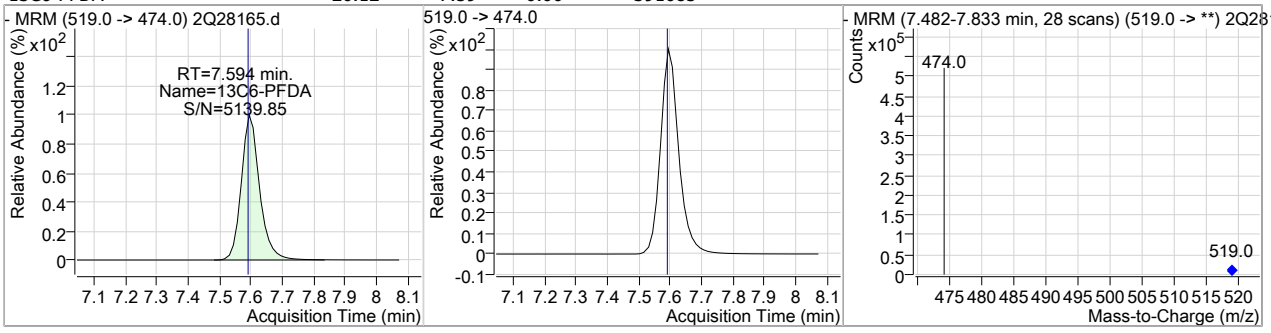
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	9.56	7.57	0.00	11335	549.0 -> 99.0	49.3	29.7	69.7



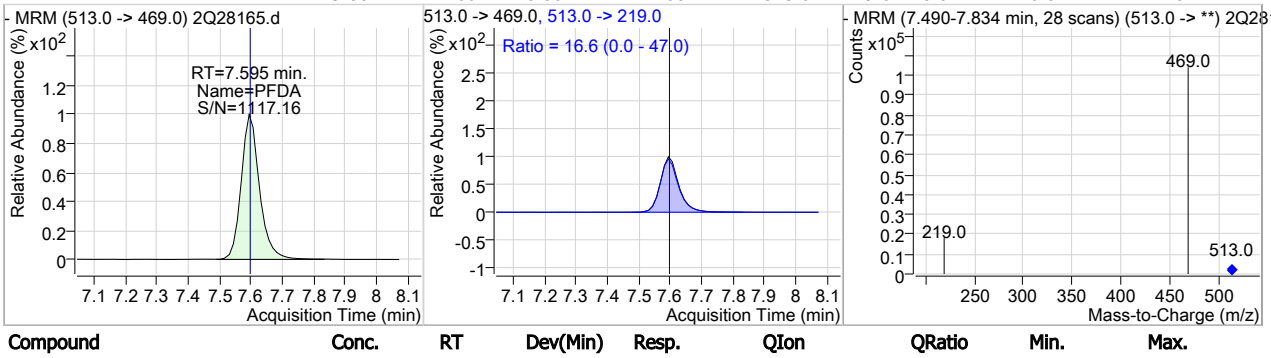
7.6.22

Perfluorinated Compounds by LC/MS/MS

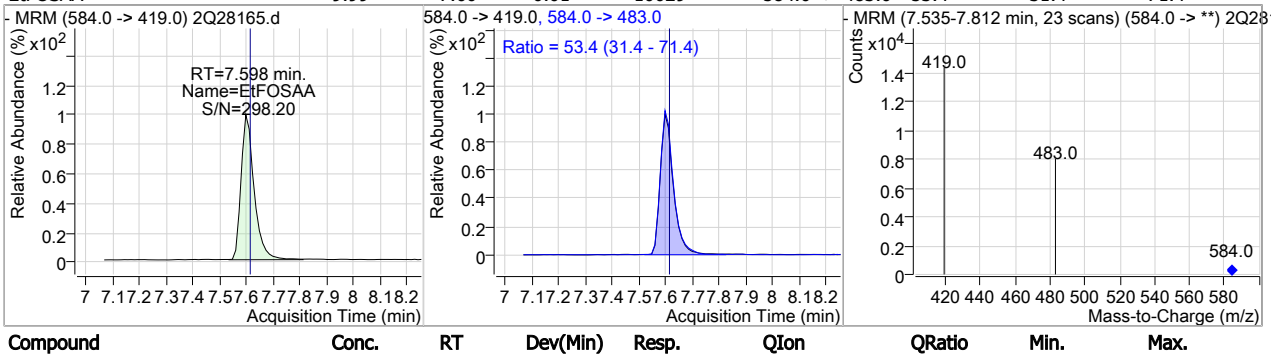
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.12	7.59	0.00	391685				



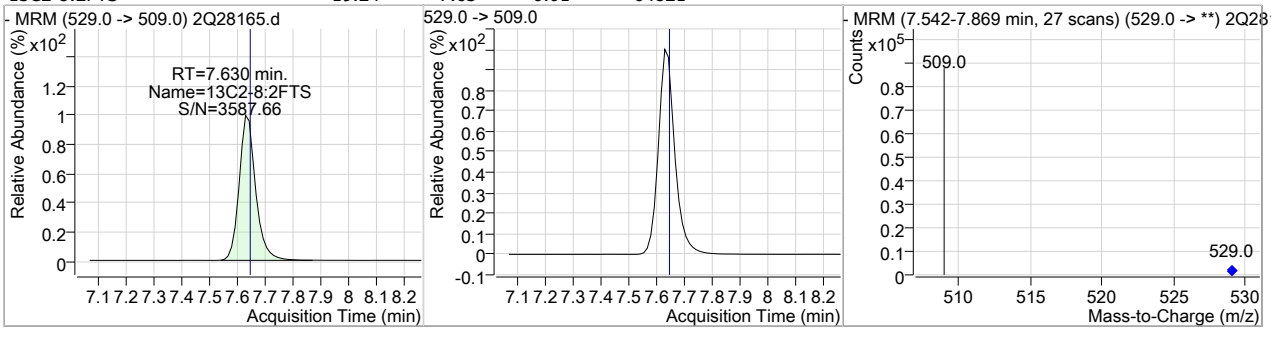
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	9.66	7.60	0.00	77100	513.0 -> 219.0	16.6	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	9.99	7.60	-0.01	10029	584.0 -> 483.0	53.4	31.4	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.24	7.63	-0.01	64821				



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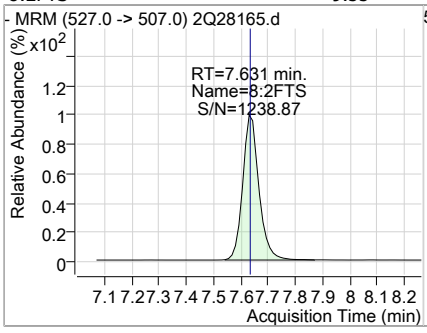
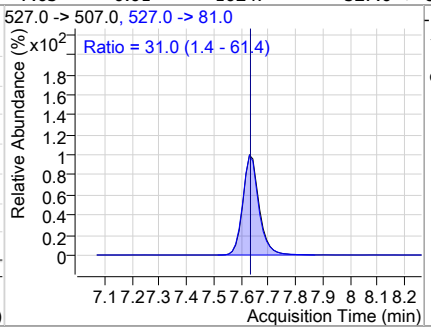
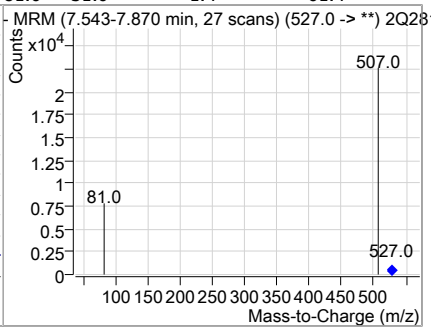
Perfluorinated Compounds by LC/MS/MS

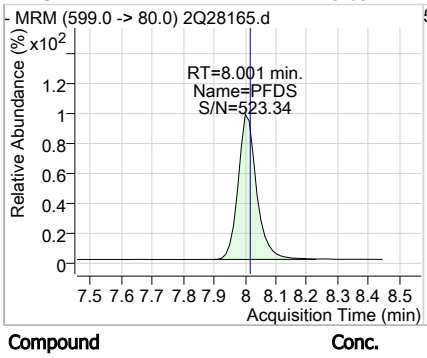
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.55	7.63	-0.01	16247	527.0 -> 81.0	31.0	1.4	61.4

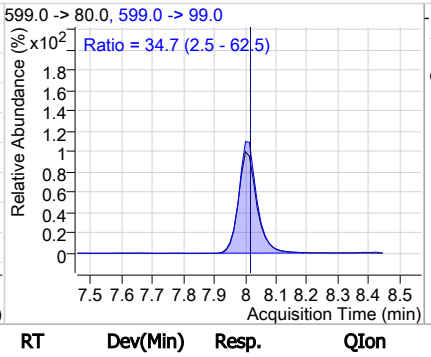


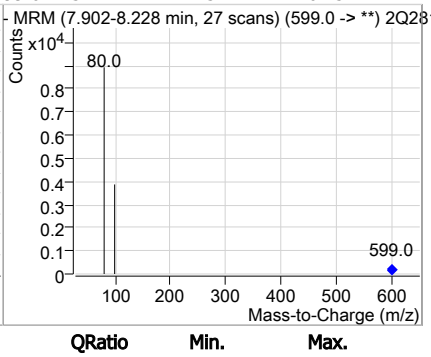




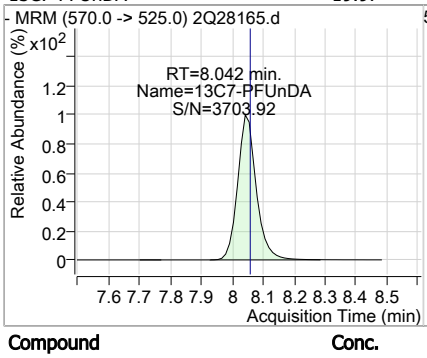
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	9.83	8.00	-0.01	5902	599.0 -> 99.0	34.7	2.5	62.5

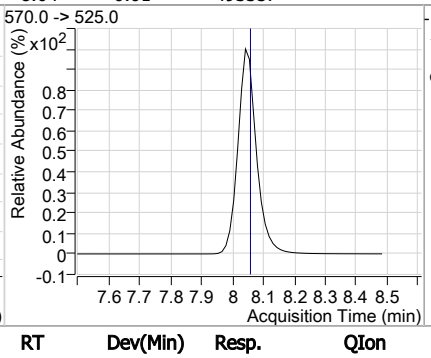


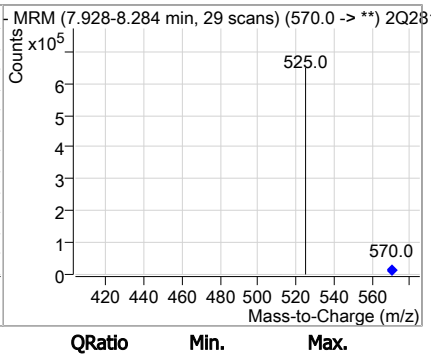




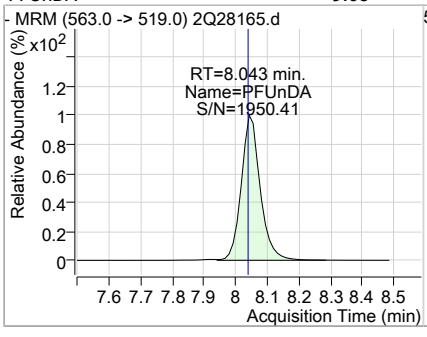
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.97	8.04	-0.01	493357				

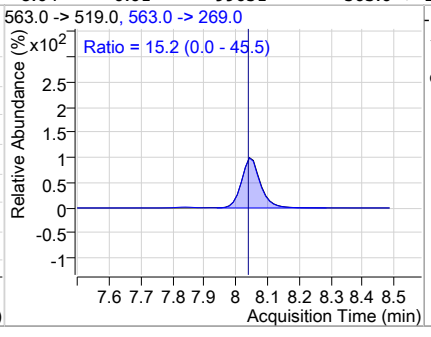


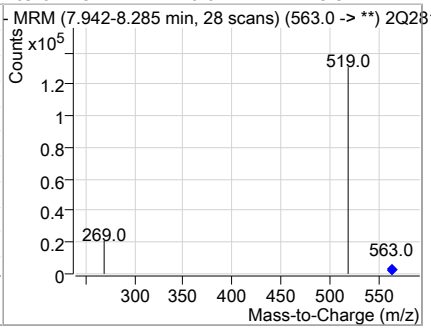




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	9.68	8.04	-0.01	99051	563.0 -> 269.0	15.2	0.0	45.5







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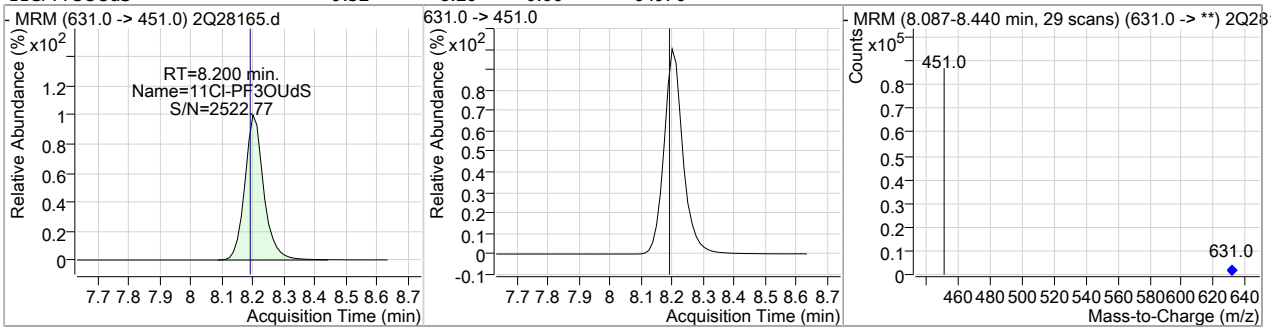
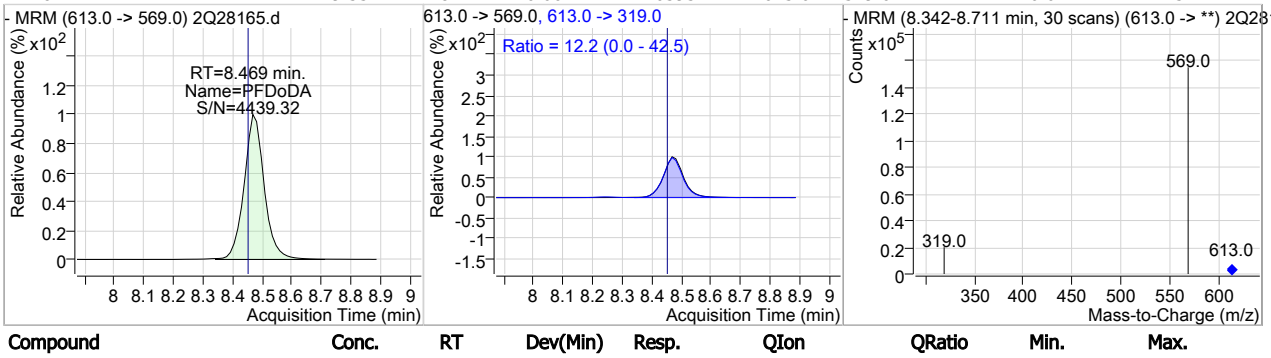
Perfluorinated Compounds by LC/MS/MS

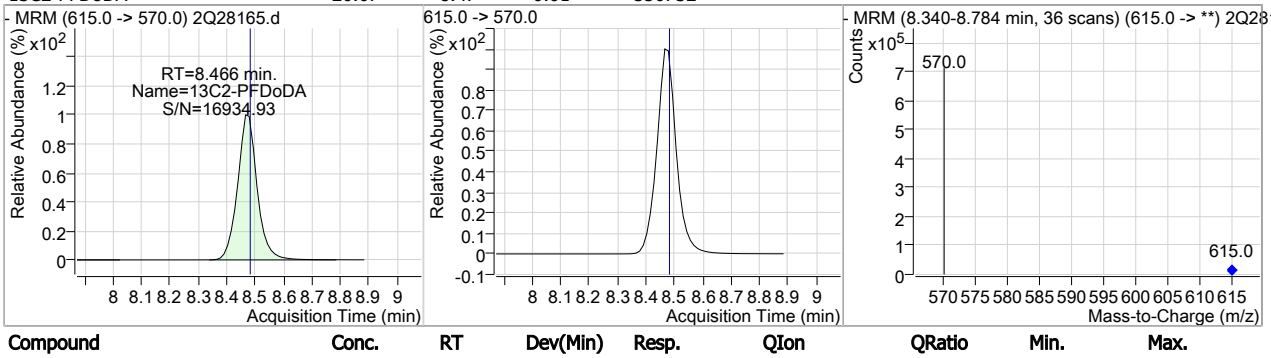
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	9.52	8.20	0.00	64970				



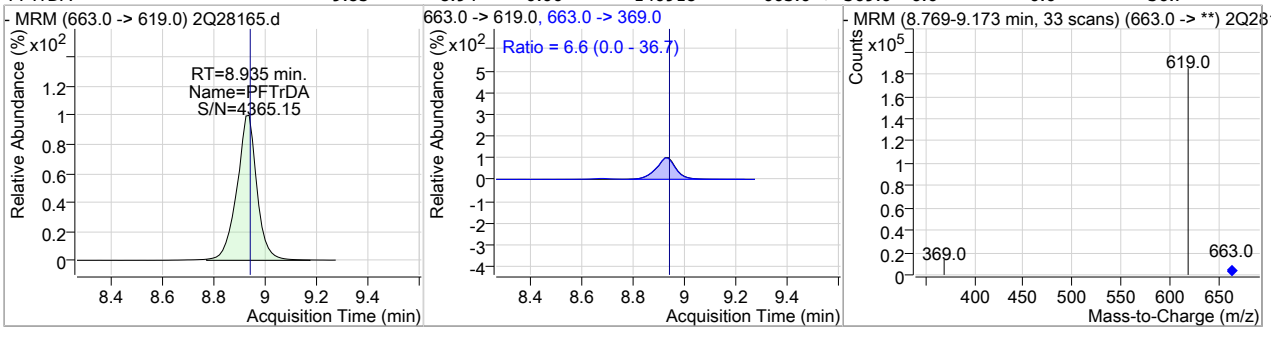
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	9.55	8.47	0.00	120595	613.0 -> 319.0	12.2	0.0	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.07	8.47	-0.01	550732				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	9.85	8.94	0.00	140918	663.0 -> 369.0	6.6	0.0	36.7

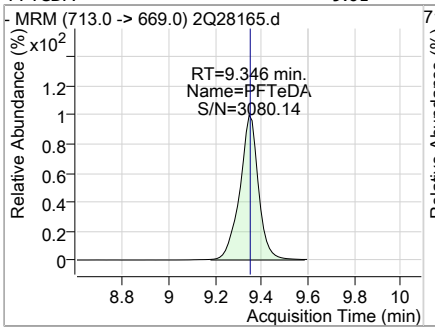


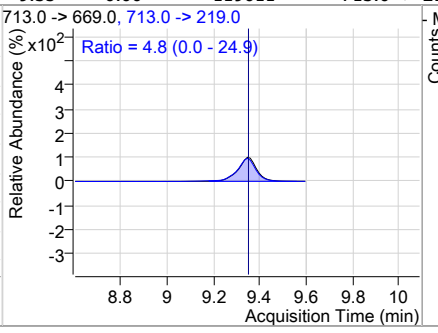
7.6.22

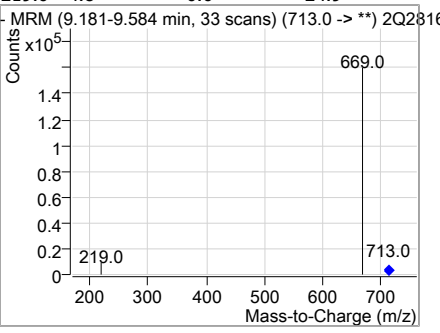
7

Perfluorinated Compounds by LC/MS/MS

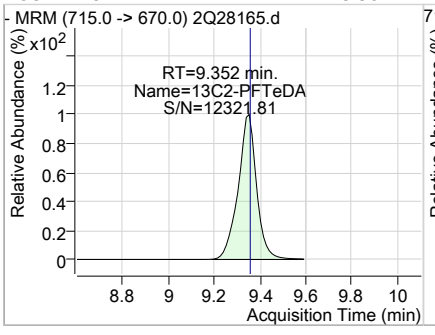
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	9.61	9.35	0.00	119611	713.0 -> 219.0	4.8	0.0	24.9

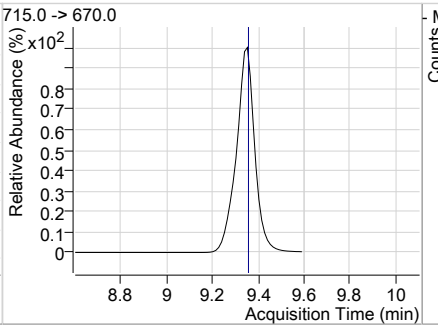


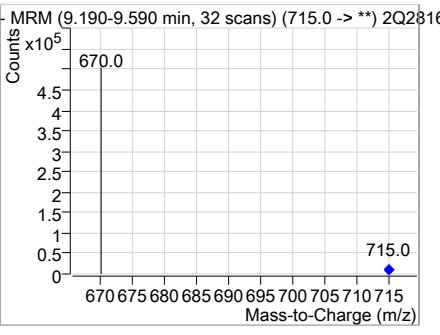




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.98	9.35	0.00	377459				







7.6.22

7

Manual Integration Approval Summary

Sample Number: S2Q449-IC449
Lab FileID: 2Q28165.D
Injection Time: 03/26/19 16:01
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Cal Report: 2Q28166.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28166.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 4:17:09 PM
Sample Name : icc449-20
Vial : Vial 7
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

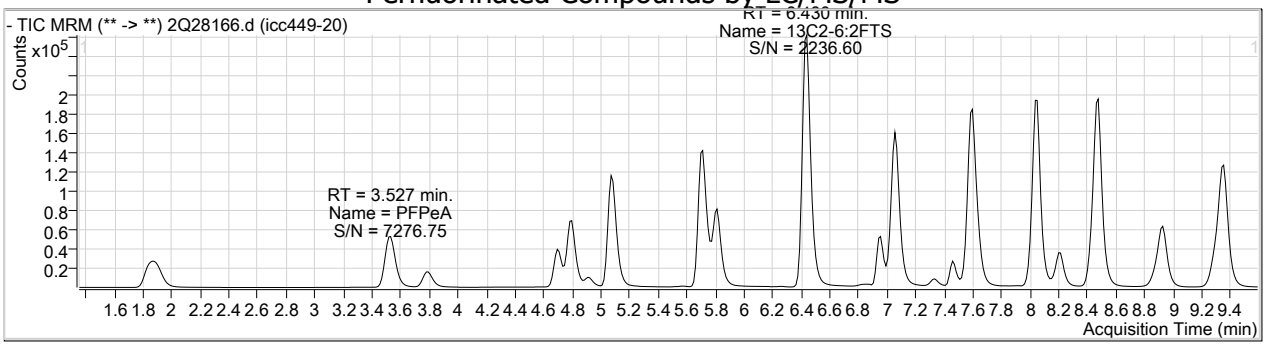
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.448	415.0 -> 370.0	390599	20.00	µg/L	0.000
13C4-PFOS	7.049	503.0 -> 80.0	58145	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	174879	20.00	µg/L	0.000
M5-PFPeA	3.536	268.0 -> 223.0	148154	20.00	µg/L	0.000
M5-PFHxA	4.801	318.0 -> 273.0	211665	20.00	µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	299329	20.00	µg/L	0.000
M8-PFOA	6.446	421.0 -> 376.0	310964	20.00	µg/L	0.000
M9-PFNA	7.065	472.0 -> 427.0	323224	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	436730	20.00	µg/L	0.000
M7-PFUnDA	8.055	570.0 -> 525.0	554047	20.00	µg/L	0.000
M2-PFDoDA	8.479	615.0 -> 570.0	619745	20.00	µg/L	0.000
M2-PFTeDA	9.352	715.0 -> 670.0	428605	20.00	µg/L	0.000
M8-FOSA	6.959	506.0 -> 78.0	130427	20.00	µg/L	0.000
M3-PFBS	3.792	302.0 -> 99.0	25395	20.00	µg/L	0.000
M3-PFHxS	5.748	402.0 -> 99.0	27599	20.00	µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	36316	20.00	µg/L	0.000
M2-4:2FTS	4.696	329.0 -> 309.0	92356	20.00	µg/L	0.000
M2-6:2FTS	6.430	429.0 -> 409.0	101265	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	75056	20.00	µg/L	0.000
M3-MeFOSAA	7.460	573.0 -> 419.0	55072	20.00	µg/L	0.000
M3-HFPO-DA	5.081	287.0 -> 169.0	199420	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	92407	22.37	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.9%		
13C2-6:2FTS	6.430	429.0 -> 409.0	101165	22.28	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.4%		
13C2-8:2FTS	7.642	529.0 -> 509.0	75054	22.28	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.4%		
13C2-PFDoDA	8.479	615.0 -> 570.0	618777	22.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.8%		
13C2-PFTeDA	9.352	715.0 -> 670.0	428621	22.69	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.5%		
13C3-PFBS	3.792	302.0 -> 99.0	25369	22.54	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.7%		
13C3-PFHxS	5.748	402.0 -> 99.0	27561	22.44	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.2%		
13C4-PFBA	1.865	217.0 -> 172.0	173959	22.53	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.7%		
13C4-PFHpA	5.717	367.0 -> 322.0	298908	22.48	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.4%		
13C5-PFHxA	4.801	318.0 -> 273.0	211646	22.42	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.1%		
13C5-PFPeA	3.536	268.0 -> 223.0	148151	22.58	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.9%		
13C6-PFDA	7.594	519.0 -> 474.0	436562	22.43	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

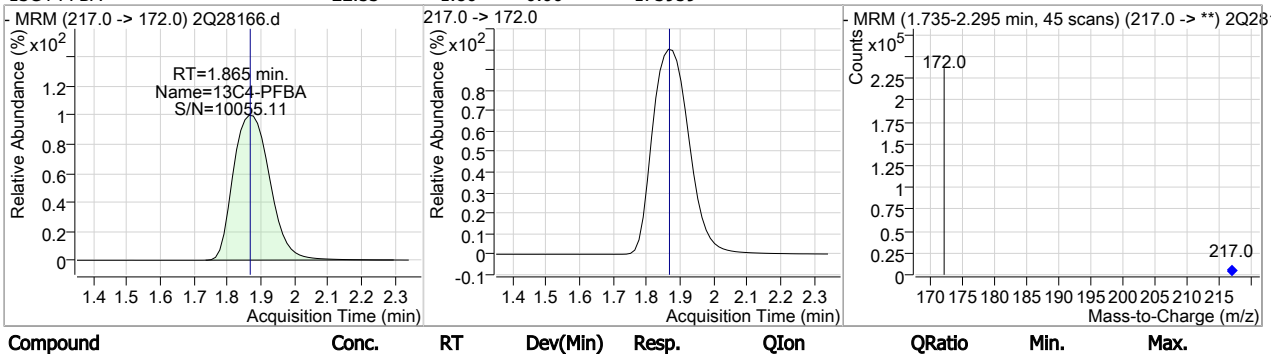
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.2%		
13C7-PFUnDA	8.055	570.0 -> 525.0	554397	22.44 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.2%		
13C8-FOSA	6.959	506.0 -> 78.0	130426	22.62 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.1%		
13C8-PFOA	6.446	421.0 -> 376.0	310778	22.45 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.2%		
13C8-PFOS	7.047	507.0 -> 99.0	36394	22.70 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.5%		
13C9-PFNA	7.065	472.0 -> 427.0	322783	22.56 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.8%		
d3-MeFOSAA	7.460	573.0 -> 419.0	55100	22.84 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.2%		
M2-PFOA	6.448	415.0 -> 370.0	391037	19.99 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.049	503.0 -> 80.0	58318	20.18 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	199420	113.91 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 113.9%		
Target Compounds						QValue
4:2FTS	4.699	327.0 -> 307.0	51153	19.07 µg/L		99
6:2FTS	6.432	427.0 -> 407.0	48910	18.90 µg/L		98
8:2FTS	7.643	527.0 -> 507.0	38145	19.36 µg/L		97
EtFOSAA	7.610	584.0 -> 419.0	22194	19.52 µg/L		98
FOSA	6.950	498.0 -> 78.0	59416	19.48 µg/L		100
MeFOSAA	7.461	570.0 -> 419.0	27727	19.95 µg/L		100
PFBA	1.873	213.0 -> 169.0	32413	19.34 µg/L		100
PFBS	3.783	299.0 -> 80.0	39715	19.34 µg/L		100
PFDA	7.595	513.0 -> 469.0	172007	19.32 µg/L		100
PFDoDA	8.469	613.0 -> 569.0	272773	19.19 µg/L		99
PFDS	8.014	599.0 -> 80.0	13602	19.72 µg/L		100
PFHpA	5.708	363.0 -> 319.0	254064	19.12 µg/L		100
PFHpS	6.454	449.0 -> 80.0	27137	19.67 µg/L		99
PFHxA	4.803	313.0 -> 269.0	67232	19.40 µg/L		100
PFHxS	5.751	399.0 -> 80.0	30339	19.13 µg/L	m	100
PFNA	7.066	463.0 -> 419.0	190325	19.21 µg/L		99
PFNS	7.565	549.0 -> 80.0	26309	19.32 µg/L		98
PFOA	6.449	413.0 -> 369.0	159206	19.21 µg/L		99
PFOS	7.050	499.0 -> 80.0	34160	18.59 µg/L	m	100
PFPeA	3.527	263.0 -> 219.0	126205	19.23 µg/L		100
PFPeS	4.908	349.0 -> 80.0	26404	19.43 µg/L		99
PFTeDA	9.346	713.0 -> 669.0	273608	19.35 µg/L		99
PFTrDA	8.935	663.0 -> 619.0	317254	19.51 µg/L		100
PFUnDA	8.056	563.0 -> 519.0	220435	19.18 µg/L		99
11Cl-PF3OUdS	8.200	631.0 -> 451.0	147884	19.26 µg/L		100
9Cl-PF3ONS	7.335	531.0 -> 351.0	29104	19.32 µg/L		100
ADONA	5.816	377.0 -> 251.0	299022	19.71 µg/L		100
HFPO-DA	5.085	329.0 -> 169.0	237005	97.87 µg/L		99

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

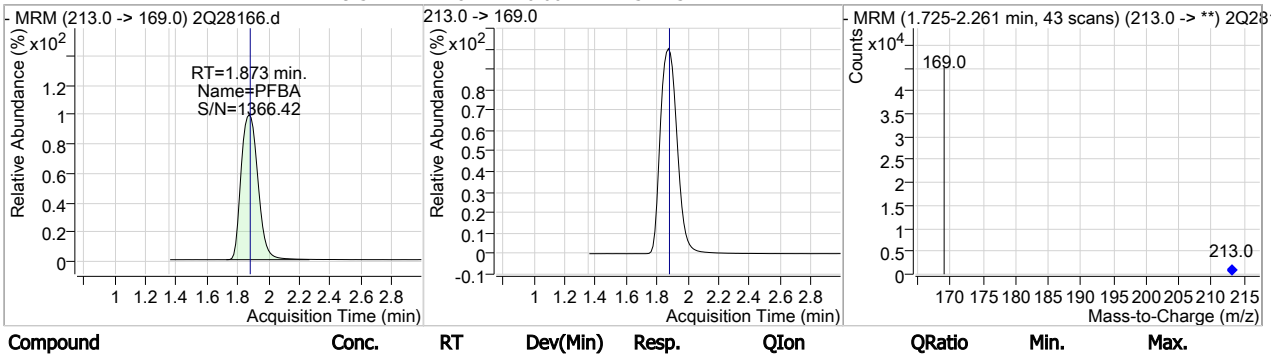
Perfluorinated Compounds by LC/MS/MS



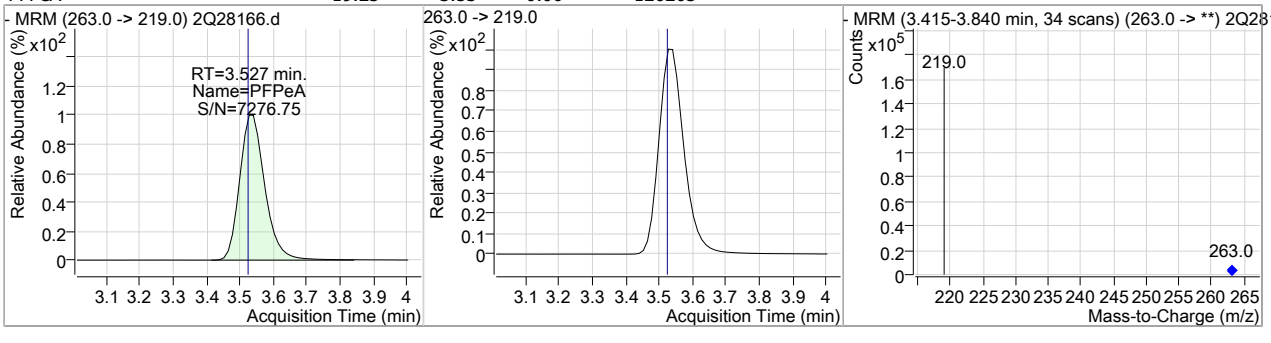
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	22.53	1.86	0.00	173959				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.34	1.87	0.00	32413				

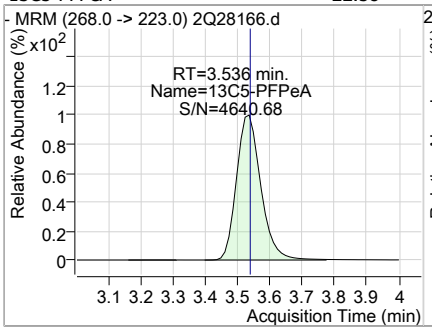


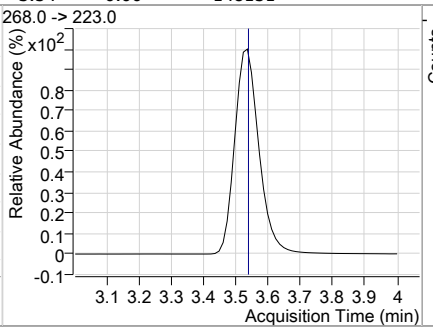
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.23	3.53	0.00	126205				

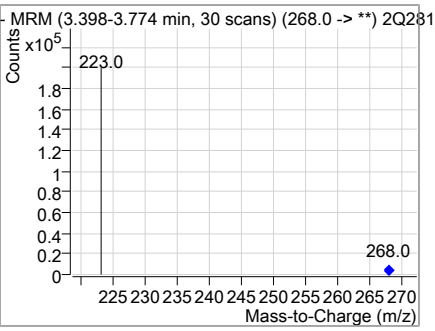


Perfluorinated Compounds by LC/MS/MS

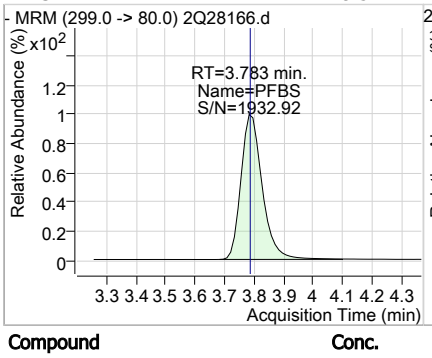
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	22.58	3.54	0.00	148151				

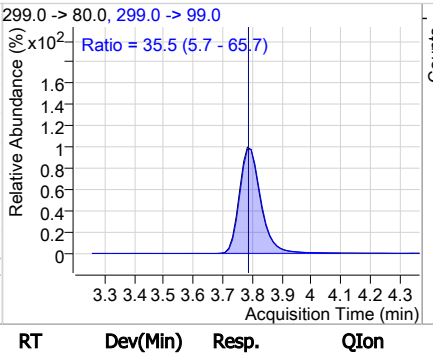


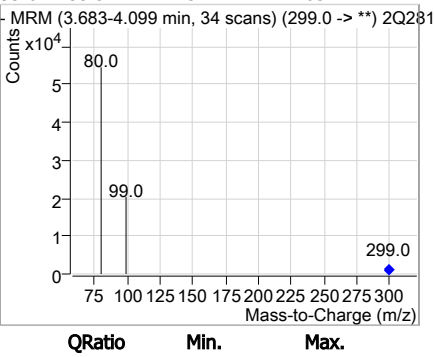




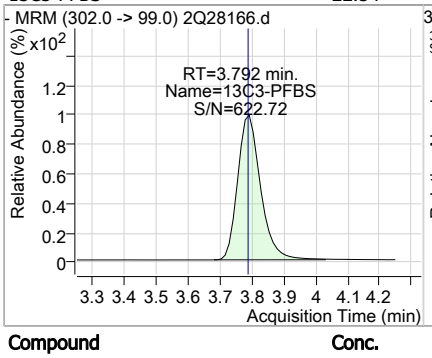
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.34	3.78	0.00	39715	299.0 -> 99.0	35.5	5.7	65.7

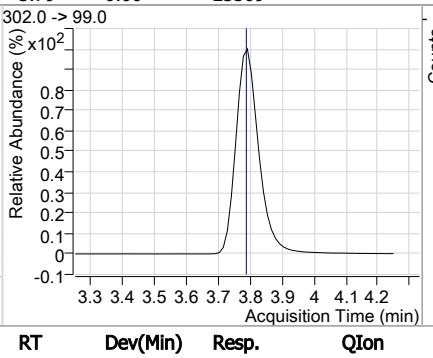


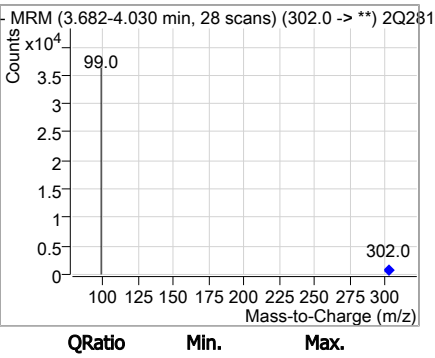




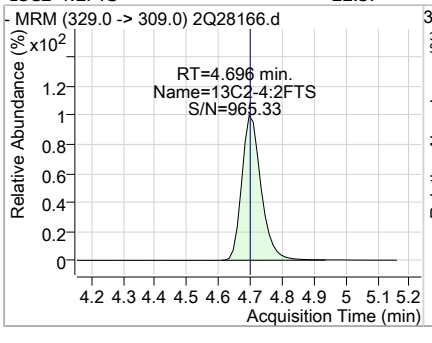
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	22.54	3.79	0.00	25369				

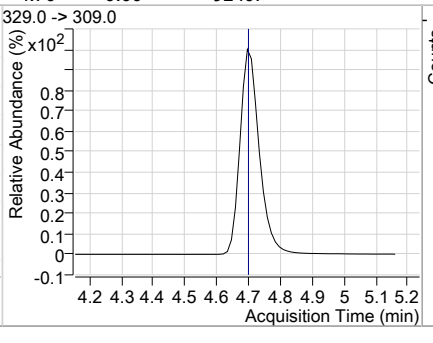


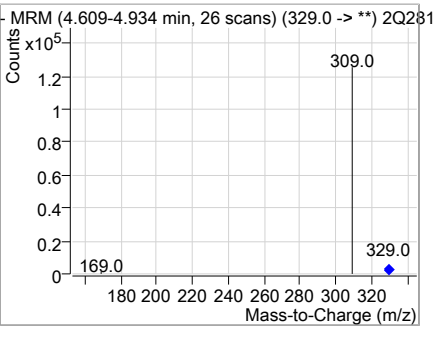




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	22.37	4.70	0.00	92407				



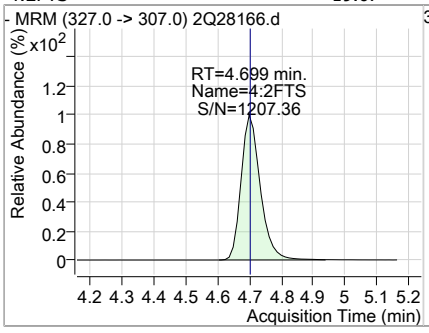


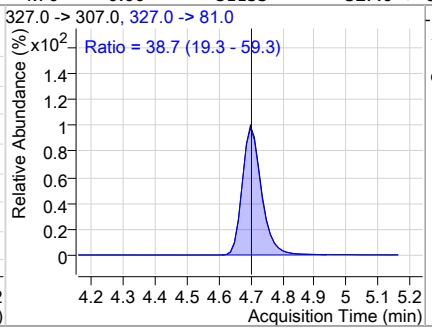


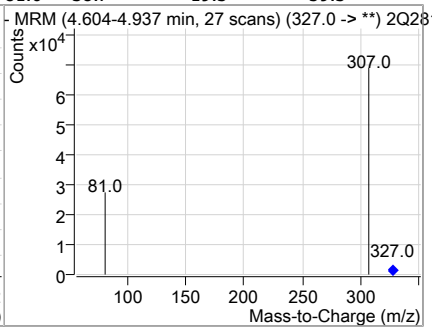
7.6.23

Perfluorinated Compounds by LC/MS/MS

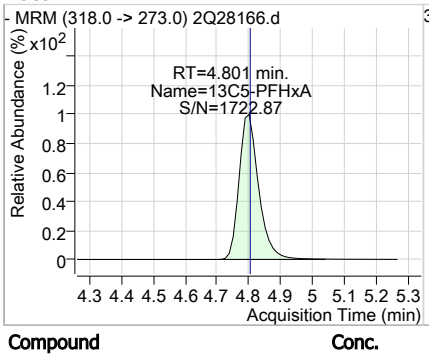
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.07	4.70	0.00	51153	327.0 -> 81.0	38.7	19.3	59.3

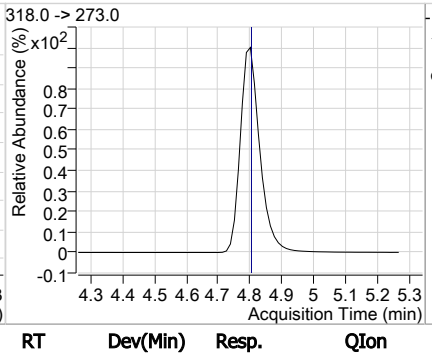


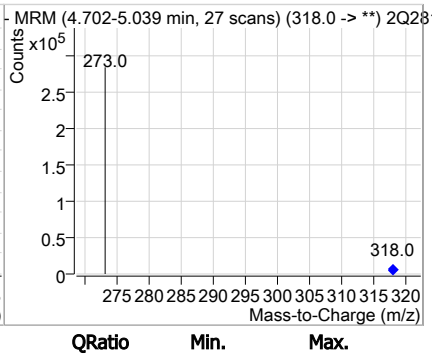




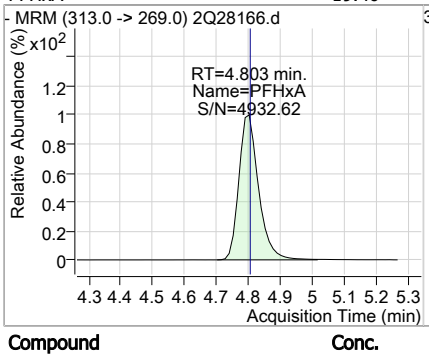
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	22.42	4.80	0.00	211646				

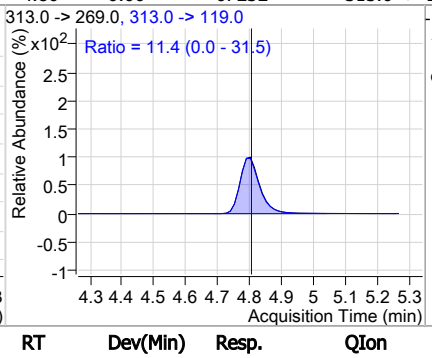


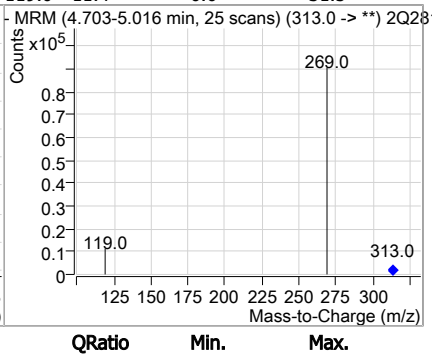




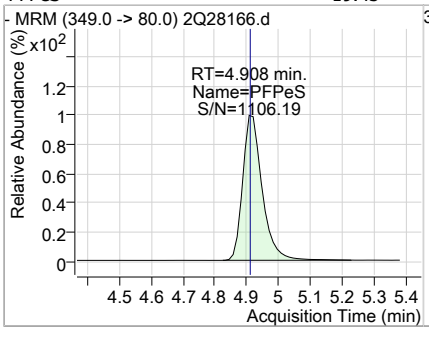
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.40	4.80	0.00	67232	313.0 -> 119.0	11.4	0.0	31.5

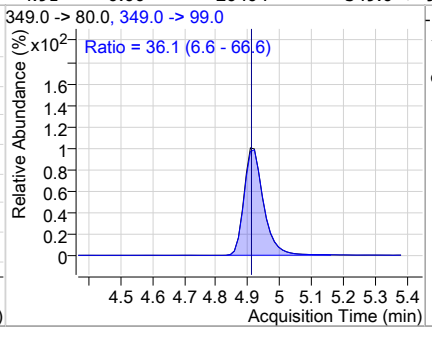


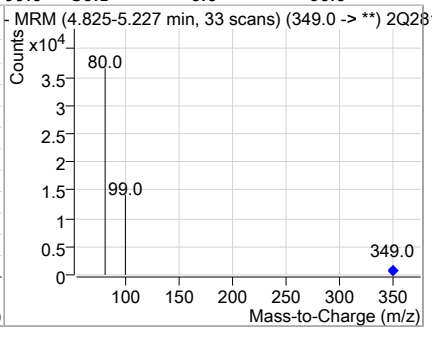




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.43	4.91	0.00	26404	349.0 -> 99.0	36.1	6.6	66.6







7.6.23

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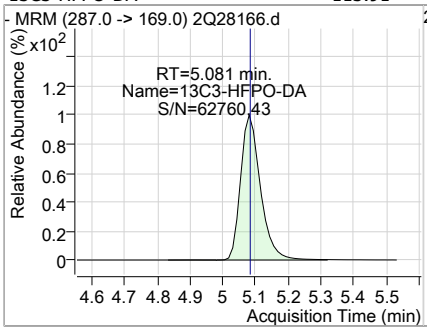
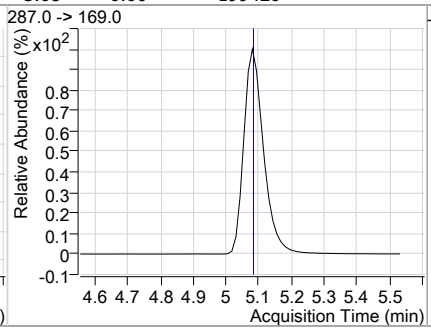
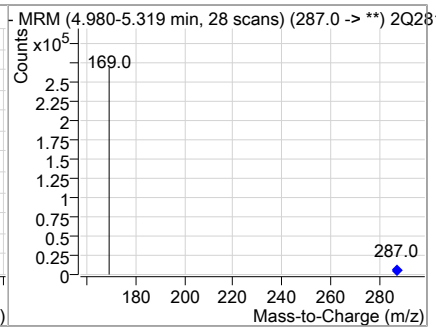
Perfluorinated Compounds by LC/MS/MS

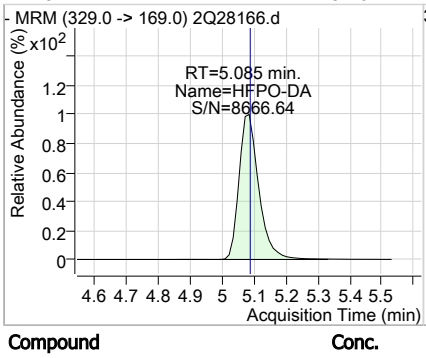
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	113.91	5.08	0.00	199420				

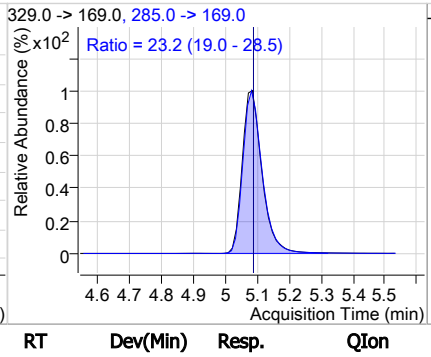


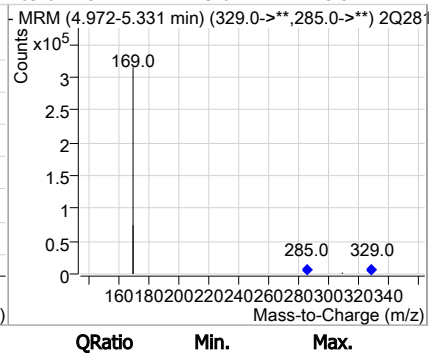




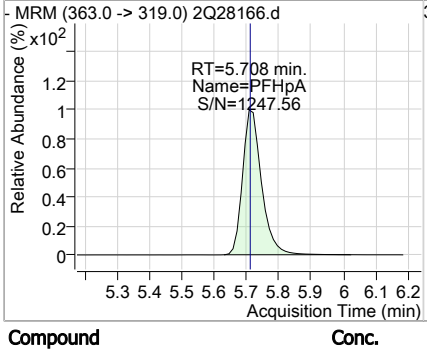
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	97.87	5.09	0.00	237005	285.0 -> 169.0	23.2	19.0	28.5

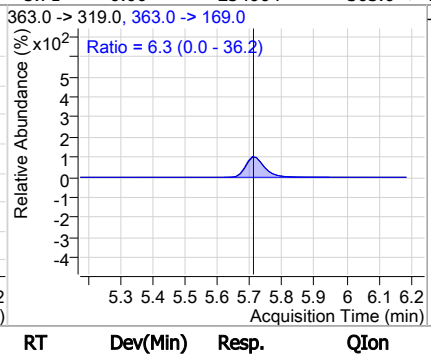


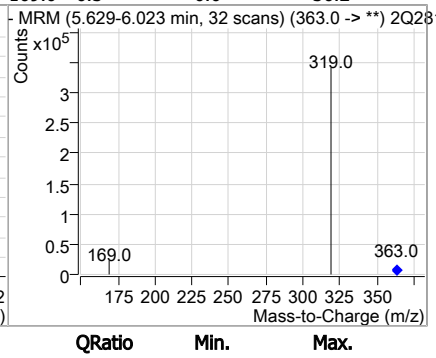




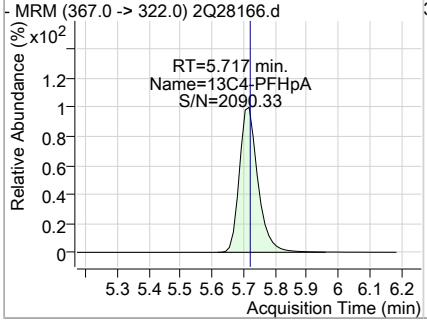
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.12	5.71	0.00	254064	363.0 -> 169.0	6.3	0.0	36.2

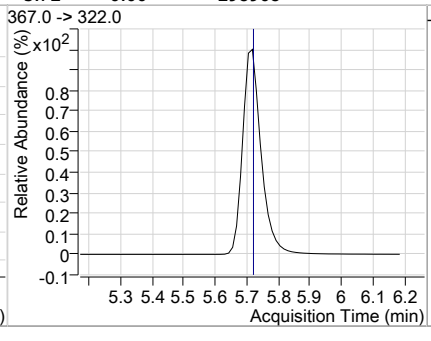


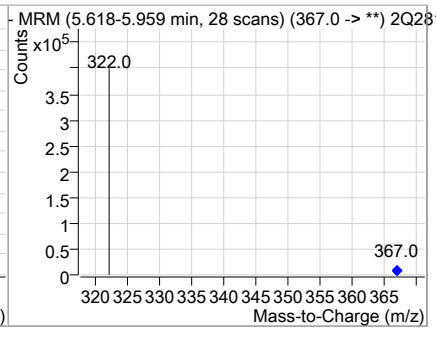




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	22.48	5.72	0.00	298908				







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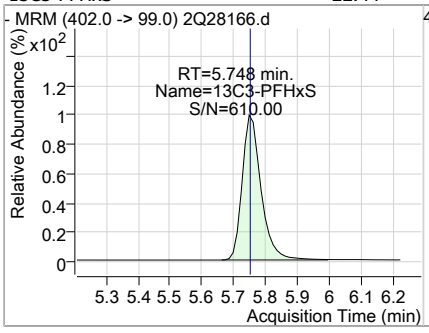
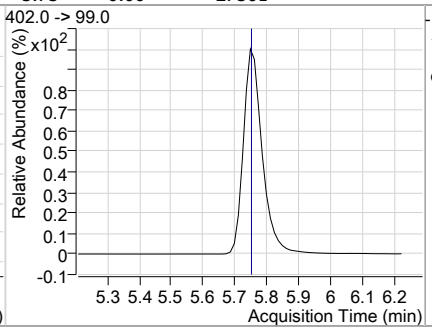
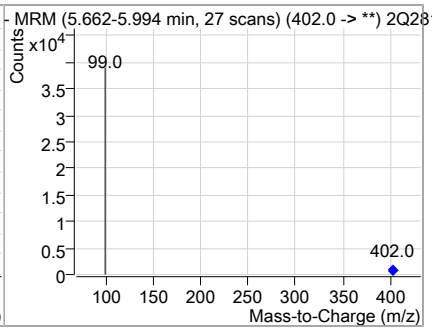
Perfluorinated Compounds by LC/MS/MS

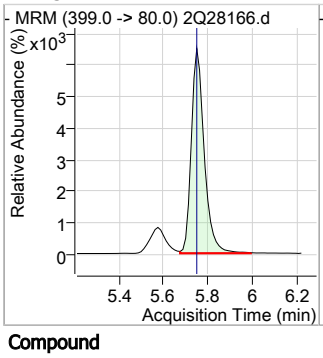
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	22.44	5.75	0.00	27561				

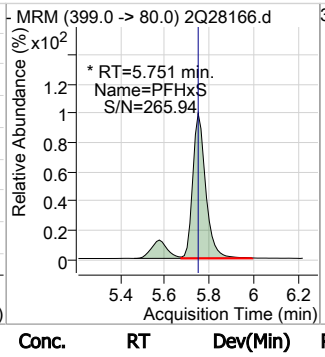


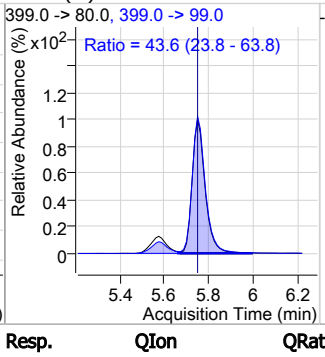


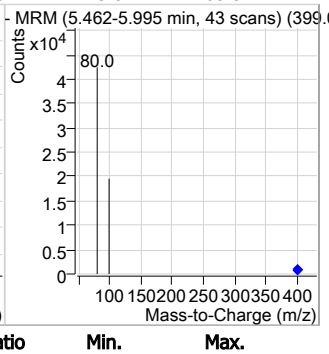


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.13	5.75	0.00	30339 (m)	399.0 -> 99.0	43.6	23.8	63.8

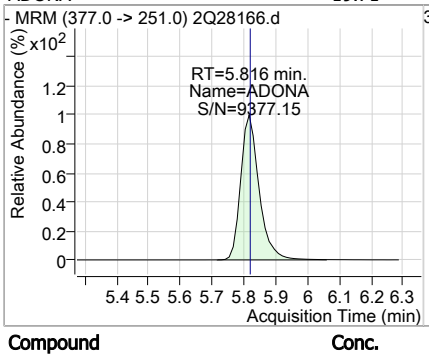


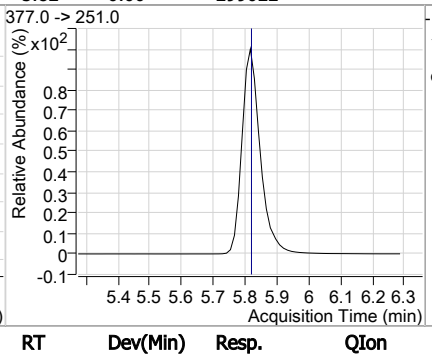


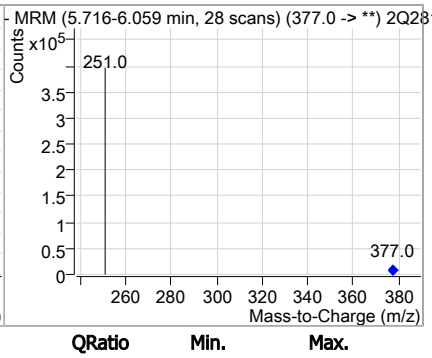




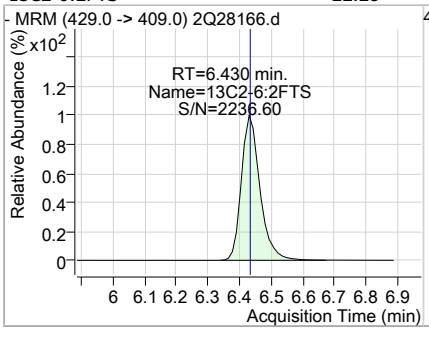
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.71	5.82	0.00	299022				

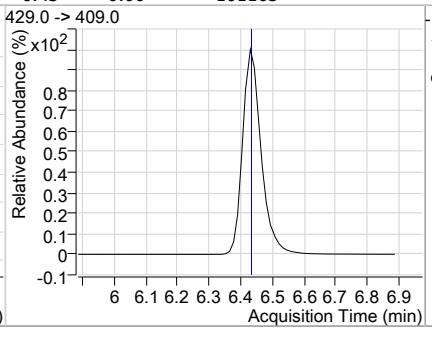


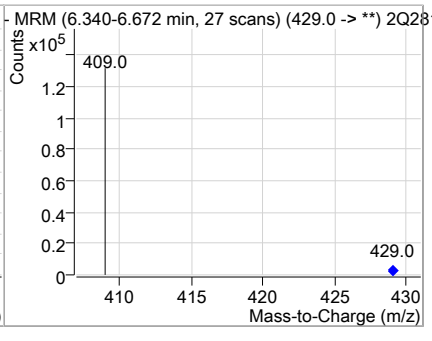




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	22.28	6.43	0.00	101165				



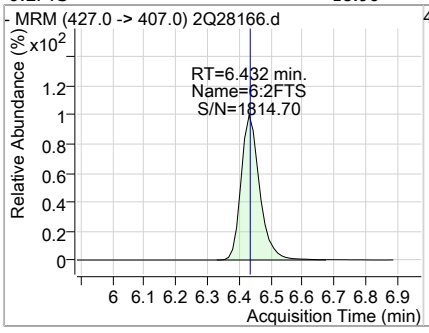


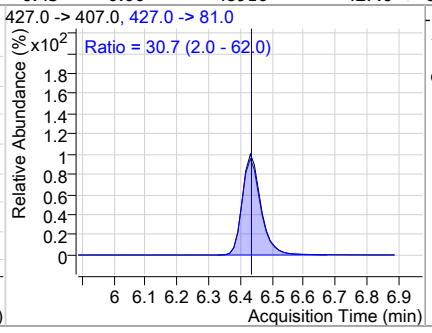


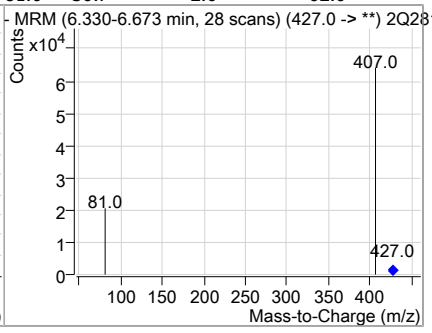
7.6.23

Perfluorinated Compounds by LC/MS/MS

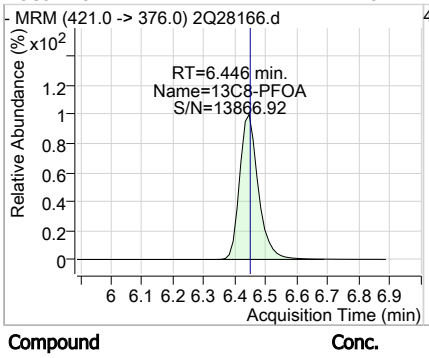
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	18.90	6.43	0.00	48910	427.0 -> 81.0	30.7	2.0	62.0

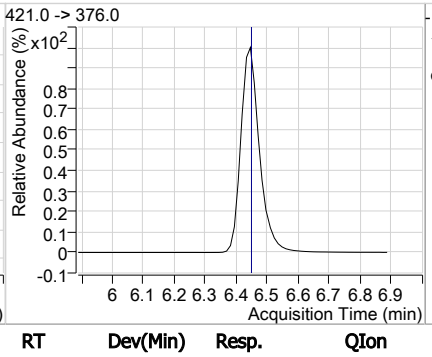


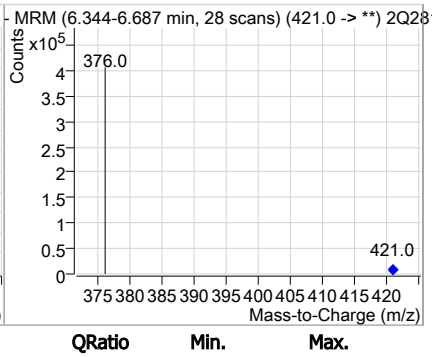




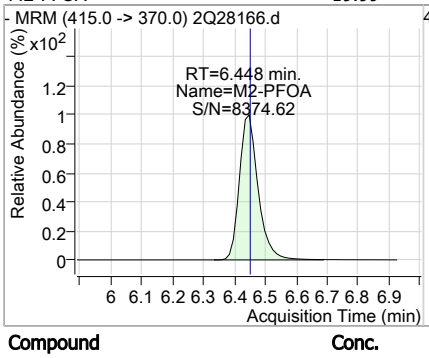
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	22.45	6.45	0.00	310778				

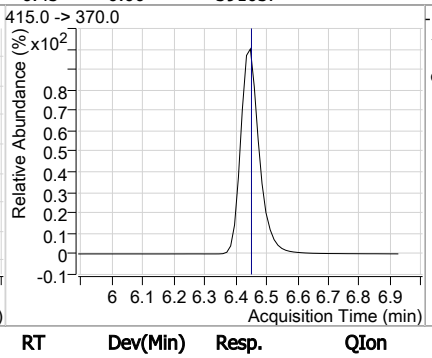


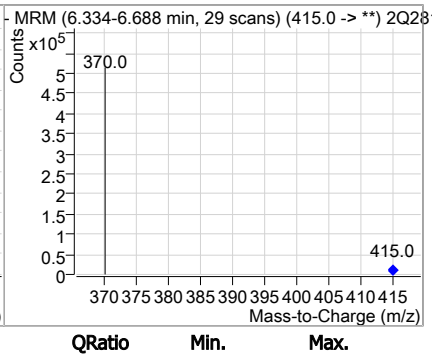




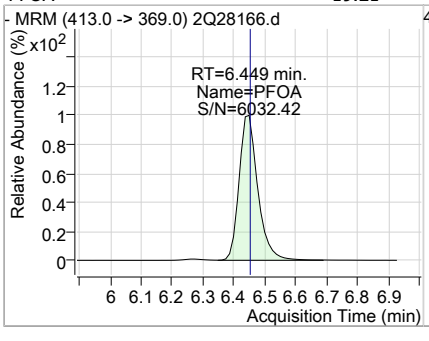
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.45	0.00	391037				

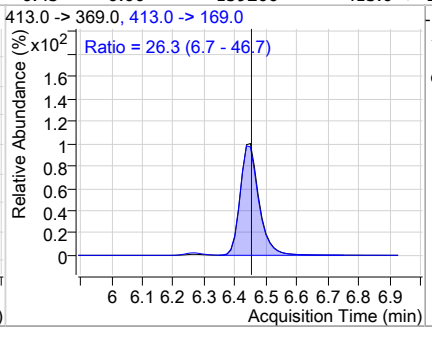


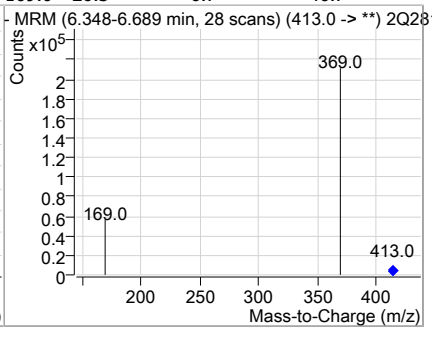




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.21	6.45	0.00	159206	413.0 -> 169.0	26.3	6.7	46.7







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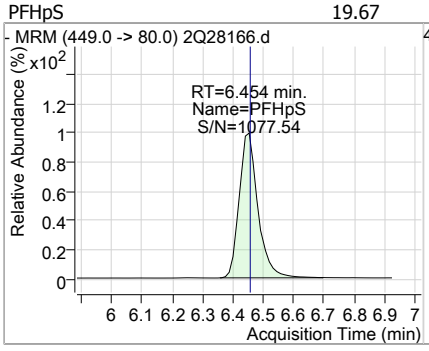
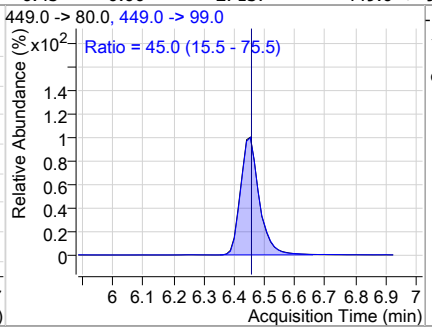
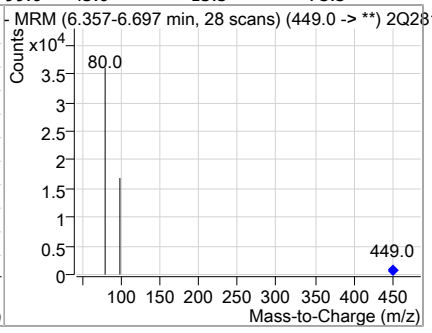
Perfluorinated Compounds by LC/MS/MS

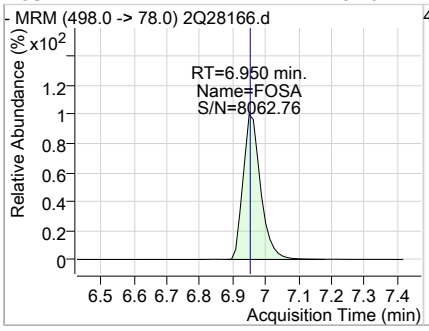
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.67	6.45	0.00	27137	449.0 -> 99.0	45.0	15.5	75.5

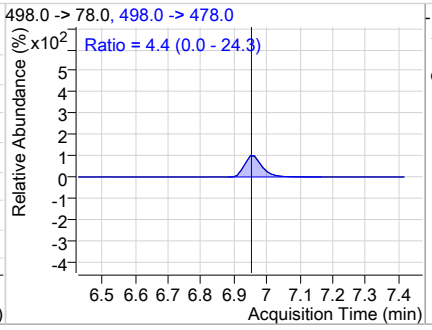


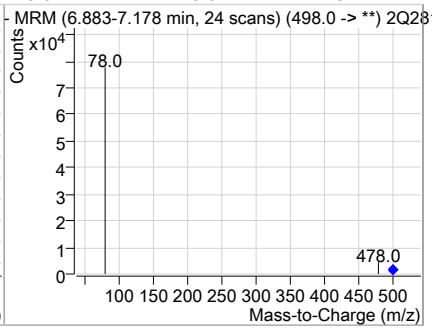




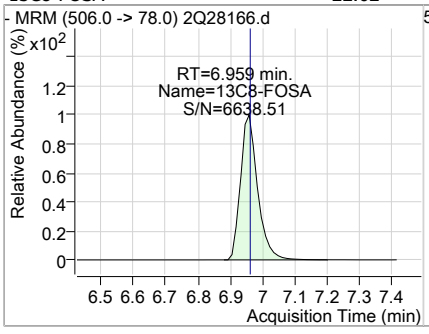
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.48	6.95	0.00	59416	498.0 -> 478.0	4.4	0.0	24.3

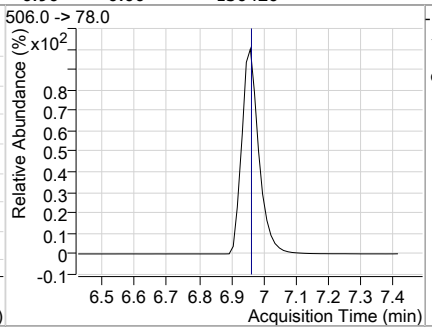


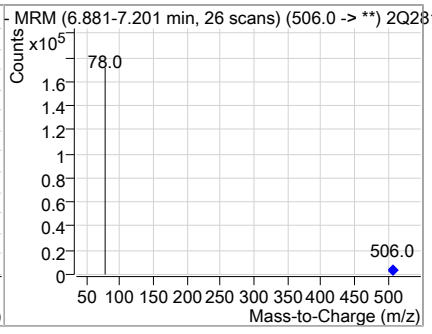




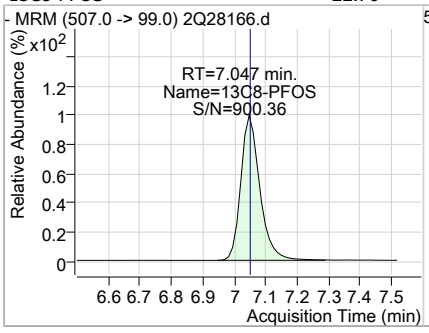
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	22.62	6.96	0.00	130426				

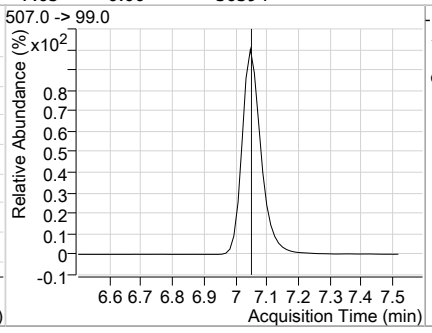


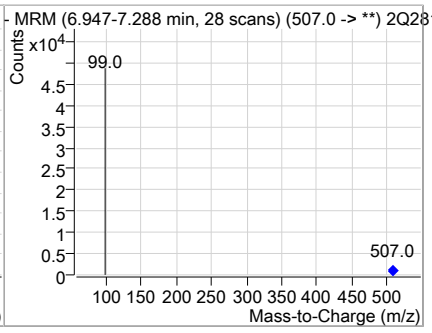




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	22.70	7.05	0.00	36394				



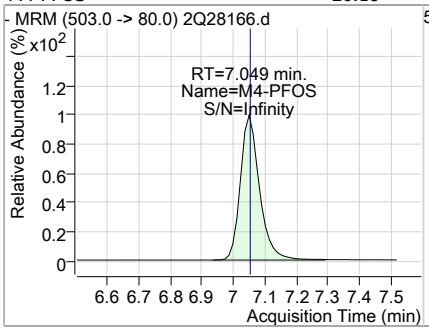


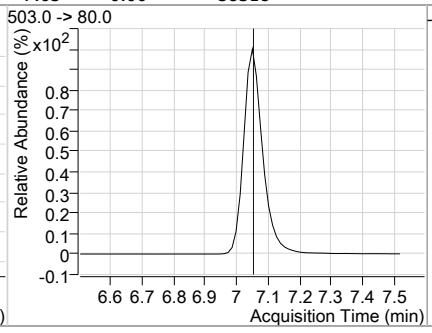


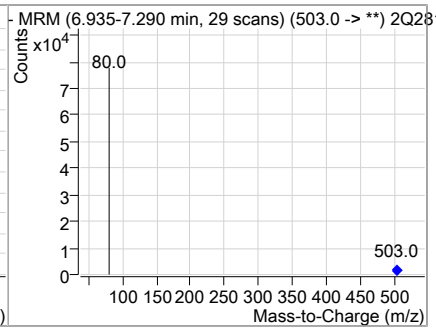
7.6.23

Perfluorinated Compounds by LC/MS/MS

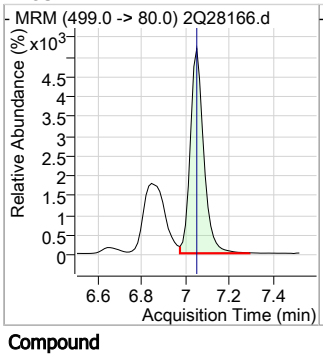
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.18	7.05	0.00	58318				

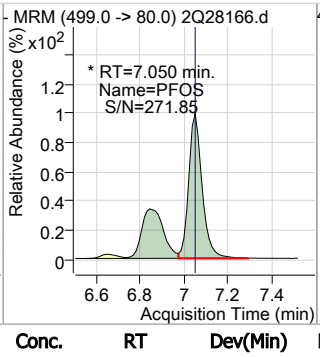


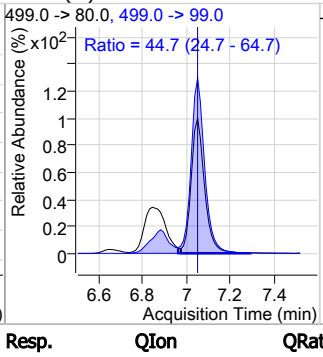


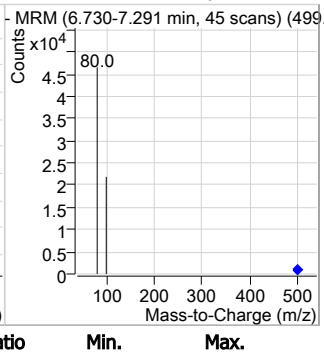


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.59	7.05	0.00	34160 (m)	499.0 -> 99.0	44.7	24.7	64.7

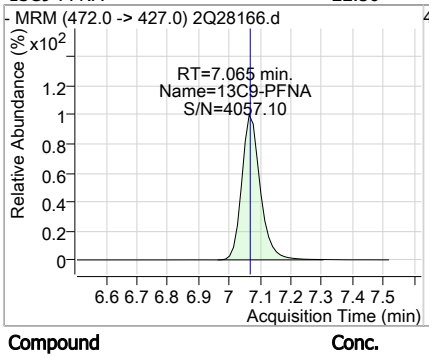


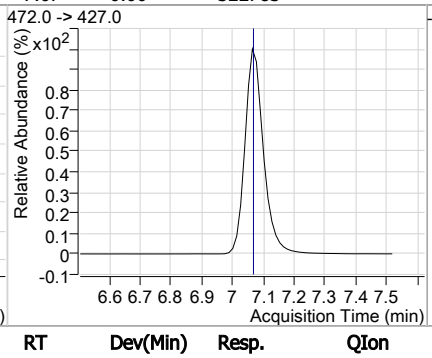


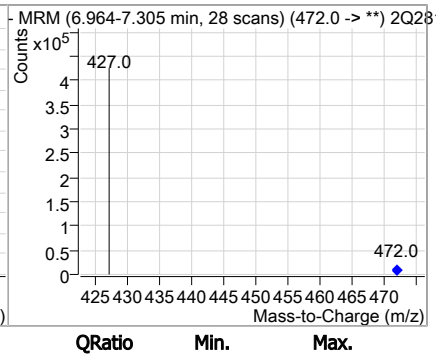




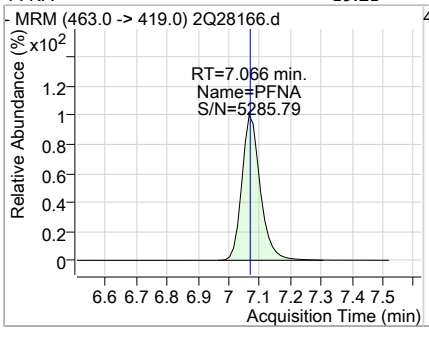
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	22.56	7.07	0.00	322783				

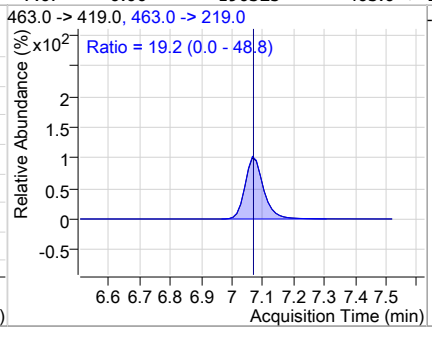


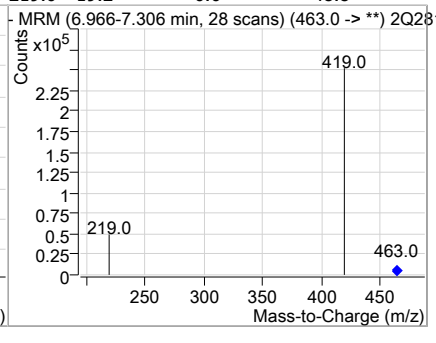




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.21	7.07	0.00	190325	463.0 -> 219.0	19.2	0.0	48.8







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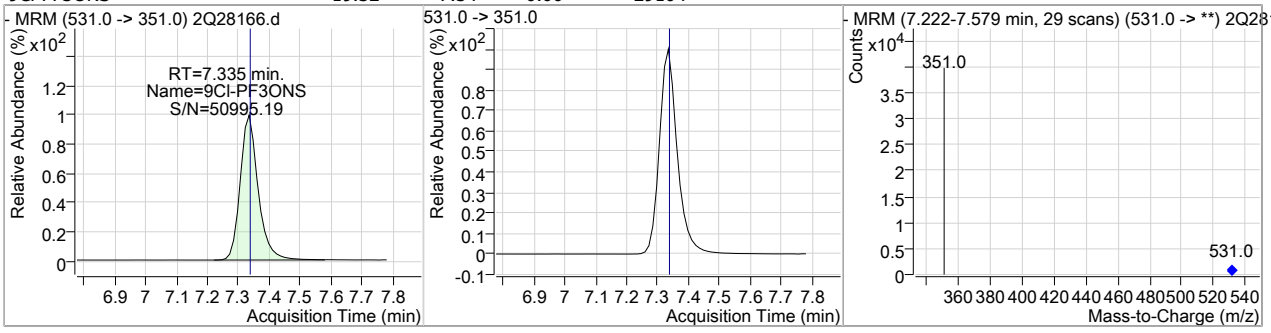
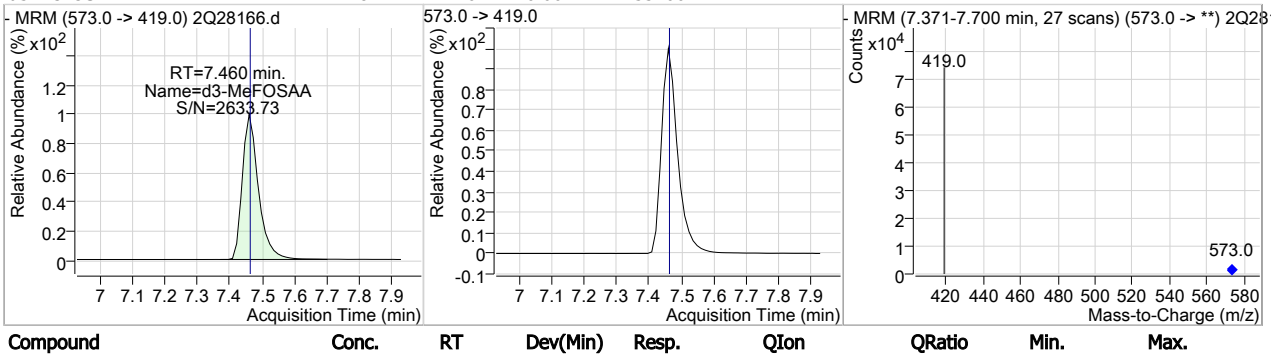
Perfluorinated Compounds by LC/MS/MS

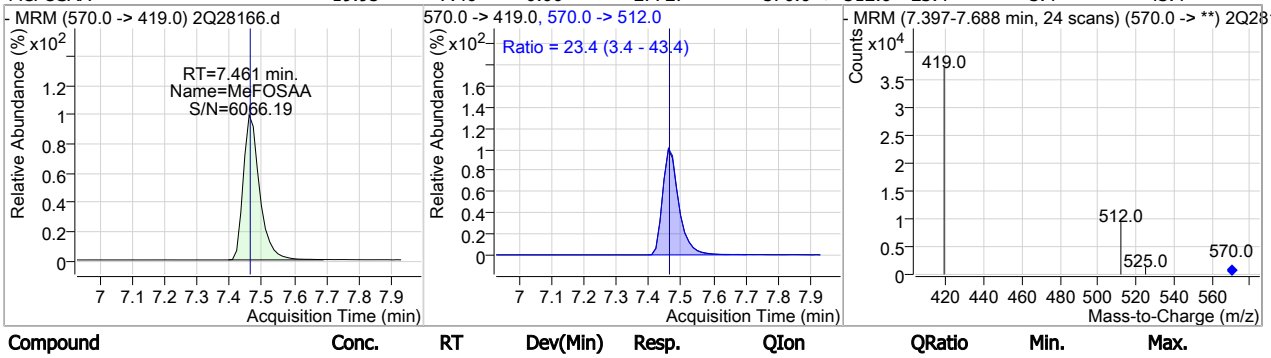
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.32	7.34	0.00	29104				



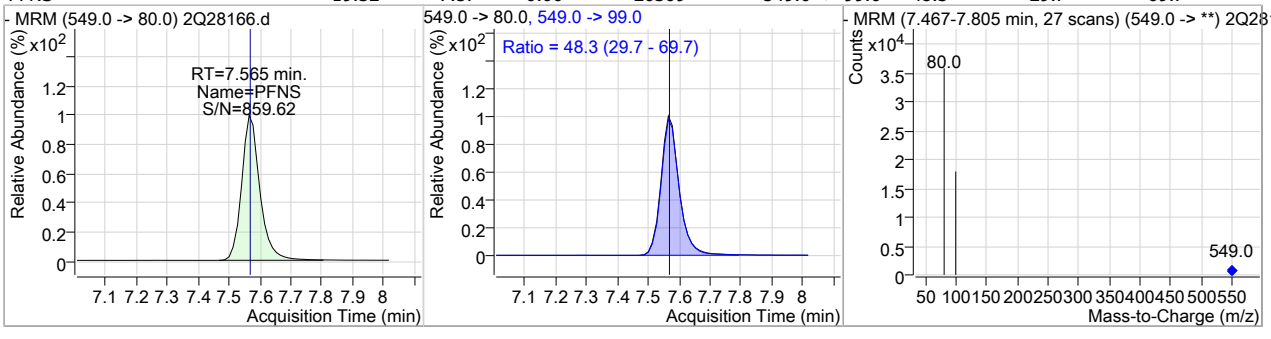
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	22.84	7.46	0.00	55100				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.95	7.46	0.00	27727	570.0 -> 512.0	23.4	3.4	43.4



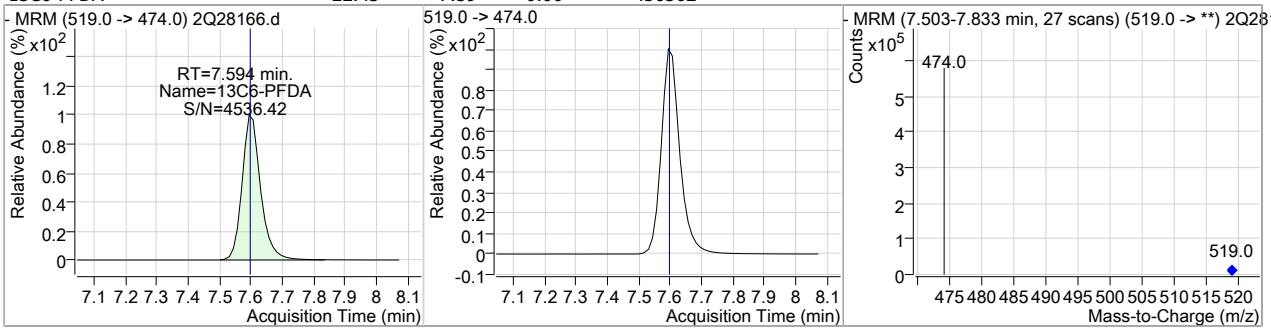
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	19.32	7.57	0.00	26309	549.0 -> 99.0	48.3	29.7	69.7



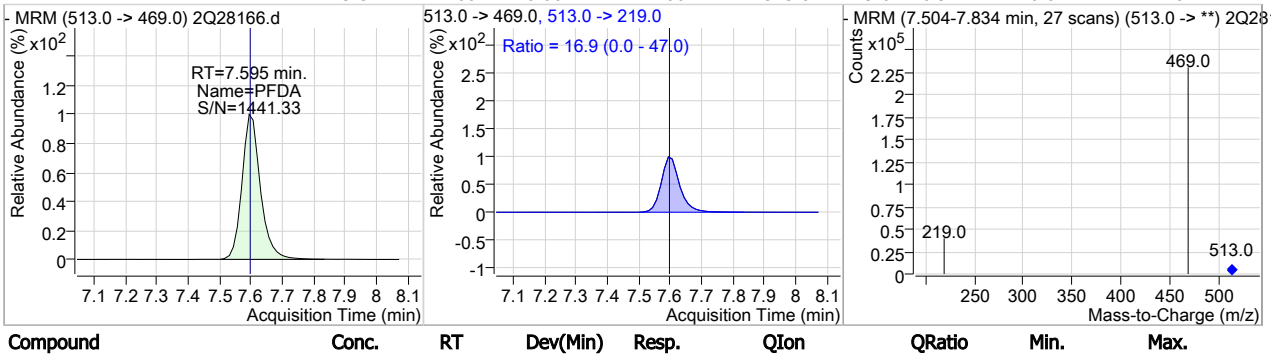
7.6.23

Perfluorinated Compounds by LC/MS/MS

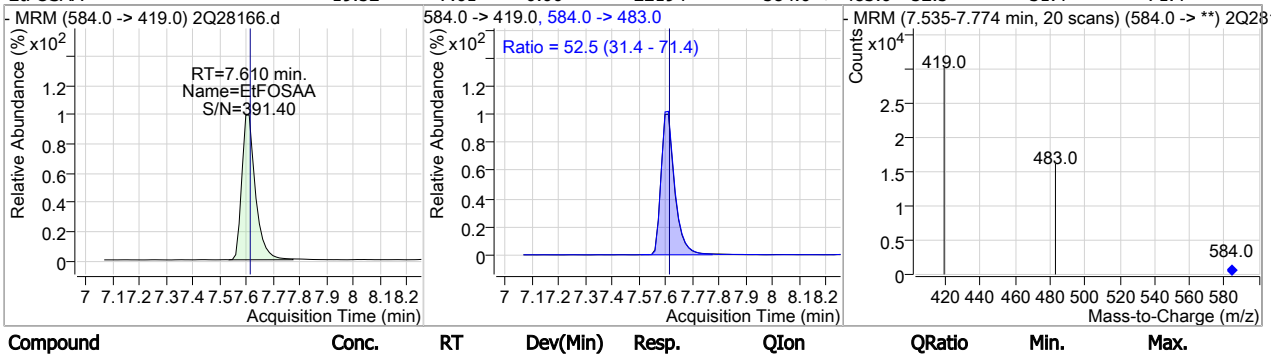
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	22.43	7.59	0.00	436562				



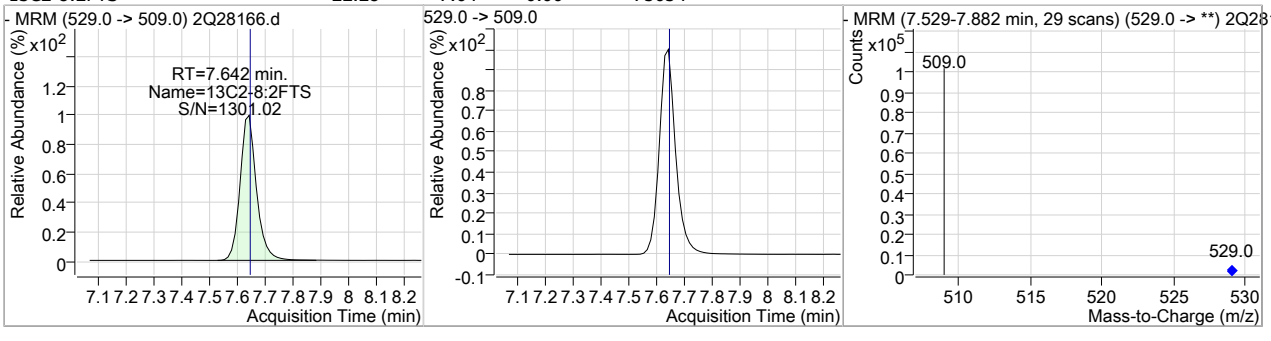
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.32	7.60	0.00	172007	513.0 -> 219.0	16.9	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.52	7.61	0.00	22194	584.0 -> 483.0	52.5	31.4	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	22.28	7.64	0.00	75054				



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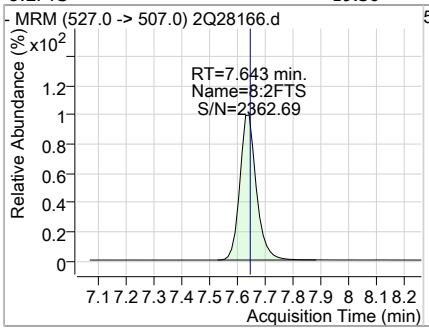
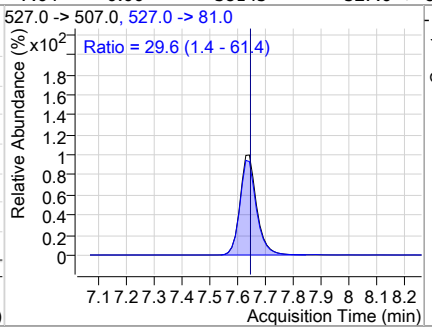
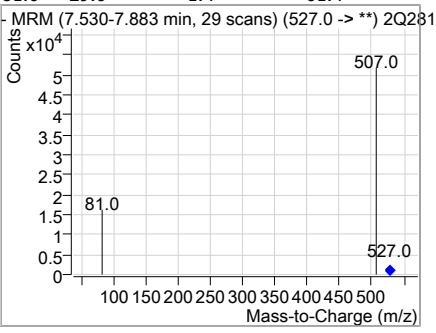
Perfluorinated Compounds by LC/MS/MS

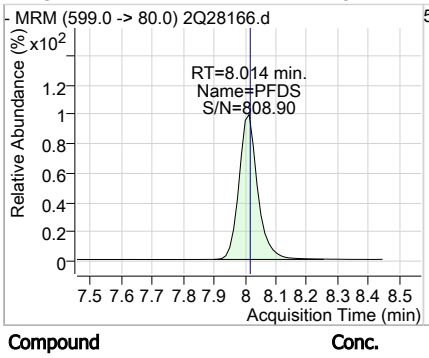
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.36	7.64	0.00	38145	527.0 -> 81.0	29.6	1.4	61.4

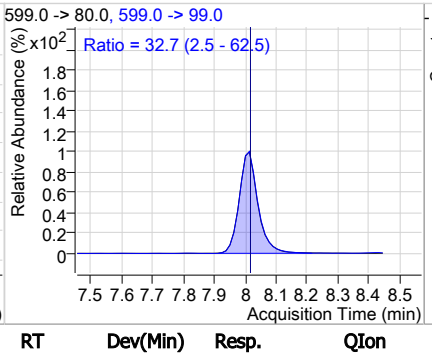


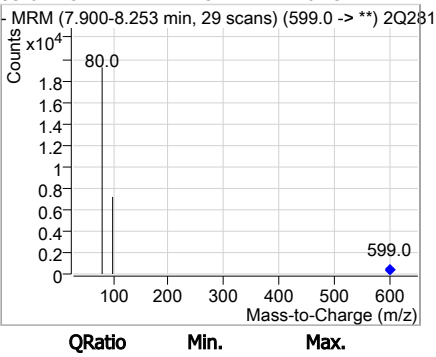




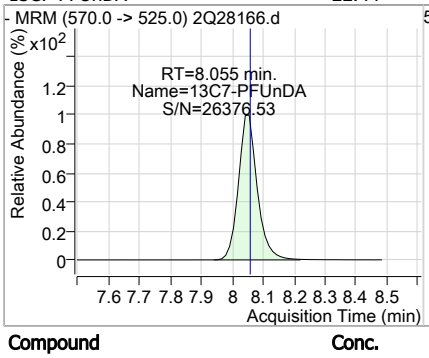
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.72	8.01	0.00	13602	599.0 -> 99.0	32.7	2.5	62.5

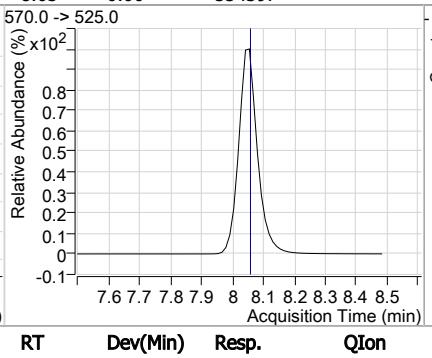


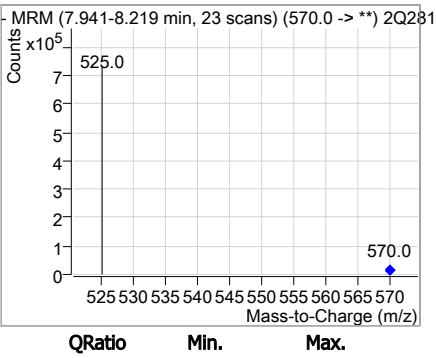




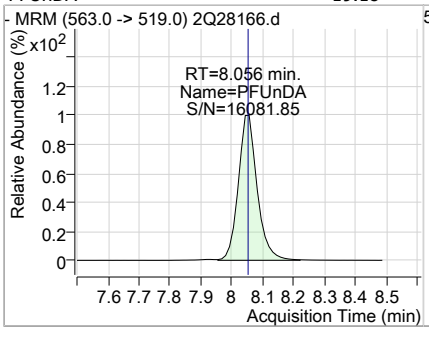
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	22.44	8.05	0.00	554397				

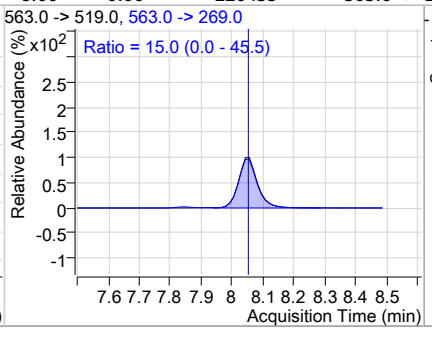


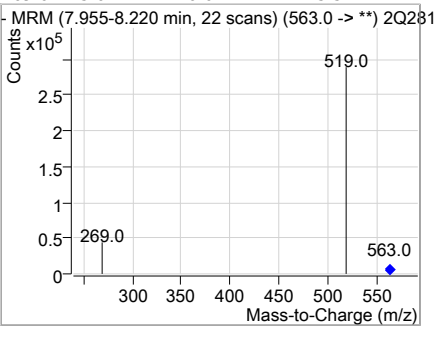




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.18	8.06	0.00	220435	563.0 -> 269.0	15.0	0.0	45.5







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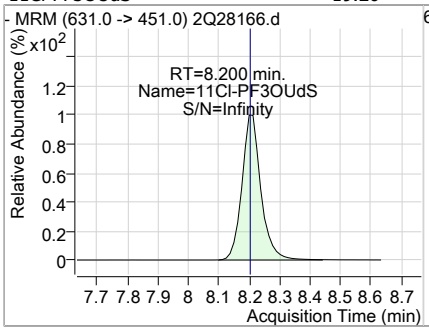
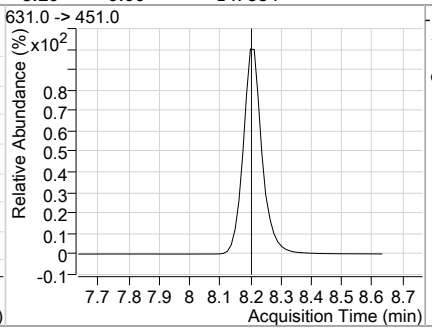
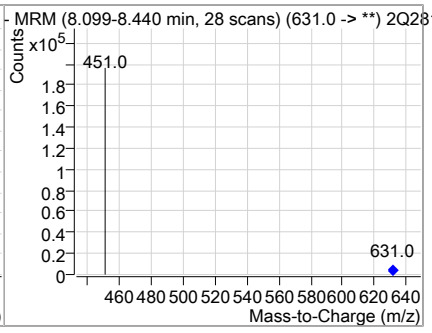
Perfluorinated Compounds by LC/MS/MS

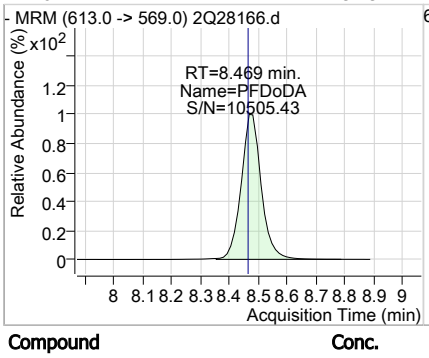
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.26	8.20	0.00	147884				

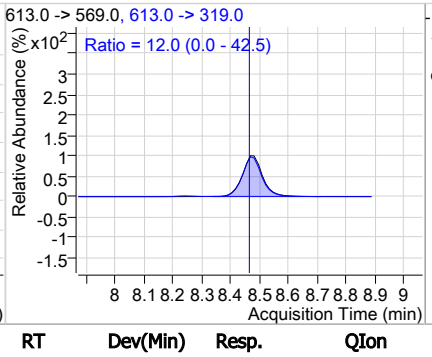


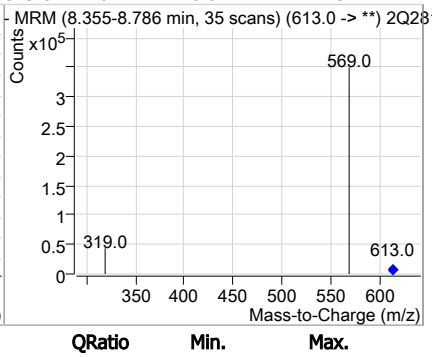




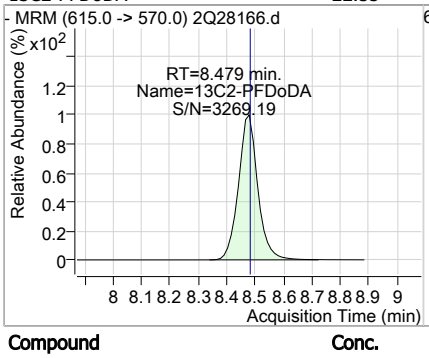
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.19	8.47	0.00	272773	613.0 -> 319.0	12.0	0.0	42.5

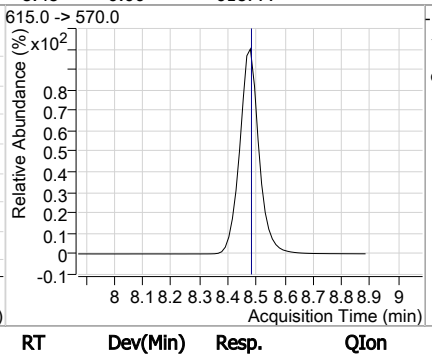


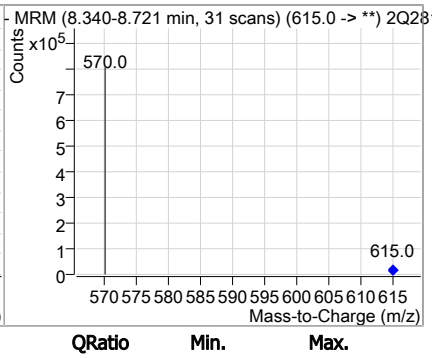




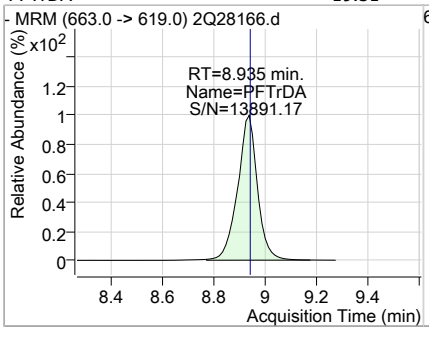
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	22.55	8.48	0.00	618777				

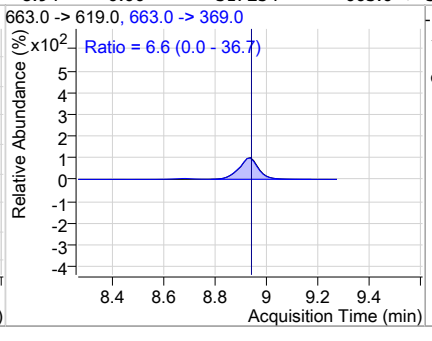


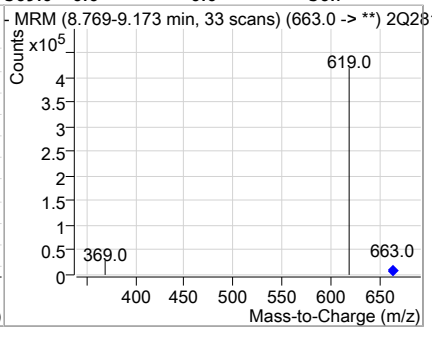




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.51	8.94	0.00	317254	663.0 -> 369.0	6.6	0.0	36.7







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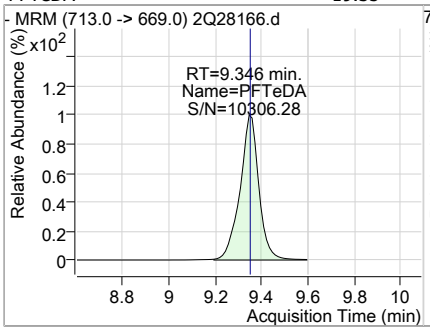
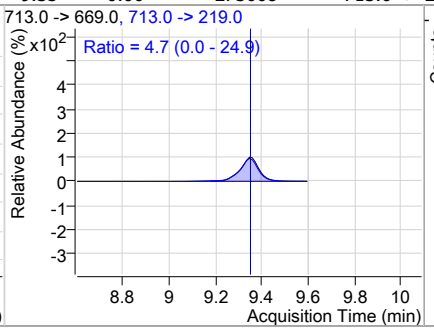
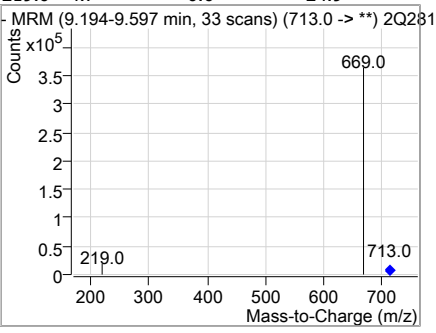
Perfluorinated Compounds by LC/MS/MS

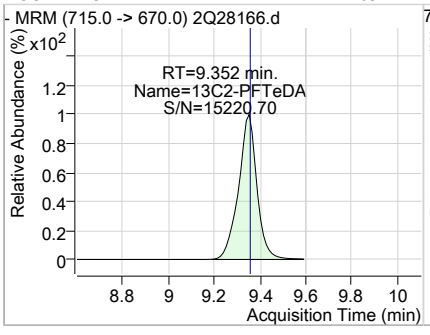
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.35	9.35	0.00	273608	713.0 -> 219.0	4.7	0.0	24.9

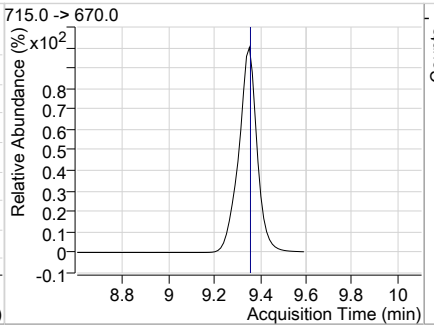


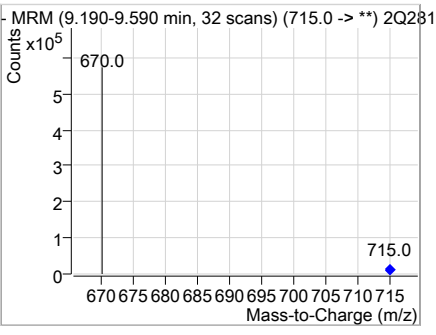




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	22.69	9.35	0.00	428621				







7.6.23

7

Manual Integration Approval Summary

Sample Number: S2Q449-ICC449 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28166.D **Analyst approved:** 03/27/19 13:46 Natasha Gumtie
Injection Time: 03/26/19 16:17 **Supervisor approved:** 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Cal Report: 2Q28167.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28167.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 4:36:16 PM
Sample Name : ic449-50
Vial : Vial 8
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

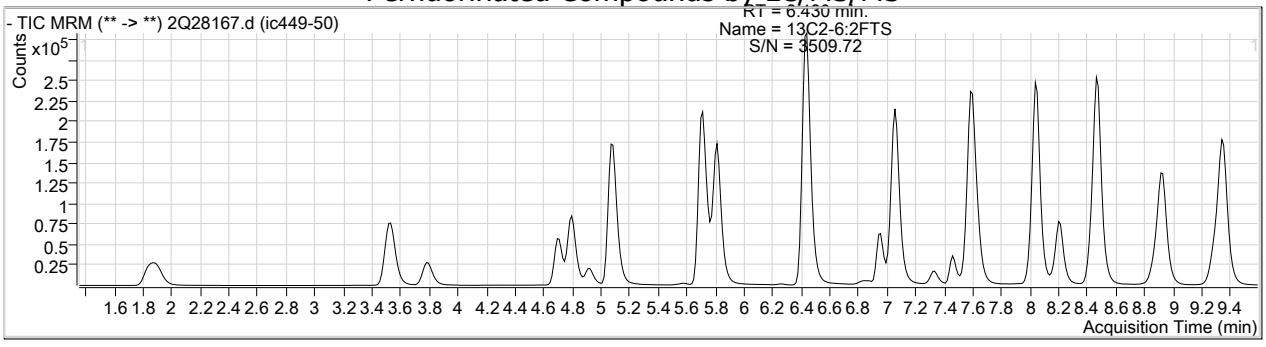
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
Internal Standards					
13C2-PFOA	6.448	415.0 -> 370.0	322359	20.00 µg/L	0.000
13C4-PFOS	7.049	503.0 -> 80.0	50233	20.00 µg/L	0.000
M4-PFBA	1.877	217.0 -> 172.0	147194	20.00 µg/L	0.013
M5-PFPeA	3.536	268.0 -> 223.0	125985	20.00 µg/L	0.000
M5-PFHxA	4.801	318.0 -> 273.0	181209	20.00 µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	253408	20.00 µg/L	0.000
M8-PFOA	6.446	421.0 -> 376.0	257144	20.00 µg/L	0.000
M9-PFNA	7.065	472.0 -> 427.0	268358	20.00 µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	358106	20.00 µg/L	0.000
M7-PFUnDA	8.042	570.0 -> 525.0	462073	20.00 µg/L	-0.013
M2-PFDoDA	8.466	615.0 -> 570.0	526286	20.00 µg/L	-0.013
M2-PFTeDA	9.352	715.0 -> 670.0	367690	20.00 µg/L	0.000
M8-FOSA	6.959	506.0 -> 78.0	104497	20.00 µg/L	0.000
M3-PFBS	3.792	302.0 -> 99.0	21563	20.00 µg/L	0.000
M3-PFHxS	5.748	402.0 -> 99.0	23258	20.00 µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	30215	20.00 µg/L	0.000
M2-4:2FTS	4.709	329.0 -> 309.0	85594	20.00 µg/L	0.013
M2-6:2FTS	6.430	429.0 -> 409.0	91074	20.00 µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	69190	20.00 µg/L	-0.013
M3-MeFOSAA	7.460	573.0 -> 419.0	46035	20.00 µg/L	0.000
M3-HFPO-DA	5.081	287.0 -> 169.0	159360	100.00 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	4.709	329.0 -> 309.0	85334	20.66 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C2-6:2FTS	6.430	429.0 -> 409.0	91054	20.05 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C2-8:2FTS	7.630	529.0 -> 509.0	69194	20.54 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C2-PFDoDA	8.466	615.0 -> 570.0	526578	19.19 µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C2-PFTeDA	9.352	715.0 -> 670.0	367682	19.47 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C3-PFBS	3.792	302.0 -> 99.0	21495	19.10 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%	
13C3-PFHxS	5.748	402.0 -> 99.0	23226	18.91 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C4-PFBA	1.877	217.0 -> 172.0	146431	18.97 µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C4-PFHpA	5.717	367.0 -> 322.0	253022	19.03 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%	
13C5-PFHxA	4.801	318.0 -> 273.0	180999	19.18 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C5-PFPeA	3.536	268.0 -> 223.0	125983	19.20 µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.0%	
13C6-PFDA	7.594	519.0 -> 474.0	358156	18.40 µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

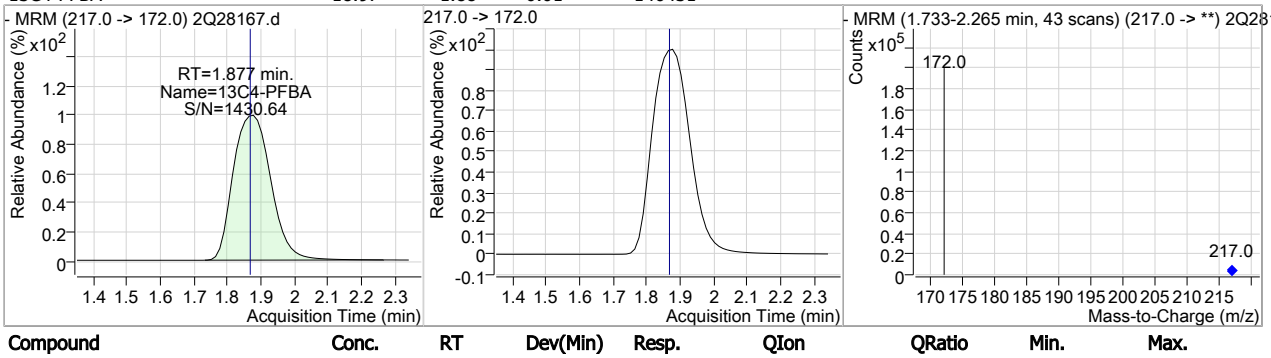
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.0%		
13C7-PFUnDA	8.042	570.0 -> 525.0	462363	18.71 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
13C8-FOSA	6.959	506.0 -> 78.0	104518	18.13 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.6%		
13C8-PFOA	6.446	421.0 -> 376.0	257230	18.58 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C8-PFOS	7.047	507.0 -> 99.0	30444	18.99 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C9-PFNA	7.065	472.0 -> 427.0	267940	18.73 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
d3-MeFOSAA	7.460	573.0 -> 419.0	46074	19.10 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%		
M2-PFOA	6.448	415.0 -> 370.0	323607	20.05 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
M4-PFOS	7.049	503.0 -> 80.0	50256	20.13 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	159360	91.03 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 91.0%		
Target Compounds						QValue
4:2FTS	4.699	327.0 -> 307.0	114228	45.95 µg/L		98
6:2FTS	6.432	427.0 -> 407.0	106170	45.61 µg/L		97
8:2FTS	7.631	527.0 -> 507.0	83259	45.85 µg/L		96
EtFOSAA	7.598	584.0 -> 419.0	47461	50.23 µg/L		98
FOSA	6.950	498.0 -> 78.0	124579	50.38 µg/L		99
MeFOSAA	7.461	570.0 -> 419.0	59736	50.01 µg/L		100
PFBA	1.873	213.0 -> 169.0	69990	49.61 µg/L		100
PFBS	3.783	299.0 -> 80.0	86593	49.67 µg/L		99
PFDA	7.595	513.0 -> 469.0	367096	50.29 µg/L		99
PFDoDA	8.469	613.0 -> 569.0	601111	49.81 µg/L		99
PFDS	8.001	599.0 -> 80.0	28562	49.77 µg/L		98
PFHpA	5.720	363.0 -> 319.0	556101	49.43 µg/L		100
PFHpS	6.454	449.0 -> 80.0	59448	51.13 µg/L		98
PFHxA	4.803	313.0 -> 269.0	148392	50.02 µg/L		99
PFHxS	5.751	399.0 -> 80.0	66173	49.51 µg/L	m	99
PFNA	7.066	463.0 -> 419.0	410935	49.95 µg/L		99
PFNS	7.565	549.0 -> 80.0	56742	50.07 µg/L		97
PFOA	6.449	413.0 -> 369.0	338714	49.43 µg/L		99
PFOS	7.050	499.0 -> 80.0	74706	48.85 µg/L	m	99
PFPeA	3.540	263.0 -> 219.0	276251	49.50 µg/L		100
PFPeS	4.920	349.0 -> 80.0	58260	50.50 µg/L		97
PFTeDA	9.346	713.0 -> 669.0	604846	49.87 µg/L		99
PFTrDA	8.923	663.0 -> 619.0	697474	50.01 µg/L		100
PFUnDA	8.043	563.0 -> 519.0	471919	49.24 µg/L		99
11Cl-PF3OUdS	8.200	631.0 -> 451.0	322840	49.52 µg/L		100
9Cl-PF3ONS	7.335	531.0 -> 351.0	64996	50.61 µg/L		100
ADONA	5.816	377.0 -> 251.0	654777	50.28 µg/L		100
HFPO-DA	5.085	329.0 -> 169.0	491460	253.96 µg/L		99

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

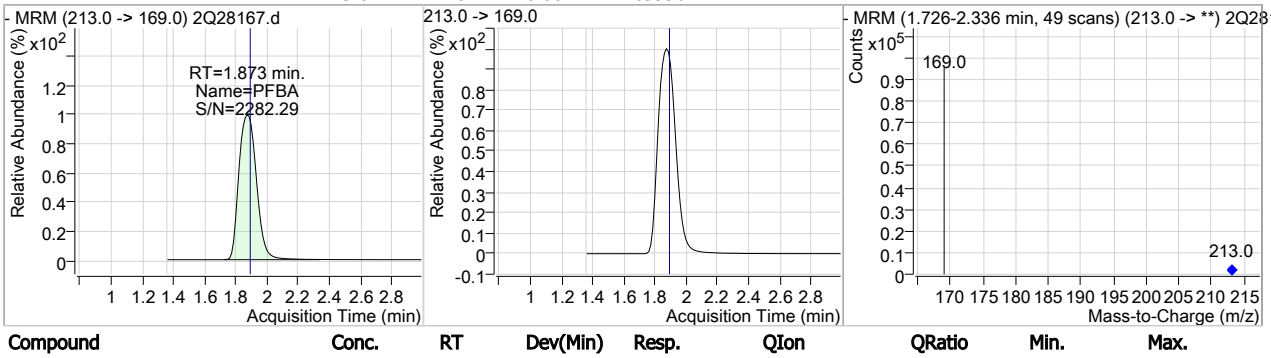
Perfluorinated Compounds by LC/MS/MS



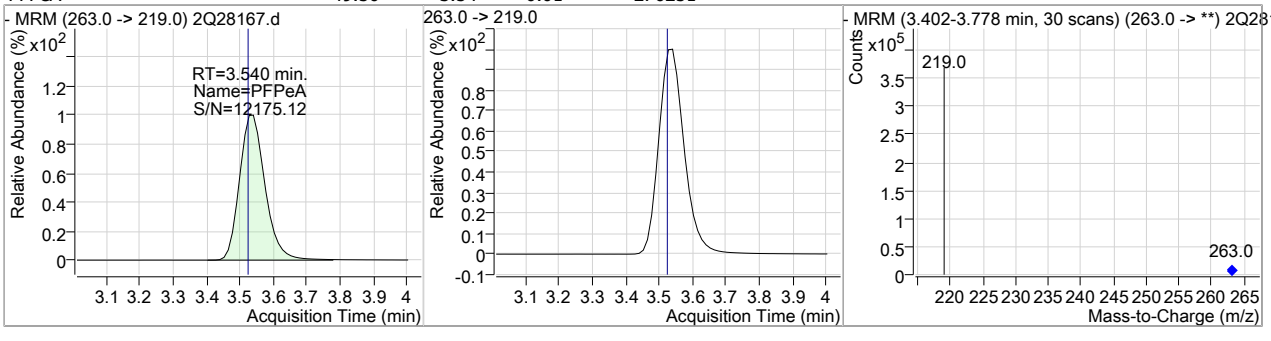
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.97	1.88	0.01	146431				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	49.61	1.87	0.00	69990				

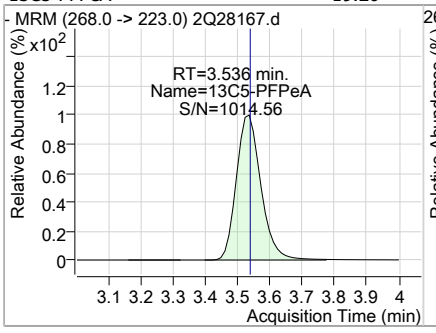


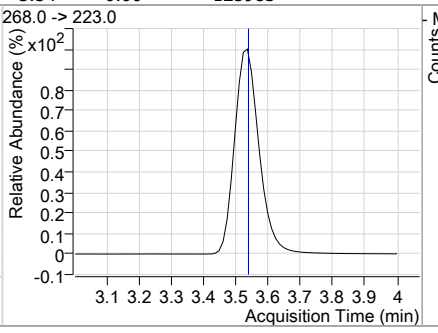
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.50	3.54	0.01	276251				

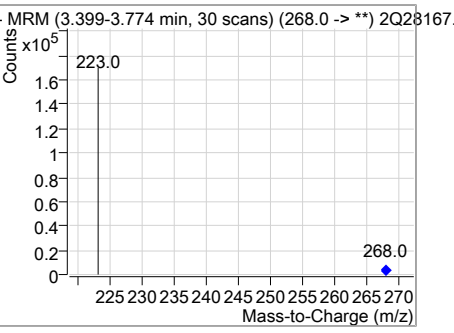


Perfluorinated Compounds by LC/MS/MS

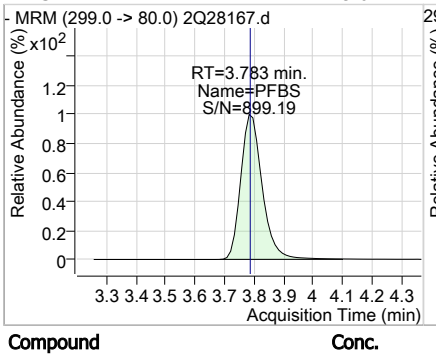
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.20	3.54	0.00	125983				

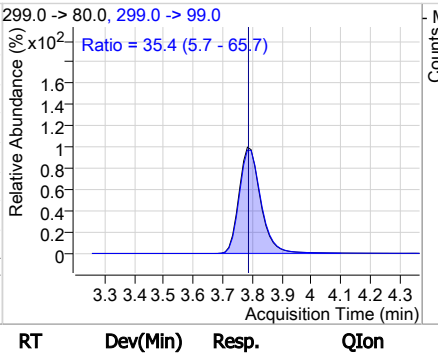


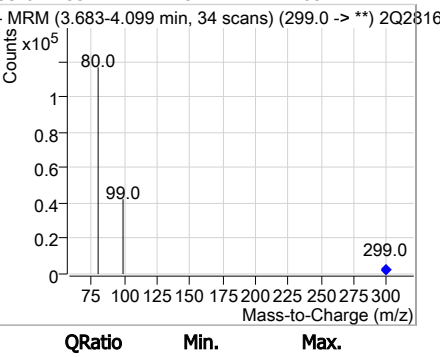




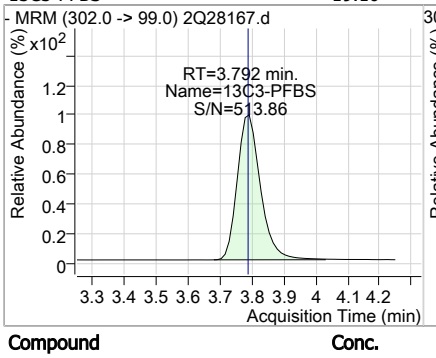
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	49.67	3.78	0.00	86593	299.0 -> 99.0	35.4	5.7	65.7

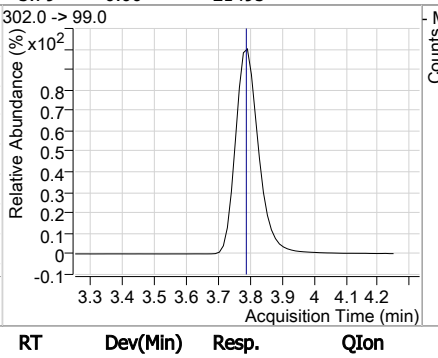


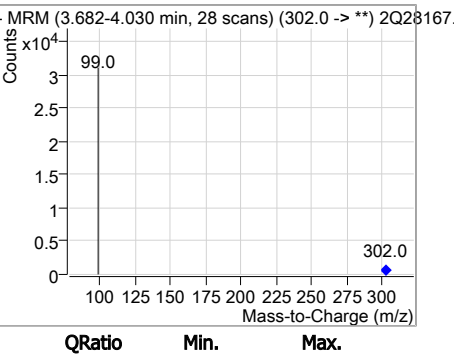




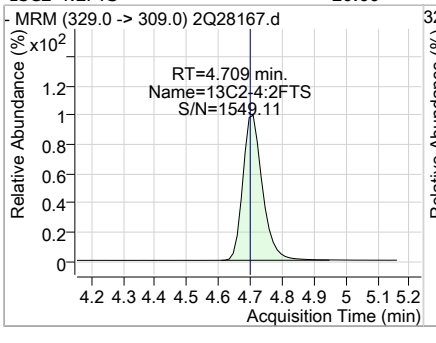
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.10	3.79	0.00	21495				

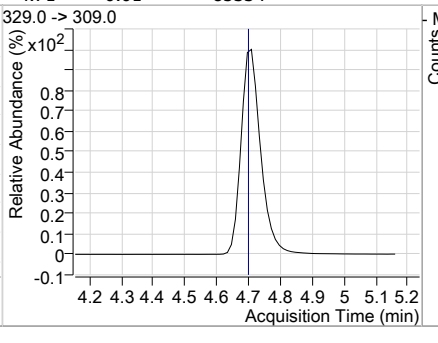


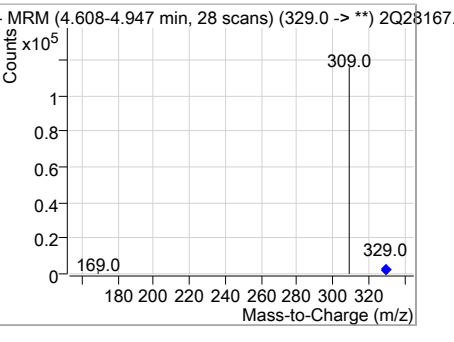




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.66	4.71	0.01	85334				

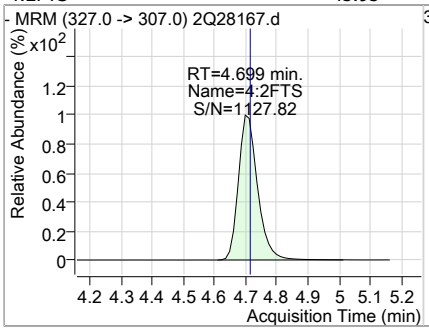


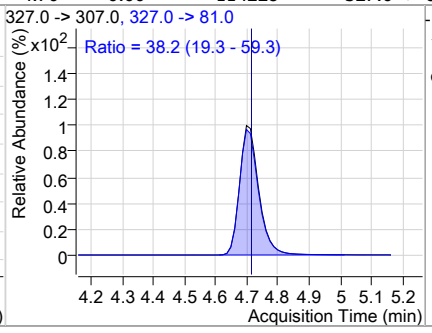


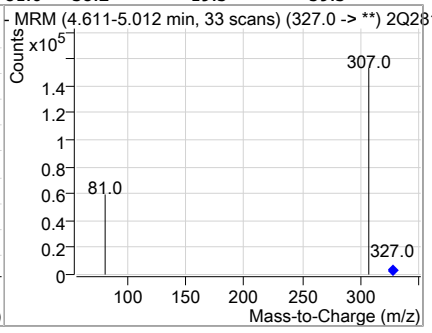


Perfluorinated Compounds by LC/MS/MS

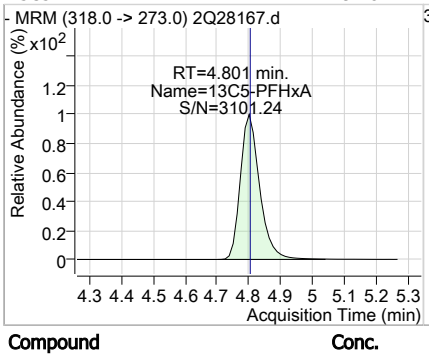
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	45.95	4.70	0.00	114228	327.0 -> 81.0	38.2	19.3	59.3

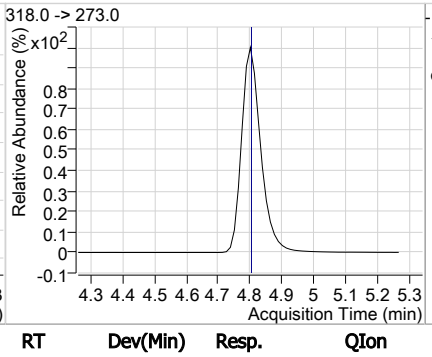


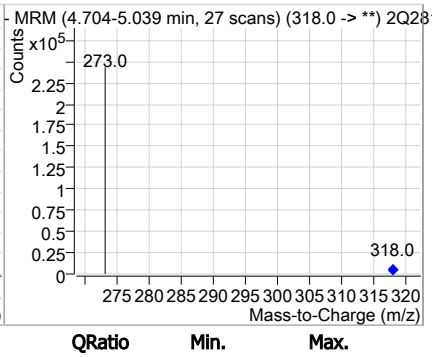




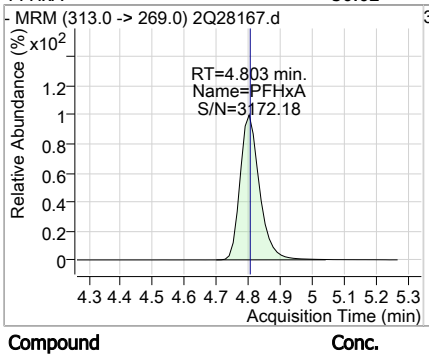
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.18	4.80	0.00	180999				

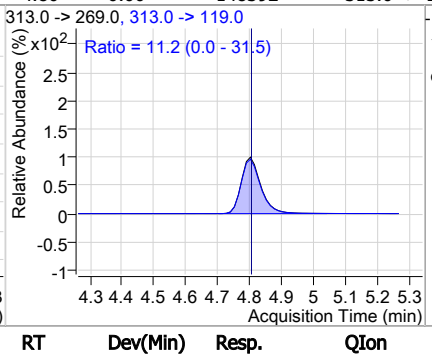


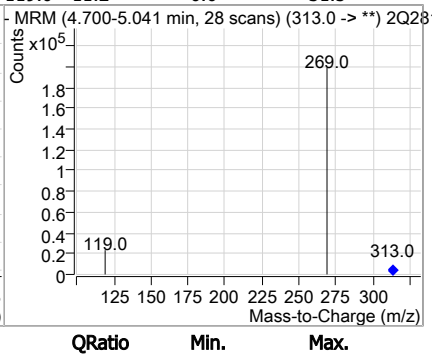




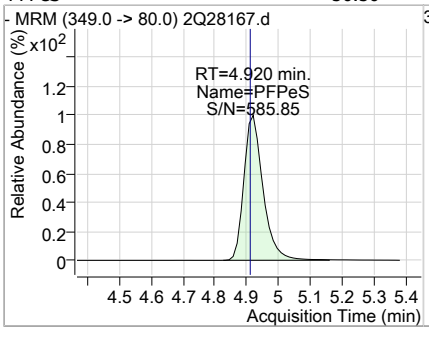
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	50.02	4.80	0.00	148392	313.0 -> 119.0	11.2	0.0	31.5

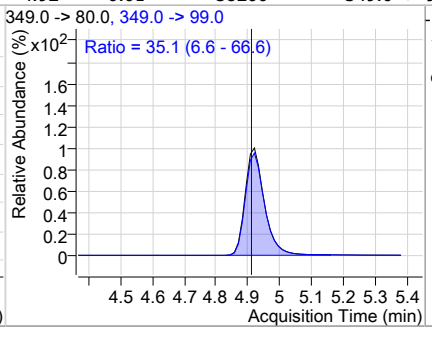


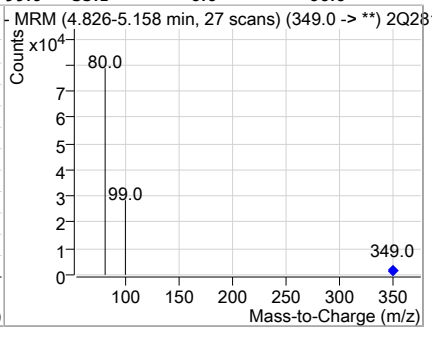




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	50.50	4.92	0.01	58260	349.0 -> 99.0	35.1	6.6	66.6



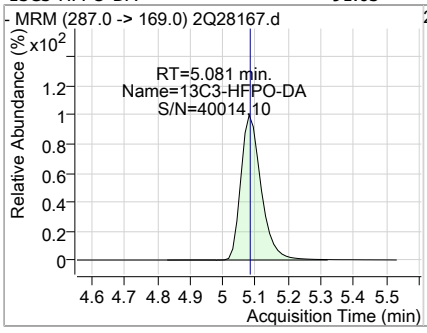


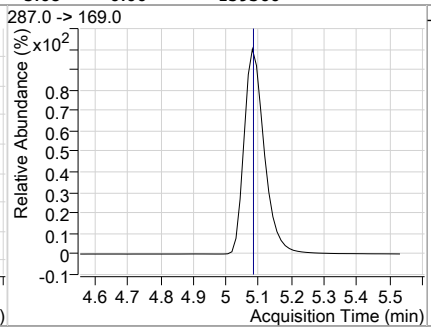


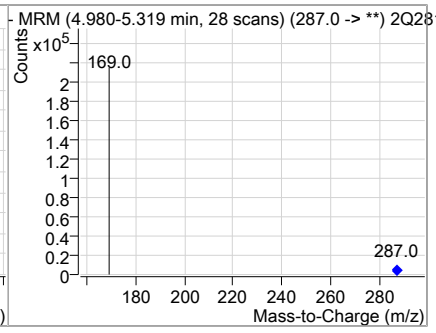
7.6.24

Perfluorinated Compounds by LC/MS/MS

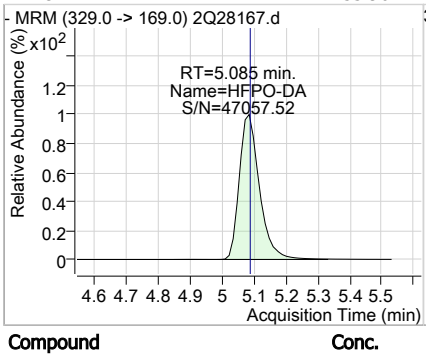
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	91.03	5.08	0.00	159360				

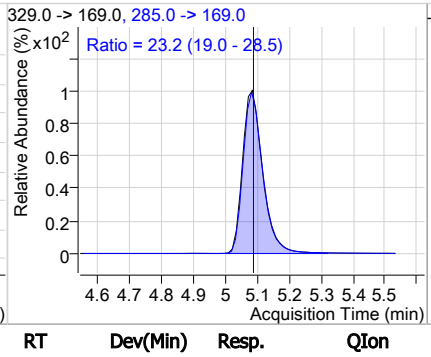


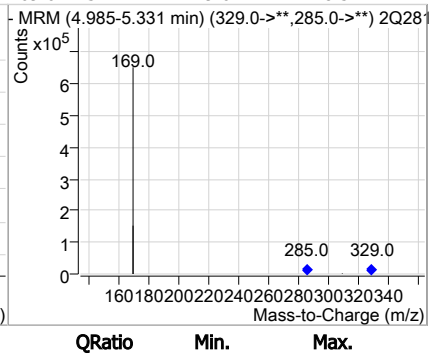




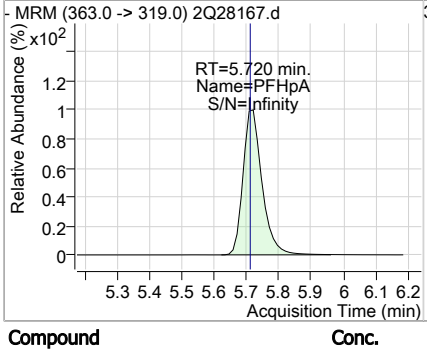
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	253.96	5.09	0.00	491460	285.0 -> 169.0	23.2	19.0	28.5

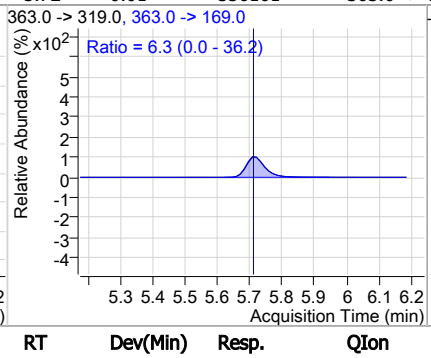


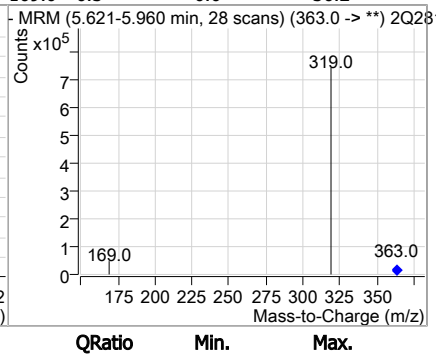




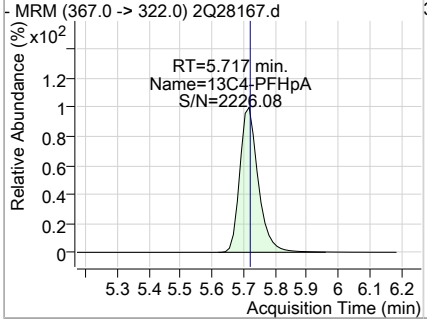
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.43	5.72	0.01	556101	363.0 -> 169.0	6.3	0.0	36.2

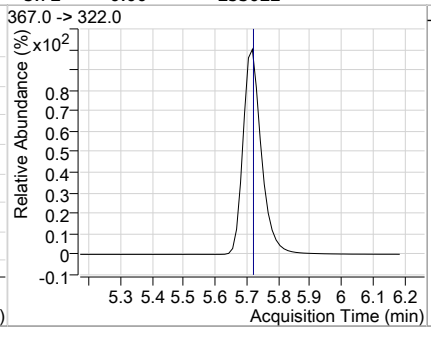


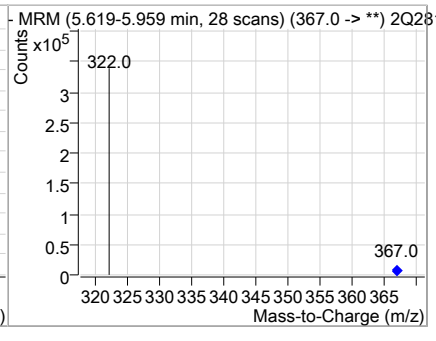




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.03	5.72	0.00	253022				



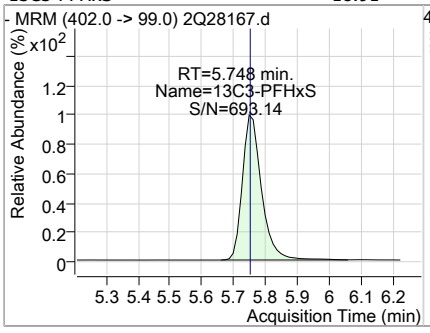


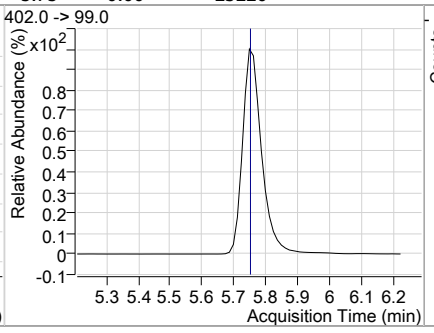


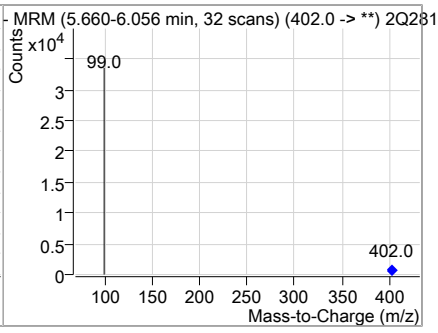
7.6.24

Perfluorinated Compounds by LC/MS/MS

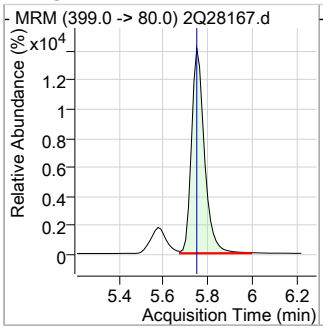
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.91	5.75	0.00	23226				

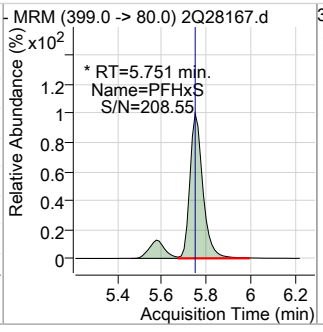


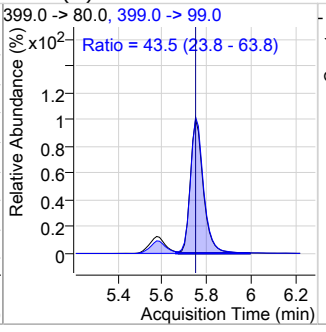


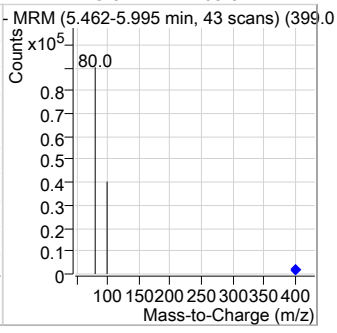


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.51	5.75	0.00	66173 (m)	399.0 -> 99.0	43.5	23.8	63.8

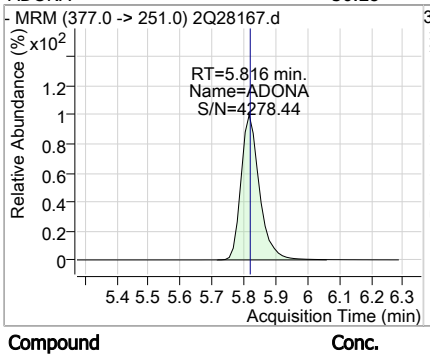


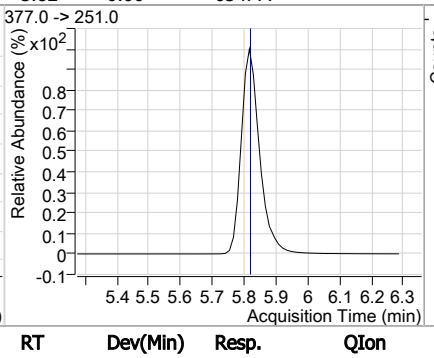


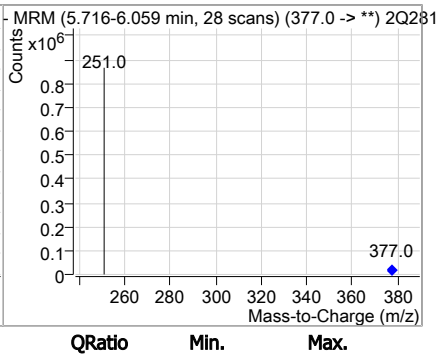




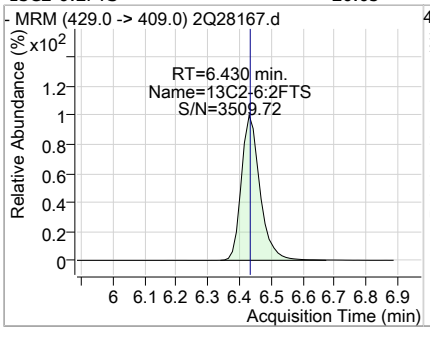
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	50.28	5.82	0.00	654777				

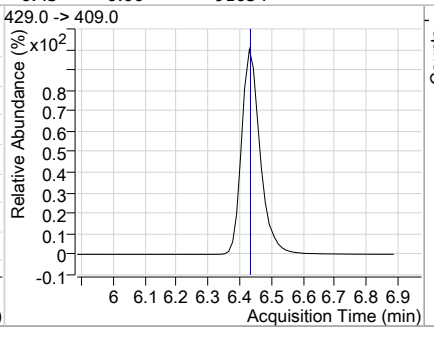


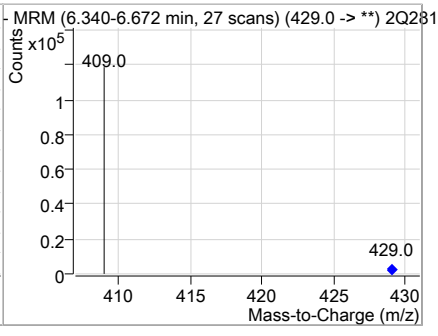




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.05	6.43	0.00	91054				

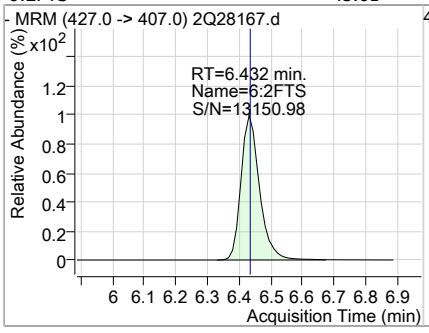


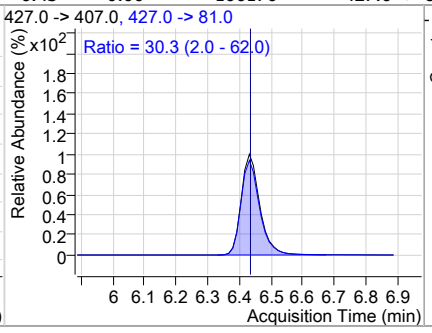


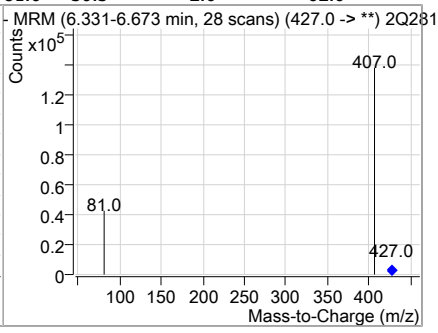


Perfluorinated Compounds by LC/MS/MS

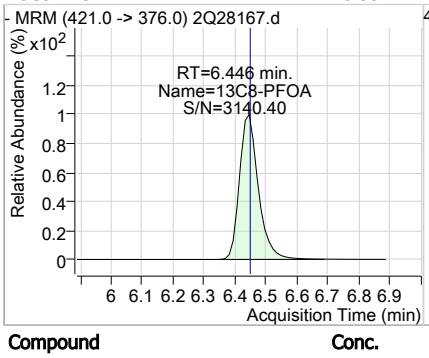
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	45.61	6.43	0.00	106170	427.0 -> 81.0	30.3	2.0	62.0

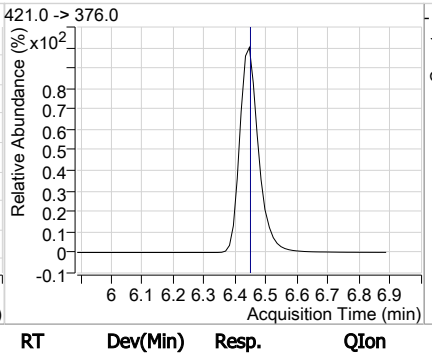


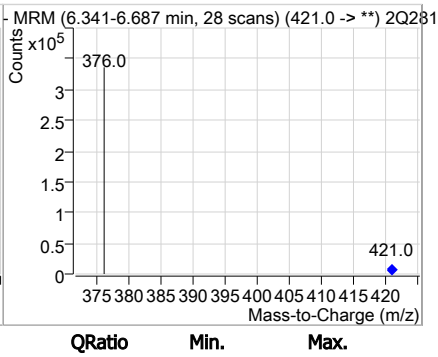




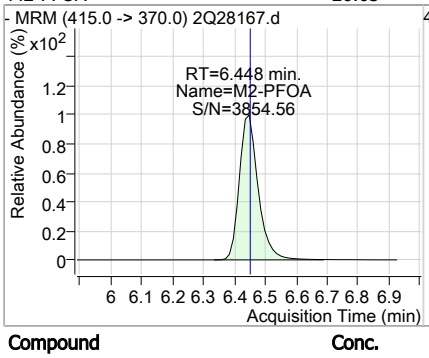
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.58	6.45	0.00	257230				

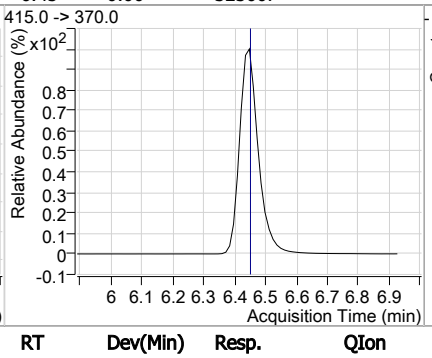


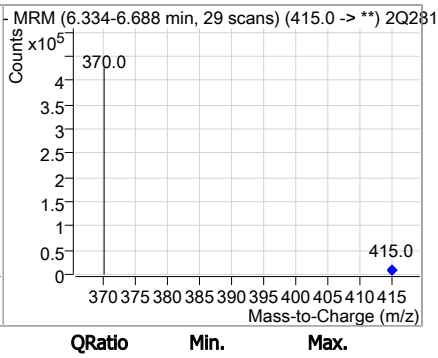




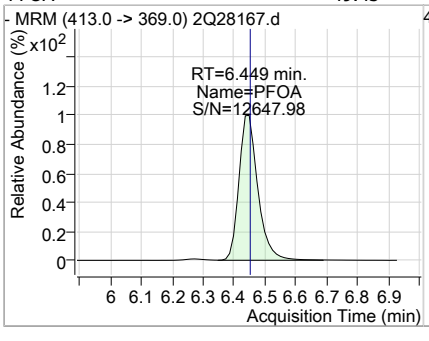
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.05	6.45	0.00	323607				

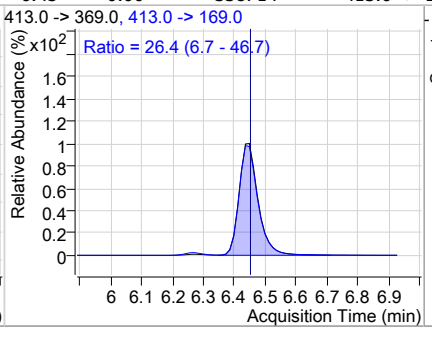


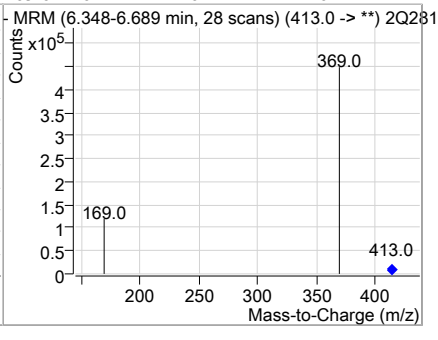




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.43	6.45	0.00	338714	413.0 -> 169.0	26.4	6.7	46.7







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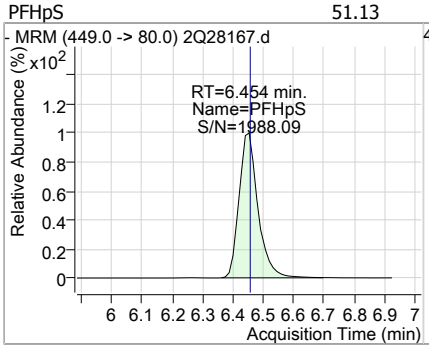
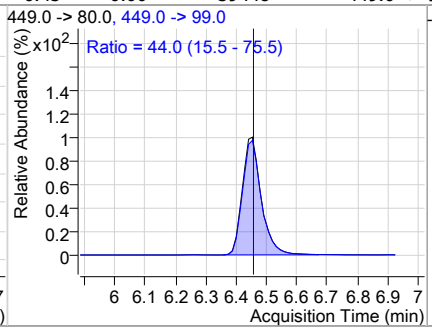
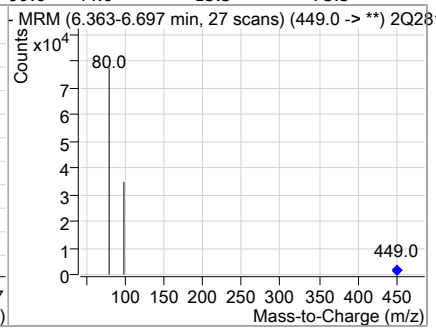
Perfluorinated Compounds by LC/MS/MS

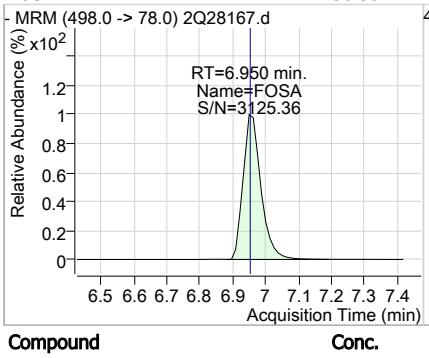
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	51.13	6.45	0.00	59448	449.0 -> 99.0	44.0	15.5	75.5

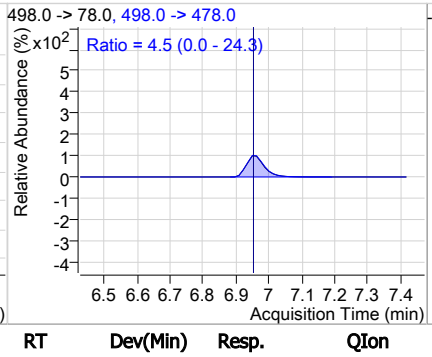


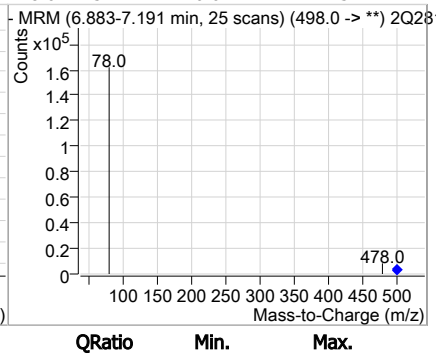




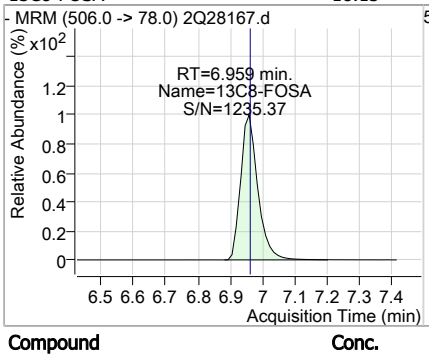
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	50.38	6.95	0.00	124579	498.0 -> 478.0	4.5	0.0	24.3

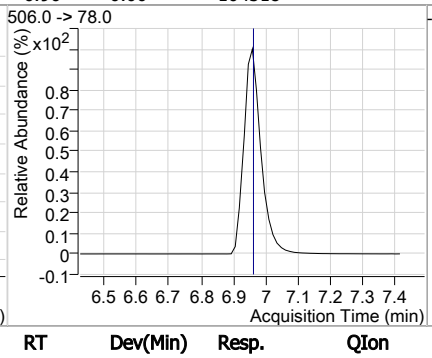


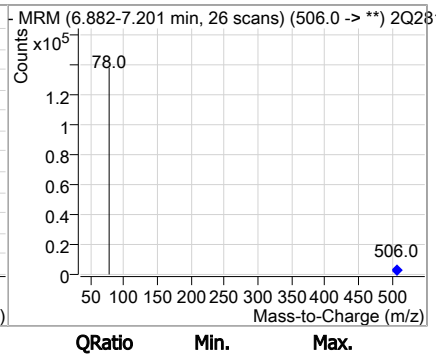




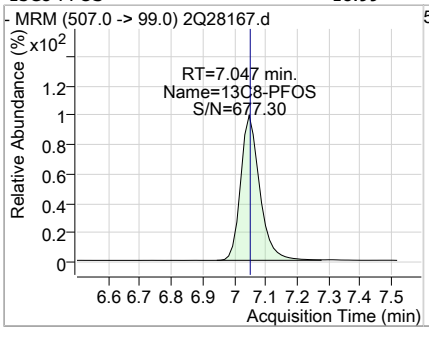
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.13	6.96	0.00	104518				

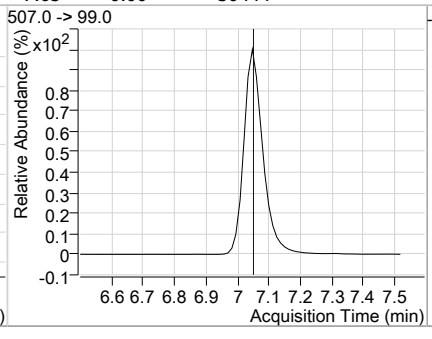


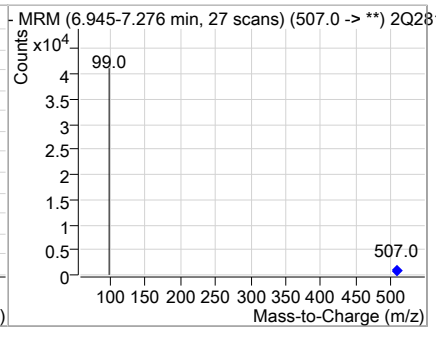




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.99	7.05	0.00	30444				



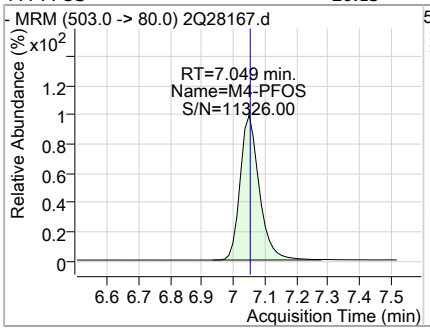


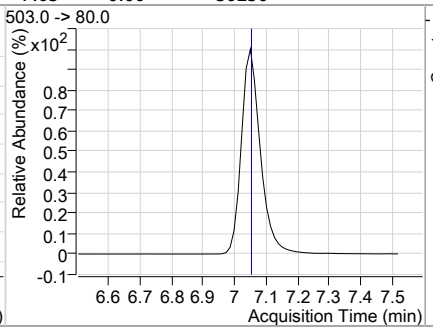


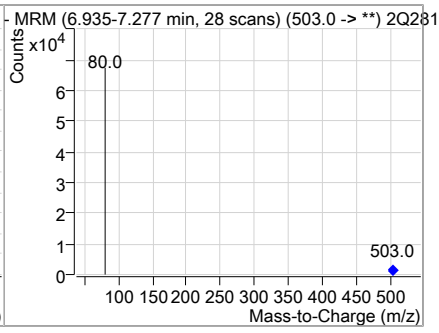
7.6.24

Perfluorinated Compounds by LC/MS/MS

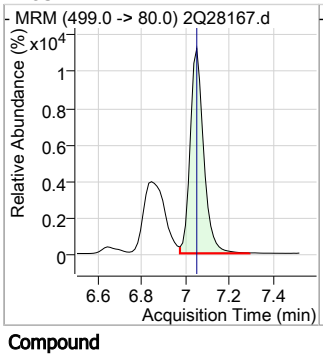
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.13	7.05	0.00	50256				

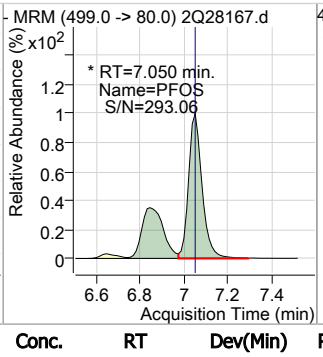


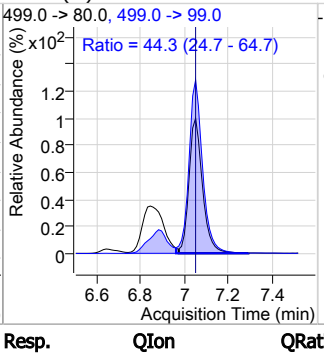


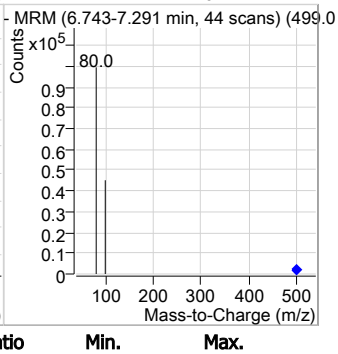


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	48.85	7.05	0.00	74706 (m)	499.0 -> 99.0	44.3	24.7	64.7

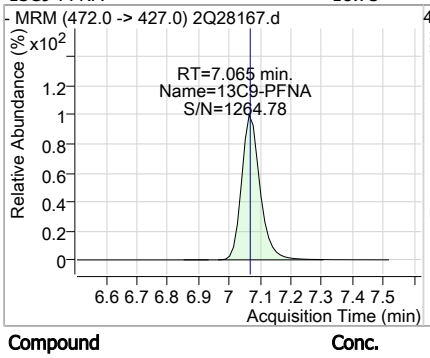


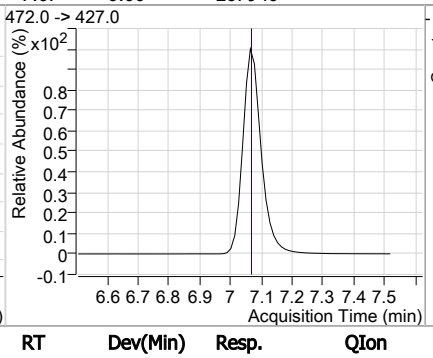


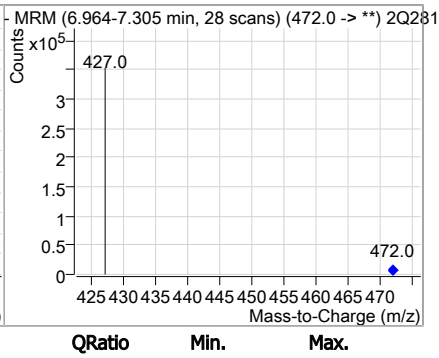




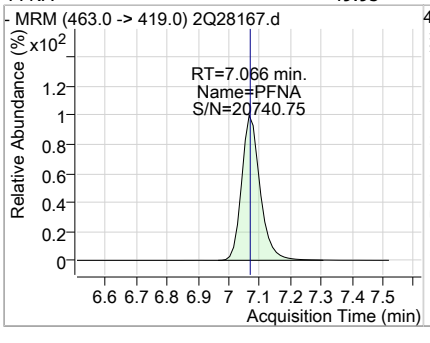
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.73	7.07	0.00	267940				

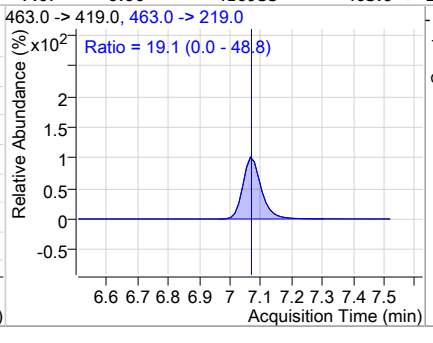


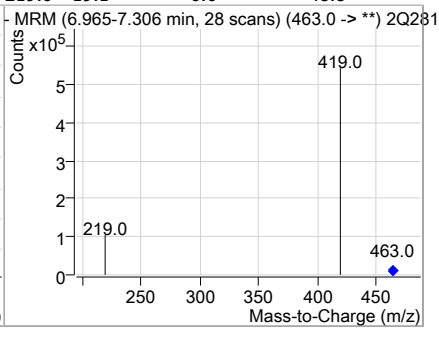




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	49.95	7.07	0.00	410935	463.0 -> 219.0	19.1	0.0	48.8







7.6.24

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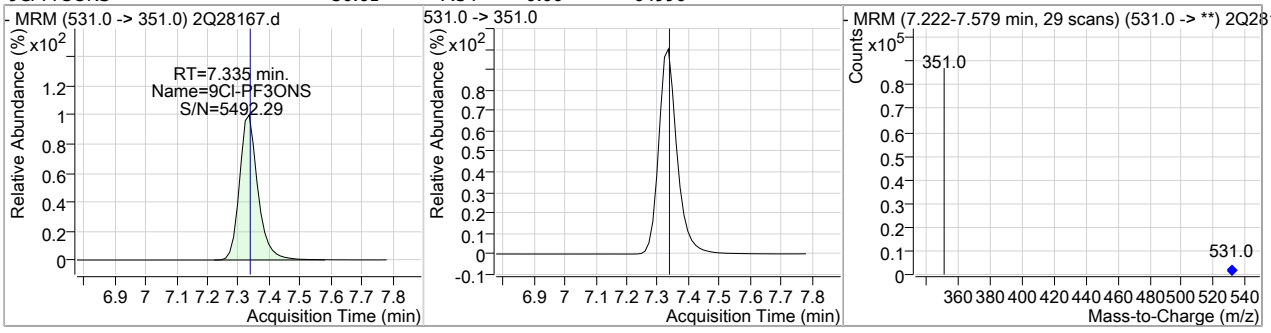
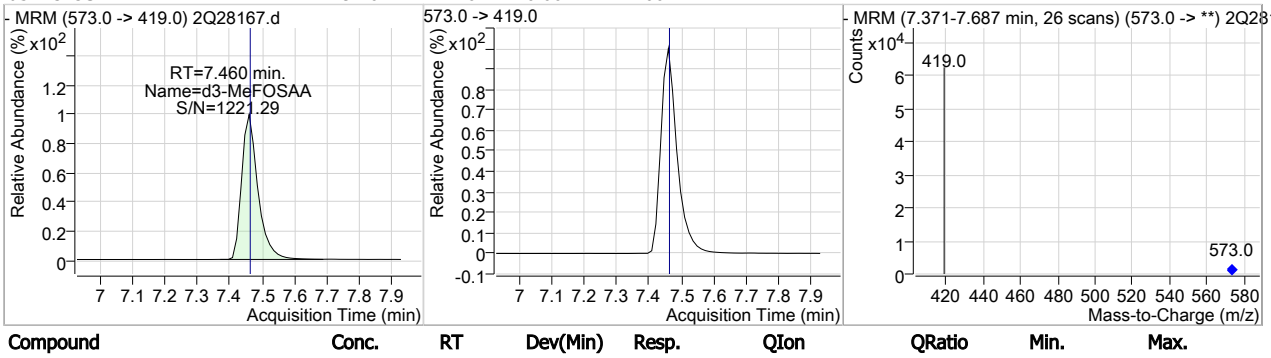
Perfluorinated Compounds by LC/MS/MS

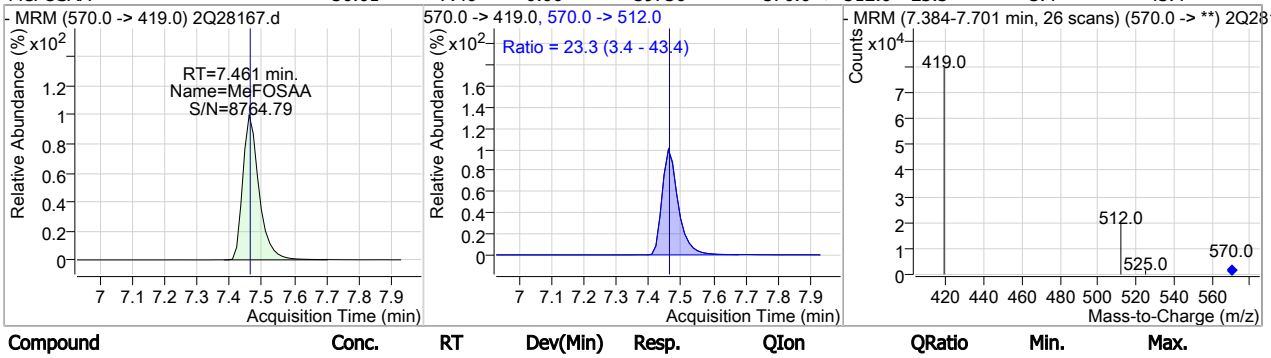
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	50.61	7.34	0.00	64996				



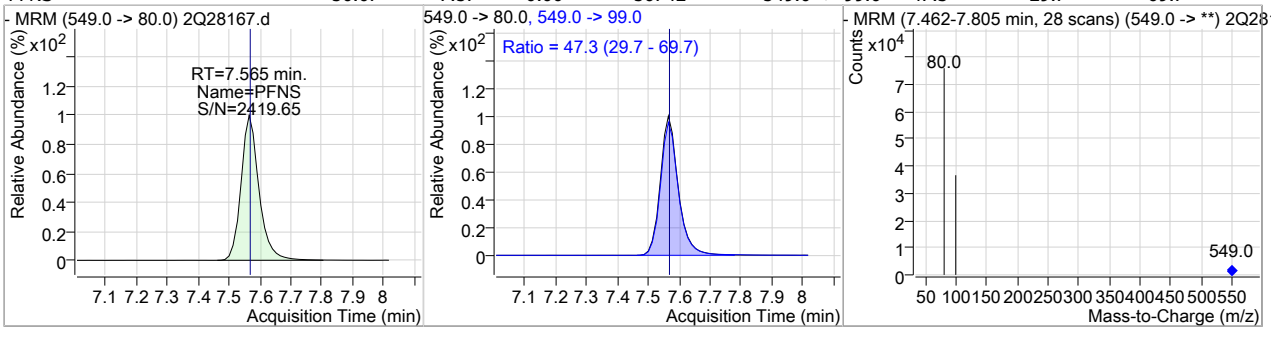
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.10	7.46	0.00	46074				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	50.01	7.46	0.00	59736	570.0 -> 512.0	23.3	3.4	43.4



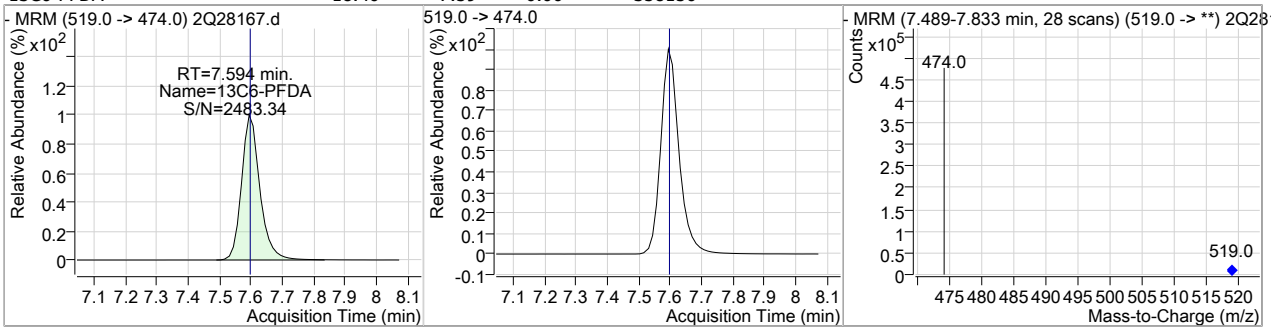
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	50.07	7.57	0.00	56742	549.0 -> 99.0	47.3	29.7	69.7



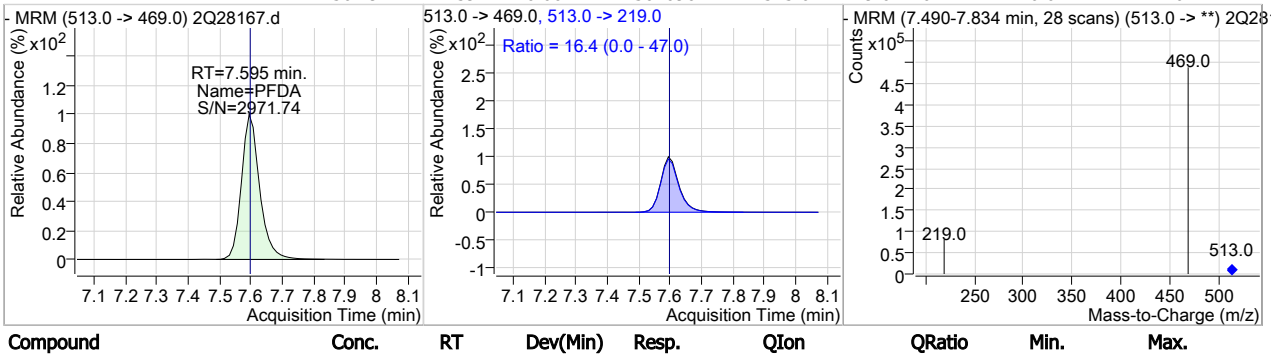
7.6.24

Perfluorinated Compounds by LC/MS/MS

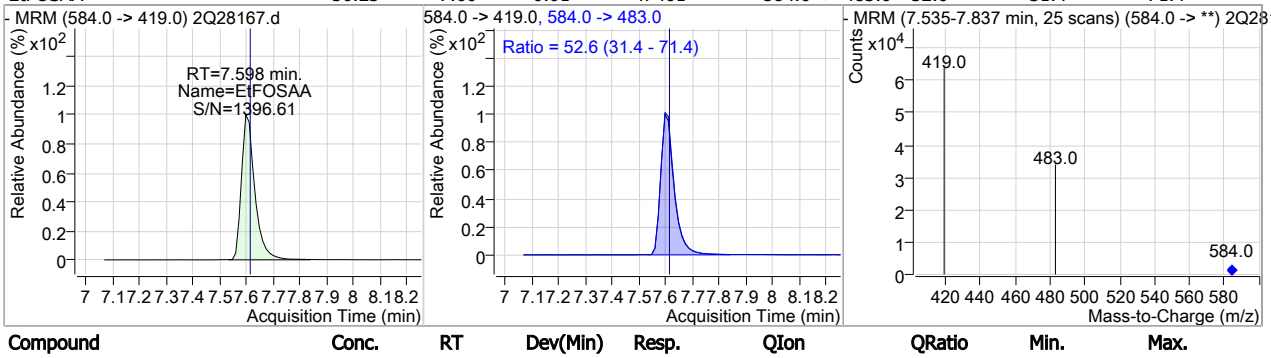
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.40	7.59	0.00	358156				



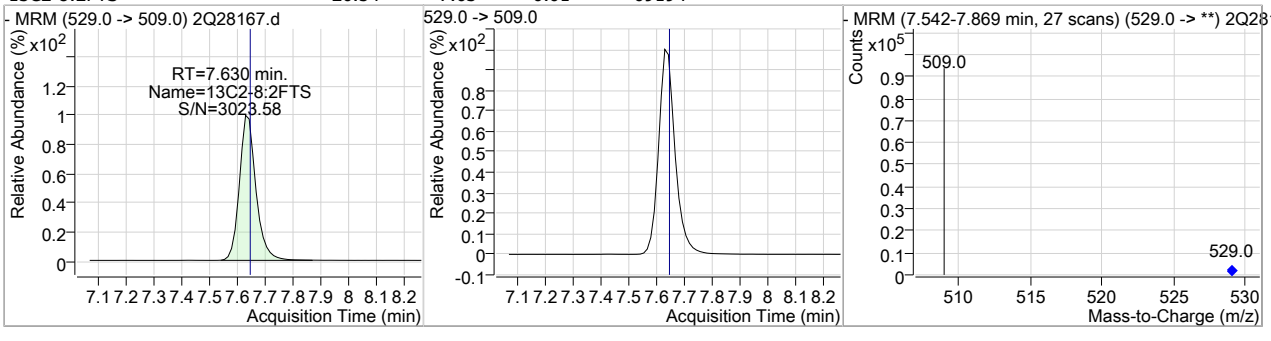
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	50.29	7.59	0.00	367096	513.0 -> 219.0	16.4	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	50.23	7.60	-0.01	47461	584.0 -> 483.0	52.6	31.4	71.4



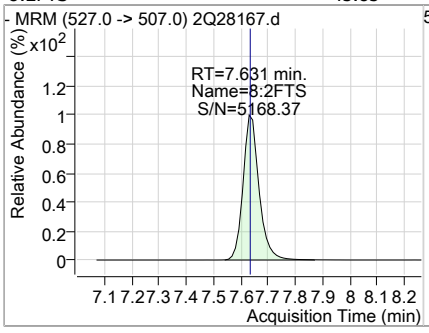
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.54	7.63	-0.01	69194				

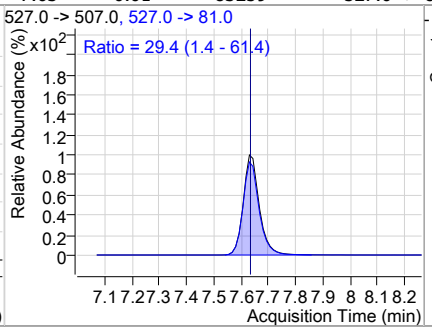


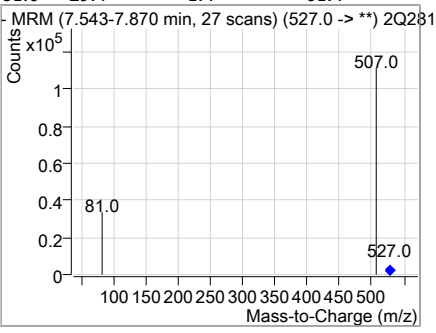
7.6.24

Perfluorinated Compounds by LC/MS/MS

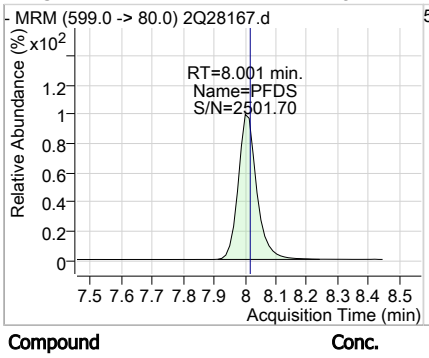
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	45.85	7.63	-0.01	83259	527.0 -> 81.0	29.4	1.4	61.4

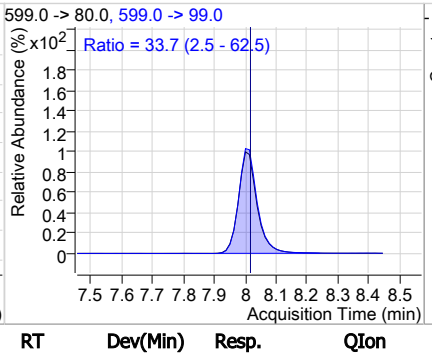


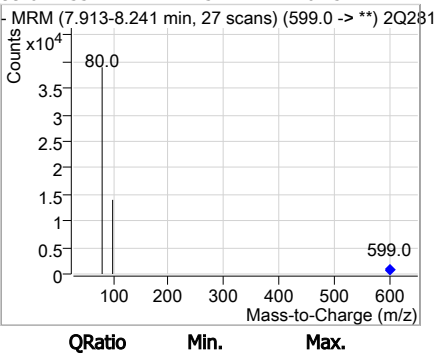




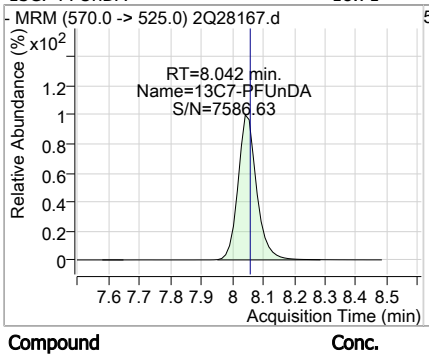
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	49.77	8.00	-0.01	28562	599.0 -> 99.0	33.7	2.5	62.5

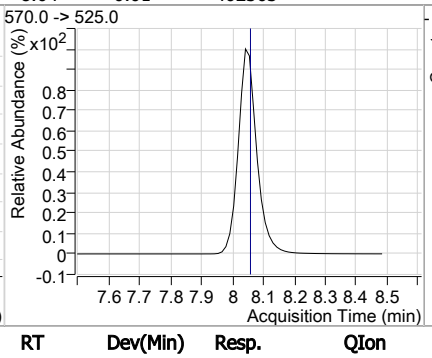


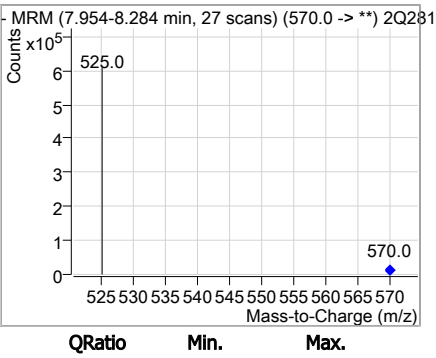




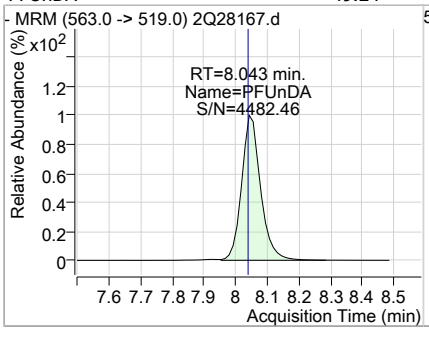
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.71	8.04	-0.01	462363				

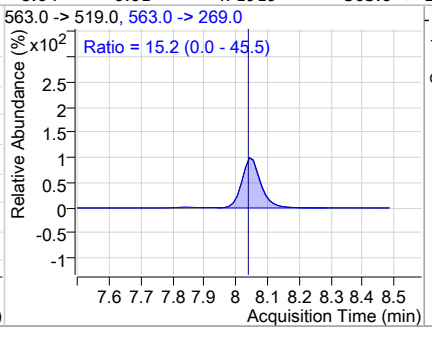


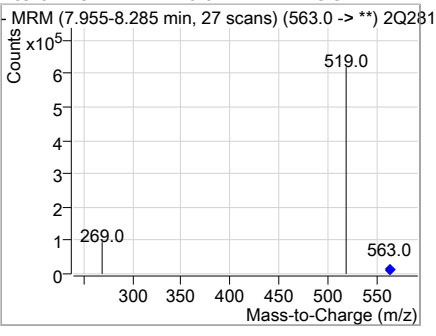




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	49.24	8.04	-0.01	471919	563.0 -> 269.0	15.2	0.0	45.5



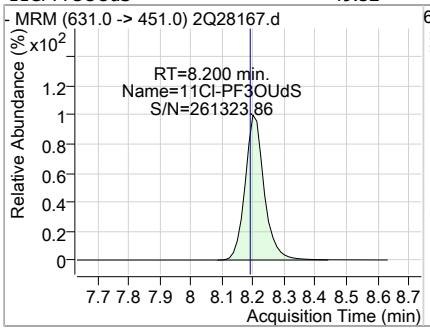


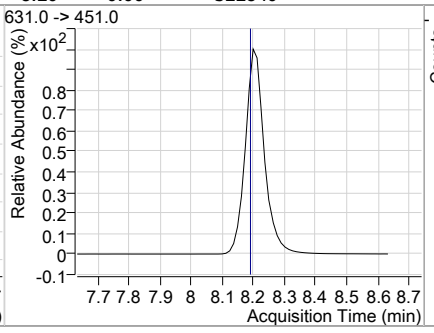


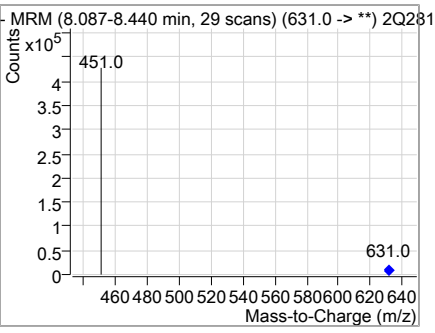
7.6.24

Perfluorinated Compounds by LC/MS/MS

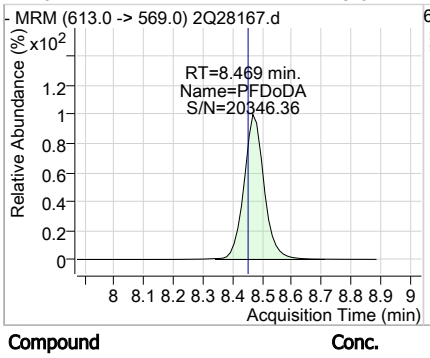
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	49.52	8.20	0.00	322840				

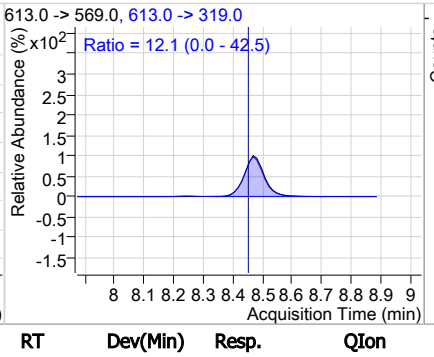


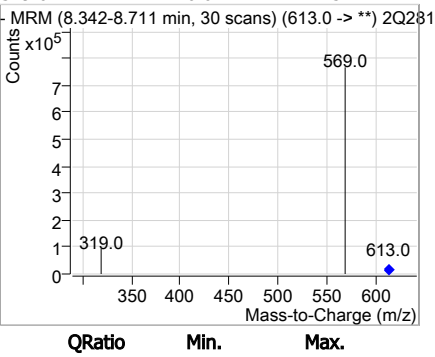




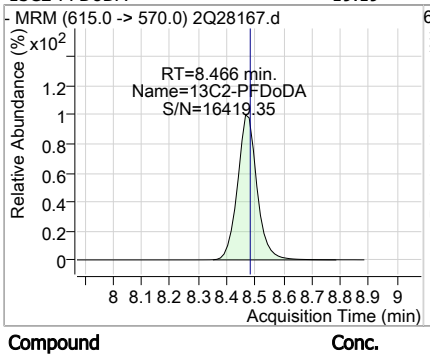
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	49.81	8.47	0.00	601111	613.0 -> 319.0	12.1	0.0	42.5

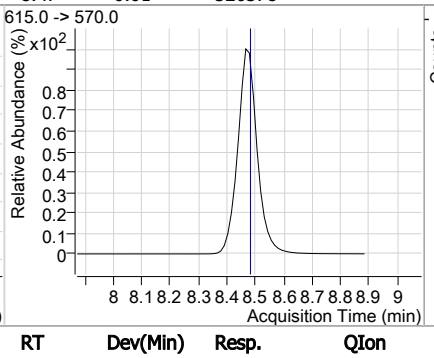


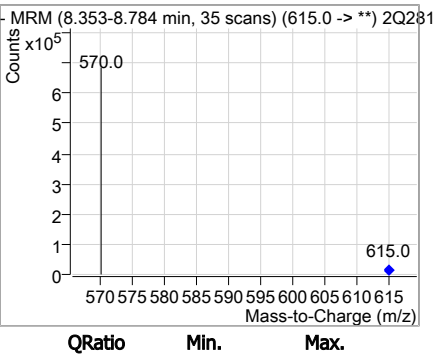




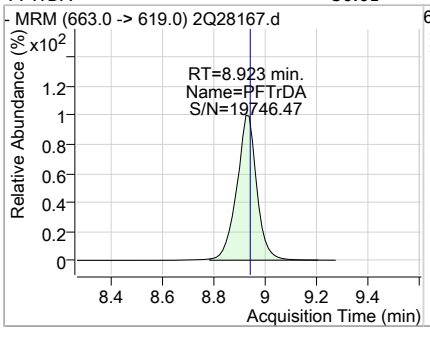
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.19	8.47	-0.01	526578				

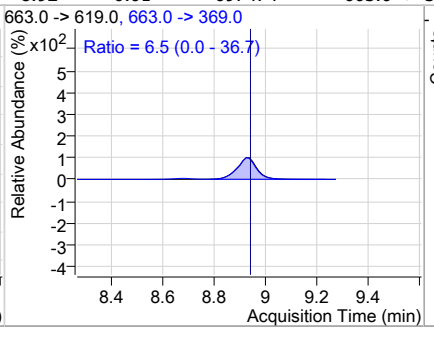


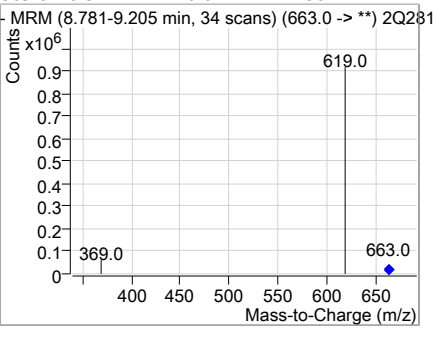




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	50.01	8.92	-0.01	697474	663.0 -> 369.0	6.5	0.0	36.7







7.6.24

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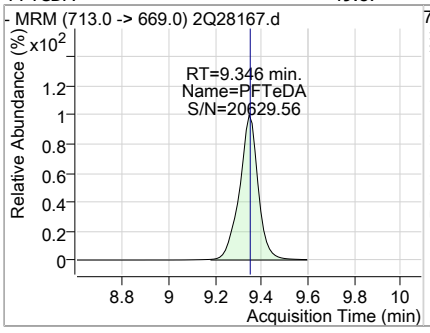
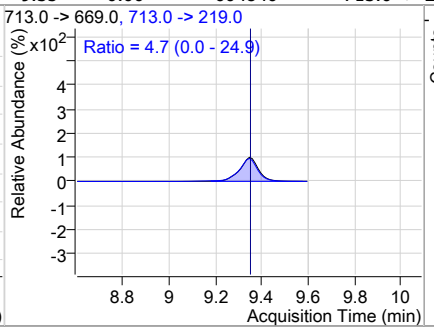
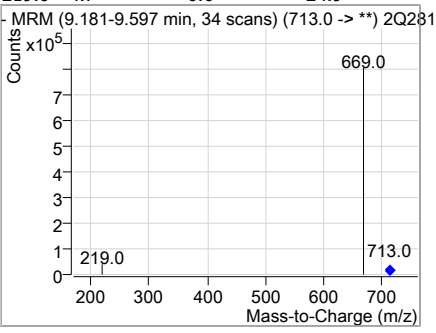
Perfluorinated Compounds by LC/MS/MS

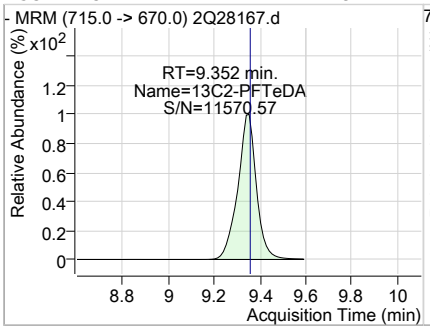
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	49.87	9.35	0.00	604846	713.0 -> 219.0	4.7	0.0	24.9

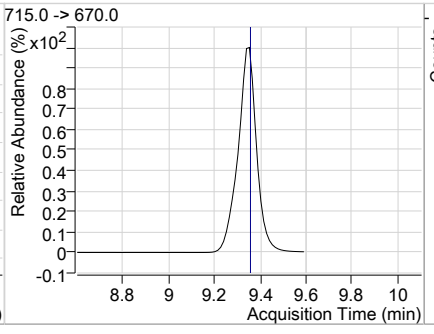


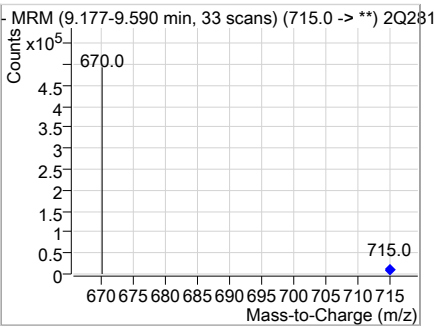




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.47	9.35	0.00	367682				







7.6.24

7

Manual Integration Approval Summary

Sample Number: S2Q449-IC449
Lab FileID: 2Q28167.D
Injection Time: 03/26/19 16:36
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Cal Report: 2Q28168.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File	: 2Q28168.d
Operator	: natashag
Acq. Method	: dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	: 3/26/2019 4:52:00 PM
Sample Name	: ic449-100
Vial	: Vial 9
DA Method File	: ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name	: s2q449.batch.bin
Sample Information	: op74164,S2Q449,250,,,1.0,1,water

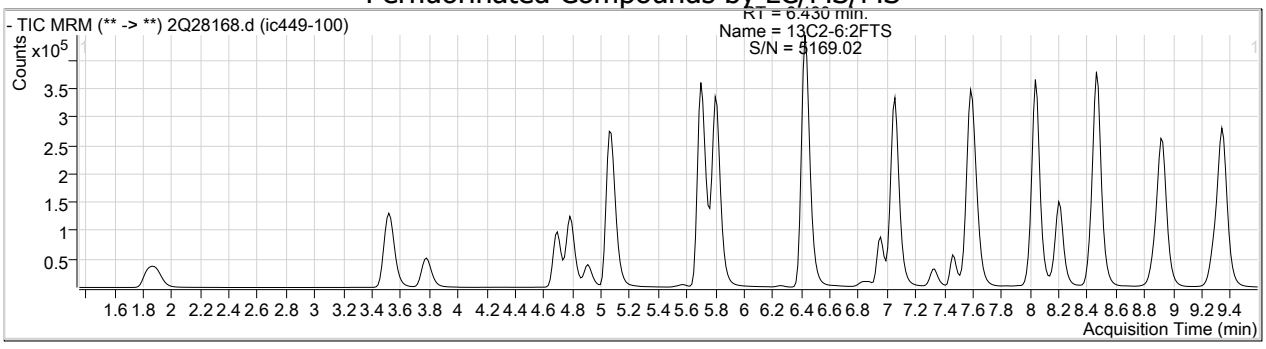
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.435	415.0 -> 370.0	308156	20.00	µg/L	-0.013
13C4-PFOS	7.049	503.0 -> 80.0	48521	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	150019	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	126054	20.00	µg/L	-0.013
M5-PFHxA	4.788	318.0 -> 273.0	180302	20.00	µg/L	-0.013
M4-PFHpA	5.705	367.0 -> 322.0	246877	20.00	µg/L	-0.013
M8-PFOA	6.434	421.0 -> 376.0	243224	20.00	µg/L	-0.013
M9-PFNA	7.065	472.0 -> 427.0	258681	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	334145	20.00	µg/L	0.000
M7-PFUnDA	8.042	570.0 -> 525.0	432838	20.00	µg/L	-0.013
M2-PFDoDA	8.466	615.0 -> 570.0	500513	20.00	µg/L	-0.013
M2-PFTeDA	9.340	715.0 -> 670.0	354103	20.00	µg/L	-0.013
M8-FOSA	6.959	506.0 -> 78.0	93075	20.00	µg/L	0.000
M3-PFBS	3.780	302.0 -> 99.0	21428	20.00	µg/L	-0.013
M3-PFHxS	5.748	402.0 -> 99.0	22767	20.00	µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	28966	20.00	µg/L	0.000
M2-4:2FTS	4.696	329.0 -> 309.0	95672	20.00	µg/L	0.000
M2-6:2FTS	6.430	429.0 -> 409.0	97339	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	75105	20.00	µg/L	-0.013
M3-MeFOSAA	7.460	573.0 -> 419.0	44547	20.00	µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	151272	100.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	95667	23.16	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.8%		
13C2-6:2FTS	6.430	429.0 -> 409.0	97221	21.41	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C2-8:2FTS	7.630	529.0 -> 509.0	75067	22.29	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 111.4%		
13C2-PFDoDA	8.466	615.0 -> 570.0	499752	18.21	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C2-PFTeDA	9.340	715.0 -> 670.0	354138	18.75	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C3-PFBS	3.780	302.0 -> 99.0	21411	19.02	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.1%		
13C3-PFHxS	5.748	402.0 -> 99.0	22758	18.53	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
13C4-PFBA	1.865	217.0 -> 172.0	149143	19.32	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
13C4-PFHpA	5.705	367.0 -> 322.0	246580	18.54	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
13C5-PFHxA	4.788	318.0 -> 273.0	179999	19.07	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
13C5-PFPeA	3.524	268.0 -> 223.0	126080	19.22	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C6-PFDA	7.594	519.0 -> 474.0	334128	17.17	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

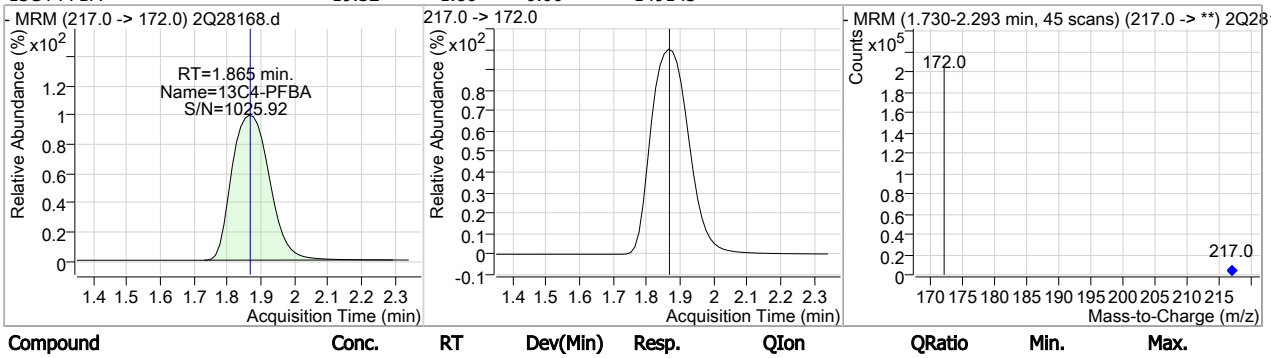
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.8%		
13C7-PFUnDA	8.042	570.0 -> 525.0	432428	17.50 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.5%		
13C8-FOSA	6.959	506.0 -> 78.0	93115	16.15 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 80.7%		
13C8-PFOA	6.434	421.0 -> 376.0	242962	17.55 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.7%		
13C8-PFOS	7.047	507.0 -> 99.0	28968	18.07 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.3%		
13C9-PFNA	7.065	472.0 -> 427.0	258581	18.07 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.4%		
d3-MeFOSAA	7.460	573.0 -> 419.0	44517	18.45 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.3%		
M2-PFOA	6.435	415.0 -> 370.0	308574	20.00 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.049	503.0 -> 80.0	48550	20.14 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	151272	86.41 µg/L		-0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 86.4%		
Target Compounds						QValue
4:2FTS	4.699	327.0 -> 307.0	229880	82.73 µg/L		98
6:2FTS	6.432	427.0 -> 407.0	201826	81.13 µg/L		98
8:2FTS	7.631	527.0 -> 507.0	158582	80.44 µg/L		98
EtFOSAA	7.610	584.0 -> 419.0	90542	99.96 µg/L		99
FOSA	6.963	498.0 -> 78.0	224262	99.93 µg/L		100
MeFOSAA	7.461	570.0 -> 419.0	120870	100.00 µg/L		100
PFBA	1.873	213.0 -> 169.0	144312	100.36 µg/L		100
PFBS	3.783	299.0 -> 80.0	173827	100.33 µg/L		100
PFDA	7.595	513.0 -> 469.0	681414	100.04 µg/L		99
PFDoDA	8.469	613.0 -> 569.0	1151422	100.32 µg/L		99
PFDS	8.001	599.0 -> 80.0	55124	100.20 µg/L		99
PFHpA	5.708	363.0 -> 319.0	1101607	100.50 µg/L		100
PFHpS	6.441	449.0 -> 80.0	113253	99.50 µg/L		99
PFHxA	4.790	313.0 -> 269.0	295651	100.16 µg/L		99
PFHxS	5.751	399.0 -> 80.0	131449	100.47 µg/L	m	98
PFNA	7.066	463.0 -> 419.0	794809	100.23 µg/L		99
PFNS	7.565	549.0 -> 80.0	108803	100.15 µg/L		97
PFOA	6.437	413.0 -> 369.0	651354	100.49 µg/L		99
PFOS	7.050	499.0 -> 80.0	147922	100.90 µg/L	m	99
PFPeA	3.527	263.0 -> 219.0	561020	100.46 µg/L		100
PFPeS	4.908	349.0 -> 80.0	114482	99.87 µg/L		98
PFTeDA	9.346	713.0 -> 669.0	1170827	100.24 µg/L		100
PFTrDA	8.923	663.0 -> 619.0	1344830	100.12 µg/L		99
PFUnDA	8.043	563.0 -> 519.0	903021	100.59 µg/L		99
11Cl-PF3OUdS	8.200	631.0 -> 451.0	632524	102.02 µg/L		100
9Cl-PF3ONS	7.335	531.0 -> 351.0	126917	99.89 µg/L		100
ADONA	5.804	377.0 -> 251.0	1304509	99.95 µg/L		100
HFPO-DA	5.072	329.0 -> 169.0	915769	498.52 µg/L		99

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

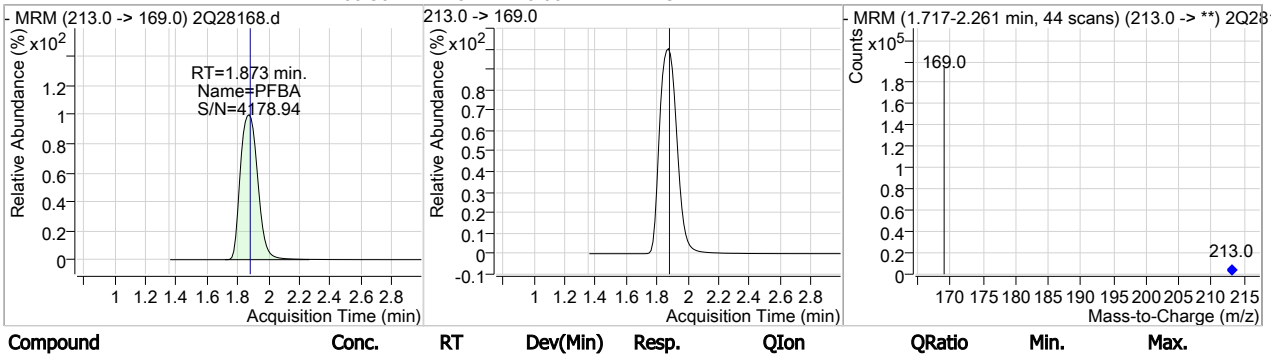
Perfluorinated Compounds by LC/MS/MS



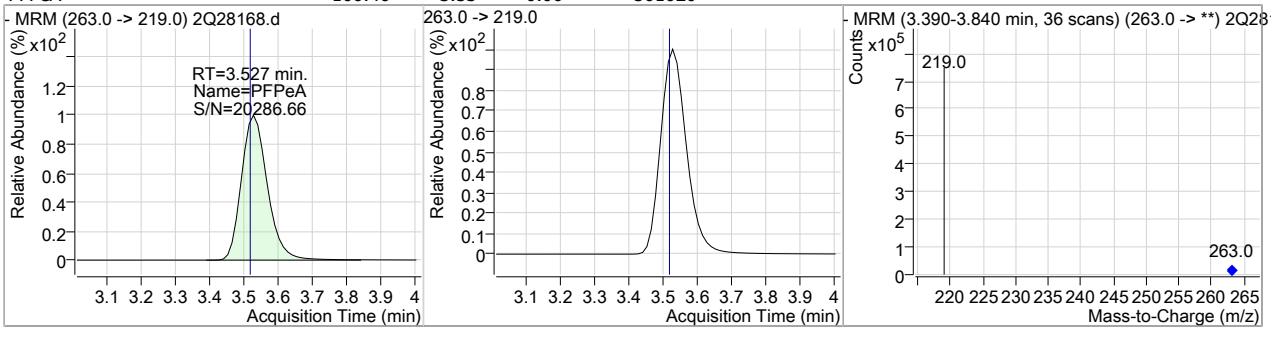
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.32	1.86	0.00	149143				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	100.36	1.87	0.00	144312				

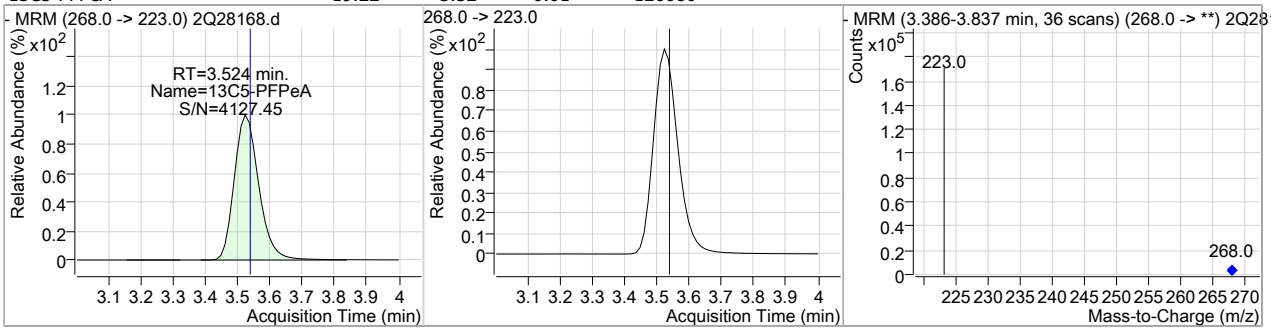


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.46	3.53	0.00	561020				

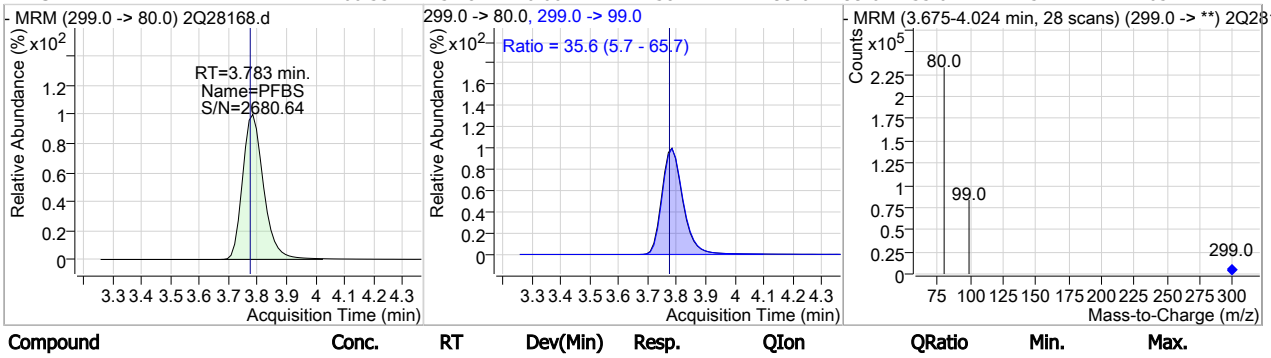


Perfluorinated Compounds by LC/MS/MS

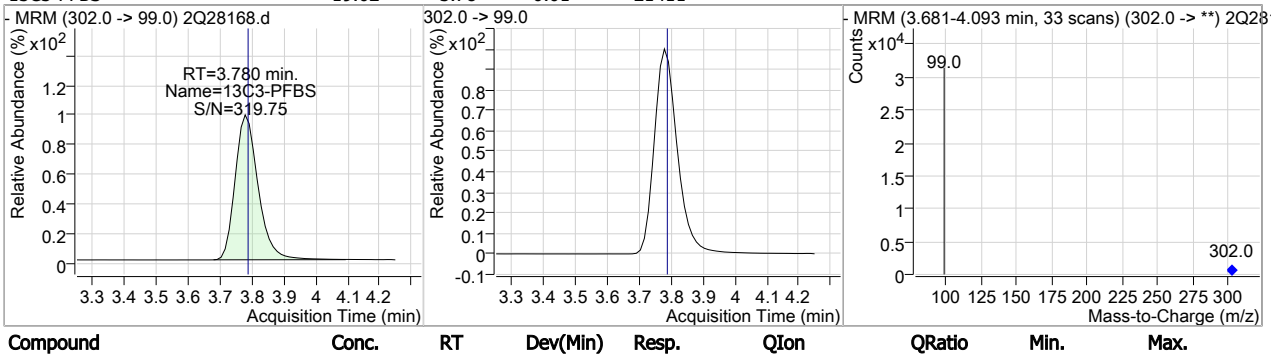
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.22	3.52	-0.01	126080				



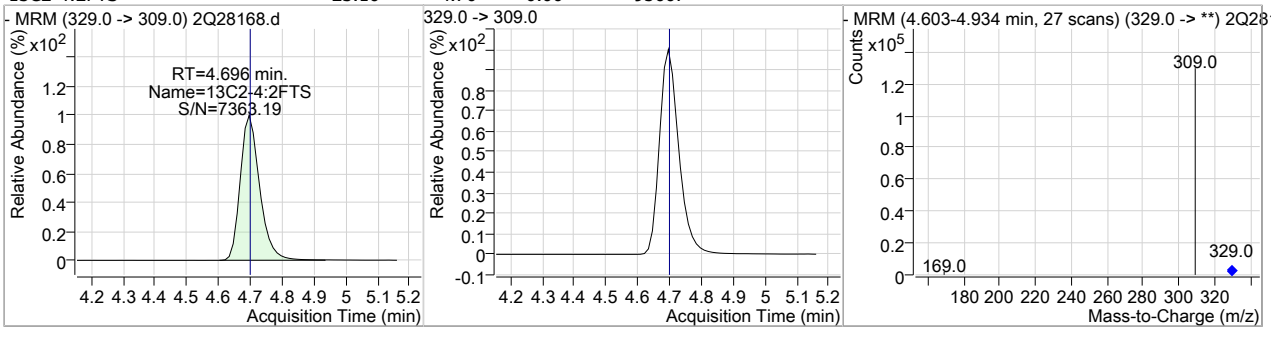
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	100.33	3.78	0.00	173827	299.0 -> 99.0	35.6	5.7	65.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.02	3.78	-0.01	21411				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	23.16	4.70	0.00	95667				



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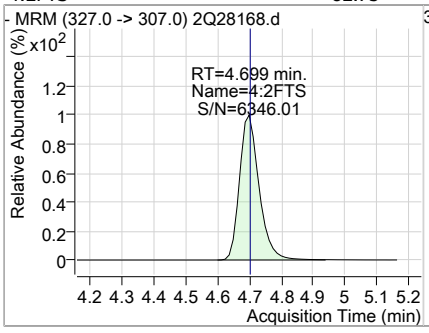
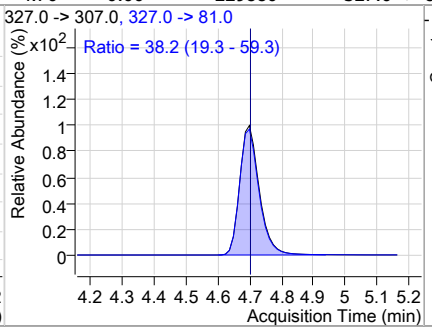
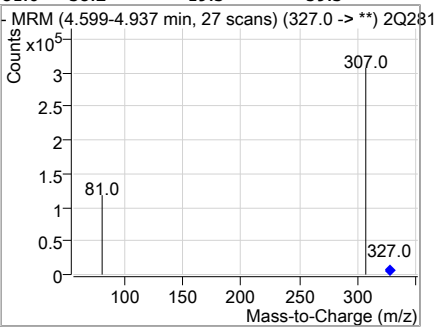
Perfluorinated Compounds by LC/MS/MS

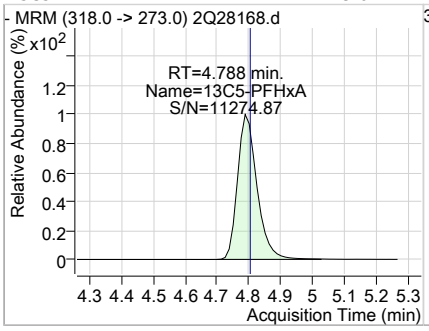
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	82.73	4.70	0.00	229880	327.0 -> 81.0	38.2	19.3	59.3

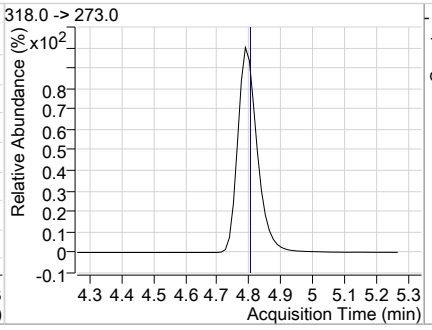


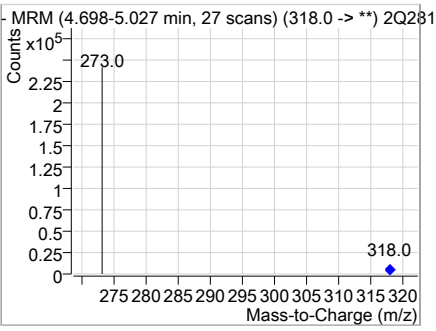




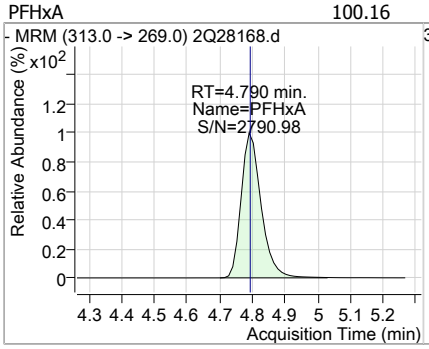
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.07	4.79	-0.01	179999				

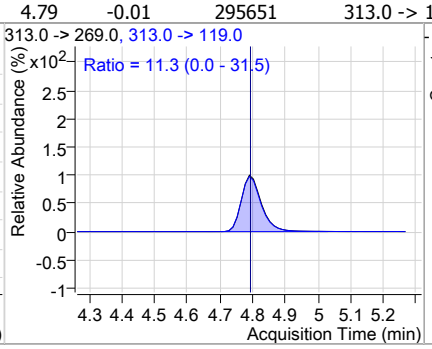


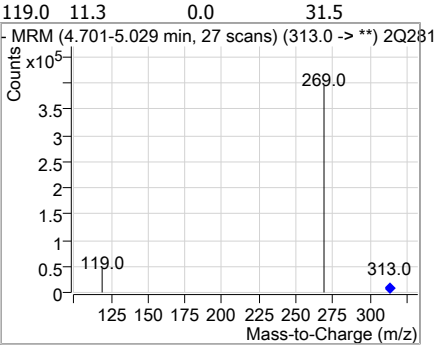




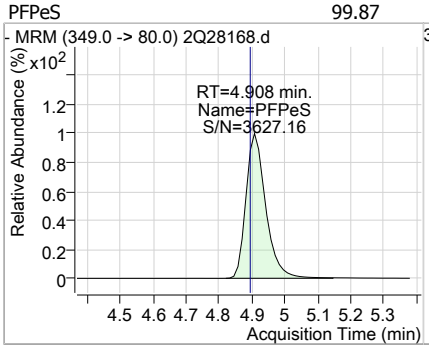
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.16	4.79	-0.01	295651	313.0 -> 119.0	11.3	0.0	31.5

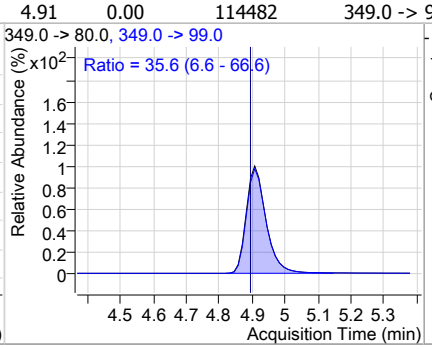


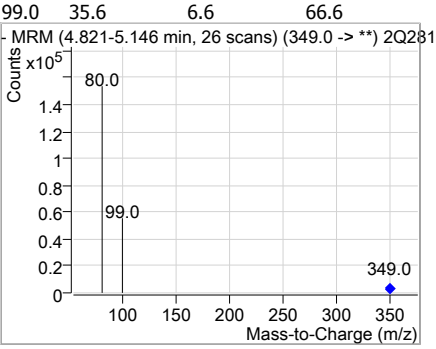




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	99.87	4.91	0.00	114482	349.0 -> 99.0	35.6	6.6	66.6







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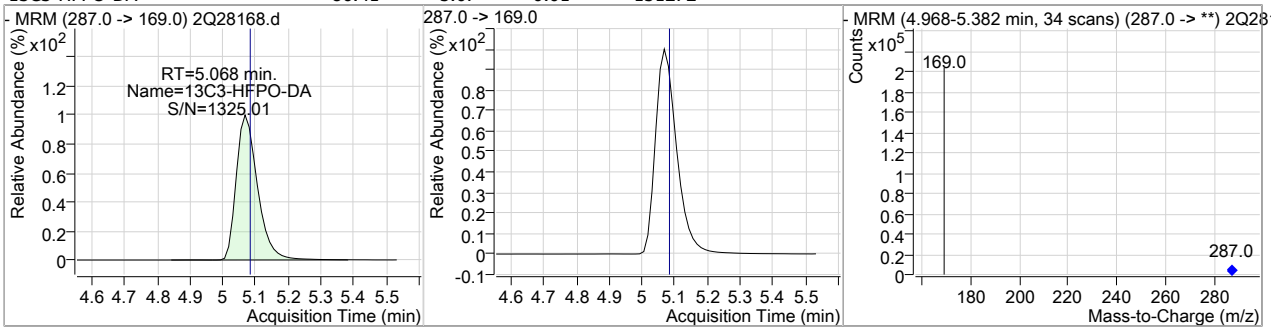
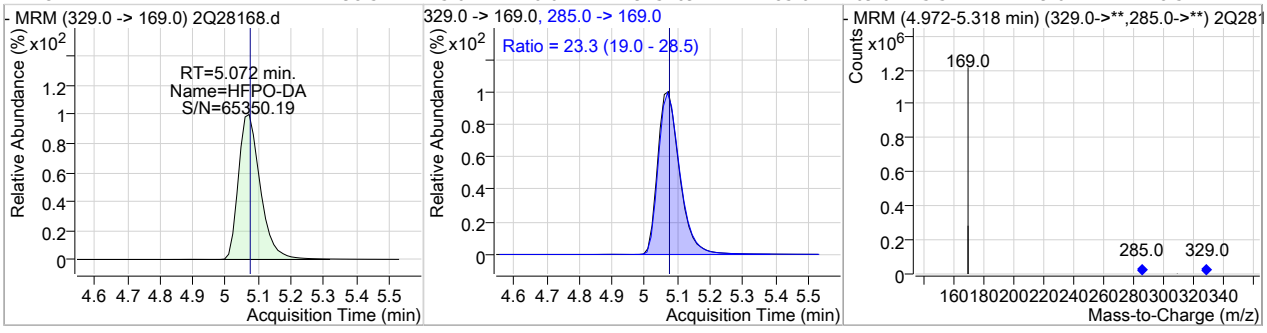
Perfluorinated Compounds by LC/MS/MS

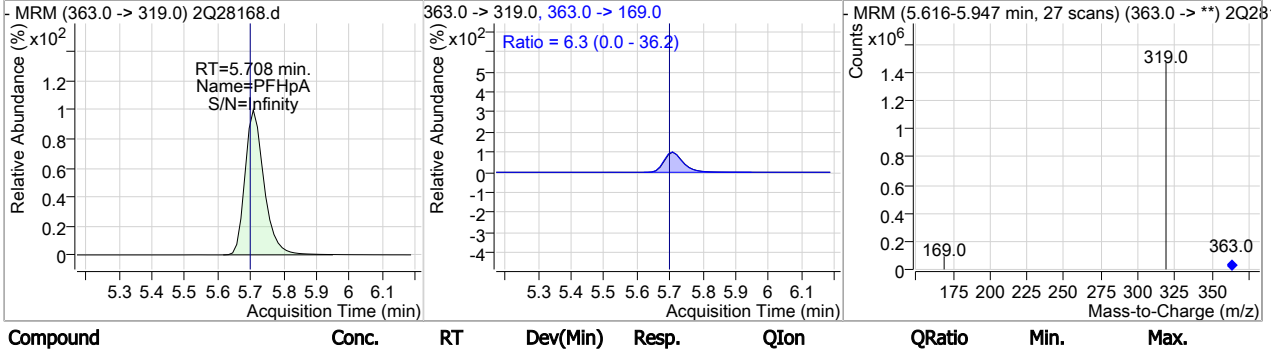
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	86.41	5.07	-0.01	151272				



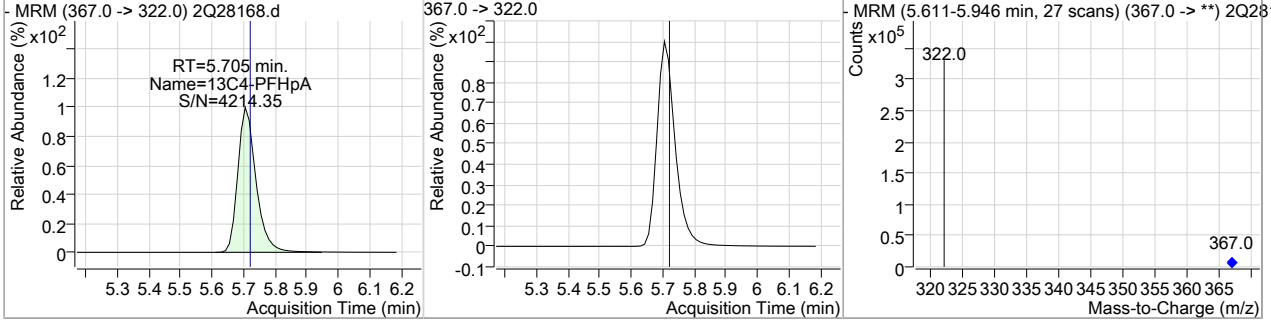
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	498.52	5.07	-0.01	915769	285.0 -> 169.0	23.3	19.0	28.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.50	5.71	0.00	1101607	363.0 -> 169.0	6.3	0.0	36.2



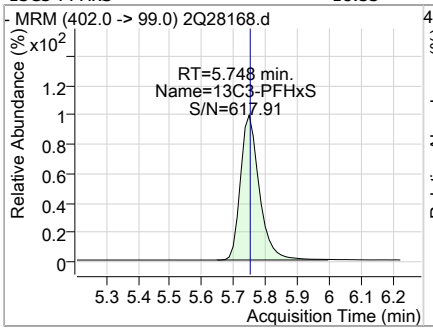
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.54	5.70	-0.01	246580				

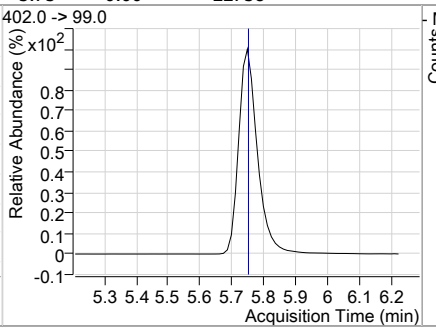


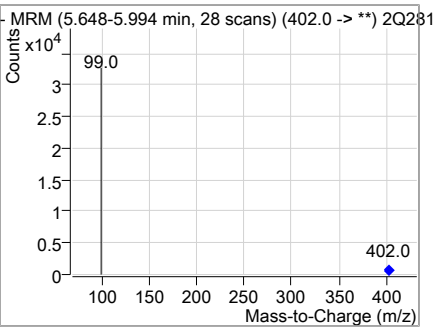
7.6.25

Perfluorinated Compounds by LC/MS/MS

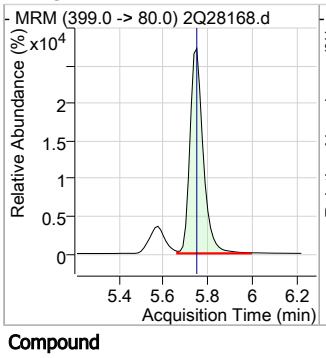
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.53	5.75	0.00	22758				

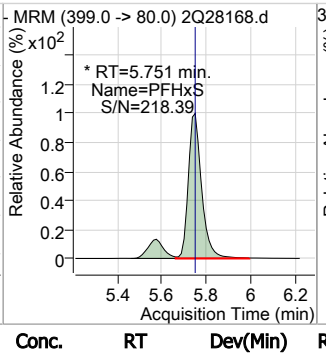


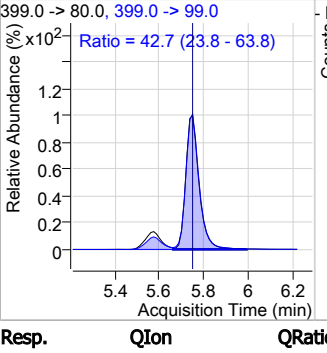


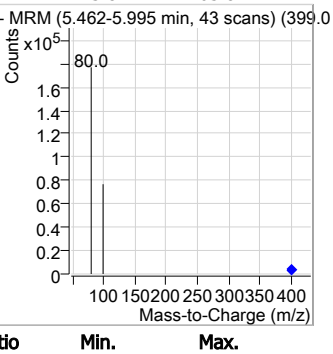


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	100.47	5.75	0.00	131449 (m)	399.0 -> 99.0	42.7	23.8	63.8

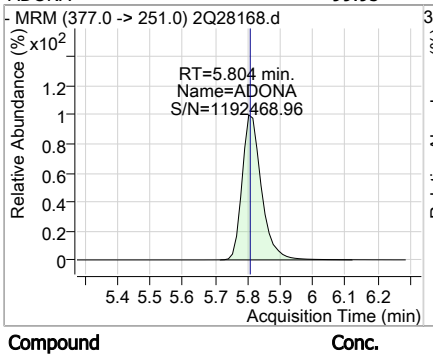


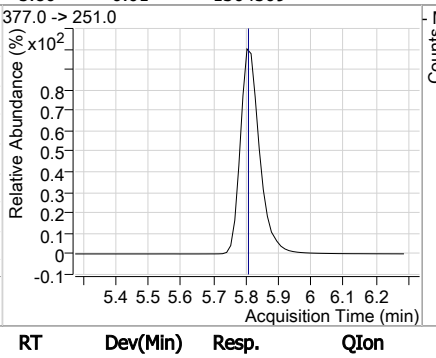


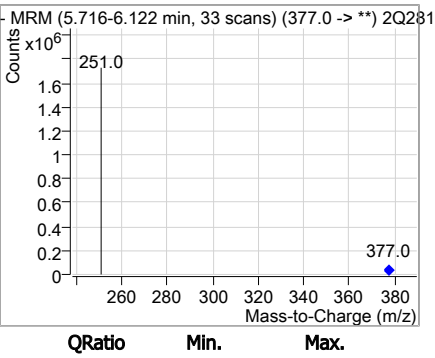




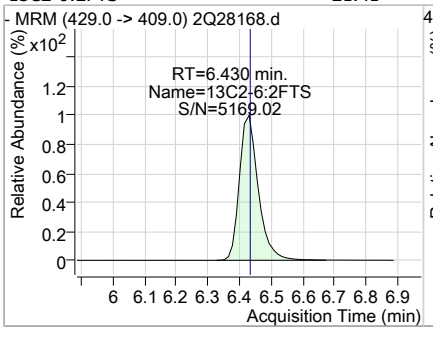
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	99.95	5.80	-0.01	1304509				

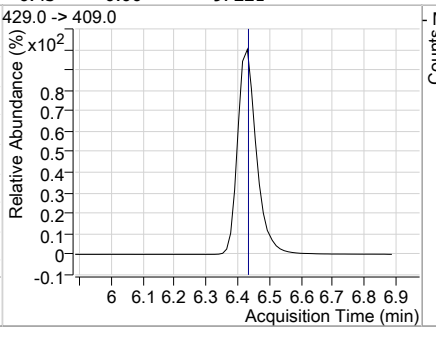


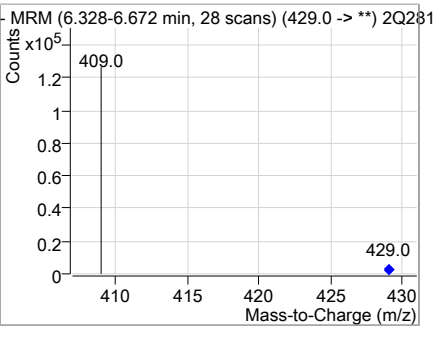




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.41	6.43	0.00	97221				



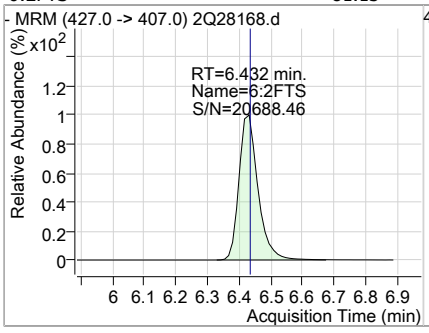


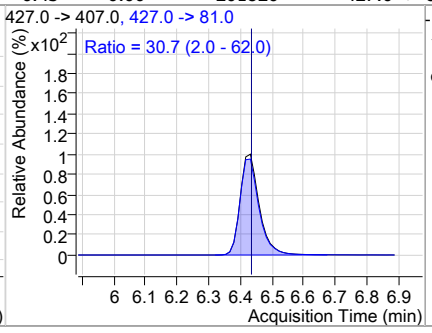


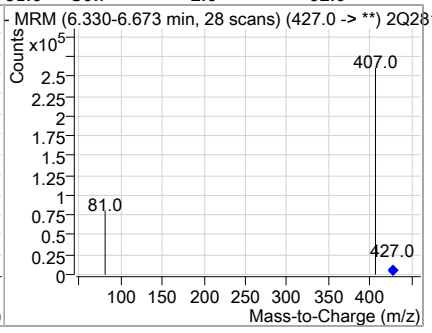
7.6.25

Perfluorinated Compounds by LC/MS/MS

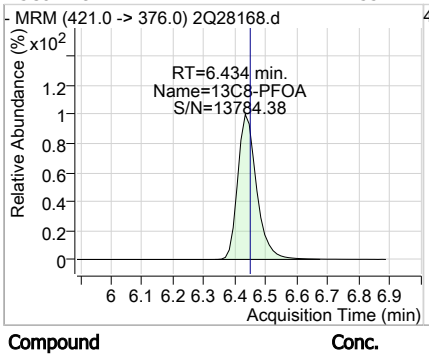
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	81.13	6.43	0.00	201826	427.0 -> 81.0	30.7	2.0	62.0

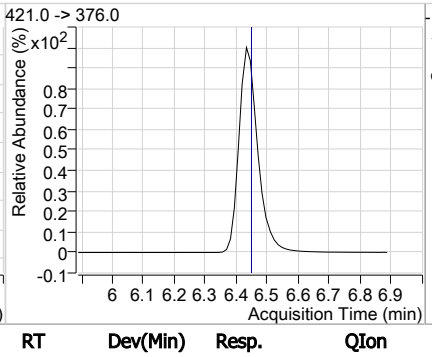


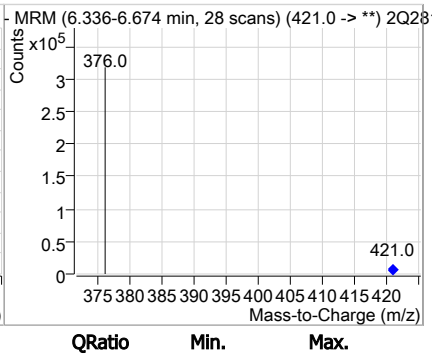




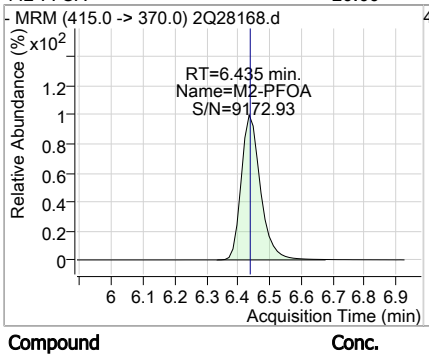
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	17.55	6.43	-0.01	242962				

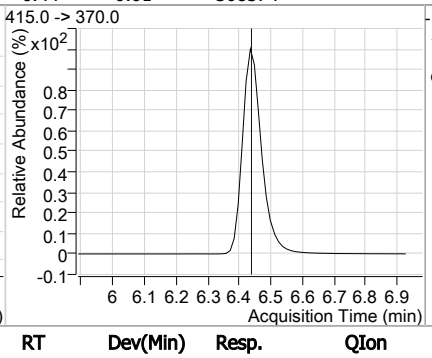


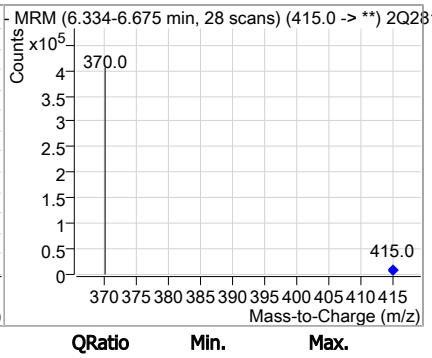




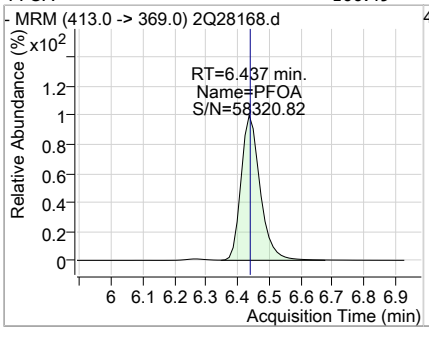
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.44	-0.01	308574				

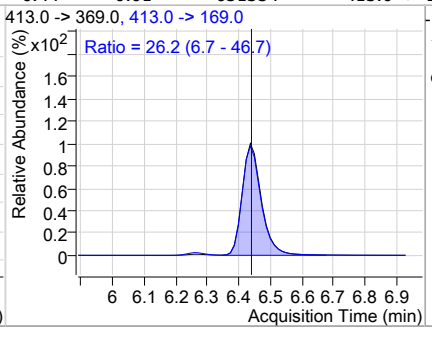


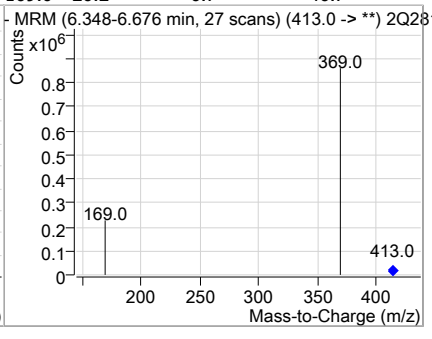




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.49	6.44	-0.01	651354	413.0 -> 169.0	26.2	6.7	46.7



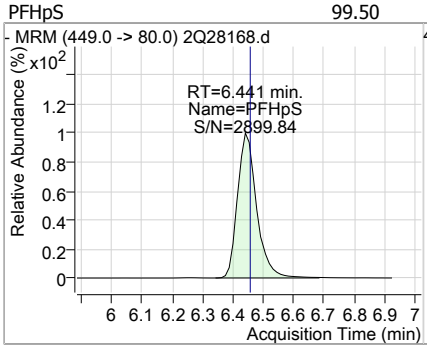


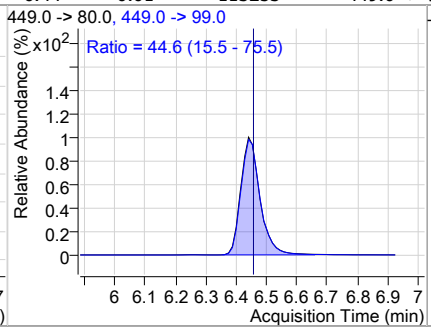


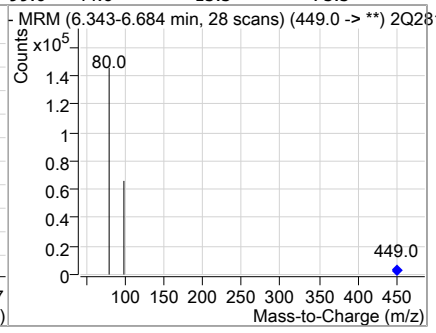
7.6.25

Perfluorinated Compounds by LC/MS/MS

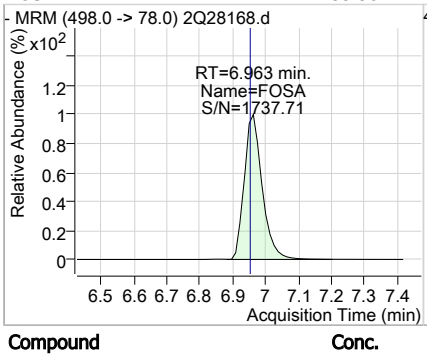
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	99.50	6.44	-0.01	113253	449.0 -> 99.0	44.6	15.5	75.5

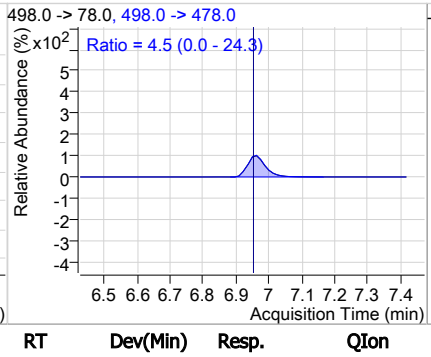


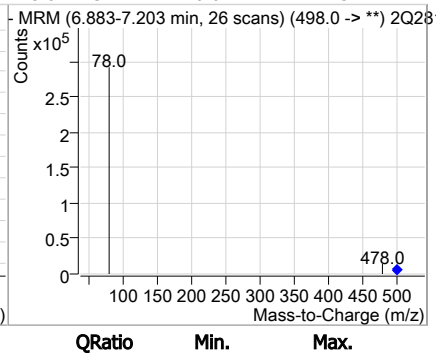




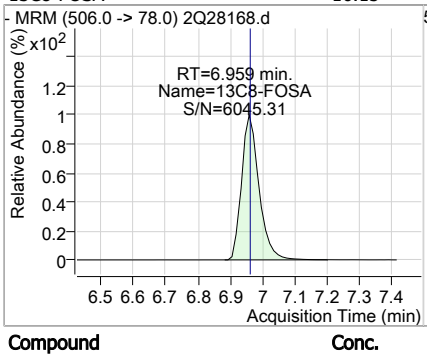
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	99.93	6.96	0.01	224262	498.0 -> 478.0	4.5	0.0	24.3

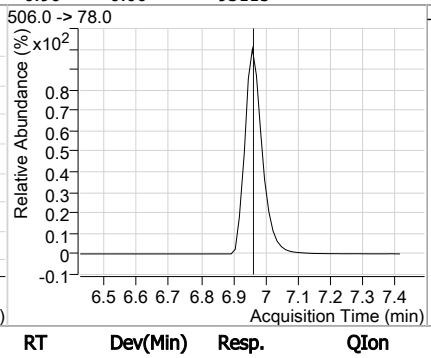


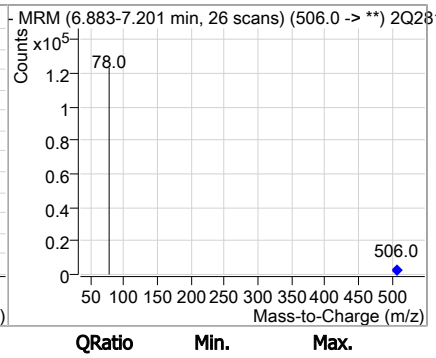




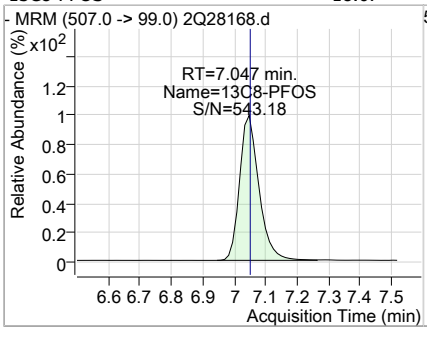
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	16.15	6.96	0.00	93115				

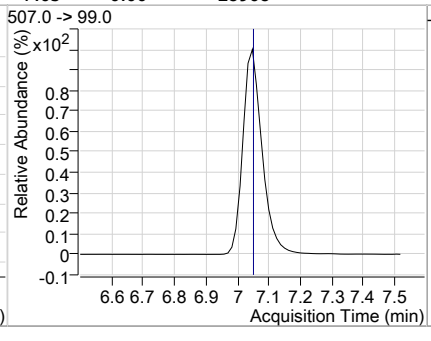


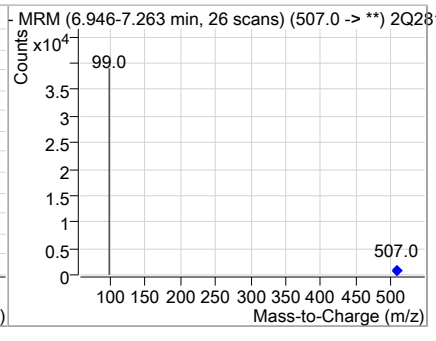




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.07	7.05	0.00	28968				







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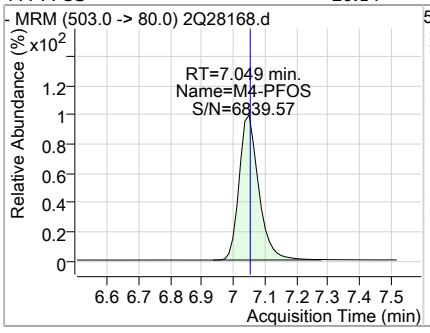
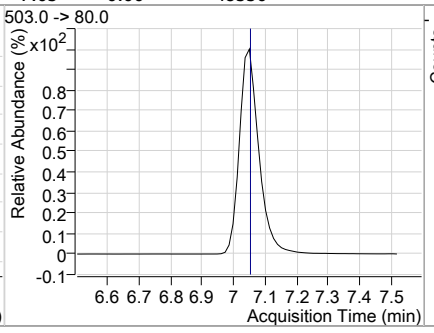
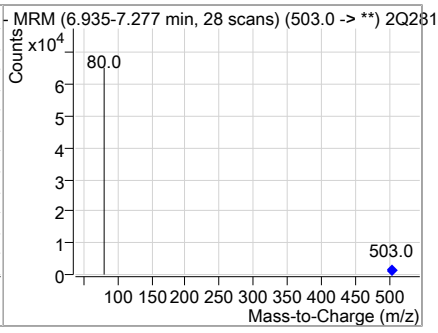
Perfluorinated Compounds by LC/MS/MS

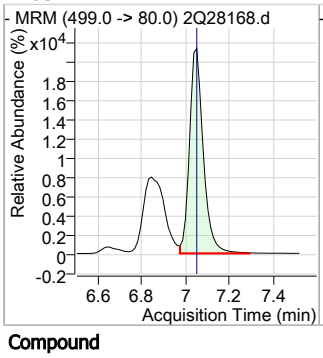
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.14	7.05	0.00	48550				

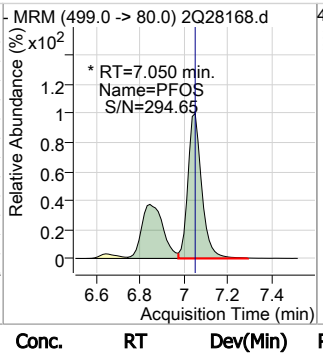


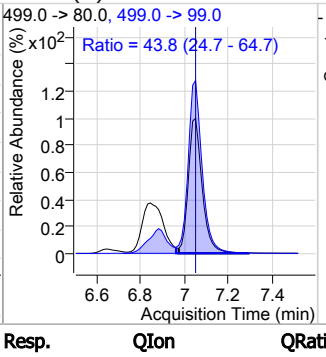


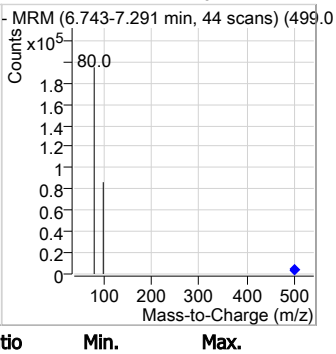


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	100.90	7.05	0.00	147922 (m)	499.0 -> 99.0	43.8	24.7	64.7

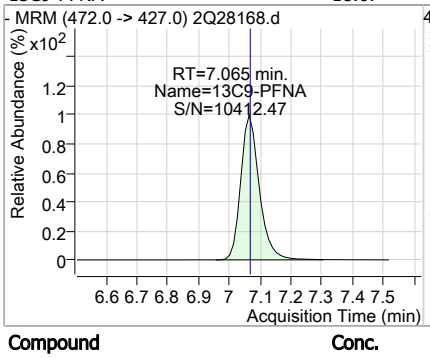


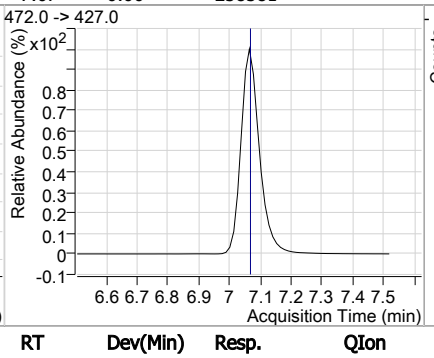


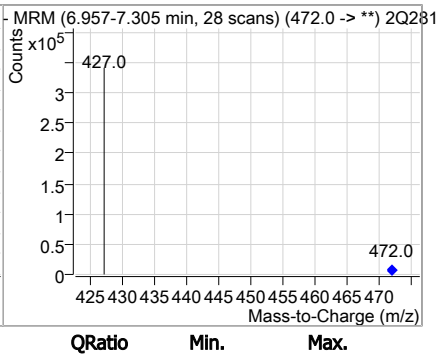




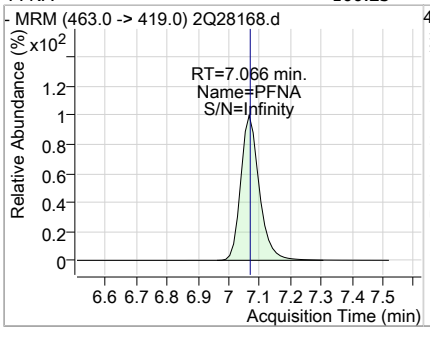
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.07	7.07	0.00	258581				

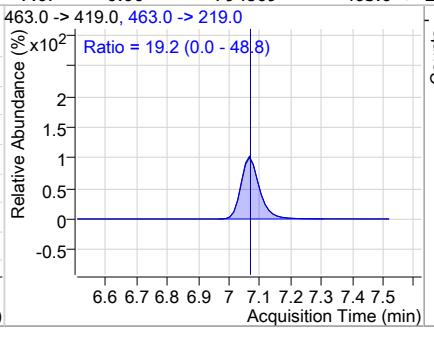


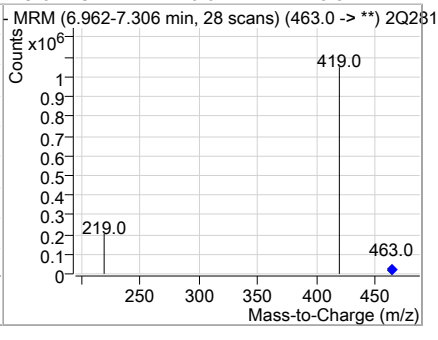




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	100.23	7.07	0.00	794809	463.0 -> 219.0	19.2	0.0	48.8







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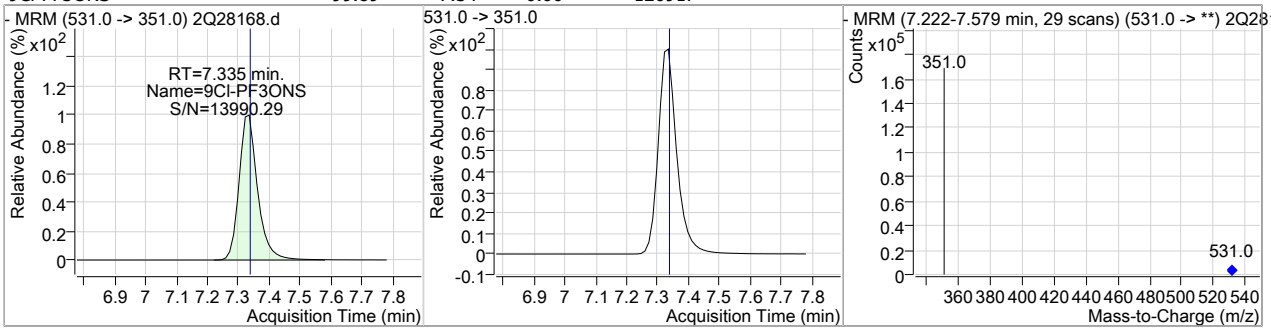
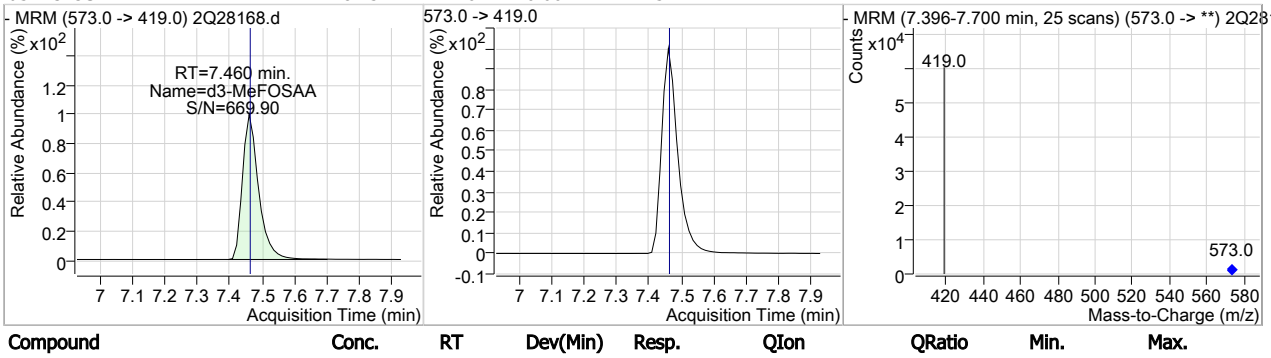
Perfluorinated Compounds by LC/MS/MS

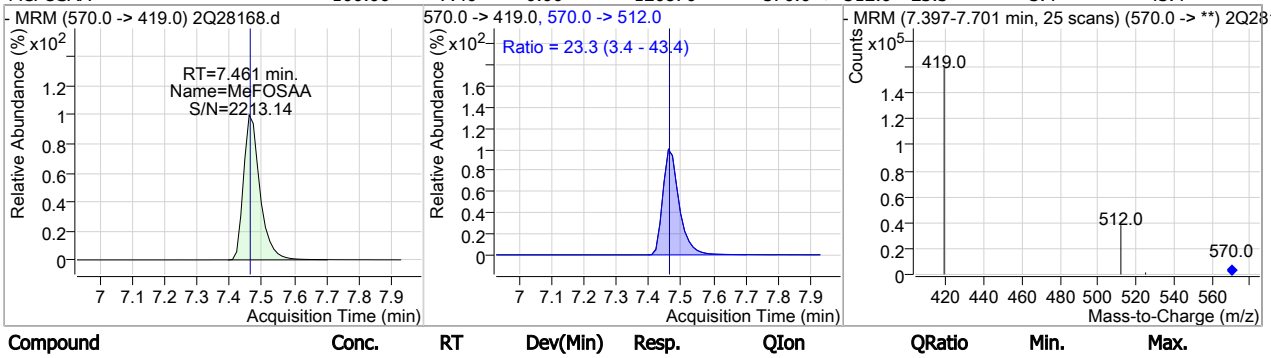
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	99.89	7.34	0.00	126917				



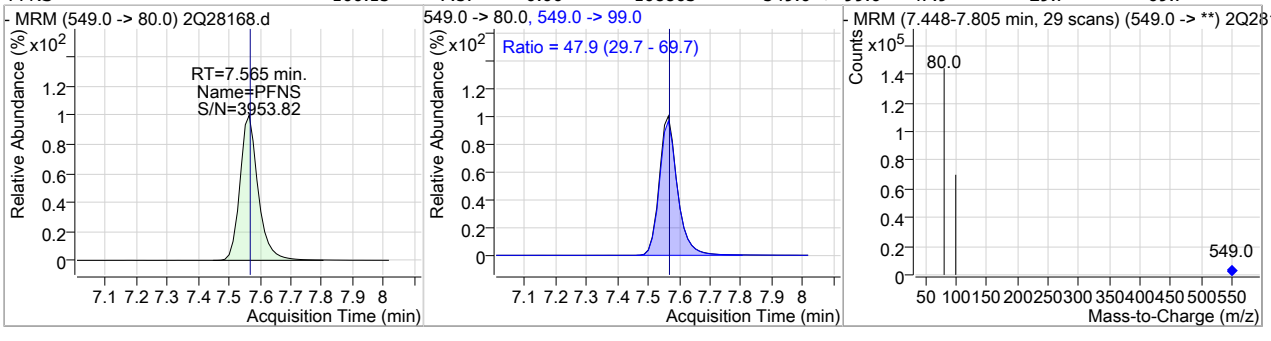
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.45	7.46	0.00	44517				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	100.00	7.46	0.00	120870	570.0 -> 512.0	23.3	3.4	43.4



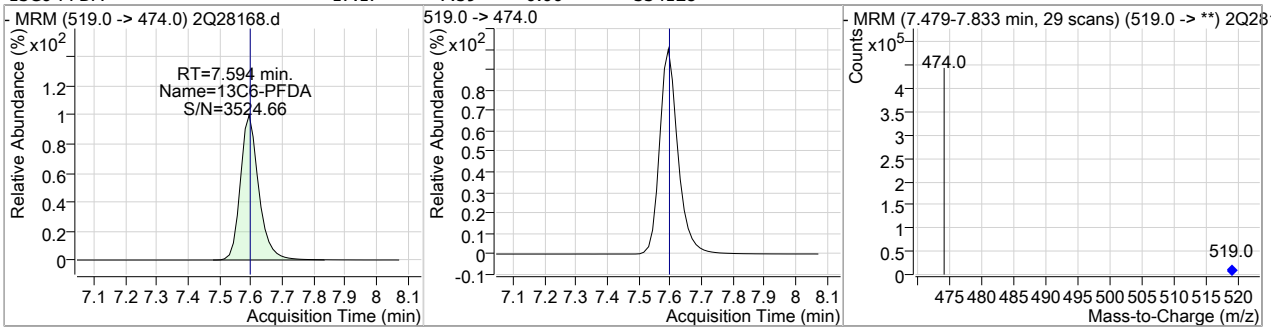
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	100.15	7.57	0.00	108803	549.0 -> 99.0	47.9	29.7	69.7



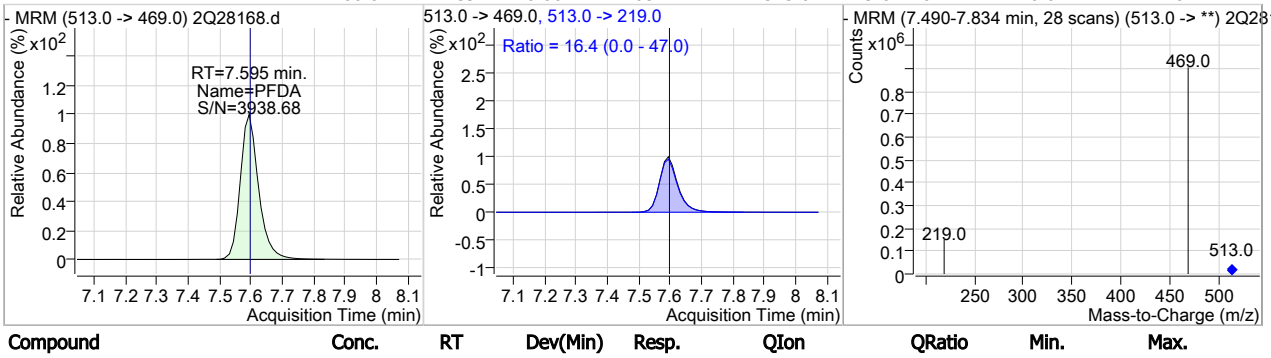
7.6.25

Perfluorinated Compounds by LC/MS/MS

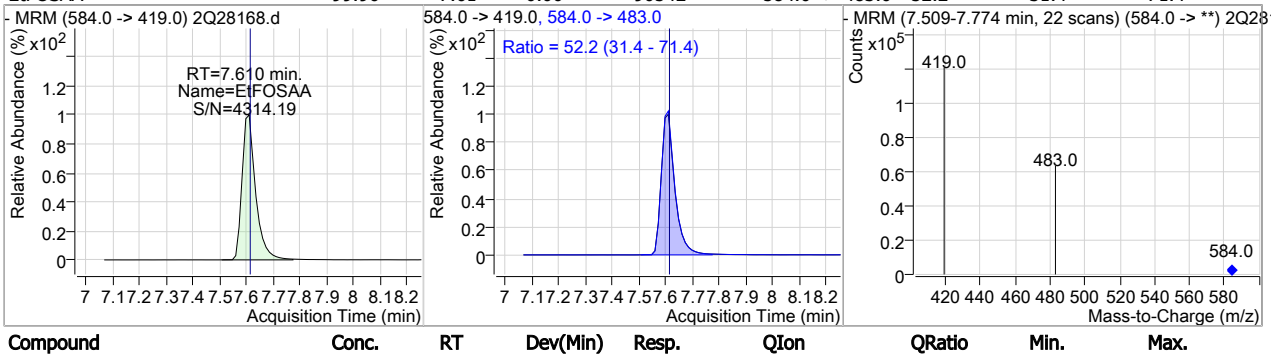
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	17.17	7.59	0.00	334128				



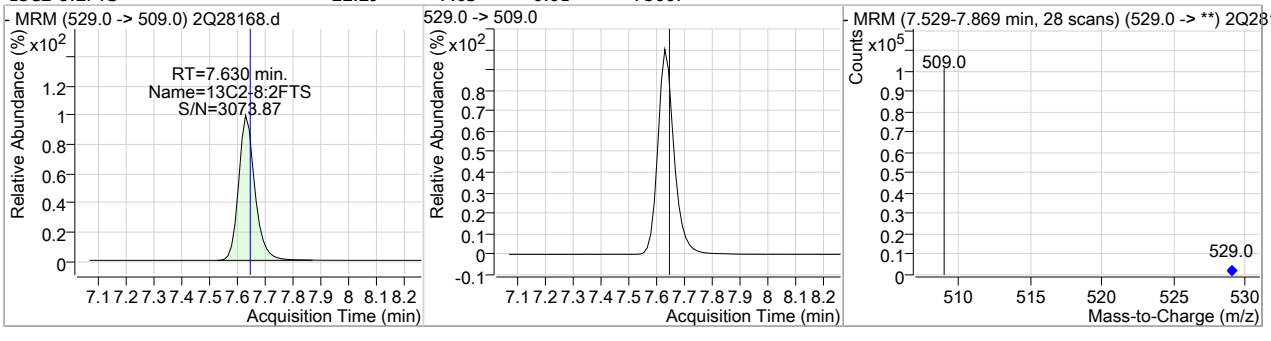
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.04	7.59	0.00	681414	513.0 -> 219.0	16.4	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	99.96	7.61	0.00	90542	584.0 -> 483.0	52.2	31.4	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	22.29	7.63	-0.01	75067				



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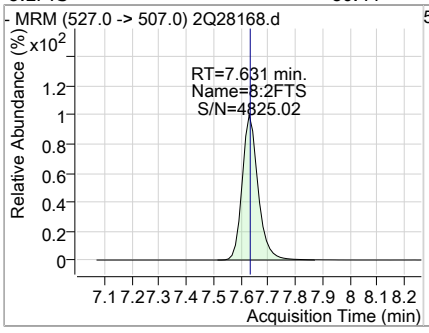
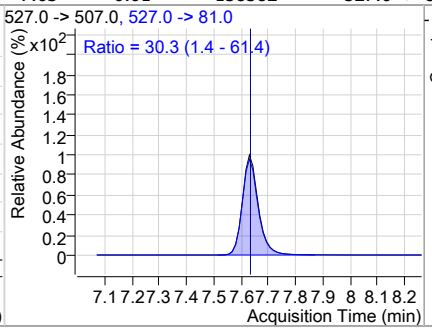
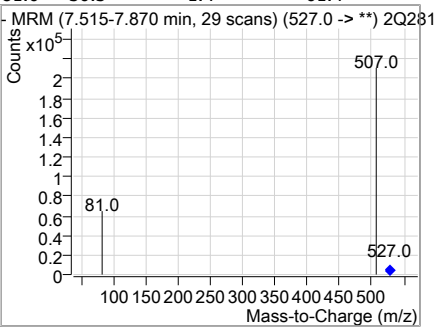
Perfluorinated Compounds by LC/MS/MS

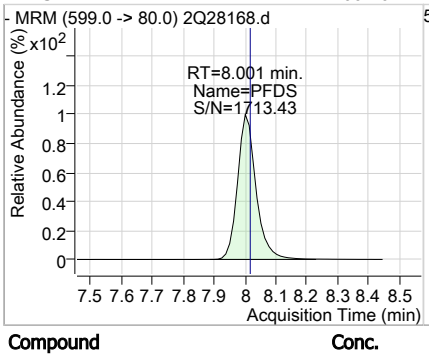
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	80.44	7.63	-0.01	158582	527.0 -> 81.0	30.3	1.4	61.4

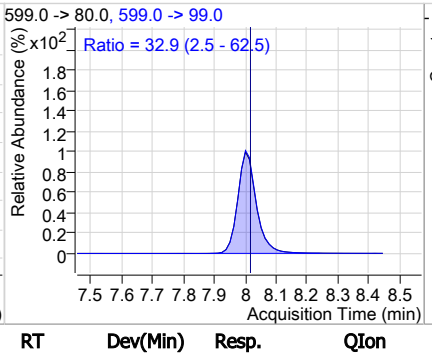


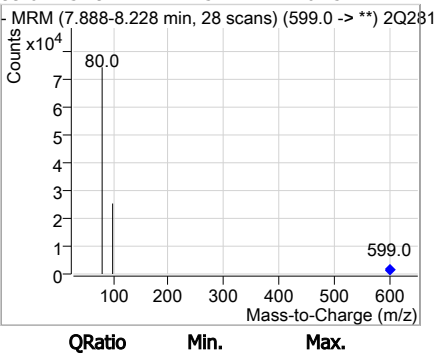




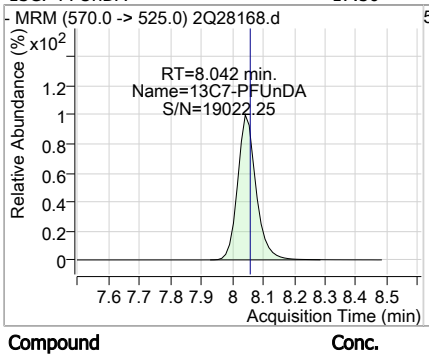
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	100.20	8.00	-0.01	55124	599.0 -> 99.0	32.9	2.5	62.5

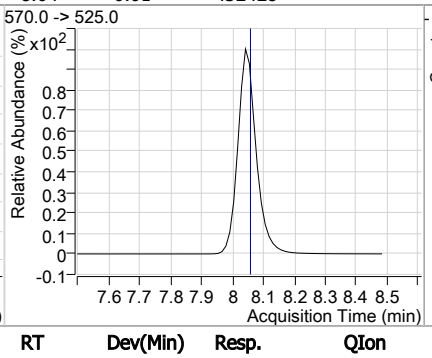


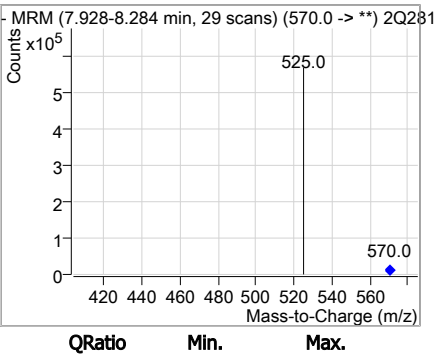




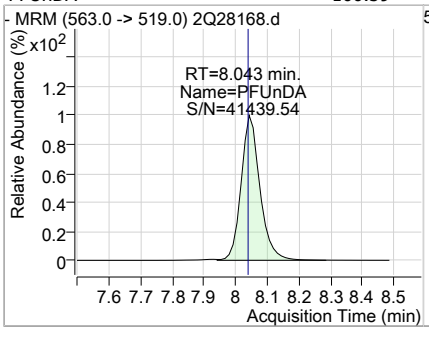
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	17.50	8.04	-0.01	432428				

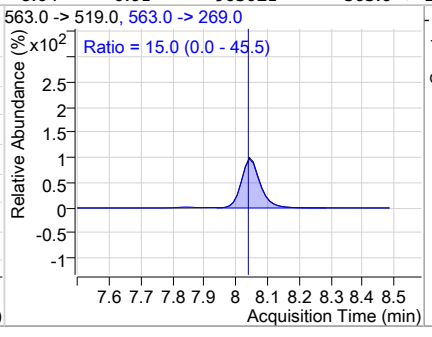


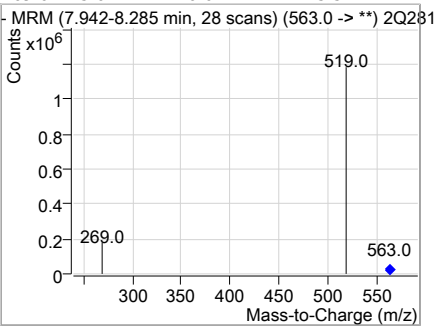




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	100.59	8.04	-0.01	903021	563.0 -> 269.0	15.0	0.0	45.5







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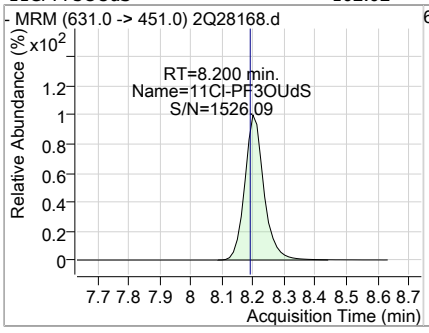
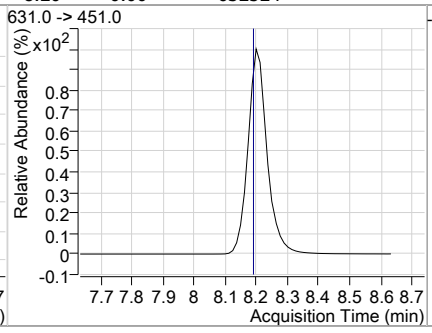
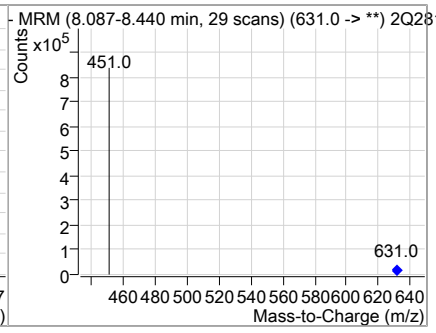
Perfluorinated Compounds by LC/MS/MS

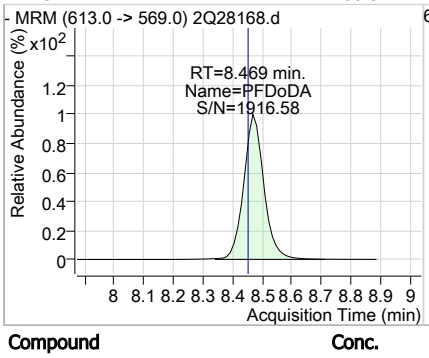
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	102.02	8.20	0.00	632524				

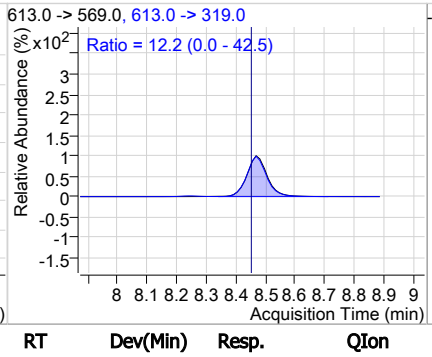


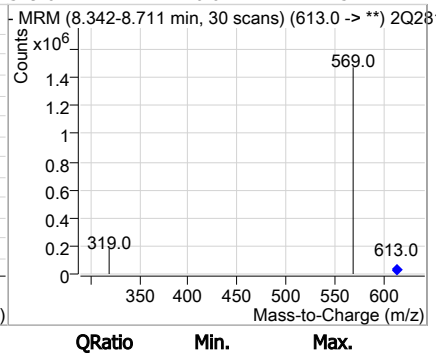




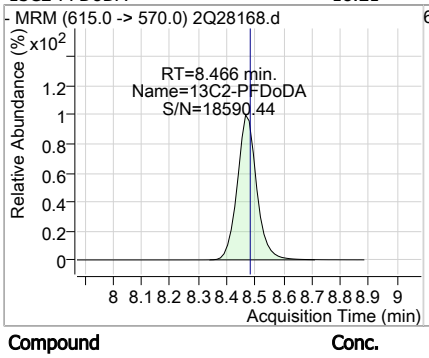
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	100.32	8.47	0.00	1151422	613.0 -> 319.0	12.2	0.0	42.5

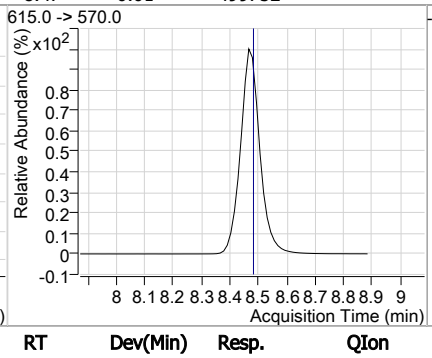


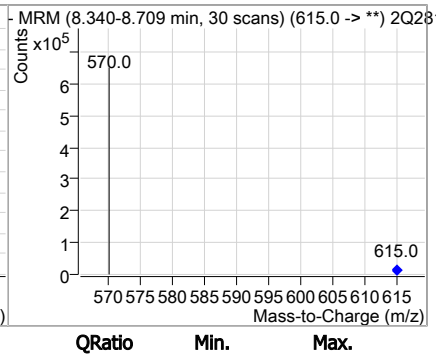




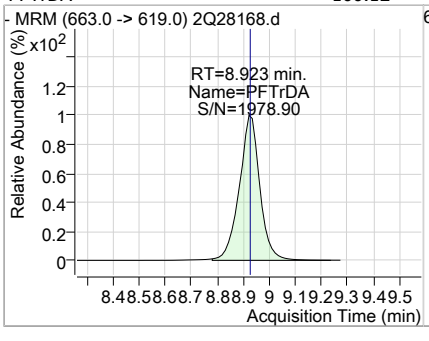
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.21	8.47	-0.01	499752				

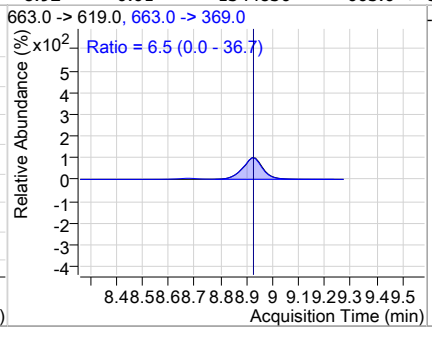


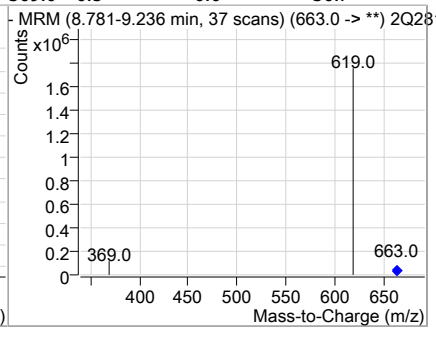




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	100.12	8.92	-0.01	1344830	663.0 -> 369.0	6.5	0.0	36.7







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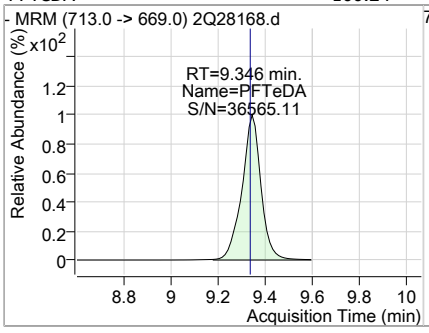
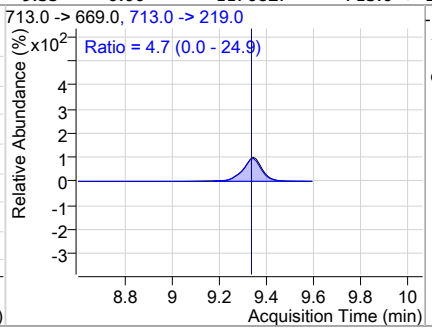
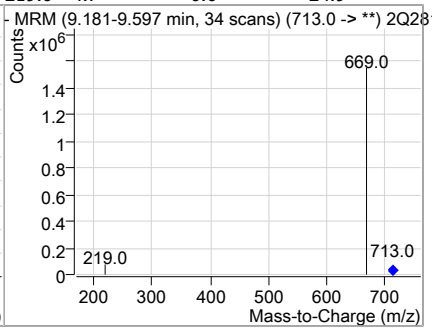
Perfluorinated Compounds by LC/MS/MS

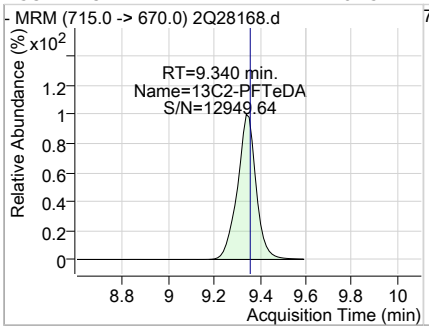
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	100.24	9.35	0.00	1170827	713.0 -> 219.0	4.7	0.0	24.9

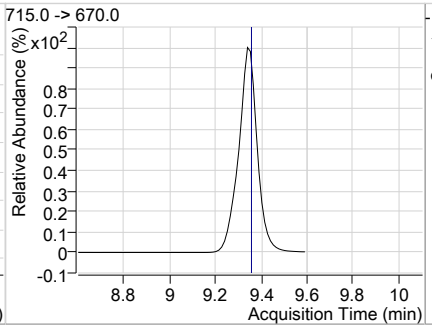


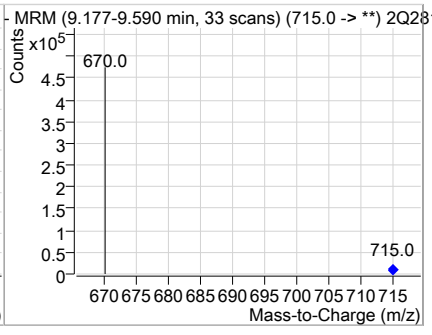




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.75	9.34	-0.01	354138				







7.6.25

Manual Integration Approval Summary

Sample Number: S2Q449-IC449
Lab FileID: 2Q28168.D
Injection Time: 03/26/19 16:52
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Cal Report: 2Q28170.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28170.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 5:23:28 PM
Sample Name : icv449-20
Vial : Vial 10
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

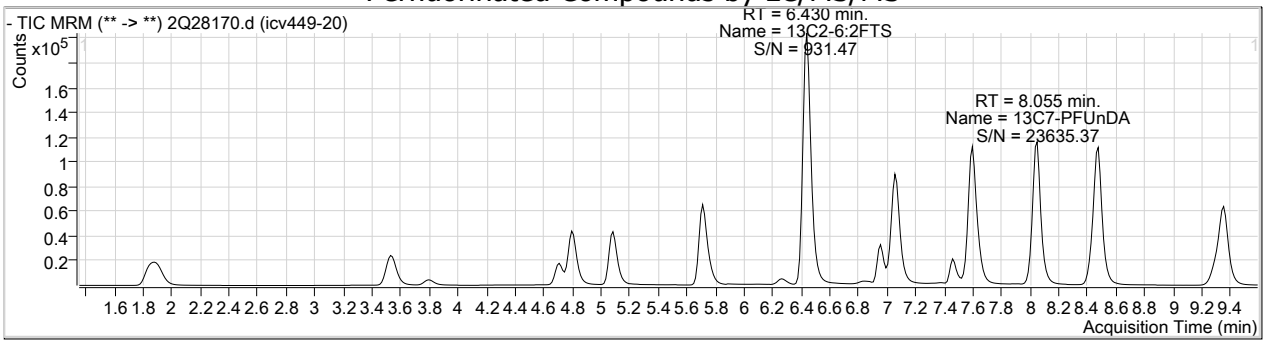
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.448	415.0 -> 370.0	353608	20.00	µg/L	0.000
13C4-PFOS	7.049	503.0 -> 80.0	51682	20.00	µg/L	0.000
M4-PFBA	1.877	217.0 -> 172.0	145102	20.00	µg/L	0.013
M5-PFPeA	3.536	268.0 -> 223.0	124439	20.00	µg/L	0.000
M5-PFHxA	4.801	318.0 -> 273.0	178846	20.00	µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	255085	20.00	µg/L	0.000
M8-PFOA	6.446	421.0 -> 376.0	269009	20.00	µg/L	0.000
M9-PFNA	7.065	472.0 -> 427.0	276211	20.00	µg/L	0.000
M6-PFDA	7.607	519.0 -> 474.0	384947	20.00	µg/L	0.013
M7-PFUnDA	8.055	570.0 -> 525.0	481089	20.00	µg/L	0.000
M2-PFDoDA	8.479	615.0 -> 570.0	520448	20.00	µg/L	0.000
M2-PFTeDA	9.352	715.0 -> 670.0	354259	20.00	µg/L	0.000
M8-FOSA	6.959	506.0 -> 78.0	114452	20.00	µg/L	0.000
M3-PFBS	3.792	302.0 -> 99.0	21232	20.00	µg/L	0.000
M3-PFHxS	5.761	402.0 -> 99.0	23326	20.00	µg/L	0.013
M8-PFOS	7.047	507.0 -> 99.0	30681	20.00	µg/L	0.000
M2-4:2FTS	4.709	329.0 -> 309.0	73272	20.00	µg/L	0.013
M2-6:2FTS	6.430	429.0 -> 409.0	82968	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	60942	20.00	µg/L	0.000
M3-MeFOSAA	7.460	573.0 -> 419.0	45253	20.00	µg/L	0.000
M3-HFPO-DA	5.093	287.0 -> 169.0	177609	100.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	4.709	329.0 -> 309.0	73005	17.67	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.4%		
13C2-6:2FTS	6.430	429.0 -> 409.0	82774	18.23	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C2-8:2FTS	7.642	529.0 -> 509.0	60932	18.09	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.5%		
13C2-PFDoDA	8.479	615.0 -> 570.0	520487	18.97	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.8%		
13C2-PFTeDA	9.352	715.0 -> 670.0	354238	18.75	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C3-PFBS	3.792	302.0 -> 99.0	21183	18.82	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C3-PFHxS	5.761	402.0 -> 99.0	23314	18.99	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C4-PFBA	1.877	217.0 -> 172.0	144418	18.71	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
13C4-PFHpA	5.717	367.0 -> 322.0	254700	19.15	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.8%		
13C5-PFHxA	4.801	318.0 -> 273.0	178808	18.94	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
13C5-PFPeA	3.536	268.0 -> 223.0	124437	18.97	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.8%		
13C6-PFDA	7.607	519.0 -> 474.0	384501	19.76	µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

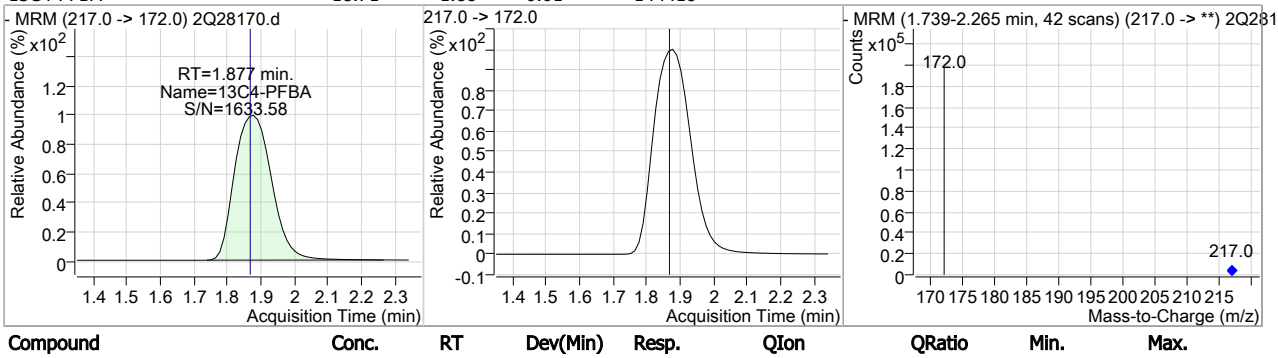
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C7-PFUnDA	8.055	570.0 -> 525.0	480867	19.46 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.3%		
13C8-FOSA	6.959	506.0 -> 78.0	114445	19.85 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C8-PFOA	6.446	421.0 -> 376.0	268681	19.41 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C8-PFOS	7.047	507.0 -> 99.0	30671	19.13 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.6%		
13C9-PFNA	7.065	472.0 -> 427.0	275751	19.27 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
d3-MeFOSAA	7.460	573.0 -> 419.0	45235	18.75 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
M2-PFOA	6.448	415.0 -> 370.0	353929	19.99 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.049	503.0 -> 80.0	51721	20.14 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C3-HFPO-DA	5.093	287.0 -> 169.0	177609	101.45 µg/L		0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
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	7.598	584.0 -> 419.0	16669	17.84 µg/L	m	97
FOSA	-	498.0 -> 78.0	-	N.D.		
MeFOSAA	7.461	570.0 -> 419.0	21208	18.60 µg/L	m	94
PFBA	-	213.0 -> 169.0	-	N.D.		
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	5.720	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	5.751	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	6.449	413.0 -> 369.0	121943	17.01 µg/L	m	97
PFOS	7.050	499.0 -> 80.0	29619	19.07 µg/L	m	94
PFPeA	-	263.0 -> 219.0	-	N.D.		
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.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

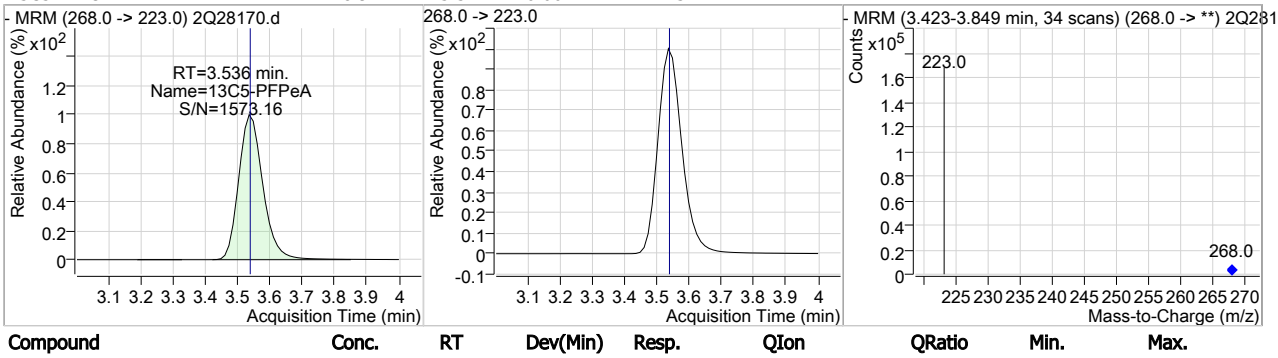
Perfluorinated Compounds by LC/MS/MS



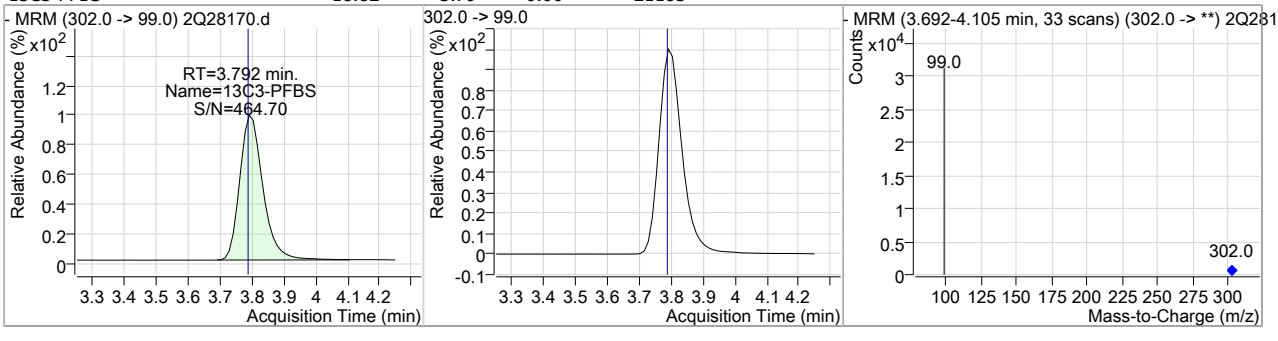
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.71	1.88	0.01	144418				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.97	3.54	0.00	124437				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.82	3.79	0.00	21183				



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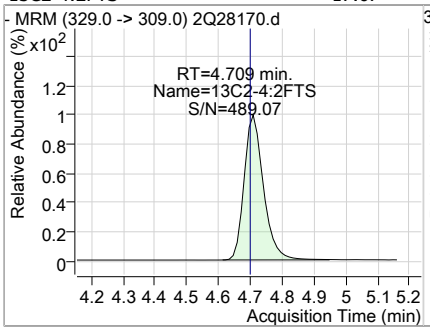
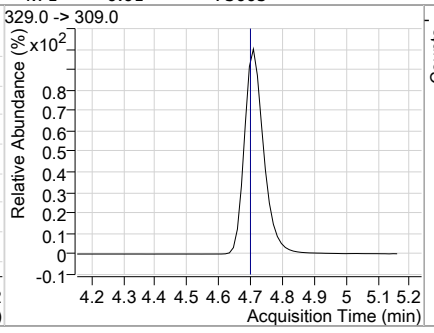
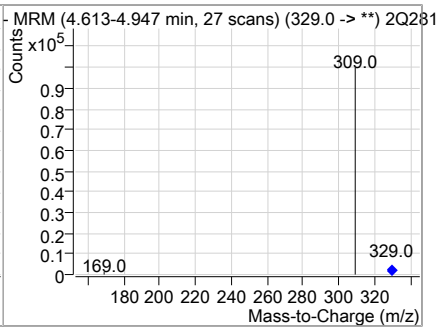
Perfluorinated Compounds by LC/MS/MS

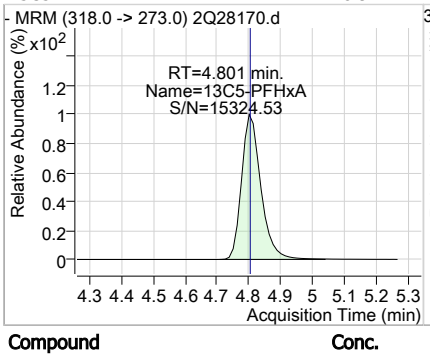
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.67	4.71	0.01	73005				

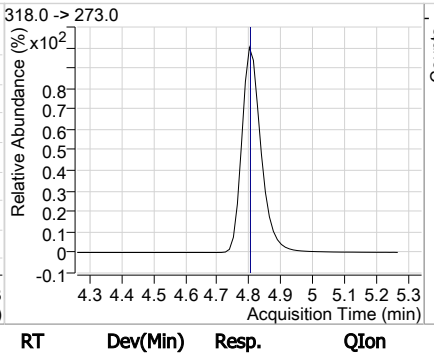


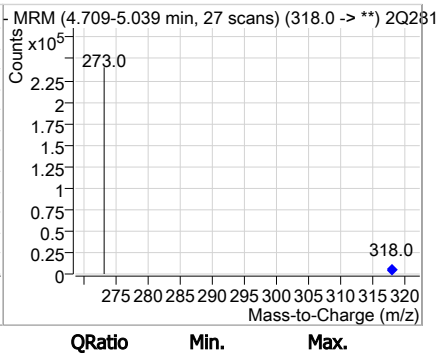




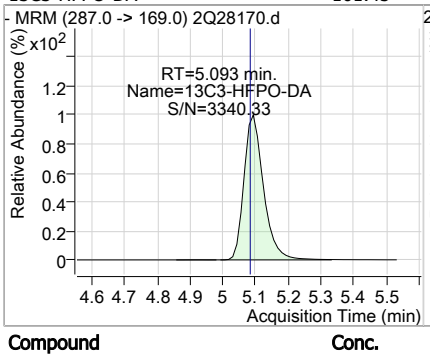
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.94	4.80	0.00	178808				

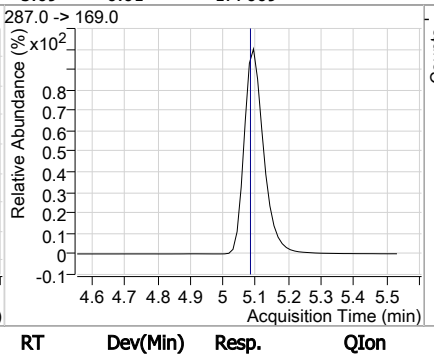


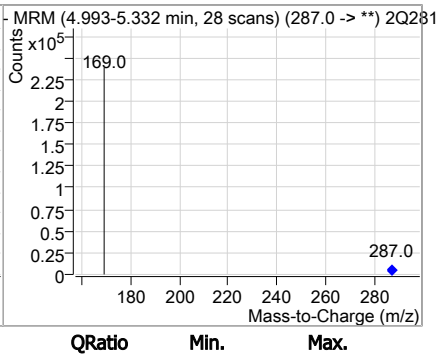




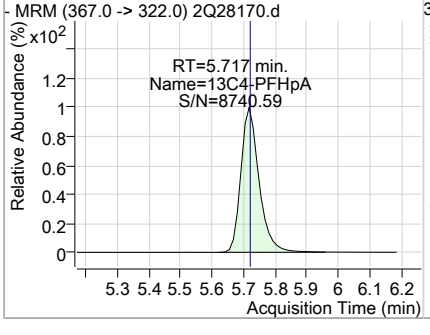
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	101.45	5.09	0.01	177609				

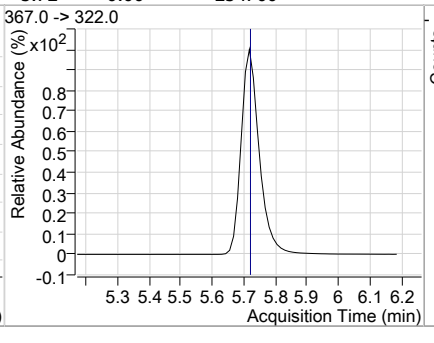


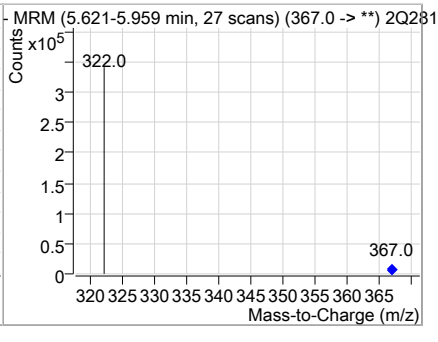




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.15	5.72	0.00	254700				







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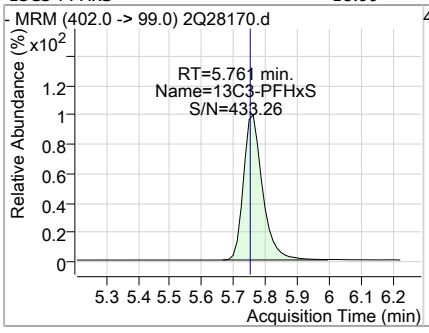
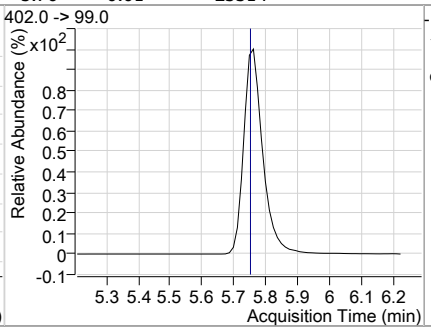
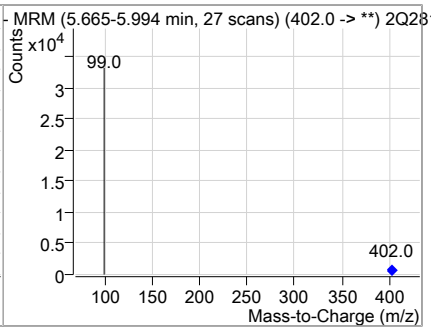
Perfluorinated Compounds by LC/MS/MS

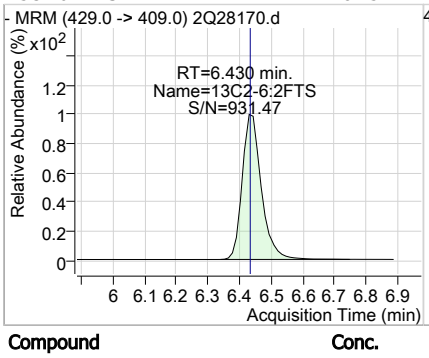
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.99	5.76	0.01	23314				

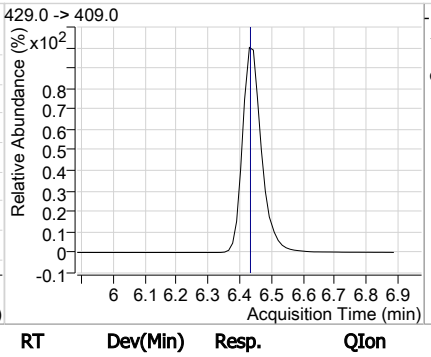


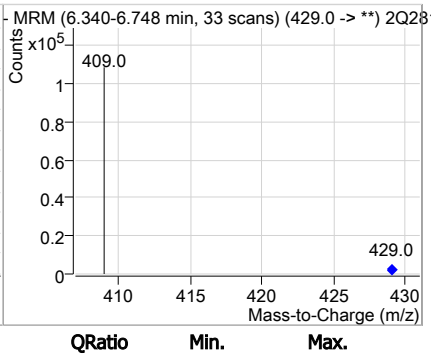




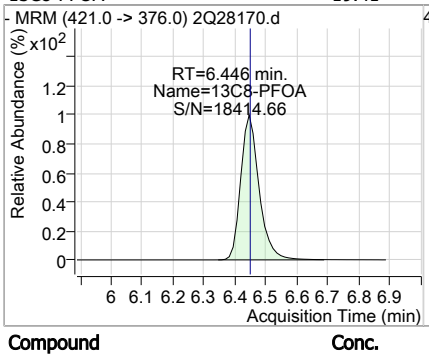
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.23	6.43	0.00	82774				

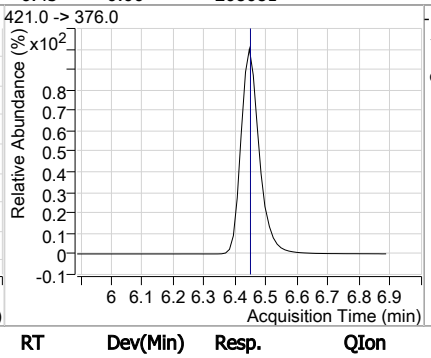


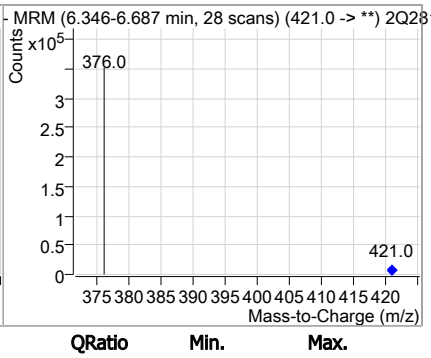




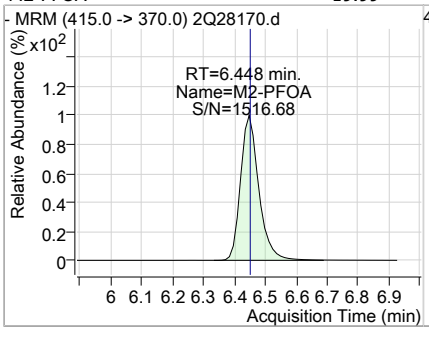
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.41	6.45	0.00	268681				

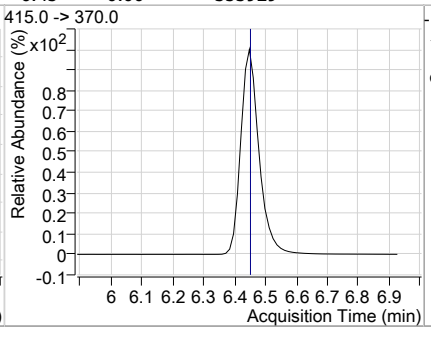


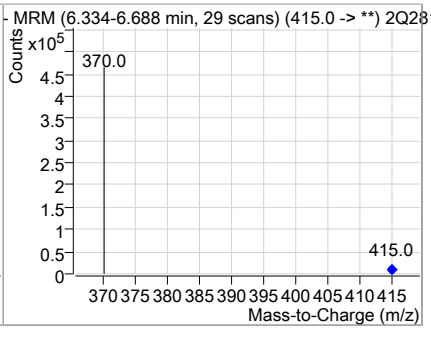




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.45	0.00	353929				







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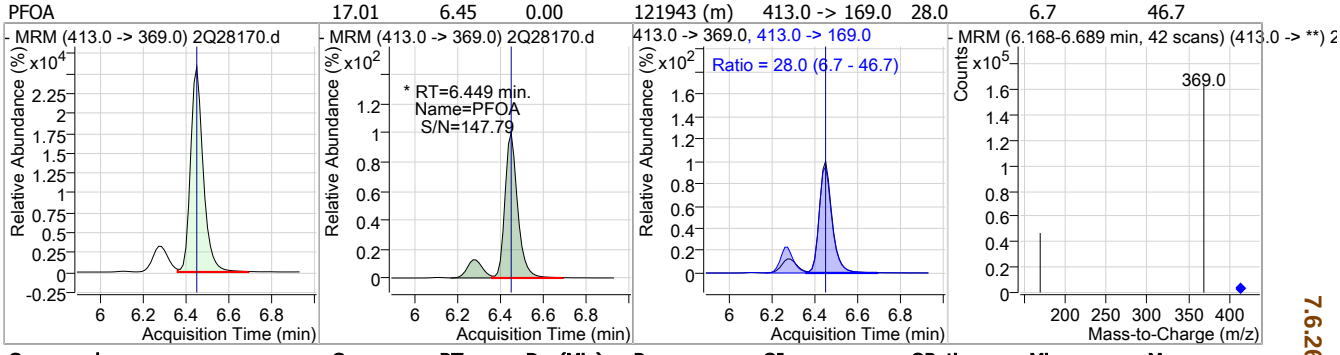
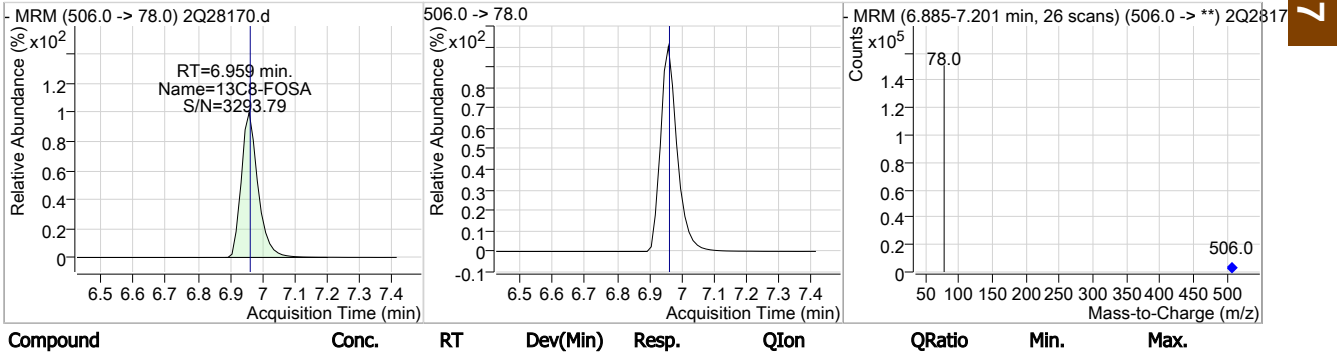
Perfluorinated Compounds by LC/MS/MS

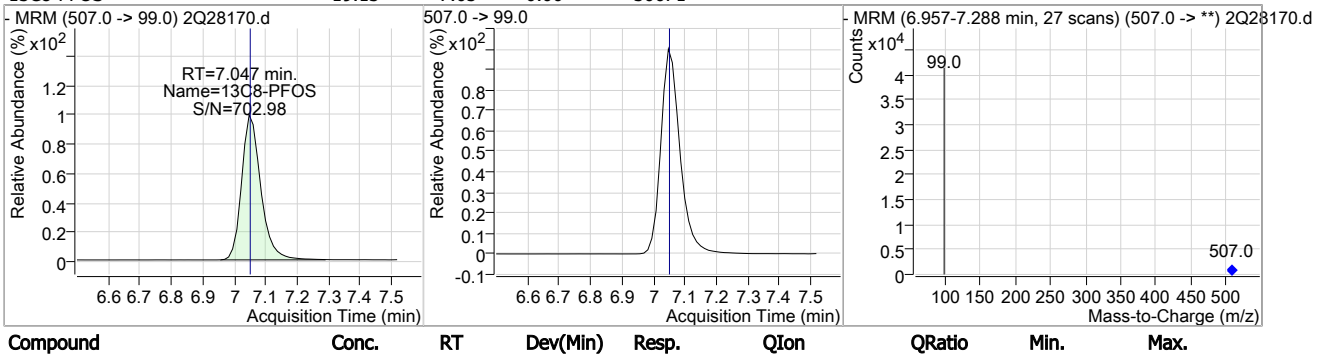
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	17.01	6.45	0.00	121943 (m)	413.0 -> 169.0	28.0	6.7	46.7



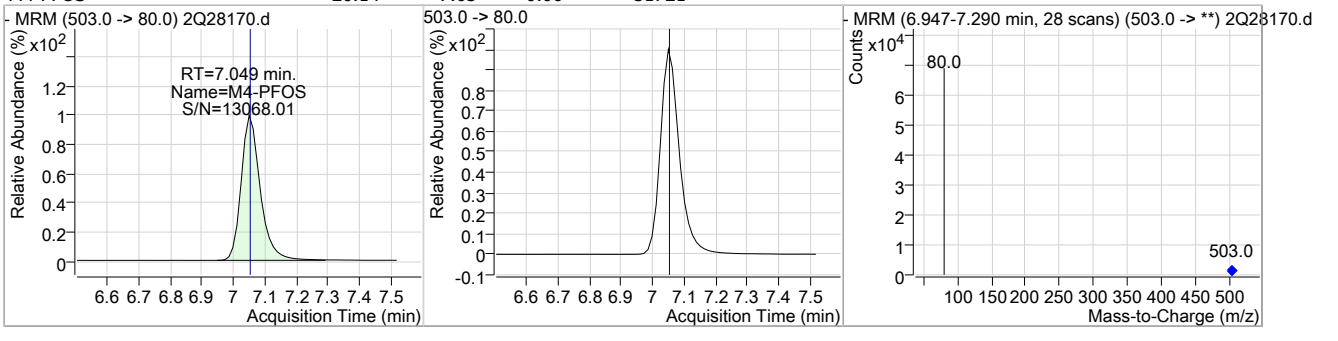
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.85	6.96	0.00	114445				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.13	7.05	0.00	30671				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.14	7.05	0.00	51721				



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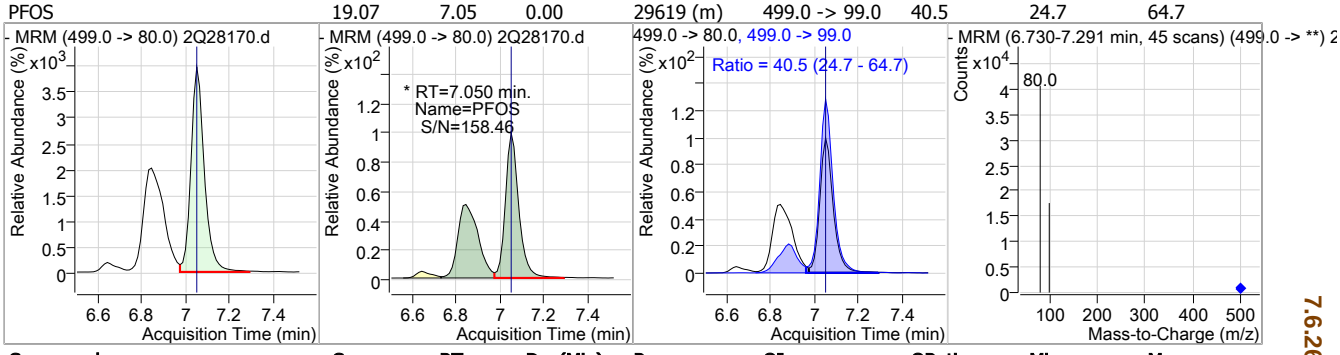
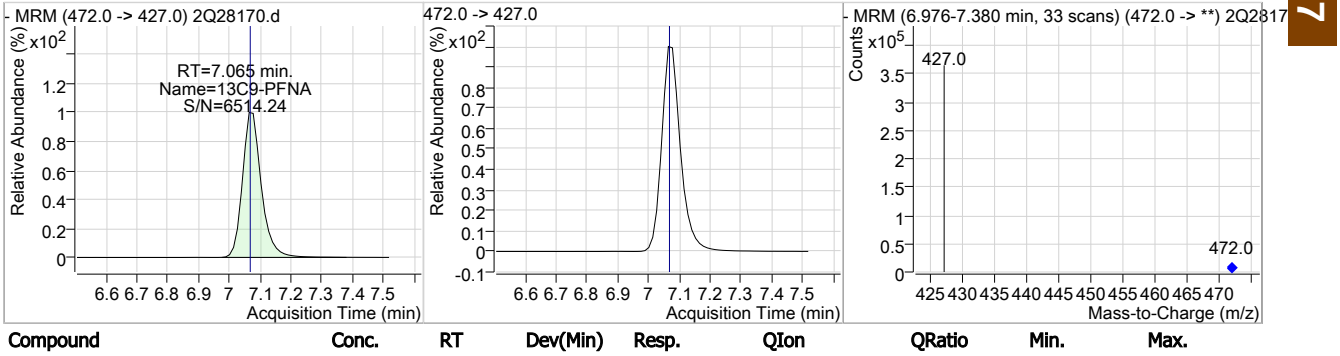
Perfluorinated Compounds by LC/MS/MS

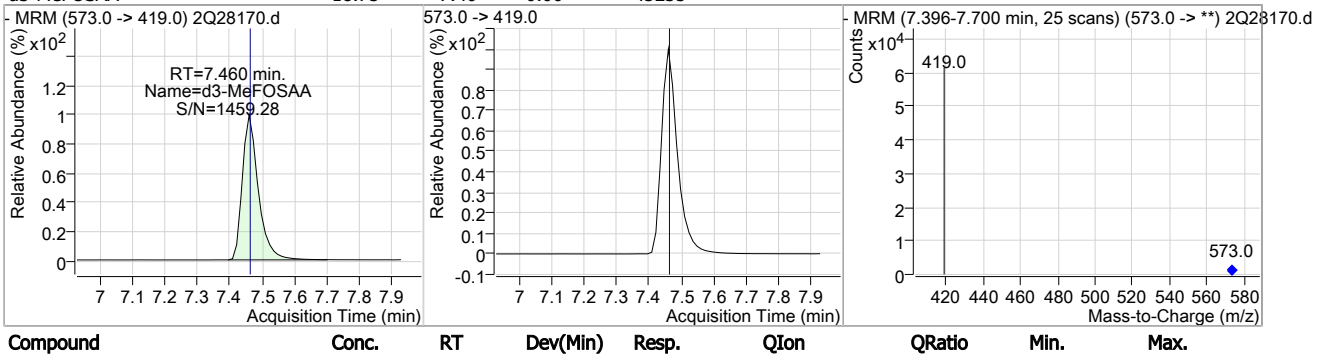
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.07	7.05	0.00	29619 (m)	499.0 -> 99.0	40.5	24.7	64.7



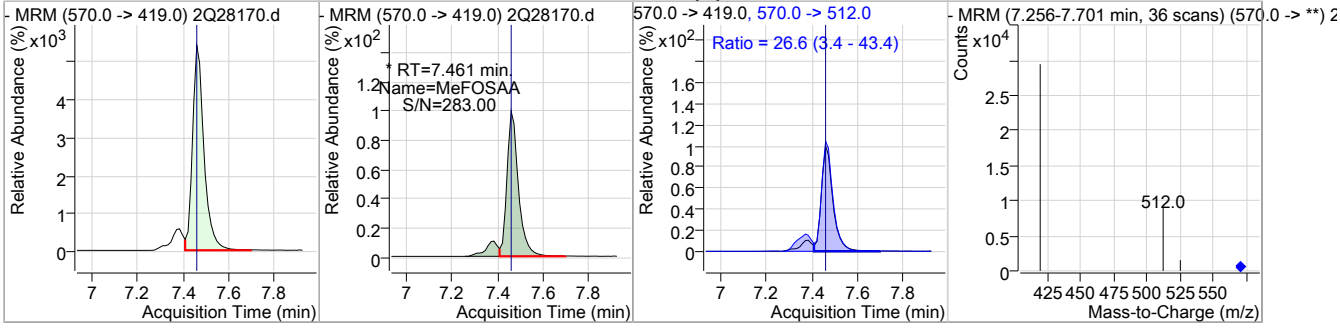
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.27	7.07	0.00	275751				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.75	7.46	0.00	45235				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.60	7.46	0.00	21208 (m)	570.0 -> 512.0	26.6	3.4	43.4



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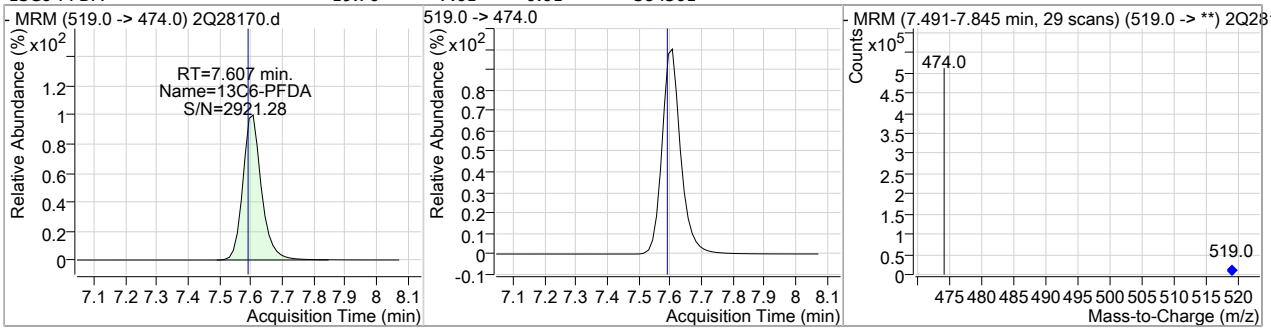
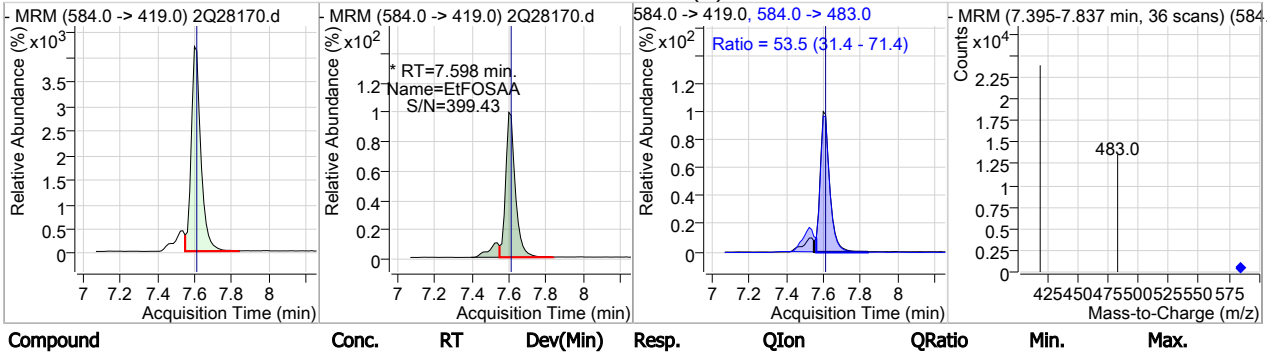
Perfluorinated Compounds by LC/MS/MS

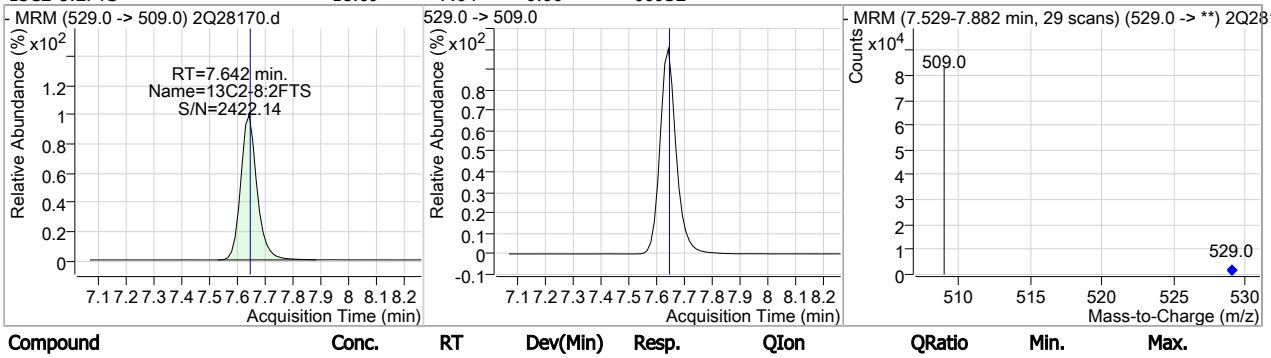
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.76	7.61	0.01	384501				



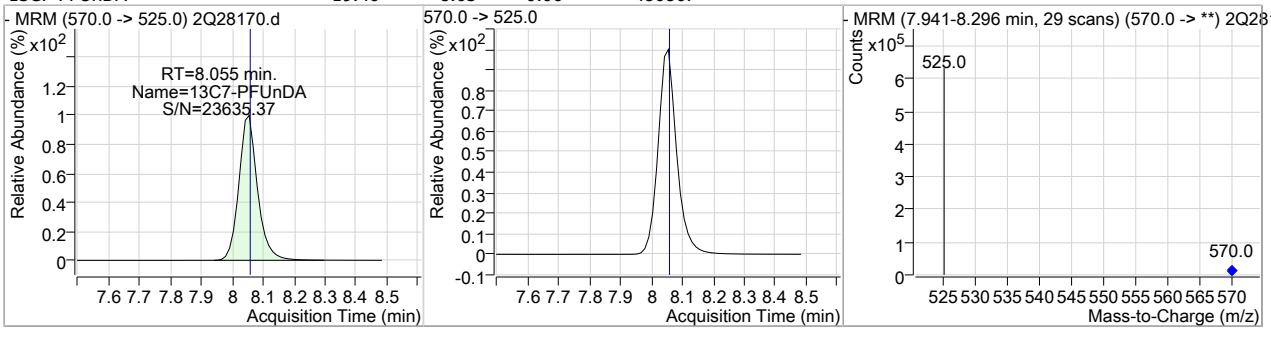
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	17.84	7.60	-0.01	16669 (m)	584.0 -> 483.0	53.5	31.4	71.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.09	7.64	0.00	60932				



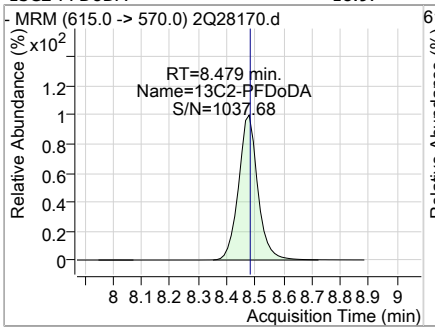
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.46	8.05	0.00	480867				

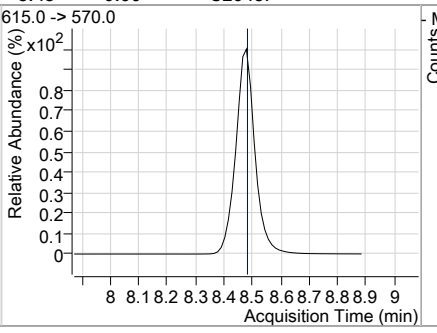


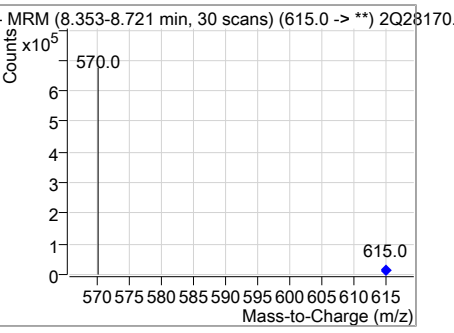
7.6.26

Perfluorinated Compounds by LC/MS/MS

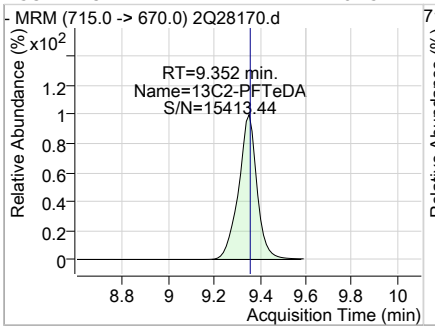
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.97	8.48	0.00	520487				

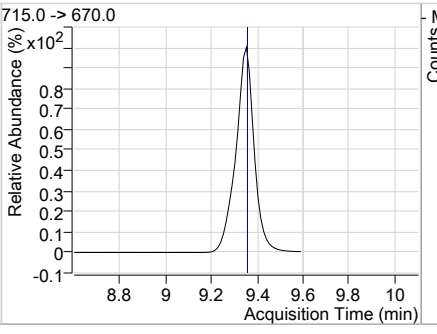


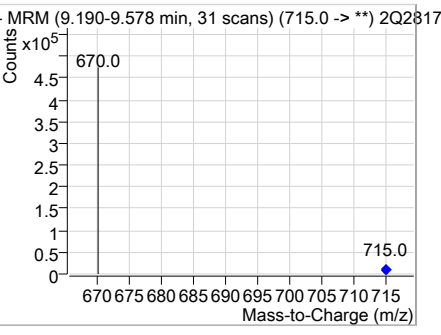




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.75	9.35	0.00	354238				







7.6.26

7

Manual Integration Approval Summary

Sample Number: S2Q449-ICV449 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28170.D **Analyst approved:** 03/27/19 13:46 Natasha Gumtie
Injection Time: 03/26/19 17:23 **Supervisor approved:** 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.45	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak
MeFOSAA	2355-31-9		7.46	Split peak
EtFOSAA	2991-50-6		7.60	Split peak

Cal Report: 2Q28171.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File	: 2Q28171.d
Operator	: natashag
Acq. Method	: dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	: 3/26/2019 5:39:12 PM
Sample Name	: icv449-20
Vial	: Vial 11
DA Method File	: ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name	: s2q449.batch.bin
Sample Information	: op74164,S2Q449,250,,,1.0,1,water

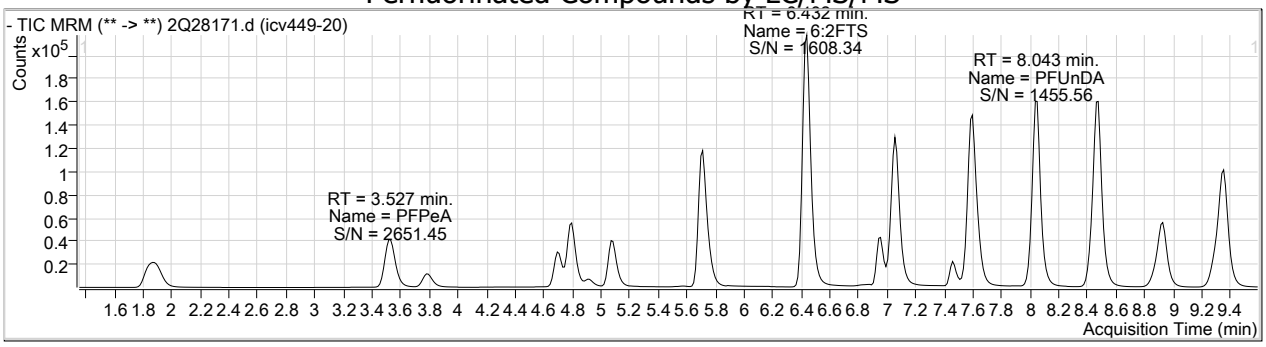
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.448	415.0 -> 370.0	333414	20.00	µg/L	0.000
13C4-PFOS	7.049	503.0 -> 80.0	49917	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	141745	20.00	µg/L	0.000
M5-PFPeA	3.536	268.0 -> 223.0	120494	20.00	µg/L	0.000
M5-PFHxA	4.801	318.0 -> 273.0	175195	20.00	µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	244730	20.00	µg/L	0.000
M8-PFOA	6.446	421.0 -> 376.0	255754	20.00	µg/L	0.000
M9-PFNA	7.065	472.0 -> 427.0	265434	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	361625	20.00	µg/L	0.000
M7-PFUnDA	8.055	570.0 -> 525.0	459785	20.00	µg/L	0.000
M2-PFDoDA	8.479	615.0 -> 570.0	509559	20.00	µg/L	0.000
M2-PFTeDA	9.352	715.0 -> 670.0	352701	20.00	µg/L	0.000
M8-FOSA	6.959	506.0 -> 78.0	106998	20.00	µg/L	0.000
M3-PFBS	3.792	302.0 -> 99.0	20652	20.00	µg/L	0.000
M3-PFHxS	5.748	402.0 -> 99.0	22842	20.00	µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	30063	20.00	µg/L	0.000
M2-4:2FTS	4.696	329.0 -> 309.0	74812	20.00	µg/L	0.000
M2-6:2FTS	6.430	429.0 -> 409.0	83281	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	61500	20.00	µg/L	0.000
M3-MeFOSAA	7.460	573.0 -> 419.0	44305	20.00	µg/L	0.000
M3-HFPO-DA	5.081	287.0 -> 169.0	168113	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	74711	18.09	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.4%		
13C2-6:2FTS	6.430	429.0 -> 409.0	83300	18.34	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.7%		
13C2-8:2FTS	7.642	529.0 -> 509.0	61480	18.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.3%		
13C2-PFDoDA	8.479	615.0 -> 570.0	509600	18.57	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C2-PFTeDA	9.352	715.0 -> 670.0	352725	18.67	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.4%		
13C3-PFBS	3.792	302.0 -> 99.0	20666	18.36	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%		
13C3-PFHxS	5.748	402.0 -> 99.0	22888	18.64	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C4-PFBA	1.865	217.0 -> 172.0	140938	18.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.3%		
13C4-PFHpA	5.717	367.0 -> 322.0	244566	18.39	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.0%		
13C5-PFHxA	4.801	318.0 -> 273.0	174934	18.53	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
13C5-PFPeA	3.536	268.0 -> 223.0	120486	18.36	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%		
13C6-PFDA	7.594	519.0 -> 474.0	361621	18.58	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

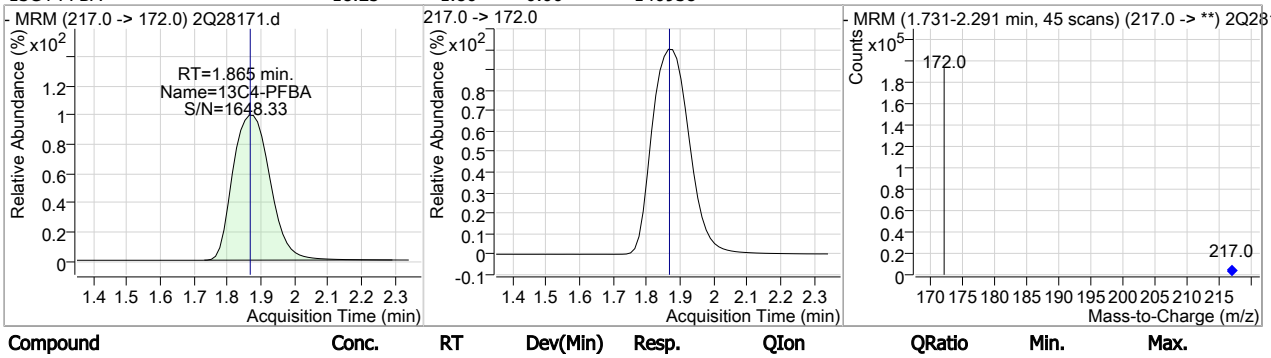
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C7-PFUnDA	8.055	570.0 -> 525.0	459517	18.60 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C8-FOSA	6.959	506.0 -> 78.0	106985	18.55 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.8%		
13C8-PFOA	6.446	421.0 -> 376.0	255676	18.47 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.3%		
13C8-PFOS	7.047	507.0 -> 99.0	30040	18.74 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C9-PFNA	7.065	472.0 -> 427.0	265306	18.54 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
d3-MeFOSAA	7.460	573.0 -> 419.0	44306	18.37 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.8%		
M2-PFOA	6.448	415.0 -> 370.0	333606	19.98 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.049	503.0 -> 80.0	50049	20.18 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	168113	96.03 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 96.0%		
Target Compounds						**QValue**
4:2FTS	4.699	327.0 -> 307.0	37556	17.28 µg/L		100
6:2FTS	6.432	427.0 -> 407.0	38303	18.00 µg/L		98
8:2FTS	7.643	527.0 -> 507.0	29158	18.06 µg/L		97
EtFOSAA	7.610	584.0 -> 419.0	18320	20.03 µg/L		97
FOSA	6.950	498.0 -> 78.0	49018	19.59 µg/L		100
MeFOSAA	7.461	570.0 -> 419.0	23089	20.64 µg/L		100
PFBA	1.873	213.0 -> 169.0	25595	18.84 µg/L		100
PFBS	3.783	299.0 -> 80.0	26836	16.07 µg/L		100
PFDA	7.595	513.0 -> 469.0	128952	17.49 µg/L		99
PFDoDA	8.469	613.0 -> 569.0	228670	19.57 µg/L		99
PFDS	8.014	599.0 -> 80.0	9965	17.45 µg/L		98
PFHpA	5.720	363.0 -> 319.0	213081	19.61 µg/L		100
PFHpS	6.454	449.0 -> 80.0	20951	18.35 µg/L		99
PFHxA	4.803	313.0 -> 269.0	48517	16.91 µg/L		100
PFHxS	5.751	399.0 -> 80.0	21072	16.05 µg/L	m	99
PFNA	7.066	463.0 -> 419.0	143226	17.60 µg/L		100
PFNS	7.565	549.0 -> 80.0	19995	17.73 µg/L		97
PFOA	6.449	413.0 -> 369.0	127342	18.68 µg/L		99
PFOS	7.050	499.0 -> 80.0	27589	18.13 µg/L	m	95
PFPeA	3.527	263.0 -> 219.0	95515	17.89 µg/L		100
PFPeS	4.920	349.0 -> 80.0	17370	15.72 µg/L		98
PFTeDA	9.346	713.0 -> 669.0	203323	17.48 µg/L		99
PFTrDA	8.935	663.0 -> 619.0	279535	20.89 µg/L		99
PFUnDA	8.043	563.0 -> 519.0	181240	19.01 µg/L		99
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

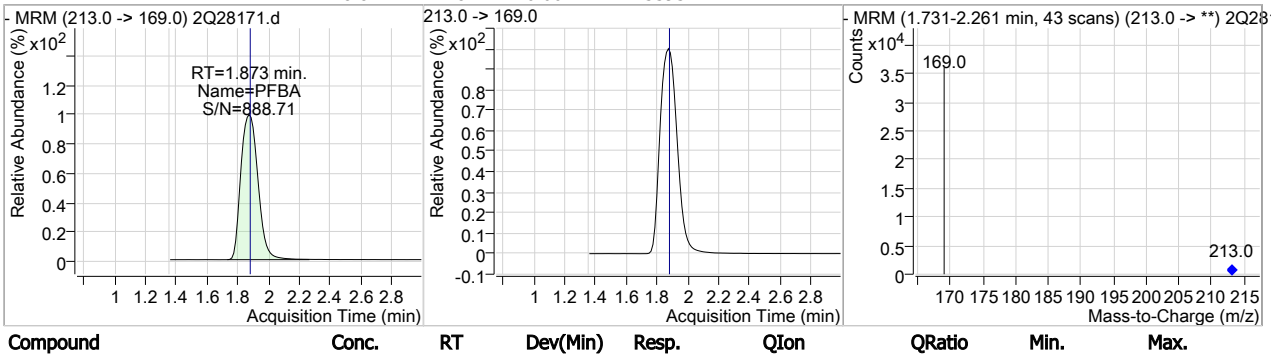
Perfluorinated Compounds by LC/MS/MS



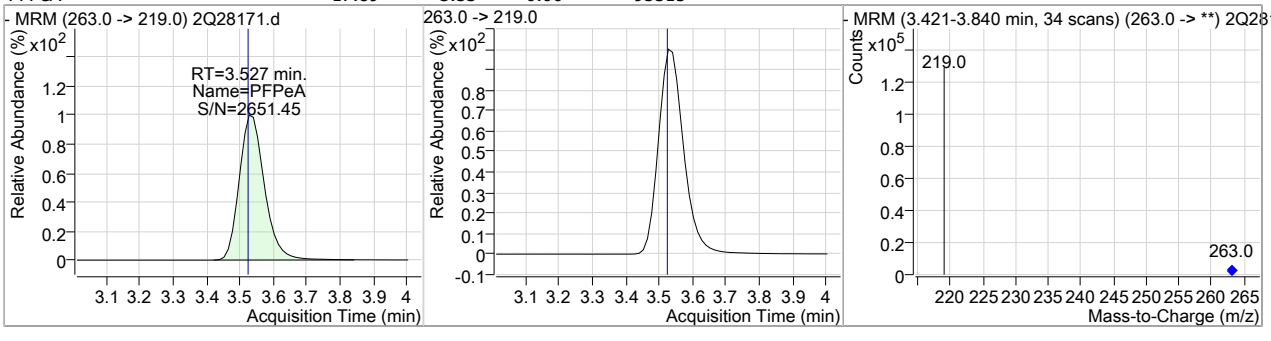
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.25	1.86	0.00	140938				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	18.84	1.87	0.00	25595				

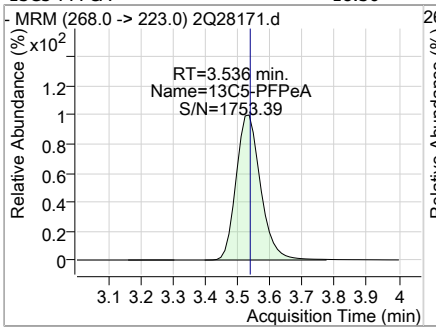


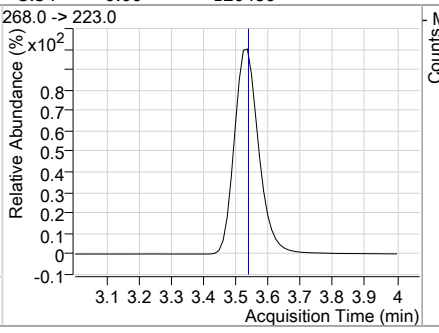
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	17.89	3.53	0.00	95515				

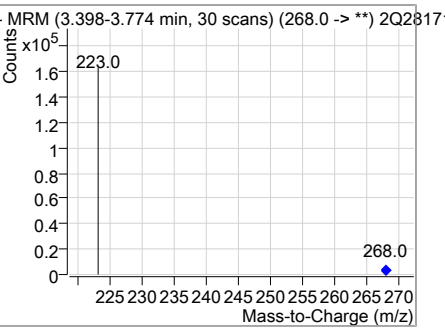


Perfluorinated Compounds by LC/MS/MS

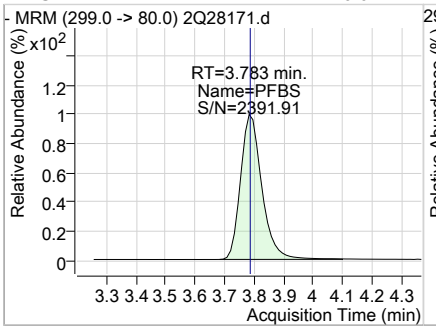
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.36	3.54	0.00	120486				

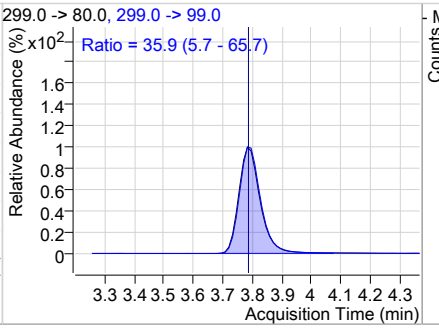


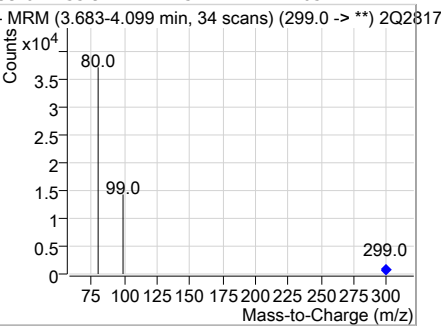




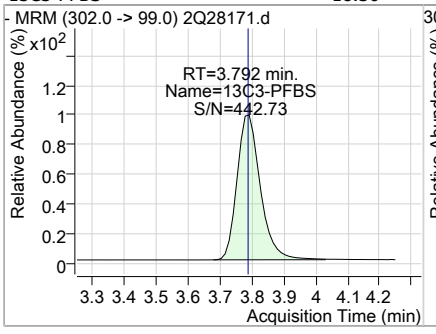
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	16.07	3.78	0.00	26836	299.0 -> 99.0	35.9	5.7	65.7

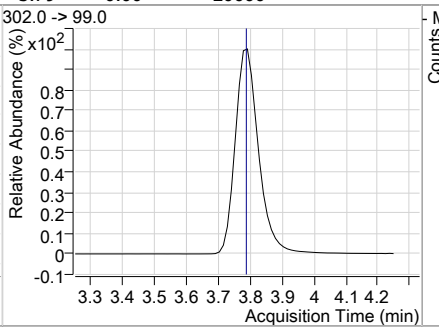


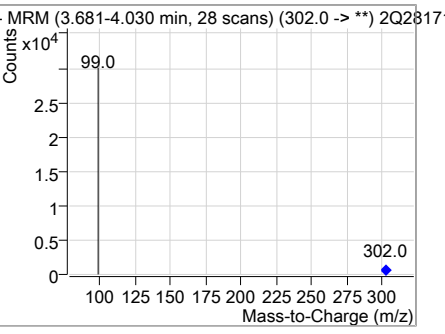




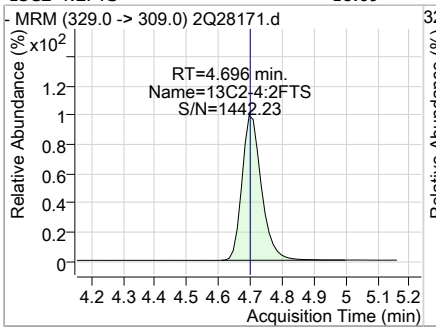
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.36	3.79	0.00	20666				

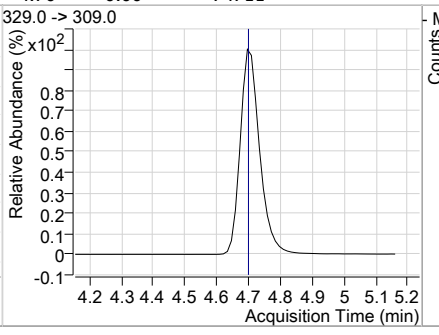


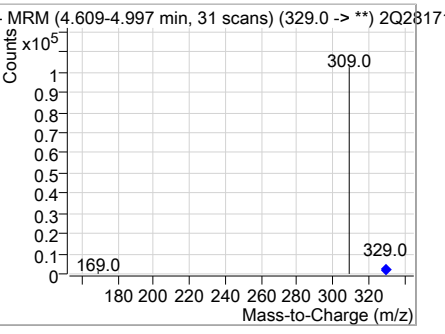




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.09	4.70	0.00	74711				



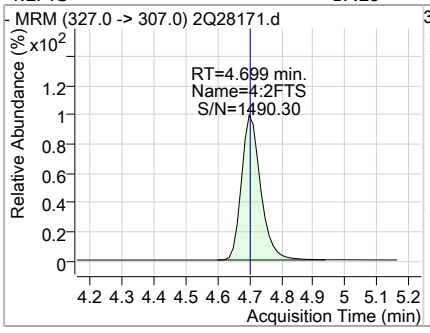


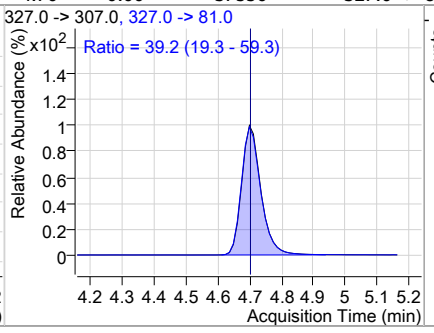


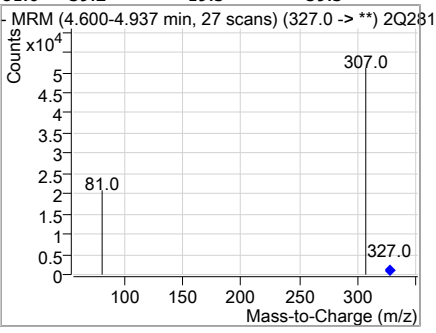
7.6.27

Perfluorinated Compounds by LC/MS/MS

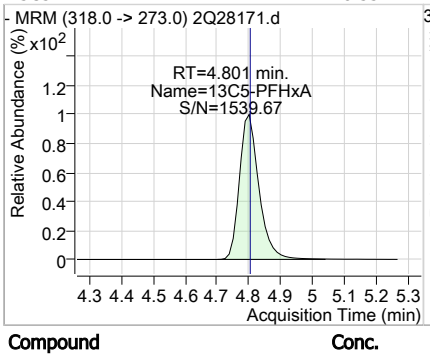
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	17.28	4.70	0.00	37556	327.0 -> 81.0	39.2	19.3	59.3

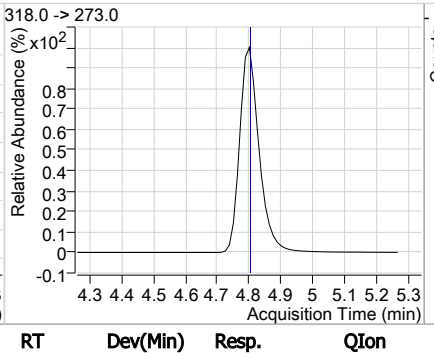


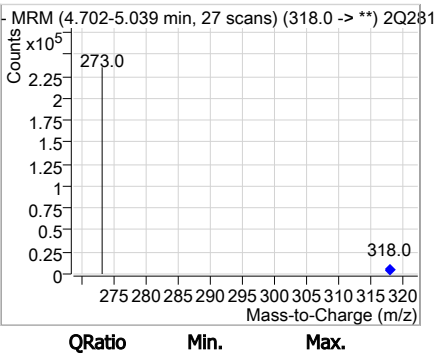




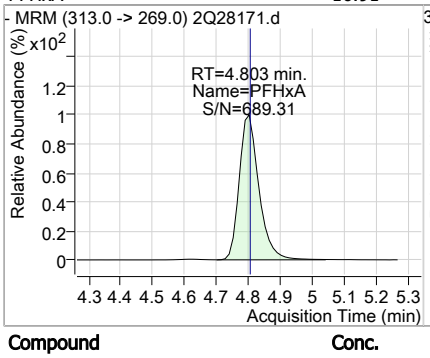
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.53	4.80	0.00	174934				

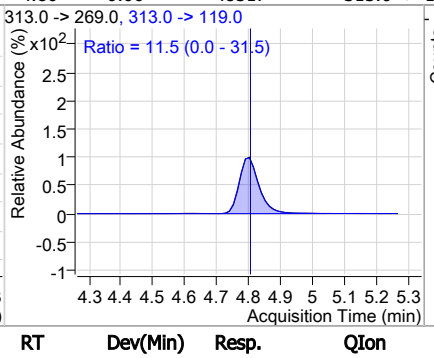


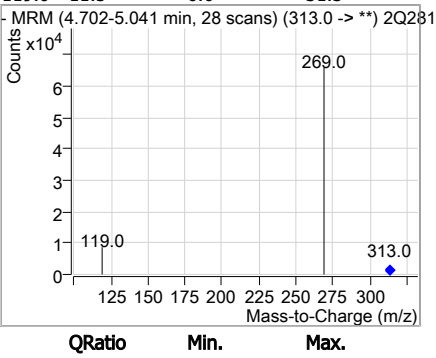




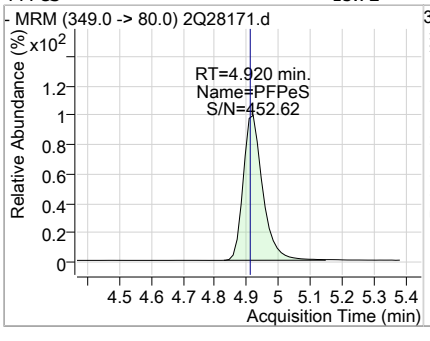
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	16.91	4.80	0.00	48517	313.0 -> 119.0	11.5	0.0	31.5

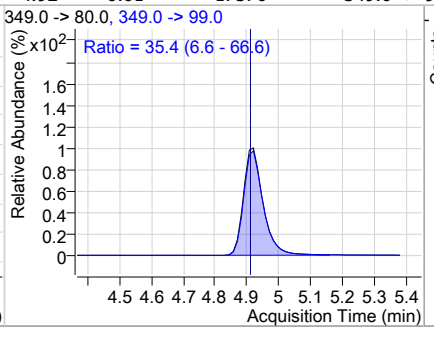


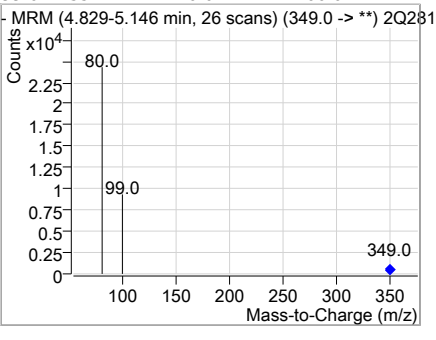




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	15.72	4.92	0.01	17370	349.0 -> 99.0	35.4	6.6	66.6

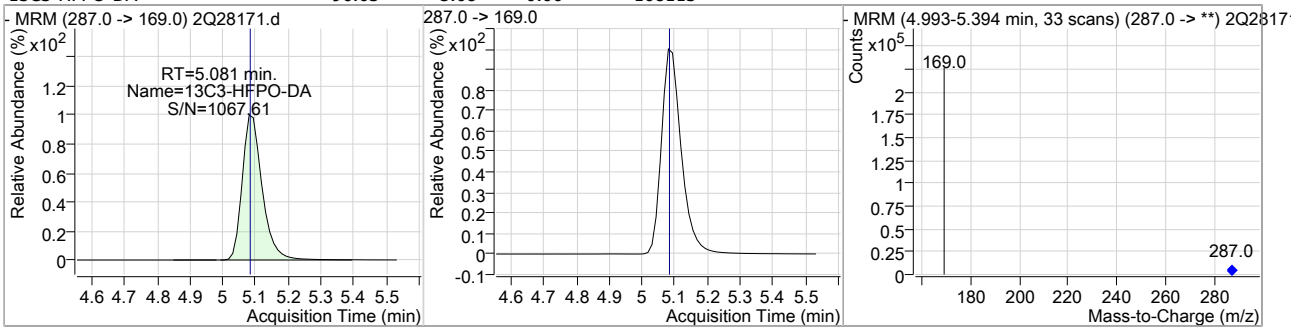




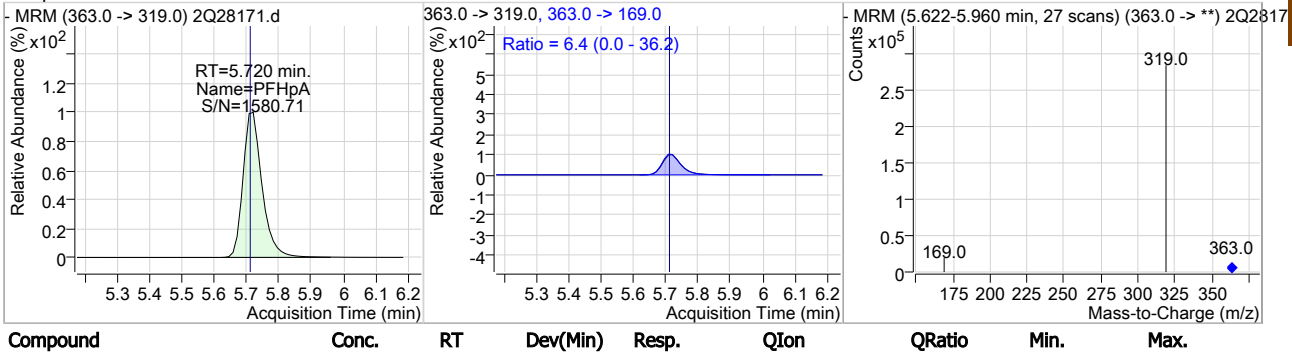


Perfluorinated Compounds by LC/MS/MS

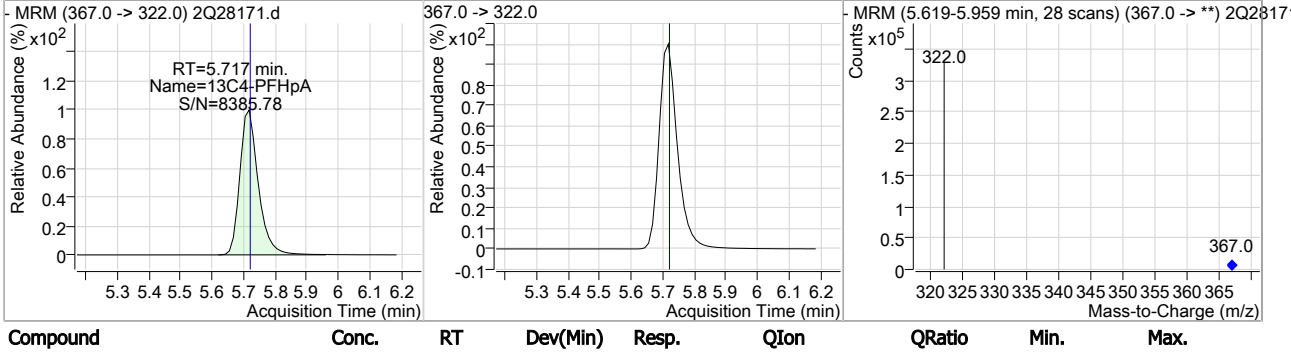
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	96.03	5.08	0.00	168113				



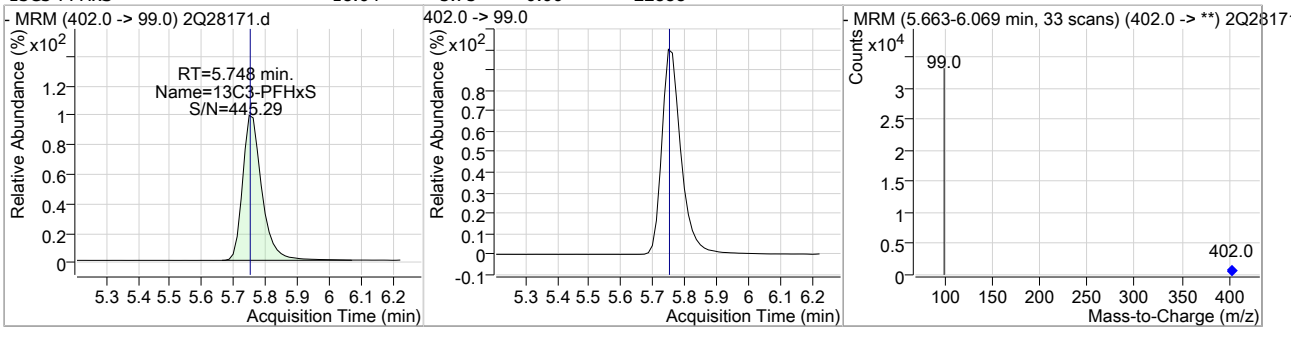
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.61	5.72	0.01	213081	363.0 -> 169.0	6.4	0.0	36.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.39	5.72	0.00	244566				



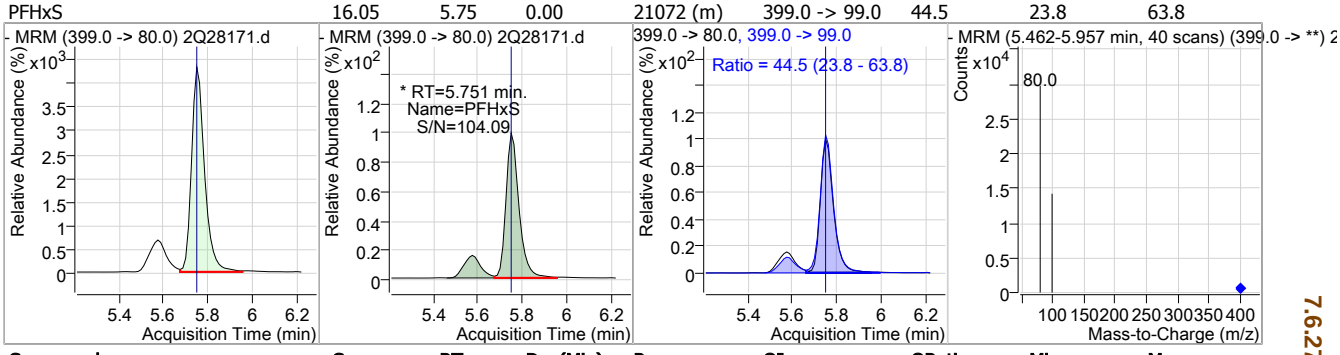
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.64	5.75	0.00	22888				



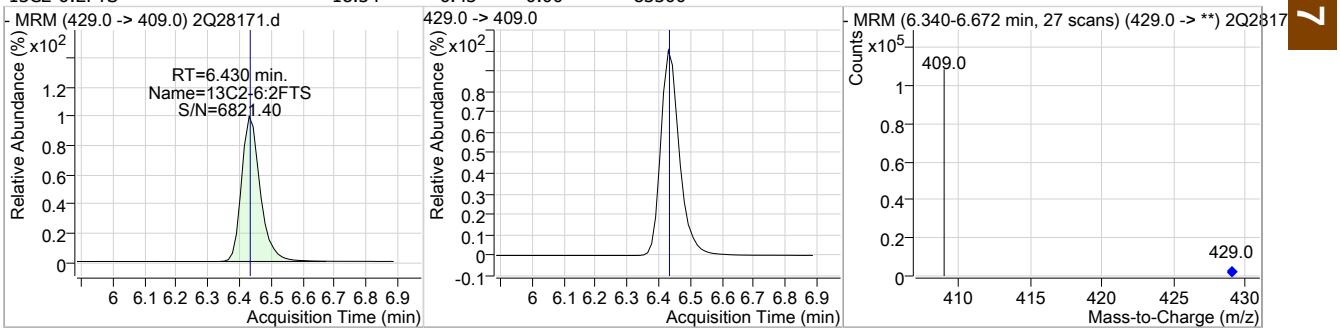
7.6.27

Perfluorinated Compounds by LC/MS/MS

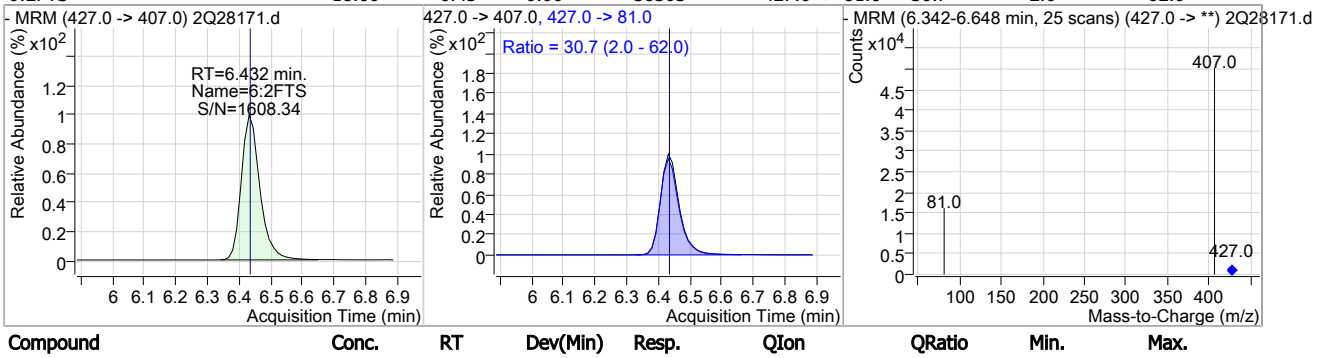
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	16.05	5.75	0.00	21072 (m)	399.0 -> 99.0	44.5	23.8	63.8



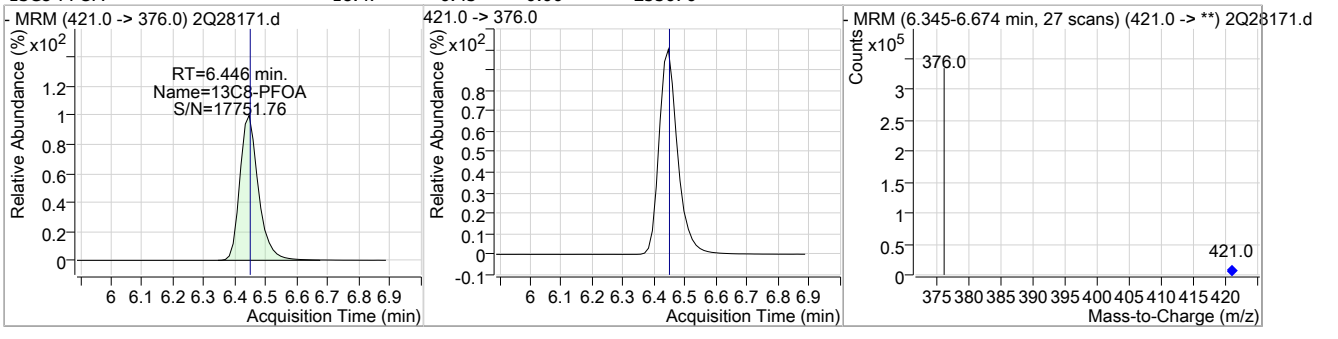
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.34	6.43	0.00	83300				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	18.00	6.43	0.00	38303	427.0 -> 81.0	30.7	2.0	62.0



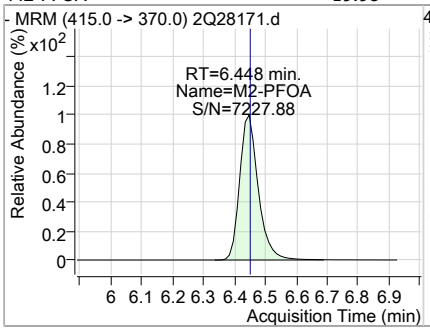
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.47	6.45	0.00	255676				

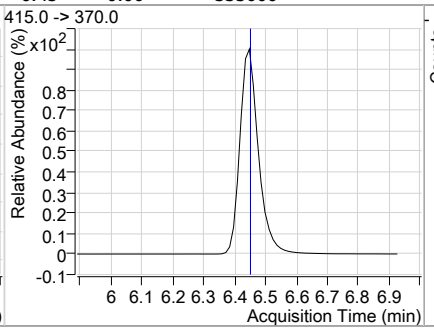


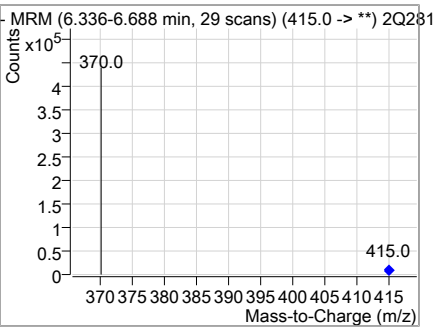
7.6.27

Perfluorinated Compounds by LC/MS/MS

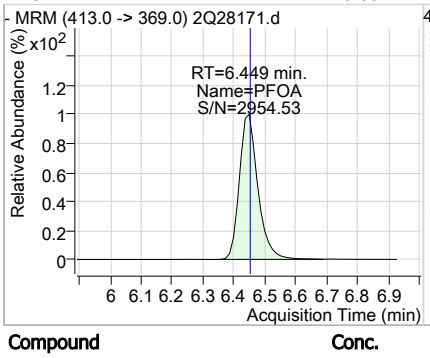
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.98	6.45	0.00	333606				

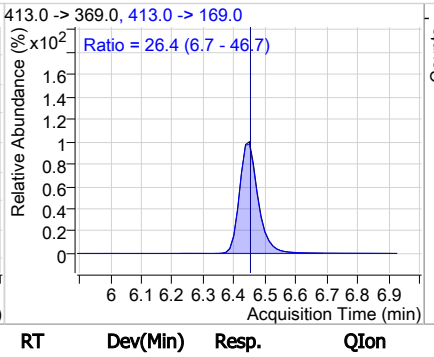


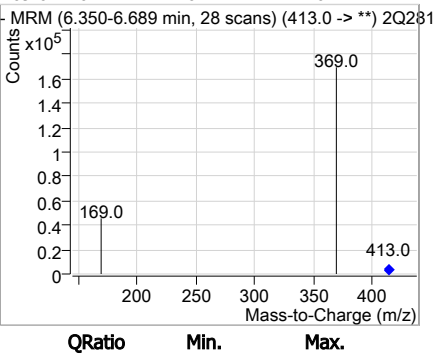




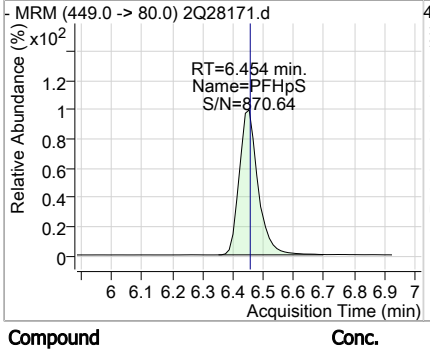
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.68	6.45	0.00	127342	413.0 -> 169.0	26.4	6.7	46.7

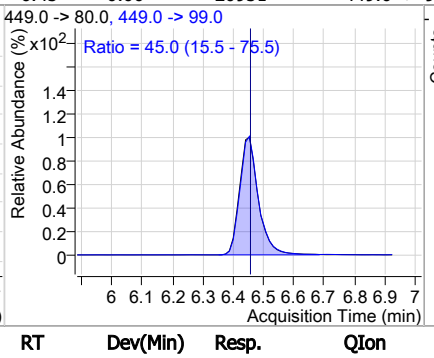


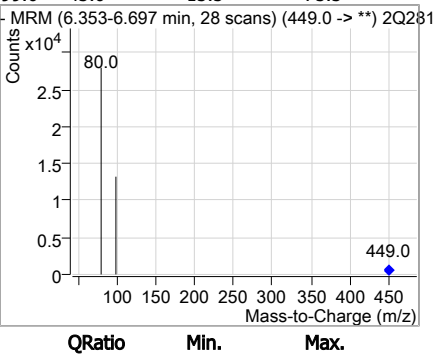




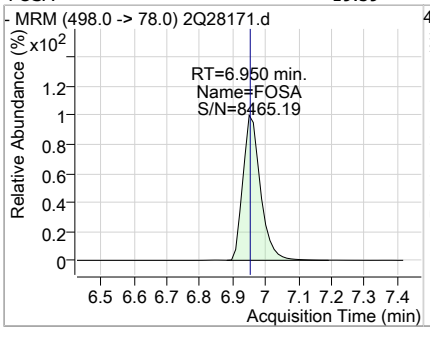
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.35	6.45	0.00	20951	449.0 -> 99.0	45.0	15.5	75.5

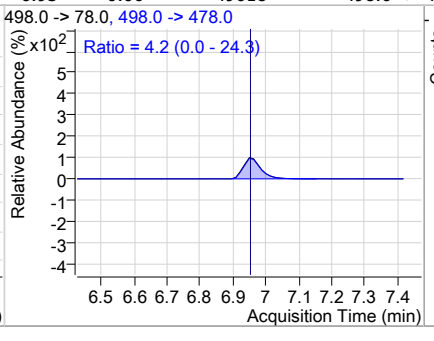


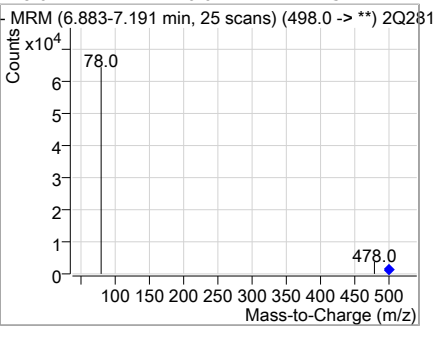




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.59	6.95	0.00	49018	498.0 -> 478.0	4.2	0.0	24.3



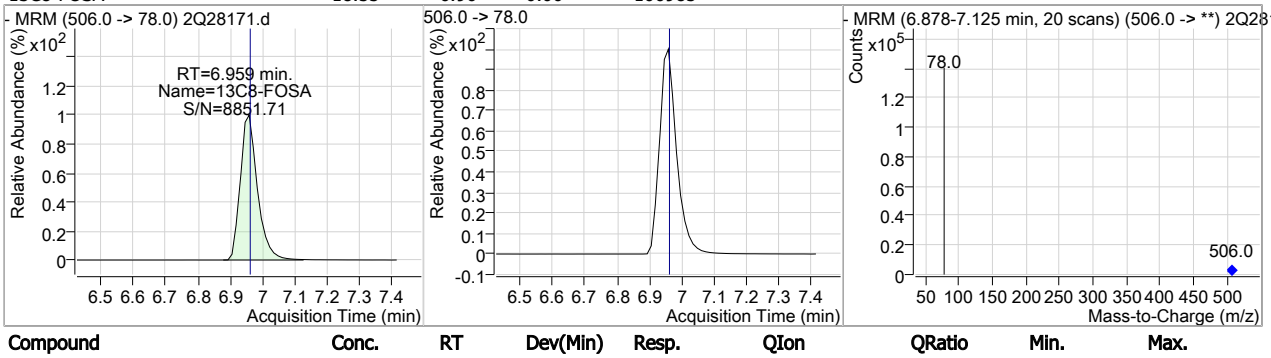




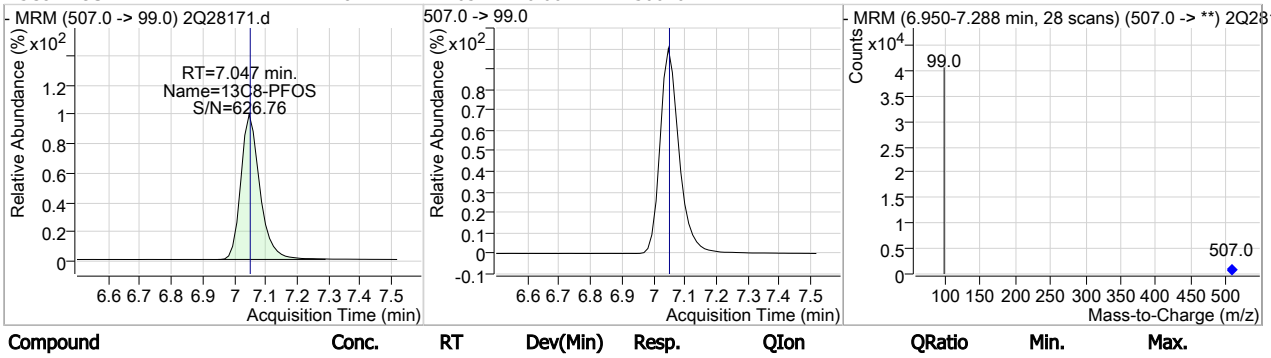
7.6.27

Perfluorinated Compounds by LC/MS/MS

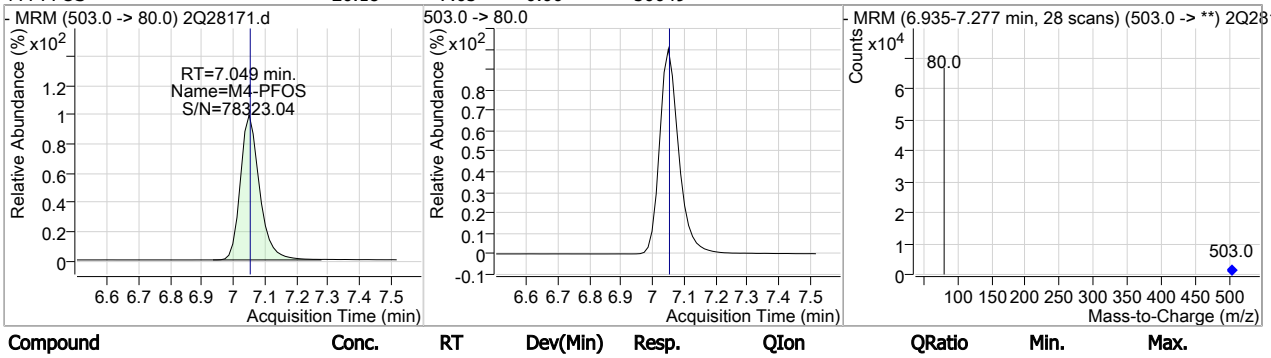
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.55	6.96	0.00	106985				



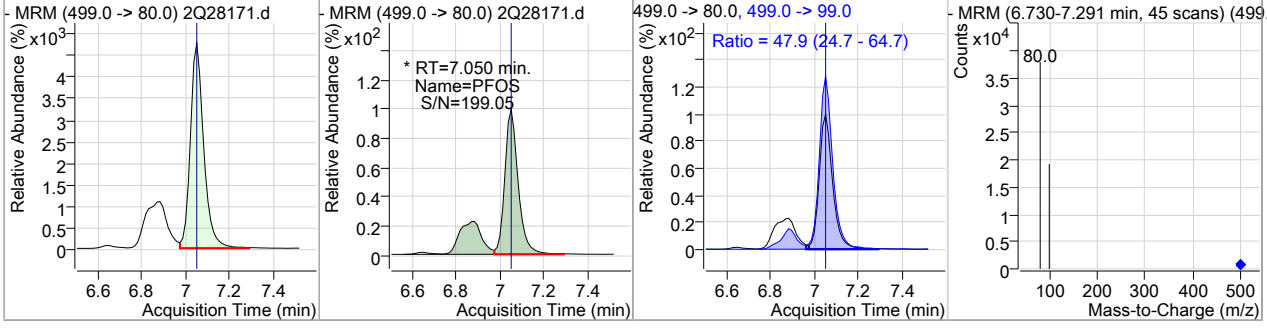
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.74	7.05	0.00	30040				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.18	7.05	0.00	50049				



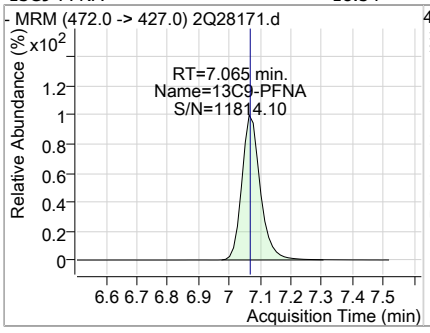
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.13	7.05	0.00	27589 (m)	499.0 -> 99.0	47.9	24.7	64.7

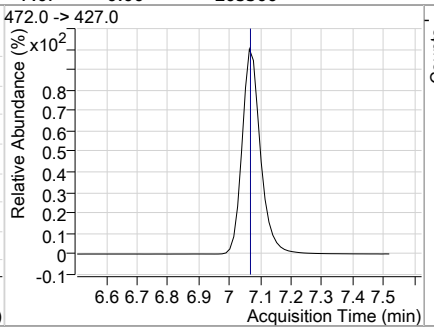


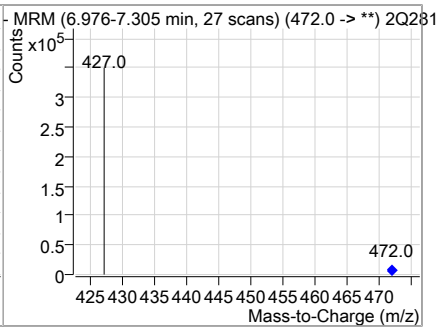
7.6.27

Perfluorinated Compounds by LC/MS/MS

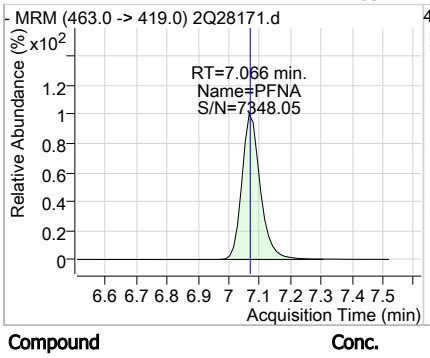
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.54	7.07	0.00	265306				

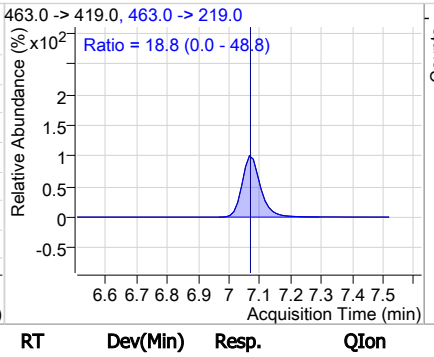


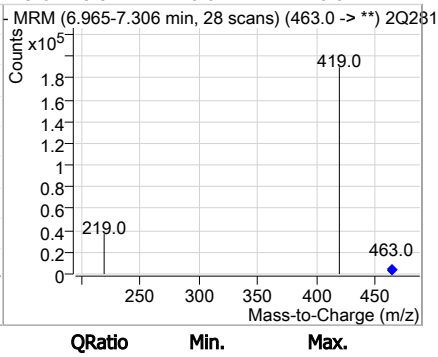




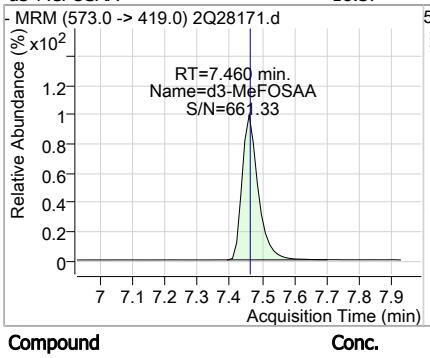
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	17.60	7.07	0.00	143226	463.0 -> 219.0	18.8	0.0	48.8

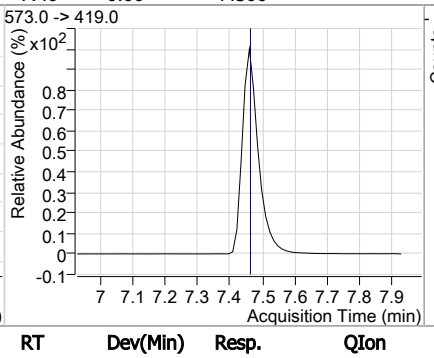


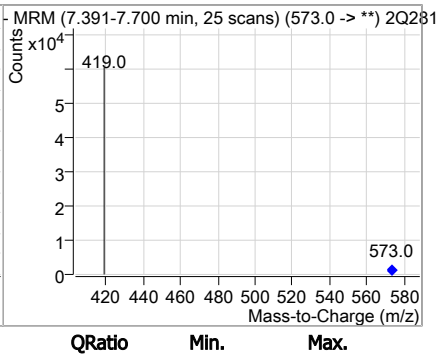




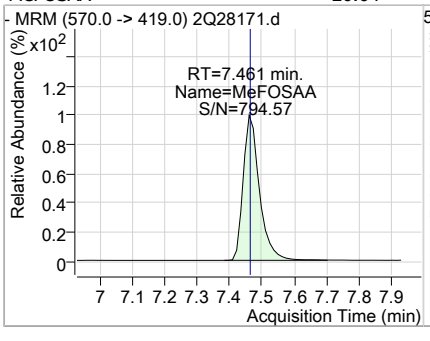
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.37	7.46	0.00	44306				

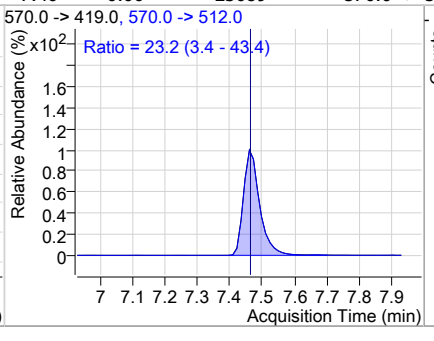


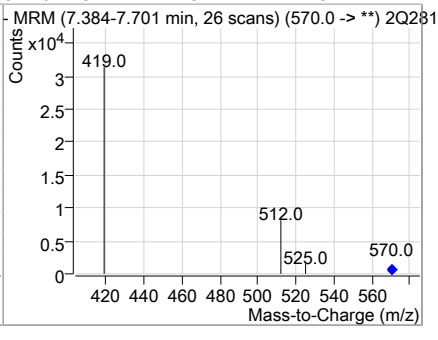




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.64	7.46	0.00	23089	570.0 -> 512.0	23.2	3.4	43.4







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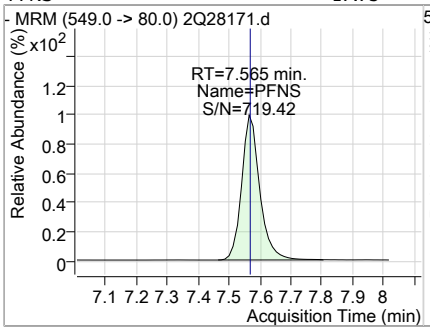
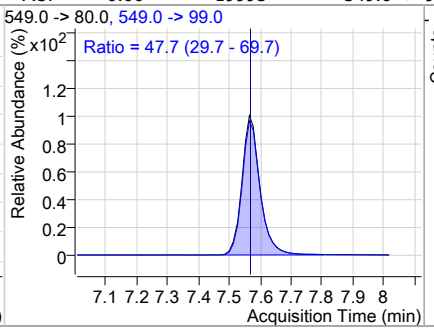
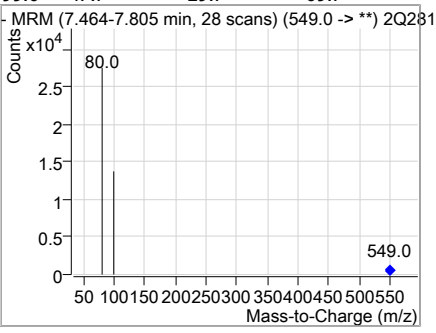
Perfluorinated Compounds by LC/MS/MS

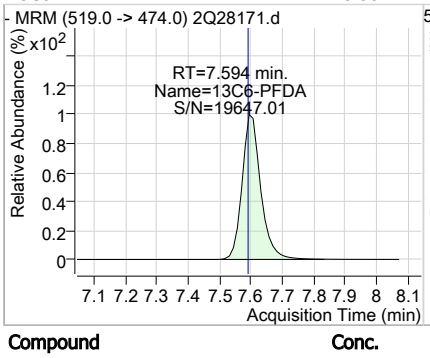
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	17.73	7.57	0.00	19995	549.0 -> 99.0	47.7	29.7	69.7

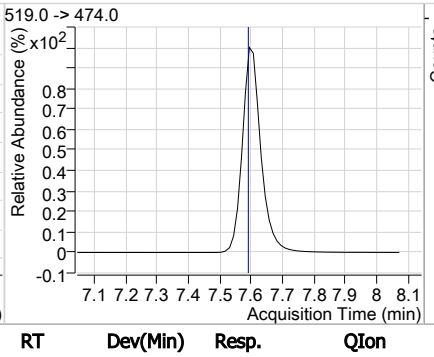


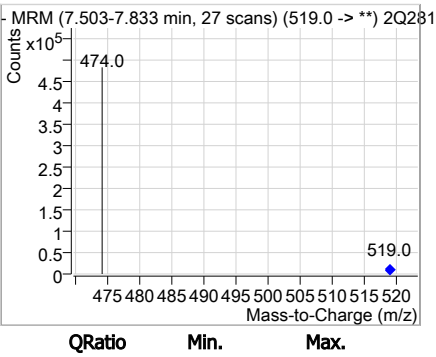




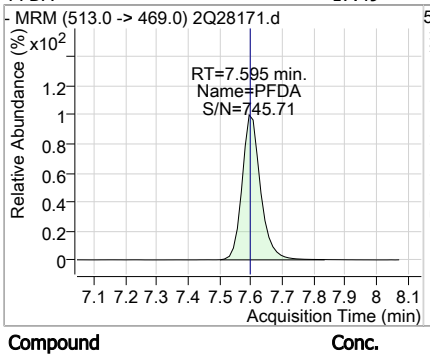
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.58	7.59	0.00	361621				

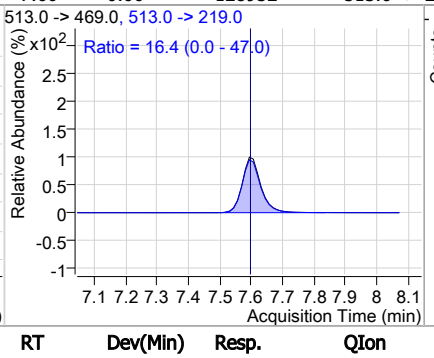


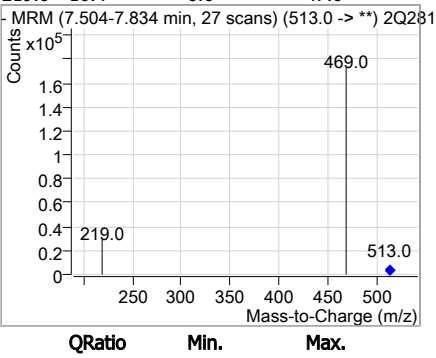




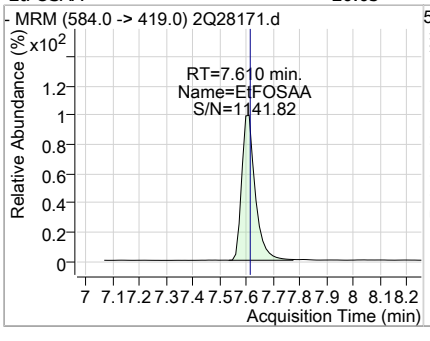
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	17.49	7.60	0.00	128952	513.0 -> 219.0	16.4	0.0	47.0

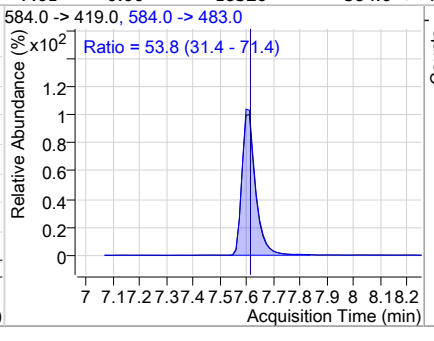


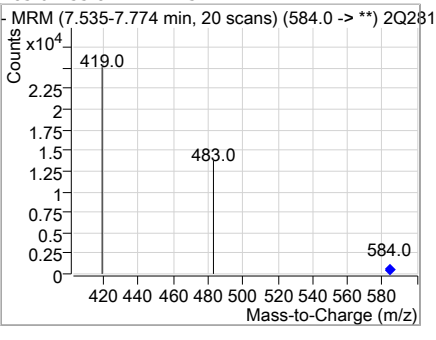




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.03	7.61	0.00	18320	584.0 -> 483.0	53.8	31.4	71.4







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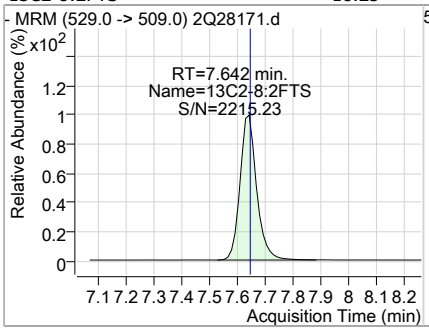
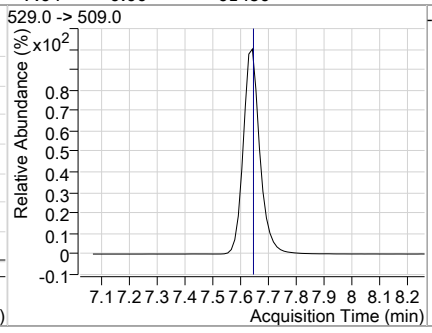
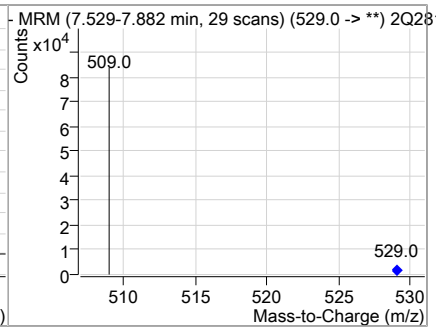
Perfluorinated Compounds by LC/MS/MS

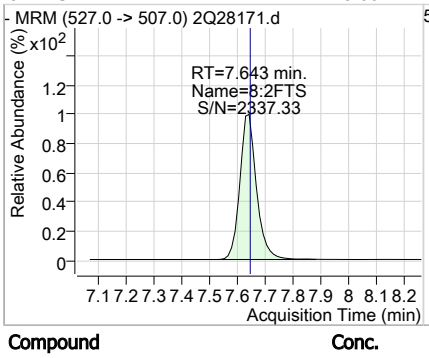
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	18.25	7.64	0.00	61480				

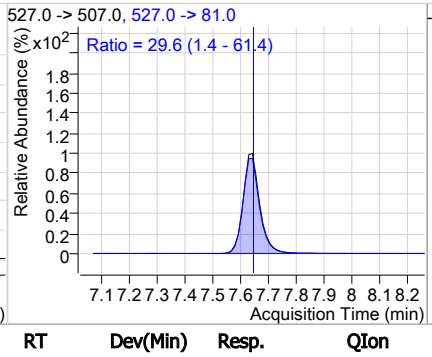


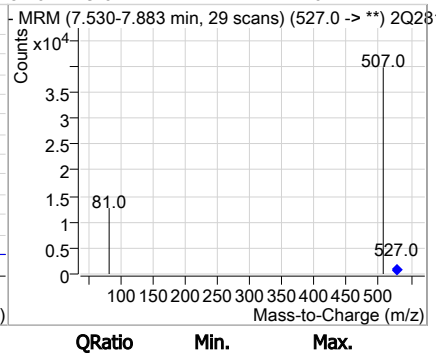




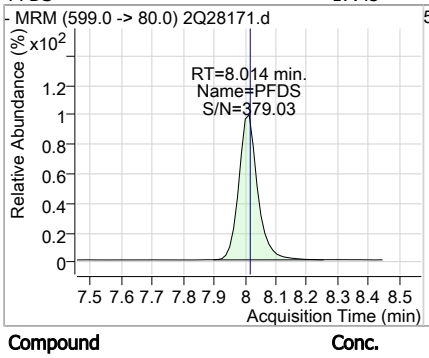
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	18.06	7.64	0.00	29158	527.0 -> 81.0	29.6	1.4	61.4

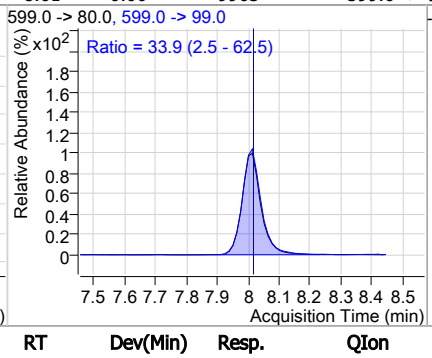


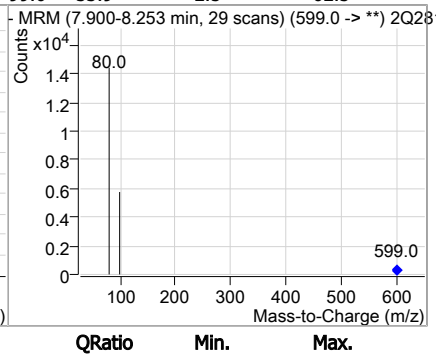




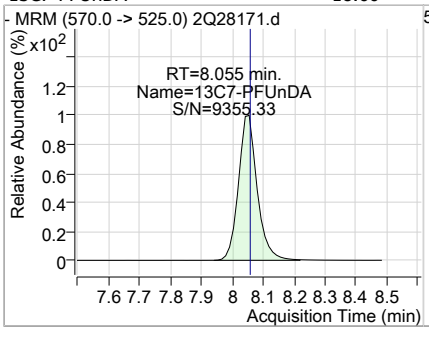
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	17.45	8.01	0.00	9965	599.0 -> 99.0	33.9	2.5	62.5

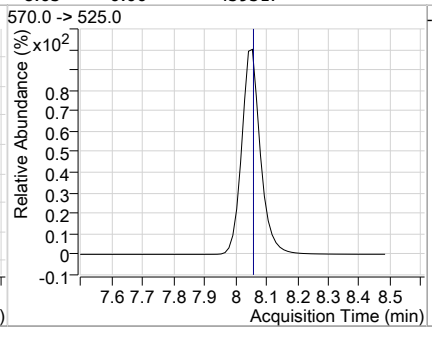


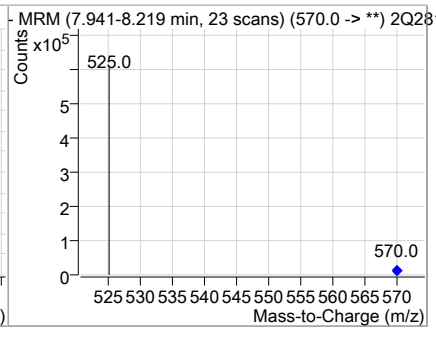




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.60	8.05	0.00	459517				







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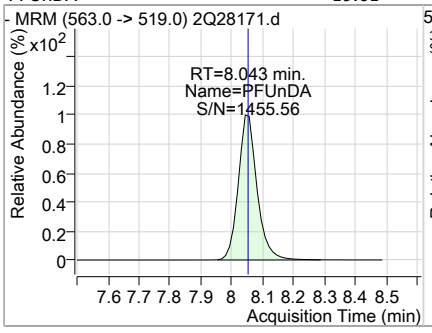
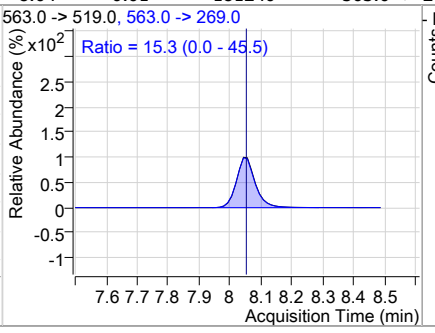
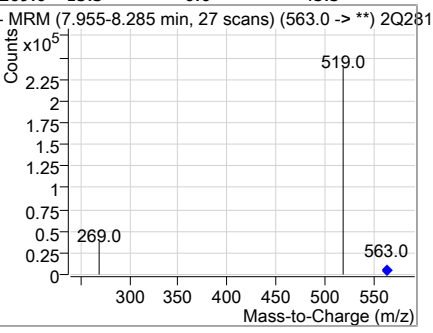
Perfluorinated Compounds by LC/MS/MS

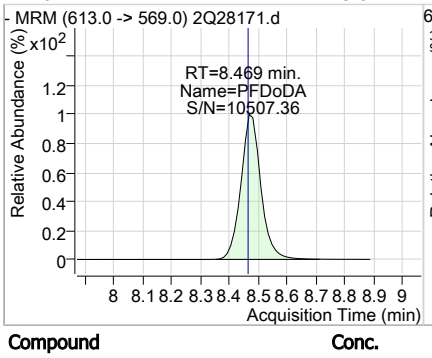
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.01	8.04	-0.01	181240	563.0 -> 269.0	15.3	0.0	45.5

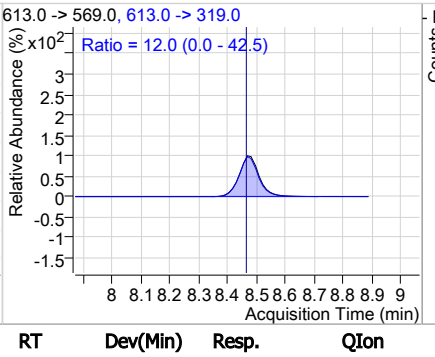


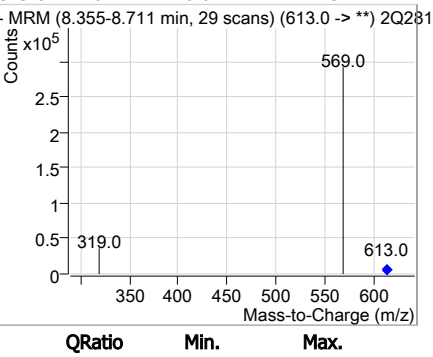




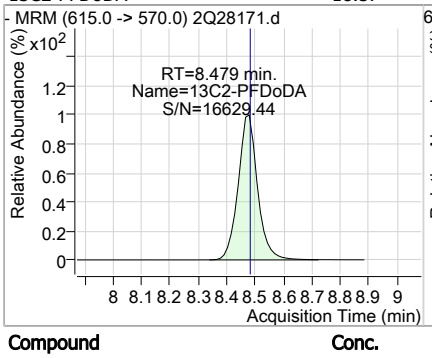
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.57	8.47	0.00	228670	613.0 -> 319.0	12.0	0.0	42.5

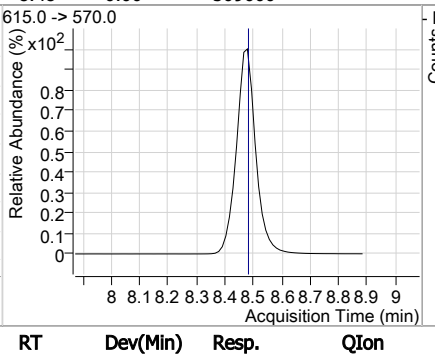


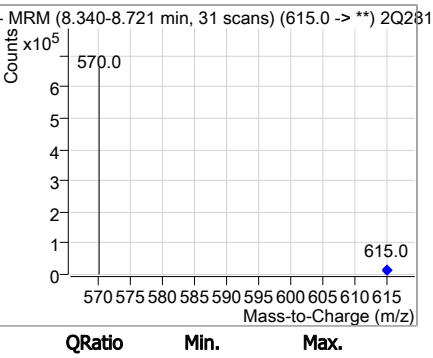




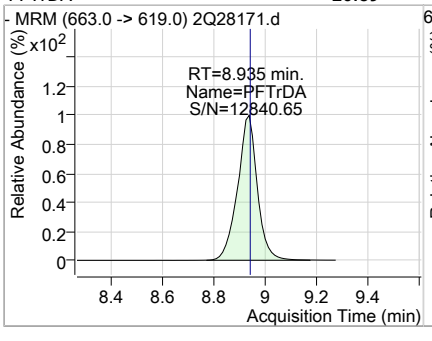
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.57	8.48	0.00	509600				

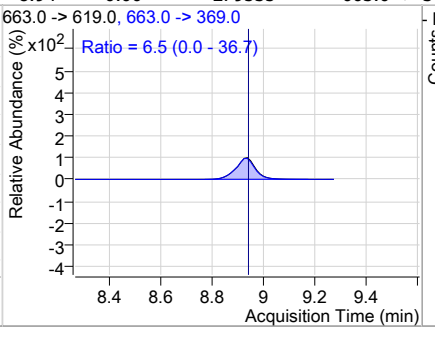


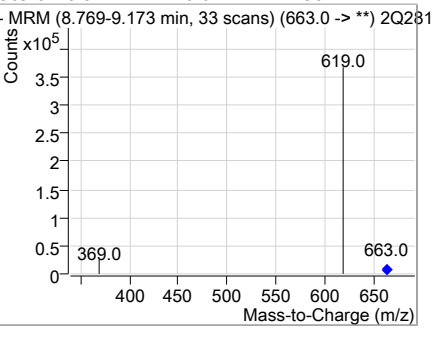




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.89	8.94	0.00	279535	663.0 -> 369.0	6.5	0.0	36.7







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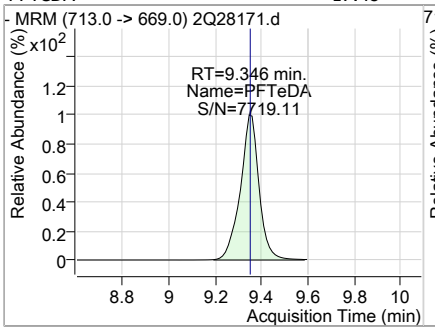
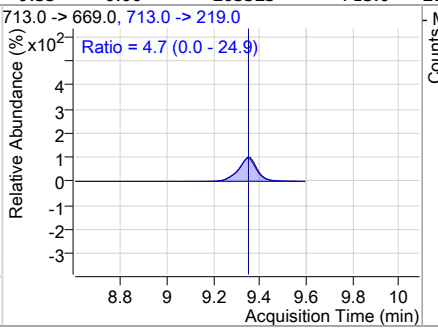
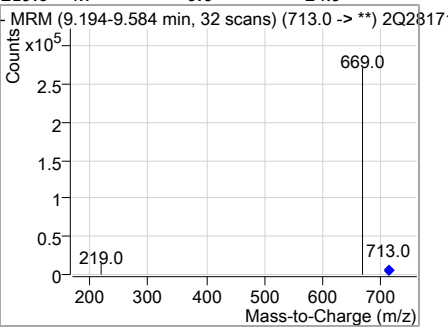
Perfluorinated Compounds by LC/MS/MS

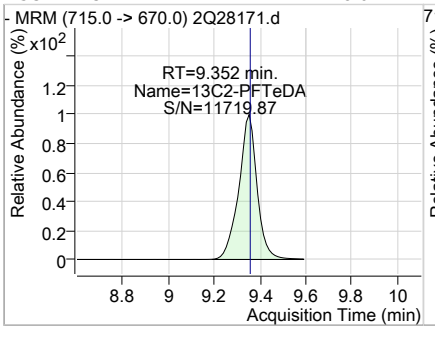
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	17.48	9.35	0.00	203323	713.0 -> 219.0	4.7	0.0	24.9

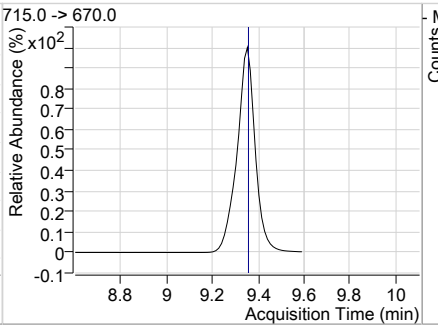


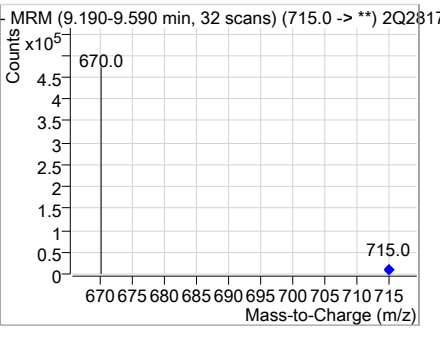




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.67	9.35	0.00	352725				







7.6.27

Manual Integration Approval Summary

Sample Number: S2Q449-ICV449
Lab FileID: 2Q28171.D
Injection Time: 03/26/19 17:39
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28172.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 5:54:55 PM
Sample Name : icv449-20
Vial : Vial 12
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

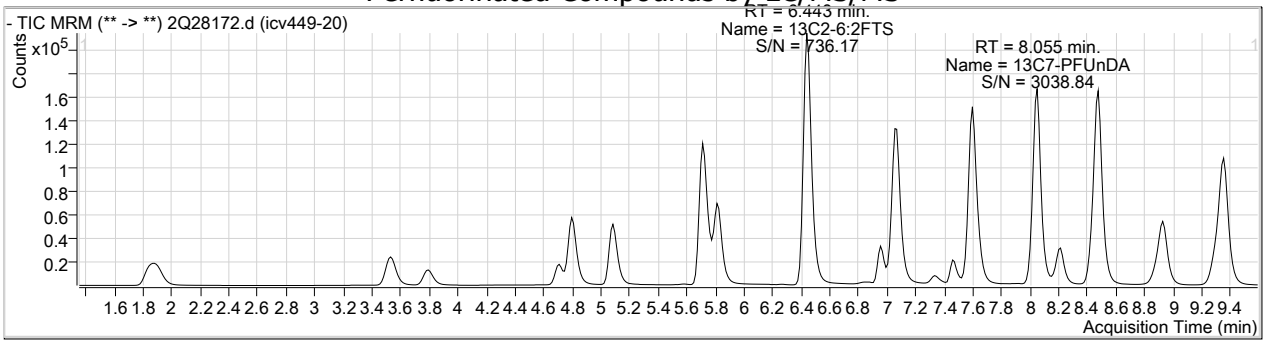
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.448	415.0 -> 370.0	352458	20.00	µg/L	0.000
13C4-PFOS	7.049	503.0 -> 80.0	51779	20.00	µg/L	0.000
M4-PFBA	1.877	217.0 -> 172.0	145532	20.00	µg/L	0.013
M5-PFPeA	3.536	268.0 -> 223.0	124678	20.00	µg/L	0.000
M5-PFHxA	4.801	318.0 -> 273.0	176651	20.00	µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	250445	20.00	µg/L	0.000
M8-PFOA	6.446	421.0 -> 376.0	268956	20.00	µg/L	0.000
M9-PFNA	7.078	472.0 -> 427.0	270002	20.00	µg/L	0.013
M6-PFDA	7.607	519.0 -> 474.0	376941	20.00	µg/L	0.013
M7-PFUnDA	8.055	570.0 -> 525.0	476029	20.00	µg/L	0.000
M2-PFDoDA	8.479	615.0 -> 570.0	524508	20.00	µg/L	0.000
M2-PFTeDA	9.352	715.0 -> 670.0	362384	20.00	µg/L	0.000
M8-FOSA	6.959	506.0 -> 78.0	114648	20.00	µg/L	0.000
M3-PFBS	3.792	302.0 -> 99.0	21183	20.00	µg/L	0.000
M3-PFHxS	5.761	402.0 -> 99.0	22970	20.00	µg/L	0.013
M8-PFOS	7.047	507.0 -> 99.0	30716	20.00	µg/L	0.000
M2-4:2FTS	4.709	329.0 -> 309.0	72991	20.00	µg/L	0.013
M2-6:2FTS	6.443	429.0 -> 409.0	82792	20.00	µg/L	0.013
M2-8:2FTS	7.642	529.0 -> 509.0	60572	20.00	µg/L	0.000
M3-MeFOSAA	7.460	573.0 -> 419.0	46622	20.00	µg/L	0.000
M3-HFPO-DA	5.093	287.0 -> 169.0	166037	100.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	4.709	329.0 -> 309.0	72829	17.63	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.2%		
13C2-6:2FTS	6.443	429.0 -> 409.0	82711	18.21	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C2-8:2FTS	7.642	529.0 -> 509.0	60562	17.98	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.9%		
13C2-PFDoDA	8.479	615.0 -> 570.0	524592	19.12	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.6%		
13C2-PFTeDA	9.352	715.0 -> 670.0	362389	19.19	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.9%		
13C3-PFBS	3.792	302.0 -> 99.0	21087	18.74	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.7%		
13C3-PFHxS	5.761	402.0 -> 99.0	22909	18.66	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.3%		
13C4-PFBA	1.877	217.0 -> 172.0	144813	18.76	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C4-PFHpA	5.717	367.0 -> 322.0	250236	18.82	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C5-PFHxA	4.801	318.0 -> 273.0	176415	18.69	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.5%		
13C5-PFPeA	3.536	268.0 -> 223.0	124629	19.00	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C6-PFDA	7.607	519.0 -> 474.0	376592	19.35	µg/L	0.013

Perfluorinated Compounds by LC/MS/MS

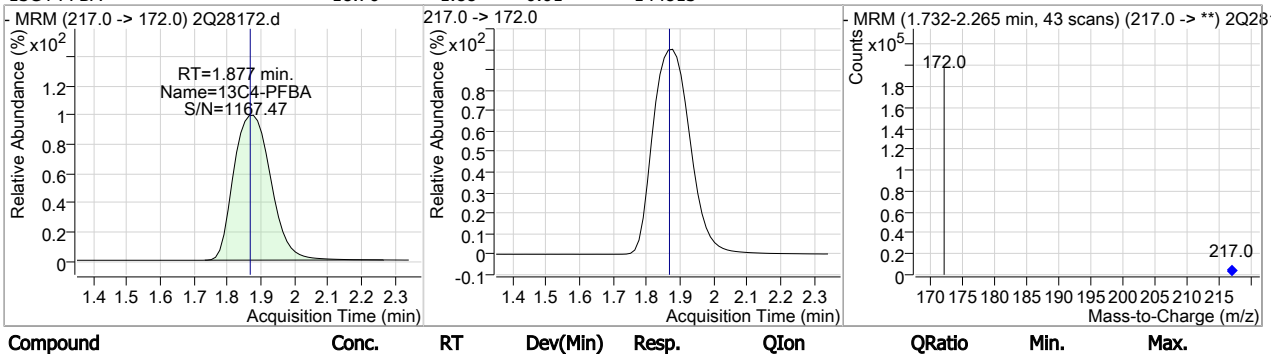
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.7%		
13C7-PFUnDA	8.055	570.0 -> 525.0	476460	19.28 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C8-FOSA	6.959	506.0 -> 78.0	114491	19.86 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C8-PFOA	6.446	421.0 -> 376.0	269142	19.44 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C8-PFOS	7.047	507.0 -> 99.0	30671	19.13 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.7%		
13C9-PFNA	7.078	472.0 -> 427.0	269802	18.86 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.3%		
d3-MeFOSAA	7.460	573.0 -> 419.0	46657	19.34 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.7%		
M2-PFOA	6.448	415.0 -> 370.0	352815	19.99 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.049	503.0 -> 80.0	51830	20.14 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C3-HFPO-DA	5.093	287.0 -> 169.0	166037	94.84 µg/L		0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 94.8%		
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	7.610	584.0 -> 419.0	16957	17.61 µg/L	m	90
FOSA	-	498.0 -> 78.0	-	N.D.		
MeFOSAA	7.461	570.0 -> 419.0	21237	18.08 µg/L	m	96
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	3.796	299.0 -> 80.0	31970	18.67 µg/L		100
PFDA	7.608	513.0 -> 469.0	144983	18.87 µg/L		99
PFDoDA	8.481	613.0 -> 569.0	224300	18.65 µg/L		99
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.720	363.0 -> 319.0	211218	19.00 µg/L		100
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.803	313.0 -> 269.0	54189	18.74 µg/L		100
PFHxS	5.763	399.0 -> 80.0	25493	19.31 µg/L	m	99
PFNA	7.079	463.0 -> 419.0	164735	19.90 µg/L		99
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.449	413.0 -> 369.0	137296	19.16 µg/L		99
PFOS	7.050	499.0 -> 80.0	27914	17.95 µg/L	m	99
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
PFTeDA	9.359	713.0 -> 669.0	226196	18.92 µg/L		99
PFTrDA	8.935	663.0 -> 619.0	268786	19.55 µg/L		99
PFUnDA	8.056	563.0 -> 519.0	184948	18.73 µg/L		99
11Cl-PF3OUdS	8.212	631.0 -> 451.0	128175	19.73 µg/L		100
9Cl-PF3ONS	7.335	531.0 -> 351.0	26053	20.03 µg/L		100
ADONA	5.816	377.0 -> 251.0	255939	19.51 µg/L		100
HFPO-DA	5.085	329.0 -> 169.0	38343	19.02 µg/L		99

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

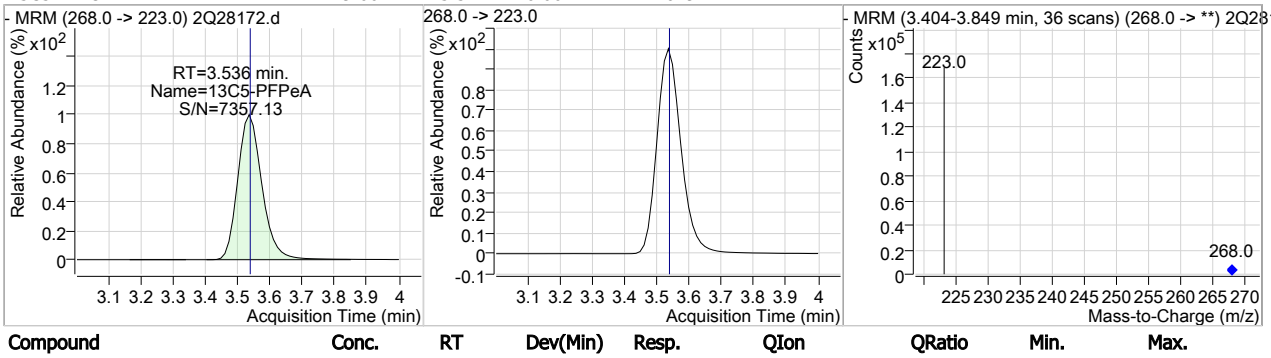
Perfluorinated Compounds by LC/MS/MS



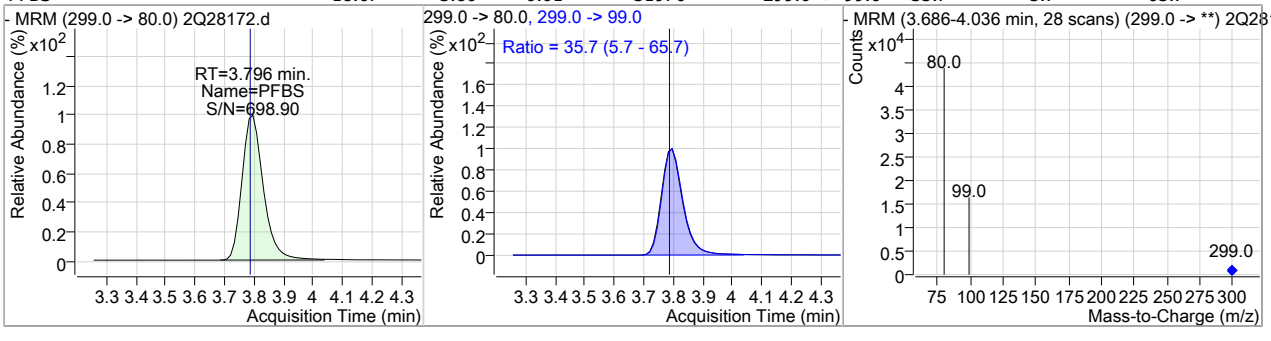
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.76	1.88	0.01	144813				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.00	3.54	0.00	124629				

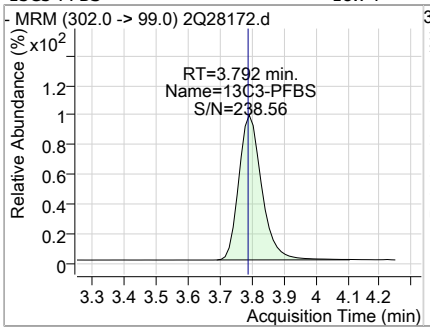


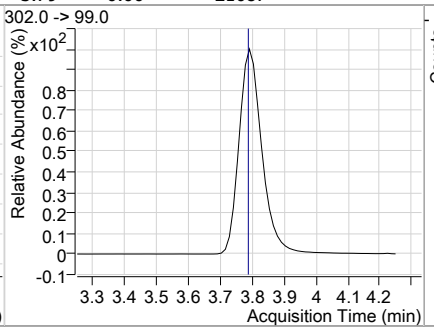
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	18.67	3.80	0.01	31970	299.0 -> 99.0	35.7	5.7	65.7

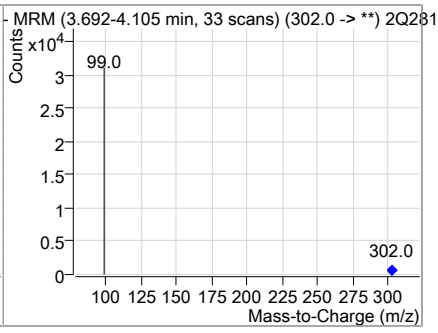


Perfluorinated Compounds by LC/MS/MS

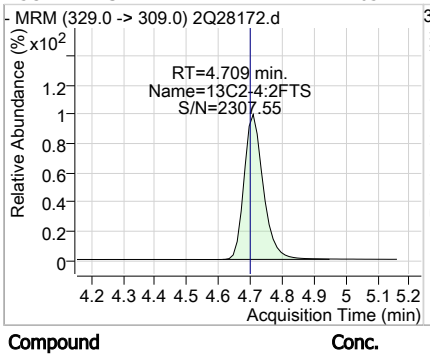
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.74	3.79	0.00	21087				

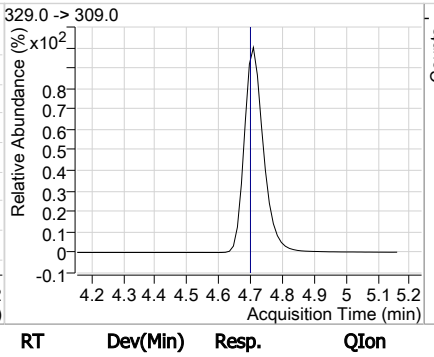


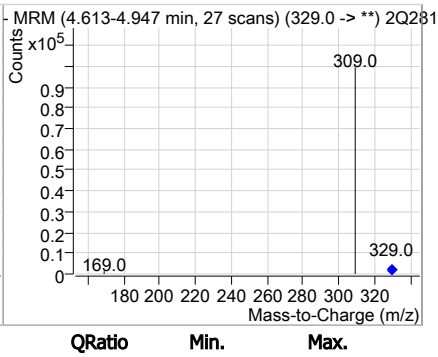




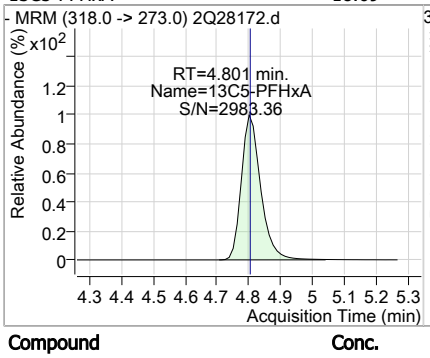
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.63	4.71	0.01	72829				

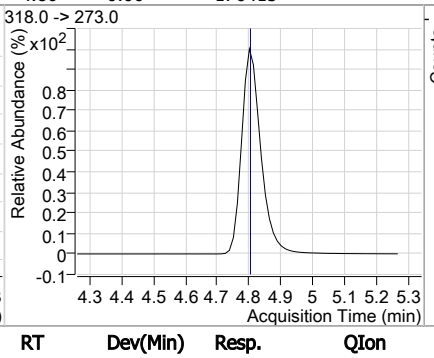


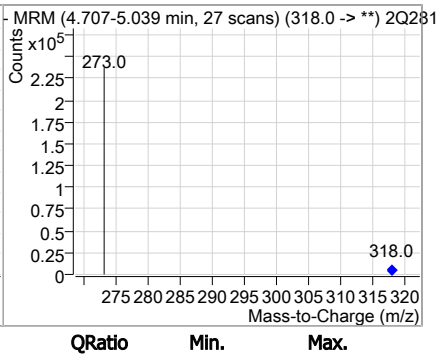




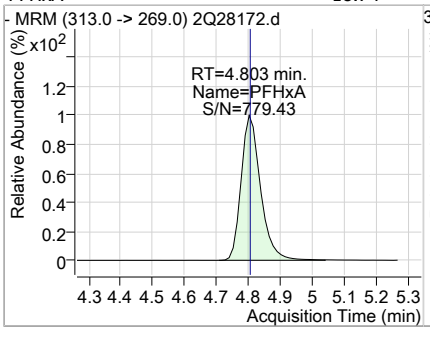
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.69	4.80	0.00	176415				

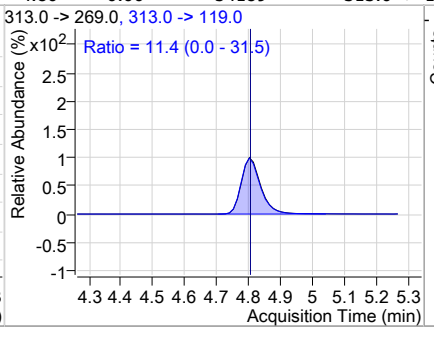


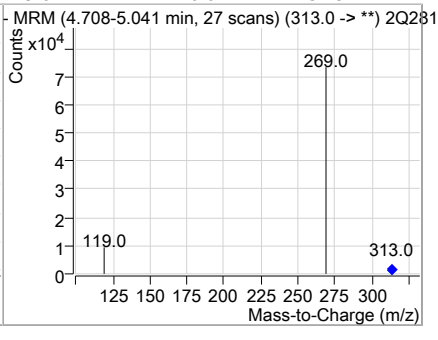




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	18.74	4.80	0.00	54189	313.0 -> 119.0	11.4	0.0	31.5



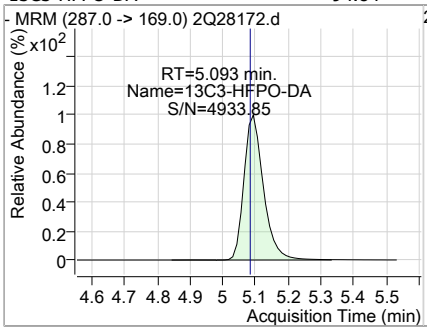


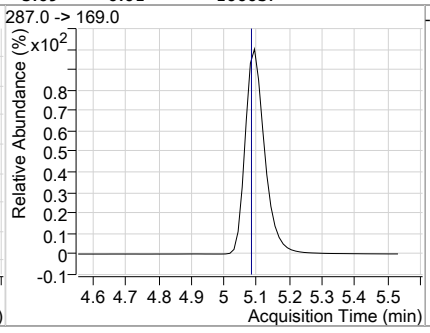


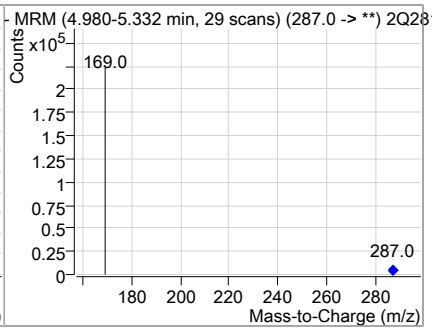
7.6.28

Perfluorinated Compounds by LC/MS/MS

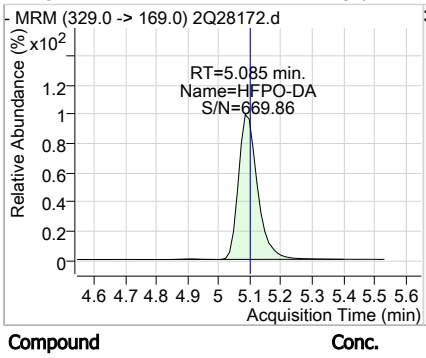
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	94.84	5.09	0.01	166037				

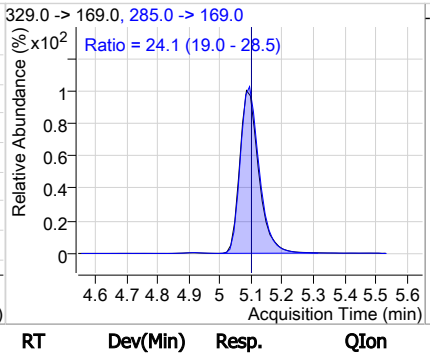


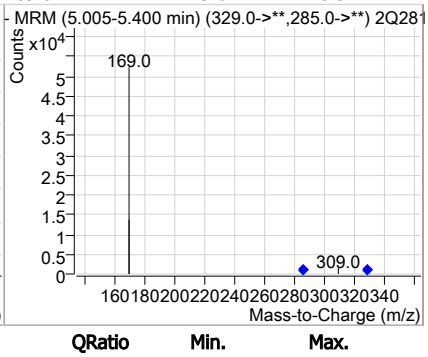




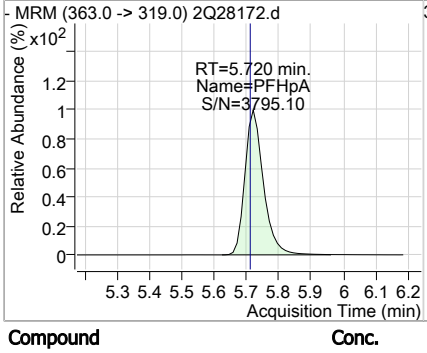
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	19.02	5.09	0.00	38343	285.0 -> 169.0	24.1	19.0	28.5

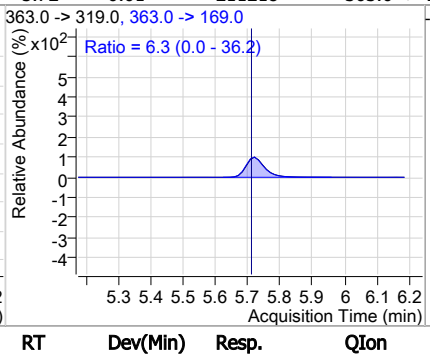


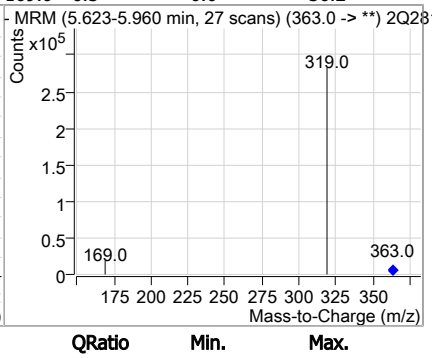




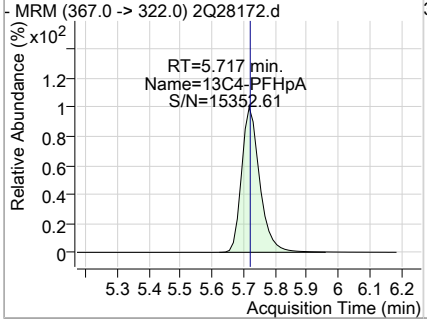
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.00	5.72	0.01	211218	363.0 -> 169.0	6.3	0.0	36.2

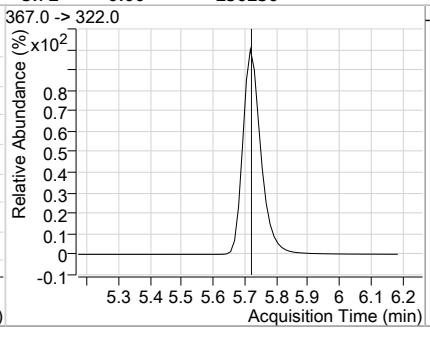


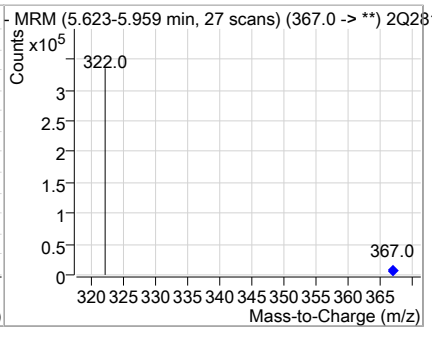




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.82	5.72	0.00	250236				



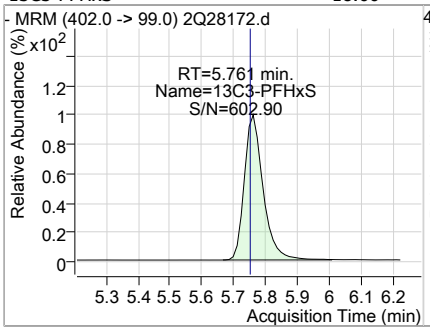


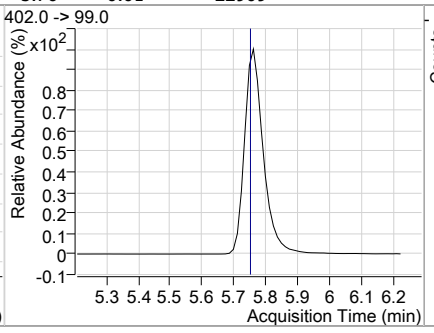


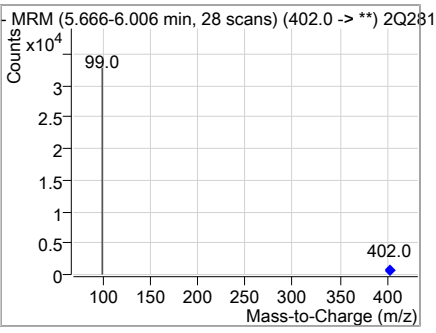
7.6.28

Perfluorinated Compounds by LC/MS/MS

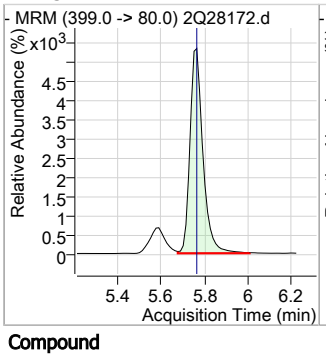
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.66	5.76	0.01	22909				

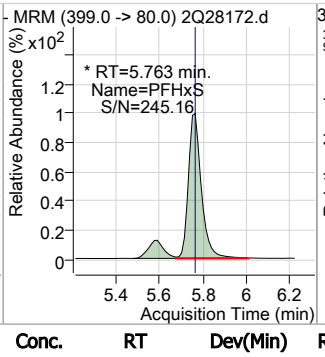


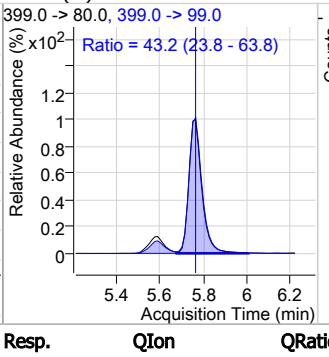


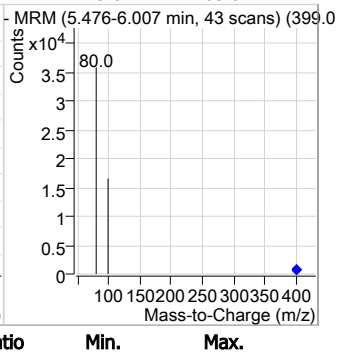


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.31	5.76	0.01	25493 (m)	399.0 -> 99.0	43.2	23.8	63.8

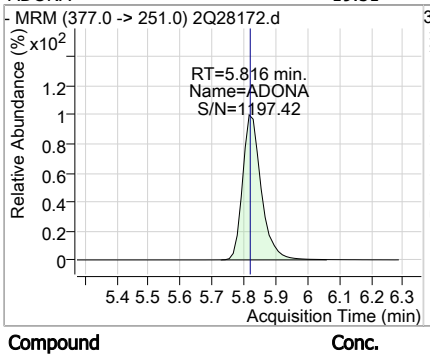


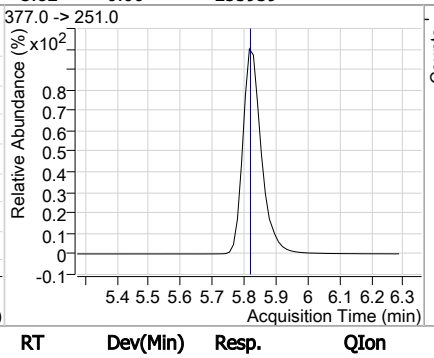


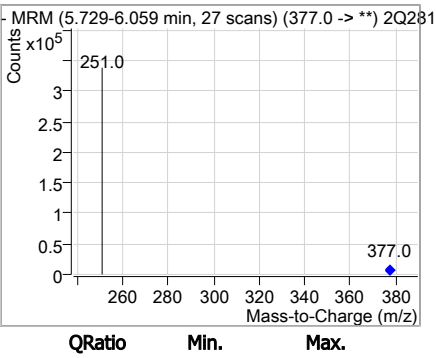




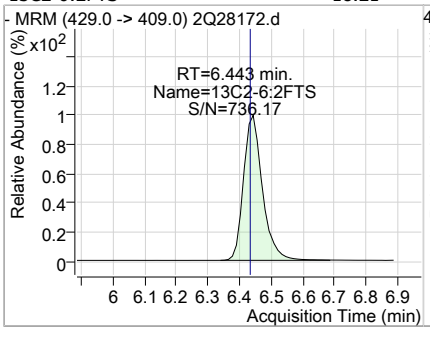
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.51	5.82	0.00	255939				

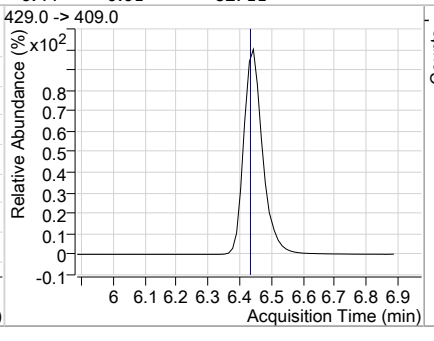


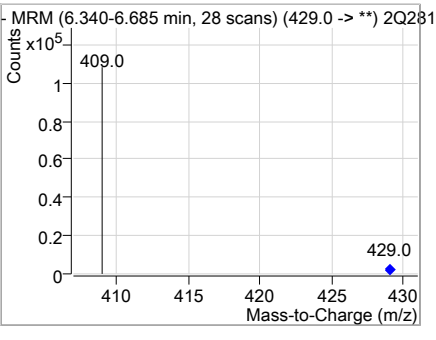




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	18.21	6.44	0.01	82711				



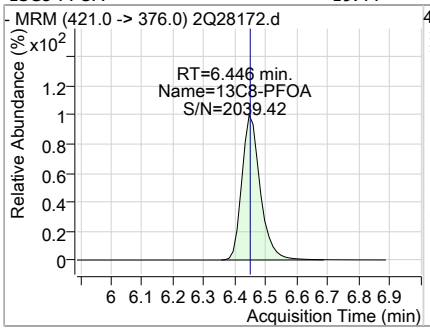


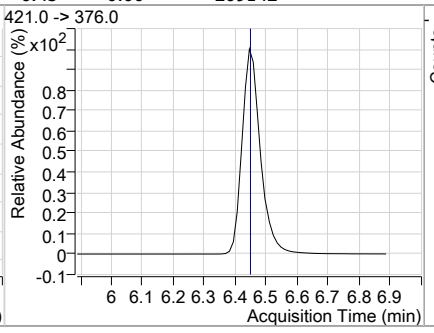


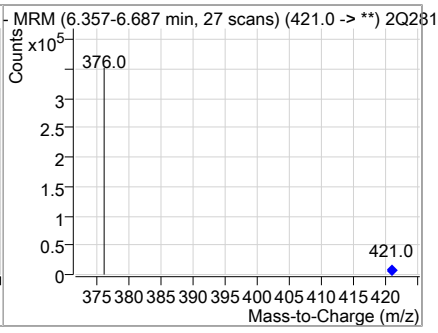
7.6.28

Perfluorinated Compounds by LC/MS/MS

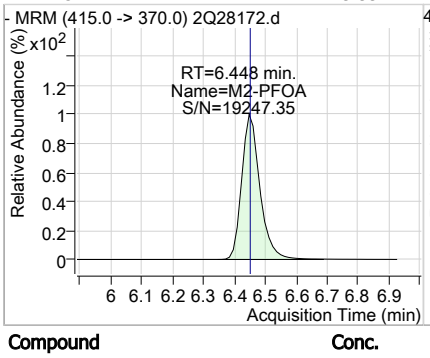
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.44	6.45	0.00	269142				

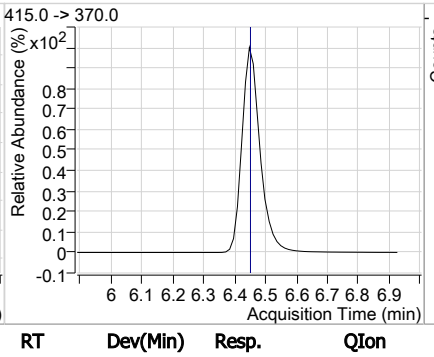


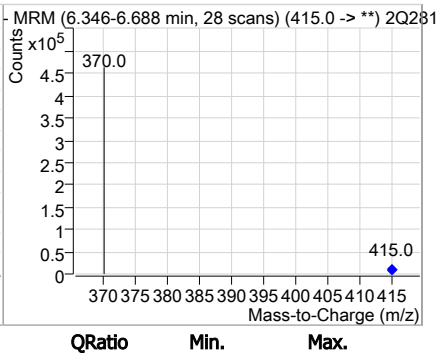




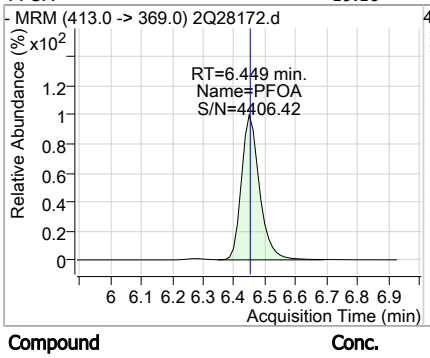
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.45	0.00	352815				

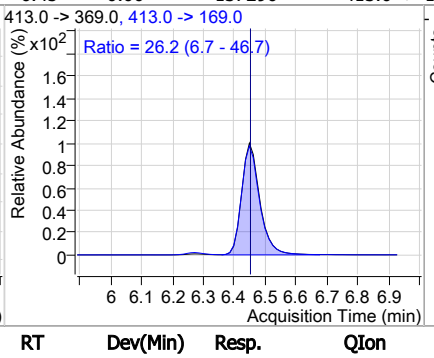


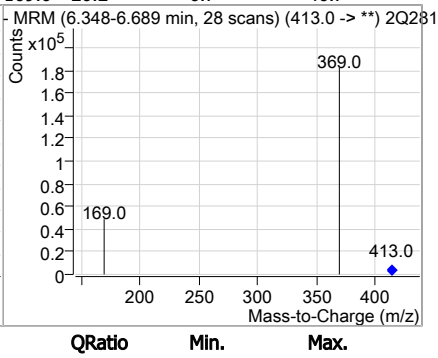




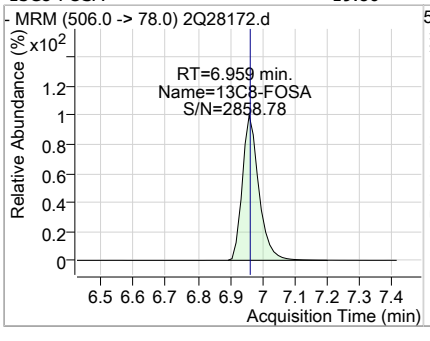
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.16	6.45	0.00	137296	413.0 -> 169.0	26.2	6.7	46.7

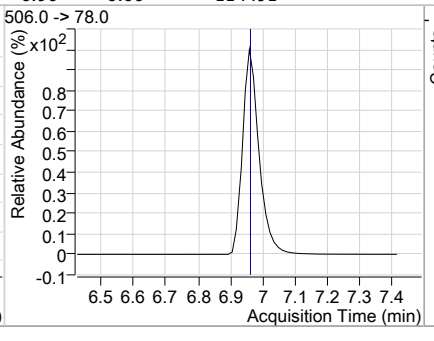


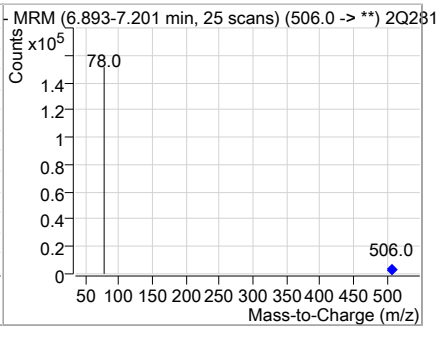




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.86	6.96	0.00	114491				







7.6.28

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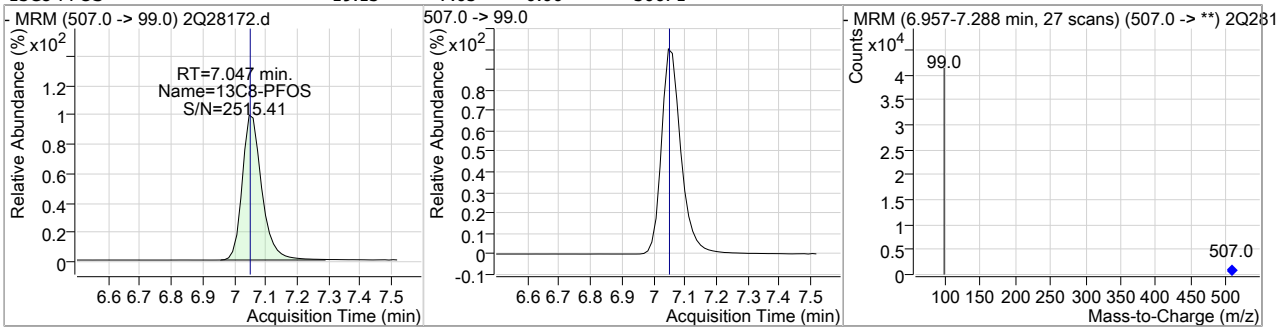
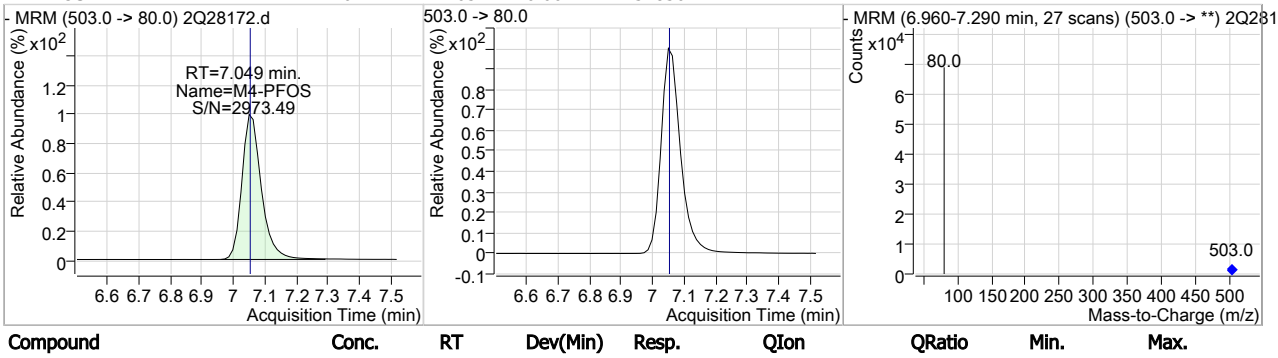
Perfluorinated Compounds by LC/MS/MS

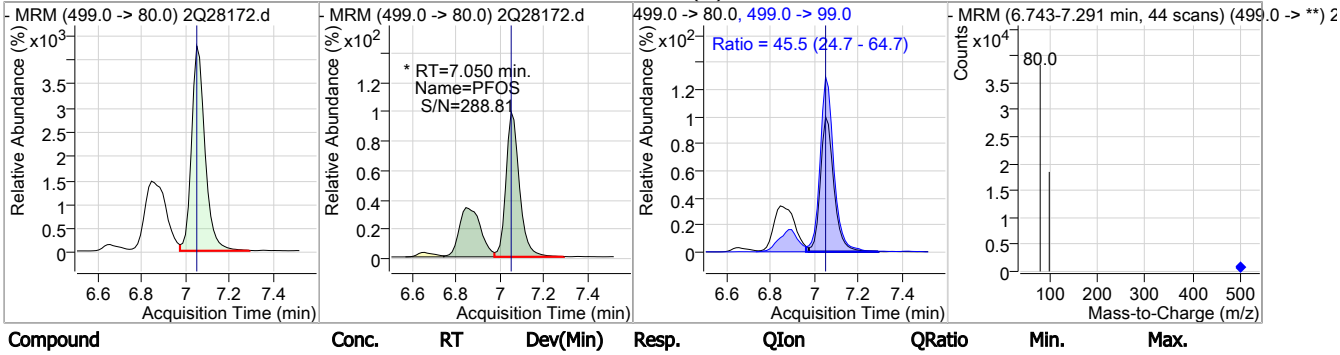
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.13	7.05	0.00	30671				



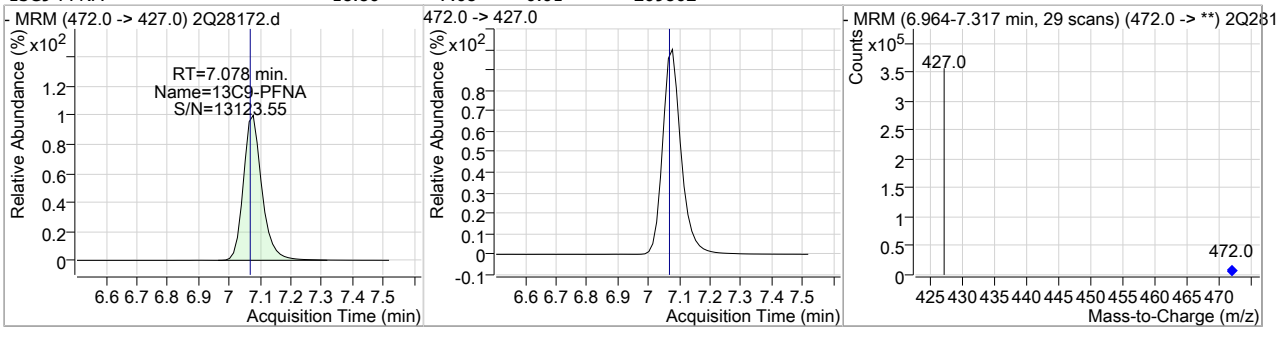
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.14	7.05	0.00	51830				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.95	7.05	0.00	27914 (m)	499.0 -> 99.0	45.5	24.7	64.7



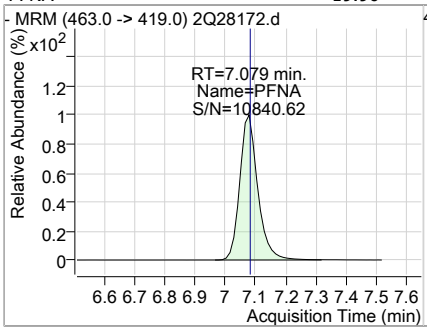
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.86	7.08	0.01	269802				

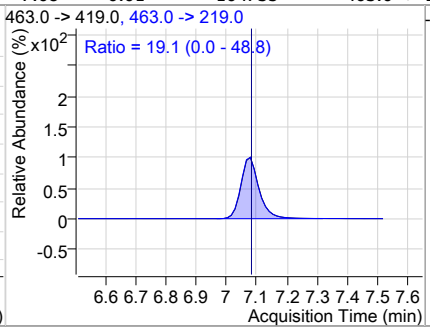


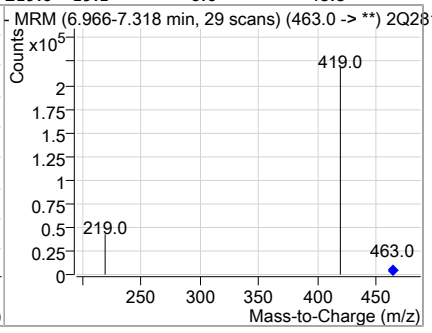
7.6.28

Perfluorinated Compounds by LC/MS/MS

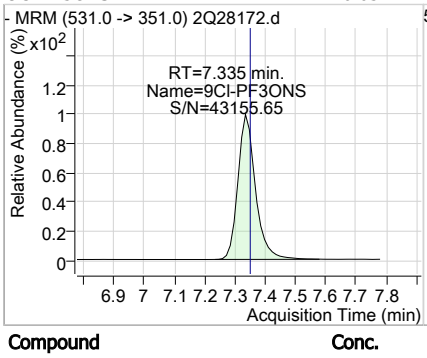
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.90	7.08	0.01	164735	463.0 -> 219.0	19.1	0.0	48.8

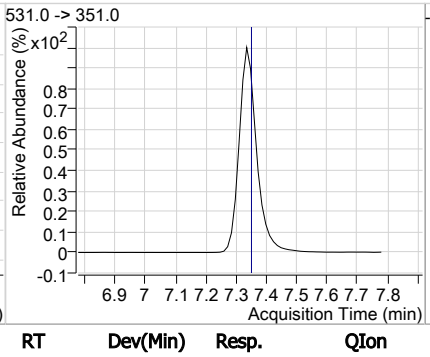


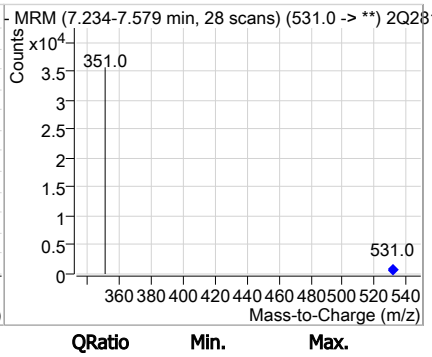




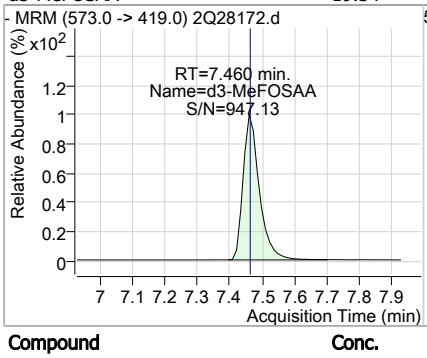
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	20.03	7.34	0.00	26053				

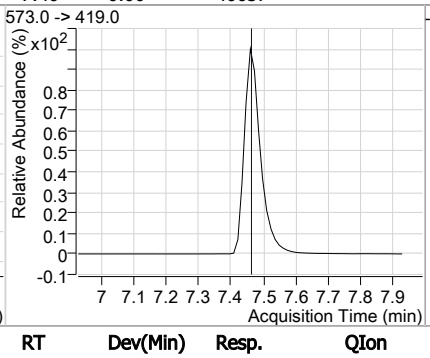


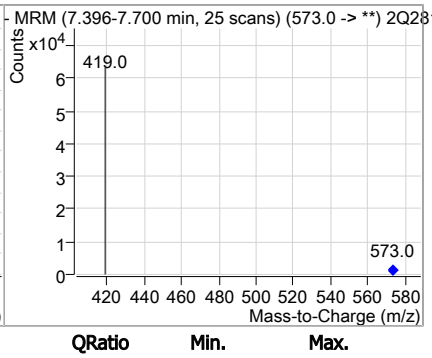




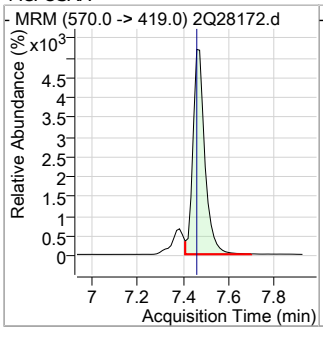
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.34	7.46	0.00	46657				

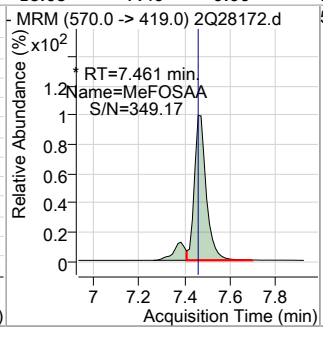


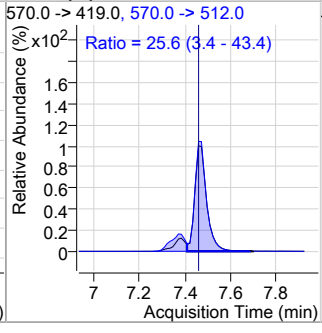


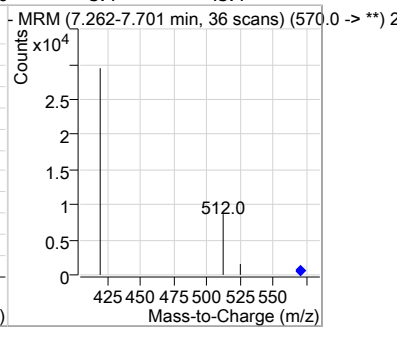


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.08	7.46	0.00	21237 (m)	570.0 -> 512.0	25.6	3.4	43.4









7.6.28

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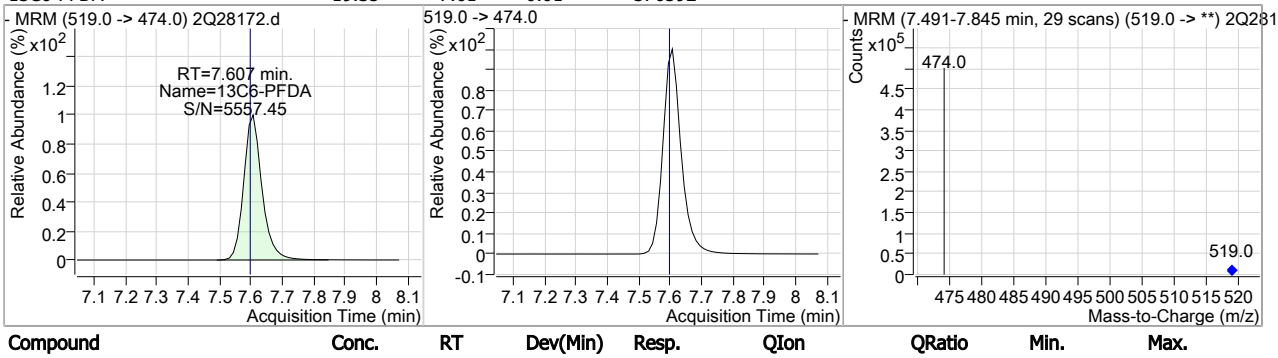
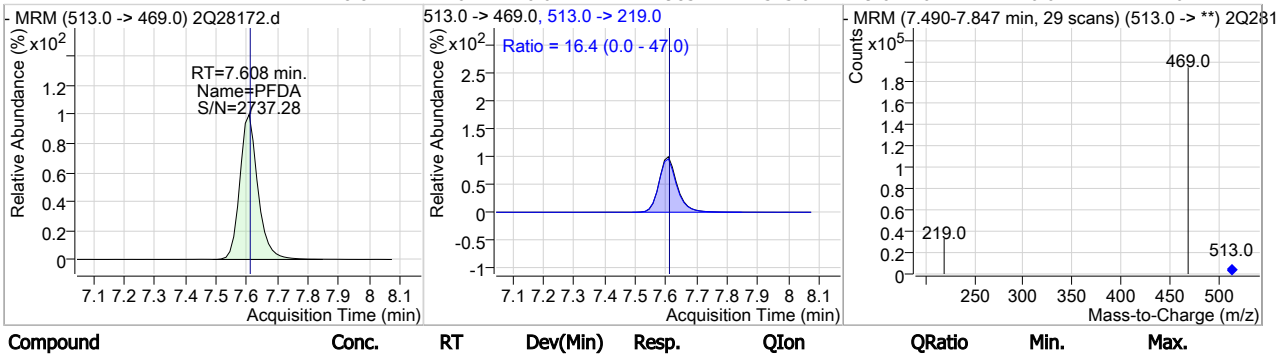
Perfluorinated Compounds by LC/MS/MS

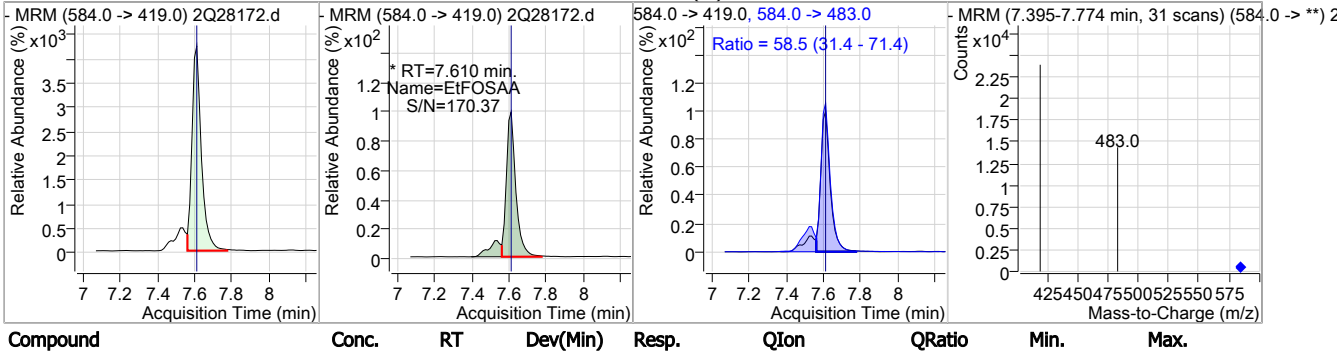
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	19.35	7.61	0.01	376592				



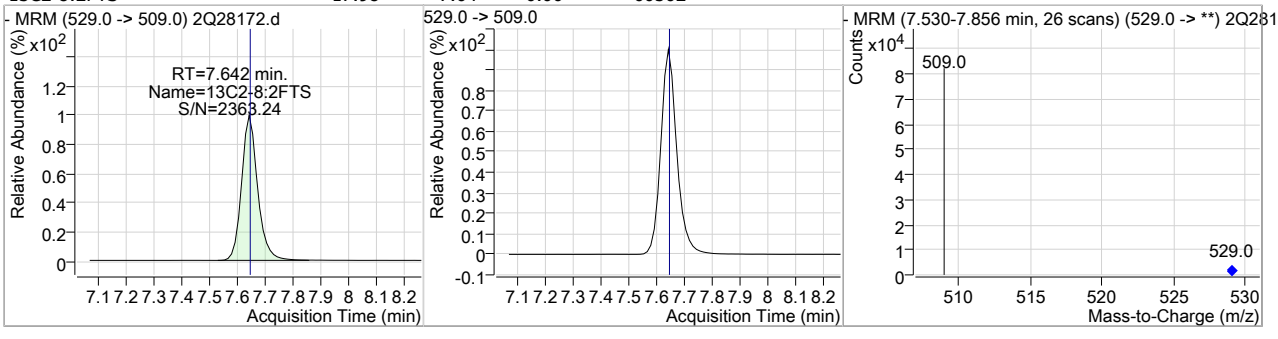
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.87	7.61	0.01	144983	513.0 -> 219.0	16.4	0.0	47.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	17.61	7.61	0.00	16957 (m)	584.0 -> 483.0	58.5	31.4	71.4



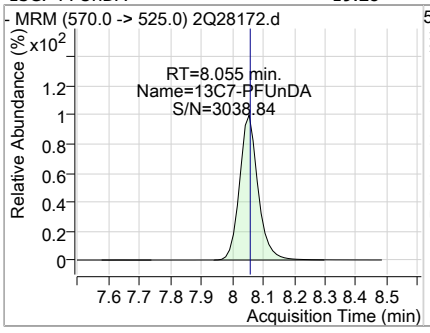
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.98	7.64	0.00	60562				

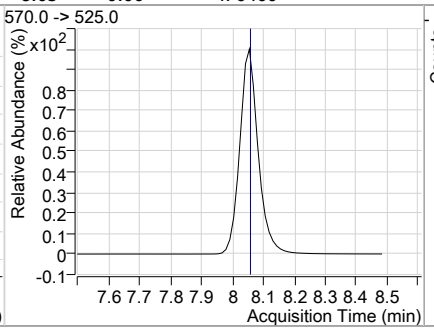


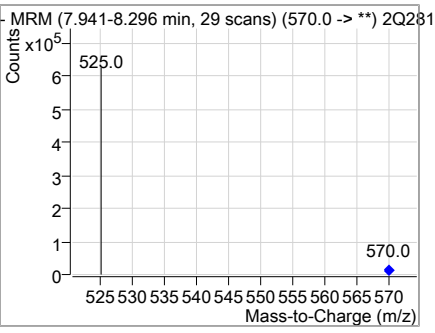
7.6.28

Perfluorinated Compounds by LC/MS/MS

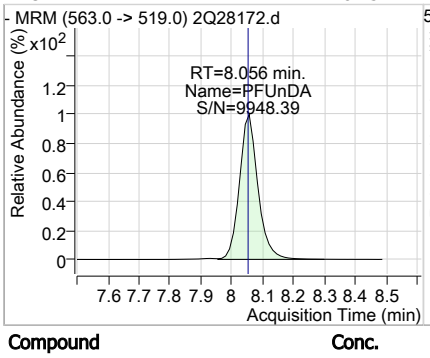
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.28	8.05	0.00	476460				

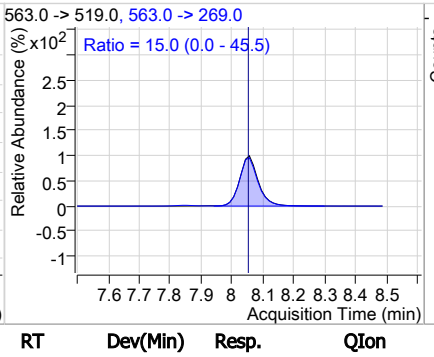


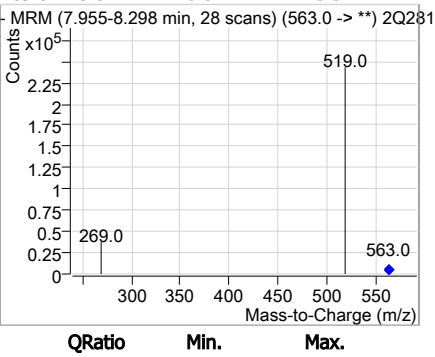




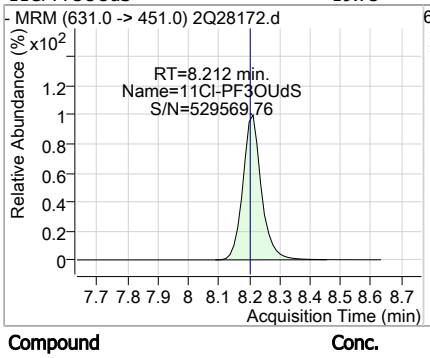
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	18.73	8.06	0.00	184948	563.0 -> 269.0	15.0	0.0	45.5

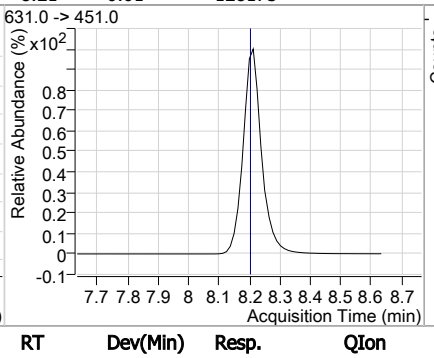


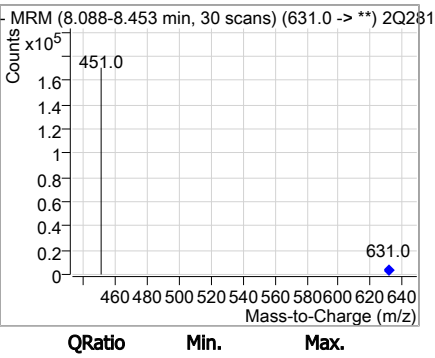




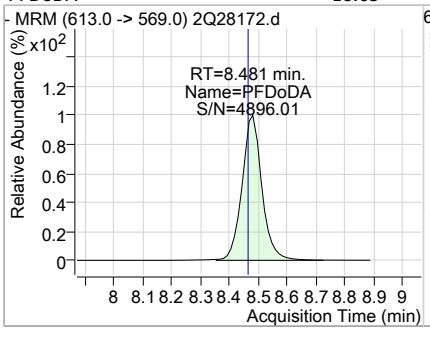
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.73	8.21	0.01	128175				

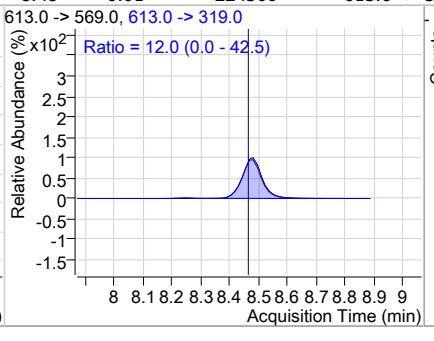


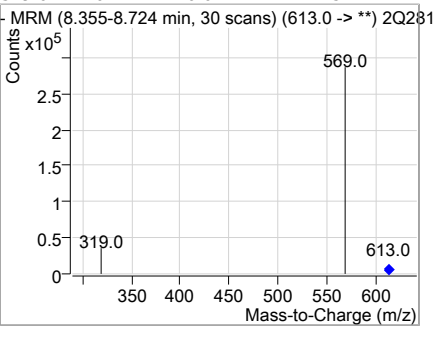




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	18.65	8.48	0.01	224300	613.0 -> 319.0	12.0	0.0	42.5







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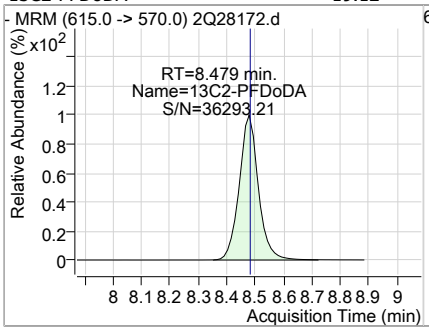
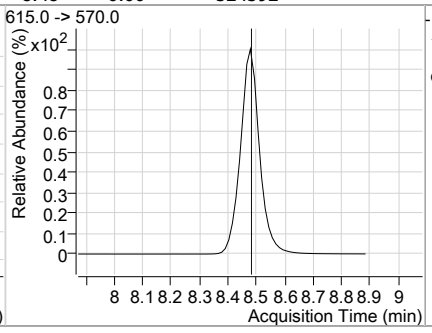
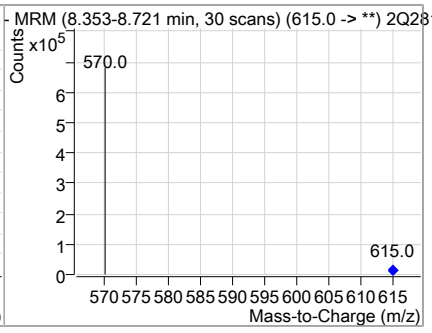
Perfluorinated Compounds by LC/MS/MS

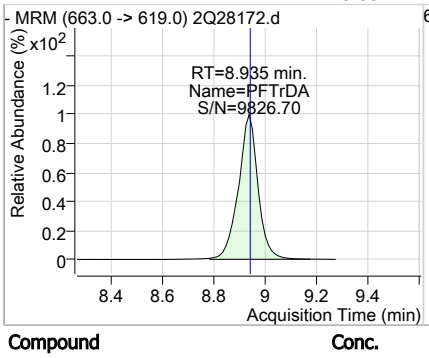
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.12	8.48	0.00	524592				

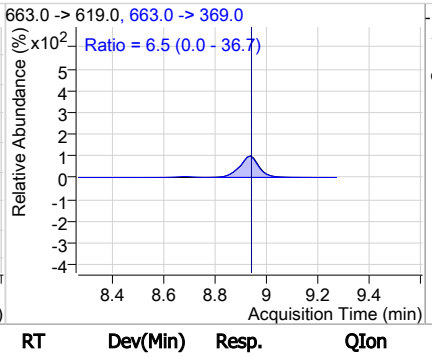


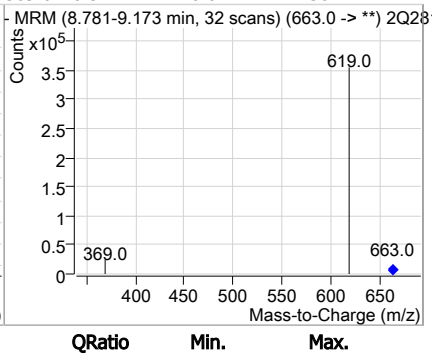




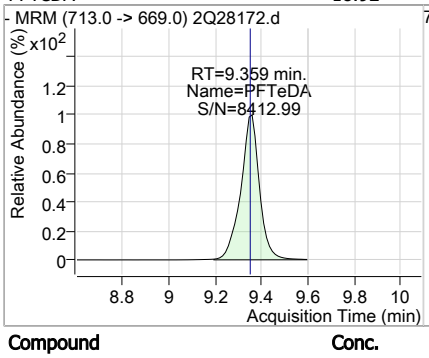
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.55	8.94	0.00	268786	663.0 -> 369.0	6.5	0.0	36.7

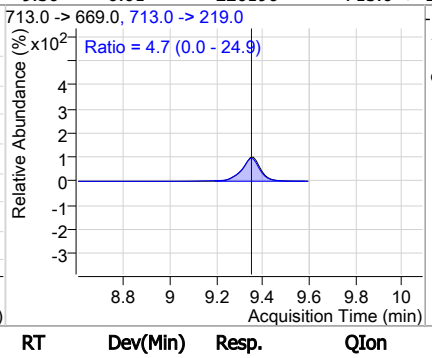


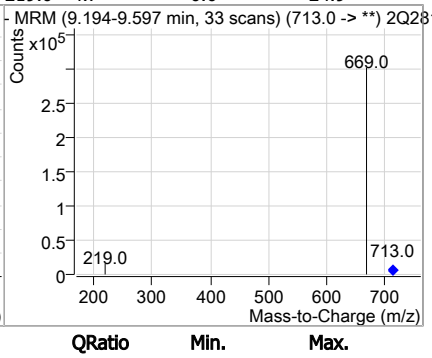




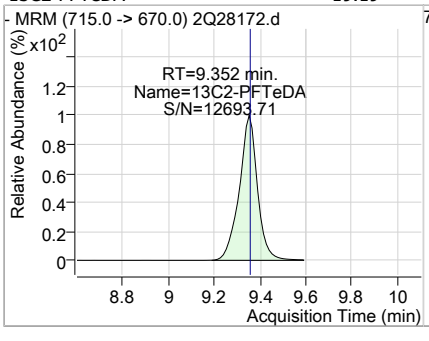
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	18.92	9.36	0.01	226196	713.0 -> 219.0	4.7	0.0	24.9

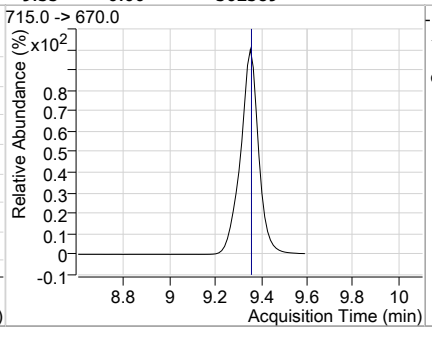


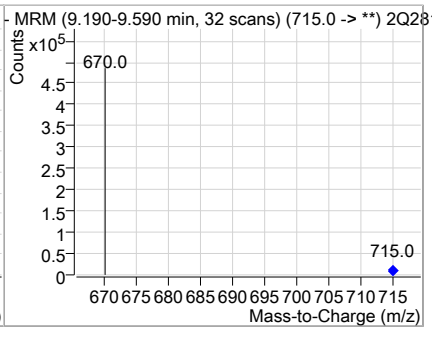




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.19	9.35	0.00	362389				







Manual Integration Approval Summary

Sample Number: S2Q449-ICV449 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28172.D **Analyst approved:** 03/27/19 13:46 Natasha Gumtie
Injection Time: 03/26/19 17:54 **Supervisor approved:** 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.76	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak
MeFOSAA	2355-31-9		7.46	Split peak
EtFOSAA	2991-50-6		7.61	Split peak

Cal Report: 2Q28180.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
03/27/19 16:48

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28180.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/26/2019 8:00:47 PM
Sample Name : cc449-20
Vial : Vial 7
DA Method File : ID_GENX_032619_S2Q449.quantmethod.xml
Batch Name : s2q449.batch.bin
Sample Information : op74164,S2Q449,250,,,1.0,1,water

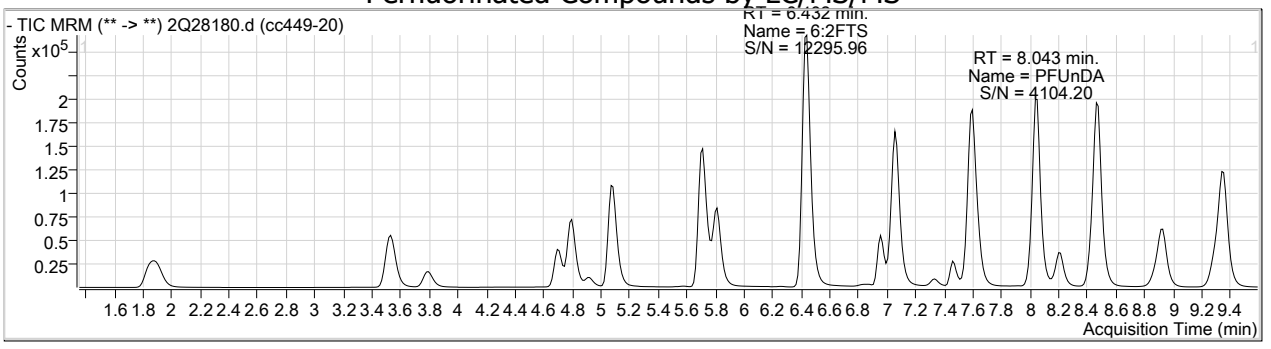
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.448	415.0 -> 370.0	403894	20.00	µg/L	0.000
13C4-PFOS	7.049	503.0 -> 80.0	60605	20.00	µg/L	0.000
M4-PFBA	1.877	217.0 -> 172.0	181051	20.00	µg/L	0.013
M5-PFPeA	3.536	268.0 -> 223.0	152925	20.00	µg/L	0.000
M5-PFHxA	4.801	318.0 -> 273.0	219402	20.00	µg/L	0.000
M4-PFHpA	5.717	367.0 -> 322.0	308205	20.00	µg/L	0.000
M8-PFOA	6.446	421.0 -> 376.0	321963	20.00	µg/L	0.000
M9-PFNA	7.065	472.0 -> 427.0	330244	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	448088	20.00	µg/L	0.000
M7-PFUnDA	8.055	570.0 -> 525.0	569144	20.00	µg/L	0.000
M2-PFDoDA	8.466	615.0 -> 570.0	622520	20.00	µg/L	-0.013
M2-PFTeDA	9.352	715.0 -> 670.0	418159	20.00	µg/L	0.000
M8-FOSA	6.959	506.0 -> 78.0	132598	20.00	µg/L	0.000
M3-PFBS	3.792	302.0 -> 99.0	26314	20.00	µg/L	0.000
M3-PFHxS	5.748	402.0 -> 99.0	28746	20.00	µg/L	0.000
M8-PFOS	7.047	507.0 -> 99.0	37743	20.00	µg/L	0.000
M2-4:2FTS	4.696	329.0 -> 309.0	94790	20.00	µg/L	0.000
M2-6:2FTS	6.430	429.0 -> 409.0	105337	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	77433	20.00	µg/L	0.000
M3-MeFOSAA	7.460	573.0 -> 419.0	56396	20.00	µg/L	0.000
M3-HFPO-DA	5.081	287.0 -> 169.0	194910	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.696	329.0 -> 309.0	94932	22.98	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.9%		
13C2-6:2FTS	6.430	429.0 -> 409.0	105261	23.18	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.9%		
13C2-8:2FTS	7.642	529.0 -> 509.0	77403	22.98	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.9%		
13C2-PFDoDA	8.466	615.0 -> 570.0	621370	22.65	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.2%		
13C2-PFTeDA	9.352	715.0 -> 670.0	418160	22.14	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.7%		
13C3-PFBS	3.792	302.0 -> 99.0	26224	23.30	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.5%		
13C3-PFHxS	5.748	402.0 -> 99.0	28742	23.41	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.0%		
13C4-PFBA	1.877	217.0 -> 172.0	180277	23.35	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.7%		
13C4-PFHpA	5.717	367.0 -> 322.0	307748	23.14	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.7%		
13C5-PFHxA	4.801	318.0 -> 273.0	219285	23.23	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.2%		
13C5-PFPeA	3.536	268.0 -> 223.0	152927	23.31	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.5%		
13C6-PFDA	7.594	519.0 -> 474.0	447901	23.01	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

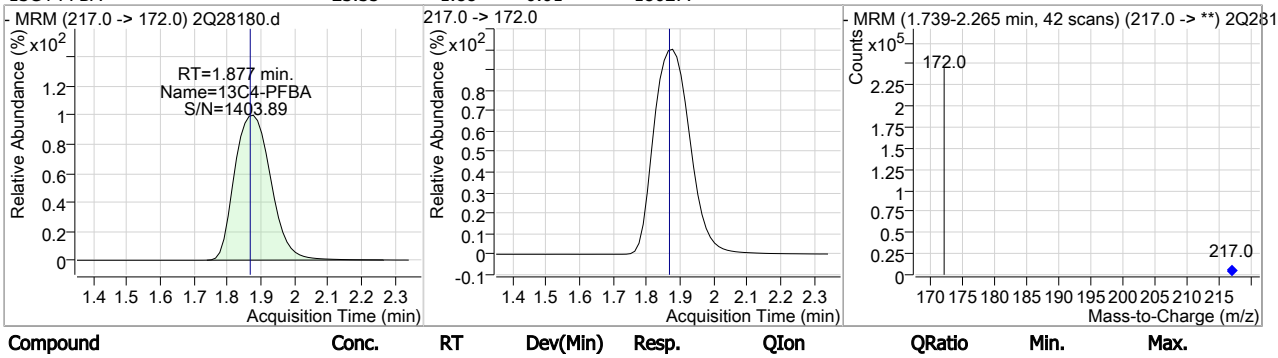
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.1%		
13C7-PFUnDA	8.055	570.0 -> 525.0	569096	23.03 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.2%		
13C8-FOSA	6.959	506.0 -> 78.0	132538	22.99 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.9%		
13C8-PFOA	6.446	421.0 -> 376.0	321721	23.24 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.2%		
13C8-PFOS	7.047	507.0 -> 99.0	37667	23.49 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 117.5%		
13C9-PFNA	7.065	472.0 -> 427.0	329888	23.06 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.3%		
d3-MeFOSAA	7.460	573.0 -> 419.0	56297	23.34 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.7%		
M2-PFOA	6.448	415.0 -> 370.0	404103	19.98 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
M4-PFOS	7.049	503.0 -> 80.0	60609	20.13 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C3-HFPO-DA	5.081	287.0 -> 169.0	194910	111.33 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 111.3%		
Target Compounds						**QValue**
4:2FTS	4.699	327.0 -> 307.0	53273	19.35 µg/L		98
6:2FTS	6.432	427.0 -> 407.0	50569	18.78 µg/L		98
8:2FTS	7.643	527.0 -> 507.0	39713	19.54 µg/L		97
EtFOSAA	7.610	584.0 -> 419.0	23287	20.00 µg/L		99
FOSA	6.963	498.0 -> 78.0	60755	19.60 µg/L		99
MeFOSAA	7.461	570.0 -> 419.0	28926	20.32 µg/L		100
PFBA	1.873	213.0 -> 169.0	33275	19.18 µg/L		100
PFBS	3.796	299.0 -> 80.0	40959	19.25 µg/L		99
PFDA	7.595	513.0 -> 469.0	176080	19.28 µg/L		99
PFDoDA	8.469	613.0 -> 569.0	274247	19.21 µg/L		99
PFDS	8.014	599.0 -> 80.0	13877	19.36 µg/L		99
PFHpA	5.708	363.0 -> 319.0	264436	19.32 µg/L		100
PFHpS	6.454	449.0 -> 80.0	28292	19.69 µg/L		99
PFHxA	4.803	313.0 -> 269.0	68525	19.08 µg/L		100
PFHxS	5.751	399.0 -> 80.0	31363	18.99 µg/L	m	100
PFNA	7.066	463.0 -> 419.0	197399	19.50 µg/L		100
PFNS	7.565	549.0 -> 80.0	26724	18.88 µg/L		98
PFOA	6.437	413.0 -> 369.0	165991	19.35 µg/L		99
PFOS	7.050	499.0 -> 80.0	35517	18.59 µg/L	m	100
PFPeA	3.540	263.0 -> 219.0	130313	19.23 µg/L		100
PFPeS	4.920	349.0 -> 80.0	27301	19.39 µg/L		99
PFTeDA	9.346	713.0 -> 669.0	266102	19.29 µg/L		99
PFTrDA	8.935	663.0 -> 619.0	317613	20.02 µg/L		99
PFUnDA	8.043	563.0 -> 519.0	226729	19.21 µg/L		99
11Cl-PF3OUdS	8.200	631.0 -> 451.0	152032	19.72 µg/L		100
9Cl-PF3ONS	7.335	531.0 -> 351.0	30324	19.62 µg/L		100
ADONA	5.816	377.0 -> 251.0	310073	19.74 µg/L		100
HFPO-DA	5.085	329.0 -> 169.0	220391	93.11 µg/L		98

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

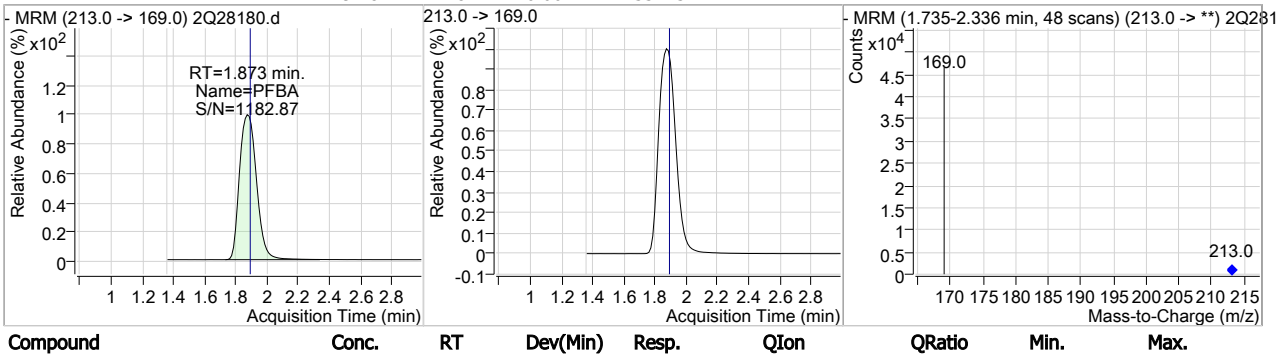
Perfluorinated Compounds by LC/MS/MS



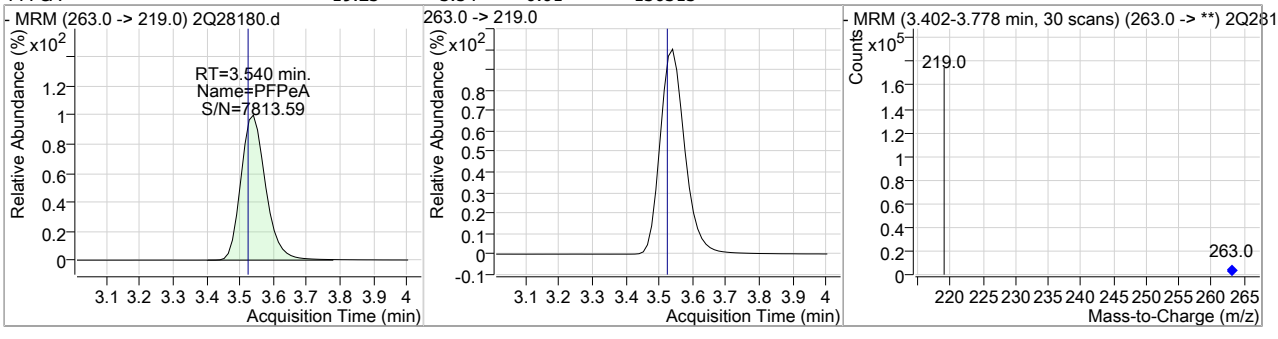
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	23.35	1.88	0.01	180277				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.18	1.87	0.00	33275				

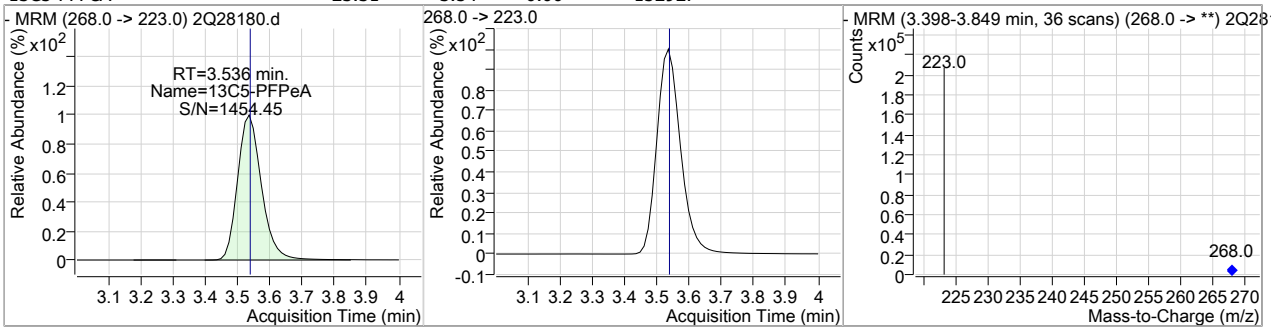


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.23	3.54	0.01	130313				

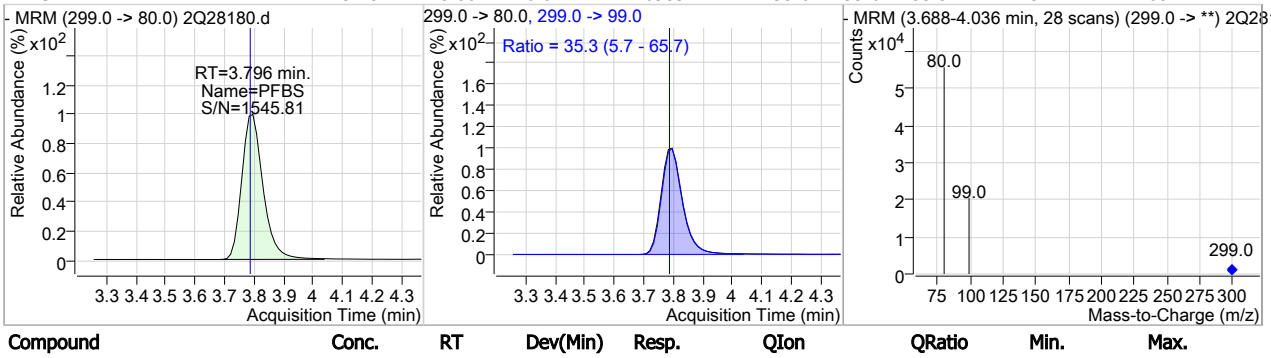


Perfluorinated Compounds by LC/MS/MS

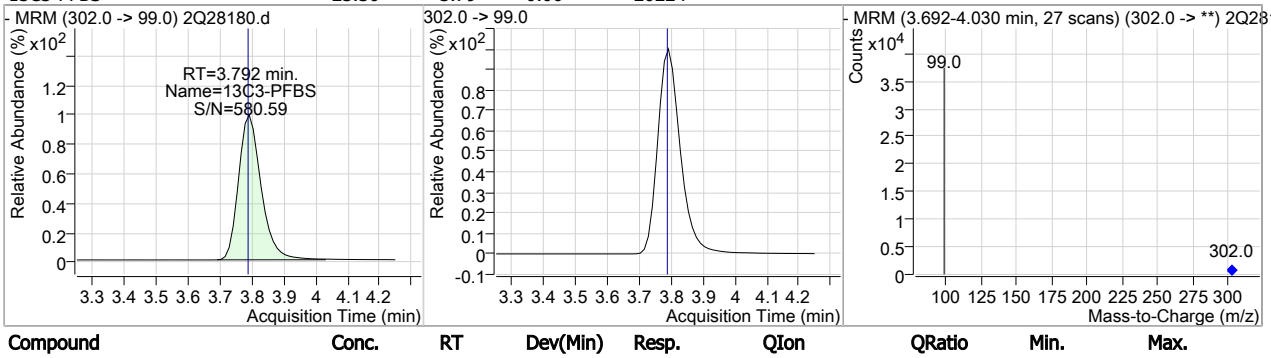
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	23.31	3.54	0.00	152927				



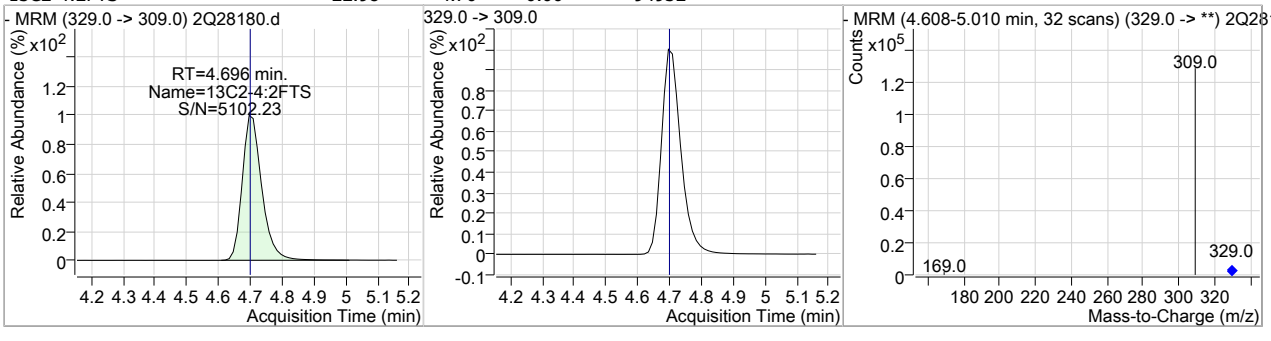
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.25	3.80	0.01	40959	299.0 -> 99.0	35.3	5.7	65.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	23.30	3.79	0.00	26224				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	22.98	4.70	0.00	94932				

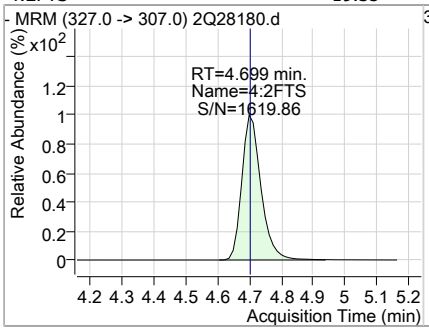


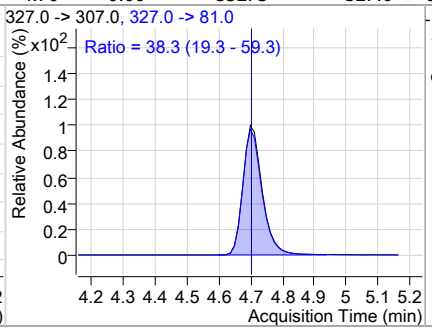
7.6.29

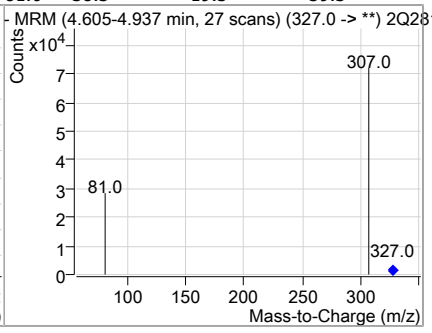
7

Perfluorinated Compounds by LC/MS/MS

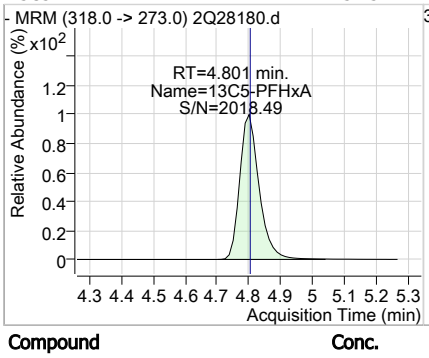
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.35	4.70	0.00	53273	327.0 -> 81.0	38.3	19.3	59.3

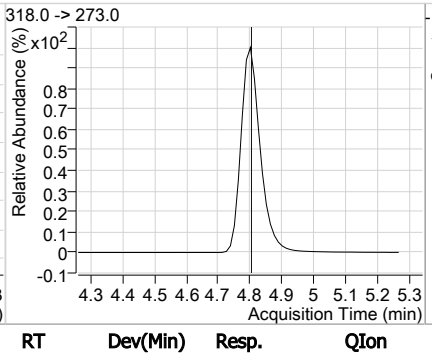


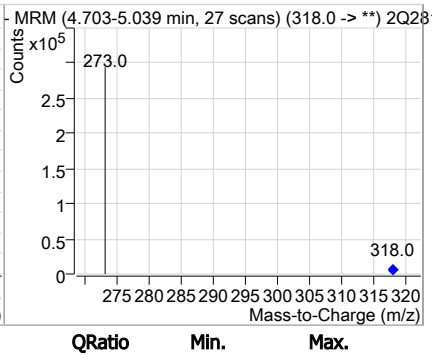




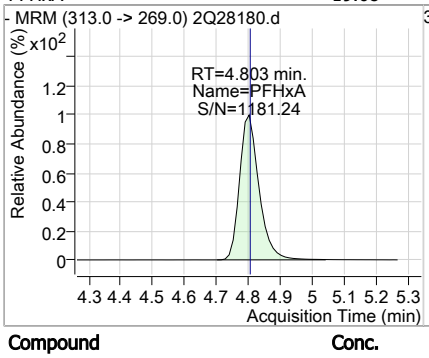
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	23.23	4.80	0.00	219285				

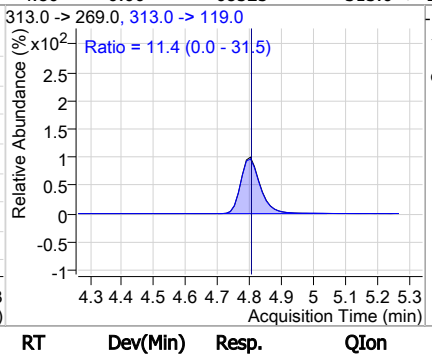


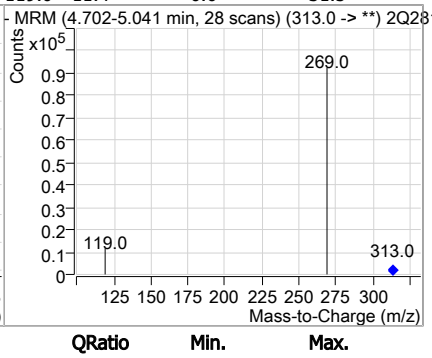




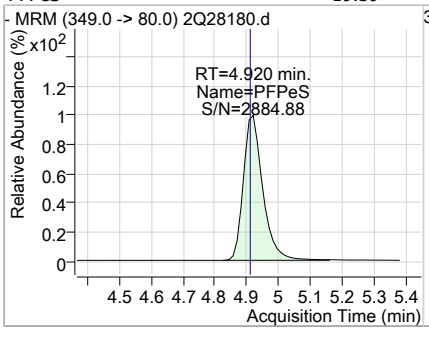
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.08	4.80	0.00	68525	313.0 -> 119.0	11.4	0.0	31.5

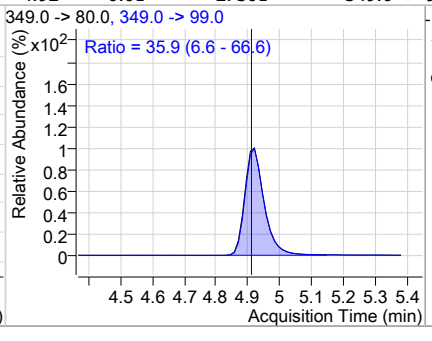


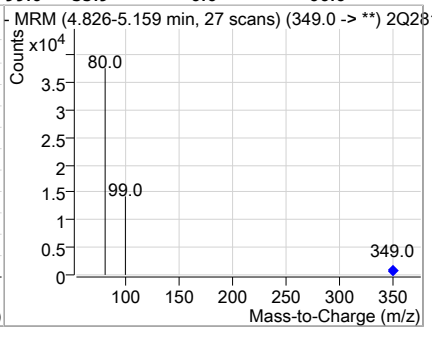




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	19.39	4.92	0.01	27301	349.0 -> 99.0	35.9	6.6	66.6



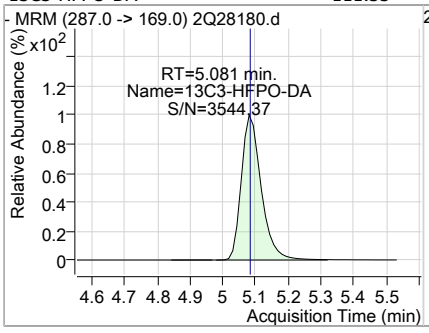


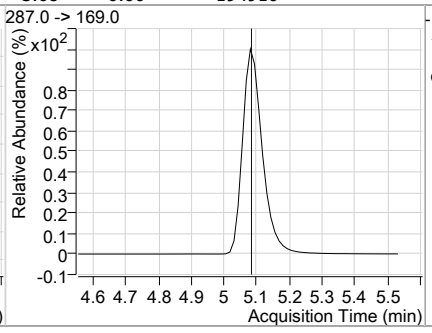


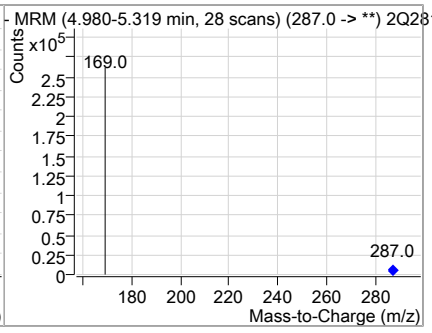
7.6.29

Perfluorinated Compounds by LC/MS/MS

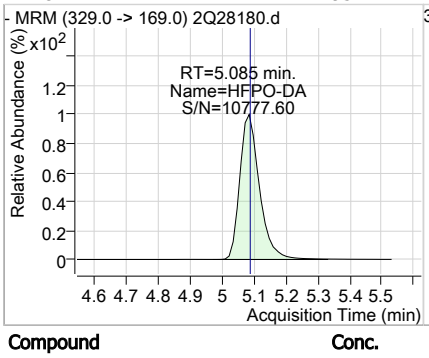
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	111.33	5.08	0.00	194910				

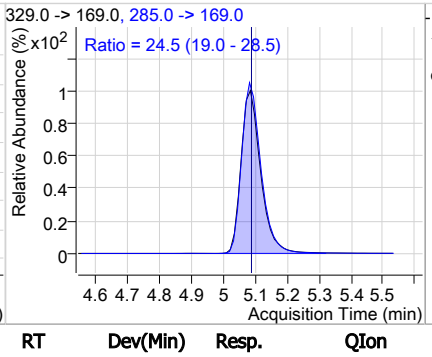


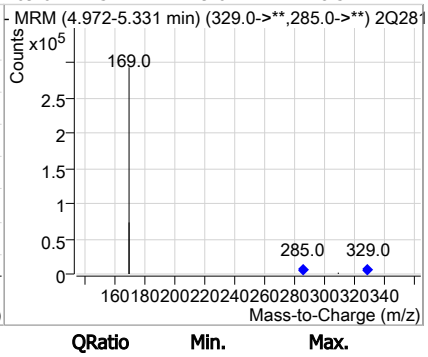




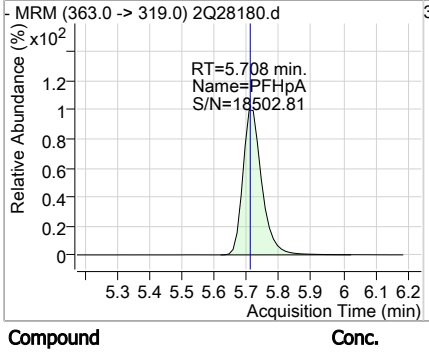
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	93.11	5.09	0.00	220391	285.0 -> 169.0	24.5	19.0	28.5

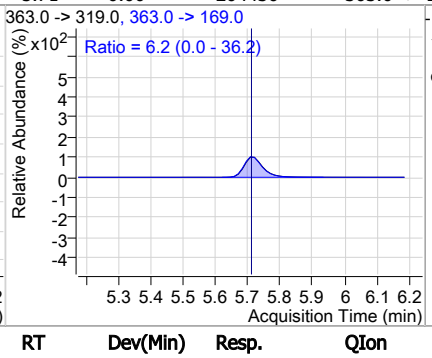


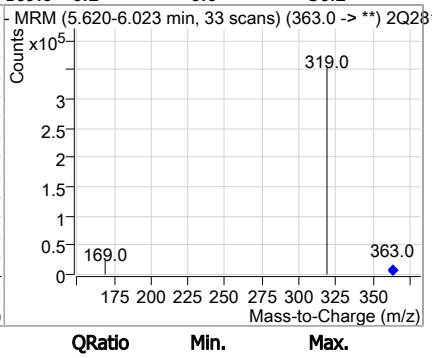




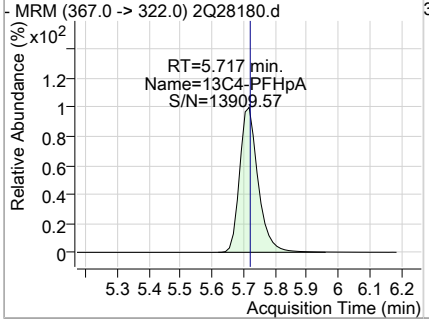
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.32	5.71	0.00	264436	363.0 -> 169.0	6.2	0.0	36.2

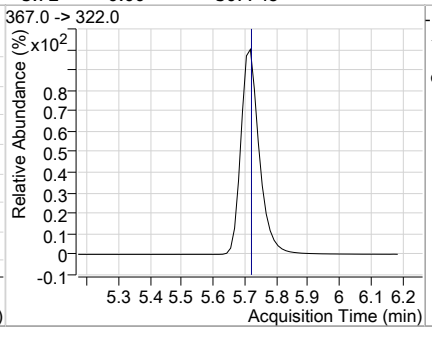


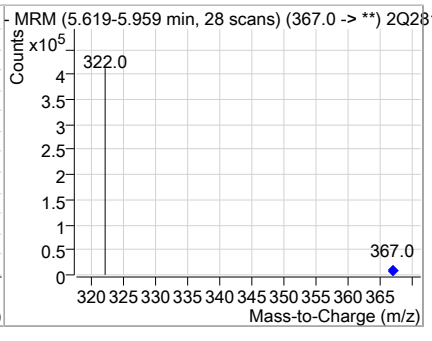




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	23.14	5.72	0.00	307748				



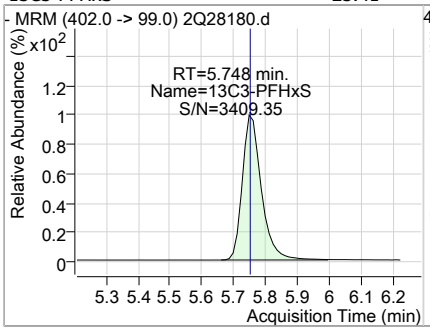


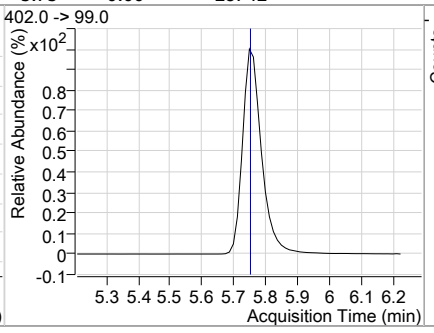


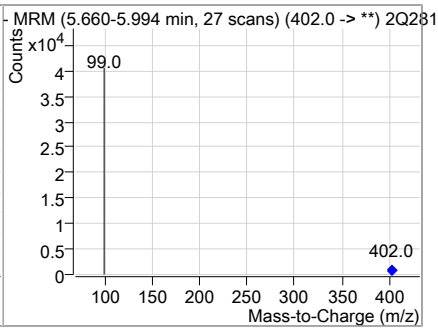
7.6.29

Perfluorinated Compounds by LC/MS/MS

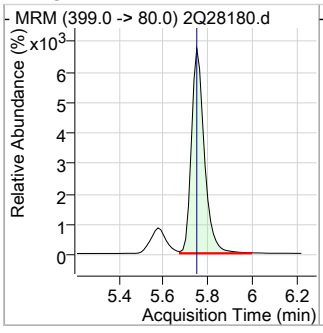
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	23.41	5.75	0.00	28742				

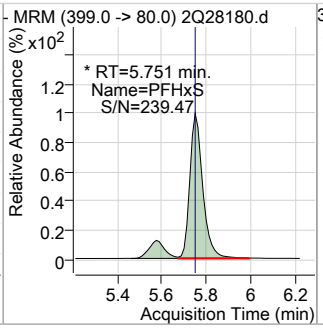


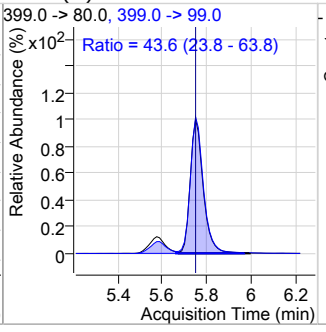


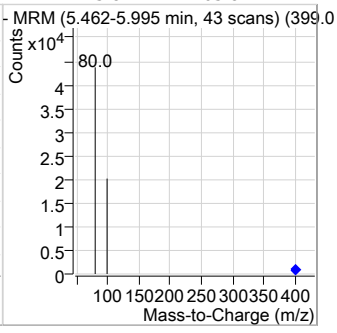


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.99	5.75	0.00	31363 (m)	399.0 -> 99.0	43.6	23.8	63.8

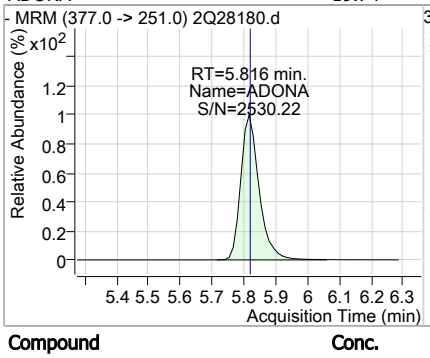


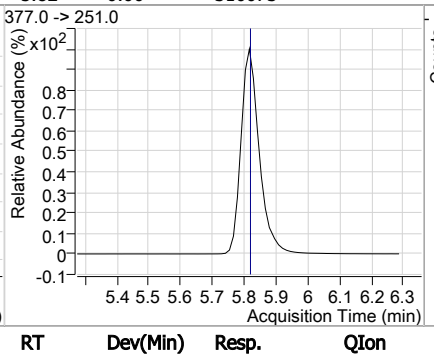


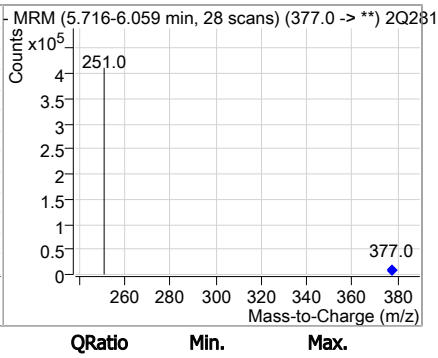




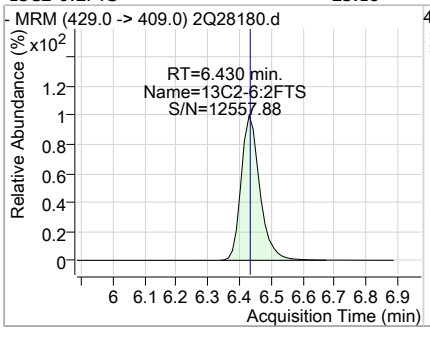
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	19.74	5.82	0.00	310073				

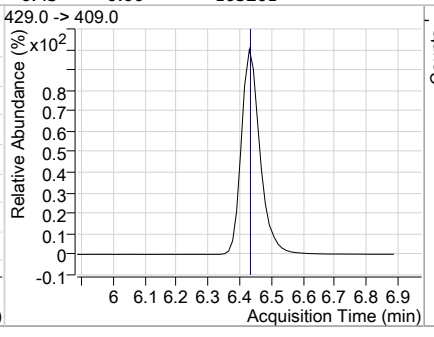


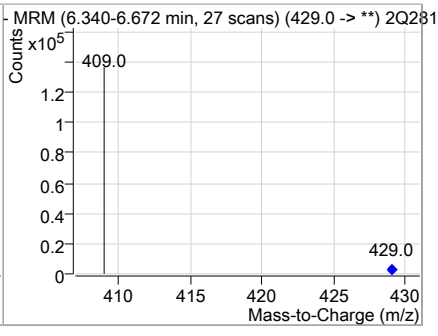




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	23.18	6.43	0.00	105261				



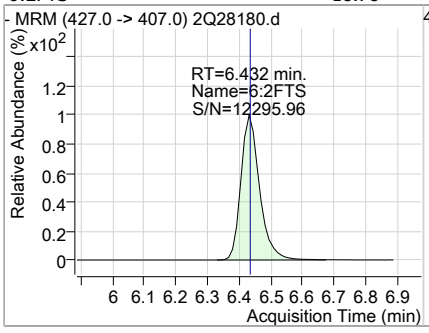


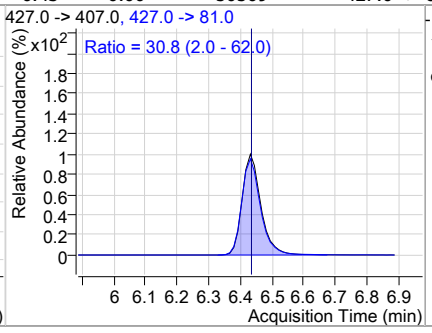


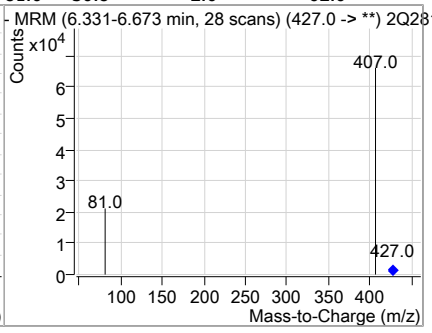
7.6.29

Perfluorinated Compounds by LC/MS/MS

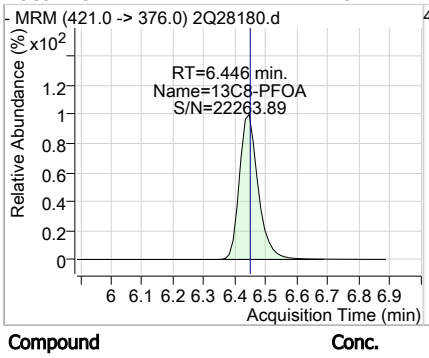
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	18.78	6.43	0.00	50569	427.0 -> 81.0	30.8	2.0	62.0

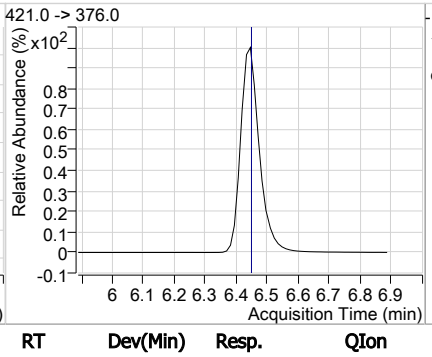


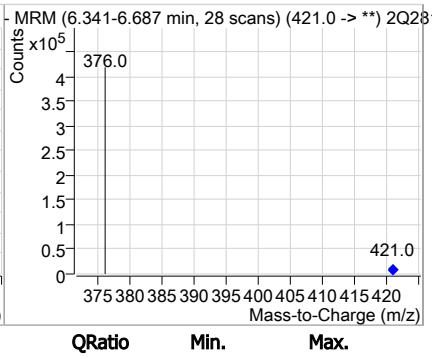




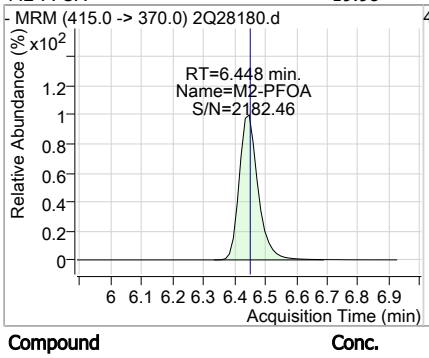
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	23.24	6.45	0.00	321721				

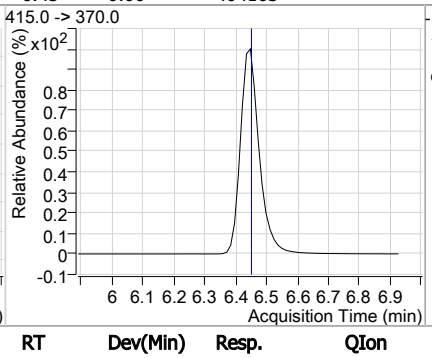


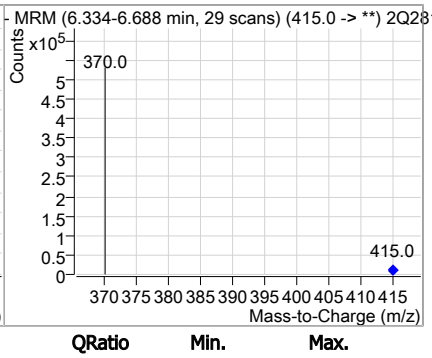




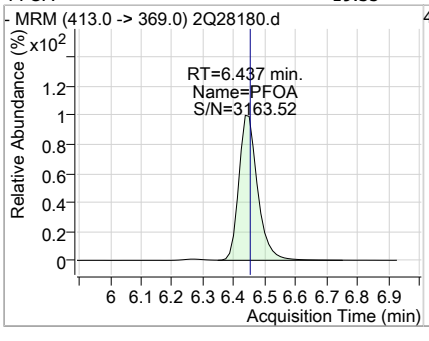
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.98	6.45	0.00	404103				

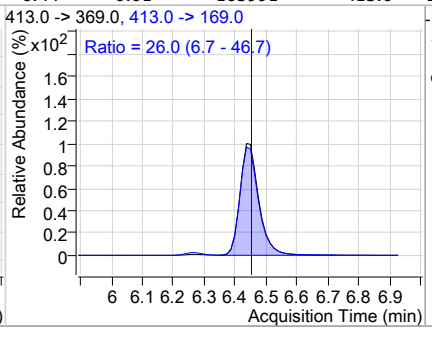


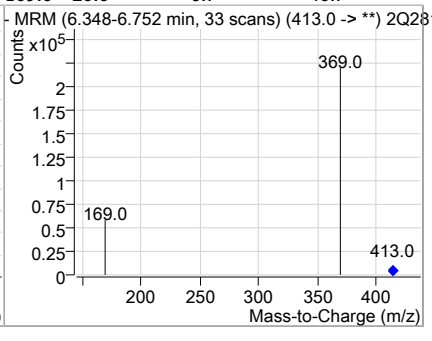




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.35	6.44	-0.01	165991	413.0 -> 169.0	26.0	6.7	46.7



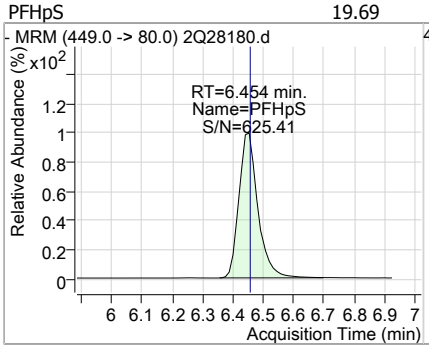


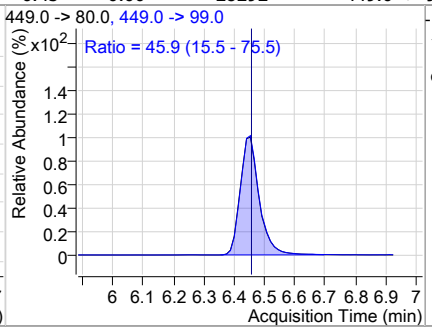


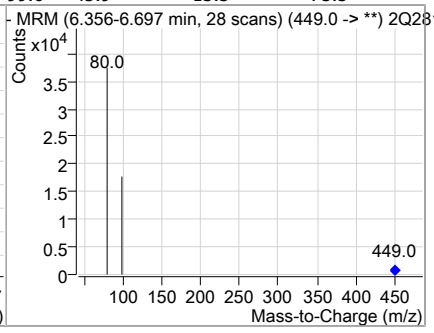
7.6.29

Perfluorinated Compounds by LC/MS/MS

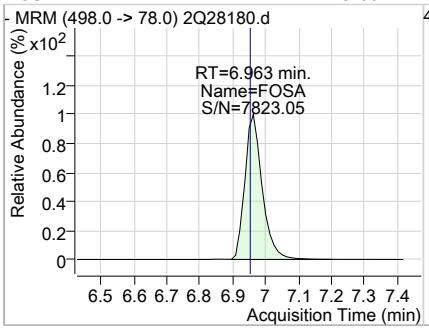
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.69	6.45	0.00	28292	449.0 -> 99.0	45.9	15.5	75.5

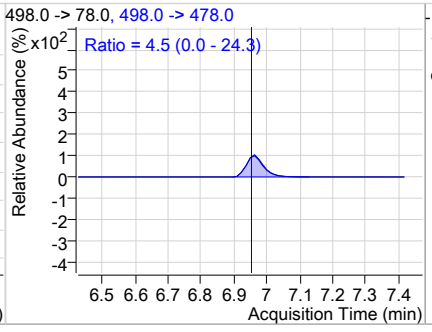


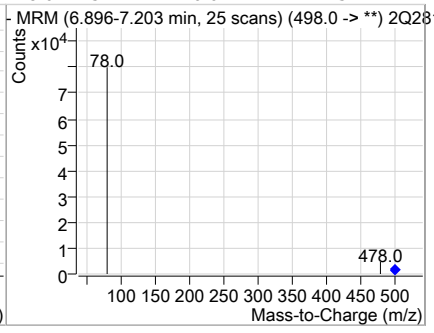




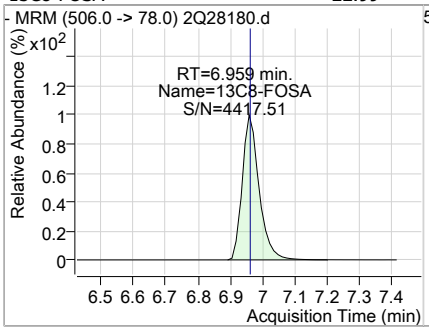
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.60	6.96	0.01	60755	498.0 -> 478.0	4.5	0.0	24.3

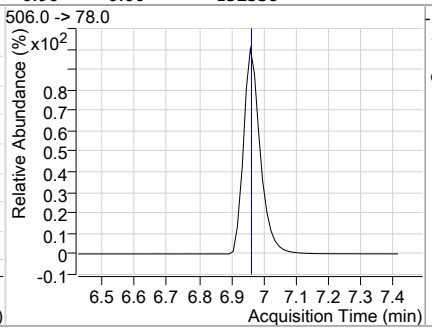


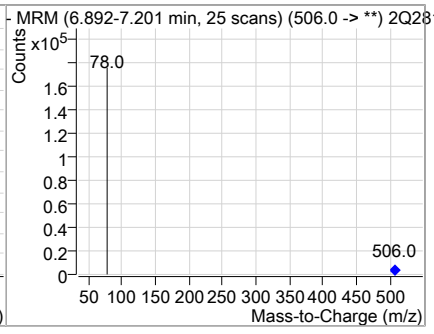




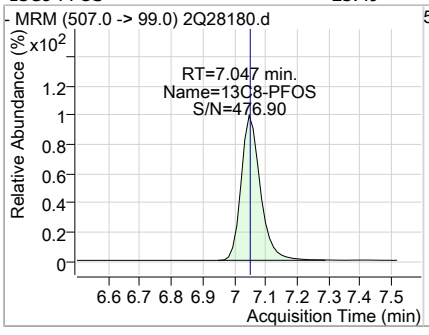
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	22.99	6.96	0.00	132538				

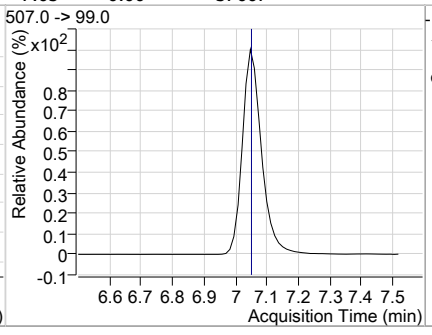


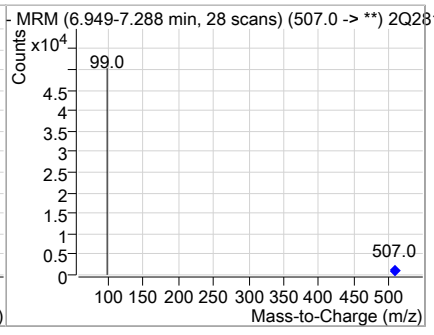




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	23.49	7.05	0.00	37667				



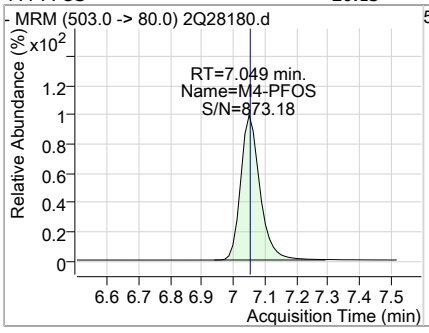


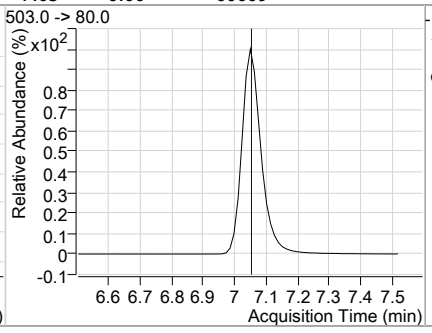


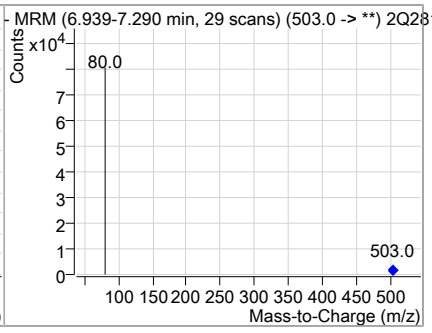
7.6.29

Perfluorinated Compounds by LC/MS/MS

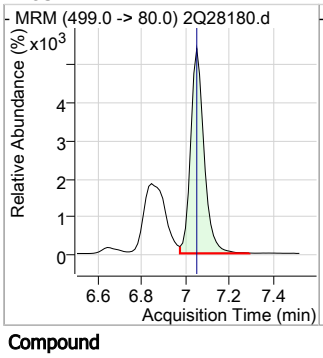
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.13	7.05	0.00	60609				

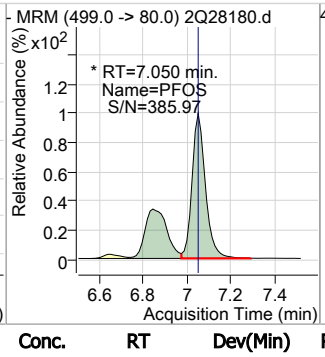


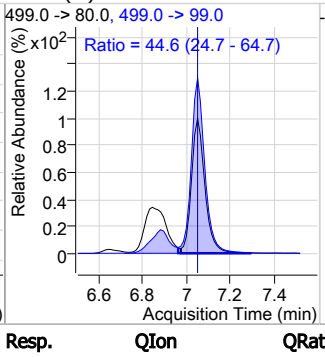


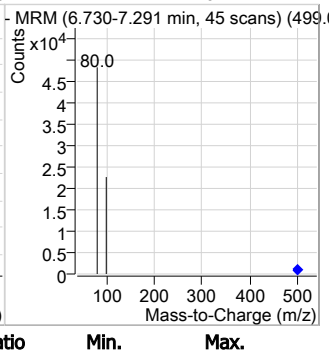


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.59	7.05	0.00	35517 (m)	499.0 -> 99.0	44.6	24.7	64.7

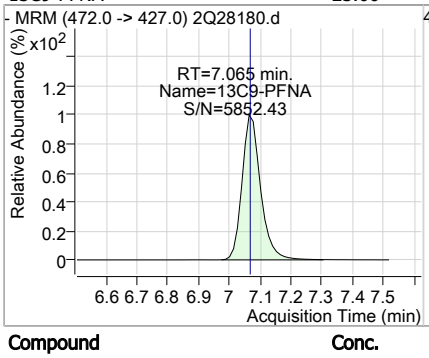


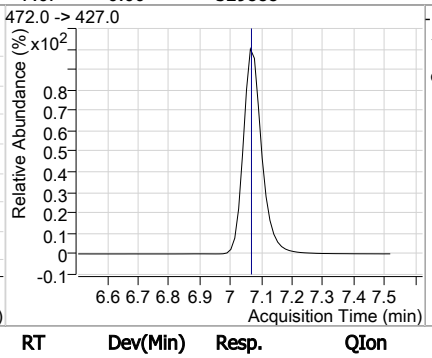


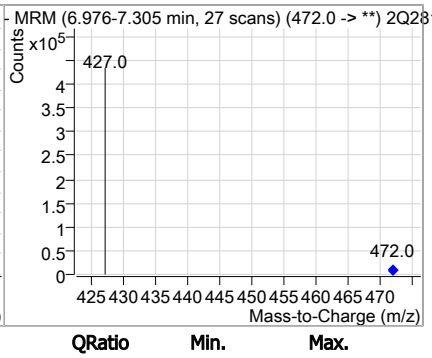




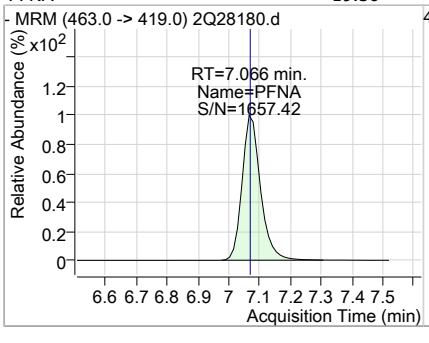
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	23.06	7.07	0.00	329888				

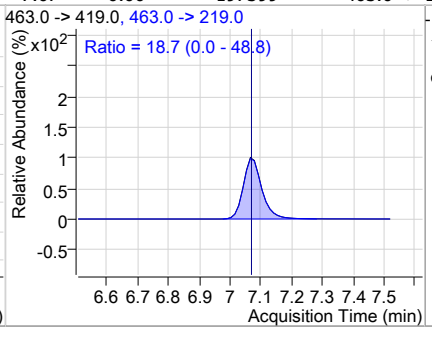


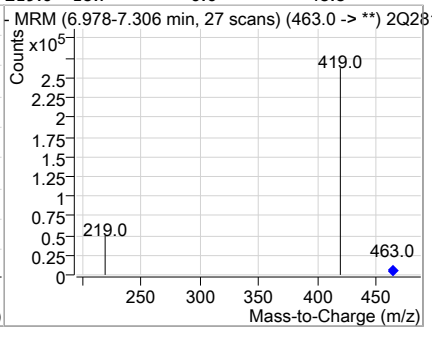




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.50	7.07	0.00	197399	463.0 -> 219.0	18.7	0.0	48.8



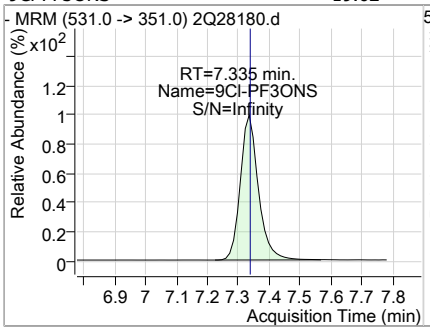


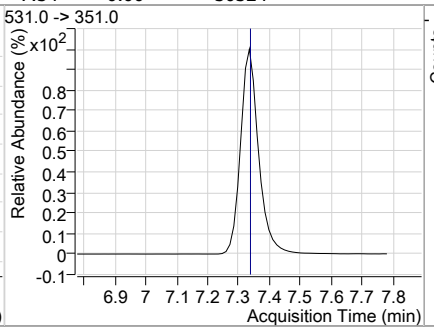


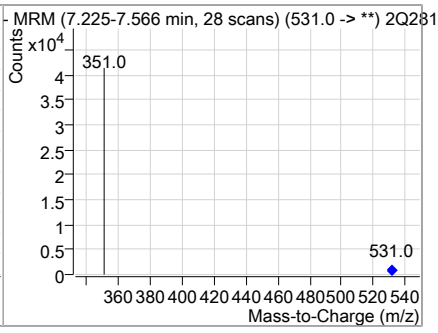
7.6.29

Perfluorinated Compounds by LC/MS/MS

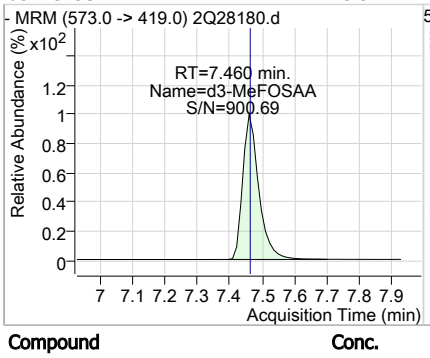
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	19.62	7.34	0.00	30324				

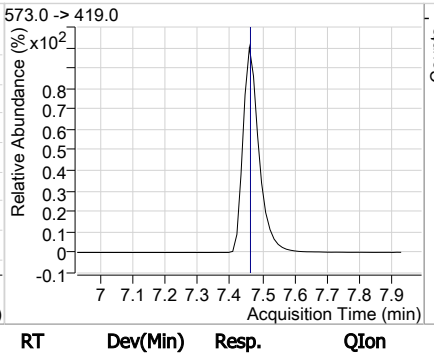


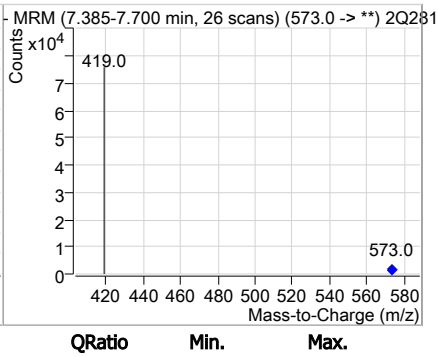




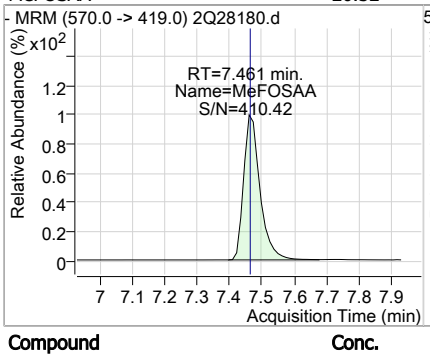
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	23.34	7.46	0.00	56297				

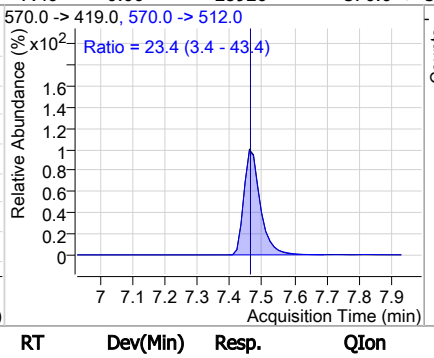


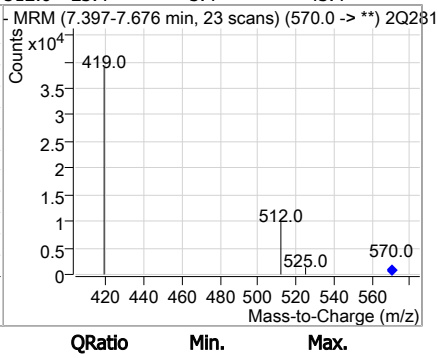




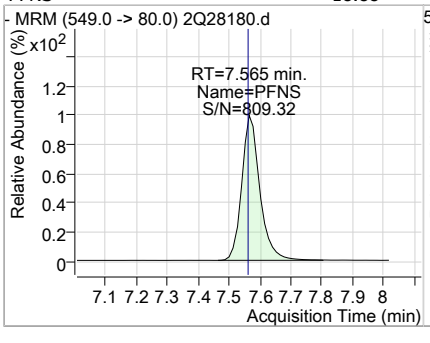
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.32	7.46	0.00	28926	570.0 -> 512.0	23.4	3.4	43.4

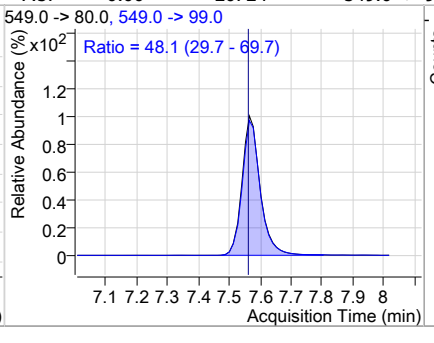


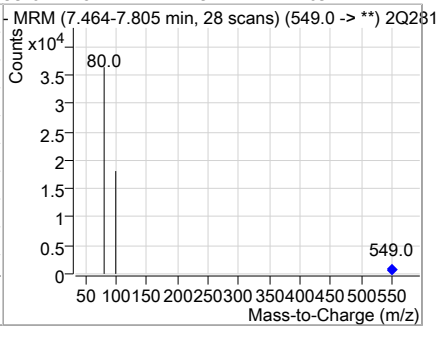




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	18.88	7.57	0.00	26724	549.0 -> 99.0	48.1	29.7	69.7

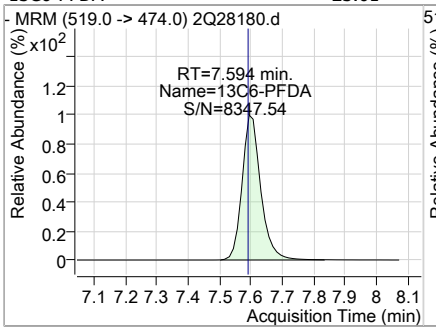


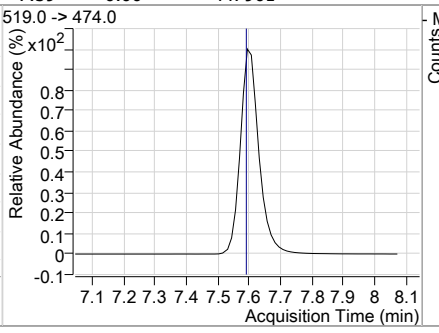


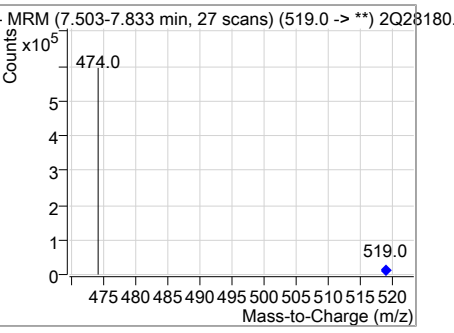


Perfluorinated Compounds by LC/MS/MS

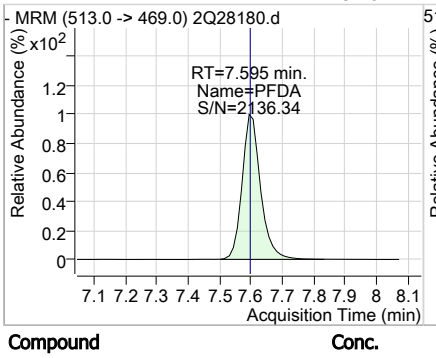
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	23.01	7.59	0.00	447901				

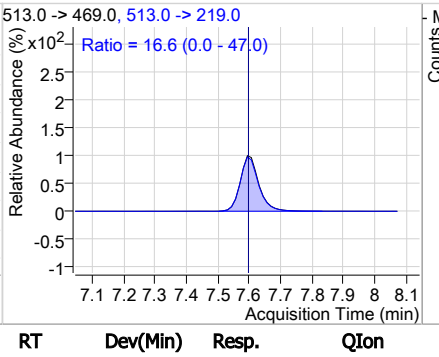


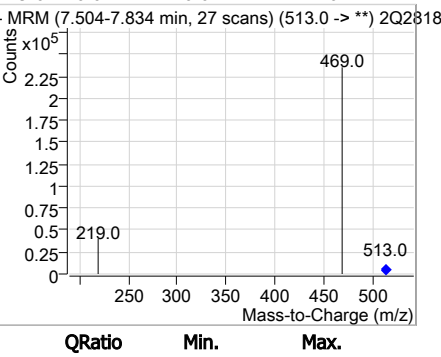




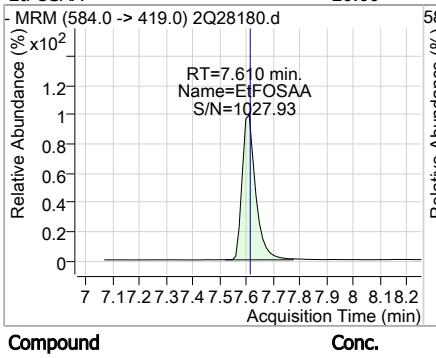
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.28	7.60	0.00	176080	513.0 -> 219.0	16.6	0.0	47.0

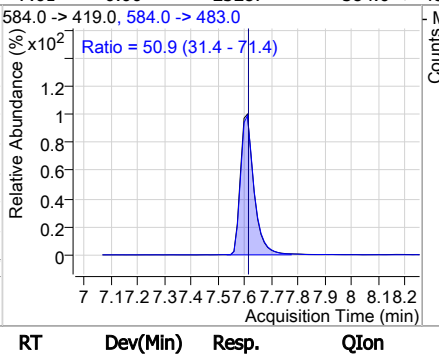


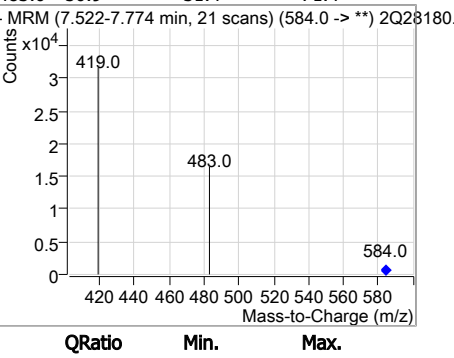




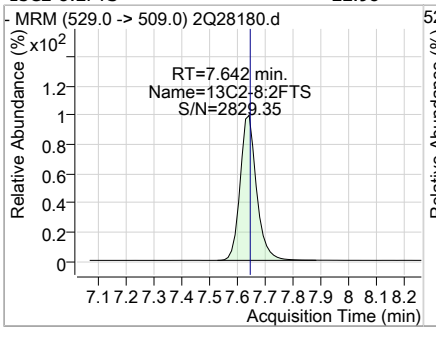
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	20.00	7.61	0.00	23287	584.0 -> 483.0	50.9	31.4	71.4

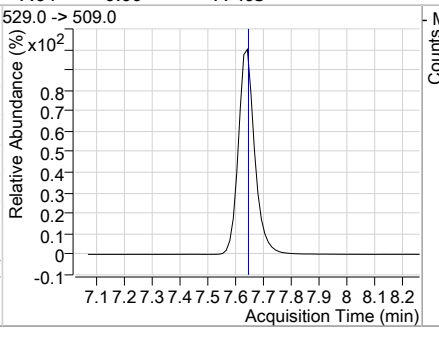


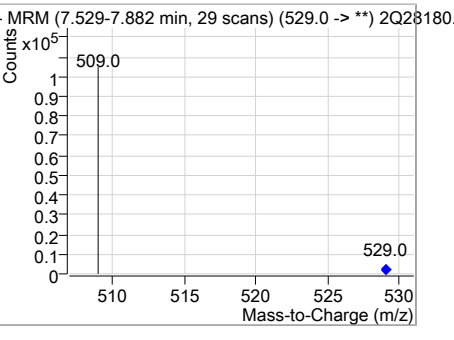




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	22.98	7.64	0.00	77403				







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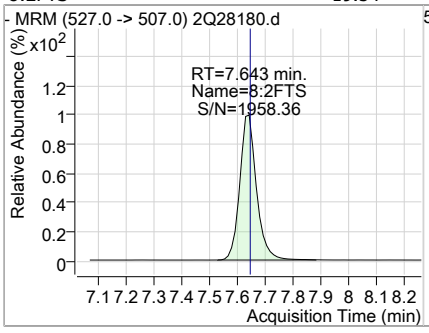
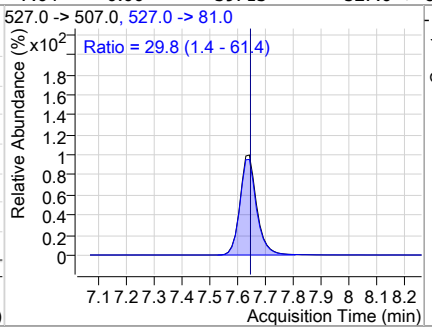
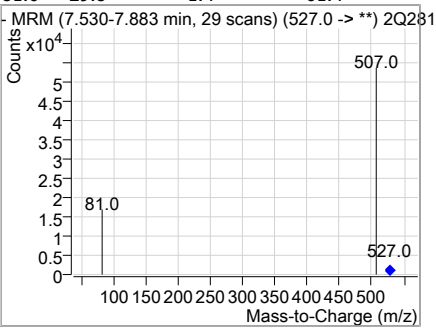
Perfluorinated Compounds by LC/MS/MS

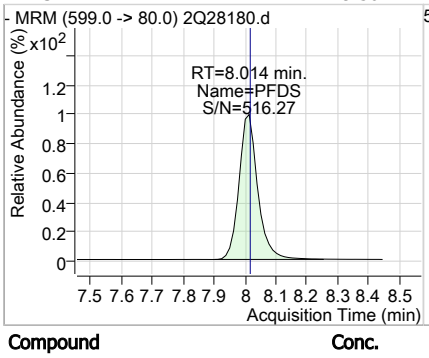
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.54	7.64	0.00	39713	527.0 -> 81.0	29.8	1.4	61.4

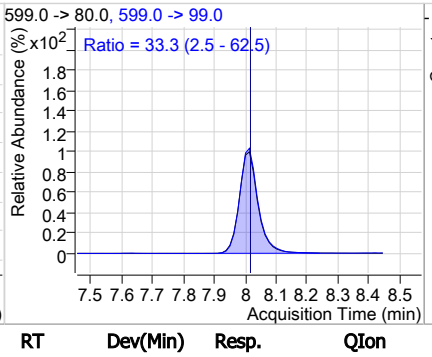


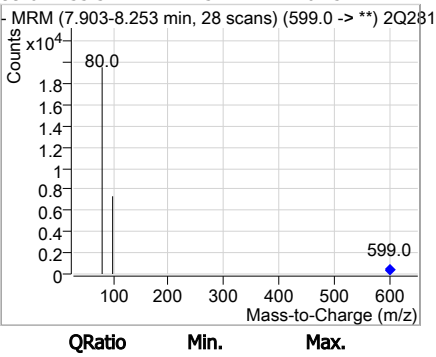




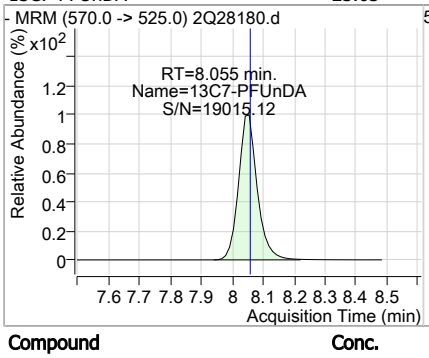
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.36	8.01	0.00	13877	599.0 -> 99.0	33.3	2.5	62.5

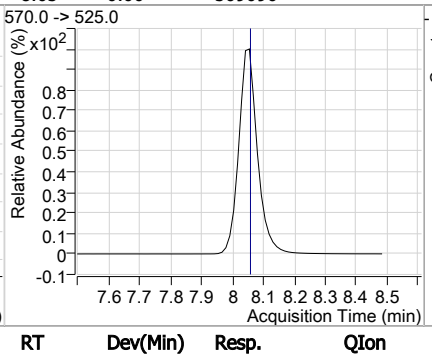


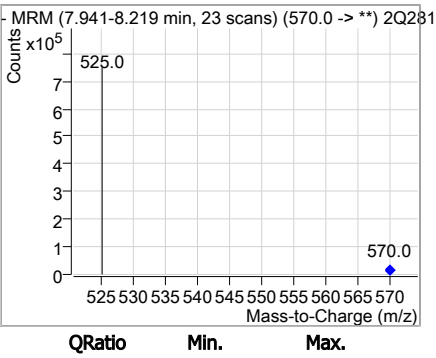




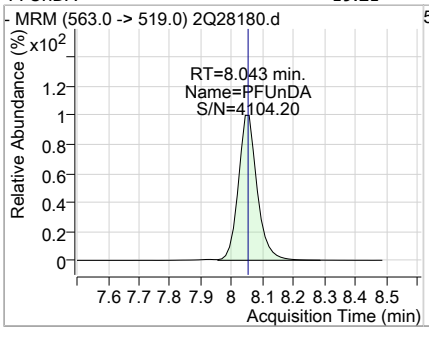
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	23.03	8.05	0.00	569096				

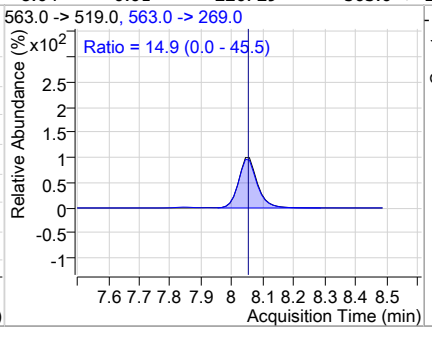


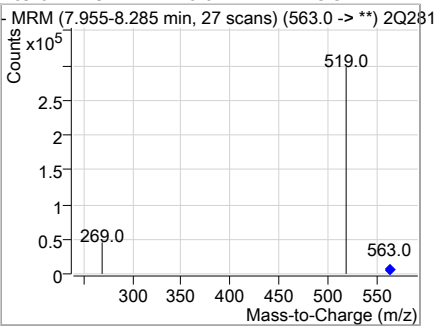




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.21	8.04	-0.01	226729	563.0 -> 269.0	14.9	0.0	45.5







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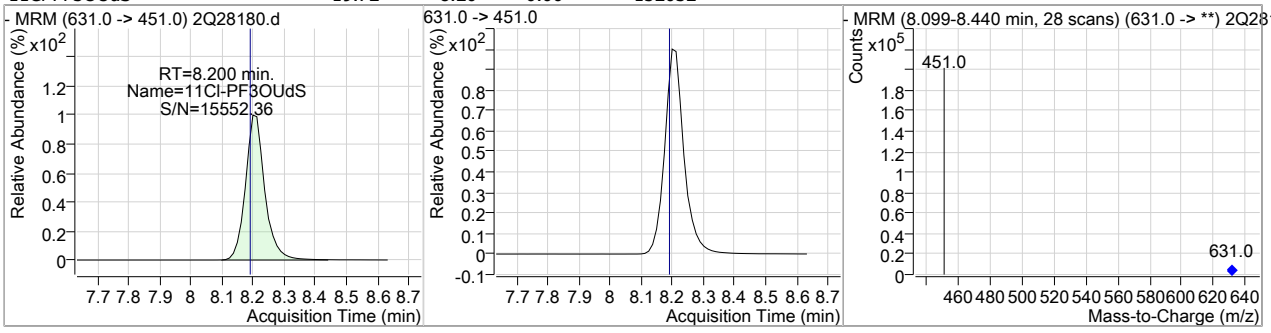
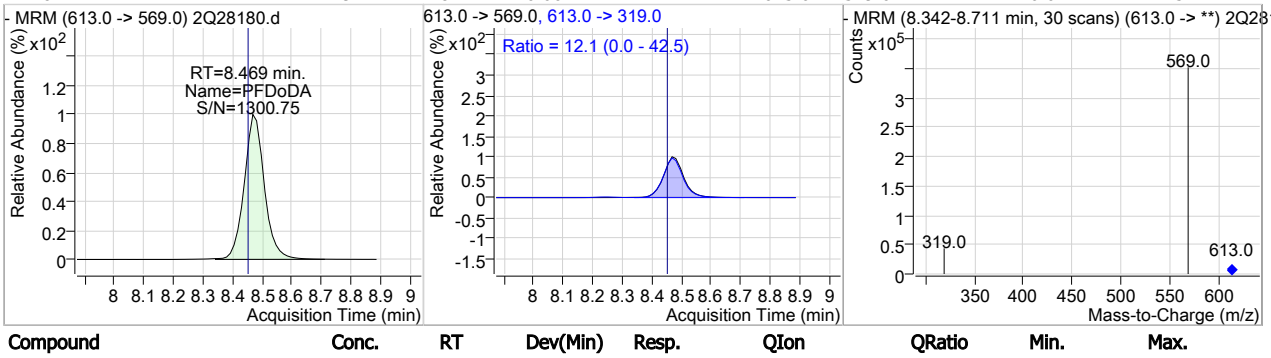
Perfluorinated Compounds by LC/MS/MS

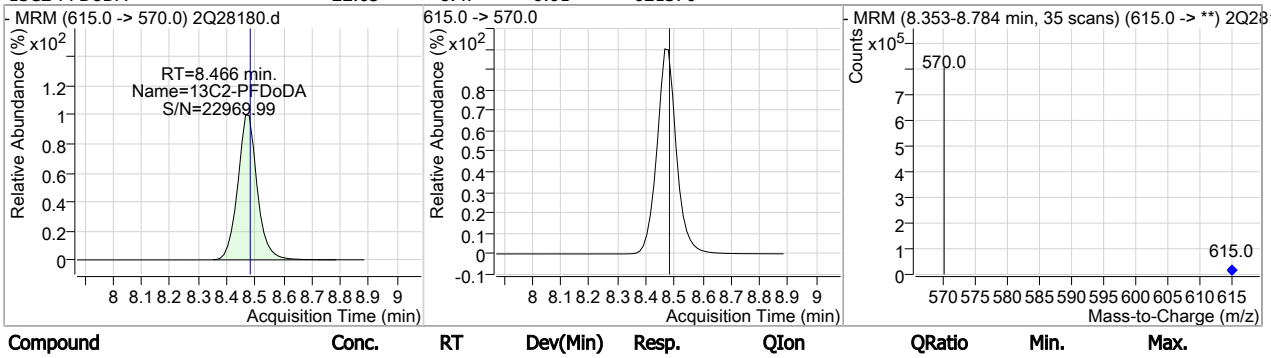
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.72	8.20	0.00	152032				



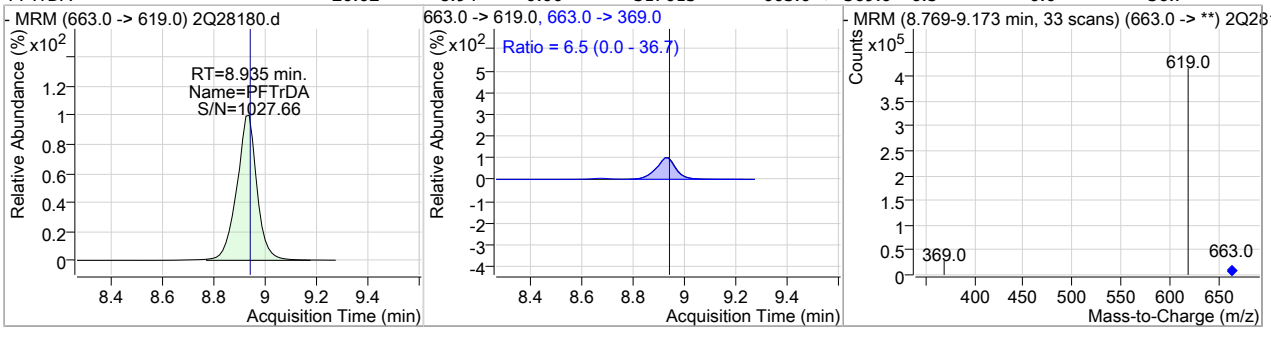
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.21	8.47	0.00	274247	613.0 -> 319.0	12.1	0.0	42.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	22.65	8.47	-0.01	621370				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.02	8.94	0.00	317613	663.0 -> 369.0	6.5	0.0	36.7



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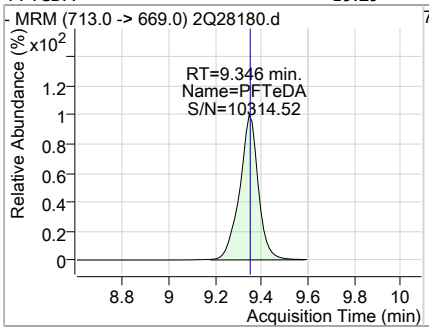
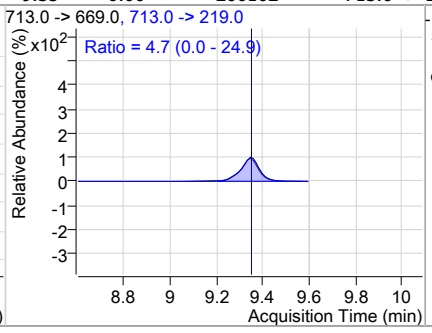
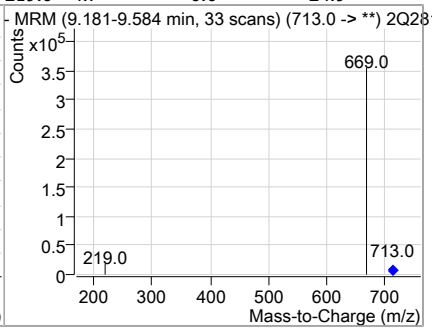
Perfluorinated Compounds by LC/MS/MS

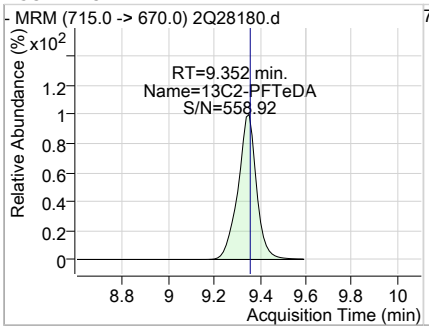
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.29	9.35	0.00	266102	713.0 -> 219.0	4.7	0.0	24.9

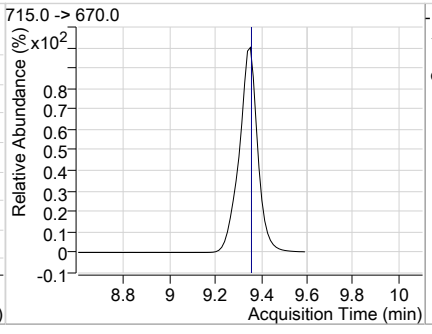


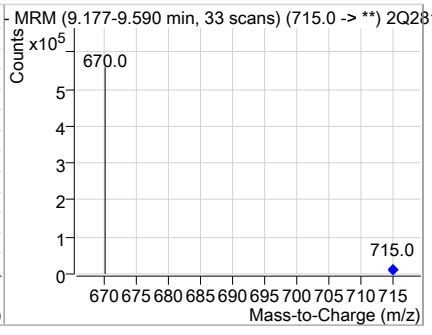




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	22.14	9.35	0.00	418160				







7.6.29

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Manual Integration Approval Summary

Sample Number: S2Q449-CC449
Lab FileID: 2Q28180.D
Injection Time: 03/26/19 20:00
Method: EPA 537M QSM5.1 B-15
Analyst approved: 03/27/19 13:46 Natasha Gumtie
Supervisor approved: 03/27/19 16:48 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.75	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.05	Split peak

Cal Report: 2Q28322.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28322.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/28/2019 2:31:13 PM
Sample Name : ic450-0.5
Vial : Vial 2
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q450.batch.bin
Sample Information : op74300,S2Q450,2.00,,,1.0,1,soil

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.423	415.0 -> 370.0	407433	20.00	µg/L	0.013
13C4-PFOS	7.036	503.0 -> 80.0	56365	20.00	µg/L	0.013
M4-PFBA	1.865	217.0 -> 172.0	136996	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	122973	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	185159	20.00	µg/L	0.013
M4-PFHpA	5.691	367.0 -> 322.0	283315	20.00	µg/L	0.013
M8-PFOA	6.422	421.0 -> 376.0	305062	20.00	µg/L	0.000
M9-PFNA	7.066	472.0 -> 427.0	337675	20.00	µg/L	0.013
M6-PFDA	7.607	519.0 -> 474.0	482671	20.00	µg/L	0.013
M7-PFUnDA	8.079	570.0 -> 525.0	635067	20.00	µg/L	0.012
M2-PFDoDA	8.565	615.0 -> 570.0	783631	20.00	µg/L	0.013
M2-PFTeDA	9.690	715.0 -> 670.0	555455	20.00	µg/L	0.013
M8-FOSA	6.918	506.0 -> 78.0	107290	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	20243	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	22964	20.00	µg/L	0.000
M8-PFOS	7.033	507.0 -> 99.0	31245	20.00	µg/L	0.000
M2-4:2FTS	4.684	329.0 -> 309.0	91721	20.00	µg/L	0.013
M2-6:2FTS	6.418	429.0 -> 409.0	125438	20.00	µg/L	0.013
M2-8:2FTS	7.655	529.0 -> 509.0	108624	20.00	µg/L	0.025
M3-MeFOSAA	7.447	573.0 -> 419.0	62319	20.00	µg/L	0.013
M3-HFPO-DA	5.056	287.0 -> 169.0	184361	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	91393	17.25	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.3%		
13C2-6:2FTS	6.418	429.0 -> 409.0	125402	17.94	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.7%		
13C2-8:2FTS	7.655	529.0 -> 509.0	108593	17.40	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.0%		
13C2-PFDoDA	8.565	615.0 -> 570.0	784385	18.61	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.0%		
13C2-PFTeDA	9.690	715.0 -> 670.0	552453	18.10	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.5%		
13C3-PFBS	3.767	302.0 -> 99.0	20176	18.32	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.6%		
13C3-PFHxS	5.723	402.0 -> 99.0	22999	18.58	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.9%		
13C4-PFBA	1.865	217.0 -> 172.0	136244	18.24	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.2%		
13C4-PFHpA	5.691	367.0 -> 322.0	282910	18.38	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.9%		
13C5-PFHxA	4.776	318.0 -> 273.0	184847	18.22	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C5-PFPeA	3.511	268.0 -> 223.0	122763	18.23	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C6-PFDA	7.607	519.0 -> 474.0	482536	18.75	µg/L	0.013

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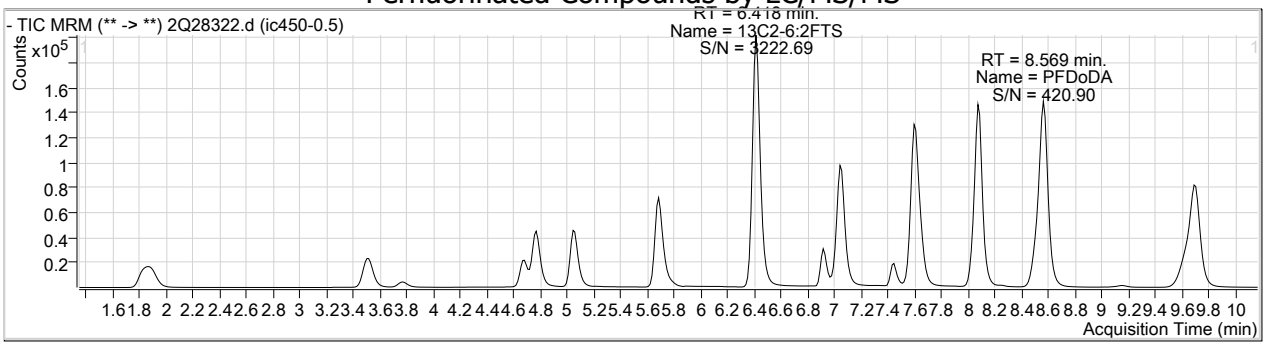
Perfluorinated Compounds by LC/MS/MS

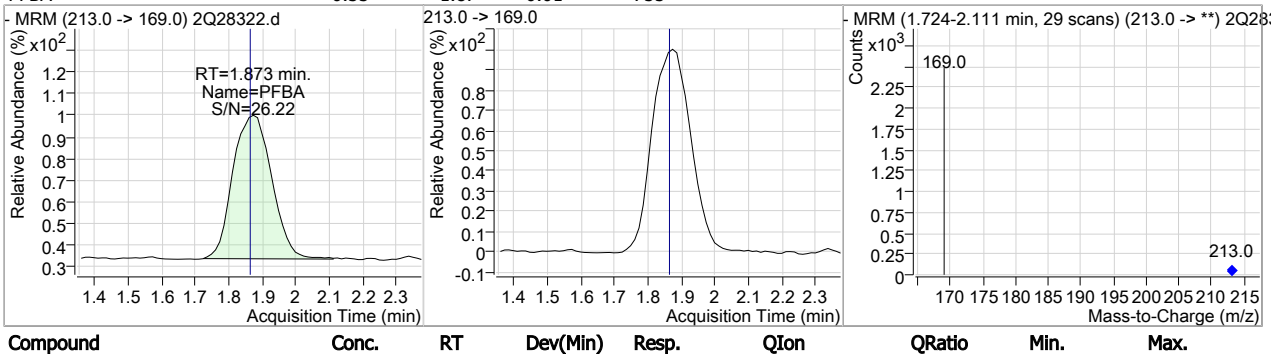
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C7-PFUnDA	8.079	570.0 -> 525.0	635204	18.62 µg/L		0.012
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.1%		
13C8-FOSA	6.918	506.0 -> 78.0	107284	19.37 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C8-PFOA	6.422	421.0 -> 376.0	304909	18.82 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C8-PFOS	7.033	507.0 -> 99.0	31303	18.45 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.2%		
13C9-PFNA	7.066	472.0 -> 427.0	337583	18.61 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.1%		
d3-MeFOSAA	7.447	573.0 -> 419.0	62303	18.25 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.2%		
M2-PFOA	6.423	415.0 -> 370.0	407845	20.01 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.036	503.0 -> 80.0	56306	19.97 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	184361	95.40 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	1549	0.58 µg/L		96
6:2FTS	6.420	427.0 -> 407.0	1839	0.58 µg/L		98
8:2FTS	7.656	527.0 -> 507.0	1578	0.56 µg/L		94
EtFOSAA	7.585	584.0 -> 419.0	776	0.63 µg/L		96
FOSA	6.922	498.0 -> 78.0	1372	0.53 µg/L		98
MeFOSAA	7.448	570.0 -> 419.0	907	0.55 µg/L		97
PFBA	1.873	213.0 -> 169.0	755	0.55 µg/L		100
PFBS	3.771	299.0 -> 80.0	958	0.58 µg/L		97
PFDA	7.608	513.0 -> 469.0	5934	0.56 µg/L		99
PFDoDA	8.569	613.0 -> 569.0	9947	0.55 µg/L		99
PFDS	8.039	599.0 -> 80.0	370	0.62 µg/L		99
PFHpA	5.694	363.0 -> 319.0	6878	0.55 µg/L		100
PFHpS	6.429	449.0 -> 80.0	653	0.55 µg/L		98
PFHxA	4.778	313.0 -> 269.0	1743	0.54 µg/L		99
PFHxS	5.726	399.0 -> 80.0	790	0.58 µg/L	m	96
PFNA	7.067	463.0 -> 419.0	6029	0.54 µg/L		97
PFNS	7.578	549.0 -> 80.0	694	0.59 µg/L		99
PFOA	6.425	413.0 -> 369.0	4643	0.57 µg/L		100
PFOS	7.037	499.0 -> 80.0	911	0.60 µg/L	m	89
PFPeA	3.528	263.0 -> 219.0	3160	0.58 µg/L		100
PFPeS	4.895	349.0 -> 80.0	680	0.59 µg/L		95
PFTeDA	9.697	713.0 -> 669.0	10964	0.57 µg/L		99
PFTrDA	9.152	663.0 -> 619.0	9883	0.55 µg/L		100
PFUnDA	8.080	563.0 -> 519.0	7270	0.55 µg/L		100
11Cl-PF3OUdS	8.250	631.0 -> 451.0	3773	0.53 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	749	0.52 µg/L		100
ADONA	5.791	377.0 -> 251.0	7355	0.49 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	6127	2.77 µg/L		99

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

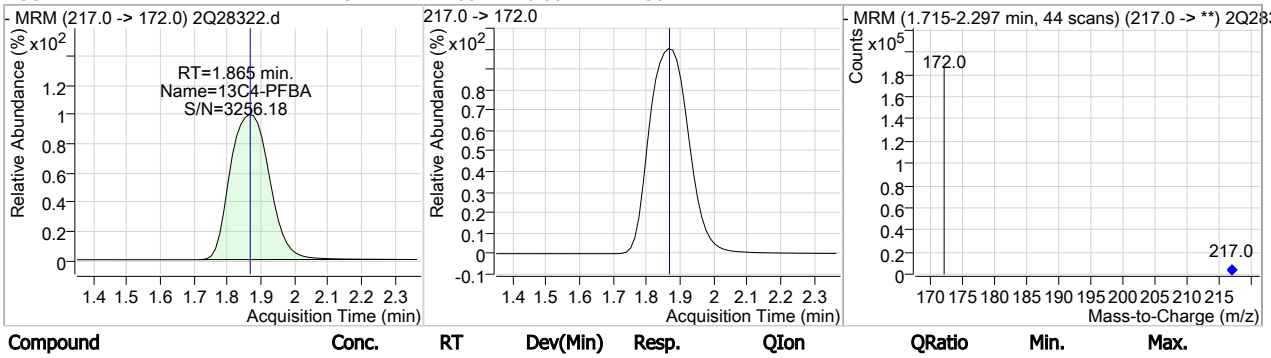
Perfluorinated Compounds by LC/MS/MS



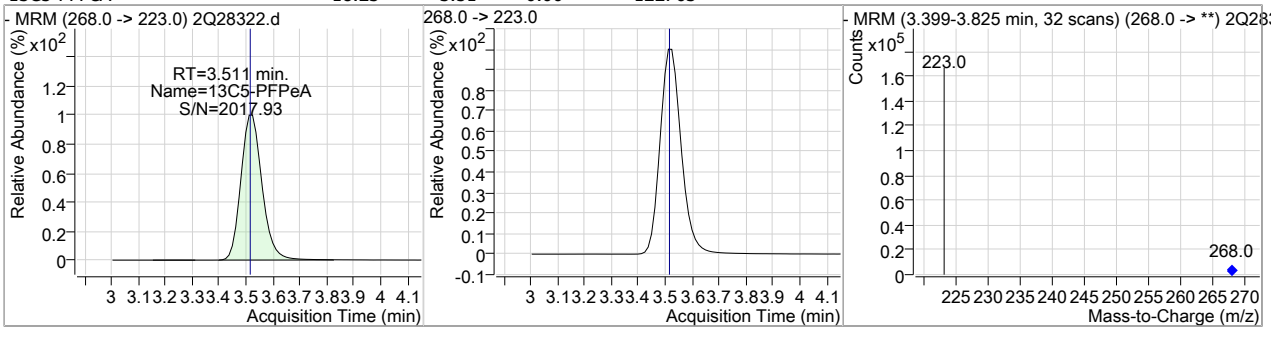
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	0.55	1.87	0.01	755				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.24	1.86	0.00	136244				

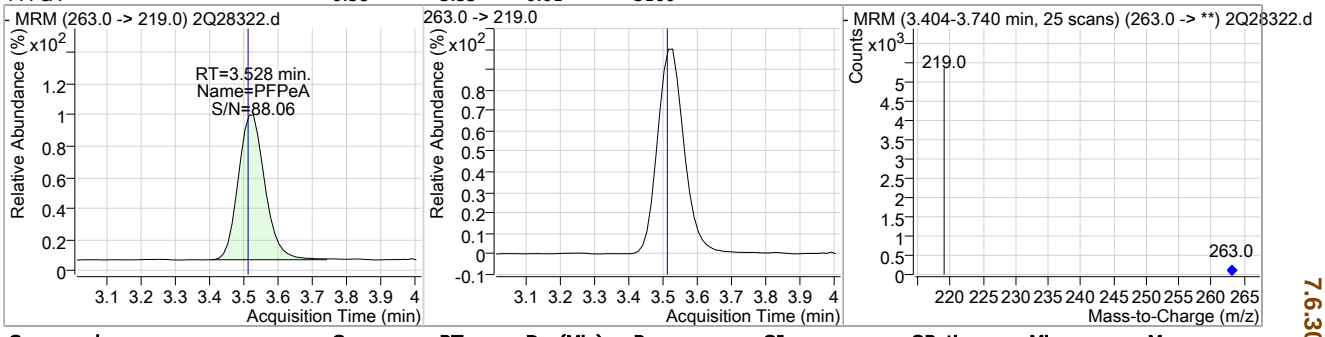


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.23	3.51	0.00	122763				

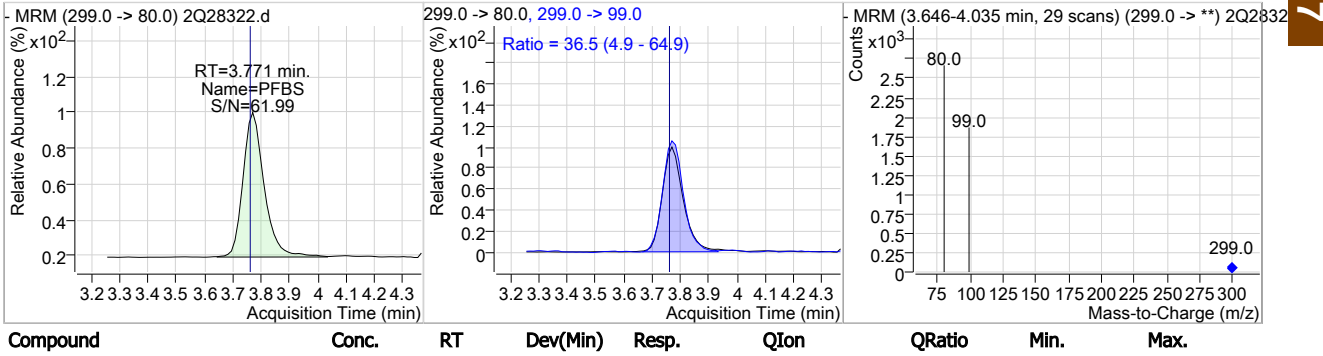


Perfluorinated Compounds by LC/MS/MS

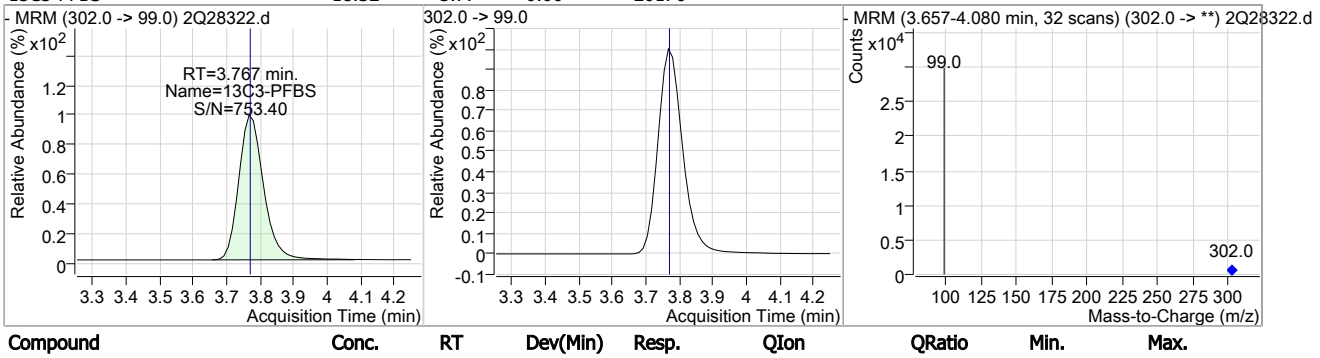
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.58	3.53	0.01	3160				



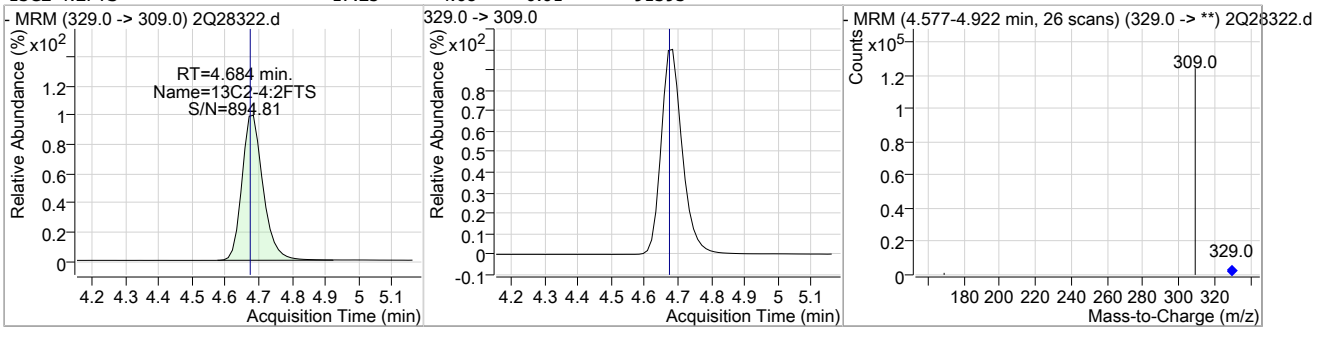
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.58	3.77	0.01	958	299.0 -> 99.0	36.5	4.9	64.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.32	3.77	0.00	20176				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	17.25	4.68	0.01	91393				



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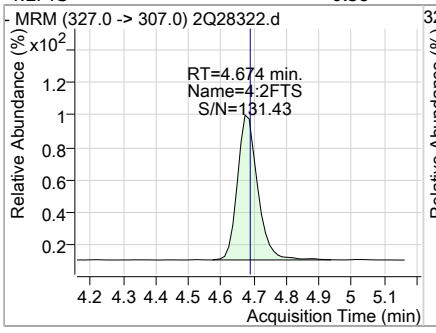
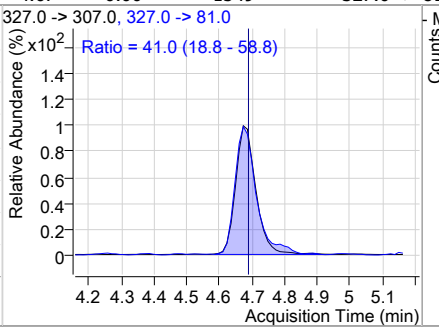
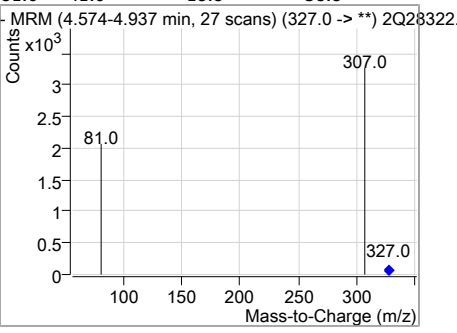
Perfluorinated Compounds by LC/MS/MS

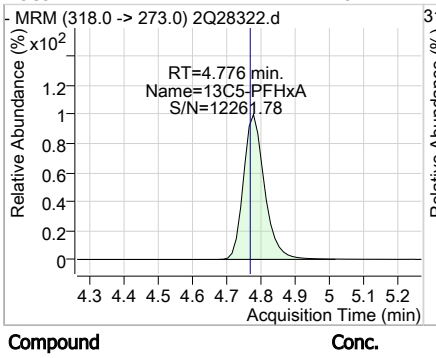
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	0.58	4.67	0.00	1549	327.0 -> 81.0	41.0	18.8	58.8

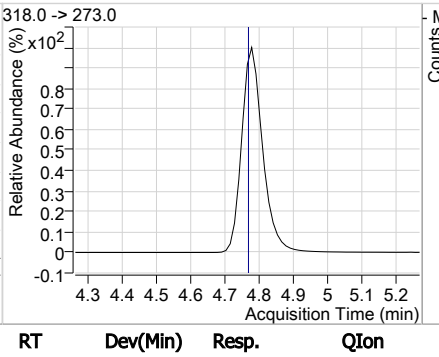


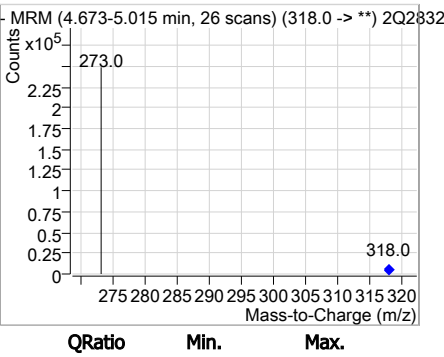




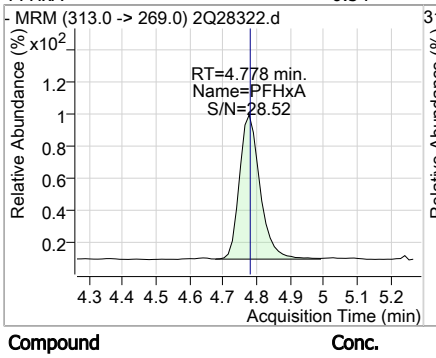
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	18.22	4.78	0.01	184847				

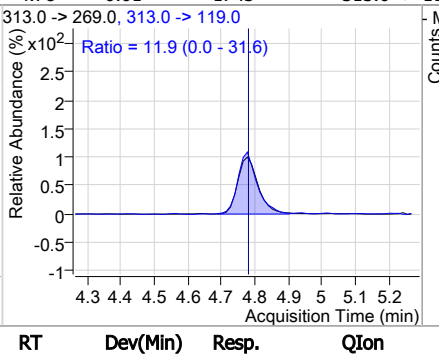


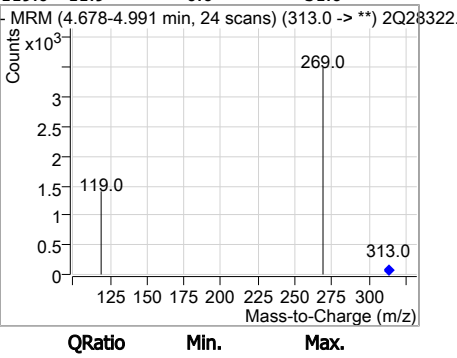




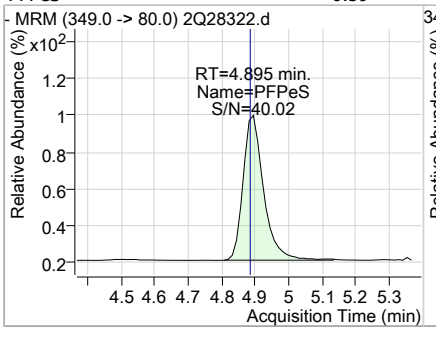
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.54	4.78	0.01	1743	313.0 -> 119.0	11.9	0.0	31.6

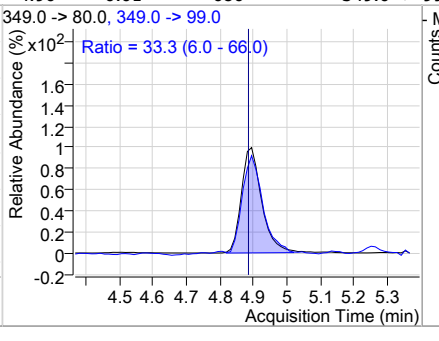


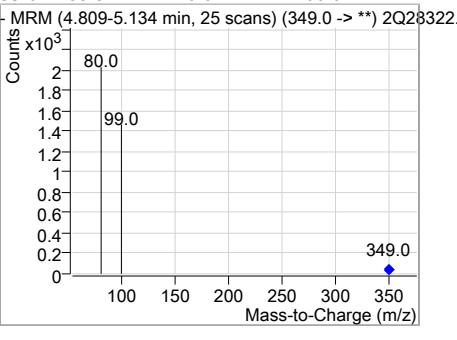




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	0.59	4.90	0.01	680	349.0 -> 99.0	33.3	6.0	66.0







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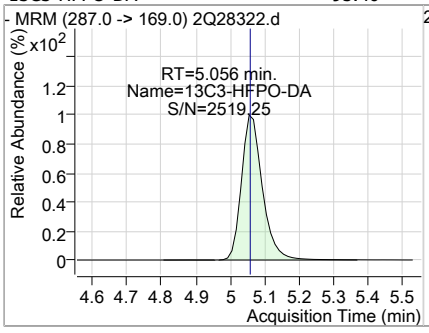
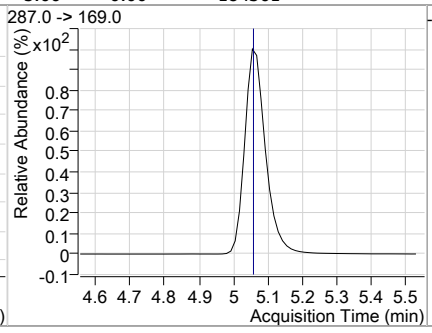
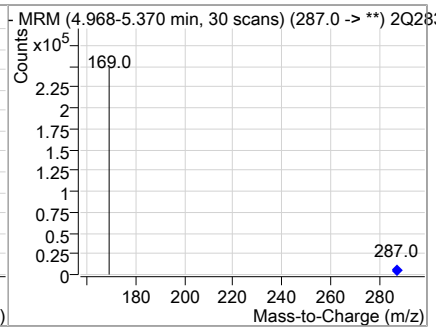
Perfluorinated Compounds by LC/MS/MS

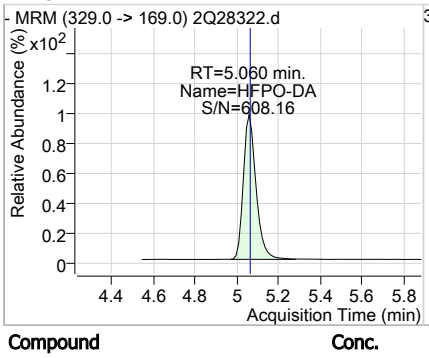
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	95.40	5.06	0.00	184361				

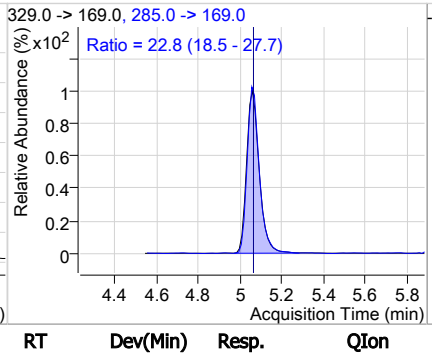


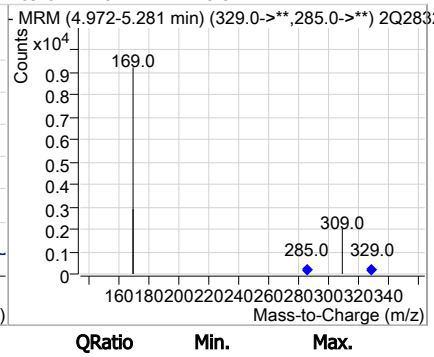




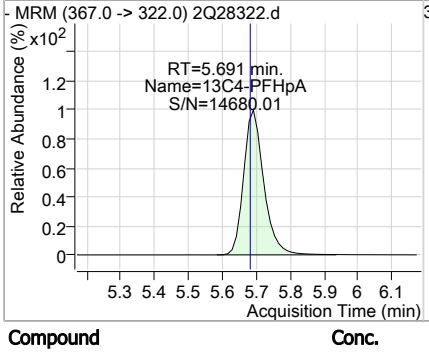
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.77	5.06	0.00	6127	285.0 -> 169.0	22.8	18.5	27.7

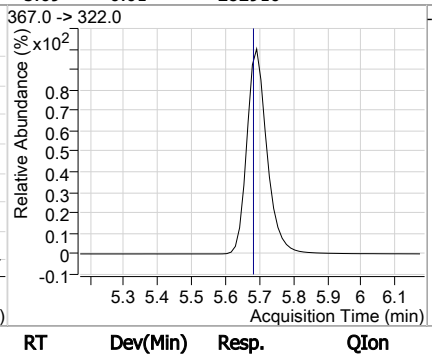


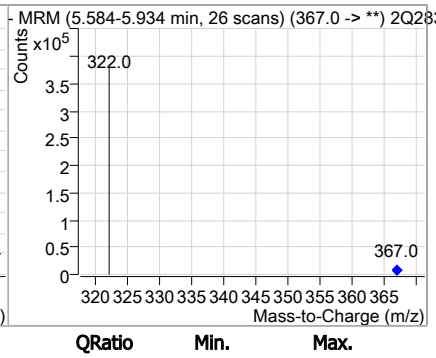




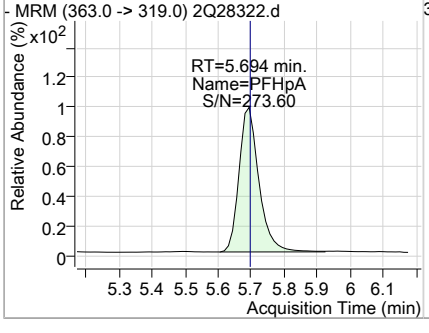
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.38	5.69	0.01	282910				

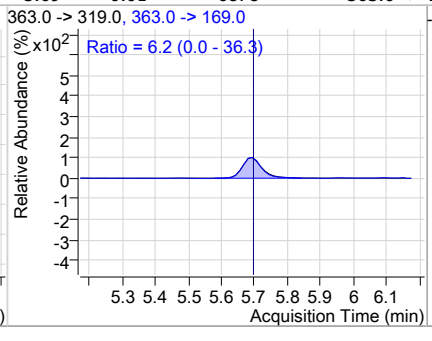


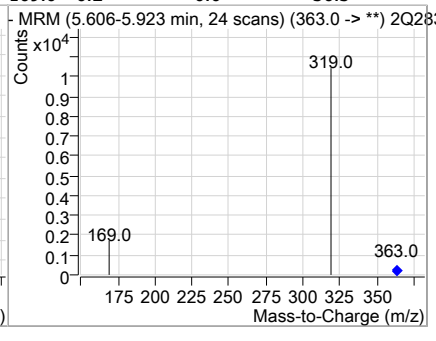




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0.55	5.69	0.01	6878	363.0 -> 169.0	6.2	0.0	36.3



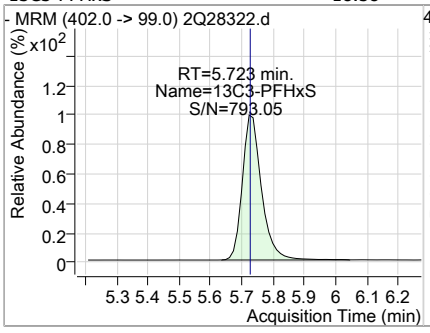


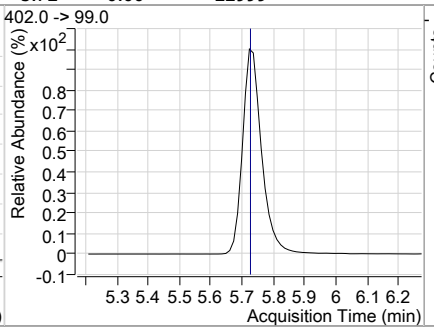


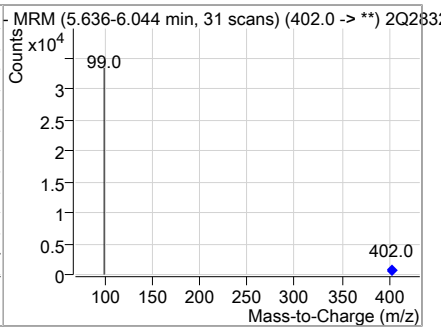
7.6.30

Perfluorinated Compounds by LC/MS/MS

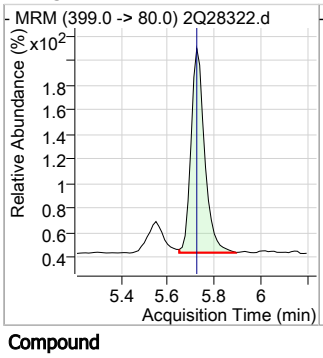
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	18.58	5.72	0.00	22999				

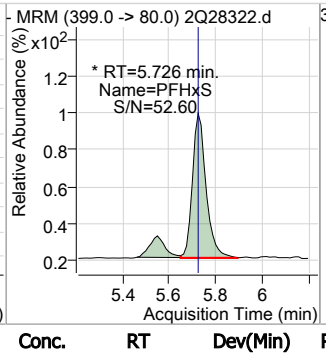


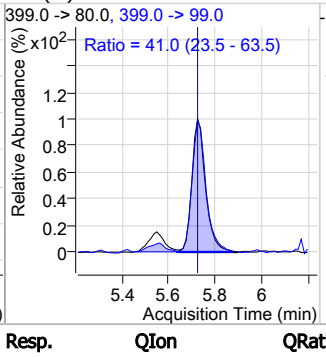


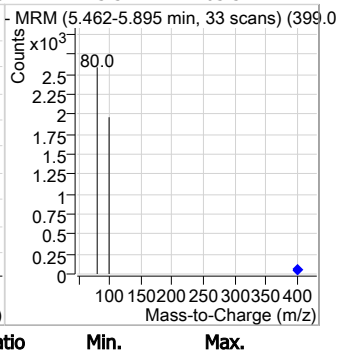


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.58	5.73	0.00	790 (m)	399.0 -> 99.0	41.0	23.5	63.5

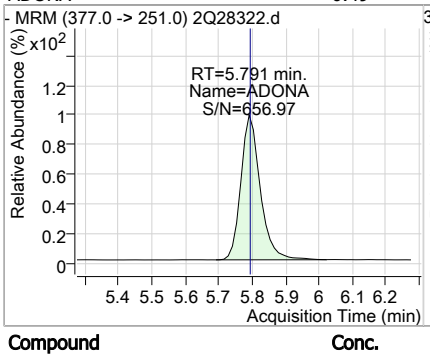


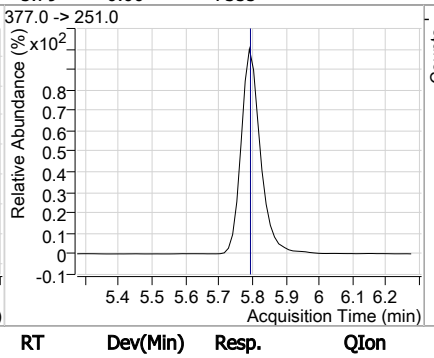


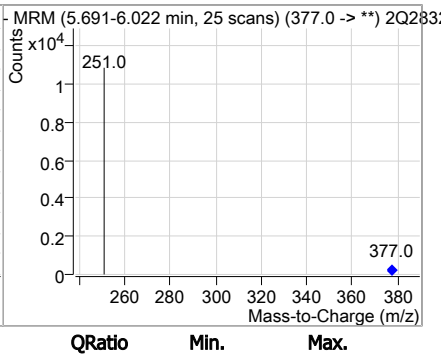




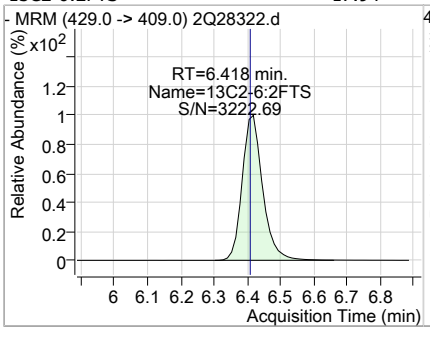
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.49	5.79	0.00	7355				

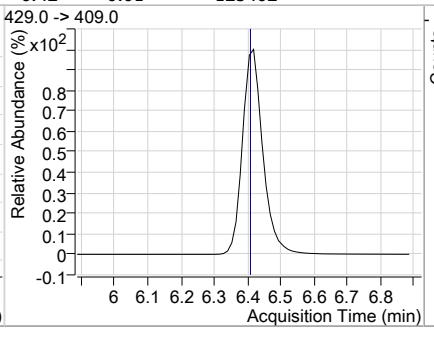


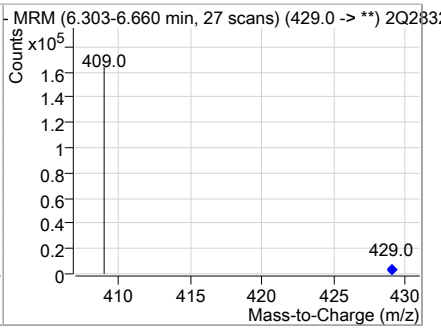




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.94	6.42	0.01	125402				



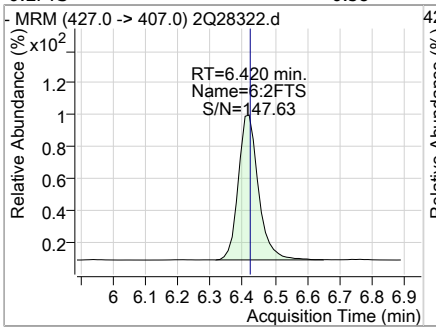


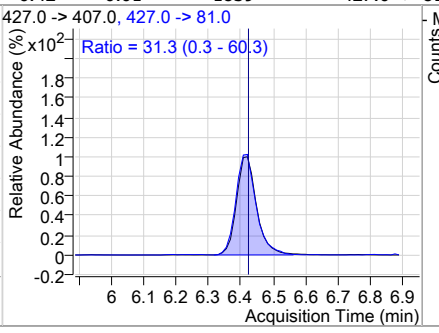


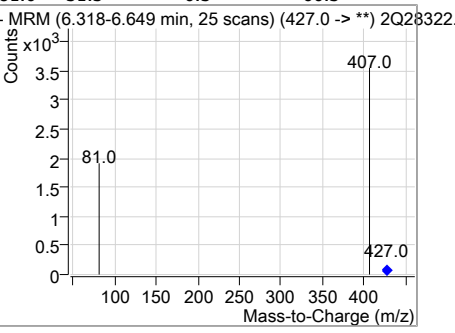
7.6.30

Perfluorinated Compounds by LC/MS/MS

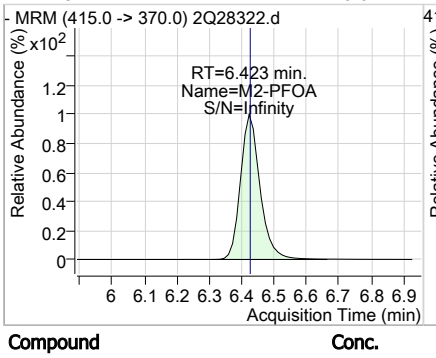
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	0.58	6.42	0.01	1839	427.0 -> 81.0	31.3	0.3	60.3

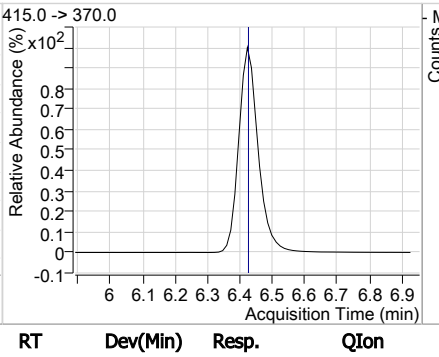


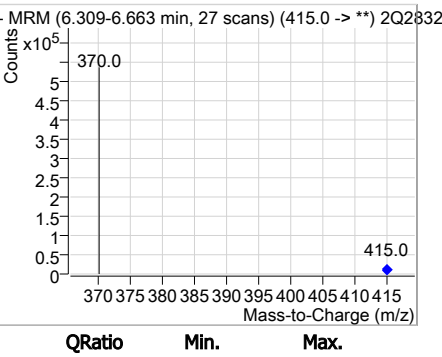




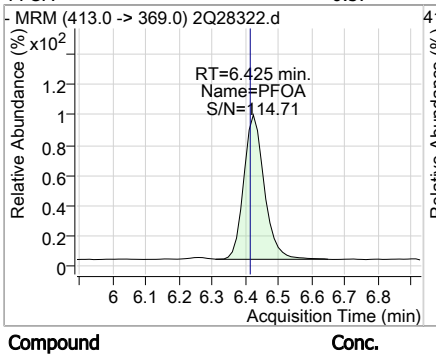
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.42	0.01	407845				

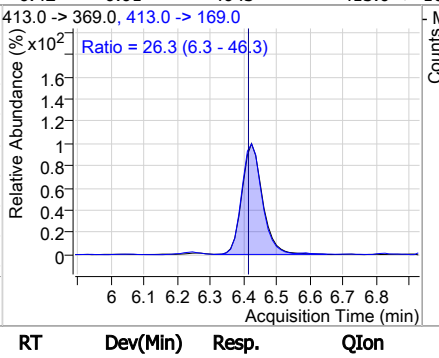


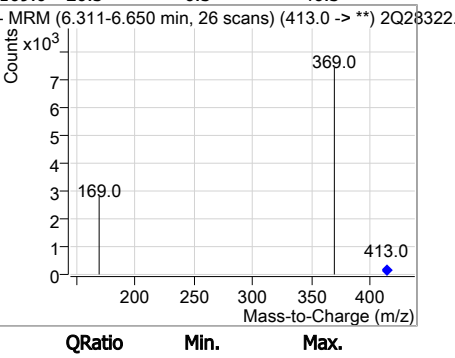




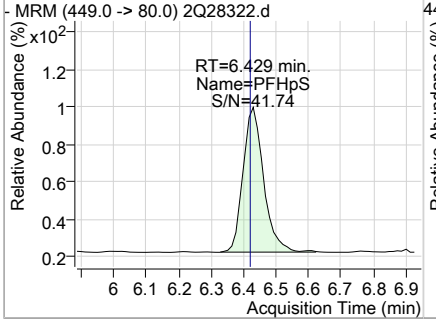
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.57	6.42	0.01	4643	413.0 -> 169.0	26.3	6.3	46.3

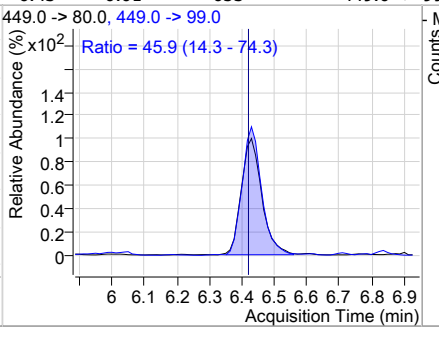


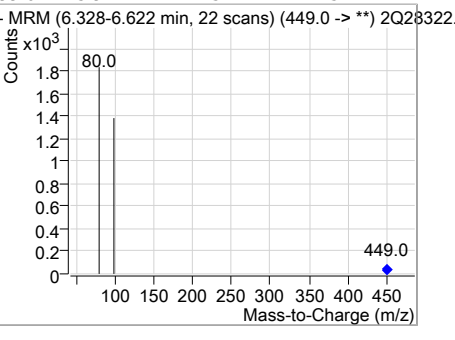




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	0.55	6.43	0.01	653	449.0 -> 99.0	45.9	14.3	74.3



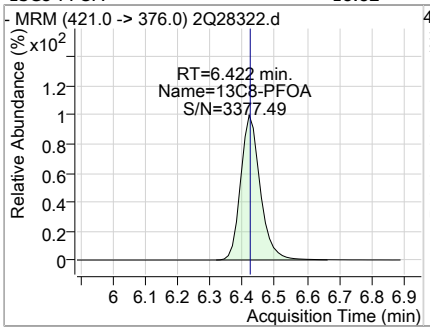


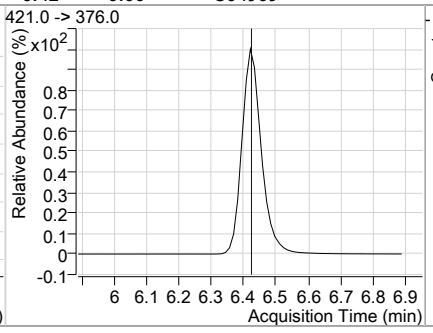


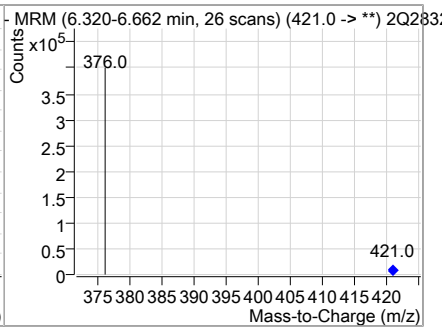
7.6.30

Perfluorinated Compounds by LC/MS/MS

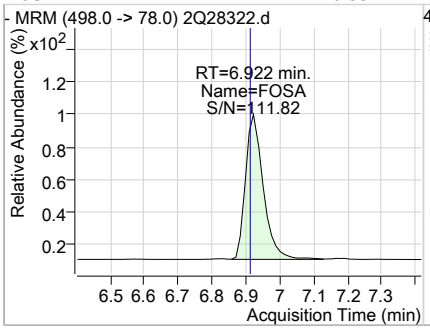
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.82	6.42	0.00	304909				

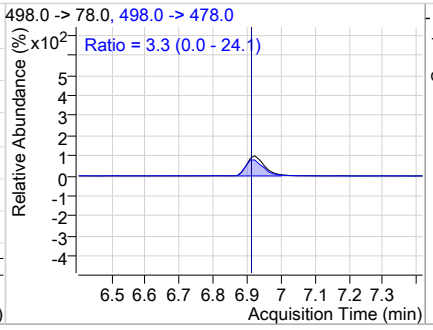


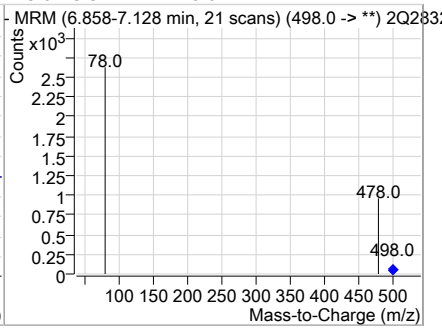




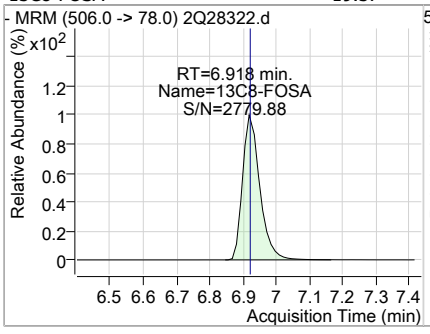
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.53	6.92	0.01	1372	498.0 -> 478.0	3.3	0.0	24.1

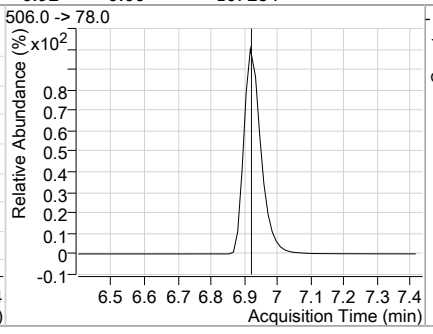


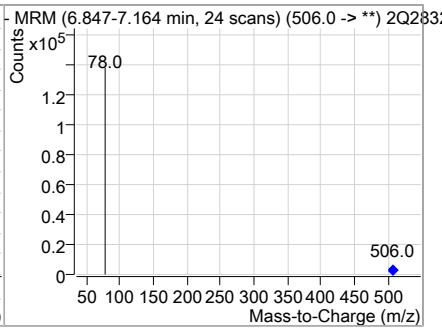




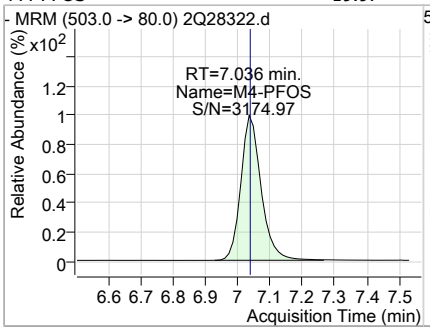
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.37	6.92	0.00	107284				

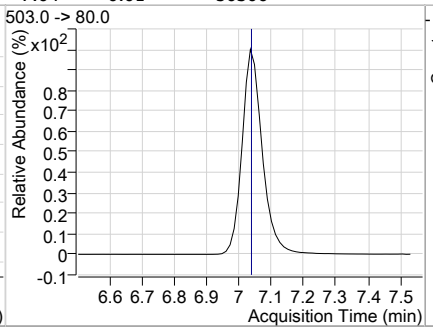


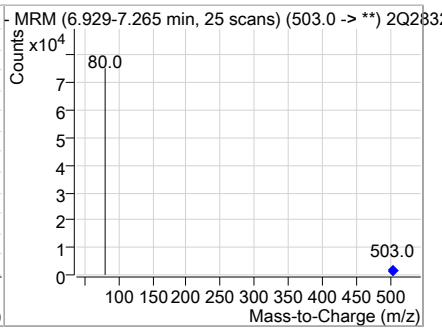




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.97	7.04	0.01	56306				



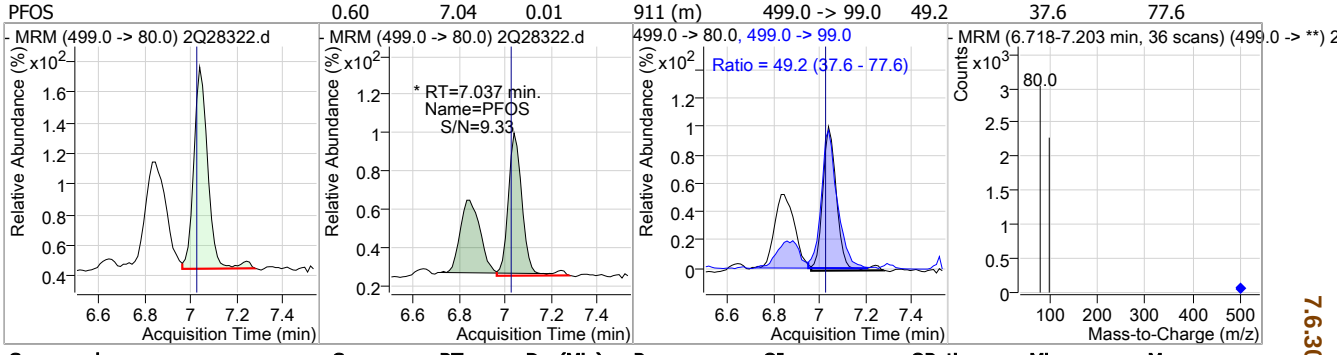




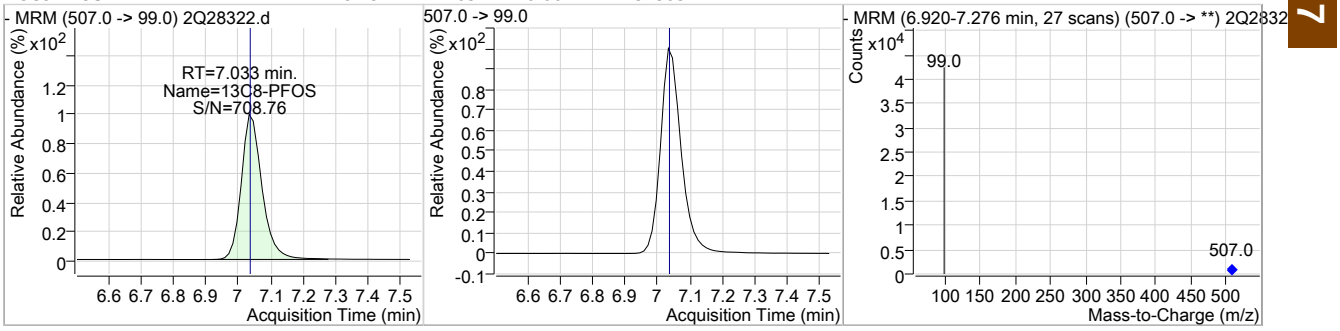
7.6.30

Perfluorinated Compounds by LC/MS/MS

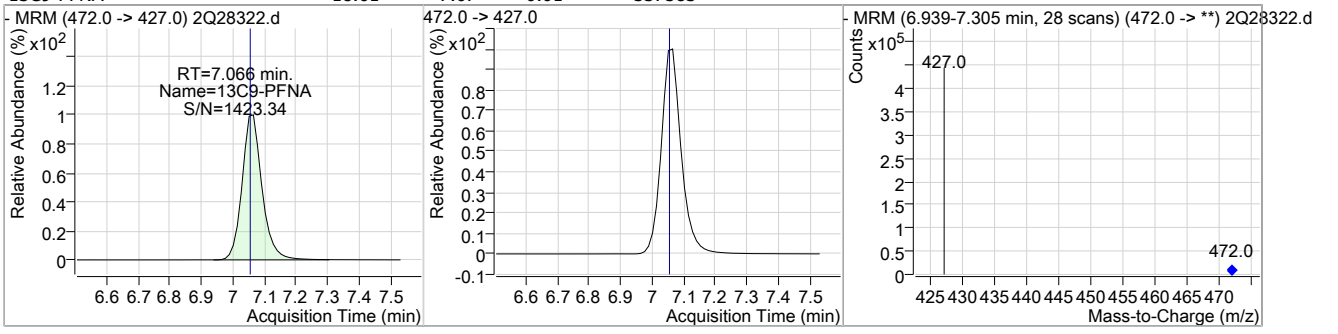
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.60	7.04	0.01	911 (m)	499.0 -> 99.0	49.2	37.6	77.6



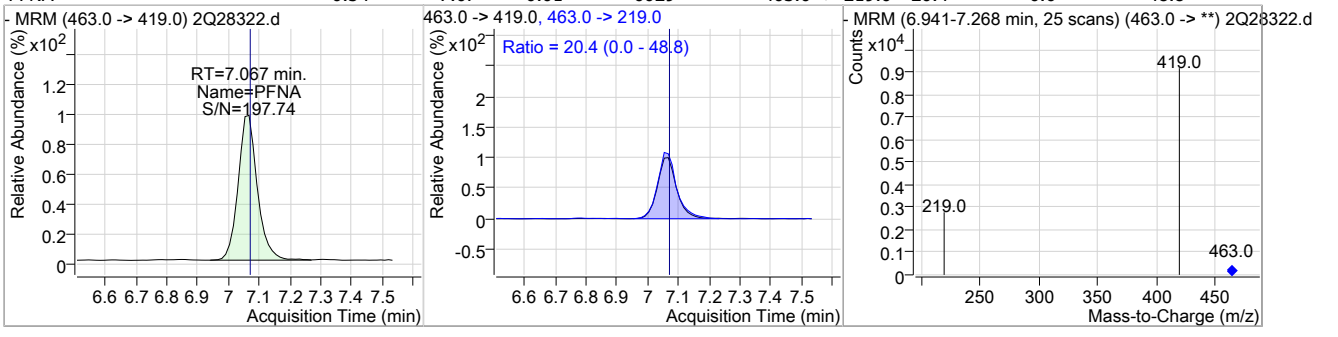
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.45	7.03	0.00	31303				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.61	7.07	0.01	337583				



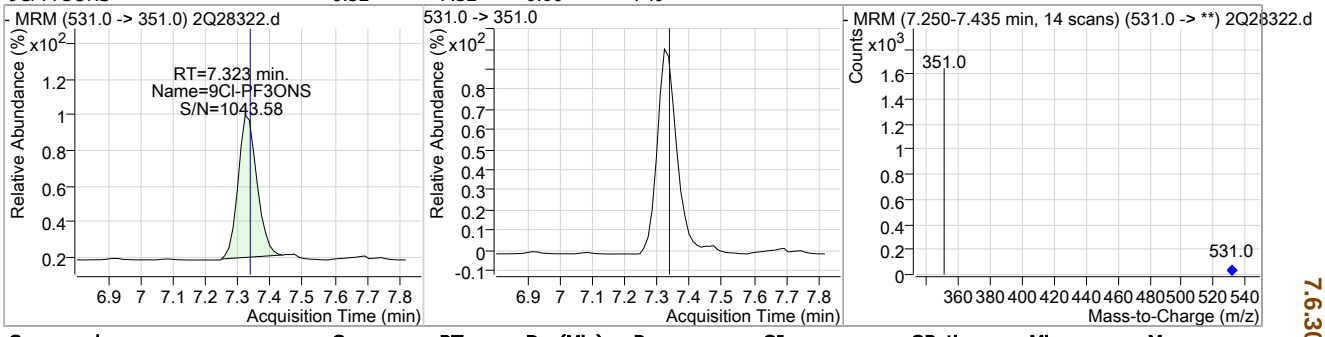
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.54	7.07	0.01	6029	463.0 -> 219.0	20.4	0.0	48.8



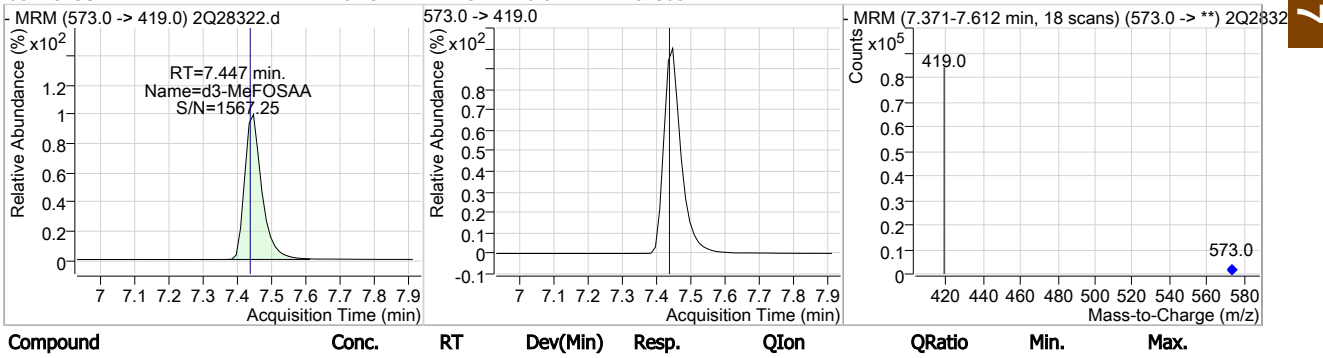
7.6.30

Perfluorinated Compounds by LC/MS/MS

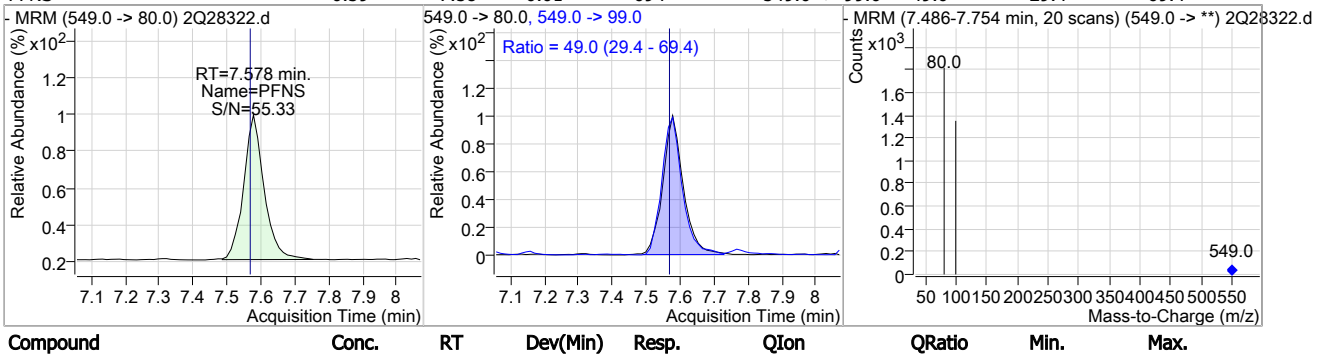
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.52	7.32	0.00	749				



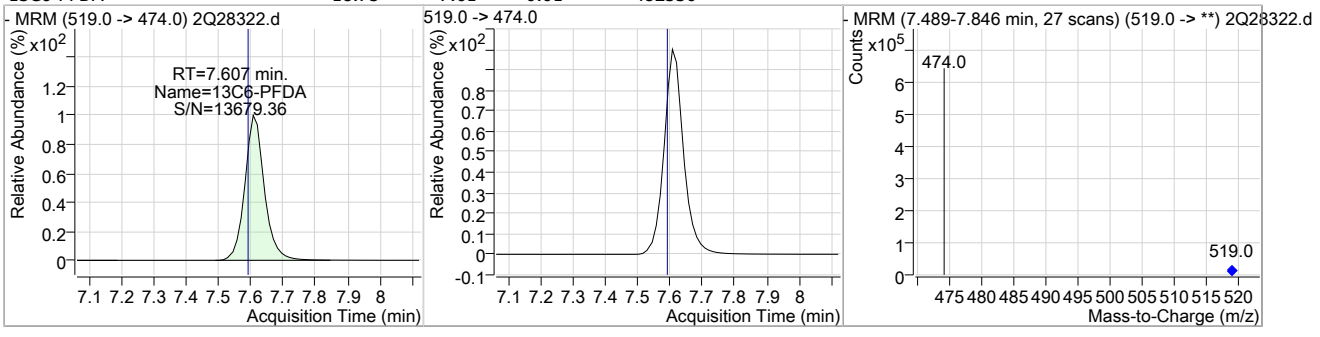
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.25	7.45	0.01	62303				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	0.59	7.58	0.01	694	549.0 -> 99.0	49.0	29.4	69.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.75	7.61	0.01	482536				



7.6.30

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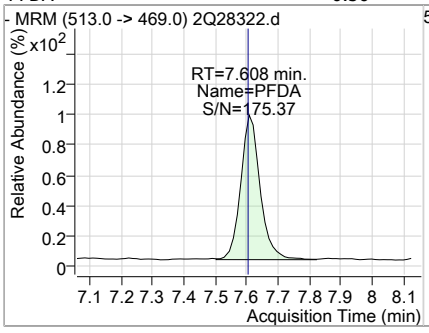
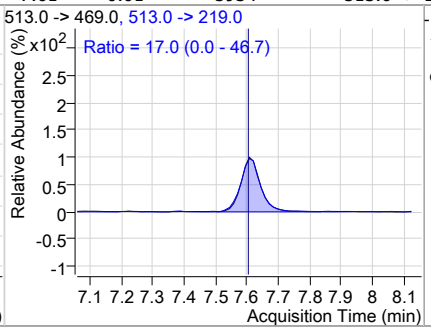
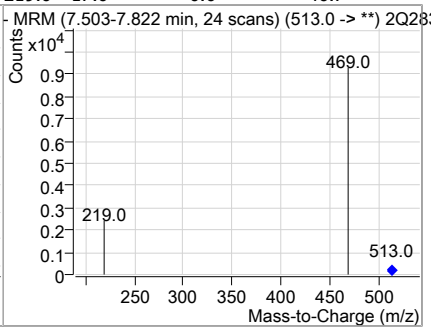
Perfluorinated Compounds by LC/MS/MS

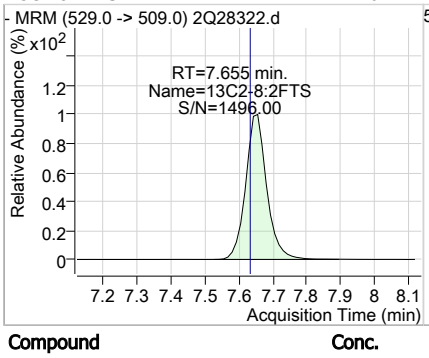
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.56	7.61	0.01	5934	513.0 -> 219.0	17.0	0.0	46.7

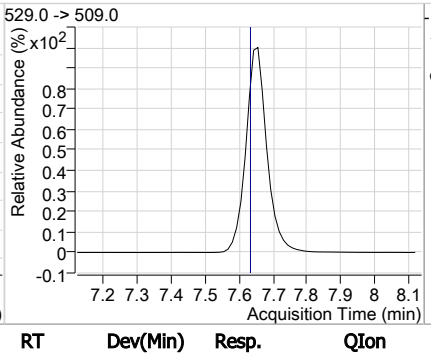


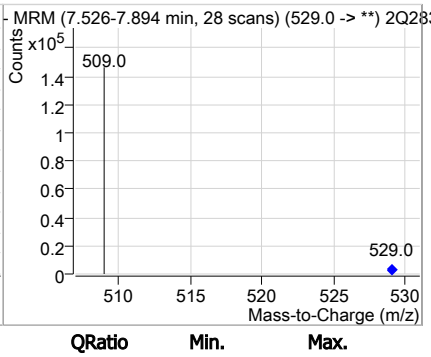




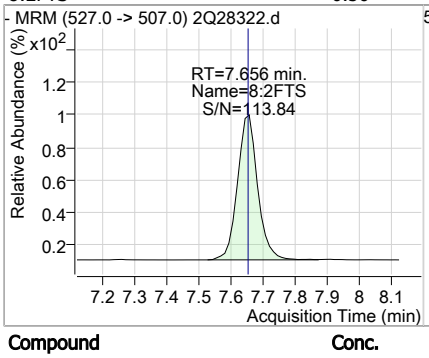
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.40	7.66	0.03	108593				

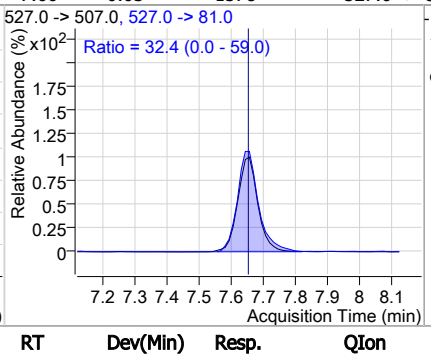


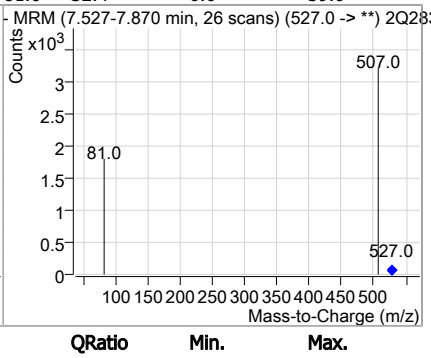




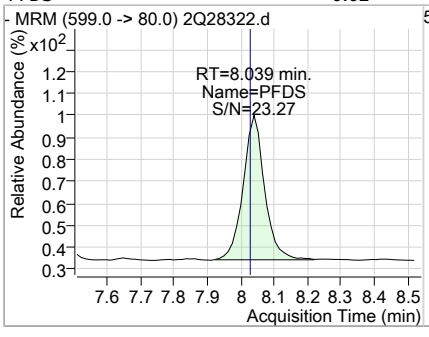
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	0.56	7.66	0.03	1578	527.0 -> 81.0	32.4	0.0	59.0

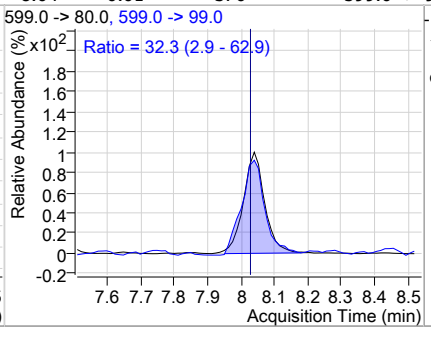


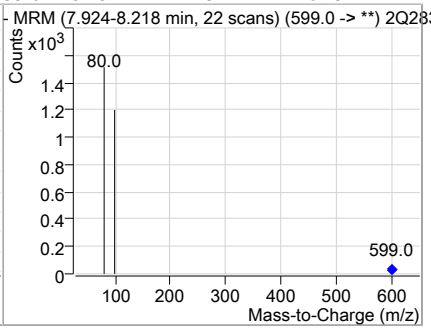




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.62	8.04	0.01	370	599.0 -> 99.0	32.3	2.9	62.9



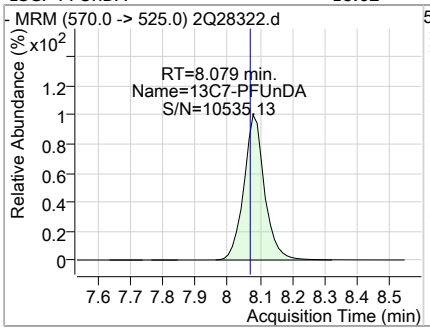


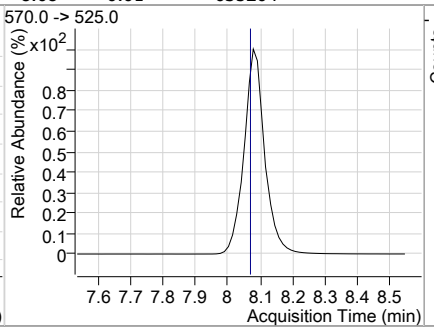


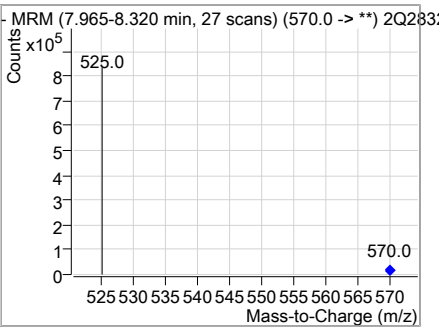
7.6.30

Perfluorinated Compounds by LC/MS/MS

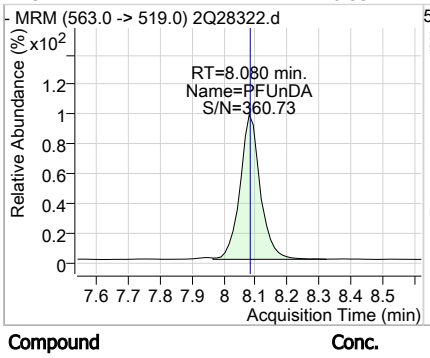
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.62	8.08	0.01	635204				

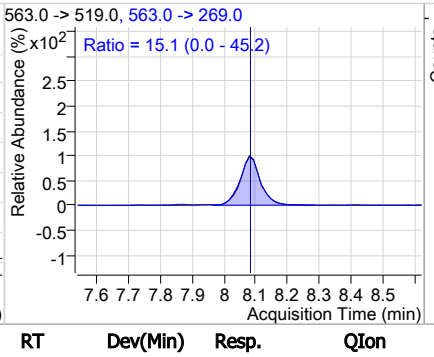


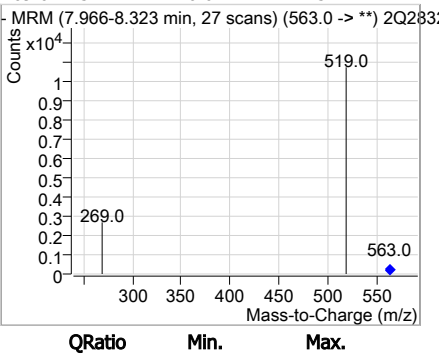




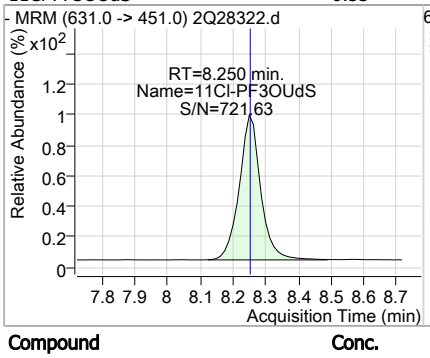
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0.55	8.08	0.01	7270	563.0 -> 269.0	15.1	0.0	45.2

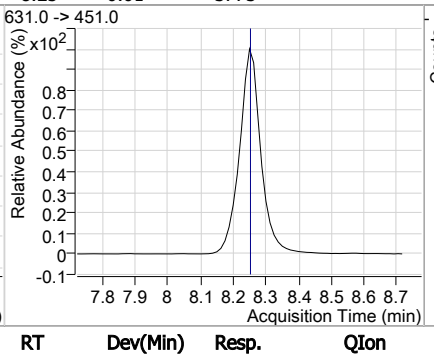


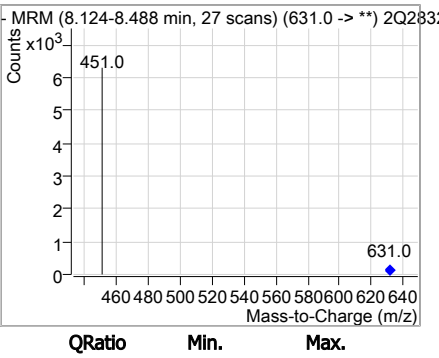




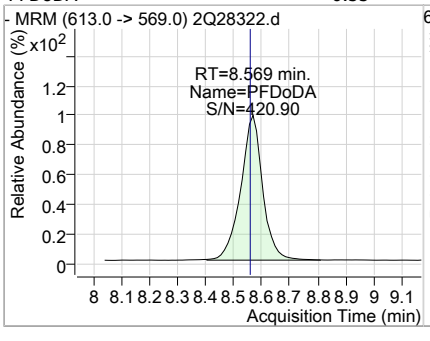
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.53	8.25	0.01	3773				

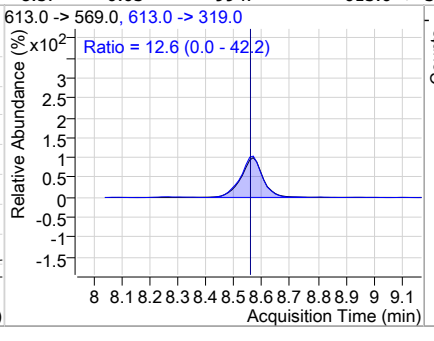


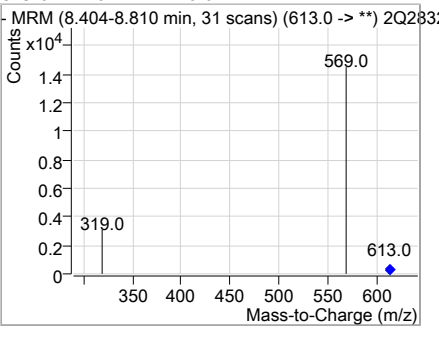




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.55	8.57	0.03	9947	613.0 -> 319.0	12.6	0.0	42.2

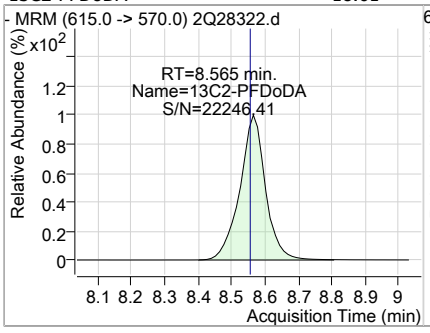


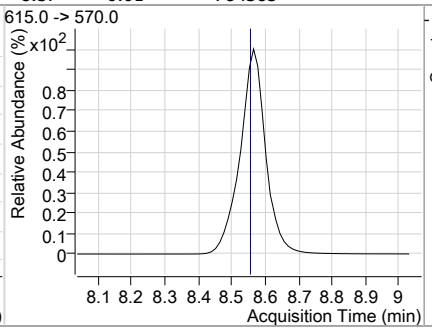


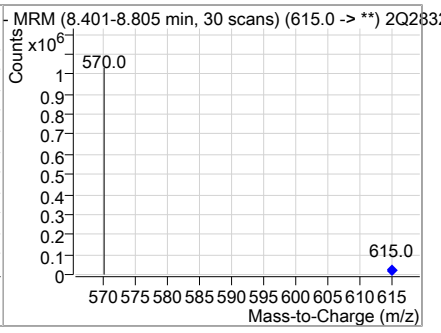


Perfluorinated Compounds by LC/MS/MS

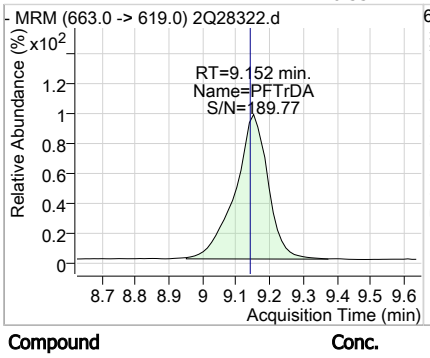
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.61	8.57	0.01	784385				

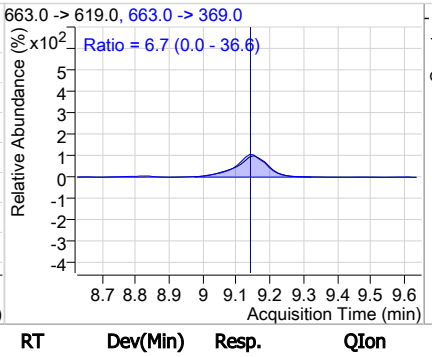


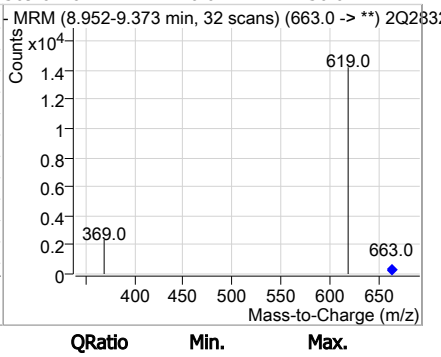




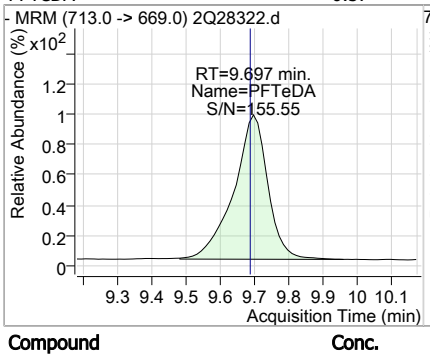
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.55	9.15	0.03	9883	663.0 -> 369.0	6.7	0.0	36.6

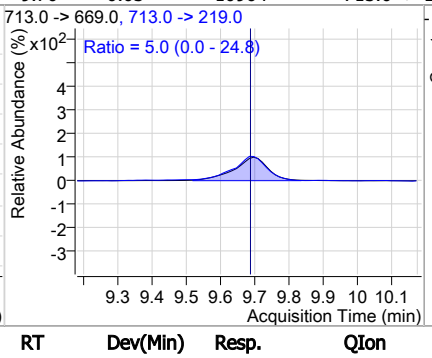


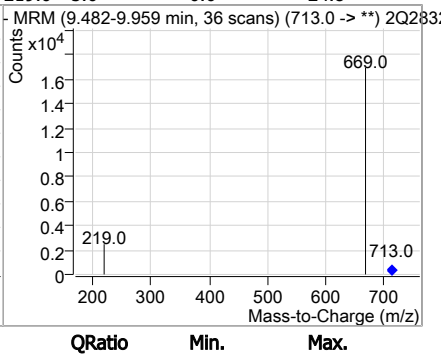




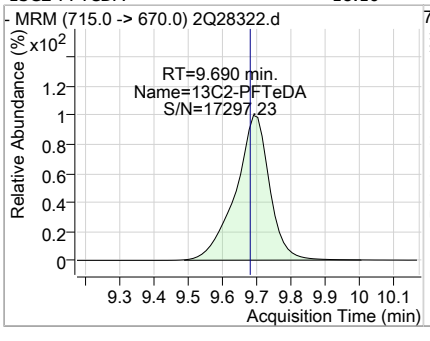
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.57	9.70	0.03	10964	713.0 -> 219.0	5.0	0.0	24.8

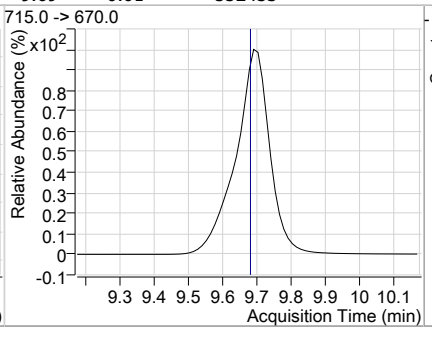


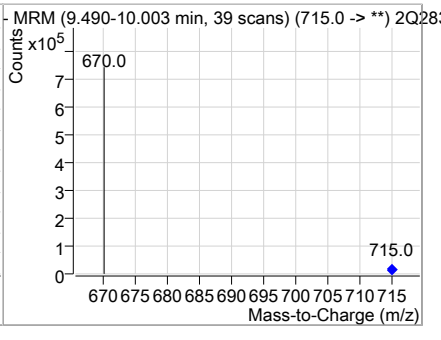




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.10	9.69	0.01	552453				







Manual Integration Approval Summary

Sample Number: S2Q450-IC450
Lab FileID: 2Q28322.D
Injection Time: 03/28/19 14:31
Method: EPA 537M BY ID
Analyst approved: 03/29/19 10:18 Mike Eger
Supervisor approved: 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Cal Report: 2Q28323.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28323.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/28/2019 2:46:56 PM
Sample Name : ic450-1
Vial : Vial 3
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q450.batch.bin
Sample Information : op74300,S2Q450,2.00,,,1.0,1,soil

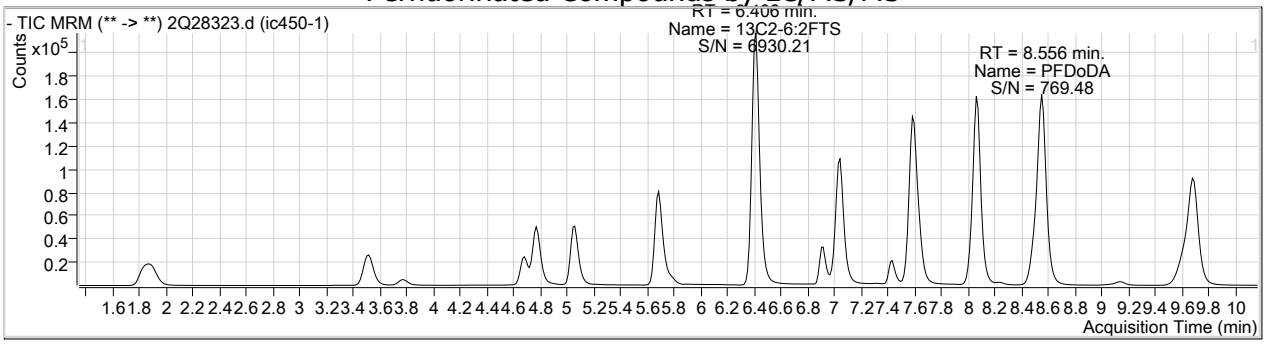
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.423	415.0 -> 370.0	436746	20.00	µg/L	0.013
13C4-PFOS	7.036	503.0 -> 80.0	60898	20.00	µg/L	0.013
M4-PFBA	1.865	217.0 -> 172.0	149710	20.00	µg/L	0.000
M5-PFPeA	3.524	268.0 -> 223.0	133964	20.00	µg/L	0.013
M5-PFHxA	4.776	318.0 -> 273.0	204384	20.00	µg/L	0.013
M4-PFHpA	5.691	367.0 -> 322.0	309814	20.00	µg/L	0.013
M8-PFOA	6.422	421.0 -> 376.0	330731	20.00	µg/L	0.000
M9-PFNA	7.052	472.0 -> 427.0	368062	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	529369	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	694210	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	847017	20.00	µg/L	0.000
M2-PFTeDA	9.678	715.0 -> 670.0	608528	20.00	µg/L	0.000
M8-FOSA	6.918	506.0 -> 78.0	116528	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	21943	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	25143	20.00	µg/L	0.000
M8-PFOS	7.033	507.0 -> 99.0	33777	20.00	µg/L	0.000
M2-4:2FTS	4.684	329.0 -> 309.0	99737	20.00	µg/L	0.013
M2-6:2FTS	6.406	429.0 -> 409.0	136054	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	118615	20.00	µg/L	0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	68749	20.00	µg/L	0.000
M3-HFPO-DA	5.068	287.0 -> 169.0	199925	100.00	µg/L	0.013
System Monitoring Compounds						
13C2-4:2FTS	4.684	329.0 -> 309.0	99668	18.82	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.1%		
13C2-6:2FTS	6.406	429.0 -> 409.0	135925	19.45	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C2-8:2FTS	7.642	529.0 -> 509.0	118588	19.00	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C2-PFDoDA	8.553	615.0 -> 570.0	847098	20.09	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C2-PFTeDA	9.678	715.0 -> 670.0	605072	19.82	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C3-PFBS	3.767	302.0 -> 99.0	21962	19.95	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C3-PFHxS	5.723	402.0 -> 99.0	25128	20.29	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C4-PFBA	1.865	217.0 -> 172.0	148937	19.94	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C4-PFHpA	5.691	367.0 -> 322.0	309367	20.10	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C5-PFHxA	4.776	318.0 -> 273.0	204247	20.13	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C5-PFPeA	3.524	268.0 -> 223.0	134057	19.90	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C6-PFDA	7.594	519.0 -> 474.0	529600	20.58	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

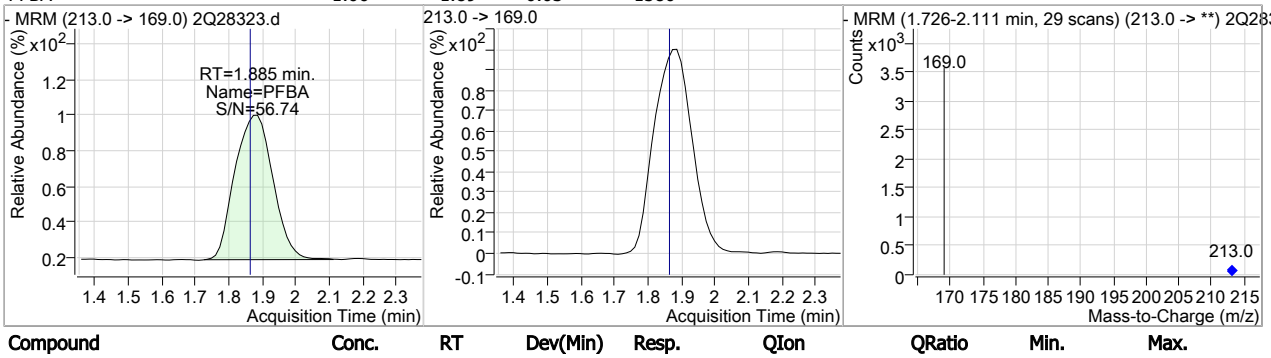
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C7-PFUnDA	8.067	570.0 -> 525.0	694224	20.35 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C8-FOSA	6.918	506.0 -> 78.0	116573	21.04 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.2%		
13C8-PFOA	6.422	421.0 -> 376.0	330429	20.40 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C8-PFOS	7.033	507.0 -> 99.0	33814	19.93 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C9-PFNA	7.052	472.0 -> 427.0	368029	20.29 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
d3-MeFOSAA	7.434	573.0 -> 419.0	68653	20.11 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
M2-PFOA	6.423	415.0 -> 370.0	436863	19.99 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.036	503.0 -> 80.0	60931	20.00 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.068	287.0 -> 169.0	199925	103.46 µg/L		0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
Target Compounds						**QValue**
4:2FTS	4.687	327.0 -> 307.0	3144	1.09 µg/L		93
6:2FTS	6.407	427.0 -> 407.0	3785	1.10 µg/L		98
8:2FTS	7.644	527.0 -> 507.0	3259	1.06 µg/L		95
EtFOSAA	7.573	584.0 -> 419.0	1663	1.23 µg/L		93
FOSA	6.910	498.0 -> 78.0	2941	1.05 µg/L		96
MeFOSAA	7.435	570.0 -> 419.0	1997	1.09 µg/L		99
PFBA	1.885	213.0 -> 169.0	1580	1.06 µg/L		100
PFBS	3.771	299.0 -> 80.0	1944	1.09 µg/L		98
PFDA	7.595	513.0 -> 469.0	12489	1.08 µg/L		98
PFDoDA	8.556	613.0 -> 569.0	20117	1.03 µg/L		100
PFDS	8.024	599.0 -> 80.0	747	1.16 µg/L		98
PFHpA	5.694	363.0 -> 319.0	14077	1.04 µg/L		99
PFHpS	6.429	449.0 -> 80.0	1394	1.08 µg/L		100
PFHxA	4.778	313.0 -> 269.0	3746	1.05 µg/L		98
PFHxS	5.726	399.0 -> 80.0	1550	1.04 µg/L	m	97
PFNA	7.054	463.0 -> 419.0	12255	1.01 µg/L		99
PFNS	7.565	549.0 -> 80.0	1360	1.07 µg/L		92
PFOA	6.425	413.0 -> 369.0	9442	1.07 µg/L		98
PFOS	7.037	499.0 -> 80.0	1941	1.18 µg/L	m	86
PFPeA	3.528	263.0 -> 219.0	6388	1.07 µg/L		100
PFPeS	4.895	349.0 -> 80.0	1344	1.08 µg/L		94
PFTeDA	9.684	713.0 -> 669.0	21965	1.05 µg/L		99
PFTrDA	9.139	663.0 -> 619.0	20208	1.02 µg/L		99
PFUnDA	8.068	563.0 -> 519.0	15048	1.04 µg/L		100
11Cl-PF3OUdS	8.237	631.0 -> 451.0	7712	1.01 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	1552	0.98 µg/L		100
ADONA	5.791	377.0 -> 251.0	15770	0.96 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	12745	5.32 µg/L		100

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

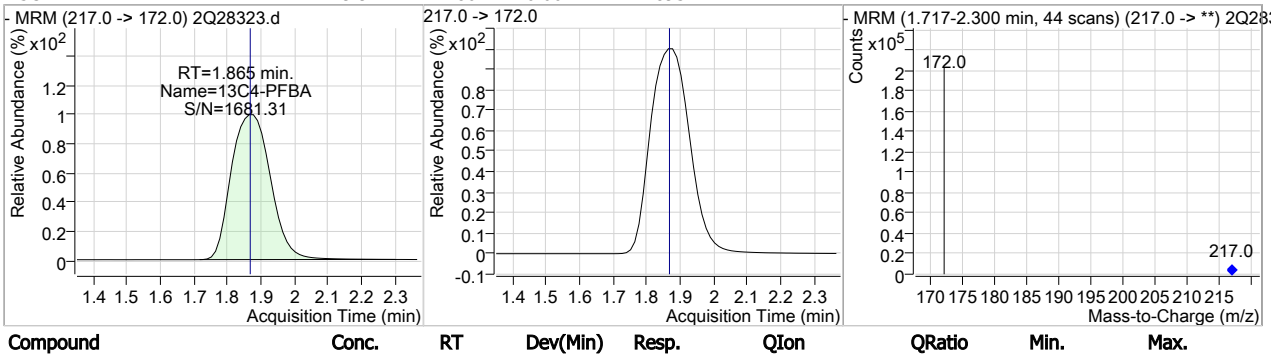
Perfluorinated Compounds by LC/MS/MS



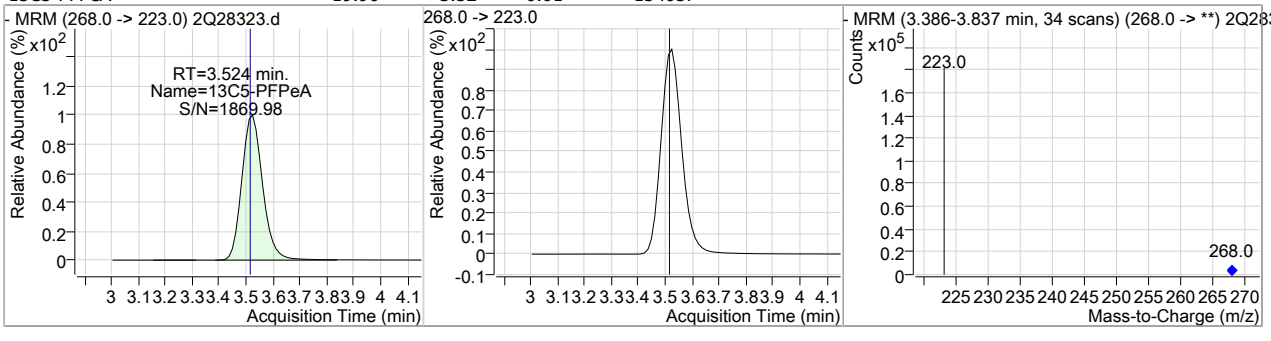
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.06	1.89	0.03	1580				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.94	1.86	0.00	148937				

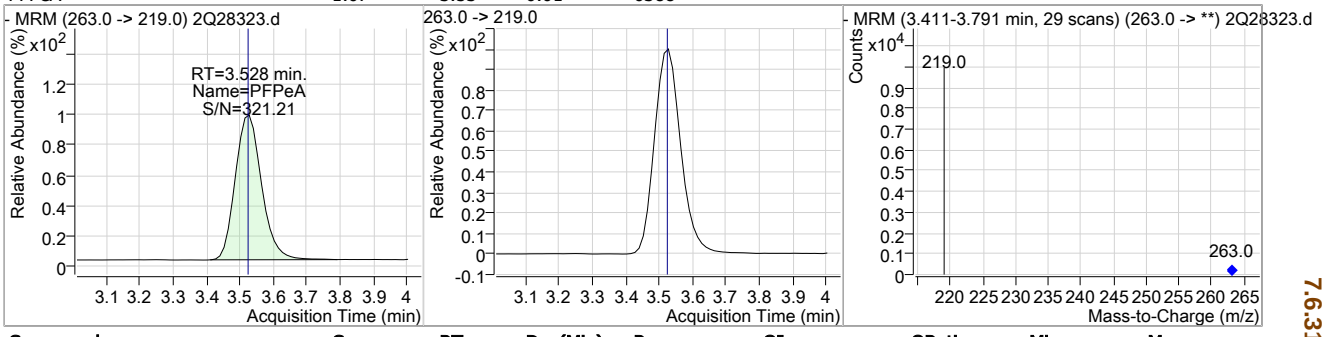


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.90	3.52	0.01	134057				

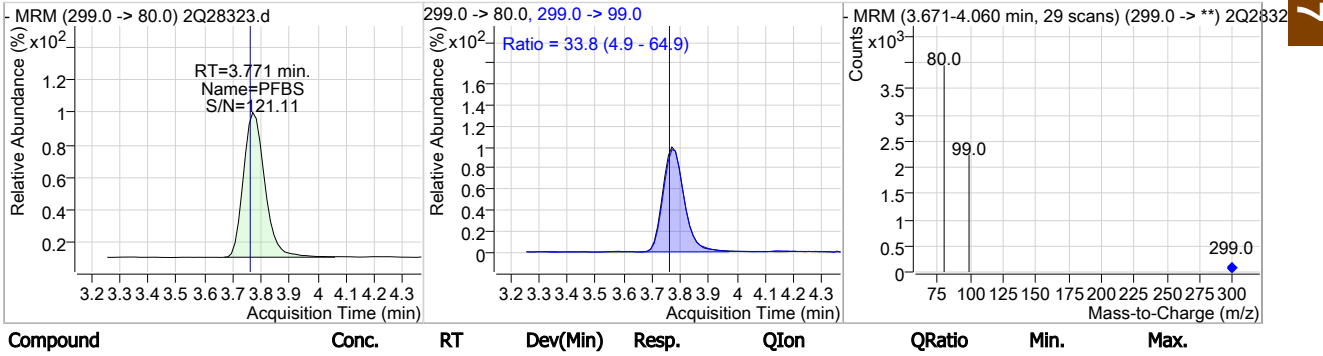


Perfluorinated Compounds by LC/MS/MS

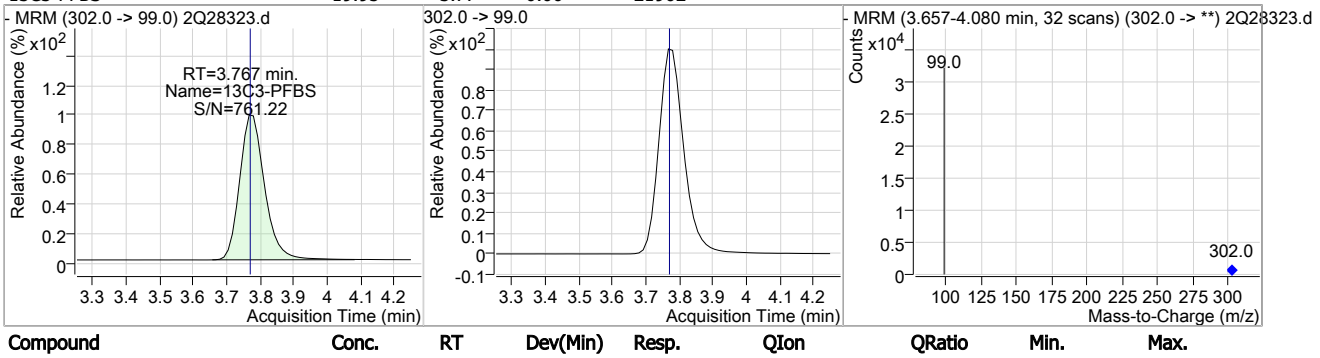
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.07	3.53	0.01	6388				



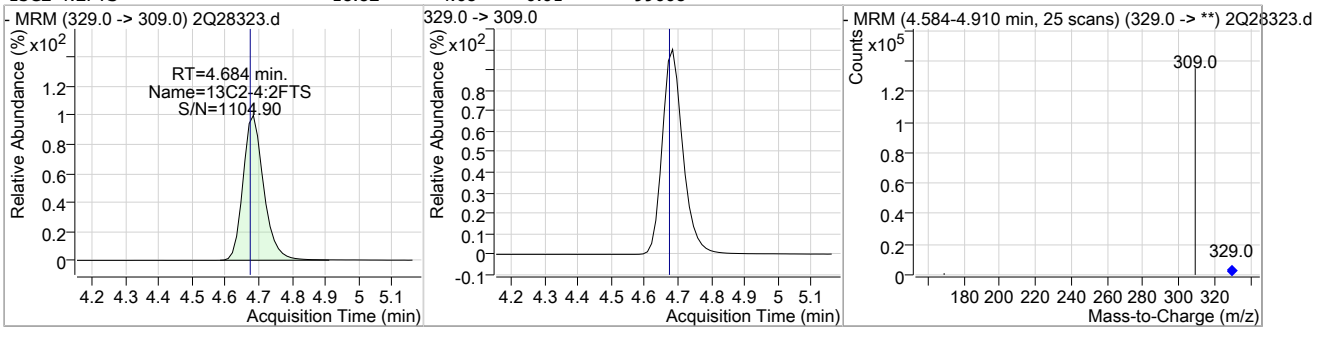
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.09	3.77	0.01	1944	299.0 -> 99.0	33.8	4.9	64.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.95	3.77	0.00	21962				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	18.82	4.68	0.01	99668				



7.6.31

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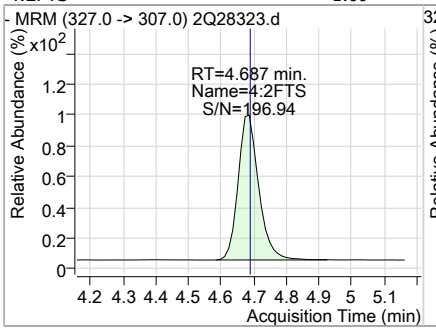
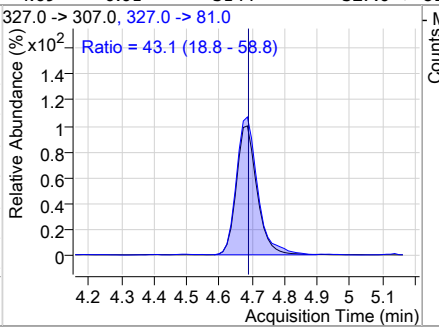
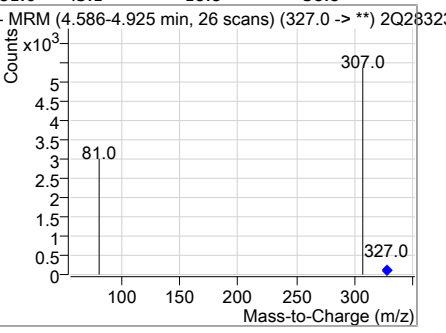
Perfluorinated Compounds by LC/MS/MS

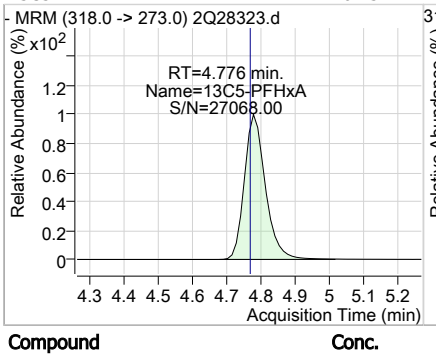
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.09	4.69	0.01	3144	327.0 -> 81.0	43.1	18.8	58.8

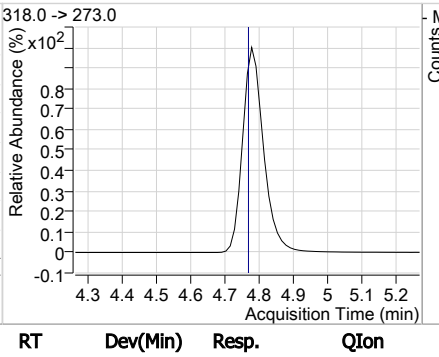


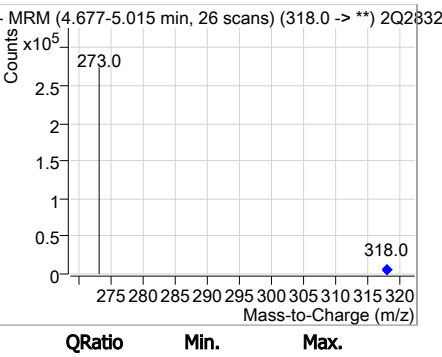




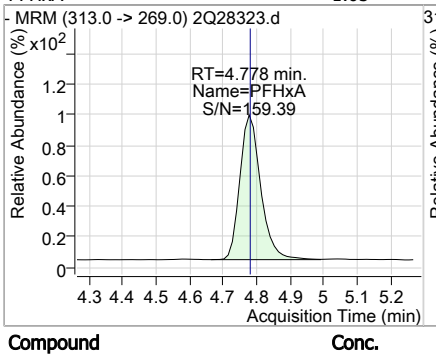
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.13	4.78	0.01	204247				

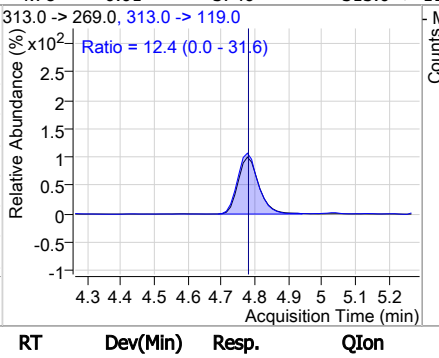


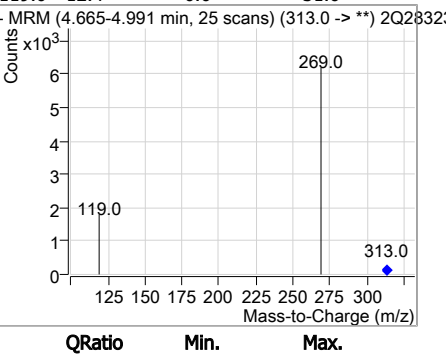




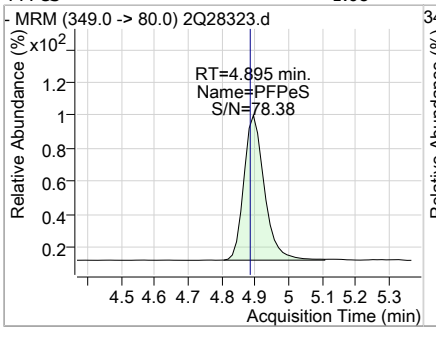
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.05	4.78	0.01	3746	313.0 -> 119.0	12.4	0.0	31.6

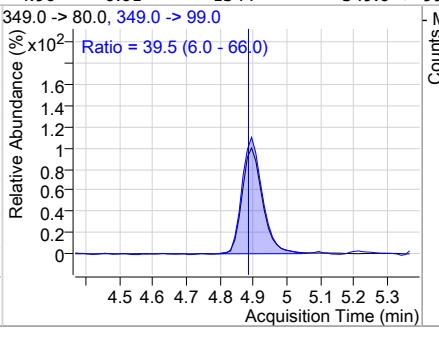


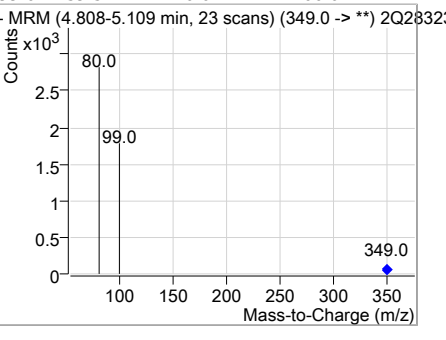




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.08	4.90	0.01	1344	349.0 -> 99.0	39.5	6.0	66.0







7.6.31

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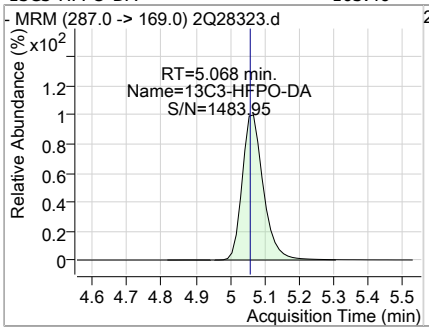
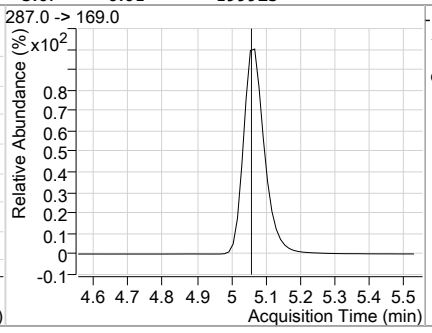
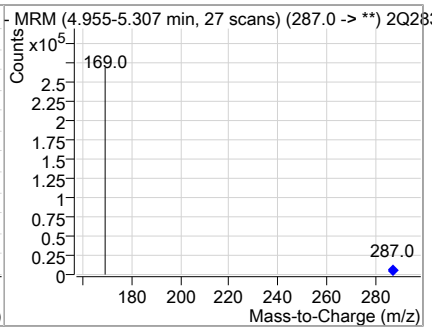
Perfluorinated Compounds by LC/MS/MS

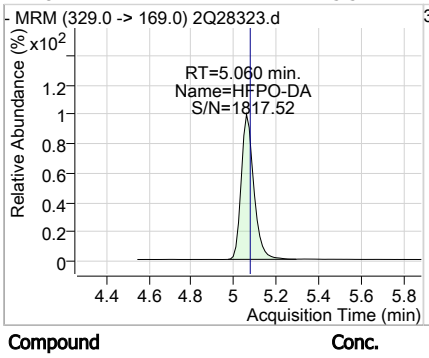
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	103.46	5.07	0.01	199925				

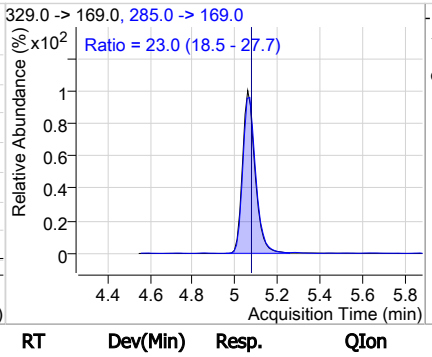


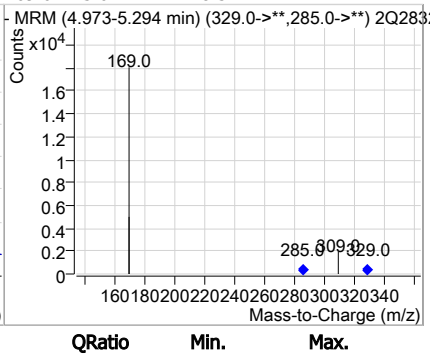




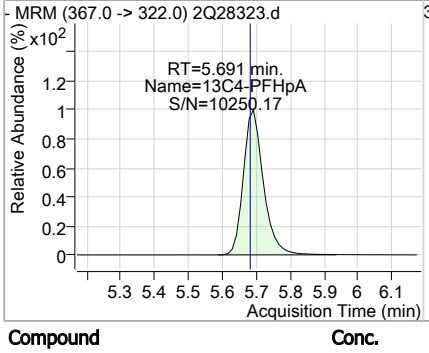
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.32	5.06	0.00	12745	285.0 -> 169.0	23.0	18.5	27.7

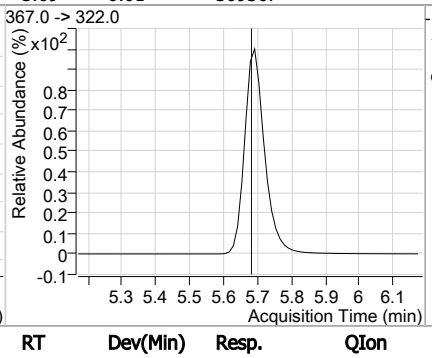


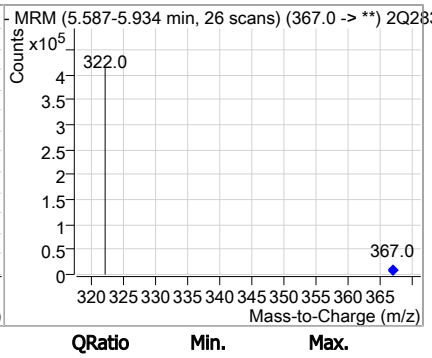




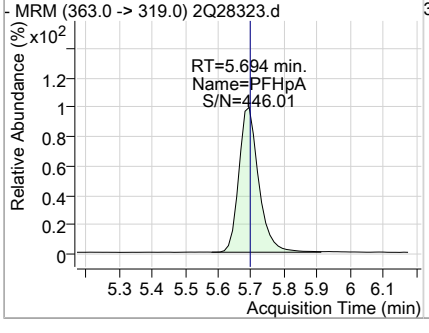
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.10	5.69	0.01	309367				

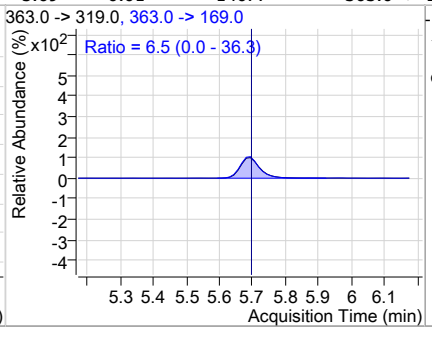


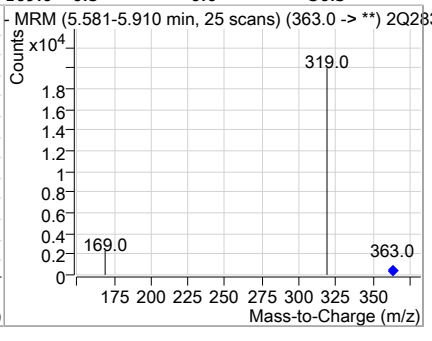




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.04	5.69	0.01	14077	363.0 -> 169.0	6.5	0.0	36.3

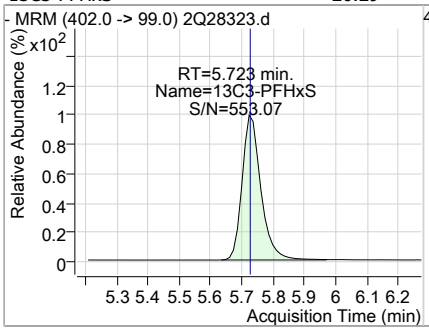


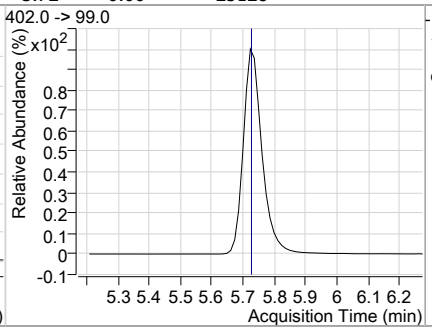


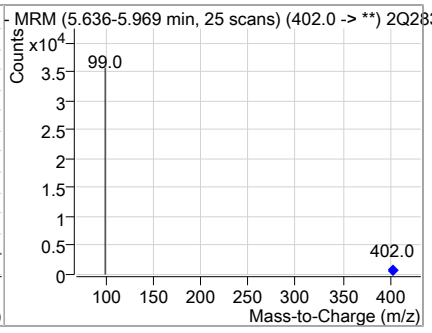


Perfluorinated Compounds by LC/MS/MS

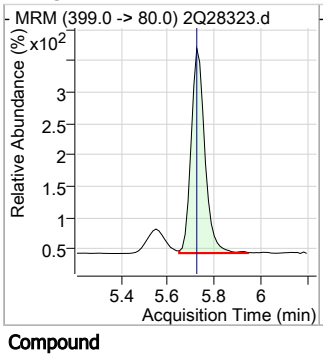
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.29	5.72	0.00	25128				

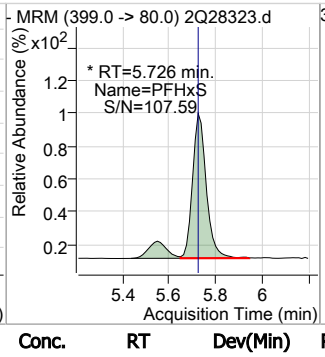


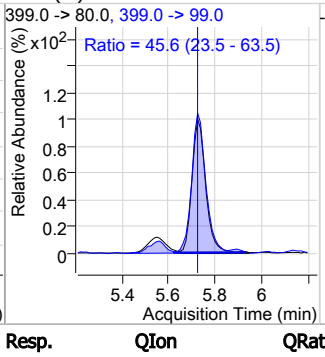


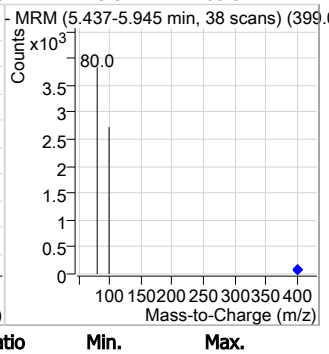


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.04	5.73	0.00	1550 (m)	399.0 -> 99.0	45.6	23.5	63.5

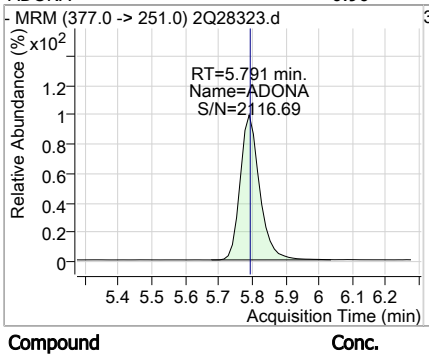


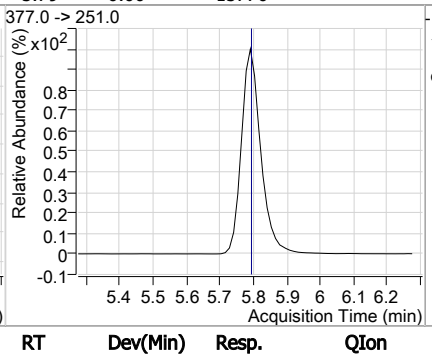


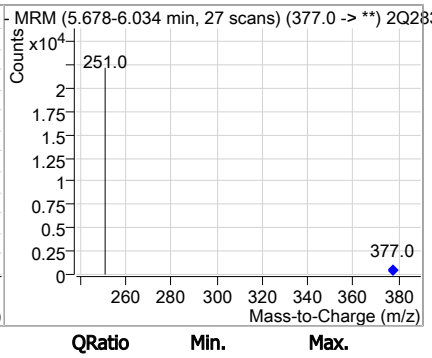




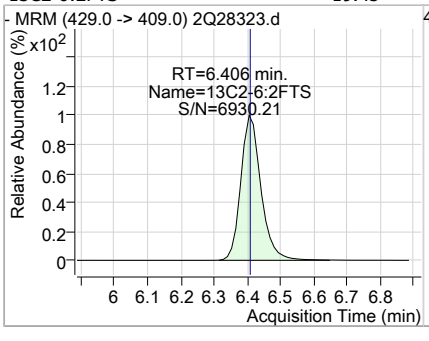
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.96	5.79	0.00	15770				

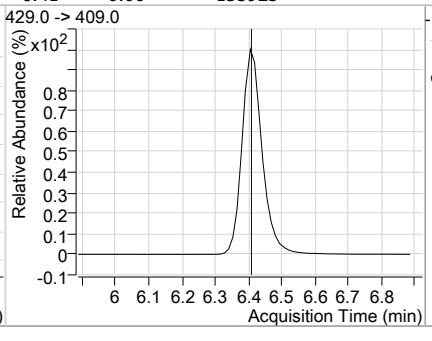


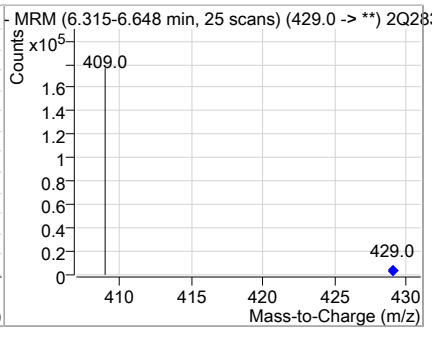




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.45	6.41	0.00	135925				

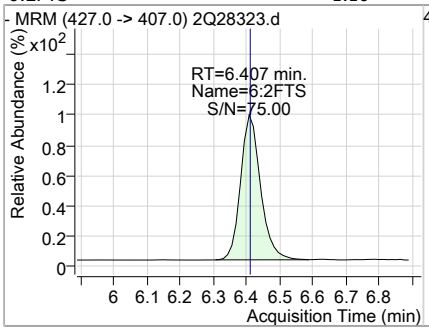


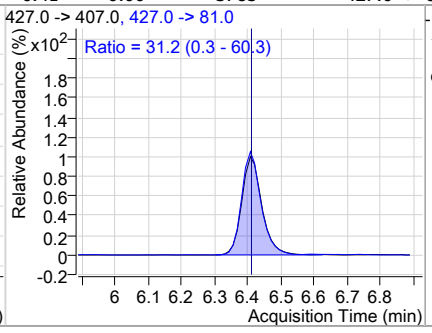


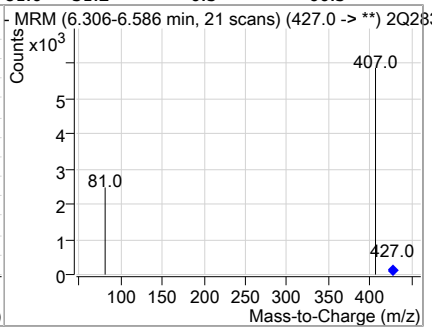


Perfluorinated Compounds by LC/MS/MS

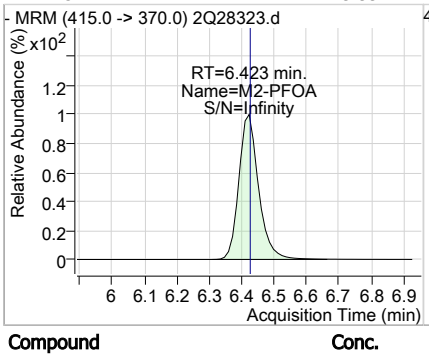
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.10	6.41	0.00	3785	427.0 -> 81.0	31.2	0.3	60.3

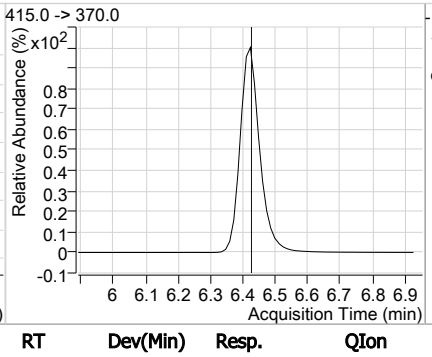


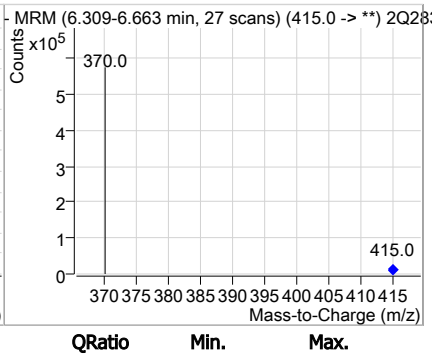




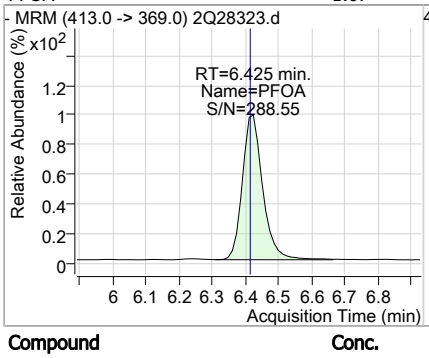
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.42	0.01	436863				

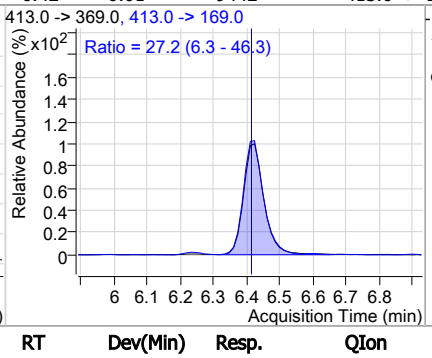


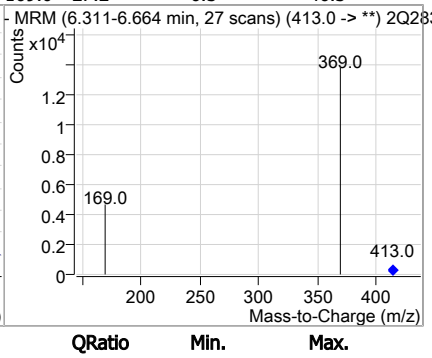




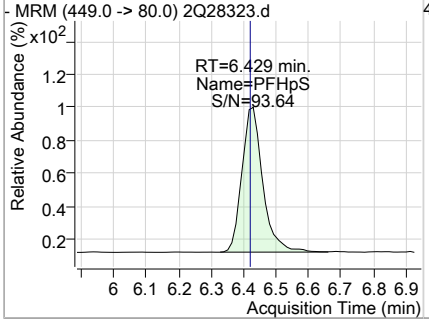
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.07	6.42	0.01	9442	413.0 -> 169.0	27.2	6.3	46.3

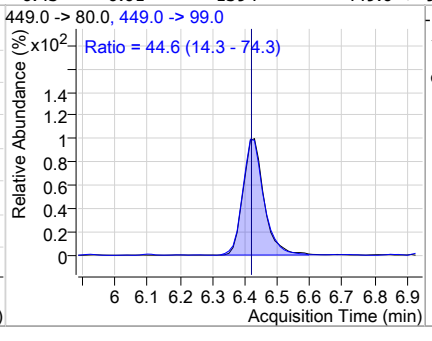


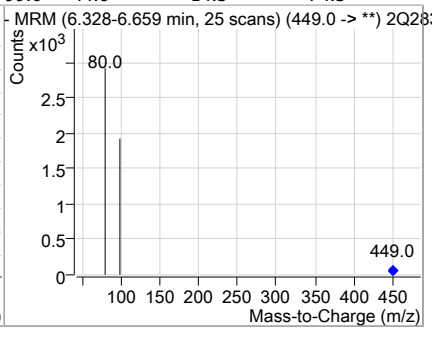




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.08	6.43	0.01	1394	449.0 -> 99.0	44.6	14.3	74.3

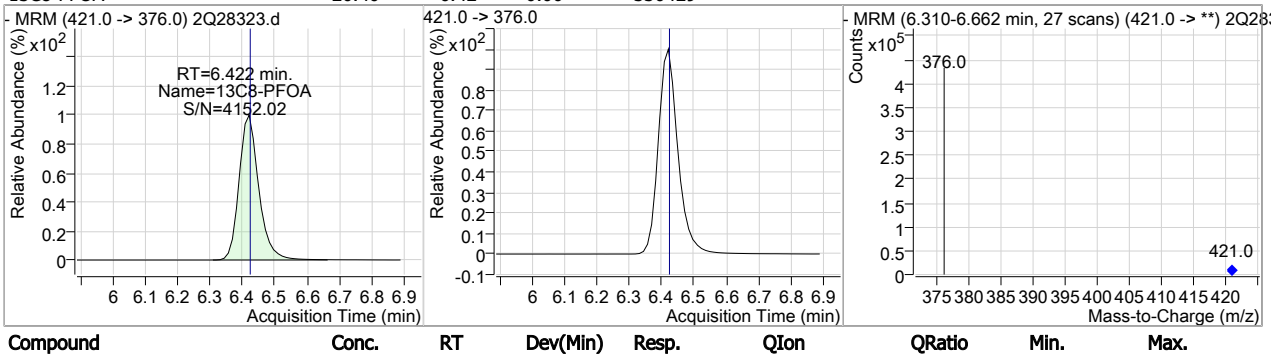




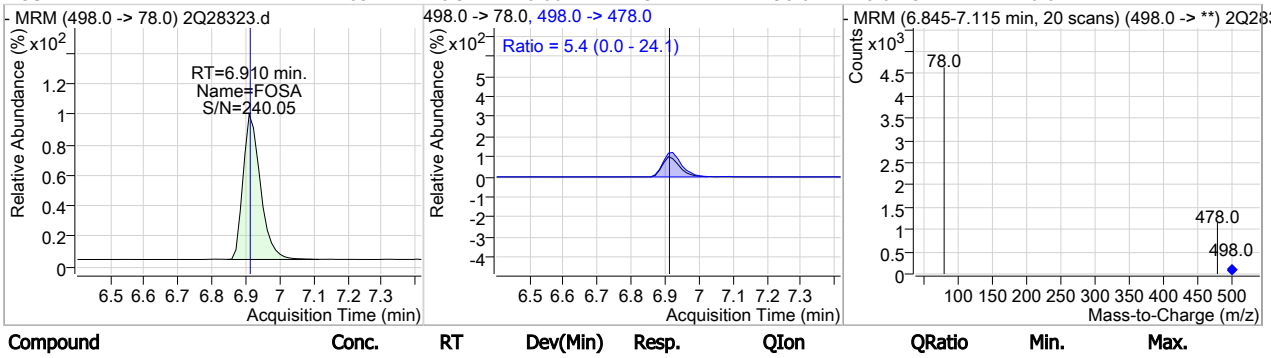


Perfluorinated Compounds by LC/MS/MS

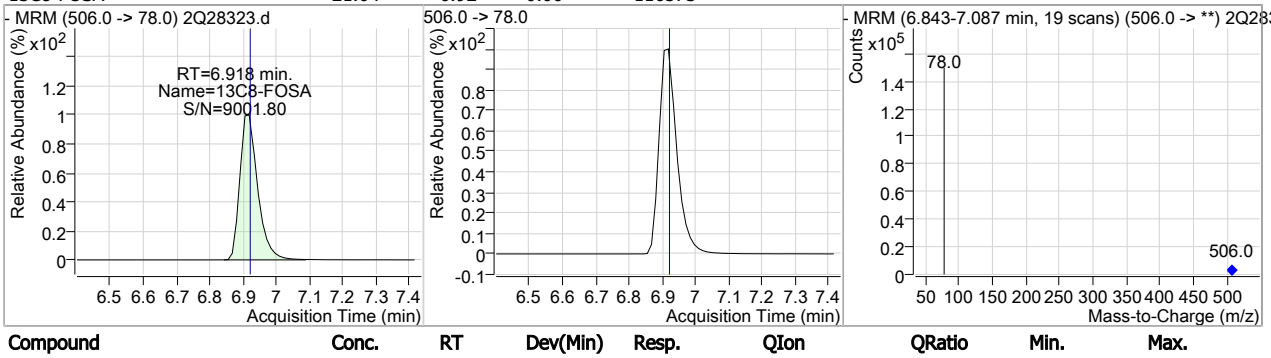
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.40	6.42	0.00	330429				



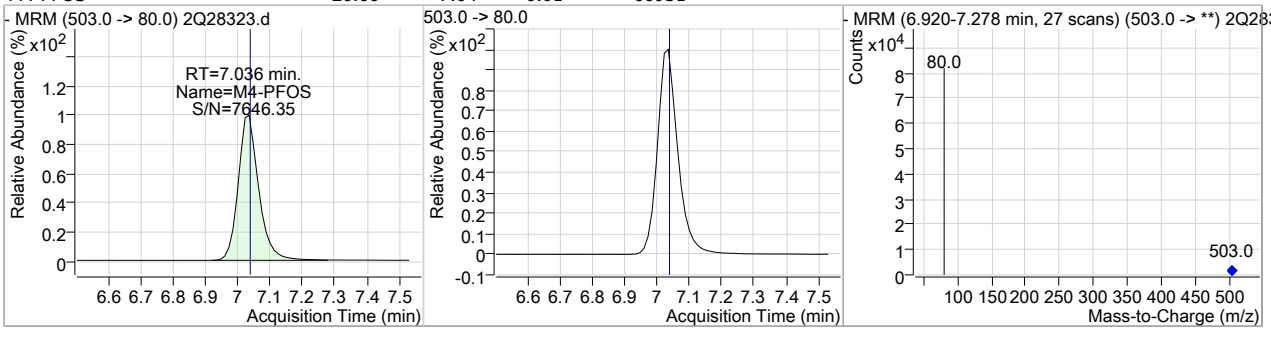
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.05	6.91	0.00	2941	498.0 -> 478.0	5.4	0.0	24.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.04	6.92	0.00	116573				



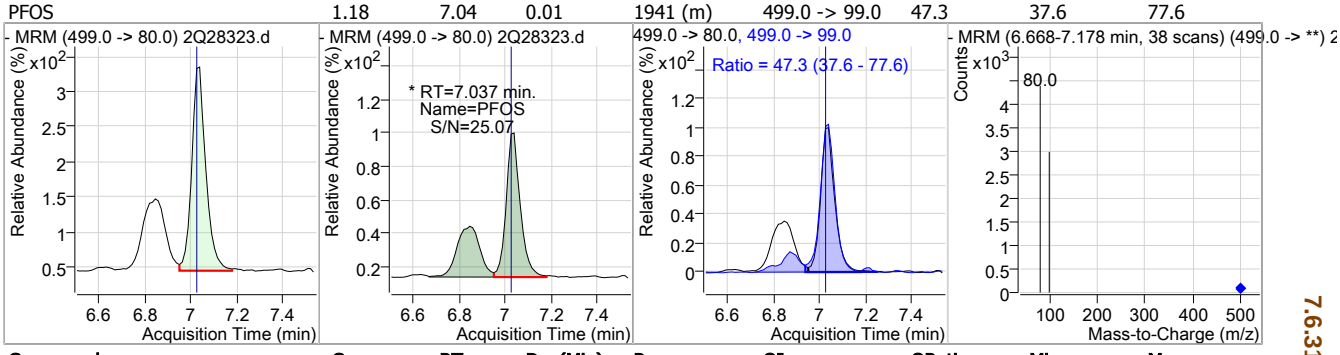
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.04	0.01	60931				



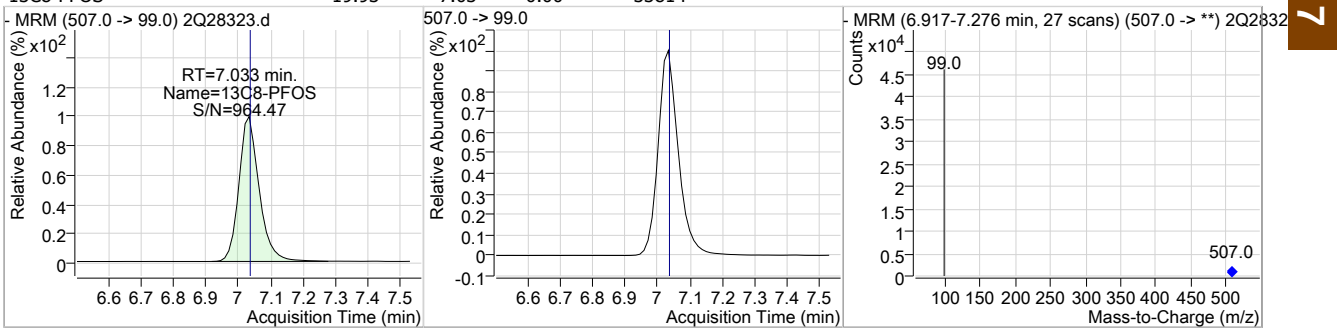
7.6.31

Perfluorinated Compounds by LC/MS/MS

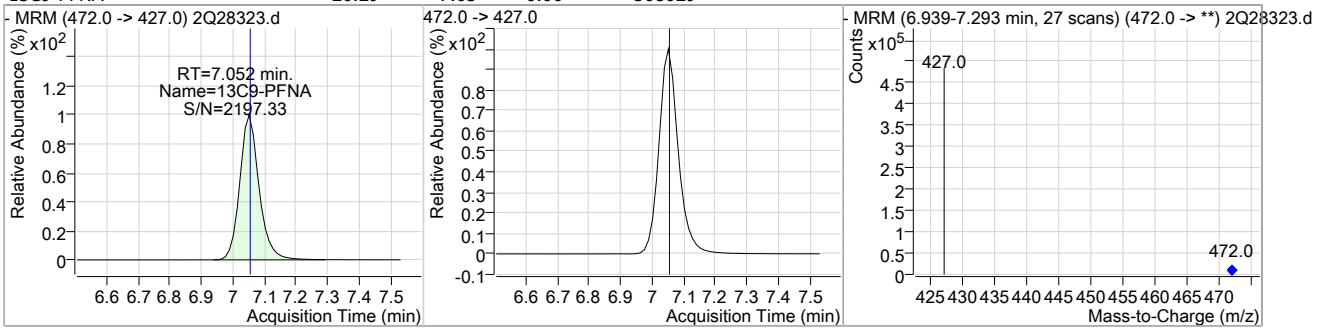
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.18	7.04	0.01	1941 (m)	499.0 -> 99.0	47.3	37.6	77.6



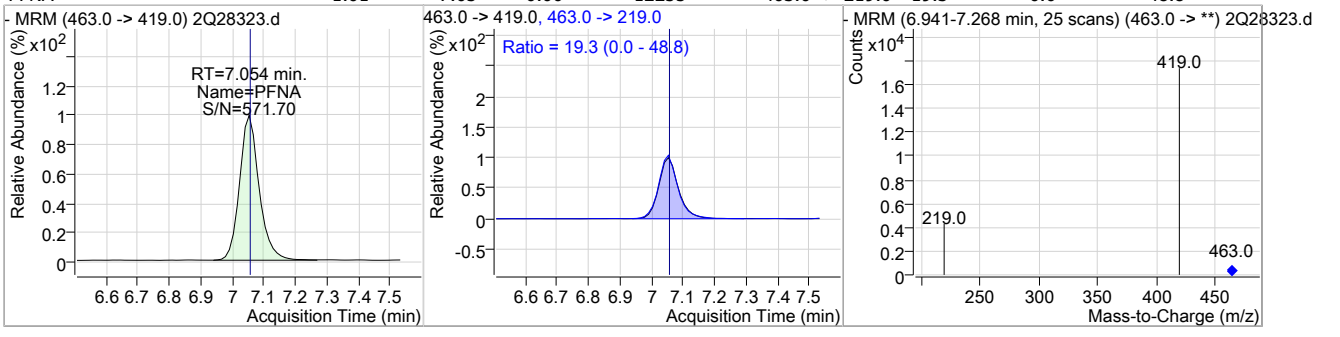
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.93	7.03	0.00	33814				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.29	7.05	0.00	368029				



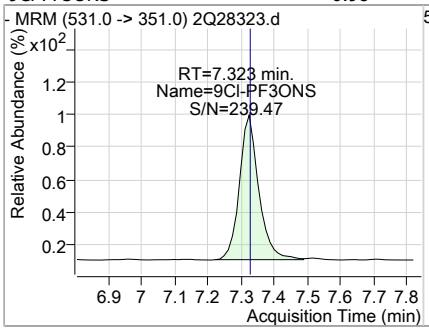
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.01	7.05	0.00	12255	463.0 -> 219.0	19.3	0.0	48.8

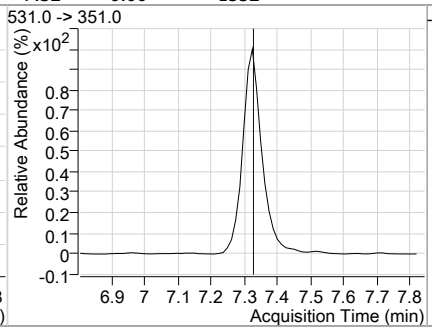


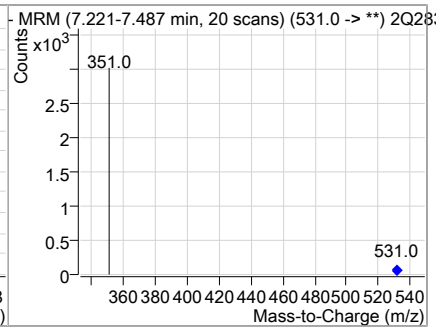
7.6.31

Perfluorinated Compounds by LC/MS/MS

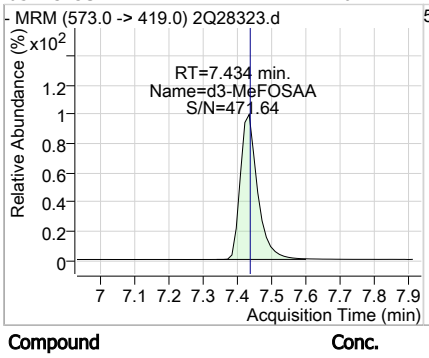
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.98	7.32	0.00	1552				

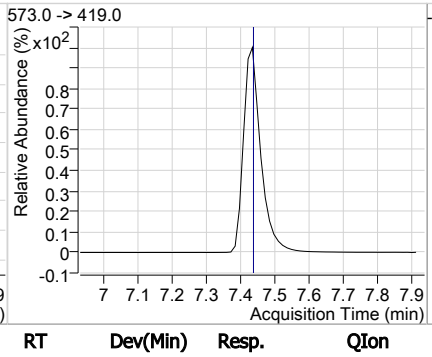


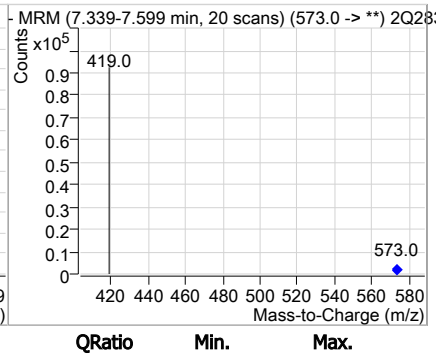




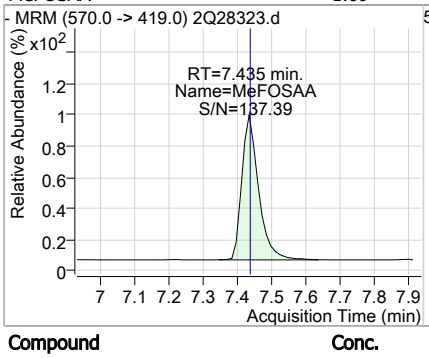
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.11	7.43	0.00	68653				

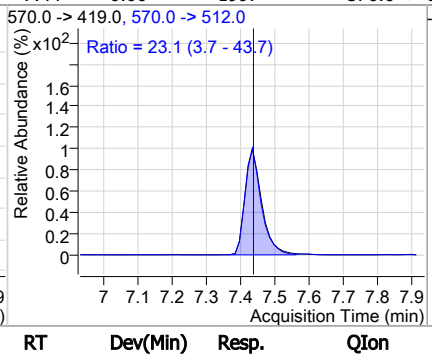


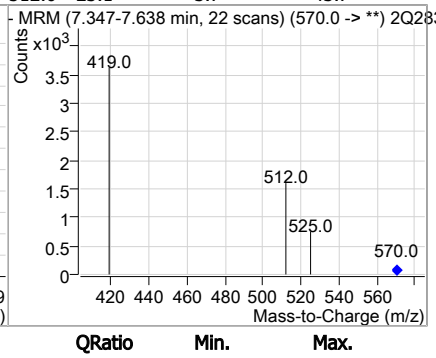




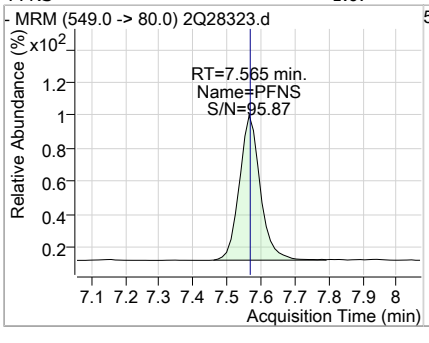
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.09	7.44	0.00	1997	570.0 -> 512.0	23.1	3.7	43.7

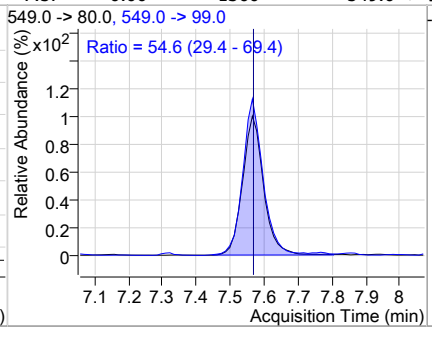


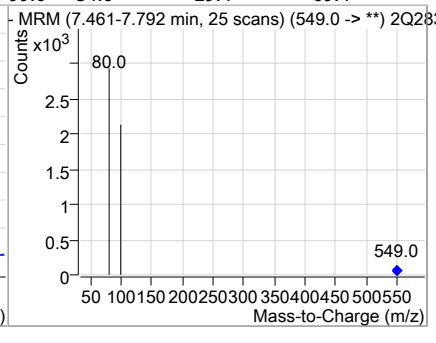




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.07	7.57	0.00	1360	549.0 -> 99.0	54.6	29.4	69.4







7.6.31

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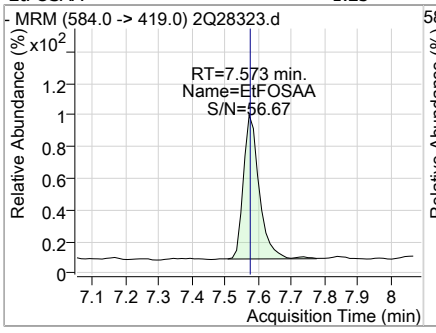
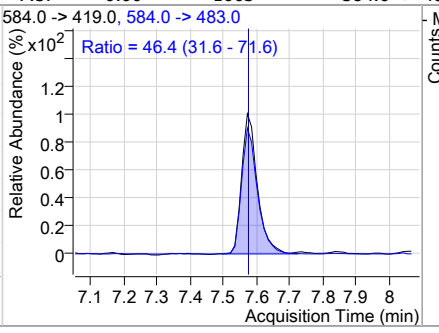
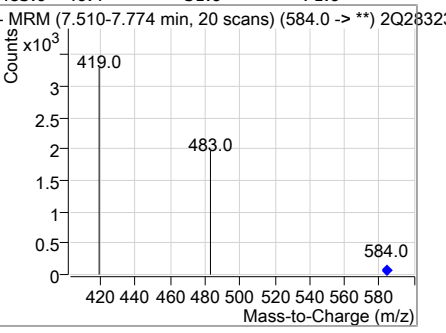
Perfluorinated Compounds by LC/MS/MS

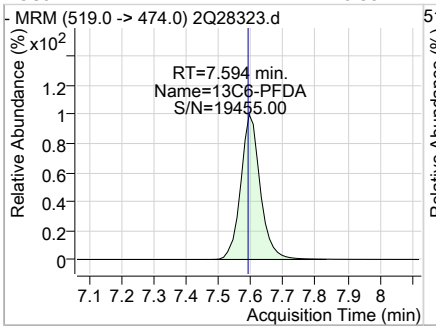
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.23	7.57	0.00	1663	584.0 -> 483.0	46.4	31.6	71.6

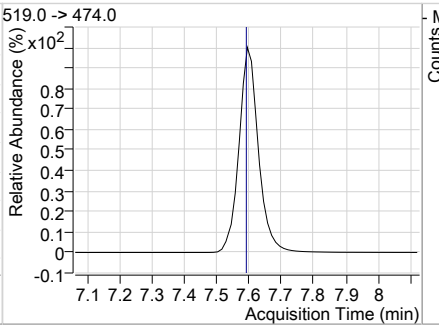


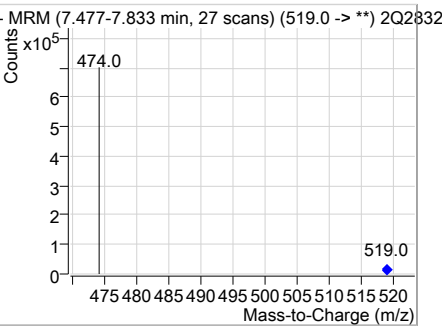




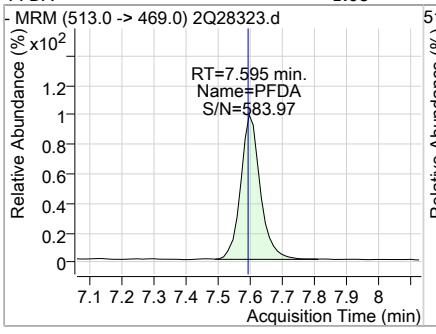
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.58	7.59	0.00	529600				

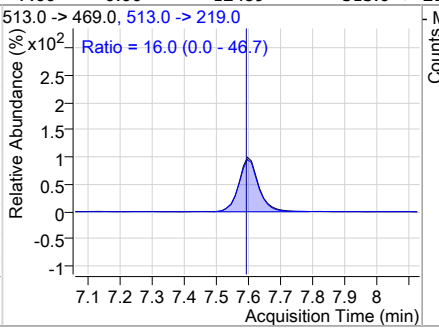


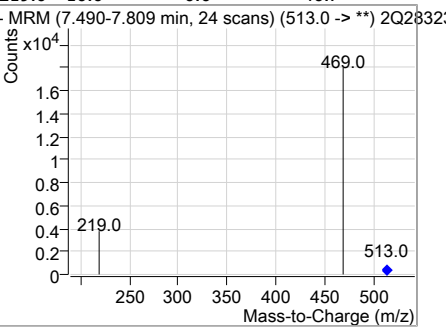




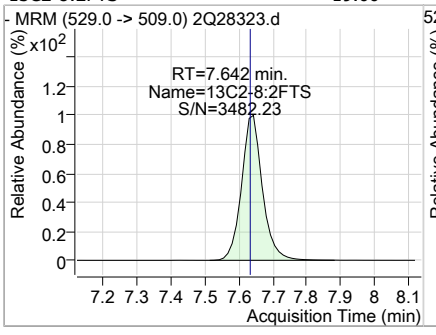
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.08	7.60	0.00	12489	513.0 -> 219.0	16.0	0.0	46.7

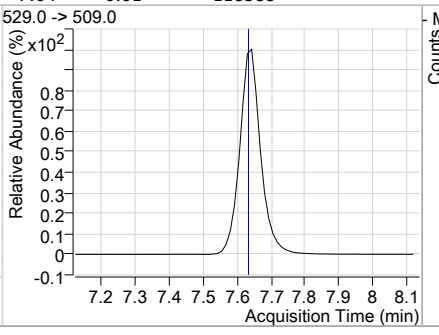


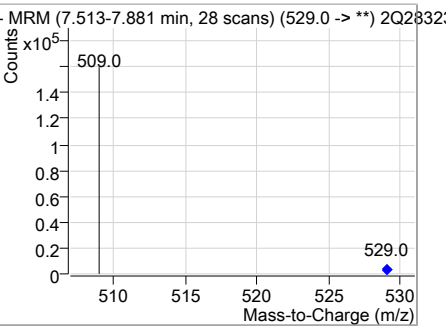




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.00	7.64	0.01	118588				

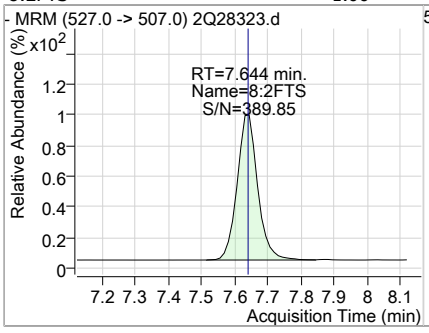


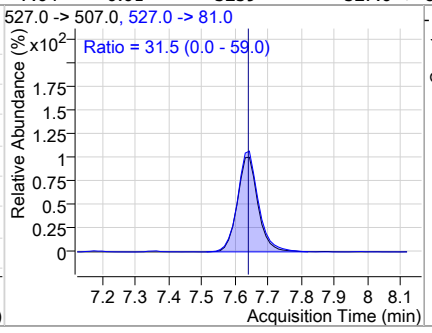


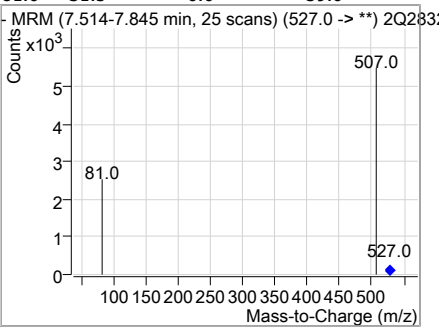


Perfluorinated Compounds by LC/MS/MS

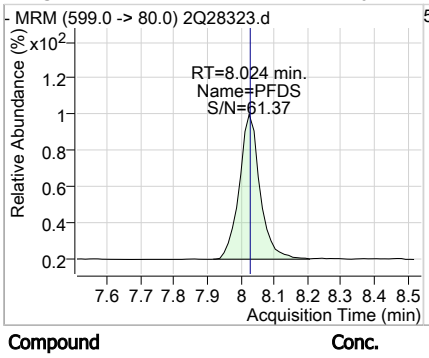
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.06	7.64	0.01	3259	527.0 -> 81.0	31.5	0.0	59.0

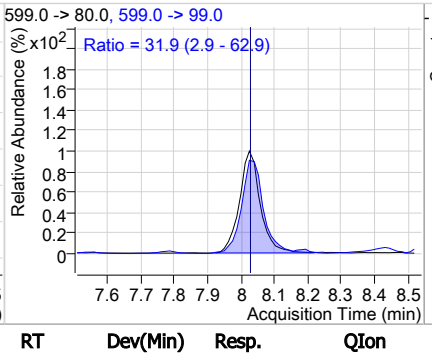


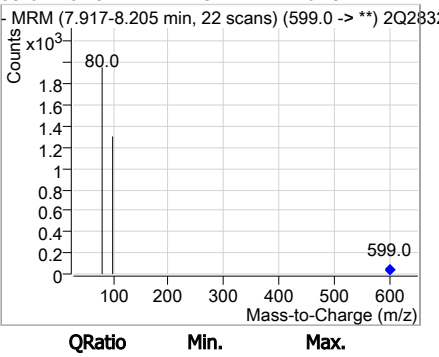




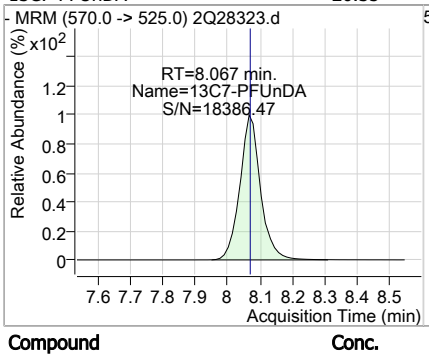
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.16	8.02	0.00	747	599.0 -> 99.0	31.9	2.9	62.9

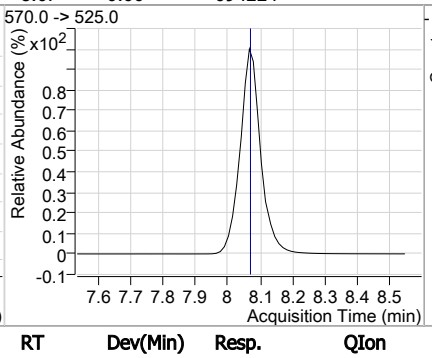


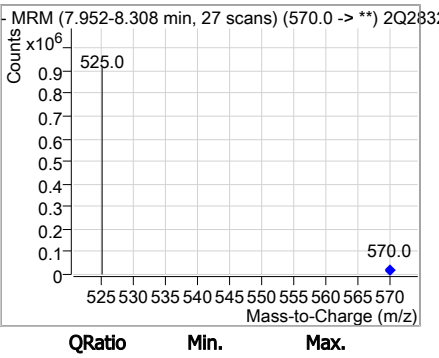




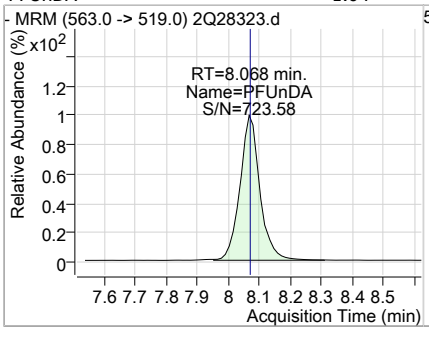
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.35	8.07	0.00	694224				

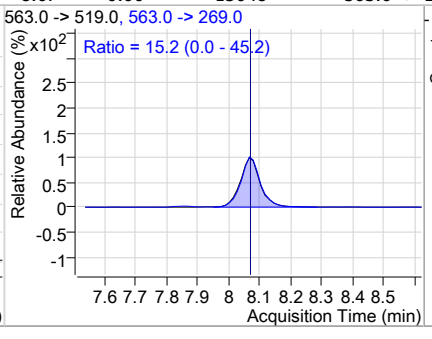


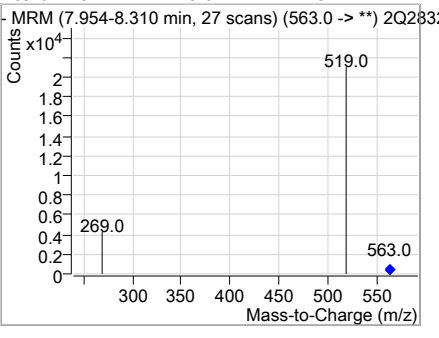




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.04	8.07	0.00	15048	563.0 -> 269.0	15.2	0.0	45.2



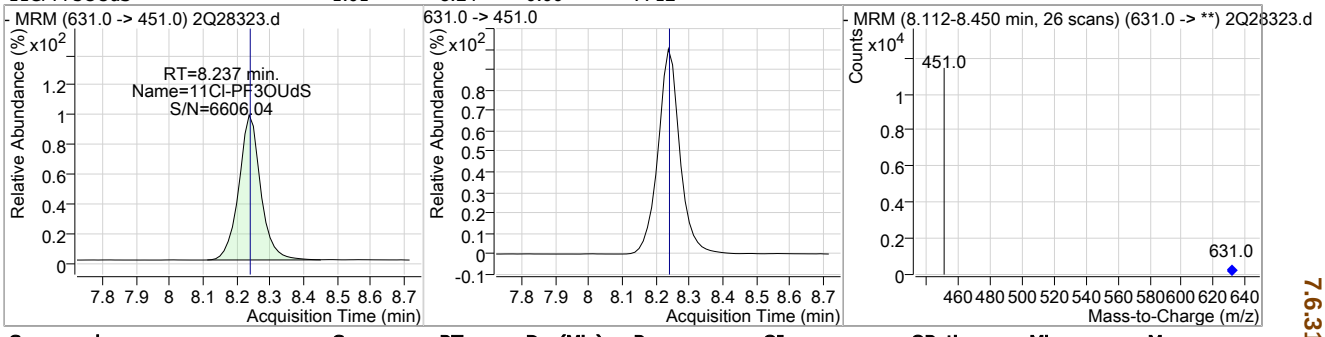




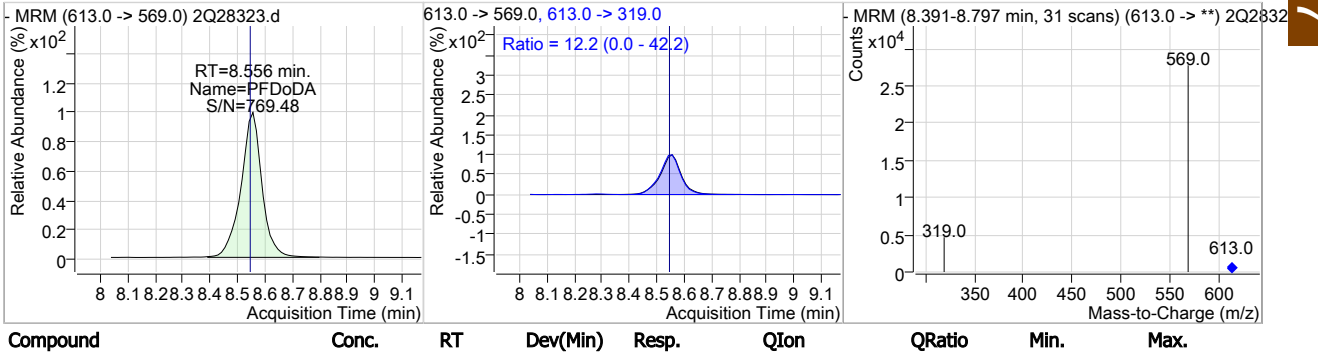
7.6.31

Perfluorinated Compounds by LC/MS/MS

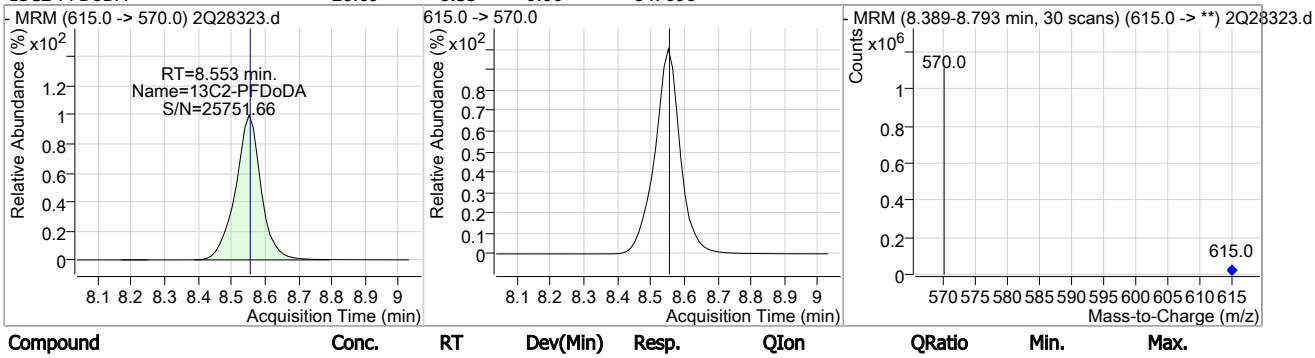
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.01	8.24	0.00	7712				



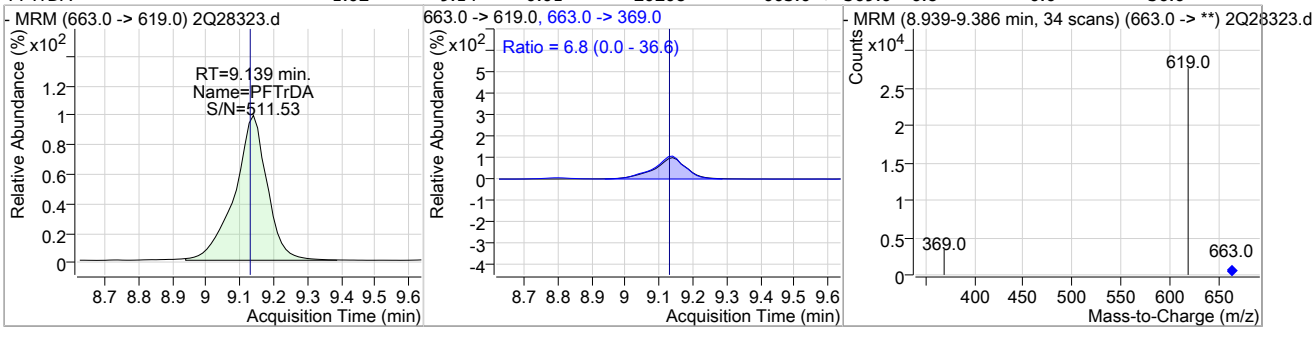
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.03	8.56	0.01	20117	613.0 -> 319.0	12.2	0.0	42.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.09	8.55	0.00	847098				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.02	9.14	0.01	20208	663.0 -> 369.0	6.8	0.0	36.6



7.6.31

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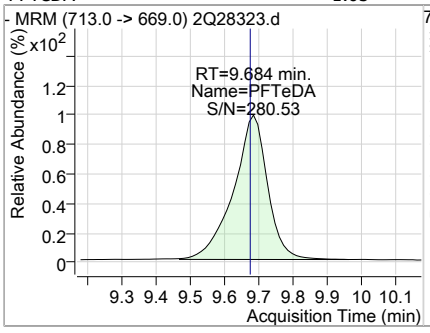
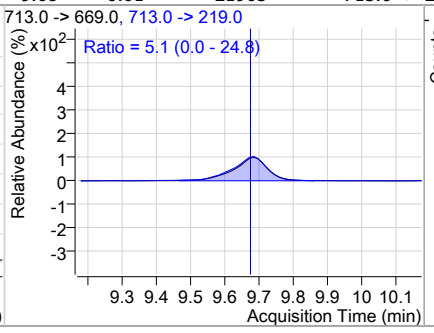
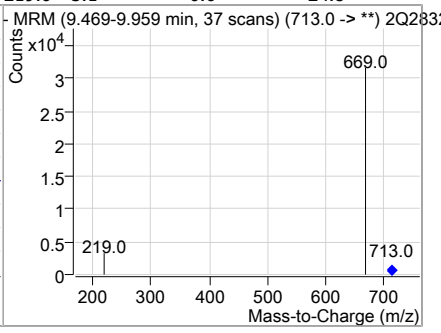
Perfluorinated Compounds by LC/MS/MS

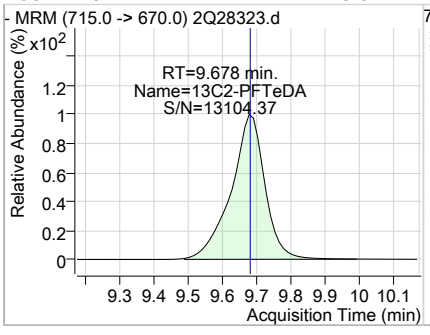
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.05	9.68	0.01	21965	713.0 -> 219.0	5.1	0.0	24.8

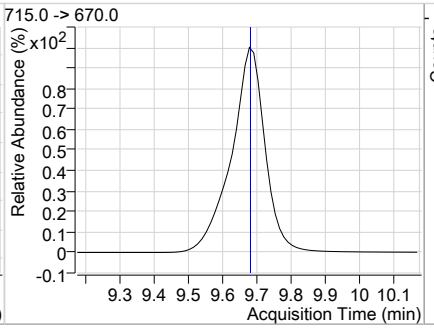


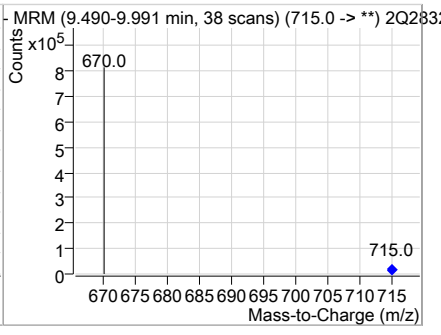




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.82	9.68	0.00	605072				







7.6.31

Manual Integration Approval Summary

Sample Number: S2Q450-IC450
Lab FileID: 2Q28323.D
Injection Time: 03/28/19 14:46
Method: EPA 537M BY ID
Analyst approved: 03/29/19 10:18 Mike Eger
Supervisor approved: 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Cal Report: 2Q28324.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28324.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/28/2019 3:02:40 PM
Sample Name : ic450-2
Vial : Vial 4
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q450.batch.bin
Sample Information : op74300,S2Q450,2.00,,,1.0,1,soil

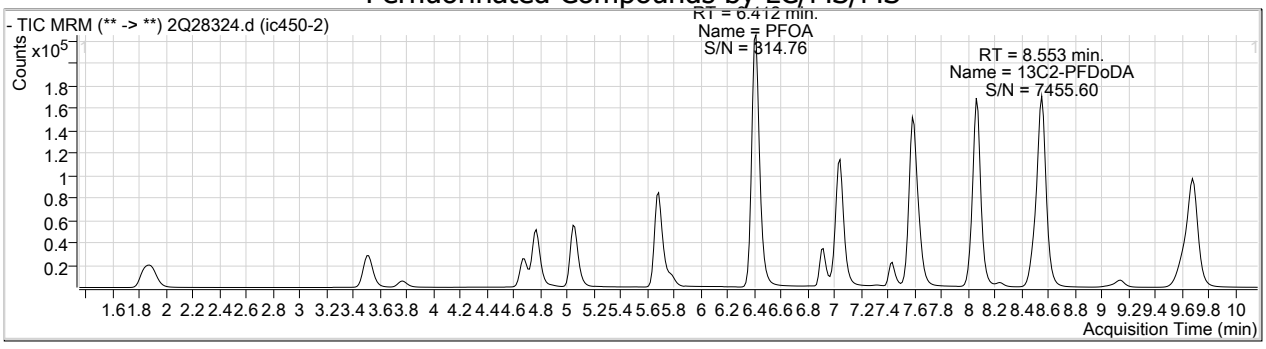
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.423	415.0 -> 370.0	452566	20.00	µg/L	0.013
13C4-PFOS	7.036	503.0 -> 80.0	63190	20.00	µg/L	0.013
M4-PFBA	1.877	217.0 -> 172.0	152205	20.00	µg/L	0.013
M5-PFPeA	3.511	268.0 -> 223.0	136800	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	202862	20.00	µg/L	0.013
M4-PFHpA	5.691	367.0 -> 322.0	314394	20.00	µg/L	0.013
M8-PFOA	6.422	421.0 -> 376.0	334727	20.00	µg/L	0.000
M9-PFNA	7.052	472.0 -> 427.0	372352	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	536128	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	702339	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	859522	20.00	µg/L	0.000
M2-PFTeDA	9.678	715.0 -> 670.0	617337	20.00	µg/L	0.000
M8-FOSA	6.918	506.0 -> 78.0	118367	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	22603	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	25244	20.00	µg/L	0.000
M8-PFOS	7.033	507.0 -> 99.0	34922	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	101500	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	137439	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	119451	20.00	µg/L	0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	69744	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	203147	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	101268	19.12	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.6%		
13C2-6:2FTS	6.406	429.0 -> 409.0	137339	19.65	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C2-8:2FTS	7.642	529.0 -> 509.0	119424	19.14	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.7%		
13C2-PFDoDA	8.553	615.0 -> 570.0	859523	20.39	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C2-PFTeDA	9.678	715.0 -> 670.0	613847	20.11	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C3-PFBS	3.767	302.0 -> 99.0	22530	20.46	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C3-PFHxS	5.723	402.0 -> 99.0	25261	20.40	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C4-PFBA	1.877	217.0 -> 172.0	151521	20.28	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C4-PFHpA	5.691	367.0 -> 322.0	313867	20.39	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C5-PFHxA	4.776	318.0 -> 273.0	205177	20.22	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%		
13C5-PFPeA	3.511	268.0 -> 223.0	136583	20.28	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C6-PFDA	7.594	519.0 -> 474.0	536346	20.85	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

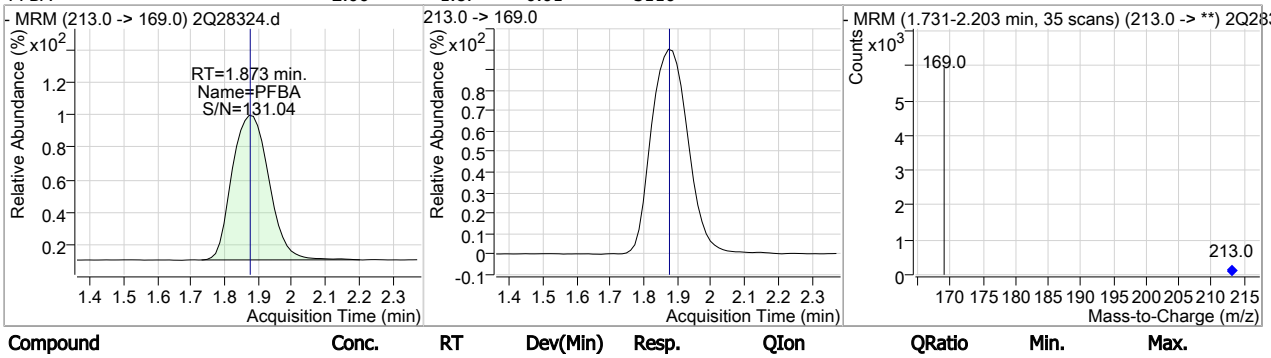
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C7-PFUnDA	8.067	570.0 -> 525.0	702799	20.60 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C8-FOSA	6.918	506.0 -> 78.0	118315	21.36 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.8%		
13C8-PFOA	6.422	421.0 -> 376.0	334609	20.66 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C8-PFOS	7.033	507.0 -> 99.0	34895	20.56 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C9-PFNA	7.052	472.0 -> 427.0	372226	20.52 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
d3-MeFOSAA	7.434	573.0 -> 419.0	69740	20.42 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
M2-PFOA	6.423	415.0 -> 370.0	453013	20.01 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.036	503.0 -> 80.0	63234	20.01 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	203147	105.13 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 105.1%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	6358	2.16 µg/L		97
6:2FTS	6.407	427.0 -> 407.0	7379	2.12 µg/L		95
8:2FTS	7.644	527.0 -> 507.0	6634	2.15 µg/L		95
EtFOSAA	7.573	584.0 -> 419.0	3175	2.32 µg/L		98
FOSA	6.910	498.0 -> 78.0	6053	2.12 µg/L		99
MeFOSAA	7.435	570.0 -> 419.0	3706	1.99 µg/L		98
PFBA	1.873	213.0 -> 169.0	3116	2.06 µg/L		100
PFBS	3.771	299.0 -> 80.0	3792	2.06 µg/L		98
PFDA	7.595	513.0 -> 469.0	23918	2.04 µg/L		98
PFDoDA	8.556	613.0 -> 569.0	39620	2.00 µg/L		99
PFDS	8.024	599.0 -> 80.0	1523	2.28 µg/L		94
PFHpA	5.681	363.0 -> 319.0	27680	2.01 µg/L		100
PFHpS	6.417	449.0 -> 80.0	2753	2.12 µg/L		98
PFHxA	4.778	313.0 -> 269.0	7352	2.07 µg/L		99
PFHxS	5.726	399.0 -> 80.0	3073	2.05 µg/L	m	97
PFNA	7.054	463.0 -> 419.0	25203	2.06 µg/L		99
PFNS	7.565	549.0 -> 80.0	2935	2.22 µg/L		95
PFOA	6.412	413.0 -> 369.0	18458	2.06 µg/L		100
PFOS	7.037	499.0 -> 80.0	3643	2.15 µg/L	m	80
PFPeA	3.515	263.0 -> 219.0	12568	2.07 µg/L		100
PFPeS	4.895	349.0 -> 80.0	2542	1.98 µg/L		98
PFTeDA	9.684	713.0 -> 669.0	42717	2.01 µg/L		100
PFTrDA	9.139	663.0 -> 619.0	40033	1.99 µg/L		99
PFUnDA	8.068	563.0 -> 519.0	28966	1.99 µg/L		99
11Cl-PF3OUdS	8.237	631.0 -> 451.0	15307	1.97 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	2910	1.82 µg/L		100
ADONA	5.791	377.0 -> 251.0	30935	1.87 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	24985	10.26 µg/L		99

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

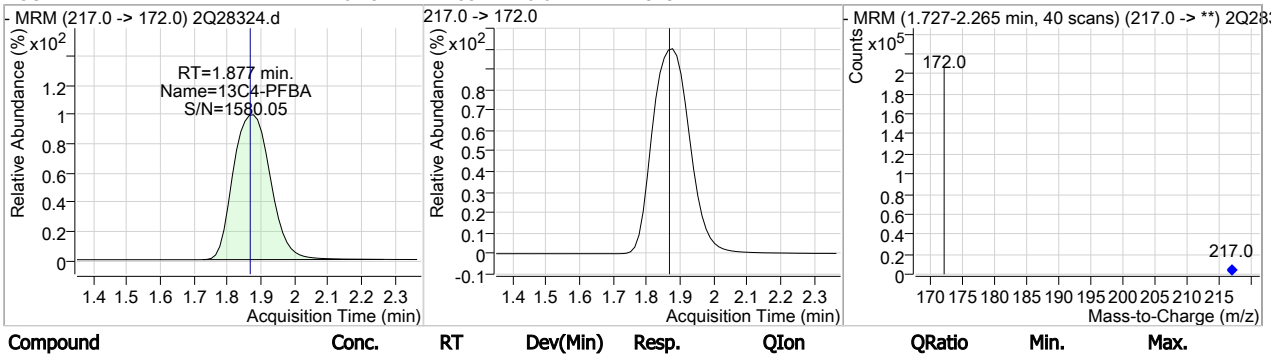
Perfluorinated Compounds by LC/MS/MS



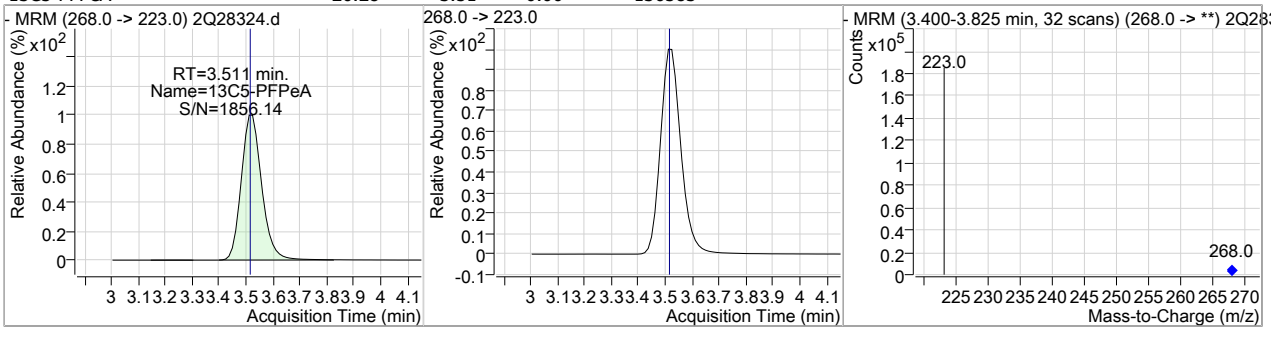
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	2.06	1.87	0.01	3116				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.28	1.88	0.01	151521				

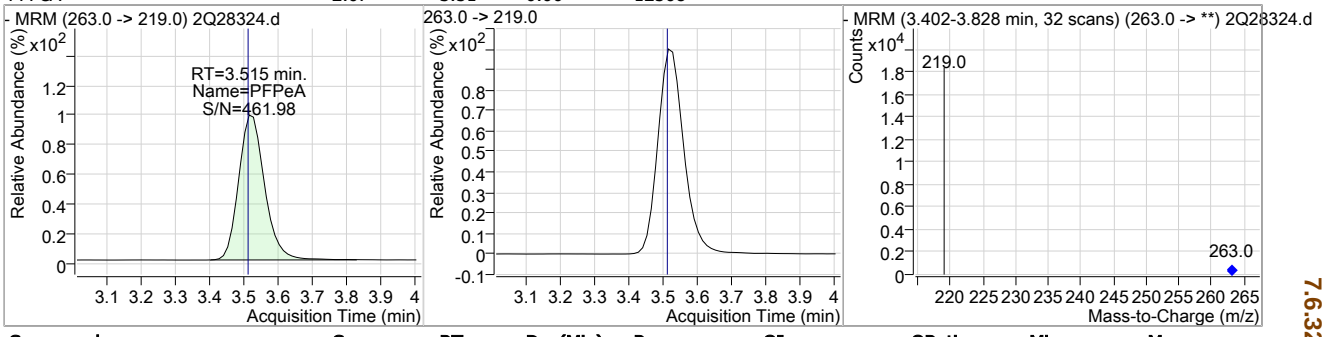


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.28	3.51	0.00	136583				

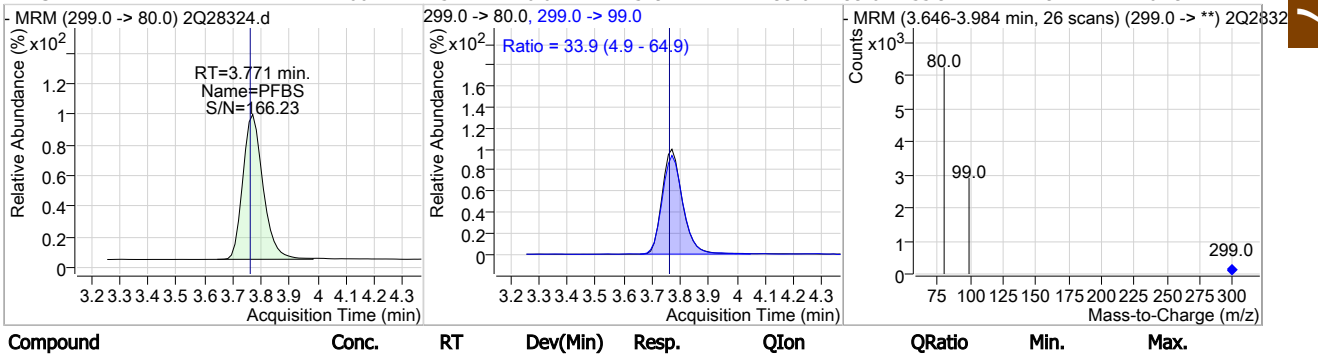


Perfluorinated Compounds by LC/MS/MS

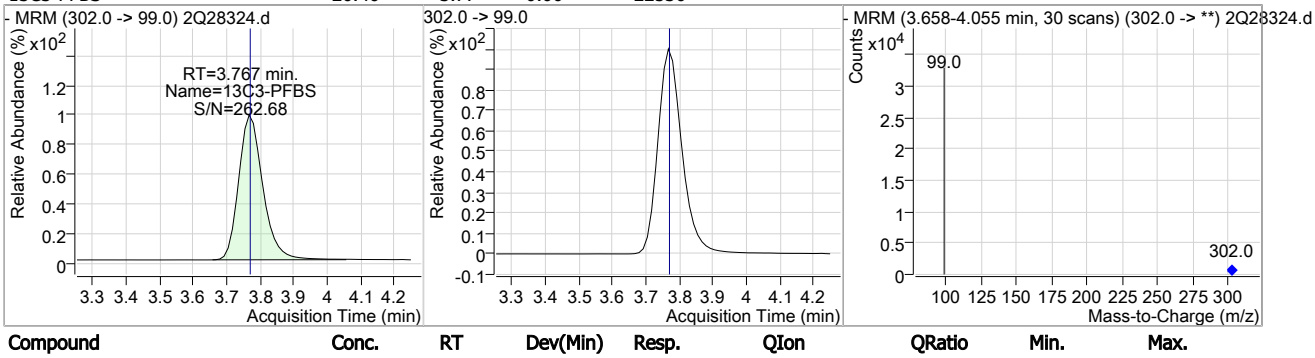
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	2.07	3.51	0.00	12568				



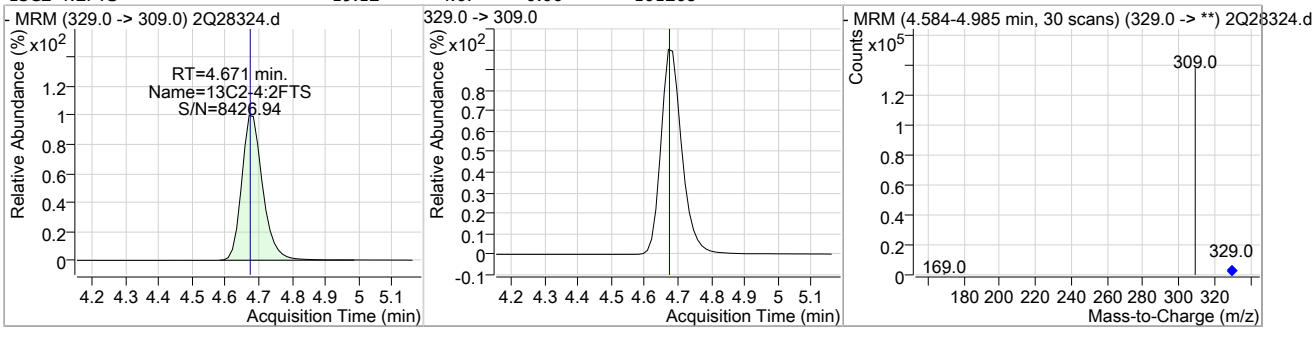
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.06	3.77	0.01	3792	299.0 -> 99.0	33.9	4.9	64.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.46	3.77	0.00	22530				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.12	4.67	0.00	101268				



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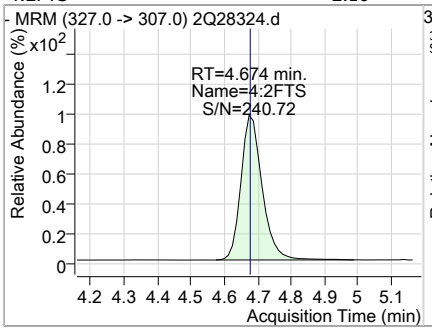
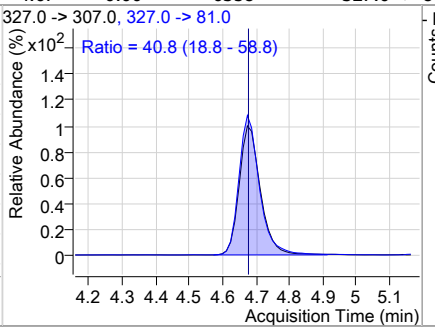
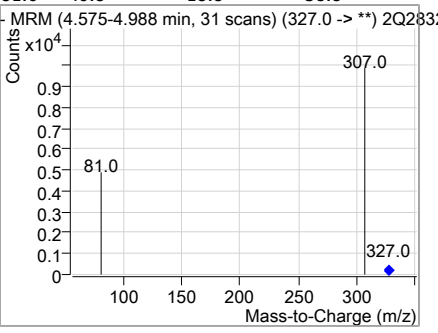
Perfluorinated Compounds by LC/MS/MS

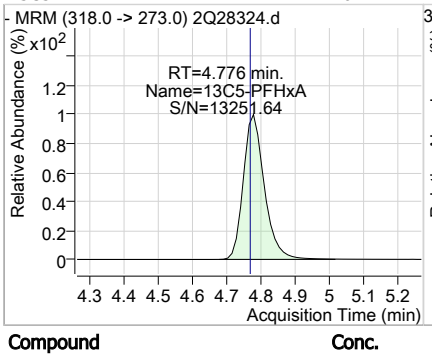
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	2.16	4.67	0.00	6358	327.0 -> 81.0	40.8	18.8	58.8

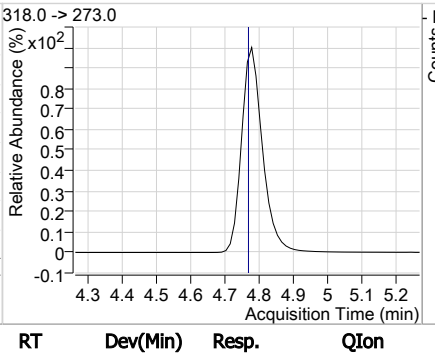


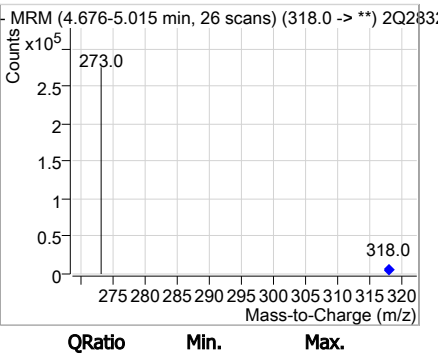




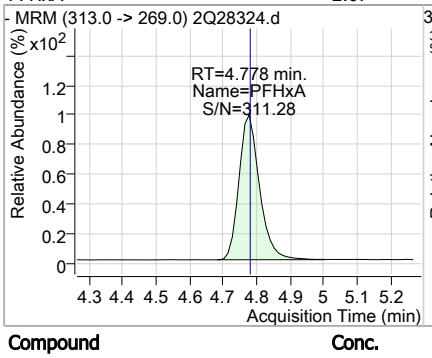
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.22	4.78	0.01	205177				

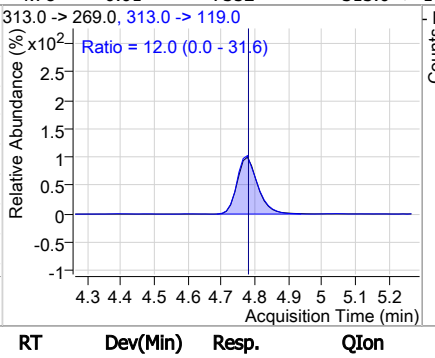


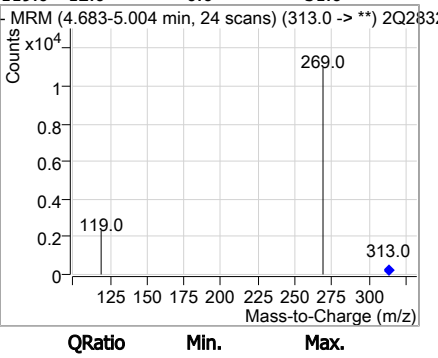




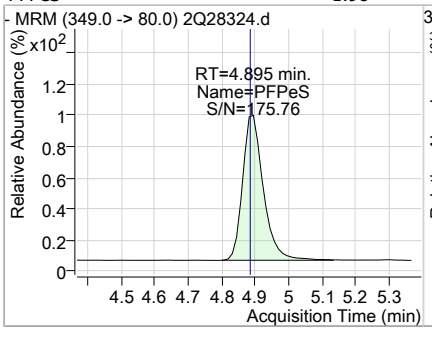
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.07	4.78	0.01	7352	313.0 -> 119.0	12.0	0.0	31.6

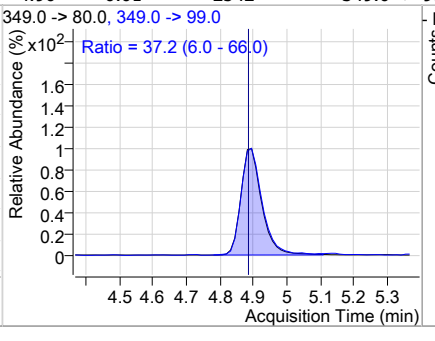


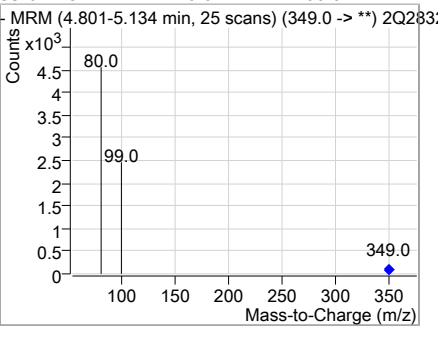




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.98	4.90	0.01	2542	349.0 -> 99.0	37.2	6.0	66.0



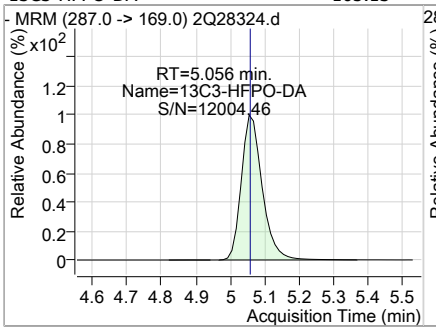


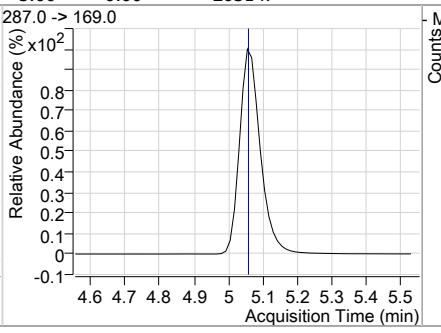


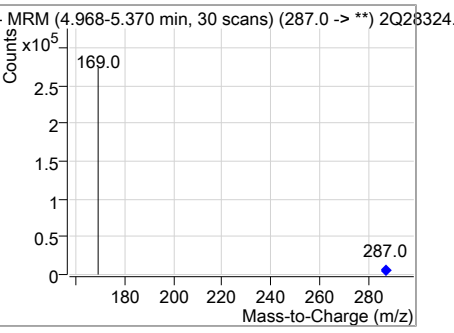
7.6.32

Perfluorinated Compounds by LC/MS/MS

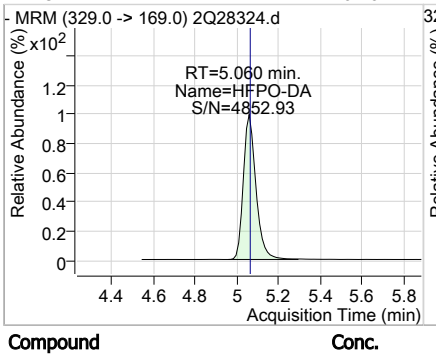
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	105.13	5.06	0.00	203147				

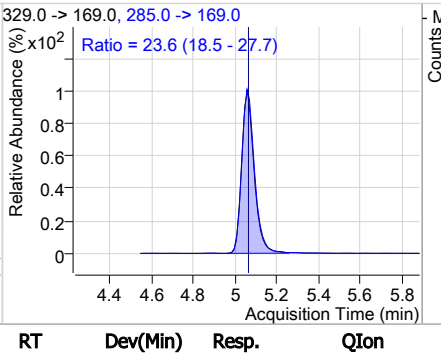


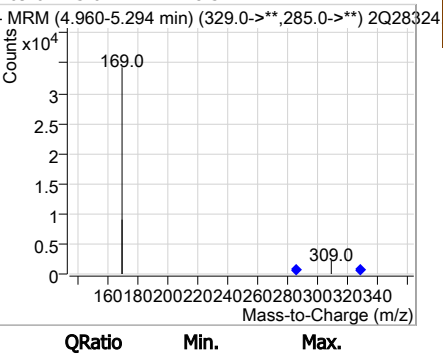




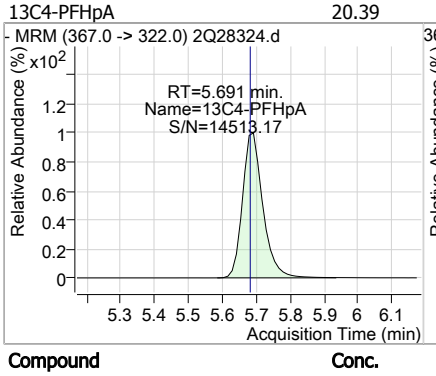
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.26	5.06	0.00	24985	285.0 -> 169.0	23.6	18.5	27.7

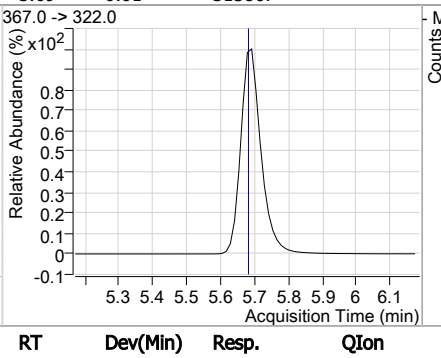


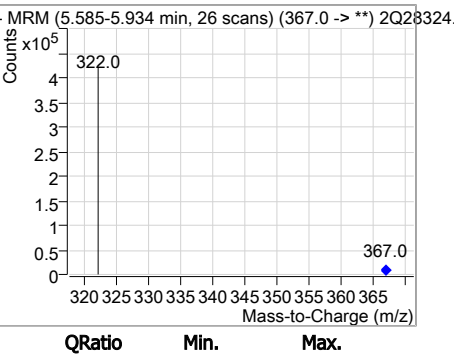




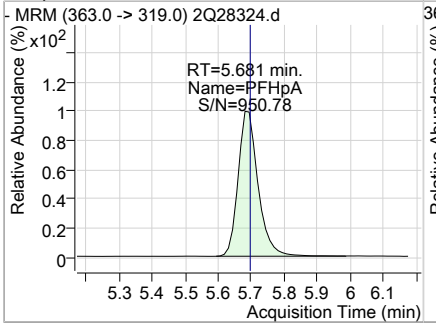
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.39	5.69	0.01	313867				

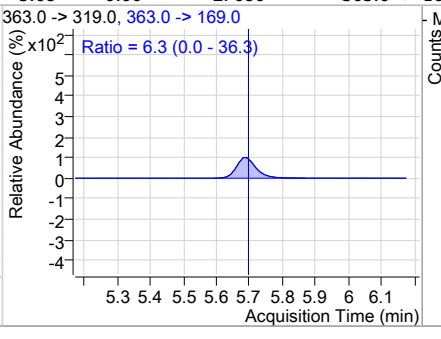


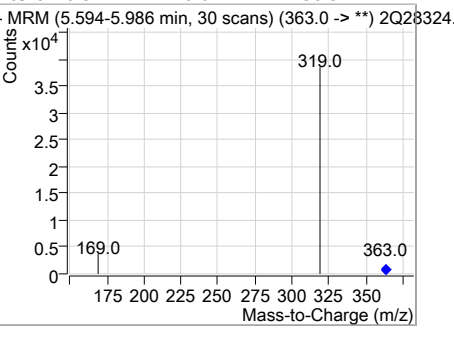




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.01	5.68	0.00	27680	363.0 -> 169.0	6.3	0.0	36.3



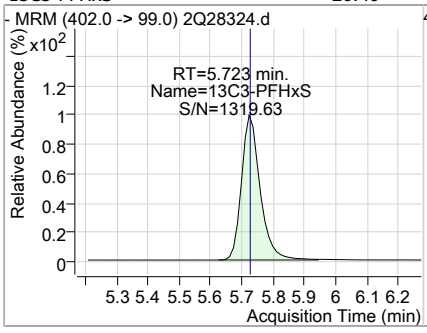


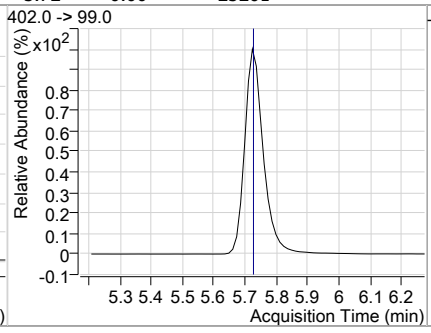


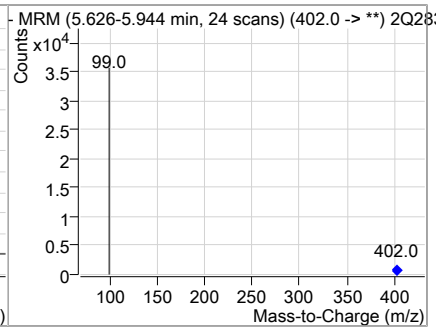
7.6.32

Perfluorinated Compounds by LC/MS/MS

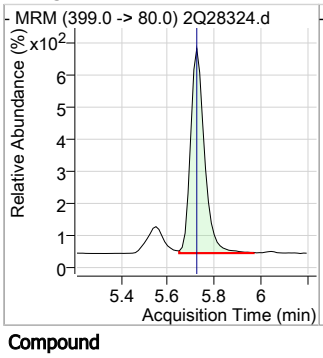
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.40	5.72	0.00	25261				

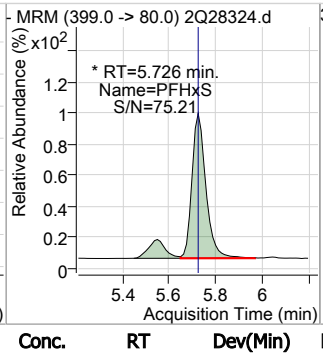


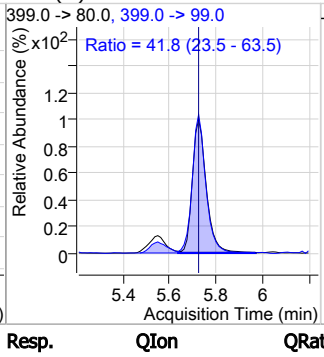


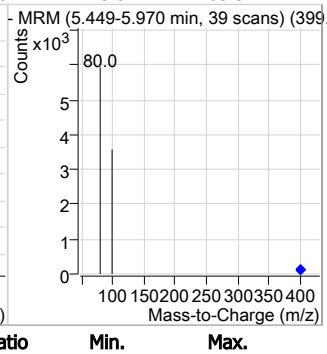


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.05	5.73	0.00	3073 (m)	399.0 -> 99.0	41.8	23.5	63.5

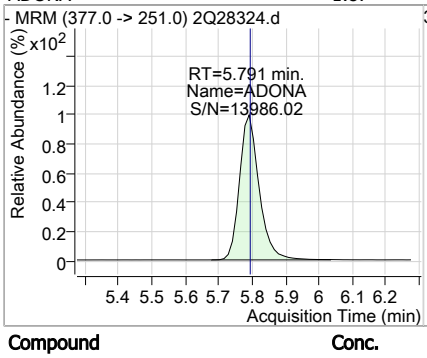


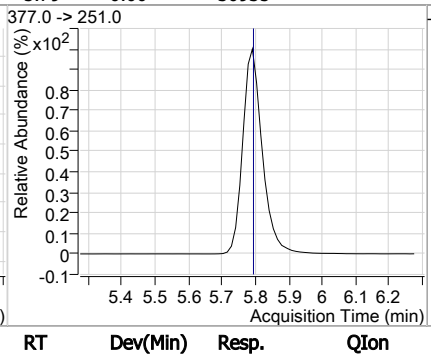


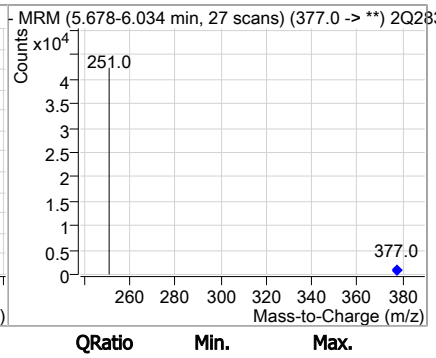




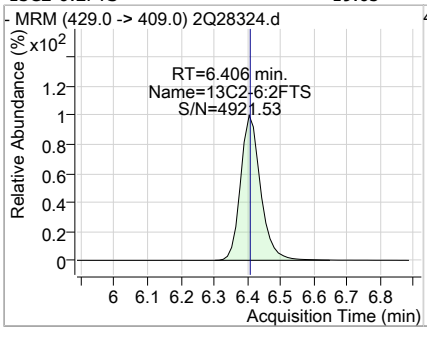
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	1.87	5.79	0.00	30935				

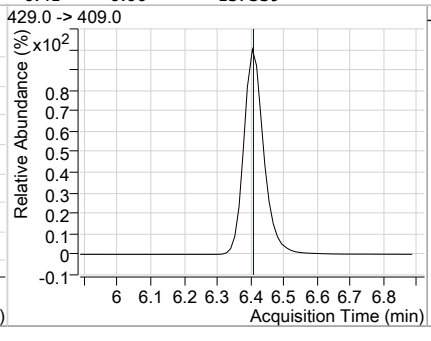


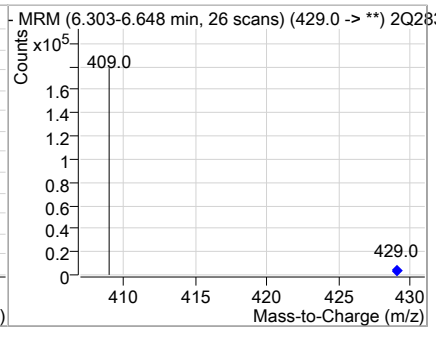




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.65	6.41	0.00	137339				



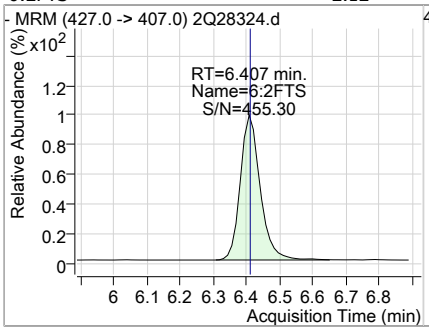


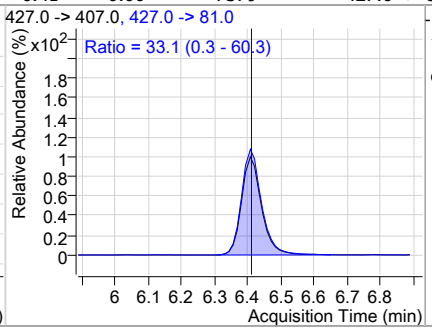


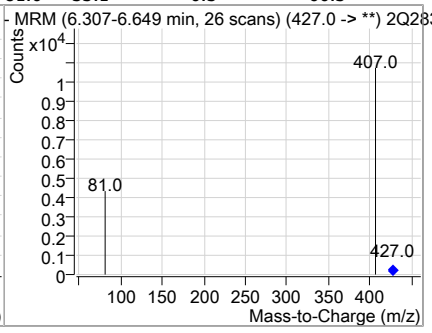
7.6.32

Perfluorinated Compounds by LC/MS/MS

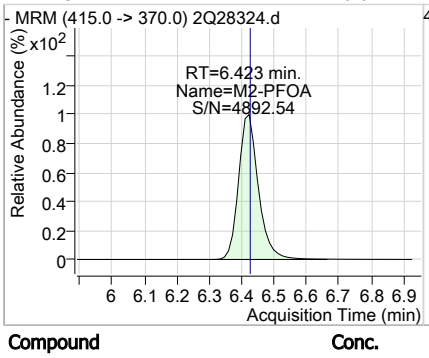
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	2.12	6.41	0.00	7379	427.0 -> 81.0	33.1	0.3	60.3

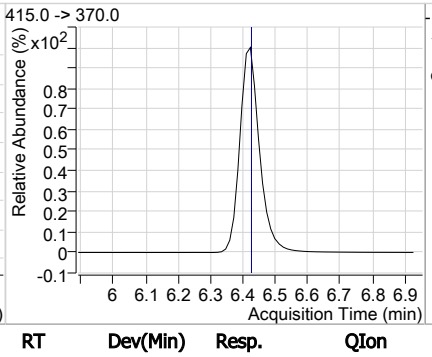


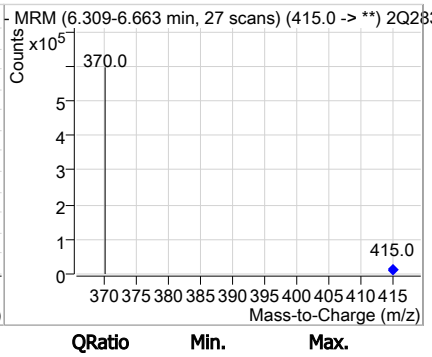




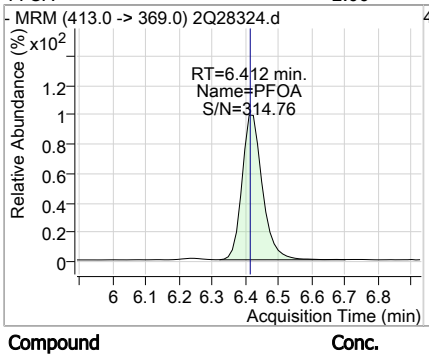
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.42	0.01	453013				

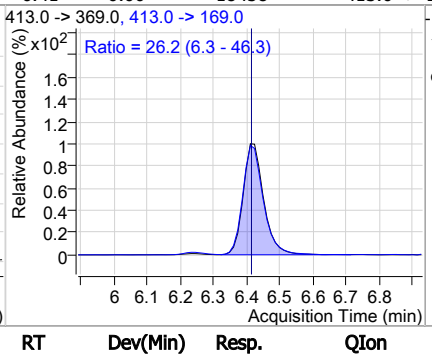


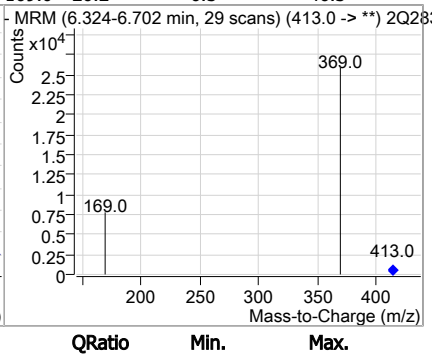




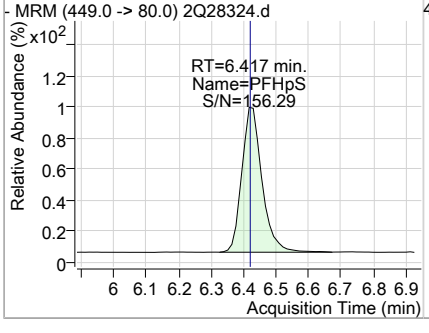
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.06	6.41	0.00	18458	413.0 -> 169.0	26.2	6.3	46.3

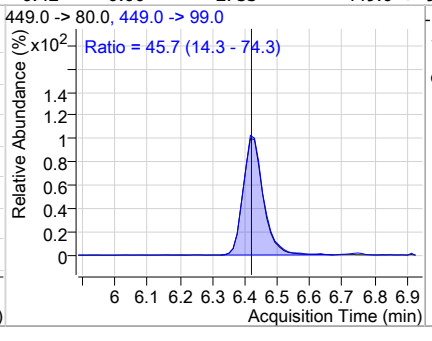


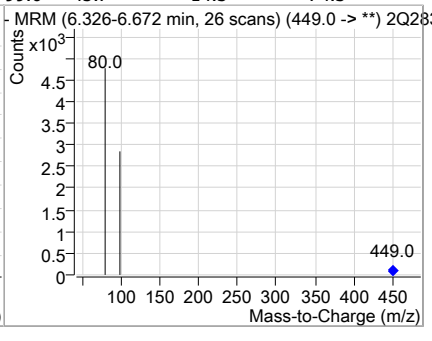




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.12	6.42	0.00	2753	449.0 -> 99.0	45.7	14.3	74.3



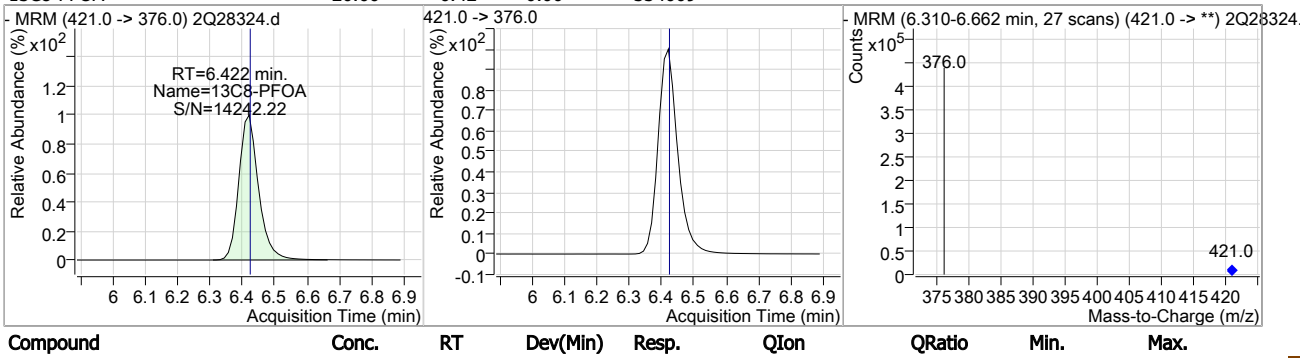




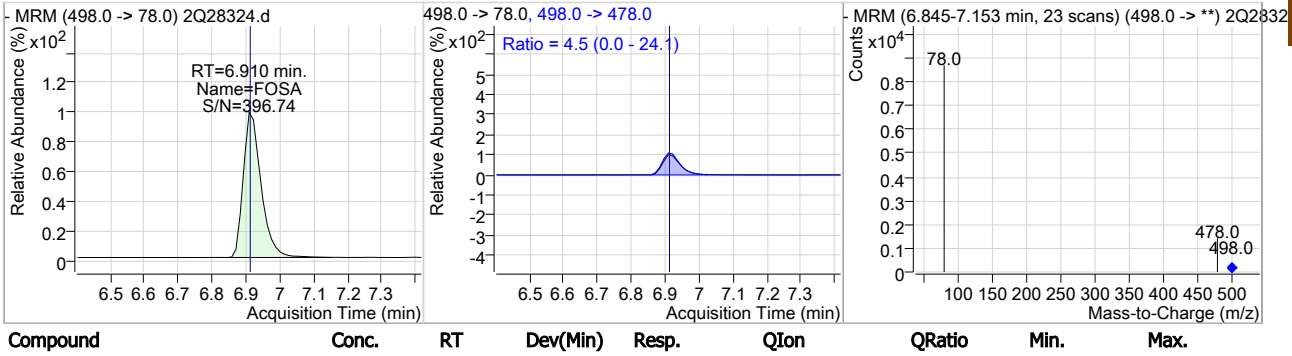
7.6.32

Perfluorinated Compounds by LC/MS/MS

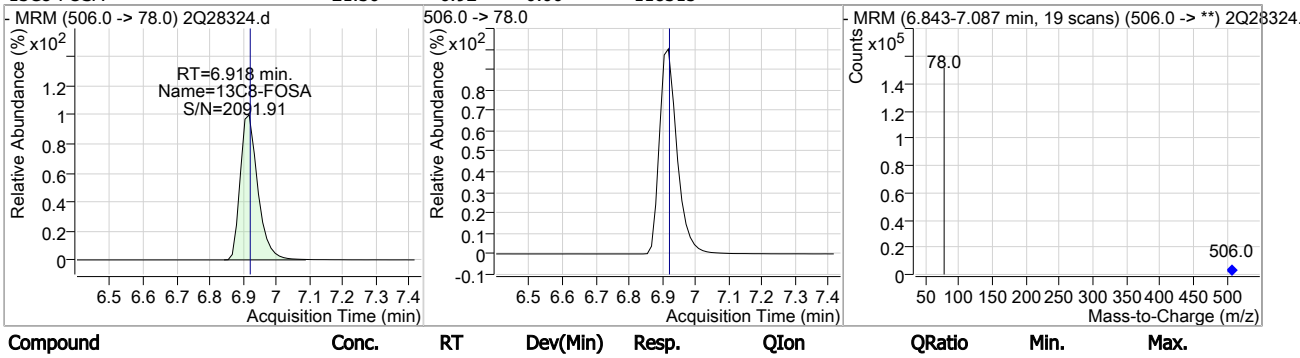
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.66	6.42	0.00	334609				



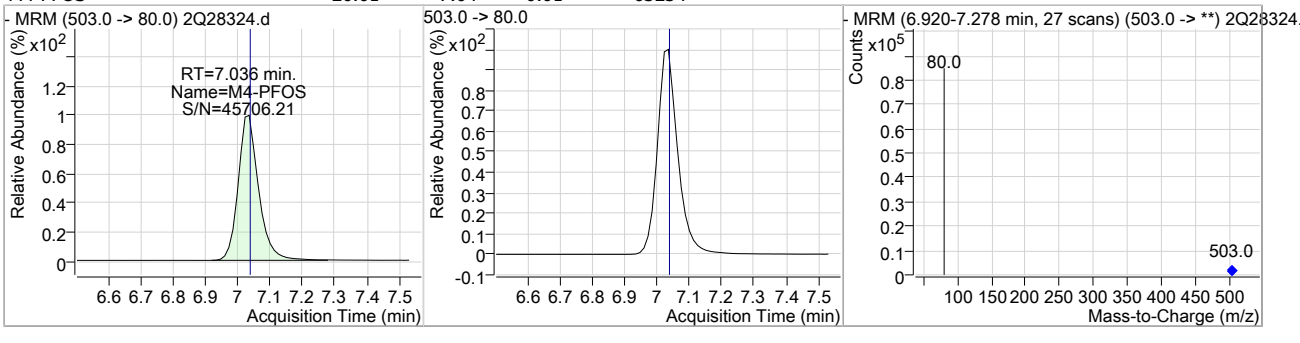
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.12	6.91	0.00	6053	498.0 -> 478.0	4.5	0.0	24.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.36	6.92	0.00	118315				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.04	0.01	63234				



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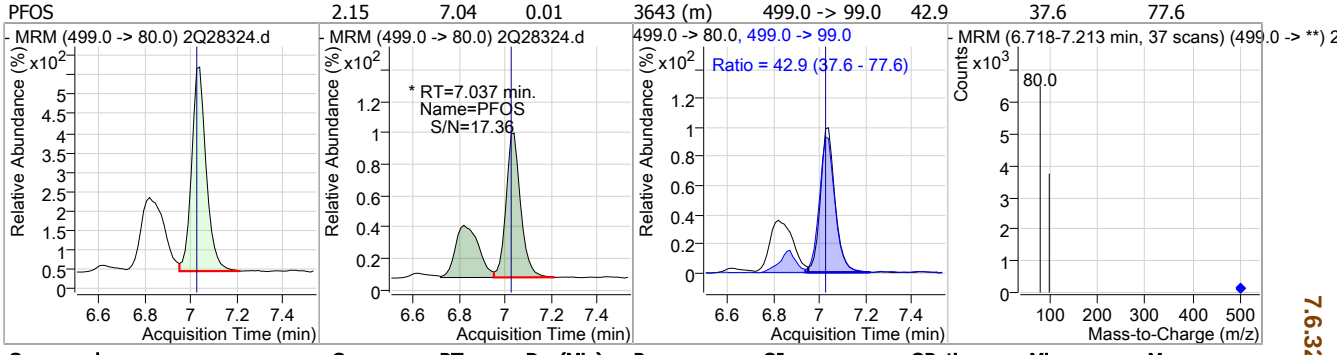
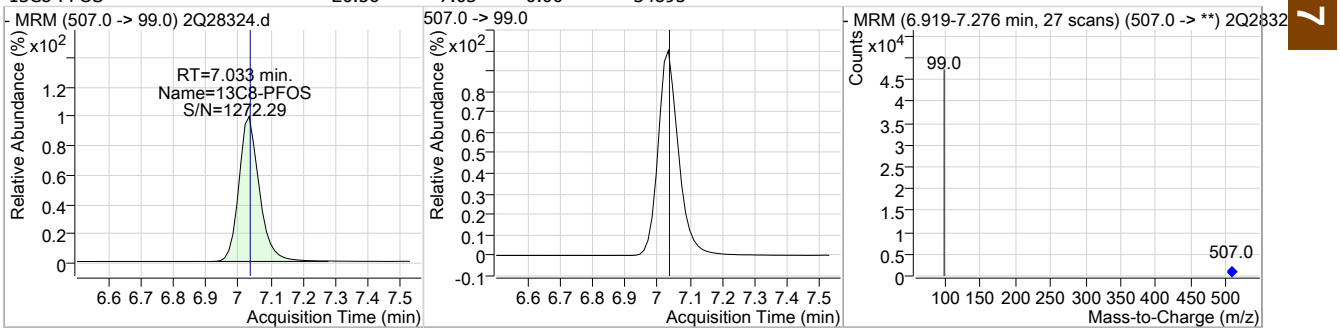
Perfluorinated Compounds by LC/MS/MS

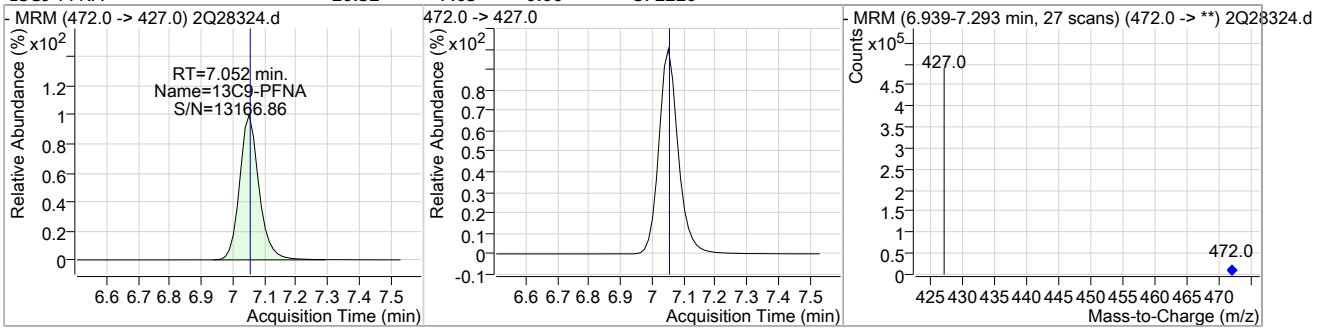
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.15	7.04	0.01	3643 (m)	499.0 -> 99.0	42.9	37.6	77.6



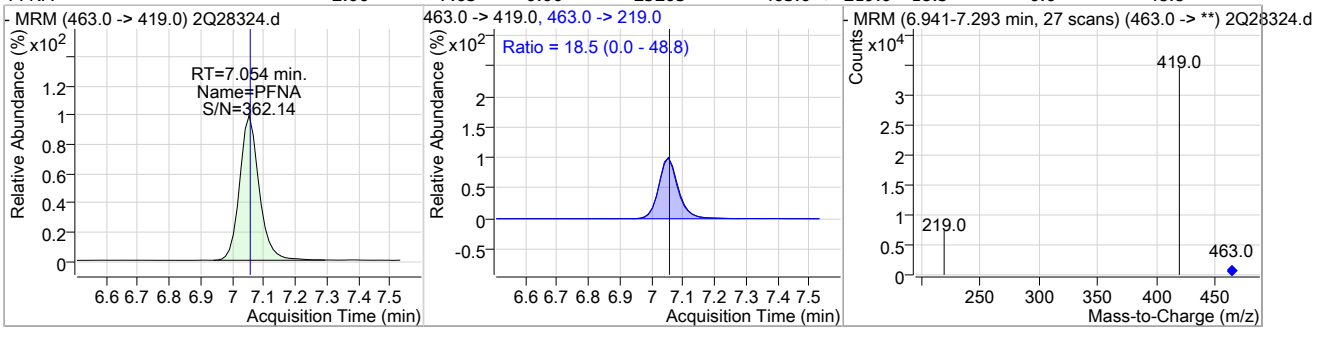
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.56	7.03	0.00	34895				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.52	7.05	0.00	372226				



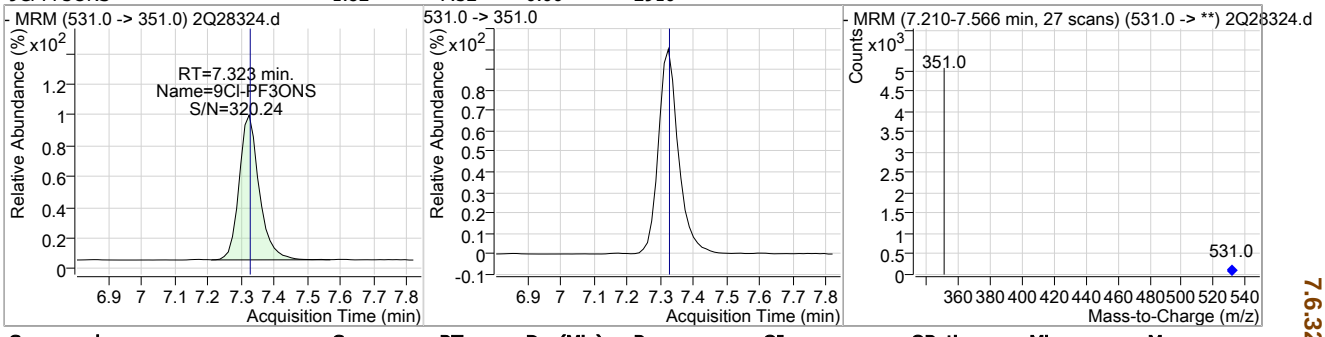
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.06	7.05	0.00	25203	463.0 -> 219.0	18.5	0.0	48.8



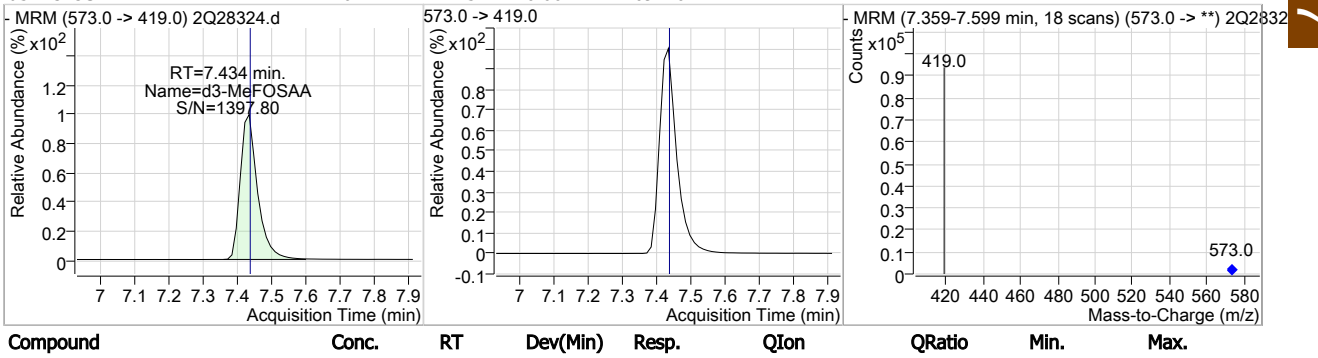
7.6.32

Perfluorinated Compounds by LC/MS/MS

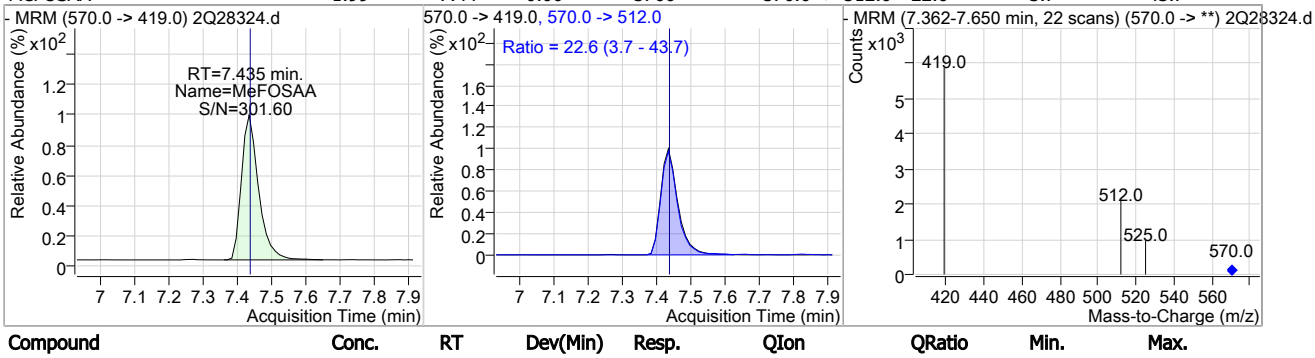
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	1.82	7.32	0.00	2910				



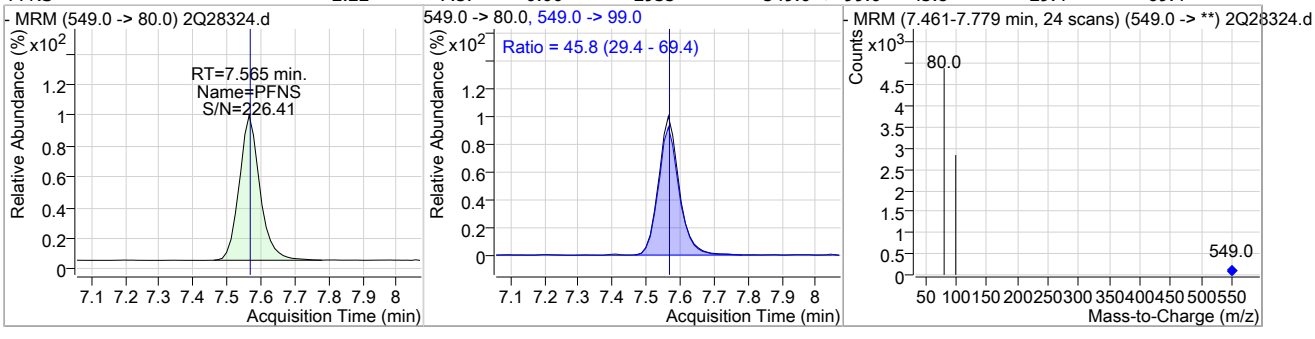
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.42	7.43	0.00	69740				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.99	7.44	0.00	3706	570.0 -> 512.0	22.6	3.7	43.7



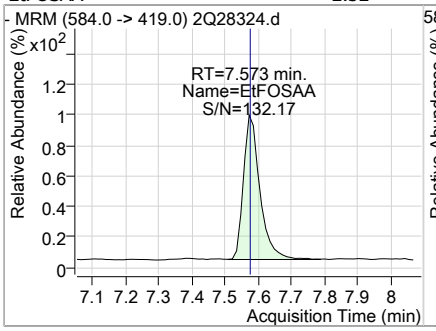
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.22	7.57	0.00	2935	549.0 -> 99.0	45.8	29.4	69.4

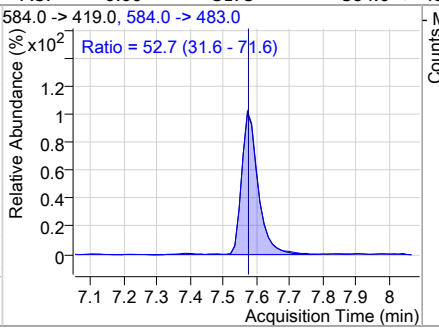


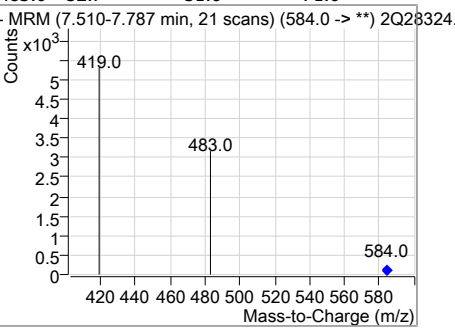
7.6.32

Perfluorinated Compounds by LC/MS/MS

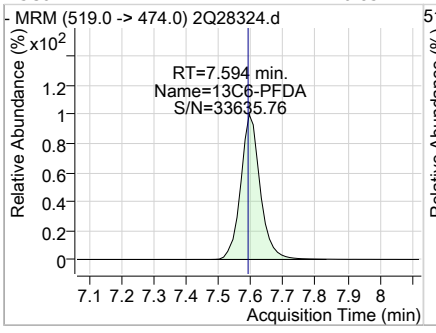
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.32	7.57	0.00	3175	584.0 -> 483.0	52.7	31.6	71.6

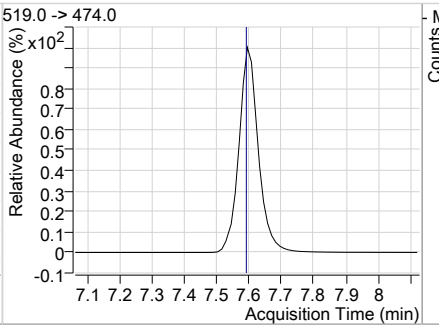


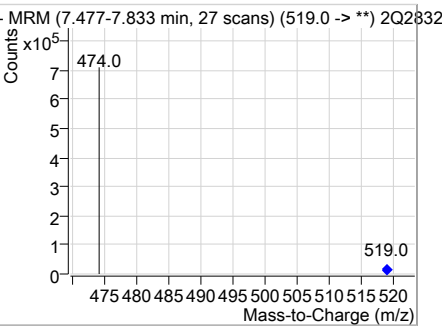




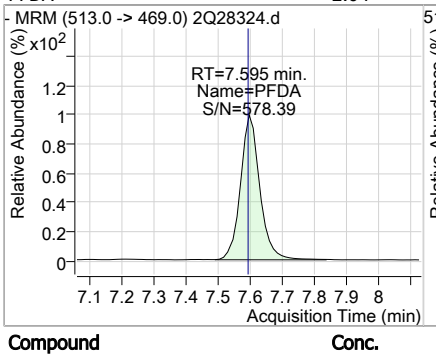
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.85	7.59	0.00	536346				

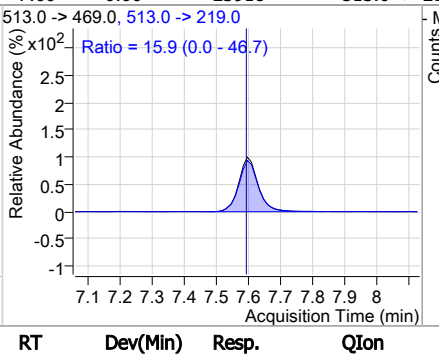


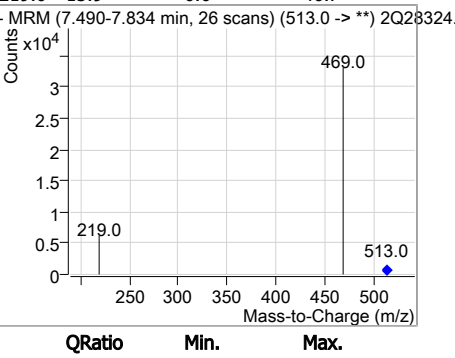




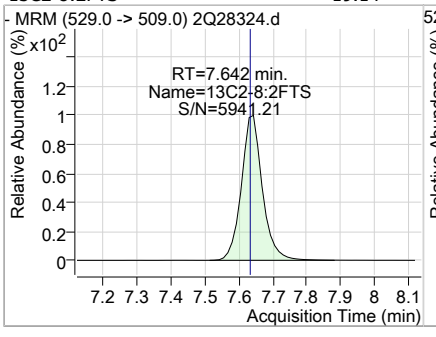
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.04	7.60	0.00	23918	513.0 -> 219.0	15.9	0.0	46.7

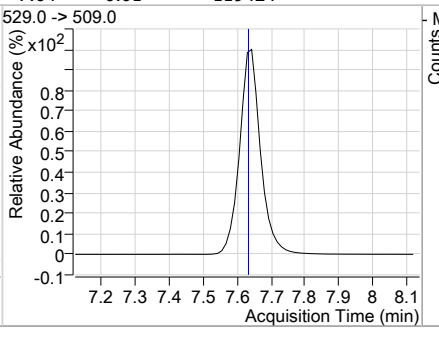


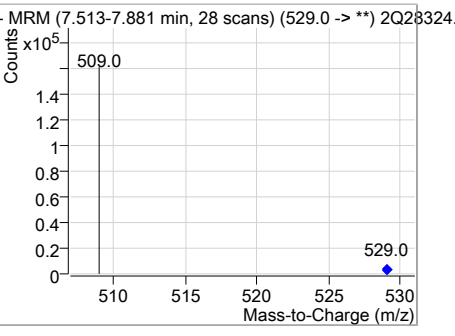




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.14	7.64	0.01	119424				



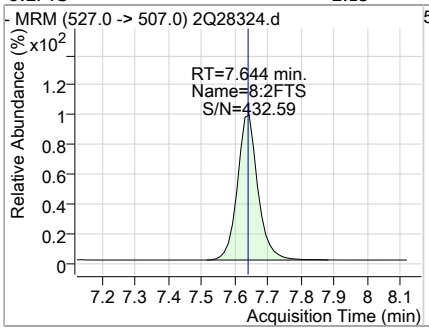


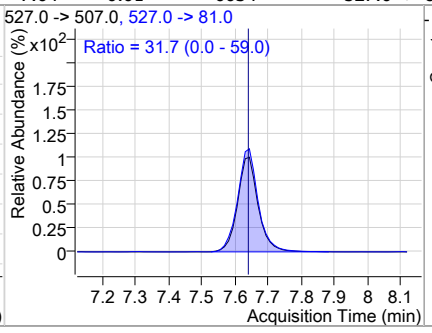


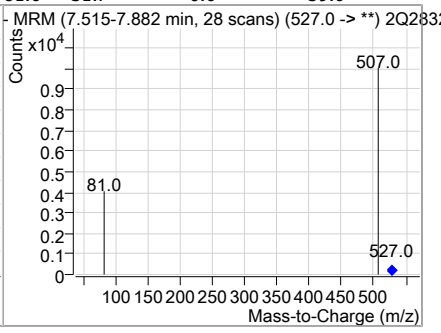
7.6.32

Perfluorinated Compounds by LC/MS/MS

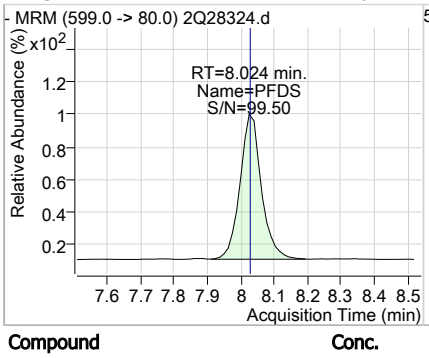
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	2.15	7.64	0.01	6634	527.0 -> 81.0	31.7	0.0	59.0

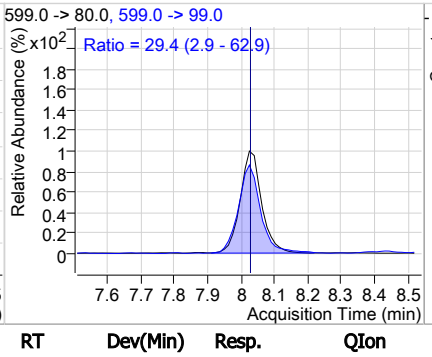


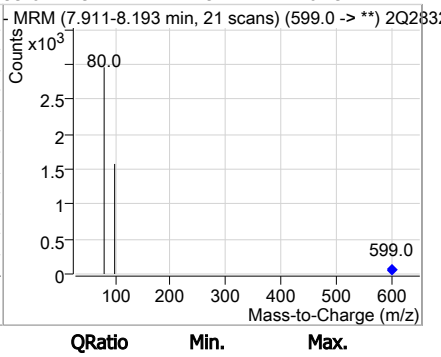




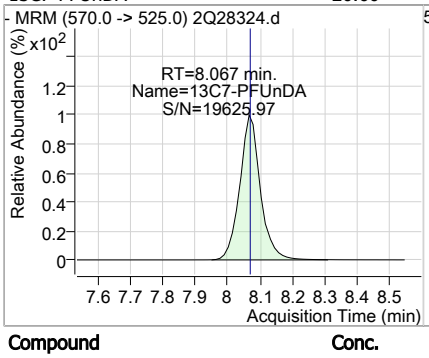
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.28	8.02	0.00	1523	599.0 -> 99.0	29.4	2.9	62.9

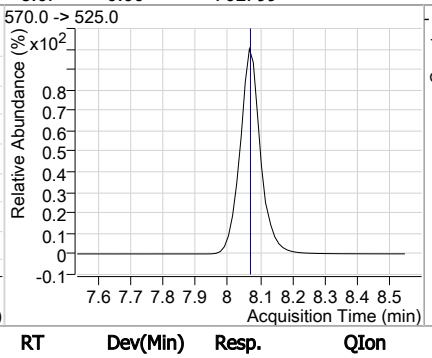


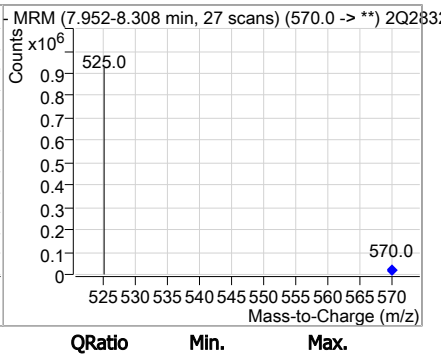




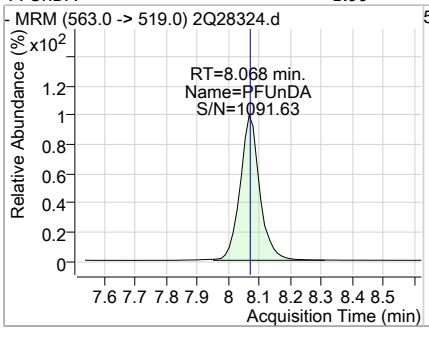
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.60	8.07	0.00	702799				

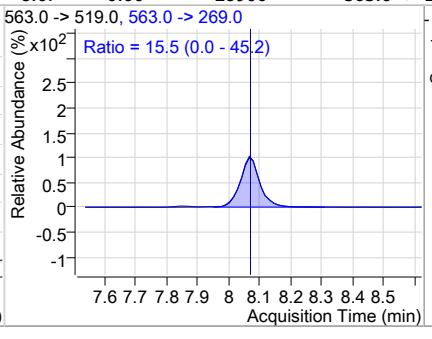


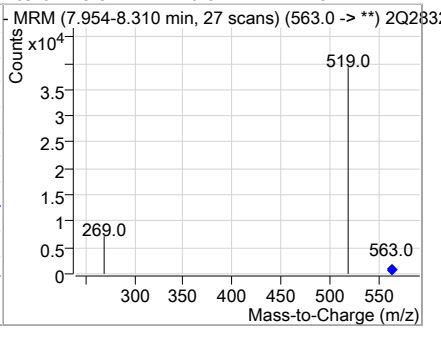




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.99	8.07	0.00	28966	563.0 -> 269.0	15.5	0.0	45.2



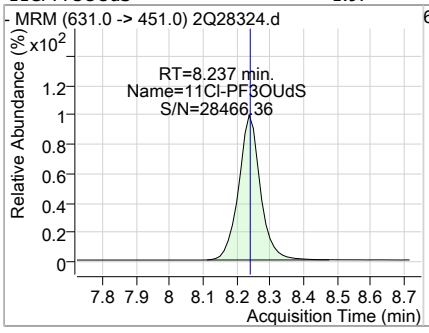


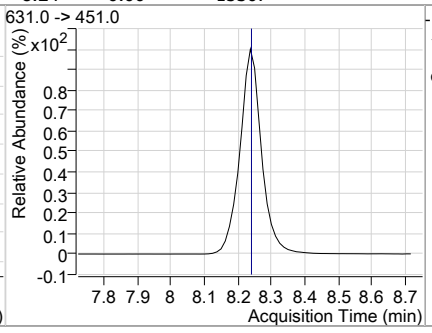


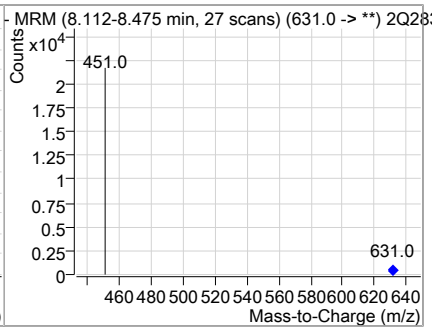
7.6.32

Perfluorinated Compounds by LC/MS/MS

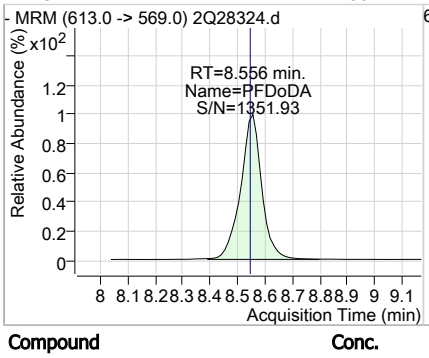
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.97	8.24	0.00	15307				

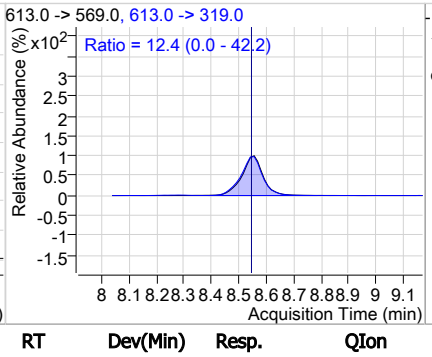


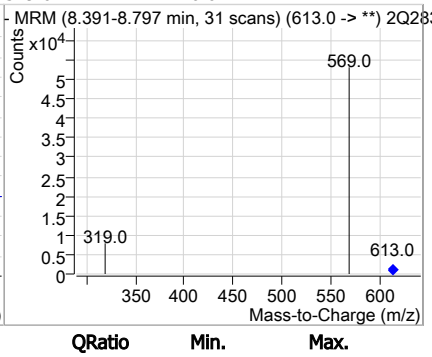




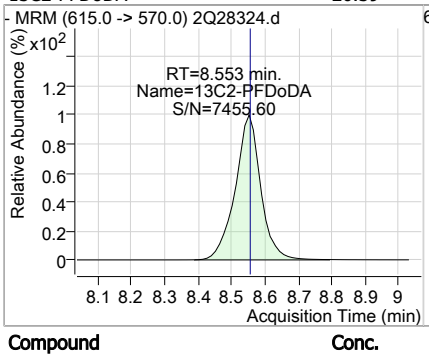
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.00	8.56	0.01	39620	613.0 -> 319.0	12.4	0.0	42.2

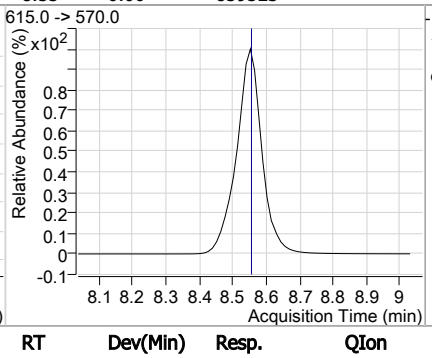


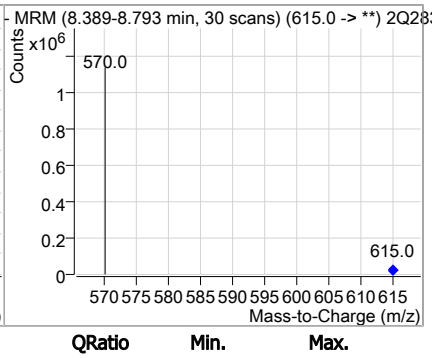




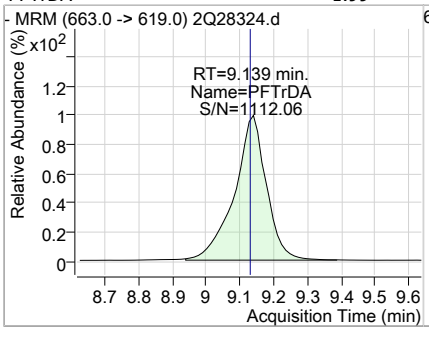
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.39	8.55	0.00	859523				

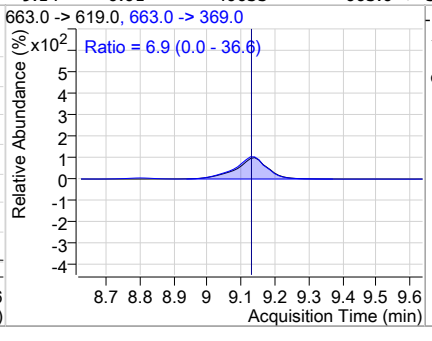


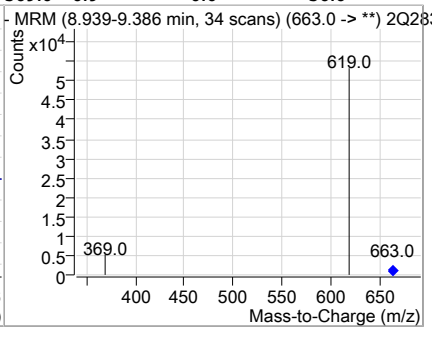




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.99	9.14	0.01	40033	663.0 -> 369.0	6.9	0.0	36.6







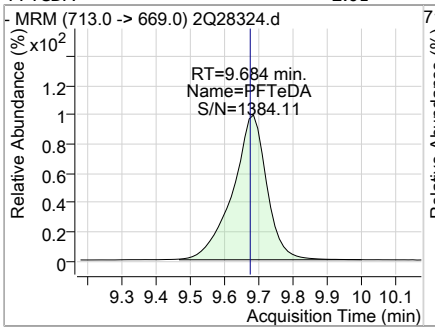
7.6.32

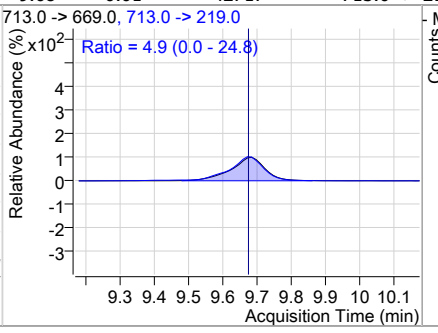
7

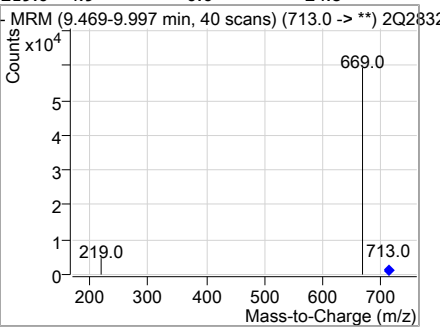
Cal Report: 2Q28324.D

Perfluorinated Compounds by LC/MS/MS

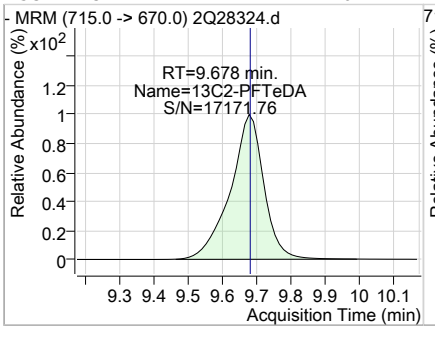
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.01	9.68	0.01	42717	713.0 -> 219.0	4.9	0.0	24.8

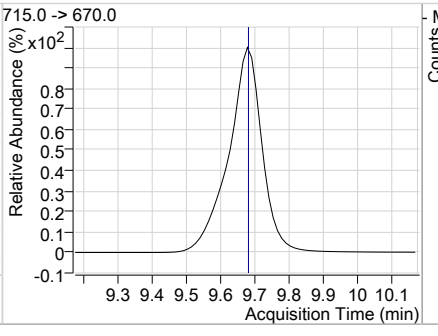


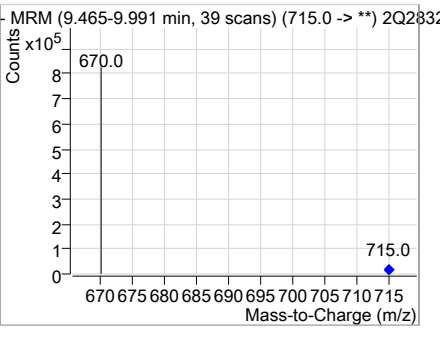




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.11	9.68	0.00	613847				







7.6.32

7

Manual Integration Approval Summary

Sample Number: S2Q450-IC450
Lab FileID: 2Q28324.D
Injection Time: 03/28/19 15:02
Method: EPA 537M BY ID
Analyst approved: 03/29/19 10:18 Mike Eger
Supervisor approved: 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Cal Report: 2Q28325.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28325.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/28/2019 3:18:24 PM
Sample Name : ic450-5
Vial : Vial 5
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q450.batch.bin
Sample Information : op74300,S2Q450,2.00,,,1.0,1,soil

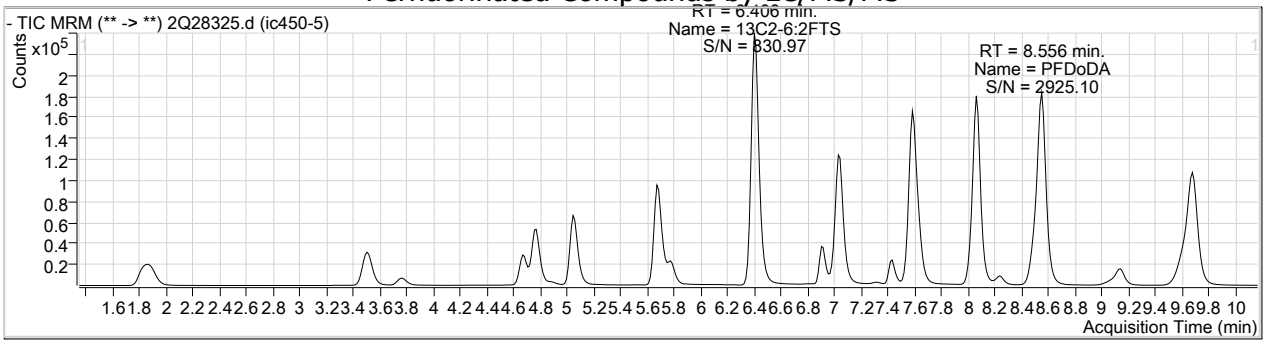
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.411	415.0 -> 370.0	457591	20.00	µg/L	0.000
13C4-PFOS	7.023	503.0 -> 80.0	64334	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	152061	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	136863	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	206239	20.00	µg/L	0.013
M4-PFHpA	5.679	367.0 -> 322.0	314832	20.00	µg/L	0.000
M8-PFOA	6.409	421.0 -> 376.0	333563	20.00	µg/L	-0.013
M9-PFNA	7.052	472.0 -> 427.0	371503	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	536224	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	699277	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	860862	20.00	µg/L	0.000
M2-PFTeDA	9.678	715.0 -> 670.0	620089	20.00	µg/L	0.000
M8-FOSA	6.906	506.0 -> 78.0	117822	20.00	µg/L	-0.013
M3-PFBS	3.767	302.0 -> 99.0	22298	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	25320	20.00	µg/L	0.000
M8-PFOS	7.020	507.0 -> 99.0	34649	20.00	µg/L	-0.013
M2-4:2FTS	4.671	329.0 -> 309.0	102207	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	136994	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	121240	20.00	µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	70245	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	204526	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	101877	19.23	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%		
13C2-6:2FTS	6.406	429.0 -> 409.0	136888	19.59	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C2-8:2FTS	7.630	529.0 -> 509.0	121206	19.42	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.1%		
13C2-PFDoDA	8.553	615.0 -> 570.0	861220	20.43	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C2-PFTeDA	9.678	715.0 -> 670.0	616794	20.20	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C3-PFBS	3.767	302.0 -> 99.0	22220	20.18	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C3-PFHxS	5.723	402.0 -> 99.0	25285	20.42	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C4-PFBA	1.865	217.0 -> 172.0	151389	20.26	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C4-PFHpA	5.679	367.0 -> 322.0	314379	20.43	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C5-PFHxA	4.776	318.0 -> 273.0	205951	20.30	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C5-PFPeA	3.511	268.0 -> 223.0	137026	20.34	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C6-PFDA	7.594	519.0 -> 474.0	536069	20.83	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

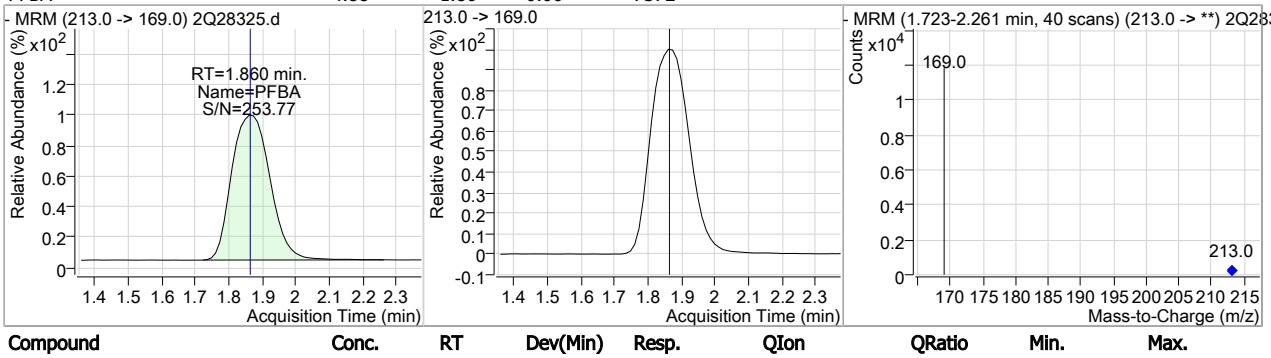
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C7-PFUnDA	8.067	570.0 -> 525.0	699773	20.51 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C8-FOSA	6.906	506.0 -> 78.0	118541	21.40 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C8-PFOA	6.409	421.0 -> 376.0	333336	20.58 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C8-PFOS	7.020	507.0 -> 99.0	34652	20.42 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C9-PFNA	7.052	472.0 -> 427.0	371439	20.48 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
d3-MeFOSAA	7.434	573.0 -> 419.0	70230	20.57 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
M2-PFOA	6.411	415.0 -> 370.0	457836	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	64360	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	204526	105.84 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 105.8%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	14773	4.98 µg/L		98
6:2FTS	6.407	427.0 -> 407.0	17136	4.95 µg/L		98
8:2FTS	7.631	527.0 -> 507.0	16124	5.15 µg/L		100
EtFOSAA	7.573	584.0 -> 419.0	7454	5.40 µg/L		96
FOSA	6.910	498.0 -> 78.0	13921	4.90 µg/L		100
MeFOSAA	7.435	570.0 -> 419.0	8679	4.63 µg/L		100
PFBA	1.860	213.0 -> 169.0	7372	4.88 µg/L		100
PFBS	3.771	299.0 -> 80.0	8962	4.95 µg/L		99
PFDA	7.595	513.0 -> 469.0	56064	4.77 µg/L		99
PFDoDA	8.556	613.0 -> 569.0	95864	4.83 µg/L		100
PFDS	8.024	599.0 -> 80.0	3340	5.04 µg/L		97
PFHpA	5.681	363.0 -> 319.0	66410	4.81 µg/L		100
PFHpS	6.417	449.0 -> 80.0	6632	5.08 µg/L		98
PFHxA	4.778	313.0 -> 269.0	17372	4.82 µg/L		99
PFHxS	5.726	399.0 -> 80.0	7192	4.79 µg/L	m	98
PFNA	7.054	463.0 -> 419.0	59017	4.83 µg/L		100
PFNS	7.565	549.0 -> 80.0	6733	5.14 µg/L		98
PFOA	6.412	413.0 -> 369.0	43098	4.82 µg/L		100
PFOS	7.024	499.0 -> 80.0	8257	4.91 µg/L	m	82
PFPeA	3.515	263.0 -> 219.0	29499	4.86 µg/L		100
PFPeS	4.883	349.0 -> 80.0	6195	4.89 µg/L		98
PFTeDA	9.684	713.0 -> 669.0	102041	4.78 µg/L		100
PFTrDA	9.139	663.0 -> 619.0	96581	4.79 µg/L		100
PFUnDA	8.068	563.0 -> 519.0	69967	4.82 µg/L		99
11Cl-PF3OUdS	8.237	631.0 -> 451.0	36263	4.66 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	7042	4.41 µg/L		100
ADONA	5.778	377.0 -> 251.0	74745	4.53 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	59854	24.42 µg/L		99

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

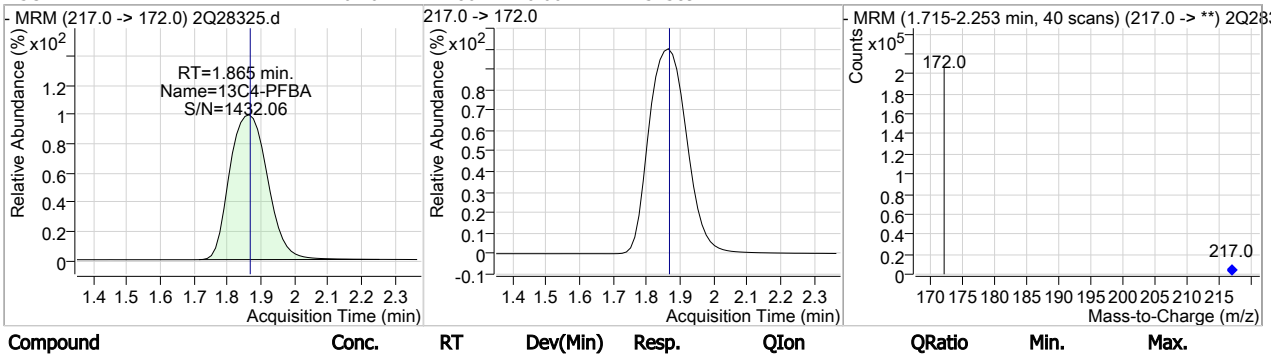
Perfluorinated Compounds by LC/MS/MS



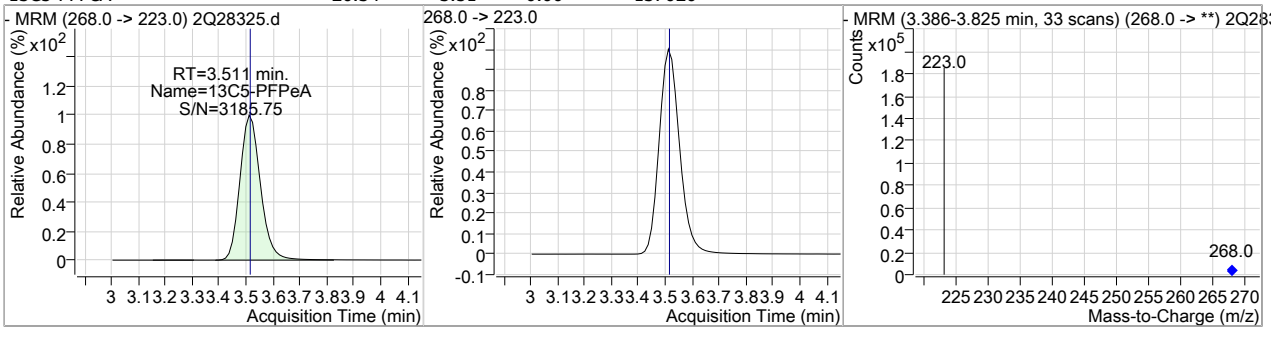
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	4.88	1.86	0.00	7372				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.26	1.86	0.00	151389				

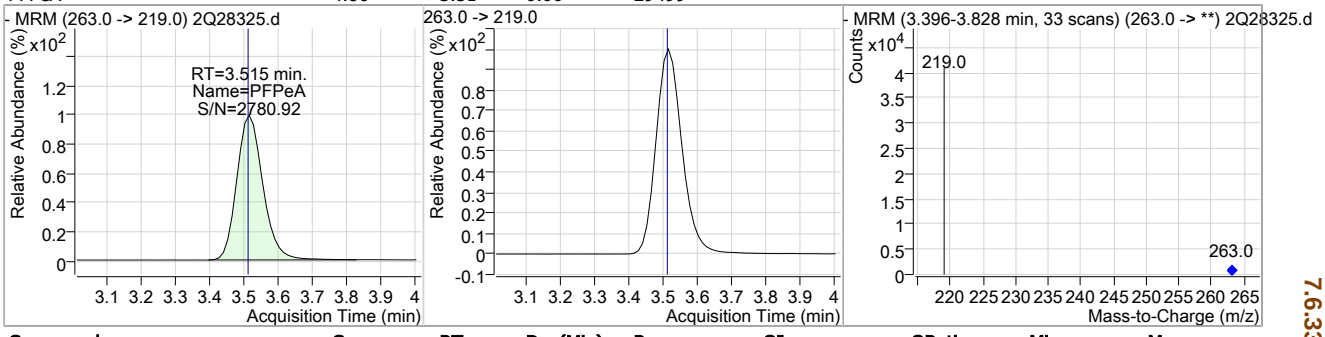


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.34	3.51	0.00	137026				

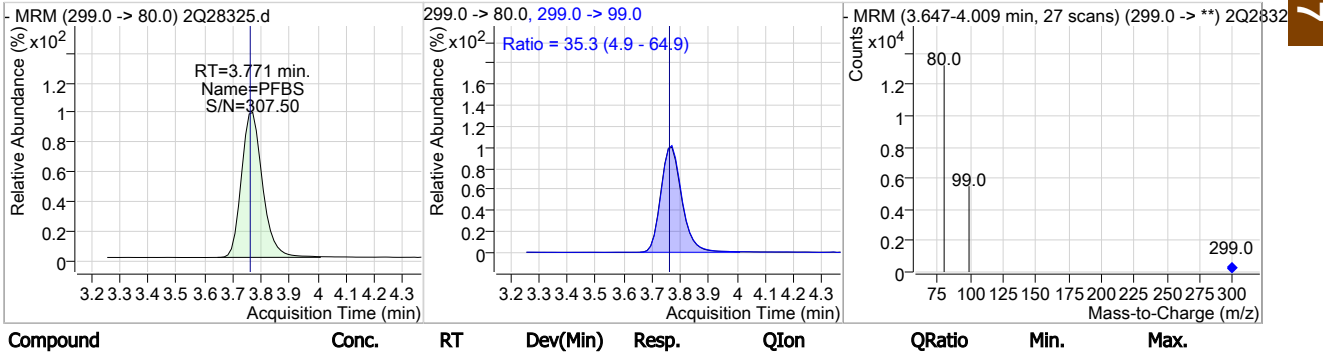


Perfluorinated Compounds by LC/MS/MS

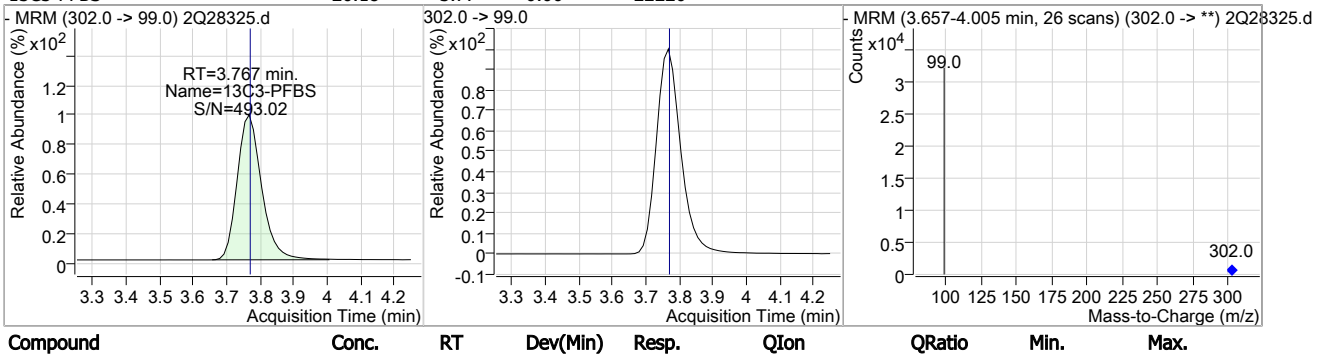
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.86	3.51	0.00	29499				



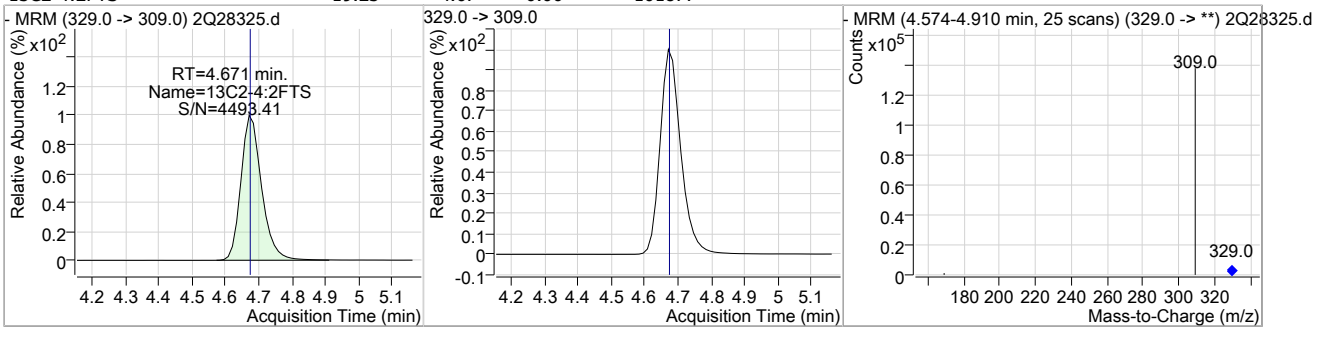
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.95	3.77	0.01	8962	299.0 -> 99.0	35.3	4.9	64.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.18	3.77	0.00	22220				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.23	4.67	0.00	101877				



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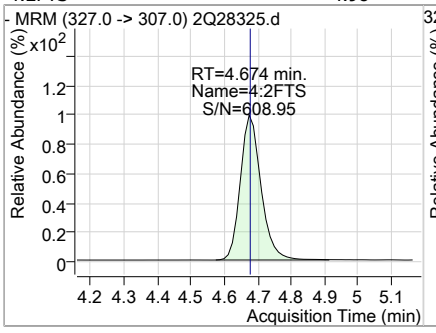
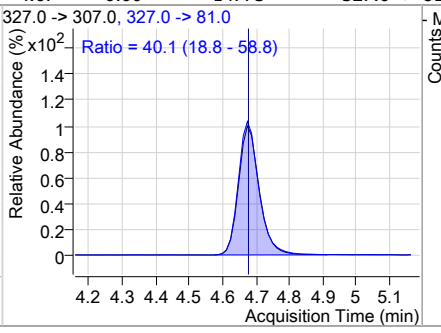
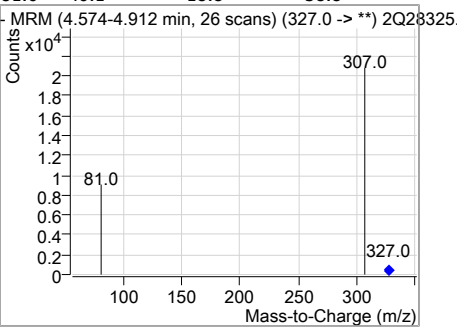
Perfluorinated Compounds by LC/MS/MS

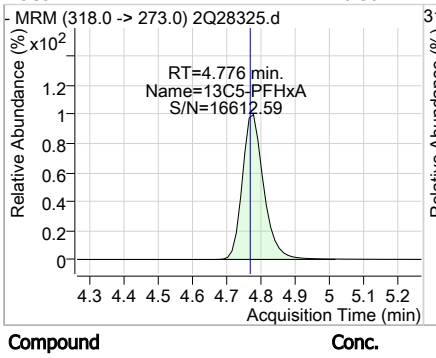
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	4.98	4.67	0.00	14773	327.0 -> 81.0	40.1	18.8	58.8

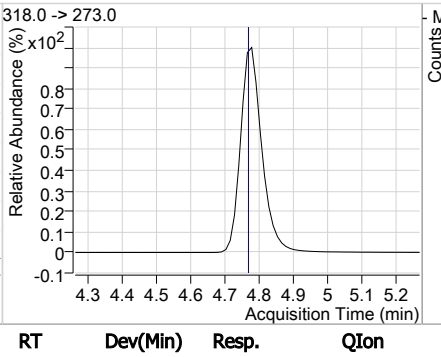


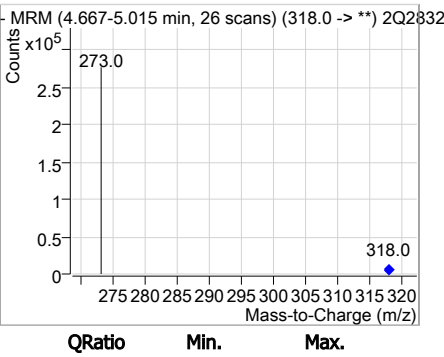




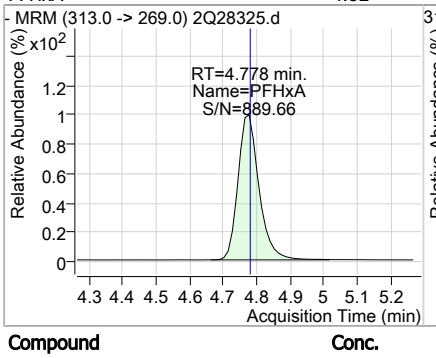
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.30	4.78	0.01	205951				

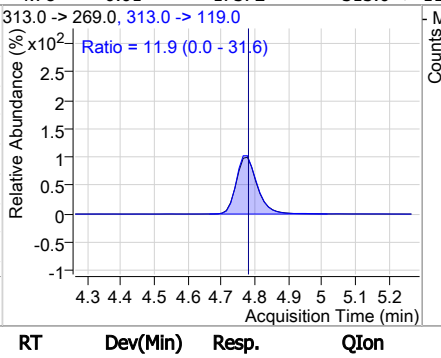


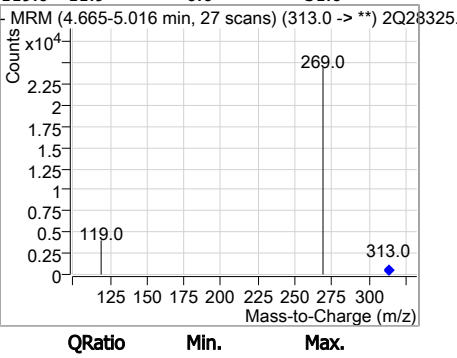




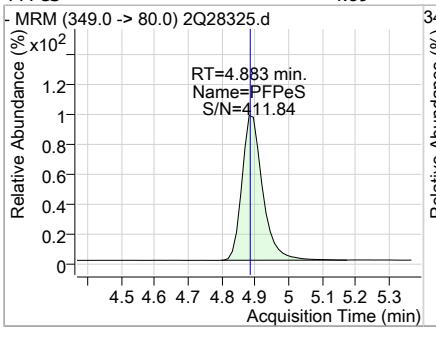
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.82	4.78	0.01	17372	313.0 -> 119.0	11.9	0.0	31.6

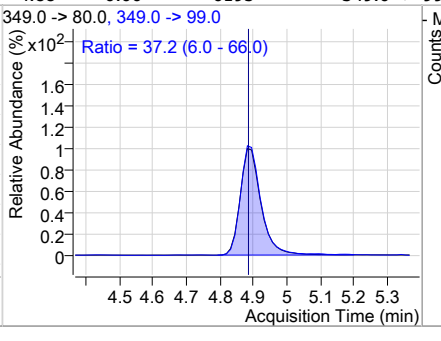


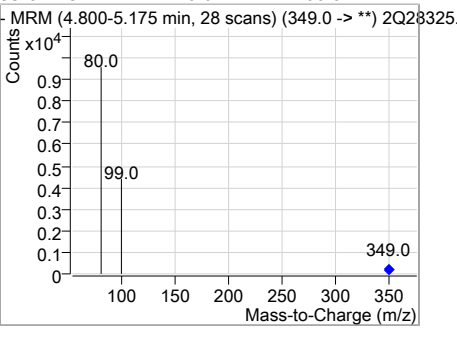




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	4.89	4.88	0.00	6195	349.0 -> 99.0	37.2	6.0	66.0







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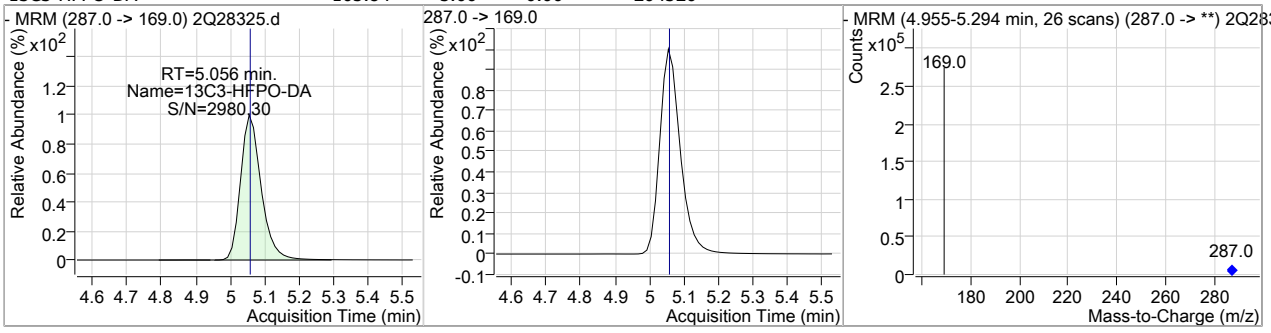
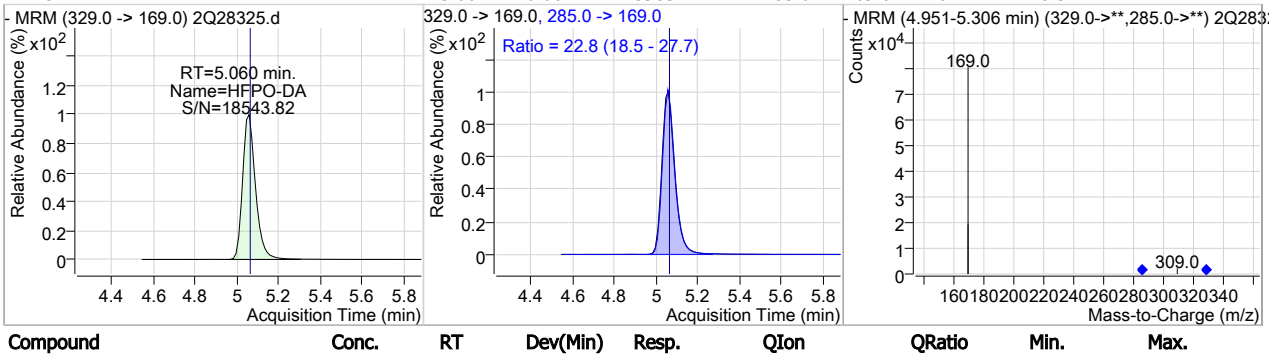
Perfluorinated Compounds by LC/MS/MS

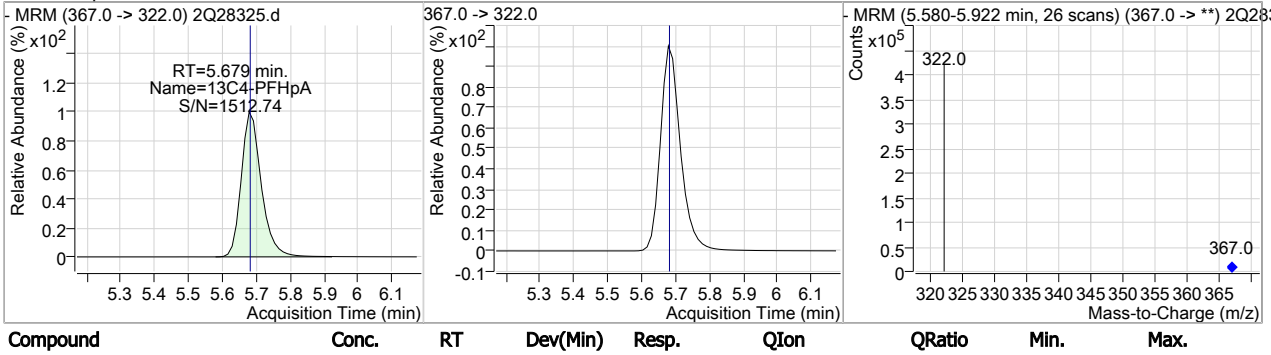
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	105.84	5.06	0.00	204526				



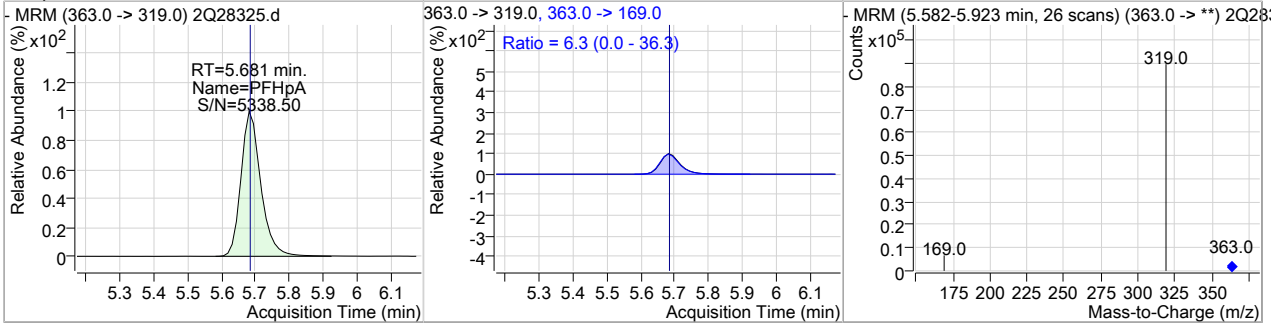
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	24.42	5.06	0.00	59854	285.0 -> 169.0	22.8	18.5	27.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.43	5.68	0.00	314379				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	4.81	5.68	0.00	66410	363.0 -> 169.0	6.3	0.0	36.3



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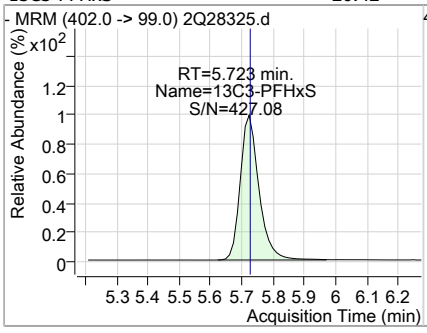
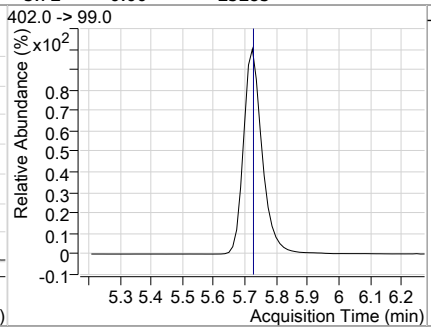
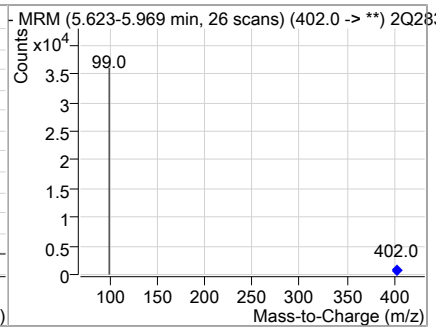
Perfluorinated Compounds by LC/MS/MS

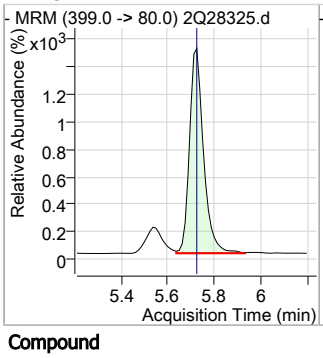
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.42	5.72	0.00	25285				

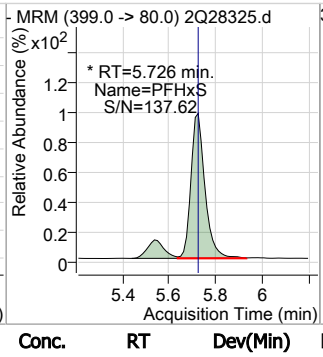


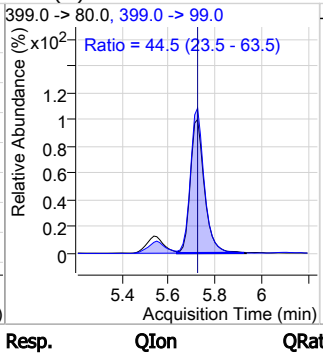


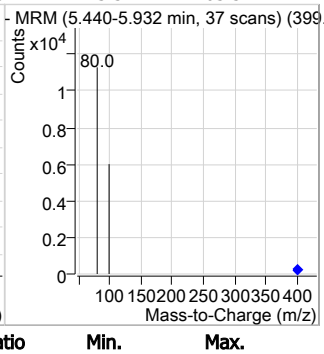


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.79	5.73	0.00	7192 (m)	399.0 -> 99.0	44.5	23.5	63.5

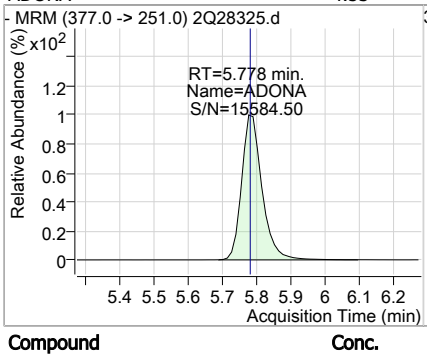


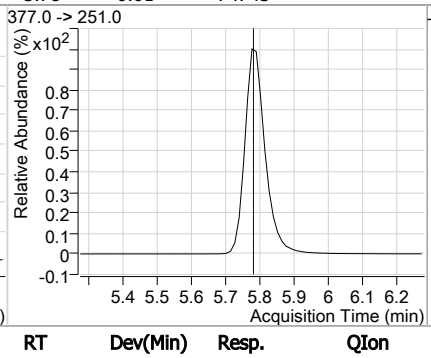


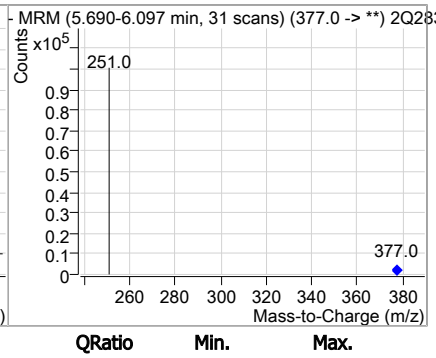




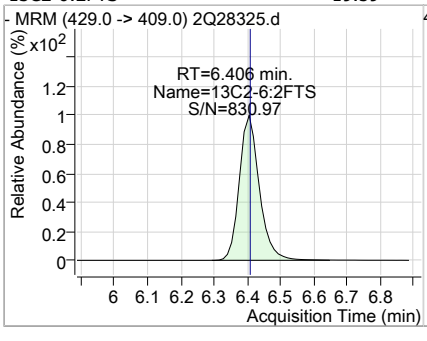
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.53	5.78	-0.01	74745				

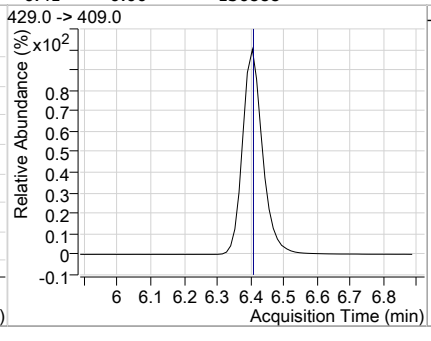


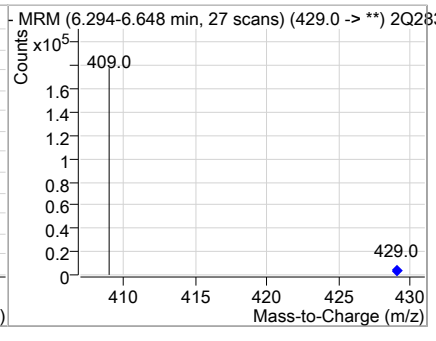




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.59	6.41	0.00	136888				

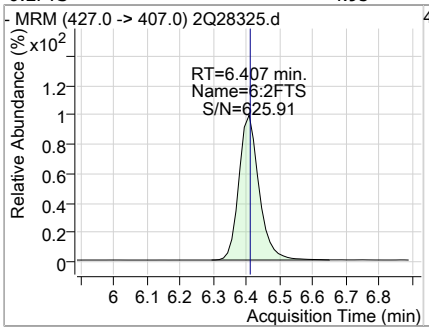


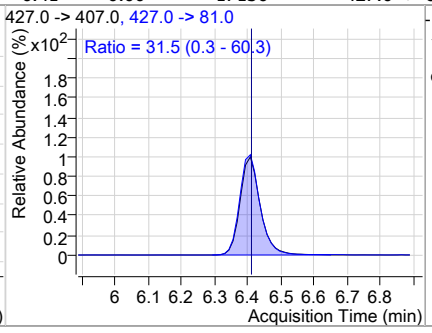


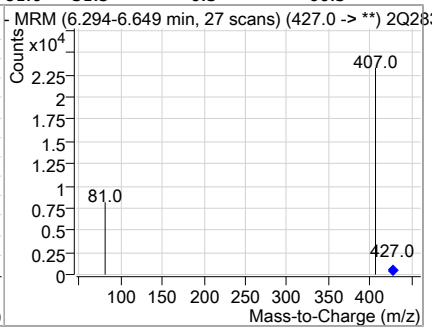


Perfluorinated Compounds by LC/MS/MS

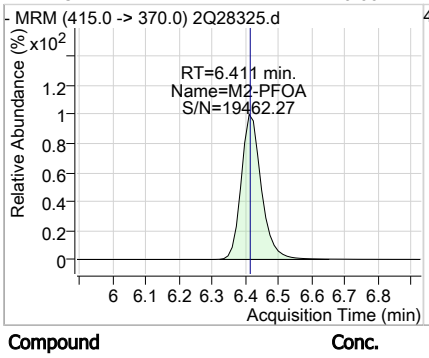
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	4.95	6.41	0.00	17136	427.0 -> 81.0	31.5	0.3	60.3

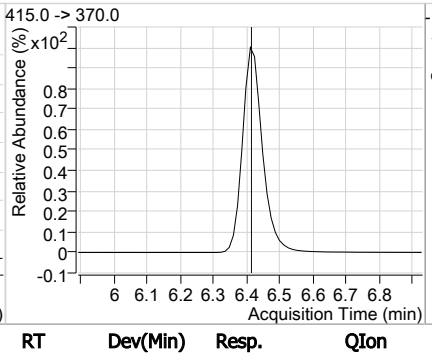


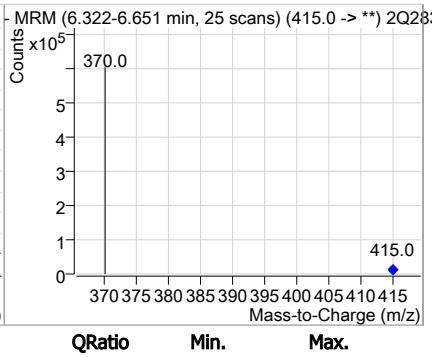




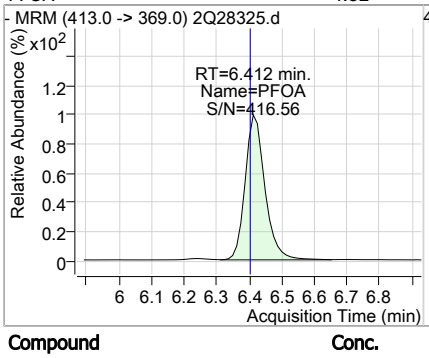
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	457836				

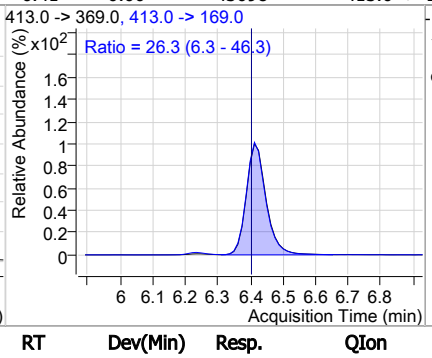


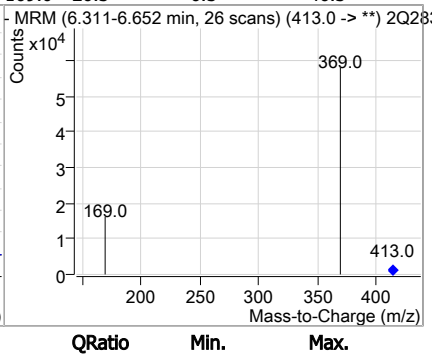




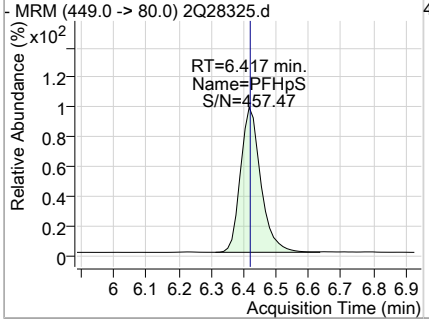
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.82	6.41	0.00	43098	413.0 -> 169.0	26.3	6.3	46.3

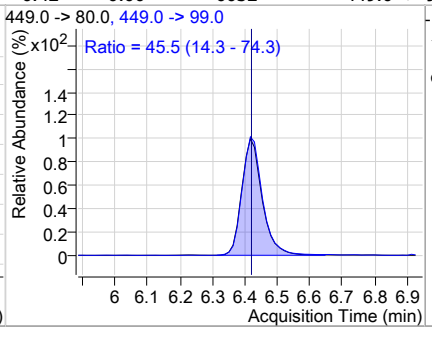


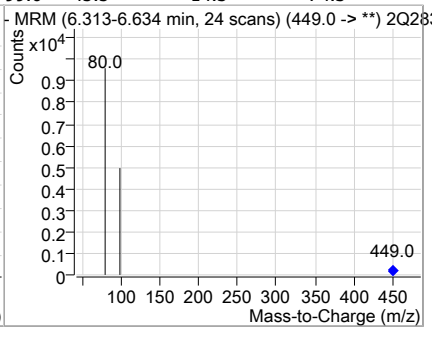




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	5.08	6.42	0.00	6632	449.0 -> 99.0	45.5	14.3	74.3



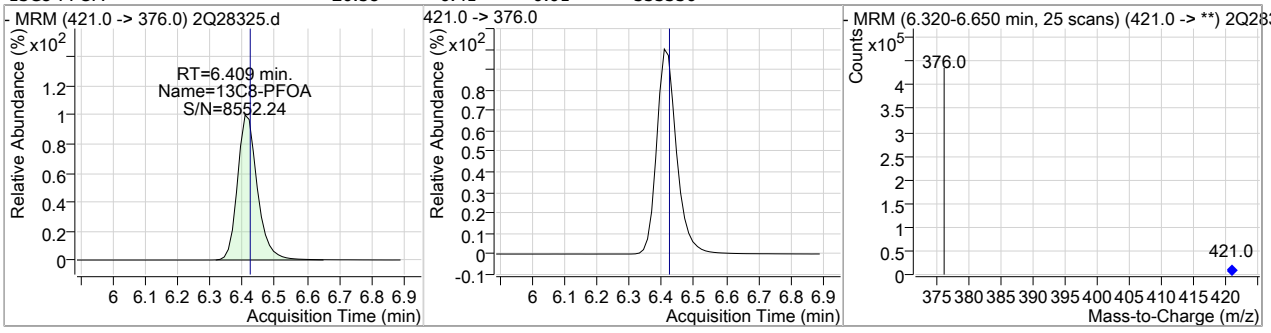




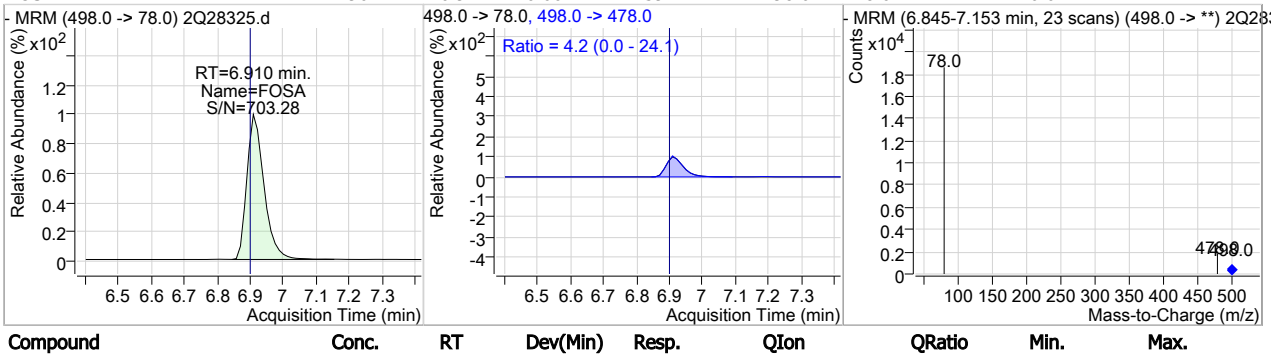
7.6.33

Perfluorinated Compounds by LC/MS/MS

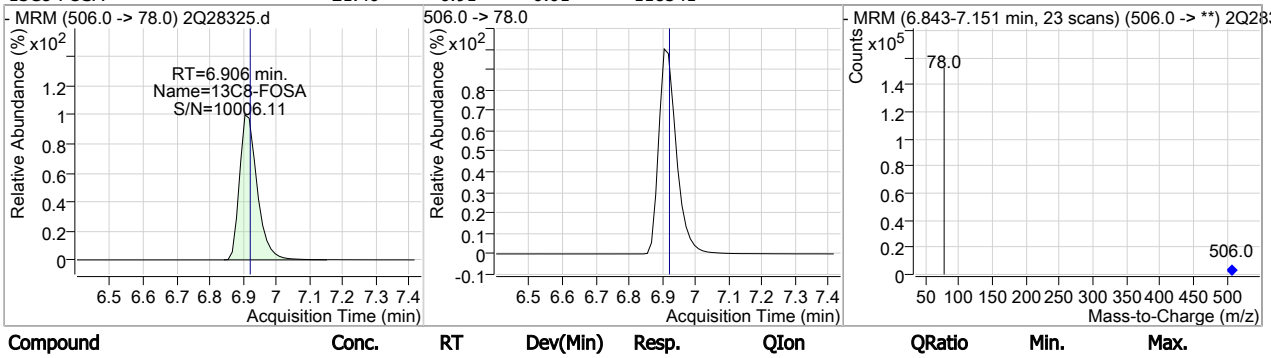
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.58	6.41	-0.01	333336				



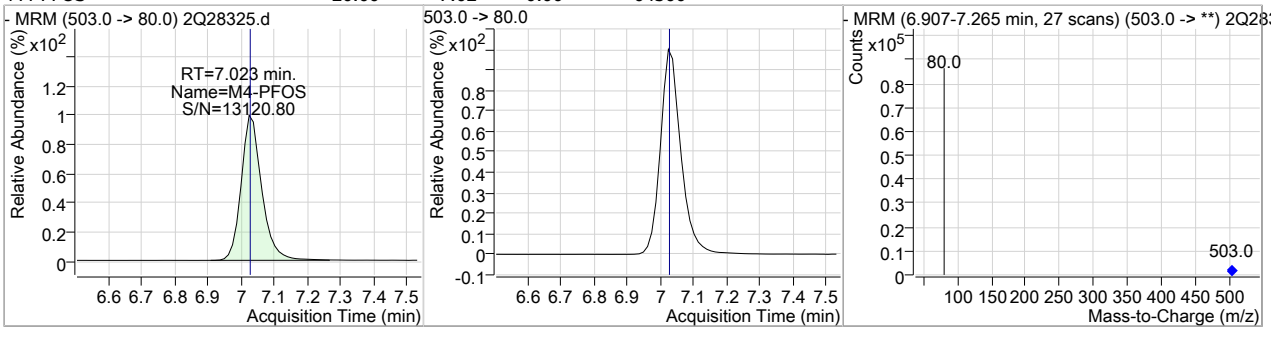
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.90	6.91	0.00	13921	498.0 -> 478.0	4.2	0.0	24.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.40	6.91	-0.01	118541				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.02	0.00	64360				

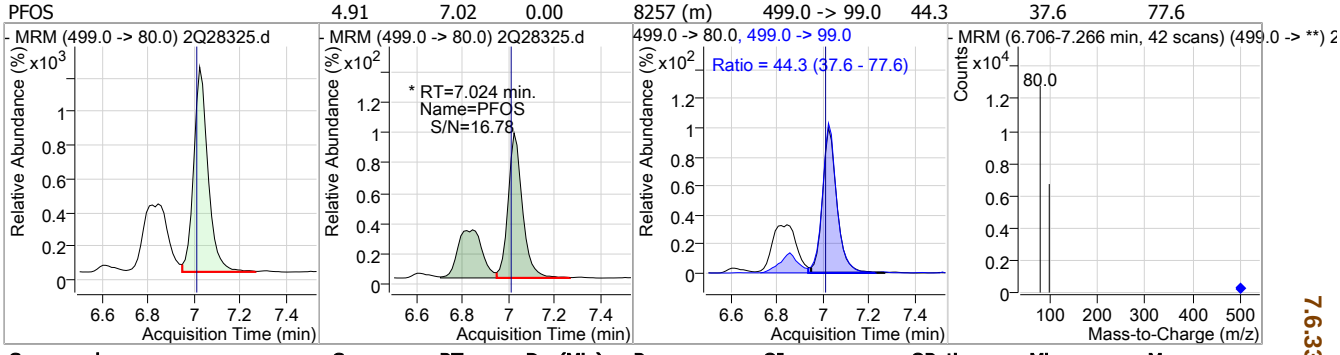


7.6.33

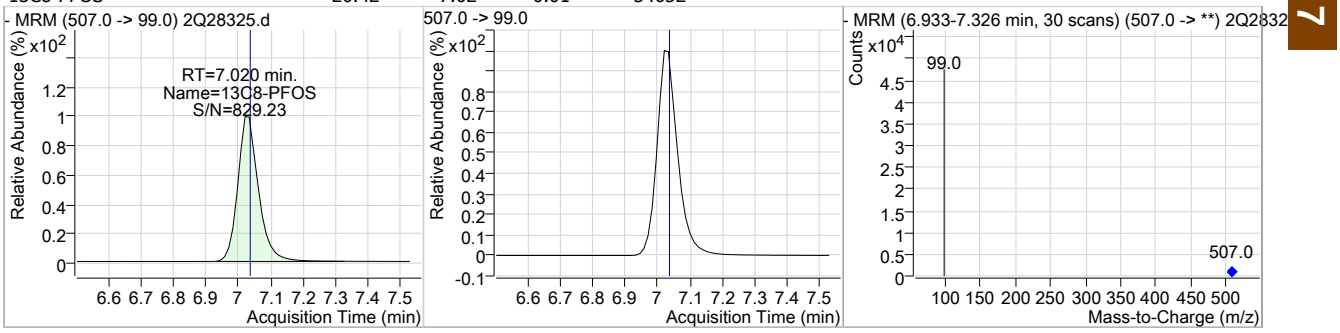
Cal Report: 2Q28325.D

Perfluorinated Compounds by LC/MS/MS

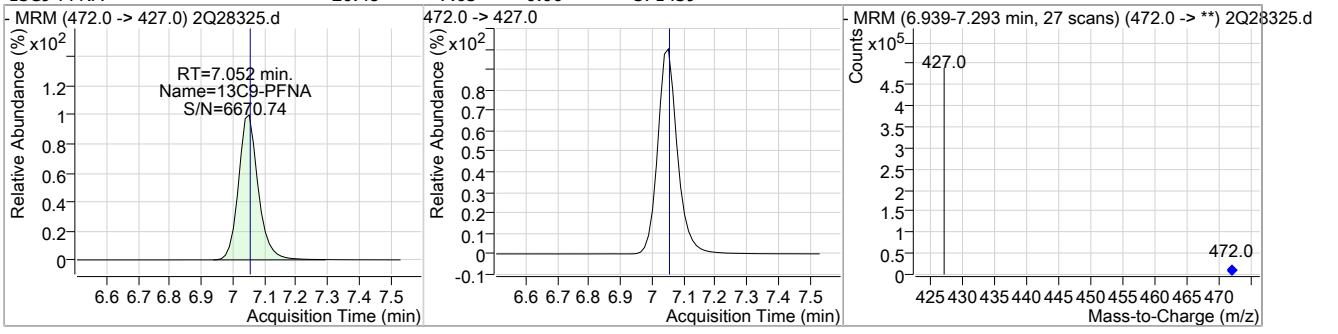
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.91	7.02	0.00	8257 (m)	499.0 -> 99.0	44.3	37.6	77.6



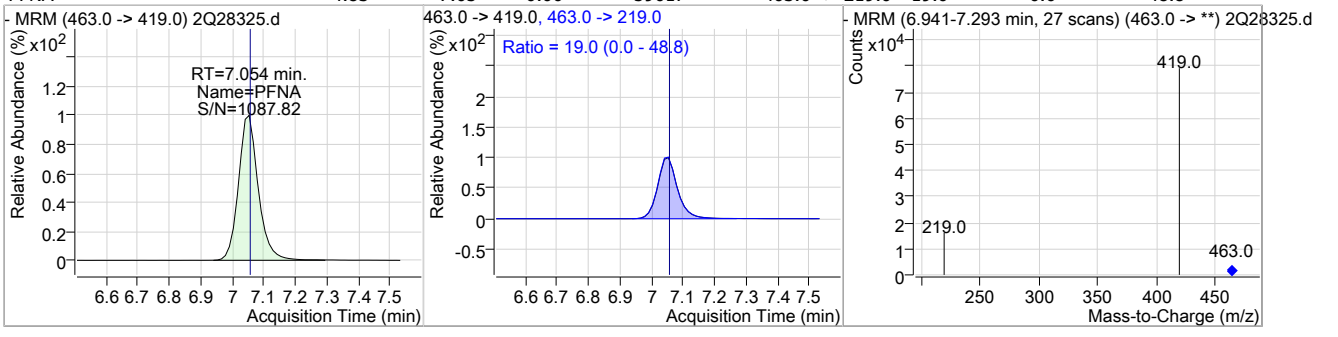
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.42	7.02	-0.01	34652				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.48	7.05	0.00	371439				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	4.83	7.05	0.00	59017	463.0 -> 219.0	19.0	0.0	48.8

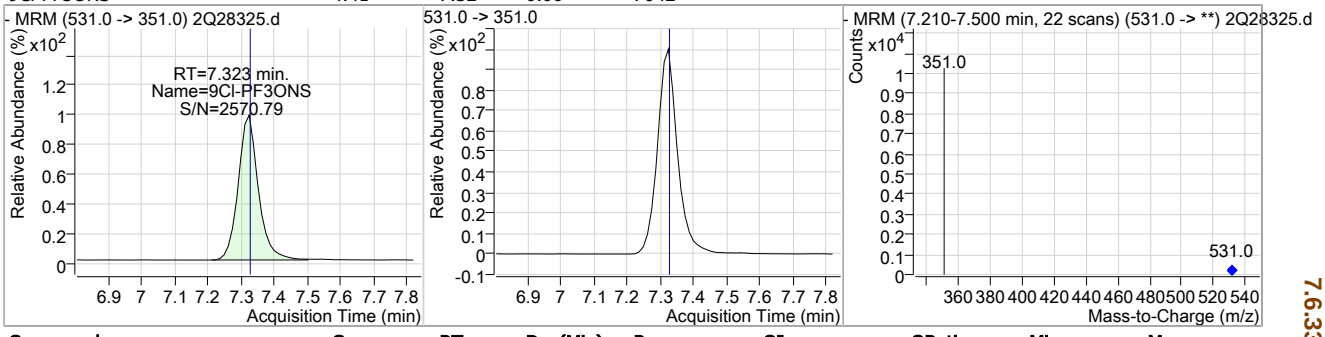


7.6.33

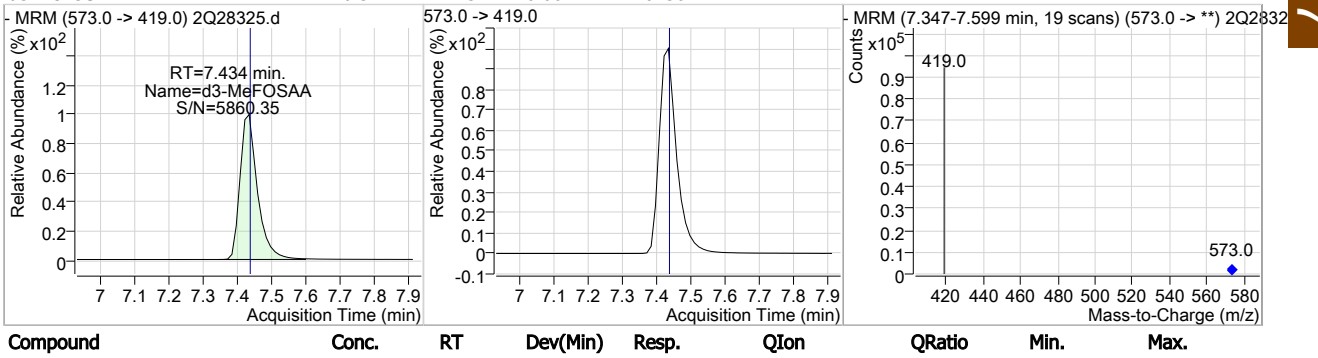
7

Perfluorinated Compounds by LC/MS/MS

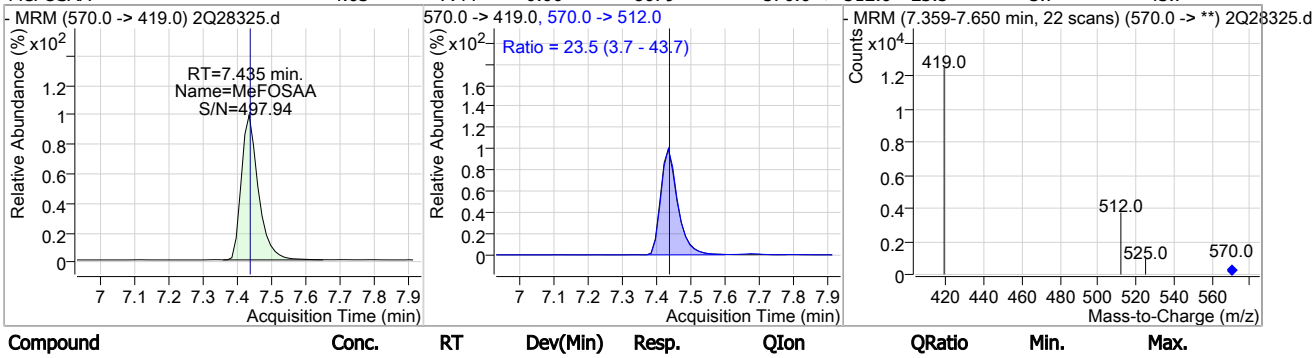
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.41	7.32	0.00	7042				



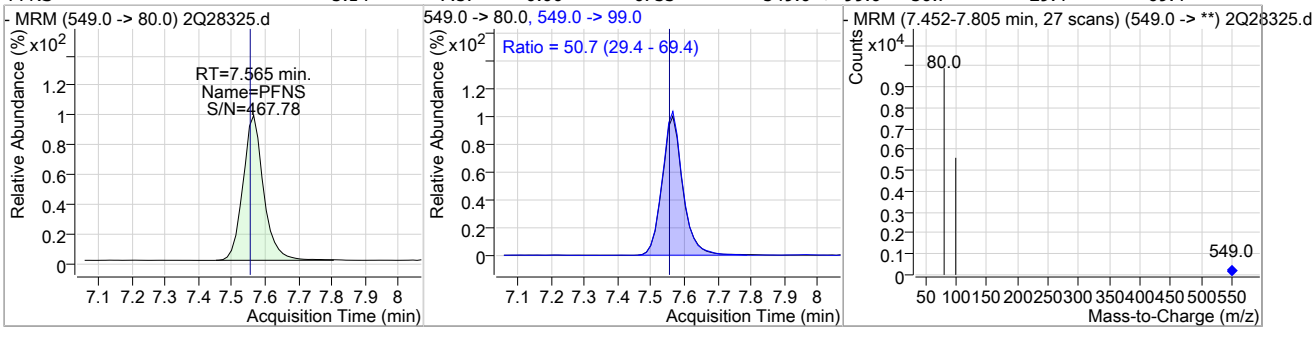
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.57	7.43	0.00	70230				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.63	7.44	0.00	8679	570.0 -> 512.0	23.5	3.7	43.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	5.14	7.57	0.00	6733	549.0 -> 99.0	50.7	29.4	69.4

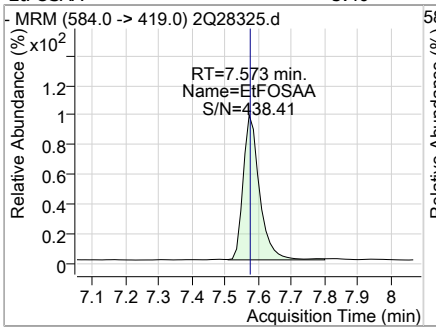


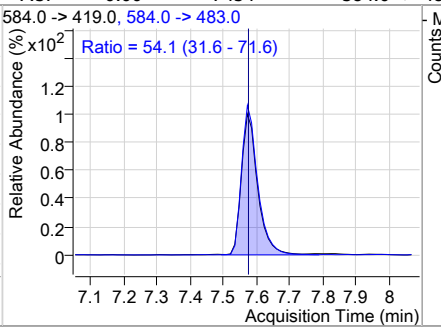
7.6.33

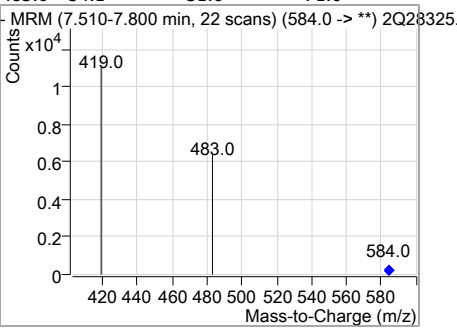
7

Perfluorinated Compounds by LC/MS/MS

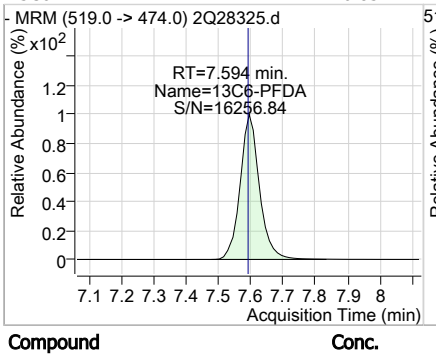
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	5.40	7.57	0.00	7454	584.0 -> 483.0	54.1	31.6	71.6

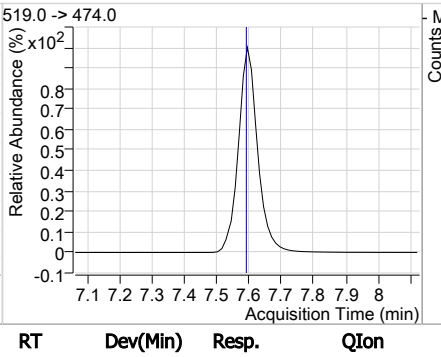


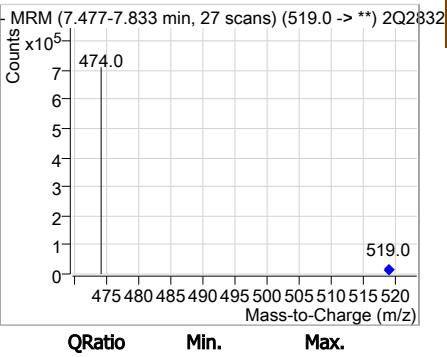




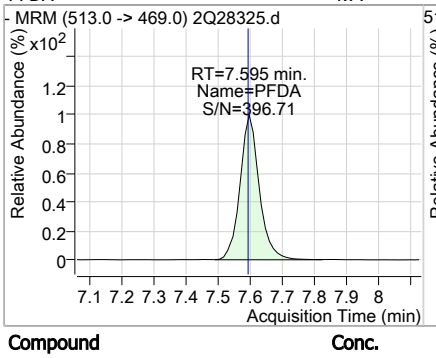
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.83	7.59	0.00	536069				

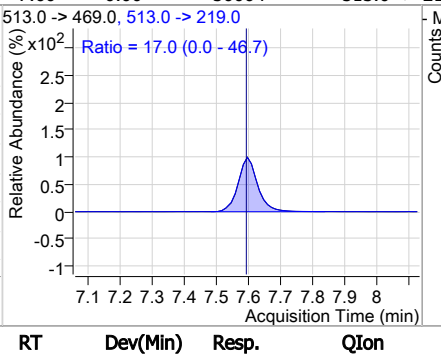


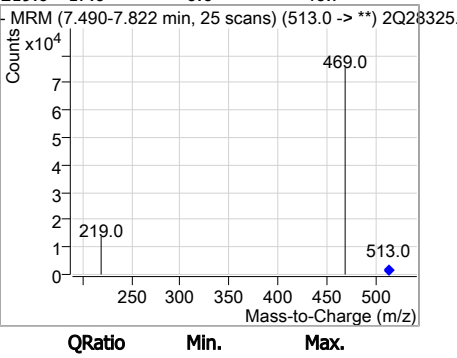




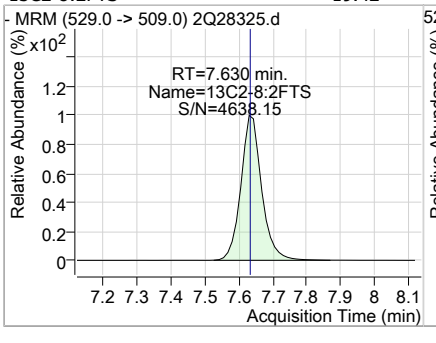
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.77	7.60	0.00	56064	513.0 -> 219.0	17.0	0.0	46.7

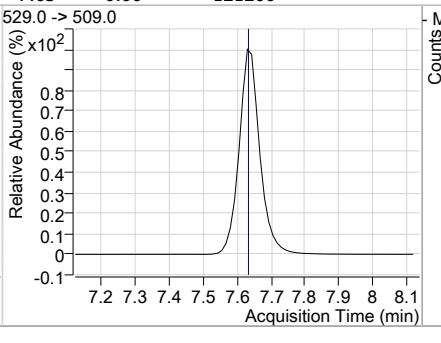


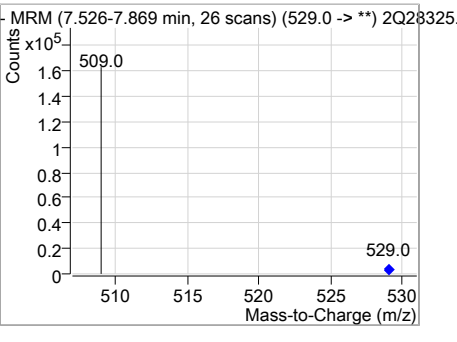




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.42	7.63	0.00	121206				







7.6.33

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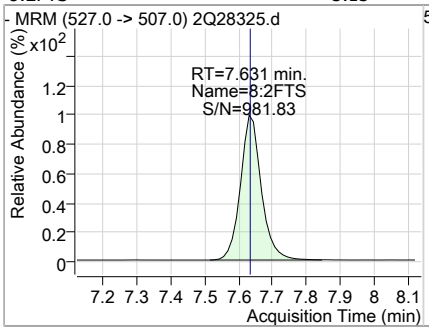
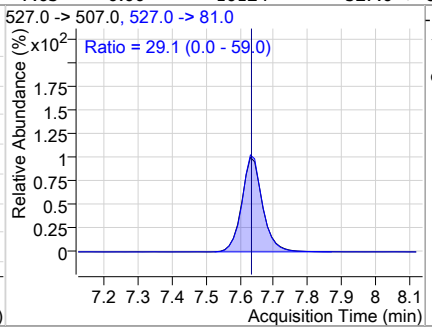
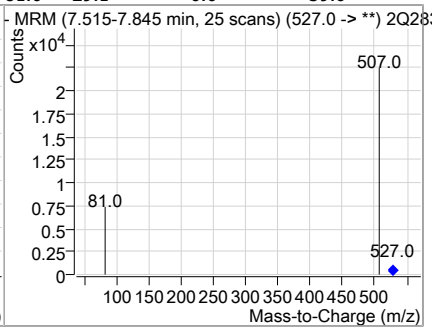
Perfluorinated Compounds by LC/MS/MS

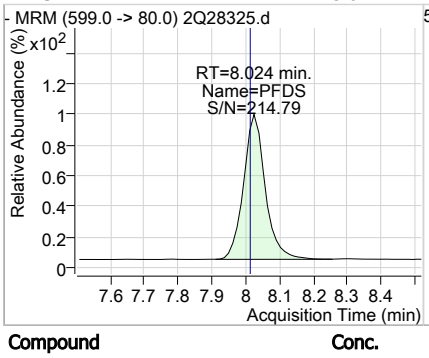
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	5.15	7.63	0.00	16124	527.0 -> 81.0	29.1	0.0	59.0

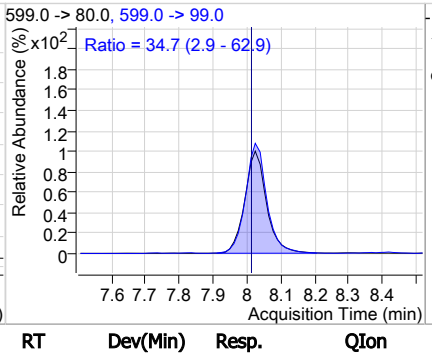


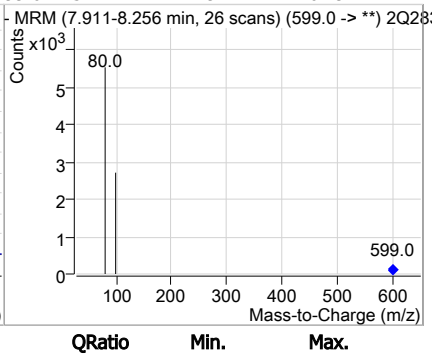




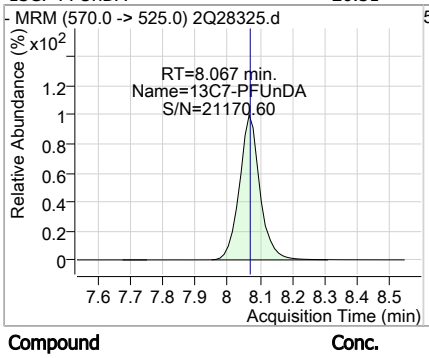
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	5.04	8.02	0.00	3340	599.0 -> 99.0	34.7	2.9	62.9

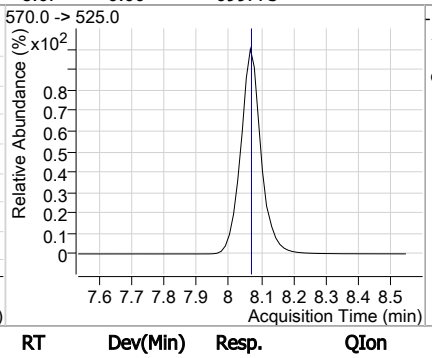


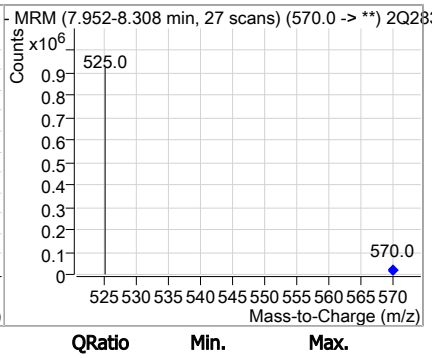




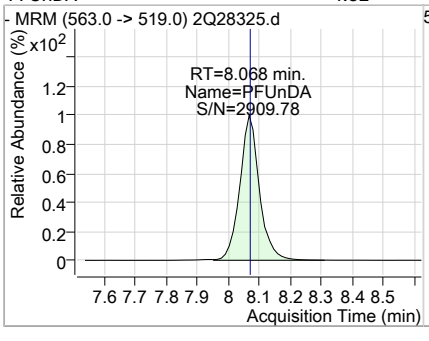
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.51	8.07	0.00	699773				

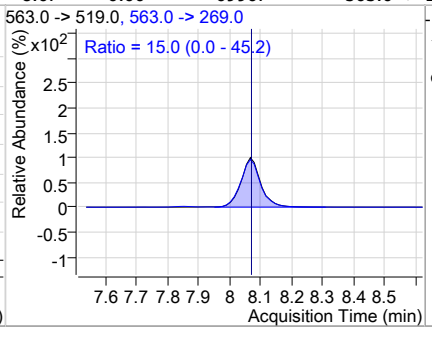


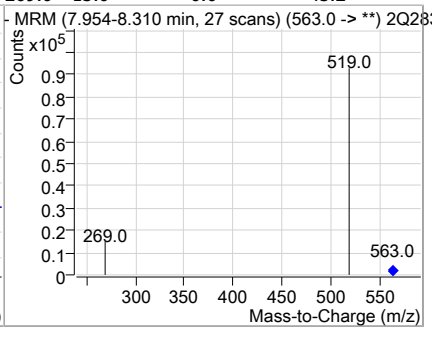




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	4.82	8.07	0.00	69967	563.0 -> 269.0	15.0	0.0	45.2







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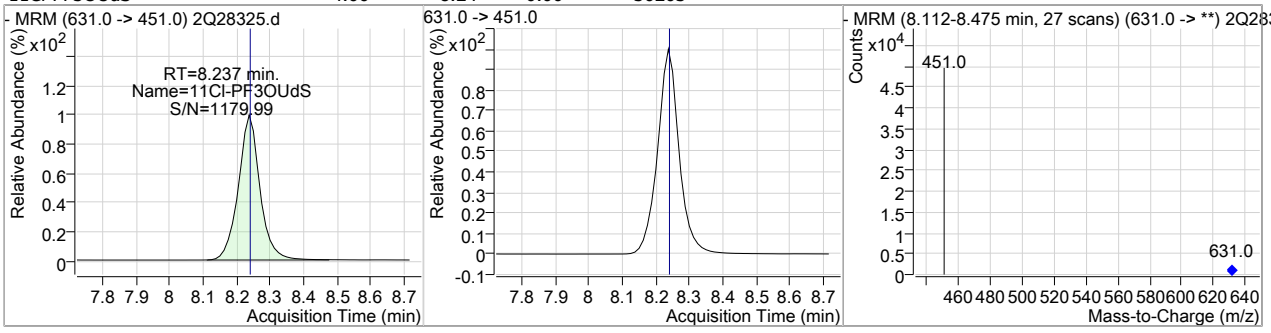
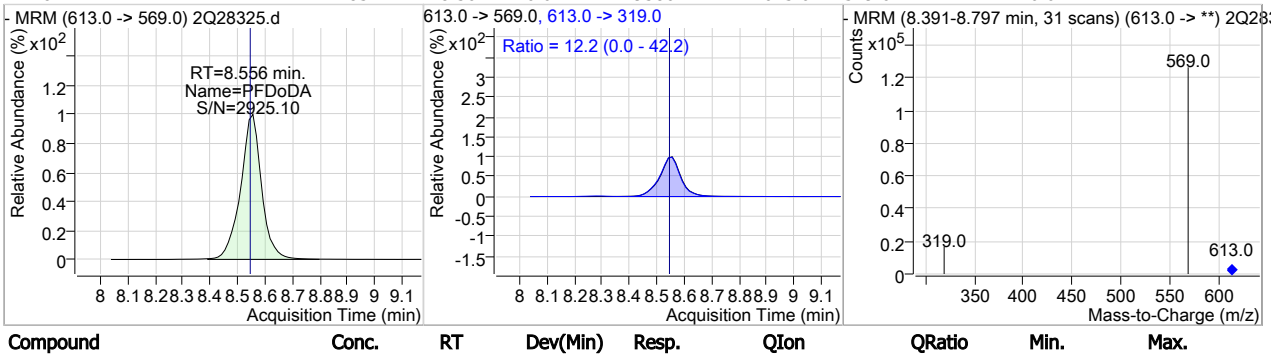
Perfluorinated Compounds by LC/MS/MS

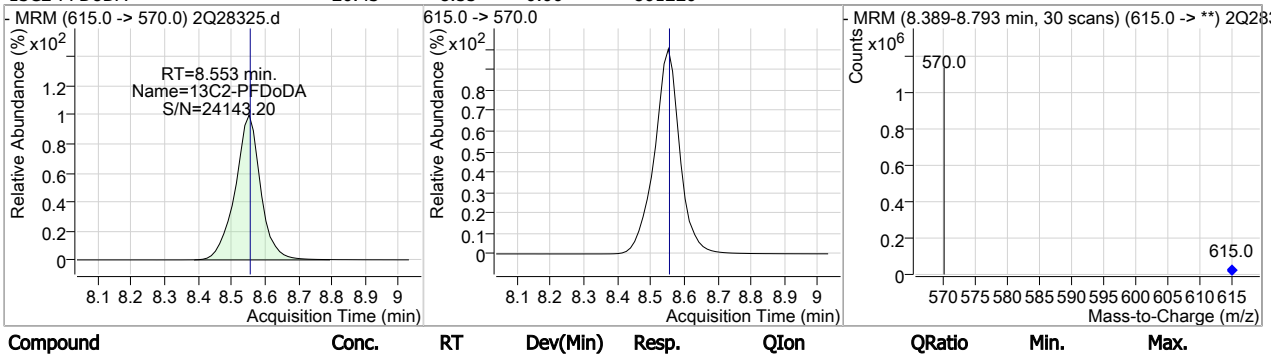
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	4.66	8.24	0.00	36263				



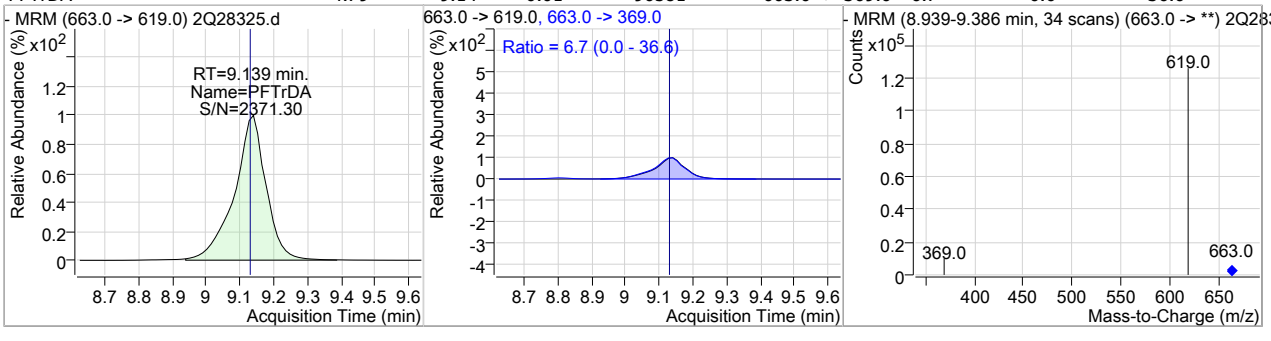
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.83	8.56	0.01	95864	613.0 -> 319.0	12.2	0.0	42.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.43	8.55	0.00	861220				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	4.79	9.14	0.01	96581	663.0 -> 369.0	6.7	0.0	36.6



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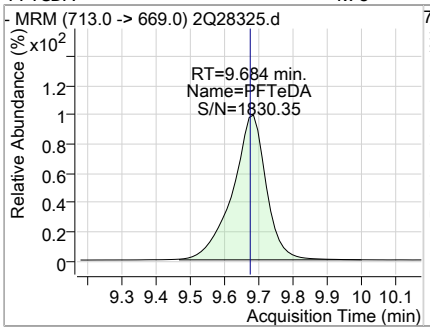
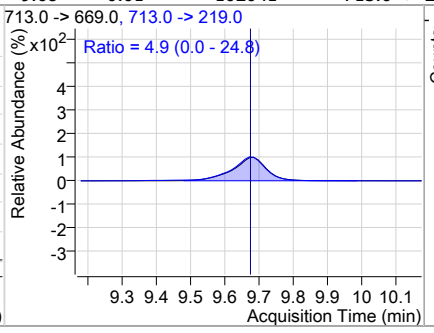
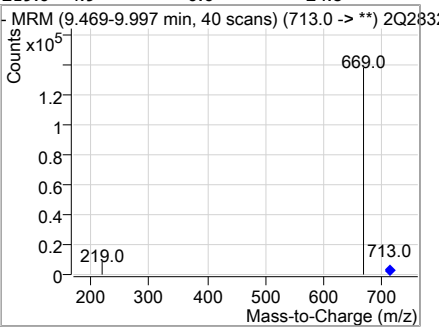
Perfluorinated Compounds by LC/MS/MS

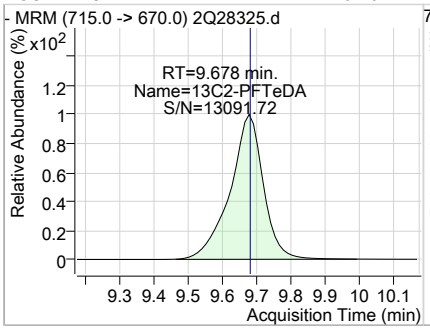
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.78	9.68	0.01	102041	713.0 -> 219.0	4.9	0.0	24.8

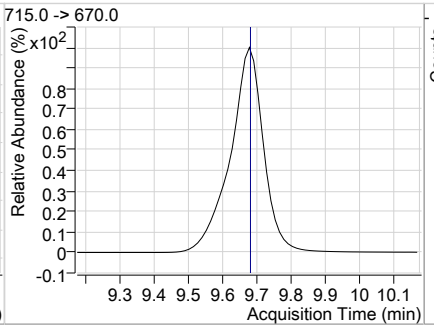


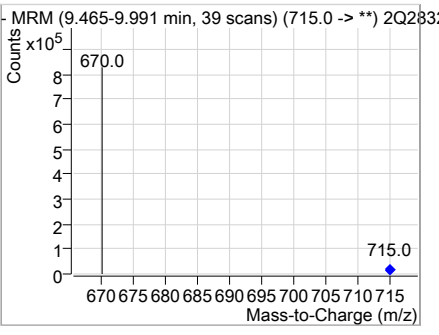




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.20	9.68	0.00	616794				







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Manual Integration Approval Summary

Sample Number: S2Q450-IC450
Lab FileID: 2Q28325.D
Injection Time: 03/28/19 15:18
Method: EPA 537M BY ID
Analyst approved: 03/29/19 10:18 Mike Eger
Supervisor approved: 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak

Cal Report: 2Q28326.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28326.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/28/2019 3:34:07 PM
Sample Name : ic450-10
Vial : Vial 6
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q450.batch.bin
Sample Information : op74300,S2Q450,2.00,,,1.0,1,soil

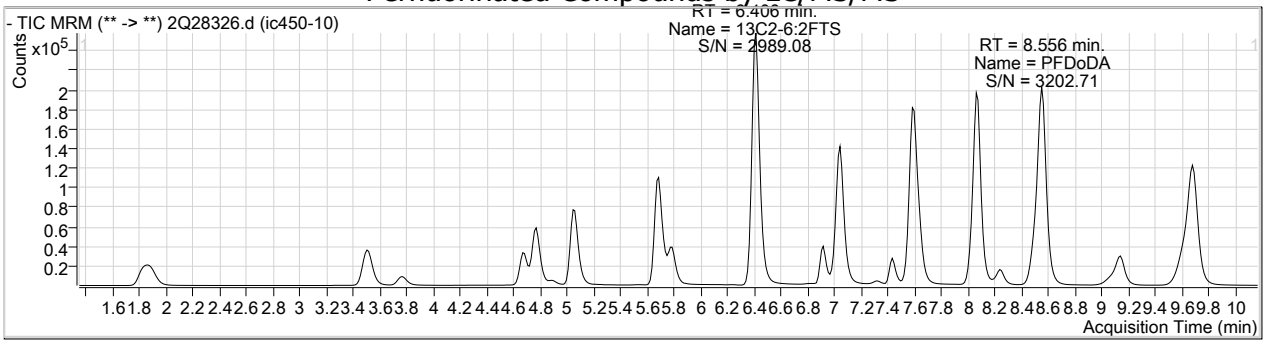
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.423	415.0 -> 370.0	459417	20.00	µg/L	0.013
13C4-PFOS	7.036	503.0 -> 80.0	64380	20.00	µg/L	0.013
M4-PFBA	1.865	217.0 -> 172.0	152195	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	136401	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	208709	20.00	µg/L	0.013
M4-PFHpA	5.691	367.0 -> 322.0	316415	20.00	µg/L	0.013
M8-PFOA	6.422	421.0 -> 376.0	335606	20.00	µg/L	0.000
M9-PFNA	7.052	472.0 -> 427.0	372736	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	533447	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	710189	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	867228	20.00	µg/L	0.000
M2-PFTeDA	9.678	715.0 -> 670.0	628613	20.00	µg/L	0.000
M8-FOSA	6.918	506.0 -> 78.0	115611	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	22388	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	25451	20.00	µg/L	0.000
M8-PFOS	7.033	507.0 -> 99.0	34512	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	104192	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	139348	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	124583	20.00	µg/L	0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	70891	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	199248	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	104128	19.66	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.3%		
13C2-6:2FTS	6.406	429.0 -> 409.0	139332	19.94	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C2-8:2FTS	7.642	529.0 -> 509.0	124584	19.97	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C2-PFDoDA	8.553	615.0 -> 570.0	865791	20.54	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C2-PFTeDA	9.678	715.0 -> 670.0	629167	20.61	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C3-PFBS	3.767	302.0 -> 99.0	22401	20.35	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C3-PFHxS	5.723	402.0 -> 99.0	25443	20.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C4-PFBA	1.865	217.0 -> 172.0	151545	20.28	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C4-PFHpA	5.691	367.0 -> 322.0	316116	20.54	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C5-PFHxA	4.776	318.0 -> 273.0	208390	20.54	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C5-PFPeA	3.511	268.0 -> 223.0	136131	20.21	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.1%		
13C6-PFDA	7.594	519.0 -> 474.0	533700	20.74	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

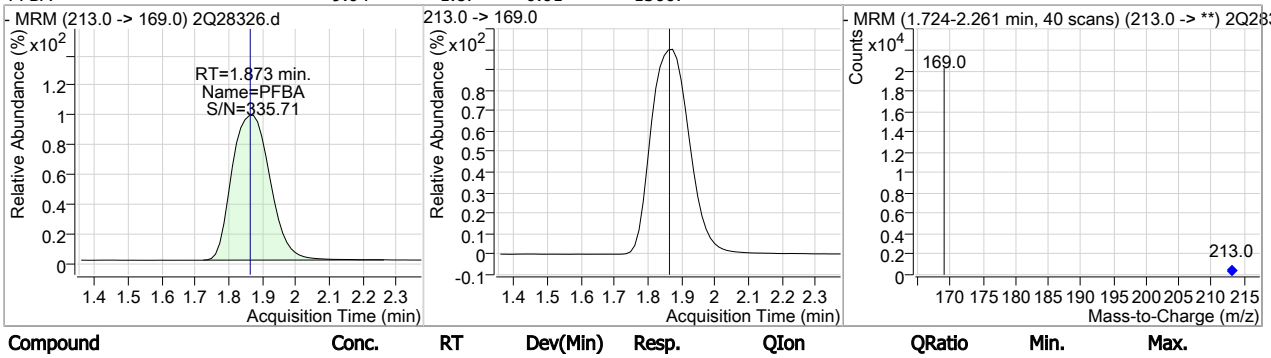
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%		
13C7-PFUnDA	8.067	570.0 -> 525.0	710252	20.82 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C8-FOSA	6.918	506.0 -> 78.0	115554	20.86 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C8-PFOA	6.422	421.0 -> 376.0	335248	20.70 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C8-PFOS	7.033	507.0 -> 99.0	34515	20.34 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C9-PFNA	7.052	472.0 -> 427.0	372463	20.54 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.7%		
d3-MeFOSAA	7.434	573.0 -> 419.0	70807	20.74 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%		
M2-PFOA	6.423	415.0 -> 370.0	459635	20.00 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.036	503.0 -> 80.0	64315	19.97 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	199248	103.11 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
Target Compounds						QValue
4:2FTS	4.674	327.0 -> 307.0	27790	9.19 µg/L		99
6:2FTS	6.407	427.0 -> 407.0	33201	9.42 µg/L		98
8:2FTS	7.644	527.0 -> 507.0	29869	9.28 µg/L		99
EtFOSAA	7.585	584.0 -> 419.0	13896	9.97 µg/L		99
FOSA	6.922	498.0 -> 78.0	25155	9.03 µg/L		99
MeFOSAA	7.435	570.0 -> 419.0	16602	8.77 µg/L		99
PFBA	1.873	213.0 -> 169.0	13667	9.04 µg/L		100
PFBS	3.771	299.0 -> 80.0	16354	8.99 µg/L		98
PFDA	7.595	513.0 -> 469.0	104602	8.95 µg/L		100
PFDoDA	8.556	613.0 -> 569.0	179149	8.96 µg/L		100
PFDS	8.024	599.0 -> 80.0	6151	9.32 µg/L		98
PFHpA	5.681	363.0 -> 319.0	123911	8.93 µg/L		100
PFHpS	6.429	449.0 -> 80.0	12222	9.32 µg/L		97
PFHxA	4.778	313.0 -> 269.0	32346	8.87 µg/L		99
PFHxS	5.726	399.0 -> 80.0	13456	8.92 µg/L	m	99
PFNA	7.054	463.0 -> 419.0	110997	9.05 µg/L		100
PFNS	7.565	549.0 -> 80.0	12042	9.23 µg/L		97
PFOA	6.425	413.0 -> 369.0	80688	8.97 µg/L		100
PFOS	7.037	499.0 -> 80.0	15167	9.05 µg/L	m	85
PFPeA	3.515	263.0 -> 219.0	54910	9.07 µg/L		100
PFPeS	4.895	349.0 -> 80.0	11409	8.97 µg/L		98
PFTeDA	9.684	713.0 -> 669.0	193712	8.95 µg/L		100
PFTrDA	9.139	663.0 -> 619.0	182570	8.92 µg/L		100
PFUnDA	8.068	563.0 -> 519.0	130386	8.84 µg/L		100
11Cl-PF3OUdS	8.237	631.0 -> 451.0	67879	8.67 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	13248	8.33 µg/L		100
ADONA	5.791	377.0 -> 251.0	140083	8.44 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	106911	44.78 µg/L		100

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

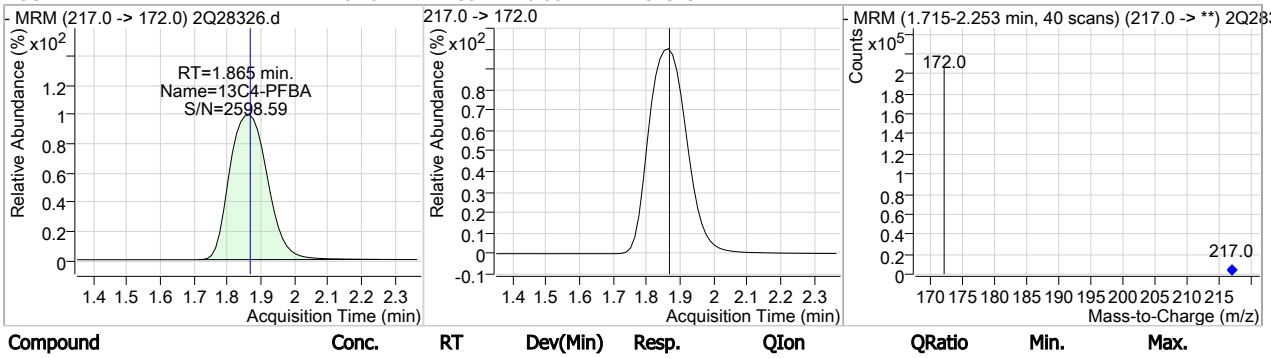
Perfluorinated Compounds by LC/MS/MS



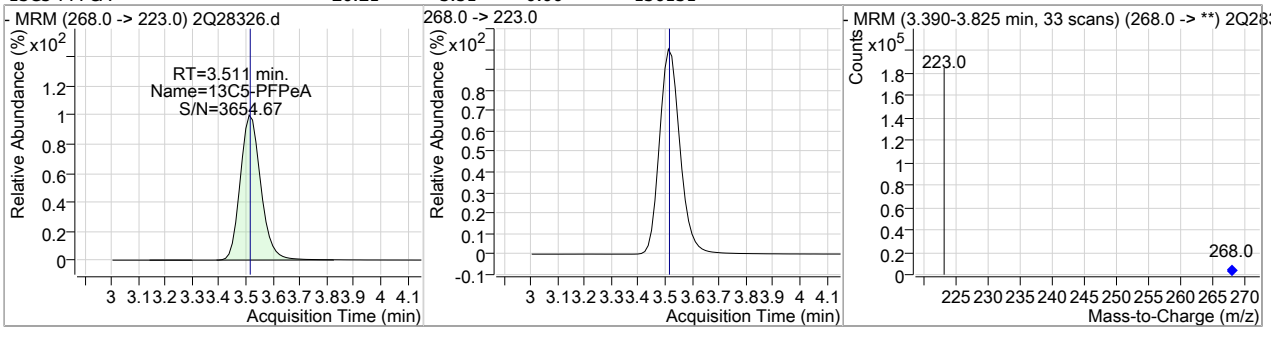
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	9.04	1.87	0.01	13667				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.28	1.86	0.00	151545				

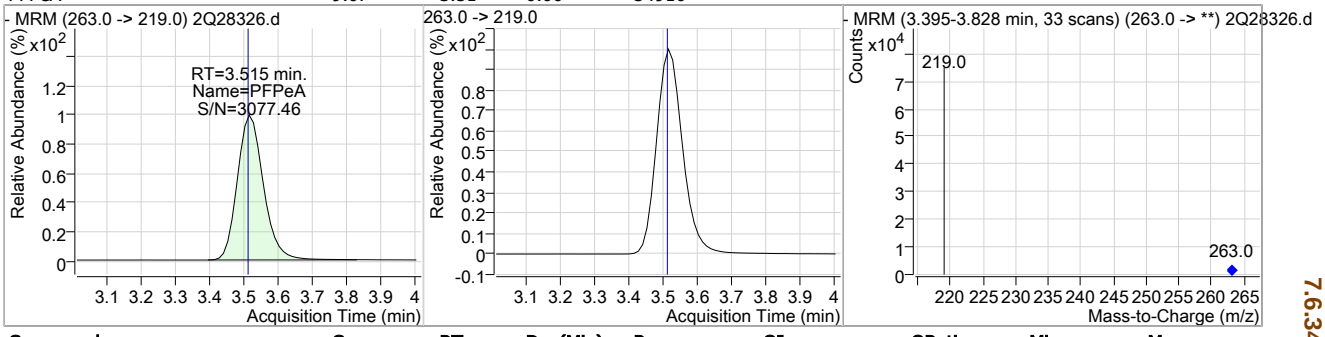


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.21	3.51	0.00	136131				

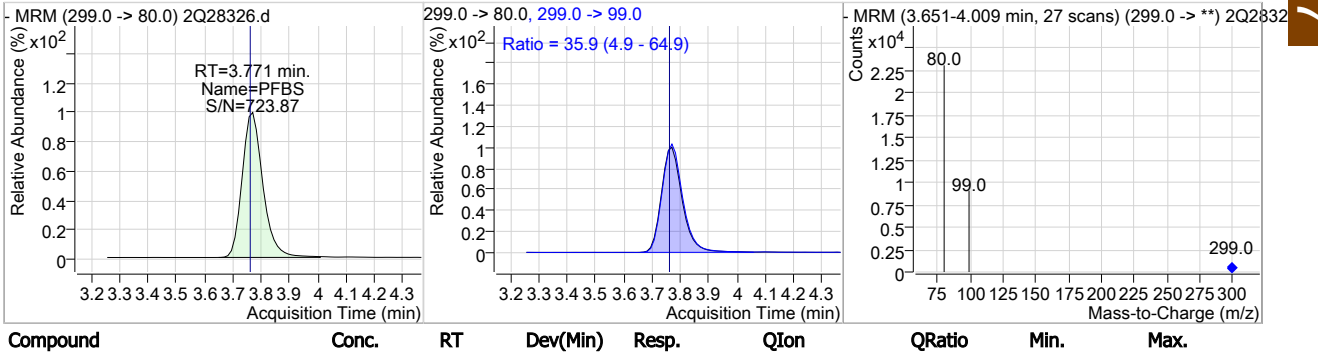


Perfluorinated Compounds by LC/MS/MS

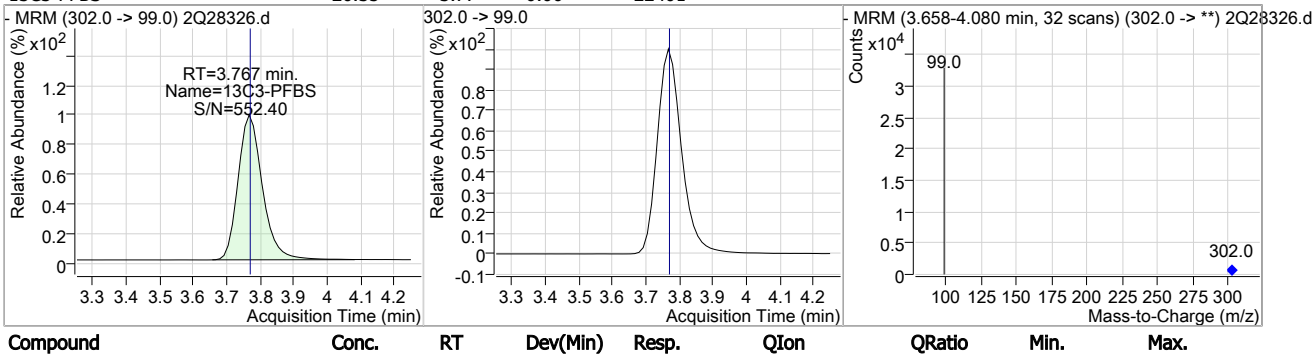
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	9.07	3.51	0.00	54910				



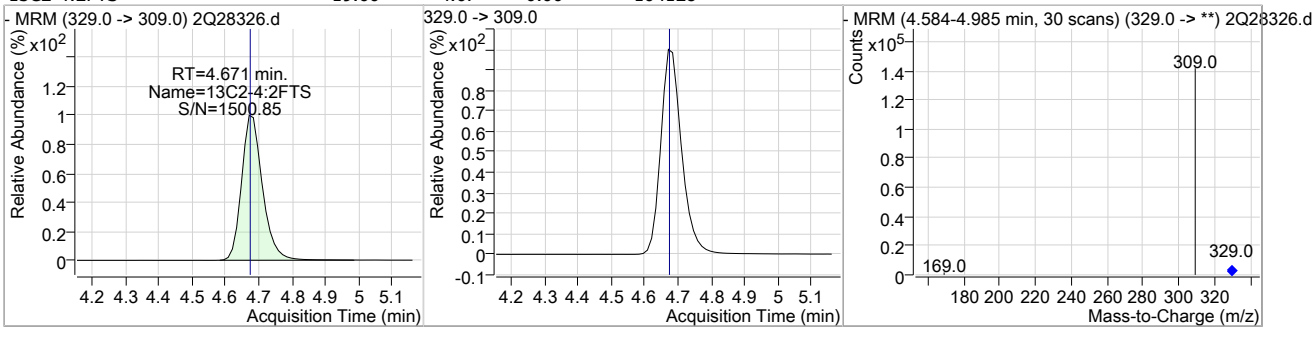
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	8.99	3.77	0.01	16354	299.0 -> 99.0	35.9	4.9	64.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.35	3.77	0.00	22401				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.66	4.67	0.00	104128				



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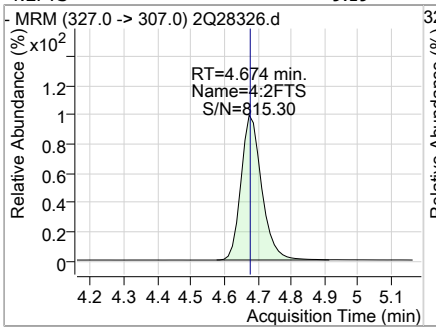
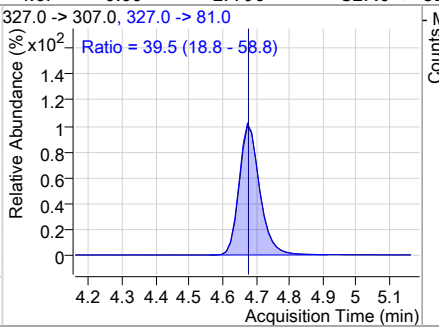
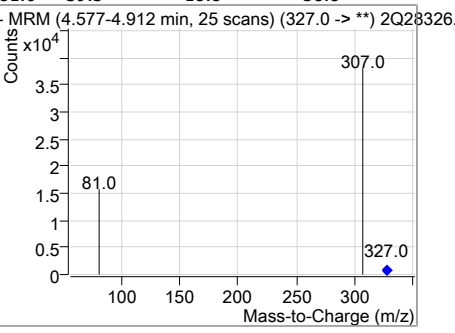
Perfluorinated Compounds by LC/MS/MS

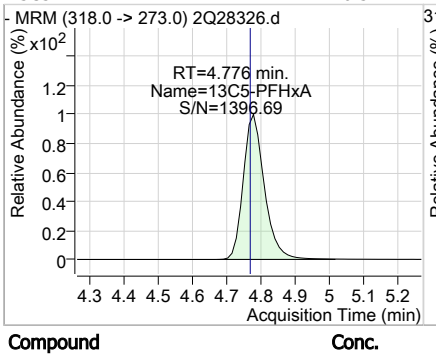
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.19	4.67	0.00	27790	327.0 -> 81.0	39.5	18.8	58.8

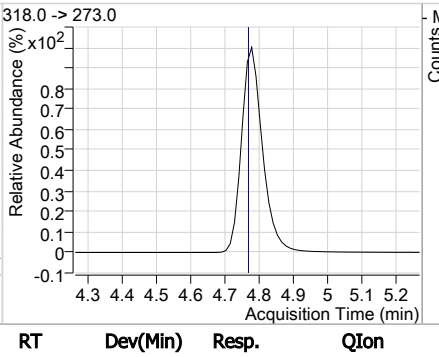


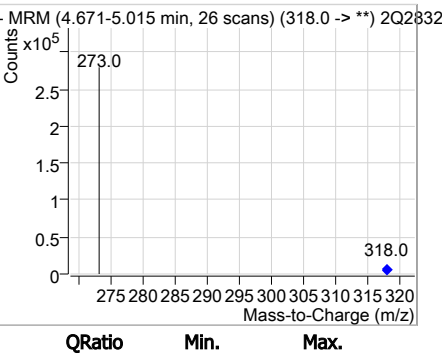




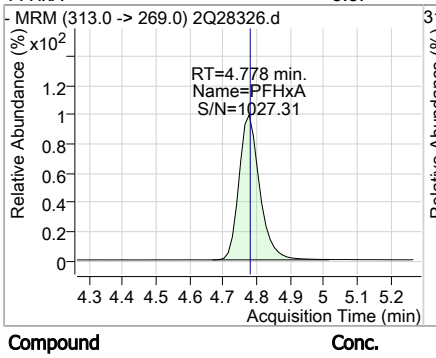
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.54	4.78	0.01	208390				

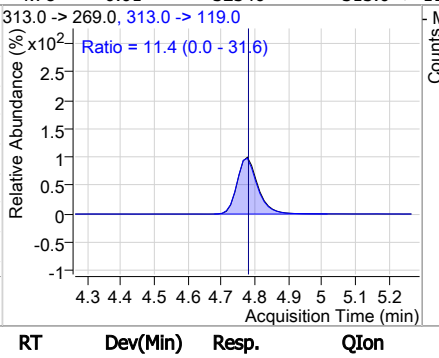


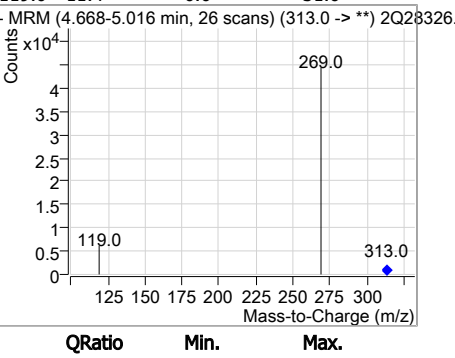




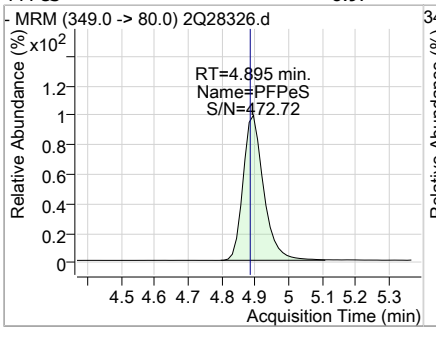
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	8.87	4.78	0.01	32346	313.0 -> 119.0	11.4	0.0	31.6

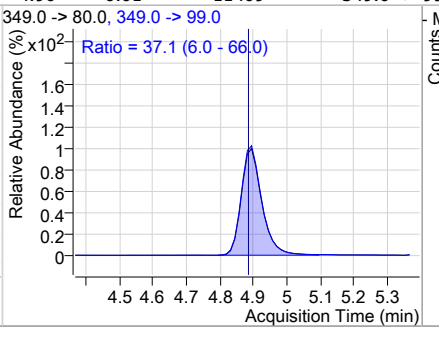


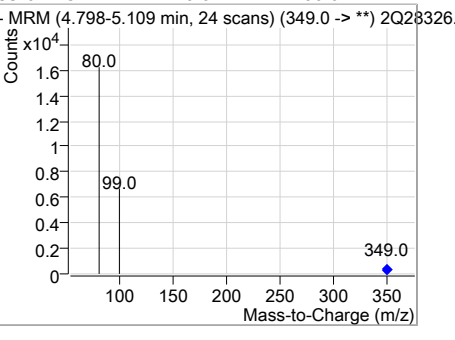




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	8.97	4.90	0.01	11409	349.0 -> 99.0	37.1	6.0	66.0







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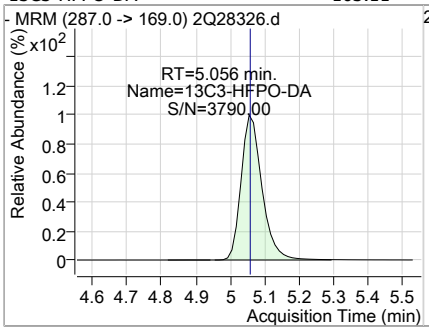
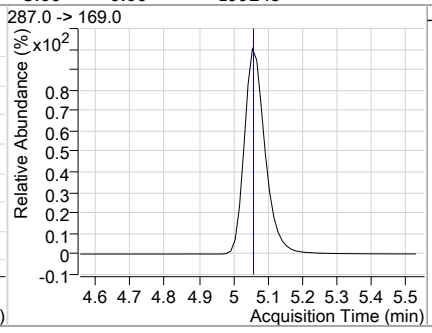
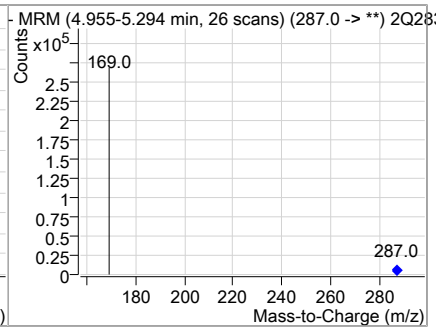
Perfluorinated Compounds by LC/MS/MS

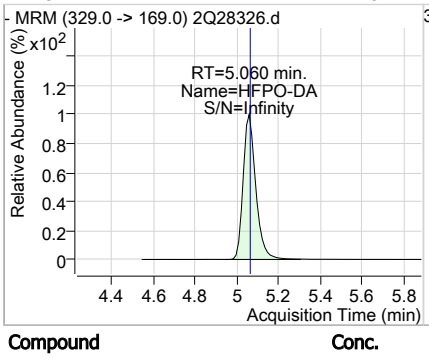
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	103.11	5.06	0.00	199248				

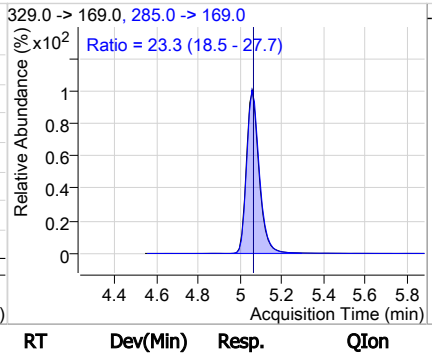


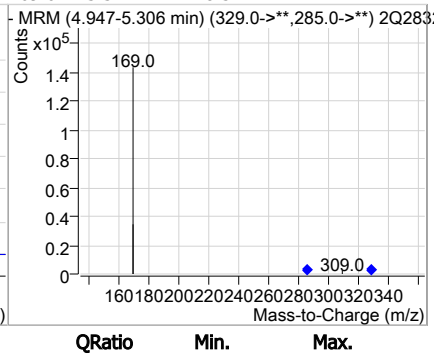




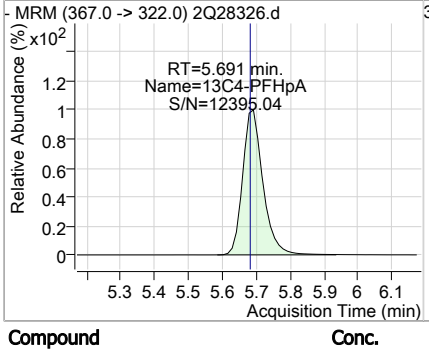
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	44.78	5.06	0.00	106911	285.0 -> 169.0	23.3	18.5	27.7

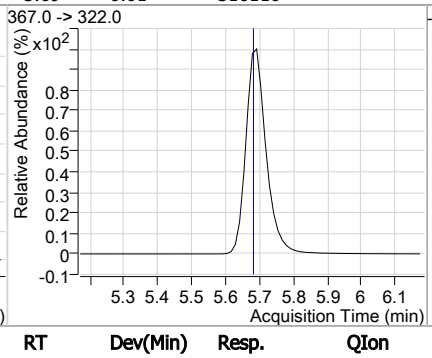


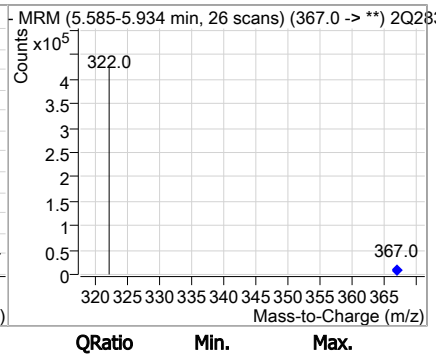




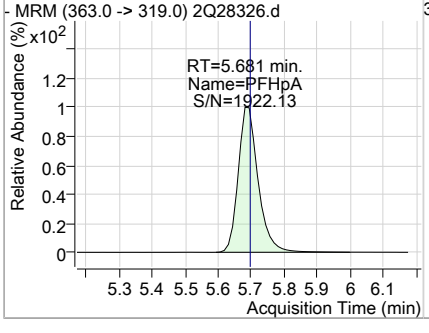
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.54	5.69	0.01	316116				

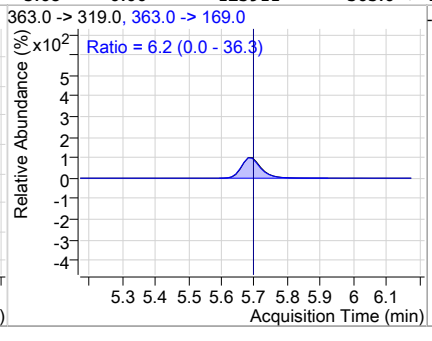


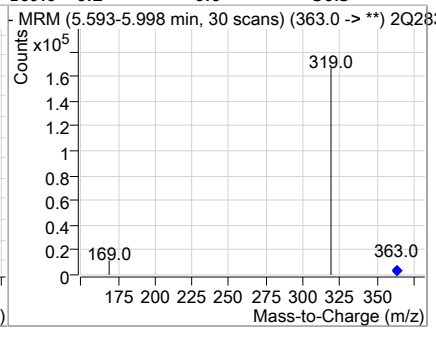




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	8.93	5.68	0.00	123911	363.0 -> 169.0	6.2	0.0	36.3

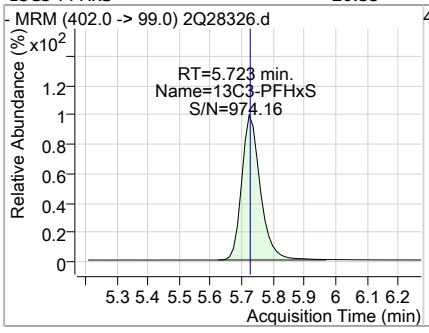


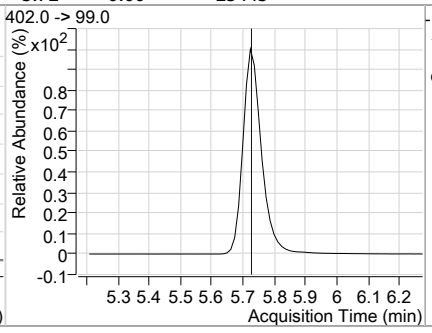


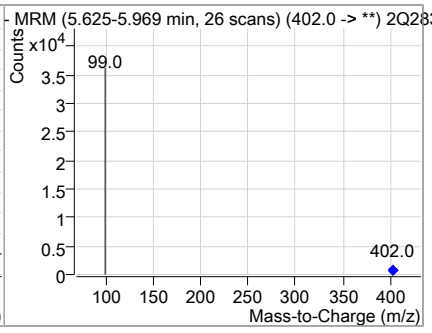


Perfluorinated Compounds by LC/MS/MS

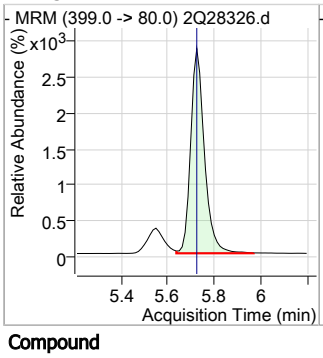
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.55	5.72	0.00	25443				

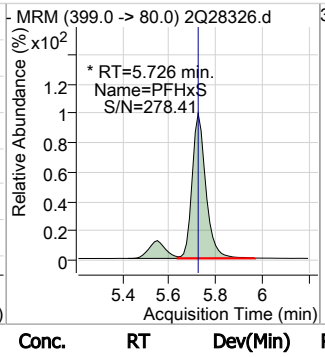


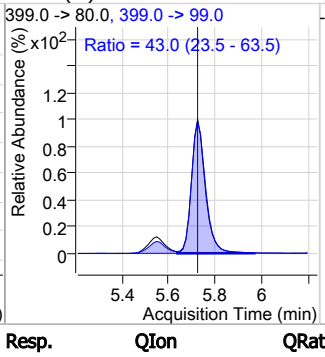


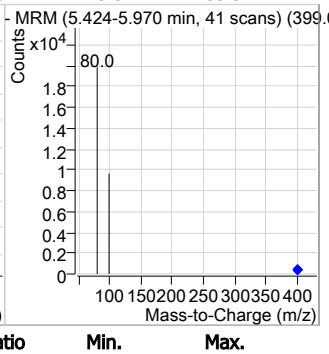


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	8.92	5.73	0.00	13456 (m)	399.0 -> 99.0	43.0	23.5	63.5

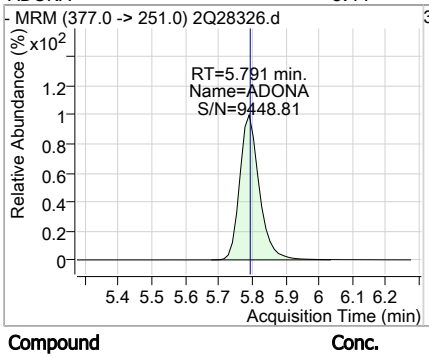


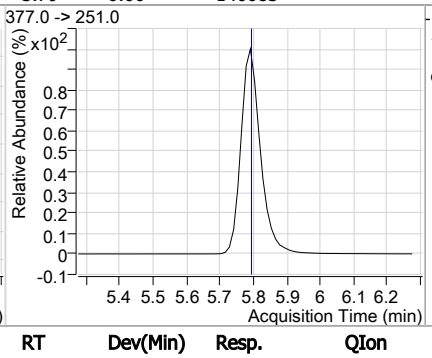


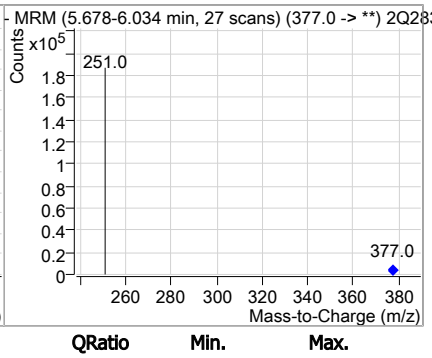




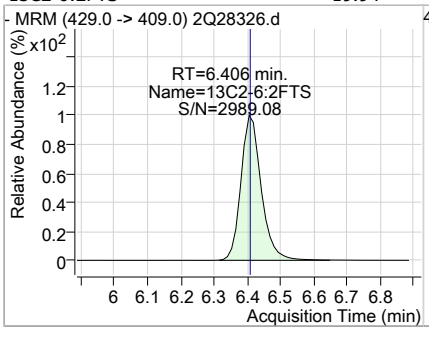
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	8.44	5.79	0.00	140083				

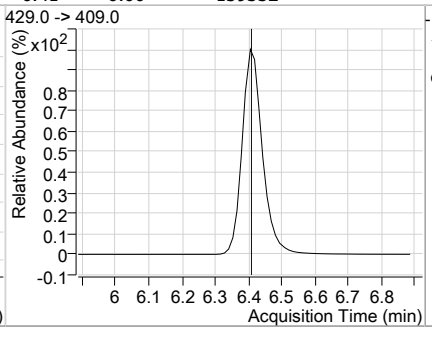


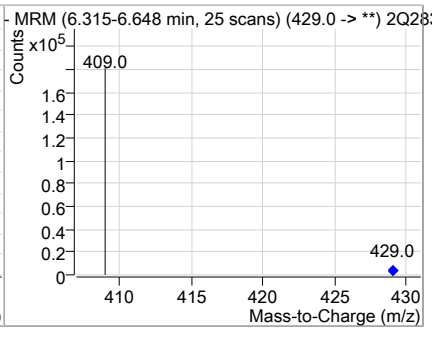




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.94	6.41	0.00	139332				







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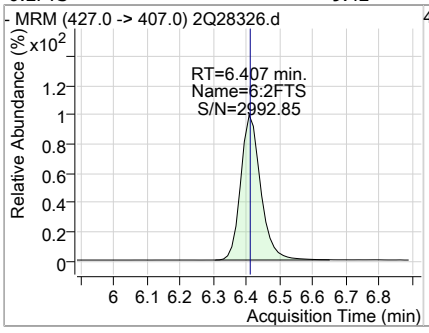
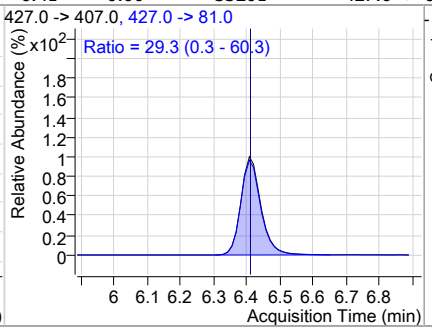
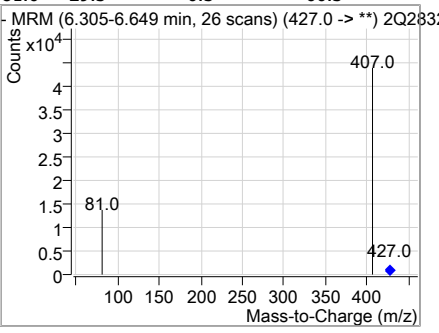
Perfluorinated Compounds by LC/MS/MS

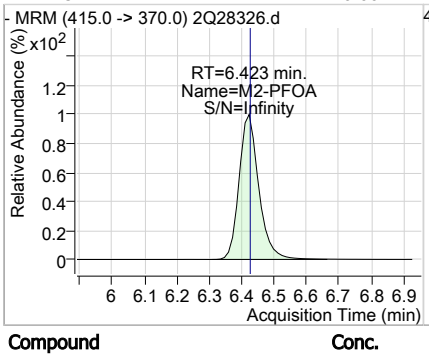
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.42	6.41	0.00	33201	427.0 -> 81.0	29.3	0.3	60.3

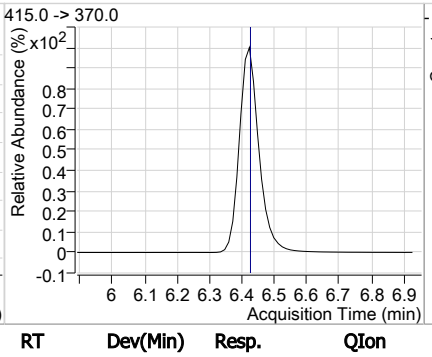


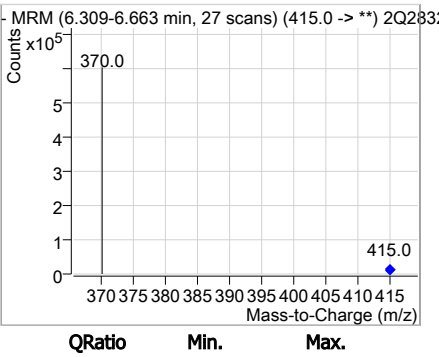




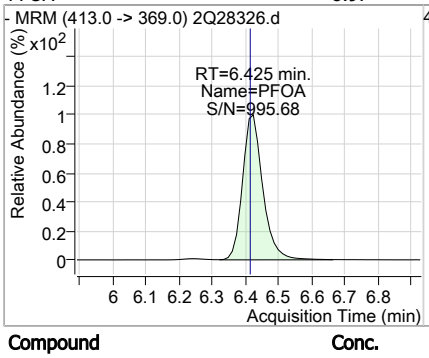
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.42	0.01	459635				

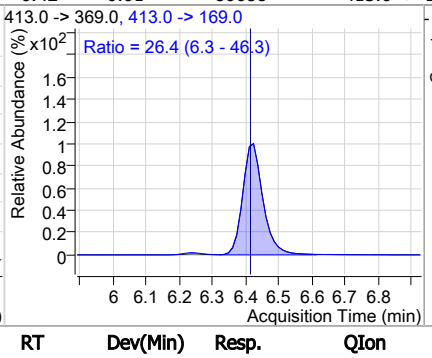


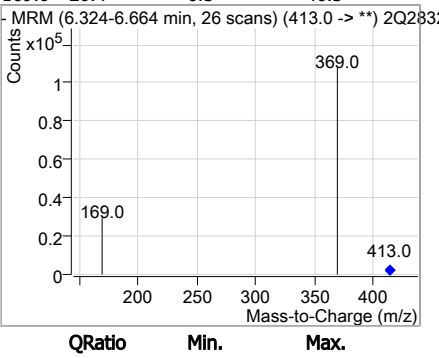




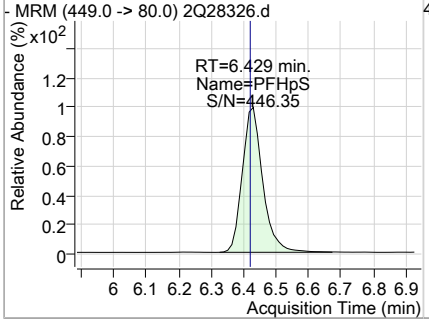
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	8.97	6.42	0.01	80688	413.0 -> 169.0	26.4	6.3	46.3

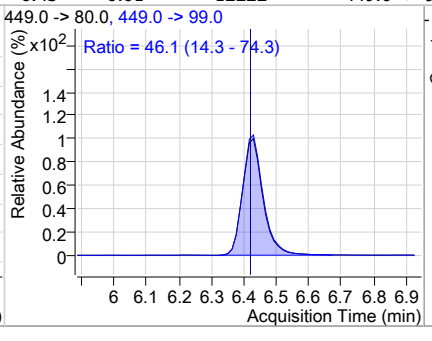


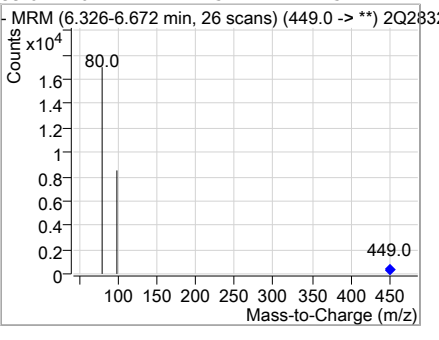




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	9.32	6.43	0.01	12222	449.0 -> 99.0	46.1	14.3	74.3

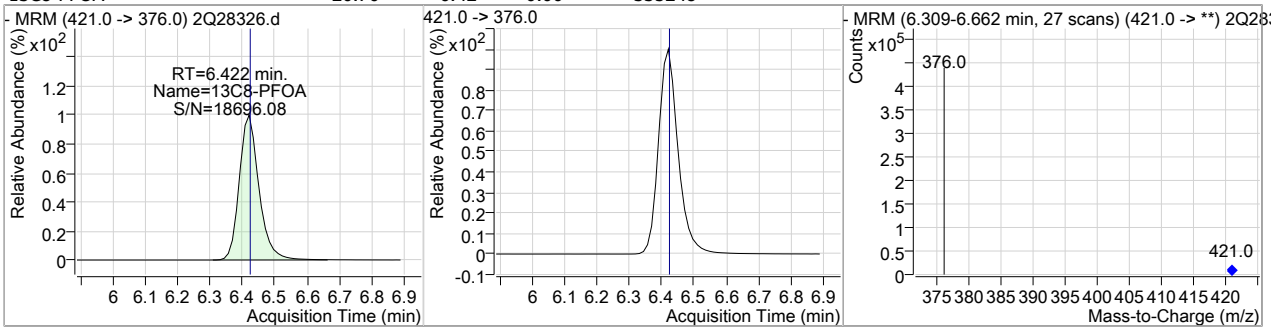




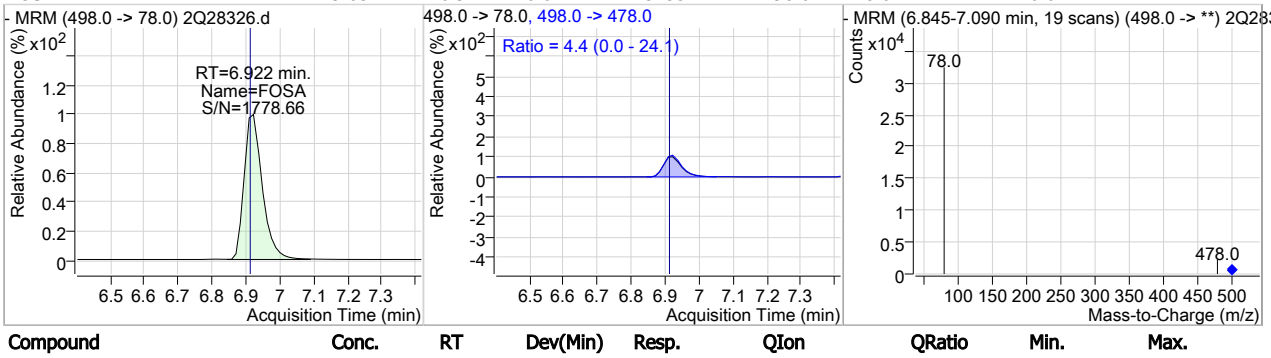


Perfluorinated Compounds by LC/MS/MS

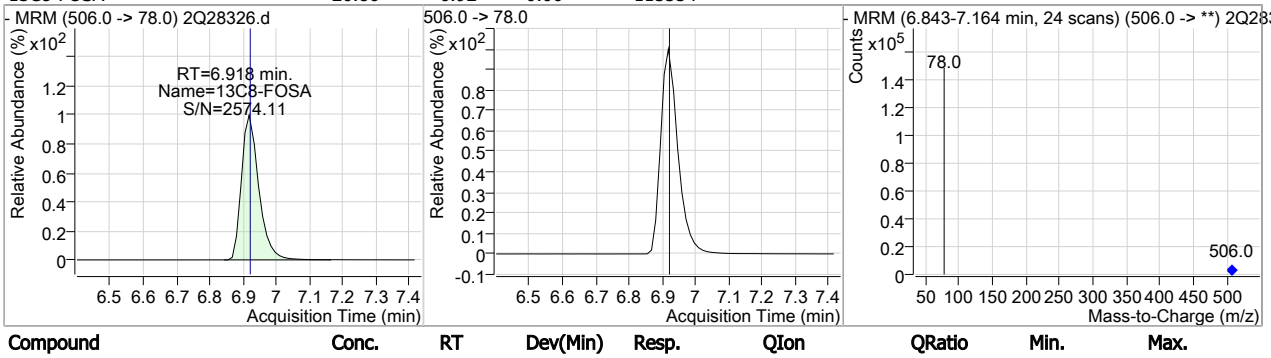
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.70	6.42	0.00	335248				



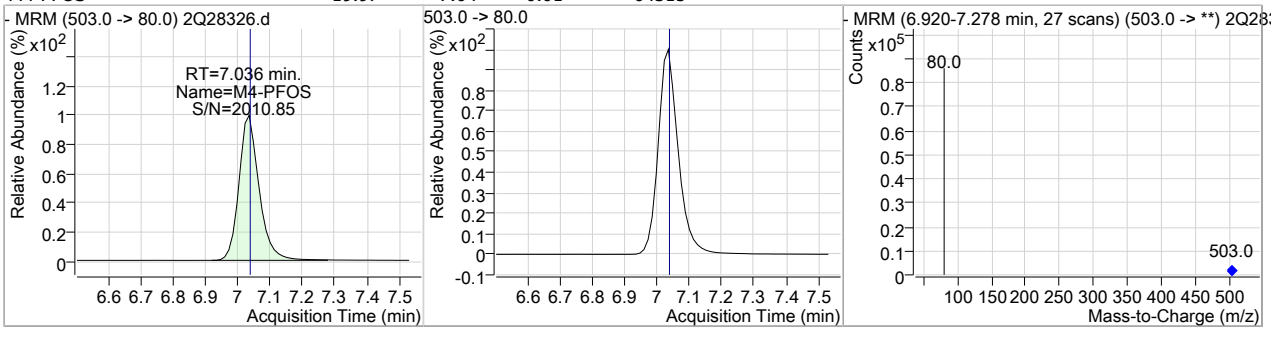
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	9.03	6.92	0.01	25155	498.0 -> 478.0	4.4	0.0	24.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.86	6.92	0.00	115554				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.97	7.04	0.01	64315				



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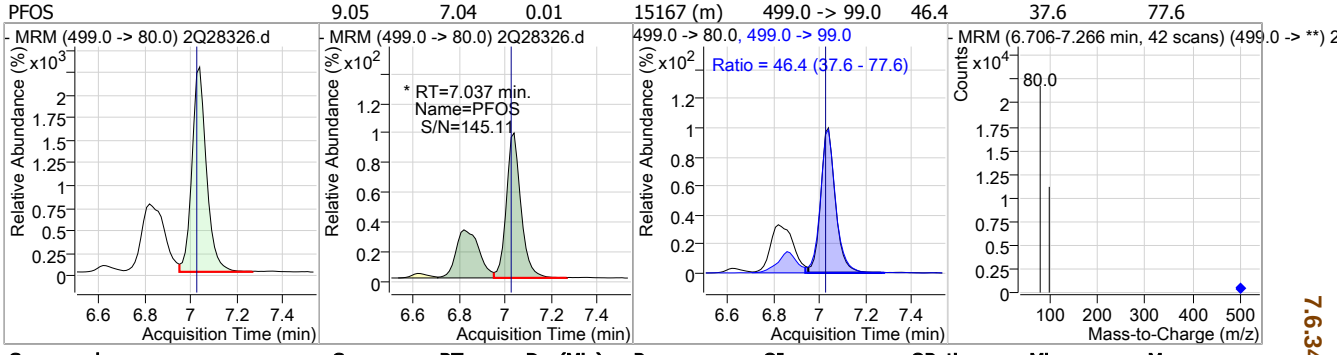
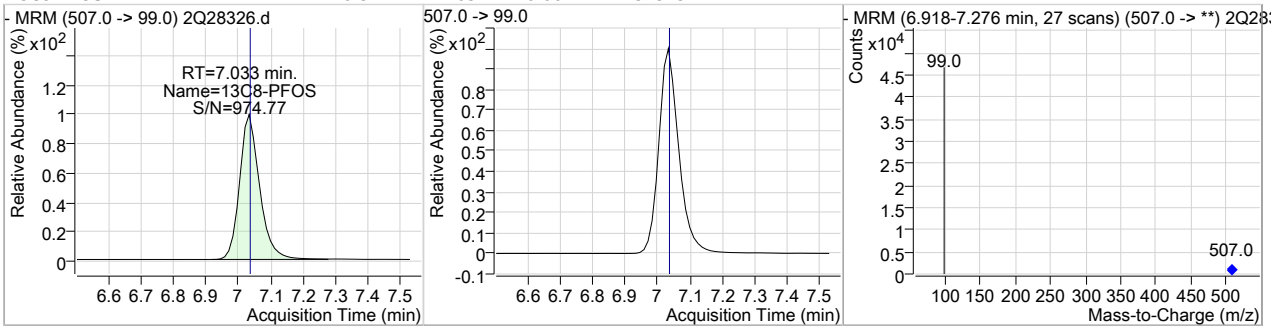
Perfluorinated Compounds by LC/MS/MS

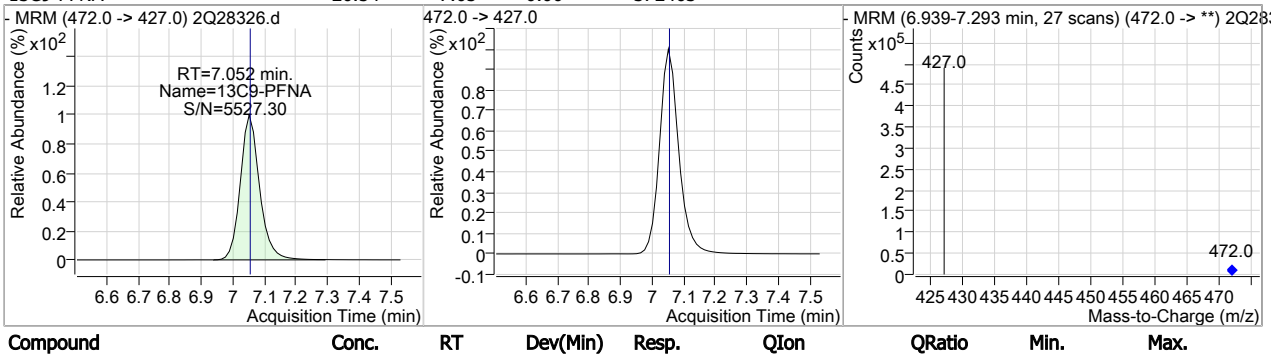
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	9.05	7.04	0.01	15167 (m)	499.0 -> 99.0	46.4	37.6	77.6



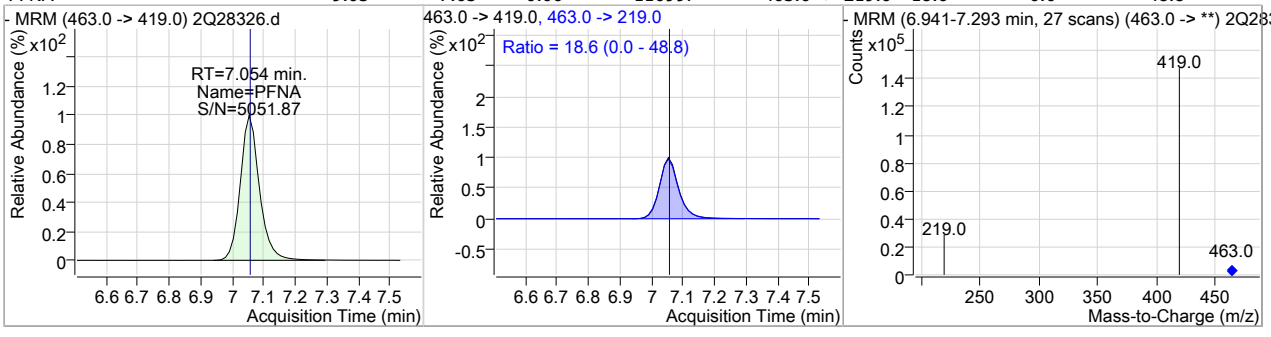
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.34	7.03	0.00	34515				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.54	7.05	0.00	372463				



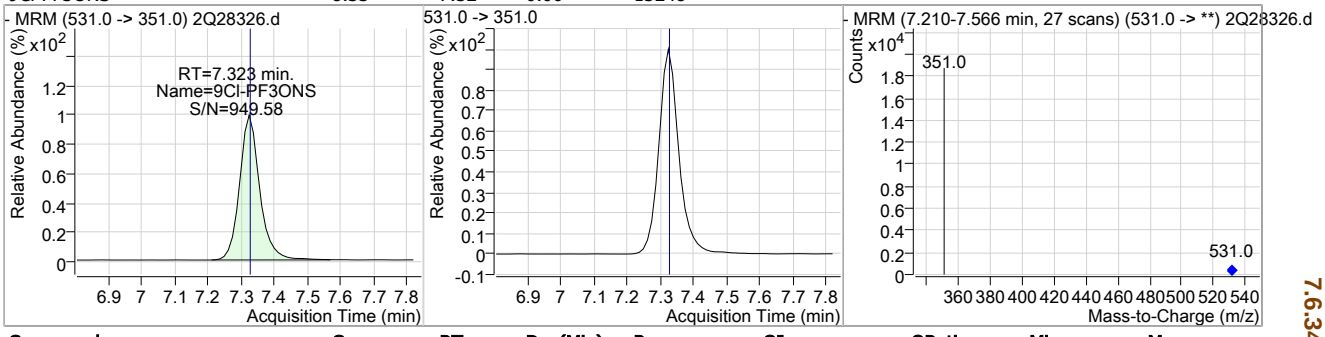
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	9.05	7.05	0.00	110997	463.0 -> 219.0	18.6	0.0	48.8



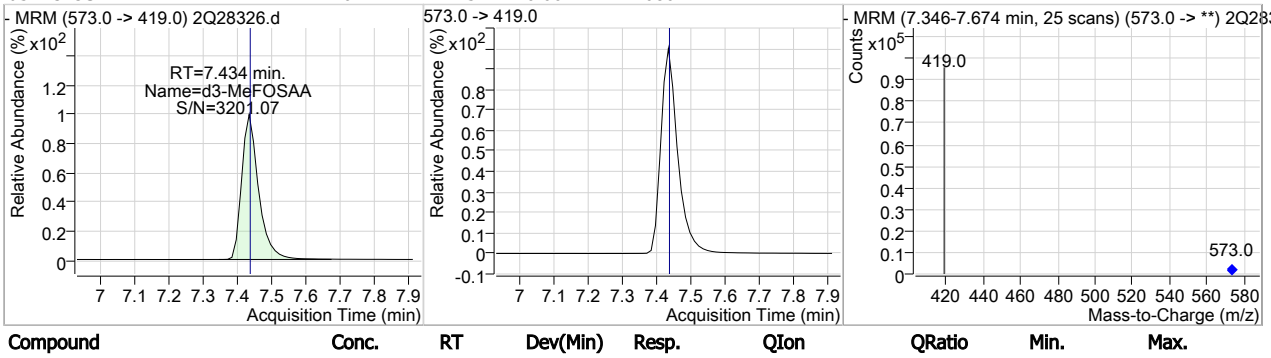
7.6.34

Perfluorinated Compounds by LC/MS/MS

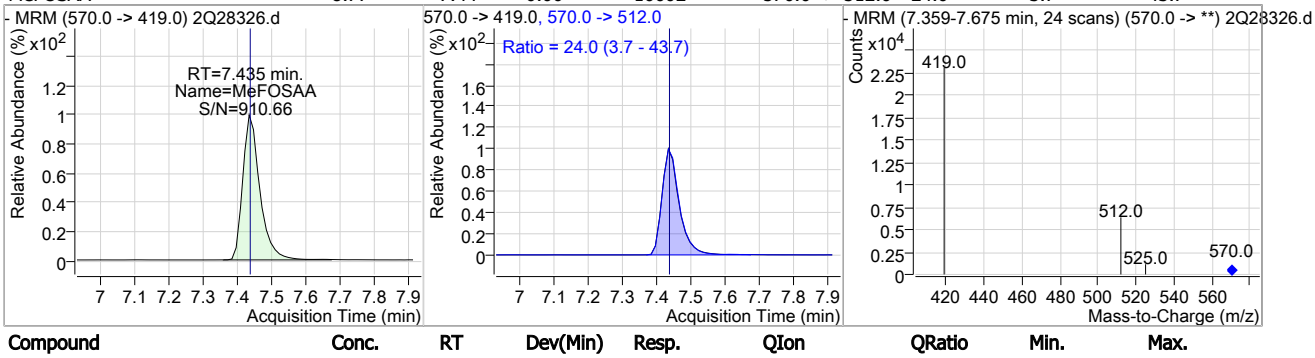
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	8.33	7.32	0.00	13248				



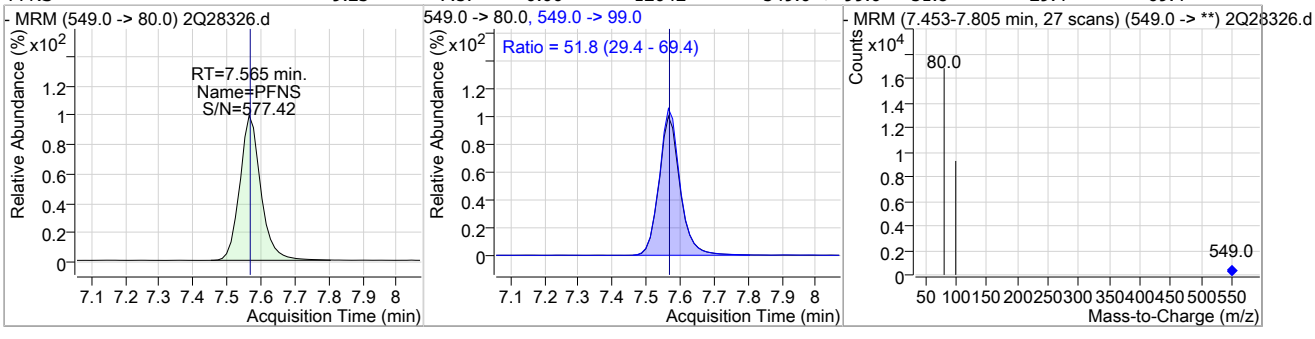
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.74	7.43	0.00	70807				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	8.77	7.44	0.00	16602	570.0 -> 512.0	24.0	3.7	43.7



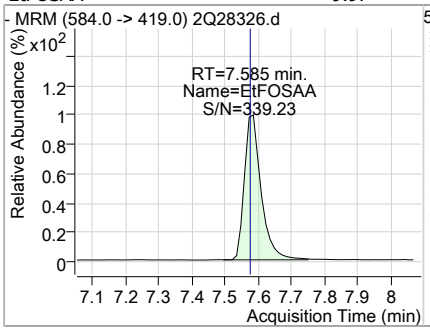
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	9.23	7.57	0.00	12042	549.0 -> 99.0	51.8	29.4	69.4

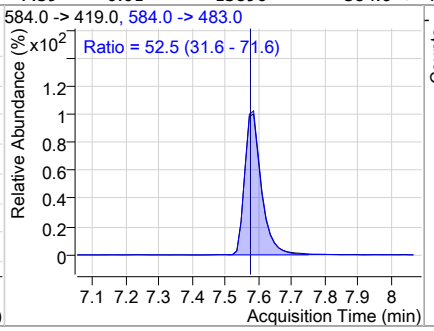


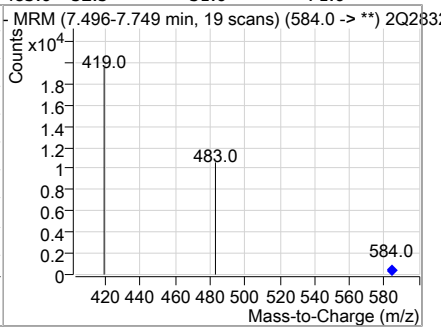
7.6.34

Perfluorinated Compounds by LC/MS/MS

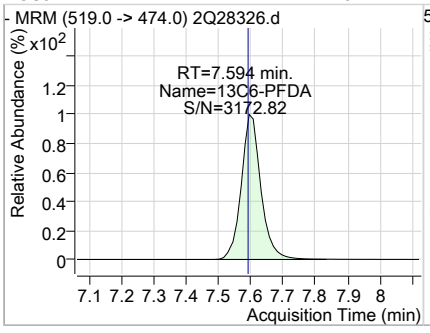
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	9.97	7.59	0.01	13896	584.0 -> 483.0	52.5	31.6	71.6

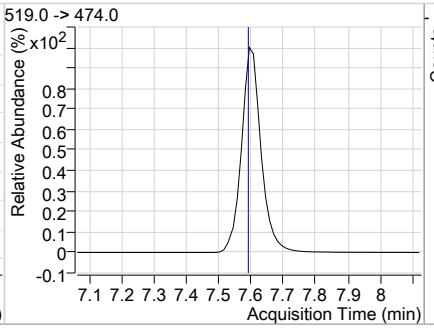


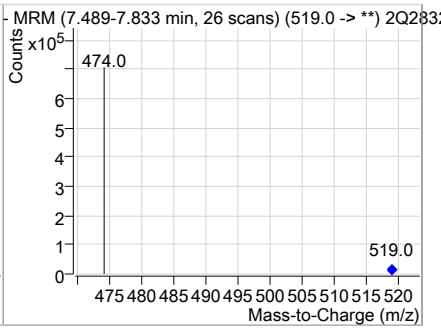




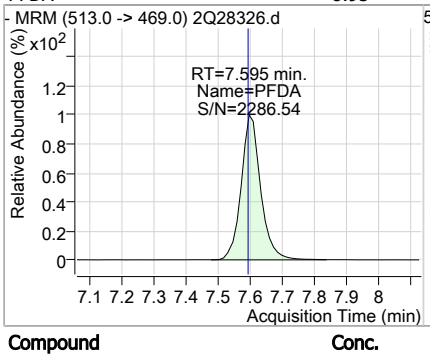
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.74	7.59	0.00	533700				

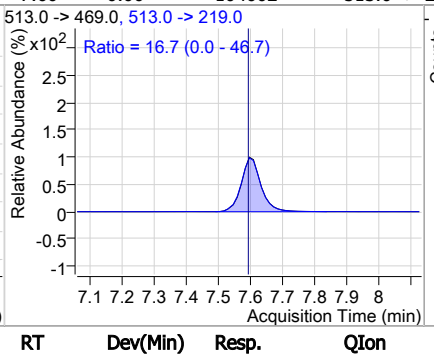


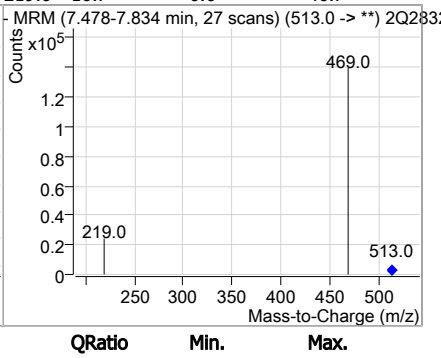




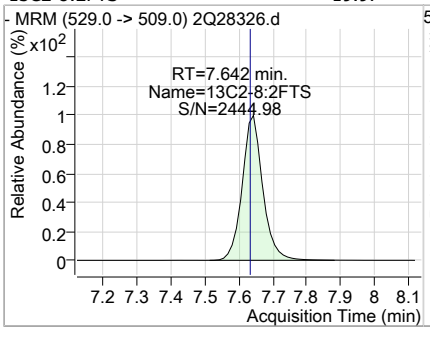
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	8.95	7.60	0.00	104602	513.0 -> 219.0	16.7	0.0	46.7

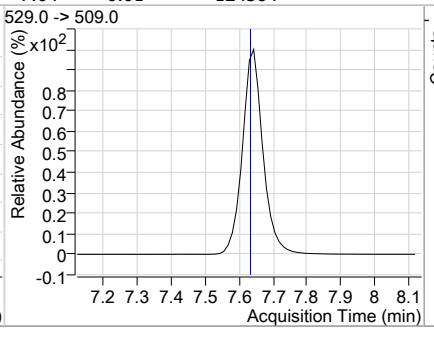


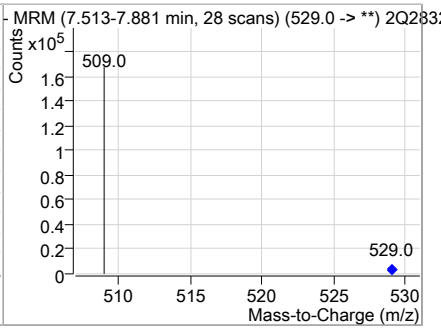




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.97	7.64	0.01	124584				







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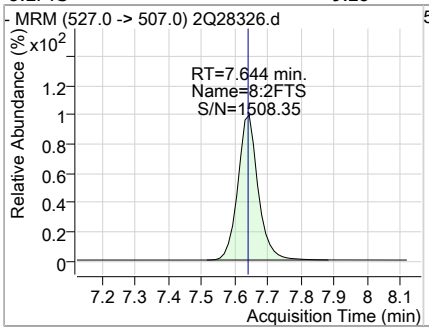
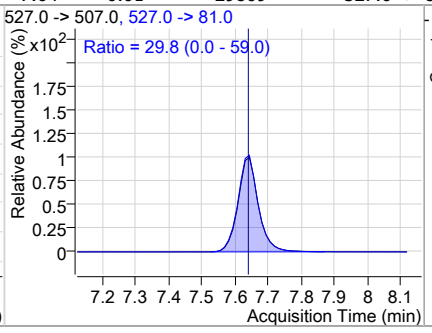
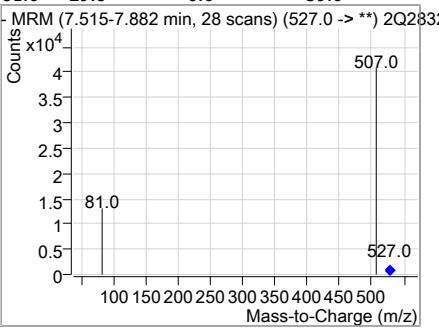
Perfluorinated Compounds by LC/MS/MS

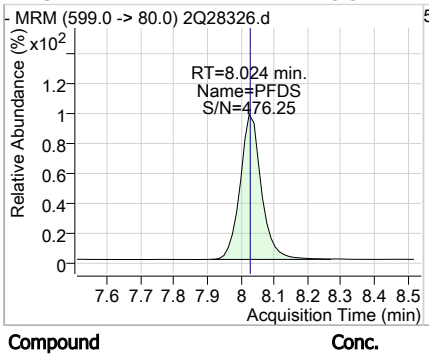
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.28	7.64	0.01	29869	527.0 -> 81.0	29.8	0.0	59.0

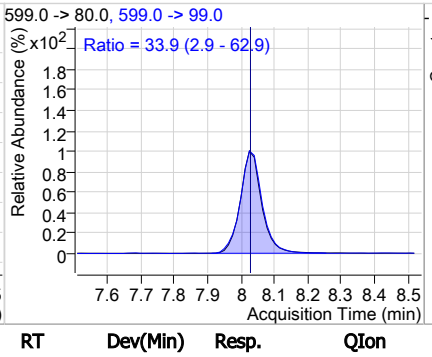


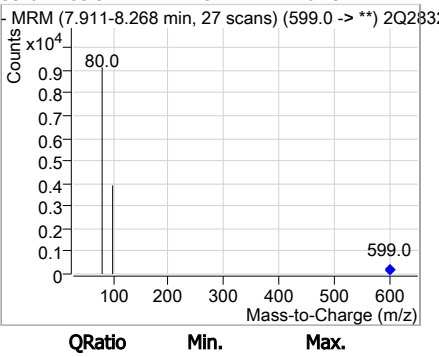




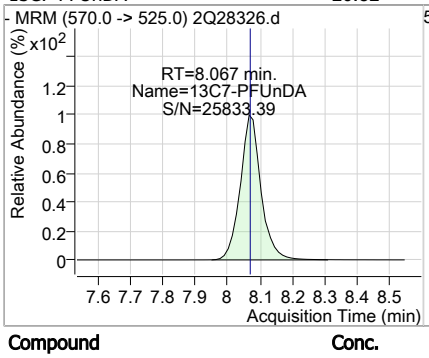
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	9.32	8.02	0.00	6151	599.0 -> 99.0	33.9	2.9	62.9

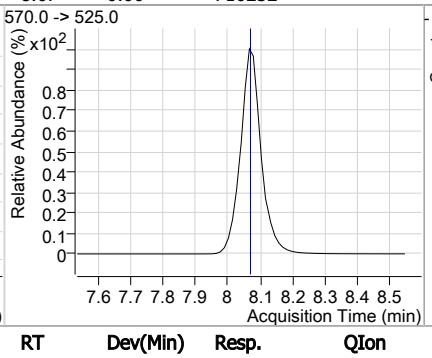


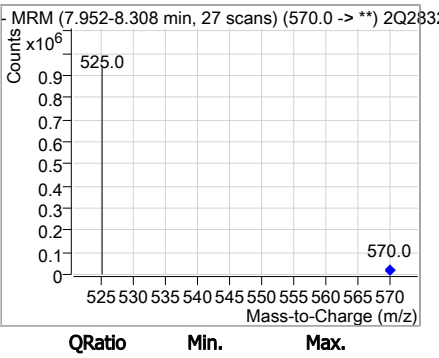




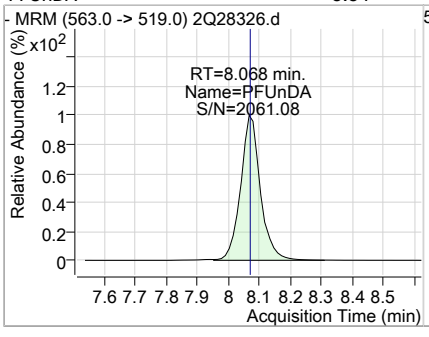
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.82	8.07	0.00	710252				

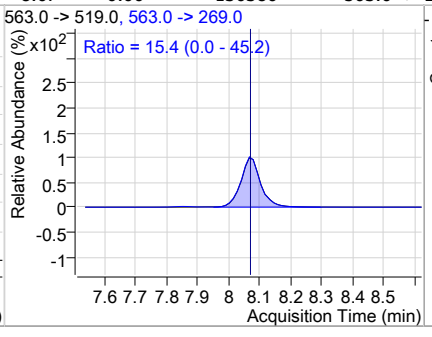


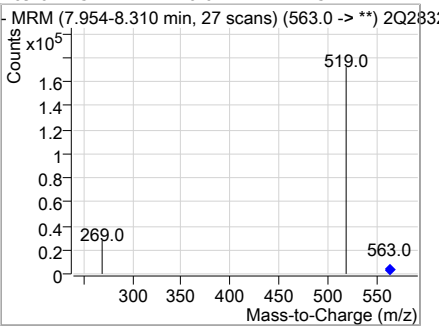




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	8.84	8.07	0.00	130386	563.0 -> 269.0	15.4	0.0	45.2







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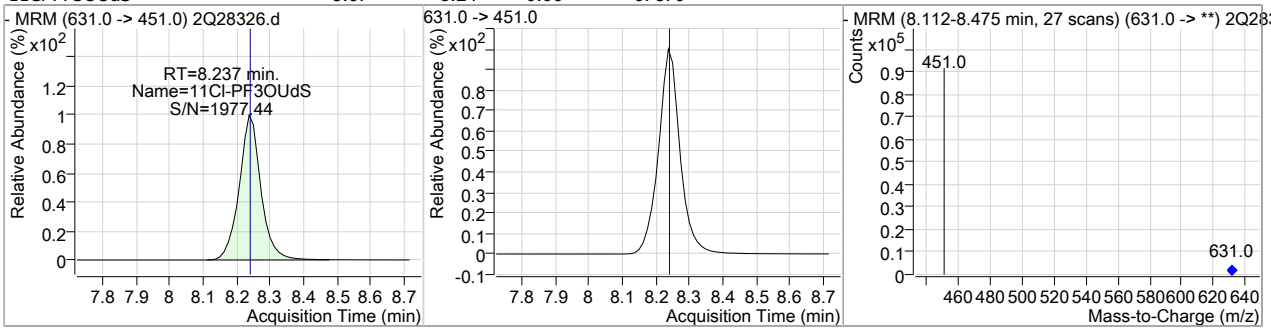
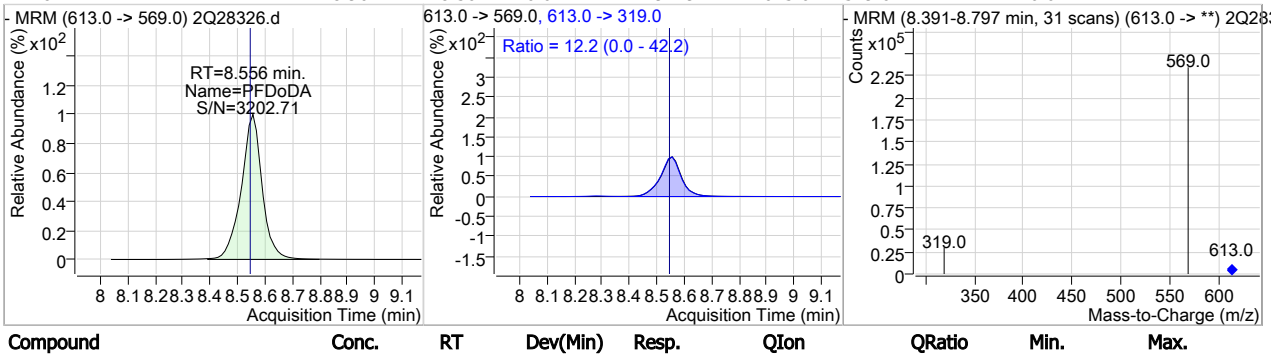
Perfluorinated Compounds by LC/MS/MS

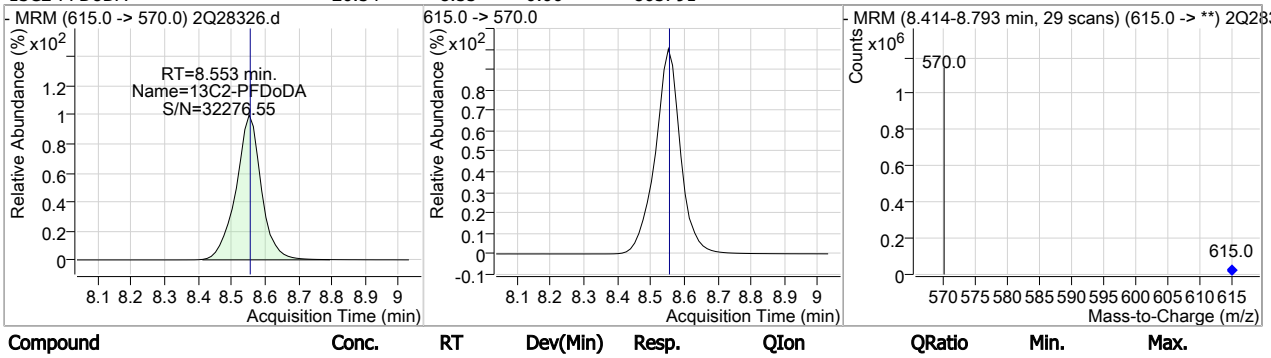
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	8.67	8.24	0.00	67879				



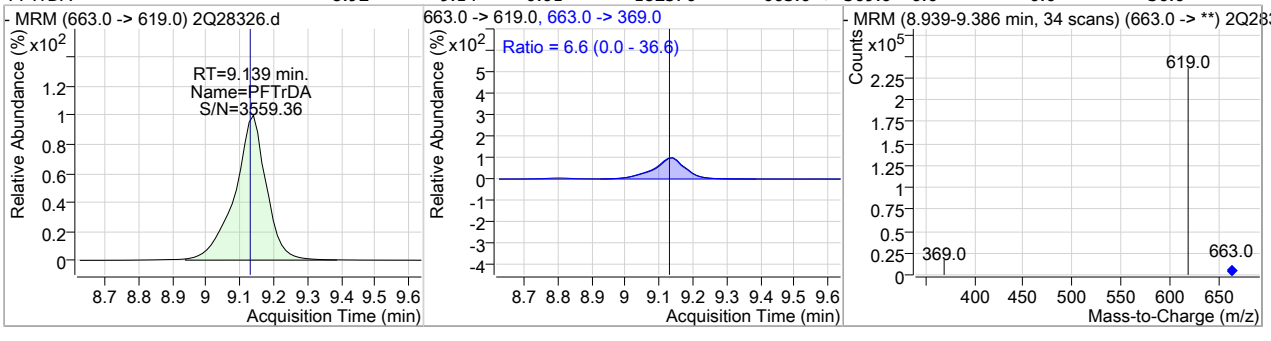
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	8.96	8.56	0.01	179149	613.0 -> 319.0	12.2	0.0	42.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.54	8.55	0.00	865791				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	8.92	9.14	0.01	182570	663.0 -> 369.0	6.6	0.0	36.6



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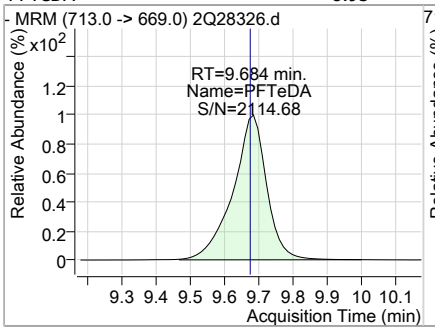
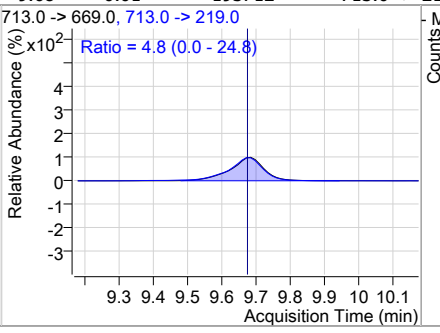
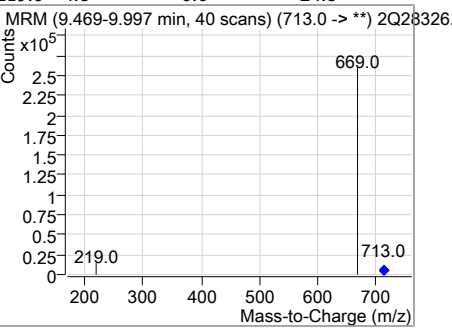
Perfluorinated Compounds by LC/MS/MS

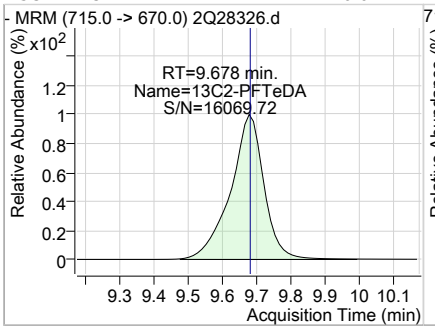
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	8.95	9.68	0.01	193712	713.0 -> 219.0	4.8	0.0	24.8

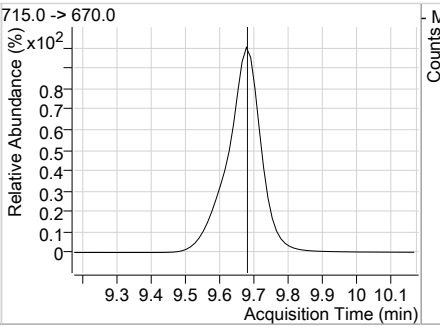


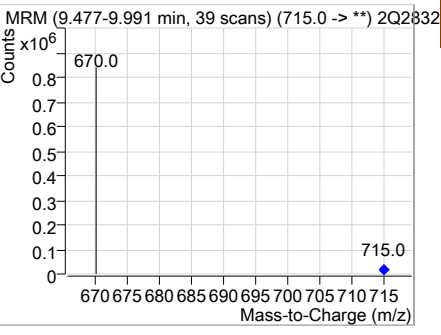




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.61	9.68	0.00	629167				







7.6.34

7

Manual Integration Approval Summary

Sample Number: S2Q450-IC450
Lab FileID: 2Q28326.D
Injection Time: 03/28/19 15:34
Method: EPA 537M BY ID
Analyst approved: 03/29/19 10:18 Mike Eger
Supervisor approved: 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Cal Report: 2Q28327.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File	: 2Q28327.d
Operator	: natashag
Acq. Method	: dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	: 3/28/2019 3:49:51 PM
Sample Name	: icc450-20
Vial	: Vial 7
DA Method File	: ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	: s2q450.batch.bin
Sample Information	: op74300,S2Q450,2.00,,,1.0,1,soil

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.411	415.0 -> 370.0	445659	20.00	µg/L	0.000
13C4-PFOS	7.023	503.0 -> 80.0	63130	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	151986	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	136769	20.00	µg/L	0.000
M5-PFHxA	4.764	318.0 -> 273.0	207743	20.00	µg/L	0.000
M4-PFHpA	5.679	367.0 -> 322.0	314919	20.00	µg/L	0.000
M8-PFOA	6.422	421.0 -> 376.0	330630	20.00	µg/L	0.000
M9-PFNA	7.052	472.0 -> 427.0	370343	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	525820	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	696523	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	854754	20.00	µg/L	0.000
M2-PFTeDA	9.678	715.0 -> 670.0	626097	20.00	µg/L	0.000
M8-FOSA	6.918	506.0 -> 78.0	113232	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	22417	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	24922	20.00	µg/L	0.000
M8-PFOS	7.033	507.0 -> 99.0	34601	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	106638	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	141279	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	126601	20.00	µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	68974	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	192487	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	106417	20.09	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C2-6:2FTS	6.406	429.0 -> 409.0	141244	20.21	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C2-8:2FTS	7.630	529.0 -> 509.0	126585	20.29	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C2-PFDoDA	8.553	615.0 -> 570.0	854730	20.27	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C2-PFTeDA	9.678	715.0 -> 670.0	627578	20.56	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C3-PFBS	3.767	302.0 -> 99.0	22399	20.34	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C3-PFHxS	5.723	402.0 -> 99.0	25020	20.21	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C4-PFBA	1.865	217.0 -> 172.0	151844	20.32	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C4-PFHpA	5.679	367.0 -> 322.0	314244	20.42	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C5-PFHxA	4.764	318.0 -> 273.0	207335	20.43	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C5-PFPeA	3.511	268.0 -> 223.0	136577	20.28	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
13C6-PFDA	7.594	519.0 -> 474.0	526216	20.45	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

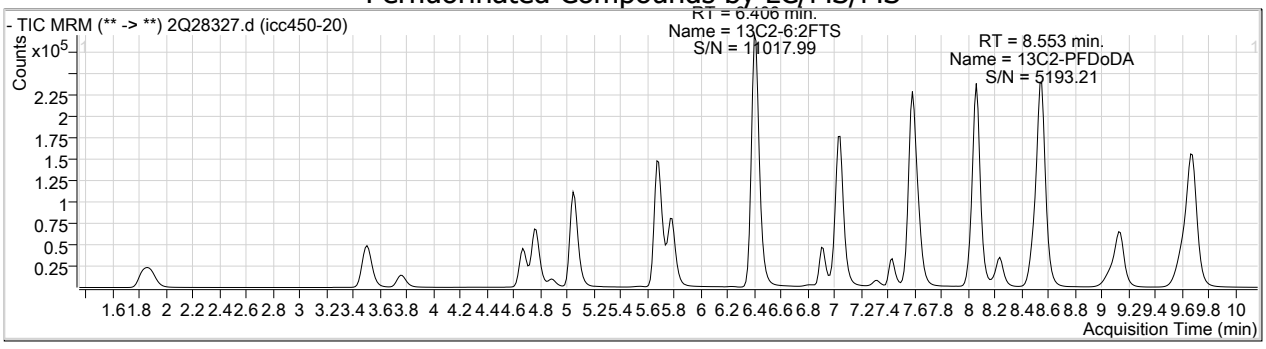
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C7-PFUnDA	8.067	570.0 -> 525.0	696526	20.42 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C8-FOSA	6.918	506.0 -> 78.0	113206	20.44 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C8-PFOA	6.422	421.0 -> 376.0	330748	20.42 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C8-PFOS	7.033	507.0 -> 99.0	34533	20.35 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C9-PFNA	7.052	472.0 -> 427.0	369963	20.40 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
d3-MeFOSAA	7.434	573.0 -> 419.0	68966	20.20 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
M2-PFOA	6.411	415.0 -> 370.0	445931	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	63211	20.02 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	192487	99.61 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
Target Compounds						QValue
4:2FTS	4.674	327.0 -> 307.0	61566	19.90 µg/L		100
6:2FTS	6.407	427.0 -> 407.0	70962	19.86 µg/L		100
8:2FTS	7.631	527.0 -> 507.0	66015	20.18 µg/L		100
EtFOSAA	7.573	584.0 -> 419.0	30001	22.13 µg/L		100
FOSA	6.910	498.0 -> 78.0	53939	19.77 µg/L		100
MeFOSAA	7.435	570.0 -> 419.0	36294	19.72 µg/L		100
PFBA	1.860	213.0 -> 169.0	29876	19.78 µg/L		100
PFBS	3.758	299.0 -> 80.0	36283	19.92 µg/L		100
PFDA	7.595	513.0 -> 469.0	228268	19.81 µg/L		100
PFDoDA	8.542	613.0 -> 569.0	389482	19.77 µg/L		100
PFDS	8.024	599.0 -> 80.0	13705	20.72 µg/L		100
PFHpA	5.681	363.0 -> 319.0	272151	19.71 µg/L		100
PFHpS	6.417	449.0 -> 80.0	26664	20.76 µg/L		100
PFHxA	4.765	313.0 -> 269.0	70802	19.50 µg/L		100
PFHxS	5.726	399.0 -> 80.0	29002	19.62 µg/L	m	100
PFNA	7.054	463.0 -> 419.0	241067	19.79 µg/L		100
PFNS	7.565	549.0 -> 80.0	26540	20.29 µg/L		100
PFOA	6.412	413.0 -> 369.0	174928	19.74 µg/L		100
PFOS	7.024	499.0 -> 80.0	33143	19.73 µg/L	m	81
PFPeA	3.515	263.0 -> 219.0	121266	19.97 µg/L		100
PFPeS	4.883	349.0 -> 80.0	25542	20.06 µg/L		100
PFTeDA	9.672	713.0 -> 669.0	426453	19.79 µg/L		100
PFTrDA	9.127	663.0 -> 619.0	403600	19.81 µg/L		100
PFUnDA	8.068	563.0 -> 519.0	285879	19.76 µg/L		100
11Cl-PF3OUdS	8.237	631.0 -> 451.0	151499	19.62 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	28540	18.21 µg/L		100
ADONA	5.791	377.0 -> 251.0	306799	18.76 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	229947	99.70 µg/L		100

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

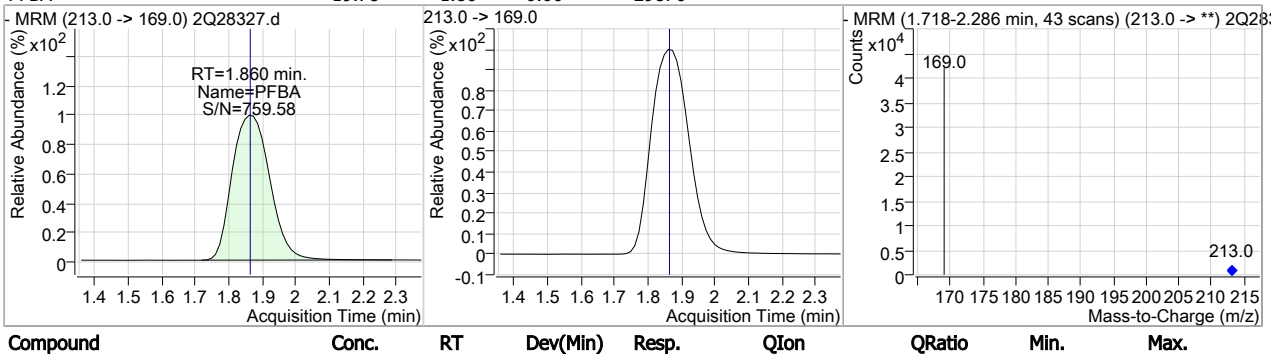
7.6.35

7

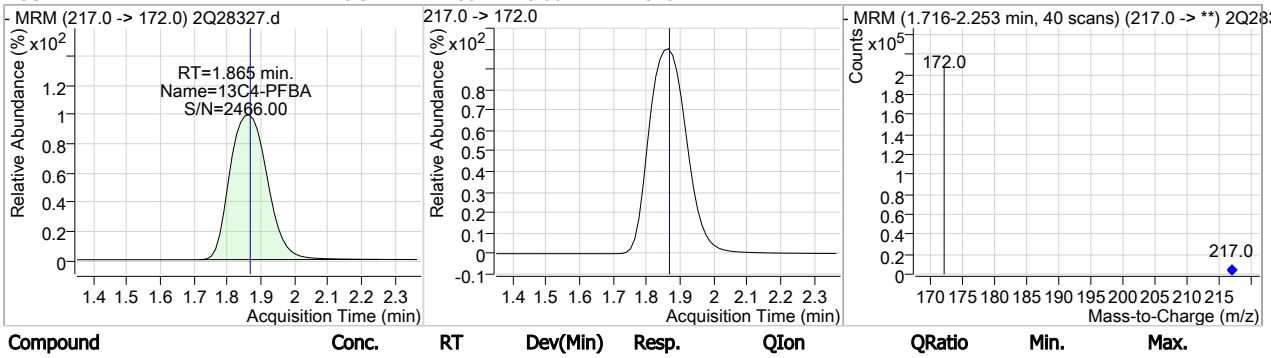
Perfluorinated Compounds by LC/MS/MS



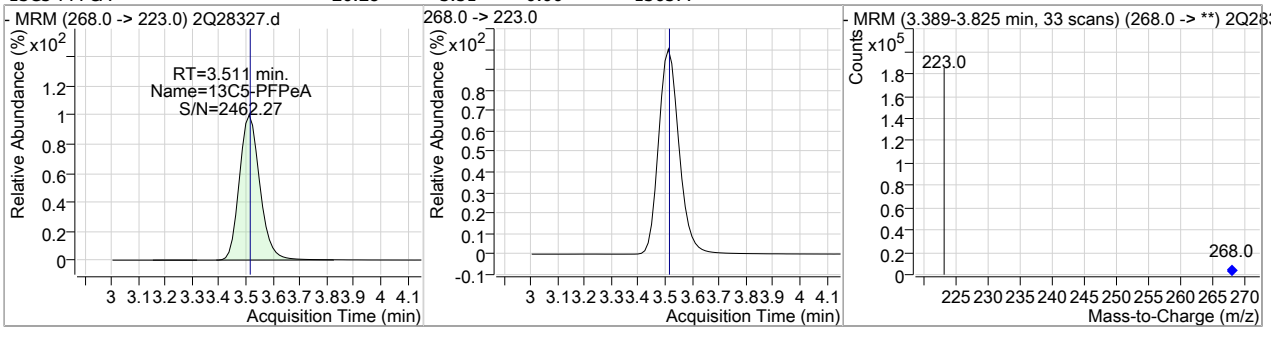
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.78	1.86	0.00	29876				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.32	1.86	0.00	151844				

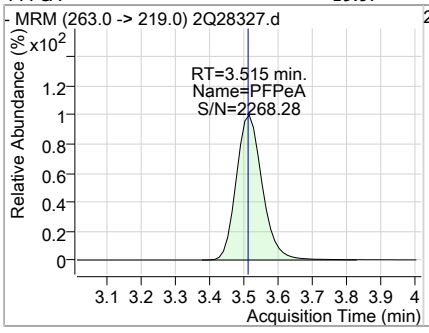


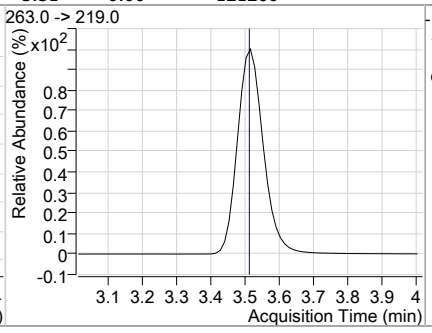
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.28	3.51	0.00	136577				

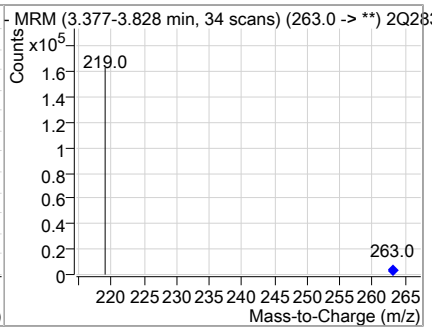


Perfluorinated Compounds by LC/MS/MS

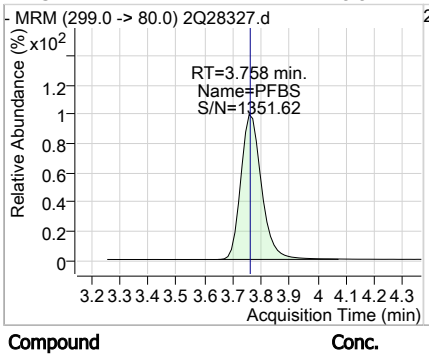
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.97	3.51	0.00	121266				

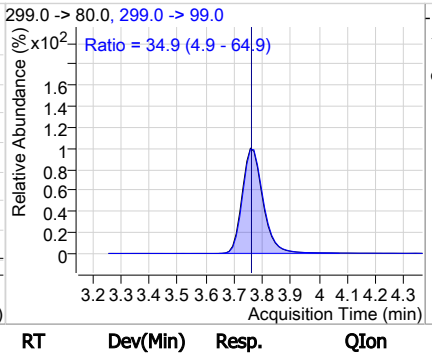


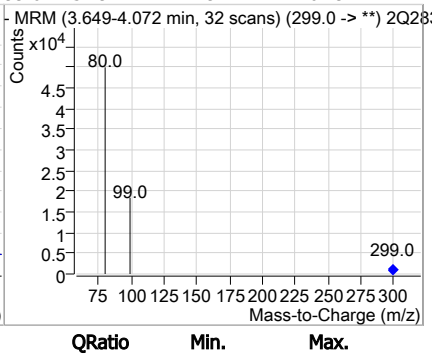




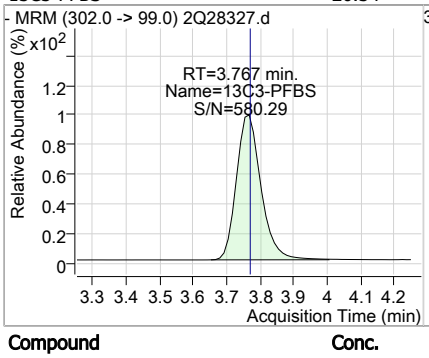
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.92	3.76	0.00	36283	299.0 -> 99.0	34.9	4.9	64.9

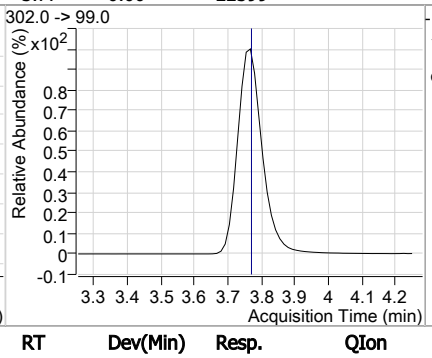


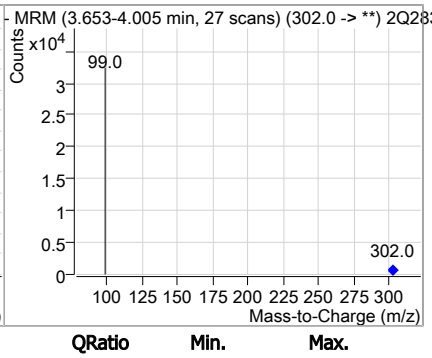




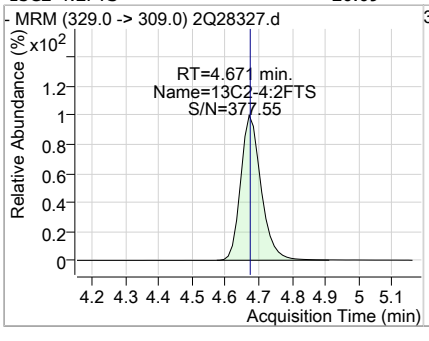
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.34	3.77	0.00	22399				

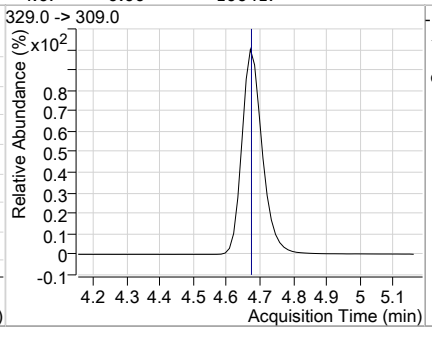


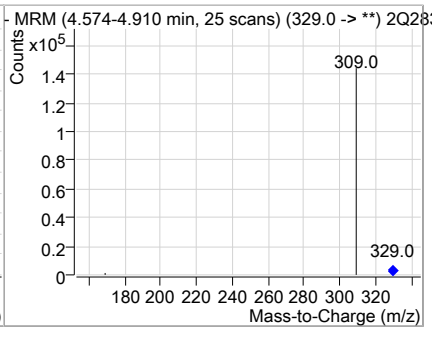




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.09	4.67	0.00	106417				







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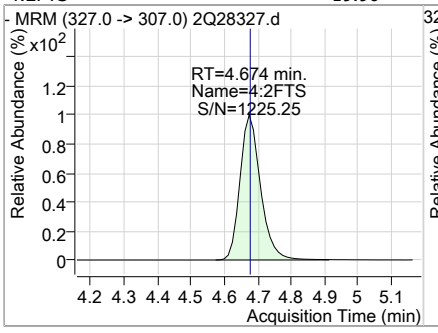
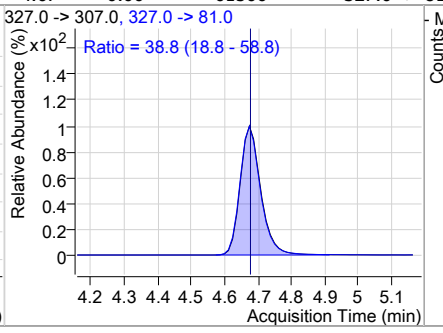
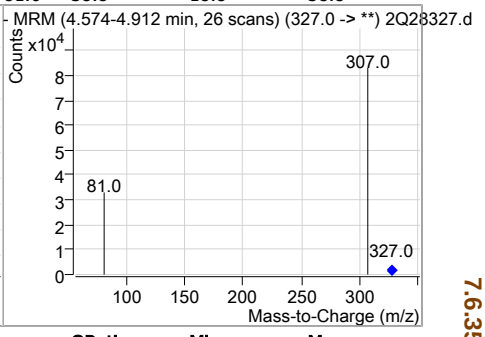
Perfluorinated Compounds by LC/MS/MS

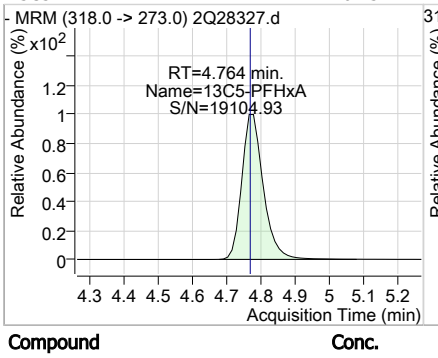
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.90	4.67	0.00	61566	327.0 -> 81.0	38.8	18.8	58.8

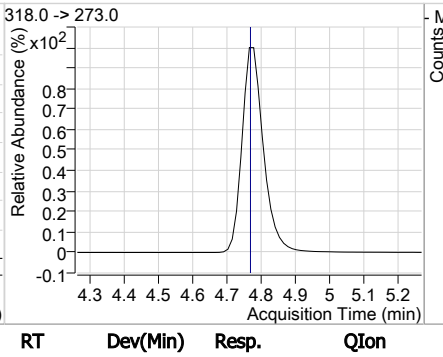


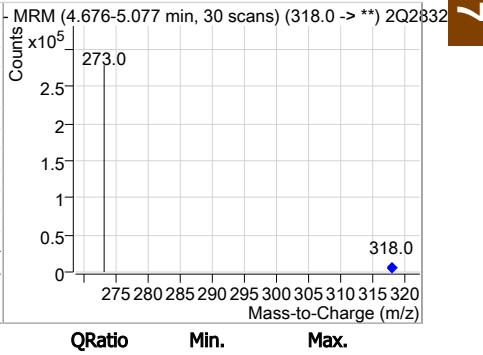




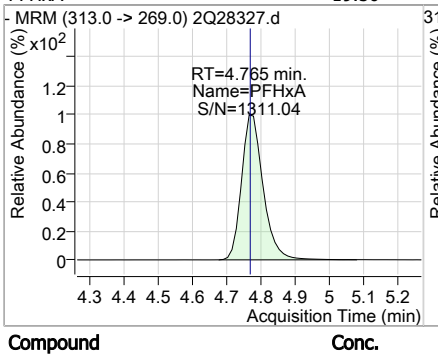
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.43	4.76	0.00	207335				

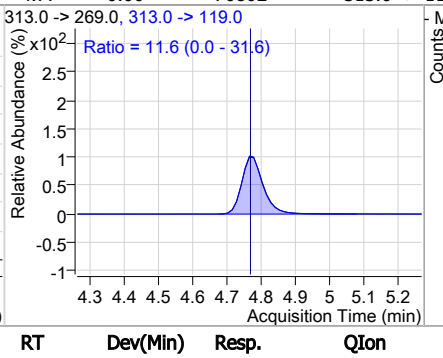


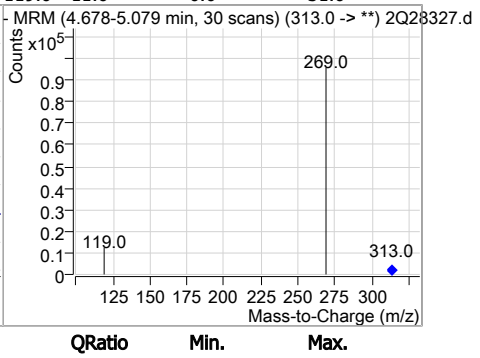




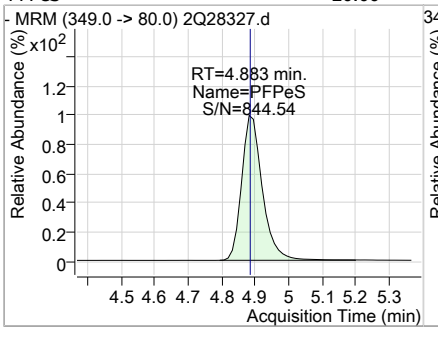
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.50	4.77	0.00	70802	313.0 -> 119.0	11.6	0.0	31.6

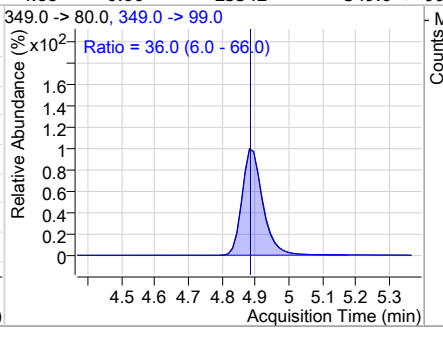


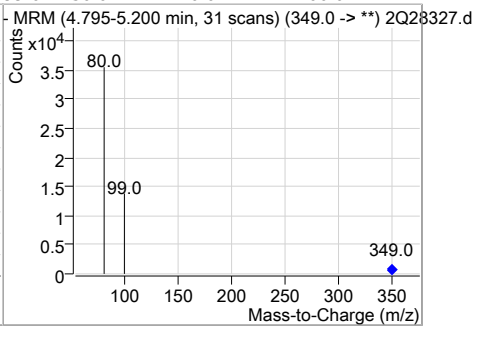




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.06	4.88	0.00	25542	349.0 -> 99.0	36.0	6.0	66.0







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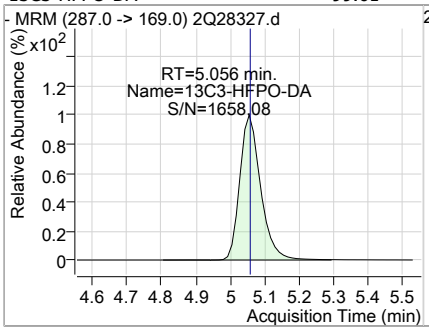
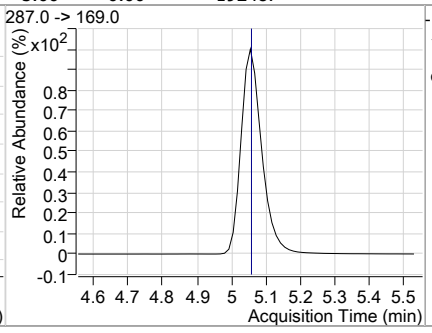
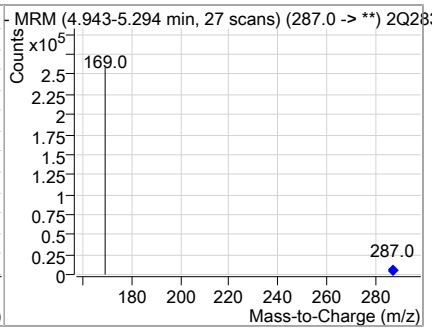
Perfluorinated Compounds by LC/MS/MS

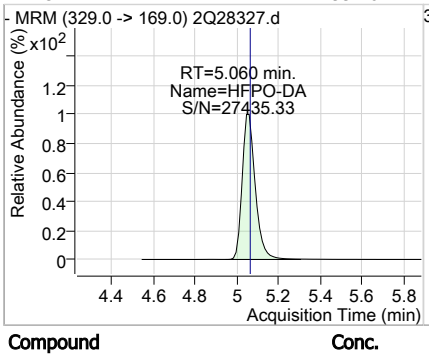
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	99.61	5.06	0.00	192487				

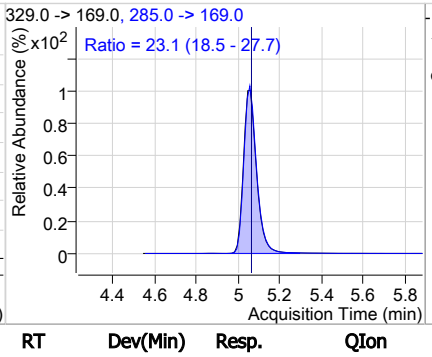


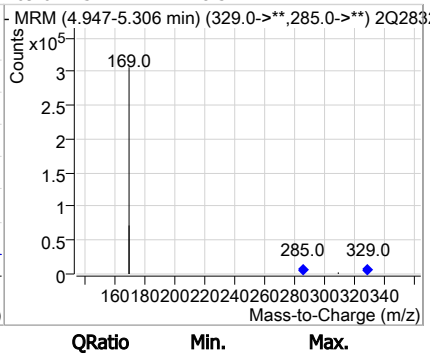




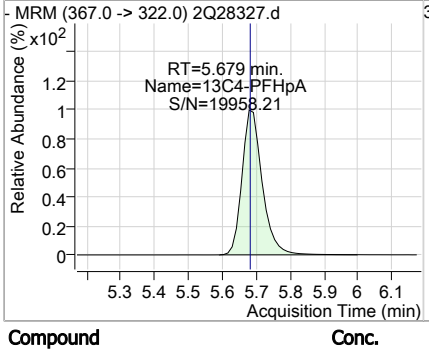
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	99.70	5.06	0.00	229947	285.0 -> 169.0	23.1	18.5	27.7

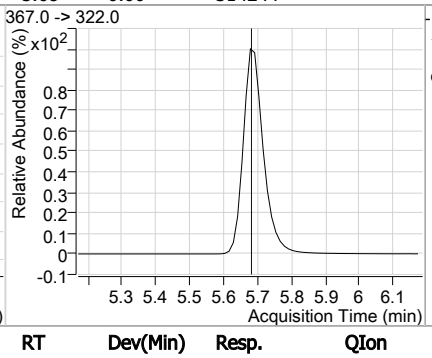


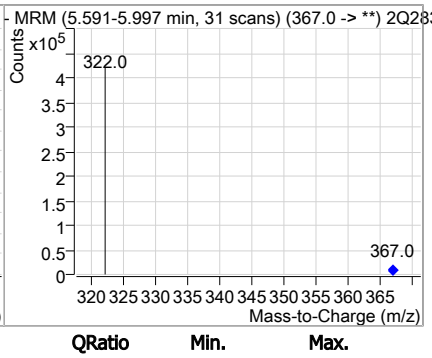




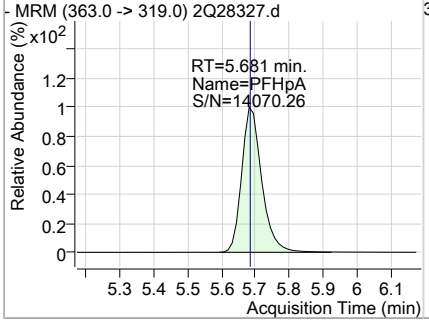
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.42	5.68	0.00	314244				

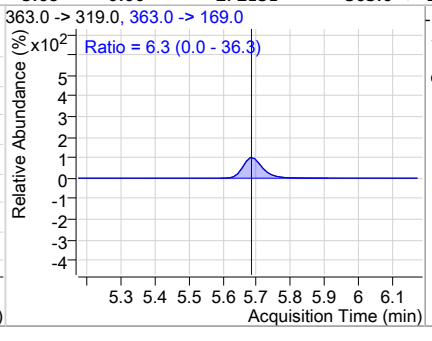


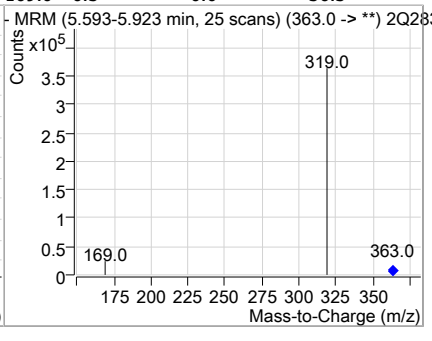




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.71	5.68	0.00	272151	363.0 -> 169.0	6.3	0.0	36.3



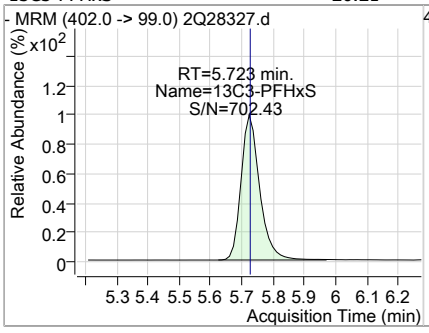


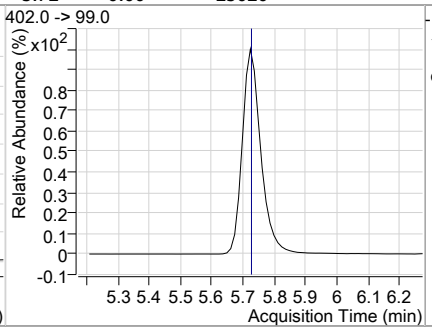


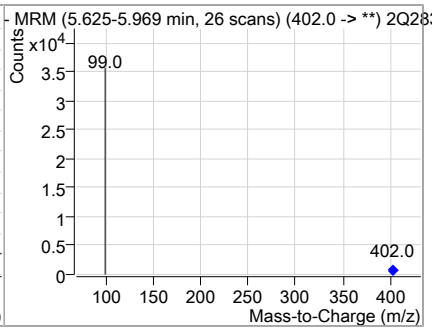
7.6.35

Perfluorinated Compounds by LC/MS/MS

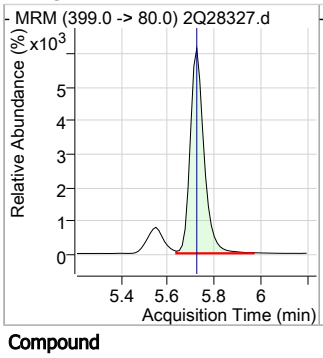
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.21	5.72	0.00	25020				

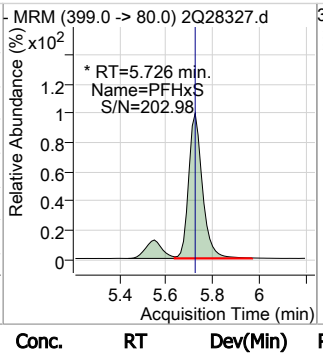


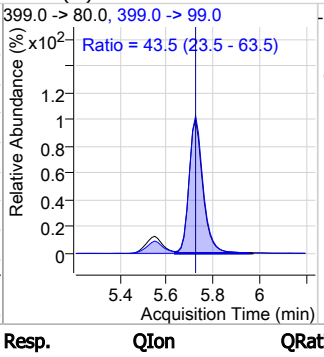


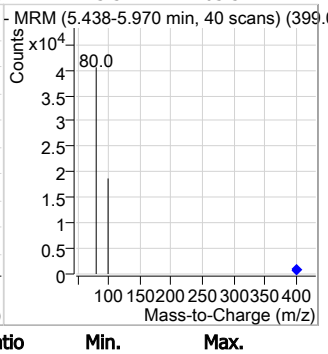


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.62	5.73	0.00	29002 (m)	399.0 -> 99.0	43.5	23.5	63.5

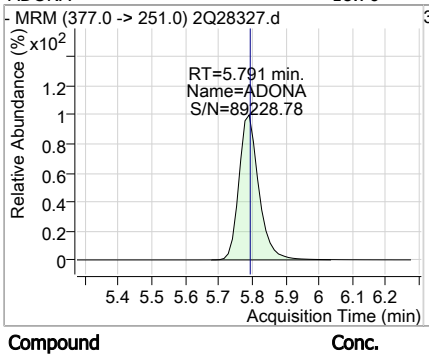


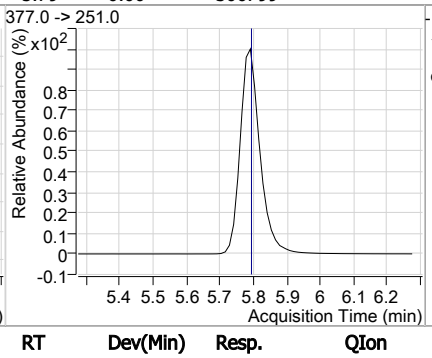


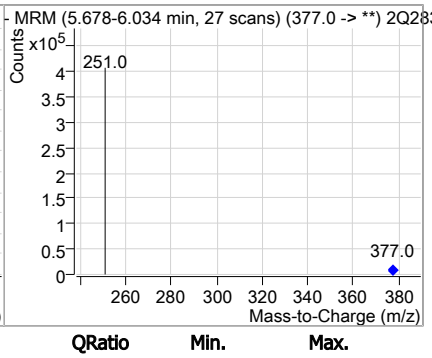




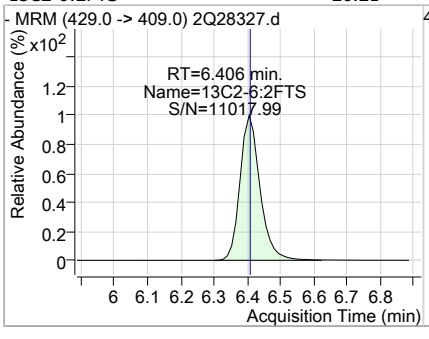
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.76	5.79	0.00	306799				

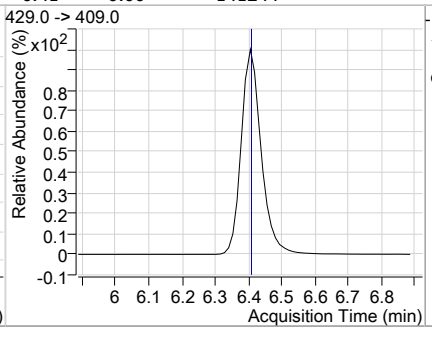


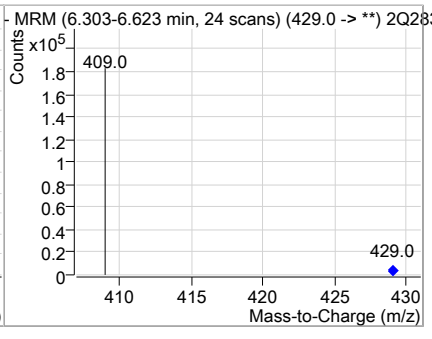




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.21	6.41	0.00	141244				

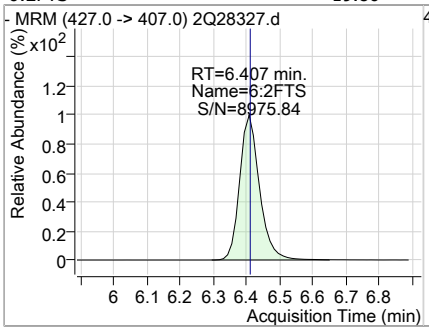


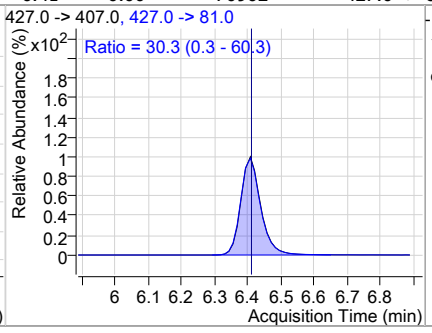


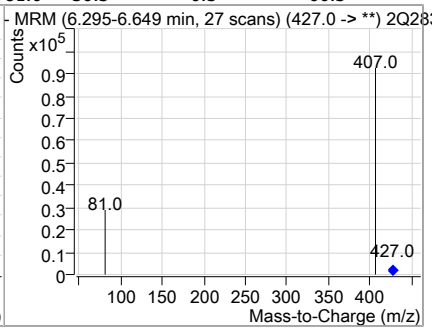


Perfluorinated Compounds by LC/MS/MS

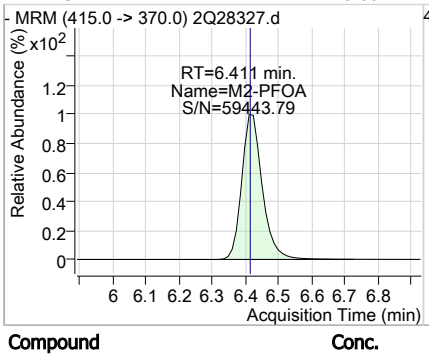
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.86	6.41	0.00	70962	427.0 -> 81.0	30.3	0.3	60.3

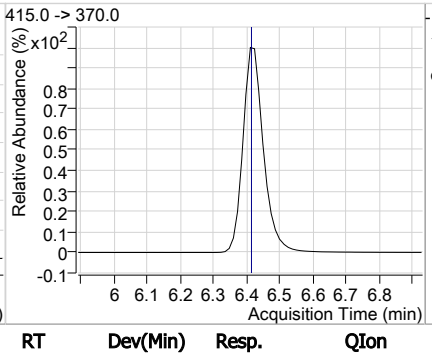


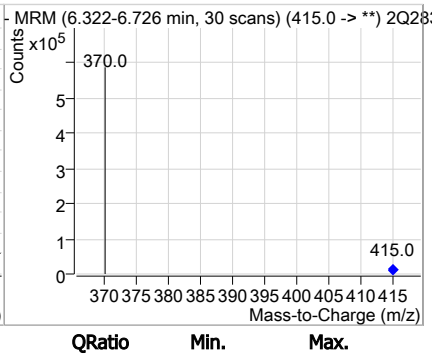




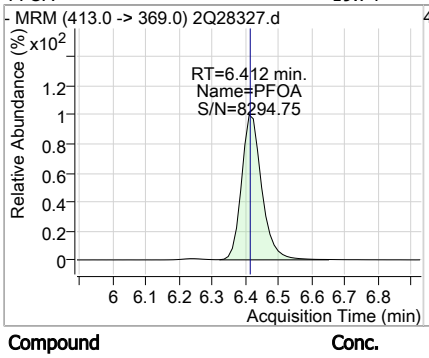
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	445931				

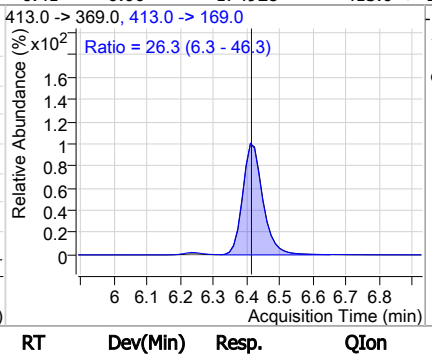


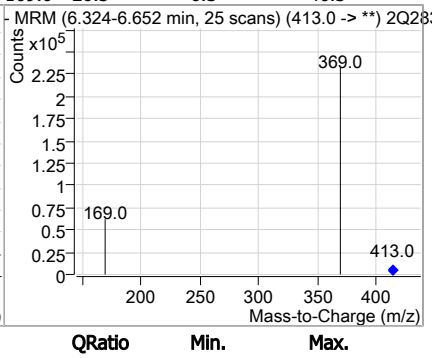




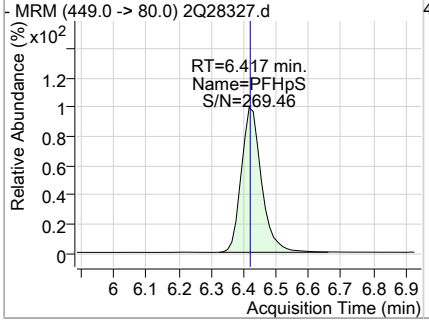
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.74	6.41	0.00	174928	413.0 -> 169.0	26.3	6.3	46.3

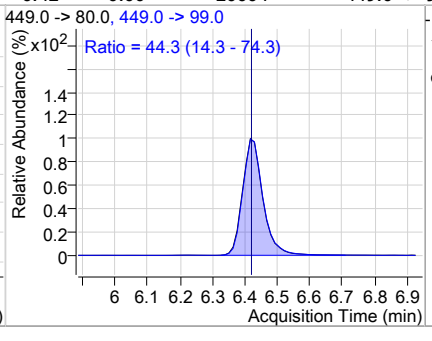


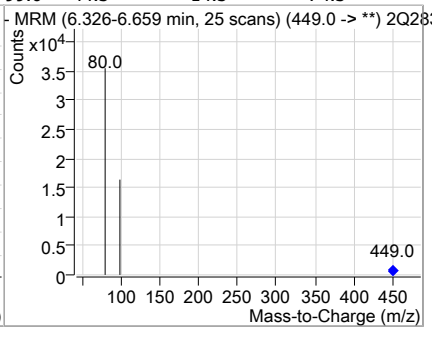




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.76	6.42	0.00	26664	449.0 -> 99.0	44.3	14.3	74.3

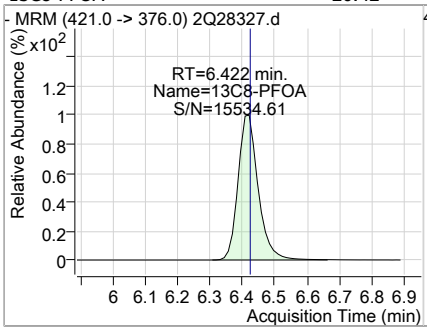


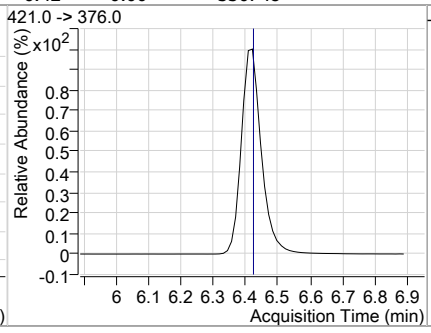


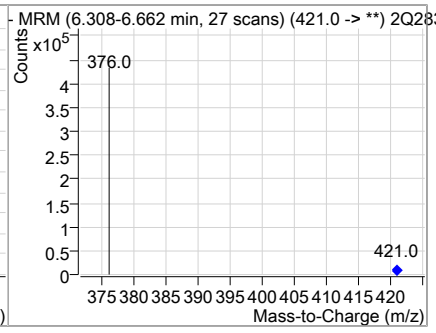


Perfluorinated Compounds by LC/MS/MS

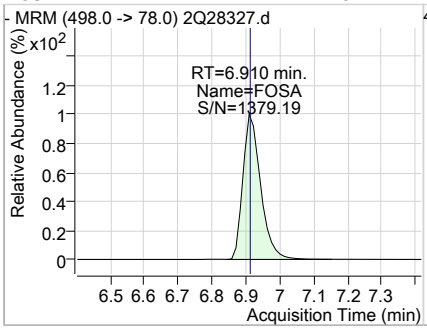
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.42	6.42	0.00	330748				

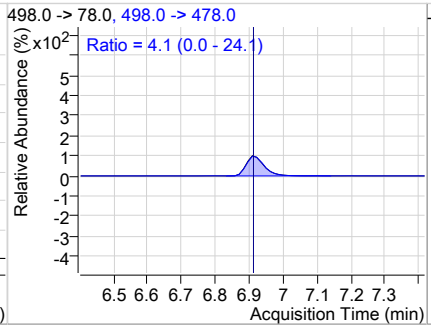


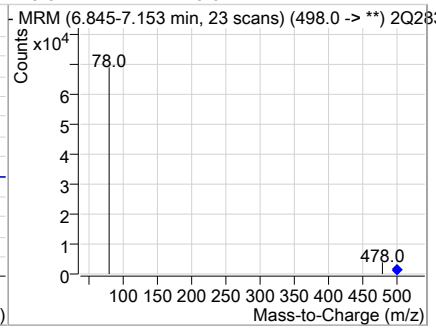




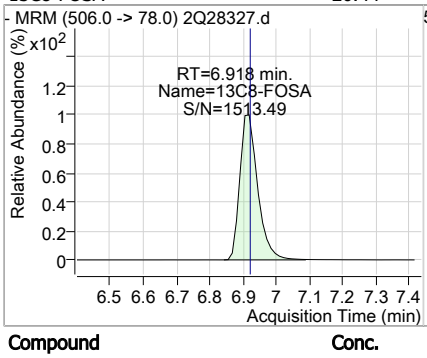
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.77	6.91	0.00	53939	498.0 -> 478.0	4.1	0.0	24.1

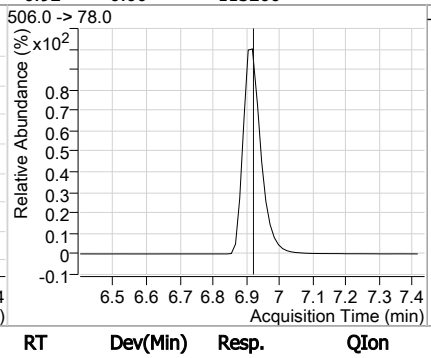


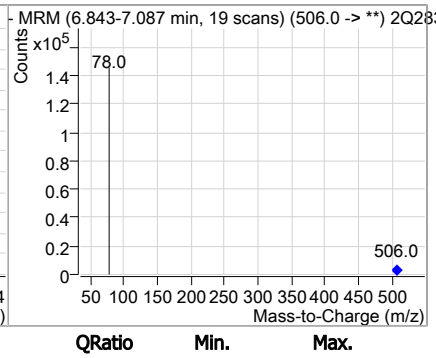




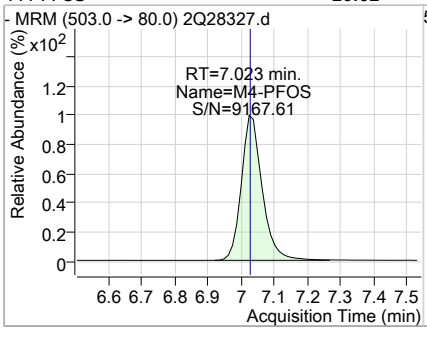
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.44	6.92	0.00	113206				

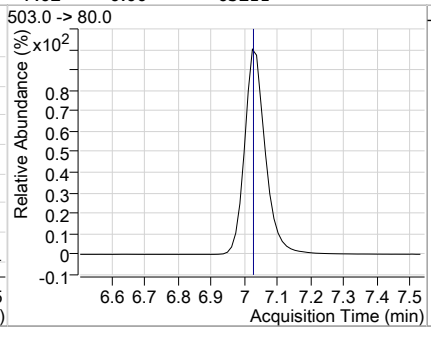


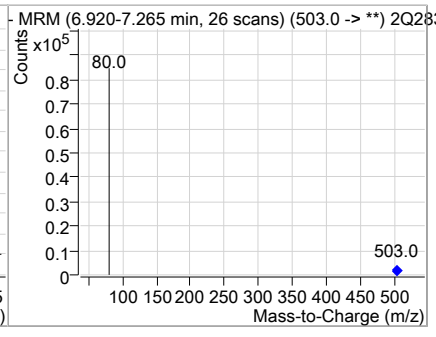




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.02	0.00	63211				



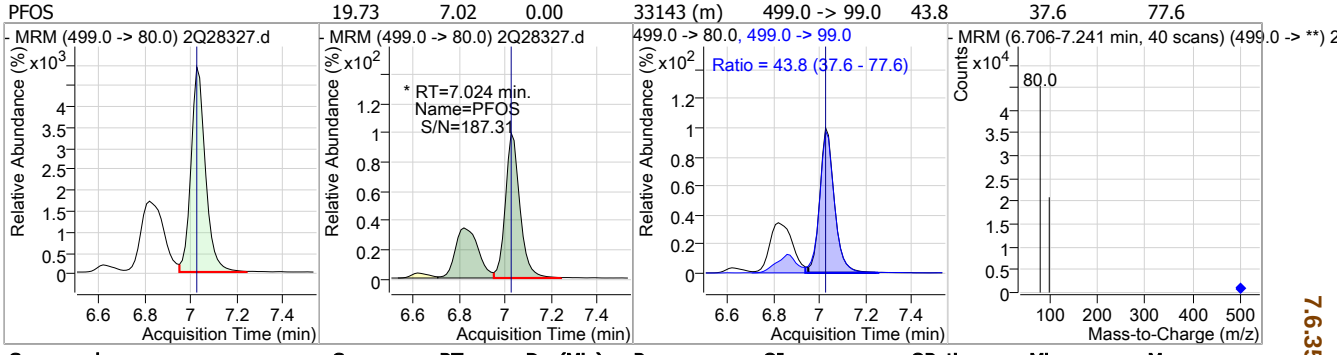




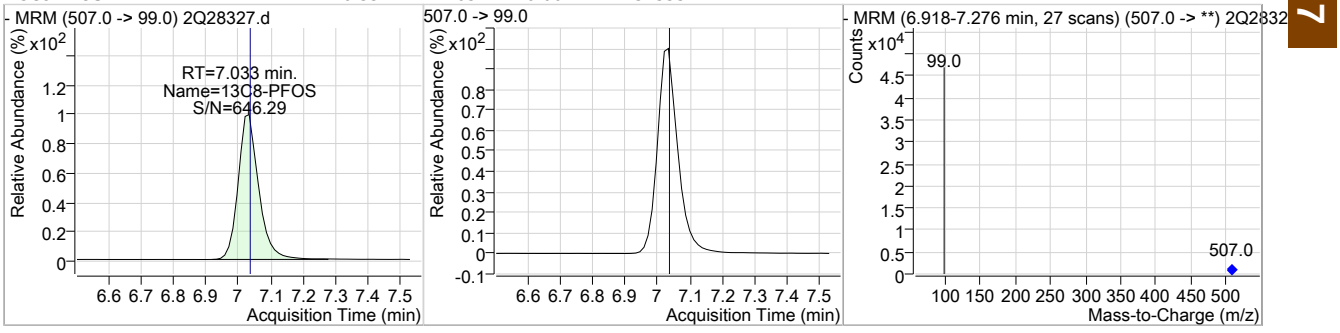
7.6.35

Perfluorinated Compounds by LC/MS/MS

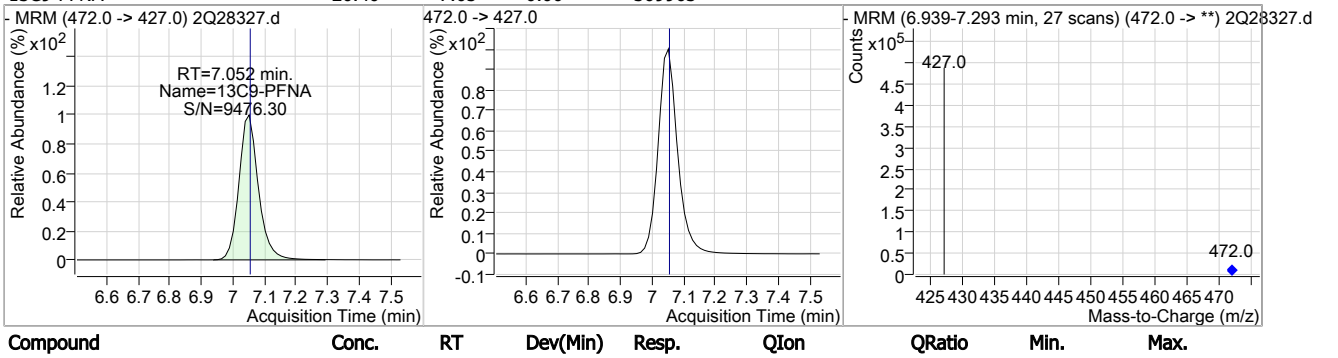
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.73	7.02	0.00	33143 (m)	499.0 -> 99.0	43.8	37.6	77.6



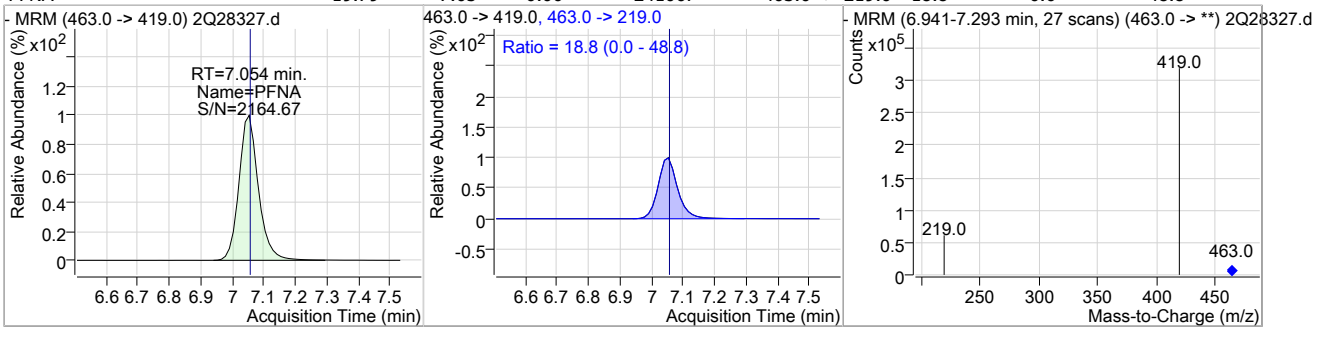
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.35	7.03	0.00	34533				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.40	7.05	0.00	369963				



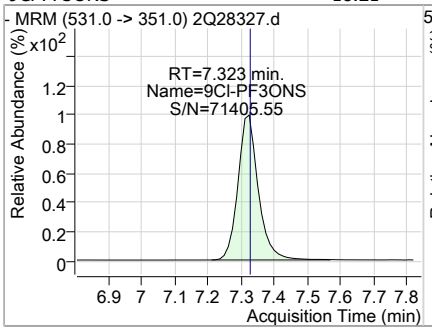
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.79	7.05	0.00	241067	463.0 -> 219.0	18.8	0.0	48.8

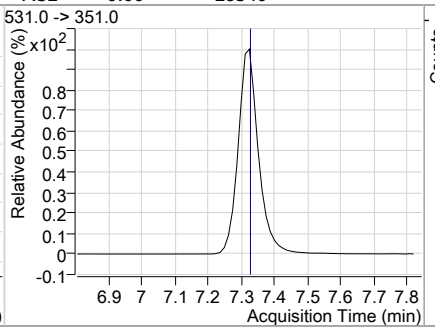


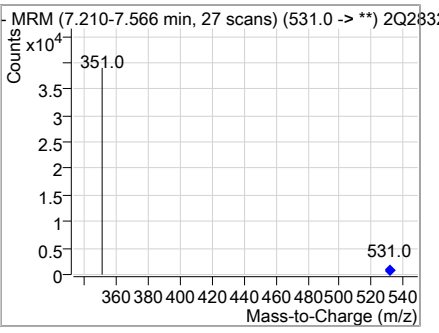
7.6.35

Perfluorinated Compounds by LC/MS/MS

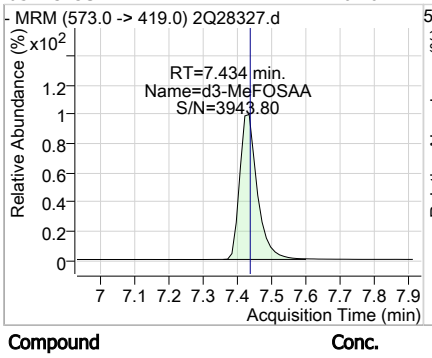
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	18.21	7.32	0.00	28540				

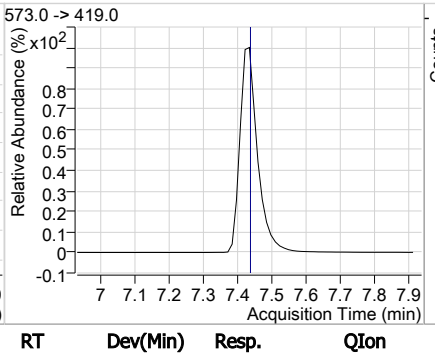


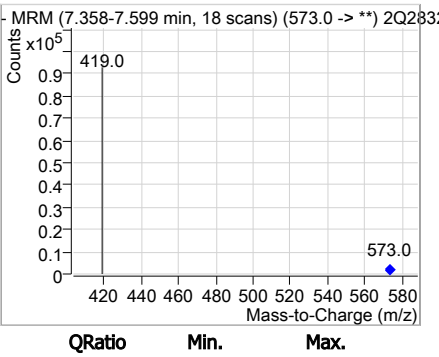




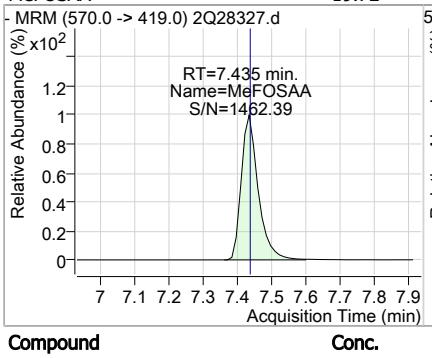
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.20	7.43	0.00	68966				

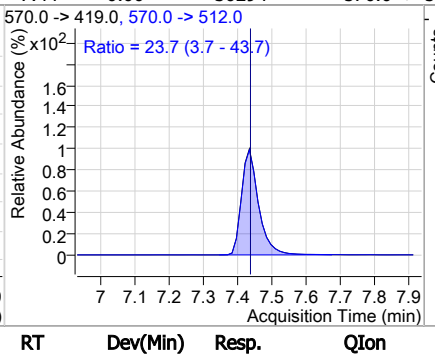


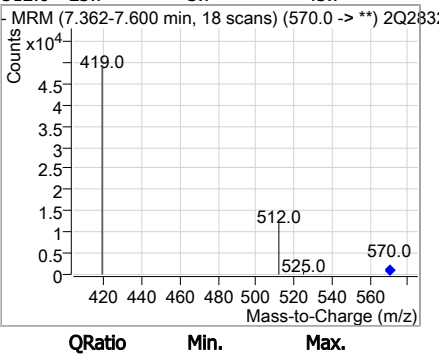




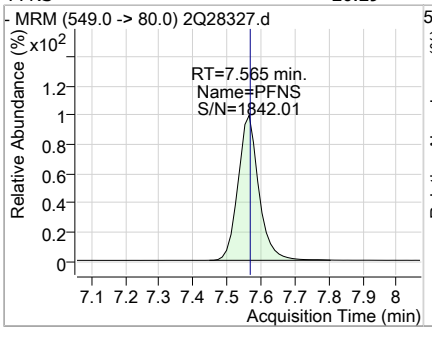
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.72	7.44	0.00	36294	570.0 -> 512.0	23.7	3.7	43.7

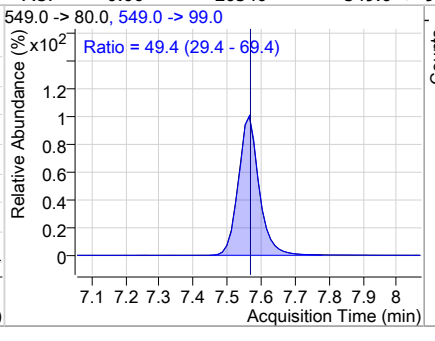


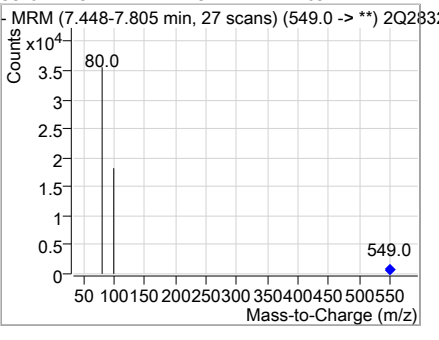




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.29	7.57	0.00	26540	549.0 -> 99.0	49.4	29.4	69.4



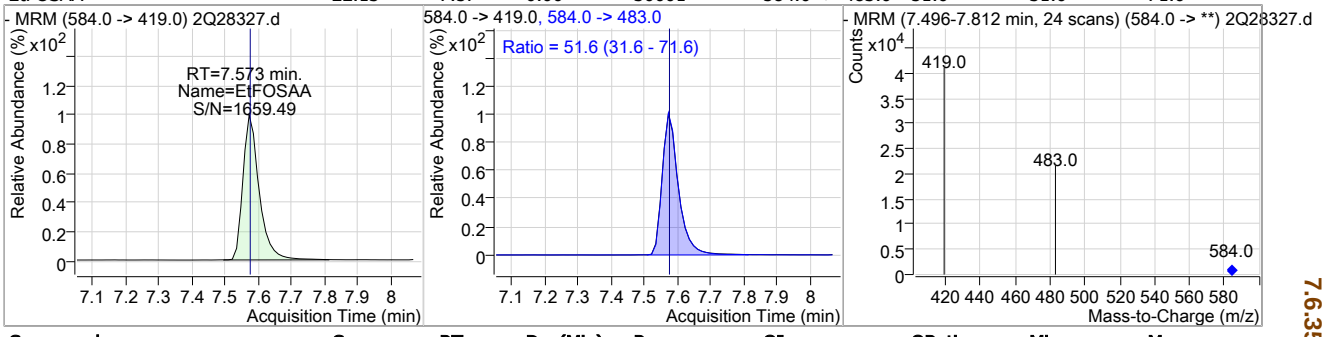




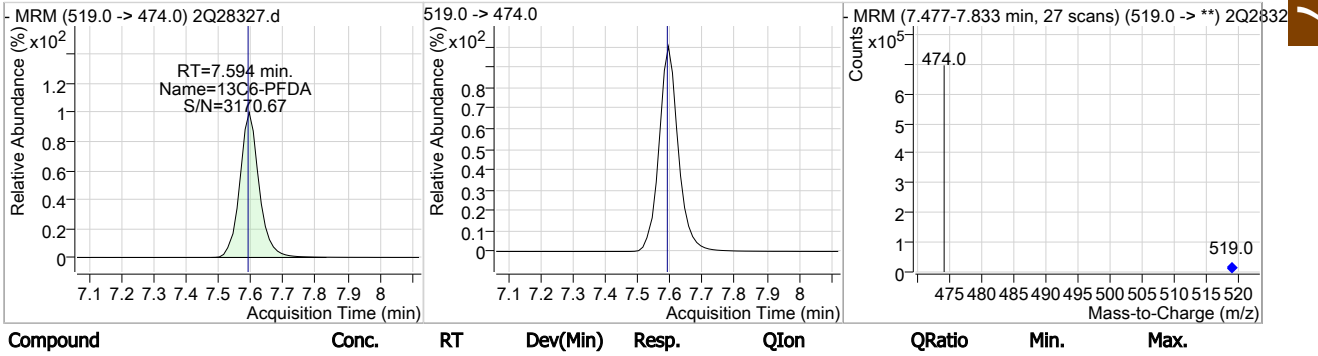
7.6.35

Perfluorinated Compounds by LC/MS/MS

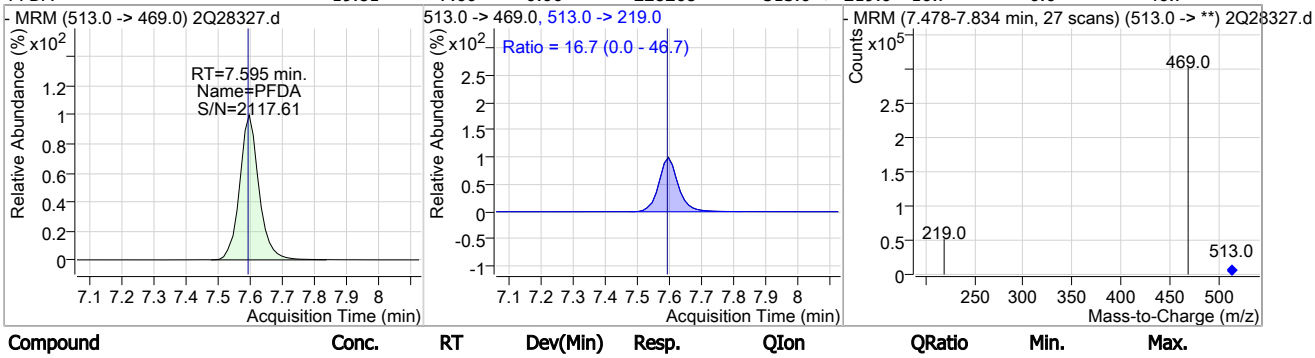
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.13	7.57	0.00	30001	584.0 -> 483.0	51.6	31.6	71.6



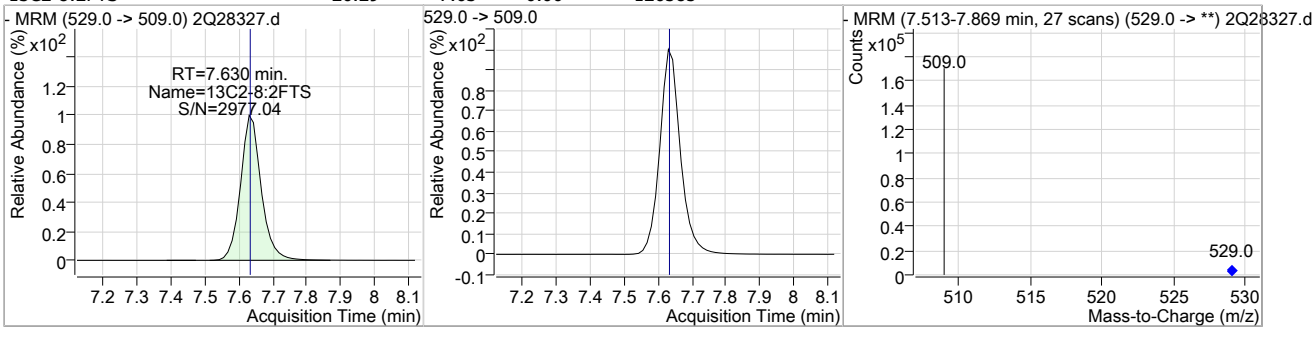
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.45	7.59	0.00	526216				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.81	7.60	0.00	228268	513.0 -> 219.0	16.7	0.0	46.7



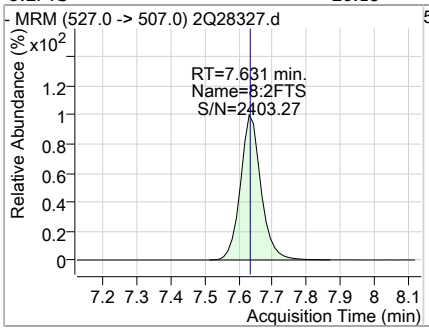
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.29	7.63	0.00	126585				

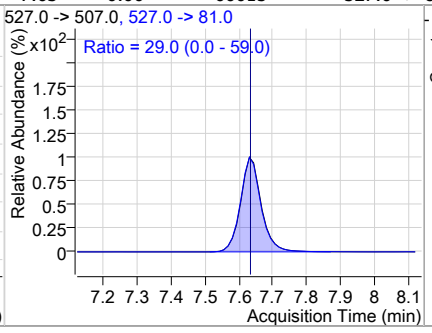


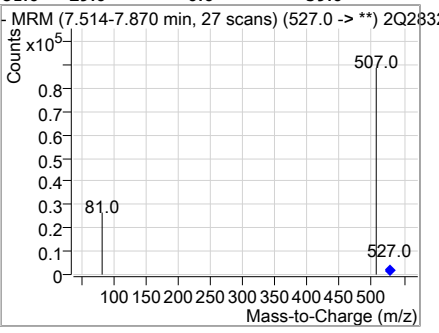
7.6.35

Perfluorinated Compounds by LC/MS/MS

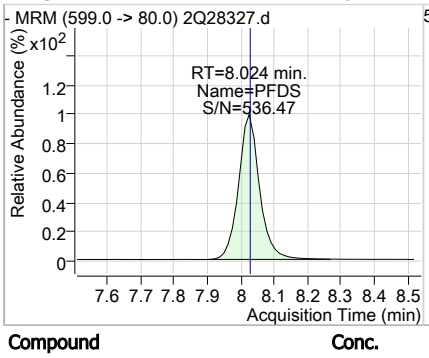
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.18	7.63	0.00	66015	527.0 -> 81.0	29.0	0.0	59.0

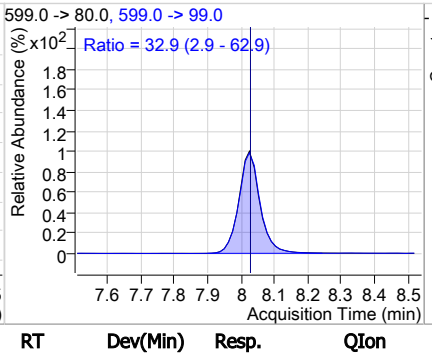


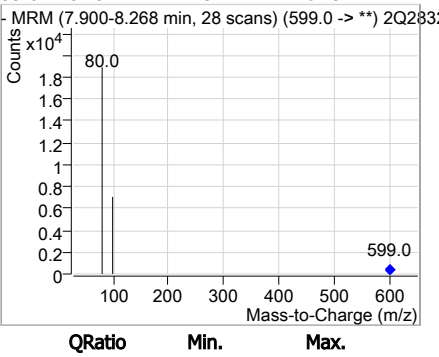




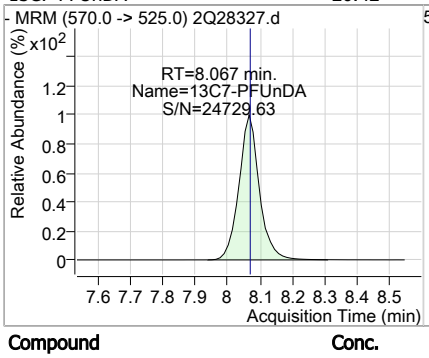
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	20.72	8.02	0.00	13705	599.0 -> 99.0	32.9	2.9	62.9

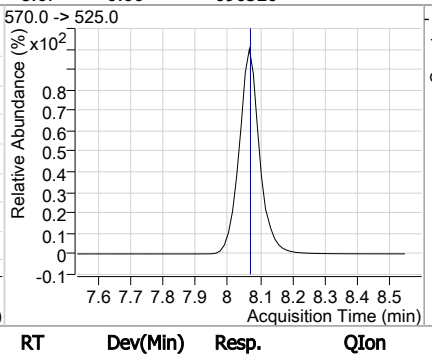


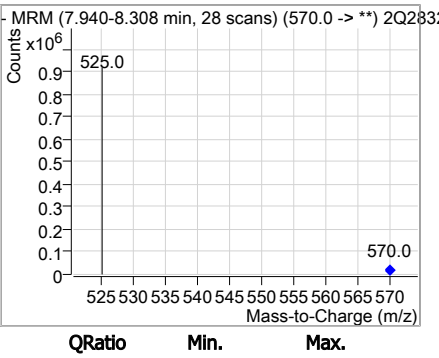




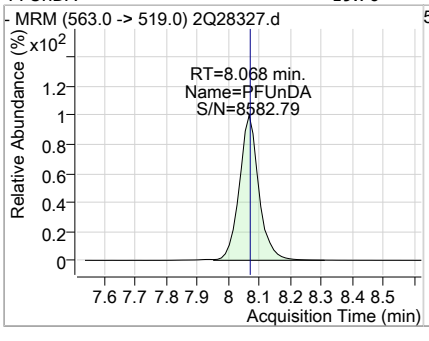
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.42	8.07	0.00	696526				

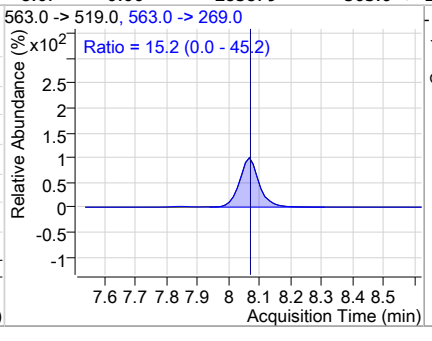


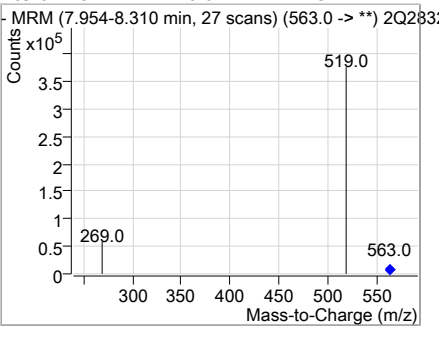




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.76	8.07	0.00	285879	563.0 -> 269.0	15.2	0.0	45.2



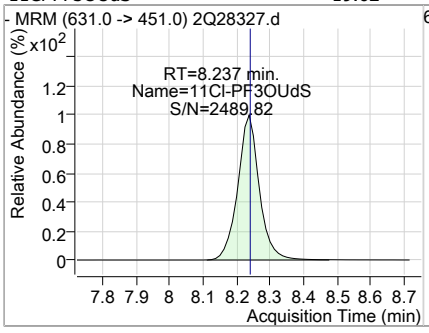


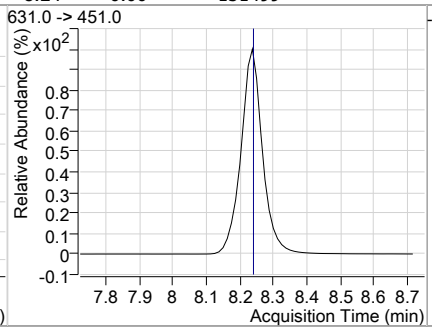


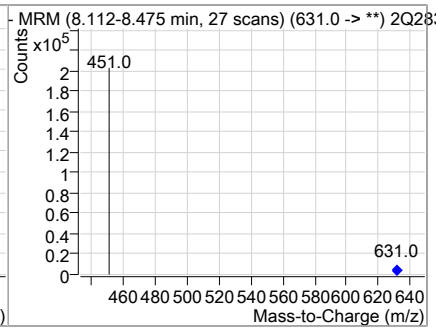
7.6.35

Perfluorinated Compounds by LC/MS/MS

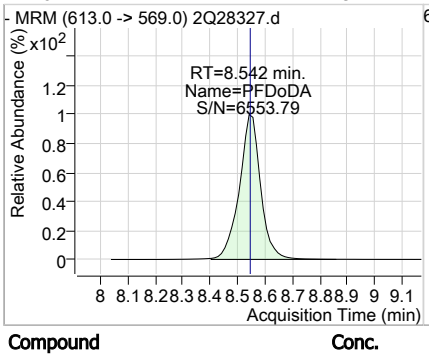
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.62	8.24	0.00	151499				

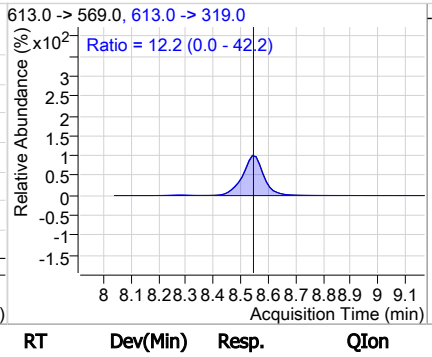


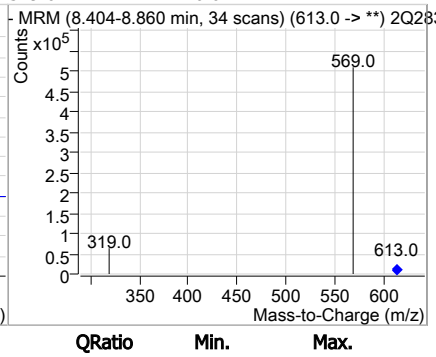




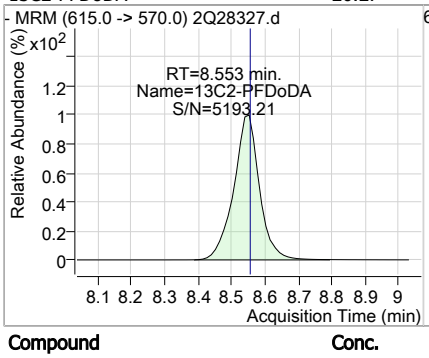
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.77	8.54	0.00	389482	613.0 -> 319.0	12.2	0.0	42.2

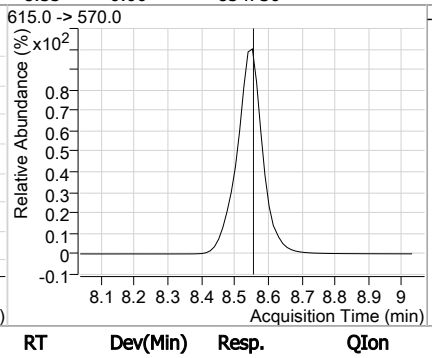


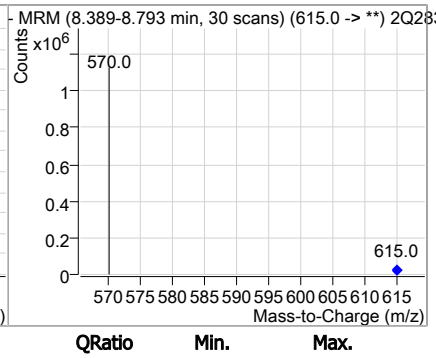




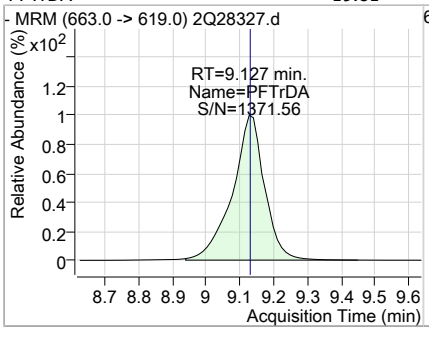
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.27	8.55	0.00	854730				

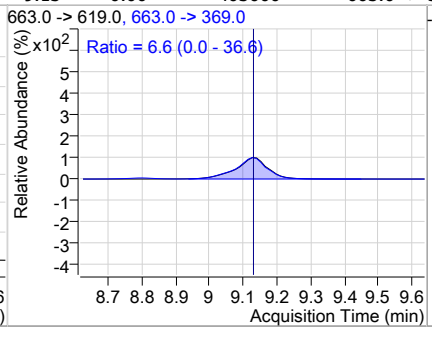


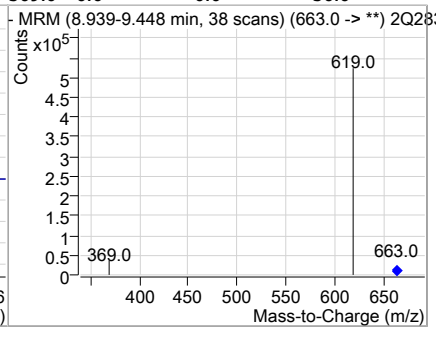




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	19.81	9.13	0.00	403600	663.0 -> 369.0	6.6	0.0	36.6



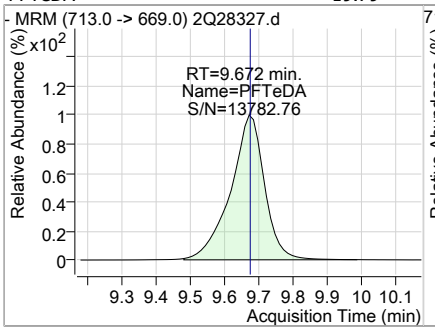


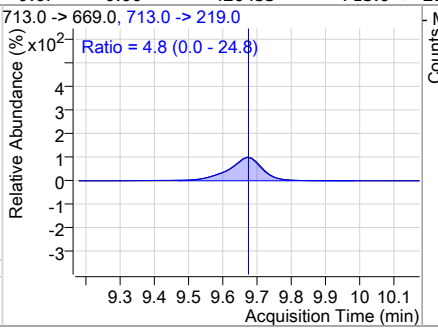


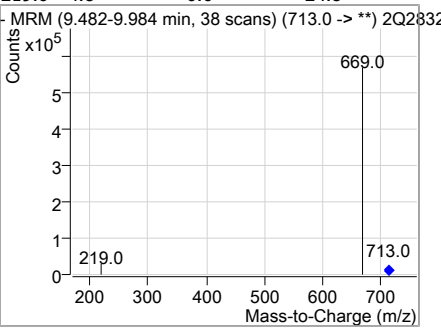
7.6.35

Perfluorinated Compounds by LC/MS/MS

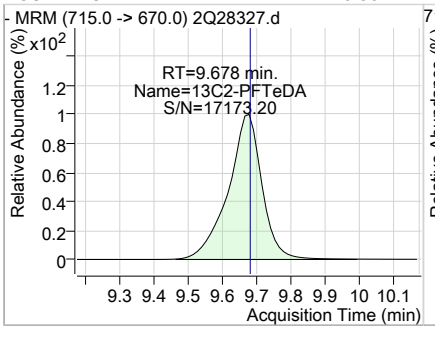
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.79	9.67	0.00	426453	713.0 -> 219.0	4.8	0.0	24.8

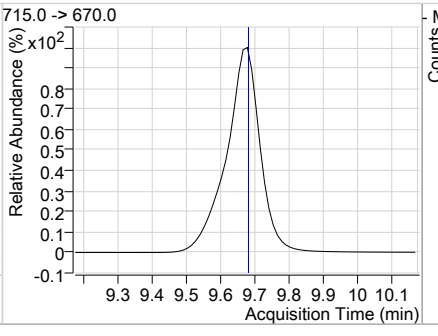


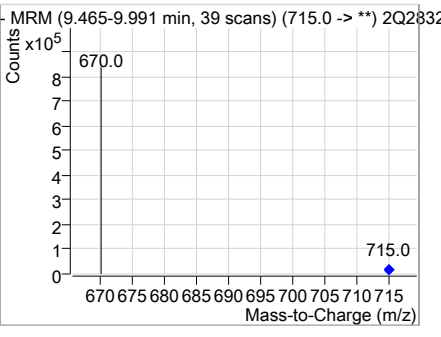




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.56	9.68	0.00	627578				







7.6.35

Manual Integration Approval Summary

Sample Number: S2Q450-ICC450 **Method:** EPA 537M BY ID
Lab FileID: 2Q28327.D **Analyst approved:** 03/29/19 10:18 Mike Eger
Injection Time: 03/28/19 15:49 **Supervisor approved:** 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak

Cal Report: 2Q28328.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File	: 2Q28328.d
Operator	: natashag
Acq. Method	: dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	: 3/28/2019 4:05:34 PM
Sample Name	: ic450-50
Vial	: Vial 8
DA Method File	: ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	: s2q450.batch.bin
Sample Information	: op74300,S2Q450,2.00,,,1.0,1,soil

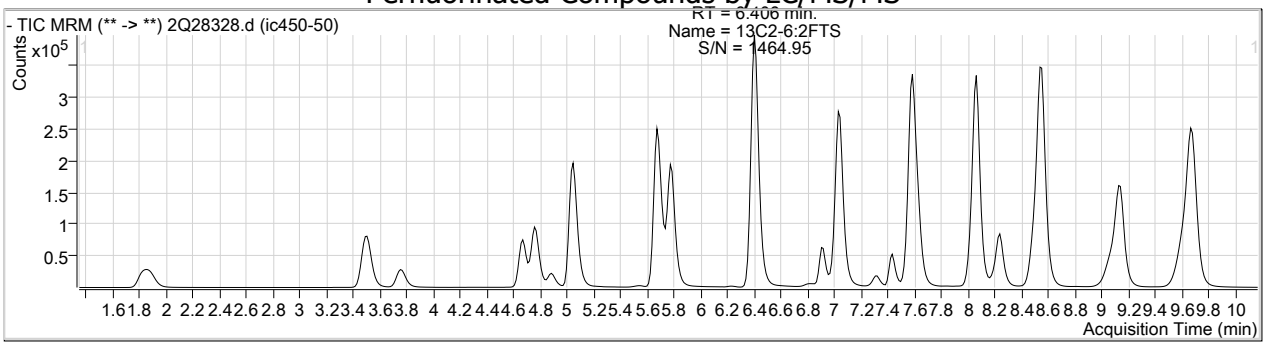
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.411	415.0 -> 370.0	416099	20.00	µg/L	0.000
13C4-PFOS	7.023	503.0 -> 80.0	60078	20.00	µg/L	0.000
M4-PFBA	1.852	217.0 -> 172.0	148867	20.00	µg/L	-0.013
M5-PFPeA	3.511	268.0 -> 223.0	134212	20.00	µg/L	0.000
M5-PFHxA	4.764	318.0 -> 273.0	199648	20.00	µg/L	0.000
M4-PFHpA	5.679	367.0 -> 322.0	301436	20.00	µg/L	0.000
M8-PFOA	6.409	421.0 -> 376.0	311034	20.00	µg/L	-0.013
M9-PFNA	7.052	472.0 -> 427.0	352335	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	488784	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	657850	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	823664	20.00	µg/L	0.000
M2-PFTeDA	9.665	715.0 -> 670.0	610270	20.00	µg/L	-0.013
M8-FOSA	6.918	506.0 -> 78.0	101919	20.00	µg/L	0.000
M3-PFBS	3.755	302.0 -> 99.0	21858	20.00	µg/L	-0.013
M3-PFHxS	5.723	402.0 -> 99.0	24140	20.00	µg/L	0.000
M8-PFOS	7.020	507.0 -> 99.0	33752	20.00	µg/L	-0.013
M2-4:2FTS	4.671	329.0 -> 309.0	111913	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	143292	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	130066	20.00	µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	66835	20.00	µg/L	0.000
M3-HFPO-DA	5.043	287.0 -> 169.0	183049	100.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	111612	21.07	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C2-6:2FTS	6.406	429.0 -> 409.0	143196	20.49	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C2-8:2FTS	7.630	529.0 -> 509.0	130065	20.84	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C2-PFDoDA	8.553	615.0 -> 570.0	824218	19.55	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C2-PFTeDA	9.665	715.0 -> 670.0	607643	19.90	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C3-PFBS	3.755	302.0 -> 99.0	21778	19.78	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.9%		
13C3-PFHxS	5.723	402.0 -> 99.0	24122	19.48	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.4%		
13C4-PFBA	1.852	217.0 -> 172.0	148227	19.84	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C4-PFHpA	5.679	367.0 -> 322.0	301226	19.57	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.9%		
13C5-PFHxA	4.764	318.0 -> 273.0	199253	19.64	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C5-PFPeA	3.511	268.0 -> 223.0	134039	19.90	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C6-PFDA	7.594	519.0 -> 474.0	488664	18.99	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

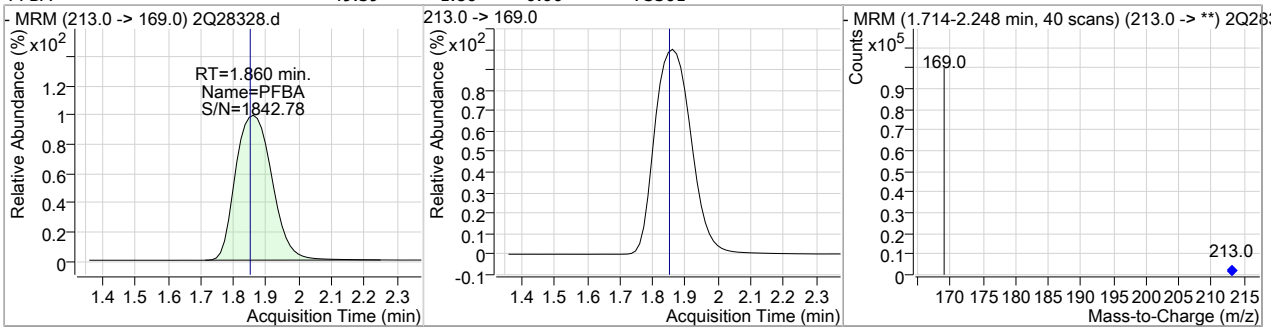
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.0%		
13C7-PFUnDA	8.067	570.0 -> 525.0	657847	19.28 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C8-FOSA	6.918	506.0 -> 78.0	101918	18.40 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.0%		
13C8-PFOA	6.409	421.0 -> 376.0	310867	19.19 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.0%		
13C8-PFOS	7.020	507.0 -> 99.0	33724	19.87 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C9-PFNA	7.052	472.0 -> 427.0	351901	19.40 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
d3-MeFOSAA	7.434	573.0 -> 419.0	66793	19.56 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
M2-PFOA	6.411	415.0 -> 370.0	416618	20.01 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
M4-PFOS	7.023	503.0 -> 80.0	60134	20.01 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	5.043	287.0 -> 169.0	183049	94.73 µg/L		-0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 94.7%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	151442	46.64 µg/L		99
6:2FTS	6.407	427.0 -> 407.0	167817	46.31 µg/L		100
8:2FTS	7.631	527.0 -> 507.0	159377	47.41 µg/L		99
EtFOSAA	7.573	584.0 -> 419.0	69153	52.64 µg/L		100
FOSA	6.910	498.0 -> 78.0	123958	50.49 µg/L		99
MeFOSAA	7.435	570.0 -> 419.0	89270	50.05 µg/L		100
PFBA	1.860	213.0 -> 169.0	73361	49.59 µg/L		100
PFBS	3.758	299.0 -> 80.0	88079	49.59 µg/L		99
PFDA	7.595	513.0 -> 469.0	533041	49.76 µg/L		100
PFDoDA	8.542	613.0 -> 569.0	948686	49.98 µg/L		100
PFDS	8.024	599.0 -> 80.0	32034	49.65 µg/L		98
PFHpA	5.681	363.0 -> 319.0	658509	49.83 µg/L		100
PFHpS	6.417	449.0 -> 80.0	63205	50.80 µg/L		100
PFHxA	4.765	313.0 -> 269.0	174238	49.92 µg/L		99
PFHxS	5.726	399.0 -> 80.0	71327	49.82 µg/L	m	99
PFNA	7.054	463.0 -> 419.0	580673	50.11 µg/L		99
PFNS	7.565	549.0 -> 80.0	63898	50.07 µg/L		99
PFOA	6.412	413.0 -> 369.0	413105	49.55 µg/L		100
PFOS	7.024	499.0 -> 80.0	80398	49.06 µg/L	m	82
PFPeA	3.515	263.0 -> 219.0	297124	49.87 µg/L		100
PFPeS	4.883	349.0 -> 80.0	61576	49.59 µg/L		99
PFTeDA	9.672	713.0 -> 669.0	1049927	49.99 µg/L		100
PFTrDA	9.127	663.0 -> 619.0	991610	49.92 µg/L		100
PFUnDA	8.068	563.0 -> 519.0	677045	49.54 µg/L		100
11Cl-PF3OUdS	8.237	631.0 -> 451.0	371745	49.97 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	70790	48.60 µg/L		100
ADONA	5.778	377.0 -> 251.0	745829	48.49 µg/L		100
HFPO-DA	5.048	329.0 -> 169.0	544405	248.20 µg/L		100

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

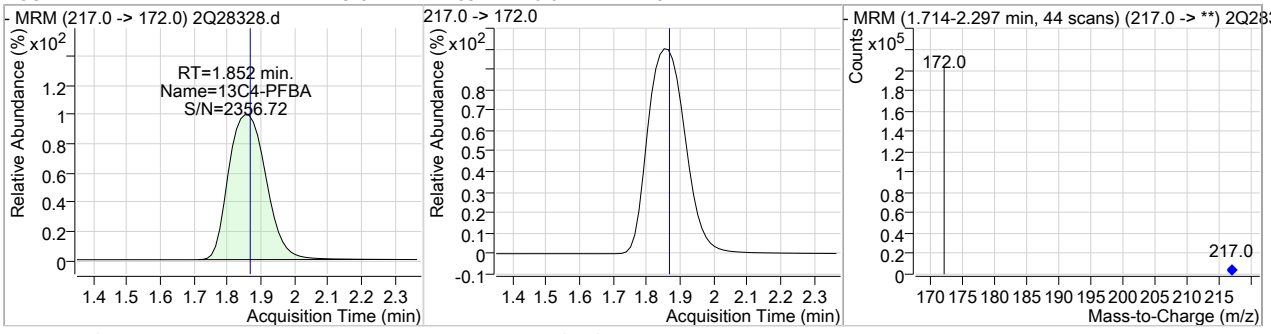
Perfluorinated Compounds by LC/MS/MS



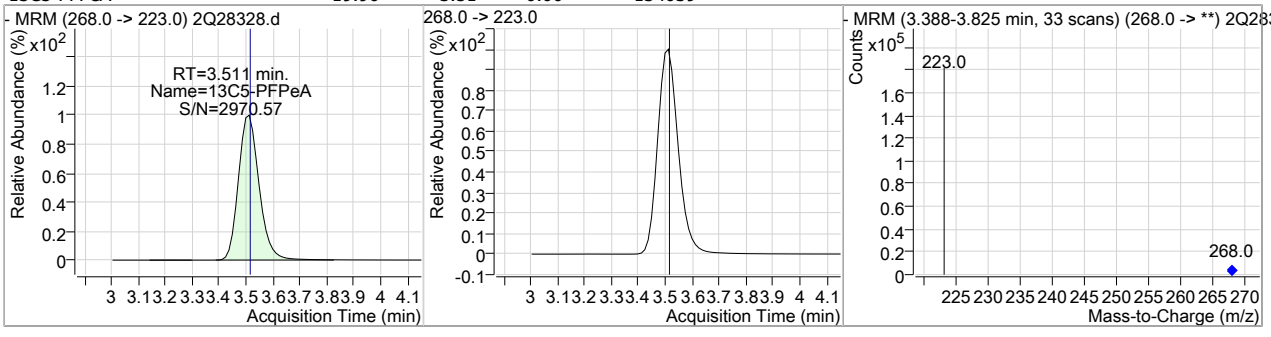
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	49.59	1.86	0.00	73361				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.84	1.85	-0.01	148227				

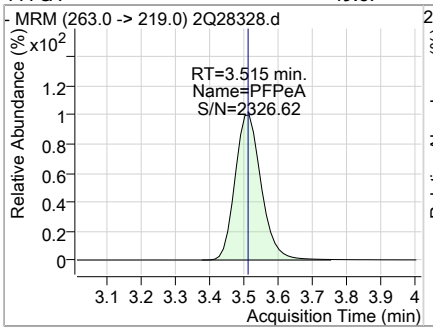


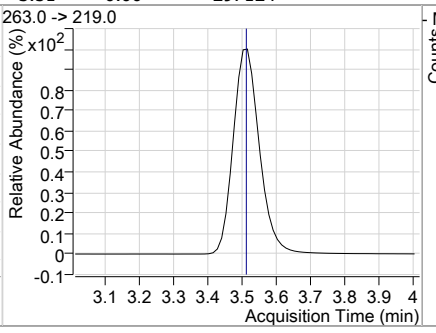
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.90	3.51	0.00	134039				

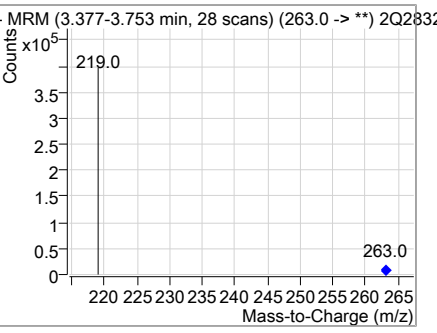


Perfluorinated Compounds by LC/MS/MS

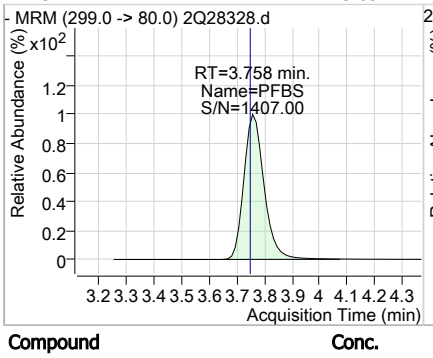
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	49.87	3.51	0.00	297124				

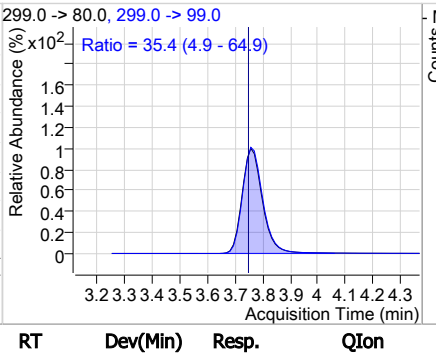


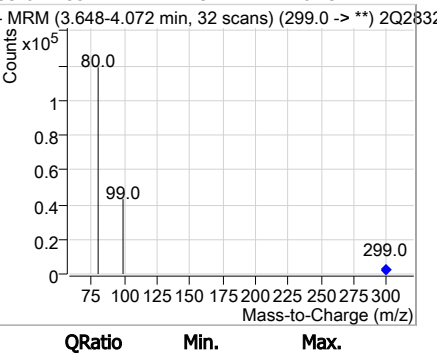




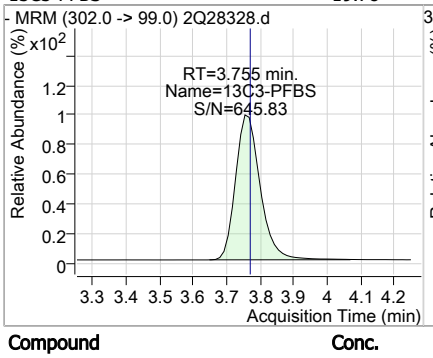
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	49.59	3.76	0.00	88079	299.0 -> 99.0	35.4	4.9	64.9

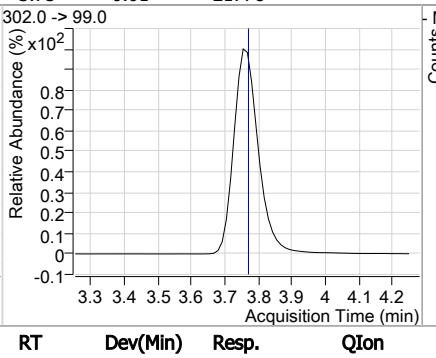


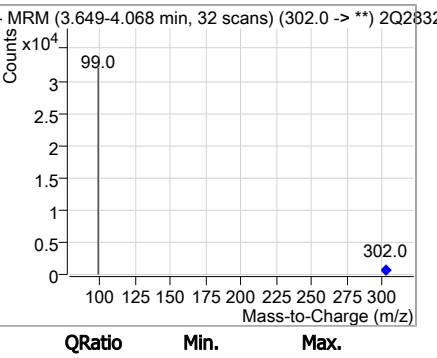




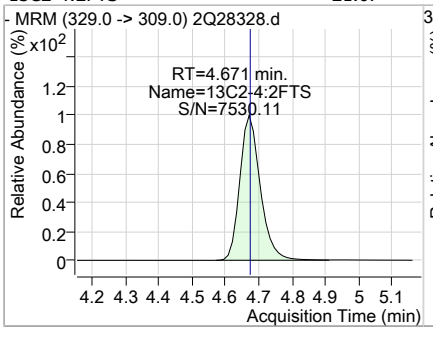
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.78	3.75	-0.01	21778				

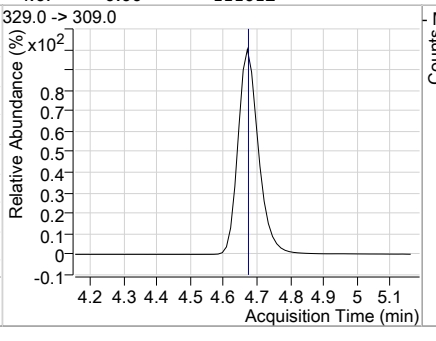


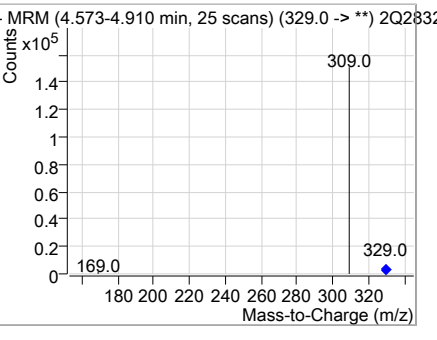




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	21.07	4.67	0.00	111612				







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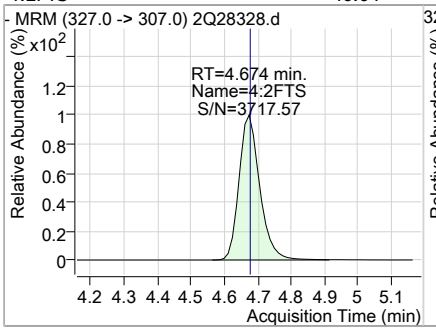
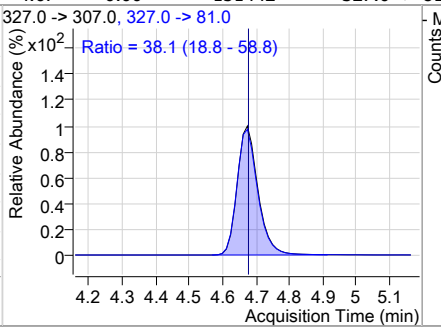
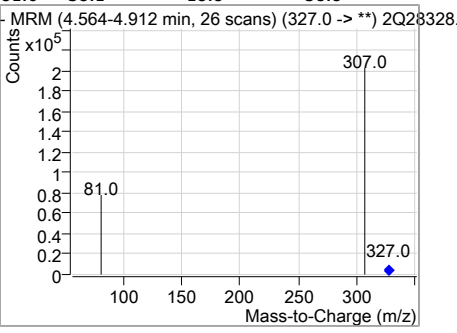
Perfluorinated Compounds by LC/MS/MS

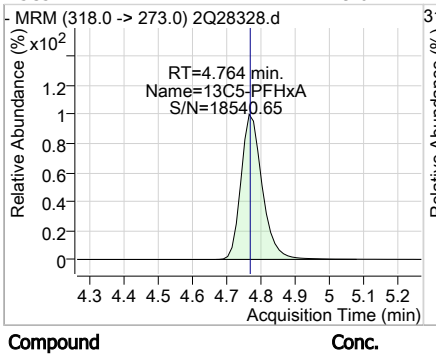
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	46.64	4.67	0.00	151442	327.0 -> 81.0	38.1	18.8	58.8

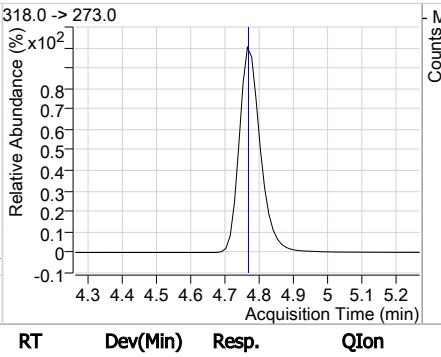


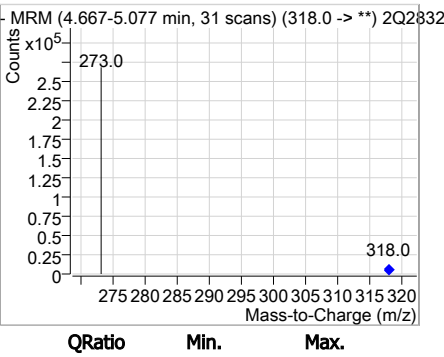




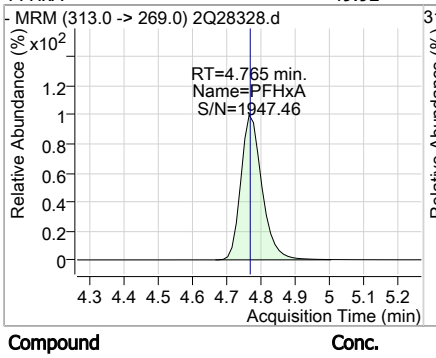
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.64	4.76	0.00	199253				

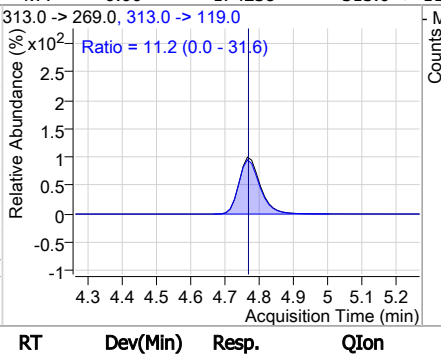


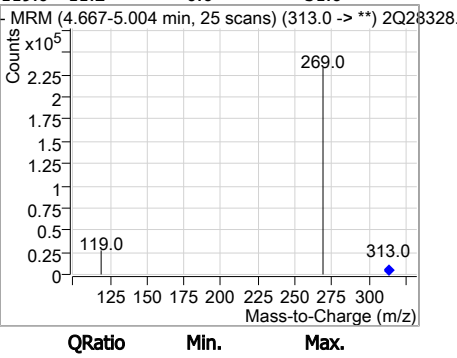




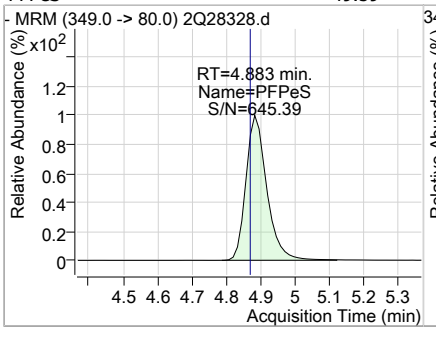
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	49.92	4.77	0.00	174238	313.0 -> 119.0	11.2	0.0	31.6

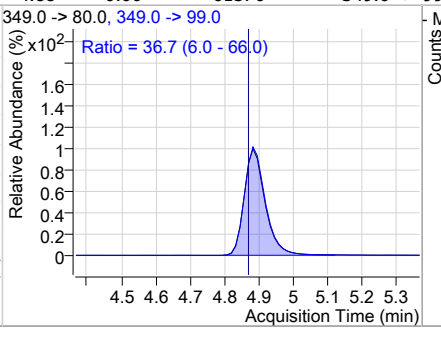


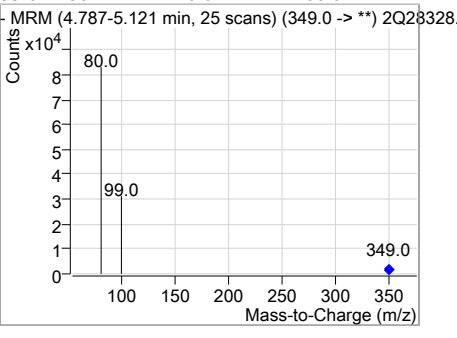




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	49.59	4.88	0.00	61576	349.0 -> 99.0	36.7	6.0	66.0



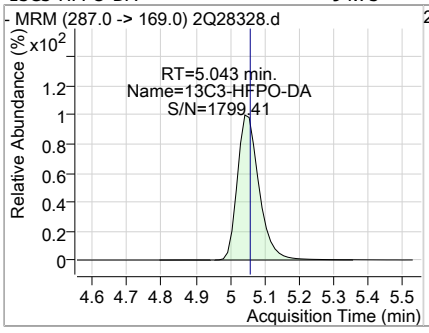


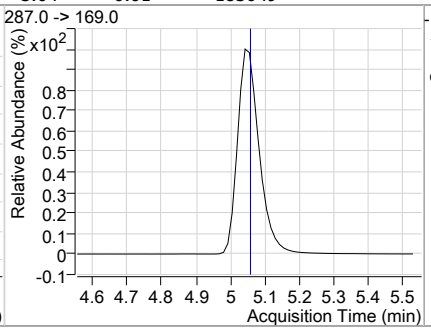


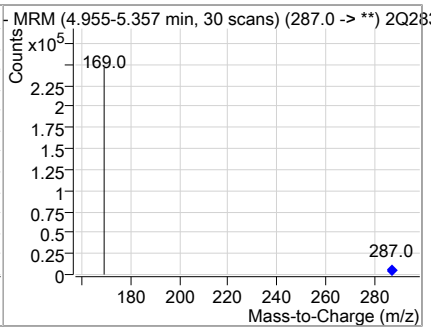
7.6.36

Perfluorinated Compounds by LC/MS/MS

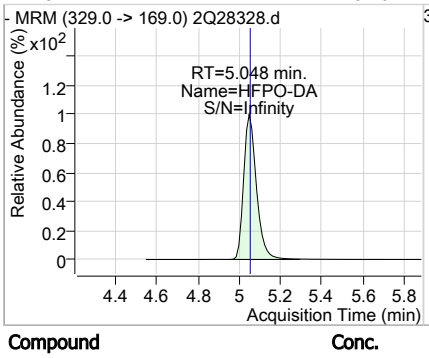
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	94.73	5.04	-0.01	183049				

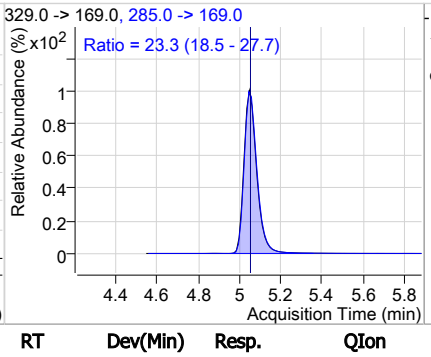


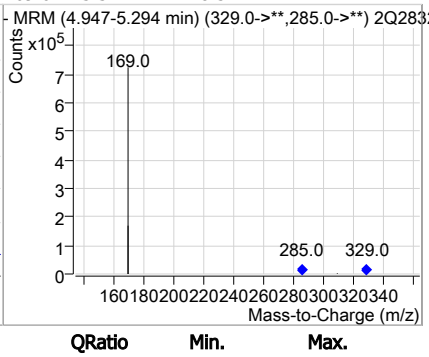




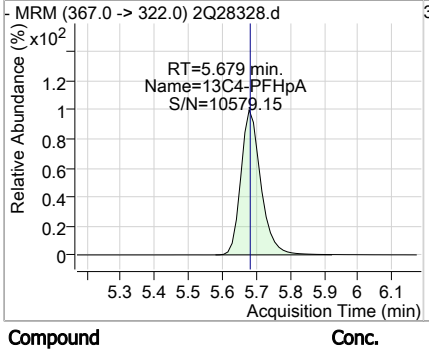
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	248.20	5.05	-0.01	544405	285.0 -> 169.0	23.3	18.5	27.7

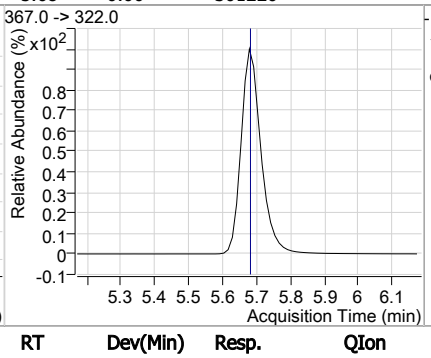


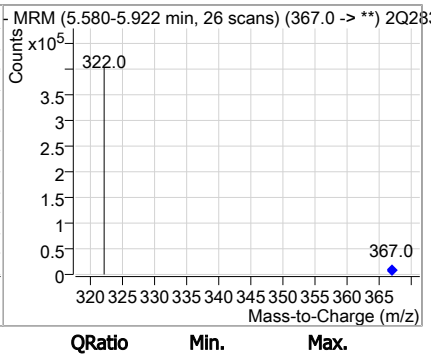




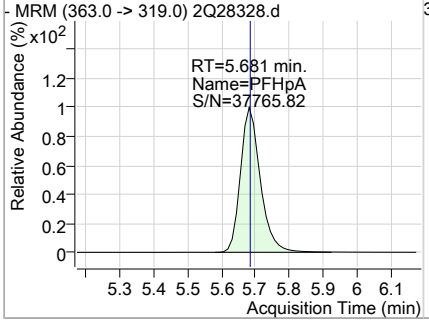
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.57	5.68	0.00	301226				

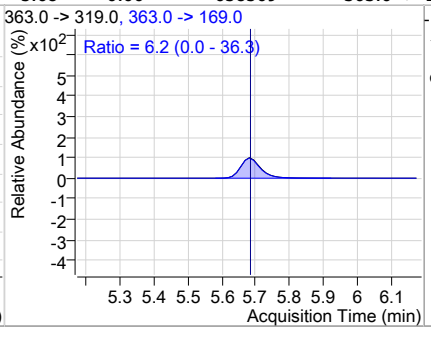


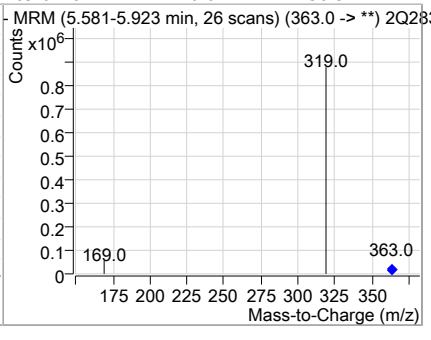




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	49.83	5.68	0.00	658509	363.0 -> 169.0	6.2	0.0	36.3



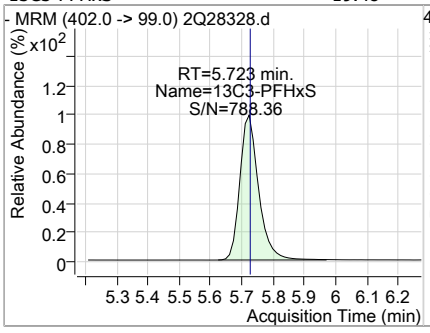


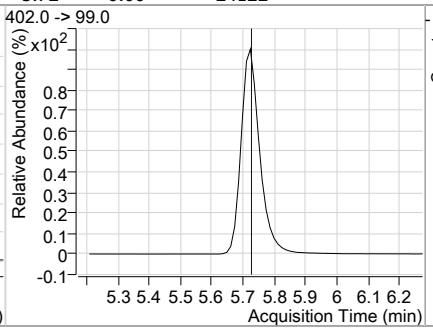


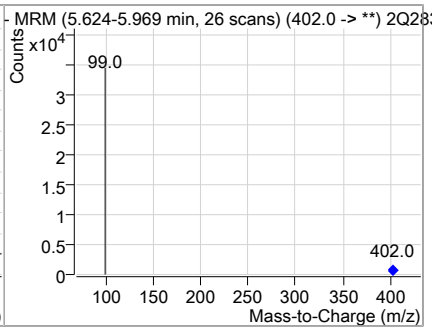
7.6.36

Perfluorinated Compounds by LC/MS/MS

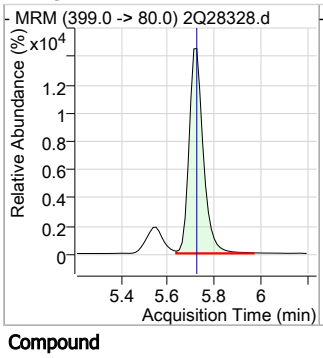
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.48	5.72	0.00	24122				

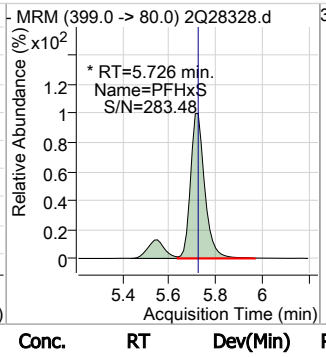


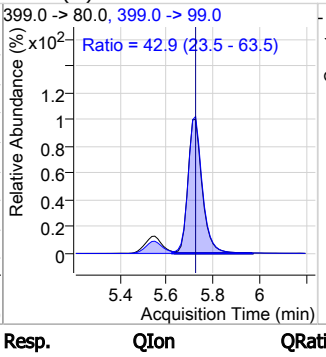


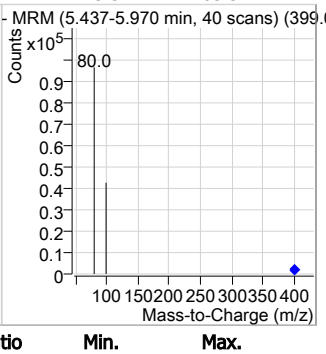


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	49.82	5.73	0.00	71327 (m)	399.0 -> 99.0	42.9	23.5	63.5

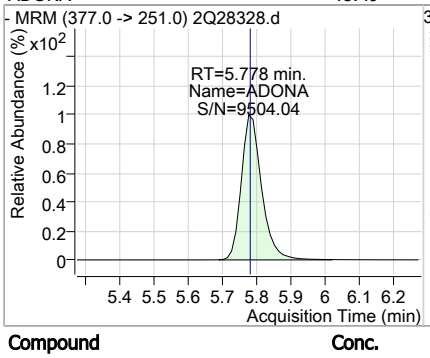


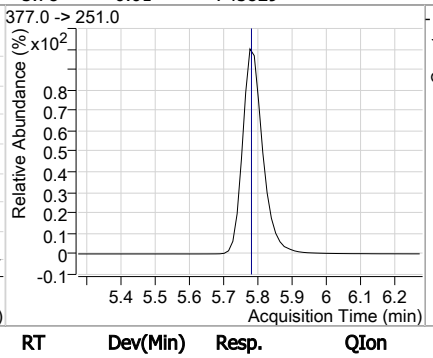


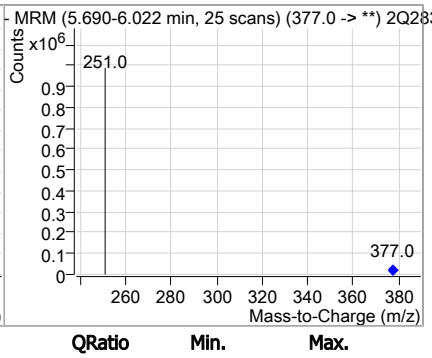




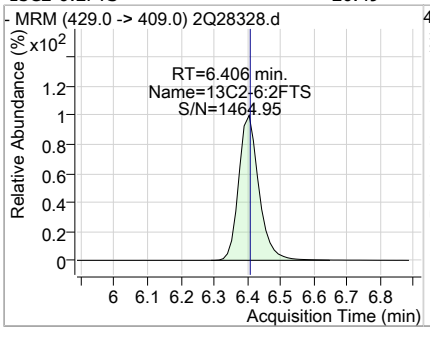
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	48.49	5.78	-0.01	745829				

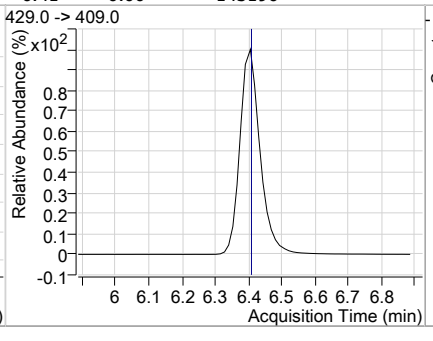


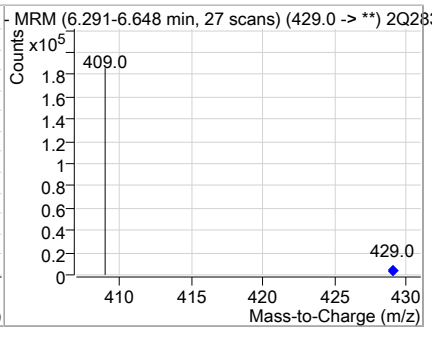




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	20.49	6.41	0.00	143196				







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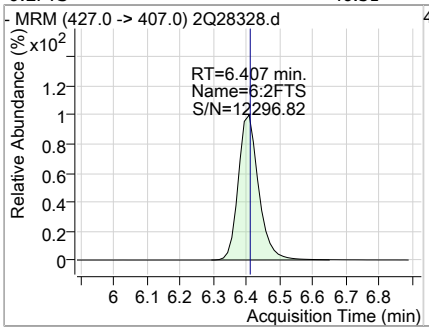
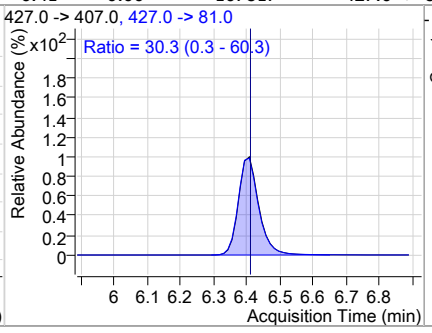
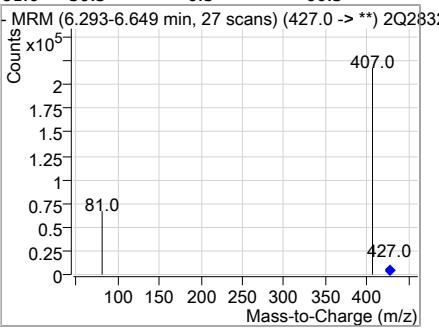
Perfluorinated Compounds by LC/MS/MS

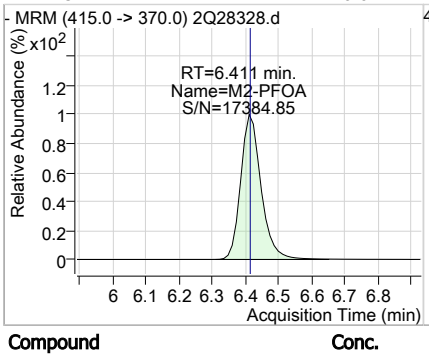
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	46.31	6.41	0.00	167817	427.0 -> 81.0	30.3	0.3	60.3

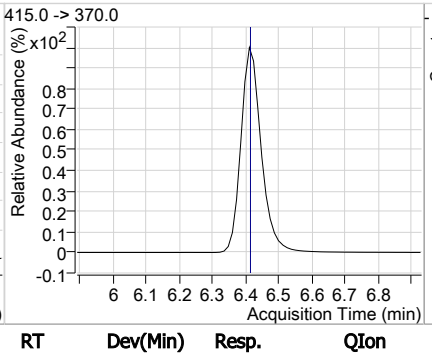


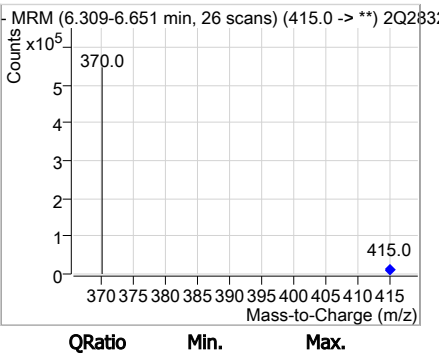




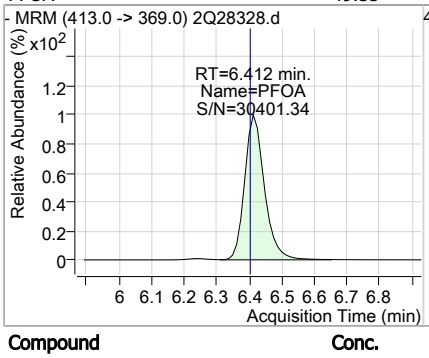
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.41	0.00	416618				

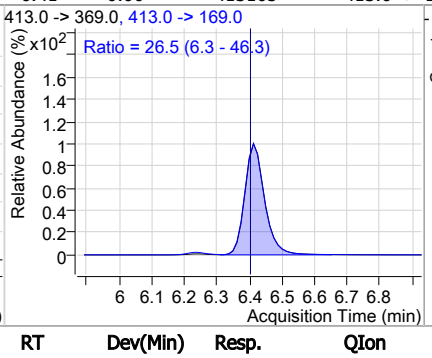


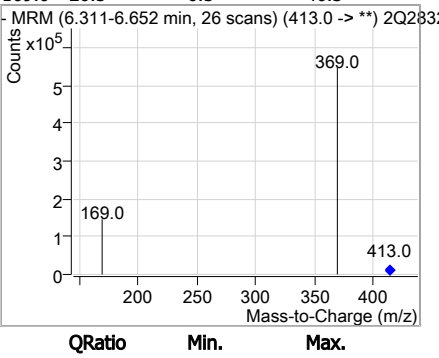




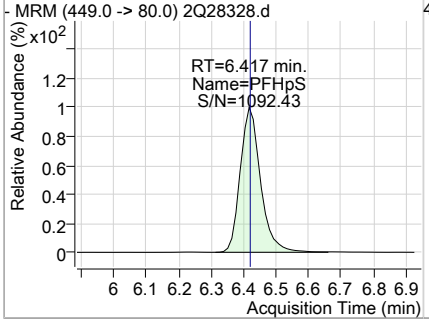
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	49.55	6.41	0.00	413105	413.0 -> 169.0	26.5	6.3	46.3

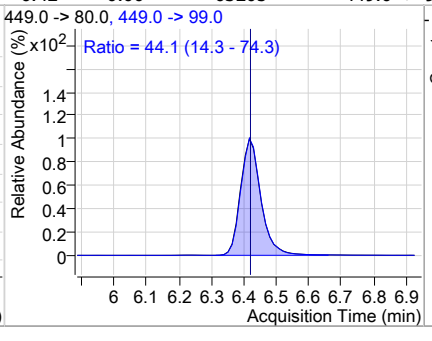


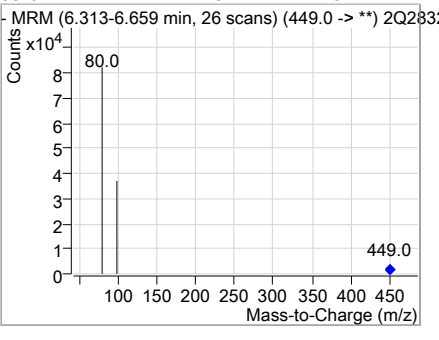




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	50.80	6.42	0.00	63205	449.0 -> 99.0	44.1	14.3	74.3

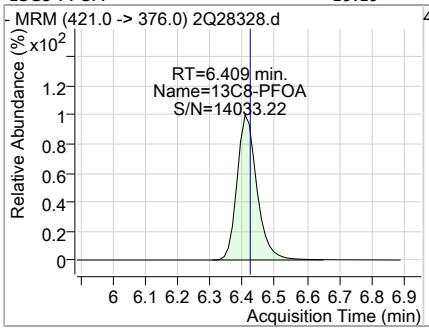


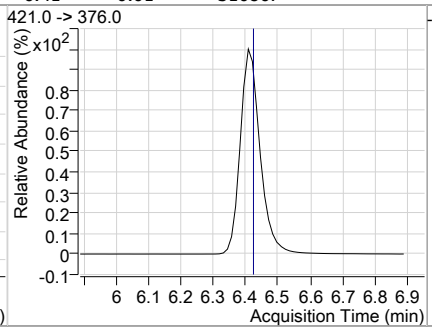


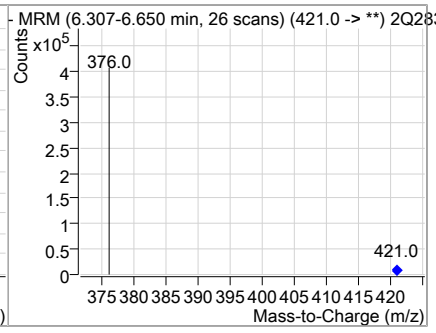


Perfluorinated Compounds by LC/MS/MS

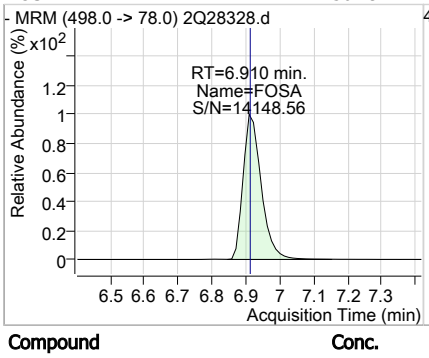
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.19	6.41	-0.01	310867				

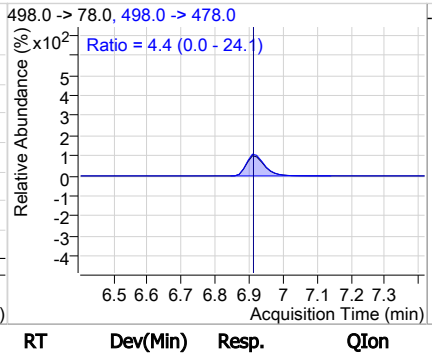


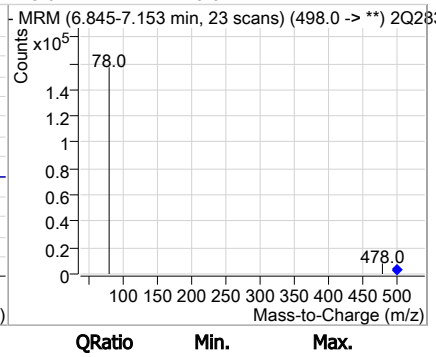




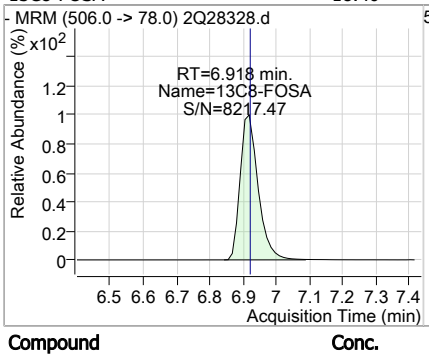
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	50.49	6.91	0.00	123958	498.0 -> 478.0	4.4	0.0	24.1

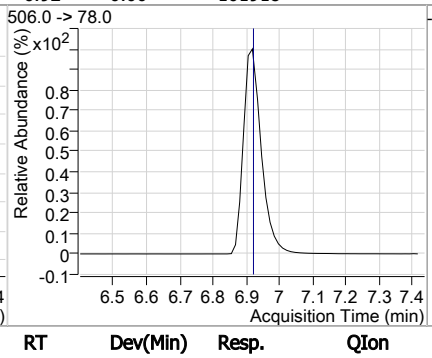


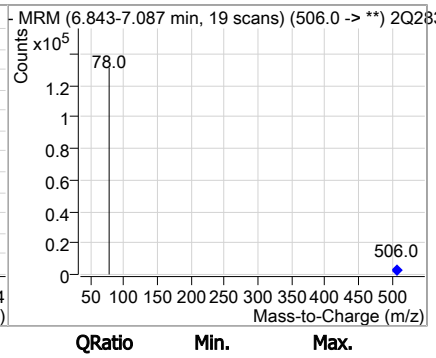




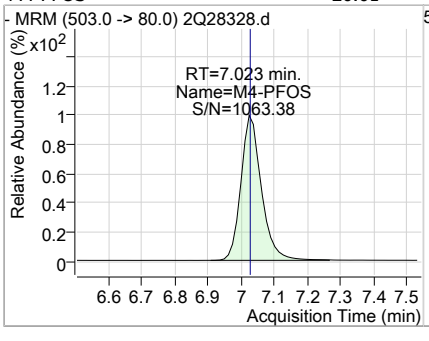
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	18.40	6.92	0.00	101918				

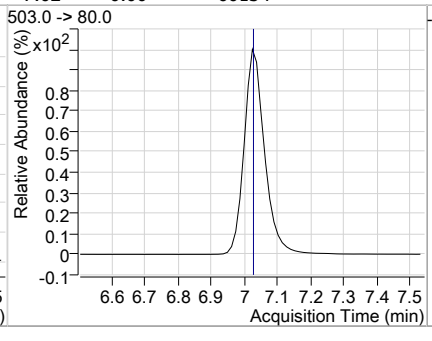


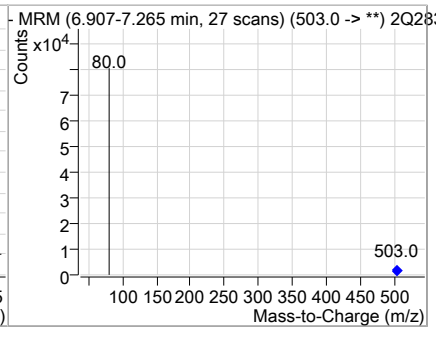




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.02	0.00	60134				



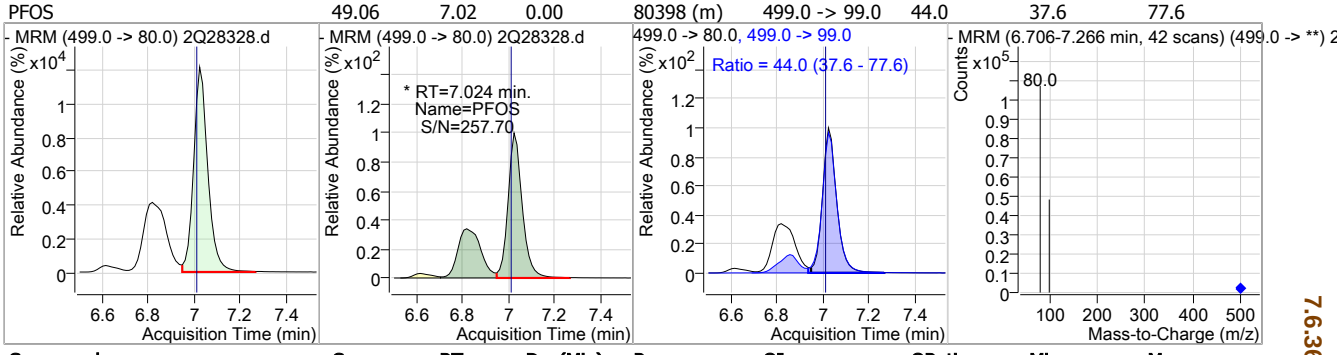




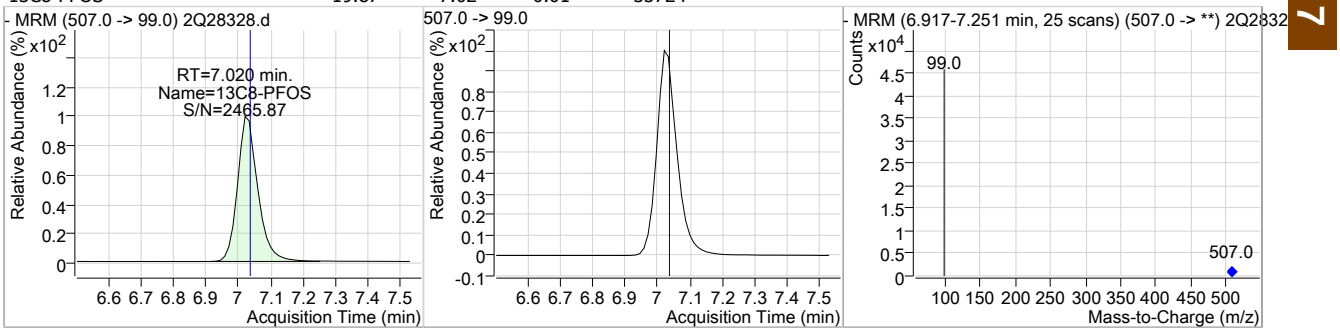
7.6.36

Perfluorinated Compounds by LC/MS/MS

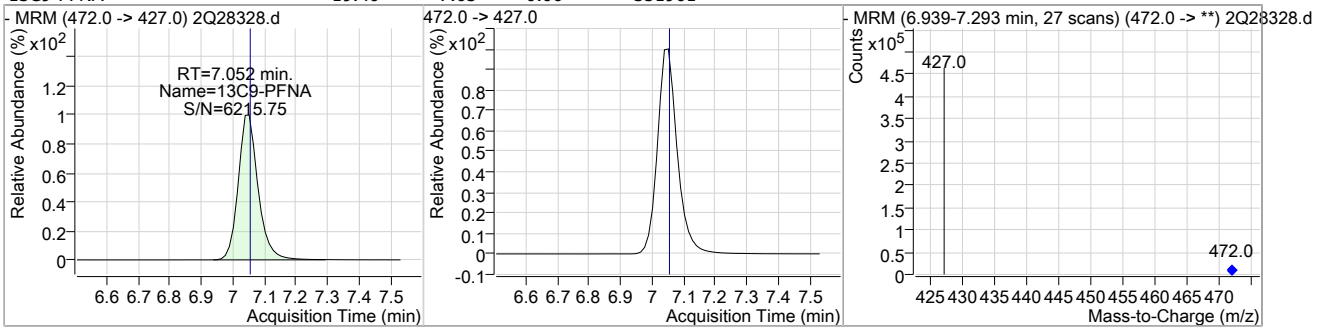
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	49.06	7.02	0.00	80398 (m)	499.0 -> 99.0	44.0	37.6	77.6



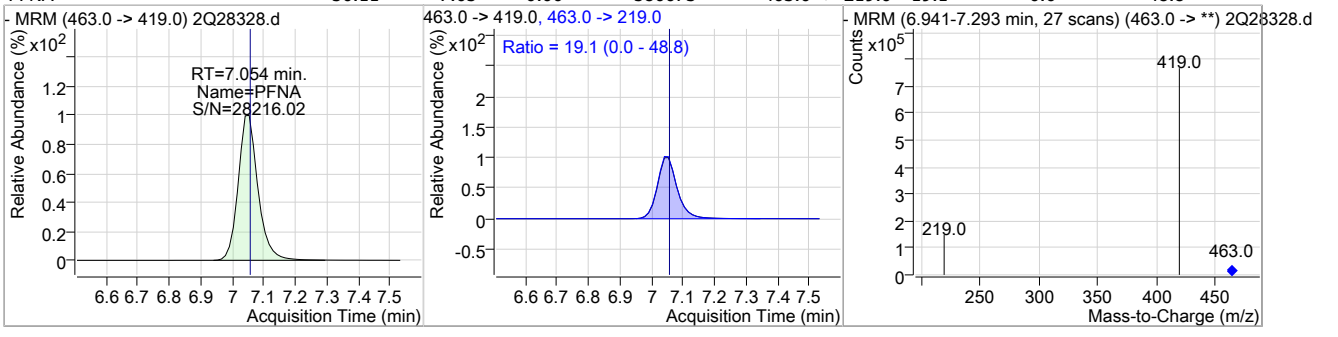
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.87	7.02	-0.01	33724				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.40	7.05	0.00	351901				



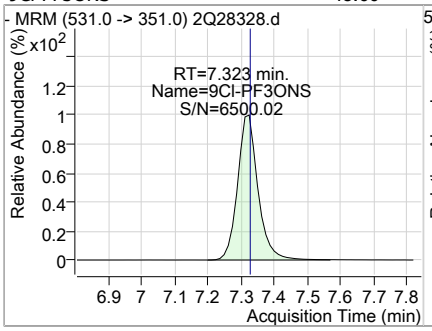
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	50.11	7.05	0.00	580673	463.0 -> 219.0	19.1	0.0	48.8

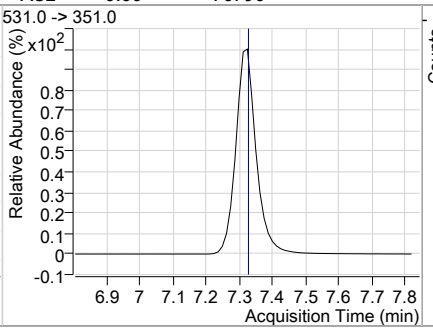


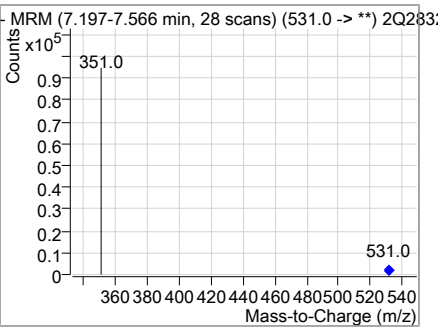
7.6.36

Perfluorinated Compounds by LC/MS/MS

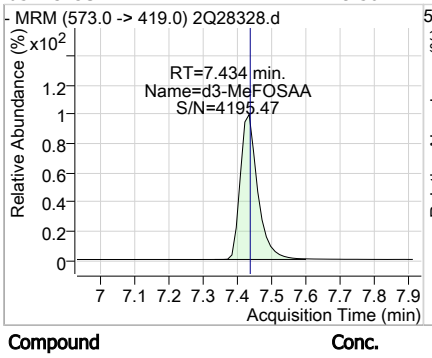
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	48.60	7.32	0.00	70790				

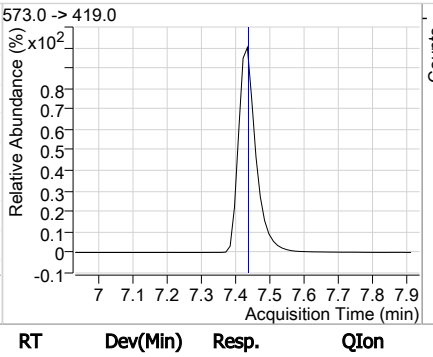


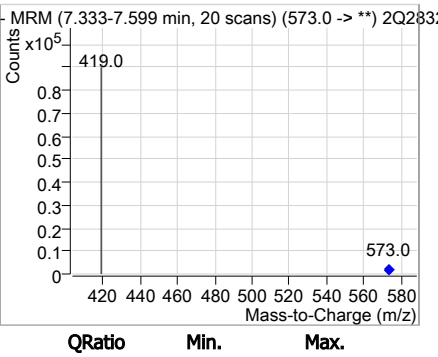




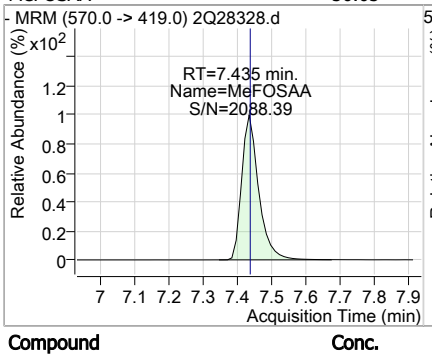
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.56	7.43	0.00	66793				

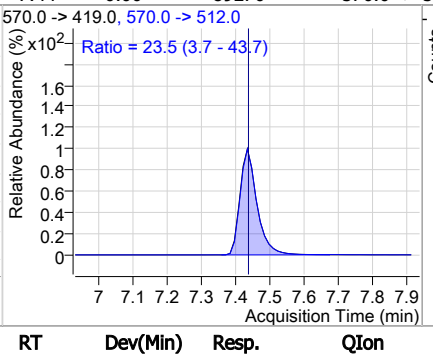


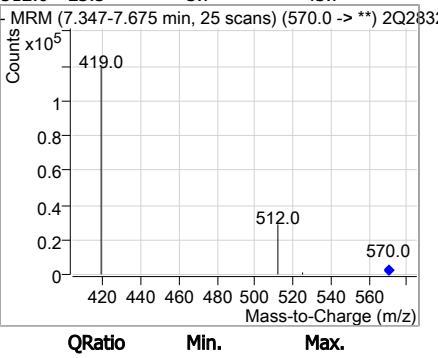




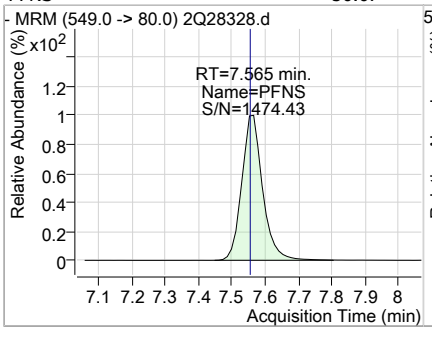
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	50.05	7.44	0.00	89270	570.0 -> 512.0	23.5	3.7	43.7

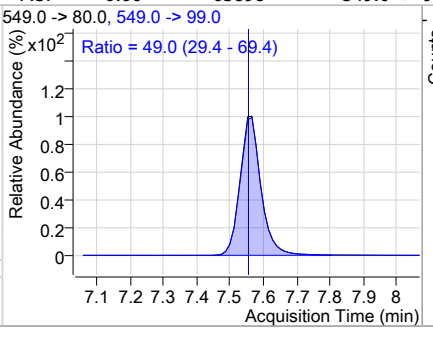


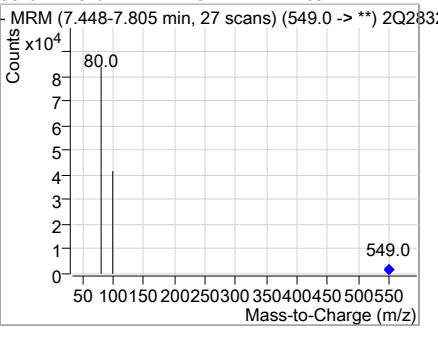




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	50.07	7.57	0.00	63898	549.0 -> 99.0	49.0	29.4	69.4



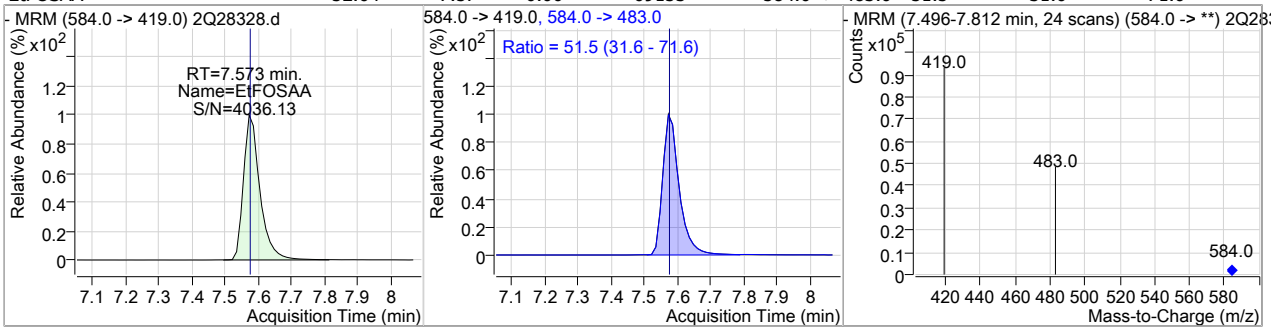




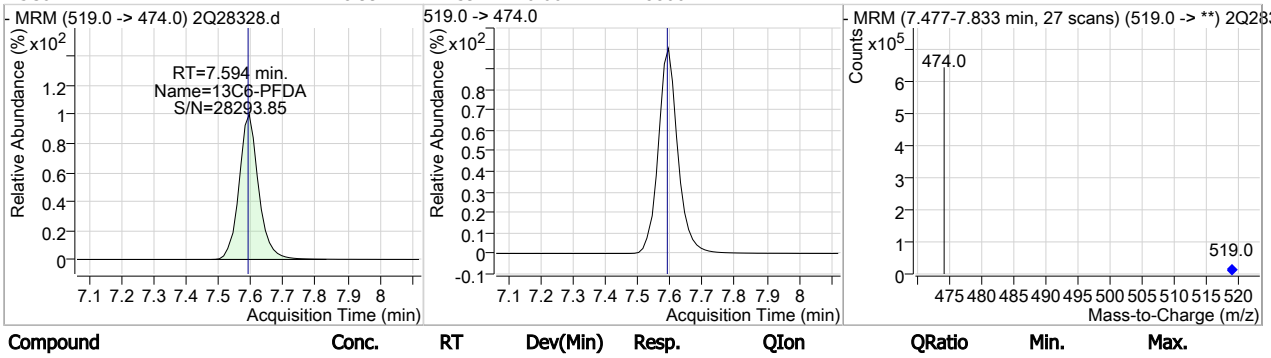
7.6.36

Perfluorinated Compounds by LC/MS/MS

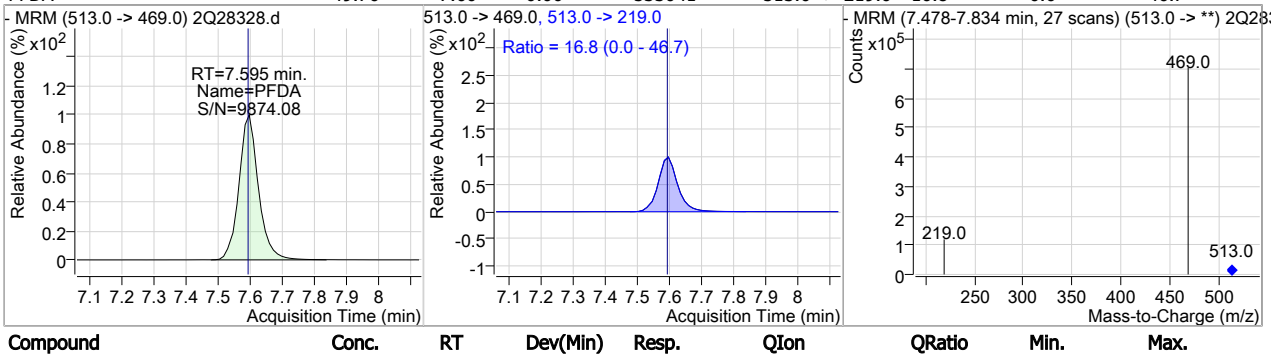
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	52.64	7.57	0.00	69153	584.0 -> 483.0	51.5	31.6	71.6



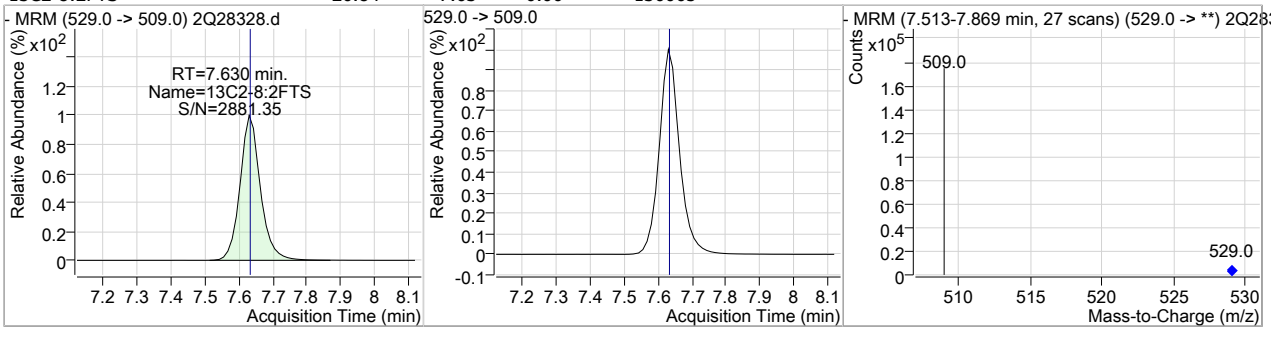
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.99	7.59	0.00	488664				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	49.76	7.60	0.00	533041	513.0 -> 219.0	16.8	0.0	46.7



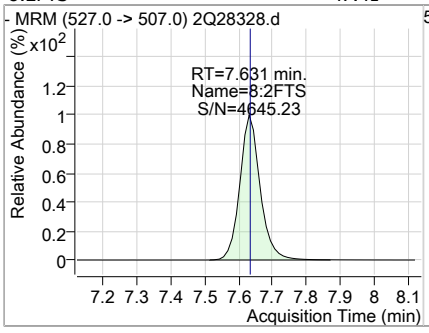
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	20.84	7.63	0.00	130065				

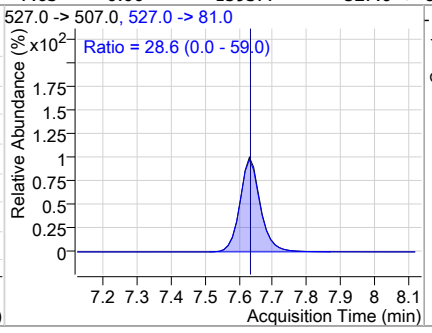


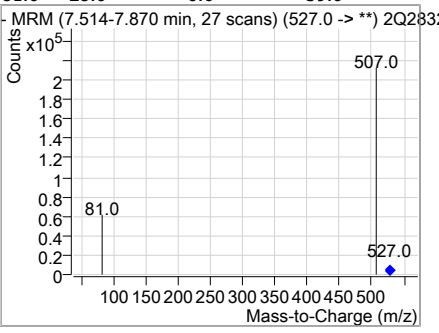
7.6.36

Perfluorinated Compounds by LC/MS/MS

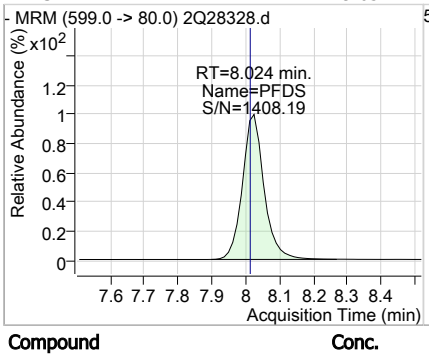
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	47.41	7.63	0.00	159377	527.0 -> 81.0	28.6	0.0	59.0

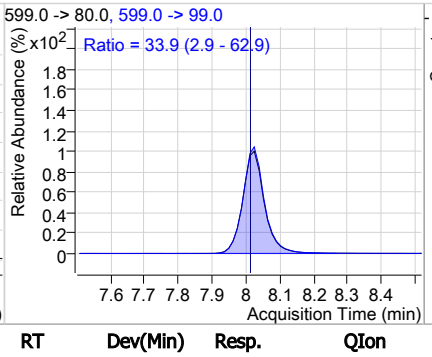


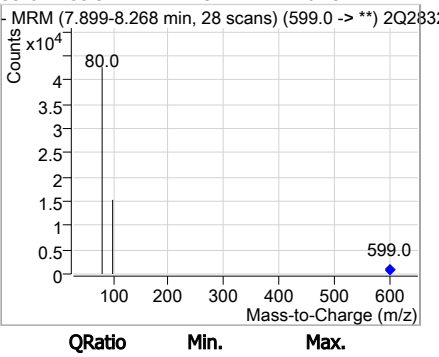




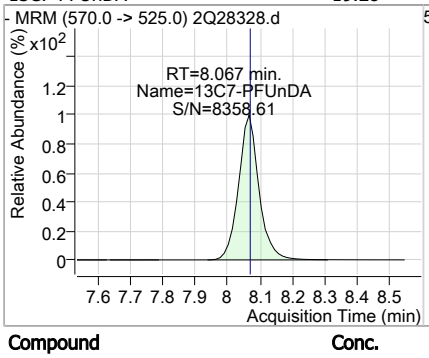
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	49.65	8.02	0.00	32034	599.0 -> 99.0	33.9	2.9	62.9

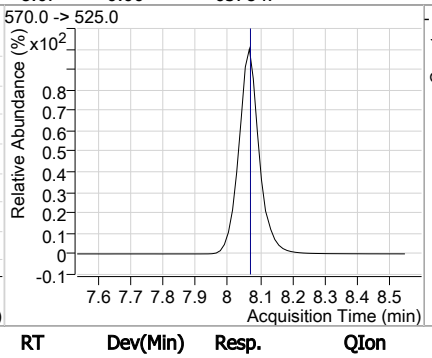


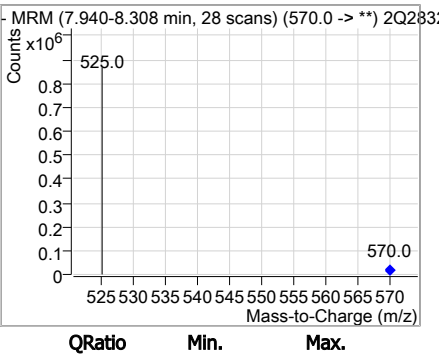




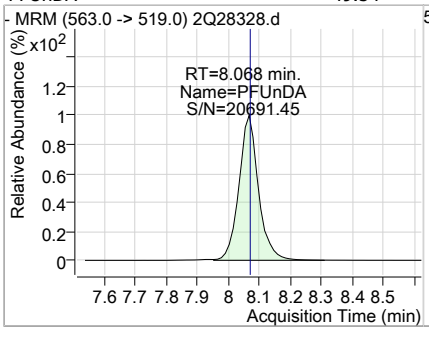
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.28	8.07	0.00	657847				

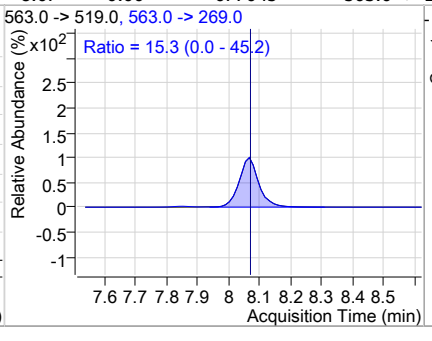


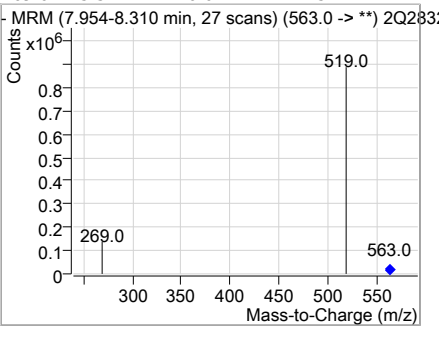




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	49.54	8.07	0.00	677045	563.0 -> 269.0	15.3	0.0	45.2



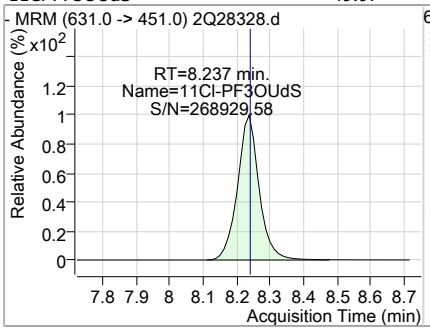


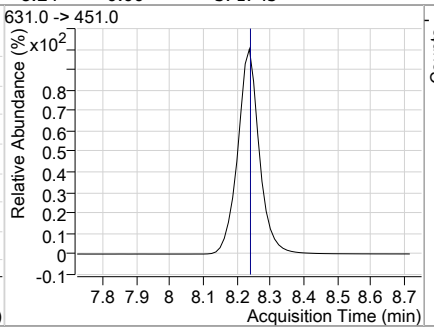


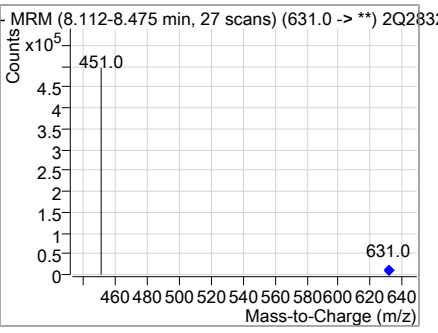
7.6.36

Perfluorinated Compounds by LC/MS/MS

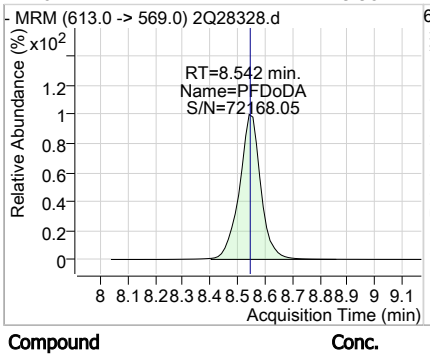
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	49.97	8.24	0.00	371745				

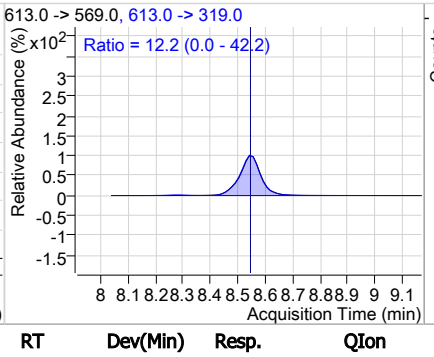


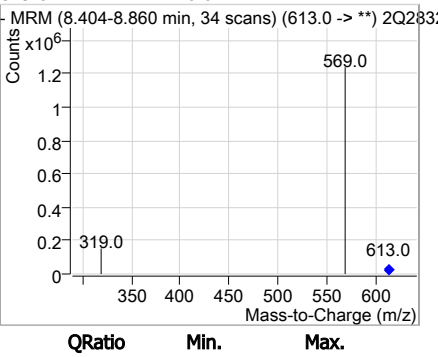




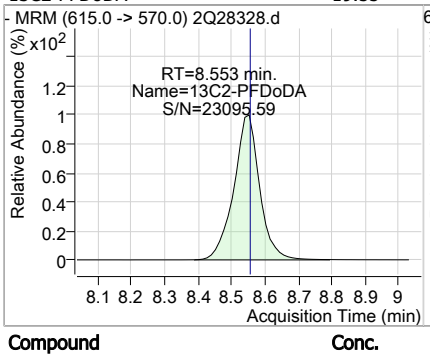
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	49.98	8.54	0.00	948686	613.0 -> 319.0	12.2	0.0	42.2

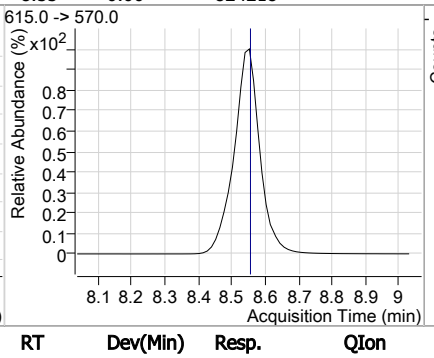


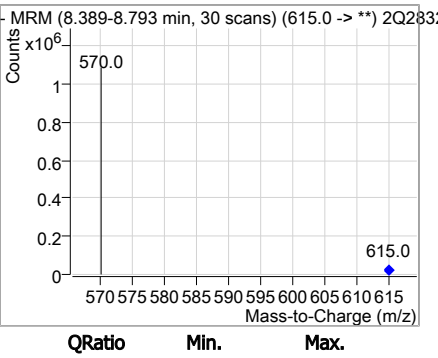




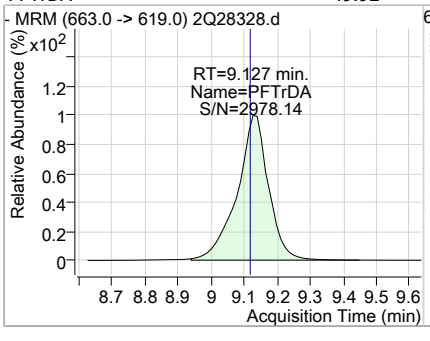
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	19.55	8.55	0.00	824218				

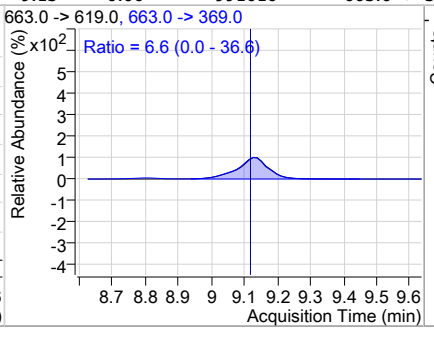


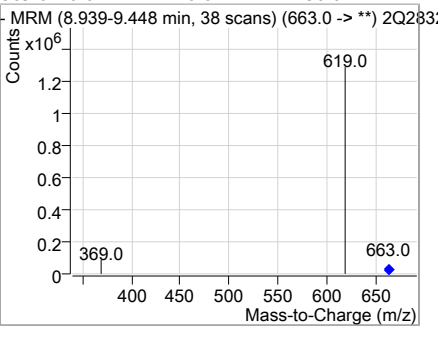




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	49.92	9.13	0.00	991610	663.0 -> 369.0	6.6	0.0	36.6



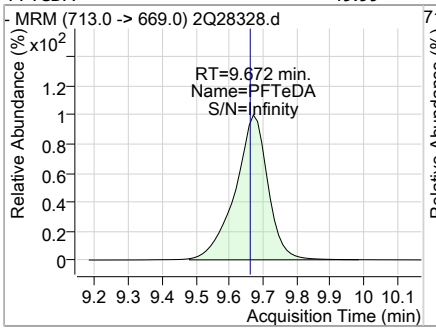


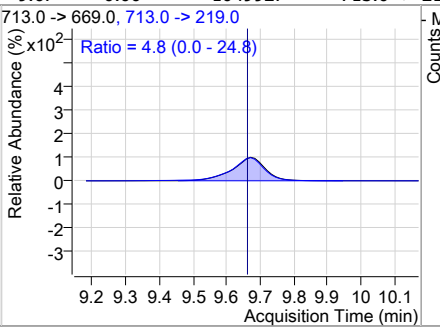


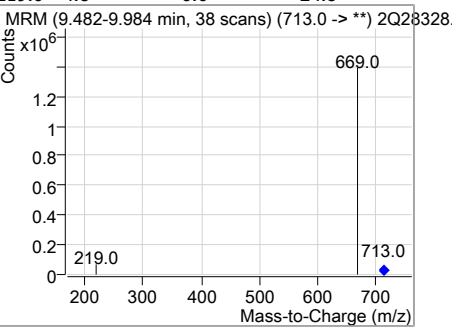
7.6.36

Perfluorinated Compounds by LC/MS/MS

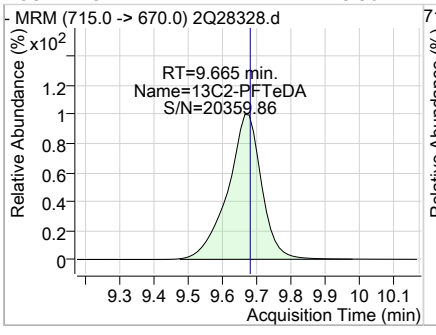
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	49.99	9.67	0.00	1049927	713.0 -> 219.0	4.8	0.0	24.8

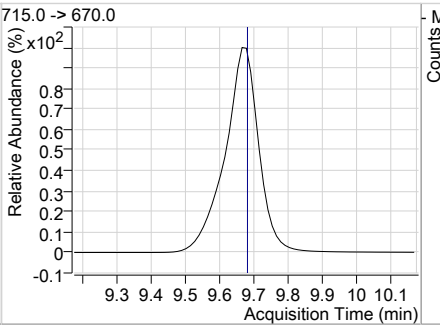


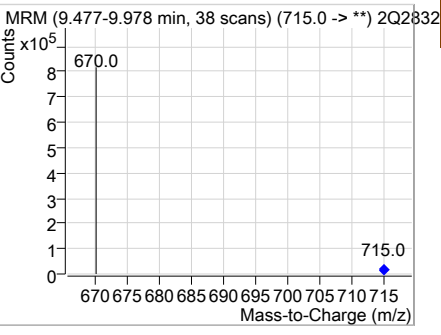




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	19.90	9.67	-0.01	607643				







7.6.36

7

Manual Integration Approval Summary

Sample Number: S2Q450-IC450
Lab FileID: 2Q28328.D
Injection Time: 03/28/19 16:05
Method: EPA 537M BY ID
Analyst approved: 03/29/19 10:18 Mike Eger
Supervisor approved: 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak

Cal Report: 2Q28329.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File	: 2Q28329.d
Operator	: natashag
Acq. Method	: dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time	: 3/28/2019 4:21:18 PM
Sample Name	: ic450-100
Vial	: Vial 9
DA Method File	: ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name	: s2q450.batch.bin
Sample Information	: op74300,S2Q450,2.00,,,1.0,1,soil

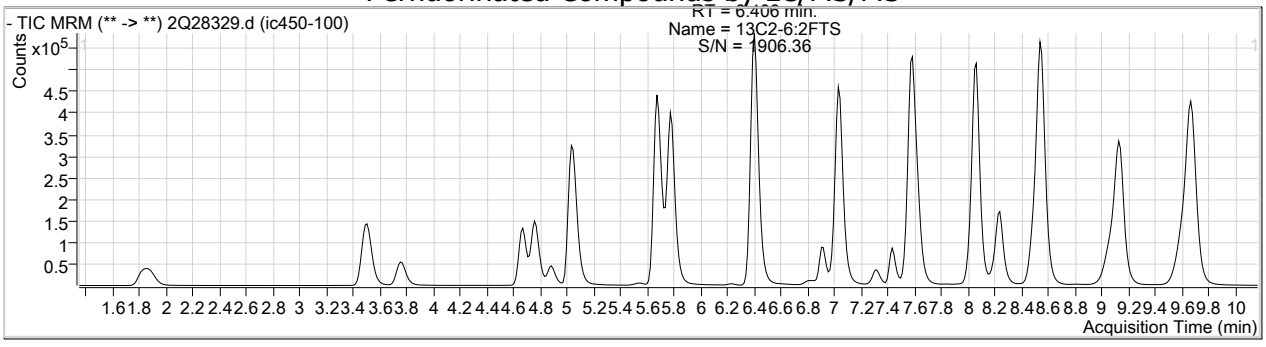
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.411	415.0 -> 370.0	393197	20.00	µg/L	0.000
13C4-PFOS	7.023	503.0 -> 80.0	55285	20.00	µg/L	0.000
M4-PFBA	1.852	217.0 -> 172.0	156506	20.00	µg/L	-0.013
M5-PFPeA	3.511	268.0 -> 223.0	140766	20.00	µg/L	0.000
M5-PFHxA	4.764	318.0 -> 273.0	208012	20.00	µg/L	0.000
M4-PFHpA	5.679	367.0 -> 322.0	310505	20.00	µg/L	0.000
M8-PFOA	6.409	421.0 -> 376.0	311844	20.00	µg/L	-0.013
M9-PFNA	7.040	472.0 -> 427.0	358331	20.00	µg/L	-0.013
M6-PFDA	7.594	519.0 -> 474.0	483841	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	662153	20.00	µg/L	0.000
M2-PFDoDA	8.540	615.0 -> 570.0	849897	20.00	µg/L	-0.013
M2-PFTeDA	9.665	715.0 -> 670.0	634801	20.00	µg/L	-0.013
M8-FOSA	6.918	506.0 -> 78.0	94990	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	22707	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	24817	20.00	µg/L	0.000
M8-PFOS	7.020	507.0 -> 99.0	34072	20.00	µg/L	-0.013
M2-4:2FTS	4.671	329.0 -> 309.0	131576	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	159056	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	149849	20.00	µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	68903	20.00	µg/L	0.000
M3-HFPO-DA	5.043	287.0 -> 169.0	179187	100.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	131186	24.77	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 123.8%		
13C2-6:2FTS	6.406	429.0 -> 409.0	158952	22.74	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.7%		
13C2-8:2FTS	7.630	529.0 -> 509.0	149360	23.94	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.7%		
13C2-PFDoDA	8.540	615.0 -> 570.0	848349	20.12	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C2-PFTeDA	9.665	715.0 -> 670.0	632001	20.70	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C3-PFBS	3.767	302.0 -> 99.0	22703	20.62	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C3-PFHxS	5.723	402.0 -> 99.0	24849	20.07	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C4-PFBA	1.852	217.0 -> 172.0	155663	20.84	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.2%		
13C4-PFHpA	5.679	367.0 -> 322.0	310349	20.17	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C5-PFHxA	4.764	318.0 -> 273.0	208186	20.52	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C5-PFPeA	3.511	268.0 -> 223.0	140514	20.86	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C6-PFDA	7.594	519.0 -> 474.0	483610	18.80	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

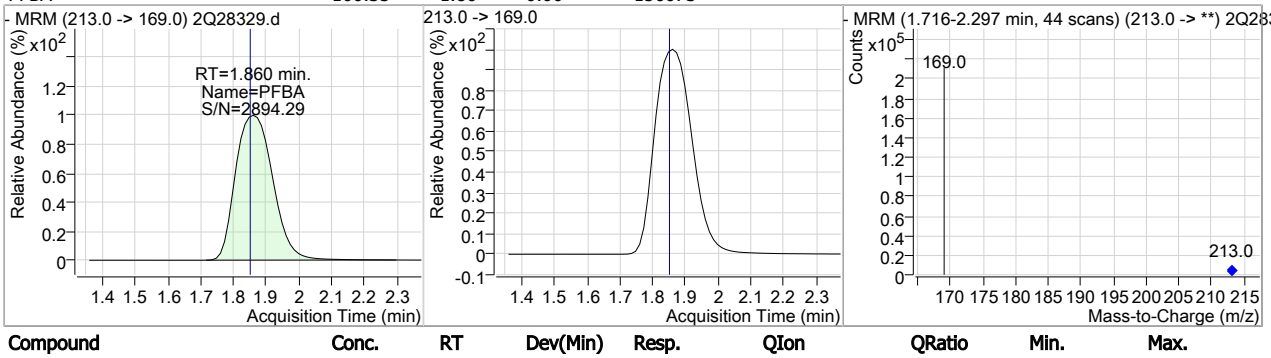
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.0%		
13C7-PFUnDA	8.067	570.0 -> 525.0	661910	19.40 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C8-FOSA	6.918	506.0 -> 78.0	94915	17.13 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 85.7%		
13C8-PFOA	6.409	421.0 -> 376.0	311496	19.23 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%		
13C8-PFOS	7.020	507.0 -> 99.0	34081	20.08 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C9-PFNA	7.040	472.0 -> 427.0	358291	19.75 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
d3-MeFOSAA	7.434	573.0 -> 419.0	68849	20.16 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
M2-PFOA	6.411	415.0 -> 370.0	393360	19.99 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.023	503.0 -> 80.0	55352	20.02 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	5.043	287.0 -> 169.0	179187	92.73 µg/L		-0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 92.7%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	315545	82.66 µg/L		100
6:2FTS	6.393	427.0 -> 407.0	333238	82.85 µg/L		100
8:2FTS	7.631	527.0 -> 507.0	319222	82.43 µg/L		100
EtFOSAA	7.573	584.0 -> 419.0	133047	98.23 µg/L		99
FOSA	6.910	498.0 -> 78.0	228615	99.90 µg/L		99
MeFOSAA	7.435	570.0 -> 419.0	184218	100.17 µg/L		98
PFBA	1.860	213.0 -> 169.0	156073	100.35 µg/L		100
PFBS	3.758	299.0 -> 80.0	185106	100.32 µg/L		99
PFDA	7.583	513.0 -> 469.0	1063381	100.28 µg/L		100
PFDoDA	8.542	613.0 -> 569.0	1962039	100.17 µg/L		100
PFDS	8.012	599.0 -> 80.0	65184	100.09 µg/L		100
PFHpA	5.681	363.0 -> 319.0	1364659	100.26 µg/L		100
PFHpS	6.417	449.0 -> 80.0	127279	99.51 µg/L		99
PFHxA	4.765	313.0 -> 269.0	364569	100.26 µg/L		99
PFHxS	5.713	399.0 -> 80.0	147588	100.28 µg/L	m	99
PFNA	7.041	463.0 -> 419.0	1179620	100.09 µg/L		100
PFNS	7.553	549.0 -> 80.0	128779	99.97 µg/L		99
PFOA	6.412	413.0 -> 369.0	839158	100.39 µg/L		100
PFOS	7.024	499.0 -> 80.0	166443	100.62 µg/L	m	82
PFPeA	3.515	263.0 -> 219.0	625947	100.17 µg/L		100
PFPeS	4.883	349.0 -> 80.0	129391	100.30 µg/L		100
PFTeDA	9.672	713.0 -> 669.0	2188115	100.16 µg/L		100
PFTrDA	9.127	663.0 -> 619.0	2070123	100.20 µg/L		100
PFUnDA	8.068	563.0 -> 519.0	1381253	100.41 µg/L		100
11Cl-PF3OUdS	8.237	631.0 -> 451.0	769459	100.24 µg/L		100
9Cl-PF3ONS	7.310	531.0 -> 351.0	145989	101.26 µg/L		100
ADONA	5.778	377.0 -> 251.0	1560507	101.19 µg/L		100
HFPO-DA	5.035	329.0 -> 169.0	1076764	501.50 µg/L		100

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

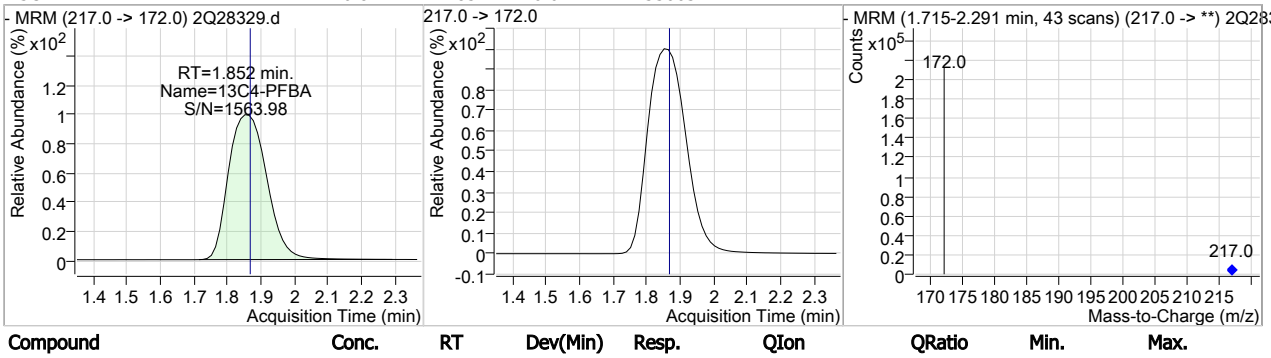
Perfluorinated Compounds by LC/MS/MS



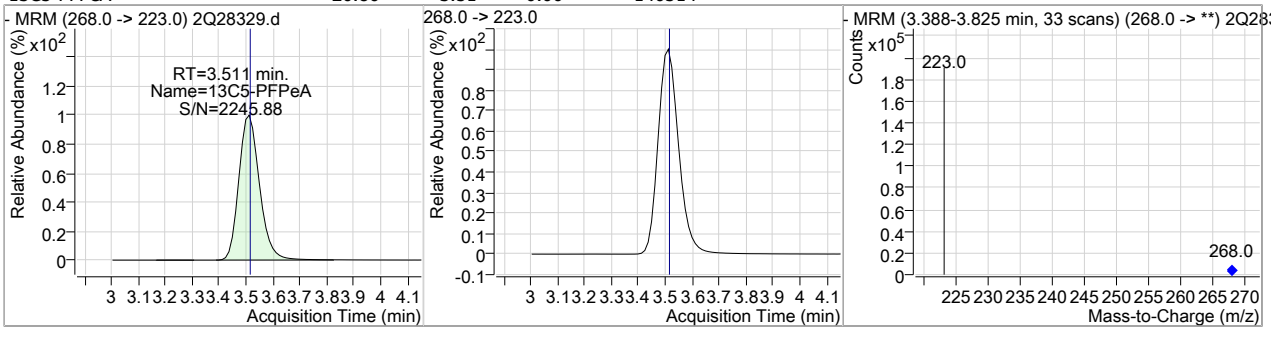
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	100.35	1.86	0.00	156073				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.84	1.85	-0.01	155663				

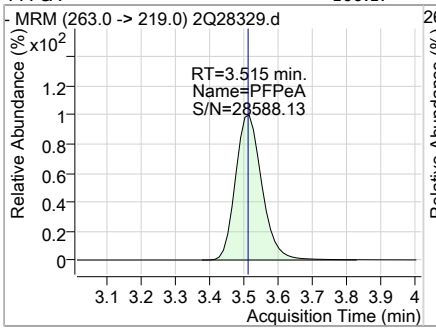


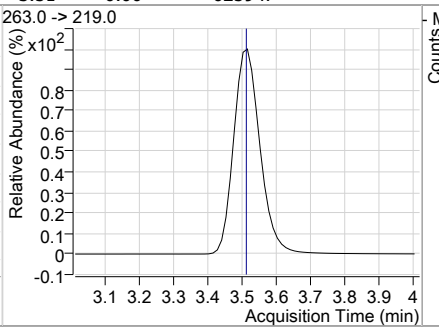
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.86	3.51	0.00	140514				

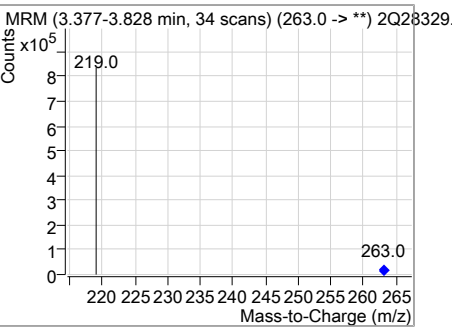


Perfluorinated Compounds by LC/MS/MS

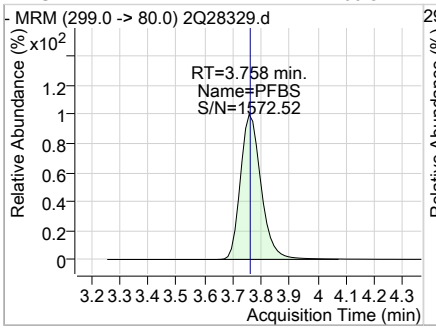
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.17	3.51	0.00	625947				

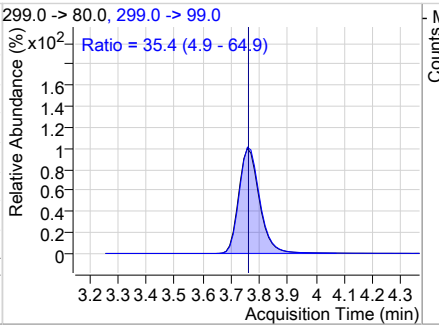


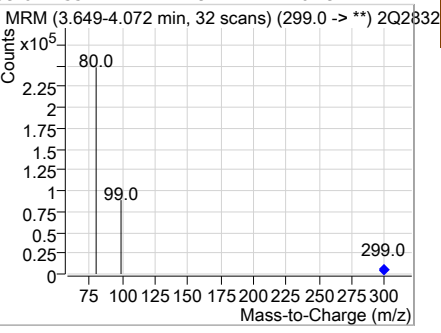




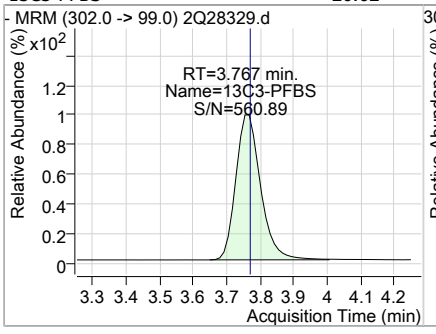
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	100.32	3.76	0.00	185106	299.0 -> 99.0	35.4	4.9	64.9

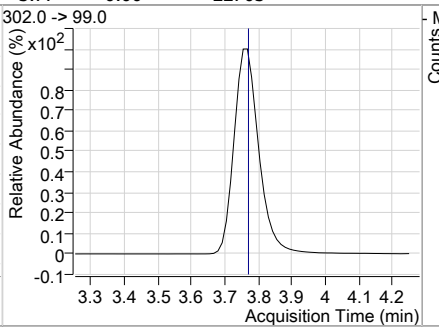


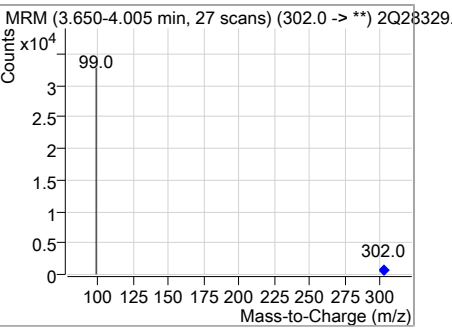




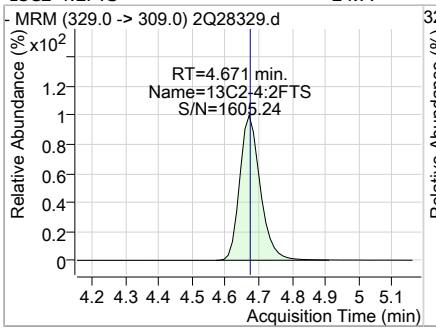
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.62	3.77	0.00	22703				

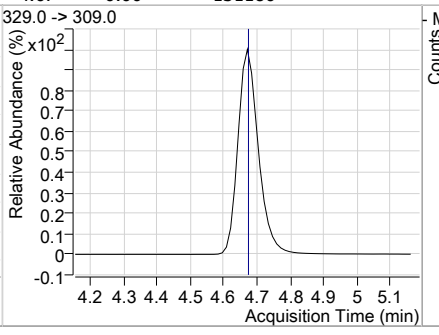


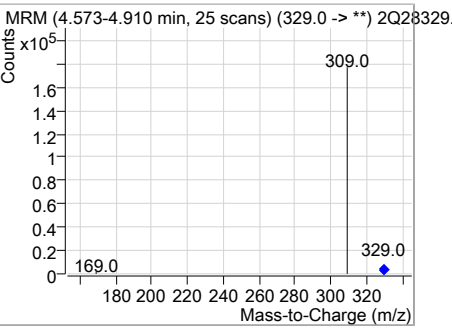




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	24.77	4.67	0.00	131186				







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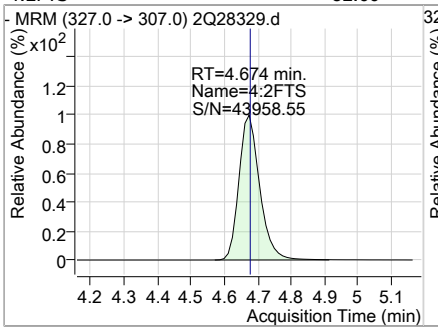
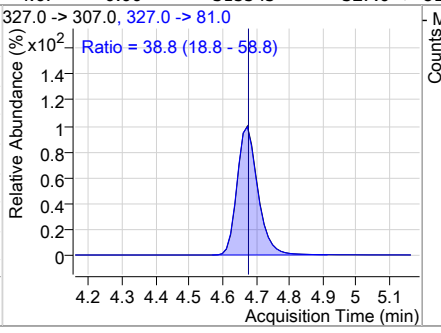
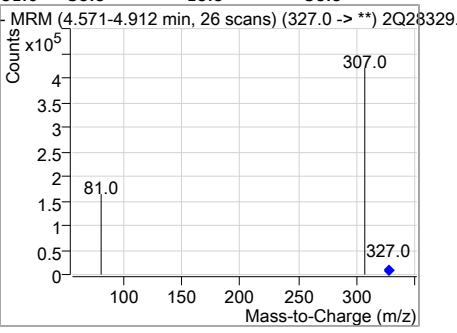
Perfluorinated Compounds by LC/MS/MS

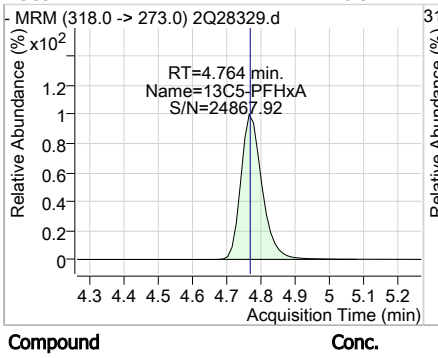
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	82.66	4.67	0.00	315545	327.0 -> 81.0	38.8	18.8	58.8

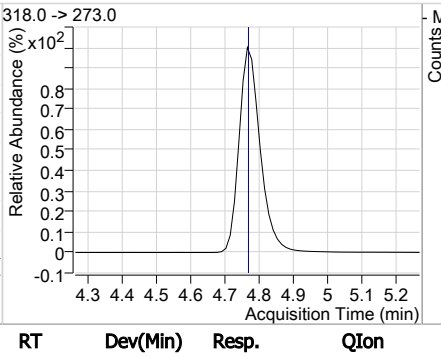


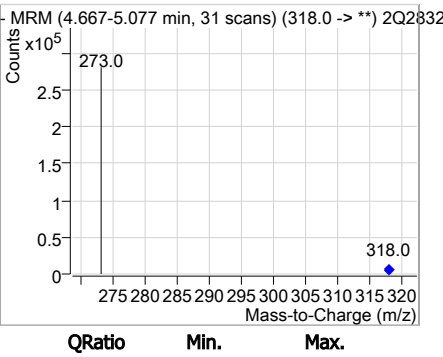




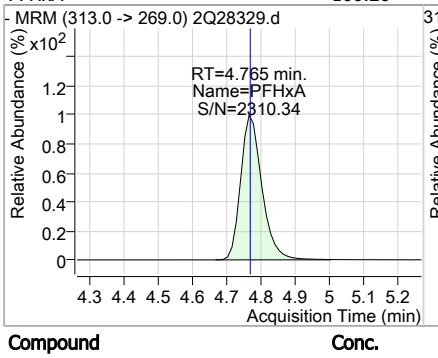
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.52	4.76	0.00	208186				

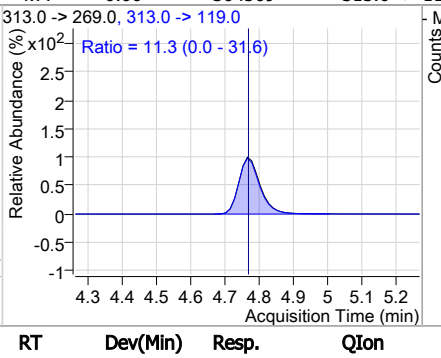


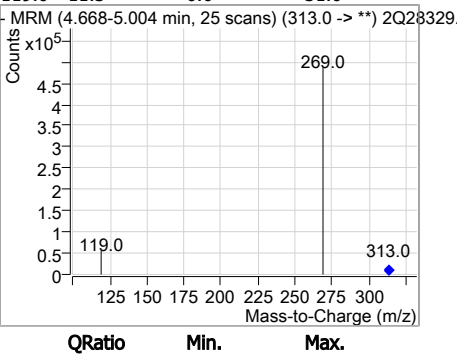




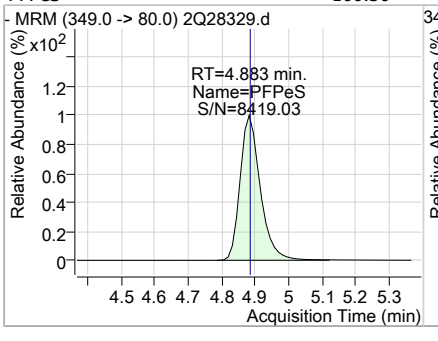
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	100.26	4.77	0.00	364569	313.0 -> 119.0	11.3	0.0	31.6

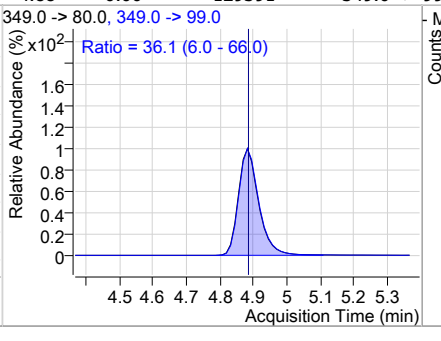


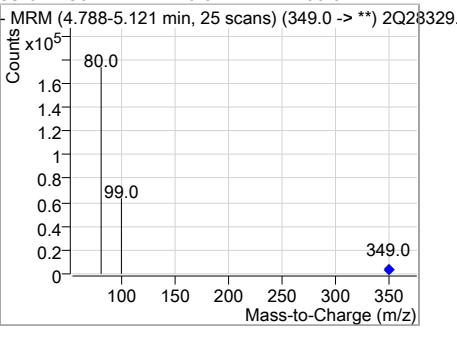




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	100.30	4.88	0.00	129391	349.0 -> 99.0	36.1	6.0	66.0

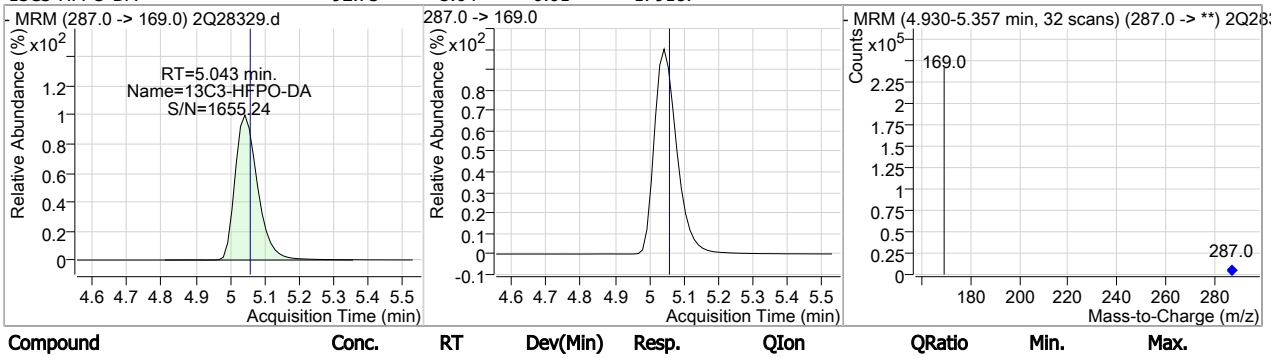




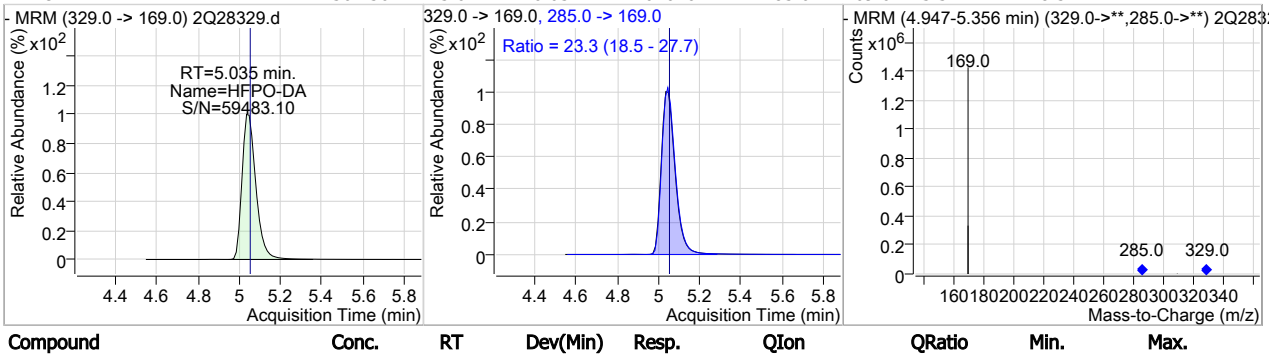


Perfluorinated Compounds by LC/MS/MS

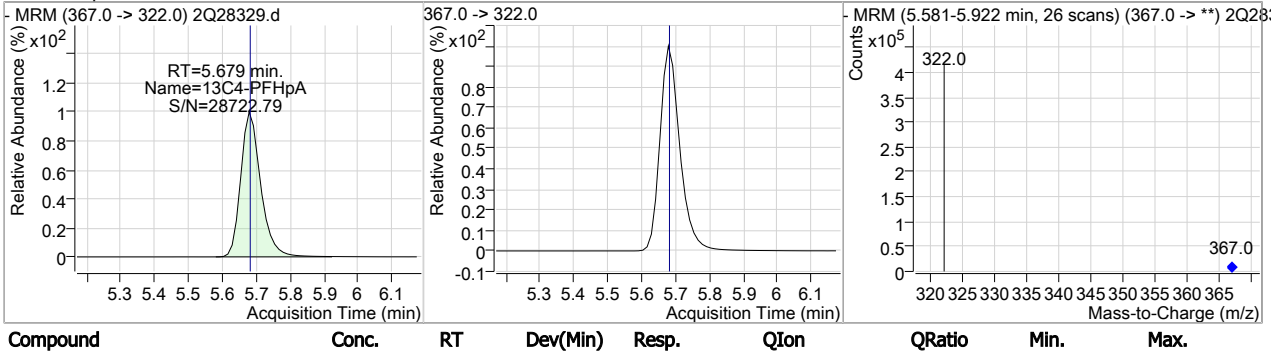
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	92.73	5.04	-0.01	179187				



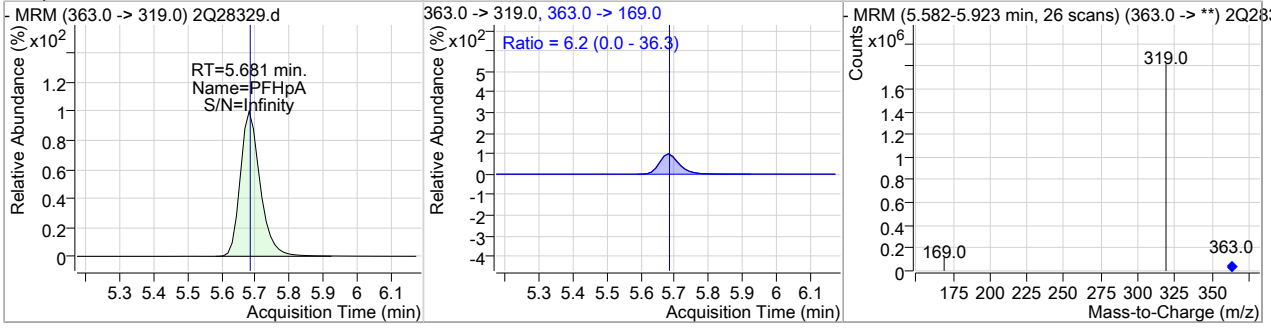
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	501.50	5.04	-0.03	1076764	285.0 -> 169.0	23.3	18.5	27.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.17	5.68	0.00	310349				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.26	5.68	0.00	1364659	363.0 -> 169.0	6.2	0.0	36.3



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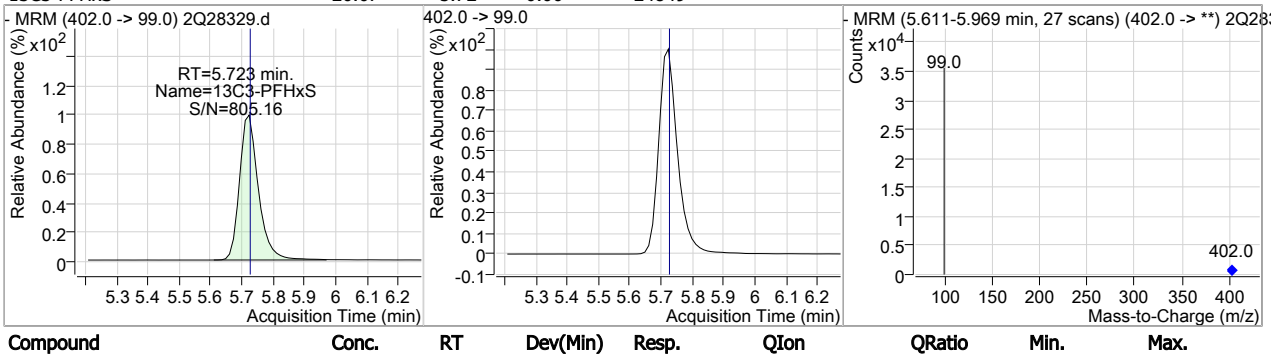
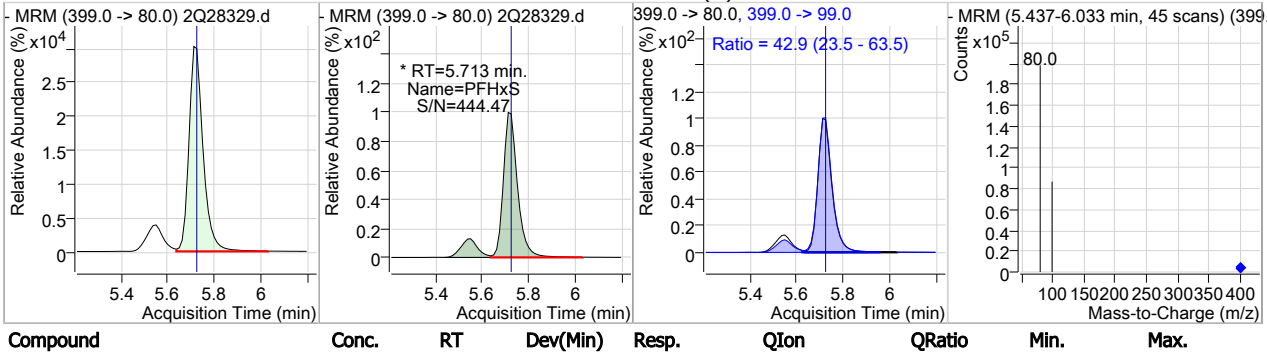
Perfluorinated Compounds by LC/MS/MS

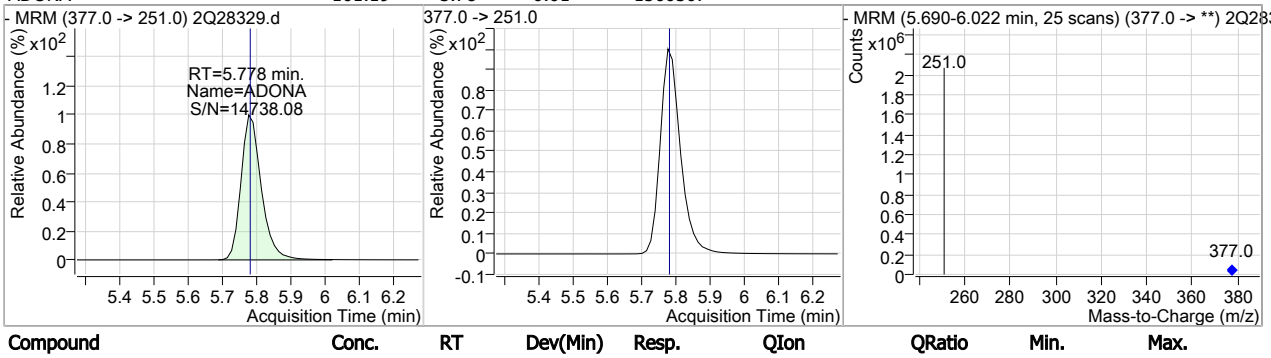
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.07	5.72	0.00	24849				



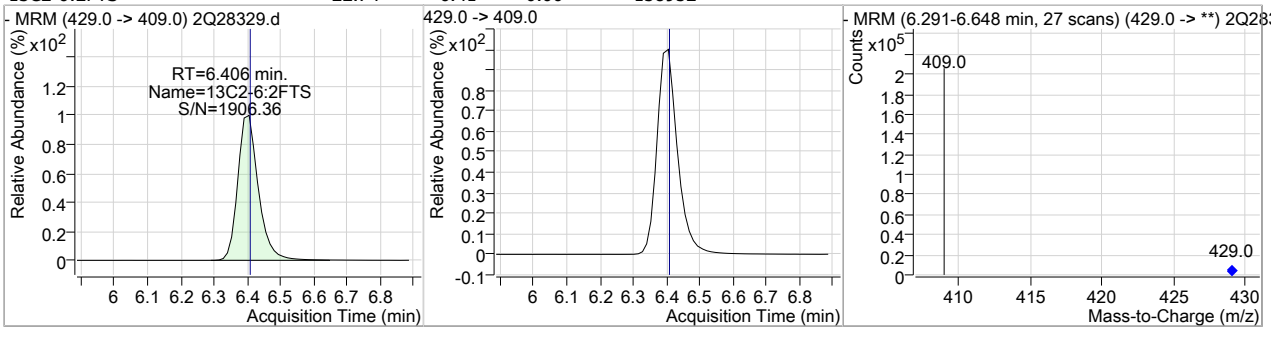
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	100.28	5.71	-0.01	147588 (m)	399.0 -> 99.0	42.9	23.5	63.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	101.19	5.78	-0.01	1560507				



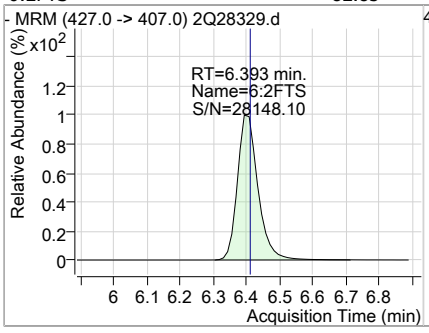
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	22.74	6.41	0.00	158952				

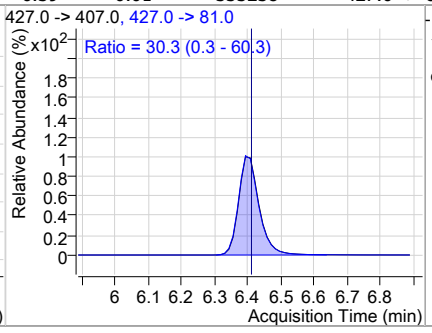


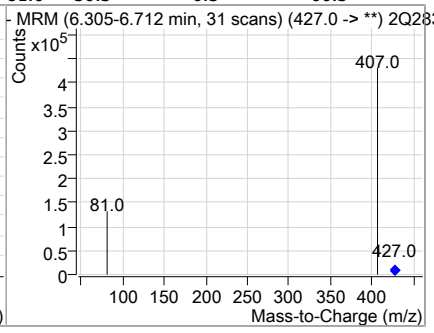
7.6.37

Perfluorinated Compounds by LC/MS/MS

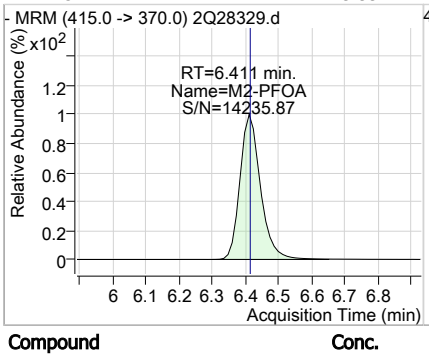
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	82.85	6.39	-0.01	333238	427.0 -> 81.0	30.3	0.3	60.3

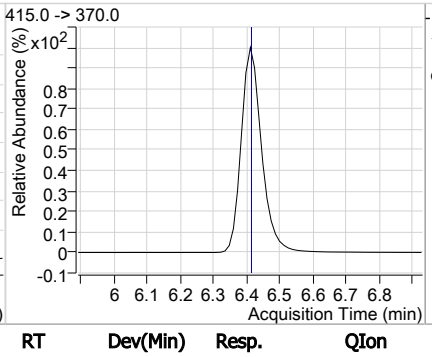


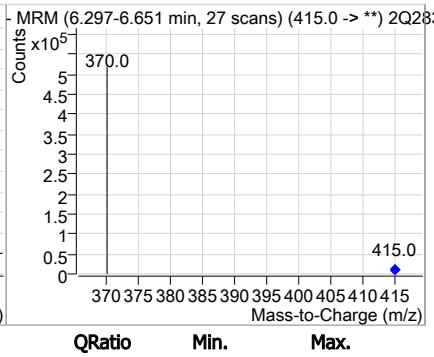




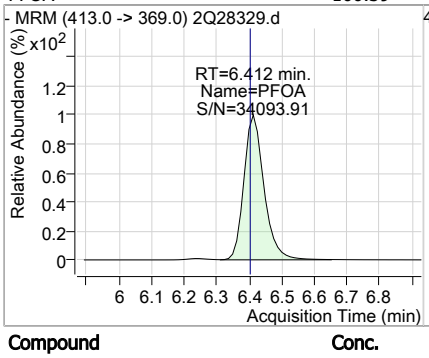
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.41	0.00	393360				

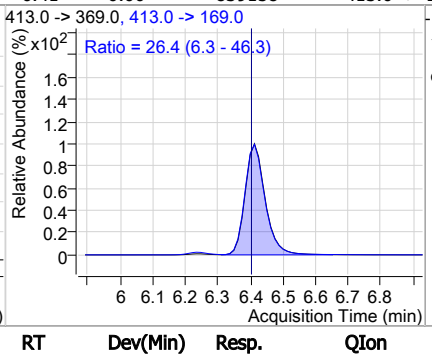


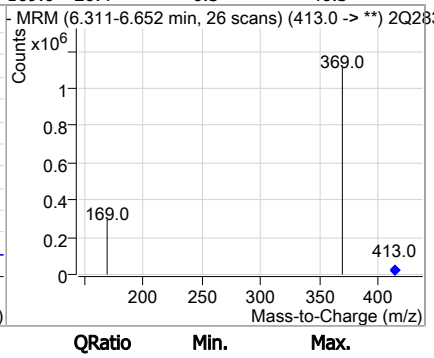




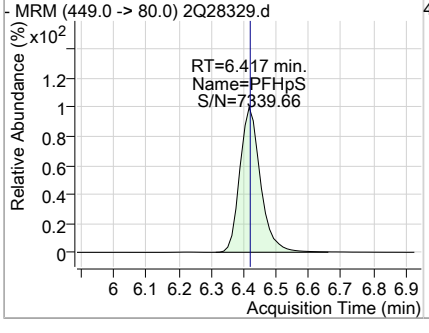
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.39	6.41	0.00	839158	413.0 -> 169.0	26.4	6.3	46.3

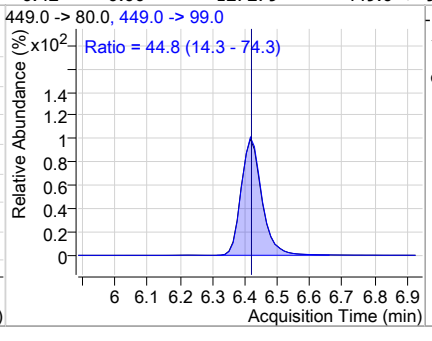


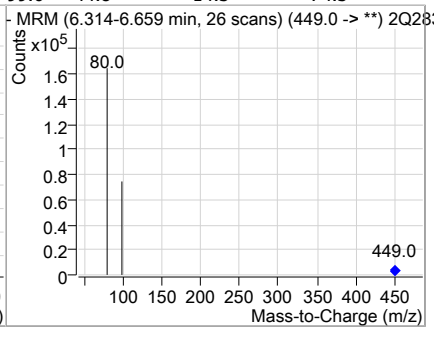




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	99.51	6.42	0.00	127279	449.0 -> 99.0	44.8	14.3	74.3

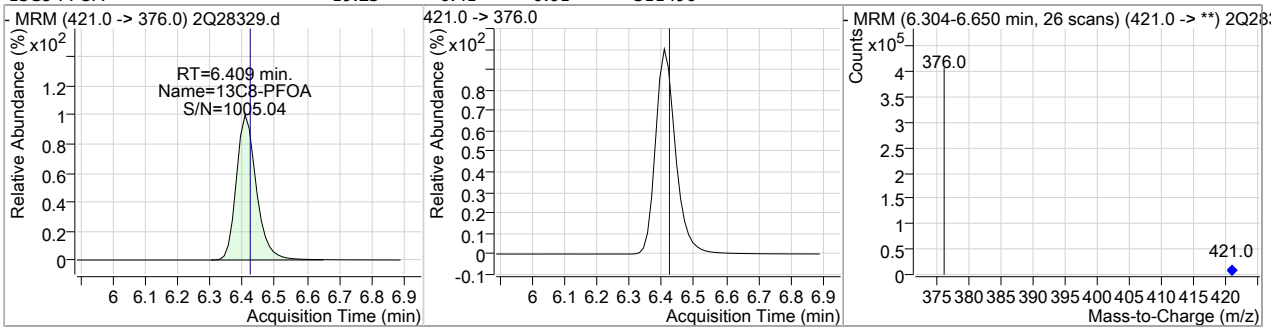




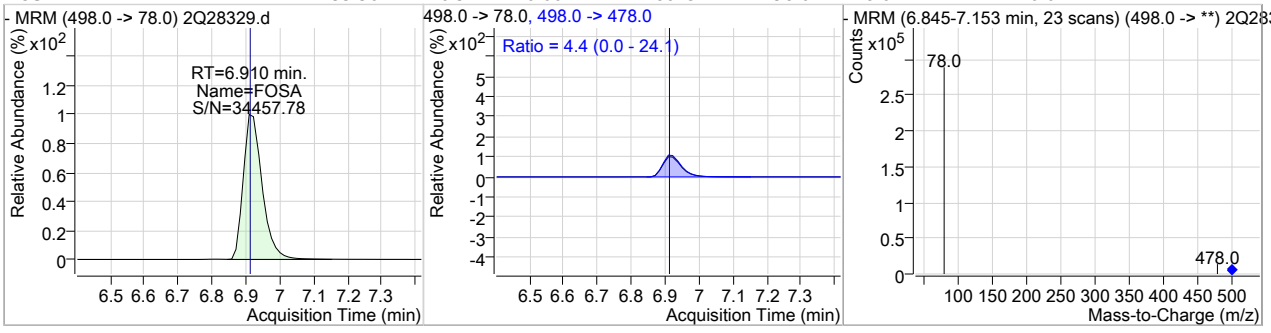


Perfluorinated Compounds by LC/MS/MS

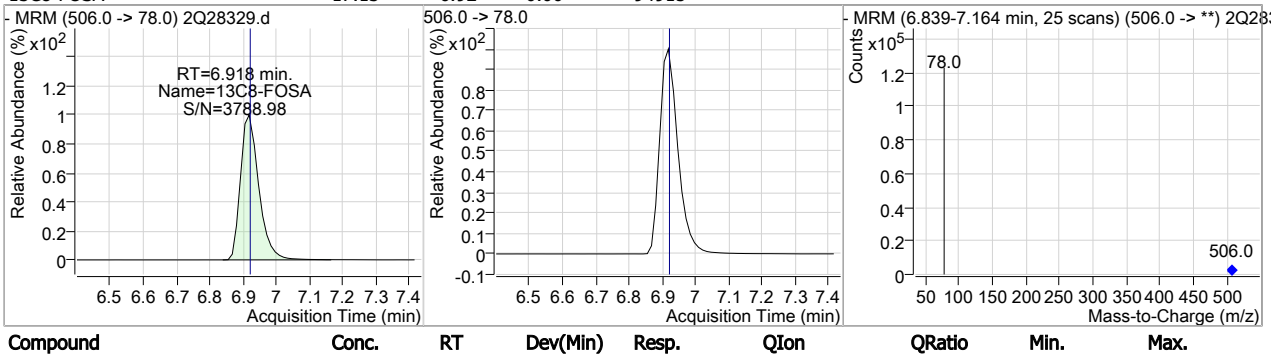
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.23	6.41	-0.01	311496				



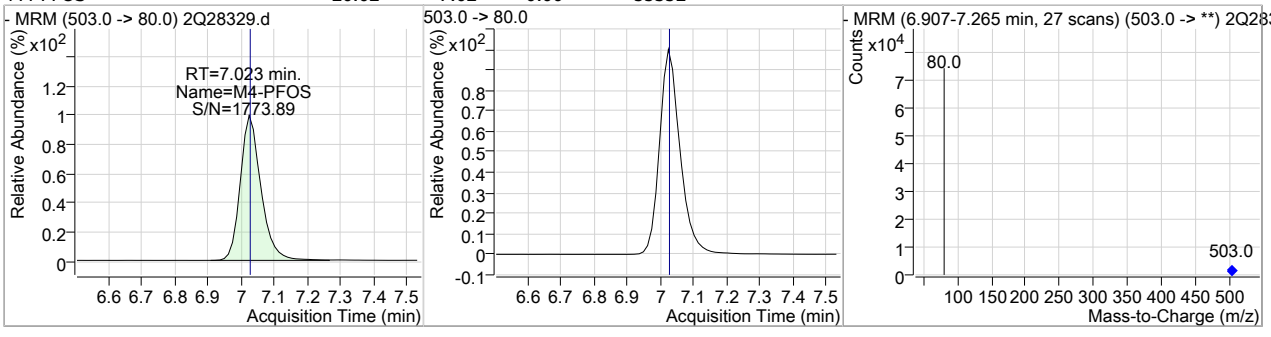
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	99.90	6.91	0.00	228615	498.0 -> 478.0	4.4	0.0	24.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	17.13	6.92	0.00	94915				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.02	0.00	55352				



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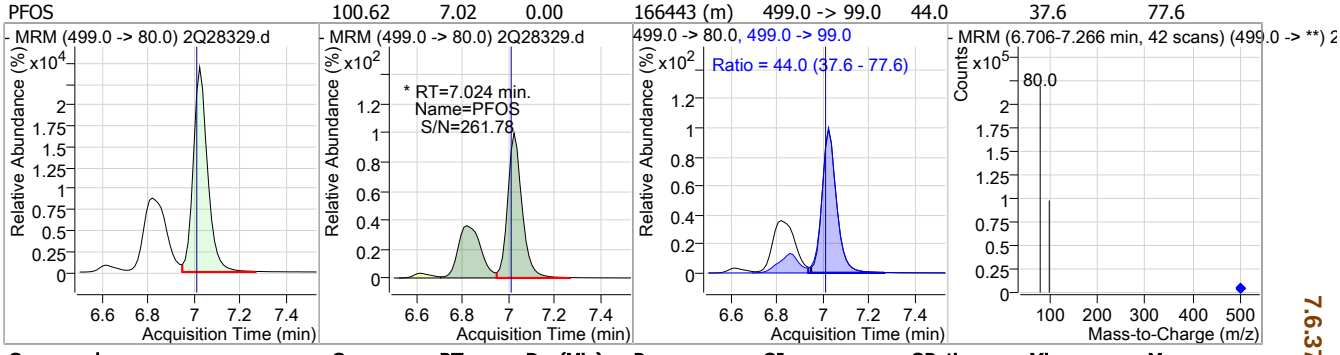
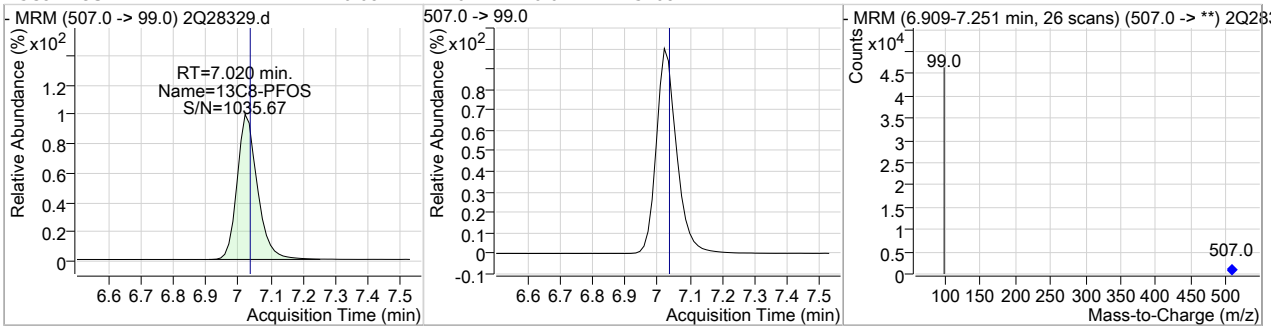
Perfluorinated Compounds by LC/MS/MS

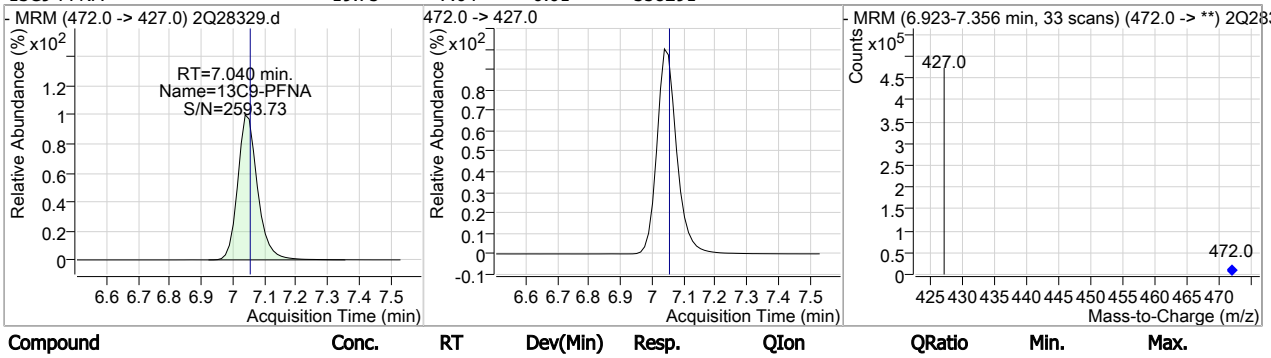
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	100.62	7.02	0.00	166443 (m)	499.0 -> 99.0	44.0	37.6	77.6



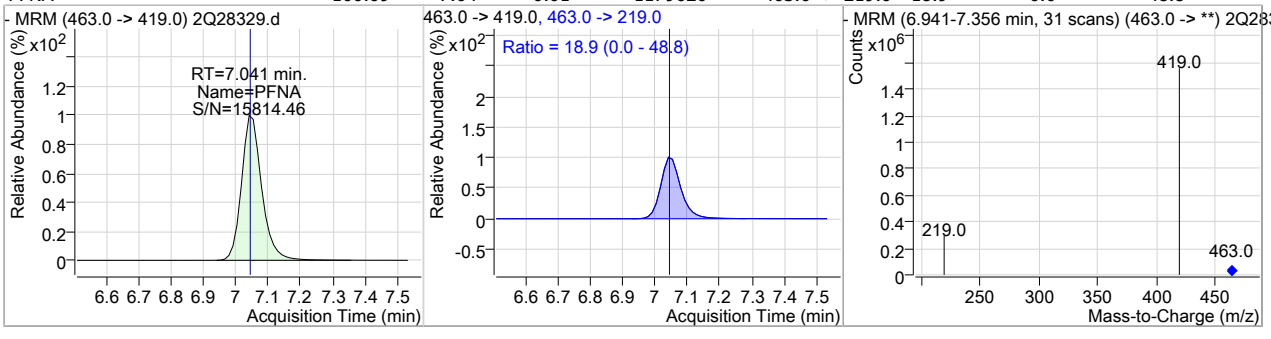
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.08	7.02	-0.01	34081				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.75	7.04	-0.01	358291				



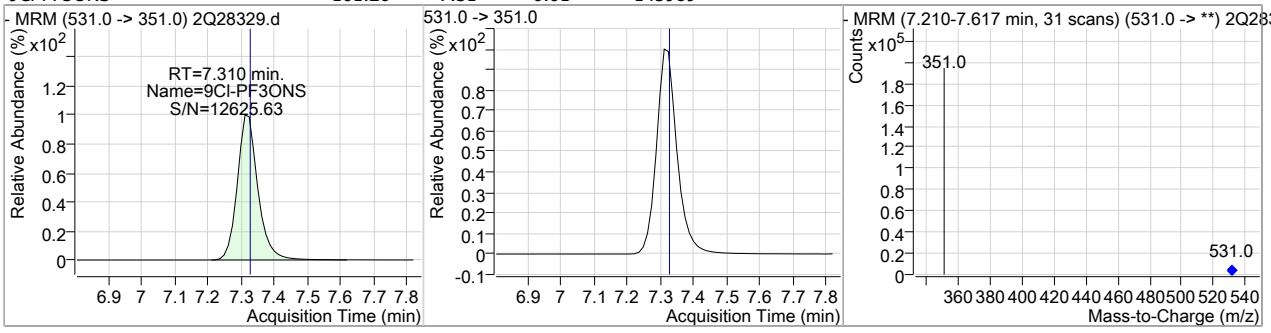
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	100.09	7.04	-0.01	1179620	463.0 -> 219.0	18.9	0.0	48.8



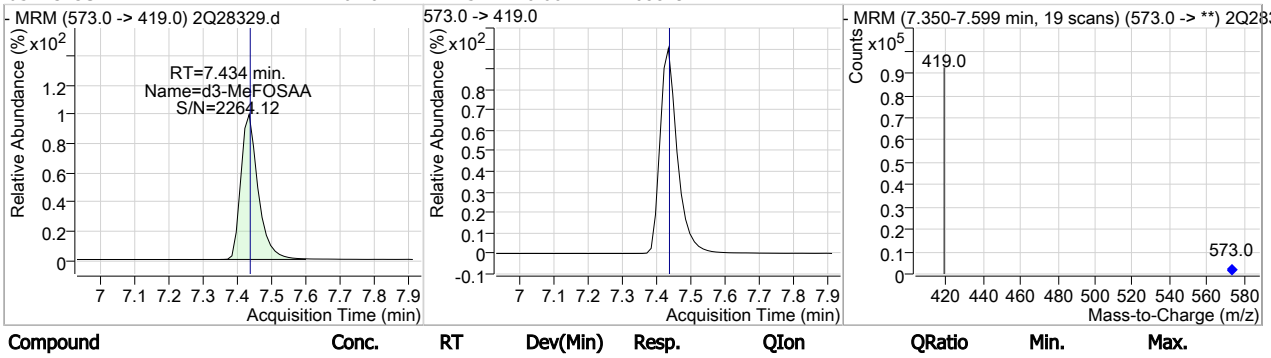
7.6.37

Perfluorinated Compounds by LC/MS/MS

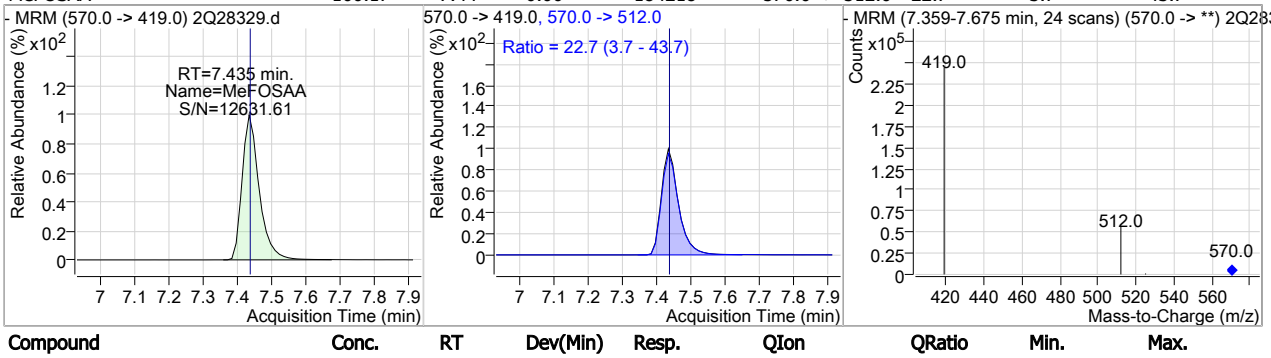
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	101.26	7.31	-0.01	145989				



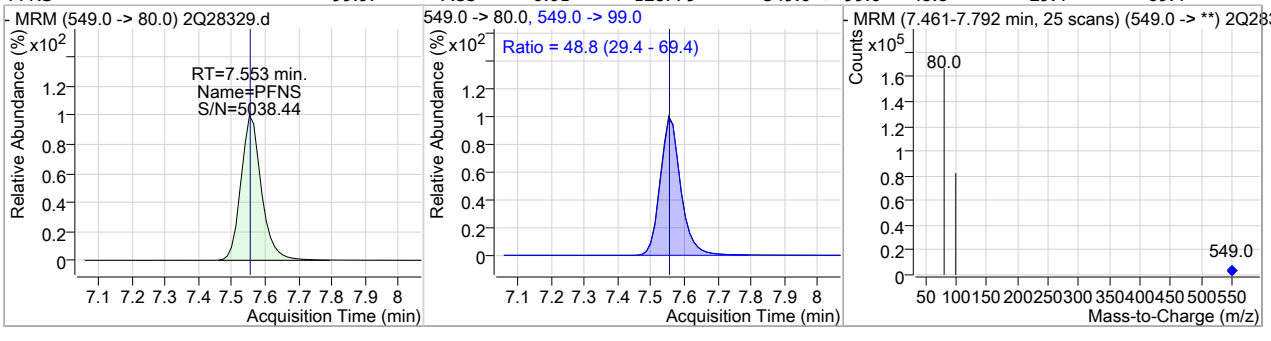
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.16	7.43	0.00	68849				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	100.17	7.44	0.00	184218	570.0 -> 512.0	22.7	3.7	43.7

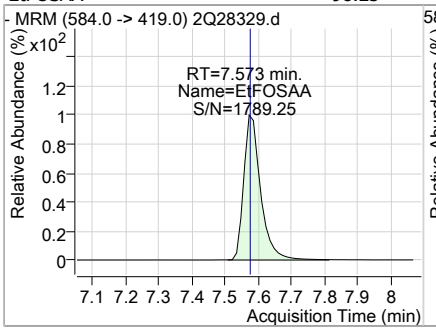


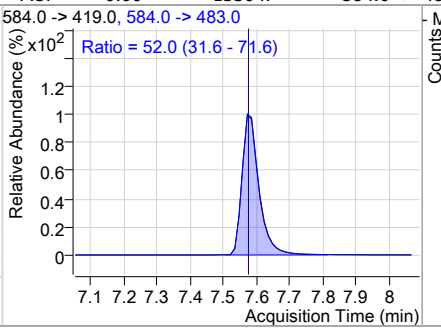
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	99.97	7.55	-0.01	128779	549.0 -> 99.0	48.8	29.4	69.4

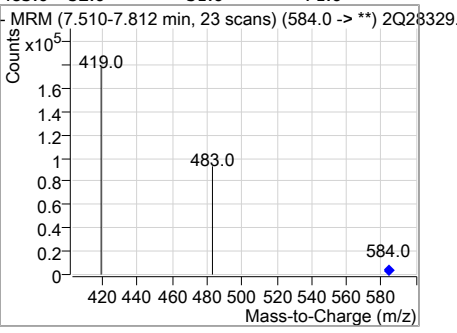


Perfluorinated Compounds by LC/MS/MS

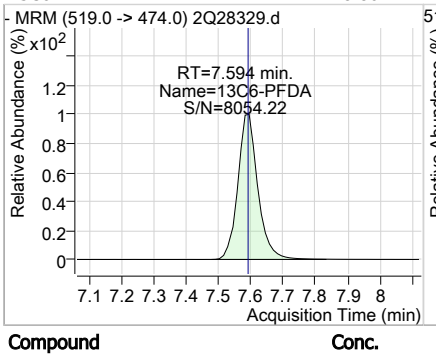
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	98.23	7.57	0.00	133047	584.0 -> 483.0	52.0	31.6	71.6

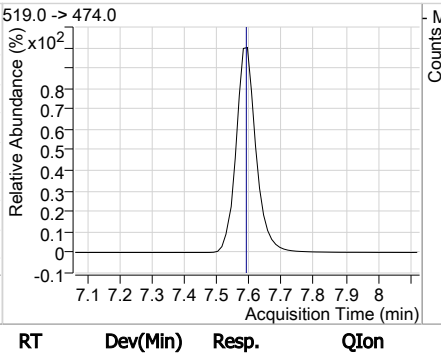


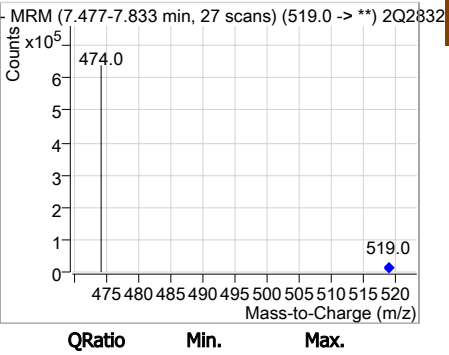




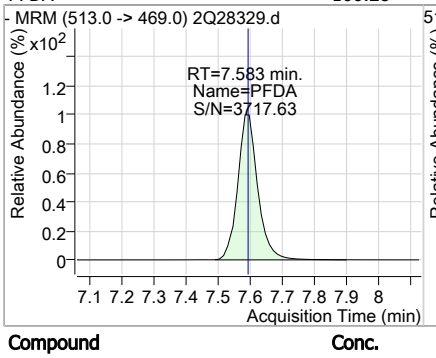
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.80	7.59	0.00	483610				

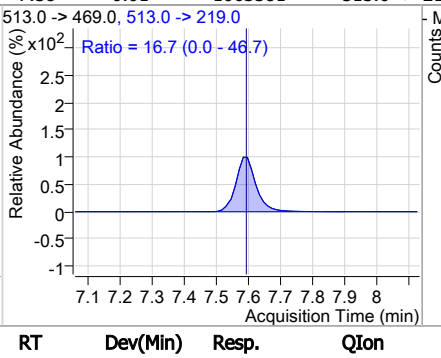


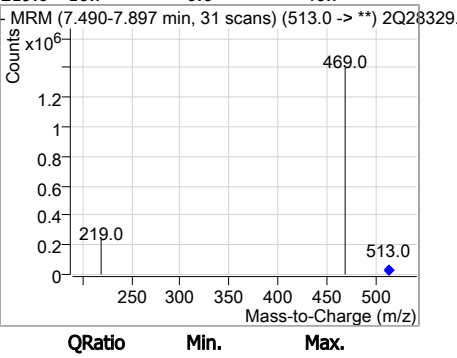




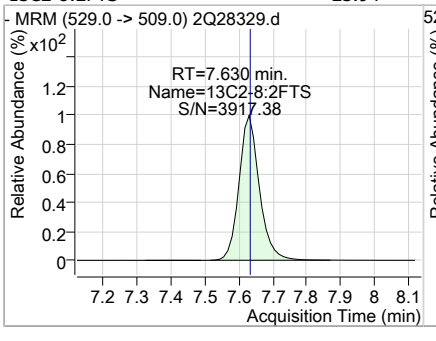
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	100.28	7.58	-0.01	1063381	513.0 -> 219.0	16.7	0.0	46.7

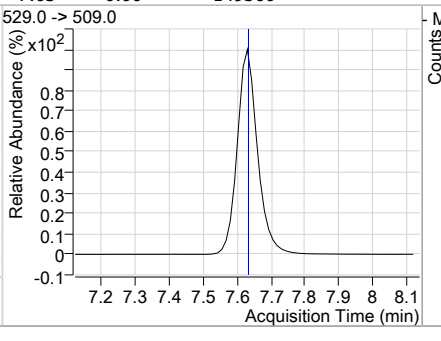


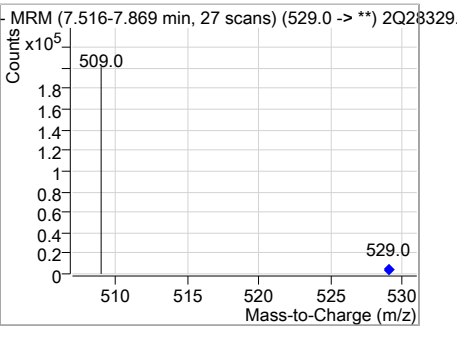




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	23.94	7.63	0.00	149360				



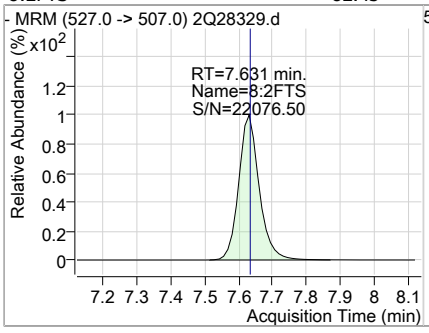


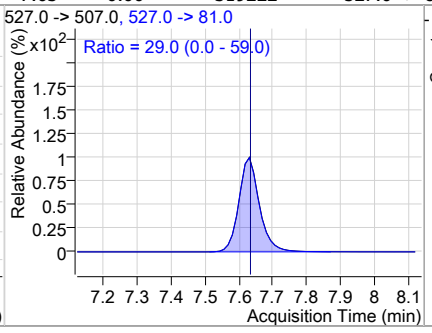


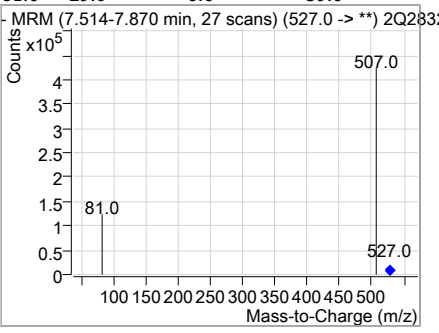
7.6.37

Perfluorinated Compounds by LC/MS/MS

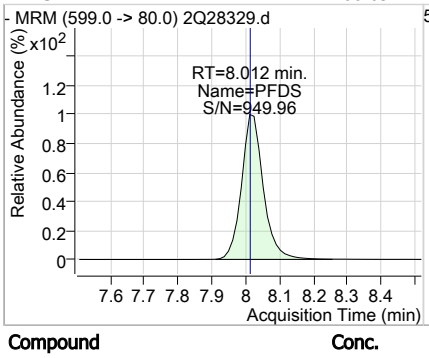
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	82.43	7.63	0.00	319222	527.0 -> 81.0	29.0	0.0	59.0

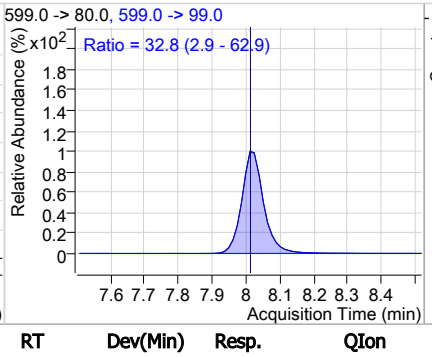


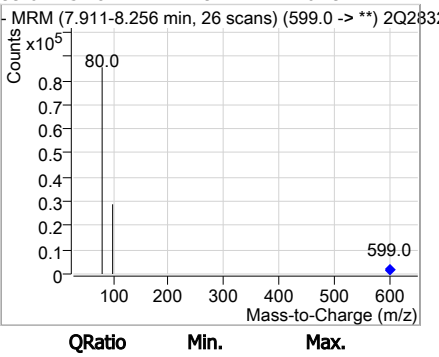




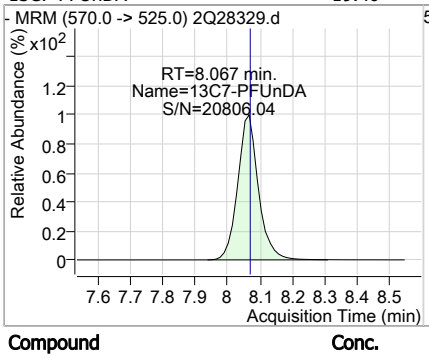
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	100.09	8.01	-0.01	65184	599.0 -> 99.0	32.8	2.9	62.9

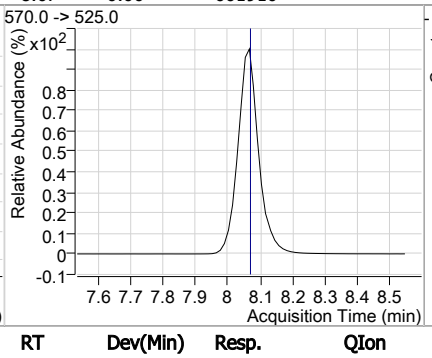


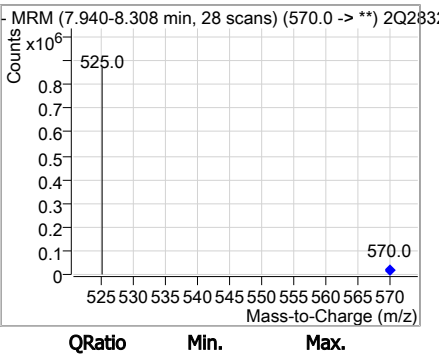




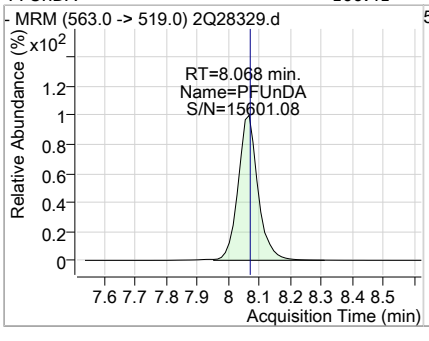
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	19.40	8.07	0.00	661910				

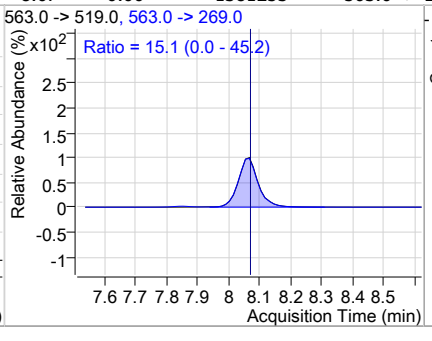


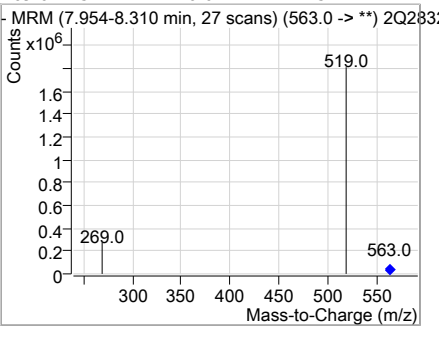




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	100.41	8.07	0.00	1381253	563.0 -> 269.0	15.1	0.0	45.2







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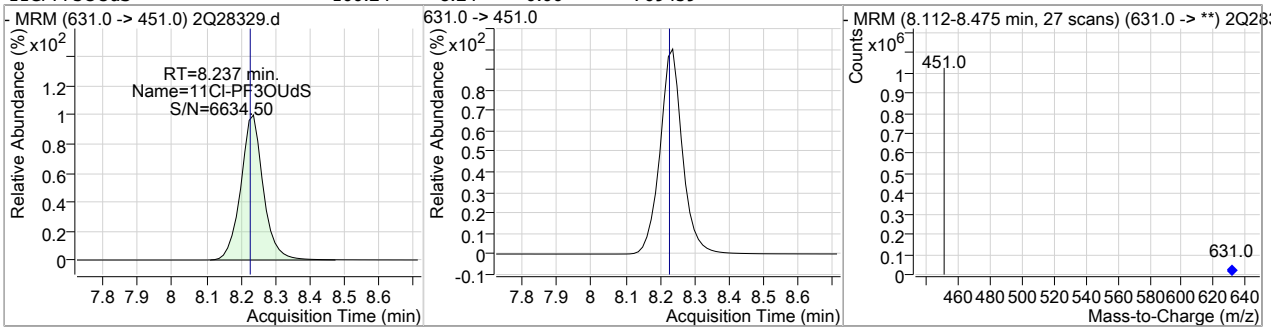
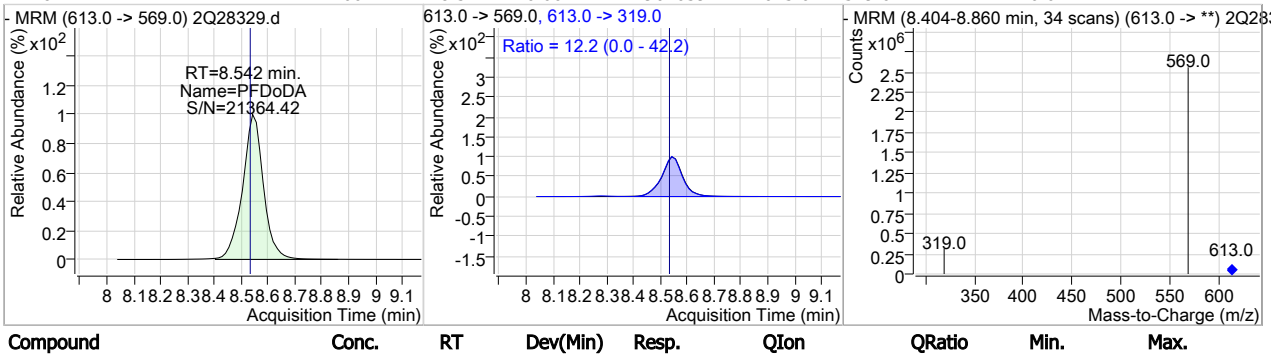
Perfluorinated Compounds by LC/MS/MS

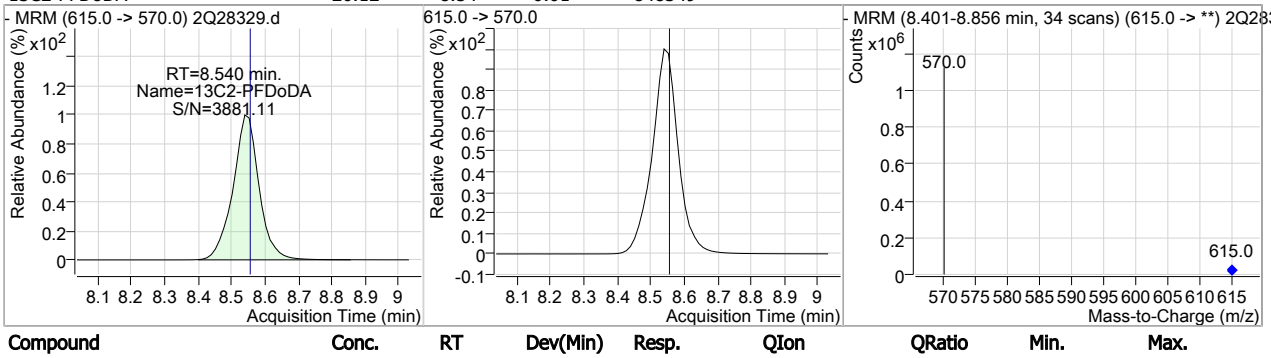
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	100.24	8.24	0.00	769459				



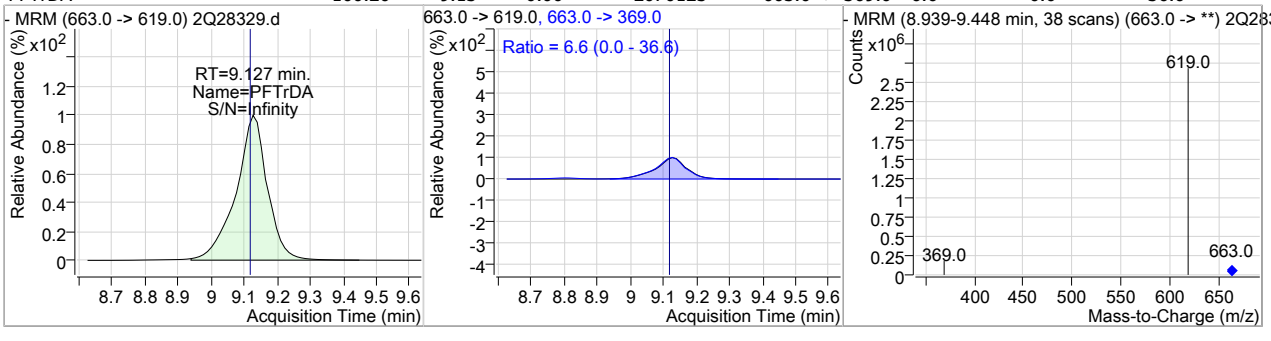
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	100.17	8.54	0.00	1962039	613.0 -> 319.0	12.2	0.0	42.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.12	8.54	-0.01	848349				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	100.20	9.13	0.00	2070123	663.0 -> 369.0	6.6	0.0	36.6



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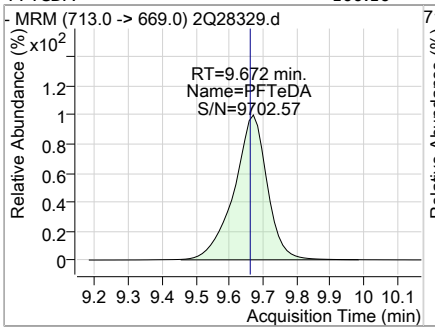
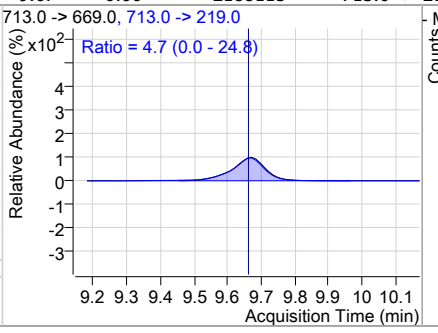
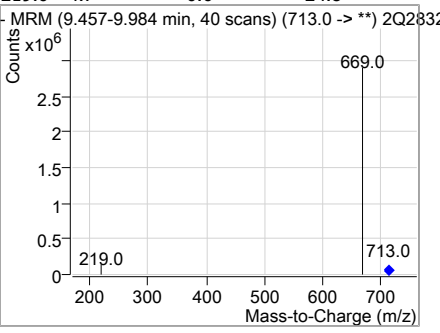
Perfluorinated Compounds by LC/MS/MS

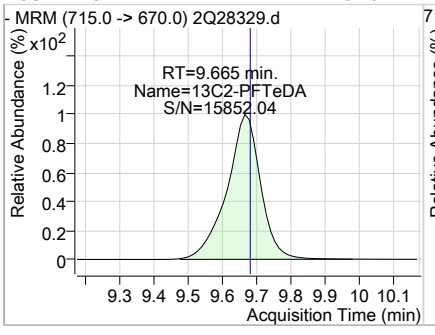
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	100.16	9.67	0.00	2188115	713.0 -> 219.0	4.7	0.0	24.8

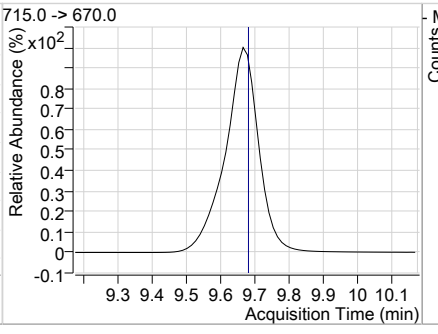


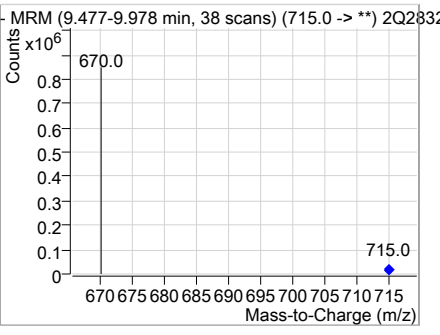




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.70	9.67	-0.01	632001				







7.6.37

Manual Integration Approval Summary

Sample Number: S2Q450-IC450
Lab FileID: 2Q28329.D
Injection Time: 03/28/19 16:21
Method: EPA 537M BY ID
Analyst approved: 03/29/19 10:18 Mike Eger
Supervisor approved: 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.71	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak

Cal Report: 2Q28331.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28331.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/28/2019 4:52:47 PM
Sample Name : icv450-20
Vial : Vial 10
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q450.batch.bin
Sample Information : op74300,S2Q450,2.00,,,1.0,1,soil

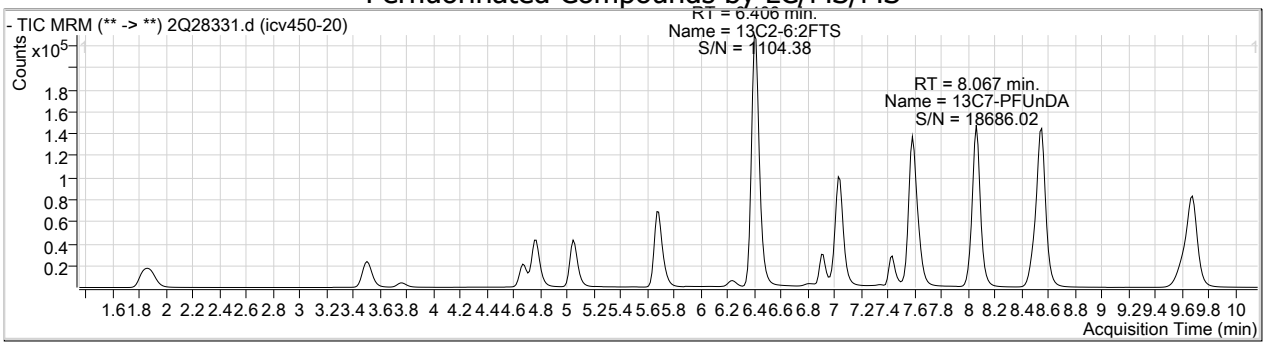
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.411	415.0 -> 370.0	398275	20.00	µg/L	0.000
13C4-PFOS	7.023	503.0 -> 80.0	54980	20.00	µg/L	0.000
M4-PFBA	1.865	217.0 -> 172.0	134331	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	122097	20.00	µg/L	0.000
M5-PFHxA	4.776	318.0 -> 273.0	181629	20.00	µg/L	0.013
M4-PFHpA	5.679	367.0 -> 322.0	281275	20.00	µg/L	0.000
M8-PFOA	6.422	421.0 -> 376.0	298721	20.00	µg/L	0.000
M9-PFNA	7.052	472.0 -> 427.0	331822	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	479519	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	638582	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	769681	20.00	µg/L	0.000
M2-PFTeDA	9.678	715.0 -> 670.0	565591	20.00	µg/L	0.000
M8-FOSA	6.906	506.0 -> 78.0	106301	20.00	µg/L	-0.013
M3-PFBS	3.767	302.0 -> 99.0	19809	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	22275	20.00	µg/L	0.000
M8-PFOS	7.020	507.0 -> 99.0	30857	20.00	µg/L	-0.013
M2-4:2FTS	4.671	329.0 -> 309.0	89362	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	121110	20.00	µg/L	0.000
M2-8:2FTS	7.630	529.0 -> 509.0	107924	20.00	µg/L	0.000
M3-MeFOSAA	7.434	573.0 -> 419.0	62237	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	176747	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	89283	16.85	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 84.3%		
13C2-6:2FTS	6.406	429.0 -> 409.0	121022	17.32	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.6%		
13C2-8:2FTS	7.630	529.0 -> 509.0	107855	17.28	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 86.4%		
13C2-PFDoDA	8.553	615.0 -> 570.0	768454	18.23	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
13C2-PFTeDA	9.678	715.0 -> 670.0	562511	18.43	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.1%		
13C3-PFBS	3.767	302.0 -> 99.0	19774	17.96	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.8%		
13C3-PFHxS	5.723	402.0 -> 99.0	22266	17.98	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.9%		
13C4-PFBA	1.865	217.0 -> 172.0	133712	17.90	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.5%		
13C4-PFHpA	5.679	367.0 -> 322.0	280961	18.26	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.3%		
13C5-PFHxA	4.776	318.0 -> 273.0	181538	17.89	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 89.5%		
13C5-PFPeA	3.511	268.0 -> 223.0	121906	18.10	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 90.5%		
13C6-PFDA	7.594	519.0 -> 474.0	479233	18.63	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

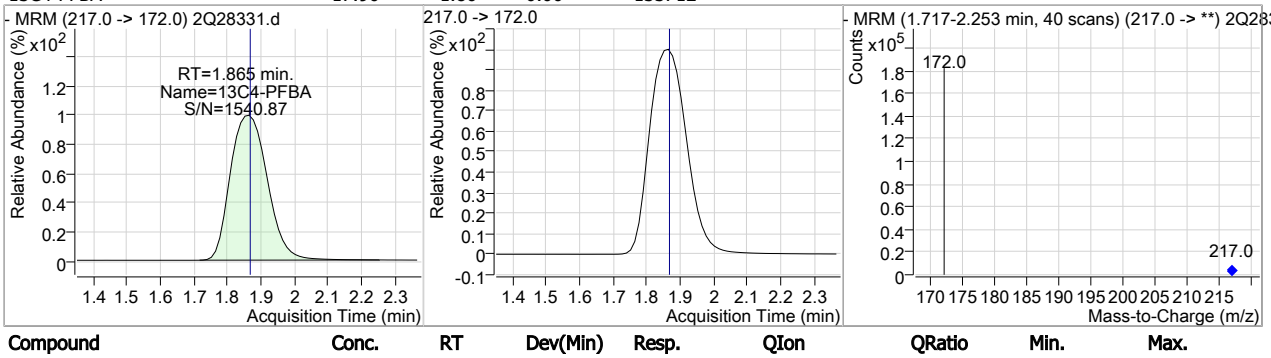
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.1%		
13C7-PFUnDA	8.067	570.0 -> 525.0	638714	18.72 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.6%		
13C8-FOSA	6.906	506.0 -> 78.0	106273	19.18 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.9%		
13C8-PFOA	6.422	421.0 -> 376.0	298324	18.42 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 92.1%		
13C8-PFOS	7.020	507.0 -> 99.0	30882	18.20 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.0%		
13C9-PFNA	7.052	472.0 -> 427.0	331837	18.30 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.5%		
d3-MeFOSAA	7.434	573.0 -> 419.0	62232	18.23 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 91.1%		
M2-PFOA	6.411	415.0 -> 370.0	398847	20.01 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
M4-PFOS	7.023	503.0 -> 80.0	55003	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	176747	91.46 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 91.5%		
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	7.573	584.0 -> 419.0	23947	17.80 µg/L	m	94
FOSA	-	498.0 -> 78.0	-	N.D.		
MeFOSAA	7.435	570.0 -> 419.0	30824	18.56 µg/L	m	97
PFBA	-	213.0 -> 169.0	-	N.D.		
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	5.681	363.0 -> 319.0	0	0.00 µg/L	m	1
PFHpS	6.417	449.0 -> 80.0	0	0.00 µg/L	m	1
PFHxA	-	313.0 -> 269.0	-	N.D.		
PFHxS	5.726	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	6.412	413.0 -> 369.0	149330	18.65 µg/L	m	96
PFOS	7.024	499.0 -> 80.0	31583	21.08 µg/L	m	77
PFPeA	-	263.0 -> 219.0	-	N.D.		
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.		
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

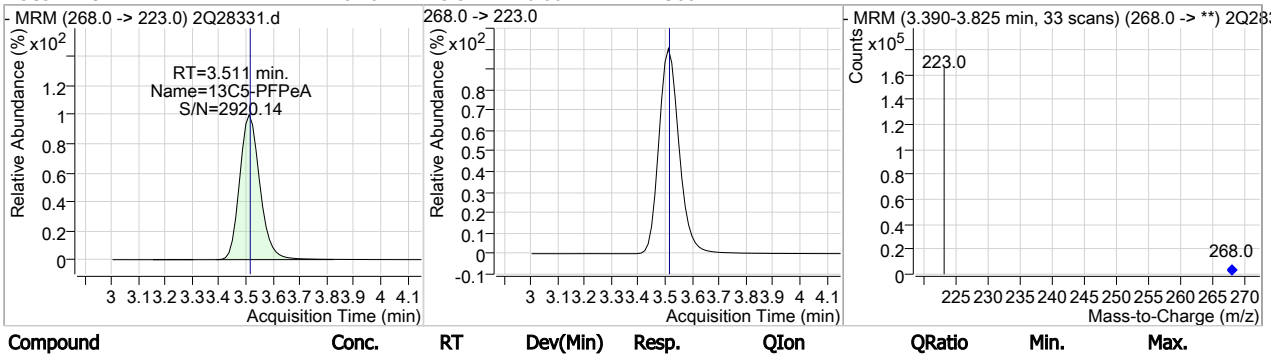
Perfluorinated Compounds by LC/MS/MS



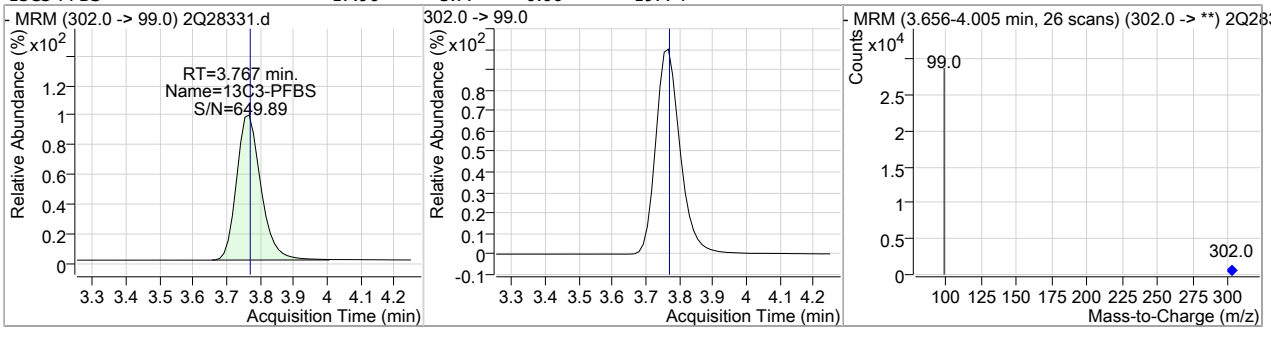
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	17.90	1.86	0.00	133712				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.10	3.51	0.00	121906				

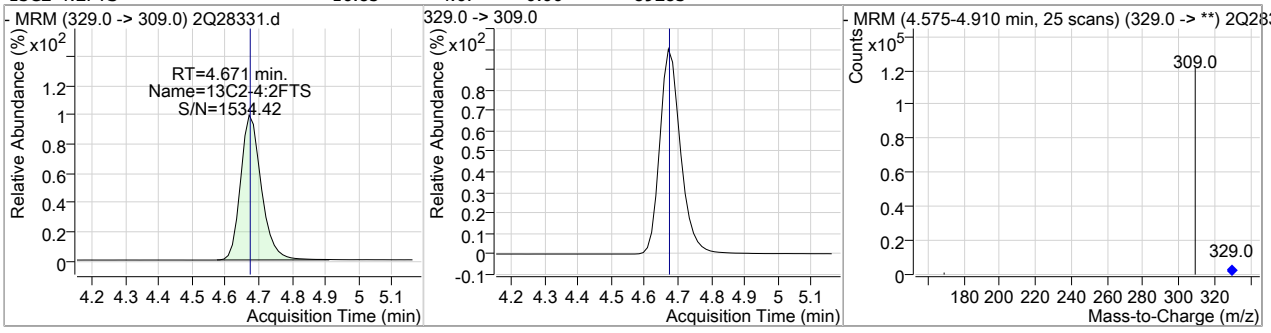


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	17.96	3.77	0.00	19774				

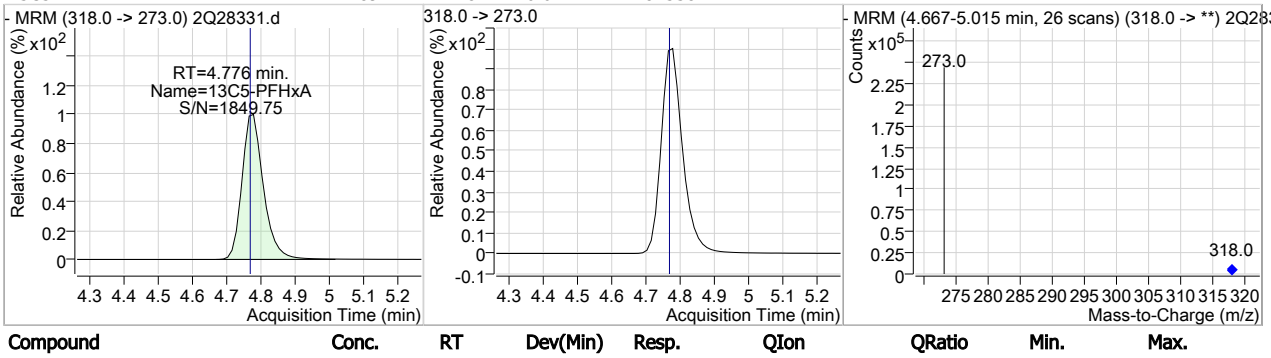


Perfluorinated Compounds by LC/MS/MS

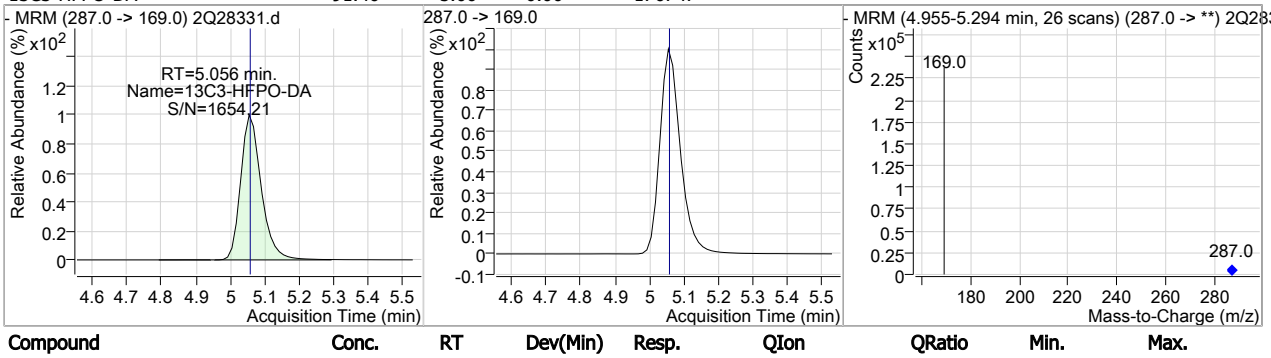
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	16.85	4.67	0.00	89283				



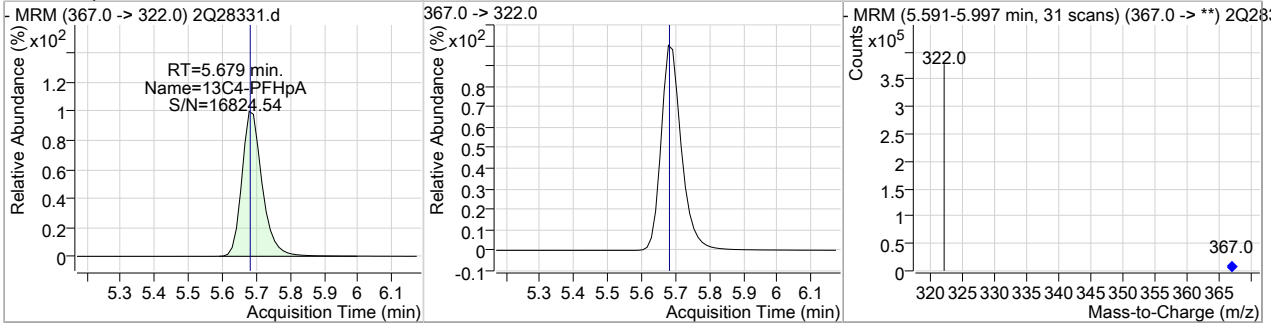
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	17.89	4.78	0.01	181538				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	91.46	5.06	0.00	176747				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	18.26	5.68	0.00	280961				



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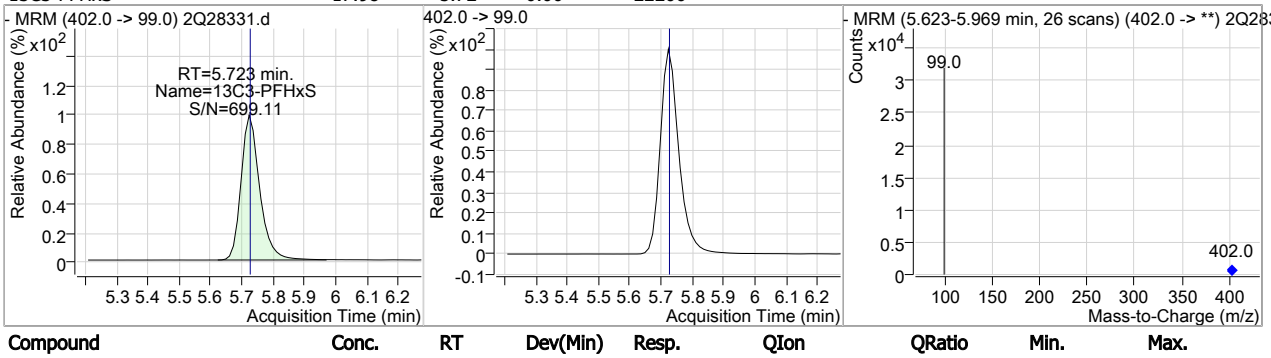
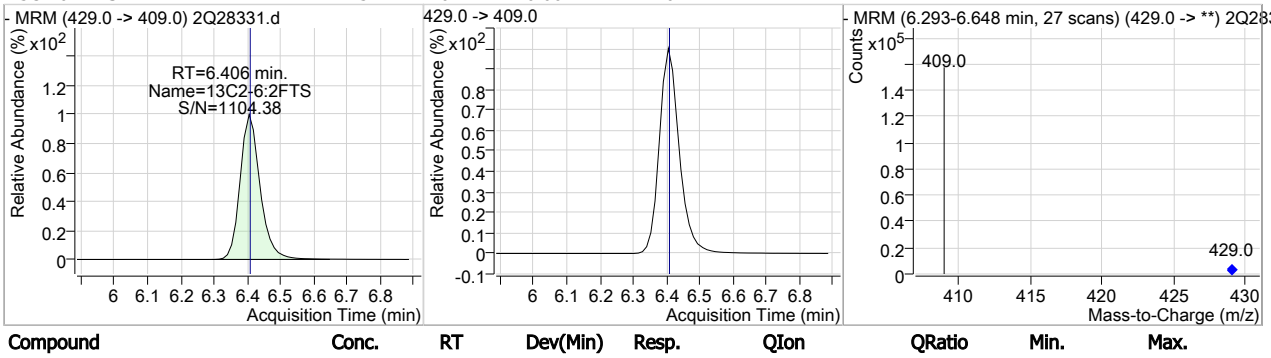
Perfluorinated Compounds by LC/MS/MS

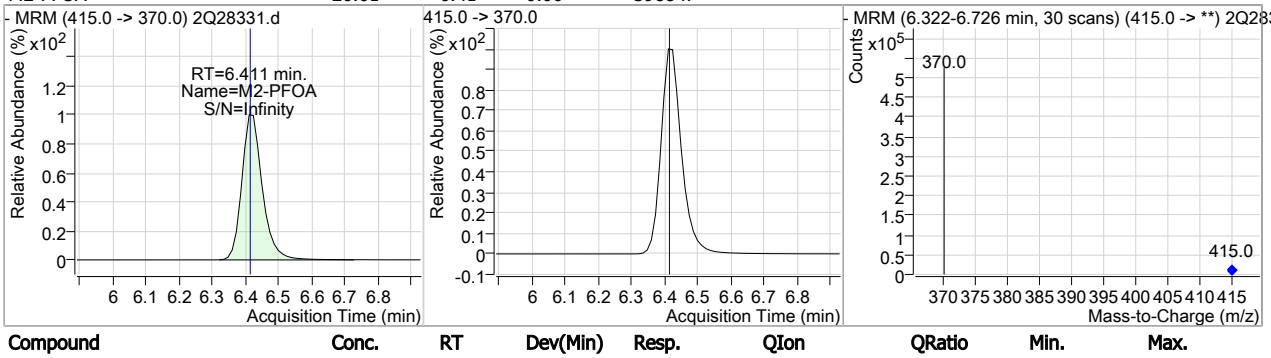
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	17.98	5.72	0.00	22266				



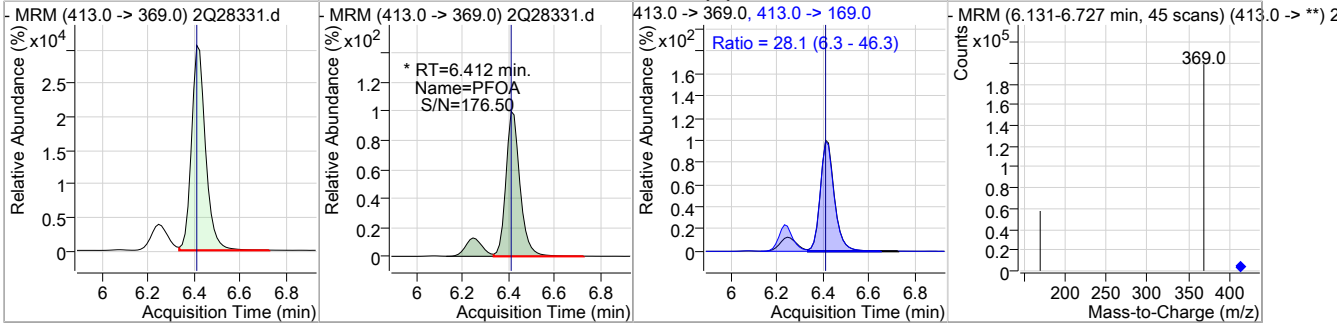
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	17.32	6.41	0.00	121022				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.41	0.00	398847				



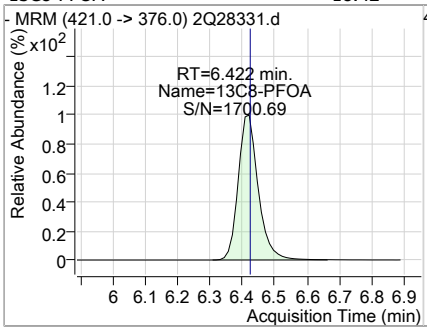
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.65	6.41	0.00	149330 (m)	413.0 -> 169.0	28.1	6.3	46.3

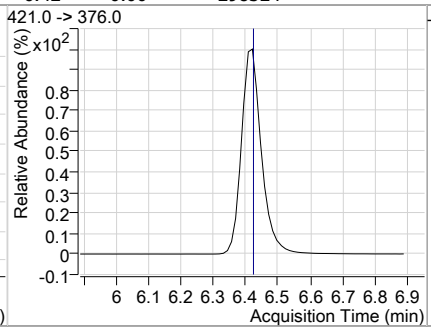


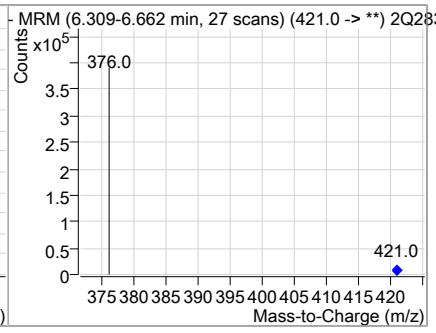
7.6.38

Perfluorinated Compounds by LC/MS/MS

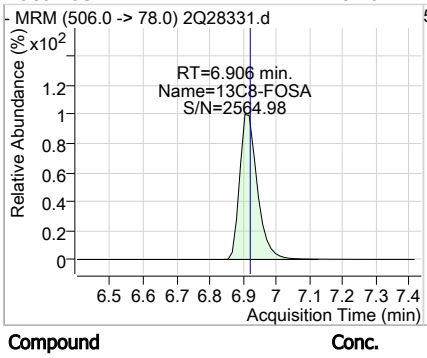
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	18.42	6.42	0.00	298324				

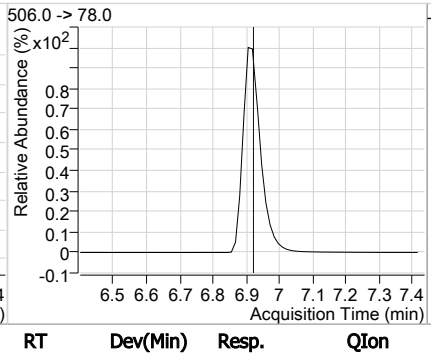


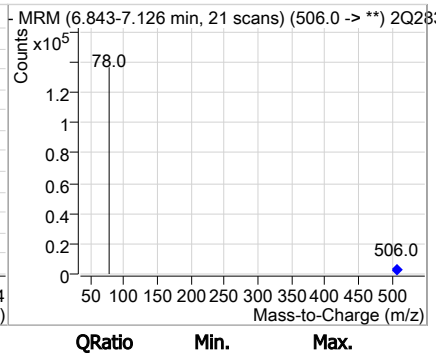




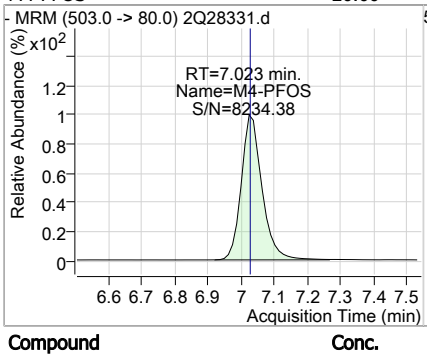
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.18	6.91	-0.01	106273				

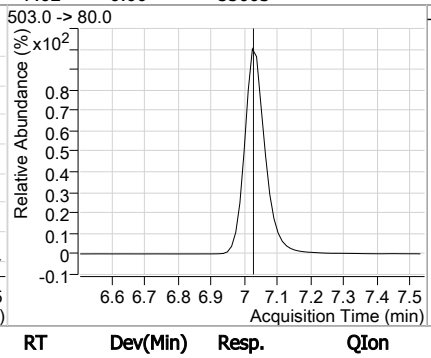


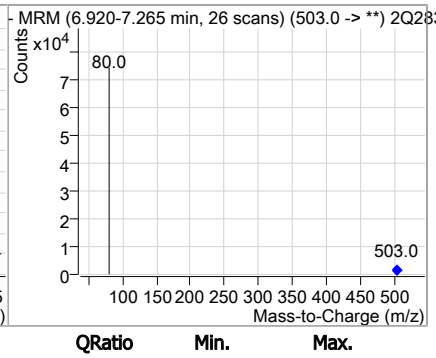




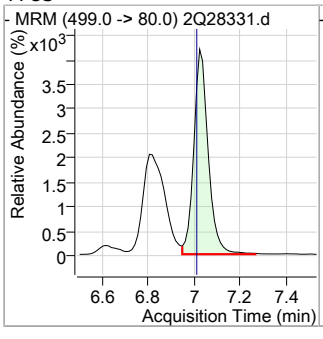
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.00	7.02	0.00	55003				

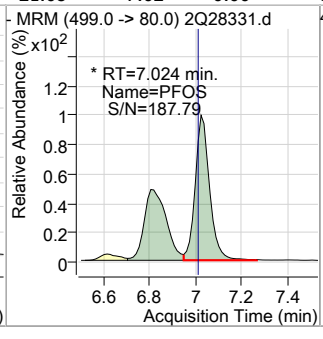


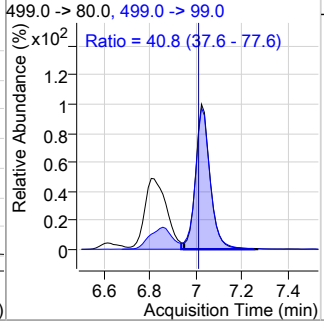


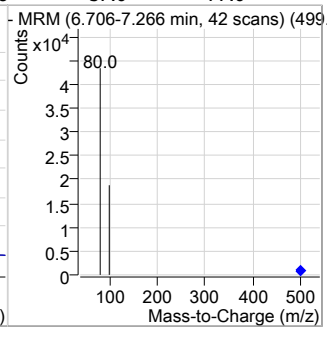


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	21.08	7.02	0.00	31583 (m)	499.0 -> 99.0	40.8	37.6	77.6



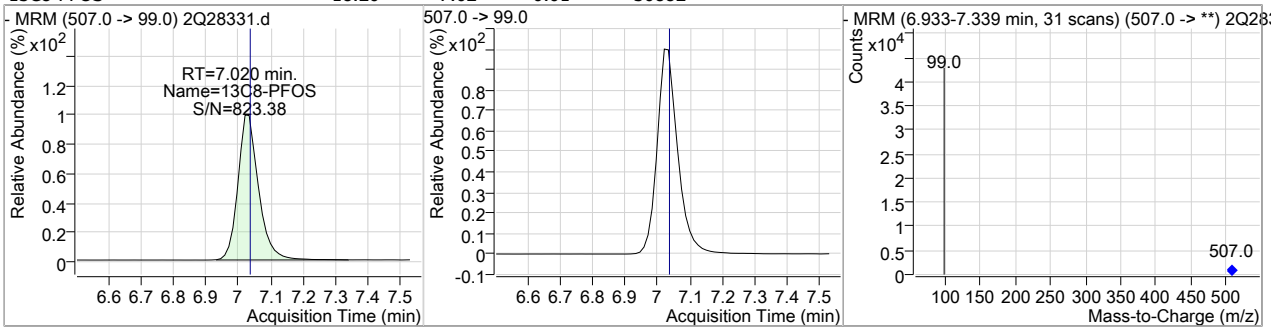




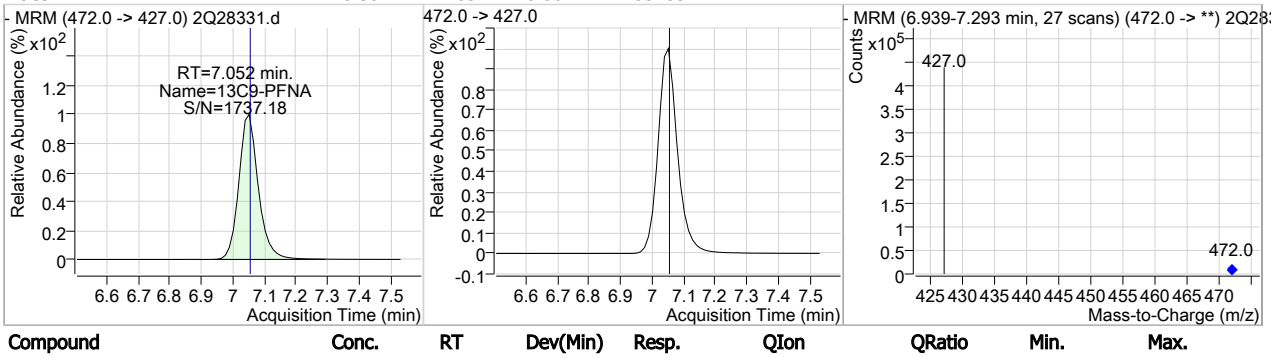


Perfluorinated Compounds by LC/MS/MS

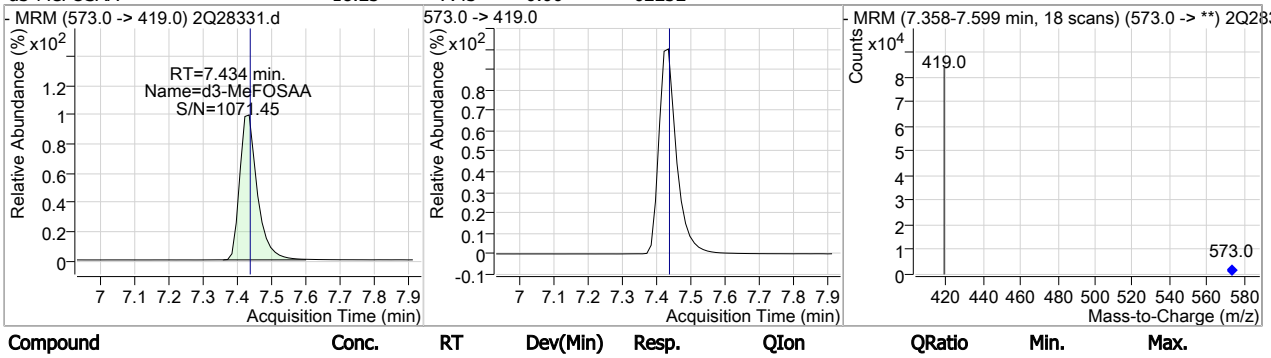
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	18.20	7.02	-0.01	30882				



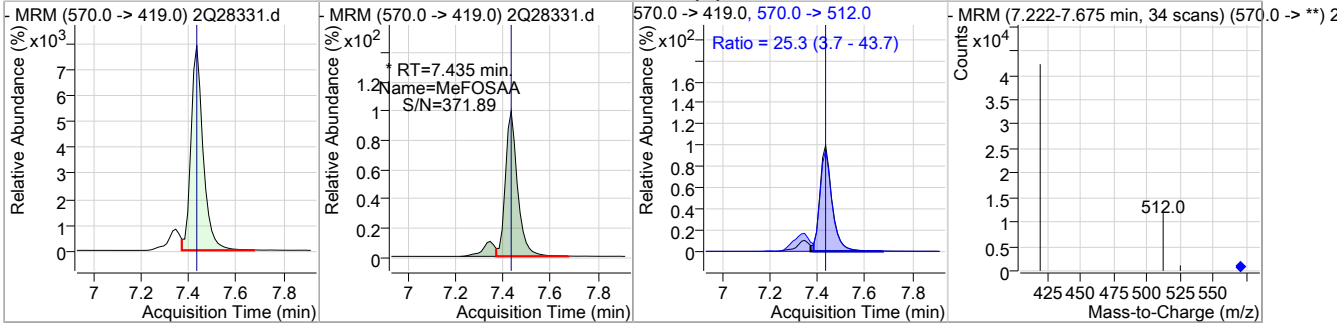
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	18.30	7.05	0.00	331837				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	18.23	7.43	0.00	62232				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.56	7.44	0.00	30824 (m)	570.0 -> 512.0	25.3	3.7	43.7



7.6.38

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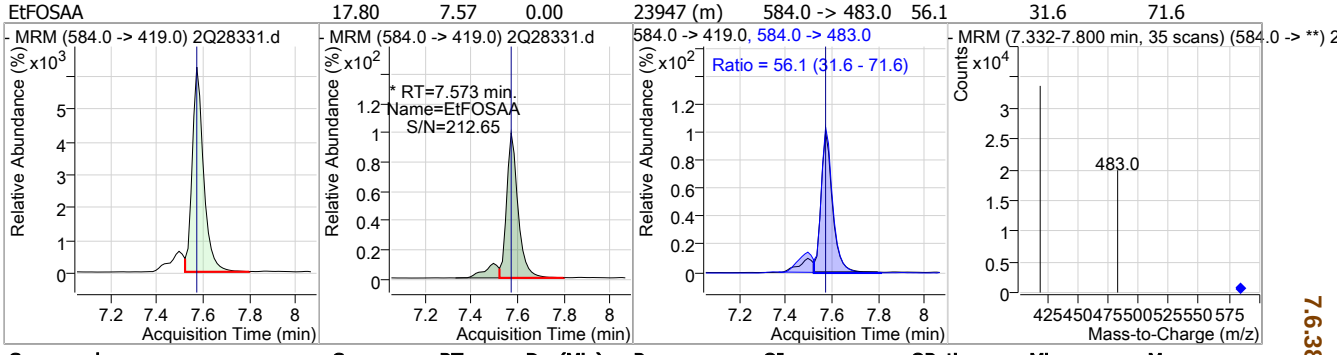
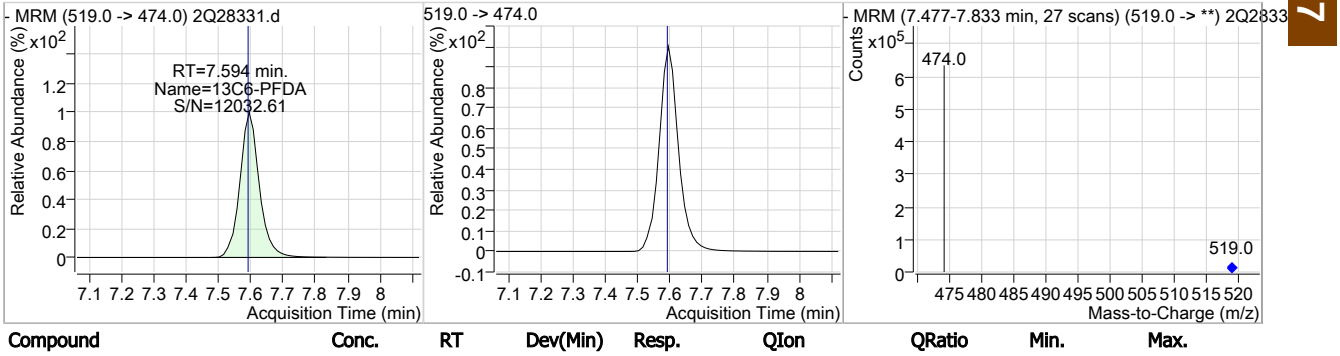
Perfluorinated Compounds by LC/MS/MS

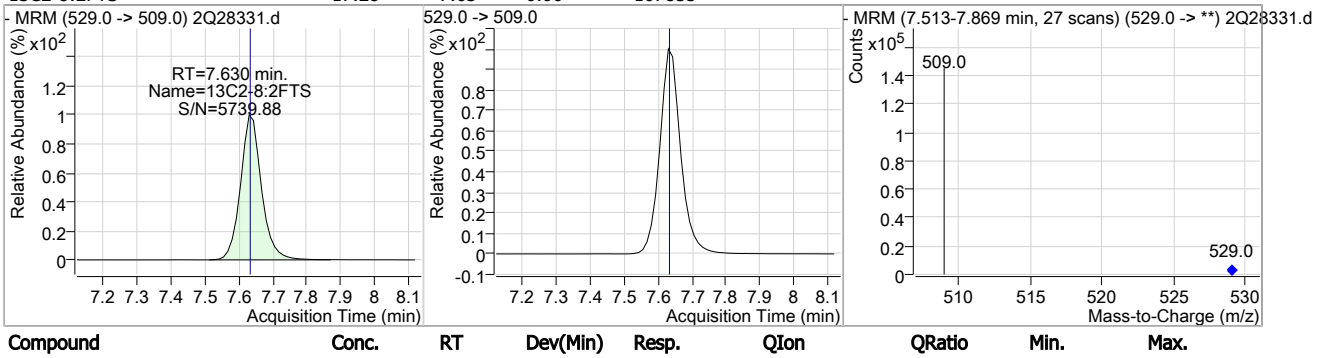
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	17.80	7.57	0.00	23947 (m)	584.0 -> 483.0	56.1	31.6	71.6



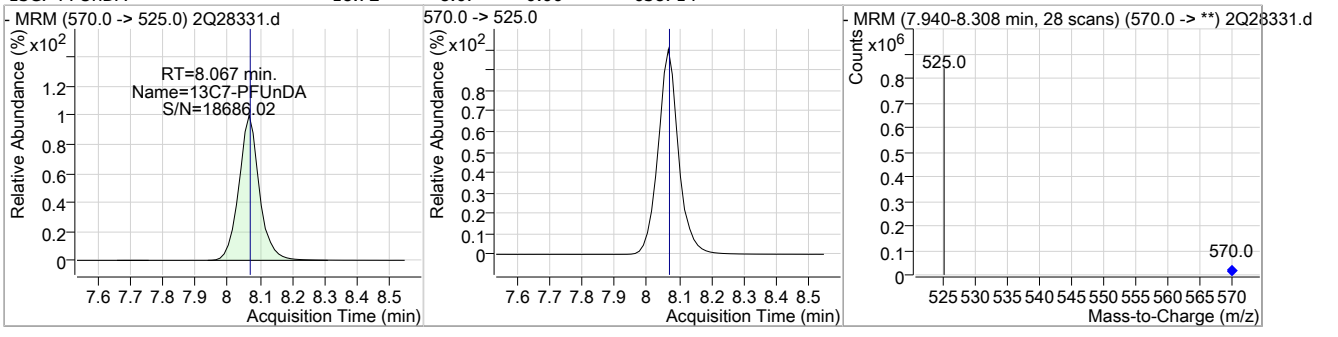
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	18.63	7.59	0.00	479233				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	17.28	7.63	0.00	107855				



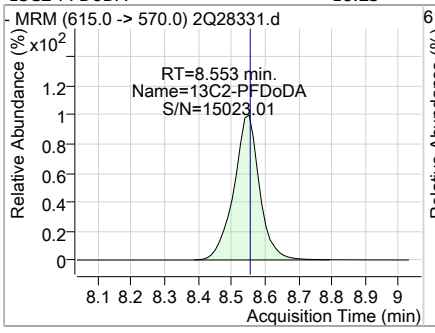
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	18.72	8.07	0.00	638714				

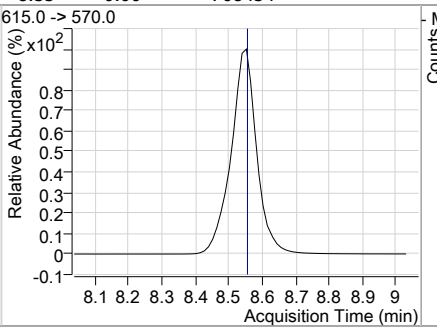


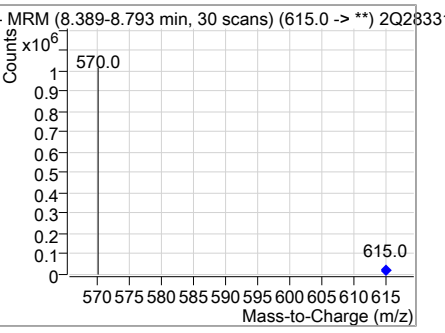
7.6.38

Perfluorinated Compounds by LC/MS/MS

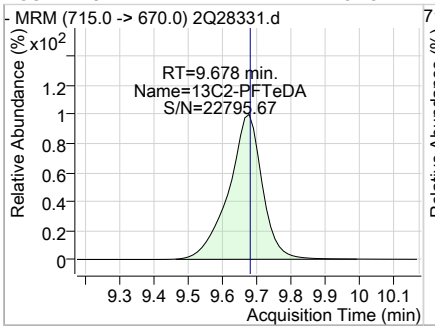
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	18.23	8.55	0.00	768454				

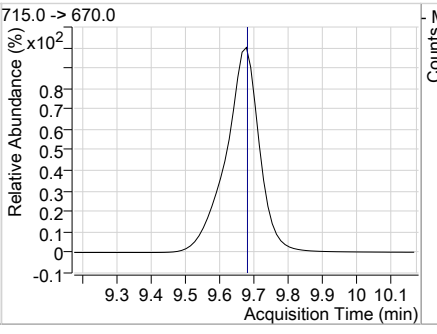


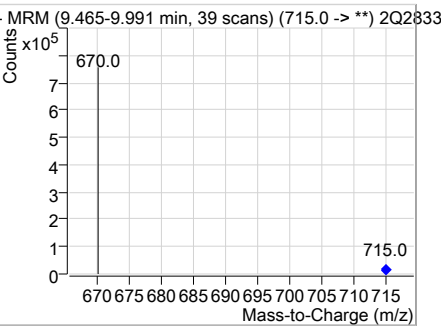




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	18.43	9.68	0.00	562511				







7.6.38

Manual Integration Approval Summary

Sample Number: S2Q450-ICV450 **Method:** EPA 537M BY ID
Lab FileID: 2Q28331.D **Analyst approved:** 03/29/19 10:18 Mike Eger
Injection Time: 03/28/19 16:52 **Supervisor approved:** 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		6.41	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak
MeFOSAA	2355-31-9		7.43	Split peak
EtFOSAA	2991-50-6		7.57	Split peak

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28332.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/28/2019 5:08:30 PM
Sample Name : icv450-20
Vial : Vial 11
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q450.batch.bin
Sample Information : op74300,S2Q450,2.00,,,1.0,1,soil

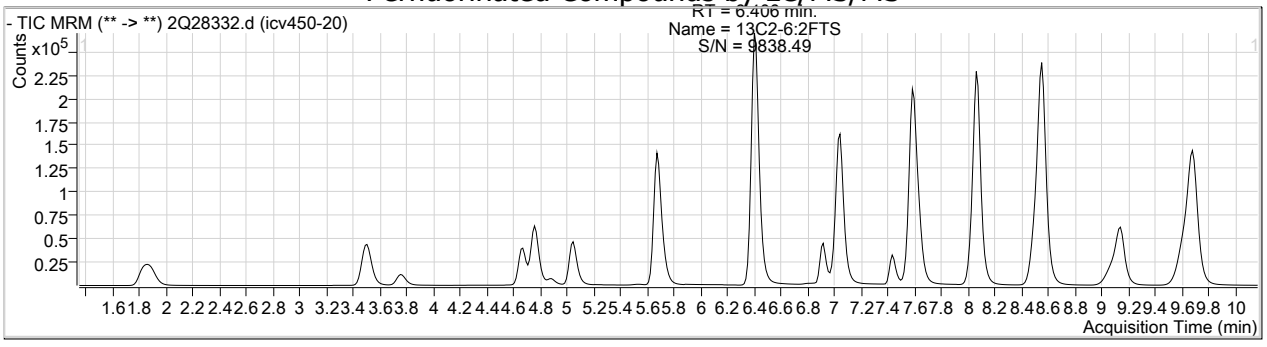
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.411	415.0 -> 370.0	385983	20.00	µg/L	0.000
13C4-PFOS	7.036	503.0 -> 80.0	54009	20.00	µg/L	0.013
M4-PFBA	1.865	217.0 -> 172.0	148201	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	133128	20.00	µg/L	0.000
M5-PFHxA	4.764	318.0 -> 273.0	200058	20.00	µg/L	0.000
M4-PFHpA	5.679	367.0 -> 322.0	305801	20.00	µg/L	0.000
M8-PFOA	6.409	421.0 -> 376.0	325831	20.00	µg/L	-0.013
M9-PFNA	7.052	472.0 -> 427.0	362339	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	515320	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	696127	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	866000	20.00	µg/L	0.000
M2-PFTeDA	9.678	715.0 -> 670.0	635518	20.00	µg/L	0.000
M8-FOSA	6.918	506.0 -> 78.0	111063	20.00	µg/L	0.000
M3-PFBS	3.755	302.0 -> 99.0	21694	20.00	µg/L	-0.013
M3-PFHxS	5.723	402.0 -> 99.0	24491	20.00	µg/L	0.000
M8-PFOS	7.033	507.0 -> 99.0	33007	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	103007	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	135679	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	123353	20.00	µg/L	0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	67964	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	192399	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	102679	19.38	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.9%		
13C2-6:2FTS	6.406	429.0 -> 409.0	135632	19.41	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.0%		
13C2-8:2FTS	7.642	529.0 -> 509.0	123361	19.77	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C2-PFDoDA	8.553	615.0 -> 570.0	864464	20.51	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.5%		
13C2-PFTeDA	9.678	715.0 -> 670.0	632191	20.71	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.5%		
13C3-PFBS	3.755	302.0 -> 99.0	21594	19.61	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C3-PFHxS	5.723	402.0 -> 99.0	24451	19.75	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C4-PFBA	1.865	217.0 -> 172.0	147606	19.76	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C4-PFHpA	5.679	367.0 -> 322.0	305529	19.85	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C5-PFHxA	4.764	318.0 -> 273.0	200018	19.71	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C5-PFPeA	3.511	268.0 -> 223.0	132869	19.73	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C6-PFDA	7.594	519.0 -> 474.0	514927	20.01	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

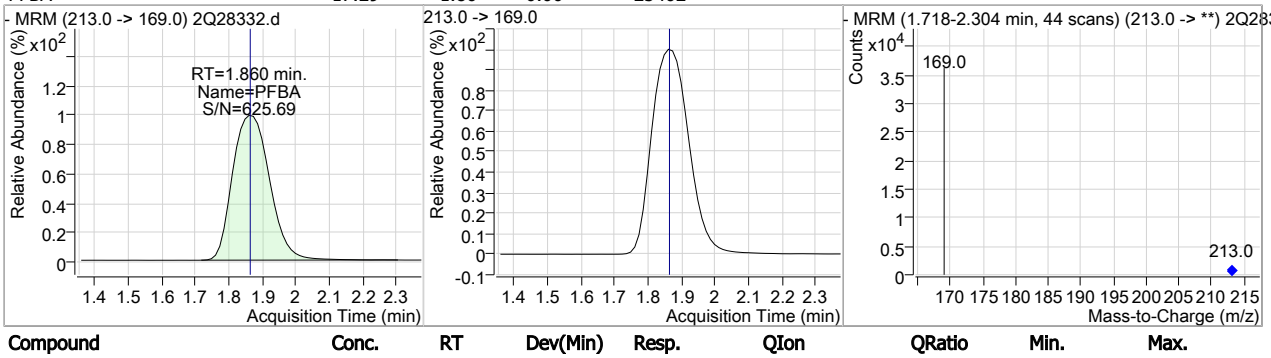
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C7-PFUnDA	8.067	570.0 -> 525.0	696078	20.40 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C8-FOSA	6.918	506.0 -> 78.0	111058	20.05 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C8-PFOA	6.409	421.0 -> 376.0	325253	20.08 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C8-PFOS	7.033	507.0 -> 99.0	32994	19.44 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C9-PFNA	7.052	472.0 -> 427.0	362200	19.97 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
d3-MeFOSAA	7.434	573.0 -> 419.0	68014	19.92 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
M2-PFOA	6.411	415.0 -> 370.0	386312	20.00 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.036	503.0 -> 80.0	53811	19.92 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	192399	99.56 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	49292	16.49 µg/L		99
6:2FTS	6.407	427.0 -> 407.0	58899	17.17 µg/L		100
8:2FTS	7.644	527.0 -> 507.0	53605	16.81 µg/L		99
EtFOSAA	7.585	584.0 -> 419.0	26435	19.79 µg/L		99
FOSA	6.922	498.0 -> 78.0	47358	17.70 µg/L		99
MeFOSAA	7.435	570.0 -> 419.0	32688	18.02 µg/L		100
PFBA	1.860	213.0 -> 169.0	25462	17.29 µg/L		100
PFBS	3.758	299.0 -> 80.0	26396	14.97 µg/L		99
PFDA	7.595	513.0 -> 469.0	181907	16.11 µg/L		100
PFDoDA	8.556	613.0 -> 569.0	363166	18.20 µg/L		100
PFDS	8.024	599.0 -> 80.0	10783	17.09 µg/L		99
PFHpA	5.681	363.0 -> 319.0	244488	18.24 µg/L		100
PFHpS	6.417	449.0 -> 80.0	21425	16.97 µg/L		97
PFHxA	4.765	313.0 -> 269.0	55113	15.76 µg/L		100
PFHxS	5.726	399.0 -> 80.0	21871	15.06 µg/L	m	100
PFNA	7.054	463.0 -> 419.0	193382	16.23 µg/L		100
PFNS	7.565	549.0 -> 80.0	21844	17.50 µg/L		99
PFOA	6.412	413.0 -> 369.0	152732	17.49 µg/L		100
PFOS	7.024	499.0 -> 80.0	28730	17.93 µg/L	m	85
PFPeA	3.515	263.0 -> 219.0	98060	16.59 µg/L		100
PFPeS	4.883	349.0 -> 80.0	17928	14.55 µg/L		100
PFTeDA	9.684	713.0 -> 669.0	353989	16.19 µg/L		100
PFTrDA	9.139	663.0 -> 619.0	390515	18.88 µg/L		100
PFUnDA	8.068	563.0 -> 519.0	257504	17.80 µg/L		100
11Cl-PF3OUdS	-	631.0 -> 451.0	-	N.D.		
9Cl-PF3ONS	-	531.0 -> 351.0	-	N.D.		
ADONA	-	377.0 -> 251.0	-	N.D.		
HFPO-DA	-	329.0 -> 169.0	-	N.D.		

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

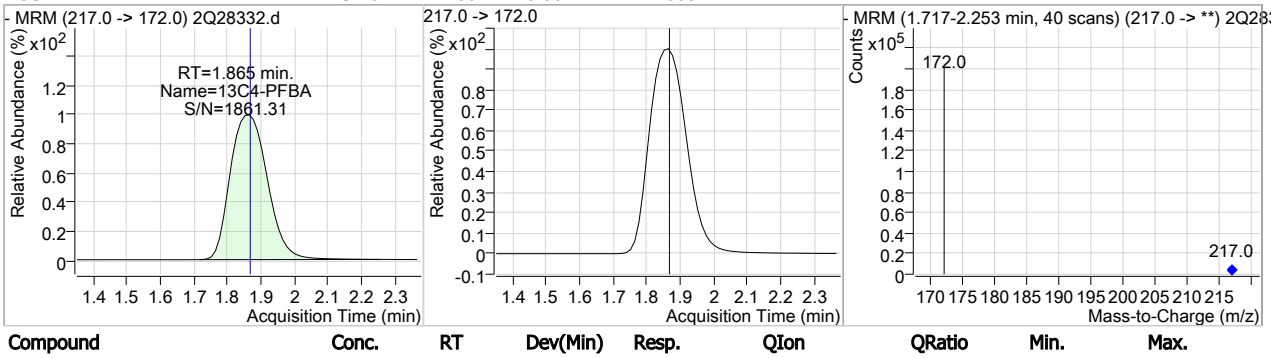
Perfluorinated Compounds by LC/MS/MS



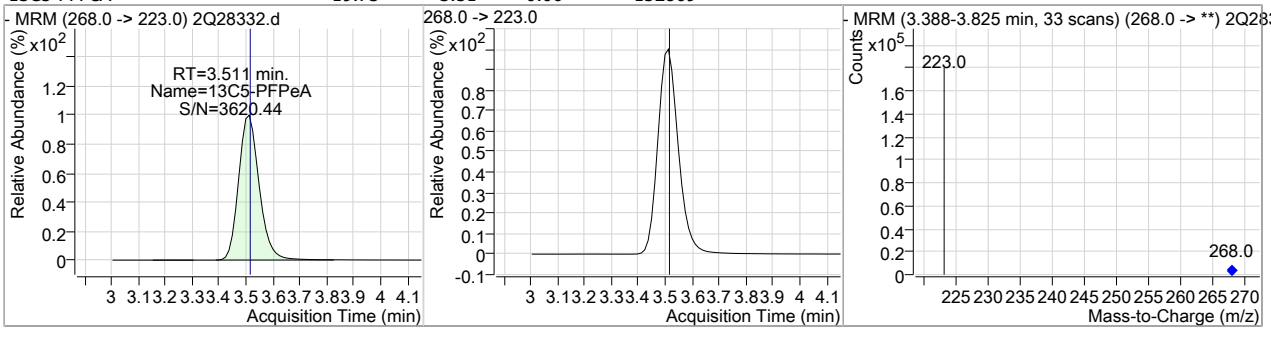
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	17.29	1.86	0.00	25462				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.76	1.86	0.00	147606				

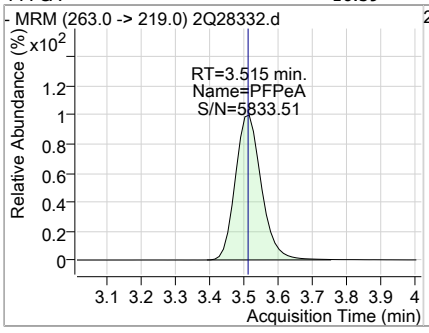


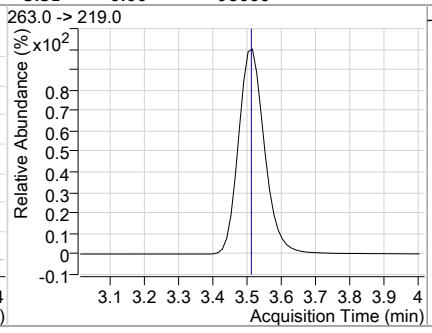
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.73	3.51	0.00	132869				

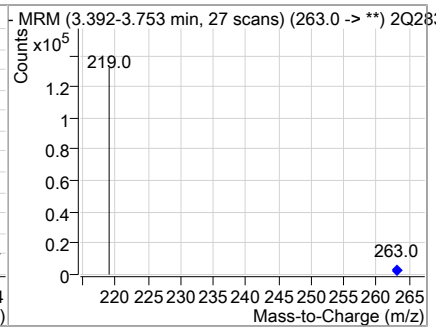


Perfluorinated Compounds by LC/MS/MS

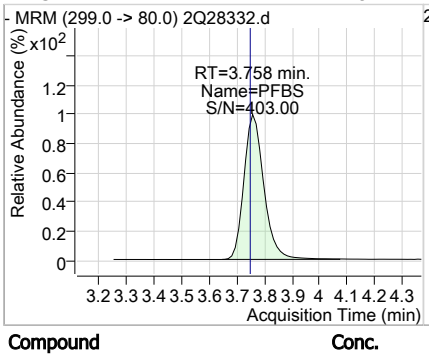
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	16.59	3.51	0.00	98060				

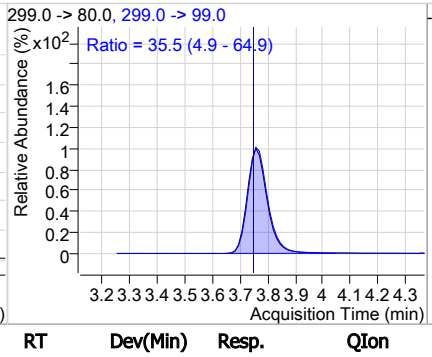


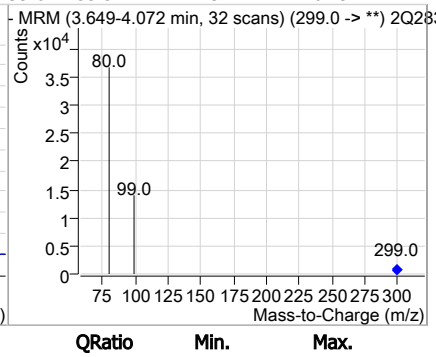




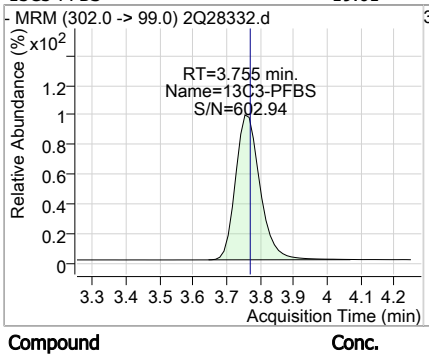
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	14.97	3.76	0.00	26396	299.0 -> 99.0	35.5	4.9	64.9

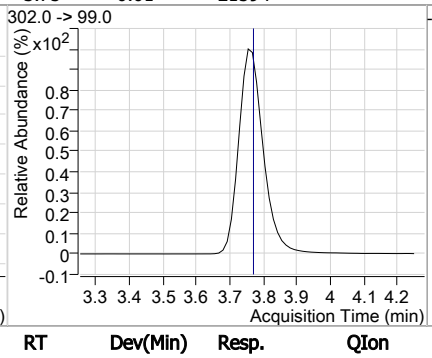


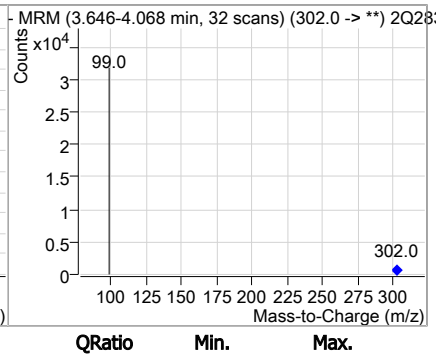




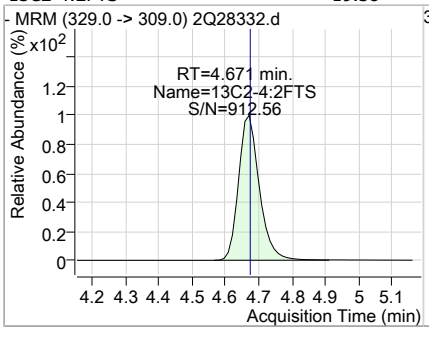
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.61	3.75	-0.01	21594				

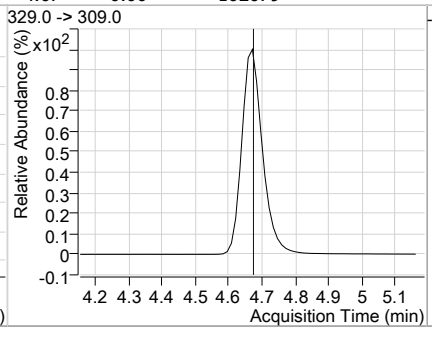


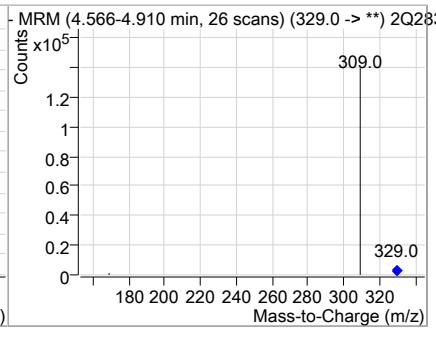




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.38	4.67	0.00	102679				



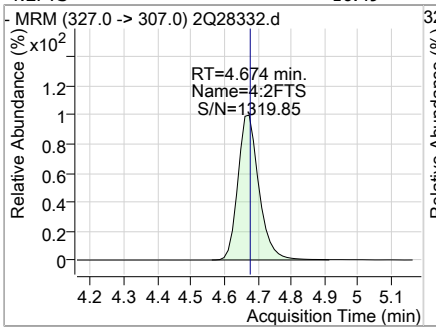


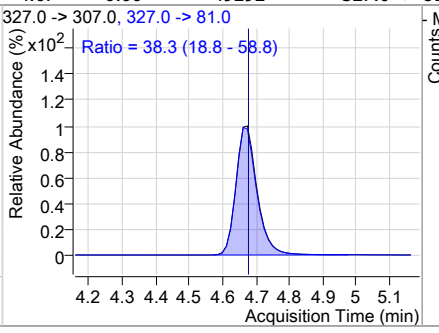


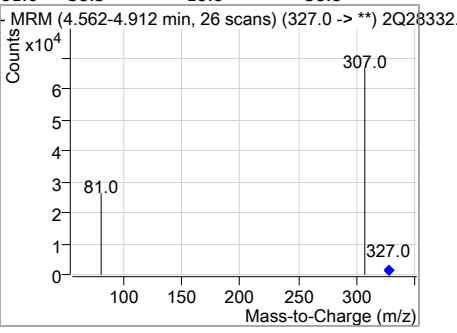
7.6.39

Perfluorinated Compounds by LC/MS/MS

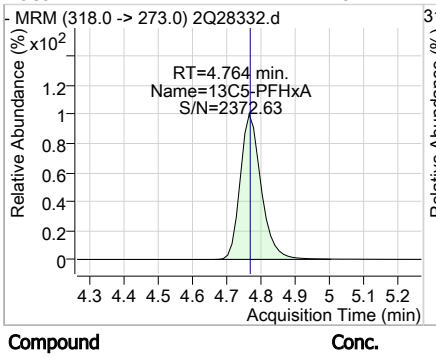
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	16.49	4.67	0.00	49292	327.0 -> 81.0	38.3	18.8	58.8

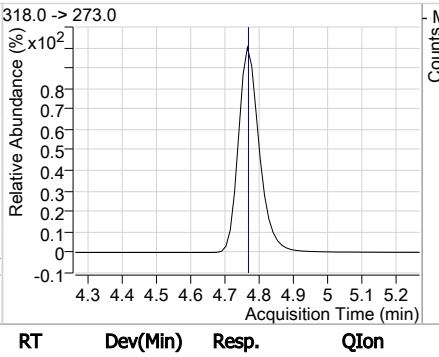


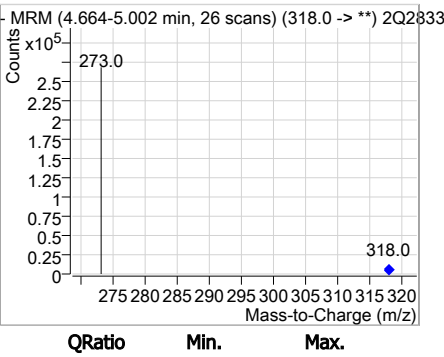




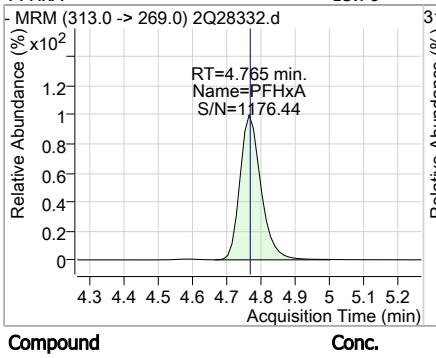
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.71	4.76	0.00	200018				

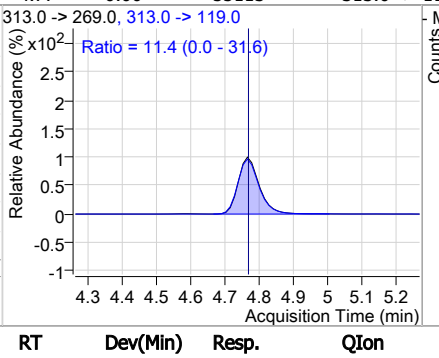


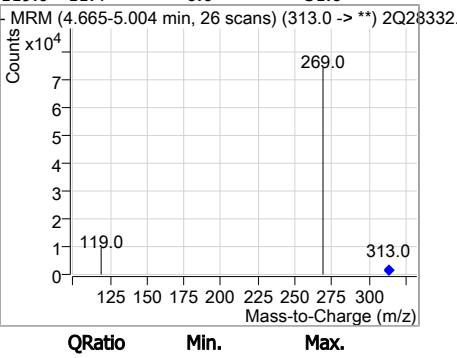




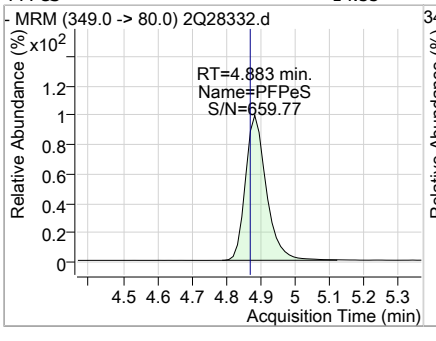
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	15.76	4.77	0.00	55113	313.0 -> 119.0	11.4	0.0	31.6

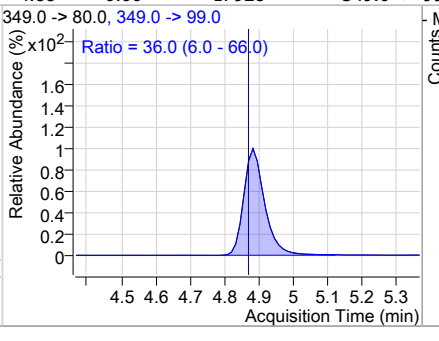


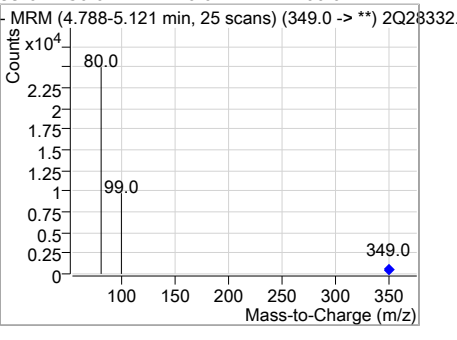




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	14.55	4.88	0.00	17928	349.0 -> 99.0	36.0	6.0	66.0



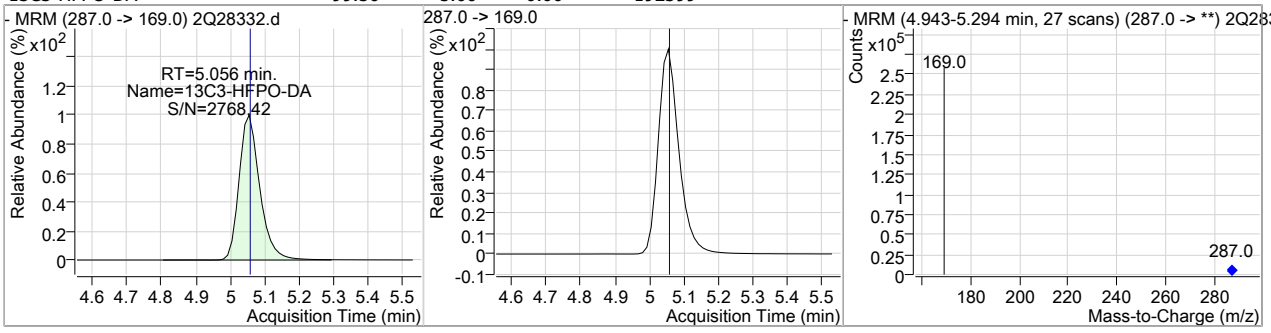




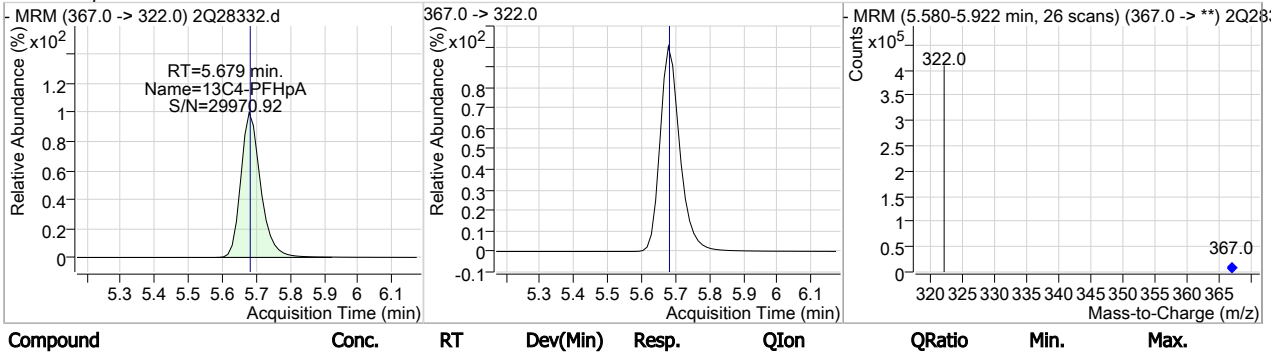
7.6.39

Perfluorinated Compounds by LC/MS/MS

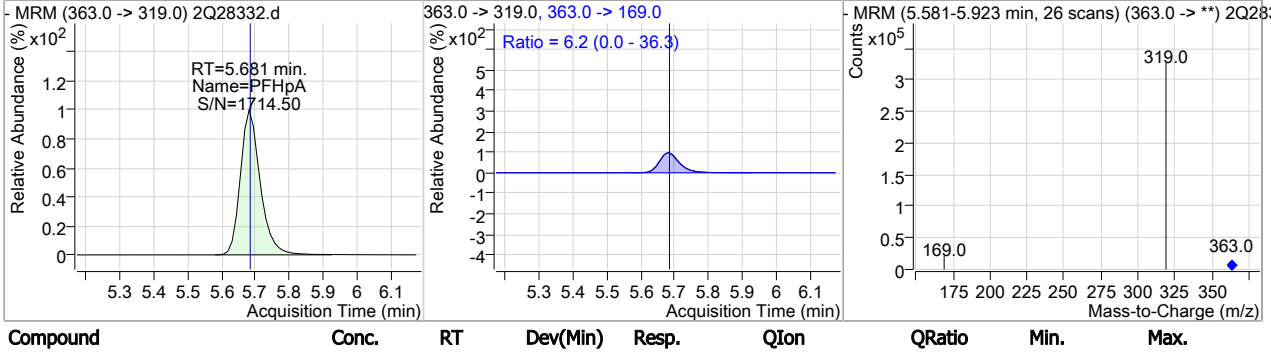
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	99.56	5.06	0.00	192399				



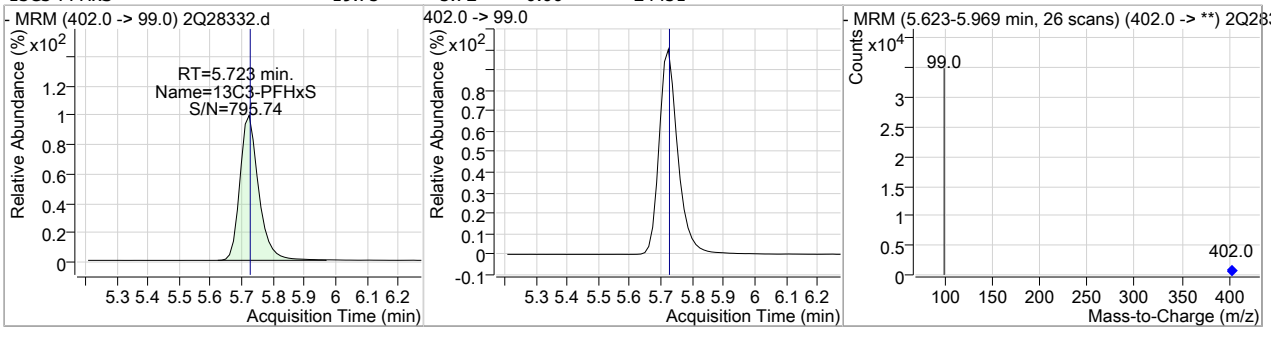
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.85	5.68	0.00	305529				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.24	5.68	0.00	244488	363.0 -> 169.0	6.2	0.0	36.3



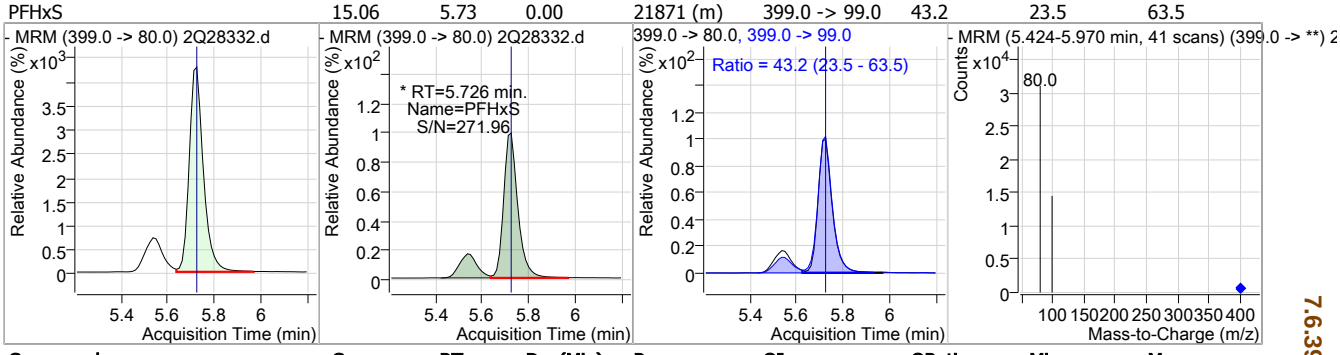
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.75	5.72	0.00	24451				



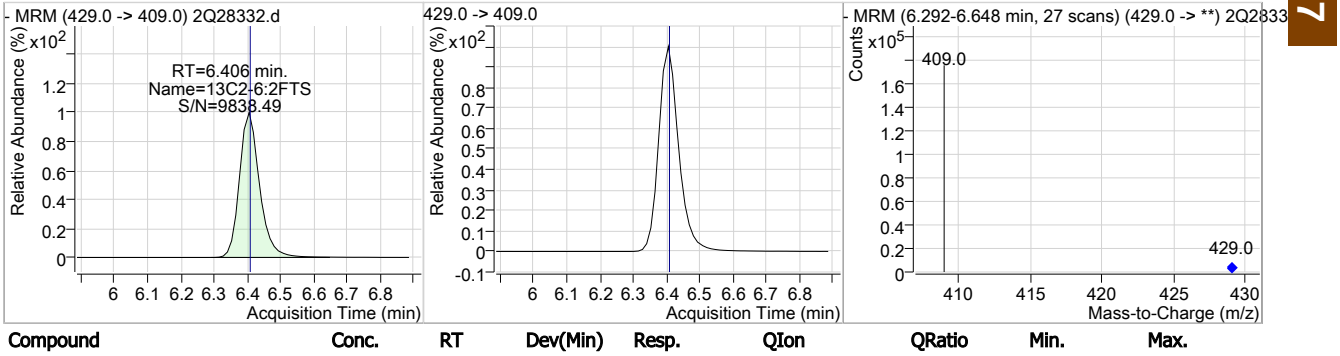
7.6.39

Perfluorinated Compounds by LC/MS/MS

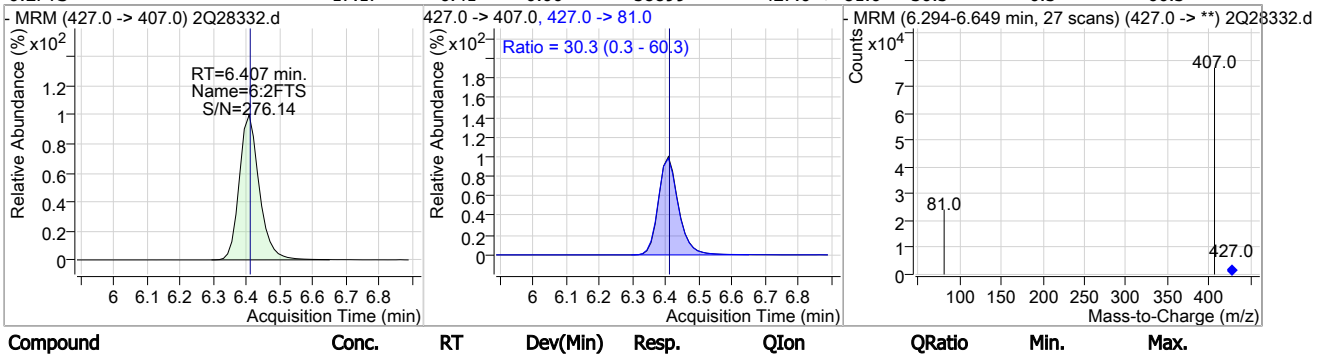
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	15.06	5.73	0.00	21871 (m)	399.0 -> 99.0	43.2	23.5	63.5



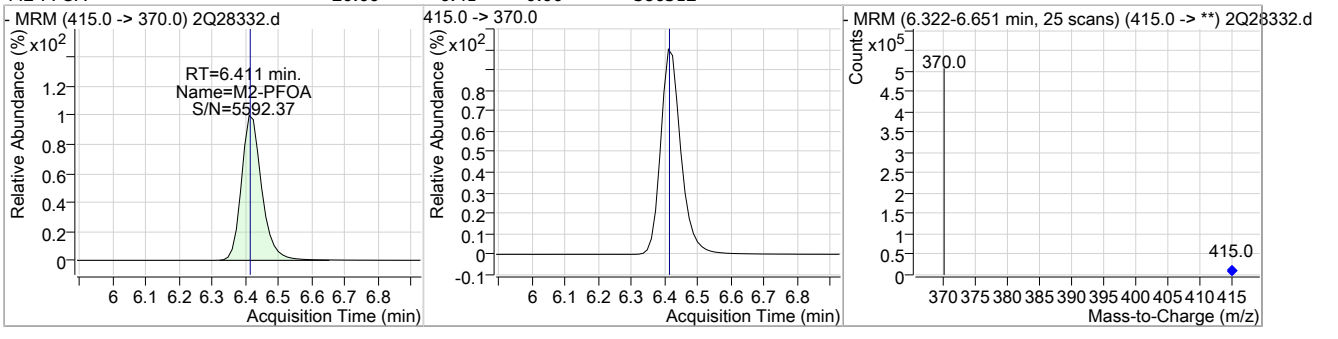
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.41	6.41	0.00	135632				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	17.17	6.41	0.00	58899	427.0 -> 81.0	30.3	0.3	60.3



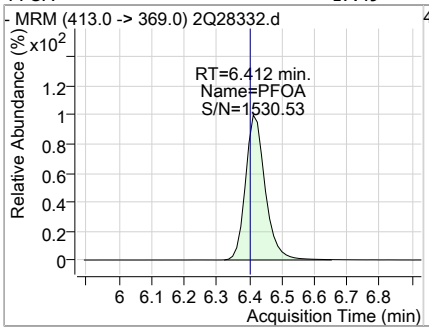
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.00	386312				

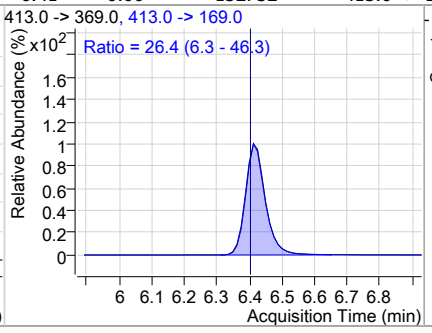


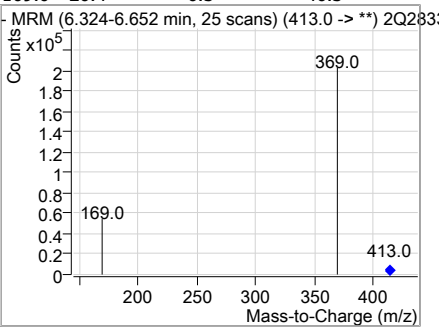
7.6.39

Perfluorinated Compounds by LC/MS/MS

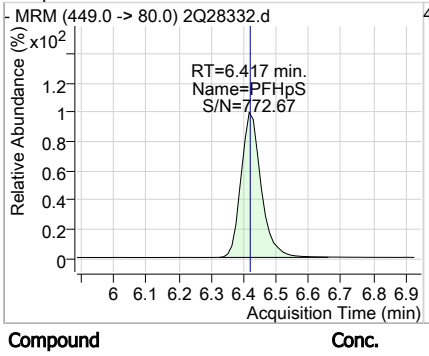
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	17.49	6.41	0.00	152732	413.0 -> 169.0	26.4	6.3	46.3

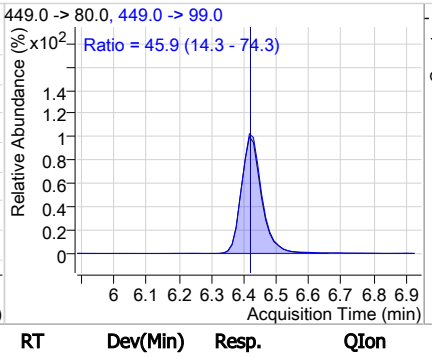


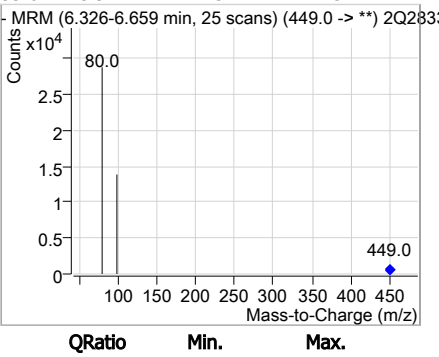




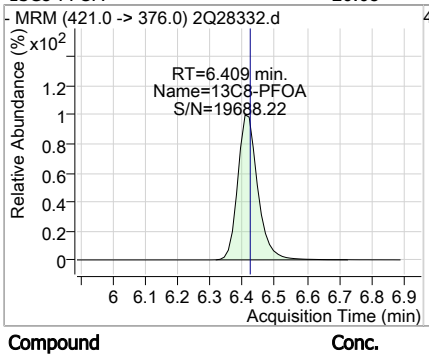
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	16.97	6.42	0.00	21425	449.0 -> 99.0	45.9	14.3	74.3

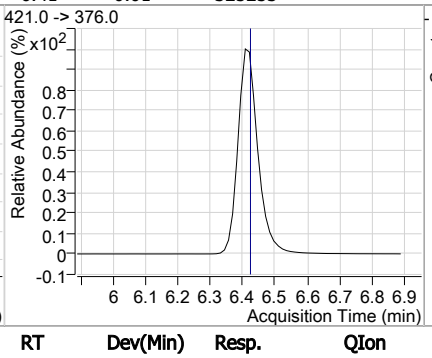


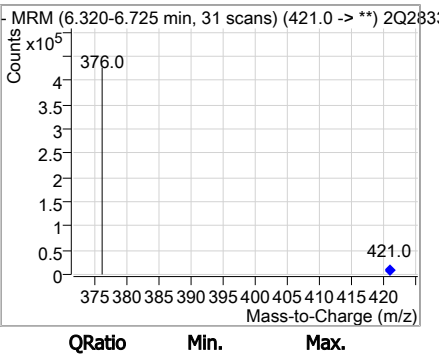




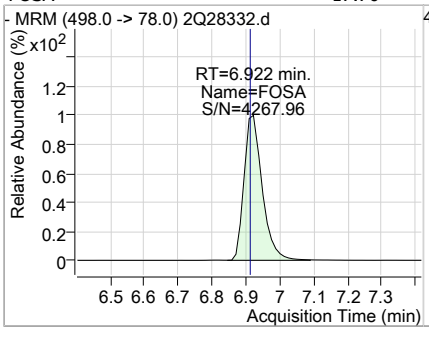
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.08	6.41	-0.01	325253				

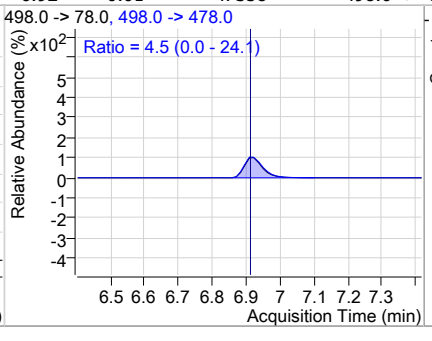


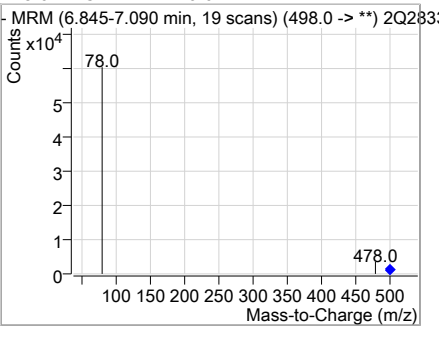




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	17.70	6.92	0.01	47358	498.0 -> 478.0	4.5	0.0	24.1

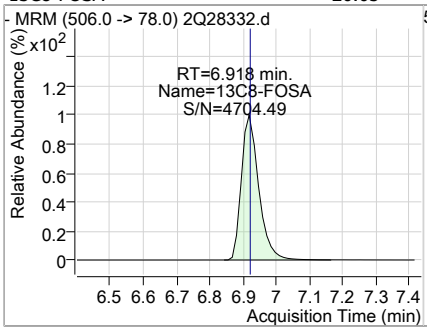


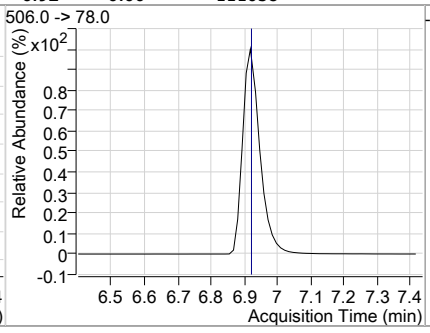


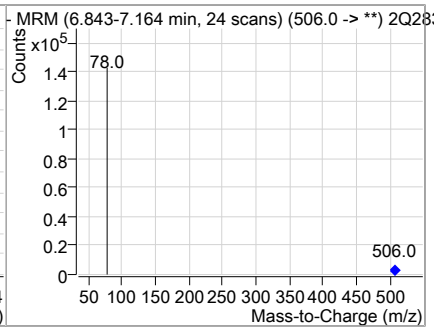


Perfluorinated Compounds by LC/MS/MS

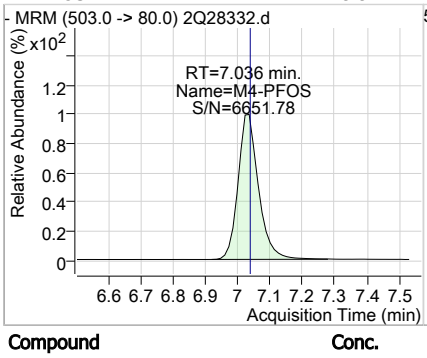
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	20.05	6.92	0.00	111058				

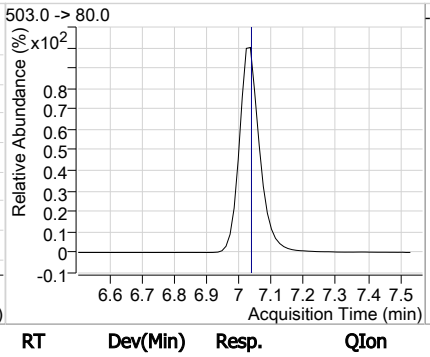


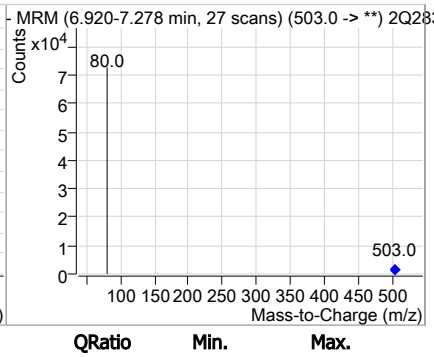




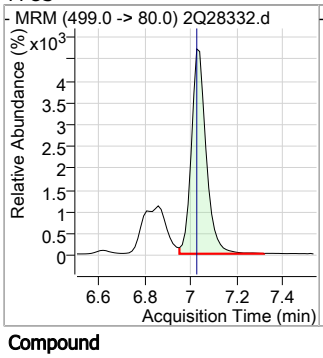
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.92	7.04	0.01	53811				

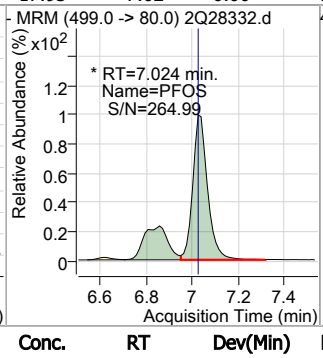


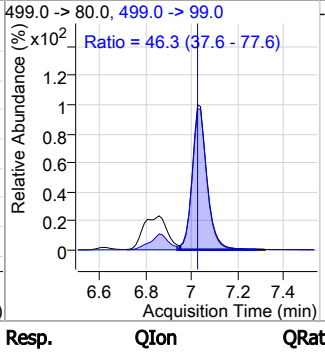


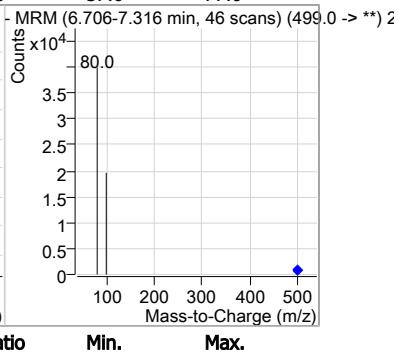


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.93	7.02	0.00	28730 (m)	499.0 -> 99.0	46.3	37.6	77.6

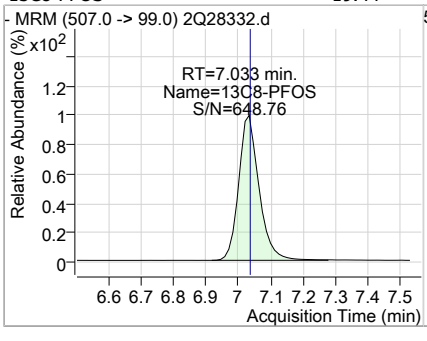


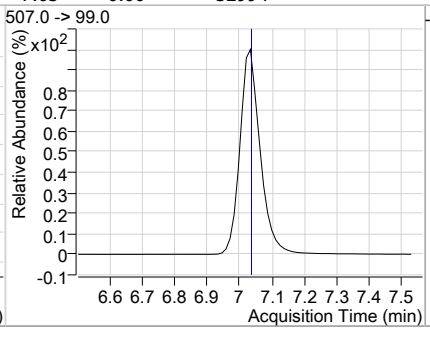


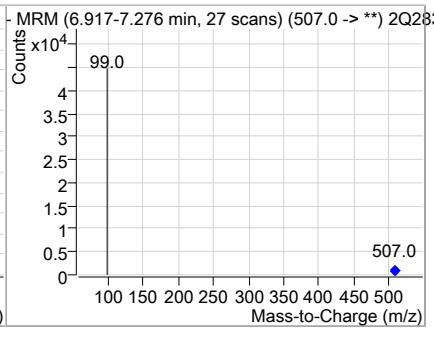




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.44	7.03	0.00	32994				



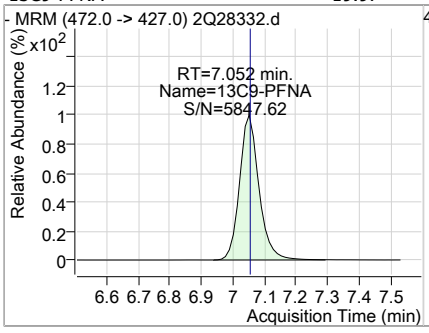


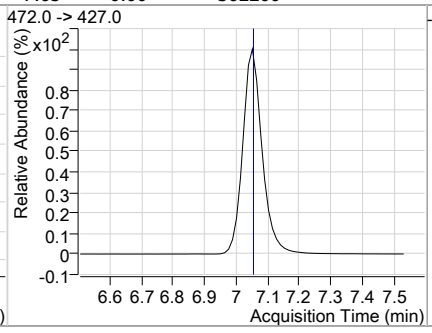


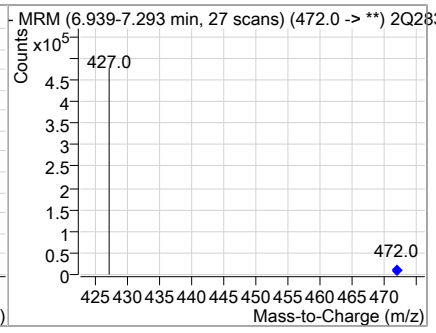
7.6.39

Perfluorinated Compounds by LC/MS/MS

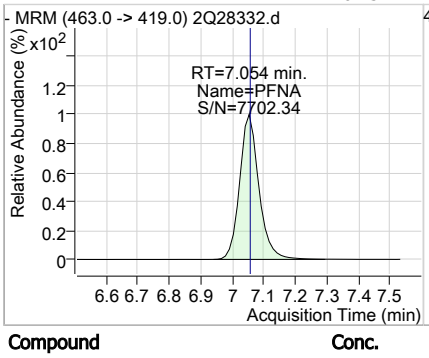
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.97	7.05	0.00	362200				

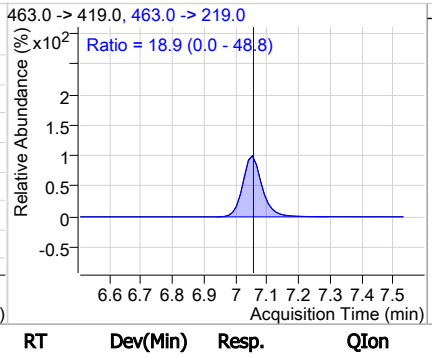


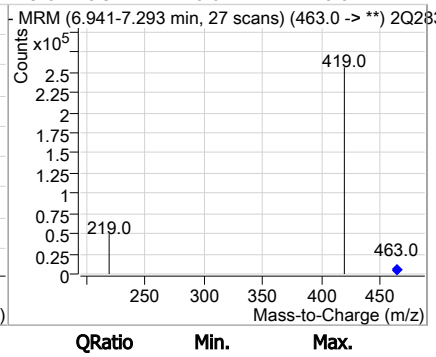




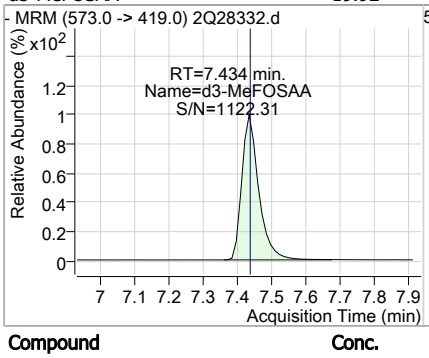
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	16.23	7.05	0.00	193382	463.0 -> 219.0	18.9	0.0	48.8

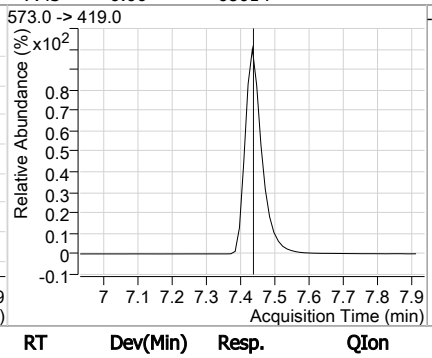


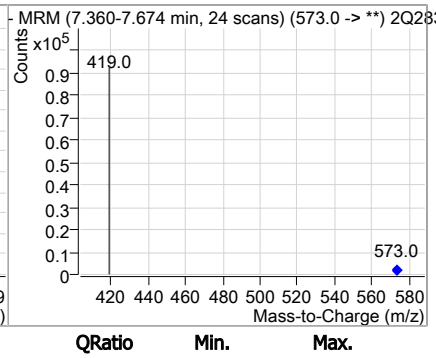




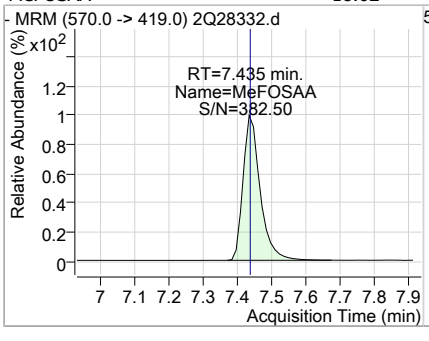
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.92	7.43	0.00	68014				

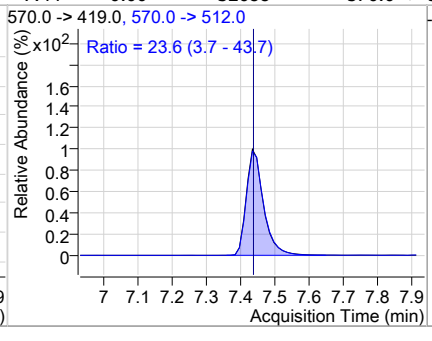


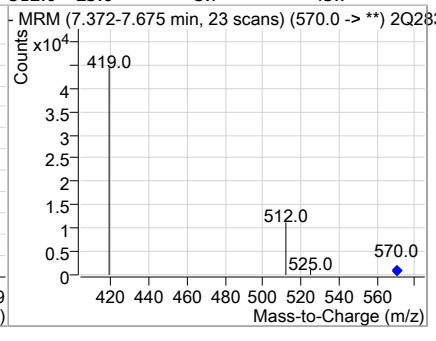




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.02	7.44	0.00	32688	570.0 -> 512.0	23.6	3.7	43.7



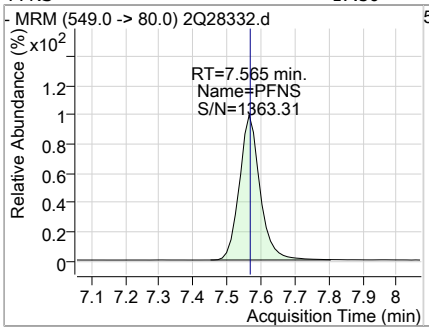


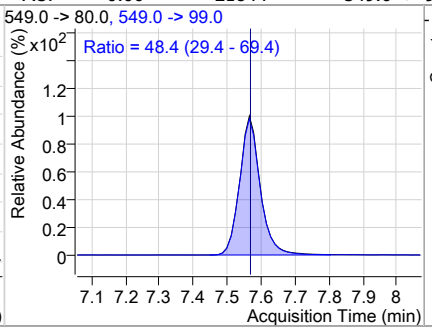


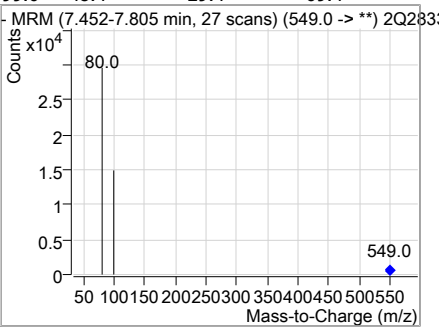
7.6.39

Perfluorinated Compounds by LC/MS/MS

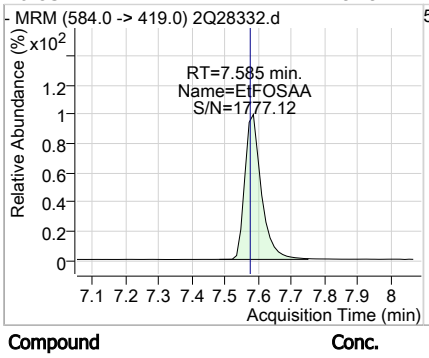
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	17.50	7.57	0.00	21844	549.0 -> 99.0	48.4	29.4	69.4

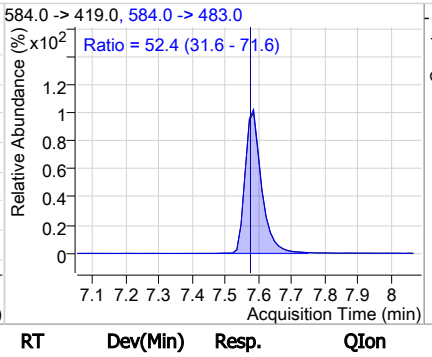


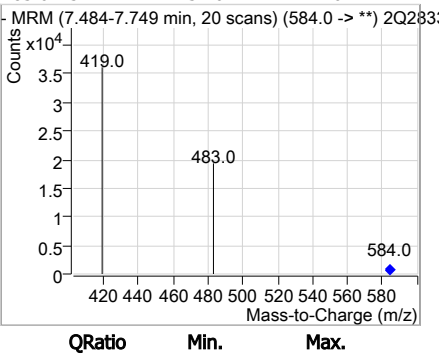




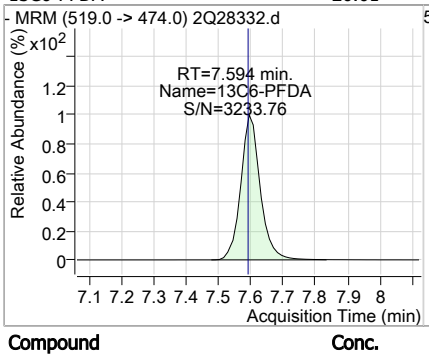
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.79	7.59	0.01	26435	584.0 -> 483.0	52.4	31.6	71.6

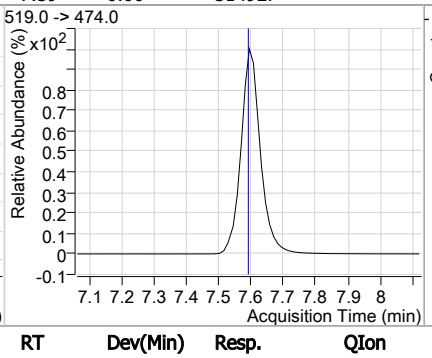


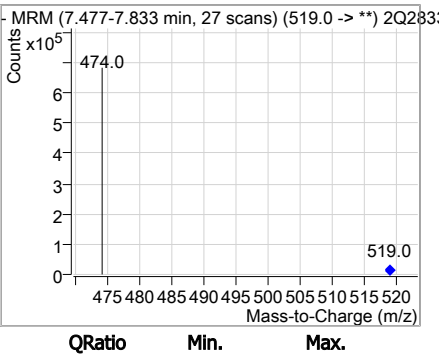




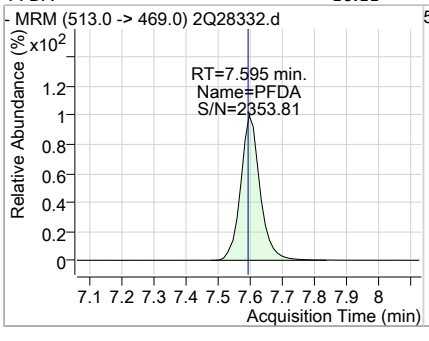
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.01	7.59	0.00	514927				

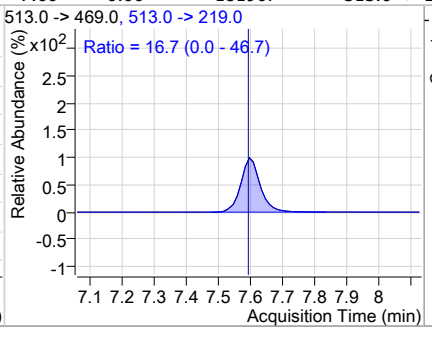


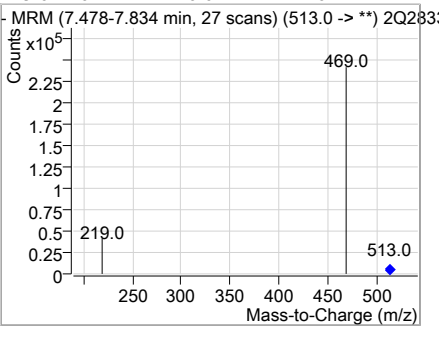




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	16.11	7.60	0.00	181907	513.0 -> 219.0	16.7	0.0	46.7



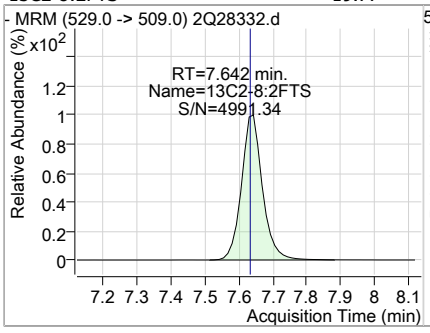


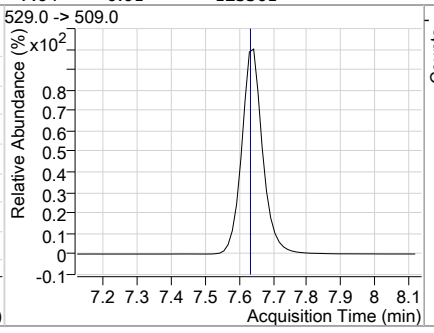


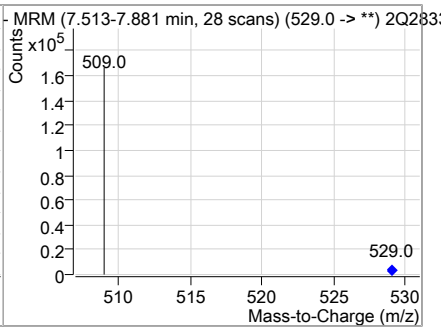
7.6.39

Perfluorinated Compounds by LC/MS/MS

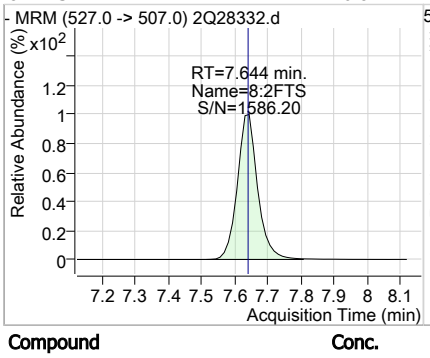
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.77	7.64	0.01	123361				

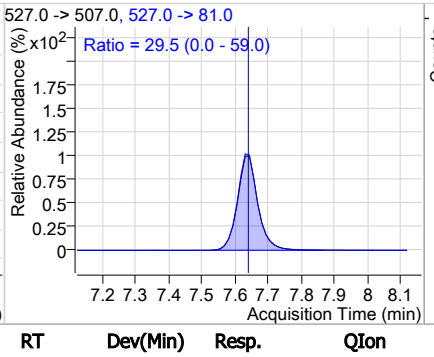


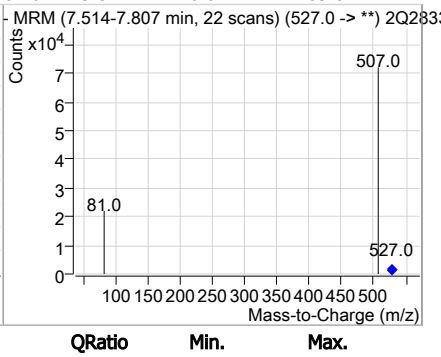




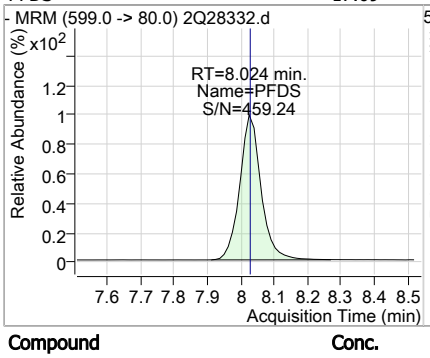
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	16.81	7.64	0.01	53605	527.0 -> 81.0	29.5	0.0	59.0

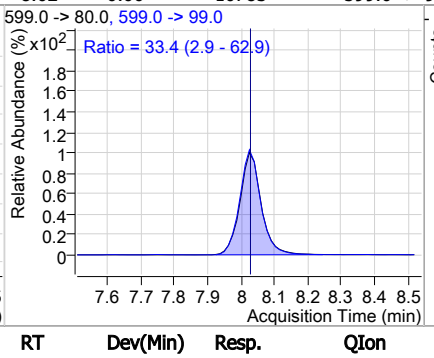


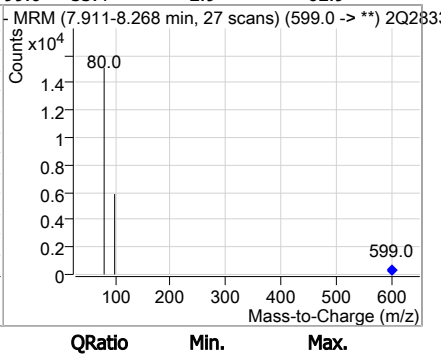




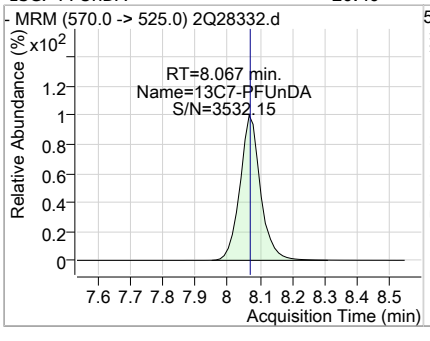
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	17.09	8.02	0.00	10783	599.0 -> 99.0	33.4	2.9	62.9

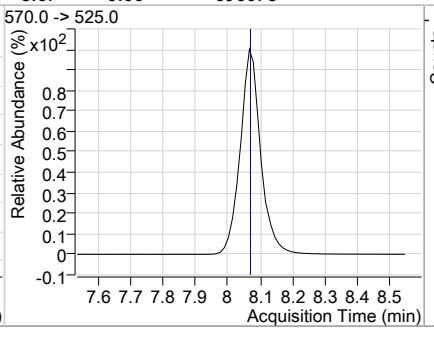


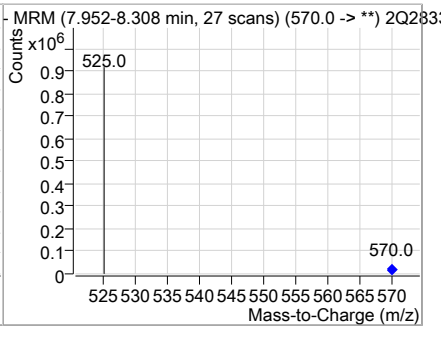




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.40	8.07	0.00	696078				



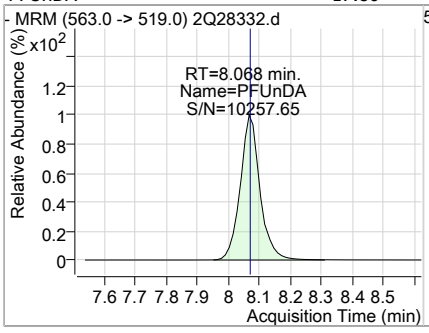


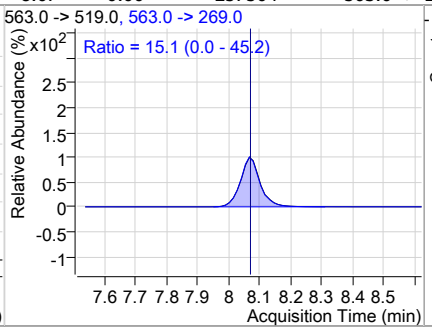


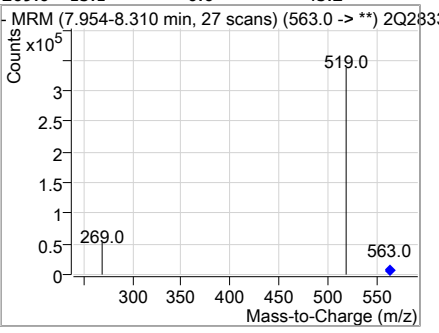
7.6.39

Perfluorinated Compounds by LC/MS/MS

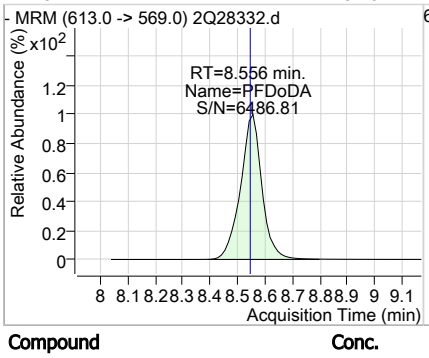
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	17.80	8.07	0.00	257504	563.0 -> 269.0	15.1	0.0	45.2

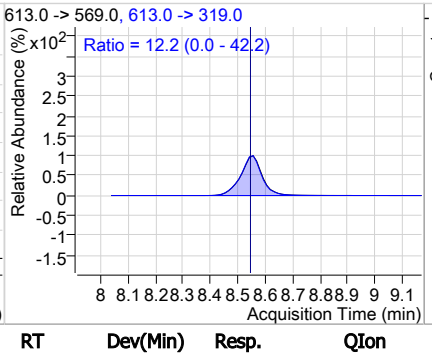


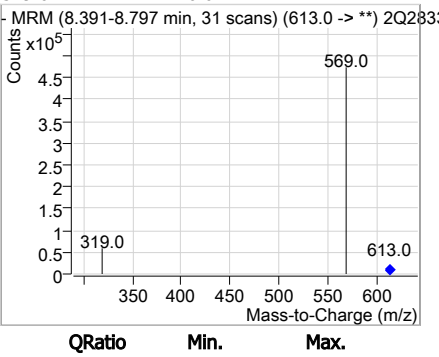




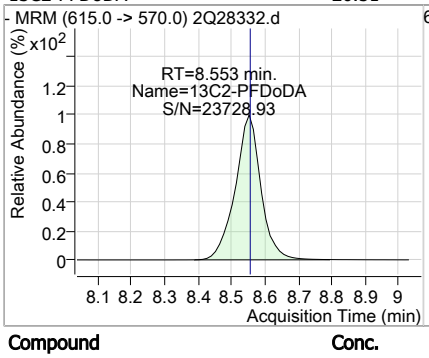
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	18.20	8.56	0.01	363166	613.0 -> 319.0	12.2	0.0	42.2

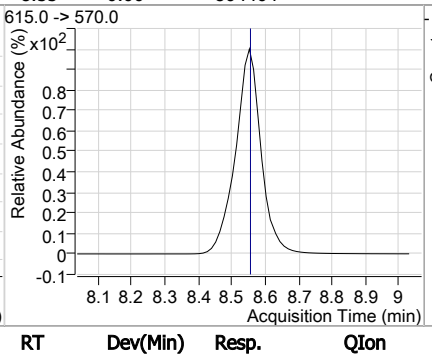


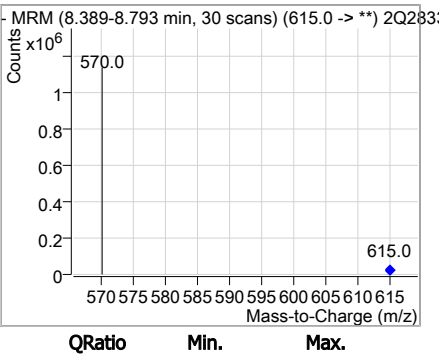




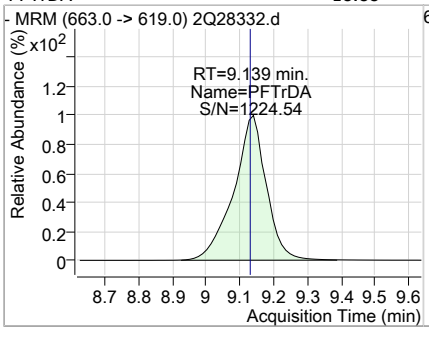
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.51	8.55	0.00	864464				

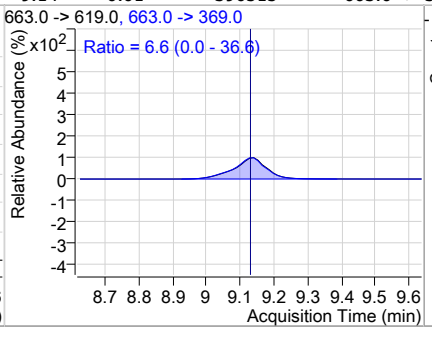


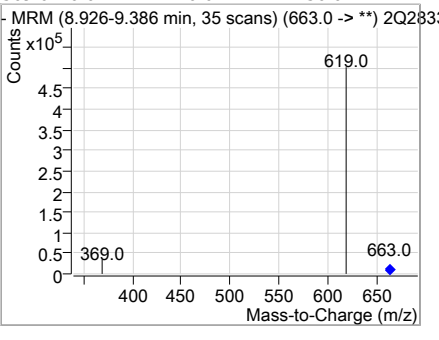




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	18.88	9.14	0.01	390515	663.0 -> 369.0	6.6	0.0	36.6



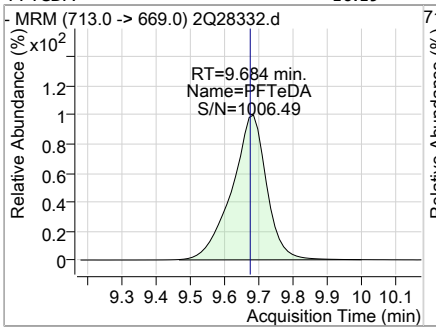


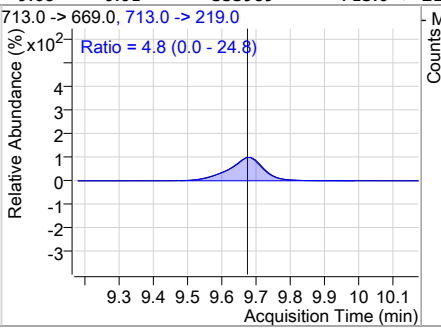


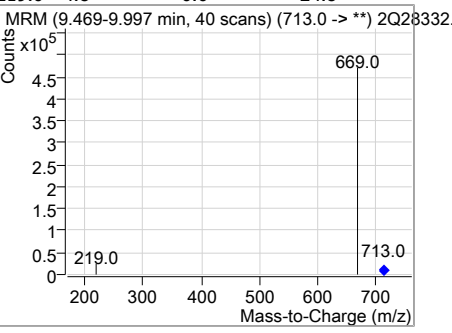
7.6.39

Perfluorinated Compounds by LC/MS/MS

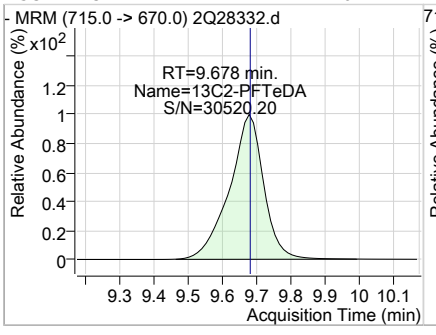
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	16.19	9.68	0.01	353989	713.0 -> 219.0	4.8	0.0	24.8

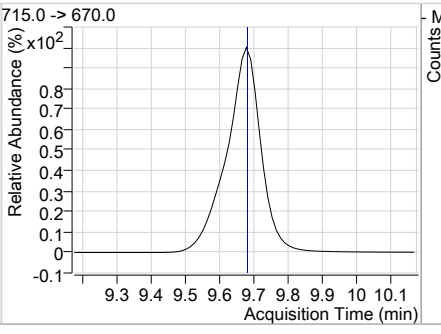


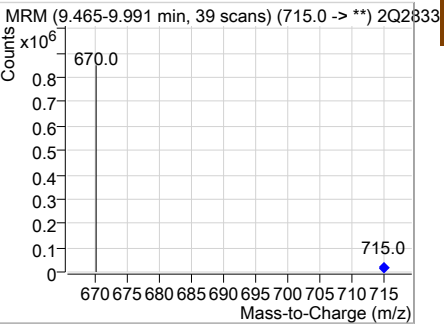




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.71	9.68	0.00	632191				







7.6.39

Manual Integration Approval Summary

Sample Number: S2Q450-ICV450 **Method:** EPA 537M BY ID
Lab FileID: 2Q28332.D **Analyst approved:** 03/29/19 10:18 Mike Eger
Injection Time: 03/28/19 17:08 **Supervisor approved:** 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.02	Split peak

Cal Report: 2Q28333.D

Manual Integrations APPROVED (compounds with "m" flag)
Norman Farmer 03/29/19 14:18

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28333.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 3/28/2019 5:24:13 PM
Sample Name : icv450-20
Vial : Vial 12
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q450.batch.bin
Sample Information : op74300,S2Q450,2.00,,,1.0,1,soil

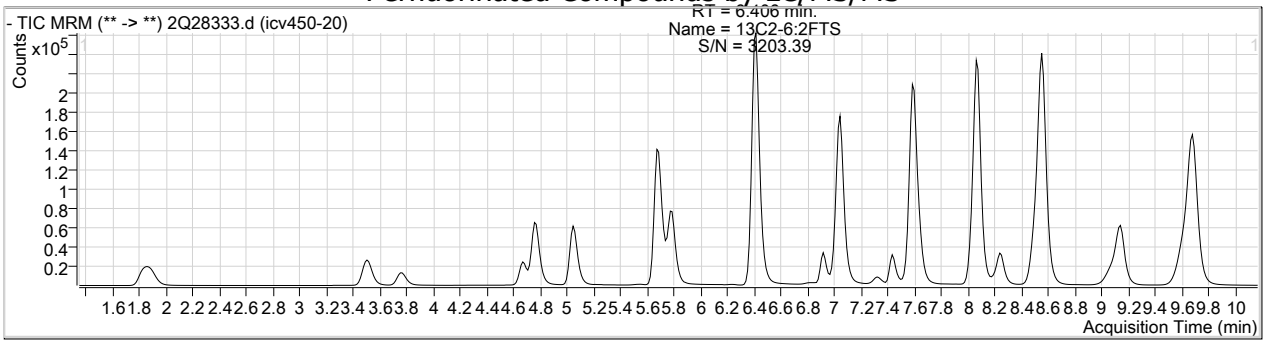
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.423	415.0 -> 370.0	433422	20.00	µg/L	0.013
13C4-PFOS	7.036	503.0 -> 80.0	59733	20.00	µg/L	0.013
M4-PFBA	1.865	217.0 -> 172.0	150412	20.00	µg/L	0.000
M5-PFPeA	3.511	268.0 -> 223.0	136464	20.00	µg/L	0.000
M5-PFHxA	4.764	318.0 -> 273.0	203937	20.00	µg/L	0.000
M4-PFHpA	5.679	367.0 -> 322.0	308174	20.00	µg/L	0.000
M8-PFOA	6.422	421.0 -> 376.0	332704	20.00	µg/L	0.000
M9-PFNA	7.052	472.0 -> 427.0	365680	20.00	µg/L	0.000
M6-PFDA	7.594	519.0 -> 474.0	531414	20.00	µg/L	0.000
M7-PFUnDA	8.067	570.0 -> 525.0	717777	20.00	µg/L	0.000
M2-PFDoDA	8.553	615.0 -> 570.0	868806	20.00	µg/L	0.000
M2-PFTeDA	9.678	715.0 -> 670.0	642600	20.00	µg/L	0.000
M8-FOSA	6.918	506.0 -> 78.0	116855	20.00	µg/L	0.000
M3-PFBS	3.767	302.0 -> 99.0	22087	20.00	µg/L	0.000
M3-PFHxS	5.723	402.0 -> 99.0	24633	20.00	µg/L	0.000
M8-PFOS	7.033	507.0 -> 99.0	33760	20.00	µg/L	0.000
M2-4:2FTS	4.671	329.0 -> 309.0	101191	20.00	µg/L	0.000
M2-6:2FTS	6.406	429.0 -> 409.0	134626	20.00	µg/L	0.000
M2-8:2FTS	7.642	529.0 -> 509.0	120335	20.00	µg/L	0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	70619	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	199547	100.00	µg/L	0.000
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	100917	19.05	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
13C2-6:2FTS	6.406	429.0 -> 409.0	134526	19.25	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.2%		
13C2-8:2FTS	7.642	529.0 -> 509.0	120326	19.28	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C2-PFDoDA	8.553	615.0 -> 570.0	867330	20.57	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C2-PFTeDA	9.678	715.0 -> 670.0	639376	20.94	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.7%		
13C3-PFBS	3.767	302.0 -> 99.0	22058	20.03	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C3-PFHxS	5.723	402.0 -> 99.0	24587	19.86	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C4-PFBA	1.865	217.0 -> 172.0	149728	20.04	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
13C4-PFHpA	5.679	367.0 -> 322.0	308030	20.01	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C5-PFHxA	4.764	318.0 -> 273.0	203570	20.06	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C5-PFPeA	3.511	268.0 -> 223.0	136064	20.20	µg/L	0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C6-PFDA	7.594	519.0 -> 474.0	531763	20.67	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

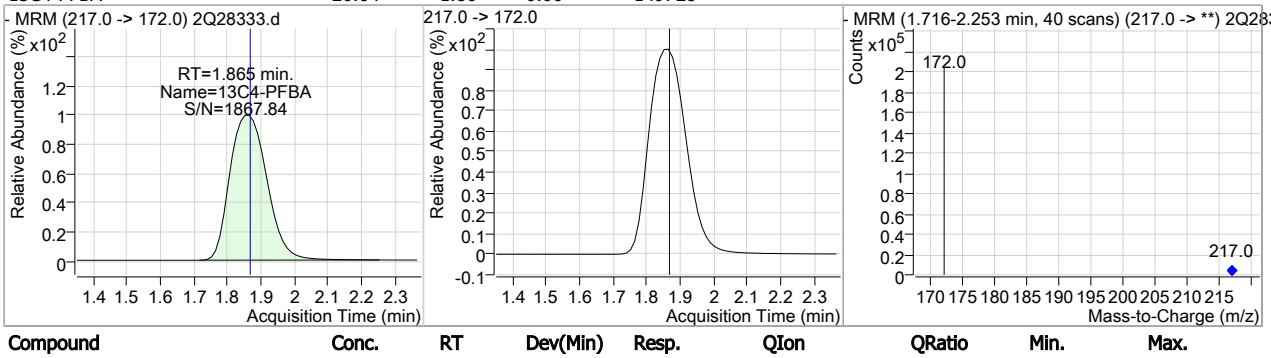
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C7-PFUnDA	8.067	570.0 -> 525.0	717785	21.04 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.2%		
13C8-FOSA	6.918	506.0 -> 78.0	116816	21.09 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
13C8-PFOA	6.422	421.0 -> 376.0	332253	20.51 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.6%		
13C8-PFOS	7.033	507.0 -> 99.0	33728	19.88 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C9-PFNA	7.052	472.0 -> 427.0	365464	20.15 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.8%		
d3-MeFOSAA	7.434	573.0 -> 419.0	70627	20.68 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.4%		
M2-PFOA	6.423	415.0 -> 370.0	433849	20.01 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.036	503.0 -> 80.0	59693	19.98 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	199547	103.26 µg/L		0.000
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
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	7.585	584.0 -> 419.0	25561	16.68 µg/L	m	94
FOSA	-	498.0 -> 78.0	-	N.D.		
MeFOSAA	7.435	570.0 -> 419.0	30092	15.97 µg/L	m	97
PFBA	-	213.0 -> 169.0	-	N.D.		
PFBS	3.758	299.0 -> 80.0	32001	17.83 µg/L		99
PFDA	7.595	513.0 -> 469.0	208984	17.94 µg/L		100
PFDoDA	8.556	613.0 -> 569.0	356920	17.83 µg/L		100
PFDS	-	599.0 -> 80.0	-	N.D.		
PFHpA	5.681	363.0 -> 319.0	247058	18.29 µg/L		100
PFHpS	-	449.0 -> 80.0	-	N.D.		
PFHxA	4.765	313.0 -> 269.0	63965	17.94 µg/L		99
PFHxS	5.726	399.0 -> 80.0	26577	18.19 µg/L	m	99
PFNA	7.054	463.0 -> 419.0	227259	18.90 µg/L		99
PFNS	-	549.0 -> 80.0	-	N.D.		
PFOA	6.425	413.0 -> 369.0	165082	18.51 µg/L		100
PFOS	7.037	499.0 -> 80.0	29831	18.20 µg/L	m	83
PFPeA	-	263.0 -> 219.0	-	N.D.		
PFPeS	-	349.0 -> 80.0	-	N.D.		
PFTeDA	9.684	713.0 -> 669.0	396654	17.94 µg/L		100
PFTrDA	9.139	663.0 -> 619.0	378427	18.09 µg/L		100
PFUnDA	8.068	563.0 -> 519.0	267675	17.95 µg/L		100
11Cl-PF3OUdS	8.237	631.0 -> 451.0	144446	18.41 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	27620	17.44 µg/L		100
ADONA	5.791	377.0 -> 251.0	290483	17.65 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	44175	18.47 µg/L		99

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

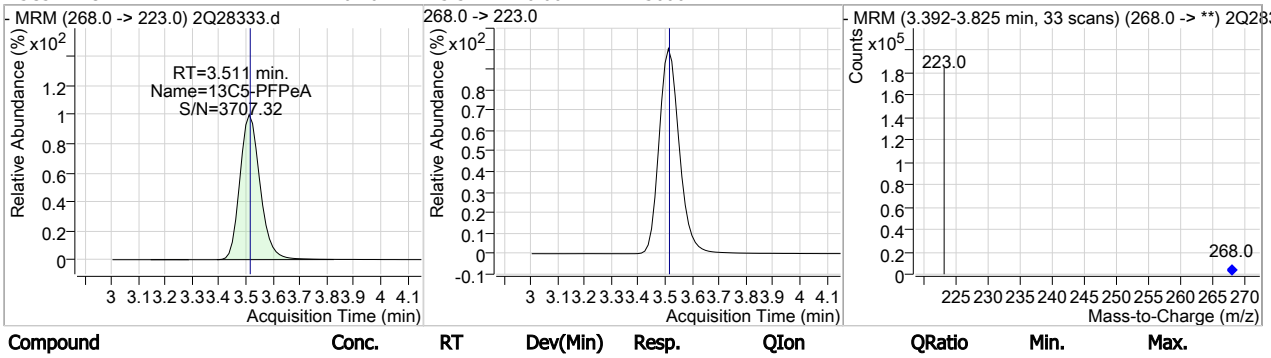
Perfluorinated Compounds by LC/MS/MS



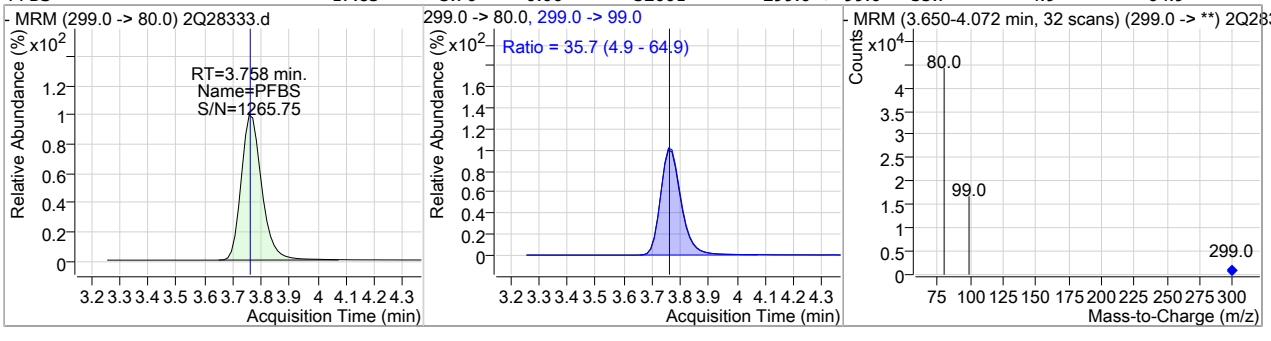
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.04	1.86	0.00	149728				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.20	3.51	0.00	136064				

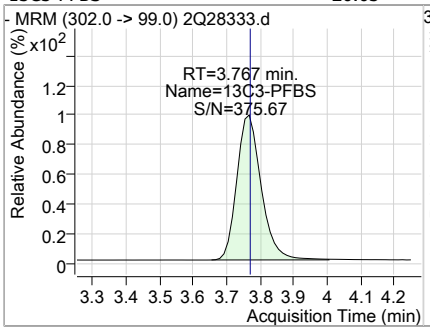


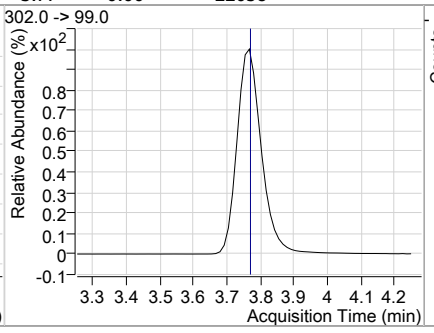
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.83	3.76	0.00	32001	299.0 -> 99.0	35.7	4.9	64.9

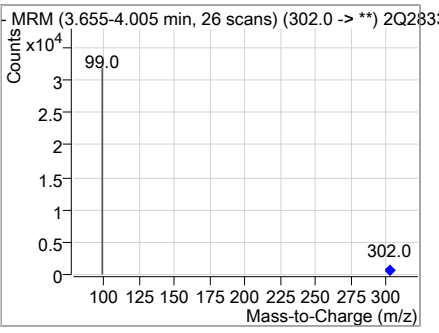


Perfluorinated Compounds by LC/MS/MS

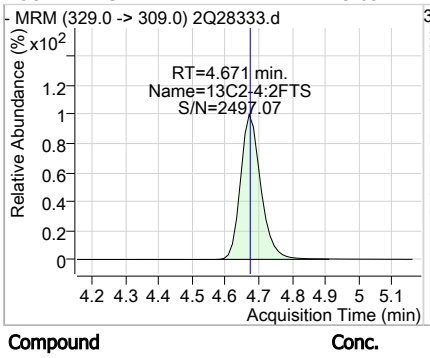
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.03	3.77	0.00	22058				

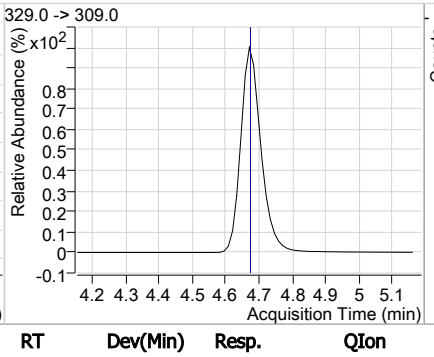


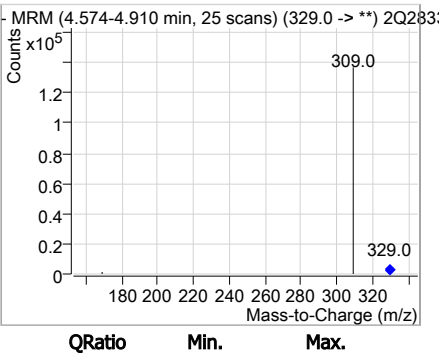




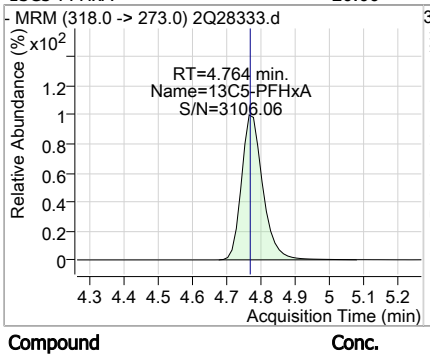
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	19.05	4.67	0.00	100917				

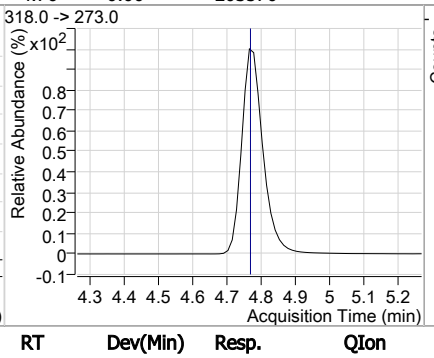


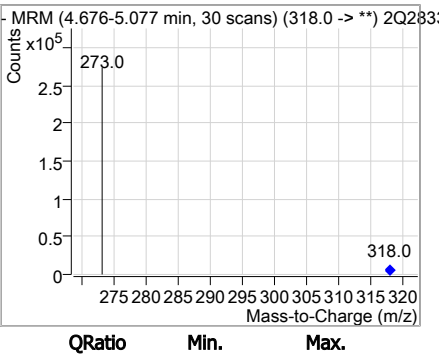




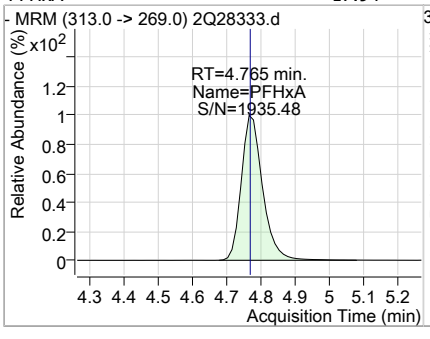
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.06	4.76	0.00	203570				

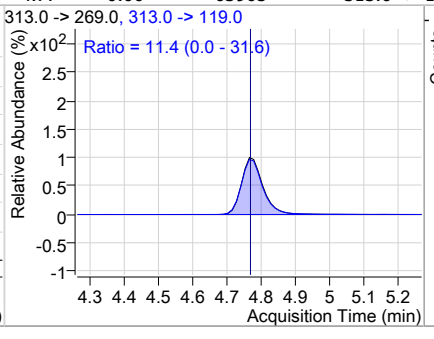


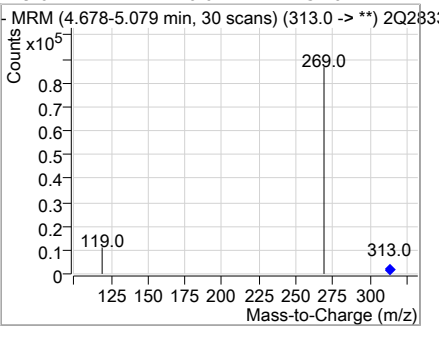




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	17.94	4.77	0.00	63965	313.0 -> 119.0	11.4	0.0	31.6

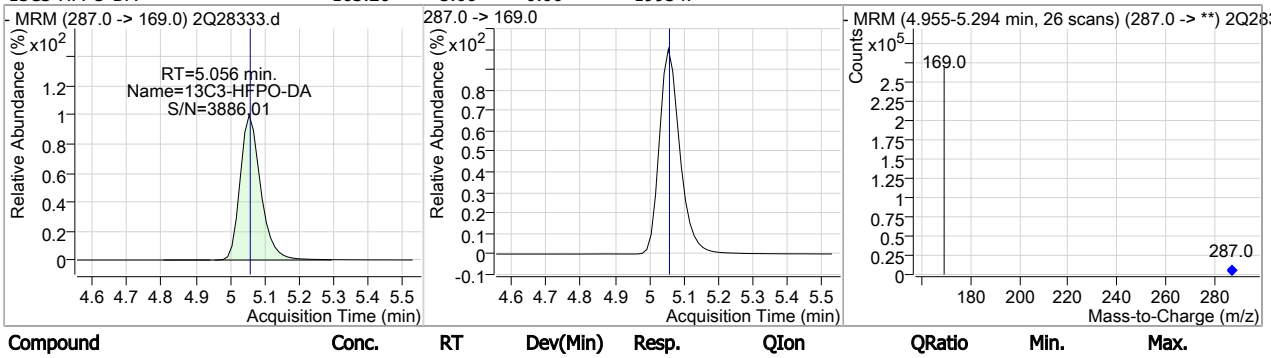




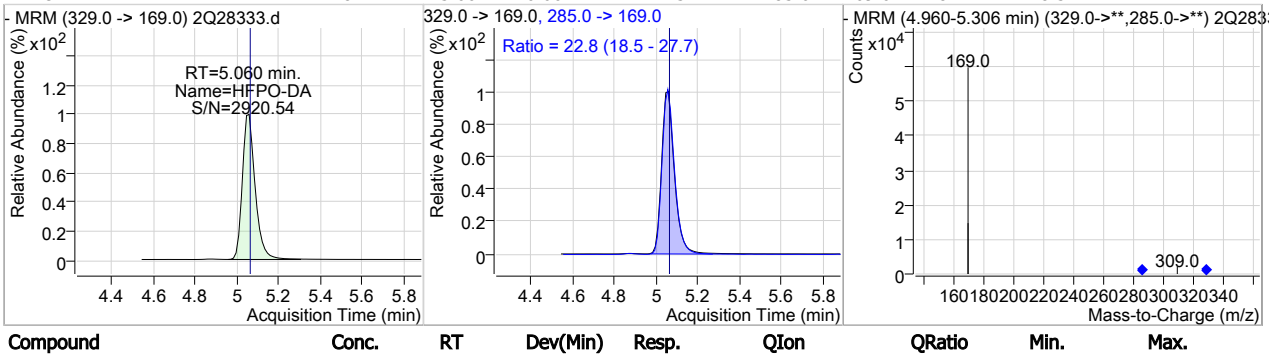


Perfluorinated Compounds by LC/MS/MS

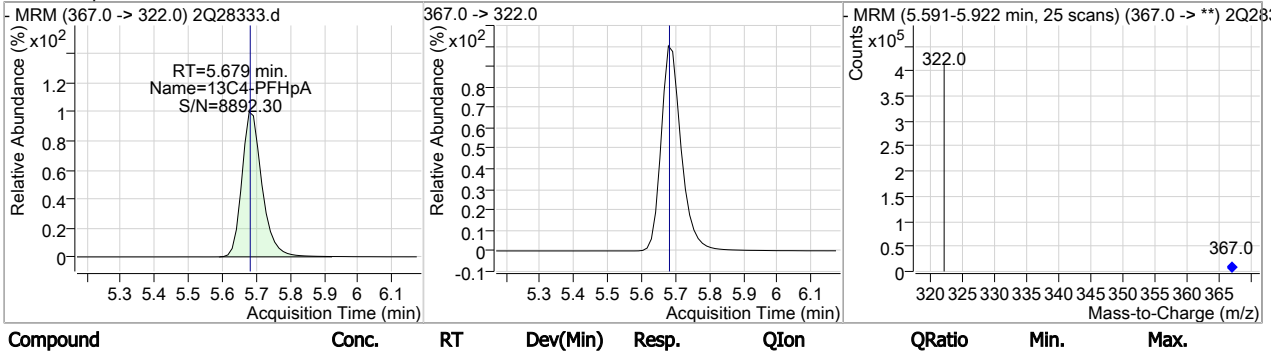
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	103.26	5.06	0.00	199547				



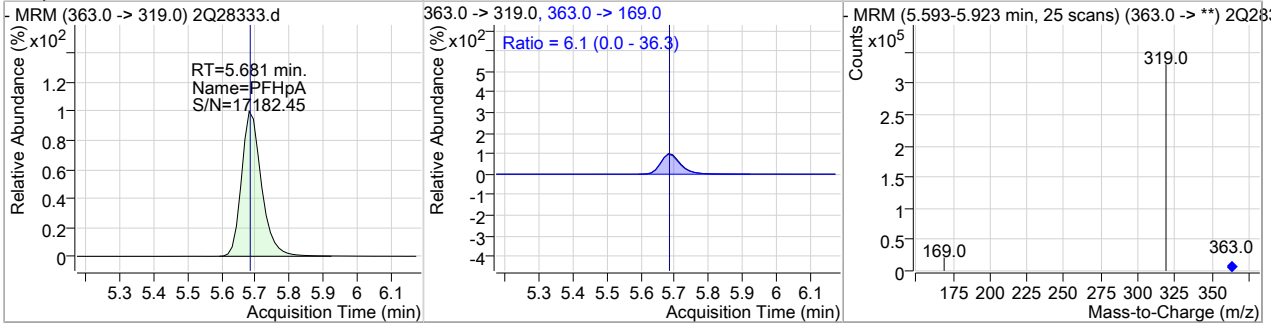
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.47	5.06	0.00	44175	285.0 -> 169.0	22.8	18.5	27.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.01	5.68	0.00	308030				



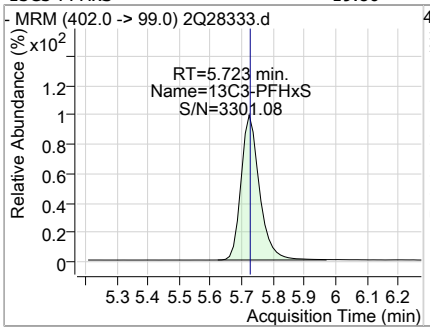
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.29	5.68	0.00	247058	363.0 -> 169.0	6.1	0.0	36.3

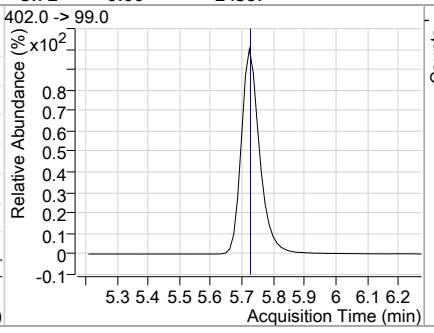


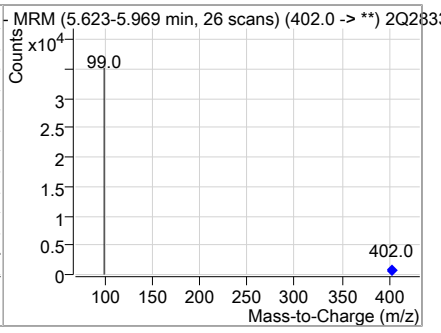
7.6.40

Perfluorinated Compounds by LC/MS/MS

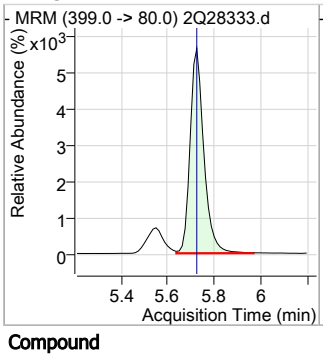
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.86	5.72	0.00	24587				

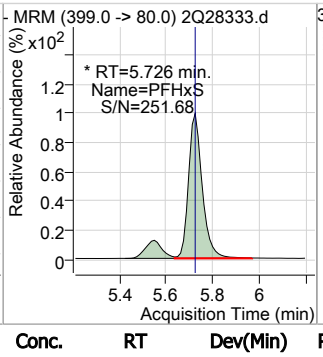


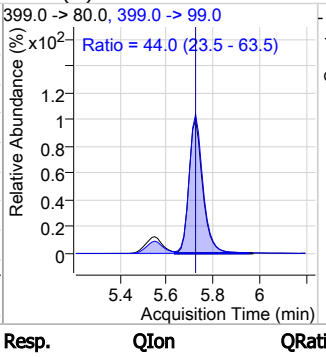


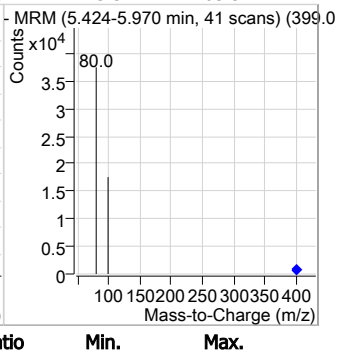


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.19	5.73	0.00	26577 (m)	399.0 -> 99.0	44.0	23.5	63.5

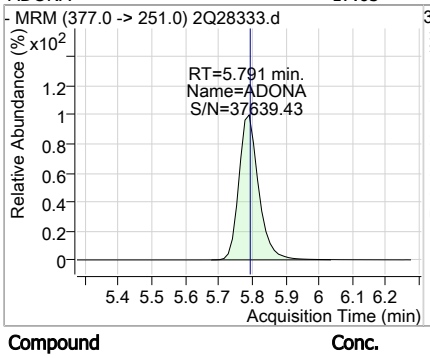


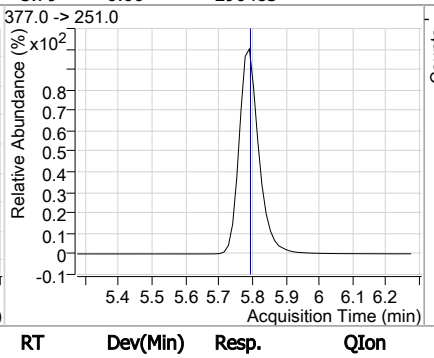


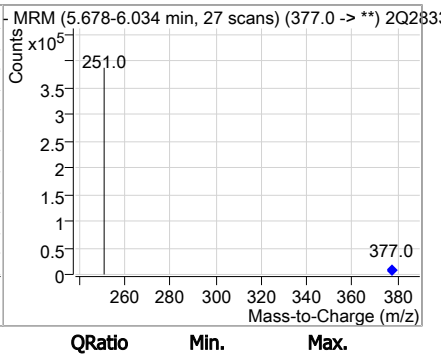




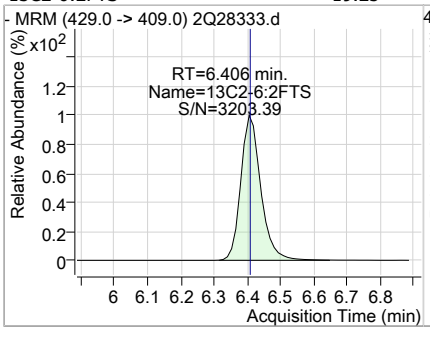
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	17.65	5.79	0.00	290483				

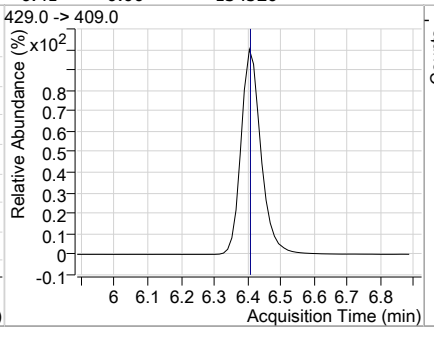


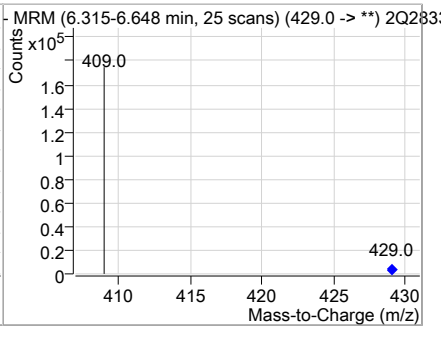




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	19.25	6.41	0.00	134526				



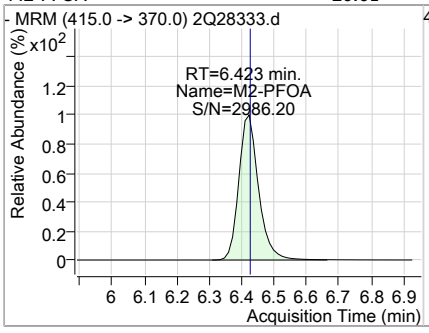


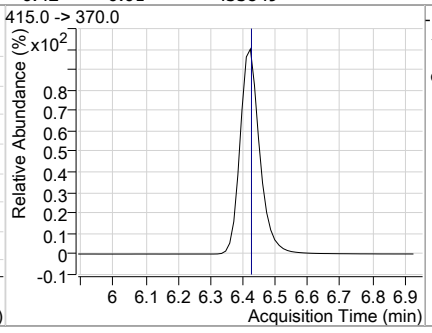


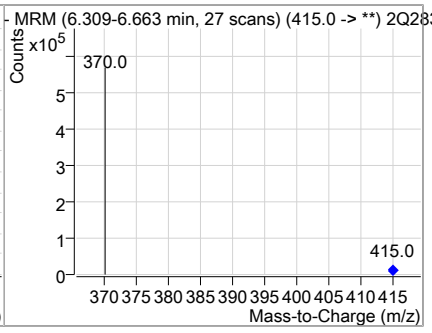
7.6.40

Perfluorinated Compounds by LC/MS/MS

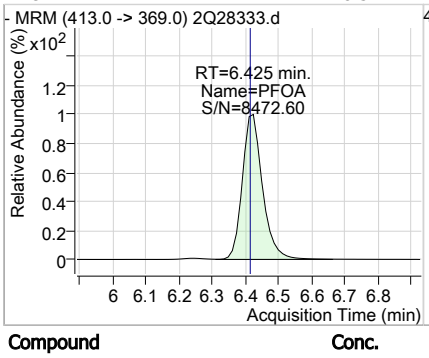
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.42	0.01	433849				

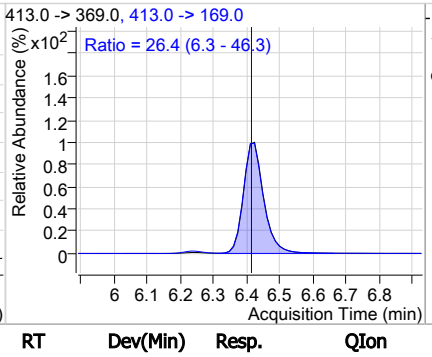


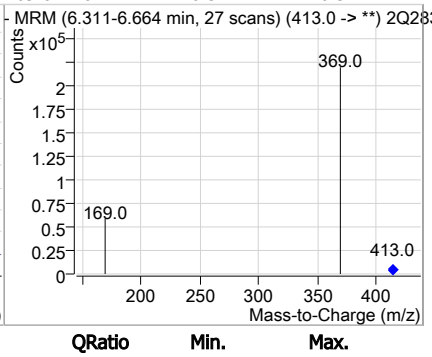




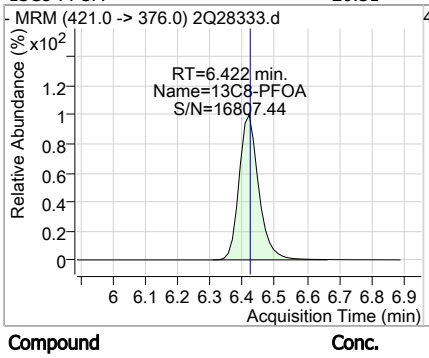
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.51	6.42	0.01	165082	413.0 -> 169.0	26.4	6.3	46.3

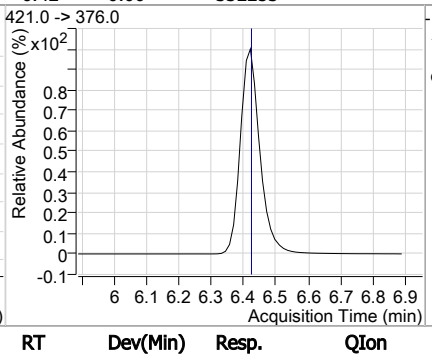


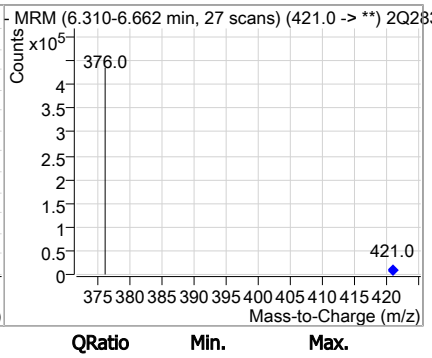




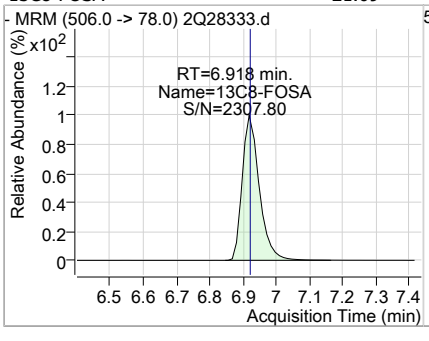
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.51	6.42	0.00	332253				

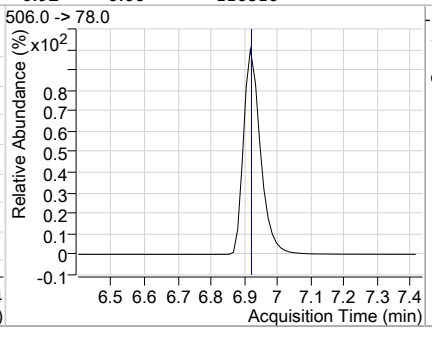


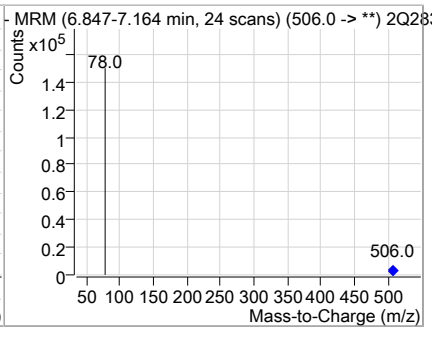




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.09	6.92	0.00	116816				



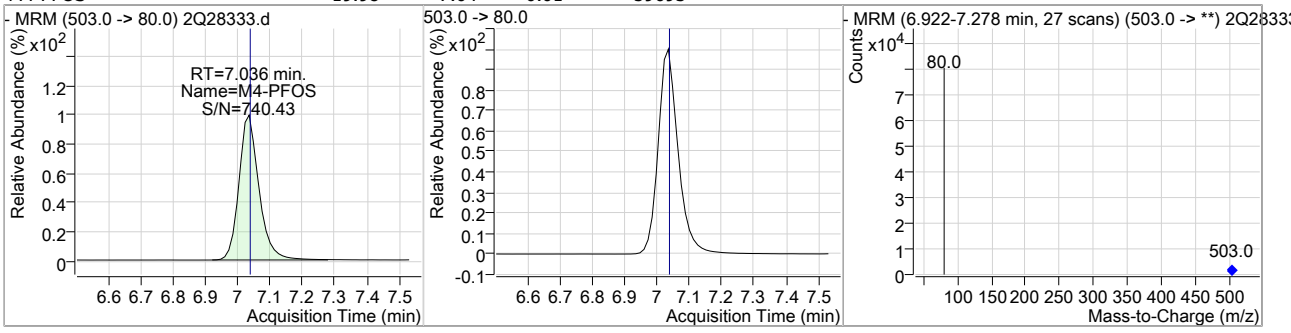




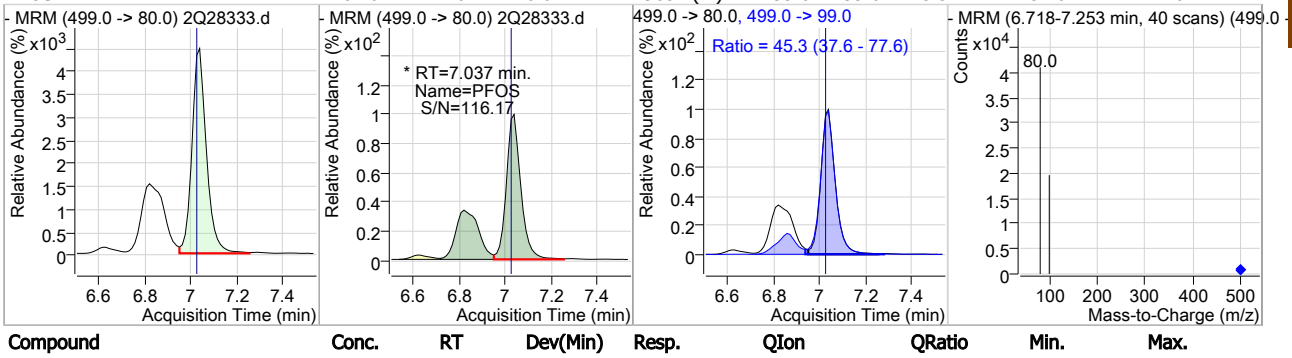
7.6.40

Perfluorinated Compounds by LC/MS/MS

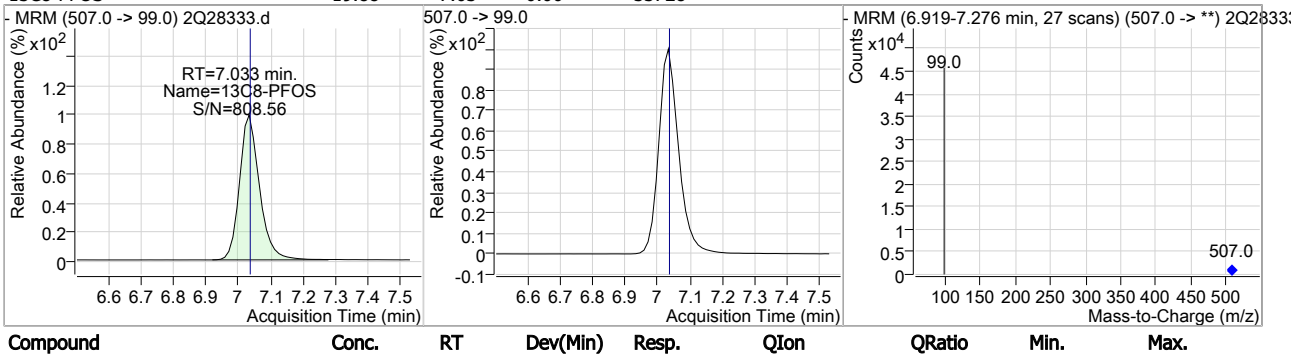
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.98	7.04	0.01	59693				



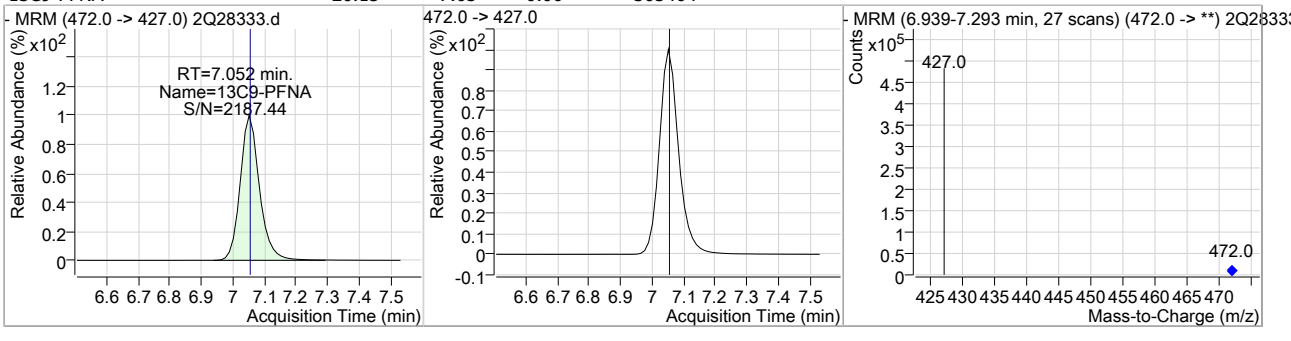
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	18.20	7.04	0.01	29831 (m)	499.0 -> 99.0	45.3	37.6	77.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.88	7.03	0.00	33728				



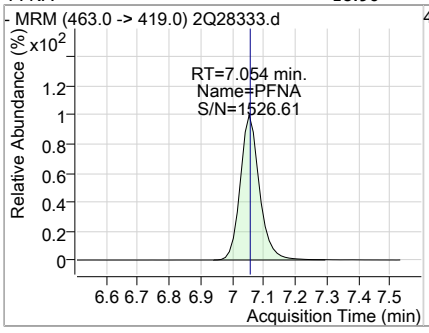
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.15	7.05	0.00	365464				

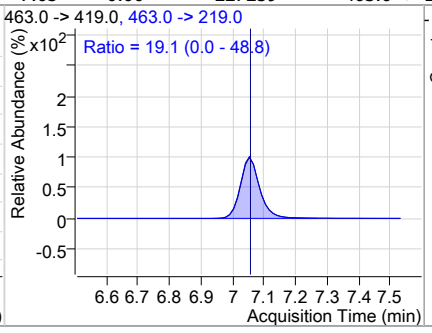


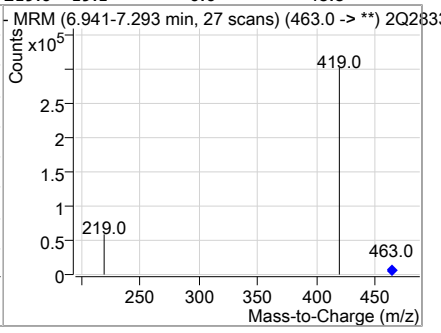
7.6.40

Perfluorinated Compounds by LC/MS/MS

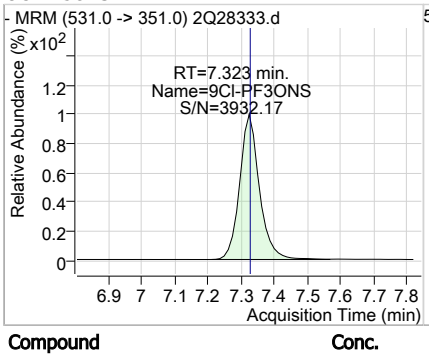
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	18.90	7.05	0.00	227259	463.0 -> 219.0	19.1	0.0	48.8

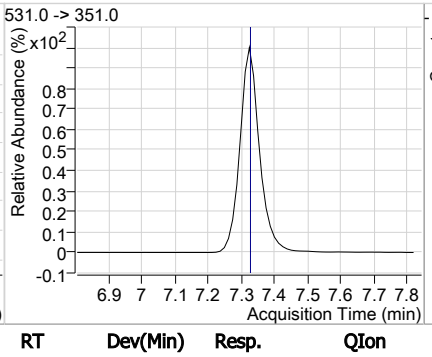


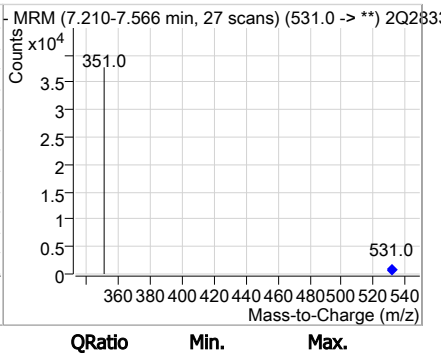




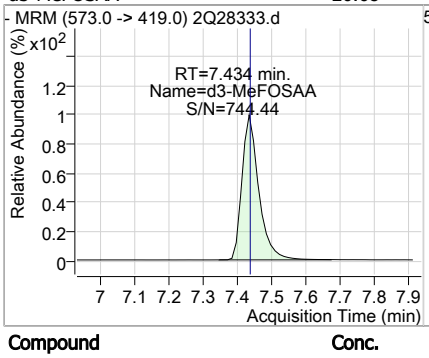
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	17.44	7.32	0.00	27620				

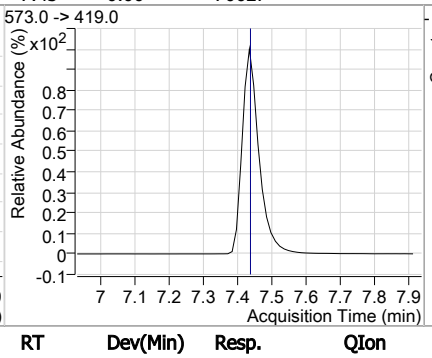


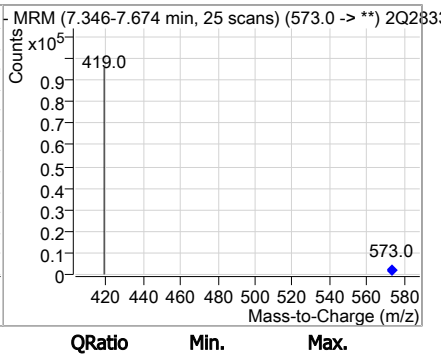




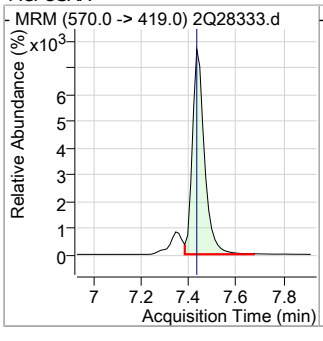
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	20.68	7.43	0.00	70627				

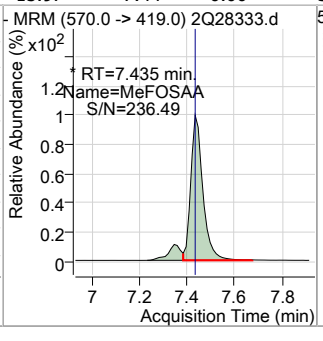


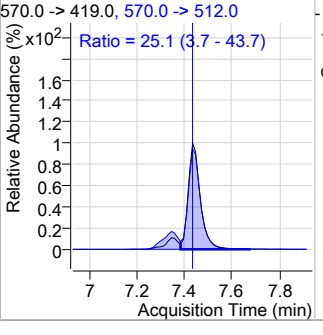


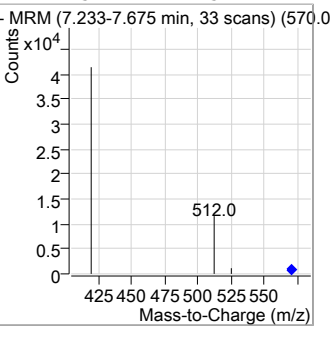


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	15.97	7.44	0.00	30092 (m)	570.0 -> 512.0	25.1	3.7	43.7









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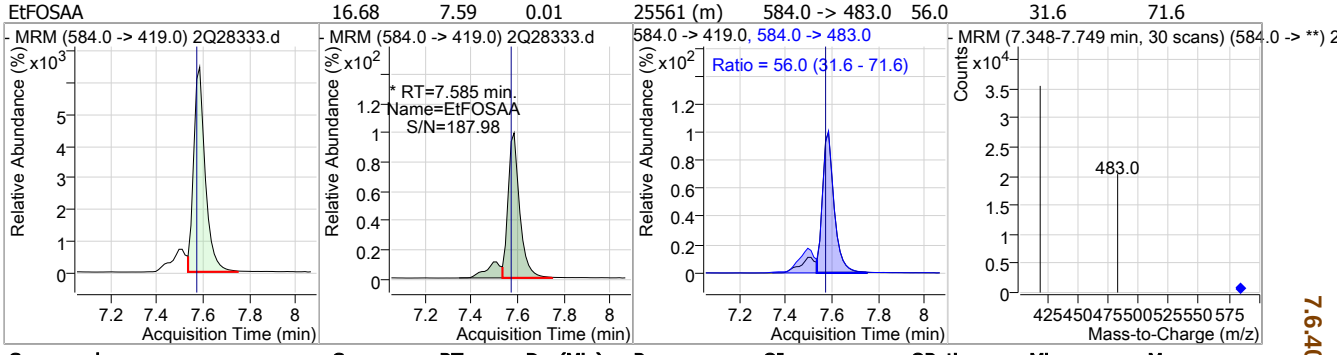
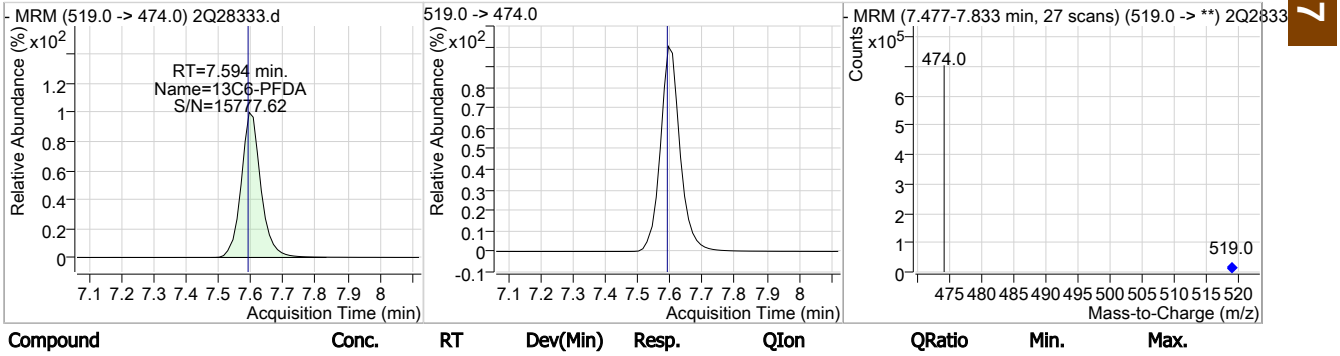
Perfluorinated Compounds by LC/MS/MS

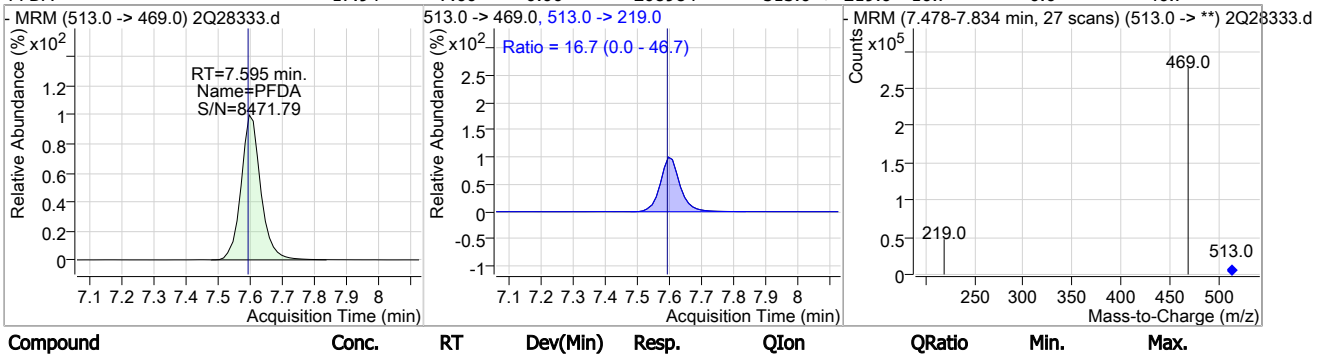
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	16.68	7.59	0.01	25561 (m)	584.0 -> 483.0	56.0	31.6	71.6



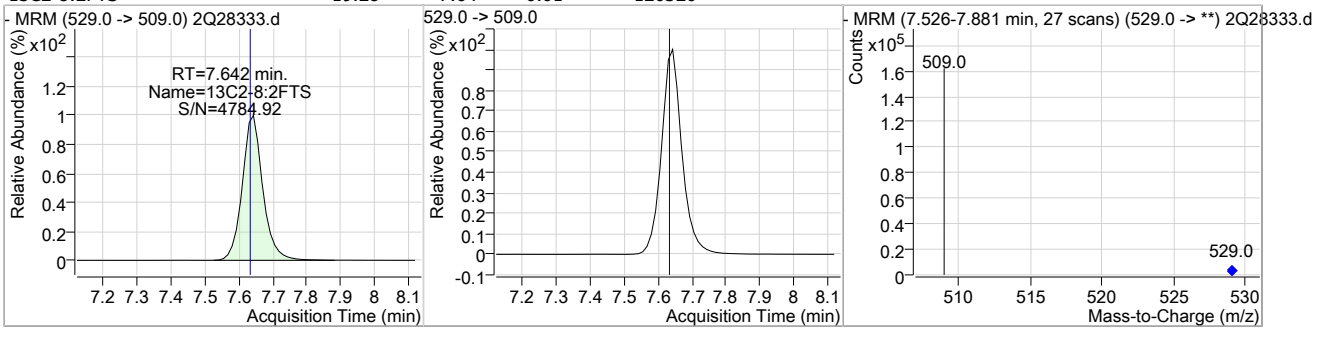
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.67	7.59	0.00	531763				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	17.94	7.60	0.00	208984	513.0 -> 219.0	16.7	0.0	46.7



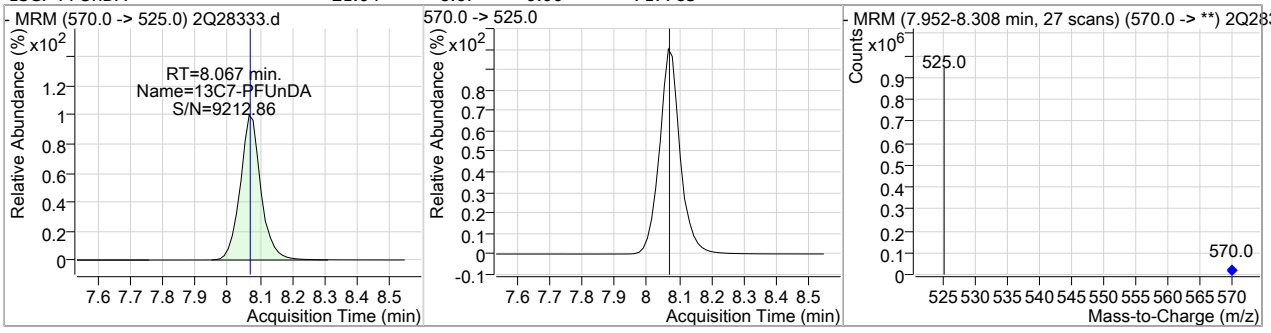
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	19.28	7.64	0.01	120326				



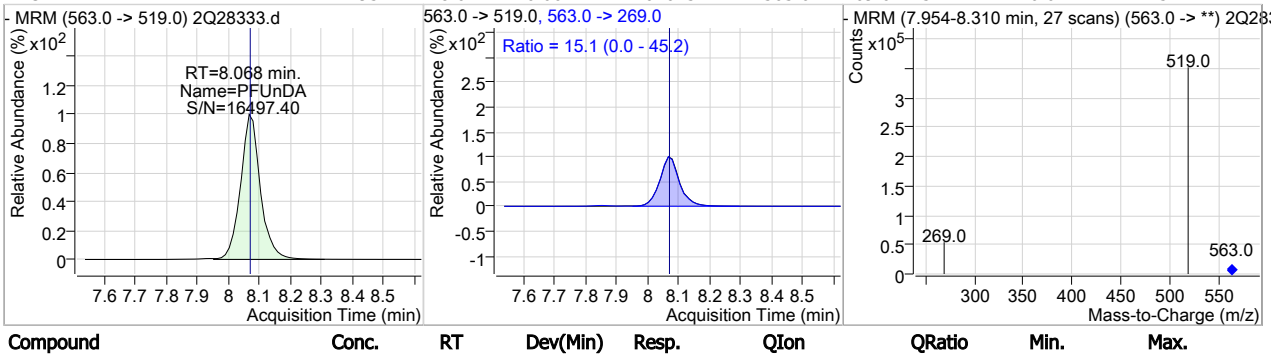
7.6.40

Perfluorinated Compounds by LC/MS/MS

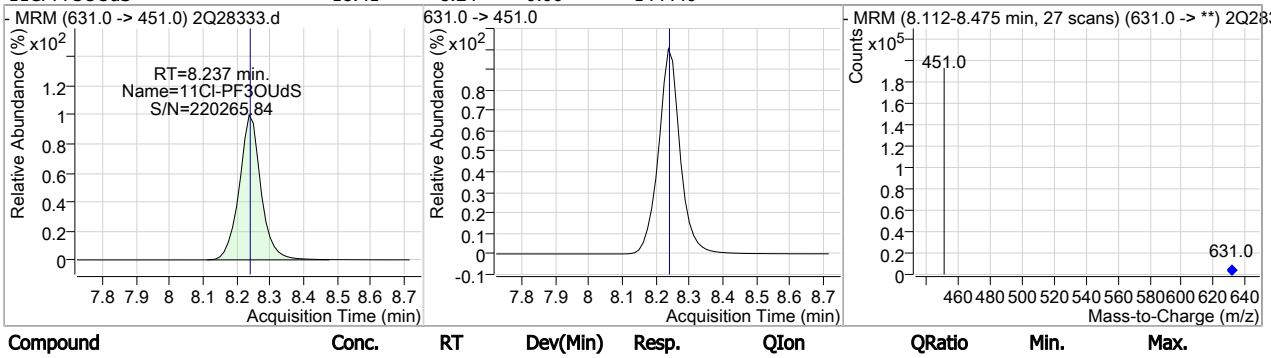
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	21.04	8.07	0.00	717785				



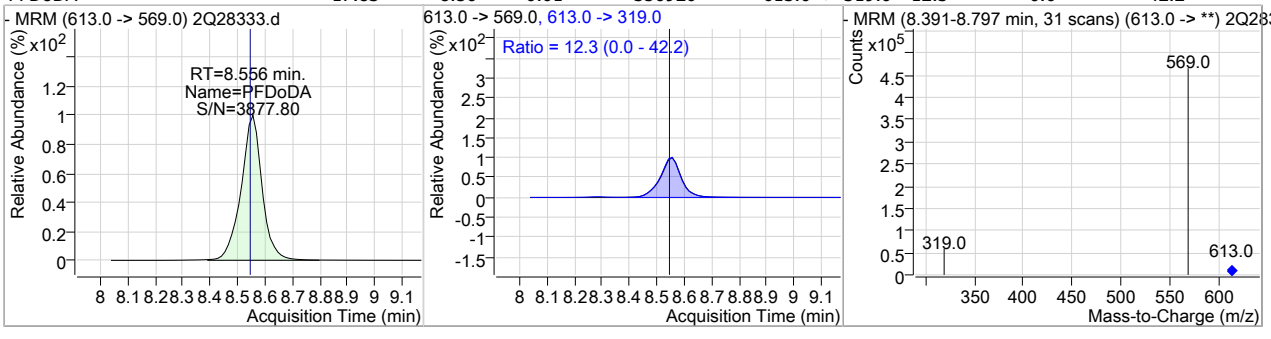
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	17.95	8.07	0.00	267675	563.0 -> 269.0	15.1	0.0	45.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.41	8.24	0.00	144446				



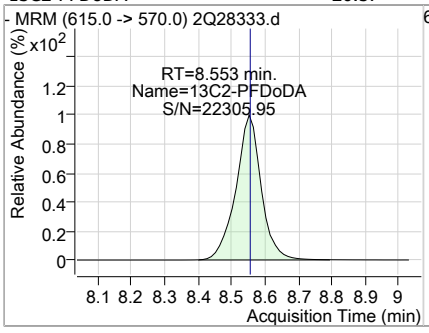
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	17.83	8.56	0.01	356920	613.0 -> 319.0	12.3	0.0	42.2

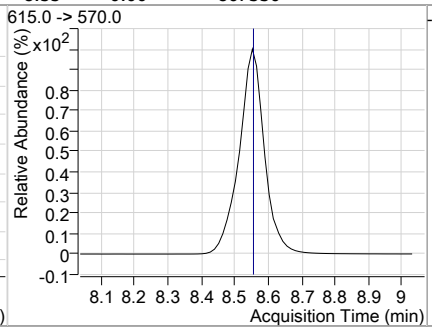


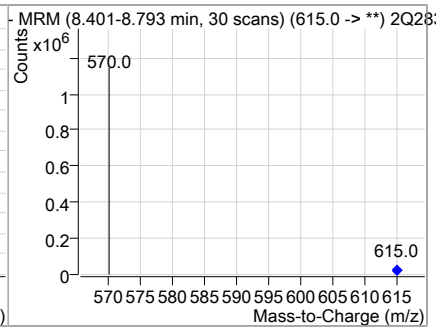
7.6.40

Perfluorinated Compounds by LC/MS/MS

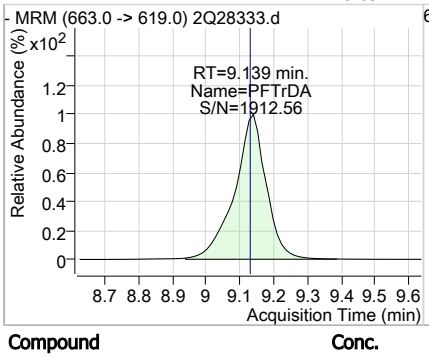
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.57	8.55	0.00	867330				

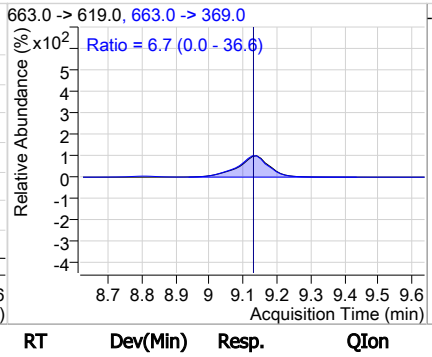


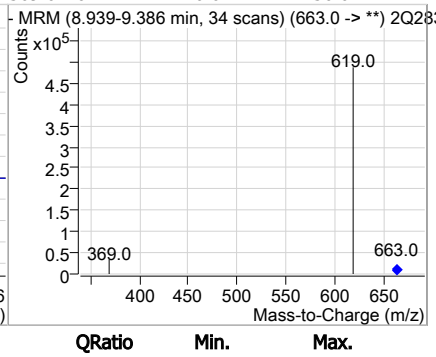




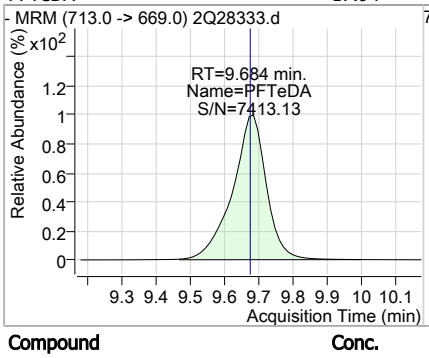
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	18.09	9.14	0.01	378427	663.0 -> 369.0	6.7	0.0	36.6

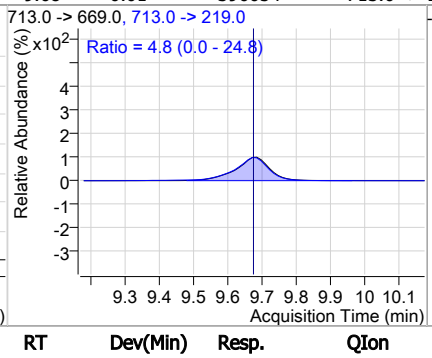


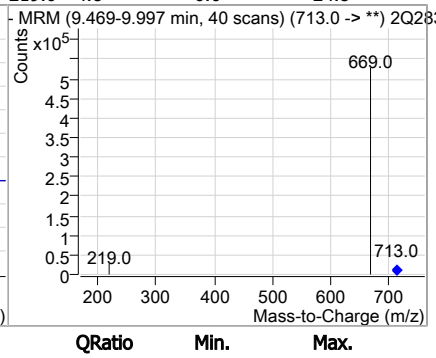




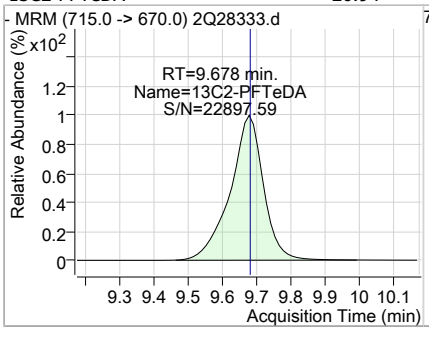
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	17.94	9.68	0.01	396654	713.0 -> 219.0	4.8	0.0	24.8

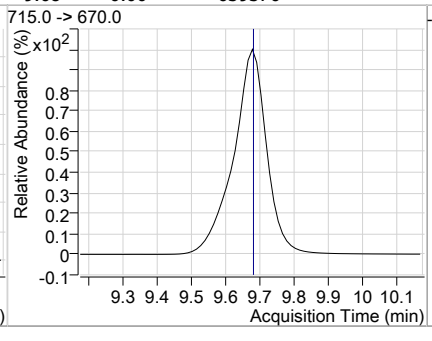


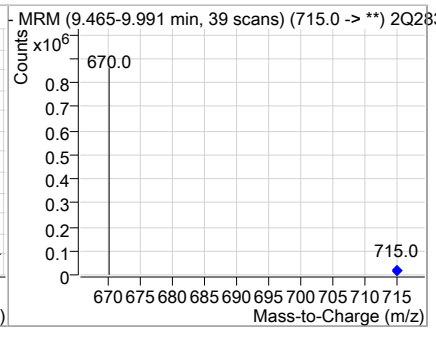




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.94	9.68	0.00	639376				







7.6.40

Manual Integration Approval Summary

Sample Number: S2Q450-ICV450
Lab FileID: 2Q28333.D
Injection Time: 03/28/19 17:24
Method: EPA 537M BY ID
Analyst approved: 03/29/19 10:18 Mike Eger
Supervisor approved: 03/29/19 14:18 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak
MeFOSAA	2355-31-9		7.43	Split peak
EtFOSAA	2991-50-6		7.58	Split peak

Cal Report: 2Q28446.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
04/01/19 16:00

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28446.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 4/1/2019 9:47:23 AM
Sample Name : cc450-1
Vial : Vial 3
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q452.batch.bin
Sample Information : op74313,S2Q452,250,,,1.0,1,water

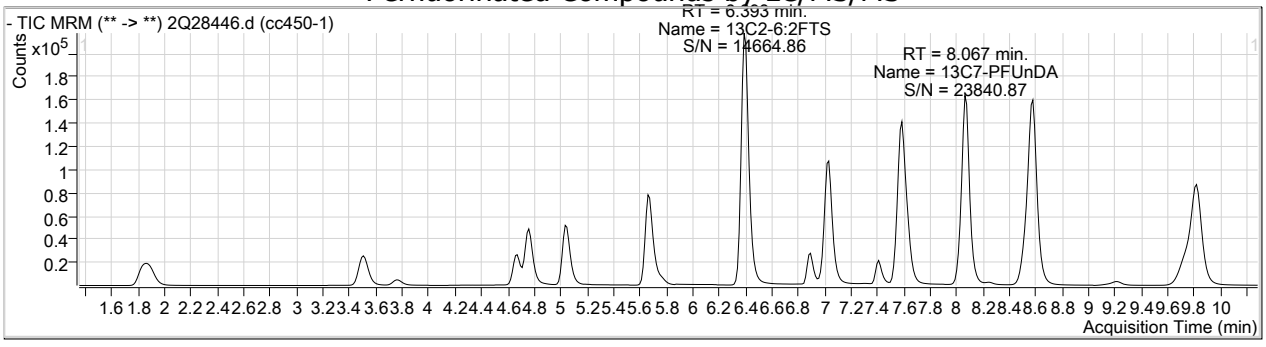
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.398	415.0 -> 370.0	420897	20.00	µg/L	0.026
13C4-PFOS	7.010	503.0 -> 80.0	57964	20.00	µg/L	0.025
M4-PFBA	1.865	217.0 -> 172.0	142451	20.00	µg/L	0.013
M5-PFPeA	3.511	268.0 -> 223.0	125727	20.00	µg/L	0.013
M5-PFHxA	4.764	318.0 -> 273.0	194211	20.00	µg/L	0.025
M4-PFHpA	5.668	367.0 -> 322.0	298492	20.00	µg/L	0.014
M8-PFOA	6.396	421.0 -> 376.0	316959	20.00	µg/L	0.026
M9-PFNA	7.040	472.0 -> 427.0	359292	20.00	µg/L	0.026
M6-PFDA	7.594	519.0 -> 474.0	514457	20.00	µg/L	0.038
M7-PFUnDA	8.067	570.0 -> 525.0	697178	20.00	µg/L	0.025
M2-PFDoDA	8.578	615.0 -> 570.0	847735	20.00	µg/L	0.039
M2-PFTeDA	9.815	715.0 -> 670.0	614248	20.00	µg/L	0.037
M8-FOSA	6.894	506.0 -> 78.0	96393	20.00	µg/L	0.013
M3-PFBS	3.755	302.0 -> 99.0	20798	20.00	µg/L	0.013
M3-PFHxS	5.711	402.0 -> 99.0	23773	20.00	µg/L	0.025
M8-PFOS	7.022	507.0 -> 99.0	32668	20.00	µg/L	0.039
M2-4:2FTS	4.671	329.0 -> 309.0	105727	20.00	µg/L	0.025
M2-6:2FTS	6.393	429.0 -> 409.0	149094	20.00	µg/L	0.028
M2-8:2FTS	7.630	529.0 -> 509.0	133326	20.00	µg/L	0.025
M3-MeFOSAA	7.409	573.0 -> 419.0	66740	20.00	µg/L	0.013
M3-HFPO-DA	5.043	287.0 -> 169.0	199010	100.00	µg/L	0.025
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	106284	20.06	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C2-6:2FTS	6.393	429.0 -> 409.0	149056	21.33	µg/L	0.028
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.6%		
13C2-8:2FTS	7.630	529.0 -> 509.0	133292	21.36	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.8%		
13C2-PFDoDA	8.578	615.0 -> 570.0	847955	20.11	µg/L	0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C2-PFTeDA	9.815	715.0 -> 670.0	612123	20.05	µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.3%		
13C3-PFBS	3.755	302.0 -> 99.0	20817	18.91	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.5%		
13C3-PFHxS	5.711	402.0 -> 99.0	23763	19.19	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.0%		
13C4-PFBA	1.865	217.0 -> 172.0	141796	18.98	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 94.9%		
13C4-PFHpA	5.668	367.0 -> 322.0	298085	19.37	µg/L	0.014
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C5-PFHxA	4.764	318.0 -> 273.0	193844	19.11	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%		
13C5-PFPeA	3.511	268.0 -> 223.0	125519	18.64	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 93.2%		
13C6-PFDA	7.594	519.0 -> 474.0	514757	20.01	µg/L	0.038

Perfluorinated Compounds by LC/MS/MS

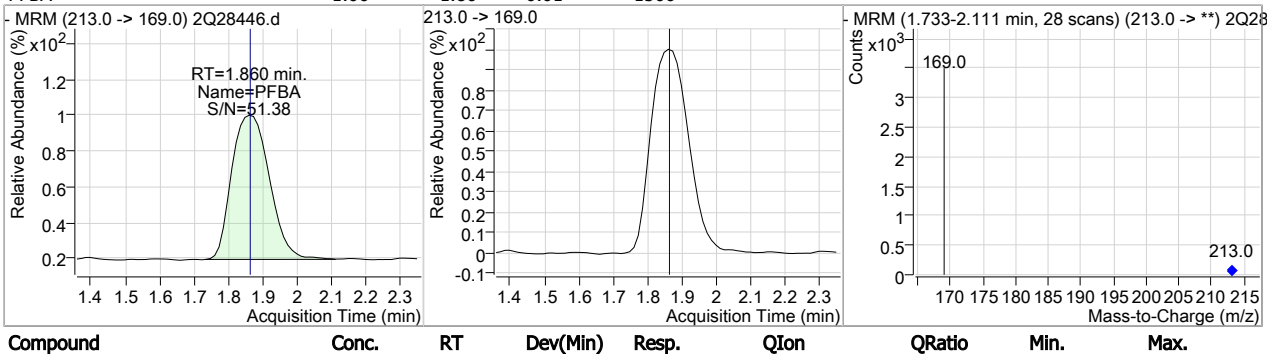
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C7-PFUnDA	8.067	570.0 -> 525.0	696750	20.42 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
13C8-FOSA	6.894	506.0 -> 78.0	96385	17.40 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 87.0%		
13C8-PFOA	6.396	421.0 -> 376.0	316591	19.55 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C8-PFOS	7.022	507.0 -> 99.0	32672	19.25 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C9-PFNA	7.040	472.0 -> 427.0	359147	19.80 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
d3-MeFOSAA	7.409	573.0 -> 419.0	66731	19.54 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.7%		
M2-PFOA	6.398	415.0 -> 370.0	421419	20.01 µg/L		0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
M4-PFOS	7.010	503.0 -> 80.0	58033	20.02 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C3-HFPO-DA	5.043	287.0 -> 169.0	199010	102.99 µg/L		0.025
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
Target Compounds						QValue
4:2FTS	4.674	327.0 -> 307.0	3367	1.10 µg/L		94
6:2FTS	6.395	427.0 -> 407.0	4025	1.07 µg/L		97
8:2FTS	7.631	527.0 -> 507.0	3912	1.14 µg/L		98
EtFOSAA	7.560	584.0 -> 419.0	1602	1.22 µg/L		94
FOSA	6.886	498.0 -> 78.0	2581	1.11 µg/L		98
MeFOSAA	7.410	570.0 -> 419.0	1946	1.09 µg/L		95
PFBA	1.860	213.0 -> 169.0	1506	1.06 µg/L		100
PFBS	3.758	299.0 -> 80.0	1768	1.05 µg/L		97
PFDA	7.595	513.0 -> 469.0	11768	1.04 µg/L		99
PFDoDA	8.571	613.0 -> 569.0	20222	1.04 µg/L		99
PFDS	8.027	599.0 -> 80.0	692	1.11 µg/L		99
PFHpA	5.670	363.0 -> 319.0	13824	1.06 µg/L		99
PFHpS	6.404	449.0 -> 80.0	1274	1.04 µg/L		91
PFHxA	4.765	313.0 -> 269.0	3678	1.08 µg/L		98
PFHxS	5.713	399.0 -> 80.0	1494	1.06 µg/L	m	99
PFNA	7.041	463.0 -> 419.0	12485	1.06 µg/L		98
PFNS	7.553	549.0 -> 80.0	1459	1.18 µg/L		99
PFOA	6.399	413.0 -> 369.0	9006	1.06 µg/L		98
PFOS	7.012	499.0 -> 80.0	1819	1.15 µg/L	m	81
PFPeA	3.515	263.0 -> 219.0	6140	1.10 µg/L		100
PFPeS	4.883	349.0 -> 80.0	1283	1.09 µg/L		96
PFTeDA	9.809	713.0 -> 669.0	23249	1.10 µg/L		99
PFTrDA	9.214	663.0 -> 619.0	22620	1.13 µg/L		100
PFUnDA	8.068	563.0 -> 519.0	14819	1.02 µg/L		99
11Cl-PF3OUdS	8.250	631.0 -> 451.0	7915	1.03 µg/L		100
9Cl-PF3ONS	7.310	531.0 -> 351.0	1523	0.99 µg/L		100
ADONA	5.766	377.0 -> 251.0	15189	0.97 µg/L		100
HFPO-DA	5.048	329.0 -> 169.0	13598	5.70 µg/L		98

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

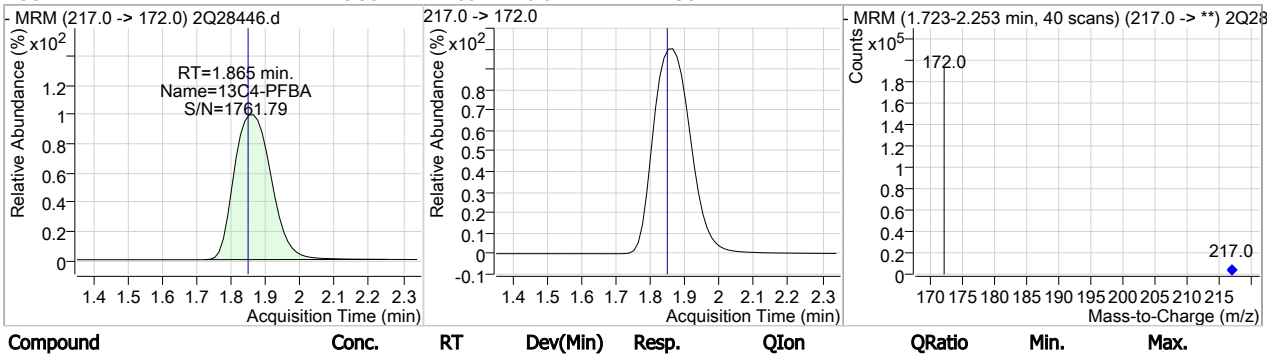
Perfluorinated Compounds by LC/MS/MS



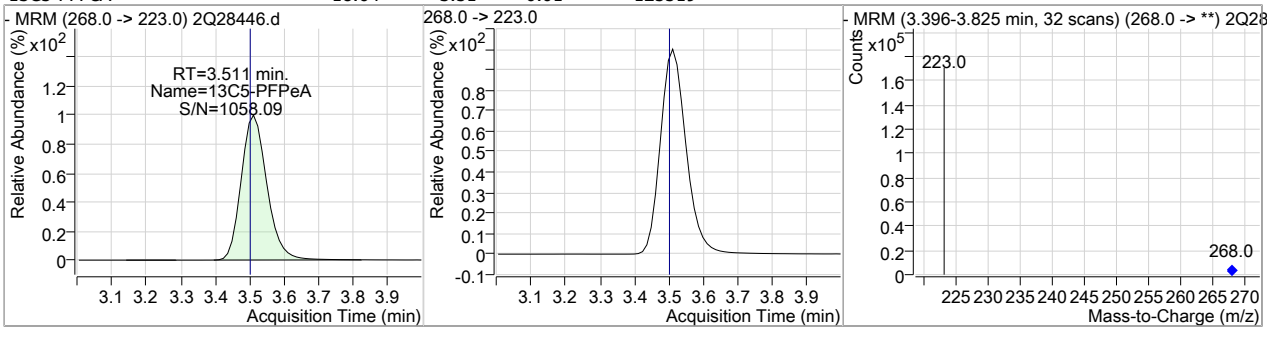
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.06	1.86	0.01	1506				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	18.98	1.86	0.01	141796				

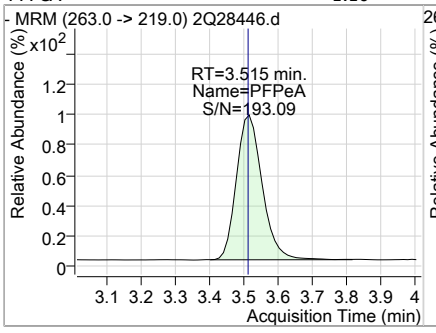


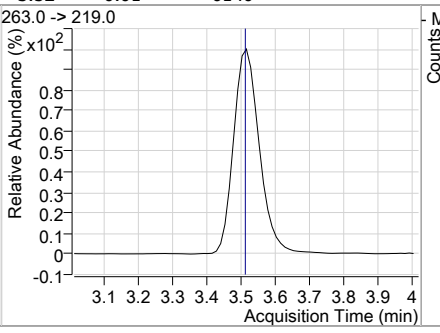
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	18.64	3.51	0.01	125519				

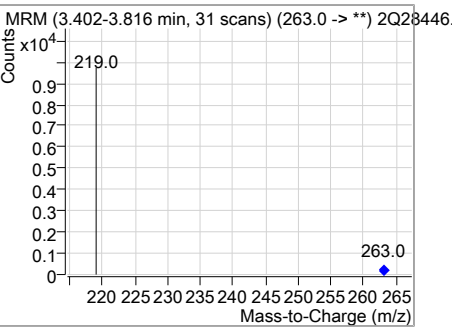


Perfluorinated Compounds by LC/MS/MS

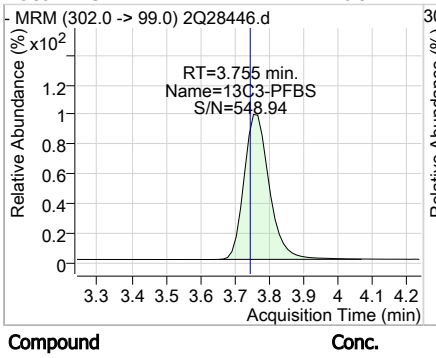
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.10	3.52	0.01	6140				

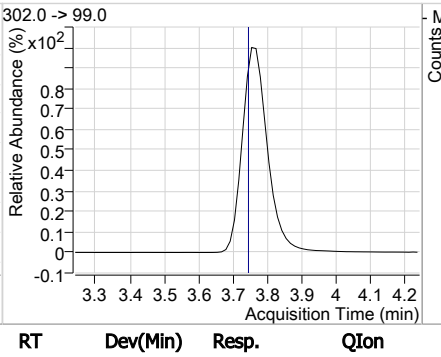


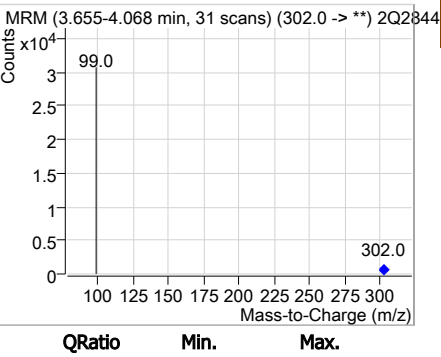




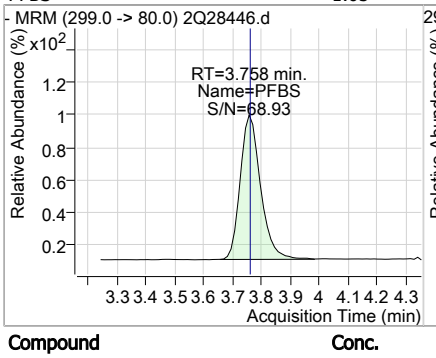
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	18.91	3.75	0.01	20817				

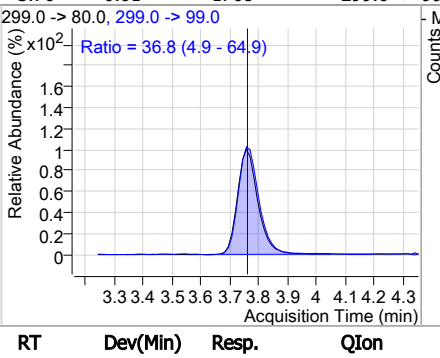


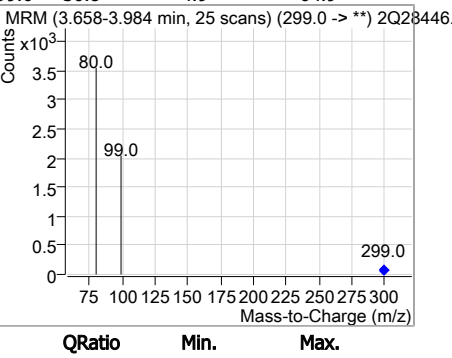




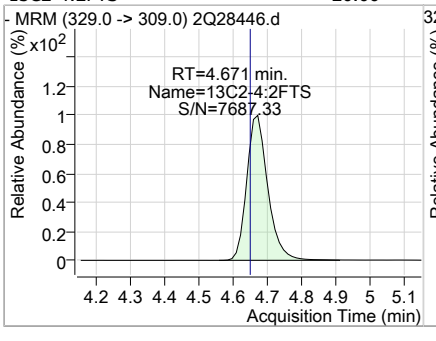
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.05	3.76	0.01	1768	299.0 -> 99.0	36.8	4.9	64.9

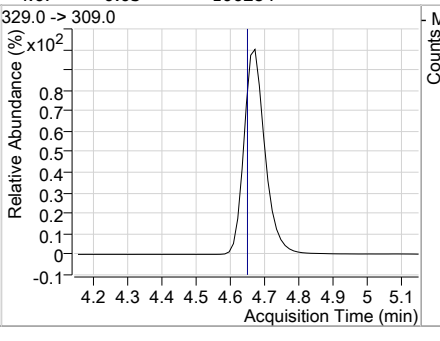


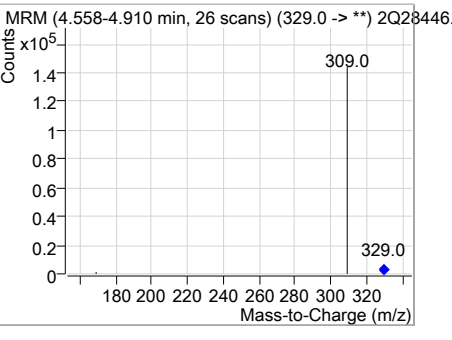




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	20.06	4.67	0.03	106284				

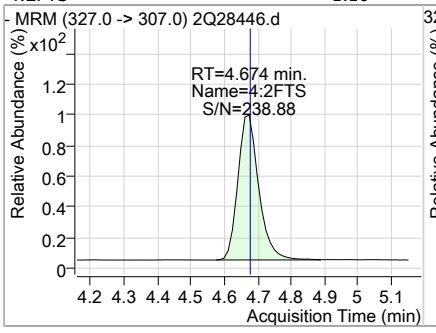


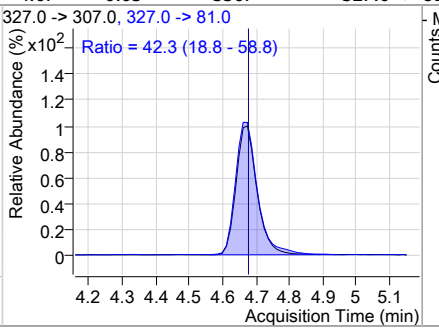


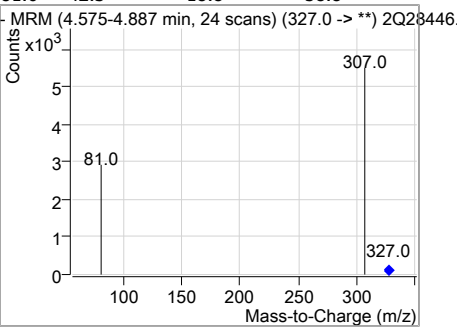


Perfluorinated Compounds by LC/MS/MS

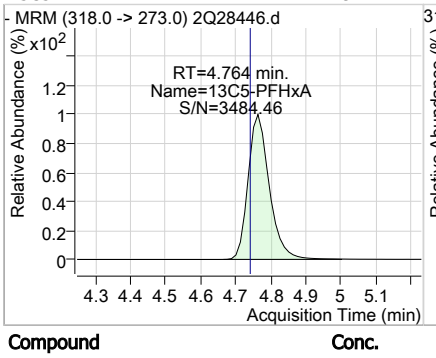
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.10	4.67	0.03	3367	327.0 -> 81.0	42.3	18.8	58.8

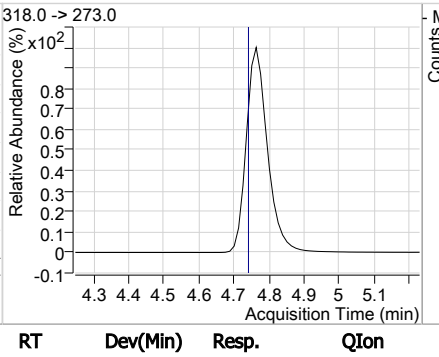


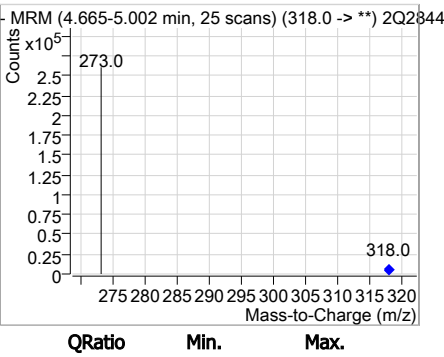




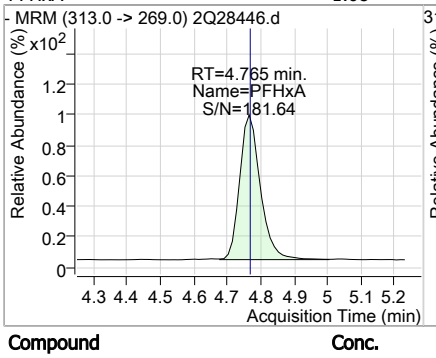
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.11	4.76	0.03	193844				

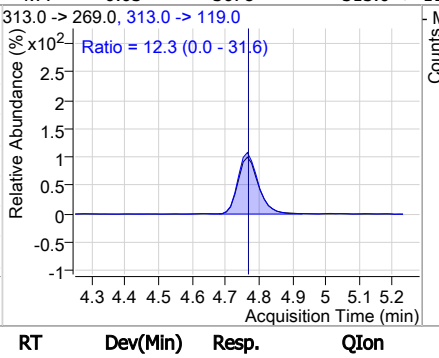


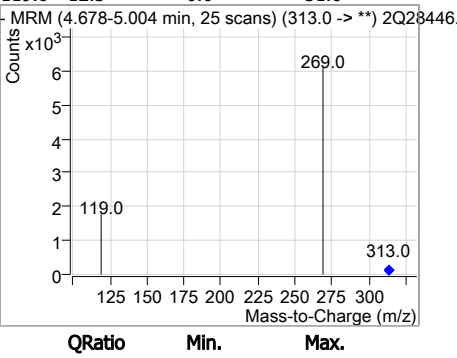




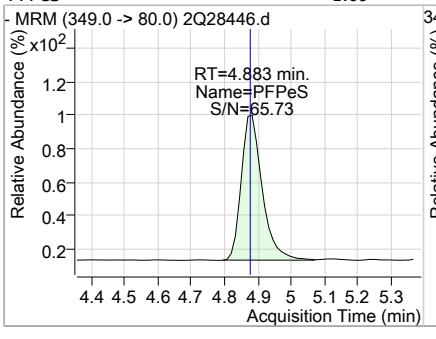
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.08	4.77	0.03	3678	313.0 -> 119.0	12.3	0.0	31.6

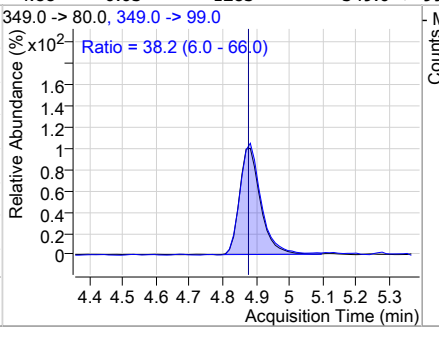


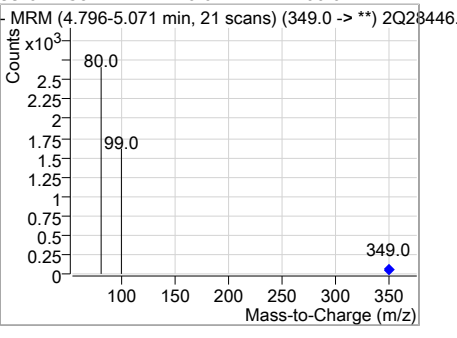




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	1.09	4.88	0.03	1283	349.0 -> 99.0	38.2	6.0	66.0

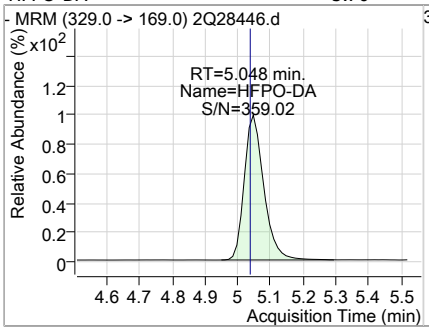


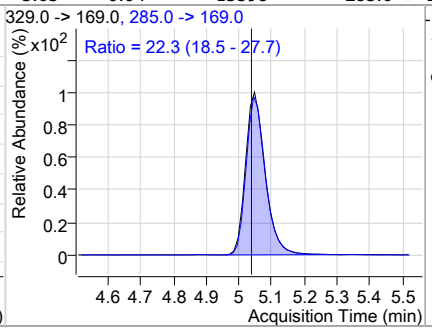


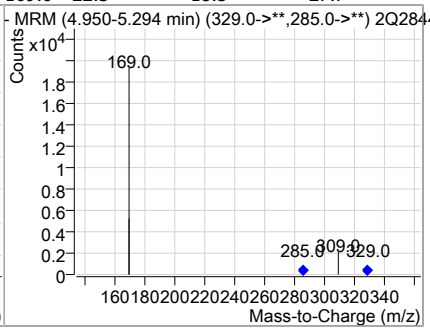


Perfluorinated Compounds by LC/MS/MS

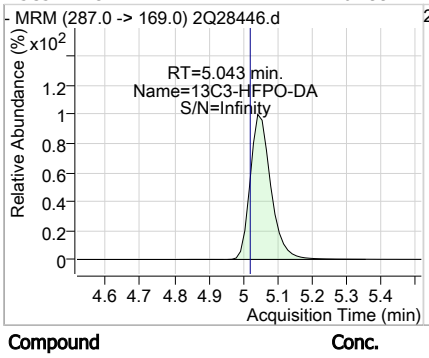
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.70	5.05	0.04	13598	285.0 -> 169.0	22.3	18.5	27.7

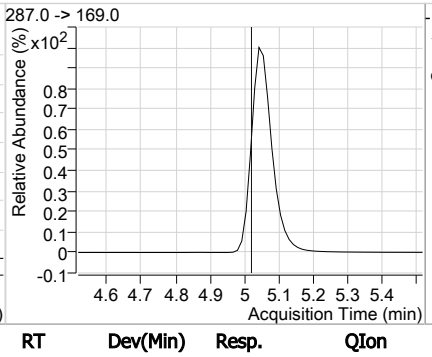


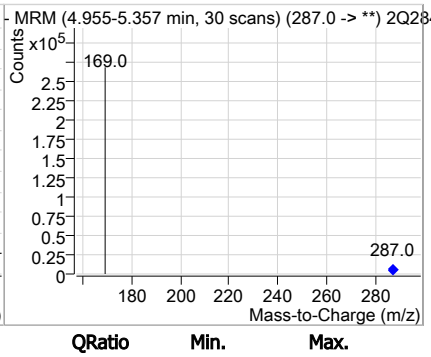




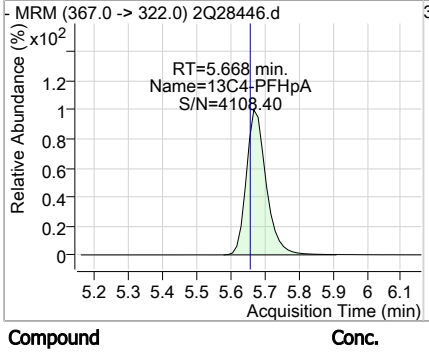
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	102.99	5.04	0.03	199010				

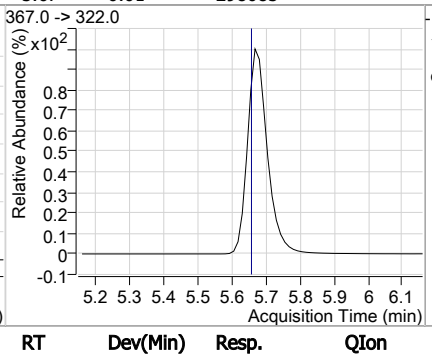


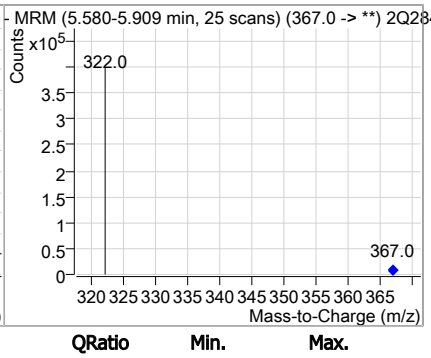




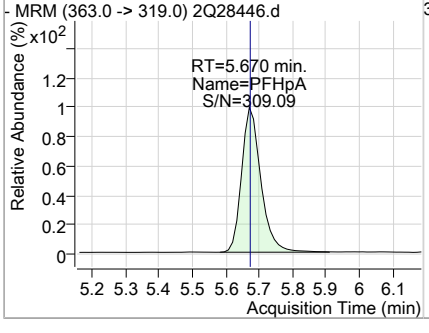
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	19.37	5.67	0.01	298085				

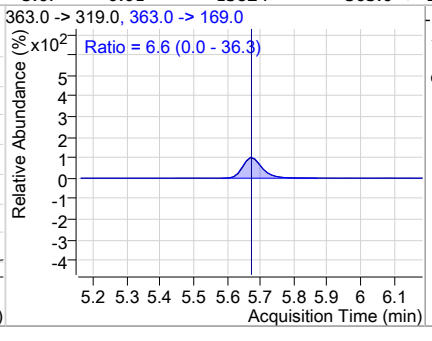


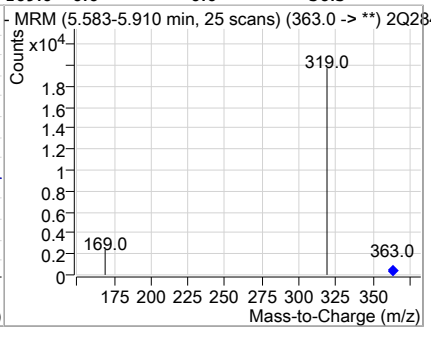




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.06	5.67	0.01	13824	363.0 -> 169.0	6.6	0.0	36.3

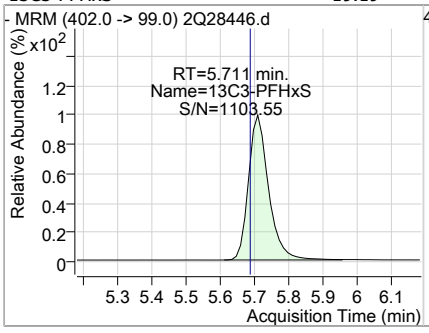


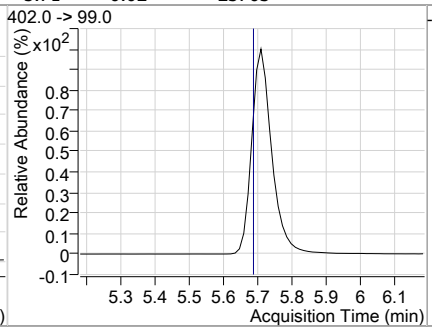


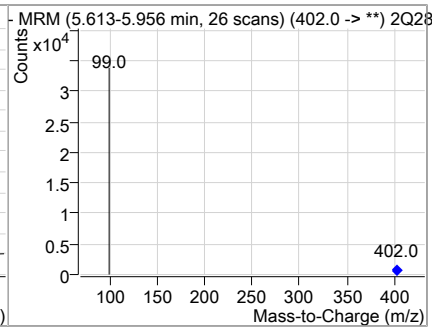


Perfluorinated Compounds by LC/MS/MS

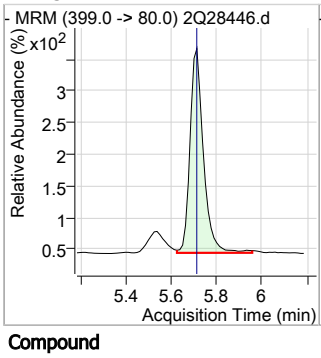
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	19.19	5.71	0.02	23763				

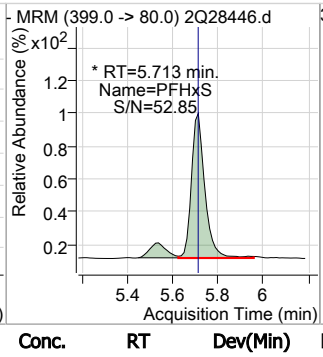


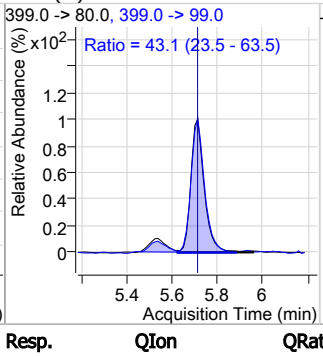


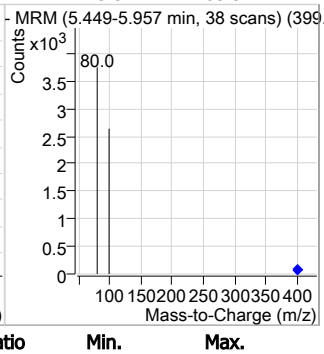


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.06	5.71	0.03	1494 (m)	399.0 -> 99.0	43.1	23.5	63.5

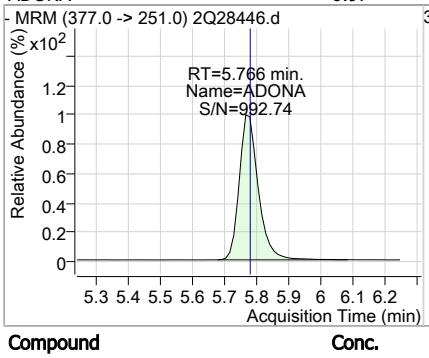


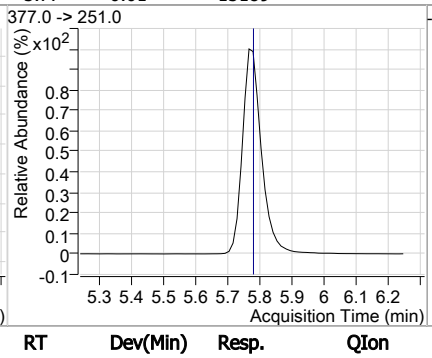


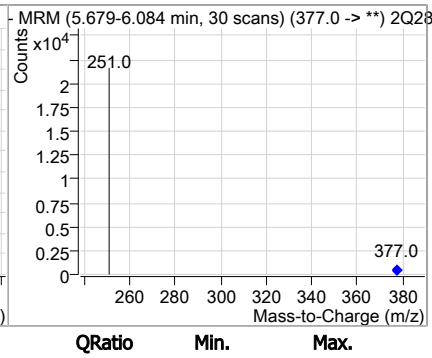




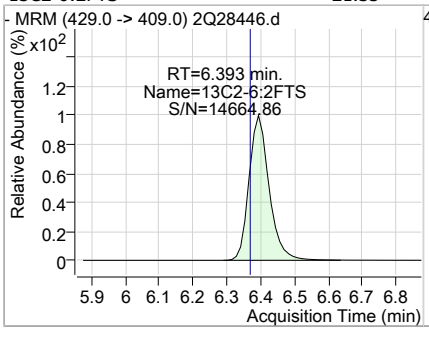
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	0.97	5.77	0.01	15189				

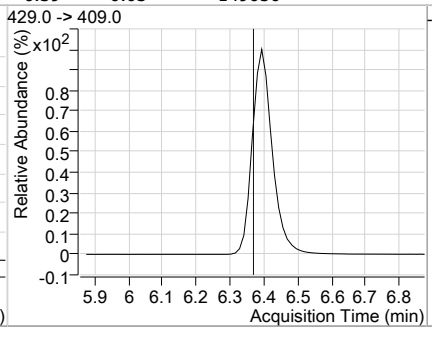


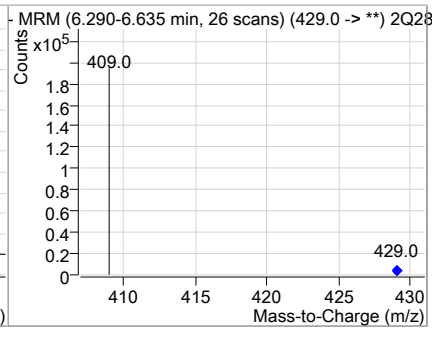




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	21.33	6.39	0.03	149056				

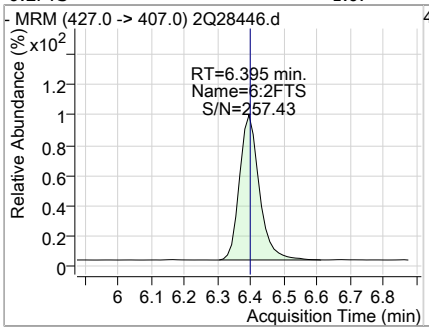


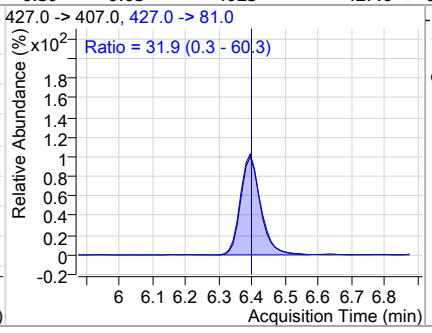


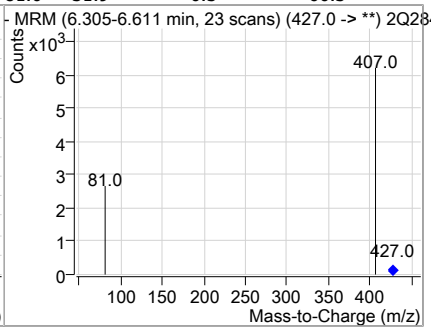


Perfluorinated Compounds by LC/MS/MS

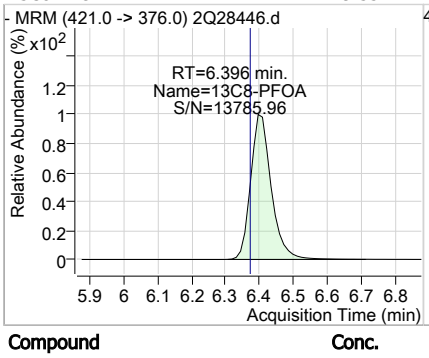
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	1.07	6.39	0.03	4025	427.0 -> 81.0	31.9	0.3	60.3

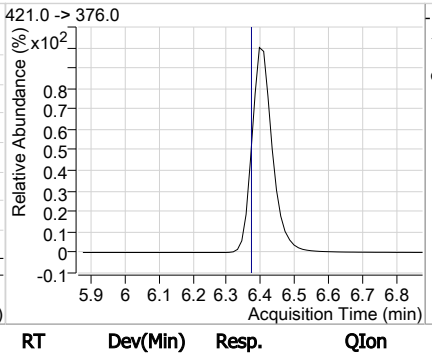


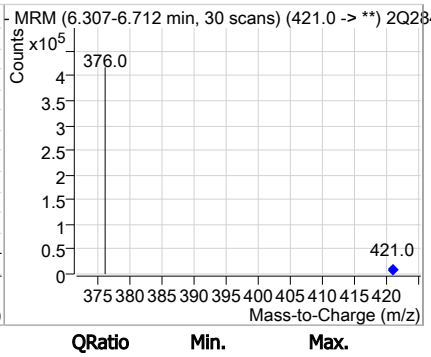




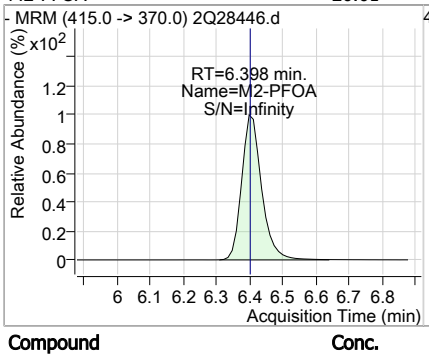
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	19.55	6.40	0.03	316591				

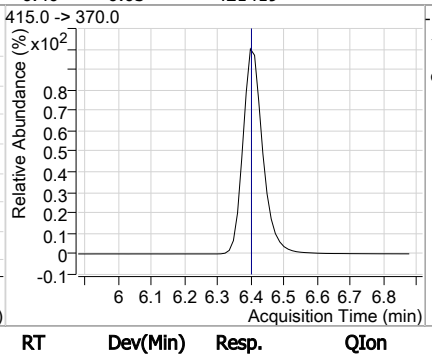


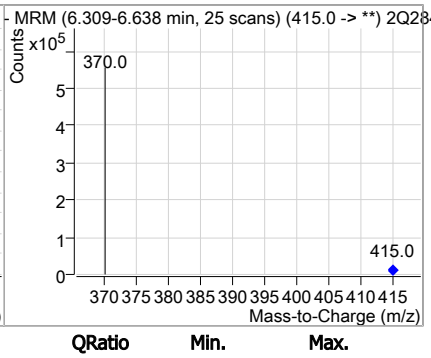




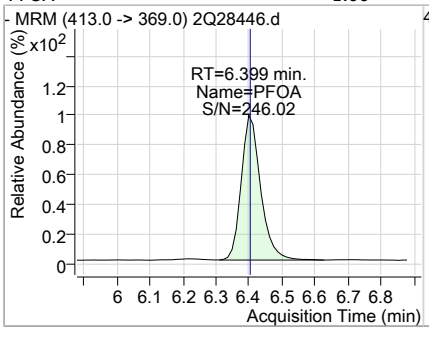
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.40	0.03	421419				

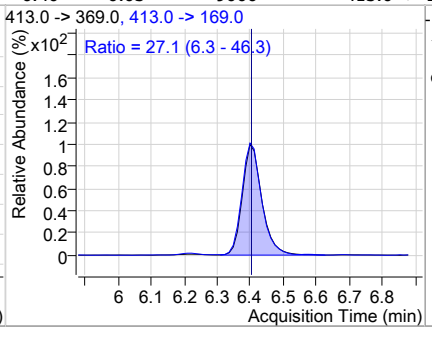


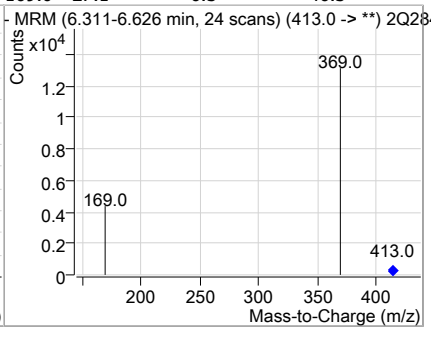




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.06	6.40	0.03	9006	413.0 -> 169.0	27.1	6.3	46.3

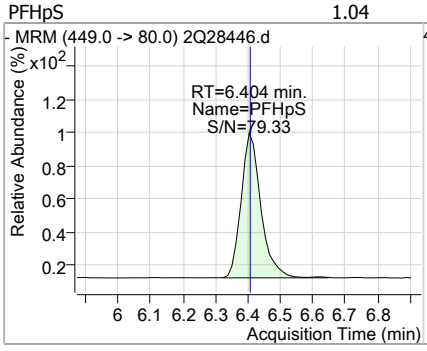


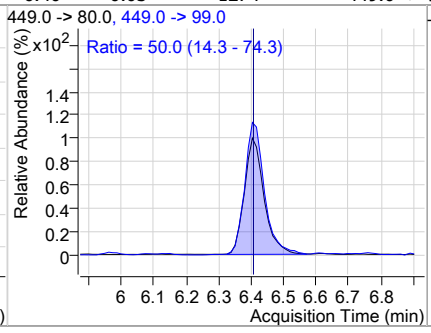


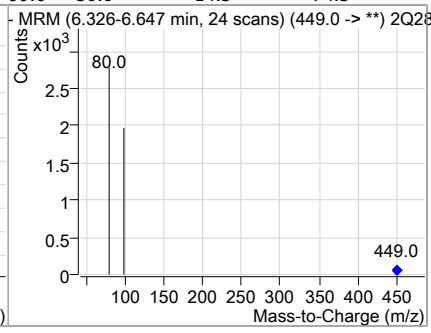


Perfluorinated Compounds by LC/MS/MS

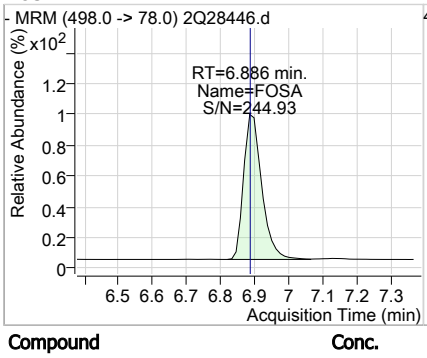
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.04	6.40	0.03	1274	449.0 -> 99.0	50.0	14.3	74.3

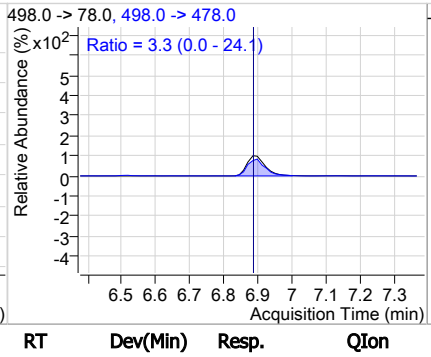


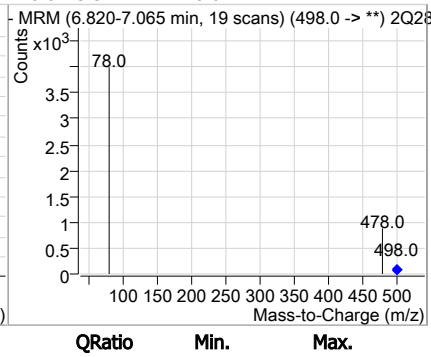




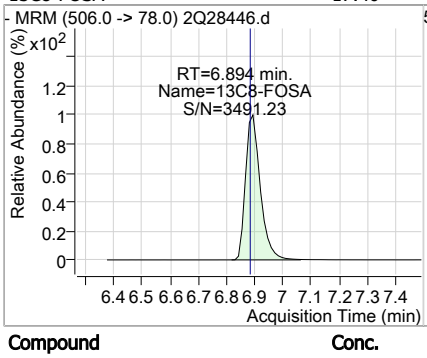
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.11	6.89	0.01	2581	498.0 -> 478.0	3.3	0.0	24.1

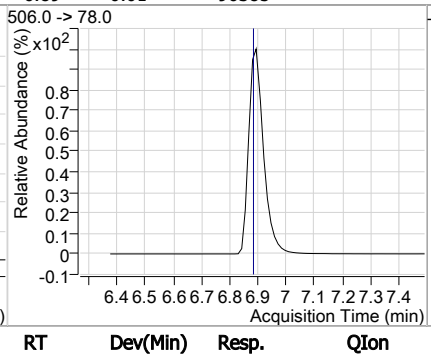


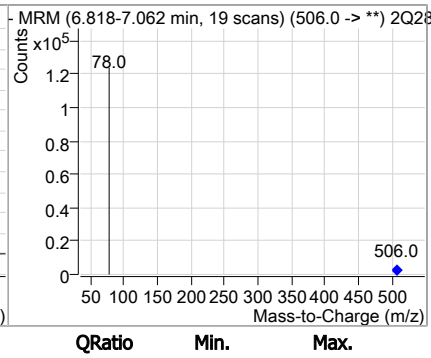




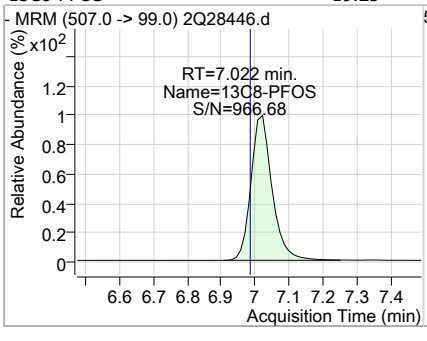
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	17.40	6.89	0.01	96385				

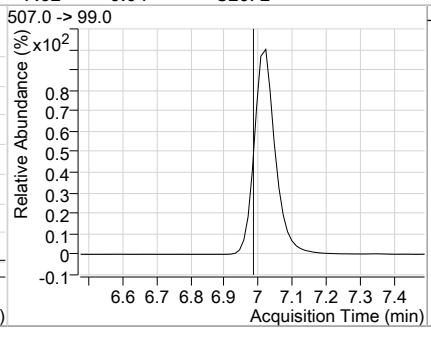


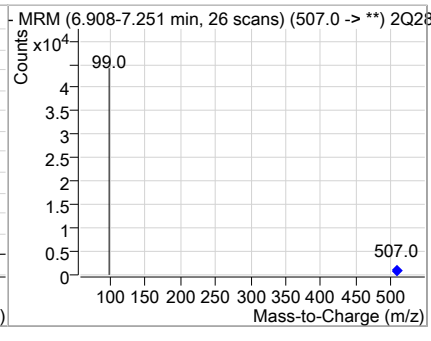




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.25	7.02	0.04	32672				







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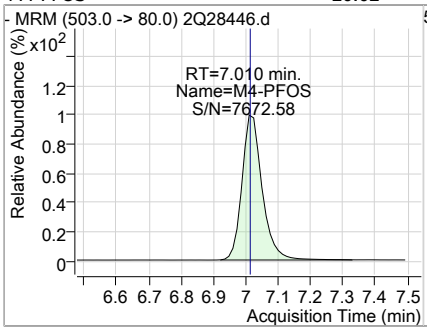
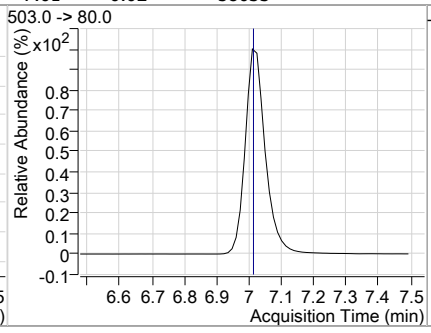
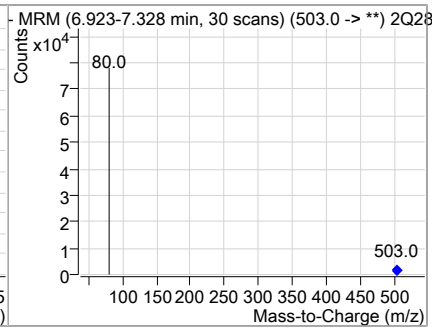
Perfluorinated Compounds by LC/MS/MS

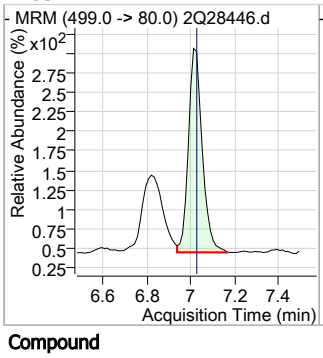
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.02	7.01	0.02	58033				

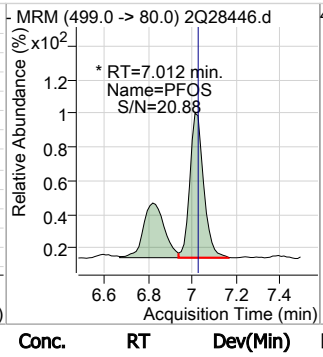


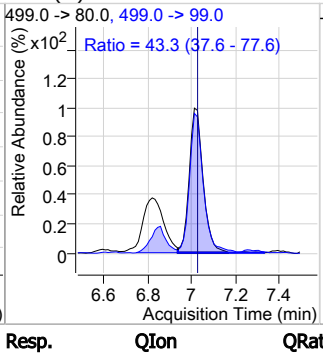


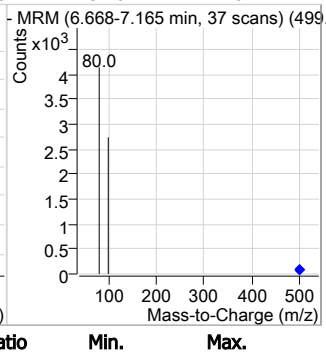


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.15	7.01	0.02	1819 (m)	499.0 -> 99.0	43.3	37.6	77.6

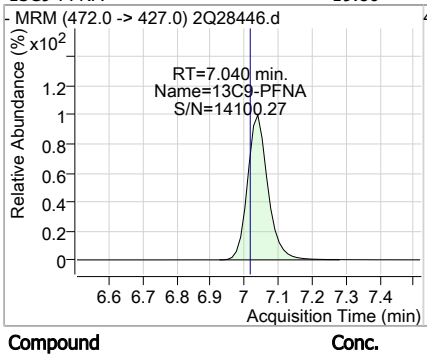


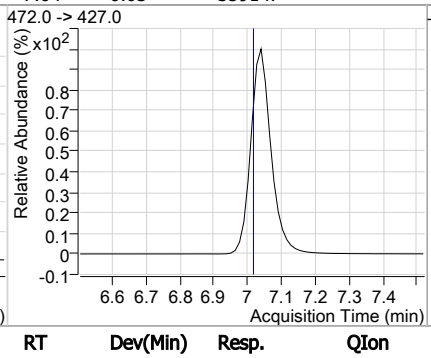


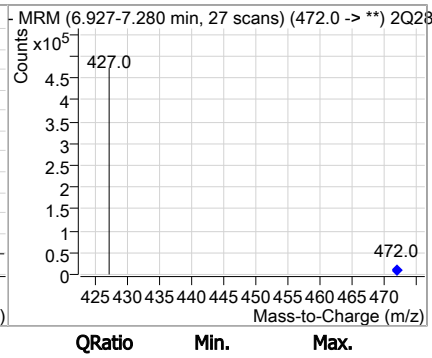




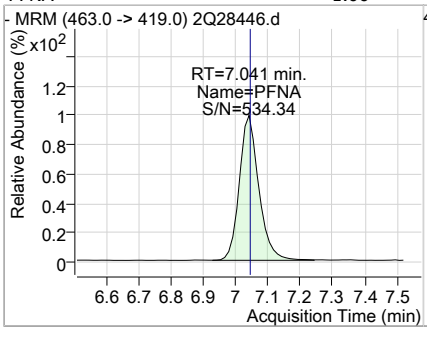
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	19.80	7.04	0.03	359147				

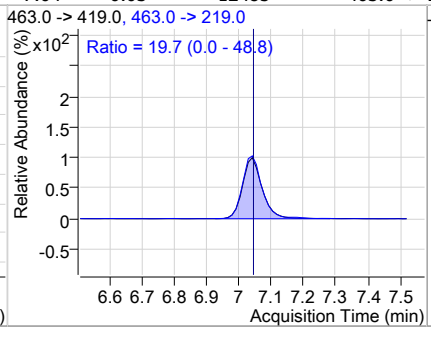


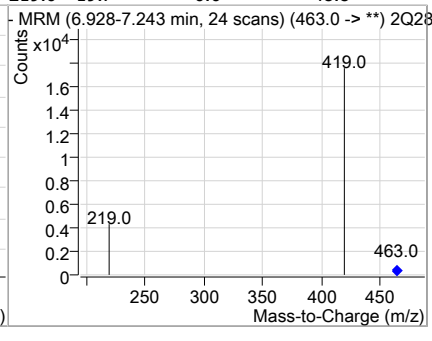




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.06	7.04	0.03	12485	463.0 -> 219.0	19.7	0.0	48.8







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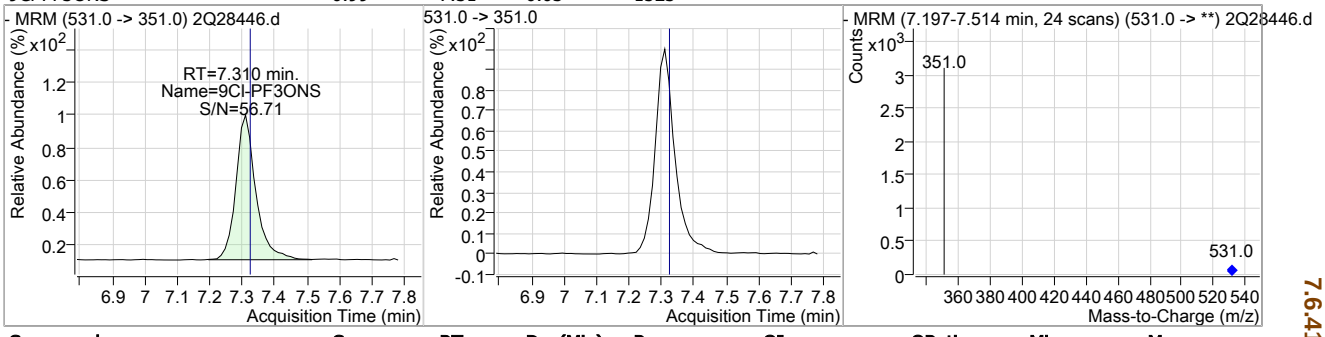
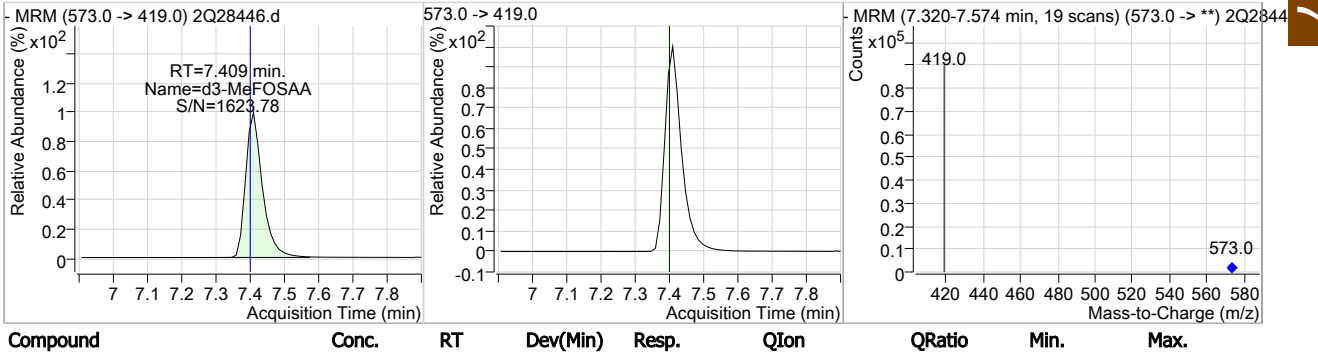
Perfluorinated Compounds by LC/MS/MS

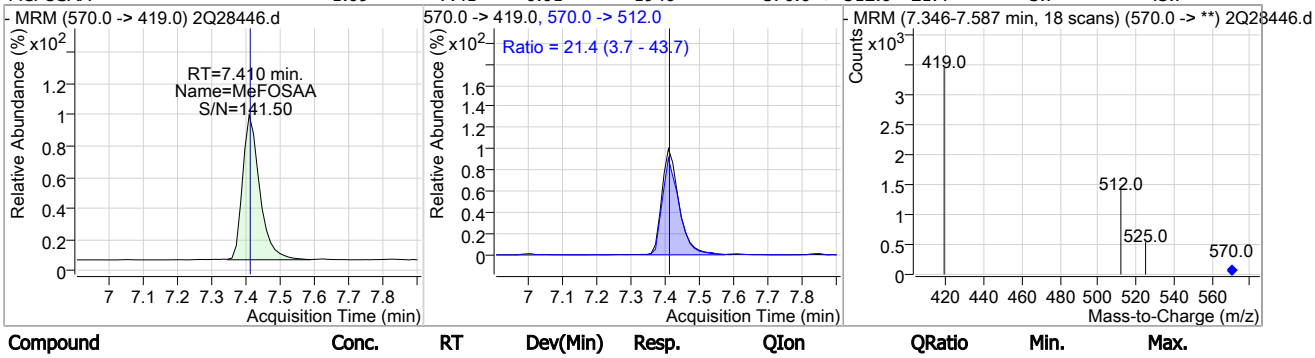
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	0.99	7.31	0.03	1523				



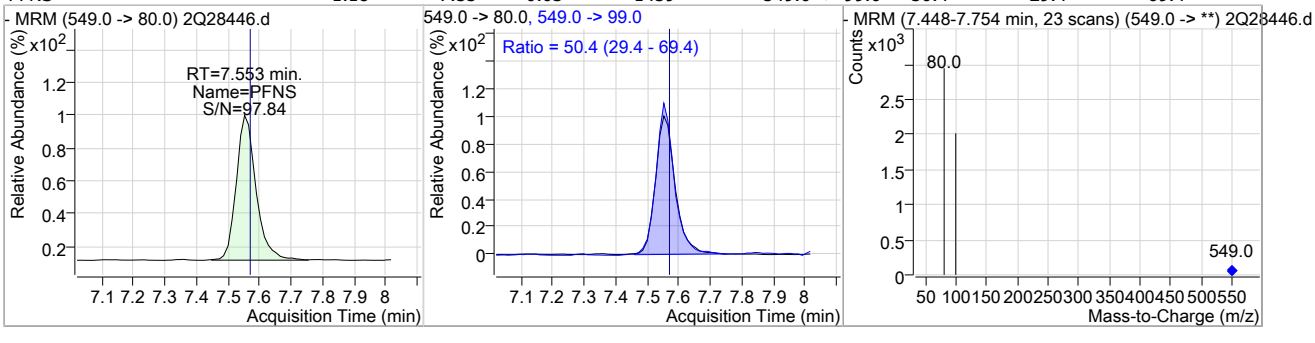
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	19.54	7.41	0.01	66731				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	1.09	7.41	0.01	1946	570.0 -> 512.0	21.4	3.7	43.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.18	7.55	0.03	1459	549.0 -> 99.0	50.4	29.4	69.4



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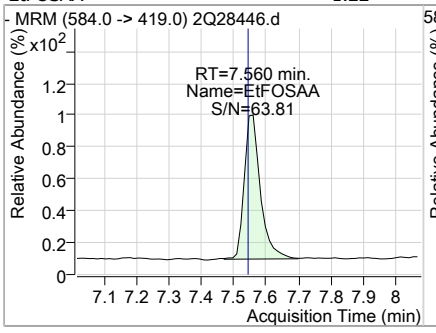
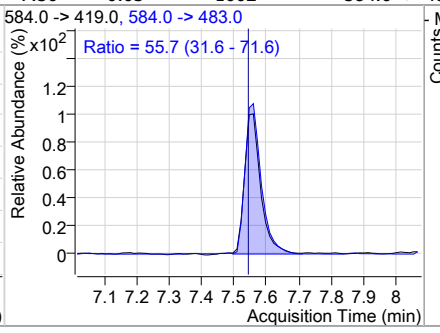
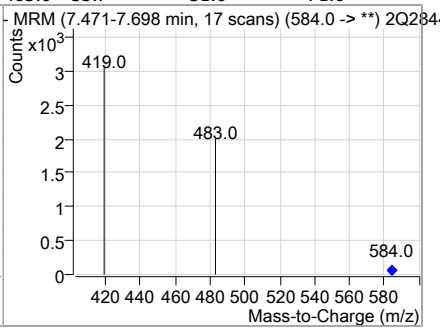
Perfluorinated Compounds by LC/MS/MS

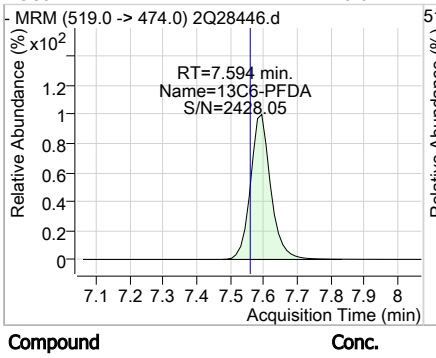
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.22	7.56	0.03	1602	584.0 -> 483.0	55.7	31.6	71.6

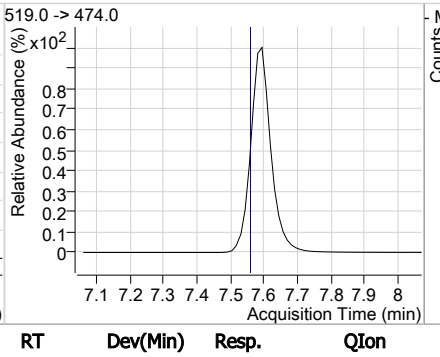


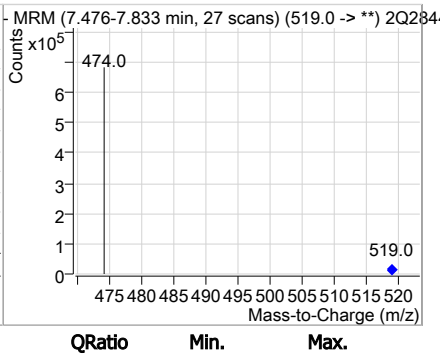




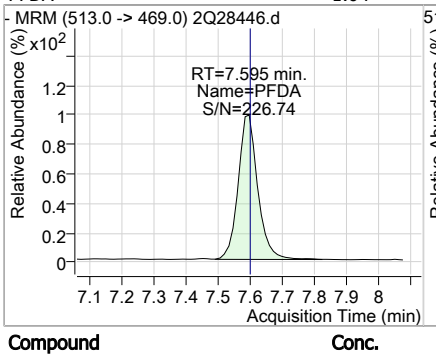
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.01	7.59	0.04	514757				

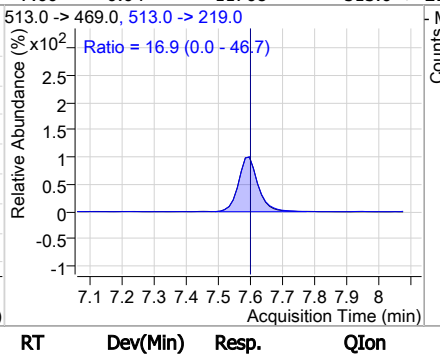


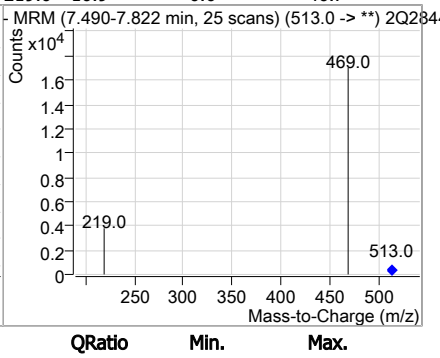




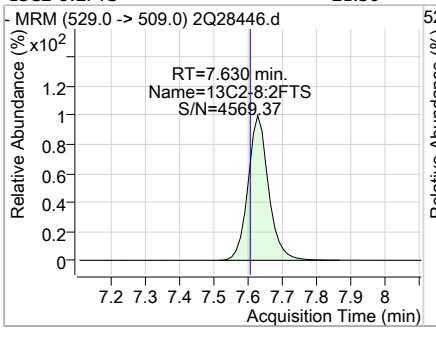
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.04	7.60	0.04	11768	513.0 -> 219.0	16.9	0.0	46.7

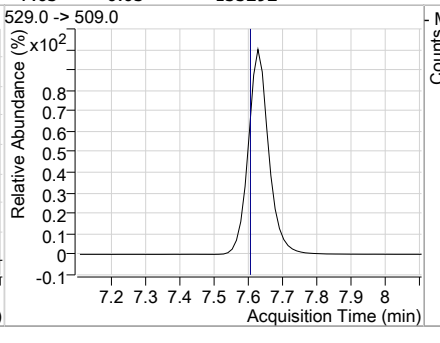


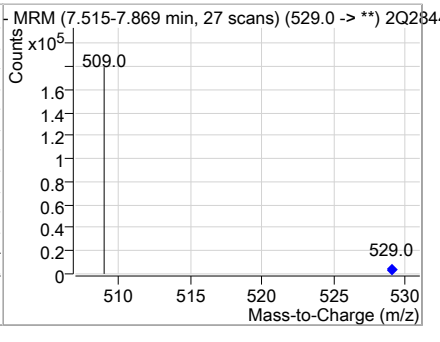




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	21.36	7.63	0.03	133292				







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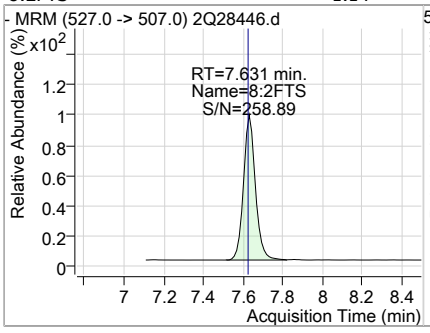
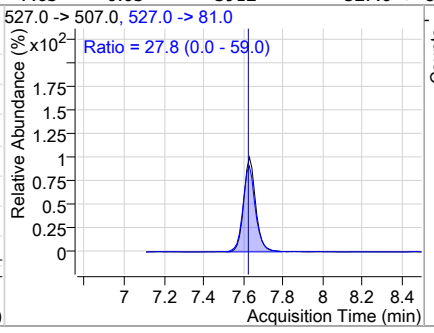
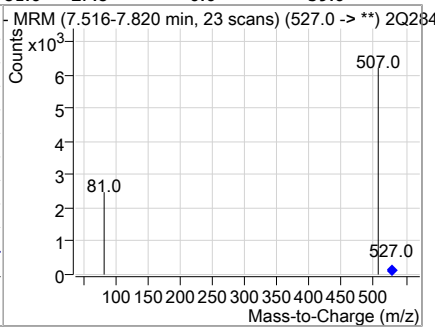
Perfluorinated Compounds by LC/MS/MS

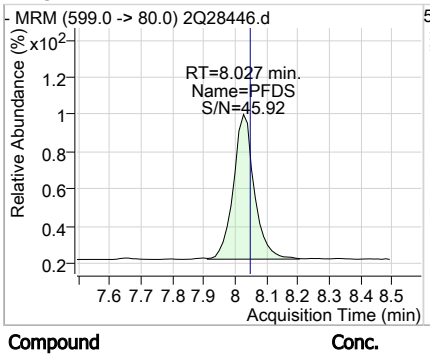
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	1.14	7.63	0.03	3912	527.0 -> 81.0	27.8	0.0	59.0

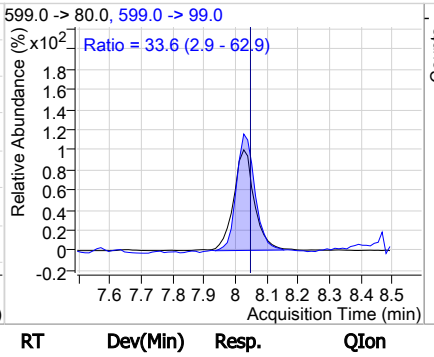


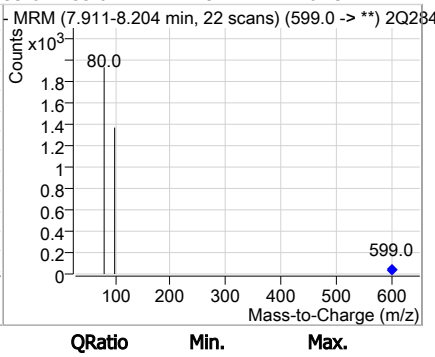




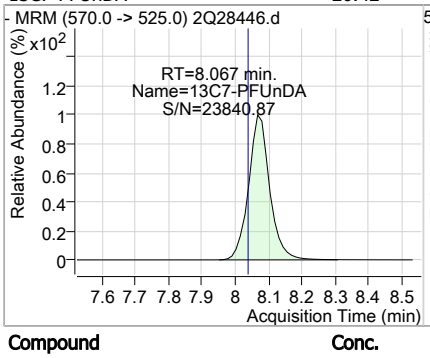
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.11	8.03	0.03	692	599.0 -> 99.0	33.6	2.9	62.9

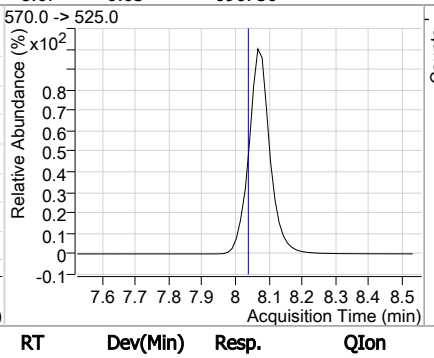


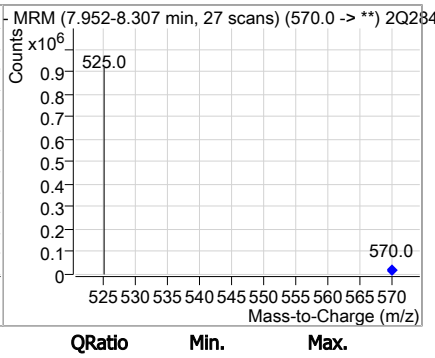




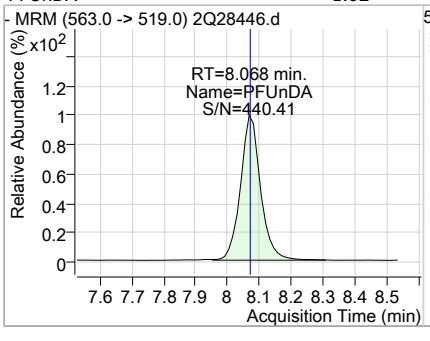
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	20.42	8.07	0.03	696750				

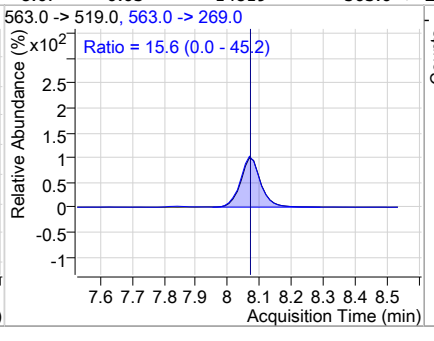


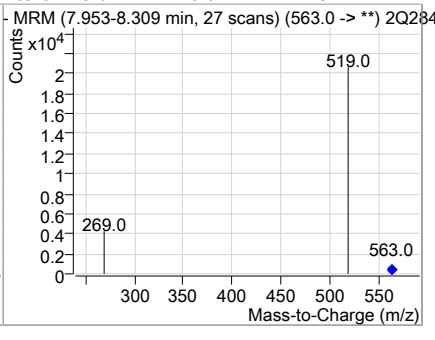




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	1.02	8.07	0.03	14819	563.0 -> 269.0	15.6	0.0	45.2







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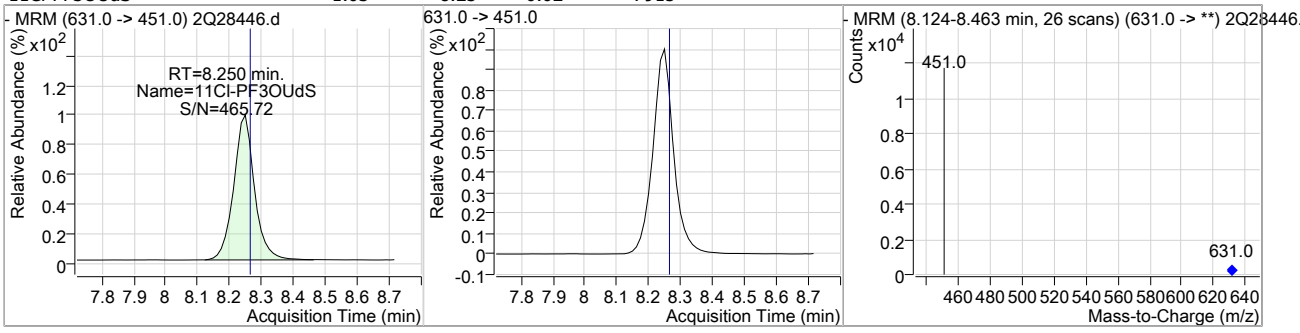
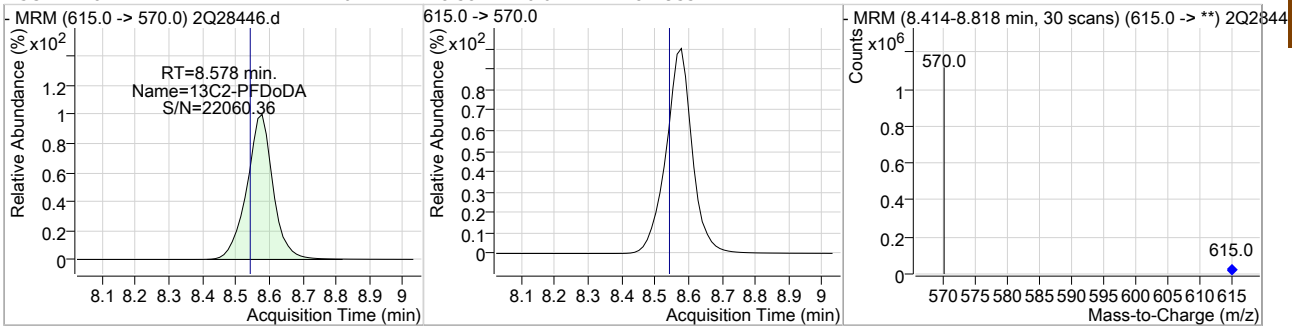
Perfluorinated Compounds by LC/MS/MS

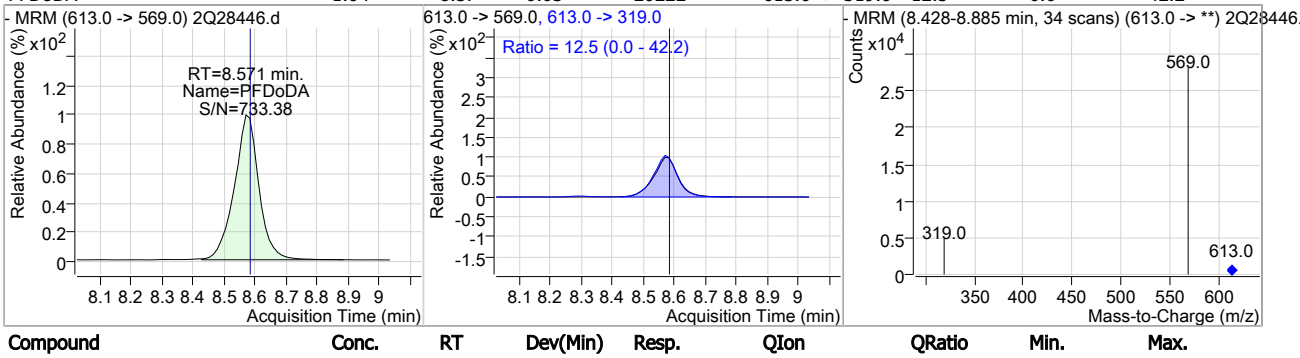
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.03	8.25	0.02	7915				



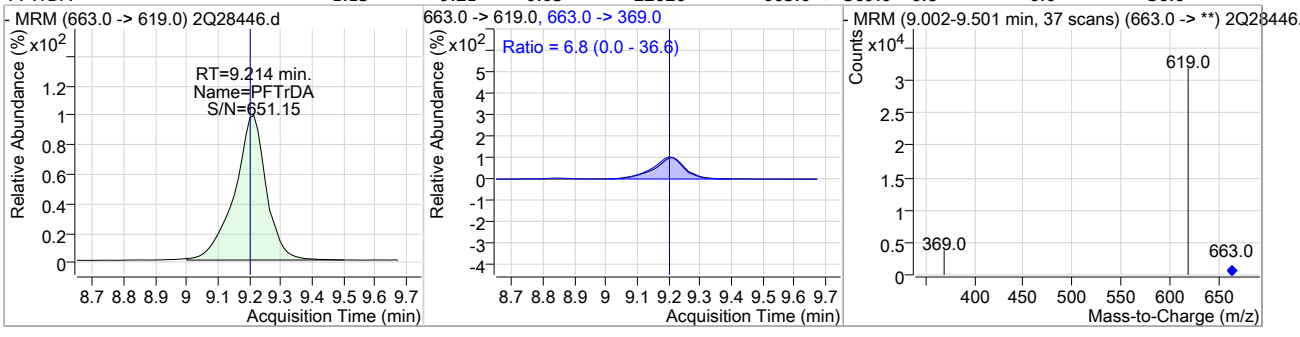
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	20.11	8.58	0.04	847955				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.04	8.57	0.03	20222	613.0 -> 319.0	12.5	0.0	42.2

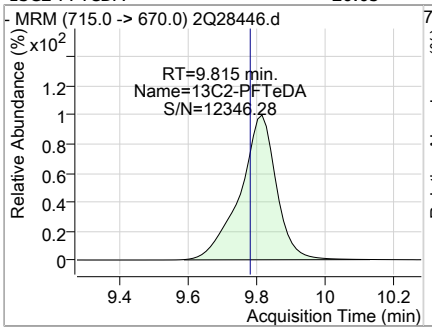


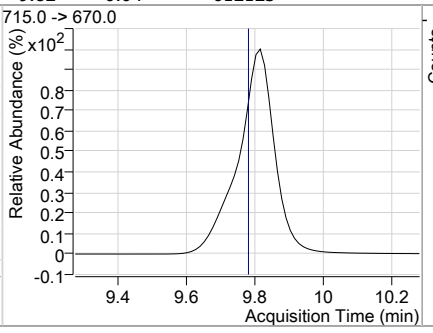
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	1.13	9.21	0.05	22620	663.0 -> 369.0	6.8	0.0	36.6

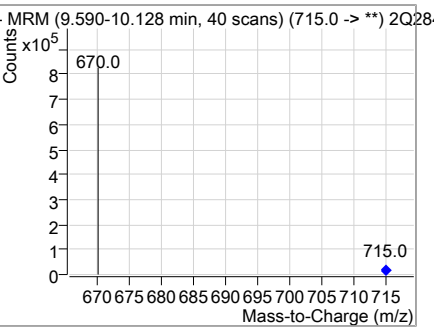


Perfluorinated Compounds by LC/MS/MS

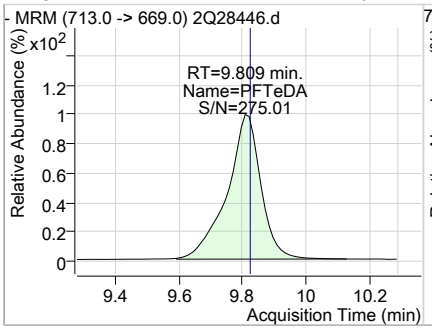
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	20.05	9.82	0.04	612123				

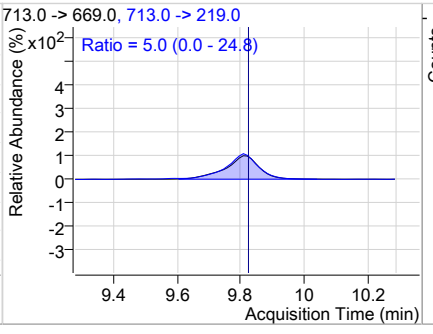


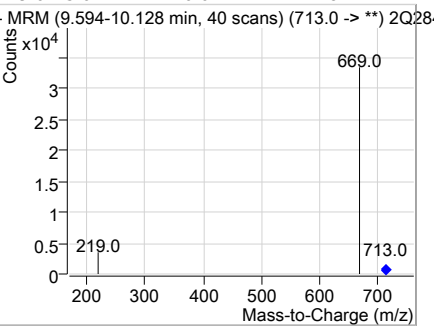




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.10	9.81	0.02	23249	713.0 -> 219.0	5.0	0.0	24.8







7.6.41

7

Manual Integration Approval Summary

Sample Number: S2Q452-CC450
Lab FileID: 2Q28446.D
Injection Time: 04/01/19 09:47
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/01/19 13:47 Natasha Gumtie
Supervisor approved: 04/01/19 16:00 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.71	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.01	Split peak

Cal Report: 2Q28447.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
04/01/19 16:00

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28447.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 4/1/2019 10:10:50 AM
Sample Name : cc450-20
Vial : Vial 7
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q452.batch.bin
Sample Information : op74313,S2Q452,250,,,1.0,1,water

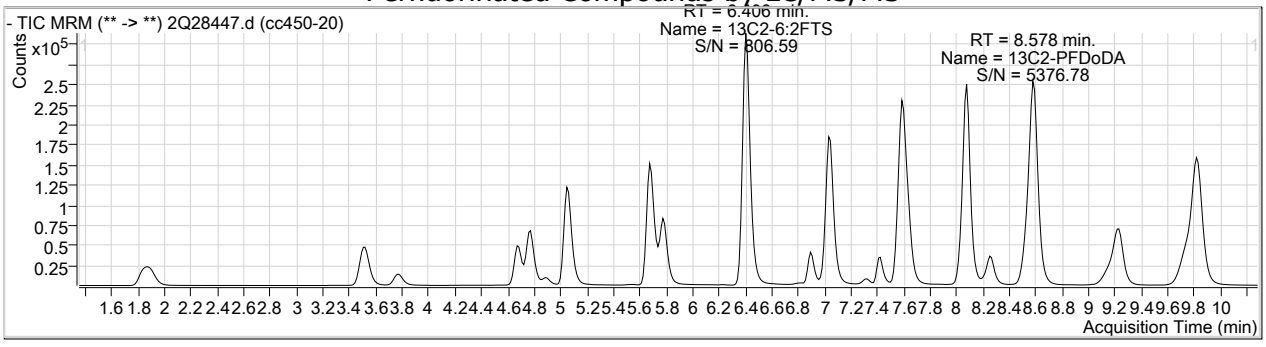
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.410	415.0 -> 370.0	448279	20.00	µg/L	0.039
13C4-PFOS	7.024	503.0 -> 80.0	62371	20.00	µg/L	0.039
M4-PFBA	1.865	217.0 -> 172.0	147245	20.00	µg/L	0.013
M5-PFPeA	3.524	268.0 -> 223.0	131428	20.00	µg/L	0.025
M5-PFHxA	4.776	318.0 -> 273.0	200274	20.00	µg/L	0.038
M4-PFHpA	5.680	367.0 -> 322.0	310903	20.00	µg/L	0.026
M8-PFOA	6.409	421.0 -> 376.0	327598	20.00	µg/L	0.039
M9-PFNA	7.053	472.0 -> 427.0	373691	20.00	µg/L	0.038
M6-PFDA	7.594	519.0 -> 474.0	539673	20.00	µg/L	0.038
M7-PFUnDA	8.080	570.0 -> 525.0	732773	20.00	µg/L	0.038
M2-PFDoDA	8.578	615.0 -> 570.0	922101	20.00	µg/L	0.039
M2-PFTeDA	9.815	715.0 -> 670.0	669634	20.00	µg/L	0.037
M8-FOSA	6.894	506.0 -> 78.0	97616	20.00	µg/L	0.013
M3-PFBS	3.767	302.0 -> 99.0	21720	20.00	µg/L	0.025
M3-PFHxS	5.723	402.0 -> 99.0	24994	20.00	µg/L	0.038
M8-PFOS	7.022	507.0 -> 99.0	33843	20.00	µg/L	0.039
M2-4:2FTS	4.671	329.0 -> 309.0	115503	20.00	µg/L	0.025
M2-6:2FTS	6.406	429.0 -> 409.0	160916	20.00	µg/L	0.040
M2-8:2FTS	7.642	529.0 -> 509.0	148794	20.00	µg/L	0.038
M3-MeFOSAA	7.409	573.0 -> 419.0	71893	20.00	µg/L	0.013
M3-HFPO-DA	5.056	287.0 -> 169.0	202795	100.00	µg/L	0.038
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	115609	21.82	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.1%		
13C2-6:2FTS	6.406	429.0 -> 409.0	160754	23.00	µg/L	0.040
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 115.0%		
13C2-8:2FTS	7.642	529.0 -> 509.0	148615	23.82	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.1%		
13C2-PFDoDA	8.578	615.0 -> 570.0	922259	21.88	µg/L	0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.4%		
13C2-PFTeDA	9.815	715.0 -> 670.0	670489	21.96	µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.8%		
13C3-PFBS	3.767	302.0 -> 99.0	21686	19.70	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.5%		
13C3-PFHxS	5.723	402.0 -> 99.0	24980	20.18	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C4-PFBA	1.865	217.0 -> 172.0	146395	19.59	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.0%		
13C4-PFHpA	5.680	367.0 -> 322.0	310547	20.18	µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C5-PFHxA	4.776	318.0 -> 273.0	199884	19.70	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 98.5%		
13C5-PFPeA	3.524	268.0 -> 223.0	131537	19.53	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 97.6%		
13C6-PFDA	7.594	519.0 -> 474.0	539863	20.98	µg/L	0.038

Perfluorinated Compounds by LC/MS/MS

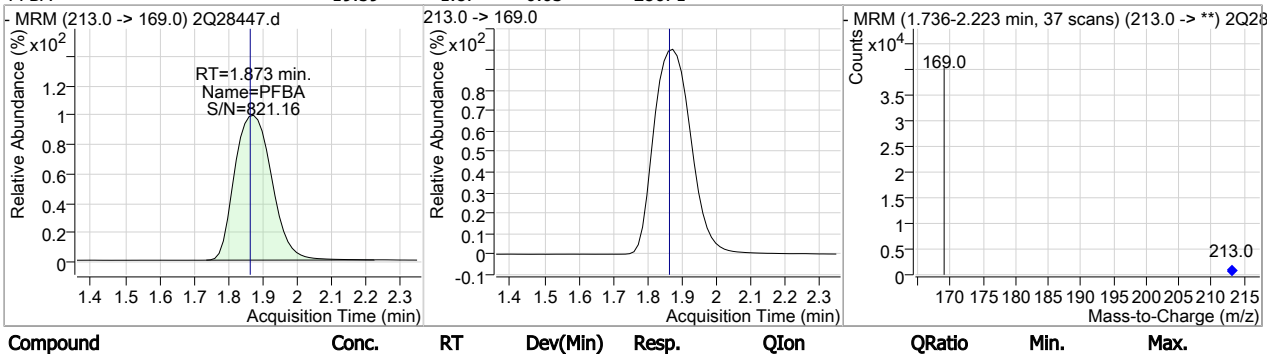
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.9%		
13C7-PFUnDA	8.080	570.0 -> 525.0	732721	21.48 µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.4%		
13C8-FOSA	6.894	506.0 -> 78.0	97613	17.62 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 88.1%		
13C8-PFOA	6.409	421.0 -> 376.0	327272	20.20 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C8-PFOS	7.022	507.0 -> 99.0	33826	19.93 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C9-PFNA	7.053	472.0 -> 427.0	373261	20.58 µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
d3-MeFOSAA	7.409	573.0 -> 419.0	72002	21.09 µg/L		0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.4%		
M2-PFOA	6.410	415.0 -> 370.0	448528	20.00 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.024	503.0 -> 80.0	62423	20.01 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	202795	104.94 µg/L		0.038
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 104.9%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	66396	19.81 µg/L		97
6:2FTS	6.407	427.0 -> 407.0	80656	19.82 µg/L		100
8:2FTS	7.643	527.0 -> 507.0	77726	20.21 µg/L		99
EtFOSAA	7.560	584.0 -> 419.0	32190	22.78 µg/L		99
FOSA	6.898	498.0 -> 78.0	46826	19.91 µg/L		99
MeFOSAA	7.422	570.0 -> 419.0	38315	19.97 µg/L		97
PFBA	1.873	213.0 -> 169.0	28671	19.59 µg/L		100
PFBS	3.771	299.0 -> 80.0	35116	19.90 µg/L		99
PFDA	7.595	513.0 -> 469.0	235424	19.90 µg/L		99
PFDoDA	8.583	613.0 -> 569.0	415950	19.57 µg/L		100
PFDS	8.039	599.0 -> 80.0	13723	21.21 µg/L		99
PFHpA	5.683	363.0 -> 319.0	271728	19.94 µg/L		100
PFHpS	6.417	449.0 -> 80.0	26195	20.33 µg/L		99
PFHxA	4.778	313.0 -> 269.0	70315	20.08 µg/L		100
PFHxS	5.726	399.0 -> 80.0	28820	19.44 µg/L	m	99
PFNA	7.054	463.0 -> 419.0	252056	20.51 µg/L		99
PFNS	7.565	549.0 -> 80.0	26708	20.87 µg/L		99
PFOA	6.412	413.0 -> 369.0	175106	19.94 µg/L		99
PFOS	7.025	499.0 -> 80.0	32621	19.85 µg/L	m	82
PFPeA	3.515	263.0 -> 219.0	118159	20.25 µg/L		100
PFPeS	4.883	349.0 -> 80.0	24713	20.03 µg/L		98
PFTeDA	9.822	713.0 -> 669.0	469259	20.36 µg/L		100
PFTrDA	9.227	663.0 -> 619.0	463657	21.27 µg/L		100
PFUnDA	8.082	563.0 -> 519.0	298665	19.62 µg/L		100
11Cl-PF3OUdS	8.250	631.0 -> 451.0	159426	19.14 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	28074	17.46 µg/L		100
ADONA	5.779	377.0 -> 251.0	306028	18.89 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	257795	106.09 µg/L		98

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

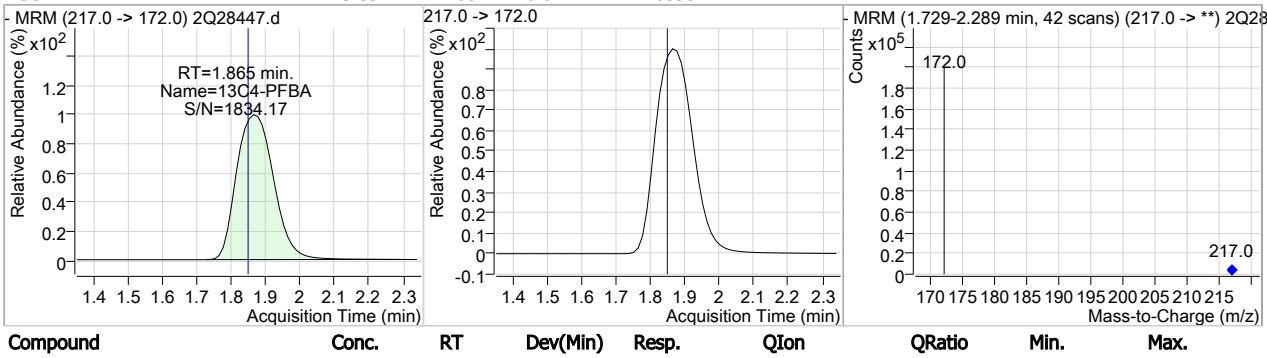
Perfluorinated Compounds by LC/MS/MS



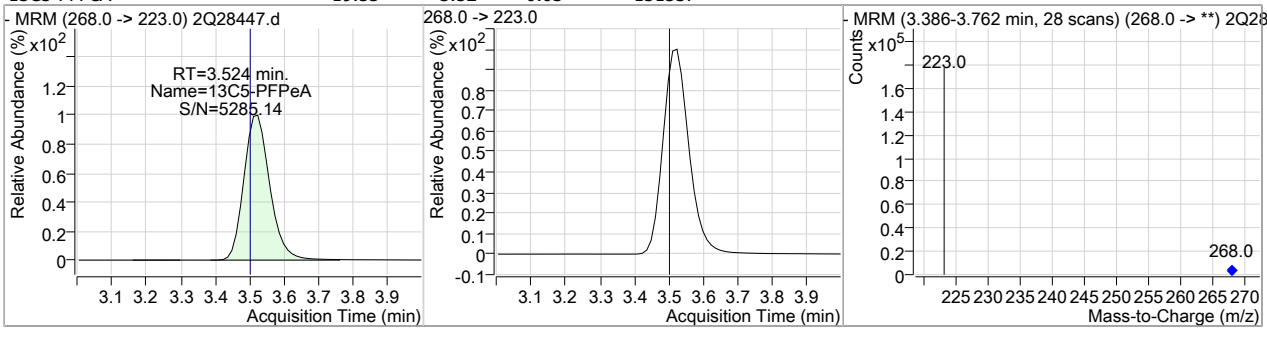
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.59	1.87	0.03	28671				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	19.59	1.86	0.01	146395				

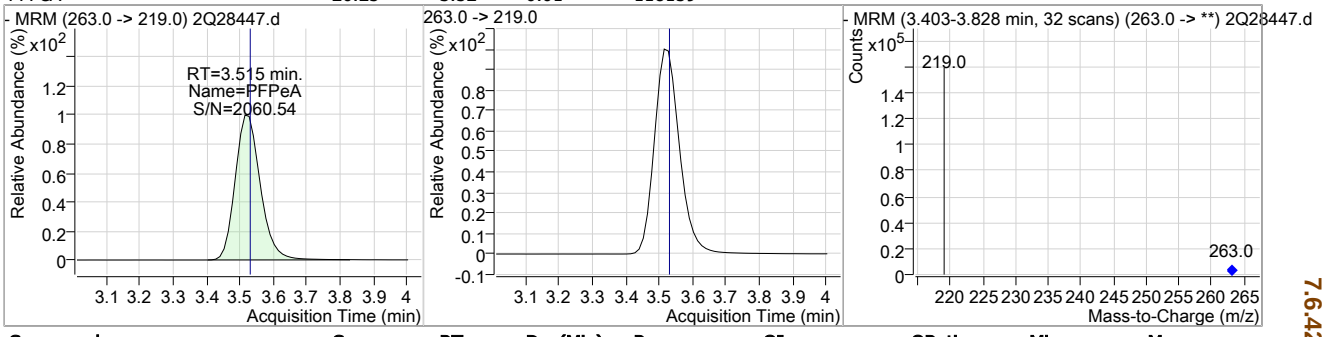


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	19.53	3.52	0.03	131537				

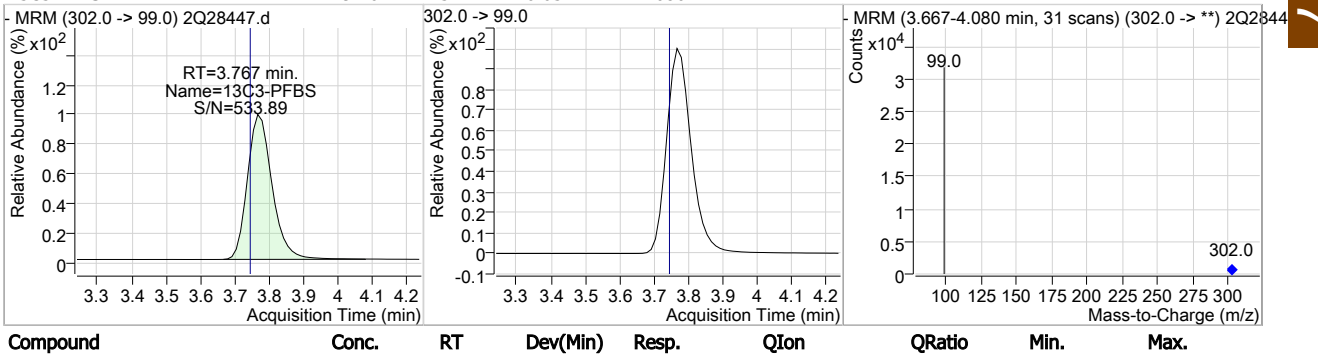


Perfluorinated Compounds by LC/MS/MS

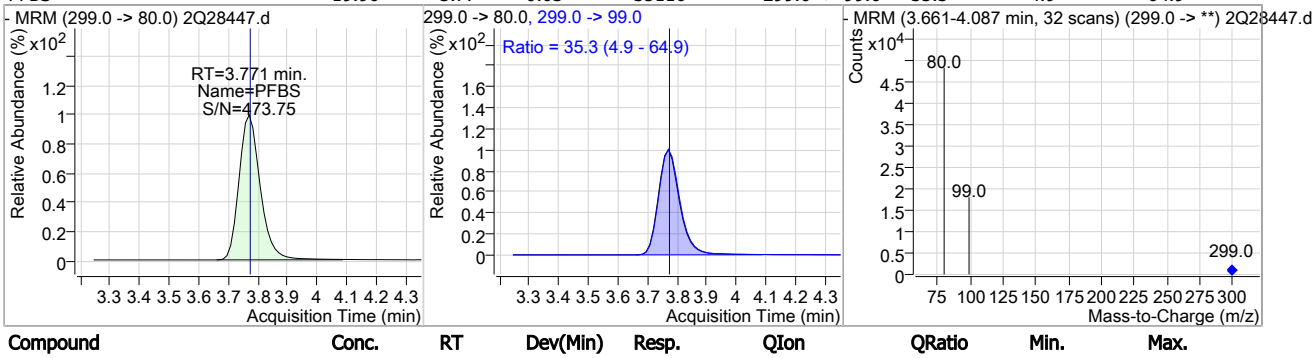
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.25	3.52	0.01	118159				



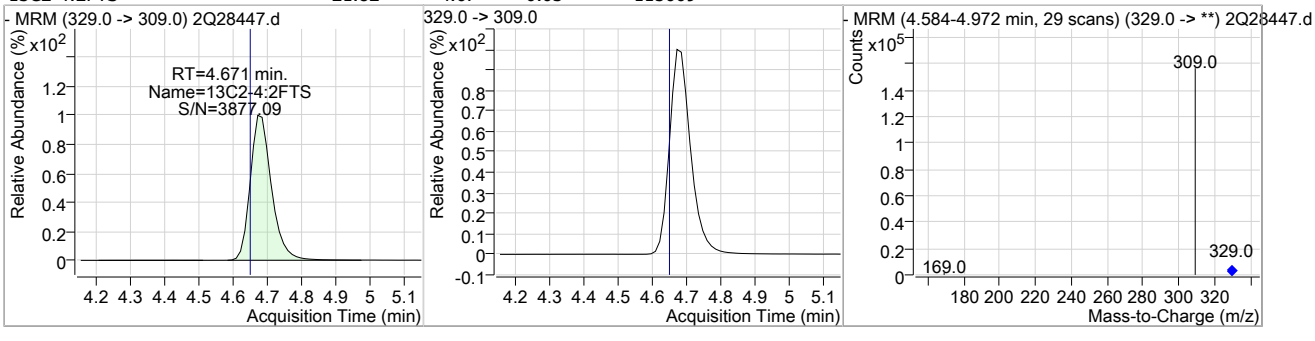
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.70	3.77	0.03	21686				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.90	3.77	0.03	35116	299.0 -> 99.0	35.3	4.9	64.9

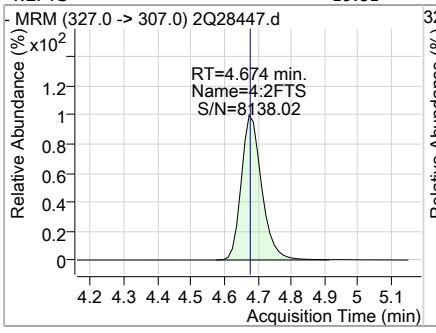


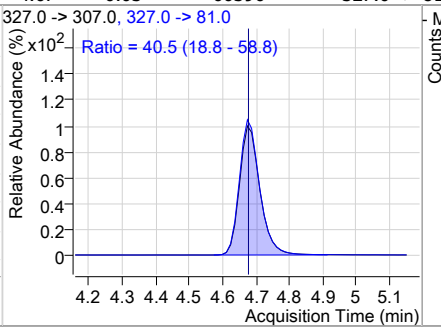
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	21.82	4.67	0.03	115609				

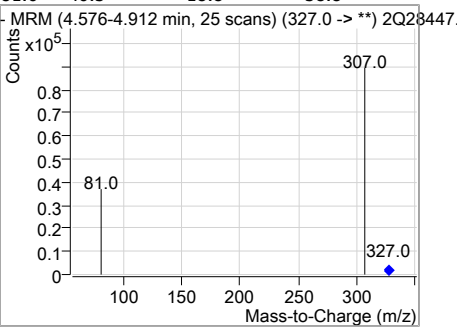


Perfluorinated Compounds by LC/MS/MS

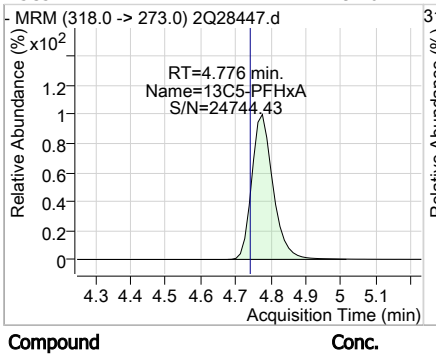
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.81	4.67	0.03	66396	327.0 -> 81.0	40.5	18.8	58.8

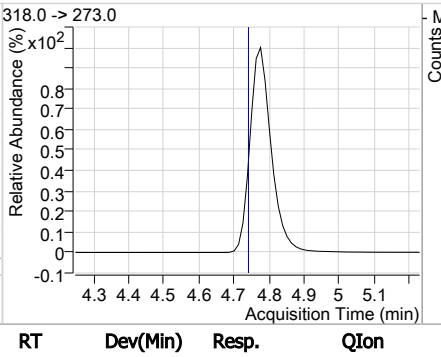


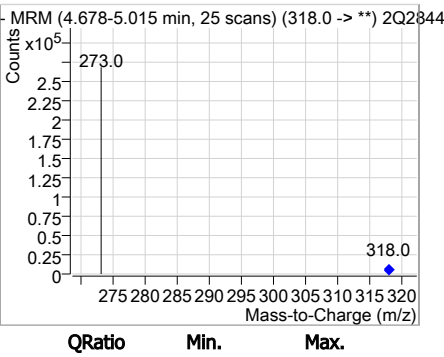




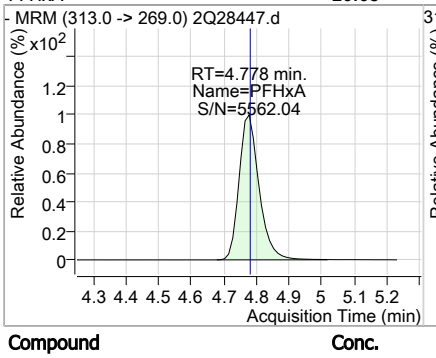
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	19.70	4.78	0.04	199884				

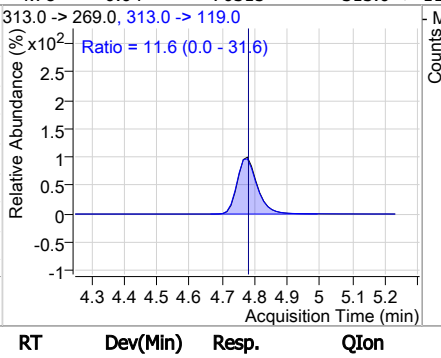


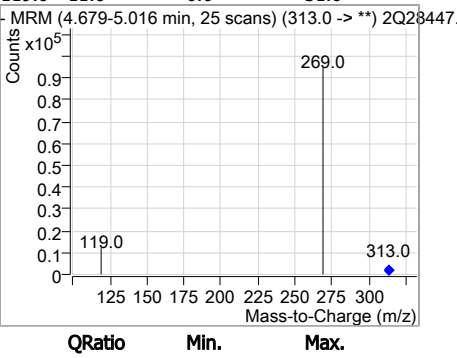




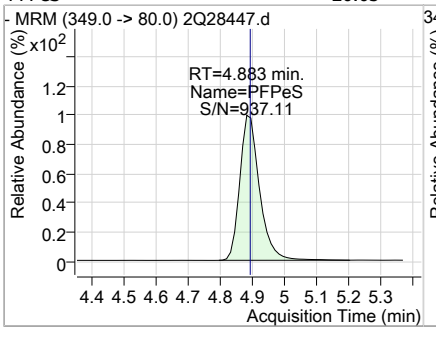
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	20.08	4.78	0.04	70315	313.0 -> 119.0	11.6	0.0	31.6

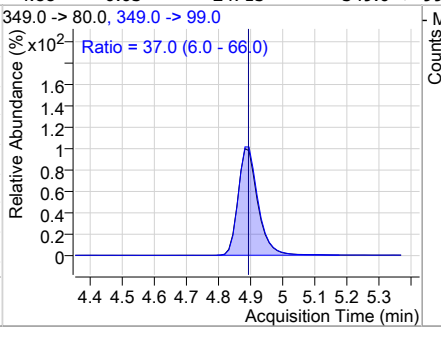


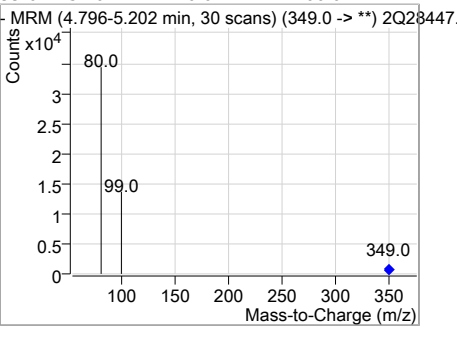




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.03	4.88	0.03	24713	349.0 -> 99.0	37.0	6.0	66.0



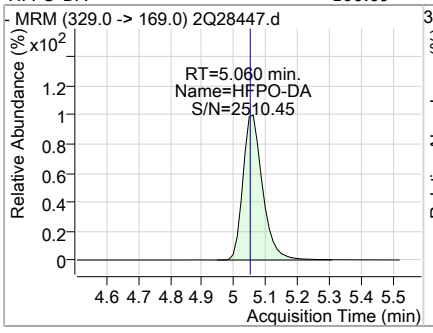


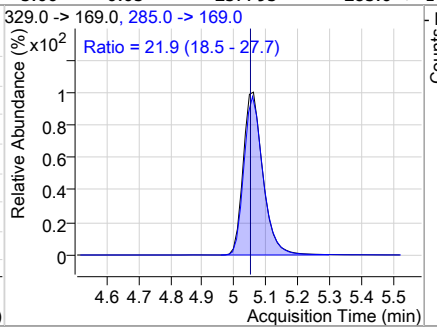


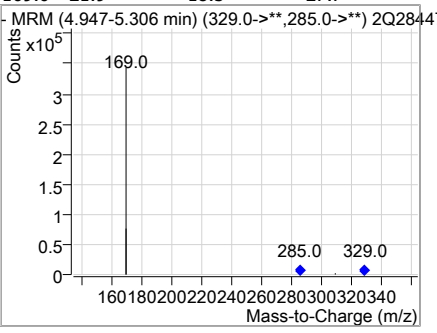
7.6.42

Perfluorinated Compounds by LC/MS/MS

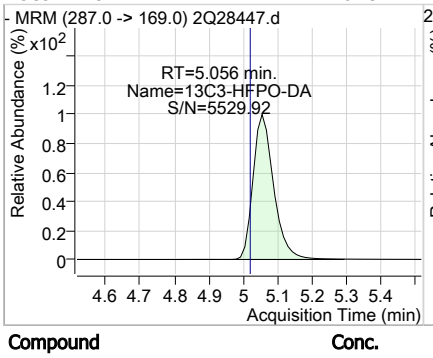
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	106.09	5.06	0.05	257795	285.0 -> 169.0	21.9	18.5	27.7

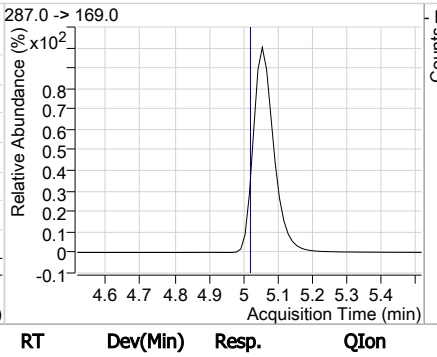


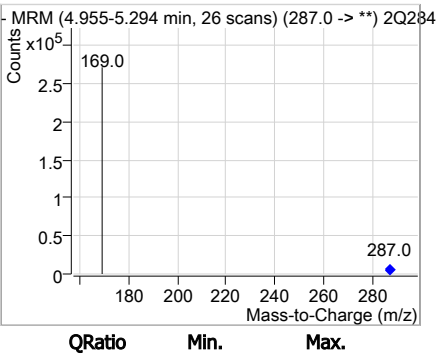




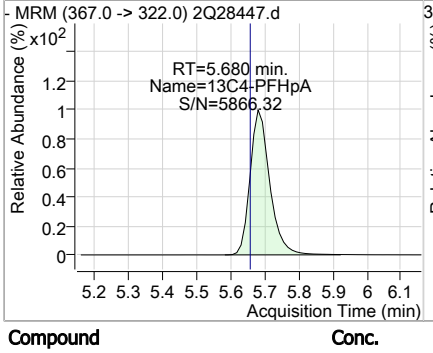
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	104.94	5.06	0.04	202795				

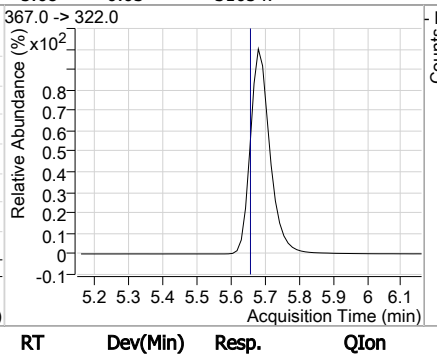


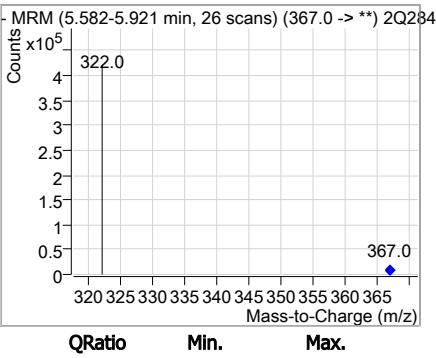




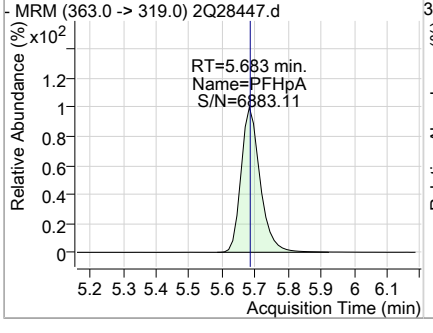
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.18	5.68	0.03	310547				

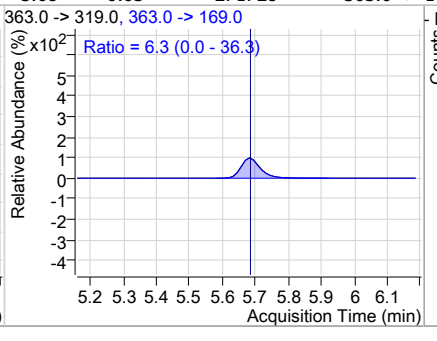


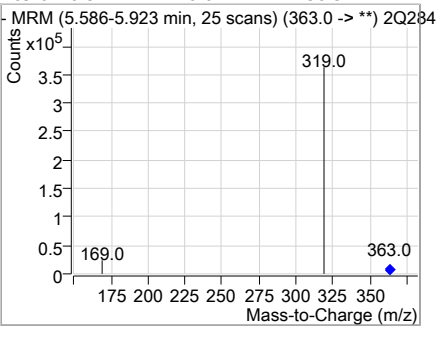




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.94	5.68	0.03	271728	363.0 -> 169.0	6.3	0.0	36.3



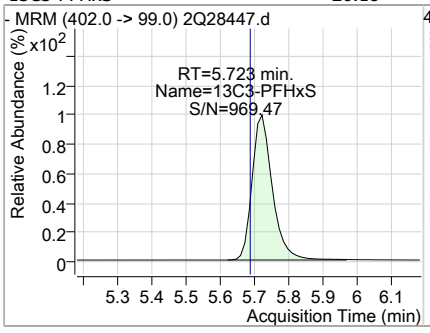


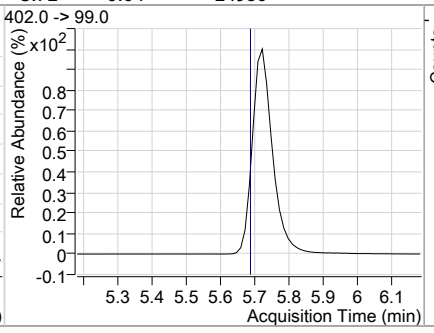


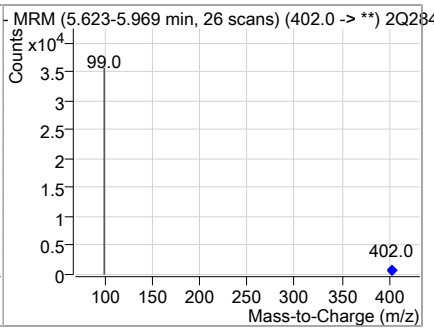
7.6.42

Perfluorinated Compounds by LC/MS/MS

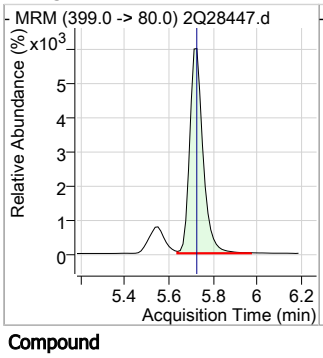
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.18	5.72	0.04	24980				

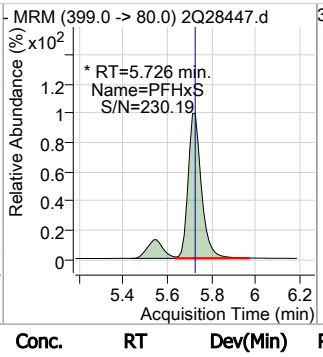


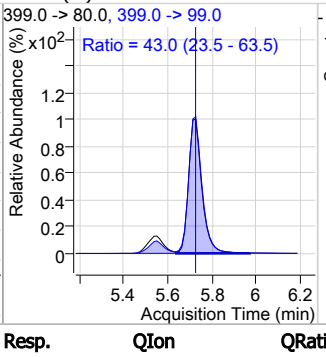


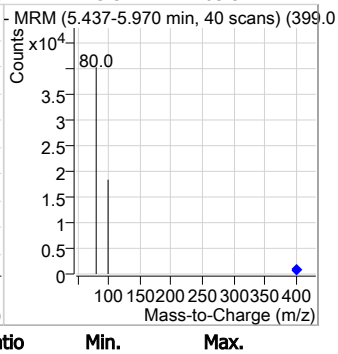


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.44	5.73	0.04	28820 (m)	399.0 -> 99.0	43.0	23.5	63.5

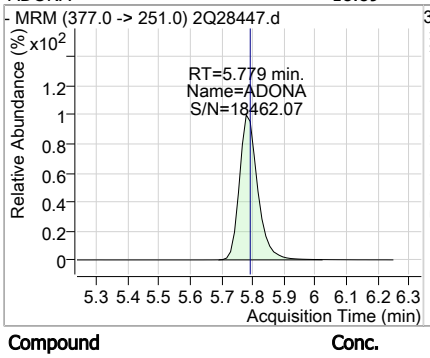


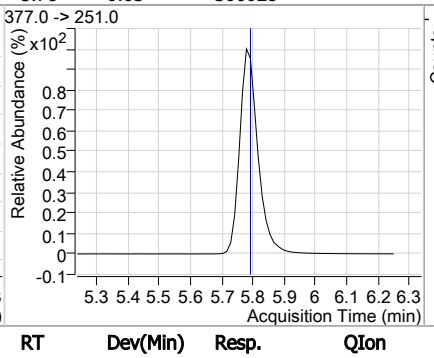


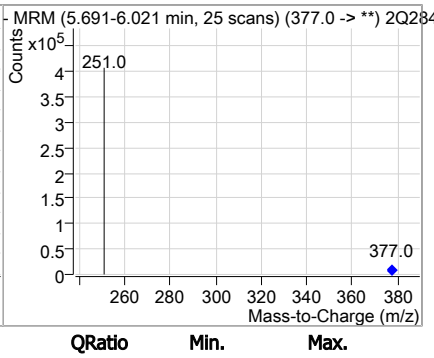




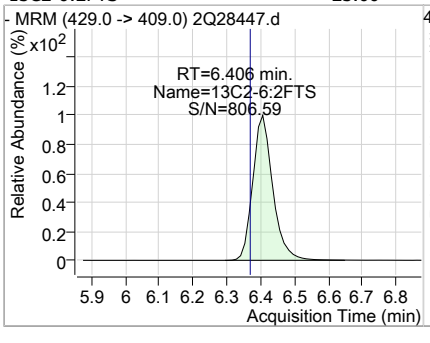
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.89	5.78	0.03	306028				

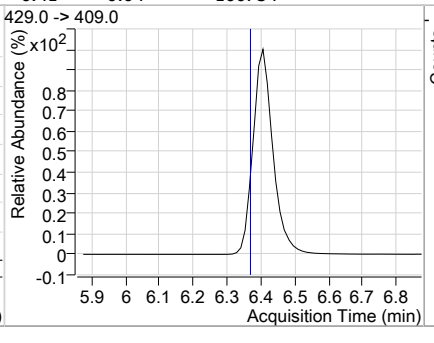


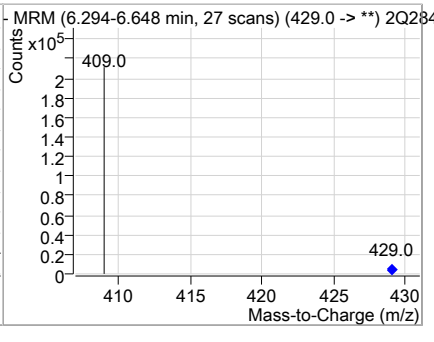




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	23.00	6.41	0.04	160754				



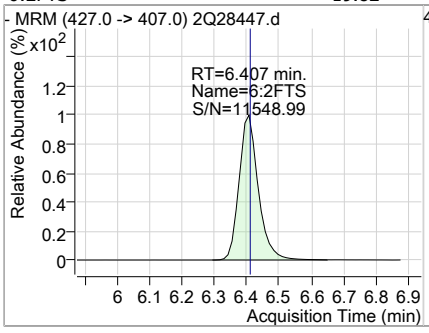


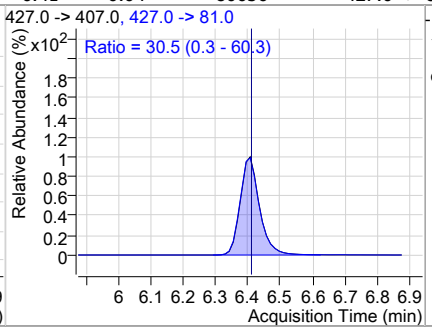


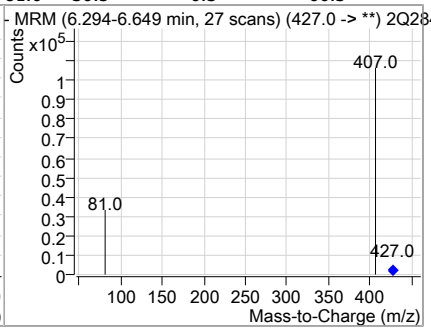
7.6.42

Perfluorinated Compounds by LC/MS/MS

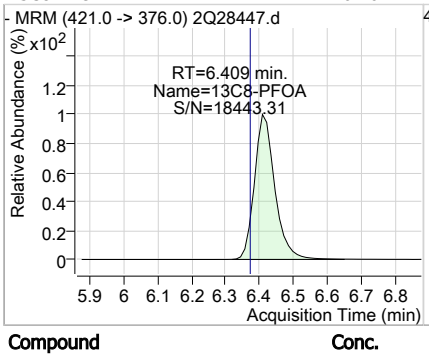
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.82	6.41	0.04	80656	427.0 -> 81.0	30.5	0.3	60.3

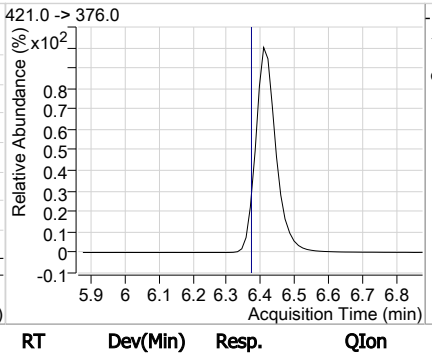


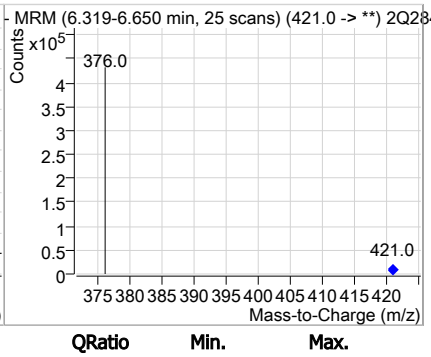




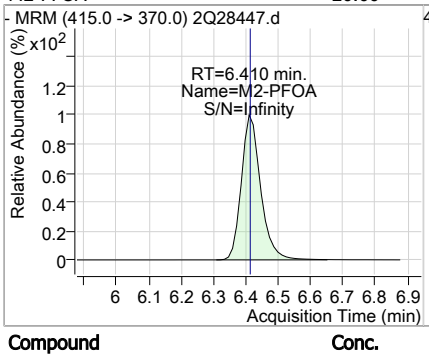
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.20	6.41	0.04	327272				

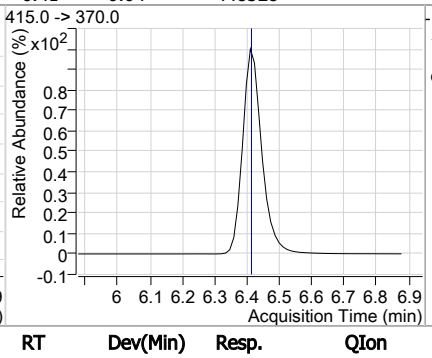


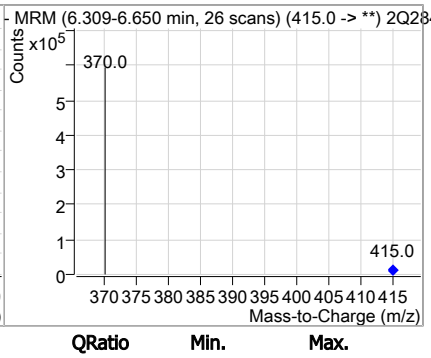




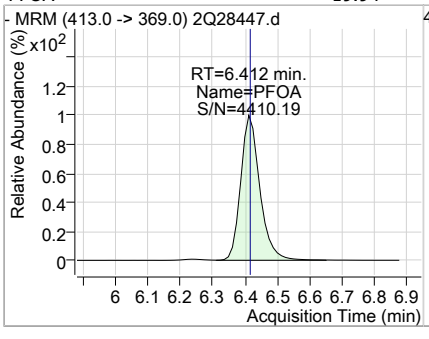
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.00	6.41	0.04	448528				

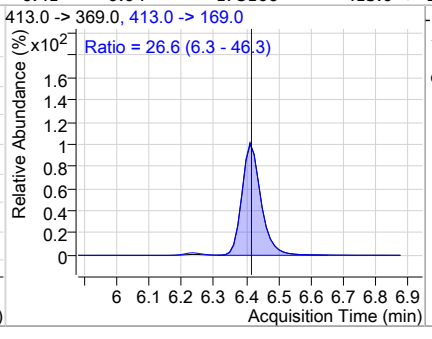


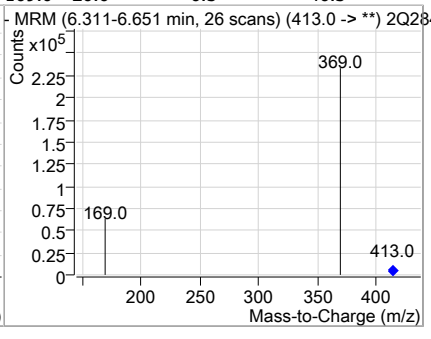




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.94	6.41	0.04	175106	413.0 -> 169.0	26.6	6.3	46.3

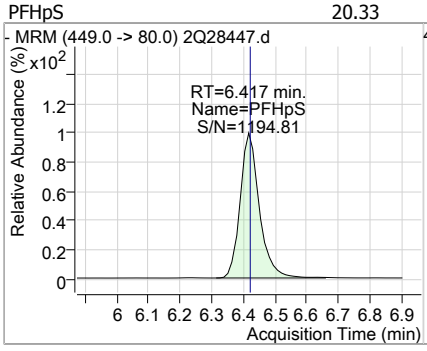


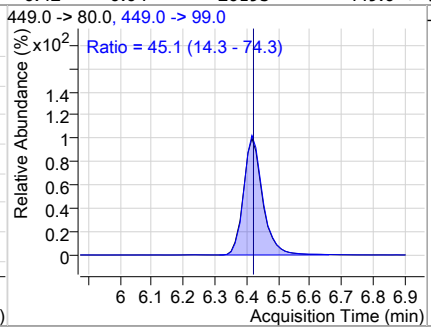


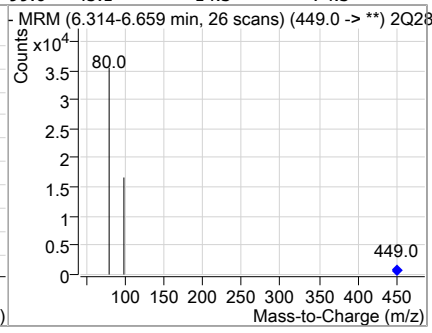


Perfluorinated Compounds by LC/MS/MS

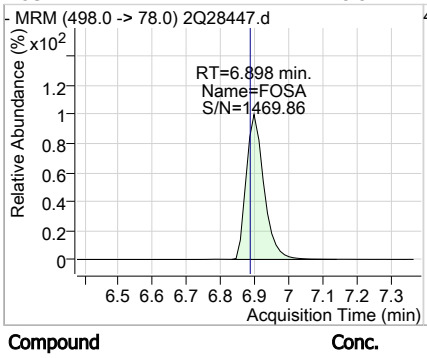
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.33	6.42	0.04	26195	449.0 -> 99.0	45.1	14.3	74.3

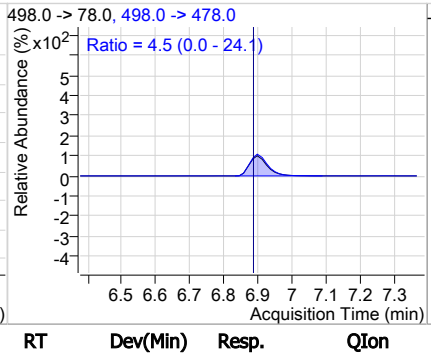


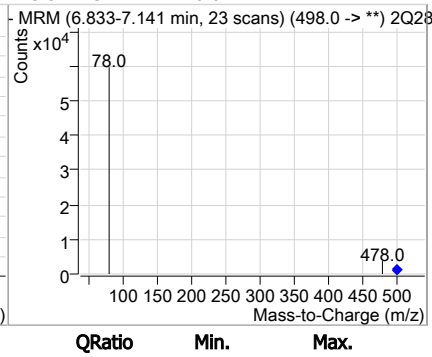




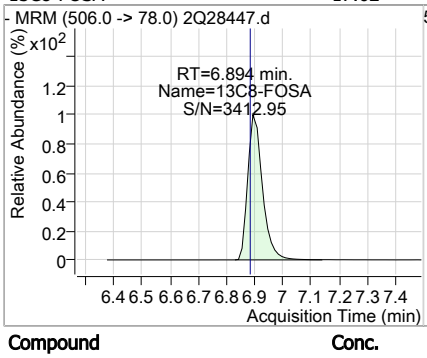
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.91	6.90	0.03	46826	498.0 -> 478.0	4.5	0.0	24.1

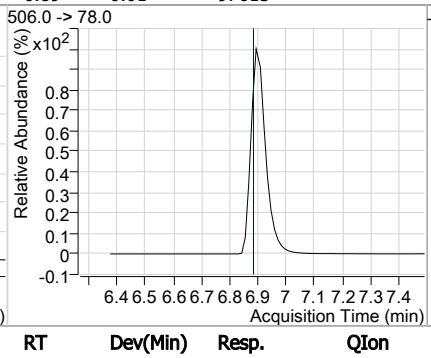


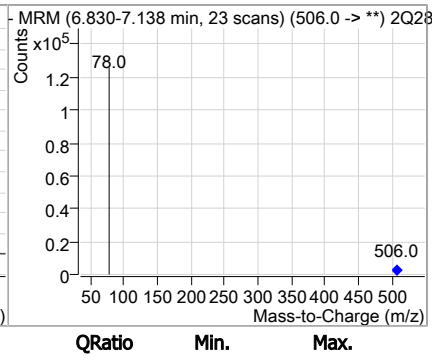




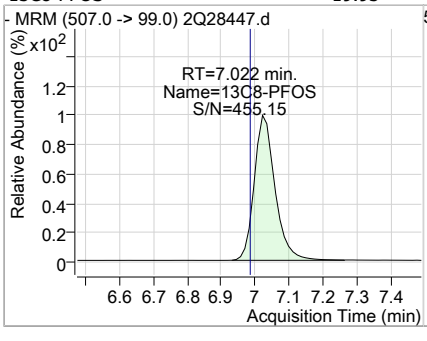
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	17.62	6.89	0.01	97613				

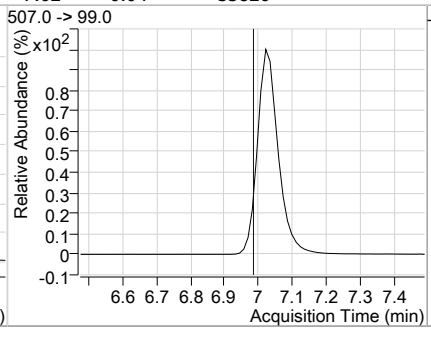


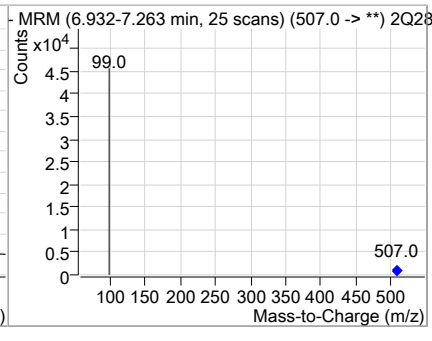




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	19.93	7.02	0.04	33826				







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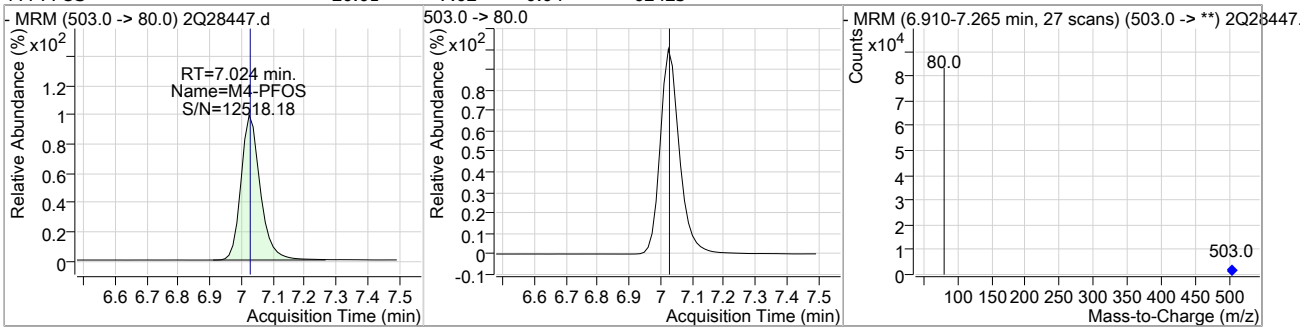
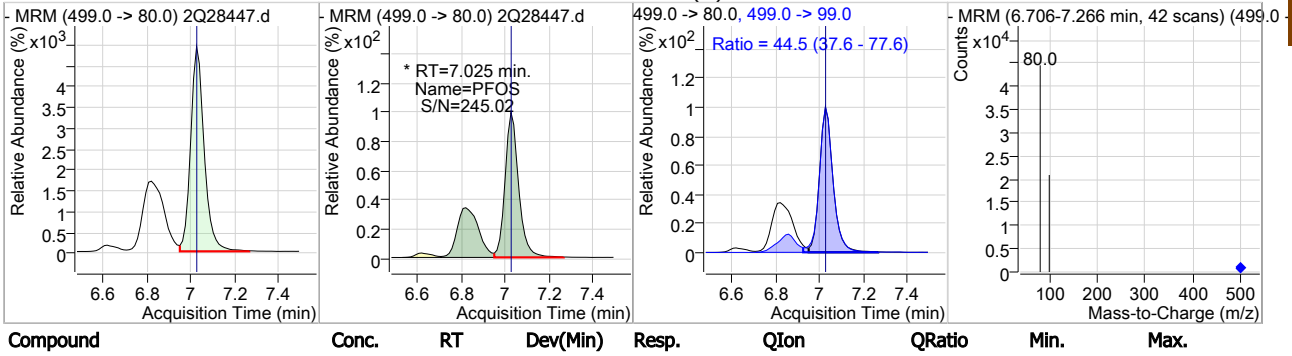
Perfluorinated Compounds by LC/MS/MS

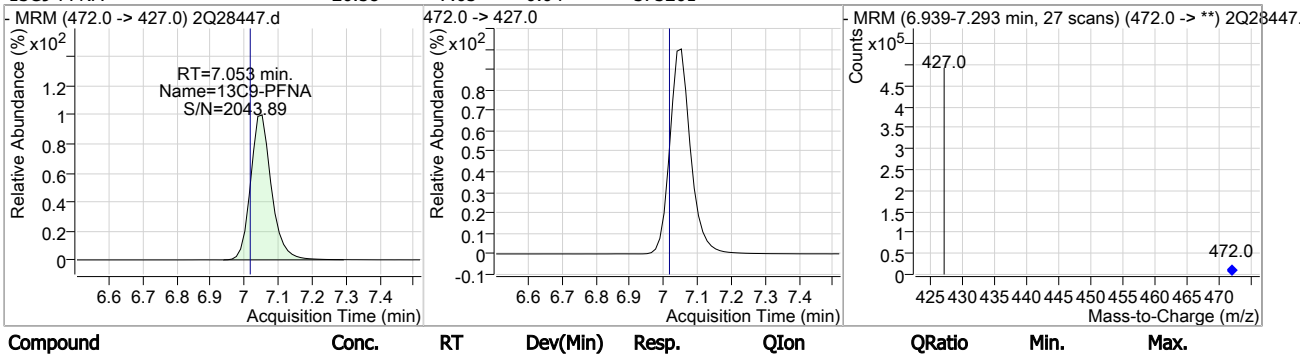
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.02	0.04	62423				



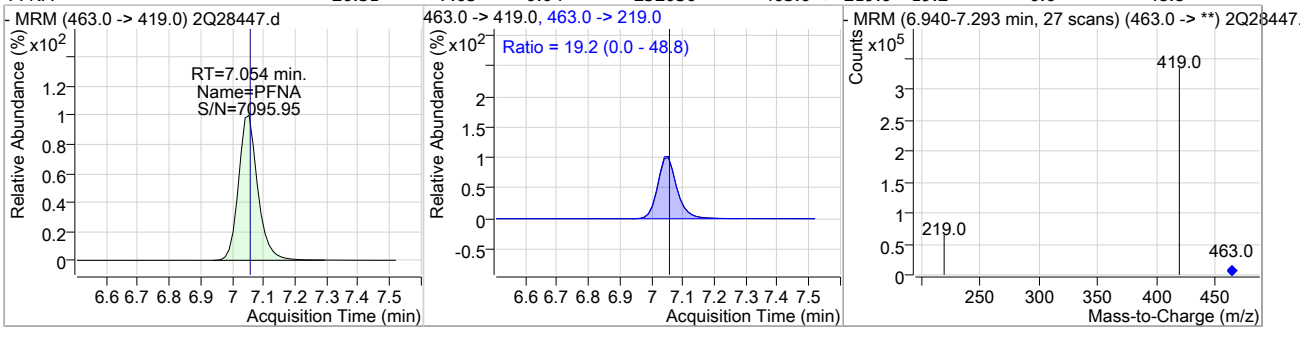
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.85	7.03	0.04	32621 (m)	499.0 -> 99.0	44.5	37.6	77.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	20.58	7.05	0.04	373261				



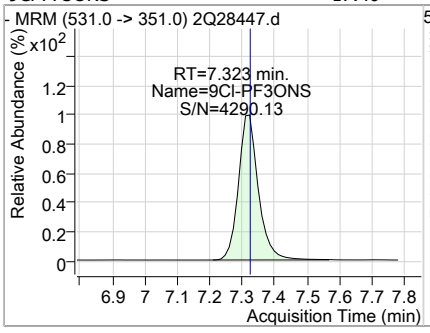
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.51	7.05	0.04	252056	463.0 -> 219.0	19.2	0.0	48.8

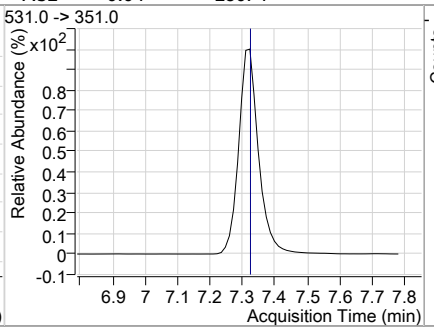


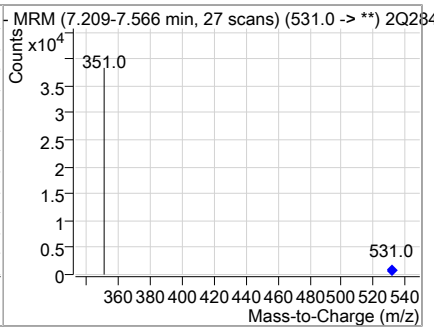
7.6.42

Perfluorinated Compounds by LC/MS/MS

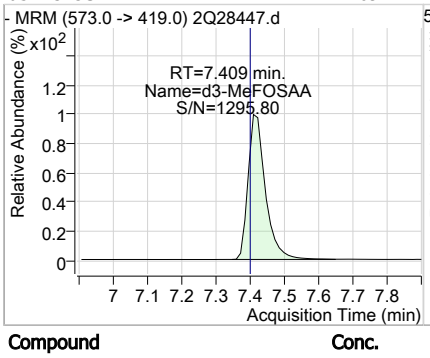
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	17.46	7.32	0.04	28074				

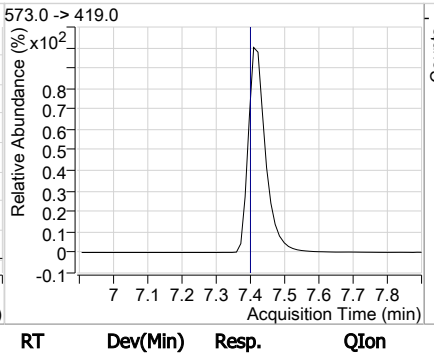


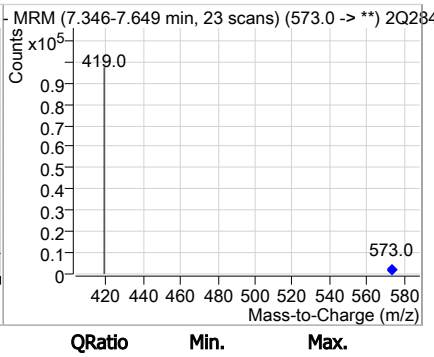




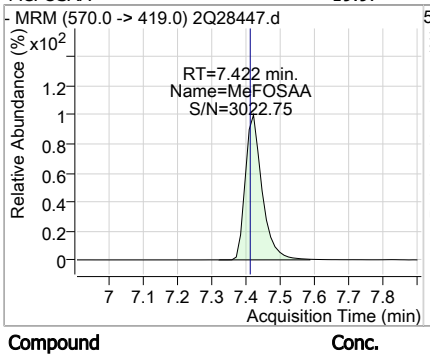
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	21.09	7.41	0.01	72002				

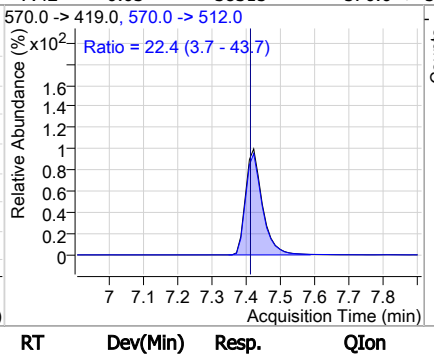


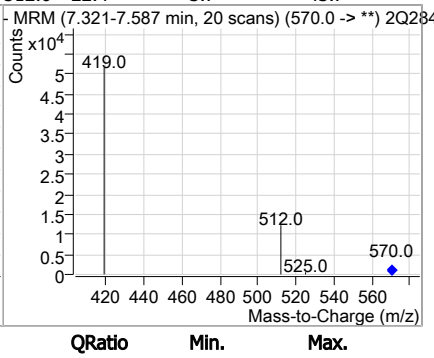




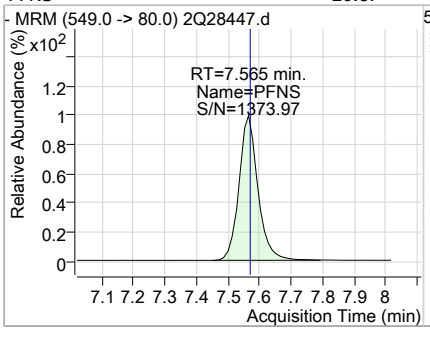
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.97	7.42	0.03	38315	570.0 -> 512.0	22.4	3.7	43.7

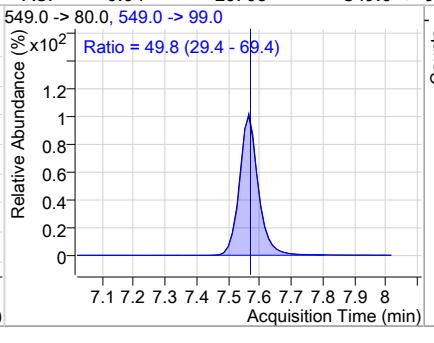


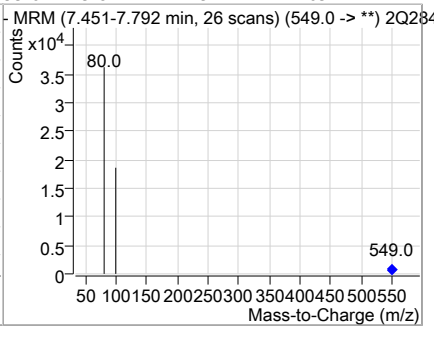




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.87	7.57	0.04	26708	549.0 -> 99.0	49.8	29.4	69.4







7.6.42

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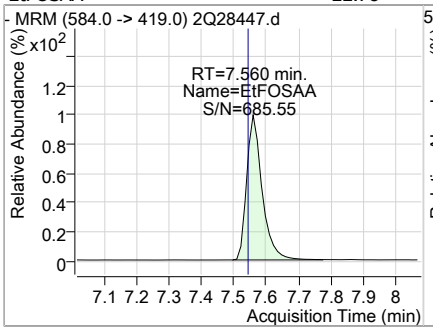
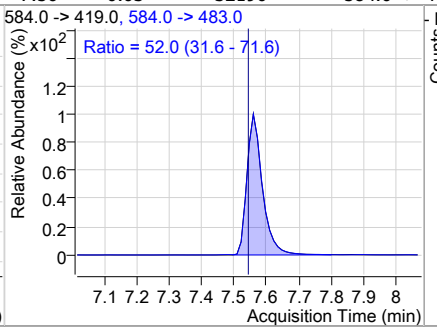
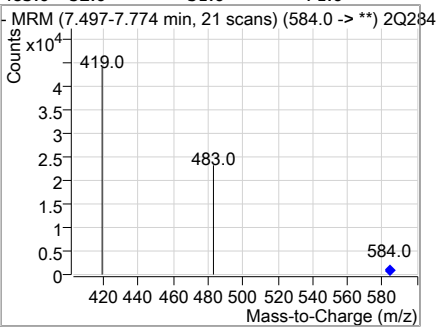
Perfluorinated Compounds by LC/MS/MS

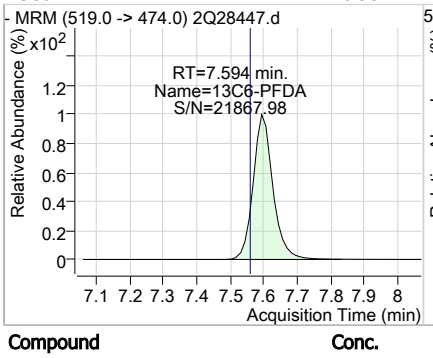
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.78	7.56	0.03	32190	584.0 -> 483.0	52.0	31.6	71.6

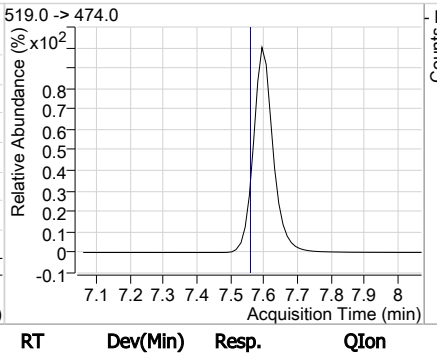


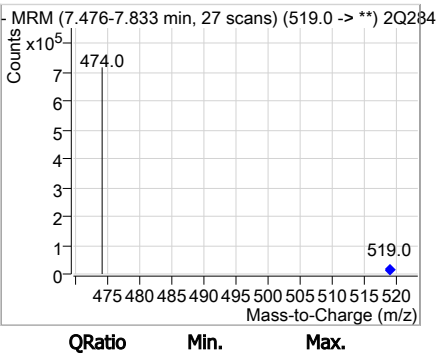




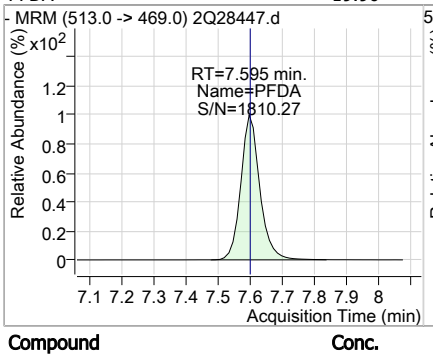
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	20.98	7.59	0.04	539863				

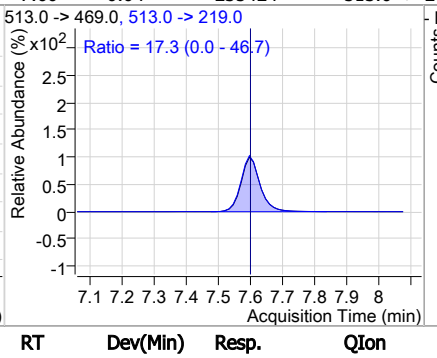


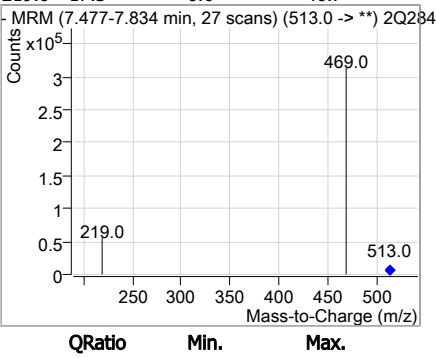




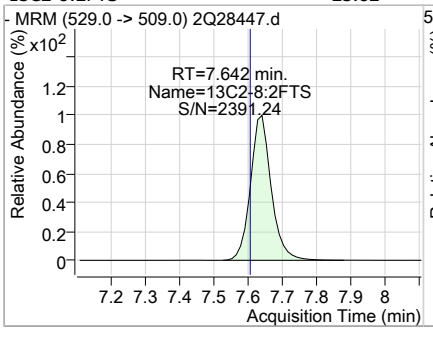
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.90	7.60	0.04	235424	513.0 -> 219.0	17.3	0.0	46.7

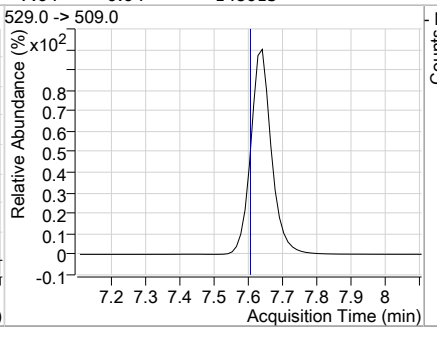


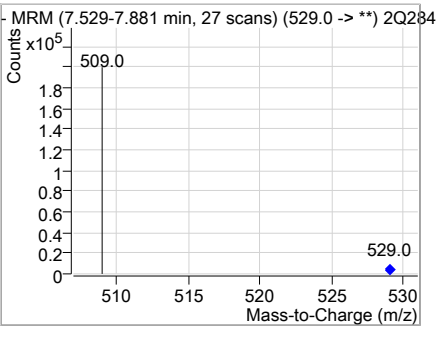




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	23.82	7.64	0.04	148615				







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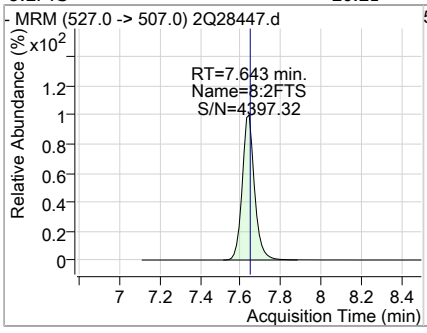
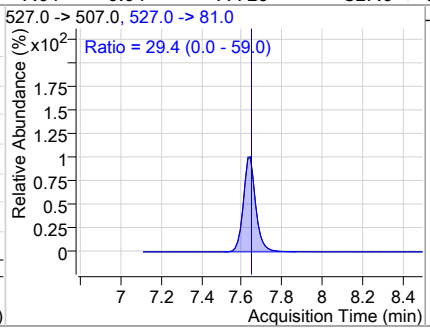
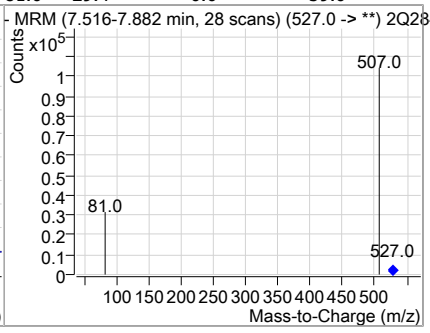
Perfluorinated Compounds by LC/MS/MS

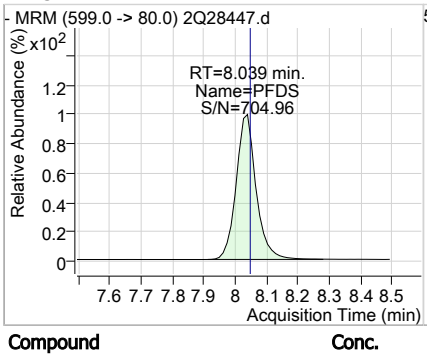
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.21	7.64	0.04	77726	527.0 -> 81.0	29.4	0.0	59.0

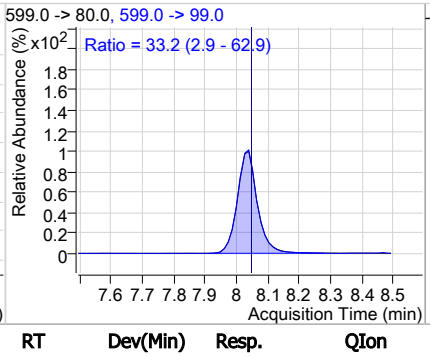


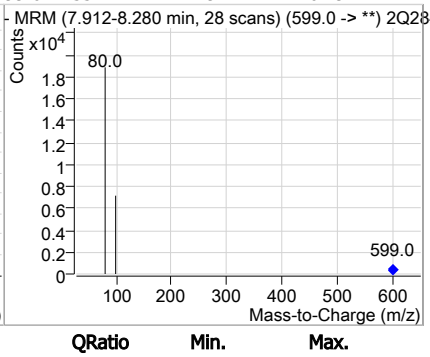




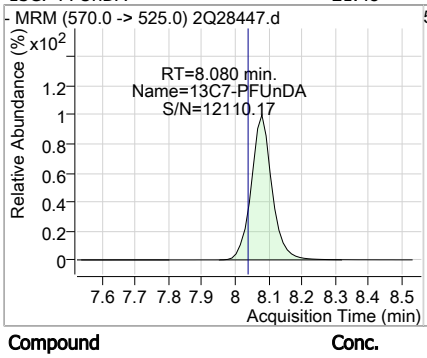
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	21.21	8.04	0.04	13723	599.0 -> 99.0	33.2	2.9	62.9

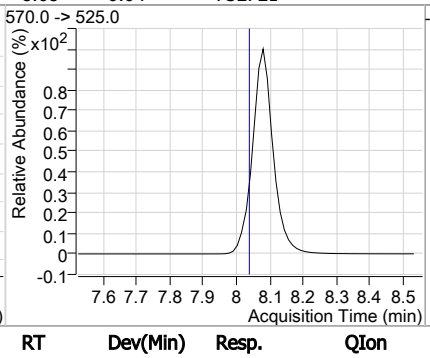


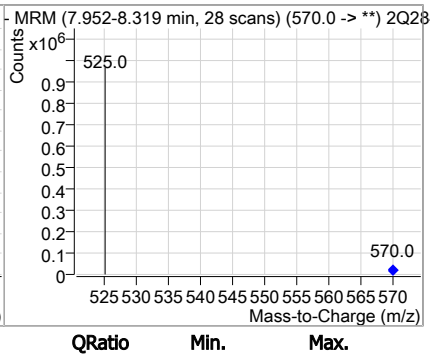




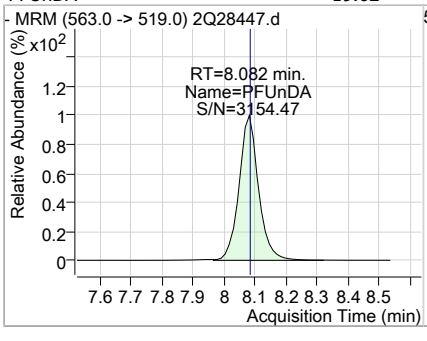
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	21.48	8.08	0.04	732721				

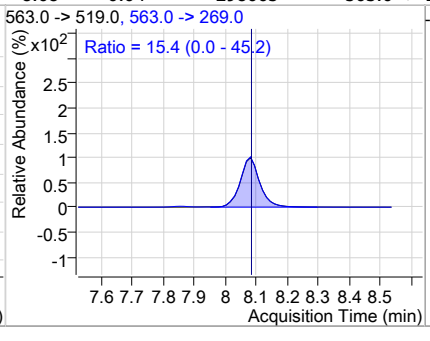


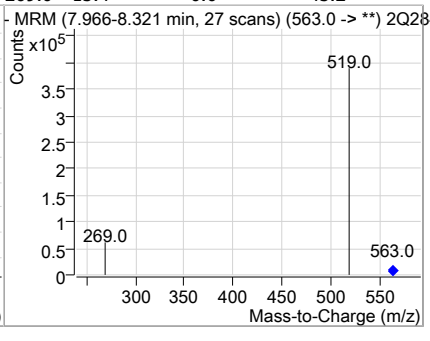




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.62	8.08	0.04	298665	563.0 -> 269.0	15.4	0.0	45.2

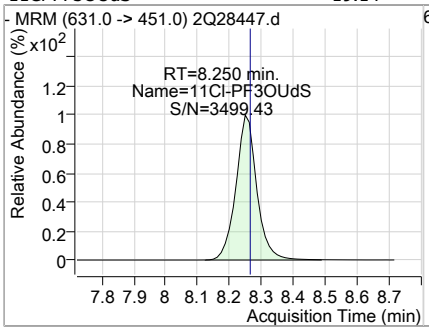


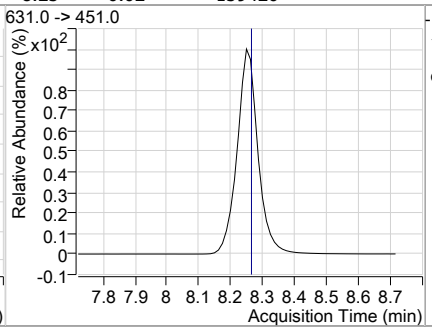


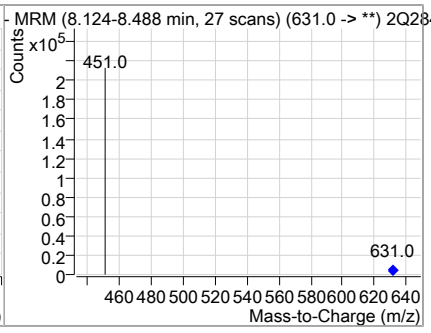


Perfluorinated Compounds by LC/MS/MS

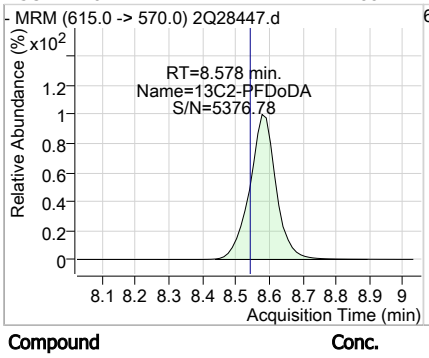
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	19.14	8.25	0.02	159426				

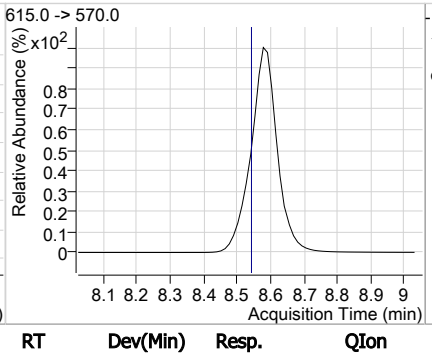


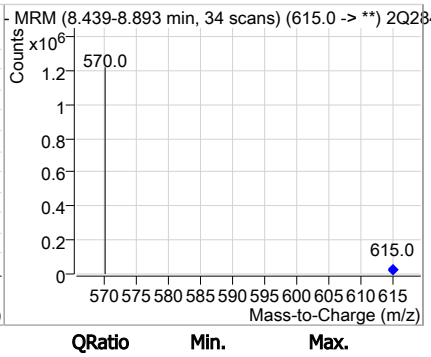




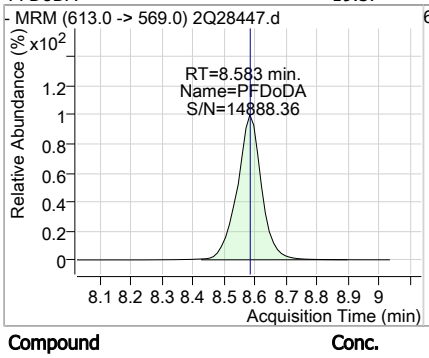
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	21.88	8.58	0.04	922259				

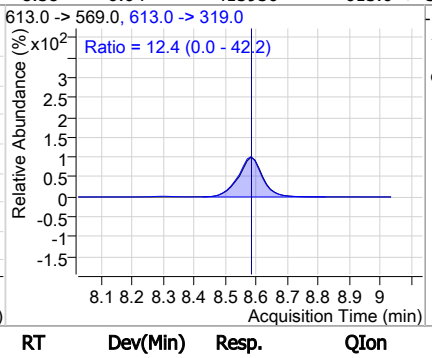


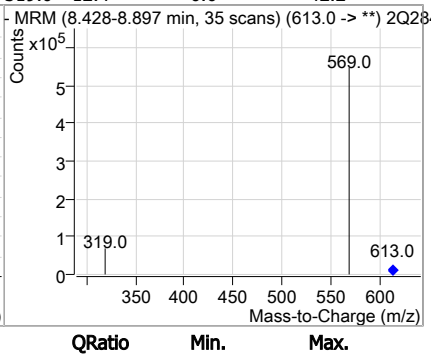




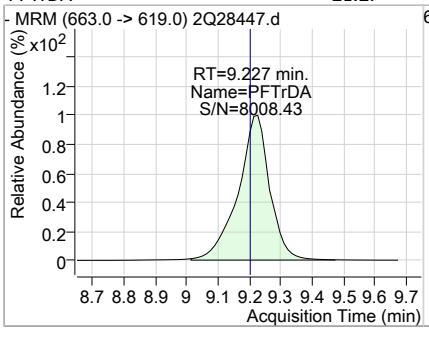
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.57	8.58	0.04	415950	613.0 -> 319.0	12.4	0.0	42.2

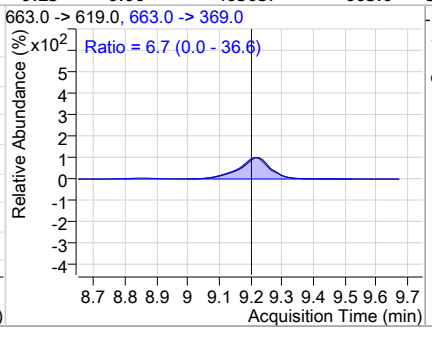


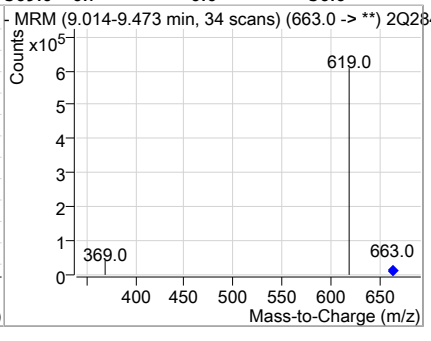




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	21.27	9.23	0.06	463657	663.0 -> 369.0	6.7	0.0	36.6







7.6.42

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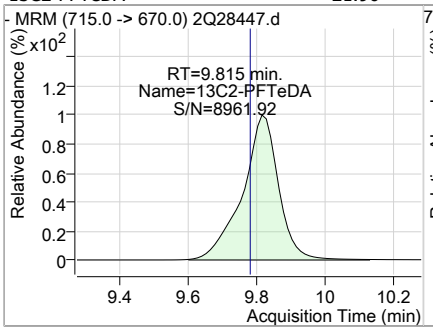
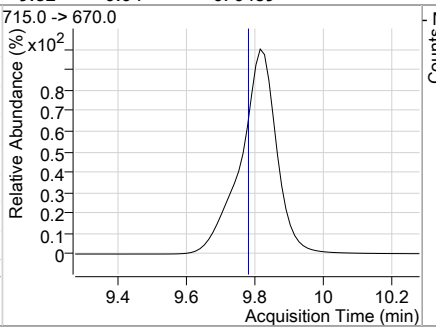
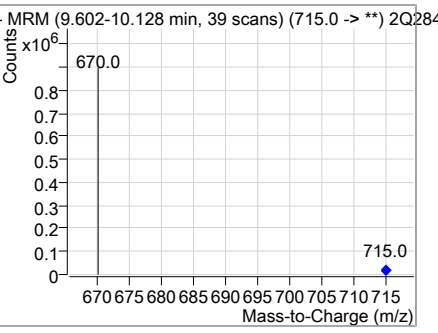
Perfluorinated Compounds by LC/MS/MS

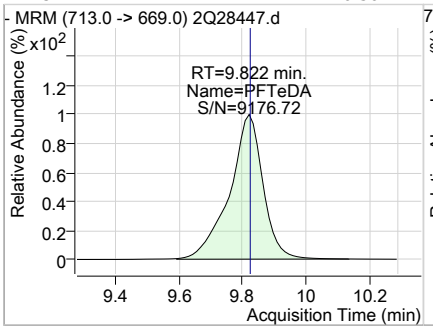
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	21.96	9.82	0.04	670489				

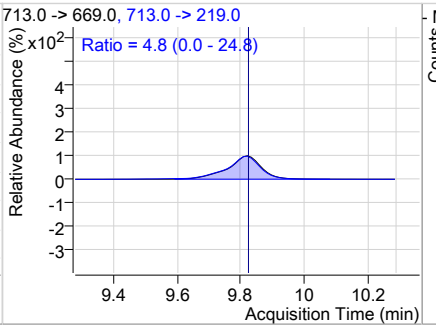


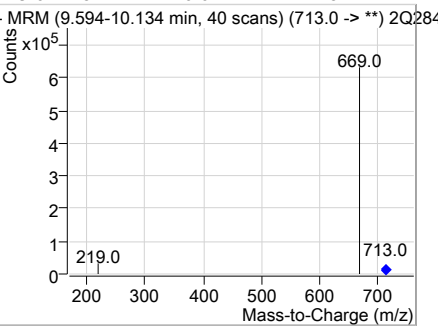




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.36	9.82	0.04	469259	713.0 -> 219.0	4.8	0.0	24.8







7.6.42

7

Manual Integration Approval Summary

Sample Number: S2Q452-CC450
Lab FileID: 2Q28447.D
Injection Time: 04/01/19 10:10
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/01/19 13:47 Natasha Gumtie
Supervisor approved: 04/01/19 16:00 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.03	Split peak

Cal Report: 2Q28455.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
04/01/19 16:00

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28455.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 4/1/2019 12:17:48 PM
Sample Name : cc450-20
Vial : Vial 7
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q452.batch.bin
Sample Information : op74351,S2Q452,250,,,1.0,1,water

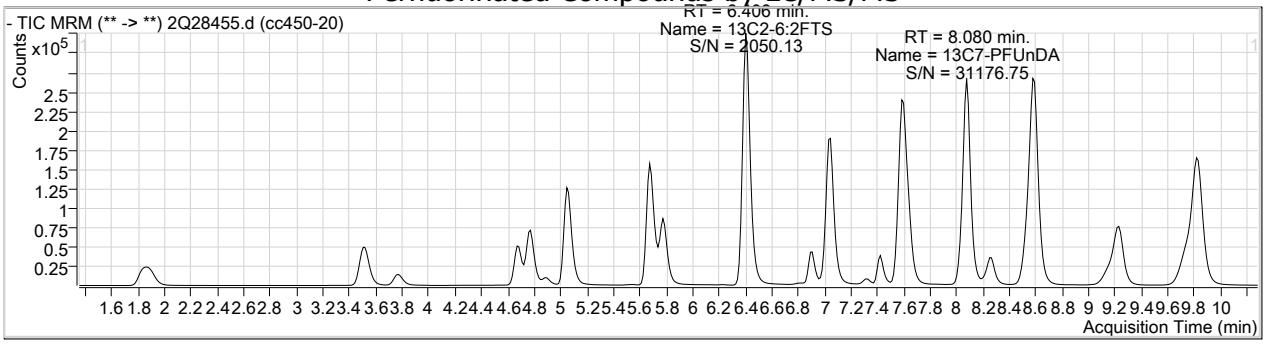
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.410	415.0 -> 370.0	466695	20.00	µg/L	0.039
13C4-PFOS	7.024	503.0 -> 80.0	63879	20.00	µg/L	0.039
M4-PFBA	1.865	217.0 -> 172.0	153145	20.00	µg/L	0.013
M5-PFPeA	3.511	268.0 -> 223.0	136839	20.00	µg/L	0.013
M5-PFHxA	4.776	318.0 -> 273.0	210859	20.00	µg/L	0.038
M4-PFHpA	5.680	367.0 -> 322.0	321341	20.00	µg/L	0.026
M8-PFOA	6.409	421.0 -> 376.0	340346	20.00	µg/L	0.039
M9-PFNA	7.053	472.0 -> 427.0	390635	20.00	µg/L	0.038
M6-PFDA	7.594	519.0 -> 474.0	564675	20.00	µg/L	0.038
M7-PFUnDA	8.080	570.0 -> 525.0	776244	20.00	µg/L	0.038
M2-PFDoDA	8.591	615.0 -> 570.0	978310	20.00	µg/L	0.051
M2-PFTeDA	9.815	715.0 -> 670.0	704801	20.00	µg/L	0.037
M8-FOSA	6.909	506.0 -> 78.0	105670	20.00	µg/L	0.028
M3-PFBS	3.767	302.0 -> 99.0	22043	20.00	µg/L	0.025
M3-PFHxS	5.723	402.0 -> 99.0	25216	20.00	µg/L	0.038
M8-PFOS	7.022	507.0 -> 99.0	34504	20.00	µg/L	0.039
M2-4:2FTS	4.671	329.0 -> 309.0	120265	20.00	µg/L	0.025
M2-6:2FTS	6.406	429.0 -> 409.0	167127	20.00	µg/L	0.040
M2-8:2FTS	7.642	529.0 -> 509.0	155385	20.00	µg/L	0.038
M3-MeFOSAA	7.421	573.0 -> 419.0	77349	20.00	µg/L	0.025
M3-HFPO-DA	5.056	287.0 -> 169.0	208725	100.00	µg/L	0.038
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	120196	22.69	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.5%		
13C2-6:2FTS	6.406	429.0 -> 409.0	166919	23.88	µg/L	0.040
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 119.4%		
13C2-8:2FTS	7.642	529.0 -> 509.0	154865	24.82	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 124.1%		
13C2-PFDoDA	8.591	615.0 -> 570.0	978321	23.21	µg/L	0.051
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.0%		
13C2-PFTeDA	9.815	715.0 -> 670.0	698225	22.87	µg/L	0.037
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.4%		
13C3-PFBS	3.767	302.0 -> 99.0	21961	19.95	µg/L	0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C3-PFHxS	5.723	402.0 -> 99.0	25249	20.39	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C4-PFBA	1.865	217.0 -> 172.0	152471	20.41	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C4-PFHpA	5.680	367.0 -> 322.0	321105	20.86	µg/L	0.026
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C5-PFHxA	4.776	318.0 -> 273.0	210470	20.74	µg/L	0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 103.7%		
13C5-PFPeA	3.511	268.0 -> 223.0	136824	20.31	µg/L	0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C6-PFDA	7.594	519.0 -> 474.0	564068	21.92	µg/L	0.038

Perfluorinated Compounds by LC/MS/MS

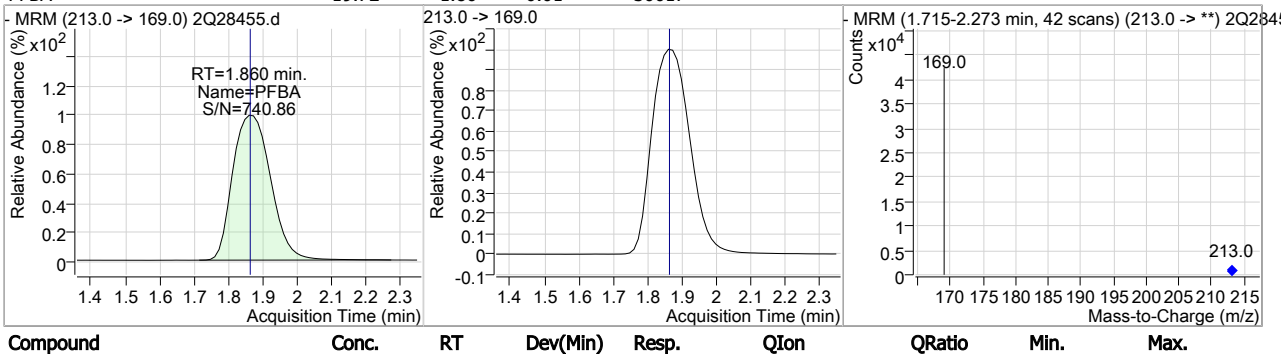
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.6%		
13C7-PFUnDA	8.080	570.0 -> 525.0	775529	22.73 µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.7%		
13C8-FOSA	6.909	506.0 -> 78.0	105753	19.09 µg/L		0.028
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 95.5%		
13C8-PFOA	6.409	421.0 -> 376.0	340008	20.99 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 105.0%		
13C8-PFOS	7.022	507.0 -> 99.0	34467	20.31 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 101.6%		
13C9-PFNA	7.053	472.0 -> 427.0	390102	21.51 µg/L		0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.5%		
d3-MeFOSAA	7.421	573.0 -> 419.0	77246	22.62 µg/L		0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 113.1%		
M2-PFOA	6.410	415.0 -> 370.0	467228	20.01 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.024	503.0 -> 80.0	63752	19.95 µg/L		0.039
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	208725	108.01 µg/L		0.038
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 108.0%		
Target Compounds						QValue
4:2FTS	4.674	327.0 -> 307.0	69003	19.77 µg/L		100
6:2FTS	6.407	427.0 -> 407.0	83890	19.85 µg/L		100
8:2FTS	7.643	527.0 -> 507.0	81531	20.30 µg/L		100
EtFOSAA	7.560	584.0 -> 419.0	34089	22.42 µg/L		98
FOSA	6.898	498.0 -> 78.0	51005	20.04 µg/L		99
MeFOSAA	7.422	570.0 -> 419.0	40625	19.68 µg/L		98
PFBA	1.860	213.0 -> 169.0	30017	19.72 µg/L		100
PFBS	3.771	299.0 -> 80.0	35542	19.84 µg/L		99
PFDA	7.595	513.0 -> 469.0	247785	20.02 µg/L		99
PFDoDA	8.583	613.0 -> 569.0	441891	19.60 µg/L		100
PFDS	8.039	599.0 -> 80.0	14075	21.34 µg/L		99
PFHpA	5.683	363.0 -> 319.0	281167	19.96 µg/L		100
PFHpS	6.417	449.0 -> 80.0	26855	20.66 µg/L		100
PFHxA	4.778	313.0 -> 269.0	72997	19.80 µg/L		100
PFHxS	5.713	399.0 -> 80.0	29286	19.58 µg/L	m	99
PFNA	7.054	463.0 -> 419.0	261831	20.38 µg/L		100
PFNS	7.565	549.0 -> 80.0	27243	20.88 µg/L		100
PFOA	6.412	413.0 -> 369.0	181305	19.87 µg/L		99
PFOS	7.025	499.0 -> 80.0	33069	19.74 µg/L	m	84
PFPeA	3.515	263.0 -> 219.0	122721	20.20 µg/L		100
PFPeS	4.883	349.0 -> 80.0	25593	20.44 µg/L		99
PFTeDA	9.822	713.0 -> 669.0	487962	20.12 µg/L		100
PFTrDA	9.227	663.0 -> 619.0	495498	21.60 µg/L		100
PFUnDA	8.082	563.0 -> 519.0	315343	19.55 µg/L		100
11Cl-PF3OUdS	8.250	631.0 -> 451.0	160531	18.17 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	29035	17.26 µg/L		100
ADONA	5.779	377.0 -> 251.0	315294	18.73 µg/L		100
HFPO-DA	5.060	329.0 -> 169.0	265332	106.09 µg/L		97

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

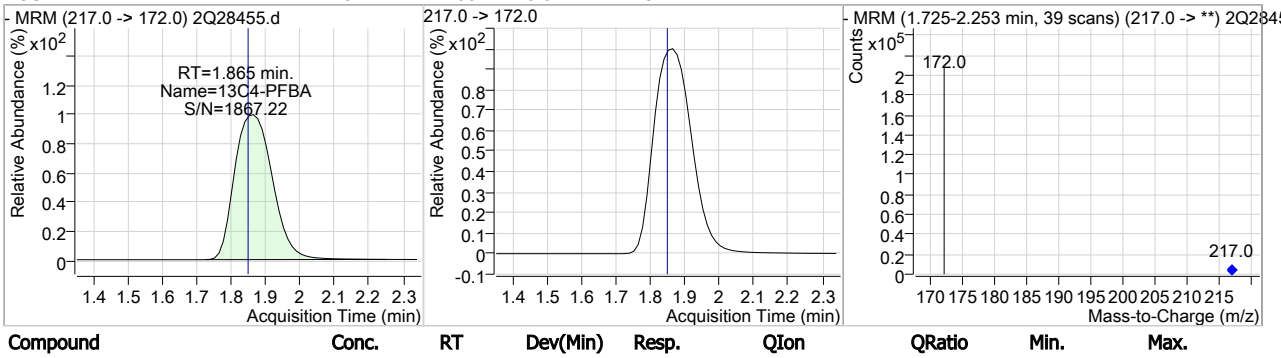
Perfluorinated Compounds by LC/MS/MS



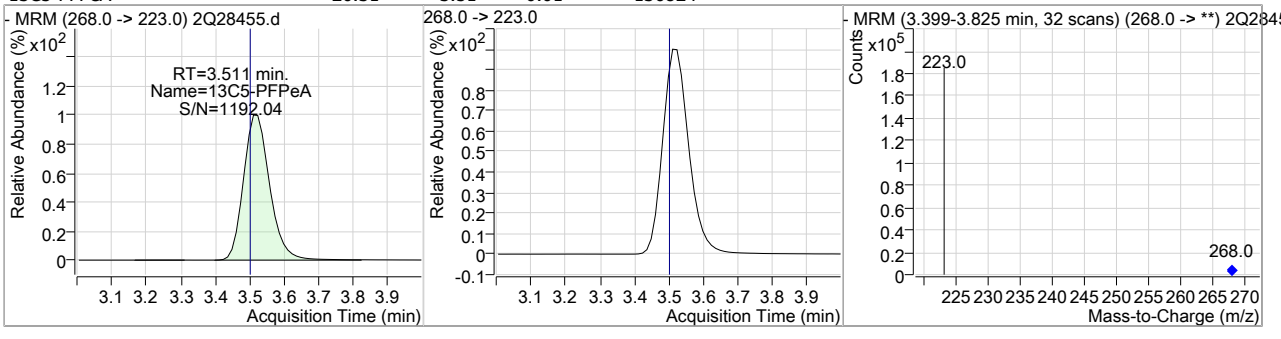
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.72	1.86	0.01	30017				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	20.41	1.86	0.01	152471				



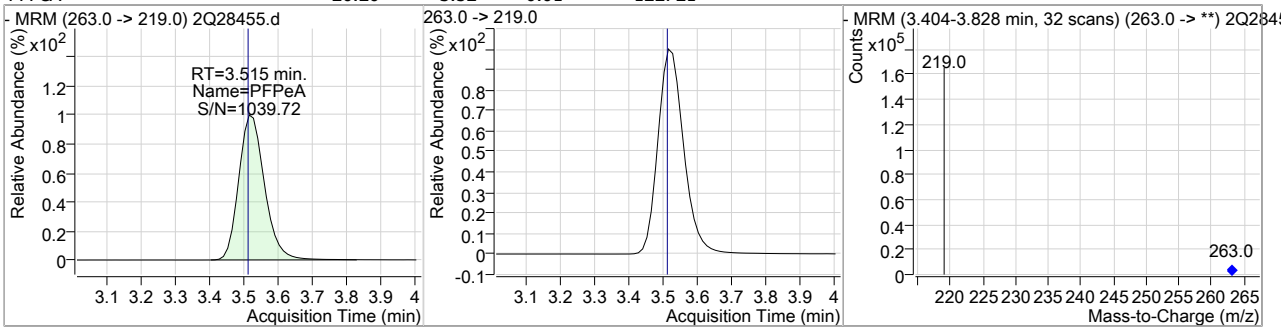
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	20.31	3.51	0.01	136824				



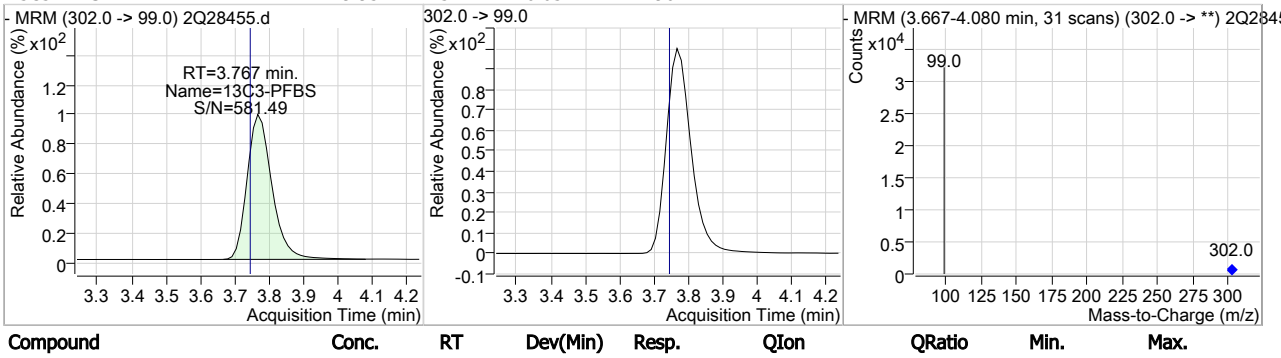
7.6.43

Perfluorinated Compounds by LC/MS/MS

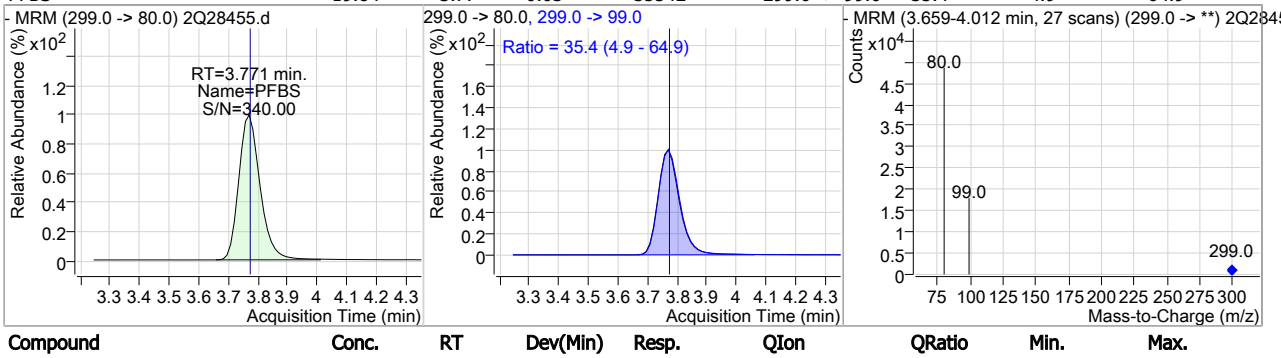
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.20	3.52	0.01	122721				



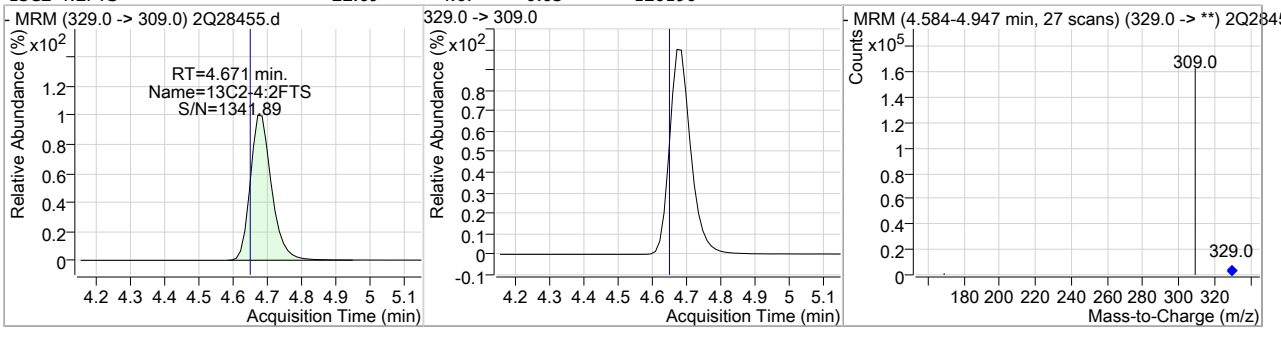
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	19.95	3.77	0.03	21961				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.84	3.77	0.03	35542	299.0 -> 99.0	35.4	4.9	64.9



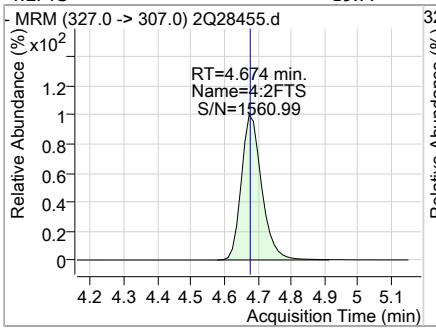
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	22.69	4.67	0.03	120196				

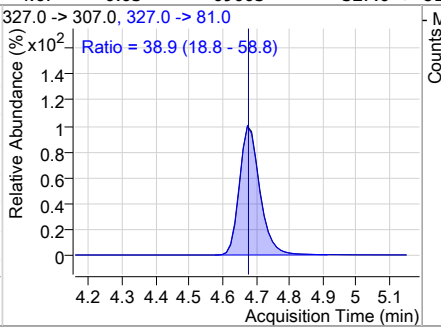


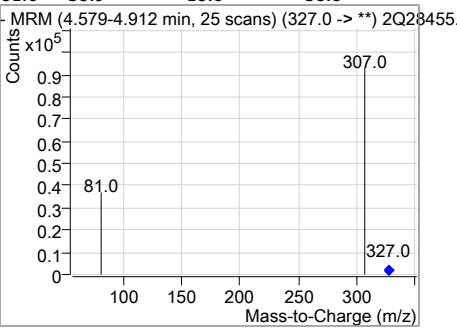
7.6.43

Perfluorinated Compounds by LC/MS/MS

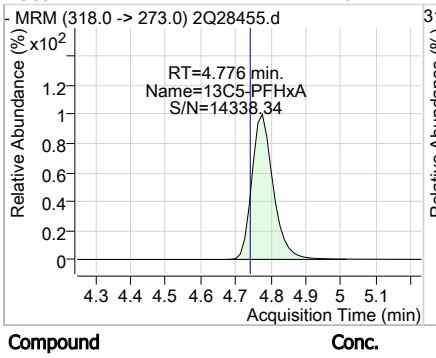
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.77	4.67	0.03	69003	327.0 -> 81.0	38.9	18.8	58.8

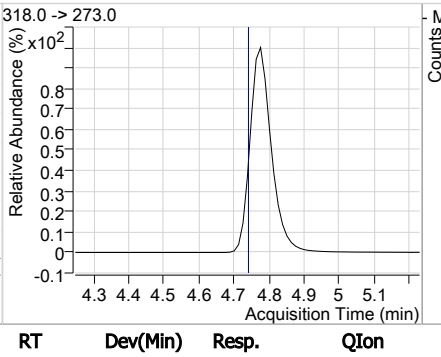


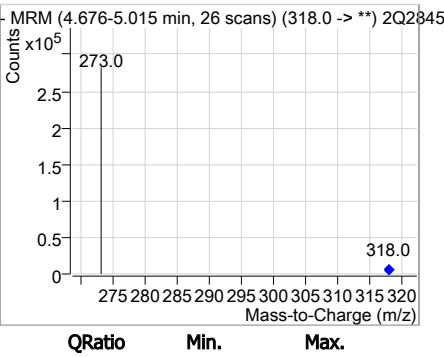




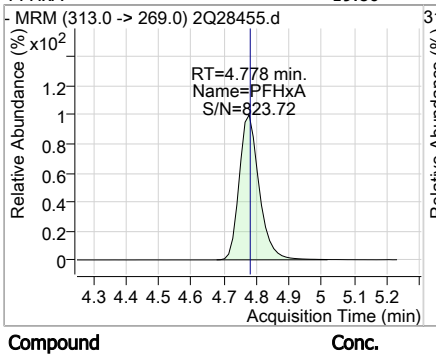
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	20.74	4.78	0.04	210470				

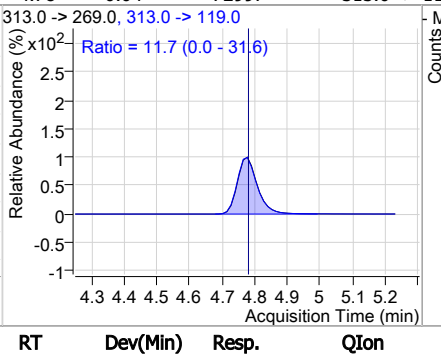


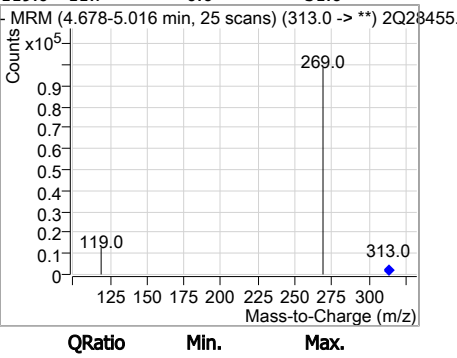




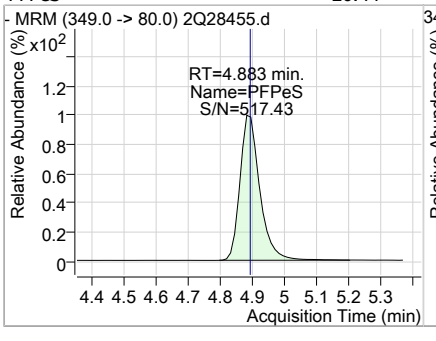
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.80	4.78	0.04	72997	313.0 -> 119.0	11.7	0.0	31.6

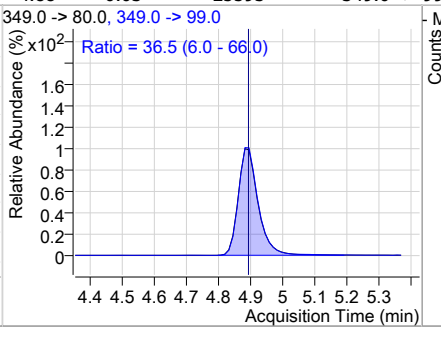


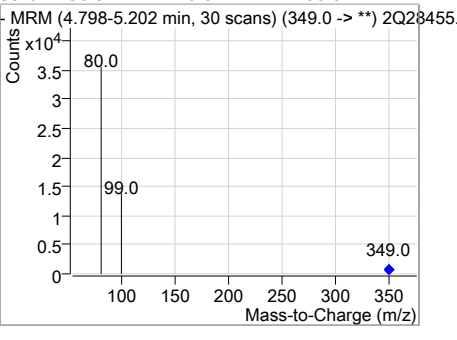




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.44	4.88	0.03	25593	349.0 -> 99.0	36.5	6.0	66.0







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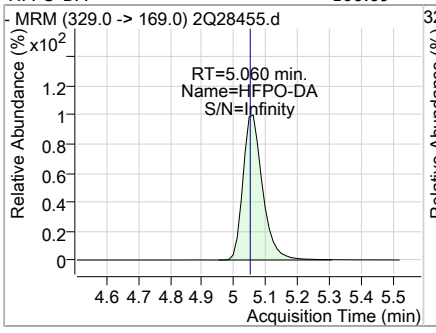
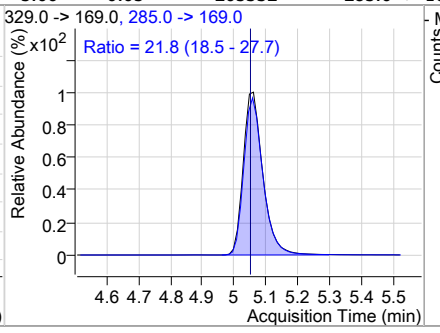
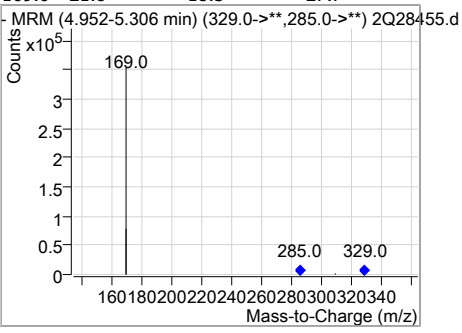
Perfluorinated Compounds by LC/MS/MS

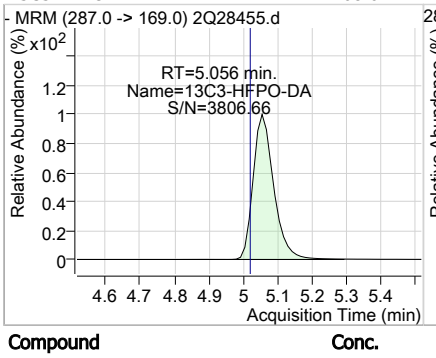
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	106.09	5.06	0.05	265332	285.0 -> 169.0	21.8	18.5	27.7

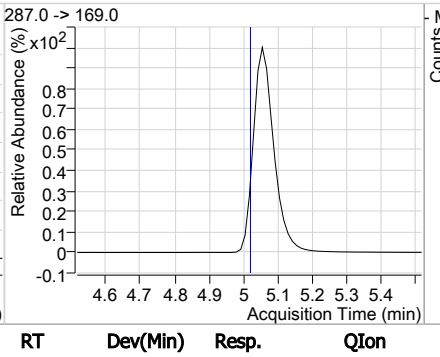


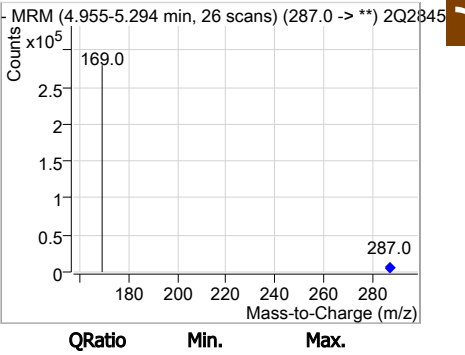




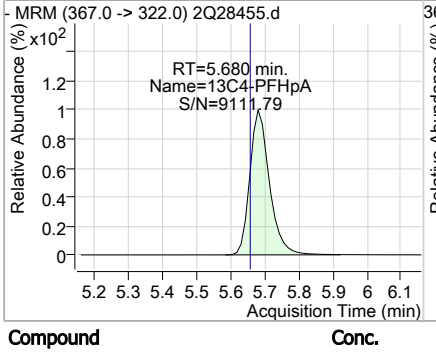
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	108.01	5.06	0.04	208725				

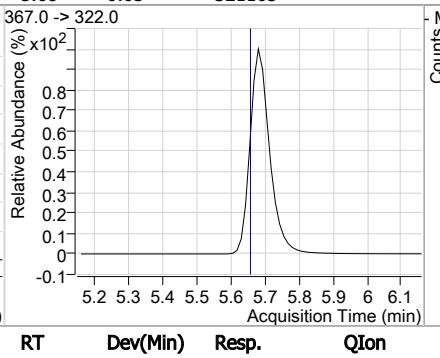


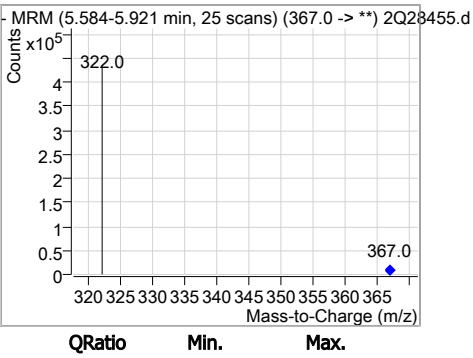




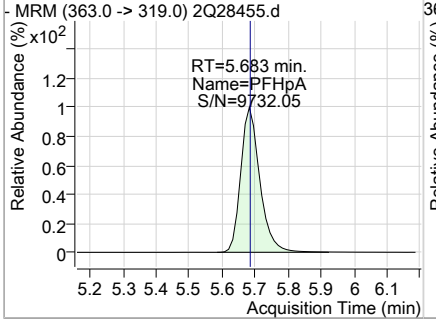
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	20.86	5.68	0.03	321105				

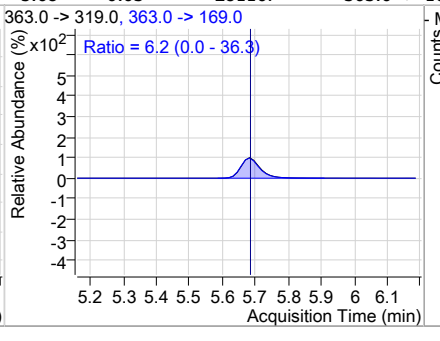


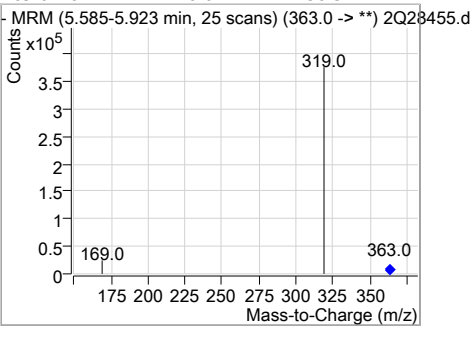




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.96	5.68	0.03	281167	363.0 -> 169.0	6.2	0.0	36.3



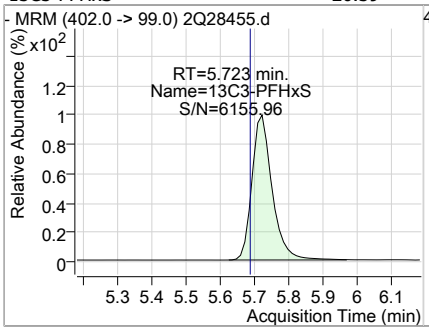


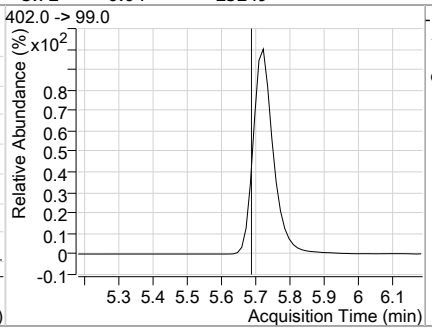


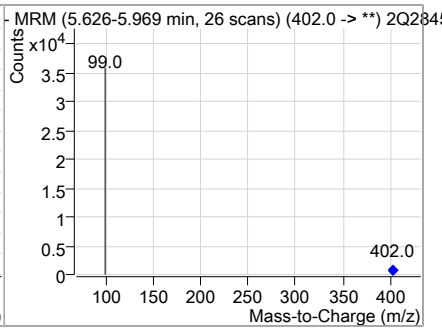
7.6.43

Perfluorinated Compounds by LC/MS/MS

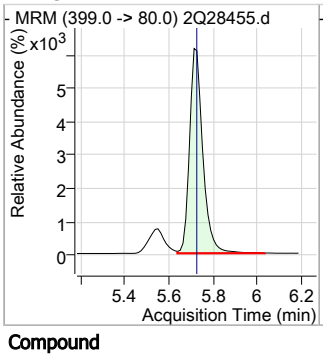
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.39	5.72	0.04	25249				

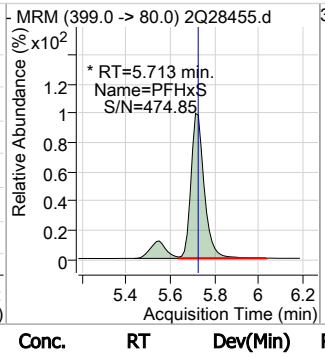


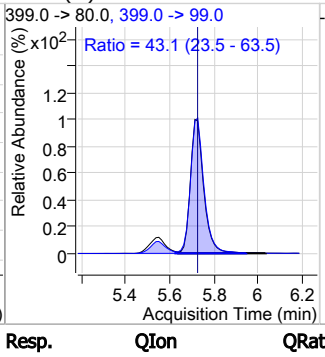


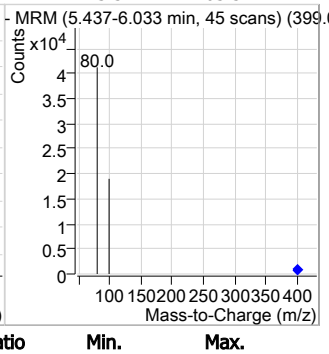


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.58	5.71	0.03	29286 (m)	399.0 -> 99.0	43.1	23.5	63.5

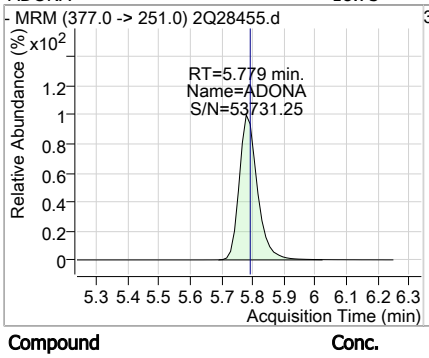


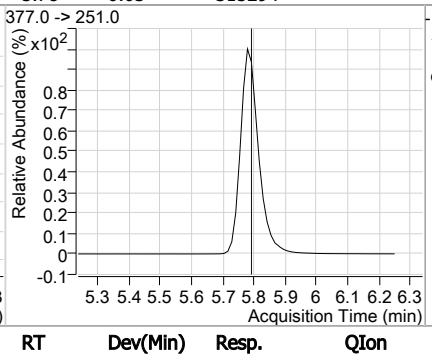


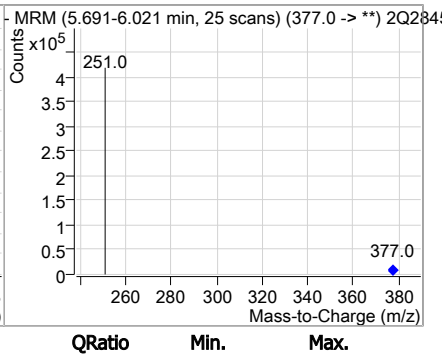




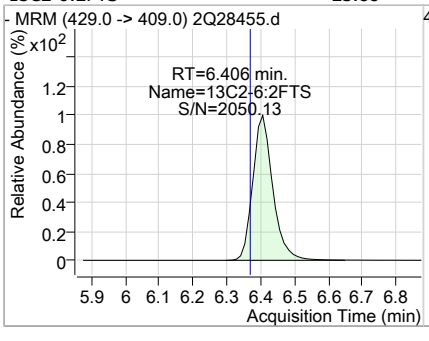
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.73	5.78	0.03	315294				

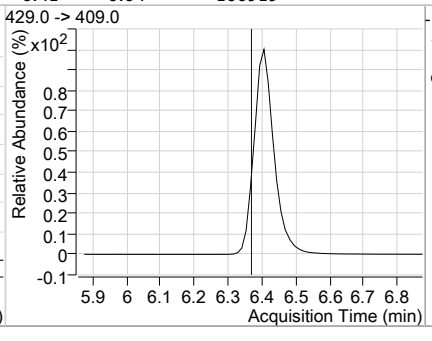


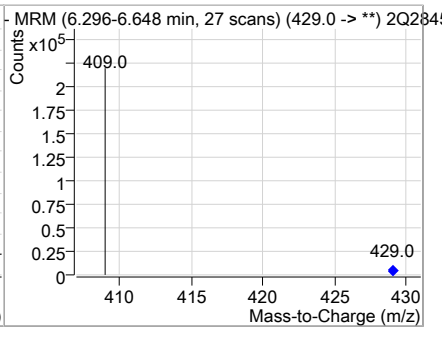




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	23.88	6.41	0.04	166919				







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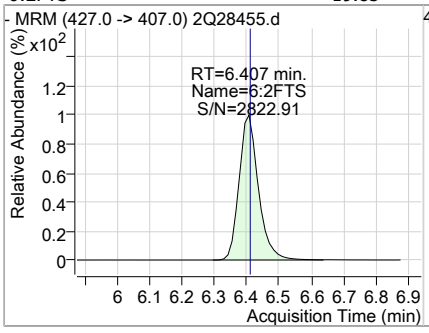
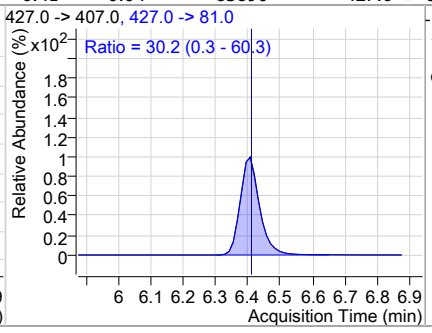
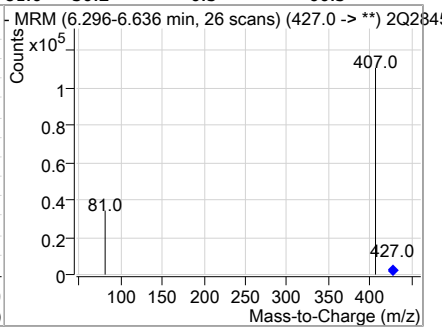
Perfluorinated Compounds by LC/MS/MS

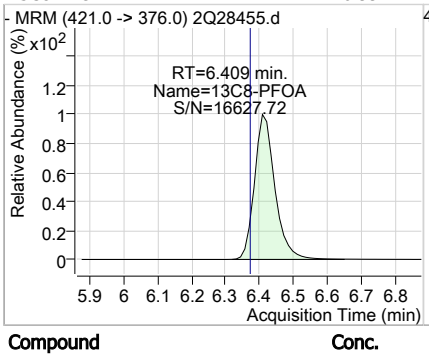
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.85	6.41	0.04	83890	427.0 -> 81.0	30.2	0.3	60.3

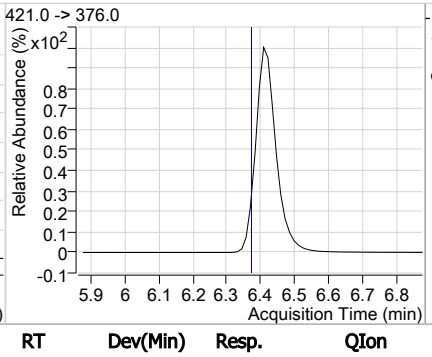


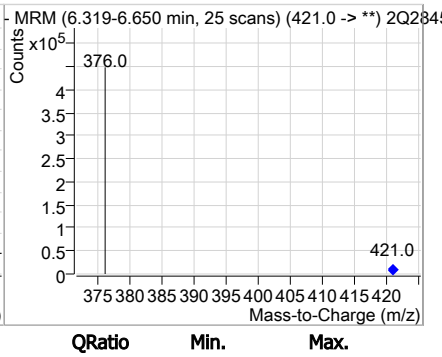




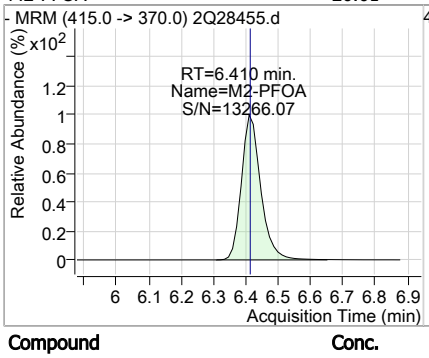
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	20.99	6.41	0.04	340008				

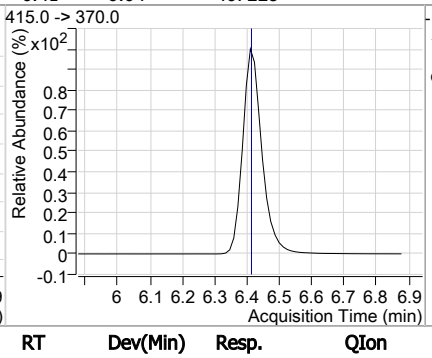


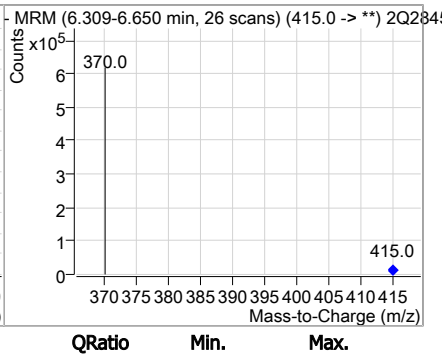




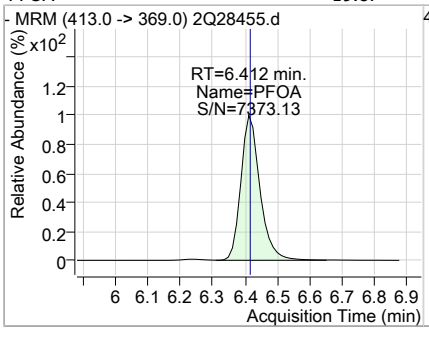
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.41	0.04	467228				

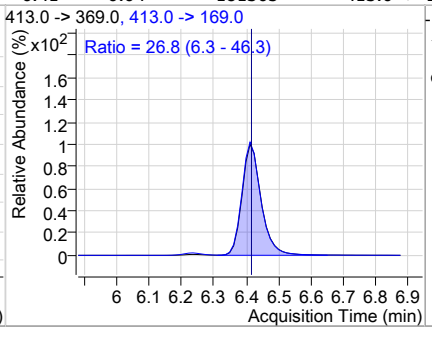


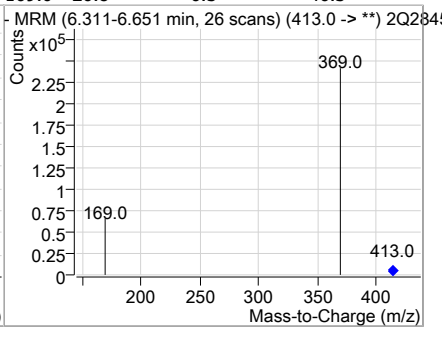




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.87	6.41	0.04	181305	413.0 -> 169.0	26.8	6.3	46.3

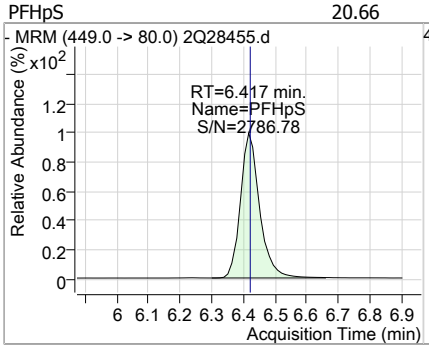


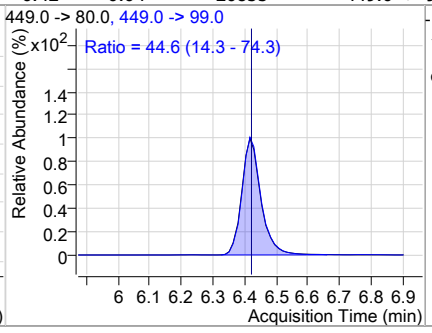


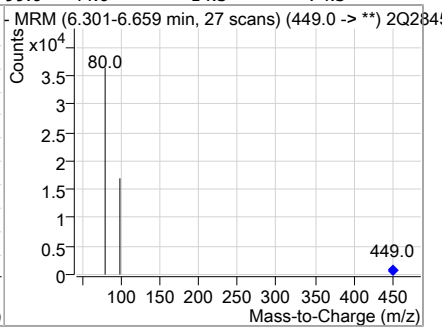


Perfluorinated Compounds by LC/MS/MS

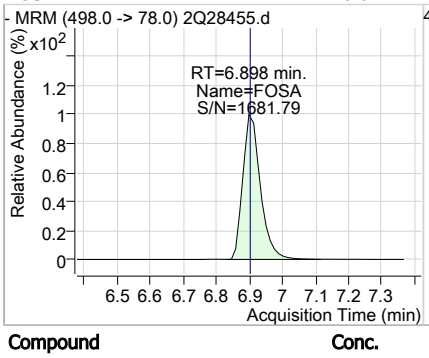
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.66	6.42	0.04	26855	449.0 -> 99.0	44.6	14.3	74.3

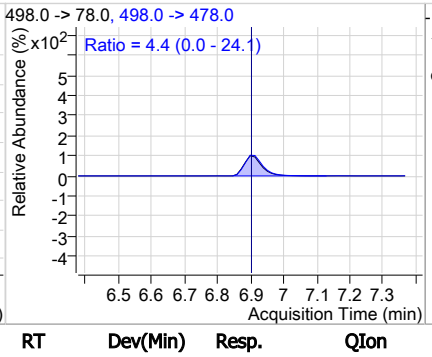


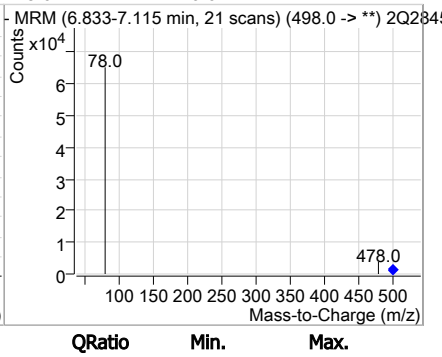




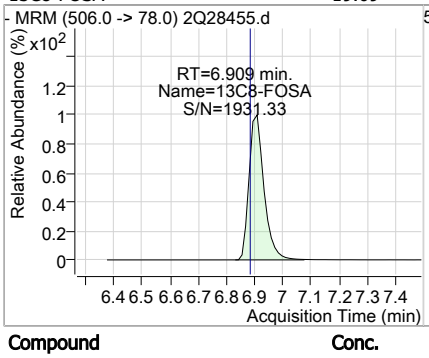
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	20.04	6.90	0.03	51005	498.0 -> 478.0	4.4	0.0	24.1

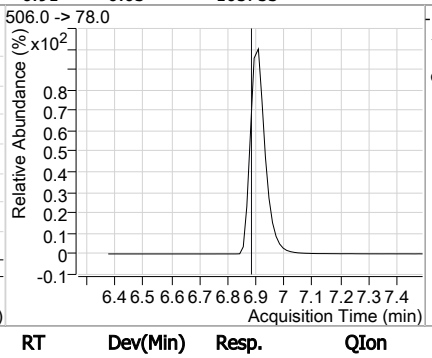


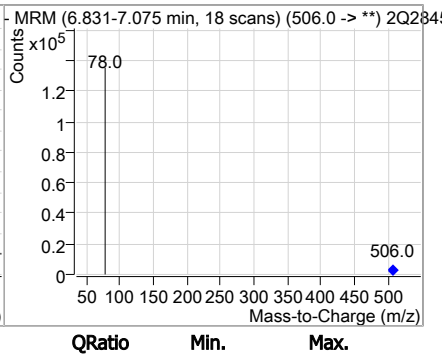




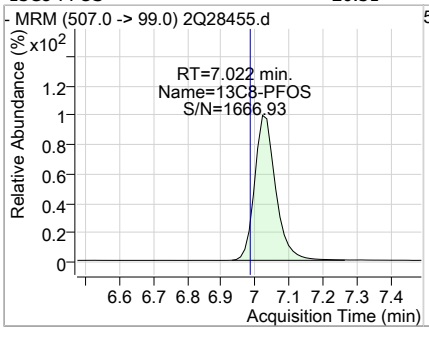
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	19.09	6.91	0.03	105753				

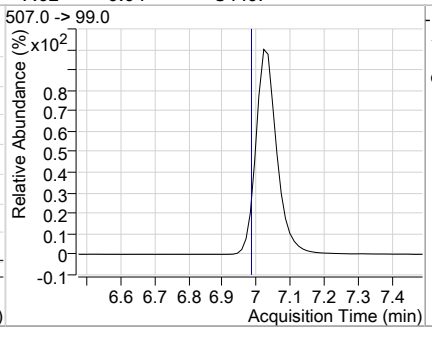


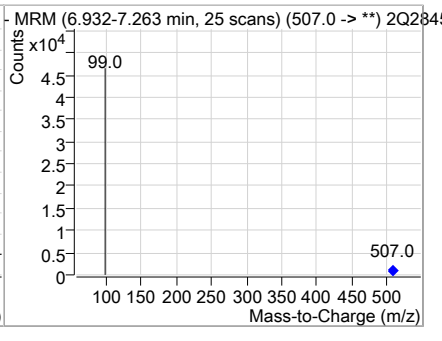




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.31	7.02	0.04	34467				



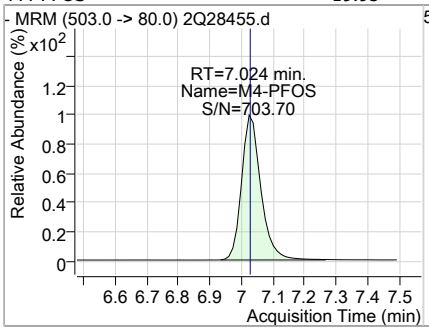


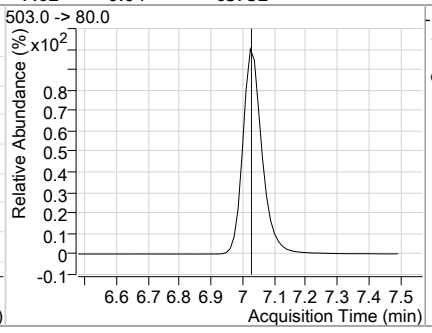


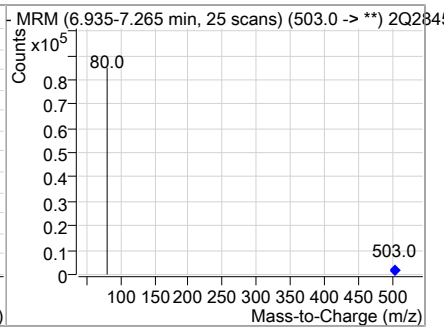
7.6.43

Perfluorinated Compounds by LC/MS/MS

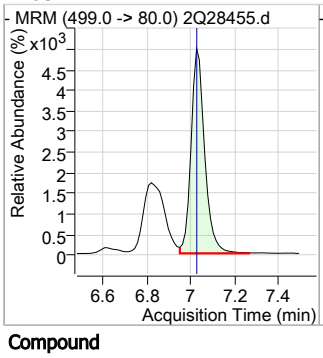
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.95	7.02	0.04	63752				

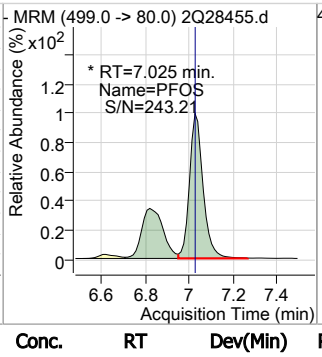


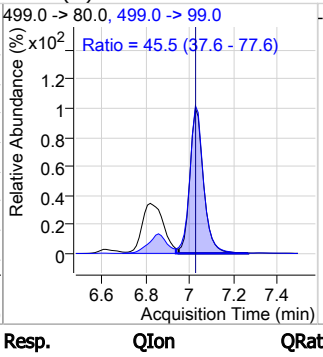


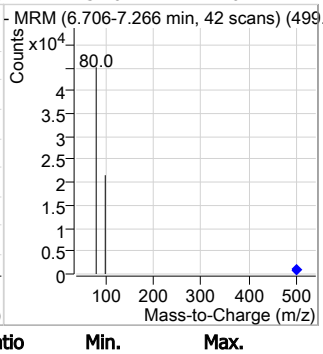


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.74	7.03	0.04	33069 (m)	499.0 -> 99.0	45.5	37.6	77.6

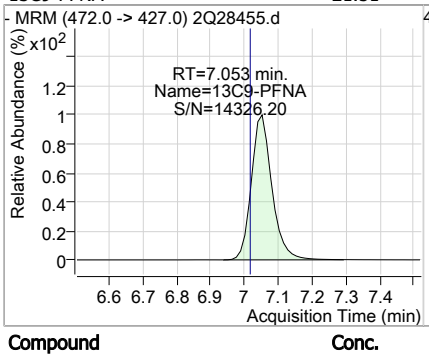


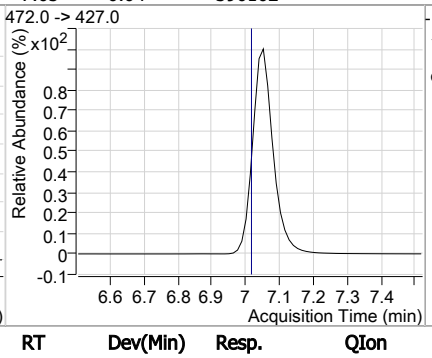


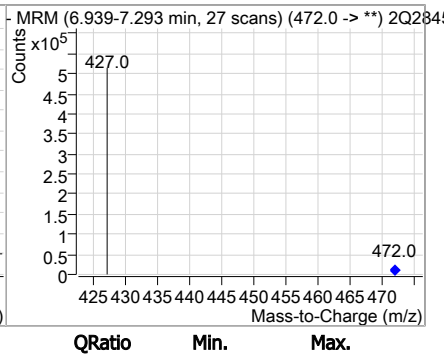




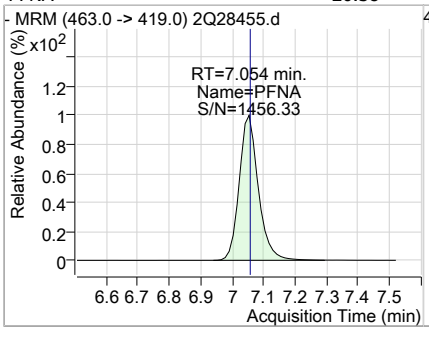
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	21.51	7.05	0.04	390102				

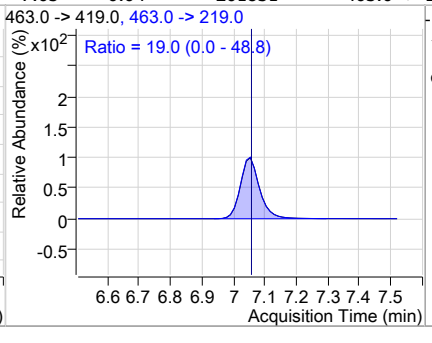


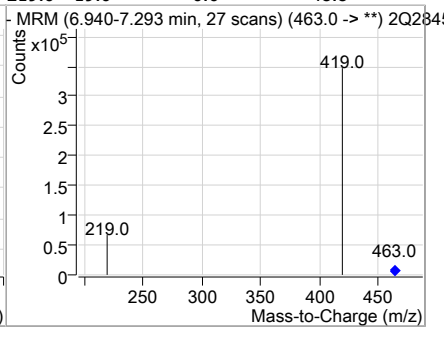




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.38	7.05	0.04	261831	463.0 -> 219.0	19.0	0.0	48.8



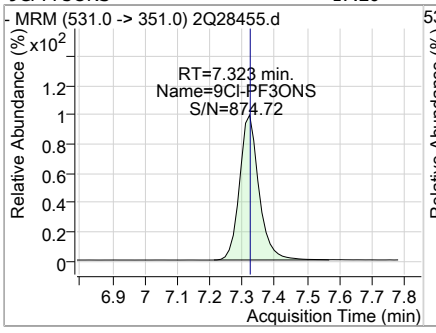


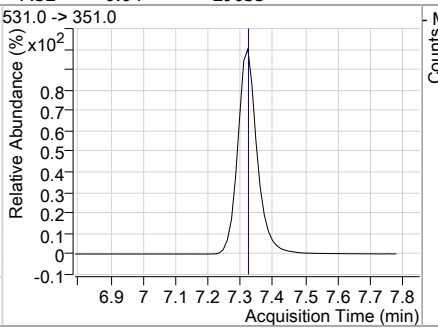


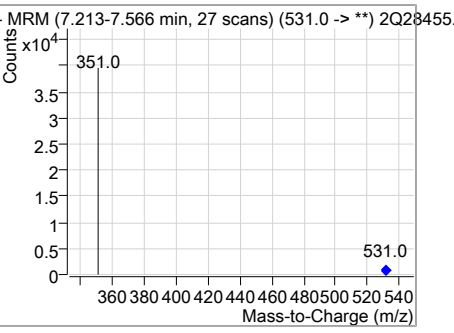
7.6.43

Perfluorinated Compounds by LC/MS/MS

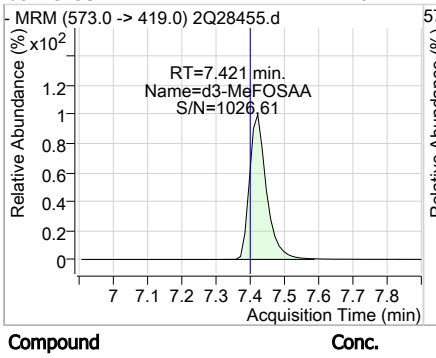
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	17.26	7.32	0.04	29035				

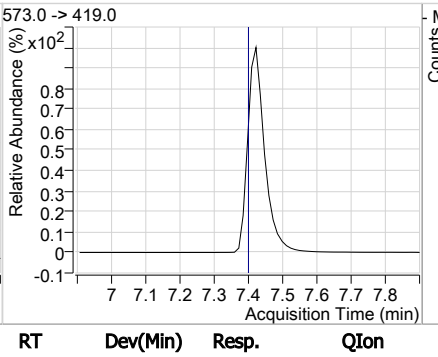


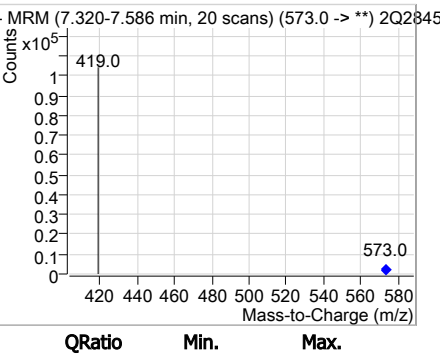




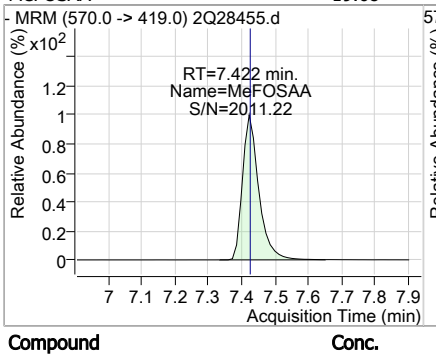
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	22.62	7.42	0.03	77246				

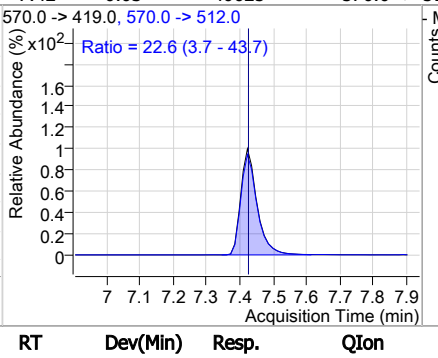


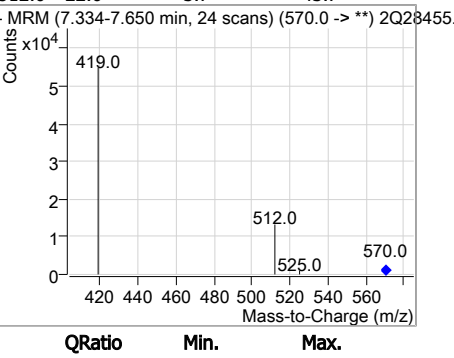




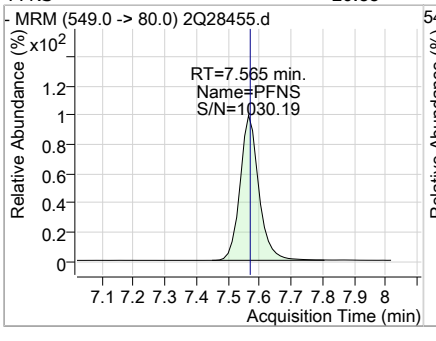
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.68	7.42	0.03	40625	570.0 -> 512.0	22.6	3.7	43.7

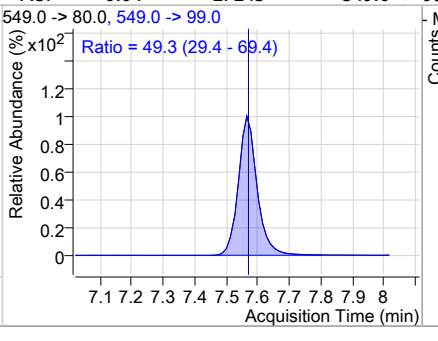


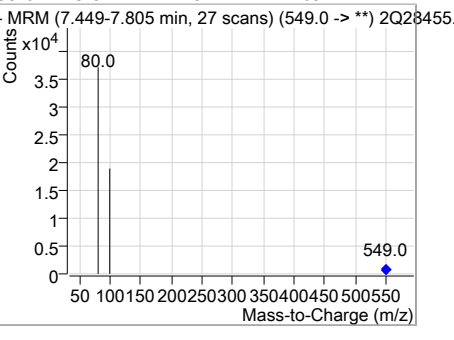




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.88	7.57	0.04	27243	549.0 -> 99.0	49.3	29.4	69.4



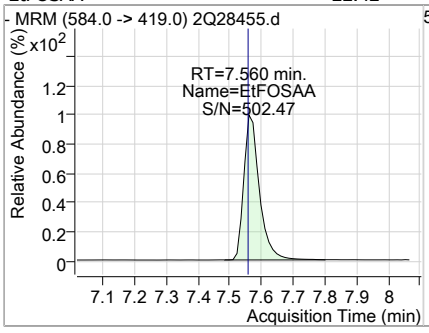


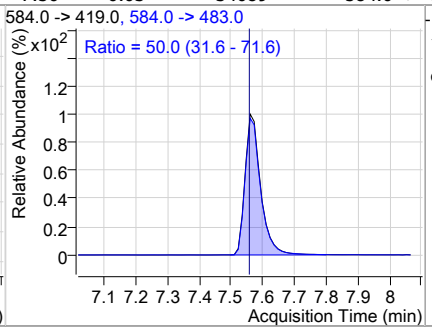


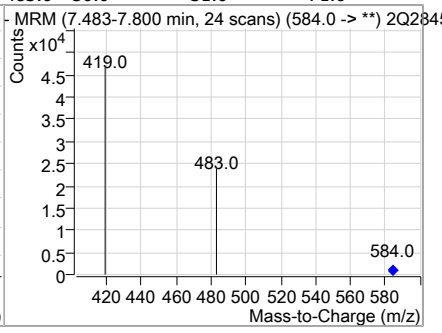
7.6.43

Perfluorinated Compounds by LC/MS/MS

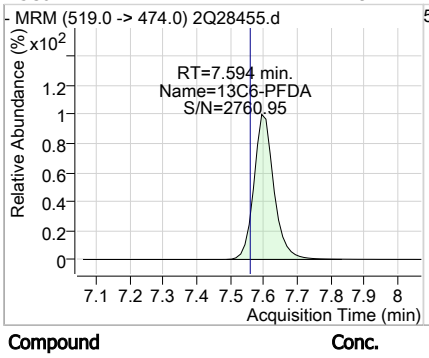
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.42	7.56	0.03	34089	584.0 -> 483.0	50.0	31.6	71.6

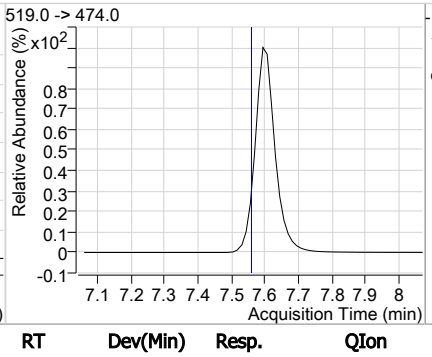


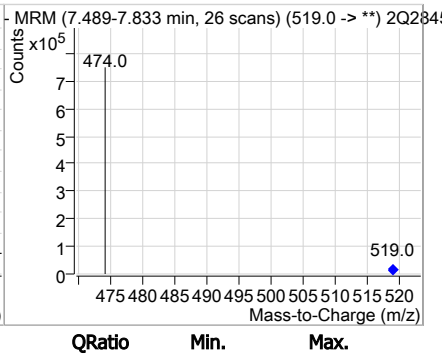




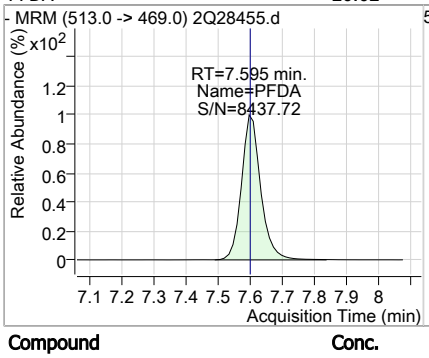
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	21.92	7.59	0.04	564068				

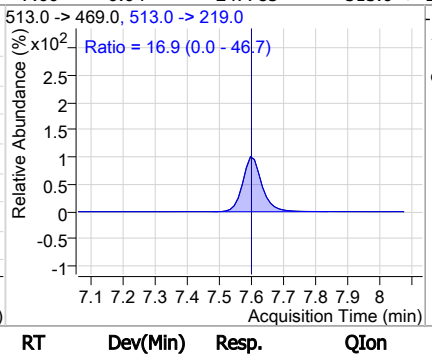


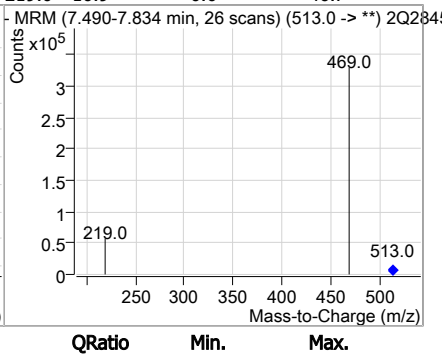




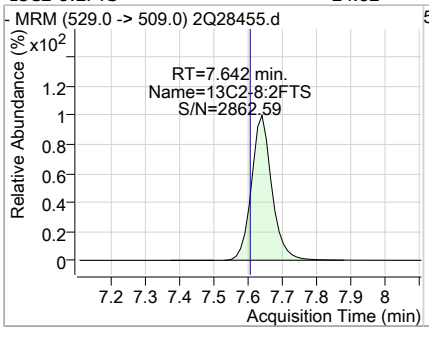
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	20.02	7.60	0.04	247785	513.0 -> 219.0	16.9	0.0	46.7

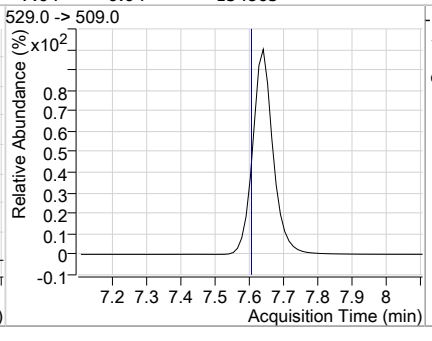


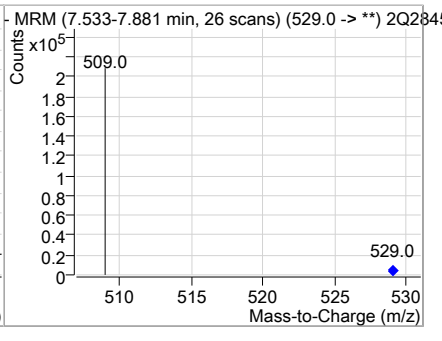




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	24.82	7.64	0.04	154865				







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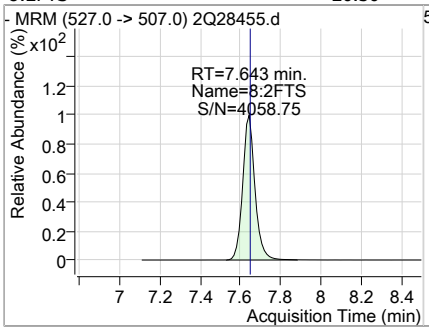
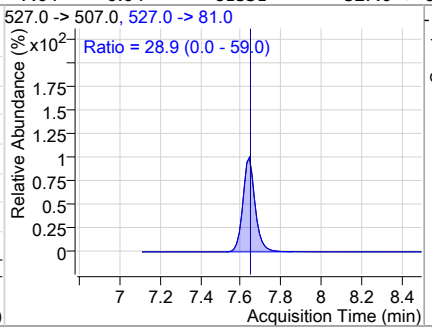
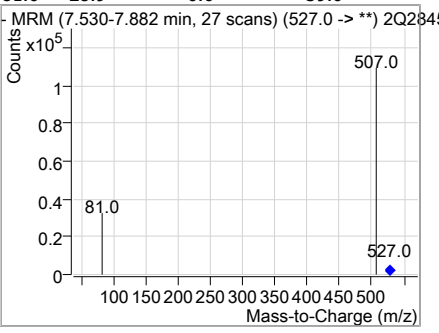
Perfluorinated Compounds by LC/MS/MS

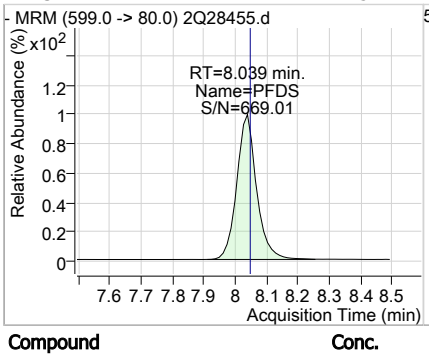
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	20.30	7.64	0.04	81531	527.0 -> 81.0	28.9	0.0	59.0

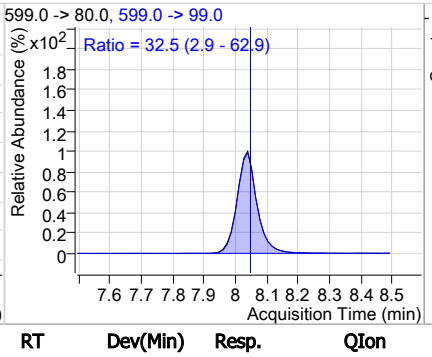


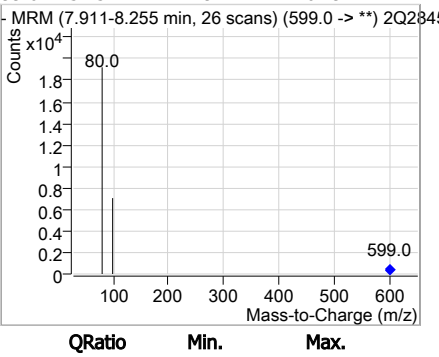




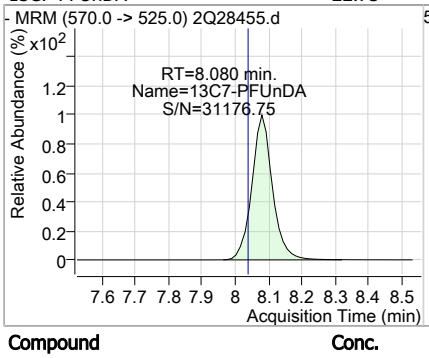
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	21.34	8.04	0.04	14075	599.0 -> 99.0	32.5	2.9	62.9

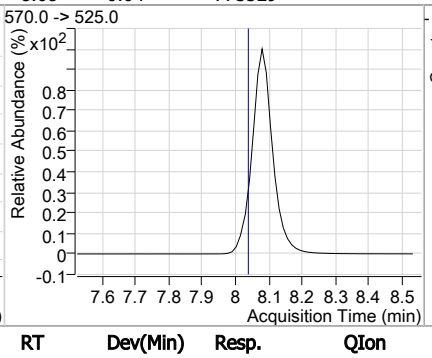


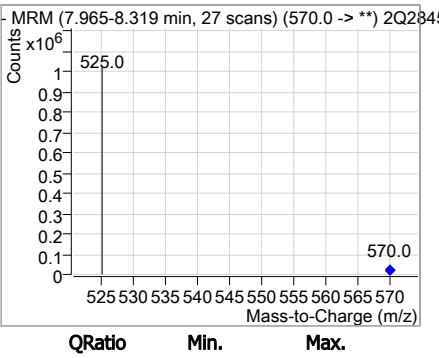




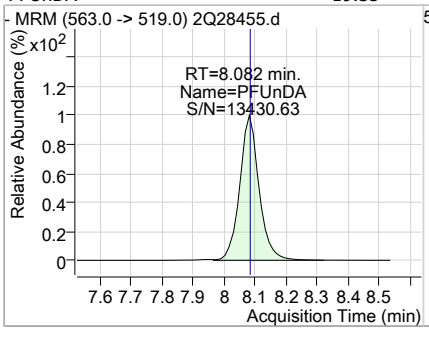
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	22.73	8.08	0.04	775529				

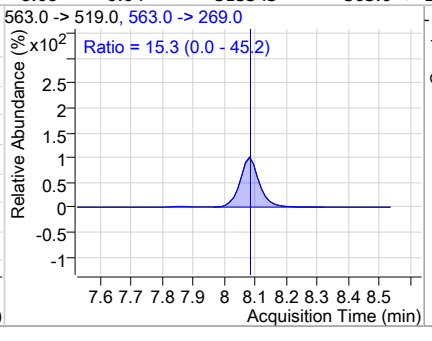


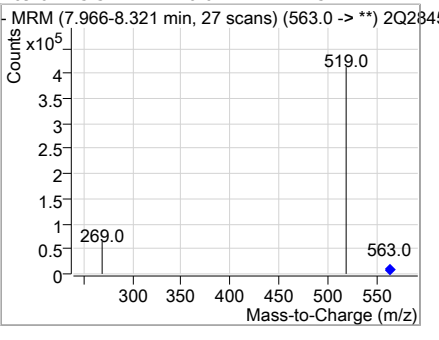




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.55	8.08	0.04	315343	563.0 -> 269.0	15.3	0.0	45.2







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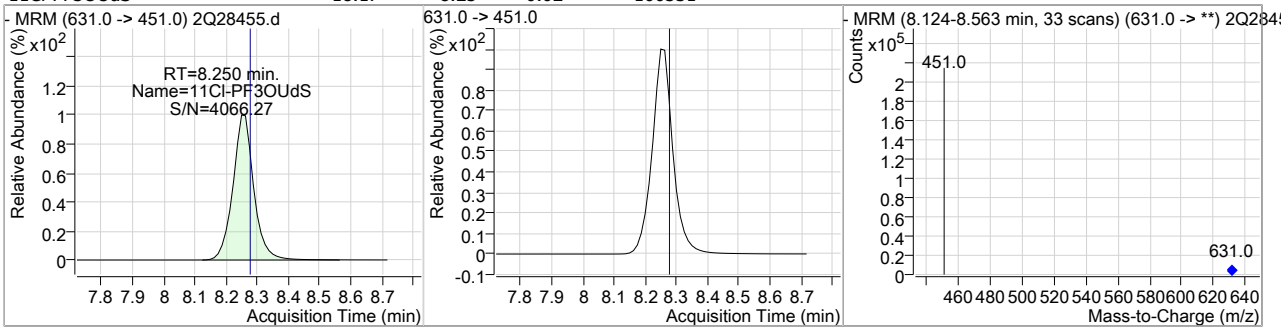
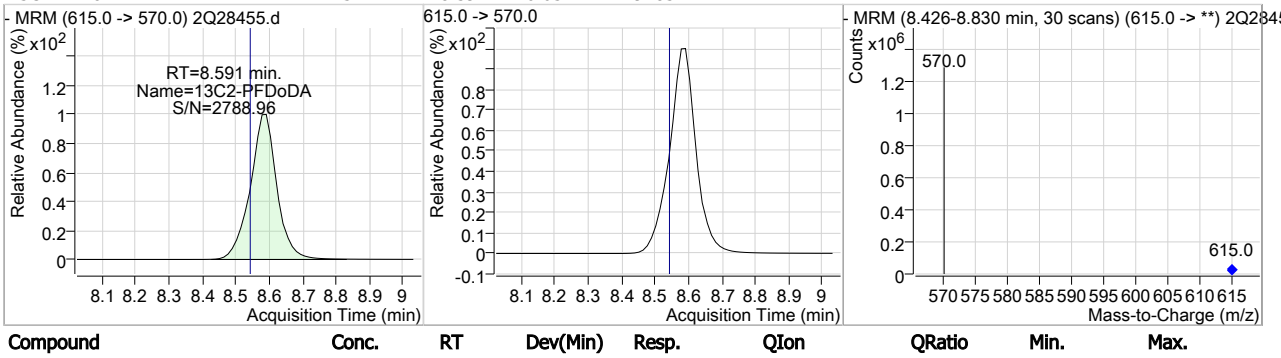
Perfluorinated Compounds by LC/MS/MS

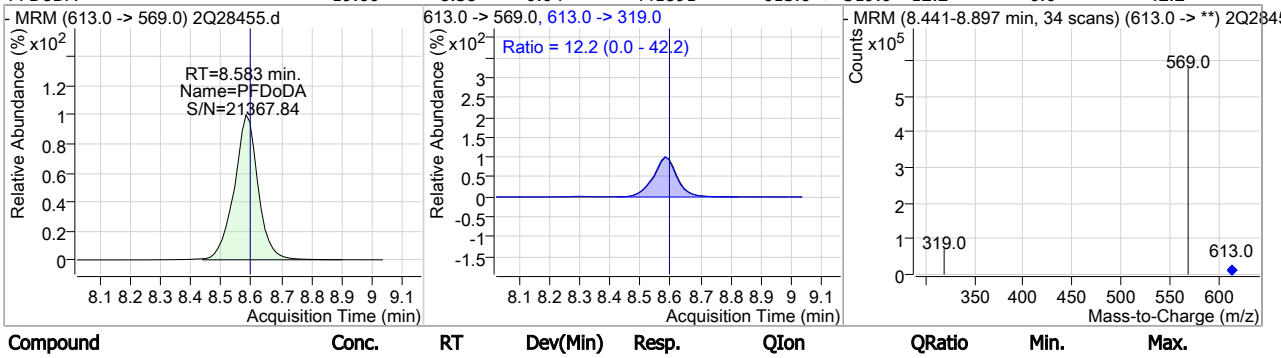
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	18.17	8.25	0.02	160531				



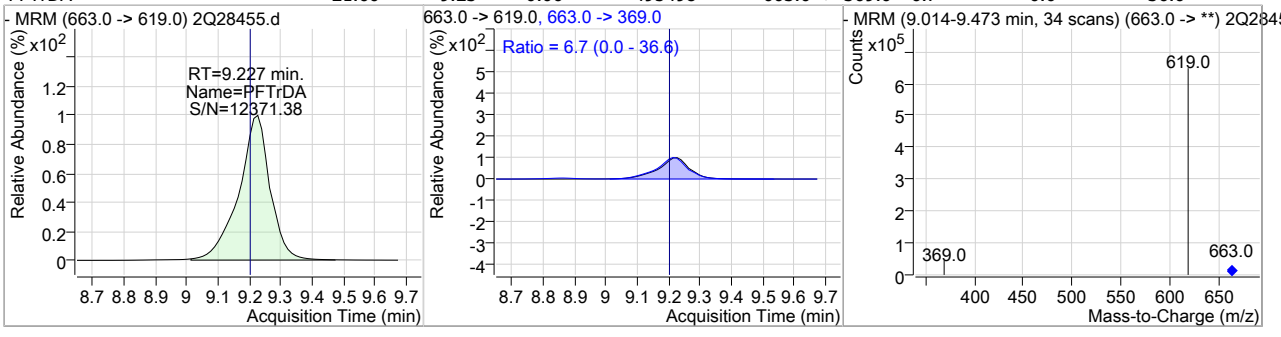
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	23.21	8.59	0.05	978321				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.60	8.58	0.04	441891	613.0 -> 319.0	12.2	0.0	42.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	21.60	9.23	0.06	495498	663.0 -> 369.0	6.7	0.0	36.6



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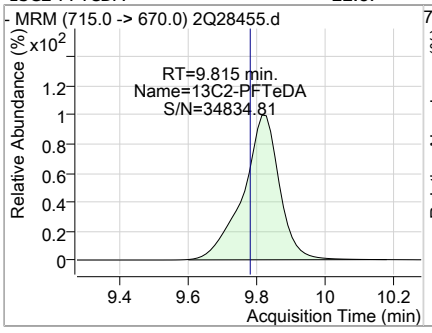
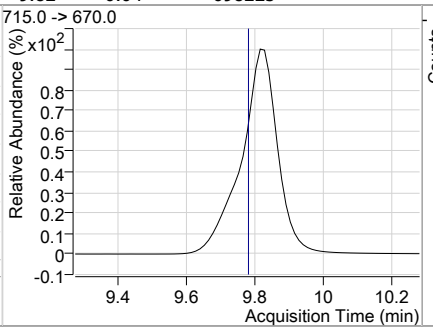
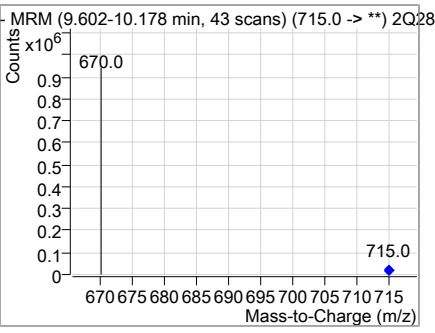
Perfluorinated Compounds by LC/MS/MS

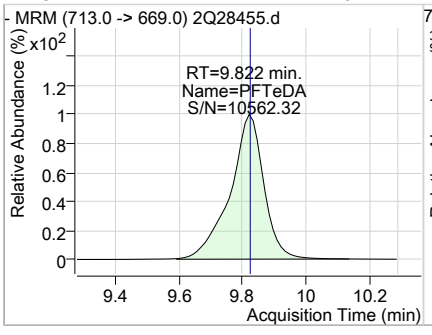
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	22.87	9.82	0.04	698225				

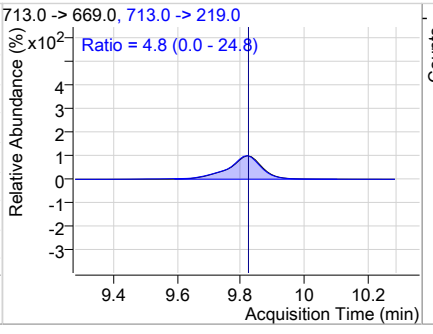


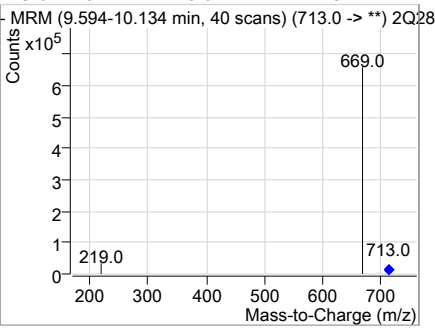




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.12	9.82	0.04	487962	713.0 -> 219.0	4.8	0.0	24.8







7.6.43

7

Manual Integration Approval Summary

Sample Number: S2Q452-CC450
Lab FileID: 2Q28455.D
Injection Time: 04/01/19 12:17
Method: EPA 537M QSM5.1 B-15
Analyst approved: 04/01/19 13:47 Natasha Gumtie
Supervisor approved: 04/01/19 16:00 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.71	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.03	Split peak

Cal Report: 2Q28523.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
04/03/19 16:28

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28523.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 4/2/2019 12:38:36 PM
Sample Name : cc450-20
Vial : Vial 7
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q453.batch.bin
Sample Information : op74351,S2Q453,250,,,1.0,1,water

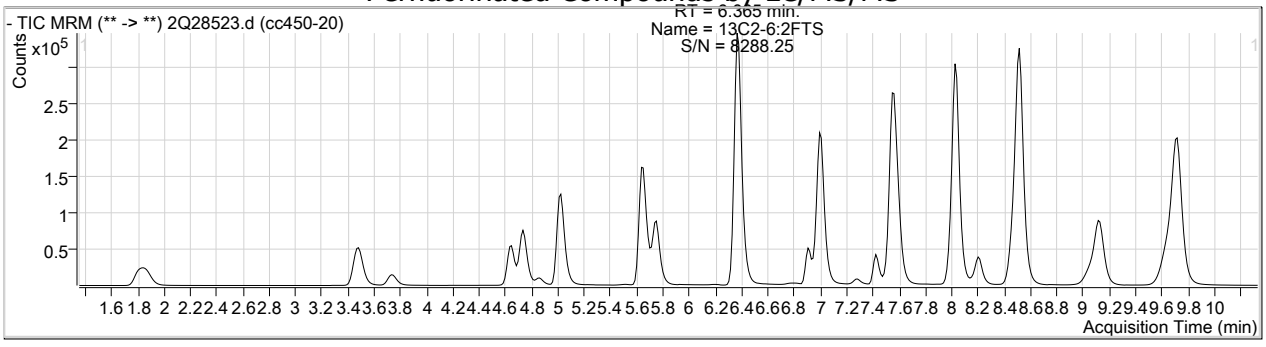
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.372	415.0 -> 370.0	491301	20.00	µg/L	-0.051
13C4-PFOS	6.985	503.0 -> 80.0	64781	20.00	µg/L	-0.052
M4-PFBA	1.840	217.0 -> 172.0	159954	20.00	µg/L	-0.025
M5-PFPeA	3.486	268.0 -> 223.0	145281	20.00	µg/L	-0.038
M5-PFHxA	4.738	318.0 -> 273.0	221495	20.00	µg/L	-0.038
M4-PFHpA	5.642	367.0 -> 322.0	341955	20.00	µg/L	-0.050
M8-PFOA	6.369	421.0 -> 376.0	364128	20.00	µg/L	-0.052
M9-PFNA	7.013	472.0 -> 427.0	422478	20.00	µg/L	-0.052
M6-PFDA	7.554	519.0 -> 474.0	608448	20.00	µg/L	-0.053
M7-PFUnDA	8.027	570.0 -> 525.0	869538	20.00	µg/L	-0.065
M2-PFDoDA	8.514	615.0 -> 570.0	1091703	20.00	µg/L	-0.089
M2-PFTeDA	9.715	715.0 -> 670.0	827524	20.00	µg/L	-0.125
M8-FOSA	6.905	506.0 -> 78.0	119591	20.00	µg/L	-0.016
M3-PFBS	3.730	302.0 -> 99.0	22676	20.00	µg/L	-0.038
M3-PFHxS	5.686	402.0 -> 99.0	25917	20.00	µg/L	-0.050
M8-PFOS	6.982	507.0 -> 99.0	35598	20.00	µg/L	-0.053
M2-4:2FTS	4.646	329.0 -> 309.0	128989	20.00	µg/L	-0.038
M2-6:2FTS	6.365	429.0 -> 409.0	180473	20.00	µg/L	-0.053
M2-8:2FTS	7.592	529.0 -> 509.0	173518	20.00	µg/L	-0.063
M3-MeFOSAA	7.421	573.0 -> 419.0	85421	20.00	µg/L	-0.013
M3-HFPO-DA	5.018	287.0 -> 169.0	204712	100.00	µg/L	-0.050
System Monitoring Compounds						
13C2-4:2FTS	4.646	329.0 -> 309.0	128754	24.31	µg/L	-0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 121.5%		
13C2-6:2FTS	6.365	429.0 -> 409.0	180417	25.81	µg/L	-0.053
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 129.1%		
13C2-8:2FTS	7.592	529.0 -> 509.0	173475	27.80	µg/L	-0.063
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 139.0%		
13C2-PFDoDA	8.514	615.0 -> 570.0	1090384	25.86	µg/L	-0.089
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 129.3%		
13C2-PFTeDA	9.715	715.0 -> 670.0	824552	27.01	µg/L	-0.125
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 135.0%		
13C3-PFBS	3.730	302.0 -> 99.0	22644	20.57	µg/L	-0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C3-PFHxS	5.686	402.0 -> 99.0	25955	20.96	µg/L	-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C4-PFBA	1.840	217.0 -> 172.0	159317	21.32	µg/L	-0.025
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.6%		
13C4-PFHpA	5.642	367.0 -> 322.0	341417	22.18	µg/L	-0.050
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.9%		
13C5-PFHxA	4.738	318.0 -> 273.0	221298	21.81	µg/L	-0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 109.1%		
13C5-PFPeA	3.486	268.0 -> 223.0	145286	21.57	µg/L	-0.038
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.8%		
13C6-PFDA	7.554	519.0 -> 474.0	608269	23.64	µg/L	-0.053

Perfluorinated Compounds by LC/MS/MS

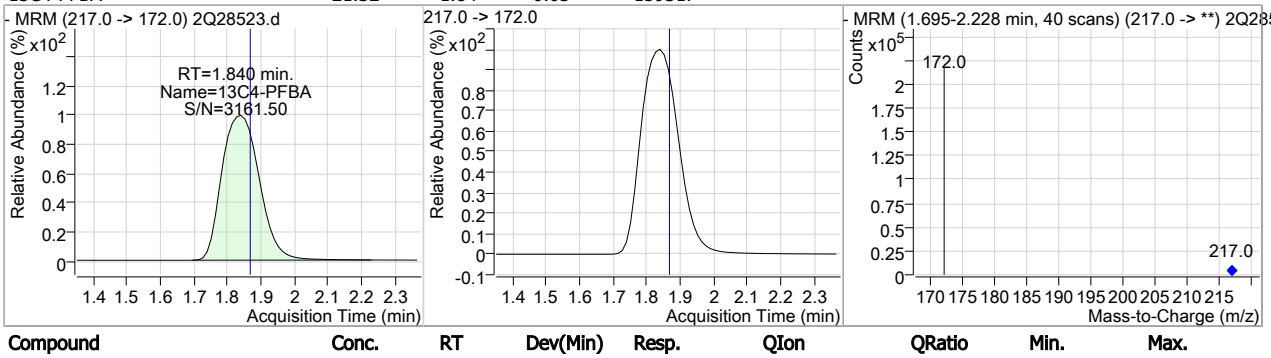
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 118.2%		
13C7-PFUnDA	8.027	570.0 -> 525.0	869293	25.48 µg/L		-0.065
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 127.4%		
13C8-FOSA	6.905	506.0 -> 78.0	119517	21.58 µg/L		-0.016
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.9%		
13C8-PFOA	6.369	421.0 -> 376.0	364038	22.47 µg/L		-0.052
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.4%		
13C8-PFOS	6.982	507.0 -> 99.0	35578	20.97 µg/L		-0.053
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.8%		
13C9-PFNA	7.013	472.0 -> 427.0	422335	23.29 µg/L		-0.052
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 116.4%		
d3-MeFOSAA	7.421	573.0 -> 419.0	85375	25.00 µg/L		-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 125.0%		
M2-PFOA	6.372	415.0 -> 370.0	491431	19.99 µg/L		-0.051
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	6.985	503.0 -> 80.0	64603	19.94 µg/L		-0.052
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C3-HFPO-DA	5.018	287.0 -> 169.0	204712	105.94 µg/L		-0.050
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 105.9%		
Target Compounds						QValue
4:2FTS	4.649	327.0 -> 307.0	74508	19.91 µg/L		100
6:2FTS	6.367	427.0 -> 407.0	90100	19.74 µg/L		100
8:2FTS	7.593	527.0 -> 507.0	89402	19.94 µg/L		100
EtFOSAA	7.572	584.0 -> 419.0	38893	23.16 µg/L		97
FOSA	6.908	498.0 -> 78.0	55598	19.30 µg/L		99
MeFOSAA	7.422	570.0 -> 419.0	45080	19.77 µg/L		98
PFBA	1.835	213.0 -> 169.0	30783	19.37 µg/L		100
PFBS	3.733	299.0 -> 80.0	36653	19.89 µg/L		100
PFDA	7.555	513.0 -> 469.0	262980	19.72 µg/L		100
PFDoDA	8.516	613.0 -> 569.0	498883	19.83 µg/L		100
PFDS	7.986	599.0 -> 80.0	14611	21.47 µg/L		99
PFHpA	5.645	363.0 -> 319.0	297738	19.86 µg/L		100
PFHpS	6.376	449.0 -> 80.0	26807	20.07 µg/L		99
PFHxA	4.740	313.0 -> 269.0	76191	19.68 µg/L		100
PFHxS	5.688	399.0 -> 80.0	30102	19.58 µg/L	m	100
PFNA	7.014	463.0 -> 419.0	277666	19.98 µg/L		100
PFNS	7.524	549.0 -> 80.0	28463	21.15 µg/L		99
PFOA	6.374	413.0 -> 369.0	192685	19.74 µg/L		100
PFOS	6.986	499.0 -> 80.0	33491	19.38 µg/L	m	82
PFPeA	3.490	263.0 -> 219.0	127964	19.84 µg/L		100
PFPeS	4.858	349.0 -> 80.0	25957	20.15 µg/L		98
PFTeDA	9.707	713.0 -> 669.0	561564	19.72 µg/L		100
PFTrDA	9.114	663.0 -> 619.0	542281	20.13 µg/L		99
PFUnDA	8.029	563.0 -> 519.0	351139	19.44 µg/L		100
11Cl-PF3OUdS	8.199	631.0 -> 451.0	162793	16.51 µg/L		100
9Cl-PF3ONS	7.285	531.0 -> 351.0	29545	16.30 µg/L		100
ADONA	5.754	377.0 -> 251.0	328671	18.25 µg/L		100
HFPO-DA	5.022	329.0 -> 169.0	272093	110.93 µg/L		96

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

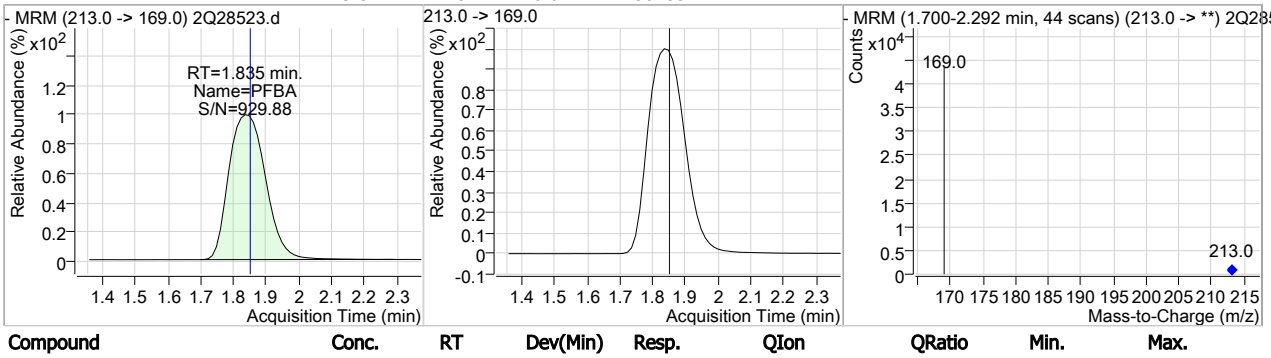
Perfluorinated Compounds by LC/MS/MS



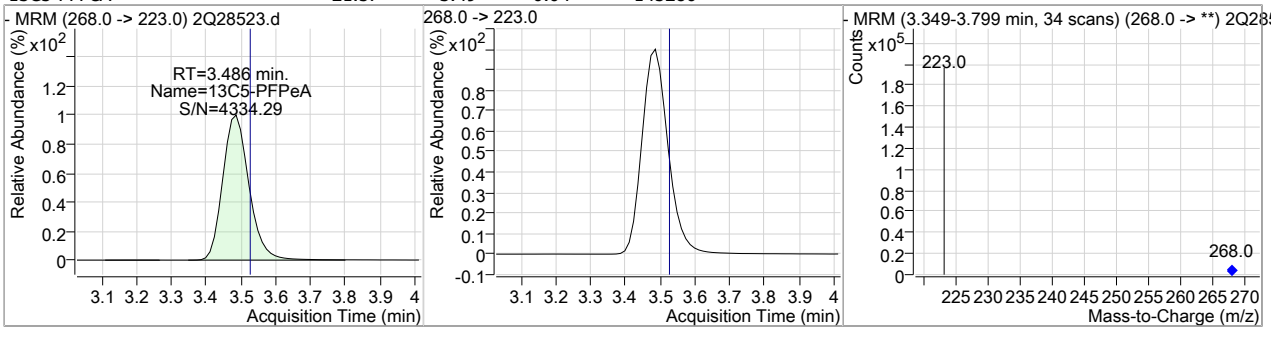
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.32	1.84	-0.03	159317				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.37	1.84	-0.04	30783				

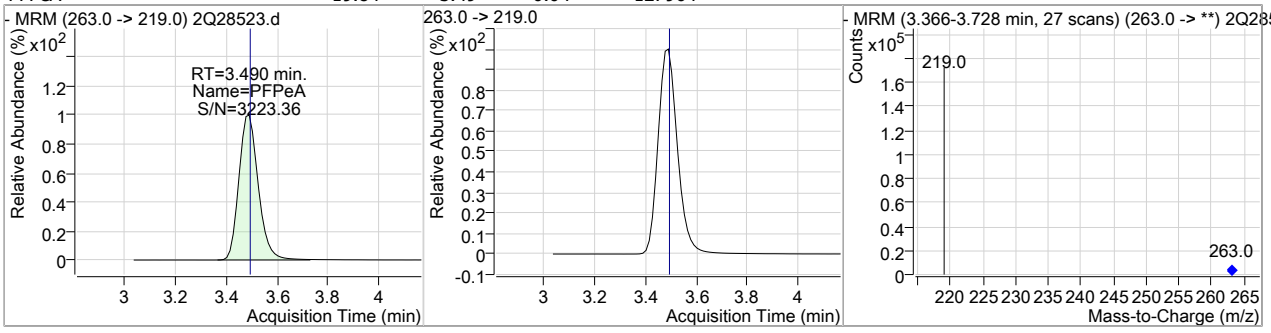


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	21.57	3.49	-0.04	145286				

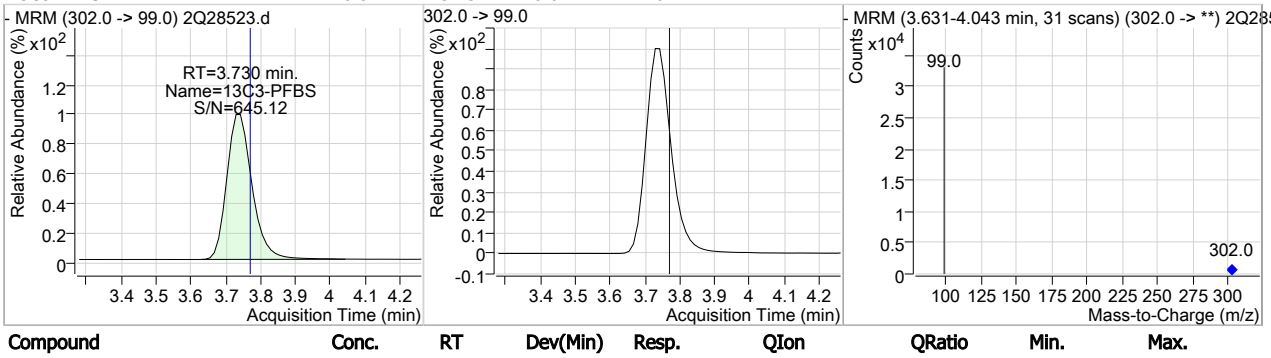


Perfluorinated Compounds by LC/MS/MS

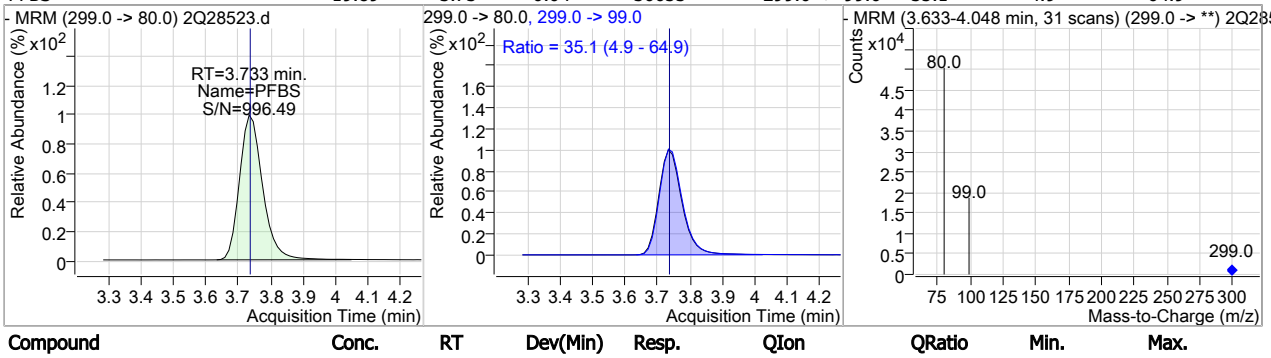
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.84	3.49	-0.04	127964				



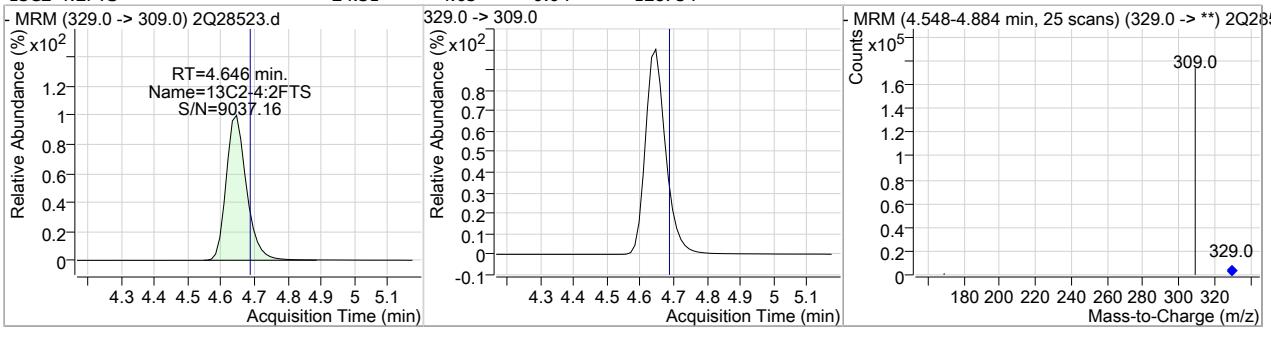
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.57	3.73	-0.04	22644				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.89	3.73	-0.04	36653	299.0 -> 99.0	35.1	4.9	64.9

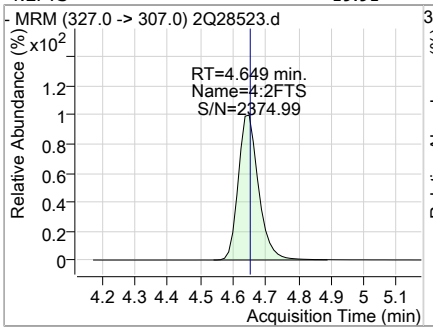


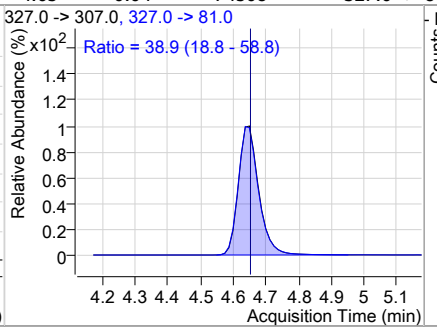
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	24.31	4.65	-0.04	128754				

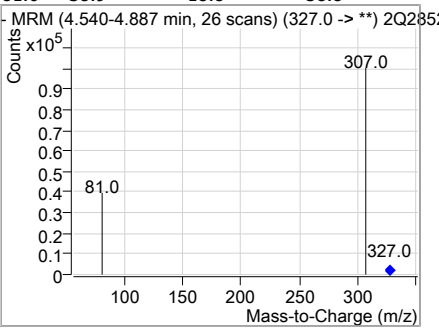


Perfluorinated Compounds by LC/MS/MS

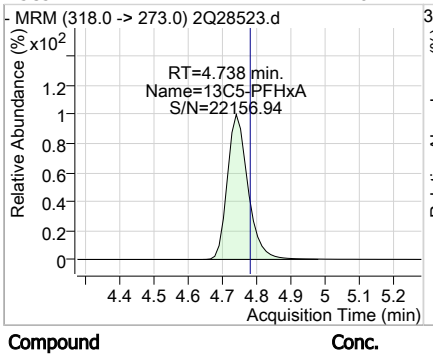
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.91	4.65	-0.04	74508	327.0 -> 81.0	38.9	18.8	58.8

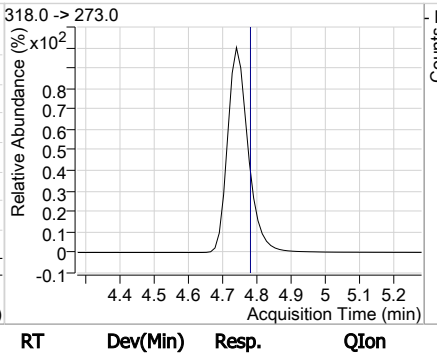


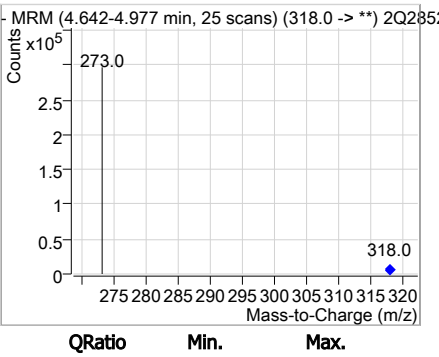




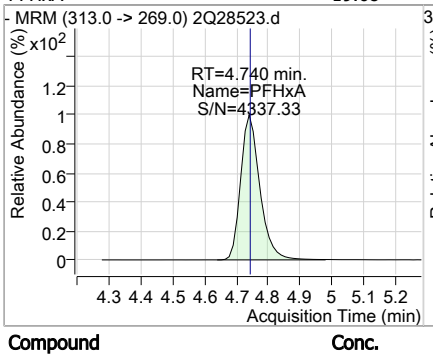
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.81	4.74	-0.04	221298				

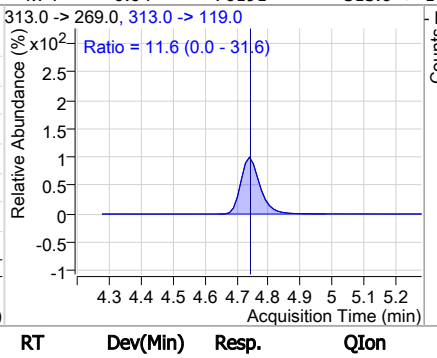


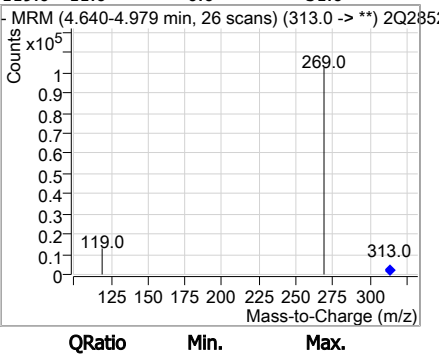




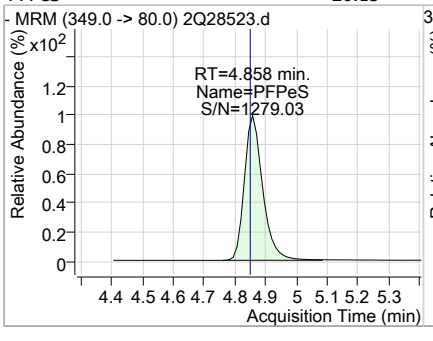
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.68	4.74	-0.04	76191	313.0 -> 119.0	11.6	0.0	31.6

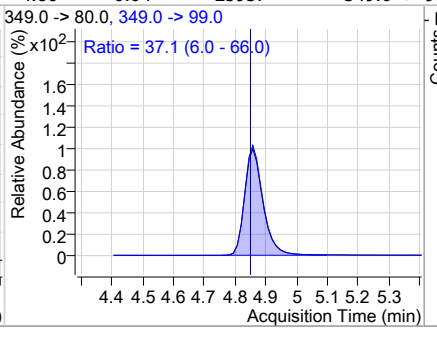


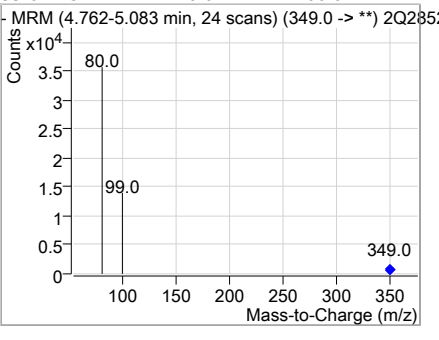




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.15	4.86	-0.04	25957	349.0 -> 99.0	37.1	6.0	66.0



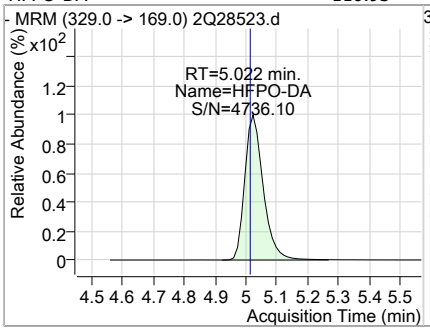


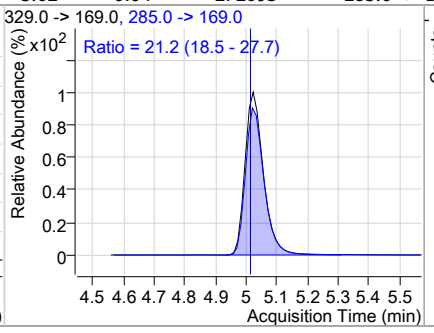


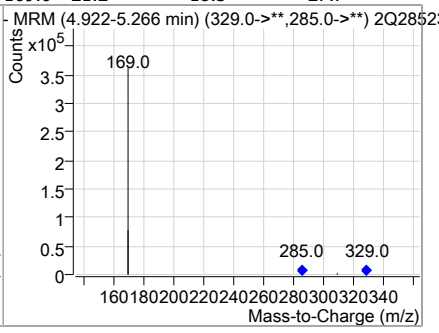
7.6.44

Perfluorinated Compounds by LC/MS/MS

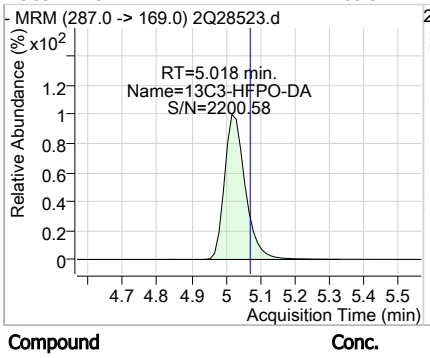
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	110.93	5.02	-0.04	272093	285.0 -> 169.0	21.2	18.5	27.7

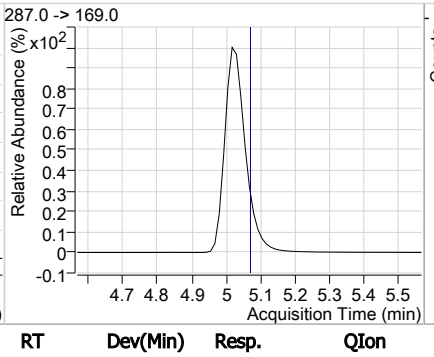


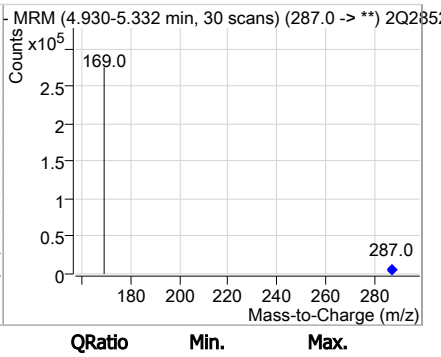




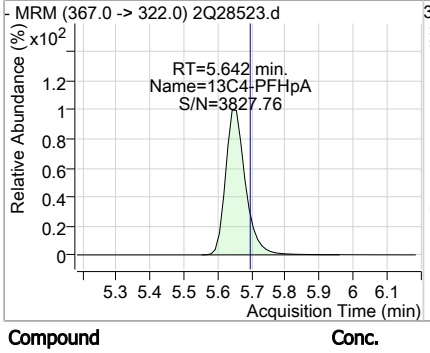
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	105.94	5.02	-0.05	204712				

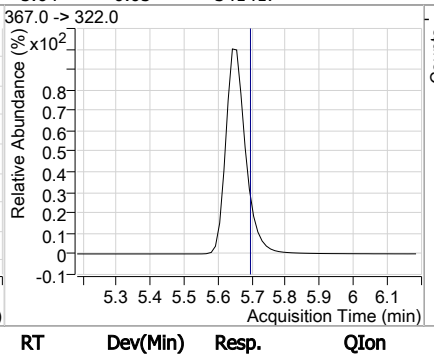


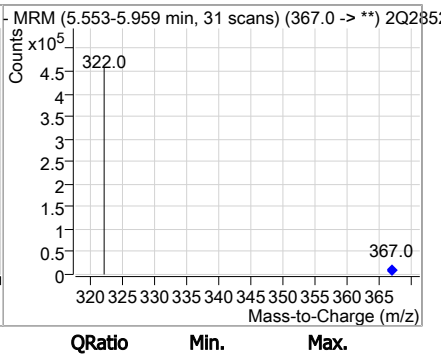




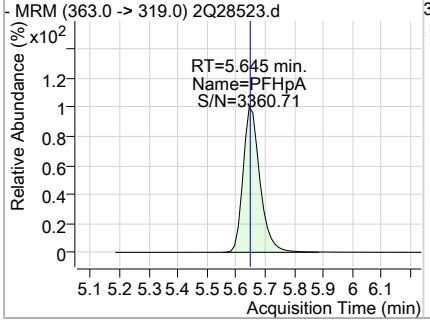
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	22.18	5.64	-0.05	341417				

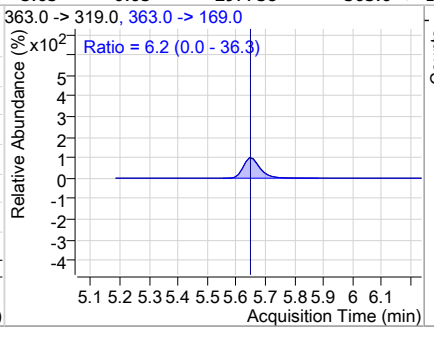


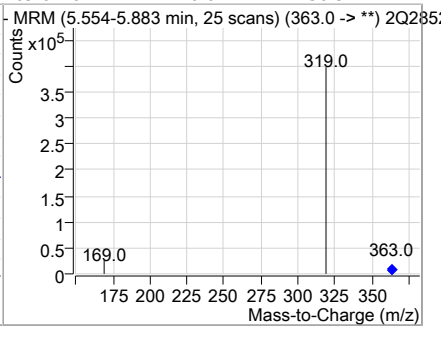




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.86	5.65	-0.05	297738	363.0 -> 169.0	6.2	0.0	36.3

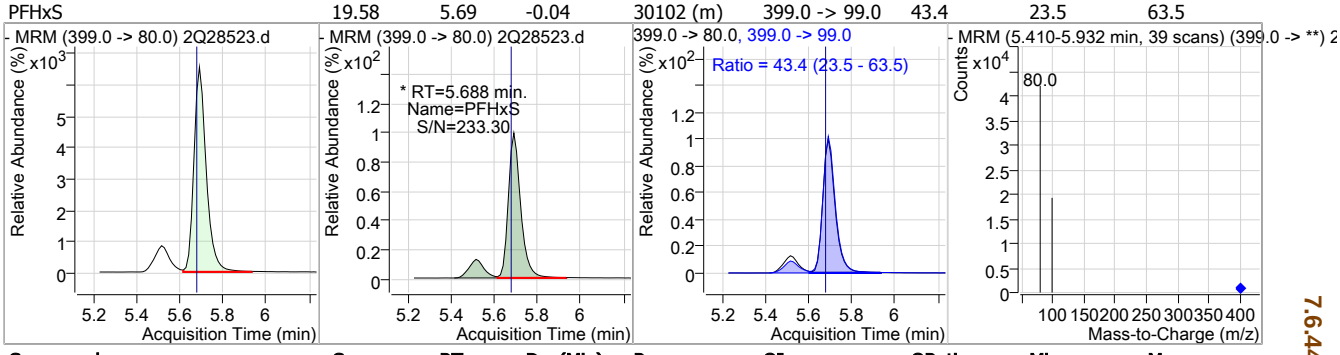




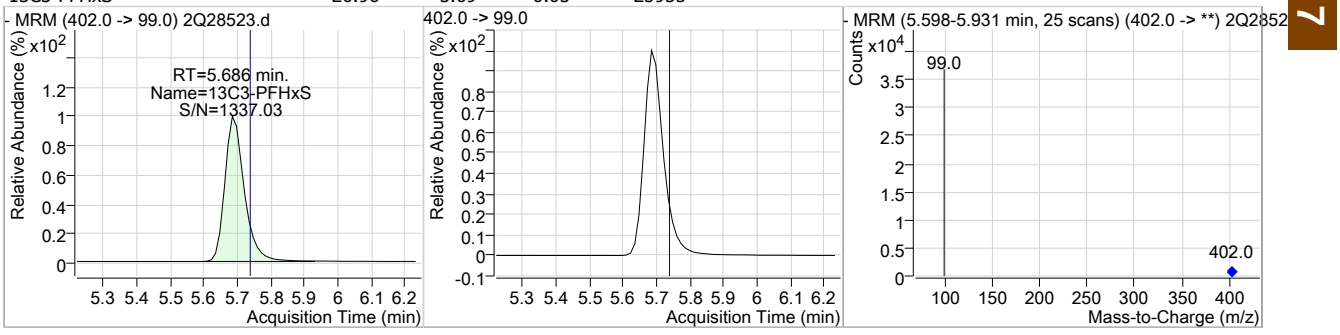


Perfluorinated Compounds by LC/MS/MS

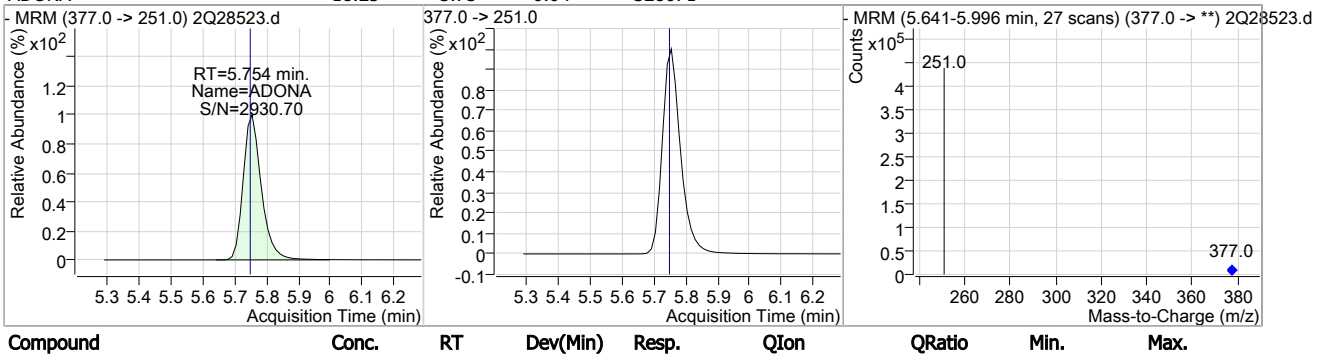
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.58	5.69	-0.04	30102 (m)	399.0 -> 99.0	43.4	23.5	63.5



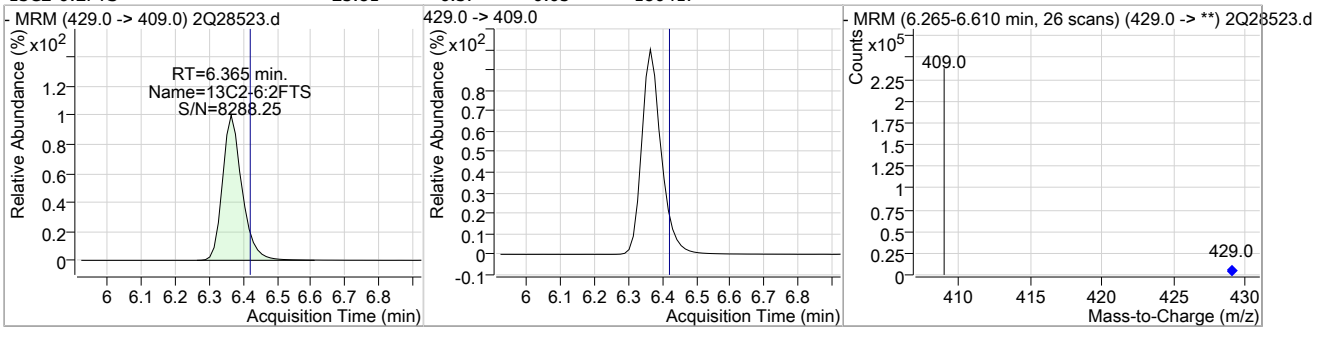
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.96	5.69	-0.05	25955				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.25	5.75	-0.04	328671				

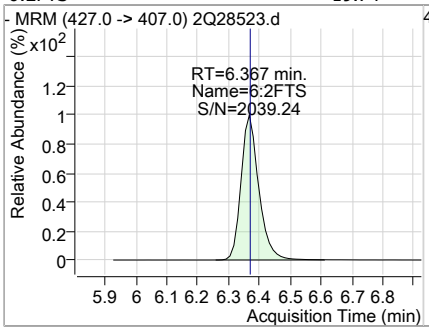


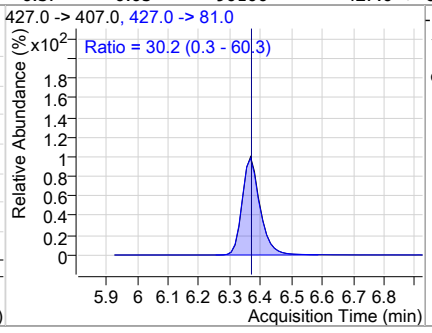
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	25.81	6.37	-0.05	180417				

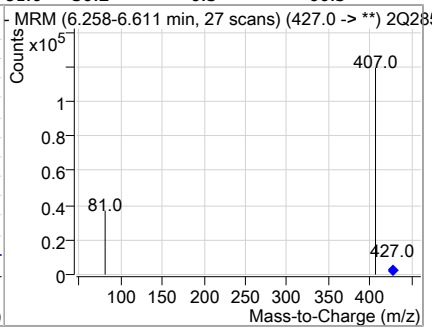


Perfluorinated Compounds by LC/MS/MS

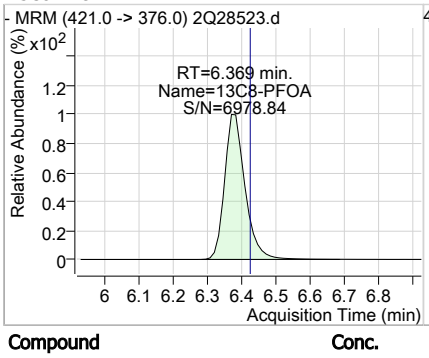
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.74	6.37	-0.05	90100	427.0 -> 81.0	30.2	0.3	60.3

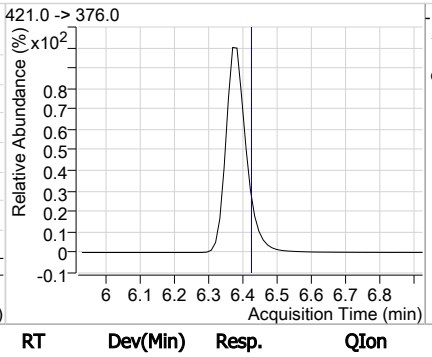


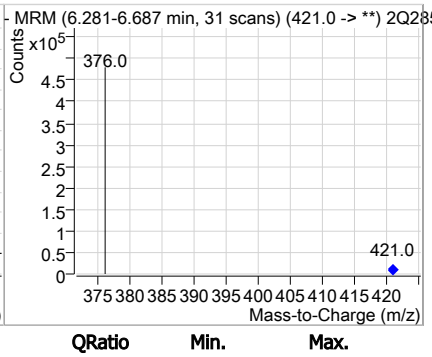




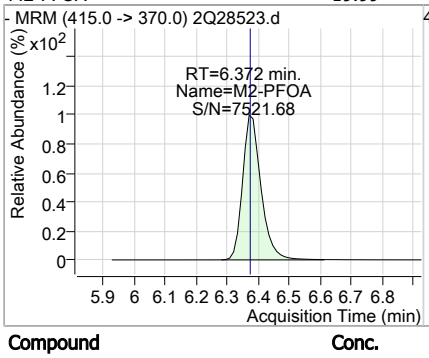
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	22.47	6.37	-0.05	364038				

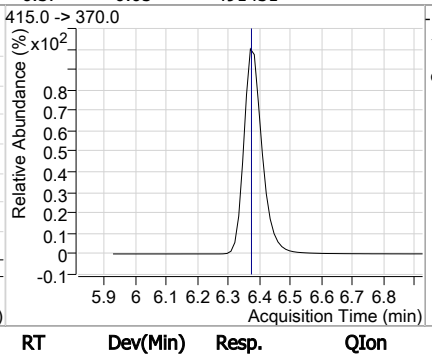


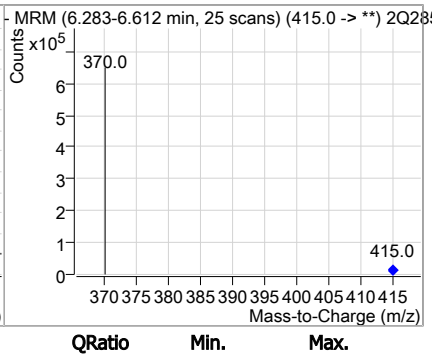




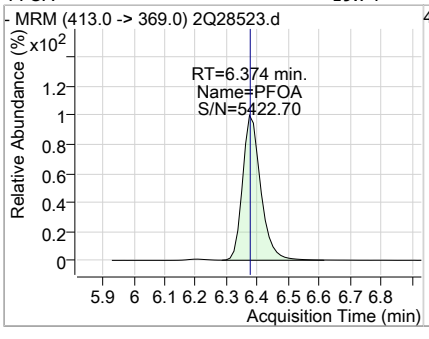
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	19.99	6.37	-0.05	491431				

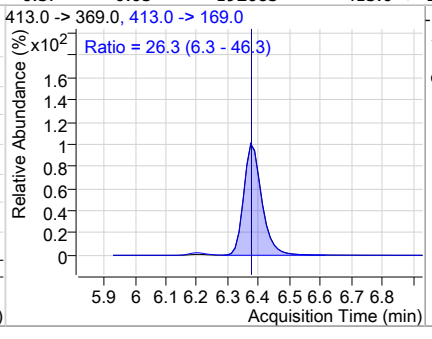


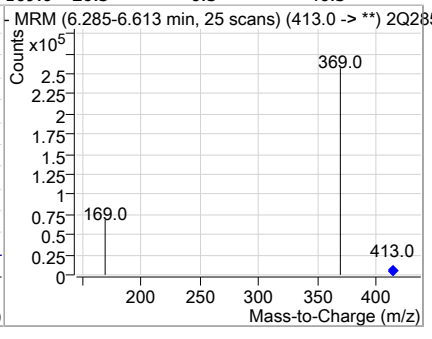




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.74	6.37	-0.05	192685	413.0 -> 169.0	26.3	6.3	46.3



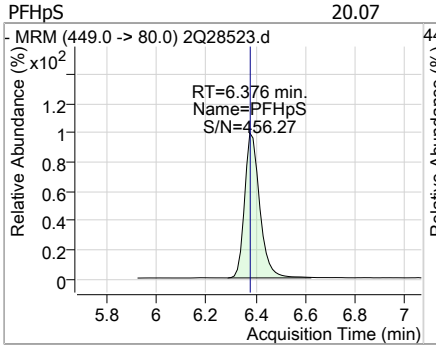


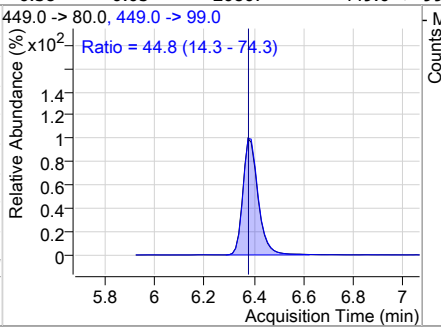


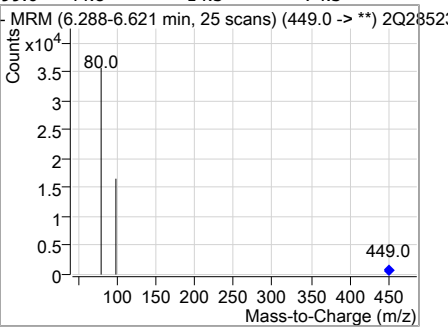
7.6.44

Perfluorinated Compounds by LC/MS/MS

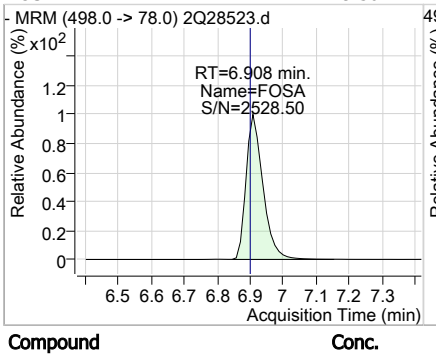
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.07	6.38	-0.05	26807	449.0 -> 99.0	44.8	14.3	74.3

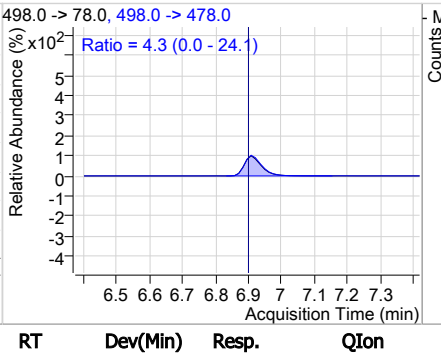


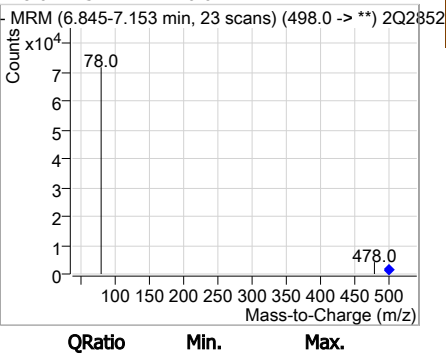




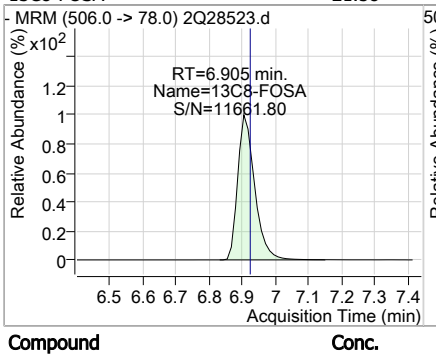
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.30	6.91	0.00	55598	498.0 -> 478.0	4.3	0.0	24.1

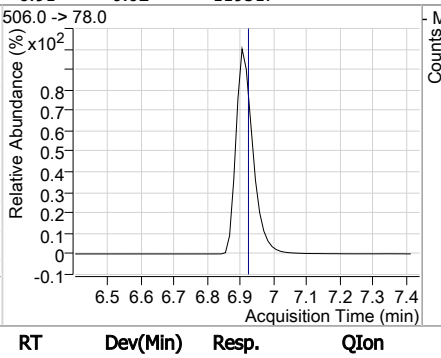


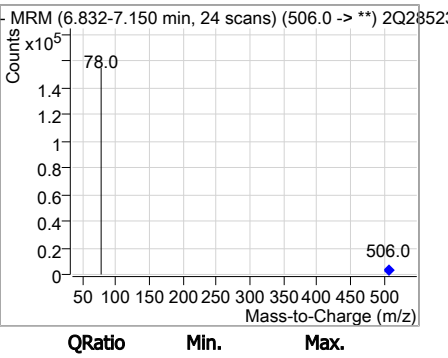




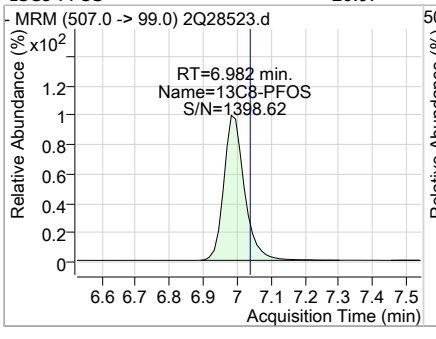
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.58	6.91	-0.02	119517				

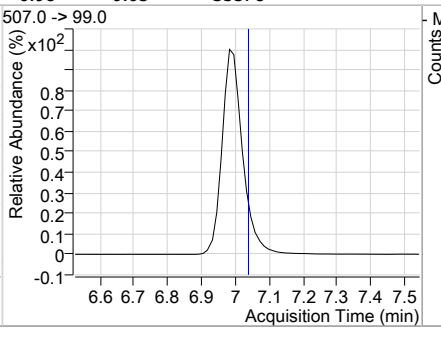


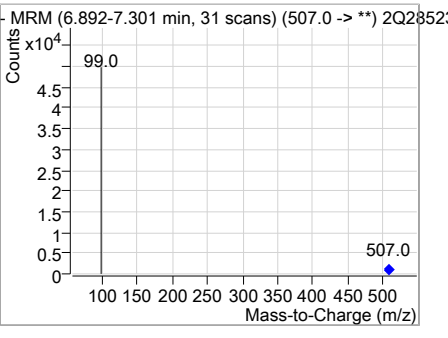




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	20.97	6.98	-0.05	35578				



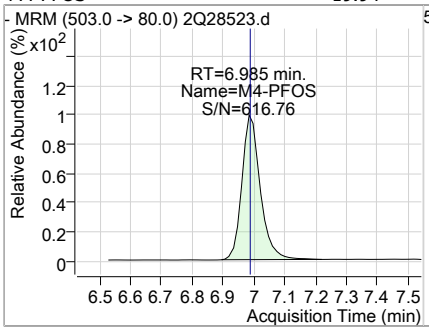


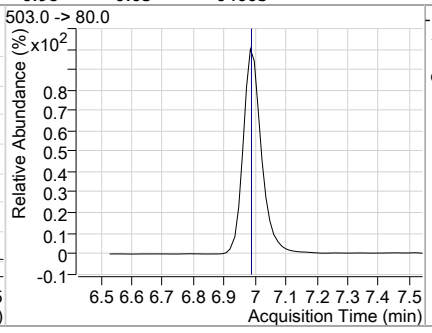


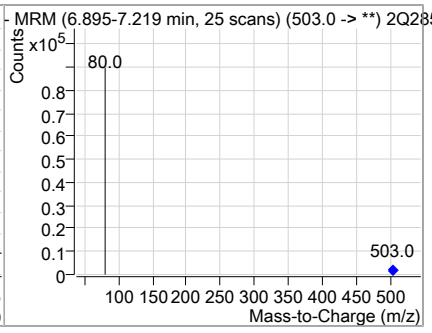
7.6.44

Perfluorinated Compounds by LC/MS/MS

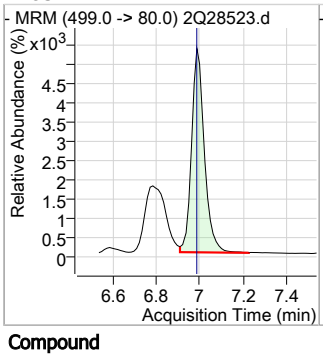
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	19.94	6.98	-0.05	64603				

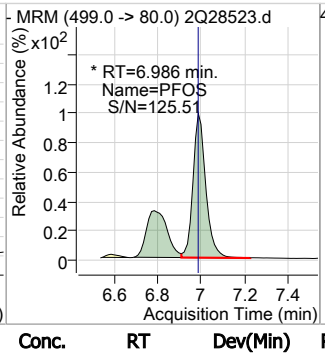


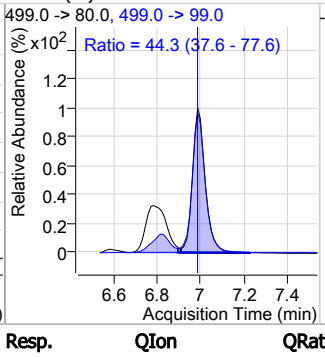


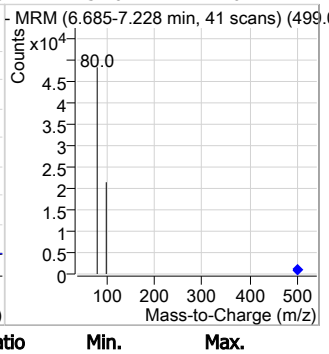


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.38	6.99	-0.05	33491 (m)	499.0 -> 99.0	44.3	37.6	77.6

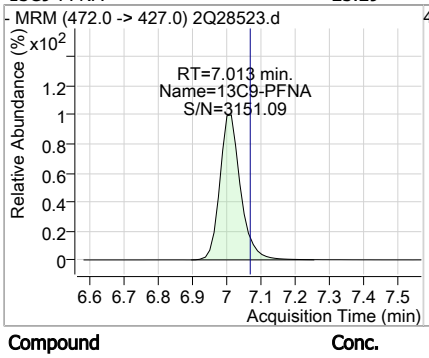


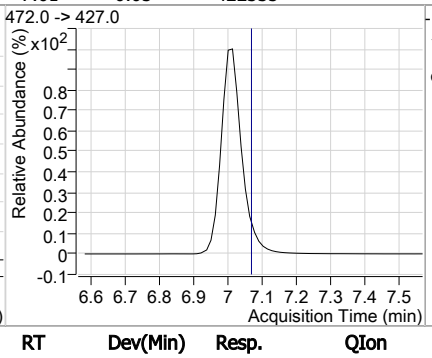


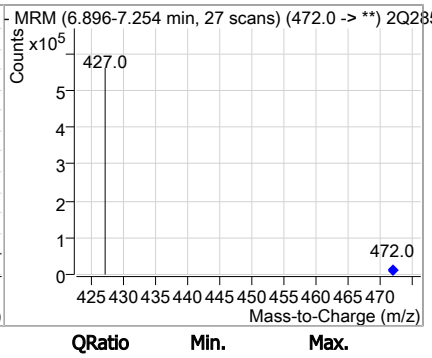




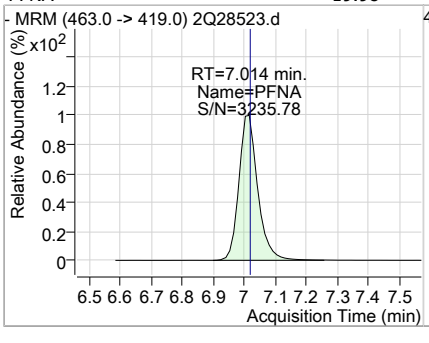
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	23.29	7.01	-0.05	422335				

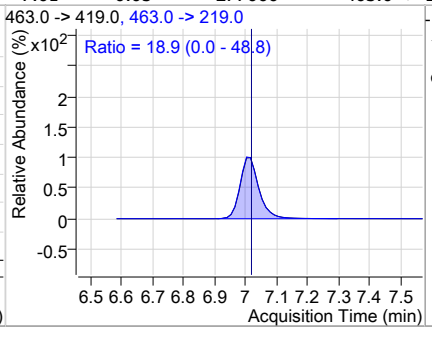


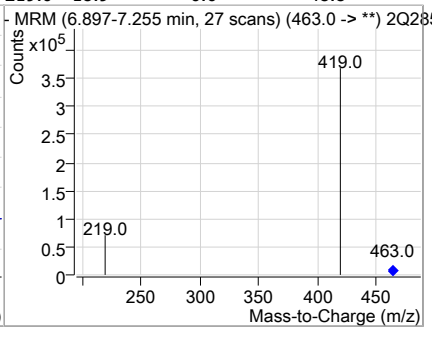




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.98	7.01	-0.05	277666	463.0 -> 219.0	18.9	0.0	48.8



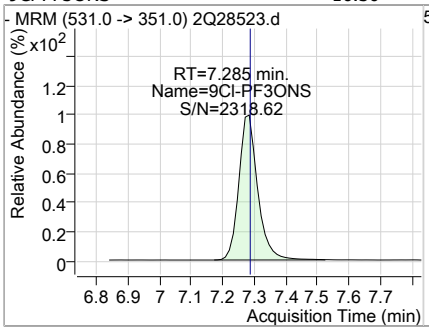


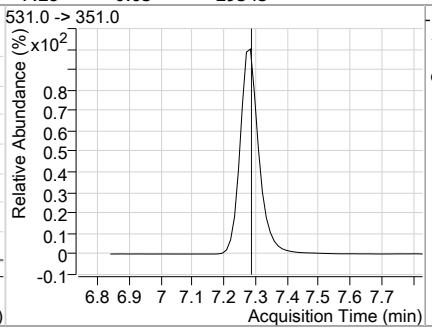


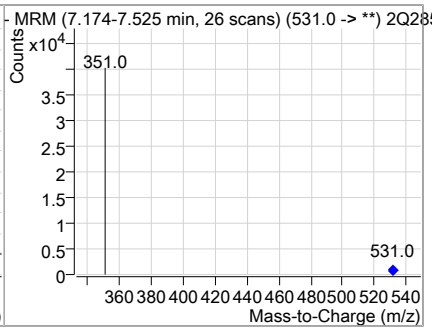
7.6.44

Perfluorinated Compounds by LC/MS/MS

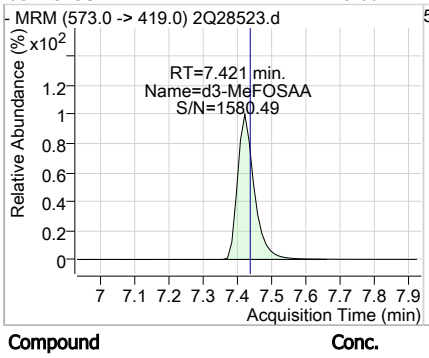
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	16.30	7.28	-0.05	29545				

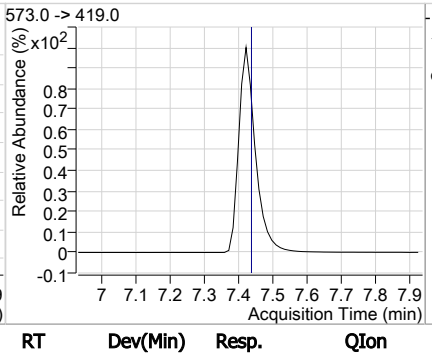


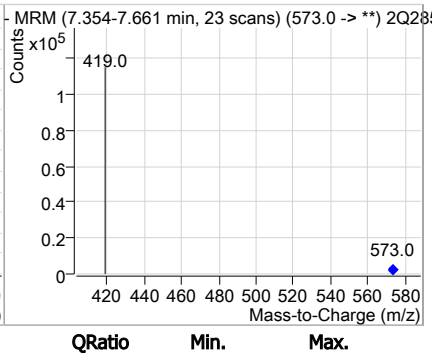




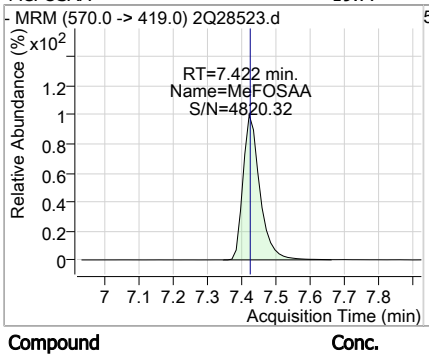
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	25.00	7.42	-0.01	85375				

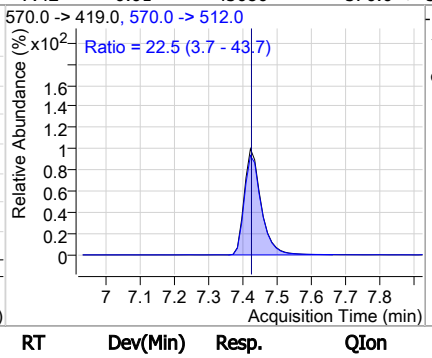


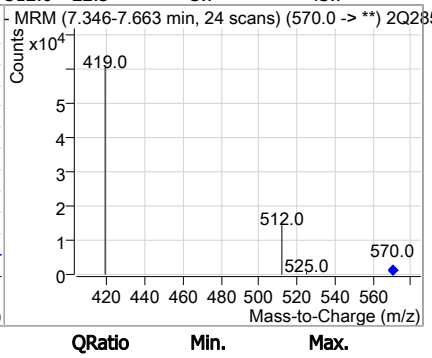




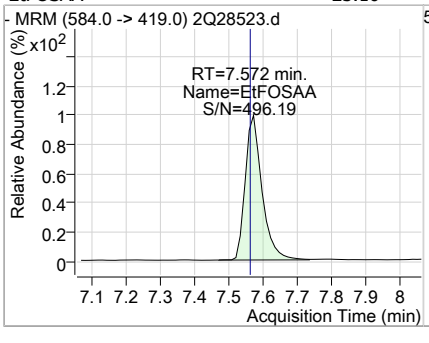
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.77	7.42	-0.01	45080	570.0 -> 512.0	22.5	3.7	43.7

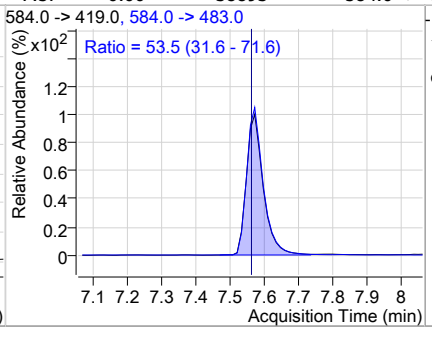


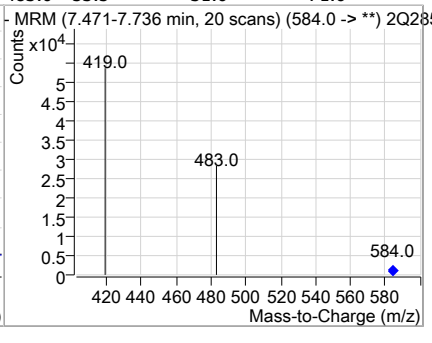




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	23.16	7.57	0.00	38893	584.0 -> 483.0	53.5	31.6	71.6



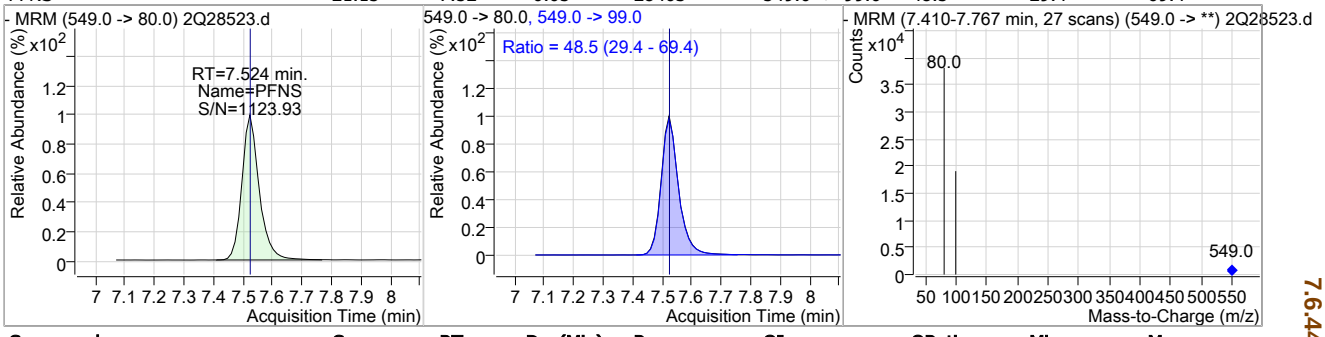




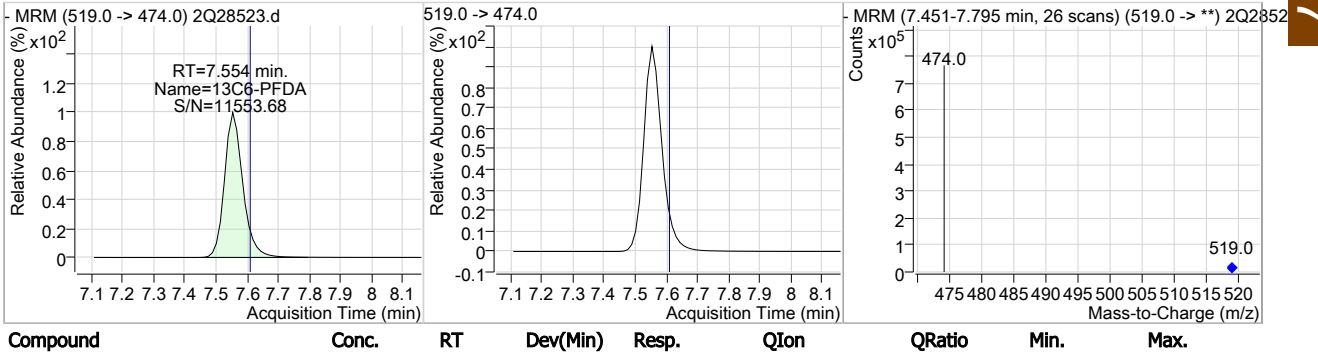
7.6.44

Perfluorinated Compounds by LC/MS/MS

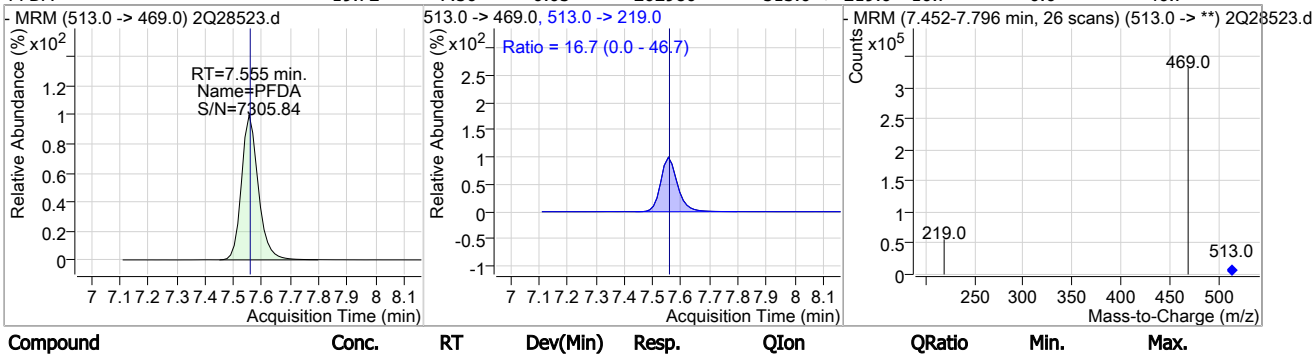
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	21.15	7.52	-0.05	28463	549.0 -> 99.0	48.5	29.4	69.4



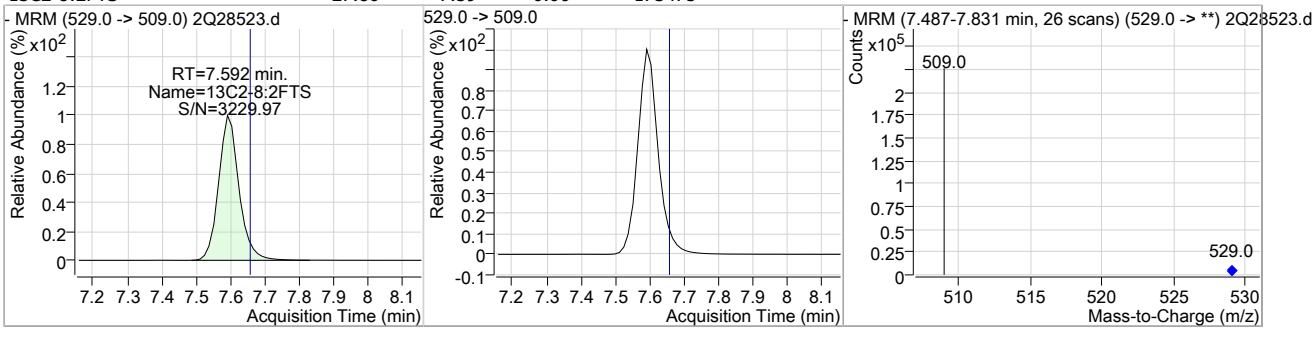
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	23.64	7.55	-0.05	608269				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.72	7.56	-0.05	262980	513.0 -> 219.0	16.7	0.0	46.7



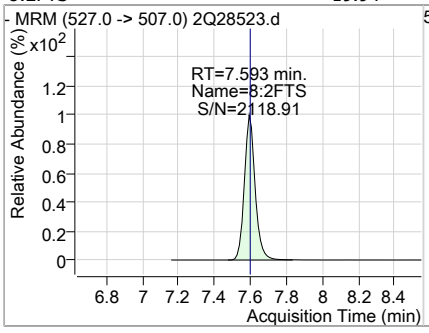
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	27.80	7.59	-0.06	173475				

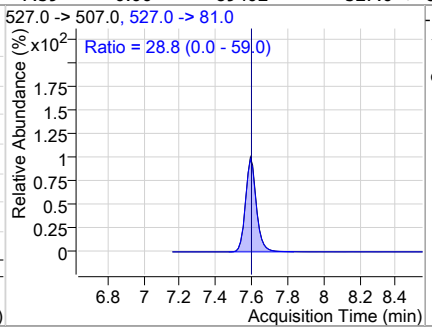


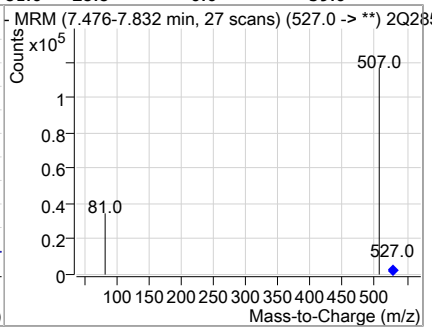
7.6.44

Perfluorinated Compounds by LC/MS/MS

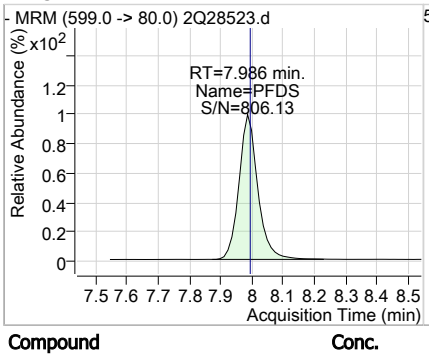
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.94	7.59	-0.06	89402	527.0 -> 81.0	28.8	0.0	59.0

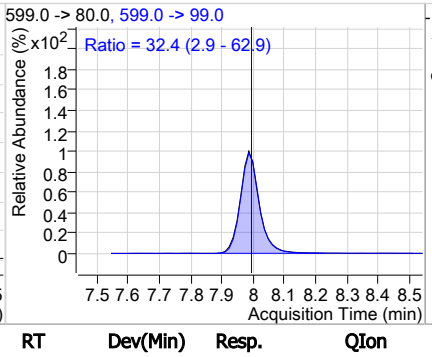


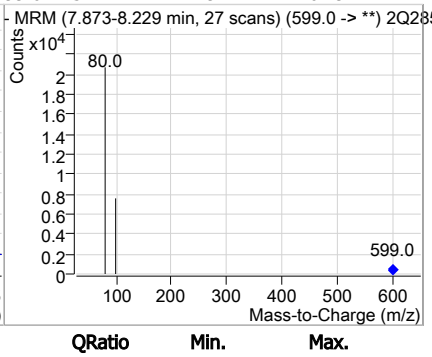




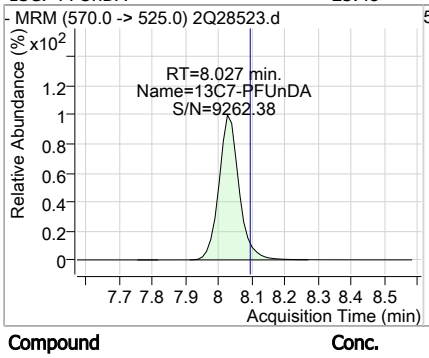
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	21.47	7.99	-0.07	14611	599.0 -> 99.0	32.4	2.9	62.9

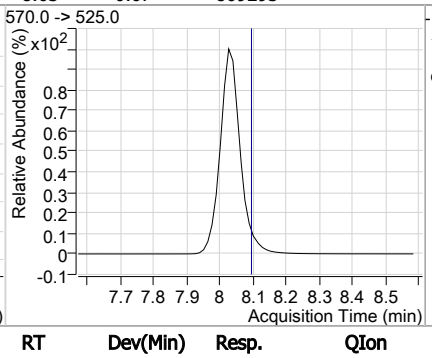


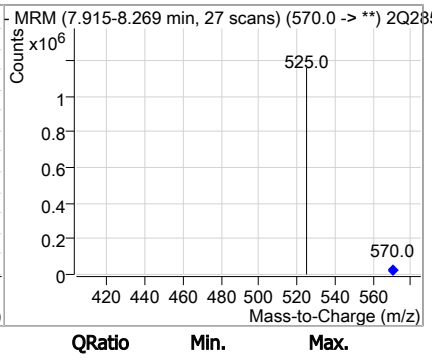




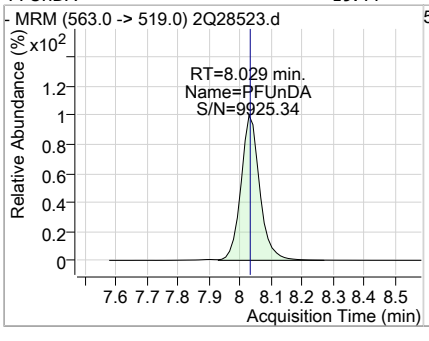
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	25.48	8.03	-0.07	869293				

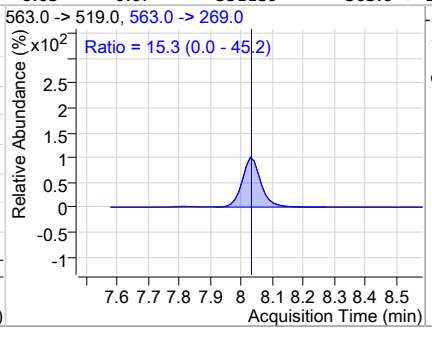


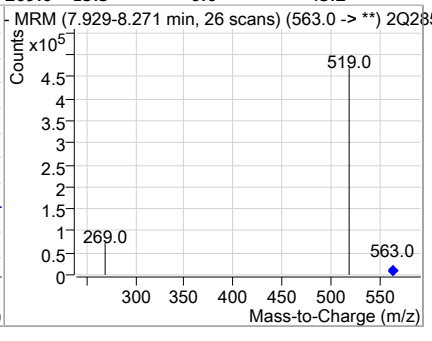




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.44	8.03	-0.07	351139	563.0 -> 269.0	15.3	0.0	45.2







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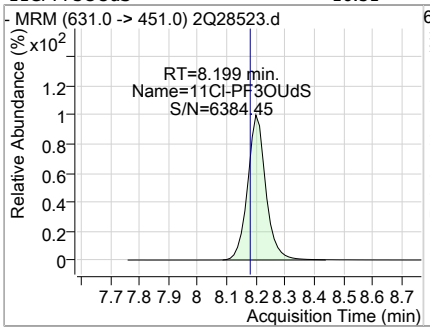
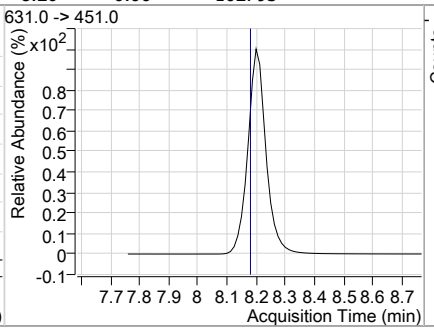
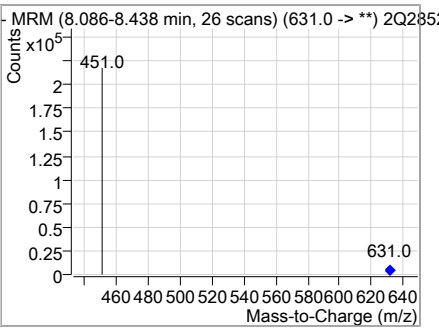
Perfluorinated Compounds by LC/MS/MS

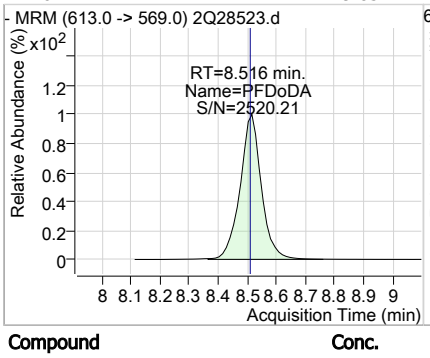
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	16.51	8.20	-0.06	162793				

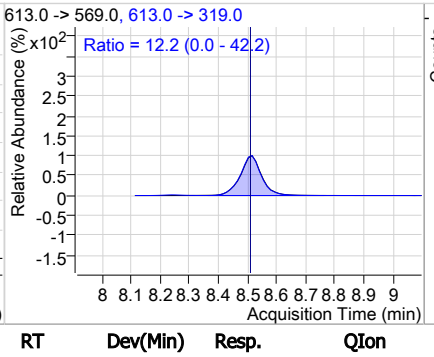


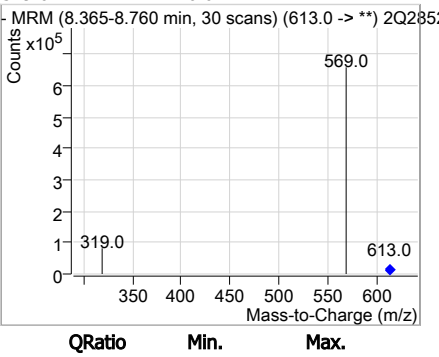




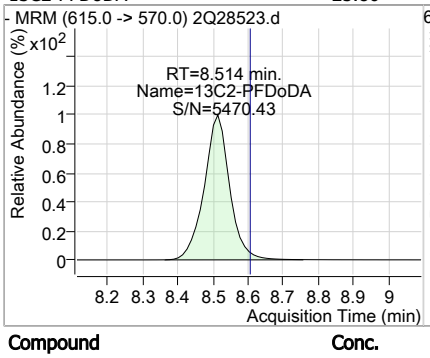
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.83	8.52	-0.08	498883	613.0 -> 319.0	12.2	0.0	42.2

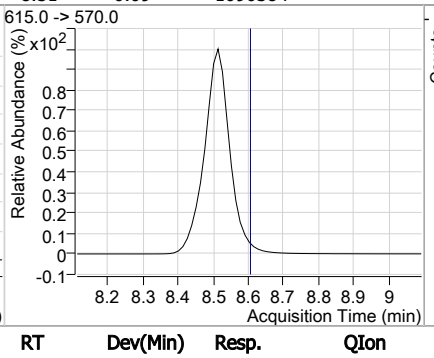


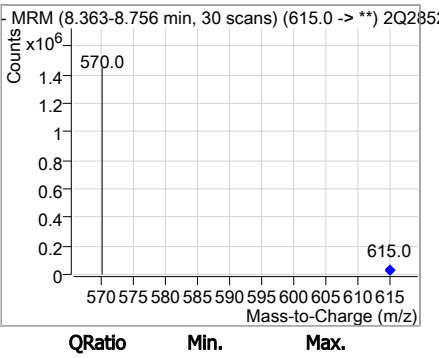




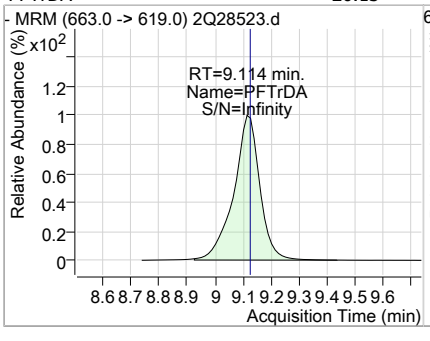
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	25.86	8.51	-0.09	1090384				

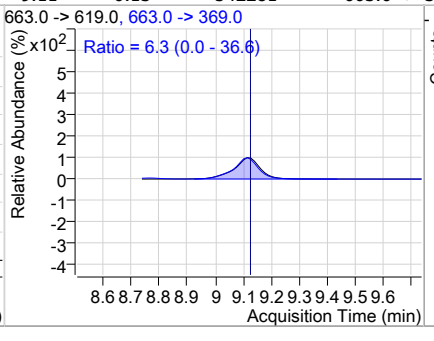


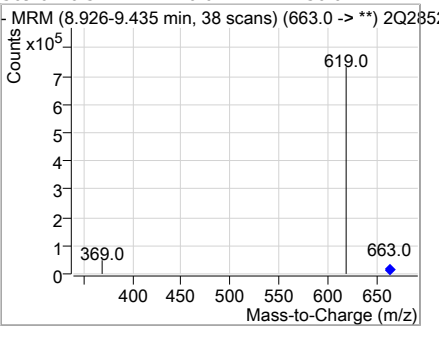




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.13	9.11	-0.13	542281	663.0 -> 369.0	6.3	0.0	36.6







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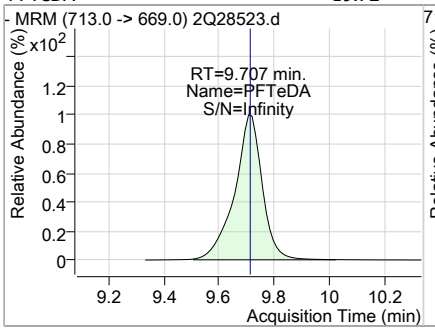
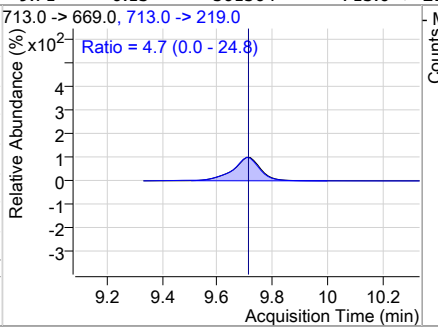
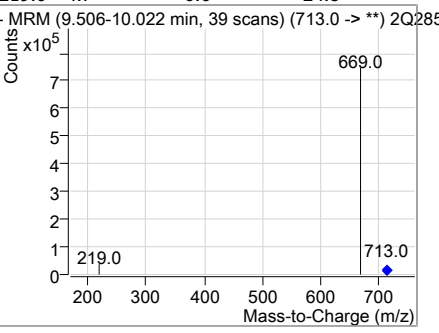
Perfluorinated Compounds by LC/MS/MS

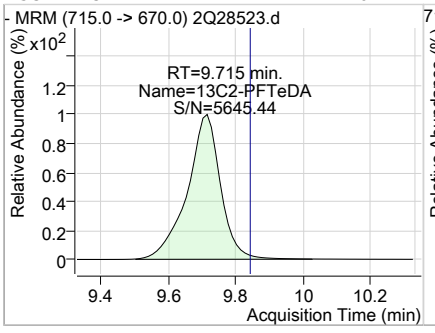
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.72	9.71	-0.13	561564	713.0 -> 219.0	4.7	0.0	24.8

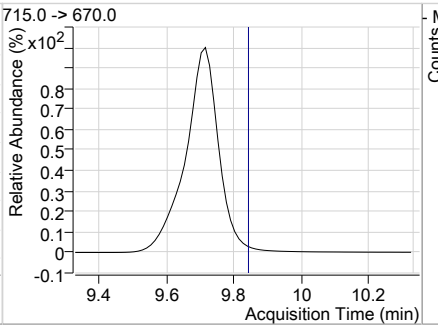


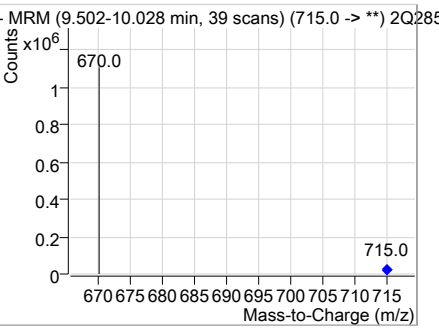




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	27.01	9.72	-0.13	824552				







7.6.44

Manual Integration Approval Summary

Sample Number: S2Q453-CC450 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28523.D **Analyst approved:** 04/03/19 09:04 Natasha Gumtie
Injection Time: 04/02/19 12:38 **Supervisor approved:** 04/03/19 16:28 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.69	Split peak
Perfluorooctanesulfonic acid	1763-23-1		6.99	Split peak

Cal Report: 2Q28530.D

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
04/03/19 16:28

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q28530.d
Operator : natashag
Acq. Method : dMRM_ID_PFC_2.1_GENX.m
Acq. Date-Time : 4/2/2019 2:37:14 PM
Sample Name : cc450-20
Vial : Vial 7
DA Method File : ID_GENX_032819_S2Q450.quantmethod.xml
Batch Name : s2q453.batch.bin
Sample Information : op74351,S2Q453,250,,,1.0,1,water

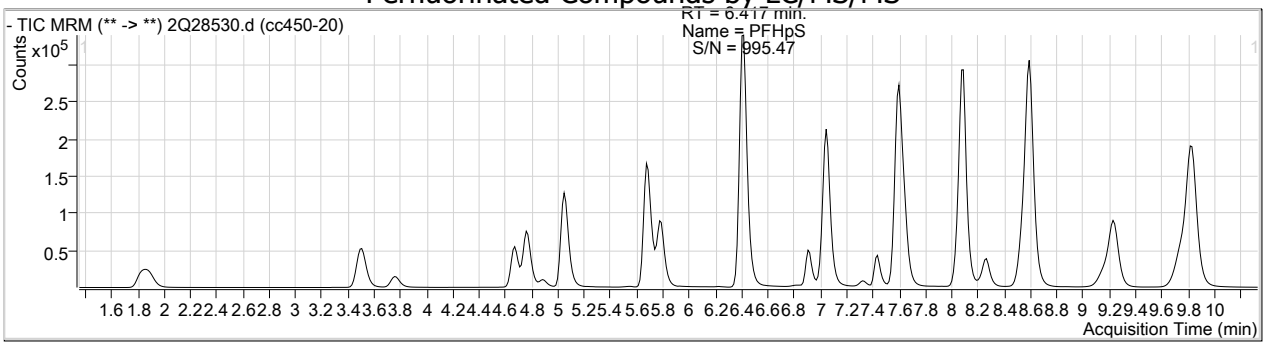
Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
Internal Standards						
13C2-PFOA	6.423	415.0 -> 370.0	497863	20.00	µg/L	0.000
13C4-PFOS	7.035	503.0 -> 80.0	66001	20.00	µg/L	-0.002
M4-PFBA	1.852	217.0 -> 172.0	161365	20.00	µg/L	-0.013
M5-PFPeA	3.511	268.0 -> 223.0	146060	20.00	µg/L	-0.013
M5-PFHxA	4.764	318.0 -> 273.0	223240	20.00	µg/L	-0.013
M4-PFHpA	5.680	367.0 -> 322.0	345186	20.00	µg/L	-0.013
M8-PFOA	6.421	421.0 -> 376.0	370625	20.00	µg/L	0.000
M9-PFNA	7.051	472.0 -> 427.0	428403	20.00	µg/L	-0.015
M6-PFDA	7.606	519.0 -> 474.0	631342	20.00	µg/L	0.000
M7-PFUnDA	8.089	570.0 -> 525.0	867921	20.00	µg/L	-0.004
M2-PFDoDA	8.591	615.0 -> 570.0	1103016	20.00	µg/L	-0.013
M2-PFTeDA	9.828	715.0 -> 670.0	815586	20.00	µg/L	-0.013
M8-FOSA	6.905	506.0 -> 78.0	118218	20.00	µg/L	-0.016
M3-PFBS	3.755	302.0 -> 99.0	22692	20.00	µg/L	-0.013
M3-PFHxS	5.723	402.0 -> 99.0	25919	20.00	µg/L	-0.013
M8-PFOS	7.032	507.0 -> 99.0	36189	20.00	µg/L	-0.002
M2-4:2FTS	4.671	329.0 -> 309.0	127414	20.00	µg/L	-0.013
M2-6:2FTS	6.406	429.0 -> 409.0	178443	20.00	µg/L	-0.013
M2-8:2FTS	7.642	529.0 -> 509.0	174064	20.00	µg/L	-0.013
M3-MeFOSAA	7.434	573.0 -> 419.0	88671	20.00	µg/L	0.000
M3-HFPO-DA	5.056	287.0 -> 169.0	206811	100.00	µg/L	-0.013
System Monitoring Compounds						
13C2-4:2FTS	4.671	329.0 -> 309.0	127291	24.03	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 120.2%		
13C2-6:2FTS	6.406	429.0 -> 409.0	178347	25.52	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 127.6%		
13C2-8:2FTS	7.642	529.0 -> 509.0	174046	27.89	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 139.5%		
13C2-PFDoDA	8.591	615.0 -> 570.0	1101080	26.12	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 130.6%		
13C2-PFTeDA	9.828	715.0 -> 670.0	809965	26.53	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 132.7%		
13C3-PFBS	3.755	302.0 -> 99.0	22666	20.59	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 102.9%		
13C3-PFHxS	5.723	402.0 -> 99.0	25891	20.91	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 104.6%		
13C4-PFBA	1.852	217.0 -> 172.0	160627	21.50	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 107.5%		
13C4-PFHpA	5.680	367.0 -> 322.0	345073	22.42	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 112.1%		
13C5-PFHxA	4.764	318.0 -> 273.0	223121	21.99	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 110.0%		
13C5-PFPeA	3.511	268.0 -> 223.0	146084	21.69	µg/L	-0.013
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 108.4%		
13C6-PFDA	7.606	519.0 -> 474.0	630765	24.52	µg/L	0.000

Perfluorinated Compounds by LC/MS/MS

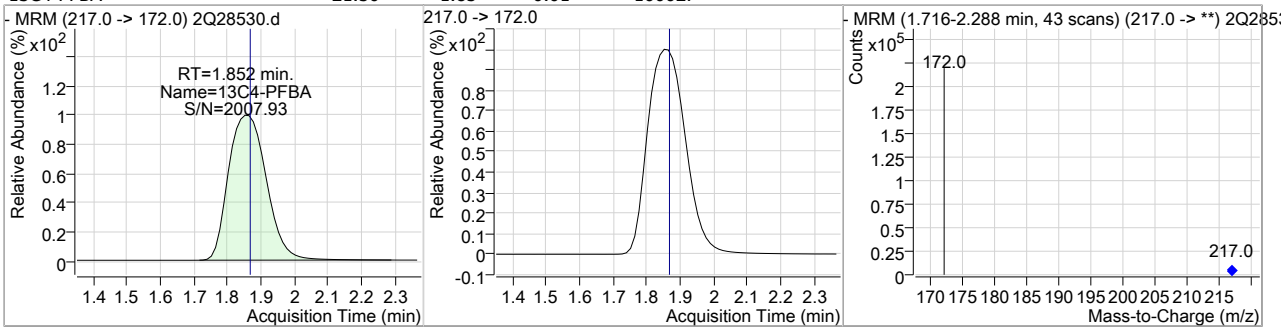
Compound	RT	QIon	Resp.	Conc. Units		Dev(Min)
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 122.6%		
13C7-PFUnDA	8.089	570.0 -> 525.0	867260	25.42 µg/L		-0.004
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 127.1%		
13C8-FOSA	6.905	506.0 -> 78.0	118056	21.31 µg/L		-0.016
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.6%		
13C8-PFOA	6.421	421.0 -> 376.0	370425	22.87 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 114.3%		
13C8-PFOS	7.032	507.0 -> 99.0	36198	21.33 µg/L		-0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 106.7%		
13C9-PFNA	7.051	472.0 -> 427.0	428242	23.61 µg/L		-0.015
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 118.1%		
d3-MeFOSAA	7.434	573.0 -> 419.0	88652	25.96 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 129.8%		
M2-PFOA	6.423	415.0 -> 370.0	498399	20.01 µg/L		0.000
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
M4-PFOS	7.035	503.0 -> 80.0	66054	20.01 µg/L		-0.002
Spiked Amount: 20.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
13C3-HFPO-DA	5.056	287.0 -> 169.0	206811	107.02 µg/L		-0.013
Spiked Amount: 100.00	Range: 50.0 - 150.0%			Recovery = 107.0%		
Target Compounds						**QValue**
4:2FTS	4.674	327.0 -> 307.0	73977	20.01 µg/L		100
6:2FTS	6.407	427.0 -> 407.0	88935	19.71 µg/L		99
8:2FTS	7.643	527.0 -> 507.0	89531	19.90 µg/L		99
EtFOSAA	7.572	584.0 -> 419.0	38896	22.31 µg/L		99
FOSA	6.908	498.0 -> 78.0	55676	19.55 µg/L		99
MeFOSAA	7.435	570.0 -> 419.0	46086	19.47 µg/L		99
PFBA	1.860	213.0 -> 169.0	30974	19.32 µg/L		100
PFBS	3.758	299.0 -> 80.0	36736	19.92 µg/L		99
PFDA	7.608	513.0 -> 469.0	273284	19.75 µg/L		100
PFDoDA	8.596	613.0 -> 569.0	499972	19.67 µg/L		100
PFDS	8.037	599.0 -> 80.0	14461	20.91 µg/L		99
PFHpA	5.683	363.0 -> 319.0	300474	19.86 µg/L		100
PFHpS	6.417	449.0 -> 80.0	27917	20.90 µg/L		100
PFHxA	4.765	313.0 -> 269.0	76690	19.65 µg/L		100
PFHxS	5.726	399.0 -> 80.0	30124	19.60 µg/L	m	99
PFNA	7.052	463.0 -> 419.0	284486	20.19 µg/L		99
PFNS	7.578	549.0 -> 80.0	28402	20.76 µg/L		99
PFOA	6.424	413.0 -> 369.0	195490	19.68 µg/L		100
PFOS	7.036	499.0 -> 80.0	34103	19.41 µg/L	m	83
PFPeA	3.515	263.0 -> 219.0	128627	19.84 µg/L		100
PFPeS	4.883	349.0 -> 80.0	26791	20.78 µg/L		100
PFTeDA	9.821	713.0 -> 669.0	550068	19.60 µg/L		100
PFTrDA	9.227	663.0 -> 619.0	568269	21.41 µg/L		100
PFUnDA	8.077	563.0 -> 519.0	353223	19.59 µg/L		100
11Cl-PF3OUdS	8.262	631.0 -> 451.0	167806	16.84 µg/L		100
9Cl-PF3ONS	7.323	531.0 -> 351.0	29981	15.94 µg/L		100
ADONA	5.791	377.0 -> 251.0	334240	18.24 µg/L		100
HFPO-DA	5.048	329.0 -> 169.0	271847	109.70 µg/L		96

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

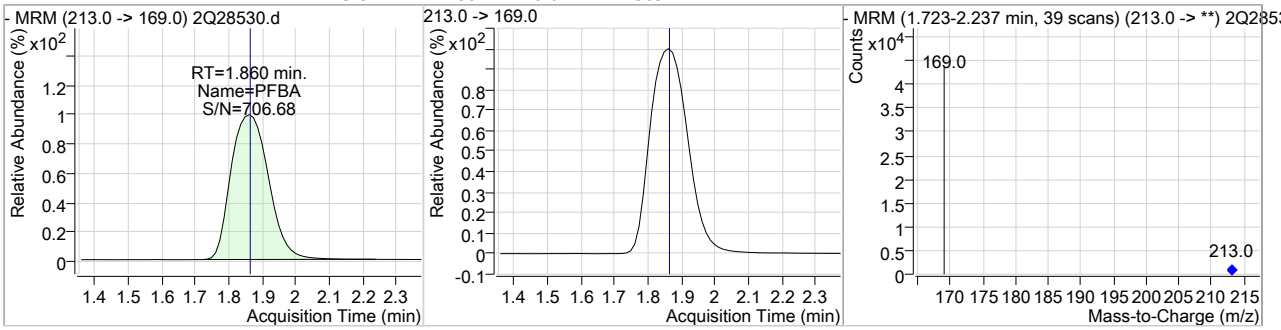
Perfluorinated Compounds by LC/MS/MS



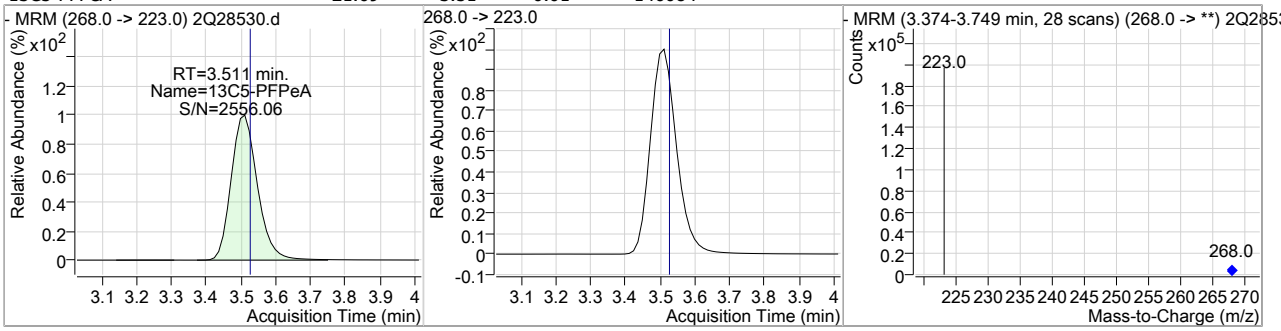
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFBA	21.50	1.85	-0.01	160627				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	19.32	1.86	-0.01	30974				

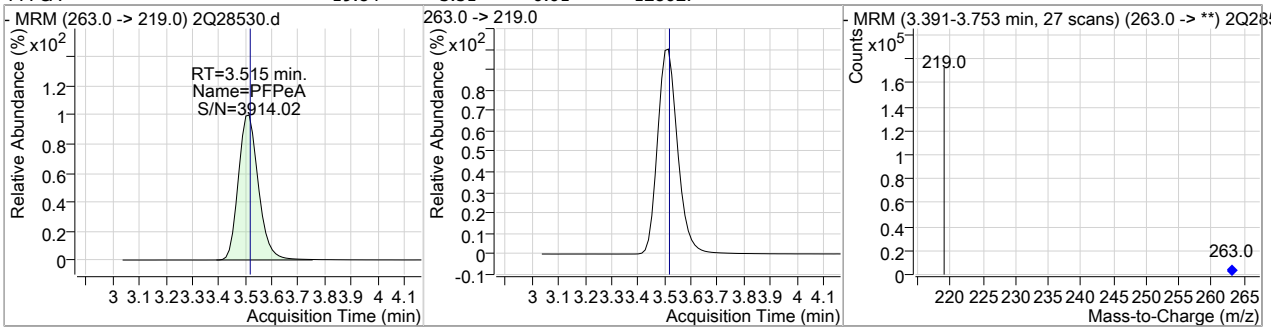


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	21.69	3.51	-0.01	146084				

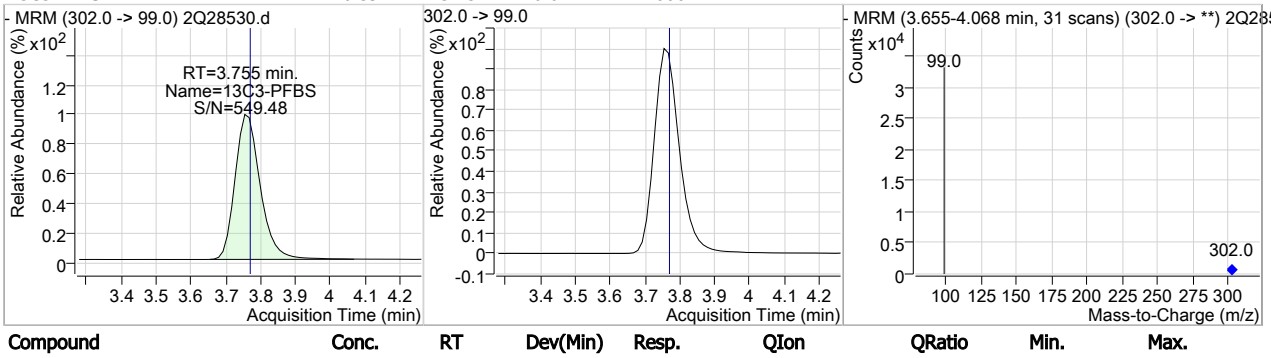


Perfluorinated Compounds by LC/MS/MS

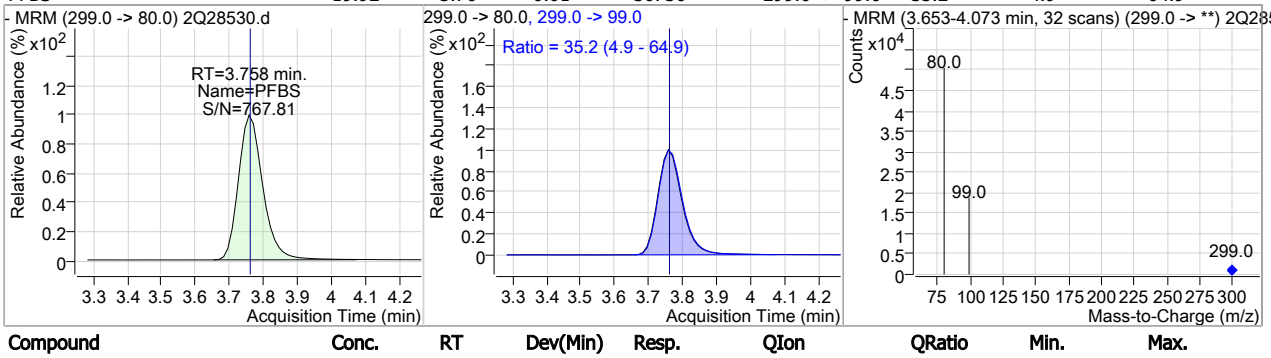
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	19.84	3.51	-0.01	128627				



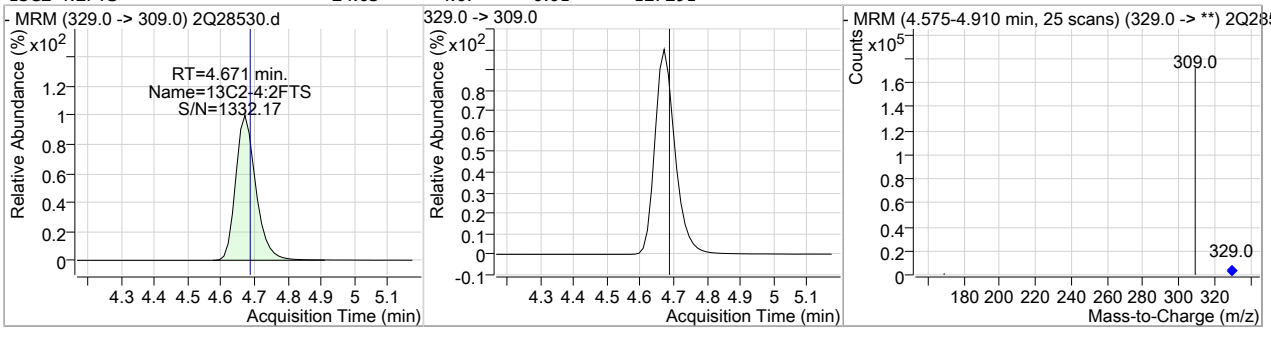
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	20.59	3.75	-0.01	22666				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.92	3.76	-0.01	36736	299.0 -> 99.0	35.2	4.9	64.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-4:2FTS	24.03	4.67	-0.01	127291				



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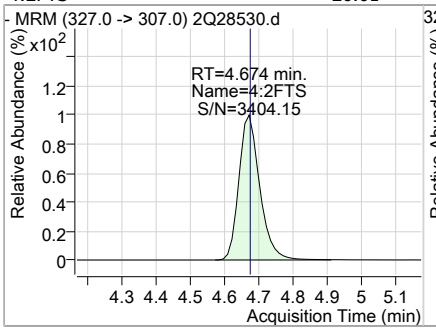
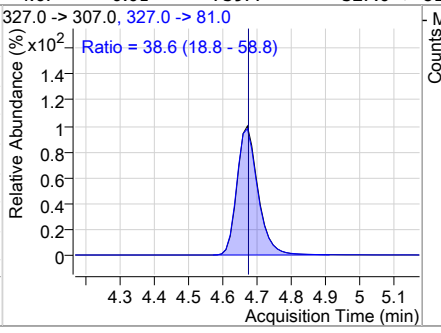
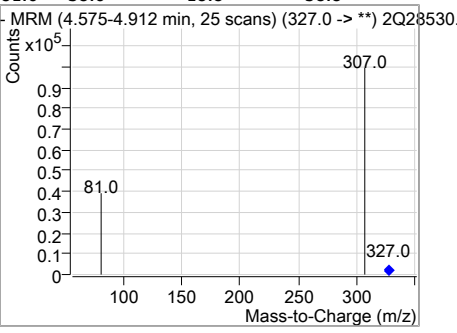
Perfluorinated Compounds by LC/MS/MS

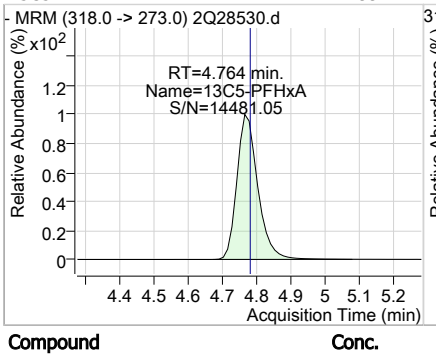
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	20.01	4.67	-0.01	73977	327.0 -> 81.0	38.6	18.8	58.8

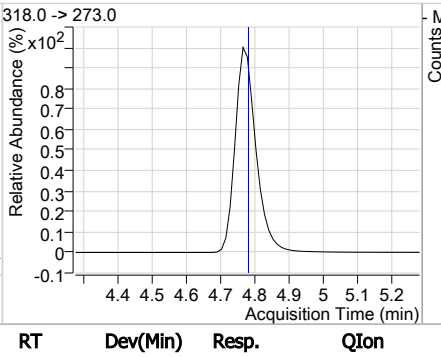


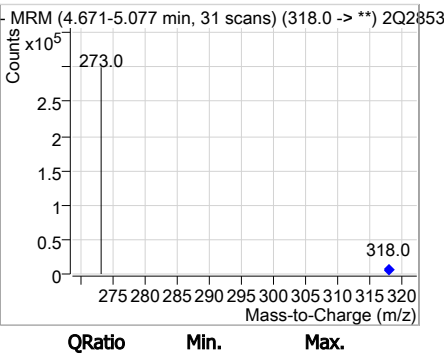




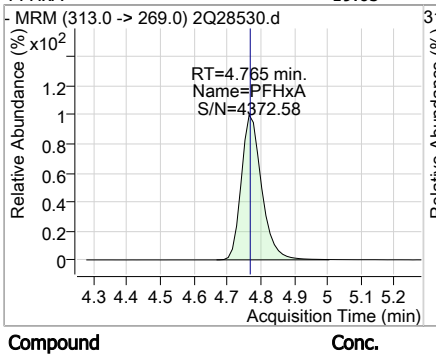
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	21.99	4.76	-0.01	223121				

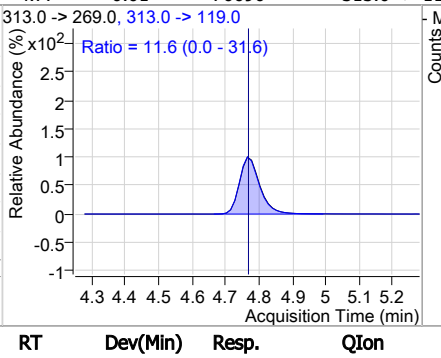


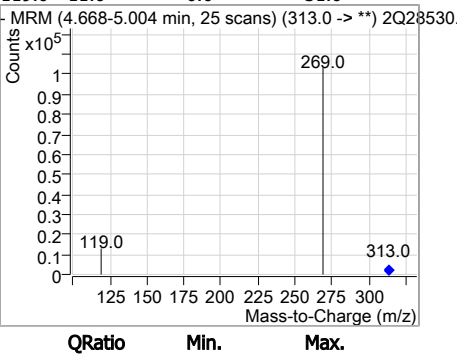




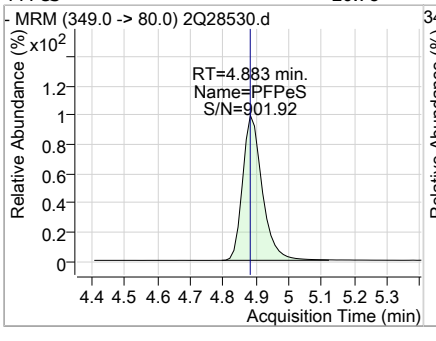
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	19.65	4.77	-0.01	76690	313.0 -> 119.0	11.6	0.0	31.6

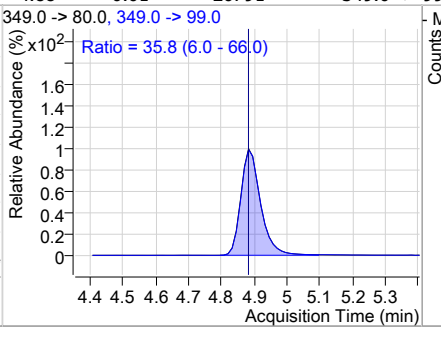


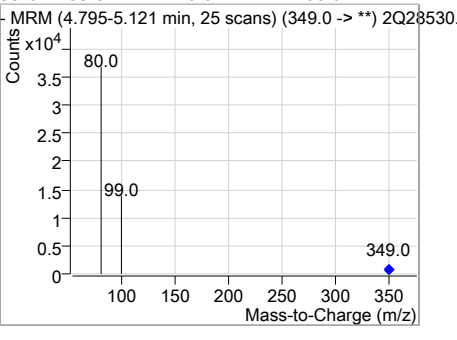




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	20.78	4.88	-0.01	26791	349.0 -> 99.0	35.8	6.0	66.0



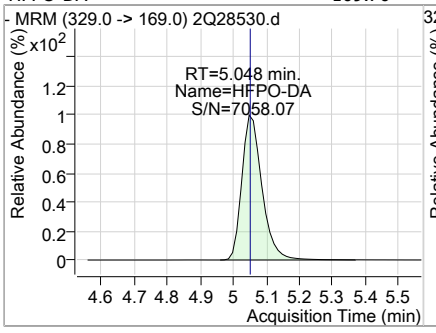


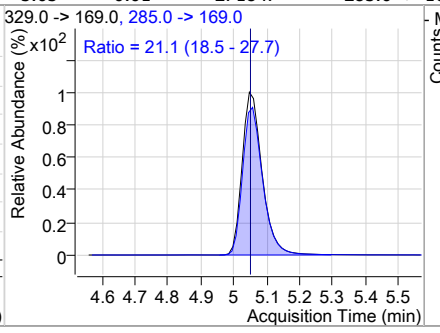


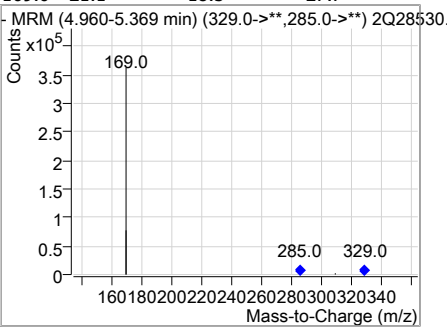
7.6.45

Perfluorinated Compounds by LC/MS/MS

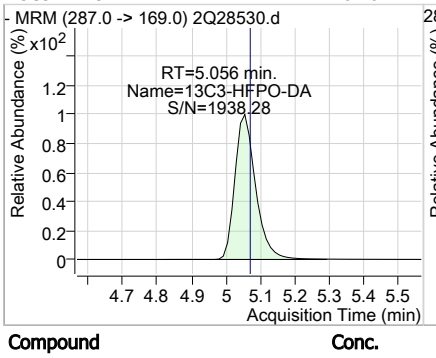
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	109.70	5.05	-0.01	271847	285.0 -> 169.0	21.1	18.5	27.7

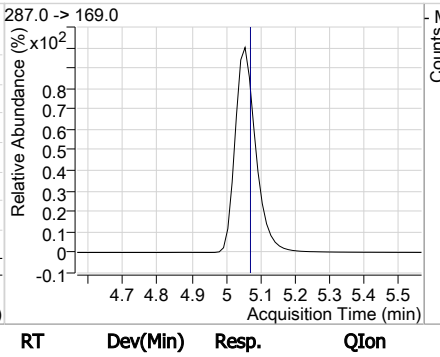


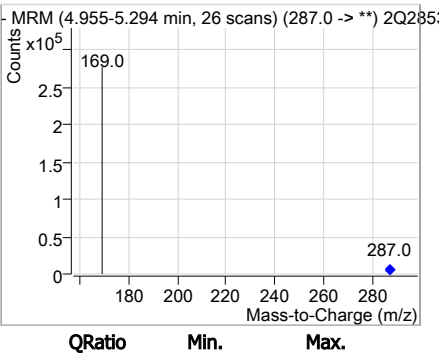




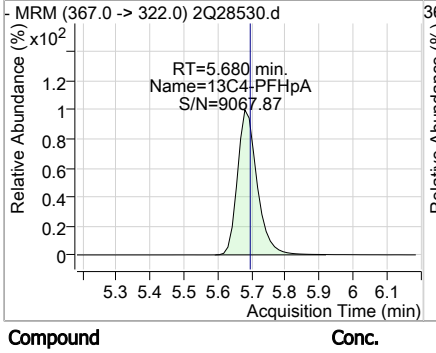
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	107.02	5.06	-0.01	206811				

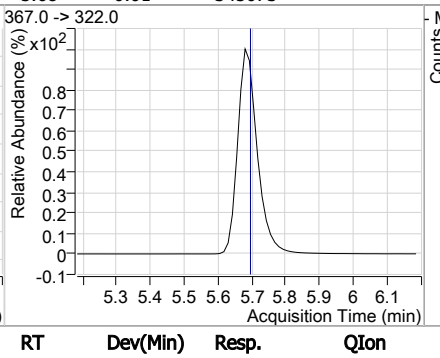


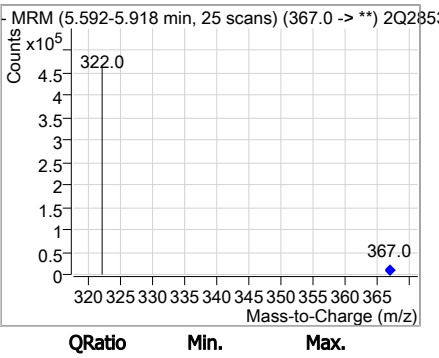




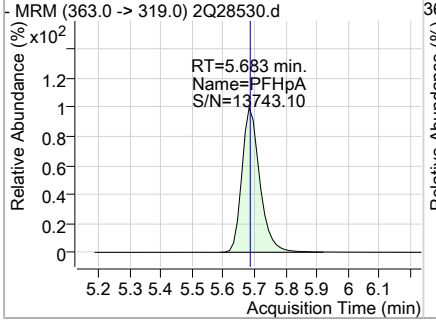
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	22.42	5.68	-0.01	345073				

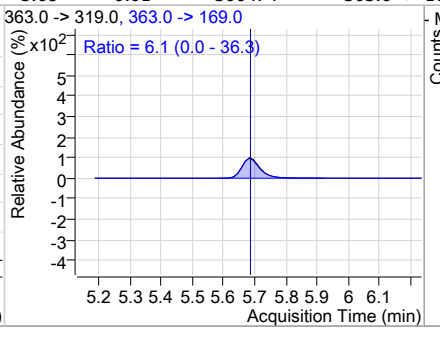


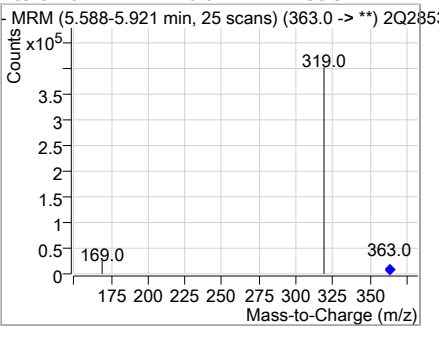




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.86	5.68	-0.01	300474	363.0 -> 169.0	6.1	0.0	36.3



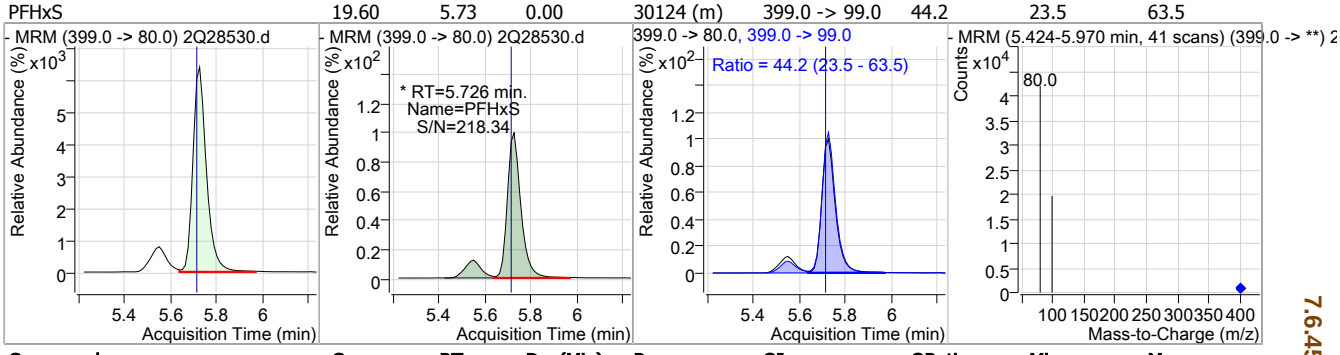




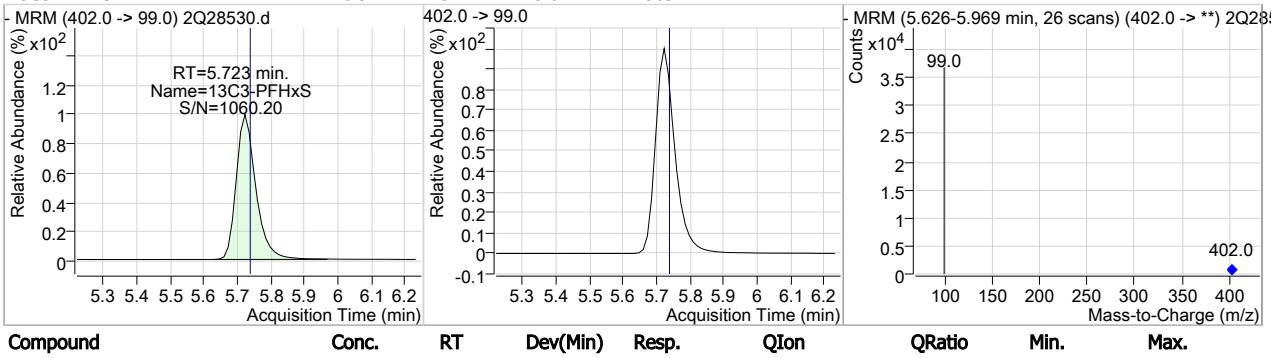
7.6.45

Perfluorinated Compounds by LC/MS/MS

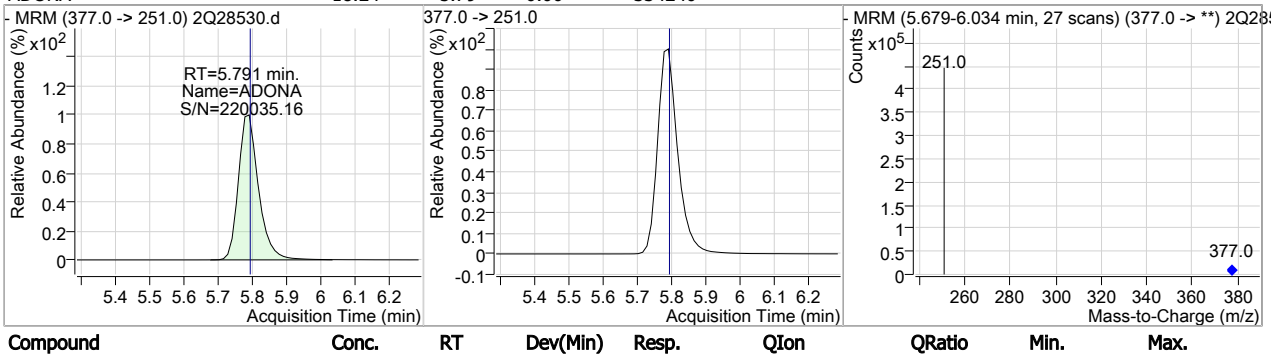
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.60	5.73	0.00	30124 (m)	399.0 -> 99.0	44.2	23.5	63.5



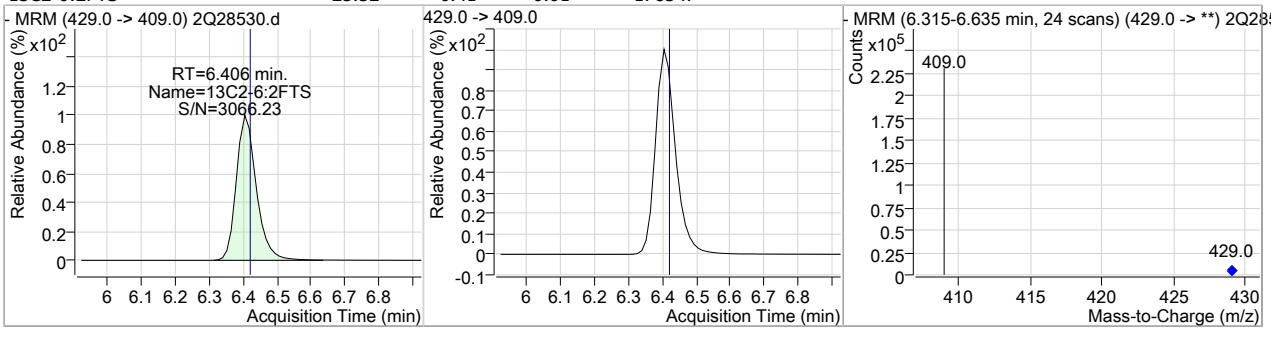
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	20.91	5.72	-0.01	25891				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	18.24	5.79	0.00	334240				



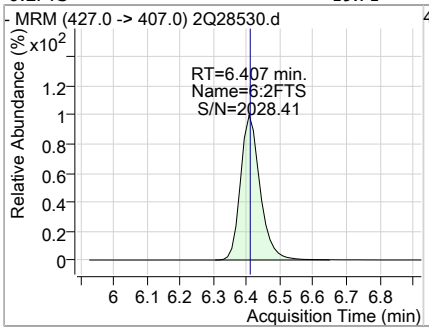
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	25.52	6.41	-0.01	178347				

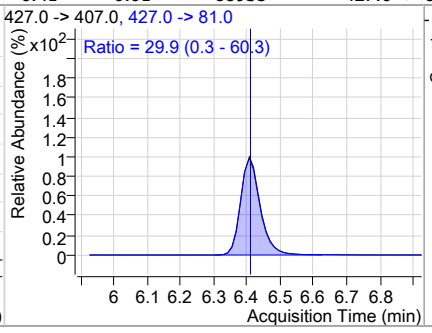


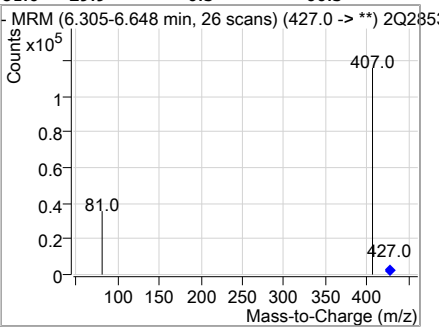
7.6.45

Perfluorinated Compounds by LC/MS/MS

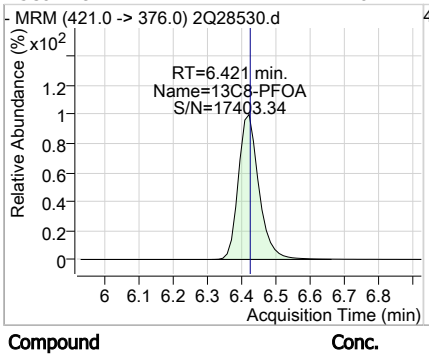
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	19.71	6.41	-0.01	88935	427.0 -> 81.0	29.9	0.3	60.3

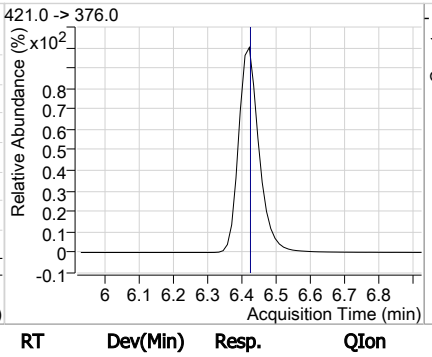


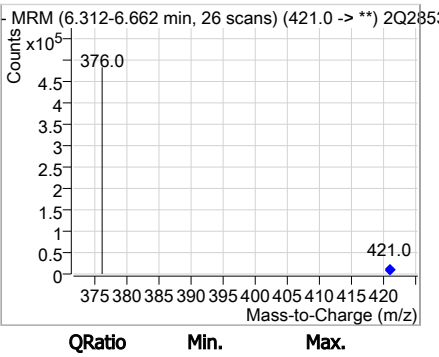




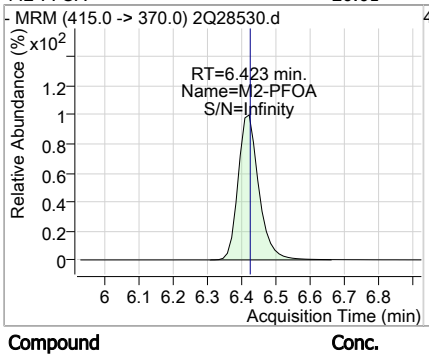
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	22.87	6.42	0.00	370425				

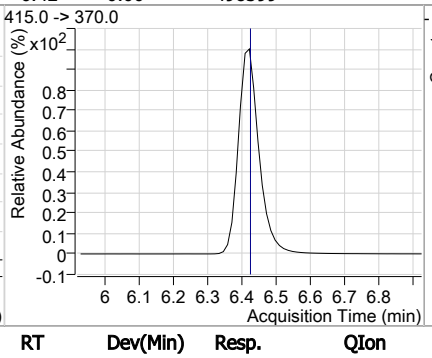


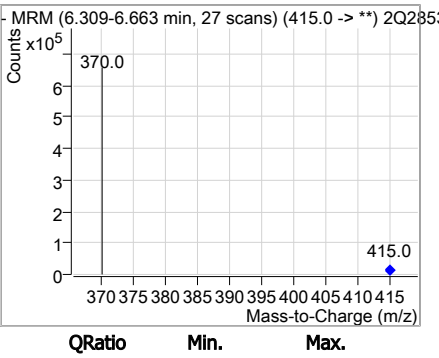




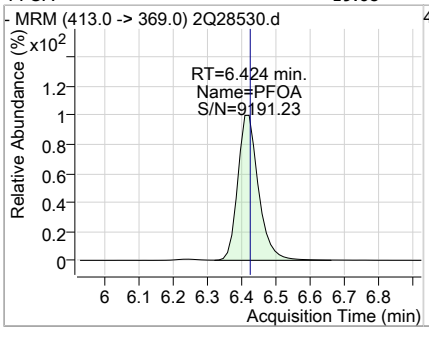
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M2-PFOA	20.01	6.42	0.00	498399				

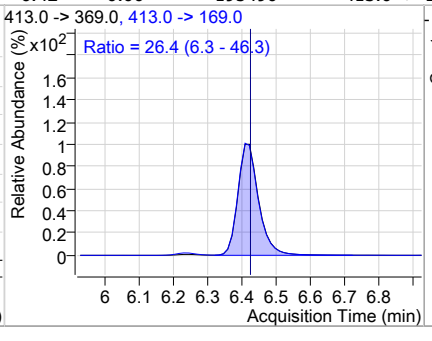


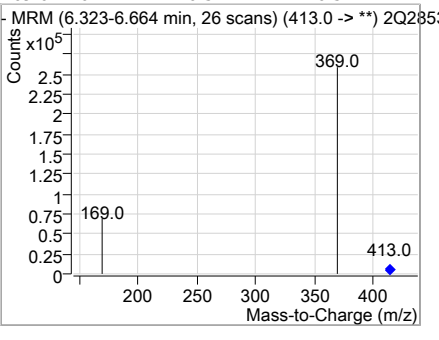




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.68	6.42	0.00	195490	413.0 -> 169.0	26.4	6.3	46.3



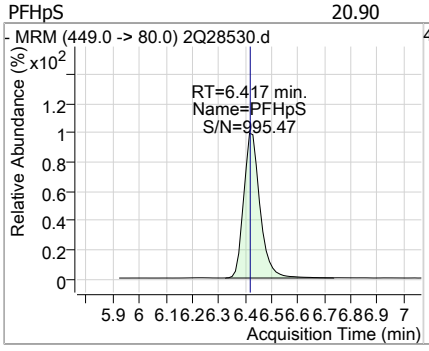


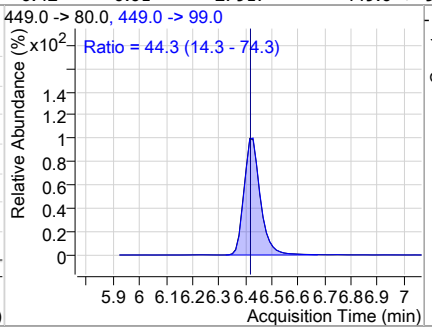


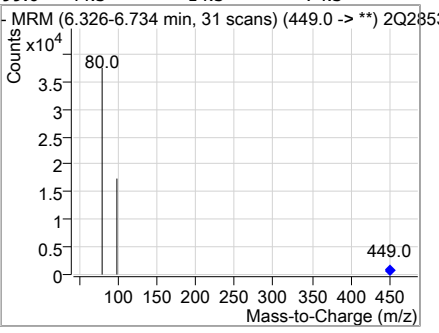
7.6.45

Perfluorinated Compounds by LC/MS/MS

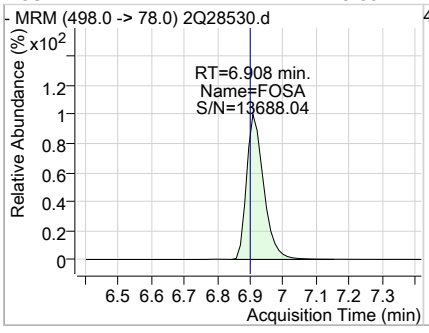
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.90	6.42	-0.01	27917	449.0 -> 99.0	44.3	14.3	74.3

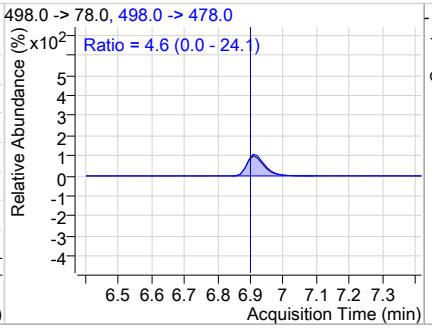


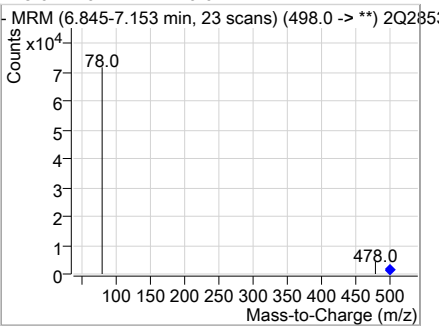




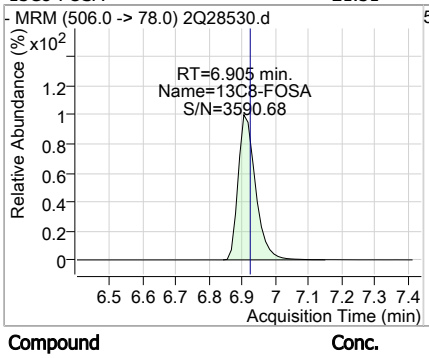
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	19.55	6.91	0.00	55676	498.0 -> 478.0	4.6	0.0	24.1

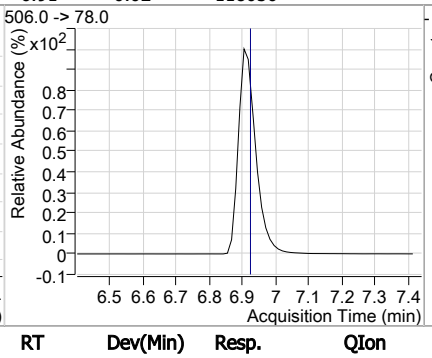


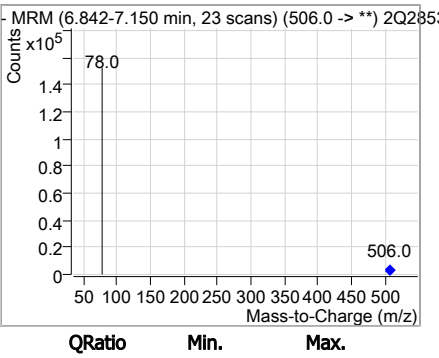




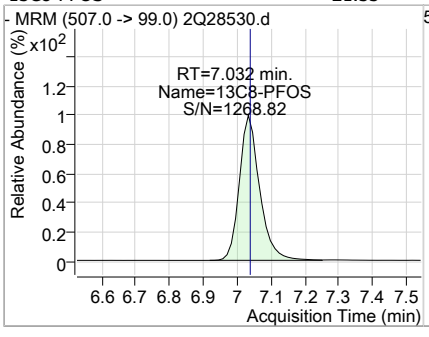
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	21.31	6.91	-0.02	118056				

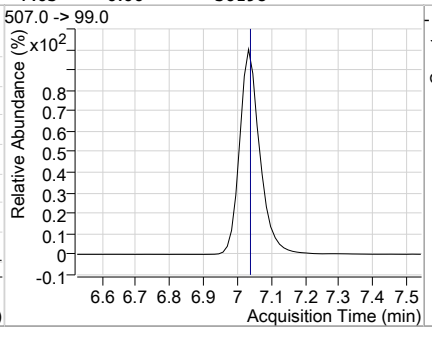


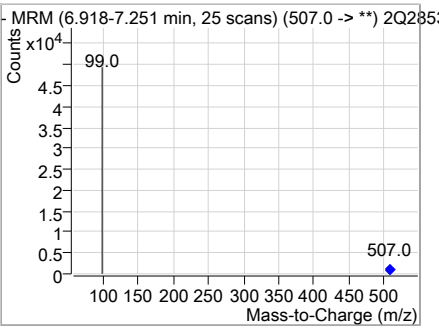




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	21.33	7.03	0.00	36198				



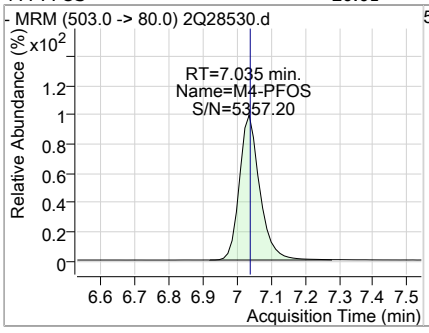


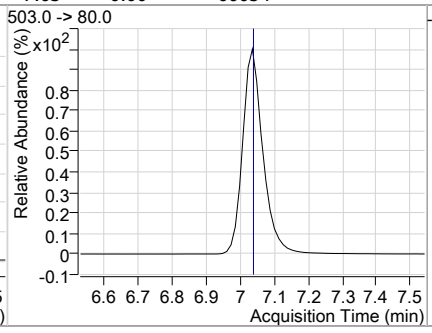


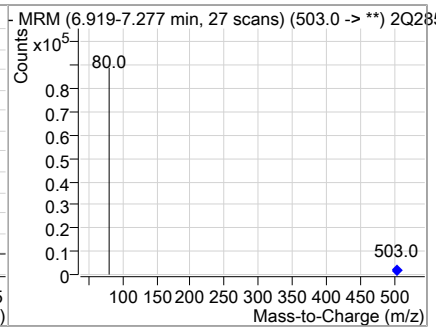
7.6.45

Perfluorinated Compounds by LC/MS/MS

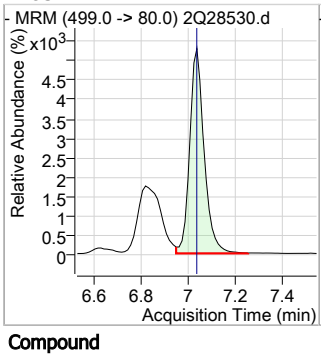
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
M4-PFOS	20.01	7.03	0.00	66054				

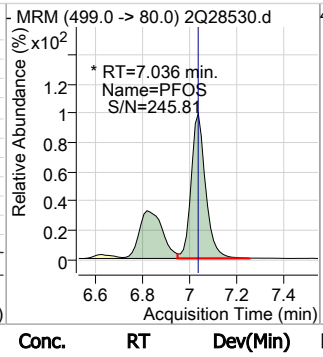


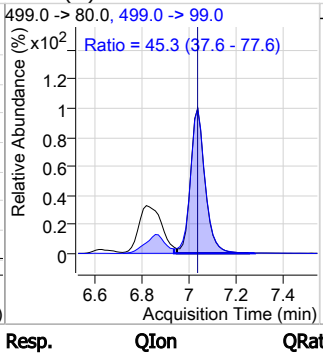


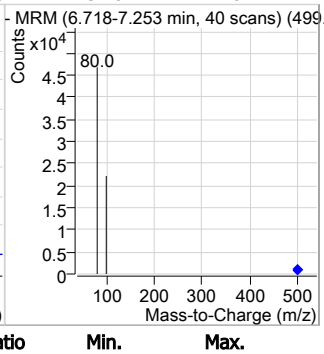


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	19.41	7.04	0.00	34103 (m)	499.0 -> 99.0	45.3	37.6	77.6

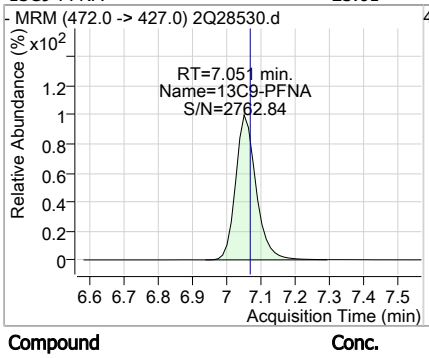


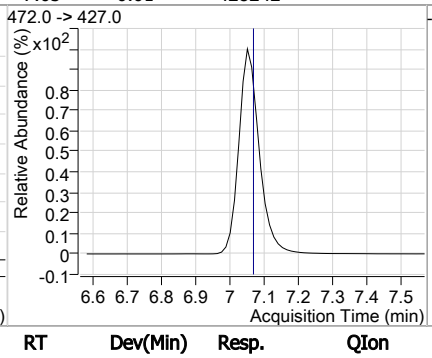


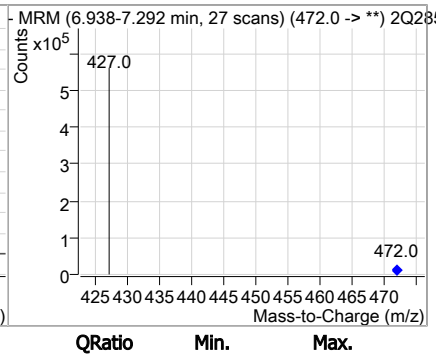




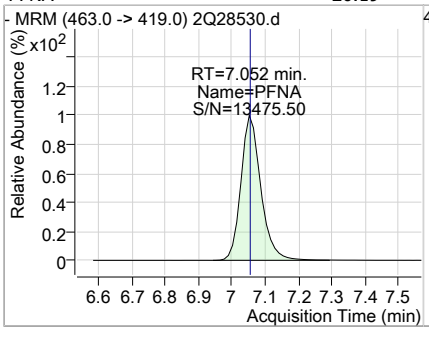
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	23.61	7.05	-0.01	428242				

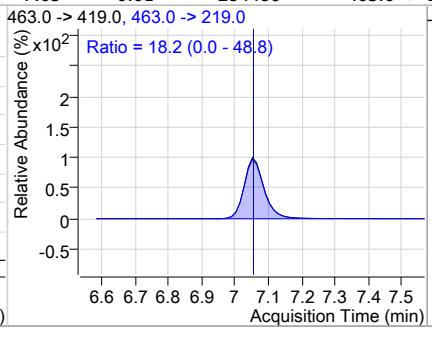


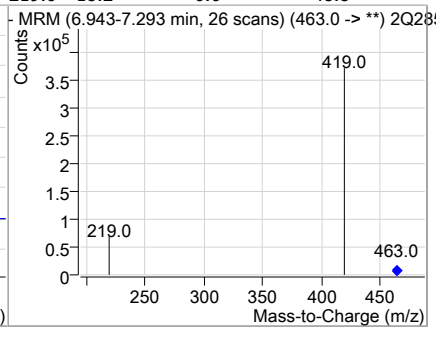




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	20.19	7.05	-0.01	284486	463.0 -> 219.0	18.2	0.0	48.8



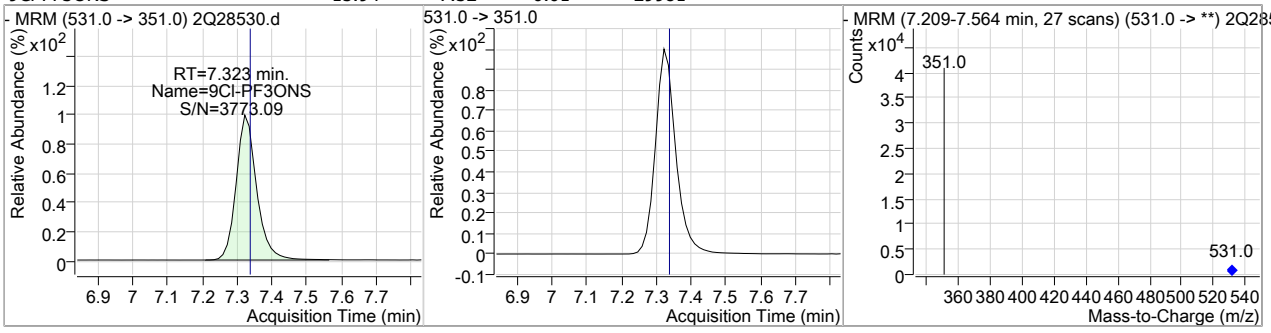




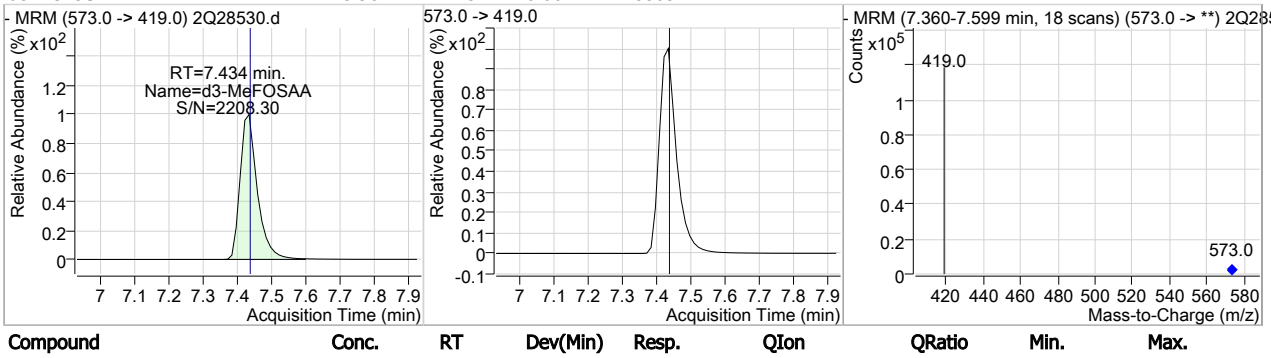
7.6.45

Perfluorinated Compounds by LC/MS/MS

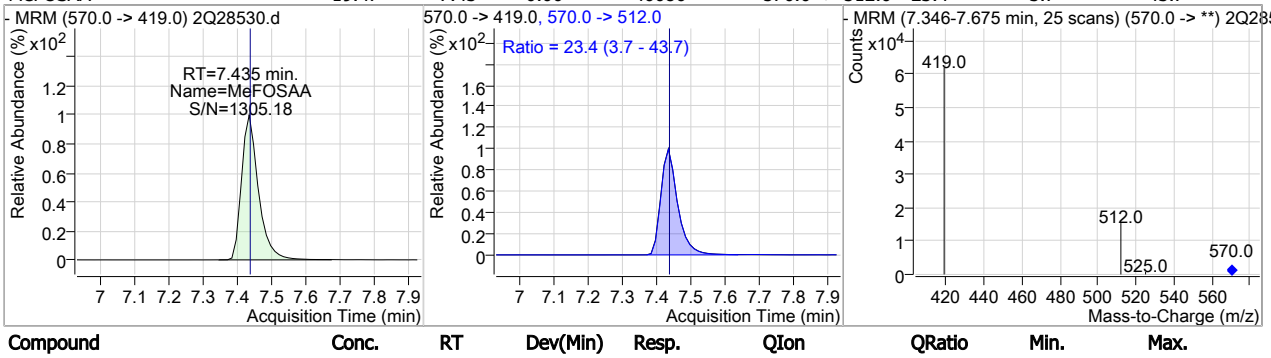
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	15.94	7.32	-0.01	29981				



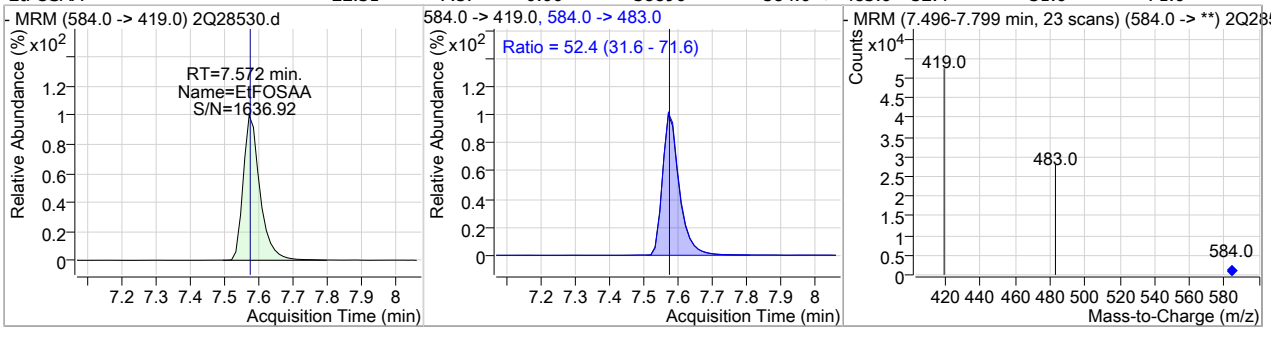
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	25.96	7.43	0.00	88652				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.47	7.43	0.00	46086	570.0 -> 512.0	23.4	3.7	43.7



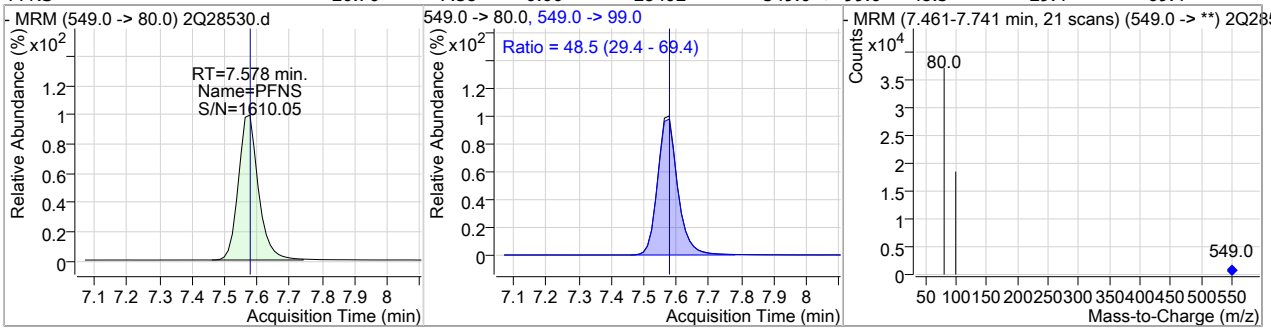
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	22.31	7.57	0.00	38896	584.0 -> 483.0	52.4	31.6	71.6



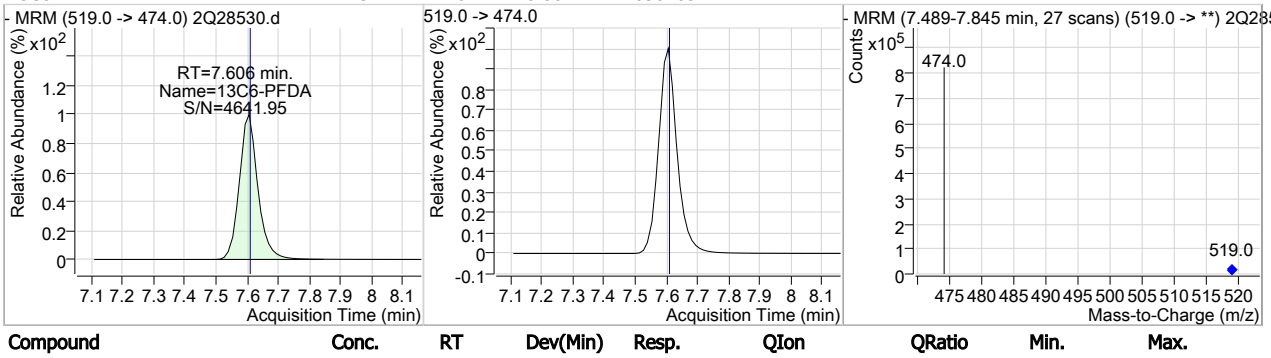
7.6.45

Perfluorinated Compounds by LC/MS/MS

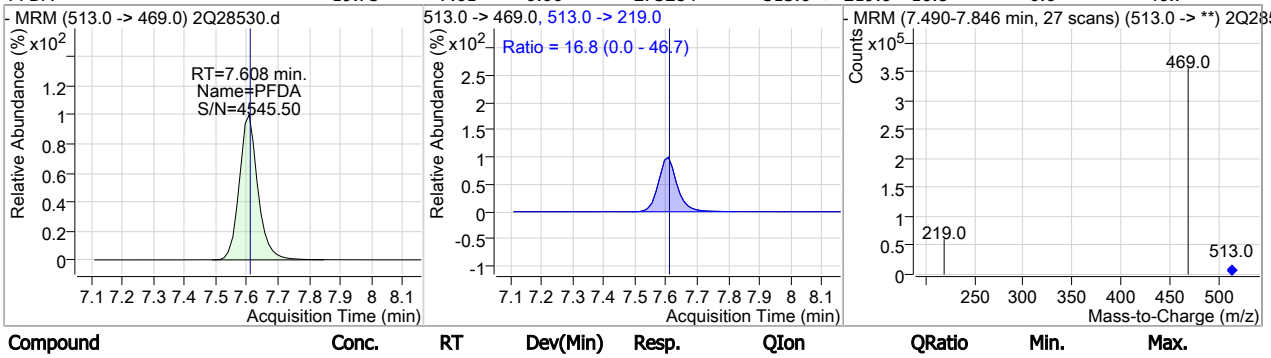
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.76	7.58	0.00	28402	549.0 -> 99.0	48.5	29.4	69.4



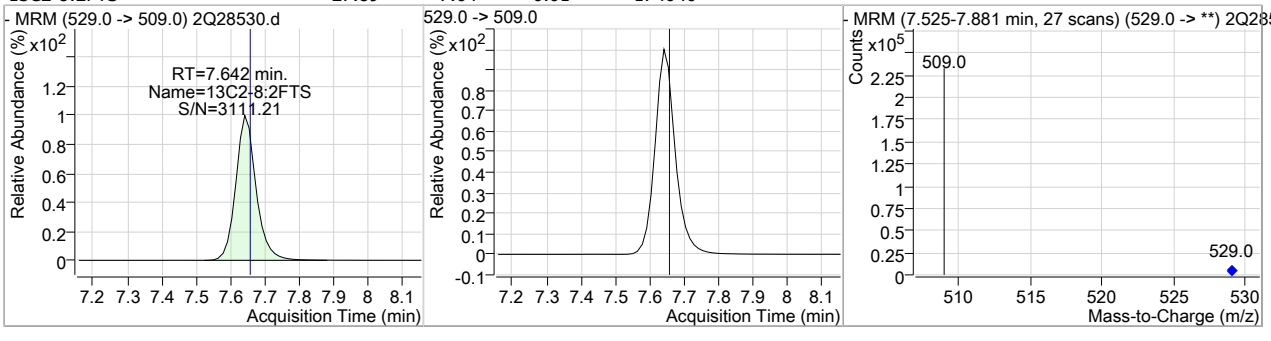
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	24.52	7.61	0.00	630765				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	19.75	7.61	0.00	273284	513.0 -> 219.0	16.8	0.0	46.7



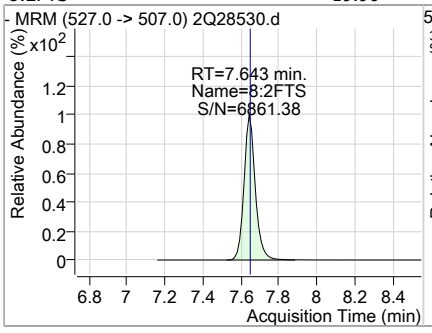
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	27.89	7.64	-0.01	174046				

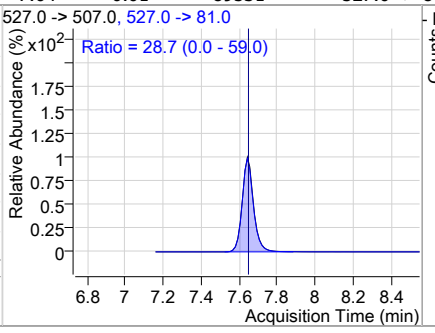


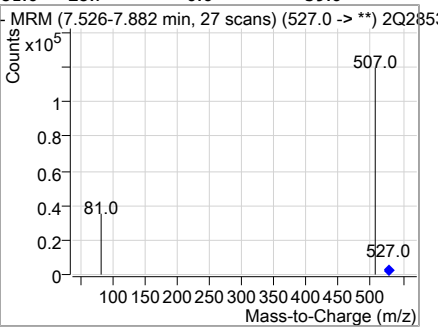
7.6.45

Perfluorinated Compounds by LC/MS/MS

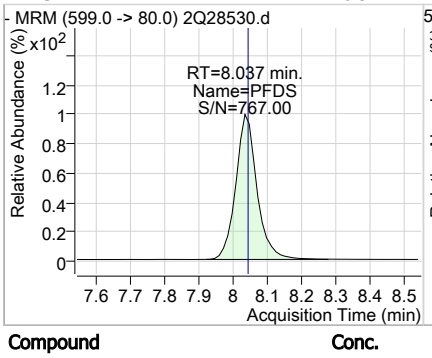
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	19.90	7.64	-0.01	89531	527.0 -> 81.0	28.7	0.0	59.0

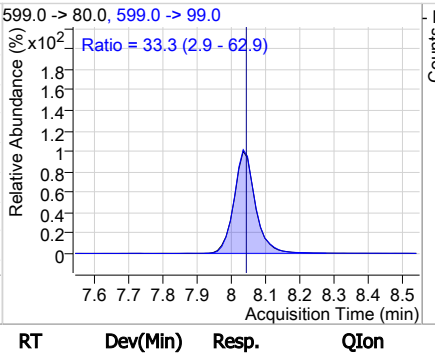


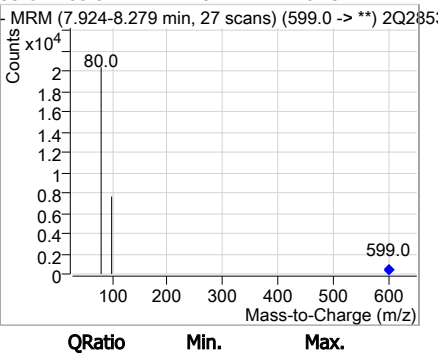




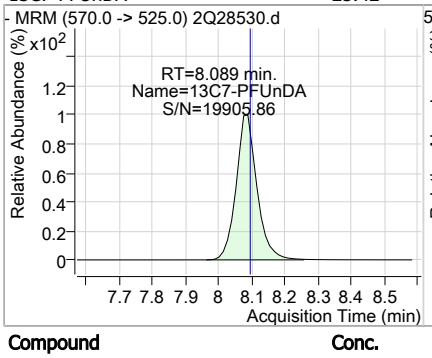
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	20.91	8.04	-0.02	14461	599.0 -> 99.0	33.3	2.9	62.9

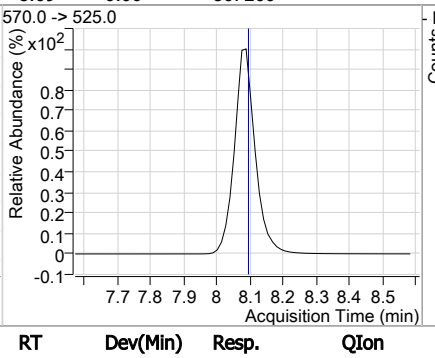


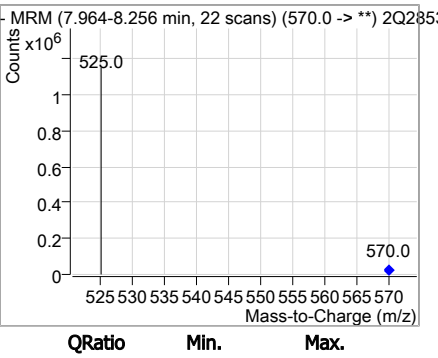




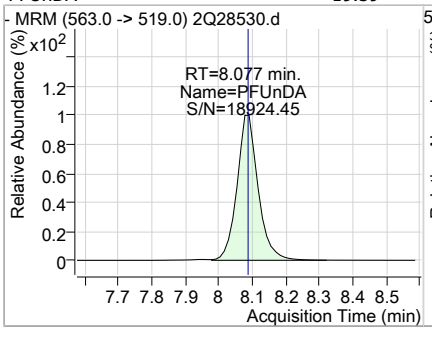
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	25.42	8.09	0.00	867260				

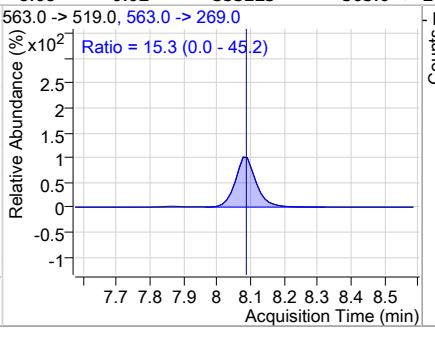


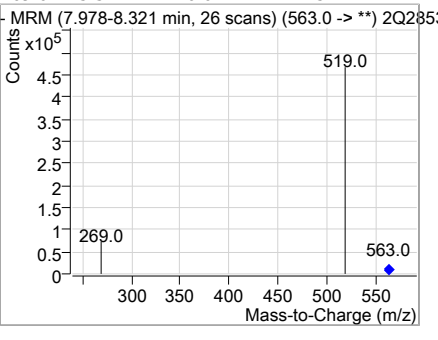




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	19.59	8.08	-0.02	353223	563.0 -> 269.0	15.3	0.0	45.2

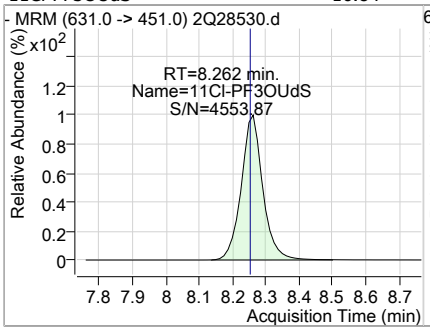


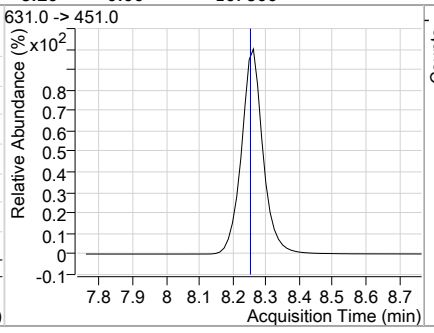


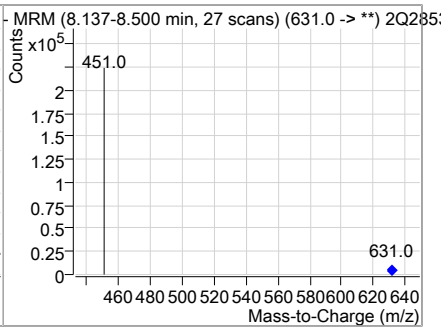


Perfluorinated Compounds by LC/MS/MS

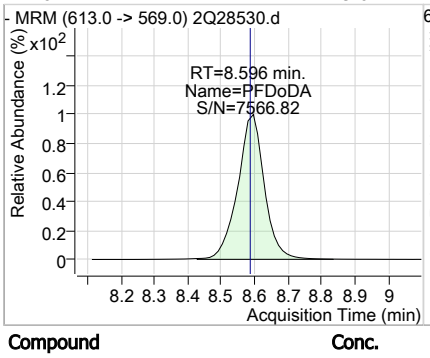
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	16.84	8.26	0.00	167806				

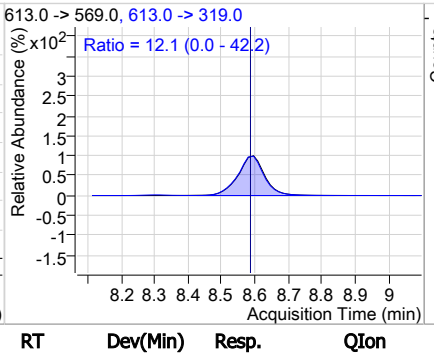


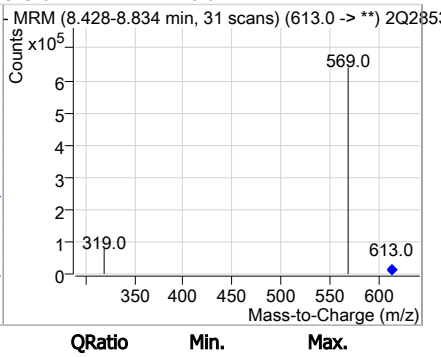




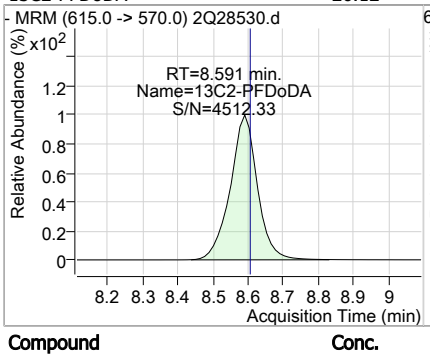
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	19.67	8.60	0.00	499972	613.0 -> 319.0	12.1	0.0	42.2

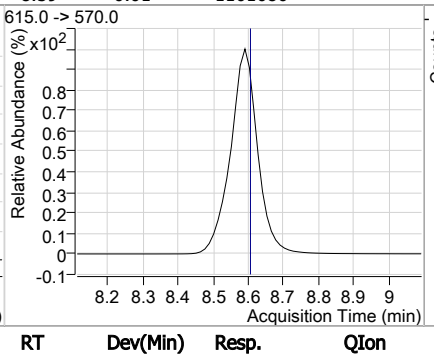


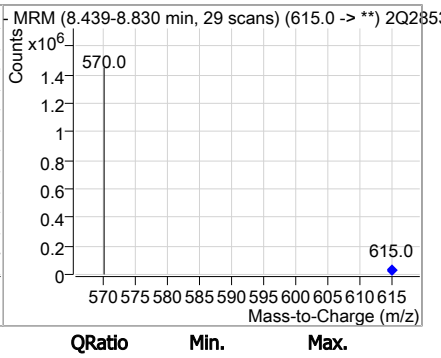




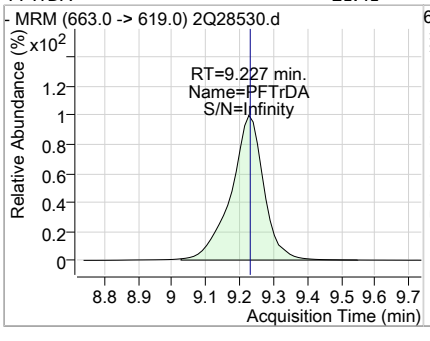
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	26.12	8.59	-0.01	1101080				

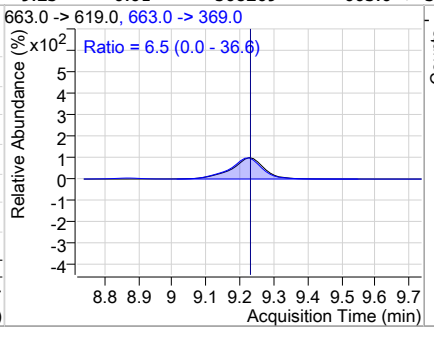


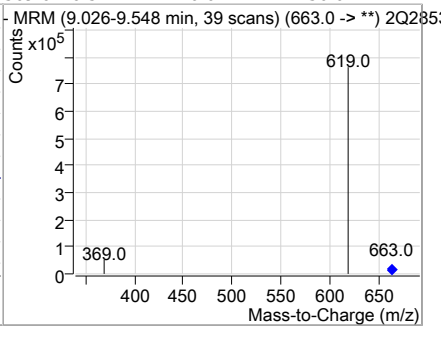




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	21.41	9.23	-0.01	568269	663.0 -> 369.0	6.5	0.0	36.6







7.6.45

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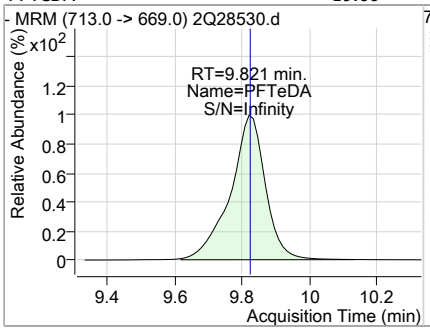
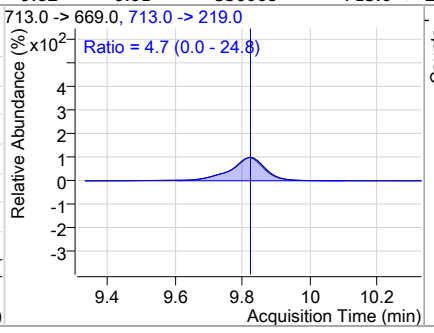
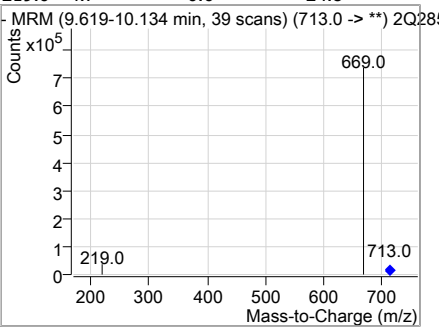
Perfluorinated Compounds by LC/MS/MS

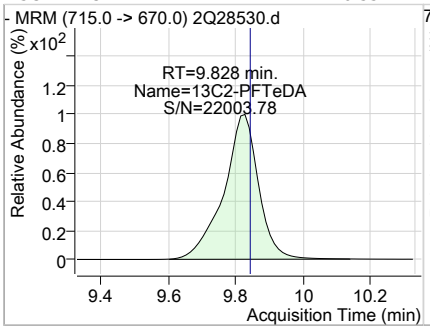
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.60	9.82	-0.01	550068	713.0 -> 219.0	4.7	0.0	24.8

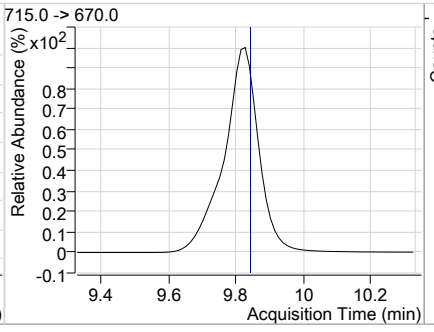


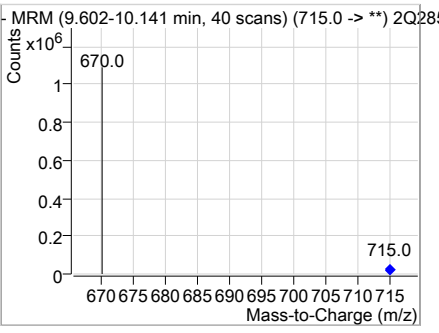




Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	26.53	9.83	-0.01	809965				







7.6.45

Manual Integration Approval Summary

Sample Number: S2Q453-CC450 **Method:** EPA 537M QSM5.1 B-15
Lab FileID: 2Q28530.D **Analyst approved:** 04/03/19 09:04 Natasha Gumtie
Injection Time: 04/02/19 14:37 **Supervisor approved:** 04/03/19 16:28 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.73	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.04	Split peak

Instrument Run Log S2Q445 page 1 of 5

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	03-21-19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

METHODS:	FD lmx
ACQ. METHOD:	dMRM TO PFC 2.1 lmx
PROC. METHOD:	FD lmx 032019 S2Q445
CALIB. DATE:	03-20-19
RUN BATCH:	S2Q 445

ANALYST:	MS
ELUENT A LOT #:	184296 w/ Acetic Acid
ELUENT B LOT #:	186484
WATER LOT #:	184296
ISTD Lot #:	LC 1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 27855	1	CCB	PFC ID						✓
2Q 56	1	CCB							✓
2Q 57	2	FC445-0.5		LCMS1248	2.5/500		SP		✓
2Q 58	3	-1.0			5/500		SP		✓
2Q 59	4	-2.0			10/500		SP		✓
2Q 60	5	-5.0			25/500		SP		✓
2Q 61	6	-10			50/500		SP		✓
2Q 62	7	ICC445 -20			100/500		SP		✓
2Q 63	8	FC445-50			250/500		SP		✓
2Q 64	9	-100			1X		SP		✓
2Q 65	1	IBLK							<1/2 RL
2Q 66	10	ICV 445-20		LC1204	100/500		SP		Pass
2Q 67	11	-20		LC1190L	5/500		SP		Pass
2Q 68	12	-20		94198			SP		Pass
2Q 69	4	high std		LC1248	1X				✓
2Q 70	1	FBLK							BDL
2Q 71	13	FA62326-1		OP74216	1X				✓ 2D3, need Redo
2Q 72	14	-2							✓ ↓
2Q 73	15	-3							✓ ↓
2Q 74	16	-4					SP		✓ ↓

*< 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.

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Analyst's Signature: [signature]

SGS
1001 of 1033
FA62561

7 7.2.1

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	03-21-19
COLUMN TYPE:	Acquity HSS T3 1.8
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	5600

METHODS:	to lmx
ACQ. METHOD:	dmrm IQ PFC2.1 6mx
PROC. METHOD:	to 6mx 032819 S2L-445
CALIB. DATE:	03-29-19
RUN BATCH:	S2Q 445

ANALYST:	NAS
ELUENT A LOT #:	184296 w/ Acetic Acid
ELUENT B LOT #:	186489 ↓
WATER LOT #:	184296
ISTD Lot #:	LL 1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 27875	17	OP74216-mj	PFC10	OP74216	1X		SP		✓ ↓ redo
2Q 76	18	-msd	↓	↓	↓		SP		✓ ↓ ↓
2Q 77	19	FA62326-7					SP		✓ ↓
2Q 78	20	-7							✓ ↓
2Q 79	21	-9							✓ ↓
2Q 80	22	-10		↓	↓		SP		✓ ↓ ↓
2Q 81	7	CC445-20		LCMS1248	100/100		SP		Pass
2Q 82	1	CCB							BOL
2Q 83	23	FA62326-11		OP74216	1X				✓ ↓ redo
2Q 84	24	-12		↓	↓				✓ ↓ ↓
2Q 85	25	OP74216-ms2					SP		✓ ↓
2Q 86	26	msdm					SP		✓ ↓
2Q 87	27	FA62326-13							✓ ↓
2Q 88	28	-14							✓ ↓
2Q 89	29	-17							✓ ↓
2Q 90	30	-18		↓	↓		SP		✓ ↓ ↓
2Q 91	7	CC445-20		LCMS1248	100/100		SP		Pass
2Q 92	1	CCB							BOL
2Q 93	3	CC445-1.0		LCMS1248	5/100		SP		Pass
2Q 94	31	OP74231-bs	↓	OP74231	1X		SP		✓

*< 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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Analyst's Signature: _____

Instrument Run Log S2Q445 page 3 of 5

SGS ACCUTEST-ORLANDO

DATE:	03-21-19
COLUMN TYPE:	Perkin Elmer
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

LCMS2-2Q ANALYSIS LOG

METHODS:	EO bmx
ACQ. METHOD:	dmam EO pfc 2-1 bmx
PROC. METHOD:	EO bmx 03-20-19 S2Q445
CALIB. DATE:	03-21-19
RUN BATCH:	S2Q 445

ANALYST:	NAS
ELUENT A LOT #:	184296 w/ 1% Acetic Acid
ELUENT B LOT #:	186484
WATER LOT #:	184296
ISTD Lot #:	LC 1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 27895	32	OP74231-mb	pfc EO	OP74231	1X				BDL
2Q 96	33	FA62377-21							✓
2Q 97	34	-22							✓ ↓
2Q 98	35	-23							✓ ↓
2Q 99	36	-24					SP		✓
2Q 900	37	-25					SD		✓ ↓
2Q 01	38	-26							✓ ↓ Inj ↓
2Q 02	39	-27							✓ ↓ ↓
2Q 03	40	-28		↓	↓				✓ ↓ ↓
2Q 04	7	CC 445-20		Lcms 1248	100/TEO		SP		Abs
2Q 05	1	CCB							BDL
2Q 06	41	FA62377-29		OP74231	1X		SP		✓ RA 2X
2Q 07	42	FA62415-31					SP		RA 1X C.O
2Q 08	43	OP74231-MS					SP		low ↓
2Q 09	44	-MSD					SP V		✓
2Q 10	45	FA62415-44					SD		✓ ↓
2Q 11	46	-45							✓
2Q 12	47	-46							✓
2Q 13	48	-47							✓ ↓
2Q 14	49	-48	↓	↓	↓		SP		✓ ↓

*< 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.

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Analyst's Signature:

Instrument Run Log S2Q445 page 4 of 5

SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE:	03-21-19	METHODS:	ID lmx
COLUMN TYPE:	Prosphere C18	ACQ. METHOD:	dmARM ID PFC 2.1 lmx
AMOUNT INJECTED:	4 ul	PROC. METHOD:	ID lmx 032119 SIR 445
INSTRUMENT:	LCMS2-2Q	CALIB. DATE:	03-21-19
HEAD PRESSURE:	360	RUN BATCH:	S2Q 445

ANALYST:	NAS		
ELUENT A LOT #:	184296	w/ Acetic Acid	
ELUENT B LOT #:	184489	"	
WATER LOT #:	184296		
ISTD Lot #:	LL 1229		

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 27915	7	CC 445-20	PFC ID	LCMS1248			SP		Pass
2Q 16	1	CCB							BAL
2Q 17	3	CC 445-1.0		LCMS1248			SP		Pass
2Q 18	50	Old BLK rin							BAL
2Q 19	51	Old BLK							hit PFBA
2Q 20	52	New BLK rin							BAL
2Q 21	53	New blk							hit PFBA
2Q 22	54	OP74230-blk		OP74230	1X		SP		BFBA ↓ Re extr batch
2Q 23	55	-mb							↓
2Q 24	56	FA62415-1							Redo
2Q 25	57	-2							↓
2Q 26	58	-3							
2Q 27	59	-4		↓	↓		SP		
2Q 28	7	CC 445-20		LCMS1248	100/1x		SP		Pass
2Q 29	1	CCB MW 032219							BAL
2Q 30	60	FA62 ~~514~~ 445 -5		OP74230	1X				Redo
2Q 31	61	-6		↓	↓				↓
2Q 32	62	-7					SP		
2Q 33	63	-8					SP		
2Q 34	64	-9	↓	↓	↓				↓

*< 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.

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Analyst's Signature:

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	03-21-19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT: LCMS2-2Q	
HEAD PRESSURE:	360

METHODS:	FO 6mx
ACQ. METHOD:	dMRM FO PFC 2.1 6mx
PROC. METHOD:	FO 6mx 032119 S2Q445
CALIB. DATE:	03-21-19
RUN BATCH: S2Q	445

ANALYST:	MAS
ELUENT A LOT #:	184296 w/ Acetic Acid
ELUENT B LOT #:	186449 ↓
WATER LOT #:	184296
ISTD Lot #:	LC 1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 27935	65	FA62415-10	PFC FO	OP74230	1X				redo
2Q 36	66	OP74230-MS					SP		
2Q 37	67	-MSD					SP		
2Q 38	7	CC445-20		CLMS1248	100/500		SP		Pass
2Q 39	1	CCB							BDL
2Q 40	68	FA62415-11		OP74230	1X				
2Q 41	69	-12					SP		✓ RR 2X MAS 032219
2Q 42	70	-13							~~RR 1X 1.0~~ BDL
2Q 43	71	-14							
2Q 44	72	-15							
2Q 45	73	-17					SP		✓ RR 5X
2Q 46	74	-18							BDL
2Q 47	75	-19							
2Q 48	76	-20							
2Q 49	77	-21							
2Q 50	7	ECC445-20		LCMS1248	100/500		SP		Pass
2Q 51	1	CCB							BDL
2Q 52	78	FA62415-6		Reelute	1X				ISTD ↓
2Q 53	79	FA62377-26							
2Q 54	80	-28							

Redo

*< 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.

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SGS ACCUTEST-ORLANDO **LCMS2-2Q ANALYSIS LOG**

DATE:	03-24-19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT: LCMS2-2Q	
HEAD PRESSURE:	360

METHODS:	ID 6mx
ACQ. METHOD:	dMRM ID PFC 2.1 6mx
PROC. METHOD:	ID 6mx 032119 S2Q445
CALIB. DATE:	03-21-19
RUN BATCH: S2Q	447

ANALYST:	NG MAS
ELUENT A LOT #:	184296 w/Acetic Acid
ELUENT B LOT #:	186484 ↓
WATER LOT #:	184296
ISTD Lot #:	LC 1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28015	1	CCB	PFC ID	—	—				✓
2Q 16	1	CCB		—					✓
2Q 17	9	high std		LCMS1448					✓
2Q 18	1	IBLK		—					BDL
2Q 19	7	CC445-20		LCMS1448	100/50		SP		Pass
2Q 20	3	-1.0		↓	5/50		SP		Pass
2Q 21	13	FA62416-1		OP74245	1X		SP		✓
2Q 22	14	-3			100X		SP I		✓ ~~RR 100X~~ Not needed 032519
2Q 23	15	OP74245-MS			↓		I		✓
2Q 24	16	FA62416-4		↓	1X				✓ ~~RR~~ Re-ext 10X 032519
2Q 25	7	CC445-20		LCMS1448	100/50		SP		Pass
2Q 26	1	CCB		—					BDL
2Q 27	17	OP74260-BS		OP74260	1X		SP		✓
2Q 28	18	-MB							BDL
2Q 29	19	FA62455-1							BDL
2Q 30	20	-2							BDL
2Q 31	21	-3							BDL
2Q 32	22	-4					SP		✓ RR 2X
2Q 33	23	-5							BDL
2Q 34	24	-6	↓	↓	↓				BDL

*< 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.

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Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO

DATE:	03-24-19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	300

LCMS2-2Q ANALYSIS LOG

METHODS:	ID bmx
ACQ. METHOD:	dMRM ID PFC 2-1 bmx
PROC. METHOD:	ID bmx 032119 SLL 445
CALIB. DATE:	03-21-19
RUN BATCH:	S2Q 447

ANALYST:	NL NRS
ELUENT A LOT #:	184286 w/Acetic Acid
ELUENT B LOT #:	184489 ⊥
WATER LOT #:	184286
ISTD Lot #:	LC1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28035	25	FA62455-7	PFC ID	OP74260	1x				BQL
2Q 36	26	OP74260-MS					SP		✓
2Q 37	7	CC445-20		LCMS1249	100/500		SP		Pass
2Q 38	1	CCB							BQL
2Q 39	27	FA62455-8		OP74260	1x				BQL
2Q 40	28	-9					SP		✓
2Q 41	29	-10							BQL
2Q 42	30	-11							BQL
2Q 43	31	-12							✓ Inj std T
2Q 44	32	-13							BQL
2Q 45	33	-14							✓
2Q 46	34	-15					SP		✓ Inj std T
2Q 47	35	-16					SP		✓
2Q 48	36	-17							✓ Inj std T
2Q 49	7	CC445-20		LCMS1249	100/500		SP		Pass
2Q 50	1	CCB							BQL
2Q 51	37	FA62455-18		OP74260	1x		SP		✓
2Q 52	38	-19							BQL
2Q 53	39	OP74260-dup							BQL
2Q 54	40	FA62455-20					SP		✓ Inj std T

*< 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.

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Analyst's Signature: ____________________

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SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	03-24-19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

METHODS:	FD Benx
ACQ. METHOD:	dMRM ID PFC 3.1 Benx
PROC. METHOD:	FD Benx 032119 SLK 445
CALIB. DATE:	03-21-19
RUN BATCH:	S2Q 447

ANALYST:	NS NAS
ELUENT A LOT #:	184206 w/Acetic Acid
ELUENT B LOT #:	186486
WATER LOT #:	184296
ISTD Lot #:	LC 1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28055	7	CC445-20	PFCID	LCMS1244	100/500		SP		POS
2Q 56	1	CCB		—	—				BQL
2Q 57	41	OP74263-BS		OP74263	1X		SP		✓
2Q 58	42	-MS							BQL
2Q 59	43	FA62535-1							BQL
2Q 60	44	FA62561-1					SP		✓
2Q 61	45	-2					SP		✓ un ↑ RR
2Q 62	46	-3					SP		✓ [illegible] ↑
2Q 63	47	OP74263-MS					SP		✓ 6:2, 8:2, Un ↑
2Q 64	48	FA62561-4					SP		✓ RR 10X 1X Dc, Un ↑
2Q 65	49	-5					SP		✓ RR 1X, 5X Un ↑
2Q 66	7	CC445-20		LCMS1244	100/500		SP		Pass
2Q 67	1	CCB		—	—				BQL
2Q 68	50	FA62561-6		OP74263	1X		SP		✓ not dup?
2Q 69	51	OP74263-dup					SP		✓ 10X Un do ↑
2Q 70	7	CC445-20		LCMS1244	100/500		SP		Pass
2Q 71	1	CCB		—	—				BQL
2Q 72	52	FA62415-22		OP74246	2X		SP		✓
2Q 73	53	-26					SP		✓
2Q 74	54	-39					SP		✓
75	7	CC445-20		LCMS1245	100/500		SP		Pass
76	1	CCB							BQL

*< 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.

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Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO

DATE:	03/25/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

LCMS2-2Q ANALYSIS LOG

METHODS:	JD-Genx
ACQ. METHOD:	AMEM-JD-PFC-21-Genx
PROC. METHOD:	JD-Genx-032119-S2Q445
CALIB. DATE:	03/21/19
RUN BATCH: S2Q	448

ANALYST:	NAS NS
ELUENT A LOT #:	184296 w/Acetic Acid
ELUENT B LOT #:	186489
WATER LOT #:	184296
ISTD Lot #:	LC1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 280716	1	CCb	PFC-ID	—	—				—
2Q 77	1	CCb		—	—				—
2Q 78	9	high std		—	—				—
2Q 79	1	iblk		—	—				ND
2Q 80	7	CC445-20		LCMS1218	100/500				pass
2Q 81	3	↓ -1.0		↓	5/500				pass
2Q 82	1	CCb		—	—				—
2Q 83	55	OP74280-bs		OP74280	1X				✓ PASS
2Q 84	56	↓ -mb							ND ✓
2Q 85	57	FA62255-4							✓
2Q 86	58	↓ -5		↓	↓				✓
2Q 87	3	CC445-1.0		LCMS1218	5/500				pass
2Q 88	1	CCb		—	—				—
2Q 89	59	FA62455-4		OP74260	2X				✓
2Q 90	60	-12			1X				✓
2Q 91	61	-15							✓
2Q 92	62	-17							✓
2Q 93	63	-20		↓	↓				✓
2Q 94	64	-39		OP74246	1X				✓
2Q 95	65	415-39		↓	2X				✓

*< 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.

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Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE: 03/25/19	METHODS: ID-GenX	ANALYST: NAS NG
COLUMN TYPE: Poroshell EC18	ACQ. METHOD: MEM-ID-PFC-21-GenX	ELUENT A LOT #: 184296 w/Acetic Acid
AMOUNT INJECTED: 4 ul	PROC. METHOD: ID-GenX-032119-S2Q445	ELUENT B LOT #: 186489
INSTRUMENT: LCMS2-2Q	CALIB. DATE: 03/21/19	WATER LOT #: 184296
HEAD PRESSURE: 360	RUN BATCH: S2Q 448	ISTD Lot #: LC1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28096	7	CC445-20	PFC-ID	LCMS1248	100/500				pass
2Q 97	1	ccb		—					—
2Q 98	66	FA62561-2		OP74263	1X				✓
2Q 99	67	↓ -3			1X				✓
2Q 28100	68	OP74263-ms			1X				✓
2Q 01	69	FA62561-4			1X				✓
2Q 02	70	-4			10X				✓
2Q 03	74	-5			1X				wrong vial position trix
2Q 04	72	↓ -5			5X				✓
2Q 05	73	OP74263-dup			10X				✓
2Q 06	7	CC445-20		LCMS1248	100/500				pass
2Q 07	1	ccb		—					—
2Q 08	3	CC445-1.0			5/500				pass
2Q 09	13	OP74279-bs		OP74279	1X				✓ PASS
2Q 10	14	↓ -mb							ND
2Q 11	15	FA62577-22							✓
2Q 12	16	-23							✓
2Q 13	17	↓ -25							✓ comb rr 2x Hxs rr 2x
2Q 14	7	CC445-20		LCMS1248	100/500				pass
2Q 15	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.

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Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO

DATE:	03/25/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

LCMS2-2Q ANALYSIS LOG

METHODS:	~~ID~~ - GenX
ACQ. METHOD:	dMRM - ~~ID~~-PFC-21-GenX
PROC. METHOD:	ID-GenX-032119-S2Q445
CALIB. DATE:	03/21/19
RUN BATCH: S2Q	448

ANALYST:	NAS NS
ELUENT A LOT #:	184296 w/ Acetic Acid
ELUENT B LOT #:	186489
WATER LOT #:	184296
ISTD Lot #:	LC1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28116	18	FA62377-26	PFC-ID	OP74279	1X				✓
2Q 17	19	-27							✓
2Q 18	20	-28							✓
2Q 19	21	FA62415-44							✓
2Q 20	22	-47							✓
2Q 21	23	-48							✓
2Q 22	7	CC445-20		LCMS1248	100/500				pass
2Q 23	1	ccb			—				—
2Q 24	3	CC445-1.0			5/500				pass
2Q 25	24	OP74278-bs		OP74278	1X				✓ PASS
2Q 26	25	-mb							✓
2Q 27	26	FA62415-1							✓
2Q 28	27	-2							✓
2Q 29	28	-3							✓
2Q 30	29	-4							✓
2Q 31	30	-5							✓
2Q 32	31	-6							✓
2Q 33	32	-7							✓
2Q 34	33	-8							✓
2Q 35	7	CC445-20		LCMS1248	100/500				pass

*< 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.

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Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO

DATE:	03/25/19
COLUMN TYPE:	Poroshell/EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	3600

LCMS2-2Q ANALYSIS LOG

METHODS:	ID-GenX
ACQ. METHOD:	MRM-ID-PFC-21-GenX
PROC. METHOD:	ID-GenX_032119-S2Q448
CALIB. DATE:	03/21/19
RUN BATCH: S2Q	448

ANALYST:	NAS NG
ELUENT A LOT #:	184296 w/Acetic Acid
ELUENT B LOT #:	186489
WATER LOT #:	184296
ISTD Lot #:	LC1229

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28136	1	CCb	PFC-ID	—					—
2Q 37	34	FA62415-9		OP4278	1X				✓
2Q 38	35	-10							✓
2Q 39	36	-11							✓
2Q 40	37	-12							✓ecomb rr2x Hxs rr2x
2Q 41	38	-13							✓
2Q 42	39	-14							✓
2Q 43	40	-15							✓
2Q 44	41	-17							✓ecomb rr2x Hxs/P7os rr2x
2Q 45	42	-18							✓
2Q 46	43	-19							✓
2Q 47	7	CC445-20		LCMS1248	100/SCC				pass
2Q 48	1	CCb		—					—
2Q 49	44	FA62415-20		OP4278	1X				✓
2Q 50	45	-21							✓
2Q 51	7	CC445-20		LCMS1248	100/SCC				pass
2Q 52	1	CCb		—					—
2Q									
2Q									
2Q				NG 03/25/19					

*< 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.

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Analyst's Signature: Natasha A.

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	03/26/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

METHODS:	ID-Genx
ACQ. METHOD:	dMRM-ID-PFC-21-Genx
PROC. METHOD:	IDGenx-032619-S2Q449
CALIB. DATE:	03/26/19
RUN BATCH:	S2Q 449

ANALYST:	NG
ELUENT A LOT #:	184296 w/ Acetic Acid
ELUENT B LOT #:	186489
WATER LOT #:	184296
ISTD Lot #:	~~LC1225~~ LC1250 NG 03/26/19

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS	
2Q 28157	1	ccb	PFC-ID		—				—	
2Q 58	1	ccb			—				—	
2Q 59	9	high std			—				—	
2Q 60	1	ccb			—				—	
2Q 61	2	ic449-0.5		LCMS1248	2.5/500				updated	
2Q 62	3	-1			5/500					
2Q 63	4	-2			10/500					
2Q 64	5	-5			25/500					
2Q 65	6	-10			50/500					
2Q 66	7	icc449-20			100/500					
2Q 67	8	ic449-50			250/500					
2Q 68	9	-100		↓	1x				↓	
2Q 69	1	iblk			—				—	
2Q 70	10	icv449-20		LC1204	100/500				pass	
2Q 71	11	icv449-20		LC1190C	5/500				pass	
2Q 72	12	icv449-20		9419B	5/500				pass	
2Q 73	13	FA62561-5		OP74263	1x				rr5x eccmb	5x
2Q 74	14	-6		↓	↓				rr1x c/o	1x
2Q 75	15	FA62415-22		OP74246	2x				✓	
2Q 76	16	-26	↓	↓	2x				✓	

*< 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.

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Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE:	03/26/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

METHODS:	ID-Genx
ACQ. METHOD:	dMRM_ID-PFC-21-Genx
PROC. METHOD:	ID-Genx-032619-S2Q449
CALIB. DATE:	03/26/19
RUN BATCH:	S2Q 449

ANALYST:	NG
ELUENT A LOT #:	184296 w/ Acetic Acid
ELUENT B LOT #:	186489
WATER LOT #:	184296
ISTD Lot #:	LC1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28177	17	FA62377-25	PFC-ID	OP74279	2X				✓
2Q 78	18	FA62415-12		OP74278	2X				✓
2Q 79	19	↓ -17		↓	2X				✓
2Q 80	7	CC449-20		LCMS1248	100/500				pass
2Q 81	1	CCb		—	—				—
2Q 82	20	OP74299-bs		OP74299	1X		PASS		✓
2Q 83	21	↓ -mb							✓
2Q 84	22	FA62603-1							✓
2Q 85	23	↓ -2							✓
2Q 86	24	FA62492-1							✓
2Q 87	25	↓ -2							✓
2Q 88	26	FA62520-1							✓
2Q 89	27	↓ -2							✓
2Q 90	7	CC449-20		LCMS1248	100/500				pass
2Q 91		CCb		—	—				—
2Q 92	28	FA62520-3		OP74299	1X				✓
2Q 93	29	OP74299-MS							✓
2Q 94	30	↓ -MSD							rr 1x, missed inj. 1x
2Q 95	31	FA62520-4							✓
2Q ↓ 96	32	↓ -5	↓	↓	↓				✓

*< 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.

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Analyst's Signature: Natasha A.

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SGS ACCUTEST-ORLANDO

DATE:	03/26/19
COLUMN TYPE:	Poroshell ECI8
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

LCMS2-2Q ANALYSIS LOG

METHODS:	ID-Genx
ACQ. METHOD:	dMRM-ID-PFC-21-Genx
PROC. METHOD:	ID-Genx-032619 S2Q449
CALIB. DATE:	03/26/19
RUN BATCH: S2Q	449

ANALYST:	NG
ELUENT A LOT #:	184296 w/Acetic Acid
ELUENT B LOT #:	186489 ↓
WATER LOT #:	184296
ISTD Lot #:	LC1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28197	33	FA62520-7	PFC-ID	OP74299	1X				✓
2Q 98	34	-8							✓
2Q 99	35	-9							✓
2Q 28800	7	CC449-20		LCMS1248	100/500				pass
2Q 01	1	ccb			—				—
2Q 02	36	FA62567-1		OP74299	1X				✓
2Q 03	37	-2							✓
2Q 04	38	-3							✓
2Q 05	39	-4							✓
2Q 06	40	-5							✓
2Q 07	41	-6							✓
2Q 08	42	-7							✓
2Q 09	43	-8							✓
2Q 10	3	CC449-1		LCMS1248	5/500				pass
2Q 11	7	-20			100/500				pass
2Q 12	1	ccb			—				—
2Q 13	44	OP74286 bs		OP74286	1X		PASS		✓
2Q 14	45	-mb							✓ ↓PFOS MePFOSAA
2Q 15	46	FA62455-21							✓
2Q 16	47	-22							✓

*< 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.

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Analyst's Signature: Natasha A.

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SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE: 03/26/19	METHODS: ID-Genx	ANALYST: NG
COLUMN TYPE: PoroshellEC18	ACQ. METHOD: AMRM_ID-PFC-2LGenx	ELUENT A LOT #: 184296 w/AceticAcid
AMOUNT INJECTED: 4 ul	PROC. METHOD: ID-Genx-032619-S2Q449	ELUENT B LOT #: 186489
INSTRUMENT: LCMS2-2Q	CALIB. DATE: 03/26/19	WATER LOT #: 184296
HEAD PRESSURE: 360	RUN BATCH: S2Q 449	ISTD Lot #: LC1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28217	48	FA62455-23	PFC-ID	OP74286	1X				✓
2Q 18	49	OP74286-MS							✓
2Q 19	50	↓ ~~DUP~~ MSD							rr 1x, missed inj. 1X
2Q 20	51	FA62455-24							✓
2Q 21	52	-25							✓
2Q 22	53	-26		↓	↓				rr 2x Hxs ecomb 2x
2Q 23	7	CC449-20		LCMS1248	100/500				pass
2Q 24	1	CCb		—					—
2Q 25	54	FA62455-27		OP74286	1X				PFOS ↓ @50.796 rr 1X 1Xv
2Q 26	55	-28							✓
2Q 27	56	-29							✓
2Q 28	57	-30							rr 2x Hxs ecomb 2x
2Q 29	58	-31							✓
2Q 30	59	-32							redo, no surr added. Red
2Q 31	60	-33							✓
2Q 32	61	-34							✓
2Q 33	62	-35							✓
2Q 34	63	-36		↓	↓				✓
2Q 35	7	CC449-20		LCMS1248	100/500				pass
2Q ↓ 36	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
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Analyst's Signature: [signature]

Instrument Run Log S2Q449 page 5 of 8

SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE:	03/26/19
COLUMN TYPE:	PoroshellEC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

METHODS:	ID-GenX
ACQ. METHOD:	NRM-ID_PFC_2.1_GenX
PROC. METHOD:	ID-GenX-032619-S2Q449
CALIB. DATE:	03/26/19
RUN BATCH:	S2Q 449

ANALYST:	NG
ELUENT A LOT #:	18429C6 w/ AcetycAcid
ELUENT B LOT #:	186489
WATER LOT #:	18429C6
ISTD Lot #:	LE1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28237	64	FA62455-37	PFC-ID	OP74286	1X				✓
2Q 38	65	-38							✓
2Q 39	66	-39							✓
2Q 40	67	-40			↓				✓
2Q 41	99	-26			2X				✓
2Q 42	54	-27			1X				PFOS ↓ @50.5% red
2Q 43	100	↓ -30		↓	2X				✓
2Q 44	3	CC449-1		LCMS1248	5/500				pass
2Q 45	7	↓ -20		↓	100/500				pass
2Q 46	1	CCb		—	—				—
2Q 47	83	OP74308-bs		OP74308	1X				✓ PASS
2Q 48	84	↓ -mb		↓	↓				PFBA (0.8919) hit
2Q 49	85	FA62306-2							PFBA↓ TFDA↓ rr20% 20%
2Q 50	86	OP74287-bs		OP74287					PFOS ↓
2Q 51	87	↓ -mb		↓					PFBA (0.9055) hit
2Q 52	88	FA62551-4		↓	↓				✓
2Q 53	13	561-5		OP74263	5X				✓
2Q 54	14	↓ ↓ -6		↓	1X				✓
2Q 55	30	OP74299-msd		OP74299	↓				✓
2Q ↓ 56	60	OP74286-dup		OP74286	↓				✓

*< 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.

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Analyst's Signature: Natasha H.

SGS 1017 of 1033 FA62561

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SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE: 03/26/19	METHODS: ID-GenX	ANALYST: NG
COLUMN TYPE: Varioshell EC18	ACQ. METHOD: MeM-ID-PFC-21-GenX	ELUENT A LOT #: 189296 w/ Acetic Acid
AMOUNT INJECTED: 4 ul	PROC. METHOD: ID-GenX-032619-S2Q449	ELUENT B LOT #: 180489
INSTRUMENT: LCMS2-2Q	CALIB. DATE: 03/26/19	WATER LOT #: 189296
HEAD PRESSURE: 360	RUN BATCH: S2Q 449	ISTD Lot #: LC1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28257	7	CC449-20	PFC-ID	LCMS1248	100/500				bad injection
2Q 58	1	CCb		—	—				—
2Q 59	45	OP74286-mb		OP74286	1X				↓ ISTDs samples sent to redo
2Q 60	7	CC449-20		LCMS1248	100/500				pass
2Q 61	1	CCb		—	—				—
2Q 62	68	OP74300-bs		OP74300	1X				✓ PASS
2Q 63	69	↓ -mb		↓	↓				ND
2Q 64	70	FA62550-1							✓
2Q 65	71	-2							✓
2Q 66	72	-3							✓
2Q 67	73	-4							✓
2Q 68	74	-5							✓
2Q 69	75	OP74300-MS							✓
2Q 70	76	↓ -msd		↓	↓				✓
2Q 71	7	CC449-20		LCMS1248	100/500				pass
2Q 72	1	CCb		—	—				—
2Q 73	30	OP74219-msd		OP74219	1X				✓
2Q 74	77	FA62550-6		OP74300					✓
2Q 75	78	-7							✓
2Q 76	79	↓ -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
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Analyst's Signature: [signature]

SGS ACCUTEST-ORLANDO | **LCMS2-2Q ANALYSIS LOG**

DATE:	03/26/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

METHODS:	ID-Genx
ACQ. METHOD:	DMRM_ID-PFC-2.1-Genx
PROC. METHOD:	ID-Genx_032619-S2Q449
CALIB. DATE:	03/26/19
RUN BATCH: S2Q	449

ANALYST:	NG
ELUENT A LOT #:	1842916 w/ Acetic Acid
ELUENT B LOT #:	1864289
WATER LOT #:	1842916
ISTD Lot #:	LC1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28277	80	FA62550-9	PFC-ID	OP74300	1X				✓
2Q 78	81	-10	↓	↓	↓				✓
2Q 79	82	-11							✓
2Q 80	3	CC449-1		LCMS1248	5/500				pass
2Q 81	7	-20		↓	100/500				pass
2Q 82	1	ccb			—				—
2Q 83	89	FA62415-1		OP74278	1X				✓
2Q 84	90	-3							✓
2Q 85	91	-4							✓
2Q 86	92	-7							✓
2Q 87	93	-11							✓
2Q 88	94	-13							✓
2Q 89	95	-14							✓
2Q 90	96	-15							✓
2Q 91	97	-19							✓
2Q 92	98	-20		↓	↓				✓
2Q 93	7	CC449-20		LCMS1248	100/500				pass
2Q 94	1	ccb			—				—
2Q 95	15	OP74313-bs		OP74313	1X				m batch
2Q 96	16	-mb	↓	↓	↓				↓

*< 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 **63 of 100** Analyst's Signature: [signature]

SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE:	03/26/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	3600

METHODS:	ID-GenX
ACQ. METHOD:	dMRM-ID-PFC-21-GenX
PROC. METHOD:	ID-GenX-032619-S2Q449
CALIB. DATE:	03/26/19
RUN BATCH: S2Q	449

ANALYST:	NG
ELUENT A LOT #:	184896 w/ Ac. Acid
ELUENT B LOT #:	186489
WATER LOT #:	184296
ISTD Lot #:	CC1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28297	17	FA62455-01	PFC-ID	OP74313	1X				rr bateh
2Q 098	18	OP74313-MS							
2Q 099	19	-MSD							bad inj
2Q 28300	20	FA62455-02							
2Q 01	21	FA62459-21							
2Q 02	22	-22		LCMS1248	100/500		NG 03/26/19		~~pass~~ bad inj.
2Q 03	7	CC449-20							—
2Q 04	1	CCb		OP74313	1X				bad inj.
2Q 05	23	FA62460-1							
2Q 06	24	-2							
2Q 07	25	FA62494-2							
2Q 08	26	-3		LCMS1248	100/500		NG 03/26/19		~~pass~~ bad inj.
2Q 09	7	CC449-20							—
2Q 10	1	CCb							
2Q									
2Q									
2Q				NG 03/26/19					
2Q									
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
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Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	3/28/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	362

METHODS:	I.D. GenX/537
ACQ. METHOD:	AWRM-ID-PFC2.1 GenX
PROC. METHOD:	I.D. GenX 032819 SQ450
CALIB. DATE:	3/28/19
RUN BATCH: S2Q	450

ANALYST:	
ELUENT A LOT #:	184286
ELUENT B LOT #:	186454
WATER LOT #:	
ISTD Lot #:	LC1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28311	1	CCB	537						
2Q 12	1								
2Q 13	1								
2Q 14	1								
2Q 15	1								
2Q 16	1	↓							
2Q 17	9	high STD							high STD Reint. Recal.
2Q 18	1	blk							Direct Inj Test
2Q 19	7	CCV 49.20							
2Q 20	81	FA62561-5							
2Q 21	1	CCB							
2Q 22	2	IC450-0.5		LCMS1248	2.5/500		SP		
2Q 23	3	-1.0			5/500				
2Q 24	4	-2.0			10/500				
2Q 25	5	-5.0			25/500				
2Q 26	6	-10			50/500				
2Q 27	7	IC450-20			100/500				
2Q 28	8	IC450-50			250/500		↓		
2Q 29	9	IC450-100		↓	1		SP		
2Q 30	1	IBLK	↓	—	1				BDL

*< 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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Analyst's Signature:

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SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	3/28/19	METHODS:	ID.GENX/537	ANALYST:	[signature]
COLUMN TYPE:	Pore Steel C18	ACQ. METHOD:	ID_PFC21-GENX	ELUENT A LOT #:	
AMOUNT INJECTED:	4.0 ul	PROC. METHOD:	032819_S2Q450	ELUENT B LOT #:	
INSTRUMENT:	LCMS2-2Q	CALIB. DATE:	3/28/19	WATER LOT #:	
HEAD PRESSURE:	362	RUN BATCH:	S2Q 450	ISTD Lot #:	LC12530

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28331	10	ICV450-20	537	LC12041	100/500		SP		✓ PASS < 30%
2Q 32	11	-20		LL1190C	5/500		SP		✓
2Q 33	12	-20		94193	5/500		SP		✓
2Q 34	13	FA62306-2		74308	20X		SP		—
2Q 35	14	FA62377-24		74231	25X		SP		—
2Q 36	7	CC450-20		LCMS1248	100/500				PASS
2Q 37	1	CCB							BDL
2Q 38	15	OP74313-BS		74313	100/500		SP		✓
2Q 39	16	-MB							—
2Q 40	17	FA62455-61							—
2Q 41	18	OP74313-MS					SP		—
2Q 42	19	-MSD					SP		—
2Q 43	20	FA62455-62							—
2Q 44	21	FA62459-21							—
2Q 45	22	-22							—
2Q 46	7	CC450-20		LCMS1248 ~~LC12451~~	100/500		SP		PASS
2Q 47	21	CCB							BDL
2Q 48	23	FA62460-1		74313					—
2Q 49	24	-2							—
2Q 50	25	FA62494-2							—

*< 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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Analyst's Signature: [signature]

SGS

SGS ACCUTEST-ORLANDO

DATE:	2/28/19
COLUMN TYPE:	/
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	362

LCMS2-2Q ANALYSIS LOG

METHODS:	ID-GENX/537
ACQ. METHOD:	PFC 2.1-GENX
PROC. METHOD:	3/28/19_S2Q450
CALIB. DATE:	3/28/19
RUN BATCH:	S2Q 450

ANALYST:	ML
ELUENT A LOT #:	
ELUENT B LOT #:	
WATER LOT #:	
ISTD Lot #:	LC1250

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28351	26	FA62494-3	537	74313	/		SP		RR 6:2 FTSD ↑(5 x)
2Q ⊥ 52	7	ECC449.20	⊥	LCMS1215	100/500		SP		
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
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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 **67 of 100** Analyst's Signature: M Egan

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SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE: 04/01/19	METHODS: ID-Genx	ANALYST: NG	
COLUMN TYPE: PoroshellEC18	ACQ. METHOD: dMFM-ID-PFC-2.1-Genx	ELUENT A LOT #: 190067 w/Acetic Acid	
AMOUNT INJECTED: 4 ul	PROC. METHOD: ID-Genx_032919-S2Q450	ELUENT B LOT #: 186954	
INSTRUMENT: LCMS2-2Q	CALIB. DATE: 03/29/19	WATER LOT #: 190067	
HEAD PRESSURE: 3600	RUN BATCH: S2Q 452	ISTD Lot #: LCMS1253A	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28443	1	ccb	PFC-ID	—	—				—
2Q 44	9	high std.		—	—				—
2Q 45	1	iblk		—	—				ND
2Q 46	3	cc450-1		LCMS1248	5/500				pass
2Q 47	7	↓ -20 pcc4/10/19		↓	100/500				pass
2Q 48	43	Op74376-bs		Op74376	1X				✓ PASS
2Q 49	44	↓ -mb							ND
2Q 50	45	FA62561-4							✓
2Q 51	46	↓ -5							✓ rr 10x ecomb
2Q 52	47	FA62714-1							✓
2Q 53	48	Op74376-ms			↓				✓
2Q 54	49	FA62561-5		↓	10X				✓
2Q 55	7	cc450-20		LCMS1248	100/500				pass
2Q 56	1	ccb		—	—				—
2Q 57	13	FA62526-18		Op74351	2X				✓
2Q 58	14	Op74351-ms		↓	2X				✓
2Q 59	15	↓ -msd			2X				✓
2Q 60	16	FA62526-19			1X				✓
2Q 61	17	↓ -23			10X				✓
2Q 62	18	↓ -23		↓	20X				✓

Initial LIMS approved

*< 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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Analyst's Signature: [signature]

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SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	04/01/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

METHODS:	ID-Genx
ACQ. METHOD:	dMeM-ID-PFC-21-Genx
PROC. METHOD:	ID-Genx_032919_S2Q450
CALIB. DATE:	03/29/19
RUN BATCH: S2Q	452

ANALYST:	NG
ELUENT A LOT #:	190067 w/ Acetic Acid
ELUENT B LOT #:	186954 ↓
WATER LOT #:	190067
ISTD Lot #:	LCMS1253A

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28463	19	FA62526-24	PFC-ID	OP74351	1X				TEDA ↓ by 1% rr1x
2Q 64	20	-25			5X				✓
2Q 65	21	-25			20X				✓
2Q 66	22	-28		↓	1X				↓ Istds redx
2Q 67	7	CC450-20		LCMS1248	100/500				pass
2Q 68	1	ccb		—					—
2Q 69	23	FA62502-1		OP74352	5X				—
2Q 70	24	↓ -1			20X				
2Q 71	25	FA62503-1			5X				✓
2Q 72	26	-1			20X				
2Q 73	27	-2			5X				—
2Q 74	28	-2			20X				FOSA ↓
2Q 75	29	-3			5X				Report 20X
2Q 76	30	↓ -3		↓	20X				rr 50x for TEDA RT Δ rr5x
2Q 77	7	CC450-20		LCMS1248	100/500		NG 04/02/19		~~pass~~ TEDA, TrDA ↑
2Q 78	1	ccb		—					—
2Q 79	31	FA62522-1		OP74352	5X				✓
2Q 80	32	↓ -1			20X				✓
2Q 81	33	OP74352-dup			5X				report 10x
2Q 82	34	↓	↓	↓	20X				report 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.

LCMS2_2Q_log.xls ME rev. 06/16

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Analyst's Signature: Natasha M.

Instrument Run Log S2Q452 page 3 of 4

SGS ACCUTEST-ORLANDO

DATE:	04/01/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

LCMS2-2Q ANALYSIS LOG

METHODS:	ID-Genx
ACQ. METHOD:	DMRM-ID-PFC-21-Genx
PROC. METHOD:	ID-Genx-032919-S2Q450
CALIB. DATE:	03/29/19
RUN BATCH:	S2Q 452

ANALYST:	NG
ELUENT A LOT #:	190067 w/ Acetic Acid
ELUENT B LOT #:	186954
WATER LOT #:	190067
ISTD Lot #:	LCMS1253A

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS	
2Q 28483	7	CC450-20	PFC-ID	LCMS1248	100/500				pass	
2Q 84	1	ccb			—				—	
2Q 85	35	OP74352-bs		OP74352	1X				pass ✓	
2Q 86	36	↓ -mb							ND	
2Q 87	37	FA62599-1							✓	
2Q 88	38	↓ -2							✓	
2Q 89	39	OP74352-MS							✓	
2Q 90	40	FA62599-3							✓	
2Q 91	41	↓ -4							✓	
2Q 92	42	↓ -5							✓	
2Q 93	7	CC450-20		LCMS1248	100/500				pass	
2Q 94	1	ccb			—				—	
2Q 95	50	OP74378-bs		OP74378	1X				pass ✓	
2Q 96	51	↓ -mb							ND	
2Q 97	52	JC85623-1							rrsx ecomb	rrsx
2Q 98	53	↓ -2							rrsx ecomb	rrsx
2Q 99	54	↓ -3							rrsx ecomb	rrsx
2Q 28500	55	OP74378-MS							rrsx ~~ecNG~~ 4/2/19	rrsx
2Q 01	~~56~~	↓ -msd							rrsx	rrsx
2Q 02	7	CC450-20		LCMS1248	100/500				pass	

*< 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

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Analyst's Signature: [signature]

SGS ACCUTEST-ORLANDO

DATE:	04/01/19
COLUMN TYPE:	Poroshell/EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	360

LCMS2-2Q ANALYSIS LOG

METHODS:	JD-Genx
ACQ. METHOD:	JMRM_JD-PFC_2V-Genx
PROC. METHOD:	JD-Genx-032919-S2Q450
CALIB. DATE:	03/29/19
RUN BATCH:	S2Q 452

ANALYST:	NG
ELUENT A LOT #:	190067 w/Acetic Acid
ELUENT B LOT #:	186954
WATER LOT #:	190067
ISTD Lot #:	LCMS1253A

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS	
2Q 28503	1	CCb	PFC-JD	—					—	
2Q 04	57	JC85023-4		OP74378	1x				rrsx ecomb	rrs
2Q 05	58	-5							rrsx ecomb	rrs
2Q 06	59	-6							✓	
2Q 07	60	-8							rrsx ecomb	rrsx
2Q 08	61	-9							rrsx ecomb	rrsx
2Q 09	7	ecc450-20		LCMS1248	100/500				pass	
2Q 10	1	CCb		—					—	
2Q										
2Q										
2Q				NG 04/01/19						
2Q										
2Q										
2Q										
2Q										
2Q										
2Q										
2Q										
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.

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Analyst's Signature: Natalie M.

Instrument Run Log S2Q453 page 1 of 3

SGS ACCUTEST-ORLANDO

DATE:	04/02/19
COLUMN TYPE:	PoroshellEC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	380

LCMS2-2Q ANALYSIS LOG

METHODS:	ID-GenX
ACQ. METHOD:	dMRM-ID-PFC-21GenX
PROC. METHOD:	ID-GenX-032919-S2Q450
CALIB. DATE:	03/29/19
RUN BATCH: S2Q	453

ANALYST:	NG
ELUENT A LOT #:	190067 w/AceticAcid
ELUENT B LOT #:	186954 ↓
WATER LOT #:	190067
ISTD Lot #:	LCMS1253A

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28511	1	ccb	PFC-ID	—	—				—
2Q 12	9	high std.		—	—				—
2Q 13	1	ccb		—	—				—
2Q 14	1	ccb		—	—				—
2Q 15	9	high std.		—	—				—
2Q 16	1	ibyk		—	—				ND
2Q 17	3	cc450-1		LCMS1248	5/500				pass
2Q 18	7	↓ -20		↓	100/500				pass
2Q 19	19	FA62526-24		OP74351	1X				✓
2Q 20	73	FA62550-12		OP74352	1X				✓acomb ↓DOPA ↓TEPA rr20x rr2
2Q 21	72	FA62502-1		↓	20X				✓
2Q 22	62	↓503-3		↓	50X				✓
2Q 23	7	cc450-20		LCMS1248	100/500				pass
2Q 24	1	ccb		—	—				—
2Q 25	91	OP74392-bs		OP74392	1X				PASS✓
2Q 26	92	↓ -mb		↓	↓				ND
2Q 27	93	FA62526-7							✓
2Q 28	94	FA62561-1							✓
2Q 29	95	↓ -2		↓	↓				✓
2Q 30	7	cc450-20		LCMS1248	100/500				pass

*< 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.

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Analyst's Signature:

SGS 1028 of 1033
FA62561

Instrument Run Log S2Q453 page 2 of 3

SGS ACCUTEST-ORLANDO

DATE:	04/02/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	4 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	380

LCMS2-2Q ANALYSIS LOG

METHODS:	ID-GenX
ACQ. METHOD:	dMRM-ID-PFC-21-GenX
PROC. METHOD:	ID-GenX-032919_S2Q453
CALIB. DATE:	03/29/19
RUN BATCH: S2Q	453

ANALYST:	NG
ELUENT A LOT #:	190067 w/Acetic Acid
ELUENT B LOT #:	186954
WATER LOT #:	190067
ISTD Lot #:	LCMS1253A

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28531	1	ccb	PFC-ID	—					—
2Q 32	63	JC85023-1		OP74378	5X				✓
2Q 33	64	-2							✓
2Q 34	65	-3							✓
2Q 35	66	OP74378-MS							✓
2Q 36	67	-MSD							✓
2Q 37	68	JC85023-4							✓
2Q 38	69	-5							✓
2Q 39	70	-8							✓
2Q 40	71	-9							✓
2Q 41	7	CC450-20		LCMS1248	100/500				pass
2Q 42	1	ccb		—					—
2Q 43	74	OP74396-BS		OP74396	1X				PASS ✓
2Q 44	75	-MB			1X				ND
2Q 45	76	JC85286-1			10X				rrsx rrs
2Q 46	77	-1			20X				rrsx rrs
2Q 47	78	OP74396-MS			10X				✓
2Q 48	79	-MS			20X				✓
2Q 49	80	-MSD			10X				✓
2Q 50	81	-MSD			20X				✓

*< 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.

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Analyst's Signature: NG

Instrument Run Log S2Q453 page 3 of 3

SGS ACCUTEST-ORLANDO — **LCMS2-2Q ANALYSIS LOG**

DATE: 04/02/19	METHODS: ID-GenX	ANALYST: NG
COLUMN TYPE: Poroshell EC18	ACQ. METHOD: dMRM-ID-PFC-2.1-GenX	ELUENT A LOT #: 190067 w/Acetic Acid
AMOUNT INJECTED: 4 ul	PROC. METHOD: ID-GenX-032919-SSQ450	ELUENT B LOT #: 186954
INSTRUMENT: LCMS2-2Q	CALIB. DATE: 03/29/19	WATER LOT #: 190067
HEAD PRESSURE: 380	RUN BATCH: S2Q 453	ISTD Lot #: LCMS 1253A

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS	
2Q 28551	7	CC450-20	PFC-ID	LCMS1248	100/500				pass	
2Q 52	1	ccb		—	—				—	
2Q 53	82	JC85286-2		OP74396	5X				rr2x	rr2x
2Q 54	83	-2			20X				rr2x	rr2x
2Q 55	84	-3			5X				rr2x	rr2x
2Q 56	85	-3			20X				rr2x	rr2x
2Q 57	86	FA62813-1			10X				✓	
2Q 58	87	-1			20X				✓	
2Q 59	7	ecc450-20		LCMS1248	100/500				pass	
2Q 60	1	ccb		—	—				—	
2Q										
2Q										
2Q										
2Q										
2Q										
2Q										
2Q										
2Q										
2Q										
2Q										

NG 04/02/19

*< 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 — 79 of 100 — Analyst's Signature: Nicholas A.

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 3-22-19 13:15
Started {mm/dd/yy 24:00}

Date/Time: 3-23-19 11:10
Finished {mm/dd/yy 24:00}

Prep Method: 3535A or 537 or 537MOD (circle)

Analytical Method: Cc 537 LCDI

Batch#: OP74263 Ext. By: MV Conc. By: MV Vialed By: MV

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 74263 MB	X	130	6	NA	20uL		1 mL	C	
OP 74263 BS	X	130				50 uL			
FA62535-1	2	125							
★ FA62561-1	1	125							Orange Tint
-2	1	125							Reddish Tint
-3	1	125							Reddish Tint
-4	1	125							
-5	1	125							
-6	1	125							
FA62561-3 MS	2	125	6	NA	20uL	50uL	1 mL	C	
MSD									
FA62561-6 DUP	2	125	6	NA	20uL		1 mL	C	

★ **Comments:** Need to Pass through Cartridge FA62561-

Surr.1 ID: LCM51246B Conc: 1.0 ppm Exp. Date: 03-19-20 Inj. By: MV Ver. By MV

Spk.1 ID: LCM51245 Conc: 400 ppb Exp. Date: 09-19-19 Inj. By: MV Ver. By MV

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: 45C Corr. Temp °C: ✓ | Observed Temp °C: ✓ Corr. Temp °C: ✓

Methanol Lot # 186954 | SPE Lot # 6429443-10 | pH Paper # 212218

Acetonitrile Lot # ✓ | Syringe filter Lot # ✓ | Reagent # 2% MEOH, 186954

Water Lot# 0933908 | Pre-filter Lot# ✓ | Reagent # 2% NH4OH, 7118050

Solvent# ✓ | Carbon Lot# ✓ | Other ✓

Relinquished By: Date: 3-23-19

Accepted By: Date: 03-23-19 11:15

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 3-29-19 15:00 Started {mm/dd/yy 24:00}

Date/Time: 03/30/19 1045 Finished {mm/dd/yy 24:00}

Prep Method: 3535A or 537 or 537MOD (circle)

Analytical Method: LC 537

Batch#: OP74376 Ext. By: MV Conc. By: MB Vialed By: MV

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 74376 MB	X	250	6	NA	20uL		1mL	A	
OP 74376 BS	X	250	↓	↓	↓	50uL	↓	↓	
FA62561-4 RE	2	125	↓	↓	↓	↓	↓	↓	
-5RE	2	125	↓	↓	↓	↓	↓	↓	
FA62714-1	1	250	↓	↓	↓	↓	↓	↓	
					03/30/19				
				MB					
FA62714-1 MS	2	250	6	NA	20uL	50	1mL	A	
MSD									INSUF. SAMPLE
DUP									

Comments:

Surr.1 ID: LCMS1252B Conc: 1.0 ppm Exp. Date: 03-27-20 Inj. By: MV Ver. By MV

Spk.1 ID: LCMS1245 Conc: 400ppb Exp. Date: 09-19-19 Inj. By: MV Ver. By MV

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 # 186954 SPE Lot # 6441956-01 pH Paper # 212218

Acetonitrile Lot # ✓ Syringe filter Lot # ✓ Reagent # 2% MeOH, 186954

Water Lot# 0073908 Pre-filter Lot# ✓ Reagent # 2% NH4OH 7118050

Solvent# ✓ Carbon Lot# 107563 Other

Relinquished By: Date: 03/30/19

Accepted By: Date: 04-01-19

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 04/01/19 09:00 (Started) {mm/dd/yy 24:00}

Date/Time: 04/02/19 1000 (Finished) {mm/dd/yy 24:00}

Prep Method: 3535A or 537 or 537MOD (circle)

Analytical Method: LC537 QSM

Batch#: OP74392 Ext. By: MF Conc. By: MB Vialed By: MF

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 74392 MB		250 ml	6	N/A	20 uL		1 ml	B	
OP 74392 BS		250 ml	↓	↓	↓	50 uL	↓	↓	
FA62526-TRC	2	250	↓	↓	↓		↓	B	
FA62561-1 RE	2	125	6	N/A	20 uL		↓	C	
-2 RE	2	125	↓	↓	↓		↓	↓	
MS									
MSD									
DUP									

MB 04/02/19

Comments:

Surr.1 ID: LCMS1252C Conc: 1.0 PPM Exp. Date: 3/27/20 Inj. By: MF Ver. By MF

Spk.1 ID: LCMS1245 Conc: 100 PPB Exp. Date: 9/19/19 Inj. By: MF Ver. By MF

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 # 13

Observed Temp °C: 45°C Corr. Temp °C: —

N-Evap Temp (Therm ID): —

Observed Temp °C: — Corr. Temp °C: —

Methanol Lot # 186489

Acetonitrile Lot # —

Water Lot# OP 73908

Solvent# —

SPE Lot # 6441956-01

Syringe filter Lot # —

Pre-filter Lot# —

Carbon Lot# 107563

pH Paper # 212218

Reagent # 2:1 MeOH 186454 NH4OH 1118050

Reagent # —

Other —

Relinquished By: [signature] Date: 04/02/19

Accepted By: [signature] Date: 04-02-19

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

Prep Log OP74392 page 1 of 1

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
Sevda.Aleckson@NOREASINC.com

May 10, 2019

SUBJECT: MCAS El Toro, Site 18 & 24, Data Validation

Dear Ms. Aleckson,

Enclosed is the final validation report for the fraction listed below. This SDG was received on April 14, 2019 Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #44791:

SDG #	Fraction
FA62561	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 and 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
pgeng@lab-data.com
Project Manager/Senior Chemist

1,033 pages-EM

Attachment 1

NEDD/NIRIS Client Select Stage 4

LDC #44791 (Noreas, Inc.-Irvine, CA/ El Toro, Sites 18 & 24)

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	FA62561	04/17/19	05/08/19	6	0																														
Total	J/PG			6	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	6

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\Site 18 & 24\44791ST-18-24.wpd

LDC Report# 44791A96

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: El Toro, Sites 18 & 24

LDC Report Date: May 2, 2019

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: SGS North America, Inc.

Sample Delivery Group (SDG): FA62561

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
24MW16E	FA62561-1	Water	03/19/19
24MW16C	FA62561-2	Water	03/19/19
24MW16B	FA62561-3	Water	03/19/19
24MW17E	FA62561-4	Water	03/19/19
24MW17C	FA62561-5	Water	03/19/19
24MW17B	FA62561-6	Water	03/19/19
24MW16BMS	FA62561-3MS	Water	03/19/19
24MW17BDUP	FA62561-6DUP	Water	03/19/19

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.

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.

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

No field blanks were identified in this SDG.

VII. Matrix Spike/Duplicate Sample Analysis

Matrix spike (MS) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Compound	RPD (Limits)	Difference (Limits)	Flag	A or P
24MW17BDUP (24MW17B)	Perfluorononanoic acid (PFNA) Perfluorobutanesulfonic acid (PFBS)	200 (≤30) 200 (≤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.

IX. Field Duplicates

No field duplicates were identified in this SDG.

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
24MW16B	13C7-PFUnDA	168 (50-150)	Perfluoroundecanoic acid (PFUnA)	UJ (all non-detects)	P
24MW17C	13C7-PFUnDA 13C2-PFDoDA	169 (50-150) 155 (50-150)	Perfluoroundecanoic acid (PFUnA) Perfluorododecanoic acid (PFDoA)	UJ (all non-detects) UJ (all non-detects)	P
24MW17B	13C7-PFUnDA	168 (50-150)	Perfluoroundecanoic acid (PFUnA)	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 DUP RPD and labeled compounds %R, data were qualified as estimated in three 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 FA62561

Sample	Compound	Flag	A or P	Reason (Code)
24MW17B	Perfluorononanoic acid (PFNA) Perfluorobutanesulfonic acid (PFBS)	J (all detects) J (all detects)	A	Duplicate sample analysis (RPD) (9)
24MW16B 24MW17B	Perfluoroundecanoic acid (PFUnA)	UJ (all non-detects)	P	Labeled compounds (%R) (25)
24MW17C	Perfluoroundecanoic acid (PFUnA) Perfluorododecanoic acid (PFDoA)	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 FA62561

No Sample Data Qualified in this SDG

El Toro, Sites 18 & 24
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG FA62561

No Sample Data Qualified in this SDG

LDC #: 44791A96

VALIDATION COMPLETENESS WORKSHEET

SDG #: FA62561
Stage ~~2B~~ 4
Laboratory: SGS North America, Inc.

Date: 5/1/19
Page: 1 of 1
Reviewer: 9
2nd Reviewer: MP

METHOD: LC/MS Perfluoroalkyl & 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	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 20% .Y² True/ICV ≤ 30%
IV.	Continuing calibration/ISC	A	CCV/ISC ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Matrix spike/~~Matrix spike duplicates~~ DUP	A/SW	MS. DUP
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Labeled Compounds	SW	
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	24MW16E	FA62561-1	Water	03/19/19
2 2	24MW16C	FA62561-2	Water	03/19/19
3 2	24MW16B	FA62561-3	Water	03/19/19
4 2	24MW17E	FA62561-4	Water	03/19/19
5 2/3	24MW17C A,C	FA62561-5	Water	03/19/19
6 2/3	24MW17B C	FA62561-6	Water	03/19/19
7	24MW16BMS	FA62561-3MS	Water	03/19/19
8	24MW17BDUP	FA62561-6DUP	Water	03/19/19
9				
10				

Notes:

1	528449						
2	528447						
3	528448		(C)				

LDC #: 47196

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: SVG

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?				

Level IV checklist_LCMS_537_DoD5.1.1.wpd

LDC #: 47914A0

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: 9
2nd Reviewer: JG

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. 6:2 fluorotelomer sulfonate			
S. 8:2 fluorotelomer sulfonate			
T. MeFOSAA			
U. EtFOSAA			
V. 4:2 fluorotelomer sulfonate			

COMPNDL_SGS.wpd

LDC #: 44791A96

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: ______
2nd Reviewer: ______

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 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 ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		8	D	( )	( )	200 (≤30)	6 (dets)	J dets/A
			J	( )	( )	200 (✓)		✓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

MSD.wpd

LDC #: ~~44794~~96

VALIDATION FINDINGS WORKSHEET
Labeled Compounds

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JV

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	Labeled Compound	% Recovery	(Limit)	Qualifications
		3 (ND)	13C7-PFUnDA	168	(50-150)	J/UJ/P (F)
		5 (ND)	13C7-PFUnDA	169	( )	J/UJ/P (F)
			13C2-PFDoDA	155	( )	(G)
		6 (ND)	13C7-PFUnDA	168	( )	J/UJ/P (F)
		7 (MS)	13C7-PFUnDA	168	( )	No qual
			13C2-PFDoDA	168	( )	

LDC: 44T9LA96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 4
Reviewwe: 9
2nd Reviewer: JVG

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
3/22/2019	PFOA	1	0.025	0.01524200
		2	0.050	0.02649770
		3	0.100	0.05240470
		4	0.250	0.12997330
		5	0.500	0.25503460
		6	1.000	0.51732210
		7	2.500	1.33355840
		8	5.000	2.6965342

Linear through the origin

	calculated	***Reported***
Constant	*0.000000*	0.0000
X Coefficient(s)	*0.53723746*	0.537238
Correlation Coefficient	*0.999957*	0.99987
Coefficient of Determination (r^2)	*0.999915*	

LDC: 44T9A96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 2 of 4
Reviewwe: Q
2nd Reviewer: NV6

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
3/22/2019	PFOS	1	0.025	0.0273452
		2	0.050	0.0527867
		3	0.100	0.1009840
		4	0.250	0.2414169
		5	0.500	0.4688247
		6	1.000	0.9231862
		7	2.500	2.4688361
		8	5.000	4.9297697

Linear through the origin

	calculated	***Reported***
Constant	*0.000000*	0.0000
X Coefficient(s)	*0.98393547*	0.983933
Correlation Coefficient	*0.999929*	0.99979
Coefficient of Determination (r^2)	*0.999859*	

LDC: 44794A96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 3 of 4
Reviewwe: [illegible]
2nd Reviewer: JVG

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
3/26/2019	PFOA	1	0.025	0.0152819
		2	0.050	0.0268262
		3	0.100	0.0518901
		4	0.250	0.1272562
		5	0.500	0.2569113
		6	1.000	0.5119756
		7	2.500	1.3172152
		8	5.000	2.6780005

Linear through the origin

	calculated	***Reported***
Constant	*0.000000*	0.0000
X Coefficient(s)	*0.53298128*	0.53298
Correlation Coefficient	*0.999947*	0.99984
Coefficient of Determination (r^2)	*0.999894*	

LDC: 44791A96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewwe: 9
2nd Reviewer: JVG

Method: PFACs (EPA Method 537)

Calibration Date	Analyte	Standard	(Y) Concentration	(X) Area
3/26/2019	PFOS	1	0.025	0.0295992
		2	0.050	0.0522383
		3	0.100	0.0976394
		4	0.250	0.2436449
		5	0.500	0.4903238
		6	1.000	0.9406322
		7	2.500	2.4724805
		8	5.000	5.1067458

Linear through the origin

	calculated	***Reported***
Constant	*0.000000*	0.0000
X Coefficient(s)	*1.01225230*	1.012264
Correlation Coefficient	*0.999836*	0.99951
Coefficient of Determination (r^2)	*0.999672*	

LDC #: ~~HH9A96~~

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: SVG

METHOD: LC/MS PFAS (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	Recalculated RRF	Reported %D	Recalculated %D
1	2028055	3/24/19	PFOA ($^{13}C_2$-PFOA)	20.00	19.21T	19.21T	3.9	3.9
			PFOS ($^{13}C_8$-PFOS)	20.00	19.081	19.081	4.6	4.6
2	2028096	3/25/19	PFOA ($^{13}C_2$-PFOA)	↓	19.488	19.488	2.6	2.6
			PFOS ($^{13}C_8$-PFOS)	↓	19.135	19.135	4.3	4.3
3	~~2028166~~	~~3/26/19~~	~~PFOA ($^{13}C_2$-PFOA)~~					
			~~PFOS ($^{13}C_8$-PFOS)~~					
4	2028066	3/25/19	PFOA ($^{13}C_2$-PFOA)	20.00	19.14T	19.14T	4.3	4.3
			PFOS ($^{13}C_8$-PFOS)	↓	19.154	19.154	4.2	4.2

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.

LDC #: 44[illegible]76

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: DV

METHOD: LC/MS PFAS (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: T

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
PFOA	0.16	NA	0.0409	0.176	NA	84	84				
PFOS	↓	↓	ND	0.136	↓	85	85				

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.

LDC #: ~~44197A~~ 96

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

METHOD: LC/MS PFAS (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: OPT463-BS

Compound	Spike Added (ng/L)		Spike Concentration (ng/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFOA	0.154	NA	0.147	NA	96	96				
PFOS	↓	↓	0.148	↓	96	96				

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 #: ~~419A96~~

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CL
2nd reviewer: JVG

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. 1 , C :

Conc. = $\frac{(6506)(20.0)(1)(\quad)(\quad)}{(322181)(0.5378)(1.5)(0.5378)(\quad)}$

= 0.00606 ng/L

#	Sample ID	Compound	Reported Concentration (ng/L)	Calculated Concentration ( )	Qualification
	1	C	0.00606		

El Toro, Sites 18 and 24 - LDC 44791

SDG: FA62561

Sample ID	24MW16B									
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20190319	20190324	0.004	UG_L	U	U		0.004	0.003
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190319	20190324	0.016	UG_L	U	U		0.016	0.008
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190319	20190324	0.016	UG_L	U	U		0.016	0.008
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190319	20190324	0.0408	UG_L				0.004	0.002
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.003
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190319	20190324	0.0246	UG_L				0.004	0.002
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190319	20190324	0.0426	UG_L				0.004	0.002
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190319	20190324	0.152	UG_L				0.004	0.002
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20190319	20190324	0.0409	UG_L				0.004	0.002
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20190319	20190324	0.004	UG_L	U	UJ	25	0.004	0.002
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002

Sample ID	24MW16C									
Method	Chemical Name	Sampling Date	Anal Date	Final Result	Units	Lab Qual	Val Qual	Reason Code	LOD	DL
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20190319	20190324	0.0998	UG_L				0.004	0.003
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190319	20190324	0.016	UG_L	U	U		0.016	0.008
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190319	20190324	0.016	UG_L	U	U		0.016	0.008
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190319	20190324	0.0591	UG_L				0.004	0.002
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002

SDG: FA62561

Sample ID	24MW16C									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.003
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190319	20190324	0.0436	UG_L				0.004	0.002
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190319	20190324	0.222	UG_L				0.004	0.002
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190319	20190324	0.188	UG_L				0.004	0.002
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20190319	20190324	0.204	UG_L				0.004	0.002
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002

Sample ID	24MW16E									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20190319	20190326	0.00458	UG_L	J	J		0.004	0.003
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190319	20190326	0.016	UG_L	U	U		0.016	0.008
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190319	20190326	0.016	UG_L	U	U		0.016	0.008
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190319	20190326	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190319	20190326	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190319	20190326	0.004	UG_L	U	U		0.004	0.003
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190319	20190326	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190319	20190326	0.00555	UG_L	J	J		0.004	0.002
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190319	20190326	0.00284	UG_L	J	J		0.004	0.002
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190319	20190326	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20190319	20190326	0.00606	UG_L	J	J		0.004	0.002
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190319	20190326	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20190319	20190326	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190319	20190326	0.004	UG_L	U	U		0.004	0.002

SDG: FA62561

Sample ID	24MW17B								
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20190319	20190325	0.661	UG_L				0.004	0.003
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190319	20190325	0.016	UG_L	U	U		0.016	0.008
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190319	20190325	0.016	UG_L	U	U		0.016	0.008
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190319	20190325	0.0175	UG_L		J	9	0.004	0.002
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190319	20190325	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190319	20190325	0.004	UG_L	U	U		0.004	0.003
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190319	20190325	0.0418	UG_L				0.004	0.002
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190319	20190325	0.266	UG_L				0.004	0.002
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190319	20190325	0.105	UG_L				0.004	0.002
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190319	20190325	0.00271	UG_L	J	J	9	0.004	0.002
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20190319	20190325	1.81	UG_L				0.02	0.01
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190319	20190325	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20190319	20190325	0.004	UG_L	U	UJ	25	0.004	0.002
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190319	20190325	0.004	UG_L	U	U		0.004	0.002

Sample ID	24MW17C								
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20190319	20190325	0.0771	UG_L				0.004	0.003
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190319	20190325	0.016	UG_L	U	U		0.016	0.008
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190319	20190325	0.016	UG_L	U	U		0.016	0.008
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190319	20190325	0.128	UG_L				0.004	0.002
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190319	20190325	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190319	20190325	0.004	UG_L	U	UJ	25	0.004	0.003

SDG: FA62561

Sample ID	24MW17C									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190319	20190325	0.257	UG_L				0.004	0.002
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190319	20190325	1.31	UG_L				0.04	0.02
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190319	20190325	0.794	UG_L				0.04	0.02
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190319	20190325	0.00349	UG_L	J	J		0.004	0.002
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20190319	20190325	5.23	UG_L				0.04	0.02
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190319	20190325	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20190319	20190325	0.004	UG_L	U	UJ	25	0.004	0.002
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190319	20190325	0.004	UG_L	U	U		0.004	0.002

Sample ID	24MW17E									
Method	**Chemical Name**	**Sampling Date**	**Anal Date**	**Final Result**	**Units**	**Lab Qual**	**Val Qual**	**Reason Code**	**LOD**	**DL**
537_MOD	HEPTADECAFLUOROACTANESULFONIC ACID (PFOS)	20190319	20190324	0.004	UG_L	U	U		0.004	0.003
537_MOD	N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (ETFOSAA)	20190319	20190324	0.016	UG_L	U	U		0.016	0.008
537_MOD	N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (MEFOSAA)	20190319	20190324	0.016	UG_L	U	U		0.016	0.008
537_MOD	PERFLUOROBUTANESULFONIC ACID (PFBS)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUORODECANOIC ACID (PFDA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUORODODECANOIC ACID (PFDOA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.003
537_MOD	PERFLUOROHEPTANOIC ACID (PFHPA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROHEXANESULFONIC ACID (PFHXS)	20190319	20190324	0.00571	UG_L	J	J		0.004	0.002
537_MOD	PERFLUOROHEXANOIC ACID (PFHXA)	20190319	20190324	0.00282	UG_L	J	J		0.004	0.002
537_MOD	PERFLUORONONANOIC ACID (PFNA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROOCTANOIC ACID (PFOA)	20190319	20190324	0.0117	UG_L				0.004	0.002
537_MOD	PERFLUOROTETRADECANOIC ACID (PFTEDA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERFLUOROUNDECANOIC ACID (PFUNA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002
537_MOD	PERLUOROTRIDECANOIC ACID (PFTRA)	20190319	20190324	0.004	UG_L	U	U		0.004	0.002

LDC #: 44791

EDD POPULATION COMPLETENESS WORKSHEET

Date: 5/9
Page: 1 of 1
2nd Reviewer:

The LDC job number listed above was entered by JE.
Entered from Body or Summary

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	Y	
Ib.	- All samples present/match report?	Y	
Ic.	- All reported analytes present?	Y	
Id.	- 10% or 100% verification of EDD?	Y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	Y	
IIb.	- Reason Codes used? If so, note which codes.	Y	
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	Y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	
IIId.	-Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	+	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	—	
IIIf.	- Were multiple results reported due to dilutions/reanalysis? If so, were results qualified appropriately?	+	
IIIg.	-Are there any discrepancies between the data packet and the EDD?	N	

Notes: *see discrepancy sheet

EDD Population Checklist (word).docx

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	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561

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	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16C	Monitoring well	6103747.69	2192364.57	24MW16C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16E	Monitoring well	6103747.69	2192364.57	24MW16E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17B	Monitoring well	6102765.67	2191347.05	24MW17B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17C	Monitoring well	6102765.67	2191347.05	24MW17C	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW16B	Monitoring well	6103747.69	2192364.57	24MW16B	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561
EL_TORO_MCAS	SITE 00024	24MW17E	Monitoring well	6102765.67	2191347.05	24MW17E	Ground water	19-Mar-19	Perfluoroalkyl Compounds	FA62561