



**Off-Base Drinking Water Sample Results,  
Combined Level 2 and Level 4 Laboratory Report,  
and the Sample Location Figure, SDG FA44596**

*Naval Air Station Cecil Field  
Jacksonville, Florida*

July 2019

N60200\_009865  
CECIL\_FIELD\_NAS  
SSIC 5000-33c

**LABORATORY DATA PACKAGE FA44596 NAS CECIL FIELD FL**  
06/02/2017  
ACCUTEST LABORATORIES

Approved for public release: distribution unlimited.

### Technical Report for

#### Resolution Consultants

NAS Cecil Field PFAS; Jacksonville, FL

0888817799

SGS Accutest Job Number: FA44596

Sampling Date: 06/02/17

#### Report to:

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Total number of pages in report: 289



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.

**Norm Farmer**  
Technical Director

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Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)  
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Test results relate only to samples analyzed.

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## Sample Summary

### Resolution Consultants

Job No: FA44596

NAS Cecil Field PFAS; Jacksonville, FL  
Project No: 0888817799

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA44596-1	06/02/17	14:05 RB	06/05/17	DW	Drinking Water	COJ-11-0617
FA44596-2	06/02/17	14:07 RB	06/05/17	DW	Drinking Water FB	FB-COJ-11-0617

## SAMPLE DELIVERY GROUP CASE NARRATIVE

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**Client:** Resolution Consultants

**Job No:** FA44596

**Site:** NAS Cecil Field PFAS; Jacksonville, FL

**Report Date** 6/28/2017 7:33:15 PM

1 Sample(s) and 1 Field Blank(s) were collected on 06/02/2017 and were received at SGS Accutest Southeast (SASE) on 06/05/2017 properly preserved, at 0.8 Deg. C and intact. These Samples received an SASE job number of FA44596. 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.

### Extractables by GCMS By Method EPA 537

**Matrix:** DW

**Batch ID:** OP65503

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA44596-1MS, FA44596-1MSD were used as the QC samples indicated.

Sample(s) FA44596-1, OP65503-MS, OP65503-MSD have surrogates outside control limits.

OP65503-MS for 13C2-PFHxA: Outside control limits.

OP65503-MSD for 13C2-PFHxA: Outside control limits.

FA44596-1 for 13C2-PFHxA: Outside control limits due to matrix interference. Confirmed by MS/MSD.

FA44596-1 for Perfluorooctanoic acid: Associated CCV outside of DoD control limits high, sample was ND.

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

Narrative prepared by:

\_\_\_\_\_  
Kim Benham, Client Services (signature on file)

## Summary of Hits

**Job Number:** FA44596  
**Account:** Resolution Consultants  
**Project:** NAS Cecil Field PFAS; Jacksonville, FL  
**Collected:** 06/02/17



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
---------------	------------------	-----------------	-----	-----	-------	--------

FA44596-1      COJ-11-0617

No hits reported in this sample.

FA44596-2      FB-COJ-11-0617

No hits reported in this sample.

**Sample Results**

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**Report of Analysis**

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SGS Accutest

## Report of Analysis

Page 1 of 1

Client Sample ID:	COJ-11-0617	Date Sampled:	06/02/17
Lab Sample ID:	FA44596-1	Date Received:	06/05/17
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 537 EPA 537		
Project:	NAS Cecil Field PFAS; Jacksonville, FL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q2780.D	1	06/27/17 01:02	NAF	06/16/17 09:00	OP65503	S2Q69
Run #2							

	Initial Volume	Final Volume
Run #1	260 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MCL	LOQ	LOD	DL	Units	Q
---------	----------	--------	-----	-----	-----	----	-------	---

## PERFLUOROALKYL CARBOXYLIC ACIDS

335-67-1	Perfluorooctanoic acid <sup>a</sup>	0.0031 U		0.0077	0.0031	0.0019	ug/l	
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## PERFLUOROALKYL SULFONATES

375-73-5	Perfluorobutanesulfonic acid	0.0058 U		0.0077	0.0058	0.0038	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0031 U		0.0077	0.0031	0.0019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	60% <sup>b</sup>		70-130%
	13C2-PFDA	91%		70-130%

(a) Associated CCV outside of DoD control limits high, sample was ND.

(b) Outside control limits due to matrix interference. Confirmed by MS/MSD.

U = Not detected      LOD = Limit of Detection  
MCL = Maximum Contamination Level (40 CFR 141)  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

SGS Accutest

# Report of Analysis

Page 1 of 1

Client Sample ID:	FB-COJ-11-0617	Date Sampled:	06/02/17
Lab Sample ID:	FA44596-2	Date Received:	06/05/17
Matrix:	DW - Drinking Water FB	Percent Solids:	n/a
Method:	EPA 537 EPA 537		
Project:	NAS Cecil Field PFAS; Jacksonville, FL		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q2823.D	1	06/27/17 15:24	NAF	06/16/17 09:00	OP65503	S2Q70
Run #2							

	Initial Volume	Final Volume
Run #1	260 ml	1.0 ml
Run #2		

CAS No. Compound Result MCL LOQ LOD DL Units Q

**PERFLUOROALKYL CARBOXYLIC ACIDS**

335-67-1 Perfluorooctanoic acid 0.0031 U 0.0077 0.0031 0.0019 ug/l

**PERFLUOROALKYLSULFONATES**

375-73-5 Perfluorobutanesulfonic acid 0.0058 U 0.0077 0.0058 0.0038 ug/l

1763-23-1 Perfluorooctanesulfonic acid 0.0031 U 0.0077 0.0031 0.0019 ug/l

CAS No. Surrogate Recoveries Run# 1 Run# 2 Limits

13C2-PFHxA 82% 70-130%

13C2-PFDA 82% 70-130%

U = Not detected      LOD = Limit of Detection  
 MCL = Maximum Contamination Level (40 CFR 141)  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

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**Misc. Forms**

**Custody Documents and Other Forms**

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**Includes the following where applicable:**

- Chain of Custody
- QC Evaluation: DOD QSM5 Limits

# FA44596

 <b>RESOLUTION CONSULTANTS</b>		<b>CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD</b>						COC No. <b>RRB060217-1</b>		Page <b>1</b> of <b>1</b>			
		Project Name: <b>Former NAS Cecil Field - Jacksonville, FL - Offsite PFAS Sampling</b>						PO No. <b>22064</b>		Project: <b>0888817799</b> Phase: <b>FI</b> Task: <b>WS</b>			
		Site Location: <b>Former NAS Cecil Field - Jacksonville, FL</b>						<b>Sample Analysis Requested</b> (Enter number of containers for each test)					
		CTO: <b>JMAS</b>		RC Task Order Manager: <b>Kara Wimble</b>				(3) →					
Sampler: <b>Robert Bailey</b>						Phone: <b>(904) 301-4504</b>							
Lab Name: <b>SGS Accutest</b>						Turnaround Time (specify): <b>14 Days</b>							
Lab ID	Sample ID (sys_samp_code)	Location ID (sys_loc_code)	Date (mm/dd/yy)	Time (Military) (hhmm)	Matrix Code (1)	Sample Type (2)	Field Filtered (Y/N)	Total No. of Containers	EPA Method 537 with no modifications*			Extra Volume for MS/MSD	HOLD
1	COJ-11-0617	COJ-11	06/02/17	1405	WP/WQ	N	N	6	X				X
2	FB-COJ-11-0617	COJ-11	06/02/17	1407	WQ	FB	N	2	X				
<b>Field Comments:</b> *Analytes include: perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS)						<b>Lab Comments:</b>						<b>Sample Shipment and Delivery Details</b> Number of coolers in shipment: <b>1</b>	
Requisitioned by (signature)			Date	Time	Received by (signature)			Date	Time	Samples Iced? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Method of Shipment: <b>Accutest Courier</b>	
1 <i>Kollet Bond</i>			06/04/17	1550	1 <i>James Alonca</i>			6-5-17	1550				
2 <i>James Alonca</i>			06/05/17	1830	2 <i>[Signature]</i>			6/5/17	1830	Airbill No: <b>N/A</b>			
3					3					Date Shipped: <b>06/05/17</b>			

(1) AA=Ambient air, AQ=Air quality control, ASB=Asbestos, CK=Caulk, DS=Storm drain sediment, GS=Soil gas, IC-IDW Concrete, IDD-IDW Solid, IDS-IDW soil, IDW-IDW Water, LF=Free Product, MA=Mastic, PC=Paint Chips, SC=Cement/Concrete, SE=Sediment, SL=Sludge, SO=Soil, SQ=Soil/Solid quality control, SSD=Subsurface sediment, SU=Surface soil (<6 in), SW=Swab or wipe, TA=Animal tissue, TP=Plant tissue, TQ=Tissue quality control, WO=Ocean water, WP=Drinking water, WQ=Water quality control, WR=Ground water effluent, WS=Surface water, WU=Storm water, WW=Waste water  
 (2) Sample Type: AB=Ambient Bk, EB=Equipment Bk, FB=Field Bk, FD=Field Duplicate Sample, IDW=Investigative-Derived Waste, MIS=Incremental Sampling Methodology, N=Normal Environmental Sample, TB=Trip Bk  
 (3) Preservative added: HA=Hydrochloric Acid, NI=Nitric Acid, SH=Sodium Hydroxide, SA=Sulfuric Acid, ME=Methanol, SB=sodium bisulfate, ST=Sodium Thiosulfate If NO preservative added leave blank

Rev 5/12 *008*

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## SGS Accutest Sample Receipt Summary

Job Number: FA44596

Client: RESOLUTION CONSULTANTS

Project: FMR NAS CECIL FIELD

Date / Time Received: 6/5/2017 6:30:00 PM

Delivery Method: ALSE

Airbill #s:

Therm ID: IR 1; Therm CF: 0.4; # of Coolers: 1  
 Cooler Temps (Raw Measured) °C: Cooler 1: (0.4);  
 Cooler Temps (Corrected) °C: Cooler 1: (0.8);

**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 #: pH 0-3 230315 pH 10-12 219813A Other: (Specify) \_\_\_\_\_  
 Residual Chlorine Test Strip Lot #: \_\_\_\_\_

Comments

SM001  
Rev. Date 05/24/17

Technician: PHILIPD

Date: 6/5/2017 6:30:00 PM

Reviewer: \_\_\_\_\_

Date: \_\_\_\_\_

FA44596: Chain of Custody

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# QC Evaluation: DOD QSM5 Limits

**Job Number:** FA44596  
**Account:** Resolution Consultants  
**Project:** NAS Cecil Field PFAS; Jacksonville, FL  
**Collected:** 06/02/17

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
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No Exceptions found.

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\* Sample used for QC is not from job FA44596

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## GC/MS Semi-volatiles

### QC Data Summaries

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#### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

**Method Blank Summary**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65503-MB	2Q2779.D	1	06/27/17	NAF	06/16/17	OP65503	S2Q69

The QC reported here applies to the following samples:

Method: EPA 537

FA44596-1, FA44596-2

CAS No.	Compound	Result	RL	MDL	Units	Q
335-67-1	Perfluorooctanoic acid	ND	0.0080	0.0020	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0080	0.0040	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0080	0.0020	ug/l	

CAS No.	Surrogate Recoveries	Limits	
	13C2-PFHxA	70%	70-130%
	13C2-PFDA	103%	70-130%



**Blank Spike Summary**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65503-BS	2Q2778.D	1	06/27/17	NAF	06/16/17	OP65503	S2Q69

The QC reported here applies to the following samples:

Method: EPA 537

FA44596-1, FA44596-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
335-67-1	Perfluorooctanoic acid	0.08	0.0772	97	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0677	85	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0650	81	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	73%	70-130%
	13C2-PFDA	108%	70-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65503-MS	2Q2781.D	1	06/27/17	NAF	06/16/17	OP65503	S2Q69
OP65503-MSD	2Q2782.D	1	06/27/17	NAF	06/16/17	OP65503	S2Q69
FA44596-1	2Q2780.D	1	06/27/17	NAF	06/16/17	OP65503	S2Q69

The QC reported here applies to the following samples:

Method: EPA 537

FA44596-1, FA44596-2

CAS No.	Compound	FA44596-1 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
335-67-1	Perfluorooctanoic acid	0.0077 U	0.0769	0.0749	97	0.0769	0.0947	123	23	70-130/30
375-73-5	Perfluorobutanesulfonic acid	0.0077 U	0.0769	0.0623	81	0.0769	0.0760	99	20	70-130/30
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.0769	0.0566	74	0.0769	0.0750	98	28	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	FA44596-1	Limits
	13C2-PFHxA	64%* b	62%* b	60%* a	70-130%
	13C2-PFDA	101%	103%	91%	70-130%

(a) Outside control limits due to matrix interference. Confirmed by MS/MSD.  
 (b) Outside control limits.

\* = Outside of Control Limits.

# Semivolatiles Internal Standard Area Summary

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Check Std:	S2Q69-CC67	Injection Date:	06/26/17
Lab File ID:	2Q2774.D	Injection Time:	23:06
Instrument ID:	GCMS2Q	Method:	EPA 537

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Initial Cal <sup>a</sup>	39986	4.33	70181	6.65	42255	6.64	26295	7.15	32912	7.58	85608	10.12
Check Std <sup>b</sup>	37576	4.38	83043	6.74	47284	6.73	28418	7.26	39921	7.60	92382	10.91
Upper Limit <sup>c</sup>	59979	5.38	105272	7.74	63383	7.73	39443	8.26	49368	8.60	128412	11.91
Lower Limit <sup>d</sup>	19993	3.38	35091	5.74	21128	5.73	13148	6.26	16456	6.60	42804	9.91

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
OP65503-BS	36352	4.38	81098	6.74	45185	6.73	27254	7.26	39500	7.59	88619	10.89
OP65503-MB	34372	4.40	72357	6.74	41611	6.73	25326	7.26	36385	7.60	80892	10.93
FA44596-1	31128	4.38	72327	6.74	42208	6.73	23835	7.26	35891	7.60	77332	10.89
OP65503-MS	30982	4.38	77065	6.74	40693	6.73	24244	7.26	36215	7.60	70460	10.91
OP65503-MSD	27467	4.38	68890	6.74	35815	6.73	21777	7.26	32382	7.59	71563	10.89

- IS 1 = 13C3-PFPeA
- IS 2 = 13C2-6:2FTS
- IS 3 = 13C2-PFOA
- IS 4 = 13C4-PFOS
- IS 5 = d3-MeFOSAA
- IS 6 = 13C2-PFDoDA

- (a) Initial Cal is: S2Q67-ICC67 2Q2582.D 06/23/17 11:42. Area is AVERAGE of initial cal points.
- (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.

# Semivolatile Internal Standard Area Summary

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Check Std:	S2Q70-ICC70	Injection Date:	06/27/17
Lab File ID:	2Q2816.D	Injection Time:	13:01
Instrument ID:	GCMS2Q	Method:	EPA 537

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Initial Cal <sup>a</sup>	32684	4.37	76194	6.72	40553	6.71	24795	7.26	34347	7.59	78047	10.99
Check Std <sup>b</sup>	33124	4.37	76489	6.72	40996	6.71	25172	7.26	35370	7.59	78581	10.99
Upper Limit <sup>c</sup>	49026	5.37	114291	7.72	60830	7.71	37193	8.26	51521	8.59	117071	11.99
Lower Limit <sup>d</sup>	16342	3.37	38097	5.72	20277	5.71	12398	6.26	17174	6.59	39024	9.99

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
FA44596-2	30814	4.37	69939	6.72	40053	6.71	23079	7.26	34664	7.58	73357	10.98
ZZZZZZ	27341	4.36	71123	6.72	39157	6.71	22683	7.25	34183	7.58	71541	10.95
ZZZZZZ	25311	4.36	69376	6.72	38575	6.71	21868	7.26	33066	7.58	70141	10.96
ZZZZZZ	30629	4.37	71250	6.74	39766	6.73	23142	7.26	35191	7.59	74533	10.98

- IS 1 = 13C3-PFPeA
- IS 2 = 13C2-6:2FTS
- IS 3 = 13C2-PFOA
- IS 4 = 13C4-PFOS
- IS 5 = d3-MeFOSAA
- IS 6 = 13C2-PFDoDA

- (a) Initial Cal is: S2Q70-ICC70 2Q2816.D 06/27/17 13:01. Area is AVERAGE of initial cal points.
- (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.

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# Semivolatiles Surrogate Recovery Summary

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Method: EPA 537	Matrix: DW
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2
FA44596-1	2Q2780.D	60* a	91
FA44596-2	2Q2823.D	82	82
OP65503-BS	2Q2778.D	73	108
OP65503-MB	2Q2779.D	70	103
OP65503-MS	2Q2781.D	64* b	101
OP65503-MSD	2Q2782.D	62* b	103

Surrogate Compounds	Recovery Limits
S1 = 13C2-PFHxA	70-130%
S2 = 13C2-PFDA	70-130%

- (a) Outside control limits due to matrix interference. Confirmed by MS/MSD.
- (b) Outside control limits.

6.5.1  
6

# Initial Calibration Summary

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q67-ICC67  
 Lab FileID: 2Q2582.D

Initial Calibration ReSponse Factors - D:\MassHunter\Data\0623\_pfc\_S2Q67\S2Q67.batch.bin

Level ID : Calibration File

- 1 : D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2578.d
- 2 : D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2579.d
- 3 : D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2580.d
- 4 : D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2581.d
- 5 : D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2582.d
- 6 : D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2583.d
- 7 : D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2584.d
- 8 : D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2585.d

6.6.1  
6

Compound	1	2	3	4	5	6	7	8	AvgRF	%RSD	r^2
1) 13C2-6:2FTS	-----ISTD-----										
8) 4:2FTS	0.6750	0.6629	0.6102	0.6186	0.6130	0.5967	0.5831	0.5104	0.6087	8.307	0.9999
9) 6:2FTS	1.1548	1.0927	0.9824	0.9764	0.9693	0.9351	0.9024	0.7715	0.9731	11.942	0.9999
10) 8:2FTS	1.4016	1.4340	1.2580	1.2690	1.2389	1.2315	1.1958	1.0604	1.2611	9.269	0.9999
3) 13C2-PFDoDA	-----ISTD-----										
19) PFDoDA	0.9243	0.9050	0.8642	0.8726	0.8780	0.9116	0.8750	0.8375	0.8835	3.210	0.9984
31) PFTeDA	0.4195	0.4096	0.3763	0.3885	0.3820	0.3865	0.3818	0.3580	0.3878	4.946	0.9980
32) PFTrDA	0.7814	0.7370	0.7114	0.7029	0.7161	0.7386	0.7145	0.6842	0.7233	4.053	0.9986
33) PFUnDA	0.8687	0.8298	0.7970	0.8060	0.8130	0.8300	0.8184	0.7720	0.8169	3.453	0.9984
5) 13C2-PFOA	-----ISTD-----										
2) 13C2-PFDA	1.9759	1.7331	1.6419	1.6114	1.5922	1.6561	1.5801	1.4596	1.6492	8.642	0.9997
4) 13C2-PFHxA	1.2080	1.1274	1.0649	1.0596	1.0832	1.0918	1.0810	0.9904	1.0873	5.032	0.9998
16) PFBA	0.3496	0.3761	0.3191	0.3137	0.3111	0.3155	0.3117	0.2962	0.3241	7.961	0.9987
18) PFDA	1.1263	1.0283	0.9438	0.9368	0.9503	0.9616	0.9491	0.8676	0.9705	7.884	0.9998
21) PFHpA	1.6145	1.5017	1.3873	1.4055	1.4165	1.4331	1.4392	1.3295	1.4409	5.926	0.9976
23) PFHxA	0.4912	0.4820	0.4445	0.4343	0.4417	0.4494	0.4491	0.4155	0.4510	5.462	0.9998
25) PFNA	-----	1.1320	0.9752	0.9953	0.9876	1.0261	0.9909	0.9655	1.0104	5.630	0.9991
27) PFOA	0.9000	0.8793	0.7561	0.7828	0.8126	0.8064	0.8073	0.7580	0.8128	6.446	0.9984
6) 13C3-PFPeA	-----ISTD-----										
29) PFPeA	1.5599	1.4686	1.3862	1.3999	1.4111	1.4420	1.4214	1.3507	1.4300	4.427	0.9987
30) PFPeS	0.1818	0.1773	0.1680	0.1672	0.1678	0.1738	0.1704	0.1615	0.1710	3.764	0.9985
7) 13C4-PFOS	-----ISTD-----										
17) PFBS	0.7954	0.7567	0.7286	0.7253	0.7364	0.7608	0.7575	0.7432	0.7505	3.011	0.9998
20) PFDS	0.5957	0.5553	0.5348	0.5509	0.5592	0.5790	0.5764	0.5686	0.5650	3.360	0.9999
22) PFHpS	0.9370	0.9752	0.8788	0.8865	0.9037	0.9278	0.9354	0.8916	0.9170	3.559	0.9992
24) PFHxS	0.9545	0.9379	0.8744	0.8838	0.9031	0.9309	0.9276	0.8821	0.9118	3.280	0.9990
26) PFNS	0.5047	0.5185	0.4560	0.4516	0.4545	0.4681	0.4625	0.4392	0.4694	5.879	0.9988
28) PFOS	1.5001	1.3217	1.1963	1.1499	1.1393	1.1624	1.1445	1.0882	1.2128	11.095	0.9999
11) d3-MeFOSAA	-----ISTD-----										
12) d5-EtFOSAA	-----	1.2357	1.1050	1.0658	1.0755	1.0618	1.0359	0.9174	1.0710	8.795	0.9909
13) EtFOSAA	1.0406	1.0208	0.9088	0.9156	0.9203	0.9077	0.8812	0.7803	0.9219	8.793	0.9999
14) FOSA	2.0227	1.8406	1.7819	1.7984	1.8009	1.6656	1.5926	1.3208	1.7279	11.996	0.9999
15) MeFOSAA	1.1164	1.0775	1.0498	1.0222	1.0739	1.0878	1.0735	0.9998	1.0626	3.508	0.9998

\*(value) - Average RF below (value)

**Initial Calibration Verification**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q67-ICV67  
 Lab FileID: 2Q2588.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0623\_pfc\_S2Q67\S2Q67.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2578.d  
 2:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2579.d  
 3:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2580.d  
 4:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2581.d  
 5:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2582.d  
 6:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2583.d  
 7:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2584.d  
 8:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2585.d

Data File: 2Q2588  
 Type : QC  
 Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	0.000	0.0	0.0
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	0.000	0.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	22.752	13.8	113.8
6:2FTS	20.000	22.219	11.1	111.1
8:2FTS	20.000	22.092	10.5	110.5
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	0.0	0.0
EtFOSAA	20.000	22.043	10.2	110.2
FOSA	20.000	20.035	0.2	100.2
MeFOSAA	20.000	20.716	3.6	103.6
PFBA	20.000	20.142	0.7	100.7
PFBS	20.000	19.870	-0.7	99.3
PFDA	20.000	18.890	-5.5	94.5
PFDoDA	20.000	20.212	1.1	101.1
PFDS	20.000	19.822	-0.9	99.1
PFHpA	20.000	20.004	0.0	100.0
PFHpS	20.000	22.101	10.5	110.5
PFHxA	20.000	18.911	-5.4	94.6
PFHxS	20.000	21.018	5.1	105.1
PFNA	20.000	19.957	-0.2	99.8
PFNS	20.000	22.401	12.0	112.0
PFOA	20.000	19.875	-0.6	99.4
PFOS	20.000	17.415	-12.9	87.1
PFPeA	20.000	19.986	-0.1	99.9
PFPeS	20.000	21.473	7.4	107.4
PFTeDA	20.000	20.350	1.7	101.7
PFTTrDA	20.000	20.075	0.4	100.4
PFUnDA	20.000	20.348	1.7	101.7

CC Criteria: +/- 25%

**Continuing Calibration Summary**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q69-CC67  
 Lab FileID: 2Q2774.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0626\_pfc\_S2Q69\S2Q69.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2578.d  
 2:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2579.d  
 3:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2580.d  
 4:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2581.d  
 5:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2582.d  
 6:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2583.d  
 7:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2584.d  
 8:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2585.d

Data File: 2Q2774  
 Type : QC  
 Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	20.114	0.6	100.6
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	15.367	-23.2	76.8
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	17.984	-10.1	89.9
6:2FTS	20.000	19.521	-2.4	97.6
8:2FTS	20.000	22.411	12.1	112.1
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	21.170	5.8	105.8
EtFOSAA	20.000	19.645	-1.8	98.2
FOSA	20.000	15.486	-22.6	77.4
MeFOSAA	20.000	18.741	-6.3	93.7
PFBA	20.000	15.632	-21.8	78.2
PFBS	20.000	17.533	-12.3	87.7
PFDA	20.000	20.238	1.2	101.2
PFDoDA	20.000	20.580	2.9	102.9
PFDS	20.000	21.791	9.0	109.0
PFHpA	20.000	19.476	-2.6	97.4
PFHpS	20.000	20.347	1.7	101.7
PFHxA	20.000	16.999	-15.0	85.0
PFHxS	20.000	19.415	-2.9	97.1
PFNA	20.000	19.327	-3.4	96.6
PFNS	20.000	19.960	-0.2	99.8
PFOA	20.000	19.903	-0.5	99.5
PFOS	20.000	18.790	-6.0	94.0
PFPeA	20.000	20.715	3.6	103.6
PFPeS	20.000	19.772	-1.1	98.9
PFTeDA	20.000	19.300	-3.5	96.5
PFTTrDA	20.000	20.064	0.3	100.3
PFUnDA	20.000	20.941	4.7	104.7

CC Criteria: +/- 25%



**Continuing Calibration Summary**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q69-CC67  
 Lab FileID: 2Q2777.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0626\_pfc\_S2Q69\S2Q69.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2578.d  
 2:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2579.d  
 3:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2580.d  
 4:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2581.d  
 5:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2582.d  
 6:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2583.d  
 7:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2584.d  
 8:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2585.d

Data File: 2Q2777  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	1.000	1.210	21.0	121.0
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	1.000	0.905	-9.5	90.5
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	1.000	1.085	8.5	108.5
6:2FTS	1.000	1.204	20.4	120.4
8:2FTS	1.000	1.336	# 33.6	133.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	1.000	1.309	# 30.9	130.9
EtFOSAA	1.000	1.145	14.5	114.5
FOSA	1.000	0.952	-4.8	95.2
MeFOSAA	1.000	1.097	9.7	109.7
PFBA	1.000	0.953	-4.7	95.3
PFBS	1.000	1.072	7.2	107.2
PFDA	1.000	1.171	17.1	117.1
PFDoDA	1.000	1.233	23.3	123.3
PFDS	1.000	1.275	# 27.5	127.5
PFHpA	1.000	1.232	23.2	123.2
PFHpS	1.000	1.222	22.2	122.2
PFHxA	1.000	1.064	6.4	106.4
PFHxS	1.000	1.167	16.7	116.7
PFNA	1.000	1.188	18.8	118.8
PFNS	1.000	1.252	# 25.2	125.2
PFOA	1.000	1.307	# 30.7	130.7
PFOS	1.000	1.213	21.3	121.3
PFPeA	1.000	1.231	23.1	123.1
PFPeS	1.000	1.126	12.6	112.6
PFTeDA	1.000	1.146	14.6	114.6
PFTTrDA	1.000	1.189	18.9	118.9
PFUnDA	1.000	1.229	22.9	122.9

CC Criteria: +/- 25%

**Continuing Calibration Summary**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q69-CC67  
 Lab FileID: 2Q2787.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0626\_pfc\_S2Q69\S2Q69.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2578.d  
 2:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2579.d  
 3:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2580.d  
 4:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2581.d  
 5:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2582.d  
 6:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2583.d  
 7:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2584.d  
 8:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2585.d

Data File: 2Q2787  
 Type : QC  
 Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	20.624	3.1	103.1
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	15.020	-24.9	75.1
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	18.395	-8.0	92.0
6:2FTS	20.000	19.697	-1.5	98.5
8:2FTS	20.000	23.444	17.2	117.2
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	21.879	9.4	109.4
EtFOSAA	20.000	20.103	0.5	100.5
FOSA	20.000	16.532	-17.3	82.7
MeFOSAA	20.000	18.998	-5.0	95.0
PFBA	20.000	14.844	# -25.8	74.2
PFBS	20.000	17.531	-12.3	87.7
PFDA	20.000	20.027	0.1	100.1
PFDoDA	20.000	20.491	2.5	102.5
PFDS	20.000	21.933	9.7	109.7
PFHpA	20.000	19.423	-2.9	97.1
PFHpS	20.000	20.381	1.9	101.9
PFHxA	20.000	16.536	-17.3	82.7
PFHxS	20.000	19.691	-1.5	98.5
PFNA	20.000	18.689	-6.6	93.4
PFNS	20.000	19.974	-0.1	99.9
PFOA	20.000	20.504	2.5	102.5
PFOS	20.000	18.939	-5.3	94.7
PFPeA	20.000	20.479	2.4	102.4
PFPeS	20.000	19.949	-0.3	99.7
PFTeDA	20.000	19.354	-3.2	96.8
PFTTrDA	20.000	20.219	1.1	101.1
PFUnDA	20.000	20.637	3.2	103.2

CC Criteria: +/- 25%

**Continuing Calibration Summary**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q69-CC67  
 Lab FileID: 2Q2788.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0626\_pfc\_S2Q69\S2Q69.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2578.d  
 2:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2579.d  
 3:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2580.d  
 4:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2581.d  
 5:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2582.d  
 6:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2583.d  
 7:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2584.d  
 8:D:\MassHunter\Data\0623\_pfc\_S2Q67\2Q2585.d

Data File: 2Q2788  
 Type : QC  
 Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	21.006	5.0	105.0
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	15.722	-21.4	78.6
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	18.102	-9.5	90.5
6:2FTS	20.000	19.614	-1.9	98.1
8:2FTS	20.000	22.736	13.7	113.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	21.427	7.1	107.1
EtFOSAA	20.000	19.883	-0.6	99.4
FOSA	20.000	16.051	-19.7	80.3
MeFOSAA	20.000	19.086	-4.6	95.4
PFBA	20.000	15.648	-21.8	78.2
PFBS	20.000	17.661	-11.7	88.3
PFDA	20.000	20.771	3.9	103.9
PFDoDA	20.000	19.511	-2.4	97.6
PFDS	20.000	21.794	9.0	109.0
PFHpA	20.000	19.851	-0.7	99.3
PFHpS	20.000	20.330	1.7	101.7
PFHxA	20.000	17.063	-14.7	85.3
PFHxS	20.000	19.518	-2.4	97.6
PFNA	20.000	19.300	-3.5	96.5
PFNS	20.000	19.700	-1.5	98.5
PFOA	20.000	21.075	5.4	105.4
PFOS	20.000	18.723	-6.4	93.6
PFPeA	20.000	20.565	2.8	102.8
PFPeS	20.000	20.012	0.1	100.1
PFTeDA	20.000	19.031	-4.8	95.2
PFTTrDA	20.000	19.855	-0.7	99.3
PFUnDA	20.000	20.622	3.1	103.1

CC Criteria: +/- 25%

# Initial Calibration Summary

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q70-ICC70  
 Lab FileID: 2Q2816.D

Initial Calibration ReSponse Factors - D:\MassHunter\Data\0627\_pfc\_S2Q70\S2Q70.batch.bin

Level ID : Calibration File

- 1 : D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2812.d
- 2 : D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2813.d
- 3 : D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2814.d
- 4 : D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2815.d
- 5 : D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2816.d
- 6 : D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2817.d
- 7 : D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2818.d
- 8 : D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2819.d

6.6.7  
6

Compound	1	2	3	4	5	6	7	8	AvgRF	%RSD	r^2
1) 13C2-6:2FTS	-----ISTD-----										
8) 4:2FTS	0.6913	0.6433	0.6268	0.5945	0.5653	0.5817	0.5876	0.5270	0.6022	8.410	0.9996
9) 6:2FTS	1.2248	1.0998	1.0660	1.0271	0.9692	0.9730	0.9732	0.8605	1.0242	10.616	0.9997
10) 8:2FTS	1.7198	1.5624	1.5115	1.4645	1.3996	1.4402	1.4599	1.3331	1.4864	7.848	0.9996
3) 13C2-PFDoDA	-----ISTD-----										
19) PFDoDA	1.0279	0.9764	0.9450	0.9094	0.9027	0.9262	0.9544	0.9528	0.9494	4.226	0.9997
31) PFTeDA	0.4391	0.3926	0.3837	0.3719	0.3697	0.3809	0.3888	0.3870	0.3892	5.566	0.9998
32) PFTrDA	0.8287	0.7709	0.7593	0.7294	0.7185	0.7591	0.7727	0.7605	0.7624	4.328	0.9998
33) PFUnDA	0.9793	0.9171	0.8818	0.8503	0.8624	0.9018	0.9137	0.9204	0.9034	4.450	0.9997
5) 13C2-PFOA	-----ISTD-----										
2) 13C2-PFDA	1.9975	1.8605	1.7993	1.7170	1.7168	1.8081	1.7853	1.7101	1.7993	5.349	0.9991
4) 13C2-PFHxA	1.0889	0.9940	0.9359	0.9016	0.8902	0.9565	0.9441	0.9288	0.9550	6.582	0.9997
16) PFBA	0.3057	0.2712	0.2522	0.2397	0.2353	0.2501	0.2469	0.2496	0.2563	8.807	0.9998
18) PFDA	1.2157	1.1409	1.0671	1.0043	1.0061	1.0670	1.0505	1.0485	1.0750	6.607	0.9998
21) PFHpA	1.6595	1.5447	1.4589	1.3660	1.3918	1.4186	1.4401	1.4563	1.4670	6.426	0.9998
23) PFHxA	0.4709	0.4511	0.4332	0.4067	0.4051	0.4235	0.4273	0.4178	0.4294	5.195	0.9998
25) PFNA	-----	1.0621	0.9673	0.9471	0.9489	1.0242	1.0181	1.0277	0.9993	4.476	0.9996
27) PFOA	1.0189	0.9439	0.8506	0.8202	0.8247	0.8585	0.8634	0.8626	0.8803	7.670	0.9999
6) 13C3-PFPeA	-----ISTD-----										
29) PFPeA	1.7235	1.5633	1.5309	1.4482	1.4300	1.4917	1.5337	1.5296	1.5314	5.878	0.9997
30) PFPeS	0.2028	0.1740	0.1741	0.1691	0.1661	0.1772	0.1805	0.1800	0.1780	6.296	0.9996
7) 13C4-PFOS	-----ISTD-----										
17) PFBS	0.7631	0.7296	0.7001	0.6686	0.6594	0.6968	0.7110	0.7237	0.7065	4.739	0.9994
20) PFDS	0.7277	0.7070	0.6854	0.6544	0.6487	0.6893	0.7021	0.7152	0.6912	4.045	0.9993
22) PFHpS	1.0953	1.0485	1.0121	0.9700	0.9570	1.0041	1.0222	1.0218	1.0164	4.265	0.9997
24) PFHxS	1.0263	0.9433	0.9339	0.9004	0.8930	0.9444	0.9586	0.9334	0.9417	4.332	0.9997
26) PFNS	0.5320	0.4899	0.4911	0.4649	0.4610	0.4781	0.4899	0.4888	0.4870	4.464	0.9997
28) PFOS	1.3502	1.3006	1.2076	1.1341	1.1295	1.1981	1.2192	1.2283	1.2210	6.169	0.9996
11) d3-MeFOSAA	-----ISTD-----										
12) d5-EtFOSAA	-----	1.1602	1.1020	1.0592	1.0233	1.0774	1.1077	1.0477	1.0825	4.190	0.9990
13) EtFOSAA	1.2024	1.0489	1.0137	0.9785	0.9283	0.9733	1.0137	0.9481	1.0134	8.448	0.9993
14) FOSA	1.7732	1.7497	1.6808	1.5756	1.4516	1.4668	1.4946	1.3522	1.5681	9.749	0.9996
15) MeFOSAA	1.2979	1.2008	1.1229	1.1016	1.0581	1.1385	1.1643	1.1362	1.1525	6.260	0.9996

\*(value) - Average RF below (value)

**Initial Calibration Verification**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q70-ICV70  
 Lab FileID: 2Q2821.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0627\_pfc\_S2Q70\S2Q70.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2812.d  
 2:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2813.d  
 3:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2814.d  
 4:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2815.d  
 5:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2816.d  
 6:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2817.d  
 7:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2818.d  
 8:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2819.d

Data File: 2Q2821  
 Type : QC  
 Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	0.000	0.0	0.0
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	0.000	0.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	23.820	19.1	119.1
6:2FTS	20.000	22.758	13.8	113.8
8:2FTS	20.000	22.650	13.3	113.3
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	0.0	0.0
EtFOSAA	20.000	22.539	12.7	112.7
FOSA	20.000	22.322	11.6	111.6
MeFOSAA	20.000	22.390	12.0	112.0
PFBA	20.000	20.297	1.5	101.5
PFBS	20.000	19.884	-0.6	99.4
PFDA	20.000	21.162	5.8	105.8
PFDoDA	20.000	20.687	3.4	103.4
PFDS	20.000	20.151	0.8	100.8
PFHpA	20.000	20.419	2.1	102.1
PFHpS	20.000	21.771	8.9	108.9
PFHxA	20.000	20.972	4.9	104.9
PFHxS	20.000	21.349	6.7	106.7
PFNA	20.000	20.456	2.3	102.3
PFNS	20.000	22.619	13.1	113.1
PFOA	20.000	20.219	1.1	101.1
PFOS	20.000	18.387	-8.1	91.9
PFPeA	20.000	20.372	1.9	101.9
PFPeS	20.000	21.894	9.5	109.5
PFTeDA	20.000	20.702	3.5	103.5
PFTTrDA	20.000	20.581	2.9	102.9
PFUnDA	20.000	20.605	3.0	103.0

CC Criteria: +/- 25%

**Continuing Calibration Summary**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q70-CC70  
 Lab FileID: 2Q2827.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0627\_pfc\_S2Q70\S2Q70.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2812.d  
 2:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2813.d  
 3:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2814.d  
 4:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2815.d  
 5:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2816.d  
 6:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2817.d  
 7:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2818.d  
 8:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2819.d

Data File: 2Q2827  
 Type : QC  
 Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	19.396	-3.0	97.0
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	18.809	-6.0	94.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	19.043	-4.8	95.2
6:2FTS	20.000	19.395	-3.0	97.0
8:2FTS	20.000	19.192	-4.0	96.0
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.809	-1.0	99.0
EtFOSAA	20.000	18.655	-6.7	93.3
FOSA	20.000	18.964	-5.2	94.8
MeFOSAA	20.000	19.006	-5.0	95.0
PFBA	20.000	18.665	-6.7	93.3
PFBS	20.000	18.138	-9.3	90.7
PFDA	20.000	18.961	-5.2	94.8
PFDoDA	20.000	18.617	-6.9	93.1
PFDS	20.000	18.546	-7.3	92.7
PFHpA	20.000	18.628	-6.9	93.1
PFHpS	20.000	18.589	-7.1	92.9
PFHxA	20.000	19.083	-4.6	95.4
PFHxS	20.000	18.762	-6.2	93.8
PFNA	20.000	18.822	-5.9	94.1
PFNS	20.000	18.978	-5.1	94.9
PFOA	20.000	18.991	-5.0	95.0
PFOS	20.000	18.542	-7.3	92.7
PFPeA	20.000	18.751	-6.2	93.8
PFPeS	20.000	18.748	-6.3	93.7
PFTeDA	20.000	18.862	-5.7	94.3
PFTTrDA	20.000	18.528	-7.4	92.6
PFUnDA	20.000	18.697	-6.5	93.5

CC Criteria: +/- 25%

**Continuing Calibration Summary**

Job Number: FA44596  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q70-CC70  
 Lab FileID: 2Q2828.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0627\_pfc\_S2Q70\S2Q70.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2812.d  
 2:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2813.d  
 3:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2814.d  
 4:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2815.d  
 5:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2816.d  
 6:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2817.d  
 7:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2818.d  
 8:D:\MassHunter\Data\0627\_pfc\_S2Q70\2Q2819.d

Data File: 2Q2828  
 Type : QC  
 Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	19.449	-2.8	97.2
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	18.898	-5.5	94.5
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	18.623	-6.9	93.1
6:2FTS	20.000	19.052	-4.7	95.3
8:2FTS	20.000	18.746	-6.3	93.7
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	20.144	0.7	100.7
EtFOSAA	20.000	19.160	-4.2	95.8
FOSA	20.000	18.450	-7.7	92.3
MeFOSAA	20.000	19.115	-4.4	95.6
PFBA	20.000	18.633	-6.8	93.2
PFBS	20.000	18.307	-8.5	91.5
PFDA	20.000	19.362	-3.2	96.8
PFDoDA	20.000	18.695	-6.5	93.5
PFDS	20.000	18.404	-8.0	92.0
PFHpA	20.000	18.485	-7.6	92.4
PFHpS	20.000	18.761	-6.2	93.8
PFHxA	20.000	18.994	-5.0	95.0
PFHxS	20.000	18.835	-5.8	94.2
PFNA	20.000	18.239	-8.8	91.2
PFNS	20.000	19.131	-4.3	95.7
PFOA	20.000	18.899	-5.5	94.5
PFOS	20.000	18.588	-7.1	92.9
PFPeA	20.000	18.566	-7.2	92.8
PFPeS	20.000	18.603	-7.0	93.0
PFTeDA	20.000	18.808	-6.0	94.0
PFTTrDA	20.000	18.595	-7.0	93.0
PFUnDA	20.000	18.793	-6.0	94.0

CC Criteria: +/- 25%

**GC/MS Semi-volatiles**

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**Raw Data**

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### Perfluorinated Compounds by LC/MS/MS

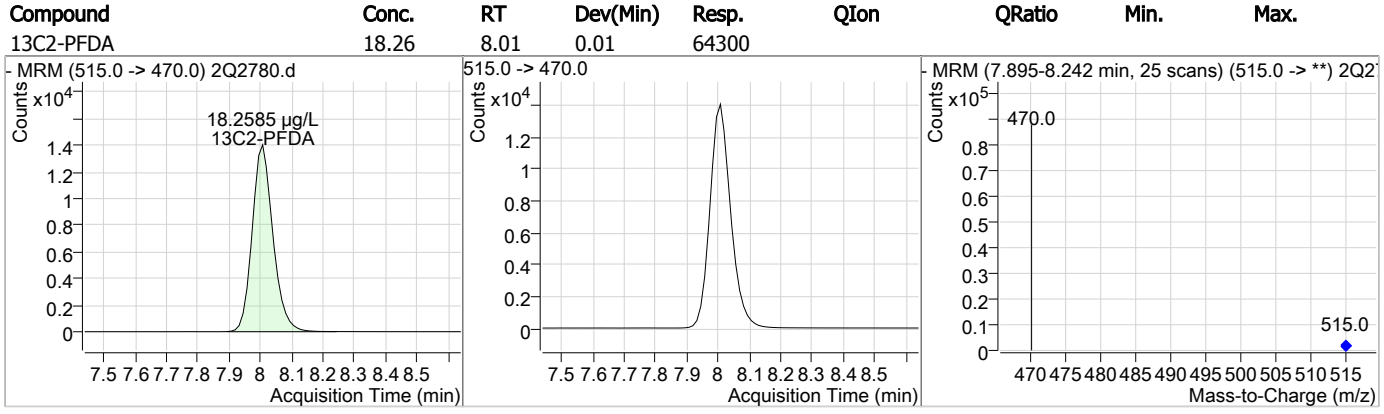
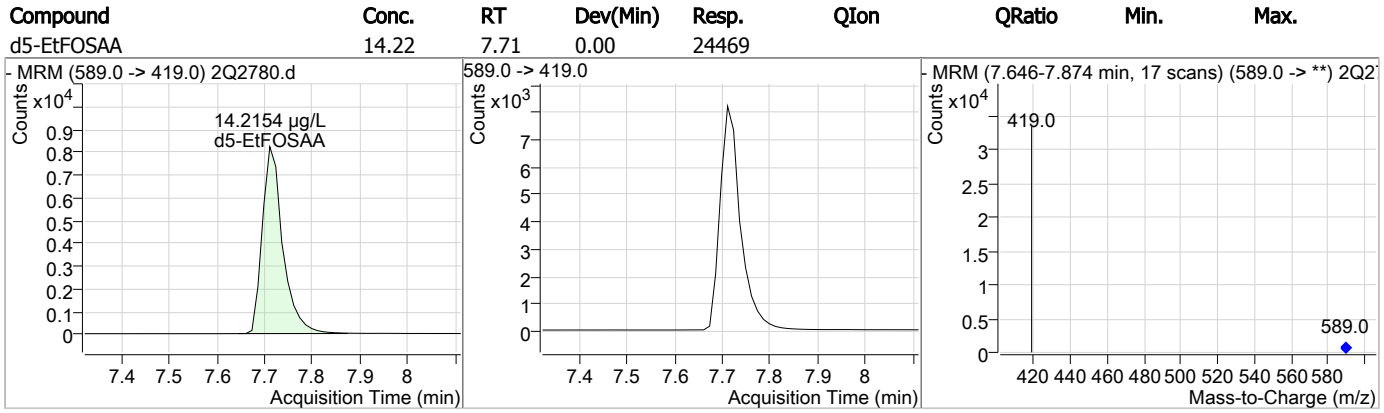
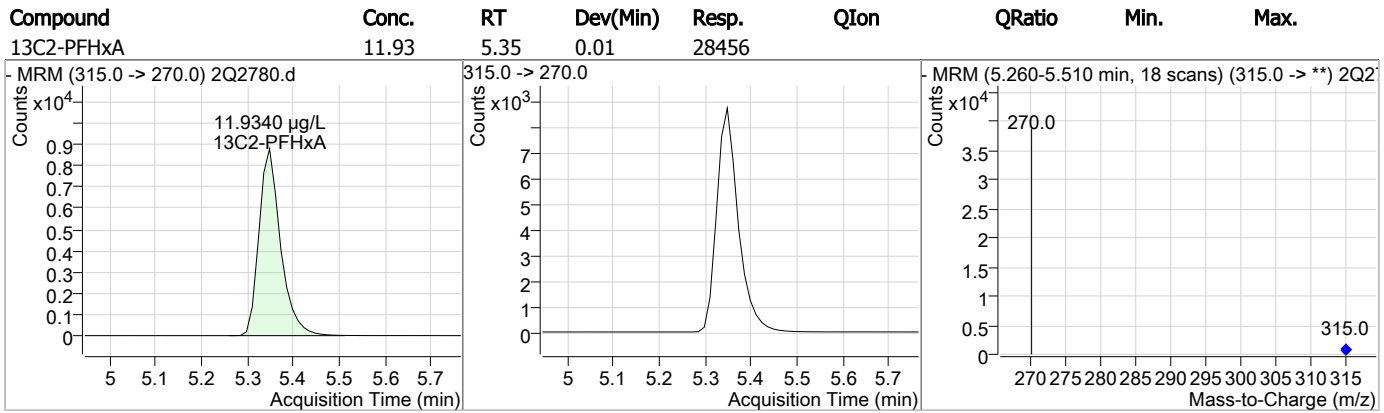
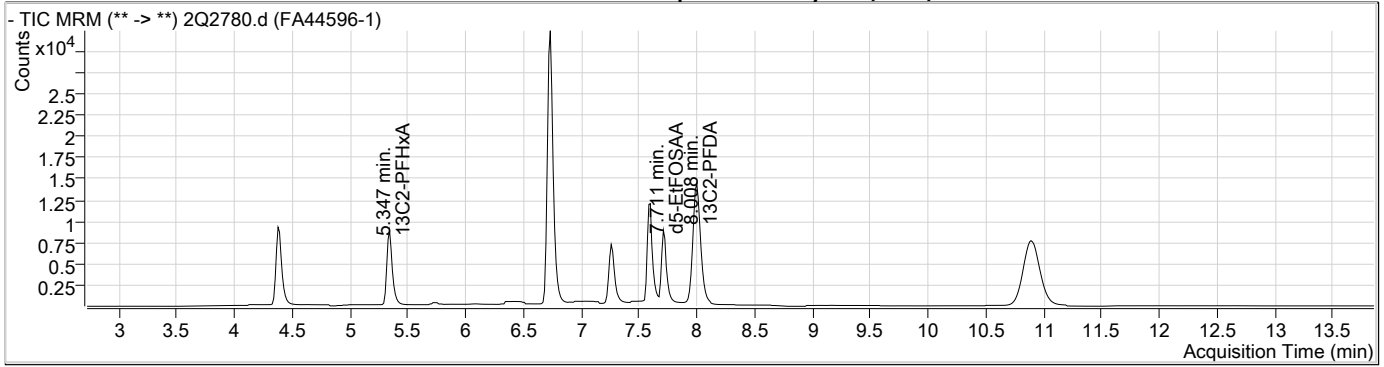
Data File : 2Q2780.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 1:02:31 AM  
 Sample Name : FA44596-1  
 Vial : Vial 37  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65503,S2Q69,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	72327	20.00 µg/L	0.000
13C2-PFDoDA	10.890	615.0 -> 570.0	77332	20.00 µg/L	-0.063
13C2-PFOA	6.727	415.0 -> 370.0	42208	20.00 µg/L	0.000
13C3-PFPeA	4.385	266.0 -> 222.0	31128	20.00 µg/L	0.000
13C4-PFOS	7.263	503.0 -> 80.0	23835	20.00 µg/L	0.000
d3-MeFOSAA	7.600	573.0 -> 419.0	35891	20.00 µg/L	0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	64300	18.26 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 91.3%	
13C2-PFHxA	5.347	315.0 -> 270.0	28456	11.93 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 59.7%	
d5-EtFOSAA	7.711	589.0 -> 419.0	24469	14.22 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 71.1%	
<b>Target Compounds</b>					
					<b>QValue</b>
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 -> 99.0	-	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 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.1.1

Perfluorinated Compounds by LC/MS/MS

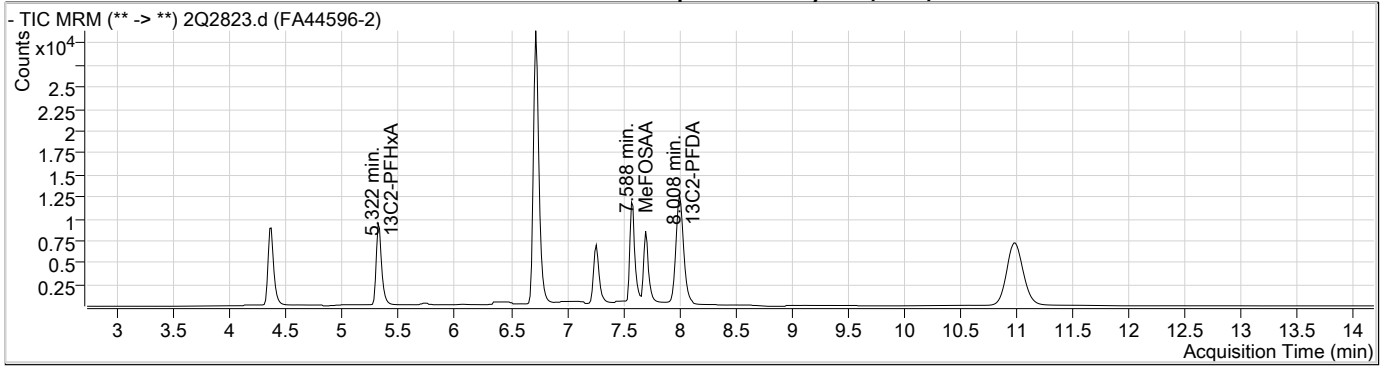
Data File : 2Q2823.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 3:24:51 PM  
 Sample Name : FA44596-2  
 Vial : Vial 13  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65503,S2Q70,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.724	429.0 -> 409.0	69939	20.00 µg/L	-0.013
13C2-PFDoDA	10.978	615.0 -> 570.0	73357	20.00 µg/L	0.025
13C2-PFOA	6.713	415.0 -> 370.0	40053	20.00 µg/L	-0.014
13C3-PFPeA	4.372	266.0 -> 222.0	30814	20.00 µg/L	-0.013
13C4-PFOS	7.263	503.0 -> 80.0	23079	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	34664	20.00 µg/L	-0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	56698	16.33 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 81.6%		
13C2-PFHxA	5.322	315.0 -> 270.0	30610	16.38 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 81.9%		
d5-EtFOSAA	7.698	589.0 -> 419.0	22803	12.40 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 62.0%		
<b>Target Compounds</b>					
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	7.712	584.0 -> 419.0	453	0.26 µg/L	100
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.588	570.0 -> 419.0	452	0.23 µg/L	100
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 -> 99.0	-	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 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

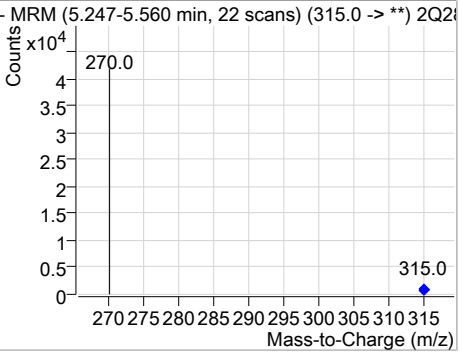
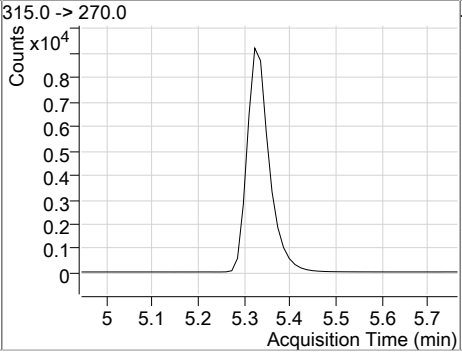
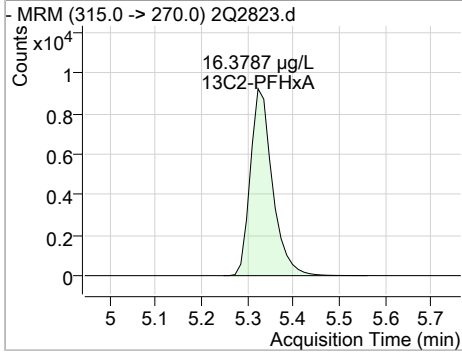
# = Qualifier out of range, m = manually integrated, + = Area summed

7.12  
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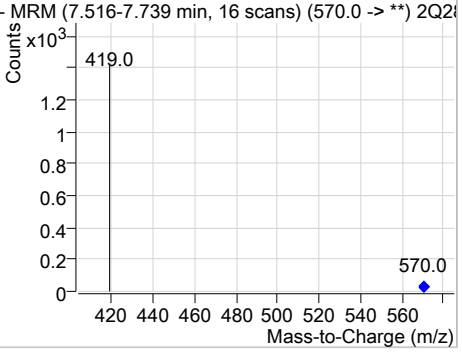
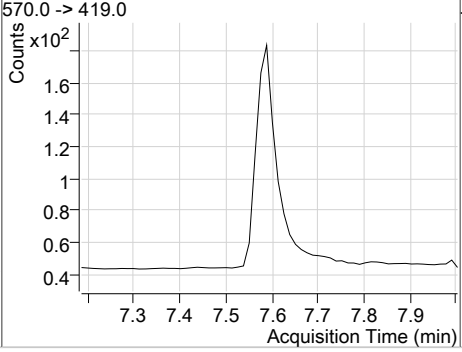
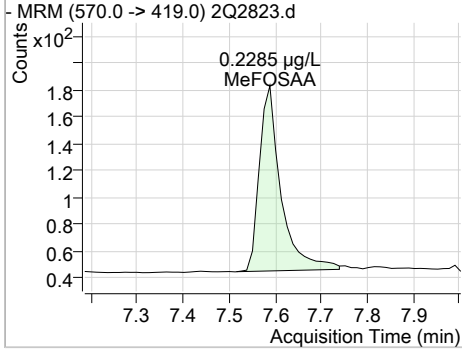
### Perfluorinated Compounds by LC/MS/MS



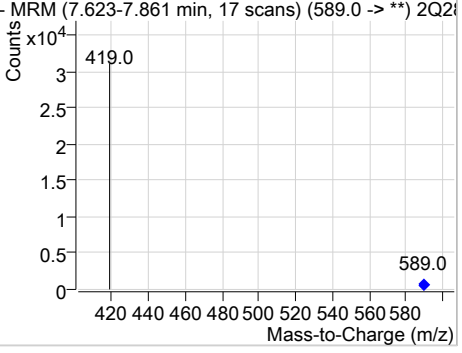
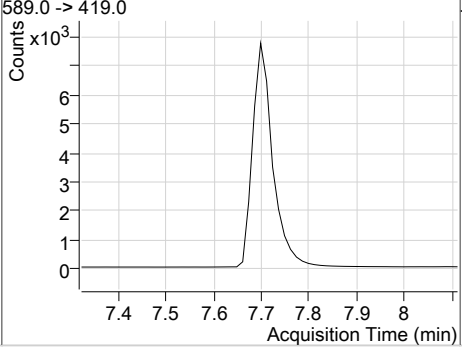
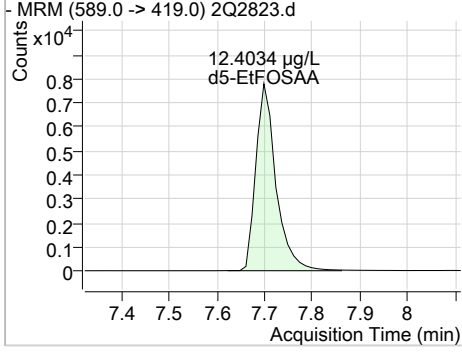
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFHxA	16.38	5.32	-0.01	30610				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.23	7.59	-0.01	452				



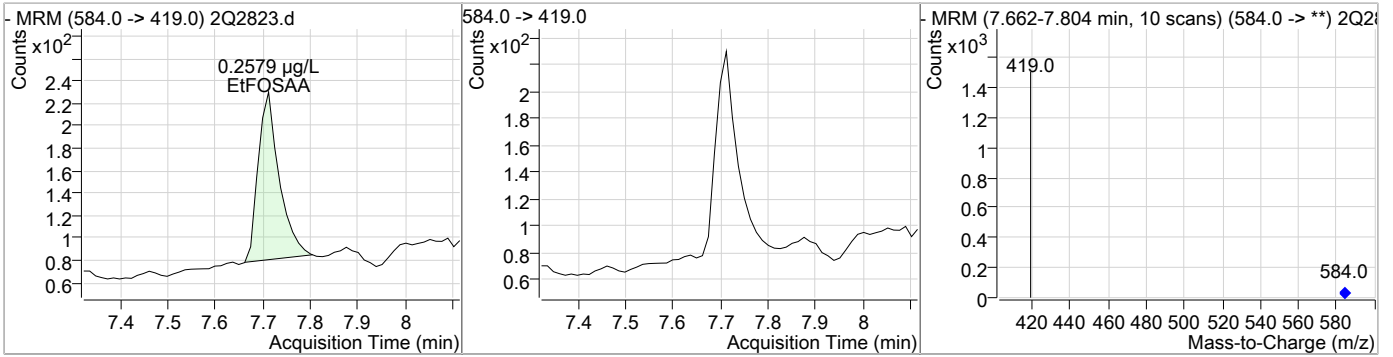
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	12.40	7.70	-0.01	22803				



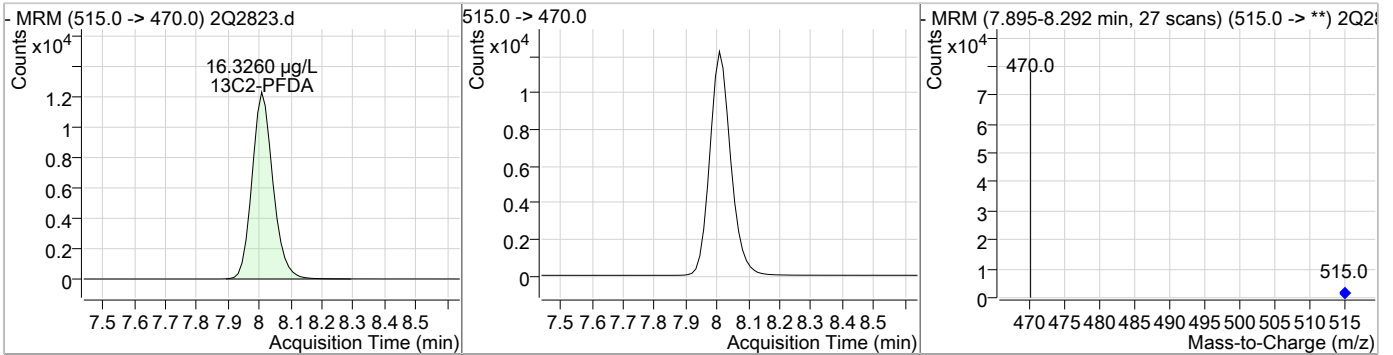
7.12  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.26	7.71	-0.01	453				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	16.33	8.01	0.01	56698				



7.12 7

### Perfluorinated Compounds by LC/MS/MS

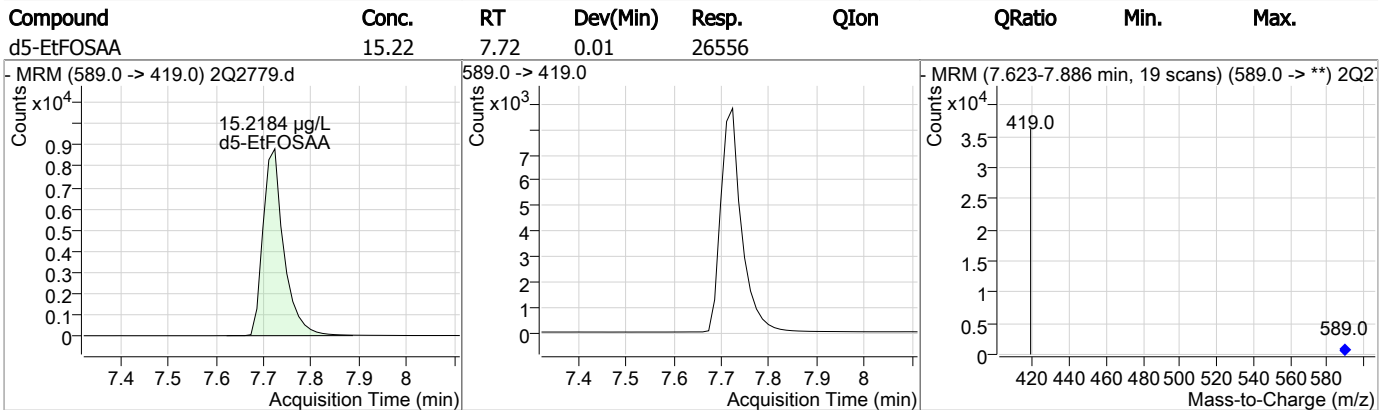
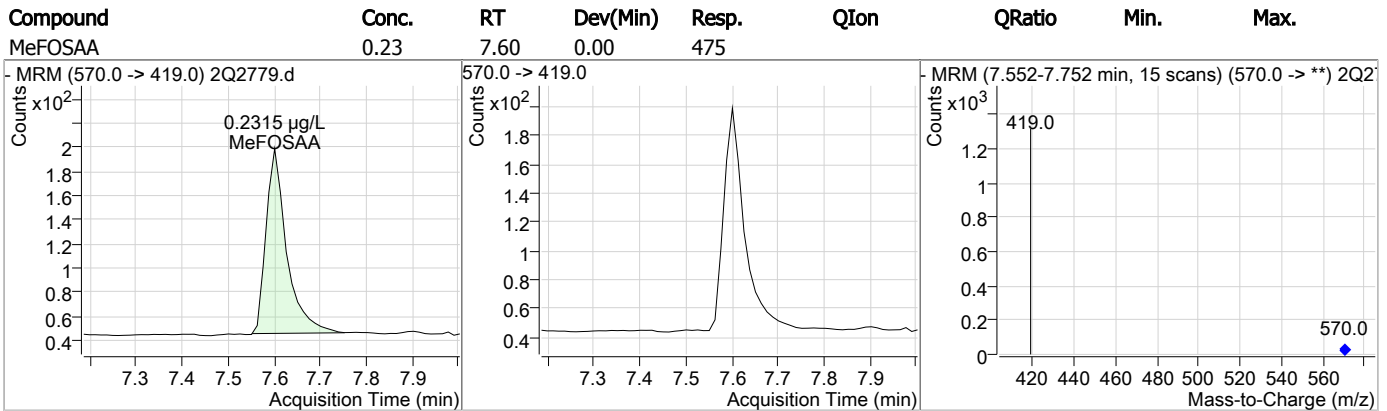
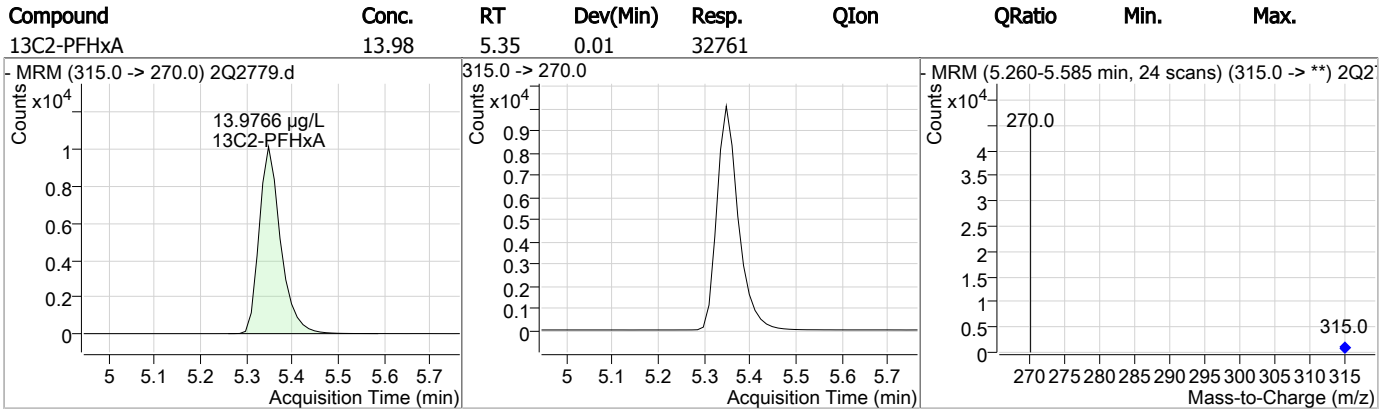
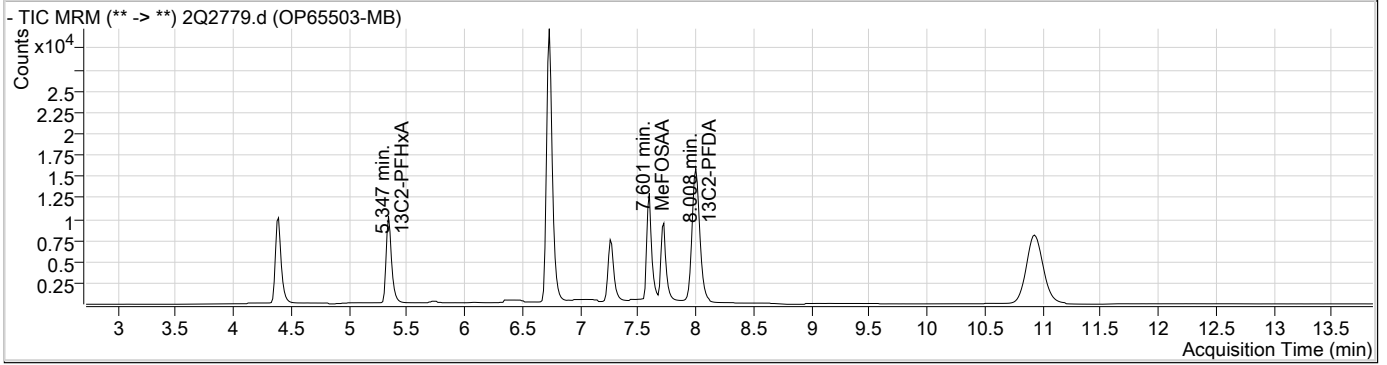
Data File : 2Q2779.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 12:43:11 AM  
 Sample Name : OP65503-MB  
 Vial : Vial 36  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65503,S2Q69,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	72357	20.00 µg/L	0.000
13C2-PFDoDA	10.928	615.0 -> 570.0	80892	20.00 µg/L	-0.025
13C2-PFOA	6.727	415.0 -> 370.0	41611	20.00 µg/L	0.000
13C3-PFPeA	4.397	266.0 -> 222.0	34372	20.00 µg/L	0.013
13C4-PFOS	7.263	503.0 -> 80.0	25326	20.00 µg/L	0.000
d3-MeFOSAA	7.600	573.0 -> 419.0	36385	20.00 µg/L	0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	71020	20.53 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 102.6%		
13C2-PFHxA	5.347	315.0 -> 270.0	32761	13.98 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 69.9%		
d5-EtFOSAA	7.723	589.0 -> 419.0	26556	15.22 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 76.1%		
<b>Target Compounds</b>					
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	7.725	584.0 -> 419.0	430	0.24 µg/L	100
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.601	570.0 -> 419.0	475	0.23 µg/L	100
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 -> 99.0	-	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 -> 99.0	-	N.D.	
PFTeDA	-	713.0 -> 669.0	-	N.D.	
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
PFUnDA	-	563.0 -> 519.0	-	N.D.	

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

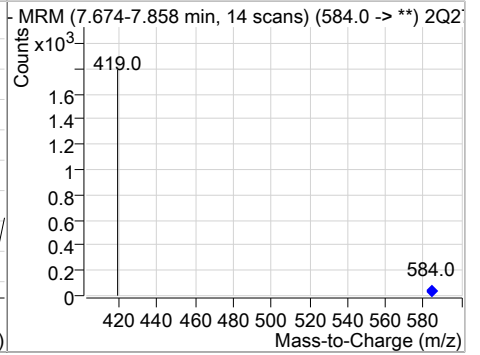
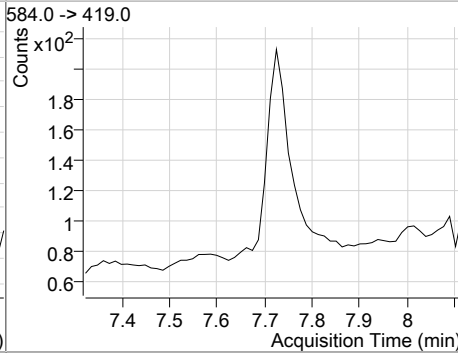
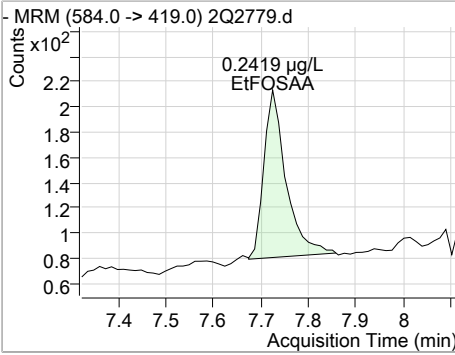
7.2.1  
7

### Perfluorinated Compounds by LC/MS/MS

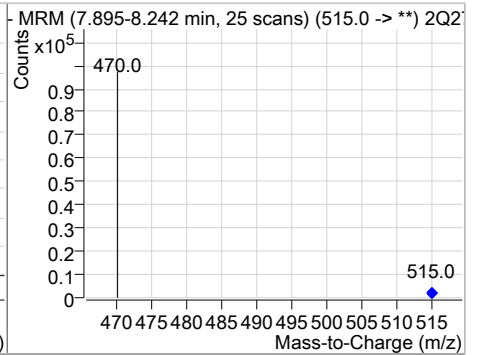
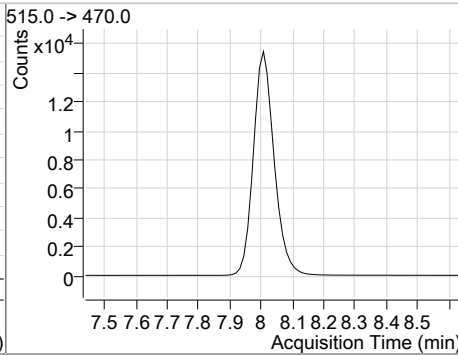
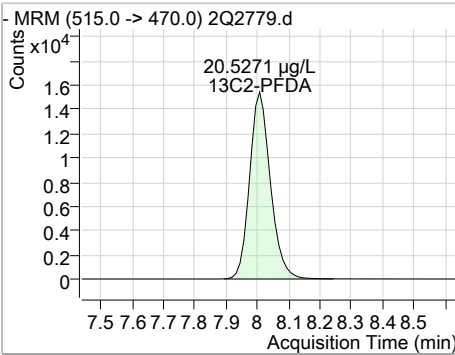


### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.24	7.72	0.00	430				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	20.53	8.01	0.01	71020				



7.2.1  
7



## Perfluorinated Compounds by LC/MS/MS

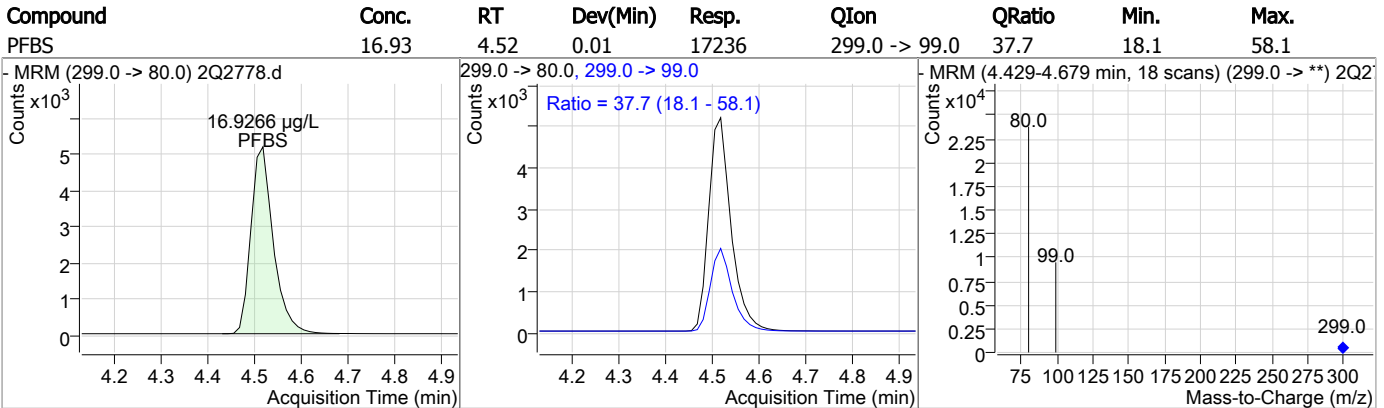
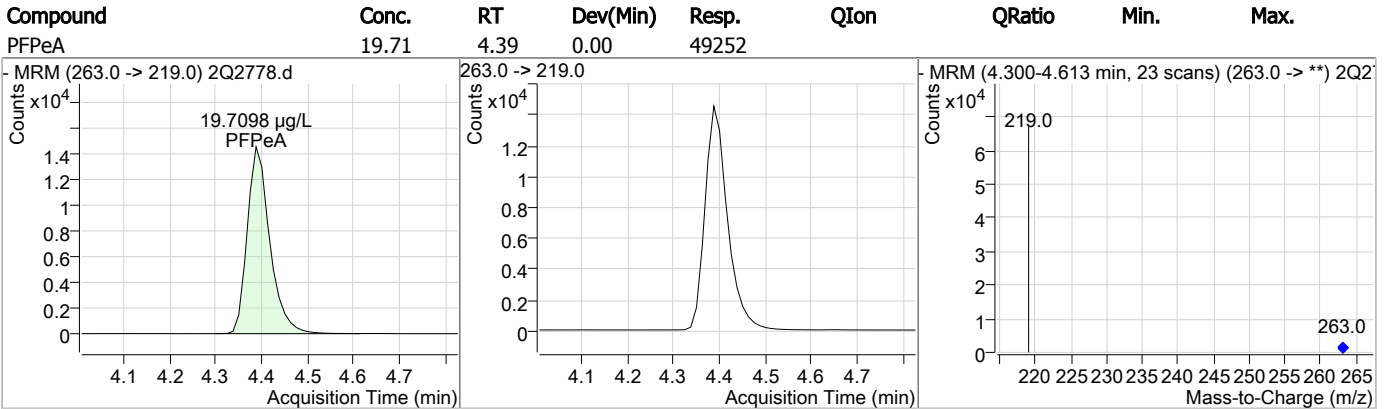
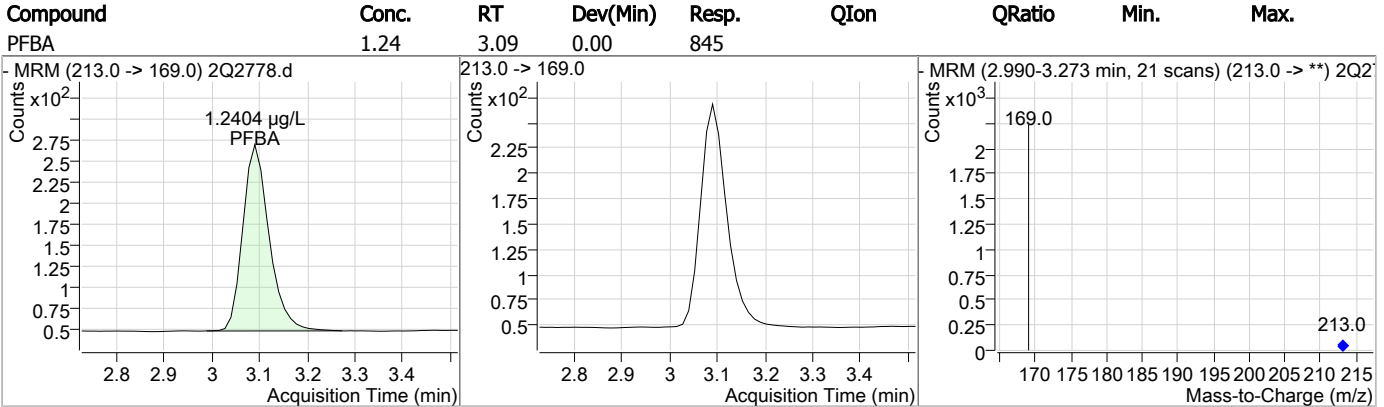
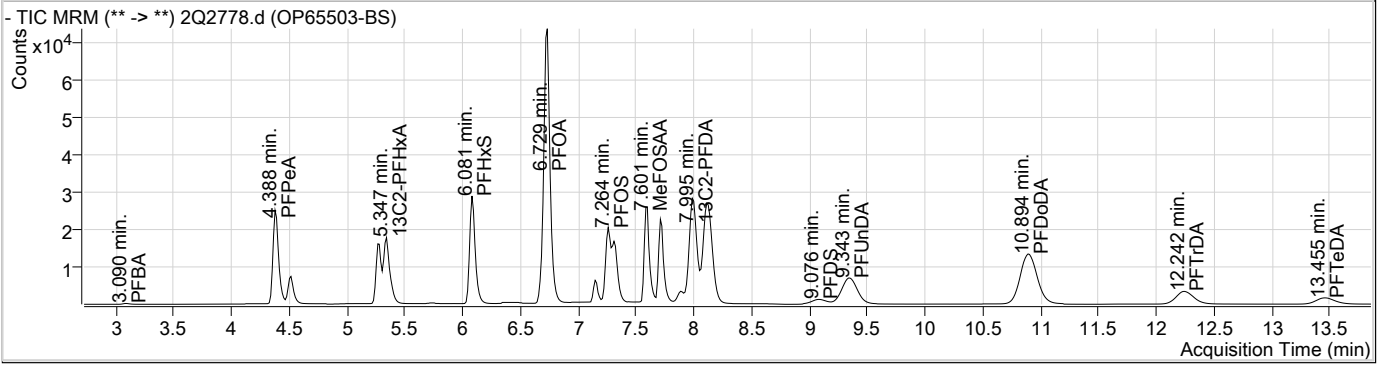
Data File : 2Q2778.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 12:23:51 AM  
 Sample Name : OP65503-BS  
 Vial : Vial 35  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65503,S2Q69,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	81098	20.00 µg/L	0.000
13C2-PFDoDA	10.890	615.0 -> 570.0	88619	20.00 µg/L	-0.063
13C2-PFOA	6.727	415.0 -> 370.0	45185	20.00 µg/L	0.000
13C3-PFPeA	4.385	266.0 -> 222.0	36352	20.00 µg/L	0.000
13C4-PFOS	7.263	503.0 -> 80.0	27254	20.00 µg/L	0.000
d3-MeFOSAA	7.587	573.0 -> 419.0	39500	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.995	515.0 -> 470.0	81019	21.60 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 108.0%		
13C2-PFHxA	5.347	315.0 -> 270.0	36897	14.51 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 72.5%		
d5-EtFOSAA	7.711	589.0 -> 419.0	32735	17.28 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 86.4%		
<b>Target Compounds</b>					
4:2FTS	5.270	327.0 -> 307.0	54370	21.62 µg/L	100
6:2FTS	6.738	427.0 -> 407.0	86366	21.83 µg/L	100
8:2FTS	8.117	527.0 -> 507.0	140778	27.72 µg/L	100
EtFOSAA	7.725	584.0 -> 419.0	34269	18.43 µg/L	100
FOSA	7.150	498.0 -> 78.0	18036	4.92 µg/L	100
MeFOSAA	7.601	570.0 -> 419.0	41127	18.84 µg/L	100
PFBA	3.090	213.0 -> 169.0	845	1.24 µg/L	100
PFBS	4.516	299.0 -> 80.0	17236	16.93 µg/L	99
PFDA	7.996	513.0 -> 469.0	43102	19.38 µg/L	# 47
PFDoDA	10.894	613.0 -> 569.0	47617	12.59 µg/L	# 29
PFDS	9.076	599.0 -> 80.0	10856	13.96 µg/L	100
PFHpA	6.086	363.0 -> 319.0	58469	18.99 µg/L	93
PFHpS	6.683	449.0 -> 80.0	27146	22.05 µg/L	100
PFHxA	5.350	313.0 -> 269.0	17220	16.54 µg/L	85
PFHxS	6.081	399.0 -> 80.0	23750	19.46 µg/L	92
PFNA	7.332	463.0 -> 419.0	41534	18.81 µg/L	97
PFNS	7.892	549.0 -> 99.0	12492	20.51 µg/L	100
PFOA	6.729	413.0 -> 369.0	33721	19.30 µg/L	93
PFOS	7.264	499.0 -> 80.0	26072	16.25 µg/L	98
PFPeA	4.388	263.0 -> 219.0	49252	19.71 µg/L	100
PFPeS	5.380	349.0 -> 99.0	6581	22.00 µg/L	100
PFTeDA	13.455	713.0 -> 669.0	18383	11.33 µg/L	# 32
PFTrDA	12.242	663.0 -> 619.0	34703	11.25 µg/L	# 33
PFUnDA	9.343	563.0 -> 519.0	60178	17.24 µg/L	# 41

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

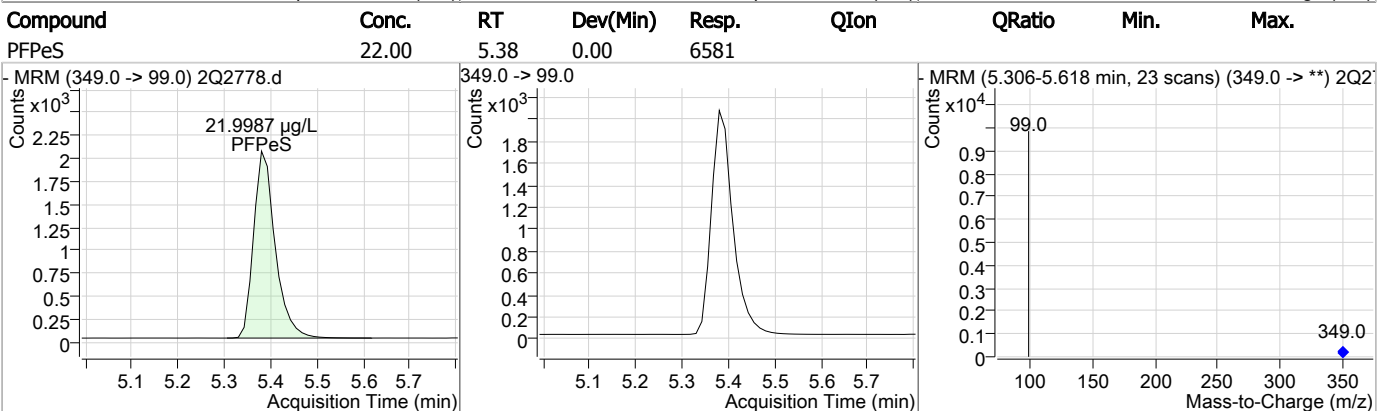
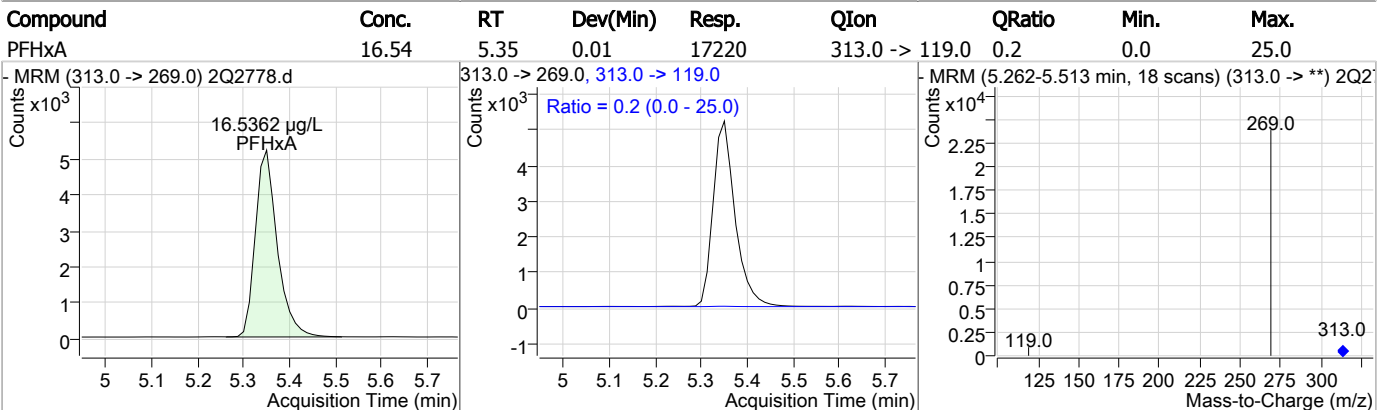
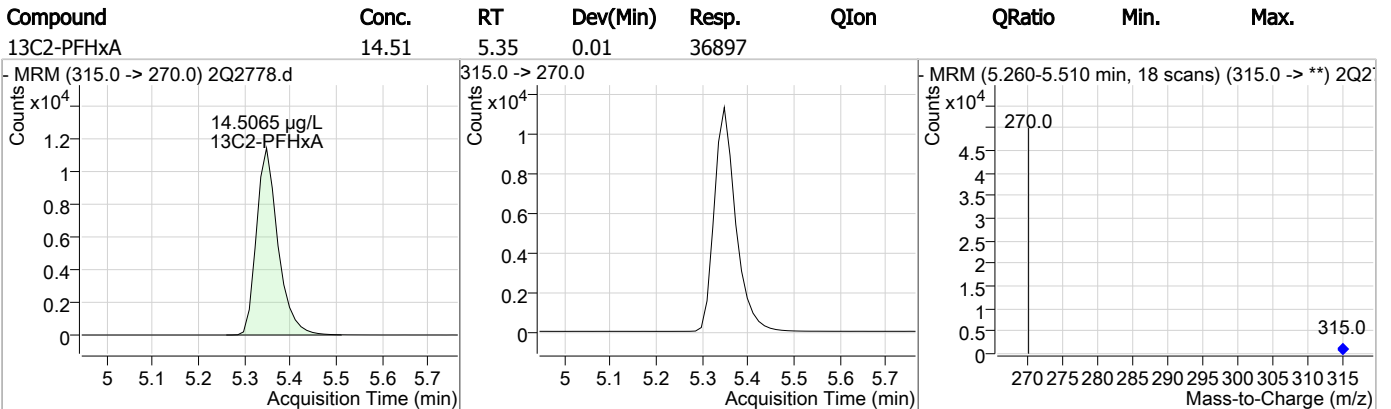
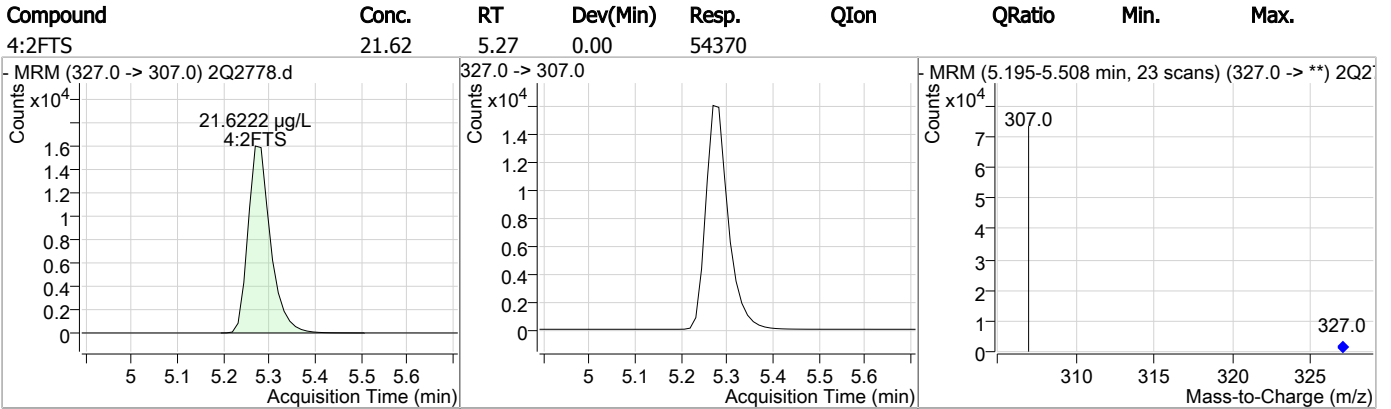
7.3.1  
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### Perfluorinated Compounds by LC/MS/MS



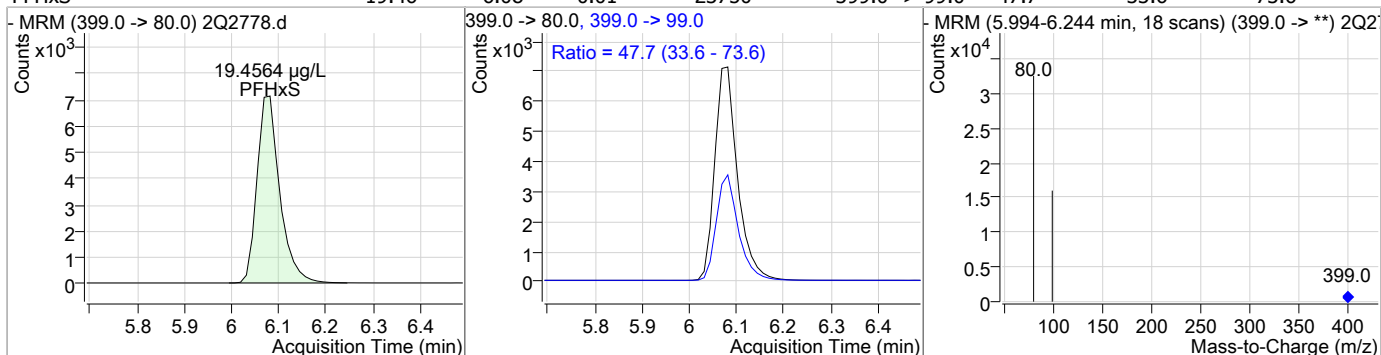
7.3.1  
7

### Perfluorinated Compounds by LC/MS/MS

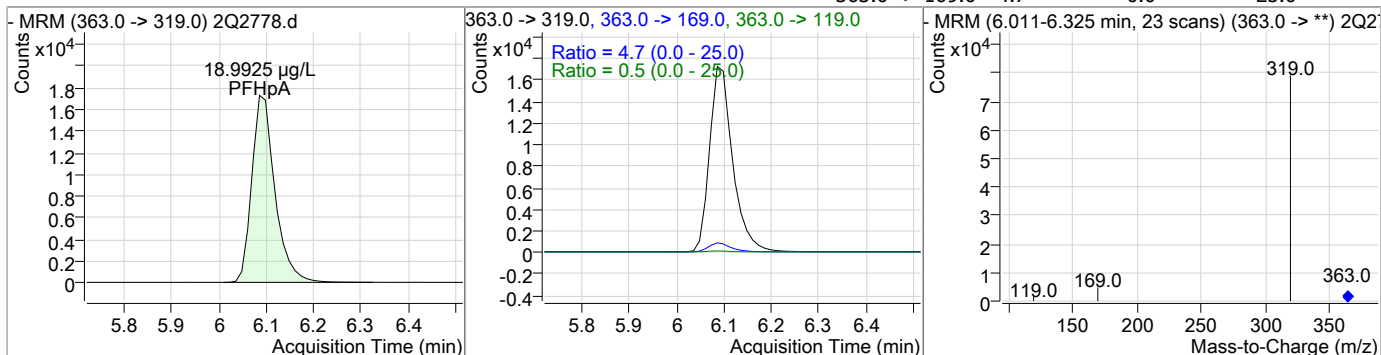


### Perfluorinated Compounds by LC/MS/MS

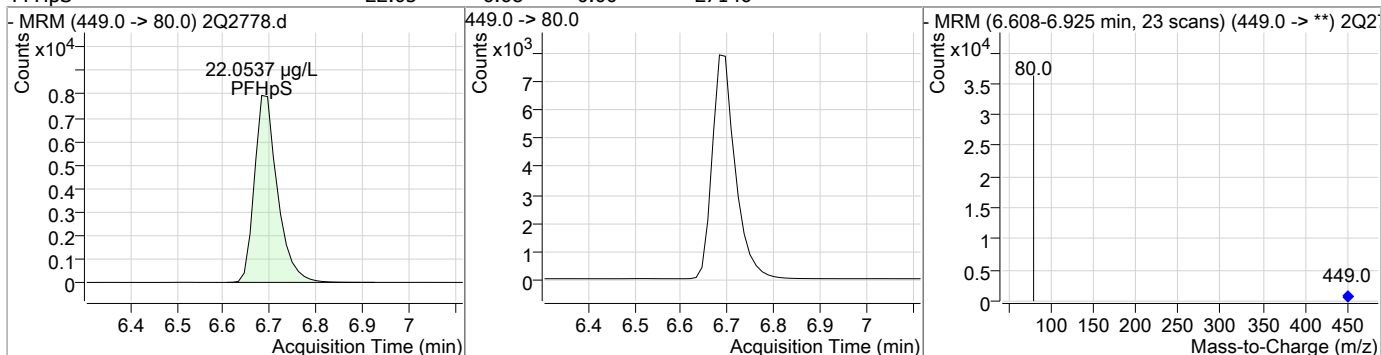
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.46	6.08	0.01	23750	399.0 -> 99.0	47.7	33.6	73.6



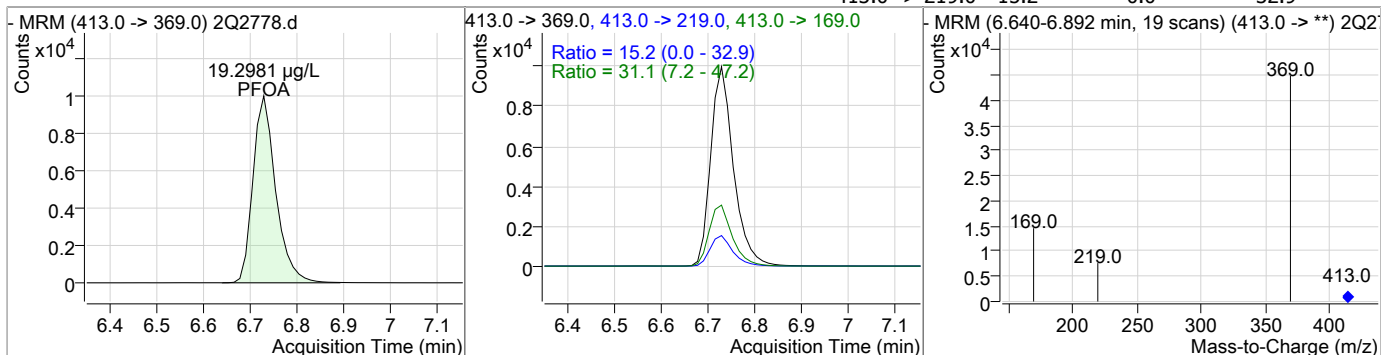
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.99	6.09	0.00	58469	363.0 -> 119.0 363.0 -> 169.0	0.5 4.7	0.0 0.0	25.0 25.0



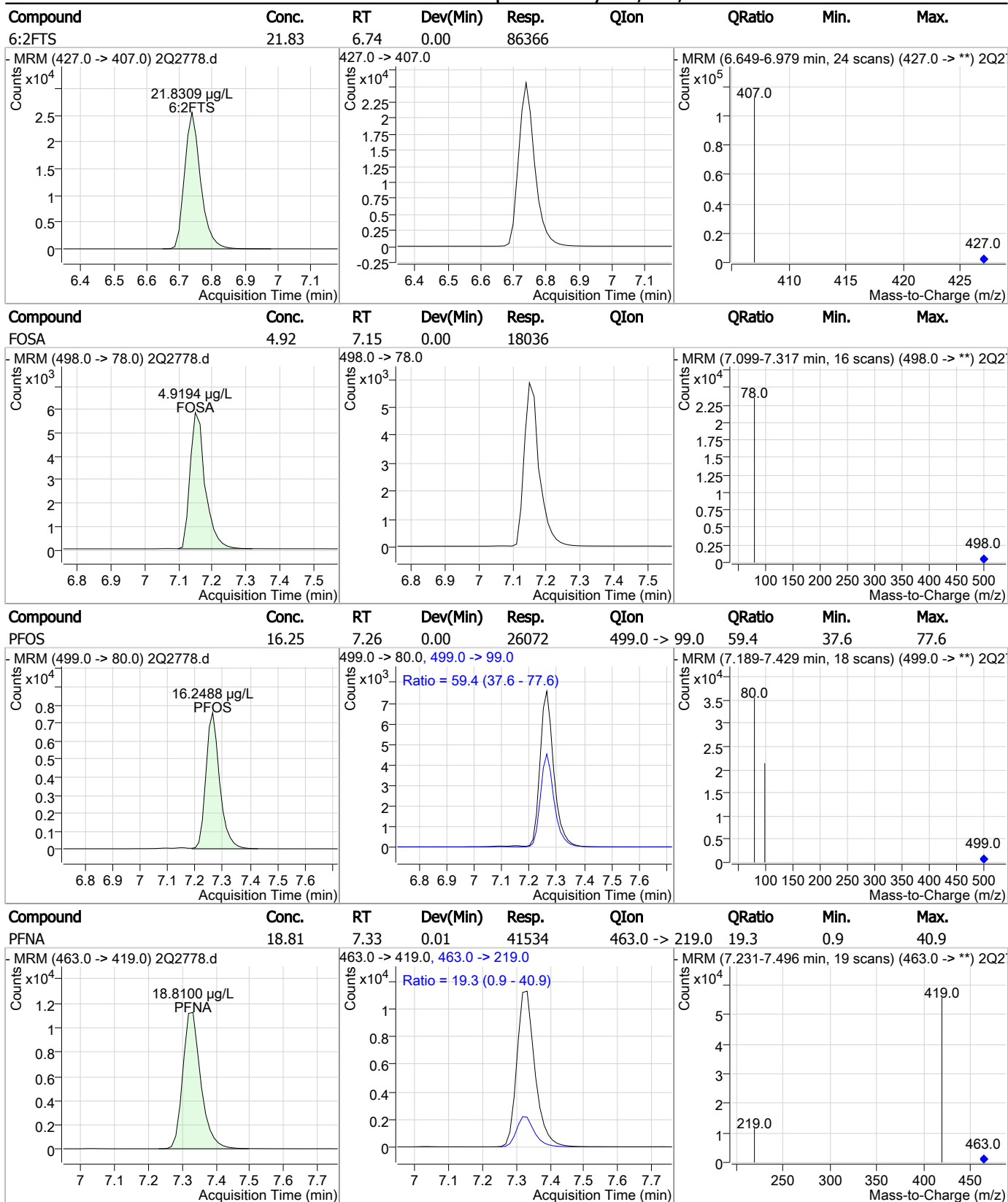
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	22.05	6.68	0.00	27146	449.0 -> 80.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.30	6.73	0.00	33721	413.0 -> 169.0 413.0 -> 219.0	31.1 15.2	7.2 0.0	47.2 32.9

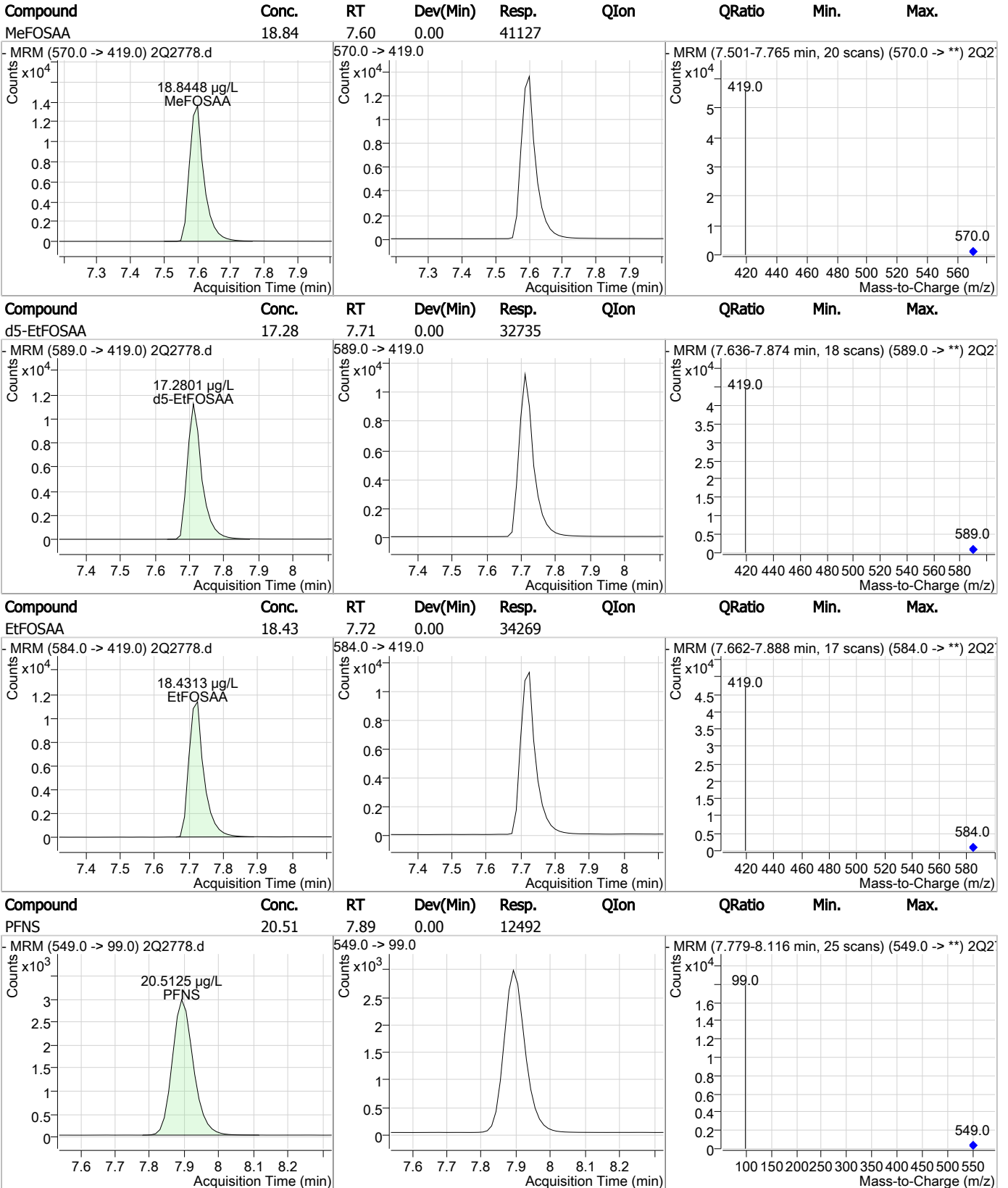


### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7

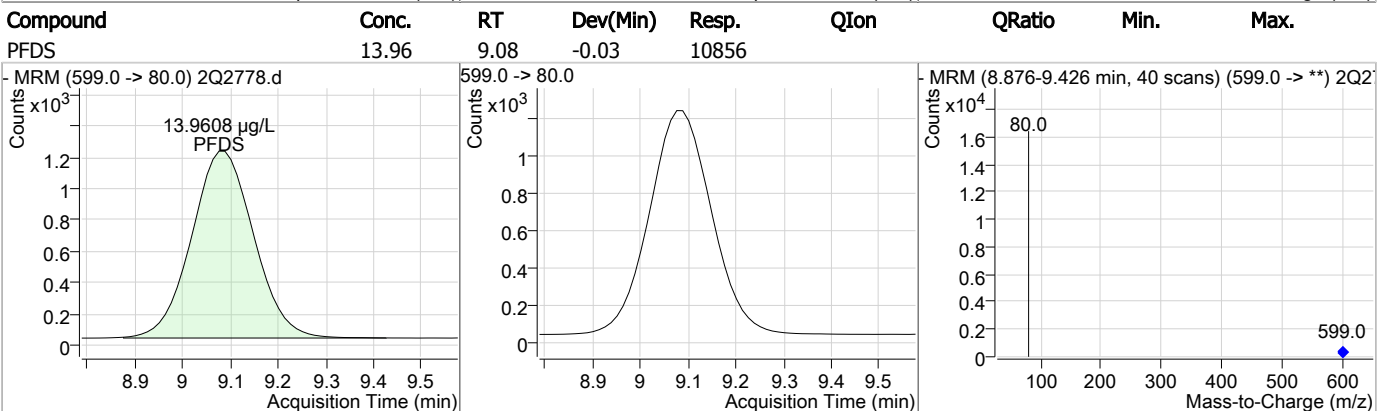
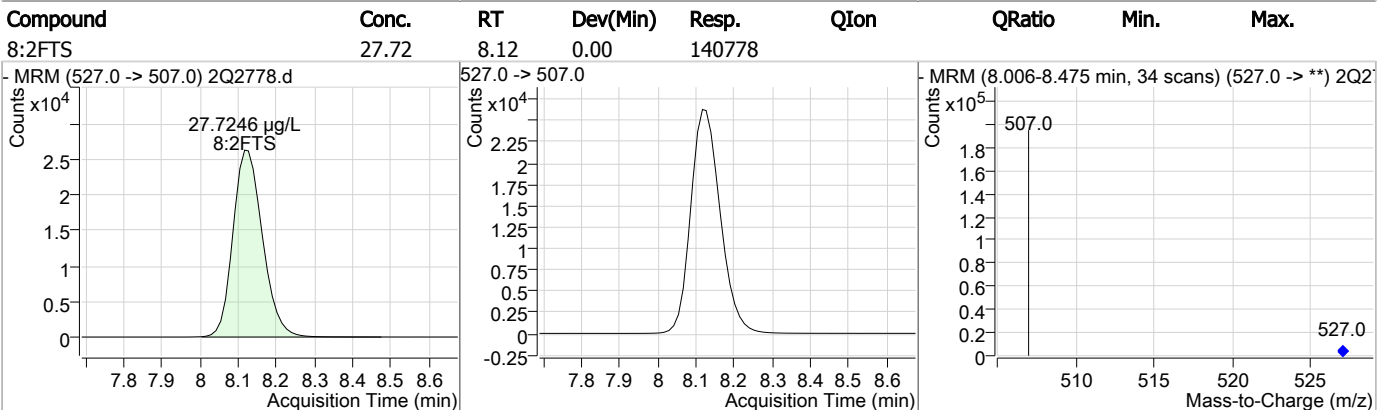
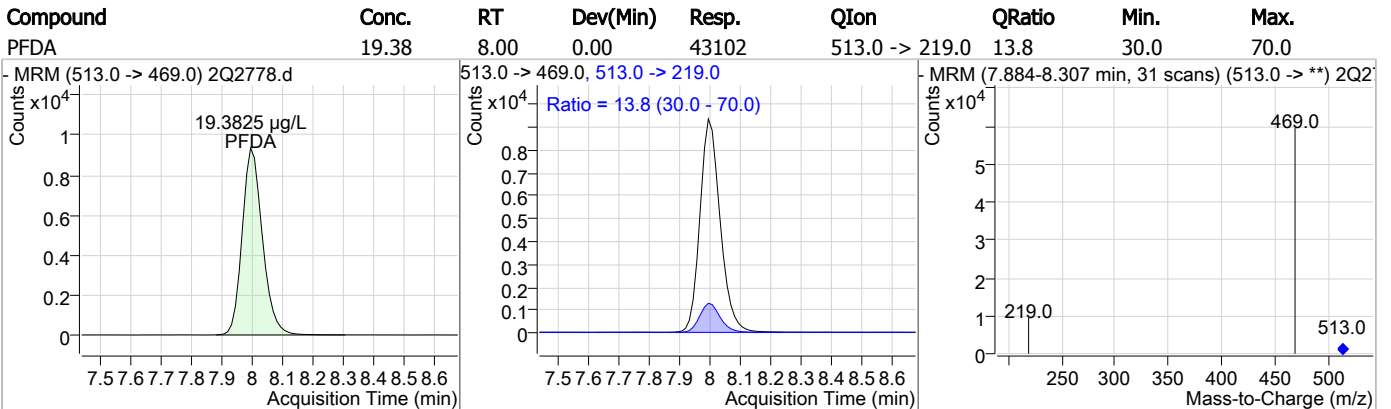
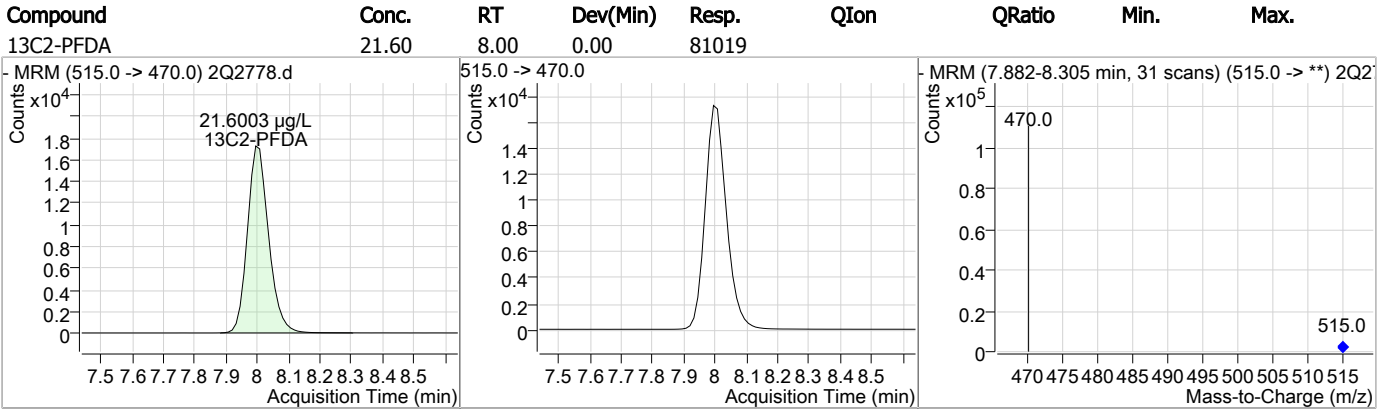
### Perfluorinated Compounds by LC/MS/MS



7.3.1

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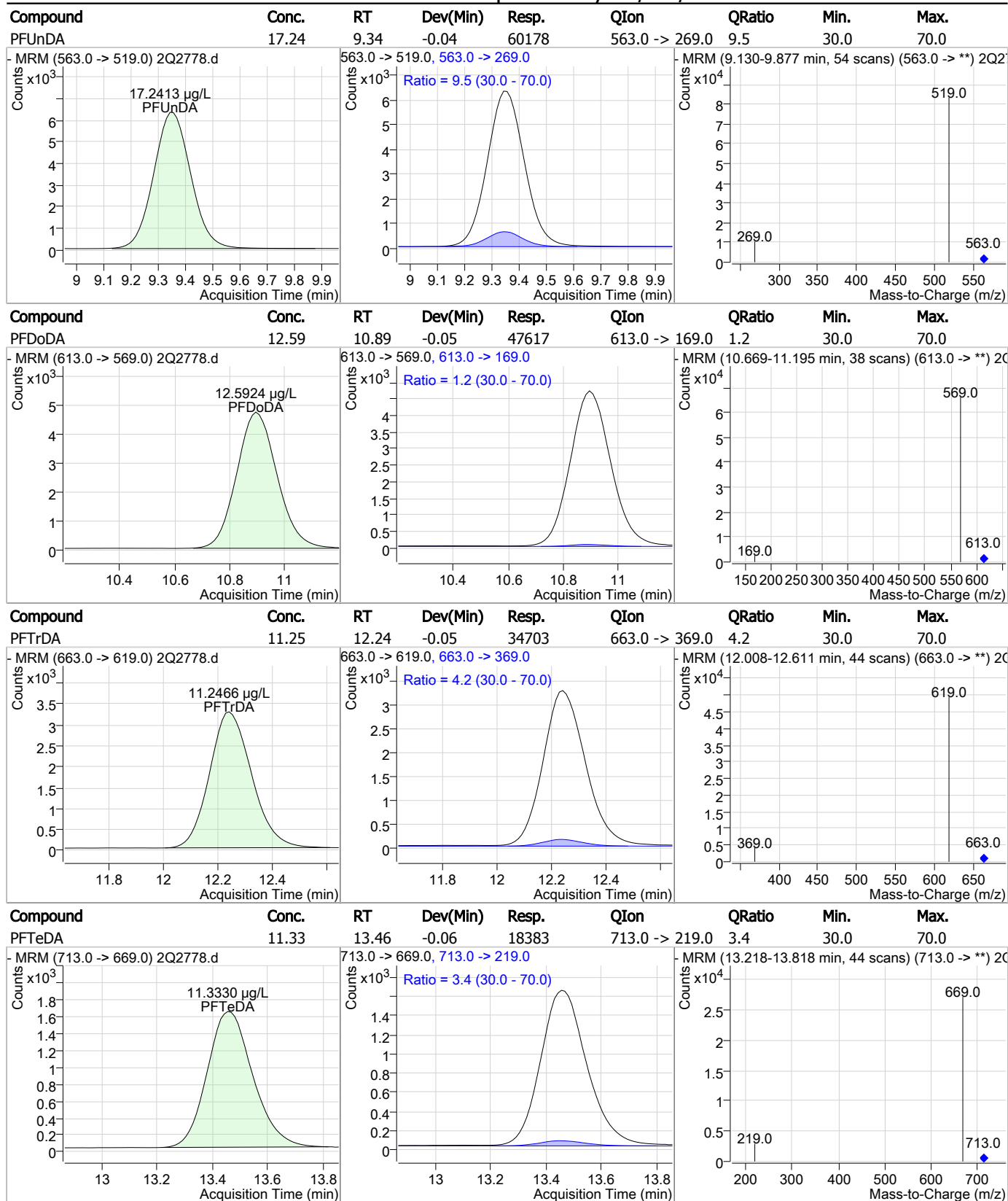
### Perfluorinated Compounds by LC/MS/MS



7.3.1

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### Perfluorinated Compounds by LC/MS/MS



7.31  
7



## Perfluorinated Compounds by LC/MS/MS

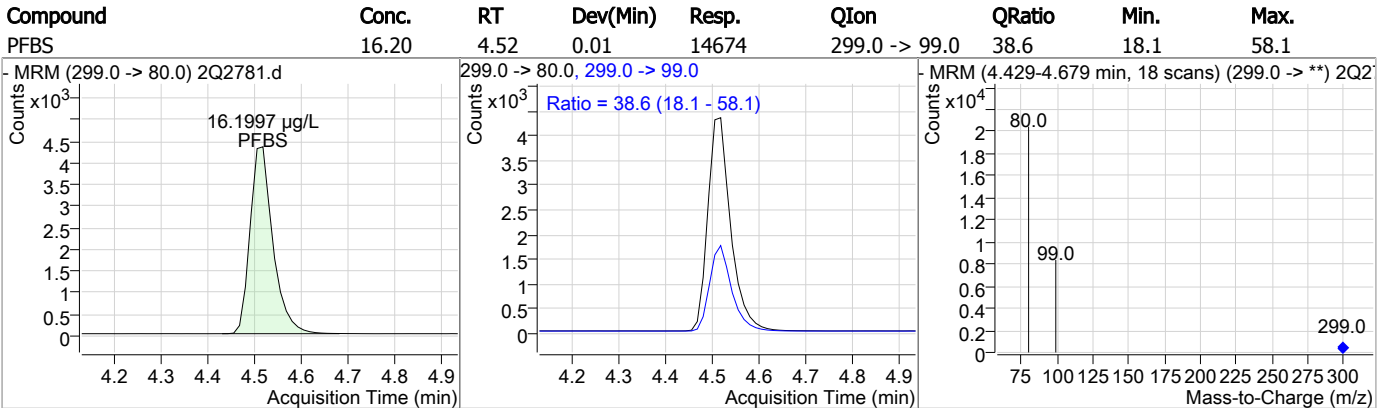
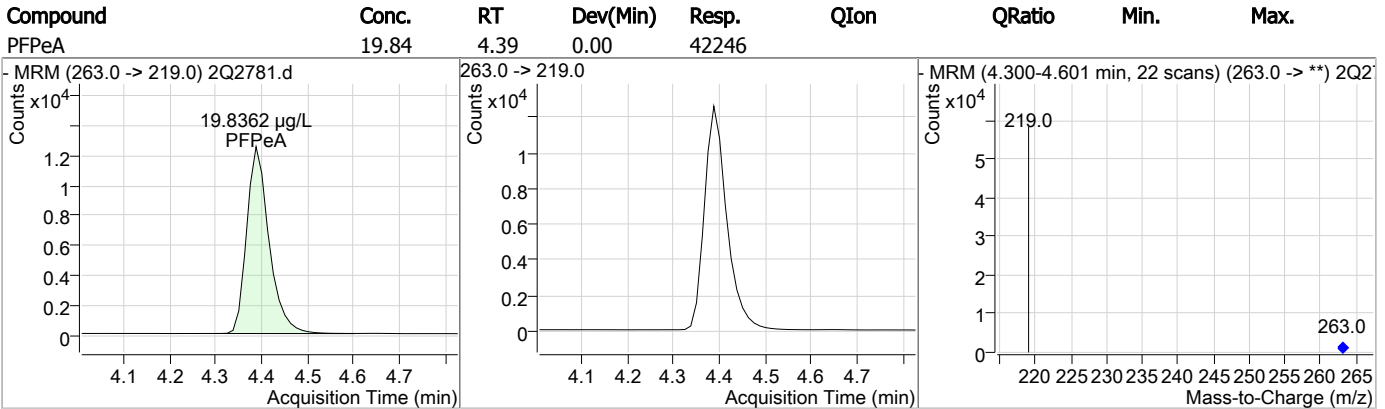
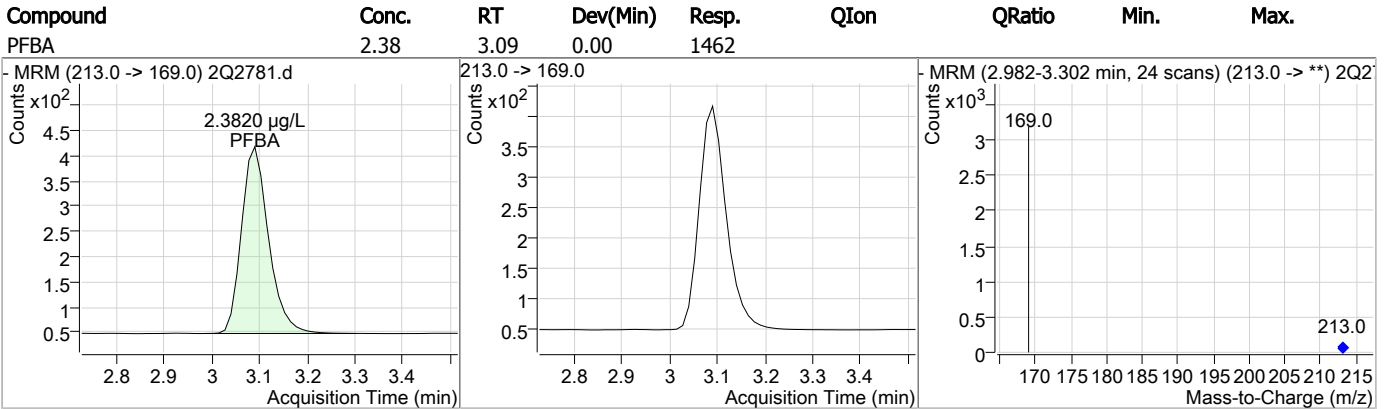
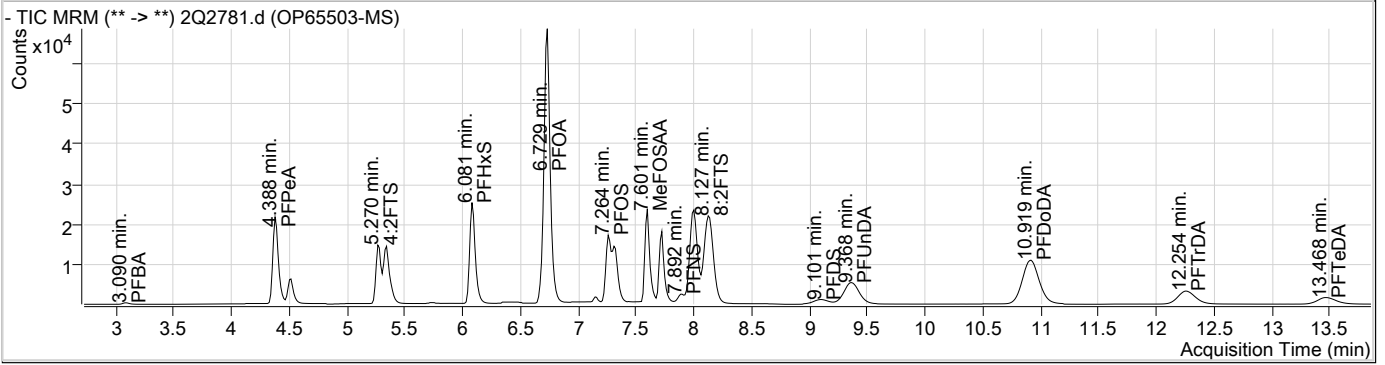
Data File : 2Q2781.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 1:21:51 AM  
 Sample Name : OP65503-MS  
 Vial : Vial 38  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65503,S2Q69,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	77065	20.00 µg/L	0.000
13C2-PFDoDA	10.915	615.0 -> 570.0	70460	20.00 µg/L	-0.038
13C2-PFOA	6.727	415.0 -> 370.0	40693	20.00 µg/L	0.000
13C3-PFPeA	4.385	266.0 -> 222.0	30982	20.00 µg/L	0.000
13C4-PFOS	7.263	503.0 -> 80.0	24244	20.00 µg/L	0.000
d3-MeFOSAA	7.600	573.0 -> 419.0	36215	20.00 µg/L	0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	68225	20.15 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 100.8%	
13C2-PFHxA	5.347	315.0 -> 270.0	29260	12.74 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 63.7%	
d5-EtFOSAA	7.723	589.0 -> 419.0	25174	14.49 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 72.5%	
<b>Target Compounds</b>					
4:2FTS	5.270	327.0 -> 307.0	48602	20.28 µg/L	100
6:2FTS	6.738	427.0 -> 407.0	80118	21.28 µg/L	100
8:2FTS	8.127	527.0 -> 507.0	117673	24.21 µg/L	100
EtFOSAA	7.725	584.0 -> 419.0	26931	15.71 µg/L	100
FOSA	7.164	498.0 -> 78.0	4269	1.26 µg/L	100
MeFOSAA	7.601	570.0 -> 419.0	32586	16.24 µg/L	100
PFBA	3.090	213.0 -> 169.0	1462	2.38 µg/L	100
PFBS	4.516	299.0 -> 80.0	14674	16.20 µg/L	99
PFDA	8.009	513.0 -> 469.0	35815	17.84 µg/L	# 48
PFDoDA	10.919	613.0 -> 569.0	39435	13.12 µg/L	# 29
PFDS	9.101	599.0 -> 80.0	9802	14.17 µg/L	100
PFHpA	6.086	363.0 -> 319.0	51075	18.42 µg/L	93
PFHpS	6.695	449.0 -> 80.0	23511	21.47 µg/L	100
PFHxA	5.350	313.0 -> 269.0	14556	15.50 µg/L	85
PFHxS	6.081	399.0 -> 80.0	20619	18.99 µg/L	92
PFNA	7.332	463.0 -> 419.0	35878	18.04 µg/L	96
PFNS	7.892	549.0 -> 99.0	8681	16.02 µg/L	100
PFOA	6.729	413.0 -> 369.0	30651	19.48 µg/L	95
PFOS	7.264	499.0 -> 80.0	21048	14.73 µg/L	97
PFPeA	4.388	263.0 -> 219.0	42246	19.84 µg/L	100
PFPeS	5.380	349.0 -> 99.0	5419	21.26 µg/L	100
PFTeDA	13.468	713.0 -> 669.0	17919	13.89 µg/L	# 32
PFTrDA	12.254	663.0 -> 619.0	32894	13.41 µg/L	# 34
PFUnDA	9.368	563.0 -> 519.0	45608	16.43 µg/L	# 41

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

7.4.1  
7

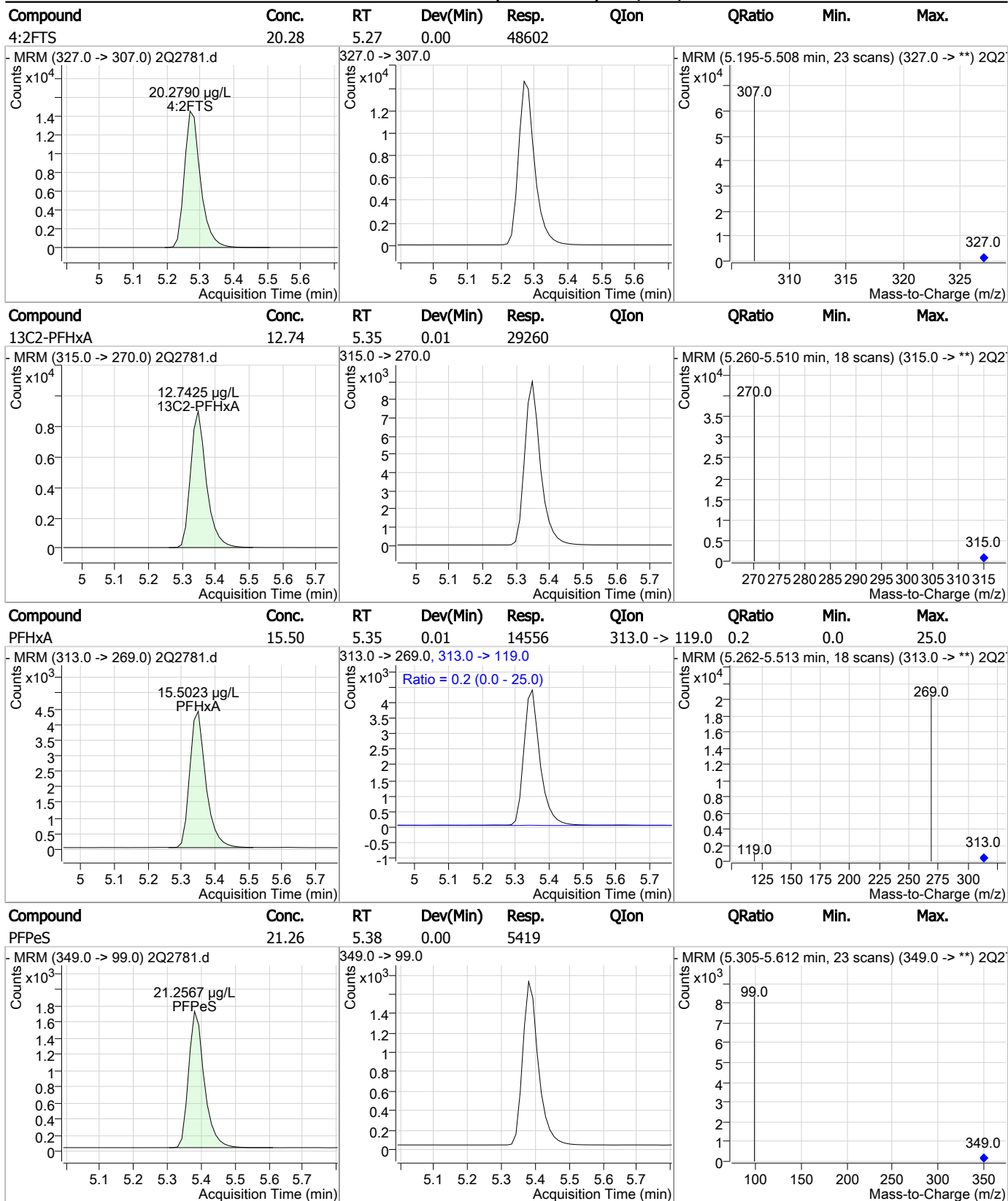
### Perfluorinated Compounds by LC/MS/MS



7.4.1

7

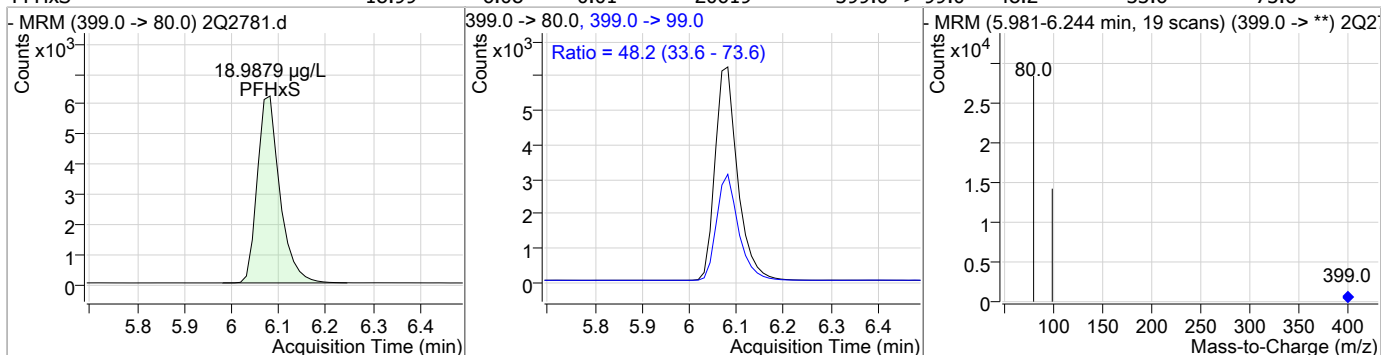
### Perfluorinated Compounds by LC/MS/MS



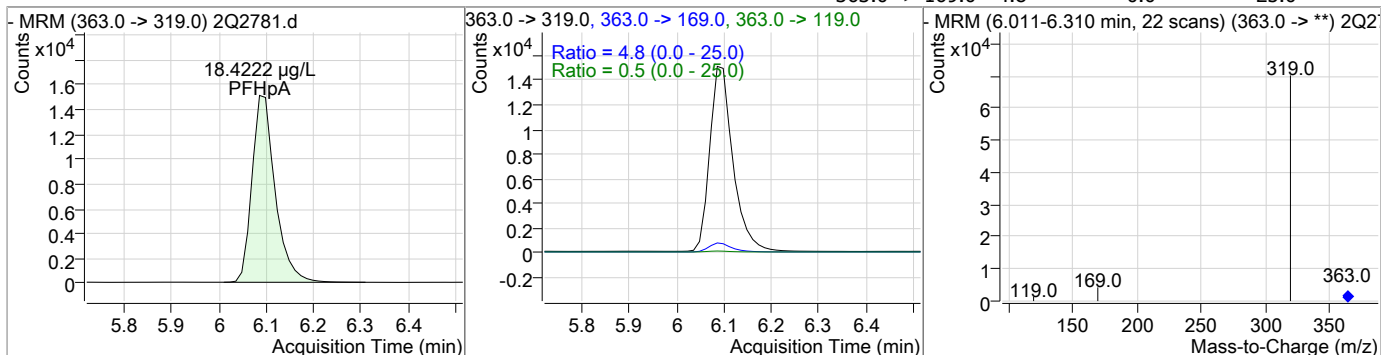
7.4.1  
7

### Perfluorinated Compounds by LC/MS/MS

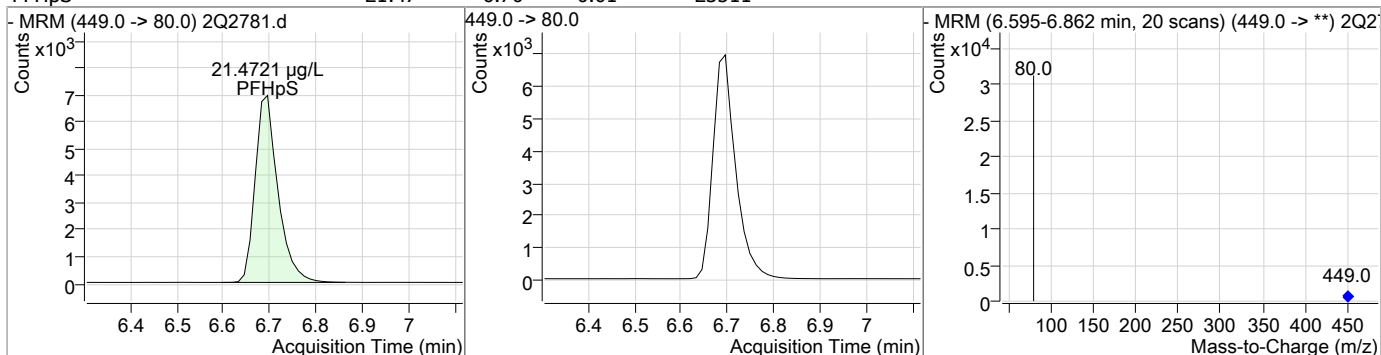
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.99	6.08	0.01	20619	399.0 -> 99.0	48.2	33.6	73.6



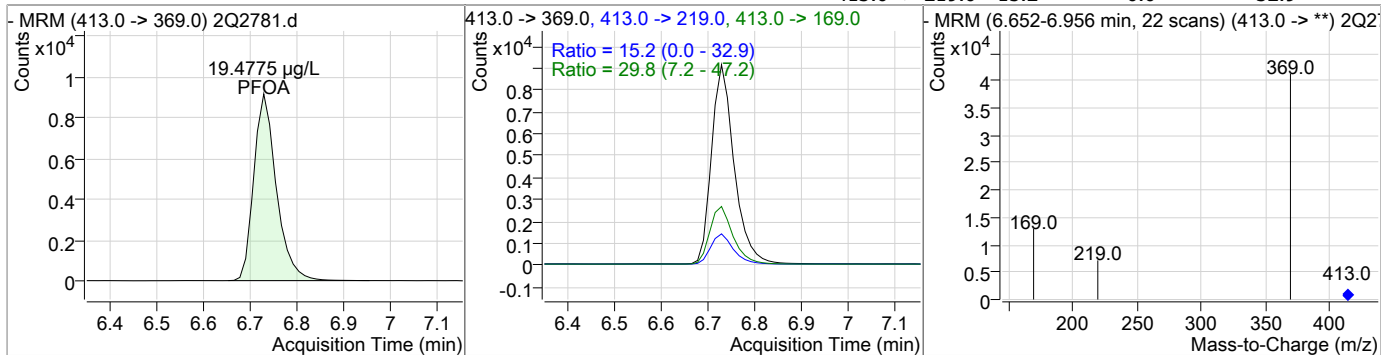
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.42	6.09	0.00	51075	363.0 -> 119.0 363.0 -> 169.0	0.5 4.8	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	21.47	6.70	0.01	23511	449.0 -> 80.0			

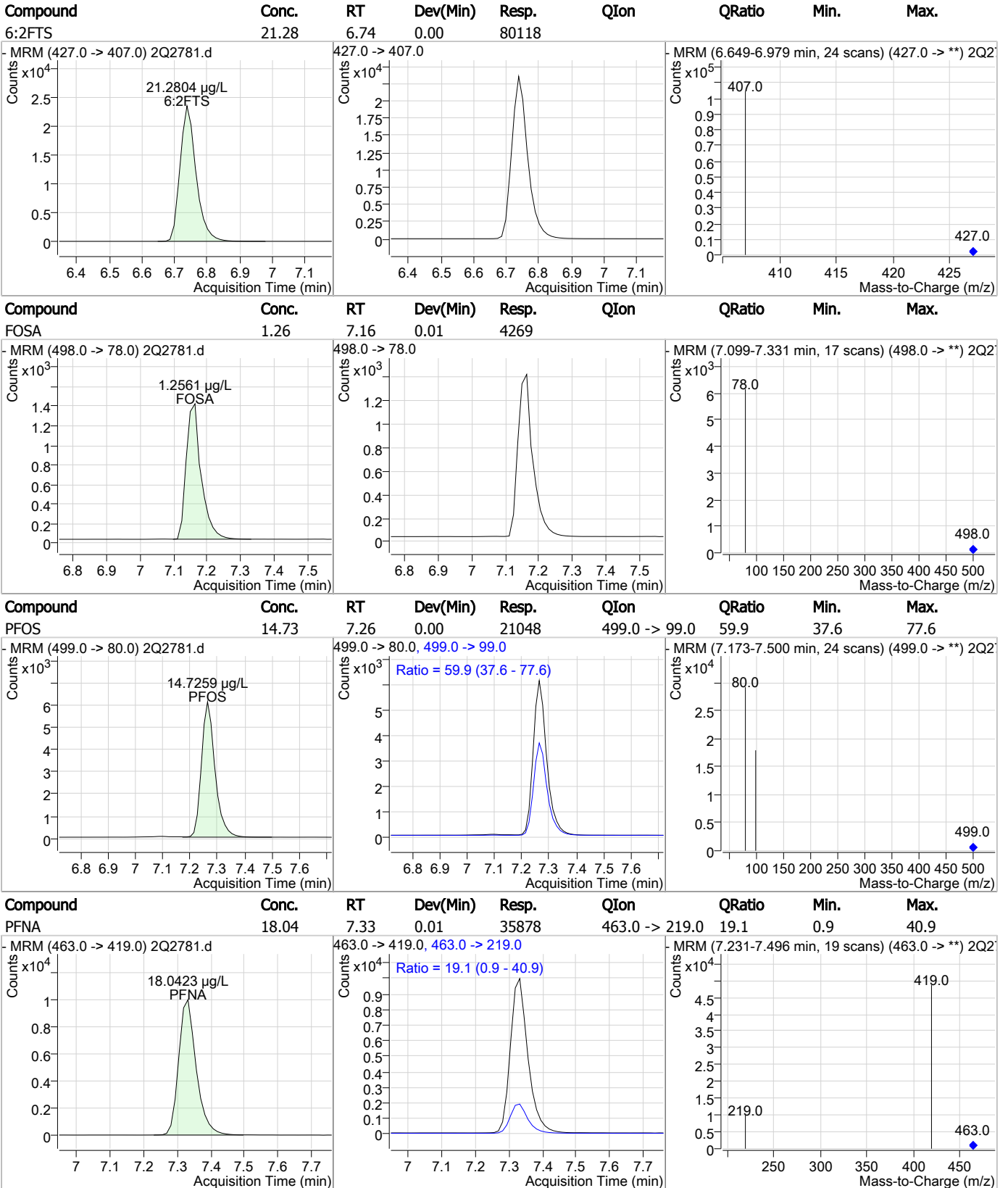


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.48	6.73	0.00	30651	413.0 -> 169.0 413.0 -> 219.0	29.8 15.2	7.2 0.0	47.2 32.9



7.4.1  
7

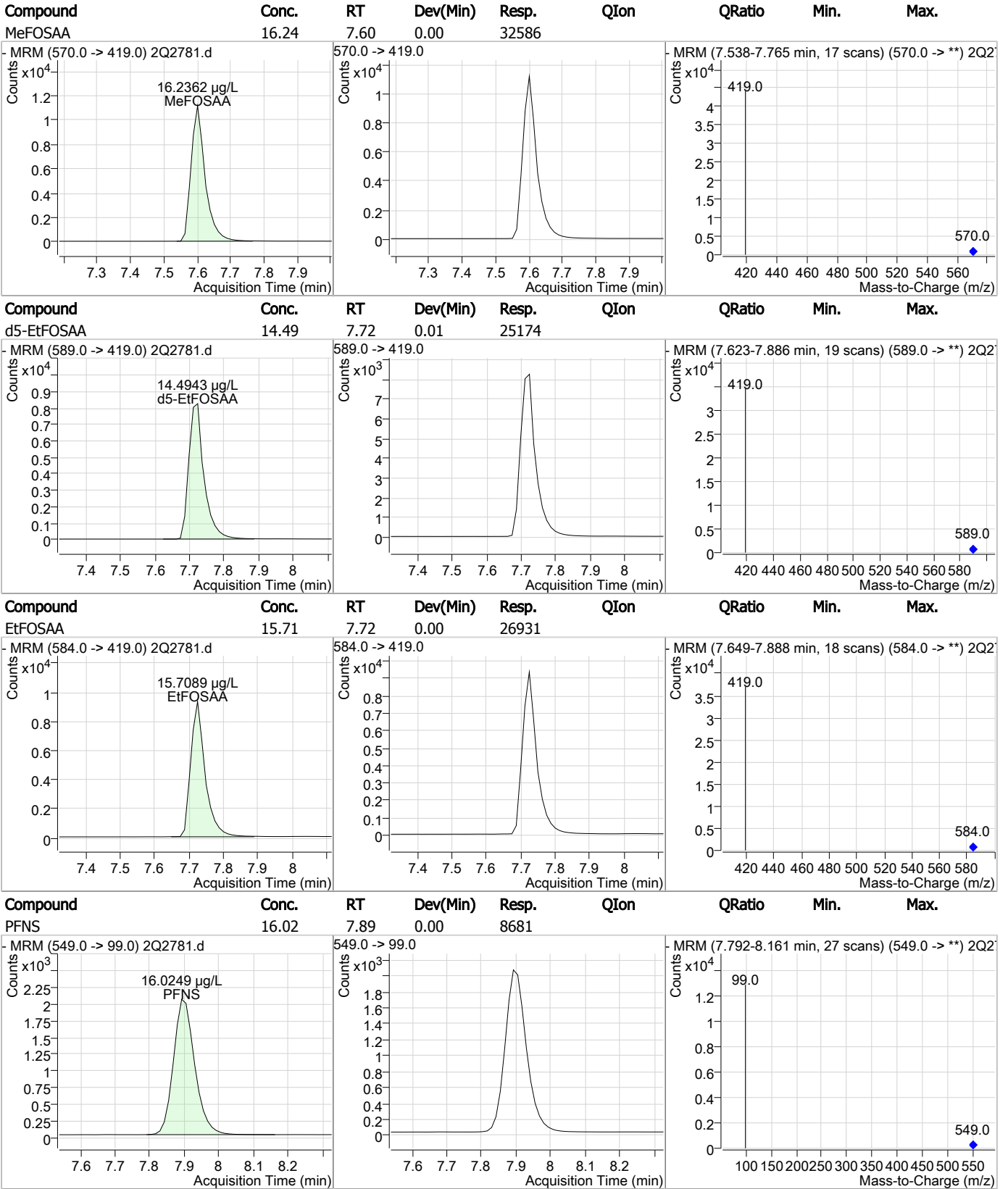
### Perfluorinated Compounds by LC/MS/MS



7.4.1

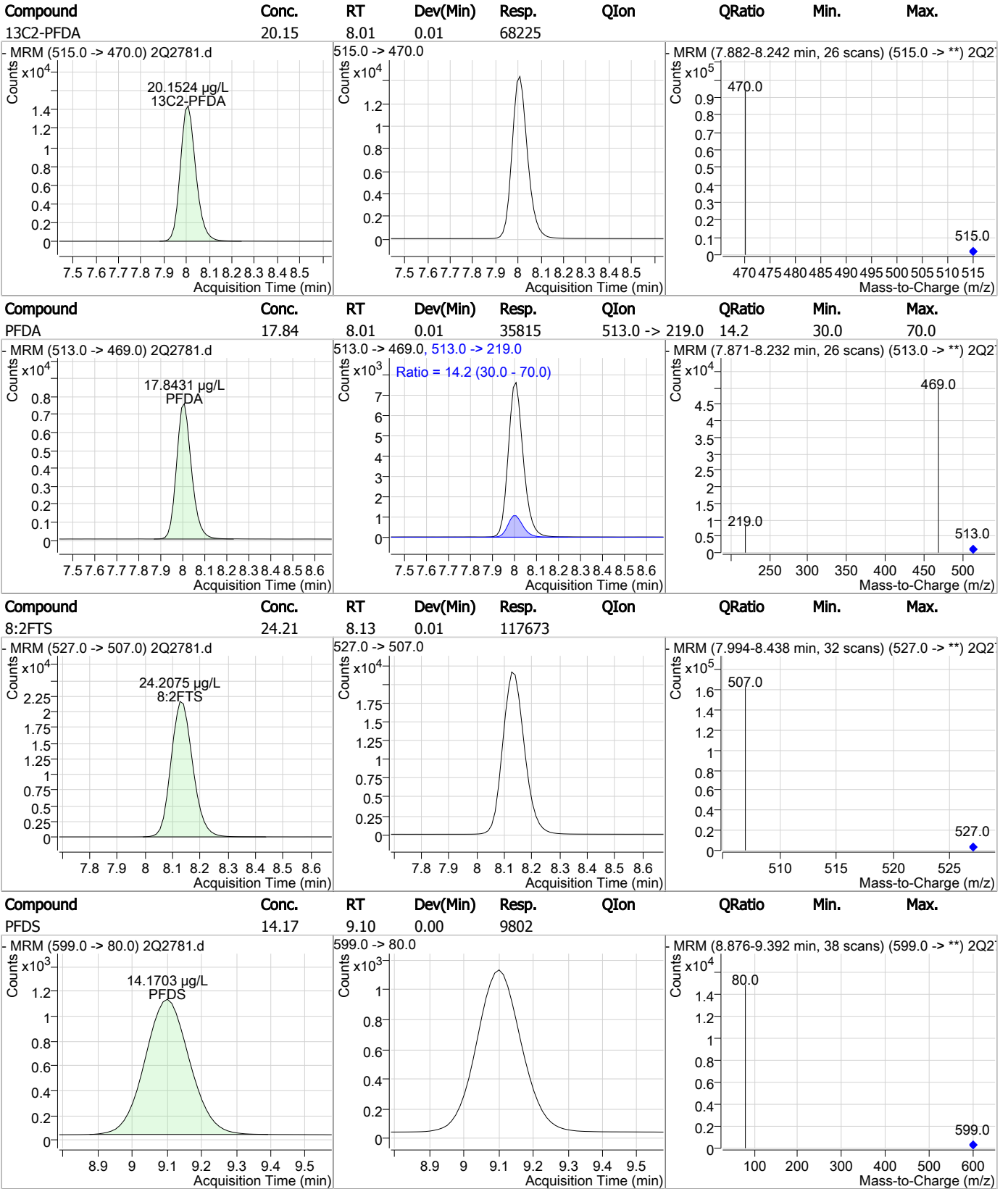
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### Perfluorinated Compounds by LC/MS/MS



7.4.1  
7

### Perfluorinated Compounds by LC/MS/MS

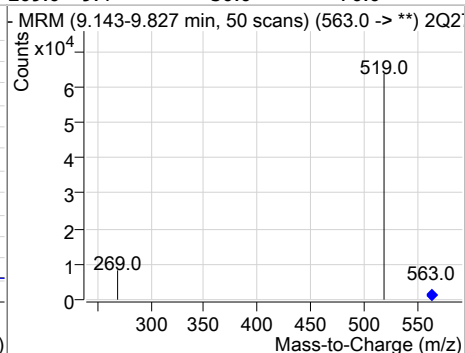
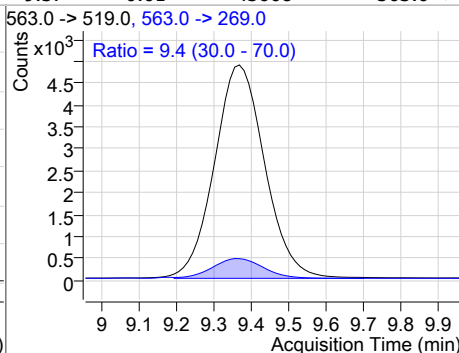
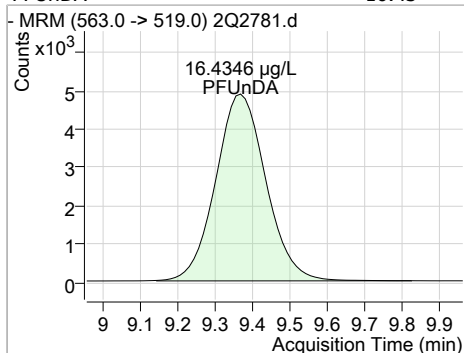


7.4.1

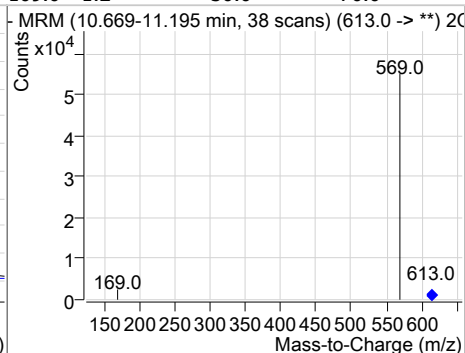
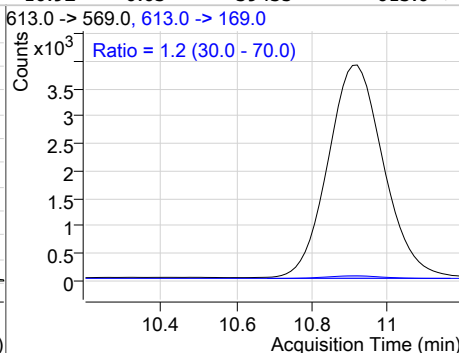
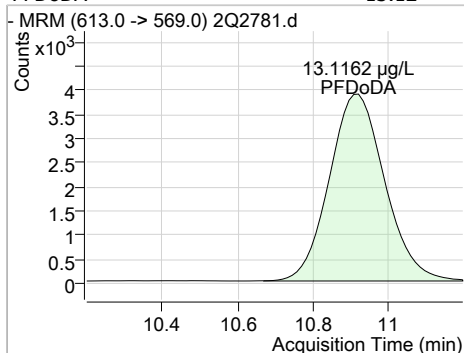
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### Perfluorinated Compounds by LC/MS/MS

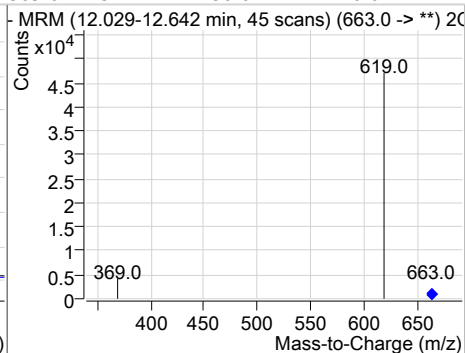
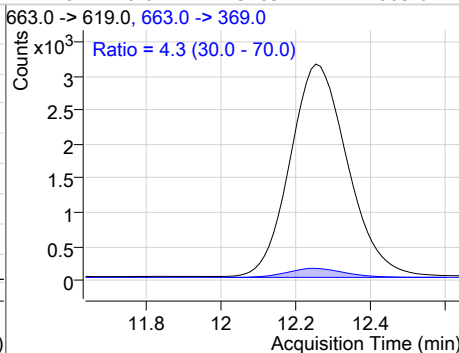
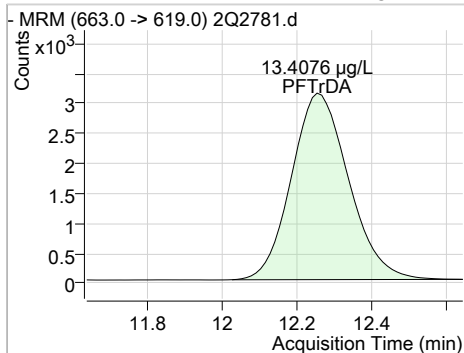
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	16.43	9.37	-0.01	45608	563.0 -> 269.0	9.4	30.0	70.0



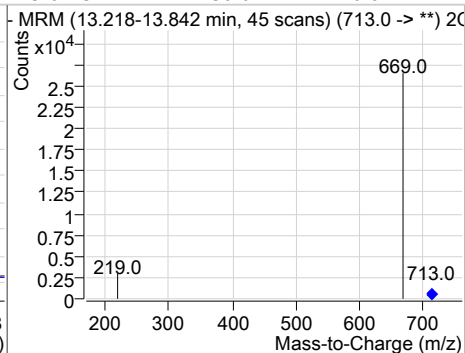
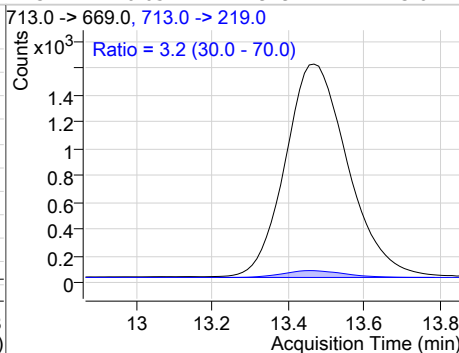
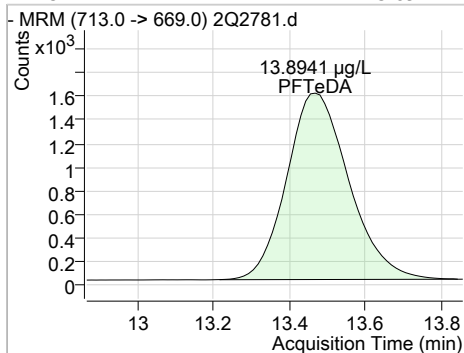
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	13.12	10.92	-0.03	39435	613.0 -> 169.0	1.2	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	13.41	12.25	-0.04	32894	663.0 -> 369.0	4.3	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.89	13.47	-0.05	17919	713.0 -> 219.0	3.2	30.0	70.0



7.4.1  
 7



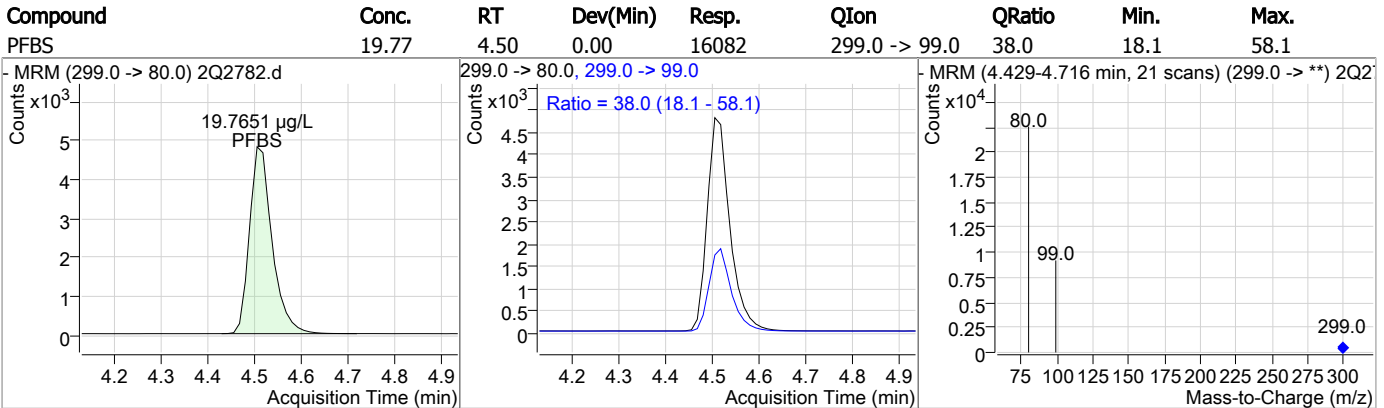
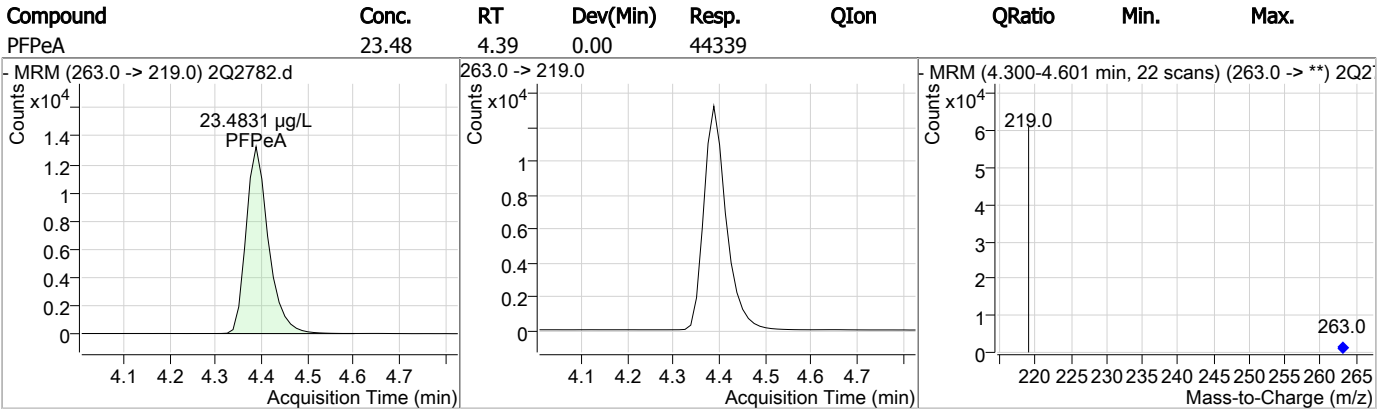
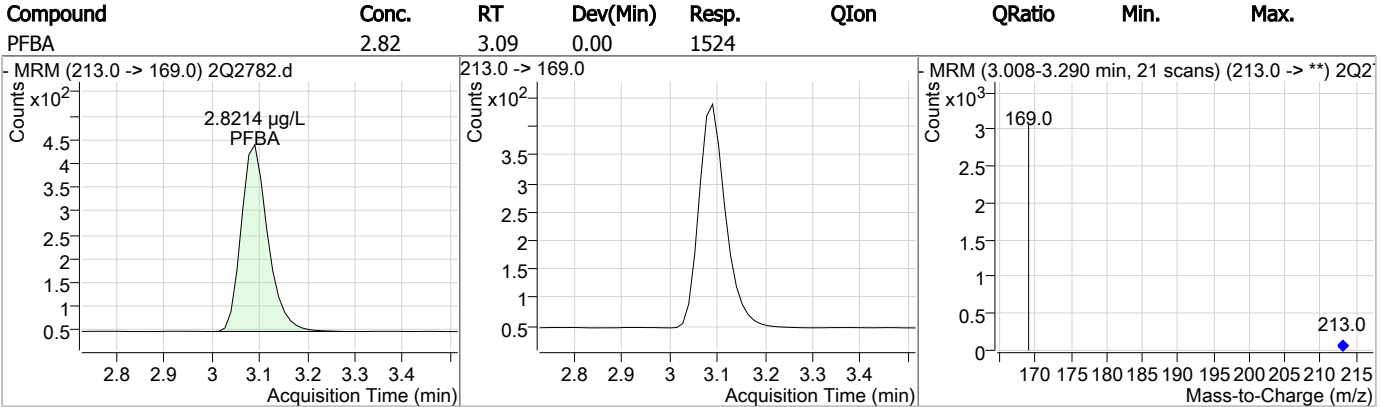
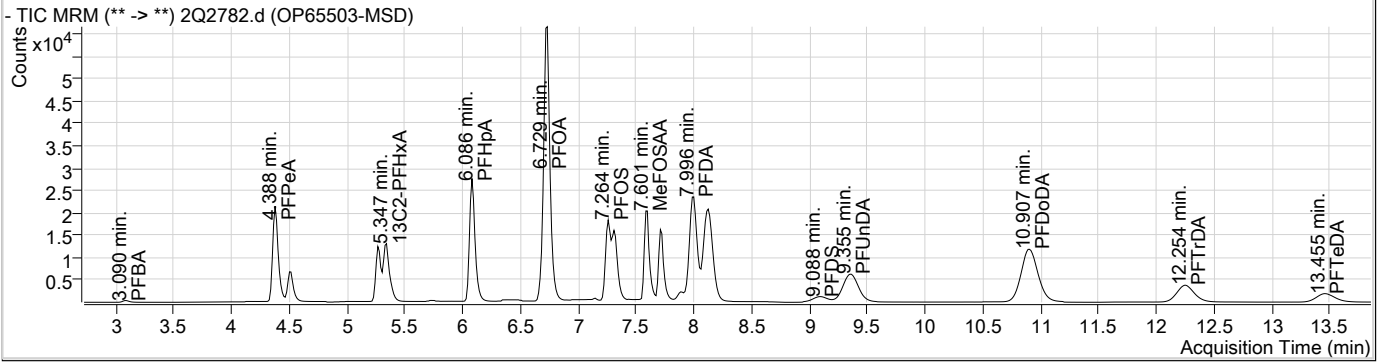
## Perfluorinated Compounds by LC/MS/MS

Data File : 2Q2782.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 1:41:10 AM  
 Sample Name : OP65503-MSD  
 Vial : Vial 39  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65503,S2Q69,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	68890	20.00 µg/L	0.000
13C2-PFDoDA	10.890	615.0 -> 570.0	71563	20.00 µg/L	-0.063
13C2-PFOA	6.727	415.0 -> 370.0	35815	20.00 µg/L	0.000
13C3-PFPeA	4.385	266.0 -> 222.0	27467	20.00 µg/L	0.000
13C4-PFOS	7.263	503.0 -> 80.0	21777	20.00 µg/L	0.000
d3-MeFOSAA	7.587	573.0 -> 419.0	32382	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	61417	20.63 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 103.1%		
13C2-PFHxA	5.347	315.0 -> 270.0	24964	12.35 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 61.7%		
d5-EtFOSAA	7.711	589.0 -> 419.0	23916	15.40 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 77.0%		
<b>Target Compounds</b>					
4:2FTS	5.270	327.0 -> 307.0	40295	18.74 µg/L	100
6:2FTS	6.738	427.0 -> 407.0	69264	20.54 µg/L	100
8:2FTS	8.127	527.0 -> 507.0	109967	25.37 µg/L	100
EtFOSAA	7.725	584.0 -> 419.0	23641	15.41 µg/L	100
FOSA	7.150	498.0 -> 78.0	1208	0.40 µg/L	100
MeFOSAA	7.601	570.0 -> 419.0	30222	16.85 µg/L	100
PFBA	3.090	213.0 -> 169.0	1524	2.82 µg/L	100
PFBS	4.504	299.0 -> 80.0	16082	19.77 µg/L	100
PFDA	7.996	513.0 -> 469.0	42196	24.10 µg/L	# 47
PFDoDA	10.907	613.0 -> 569.0	47064	15.41 µg/L	# 29
PFDS	9.088	599.0 -> 80.0	10445	16.81 µg/L	100
PFHpA	6.086	363.0 -> 319.0	54744	22.43 µg/L	93
PFHpS	6.683	449.0 -> 80.0	20801	21.15 µg/L	100
PFHxA	5.350	313.0 -> 269.0	15326	18.61 µg/L	85
PFHxS	6.069	399.0 -> 80.0	22933	23.51 µg/L	91
PFNA	7.319	463.0 -> 419.0	40242	22.99 µg/L	95
PFNS	7.892	549.0 -> 99.0	7779	15.99 µg/L	100
PFOA	6.729	413.0 -> 369.0	34115	24.63 µg/L	96
PFOS	7.264	499.0 -> 80.0	24935	19.50 µg/L	97
PFPeA	4.388	263.0 -> 219.0	44339	23.48 µg/L	100
PFPeS	5.380	349.0 -> 99.0	4557	20.16 µg/L	100
PFTeDA	13.455	713.0 -> 669.0	20521	15.67 µg/L	# 32
PFTrDA	12.254	663.0 -> 619.0	37771	15.16 µg/L	# 34
PFUnDA	9.355	563.0 -> 519.0	53405	18.95 µg/L	# 41

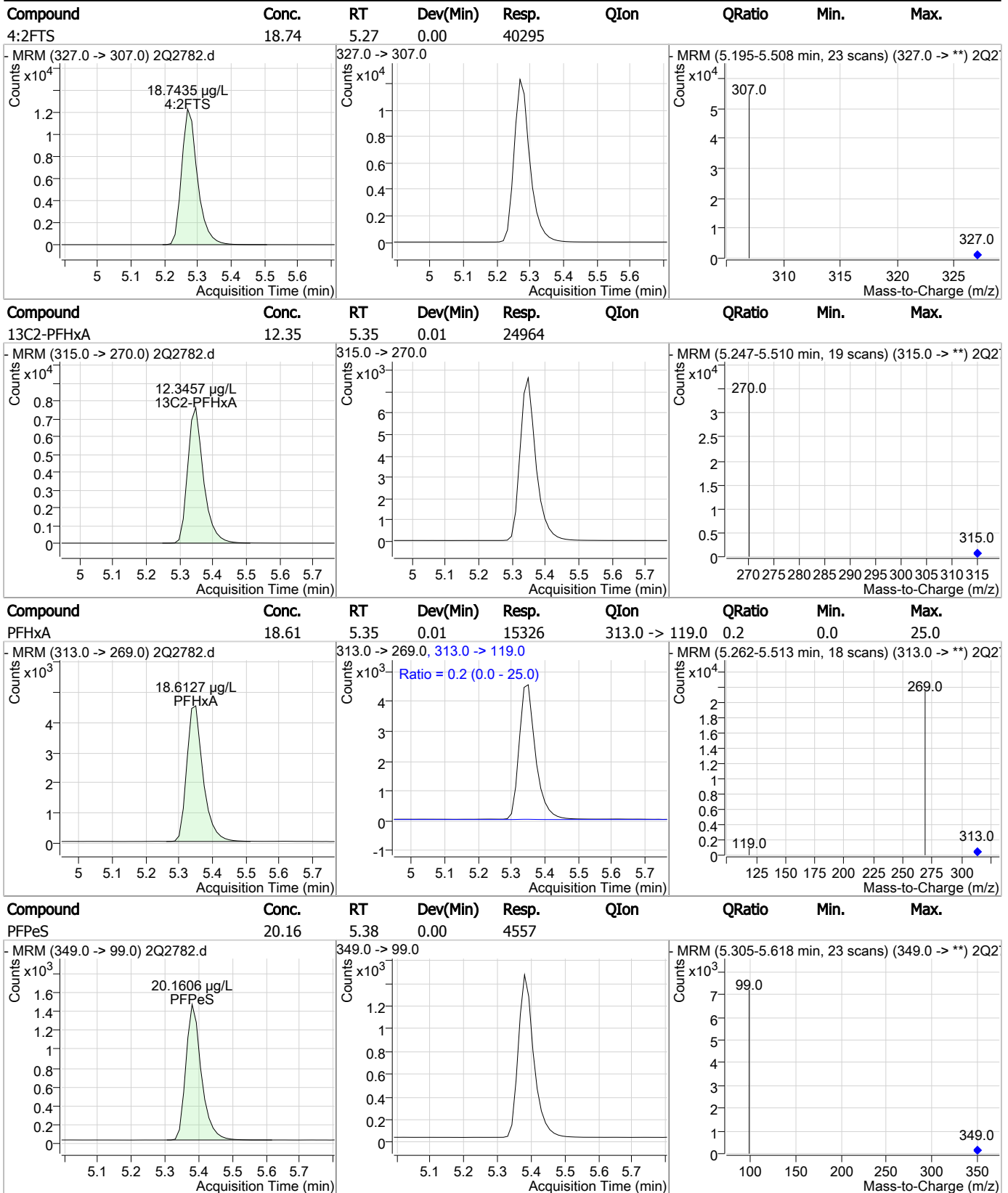
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS



7.4.2  
7

### Perfluorinated Compounds by LC/MS/MS

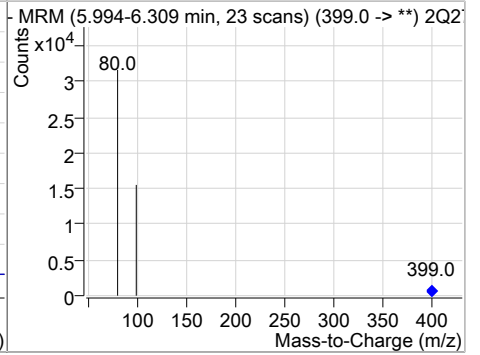
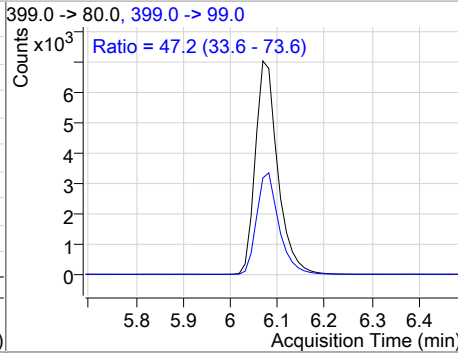
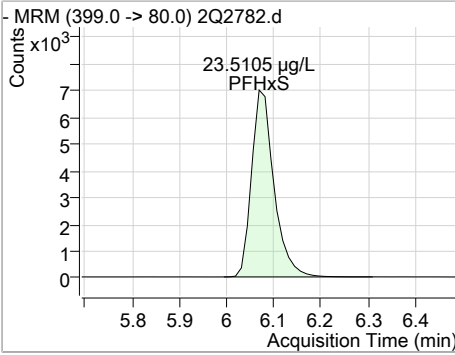


7.4.2

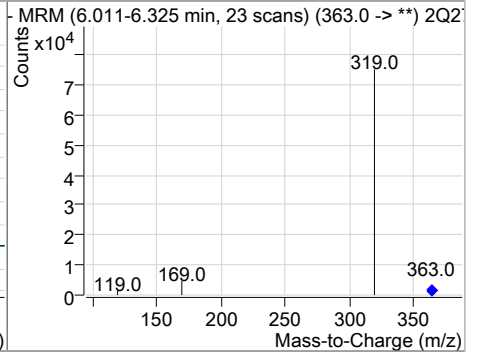
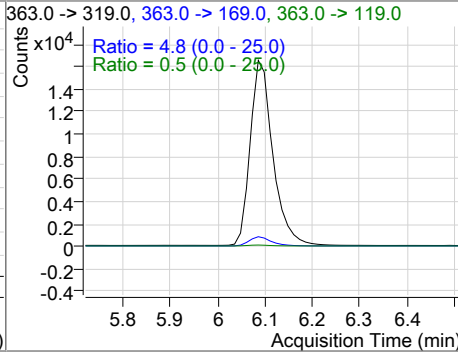
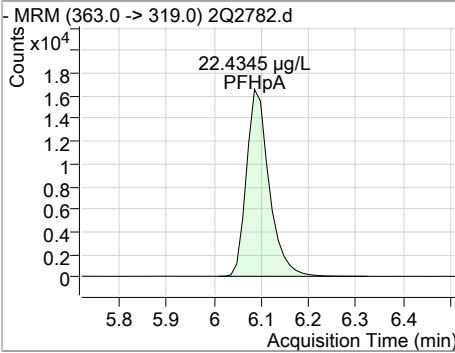
7

Perfluorinated Compounds by LC/MS/MS

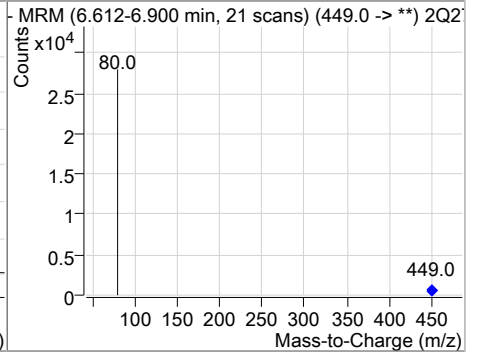
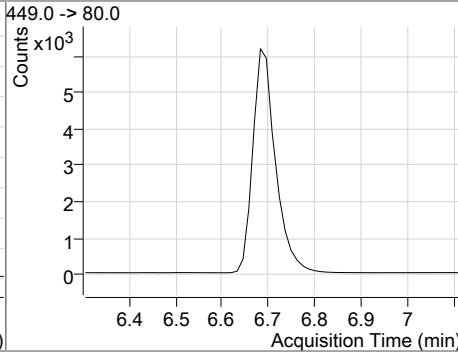
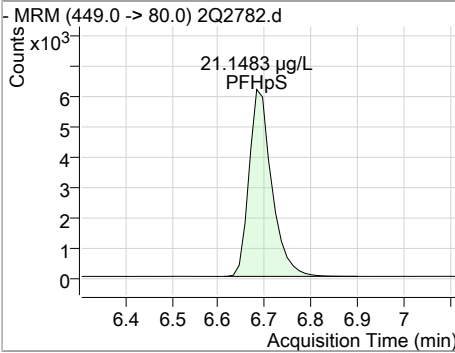
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	23.51	6.07	0.00	22933	399.0 -> 99.0	47.2	33.6	73.6



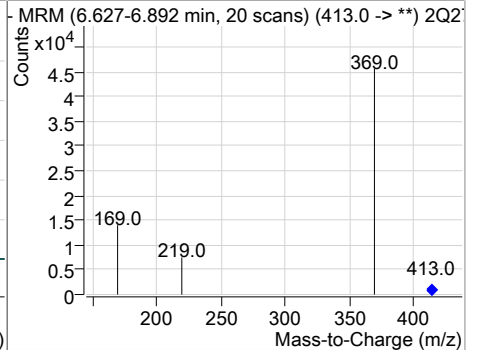
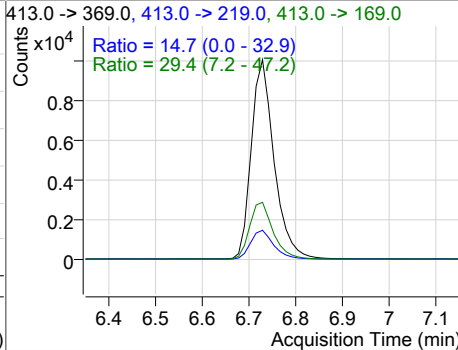
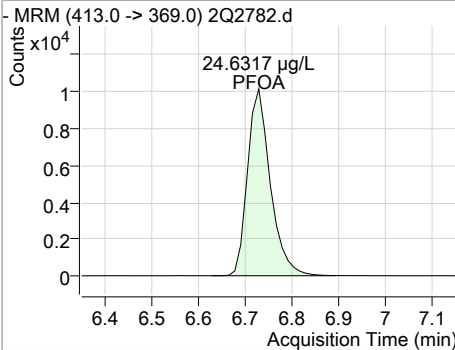
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	22.43	6.09	0.00	54744	363.0 -> 119.0 363.0 -> 169.0	0.5 4.8	0.0 0.0	25.0 25.0



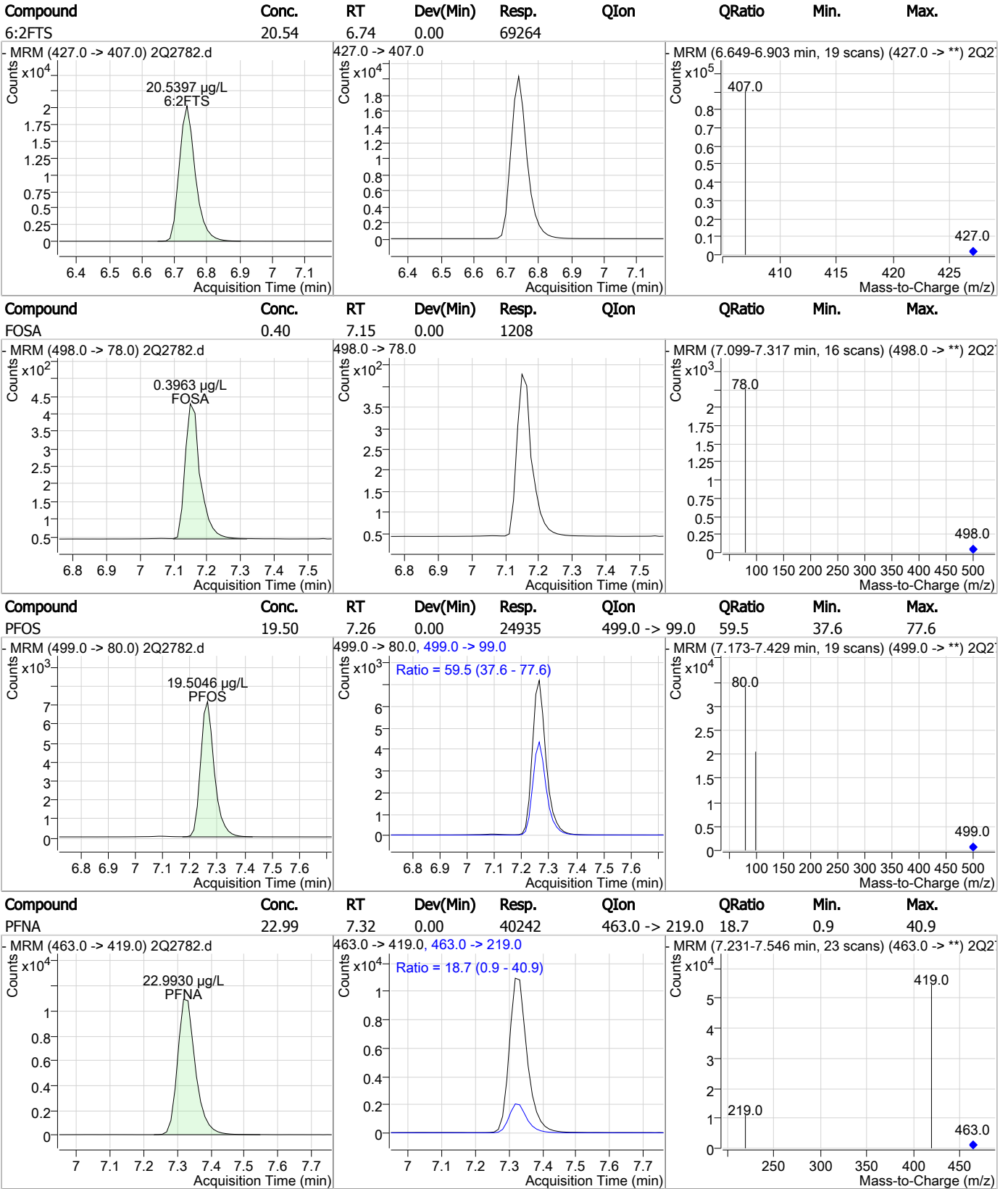
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	21.15	6.68	0.00	20801	449.0 -> 80.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	24.63	6.73	0.00	34115	413.0 -> 169.0 413.0 -> 219.0	29.4 14.7	7.2 0.0	47.2 32.9



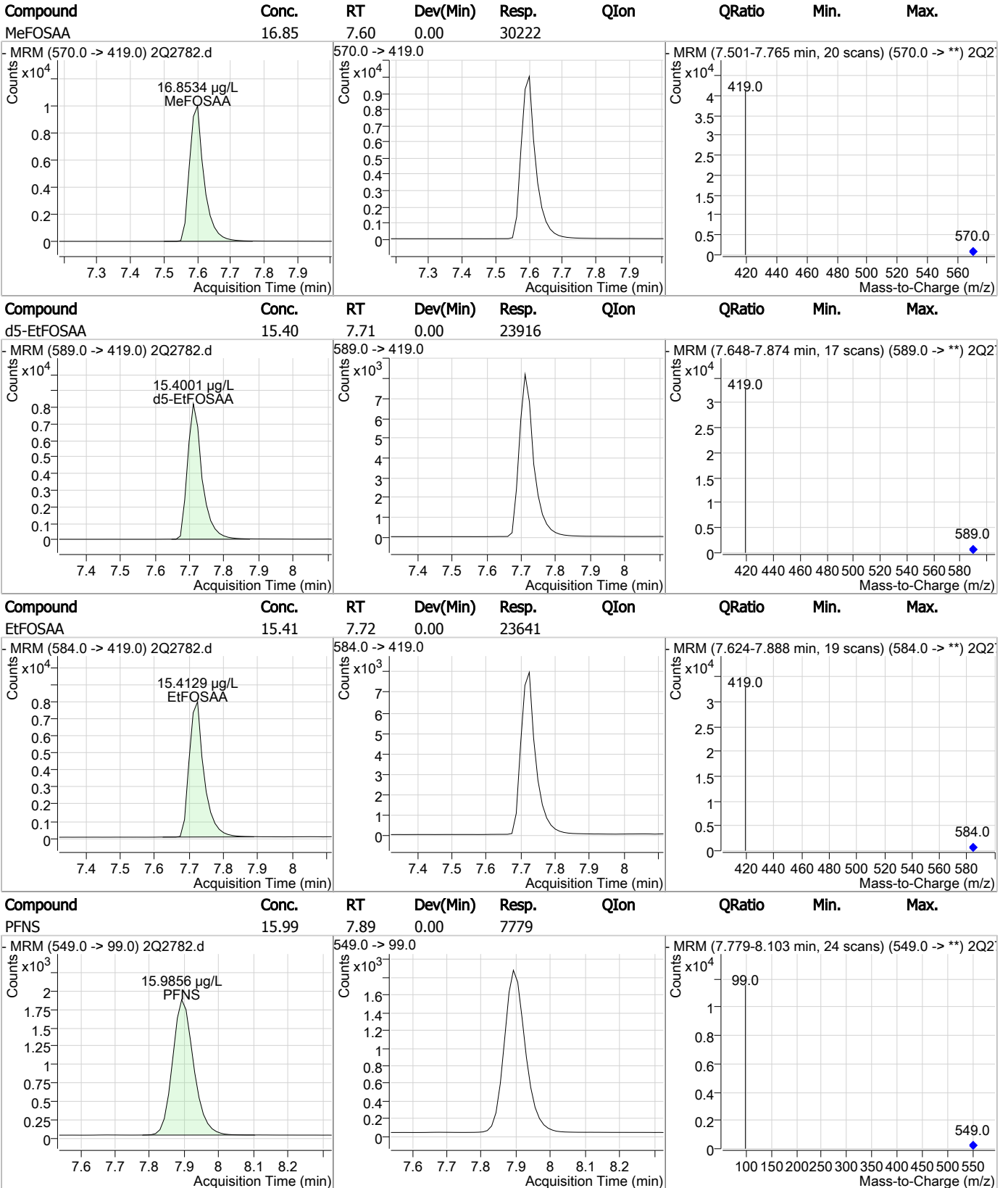
### Perfluorinated Compounds by LC/MS/MS



7.4.2

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### Perfluorinated Compounds by LC/MS/MS

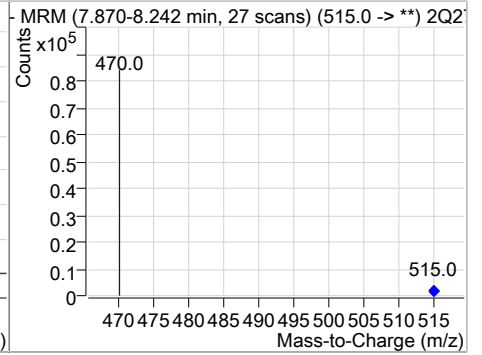
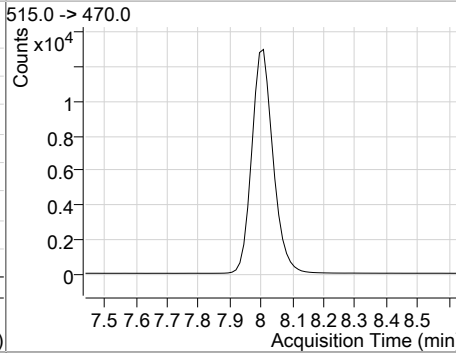
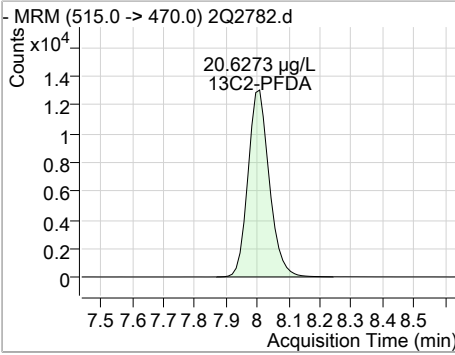


7.4.2

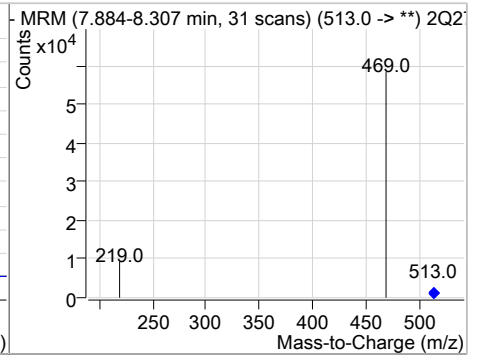
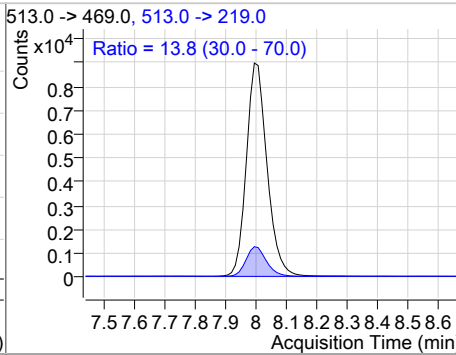
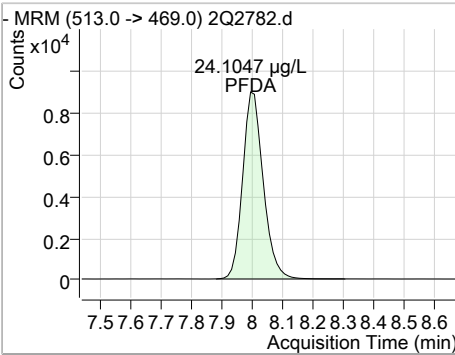
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### Perfluorinated Compounds by LC/MS/MS

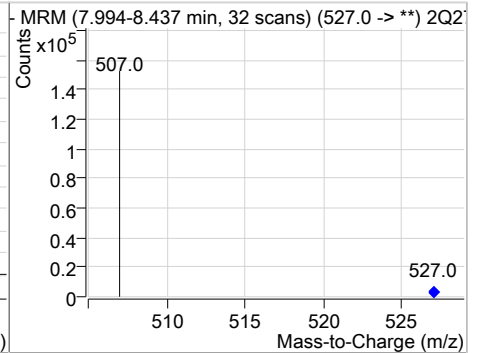
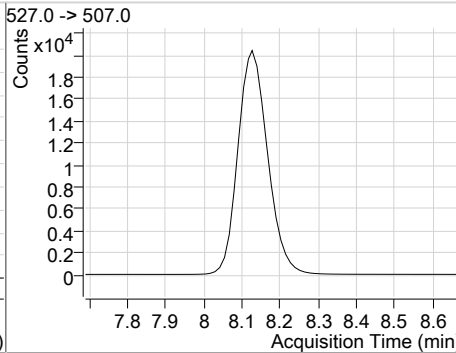
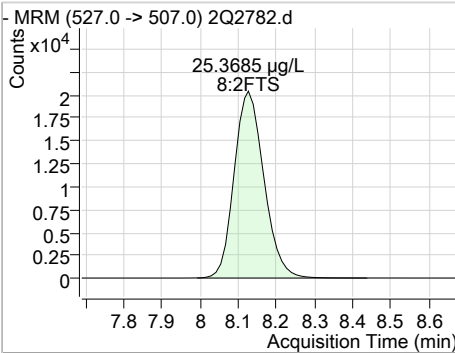
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	20.63	8.01	0.01	61417				



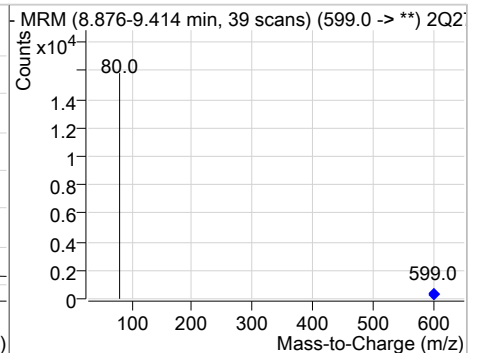
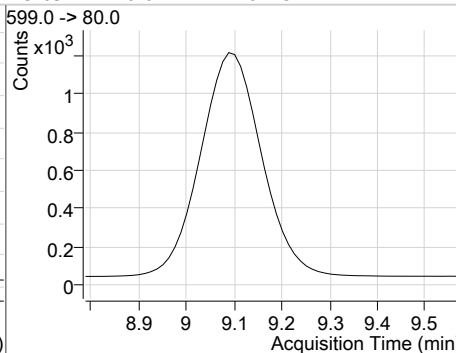
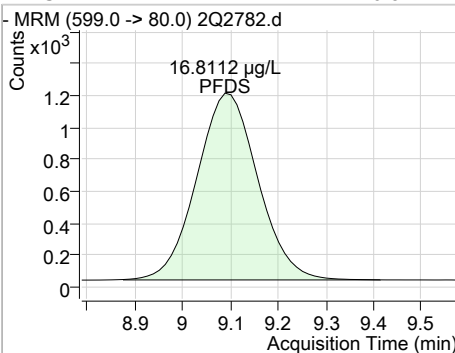
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	24.10	8.00	0.00	42196	513.0 -> 219.0	13.8	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	25.37	8.13	0.01	109967				

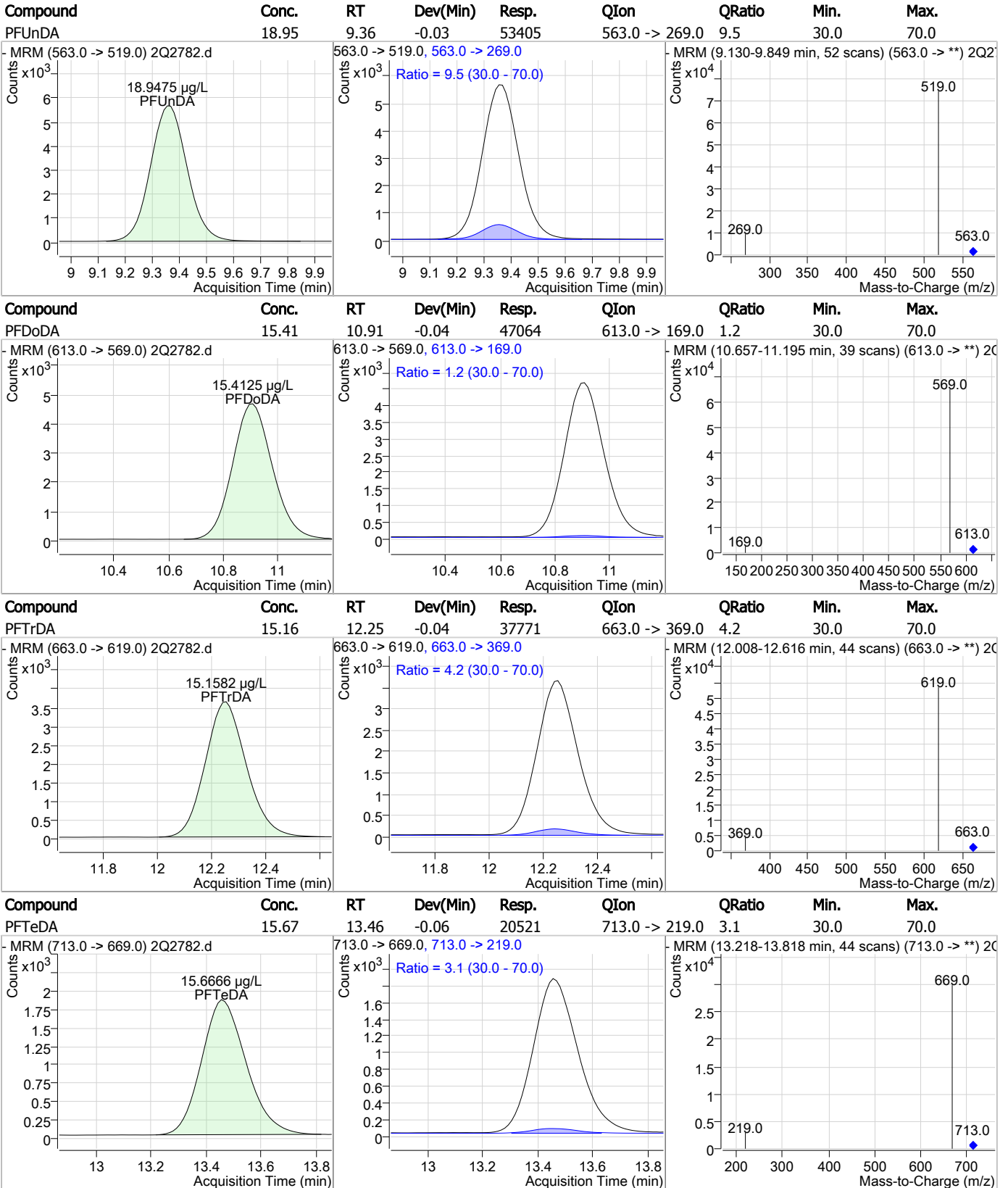


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	16.81	9.09	-0.01	10445				



7.4.2  
7

### Perfluorinated Compounds by LC/MS/MS



7.4.2

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### Perfluorinated Compounds by LC/MS/MS

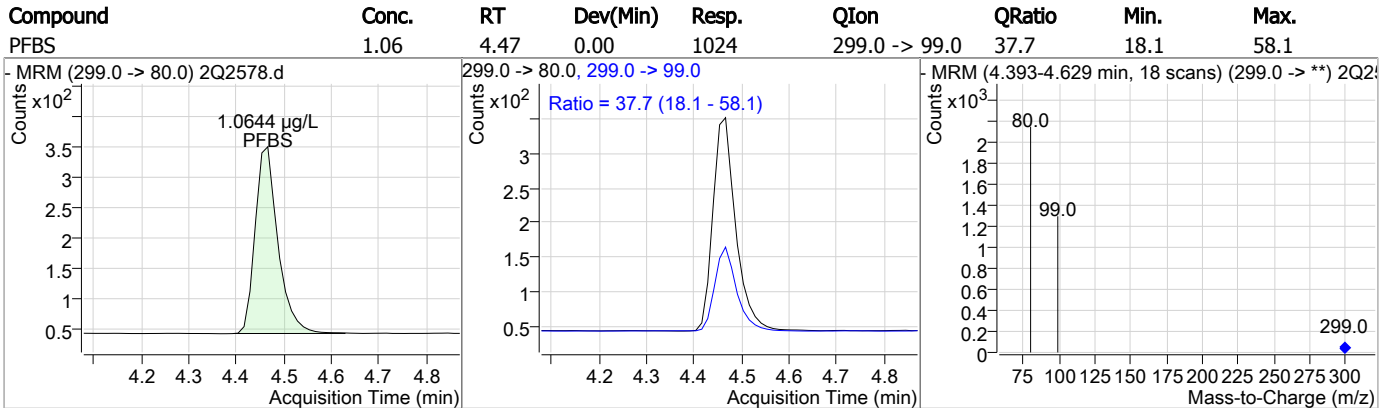
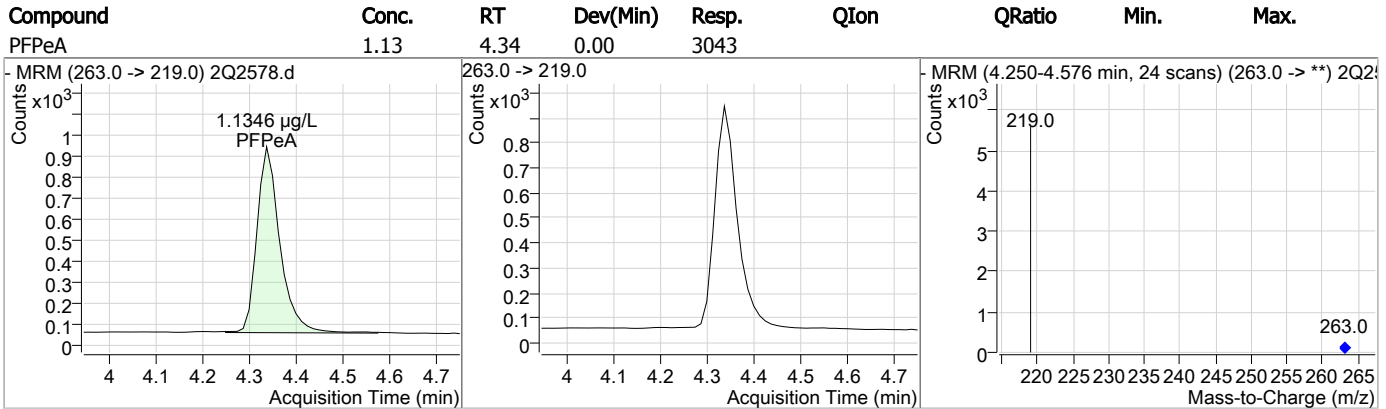
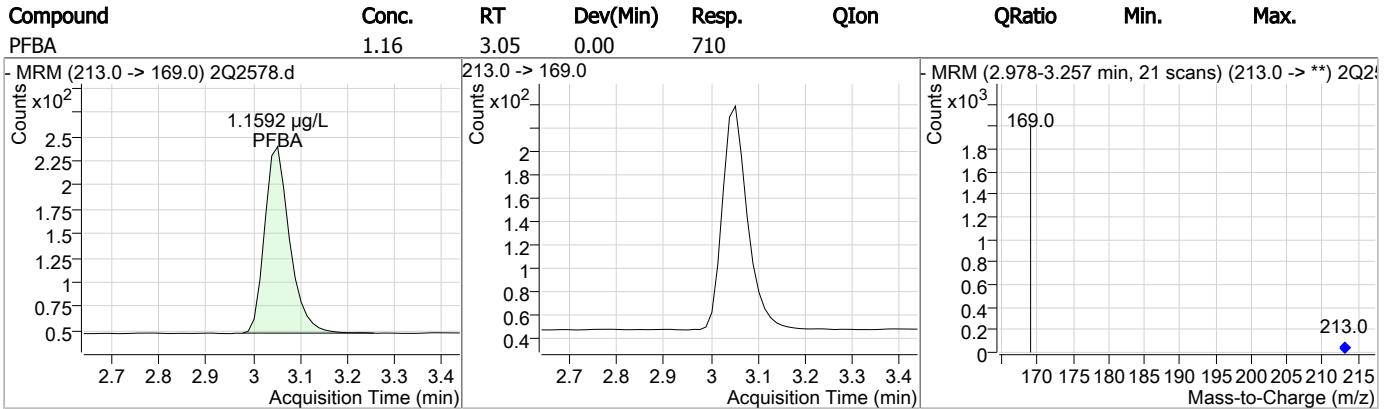
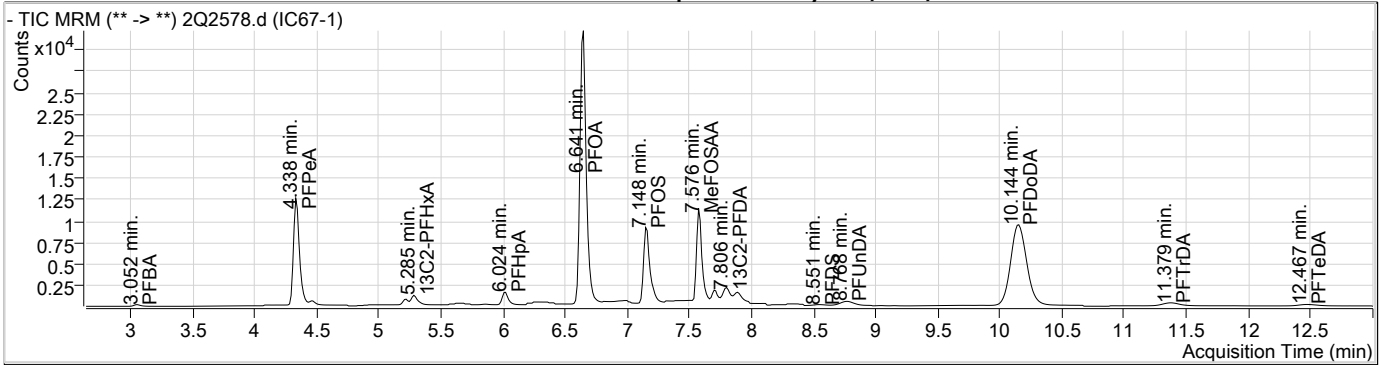
Data File : 2Q2578.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 10:11:28 AM  
 Sample Name : IC67-1  
 Vial : Vial 2  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.649	429.0 -> 409.0	63906	20.00 µg/L	0.000
13C2-PFDoDA	10.152	615.0 -> 570.0	80981	20.00 µg/L	0.000
13C2-PFOA	6.640	415.0 -> 370.0	40630	20.00 µg/L	0.000
13C3-PFPeA	4.335	266.0 -> 222.0	39017	20.00 µg/L	0.000
13C4-PFOS	7.147	503.0 -> 80.0	25760	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	31225	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.806	515.0 -> 470.0	4014	1.15 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 5.8%	
13C2-PFHxA	5.285	315.0 -> 270.0	2454	1.05 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 5.3%	
d5-EtFOSAA	7.699	589.0 -> 419.0	1958	1.31 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 6.5%	
<b>Target Compounds</b>					
4:2FTS	5.220	327.0 -> 307.0	2157	1.04 µg/L	100
6:2FTS	6.651	427.0 -> 407.0	3690	1.12 µg/L	100
8:2FTS	7.892	527.0 -> 507.0	4479	1.06 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	1625	1.07 µg/L	100
FOSA	7.151	498.0 -> 78.0	3158	1.08 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	1743	0.99 µg/L	100
PFBA	3.052	213.0 -> 169.0	710	1.16 µg/L	100
PFBS	4.466	299.0 -> 80.0	1024	1.06 µg/L	99
PFDA	7.807	513.0 -> 469.0	2288	1.11 µg/L	# 45
PFDoDA	10.144	613.0 -> 569.0	3743	1.08 µg/L	# 29
PFDS	8.551	599.0 -> 80.0	767	1.04 µg/L	100
PFHpA	6.024	363.0 -> 319.0	3280	1.18 µg/L	93
PFHpS	6.610	449.0 -> 80.0	1207	1.04 µg/L	100
PFHxA	5.287	313.0 -> 269.0	998	1.05 µg/L	85
PFHxS	6.006	399.0 -> 80.0	1229	1.07 µg/L	m 94
PFNA	7.206	463.0 -> 419.0	2238	1.13 µg/L	96
PFNS	7.716	549.0 -> 99.0	650	1.13 µg/L	100
PFOA	6.641	413.0 -> 369.0	1828	1.16 µg/L	96
PFOS	7.148	499.0 -> 80.0	1932	1.26 µg/L	m 78
PFPeA	4.338	263.0 -> 219.0	3043	1.13 µg/L	100
PFPeS	5.330	349.0 -> 99.0	355	1.10 µg/L	100
PFTeDA	12.467	713.0 -> 669.0	1699	1.15 µg/L	# 32
PFTTrDA	11.379	663.0 -> 619.0	3164	1.12 µg/L	# 34
PFUnDA	8.768	563.0 -> 519.0	3518	1.10 µg/L	# 40

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

7.5.1  
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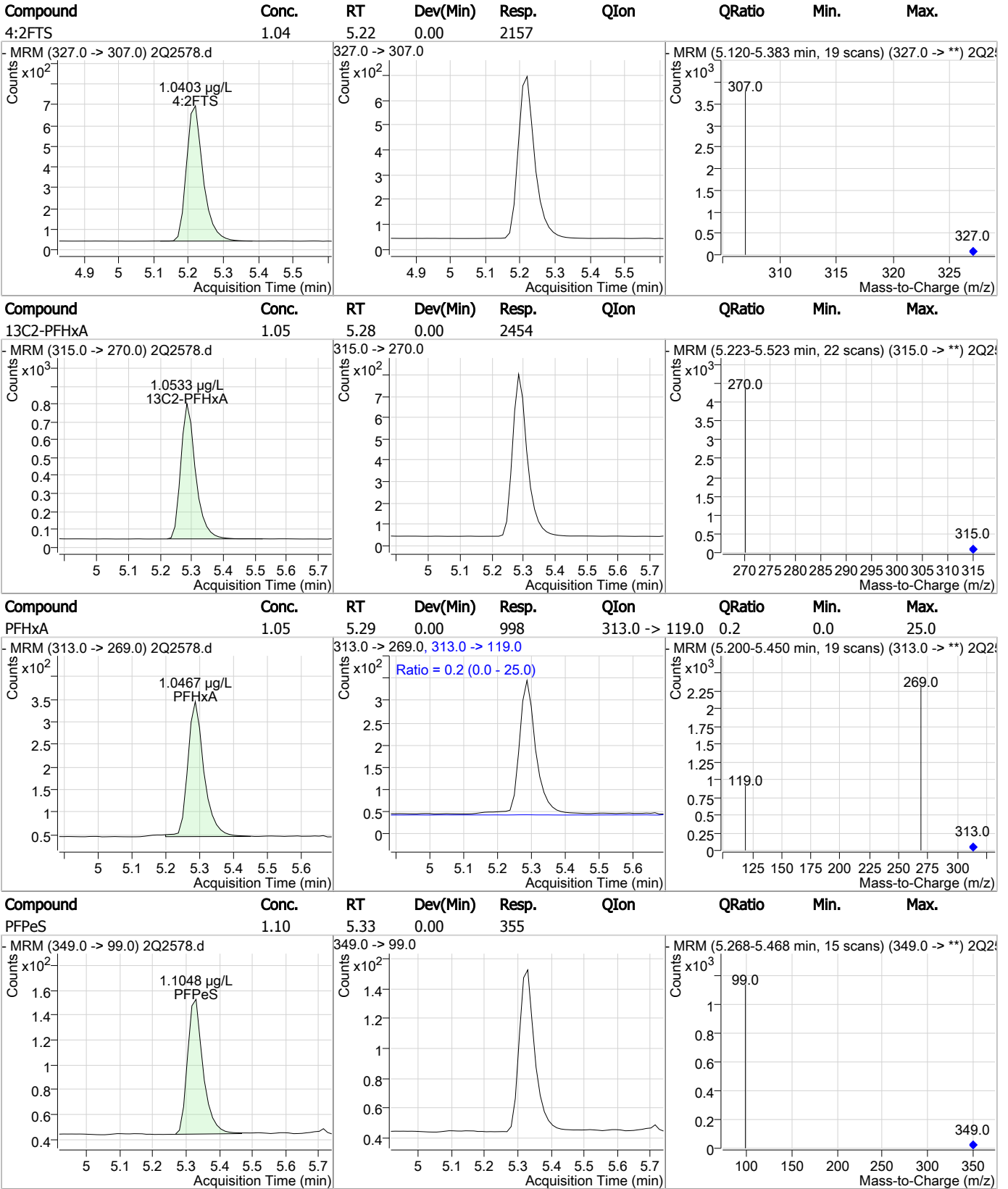
### Perfluorinated Compounds by LC/MS/MS



7.5.1

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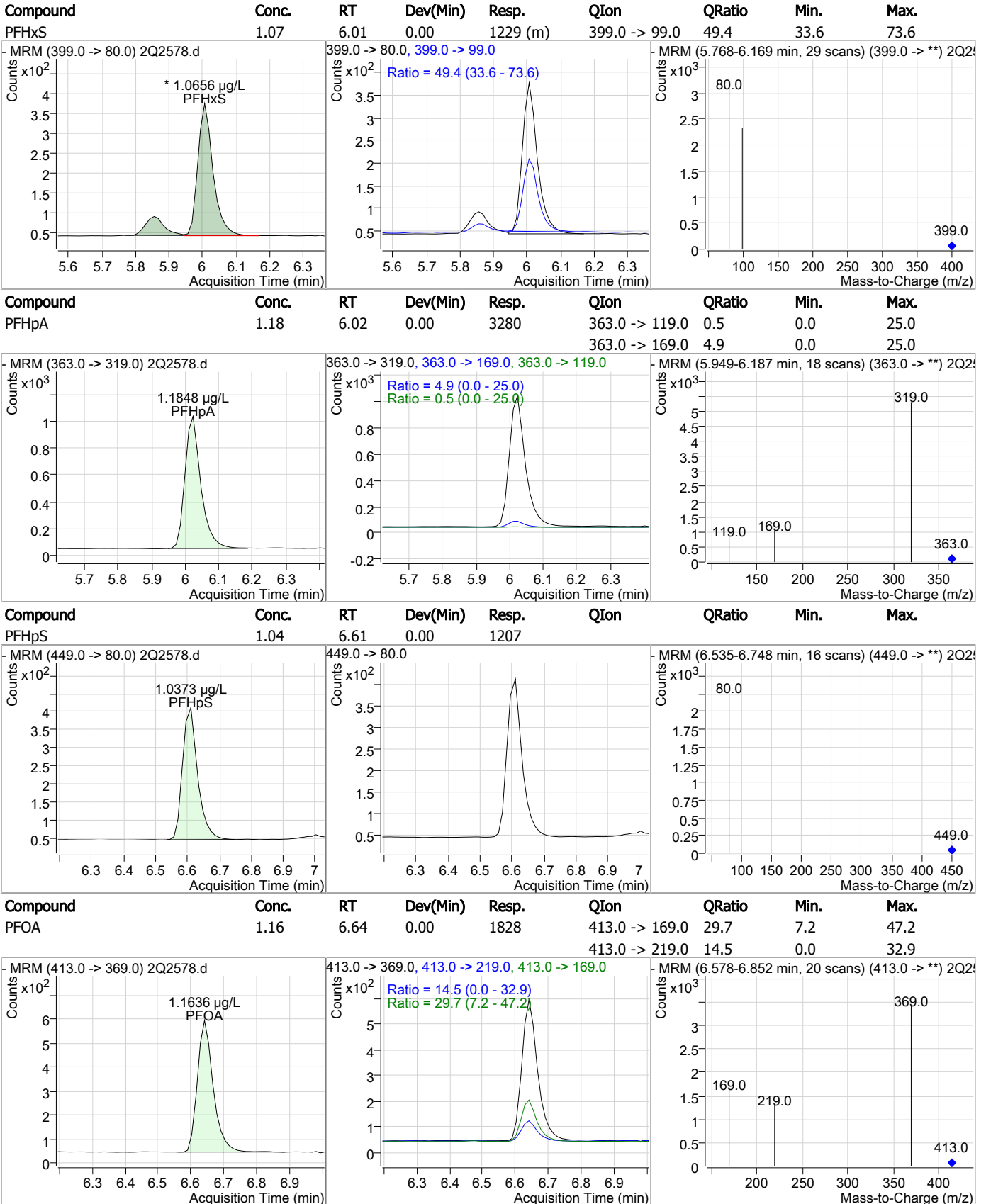
### Perfluorinated Compounds by LC/MS/MS



7.5.1

7

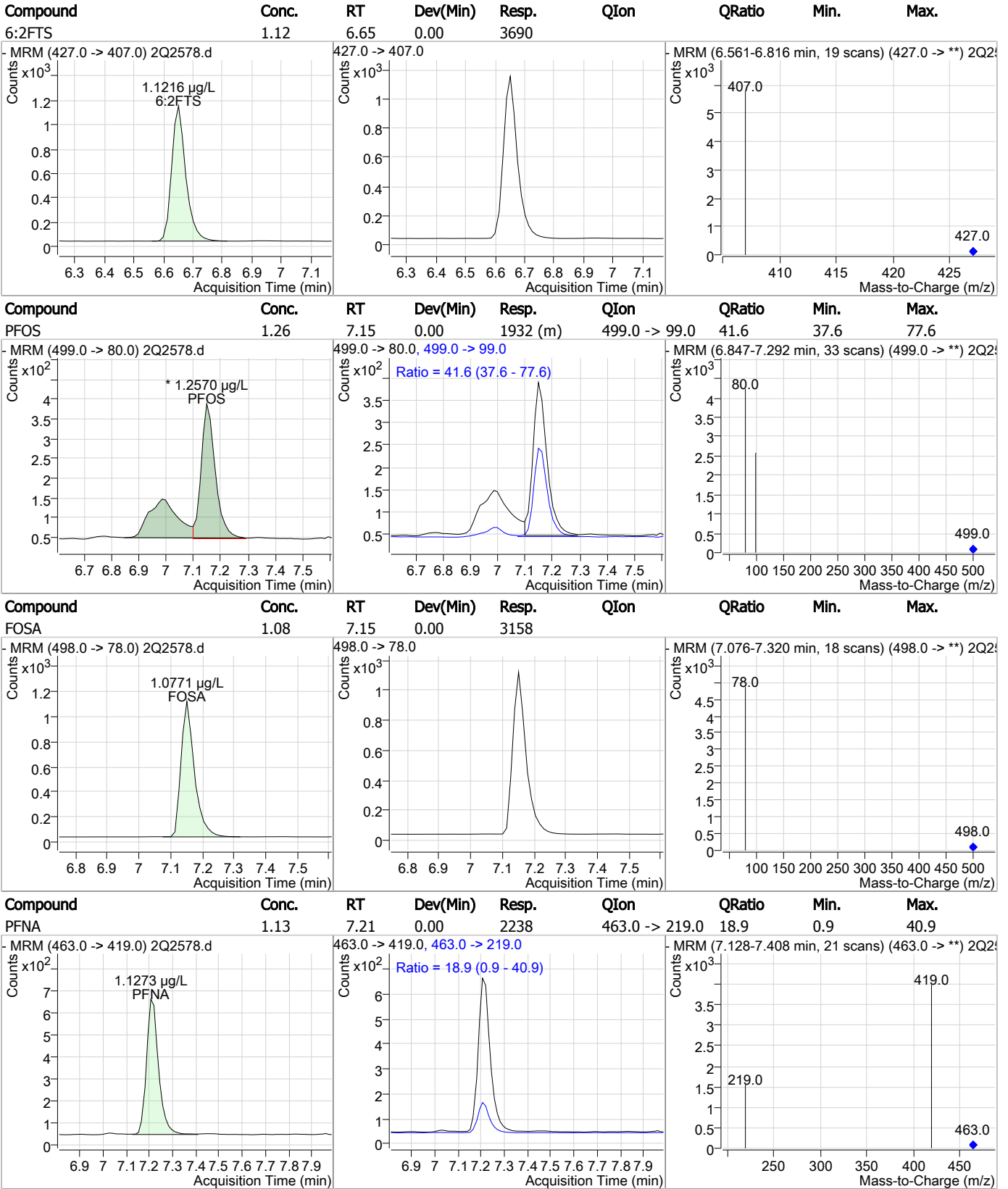
### Perfluorinated Compounds by LC/MS/MS



7.5.1

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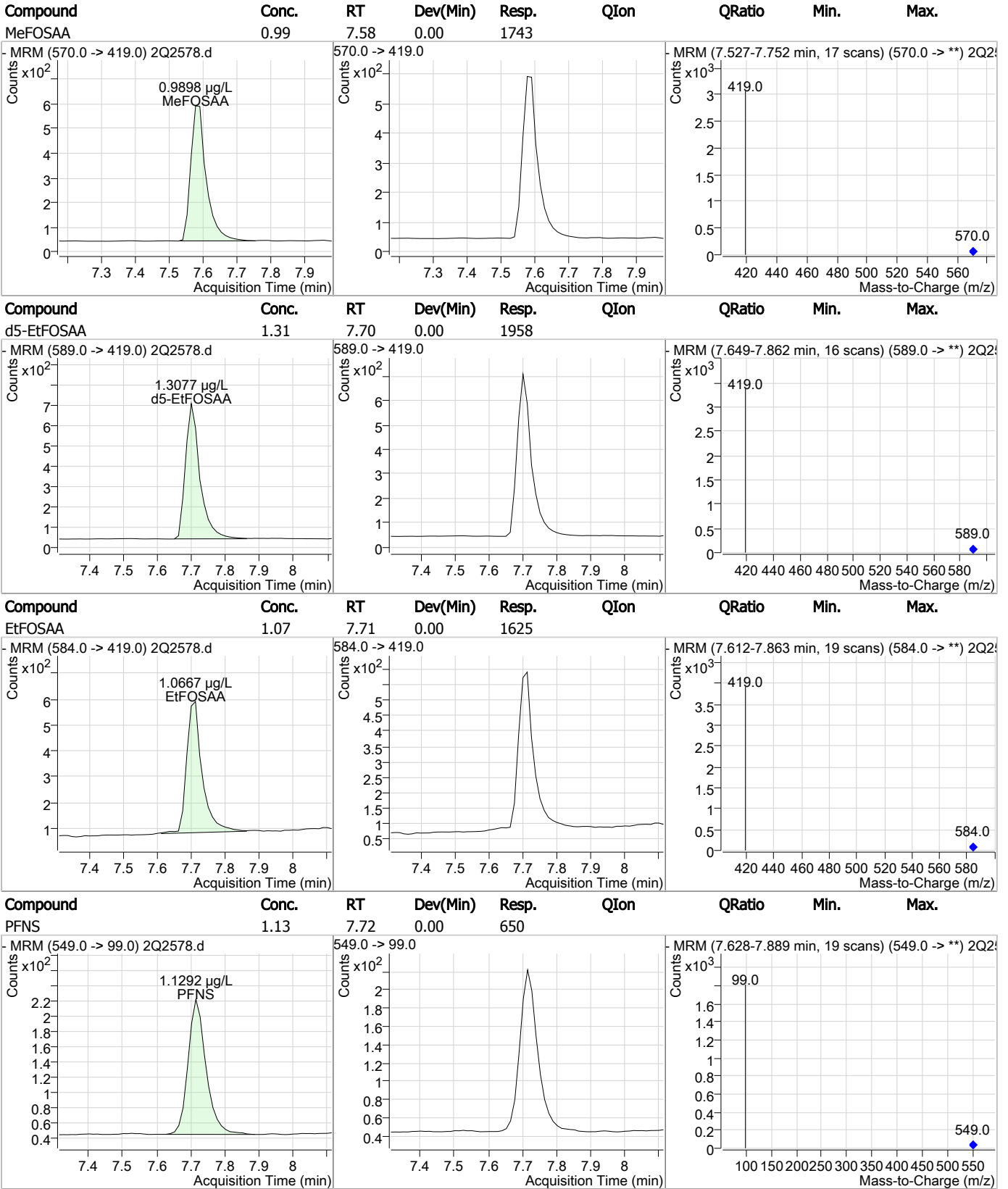
### Perfluorinated Compounds by LC/MS/MS



7.5.1

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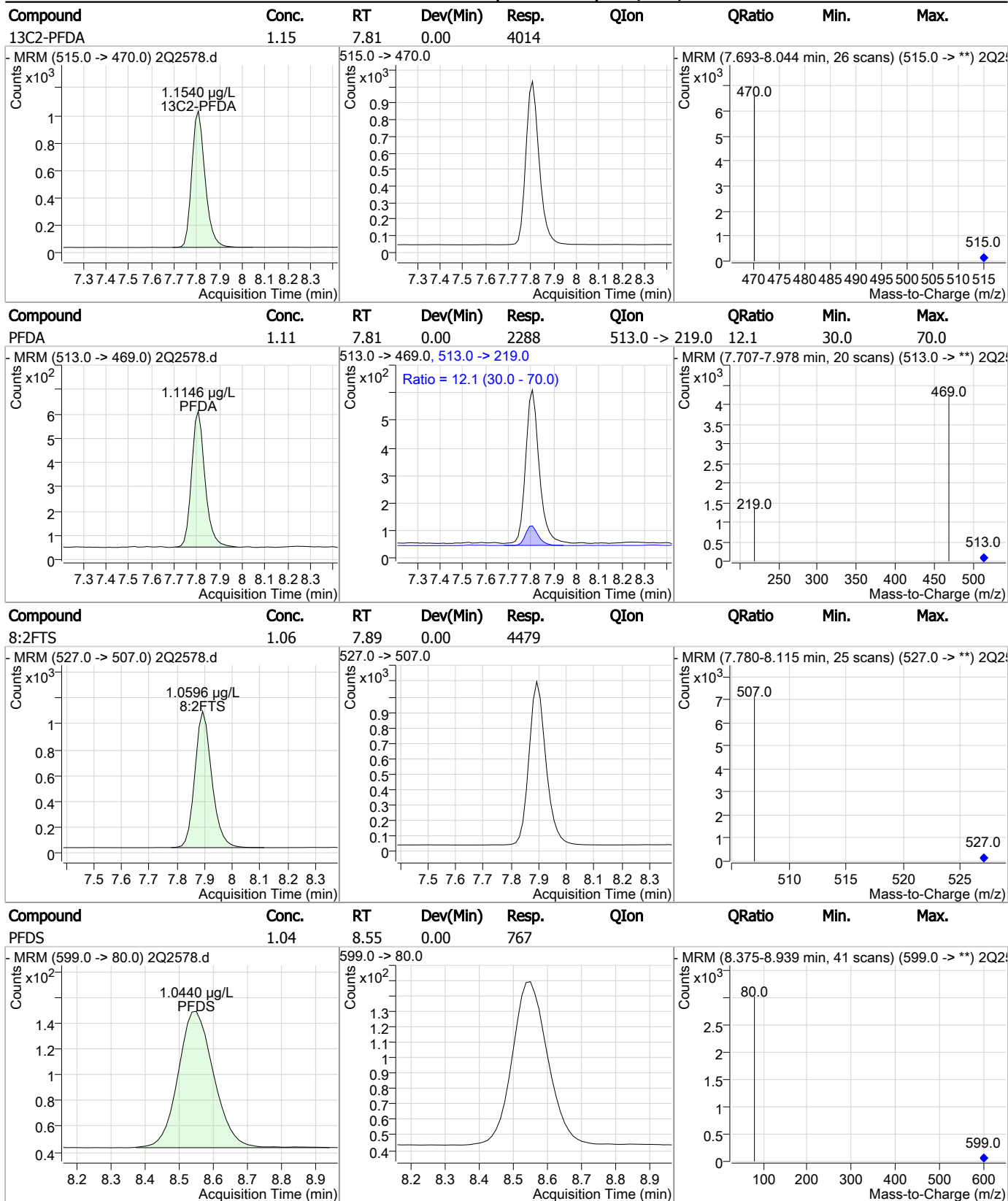
### Perfluorinated Compounds by LC/MS/MS



7.5.1

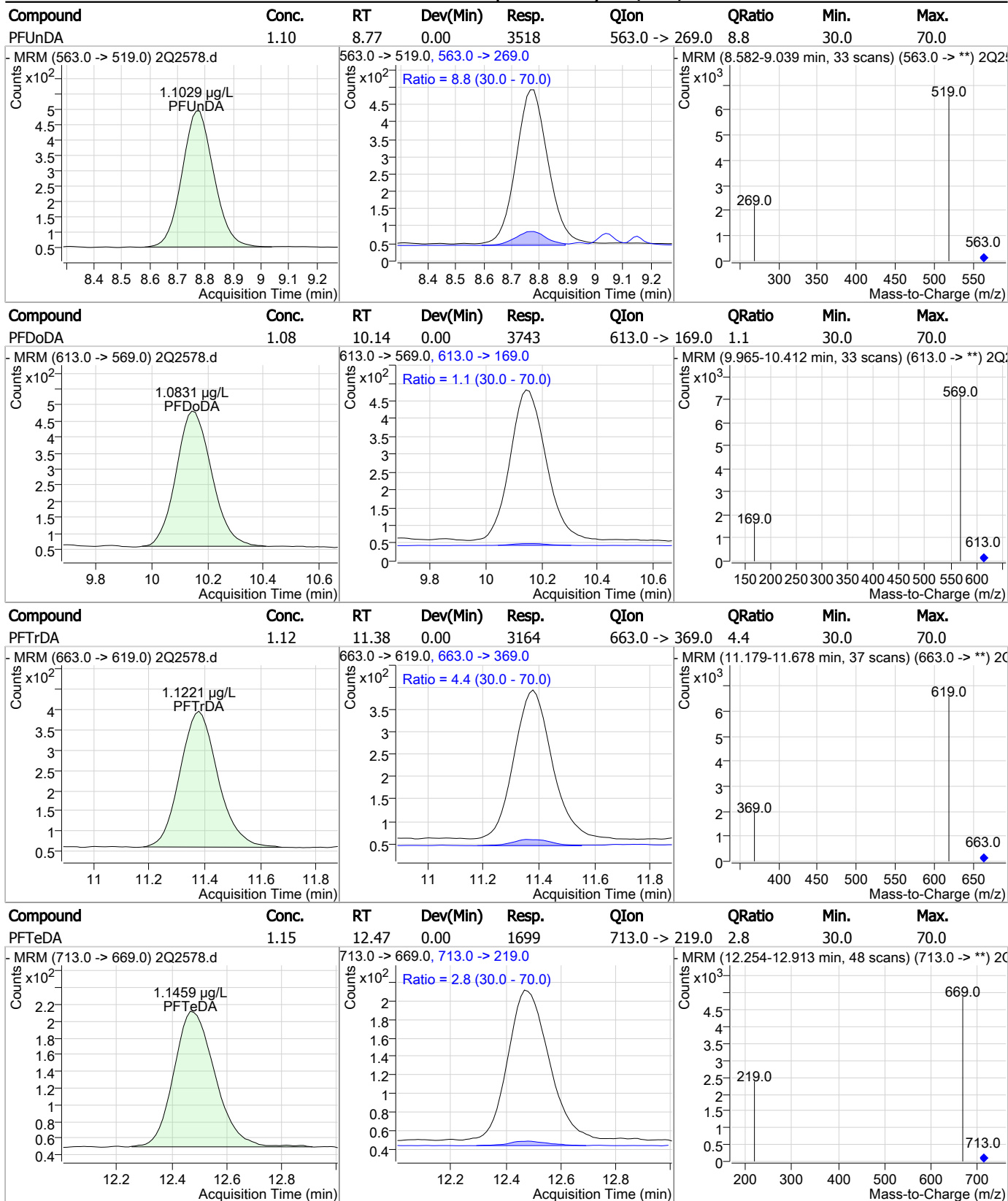
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### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.51  
7



# Manual Integration Approval Summary

Sample Number: S2Q67-IC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2578.D                      Analyst approved: 06/24/17 13:30 Nancy Saunders  
Injection Time: 06/23/17 10:11                      Supervisor approved: 06/26/17 08:56 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.15	Split peak

7.5.1.1

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### Perfluorinated Compounds by LC/MS/MS

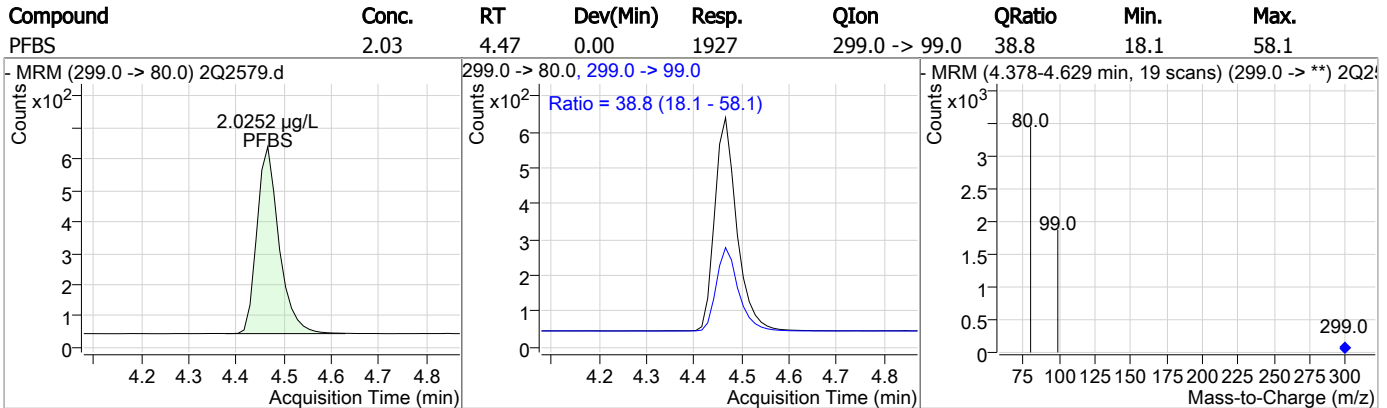
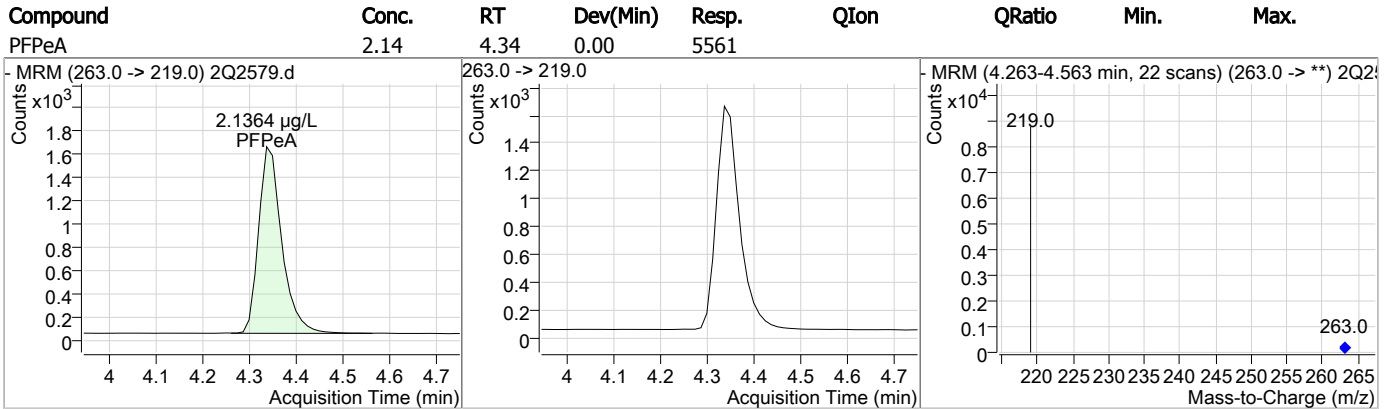
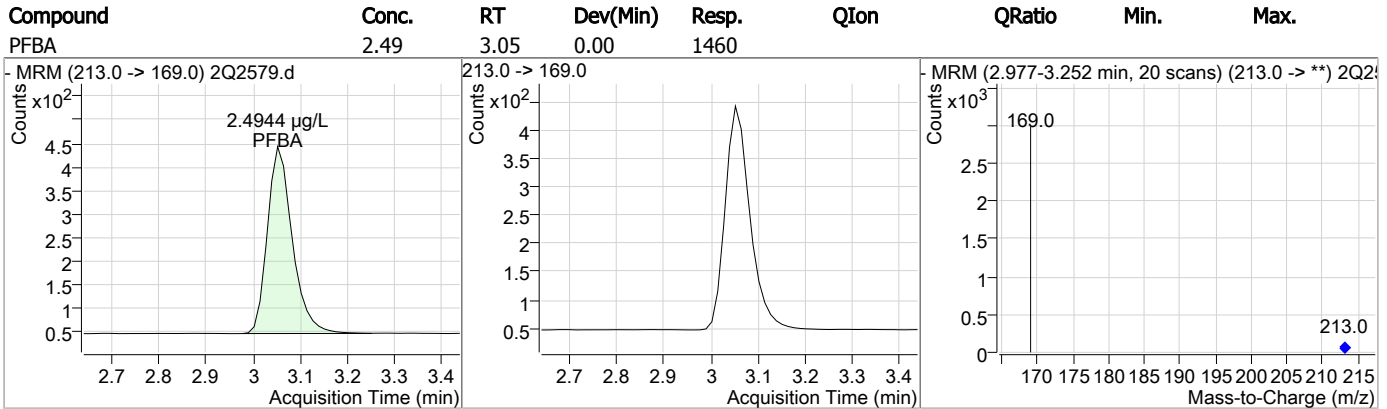
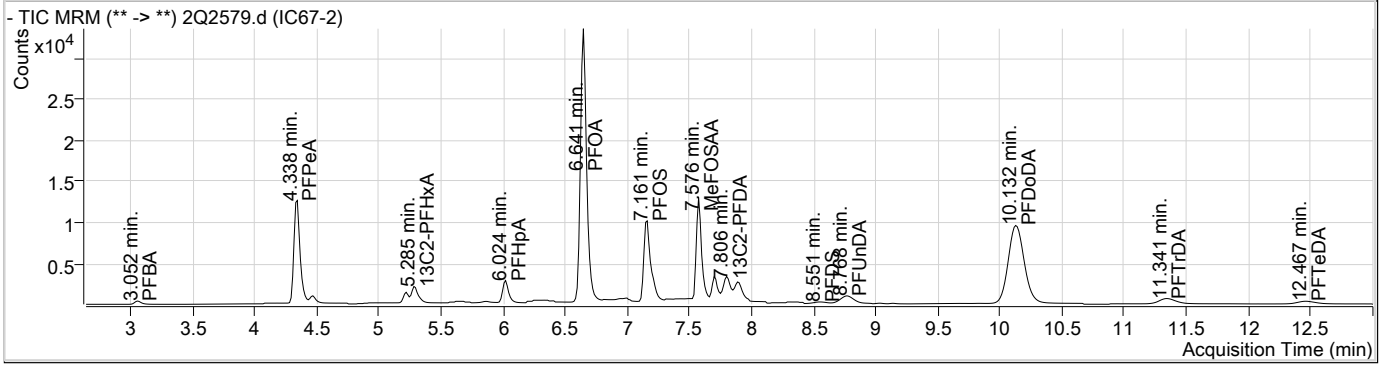
Data File : 2Q2579.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 10:48:37 AM  
 Sample Name : IC67-2  
 Vial : Vial 3  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.649	429.0 -> 409.0	62430	20.00 µg/L	0.000
13C2-PFDoDA	10.127	615.0 -> 570.0	78039	20.00 µg/L	-0.025
13C2-PFOA	6.640	415.0 -> 370.0	38812	20.00 µg/L	0.000
13C3-PFPeA	4.347	266.0 -> 222.0	37865	20.00 µg/L	0.013
13C4-PFOS	7.159	503.0 -> 80.0	25471	20.00 µg/L	0.013
d3-MeFOSAA	7.575	573.0 -> 419.0	33253	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.806	515.0 -> 470.0	6727	2.03 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 10.1%		
13C2-PFHxA	5.285	315.0 -> 270.0	4376	1.97 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 9.8%		
d5-EtFOSAA	7.699	589.0 -> 419.0	4109	2.58 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 12.9%		
<b>Target Compounds</b>					
4:2FTS	5.220	327.0 -> 307.0	4138	2.05 µg/L	100
6:2FTS	6.651	427.0 -> 407.0	6822	2.13 µg/L	100
8:2FTS	7.892	527.0 -> 507.0	8953	2.17 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	3394	2.10 µg/L	100
FOSA	7.151	498.0 -> 78.0	6121	1.97 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	3583	1.91 µg/L	100
PFBA	3.052	213.0 -> 169.0	1460	2.49 µg/L	100
PFBS	4.466	299.0 -> 80.0	1927	2.03 µg/L	99
PFDA	7.807	513.0 -> 469.0	3991	2.04 µg/L	# 48
PFDoDA	10.132	613.0 -> 569.0	7063	2.12 µg/L	# 29
PFDS	8.551	599.0 -> 80.0	1414	1.95 µg/L	100
PFHpA	6.024	363.0 -> 319.0	5829	2.20 µg/L	93
PFHpS	6.610	449.0 -> 80.0	2484	2.16 µg/L	100
PFHxA	5.287	313.0 -> 269.0	1871	2.06 µg/L	86
PFHxS	6.006	399.0 -> 80.0	2389	2.09 µg/L	m 93
PFNA	7.220	463.0 -> 419.0	4394	2.32 µg/L	95
PFNS	7.716	549.0 -> 99.0	1321	2.32 µg/L	100
PFOA	6.641	413.0 -> 369.0	3413	2.27 µg/L	93
PFOS	7.161	499.0 -> 80.0	3366	2.22 µg/L	m 83
PFPeA	4.338	263.0 -> 219.0	5561	2.14 µg/L	100
PFPeS	5.330	349.0 -> 99.0	671	2.16 µg/L	100
PFTeDA	12.467	713.0 -> 669.0	3196	2.24 µg/L	# 32
PFTrDA	11.341	663.0 -> 619.0	5751	2.12 µg/L	# 34
PFUnDA	8.768	563.0 -> 519.0	6476	2.11 µg/L	# 41

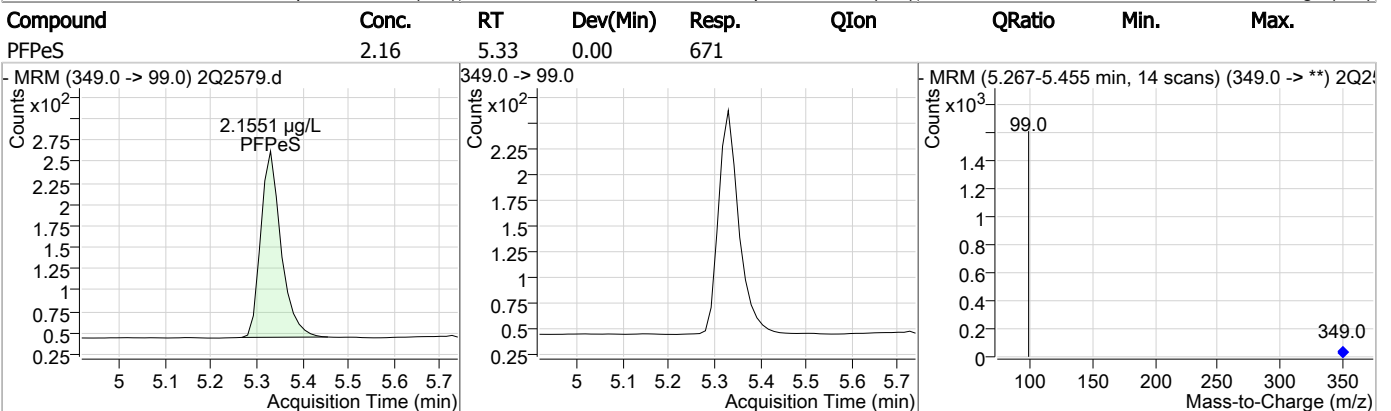
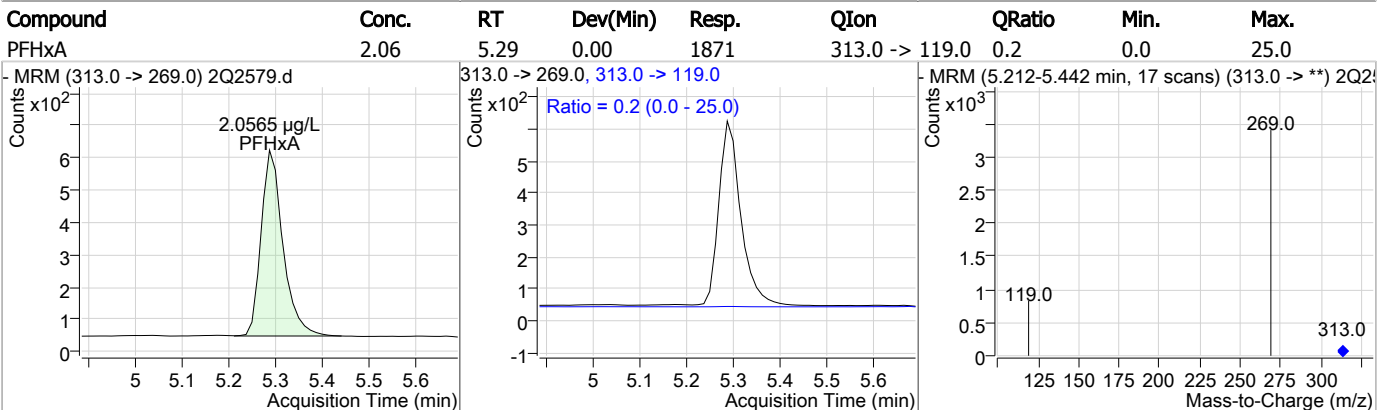
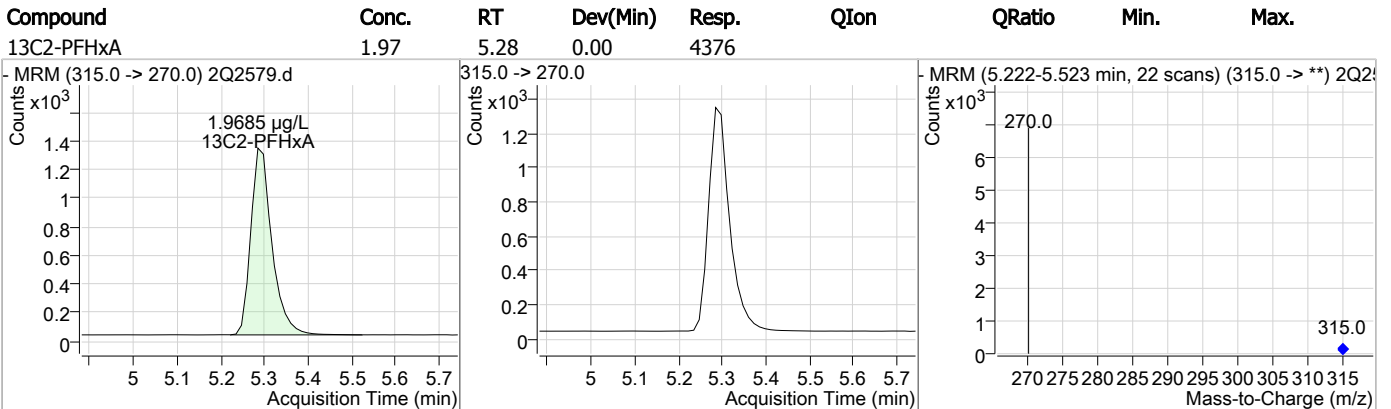
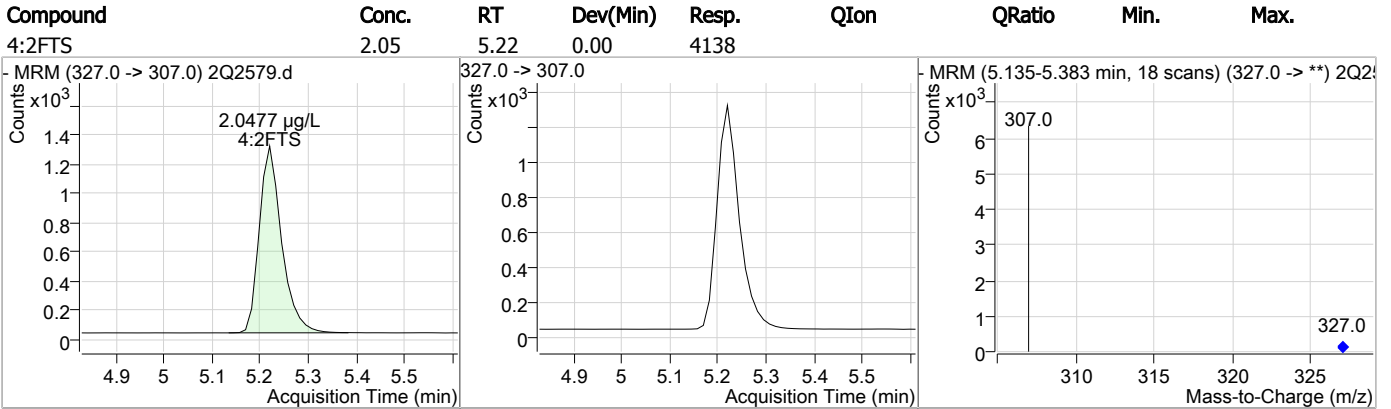
# = Qualifier out of range, m = manually integrated, + = Area summed

7.52  
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### Perfluorinated Compounds by LC/MS/MS

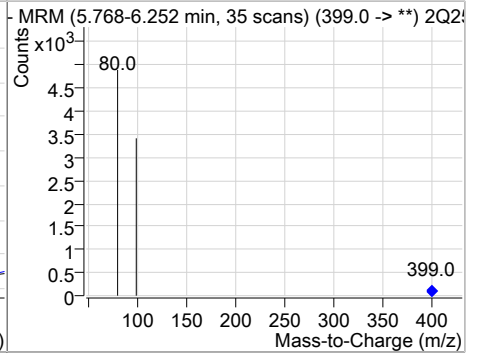
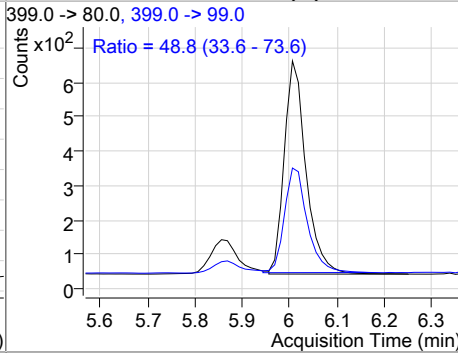
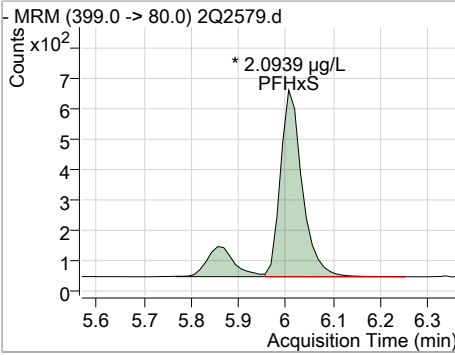


### Perfluorinated Compounds by LC/MS/MS

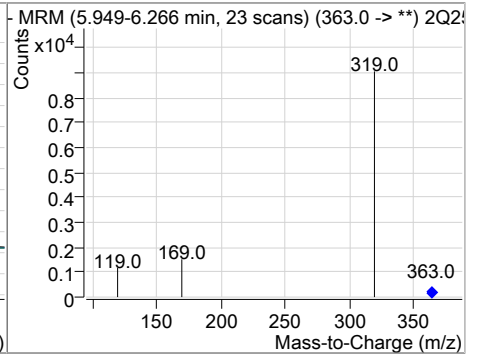
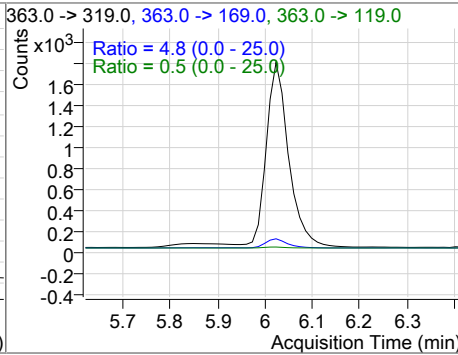
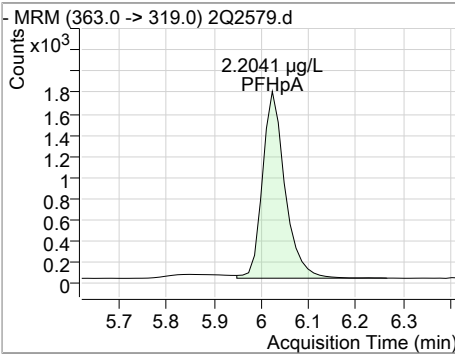


### Perfluorinated Compounds by LC/MS/MS

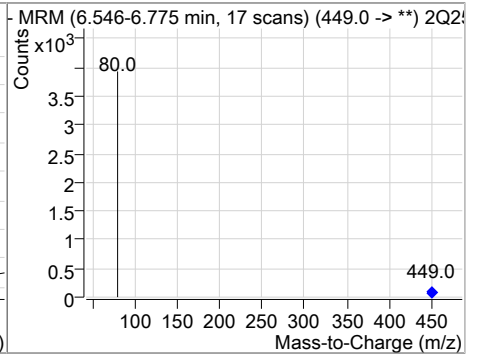
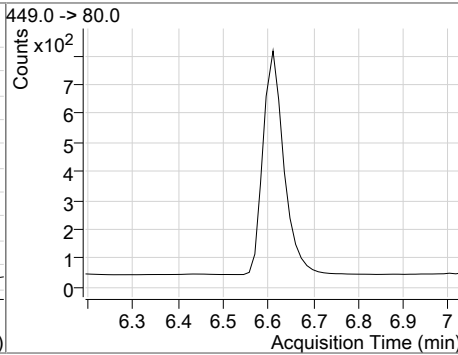
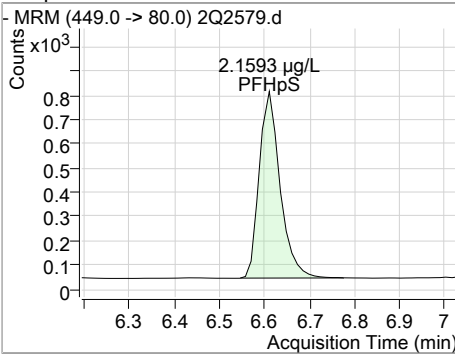
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.09	6.01	0.00	2389 (m)	399.0 -> 99.0	48.8	33.6	73.6



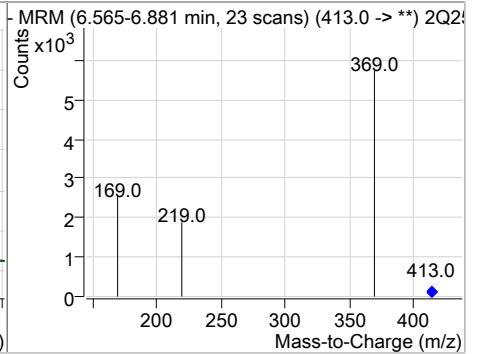
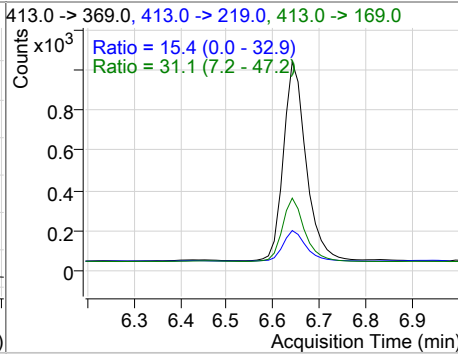
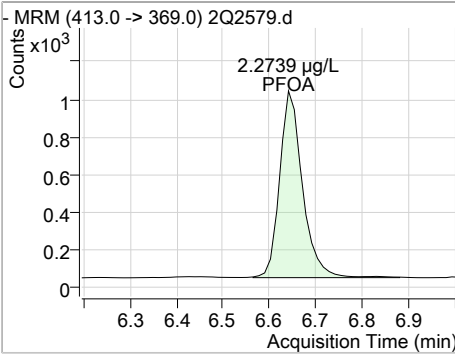
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.20	6.02	0.00	5829	363.0 -> 119.0 363.0 -> 169.0	0.5 4.8	0.0 0.0	25.0 25.0



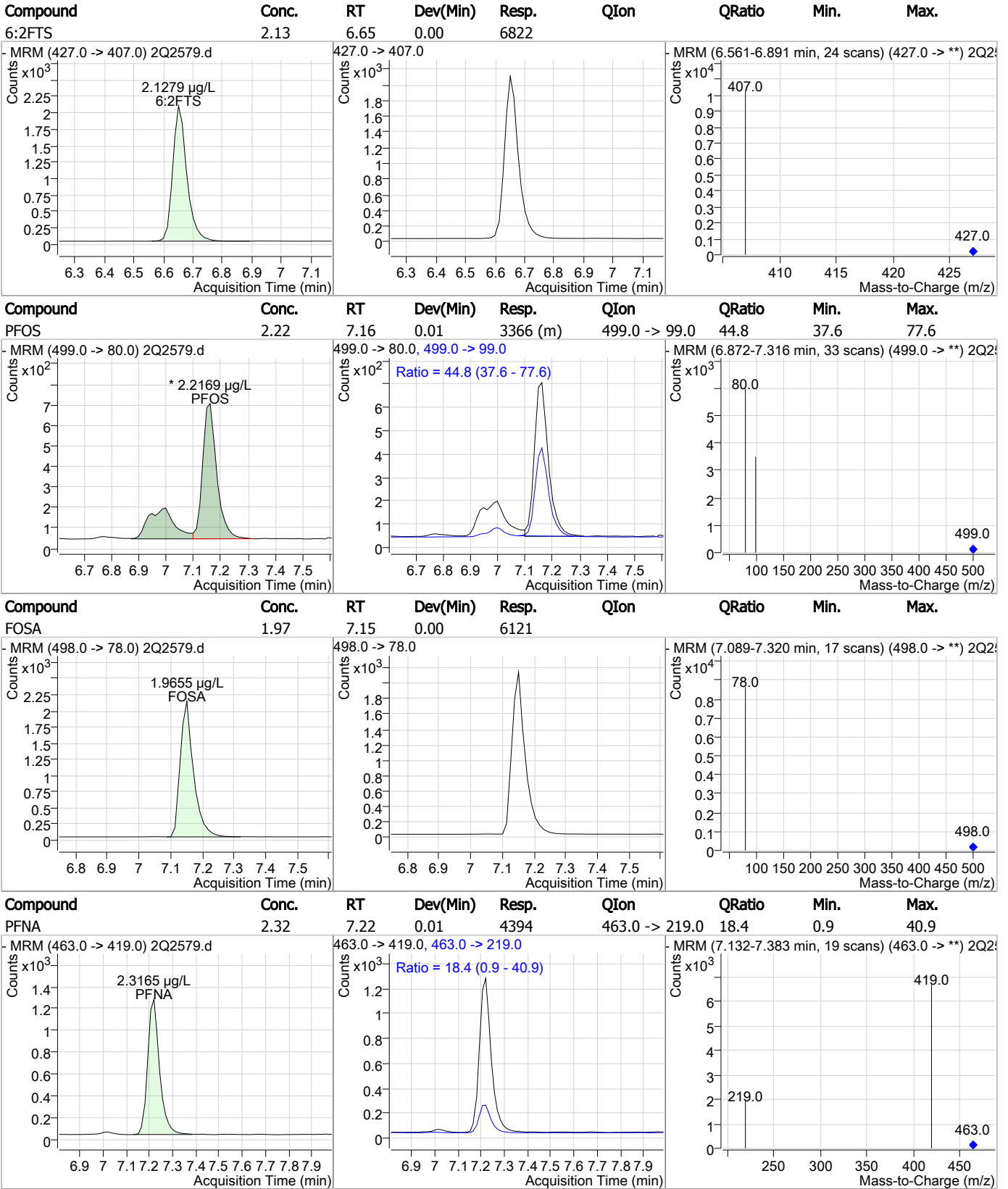
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.16	6.61	0.00	2484				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.27	6.64	0.00	3413	413.0 -> 169.0 413.0 -> 219.0	31.1 15.4	7.2 0.0	47.2 32.9



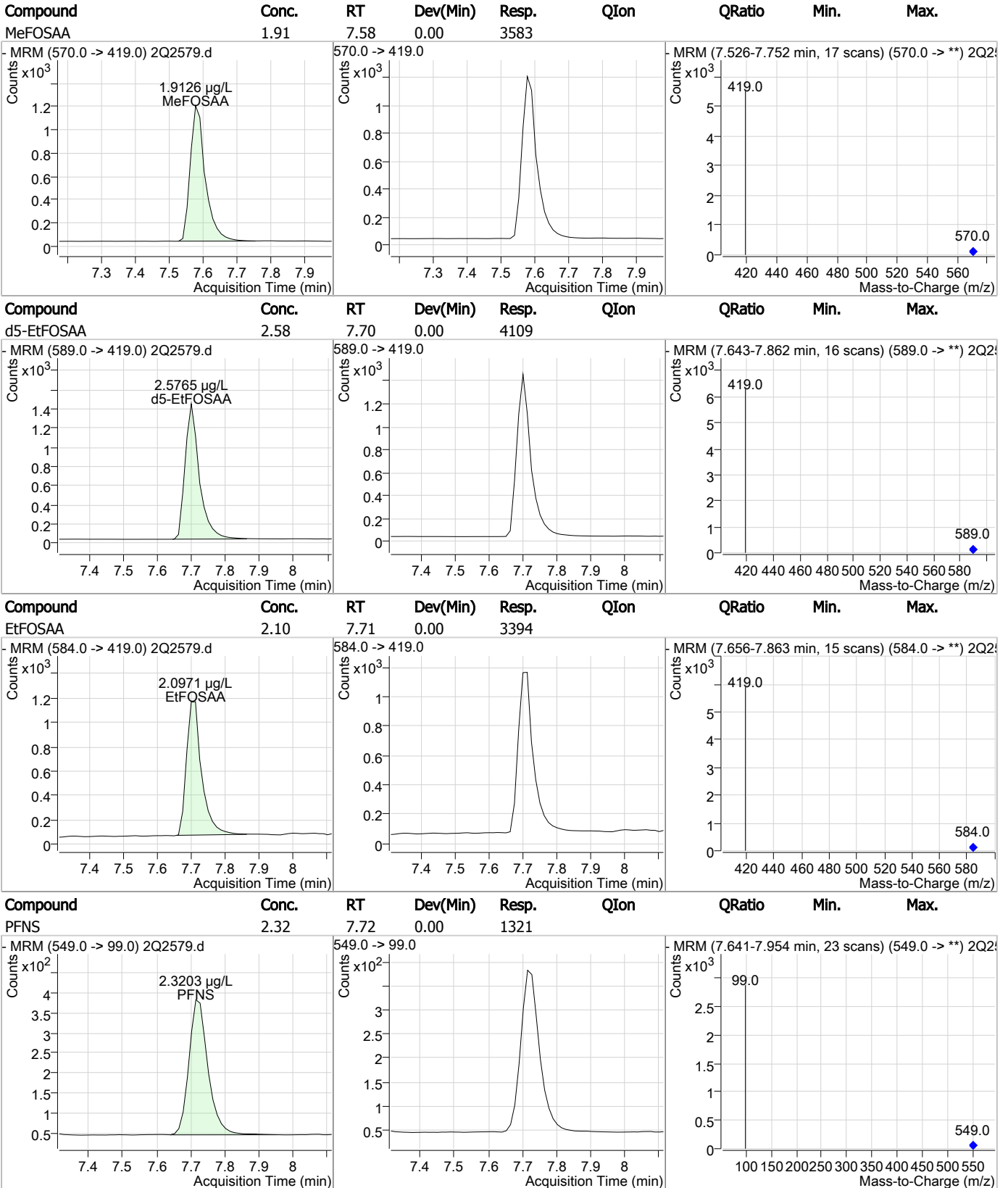
### Perfluorinated Compounds by LC/MS/MS



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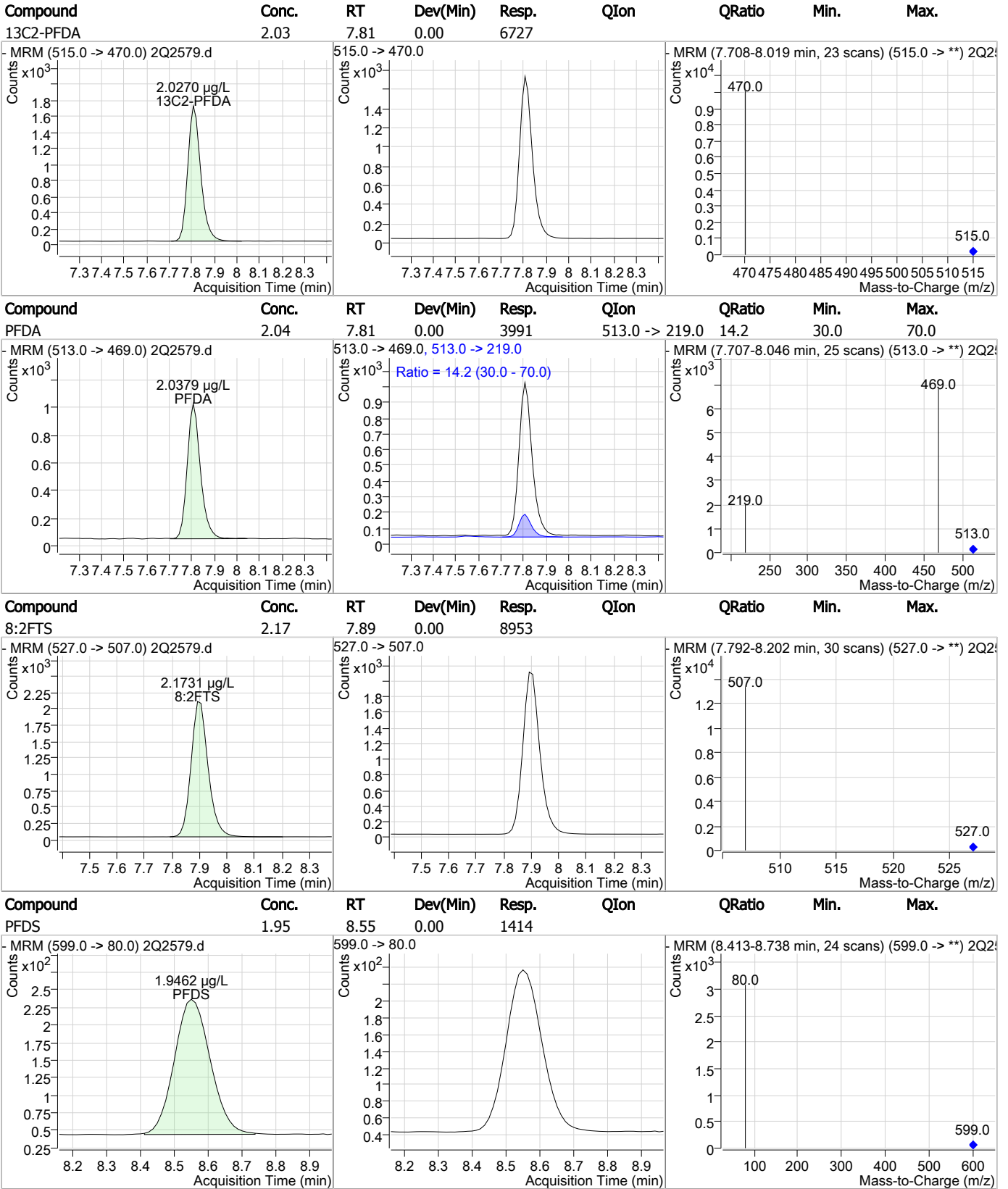
### Perfluorinated Compounds by LC/MS/MS



7.52

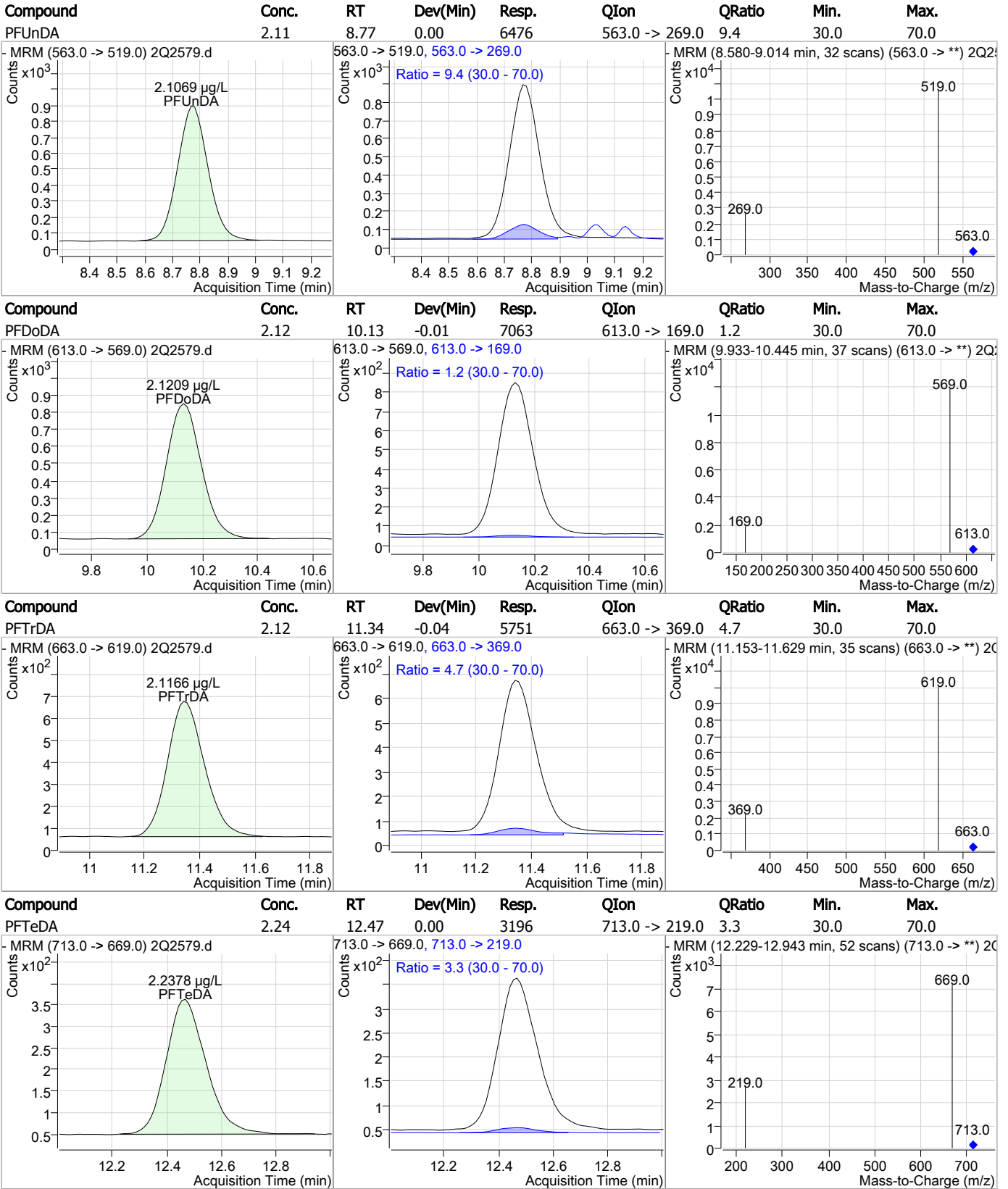
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### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS



7.52

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# Manual Integration Approval Summary

Sample Number: S2Q67-IC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2579.D                      Analyst approved: 06/24/17 13:30 Nancy Saunders  
Injection Time: 06/23/17 10:48                      Supervisor approved: 06/26/17 08:56 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.16	Split peak

7.5.2.1

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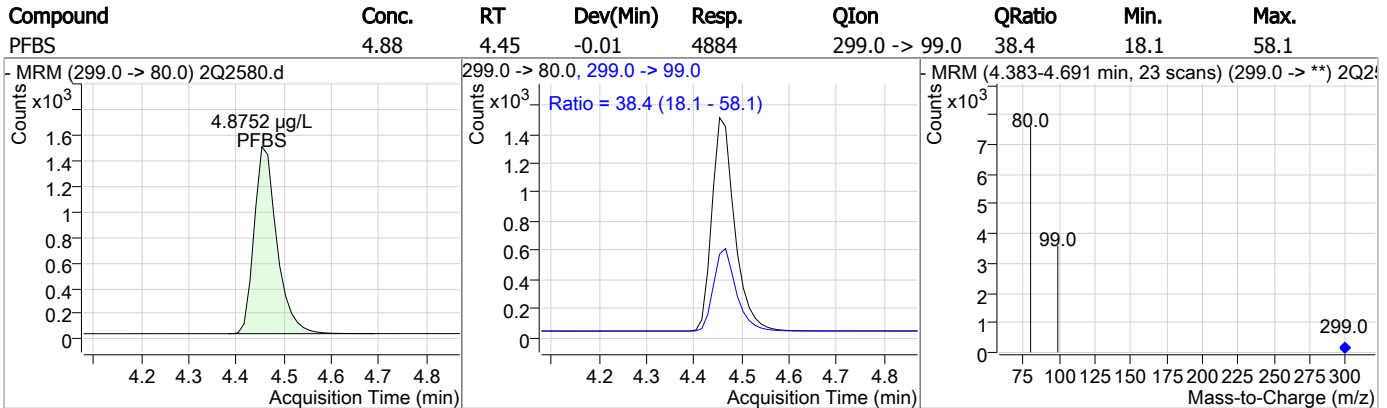
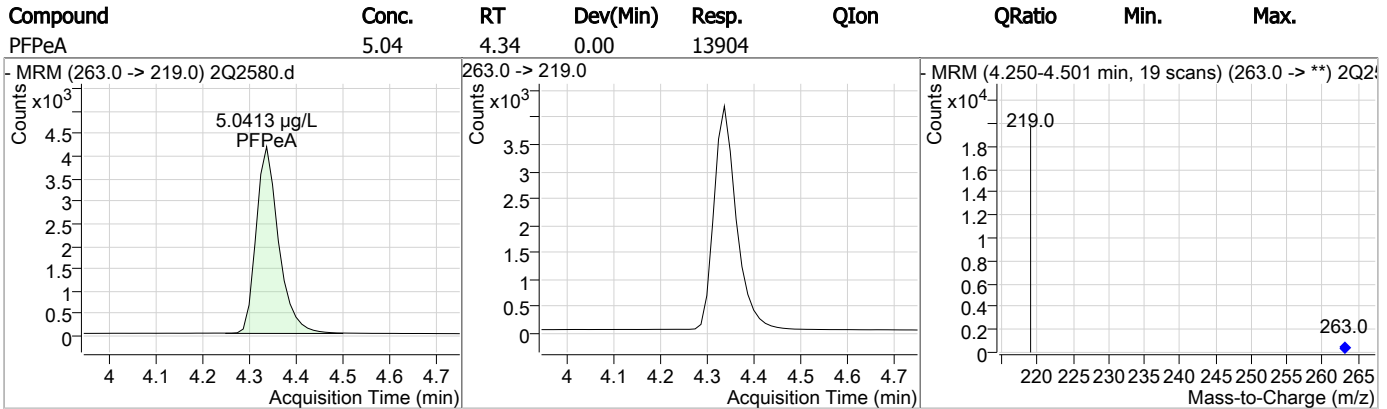
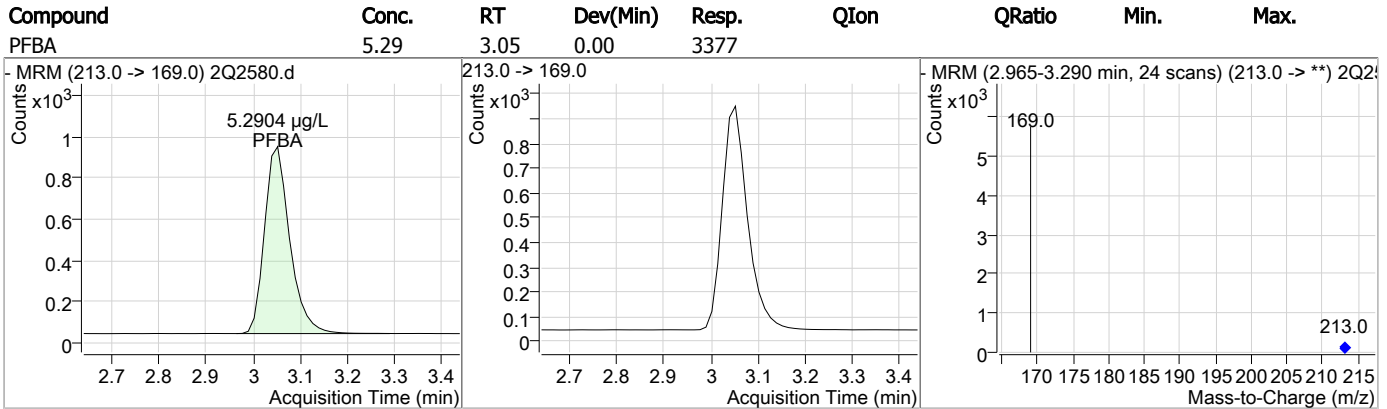
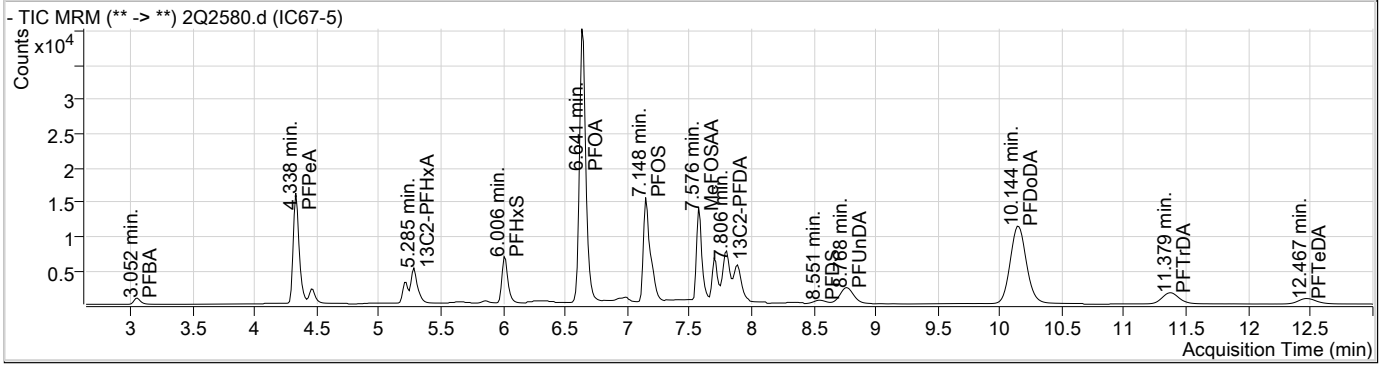
## Perfluorinated Compounds by LC/MS/MS

Data File : 2Q2580.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 11:06:26 AM  
 Sample Name : IC67-5  
 Vial : Vial 4  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.649	429.0 -> 409.0	67378	20.00 µg/L	0.000
13C2-PFDoDA	10.152	615.0 -> 570.0	84196	20.00 µg/L	0.000
13C2-PFOA	6.640	415.0 -> 370.0	42333	20.00 µg/L	0.000
13C3-PFPeA	4.335	266.0 -> 222.0	40121	20.00 µg/L	0.000
13C4-PFOS	7.147	503.0 -> 80.0	26813	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	32750	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.806	515.0 -> 470.0	17377	4.82 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 24.1%	
13C2-PFHxA	5.285	315.0 -> 270.0	11270	4.67 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 23.3%	
d5-EtFOSAA	7.699	589.0 -> 419.0	9047	5.76 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 28.8%	
<b>Target Compounds</b>					
4:2FTS	5.207	327.0 -> 307.0	10279	4.74 µg/L	100
6:2FTS	6.651	427.0 -> 407.0	16549	4.82 µg/L	100
8:2FTS	7.892	527.0 -> 507.0	21190	4.79 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	7440	4.69 µg/L	100
FOSA	7.151	498.0 -> 78.0	14589	4.80 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	8595	4.67 µg/L	100
PFBA	3.052	213.0 -> 169.0	3377	5.29 µg/L	100
PFBS	4.454	299.0 -> 80.0	4884	4.88 µg/L	100
PFDA	7.807	513.0 -> 469.0	9989	4.69 µg/L	# 47
PFDoDA	10.144	613.0 -> 569.0	18190	5.06 µg/L	# 29
PFDS	8.551	599.0 -> 80.0	3585	4.69 µg/L	100
PFHpA	6.024	363.0 -> 319.0	14682	5.09 µg/L	93
PFHpS	6.610	449.0 -> 80.0	5891	4.86 µg/L	100
PFHxA	5.287	313.0 -> 269.0	4704	4.76 µg/L	85
PFHxS	6.006	399.0 -> 80.0	5861	4.88 µg/L	m 94
PFNA	7.206	463.0 -> 419.0	10320	4.99 µg/L	96
PFNS	7.716	549.0 -> 99.0	3057	5.10 µg/L	100
PFOA	6.641	413.0 -> 369.0	8002	4.89 µg/L	93
PFOS	7.148	499.0 -> 80.0	8019	5.03 µg/L	m 85
PFPeA	4.338	263.0 -> 219.0	13904	5.04 µg/L	100
PFPeS	5.317	349.0 -> 99.0	1685	5.10 µg/L	100
PFTeDA	12.467	713.0 -> 669.0	7920	5.14 µg/L	# 32
PFTTrDA	11.379	663.0 -> 619.0	14973	5.11 µg/L	# 34
PFUnDA	8.768	563.0 -> 519.0	16776	5.06 µg/L	# 41

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

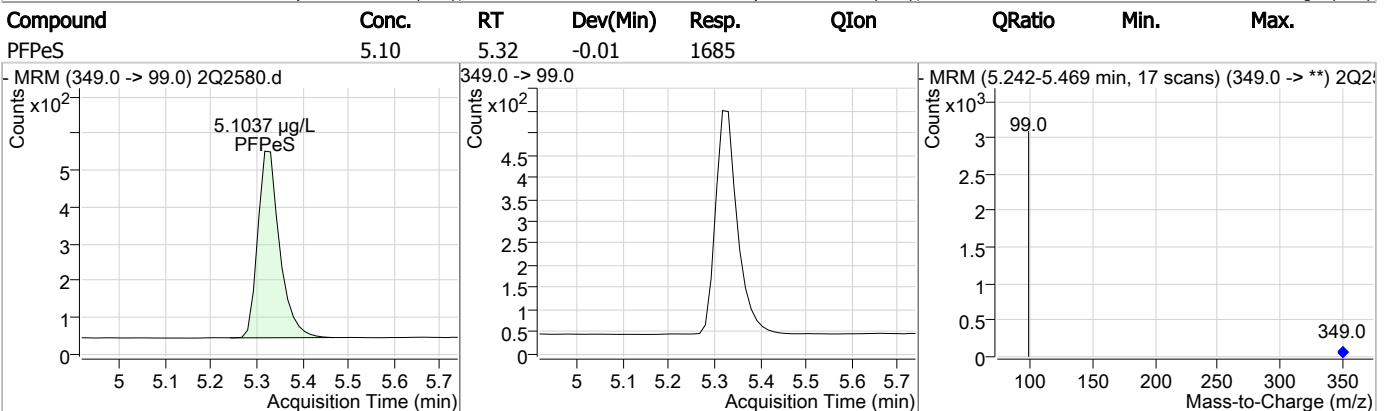
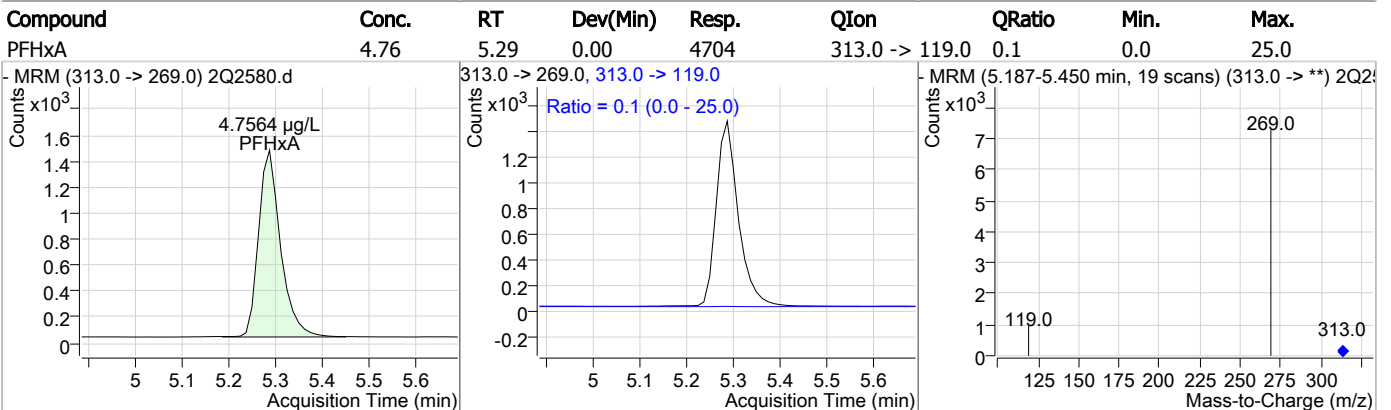
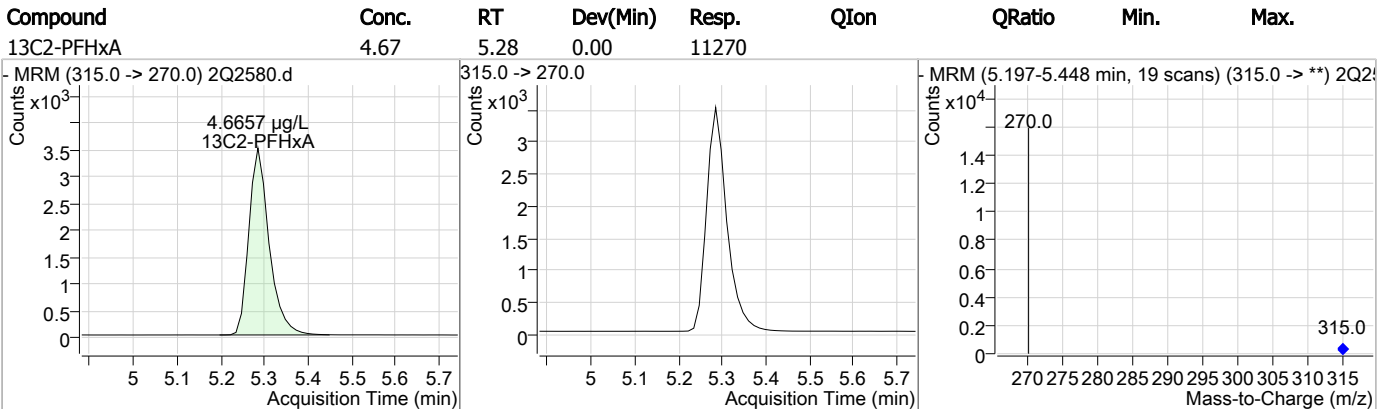
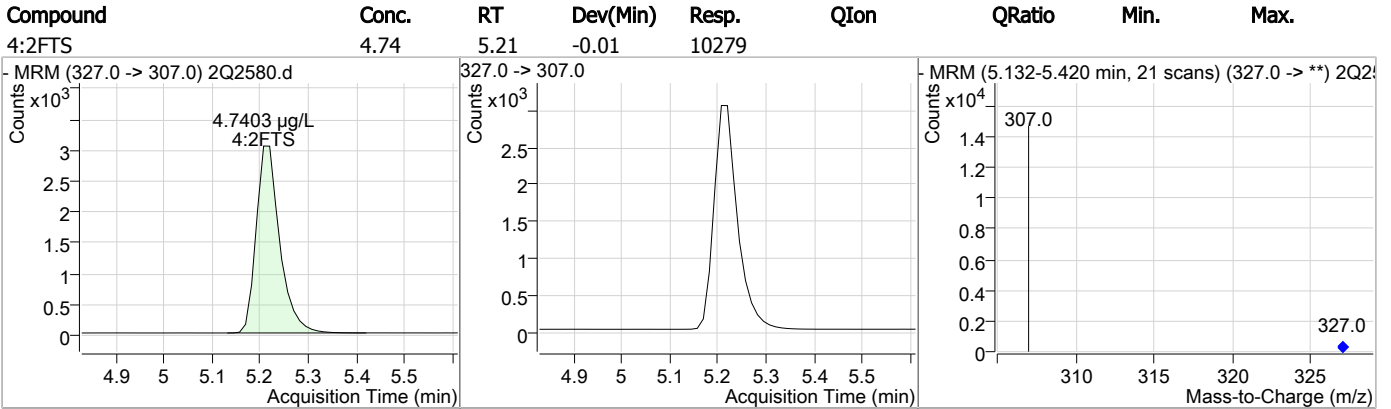
### Perfluorinated Compounds by LC/MS/MS



7.5.3

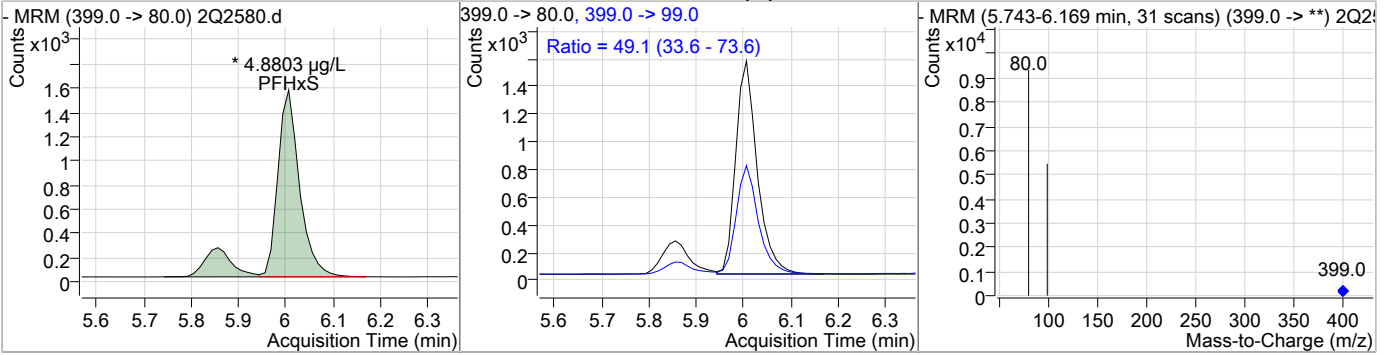
7

### Perfluorinated Compounds by LC/MS/MS

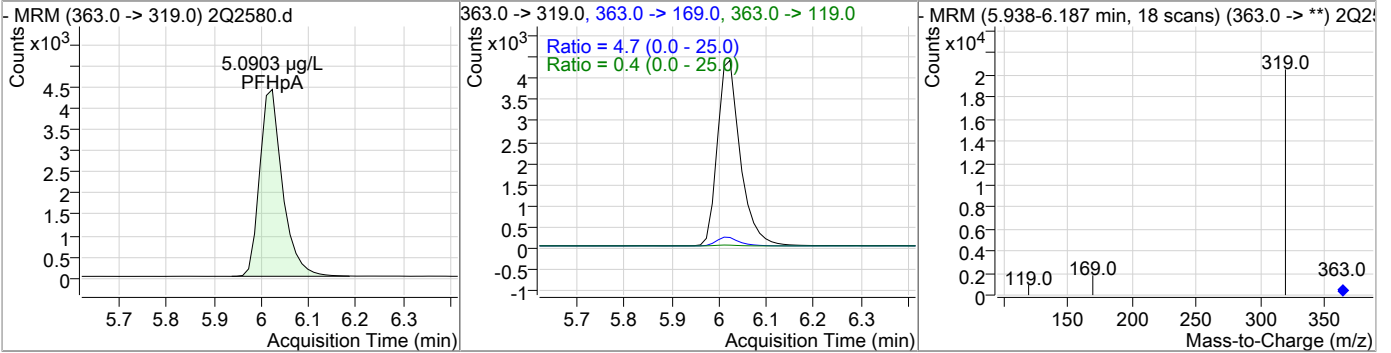


### Perfluorinated Compounds by LC/MS/MS

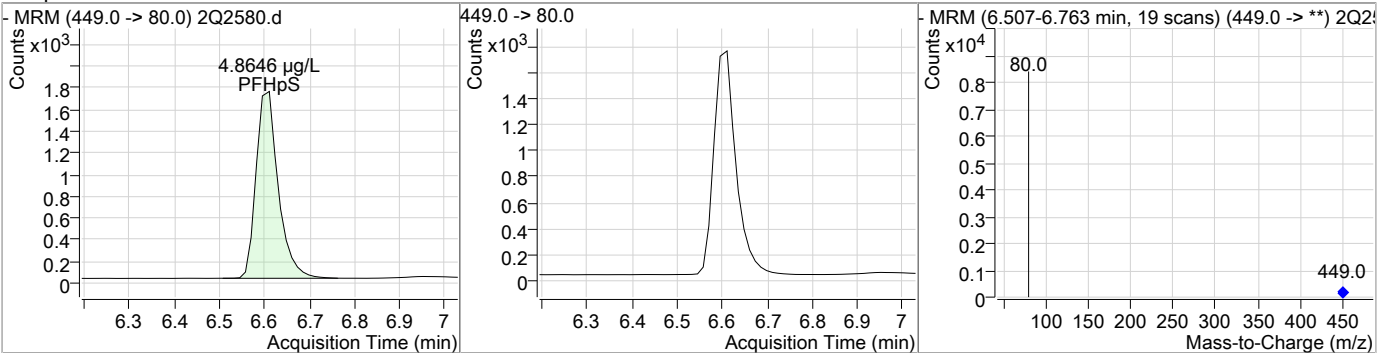
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.88	6.01	0.00	5861 (m)	399.0 -> 99.0	49.1	33.6	73.6



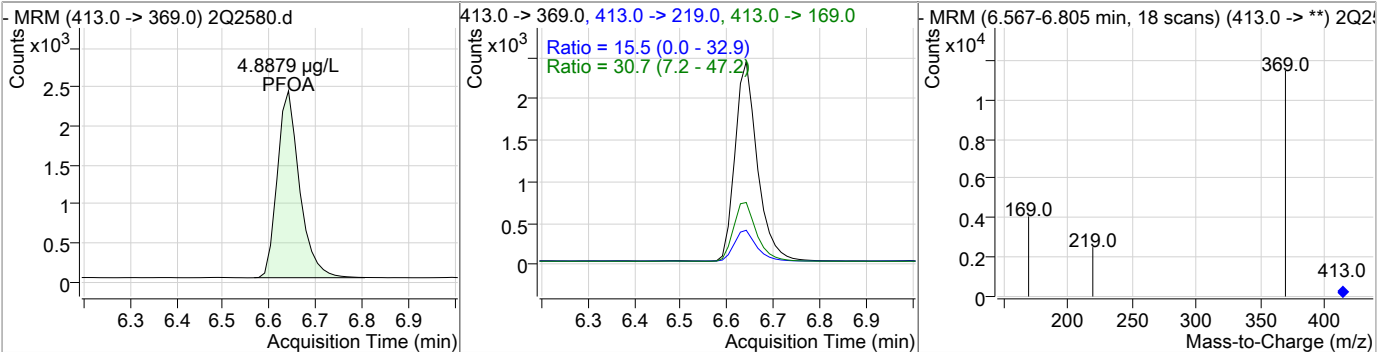
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.09	6.02	0.00	14682	363.0 -> 119.0 363.0 -> 169.0	0.4	0.0	25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.86	6.61	0.00	5891	449.0 -> 80.0			

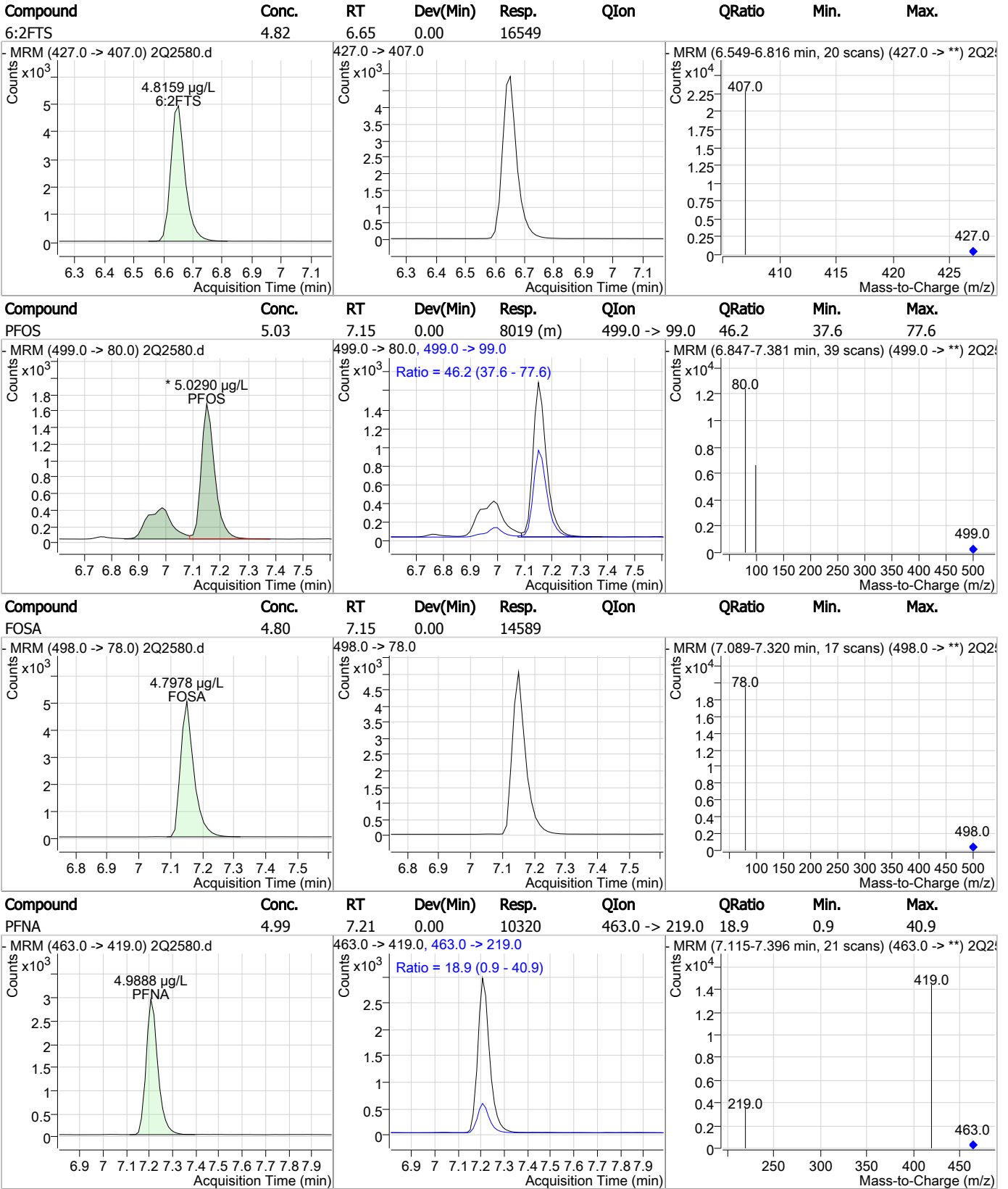


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.89	6.64	0.00	8002	413.0 -> 169.0 413.0 -> 219.0	30.7	7.2	47.2



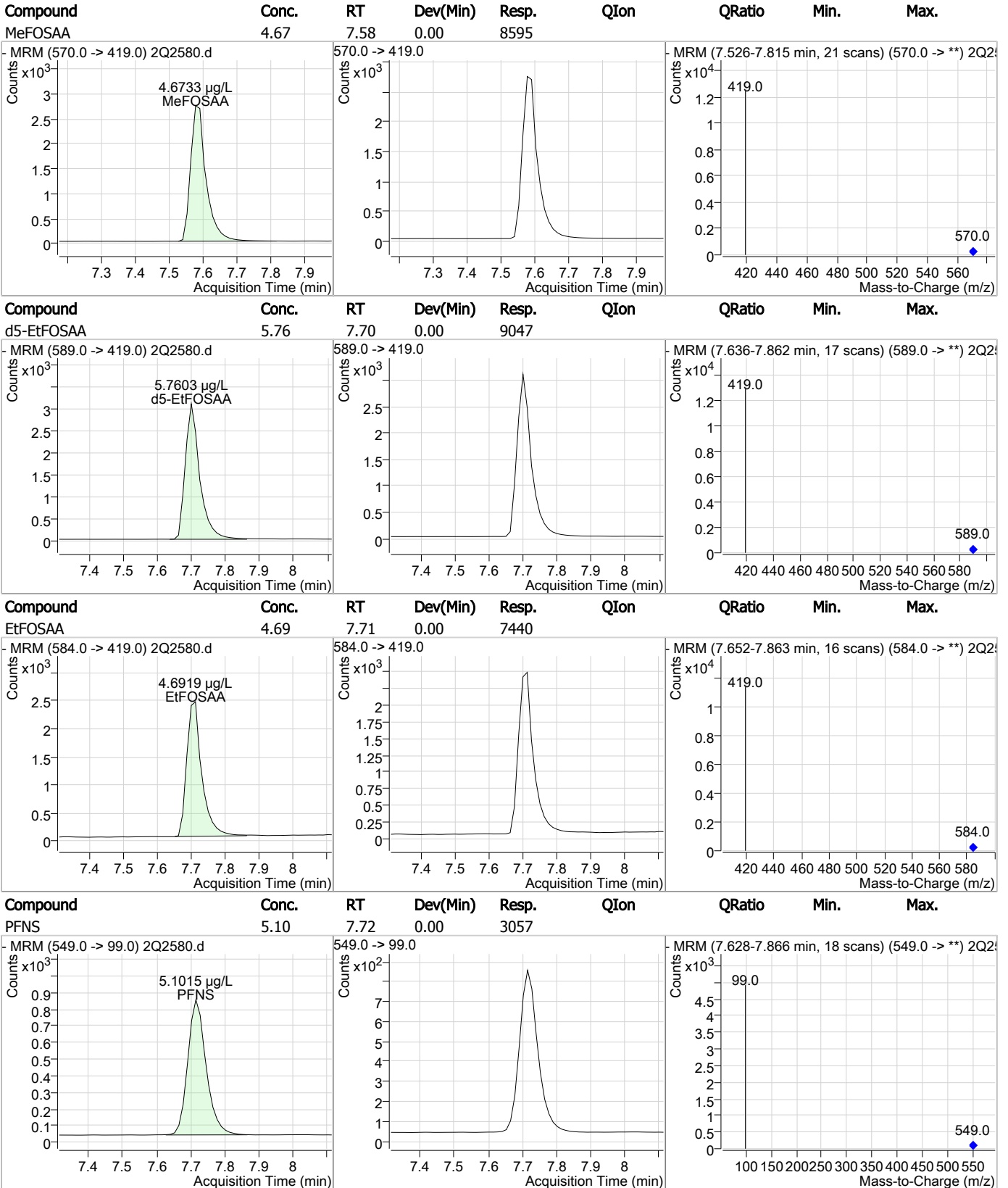
7.5.3  
 7

### Perfluorinated Compounds by LC/MS/MS



7.53  
7

### Perfluorinated Compounds by LC/MS/MS

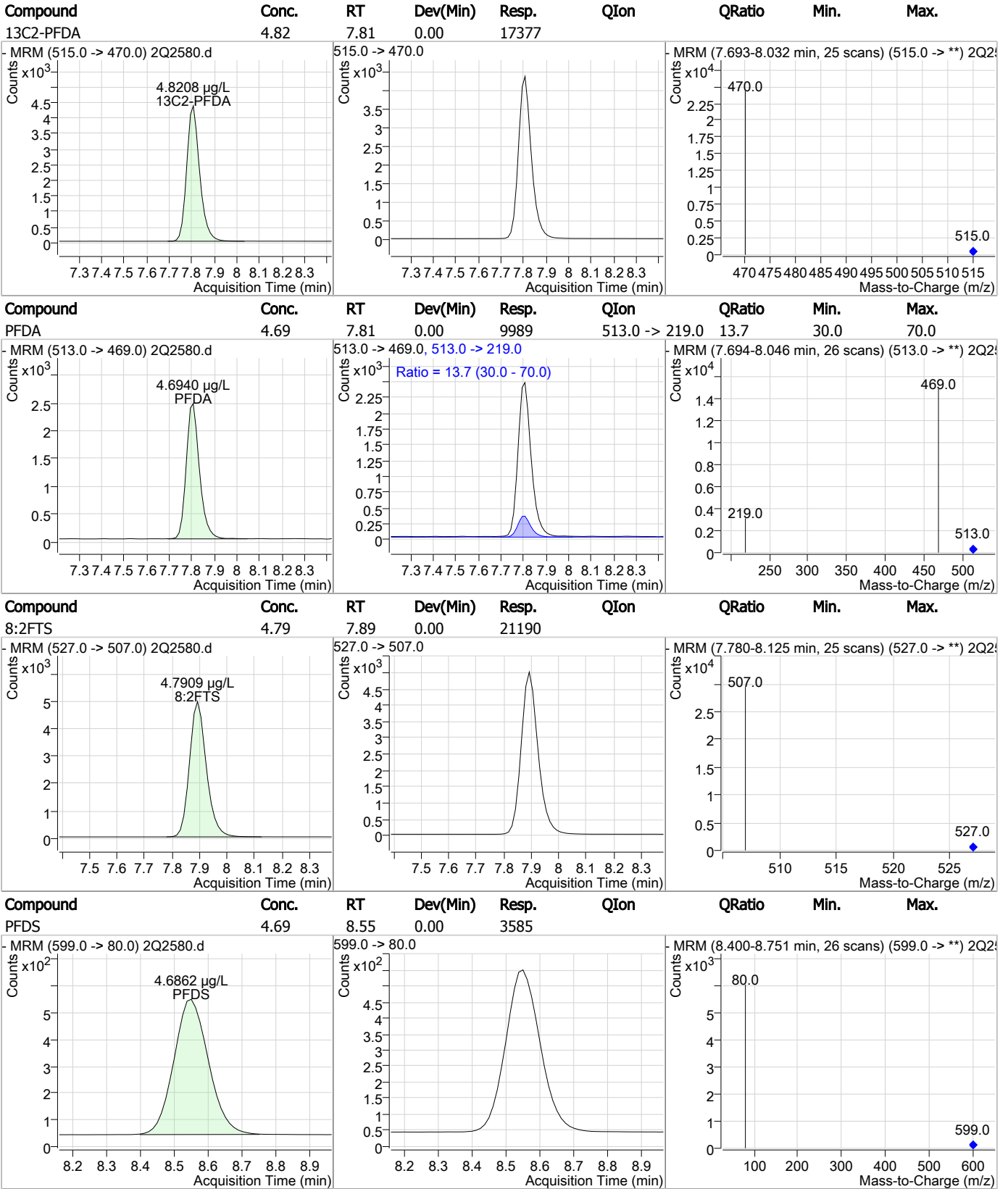


7.5.3

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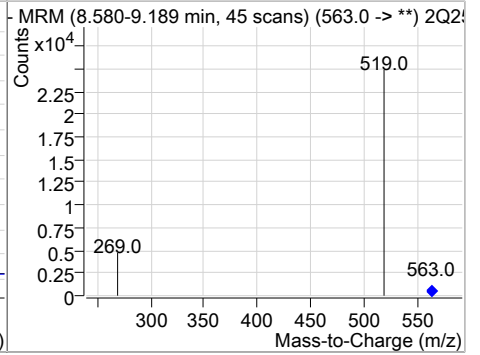
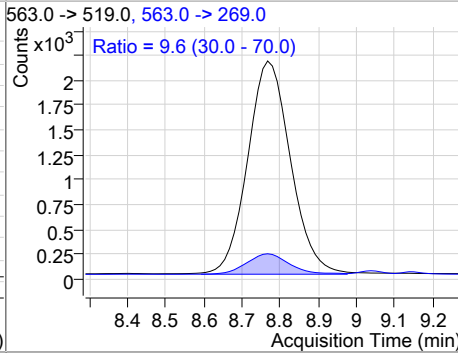
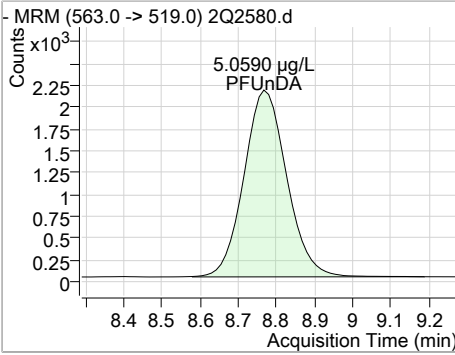
### Perfluorinated Compounds by LC/MS/MS



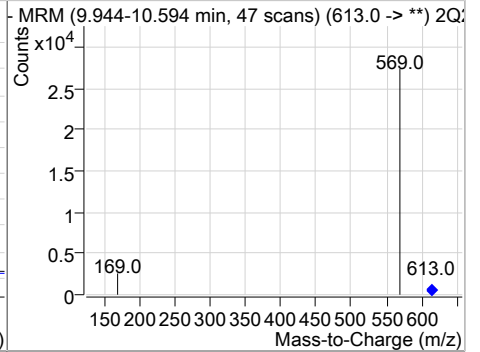
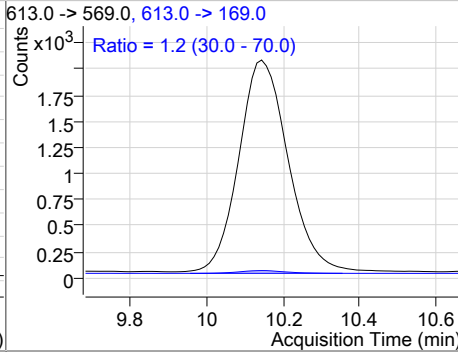
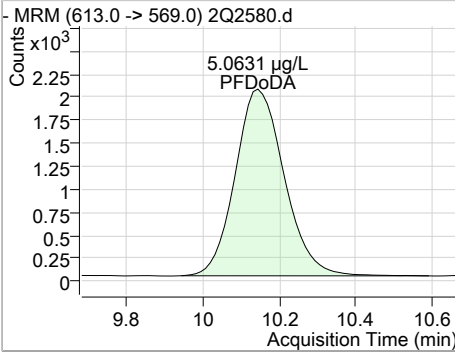
7.53  
7

### Perfluorinated Compounds by LC/MS/MS

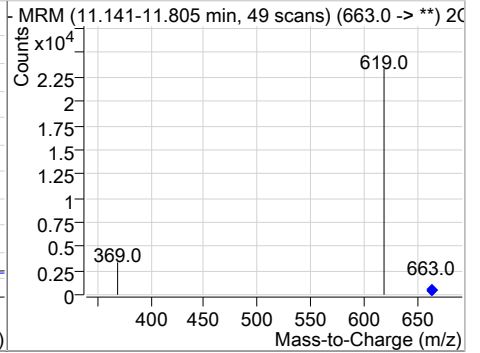
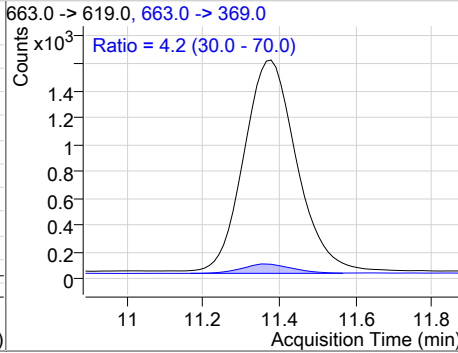
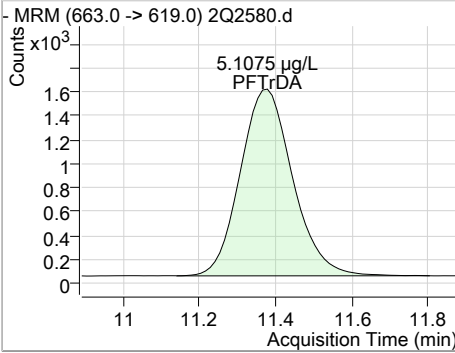
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	5.06	8.77	0.00	16776	563.0 -> 269.0	9.6	30.0	70.0



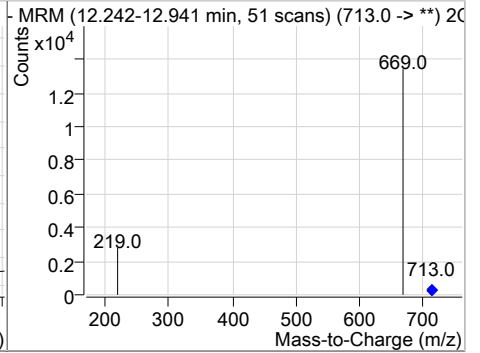
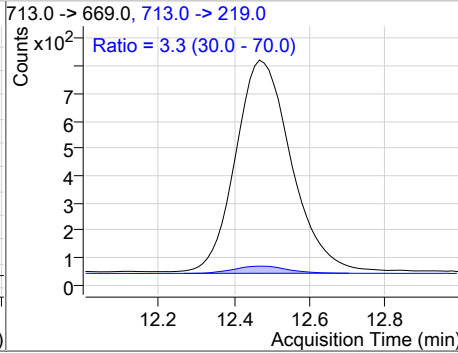
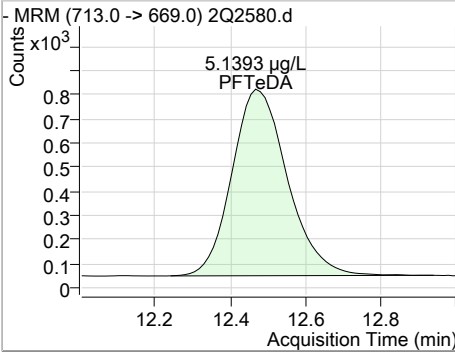
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	5.06	10.14	0.00	18190	613.0 -> 169.0	1.2	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	5.11	11.38	0.00	14973	663.0 -> 369.0	4.2	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	5.14	12.47	0.00	7920	713.0 -> 219.0	3.3	30.0	70.0



7.5.3  
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# Manual Integration Approval Summary

Sample Number: S2Q67-IC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2580.D                      Analyst approved: 06/24/17 13:30 Nancy Saunders  
Injection Time: 06/23/17 11:06                      Supervisor approved: 06/26/17 08:56 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.15	Split peak

7.5.3.1

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Perfluorinated Compounds by LC/MS/MS

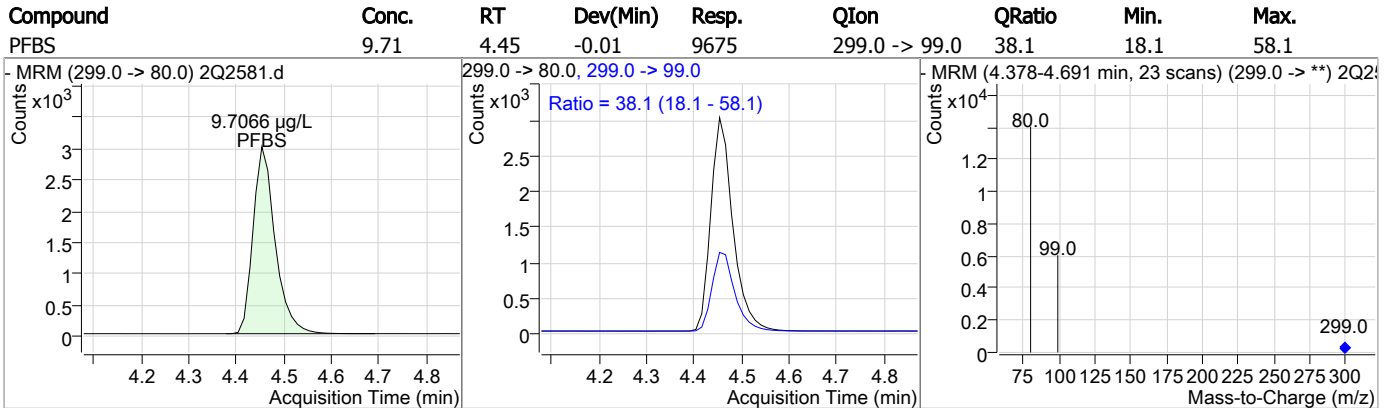
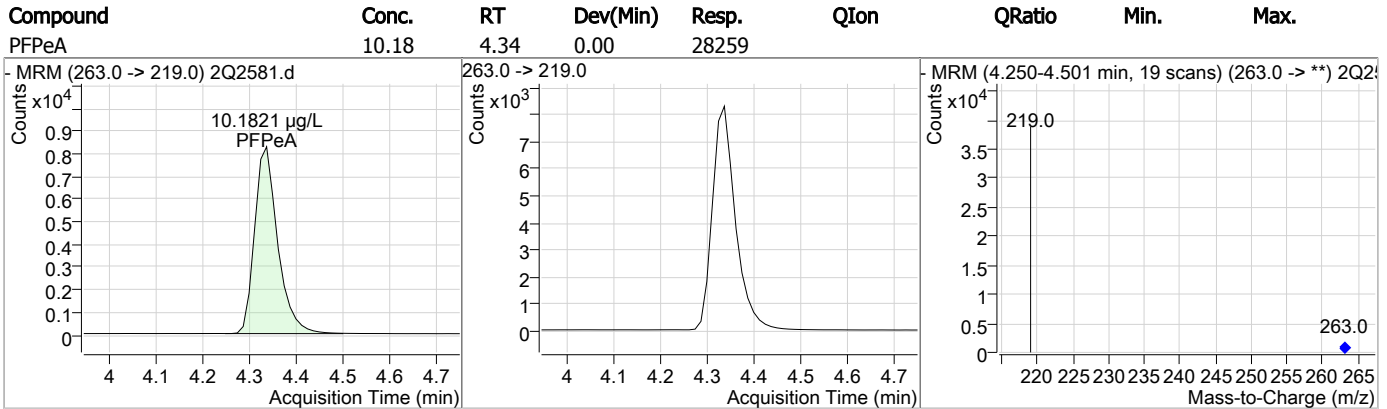
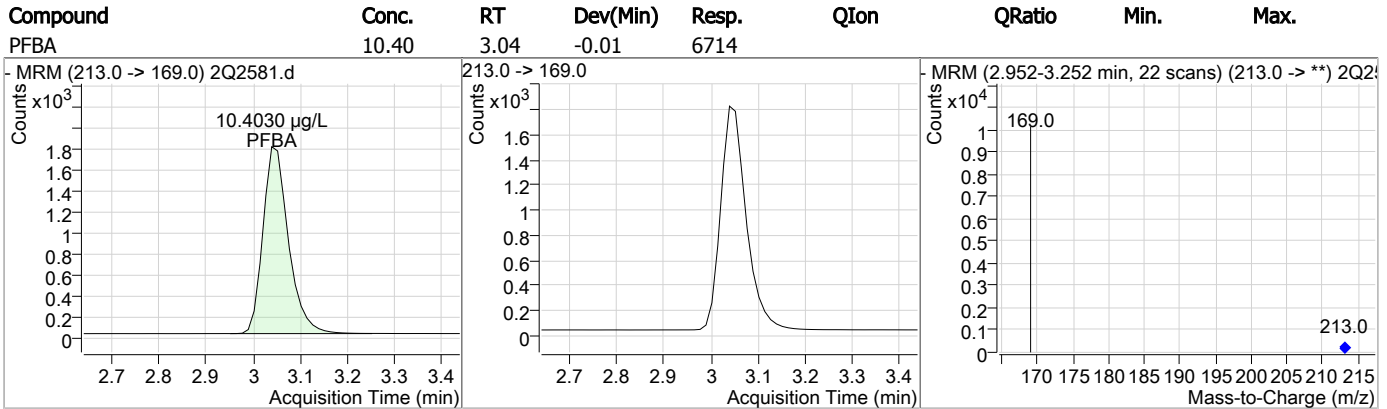
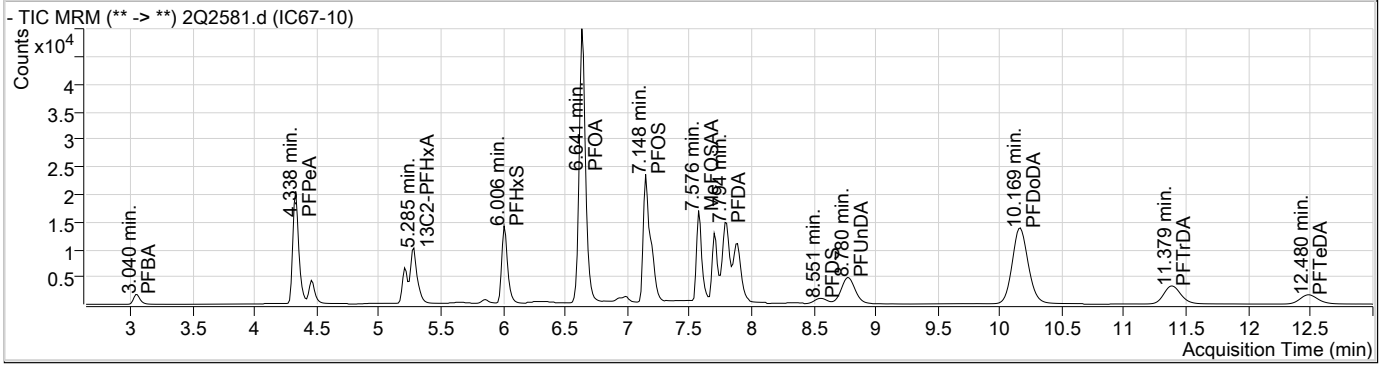
Data File : 2Q2581.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 11:24:17 AM  
 Sample Name : IC67-10  
 Vial : Vial 5  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.649	429.0 -> 409.0	67746	20.00 µg/L	0.000
13C2-PFDoDA	10.165	615.0 -> 570.0	85279	20.00 µg/L	0.013
13C2-PFOA	6.640	415.0 -> 370.0	42804	20.00 µg/L	0.000
13C3-PFPeA	4.335	266.0 -> 222.0	40373	20.00 µg/L	0.000
13C4-PFOS	7.147	503.0 -> 80.0	26676	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	33021	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.806	515.0 -> 470.0	34487	9.53 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 47.6%		
13C2-PFHxA	5.285	315.0 -> 270.0	22677	9.34 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 46.7%		
d5-EtFOSAA	7.699	589.0 -> 419.0	17598	11.11 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 55.6%		
<b>Target Compounds</b>					
4:2FTS	5.207	327.0 -> 307.0	20956	9.72 µg/L	100
6:2FTS	6.651	427.0 -> 407.0	33073	9.69 µg/L	100
8:2FTS	7.892	527.0 -> 507.0	42984	9.76 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	15117	9.55 µg/L	100
FOSA	7.151	498.0 -> 78.0	29693	9.83 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	16878	9.15 µg/L	100
PFBA	3.040	213.0 -> 169.0	6714	10.40 µg/L	100
PFBS	4.454	299.0 -> 80.0	9675	9.71 µg/L	100
PFDA	7.794	513.0 -> 469.0	20050	9.38 µg/L	# 48
PFDoDA	10.169	613.0 -> 569.0	37205	10.22 µg/L	# 29
PFDS	8.551	599.0 -> 80.0	7348	9.65 µg/L	100
PFHpA	6.011	363.0 -> 319.0	30080	10.31 µg/L	93
PFHpS	6.595	449.0 -> 80.0	11824	9.81 µg/L	100
PFHxA	5.287	313.0 -> 269.0	9294	9.34 µg/L	86
PFHxS	6.006	399.0 -> 80.0	11789	9.87 µg/L	m 93
PFNA	7.206	463.0 -> 419.0	21302	10.18 µg/L	97
PFNS	7.716	549.0 -> 99.0	6024	10.11 µg/L	100
PFOA	6.641	413.0 -> 369.0	16754	10.12 µg/L	95
PFOS	7.148	499.0 -> 80.0	15338	9.71 µg/L	m 86
PFPeA	4.338	263.0 -> 219.0	28259	10.18 µg/L	100
PFPeS	5.317	349.0 -> 99.0	3376	10.16 µg/L	100
PFTeDA	12.480	713.0 -> 669.0	16566	10.61 µg/L	# 32
PFTrDA	11.379	663.0 -> 619.0	29971	10.09 µg/L	# 34
PFUnDA	8.780	563.0 -> 519.0	34369	10.23 µg/L	# 41

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

7.54  
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### Perfluorinated Compounds by LC/MS/MS



7.5.4

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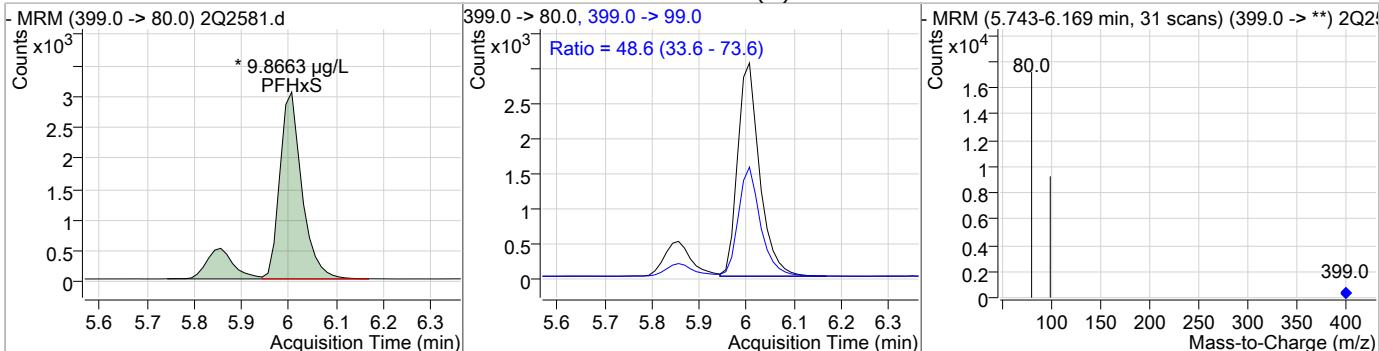
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	9.72	5.21	-0.01	20956				
13C2-PFHxA	9.34	5.28	0.00	22677				
PFHxA	9.34	5.29	0.00	9294	313.0 -> 119.0	0.2	0.0	25.0
PFPeS	10.16	5.32	-0.01	3376				

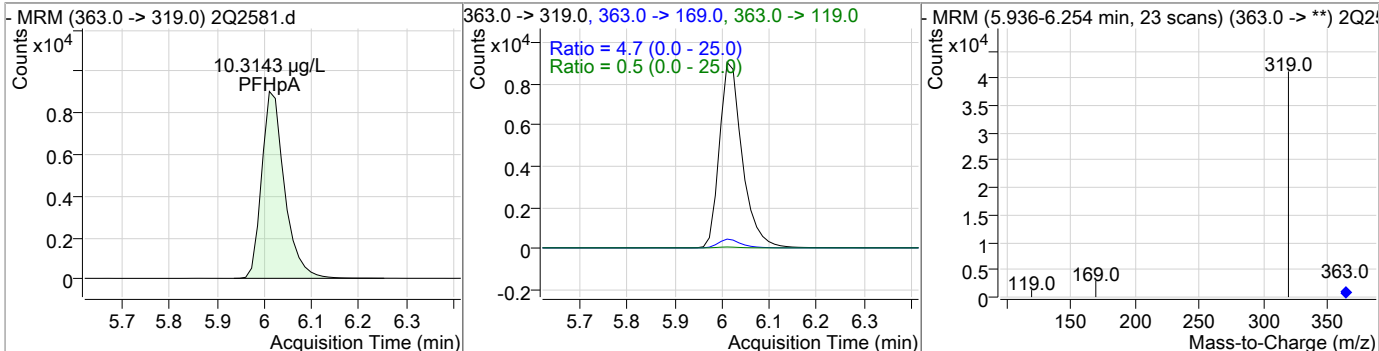
7.54  
7

### Perfluorinated Compounds by LC/MS/MS

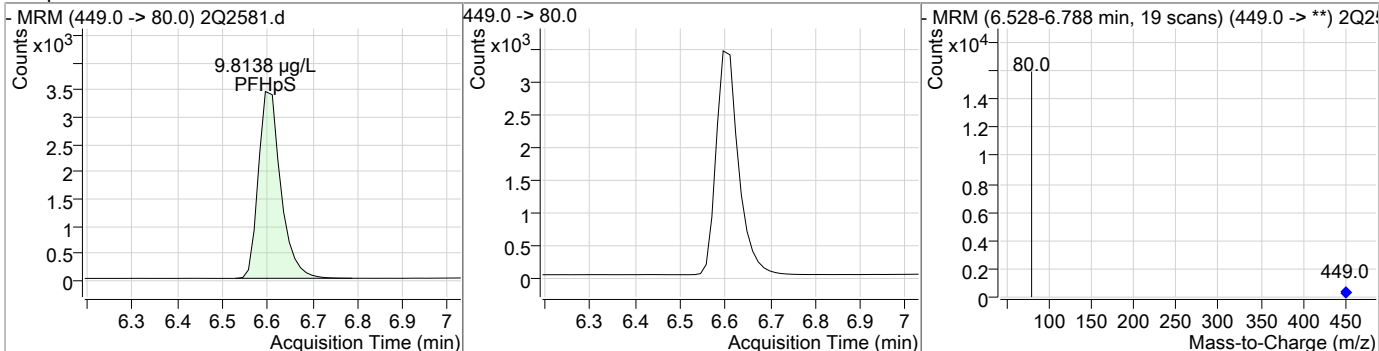
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.87	6.01	0.00	11789 (m)	399.0 -> 99.0	48.6	33.6	73.6



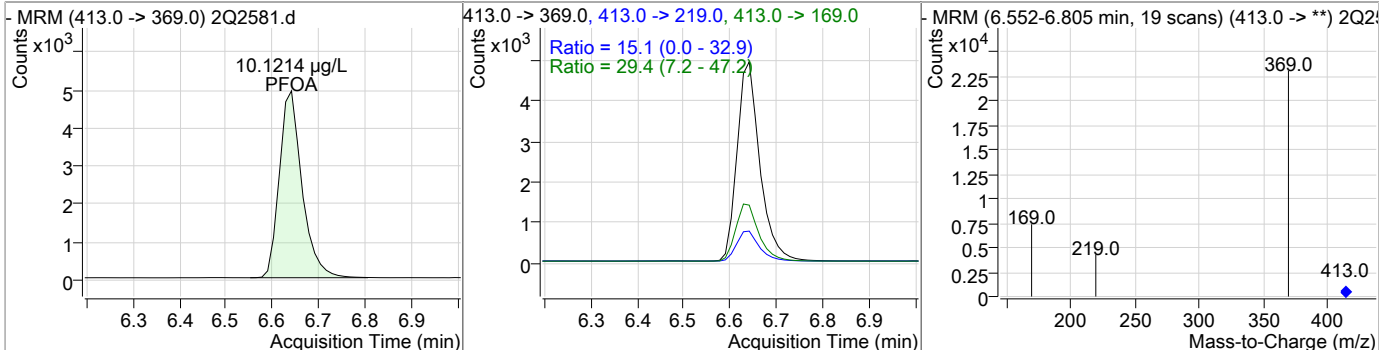
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	10.31	6.01	-0.01	30080	363.0 -> 119.0 363.0 -> 169.0	0.5 4.7	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	9.81	6.60	-0.02	11824	449.0 -> 80.0			

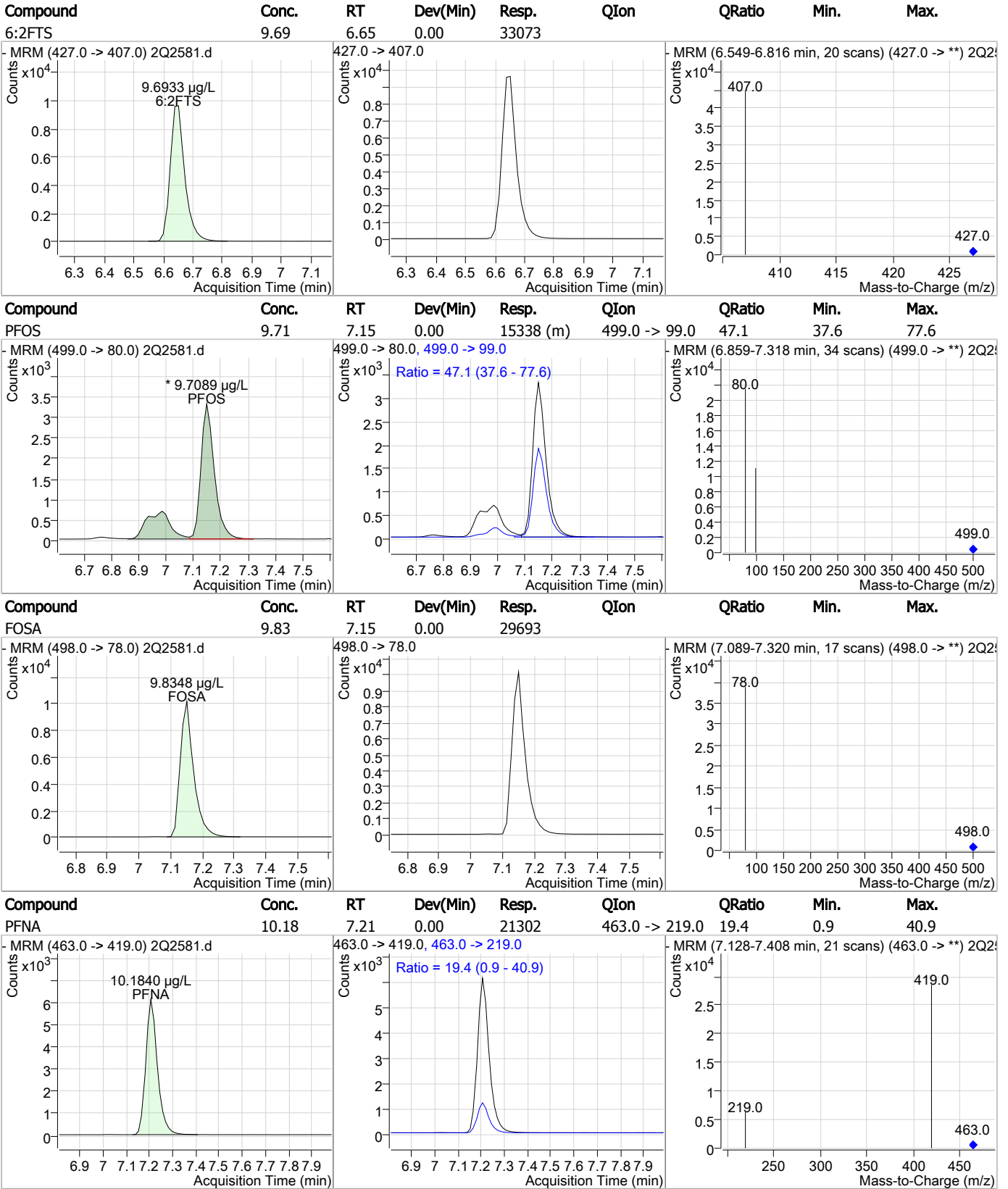


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.12	6.64	0.00	16754	413.0 -> 169.0 413.0 -> 219.0	29.4 15.1	7.2 0.0	47.2 32.9



7.54  
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### Perfluorinated Compounds by LC/MS/MS

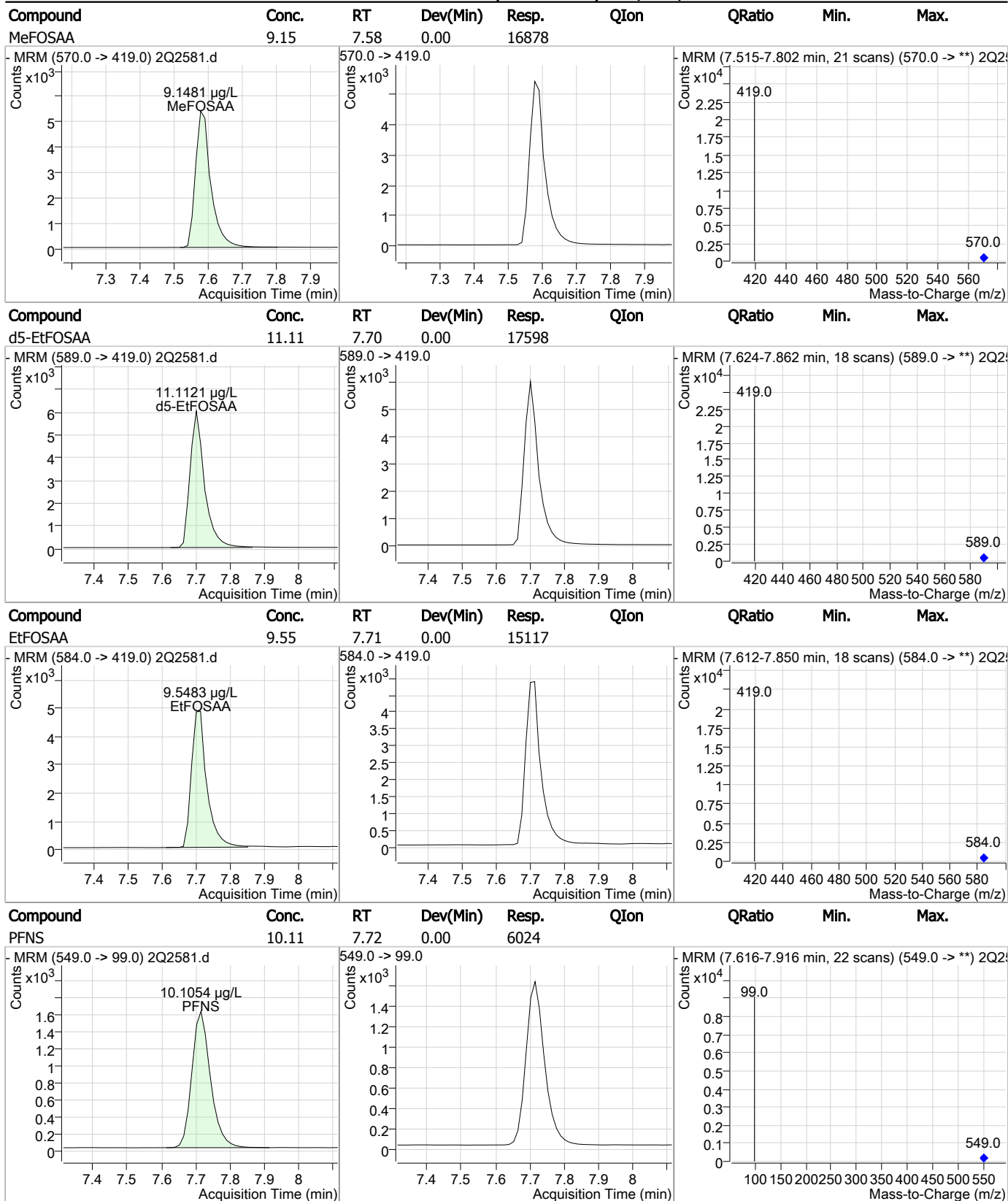


7.5.4

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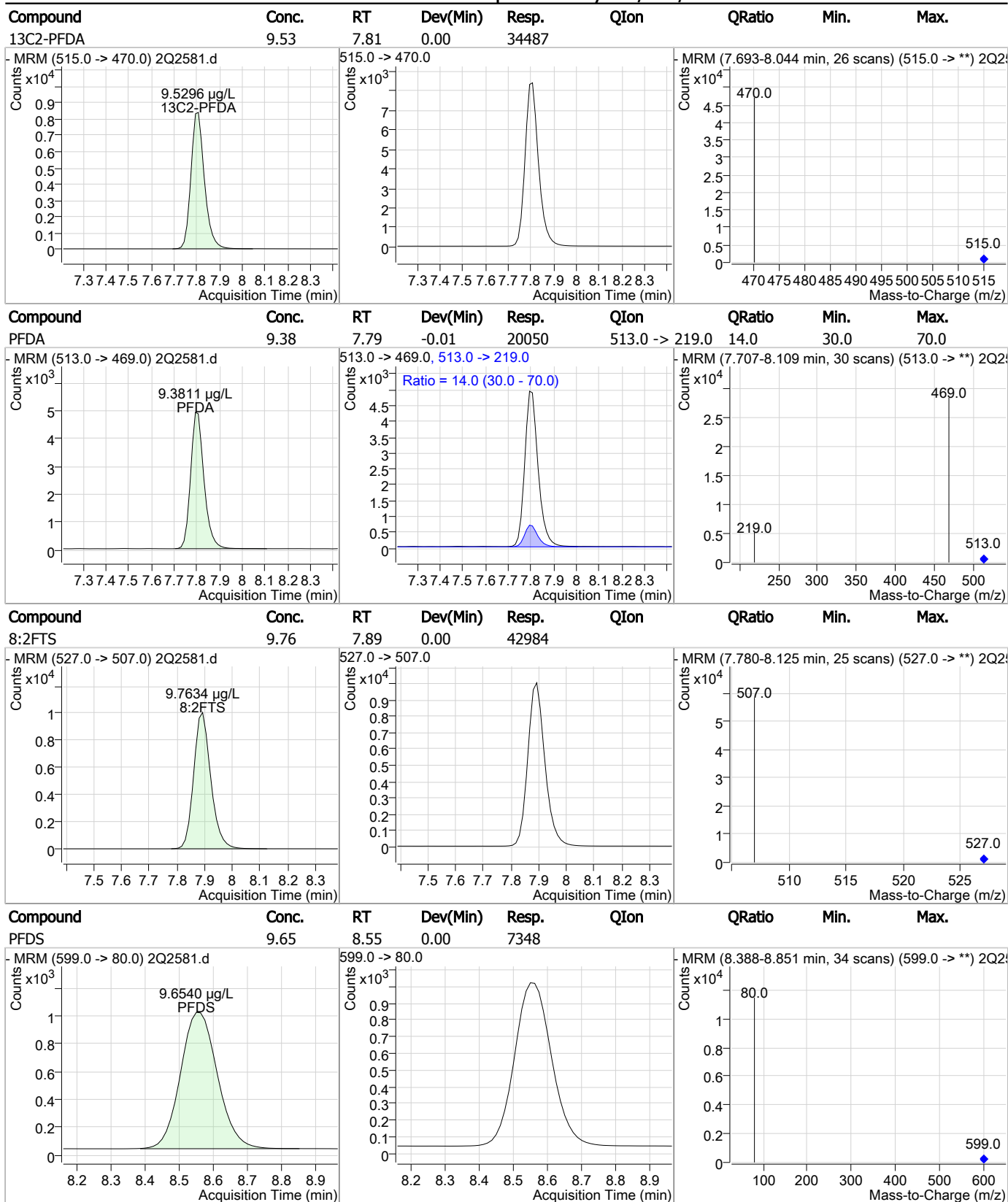


### Perfluorinated Compounds by LC/MS/MS



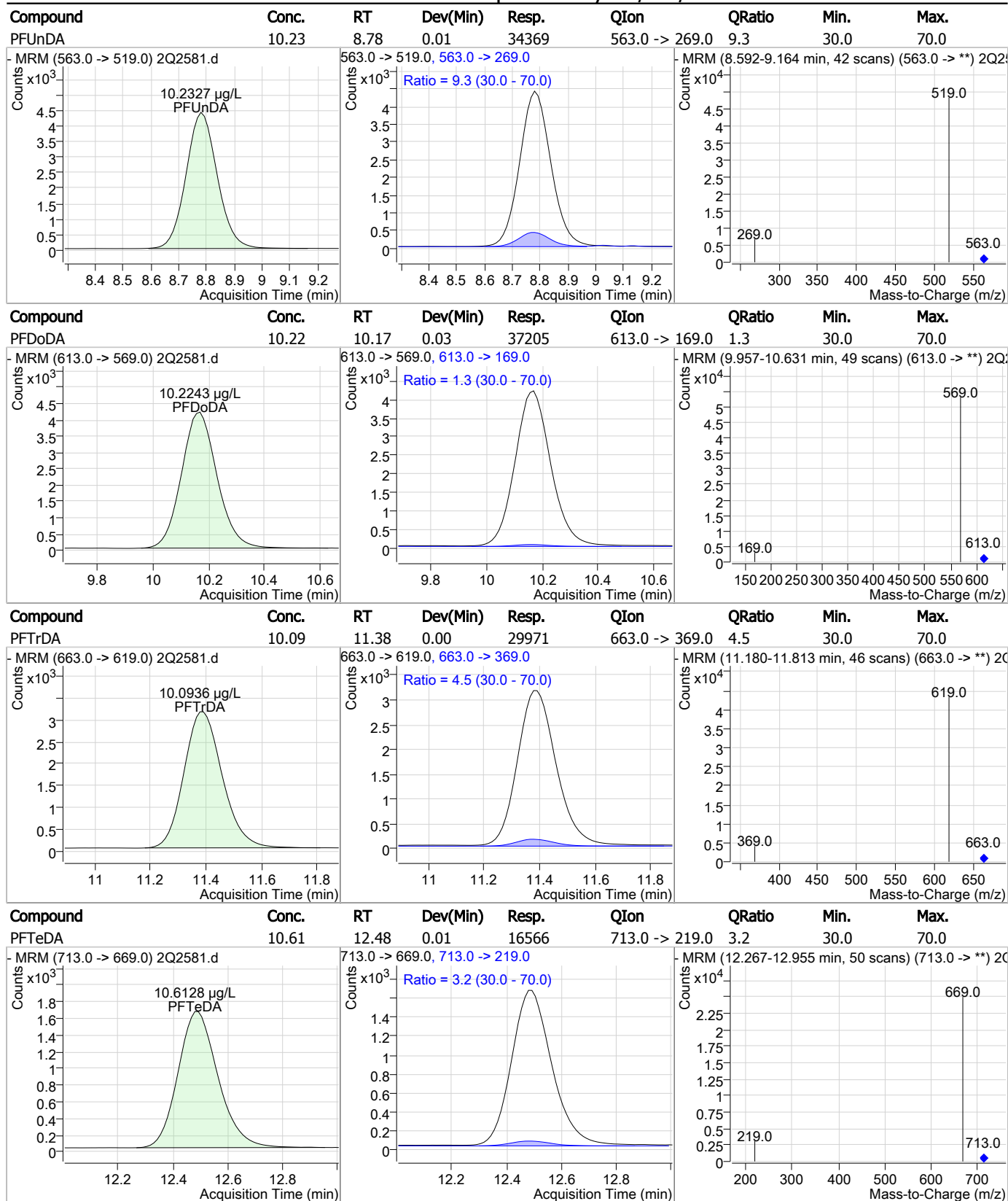
7.54  
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### Perfluorinated Compounds by LC/MS/MS



7.54  
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### Perfluorinated Compounds by LC/MS/MS



7.5.4

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# Manual Integration Approval Summary

Sample Number: S2Q67-IC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2581.D                      Analyst approved: 06/24/17 13:30 Nancy Saunders  
Injection Time: 06/23/17 11:24                      Supervisor approved: 06/26/17 08:56 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.15	Split peak

7.5.4.1

7

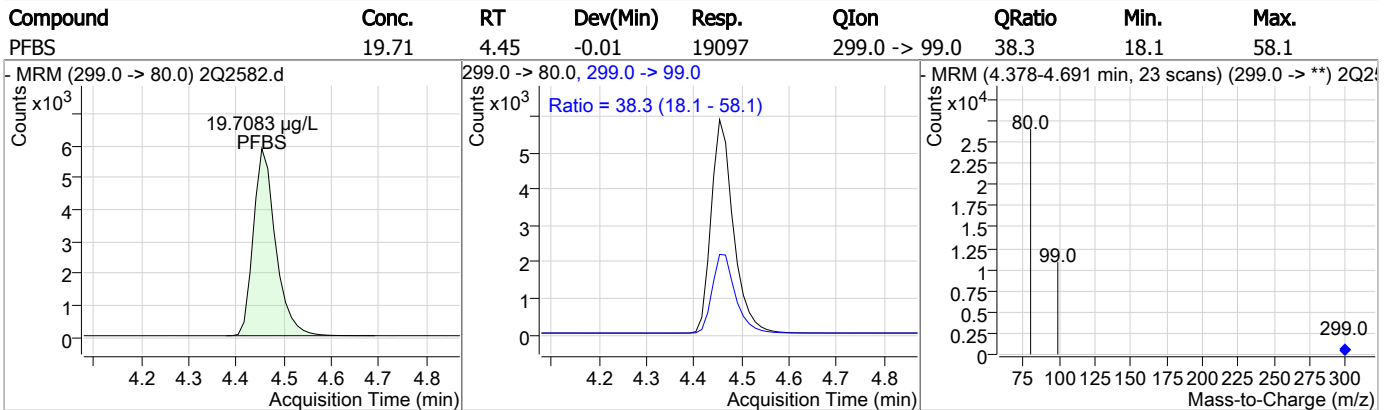
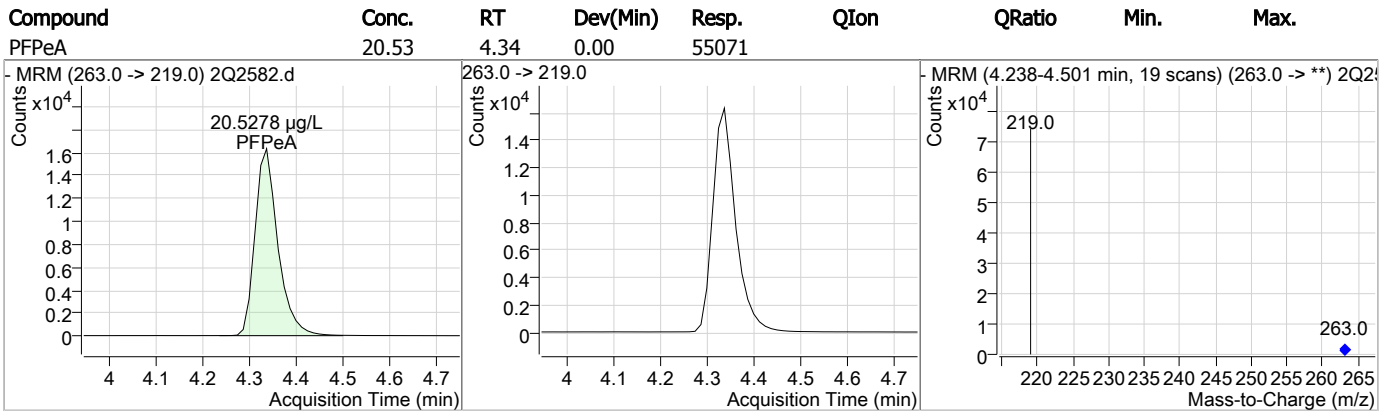
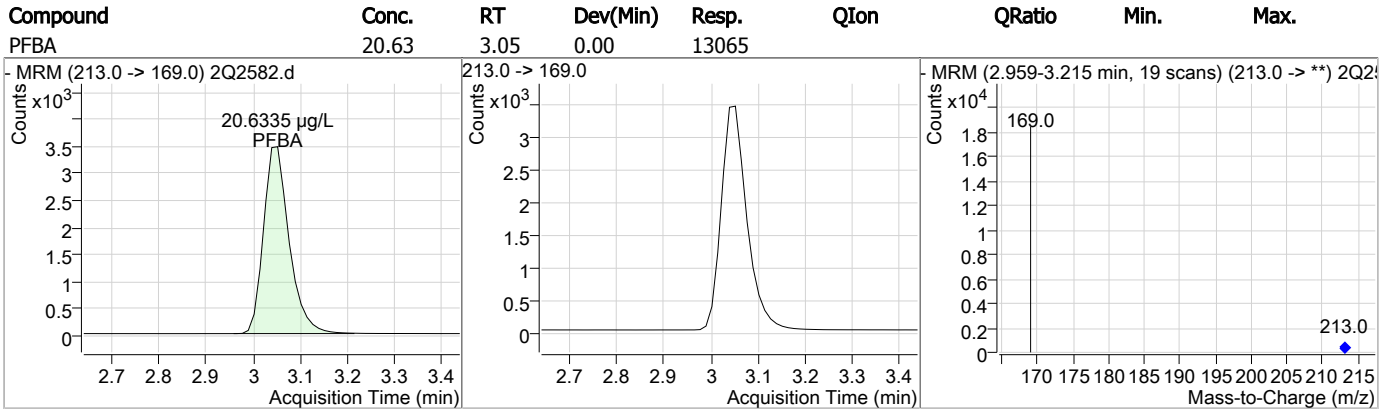
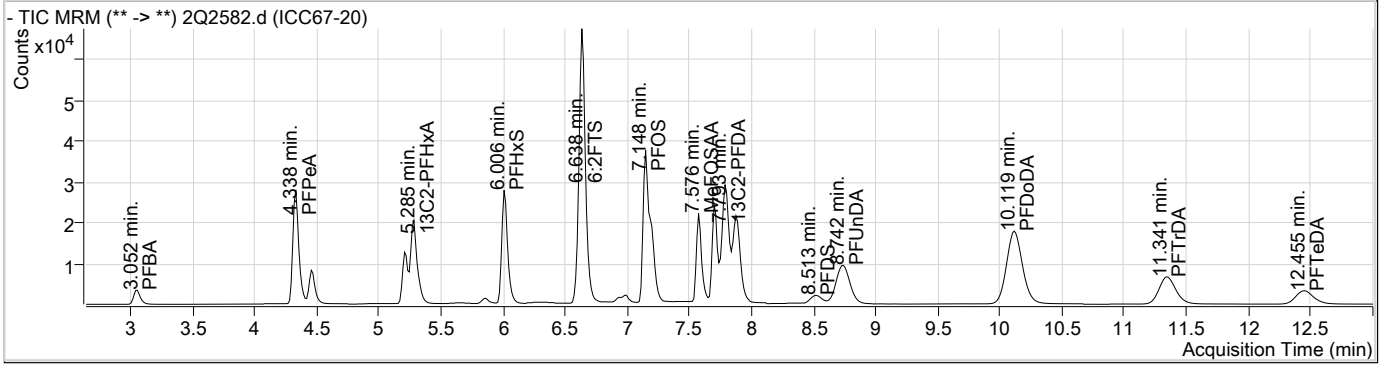
## Perfluorinated Compounds by LC/MS/MS

Data File : 2Q2582.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 11:42:07 AM  
 Sample Name : ICC67-20  
 Vial : Vial 6  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.649	429.0 -> 409.0	67496	20.00 µg/L	0.000
13C2-PFDoDA	10.115	615.0 -> 570.0	84196	20.00 µg/L	-0.038
13C2-PFOA	6.640	415.0 -> 370.0	41991	20.00 µg/L	0.000
13C3-PFPeA	4.335	266.0 -> 222.0	39026	20.00 µg/L	0.000
13C4-PFOS	7.147	503.0 -> 80.0	25934	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	31403	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.793	515.0 -> 470.0	66857	19.11 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 95.5%	
13C2-PFHxA	5.285	315.0 -> 270.0	45485	19.37 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 96.9%	
d5-EtFOSAA	7.699	589.0 -> 419.0	33775	22.43 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 112.1%	
<b>Target Compounds</b>					
4:2FTS	5.207	327.0 -> 307.0	41373	19.68 µg/L	100
6:2FTS	6.638	427.0 -> 407.0	65426	19.76 µg/L	100
8:2FTS	7.880	527.0 -> 507.0	83619	19.45 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	28899	19.60 µg/L	100
FOSA	7.151	498.0 -> 78.0	56552	20.36 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	33723	19.45 µg/L	100
PFBA	3.052	213.0 -> 169.0	13065	20.63 µg/L	100
PFBS	4.454	299.0 -> 80.0	19097	19.71 µg/L	100
PFDA	7.794	513.0 -> 469.0	39904	19.31 µg/L	# 47
PFDoDA	10.119	613.0 -> 569.0	73928	20.58 µg/L	# 29
PFDS	8.513	599.0 -> 80.0	14503	19.60 µg/L	100
PFHpA	6.011	363.0 -> 319.0	59481	20.79 µg/L	93
PFHpS	6.595	449.0 -> 80.0	23437	20.01 µg/L	100
PFHxA	5.287	313.0 -> 269.0	18549	19.23 µg/L	85
PFHxS	6.006	399.0 -> 80.0	23421	20.16 µg/L	m 92
PFNA	7.206	463.0 -> 419.0	41472	20.21 µg/L	96
PFNS	7.716	549.0 -> 99.0	11786	20.34 µg/L	100
PFOA	6.641	413.0 -> 369.0	34122	21.01 µg/L	96
PFOS	7.148	499.0 -> 80.0	29546	19.41 µg/L	m 89
PFPeA	4.338	263.0 -> 219.0	55071	20.53 µg/L	100
PFPeS	5.317	349.0 -> 99.0	6550	20.40 µg/L	100
PFTeDA	12.455	713.0 -> 669.0	32159	20.87 µg/L	# 32
PFTrDA	11.341	663.0 -> 619.0	60294	20.57 µg/L	# 34
PFUnDA	8.742	563.0 -> 519.0	68454	20.64 µg/L	# 40

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

### Perfluorinated Compounds by LC/MS/MS



7.5.5

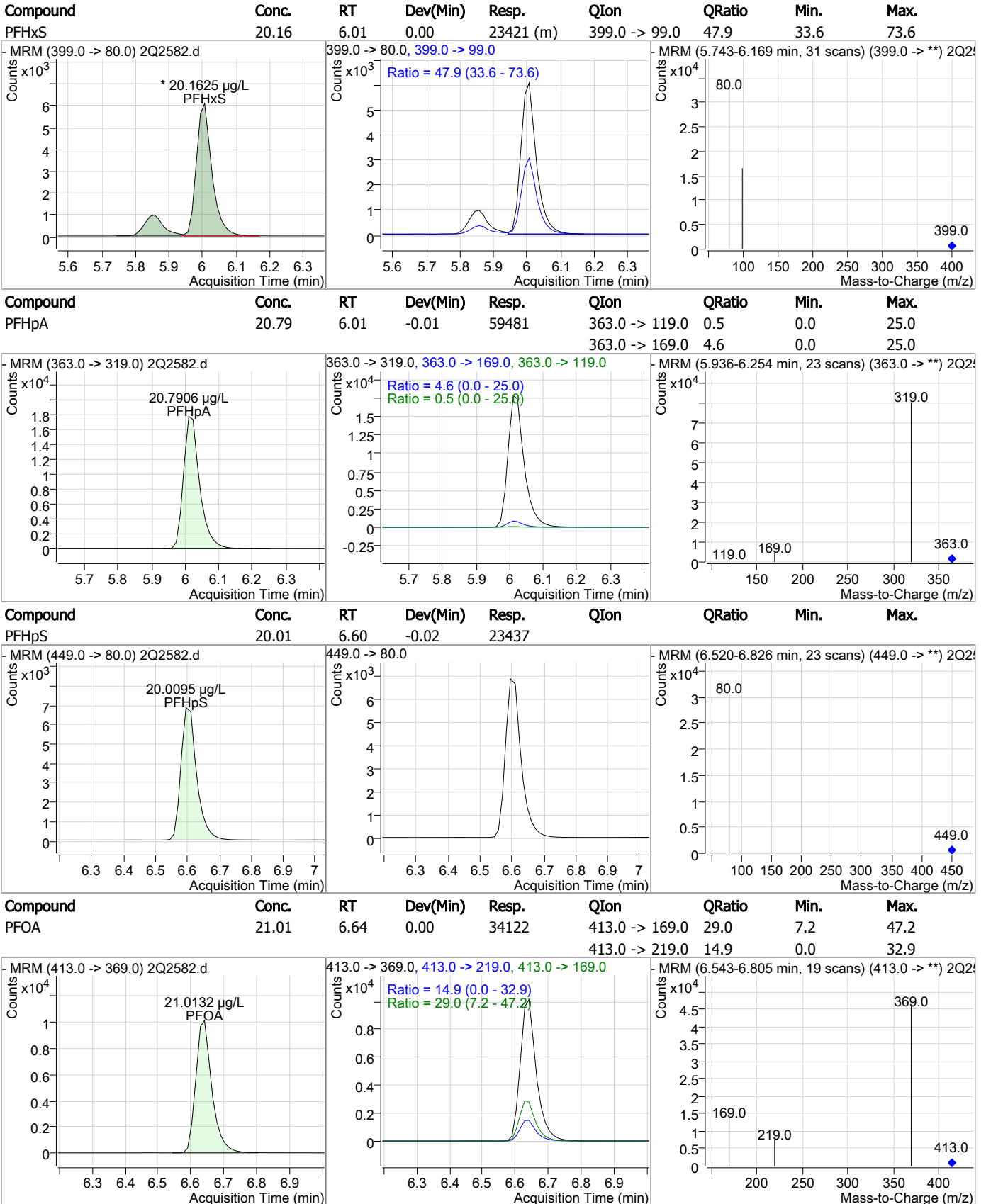
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.68	5.21	-0.01	41373				
13C2-PFHxA	19.37	5.28	0.00	45485				
PFHxA	19.23	5.29	0.00	18549	313.0 -> 119.0	0.2	0.0	25.0
PFPeS	20.40	5.32	-0.01	6550				

7.55  
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### Perfluorinated Compounds by LC/MS/MS

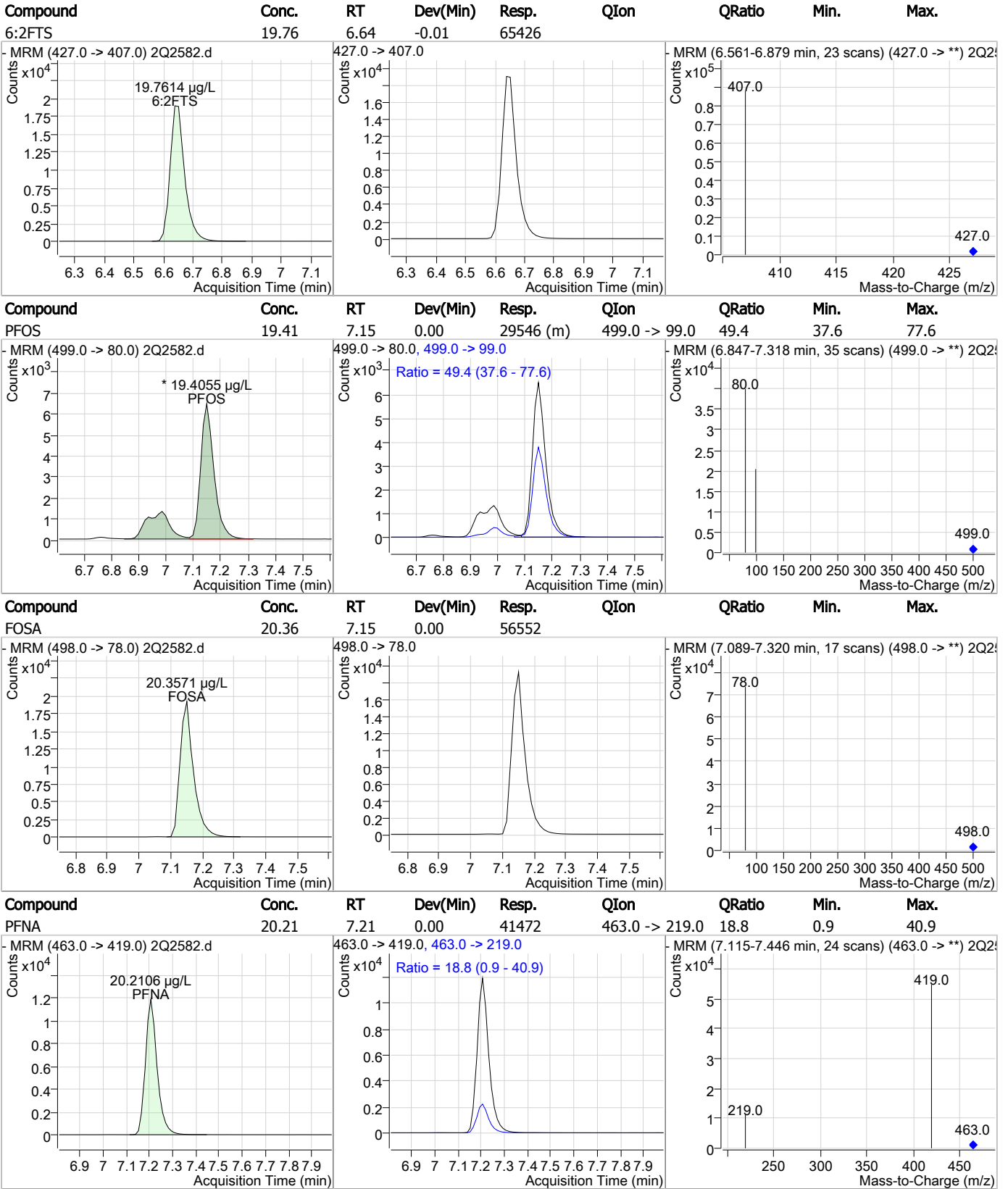


7.55

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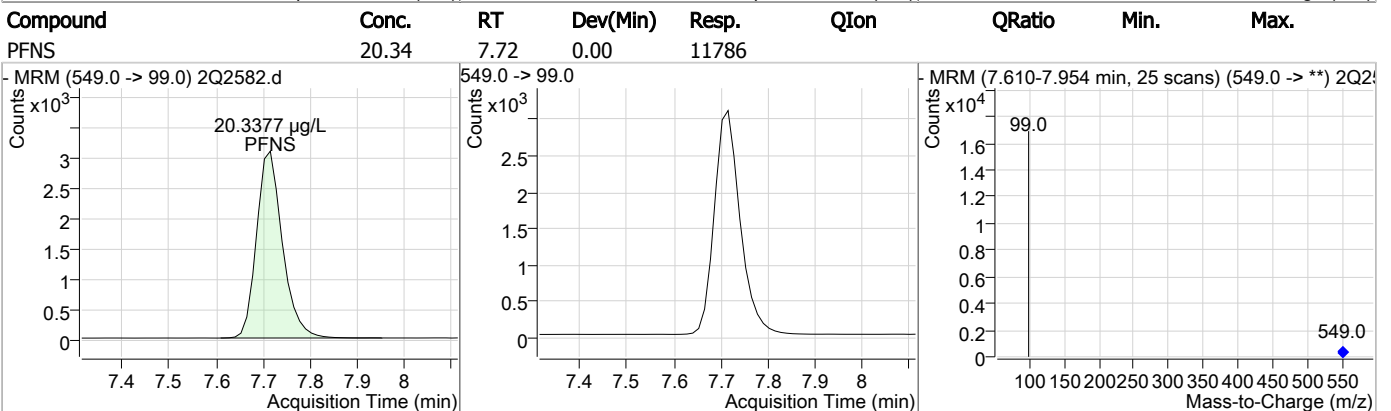
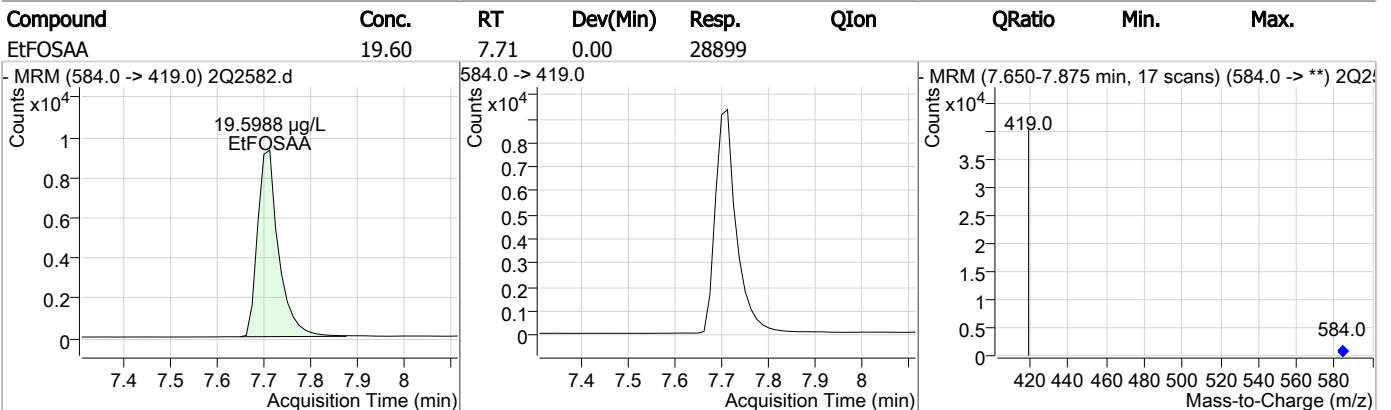
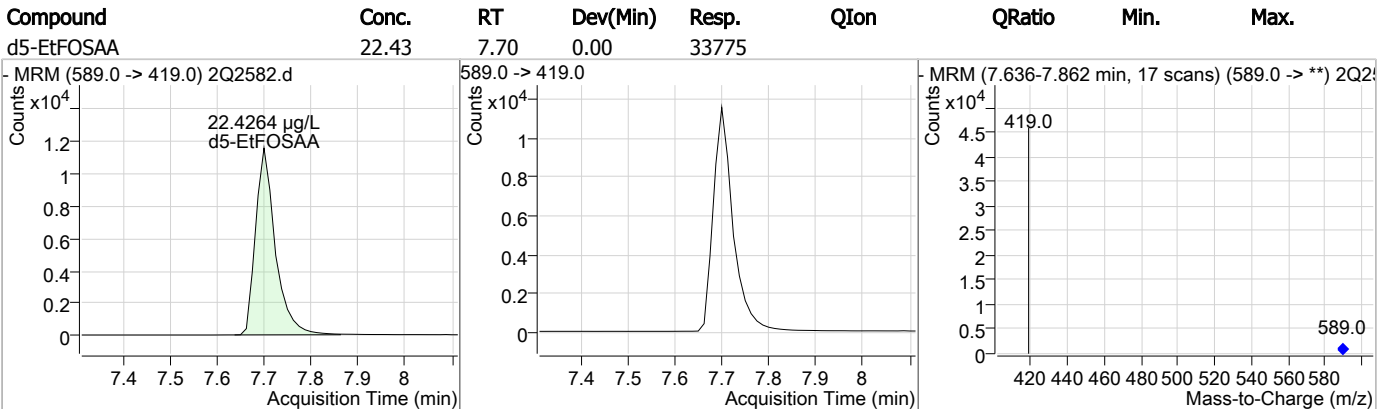
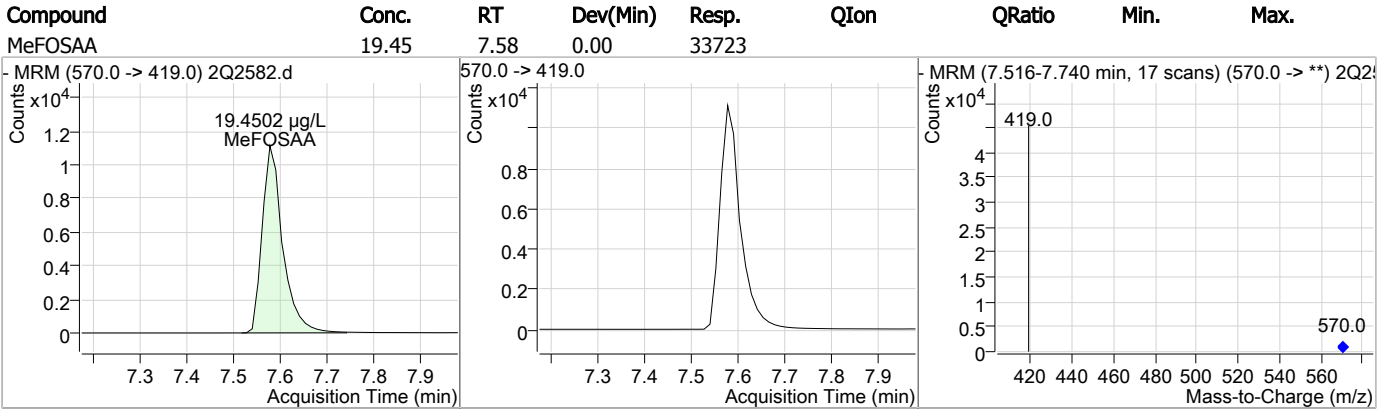
### Perfluorinated Compounds by LC/MS/MS



7.55

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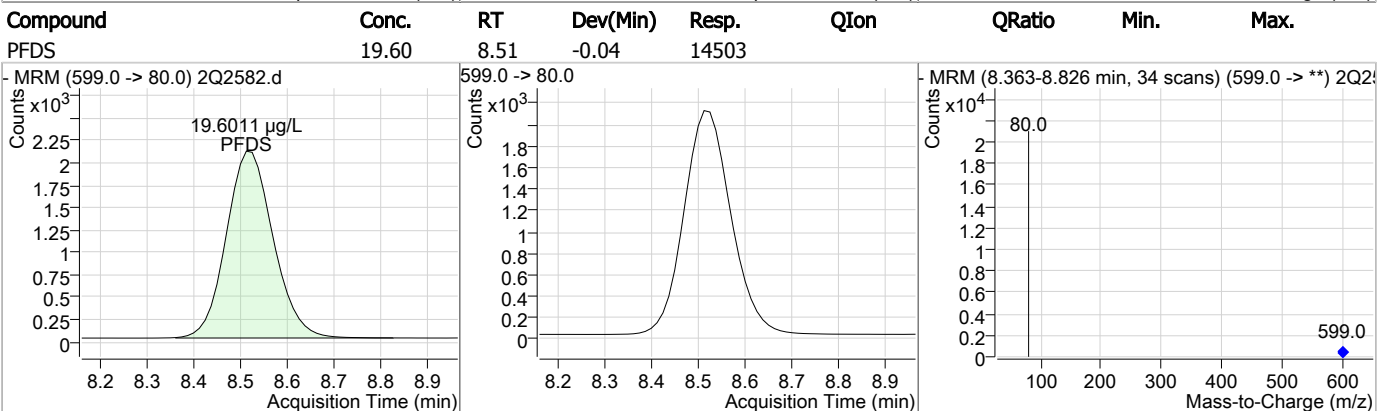
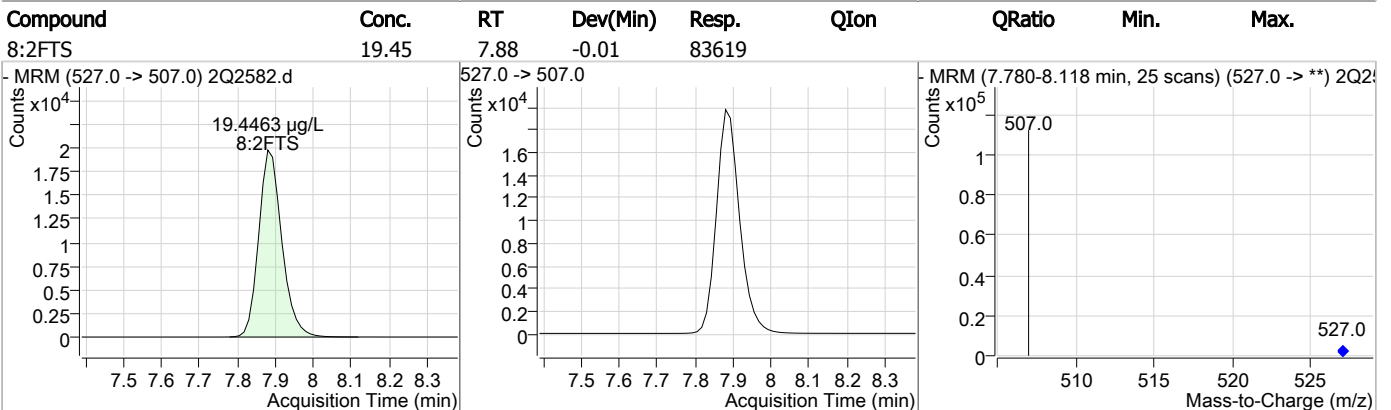
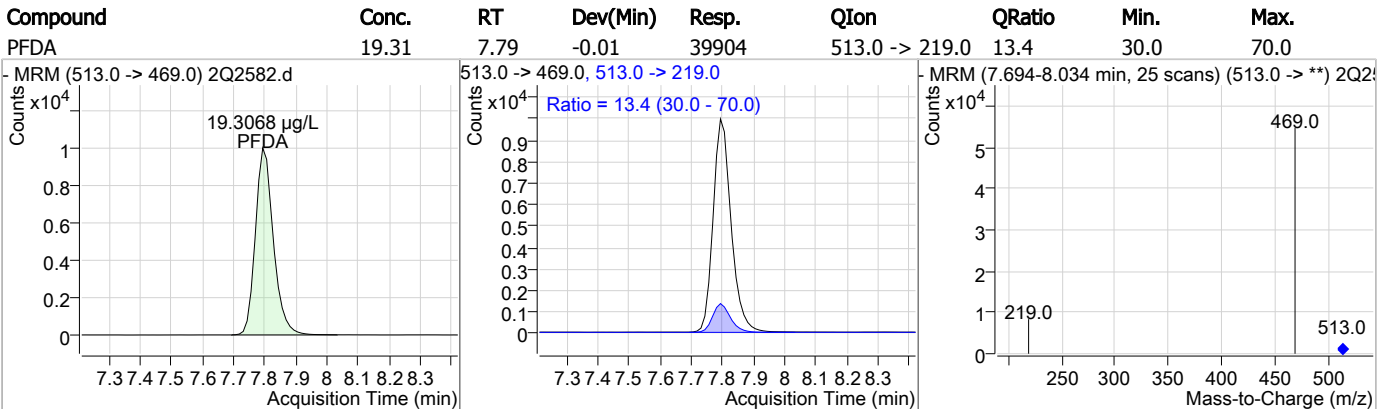
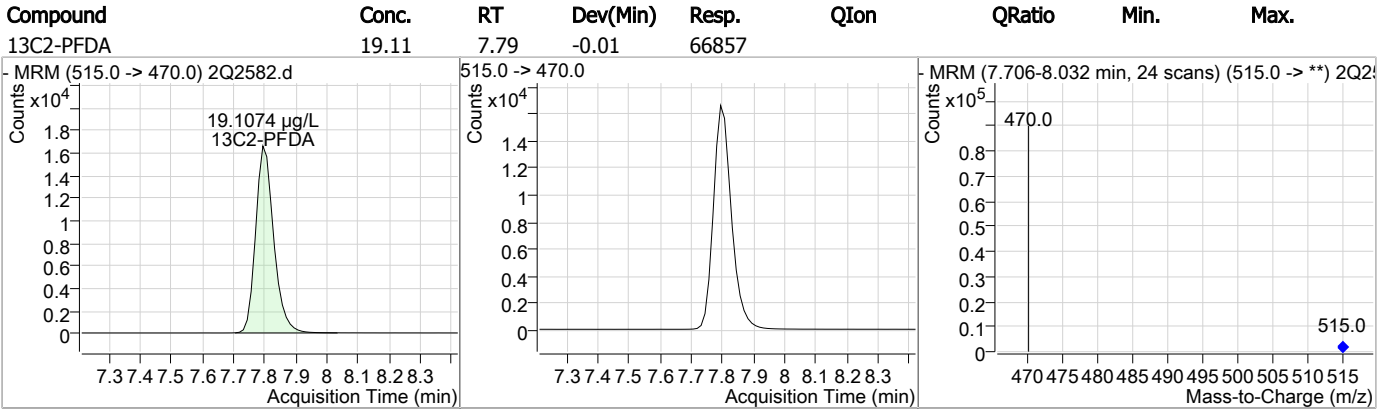
### Perfluorinated Compounds by LC/MS/MS



7.55

7

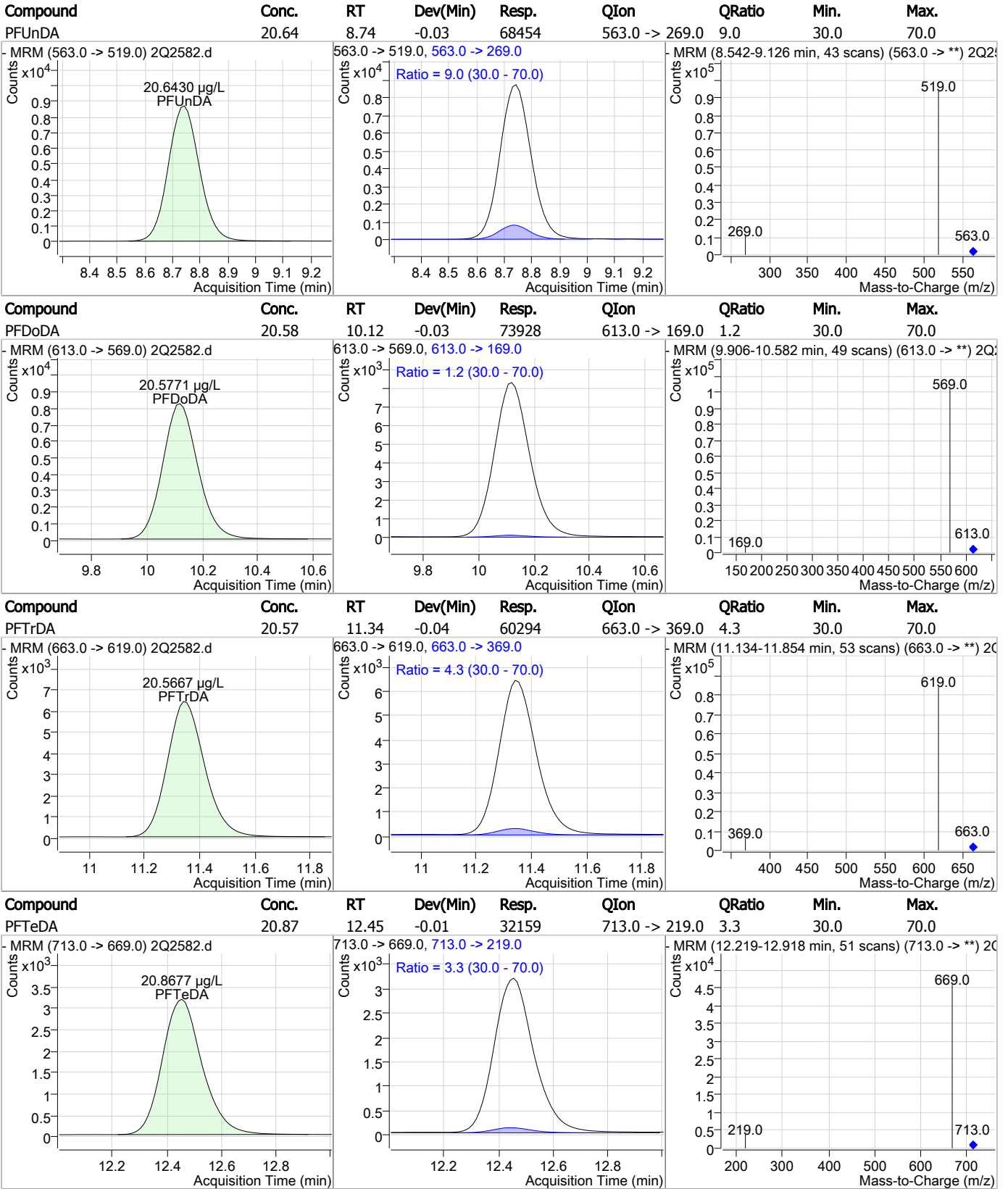
### Perfluorinated Compounds by LC/MS/MS



7.55

7

### Perfluorinated Compounds by LC/MS/MS



7.55  
7

# Manual Integration Approval Summary

Sample Number: S2Q67-ICC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2582.D                              Analyst approved: 06/24/17 13:30 Nancy Saunders  
Injection Time: 06/23/17 11:42                      Supervisor approved: 06/26/17 08:56 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.15	Split peak

7.5.5.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

**Mike Eger**  
 06/26/17 08:56

### Perfluorinated Compounds by LC/MS/MS

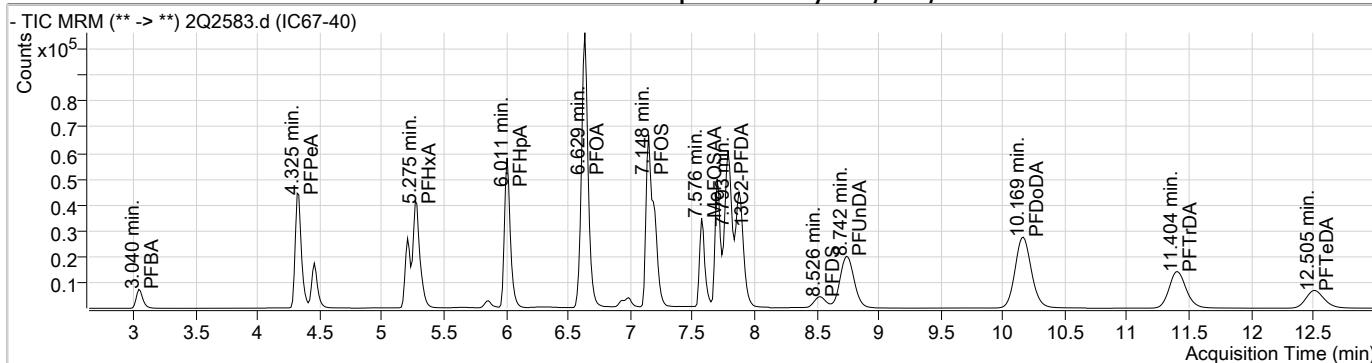
Data File : 2Q2583.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 11:59:56 AM  
 Sample Name : IC67-40  
 Vial : Vial 7  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.637	429.0 -> 409.0	72571	20.00 µg/L	-0.013
13C2-PFDoDA	10.165	615.0 -> 570.0	87855	20.00 µg/L	0.013
13C2-PFOA	6.640	415.0 -> 370.0	42798	20.00 µg/L	0.000
13C3-PFPeA	4.335	266.0 -> 222.0	39924	20.00 µg/L	0.000
13C4-PFOS	7.147	503.0 -> 80.0	26211	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	32900	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.793	515.0 -> 470.0	141759	41.13 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 205.7%	
13C2-PFHxA	5.285	315.0 -> 270.0	93454	40.23 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 201.2%	
d5-EtFOSAA	7.699	589.0 -> 419.0	69865	44.28 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 221.4%	
<b>Target Compounds</b>					
4:2FTS	5.207	327.0 -> 307.0	86601	40.16 µg/L	QValue 100
6:2FTS	6.638	427.0 -> 407.0	135722	40.33 µg/L	100
8:2FTS	7.880	527.0 -> 507.0	178747	40.42 µg/L	100
EtFOSAA	7.700	584.0 -> 419.0	59723	40.42 µg/L	100
FOSA	7.151	498.0 -> 78.0	109598	40.20 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	71576	40.38 µg/L	100
PFBA	3.040	213.0 -> 169.0	27005	41.85 µg/L	100
PFBS	4.454	299.0 -> 80.0	39883	40.72 µg/L	100
PFDA	7.794	513.0 -> 469.0	82310	40.30 µg/L	# 47
PFDoDA	10.169	613.0 -> 569.0	160174	42.73 µg/L	# 29
PFDS	8.526	599.0 -> 80.0	30352	40.59 µg/L	100
PFHpA	6.011	363.0 -> 319.0	122669	42.07 µg/L	93
PFHpS	6.595	449.0 -> 80.0	48637	41.08 µg/L	100
PFHxA	5.275	313.0 -> 269.0	38469	40.10 µg/L	85
PFHxS	5.994	399.0 -> 80.0	48799	41.57 µg/L	m 89
PFNA	7.206	463.0 -> 419.0	87832	42.00 µg/L	96
PFNS	7.716	549.0 -> 99.0	24537	41.89 µg/L	100
PFOA	6.629	413.0 -> 369.0	69029	41.71 µg/L	94
PFOS	7.148	499.0 -> 80.0	60938	40.36 µg/L	m 90
PFPeA	4.325	263.0 -> 219.0	115140	41.95 µg/L	100
PFPeS	5.317	349.0 -> 99.0	13879	42.25 µg/L	100
PFTeDA	12.505	713.0 -> 669.0	67909	42.23 µg/L	# 32
PFTrDA	11.404	663.0 -> 619.0	129783	42.43 µg/L	# 33
PFUnDA	8.742	563.0 -> 519.0	145834	42.15 µg/L	# 41

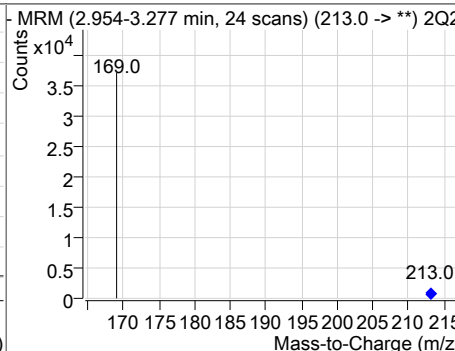
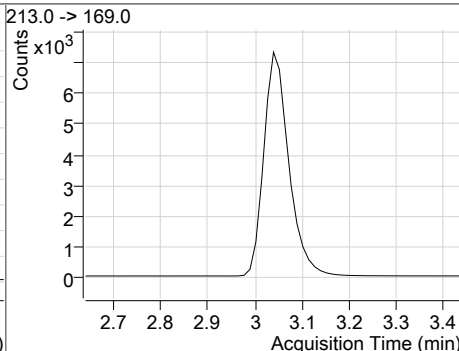
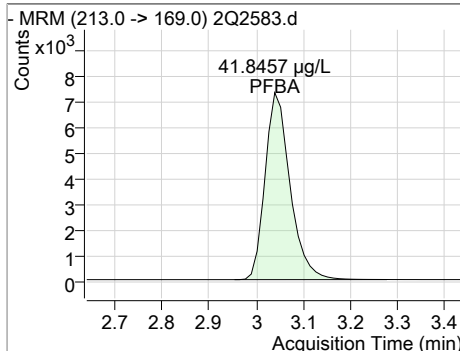
# = Qualifier out of range, m = manually integrated, + = Area summed

7.56  
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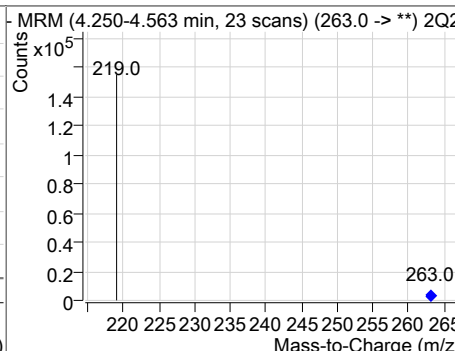
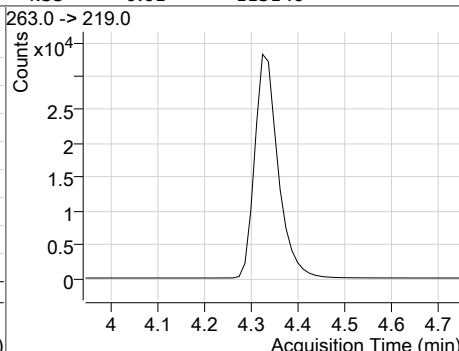
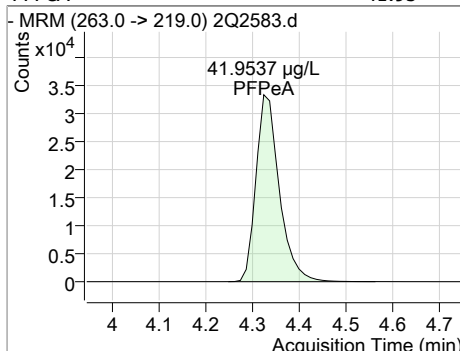
### Perfluorinated Compounds by LC/MS/MS



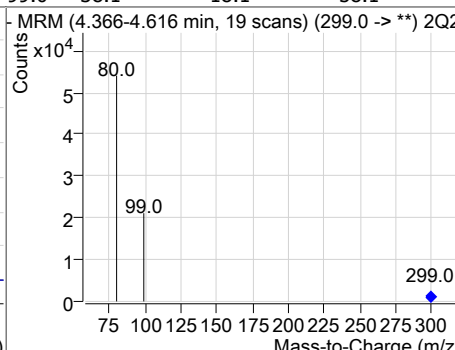
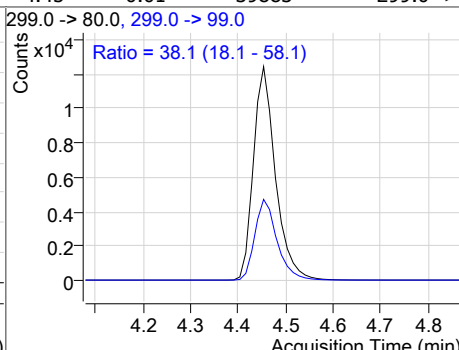
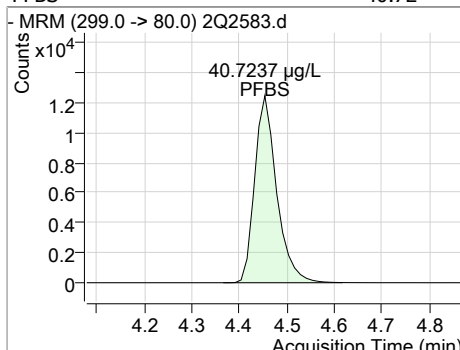
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	41.85	3.04	-0.01	27005				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	41.95	4.33	-0.01	115140				

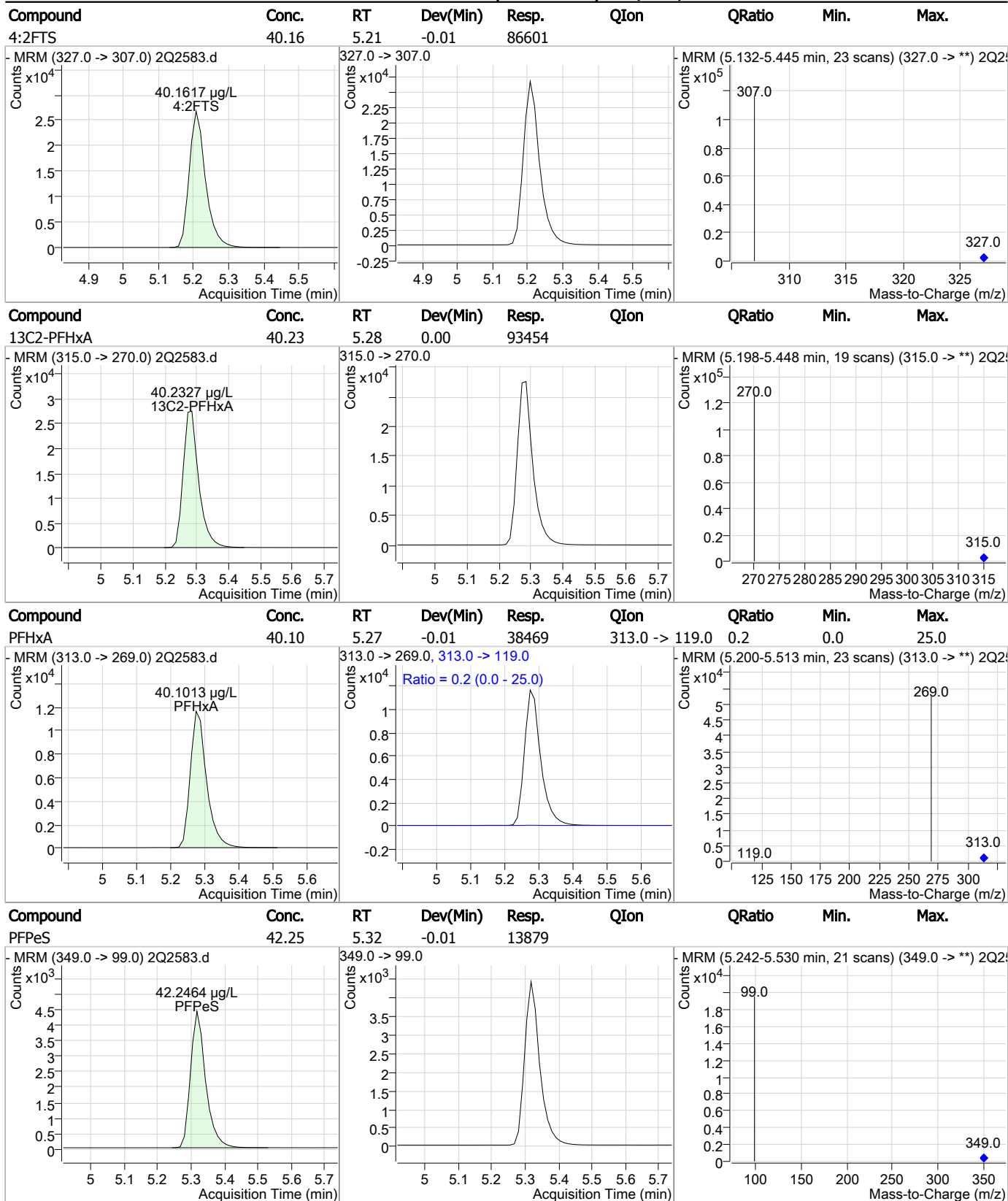


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	40.72	4.45	-0.01	39883	299.0 -> 99.0	38.1	18.1	58.1



7.5.6  
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### Perfluorinated Compounds by LC/MS/MS

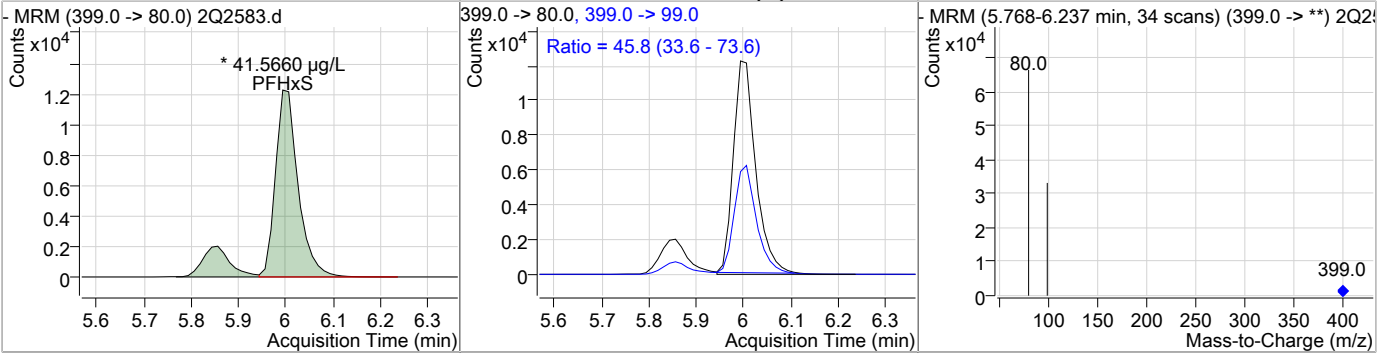


7.56  
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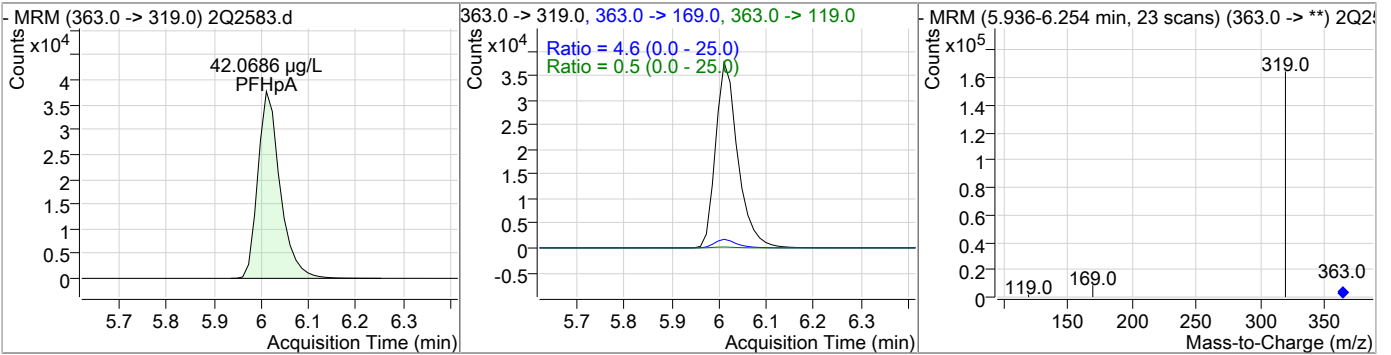


### Perfluorinated Compounds by LC/MS/MS

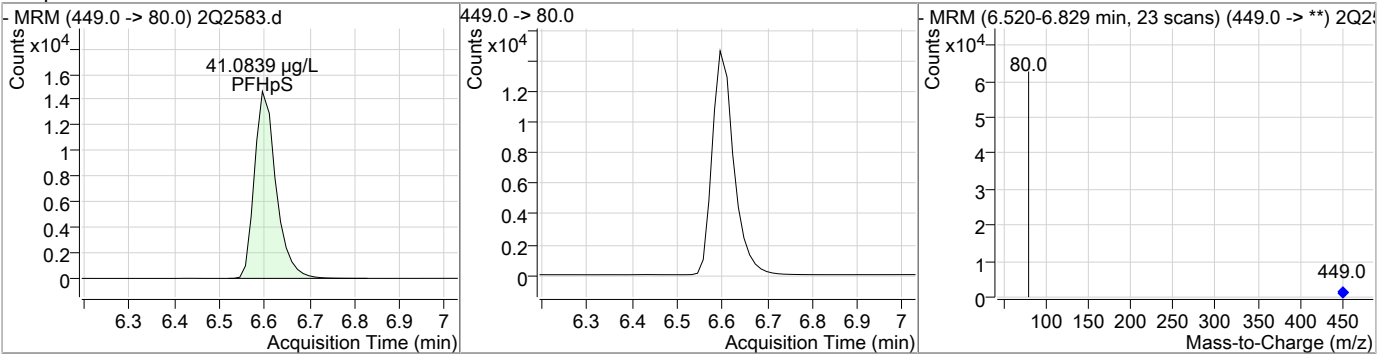
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	41.57	5.99	-0.01	48799 (m)	399.0 -> 99.0	45.8	33.6	73.6



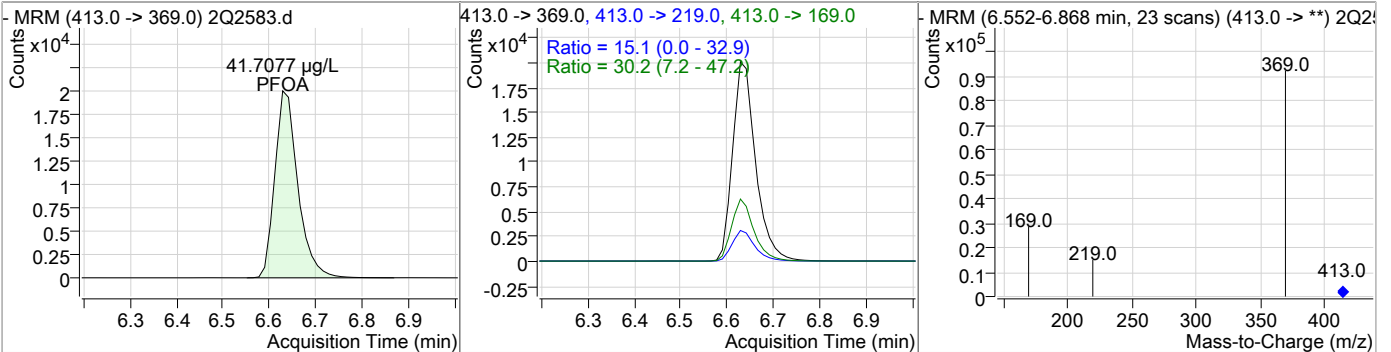
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	42.07	6.01	-0.01	122669	363.0 -> 119.0 363.0 -> 169.0	4.6	0.0	25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	41.08	6.60	-0.02	48637	449.0 -> 80.0			

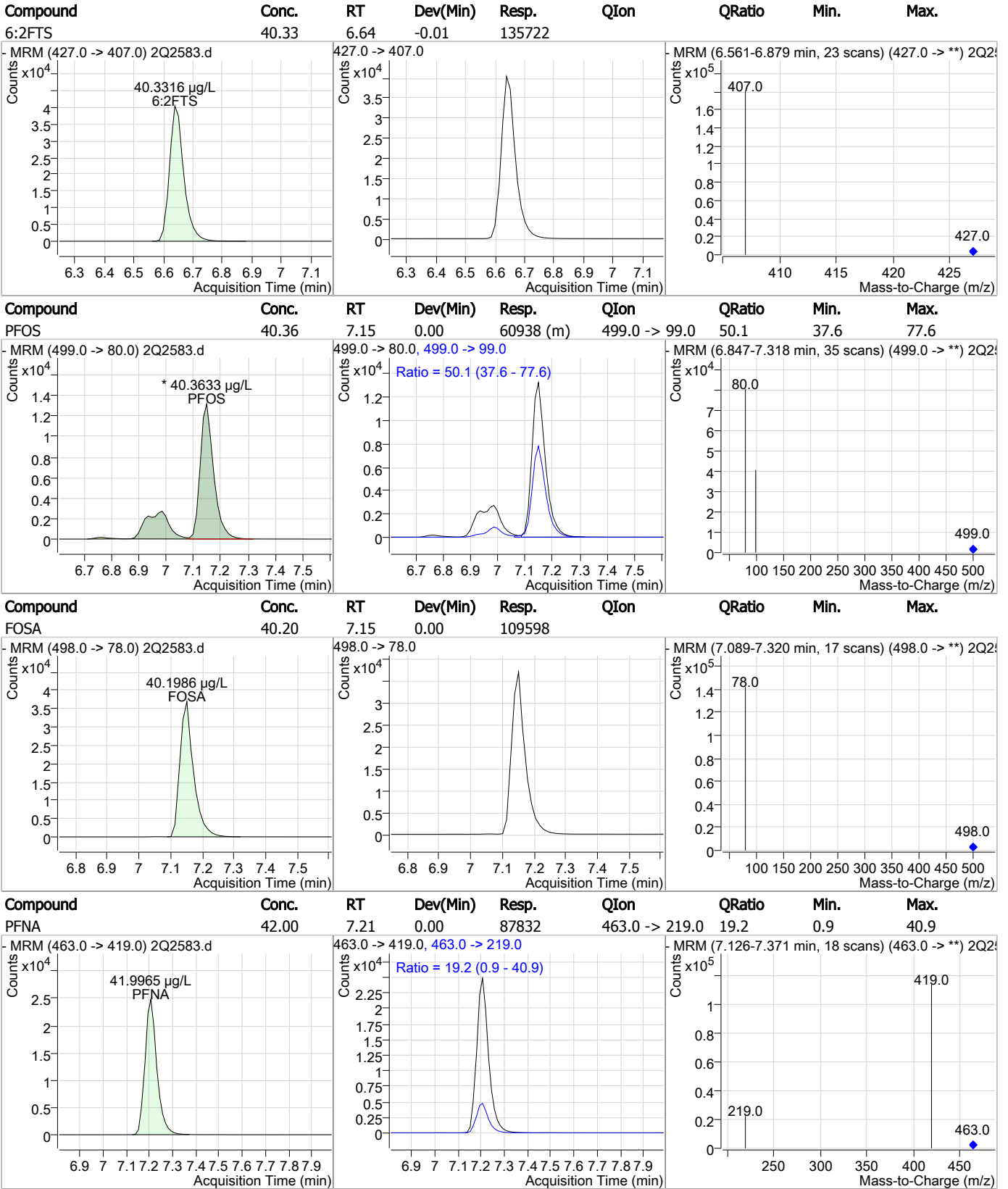


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	41.71	6.63	-0.01	69029	413.0 -> 169.0 413.0 -> 219.0	30.2	7.2	47.2



7.5.6  
7

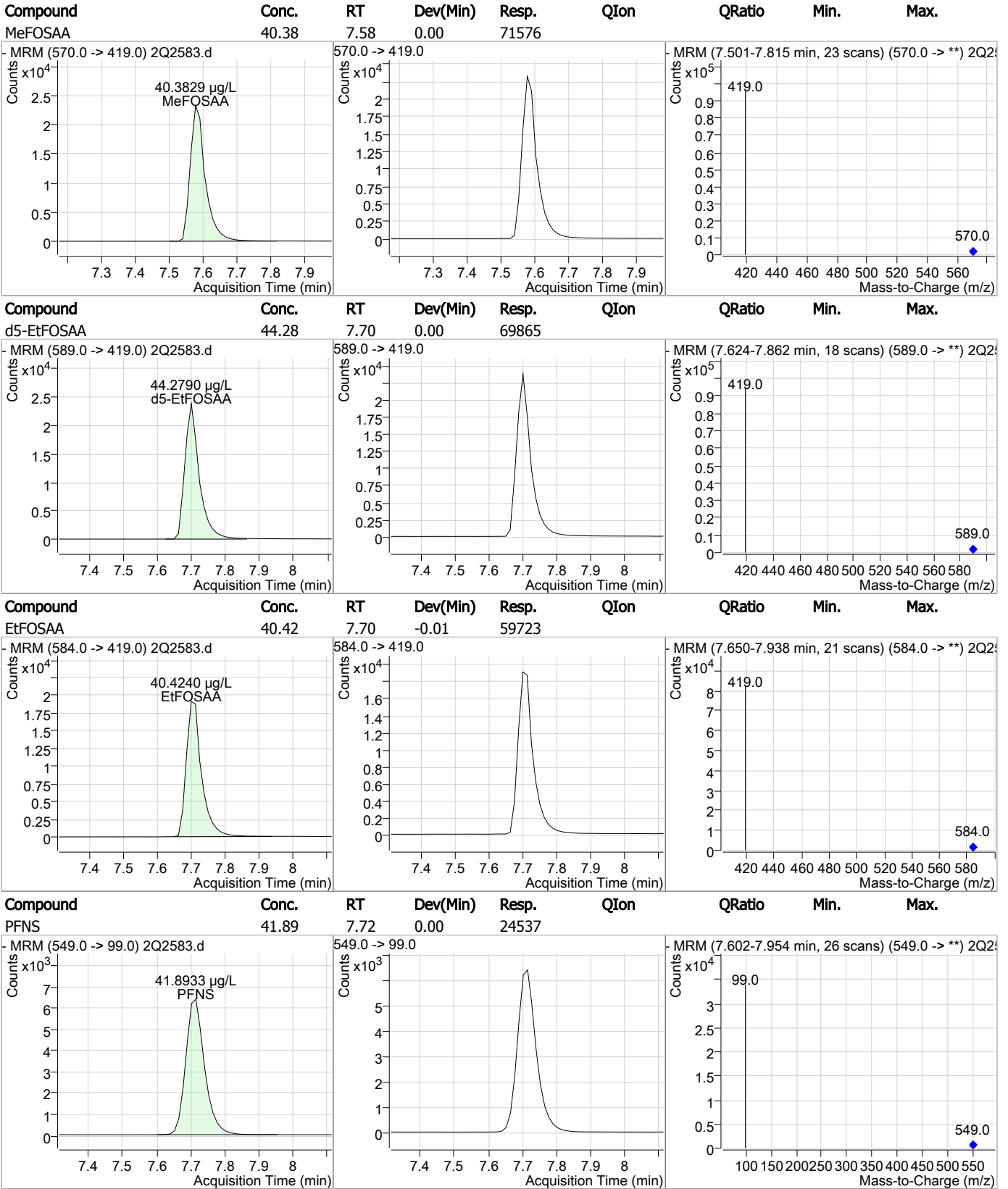
### Perfluorinated Compounds by LC/MS/MS



7.5.6

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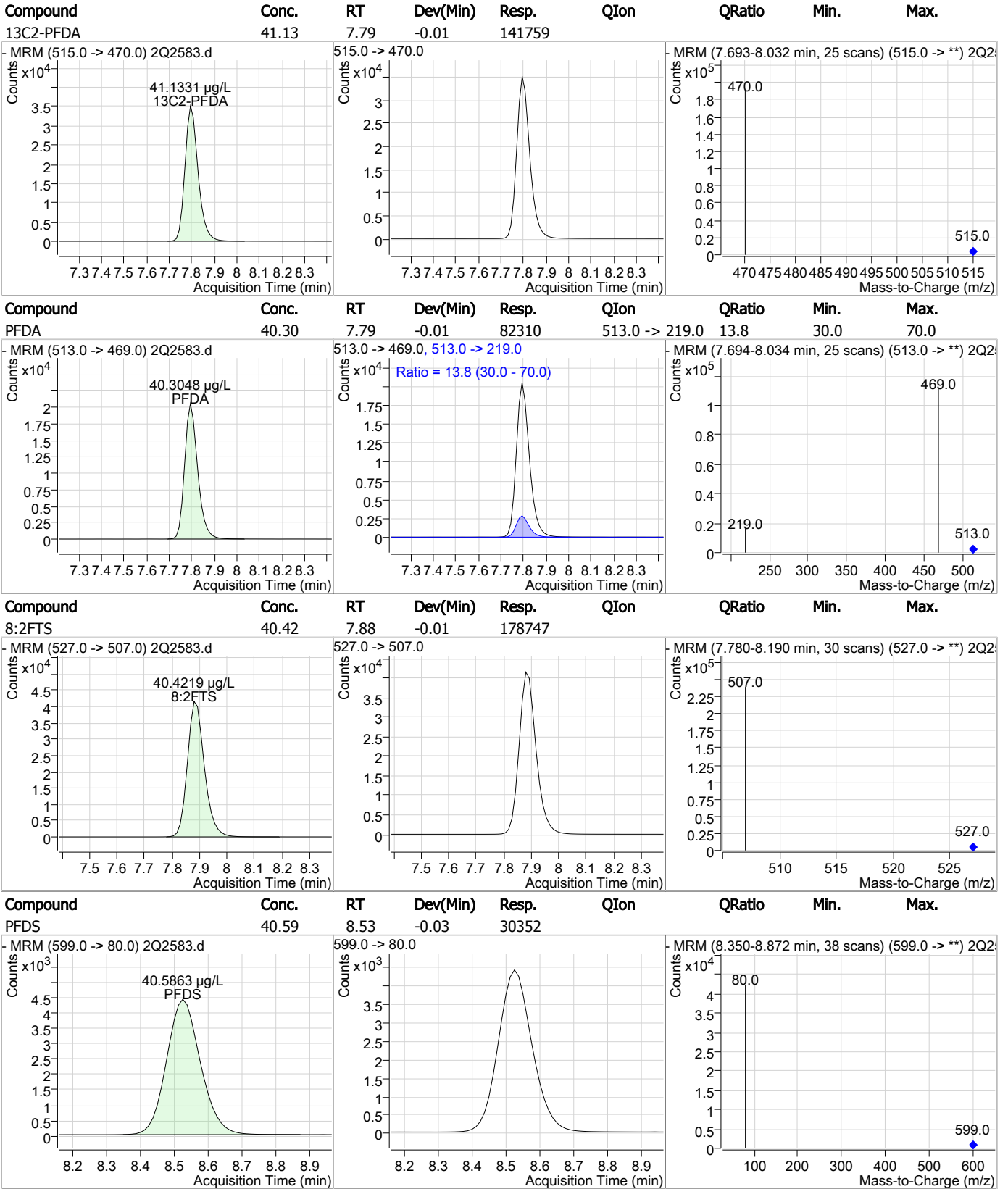
### Perfluorinated Compounds by LC/MS/MS



7.5.6

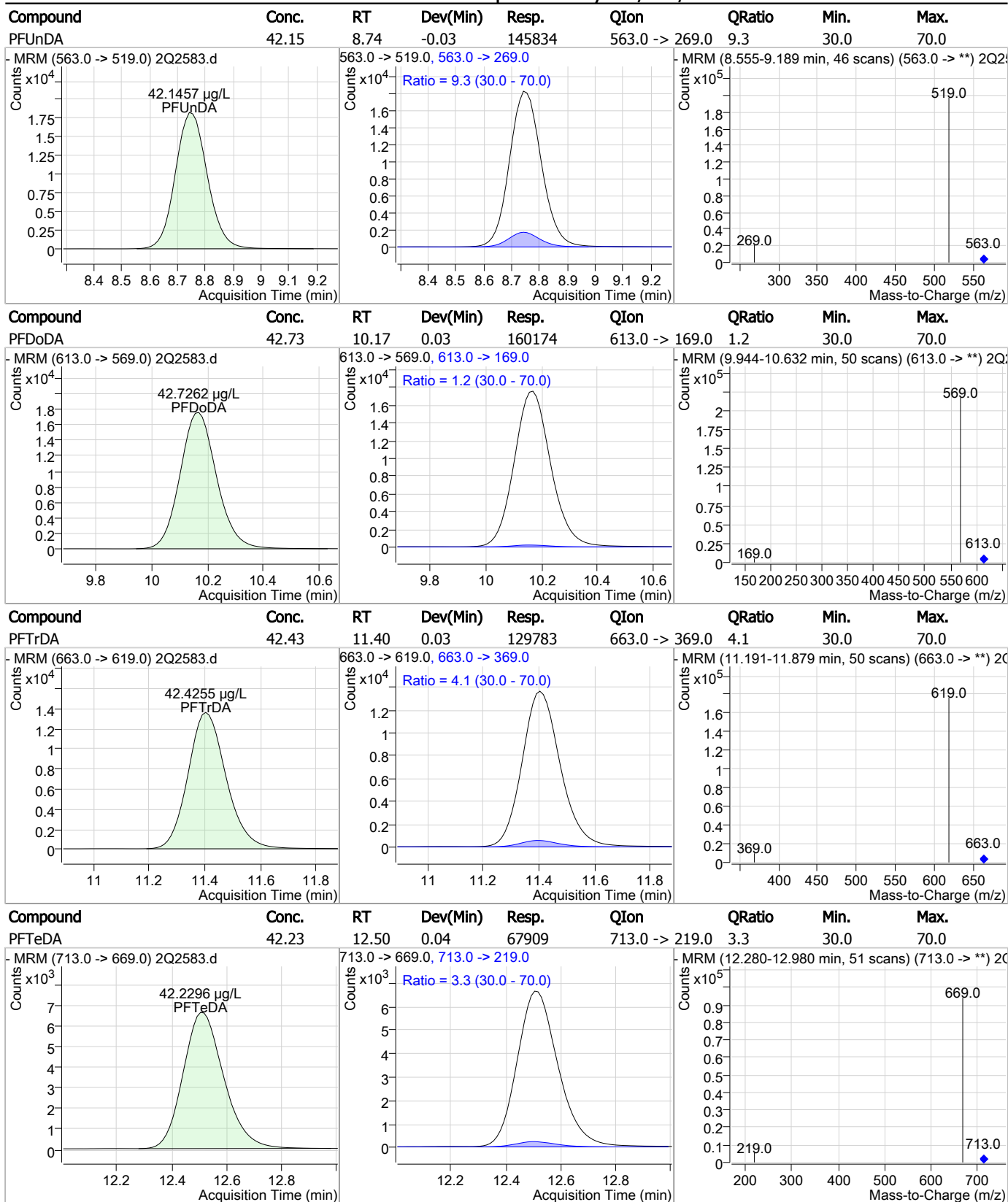
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### Perfluorinated Compounds by LC/MS/MS



7.5.6  
7

### Perfluorinated Compounds by LC/MS/MS



7.56  
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# Manual Integration Approval Summary

Sample Number: S2Q67-IC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2583.D                      Analyst approved: 06/24/17 13:30 Nancy Saunders  
Injection Time: 06/23/17 11:59                      Supervisor approved: 06/26/17 08:56 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		5.99	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.15	Split peak

7.5.6.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Mike Eger  
 06/26/17 08:56

### Perfluorinated Compounds by LC/MS/MS

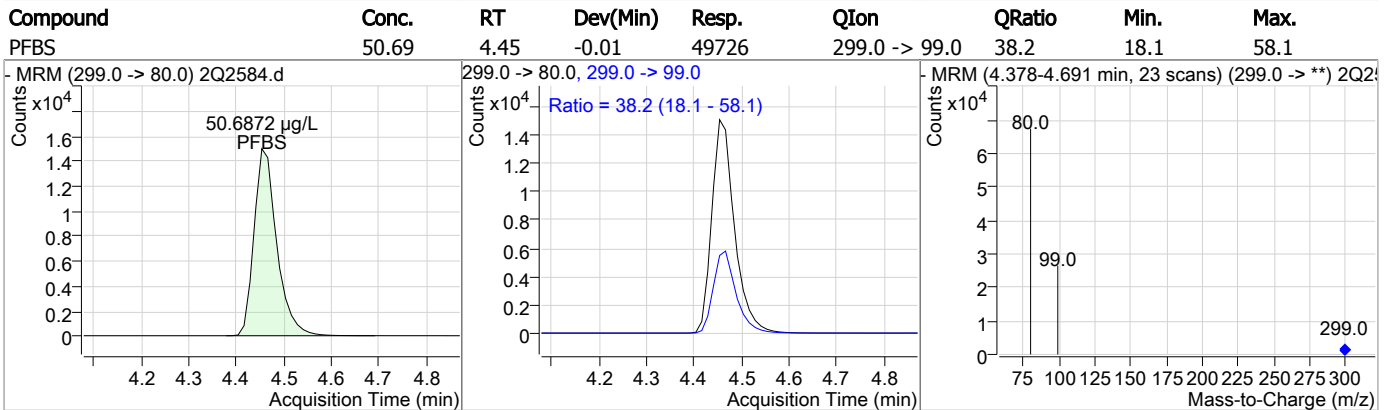
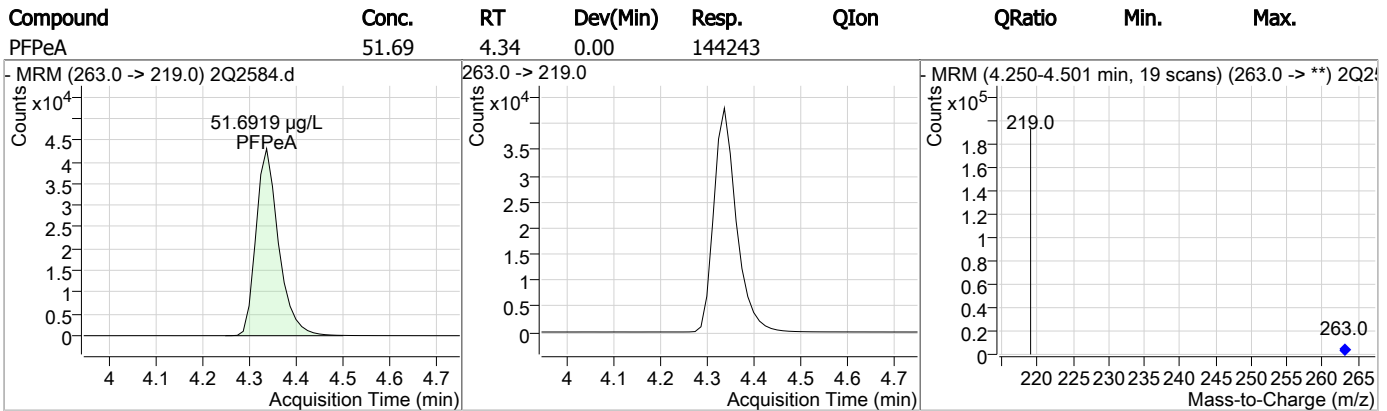
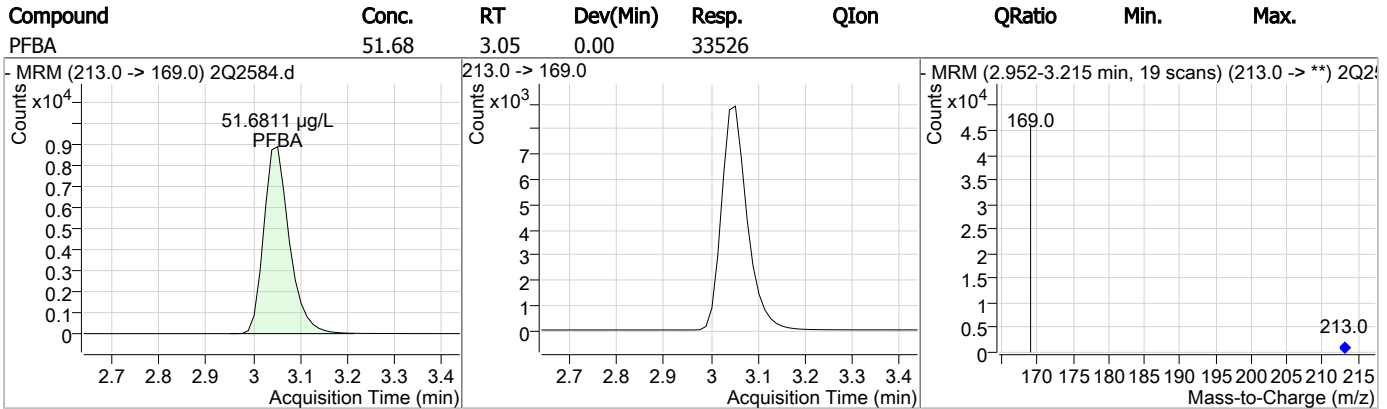
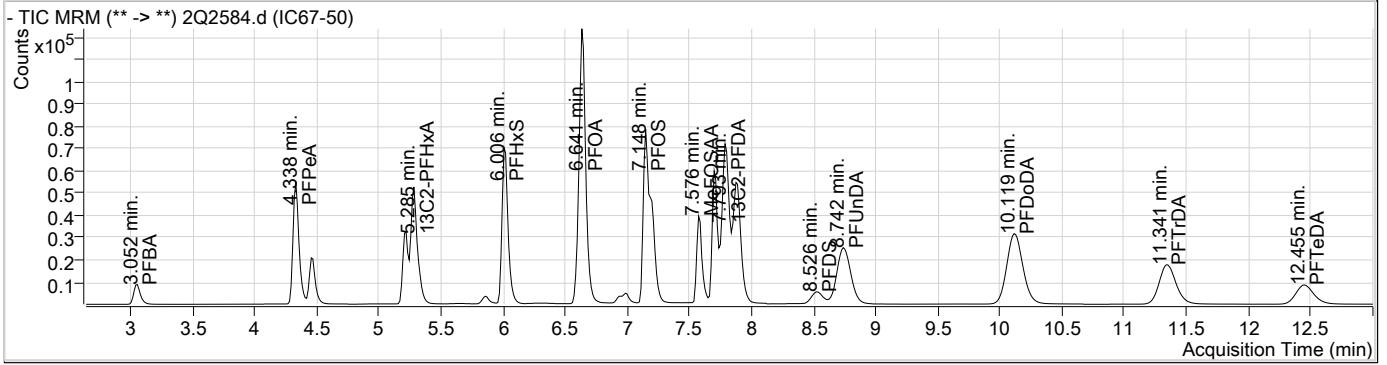
Data File : 2Q2584.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 12:17:46 PM  
 Sample Name : IC67-50  
 Vial : Vial 8  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.649	429.0 -> 409.0	74429	20.00 µg/L	0.000
13C2-PFDoDA	10.127	615.0 -> 570.0	89021	20.00 µg/L	-0.025
13C2-PFOA	6.640	415.0 -> 370.0	43021	20.00 µg/L	0.000
13C3-PFPeA	4.335	266.0 -> 222.0	40593	20.00 µg/L	0.000
13C4-PFOS	7.147	503.0 -> 80.0	26257	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	33222	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.793	515.0 -> 470.0	169943	49.73 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 248.7%	
13C2-PFHxA	5.285	315.0 -> 270.0	116268	50.55 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 252.7%	
d5-EtFOSAA	7.699	589.0 -> 419.0	86033	54.00 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 270.0%	
<b>Target Compounds</b>					
4:2FTS	5.220	327.0 -> 307.0	108501	50.25 µg/L	100
6:2FTS	6.651	427.0 -> 407.0	167905	50.01 µg/L	100
8:2FTS	7.892	527.0 -> 507.0	222499	50.11 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	73190	50.12 µg/L	100
FOSA	7.151	498.0 -> 78.0	132274	49.64 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	89162	50.42 µg/L	100
PFBA	3.052	213.0 -> 169.0	33526	51.68 µg/L	100
PFBS	4.454	299.0 -> 80.0	49726	50.69 µg/L	100
PFDA	7.794	513.0 -> 469.0	102074	50.50 µg/L	# 47
PFDoDA	10.119	613.0 -> 569.0	194740	51.27 µg/L	# 29
PFDS	8.526	599.0 -> 80.0	37836	50.51 µg/L	100
PFHpA	6.024	363.0 -> 319.0	154786	52.81 µg/L	92
PFHpS	6.610	449.0 -> 80.0	61399	51.77 µg/L	100
PFHxA	5.287	313.0 -> 269.0	48305	50.74 µg/L	85
PFHxS	6.006	399.0 -> 80.0	60890	51.78 µg/L	m 92
PFNA	7.206	463.0 -> 419.0	106574	50.69 µg/L	96
PFNS	7.716	549.0 -> 99.0	30357	51.74 µg/L	100
PFOA	6.641	413.0 -> 369.0	86826	52.19 µg/L	95
PFOS	7.148	499.0 -> 80.0	75126	50.12 µg/L	m 90
PFPeA	4.338	263.0 -> 219.0	144243	51.69 µg/L	100
PFPeS	5.330	349.0 -> 99.0	17294	51.77 µg/L	100
PFTeDA	12.455	713.0 -> 669.0	84976	52.15 µg/L	# 32
PFTTrDA	11.341	663.0 -> 619.0	159012	51.30 µg/L	# 34
PFUnDA	8.742	563.0 -> 519.0	182145	51.95 µg/L	# 41

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

7.57  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.7

7



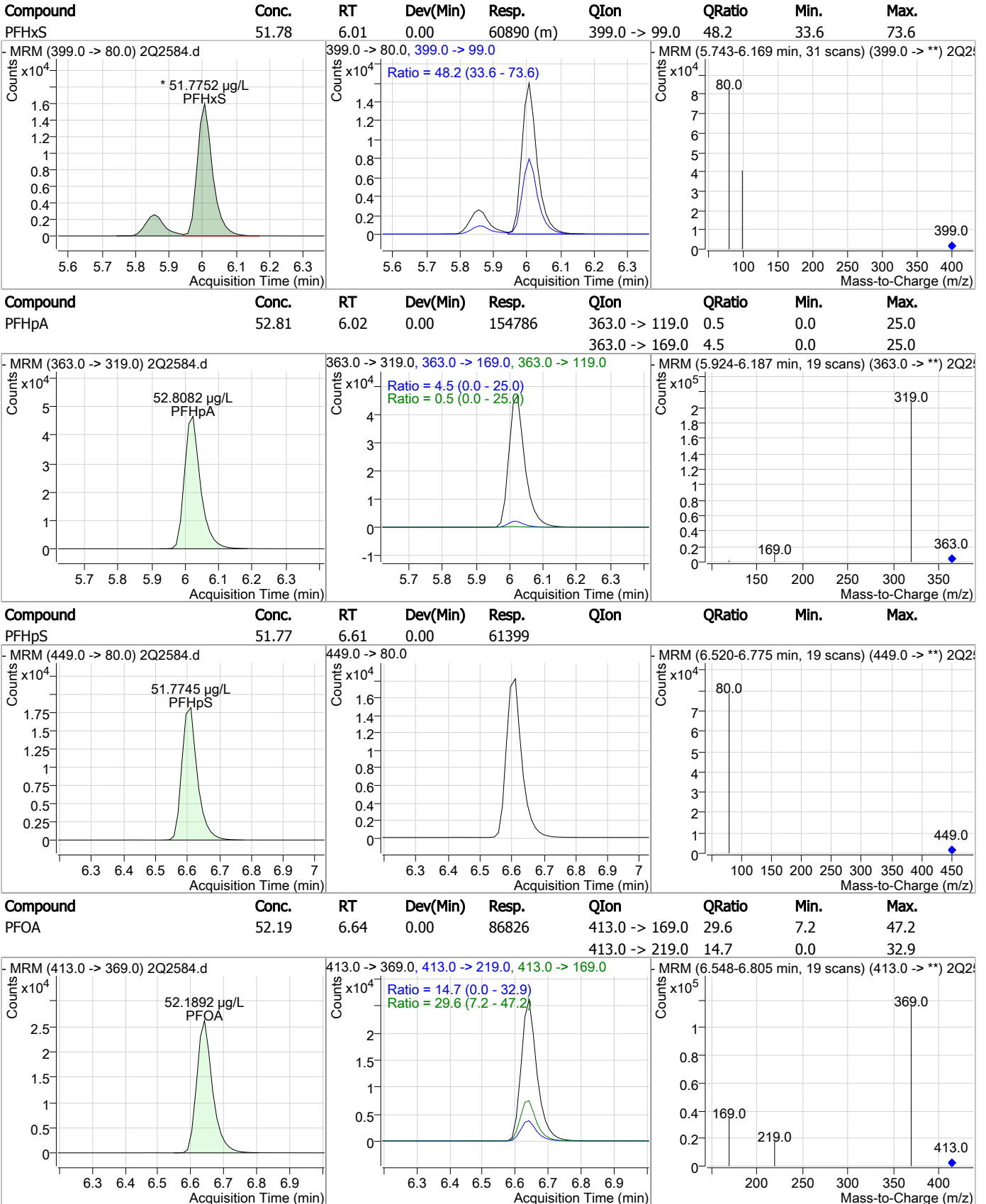
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	50.25	5.22	0.00	108501				
13C2-PFHxA	50.55	5.28	0.00	116268				
PFHxA	50.74	5.29	0.00	48305	313.0 -> 119.0	0.2	0.0	25.0
PFPeS	51.77	5.33	0.00	17294				

7.57

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### Perfluorinated Compounds by LC/MS/MS



7.57

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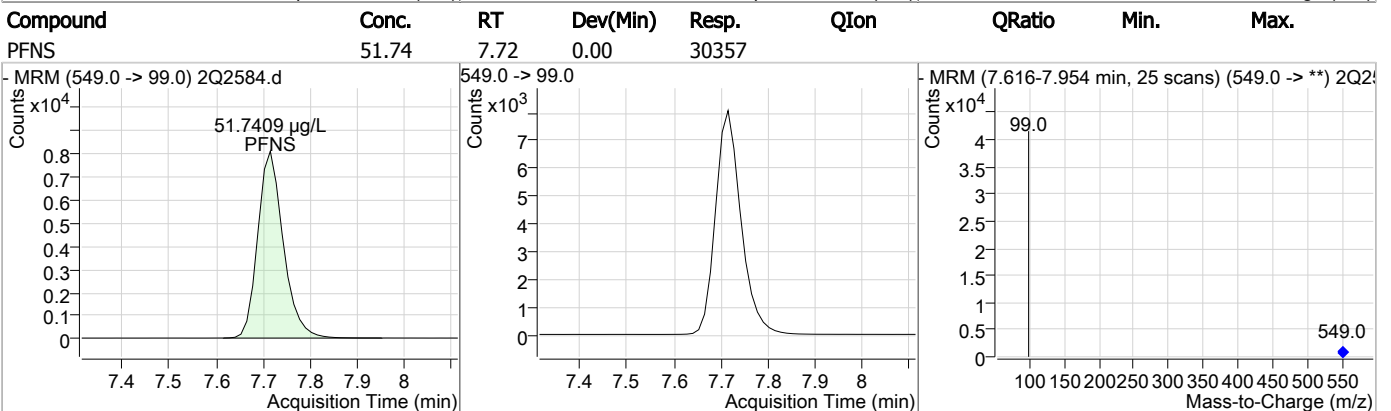
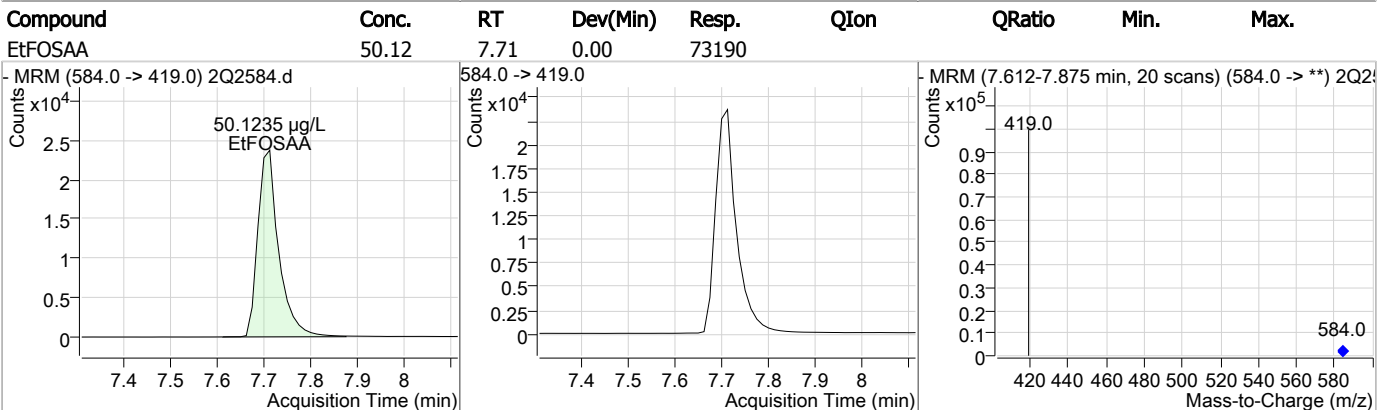
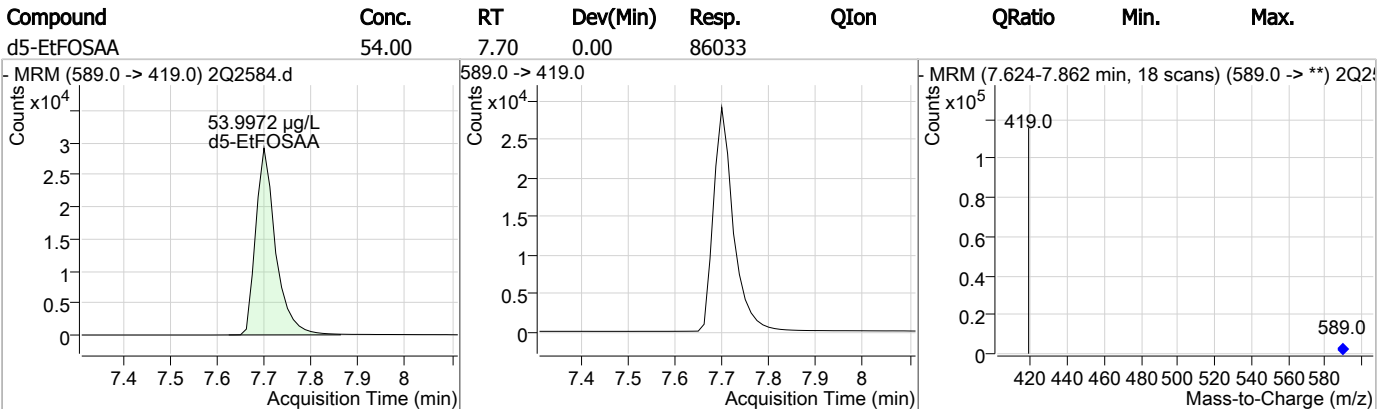
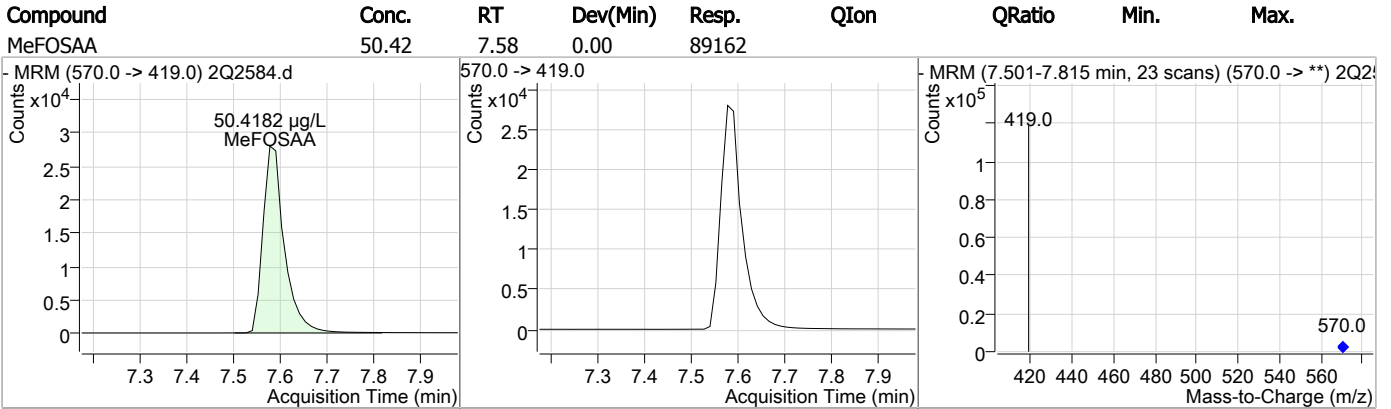
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	50.01	6.65	0.00	167905				
-MRM (427.0 -> 407.0) 2Q2584.d			427.0 -> 407.0			-MRM (6.549-6.816 min, 20 scans) (427.0 -> **) 2Q2		
PFOS	50.12	7.15	0.00	75126 (m)	499.0 -> 99.0	49.9	37.6	77.6
-MRM (499.0 -> 80.0) 2Q2584.d			499.0 -> 80.0, 499.0 -> 99.0			-MRM (6.847-7.393 min, 40 scans) (499.0 -> **) 2Q2		
FOSA	49.64	7.15	0.00	132274				
-MRM (498.0 -> 78.0) 2Q2584.d			498.0 -> 78.0			-MRM (7.089-7.320 min, 17 scans) (498.0 -> **) 2Q2		
PFNA	50.69	7.21	0.00	106574	463.0 -> 219.0	19.1	0.9	40.9
-MRM (463.0 -> 419.0) 2Q2584.d			463.0 -> 419.0, 463.0 -> 219.0			-MRM (7.115-7.446 min, 24 scans) (463.0 -> **) 2Q2		

7.57

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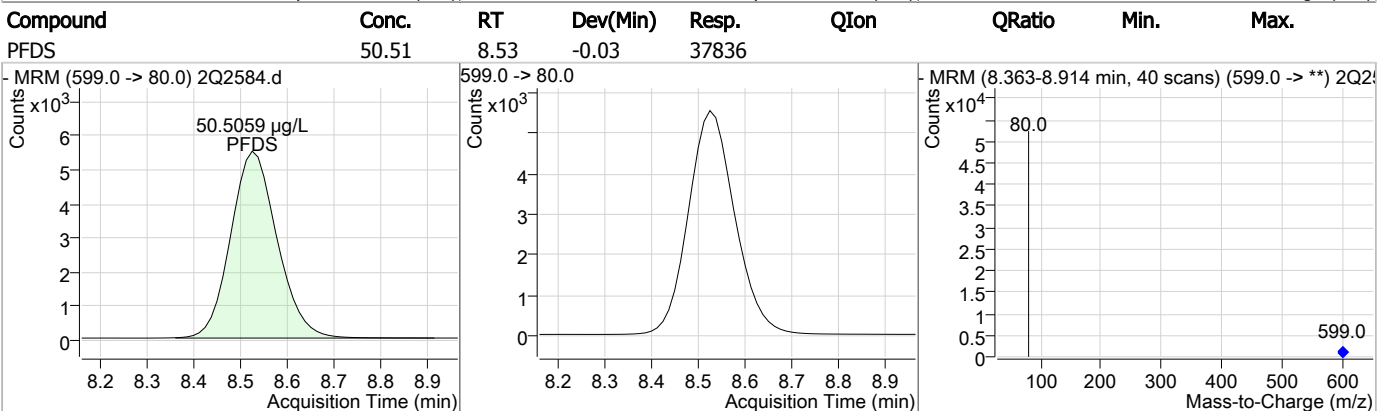
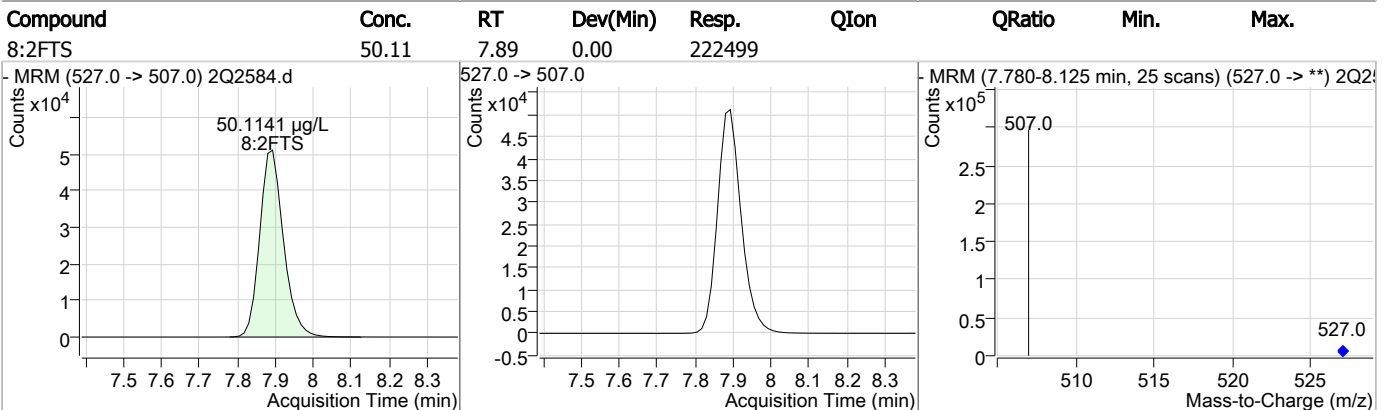
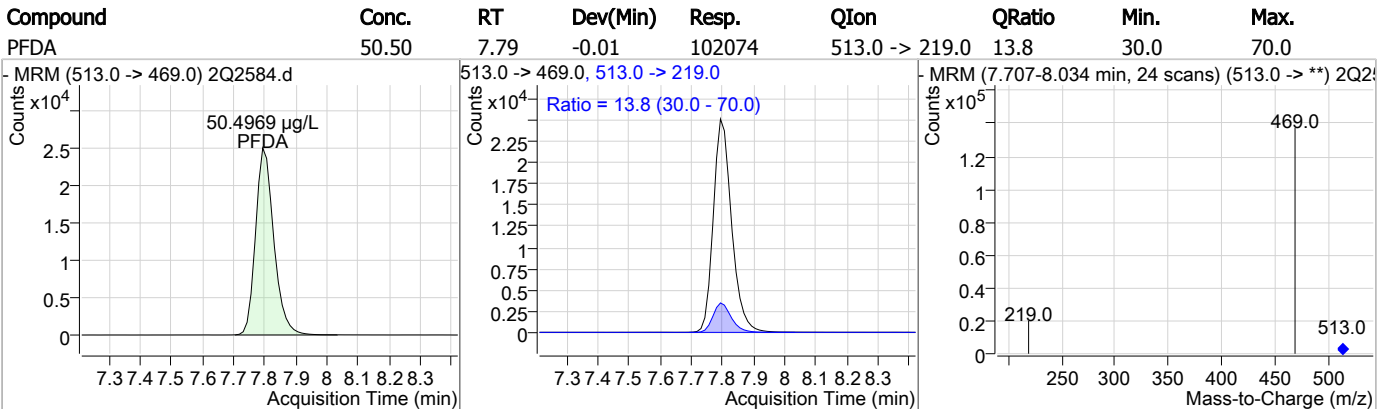
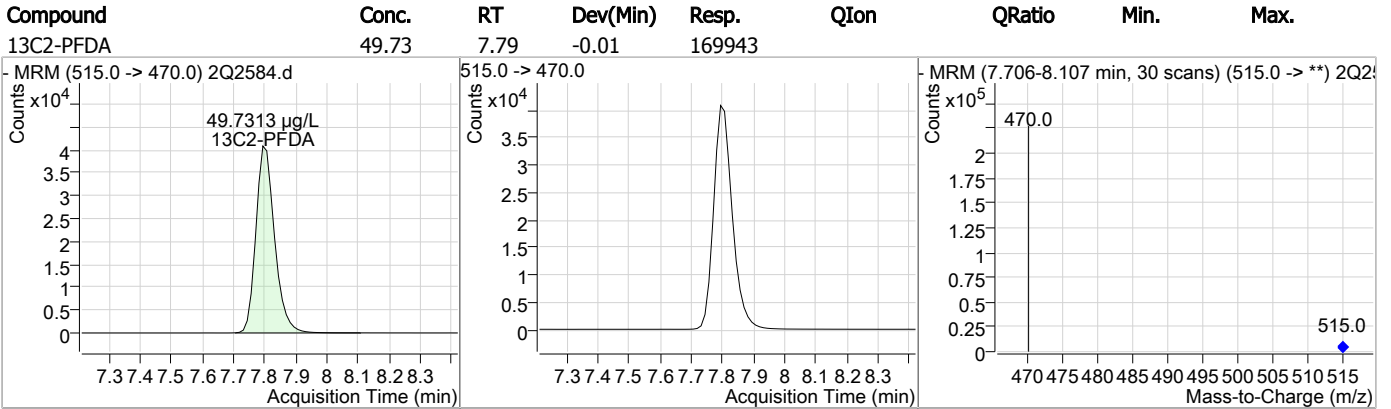
### Perfluorinated Compounds by LC/MS/MS



7.57

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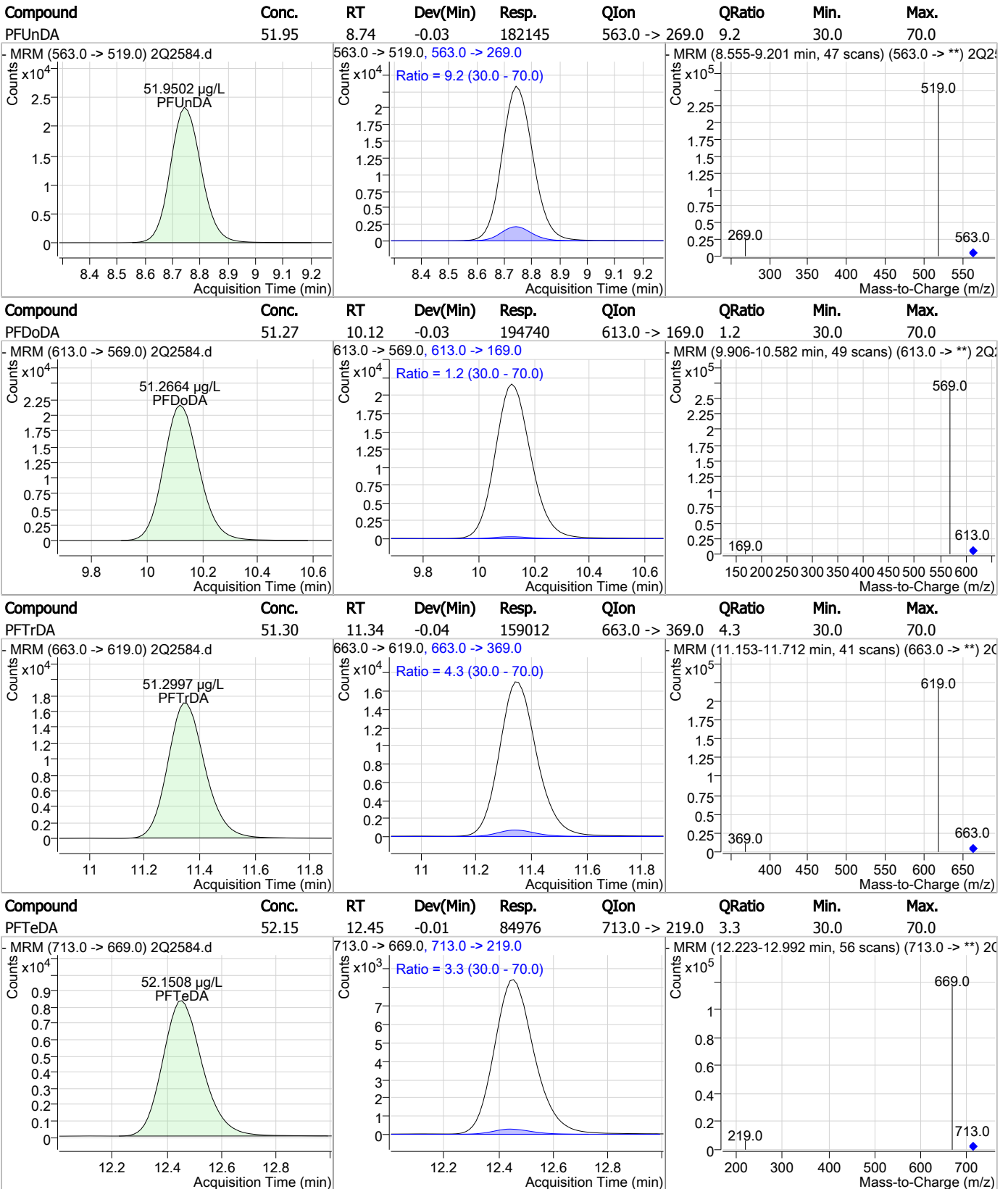
### Perfluorinated Compounds by LC/MS/MS



7.57

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### Perfluorinated Compounds by LC/MS/MS



7.57

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# Manual Integration Approval Summary

Sample Number: S2Q67-IC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2584.D                      Analyst approved: 06/24/17 13:30 Nancy Saunders  
Injection Time: 06/23/17 12:17                      Supervisor approved: 06/26/17 08:56 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.15	Split peak

7.5.7.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Mike Eger  
 06/26/17 08:56

### Perfluorinated Compounds by LC/MS/MS

Data File : 2Q2585.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 12:35:36 PM  
 Sample Name : IC67-100  
 Vial : Vial 9  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

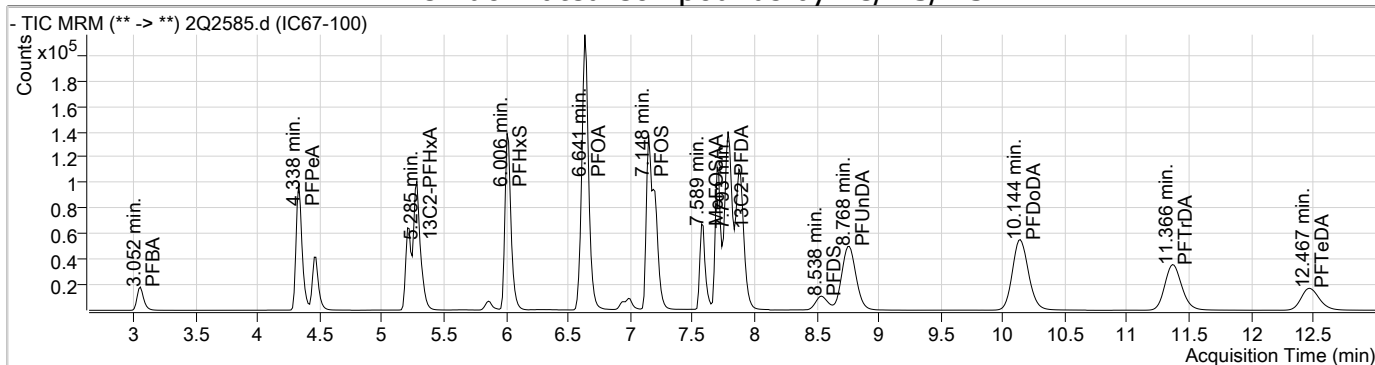
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.649	429.0 -> 409.0	85495	20.00 µg/L	0.000
13C2-PFDoDA	10.140	615.0 -> 570.0	95294	20.00 µg/L	-0.013
13C2-PFOA	6.640	415.0 -> 370.0	45650	20.00 µg/L	0.000
13C3-PFPeA	4.335	266.0 -> 222.0	42965	20.00 µg/L	0.000
13C4-PFOS	7.147	503.0 -> 80.0	27234	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	35522	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.793	515.0 -> 470.0	333157	99.91 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 499.5%	
13C2-PFHxA	5.285	315.0 -> 270.0	226068	99.83 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 499.2%	
d5-EtFOSAA	7.699	589.0 -> 419.0	162938	95.64 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 478.2%	
<b>Target Compounds</b>					
4:2FTS	5.207	327.0 -> 307.0	218202	99.90 µg/L	QValue 100
6:2FTS	6.651	427.0 -> 407.0	329797	99.93 µg/L	100
8:2FTS	7.880	527.0 -> 507.0	453291	99.91 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	138591	99.90 µg/L	100
FOSA	7.151	498.0 -> 78.0	234579	100.07 µg/L	100
MeFOSAA	7.589	570.0 -> 419.0	177583	99.85 µg/L	100
PFBA	3.052	213.0 -> 169.0	67615	98.23 µg/L	100
PFBS	4.454	299.0 -> 80.0	101207	99.46 µg/L	100
PFDA	7.794	513.0 -> 469.0	198034	99.84 µg/L	# 48
PFDoDA	10.144	613.0 -> 569.0	399031	98.13 µg/L	# 29
PFDS	8.538	599.0 -> 80.0	77425	99.64 µg/L	100
PFHpA	6.024	363.0 -> 319.0	303460	97.57 µg/L	93
PFHpS	6.610	449.0 -> 80.0	121404	98.70 µg/L	100
PFHxA	5.287	313.0 -> 269.0	94830	99.82 µg/L	85
PFHxS	6.006	399.0 -> 80.0	120117	98.47 µg/L	m 93
PFNA	7.206	463.0 -> 419.0	220374	98.79 µg/L	96
PFNS	7.716	549.0 -> 99.0	59810	98.28 µg/L	100
PFOA	6.641	413.0 -> 369.0	173014	98.01 µg/L	95
PFOS	7.148	499.0 -> 80.0	148177	99.93 µg/L	m 89
PFPeA	4.338	263.0 -> 219.0	290162	98.24 µg/L	100
PFPeS	5.317	349.0 -> 99.0	34688	98.11 µg/L	100
PFTeDA	12.467	713.0 -> 669.0	170561	97.78 µg/L	# 32
PFTrDA	11.366	663.0 -> 619.0	325996	98.25 µg/L	# 34
PFUnDA	8.768	563.0 -> 519.0	367847	98.01 µg/L	# 41

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

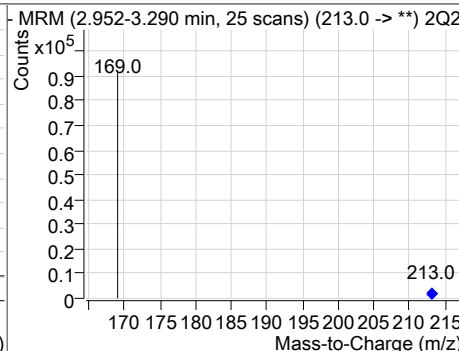
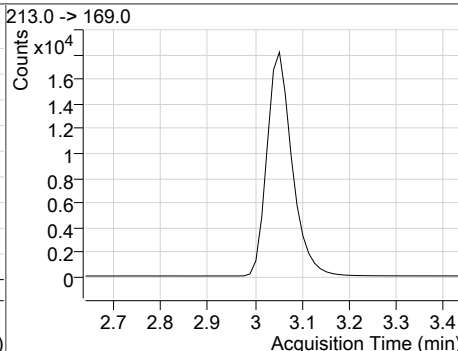
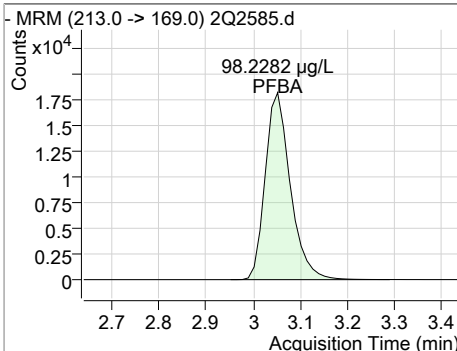
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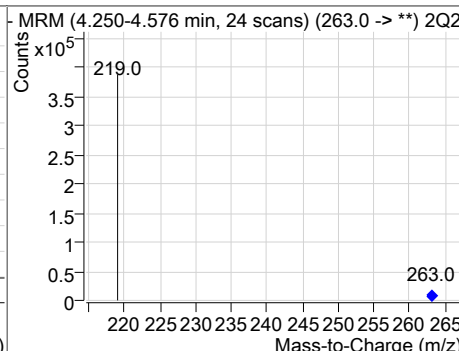
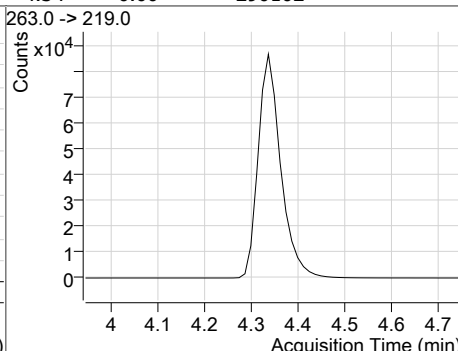
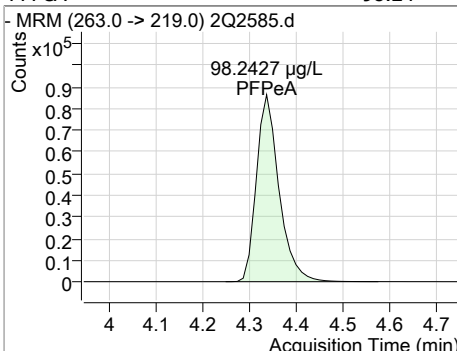
### Perfluorinated Compounds by LC/MS/MS



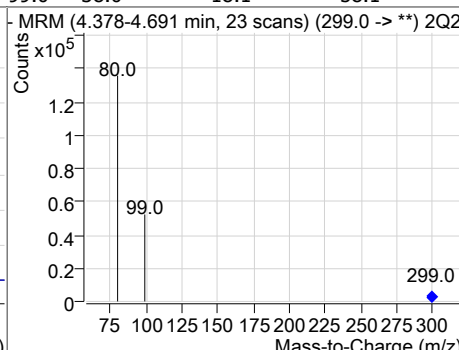
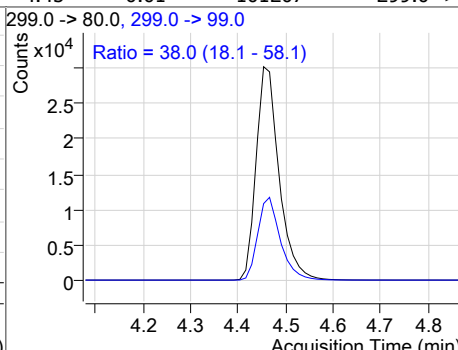
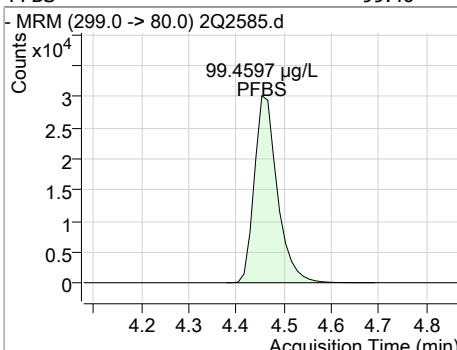
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	98.23	3.05	0.00	67615				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	98.24	4.34	0.00	290162				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	99.46	4.45	-0.01	101207	299.0 -> 99.0	38.0	18.1	58.1



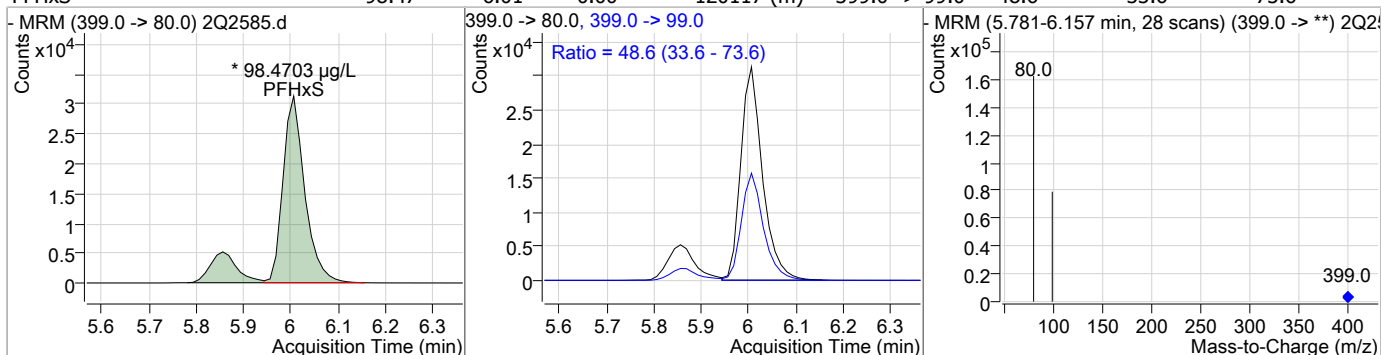
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	99.90	5.21	-0.01	218202				
13C2-PFHxA	99.83	5.28	0.00	226068				
PFHxA	99.82	5.29	0.00	94830	313.0 -> 119.0	0.2	0.0	25.0
PFPeS	98.11	5.32	-0.01	34688				

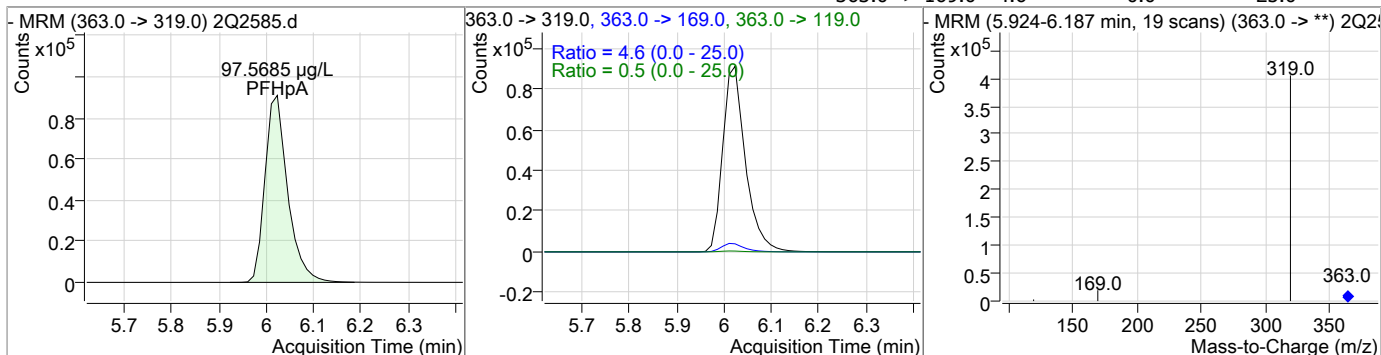
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### Perfluorinated Compounds by LC/MS/MS

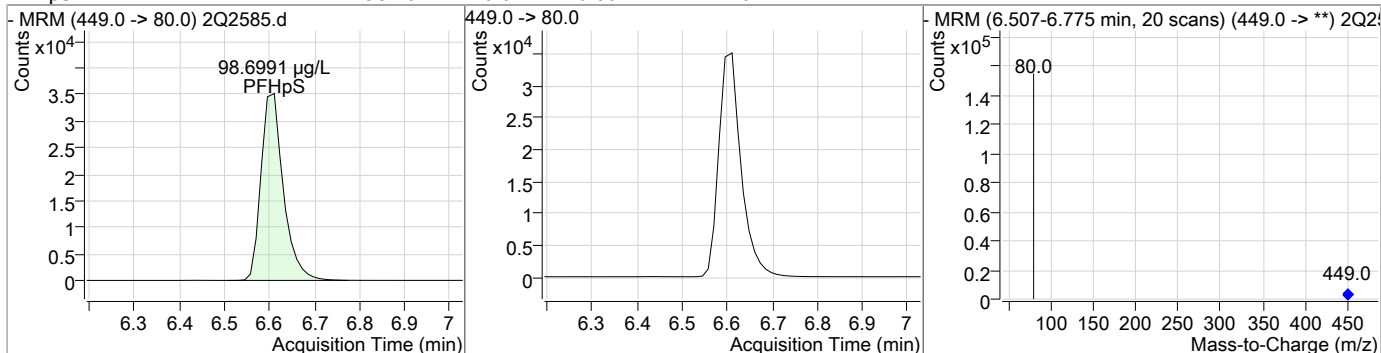
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	98.47	6.01	0.00	120117 (m)	399.0 -> 99.0	48.6	33.6	73.6



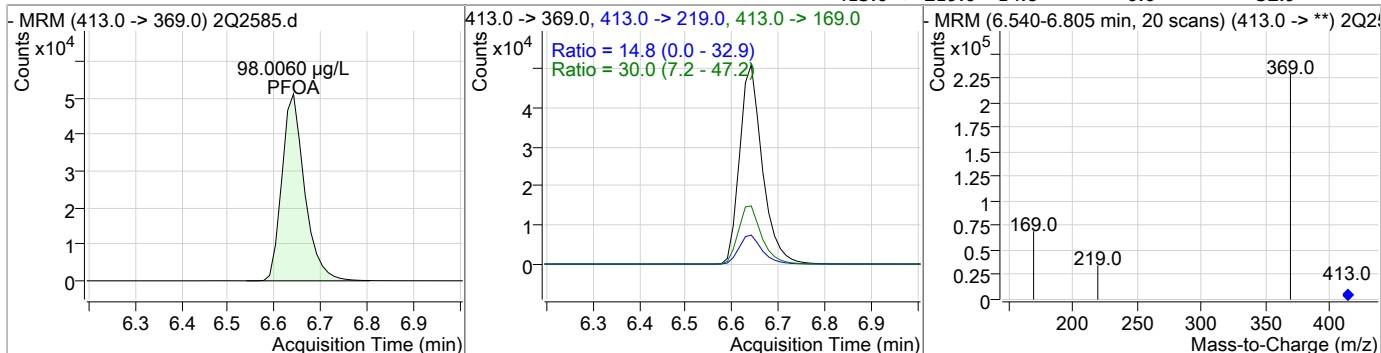
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	97.57	6.02	0.00	303460	363.0 -> 119.0 363.0 -> 169.0	4.6	0.0	25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	98.70	6.61	0.00	121404	449.0 -> 80.0			

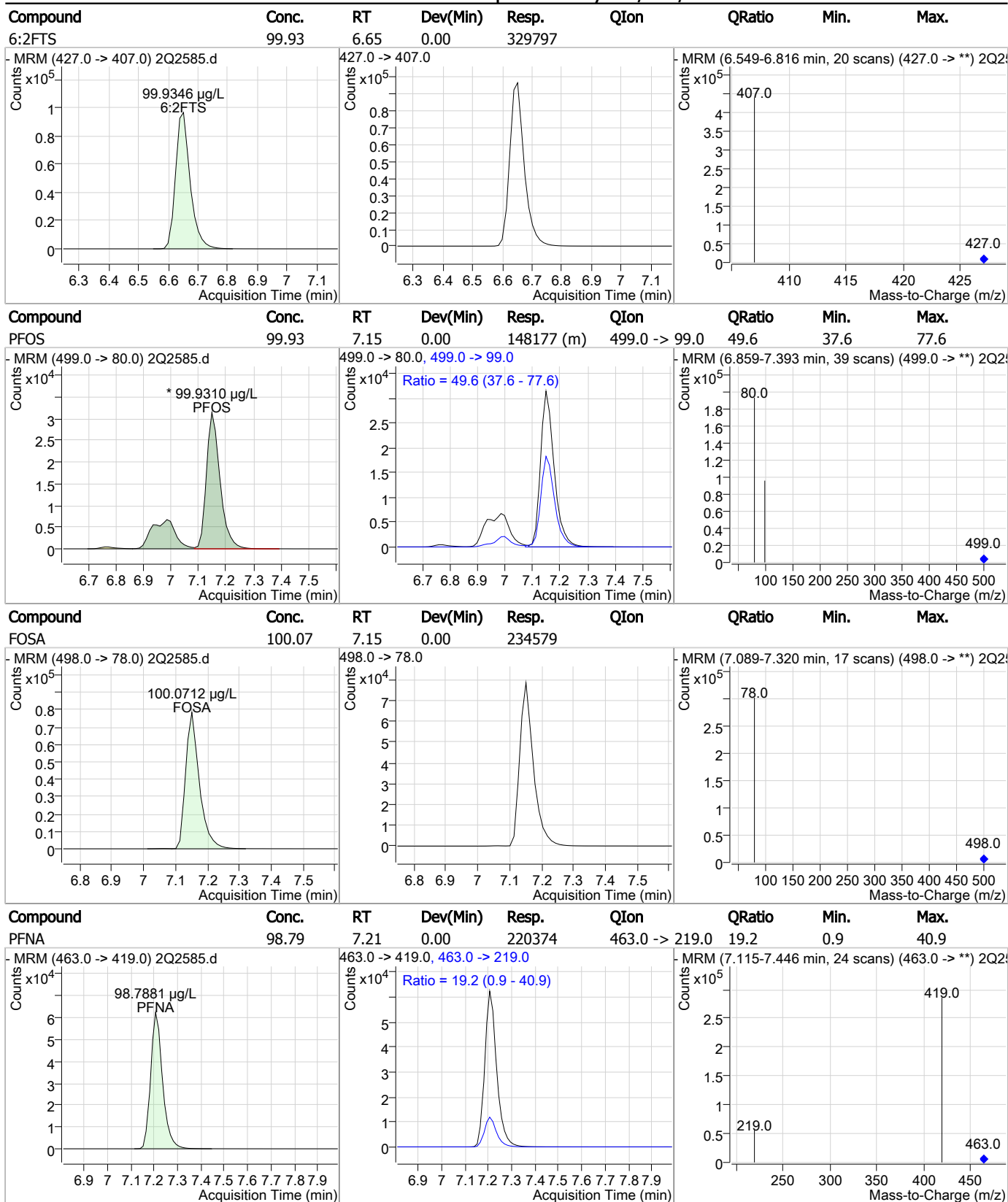


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	98.01	6.64	0.00	173014	413.0 -> 169.0 413.0 -> 219.0	14.8	7.2	32.9



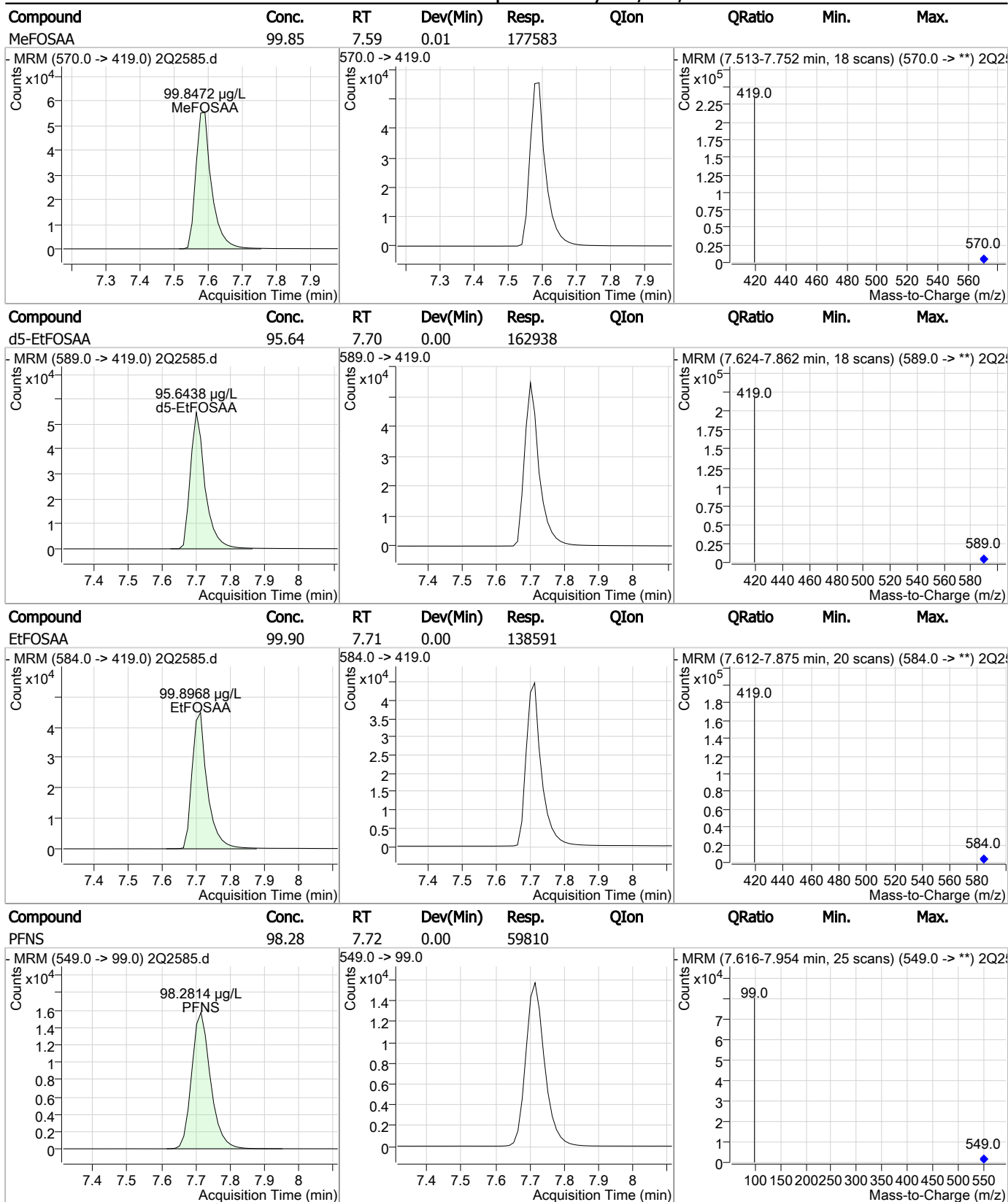
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### Perfluorinated Compounds by LC/MS/MS



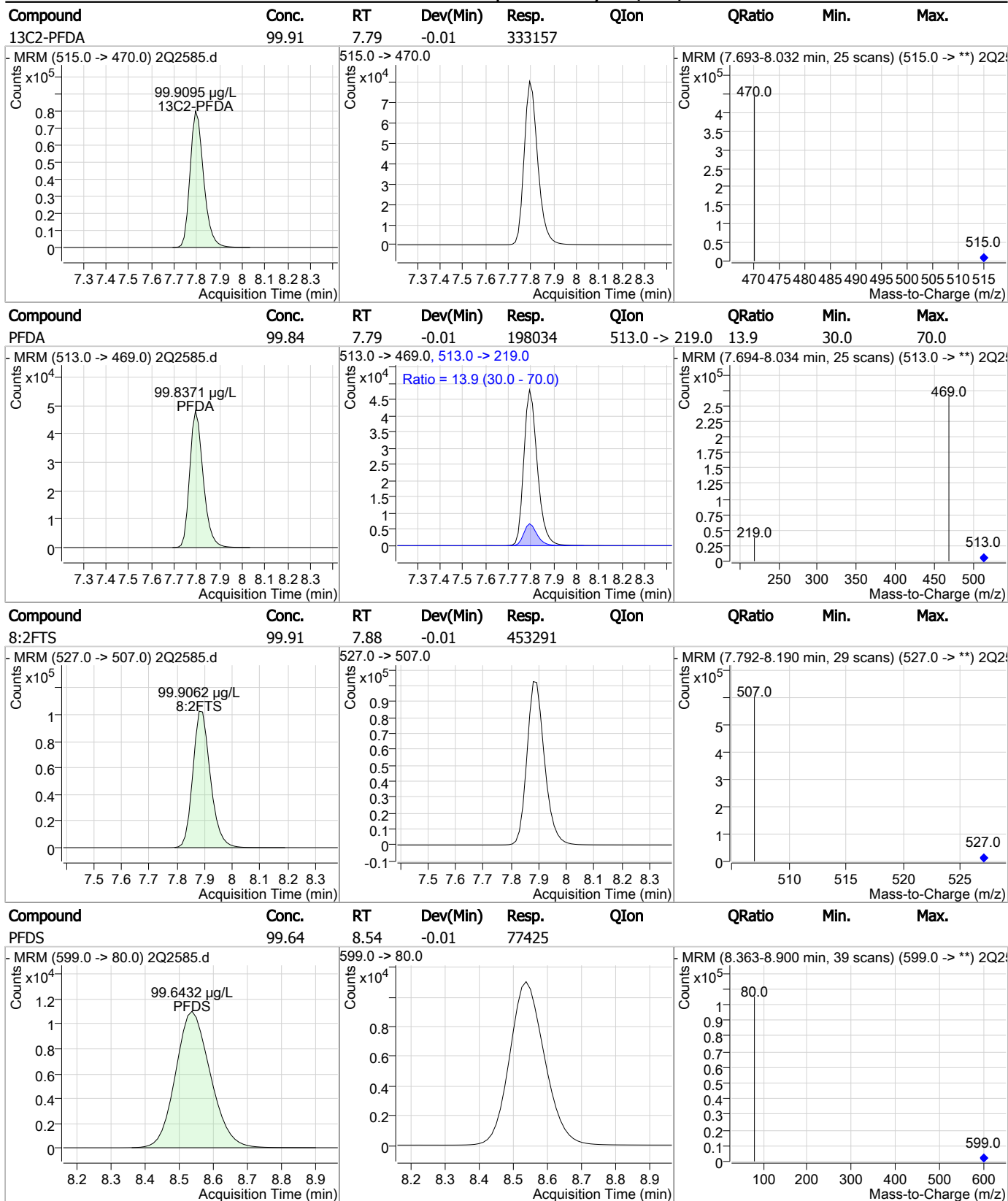
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### Perfluorinated Compounds by LC/MS/MS



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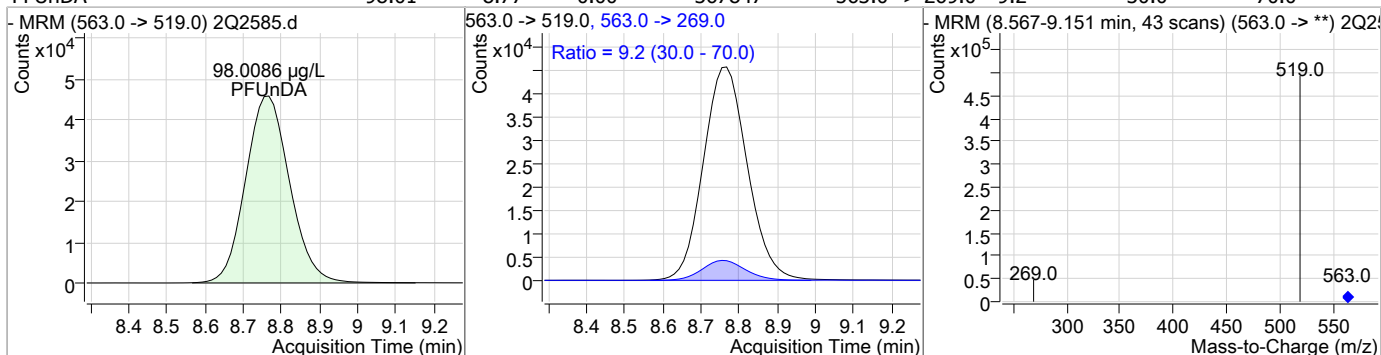
### Perfluorinated Compounds by LC/MS/MS



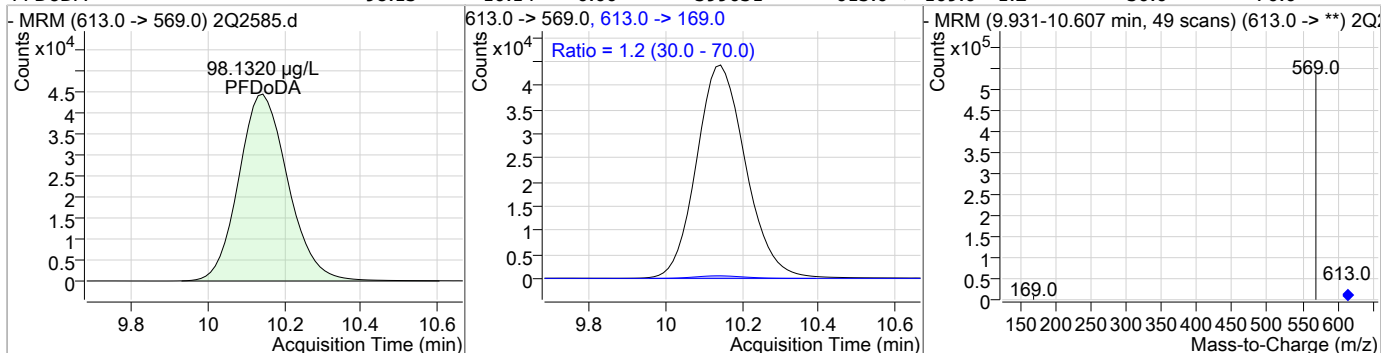
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### Perfluorinated Compounds by LC/MS/MS

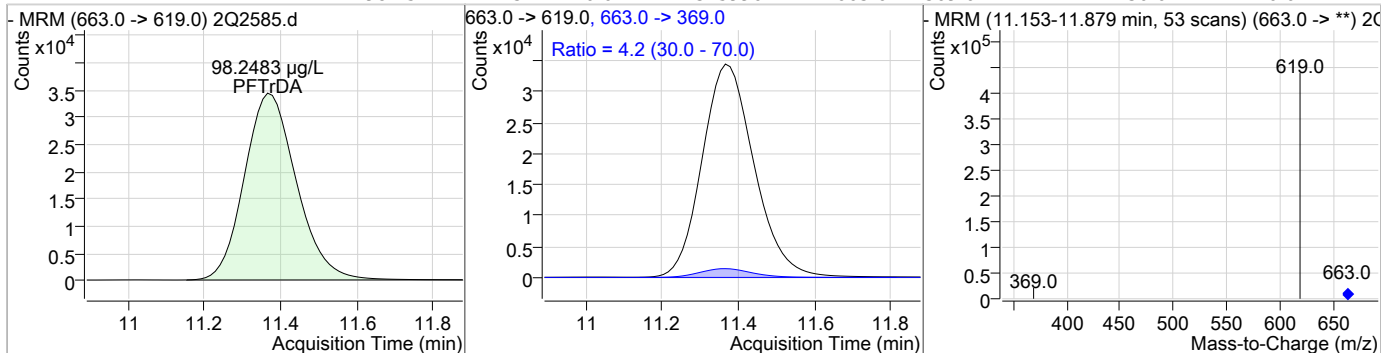
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	98.01	8.77	0.00	367847	563.0 -> 269.0	9.2	30.0	70.0



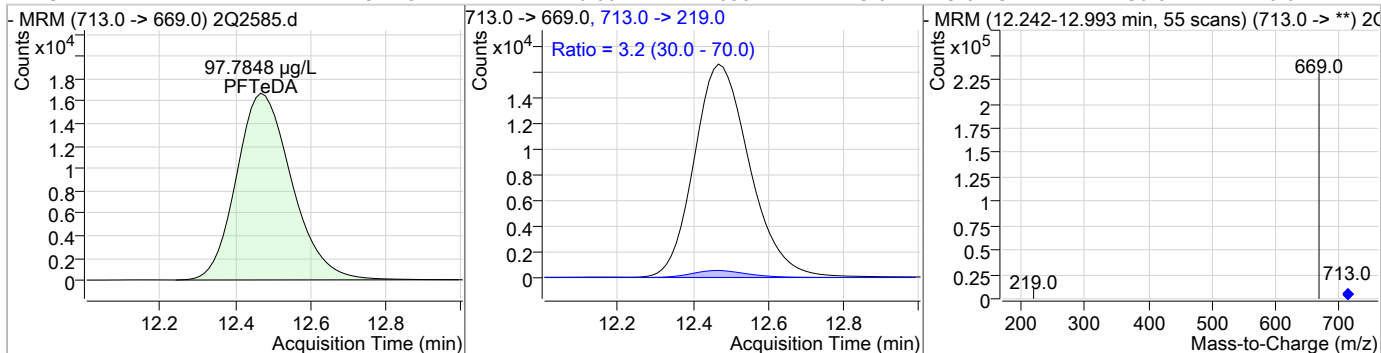
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	98.13	10.14	0.00	399031	613.0 -> 169.0	1.2	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	98.25	11.37	-0.01	325996	663.0 -> 369.0	4.2	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	97.78	12.47	0.00	170561	713.0 -> 219.0	3.2	30.0	70.0



7.58  
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# Manual Integration Approval Summary

Sample Number: S2Q67-IC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2585.D                      Analyst approved: 06/24/17 13:30 Nancy Saunders  
Injection Time: 06/23/17 12:35                      Supervisor approved: 06/26/17 08:56 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.01	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.15	Split peak

7.5.8.1

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## Perfluorinated Compounds by LC/MS/MS

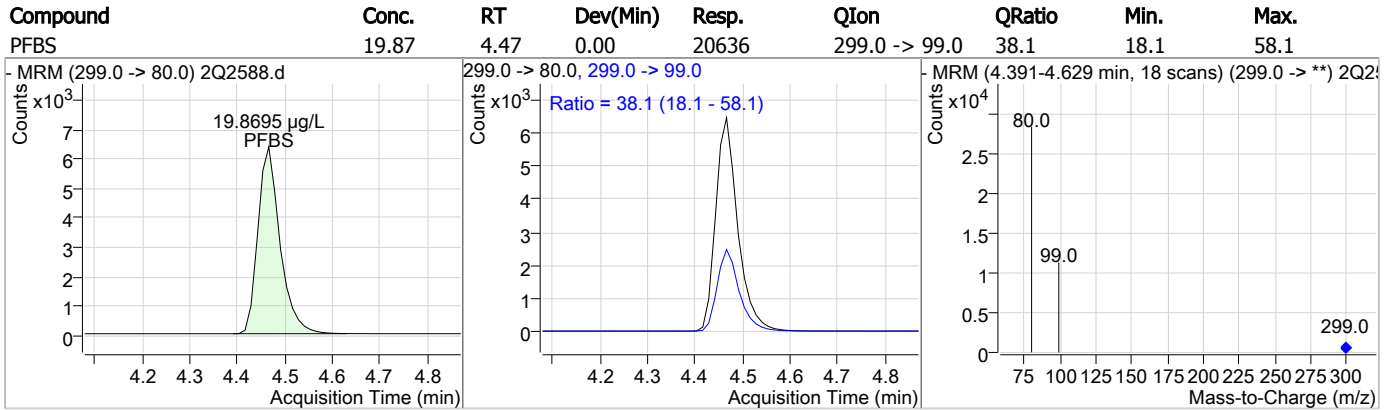
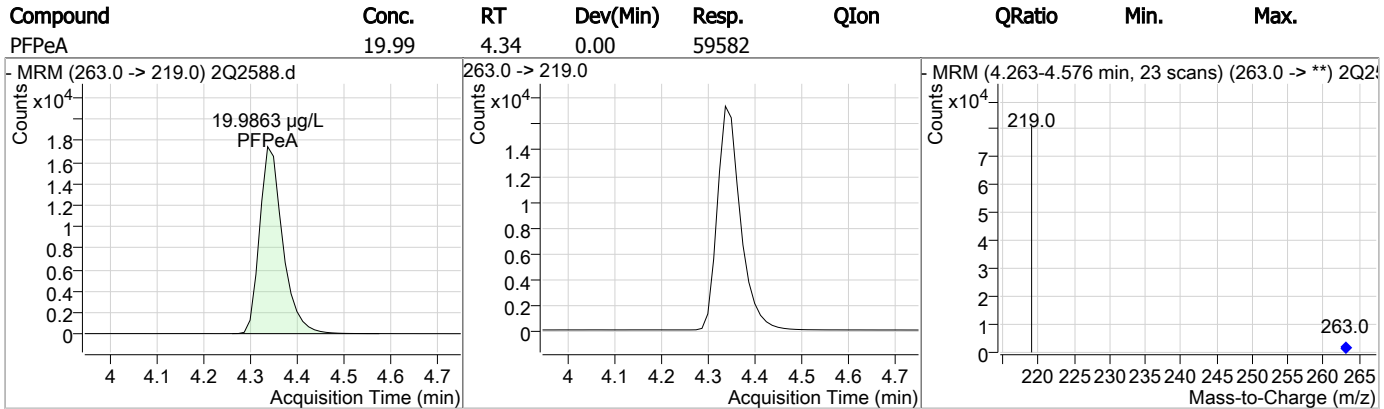
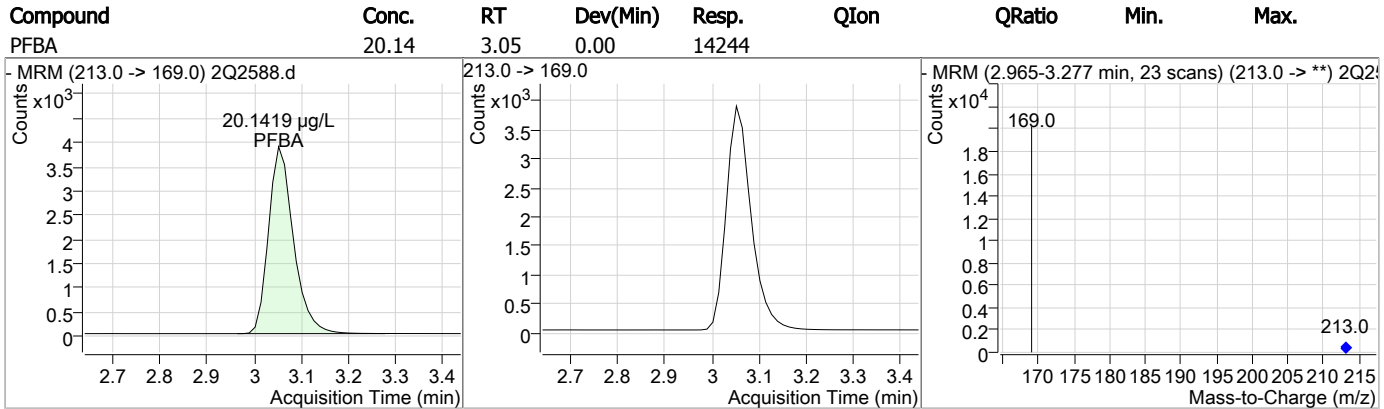
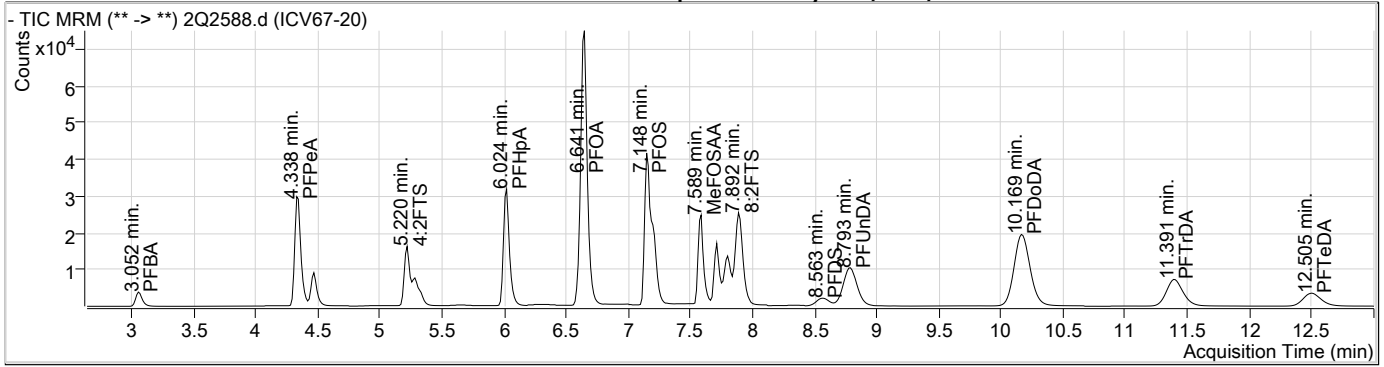
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 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/23/2017 1:31:42 PM  
 Sample Name : ICV67-20  
 Vial : Vial 11  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q67.batch.bin  
 Sample Information : OP65591,S2Q67,125,,,1.0,,water

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
13C2-6:2FTS	6.649	429.0 -> 409.0	74114	20.00	µg/L	0.000
13C2-PFDoDA	10.177	615.0 -> 570.0	93080	20.00	µg/L	0.025
13C2-PFOA	6.640	415.0 -> 370.0	46901	20.00	µg/L	0.000
13C3-PFPeA	4.347	266.0 -> 222.0	43367	20.00	µg/L	0.013
13C4-PFOS	7.159	503.0 -> 80.0	27796	20.00	µg/L	0.013
d3-MeFOSAA	7.575	573.0 -> 419.0	35325	20.00	µg/L	0.000
<b>System Monitoring Compounds</b>						
13C2-PFDA	7.806	515.0 -> 470.0	0	0.00	µg/L	m 0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = NA%			
13C2-PFHxA	-	315.0 -> 270.0	-	N.D.		
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = NA%			
d5-EtFOSAA	7.711	589.0 -> 419.0	0	0.00	µg/L	m 0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = NA%			
<b>Target Compounds</b>						
4:2FTS	5.220	327.0 -> 307.0	52151	22.75	µg/L	QValue 100
6:2FTS	6.651	427.0 -> 407.0	80248	22.22	µg/L	100
8:2FTS	7.892	527.0 -> 507.0	103737	22.09	µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	36375	22.04	µg/L	100
FOSA	7.151	498.0 -> 78.0	62675	20.04	µg/L	100
MeFOSAA	7.589	570.0 -> 419.0	40345	20.72	µg/L	100
PFBA	3.052	213.0 -> 169.0	14244	20.14	µg/L	100
PFBS	4.466	299.0 -> 80.0	20636	19.87	µg/L	100
PFDA	7.807	513.0 -> 469.0	43634	18.89	µg/L	# 47
PFDoDA	10.169	613.0 -> 569.0	80278	20.21	µg/L	# 29
PFDS	8.563	599.0 -> 80.0	15720	19.82	µg/L	100
PFHpA	6.024	363.0 -> 319.0	63921	20.00	µg/L	93
PFHpS	6.610	449.0 -> 80.0	27746	22.10	µg/L	100
PFHxA	5.287	313.0 -> 269.0	20385	18.91	µg/L	85
PFHxS	6.006	399.0 -> 80.0	26167	21.02	µg/L	93
PFNA	7.220	463.0 -> 419.0	45739	19.96	µg/L	96
PFNS	7.716	549.0 -> 99.0	13914	22.40	µg/L	100
PFOA	6.641	413.0 -> 369.0	36048	19.88	µg/L	95
PFOS	7.148	499.0 -> 80.0	28470	17.42	µg/L	99
PFPeA	4.338	263.0 -> 219.0	59582	19.99	µg/L	100
PFPeS	5.330	349.0 -> 99.0	7663	21.47	µg/L	100
PFTeDA	12.505	713.0 -> 669.0	34670	20.35	µg/L	# 32
PFTrDA	11.391	663.0 -> 619.0	65062	20.07	µg/L	# 34
PFUnDA	8.793	563.0 -> 519.0	74597	20.35	µg/L	# 41

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

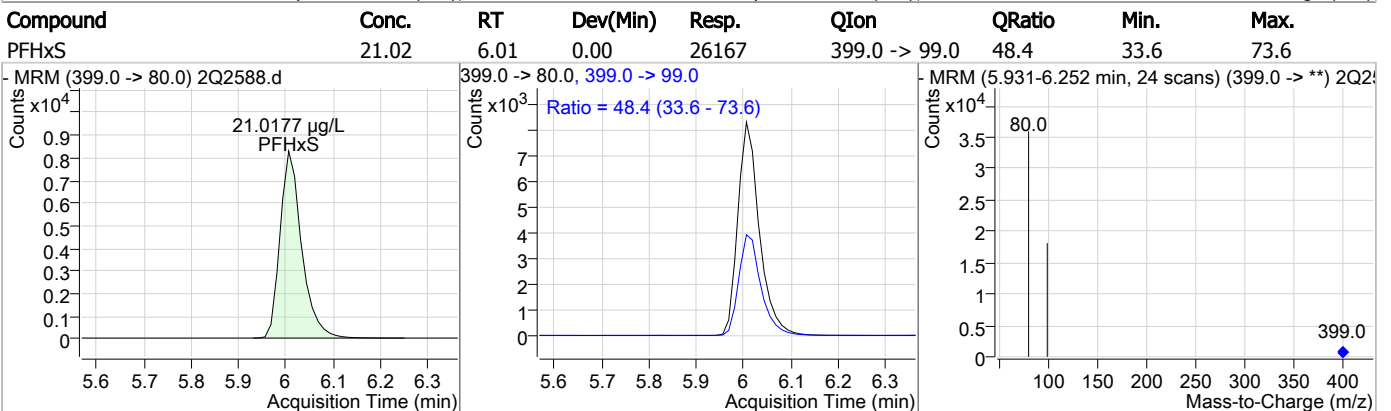
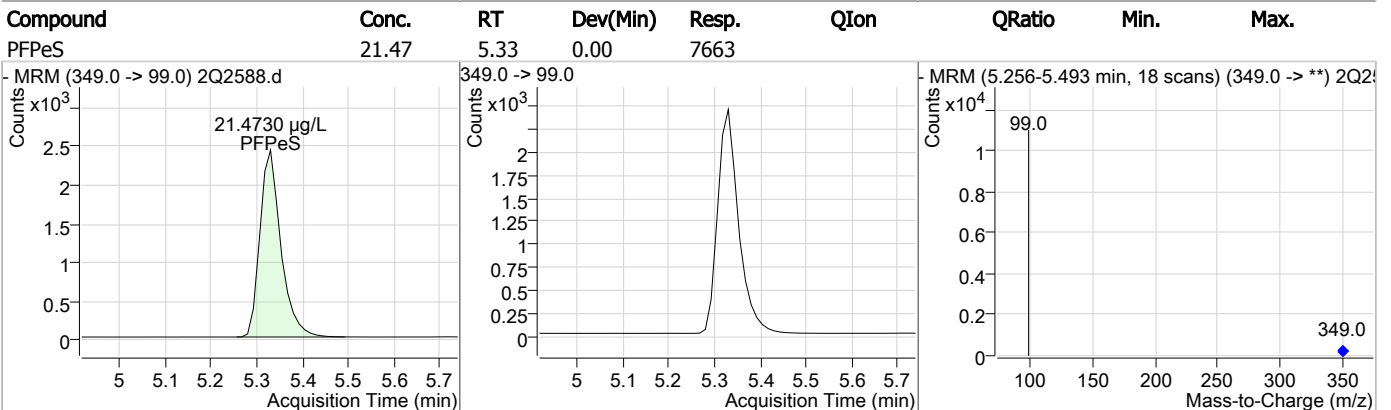
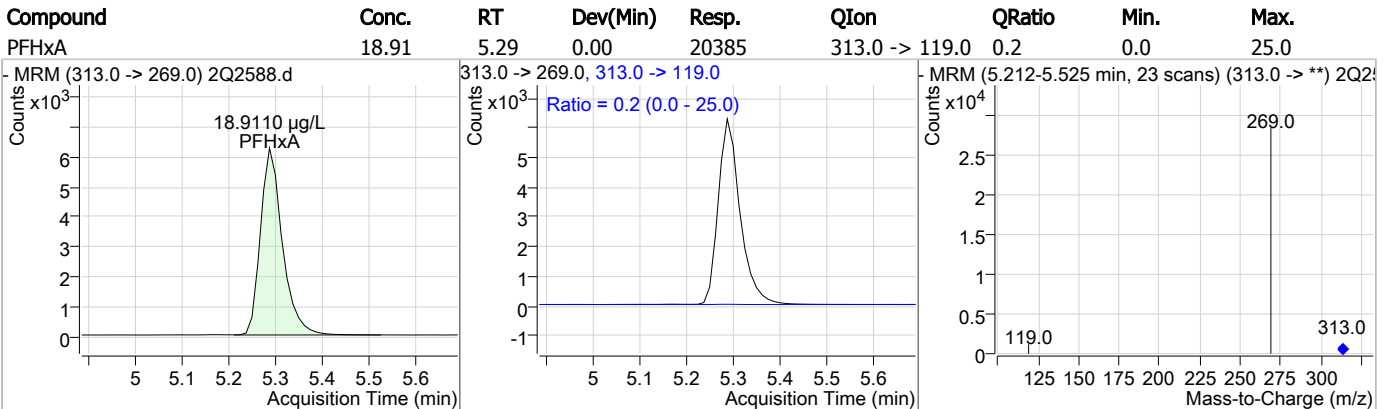
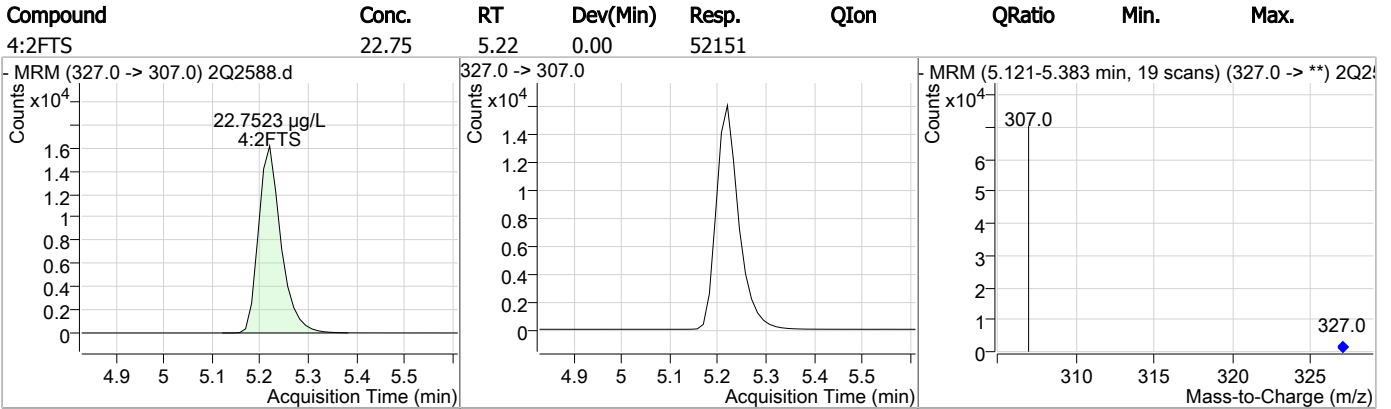
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### Perfluorinated Compounds by LC/MS/MS



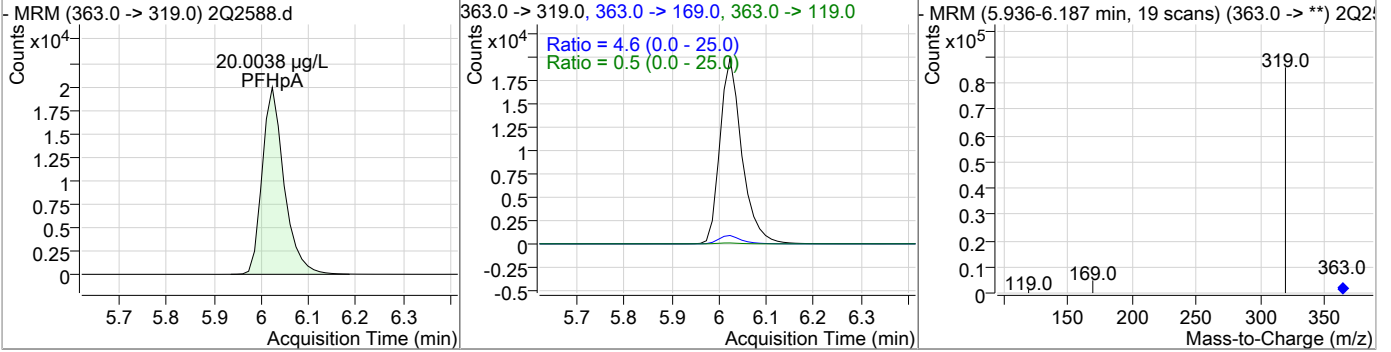
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### Perfluorinated Compounds by LC/MS/MS

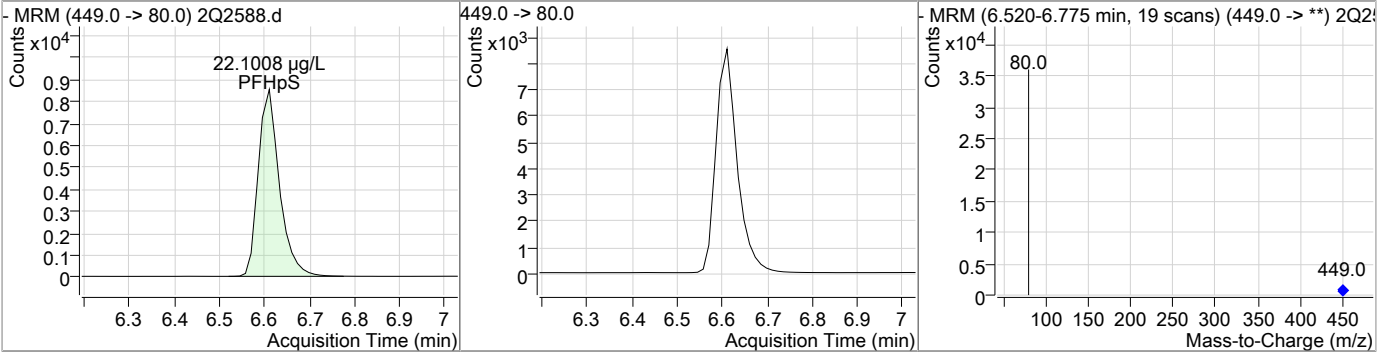


### Perfluorinated Compounds by LC/MS/MS

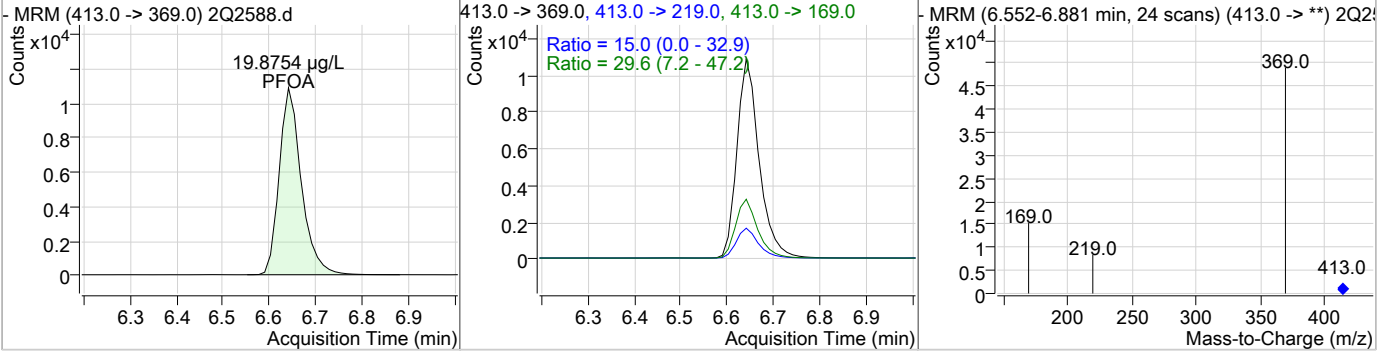
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.00	6.02	0.00	63921	363.0 -> 119.0	0.5	0.0	25.0
					363.0 -> 169.0	4.6	0.0	25.0



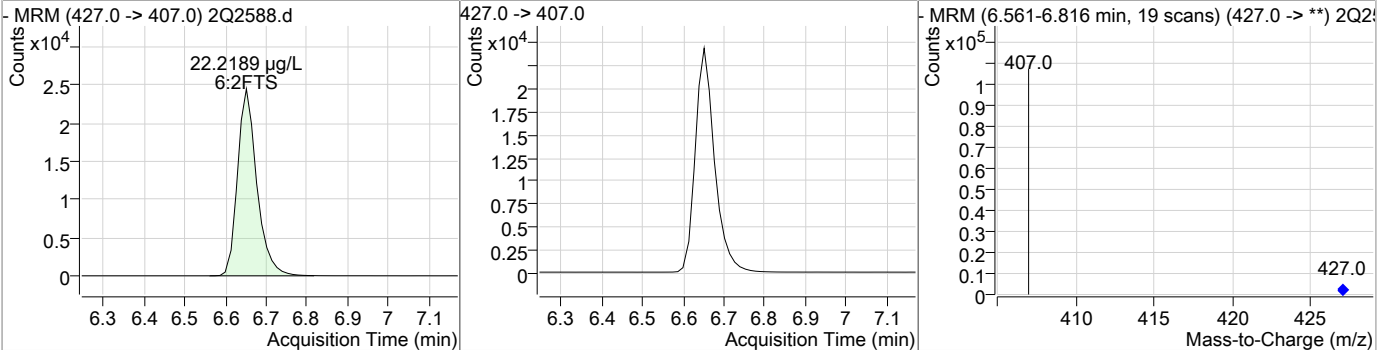
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	22.10	6.61	0.00	27746				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.88	6.64	0.00	36048	413.0 -> 169.0	29.6	7.2	47.2
					413.0 -> 219.0	15.0	0.0	32.9



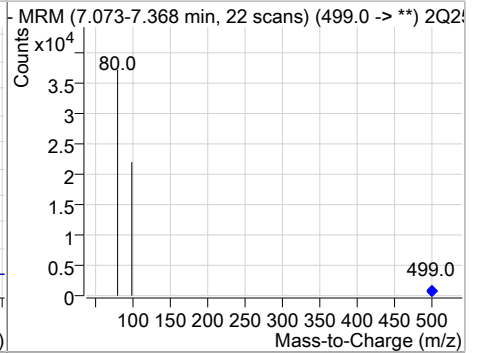
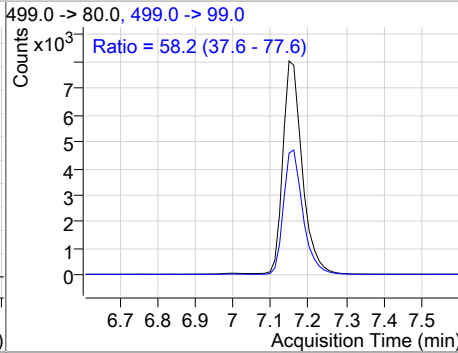
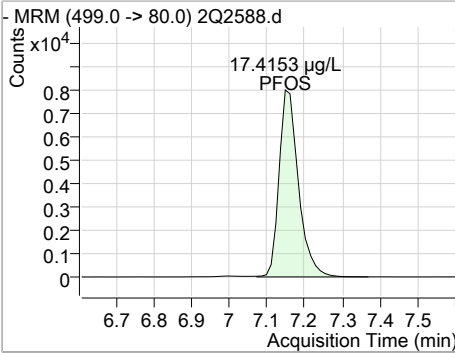
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2F7S	22.22	6.65	0.00	80248				



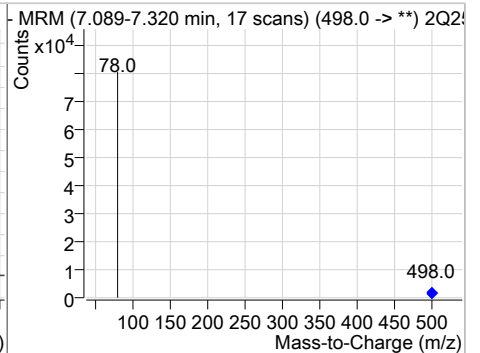
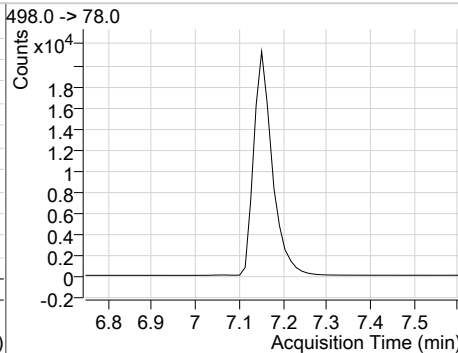
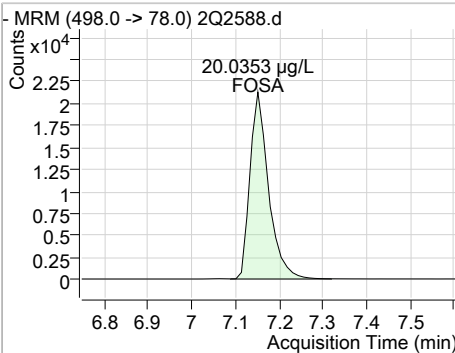
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### Perfluorinated Compounds by LC/MS/MS

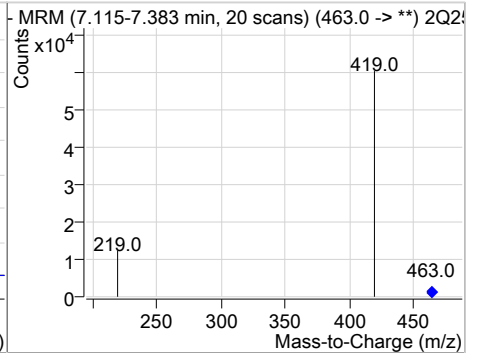
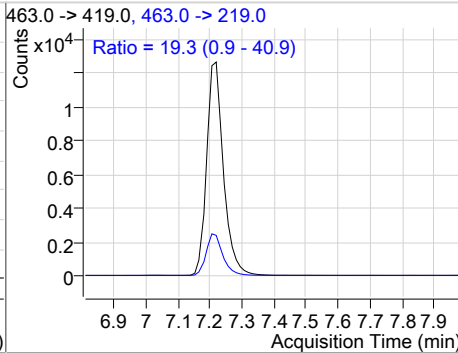
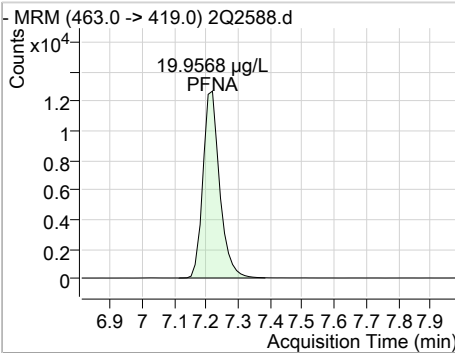
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	17.42	7.15	0.00	28470	499.0 -> 99.0	58.2	37.6	77.6



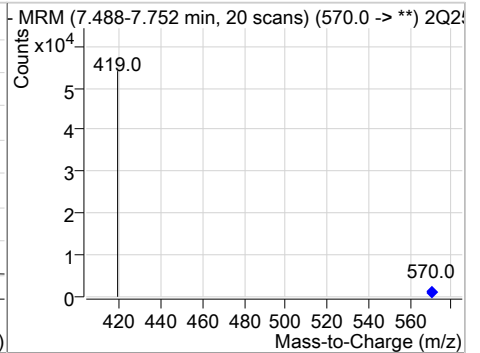
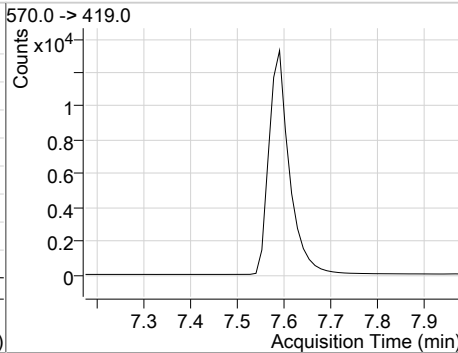
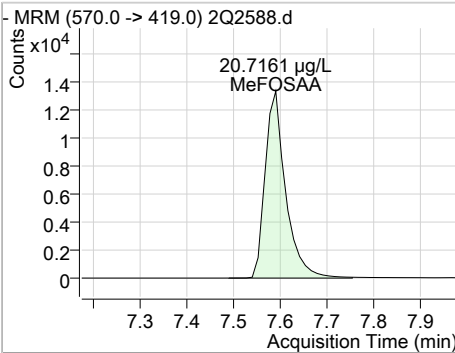
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	20.04	7.15	0.00	62675				



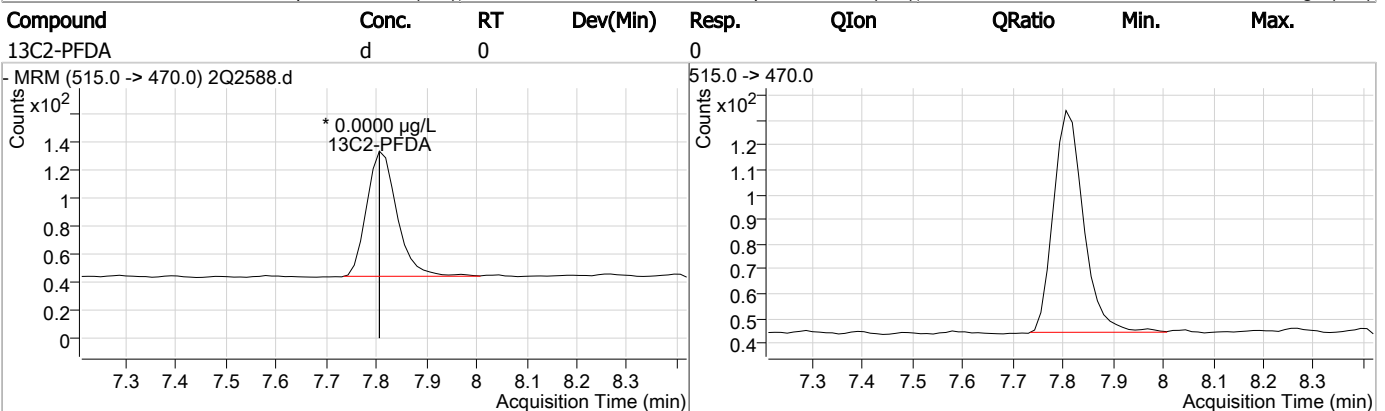
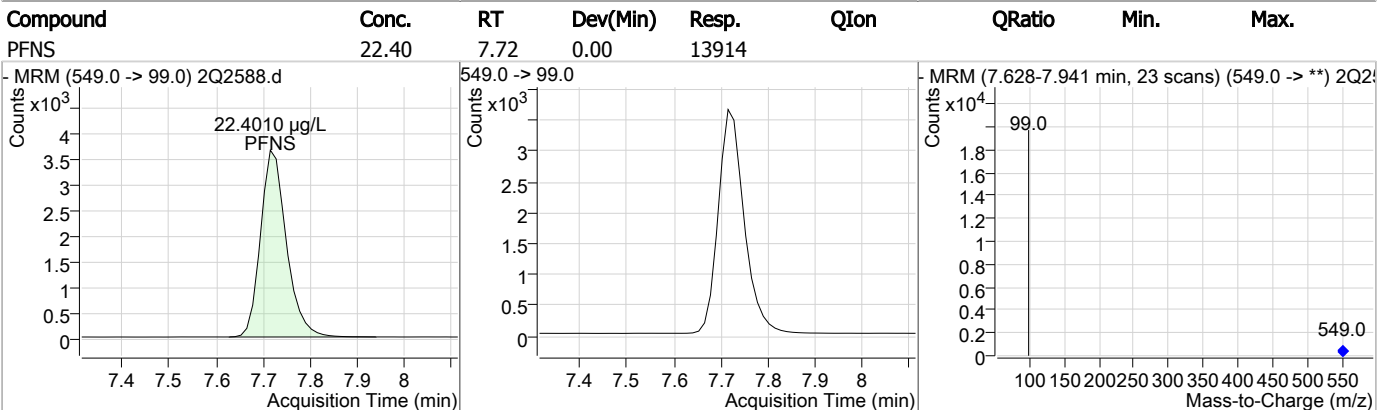
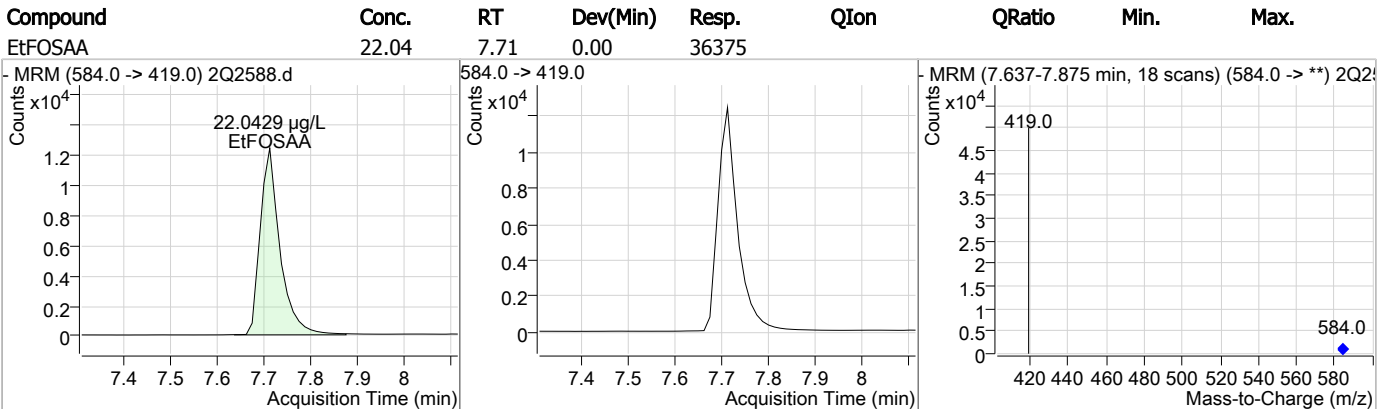
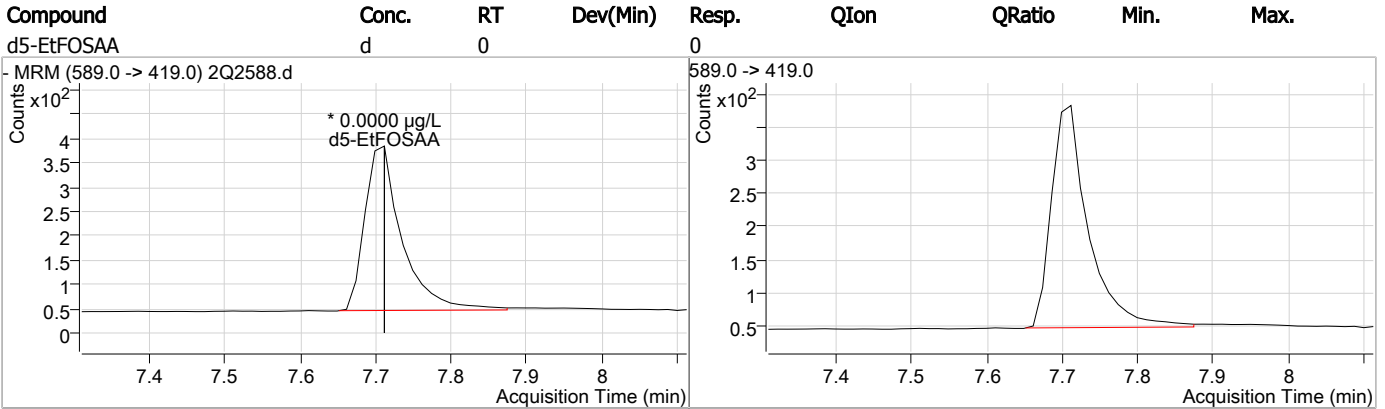
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.96	7.22	0.01	45739	463.0 -> 219.0	19.3	0.9	40.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	20.72	7.59	0.01	40345				



### Perfluorinated Compounds by LC/MS/MS

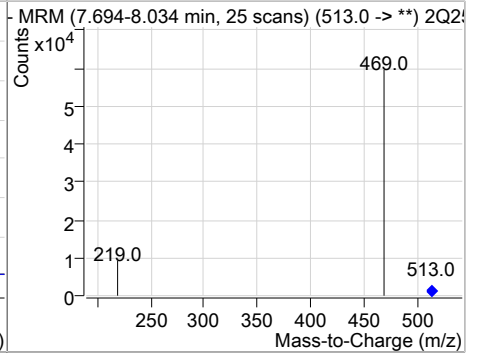
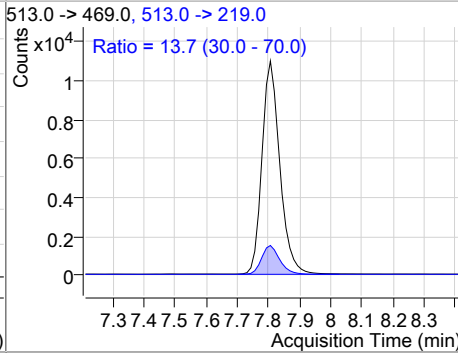
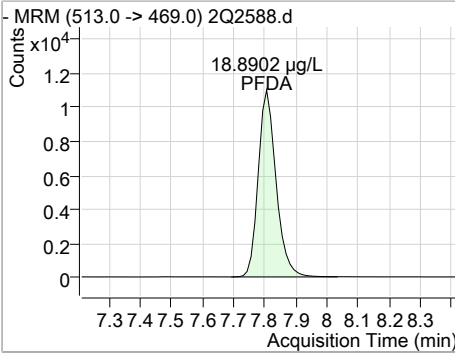


7.59

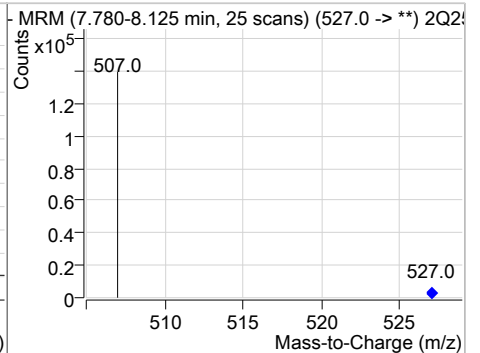
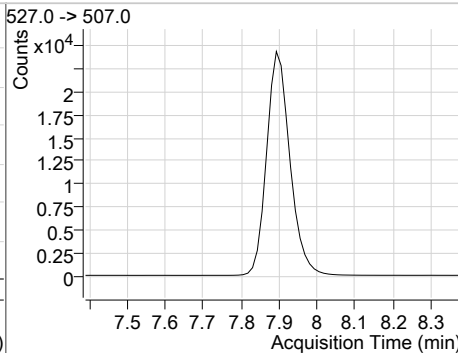
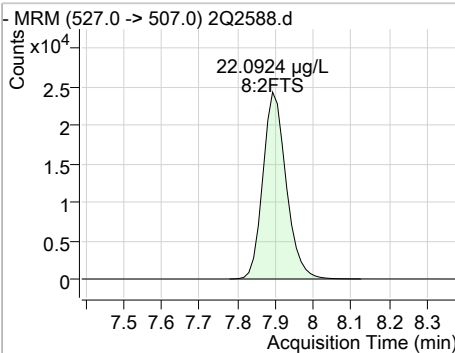
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### Perfluorinated Compounds by LC/MS/MS

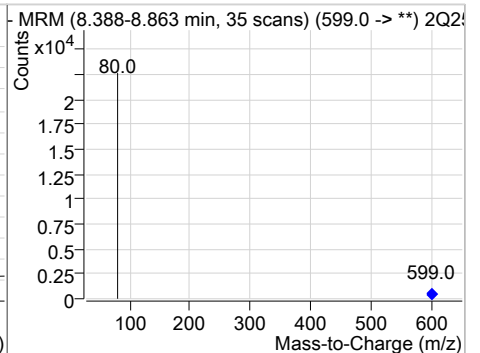
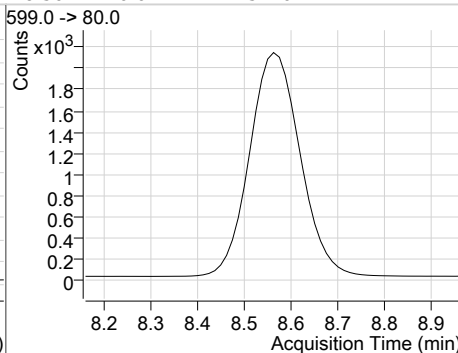
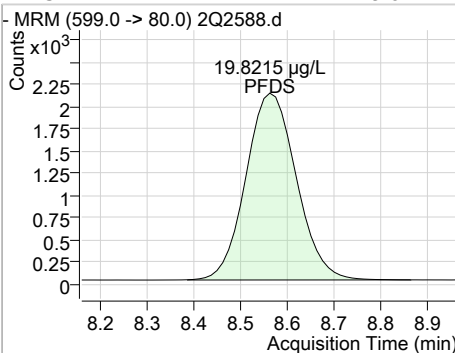
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	18.89	7.81	0.00	43634	513.0 -> 219.0	13.7	30.0	70.0



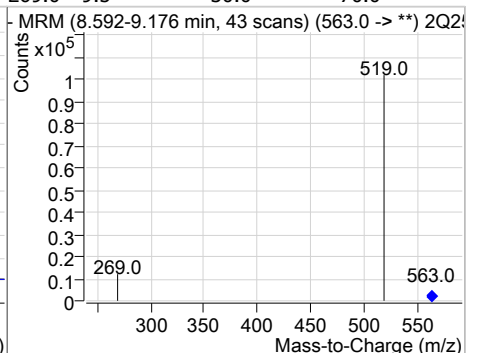
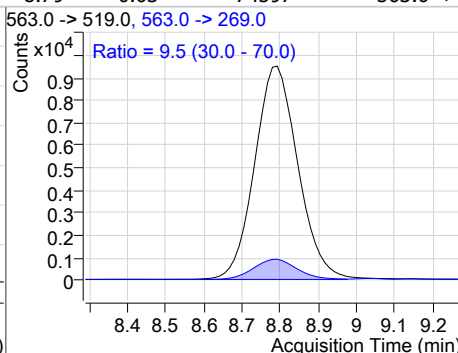
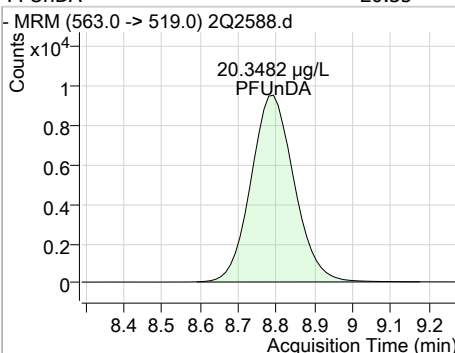
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	22.09	7.89	0.00	103737				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	19.82	8.56	0.01	15720				

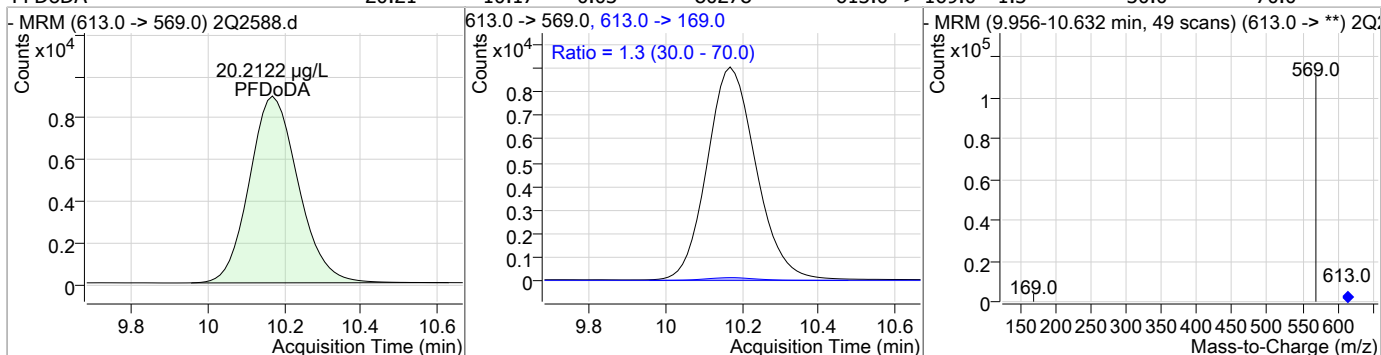


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.35	8.79	0.03	74597	563.0 -> 269.0	9.5	30.0	70.0

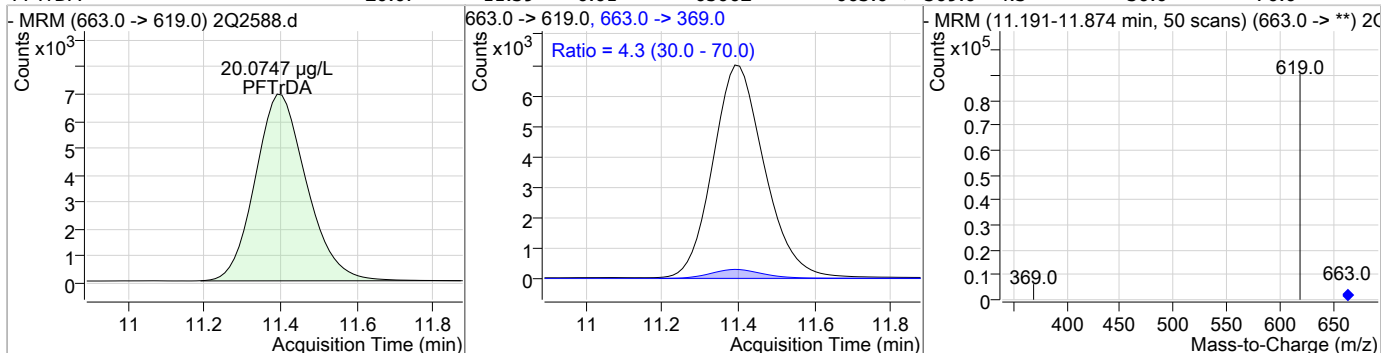


### Perfluorinated Compounds by LC/MS/MS

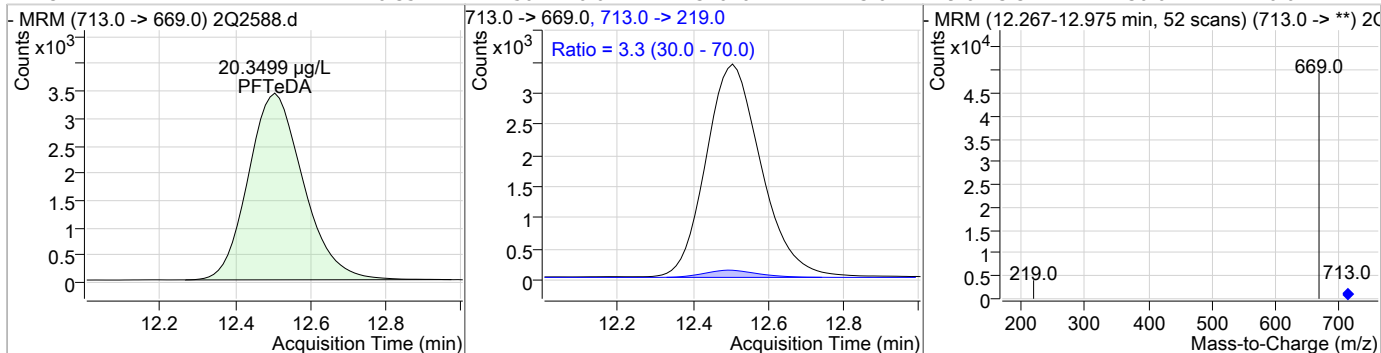
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>o</sub> DA	20.21	10.17	0.03	80278	613.0 -> 169.0	1.3	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFT <sub>r</sub> DA	20.07	11.39	0.01	65062	663.0 -> 369.0	4.3	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFT <sub>e</sub> DA	20.35	12.50	0.04	34670	713.0 -> 219.0	3.3	30.0	70.0



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### Perfluorinated Compounds by LC/MS/MS

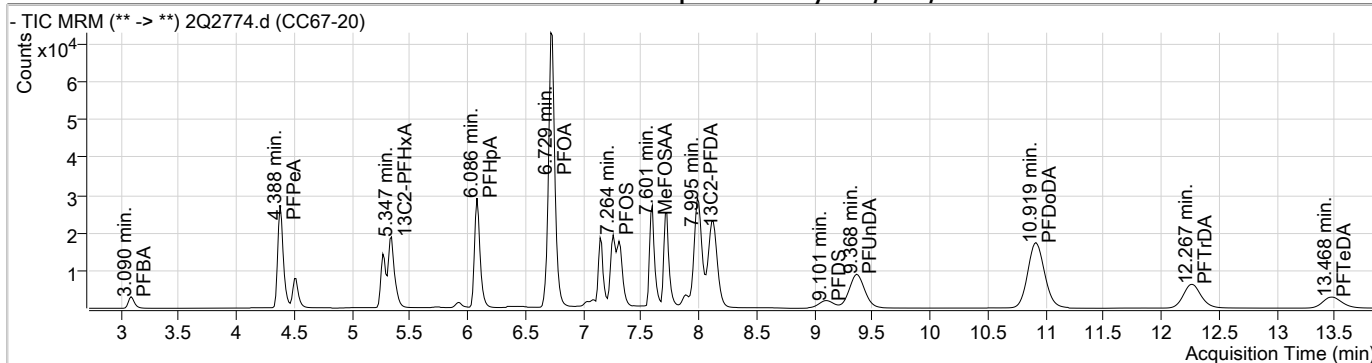
Data File : 2Q2774.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/26/2017 11:06:37 PM  
 Sample Name : CC67-20  
 Vial : Vial 2  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65591,S2Q69,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	83043	20.00 µg/L	0.000
13C2-PFDoDA	10.915	615.0 -> 570.0	92382	20.00 µg/L	-0.038
13C2-PFOA	6.727	415.0 -> 370.0	47284	20.00 µg/L	0.000
13C3-PFPeA	4.385	266.0 -> 222.0	37576	20.00 µg/L	0.000
13C4-PFOS	7.263	503.0 -> 80.0	28418	20.00 µg/L	0.000
d3-MeFOSAA	7.600	573.0 -> 419.0	39921	20.00 µg/L	0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.995	515.0 -> 470.0	79129	20.11 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 100.6%		
13C2-PFHxA	5.347	315.0 -> 270.0	40853	15.37 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 76.8%		
d5-EtFOSAA	7.711	589.0 -> 419.0	40531	21.17 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 105.8%		
<b>Target Compounds</b>					
4:2FTS	5.270	327.0 -> 307.0	46686	17.98 µg/L	100
6:2FTS	6.738	427.0 -> 407.0	79569	19.52 µg/L	100
8:2FTS	8.127	527.0 -> 507.0	117835	22.41 µg/L	100
EtFOSAA	7.725	584.0 -> 419.0	36821	19.65 µg/L	100
FOSA	7.150	498.0 -> 78.0	55539	15.49 µg/L	100
MeFOSAA	7.601	570.0 -> 419.0	41341	18.74 µg/L	100
PFBA	3.090	213.0 -> 169.0	11145	15.63 µg/L	100
PFBS	4.504	299.0 -> 80.0	18616	17.53 µg/L	99
PFDA	7.996	513.0 -> 469.0	47037	20.24 µg/L	# 48
PFDoDA	10.919	613.0 -> 569.0	81125	20.58 µg/L	# 29
PFDS	9.101	599.0 -> 80.0	17668	21.79 µg/L	100
PFHpA	6.086	363.0 -> 319.0	62742	19.48 µg/L	93
PFHpS	6.683	449.0 -> 80.0	26115	20.35 µg/L	100
PFHxA	5.350	313.0 -> 269.0	18515	17.00 µg/L	86
PFHxS	6.069	399.0 -> 80.0	24713	19.42 µg/L	m 92
PFNA	7.319	463.0 -> 419.0	44658	19.33 µg/L	96
PFNS	7.892	549.0 -> 99.0	12675	19.96 µg/L	100
PFOA	6.729	413.0 -> 369.0	36394	19.90 µg/L	96
PFOS	7.264	499.0 -> 80.0	31366	18.79 µg/L	m 90
PFPeA	4.388	263.0 -> 219.0	53508	20.71 µg/L	100
PFPeS	5.380	349.0 -> 99.0	6114	19.77 µg/L	100
PFTeDA	13.468	713.0 -> 669.0	32636	19.30 µg/L	# 32
PFTrDA	12.267	663.0 -> 619.0	64540	20.06 µg/L	# 34
PFUnDA	9.368	563.0 -> 519.0	76193	20.94 µg/L	# 41

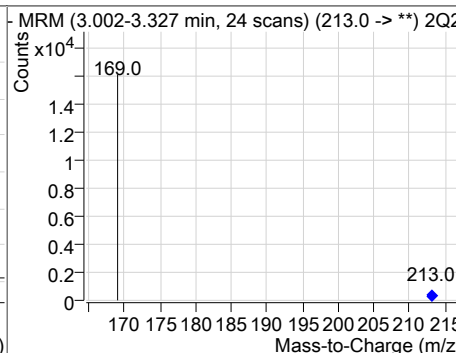
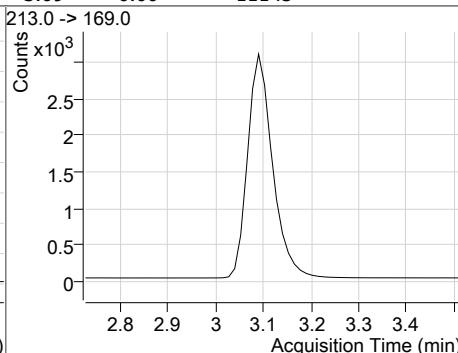
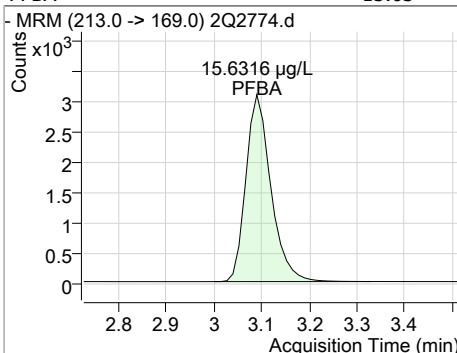
# = Qualifier out of range, m = manually integrated, + = Area summed

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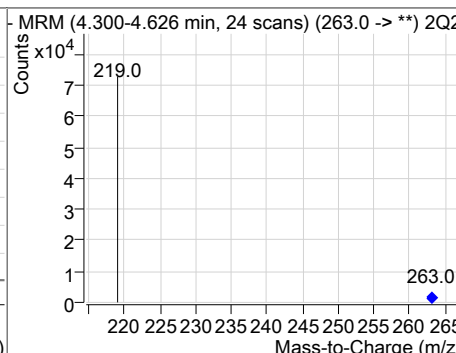
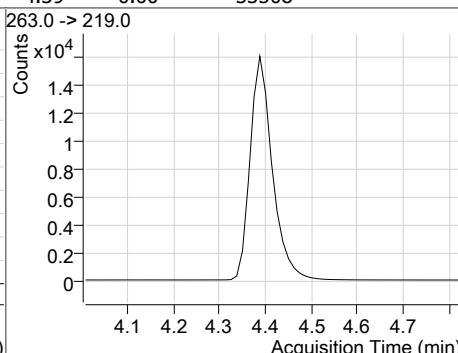
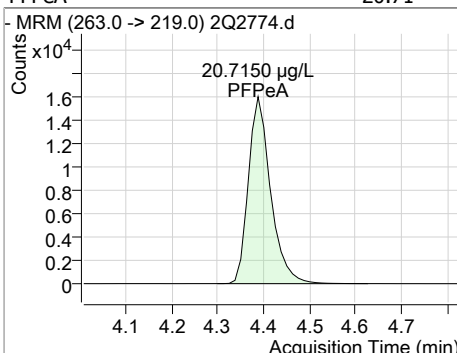
### Perfluorinated Compounds by LC/MS/MS



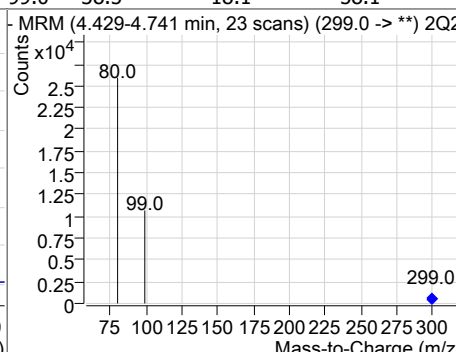
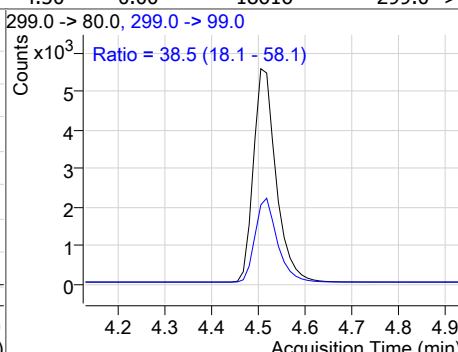
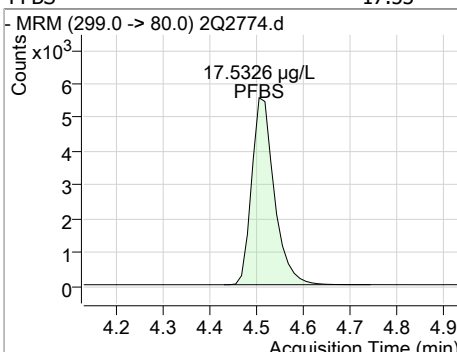
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	15.63	3.09	0.00	11145				



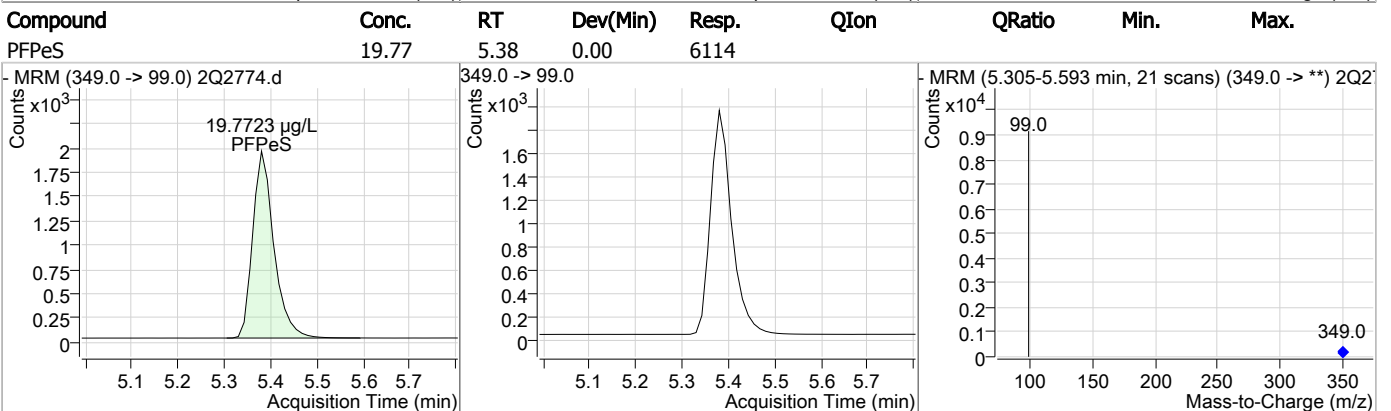
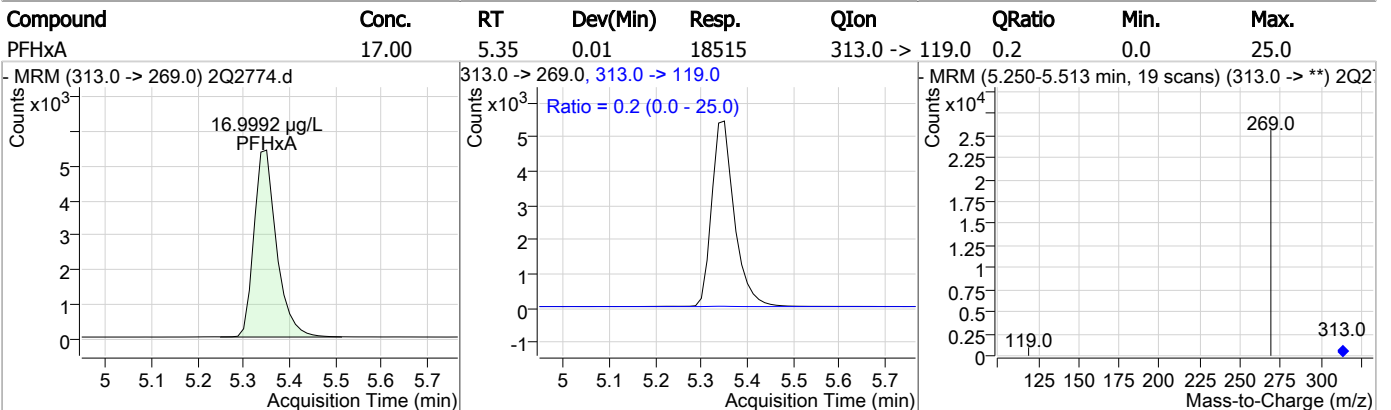
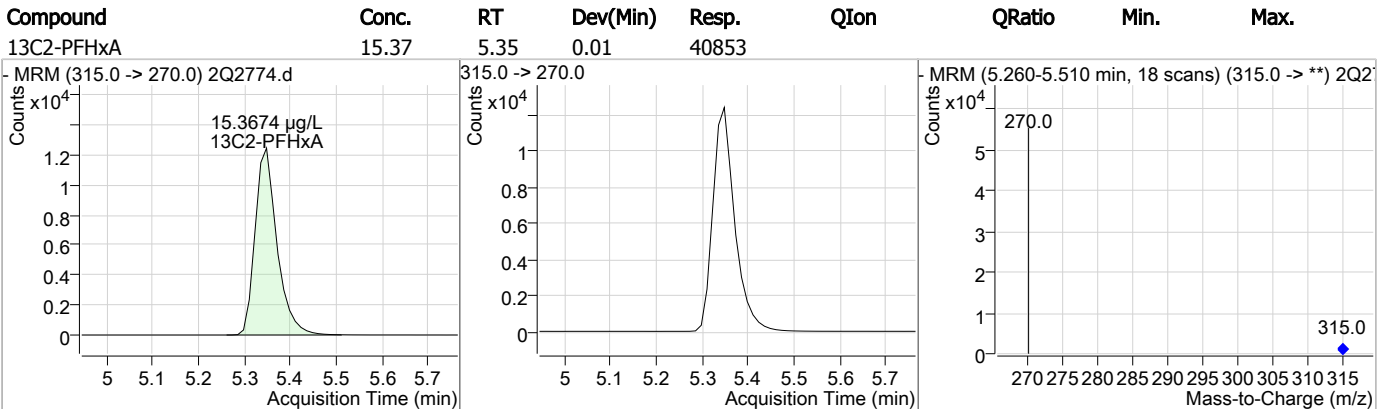
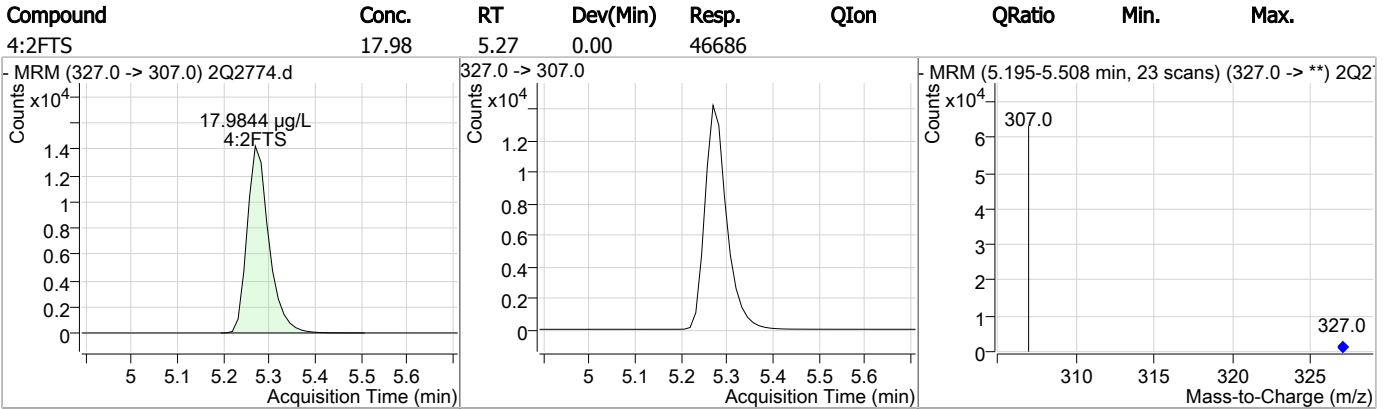
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.71	4.39	0.00	53508				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.53	4.50	0.00	18616	299.0 -> 99.0	38.5	18.1	58.1



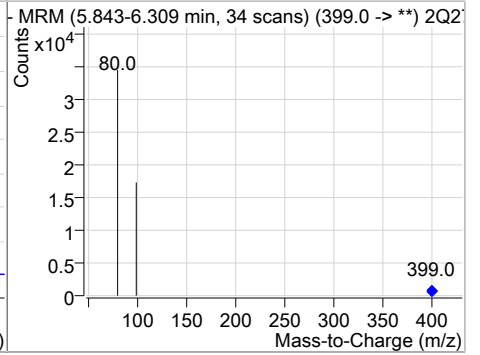
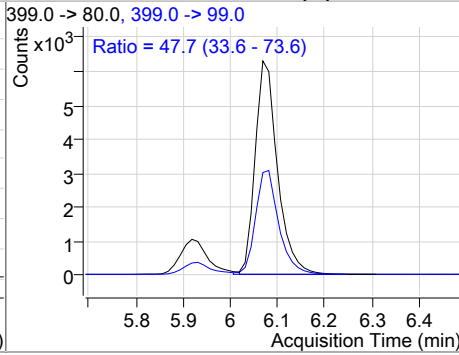
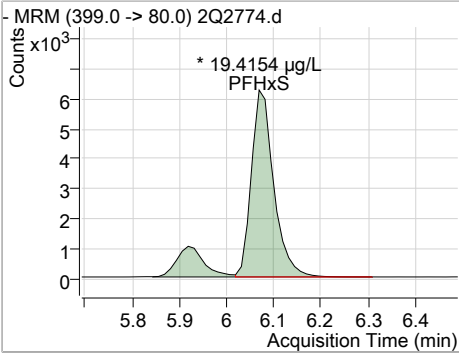
### Perfluorinated Compounds by LC/MS/MS



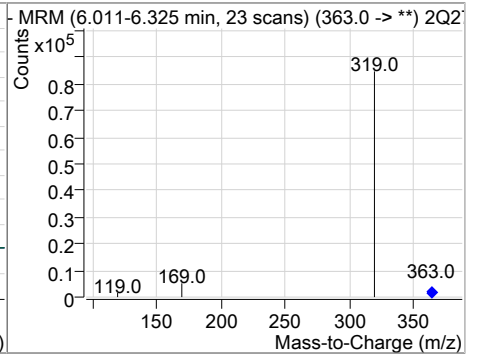
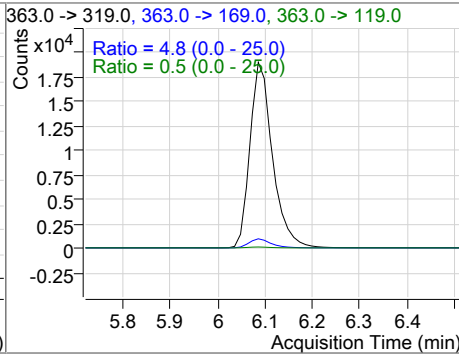
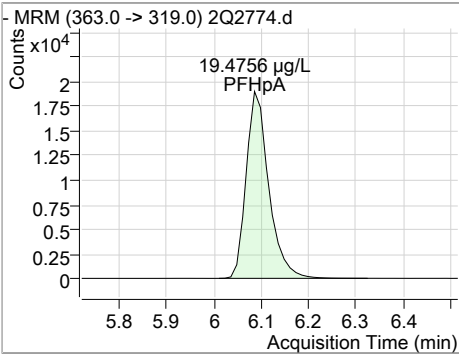
7.5.10 7

### Perfluorinated Compounds by LC/MS/MS

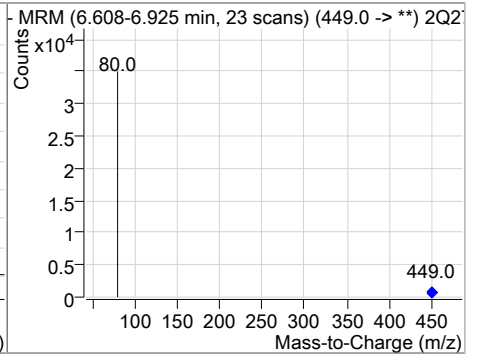
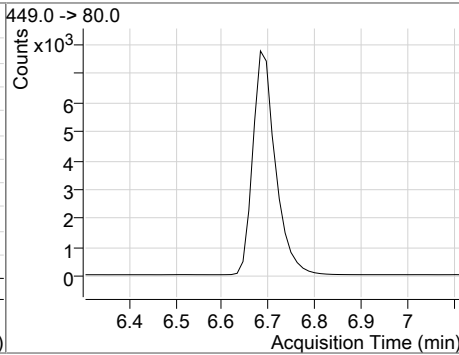
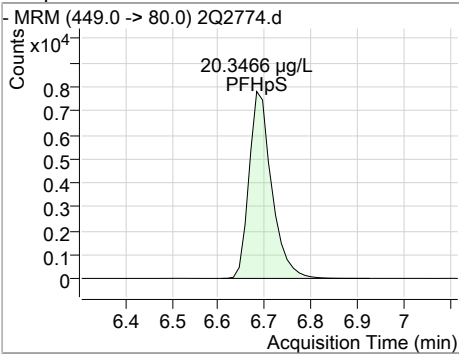
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.42	6.07	0.00	24713 (m)	399.0 -> 99.0	47.7	33.6	73.6



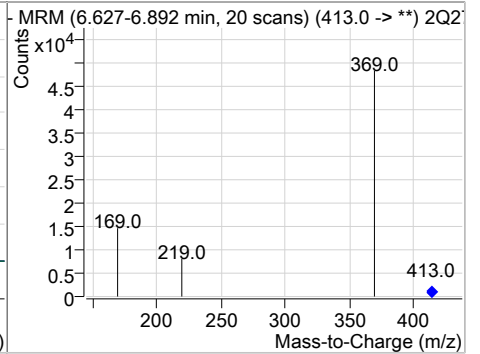
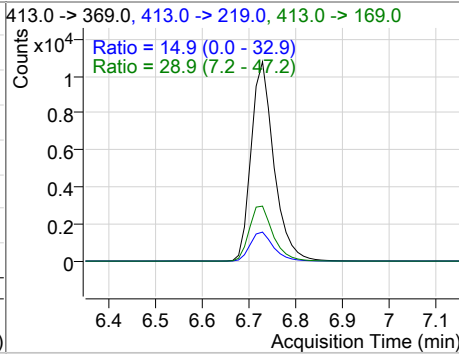
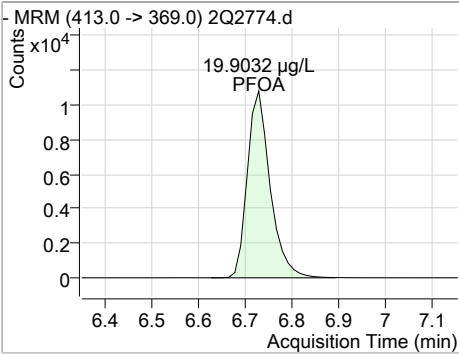
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.48	6.09	0.00	62742	363.0 -> 119.0 363.0 -> 169.0	0.5 4.8	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.35	6.68	0.00	26115	449.0 -> 80.0			

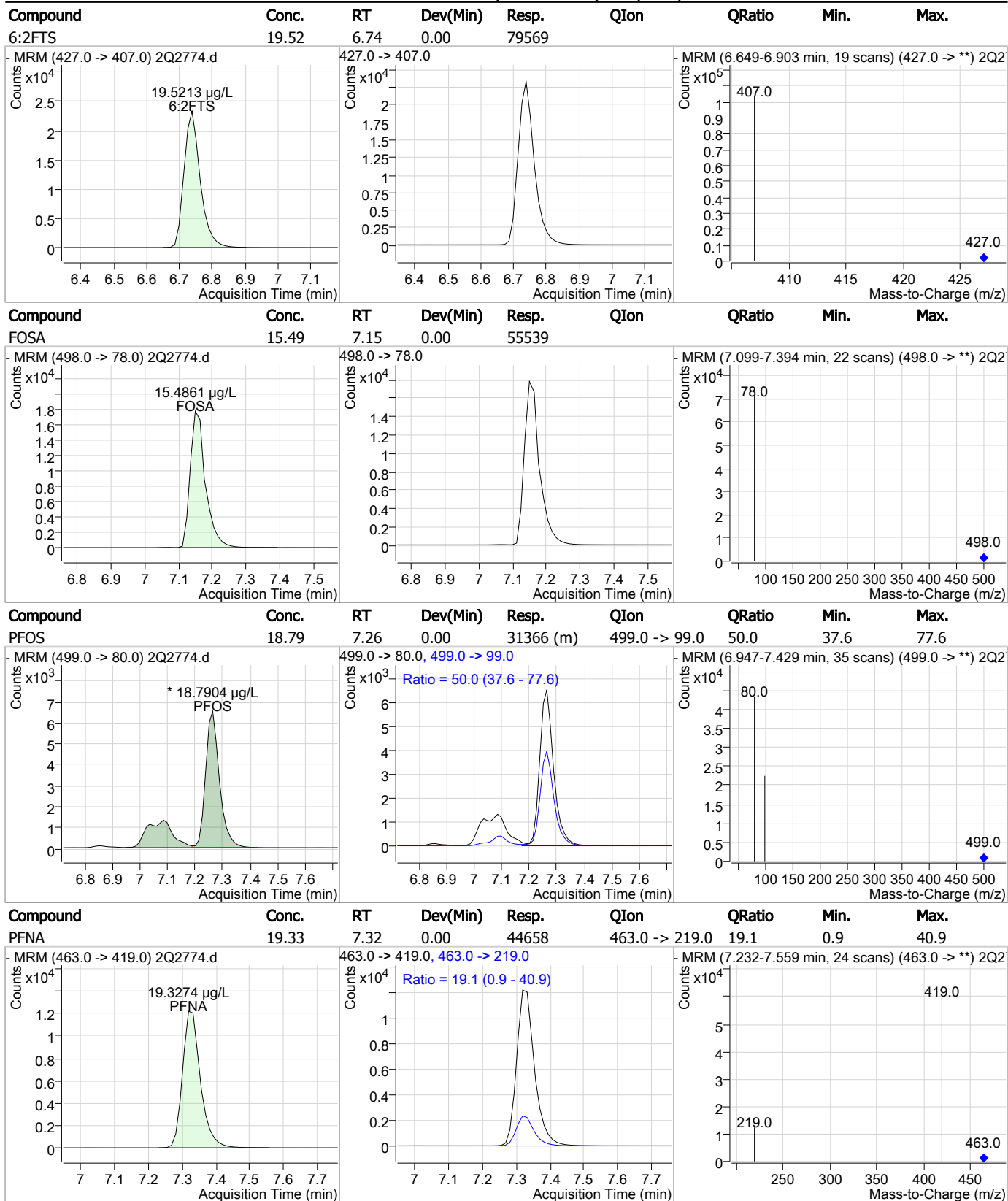


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.90	6.73	0.00	36394	413.0 -> 169.0 413.0 -> 219.0	28.9 14.9	7.2 0.0	47.2 32.9



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### Perfluorinated Compounds by LC/MS/MS



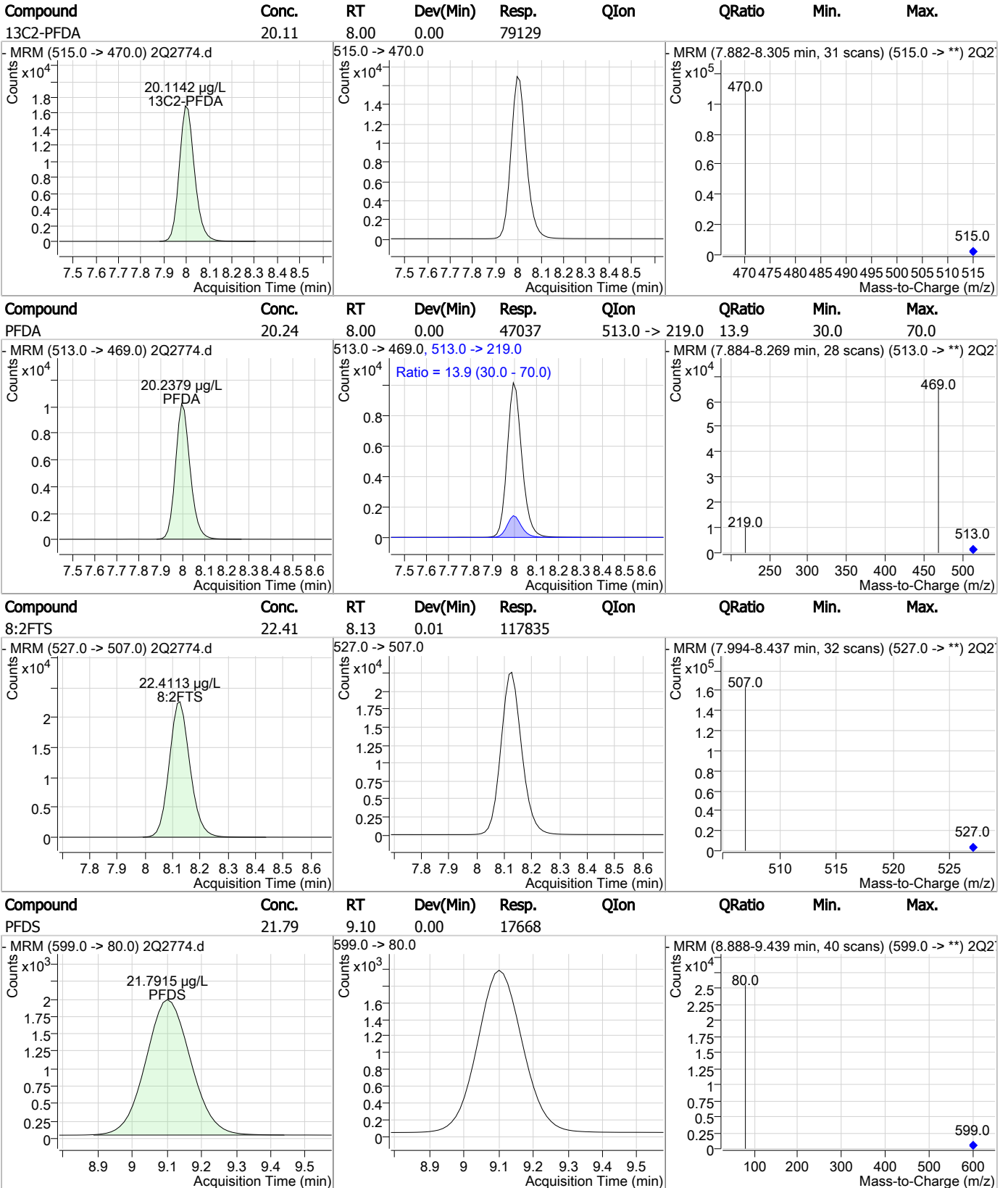
7.5.10  
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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	18.74	7.60	0.00	41341				
d5-EtFOSAA	21.17	7.71	0.00	40531				
EtFOSAA	19.65	7.72	0.00	36821				
PFNS	19.96	7.89	0.00	12675				

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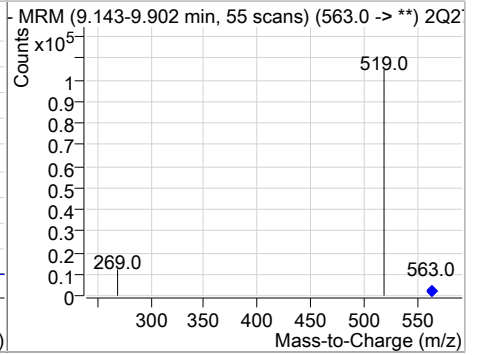
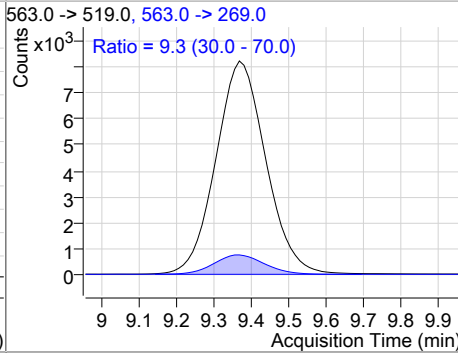
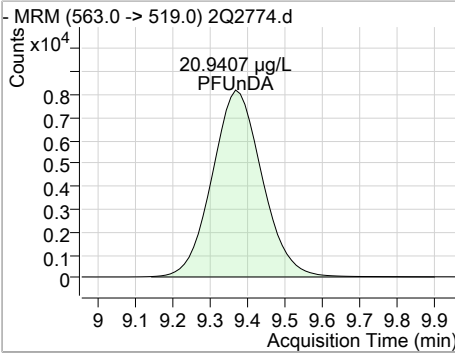
### Perfluorinated Compounds by LC/MS/MS



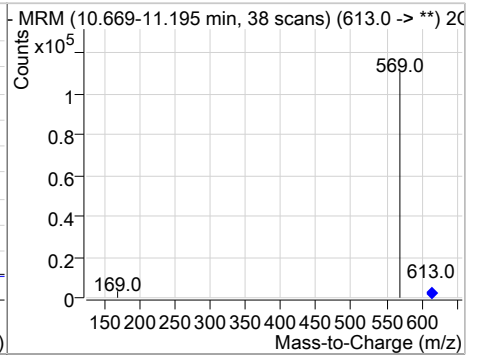
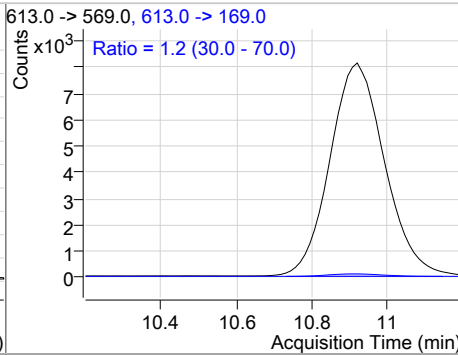
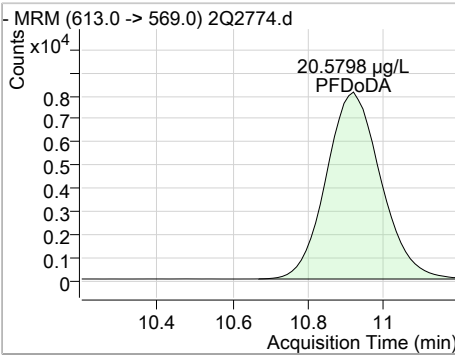
7.5.10 7

### Perfluorinated Compounds by LC/MS/MS

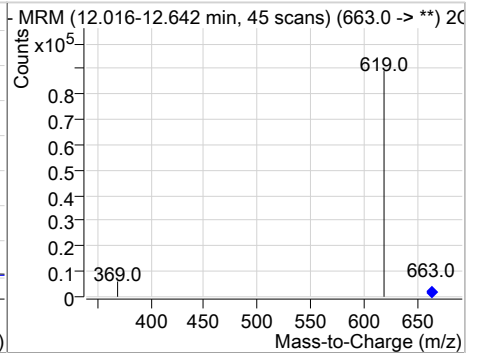
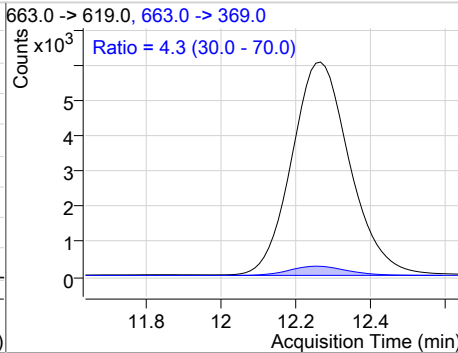
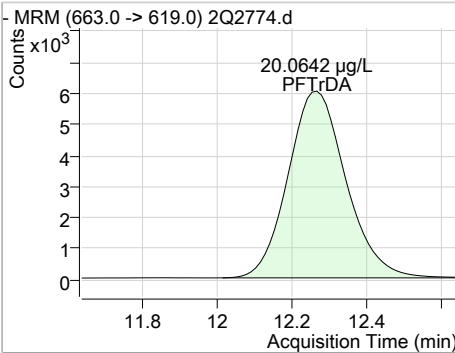
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	20.94	9.37	-0.01	76193	563.0 -> 269.0	9.3	30.0	70.0



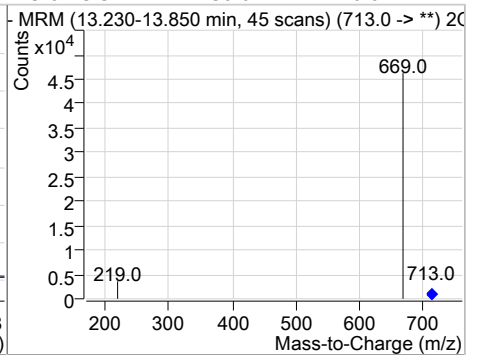
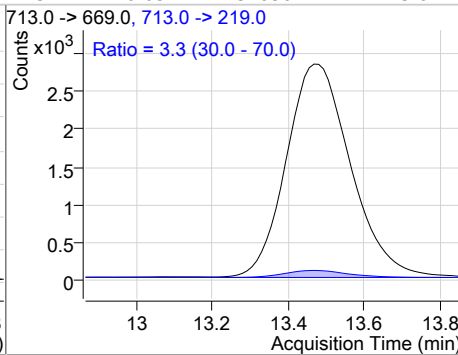
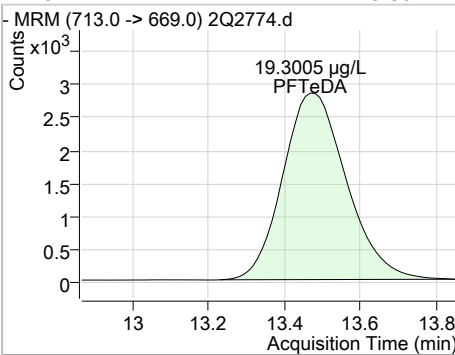
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	20.58	10.92	-0.03	81125	613.0 -> 169.0	1.2	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	20.06	12.27	-0.03	64540	663.0 -> 369.0	4.3	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	19.30	13.47	-0.05	32636	713.0 -> 219.0	3.3	30.0	70.0



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# Manual Integration Approval Summary

Sample Number: S2Q69-CC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2774.D                              Analyst approved: 06/27/17 12:06 Nancy Saunders  
Injection Time: 06/26/17 23:06                  Supervisor approved: 06/27/17 17:36 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.07	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.10.1

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### Perfluorinated Compounds by LC/MS/MS

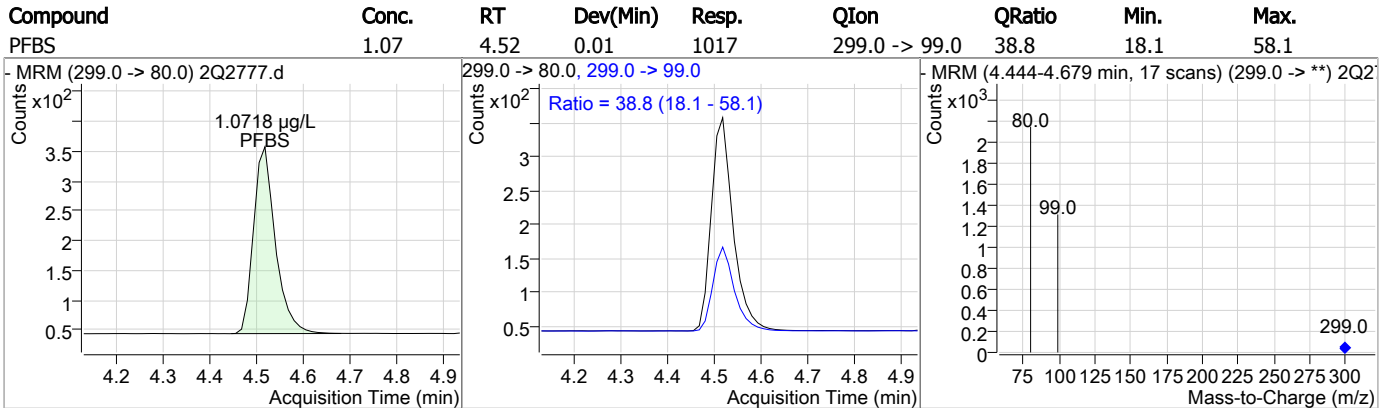
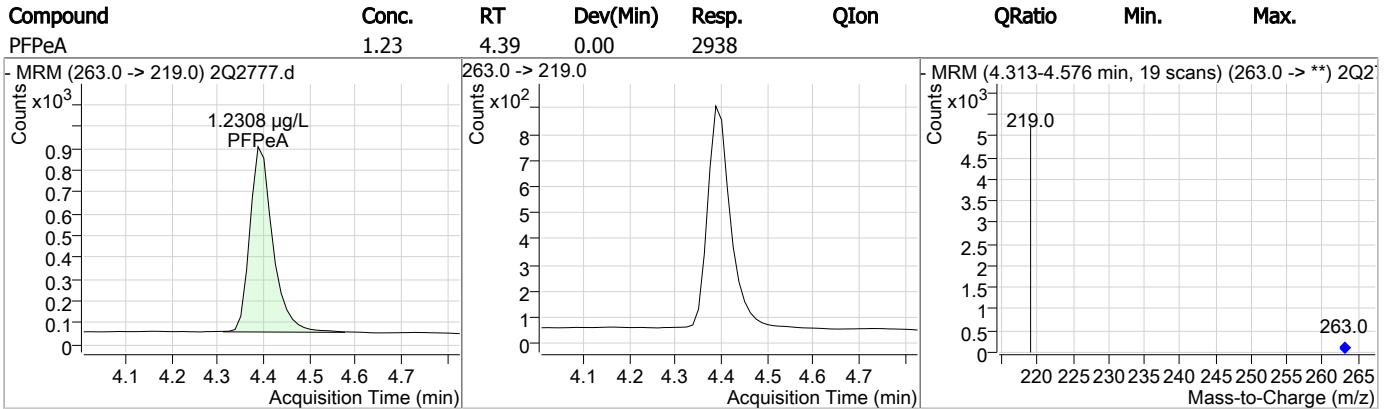
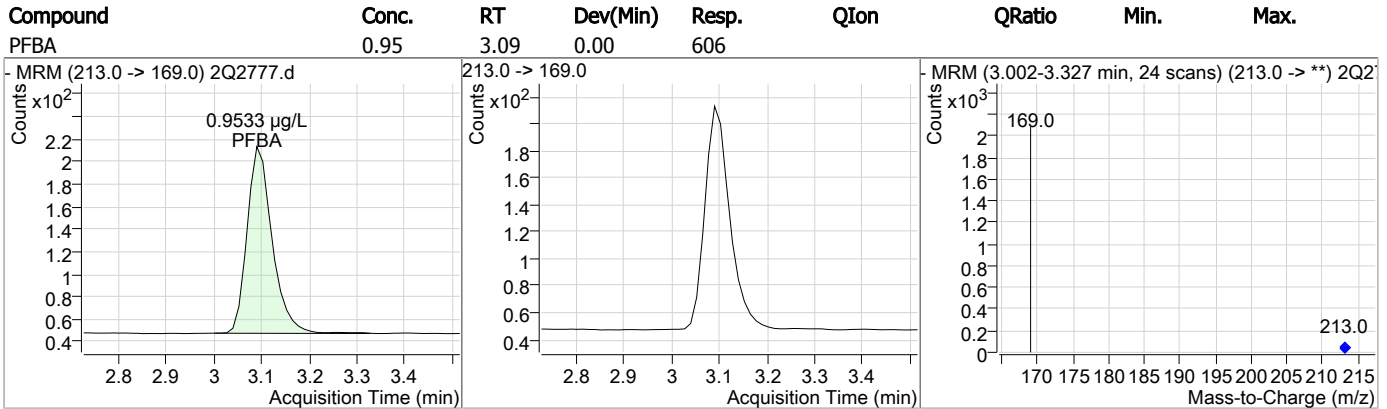
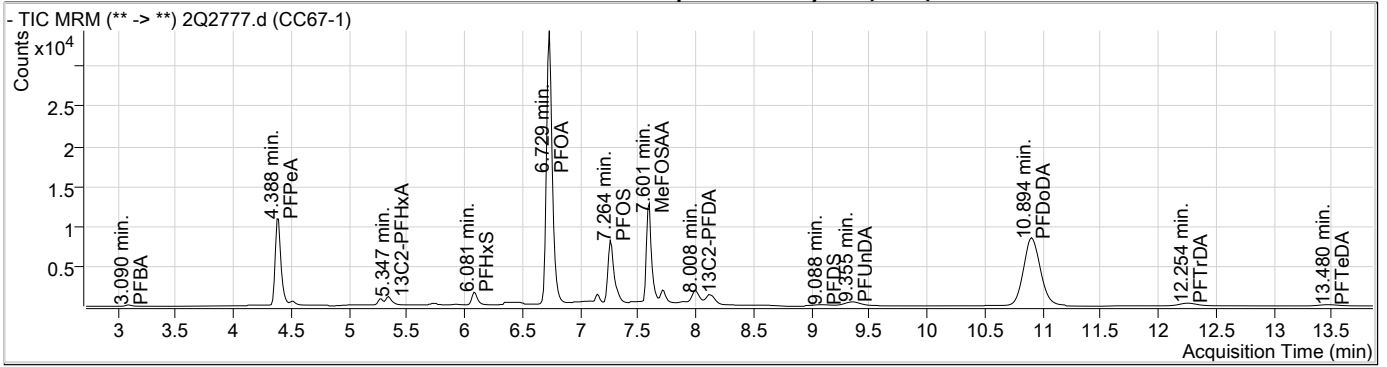
Data File : 2Q2777.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 12:04:32 AM  
 Sample Name : CC67-1  
 Vial : Vial 82  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65503,S2Q69,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	71739	20.00 µg/L	0.000
13C2-PFDoDA	10.903	615.0 -> 570.0	81150	20.00 µg/L	-0.050
13C2-PFOA	6.727	415.0 -> 370.0	42157	20.00 µg/L	0.000
13C3-PFPeA	4.397	266.0 -> 222.0	34720	20.00 µg/L	0.013
13C4-PFOS	7.263	503.0 -> 80.0	25404	20.00 µg/L	0.000
d3-MeFOSAA	7.600	573.0 -> 419.0	35564	20.00 µg/L	0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	4365	1.21 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 6.0%		
13C2-PFHxA	5.347	315.0 -> 270.0	2189	0.91 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 4.5%		
d5-EtFOSAA	7.711	589.0 -> 419.0	2233	1.31 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 6.5%		
<b>Target Compounds</b>					
4:2FTS	5.282	327.0 -> 307.0	2526	1.09 µg/L	100
6:2FTS	6.738	427.0 -> 407.0	4447	1.20 µg/L	100
8:2FTS	8.127	527.0 -> 507.0	6334	1.34 µg/L	100
EtFOSAA	7.725	584.0 -> 419.0	1986	1.15 µg/L	100
FOSA	7.164	498.0 -> 78.0	3181	0.95 µg/L	100
MeFOSAA	7.601	570.0 -> 419.0	2200	1.10 µg/L	100
PFBA	3.090	213.0 -> 169.0	606	0.95 µg/L	100
PFBS	4.516	299.0 -> 80.0	1017	1.07 µg/L	99
PFDA	8.009	513.0 -> 469.0	2493	1.17 µg/L	# 48
PFDoDA	10.894	613.0 -> 569.0	4269	1.23 µg/L	# 29
PFDS	9.088	599.0 -> 80.0	924	1.27 µg/L	100
PFHpA	6.099	363.0 -> 319.0	3540	1.23 µg/L	93
PFHpS	6.695	449.0 -> 80.0	1402	1.22 µg/L	100
PFHxA	5.350	313.0 -> 269.0	1052	1.06 µg/L	86
PFHxS	6.081	399.0 -> 80.0	1328	1.17 µg/L	m 94
PFNA	7.332	463.0 -> 419.0	2446	1.19 µg/L	94
PFNS	7.905	549.0 -> 99.0	711	1.25 µg/L	100
PFOA	6.729	413.0 -> 369.0	2130	1.31 µg/L	95
PFOS	7.264	499.0 -> 80.0	1839	1.21 µg/L	m 87
PFPeA	4.388	263.0 -> 219.0	2938	1.23 µg/L	100
PFPeS	5.380	349.0 -> 99.0	322	1.13 µg/L	100
PFTeDA	13.480	713.0 -> 669.0	1703	1.15 µg/L	# 32
PFTrDA	12.254	663.0 -> 619.0	3359	1.19 µg/L	# 34
PFUnDA	9.355	563.0 -> 519.0	3928	1.23 µg/L	# 41

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

7.5.11  
7

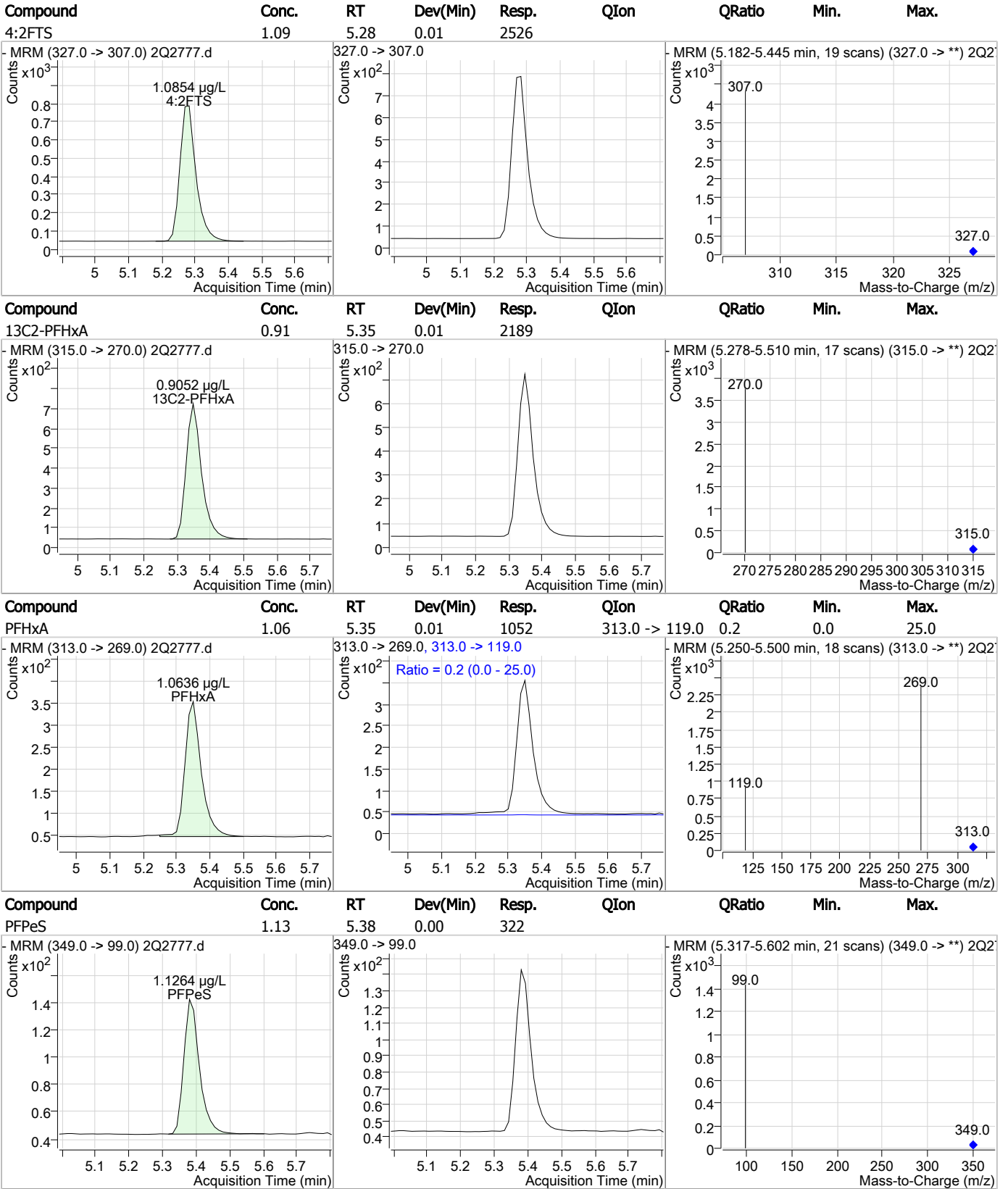
### Perfluorinated Compounds by LC/MS/MS



7.5.11

7

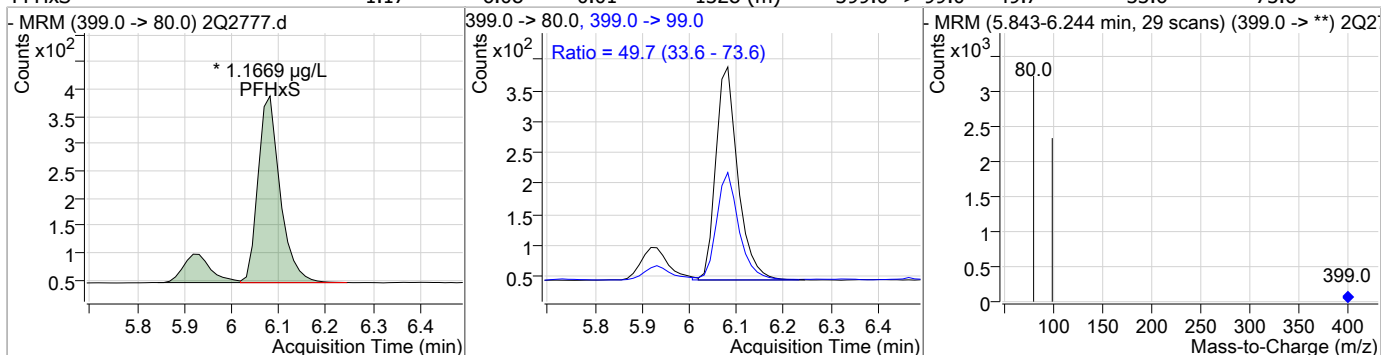
### Perfluorinated Compounds by LC/MS/MS



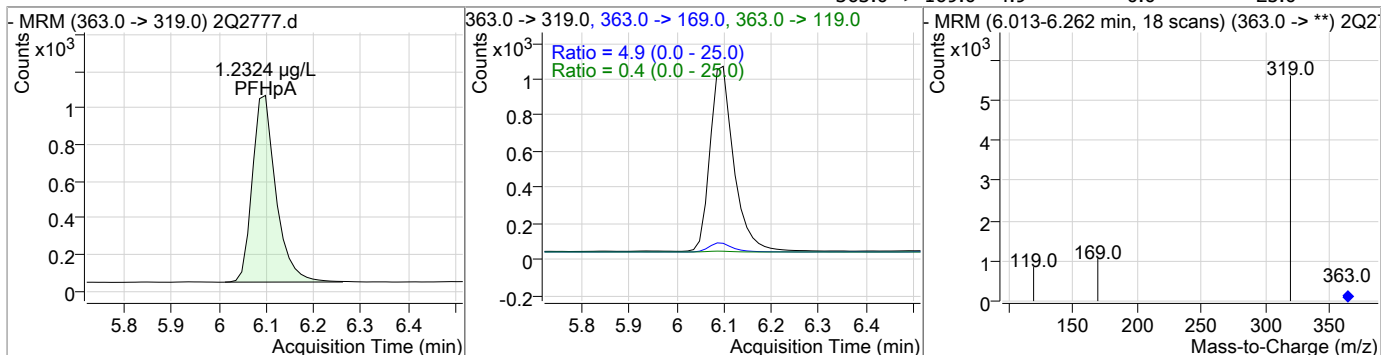
7.5.11  
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### Perfluorinated Compounds by LC/MS/MS

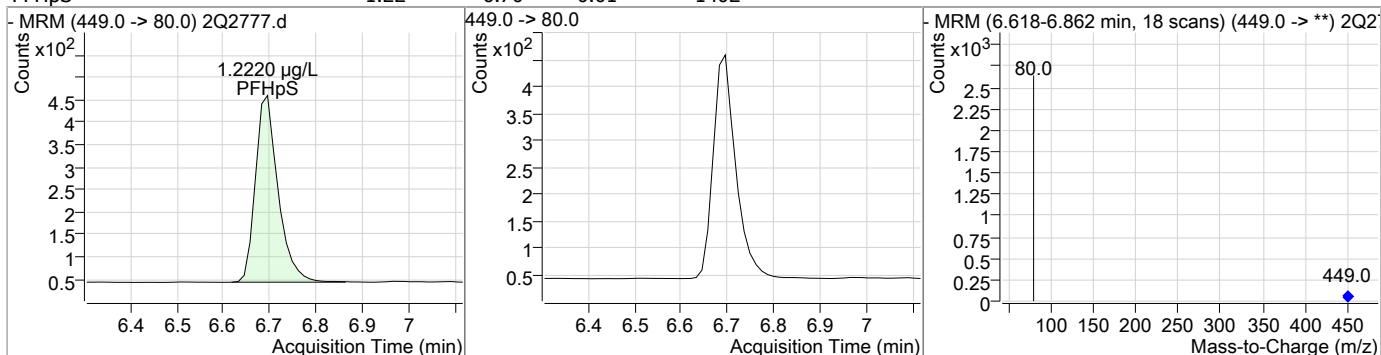
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.17	6.08	0.01	1328 (m)	399.0 -> 99.0	49.7	33.6	73.6



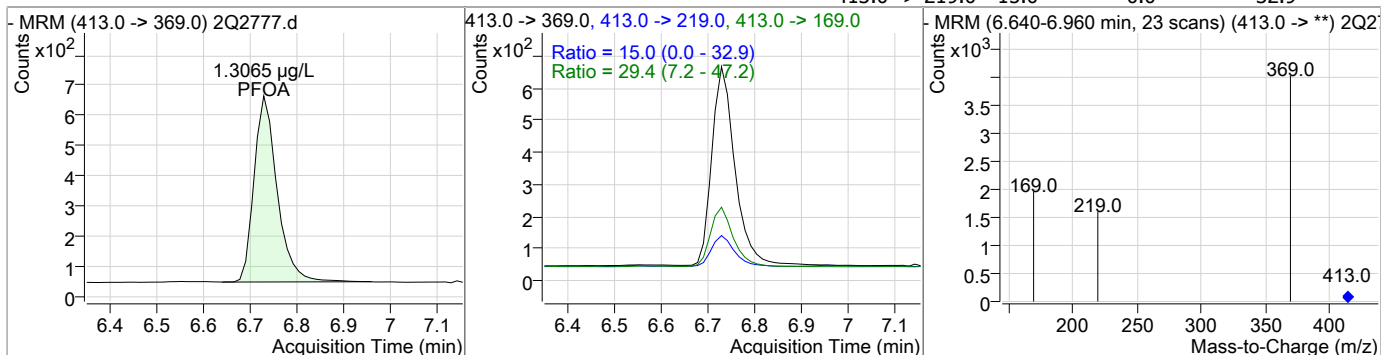
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.23	6.10	0.01	3540	363.0 -> 119.0 363.0 -> 169.0	0.4	0.0	25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.22	6.70	0.01	1402				

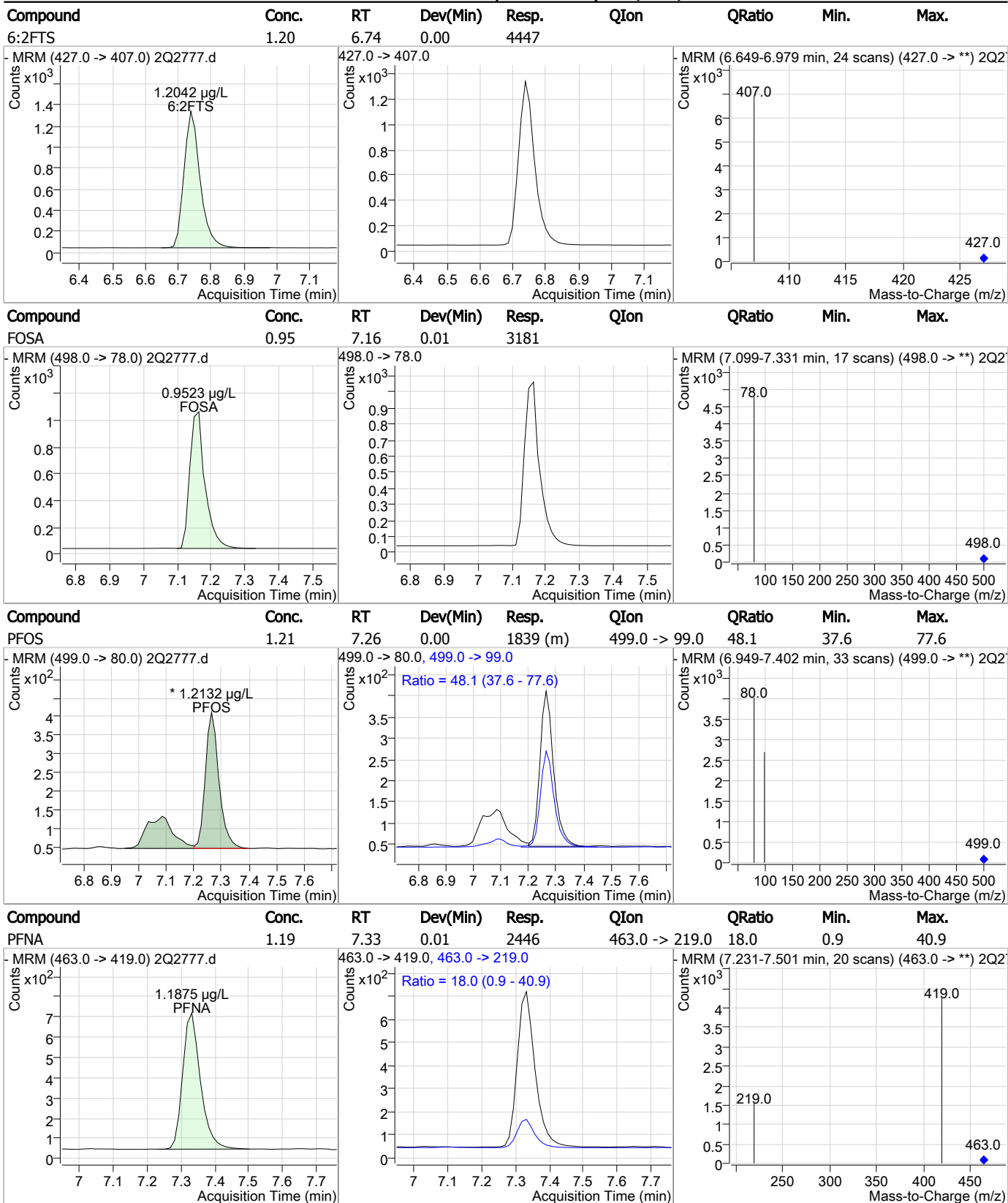


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.31	6.73	0.00	2130	413.0 -> 169.0 413.0 -> 219.0	29.4	7.2	47.2



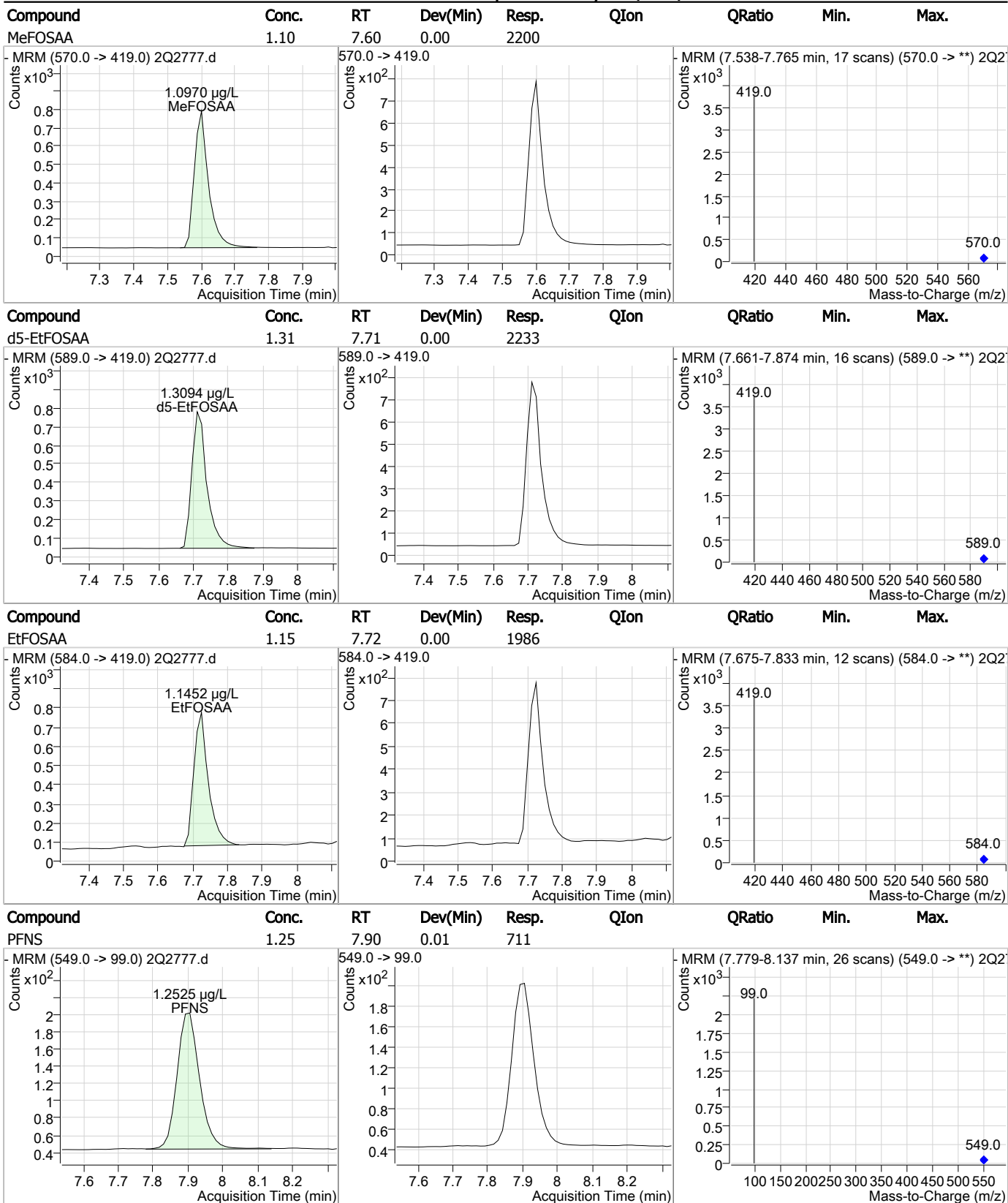
7.5.11  
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### Perfluorinated Compounds by LC/MS/MS



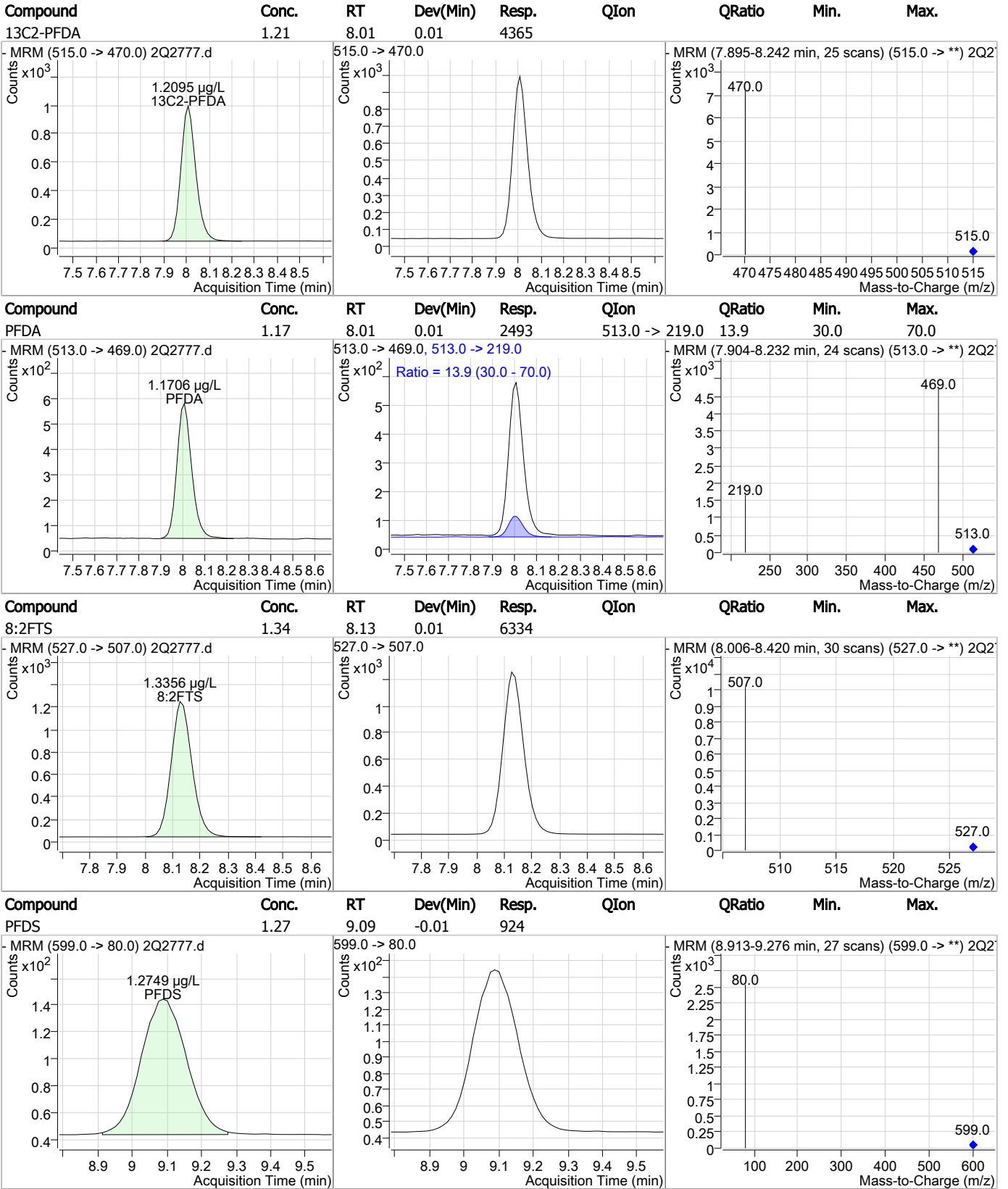
7.5.11  
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### Perfluorinated Compounds by LC/MS/MS



7.5.11  
7

### Perfluorinated Compounds by LC/MS/MS

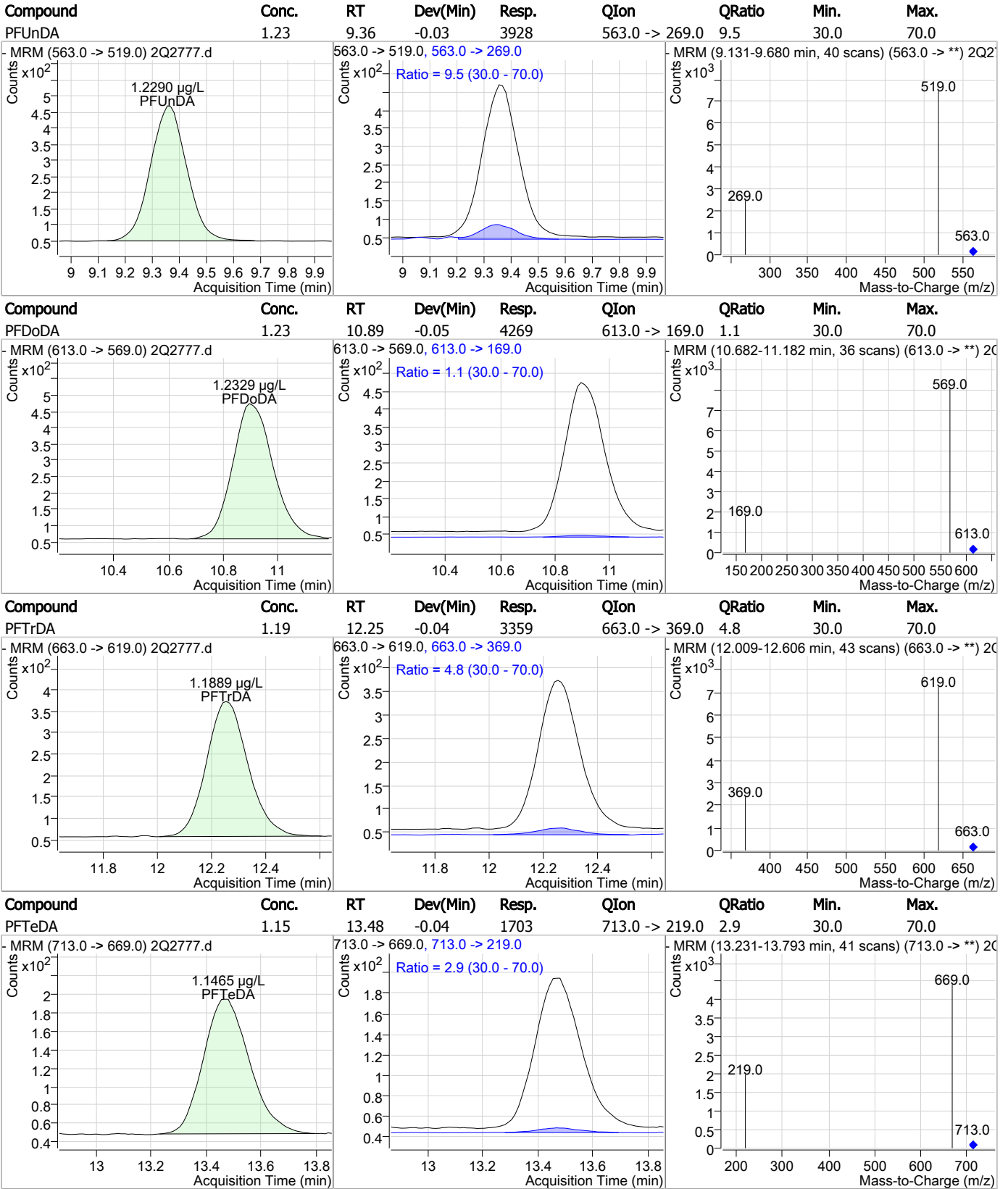


7.5.11

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### Perfluorinated Compounds by LC/MS/MS



7.5.11

7

# Manual Integration Approval Summary

Sample Number: S2Q69-CC67                      Method: EPA 537  
Lab FileID: 2Q2777.D                      Analyst approved: 06/27/17 12:06 Nancy Saunders  
Injection Time: 06/27/17 00:04                      Supervisor approved: 06/27/17 17:36 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.08	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.11.1

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### Perfluorinated Compounds by LC/MS/MS

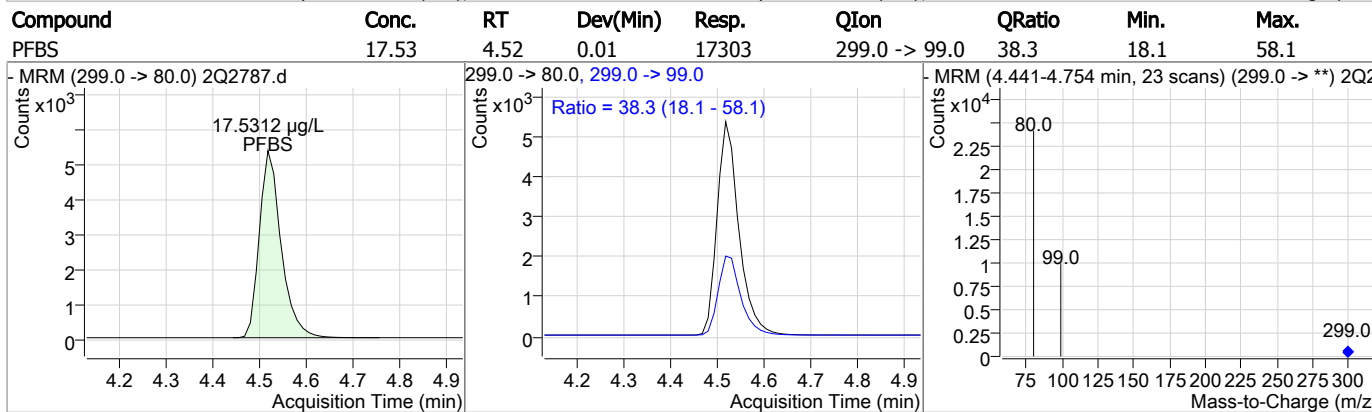
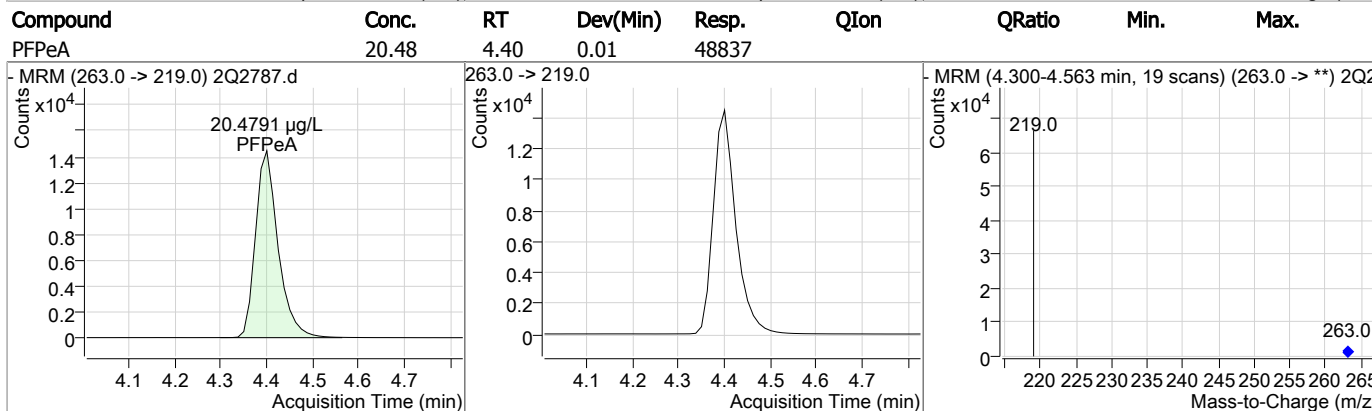
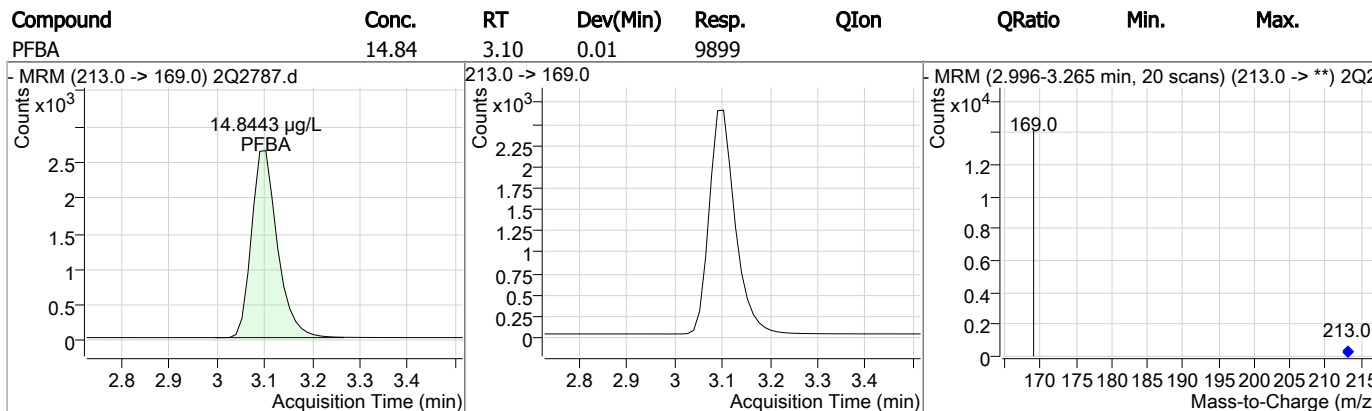
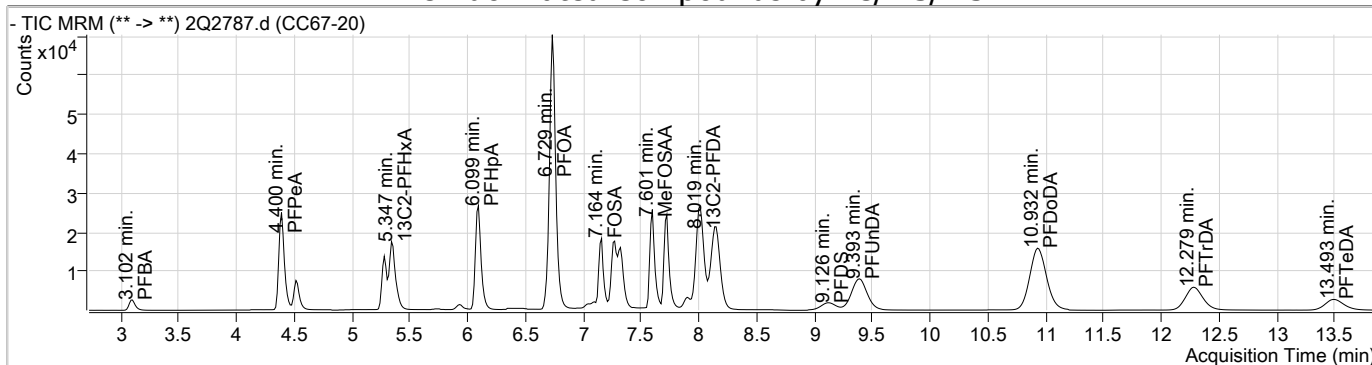
Data File : 2Q2787.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 3:17:46 AM  
 Sample Name : CC67-20  
 Vial : Vial 2  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65503,S2Q69,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.749	429.0 -> 409.0	76587	20.00 µg/L	0.013
13C2-PFDoDA	10.928	615.0 -> 570.0	84289	20.00 µg/L	-0.025
13C2-PFOA	6.740	415.0 -> 370.0	44223	20.00 µg/L	0.013
13C3-PFPeA	4.397	266.0 -> 222.0	34691	20.00 µg/L	0.013
13C4-PFOS	7.275	503.0 -> 80.0	26415	20.00 µg/L	0.013
d3-MeFOSAA	7.600	573.0 -> 419.0	36483	20.00 µg/L	0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.019	515.0 -> 470.0	75825	20.62 µg/L	0.024
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 103.1%		
13C2-PFHxA	5.347	315.0 -> 270.0	37364	15.02 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 75.1%		
d5-EtFOSAA	7.711	589.0 -> 419.0	38281	21.88 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 109.4%		
<b>Target Compounds</b>					
4:2FTS	5.282	327.0 -> 307.0	43999	18.39 µg/L	QValue 100
6:2FTS	6.751	427.0 -> 407.0	74007	19.70 µg/L	100
8:2FTS	8.152	527.0 -> 507.0	113438	23.44 µg/L	100
EtFOSAA	7.725	584.0 -> 419.0	34401	20.10 µg/L	100
FOSA	7.164	498.0 -> 78.0	54006	16.53 µg/L	100
MeFOSAA	7.601	570.0 -> 419.0	38288	19.00 µg/L	100
PFBA	3.102	213.0 -> 169.0	9899	14.84 µg/L	100
PFBS	4.516	299.0 -> 80.0	17303	17.53 µg/L	100
PFDA	8.021	513.0 -> 469.0	43548	20.03 µg/L	# 48
PFDoDA	10.932	613.0 -> 569.0	73699	20.49 µg/L	# 29
PFDS	9.126	599.0 -> 80.0	16530	21.93 µg/L	100
PFHpA	6.099	363.0 -> 319.0	58523	19.42 µg/L	93
PFHpS	6.695	449.0 -> 80.0	24316	20.38 µg/L	100
PFHxA	5.350	313.0 -> 269.0	16853	16.54 µg/L	85
PFHxS	6.081	399.0 -> 80.0	23298	19.69 µg/L	m 92
PFNA	7.332	463.0 -> 419.0	40389	18.69 µg/L	96
PFNS	7.905	549.0 -> 99.0	11790	19.97 µg/L	100
PFOA	6.729	413.0 -> 369.0	35065	20.50 µg/L	96
PFOS	7.264	499.0 -> 80.0	29382	18.94 µg/L	m 90
PFPeA	4.400	263.0 -> 219.0	48837	20.48 µg/L	100
PFPeS	5.393	349.0 -> 99.0	5695	19.95 µg/L	100
PFTeDA	13.493	713.0 -> 669.0	29859	19.35 µg/L	# 32
PFTrDA	12.279	663.0 -> 619.0	59340	20.22 µg/L	# 33
PFUnDA	9.393	563.0 -> 519.0	68510	20.64 µg/L	# 41

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

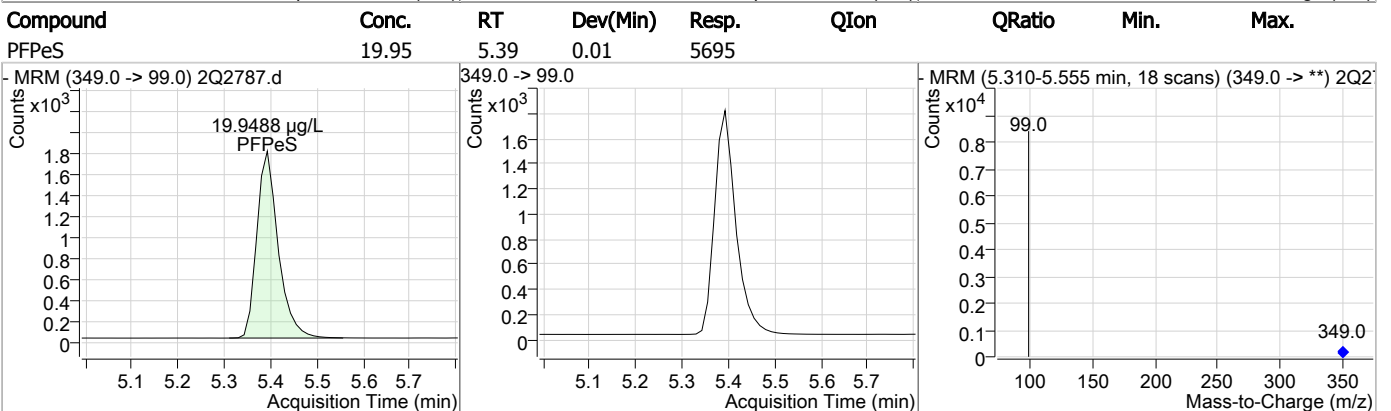
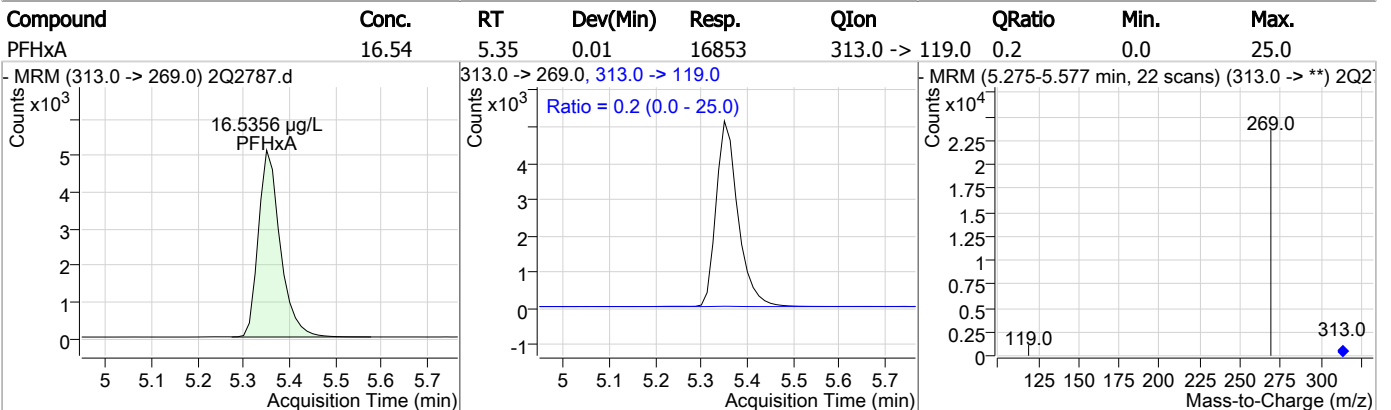
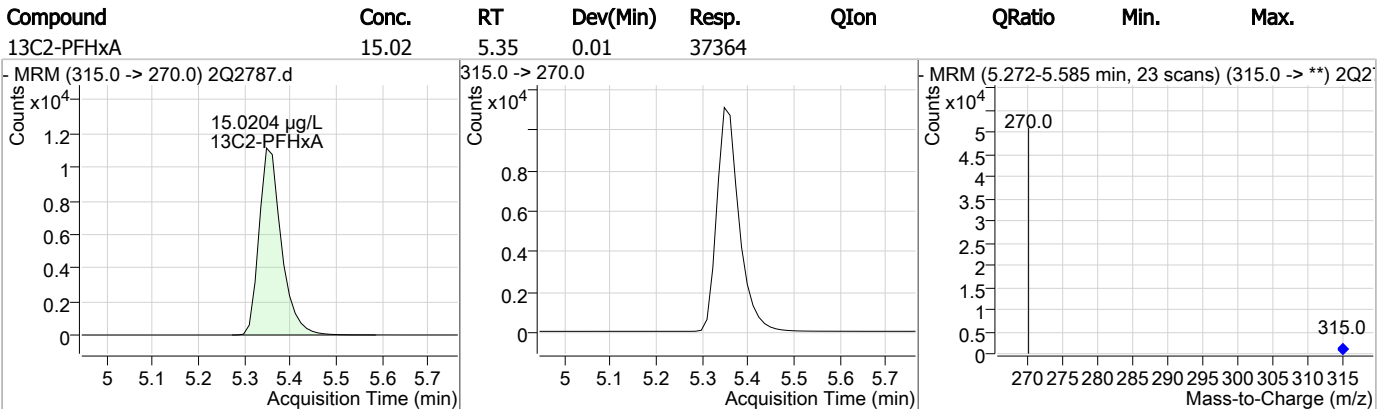
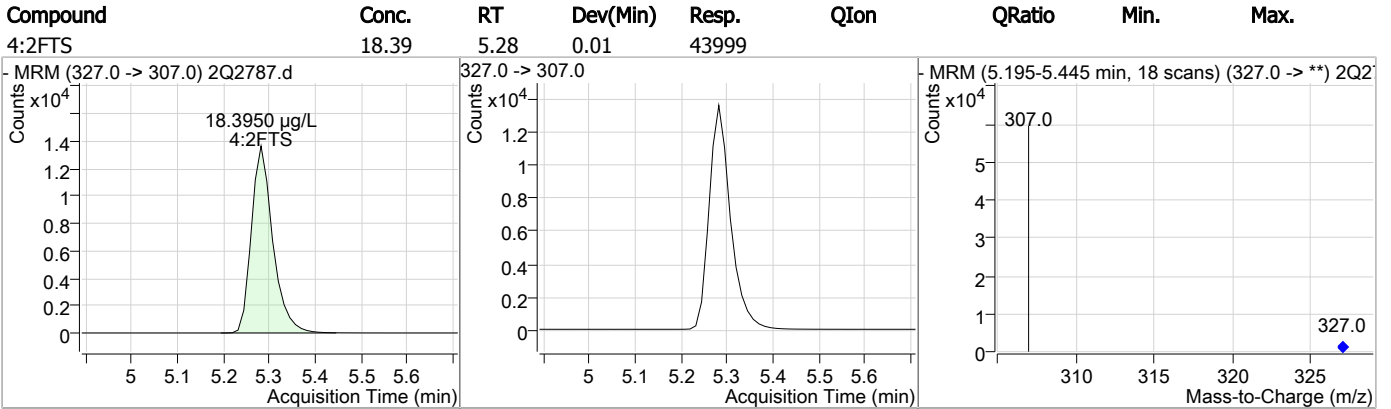
7.5.12  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.12  
7

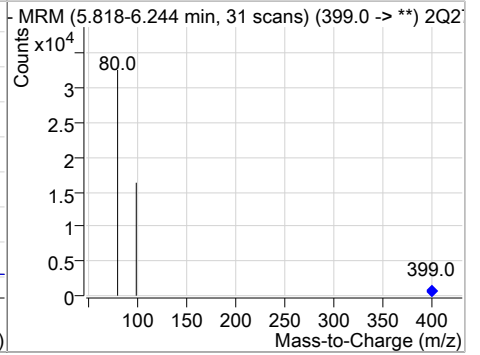
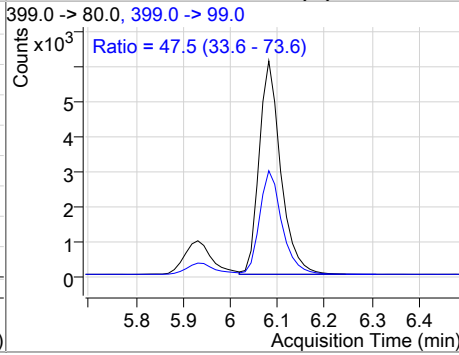
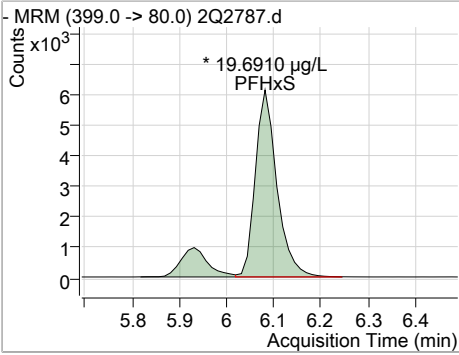
### Perfluorinated Compounds by LC/MS/MS



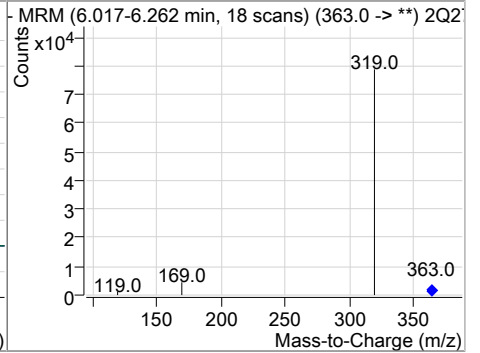
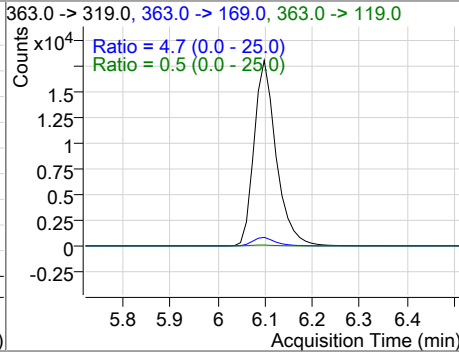
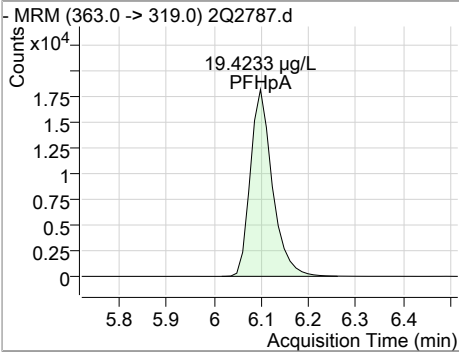
7.5.12  
7

### Perfluorinated Compounds by LC/MS/MS

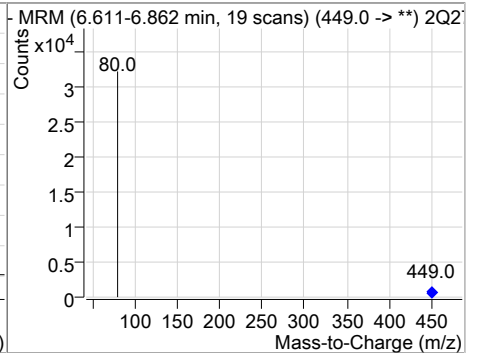
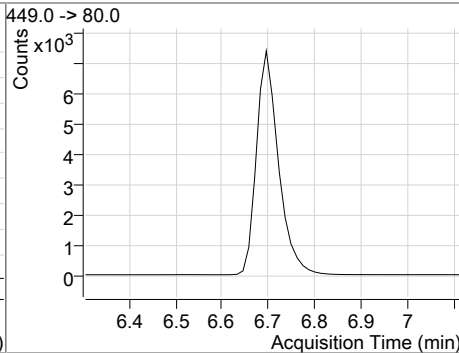
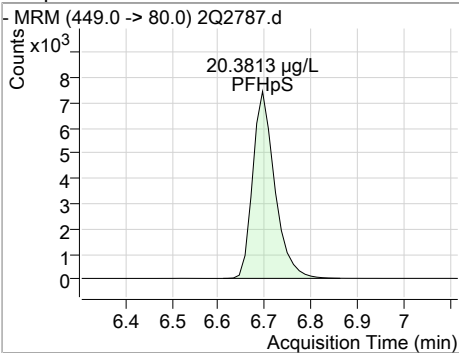
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.69	6.08	0.01	23298 (m)	399.0 -> 99.0	47.5	33.6	73.6



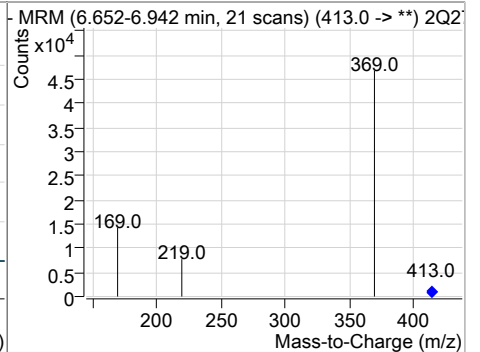
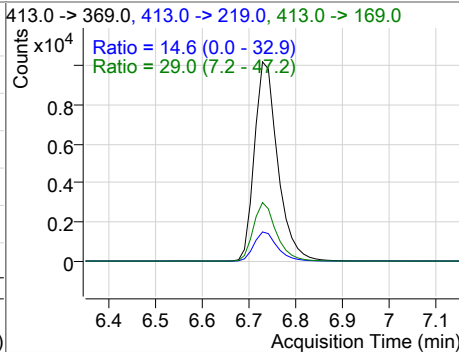
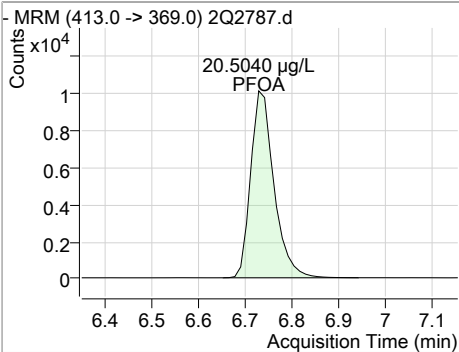
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.42	6.10	0.01	58523	363.0 -> 119.0 363.0 -> 169.0	0.5 4.7	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.38	6.70	0.01	24316				

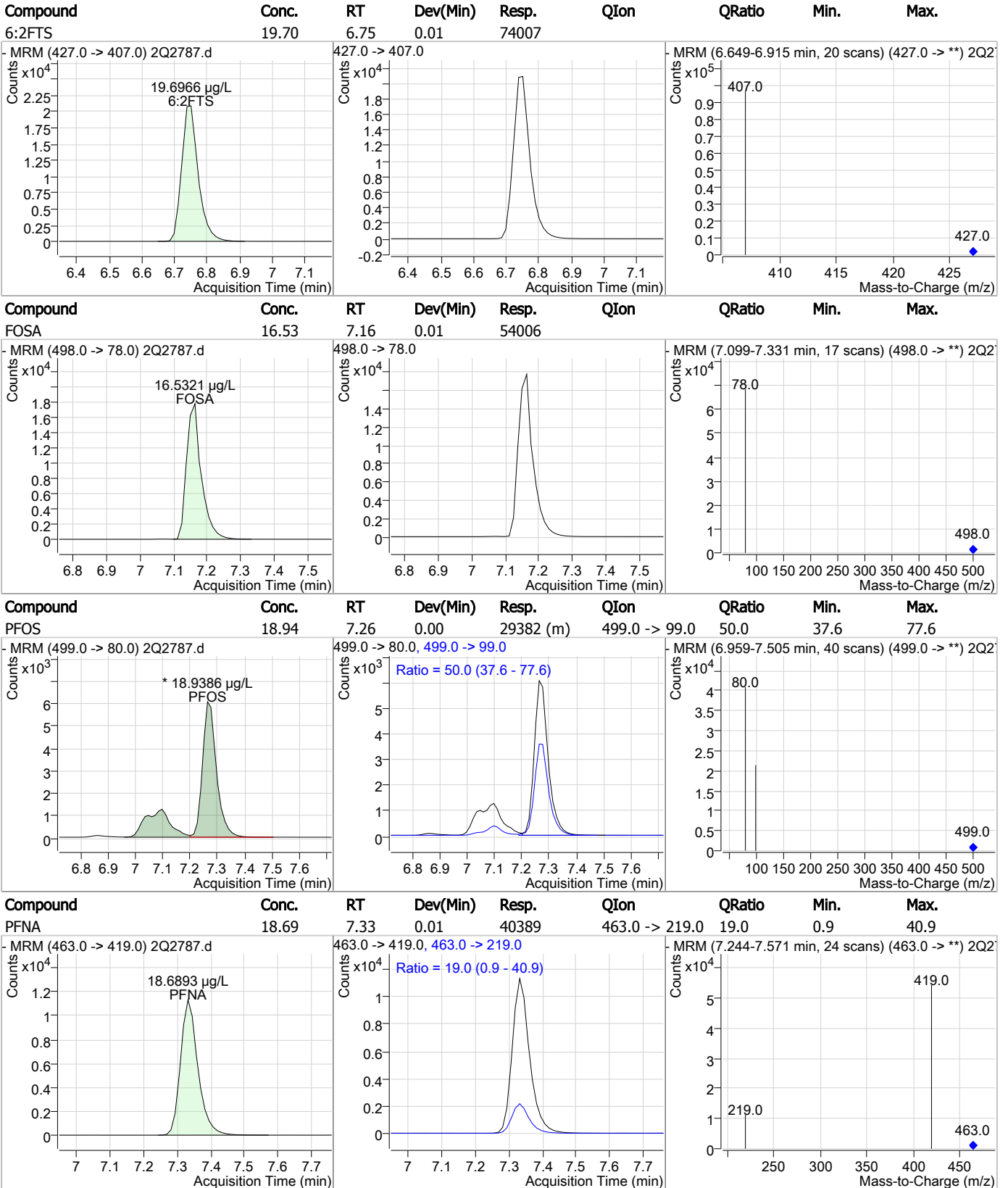


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.50	6.73	0.00	35065	413.0 -> 169.0 413.0 -> 219.0	29.0 14.6	7.2 0.0	47.2 32.9



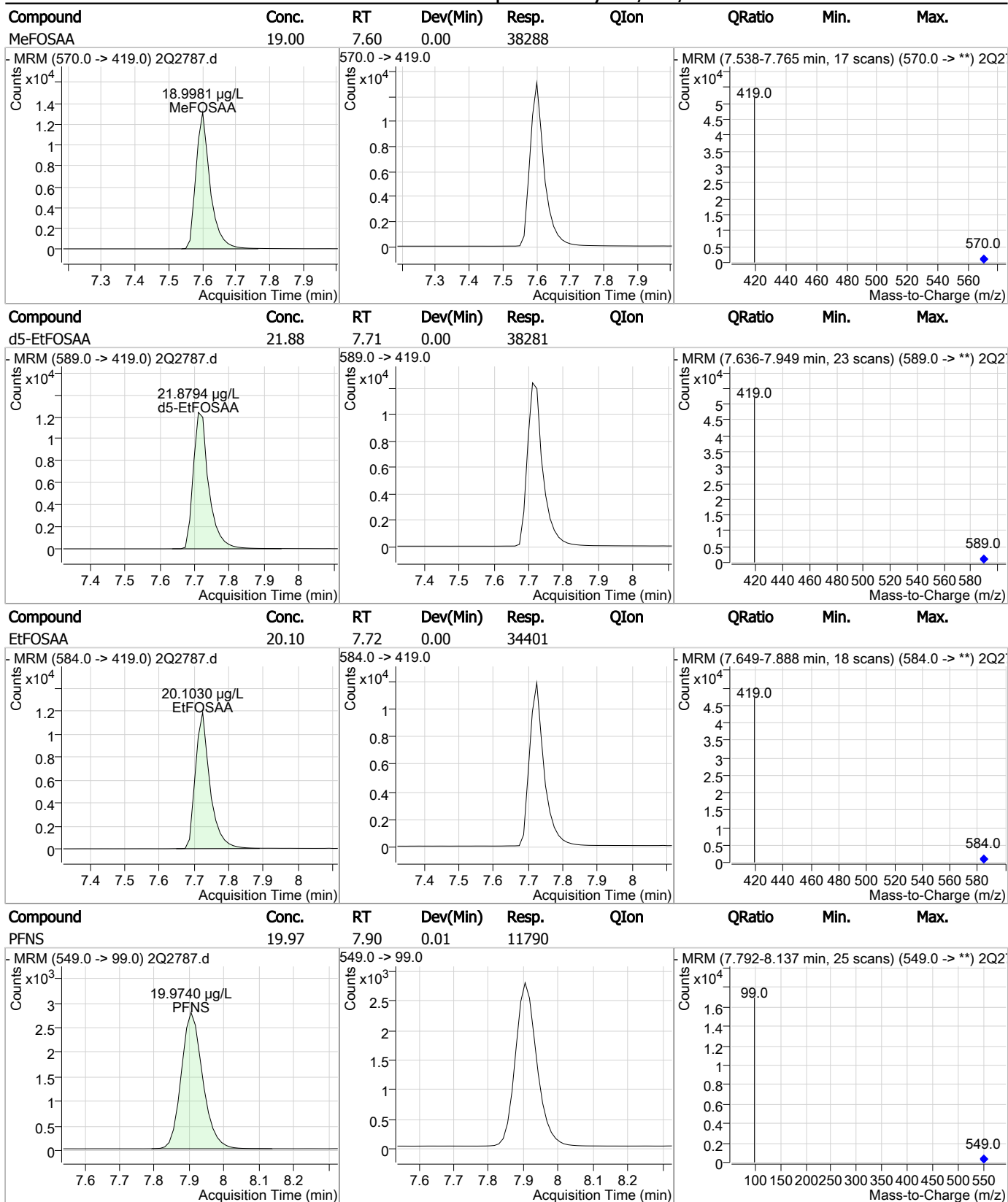
7.5.12  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.12  
7

### Perfluorinated Compounds by LC/MS/MS

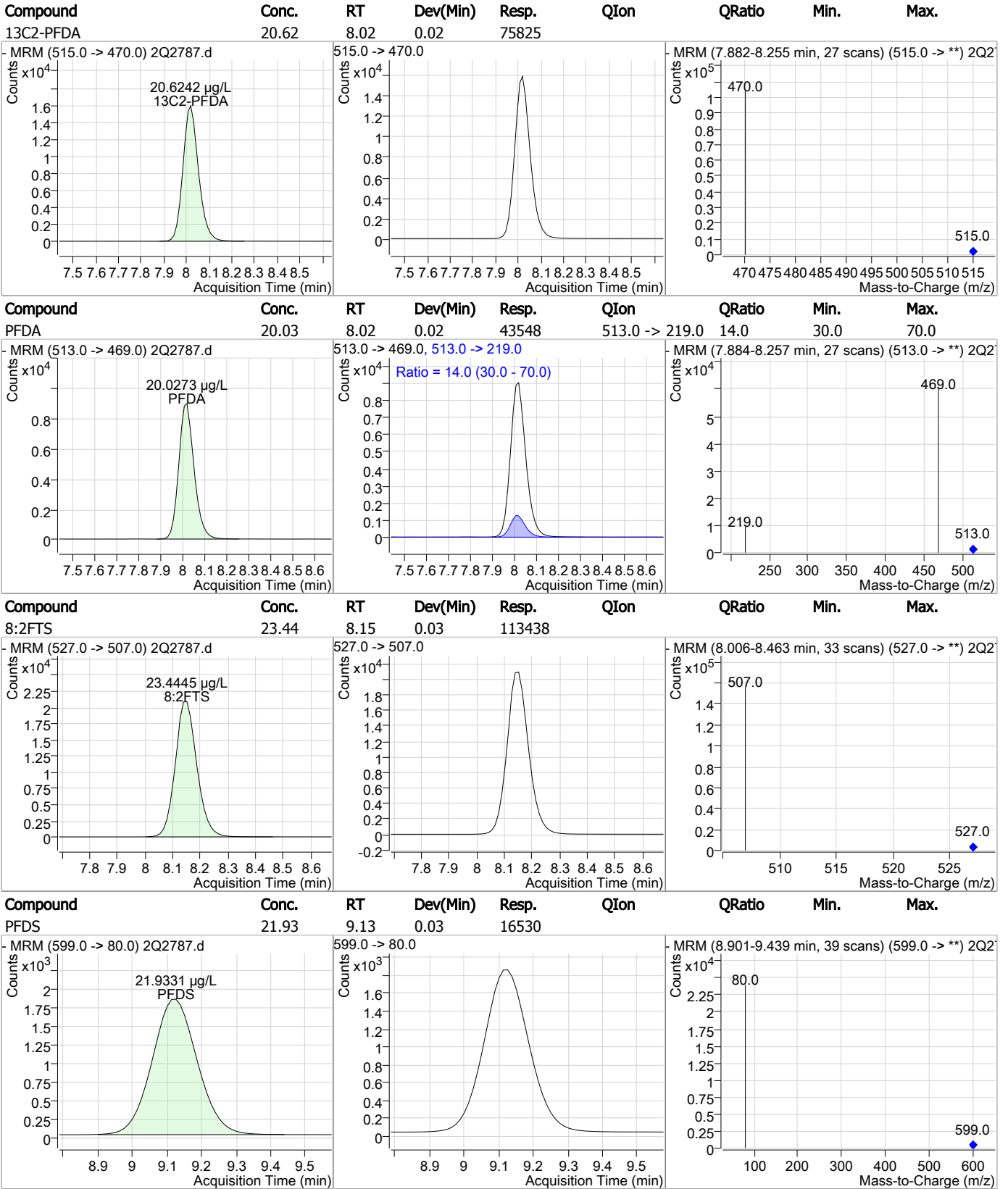


7.5.12

7

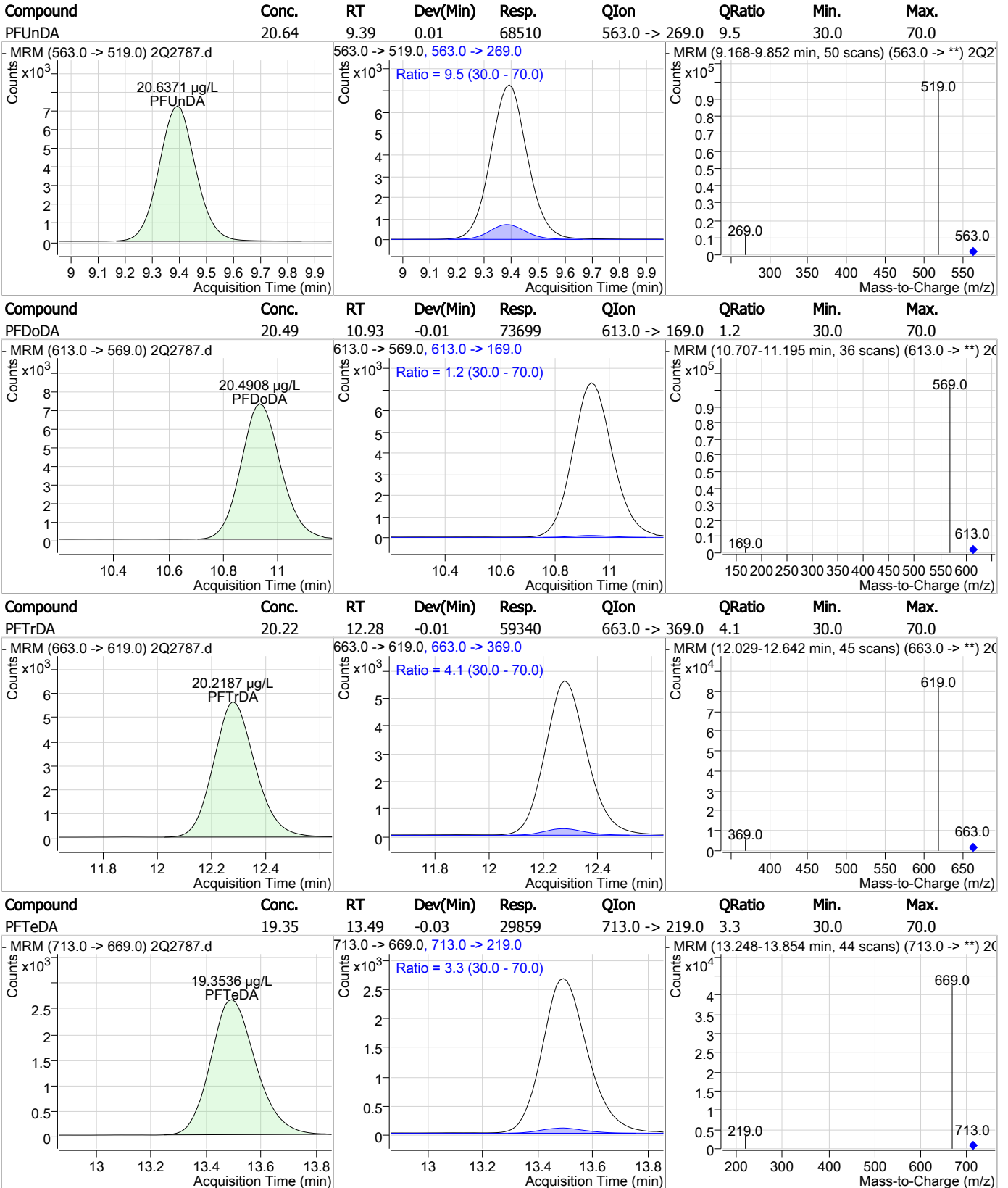


### Perfluorinated Compounds by LC/MS/MS



7.5.12 7

### Perfluorinated Compounds by LC/MS/MS



7.5.12  
7

# Manual Integration Approval Summary

Sample Number: S2Q69-CC67                      Method: EPA 537  
Lab FileID: 2Q2787.D                      Analyst approved: 06/27/17 12:06 Nancy Saunders  
Injection Time: 06/27/17 03:17                      Supervisor approved: 06/27/17 17:36 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.08	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.12.1

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### Perfluorinated Compounds by LC/MS/MS

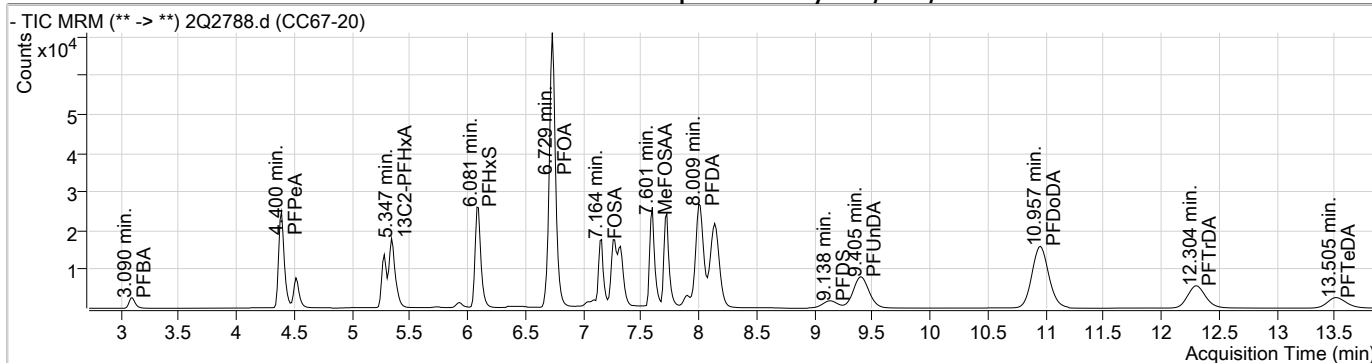
Data File : 2Q2788.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 3:37:05 AM  
 Sample Name : CC67-20  
 Vial : Vial 2  
 DA Method File : PFC\_0623\_S2Q67.quantmethod.xml  
 Batch Name : S2Q69.batch.bin  
 Sample Information : OP65591,S2Q69,125,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	78350	20.00 µg/L	0.000
13C2-PFDoDA	10.953	615.0 -> 570.0	85879	20.00 µg/L	0.000
13C2-PFOA	6.727	415.0 -> 370.0	43069	20.00 µg/L	0.000
13C3-PFPeA	4.397	266.0 -> 222.0	34889	20.00 µg/L	0.013
13C4-PFOS	7.275	503.0 -> 80.0	26886	20.00 µg/L	0.013
d3-MeFOSAA	7.600	573.0 -> 419.0	37319	20.00 µg/L	0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.019	515.0 -> 470.0	75168	21.01 µg/L	0.024
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 105.0%		
13C2-PFHxA	5.347	315.0 -> 270.0	38051	15.72 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 78.6%		
d5-EtFOSAA	7.711	589.0 -> 419.0	38350	21.43 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 107.1%		
<b>Target Compounds</b>					
4:2FTS	5.282	327.0 -> 307.0	44323	18.10 µg/L	100
6:2FTS	6.738	427.0 -> 407.0	75410	19.61 µg/L	100
8:2FTS	8.140	527.0 -> 507.0	112713	22.74 µg/L	100
EtFOSAA	7.725	584.0 -> 419.0	34820	19.88 µg/L	100
FOSA	7.164	498.0 -> 78.0	53717	16.05 µg/L	100
MeFOSAA	7.601	570.0 -> 419.0	39342	19.09 µg/L	100
PFBA	3.090	213.0 -> 169.0	10162	15.65 µg/L	100
PFBS	4.516	299.0 -> 80.0	17741	17.66 µg/L	100
PFDA	8.009	513.0 -> 469.0	43938	20.77 µg/L	# 47
PFDoDA	10.957	613.0 -> 569.0	71497	19.51 µg/L	# 29
PFDS	9.138	599.0 -> 80.0	16717	21.79 µg/L	100
PFHpA	6.099	363.0 -> 319.0	58250	19.85 µg/L	93
PFHpS	6.695	449.0 -> 80.0	24687	20.33 µg/L	100
PFHxA	5.350	313.0 -> 269.0	16927	17.06 µg/L	85
PFHxS	6.081	399.0 -> 80.0	23504	19.52 µg/L	m 92
PFNA	7.332	463.0 -> 419.0	40619	19.30 µg/L	96
PFNS	7.905	549.0 -> 99.0	11835	19.70 µg/L	100
PFOA	6.729	413.0 -> 369.0	35102	21.08 µg/L	95
PFOS	7.264	499.0 -> 80.0	29571	18.72 µg/L	m 90
PFPeA	4.400	263.0 -> 219.0	49323	20.57 µg/L	100
PFPeS	5.393	349.0 -> 99.0	5745	20.01 µg/L	100
PFTeDA	13.505	713.0 -> 669.0	29915	19.03 µg/L	# 32
PFTrDA	12.304	663.0 -> 619.0	59372	19.86 µg/L	# 34
PFUnDA	9.405	563.0 -> 519.0	69750	20.62 µg/L	# 41

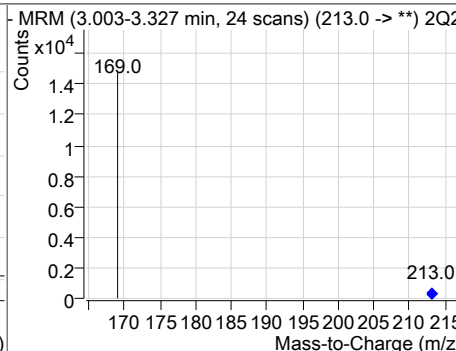
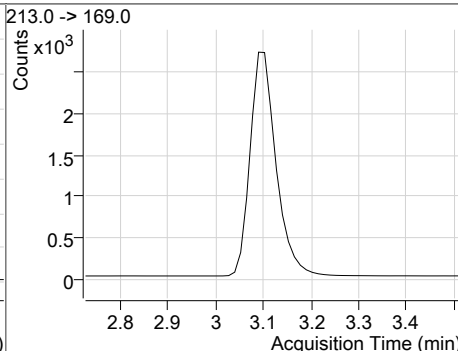
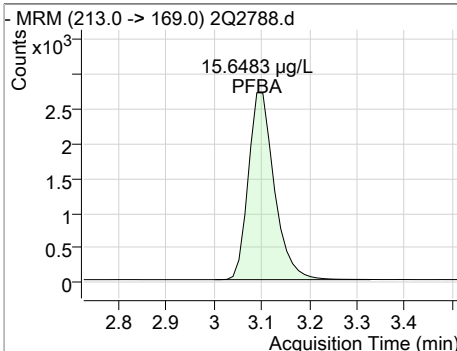
# = Qualifier out of range, m = manually integrated, + = Area summed

7.5.13  
7

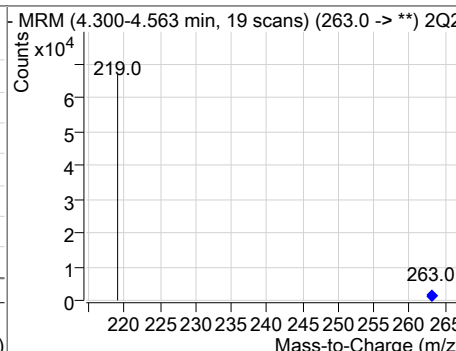
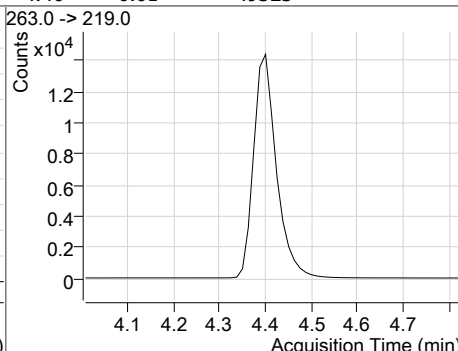
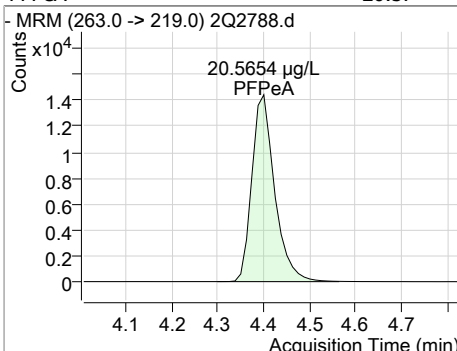
### Perfluorinated Compounds by LC/MS/MS



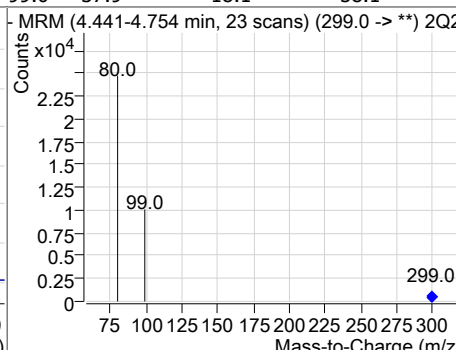
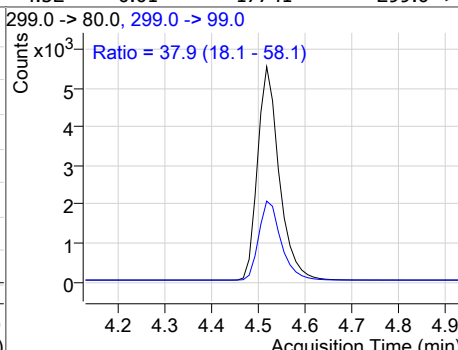
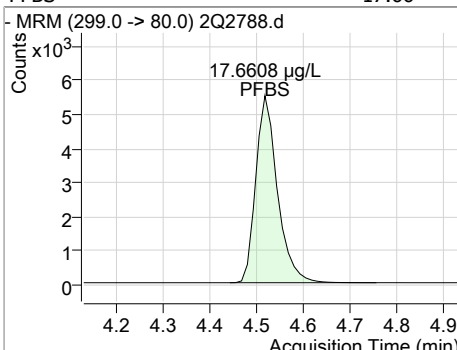
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	15.65	3.09	0.00	10162				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.57	4.40	0.01	49323				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	17.66	4.52	0.01	17741	299.0 -> 99.0	37.9	18.1	58.1



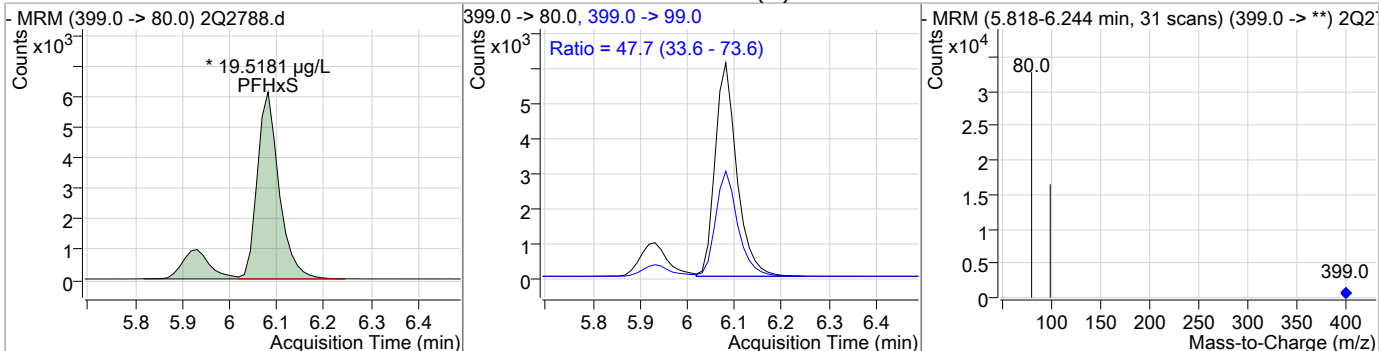
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	18.10	5.28	0.01	44323				
13C2-PFHxA	15.72	5.35	0.01	38051				
PFHxA	17.06	5.35	0.01	16927	313.0 -> 119.0	0.2	0.0	25.0
PFPeS	20.01	5.39	0.01	5745				

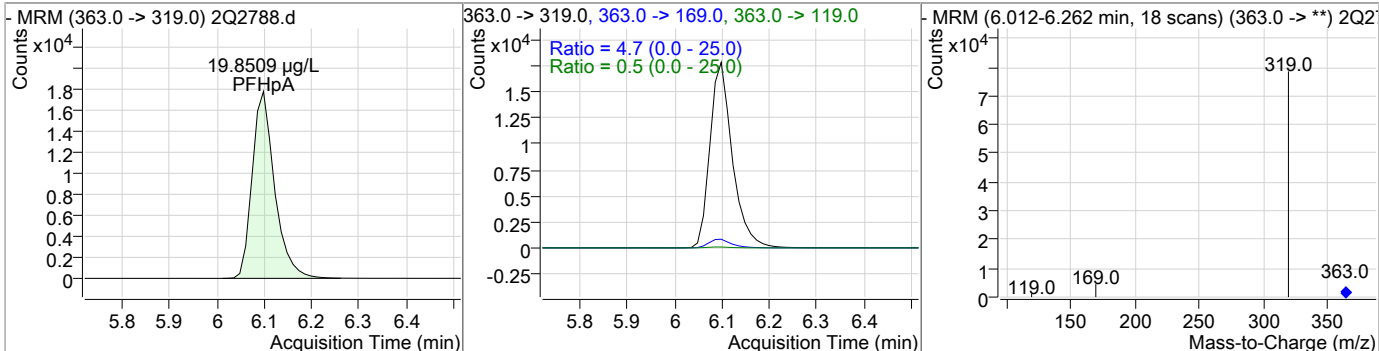
7.5.13  
7

### Perfluorinated Compounds by LC/MS/MS

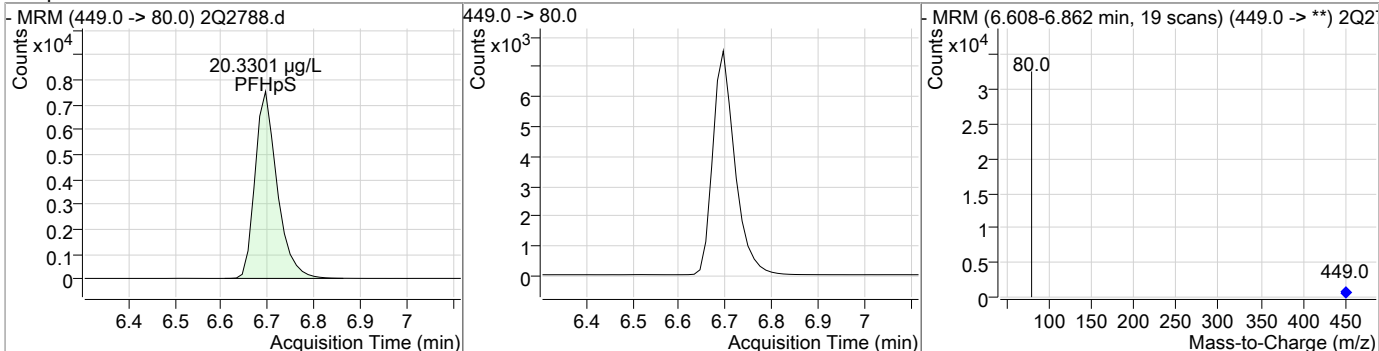
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.52	6.08	0.01	23504 (m)	399.0 -> 99.0	47.7	33.6	73.6



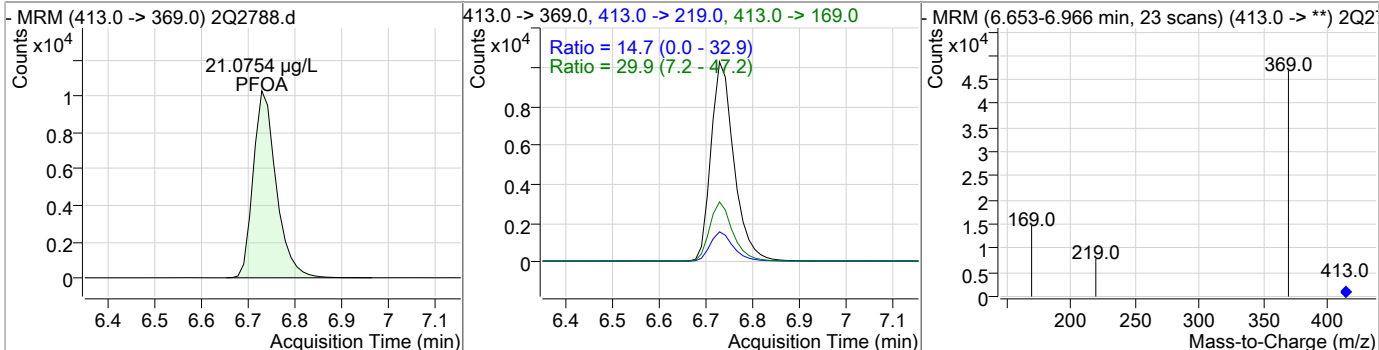
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.85	6.10	0.01	58250	363.0 -> 119.0 363.0 -> 169.0	0.5 4.7	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.33	6.70	0.01	24687				

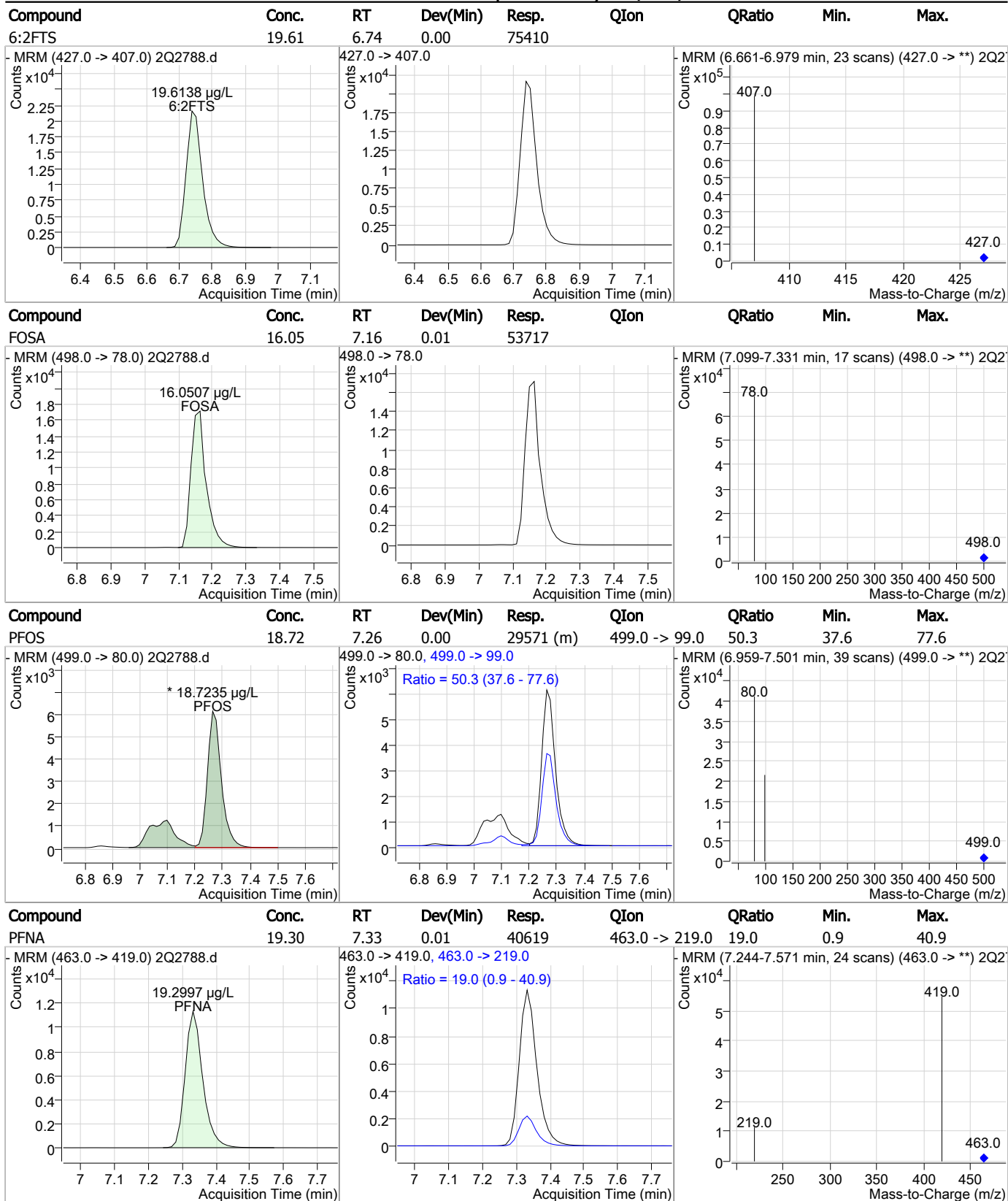


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.08	6.73	0.00	35102	413.0 -> 169.0 413.0 -> 219.0	29.9 14.7	7.2 0.0	47.2 32.9



7.5.13  
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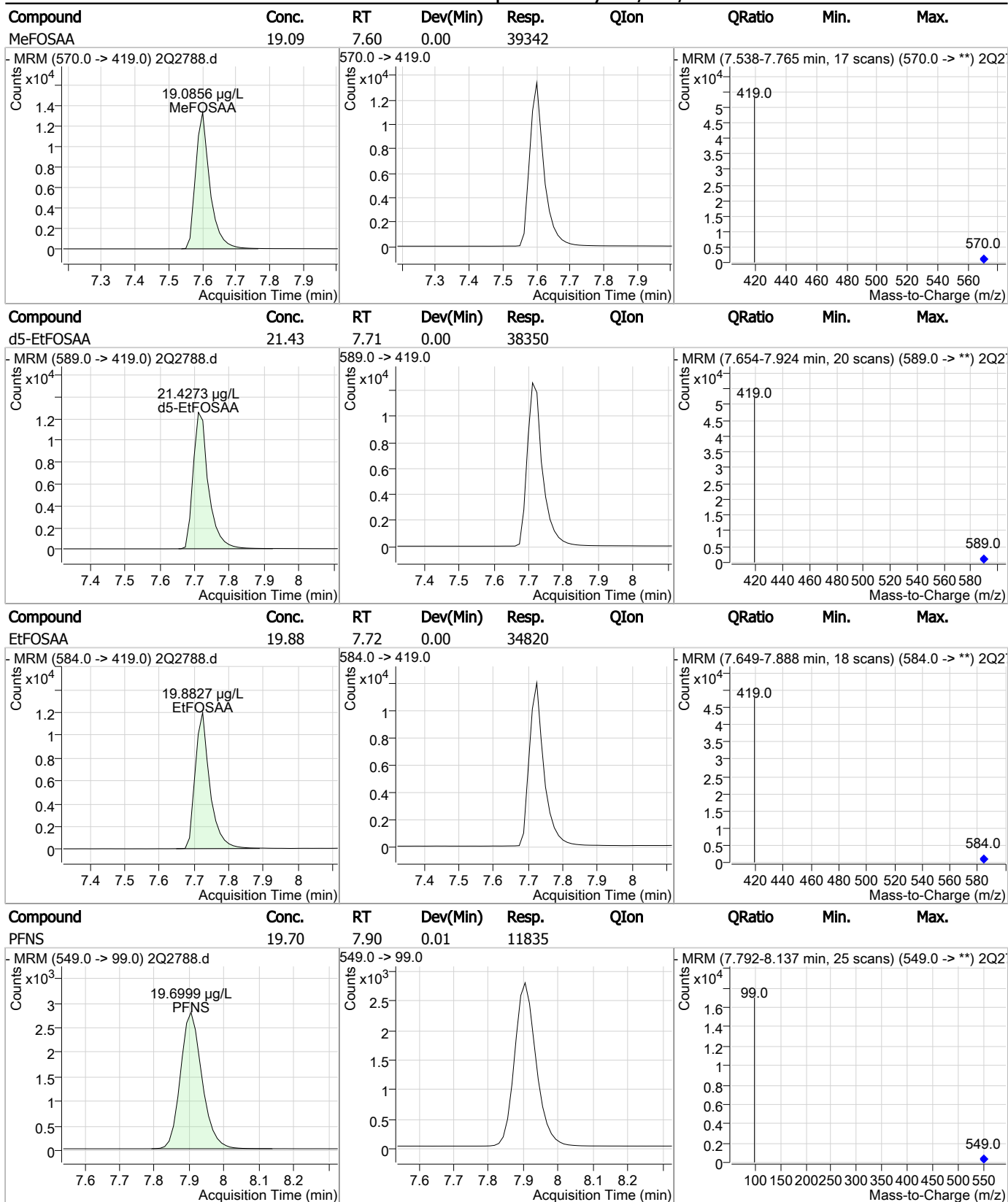
### Perfluorinated Compounds by LC/MS/MS



7.5.13  
7

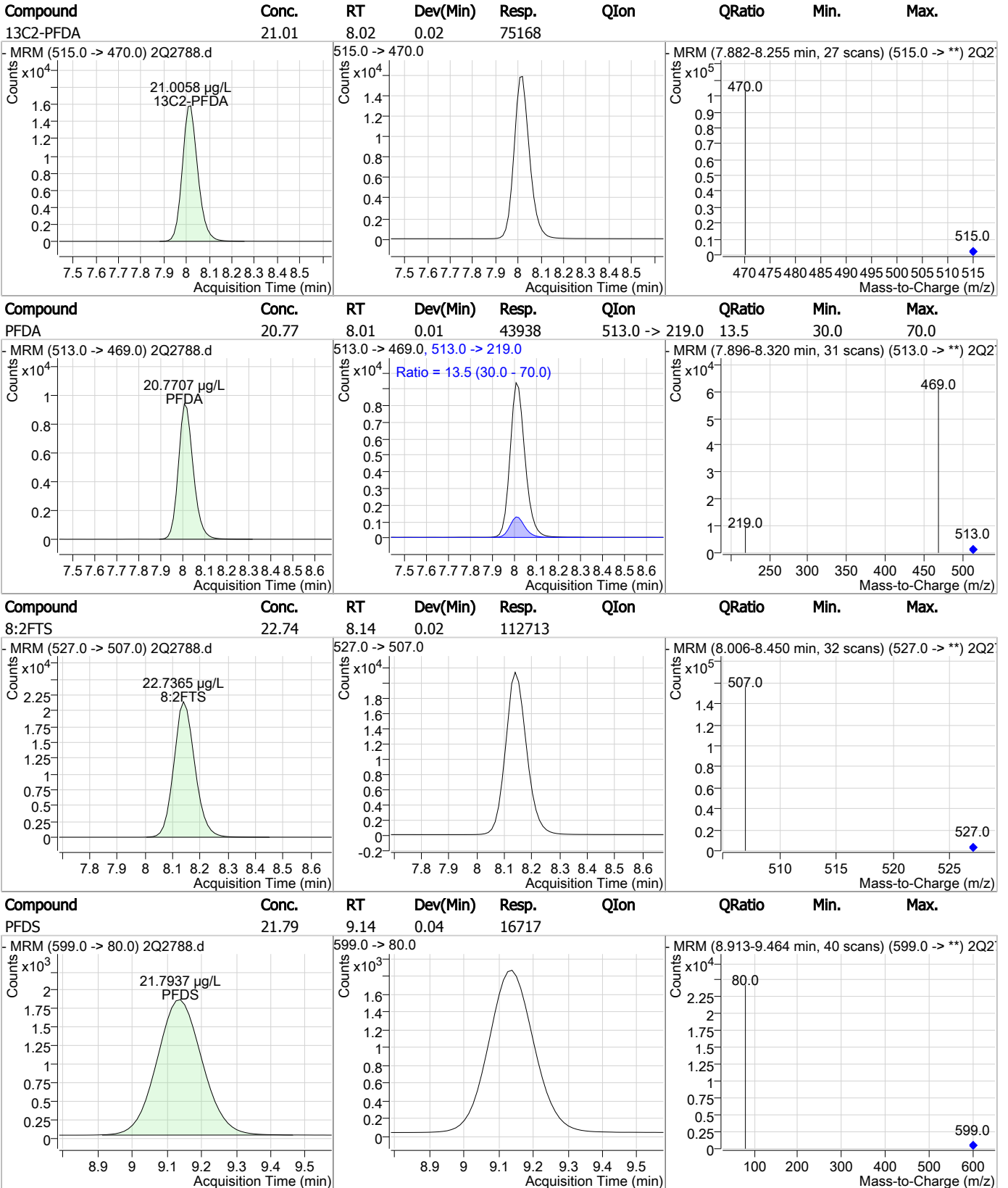


### Perfluorinated Compounds by LC/MS/MS



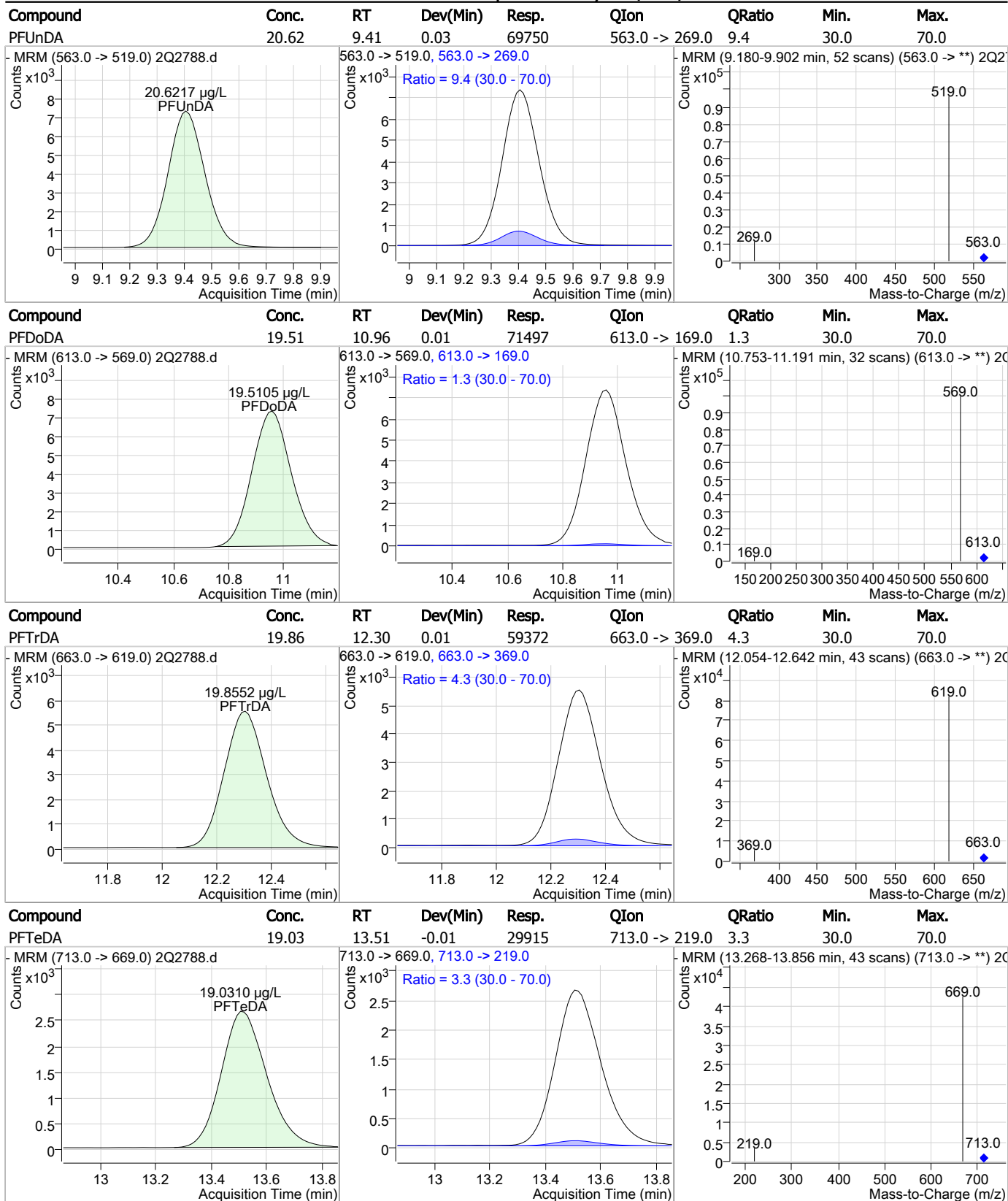
7.5.13  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.13  
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### Perfluorinated Compounds by LC/MS/MS



7.5.13  
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# Manual Integration Approval Summary

Sample Number: S2Q69-CC67                      Method: EPA 537 MOD  
Lab FileID: 2Q2788.D                              Analyst approved: 06/27/17 12:06 Nancy Saunders  
Injection Time: 06/27/17 03:37                      Supervisor approved: 06/27/17 17:36 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.08	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.13.1

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### Perfluorinated Compounds by LC/MS/MS

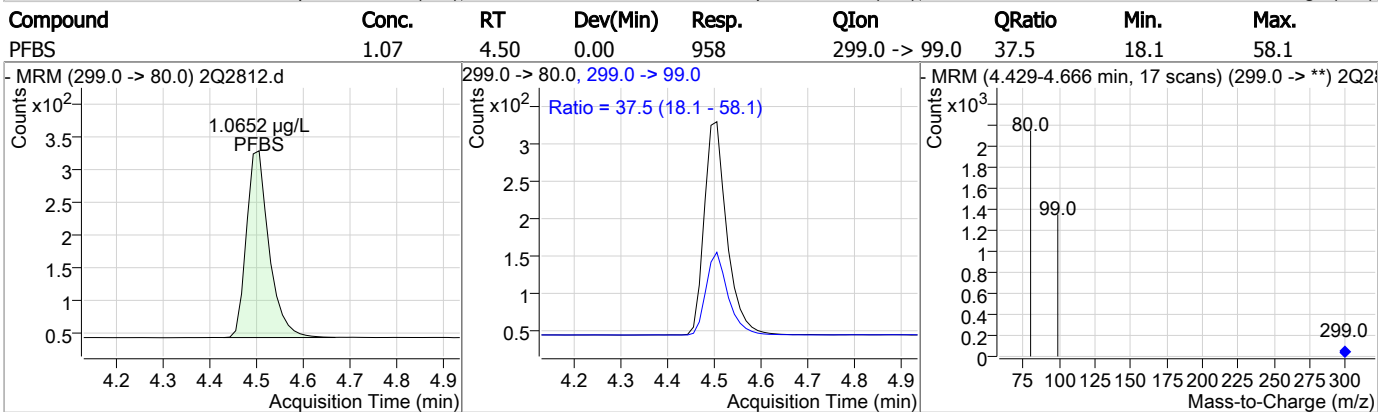
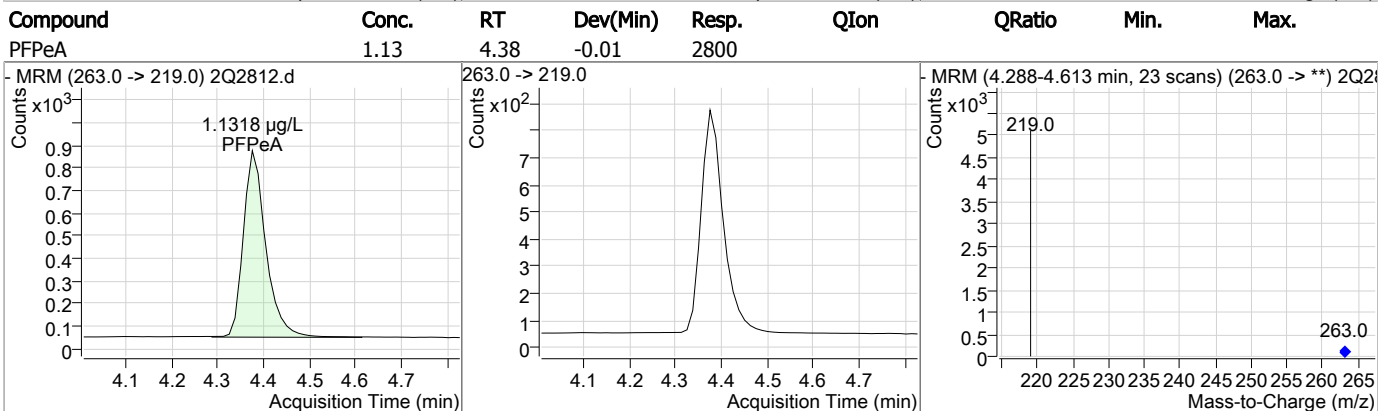
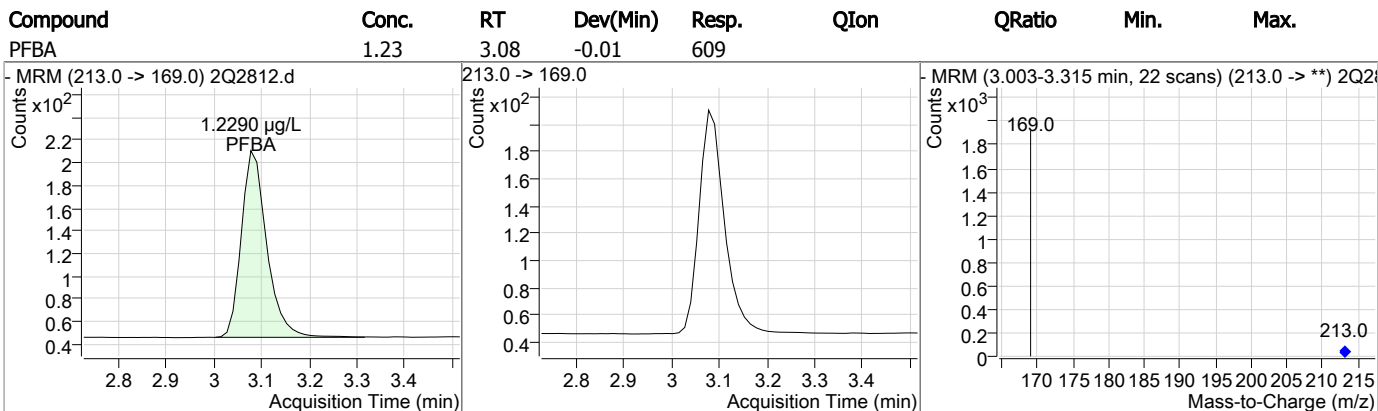
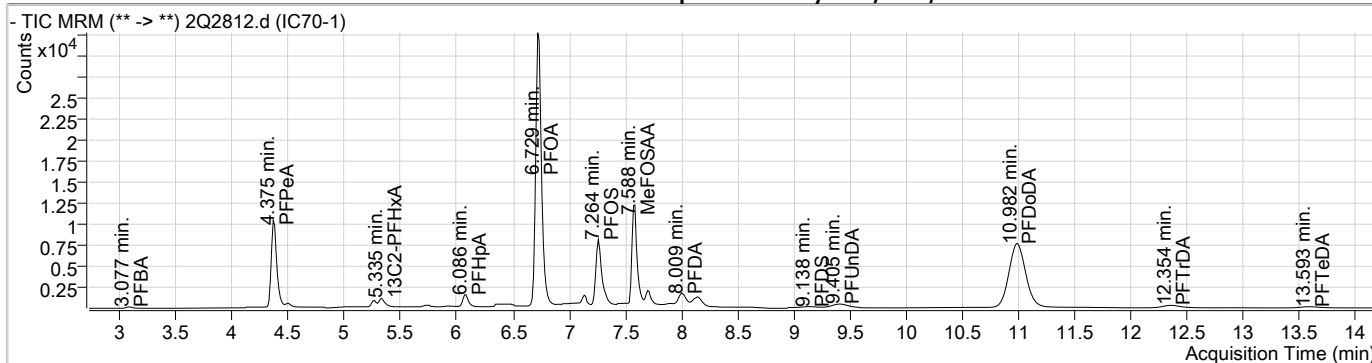
Data File : 2Q2812.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 11:43:49 AM  
 Sample Name : IC70-1  
 Vial : Vial 2  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65591,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	71648	20.00 µg/L	0.000
13C2-PFDoDA	10.990	615.0 -> 570.0	74610	20.00 µg/L	0.037
13C2-PFOA	6.727	415.0 -> 370.0	39834	20.00 µg/L	0.000
13C3-PFPeA	4.372	266.0 -> 222.0	32488	20.00 µg/L	-0.013
13C4-PFOS	7.263	503.0 -> 80.0	25097	20.00 µg/L	0.000
d3-MeFOSAA	7.587	573.0 -> 419.0	34799	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.019	515.0 -> 470.0	3978	1.15 µg/L	0.024
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 5.8%		
13C2-PFHxA	5.335	315.0 -> 270.0	2169	1.17 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 5.8%		
d5-EtFOSAA	7.698	589.0 -> 419.0	2392	1.30 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 6.5%		
<b>Target Compounds</b>					
4:2FTS	5.270	327.0 -> 307.0	2477	1.11 µg/L	100
6:2FTS	6.738	427.0 -> 407.0	4388	1.16 µg/L	100
8:2FTS	8.140	527.0 -> 507.0	6161	1.13 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	2092	1.19 µg/L	100
FOSA	7.137	498.0 -> 78.0	3085	1.13 µg/L	100
MeFOSAA	7.588	570.0 -> 419.0	2258	1.14 µg/L	100
PFBA	3.077	213.0 -> 169.0	609	1.23 µg/L	100
PFBS	4.504	299.0 -> 80.0	958	1.07 µg/L	99
PFDA	8.009	513.0 -> 469.0	2421	1.16 µg/L	# 48
PFDoDA	10.982	613.0 -> 569.0	3835	1.08 µg/L	# 29
PFDS	9.138	599.0 -> 80.0	913	1.03 µg/L	100
PFHpA	6.086	363.0 -> 319.0	3305	1.15 µg/L	93
PFHpS	6.683	449.0 -> 80.0	1374	1.08 µg/L	100
PFHxA	5.337	313.0 -> 269.0	938	1.12 µg/L	85
PFHxS	6.069	399.0 -> 80.0	1288	1.09 µg/L	m 92
PFNA	7.332	463.0 -> 419.0	2238	1.10 µg/L	97
PFNS	7.905	549.0 -> 99.0	668	1.09 µg/L	100
PFOA	6.729	413.0 -> 369.0	2029	1.18 µg/L	95
PFOS	7.264	499.0 -> 80.0	1694	1.11 µg/L	m 90
PFPeA	4.375	263.0 -> 219.0	2800	1.13 µg/L	100
PFPeS	5.367	349.0 -> 99.0	329	1.13 µg/L	100
PFTeDA	13.593	713.0 -> 669.0	1638	1.14 µg/L	# 32
PFTTrDA	12.354	663.0 -> 619.0	3092	1.09 µg/L	# 33
PFUnDA	9.405	563.0 -> 519.0	3653	1.07 µg/L	# 41

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

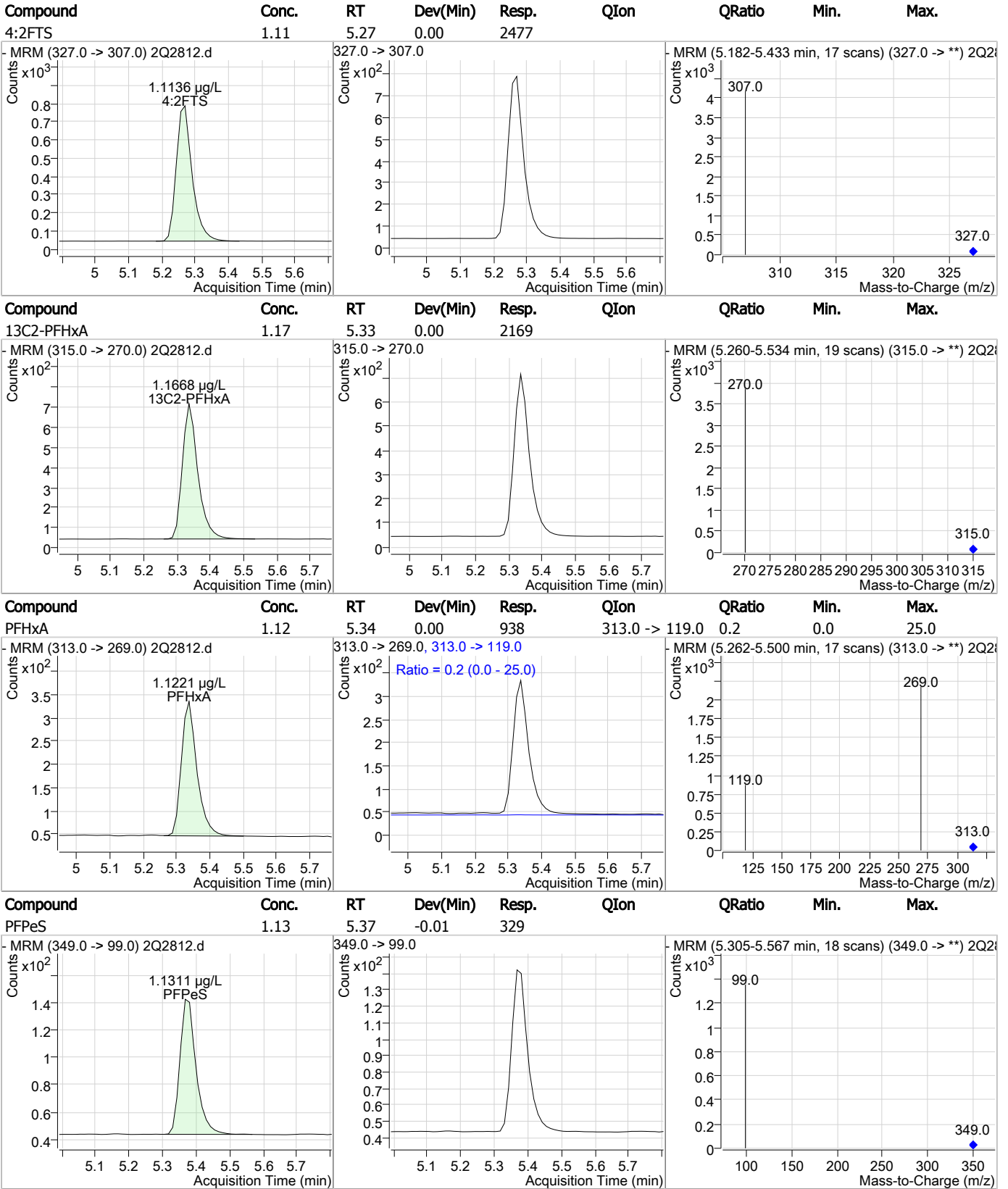
7.5.14  
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### Perfluorinated Compounds by LC/MS/MS



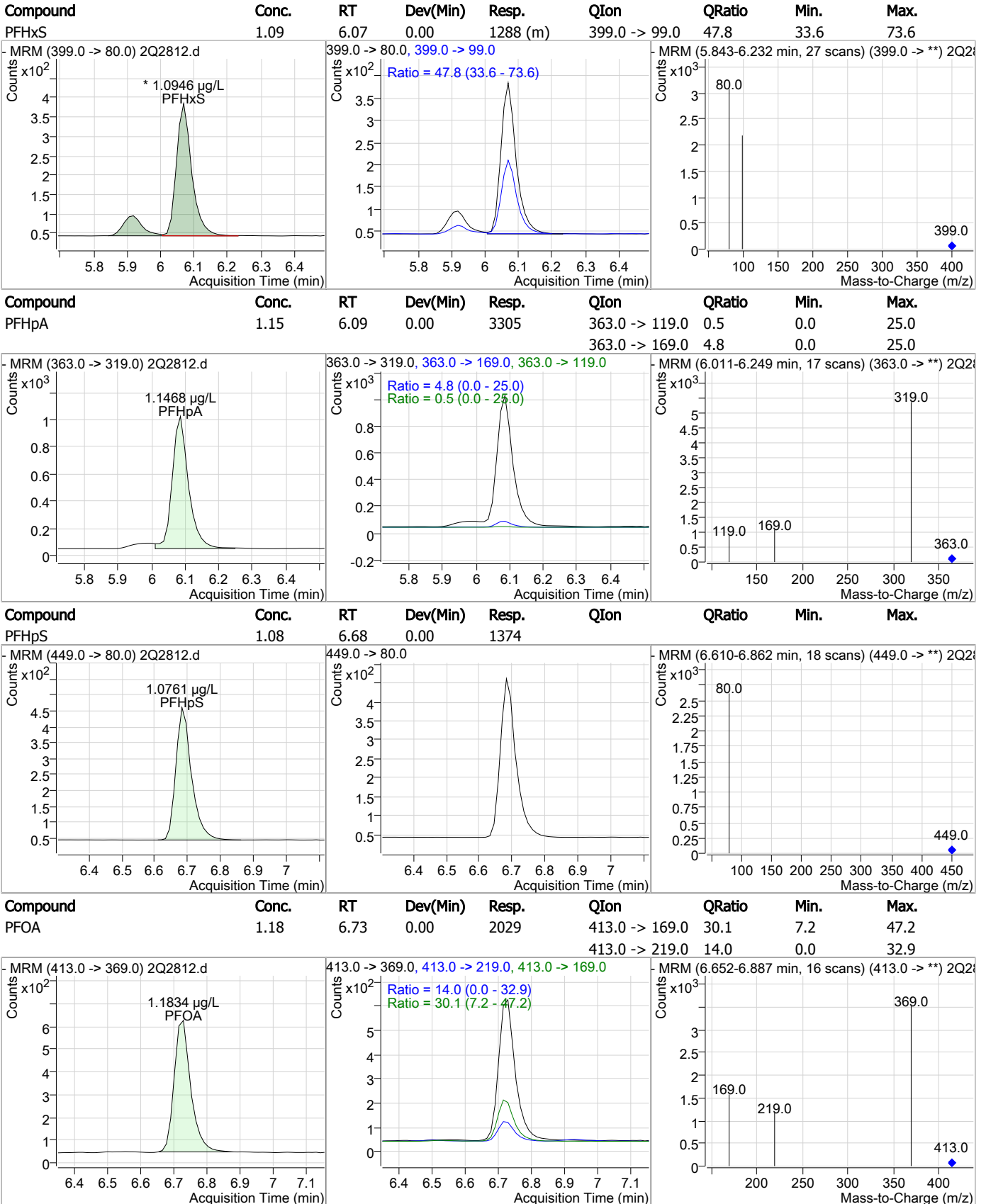
7.5.14  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.14  
7

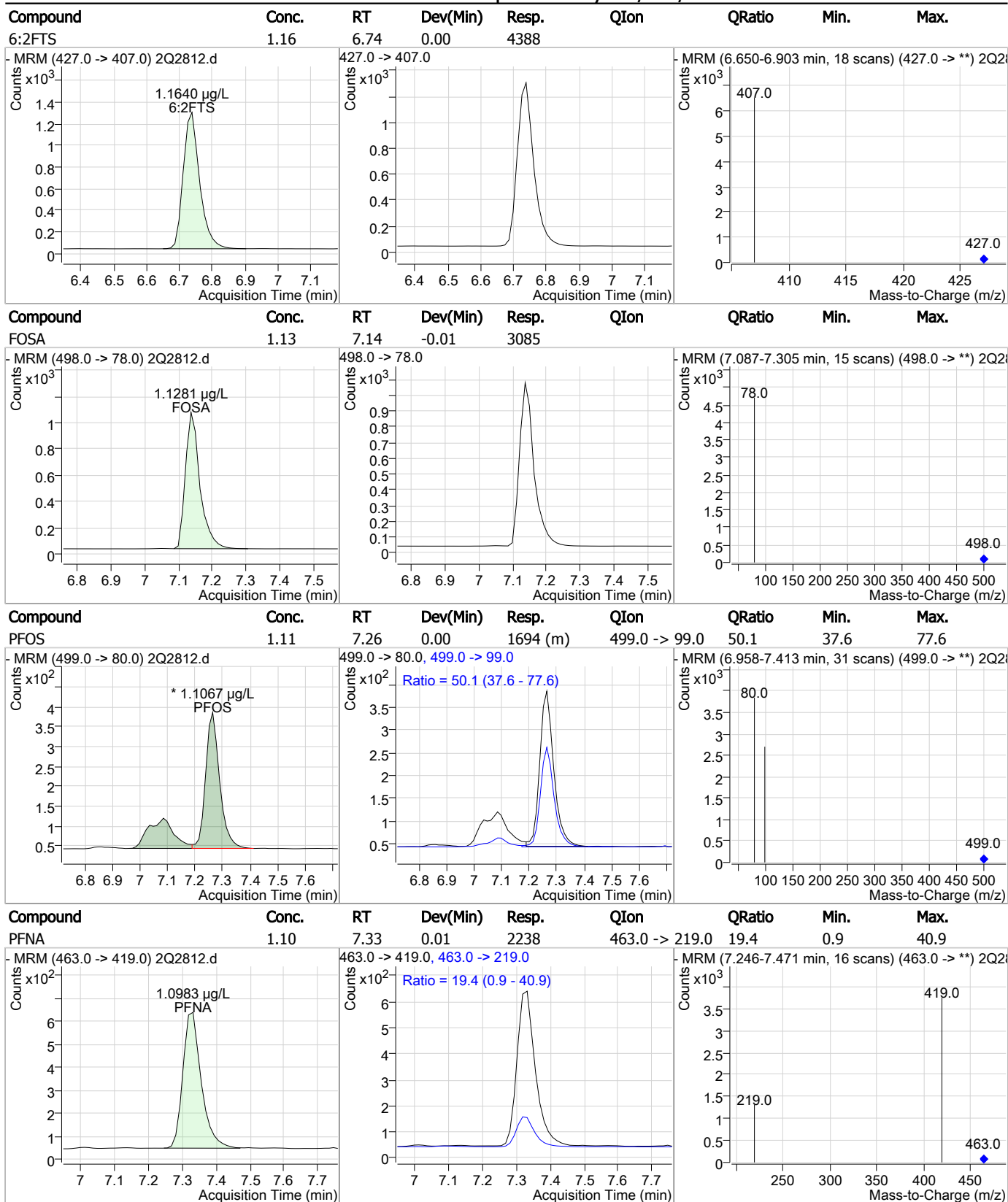
### Perfluorinated Compounds by LC/MS/MS



7.5.14  
7



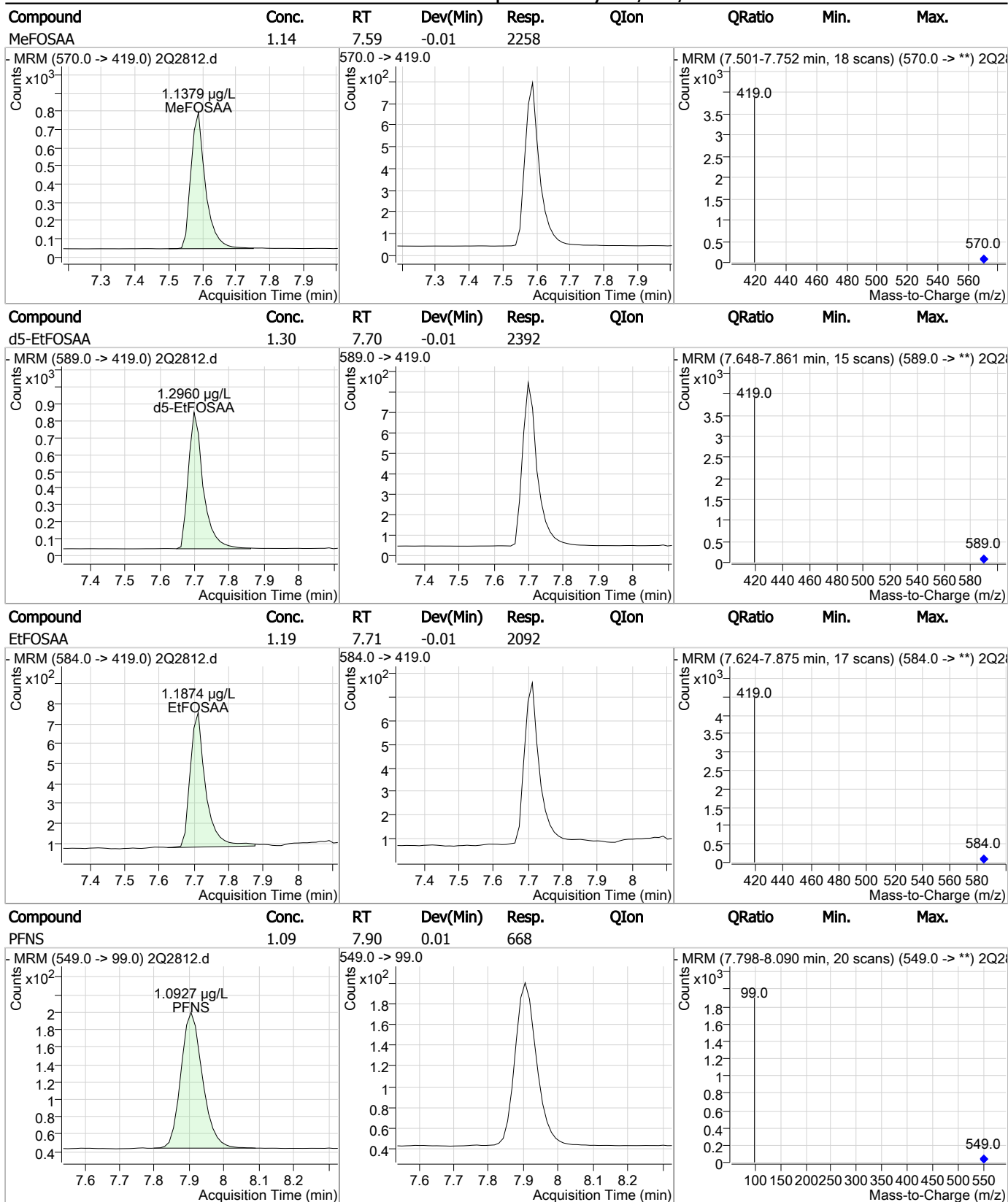
### Perfluorinated Compounds by LC/MS/MS



7.5.14

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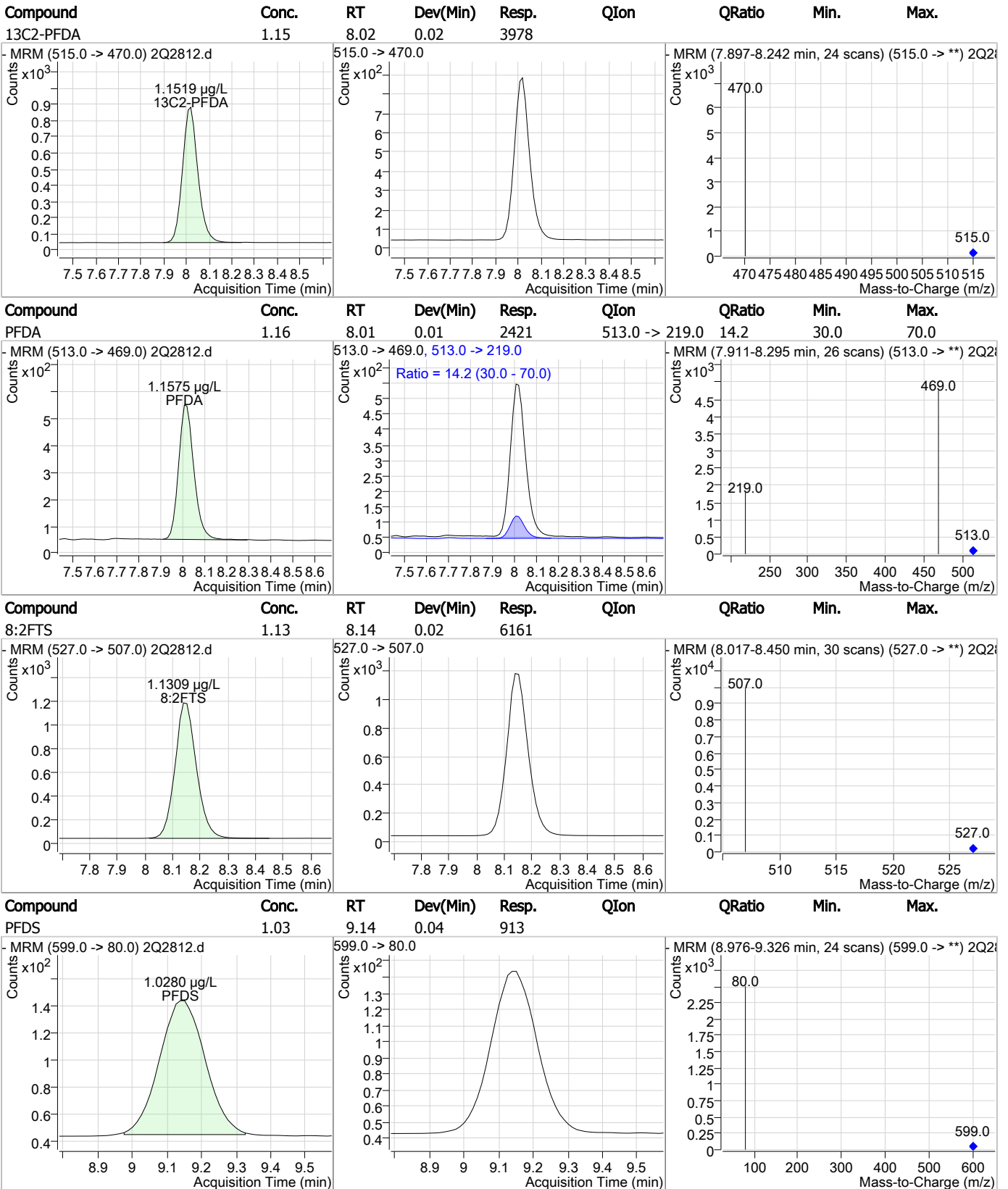
### Perfluorinated Compounds by LC/MS/MS



7.5.14

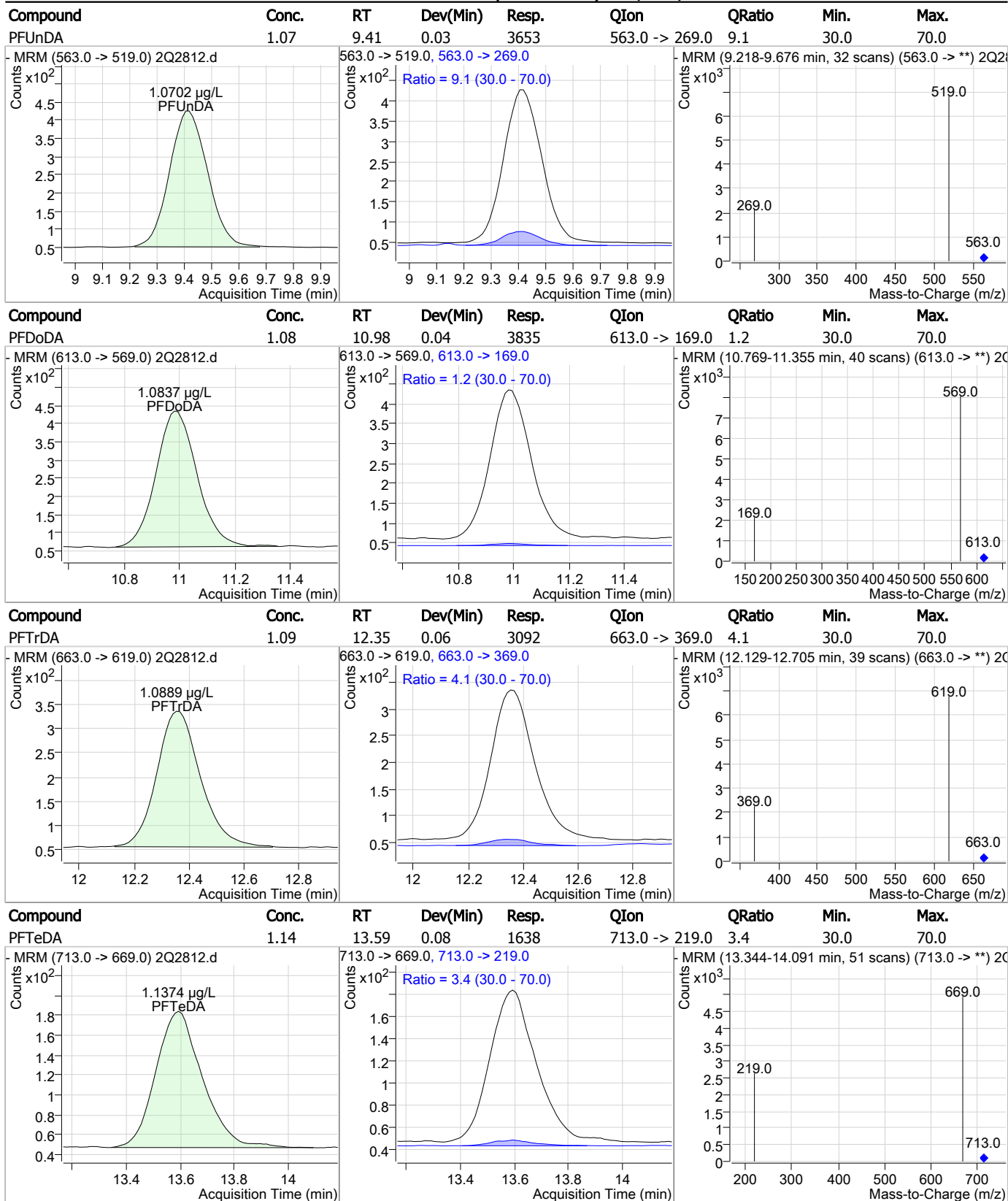
7

### Perfluorinated Compounds by LC/MS/MS



7.5.14 7

### Perfluorinated Compounds by LC/MS/MS



7.5.14  
7

# Manual Integration Approval Summary

Sample Number: S2Q70-IC70                      Method: EPA 537 MOD  
Lab FileID: 2Q2812.D                      Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 11:43                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.07	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.14.1

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Perfluorinated Compounds by LC/MS/MS

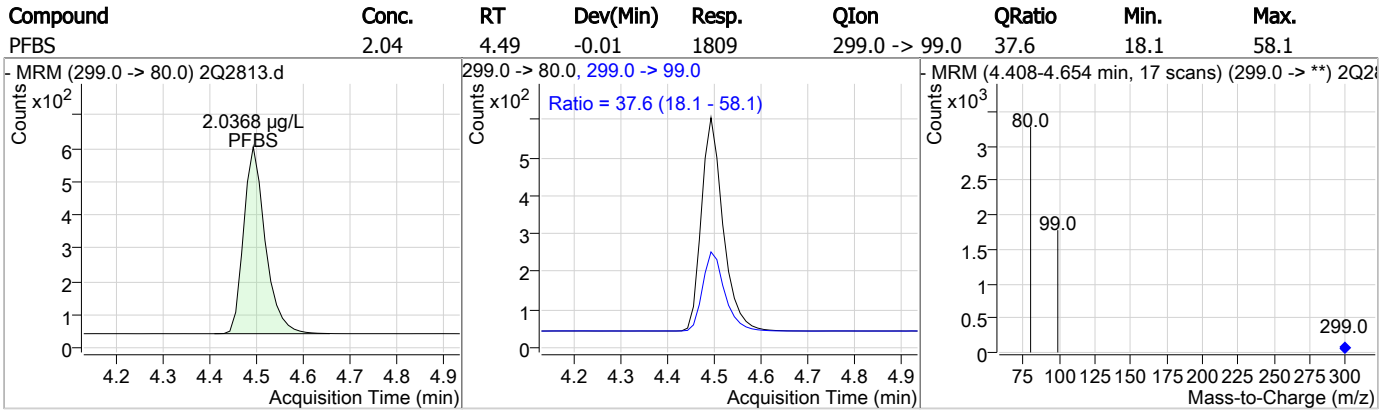
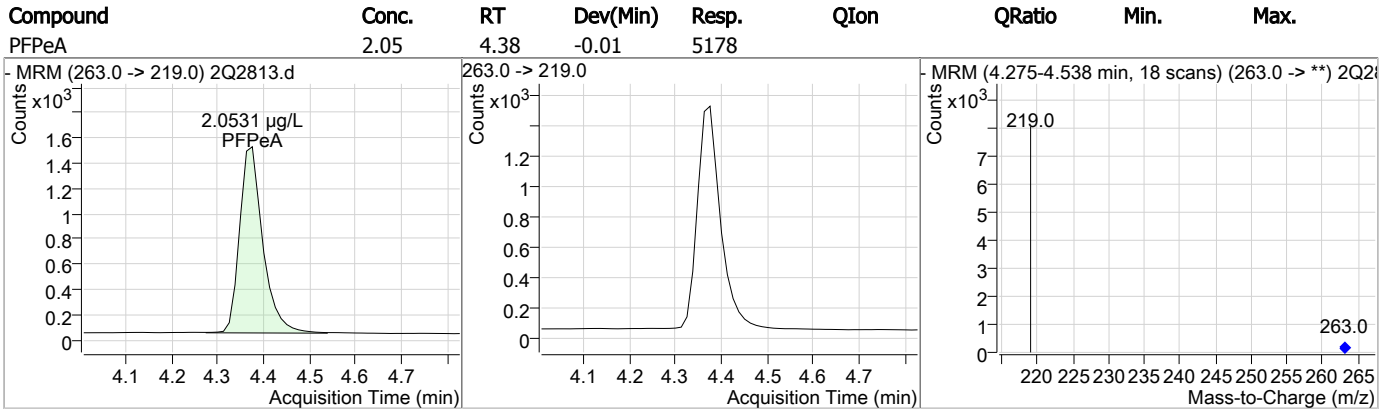
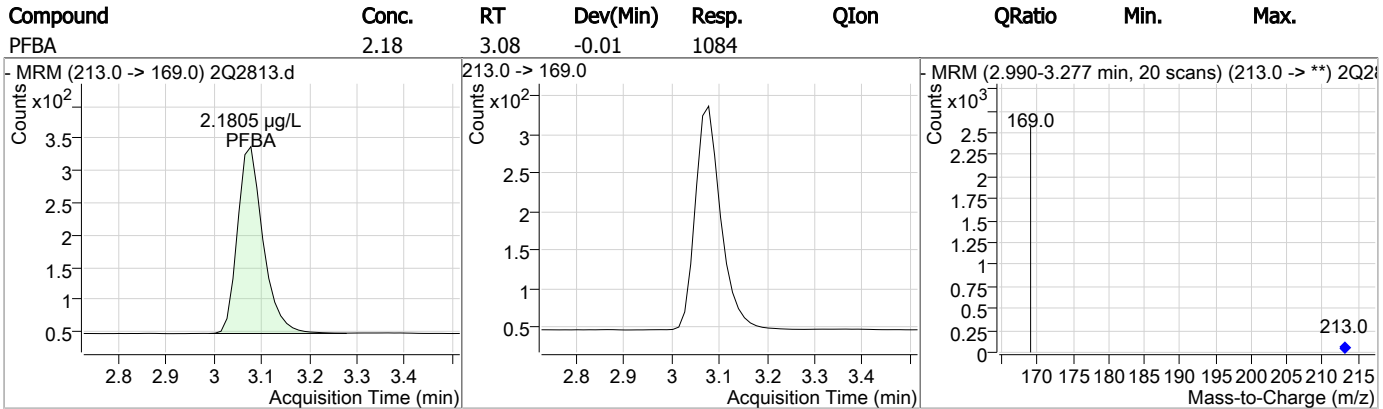
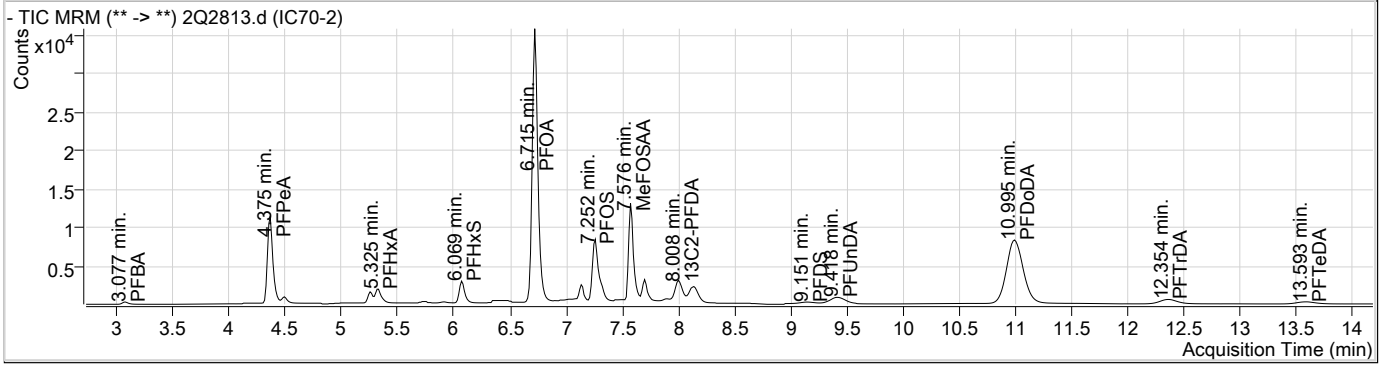
Data File : 2Q2813.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 12:03:08 PM  
 Sample Name : IC70-2  
 Vial : Vial 3  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65591,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.724	429.0 -> 409.0	72796	20.00 µg/L	-0.013
13C2-PFDoDA	10.990	615.0 -> 570.0	77663	20.00 µg/L	0.037
13C2-PFOA	6.713	415.0 -> 370.0	39954	20.00 µg/L	-0.014
13C3-PFPeA	4.372	266.0 -> 222.0	33121	20.00 µg/L	-0.013
13C4-PFOS	7.263	503.0 -> 80.0	24797	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	33696	20.00 µg/L	-0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	7433	2.15 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 10.7%		
13C2-PFHxA	5.335	315.0 -> 270.0	3972	2.13 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 10.7%		
d5-EtFOSAA	7.698	589.0 -> 419.0	3909	2.19 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 10.9%		
<b>Target Compounds</b>					
4:2FTS	5.257	327.0 -> 307.0	4683	2.08 µg/L	100
6:2FTS	6.726	427.0 -> 407.0	8006	2.09 µg/L	100
8:2FTS	8.140	527.0 -> 507.0	11373	2.06 µg/L	100
EtFOSAA	7.699	584.0 -> 419.0	3534	2.07 µg/L	100
FOSA	7.137	498.0 -> 78.0	5896	2.23 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	4046	2.11 µg/L	100
PFBA	3.077	213.0 -> 169.0	1084	2.18 µg/L	100
PFBS	4.491	299.0 -> 80.0	1809	2.04 µg/L	99
PFDA	8.009	513.0 -> 469.0	4558	2.17 µg/L	# 47
PFDoDA	10.995	613.0 -> 569.0	7583	2.06 µg/L	# 29
PFDS	9.151	599.0 -> 80.0	1753	2.00 µg/L	100
PFHpA	6.074	363.0 -> 319.0	6172	2.13 µg/L	93
PFHpS	6.683	449.0 -> 80.0	2600	2.06 µg/L	100
PFHxA	5.325	313.0 -> 269.0	1802	2.15 µg/L	86
PFHxS	6.069	399.0 -> 80.0	2339	2.01 µg/L	m 94
PFNA	7.319	463.0 -> 419.0	4243	2.08 µg/L	96
PFNS	7.905	549.0 -> 99.0	1215	2.01 µg/L	100
PFOA	6.715	413.0 -> 369.0	3771	2.19 µg/L	95
PFOS	7.252	499.0 -> 80.0	3225	2.13 µg/L	m 87
PFPeA	4.375	263.0 -> 219.0	5178	2.05 µg/L	100
PFPeS	5.367	349.0 -> 99.0	576	1.94 µg/L	100
PFTeDA	13.593	713.0 -> 669.0	3049	2.03 µg/L	# 32
PFTrDA	12.354	663.0 -> 619.0	5987	2.03 µg/L	# 34
PFUnDA	9.418	563.0 -> 519.0	7123	2.00 µg/L	# 41

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

7.5.15  
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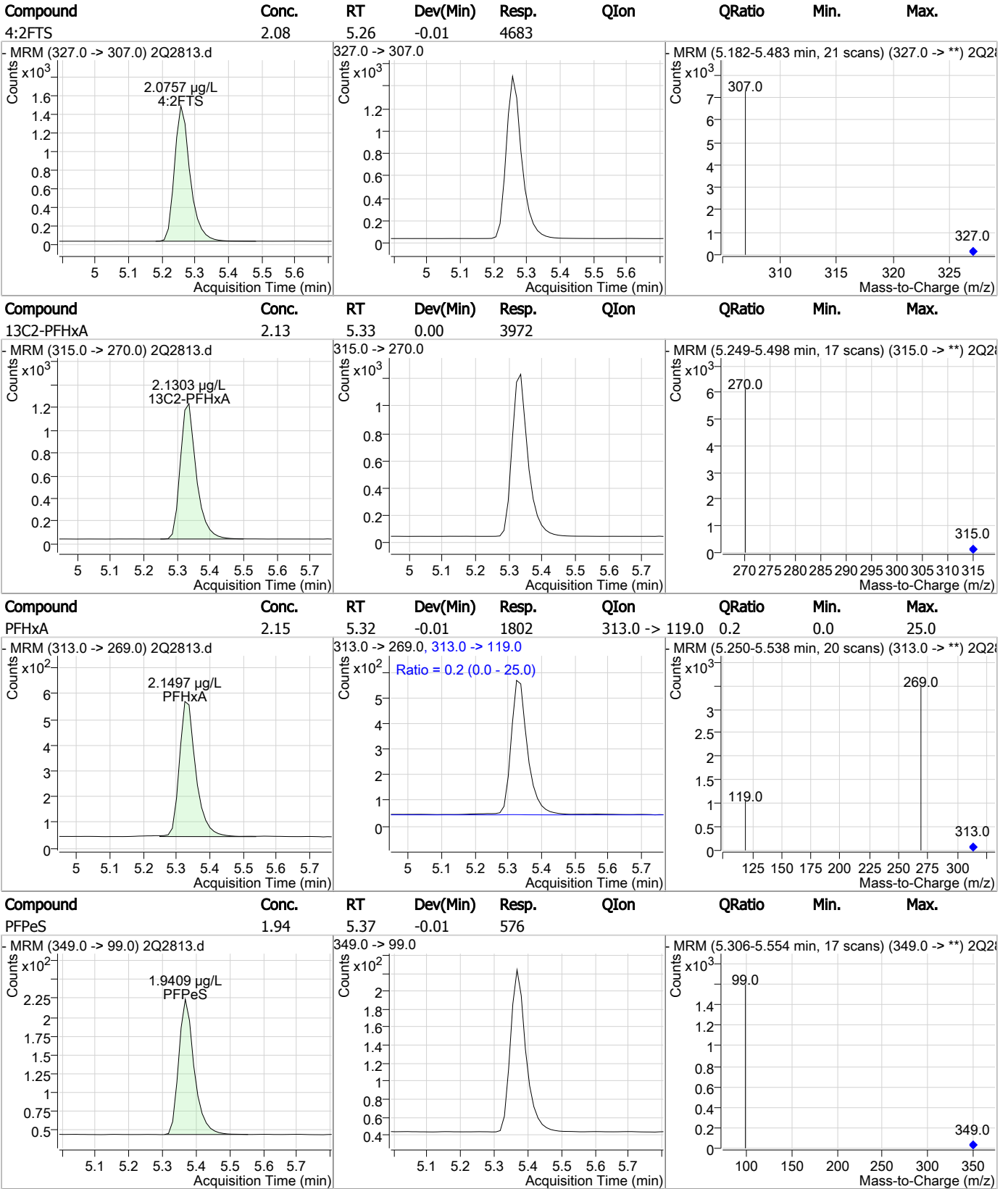
### Perfluorinated Compounds by LC/MS/MS



7.5.15

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### Perfluorinated Compounds by LC/MS/MS

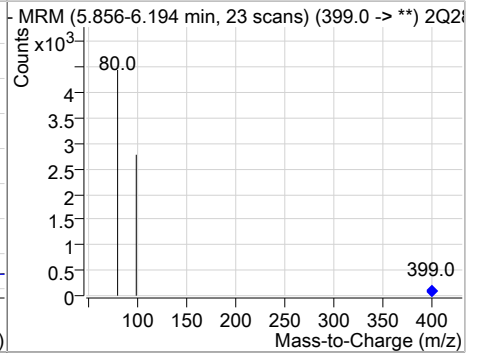
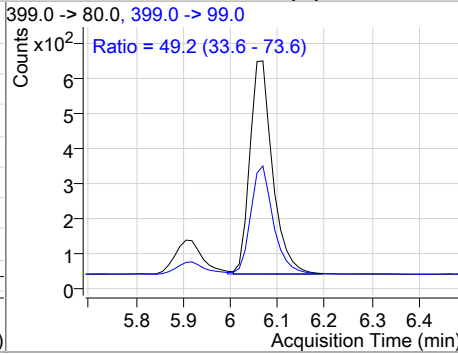
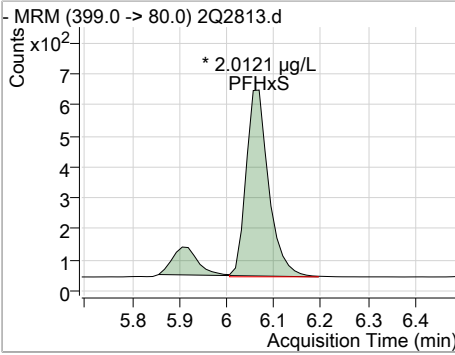


7.5.15 7

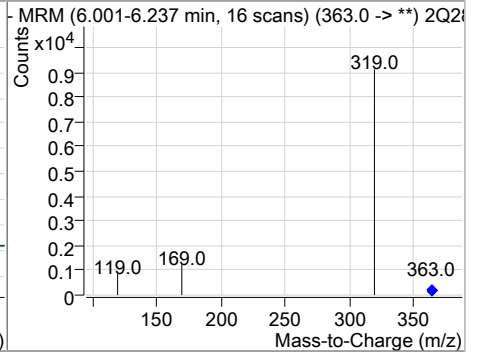
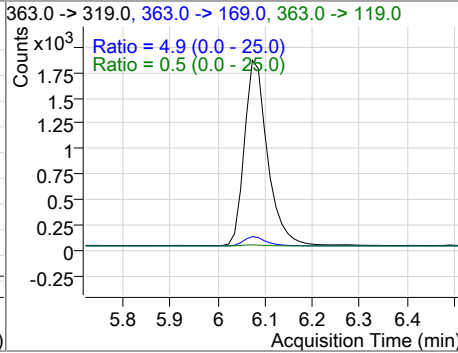
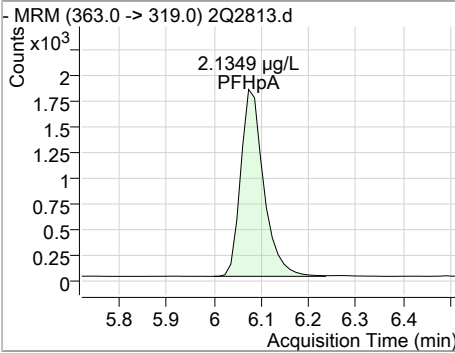


### Perfluorinated Compounds by LC/MS/MS

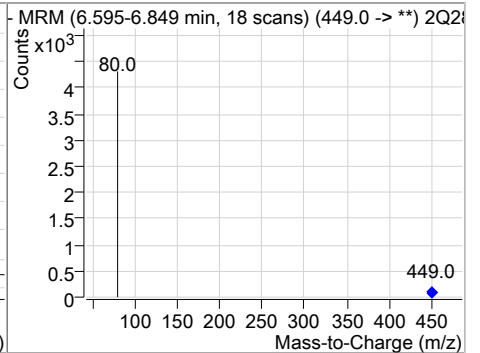
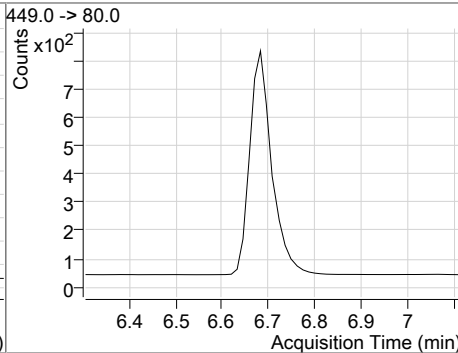
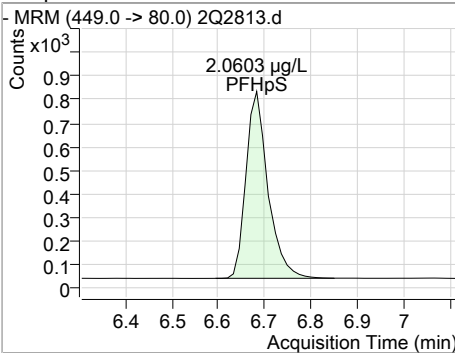
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.01	6.07	0.00	2339 (m)	399.0 -> 99.0	49.2	33.6	73.6



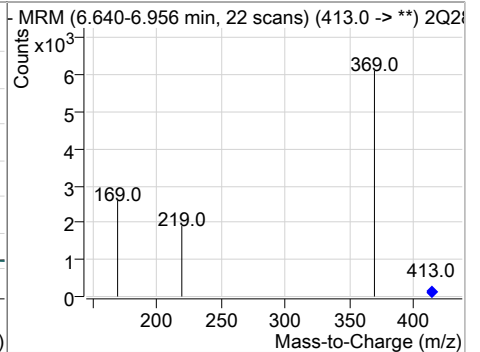
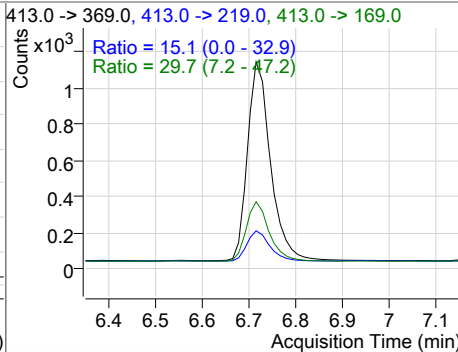
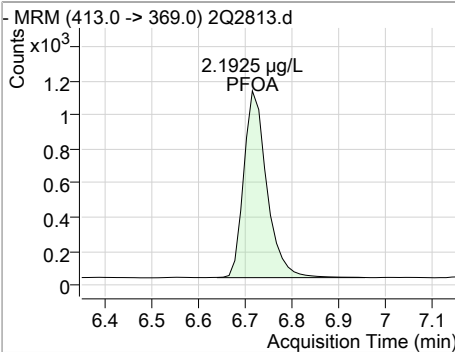
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.13	6.07	-0.01	6172	363.0 -> 119.0 363.0 -> 169.0	0.5 4.9	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.06	6.68	0.00	2600	449.0 -> 80.0			

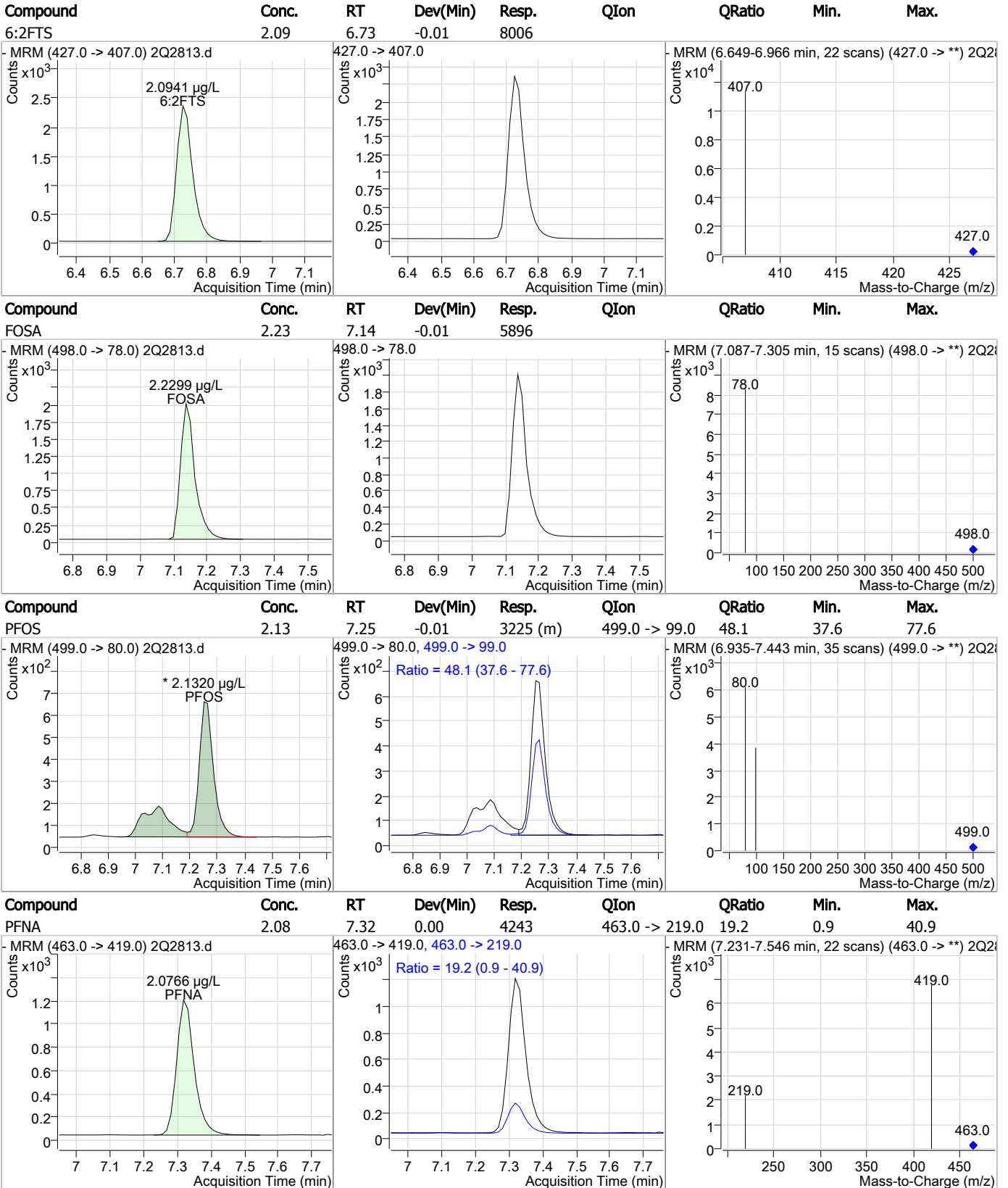


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.19	6.71	-0.01	3771	413.0 -> 169.0 413.0 -> 219.0	29.7 15.1	7.2 0.0	47.2 32.9



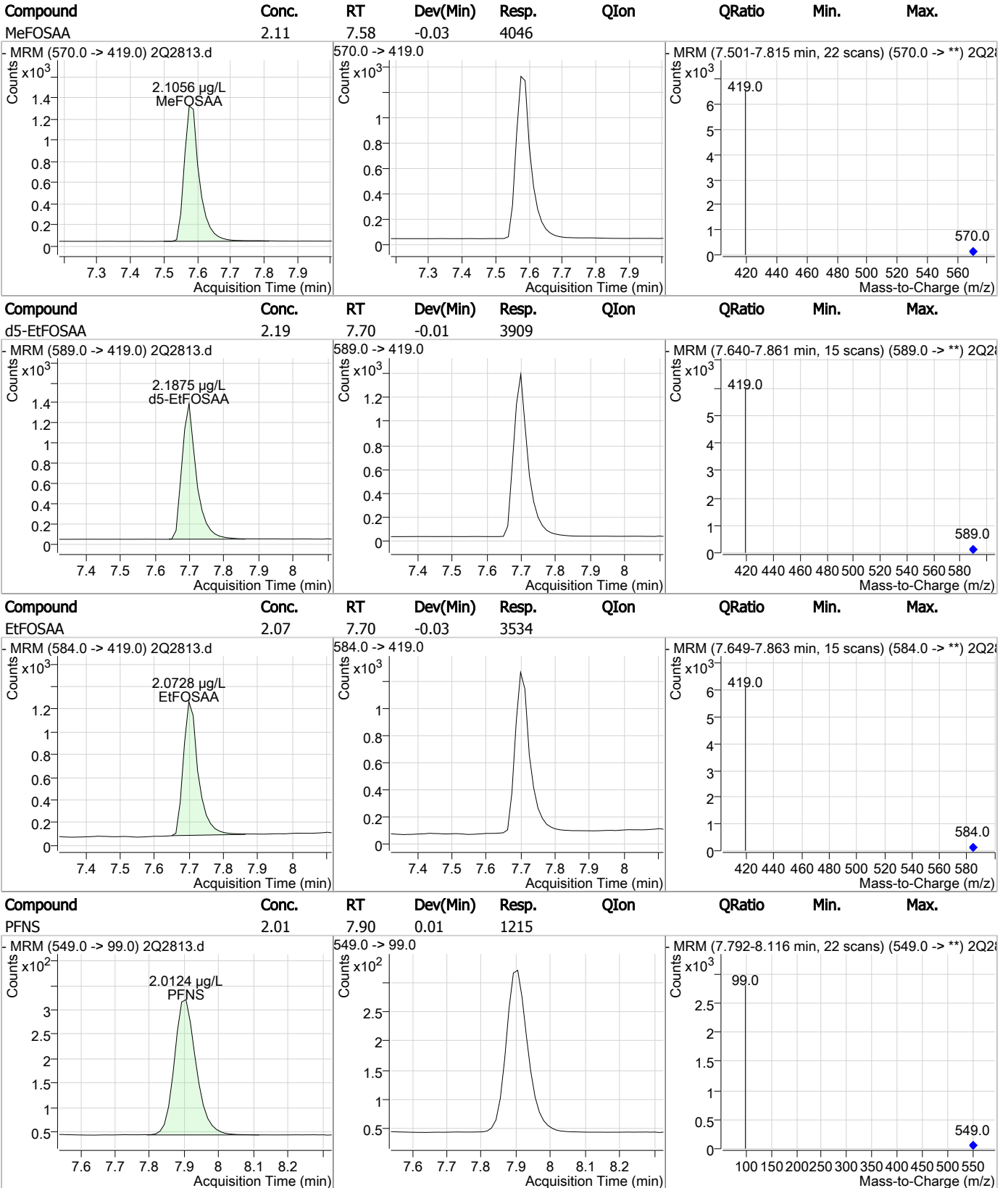
7.5.15  
7

### Perfluorinated Compounds by LC/MS/MS



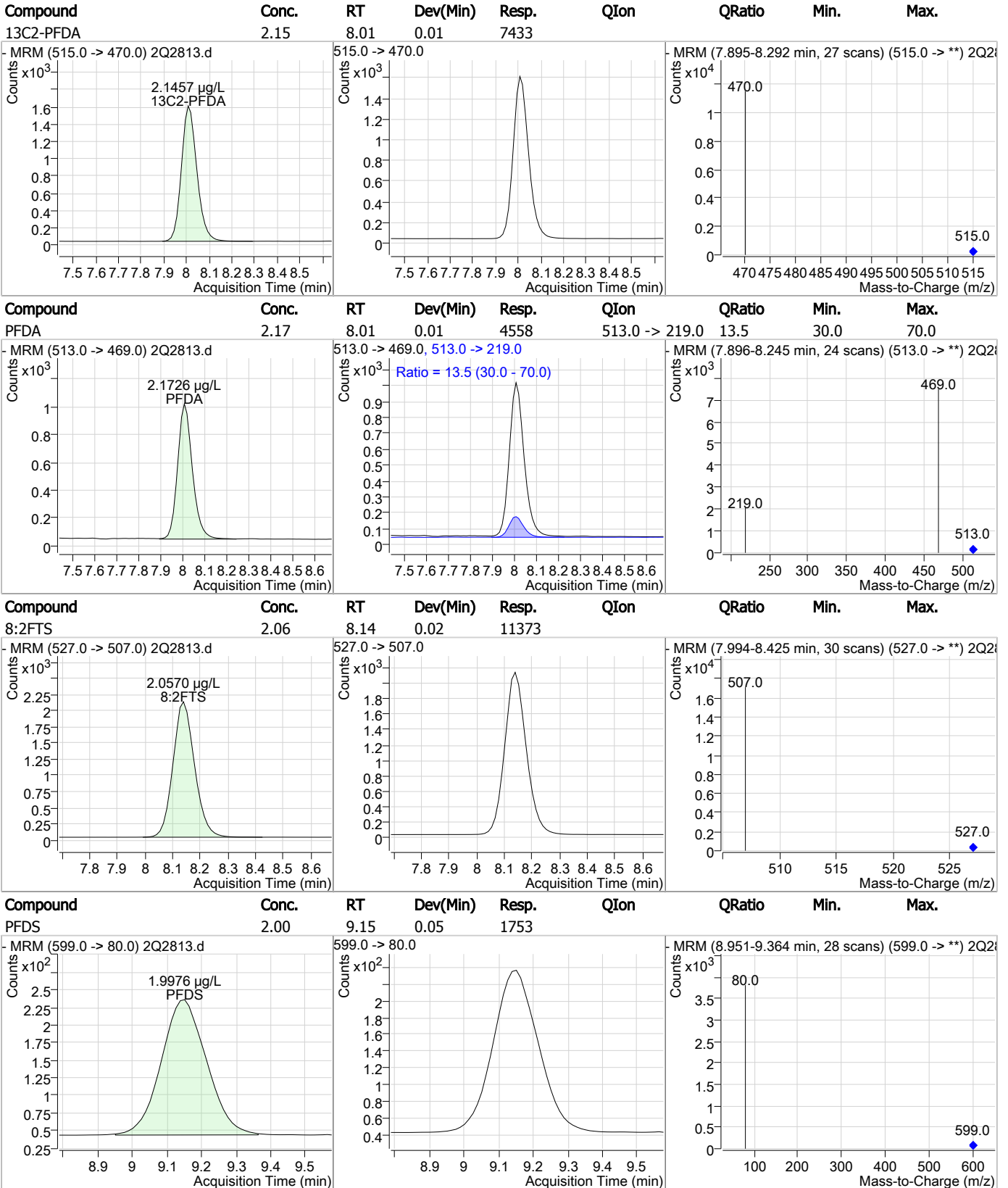
7.5.15  
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### Perfluorinated Compounds by LC/MS/MS



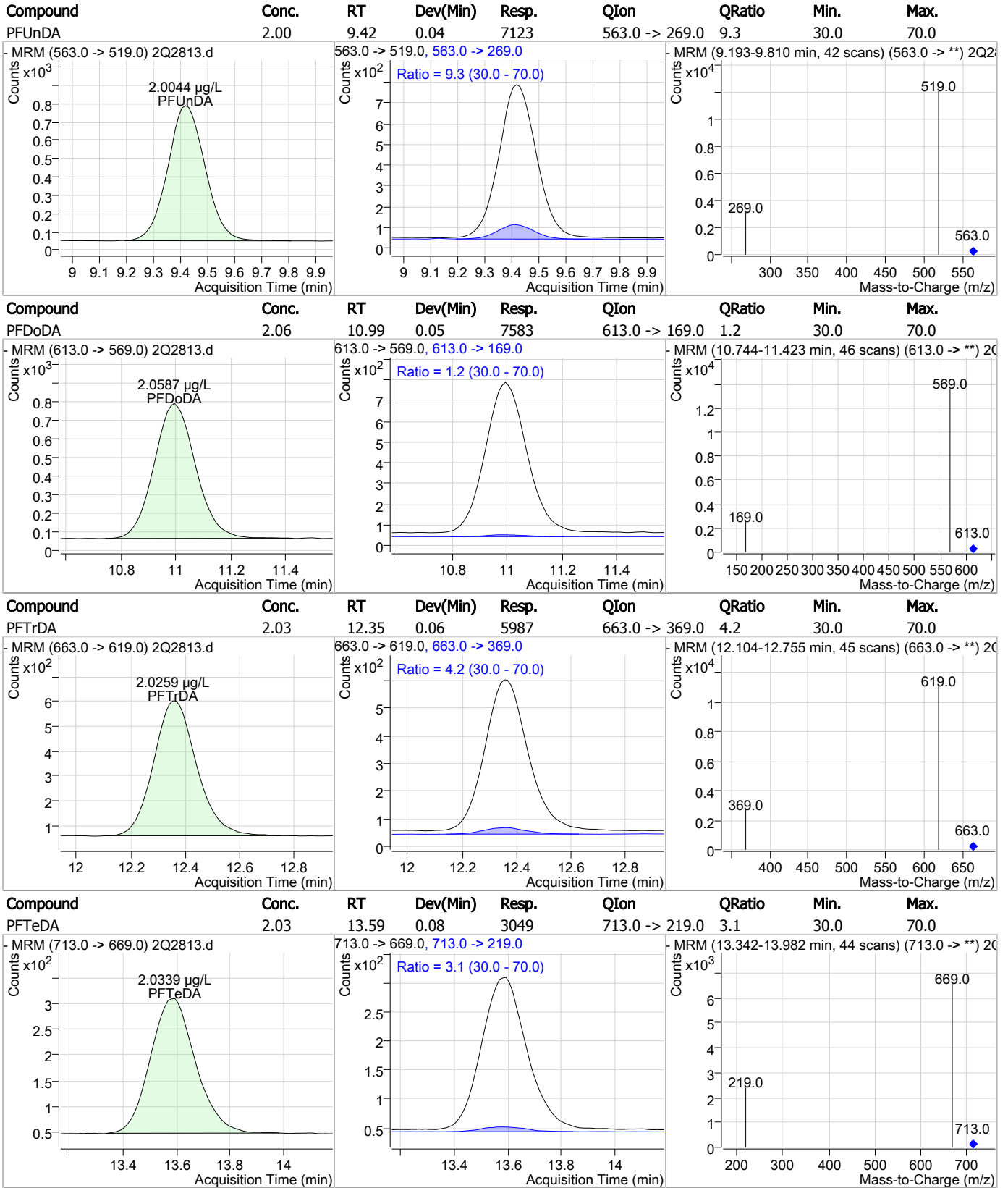
7.5.15  
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### Perfluorinated Compounds by LC/MS/MS



7.5.15  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.15  
7

# Manual Integration Approval Summary

Sample Number: S2Q70-IC70                      Method: EPA 537 MOD  
Lab FileID: 2Q2813.D                      Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 12:03                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.07	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.15.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Mike Eger  
 06/28/17 12:09

### Perfluorinated Compounds by LC/MS/MS

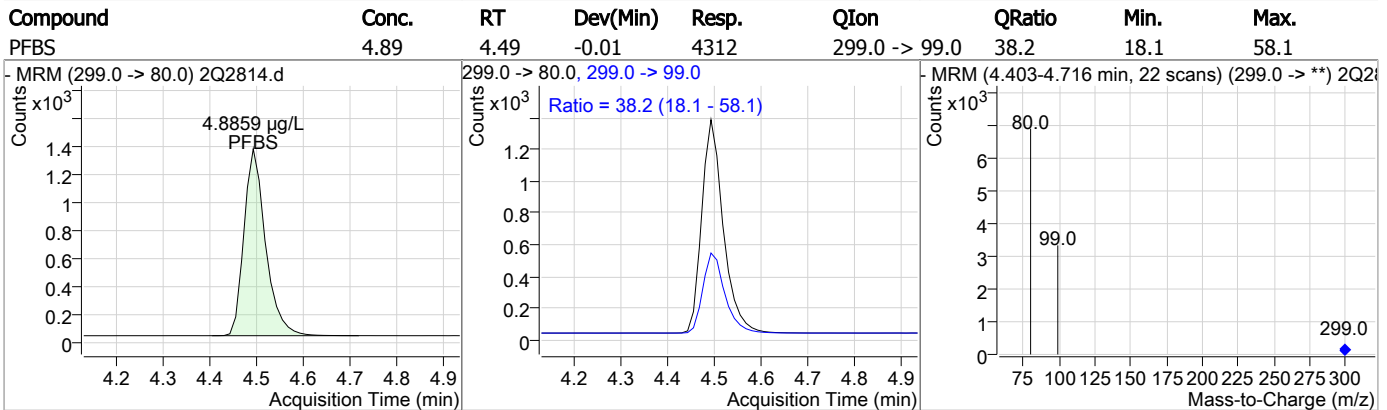
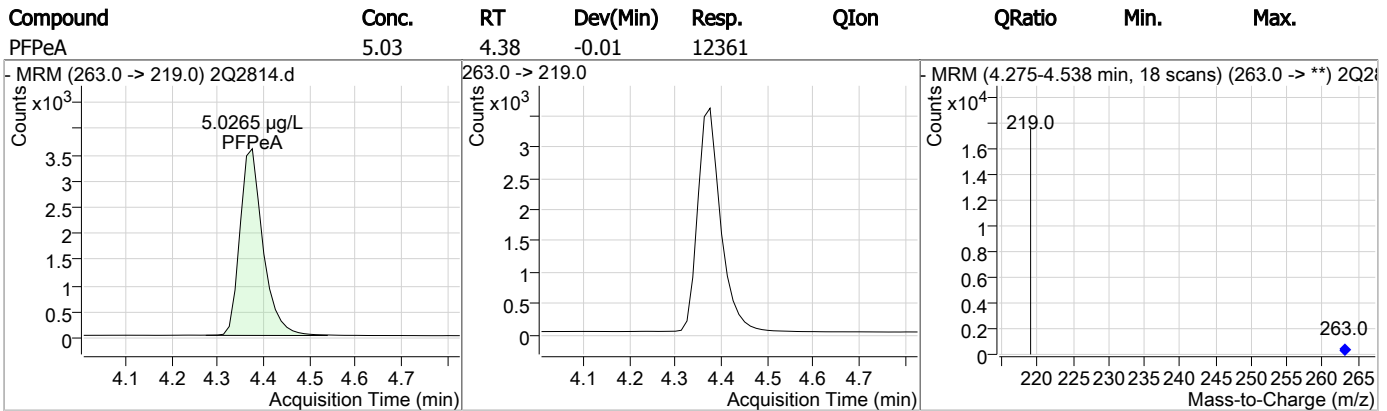
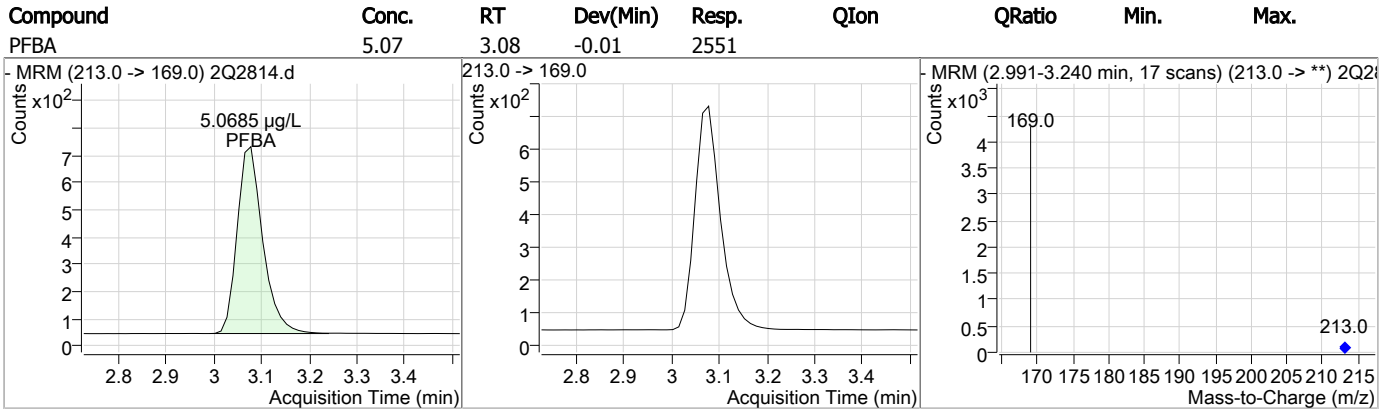
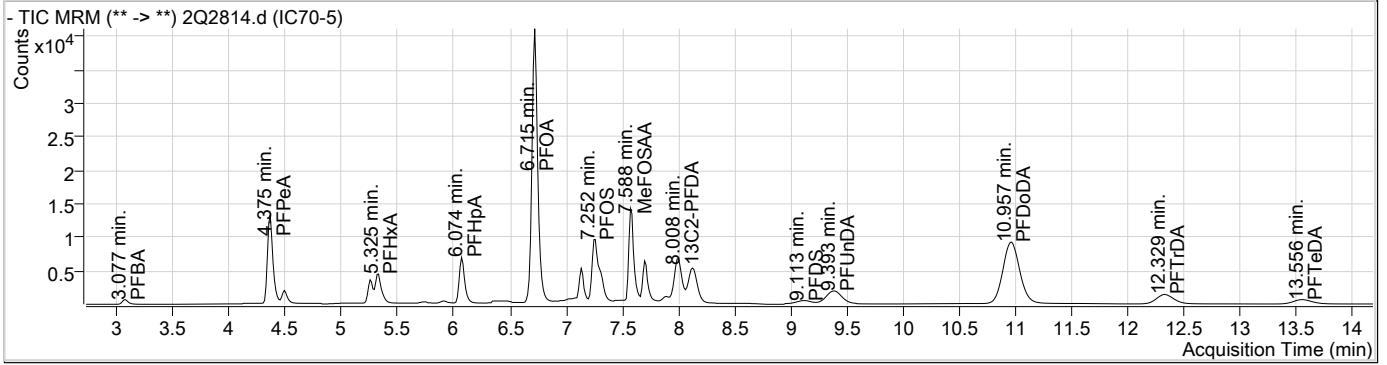
Data File : 2Q2814.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 12:22:29 PM  
 Sample Name : IC70-5  
 Vial : Vial 4  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65591,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.724	429.0 -> 409.0	72194	20.00 µg/L	-0.013
13C2-PFDoDA	10.965	615.0 -> 570.0	77020	20.00 µg/L	0.012
13C2-PFOA	6.713	415.0 -> 370.0	40459	20.00 µg/L	-0.014
13C3-PFPeA	4.372	266.0 -> 222.0	32297	20.00 µg/L	-0.013
13C4-PFOS	7.263	503.0 -> 80.0	24637	20.00 µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	33420	20.00 µg/L	-0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	18200	5.19 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 25.9%	
13C2-PFHxA	5.335	315.0 -> 270.0	9466	5.01 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 25.1%	
d5-EtFOSAA	7.698	589.0 -> 419.0	9208	5.19 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 26.0%	
<b>Target Compounds</b>					
4:2FTS	5.257	327.0 -> 307.0	11313	5.08 µg/L	100
6:2FTS	6.726	427.0 -> 407.0	19240	5.10 µg/L	100
8:2FTS	8.127	527.0 -> 507.0	27281	4.99 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	8469	5.02 µg/L	100
FOSA	7.137	498.0 -> 78.0	14043	5.38 µg/L	100
MeFOSAA	7.588	570.0 -> 419.0	9382	4.92 µg/L	100
PFBA	3.077	213.0 -> 169.0	2551	5.07 µg/L	100
PFBS	4.491	299.0 -> 80.0	4312	4.89 µg/L	100
PFDA	8.009	513.0 -> 469.0	10794	5.08 µg/L	# 48
PFDoDA	10.957	613.0 -> 569.0	18195	4.98 µg/L	# 29
PFDS	9.113	599.0 -> 80.0	4222	4.84 µg/L	100
PFHpA	6.074	363.0 -> 319.0	14756	5.04 µg/L	93
PFHpS	6.683	449.0 -> 80.0	6234	4.97 µg/L	100
PFHxA	5.325	313.0 -> 269.0	4382	5.16 µg/L	86
PFHxS	6.056	399.0 -> 80.0	5752	4.98 µg/L	m 93
PFNA	7.319	463.0 -> 419.0	9784	4.73 µg/L	98
PFNS	7.892	549.0 -> 99.0	3025	5.04 µg/L	100
PFOA	6.715	413.0 -> 369.0	8603	4.94 µg/L	94
PFOS	7.252	499.0 -> 80.0	7438	4.95 µg/L	m 89
PFPeA	4.375	263.0 -> 219.0	12361	5.03 µg/L	100
PFPeS	5.367	349.0 -> 99.0	1406	4.85 µg/L	100
PFTeDA	13.556	713.0 -> 669.0	7388	4.97 µg/L	# 32
PFTrDA	12.329	663.0 -> 619.0	14620	4.99 µg/L	# 34
PFUnDA	9.393	563.0 -> 519.0	16978	4.82 µg/L	# 41

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

7.5.16  
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### Perfluorinated Compounds by LC/MS/MS

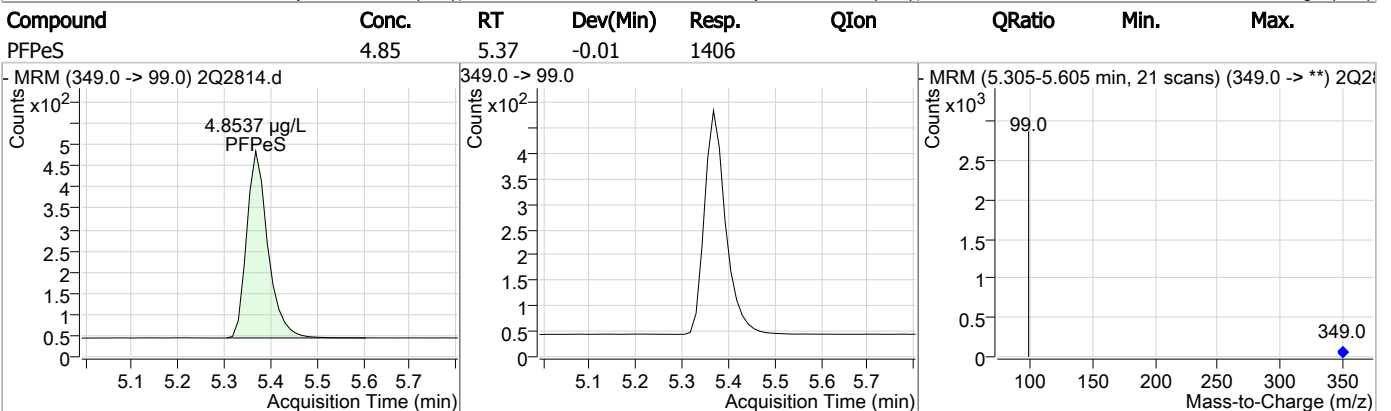
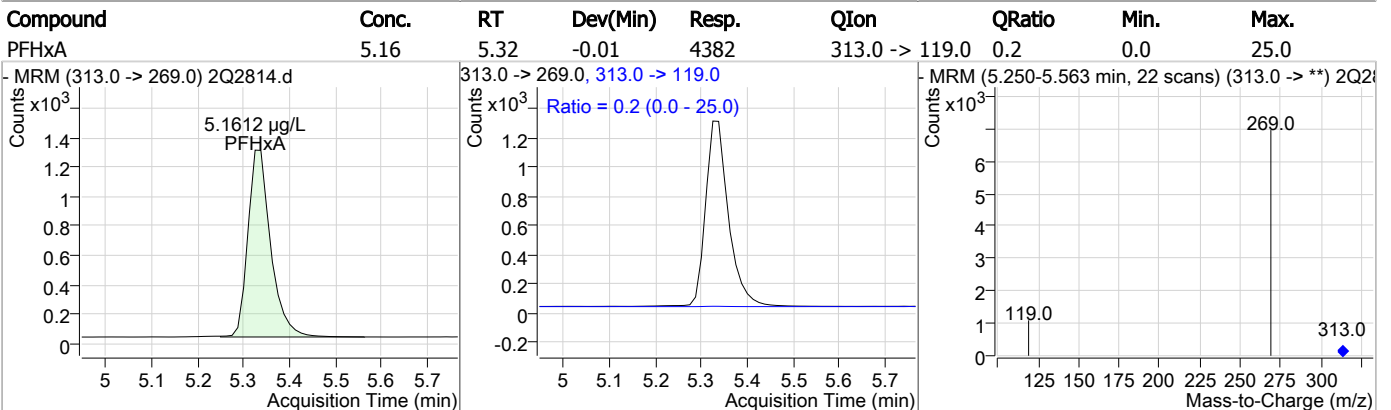
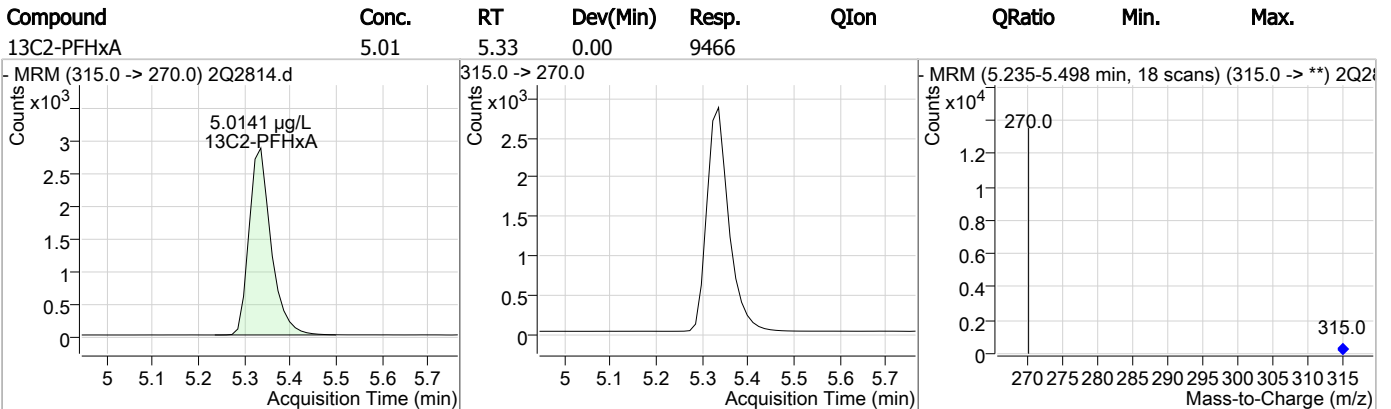
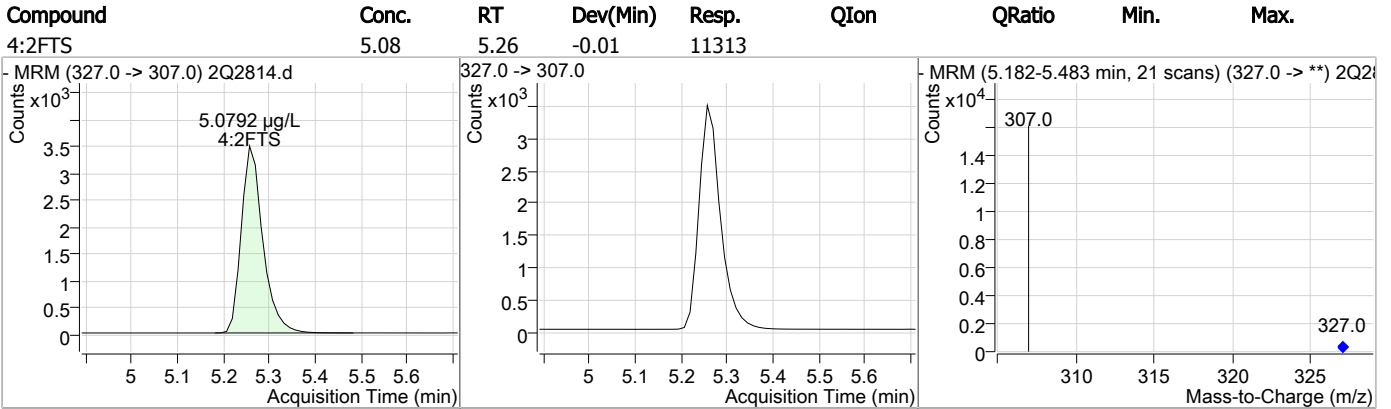


7.5.16

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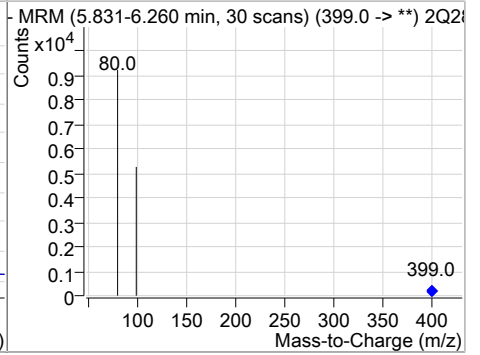
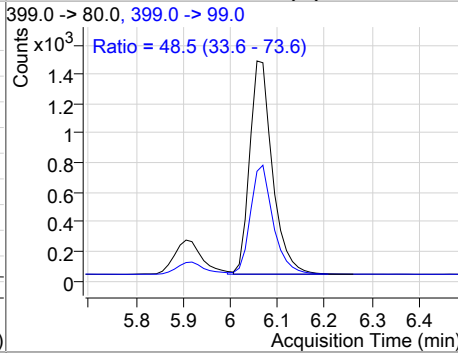
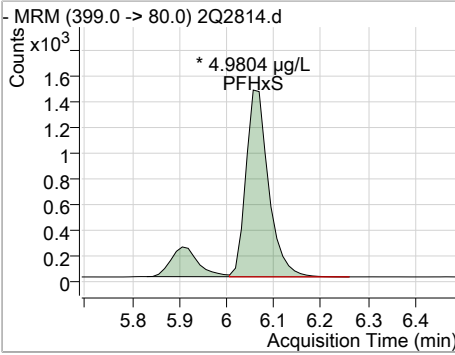
### Perfluorinated Compounds by LC/MS/MS



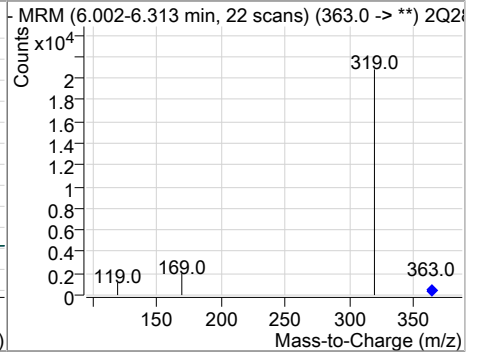
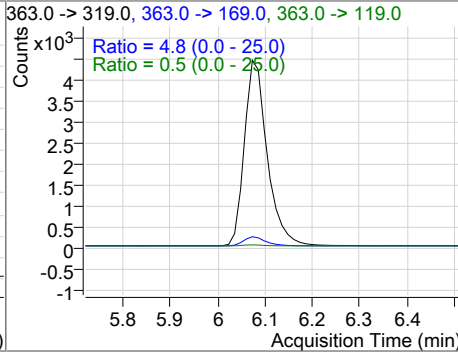
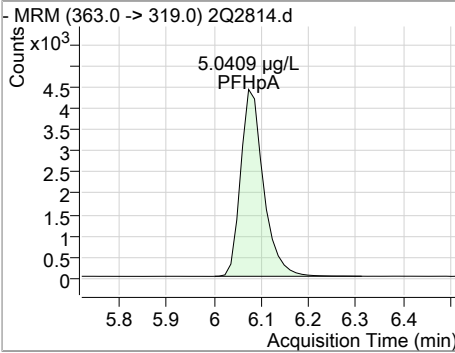
7.5.16  
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### Perfluorinated Compounds by LC/MS/MS

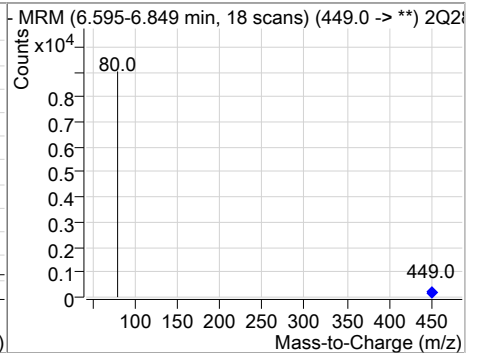
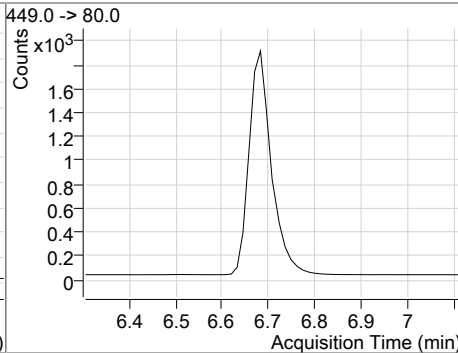
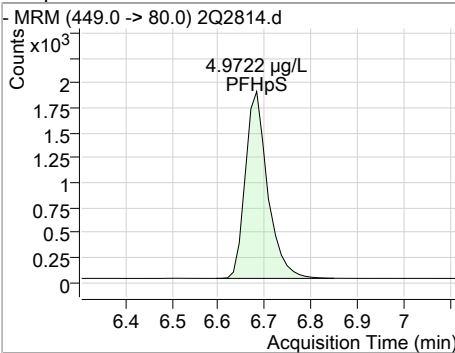
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.98	6.06	-0.01	5752 (m)	399.0 -> 99.0	48.5	33.6	73.6



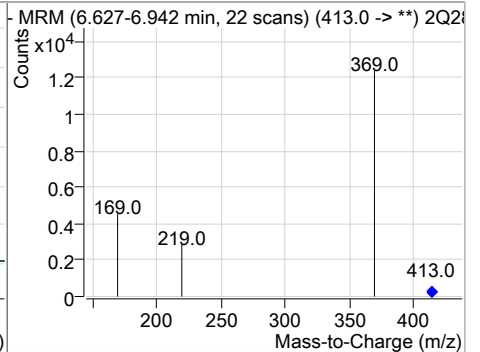
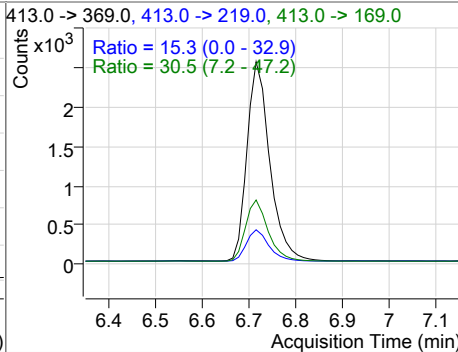
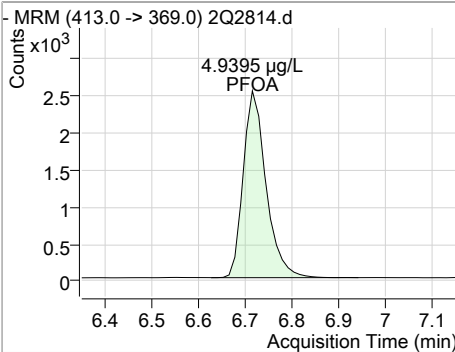
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.04	6.07	-0.01	14756	363.0 -> 119.0 363.0 -> 169.0	0.5 4.8	0.0 0.0	25.0 25.0



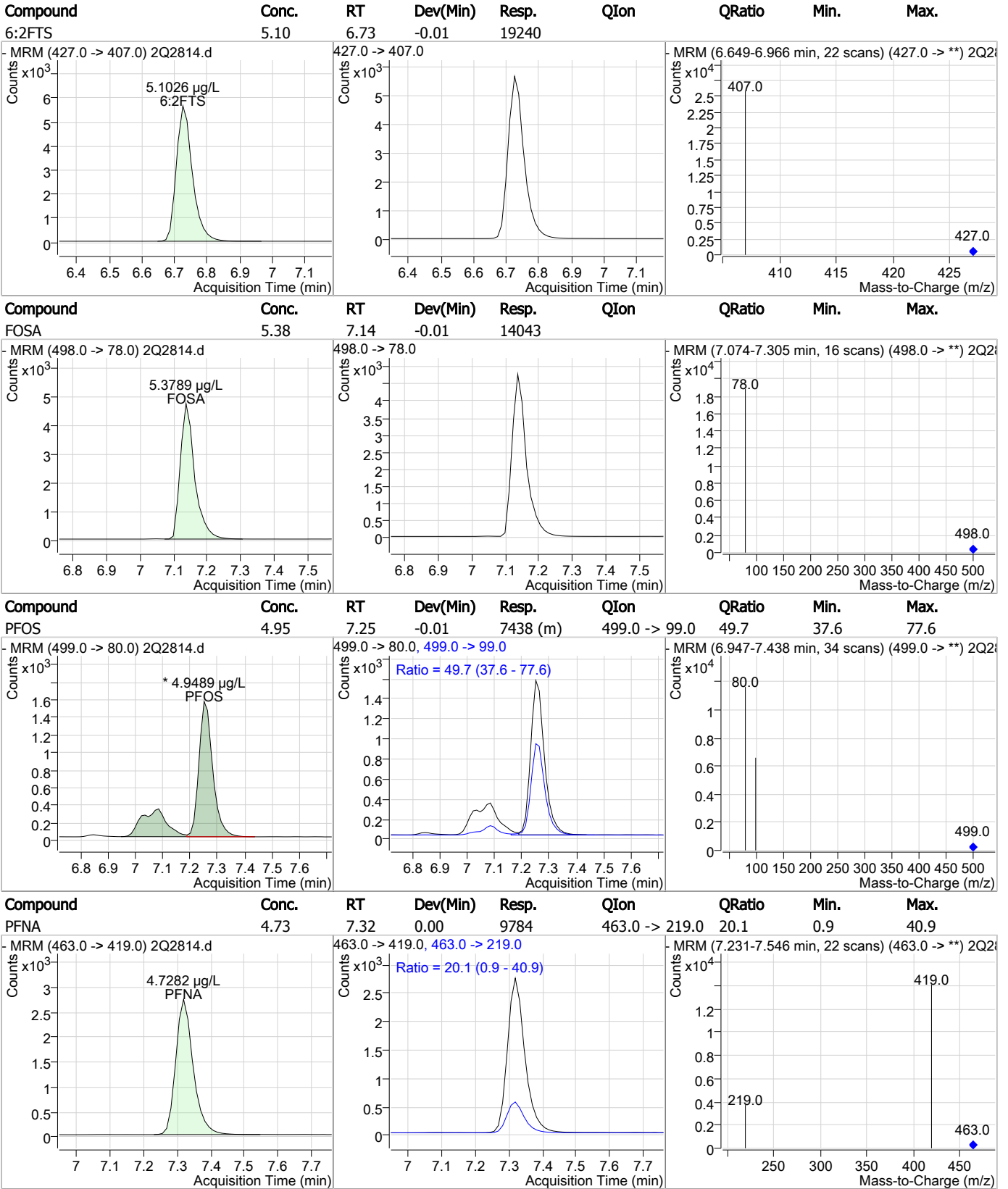
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.97	6.68	0.00	6234	449.0 -> 80.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	4.94	6.71	-0.01	8603	413.0 -> 169.0 413.0 -> 219.0	30.5 15.3	7.2 0.0	47.2 32.9

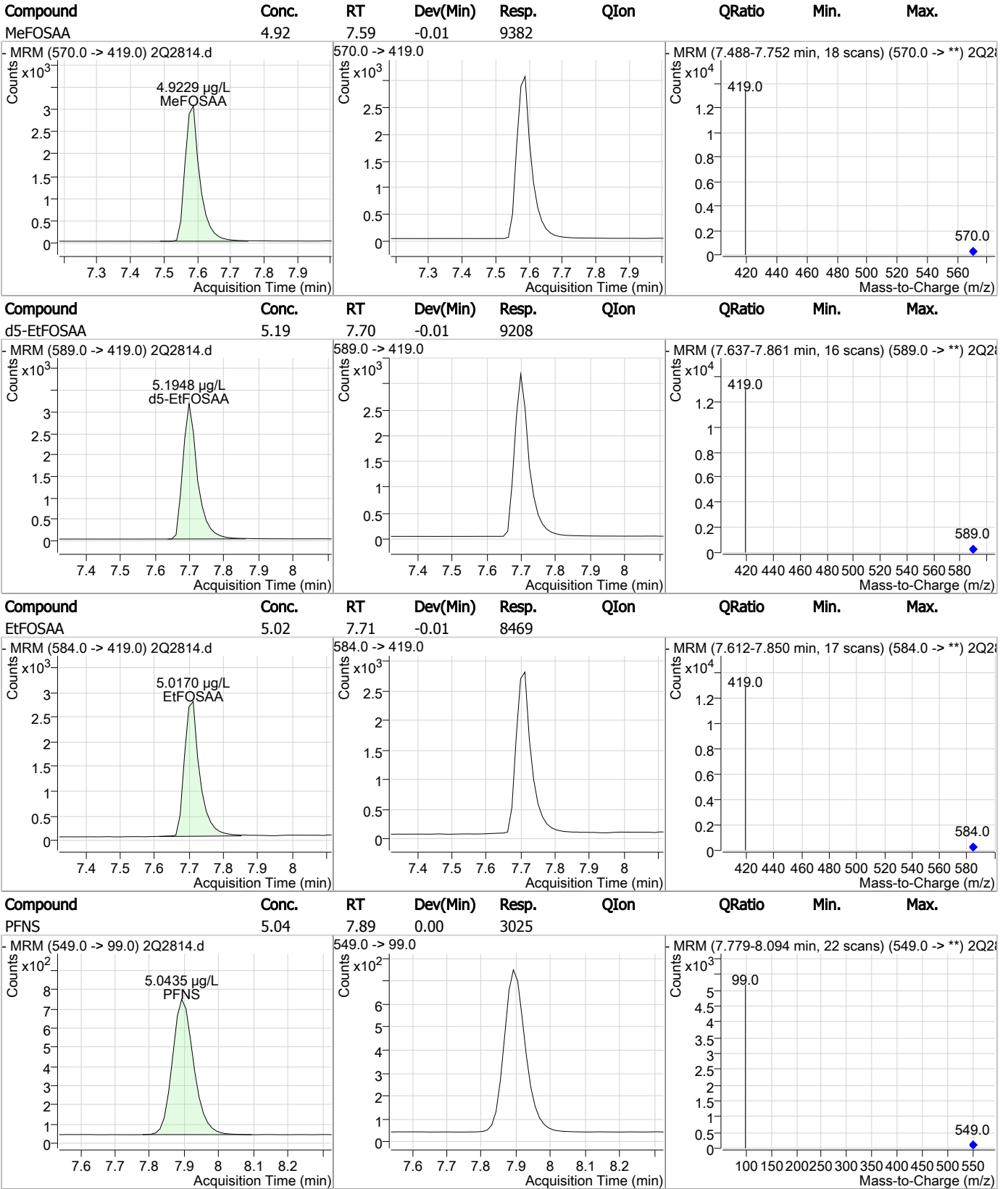


### Perfluorinated Compounds by LC/MS/MS



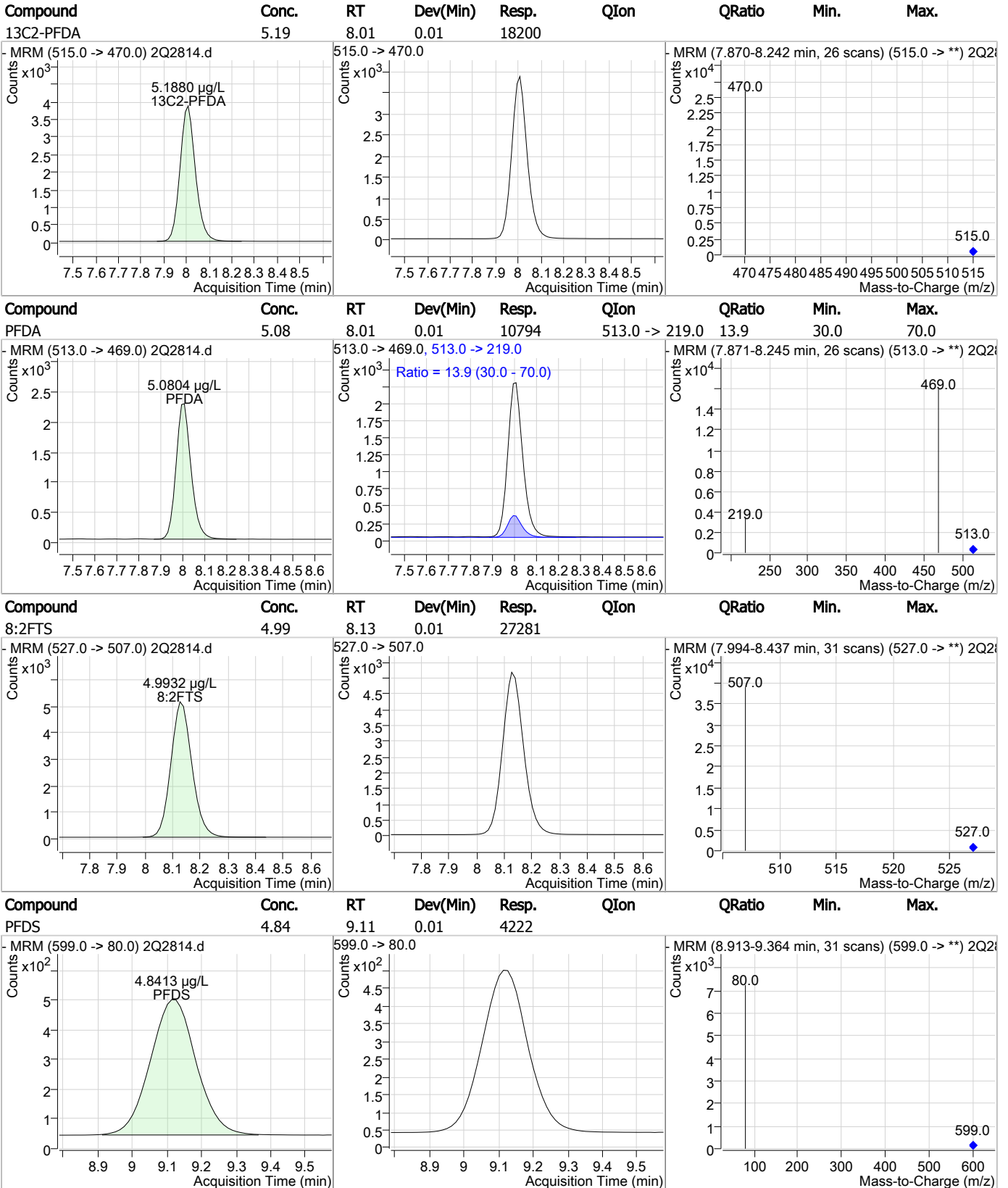
7.5.16  
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### Perfluorinated Compounds by LC/MS/MS



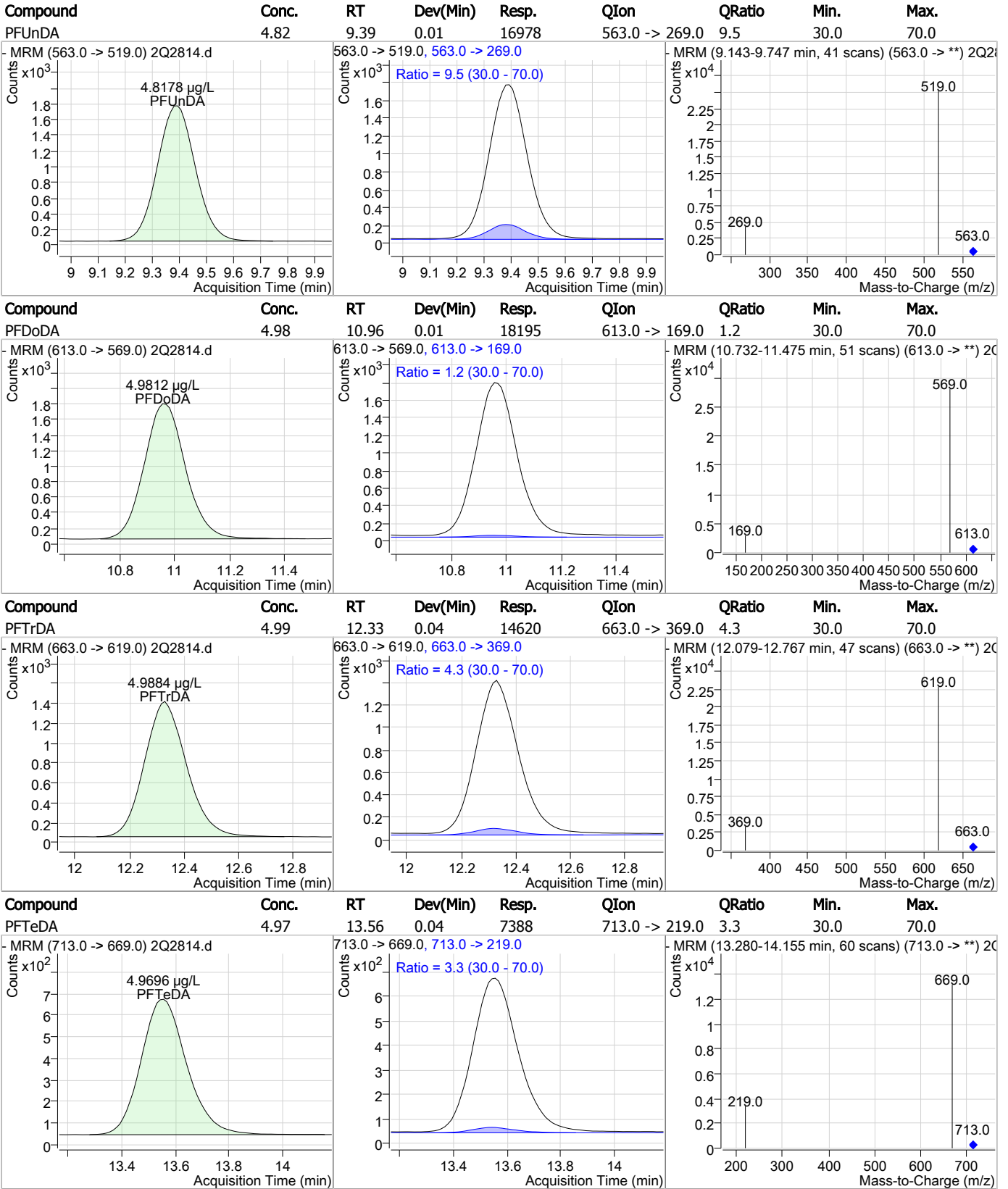
7.5.16  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.16 7

### Perfluorinated Compounds by LC/MS/MS



7.5.16  
7

# Manual Integration Approval Summary

Sample Number: S2Q70-IC70                      Method: EPA 537 MOD  
Lab FileID: 2Q2814.D                      Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 12:22                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.06	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.16.1

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Perfluorinated Compounds by LC/MS/MS

Data File : 2Q2815.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 12:41:48 PM  
 Sample Name : IC70-10  
 Vial : Vial 5  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65591,S2Q70,130,,,1.0,1,water

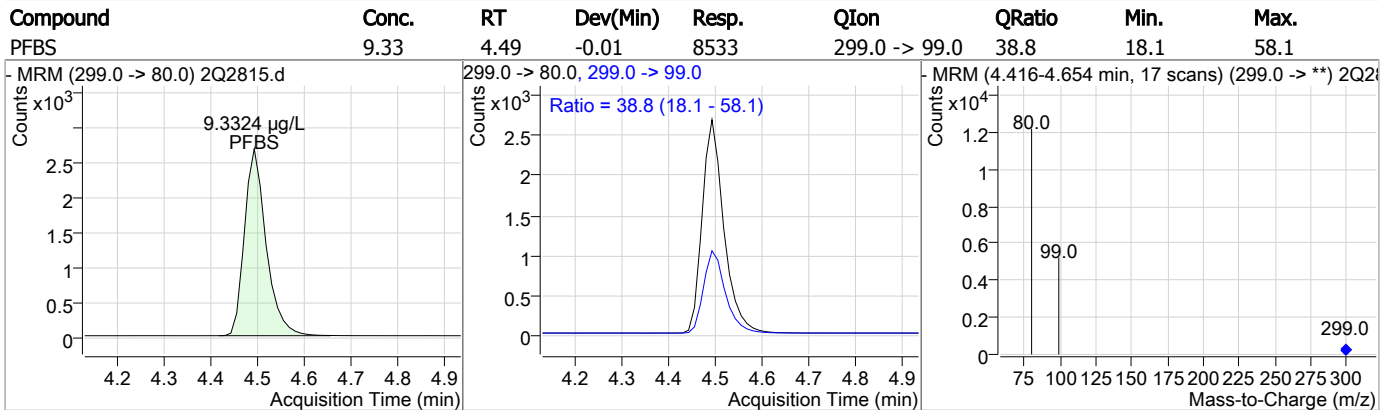
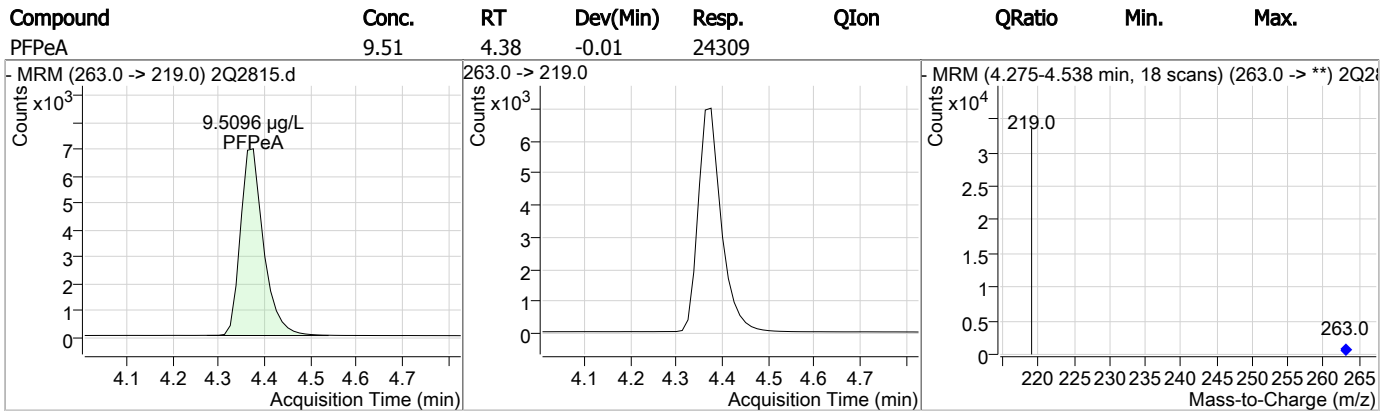
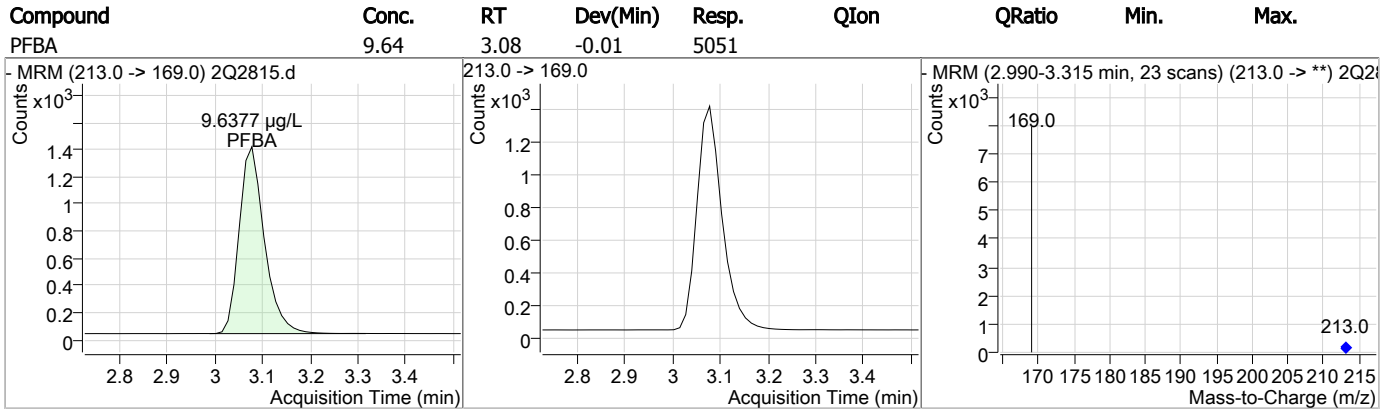
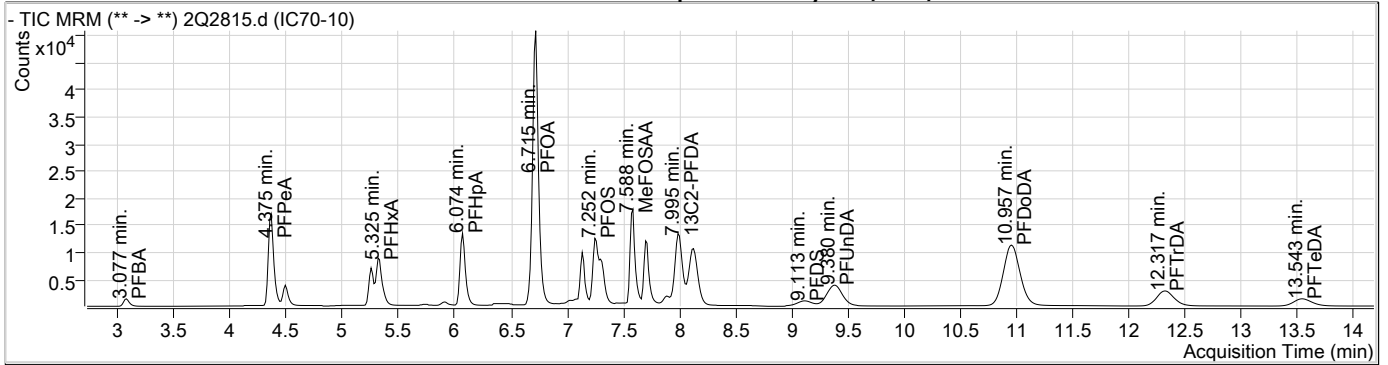
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.724	429.0 -> 409.0	75097	20.00 µg/L	-0.013
13C2-PFDoDA	10.953	615.0 -> 570.0	79676	20.00 µg/L	0.000
13C2-PFOA	6.713	415.0 -> 370.0	42140	20.00 µg/L	-0.014
13C3-PFPeA	4.372	266.0 -> 222.0	33572	20.00 µg/L	-0.013
13C4-PFOS	7.250	503.0 -> 80.0	25525	20.00 µg/L	-0.013
d3-MeFOSAA	7.575	573.0 -> 419.0	34814	20.00 µg/L	-0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.995	515.0 -> 470.0	36176	9.90 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 49.5%	
13C2-PFHxA	5.335	315.0 -> 270.0	18998	9.66 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.3%	
d5-EtFOSAA	7.698	589.0 -> 419.0	18438	9.99 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 49.9%	
<b>Target Compounds</b>					
4:2FTS	5.257	327.0 -> 307.0	22323	9.70 µg/L	QValue 100
6:2FTS	6.726	427.0 -> 407.0	38566	9.92 µg/L	100
8:2FTS	8.127	527.0 -> 507.0	54989	9.73 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	17033	9.71 µg/L	100
FOSA	7.137	498.0 -> 78.0	27427	10.15 µg/L	100
MeFOSAA	7.588	570.0 -> 419.0	19175	9.66 µg/L	100
PFBA	3.077	213.0 -> 169.0	5051	9.64 µg/L	100
PFBS	4.491	299.0 -> 80.0	8533	9.33 µg/L	99
PFDA	7.996	513.0 -> 469.0	21160	9.56 µg/L	# 48
PFDoDA	10.957	613.0 -> 569.0	36231	9.59 µg/L	# 29
PFDS	9.113	599.0 -> 80.0	8351	9.24 µg/L	100
PFHpA	6.074	363.0 -> 319.0	28781	9.44 µg/L	93
PFHpS	6.683	449.0 -> 80.0	12380	9.53 µg/L	100
PFHxA	5.325	313.0 -> 269.0	8569	9.69 µg/L	86
PFHxS	6.056	399.0 -> 80.0	11491	9.60 µg/L	m 92
PFNA	7.319	463.0 -> 419.0	19956	9.26 µg/L	96
PFNS	7.892	549.0 -> 99.0	5933	9.55 µg/L	100
PFOA	6.715	413.0 -> 369.0	17281	9.53 µg/L	95
PFOS	7.252	499.0 -> 80.0	14474	9.30 µg/L	m 91
PFPeA	4.375	263.0 -> 219.0	24309	9.51 µg/L	100
PFPeS	5.367	349.0 -> 99.0	2838	9.43 µg/L	100
PFTeDA	13.543	713.0 -> 669.0	14815	9.63 µg/L	# 32
PFTTrDA	12.317	663.0 -> 619.0	29058	9.58 µg/L	# 33
PFUnDA	9.380	563.0 -> 519.0	33875	9.29 µg/L	# 41

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

7.5.17  
7

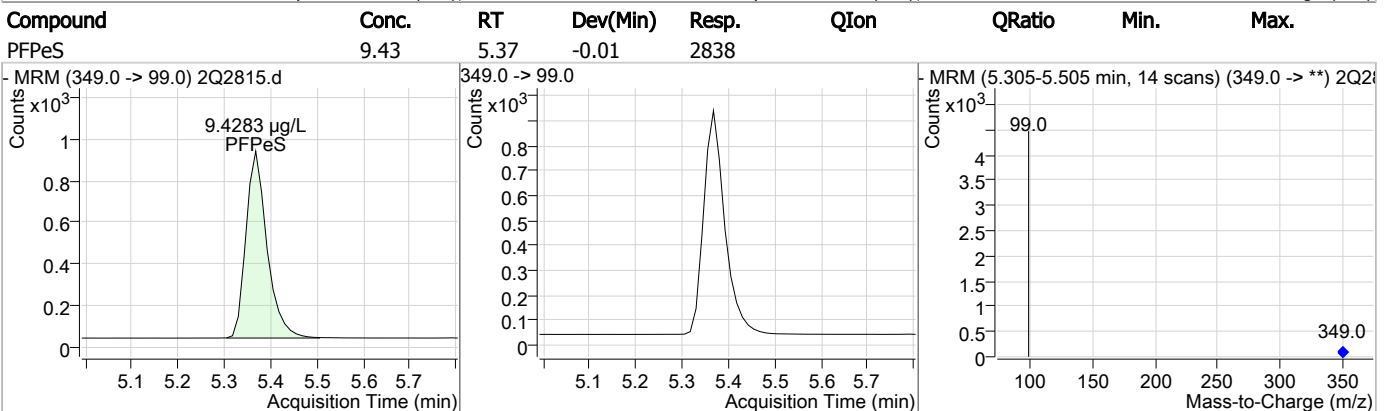
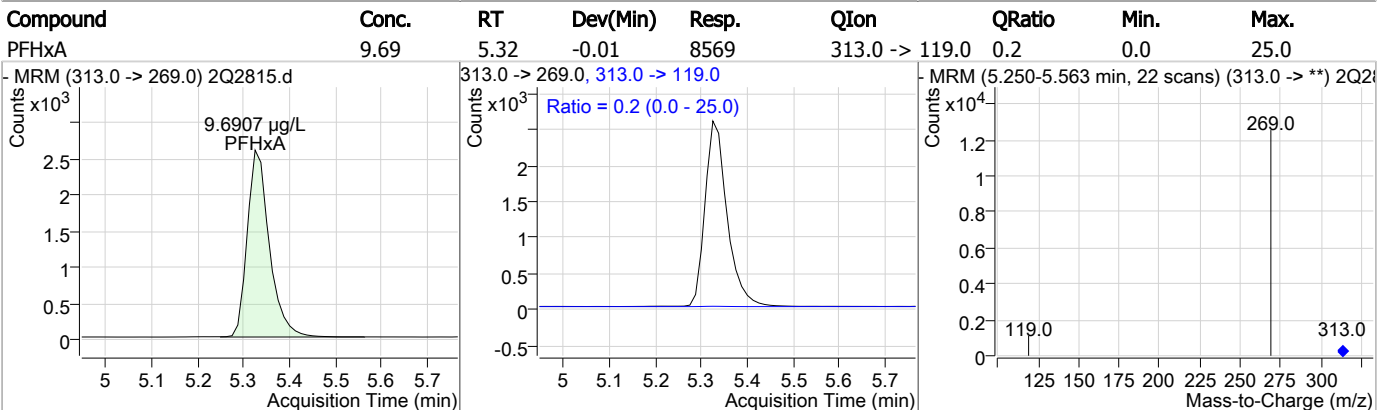
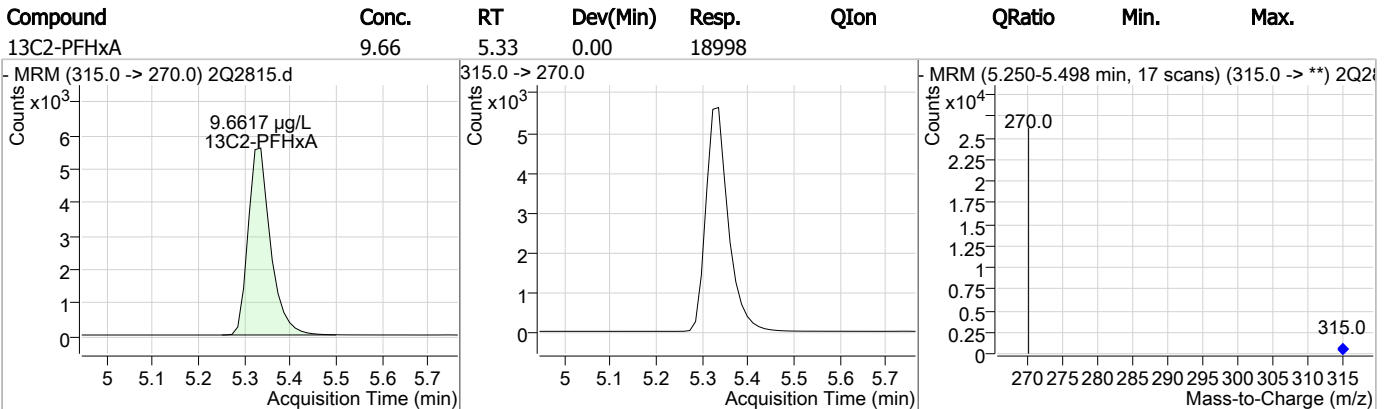
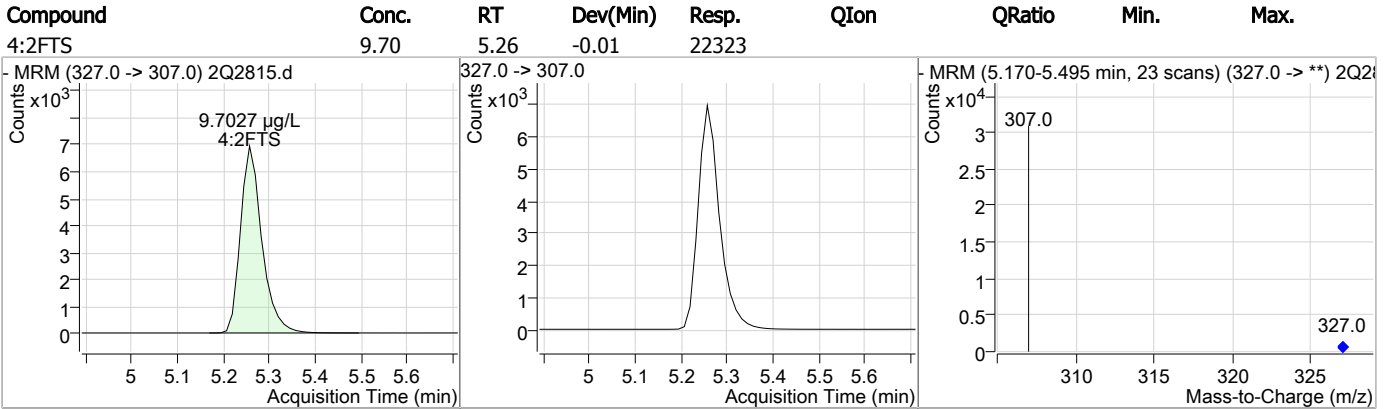


### Perfluorinated Compounds by LC/MS/MS



7.5.17  
7

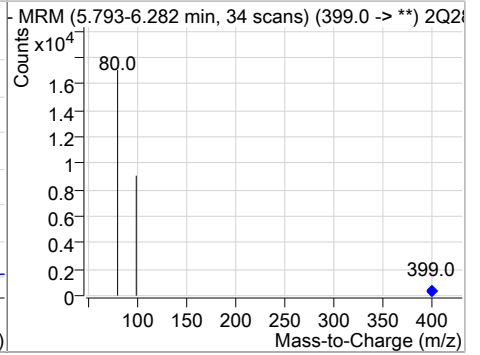
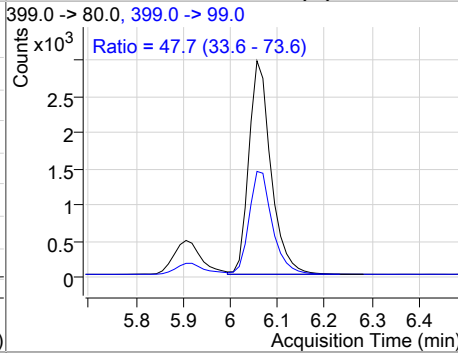
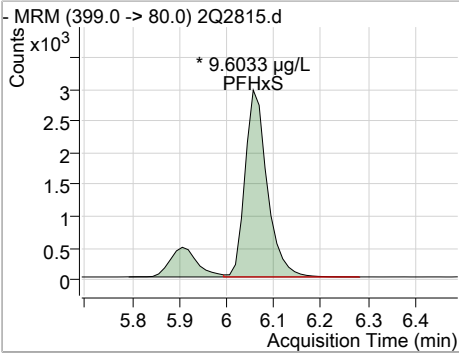
### Perfluorinated Compounds by LC/MS/MS



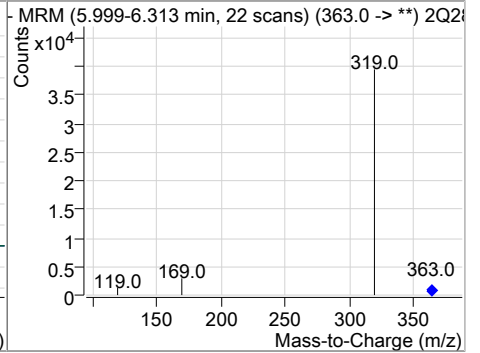
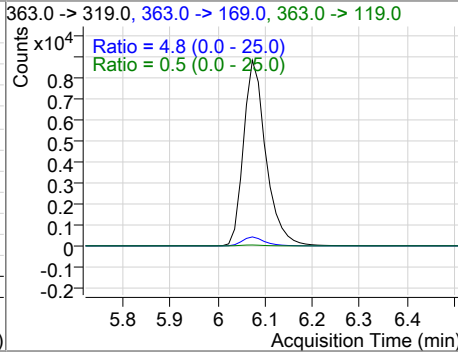
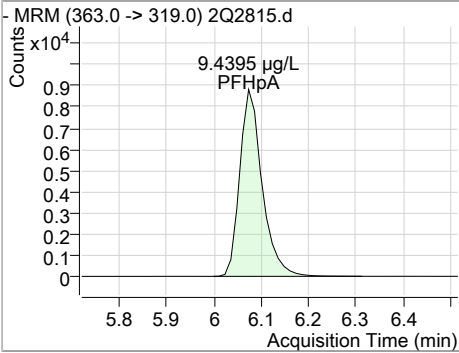
7.5.17  
7

Perfluorinated Compounds by LC/MS/MS

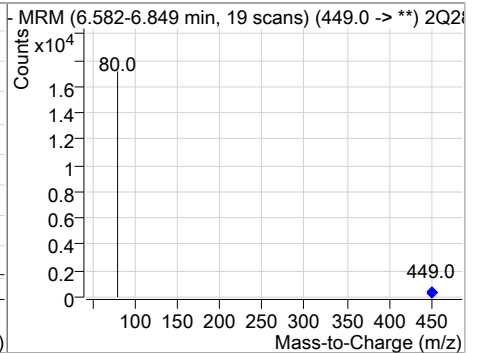
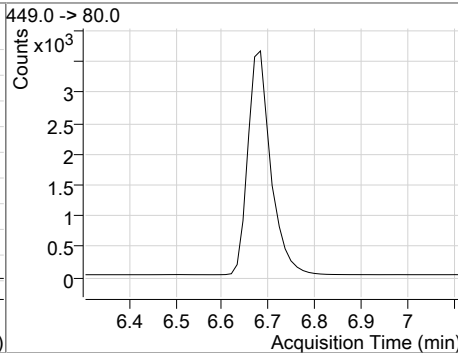
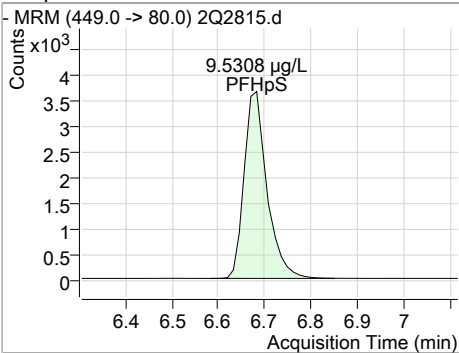
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.60	6.06	-0.01	11491 (m)	399.0 -> 99.0	47.7	33.6	73.6



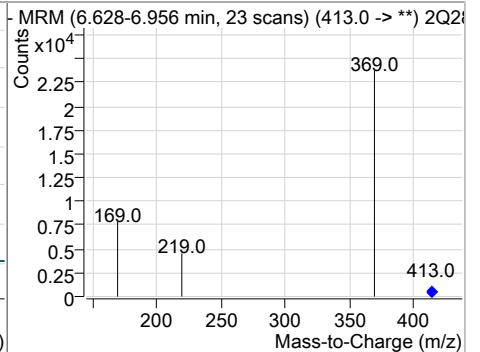
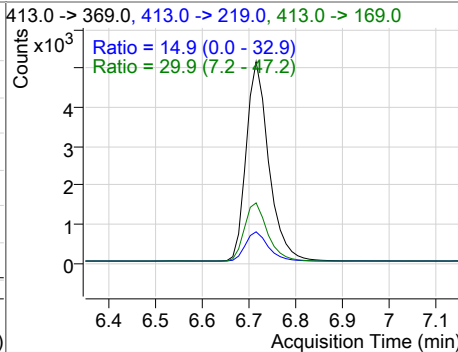
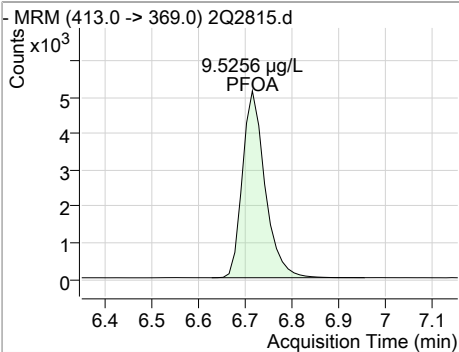
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	9.44	6.07	-0.01	28781	363.0 -> 119.0 363.0 -> 169.0	0.5 4.8	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	9.53	6.68	0.00	12380				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	9.53	6.71	-0.01	17281	413.0 -> 169.0 413.0 -> 219.0	29.9 14.9	7.2 0.0	47.2 32.9



7.5.17  
7

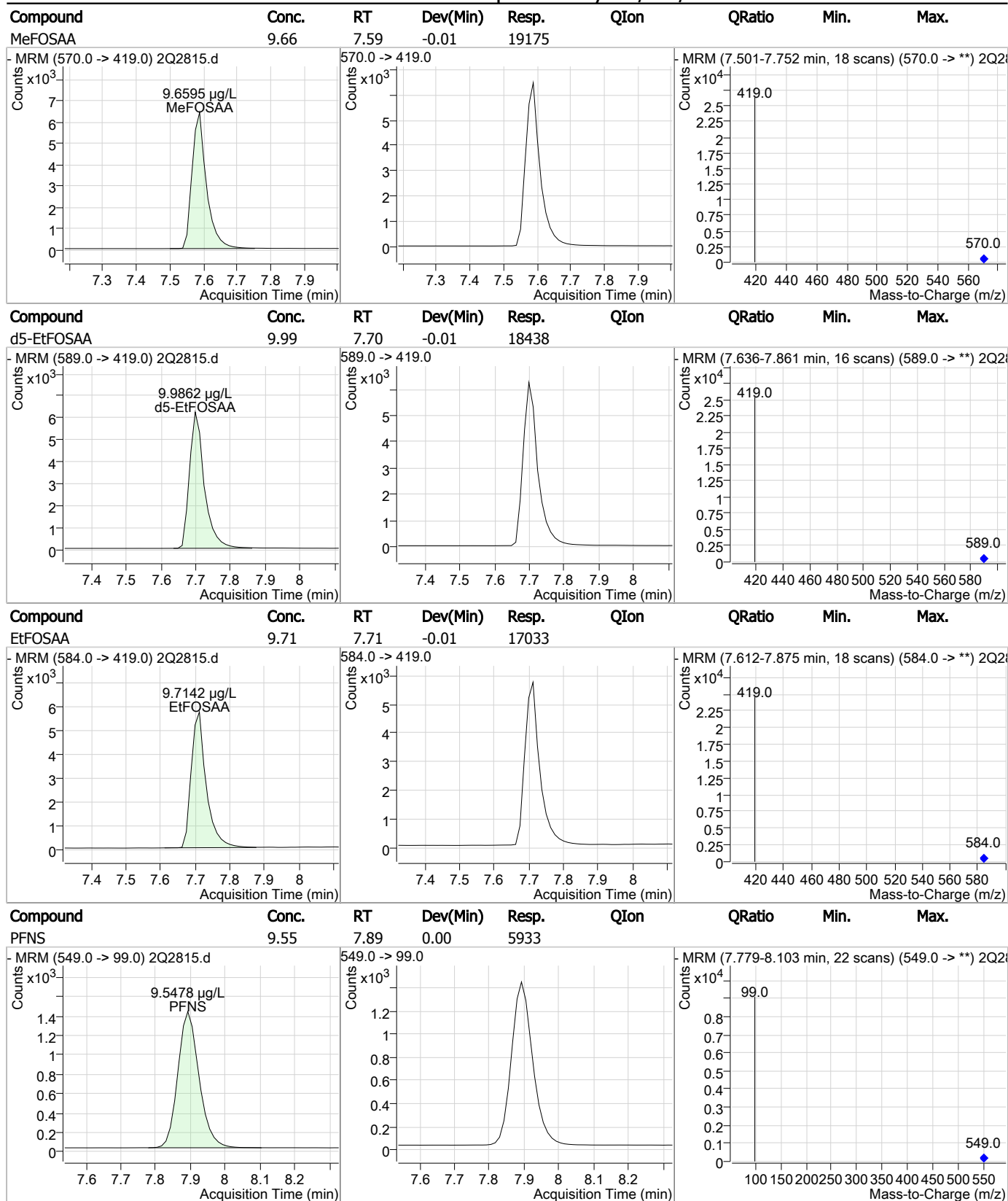
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.92	6.73	-0.01	38566				
FOSA	10.15	7.14	-0.01	27427				
PFOS	9.30	7.25	-0.01	14474 (m)	499.0 -> 99.0	50.8	37.6	77.6
PFNA	9.26	7.32	0.00	19956	463.0 -> 219.0	18.9	0.9	40.9

7.5.17

7

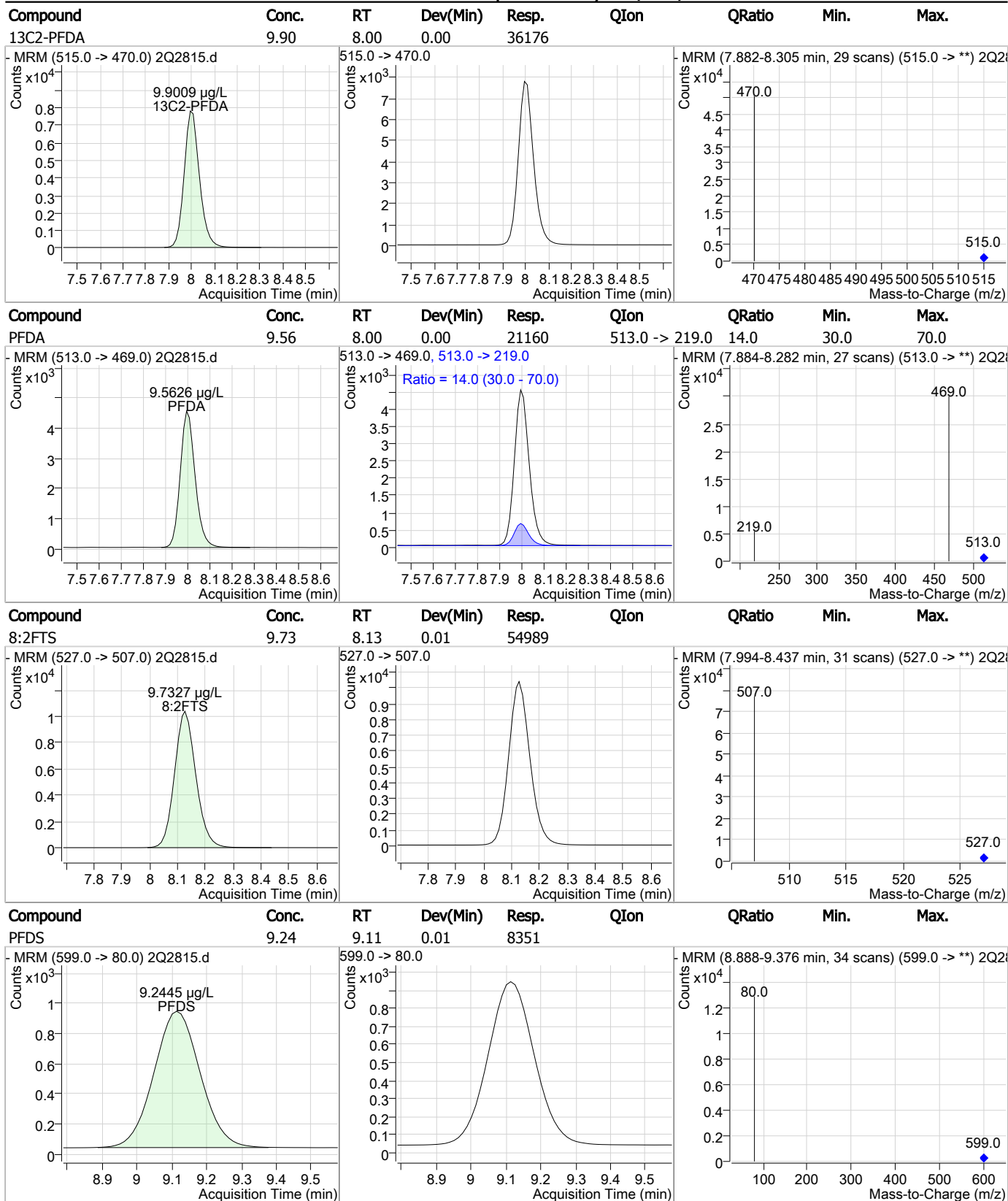
### Perfluorinated Compounds by LC/MS/MS



7.5.17

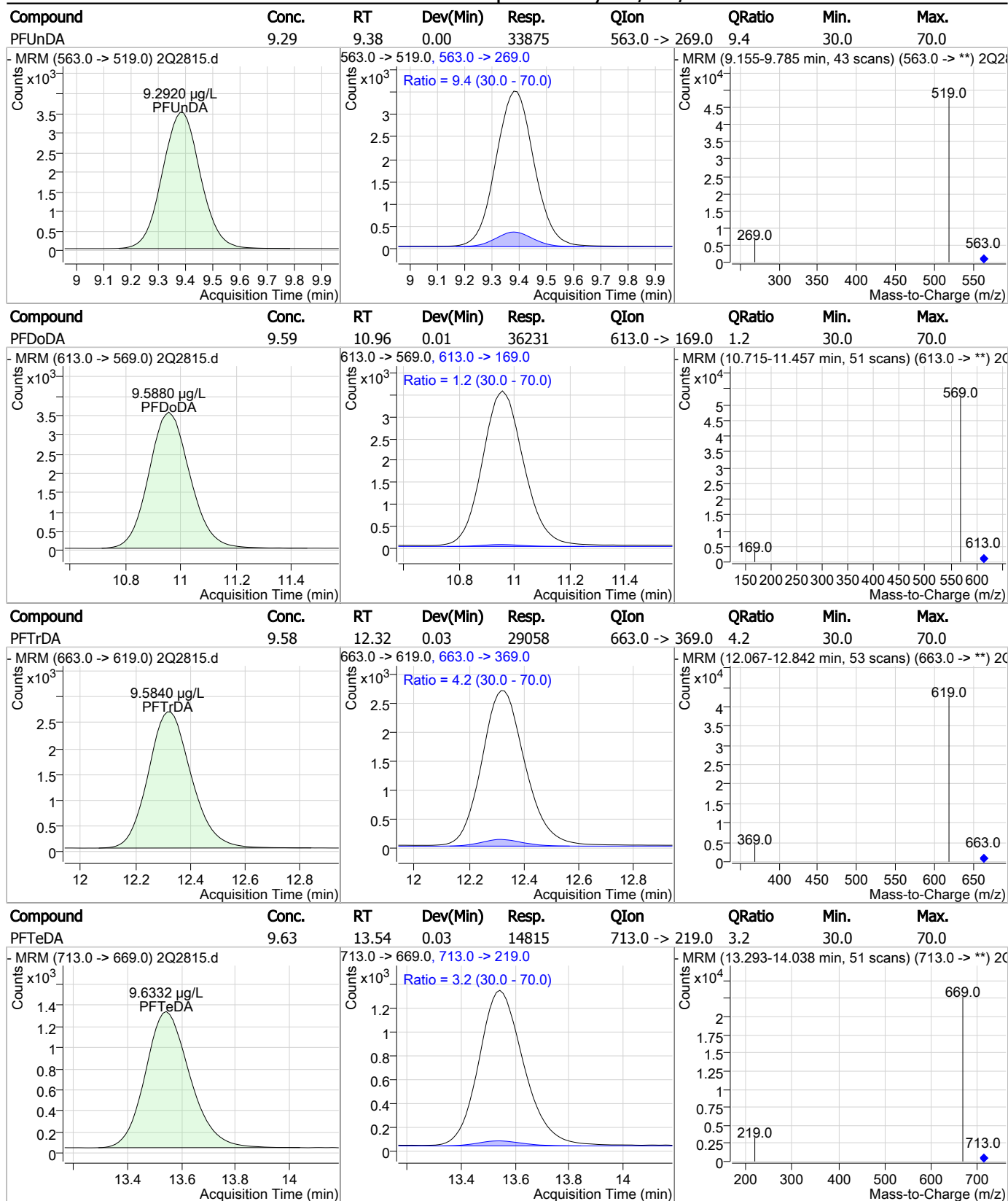
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### Perfluorinated Compounds by LC/MS/MS



7.5.17

### Perfluorinated Compounds by LC/MS/MS



7.5.17

7

# Manual Integration Approval Summary

Sample Number: S2Q70-IC70                      Method: EPA 537 MOD  
Lab FileID: 2Q2815.D                      Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 12:41                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.06	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.17.1

7



Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Mike Eger  
 06/28/17 12:09

Perfluorinated Compounds by LC/MS/MS

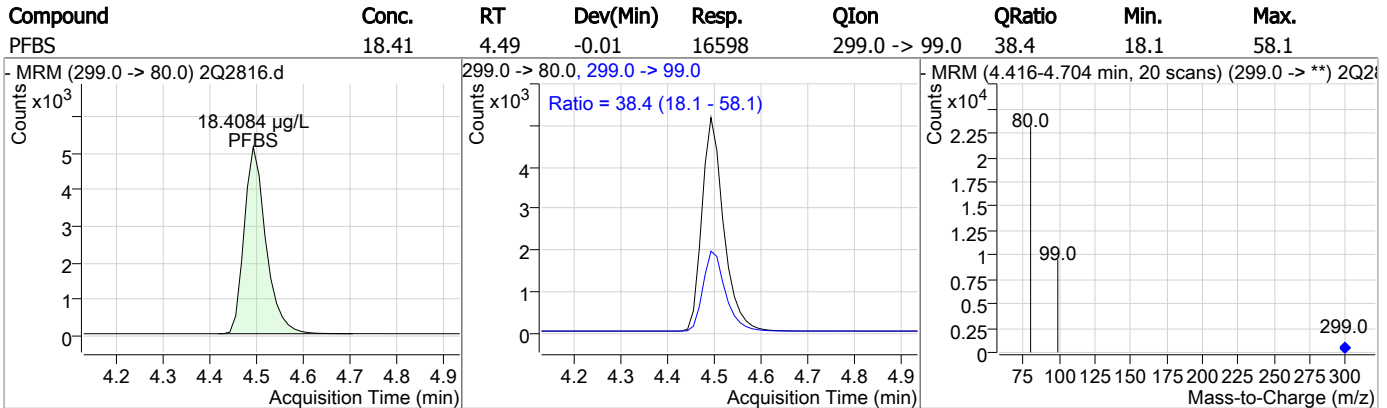
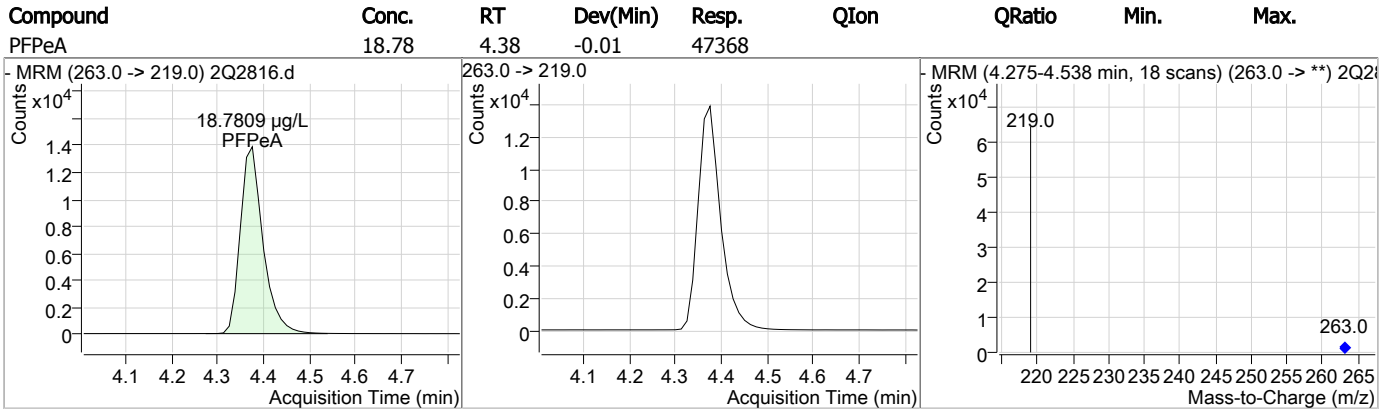
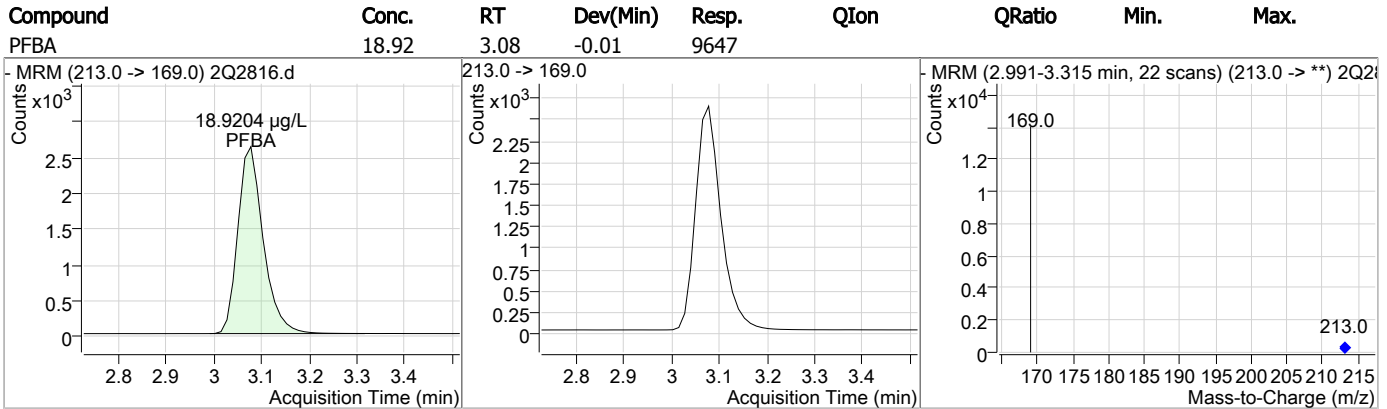
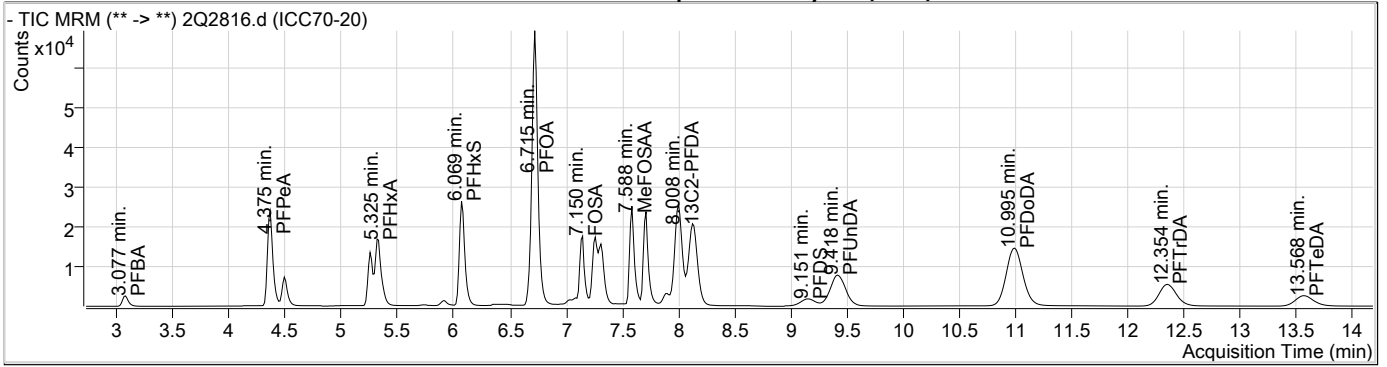
Data File : 2Q2816.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 1:01:07 PM  
 Sample Name : ICC70-20  
 Vial : Vial 6  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65591,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.724	429.0 -> 409.0	76489	20.00 µg/L	-0.013
13C2-PFDoDA	10.990	615.0 -> 570.0	78581	20.00 µg/L	0.037
13C2-PFOA	6.713	415.0 -> 370.0	40996	20.00 µg/L	-0.014
13C3-PFPeA	4.372	266.0 -> 222.0	33124	20.00 µg/L	-0.013
13C4-PFOS	7.263	503.0 -> 80.0	25172	20.00 µg/L	0.000
d3-MeFOSAA	7.587	573.0 -> 419.0	35370	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	70382	19.80 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 99.0%		
13C2-PFHxA	5.335	315.0 -> 270.0	36496	19.08 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 95.4%		
d5-EtFOSAA	7.711	589.0 -> 419.0	36193	19.29 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 96.5%		
<b>Target Compounds</b>					
4:2FTS	5.257	327.0 -> 307.0	43237	18.71 µg/L	QValue 100
6:2FTS	6.726	427.0 -> 407.0	74136	19.05 µg/L	100
8:2FTS	8.127	527.0 -> 507.0	107052	18.82 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	32836	18.53 µg/L	100
FOSA	7.150	498.0 -> 78.0	51345	18.94 µg/L	100
MeFOSAA	7.588	570.0 -> 419.0	37426	18.56 µg/L	100
PFBA	3.077	213.0 -> 169.0	9647	18.92 µg/L	100
PFBS	4.491	299.0 -> 80.0	16598	18.41 µg/L	100
PFDA	8.009	513.0 -> 469.0	41248	19.16 µg/L #	48
PFDoDA	10.995	613.0 -> 569.0	70935	19.03 µg/L #	29
PFDS	9.151	599.0 -> 80.0	16330	18.33 µg/L	100
PFHpA	6.074	363.0 -> 319.0	57058	19.24 µg/L	93
PFHpS	6.683	449.0 -> 80.0	24090	18.81 µg/L	100
PFHxA	5.325	313.0 -> 269.0	16609	19.31 µg/L	86
PFHxS	6.069	399.0 -> 80.0	22480	19.05 µg/L m	90
PFNA	7.319	463.0 -> 419.0	38902	18.55 µg/L	97
PFNS	7.892	549.0 -> 99.0	11605	18.94 µg/L	100
PFOA	6.715	413.0 -> 369.0	33808	19.16 µg/L	96
PFOS	7.264	499.0 -> 80.0	28431	18.51 µg/L m	90
PFPeA	4.375	263.0 -> 219.0	47368	18.78 µg/L	100
PFPeS	5.367	349.0 -> 99.0	5503	18.53 µg/L	100
PFTeDA	13.568	713.0 -> 669.0	29054	19.15 µg/L #	32
PFTTrDA	12.354	663.0 -> 619.0	56457	18.88 µg/L #	33
PFUnDA	9.418	563.0 -> 519.0	67770	18.85 µg/L #	41

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

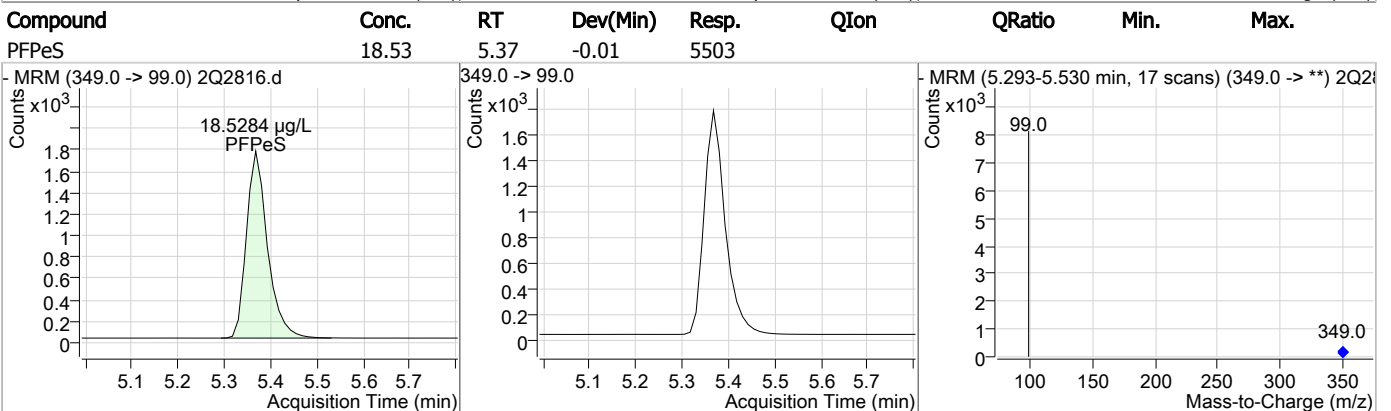
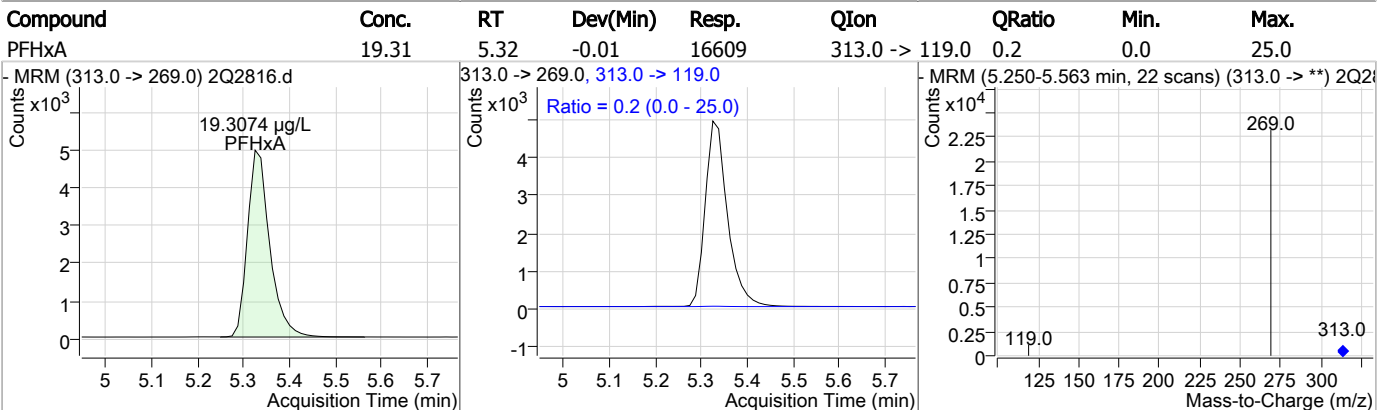
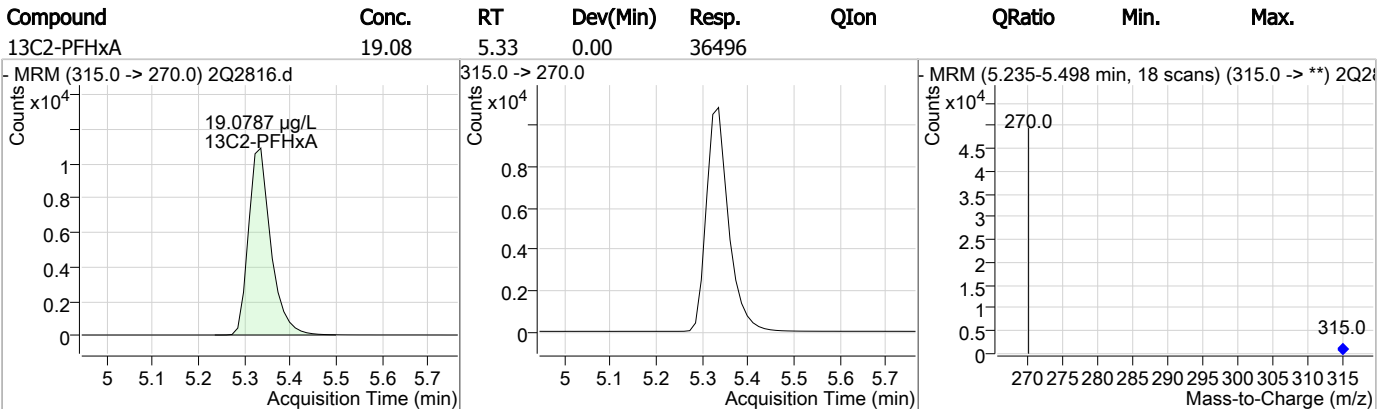
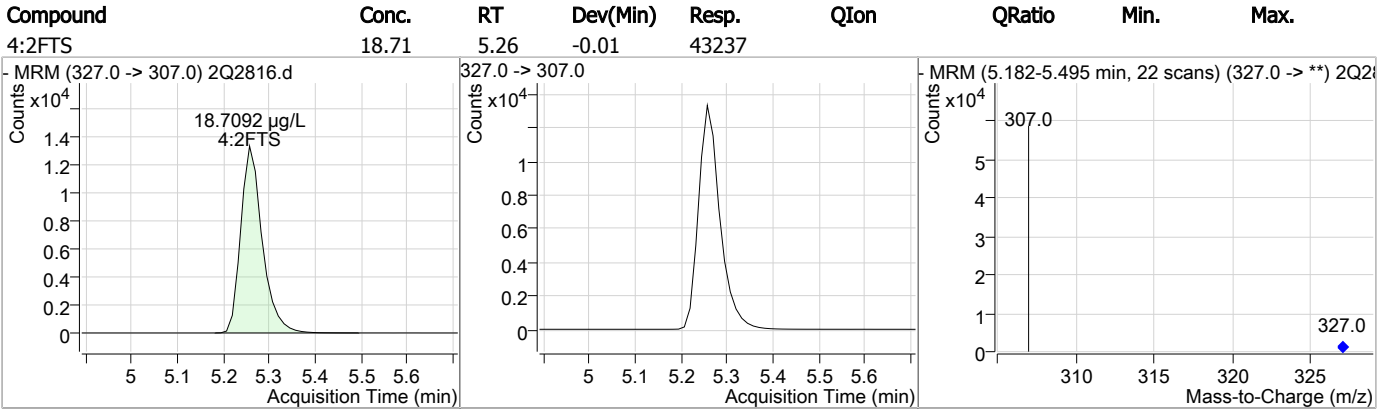
7.5.18  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.18  
7

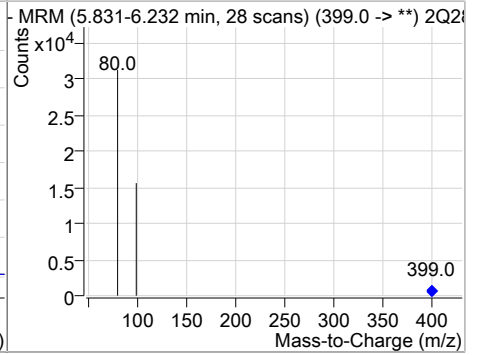
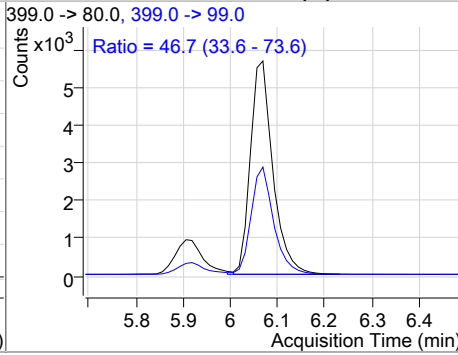
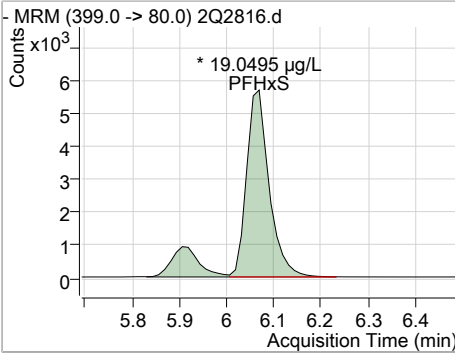
### Perfluorinated Compounds by LC/MS/MS



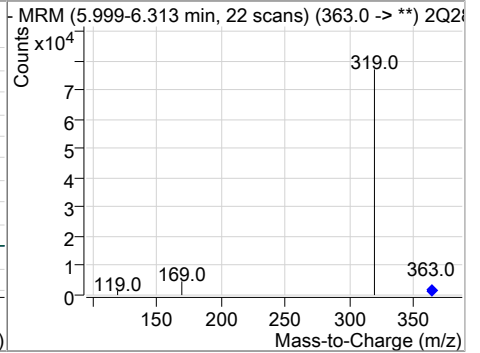
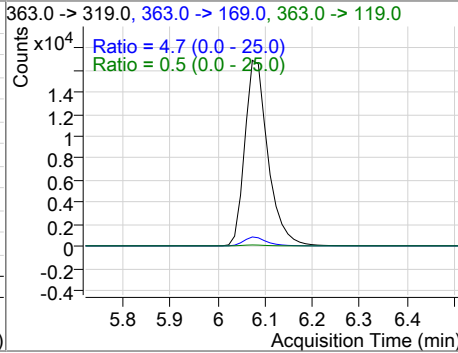
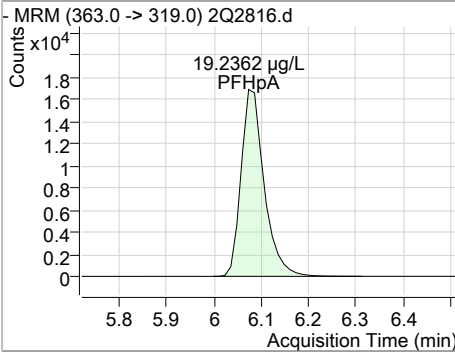
7.5.18  
 7

### Perfluorinated Compounds by LC/MS/MS

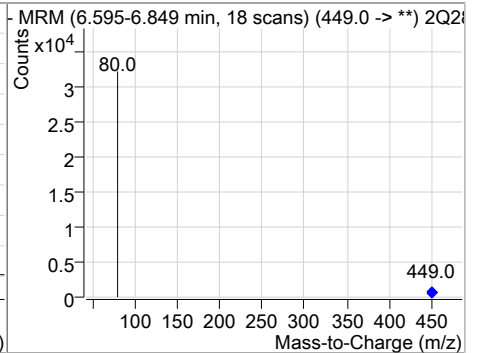
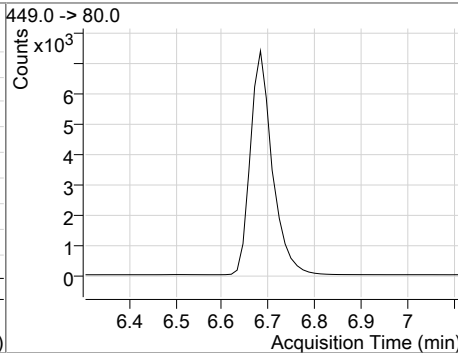
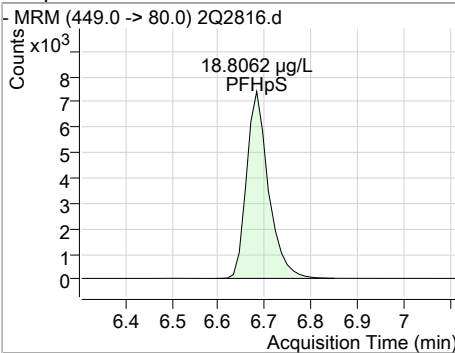
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.05	6.07	0.00	22480 (m)	399.0 -> 99.0	46.7	33.6	73.6



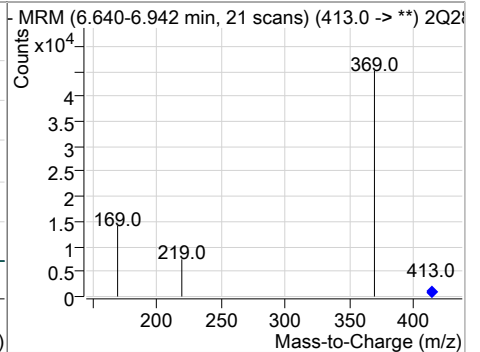
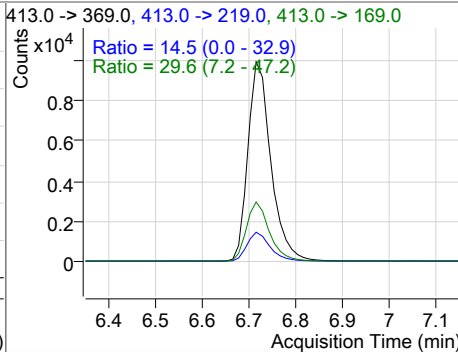
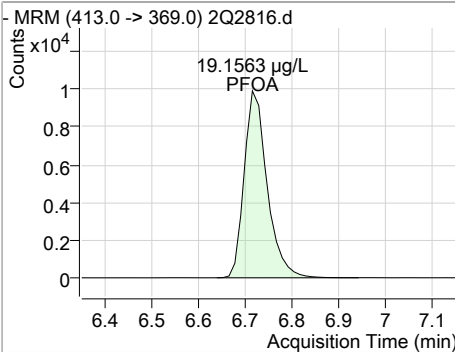
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.24	6.07	-0.01	57058	363.0 -> 119.0 363.0 -> 169.0	0.5 4.7	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.81	6.68	0.00	24090	449.0 -> 80.0			

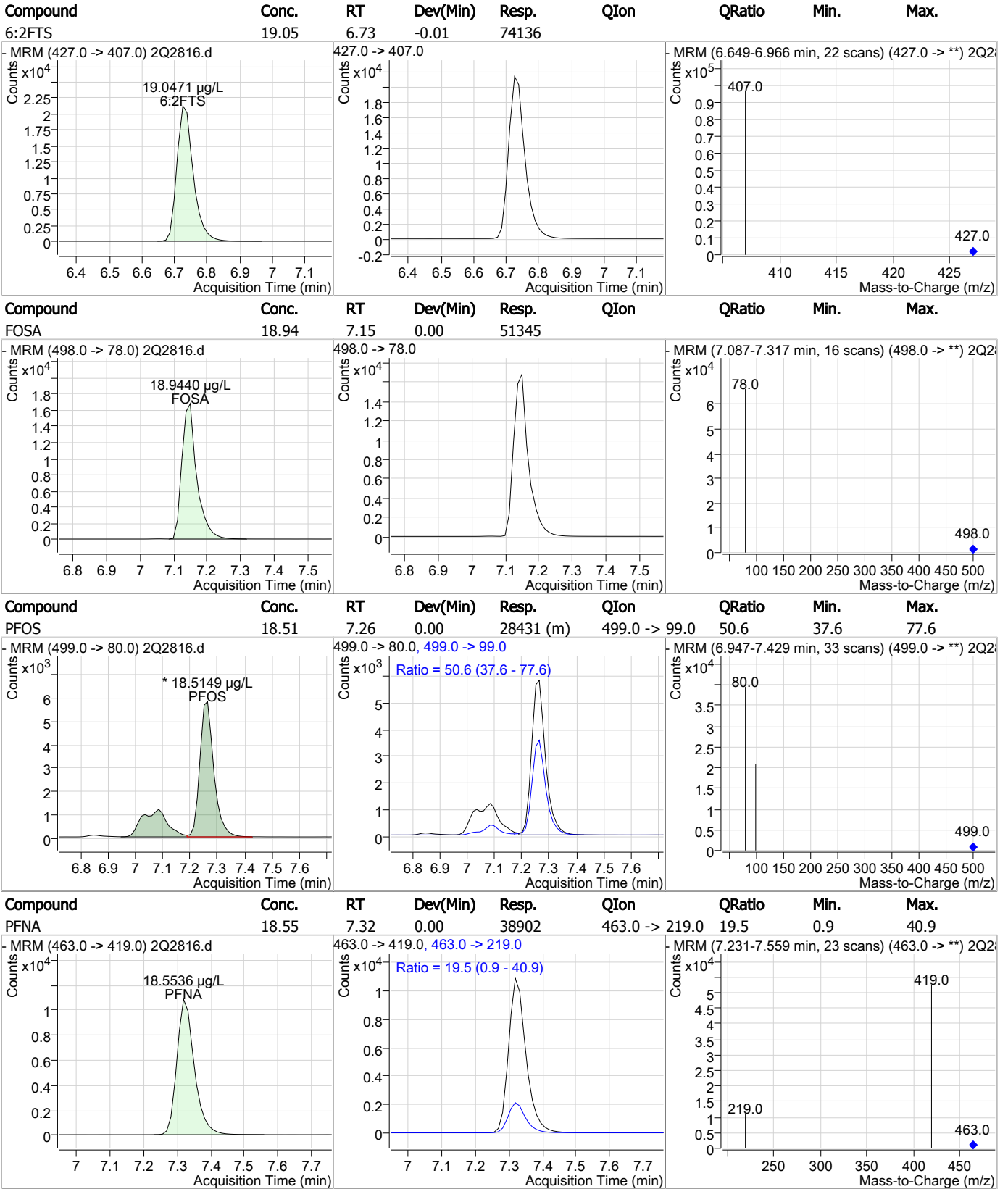


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.16	6.71	-0.01	33808	413.0 -> 169.0 413.0 -> 219.0	29.6 14.5	7.2 0.0	47.2 32.9



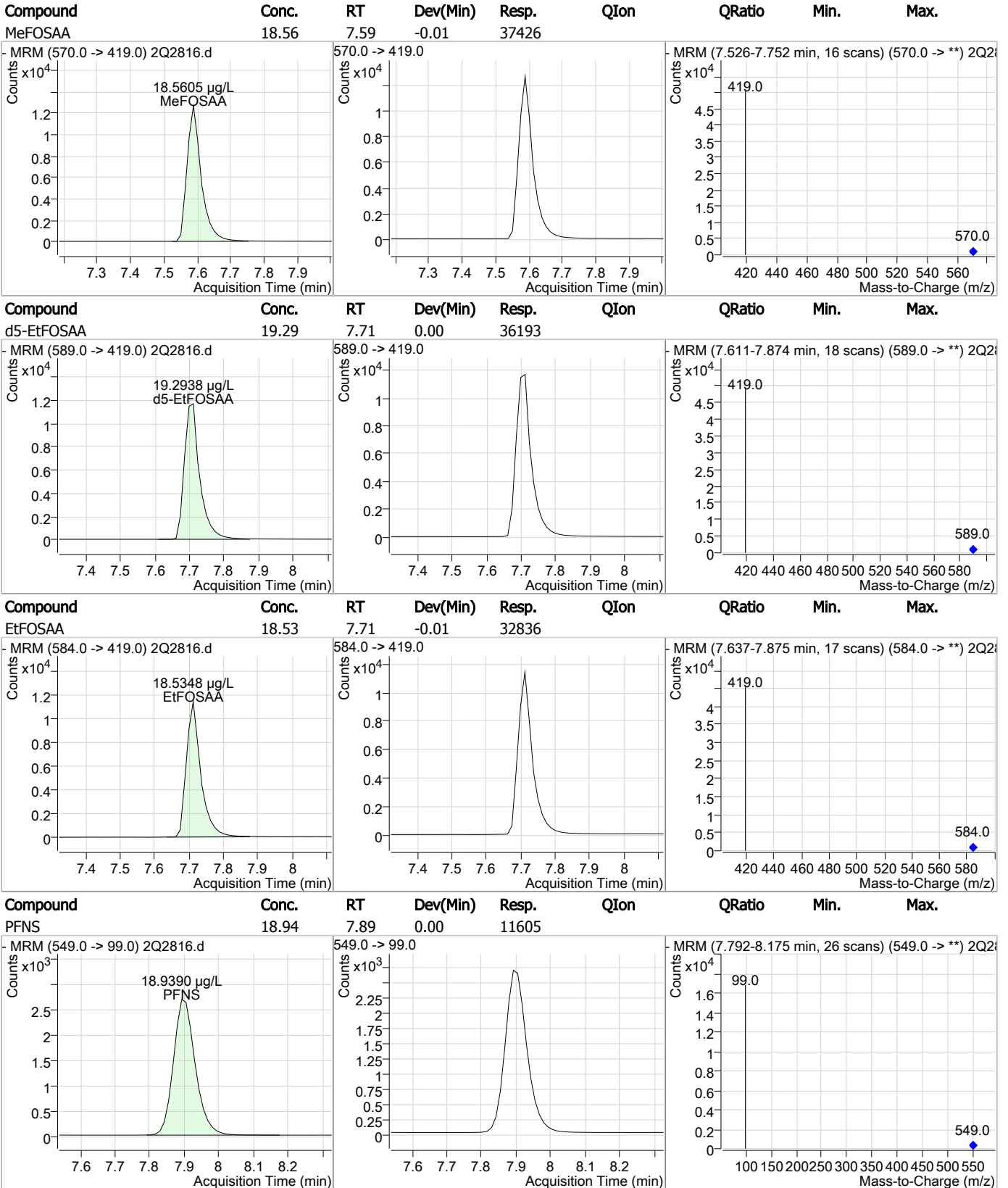
7.5.18  
 7

### Perfluorinated Compounds by LC/MS/MS



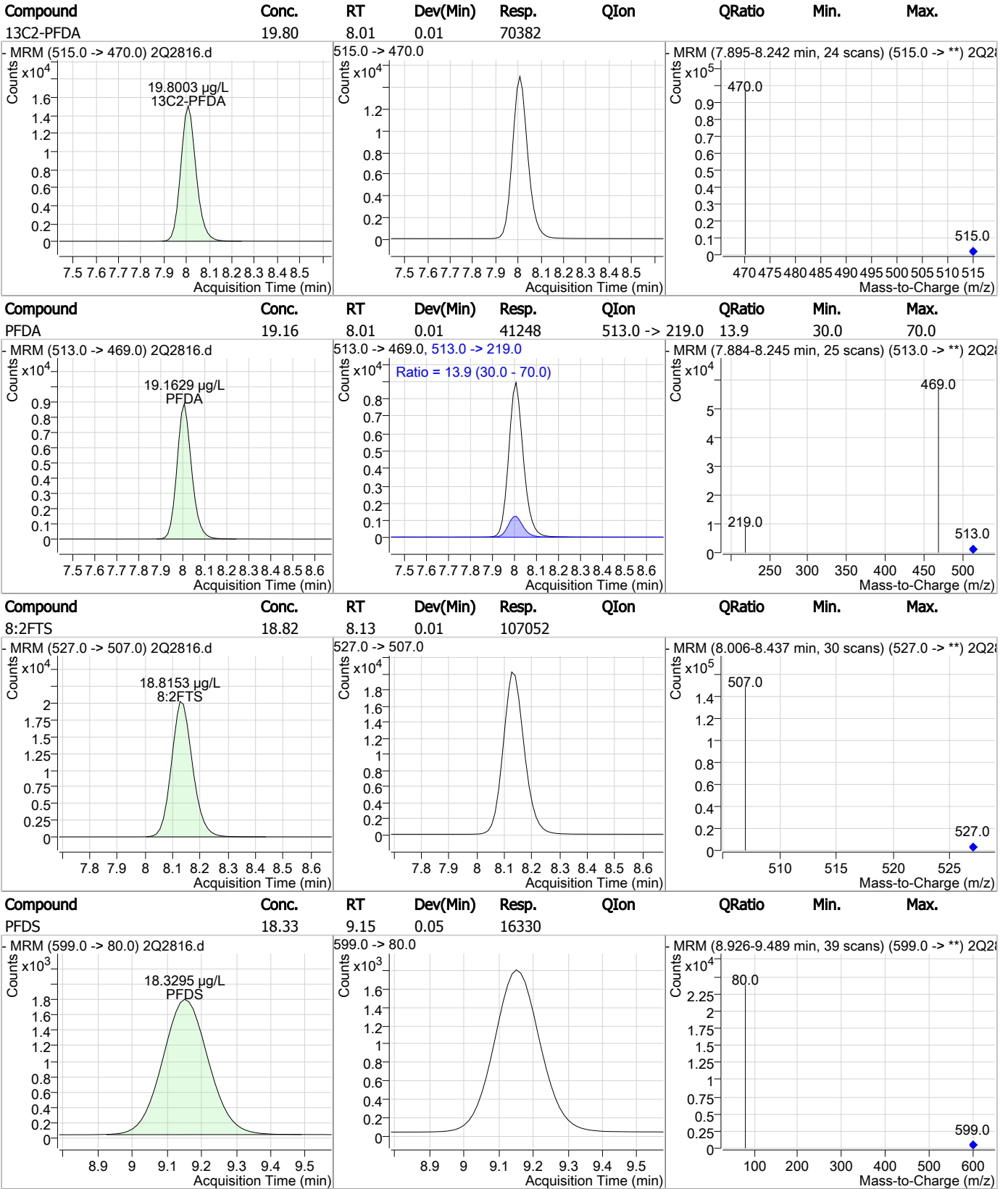
7.5.18  
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### Perfluorinated Compounds by LC/MS/MS



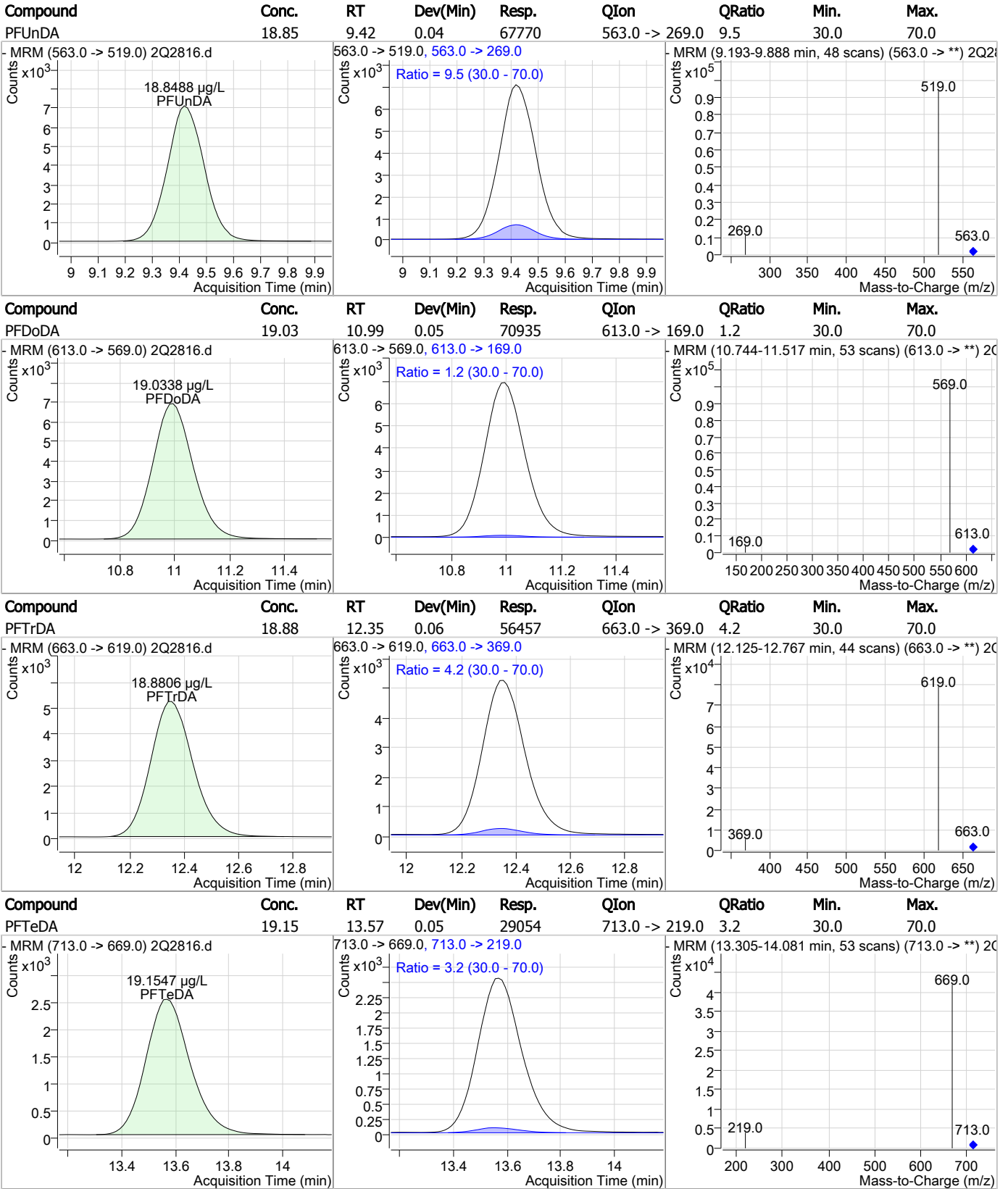
7.5.18  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.18 7

### Perfluorinated Compounds by LC/MS/MS



7.5.18  
7



# Manual Integration Approval Summary

Sample Number: S2Q70-ICC70      Method: EPA 537 MOD  
Lab FileID: 2Q2816.D      Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 13:01      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.07	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.18.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Mike Eger  
 06/28/17 12:09

### Perfluorinated Compounds by LC/MS/MS

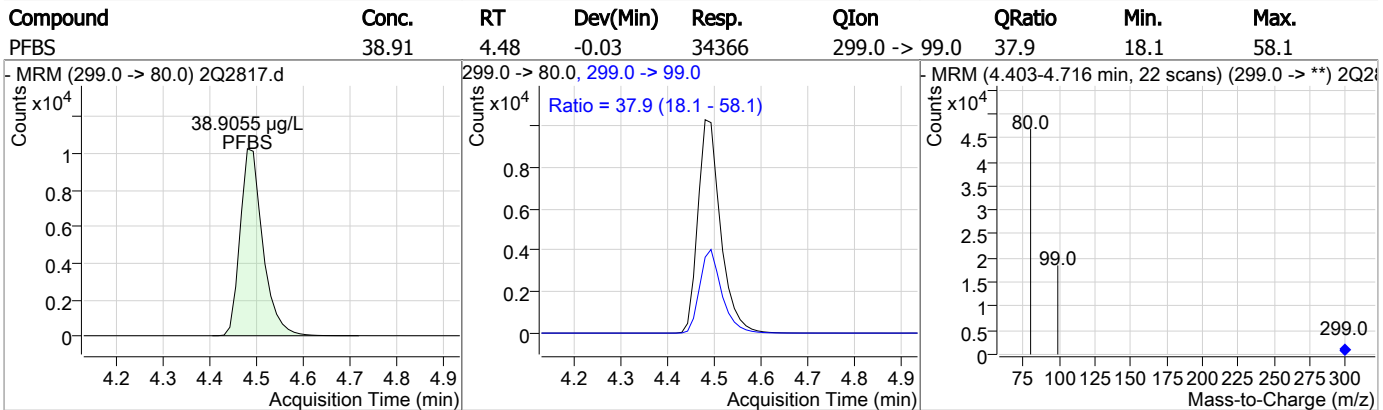
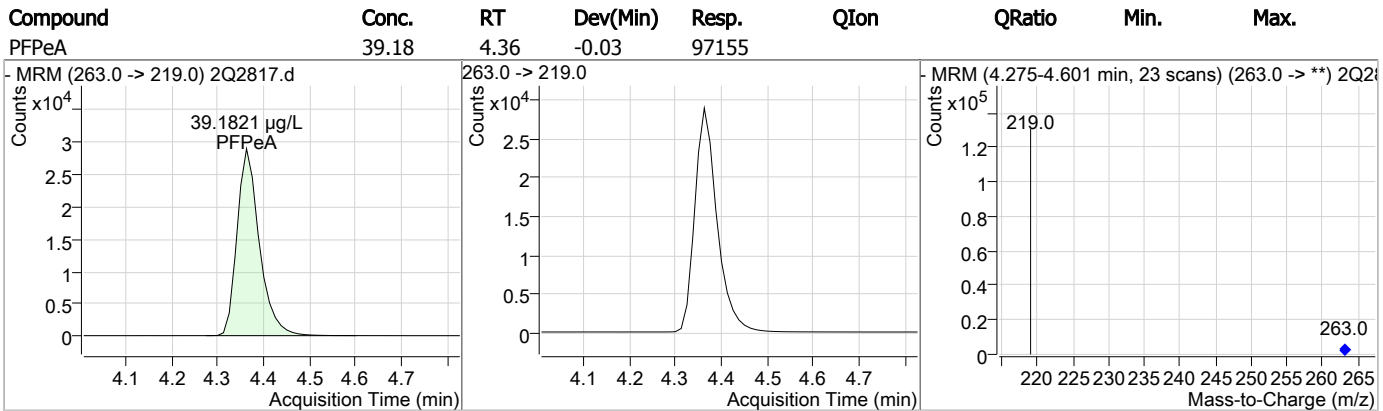
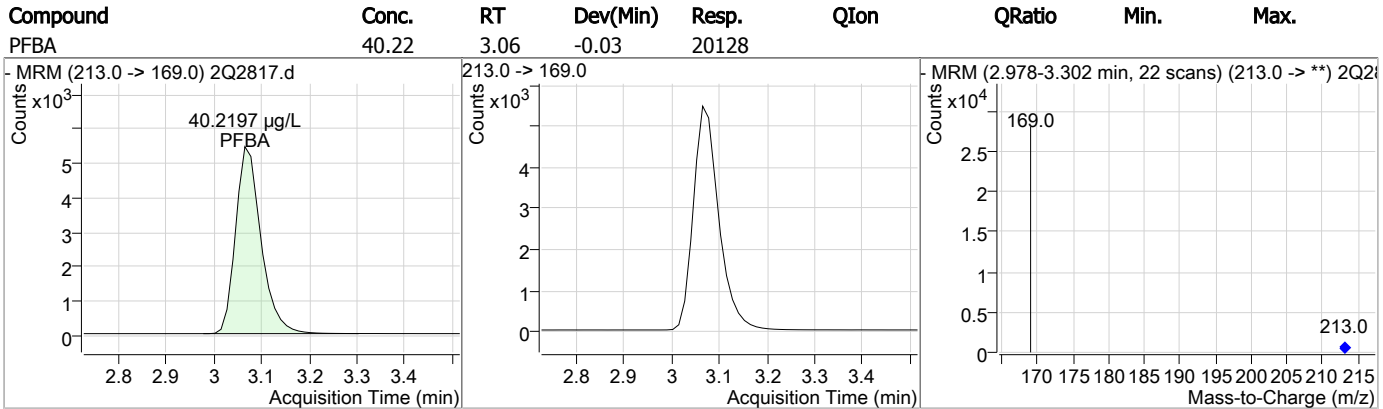
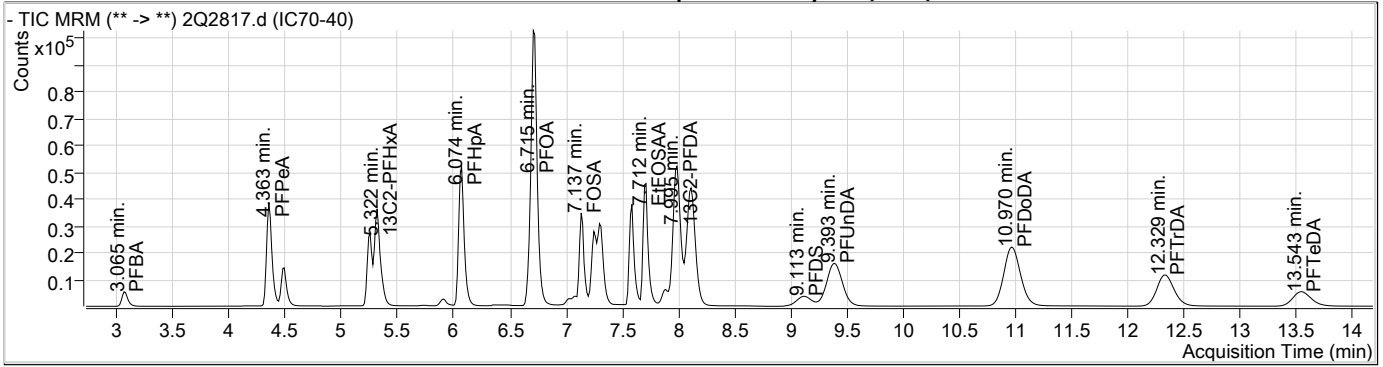
Data File : 2Q2817.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 1:20:26 PM  
 Sample Name : IC70-40  
 Vial : Vial 7  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65591,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.724	429.0 -> 409.0	77617	20.00 µg/L	-0.013
13C2-PFDoDA	10.965	615.0 -> 570.0	79253	20.00 µg/L	0.012
13C2-PFOA	6.713	415.0 -> 370.0	40237	20.00 µg/L	-0.014
13C3-PFPeA	4.360	266.0 -> 222.0	32564	20.00 µg/L	-0.025
13C4-PFOS	7.250	503.0 -> 80.0	24660	20.00 µg/L	-0.013
d3-MeFOSAA	7.587	573.0 -> 419.0	34672	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.995	515.0 -> 470.0	145507	41.71 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 208.5%	
13C2-PFHxA	5.322	315.0 -> 270.0	76973	41.00 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 205.0%	
d5-EtFOSAA	7.698	589.0 -> 419.0	74708	40.63 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 203.1%	
<b>Target Compounds</b>					
4:2FTS	5.257	327.0 -> 307.0	90304	39.81 µg/L	100
6:2FTS	6.726	427.0 -> 407.0	151048	39.81 µg/L	100
8:2FTS	8.117	527.0 -> 507.0	223572	39.77 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	67489	39.38 µg/L	100
FOSA	7.137	498.0 -> 78.0	101713	39.44 µg/L	100
MeFOSAA	7.588	570.0 -> 419.0	78947	39.96 µg/L	100
PFBA	3.065	213.0 -> 169.0	20128	40.22 µg/L	100
PFBS	4.479	299.0 -> 80.0	34366	38.91 µg/L	100
PFDA	7.996	513.0 -> 469.0	85867	40.65 µg/L	# 47
PFDoDA	10.970	613.0 -> 569.0	146813	39.06 µg/L	# 29
PFDS	9.113	599.0 -> 80.0	33995	38.95 µg/L	100
PFHpA	6.074	363.0 -> 319.0	114158	39.21 µg/L	93
PFHpS	6.670	449.0 -> 80.0	49523	39.46 µg/L	100
PFHxA	5.325	313.0 -> 269.0	34078	40.36 µg/L	85
PFHxS	6.056	399.0 -> 80.0	46579	40.29 µg/L	m 91
PFNA	7.319	463.0 -> 419.0	82419	40.05 µg/L	95
PFNS	7.892	549.0 -> 99.0	23579	39.28 µg/L	100
PFOA	6.715	413.0 -> 369.0	69089	39.89 µg/L	95
PFOS	7.252	499.0 -> 80.0	59091	39.28 µg/L	m 90
PFPeA	4.363	263.0 -> 219.0	97155	39.18 µg/L	100
PFPeS	5.367	349.0 -> 99.0	11543	39.53 µg/L	100
PFTeDA	13.543	713.0 -> 669.0	60372	39.46 µg/L	# 32
PFTrDA	12.329	663.0 -> 619.0	120314	39.89 µg/L	# 33
PFUnDA	9.393	563.0 -> 519.0	142947	39.42 µg/L	# 41

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

7.5.19  
7

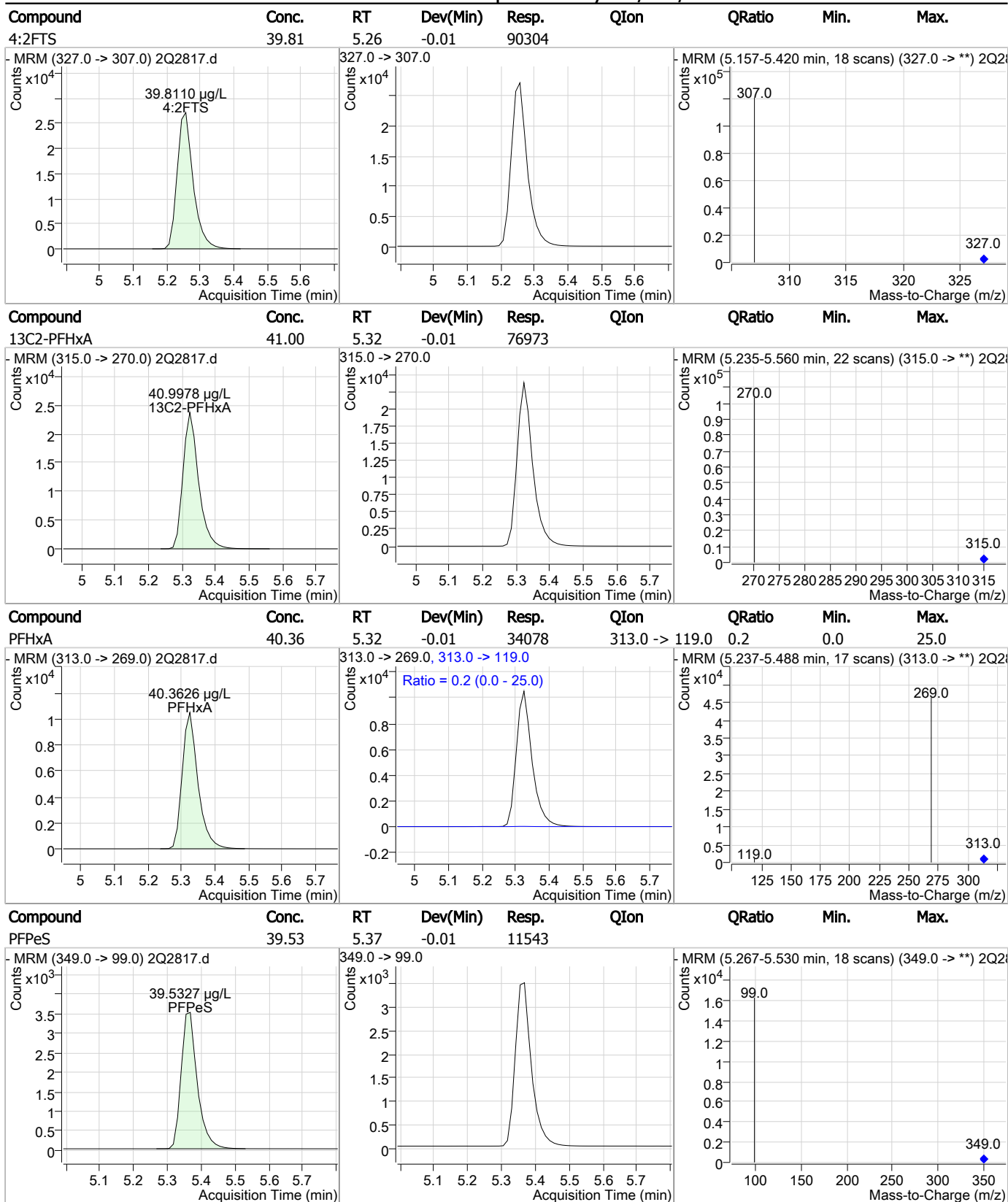
### Perfluorinated Compounds by LC/MS/MS



7.5.19

7

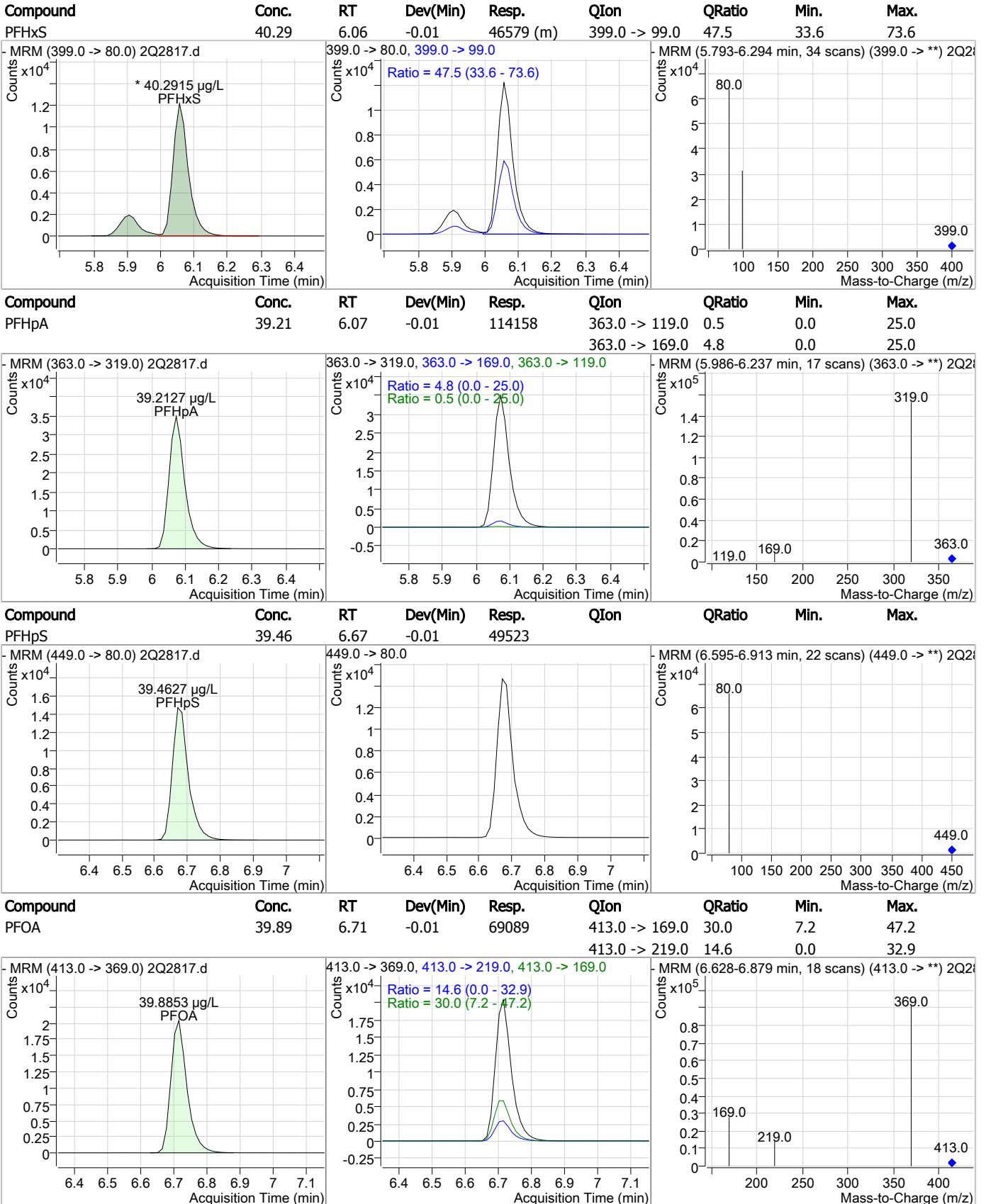
### Perfluorinated Compounds by LC/MS/MS



7.5.19

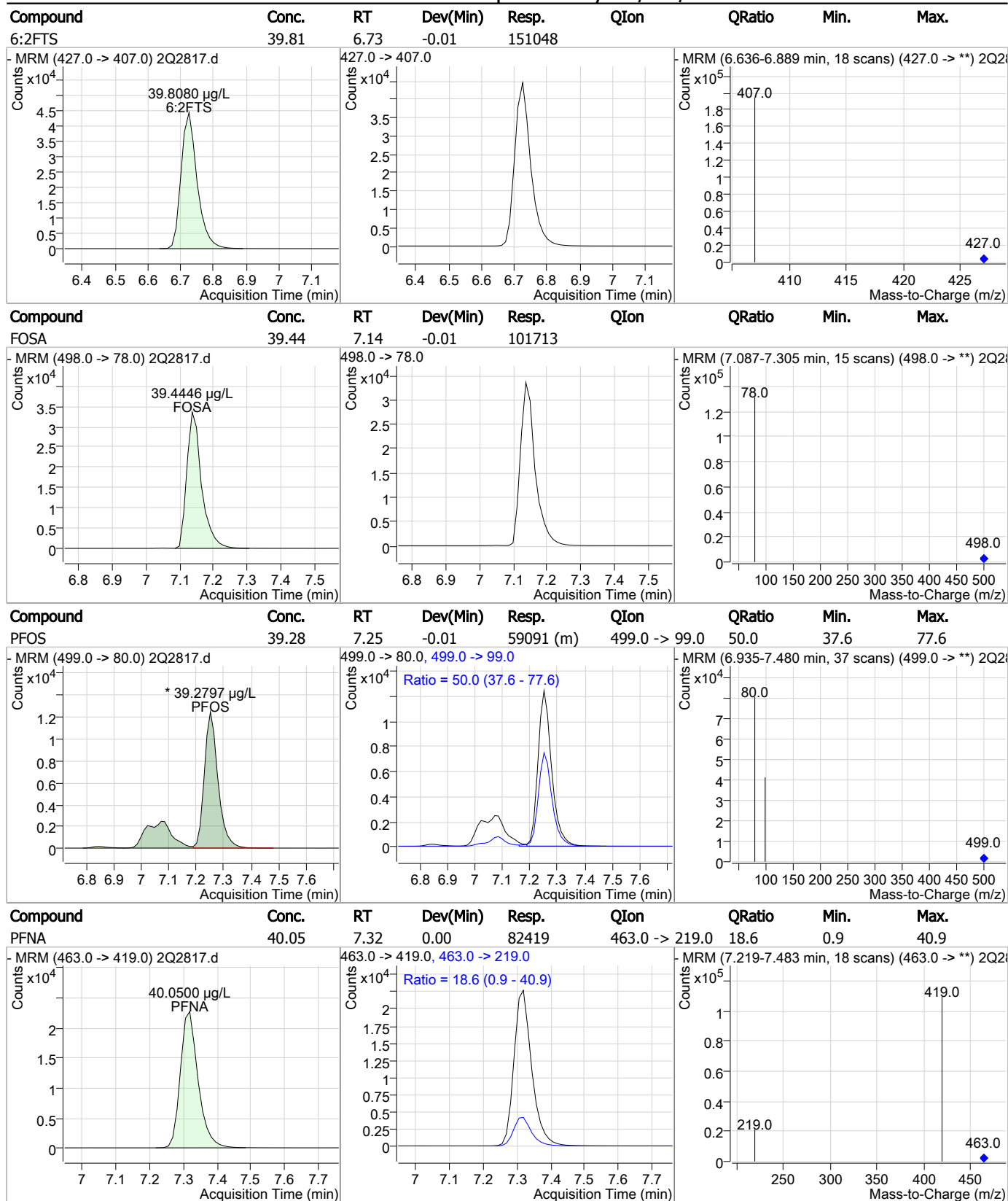
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### Perfluorinated Compounds by LC/MS/MS



7.5.19  
7

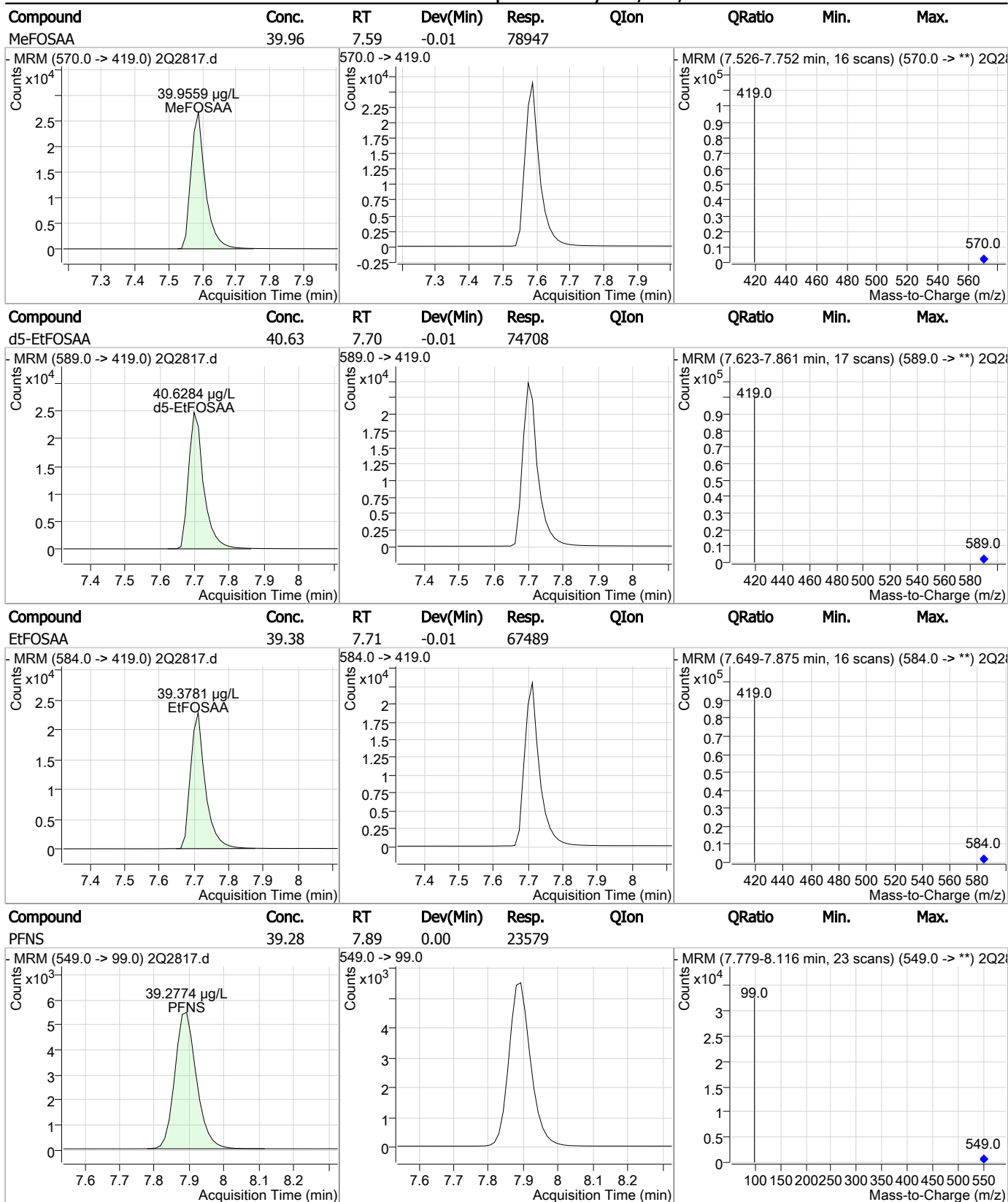
### Perfluorinated Compounds by LC/MS/MS



7.5.19

7

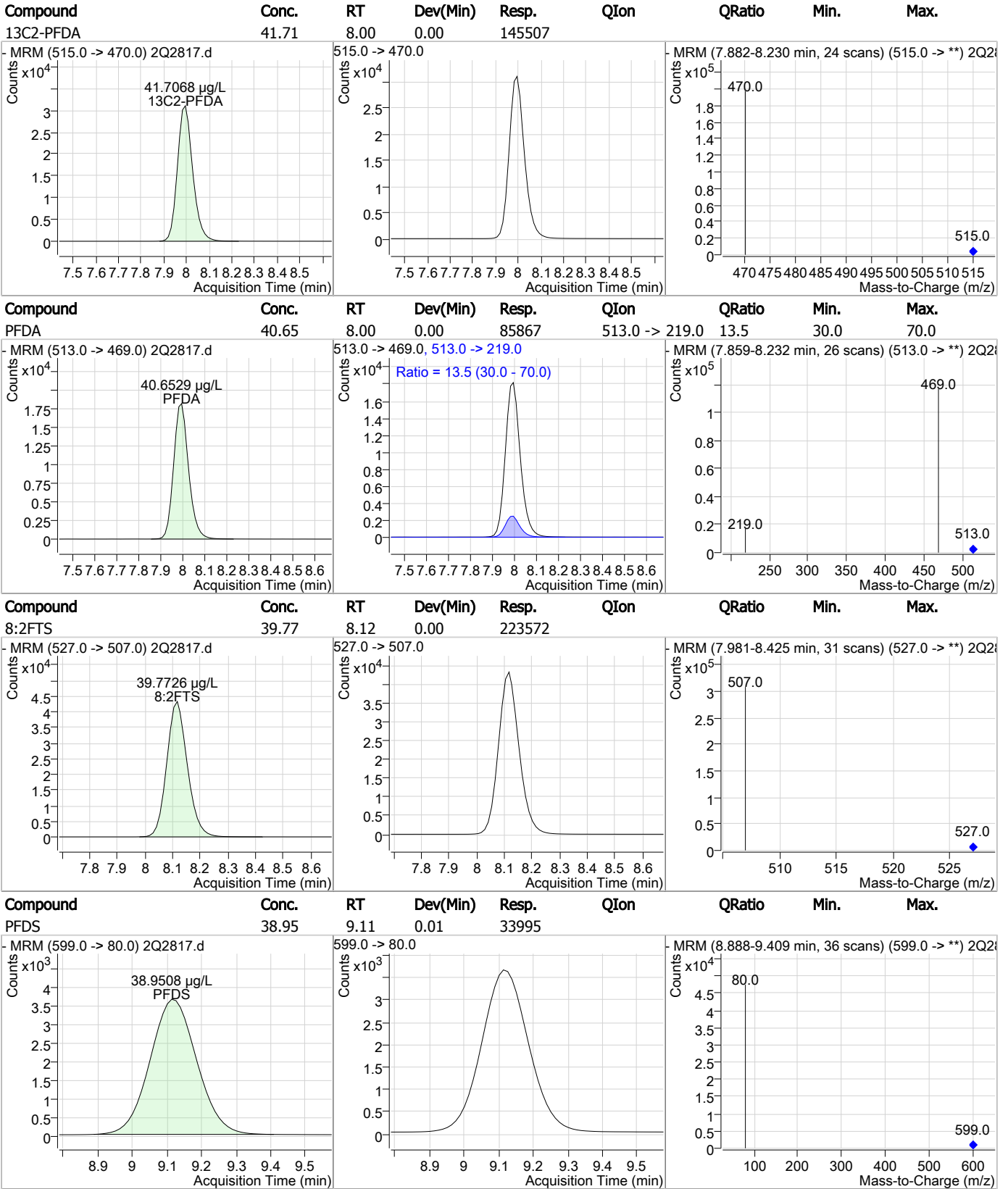
### Perfluorinated Compounds by LC/MS/MS



7.5.19

7

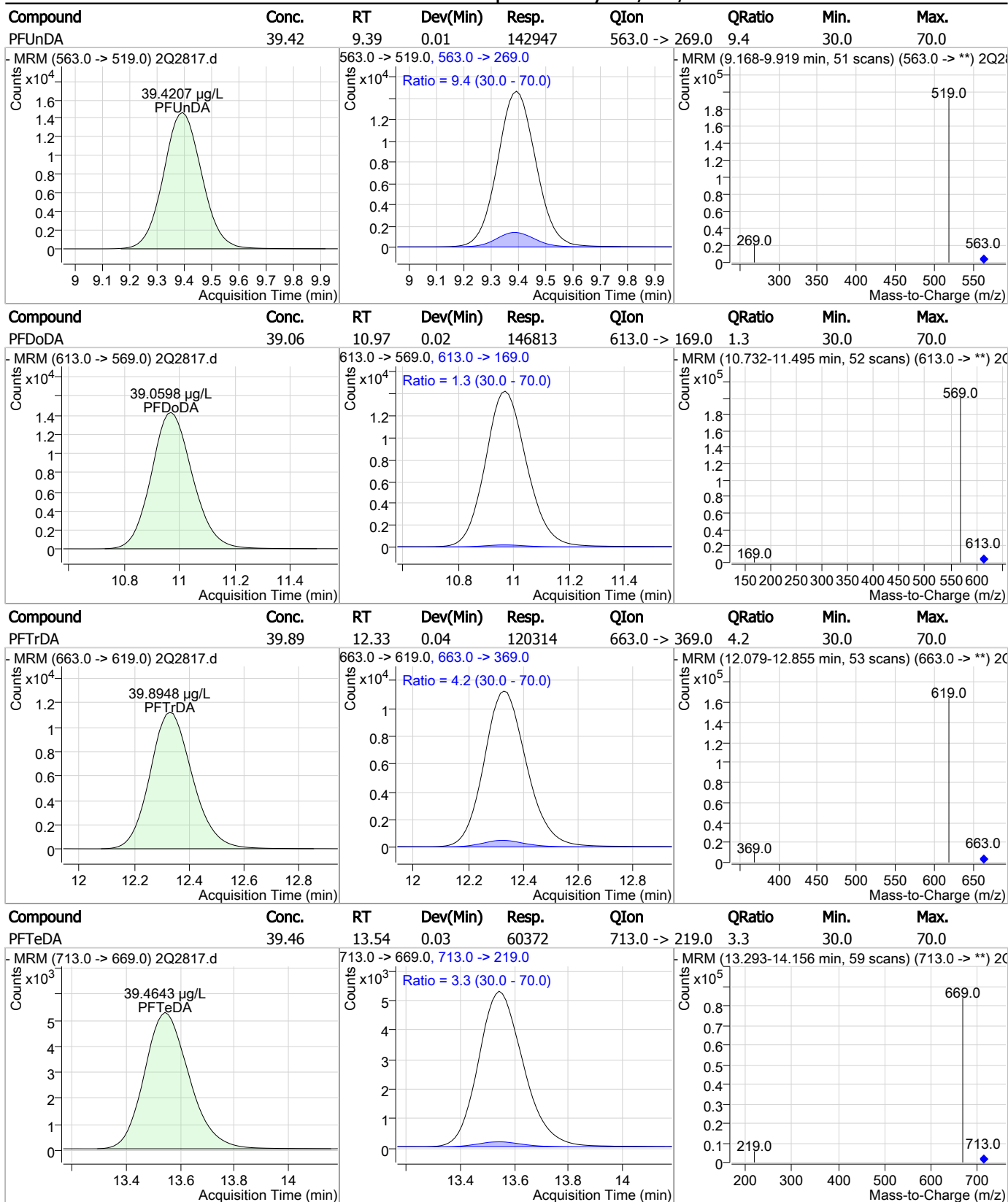
### Perfluorinated Compounds by LC/MS/MS



7.5.19  
7



### Perfluorinated Compounds by LC/MS/MS



7.5.19

7

# Manual Integration Approval Summary

Sample Number: S2Q70-IC70                      Method: EPA 537 MOD  
Lab FileID: 2Q2817.D                      Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 13:20                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.06	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.25	Split peak

7.5.19.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Mike Eger  
 06/28/17 12:09

### Perfluorinated Compounds by LC/MS/MS

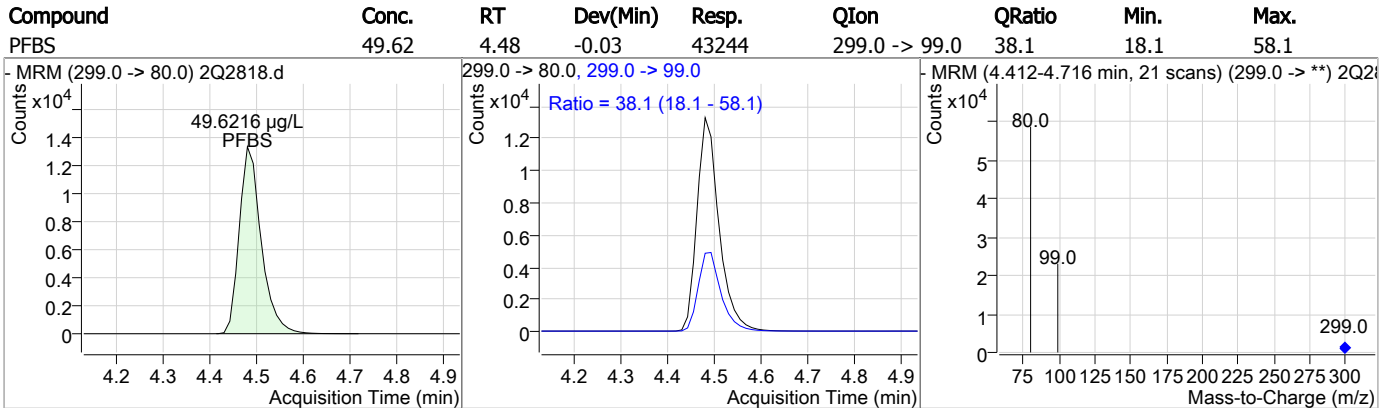
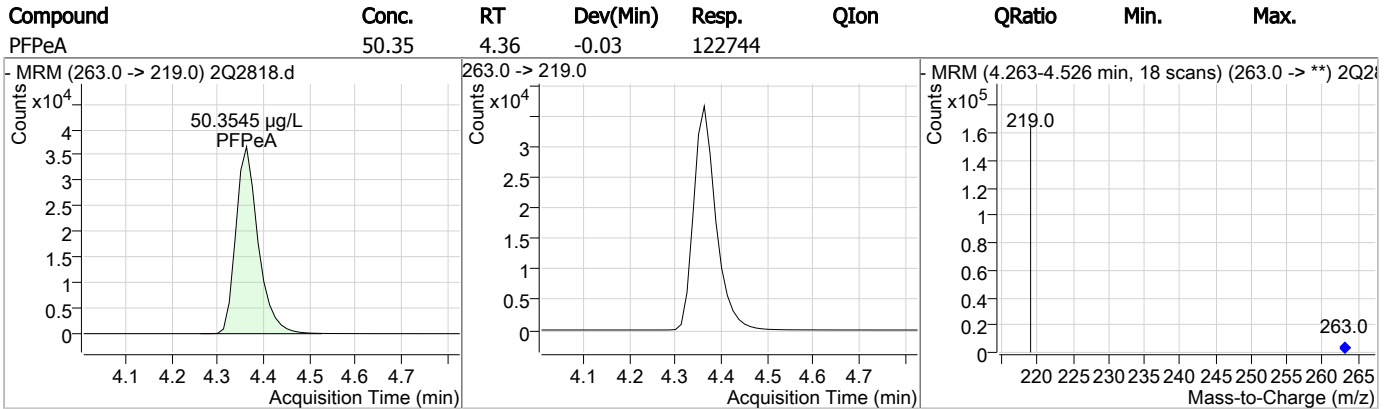
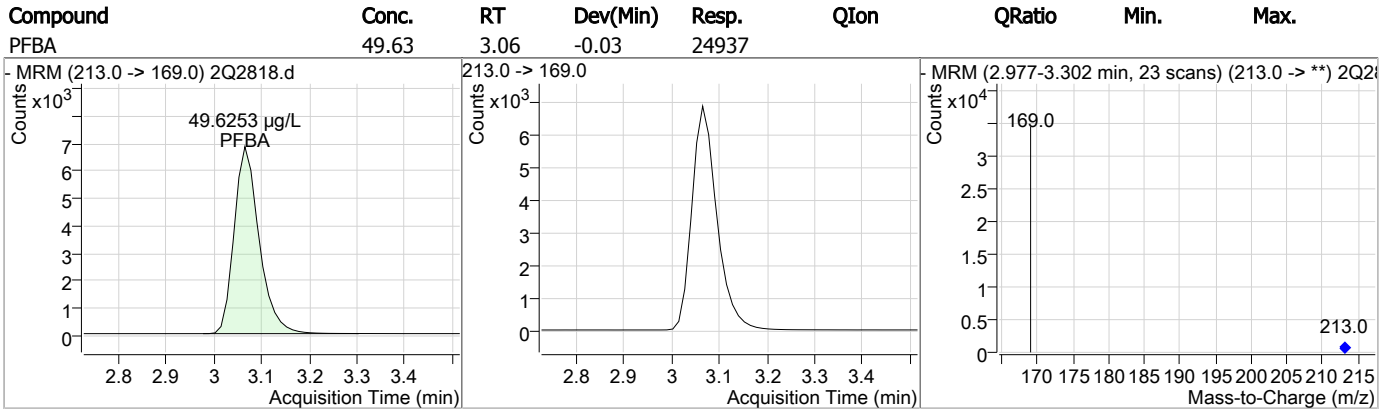
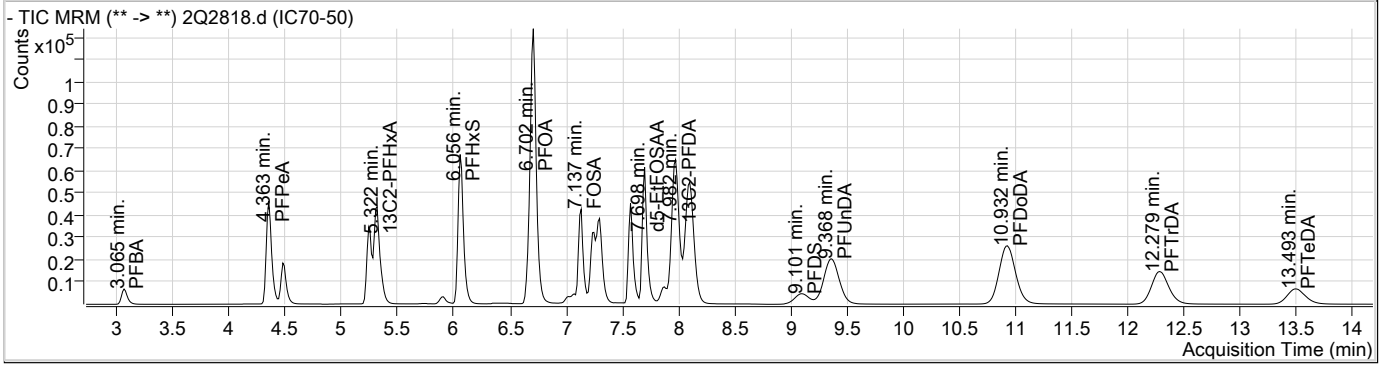
Data File : 2Q2818.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 1:39:45 PM  
 Sample Name : IC70-50  
 Vial : Vial 8  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65591,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)	QValue
<b>Internal Standards</b>							
13C2-6:2FTS	6.709	429.0 -> 409.0	77491	20.00	µg/L	-0.027	
13C2-PFDoDA	10.928	615.0 -> 570.0	78313	20.00	µg/L	-0.025	
13C2-PFOA	6.701	415.0 -> 370.0	40402	20.00	µg/L	-0.027	
13C3-PFPeA	4.360	266.0 -> 222.0	32013	20.00	µg/L	-0.025	
13C4-PFOS	7.250	503.0 -> 80.0	24329	20.00	µg/L	-0.013	
d3-MeFOSAA	7.575	573.0 -> 419.0	33863	20.00	µg/L	-0.013	
<b>System Monitoring Compounds</b>							
13C2-PFDA	7.982	515.0 -> 470.0	180325	51.47	µg/L	-0.013	
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 257.4%			
13C2-PFHxA	5.322	315.0 -> 270.0	95362	50.58	µg/L	-0.013	
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 252.9%			
d5-EtFOSAA	7.698	589.0 -> 419.0	93779	52.22	µg/L	-0.013	
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 261.1%			
<b>Target Compounds</b>							
4:2FTS	5.245	327.0 -> 307.0	113830	51.20	µg/L		100
6:2FTS	6.711	427.0 -> 407.0	188543	50.88	µg/L		100
8:2FTS	8.105	527.0 -> 507.0	282823	51.15	µg/L		100
EtFOSAA	7.699	584.0 -> 419.0	85821	51.67	µg/L		100
FOSA	7.137	498.0 -> 78.0	126532	51.12	µg/L		100
MeFOSAA	7.576	570.0 -> 419.0	98568	51.09	µg/L		100
PFBA	3.065	213.0 -> 169.0	24937	49.63	µg/L		100
PFBS	4.479	299.0 -> 80.0	43244	49.62	µg/L		100
PFDA	7.984	513.0 -> 469.0	106103	50.03	µg/L	#	47
PFDoDA	10.932	613.0 -> 569.0	186859	50.31	µg/L	#	29
PFDS	9.101	599.0 -> 80.0	42705	49.59	µg/L		100
PFHpA	6.074	363.0 -> 319.0	145460	49.76	µg/L		93
PFHpS	6.670	449.0 -> 80.0	62173	50.22	µg/L		100
PFHxA	5.325	313.0 -> 269.0	43163	50.91	µg/L		85
PFHxS	6.056	399.0 -> 80.0	58306	51.12	µg/L	m	92
PFNA	7.306	463.0 -> 419.0	102831	49.76	µg/L		97
PFNS	7.879	549.0 -> 99.0	29799	50.31	µg/L		100
PFOA	6.702	413.0 -> 369.0	87210	50.14	µg/L		95
PFOS	7.239	499.0 -> 80.0	74154	49.96	µg/L	m	90
PFPeA	4.363	263.0 -> 219.0	122744	50.35	µg/L		100
PFPeS	5.355	349.0 -> 99.0	14443	50.32	µg/L		100
PFTeDA	13.493	713.0 -> 669.0	76120	50.36	µg/L	#	32
PFTrDA	12.279	663.0 -> 619.0	151273	50.76	µg/L	#	33
PFUnDA	9.368	563.0 -> 519.0	178884	49.92	µg/L	#	41

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

7.5.20  
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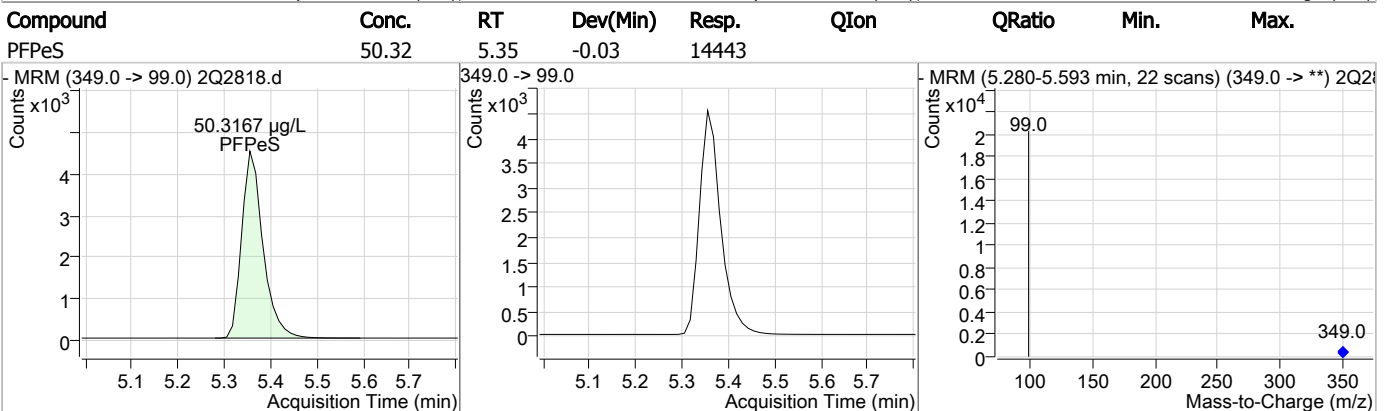
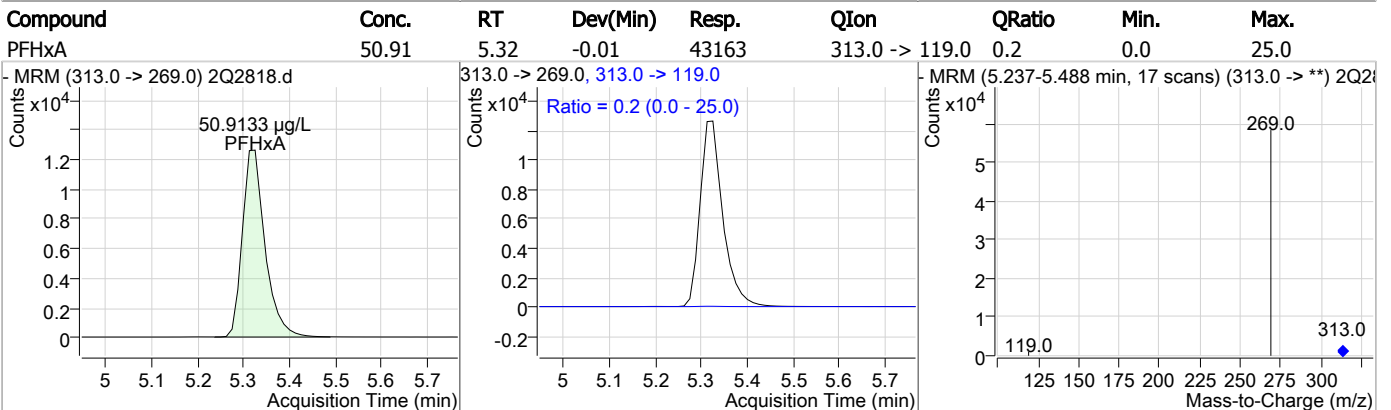
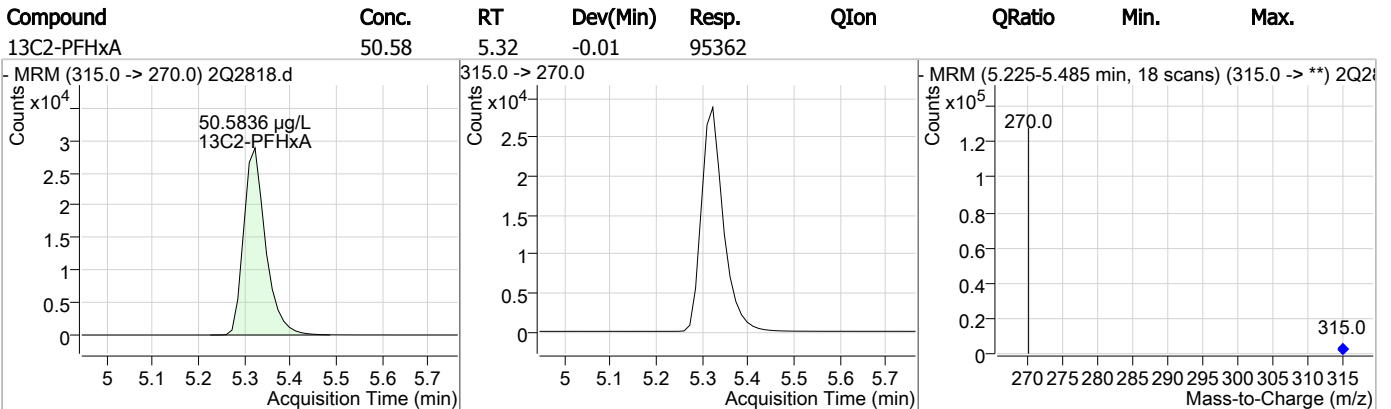
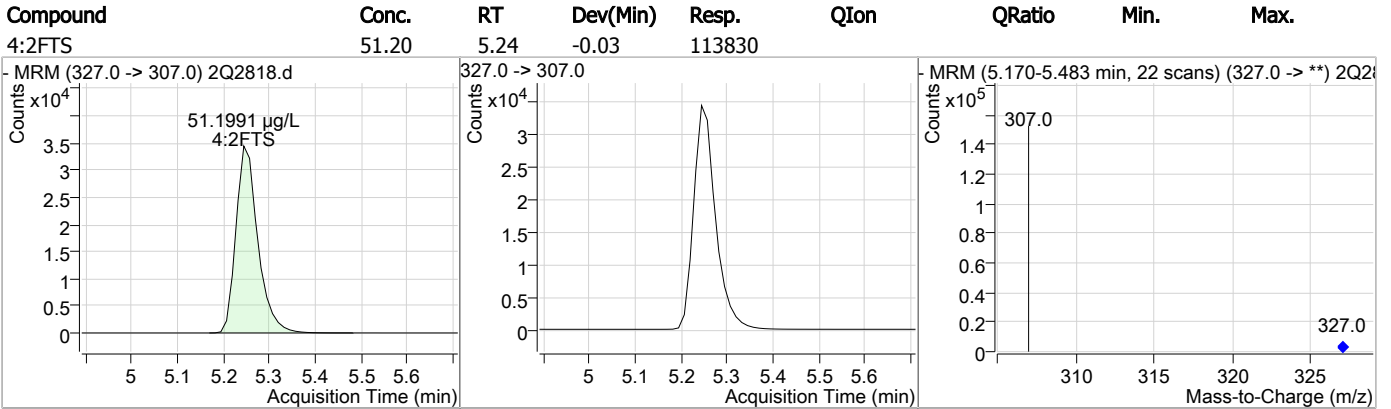
### Perfluorinated Compounds by LC/MS/MS



7.5.20

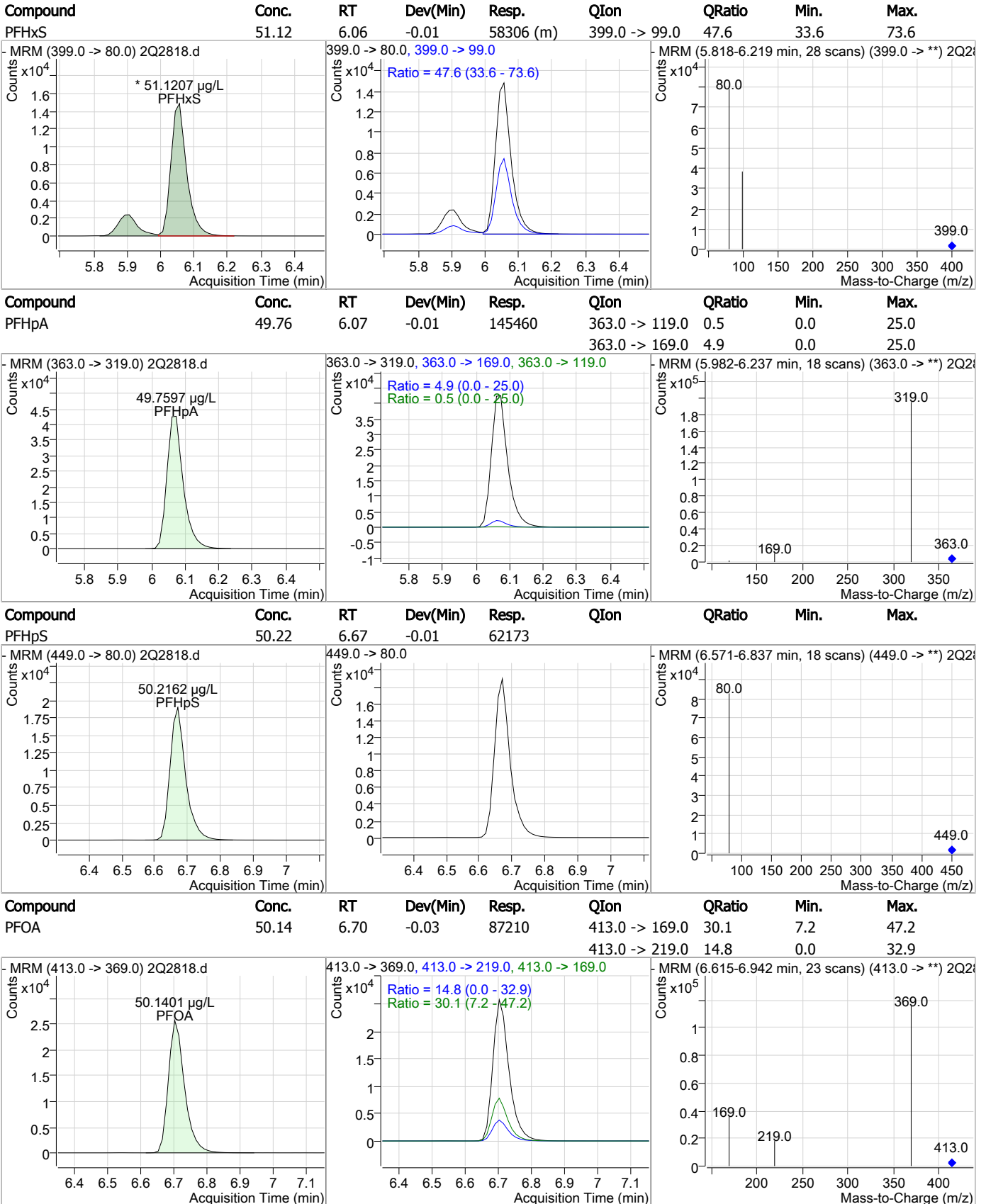
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### Perfluorinated Compounds by LC/MS/MS



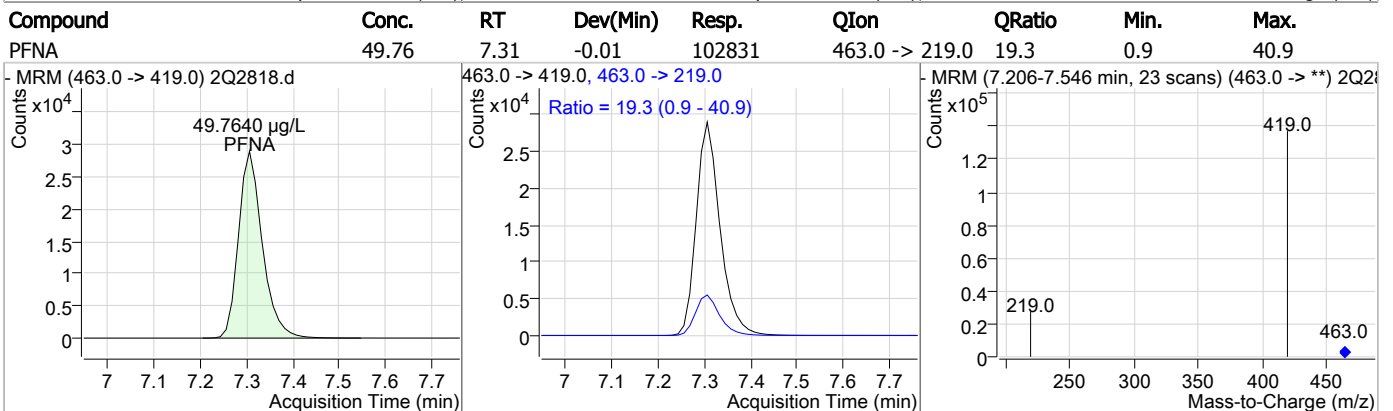
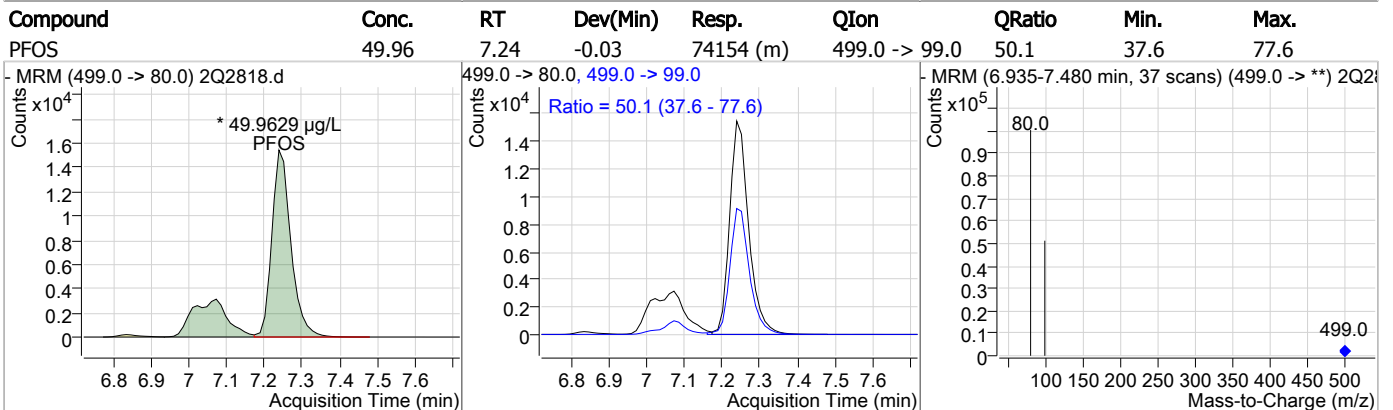
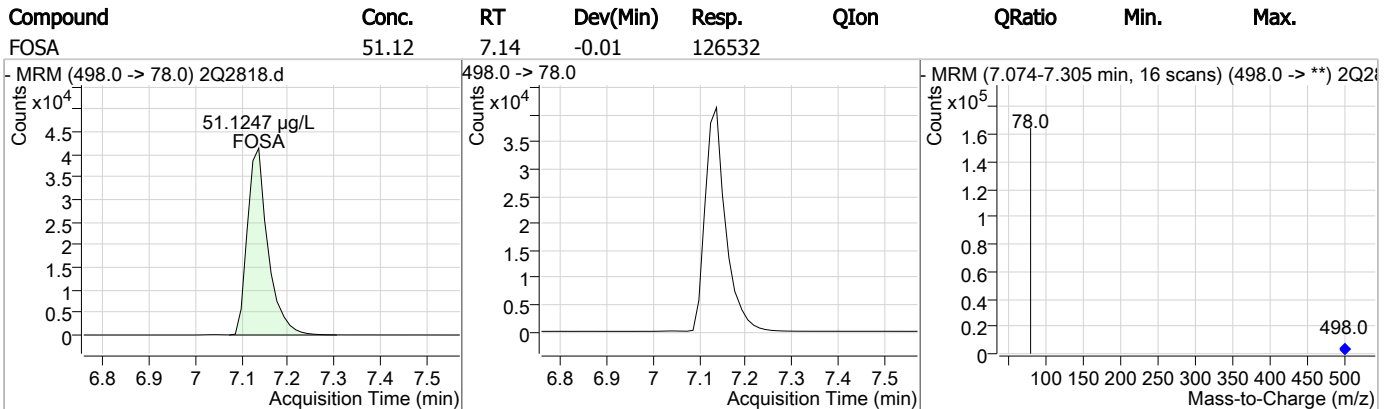
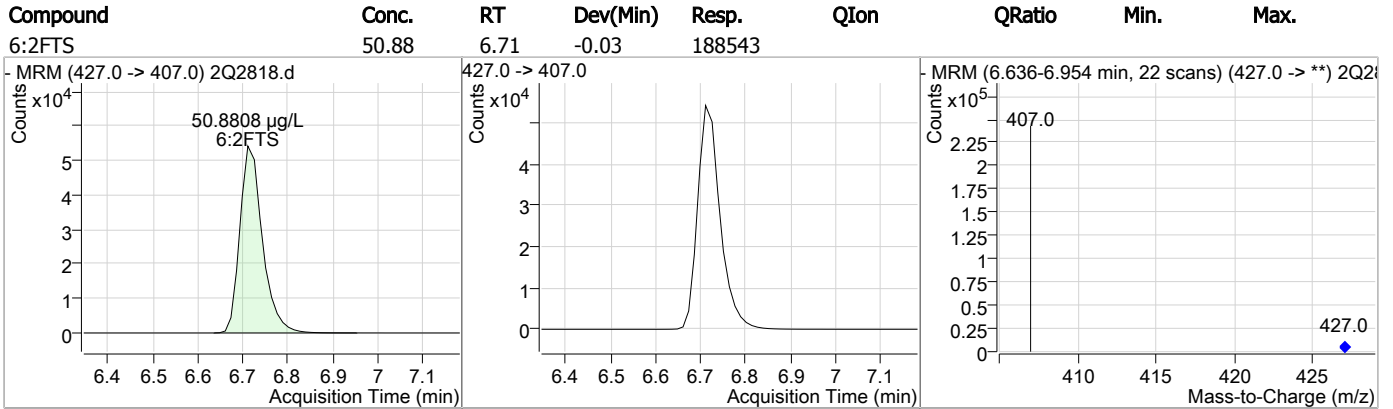
7.5.20  
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### Perfluorinated Compounds by LC/MS/MS

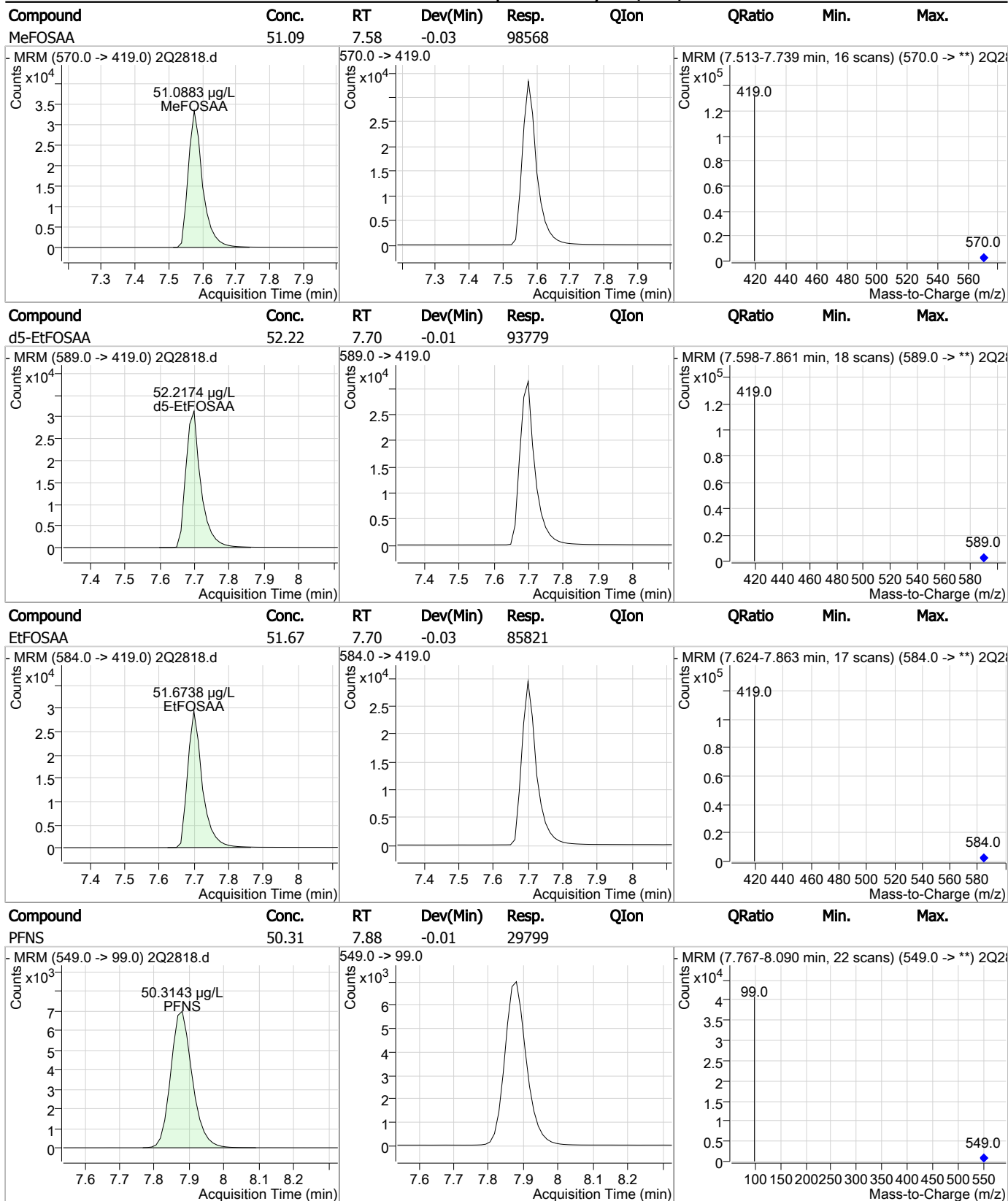


7.5.20  
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### Perfluorinated Compounds by LC/MS/MS



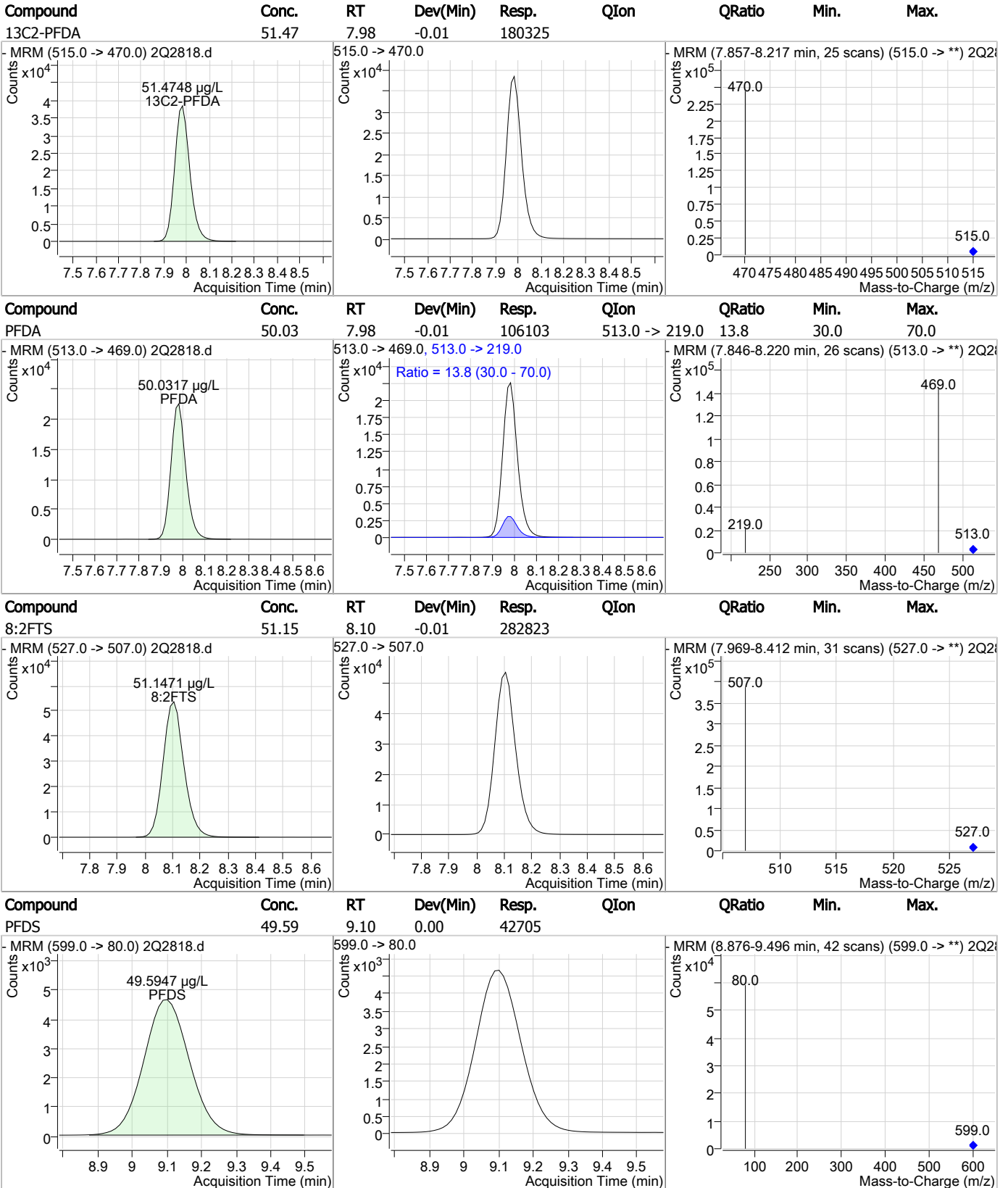
### Perfluorinated Compounds by LC/MS/MS



7.5.20  
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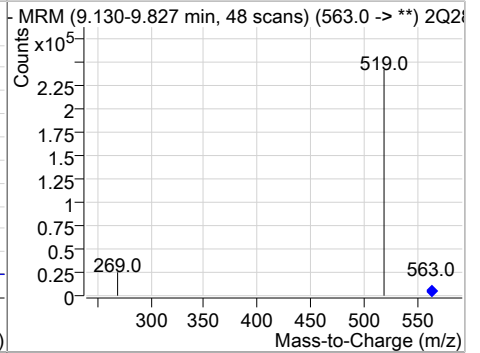
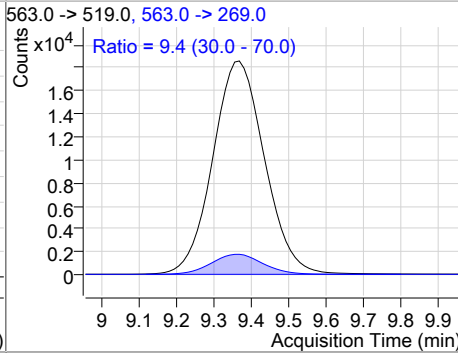
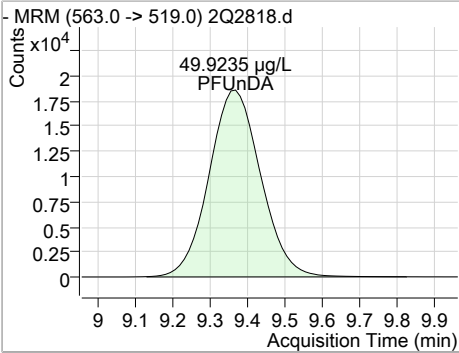
### Perfluorinated Compounds by LC/MS/MS



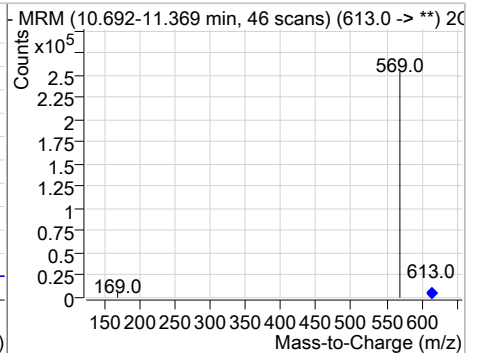
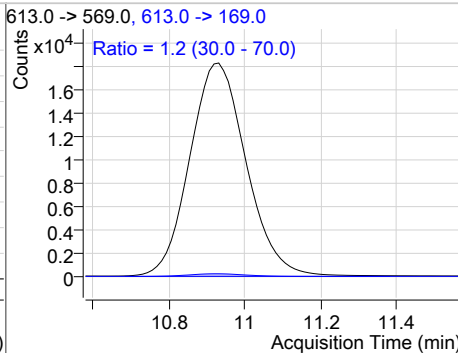
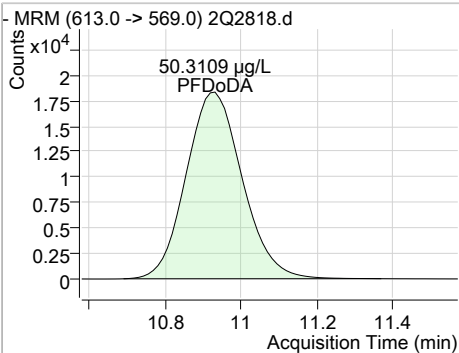
7.5.20  
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### Perfluorinated Compounds by LC/MS/MS

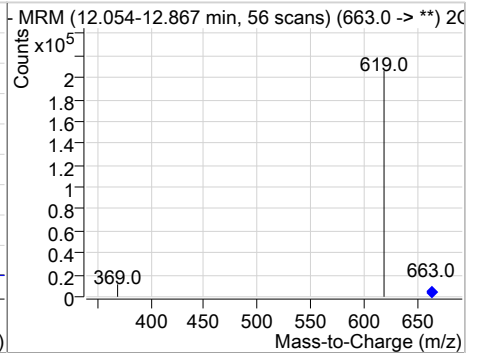
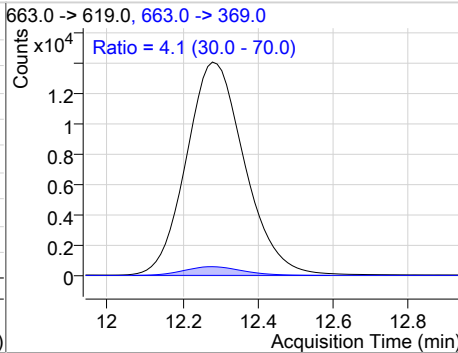
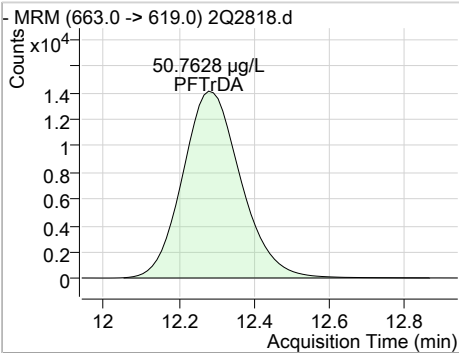
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	49.92	9.37	-0.01	178884	563.0 -> 269.0	9.4	30.0	70.0



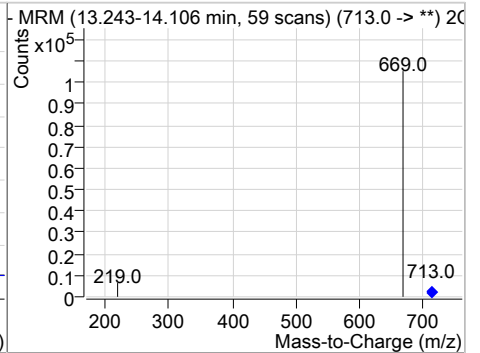
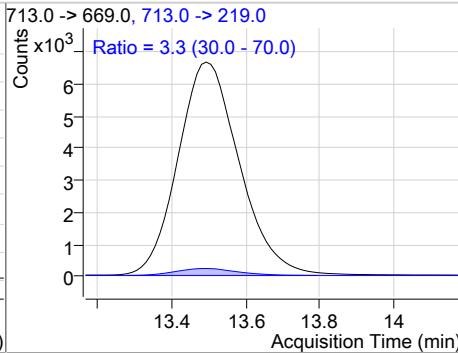
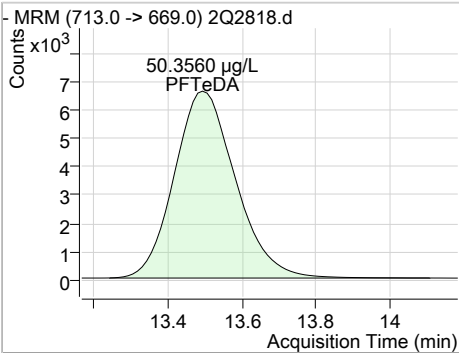
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	50.31	10.93	-0.01	186859	613.0 -> 169.0	1.2	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	50.76	12.28	-0.01	151273	663.0 -> 369.0	4.1	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	50.36	13.49	-0.02	76120	713.0 -> 219.0	3.3	30.0	70.0



7.5.20  
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# Manual Integration Approval Summary

Sample Number: S2Q70-IC70                      Method: EPA 537 MOD  
Lab FileID: 2Q2818.D                      Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 13:39                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.06	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.24	Split peak

7.5.20.1

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Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)

Mike Eger  
 06/28/17 12:09

### Perfluorinated Compounds by LC/MS/MS

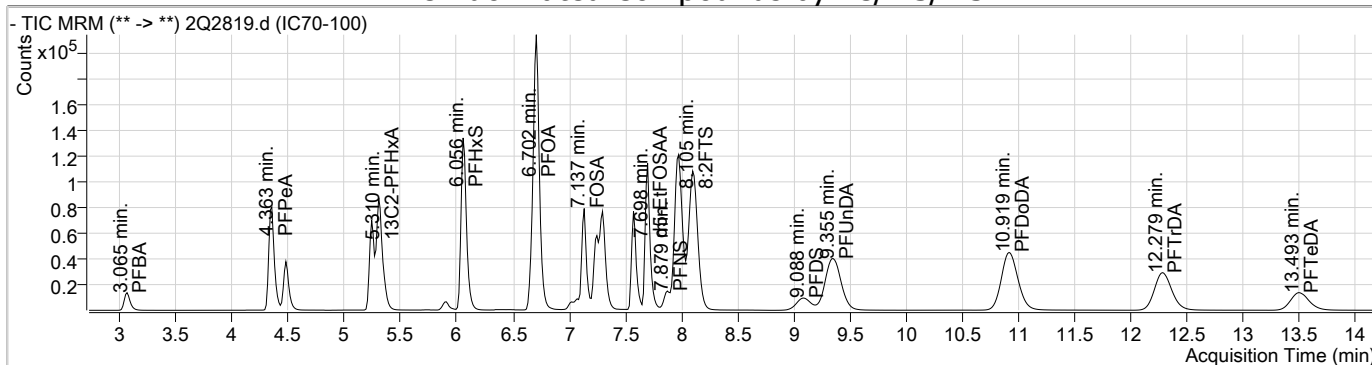
Data File : 2Q2819.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 1:59:20 PM  
 Sample Name : IC70-100  
 Vial : Vial 9  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65591,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.724	429.0 -> 409.0	86223	20.00 µg/L	-0.013
13C2-PFDoDA	10.915	615.0 -> 570.0	79263	20.00 µg/L	-0.038
13C2-PFOA	6.701	415.0 -> 370.0	40402	20.00 µg/L	-0.027
13C3-PFPeA	4.360	266.0 -> 222.0	32292	20.00 µg/L	-0.025
13C4-PFOS	7.250	503.0 -> 80.0	24143	20.00 µg/L	-0.013
d3-MeFOSAA	7.575	573.0 -> 419.0	34145	20.00 µg/L	-0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	7.982	515.0 -> 470.0	345464	98.62 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 493.1%	
13C2-PFHxA	5.310	315.0 -> 270.0	187620	99.52 µg/L	-0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 497.6%	
d5-EtFOSAA	7.698	589.0 -> 419.0	178861	98.77 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 493.8%	
<b>Target Compounds</b>					
4:2FTS	5.245	327.0 -> 307.0	227183	99.75 µg/L	100
6:2FTS	6.711	427.0 -> 407.0	370971	99.81 µg/L	100
8:2FTS	8.105	527.0 -> 507.0	574708	99.77 µg/L	100
EtFOSAA	7.699	584.0 -> 419.0	161869	99.73 µg/L	100
FOSA	7.137	498.0 -> 78.0	230863	99.83 µg/L	100
MeFOSAA	7.576	570.0 -> 419.0	193971	99.80 µg/L	100
PFBA	3.065	213.0 -> 169.0	50422	100.34 µg/L	100
PFBS	4.479	299.0 -> 80.0	87360	101.02 µg/L	99
PFDA	7.984	513.0 -> 469.0	211815	99.93 µg/L	# 47
PFDoDA	10.919	613.0 -> 569.0	377621	100.45 µg/L	# 29
PFDS	9.088	599.0 -> 80.0	86336	101.04 µg/L	100
PFHpA	6.061	363.0 -> 319.0	294185	100.64 µg/L	93
PFHpS	6.670	449.0 -> 80.0	123343	100.39 µg/L	100
PFHxA	5.312	313.0 -> 269.0	84399	99.56 µg/L	85
PFHxS	6.056	399.0 -> 80.0	112675	99.55 µg/L	m 93
PFNA	7.306	463.0 -> 419.0	207613	100.47 µg/L	97
PFNS	7.879	549.0 -> 99.0	58999	100.39 µg/L	100
PFOA	6.702	413.0 -> 369.0	174259	100.19 µg/L	95
PFOS	7.239	499.0 -> 80.0	148273	100.67 µg/L	m 90
PFPeA	4.363	263.0 -> 219.0	246961	100.44 µg/L	100
PFPeS	5.355	349.0 -> 99.0	29066	100.39 µg/L	100
PFTeDA	13.493	713.0 -> 669.0	153367	100.24 µg/L	# 32
PFTrDA	12.279	663.0 -> 619.0	301391	99.93 µg/L	# 33
PFUnDA	9.355	563.0 -> 519.0	364765	100.58 µg/L	# 41

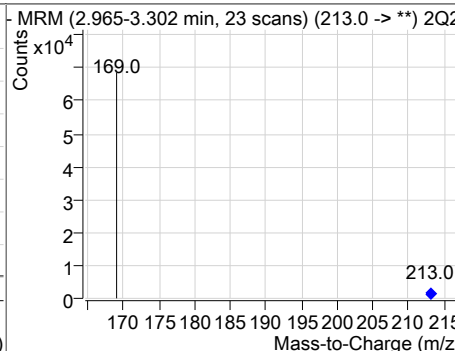
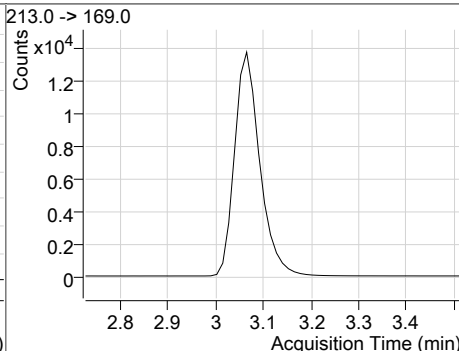
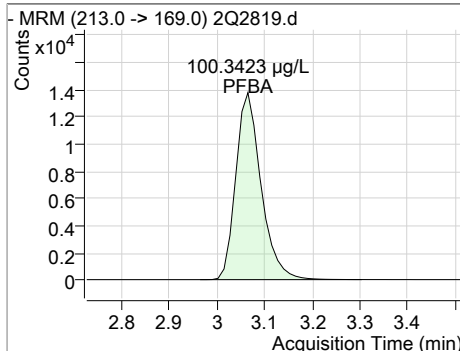
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7.5.21  
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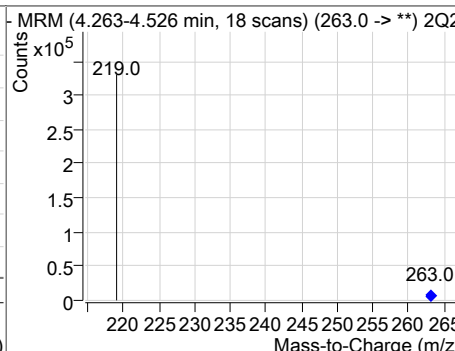
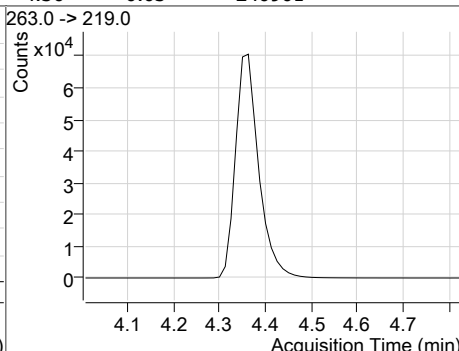
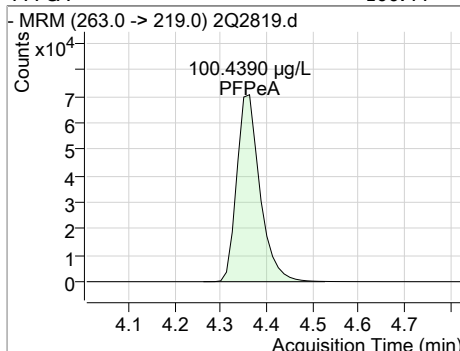
### Perfluorinated Compounds by LC/MS/MS



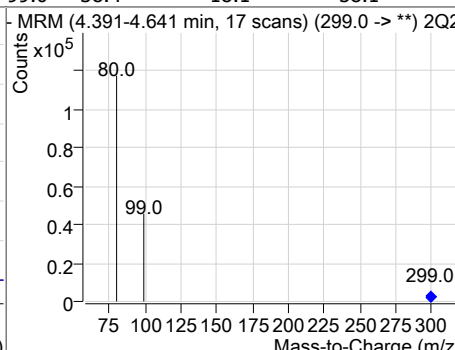
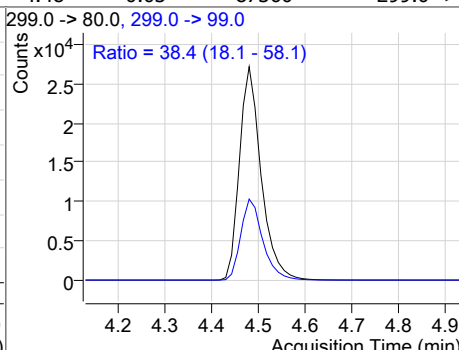
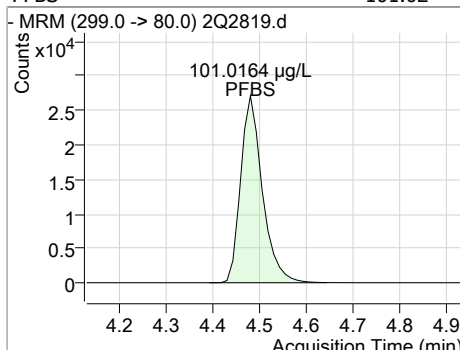
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	100.34	3.06	-0.03	50422				



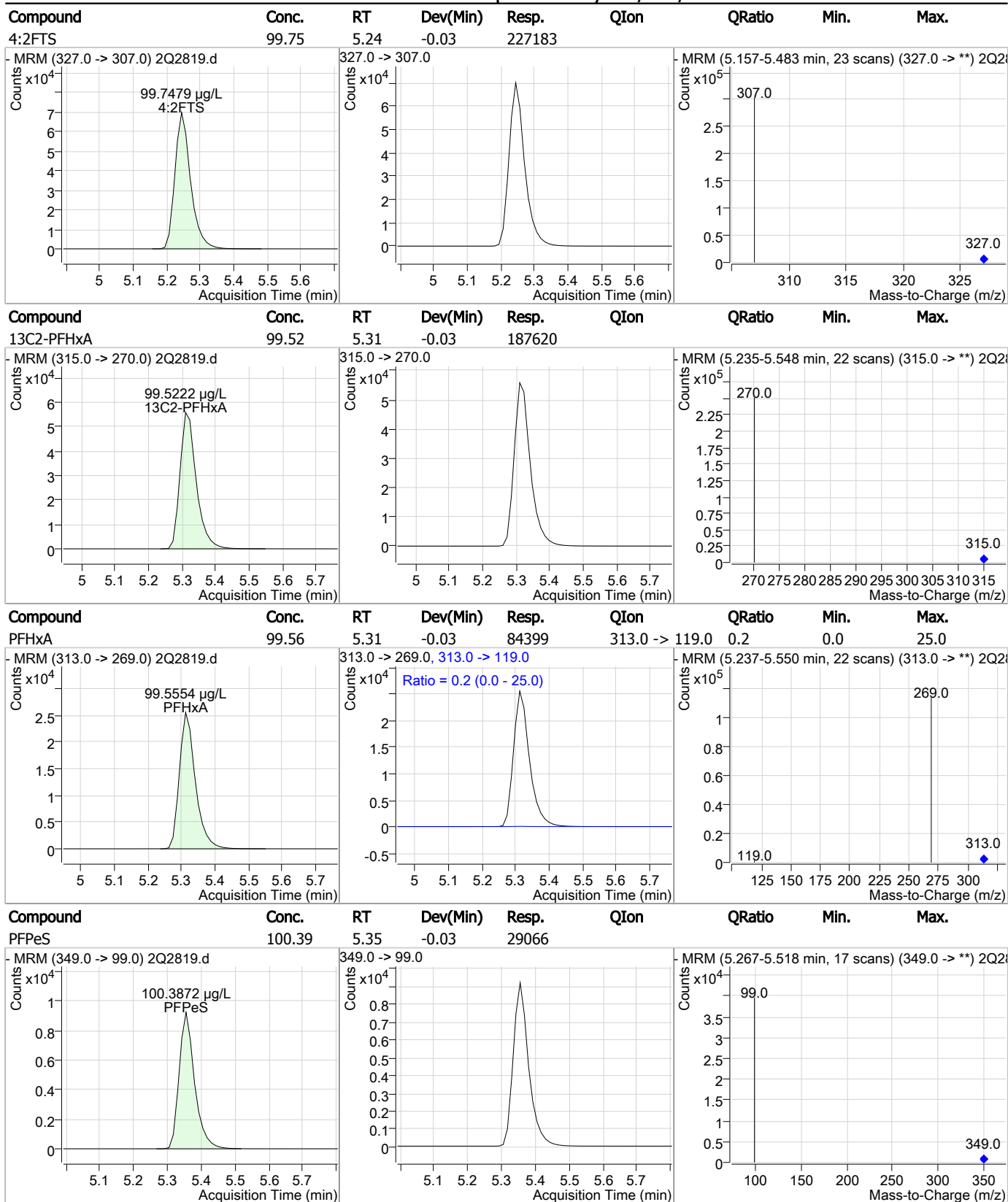
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	100.44	4.36	-0.03	246961				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	101.02	4.48	-0.03	87360	299.0 -> 99.0	38.4	18.1	58.1



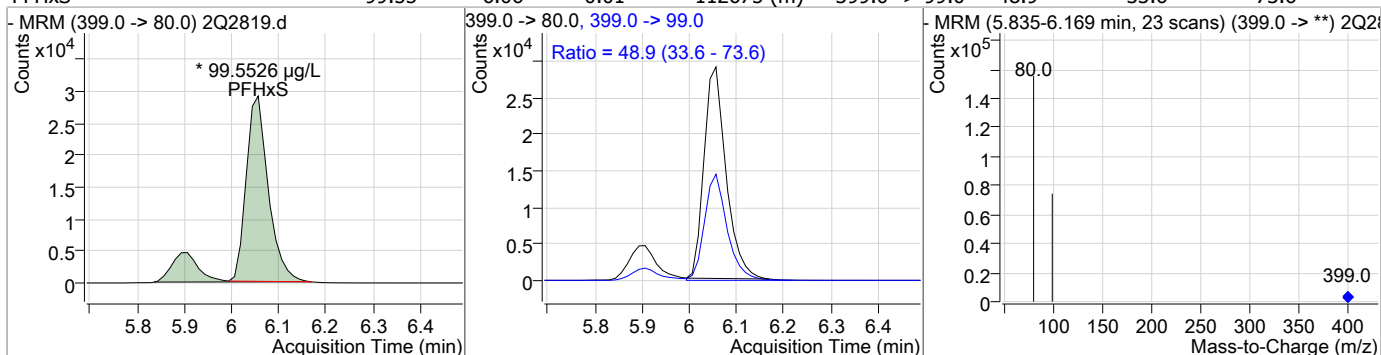
### Perfluorinated Compounds by LC/MS/MS



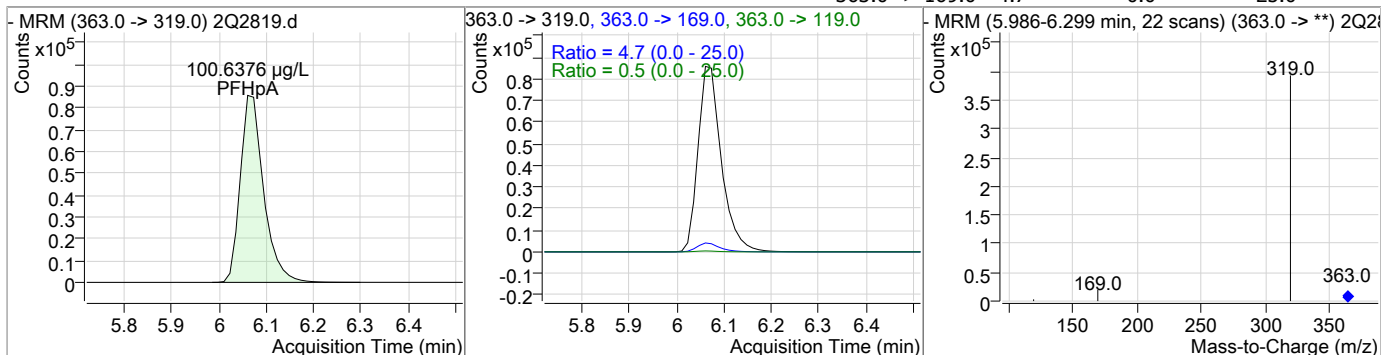
7.5.21  
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### Perfluorinated Compounds by LC/MS/MS

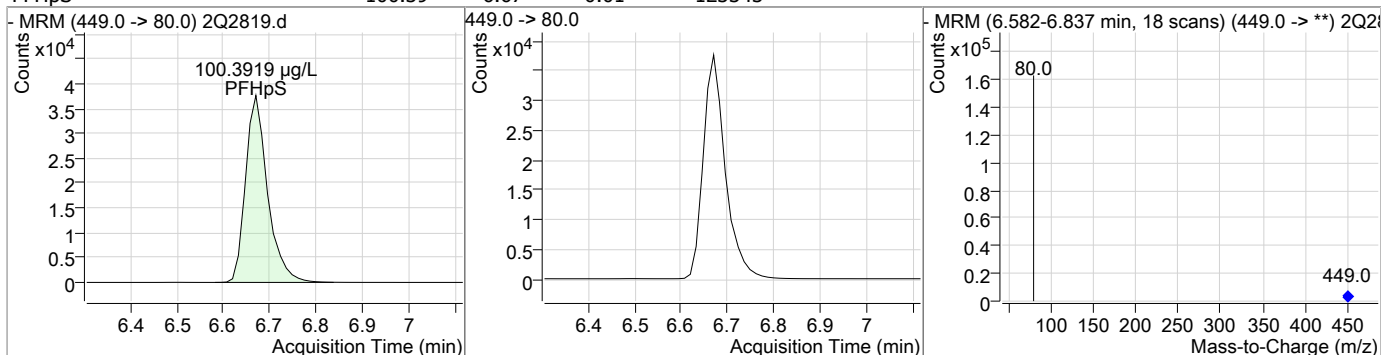
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	99.55	6.06	-0.01	112675 (m)	399.0 -> 99.0	48.9	33.6	73.6



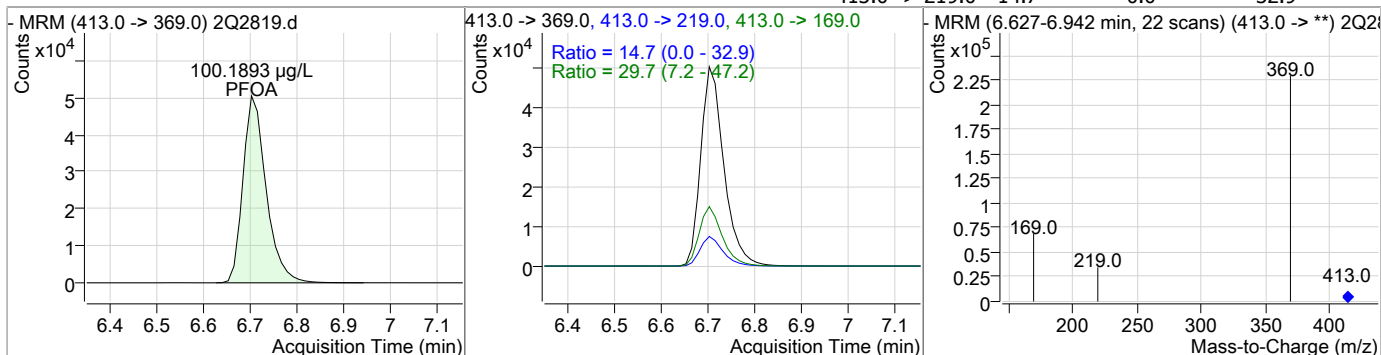
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	100.64	6.06	-0.03	294185	363.0 -> 119.0 363.0 -> 169.0	0.5 4.7	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	100.39	6.67	-0.01	123343	449.0 -> 80.0			

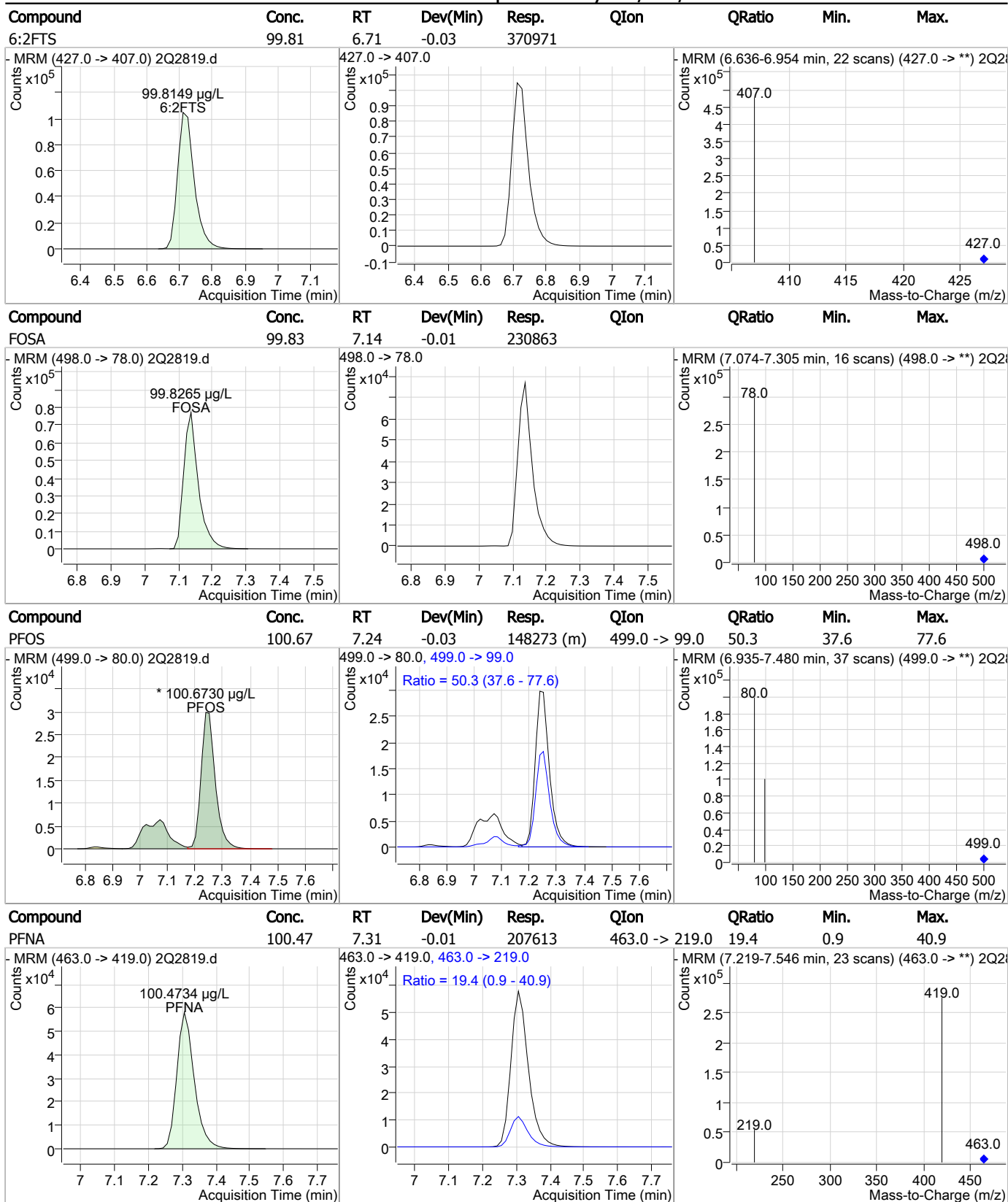


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	100.19	6.70	-0.03	174259	413.0 -> 169.0 413.0 -> 219.0	29.7 14.7	7.2 0.0	47.2 32.9



7.5.21  
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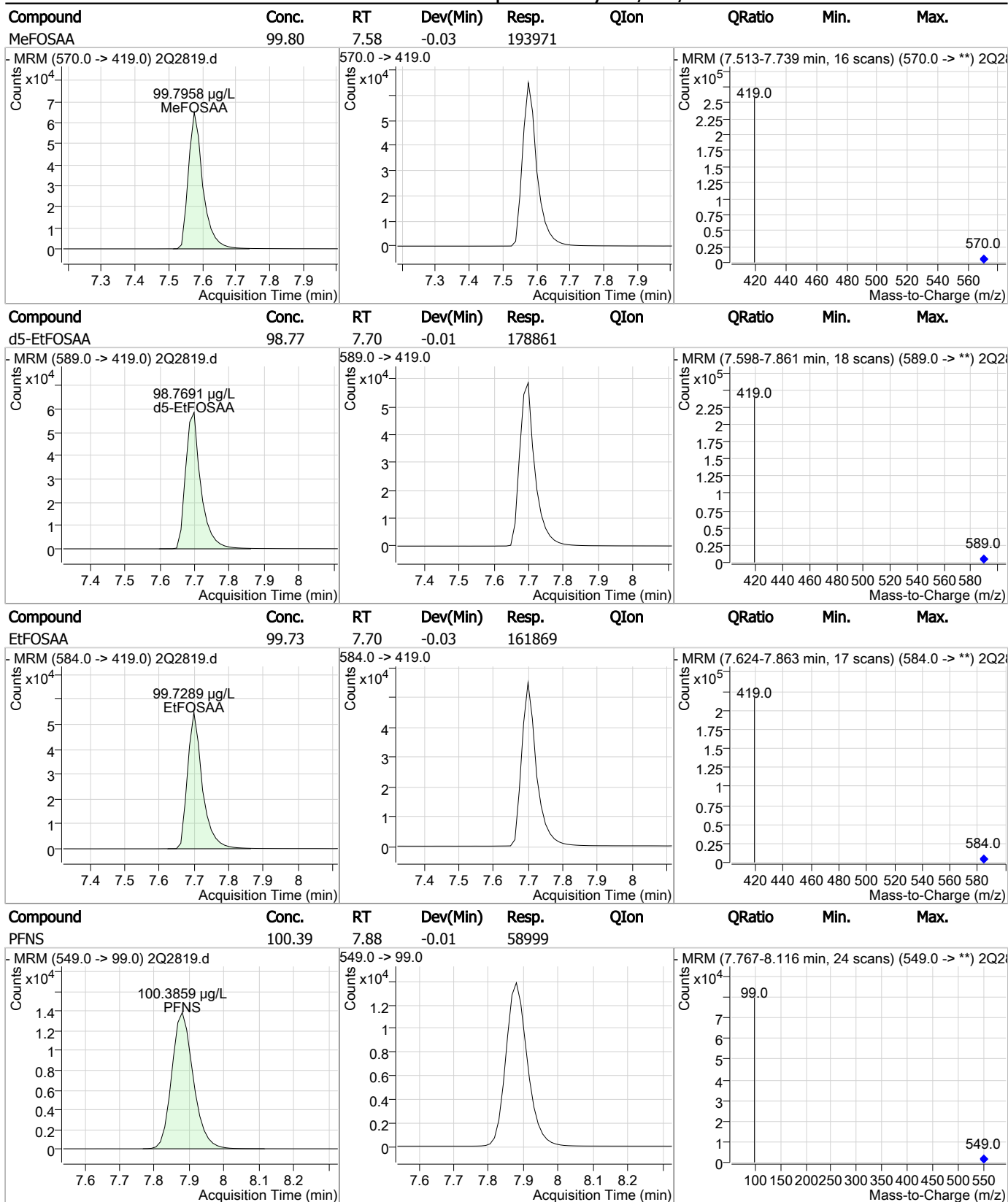
### Perfluorinated Compounds by LC/MS/MS



7.5.21  
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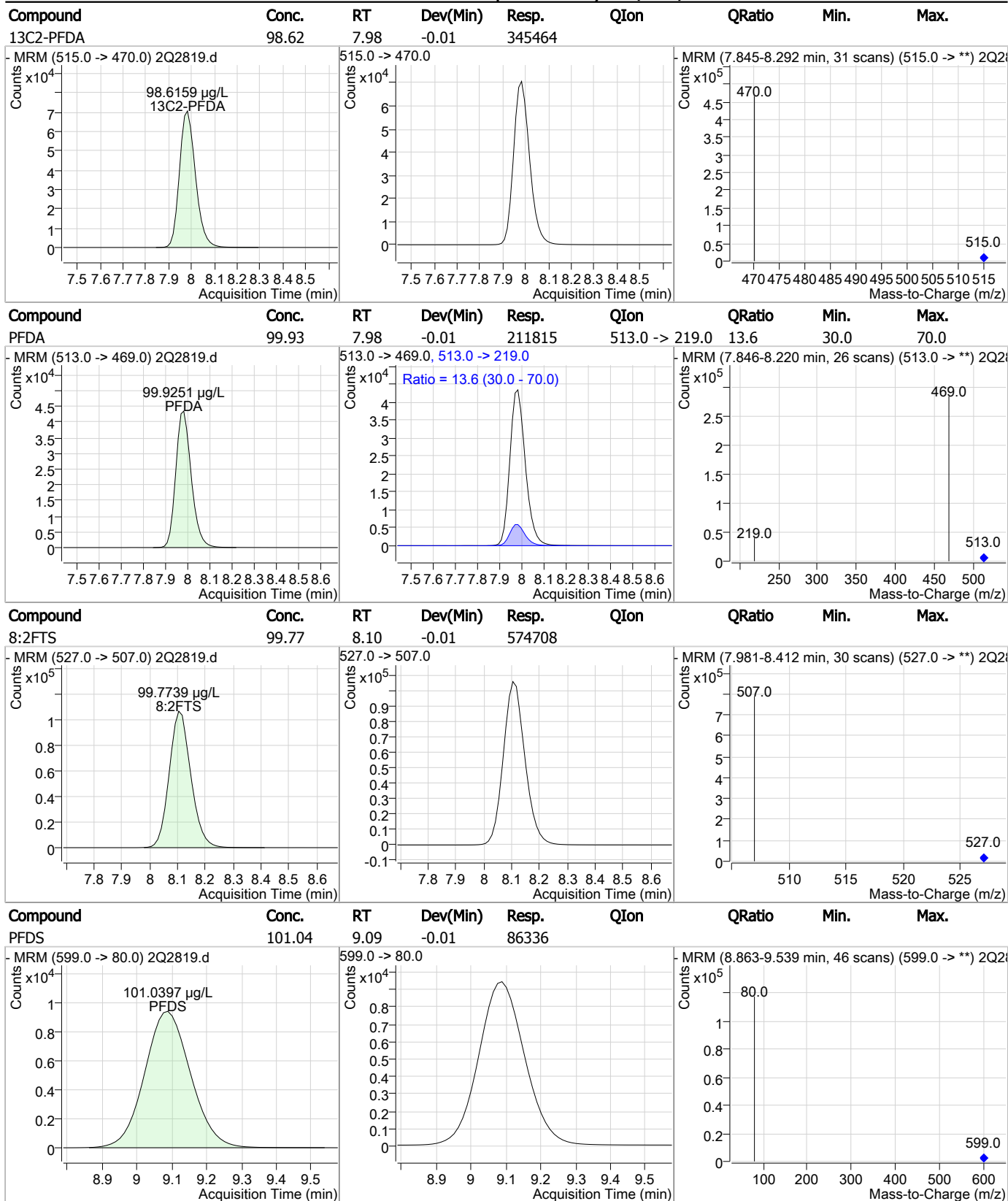


### Perfluorinated Compounds by LC/MS/MS



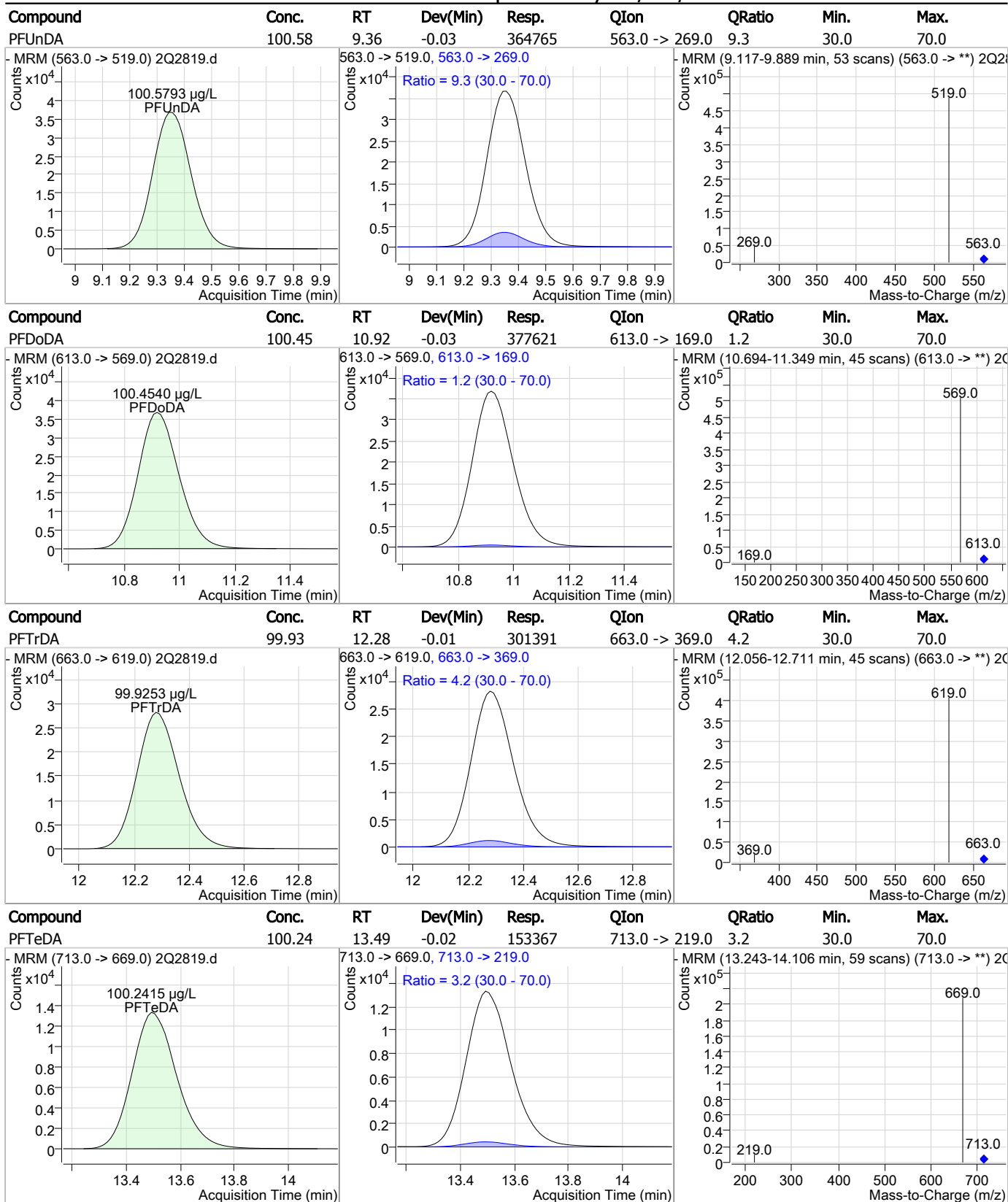
7.5.21  
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### Perfluorinated Compounds by LC/MS/MS



7.5.21  
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### Perfluorinated Compounds by LC/MS/MS



7.5.21  
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# Manual Integration Approval Summary

Sample Number: S2Q70-IC70                      Method: EPA 537 MOD  
Lab FileID: 2Q2819.D                      Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 13:59                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.06	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.24	Split peak

7.5.21.1

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Perfluorinated Compounds by LC/MS/MS

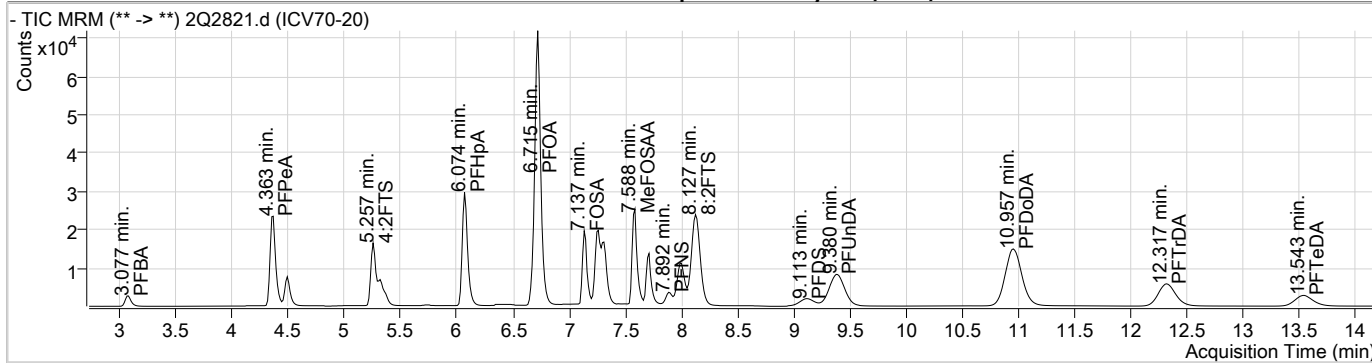
Data File : 2Q2821.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 2:37:59 PM  
 Sample Name : ICV70-20  
 Vial : Vial 11  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65503,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
13C2-6:2FTS	6.724	429.0 -> 409.0	74232	20.00	µg/L	-0.013
13C2-PFDoDA	10.953	615.0 -> 570.0	77157	20.00	µg/L	0.000
13C2-PFOA	6.713	415.0 -> 370.0	40223	20.00	µg/L	-0.014
13C3-PFPeA	4.372	266.0 -> 222.0	32065	20.00	µg/L	-0.013
13C4-PFOS	7.263	503.0 -> 80.0	24415	20.00	µg/L	0.000
d3-MeFOSAA	7.575	573.0 -> 419.0	33753	20.00	µg/L	-0.013
<b>System Monitoring Compounds</b>						
13C2-PFDA	-	515.0 -> 470.0	-	N.D.		
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%		
13C2-PFHxA	-	315.0 -> 270.0	-	N.D.		
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%		
d5-EtFOSAA	7.698	589.0 -> 419.0	0	0.00	µg/L	m -0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = NA%		
<b>Target Compounds</b>						
4:2FTS	5.257	327.0 -> 307.0	53001	23.82	µg/L	QValue 100
6:2FTS	6.726	427.0 -> 407.0	85361	22.76	µg/L	100
8:2FTS	8.127	527.0 -> 507.0	124466	22.65	µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	38008	22.54	µg/L	100
FOSA	7.137	498.0 -> 78.0	57454	22.32	µg/L	100
MeFOSAA	7.588	570.0 -> 419.0	43082	22.39	µg/L	100
PFBA	3.077	213.0 -> 169.0	10154	20.30	µg/L	100
PFBS	4.491	299.0 -> 80.0	17390	19.88	µg/L	99
PFDA	8.009	513.0 -> 469.0	44690	21.16	µg/L	# 48
PFDoDA	10.957	613.0 -> 569.0	75701	20.69	µg/L	# 29
PFDS	9.113	599.0 -> 80.0	17412	20.15	µg/L	100
PFHpA	6.074	363.0 -> 319.0	59425	20.42	µg/L	93
PFHpS	6.683	449.0 -> 80.0	27050	21.77	µg/L	100
PFHxA	5.325	313.0 -> 269.0	17701	20.97	µg/L	86
PFHxS	6.056	399.0 -> 80.0	24436	21.35	µg/L	91
PFNA	7.319	463.0 -> 419.0	42082	20.46	µg/L	97
PFNS	7.892	549.0 -> 99.0	13443	22.62	µg/L	100
PFOA	6.715	413.0 -> 369.0	35010	20.22	µg/L	94
PFOS	7.252	499.0 -> 80.0	27385	18.39	µg/L	97
PFPeA	4.363	263.0 -> 219.0	49739	20.37	µg/L	100
PFPeS	5.367	349.0 -> 99.0	6295	21.89	µg/L	100
PFTeDA	13.543	713.0 -> 669.0	30832	20.70	µg/L	# 32
PFTrDA	12.317	663.0 -> 619.0	60428	20.58	µg/L	# 34
PFUnDA	9.380	563.0 -> 519.0	72742	20.61	µg/L	# 41

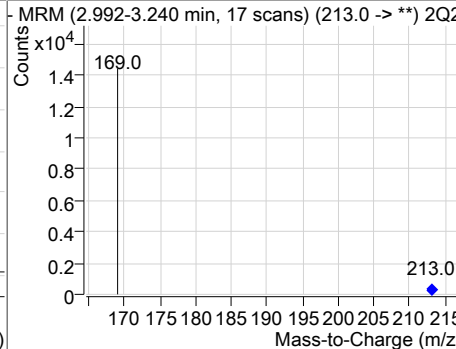
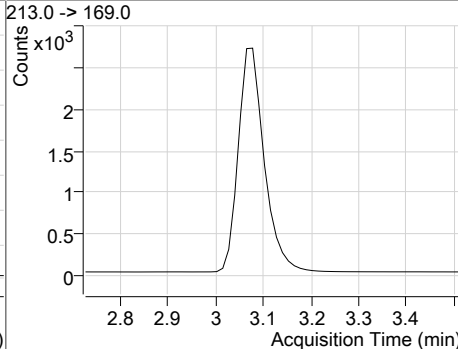
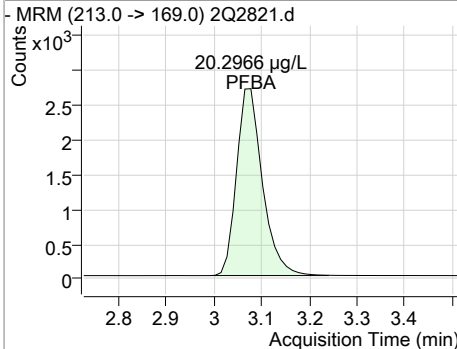
# = Qualifier out of range, m = manually integrated, + = Area summed

7.5.22  
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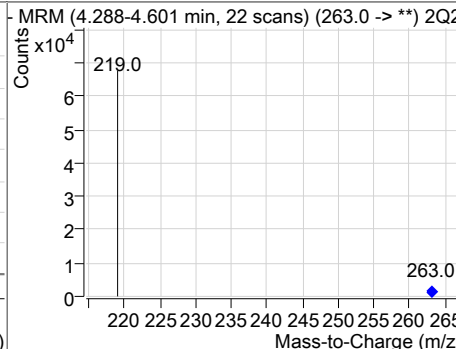
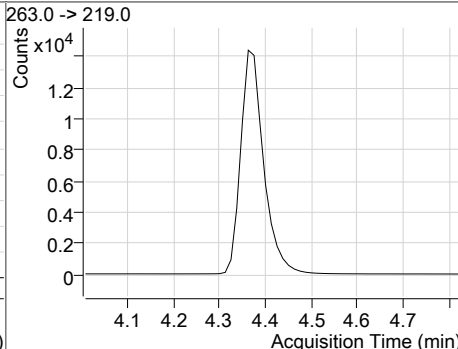
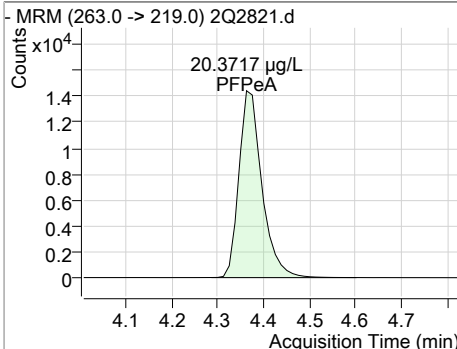
### Perfluorinated Compounds by LC/MS/MS



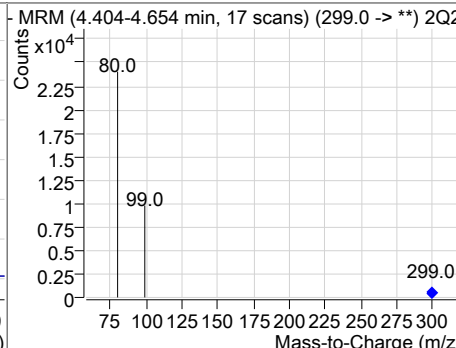
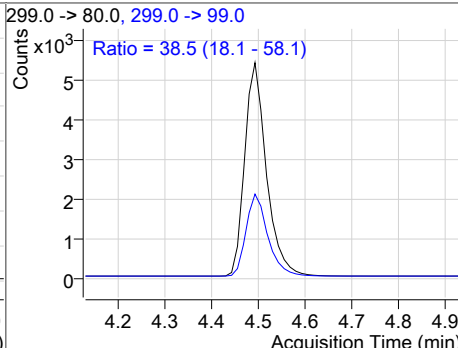
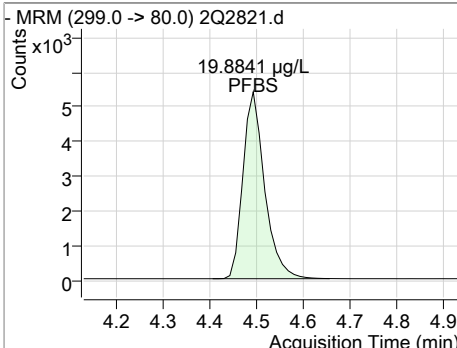
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	20.30	3.08	-0.01	10154				



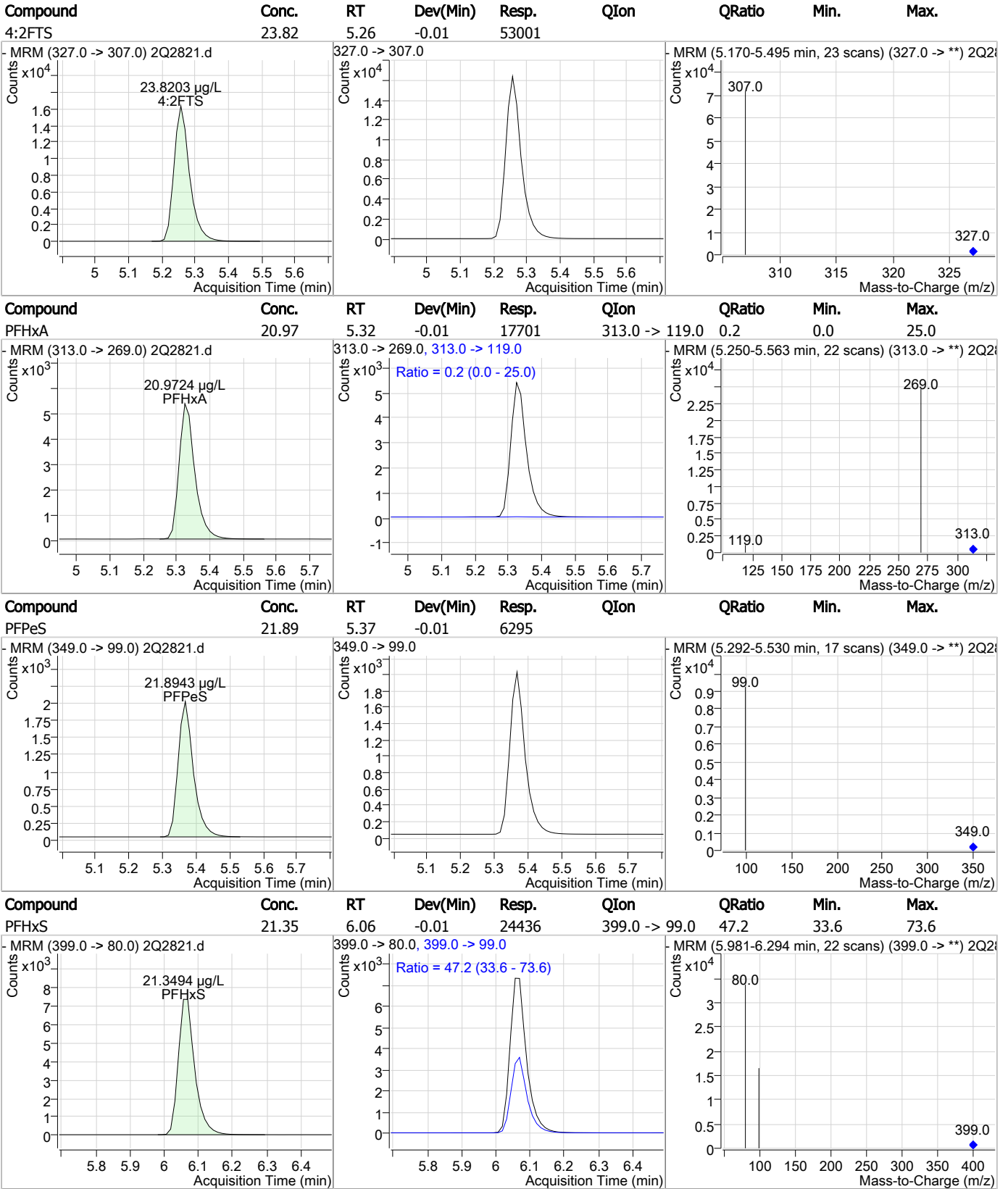
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	20.37	4.36	-0.03	49739				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	19.88	4.49	-0.01	17390	299.0 -> 99.0	38.5	18.1	58.1



### Perfluorinated Compounds by LC/MS/MS

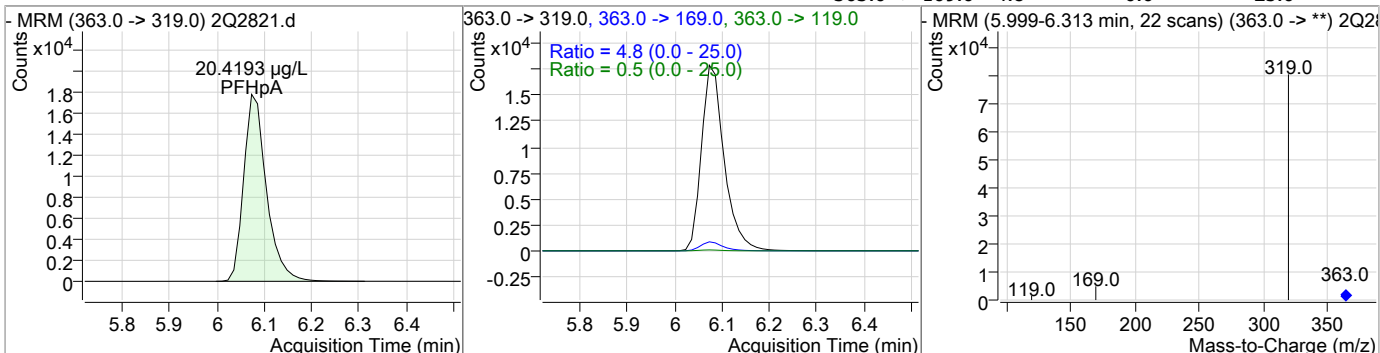


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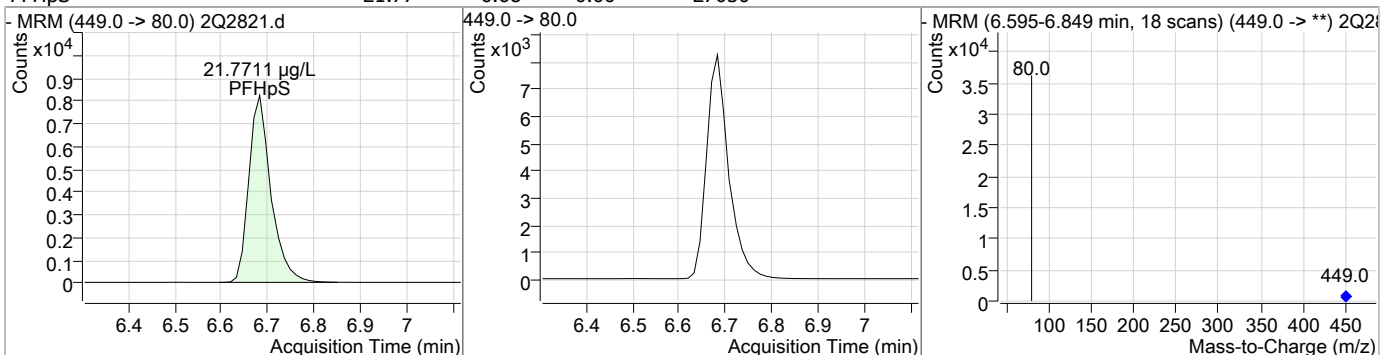
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### Perfluorinated Compounds by LC/MS/MS

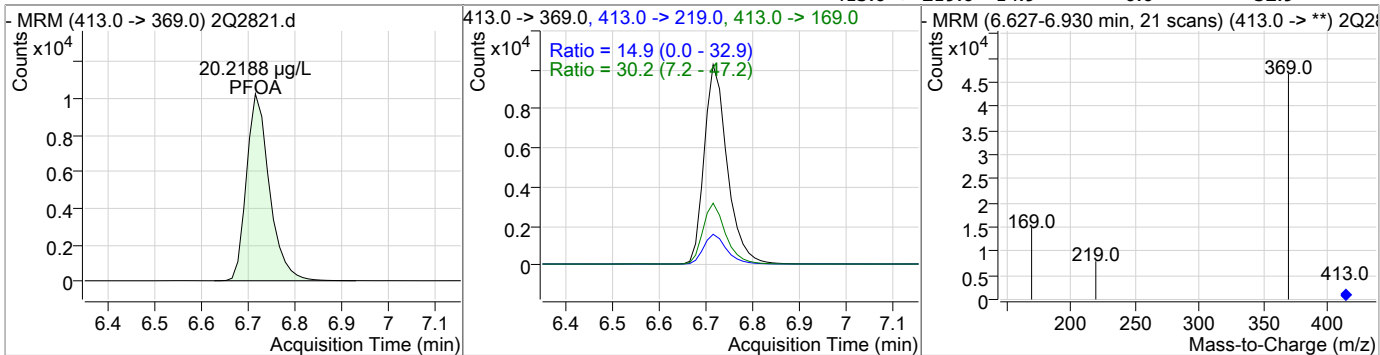
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.42	6.07	-0.01	59425	363.0 -> 119.0	0.5	0.0	25.0
					363.0 -> 169.0	4.8	0.0	25.0



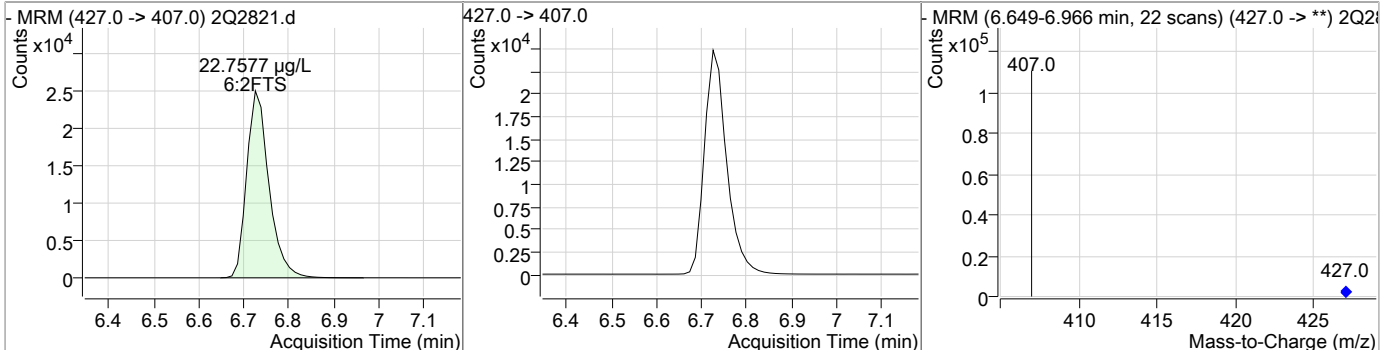
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	21.77	6.68	0.00	27050				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	20.22	6.71	-0.01	35010	413.0 -> 169.0	30.2	7.2	47.2
					413.0 -> 219.0	14.9	0.0	32.9



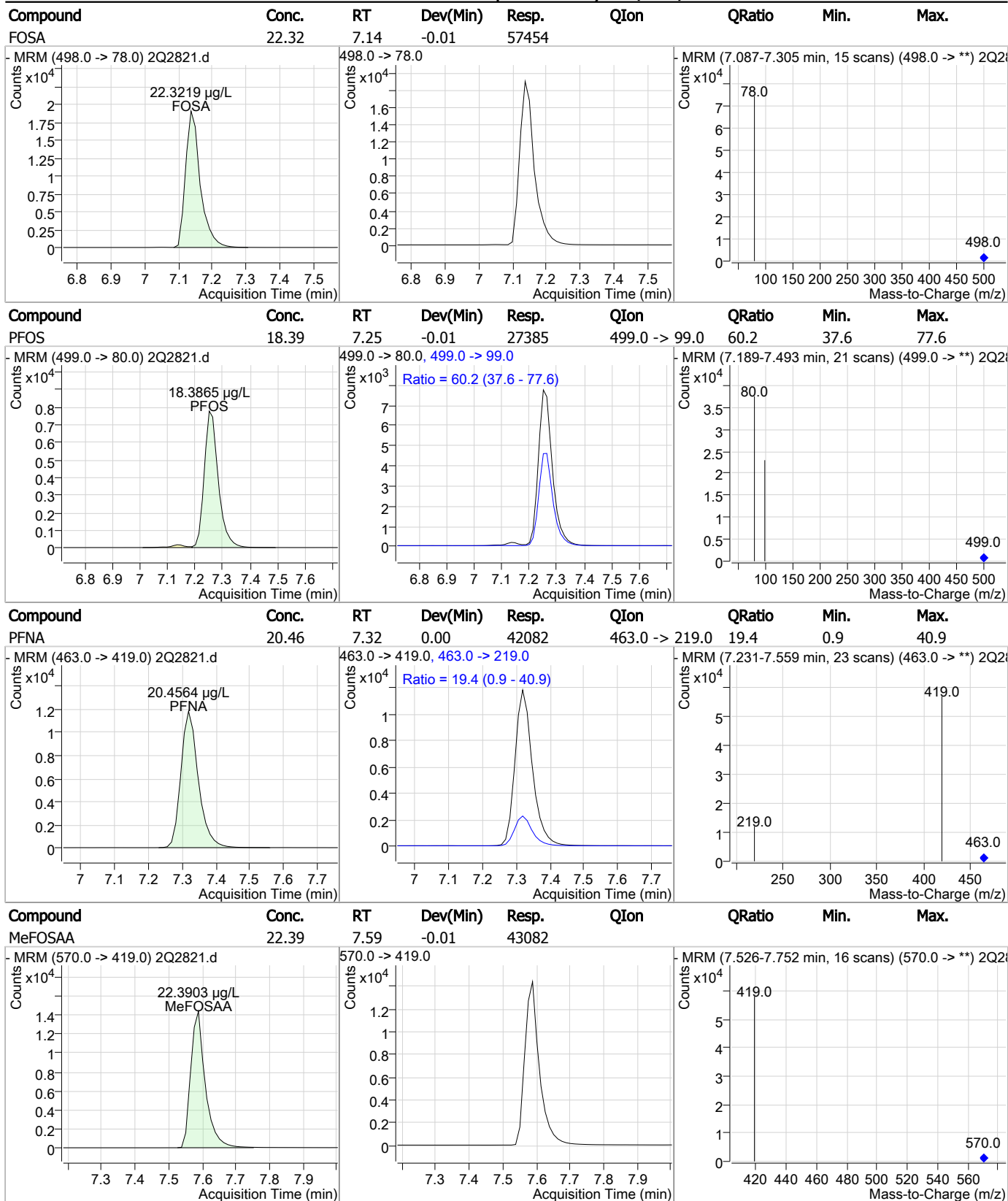
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	22.76	6.73	-0.01	85361				



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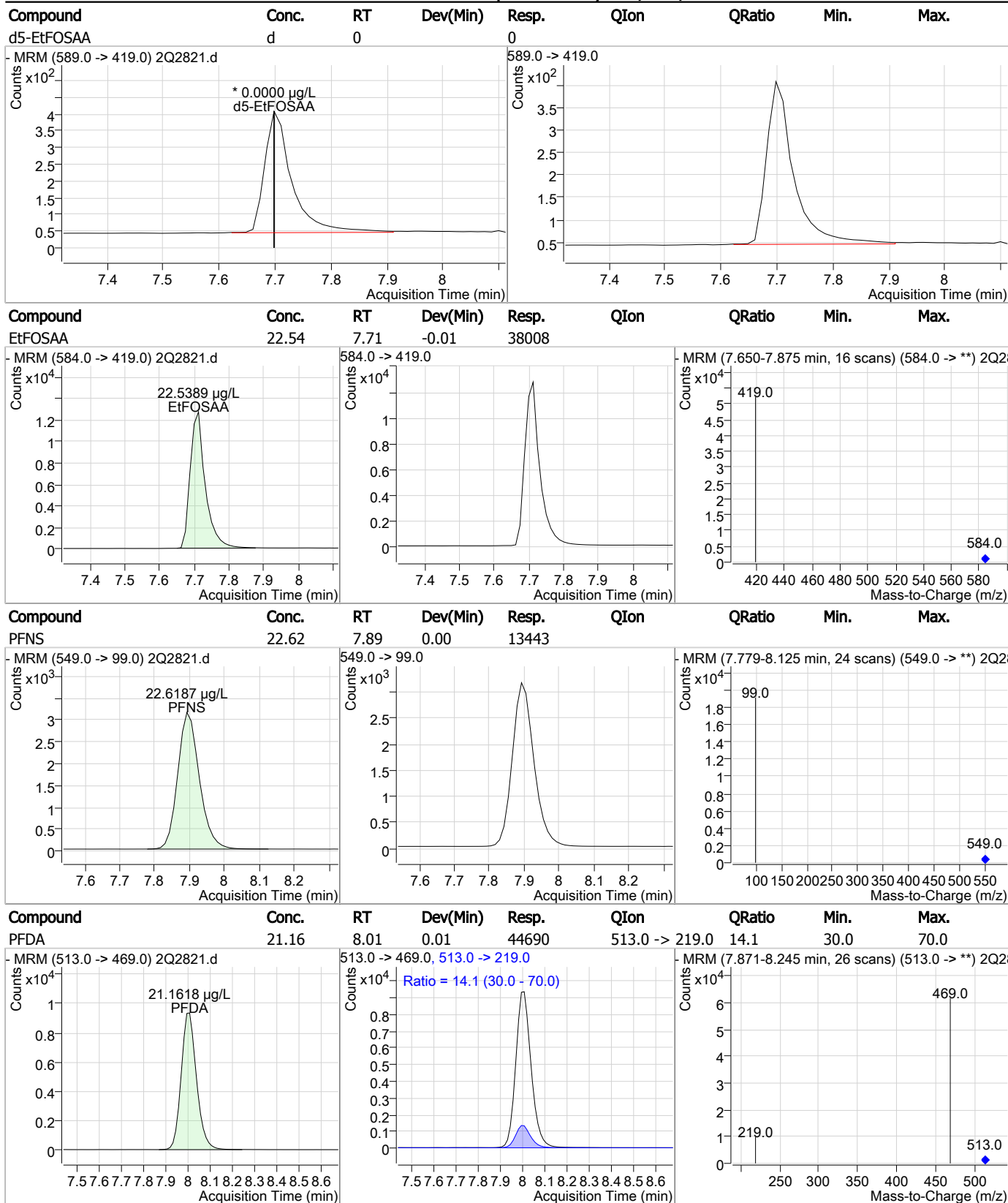


### Perfluorinated Compounds by LC/MS/MS



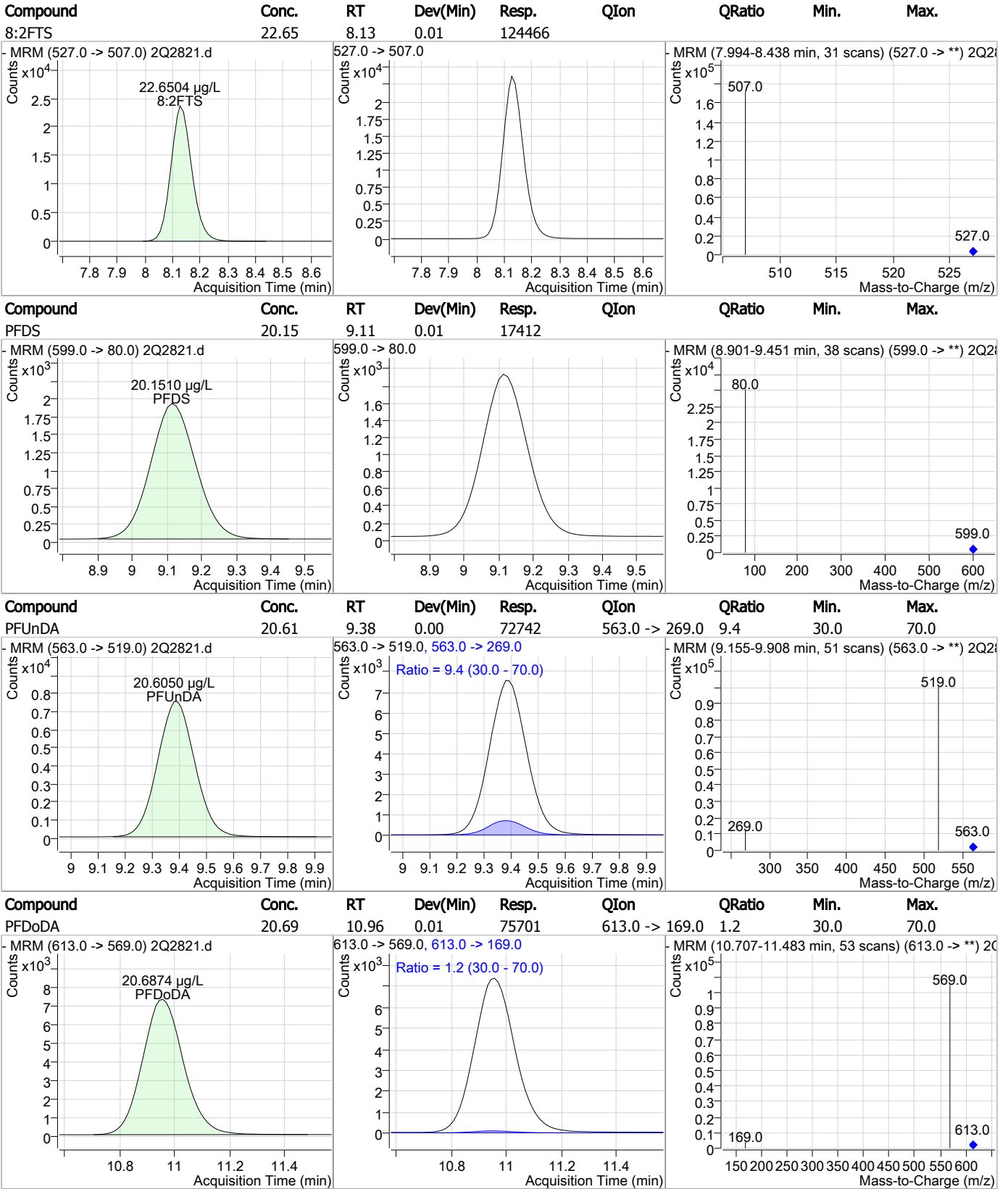
7.5.22  
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### Perfluorinated Compounds by LC/MS/MS



7.5.22  
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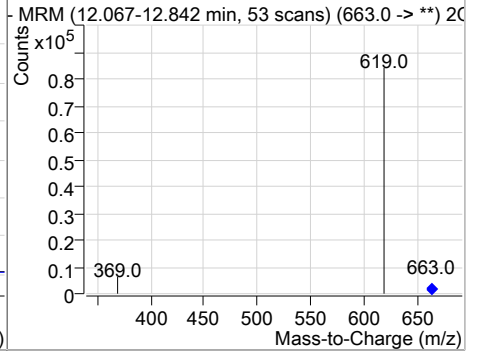
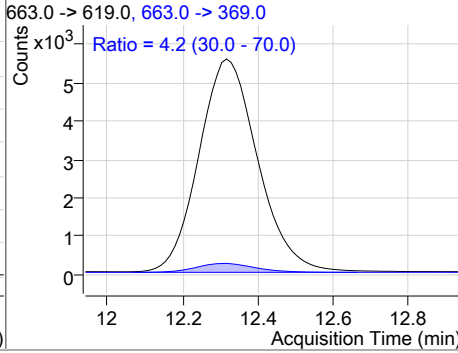
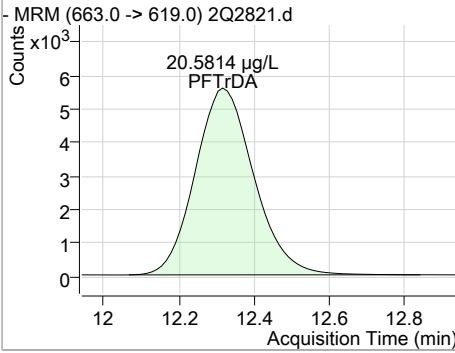
### Perfluorinated Compounds by LC/MS/MS



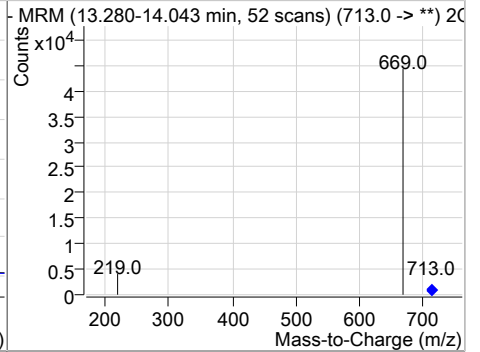
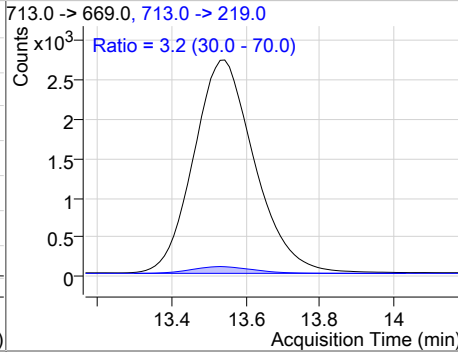
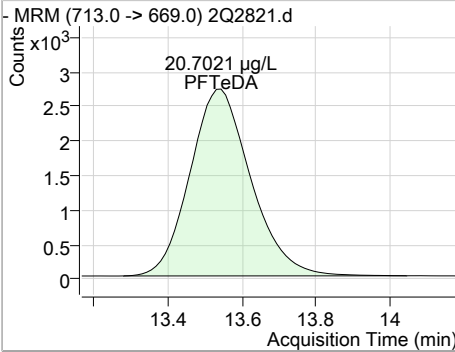
7.5.22  
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### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTTrDA	20.58	12.32	0.03	60428	663.0 -> 369.0	4.2	30.0	70.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.70	13.54	0.03	30832	713.0 -> 219.0	3.2	30.0	70.0



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### Perfluorinated Compounds by LC/MS/MS

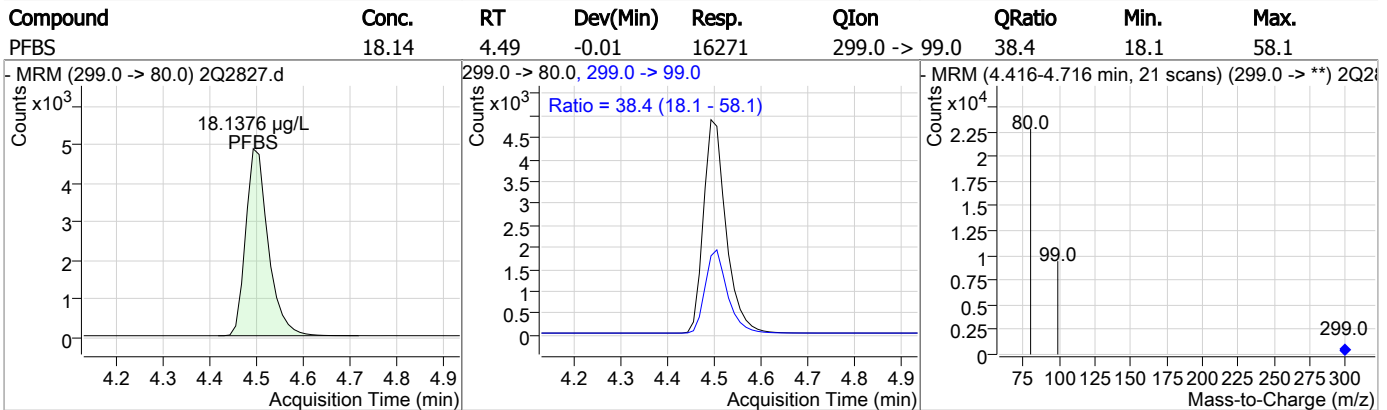
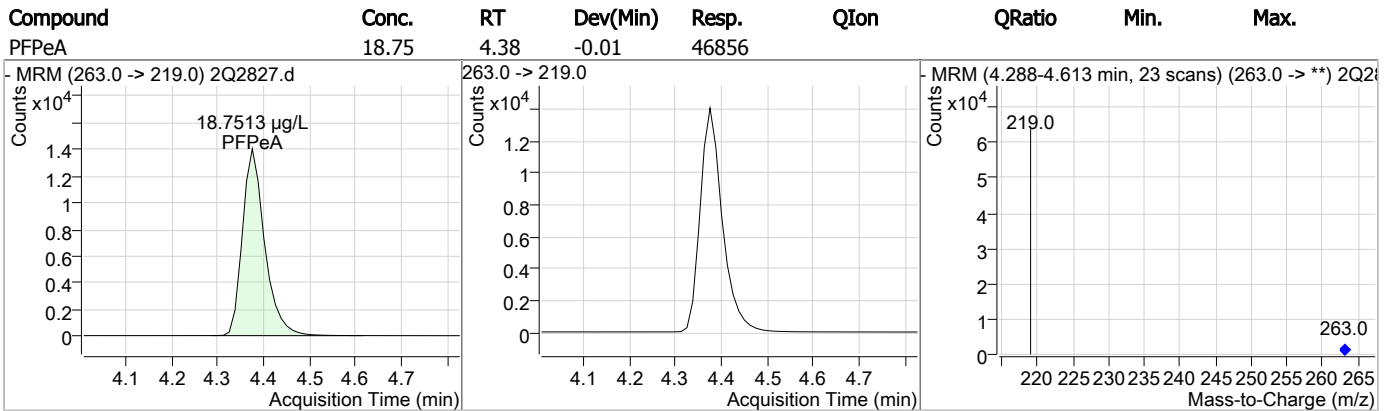
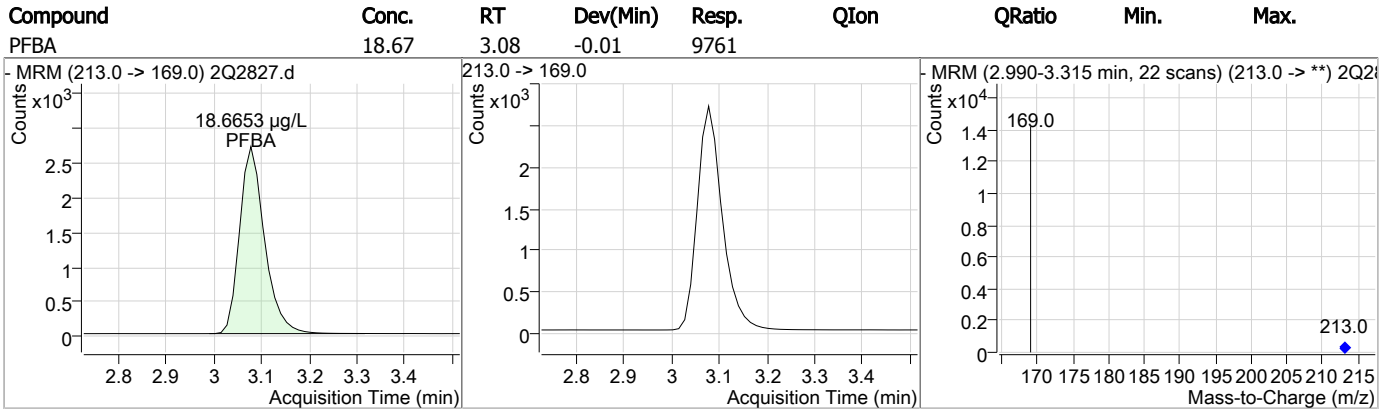
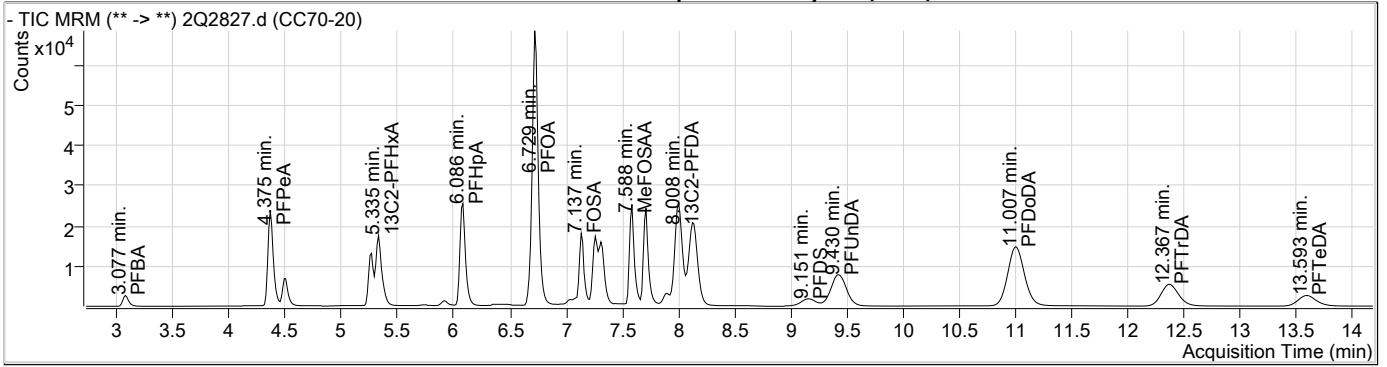
Data File : 2Q2827.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 4:42:51 PM  
 Sample Name : CC70-20  
 Vial : Vial 6  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65503,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	75495	20.00 µg/L	0.000
13C2-PFDoDA	11.003	615.0 -> 570.0	80231	20.00 µg/L	0.050
13C2-PFOA	6.727	415.0 -> 370.0	42046	20.00 µg/L	0.000
13C3-PFPeA	4.372	266.0 -> 222.0	32817	20.00 µg/L	-0.013
13C4-PFOS	7.263	503.0 -> 80.0	25044	20.00 µg/L	0.000
d3-MeFOSAA	7.587	573.0 -> 419.0	35622	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.008	515.0 -> 470.0	70713	19.40 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 97.0%		
13C2-PFHxA	5.335	315.0 -> 270.0	36903	18.81 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 94.0%		
d5-EtFOSAA	7.711	589.0 -> 419.0	37425	19.81 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 99.0%		
<b>Target Compounds</b>					
4:2FTS	5.270	327.0 -> 307.0	43414	19.04 µg/L	QValue 100
6:2FTS	6.738	427.0 -> 407.0	74460	19.39 µg/L	100
8:2FTS	8.127	527.0 -> 507.0	107726	19.19 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	33282	18.66 µg/L	100
FOSA	7.137	498.0 -> 78.0	51765	18.96 µg/L	100
MeFOSAA	7.588	570.0 -> 419.0	38599	19.01 µg/L	100
PFBA	3.077	213.0 -> 169.0	9761	18.67 µg/L	100
PFBS	4.491	299.0 -> 80.0	16271	18.14 µg/L	100
PFDA	8.009	513.0 -> 469.0	41858	18.96 µg/L	# 48
PFDoDA	11.007	613.0 -> 569.0	70839	18.62 µg/L	# 29
PFDS	9.151	599.0 -> 80.0	16439	18.55 µg/L	100
PFHpA	6.086	363.0 -> 319.0	56670	18.63 µg/L	93
PFHpS	6.683	449.0 -> 80.0	23691	18.59 µg/L	100
PFHxA	5.337	313.0 -> 269.0	16836	19.08 µg/L	85
PFHxS	6.069	399.0 -> 80.0	22028	18.76 µg/L	m 92
PFNA	7.319	463.0 -> 419.0	40476	18.82 µg/L	95
PFNS	7.905	549.0 -> 99.0	11570	18.98 µg/L	100
PFOA	6.729	413.0 -> 369.0	34376	18.99 µg/L	97
PFOS	7.264	499.0 -> 80.0	28328	18.54 µg/L	m 88
PFPeA	4.375	263.0 -> 219.0	46856	18.75 µg/L	100
PFPeS	5.367	349.0 -> 99.0	5516	18.75 µg/L	100
PFTeDA	13.593	713.0 -> 669.0	29210	18.86 µg/L	# 32
PFTrDA	12.367	663.0 -> 619.0	56565	18.53 µg/L	# 34
PFUnDA	9.430	563.0 -> 519.0	68636	18.70 µg/L	# 41

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

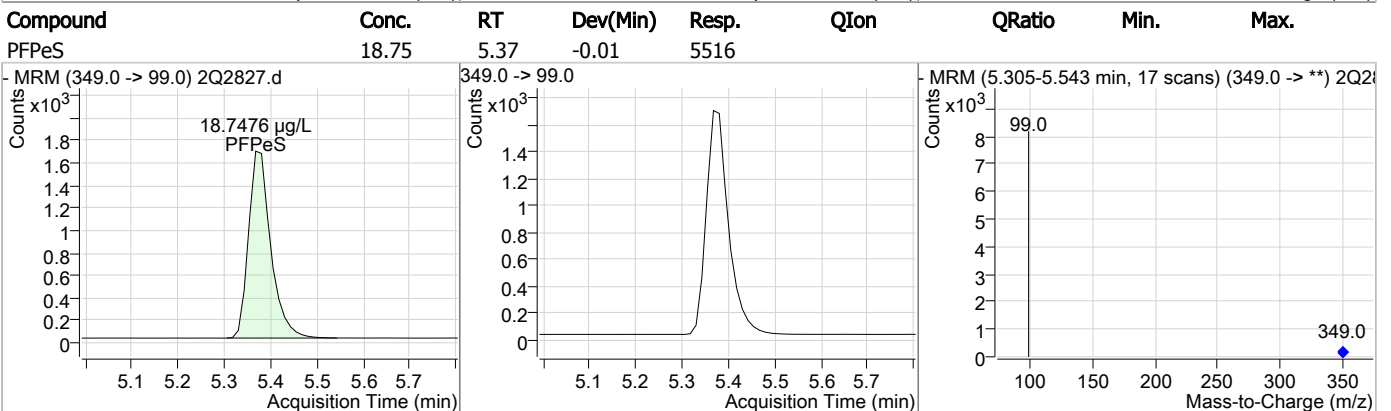
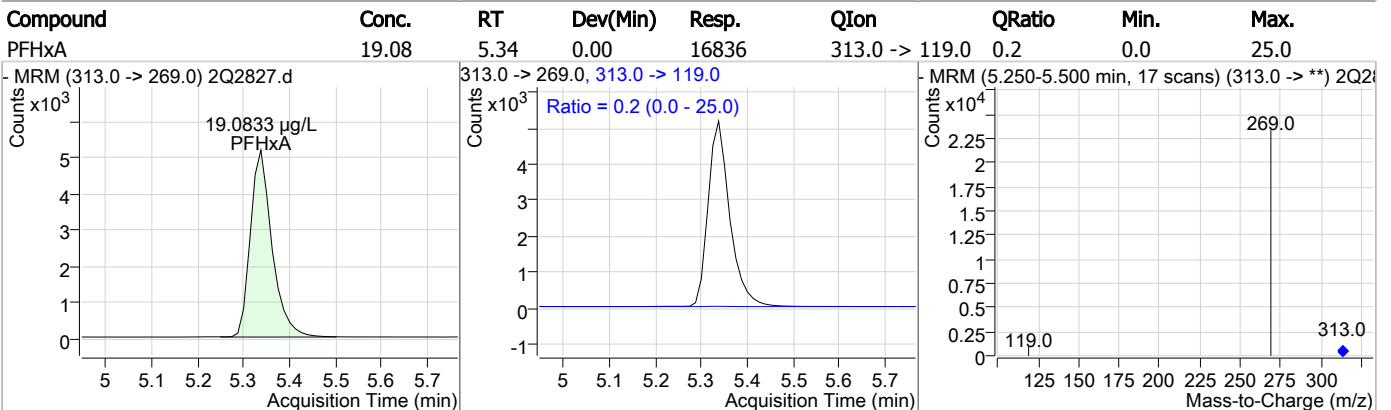
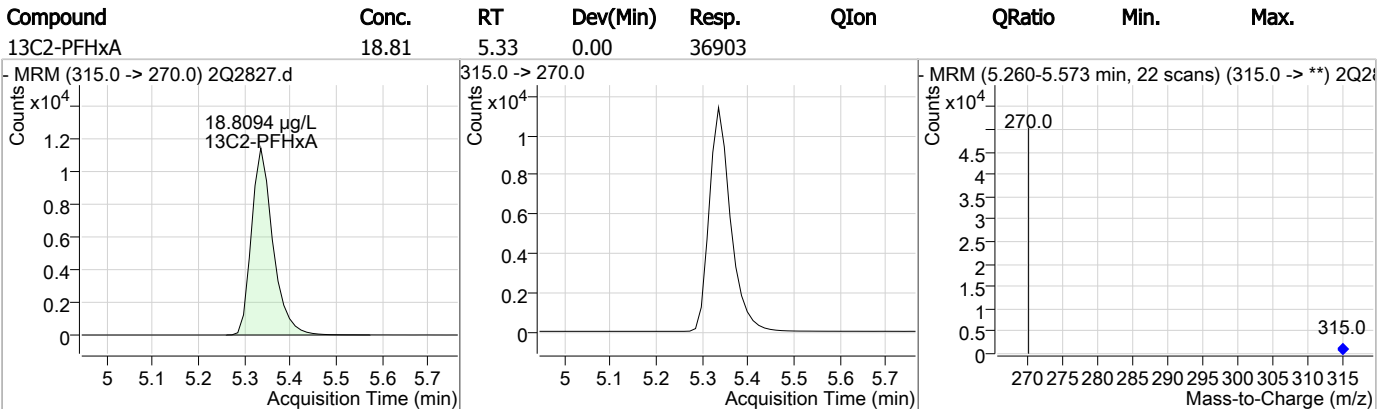
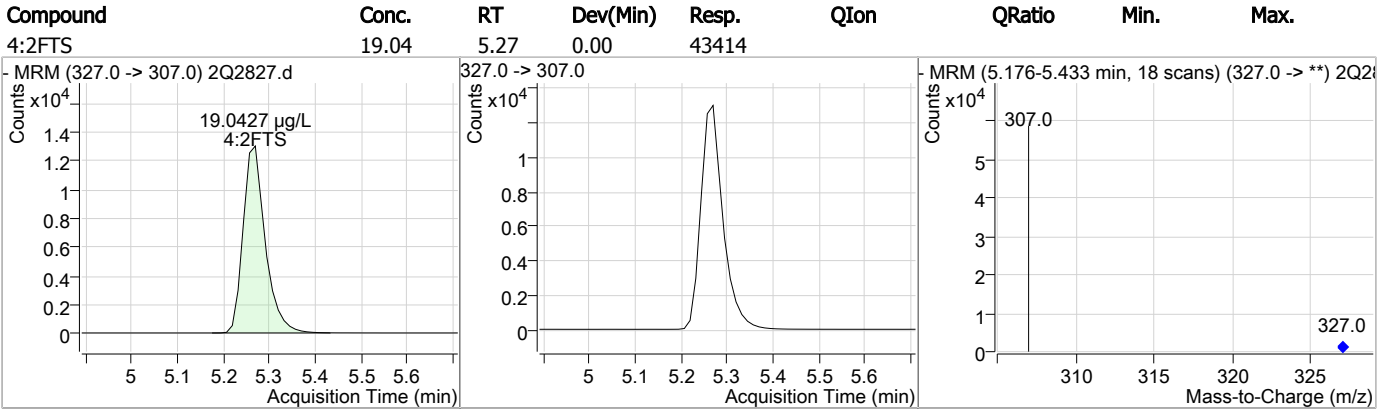
7.5.23  
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### Perfluorinated Compounds by LC/MS/MS



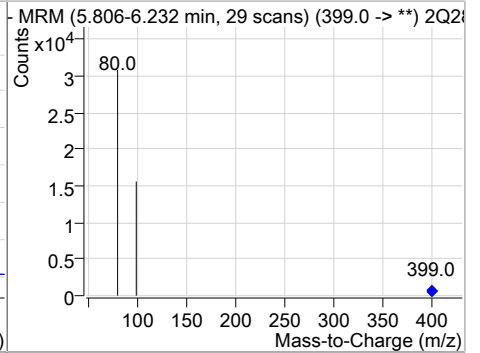
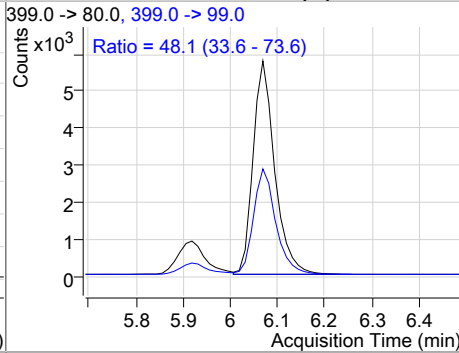
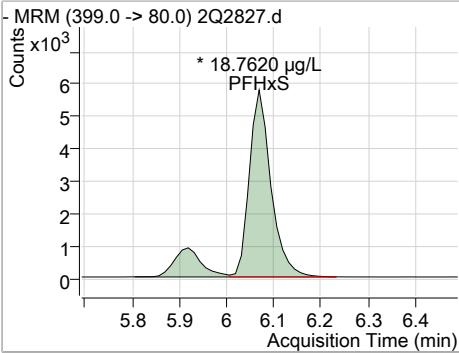
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### Perfluorinated Compounds by LC/MS/MS

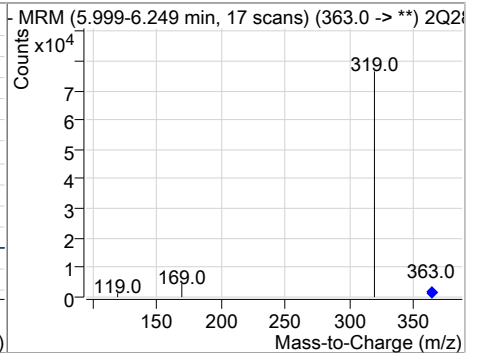
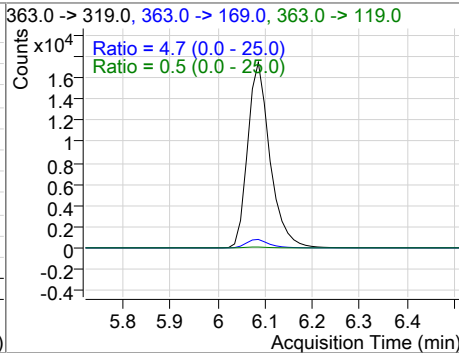
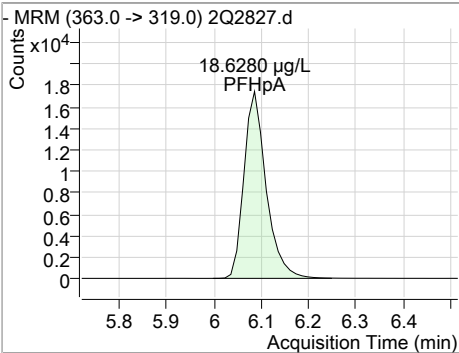


Perfluorinated Compounds by LC/MS/MS

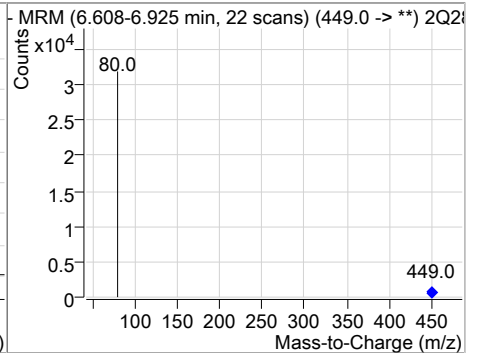
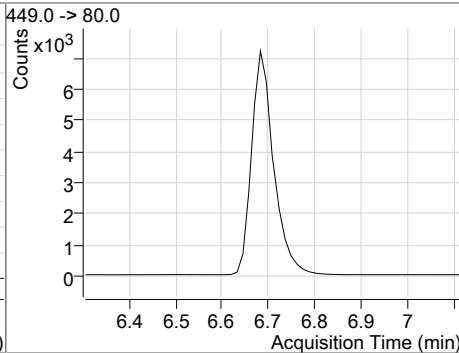
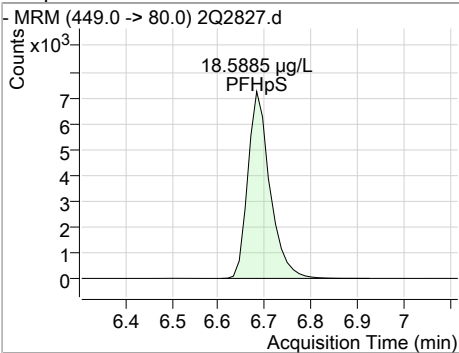
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.76	6.07	0.00	22028 (m)	399.0 -> 99.0	48.1	33.6	73.6



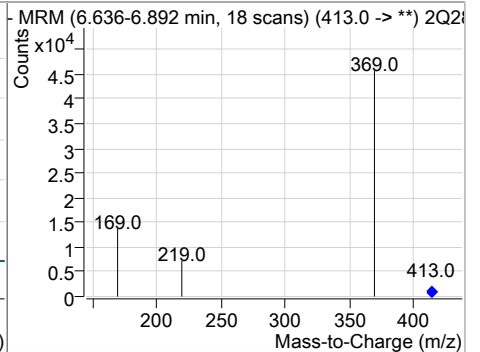
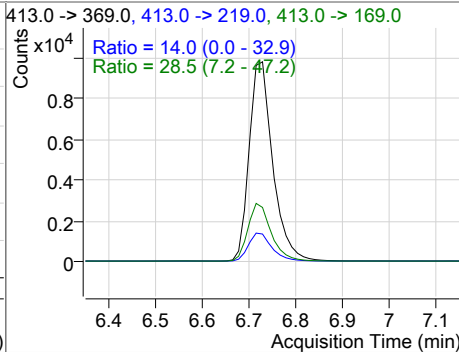
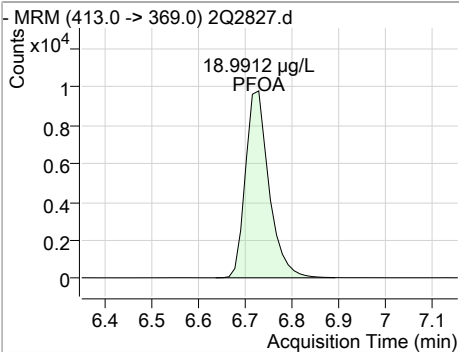
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.63	6.09	0.00	56670	363.0 -> 119.0 363.0 -> 169.0	0.5 4.7	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.59	6.68	0.00	23691	449.0 -> 80.0			

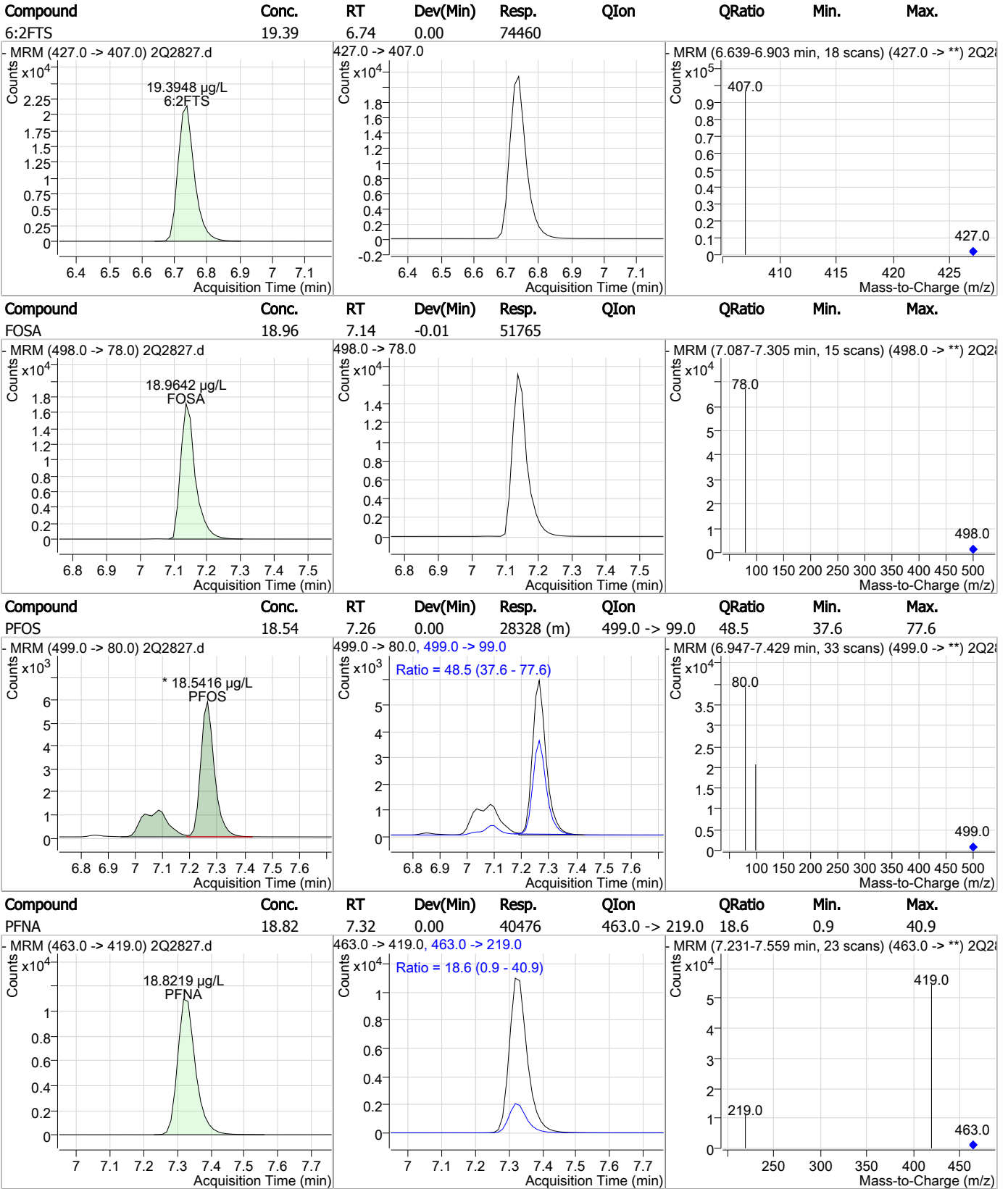


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.99	6.73	0.00	34376	413.0 -> 169.0 413.0 -> 219.0	28.5 14.0	7.2 0.0	47.2 32.9





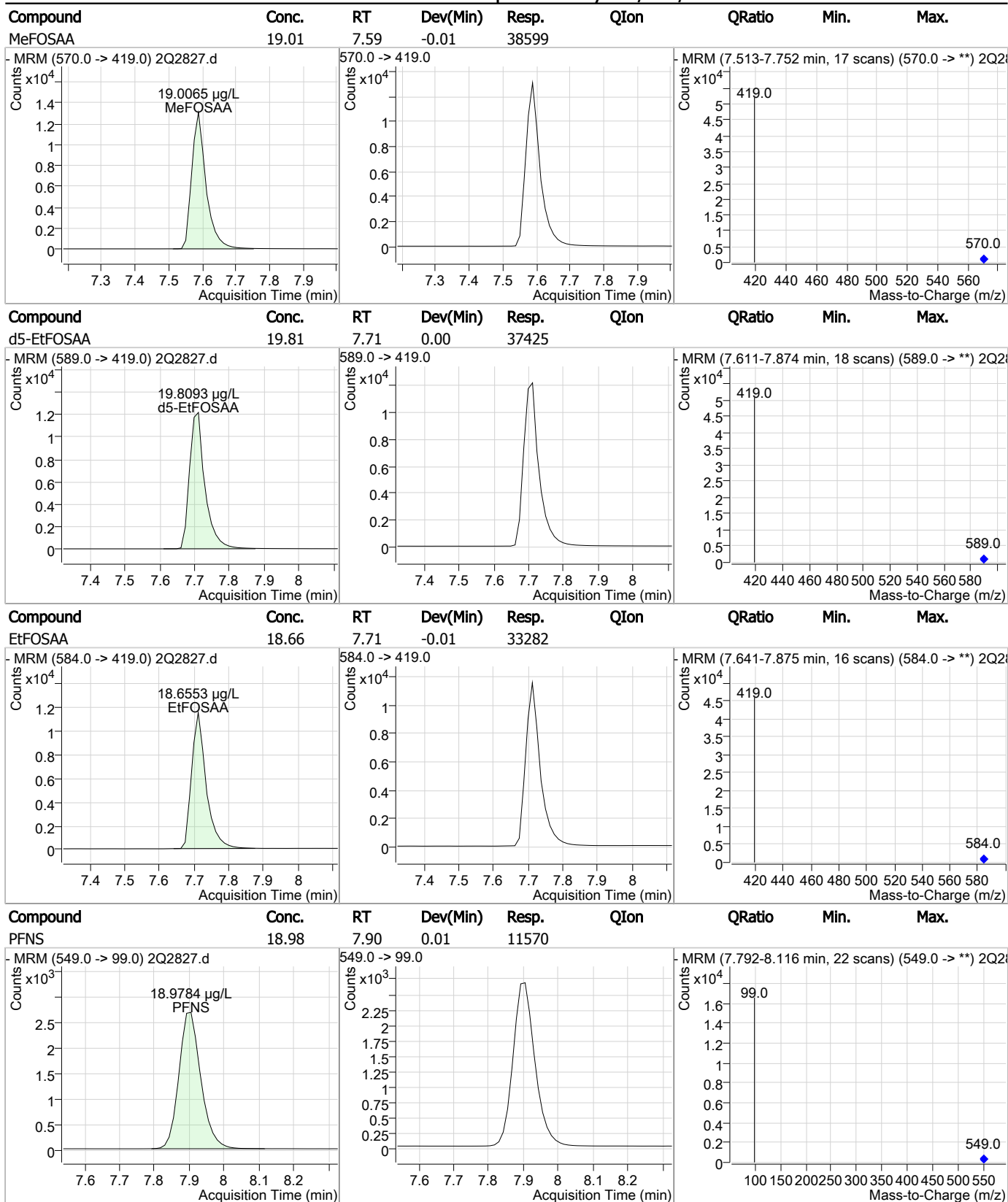
### Perfluorinated Compounds by LC/MS/MS



7.5.23

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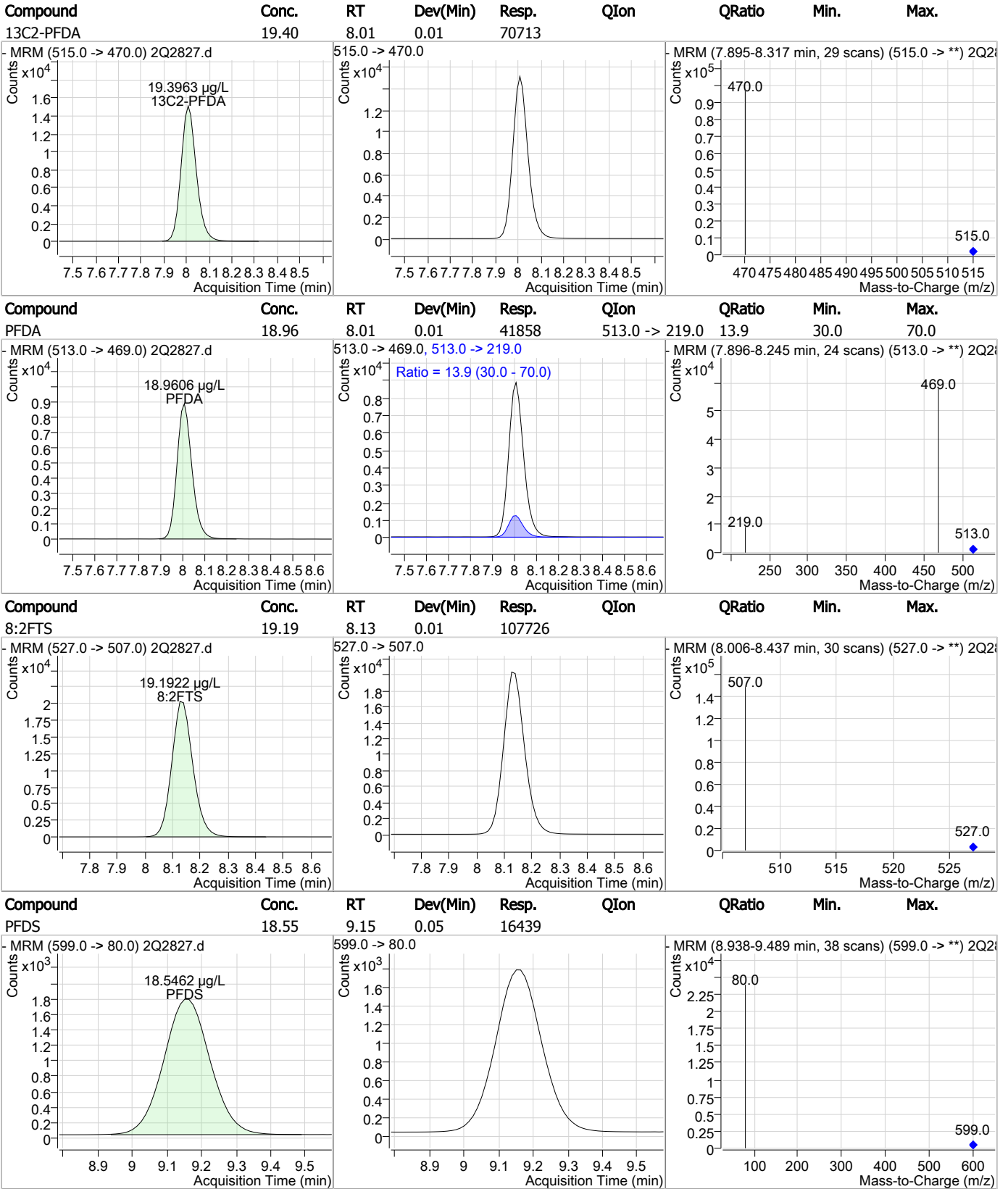
### Perfluorinated Compounds by LC/MS/MS



7.5.23

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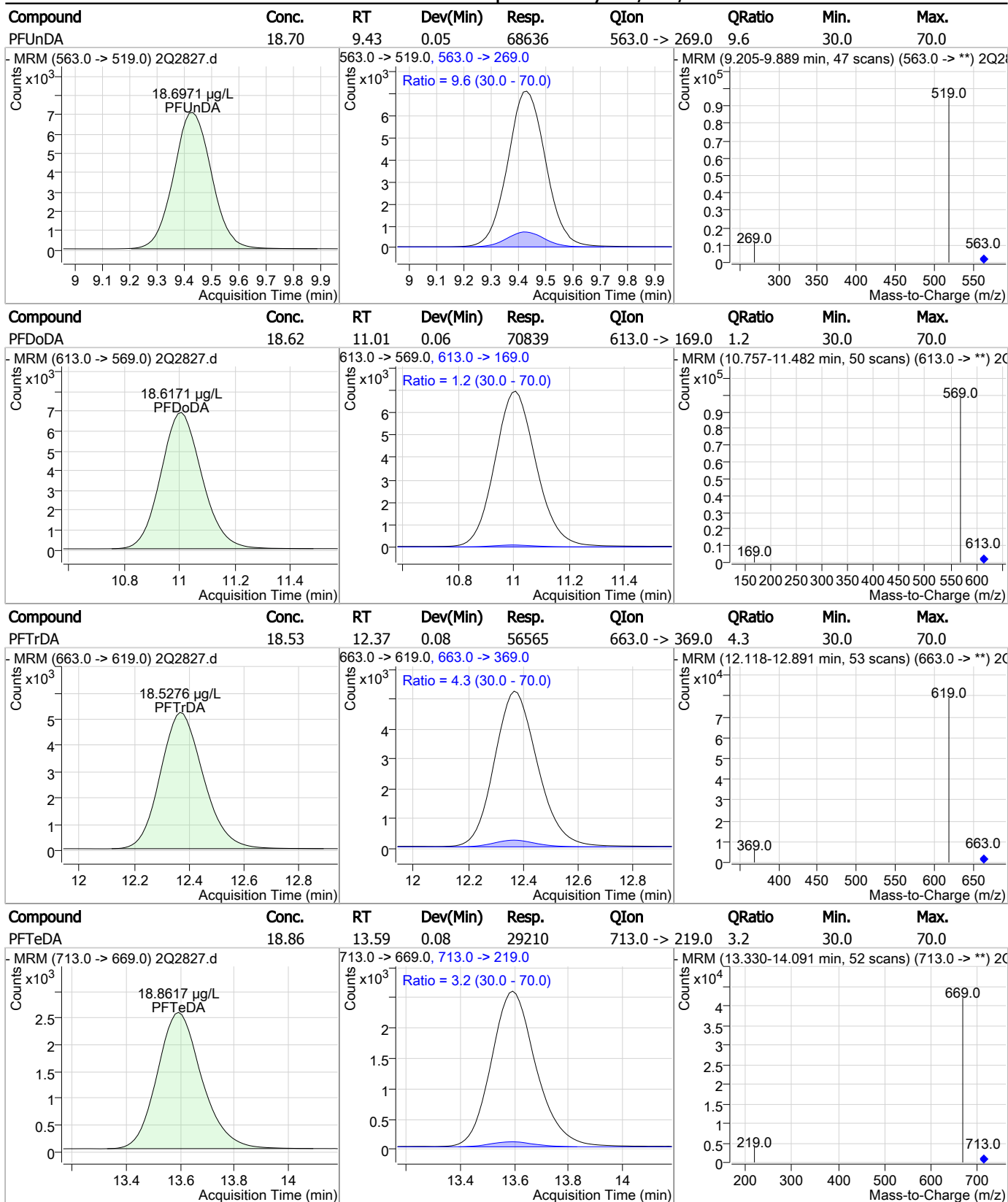
### Perfluorinated Compounds by LC/MS/MS



7.5.23

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### Perfluorinated Compounds by LC/MS/MS



7.5.23

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# Manual Integration Approval Summary

Sample Number: S2Q70-CC70                      Method: EPA 537  
Lab FileID: 2Q2827.D                              Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 16:42                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.07	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.23.1

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### Perfluorinated Compounds by LC/MS/MS

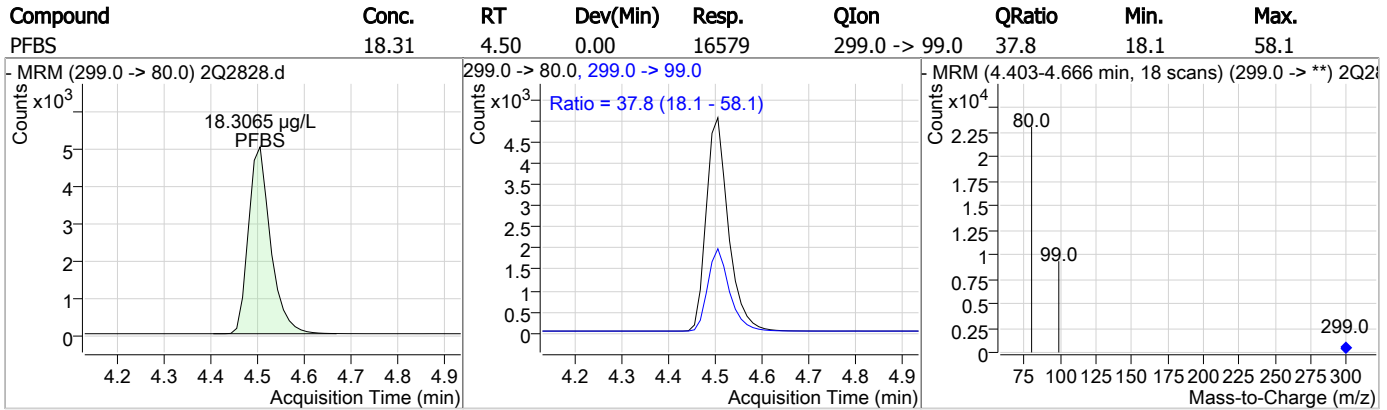
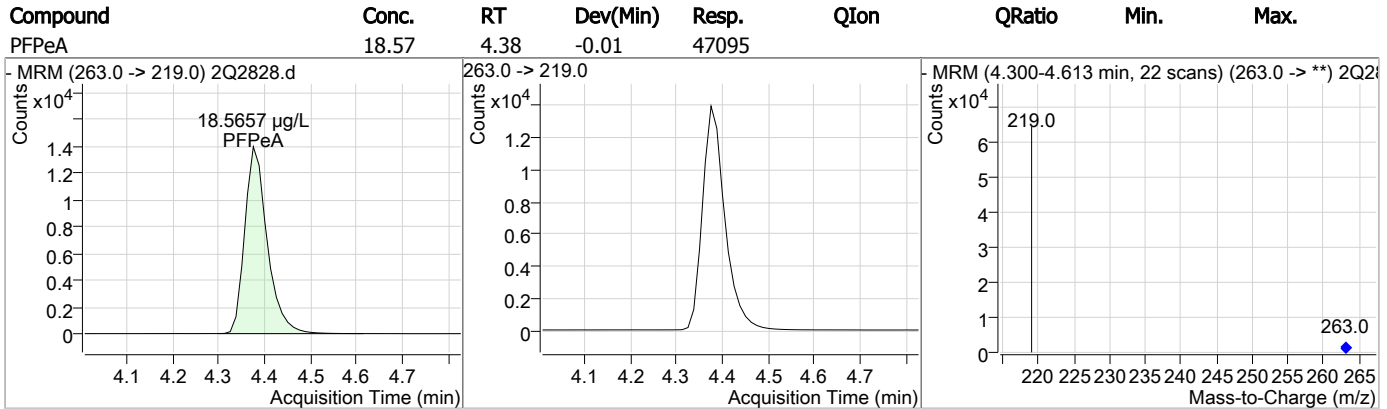
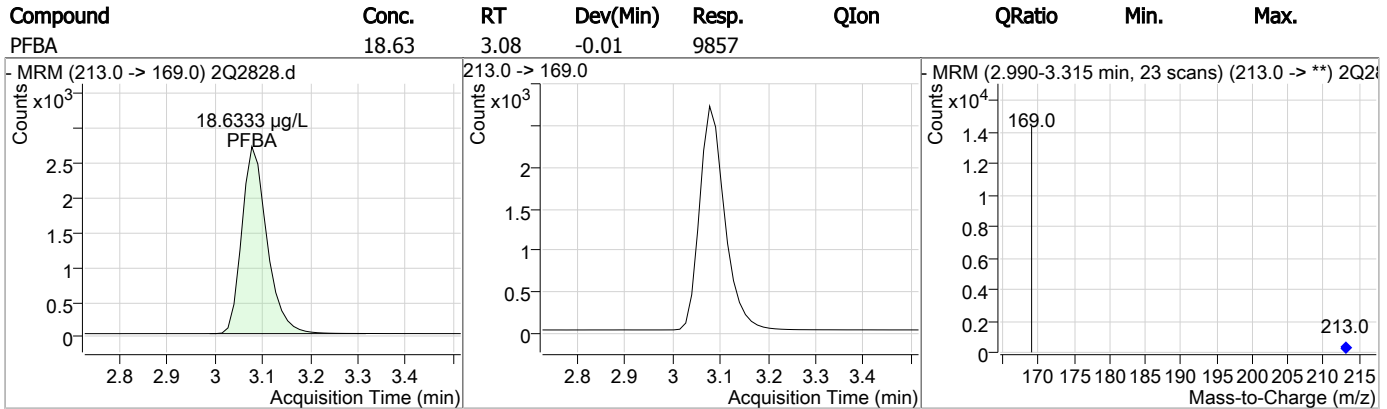
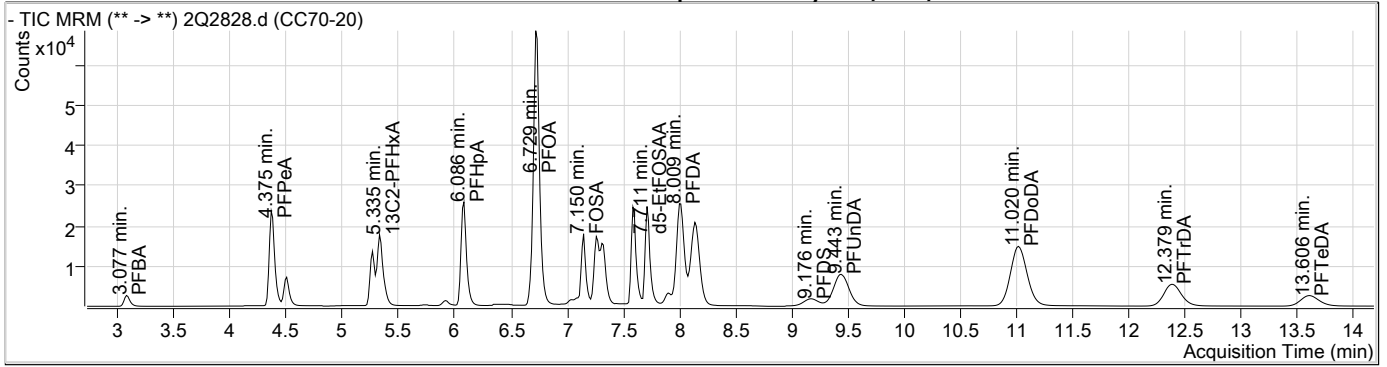
Data File : 2Q2828.d  
 Operator : NANCYF  
 Acq. Method : 537\_LIST.m  
 Acq. Date-Time : 6/27/2017 5:02:10 PM  
 Sample Name : CC70-20  
 Vial : Vial 6  
 DA Method File : PFC\_0627\_S2Q70.quantmethod.xml  
 Batch Name : S2Q70.batch.bin  
 Sample Information : OP65475,S2Q70,130,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.737	429.0 -> 409.0	77616	20.00 µg/L	0.000
13C2-PFDoDA	11.015	615.0 -> 570.0	80814	20.00 µg/L	0.063
13C2-PFOA	6.727	415.0 -> 370.0	42533	20.00 µg/L	0.000
13C3-PFPeA	4.372	266.0 -> 222.0	33314	20.00 µg/L	-0.013
13C4-PFOS	7.263	503.0 -> 80.0	25283	20.00 µg/L	0.000
d3-MeFOSAA	7.587	573.0 -> 419.0	35671	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.019	515.0 -> 470.0	71725	19.45 µg/L	0.024
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 97.2%	
13C2-PFHxA	5.335	315.0 -> 270.0	37507	18.90 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 94.5%	
d5-EtFOSAA	7.711	589.0 -> 419.0	38108	20.14 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 100.7%	
<b>Target Compounds</b>					
4:2FTS	5.270	327.0 -> 307.0	43679	18.62 µg/L	100
6:2FTS	6.738	427.0 -> 407.0	75247	19.05 µg/L	100
8:2FTS	8.140	527.0 -> 507.0	108242	18.75 µg/L	100
EtFOSAA	7.712	584.0 -> 419.0	34218	19.16 µg/L	100
FOSA	7.150	498.0 -> 78.0	50468	18.45 µg/L	100
MeFOSAA	7.601	570.0 -> 419.0	38871	19.11 µg/L	100
PFBA	3.077	213.0 -> 169.0	9857	18.63 µg/L	100
PFBS	4.504	299.0 -> 80.0	16579	18.31 µg/L	100
PFDA	8.009	513.0 -> 469.0	43239	19.36 µg/L	# 47
PFDoDA	11.020	613.0 -> 569.0	71654	18.70 µg/L	# 29
PFDS	9.176	599.0 -> 80.0	16469	18.40 µg/L	100
PFHpA	6.086	363.0 -> 319.0	56887	18.49 µg/L	93
PFHpS	6.683	449.0 -> 80.0	24139	18.76 µg/L	100
PFHxA	5.337	313.0 -> 269.0	16952	18.99 µg/L	86
PFHxS	6.069	399.0 -> 80.0	22324	18.83 µg/L	m 92
PFNA	7.332	463.0 -> 419.0	39677	18.24 µg/L	97
PFNS	7.905	549.0 -> 99.0	11775	19.13 µg/L	100
PFOA	6.729	413.0 -> 369.0	34606	18.90 µg/L	96
PFOS	7.264	499.0 -> 80.0	28670	18.59 µg/L	m 89
PFPeA	4.375	263.0 -> 219.0	47095	18.57 µg/L	100
PFPeS	5.380	349.0 -> 99.0	5557	18.60 µg/L	100
PFTeDA	13.606	713.0 -> 669.0	29339	18.81 µg/L	# 32
PFTrDA	12.379	663.0 -> 619.0	57182	18.59 µg/L	# 33
PFUnDA	9.443	563.0 -> 519.0	69489	18.79 µg/L	# 41

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

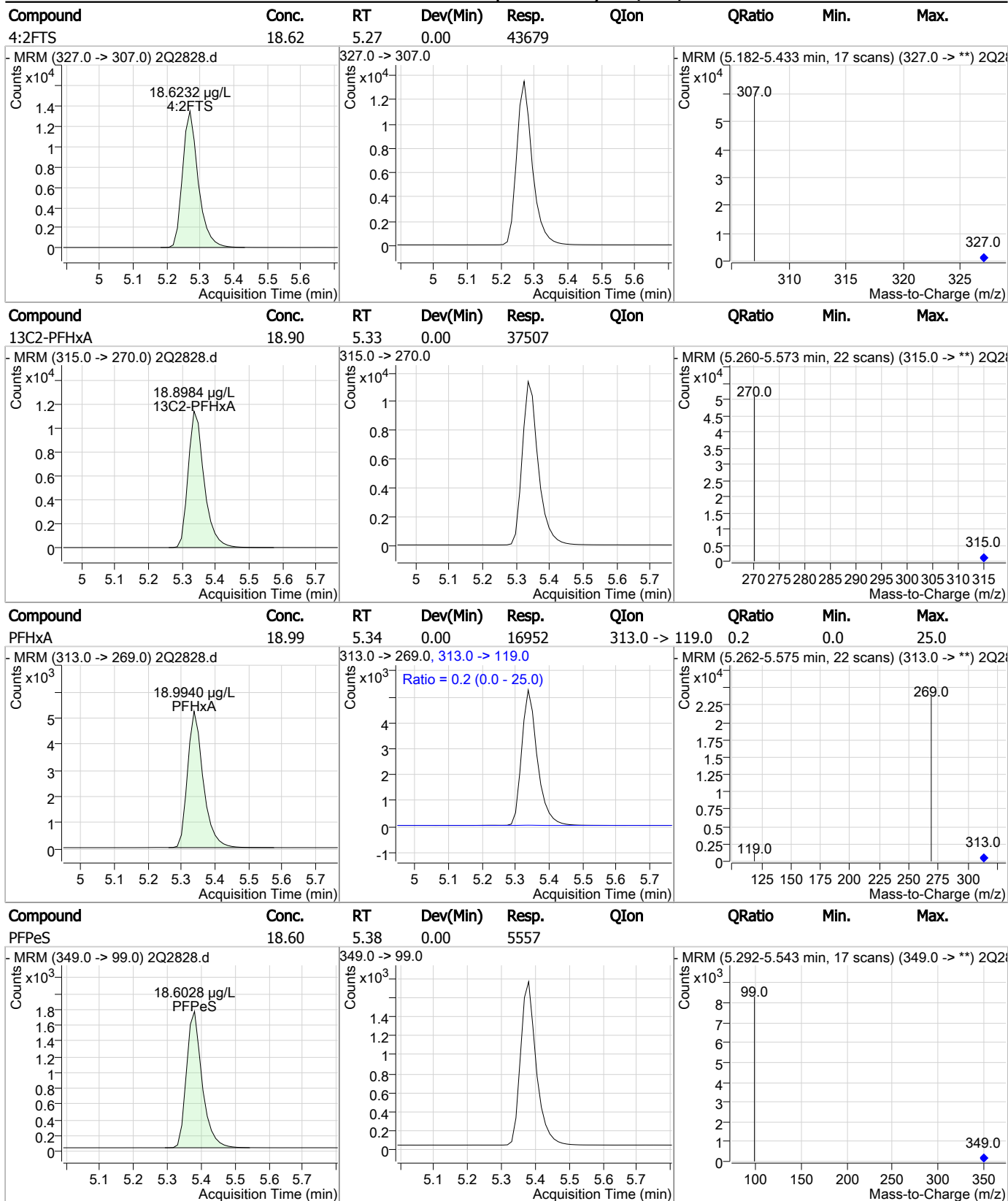
7.5.24  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.24  
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### Perfluorinated Compounds by LC/MS/MS



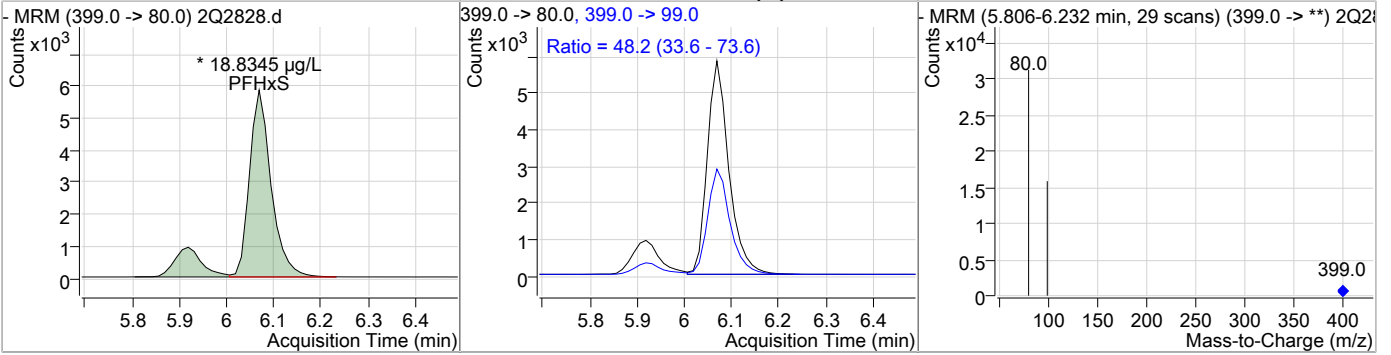
7.5.24

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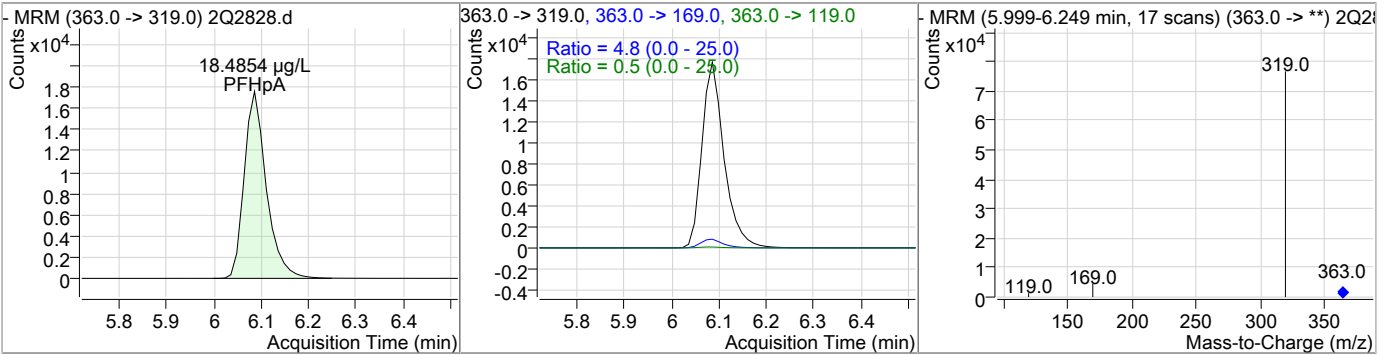


### Perfluorinated Compounds by LC/MS/MS

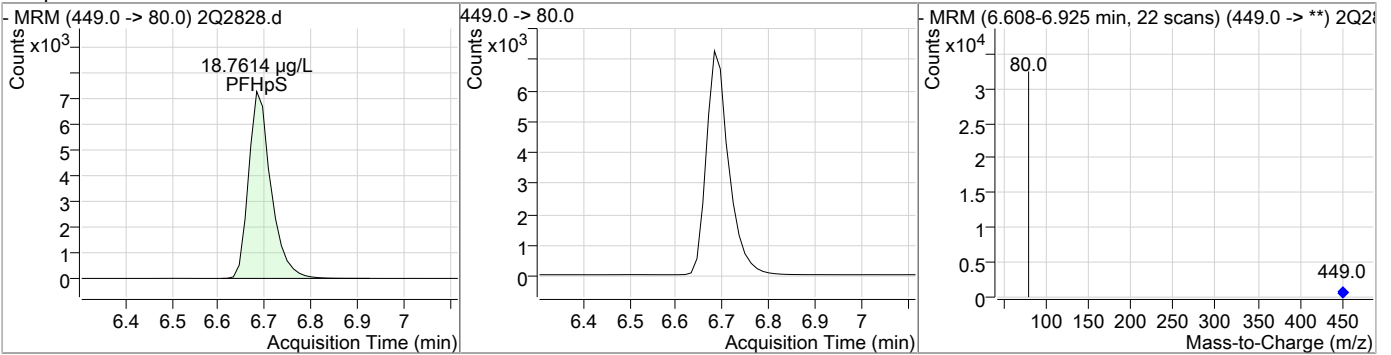
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	18.83	6.07	0.00	22324 (m)	399.0 -> 99.0	48.2	33.6	73.6



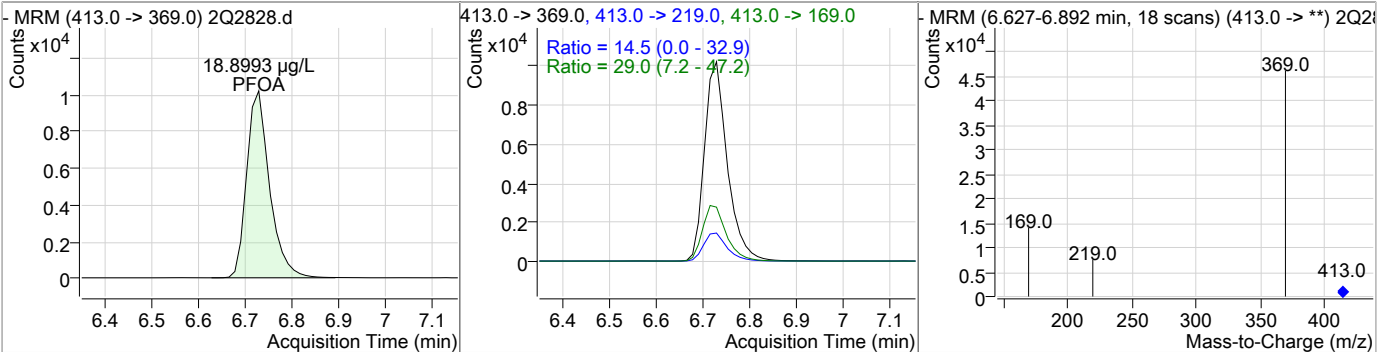
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	18.49	6.09	0.00	56887	363.0 -> 119.0 363.0 -> 169.0	0.5 4.8	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	18.76	6.68	0.00	24139	449.0 -> 80.0			

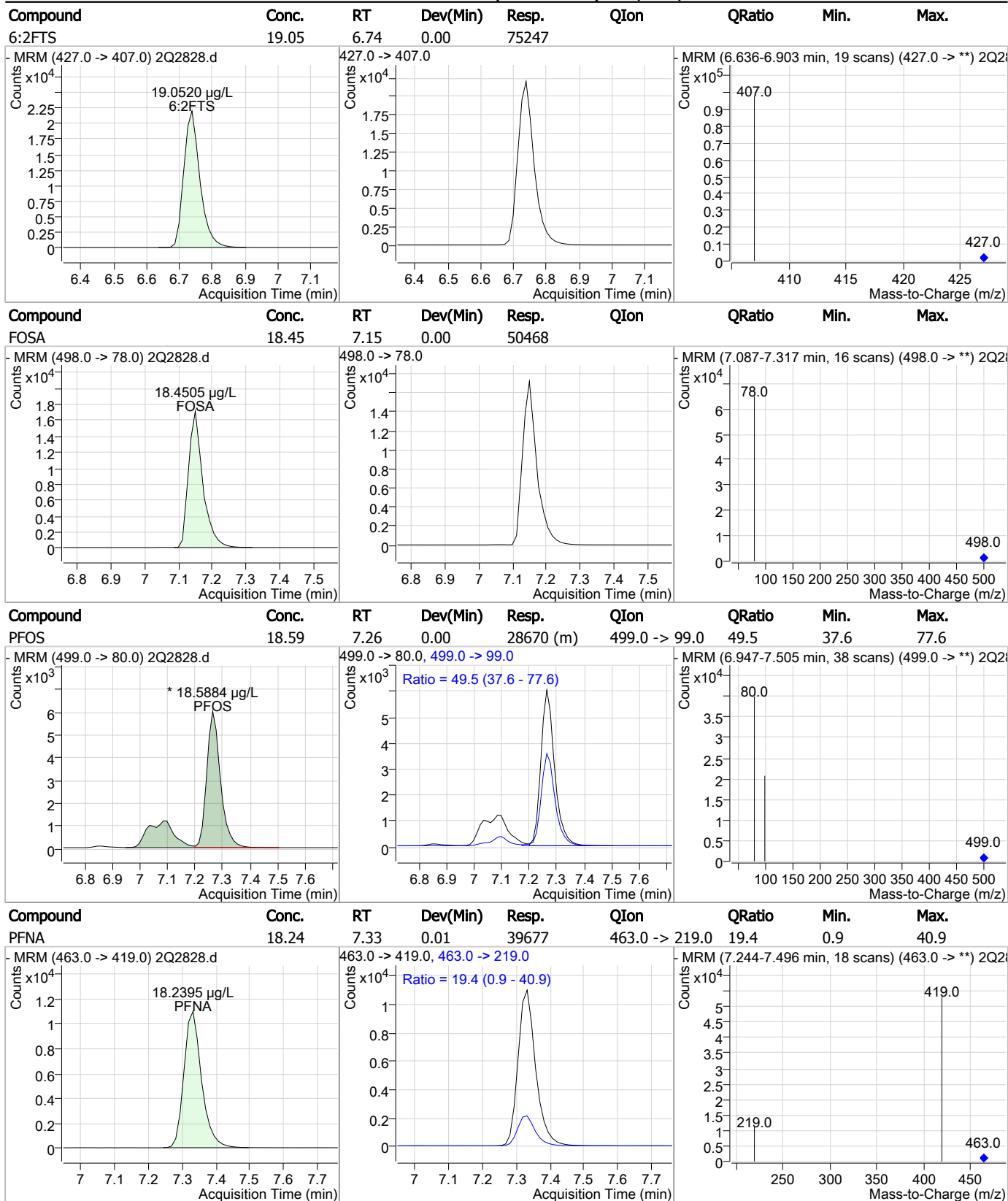


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	18.90	6.73	0.00	34606	413.0 -> 169.0 413.0 -> 219.0	29.0 14.5	7.2 0.0	47.2 32.9



7.5.24  
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### Perfluorinated Compounds by LC/MS/MS



7.5.24

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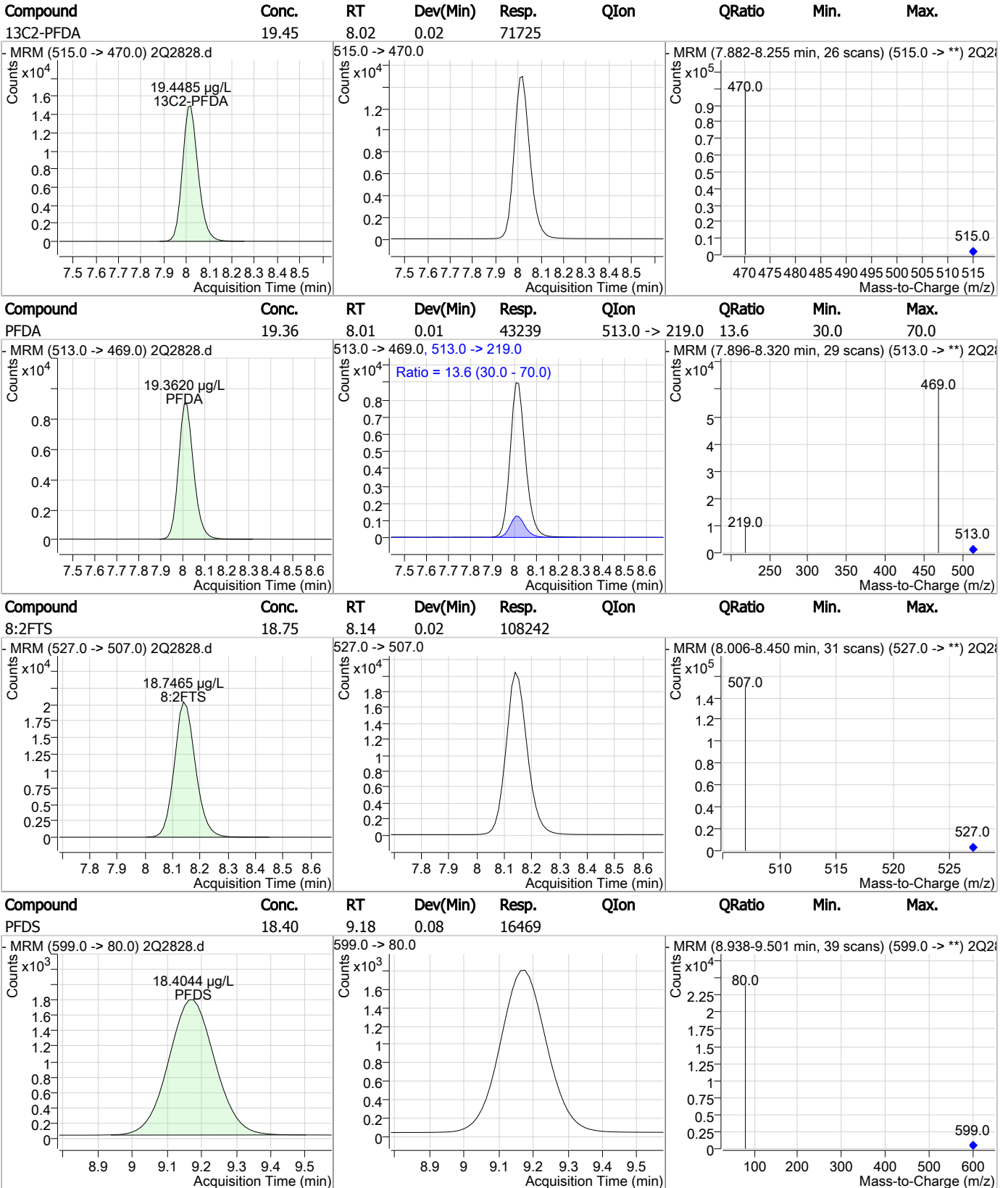
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	19.11	7.60	0.00	38871				
d5-EtFOSAA	20.14	7.71	0.00	38108				
EtFOSAA	19.16	7.71	-0.01	34218				
PFNS	19.13	7.90	0.01	11775				

7.5.24

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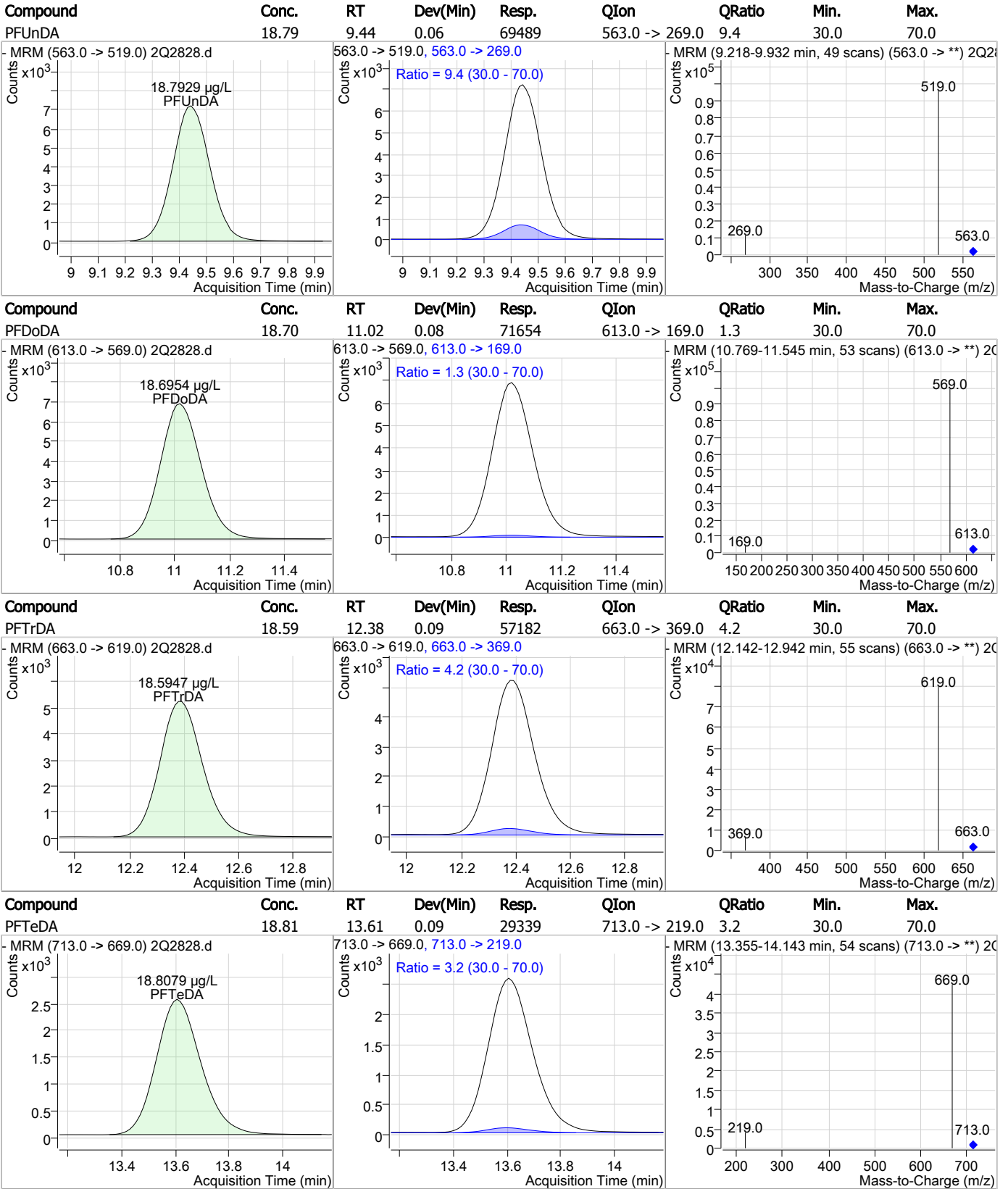
### Perfluorinated Compounds by LC/MS/MS



7.5.24

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### Perfluorinated Compounds by LC/MS/MS



7.5.24

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# Manual Integration Approval Summary

Sample Number: S2Q70-CC70                      Method: EPA 537 MOD  
Lab FileID: 2Q2828.D                              Analyst approved: 06/28/17 09:02 Nancy Saunders  
Injection Time: 06/27/17 17:02                      Supervisor approved: 06/28/17 12:09 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.07	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.26	Split peak

7.5.24.1

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SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	06-23-17
COLUMN TYPE:	Porasil B C18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	315

METHODS:	S37 M00
ACQ. METHOD:	S37 L47
PROC. METHOD:	DFC 0614 23 S2067
CALIB. DATE:	06-23-17
RUN BATCH:	S2Q 67

ANALYST:	MS
ELUENT A LOT #:	171231 w Arctic
ELUENT B LOT #:	171470 L
WATER LOT #:	171231
ISTD Lot #:	LL 868

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK#	SCON <CL*	COMMENTS
2Q 2575	1	CLB	DFC						✓
2Q 76	2	FL67-1			5/10				Fix ARTS
2Q 77	1	CLB							✓
2Q 78	2	FL67-1			5/10		SP		✓
2Q 79	3	-2			10/10		SP		✓
2Q 80	4	-5			27/10		SP		✓
2Q 81	5	-10			50/10		SP		✓
2Q 82	6	FCC67-10			100/10		SP		✓
2Q 83	7	FCC67-40			200/10		SP		✓
2Q 84	8	-50			270/10		SP		✓
2Q 85	9	-100			1x		SP		✓
2Q 86	10	T AF04		LC808	50/10				✓
2Q 87	11	FL67-20		85443 LC875	515/10				PEMS made wrong AR
2Q 88	11	-20		85443 LC868	L				POSS
2Q 89	12	0005536-BS		0005536	1x				✓
2Q 90	13	-MB							✓ E+SSL <sup>APF</sup> <sub>Acid</sub> L15+H10
2Q 91	14	LA 44451-10					SP		NOE SSB <del>Acid</del> <sub>Acid</sub>
2Q 92	15	FA 444661-2				5x	SP		✓
2Q 93	16	FA 44467-4				1x	SP		✓
2Q 94	17	FA 44468-4				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  
 All strikeouts must be initiated and dated. If correction was not due to a transcription error, then list the reason for correction.

**SGS ACCUTEST-ORLANDO**

**LCMS2-2Q ANALYSIS LOG**

DATE:	06-23-17
COLUMN TYPE:	Porasil FC16
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	3.17

METHODS:	537 M09
ACQ. METHOD:	537 L057
PROC. METHOD:	PKL 0623 S2Q67
CALIB. DATE:	06-23-17
RUN BATCH:	S2Q 67

ANALYST:	MIS
ELUENT A LOT #:	171231 WAcetic
ELUENT B LOT #:	171470
WATER LOT #:	171231
ISTD Lot #:	LL 066

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 2595	17	FA44408-42	PKL	065343	17		SP		✓SSD Ac-pwt
2Q 96	6	CC67-20		LL067	100/170		SP		Pass
2Q 97	1	CCB							✓
2Q 98	18	0P65564-85		0P65564	17				✓
2Q 99	14	-ms							NDL
2Q 600	20	FA44695-2							NDL SLD Et
2Q 01	21	-3							NDL SLD
2Q 02	22	-5							NDL SLD ok mmm
2Q 03	23	-6							NDL SLD
2Q 04	24	FA44849-1					SP		✓
2Q - 05	25	-2							✓ SLD ok mmm
2Q 06	26	0P65564-ms							✓
2Q 07	27	-ms							✓
2Q 08	6	CC67-20		LL067	100/170		SP		Pass
2Q 09	1	CCB							✓
2Q 10	28	FA44849-8		0P65564	17				NDL
2Q 11	24	-4					SP		✓ OK ET SLD mmm
2Q 12	30	-6					SP		✓ 1
2Q 13	21	FA44702-1							NDL
2Q 14	23	FA44800-1							NDL

\*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration  
 All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.



**SGS ACCUTEST-ORLANDO**

**LCMS2-2Q ANALYSIS LOG**

DATE:	06-23-17
COLUMN TYPE:	Agilent 1100
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	215

METHODS:	S37 mtd
ACQ. METHOD:	S37 LIST
PROC. METHOD:	PCC 0623 S2Q67
CALIB. DATE:	06-23-17
RUN BATCH:	S2Q 67

ANALYST:	N/A
ELUENT A LOT #:	171231 ✓ Agilent
ELUENT B LOT #:	171740 ✓
WATER LOT #:	171 274
ISTD Lot #:	LL868

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 2615	34	FA44880-2	PCC	065564	17				BDL <del>SS</del> ↓ ok now
2Q 16	35	-3							BDL
2Q 17	32	FA44936-1			10x		SP 2		✓ Run 100x
2Q 18	36	FA44951-2							BDL RR 1x
2Q 19	37	-3							BDL RR 1x
2Q 20	6	CC 67-20		LL867	100/170		SP		PASS
2Q 21	1	CCB							✓
2Q 22	38	FA44951-24		065564	1x		oil		BDL <del>SS</del> ↓ ok now
2Q 23	39	-11			10x				BDL RR 1x
2Q 24	40	m6247 23							BDL RR 1x
2Q 27	41	-25 <del>24</del>					SP		✓ RR 100x (6:25:20)
2Q 26	6	CC 67-20		LL867	100/170		SP		PASS
2Q 27	1	CCB							✓
2Q 28	42	065380-B1		065380	1x				low
2Q 29	43	-m3							BDL
2Q 30	44	FA44979-2							BDL <del>SS</del> ↓
2Q 31	45	-3							BDL
2Q 32	46	-4							BDL
2Q 33	47	-5							BDL ok <del>SS</del> ↓ now
2Q 34	48	-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.

**SGS ACCUTEST-ORLANDO**

**LCMS2-2Q ANALYSIS LOG**

DATE:	06-23-17
COLUMN TYPE:	Perchlorate LC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	315

METHODS:	537 MOD
ACQ. METHOD:	537 LIST
PROC. METHOD:	PFC 0623 62667
CALIB. DATE:	06-23-17
RUN BATCH:	S2Q 67

ANALYST:	NAS
ELUENT A LOT #:	171231 w BR18C
ELUENT B LOT #:	171470
WATER LOT #:	171231
ISTD Lot #:	LC 1000

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK#	SCON <CL*	COMMENTS
2Q 2635	49	FA44474-7	PFC	OP65380	17				NAL
2Q 36	50	-9							NAL <del>set</del> on monitor
2Q 37	51	-12							NAL
2Q 38	6	CC67-20		LC1067	100/KW		SP		POSS
2Q 39	1	CC13							✓
2Q 40	52	FA44573-13		OP65380	17				NAL <sup>miss</sup> <del>PI</del>
2Q - 41	53	FA44479-1							NAL <sup>DEQA</sup> <sup>SSD</sup>
2Q - 42	54	-10							NAL <sup>DEQA</sup> <sup>SSD</sup>
2Q - 43	55	-11							X NU ESTD AR
2Q 44	56	FA44573-1					SP		✓
2Q 45	57	OP65380-MS					SP		✓
2Q 46	58	-MS0					SP		✓
2Q 47	6	CC67-20		LC1067	100/5W		SP		POSS
2Q 48	1	CC13							✓
2Q 49	59	FA44573-3		OP65380	17		SP		✓
2Q 50	60	-5					SP		✓
2Q 51	61	-7					SP		✓
2Q 52	62	-9					SP		✓
2Q 53	63	-11					SP		✓
2Q 54	64	FA44693-8							✓ AR 10x <del>not</del> IS 70 P

\*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration  
 All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

**SGS ACCUTEST-ORLANDO**

DATE: 06-23-17  
 COLUMN TYPE: Porus 100 11 E 18  
 AMOUNT INJECTED: 5 ul  
 INSTRUMENT: LCMS2-2Q  
 HEAD PRESSURE: 315


**LCMS2-2Q ANALYSIS LOG**

METHODS: 57 meq  
 ACQ. METHOD: 57 617  
 PROC. METHOD: PRL 0623 52267  
 CALIB. DATE: 06-23-17  
 RUN BATCH: S2Q 67

ANALYST: JBS  
 ELUENT A LOT #: 171231 w Acidic  
 ELUENT B LOT #: 171470 +  
 WATER LOT #: 171231  
 ISTD Lot #: LL 86B

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK#	SCON <CL*	COMMENTS
2Q 2655	6T	FA44643-11	PCL	065380	17		SP		✓ RA 10X <del>SP</del> 6.275
2Q 56	6	CC67-20	↓	LL867	100/170		SP		MISS
2Q 57	1	CCB	↓						✓
2Q									
2Q									
2Q									
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\*< 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 initiated and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature: 

**SGS ACCUTEST-ORLANDO**

**LCMS2-2Q ANALYSIS LOG**

DATE:	06-26-17
COLUMN TYPE:	Porosil 11 E110
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	300

METHODS:	S37 mod
ACQ. METHOD:	S37 LIT
PROC. METHOD:	PFL 0023 SL007
CALIB. DATE:	06-23-17
RUN BATCH:	S2Q 09


ANALYST:	MS
ELUENT A LOT #:	171271 w A/Lite
ELUENT B LOT #:	171470 ↓
WATER LOT #:	171271
ISTD Lot #:	LL 008

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 2730	2	AT	PFL	LC052	100/TW				✓
2Q 31	2	AT		↓	↓				✓
2Q 32	1	CCB							✓
2Q 33	2	C167-20		LC052	100/TW		SP		Pass
2Q 34	3	0A6T 455-B3		0P6T455	1X				✓
2Q 35	4	FA44693-3			1X				ART Δ matrix run 100x
2Q <del>37</del> 36	5	-42			10x		SP		✓
2Q 38	6	-43			20x		SP		✓
2Q <del>39</del> 38	7	-46			10x		SP		✓ Run 200x 6:2 EST
2Q <del>41</del> 41	8	-50			10x		SP		✓
2Q 42	9	-3			10x		SP		✓ DOA is out
2Q 43	10	-46			200x		SP		✓
2Q 44	11	-3			5x		SP		✓ use 10x RT Δ
2Q 45	2	C067-20		LC052	100/TW		SP		Pass
2Q 46	1	CCB			100/TW				✓
2Q 47	12	FA44693-8		0P6T455	100x		SP		✓ Run 100x
2Q 48	13	-11			↓		SP		✓
2Q 49	14	FA446936-1		0P6T455	250x		SP		✓
2Q 50	15	FA 44691-2 CCB			1X		SP		✓ SS ↓
2Q 51	16	-3 CCB			↓		SP		✓ SS ↓

\*< 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

Analyst's Signature: 

**SGS ACCUTEST-ORLANDO**

**LCMS2-2Q ANALYSIS LOG**

DATE:	196-26-17
COLUMN TYPE:	Porasil C-18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	300

METHODS:	S2Q mod
ACQ. METHOD:	S2Q LST
PROC. METHOD:	PFC 0623 S2Q07
CALIB. DATE:	06-27-17
RUN BATCH:	S2Q 69

ANALYST:	AAK
ELUENT A LOT #:	171231 w Acetic
ELUENT B LOT #:	171470 ↓
WATER LOT #:	171231
ISTD Lot #:	LL 86B

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 2752	17	FA44951-11 G3	PFC	0P65450	17	100%	SP		✓ SSL
2Q 53	18	-2366		↓	↓		SP		✓ SSL
2Q 54	19	-25		↓	500x		SP		✓
2Q 55	2	CC 67-20		LL 672	100/100		SP		Pass
2Q 56	1	CCB							✓
2Q 57	20	FA44693-24		0P65454	1X		SP		✓ 6:2 ↑ Am 10x
2Q 58	21	-24		↓	10x		SP		✓ ↓ Am 100x
2Q 59	22	-24		↓	100x		SP		✓
2Q 60	23	-27		↓	1x		SP		✓ 6:2 IS ↑ Am 10x
2Q 61	24	-27		↓	20x		SP		✓
2Q 62	25	-28		↓	1x		SP		✓
2Q 63	26	-32		↓	1x		SP		✓ 6:2 IS ↑ Am 10x
2Q 64	27	-32		↓	10x		SP		✓ ↓ Am 10x
2Q 65	28	-32		↓	50x		SP		✓ (Am 100x)
2Q 66	29	-33		↓	1x		SP	Pass	✓ Am 10x SS ↓
2Q 67	2	CC 67-20		LL 672	100/100		SP		Pass
2Q 68	1	CCB							✓
2Q 69	30	FA44693-33		0P65454	10x		SP		✓
2Q 70	31	-34		↓	1x		SP	Fail	✓ Am 10x 6:2 IS ↑ SS ↓
2Q 71	32	-34		↓	10x		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.

**SGS ACCUTEST-ORLANDO**

DATE:	06-26-17
COLUMN TYPE:	Perseus E C18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	700

**LCMS2-2Q ANALYSIS LOG**

METHODS:	S37 M09
ACQ. METHOD:	S37 L137
PROC. METHOD:	PFL 0023 S2067
CALIB. DATE:	06-23-17
RUN BATCH:	S2Q 69

ANALYST:	NAS
ELUENT A LOT #:	171231 w Article
ELUENT B LOT #:	171470 ↓
WATER LOT #:	171231
ISTD Lot #:	LL 060

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 2772	33	FA44643-35	PFL	060544	1X		SA		✓
2Q 73	34	-36		↓	↓		SP		✓ SSD Re-est
2Q 74	2	CC67-20		LC652	100/TW		SP		Pass
2Q 75	1	C18							✓
2Q 76	01	T-PFOA		LC606	50/TW				✓
2Q 77	02	CC67-1		LC052	51/TW		SP		Pass
2Q 78	35	OP65503-BS		OP65503					✓
2Q 79	36	-mB							BOL
2Q 80	37	FA44596-1							BOL SSD
2Q 81	38	OP65503-MS							✓
2Q 82	39	-mB							✓
2Q 83	40	FA44546-2							BOL
2Q 84	41	FA44547-1							BOL
2Q 85	42	-2					SP		✓
2Q 86	43	-3		↓					BOL
2Q 87	2	CC67-20		LC652	100/TW		SP		Pass PFBAD ↓
2Q 88	2	CC67-20		↓	↓		SP		Pass
2Q 89	1	CC18							✓
2Q 90	44	OP65475-BS		OP65475	1X				✓
2Q 91	45	-mB	✓	↓	↓				BOL

\*< 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

Analyst's Signature: 

**SGS ACCUTEST-ORLANDO**

**LCMS2-2Q ANALYSIS LOG**

DATE:	06-26-17
COLUMN TYPE:	Porosil LC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	500

METHODS:	r37 mod
ACQ. METHOD:	r37 list
PROC. METHOD:	PCL 0623 S2K67
CALIB. DATE:	06-27-17
RUN BATCH:	S2Q 69

ANALYST:	NAS
ELUENT A LOT #:	171231 w/matrix
ELUENT B LOT #:	171470 ↓
WATER LOT #:	171231
ISTD Lot #:	LC868

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 2792	46	F444643-51	PCL	0P65475	IT		SP		BDL
2Q 93	47	-52							BDL
2Q 94	48	F444700-1					SP		✓ ssd
2Q 95	49	3					SP		✓
2Q 96	50	-5					SP		✓
2Q 97	51	-7					SP		✓
2Q 98	52	0P65475-MS					SP		✓
2Q 99	53	-MSD					SP		✓
2Q 000	2	C167-20		LC852	100/500		SP		Pass
2Q 01	1	CUB							✓
2Q 02	54	F444700-9		0P65475	IT		SP		✓ ssd
2Q 03	55	-10					SP	✓	✓
2Q 04	56	-11					SP	✓	✓
2Q 05	57	-13					SP		✓
2Q 06	58	2ECC6720 A		LC852	100/500		SP		Pass ssd
2Q 07	59	2ECC6720 A					SP		Pass
2Q 08	60	2ECC6720 B		NFA0217			SP		Pass ssd
2Q 09	61	20							
2Q 10	62	22							
2Q 11	63	24							

NAS  
06/27/17

NAS 06-27-17

\*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration. All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	06-27-17
COLUMN TYPE:	Agilent 11 EBE18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	297

METHODS:	537 MUD
ACQ. METHOD:	537 List 062717
PROC. METHOD:	PFL 062717 S2Q-70
CALIB. DATE:	06-27-17
RUN BATCH:	S2Q 70

ANALYST:	NRB
ELUENT A LOT #:	171231 w/Article
ELUENT B LOT #:	171740 ↓
WATER LOT #:	171231
ISTD Lot #:	LC868

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 28099	21	CLB	PFL						✓
2Q 10	1	CLB							BDL
2Q 11	641	CLB							BDL
2Q 12	652	IC70-1		LC852	5/100		SP		✓
2Q 13	663	-2			10/100		SP		✓
2Q 14	69	-5			25/100		SP		✓
2Q 15	25	-10			50/100		SP		✓
2Q 16	6	IC70-20			100/100		SP		✓
2Q 17	7	IC70-40			200/100		SP		✓
2Q 18	8	-70			250/100		SP		✓
2Q 19	9	-100			1x		SP		✓
2Q 20	10	+ PFOA		LC876	100/100				✓
2Q 21	11	IC70-20		LC860 67942	575 500				PASS
2Q 22	12	FA44596-1		0P65503	1x				BDL
2Q 23	13	-2							BDL
2Q 24	14	FA44597-1							BDL
2Q 25	15	-2					SP		BDL
2Q 26	16	-3							BDL
2Q 27	6	CC70-20		LC852	100/100		SP		PASS DW
2Q 28	6	CC70-20		↑	↑		SP		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.



**SGS ACCUTEST-ORLANDO**

**LCMS2-2Q ANALYSIS LOG**

DATE:	06-27-17
COLUMN TYPE:	Porushell B119
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	297

METHODS:	S37 M00
ACQ. METHOD:	S37 LIT+
PROC. METHOD:	PFL 0627 S2Q70
CALIB. DATE:	06-27-17
RUN BATCH:	S2Q 70

ANALYST:	MVA
ELUENT A LOT #:	171231 w/1241c
ELUENT B LOT #:	171410
WATER LOT #:	171231
ISTD Lot #:	26868

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 2829	1	CLB	PFL						✓
2Q 30	17	0065475-06		0065475	1x				✓
2Q 31	18	-MA							BR
2Q 32	14	V-A44700-15					SP	✓	✓
2Q 33	20	-17					SP	✓	✓
2Q 34	21	-19					SP	✓	✓
2Q 35	22	-20					SP	✓	✓
2Q 36	23	-22					SP	✓	✓
2Q 37	24	-24					SP	✓	✓
2Q 38	25	-26					SP	✓	✓
2Q 39	26	-27					SP	✓	✓
2Q 40	6	CC 70-20		LLBIF	10/170		SP		PASS
2Q 41	1	CCB							✓
2Q 42	27	V-A44700-29		0065475	1x		SP		✓
2Q 43	28	-31							BR
2Q 44	29	-1					SP	✓	✓
2Q 45	30	-3					SP	✓	✓
2Q 46	31	-5					SP	✓	✓
2Q 47	32	-9					SP	✓	✓
2Q 48	33	-10					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.

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	06-27-17
COLUMN TYPE:	Poragel 11 60A
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	297

METHODS:	F7 MUD
ACQ. METHOD:	F7 L77
PROC. METHOD:	PFL 0627 S20-70
CALIB. DATE:	06-27-17
RUN BATCH:	S2Q 70

ANALYST:	NAS
ELUENT A LOT #:	171231 w Acetic
ELUENT B LOT #:	171470 J
WATER LOT #:	171231
ISTD Lot #:	LL 608

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 2849	34	FA44700-11	PFL	0665475	1x		SP		✓
2Q 50	35	-13		+			SP		✓
2Q 71	6	CC 70-20		LC652	100/500		SP		Pass
2Q 52	1	CCB							BOL
2Q 53	36	FA 44643-B		0665380	1004		SP		✓
2Q 54	37	-32		0665454	↓		SP		✓
2Q 1062917 55	76	CC 70-20		LC652	100/500		SP		Pass Pass ↓
2Q 76	1	CCB							BOL
2Q 57	38	0665659-R5		0665659	1x				✓
2Q 58	39	-ms							BOL
2Q 59	40	FA 45111-1							BOL
2Q 60	41	-2							BOL
2Q 61	42	-3							BOL
2Q 62	43	-4					SP PIR		✓
2Q 63	44	-5							BOL
2Q 64	45	0665659-m3							✓
2Q 65	46	-ms0							✓
2Q 66	47	FA 45111-6					PIR SP		✓
2Q 67	6	CC 70-20		LC652	100/500		SP		Pass
2Q 68	1	CCB							BOL

\*< 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

Analyst's Signature: M. Lawrence

SGS ACCUTEST - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 6/16/17 0900  
 Started (mm/dd/yy 24:00)

Prep Method: 3535A or (Method) (circle)

Date/Time: 06/16/17 1500  
 Finished (mm/dd/yy 24:00)

Analytical Method: LC537 DW

Batch#: OP65503 Ext. By: MB Conc. By: KC Viald By: MB

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP65503 MB	X	250	6	N/A	20ul		1ml	
OP65503 BS	X	250				10+10ul		
FA44596-1	1	260						
-2	1	260						
FA44597-1	1	260						
-2	1	260						
-3	1	260						
/								
FA44596-1 MS	2	260	6	N/A	20ul	10+10ul	1ml	
-1 MSD	3	260	↓	↑	↑	↓	↑	
DUP								

Comments:

Surr.1 ID: LC866 Conc: 1.0 ppm Exp. Date: 12/14/17 Inj. By: MV Ver. By: MB  
 Surr.2 ID: ✓ Conc: ✓ Exp. Date: ✓ Inj. By: ✓ Ver. By: ✓  
 Spk.1 ID: LC860 Conc: 2.0 ppm Exp. Date: 08/23/17 Inj. By: MV Ver. By: MB  
 Spk.2 ID: 8599A Conc: 2.0 ppm Exp. Date: 6/15/18 Inj. By: KC Ver. By: MB

Initial Bath Temp (Therm ID): NEVAP II Exchange Bath/N-Evap Temp (Therm ID):           
 Observed Temp °C: 32.2 Corr. Temp °C: 34.0 Observed Temp °C:          Corr. Temp °C:         

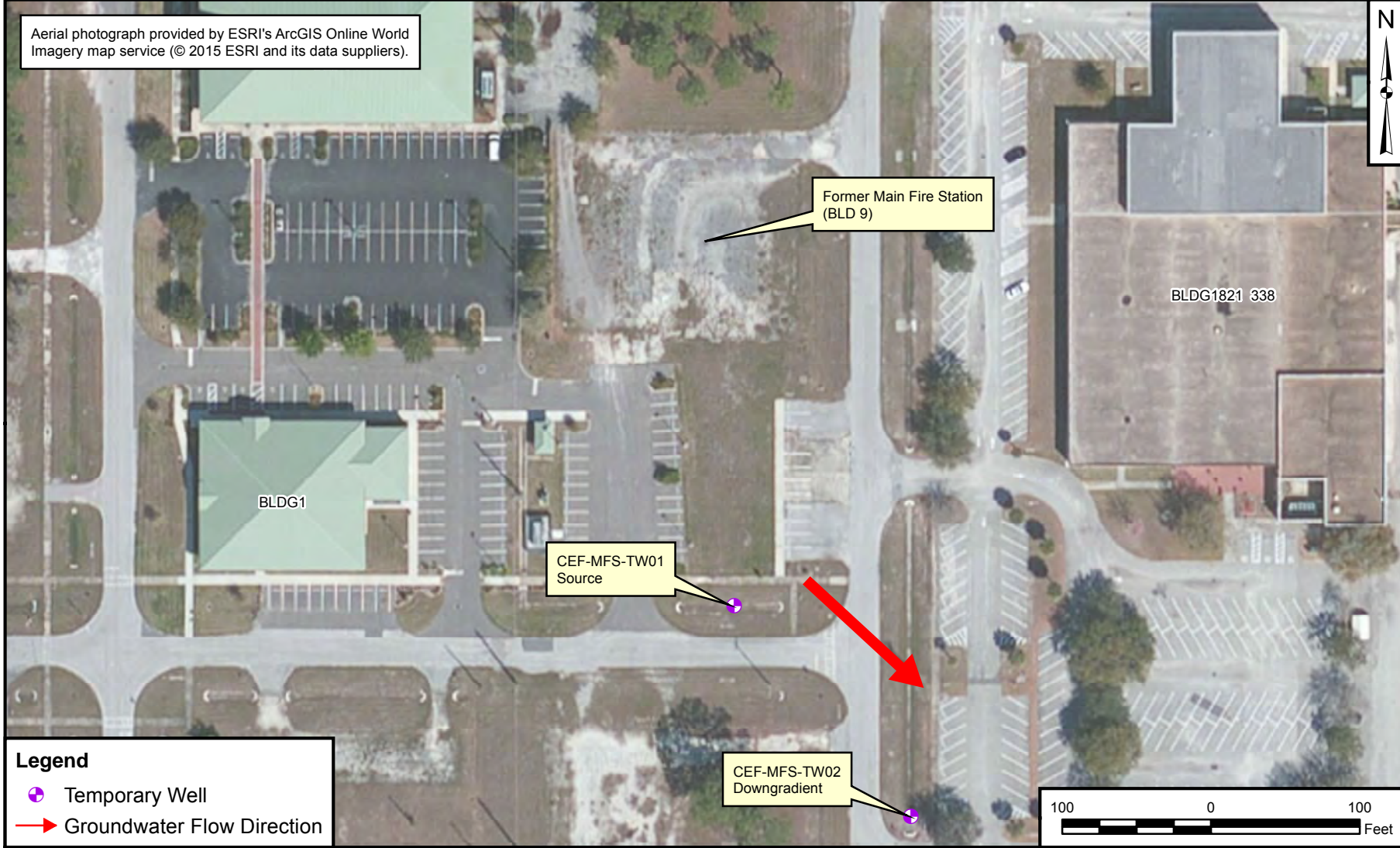
Methanol Lot # 170294 SPE Lot # S300-0226 pH Paper # 230016  
 Acetonitrile Lot # ✓ SPE Lot #          Reagent #           
 Water Lot# op65454 Syringe Filter Lot#          Solvent #         

Relinquished By: KAWA BESTI  
 Accepted By:         

Date: 06/16/17  
 Date: 6/19/17

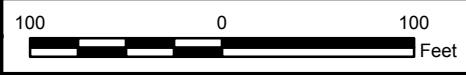
7.7.1  
7

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**Legend**

- Temporary Well
- Groundwater Flow Direction





SITE LOCATION  
 FORMER FIRE STATION  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER	
17-1	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

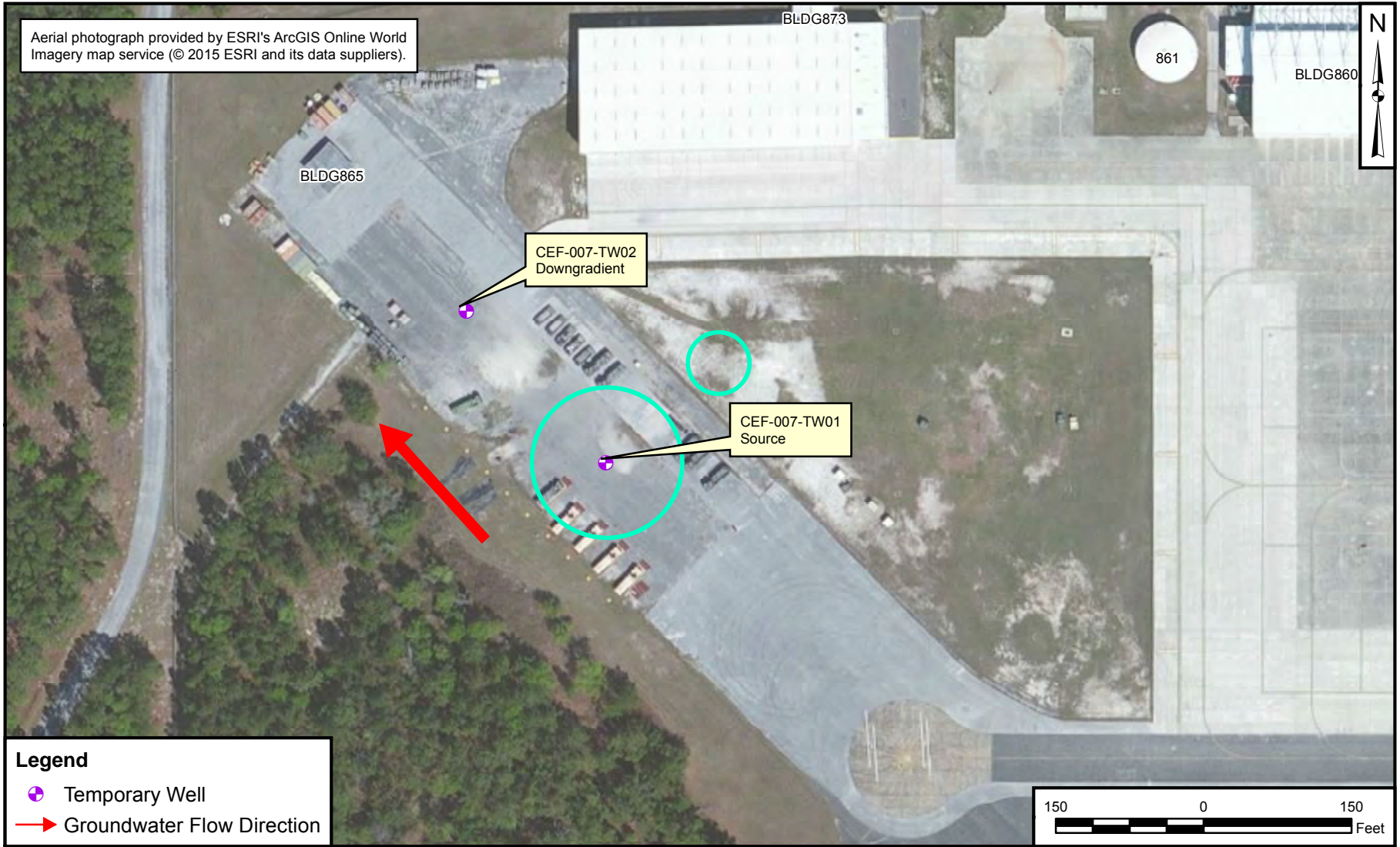
-  Monitoring Well
-  Groundwater Flow Direction





SITE LOCATION  
 CRASH FIRE STATION  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-2	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

-  Temporary Well
-  Groundwater Flow Direction



SITE LOCATION  
 SITE 7  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-3	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).







CEF-008-TW01  
Source

CEF-008-TW02  
Downgradient



**Legend**

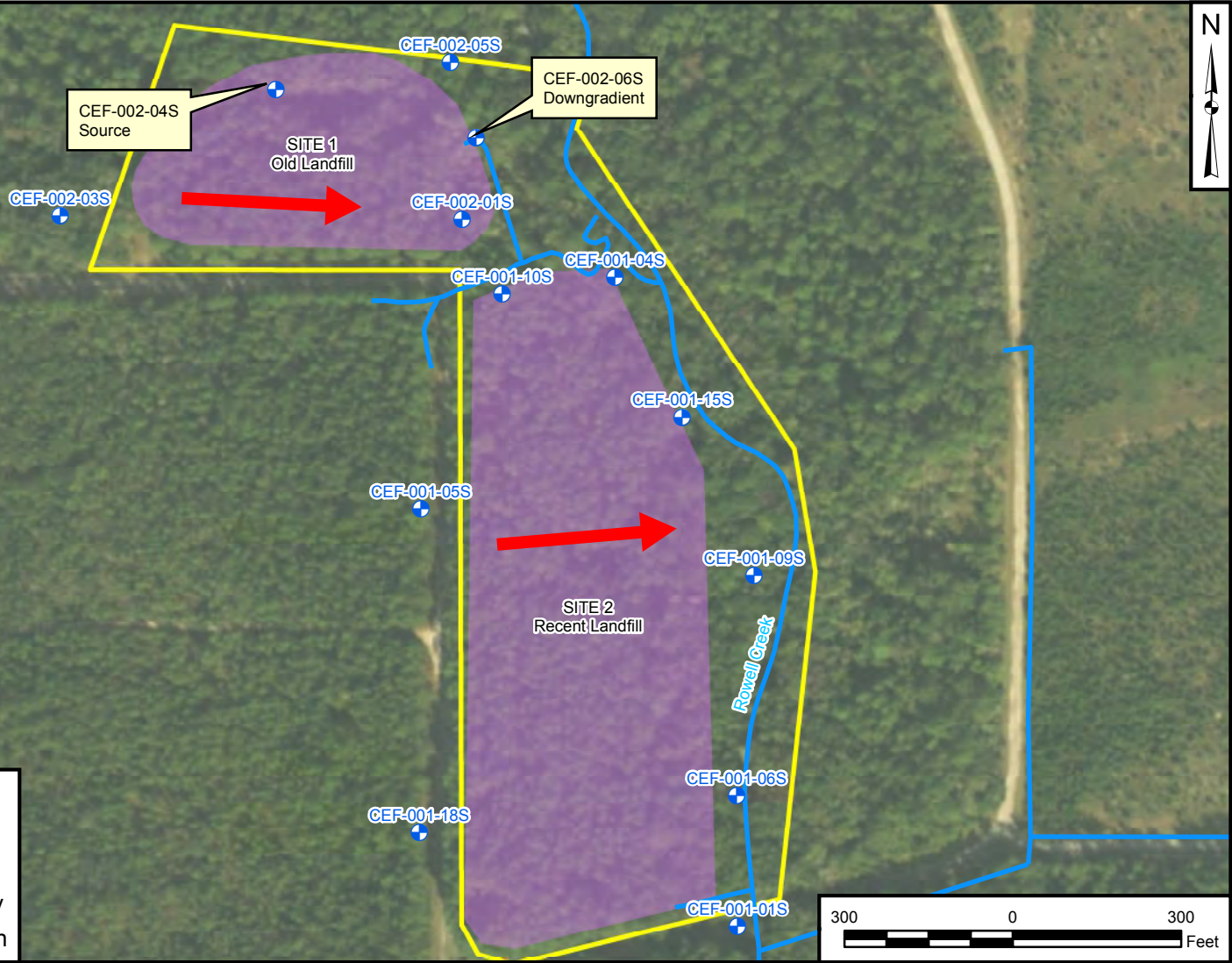
-  Temporary Well
-  Stream
-  Site Boundary
-  Groundwater Flow Direction



SITE LOCATION  
SITE 8  
NAS CECIL FIELD  
CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-4	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

- Temporary Well
- Site Boundary
- Land Use Control Boundary
- Groundwater Flow Direction

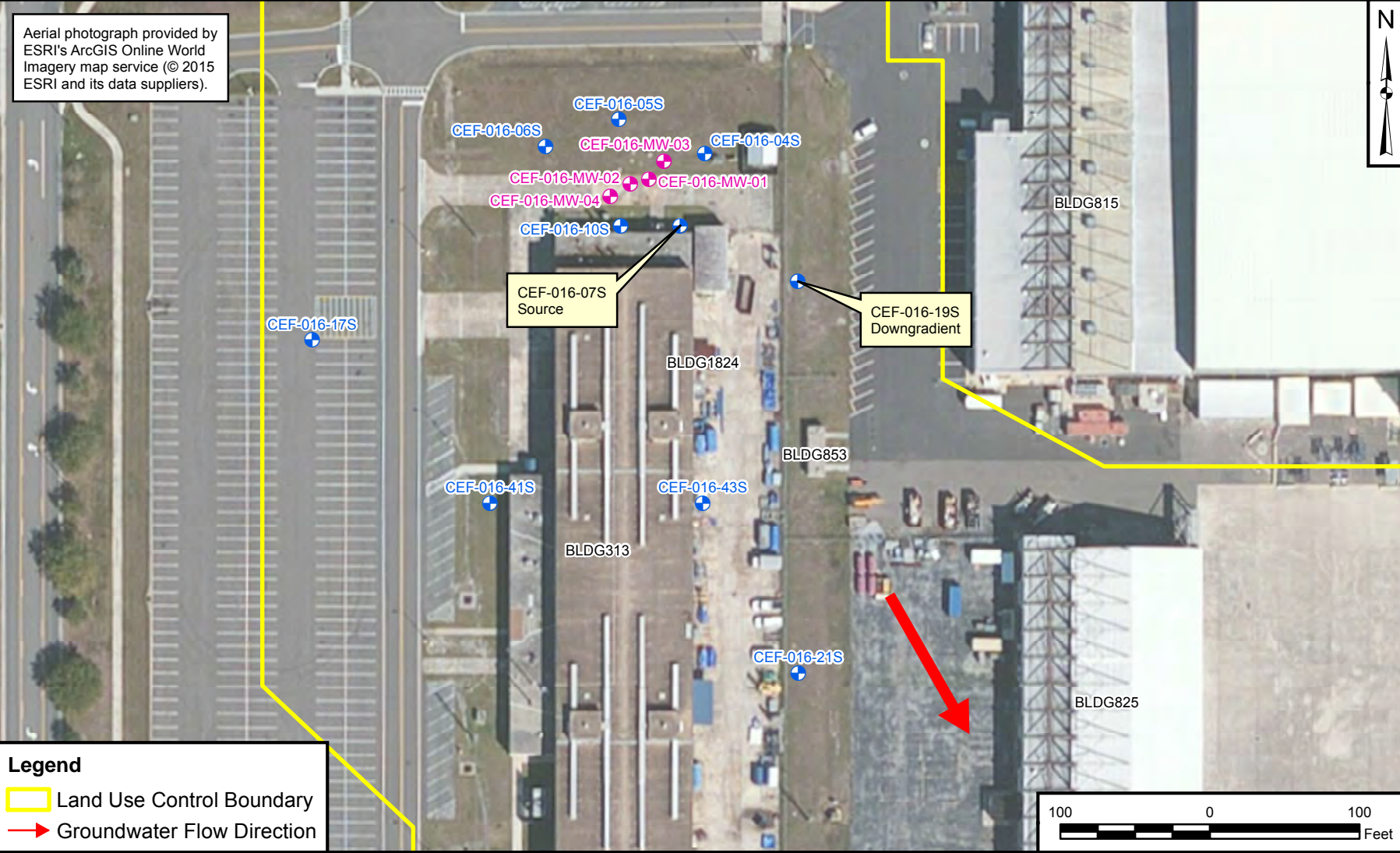


SITE LOCATION  
 SITES 1 & 2  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-5	



Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

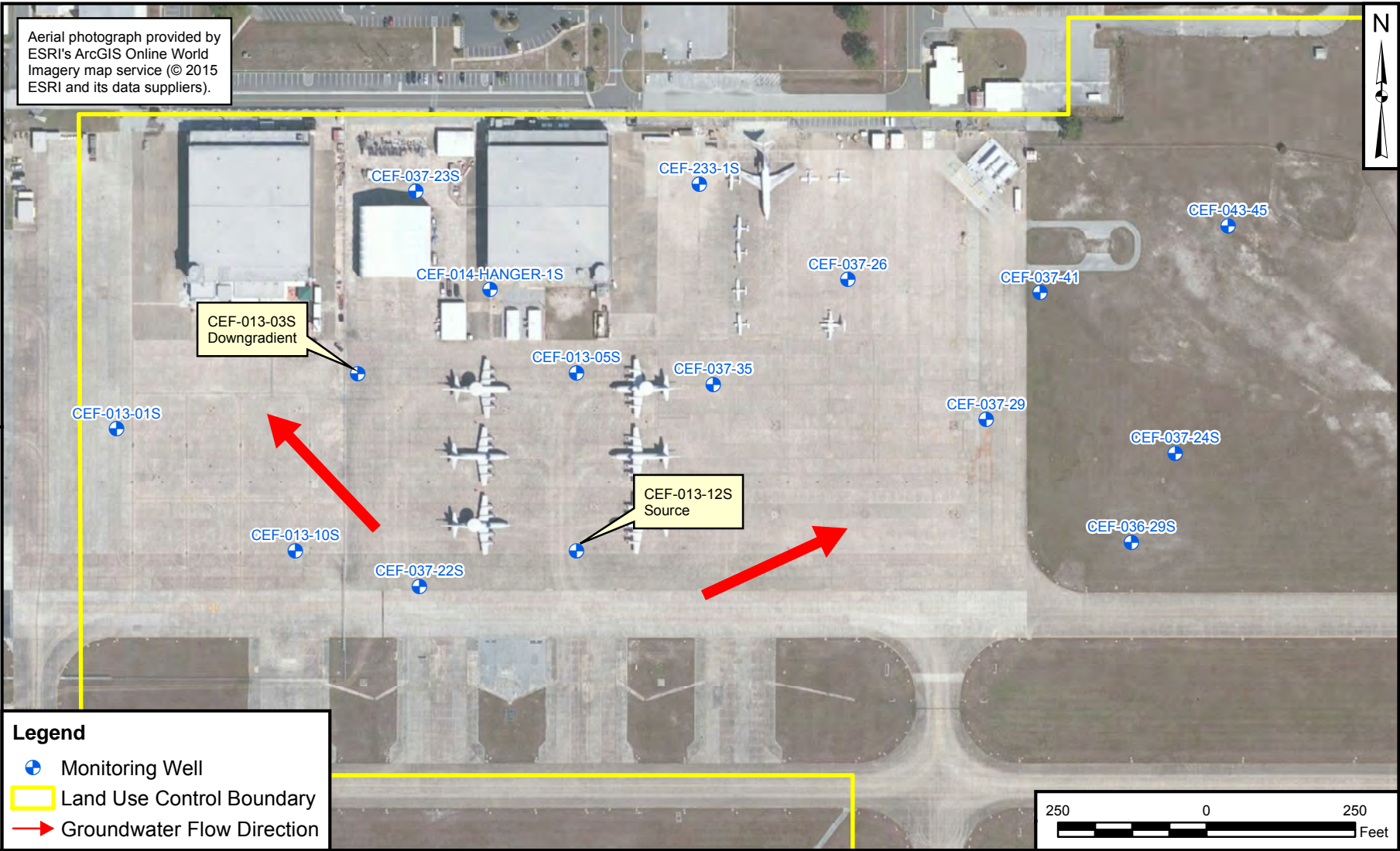
- Land Use Control Boundary
- Groundwater Flow Direction



SITE LOCATION  
SITE 16  
NAS CECIL FIELD  
CECIL FIELD, FLORIDA

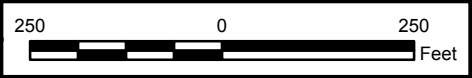
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-6	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

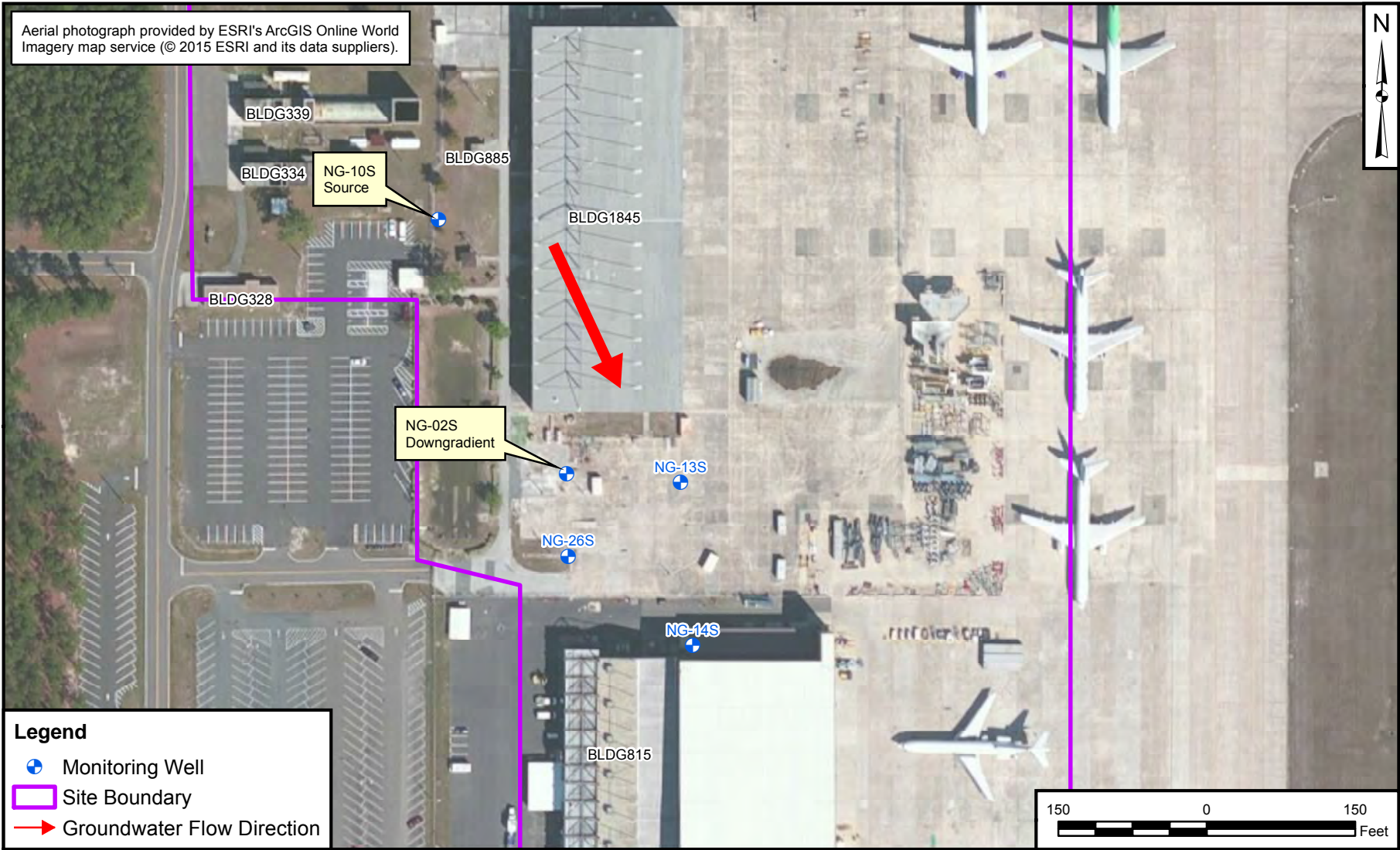
- Monitoring Well
- Land Use Control Boundary
- Groundwater Flow Direction



SITE LOCATION  
SITES 36 & 37  
NAS CECIL FIELD  
CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-7	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



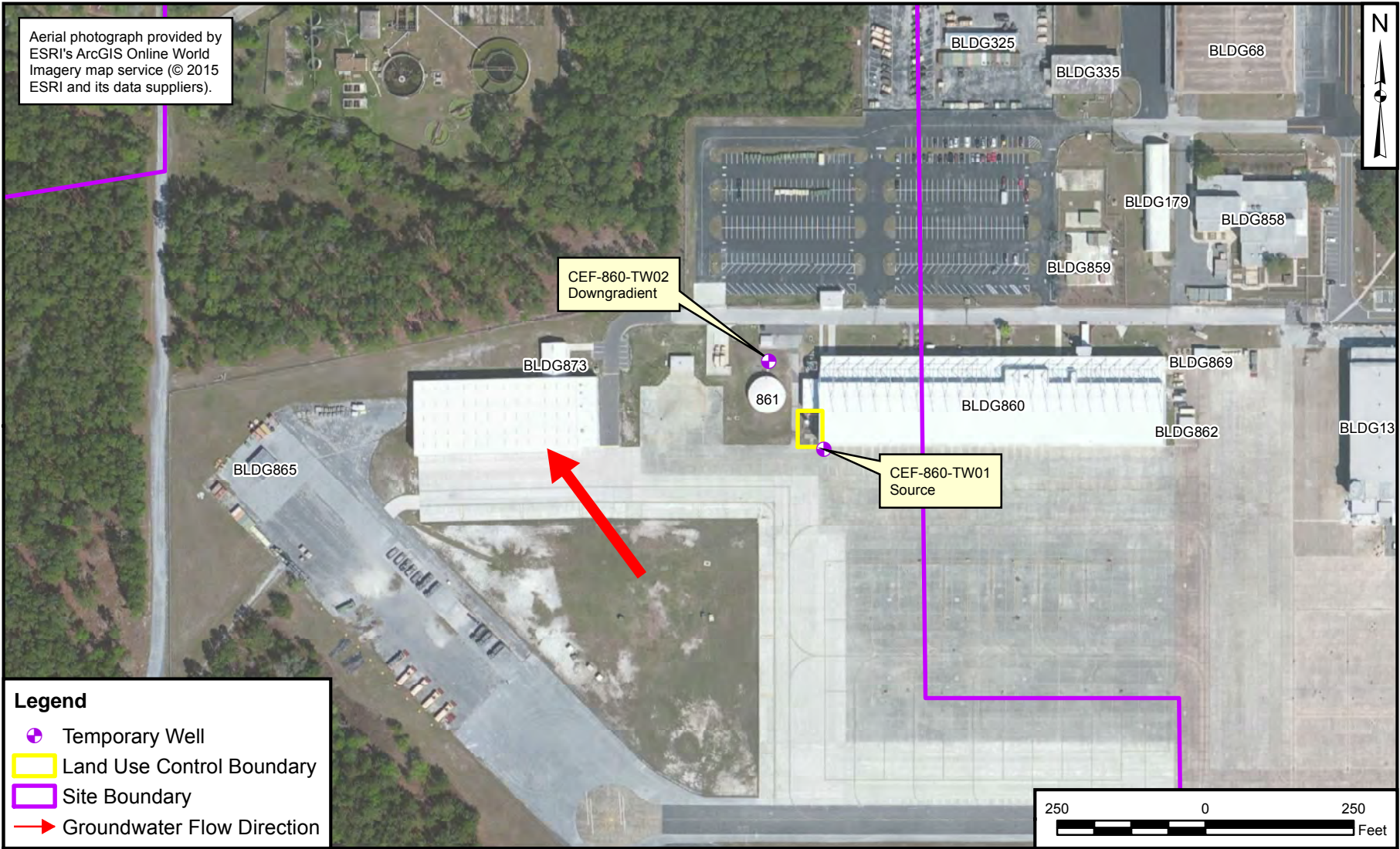
**Legend**

- Monitoring Well
- Site Boundary
- Groundwater Flow Direction



SITE LOCATION  
 SITE 59  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-8	



Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).

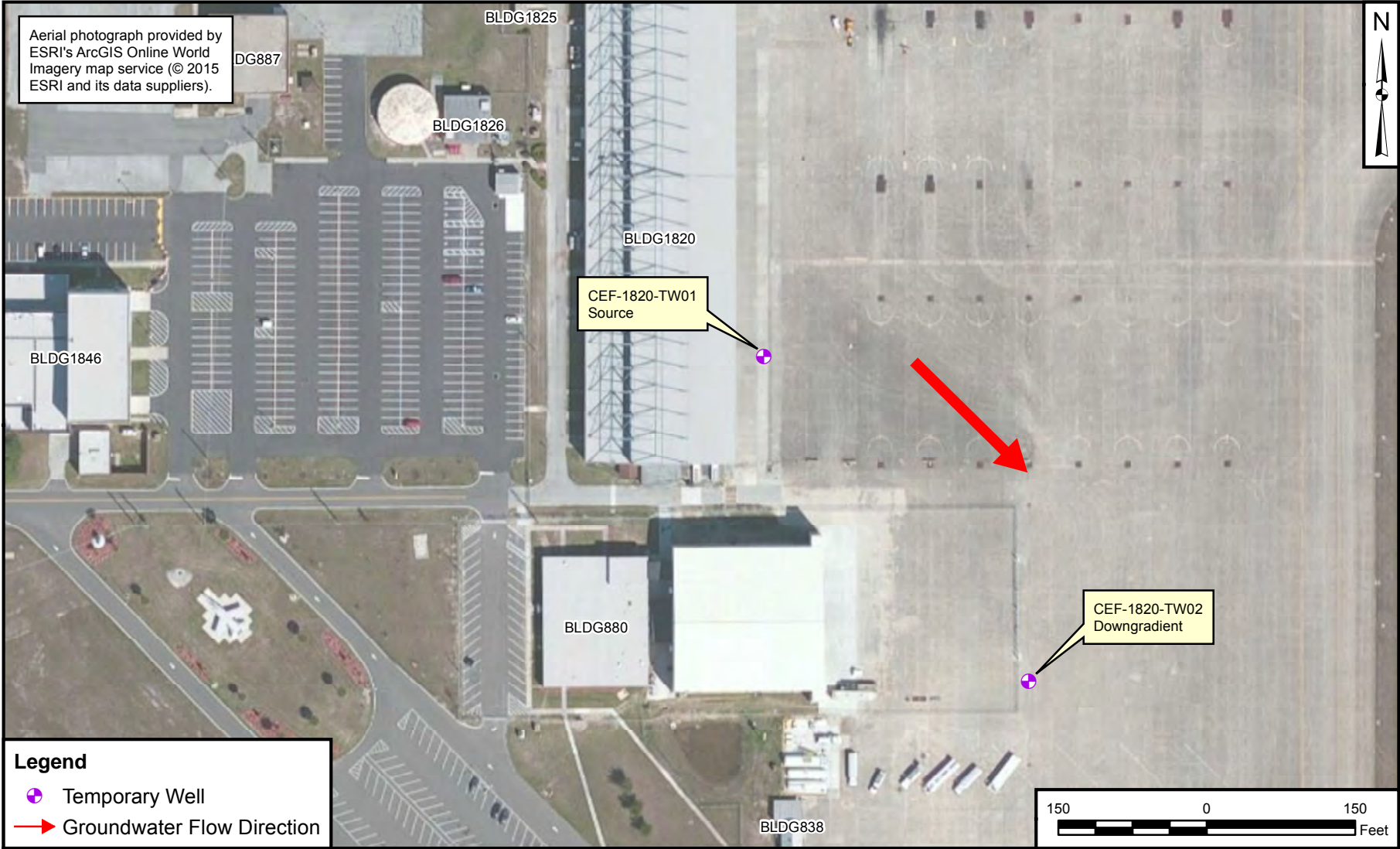
**Legend**

- Temporary Well
- Land Use Control Boundary
- Site Boundary
- Groundwater Flow Direction



SITE LOCATION  
 BUILDING 860  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

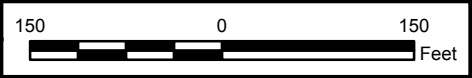
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-9	



Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).

**Legend**

- Temporary Well
- Groundwater Flow Direction



SITE LOCATION  
 BUILDING 1820  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

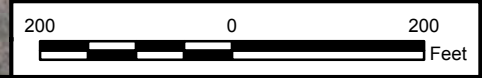
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-10	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

- Land Use Control Boundary
- Groundwater Flow Direction





SITE LOCATION  
 NORTH FUEL FARM  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

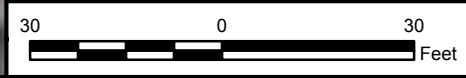
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-11	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

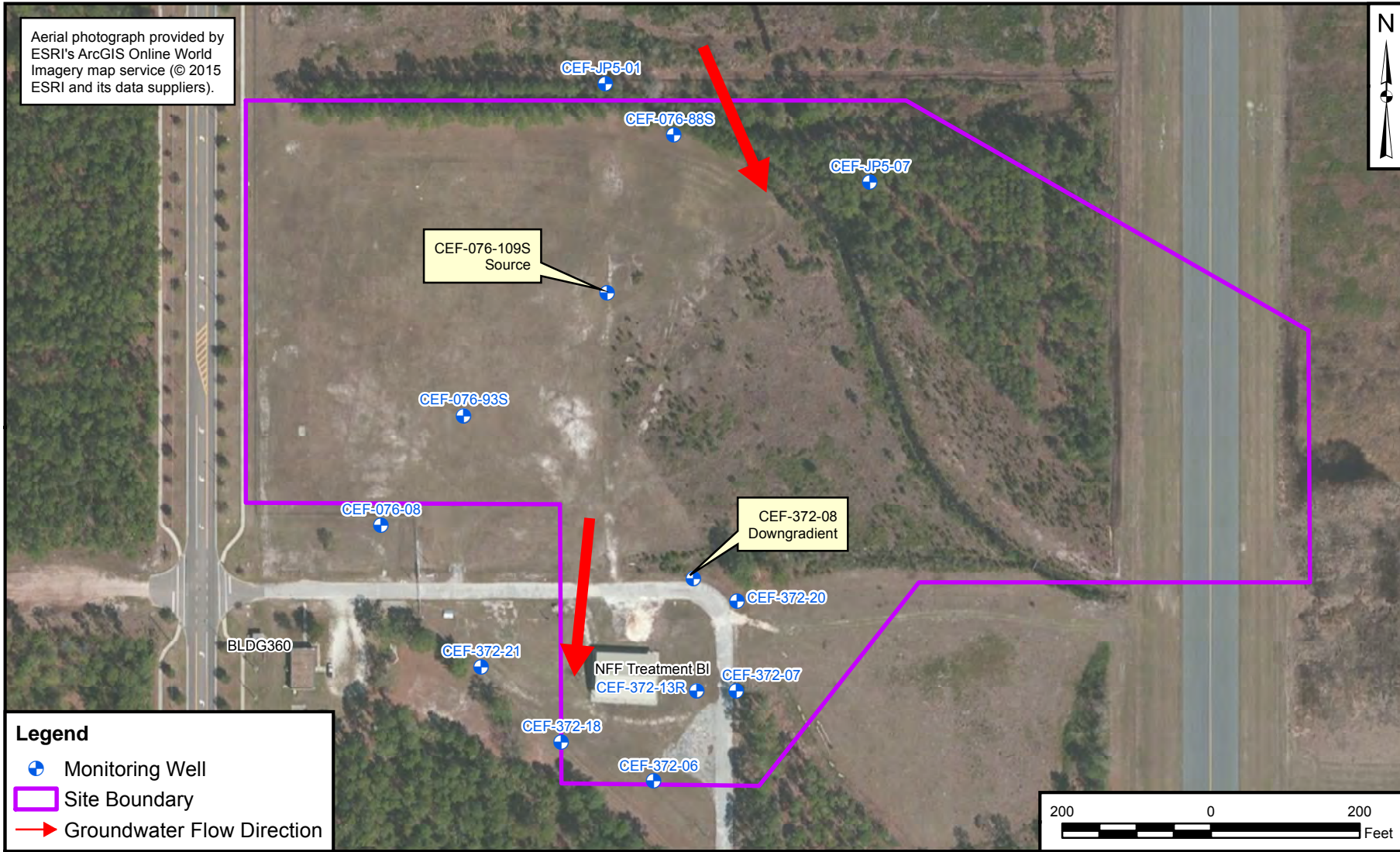
-  Monitoring Well
-  Groundwater Flow Direction



SITE LOCATION  
 Ocala Crash Site  
 NAS Cecil Field  
 Cecil Field, Florida

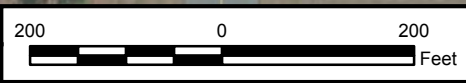
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-12	

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

- Monitoring Well
- Site Boundary
- Groundwater Flow Direction

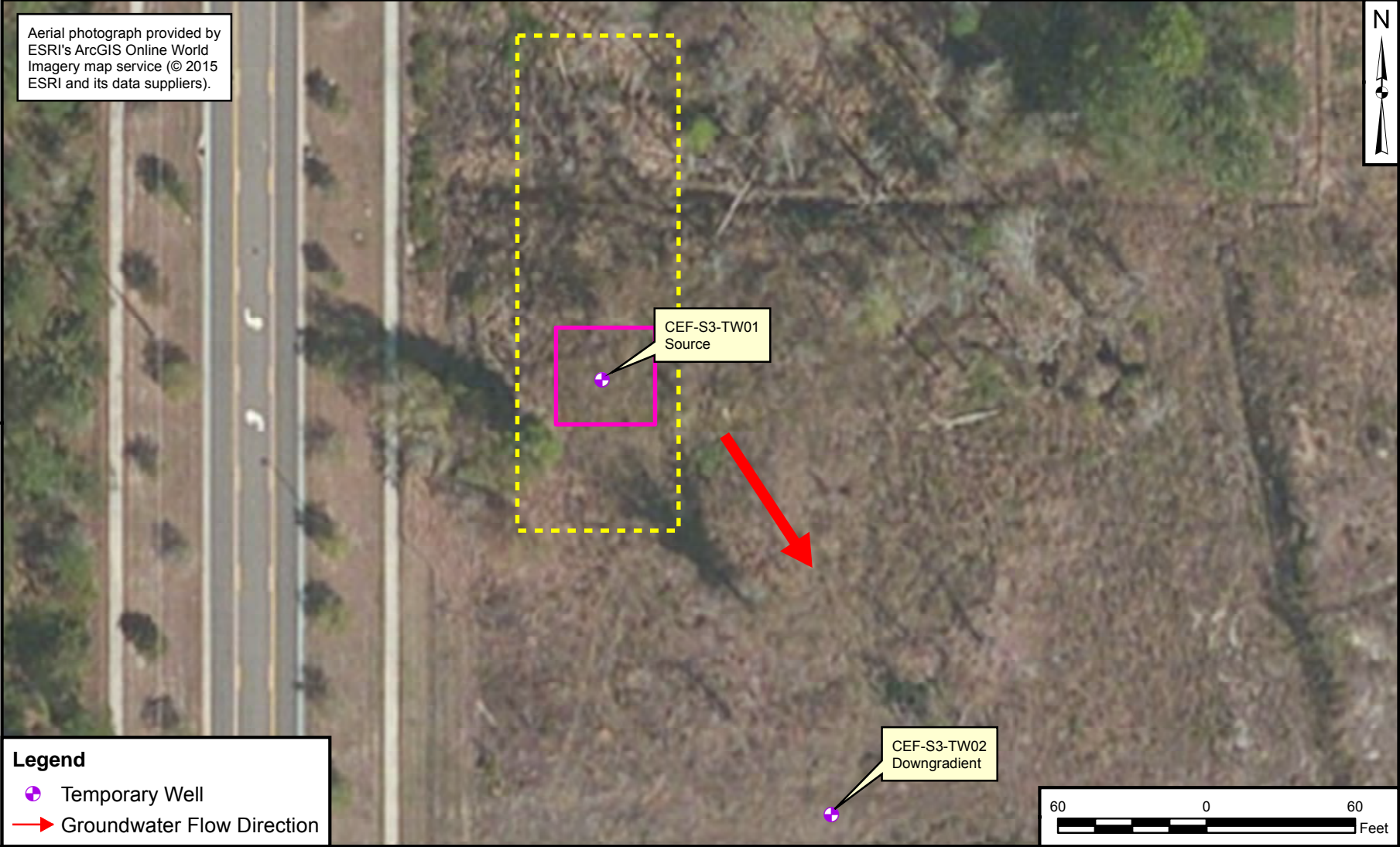


SITE LOCATION  
 NORTH FUEL FARM  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-13	

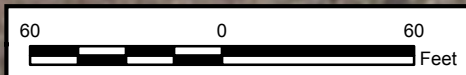


Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

- Temporary Well
- Groundwater Flow Direction



SITE LOCATION  
 S-3 CRASH SITE  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-14	