



**Off-Base Drinking Water Sample Results,  
Combined Level 2 and Level 4 Laboratory Report,  
and the Sample Location Figure, SDG FA43662**

*Naval Air Station Cecil Field  
Jacksonville, Florida*

July 2019

N60200\_009864  
CECIL\_FIELD\_NAS  
SSIC 5000-33c

**LABORATORY DATA PACKAGE FA43662 NAS CECIL FIELD FL**  
05/03/2017  
ACCUTEST LABORATORIES

Approved for public release: distribution unlimited.

### Technical Report for

#### Resolution Consultants

NAS Cecil Field PFAS; Jacksonville, FL

0888817799

SGS Accutest Job Number: FA43662

Sampling Date: 05/03/17

#### Report to:

Resolution Consultants  
5724 Summer Trees Dr  
Memphis, TN 38134  
tcantwell@ensafe.com; kwimble@ensafe.com

ATTN: Kara Wimble

Total number of pages in report: 308



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

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FI002), NY(12022), SC(96038001)  
DoD ELAP(L-A-B L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
AK, AR, GA, IA, KY, MA, NV, OK, OR, UT, WA

This report shall not be reproduced, except in its entirety, without the written approval of SGS Accutest.  
Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary .....</b>	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary .....</b>	<b>4</b>
<b>Section 3: Summary of Hits .....</b>	<b>5</b>
<b>Section 4: Sample Results .....</b>	<b>6</b>
<b>4.1: FA43662-1: COJ-49-0517 .....</b>	<b>7</b>
<b>4.2: FA43662-2: FB-COJ-49-0517 .....</b>	<b>8</b>
<b>Section 5: Misc. Forms .....</b>	<b>9</b>
<b>5.1: Chain of Custody .....</b>	<b>10</b>
<b>5.2: QC Evaluation: DOD QSM5 Limits .....</b>	<b>12</b>
<b>Section 6: GC/MS Semi-volatiles - QC Data Summaries .....</b>	<b>13</b>
<b>6.1: Method Blank Summary .....</b>	<b>14</b>
<b>6.2: Blank Spike Summary .....</b>	<b>15</b>
<b>6.3: Matrix Spike/Matrix Spike Duplicate Summary .....</b>	<b>16</b>
<b>6.4: Internal Standard Area Summaries .....</b>	<b>17</b>
<b>6.5: Surrogate Recovery Summaries .....</b>	<b>19</b>
<b>6.6: Initial and Continuing Calibration Summaries .....</b>	<b>20</b>
<b>Section 7: GC/MS Semi-volatiles - Raw Data .....</b>	<b>28</b>
<b>7.1: Samples .....</b>	<b>29</b>
<b>7.2: Method Blanks .....</b>	<b>59</b>
<b>7.3: Blank Spikes .....</b>	<b>70</b>
<b>7.4: Matrix Spike/Matrix Spike Duplicates .....</b>	<b>80</b>
<b>7.5: Initial and Continuing Calibrations .....</b>	<b>100</b>
<b>7.6: Instrument Run Logs .....</b>	<b>298</b>
<b>7.7: Prep Logs .....</b>	<b>307</b>

1

2

3

4

5

6

7



## Sample Summary

### Resolution Consultants

Job No: FA43662

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

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA43662-1	05/03/17	16:22 RB	05/05/17	DW	Drinking Water	COJ-49-0517
FA43662-2	05/03/17	16:24 RB	05/05/17	DW	Drinking Water FB	FB-COJ-49-0517

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Resolution Consultants

**Job No:** FA43662

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

**Report Date** 6/1/2017 6:26:39 PM

1 Sample and 1 Field Blank were collected on 05/03/2017 and were received at SGS Accutest Southeast (SASE) on 05/05/2017 properly preserved, at 2.7 Deg. C and intact. These Samples received an SASE job number of FA43662. 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:** OP65057

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) FA43661-1MS, FA43661-1MSD were used as the QC samples indicated.

Sample(s) OP65057-MS, OP65057-MSD, FA43662-1, FA43662-2 have surrogates outside control limits. Probable cause is due to matrix interference.

OP65057-MS for 13C2-PFDA: Outside control limits.

OP65057-MSD for 13C2-PFDA: Outside control limits.

FA43662-1 for 13C2-PFDA: Outside control limits.

FA43662-2 for 13C2-PFDA: Outside control limits.

FA43662-2 for 13C2-PFHxA: Outside control limits.

FA43662-1: Confirmed ND by re-extraction and reanalysis.

FA43662-2: Confirmed ND by re-extraction and reanalysis.

**Matrix:** DW

**Batch ID:** OP65200

FA43662-1: Confirmation run for surrogate recoveries.

FA43662-2: Confirmation run for surrogate recoveries.

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:

\_\_\_\_\_  
Lovelie Metzgar, QA Officer (signature on file)

Date: June 1, 2017

## Summary of Hits

**Job Number:** FA43662  
**Account:** Resolution Consultants  
**Project:** NAS Cecil Field PFAS; Jacksonville, FL  
**Collected:** 05/03/17



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

FA43662-1      COJ-49-0517

No hits reported in this sample.

FA43662-2      FB-COJ-49-0517

No hits reported in this sample.

**Sample Results**

---

**Report of Analysis**

---



SGS Accutest

# Report of Analysis

Page 1 of 1

Client Sample ID:	COJ-49-0517	Date Sampled:	05/03/17
Lab Sample ID:	FA43662-1	Date Received:	05/05/17
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 537 EPA 537		
Project:	NAS Cecil Field PFAS; Jacksonville, FL		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	Q34203.D	1	05/19/17 22:27	NAF	05/16/17 14:00	OP65057	SQ893
Run #2 <sup>b</sup>	2Q1788.D	1	05/31/17 21:33	NAF	05/26/17 10:00	OP65200	S2Q48

Run #	Initial Volume	Final Volume
Run #1	250 ml	1.0 ml
Run #2	250 ml	1.0 ml

CAS No. Compound Result MCL LOQ LOD DL Units Q

**PERFLUOROALKYL CARBOXYLIC ACIDS**

335-67-1 Perfluorooctanoic acid 0.0032 U 0.0080 0.0032 0.0020 ug/l

**PERFLUOROALKYLSULFONATES**

375-73-5 Perfluorobutanesulfonic acid 0.0060 U 0.0080 0.0060 0.0040 ug/l

1763-23-1 Perfluorooctanesulfonic acid 0.0032 U 0.0080 0.0032 0.0020 ug/l

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
	13C2-PFHxA	90%	95%	70-130%
	13C2-PFDA	63% <sup>c</sup>	99%	70-130%

- (a) Confirmed ND by re-extraction and reanalysis.
- (b) Confirmation run for surrogate recoveries.
- (c) Outside control limits.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
MCL = Maximum Contamination Level (40 CFR 141)      B = Indicates analyte found in associated method blank  
E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.1  
4

SGS Accutest

# Report of Analysis

Page 1 of 1

Client Sample ID:	FB-COJ-49-0517	Date Sampled:	05/03/17
Lab Sample ID:	FA43662-2	Date Received:	05/05/17
Matrix:	DW - Drinking Water FB	Percent Solids:	n/a
Method:	EPA 537 EPA 537		
Project:	NAS Cecil Field PFAS; Jacksonville, FL		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	Q34202.D	1	05/19/17 22:06	NAF	05/16/17 14:00	OP65057	SQ893
Run #2 <sup>b</sup>	2Q1789.D	1	05/31/17 21:55	NAF	05/26/17 10:00	OP65200	S2Q48

Run #	Initial Volume	Final Volume
Run #1	260 ml	1.0 ml
Run #2	250 ml	1.0 ml

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	58% <sup>c</sup>	100%	70-130%
	13C2-PFDA	40% <sup>c</sup>	87%	70-130%

- (a) Confirmed ND by re-extraction and reanalysis.
- (b) Confirmation run for surrogate recoveries.
- (c) Outside control limits.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
MCL = Maximum Contamination Level (40 CFR 141)      B = Indicates analyte found in associated method blank  
E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.2  
4

**Misc. Forms**

**Custody Documents and Other Forms**

---

**Includes the following where applicable:**

- Chain of Custody
- QC Evaluation: DOD QSM5 Limits

FA43662

**RESOLUTION CONSULTANTS**

### CHAIN OF CUSTODY AND ANALYTICAL REQUEST RECORD

	COC No. <b>RR8050317-2</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>JMAB</b>	RC Task Order Manager: <b>Kara Wimble</b>											
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		
<i>i</i>	<b>COJ-49-0517</b>	<b>COJ-49</b>	<b>05/03/17</b>	<b>1622</b>	<b>WP</b>	<b>N</b>	<b>N</b>	<b>2</b>	<b>x</b>			
<i>Z</i>	<b>FB-COJ-49-0517</b>	<b>COJ-49</b>	<b>05/03/17</b>	<b>1624</b>	<b>WQ</b>	<b>FB</b>	<b>N</b>	<b>2</b>	<b>x</b>			
<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>				
Relinquished by (signature)		Date	Time	Received by (signature)		Date	Time	Samples Iced? Yes <input checked="" type="checkbox"/> No				
1 <i>Robert Bailey</i>		05/04/17	1426	1 <i>James Floren</i>		5-4-17	1425	Method of Shipment: <b>Accutest Courier</b>				
2 <i>James Floren</i>		5-4-17	1700	2 <i>[Signature]</i>		05/05/17	800	Airbill No: <b>N/A</b>				
3				3				Date Shipped: <b>05/04/17</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, WG=Ground water, WL=Leachate, 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 Blk, EB=Equipment Blk, FB=Field Blk, FD=Field Duplicate Sample, IDW=Investigative-Derived Waste, MIS=Incremental Sampling Methodology, N=Normal Environmental Sample, TB=Trip Blk

(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      2-7

5.1  
5

**SGS ACCUTEST - ORLANDO SAMPLE RECEIPT CONFIRMATION**

SGS ACCUTEST'S JOB NUMBER: FA43662 CLIENT: Resolution Cons. PROJECT: Former NAS  
 DATE/TIME RECEIVED: 05/05/17 800 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1  
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER DELIVERY OTHER: \_\_\_\_\_  
 AIRBILL NUMBERS: \_\_\_\_\_

**COOLER INFORMATION**

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET

**TRIP BLANK INFORMATION**

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

**MISC. INFORMATION**

NUMBER OF ENCORES ? 25-GRAM \_\_\_\_\_ 5-GRAM \_\_\_\_\_  
 NUMBER OF 5035 FIELD KITS ? \_\_\_\_\_  
 NUMBER OF LAB FILTERED METALS ? \_\_\_\_\_  
 TEST STRIP LOT#s pH 0-3 230315 pH 10-12 219813A OTHER (specify) \_\_\_\_\_

**TEMPERATURE INFORMATION**

- IR THERM ID 1 CORR. FACTOR +0.4
- OBSERVED TEMPS: 2.3
- CORRECTED TEMPS: 2.7 (USED FOR LIMS)

**SAMPLE INFORMATION**

- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- % SOLIDS JAR NOT RECEIVED
- RESIDUAL CHLORINE PRESENT LOT# \_\_\_\_\_

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS: \_\_\_\_\_

TECHNICIAN SIGNATURE/DATE [Signature] 05/05/17 REVIEWER SIGNATURE/DATE [Signature] 05-05-17  
 NF02/16 receipt confirmation 020116.xls

5.1 5

# QC Evaluation: DOD QSM5 Limits

**Job Number:** FA43662  
**Account:** Resolution Consultants  
**Project:** NAS Cecil Field PFAS; Jacksonville, FL  
**Collected:** 05/03/17

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

No Exceptions found.

---

\* Sample used for QC is not from job FA43662

5.2  
5

**GC/MS Semi-volatiles****QC Data Summaries****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: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65057-MB	Q34200.D	1	05/19/17	NAF	05/16/17	OP65057	SQ893

The QC reported here applies to the following samples:

Method: EPA 537

FA43662-1, FA43662-2

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	111%	70-130%
	13C2-PFDA	107%	70-130%



**Blank Spike Summary**

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65057-BS	Q34199.D	1	05/19/17	NAF	05/16/17	OP65057	SQ893

The QC reported here applies to the following samples:

Method: EPA 537

FA43662-1, FA43662-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
335-67-1	Perfluorooctanoic acid	0.08	0.0927	116	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0915	114	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0860	108	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
	13C2-PFHxA	113%	70-130%
	13C2-PFDA	101%	70-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP65057-MS	Q34205.D	1	05/19/17	NAF	05/16/17	OP65057	SQ893
OP65057-MSD	Q34206.D	1	05/19/17	NAF	05/16/17	OP65057	SQ893
FA43661-1	Q34204.D	1	05/19/17	NAF	05/16/17	OP65057	SQ893

The QC reported here applies to the following samples:

Method: EPA 537

FA43662-1, FA43662-2

CAS No.	Compound	FA43661-1 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	0.154	0.138	90	0.154	0.110	71	23	70-130/30
375-73-5	Perfluorobutanesulfonic acid	0.0077 U	0.154	0.166	108	0.154	0.156	101	6	70-130/30
1763-23-1	Perfluorooctanesulfonic acid	0.0077 U	0.154	0.158	103	0.154	0.149	97	6	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	FA43661-1	Limits
	13C2-PFHxA	89%	85%	76%	70-130%
	13C2-PFDA	49%* b	41%* b	55%* a	70-130%

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

\* = Outside of Control Limits.

# Semivolatile Internal Standard Area Summary

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Check Std:	S2Q48-CC47	Injection Date:	05/31/17
Lab File ID:	2Q1783.D	Injection Time:	19:44
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>	48028	4.30	114992	6.84	66361	6.81	39793	7.45	40599	7.47	155452	12.49
Check Std <sup>b</sup>	51592	4.38	121075	6.94	80626	6.91	41993	7.57	43847	7.51	180708	13.07
Upper Limit <sup>c</sup>	67239	5.38	160989	7.94	92905	7.91	55710	8.57	56839	8.51	217633	14.07
Lower Limit <sup>d</sup>	33620	3.38	80494	5.94	46453	5.91	27855	6.57	28419	6.51	108816	12.07

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
OP65200-BS	51974	4.40	125480	6.94	80378	6.91	41812	7.58	45865	7.51	174916	13.07
OP65200-MB	51025	4.40	112651	6.94	79329	6.91	40513	7.58	44232	7.51	166827	13.04
ZZZZZZ	49707	4.40	115571	6.95	79567	6.93	40176	7.58	44028	7.51	162546	13.20
FA43662-1 <sup>e</sup>	45000	4.40	112438	6.94	73978	6.93	37997	7.58	41784	7.51	154581	13.22
FA43662-2 <sup>e</sup>	51556	4.40	119562	6.95	80653	6.93	40934	7.59	44230	7.51	167238	13.17
MC50445-2	49613	4.41	121847	6.95	85331	6.93	41953	7.59	47423	7.53	170676	13.22
OP65200-MS	52146	4.41	126442	6.95	79638	6.93	42098	7.59	45993	7.53	173344	13.12
OP65200-MSD	52428	4.41	127024	6.95	80987	6.93	42360	7.59	46691	7.53	174018	13.08

- 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: S2Q47-ICC47 2Q1742.D 05/30/17 16:40. Area is AVERAGE of initial cal points.
- (b) Check Std Limit = -50 to +50% of initial cal area.
- (c) Upper Limit = +40% of initial standard area; Retention time +1 minutes of check standard.
- (d) Lower Limit = -30% of initial standard area; Retention time -1 minutes of check standard.
- (e) Confirmation run for surrogate recoveries.

6.4.1  
6

# Semivolatile Internal Standard Area Summary

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Check Std:	SQ893-CC893	Injection Date:	05/19/17
Lab File ID:	Q34197.D	Injection Time:	20:20
Instrument ID:	GCMSQ	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>	22095	4.27	38637	6.86	81596	6.84	84076	7.50	17799	7.50	44037	12.65
Check Std <sup>b</sup>	35140*	4.26	42809	6.85	101576	6.84	94360	7.49	21577	7.49	63325	12.65
Upper Limit <sup>c</sup>	33143	5.26	57956	7.85	122394	7.84	126114	8.49	26699	8.49	66056	13.65
Lower Limit <sup>d</sup>	11048	3.26	19319	5.85	40798	5.84	42038	6.49	8900	6.49	22019	11.65

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
OP65057-BS	34562*	4.26	44375	6.86	102626	6.84	96088	7.50	22144	7.49	66078*	12.63
OP65057-MB	33974*	4.27	41804	6.86	101480	6.85	93435	7.50	22502	7.50	63782	12.67
ZZZZZZ	38254 <sup>e</sup>	4.27	46905	6.87	113863	6.85	104999	7.50	25021	7.50	71002 <sup>e</sup>	12.69
FA43662-2 <sup>f</sup>	32610	4.27	41901	6.87	100620	6.85	92676	7.51	22693	7.50	63965	12.69
FA43662-1 <sup>f</sup>	29114	4.27	43277	6.87	101872	6.85	97216	7.51	24565	7.50	66382 <sup>e</sup>	12.69
FA43661-1	26973	4.27	48919	6.87	109906	6.85	107922	7.51	27843 <sup>e</sup>	7.50	73255 <sup>e</sup>	12.69
OP65057-MS	29281	4.27	47675	6.87	104391	6.85	100093	7.51	25261	7.50	69054*	12.67
OP65057-MSD	29663	4.27	50278	6.87	108173	6.86	105870	7.51	25451	7.50	71362*	12.69

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: SQ893-ICC893 Q34174.D 05/19/17 12:06. 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.
- (e) Response outside of control limits; ISTD does not reference any reported target analytes.
- (f) Confirmed ND by re-extraction and reanalysis.

6.4.2  
6

# Semivolatiles Surrogate Recovery Summary

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Method: EPA 537	Matrix: DW
-----------------	------------

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2
FA43662-1	2Q1788.D	95	99
FA43662-1	Q34203.D	90	63* a
FA43662-2	2Q1789.D	100	87
FA43662-2	Q34202.D	58* a	40* a
OP65057-BS	Q34199.D	113	101
OP65057-MB	Q34200.D	111	107
OP65057-MS	Q34205.D	89	49* a
OP65057-MSD	Q34206.D	85	41* a

Surrogate Compounds	Recovery Limits
---------------------	-----------------

S1 = 13C2-PFHxA	70-130%
S2 = 13C2-PFDA	70-130%

(a) Outside control limits.

6.5.1  
6

# Initial Calibration Summary

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q47-ICC47  
 Lab FileID: 2Q1742.D

Initial Calibration ReSponse Factors - D:\MassHunter\Data\0530\_LIST\_S2Q47\S2Q47.batch.bin

Level ID : Calibration File

- 1 : D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1738.d
- 2 : D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1739.d
- 3 : D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1740.d
- 4 : D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1741.d
- 5 : D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1742.d
- 6 : D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1743.d
- 7 : D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1744.d

Compound	1	2	3	4	5	6	7	AvgRF	%RSD	r <sup>2</sup>
1) 13C2-6:2FTS	-----ISTD-----									
8) 4:2FTS	0.5354	0.5090	0.5067	0.4808	0.4831	0.4622	0.4542	0.4902	5.824	1.0000
9) 6:2FTS	1.0909	1.0606	1.0153	0.9727	0.9780	0.9331	0.9140	0.9949	6.498	1.0000
10) 8:2FTS	2.9929	2.8969	2.5886	2.5550	2.6066	2.5262	2.3419	2.6440	8.503	0.9962
3) 13C2-PFDoDA	-----ISTD-----									
19) PFDoDA	0.9657	0.9597	0.9030	0.8956	0.9054	0.9241	0.9187	0.9246	3.003	0.9999
31) PFTeDA	0.4347	0.4215	0.3891	0.3947	0.4001	0.4084	0.4128	0.4088	3.881	0.9997
32) PFTTrDA	0.8165	0.8033	0.7265	0.7307	0.7437	0.7580	0.7724	0.7644	4.576	0.9996
33) PFUnDA	0.8930	0.8816	0.7771	0.7505	0.7639	0.7915	0.7904	0.8069	7.049	0.9997
5) 13C2-PFOA	-----ISTD-----									
2) 13C2-PFDA	2.5122	2.3931	2.5059	2.3582	2.4805	2.5071	2.5181	2.4679	2.628	0.9998
4) 13C2-PFHxA	0.9351	0.8593	0.9233	0.8475	0.8821	0.8714	0.8717	0.8841	3.425	0.9999
16) PFBA	0.3047	0.2827	0.2946	0.2733	0.2786	0.2784	0.2790	0.2845	3.910	0.9999
18) PFDA	1.6433	1.5023	1.5902	1.4920	1.5652	1.5886	1.5651	1.5638	3.360	0.9998
21) PFHpA	1.3911	1.2985	1.2350	1.1533	1.1723	1.1915	1.1796	1.2316	6.945	0.9999
23) PFHxA	0.4954	0.4066	0.4250	0.3860	0.4062	0.3946	0.3947	0.4155	9.001	0.9997
25) PFNA	1.1277	1.0652	1.0634	0.9969	1.0041	1.0085	1.0102	1.0395	4.630	0.9999
27) PFOA	0.9301	0.8706	0.8190	0.7960	0.7771	0.7991	0.7947	0.8266	6.602	0.9999
6) 13C3-PFPeA	-----ISTD-----									
29) PFPeA	1.5715	1.5040	1.3721	1.3610	1.3717	1.3887	1.4056	1.4249	5.669	0.9998
30) PPFPeS	0.1828	0.1709	0.1691	0.1686	0.1731	0.1731	0.1803	0.1740	3.157	0.9991
7) 13C4-PFOS	-----ISTD-----									
17) PFBS	0.6235	0.6067	0.5892	0.5705	0.5915	0.5954	0.6039	0.5972	2.766	0.9998
20) PFDS	0.6419	0.6214	0.6104	0.6012	0.6330	0.6409	0.6457	0.6278	2.736	0.9997
22) PFHpS	0.8702	0.8696	0.8176	0.7859	0.8180	0.8242	0.8306	0.8309	3.630	0.9998
24) PFHxS	0.7962	0.7930	0.7504	0.7087	0.7385	0.7522	0.7619	0.7573	4.035	0.9997
26) PFNS	0.6597	0.6455	0.6347	0.6093	0.6372	0.6320	0.6349	0.6362	2.390	0.9999
28) PFOS	1.1966	1.1502	1.0995	1.0510	1.0841	1.0787	1.0913	1.1073	4.464	0.9999
11) d3-MeFOSAA	-----ISTD-----									
12) d5-EtFOSAA	1.3869	1.2433	1.1302	1.0926	1.1350	1.1562	1.1776	1.1888	8.340	0.9995
13) EtFOSAA	1.0848	1.0387	0.9568	0.9332	0.9768	0.9922	1.0006	0.9976	5.109	0.9997
14) FOSA	1.3472	1.3480	1.1355	1.1959	1.1840	1.2286	1.2092	1.2355	6.616	0.9997
15) MeFOSAA	1.1904	1.1244	1.0522	1.0089	1.0603	1.0775	1.0789	1.0846	5.354	0.9998

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

6.6.1  
6

**Initial Calibration Verification**

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q47-ICV47  
 Lab FileID: 2Q1746.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0530\_LIST\_S2Q47\S2Q47.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1738.d  
 2:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1739.d  
 3:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1740.d  
 4:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1741.d  
 5:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1742.d  
 6:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1743.d  
 7:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1744.d

Data File: 2Q1746

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	0.000	# -100.0	0.0
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	0.000	0.000	0.0	1.5
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	23.038	15.2	115.2
6:2FTS	20.000	21.647	8.2	108.2
8:2FTS	20.000	24.241	21.2	121.2
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	# -100.0	0.0
EtFOSAA	20.000	21.651	8.3	108.3
FOSA	20.000	22.269	11.3	111.3
MeFOSAA	20.000	21.595	8.0	108.0
PFBA	20.000	21.435	7.2	107.2
PFBS	20.000	20.584	2.9	102.9
PFDA	20.000	20.859	4.3	104.3
PFDoDA	20.000	21.059	5.3	105.3
PFDS	20.000	20.474	2.4	102.4
PFHpA	20.000	21.160	5.8	105.8
PFHpS	20.000	20.816	4.1	104.1
PFHxA	20.000	21.053	5.3	105.3
PFHxS	20.000	21.727	8.6	108.6
PFNA	20.000	21.424	7.1	107.1
PFNS	20.000	21.115	5.6	105.6
PFOA	20.000	21.375	6.9	106.9
PFOS	20.000	19.704	-1.5	98.5
PFPeA	20.000	21.008	5.0	105.0
PFPeS	20.000	21.125	5.6	105.6
PFTeDA	20.000	20.725	3.6	103.6
PFTrDA	20.000	21.319	6.6	106.6
PFUnDA	20.000	22.547	12.7	112.7

CC Criteria: +/- 25%

**Continuing Calibration Summary**

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q48-CC47  
 Lab FileID: 2Q1783.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0531\_LIST\_S2Q48\S2Q48.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1738.d  
 2:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1739.d  
 3:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1740.d  
 4:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1741.d  
 5:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1742.d  
 6:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1743.d  
 7:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1744.d

Data File: 2Q1783

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	20.254	1.3	101.3
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	0.000	17.581	0.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	19.849	-0.8	99.2
6:2FTS	20.000	20.471	2.4	102.4
8:2FTS	20.000	17.809	-11.0	89.0
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.084	-4.6	95.4
EtFOSAA	20.000	18.932	-5.3	94.7
FOSA	20.000	21.660	8.3	108.3
MeFOSAA	20.000	19.575	-2.1	97.9
PFBA	20.000	15.482	-22.6	77.4
PFBS	20.000	19.309	-3.5	96.5
PFDA	20.000	18.994	-5.0	95.0
PFDoDA	20.000	19.735	-1.3	98.7
PFDS	20.000	18.297	-8.5	91.5
PFHpA	20.000	20.068	0.3	100.3
PFHpS	20.000	19.650	-1.7	98.3
PFHxA	20.000	17.323	-13.4	86.6
PFHxS	20.000	19.651	-1.7	98.3
PFNA	20.000	20.366	1.8	101.8
PFNS	20.000	17.778	-11.1	88.9
PFOA	20.000	19.837	-0.8	99.2
PFOS	20.000	19.913	-0.4	99.6
PFPeA	20.000	20.225	1.1	101.1
PFPeS	20.000	17.311	-13.4	86.6
PFTeDA	20.000	18.433	-7.8	92.2
PFTrDA	20.000	19.248	-3.8	96.2
PFUnDA	20.000	20.858	4.3	104.3

CC Criteria: +/- 25%



**Continuing Calibration Summary**

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: S2Q48-CC47  
 Lab FileID: 2Q1793.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0531\_LIST\_S2Q48\S2Q48.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1738.d  
 2:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1739.d  
 3:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1740.d  
 4:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1741.d  
 5:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1742.d  
 6:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1743.d  
 7:D:\MassHunter\Data\0530\_LIST\_S2Q47\2Q1744.d

Data File: 2Q1793

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	20.655	3.3	103.3
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	0.000	17.877	0.0	0.0
13C2-PFOA	---	--ISTD--		
13C3-PFPeA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
4:2FTS	20.000	19.937	-0.3	99.7
6:2FTS	20.000	20.524	2.6	102.6
8:2FTS	20.000	17.506	-12.5	87.5
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	19.578	-2.1	97.9
EtFOSAA	20.000	19.500	-2.5	97.5
FOSA	20.000	20.576	2.9	102.9
MeFOSAA	20.000	19.662	-1.7	98.3
PFBA	20.000	15.390	-23.0	77.0
PFBS	20.000	19.471	-2.6	97.4
PFDA	20.000	18.881	-5.6	94.4
PFDoDA	20.000	19.873	-0.6	99.4
PFDS	20.000	17.736	-11.3	88.7
PFHpA	20.000	20.069	0.3	100.3
PFHpS	20.000	19.347	-3.3	96.7
PFHxA	20.000	17.542	-12.3	87.7
PFHxS	20.000	19.465	-2.7	97.3
PFNA	20.000	20.565	2.8	102.8
PFNS	20.000	17.247	-13.8	86.2
PFOA	20.000	19.940	-0.3	99.7
PFOS	20.000	19.687	-1.6	98.4
PFPeA	20.000	20.399	2.0	102.0
PFPeS	20.000	16.884	-15.6	84.4
PFTeDA	20.000	17.998	-10.0	90.0
PFTrDA	20.000	19.178	-4.1	95.9
PFUnDA	20.000	20.802	4.0	104.0

CC Criteria: +/- 25%

# Initial Calibration Summary

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: SQ893-ICC893  
 Lab FileID: Q34174.D

Initial Calibration ReSponse Factors - D:\MassHunter\Data\0519\_PFC\_SQ893\SQ893.batch.bin

Level ID : Calibration File

- 1 : D:\MassHunter\Data\0519\_PFC\_SQ893\Q34170.d
- 2 : D:\MassHunter\Data\0519\_PFC\_SQ893\Q34171.d
- 3 : D:\MassHunter\Data\0519\_PFC\_SQ893\Q34172.d
- 4 : D:\MassHunter\Data\0519\_PFC\_SQ893\Q34173.d
- 5 : D:\MassHunter\Data\0519\_PFC\_SQ893\Q34174.d
- 6 : D:\MassHunter\Data\0519\_PFC\_SQ893\Q34175.d
- 7 : D:\MassHunter\Data\0519\_PFC\_SQ893\Q34176.d

Compound	1	2	3	4	5	6	7	AvgRF	%RSD	r^2
1) 13C2-6:2FTS	----- ISTD -----									
7) 6:2FTS	1.0754	1.0350	0.9982	0.9899	0.9351	0.9207	0.9438	0.9855	5.738	0.9993
8) 8:2FTS	0.9961	0.9681	0.9440	0.9029	0.8515	0.9047	0.9354	0.9290	5.119	0.9995
31) 4:2FTS	1.0181	0.9370	0.8980	0.8711	0.8170	0.8245	0.8487	0.8878	8.009	0.9994
3) 13C2-PFDoDA	----- ISTD -----									
17) PFDoDA	1.0319	0.9096	0.9001	0.9030	0.8692	0.9114	0.9267	0.9217	5.599	0.9999
27) PFTeDA	0.5887	0.5471	0.5800	0.5792	0.5518	0.5820	0.5544	0.5690	3.020	0.9988
28) PFTrDA	0.9860	0.9150	0.8850	0.8779	0.8191	0.8610	0.9063	0.8929	5.800	0.9993
29) PFUnDA	0.9881	0.9096	0.8780	0.8663	0.8198	0.8797	0.8738	0.8879	5.812	0.9993
5) 13C2-PFOA	----- ISTD -----									
2) 13C2-PFDA	0.8535	0.7431	0.7460	0.7774	0.7822	0.7750	0.8629	0.7914	6.084	0.9946
4) 13C2-PFHxA	0.4494	0.3971	0.3786	0.3581	0.3509	0.3652	0.3774	0.3824	8.685	0.9989
16) PFDA	0.6378	0.6623	0.6688	0.5810	0.6313	0.6836	0.7026	0.6525	6.138	0.9973
19) PFHpA	0.3680	0.3459	0.3190	0.3115	0.3043	0.3227	0.3238	0.3279	6.679	0.9994
21) PFHxA	0.4327	0.3668	0.3530	0.3386	0.3279	0.3396	0.3541	0.3590	9.727	0.9986
23) PFNA	0.3399	0.3181	0.3008	0.2957	0.2895	0.3077	0.3166	0.3098	5.457	0.9986
24) PFOA	1.1230	1.0448	0.9951	0.9751	0.9707	0.9882	1.0208	1.0168	5.270	0.9993
6) 13C4-PFOS	----- ISTD -----									
15) PFBS	0.4413	0.4042	0.3826	0.3853	0.3677	0.3912	0.4037	0.3966	5.913	0.9986
18) PFDS	0.6278	0.5865	0.5619	0.5514	0.5385	0.5677	0.5905	0.5749	5.155	0.9997
20) PFHpS	0.7098	0.6510	0.6211	0.6209	0.6008	0.6330	0.6517	0.6412	5.485	0.9989
22) PFHxS	0.6591	0.6096	0.5799	0.5732	0.5527	0.5772	0.5928	0.5921	5.804	0.9991
25) PFOS	1.1941	1.0217	0.9511	1.0218	0.9510	1.0262	1.0495	1.0308	7.915	0.9985
32) PFNS	0.2935	0.2587	0.2493	0.2420	0.2335	0.2481	0.2581	0.2548	7.539	0.9982
33) PFPeS	0.1137	0.0978	0.0945	0.0919	0.0891	0.0933	0.0958	0.0966	8.319	0.9991
9) d3-MeFOSAA	----- ISTD -----									
10) d5-EtFOSAA	0.8874	0.7697	0.7307	0.7658	0.6930	0.6995	0.7543	0.7572	8.584	0.9980
11) EtFOSAA	0.7587	0.7123	0.6739	0.6834	0.6434	0.6918	0.7537	0.7025	6.003	0.9946
12) FOSA	7.1935	6.4099	6.0300	5.8695	5.5410	5.4726	5.6008	6.0168	10.193	0.9995
13) MeFOSAA	0.8727	0.7835	0.7322	0.7244	0.6973	0.7082	0.8012	0.7599	8.254	0.9925
30) 13C3-PFPeA	----- ISTD -----									
14) PFBA	1.0946	0.9484	0.8691	0.8432	0.8020	0.8482	0.8737	0.8970	10.894	0.9987
26) PFPeA	0.6382	0.5844	0.5497	0.5524	0.5187	0.5462	0.5646	0.5649	6.710	0.9988

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

6.6.5  
6

**Initial Calibration Verification**

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: SQ893-ICV893  
 Lab FileID: Q34178.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0519\_PFC\_SQ893\SQ893.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34170.d  
 2:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34171.d  
 3:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34172.d  
 4:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34173.d  
 5:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34174.d  
 6:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34175.d  
 7:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34176.d

Data File: Q34178

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--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	23.576	17.9	117.9
8:2FTS	20.000	24.324	21.6	121.6
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	0.000	0.0	0.0
EtFOSAA	20.000	24.615	23.1	123.1
FOSA	20.000	25.267	# 26.3	126.3
MeFOSAA	20.000	24.427	22.1	122.1
PFBA	20.000	23.657	18.3	118.3
PFBS	20.000	21.477	7.4	107.4
PFDA	20.000	20.728	3.6	103.6
PFDoDA	20.000	22.016	10.1	110.1
PFDS	20.000	22.212	11.1	111.1
PFHpA	20.000	22.376	11.9	111.9
PFHpS	20.000	22.153	10.8	110.8
PFHxA	20.000	23.704	18.5	118.5
PFHxS	20.000	22.065	10.3	110.3
PFNA	20.000	21.022	5.1	105.1
PFOA	20.000	21.600	8.0	108.0
PFOS	20.000	20.762	3.8	103.8
PFPeA	20.000	20.774	3.9	103.9
PFTeDA	20.000	21.415	7.1	107.1
PFTTrDA	20.000	22.009	10.0	110.0
PFUnDA	20.000	21.302	6.5	106.5
13C3-PFPeA	---	--ISTD--		
4:2FTS	20.000	27.554	# 37.8	137.8
PFNS	20.000	24.333	21.7	121.7
PFPeS	20.000	25.281	# 26.4	126.4

CC Criteria: +/- 25%

**Continuing Calibration Summary**

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: SQ893-CC893  
 Lab FileID: Q34197.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0519\_PFC\_SQ893\SQ893.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34170.d  
 2:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34171.d  
 3:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34172.d  
 4:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34173.d  
 5:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34174.d  
 6:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34175.d  
 7:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34176.d

Data File: Q34197

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	19.229	-3.9	96.1
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	20.782	3.9	103.9
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	19.487	-2.6	97.4
8:2FTS	20.000	23.792	19.0	119.0
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	21.760	8.8	108.8
EtFOSAA	20.000	17.955	-10.2	89.8
FOSA	20.000	20.442	2.2	102.2
MeFOSAA	20.000	17.847	-10.8	89.2
PFBA	20.000	21.185	5.9	105.9
PFBS	20.000	19.036	-4.8	95.2
PFDA	20.000	19.058	-4.7	95.3
PFDoDA	20.000	19.586	-2.1	97.9
PFDS	20.000	20.237	1.2	101.2
PFHpA	20.000	19.599	-2.0	98.0
PFHpS	20.000	18.325	-8.4	91.6
PFHxA	20.000	20.977	4.9	104.9
PFHxS	20.000	18.736	-6.3	93.7
PFNA	20.000	19.094	-4.5	95.5
PFOA	20.000	19.147	-4.3	95.7
PFOS	20.000	18.837	-5.8	94.2
PFPeA	20.000	18.602	-7.0	93.0
PFTeDA	20.000	18.536	-7.3	92.7
PFTrDA	20.000	20.037	0.2	100.2
PFUnDA	20.000	19.053	-4.7	95.3
13C3-PFPeA	---	--ISTD--		
4:2FTS	20.000	21.479	7.4	107.4
PFNS	20.000	20.580	2.9	102.9
PFPeS	20.000	21.484	7.4	107.4

CC Criteria: +/- 25%

**Continuing Calibration Summary**

Job Number: FA43662  
 Account: RESCTNM Resolution Consultants  
 Project: NAS Cecil Field PFAS; Jacksonville, FL

Sample: SQ893-CC893  
 Lab FileID: Q34208.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\0519\_PFC\_SQ893\SQ893.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34170.d  
 2:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34171.d  
 3:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34172.d  
 4:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34173.d  
 5:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34174.d  
 6:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34175.d  
 7:D:\MassHunter\Data\0519\_PFC\_SQ893\Q34176.d

Data File: Q34208

Type : QC

Level : 5

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-6:2FTS	---	--ISTD--		
13C2-PFDA	20.000	21.504	7.5	107.5
13C2-PFDoDA	---	--ISTD--		
13C2-PFHxA	20.000	20.461	2.3	102.3
13C2-PFOA	---	--ISTD--		
13C4-PFOS	---	--ISTD--		
6:2FTS	20.000	19.002	-5.0	95.0
8:2FTS	20.000	22.487	12.4	112.4
d3-MeFOSAA	---	--ISTD--		
d5-EtFOSAA	20.000	21.922	9.6	109.6
EtFOSAA	20.000	17.823	-10.9	89.1
FOSA	20.000	19.428	-2.9	97.1
MeFOSAA	20.000	17.844	-10.8	89.2
PFBA	20.000	20.667	3.3	103.3
PFBS	20.000	19.031	-4.8	95.2
PFDA	20.000	21.273	6.4	106.4
PFDoDA	20.000	19.545	-2.3	97.7
PFDS	20.000	20.209	1.0	101.0
PFHpA	20.000	19.827	-0.9	99.1
PFHpS	20.000	18.468	-7.7	92.3
PFHxA	20.000	20.727	3.6	103.6
PFHxS	20.000	18.704	-6.5	93.5
PFNA	20.000	19.353	-3.2	96.8
PFOA	20.000	19.265	-3.7	96.3
PFOS	20.000	18.955	-5.2	94.8
PFPeA	20.000	18.775	-6.1	93.9
PFTeDA	20.000	19.845	-0.8	99.2
PFTrDA	20.000	19.589	-2.1	97.9
PFUnDA	20.000	19.718	-1.4	98.6
13C3-PFPeA	---	--ISTD--		
4:2FTS	20.000	20.852	4.3	104.3
PFNS	20.000	19.779	-1.1	98.9
PFPeS	20.000	20.969	4.8	104.8

CC Criteria: +/- 25%

**GC/MS Semi-volatiles**

---

**Raw Data**

---

## Perfluorinated Compounds by LC/MS/MS.

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
**Naresh Jiawan**  
 06/01/17 17:06

```

Data File           : Q34203.d
Operator            : NANCYF
Acq Method Name     : dMRM_PFOA_PFOS_LIST.m
Acquisition date    : 2017-05-19 22:27
Sample Name         : FA43662-1
Vial                : Vial 29
Sample Info         : OP65057,SQ893,250,,,1.0,1,WATER
Quant Method        : PFC_LIST_0519_SQ893.quantmethod.xml
Quant Batch Name    : SQ893.batch.bin
Last Calib Update   : 2017-05-22 07:04
    
```

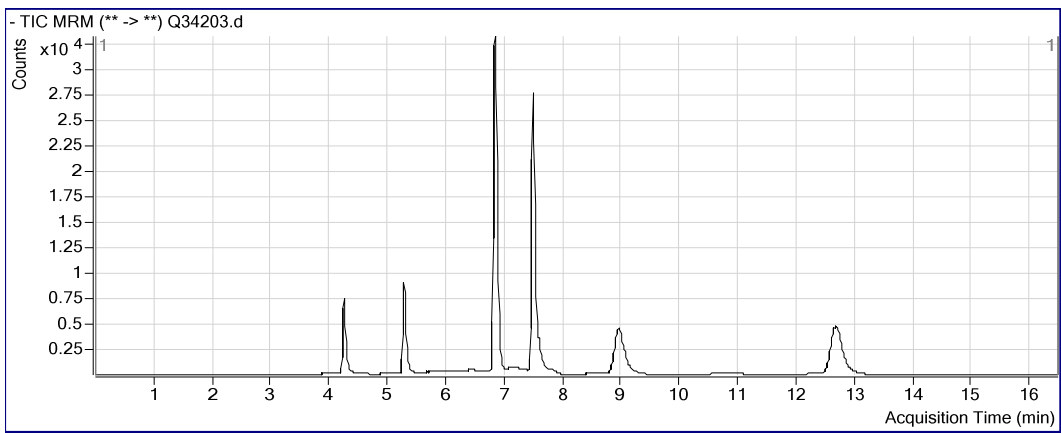
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<b>Internal Standards</b>						
13C3-PFPeA	4.272	266.0 -> 222.0	29114	20.000	µg/L	-0.012
13C2-PFOA	6.852	415.0 -> 370.0	101872	20.000	µg/L	0.000
13C2-6:2FTS	6.873	429.0 -> 409.0	43277	20.000	µg/L	0.013
d3-MeFOSAA	7.500	573.0 -> 419.0	24565	20.000	µg/L	0.000
13C4-PFOS	7.515	503.0 -> 80.0	97216	20.000	µg/L	0.013
13C2-PFDoDA	12.691	615.0 -> 570.0	66382	20.000	µg/L	0.050
<b>System Monitoring Compounds</b>						
13C2-PFHxA	5.310	315.0 -> 270.0	34106	18.07	µg/L	0.000
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 90.36%			
d5-EtFOSAA	7.622	589.0 -> 419.0	7536	9.05	µg/L	0.000
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 45.26%			
13C2-PFDA	8.980	515.0 -> 470.0	52546	12.54	µg/L	0.052
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 62.68%			
<b>Target Compounds</b>						
PFBA	2.952	213.0 -> 169.0	0	0.000	µg/L m	1
PFPeA	4.325	263.0 -> 219.0	66	0.081	µg/L	100
PFHxA	5.300	313.0 -> 269.0	296	0.168	µg/L	89
PFHxS	6.106	399.0 -> 80.0	165	0.058	µg/L #	80
PFHpA	6.135	363.0 -> 319.0	68	0.042	µg/L	59
6:2FTS	6.875	427.0 -> 407.0	167	0.078	µg/L	100
PFOS	7.263	499.0 -> 80.0	1040	0.207	µg/L # m	58

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

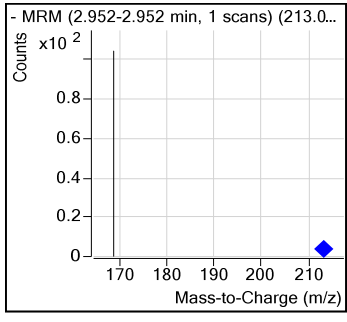
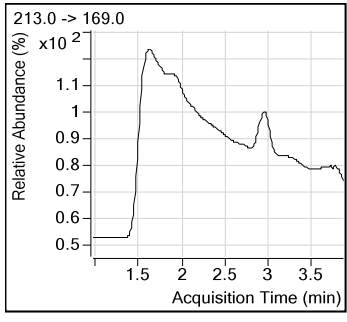
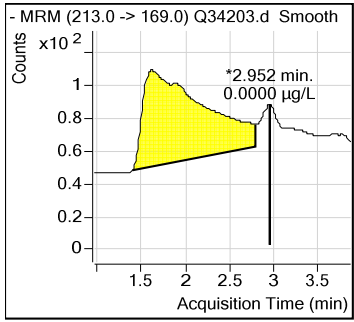
7.1.1  
7

# Perfluorinated Compounds by LC/MS/MS.

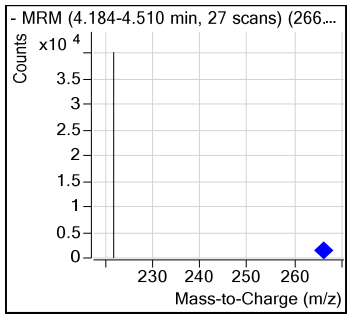
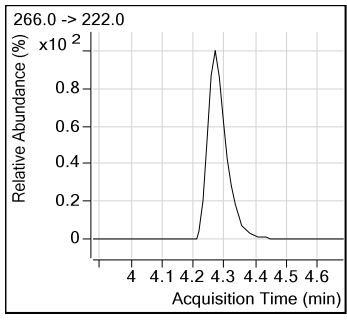
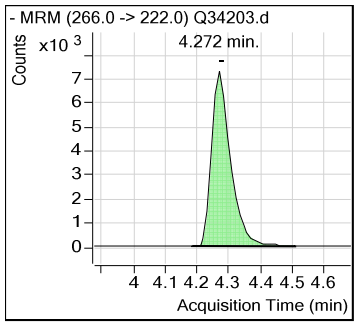
Data File : Q34203.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 22:27  
 Sample Name : FA43662-1  
 Vial : Vial 29  
 Sample Info : OP65057,SQ893,250,,,1.0,1,WATER  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
 Last Calib Update : 2017-05-22 07:04



### PFBA



### 13C3-PFPeA

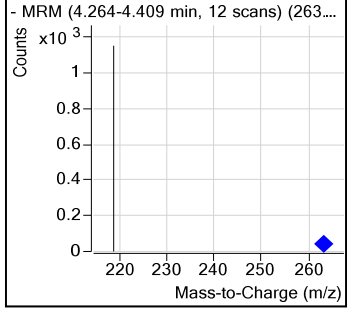
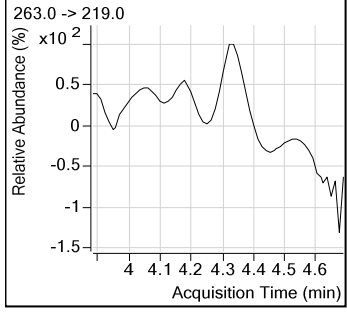
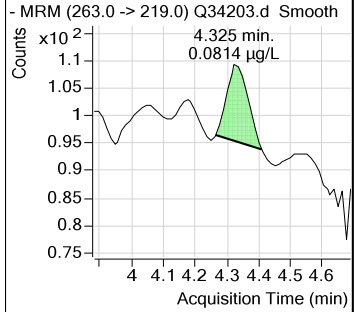


7.1.1  
7

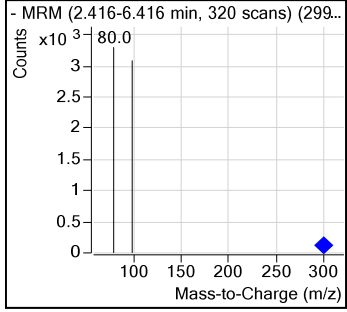
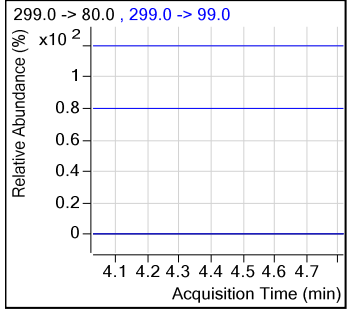
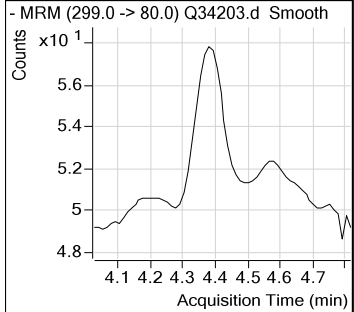


# Perfluorinated Compounds by LC/MS/MS.

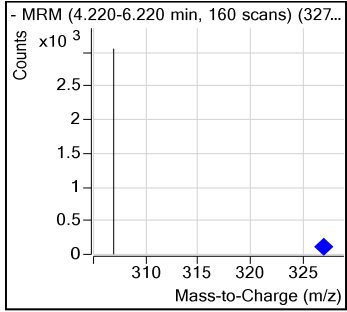
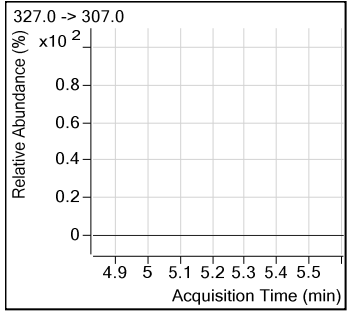
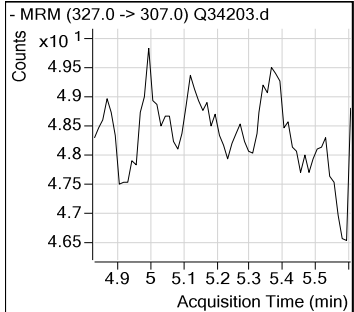
## PFPeA



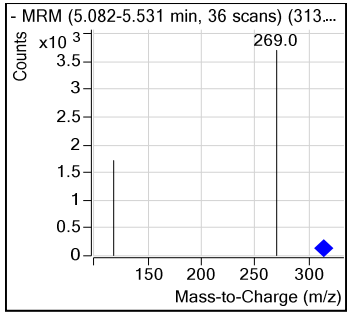
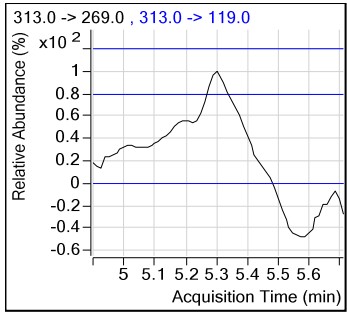
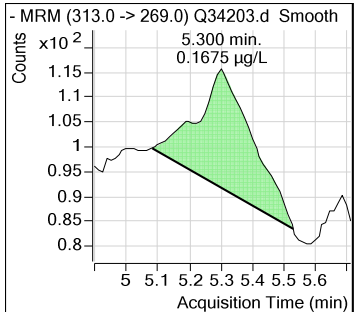
## PFBS



## 4:2FTS



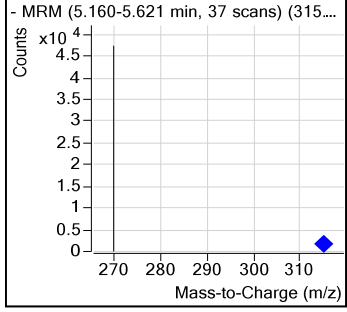
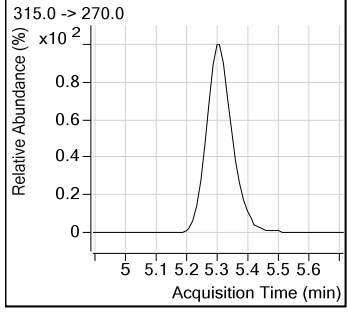
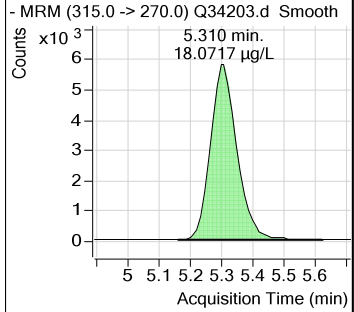
## PFHxA



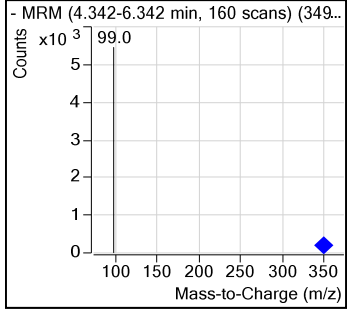
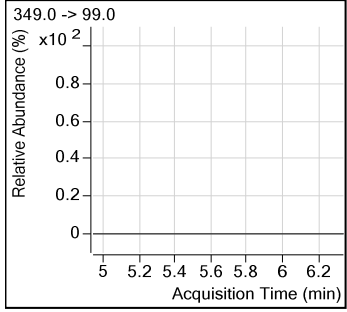
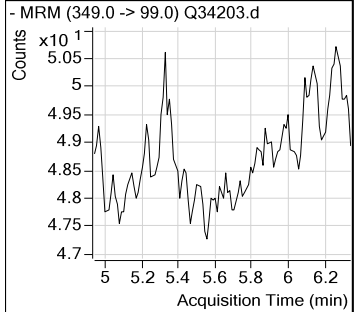
7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS.

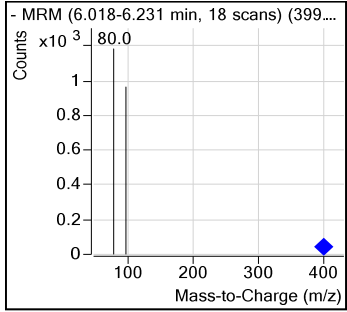
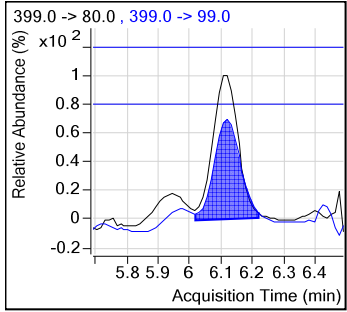
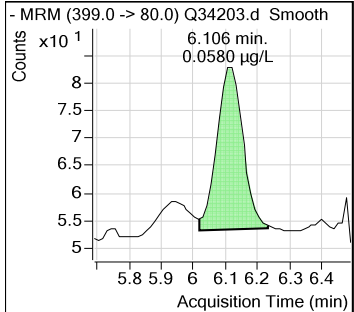
#### 13C2-PFHxA



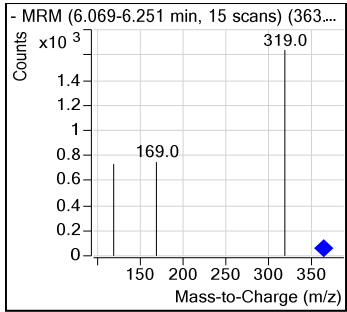
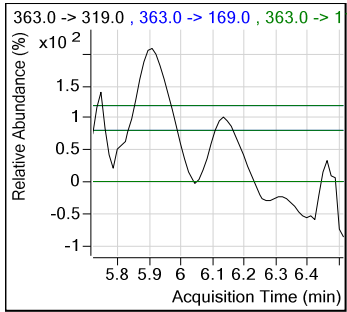
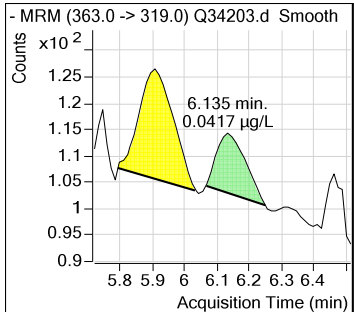
#### PFPeS



#### PFHxS



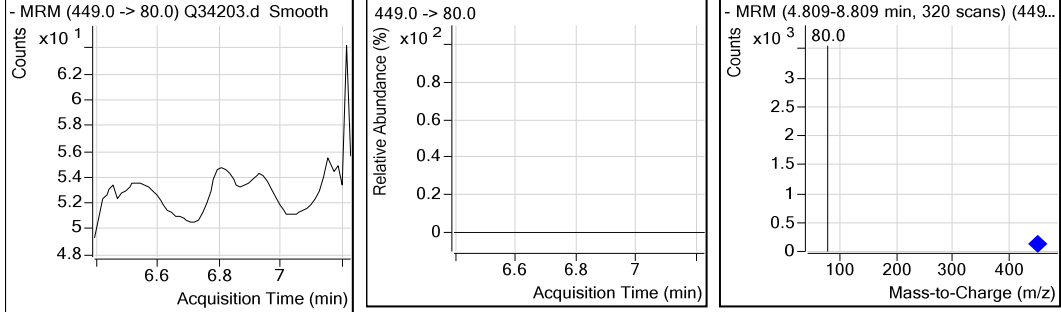
#### PFHpA



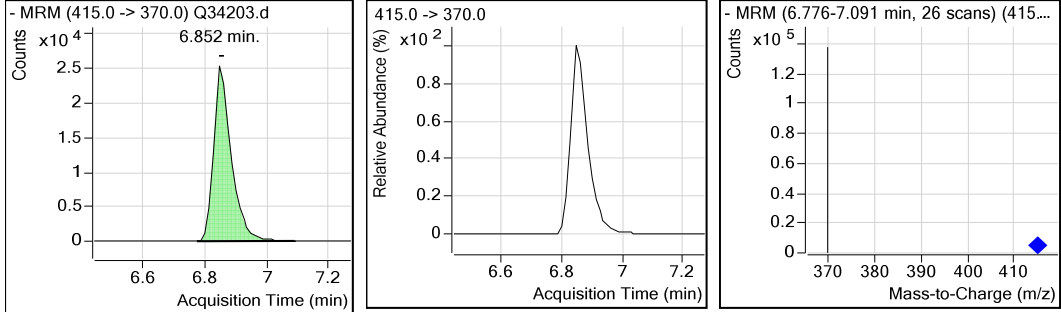
7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS.

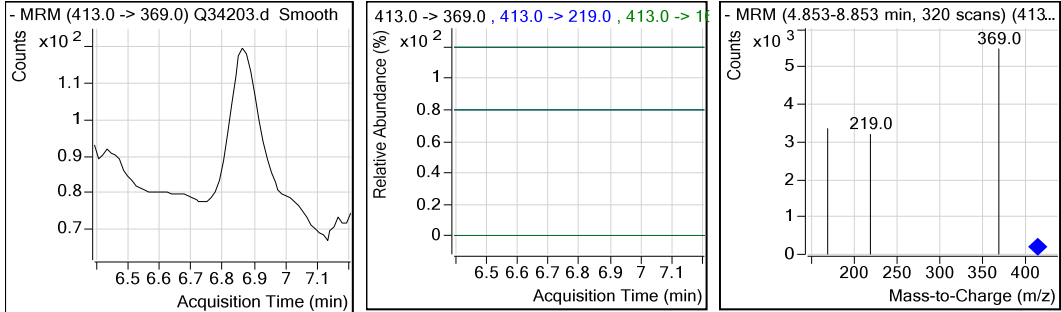
#### PFHpS



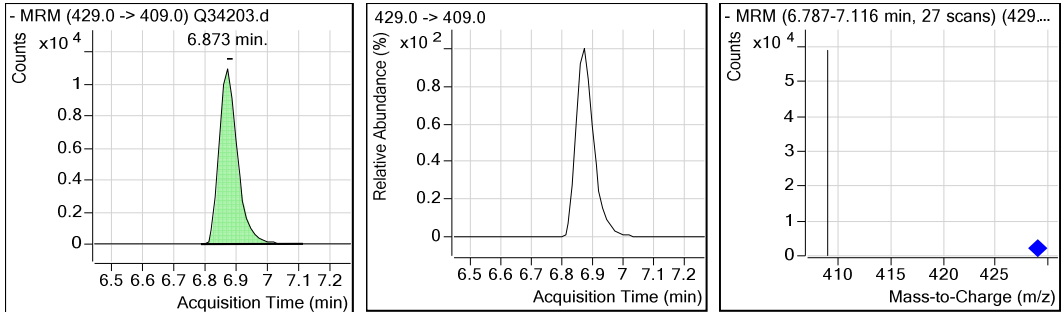
#### 13C2-PFOA



#### PFOA



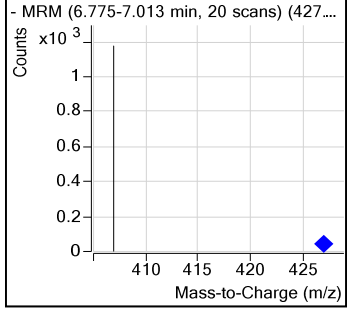
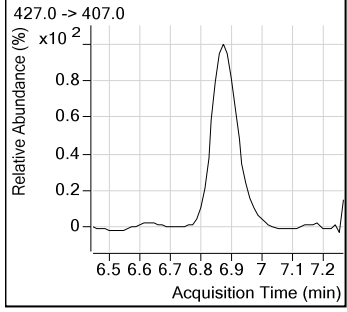
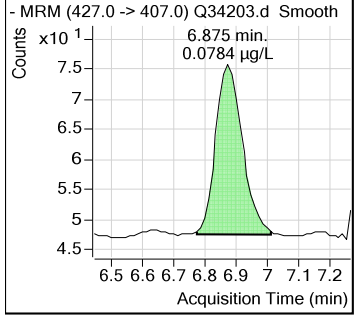
#### 13C2-6:2FTS



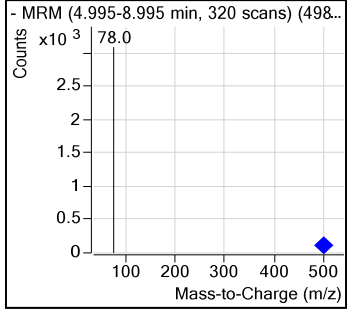
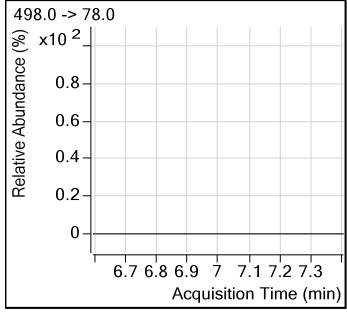
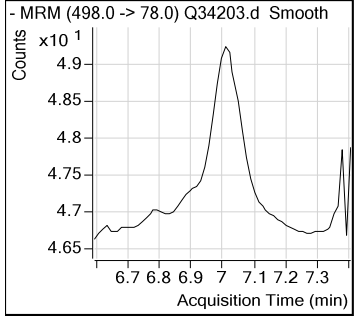
7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS.

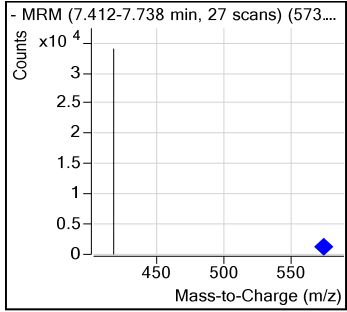
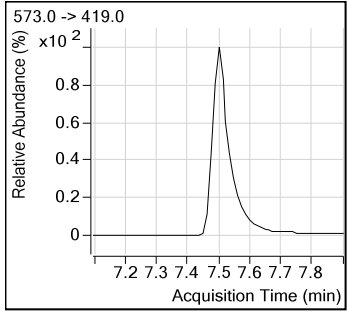
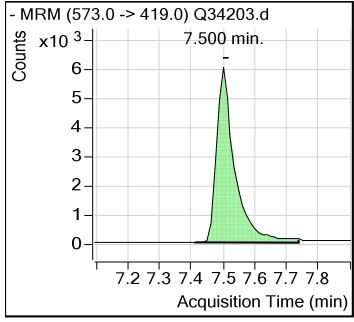
6:2FTS



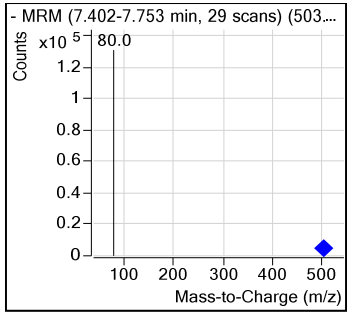
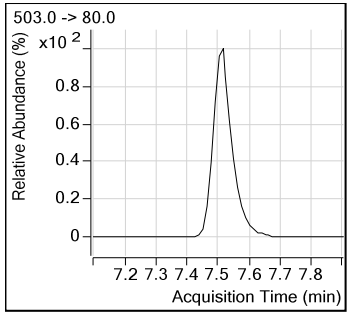
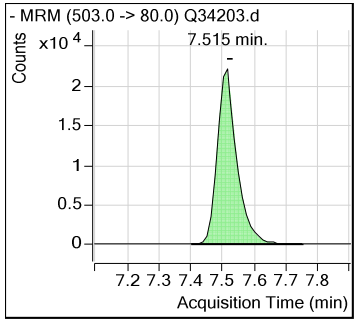
FOSA



d3-MeFOSAA



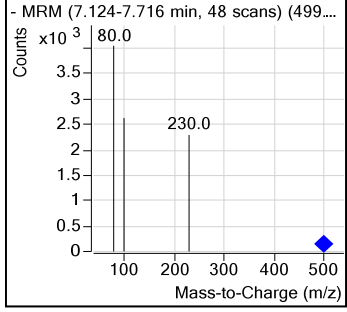
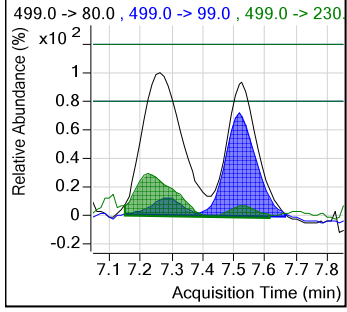
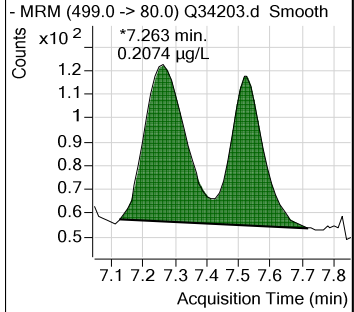
13C4-PFOS



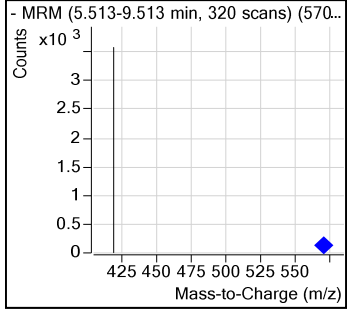
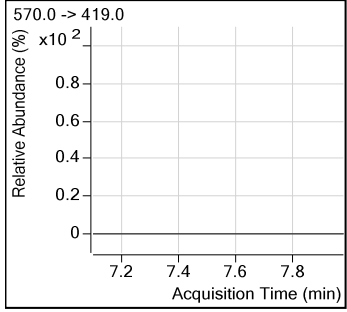
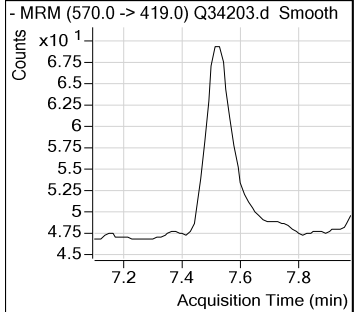
7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS.

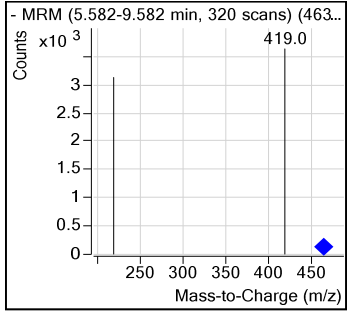
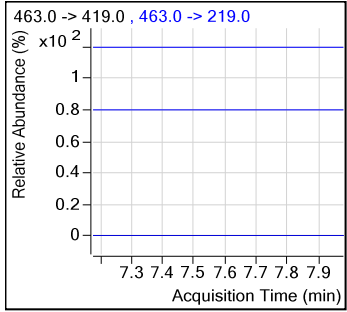
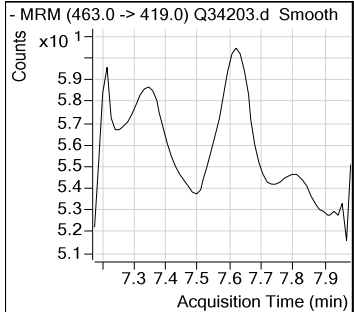
PFOS



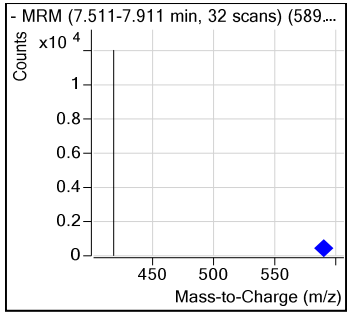
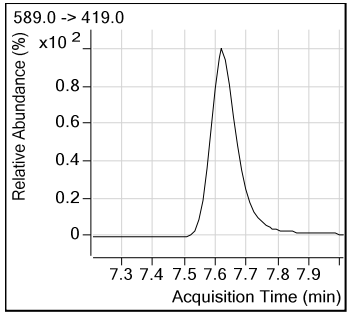
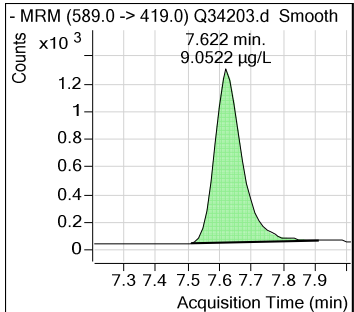
MeFOSAA



PFNA



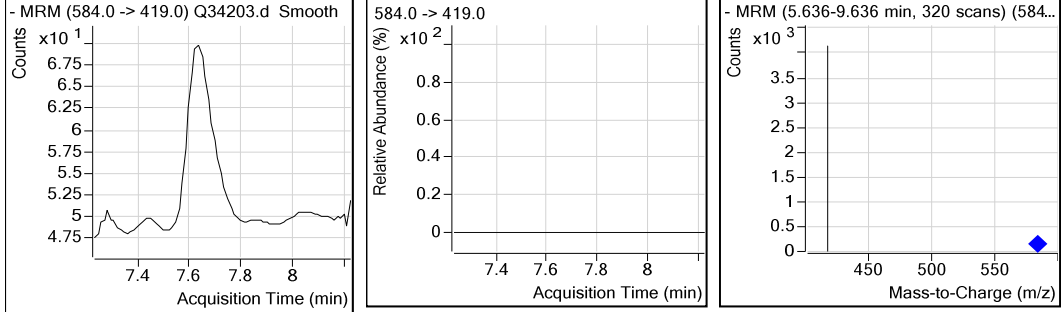
d5-EtFOSAA



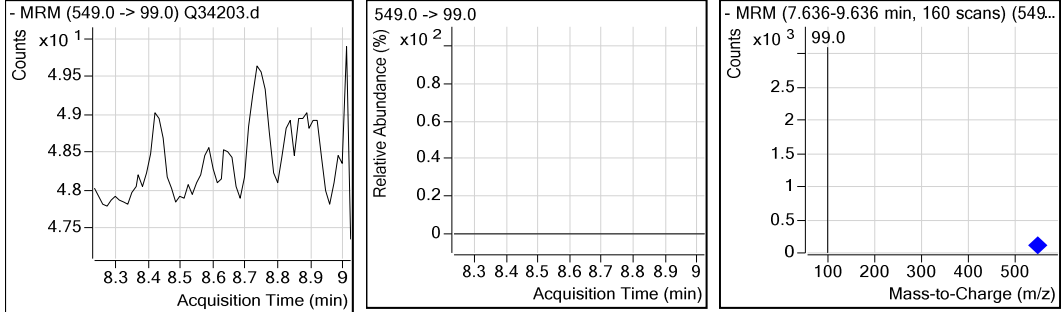
7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS.

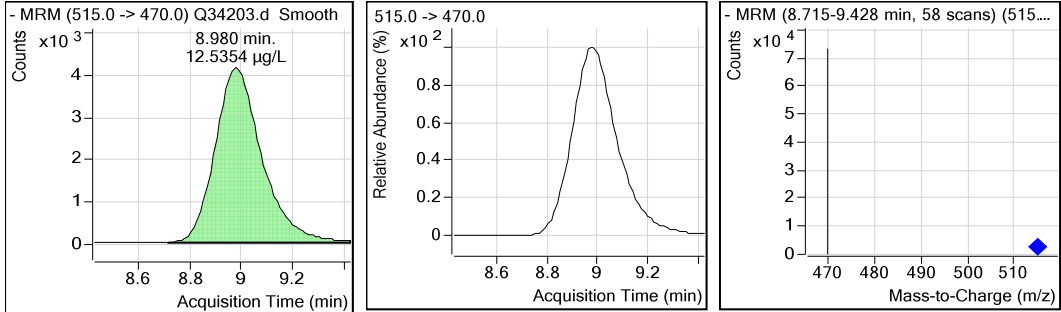
#### EtFOSAA



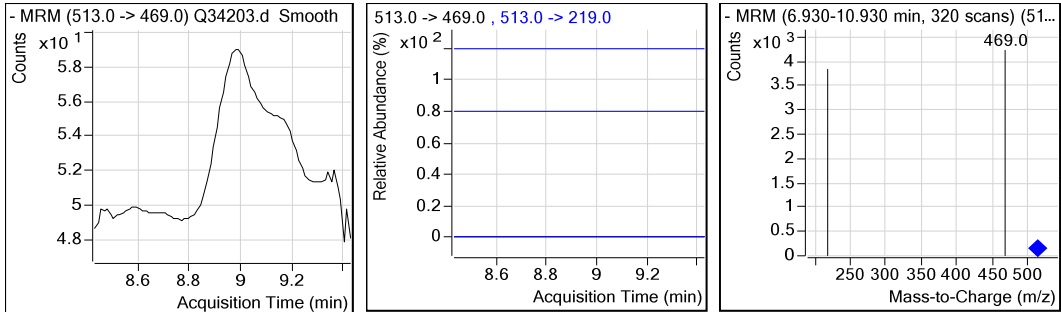
#### PFNS



#### 13C2-PFDA



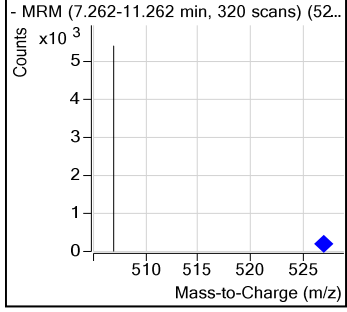
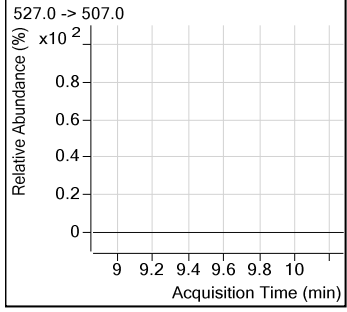
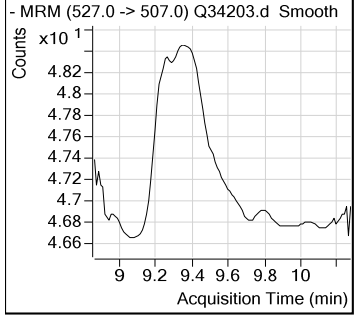
#### PFDA



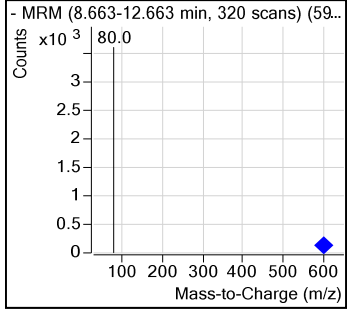
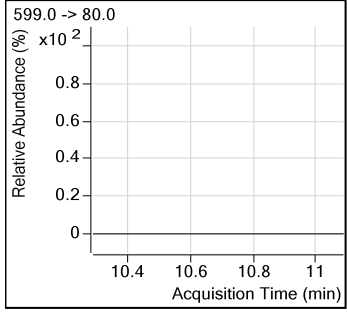
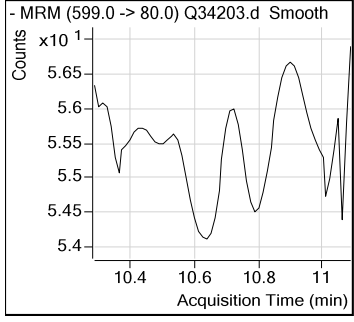
7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS.

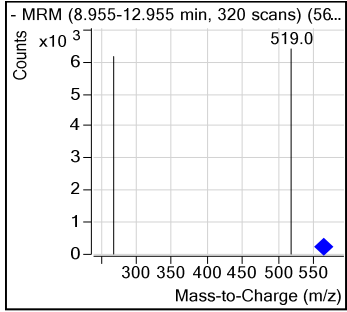
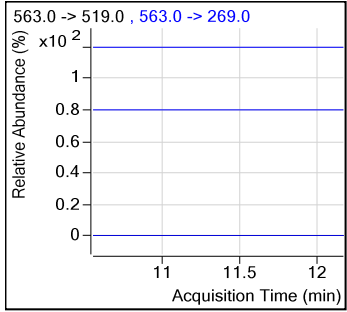
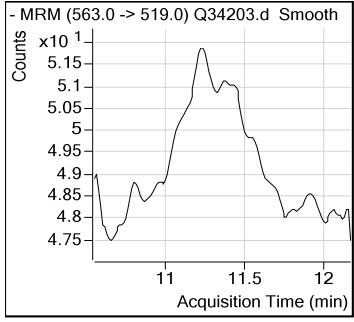
8:2FTS



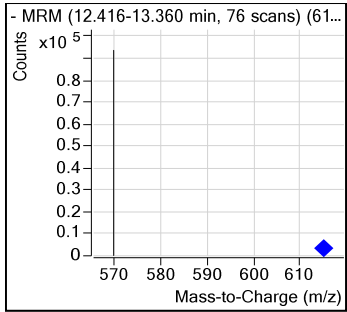
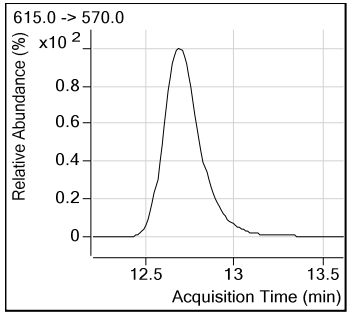
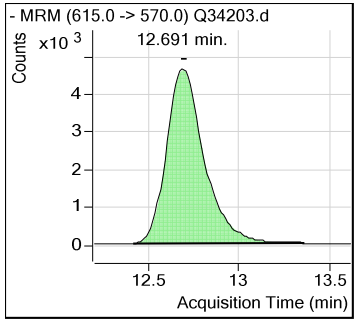
PFDS



PFUnDA



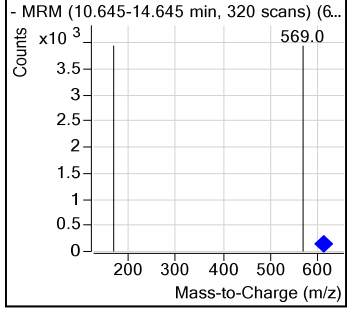
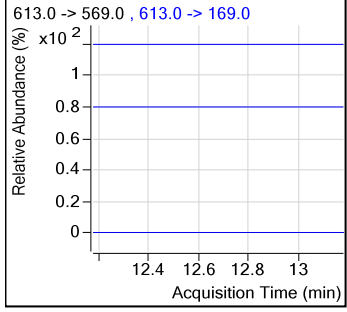
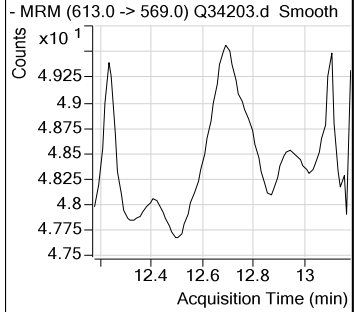
13C2-PFDoDA



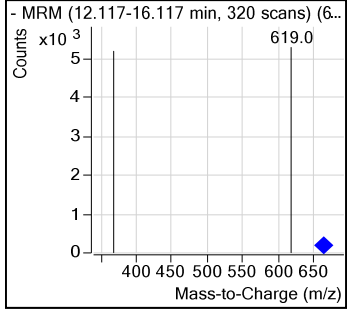
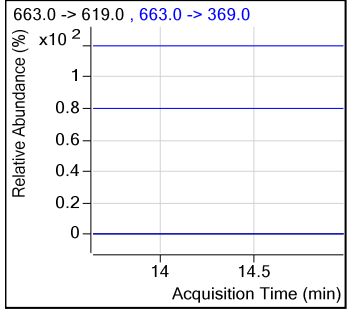
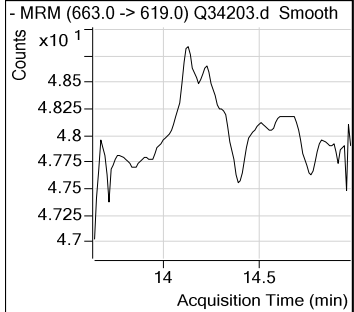
7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS.

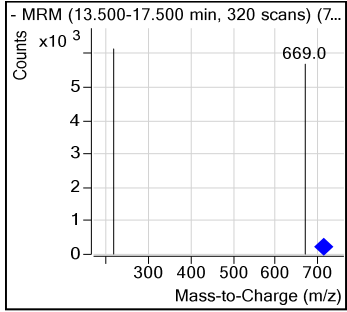
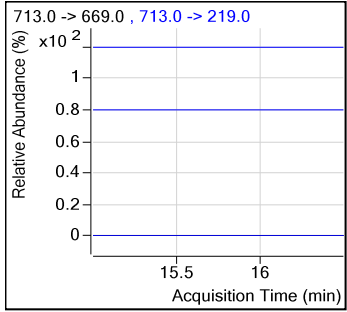
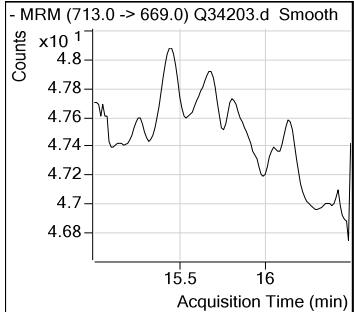
PFD<sub>o</sub>DA



PFT<sub>r</sub>DA



PFT<sub>e</sub>DA



Calibration Curve

7.1.1  
7



# Manual Integration Approval Summary

Sample Number: FA43662-1                      Method: EPA 537  
Lab FileID: Q34203.D                      Analyst approved: 06/01/17 15:54 Mike Eger  
Injection Time: 05/19/17 22:27                      Supervisor approved: 06/01/17 17:06 Naresh Jiawan

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

7.1.1.1

7

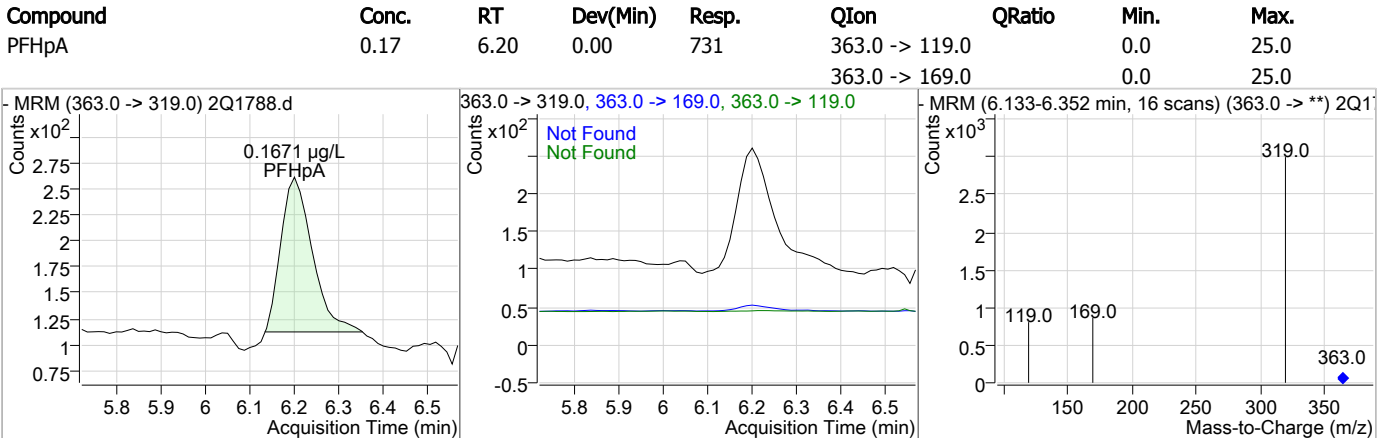
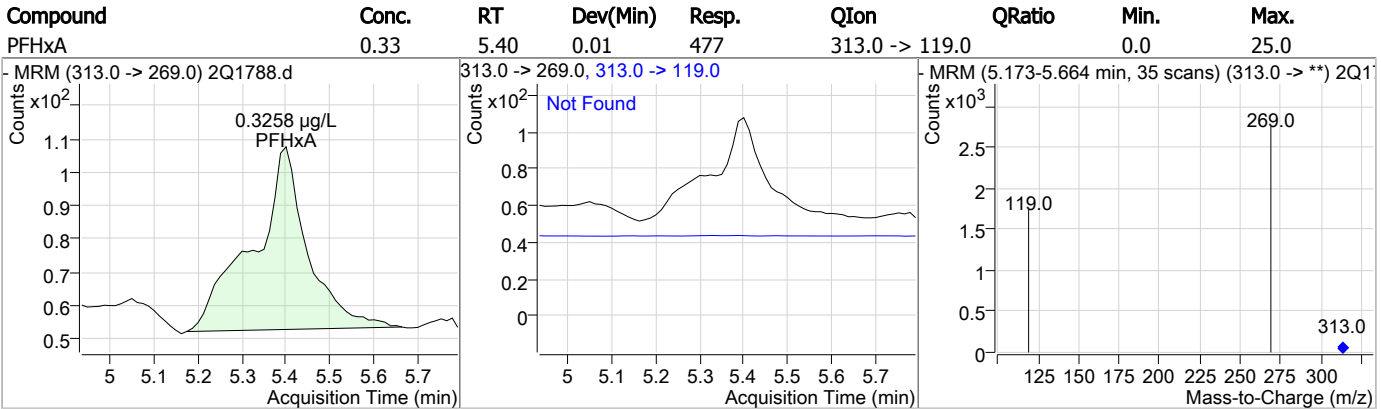
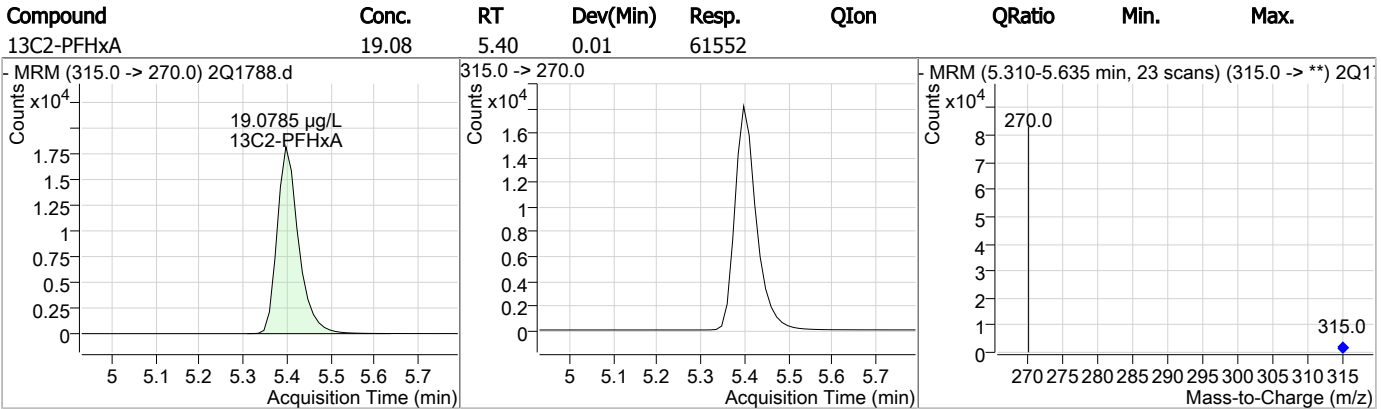
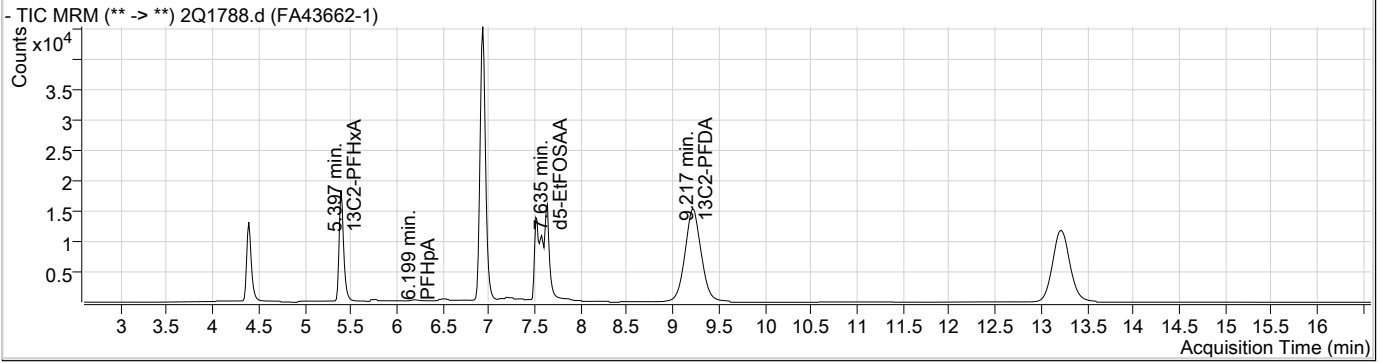
## Perfluorinated Compounds by LC/MS/MS

Data File : 2Q1788.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/31/2017 9:33:21 PM  
 Sample Name : FA43662-1  
 Vial : Vial 30  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q48.batch.bin  
 Sample Information : OP65200,S2Q48,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.936	429.0 -> 409.0	112438	20.00 µg/L	0.000
13C2-PFDoDA	13.216	615.0 -> 570.0	154581	20.00 µg/L	0.150
13C2-PFOA	6.927	415.0 -> 370.0	73978	20.00 µg/L	0.013
13C3-PFPeA	4.397	266.0 -> 222.0	45000	20.00 µg/L	0.013
13C4-PFOS	7.578	503.0 -> 80.0	37997	20.00 µg/L	0.013
d3-MeFOSAA	7.513	573.0 -> 419.0	41784	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	9.217	515.0 -> 470.0	183763	19.81 µg/L	0.088
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 99.1%	
13C2-PFHxA	5.397	315.0 -> 270.0	61552	19.08 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 95.4%	
d5-EtFOSAA	7.635	589.0 -> 419.0	42924	17.64 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 88.2%	
<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	7.637	584.0 -> 419.0	393	0.19 µg/L	100
FOSA	-	498.0 -> 78.0	-	N.D.	
MeFOSAA	7.527	570.0 -> 419.0	398	0.18 µg/L	100
PFBA	-	213.0 -> 169.0	-	N.D.	
PFBS	-	299.0 -> 80.0	-	N.D.	
PFDA	9.221	513.0 -> 469.0	382	0.07 µg/L	100
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.199	363.0 -> 319.0	731	0.17 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.400	313.0 -> 269.0	477	0.33 µg/L	85
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

### Perfluorinated Compounds by LC/MS/MS

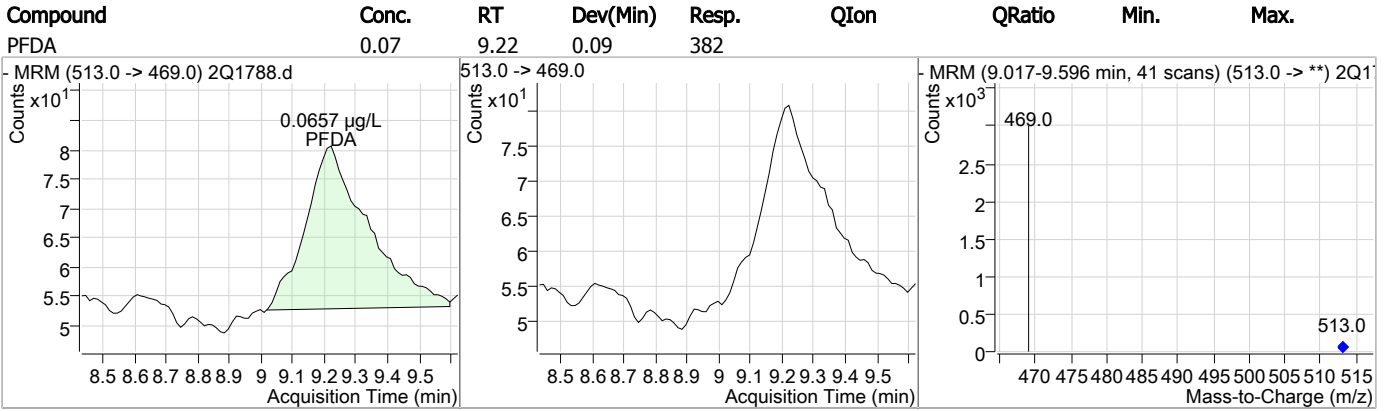


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.18	7.53	0.01	398				
d5-EtFOSAA	17.64	7.64	0.01	42924				
EtFOSAA	0.19	7.64	0.00	393				
13C2-PFDA	19.81	9.22	0.09	183763				

7.12  
7

Perfluorinated Compounds by LC/MS/MS



7.12

7

## Perfluorinated Compounds by LC/MS/MS.

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Naresh Jiawan  
 06/01/17 17:06

Data File : Q34202.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 22:06  
 Sample Name : FA43662-2  
 Vial : Vial 28  
 Sample Info : OP65057,SQ893,260,,,1.0,1,WATER  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04

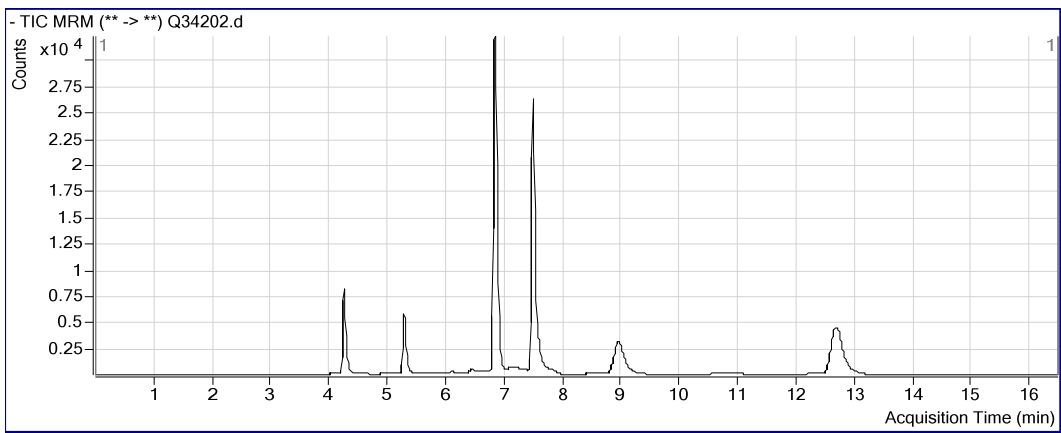
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<b>Internal Standards</b>						
13C3-PFPeA	4.272	266.0 -> 222.0	32610	20.000	µg/L	-0.012
13C2-PFOA	6.852	415.0 -> 370.0	100620	20.000	µg/L	0.000
13C2-6:2FTS	6.873	429.0 -> 409.0	41901	20.000	µg/L	0.013
d3-MeFOSAA	7.500	573.0 -> 419.0	22693	20.000	µg/L	0.000
13C4-PFOS	7.515	503.0 -> 80.0	92676	20.000	µg/L	0.013
13C2-PFDoDA	12.691	615.0 -> 570.0	63965	20.000	µg/L	0.050
<b>System Monitoring Compounds</b>						
13C2-PFHxA	5.310	315.0 -> 270.0	21785	11.69	µg/L	0.000
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 58.43%			
d5-EtFOSAA	7.622	589.0 -> 419.0	6358	8.28	µg/L	0.000
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 41.41%			
13C2-PFDA	8.980	515.0 -> 470.0	33358	8.06	µg/L	0.052
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 40.28%			
<b>Target Compounds</b>						<b>Qvalue</b>
PFBA	1.614	213.0 -> 169.0	0	0.000	µg/L m	1
PFHxA	5.337	313.0 -> 269.0	203	0.117	µg/L	89
PFHxS	6.119	399.0 -> 80.0	147	0.054	µg/L #	85
6:2FTS	6.875	427.0 -> 407.0	162	0.079	µg/L	100
MeFOSAA	7.513	570.0 -> 419.0	218	0.253	µg/L	100
PFOS	7.516	499.0 -> 80.0	868	0.182	µg/L # m	60
EtFOSAA	7.624	584.0 -> 419.0	260	0.318	µg/L	100

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

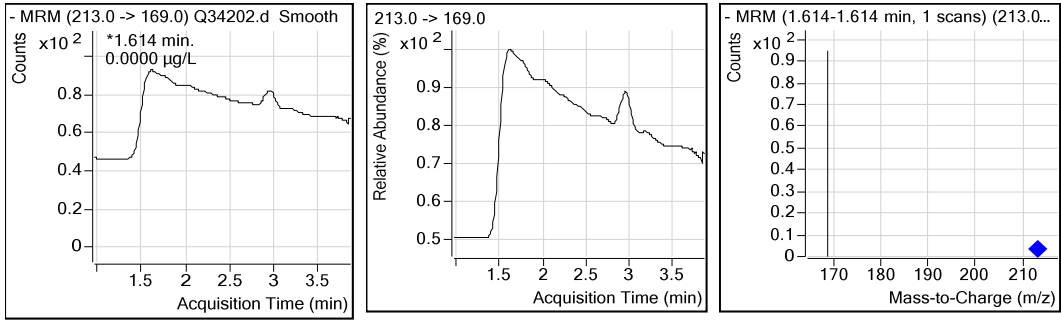
7.1.3  
7

# Perfluorinated Compounds by LC/MS/MS.

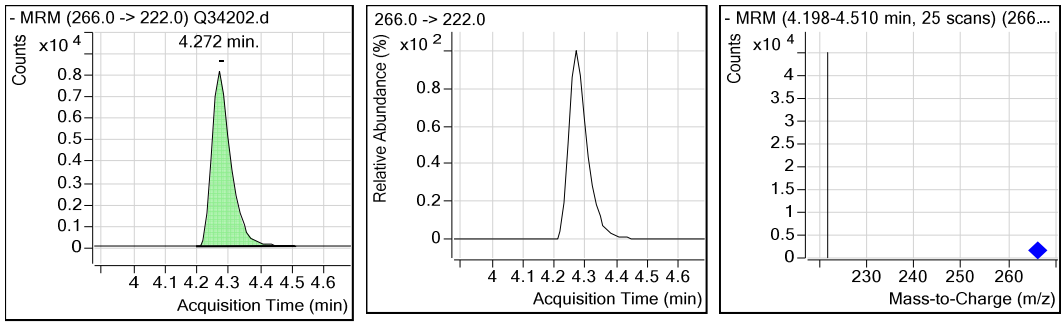
Data File : Q34202.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 22:06  
 Sample Name : FA43662-2  
 Vial : Vial 28  
 Sample Info : OP65057,SQ893,260,,,1.0,1,WATER  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
 Last Calib Update : 2017-05-22 07:04



### PFBA



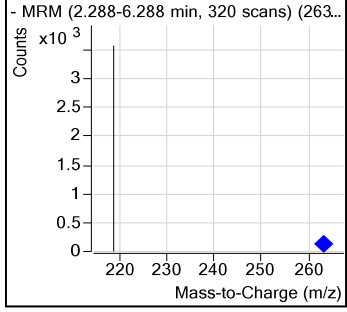
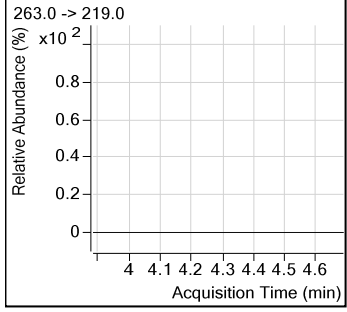
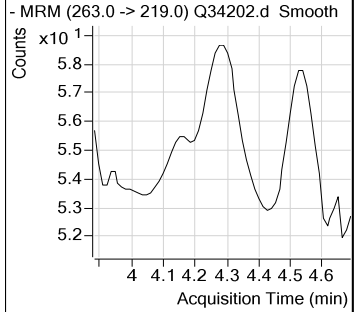
### 13C3-PFPeA



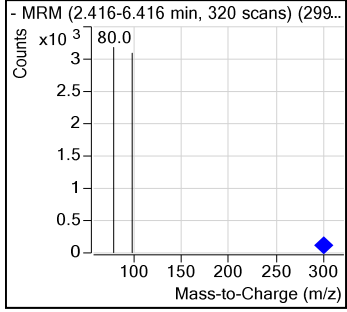
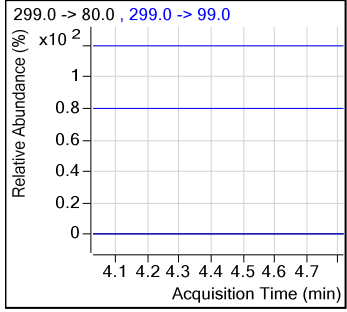
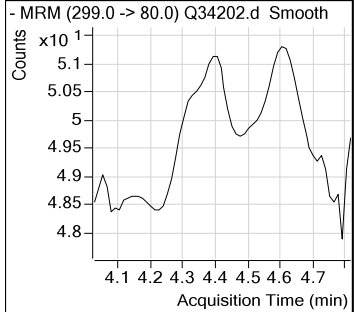
# Perfluorinated Compounds by LC/MS/MS.

7.1.3  
7

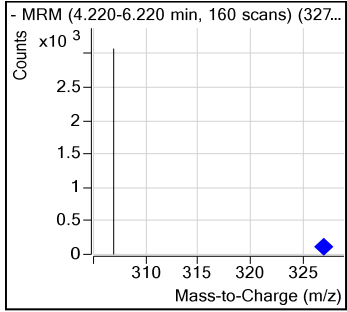
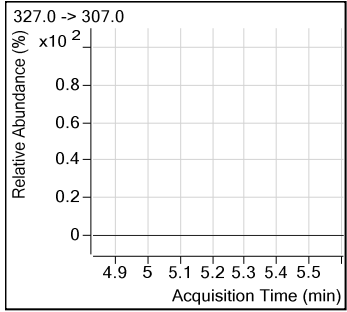
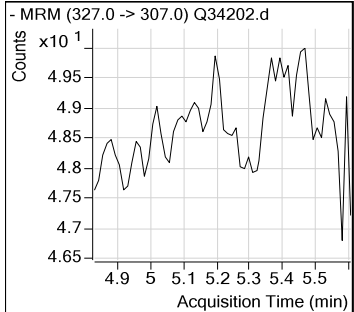
### PFPeA



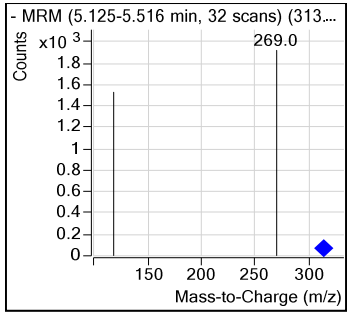
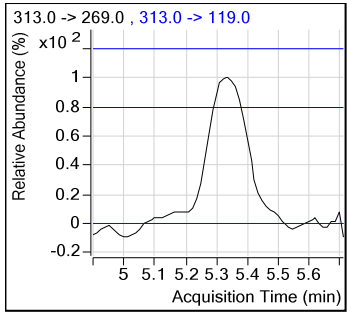
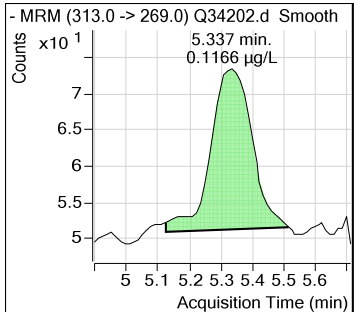
### PFBS



### 4:2FTS



### PFHxA

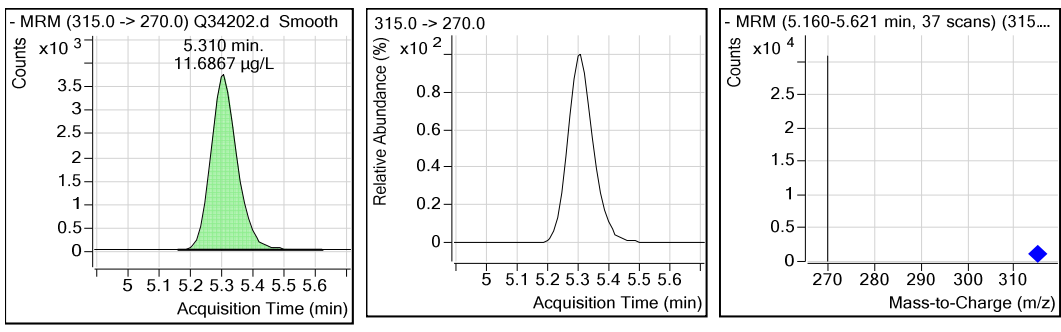




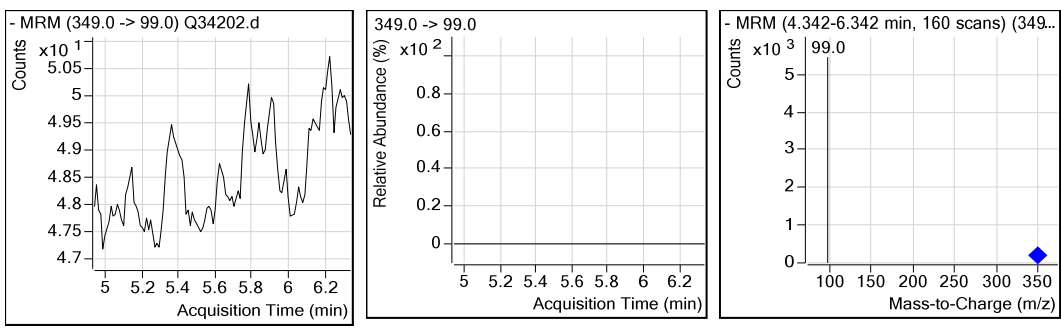
## Perfluorinated Compounds by LC/MS/MS.

7.1.3  
7

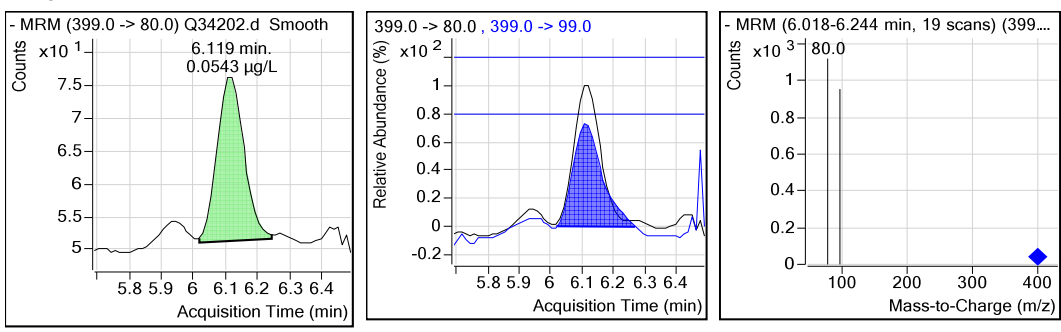
### 13C2-PFHxA



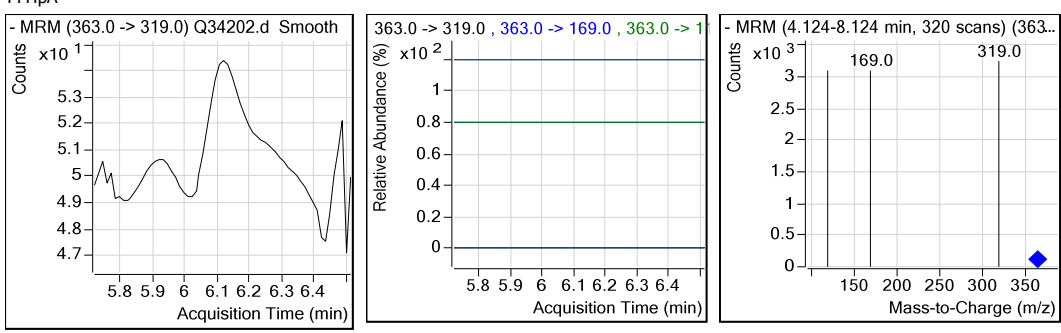
### PFPeS



### PFHxS



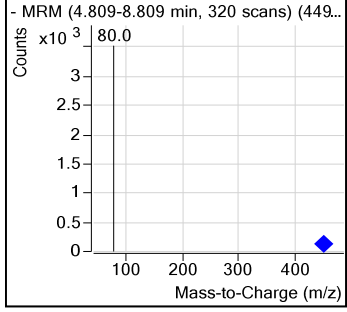
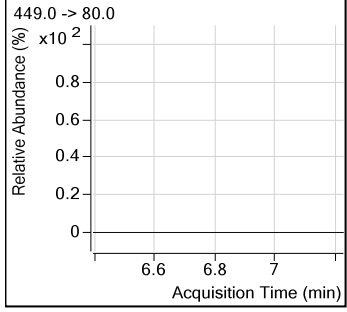
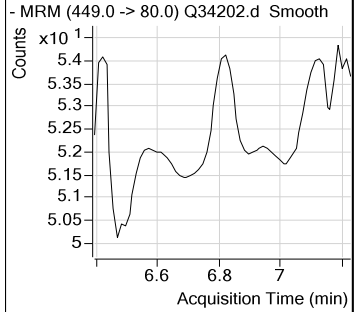
### PFHpA



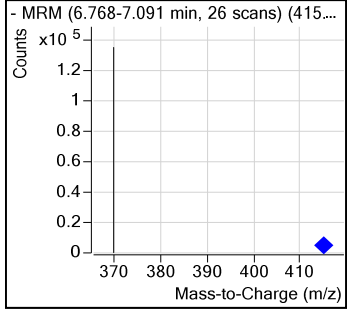
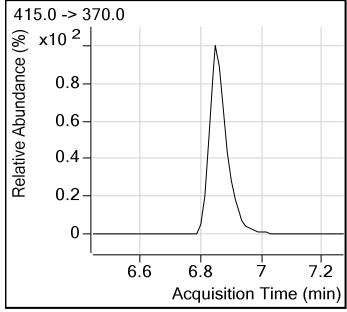
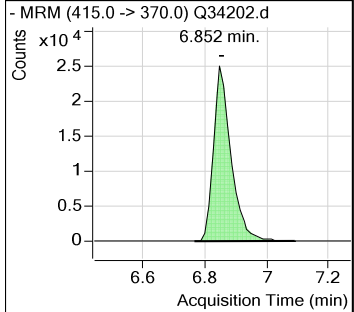
### Perfluorinated Compounds by LC/MS/MS.

7.1.3  
7

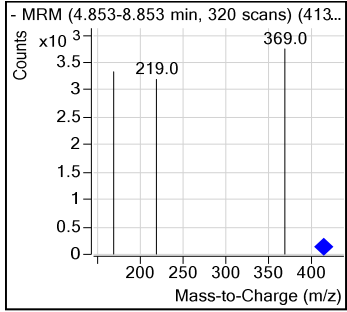
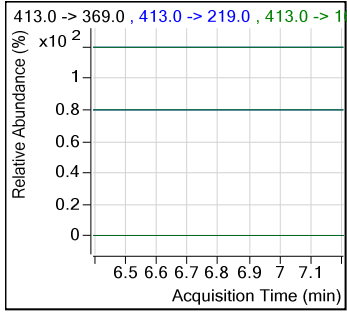
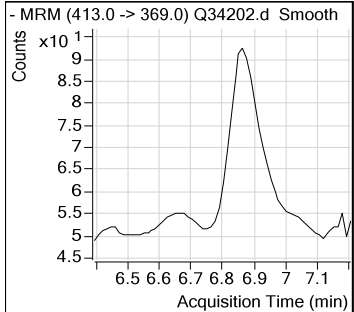
#### PFHpS



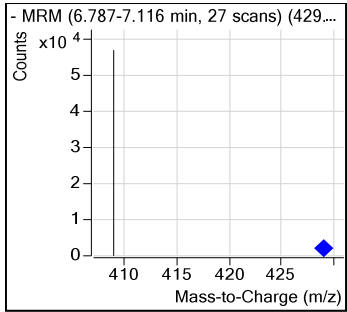
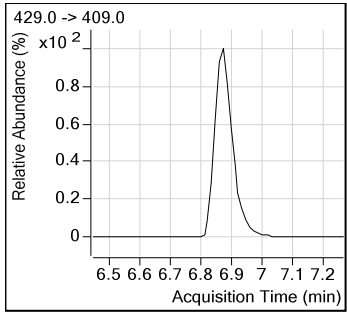
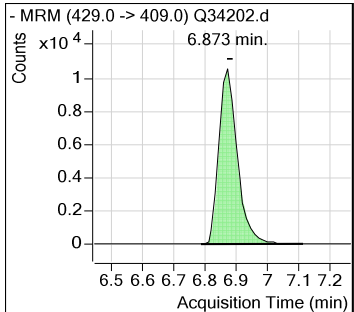
#### 13C2-PFOA



#### PFOA



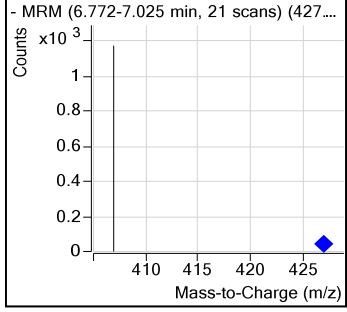
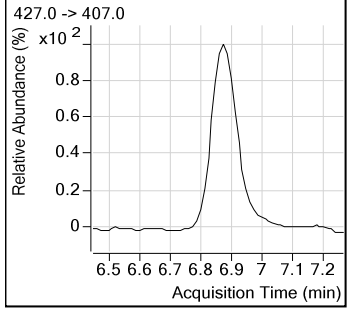
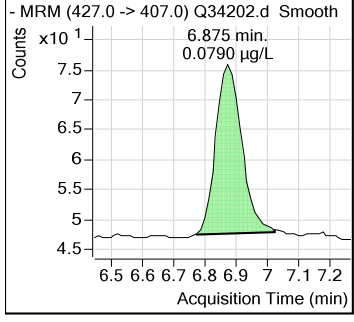
#### 13C2-6:2FTS



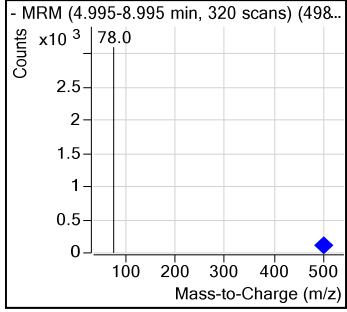
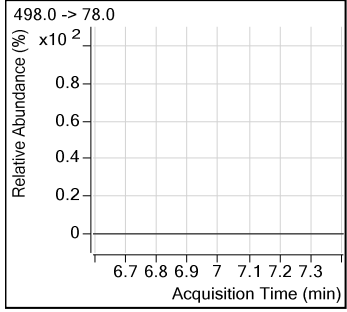
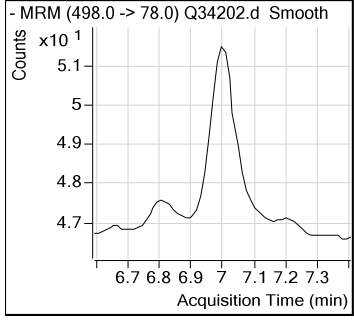
### Perfluorinated Compounds by LC/MS/MS.

7.1.3  
7

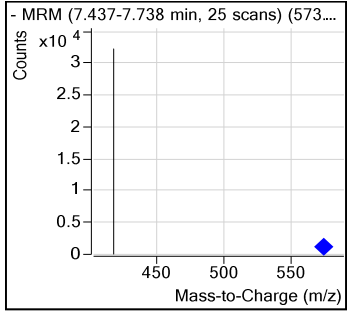
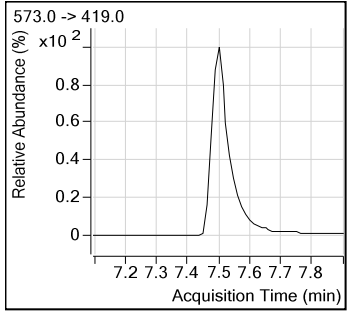
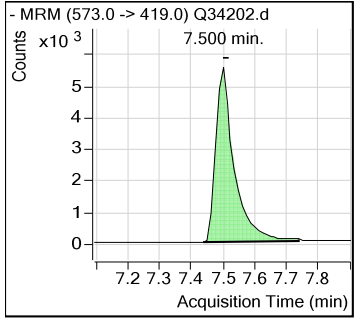
6:2FTS



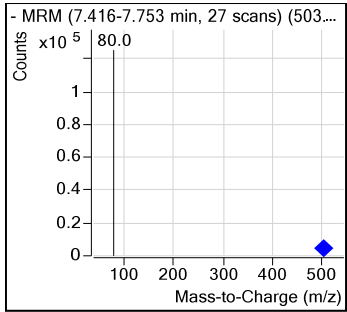
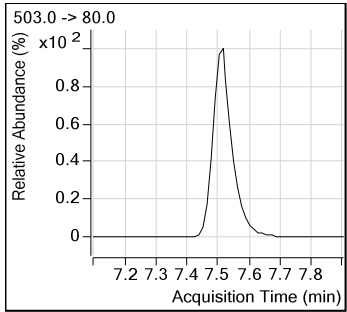
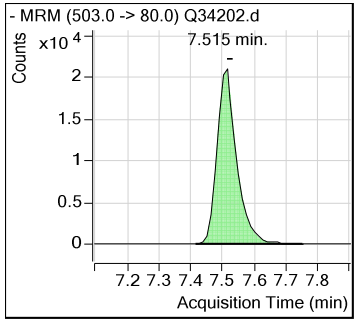
FOSA



d3-MeFOSAA



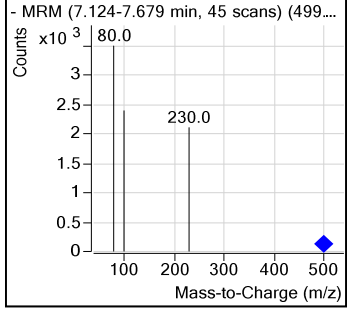
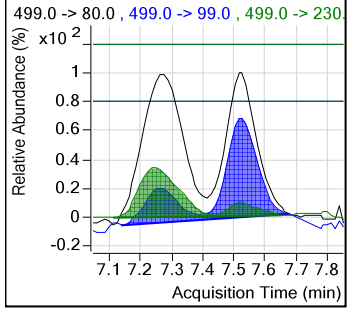
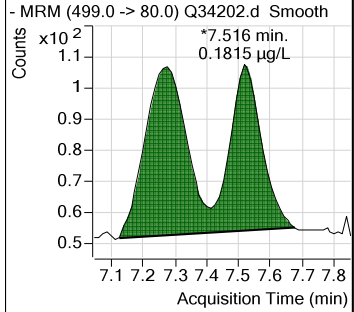
13C4-PFOS



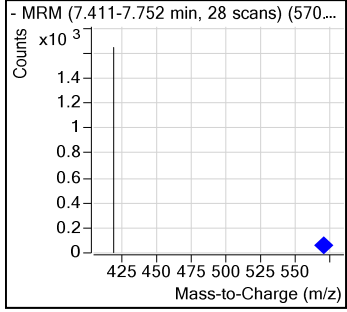
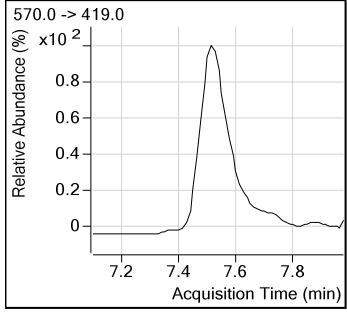
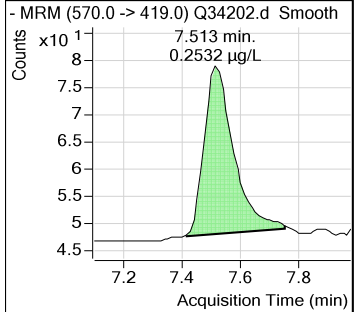
### Perfluorinated Compounds by LC/MS/MS.

7.1.3  
7

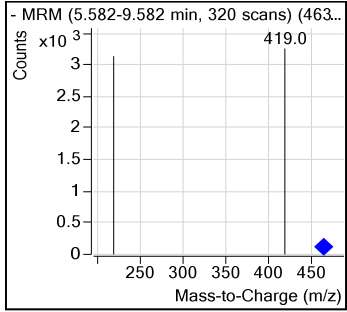
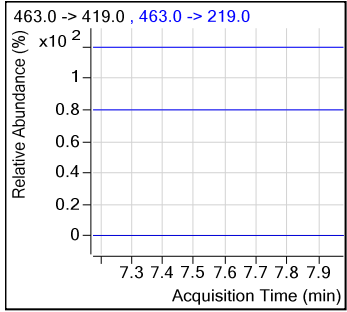
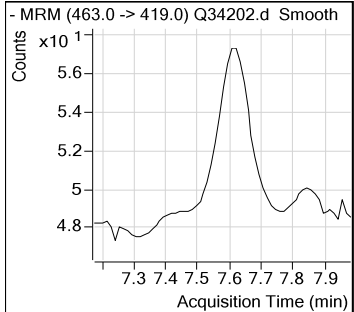
#### PFOS



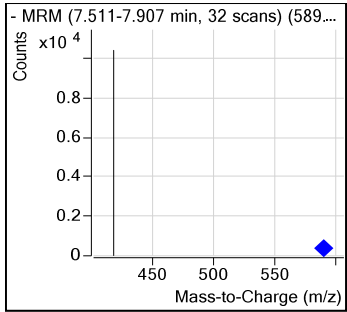
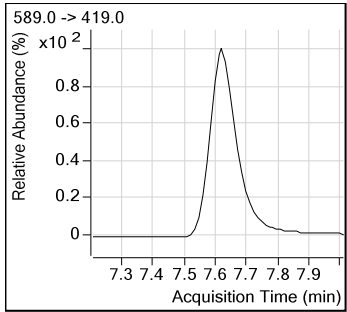
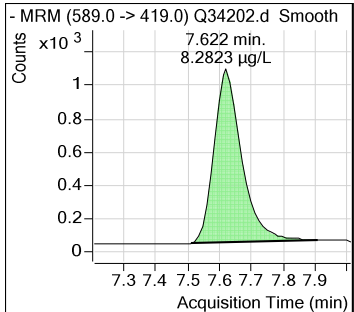
#### MeFOSAA



#### PFNA



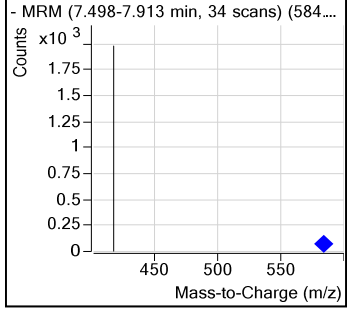
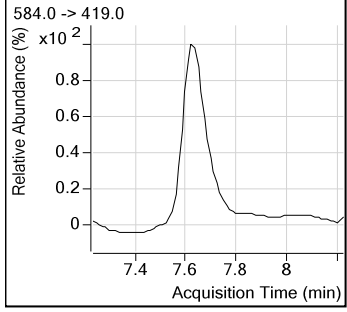
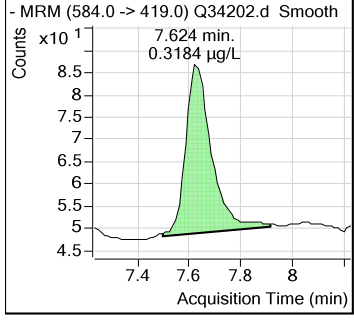
#### d5-EtFOSAA



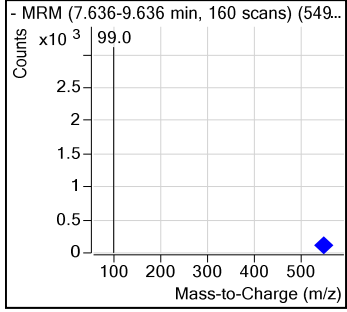
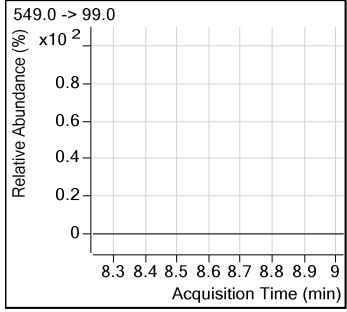
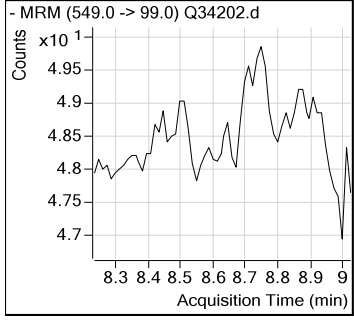
## Perfluorinated Compounds by LC/MS/MS.

7.1.3  
7

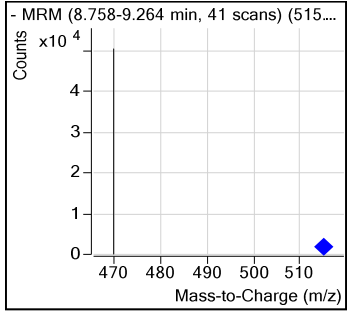
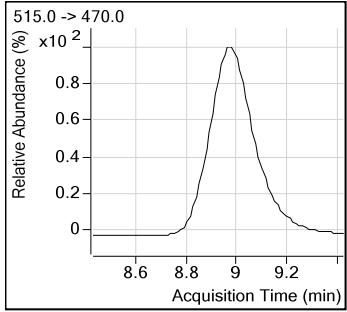
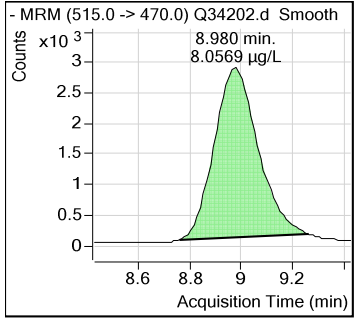
### EtFOSAA



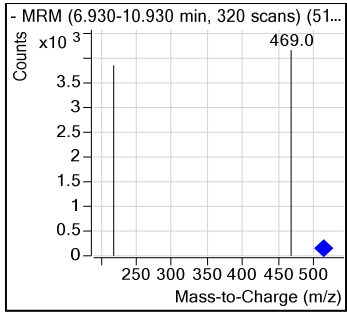
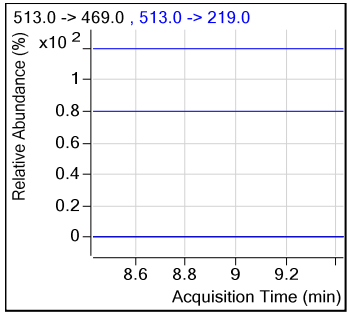
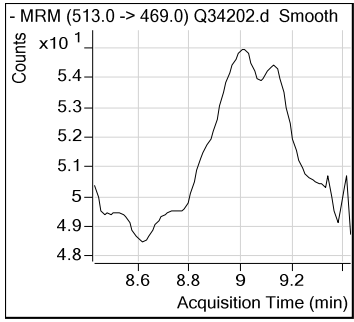
### PFNS



### 13C2-PFDA

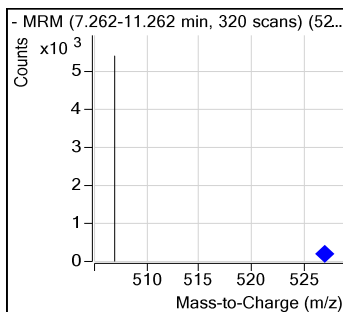
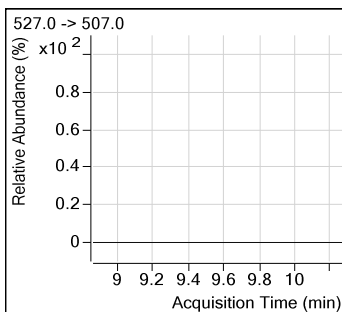
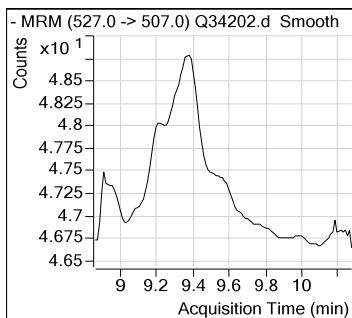


### PFDA

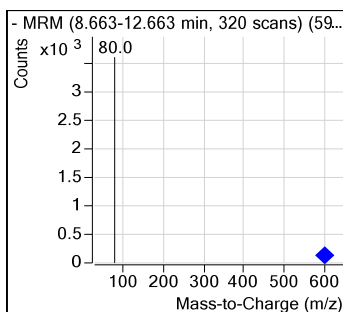
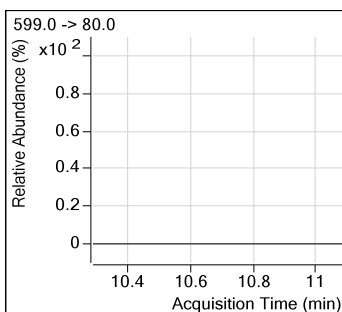
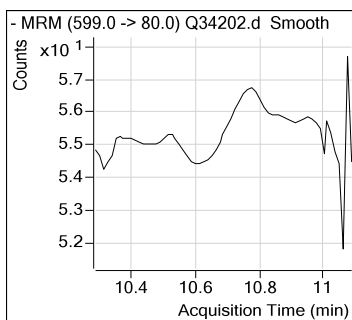


## Perfluorinated Compounds by LC/MS/MS.

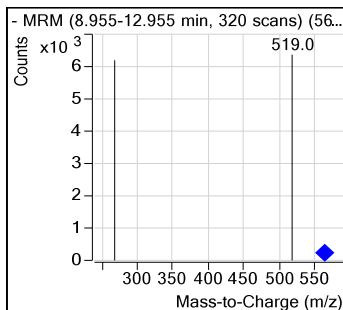
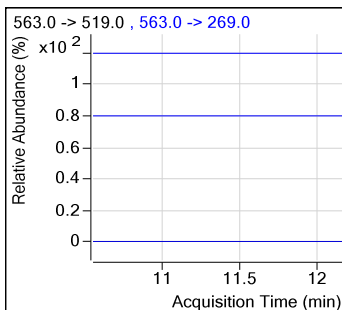
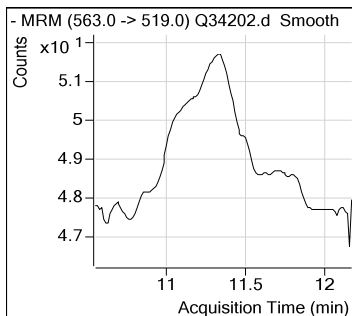
8:2FTS



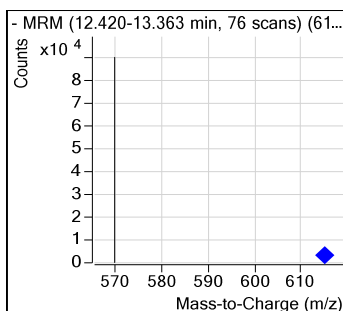
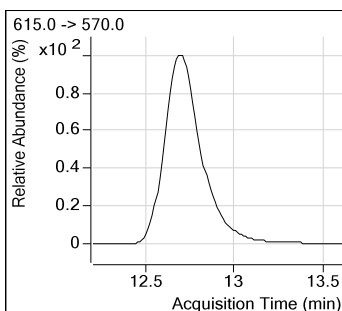
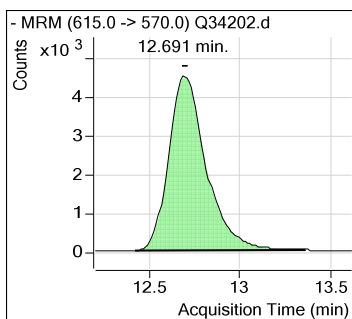
PFDS



PFUnDA

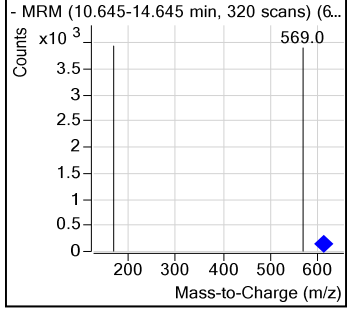
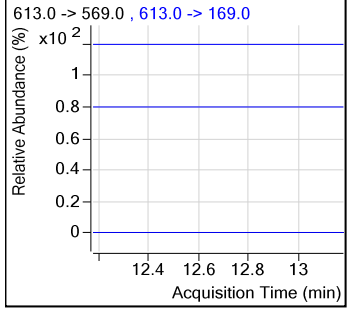
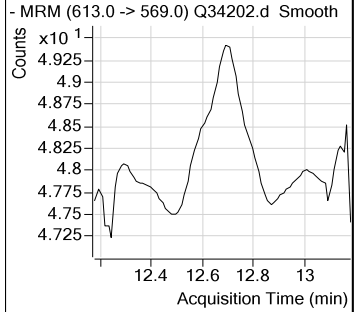


13C2-PFDoDA

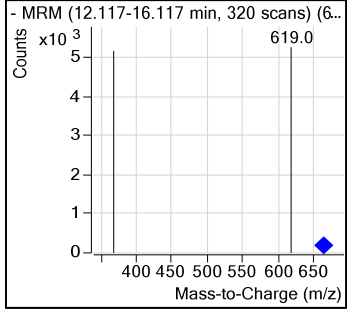
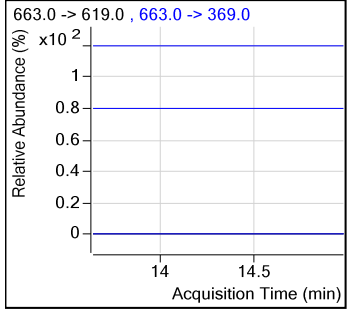
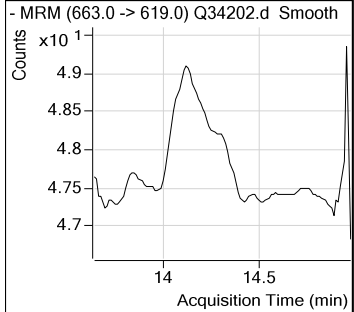


### Perfluorinated Compounds by LC/MS/MS.

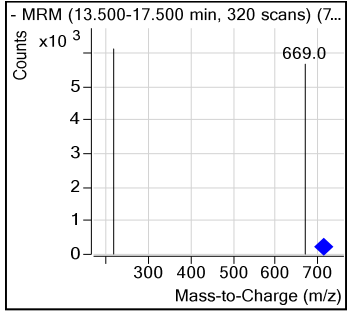
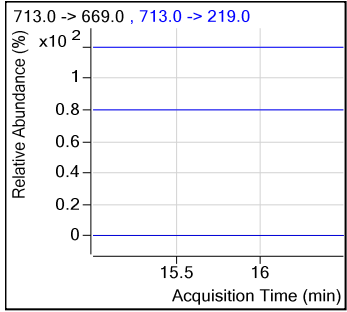
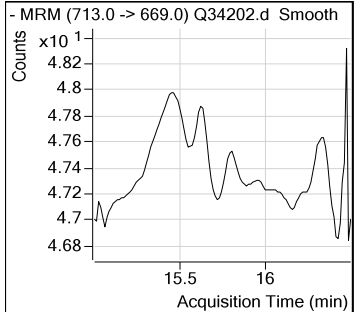
PFD<sub>o</sub>DA



PFT<sub>r</sub>DA



PFT<sub>e</sub>DA



Calibration Curve

7.1.3  
7

# Manual Integration Approval Summary

Sample Number: FA43662-2                      Method: EPA 537  
Lab FileID: Q34202.D                      Analyst approved: 06/01/17 15:54 Mike Eger  
Injection Time: 05/19/17 22:06                      Supervisor approved: 06/01/17 17:06 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		7.52	Split peak

7.1.3.1

7



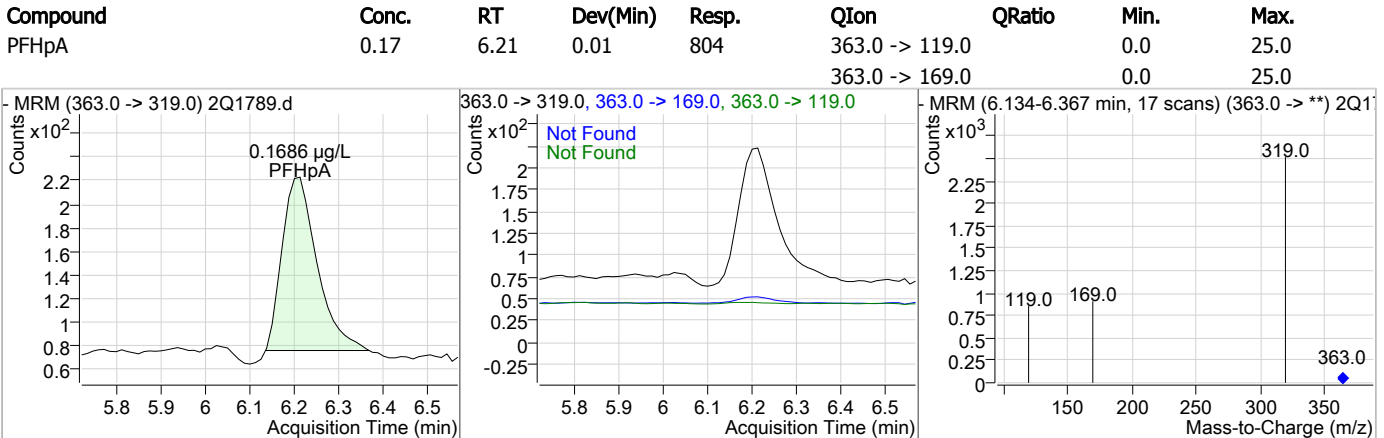
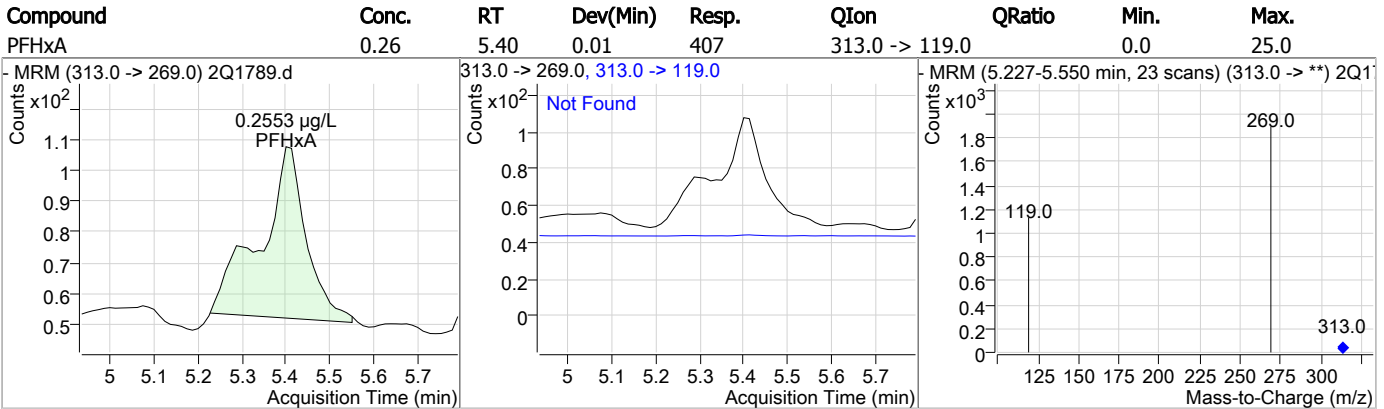
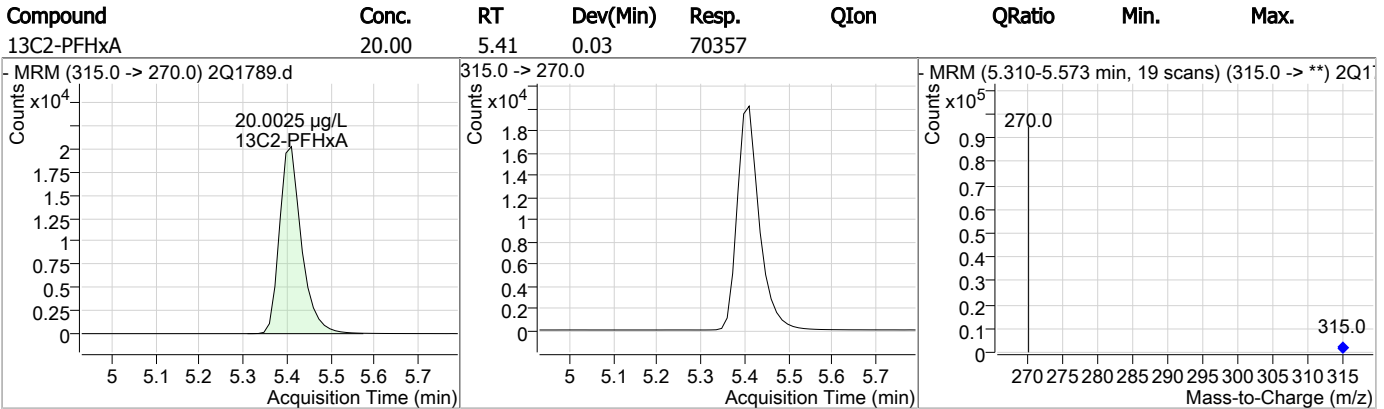
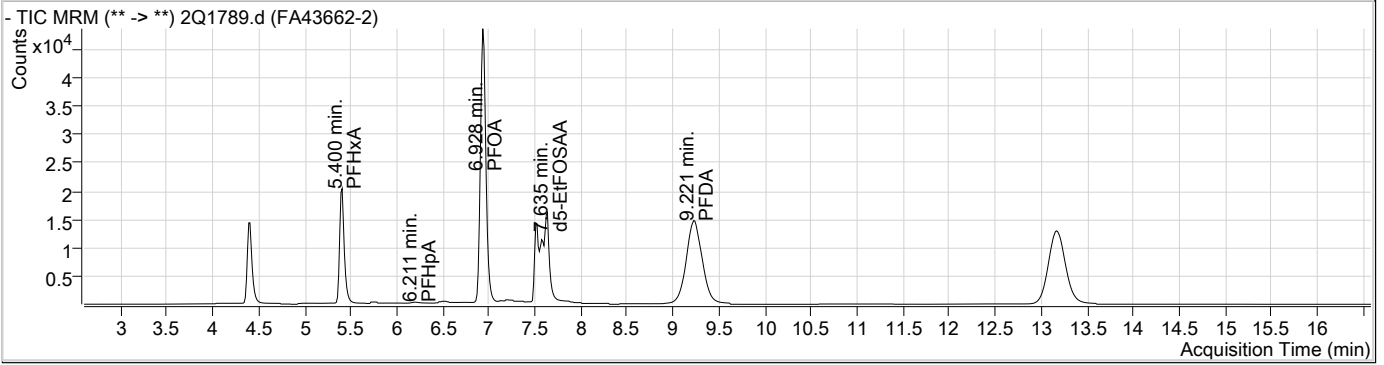
## Perfluorinated Compounds by LC/MS/MS

Data File : 2Q1789.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/31/2017 9:55:10 PM  
 Sample Name : FA43662-2  
 Vial : Vial 31  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q48.batch.bin  
 Sample Information : OP65200,S2Q48,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.949	429.0 -> 409.0	119562	20.00 µg/L	0.013
13C2-PFDoDA	13.166	615.0 -> 570.0	167238	20.00 µg/L	0.100
13C2-PFOA	6.927	415.0 -> 370.0	80653	20.00 µg/L	0.013
13C3-PFPeA	4.397	266.0 -> 222.0	51556	20.00 µg/L	0.013
13C4-PFOS	7.591	503.0 -> 80.0	40934	20.00 µg/L	0.025
d3-MeFOSAA	7.513	573.0 -> 419.0	44230	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	9.229	515.0 -> 470.0	175487	17.36 µg/L	0.100
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 86.8%		
13C2-PFHxA	5.410	315.0 -> 270.0	70357	20.00 µg/L	0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 100.0%		
d5-EtFOSAA	7.635	589.0 -> 419.0	41149	15.98 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 79.9%		
<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	7.637	584.0 -> 419.0	359	0.16 µg/L	100
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	9.221	513.0 -> 469.0	373	0.06 µg/L	100
PFDoDA	-	613.0 -> 569.0	-	N.D.	
PFDS	-	599.0 -> 80.0	-	N.D.	
PFHpA	6.211	363.0 -> 319.0	804	0.17 µg/L	85
PFHpS	-	449.0 -> 80.0	-	N.D.	
PFHxA	5.400	313.0 -> 269.0	407	0.26 µg/L	85
PFHxS	-	399.0 -> 80.0	-	N.D.	
PFNA	-	463.0 -> 419.0	-	N.D.	
PFNS	-	549.0 -> 99.0	-	N.D.	
PFOA	6.928	413.0 -> 369.0	361	0.11 µg/L	54
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

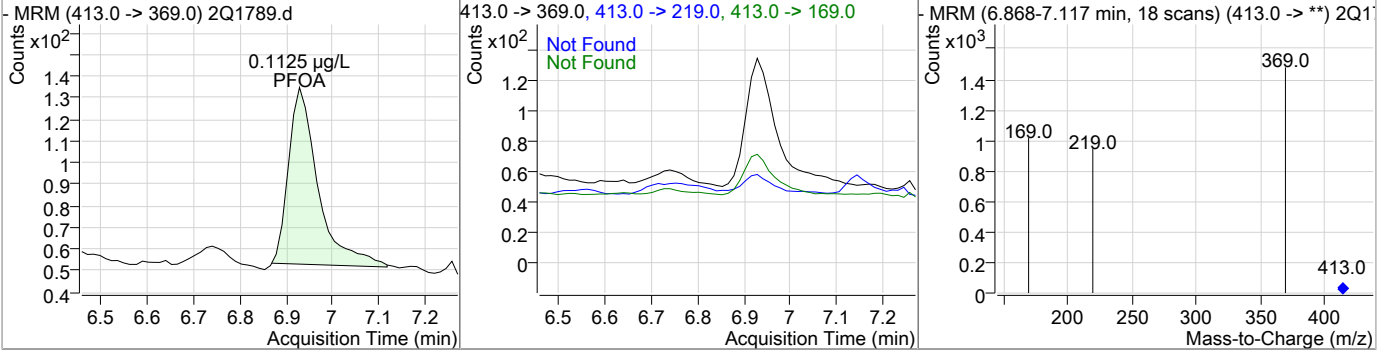
### Perfluorinated Compounds by LC/MS/MS



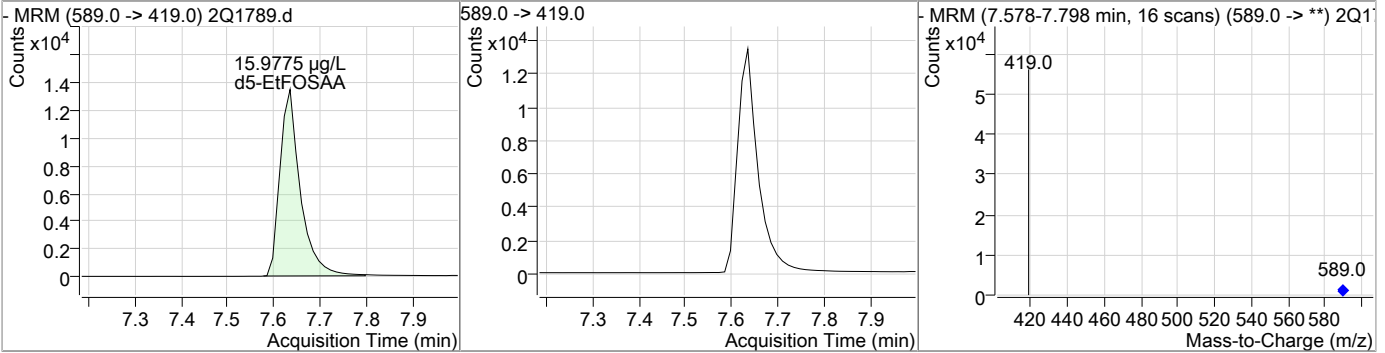
7.1.4  
7

Perfluorinated Compounds by LC/MS/MS

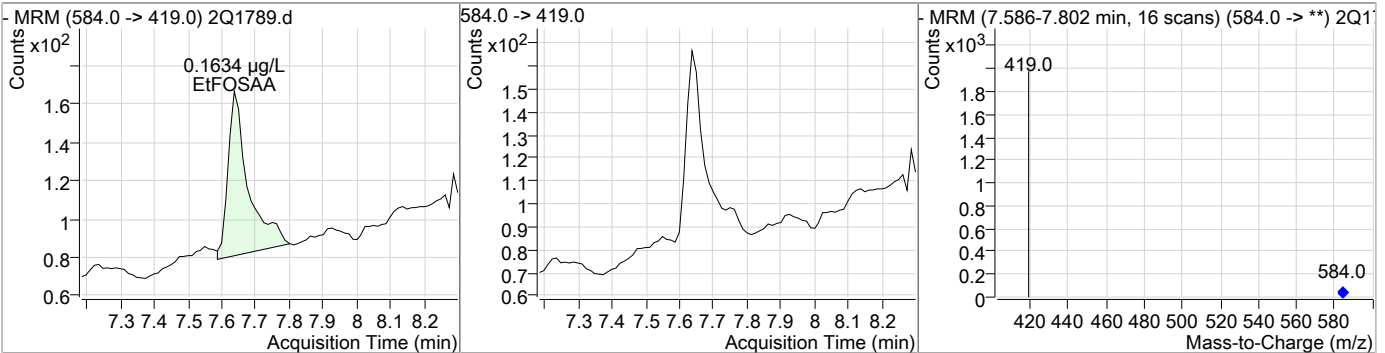
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	0.11	6.93	0.01	361	413.0 -> 169.0 413.0 -> 219.0		7.2	47.2 0.0 32.9



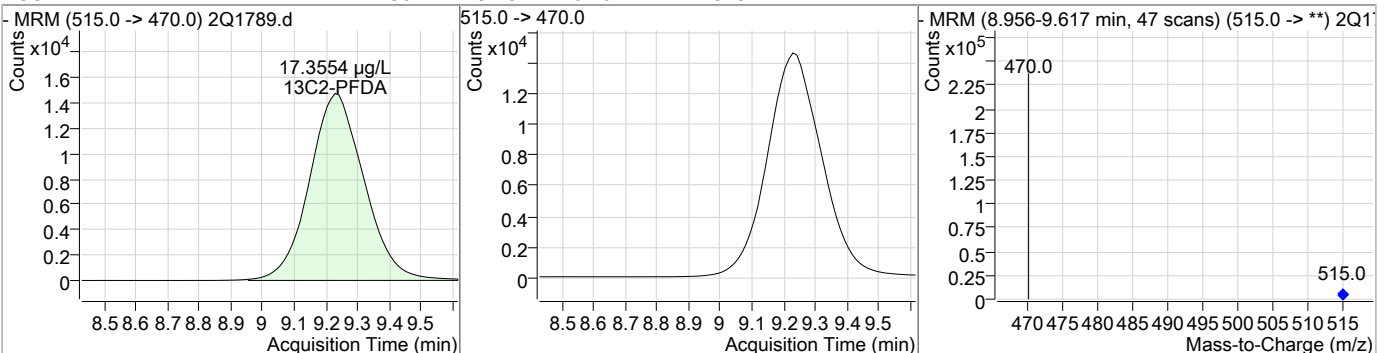
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	15.98	7.64	0.01	41149				



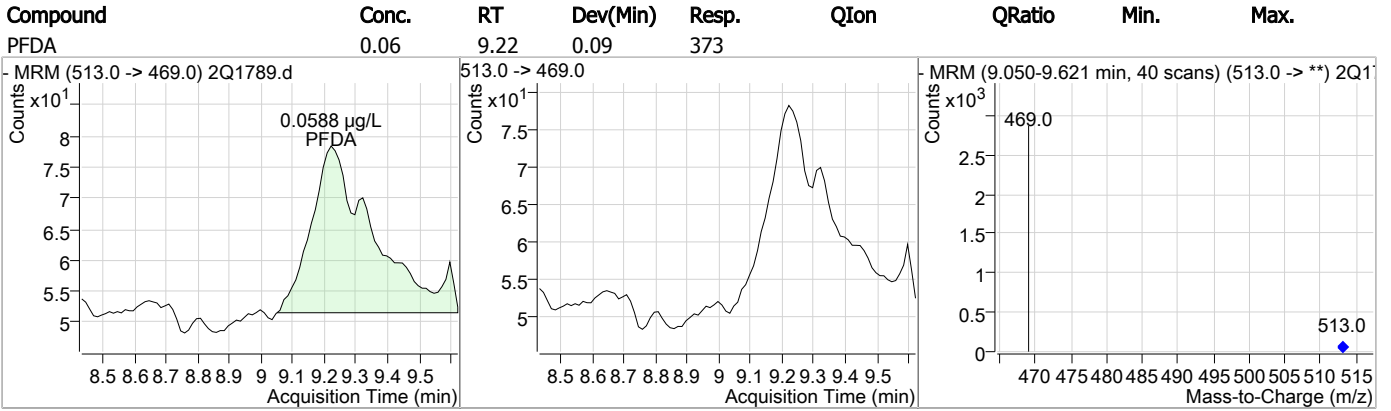
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.16	7.64	0.00	359				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	17.36	9.23	0.10	175487				



Perfluorinated Compounds by LC/MS/MS



7.14

7

# Perfluorinated Compounds by LC/MS/MS.

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

**Mike Eger**  
 05/22/17 16:55

Data File : Q34200.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 21:24  
 Sample Name : OP65057-MB  
 Vial : Vial 26  
 Sample Info : OP65057,SQ893,250,,,1.0,1,WATER  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04

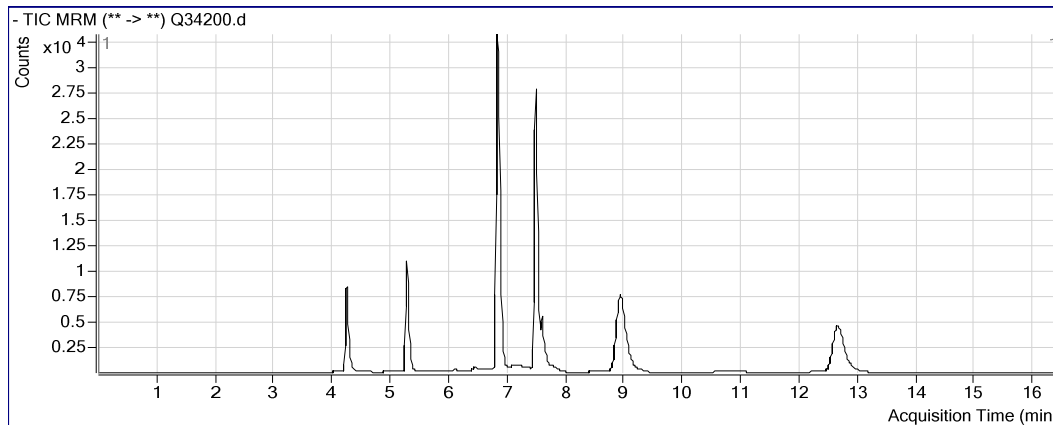
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.272	266.0 -> 222.0	33974	20.000	µg/L	-0.012	
13C2-PFOA	6.852	415.0 -> 370.0	101480	20.000	µg/L	0.000	
13C2-6:2FTS	6.861	429.0 -> 409.0	41804	20.000	µg/L	0.000	
d3-MeFOSAA	7.500	573.0 -> 419.0	22502	20.000	µg/L	0.000	
13C4-PFOS	7.502	503.0 -> 80.0	93435	20.000	µg/L	0.000	
13C2-PFDoDA	12.666	615.0 -> 570.0	63782	20.000	µg/L	0.025	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.297	315.0 -> 270.0	41670	22.16	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 110.82%				
d5-EtFOSAA	7.622	589.0 -> 419.0	14493	18.60	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 93.00%				
13C2-PFDA	8.954	515.0 -> 470.0	89434	21.42	µg/L	0.027	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 107.09%				
<b>Target Compounds</b>							
PFBA	2.952	213.0 -> 169.0	0	0.000	µg/L m	1	<b>Qvalue</b>
PFHxA	5.337	313.0 -> 269.0	321	0.183	µg/L	89	
PFHxS	6.106	399.0 -> 80.0	161	0.059	µg/L #	71	
PFHpA	6.123	363.0 -> 319.0	65	0.040	µg/L	59	
6:2FTS	6.875	427.0 -> 407.0	167	0.082	µg/L	100	
PFOS	7.251	499.0 -> 80.0	838	0.174	µg/L # m	63	
MeFOSAA	7.513	570.0 -> 419.0	1319	1.547	µg/L	100	
EtFOSAA	7.624	584.0 -> 419.0	1321	1.628	µg/L	100	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

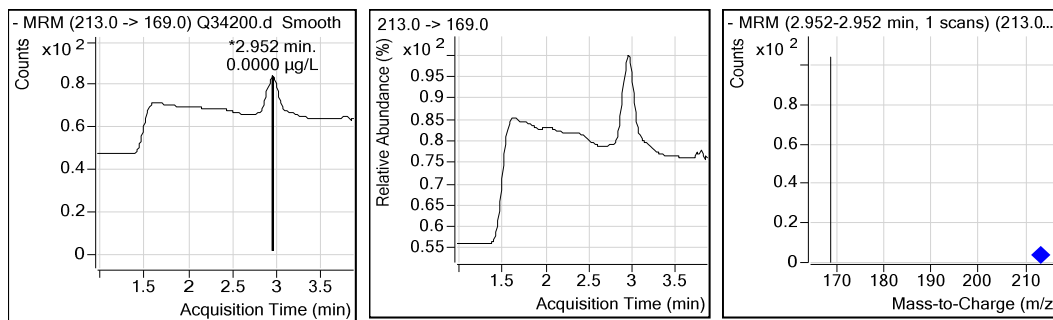
7.2.1  
7

# Perfluorinated Compounds by LC/MS/MS.

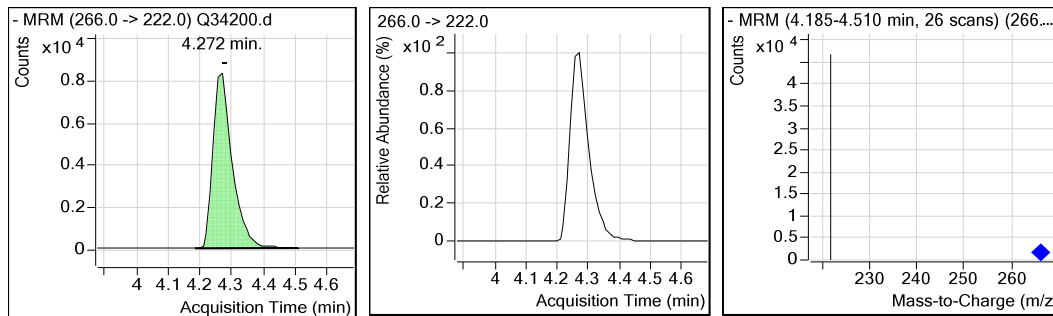
Data File : Q34200.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 21:24  
 Sample Name : OP65057-MB  
 Vial : Vial 26  
 Sample Info : OP65057,SQ893,250,,,1.0,1,WATER  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



### PFBA

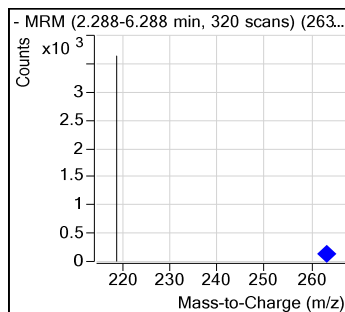
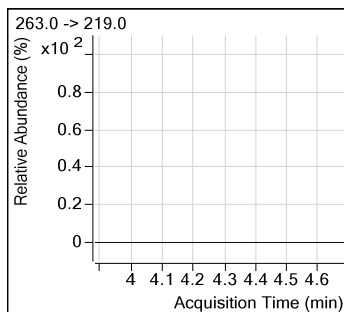
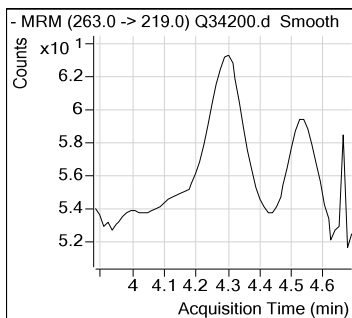


### 13C3-PFPeA

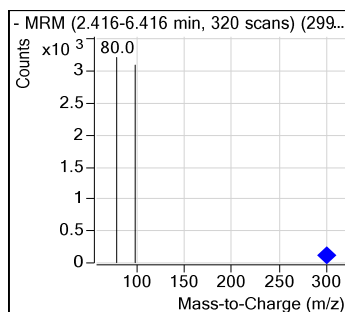
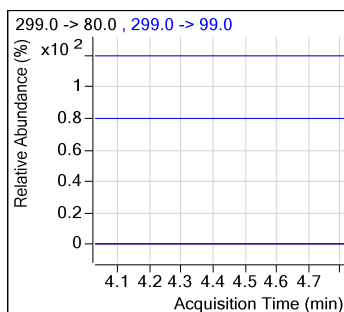
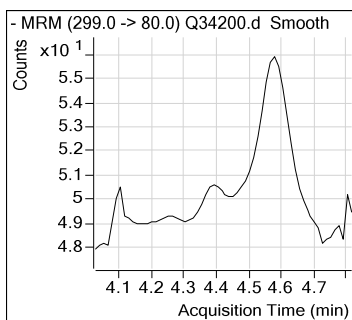


## Perfluorinated Compounds by LC/MS/MS.

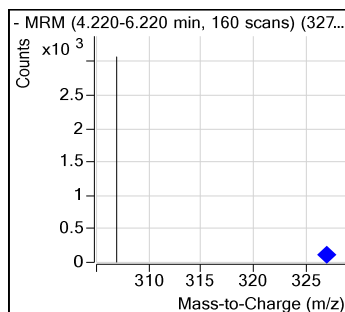
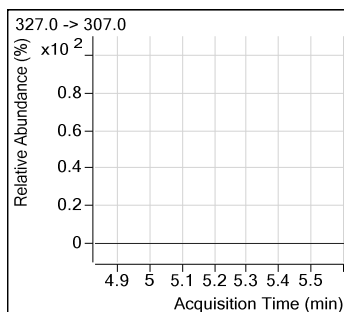
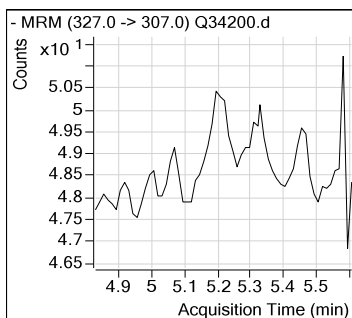
### PFPeA



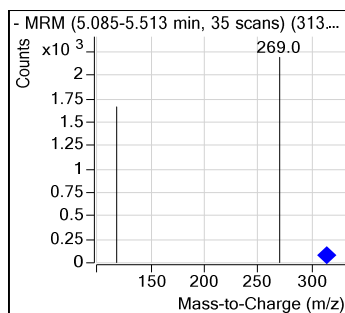
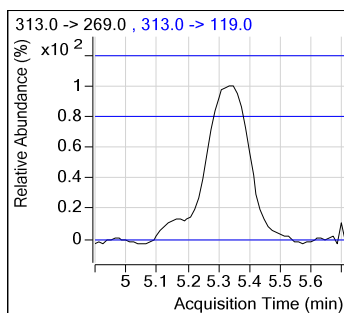
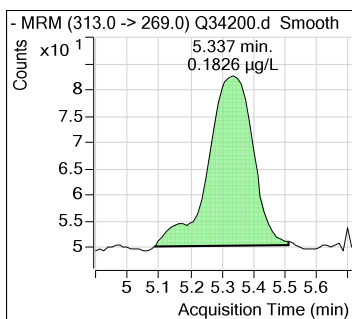
### PFBS



### 4:2FTS

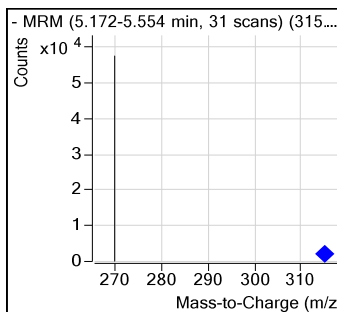
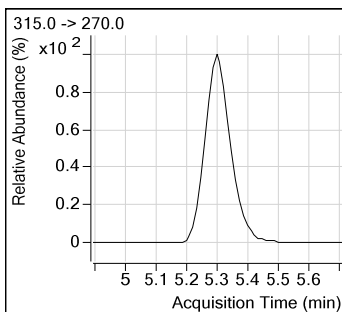
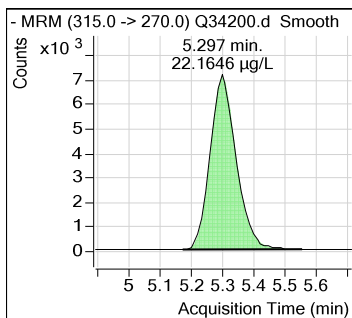


### PFHxA

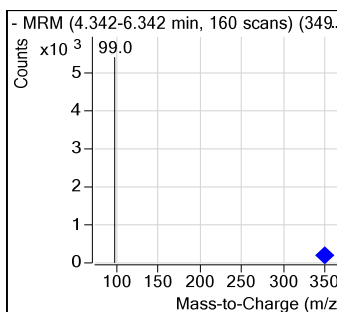
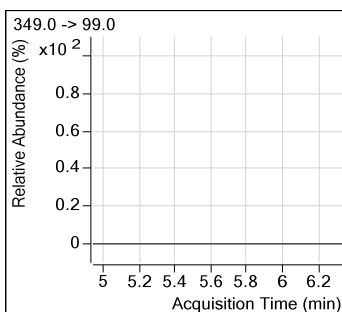
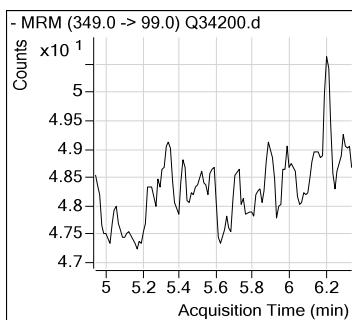


## Perfluorinated Compounds by LC/MS/MS.

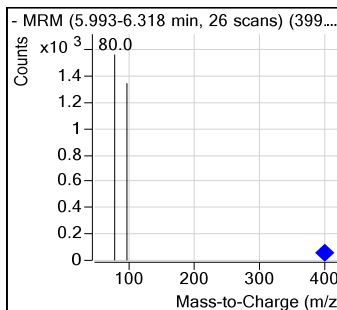
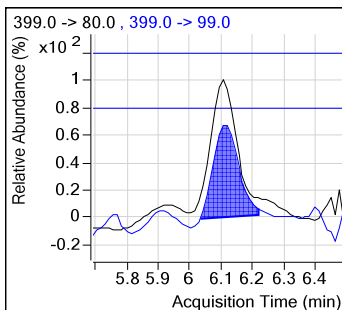
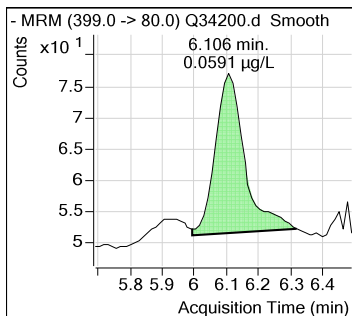
### 13C2-PFHxA



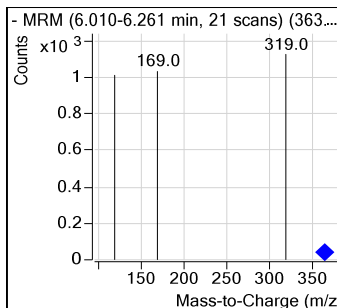
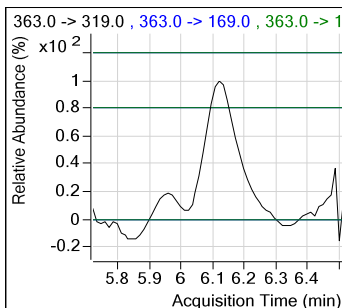
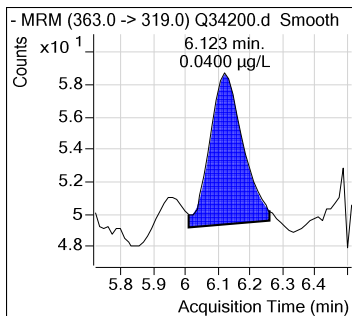
### PFPeS



### PFHxS



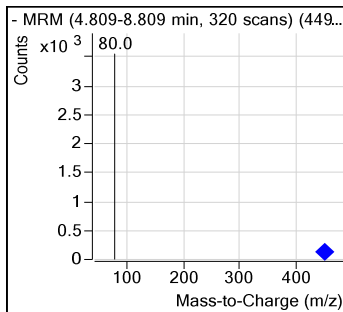
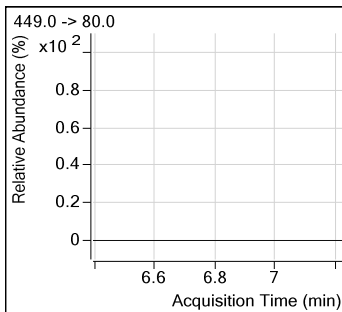
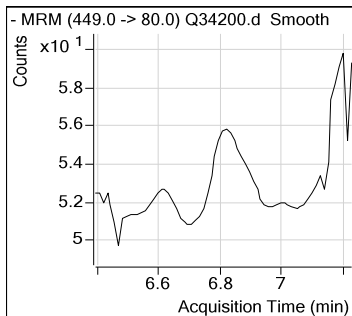
### PFHpA



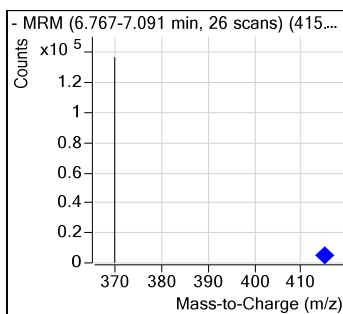
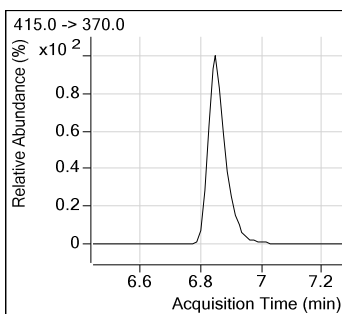
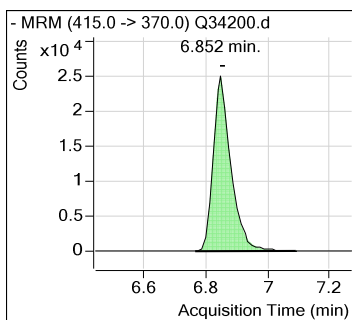


## Perfluorinated Compounds by LC/MS/MS.

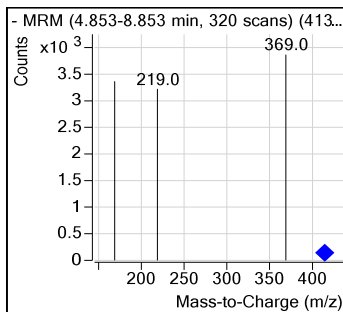
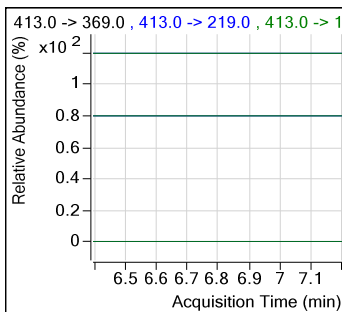
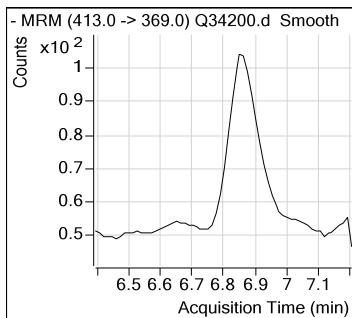
### PFHpS



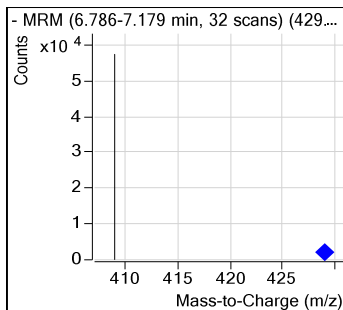
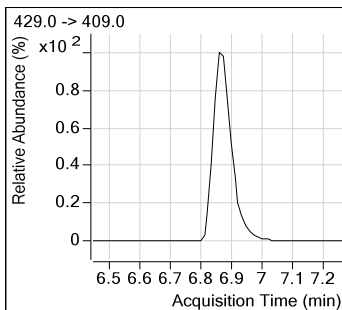
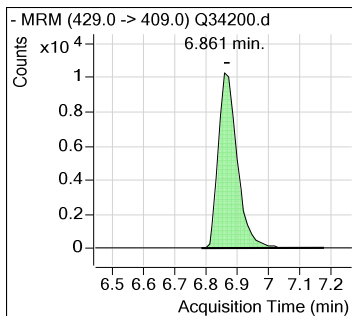
### 13C2-PFOA



### PFOA

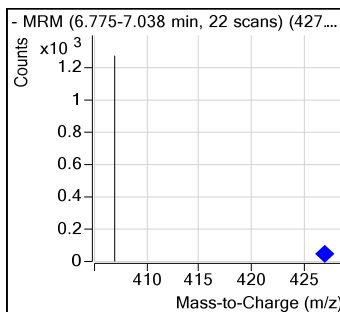
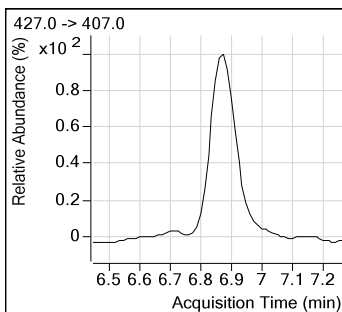
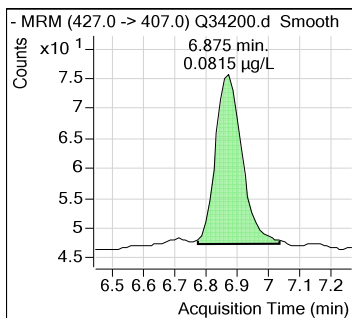


### 13C2-6:2FTS

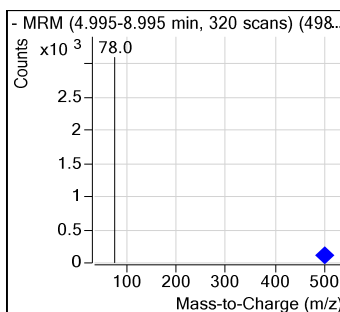
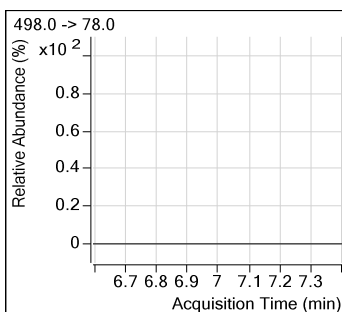
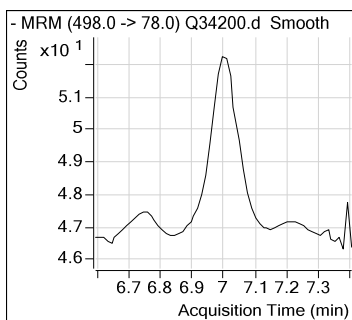


## Perfluorinated Compounds by LC/MS/MS.

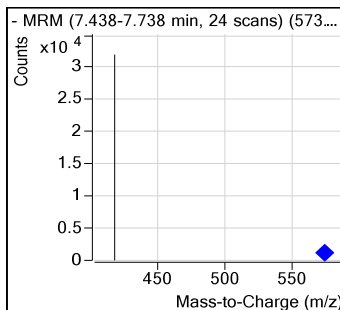
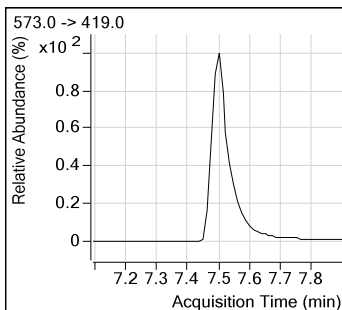
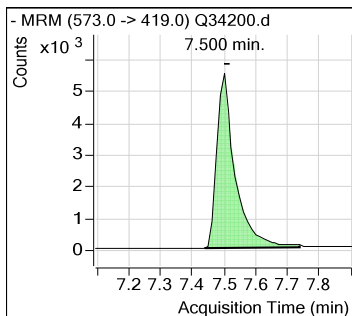
6:2FTS



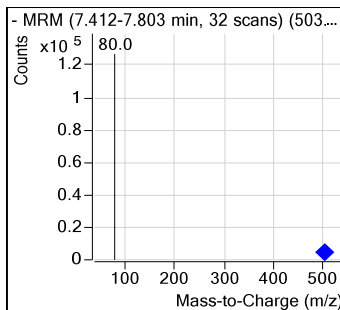
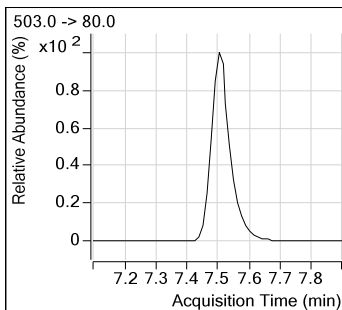
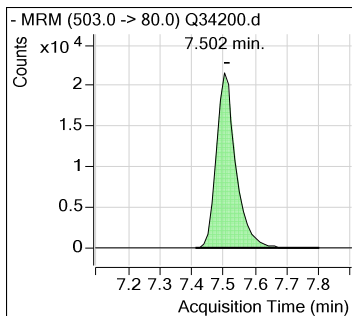
FOSA



d3-MeFOSAA

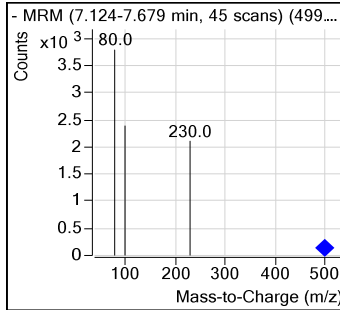
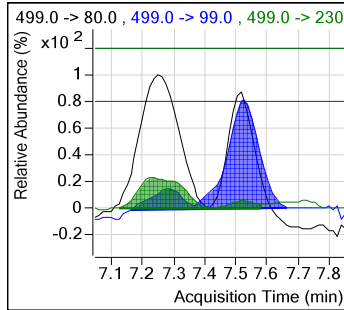
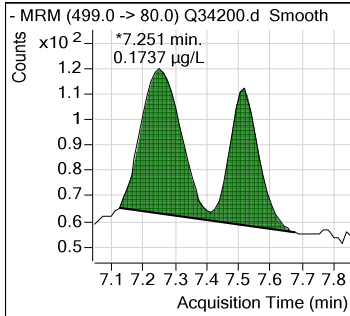


13C4-PFOS

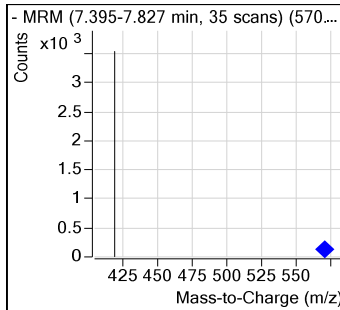
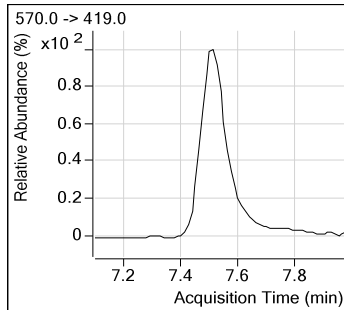
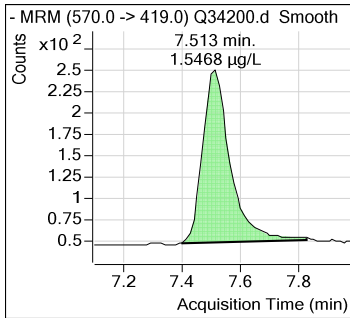


## Perfluorinated Compounds by LC/MS/MS.

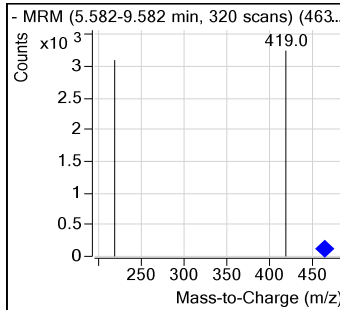
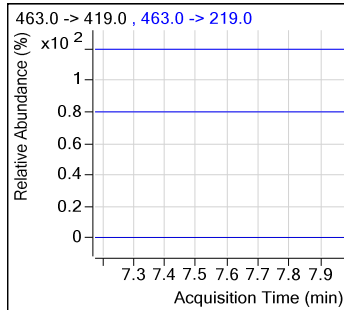
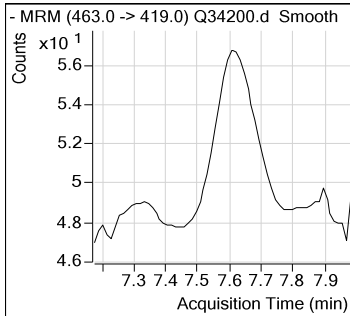
### PFOS



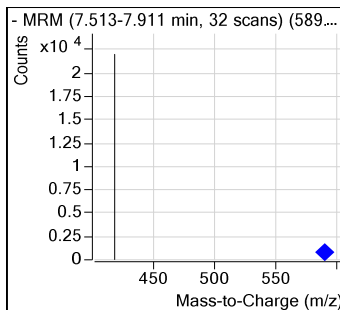
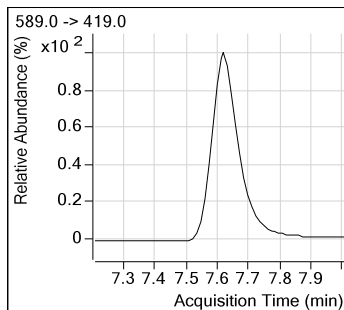
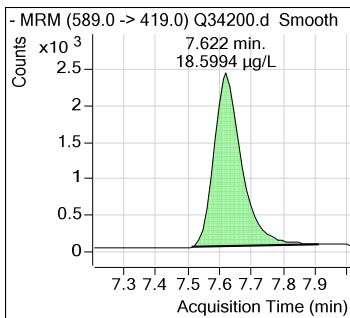
### MeFOSAA



### PFNA



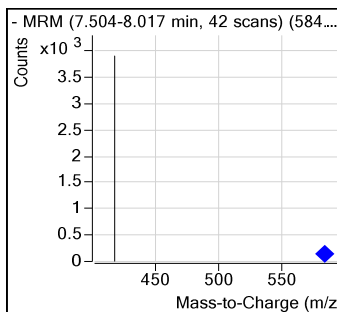
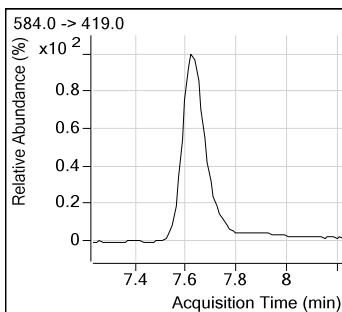
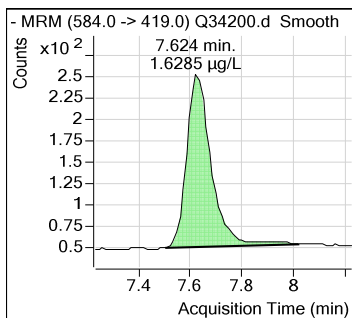
### d5-EtFOSAA



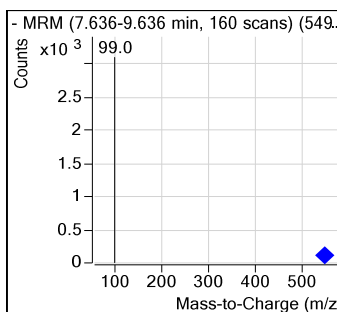
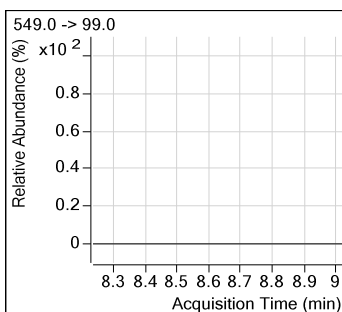
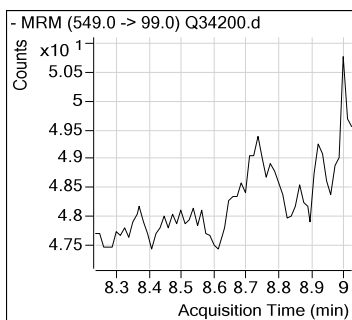
7.2.1  
7

## Perfluorinated Compounds by LC/MS/MS.

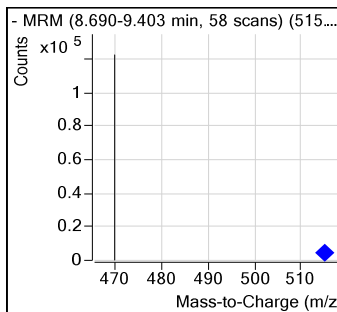
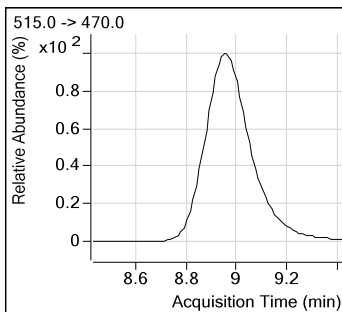
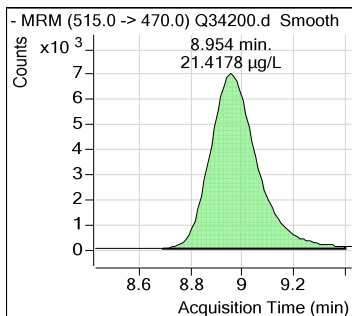
### EtFOSAA



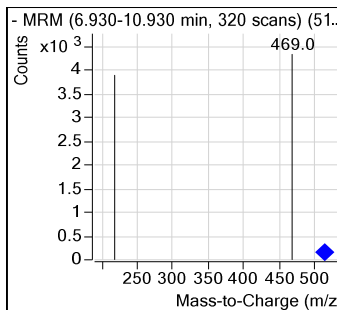
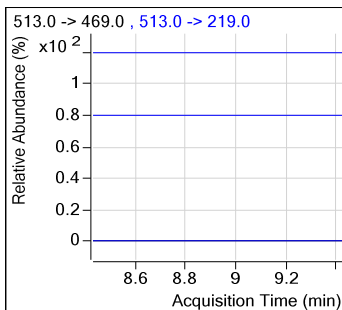
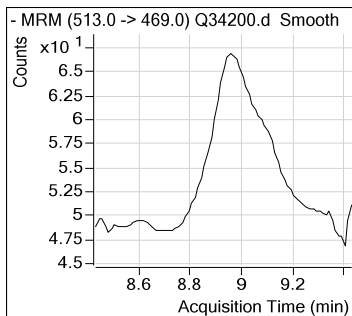
### PFNS



### 13C2-PFDA

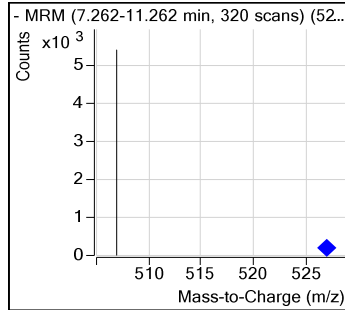
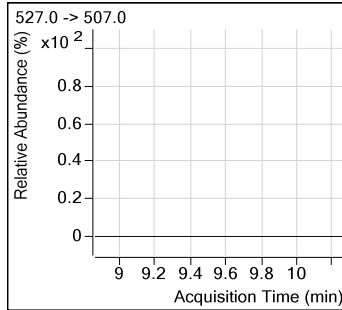
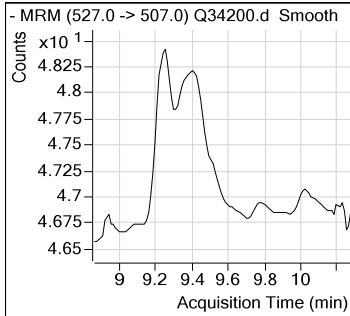


### PFDA

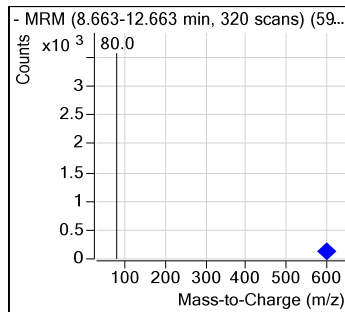
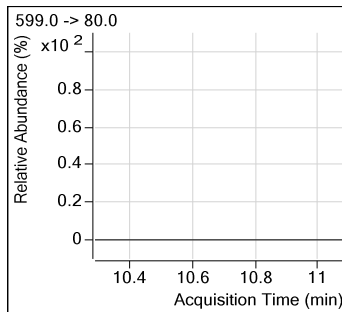
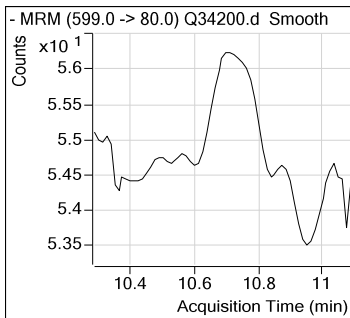


## Perfluorinated Compounds by LC/MS/MS.

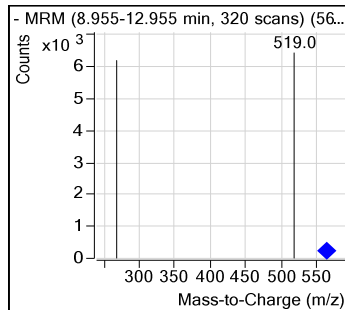
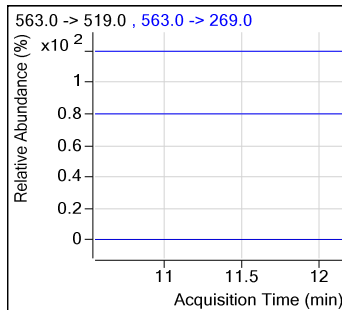
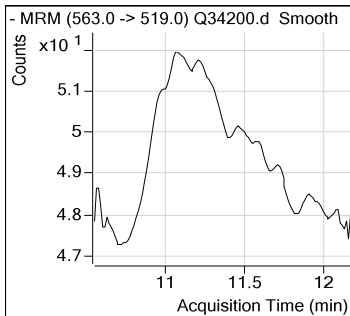
8:2FTS



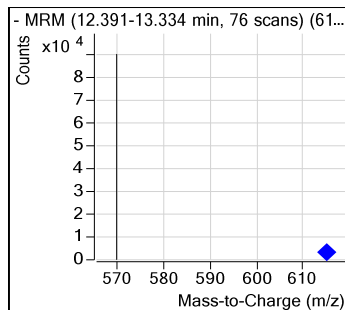
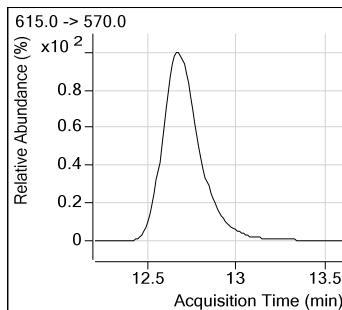
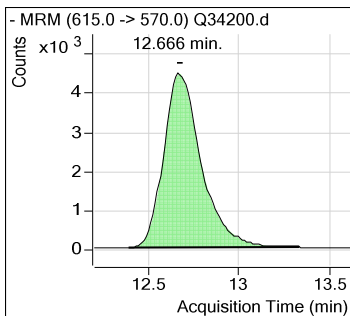
PFDS



PFUnDA



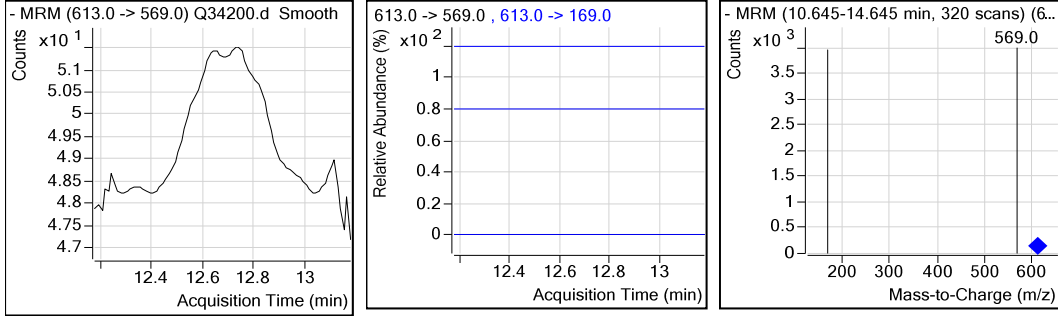
13C2-PFDoDA



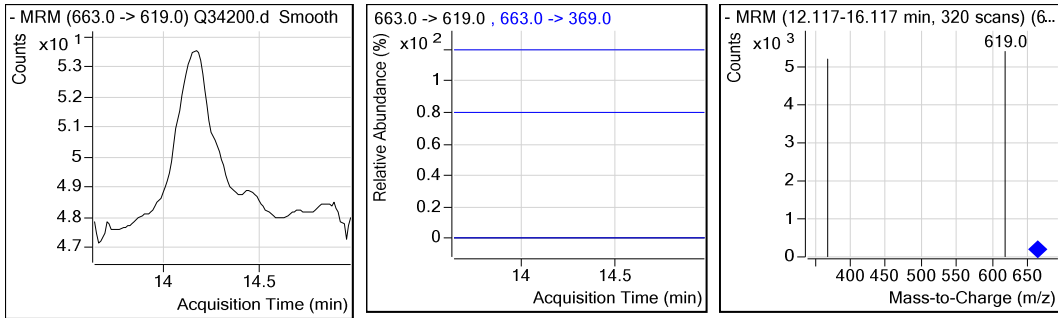
7.2.1  
7

## Perfluorinated Compounds by LC/MS/MS.

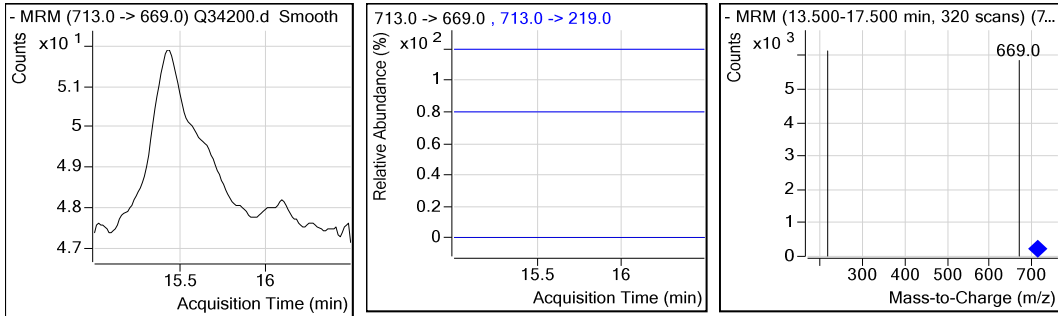
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**

7.2.1  
7

# Manual Integration Approval Summary

Sample Number: OP65057-MB                      Method: EPA 537  
Lab FileID: Q34200.D                              Analyst approved: 05/22/17 11:21 Nancy Saunders  
Injection Time: 05/19/17 21:24                      Supervisor approved: 05/22/17 16:55 Mike Eger

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

7.2.1.1

7

## Perfluorinated Compounds by LC/MS/MS.

```

Data File           : Q34199.d
Operator            : NANCYF
Acq Method Name     : dMRM_PFOA_PFOS_LIST.m
Acquisition date    : 2017-05-19 21:03
Sample Name         : OP65057-BS
Vial                 : Vial 25
Sample Info         : OP65057,SQ893,250,,,1.0,1,WATER
Quant Method        : PFC_LIST_0519_SQ893.quantmethod.xml
Quant Batch Name    : SQ893.batch.bin
Last Calib Update   : 2017-05-22 07:04
    
```

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.260	266.0 -> 222.0	34562	20.000	µg/L	-0.025	
13C2-PFOA	6.839	415.0 -> 370.0	102626	20.000	µg/L	-0.012	
13C2-6:2FTS	6.861	429.0 -> 409.0	44375	20.000	µg/L	0.000	
d3-MeFOSAA	7.487	573.0 -> 419.0	22144	20.000	µg/L	-0.012	
13C4-PFOS	7.502	503.0 -> 80.0	96088	20.000	µg/L	0.000	
13C2-PFDoDA	12.628	615.0 -> 570.0	66078	20.000	µg/L	-0.012	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.297	315.0 -> 270.0	42921	22.58	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 112.88%				
d5-EtFOSAA	7.610	589.0 -> 419.0	13430	17.55	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 87.77%				
13C2-PFDA	8.917	515.0 -> 470.0	85520	20.25	µg/L	-0.010	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 101.26%				
<b>Target Compounds</b>							<b>Qvalue</b>
PFBA	2.940	213.0 -> 169.0	25992	17.527	µg/L		100
PFPeA	4.263	263.0 -> 219.0	21536	22.495	µg/L		100
PFBS	4.391	299.0 -> 80.0	43511	22.884	µg/L		90
4:2FTS	5.220	327.0 -> 307.0	49050	26.627	µg/L		100
PFHxA	5.300	313.0 -> 269.0	44475	25.011	µg/L		98
PFPeS	5.330	349.0 -> 99.0	11268	24.878	µg/L		100
PFHxS	6.106	399.0 -> 80.0	65449	23.348	µg/L #		81
PFHpA	6.123	363.0 -> 319.0	39151	23.733	µg/L #		47
PFHpS	6.797	449.0 -> 80.0	63942	20.794	µg/L		100
PFOA	6.841	413.0 -> 369.0	119394	23.172	µg/L		85
6:2FTS	6.862	427.0 -> 407.0	47619	22.406	µg/L		100
FOSA	6.996	498.0 -> 78.0	32003	5.172	µg/L		100
MeFOSAA	7.501	570.0 -> 419.0	15189	18.097	µg/L		100
PFOS	7.503	499.0 -> 80.0	106583	21.500	µg/L		78
PFNA	7.582	463.0 -> 419.0	36938	23.173	µg/L #		72
EtFOSAA	7.624	584.0 -> 419.0	13511	16.929	µg/L		100
PFNS	8.649	549.0 -> 99.0	23948	19.766	µg/L		100
PFDA	8.919	513.0 -> 469.0	79552	22.566	µg/L #		90
8:2FTS	9.262	527.0 -> 507.0	56578	28.683	µg/L		100
PFDS	10.676	599.0 -> 80.0	41291	15.972	µg/L		100
PFUnDA	10.943	563.0 -> 519.0	53405	18.557	µg/L #		89
PFDoDA	12.645	613.0 -> 569.0	43282	14.932	µg/L		93
PFTrDA	14.105	663.0 -> 619.0	38887	14.358	µg/L #		75
PFTeDA	15.418	713.0 -> 669.0	26627	14.279	µg/L #		87

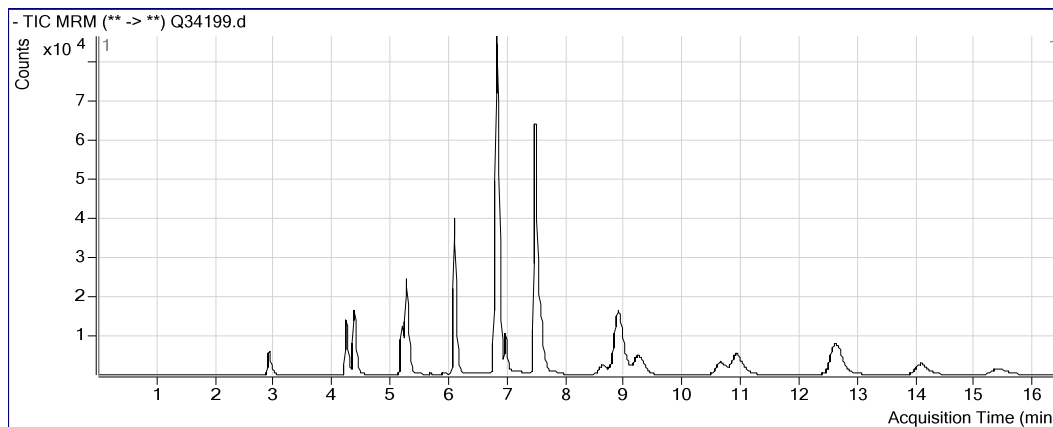
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

7.3.1  
7

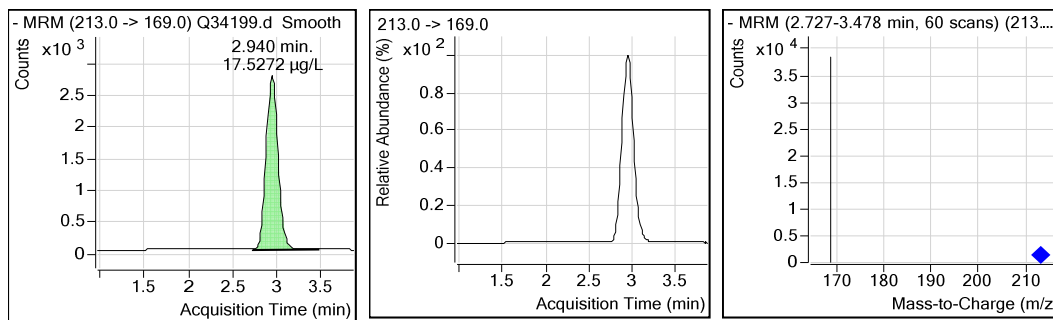


# Perfluorinated Compounds by LC/MS/MS.

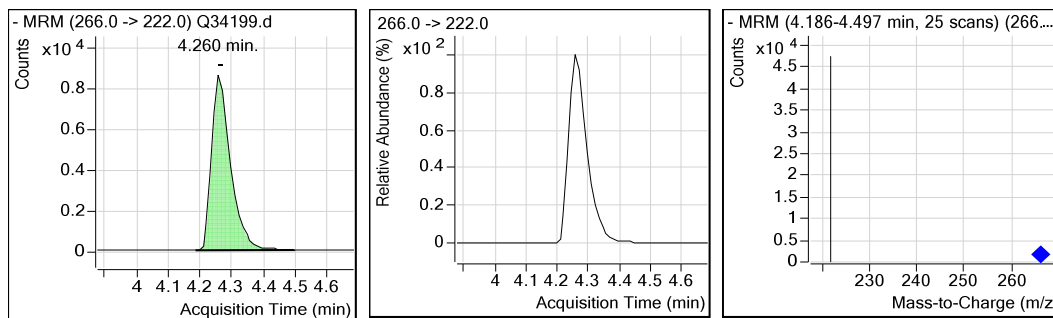
Data File : Q34199.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 21:03  
 Sample Name : OP65057-BS  
 Vial : Vial 25  
 Sample Info : OP65057,SQ893,250,,,1.0,1,WATER  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



### PFBA

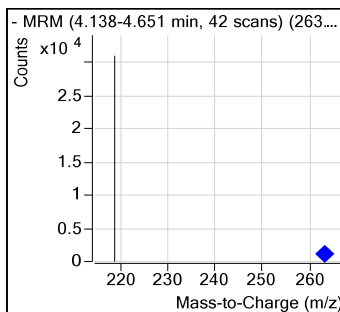
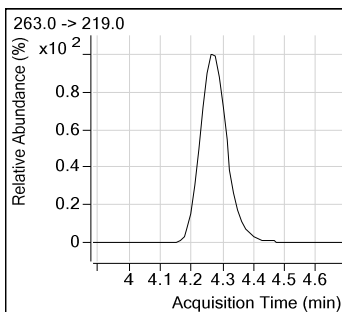
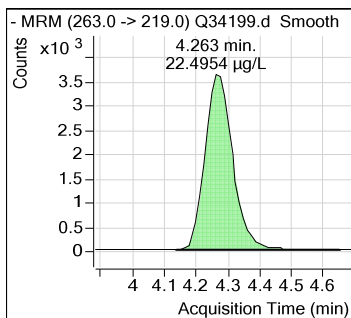


### 13C3-PFPeA

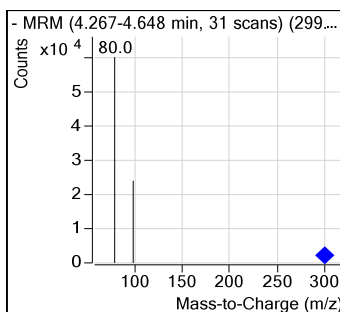
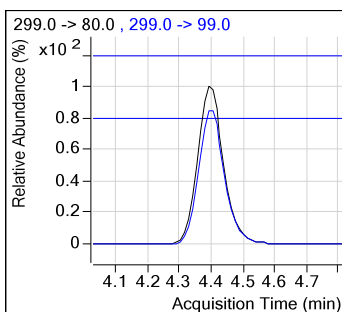
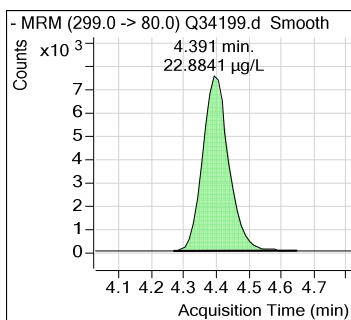


## Perfluorinated Compounds by LC/MS/MS.

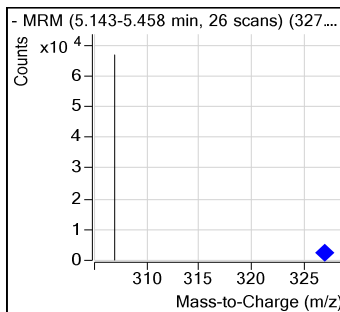
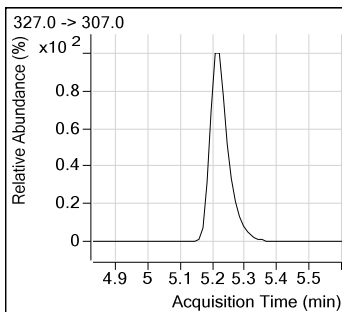
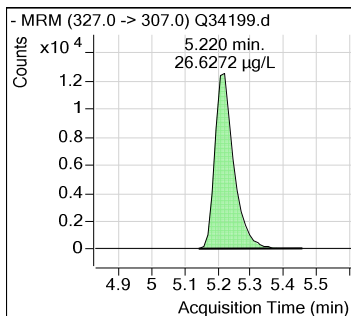
### PFPeA



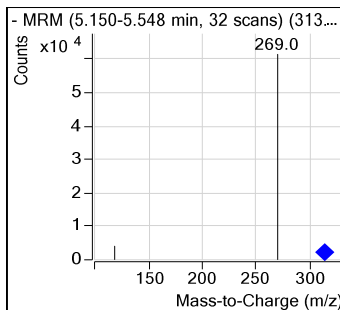
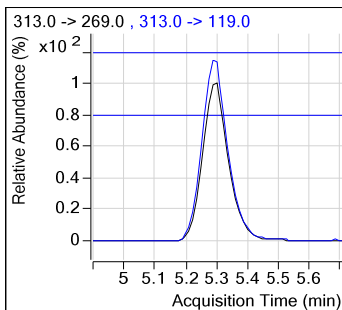
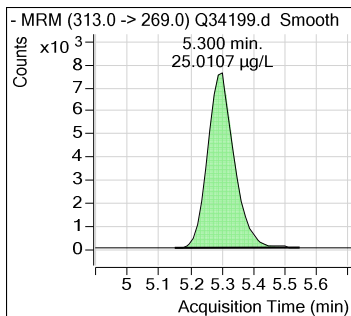
### PFBS



### 4:2FTS

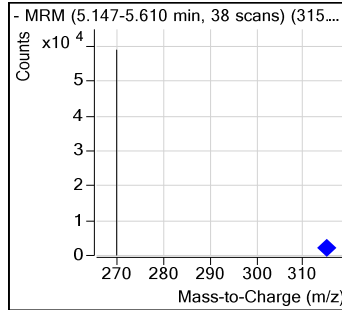
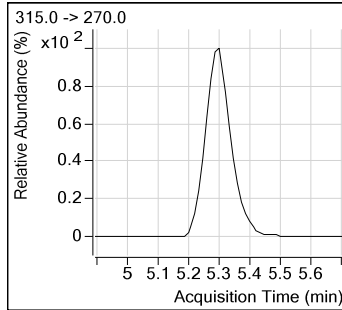
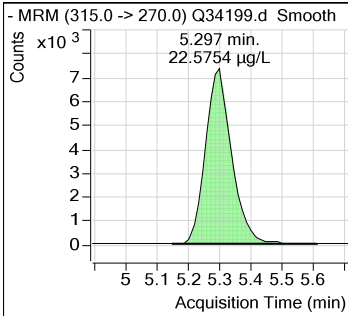


### PFHxA

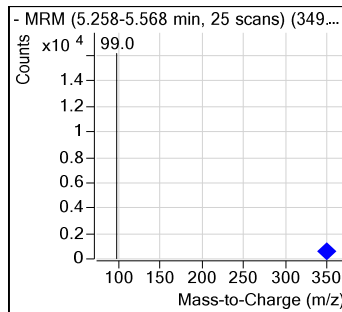
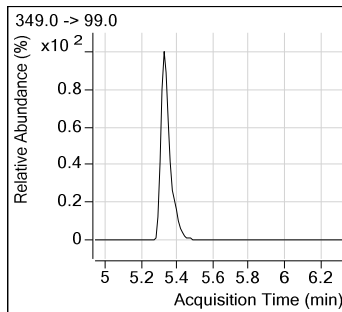
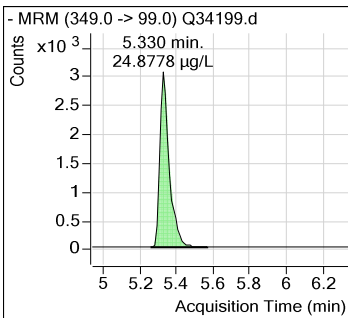


## Perfluorinated Compounds by LC/MS/MS.

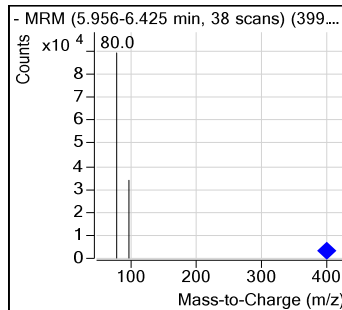
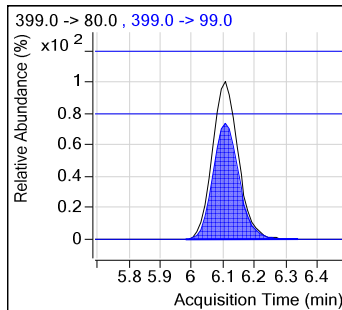
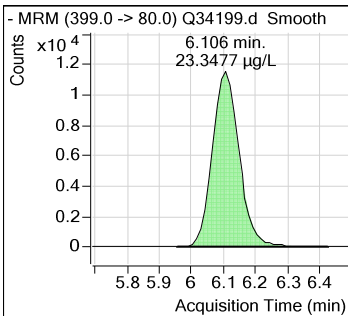
### 13C2-PFHxA



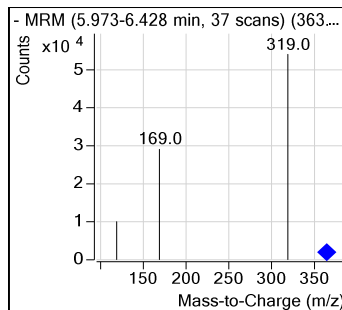
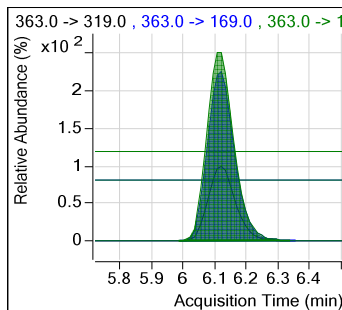
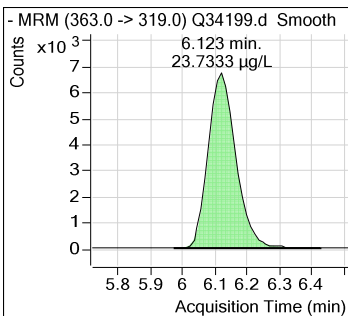
### PFPeS



### PFHxS



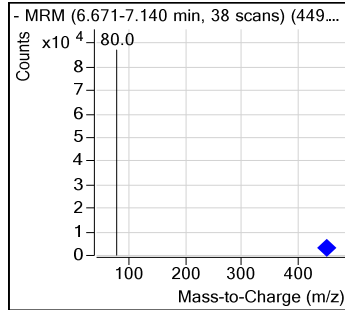
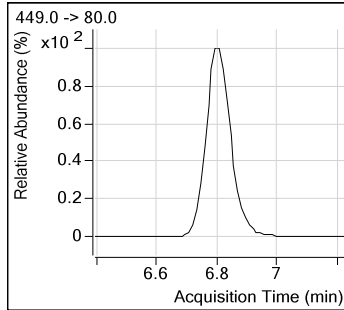
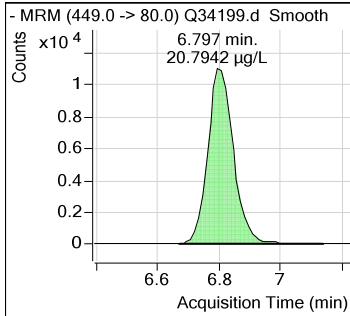
### PFHpA



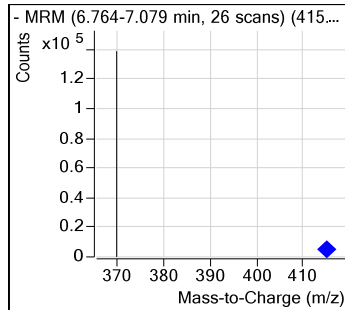
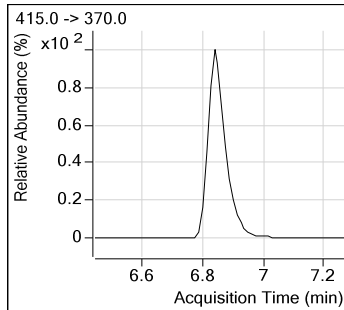
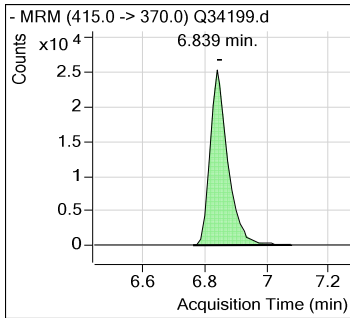
7.3.1  
7

## Perfluorinated Compounds by LC/MS/MS.

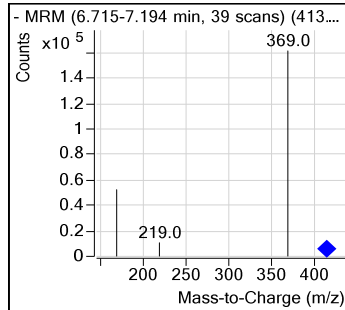
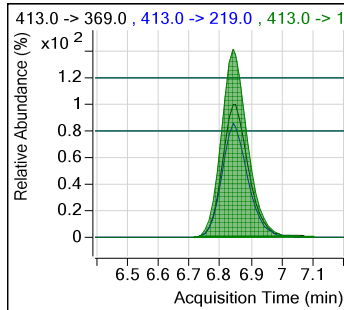
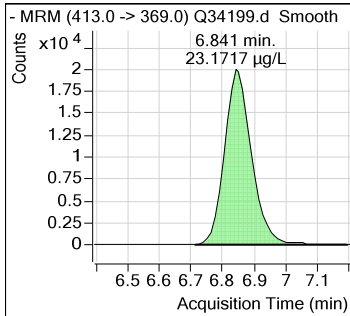
### PFHpS



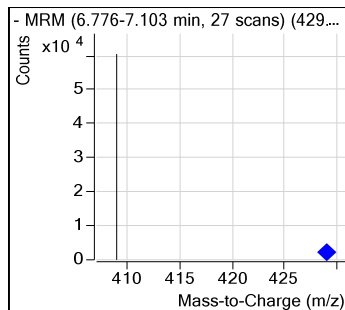
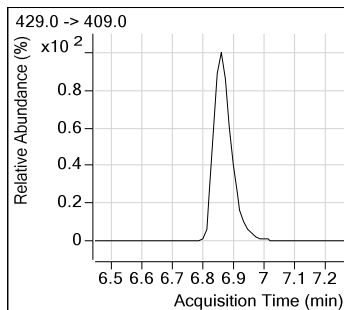
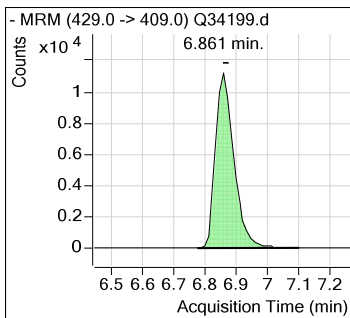
### 13C2-PFOA



### PFOA



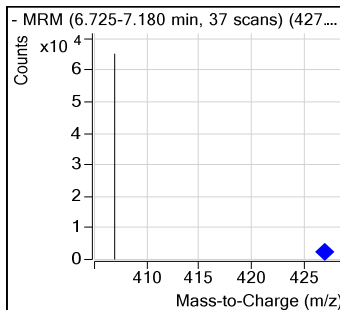
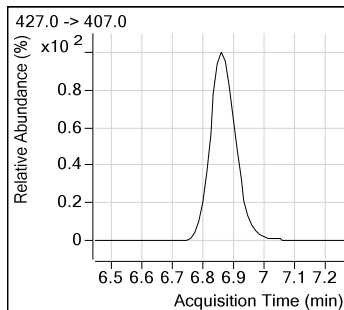
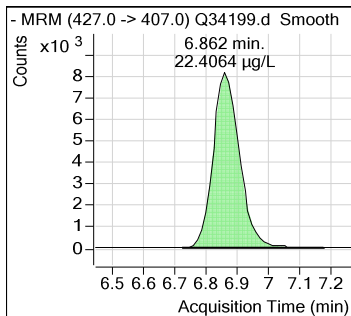
### 13C2-6:2FTS



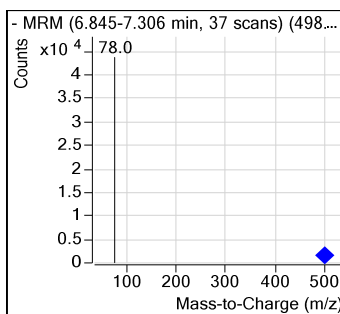
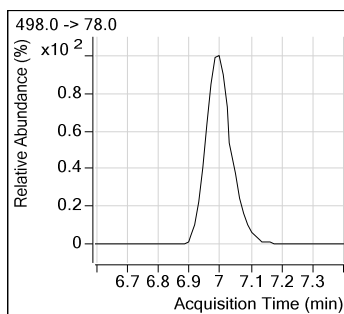
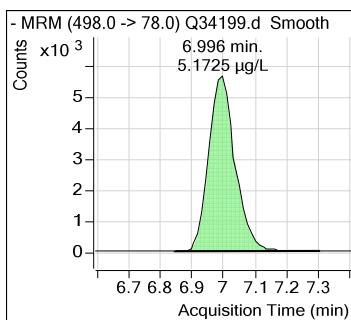
7.3.1  
7

## Perfluorinated Compounds by LC/MS/MS.

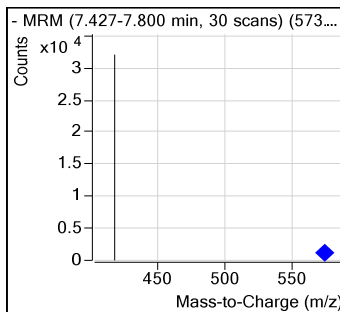
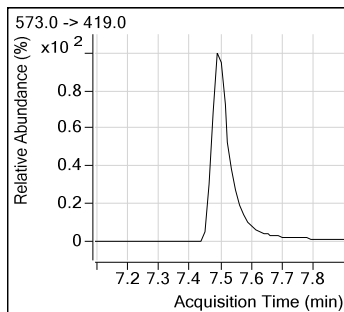
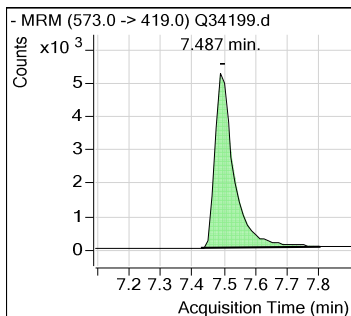
6:2FTS



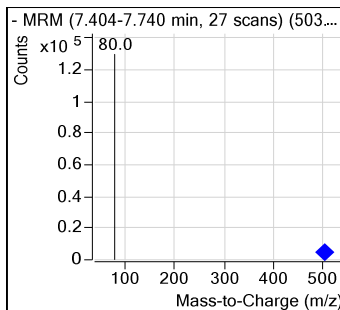
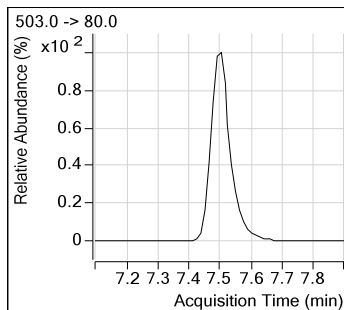
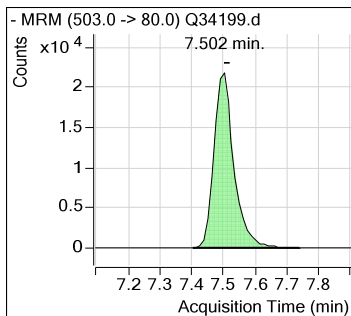
FOSA



d3-MeFOSAA

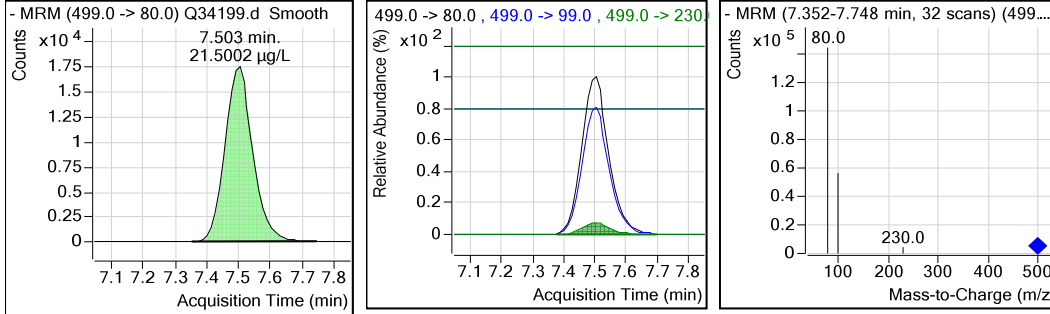


13C4-PFOS

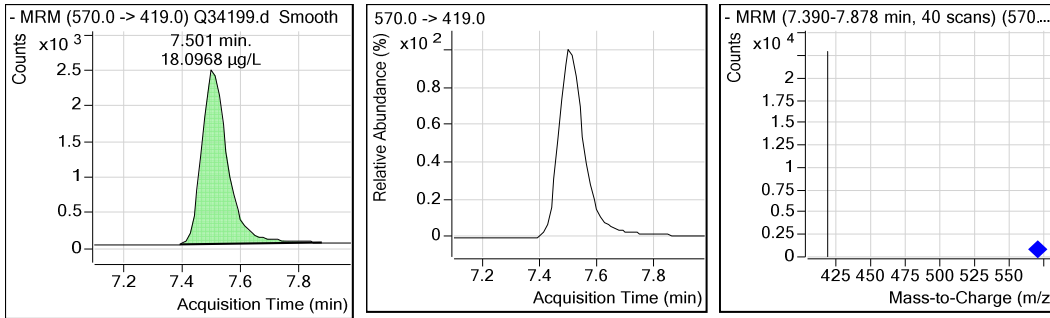


## Perfluorinated Compounds by LC/MS/MS.

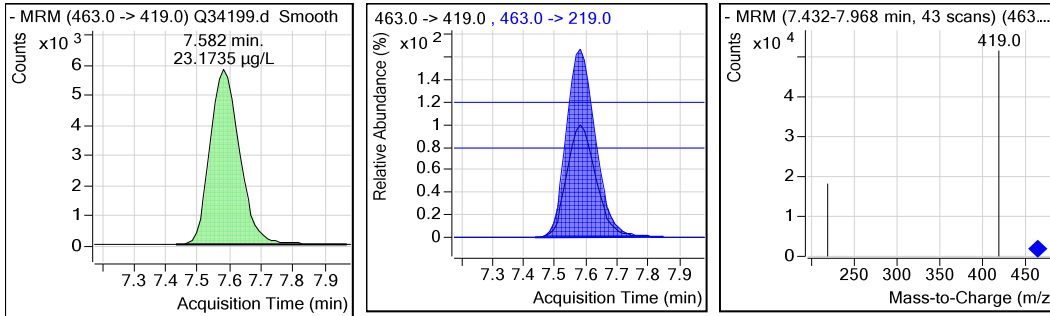
PFOS



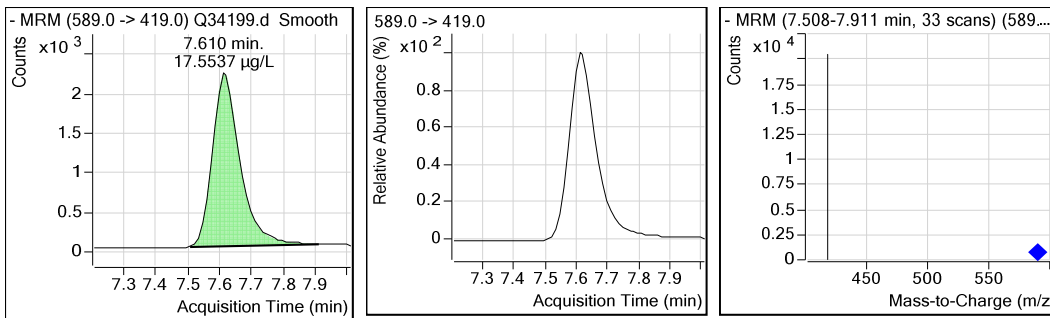
MeFOSAA



PFNA



d5-EtFOSAA

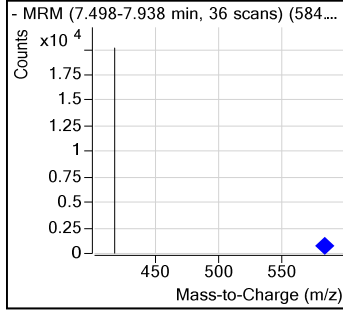
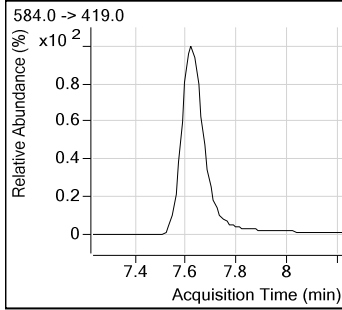
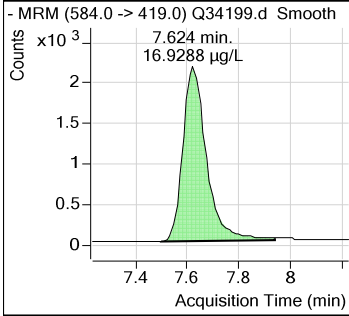


7.3.1

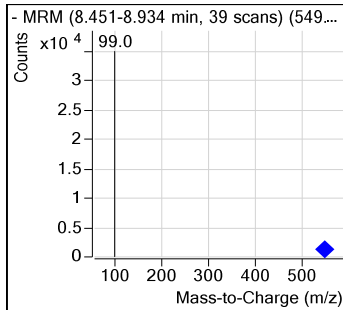
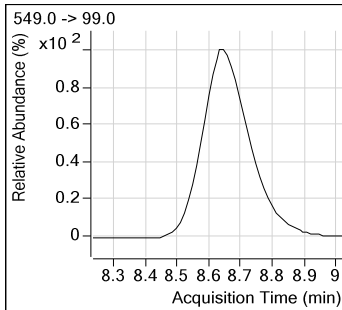
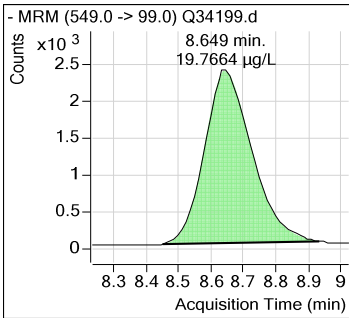
## Perfluorinated Compounds by LC/MS/MS.

7.3.1  
7

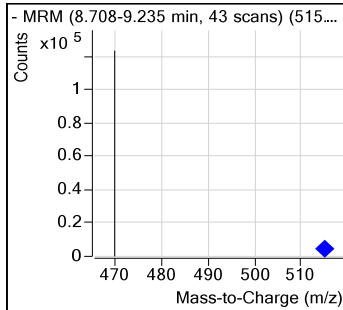
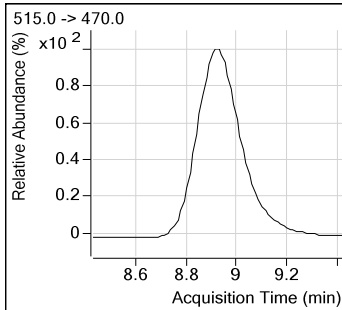
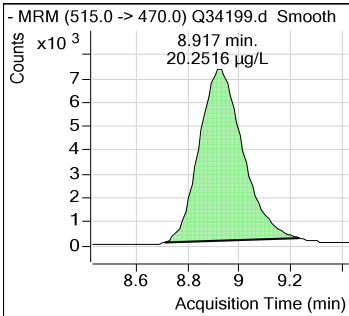
**EtFOSAA**



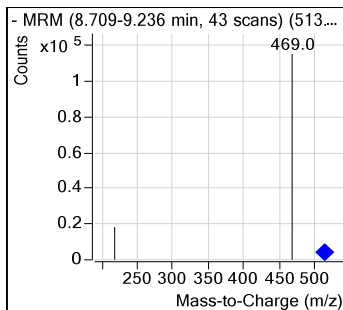
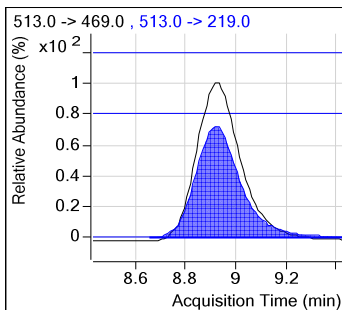
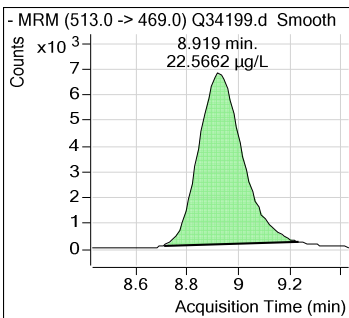
**PFNS**



**13C2-PFDA**

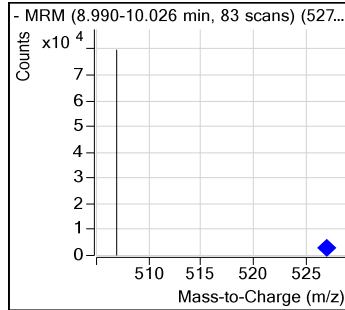
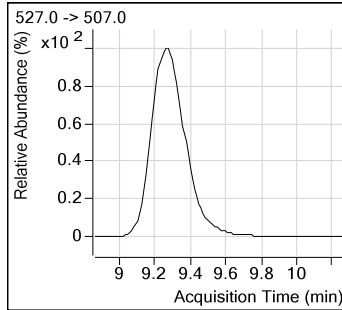
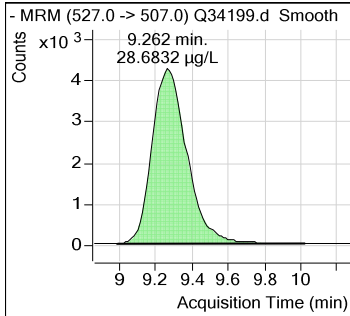


**PFDA**

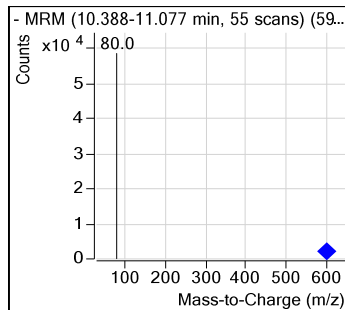
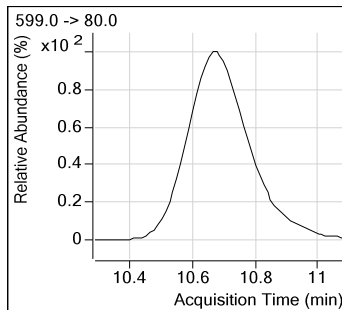
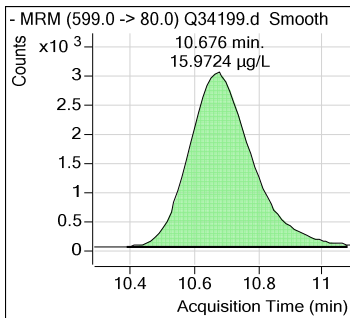


## Perfluorinated Compounds by LC/MS/MS.

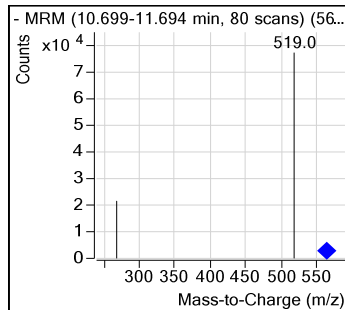
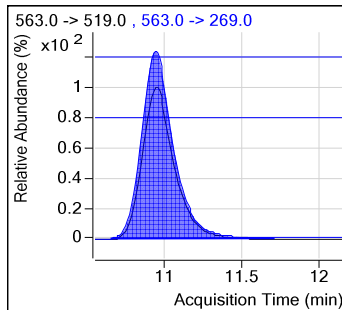
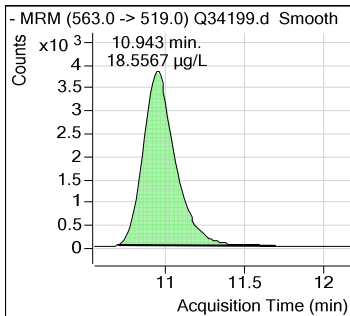
8:2FTS



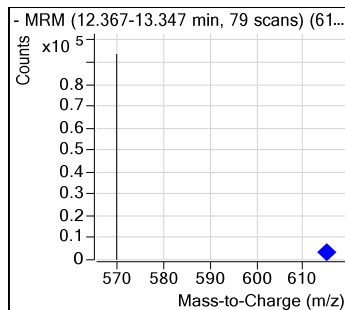
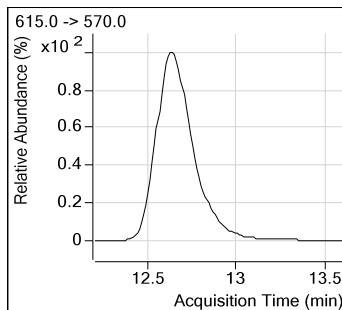
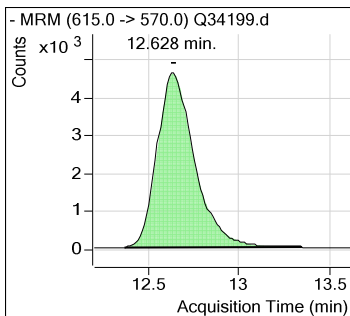
PFDS



PFUnDA



13C2-PFDoDA

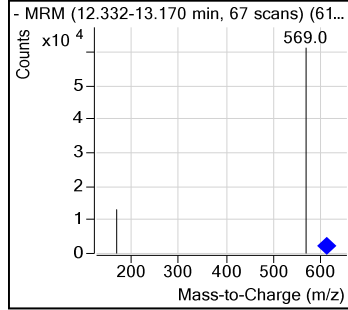
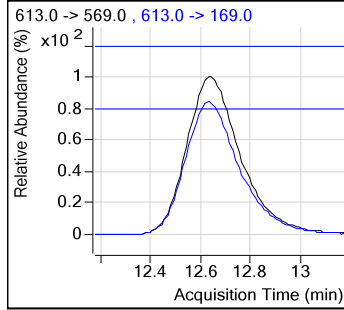
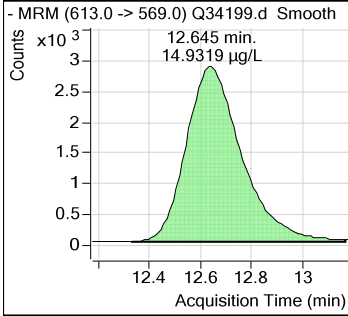


7.3.1  
7

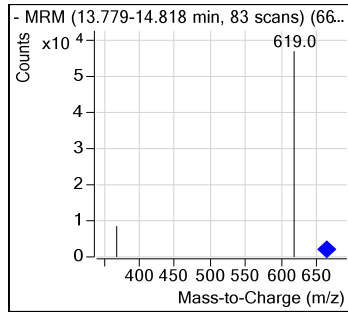
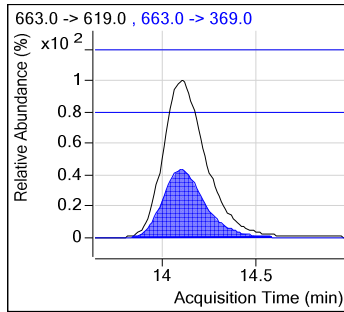
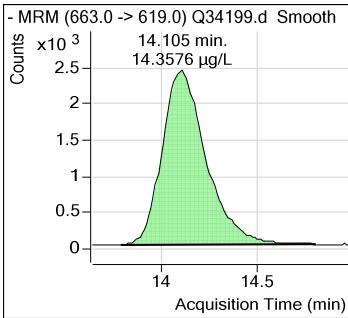


## Perfluorinated Compounds by LC/MS/MS.

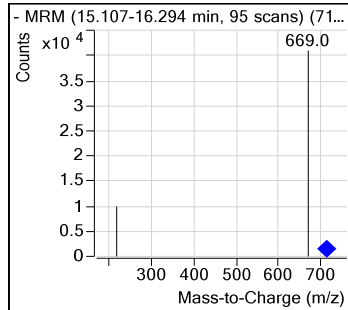
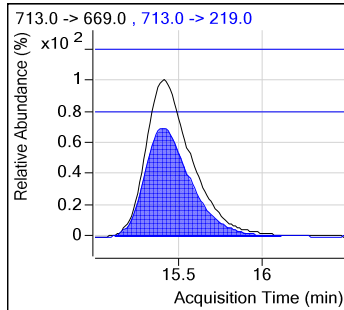
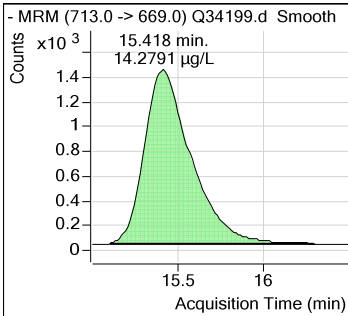
### PFDODA



### PFTrDA



### PFTeDA



### Calibration Curve

7.3.1  
7

## Perfluorinated Compounds by LC/MS/MS.

```

Data File           : Q34205.d
Operator            : NANCYF
Acq Method Name     : dMRM_PFOA_PFOS_LIST.m
Acquisition date    : 2017-05-19 23:10
Sample Name         : OP65057-MS
Vial                : Vial 31
Sample Info         : OP65057,SQ893,130,,,1.0,1,WATER
Quant Method        : PFC_LIST_0519_SQ893.quantmethod.xml
Quant Batch Name    : SQ893.batch.bin
Last Calib Update   : 2017-05-22 07:04
    
```

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.272	266.0 -> 222.0	29281	20.000	µg/L	-0.012	
13C2-PFOA	6.852	415.0 -> 370.0	104391	20.000	µg/L	0.000	
13C2-6:2FTS	6.873	429.0 -> 409.0	47675	20.000	µg/L	0.013	
d3-MeFOSAA	7.500	573.0 -> 419.0	25261	20.000	µg/L	0.000	
13C4-PFOS	7.515	503.0 -> 80.0	100093	20.000	µg/L	0.013	
13C2-PFDoDA	12.666	615.0 -> 570.0	69054	20.000	µg/L	0.025	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.310	315.0 -> 270.0	34480	17.83	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 89.14%				
d5-EtFOSAA	7.622	589.0 -> 419.0	5595	6.57	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 32.87%				
13C2-PFDA	8.980	515.0 -> 470.0	42029	9.78	µg/L	0.052	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 48.92%				
							<b>Qvalue</b>
PFBA	2.952	213.0 -> 169.0	28649	22.803	µg/L	100	
PFPeA	4.288	263.0 -> 219.0	16837	20.758	µg/L	100	
PFBS	4.404	299.0 -> 80.0	42672	21.545	µg/L	90	
4:2FTS	5.232	327.0 -> 307.0	47017	23.798	µg/L	100	
PFHxA	5.312	313.0 -> 269.0	36565	20.215	µg/L #	98	
PFPeS	5.342	349.0 -> 99.0	10541	22.342	µg/L	100	
PFHxS	6.119	399.0 -> 80.0	69184	23.693	µg/L #	79	
PFHpA	6.135	363.0 -> 319.0	32097	19.128	µg/L #	47	
PFHpS	6.822	449.0 -> 80.0	66151	20.652	µg/L	100	
PFOA	6.866	413.0 -> 369.0	93938	17.923	µg/L	83	
6:2FTS	6.875	427.0 -> 407.0	49832	21.811	µg/L	100	
FOSA	6.996	498.0 -> 78.0	3379	0.478	µg/L	100	
MeFOSAA	7.513	570.0 -> 419.0	5835	6.095	µg/L	100	
PFOS	7.516	499.0 -> 80.0	105950	20.518	µg/L	79	
PFNA	7.607	463.0 -> 419.0	24442	15.075	µg/L #	73	
EtFOSAA	7.636	584.0 -> 419.0	4581	5.032	µg/L	100	
PFNS	8.699	549.0 -> 99.0	20349	16.124	µg/L	100	
PFDA	8.982	513.0 -> 469.0	39340	10.971	µg/L #	91	
8:2FTS	9.338	527.0 -> 507.0	52380	24.925	µg/L	100	
PFDS	10.726	599.0 -> 80.0	37990	14.176	µg/L	100	
PFUnDA	11.006	563.0 -> 519.0	26253	8.729	µg/L #	89	
PFDoDA	12.682	613.0 -> 569.0	26090	8.698	µg/L	94	
PFTrDA	14.130	663.0 -> 619.0	29553	10.549	µg/L #	76	
PFTeDA	15.443	713.0 -> 669.0	26644	13.673	µg/L #	87	

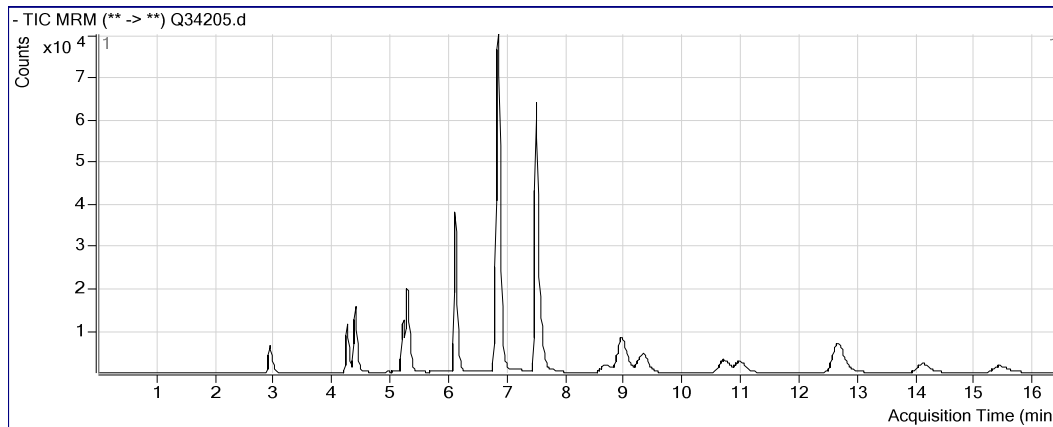
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

7.4.1

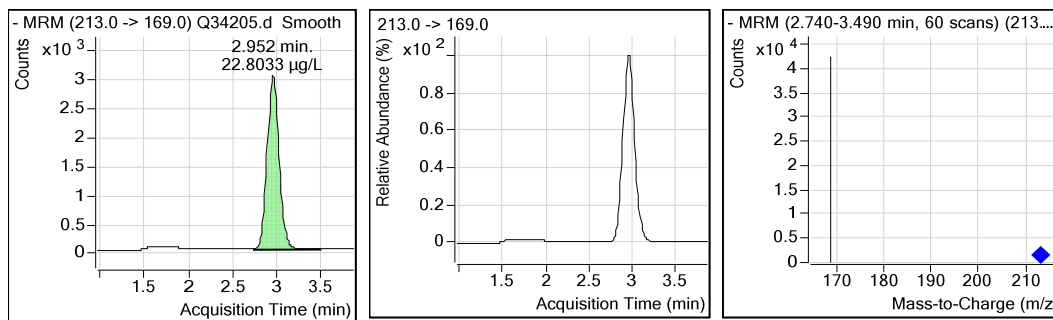
7

# Perfluorinated Compounds by LC/MS/MS.

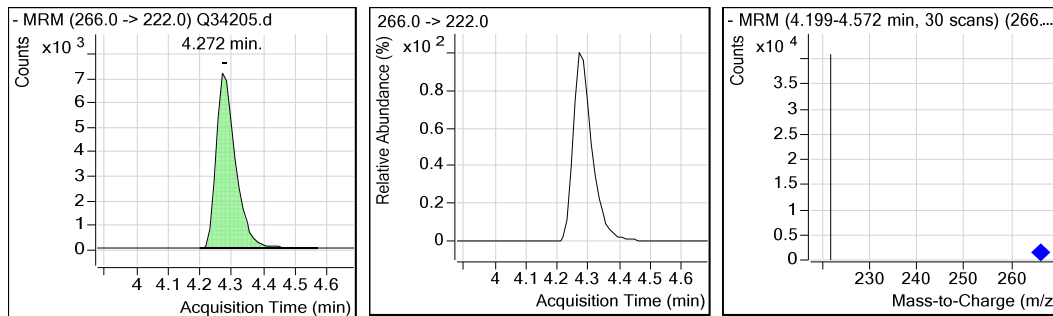
Data File : Q34205.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 23:10  
 Sample Name : OP65057-MS  
 Vial : Vial 31  
 Sample Info : OP65057,SQ893,130,,,1.0,1,WATER  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



### PFBA

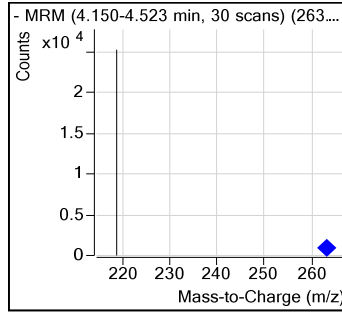
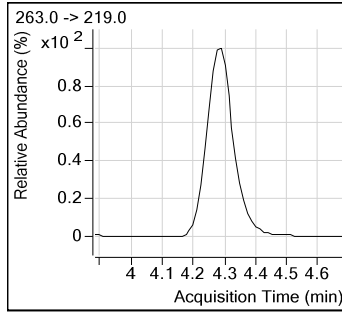
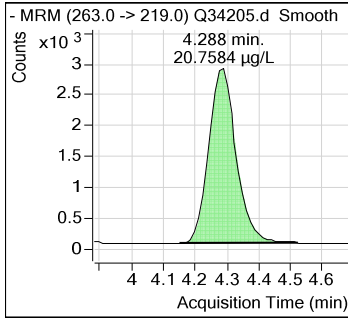


### 13C3-PFPeA

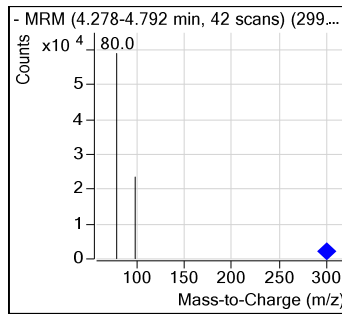
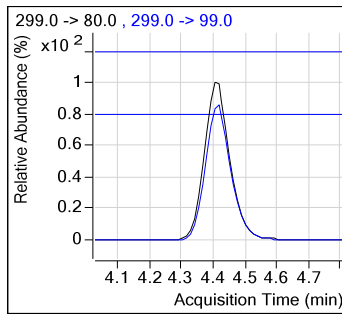
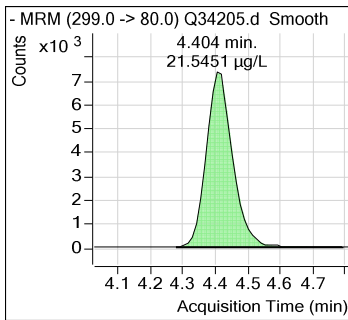


## Perfluorinated Compounds by LC/MS/MS.

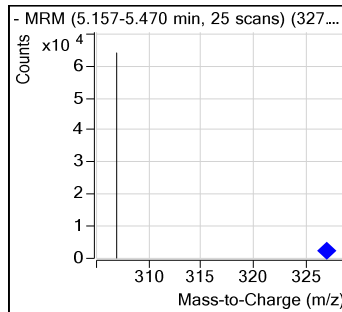
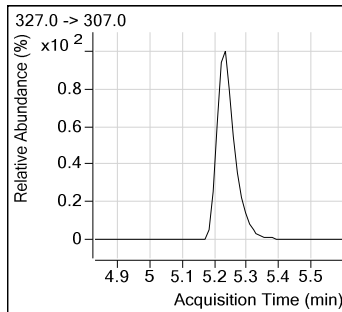
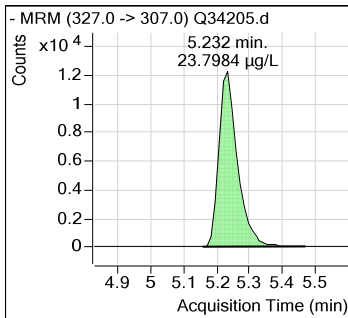
PFPeA



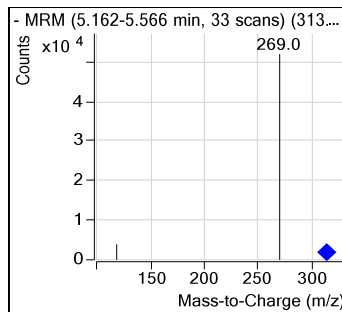
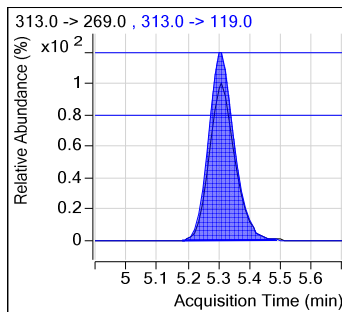
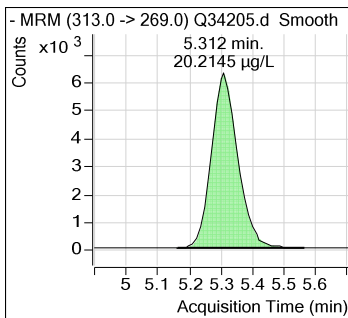
PFBS



4:2FTS



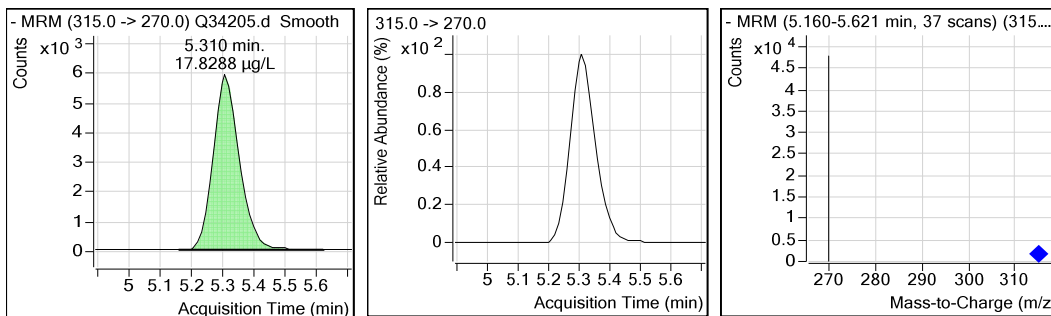
PFHxA



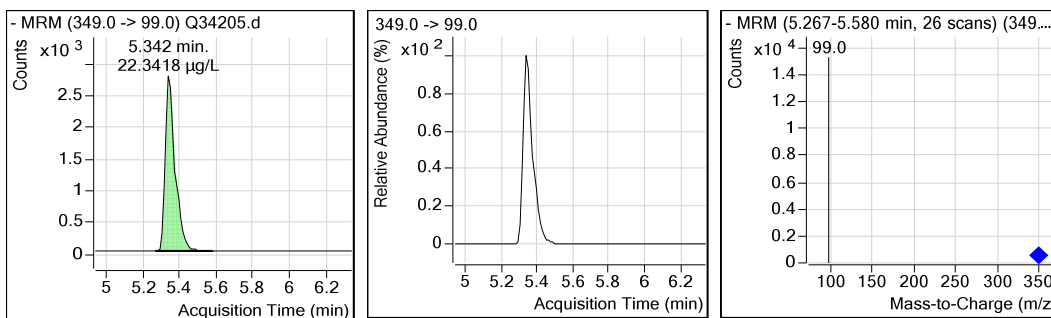
7.4.1  
7

## Perfluorinated Compounds by LC/MS/MS.

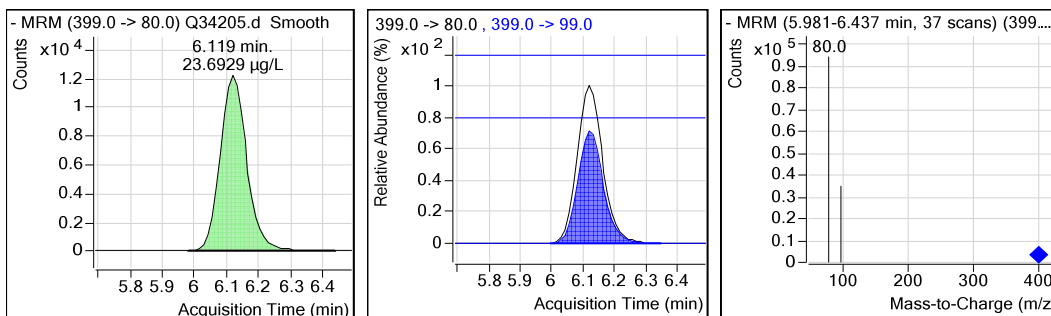
### 13C2-PFHxA



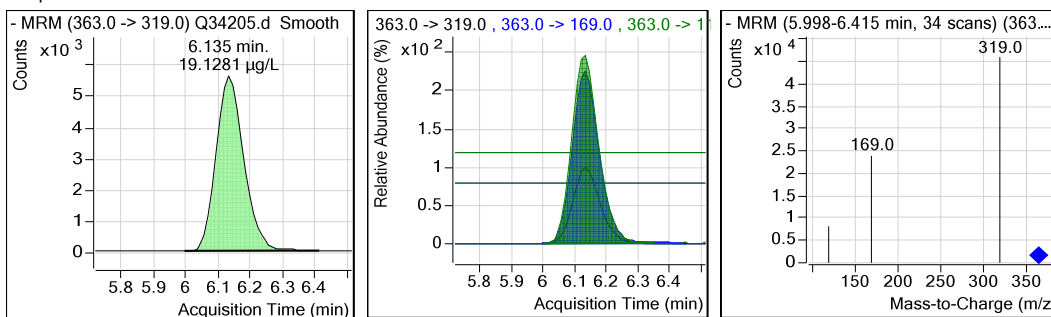
### PFPeS



### PFHxS

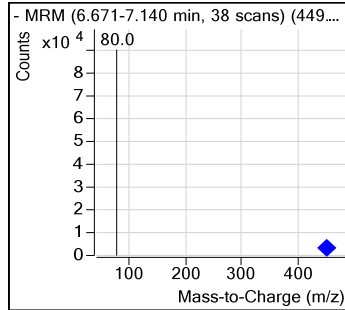
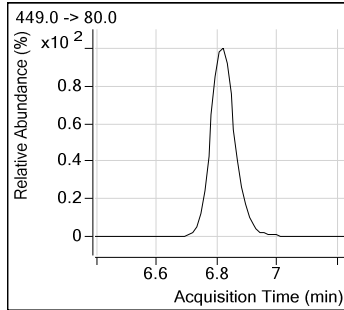
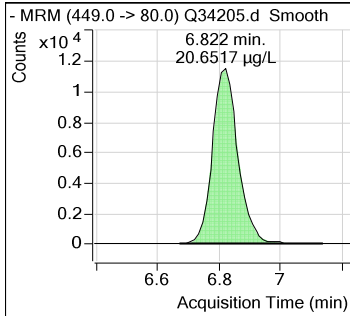


### PFHpA

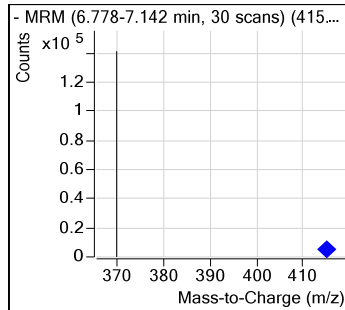
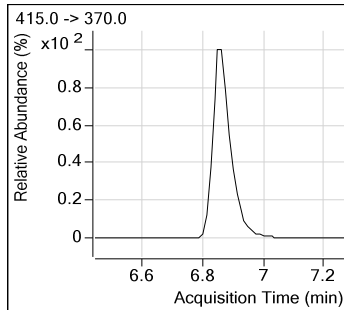
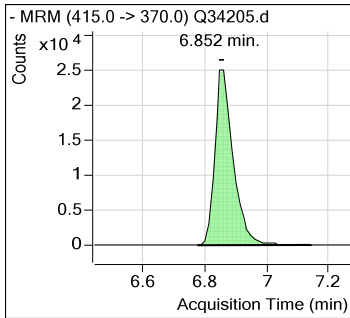


## Perfluorinated Compounds by LC/MS/MS.

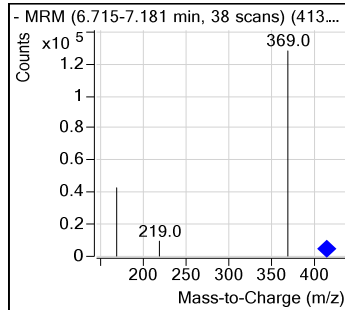
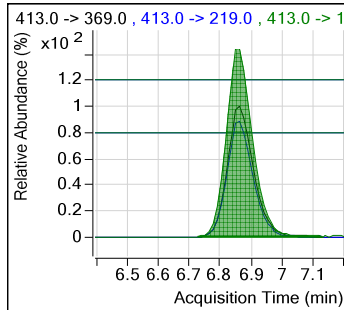
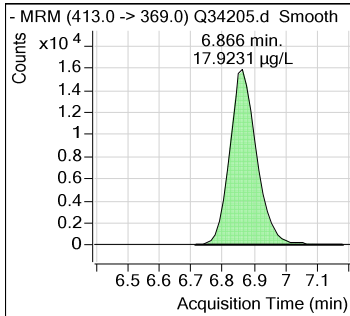
### PFHpS



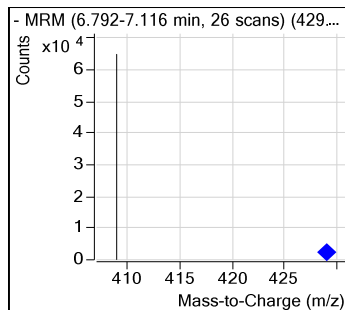
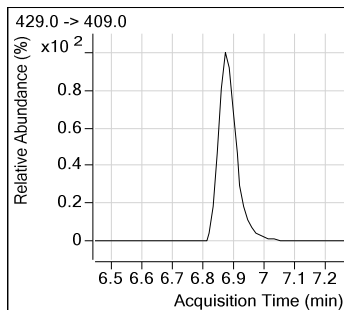
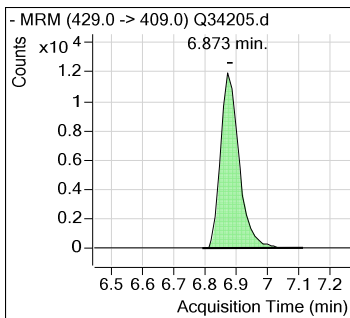
### 13C2-PFOA



### PFOA



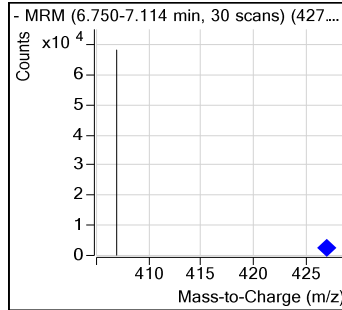
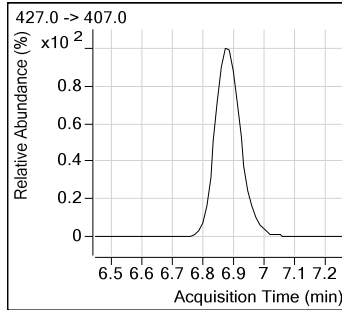
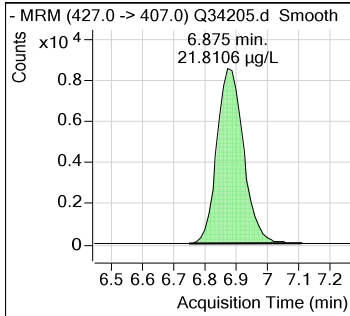
### 13C2-6:2FTS



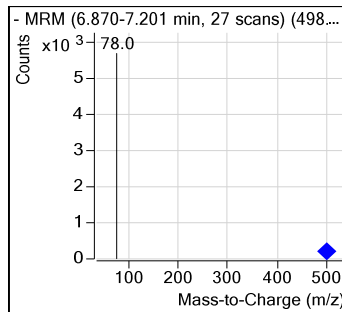
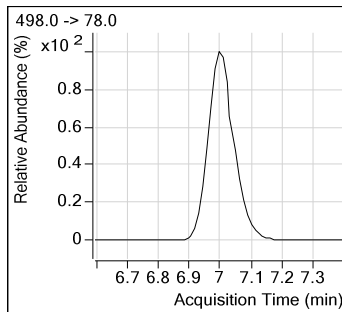
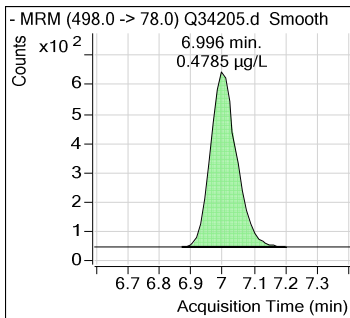
7.4.1  
7

## Perfluorinated Compounds by LC/MS/MS.

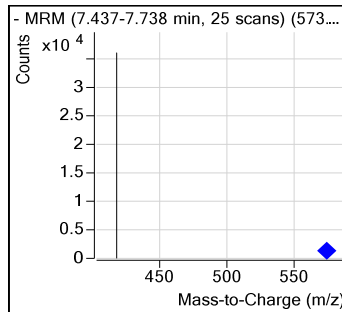
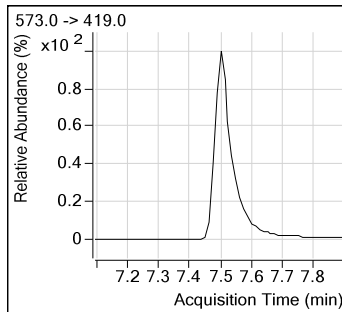
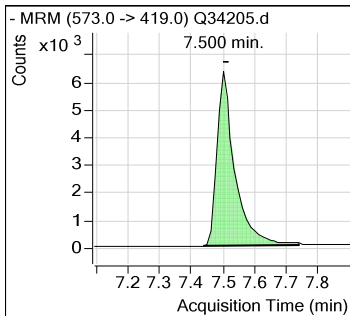
6:2FTS



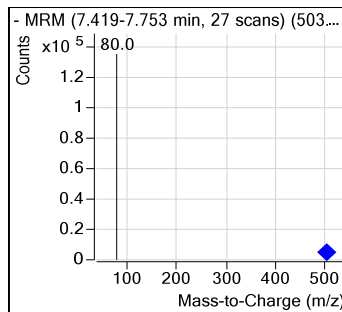
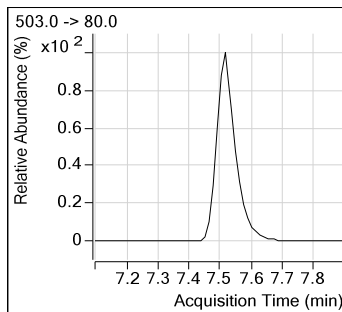
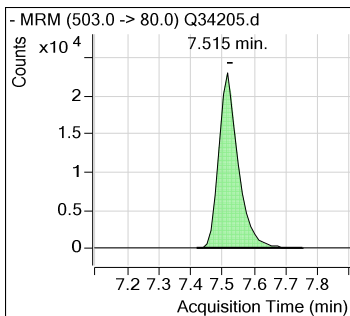
FOSA



d3-MeFOSAA



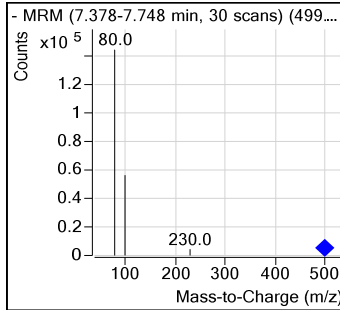
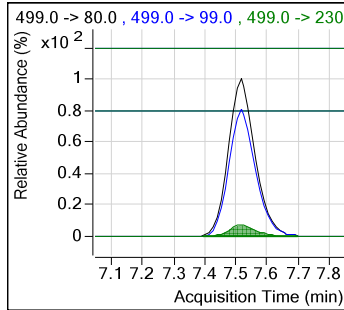
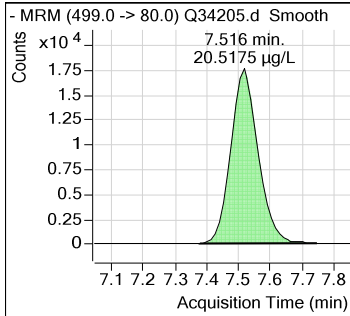
13C4-PFOS



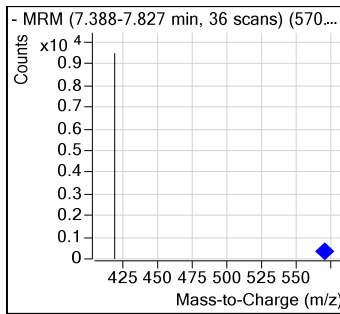
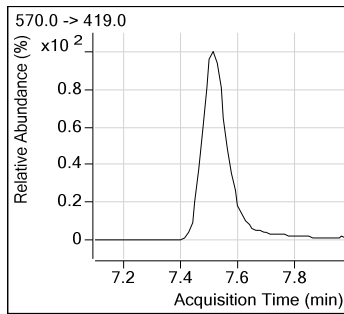
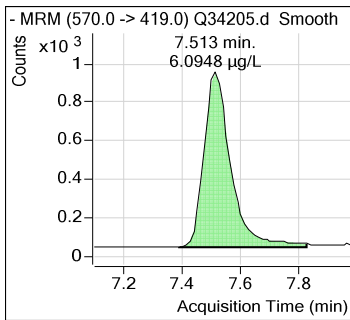
7.4.1  
7

## Perfluorinated Compounds by LC/MS/MS.

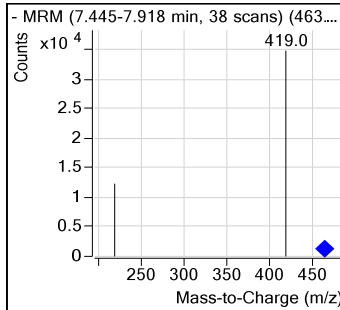
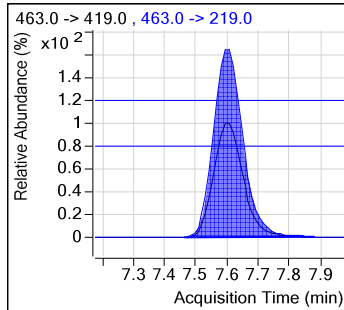
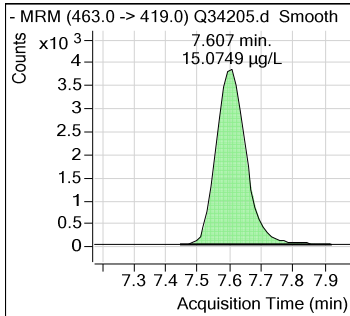
PFOS



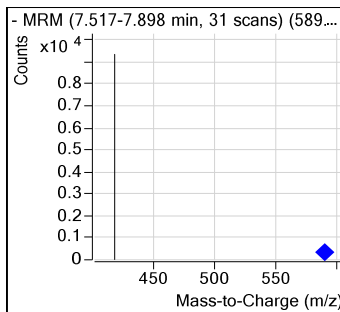
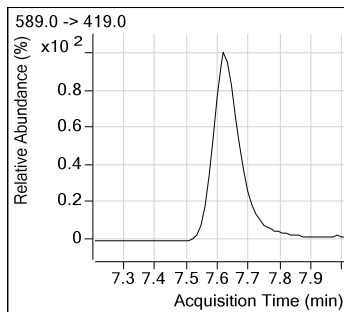
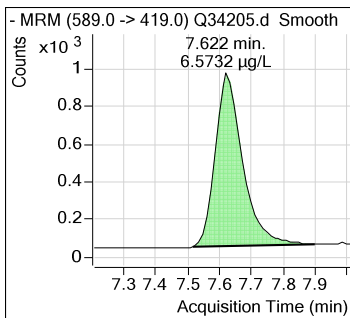
MeFOSAA



PFNA



d5-EtFOSAA



7.4.1  
7

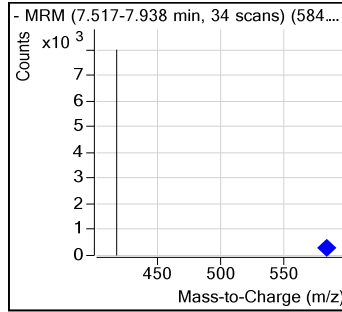
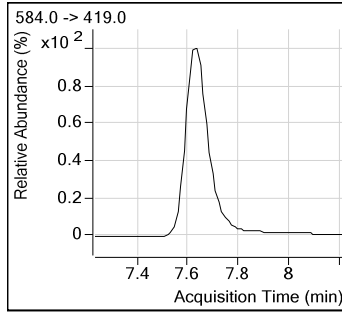
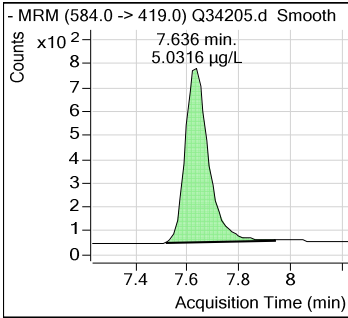


# Perfluorinated Compounds by LC/MS/MS.

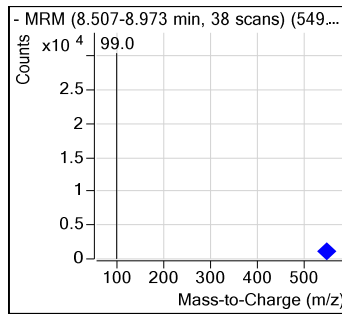
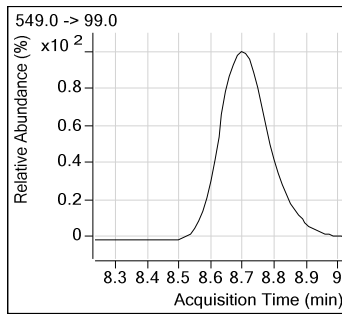
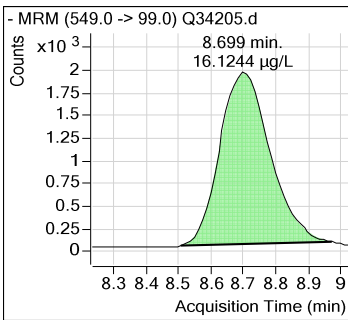
7.4.1

7

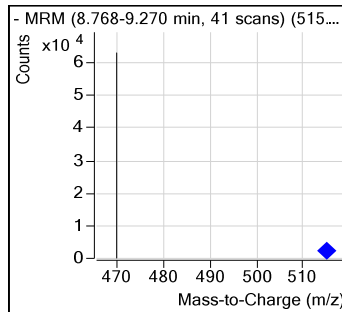
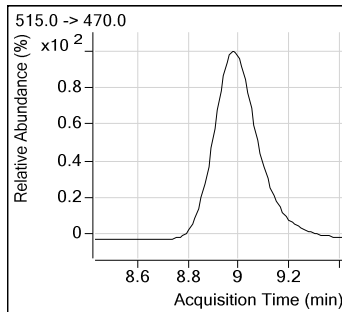
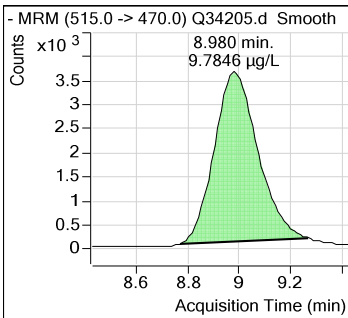
## EtFOSAA



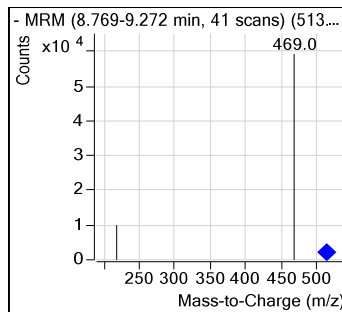
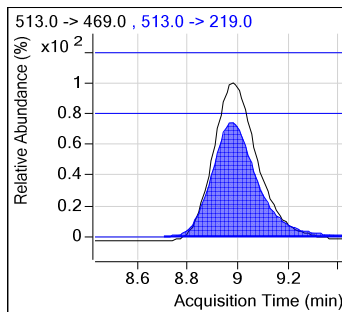
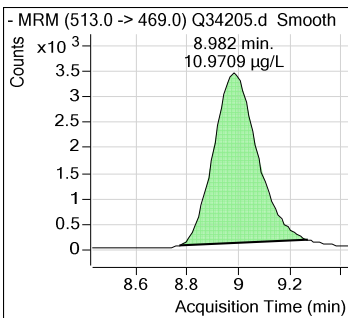
## PFNS



## 13C2-PFDA

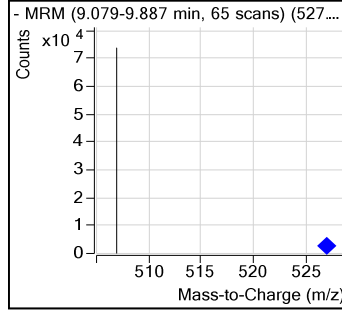
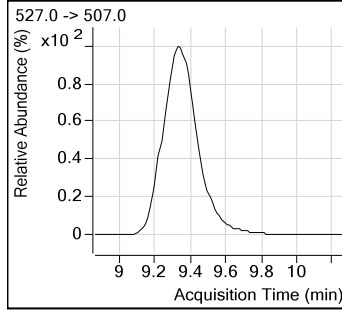
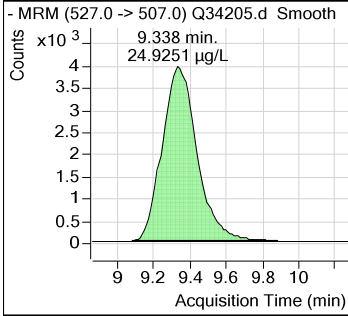


## PFDA

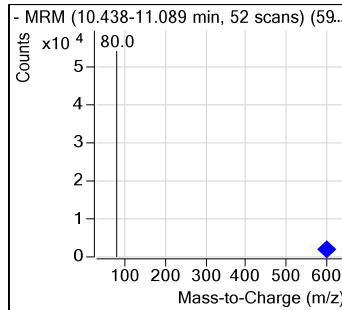
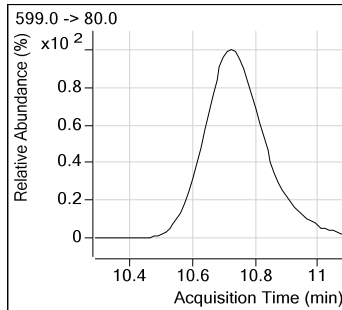
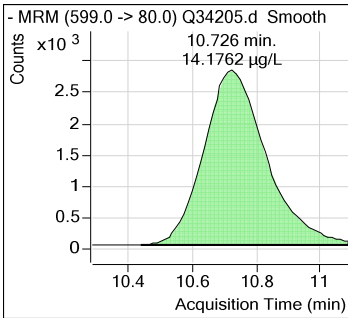


## Perfluorinated Compounds by LC/MS/MS.

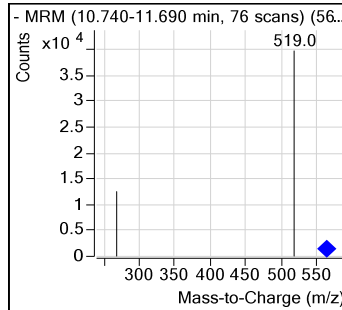
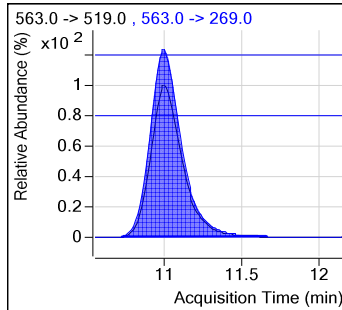
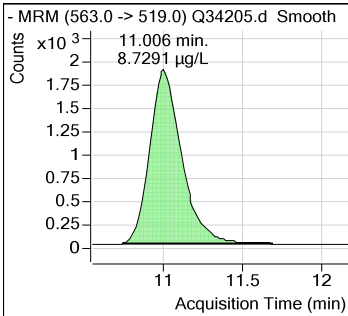
8:2FTS



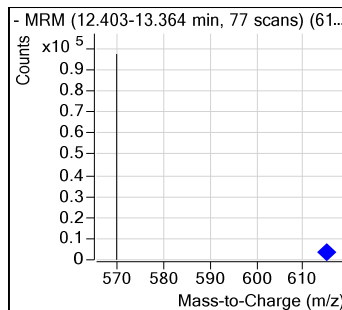
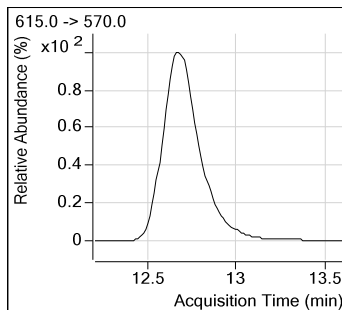
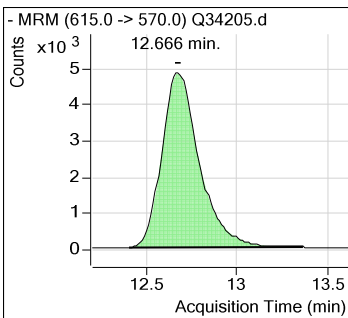
PFDS



PFUnDA

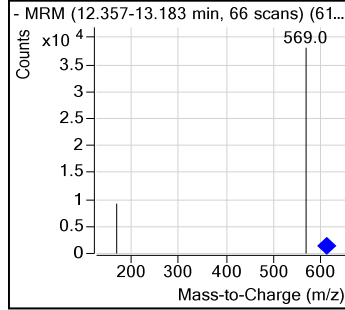
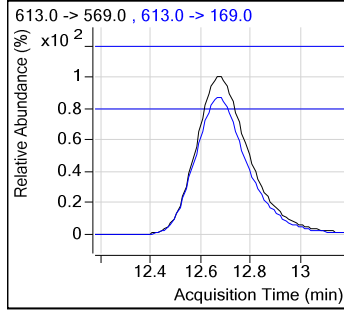
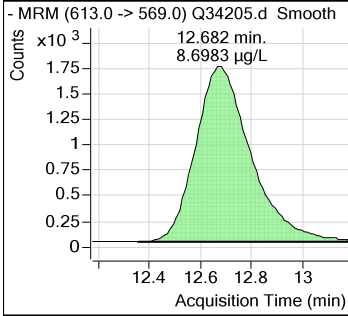


13C2-PFDoDA

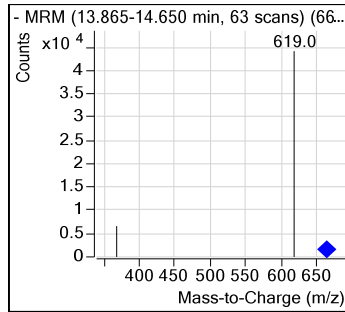
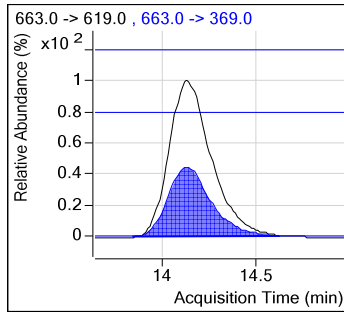
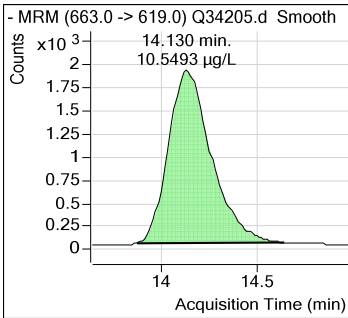


## Perfluorinated Compounds by LC/MS/MS.

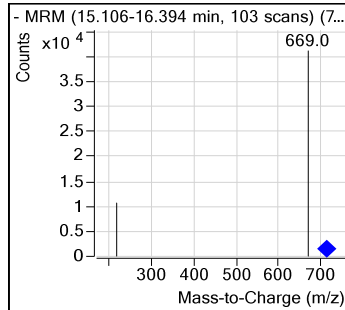
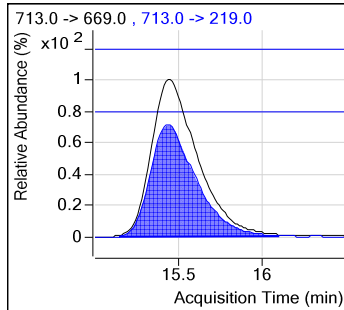
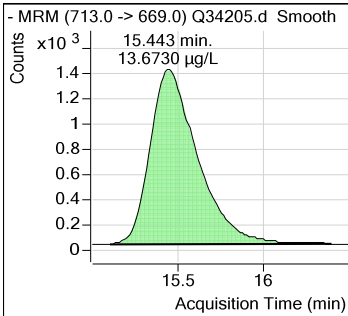
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**

7.4.1  
7

## Perfluorinated Compounds by LC/MS/MS.

```

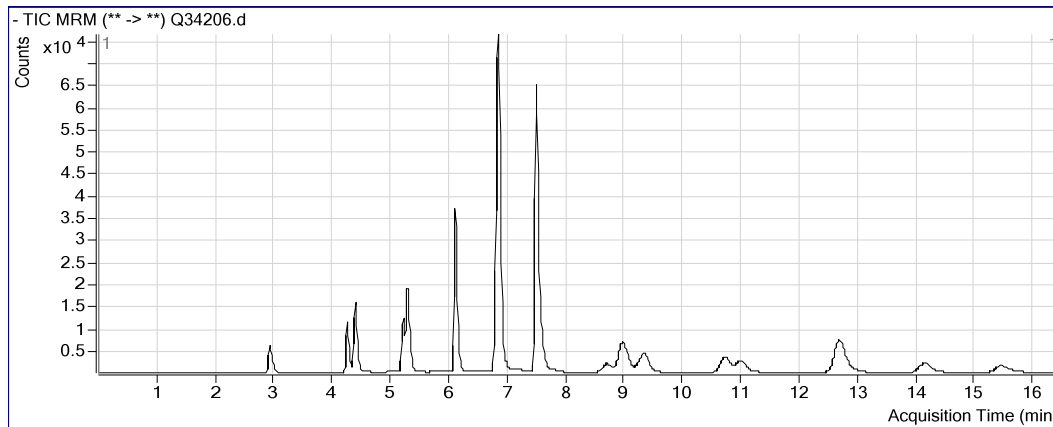
Data File           : Q34206.d
Operator            : NANCYF
Acq Method Name     : dMRM_PFOA_PFOS_LIST.m
Acquisition date    : 2017-05-19 23:31
Sample Name         : OP65057-MSD
Vial                 : Vial 32
Sample Info         : OP65057,SQ893,130,,,1.0,1,WATER
Quant Method        : PFC_LIST_0519_SQ893.quantmethod.xml
Quant Batch Name    : SQ893.batch.bin
Last Calib Update   : 2017-05-22 07:04
    
```

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<b>Internal Standards</b>						
13C3-PFPeA	4.272	266.0 -> 222.0	29663	20.000	µg/L	-0.012
13C2-PFOA	6.864	415.0 -> 370.0	108173	20.000	µg/L	0.013
13C2-6:2FTS	6.873	429.0 -> 409.0	50278	20.000	µg/L	0.013
d3-MeFOSAA	7.500	573.0 -> 419.0	25451	20.000	µg/L	0.000
13C4-PFOS	7.515	503.0 -> 80.0	105870	20.000	µg/L	0.013
13C2-PFDoDA	12.691	615.0 -> 570.0	71362	20.000	µg/L	0.050
<b>System Monitoring Compounds</b>						
13C2-PFHxA	5.310	315.0 -> 270.0	34123	17.03	µg/L	0.000
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 85.14%			
d5-EtFOSAA	7.622	589.0 -> 419.0	5447	6.35	µg/L	0.000
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 31.77%			
13C2-PFDA	9.005	515.0 -> 470.0	36386	8.17	µg/L	0.077
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 40.87%			
<b>Target Compounds</b>						
						<b>Qvalue</b>
PFBA	2.952	213.0 -> 169.0	27334	21.477	µg/L	100
PFPeA	4.288	263.0 -> 219.0	16080	19.570	µg/L	100
PFBS	4.416	299.0 -> 80.0	42372	20.226	µg/L	90
4:2FTS	5.232	327.0 -> 307.0	46527	22.351	µg/L	100
PFHxA	5.312	313.0 -> 269.0	33844	18.056	µg/L	98
PFPeS	5.342	349.0 -> 99.0	10450	20.941	µg/L	100
PFHxS	6.119	399.0 -> 80.0	69356	22.455	µg/L #	79
PFHpA	6.135	363.0 -> 319.0	29442	16.933	µg/L #	47
PFHpS	6.822	449.0 -> 80.0	65336	19.284	µg/L	100
PFOA	6.866	413.0 -> 369.0	77446	14.260	µg/L	84
6:2FTS	6.875	427.0 -> 407.0	50309	20.858	µg/L	100
FOSA	6.996	498.0 -> 78.0	3471	0.488	µg/L	100
MeFOSAA	7.513	570.0 -> 419.0	5482	5.684	µg/L	100
PFOS	7.516	499.0 -> 80.0	105707	19.353	µg/L	79
PFNA	7.607	463.0 -> 419.0	16952	10.090	µg/L #	71
EtFOSAA	7.636	584.0 -> 419.0	4634	5.052	µg/L	100
PFNS	8.724	549.0 -> 99.0	19835	14.859	µg/L	100
PFDA	8.995	513.0 -> 469.0	35727	9.615	µg/L #	86
8:2FTS	9.363	527.0 -> 507.0	49918	22.640	µg/L	100
PFDS	10.739	599.0 -> 80.0	43941	15.449	µg/L	100
PFUnDA	11.018	563.0 -> 519.0	26288	8.458	µg/L #	90
PFDoDA	12.707	613.0 -> 569.0	27908	8.999	µg/L	92
PFTrDA	14.155	663.0 -> 619.0	32010	11.042	µg/L #	76
PFTeDA	15.468	713.0 -> 669.0	25900	12.861	µg/L #	88

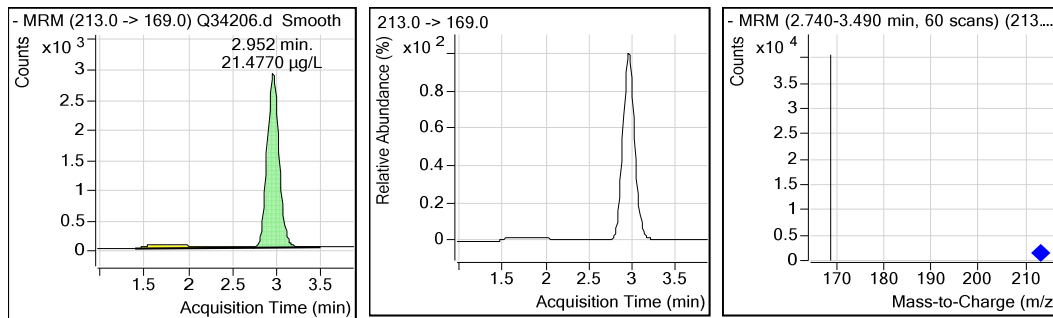
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

# Perfluorinated Compounds by LC/MS/MS.

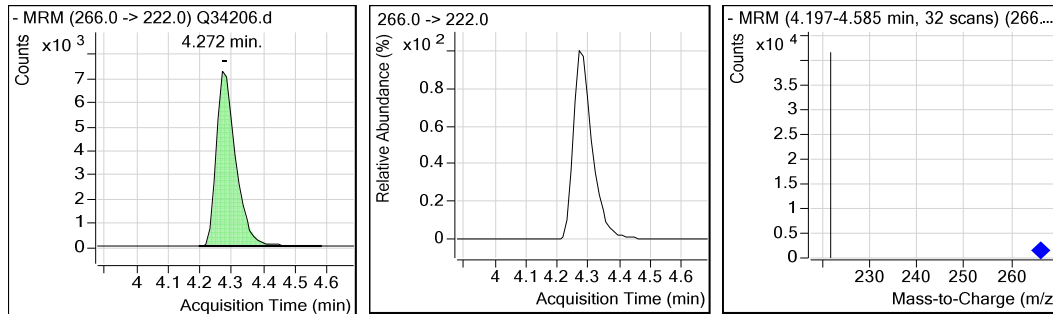
Data File : Q34206.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 23:31  
 Sample Name : OP65057-MSD  
 Vial : Vial 32  
 Sample Info : OP65057,SQ893,130,,,1.0,1,WATER  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



**PFBA**



**13C3-PFPeA**

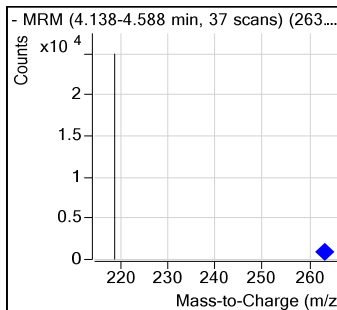
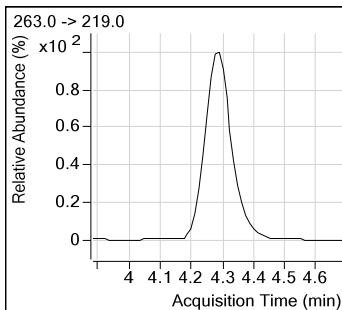
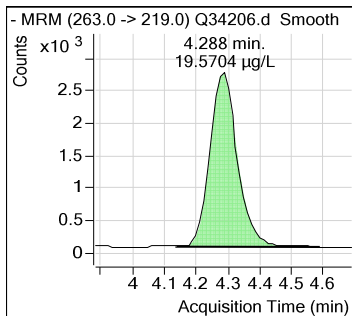


# Perfluorinated Compounds by LC/MS/MS.

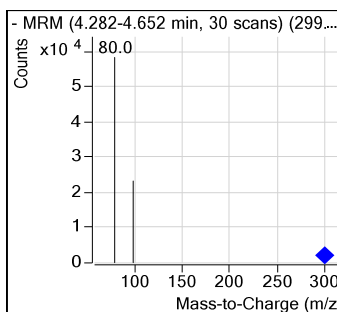
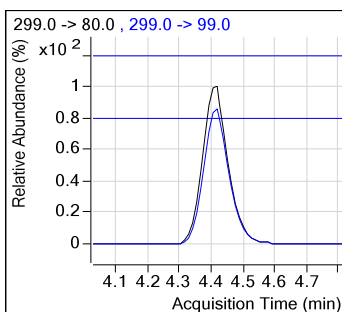
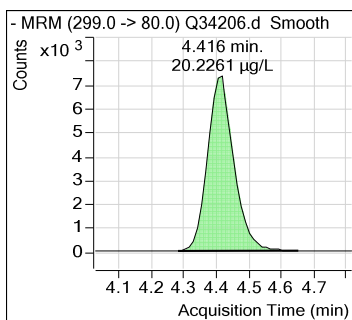
7.4.2

7

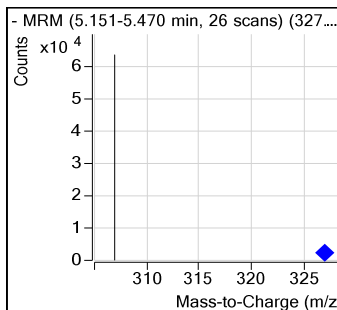
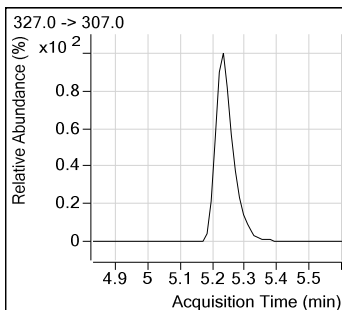
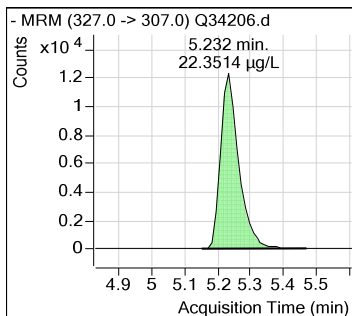
**PFPeA**



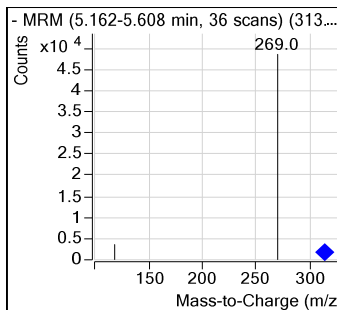
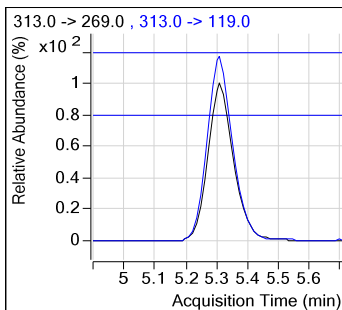
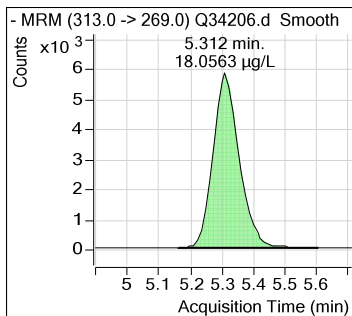
**PFBS**



**4:2FTS**



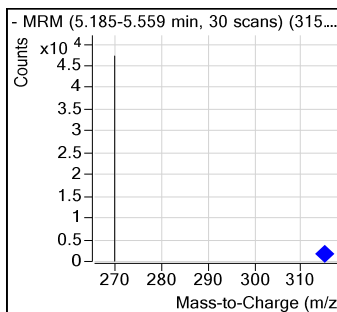
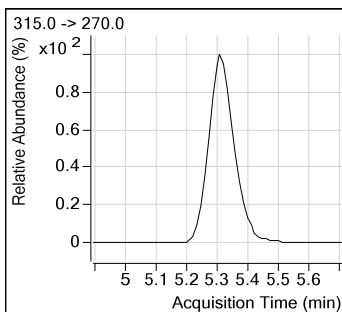
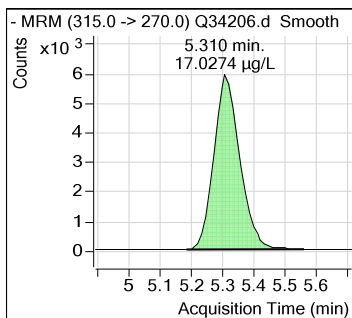
**PFHxA**



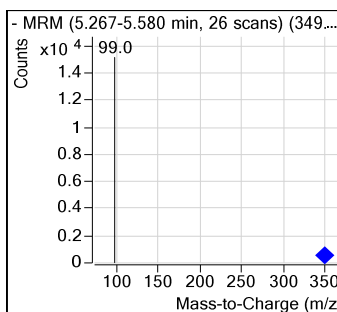
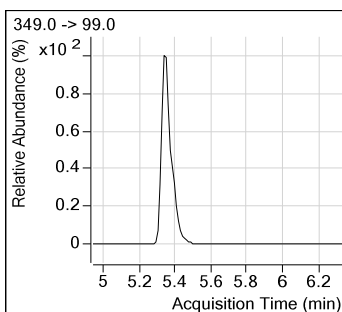
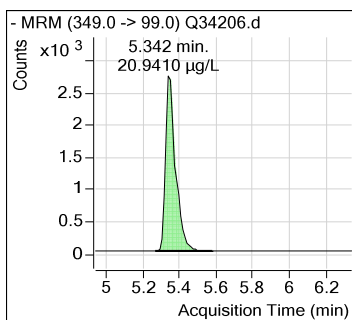
# Perfluorinated Compounds by LC/MS/MS.

7.4.2  
7

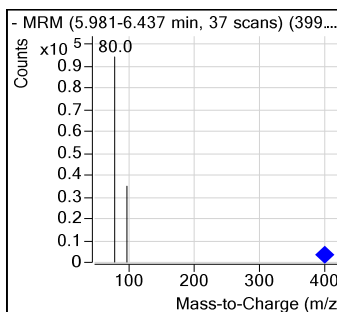
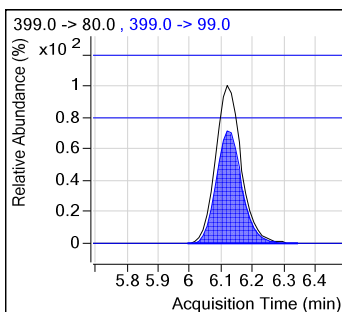
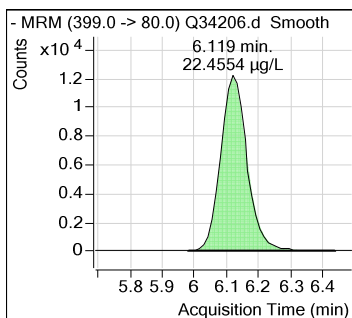
## 13C2-PFHxA



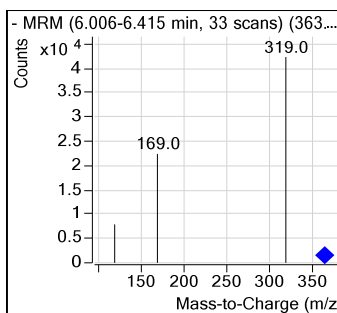
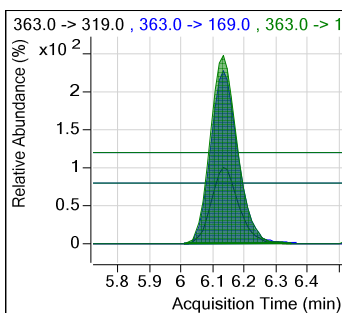
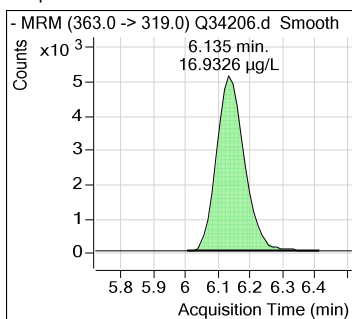
## PFPeS



## PFHxS



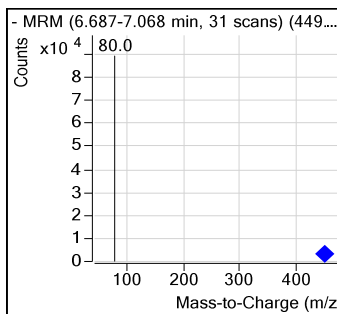
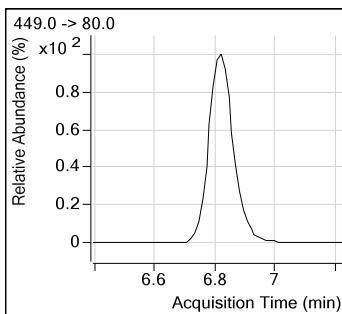
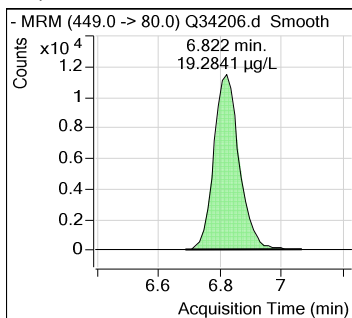
## PFHpA



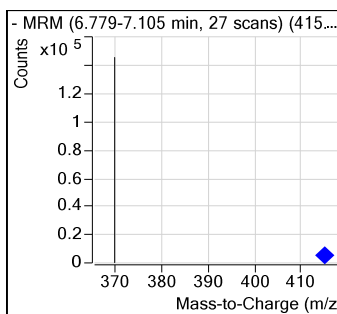
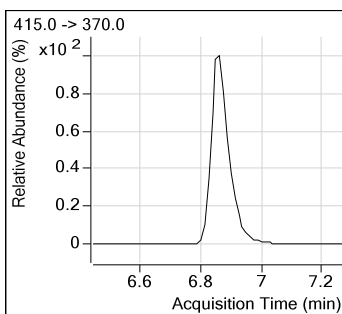
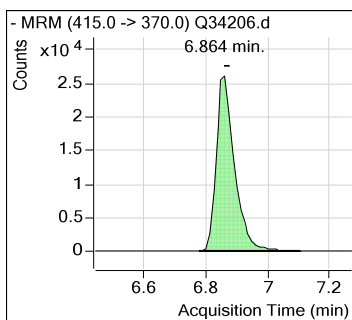
# Perfluorinated Compounds by LC/MS/MS.

7.4.2  
7

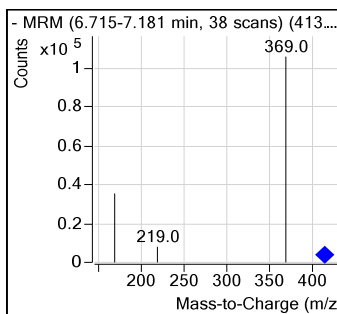
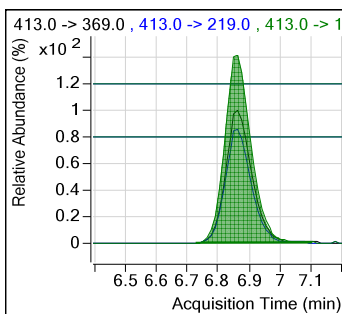
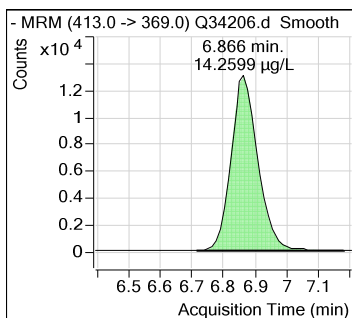
PFHpS



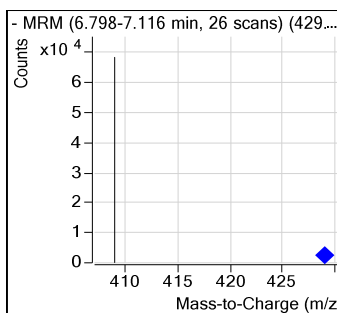
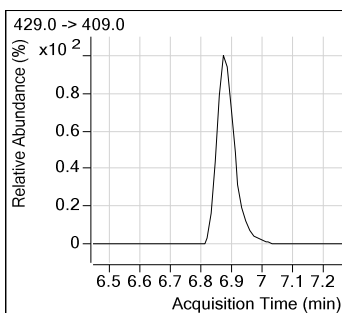
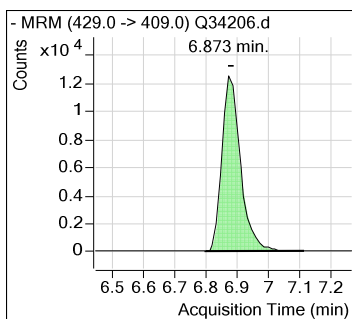
13C2-PFOA



PFOA



13C2-6:2FTS

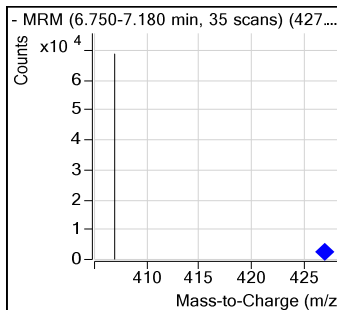
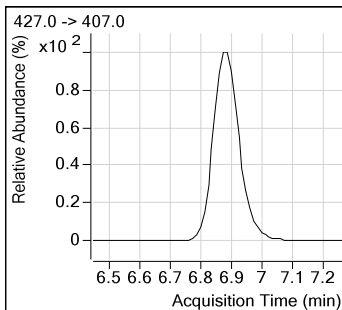
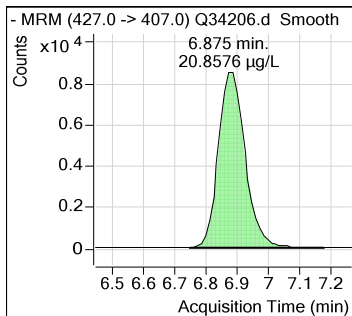




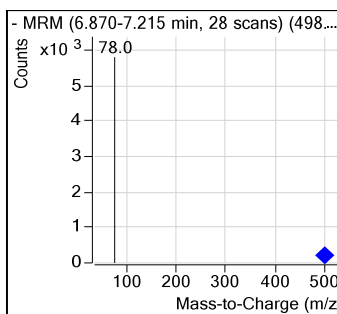
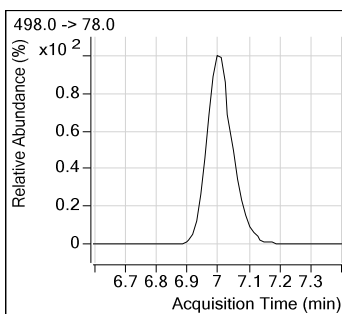
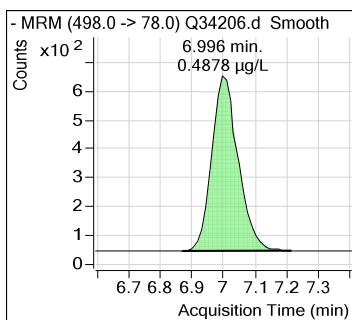
## Perfluorinated Compounds by LC/MS/MS.

7.4.2  
7

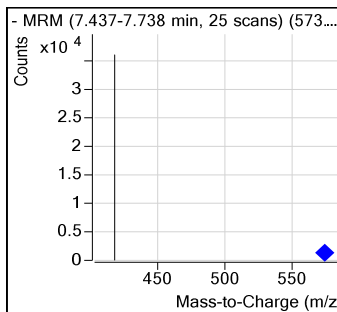
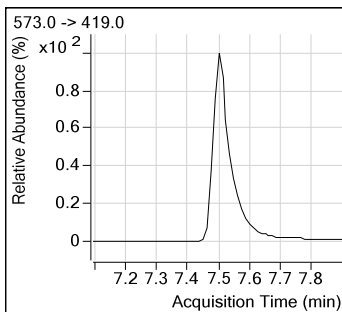
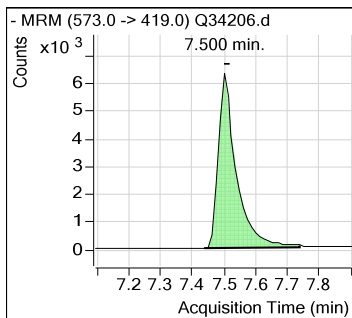
### 6:2FTS



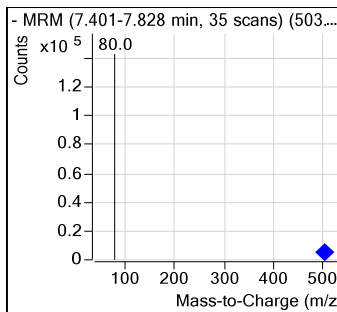
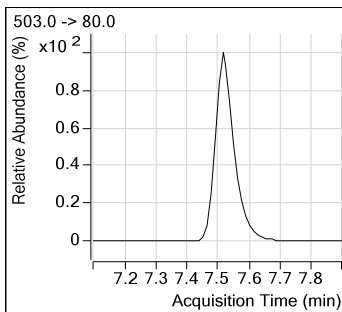
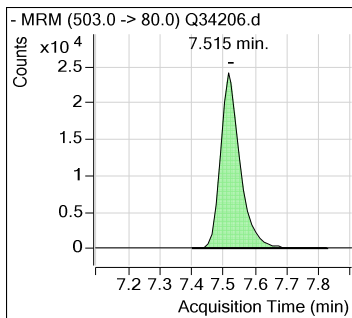
### FOSA



### d3-MeFOSAA



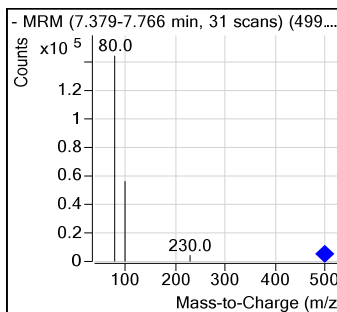
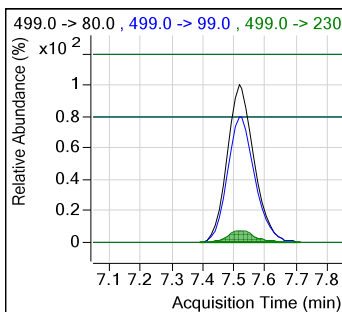
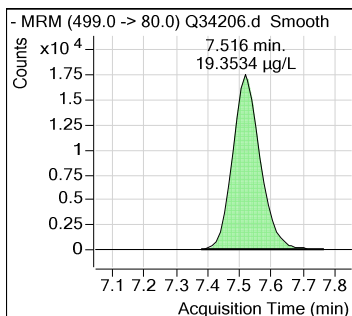
### 13C4-PFOS



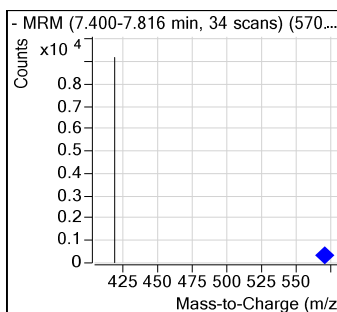
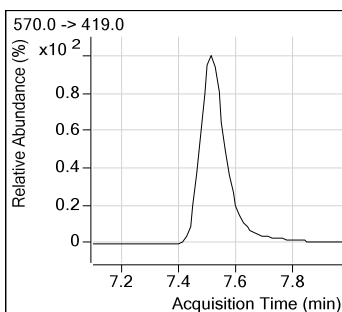
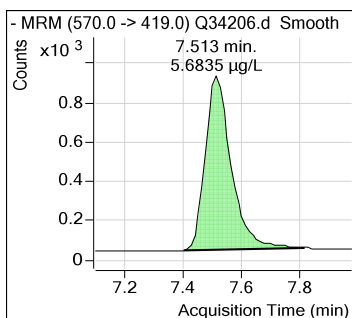
# Perfluorinated Compounds by LC/MS/MS.

7.4.2  
7

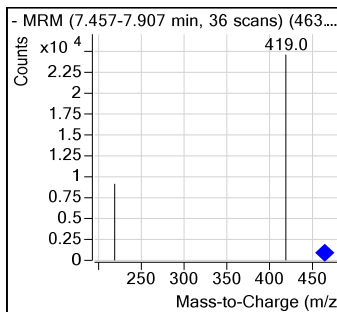
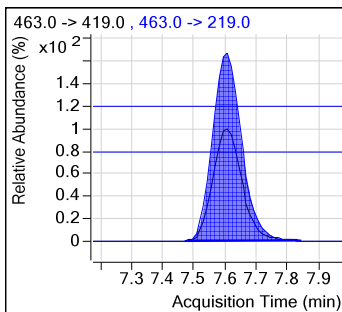
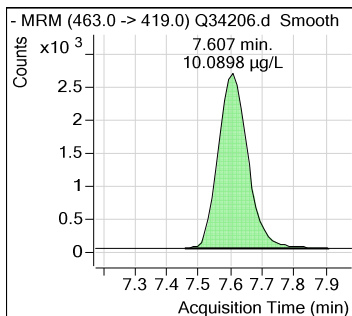
PFOS



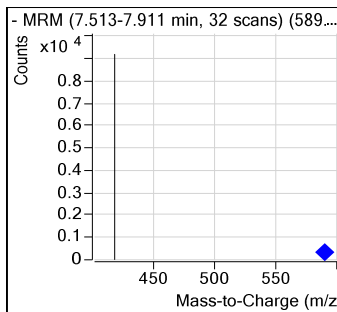
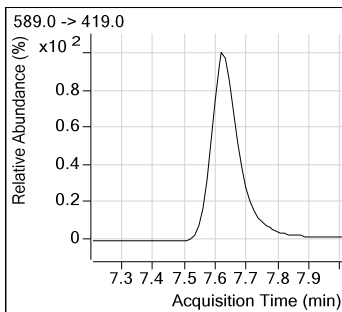
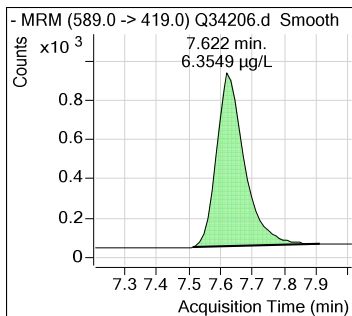
MeFOSAA



PFNA



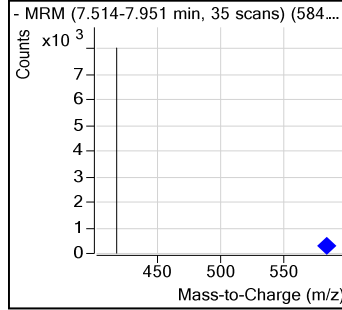
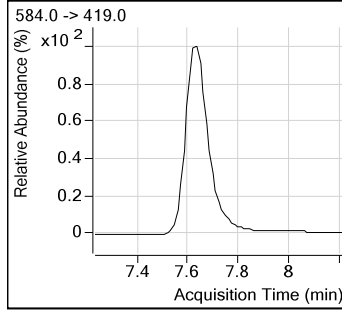
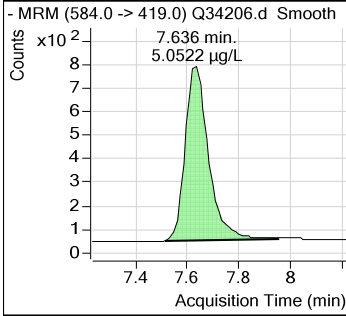
d5-EtFOSAA



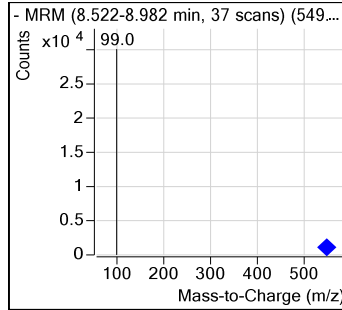
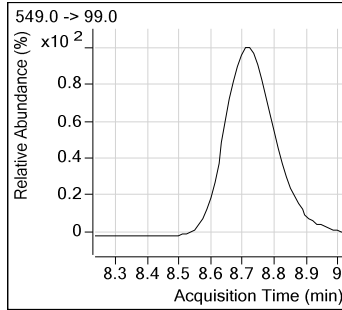
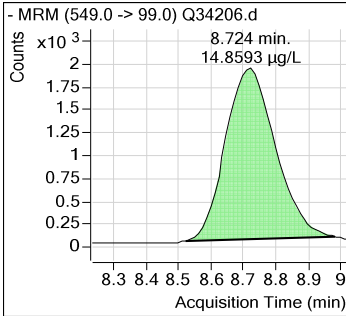
# Perfluorinated Compounds by LC/MS/MS.

7.4.2  
7

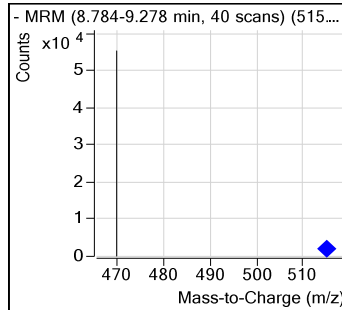
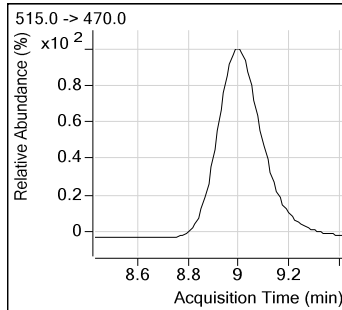
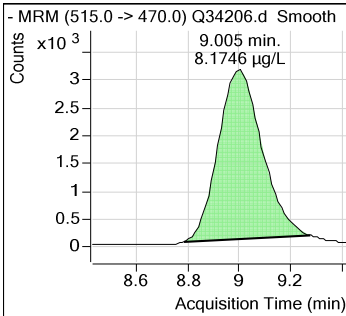
**EtFOSAA**



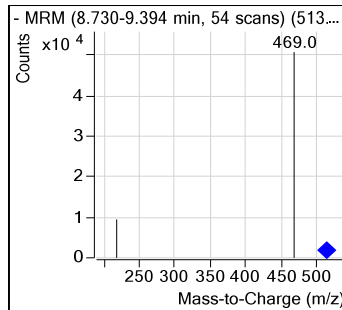
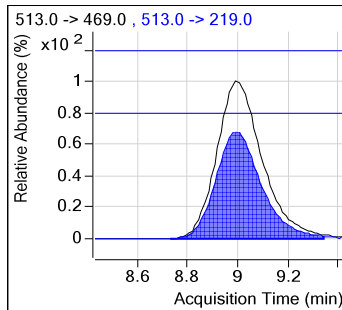
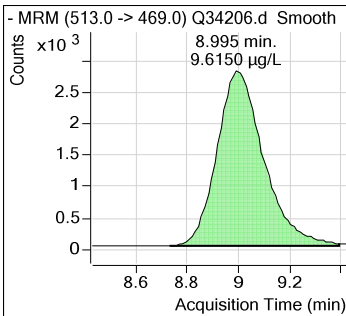
**PFNS**



**13C2-PFDA**

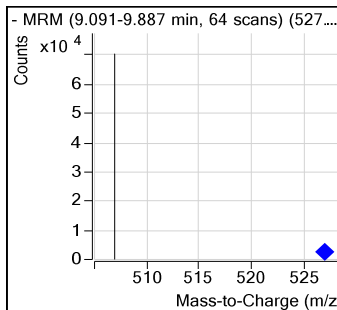
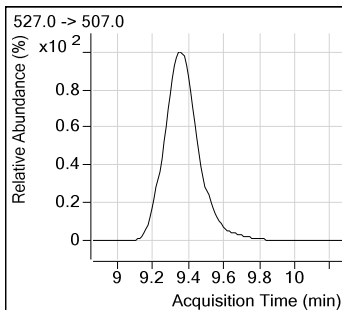
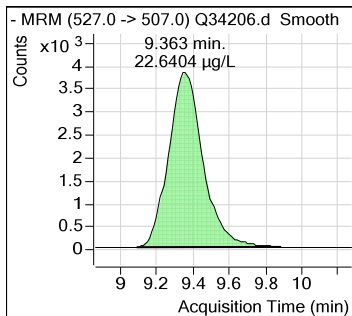


**PFDA**

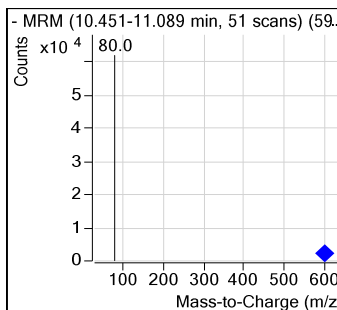
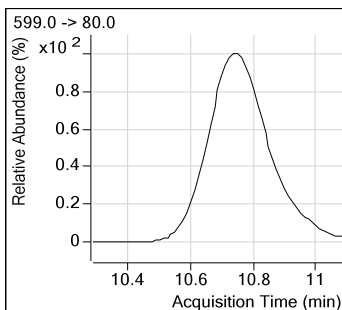
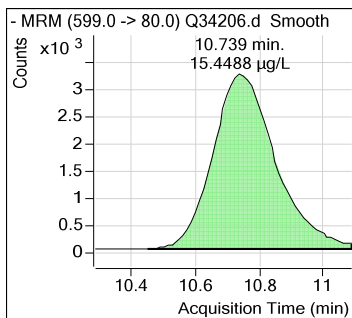


### Perfluorinated Compounds by LC/MS/MS.

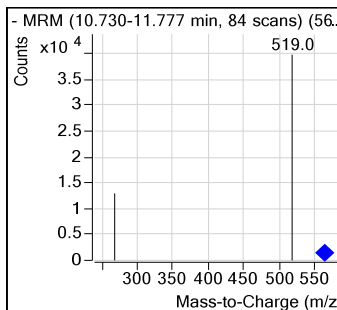
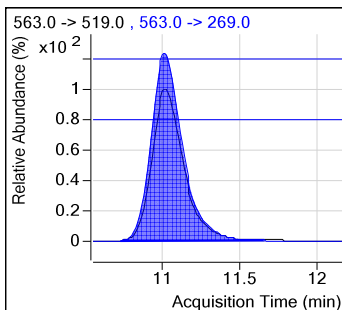
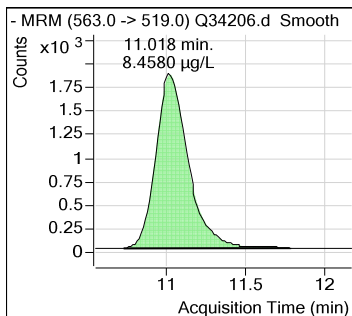
8:2FTS



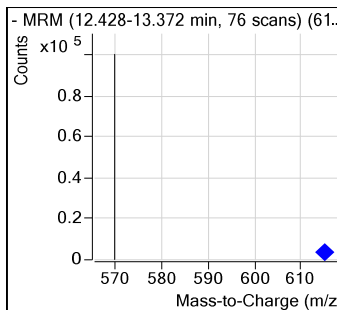
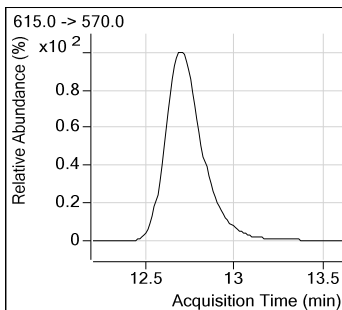
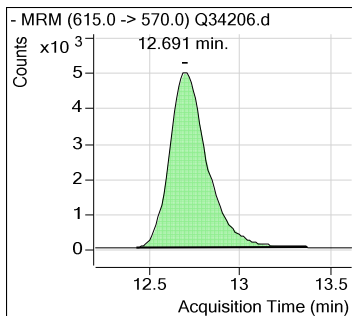
PFDS



PFUnDA



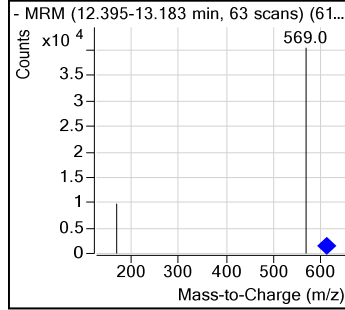
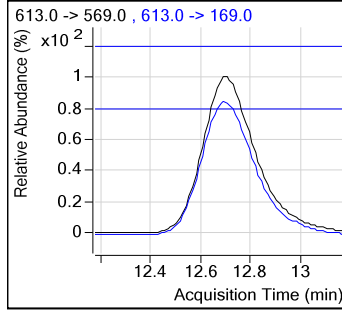
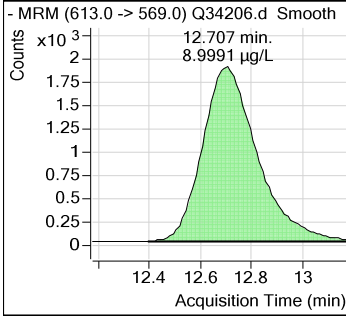
13C2-PFDoDA



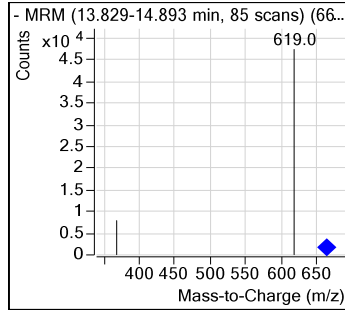
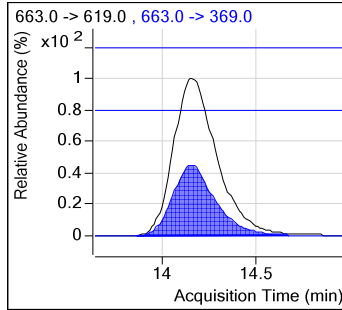
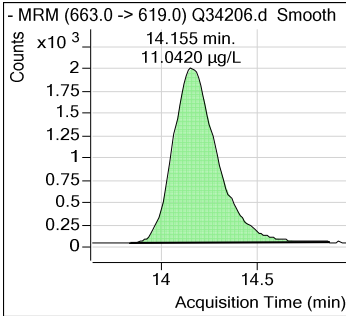
## Perfluorinated Compounds by LC/MS/MS.

7.4.2  
7

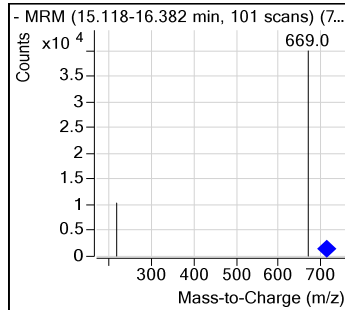
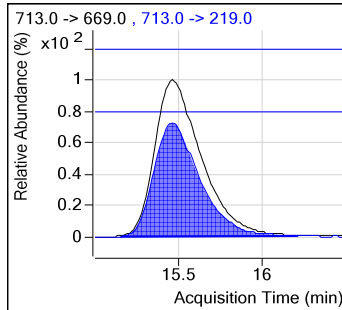
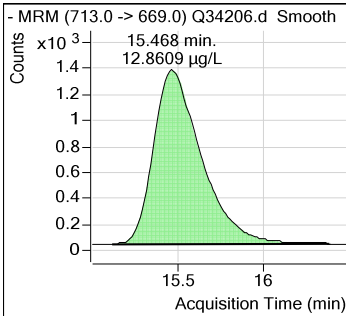
**PFDODA**



**PFTrDA**



**PFTeDA**



**Calibration Curve**

## Perfluorinated Compounds by LC/MS/MS

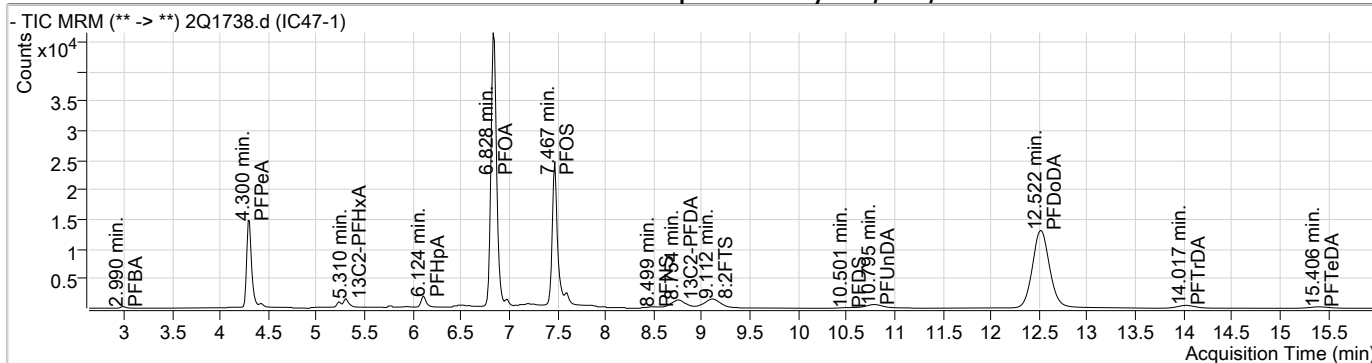
Data File : 2Q1738.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/30/2017 3:13:07 PM  
 Sample Name : IC47-1  
 Vial : Vial 2  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q47.batch.bin  
 Sample Information : OP65145,S2Q47,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.849	429.0 -> 409.0	111269	20.00 µg/L	0.013
13C2-PFDoDA	12.516	615.0 -> 570.0	150961	20.00 µg/L	0.025
13C2-PFOA	6.827	415.0 -> 370.0	66284	20.00 µg/L	0.013
13C3-PFPeA	4.297	266.0 -> 222.0	48842	20.00 µg/L	0.000
13C4-PFOS	7.465	503.0 -> 80.0	40507	20.00 µg/L	0.013
d3-MeFOSAA	7.475	573.0 -> 419.0	42834	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.754	515.0 -> 470.0	8326	1.00 µg/L	0.063
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 5.0%		
13C2-PFHxA	5.310	315.0 -> 270.0	3099	1.07 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 5.4%		
d5-EtFOSAA	7.598	589.0 -> 419.0	2970	1.19 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 6.0%		
<b>Target Compounds</b>					
4:2FTS	5.232	327.0 -> 307.0	2979	1.08 µg/L	100
6:2FTS	6.850	427.0 -> 407.0	6069	1.08 µg/L	100
8:2FTS	9.112	527.0 -> 507.0	16651	1.23 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	2323	1.09 µg/L	100
FOSA	6.983	498.0 -> 78.0	2885	1.11 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	2549	1.11 µg/L	100
PFBA	2.990	213.0 -> 169.0	1010	1.09 µg/L	100
PFBS	4.429	299.0 -> 80.0	1263	1.04 µg/L	100
PFDA	8.770	513.0 -> 469.0	5446	1.05 µg/L	100
PFDoDA	12.522	613.0 -> 569.0	7289	1.05 µg/L	100
PFDS	10.501	599.0 -> 80.0	1300	1.00 µg/L	100
PFHpA	6.124	363.0 -> 319.0	4610	1.18 µg/L	93
PFHpS	6.784	449.0 -> 80.0	1763	1.05 µg/L	100
PFHxA	5.312	313.0 -> 269.0	1642	1.25 µg/L	86
PFHxS	6.094	399.0 -> 80.0	1613	1.05 µg/L	92
PFNA	7.545	463.0 -> 419.0	3738	1.12 µg/L	99
PFNS	8.499	549.0 -> 99.0	1336	1.04 µg/L	100
PFOA	6.828	413.0 -> 369.0	3083	1.17 µg/L	96
PFOS	7.467	499.0 -> 80.0	2424	1.10 µg/L	94
PFPeA	4.300	263.0 -> 219.0	3838	1.13 µg/L	100
PFPeS	5.342	349.0 -> 99.0	446	1.03 µg/L	100
PFTeDA	15.406	713.0 -> 669.0	3281	1.06 µg/L	100
PFTrDA	14.017	663.0 -> 619.0	6163	1.07 µg/L	100
PFUnDA	10.795	563.0 -> 519.0	6740	1.13 µg/L	100

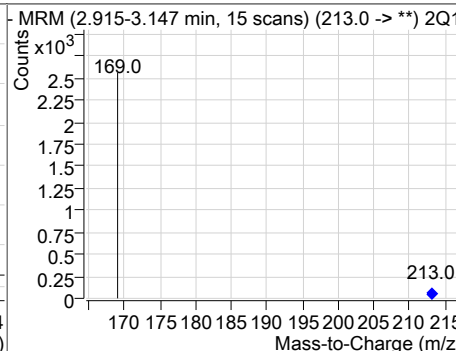
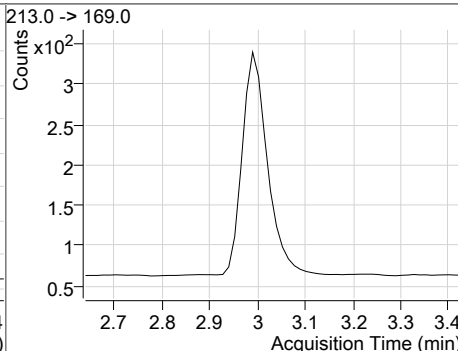
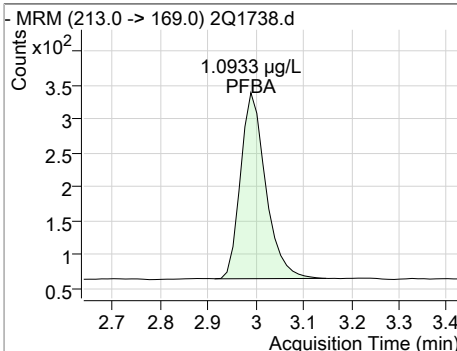
# = Qualifier out of range, m = manually integrated, + = Area summed

7.5.1  
7

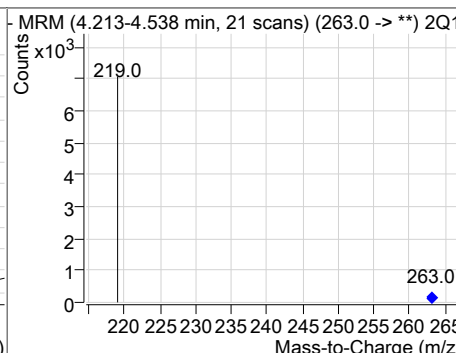
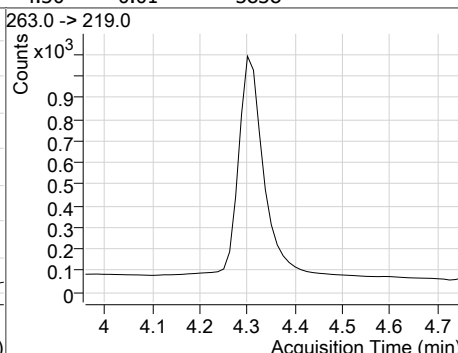
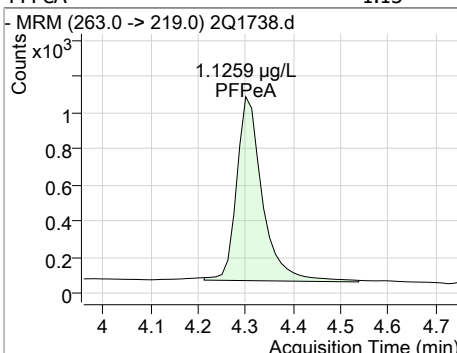
### Perfluorinated Compounds by LC/MS/MS



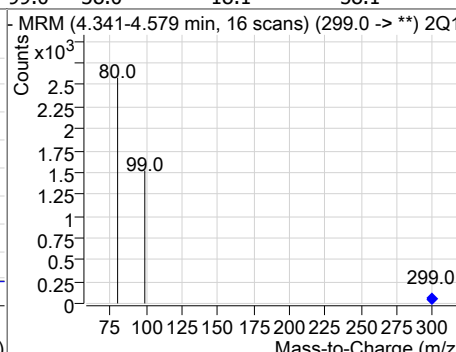
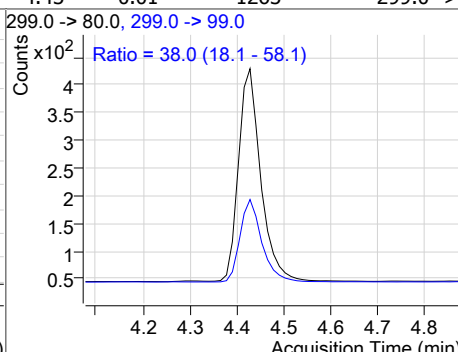
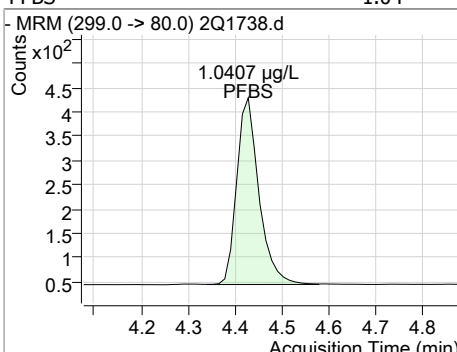
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	1.09	2.99	0.00	1010				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.13	4.30	0.01	3838				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.04	4.43	0.01	1263	299.0 -> 99.0	38.0	18.1	58.1



7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	1.08	5.23	0.01	2979				
13C2-PFHxA	1.07	5.31	0.01	3099				
PFHxA	1.25	5.31	0.01	1642	313.0 -> 119.0	0.2	0.0	25.0
PFPeS	1.03	5.34	0.01	446				

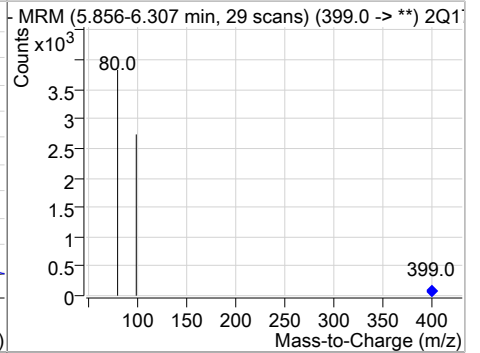
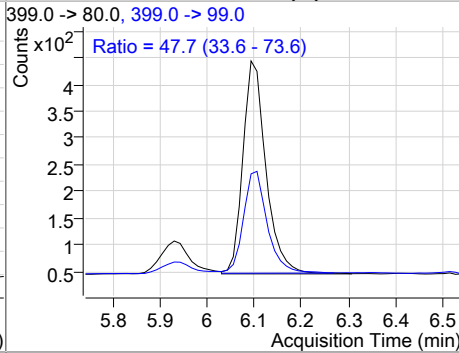
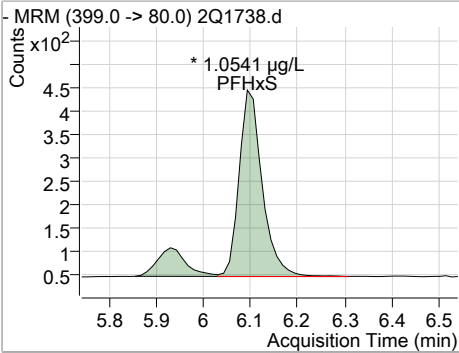
7.5.1

7

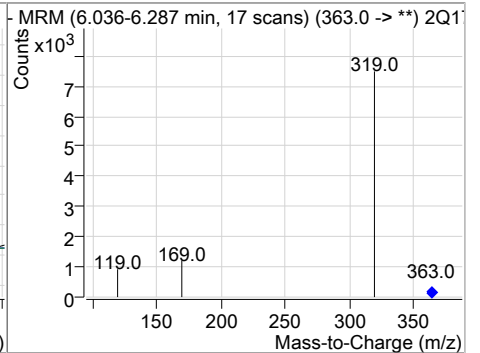
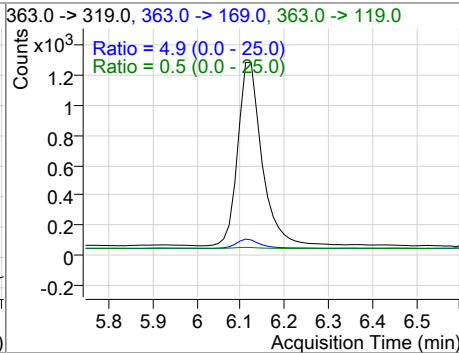
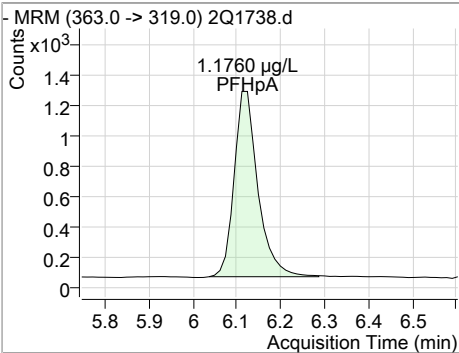


### Perfluorinated Compounds by LC/MS/MS

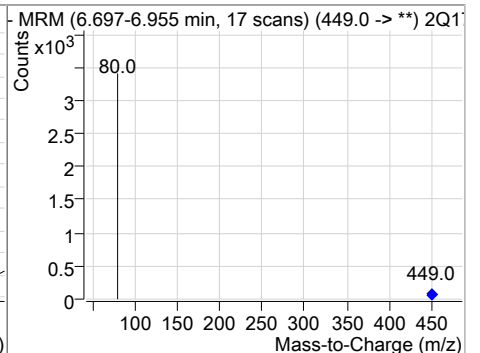
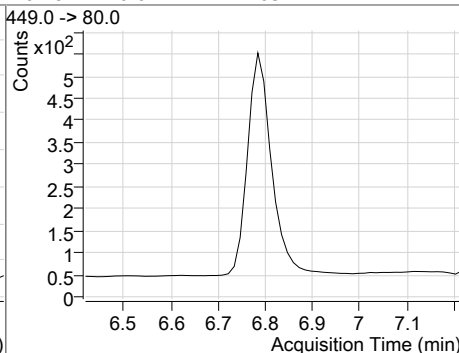
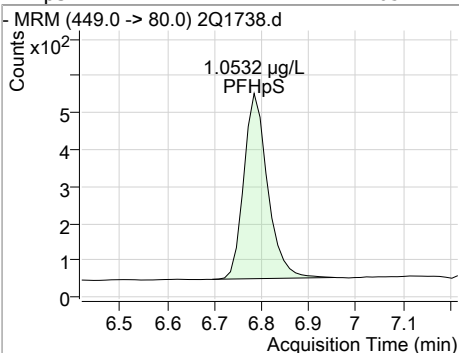
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	1.05	6.09	0.01	1613 (m)	399.0 -> 99.0	47.7	33.6	73.6



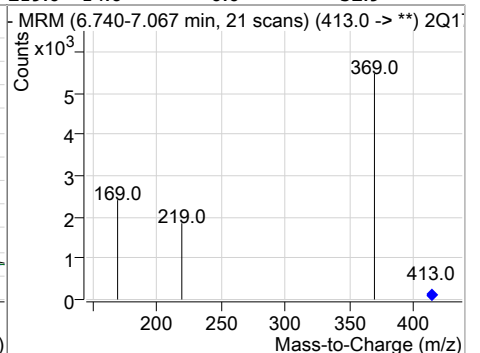
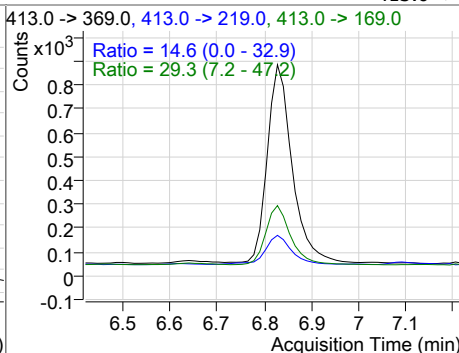
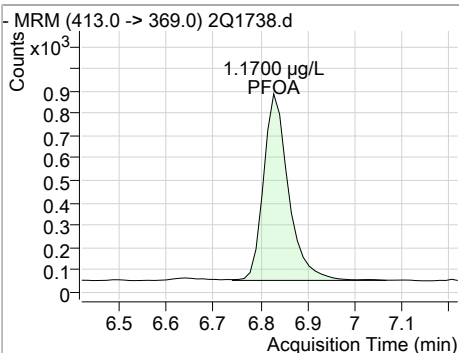
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	1.18	6.12	0.03	4610	363.0 -> 119.0 363.0 -> 169.0	0.5 4.9	0.0 0.0	25.0 25.0



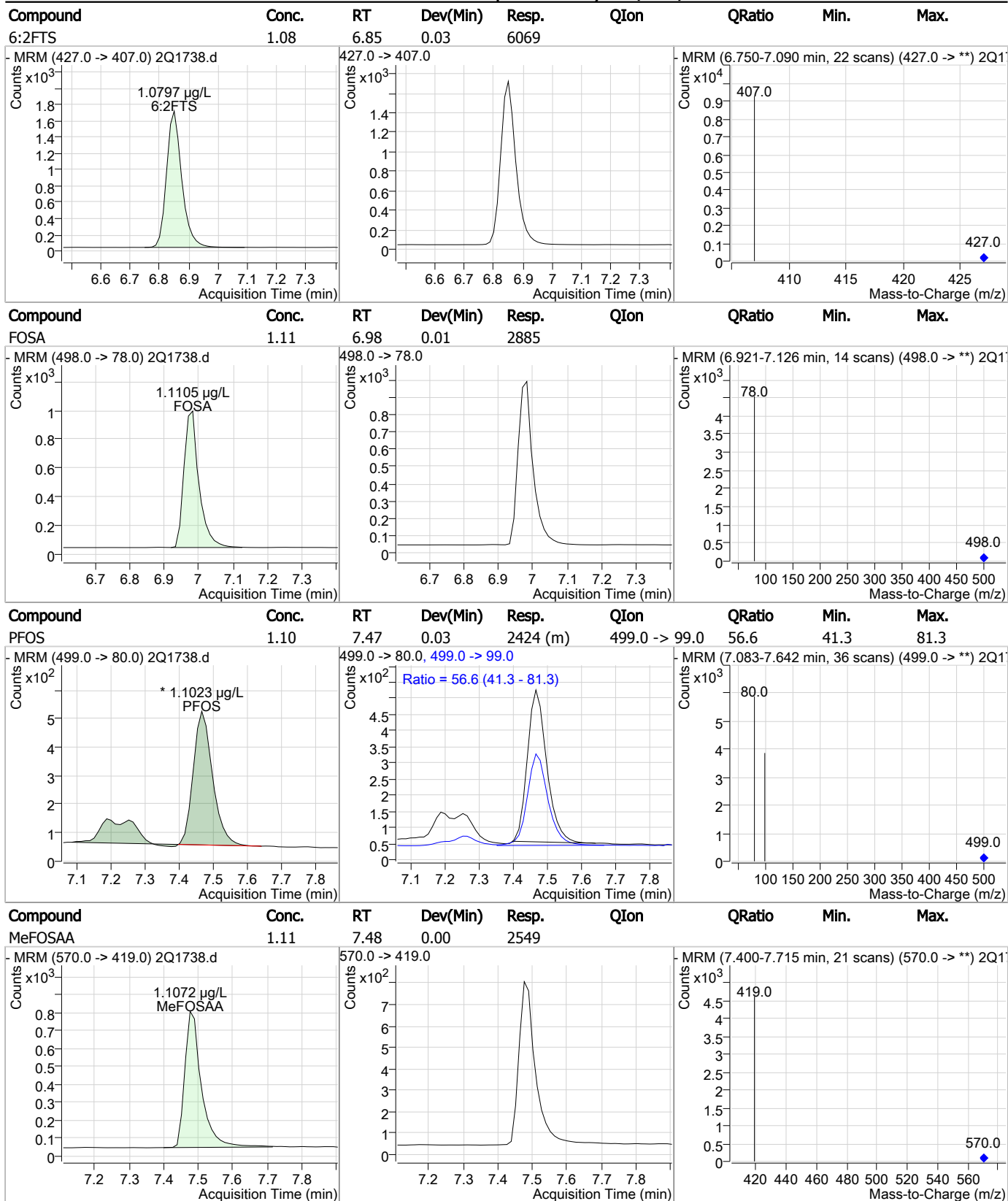
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.05	6.78	0.01	1763	449.0 -> 80.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	1.17	6.83	0.01	3083	413.0 -> 169.0 413.0 -> 219.0	29.3 14.6	7.2 0.0	47.2 32.9



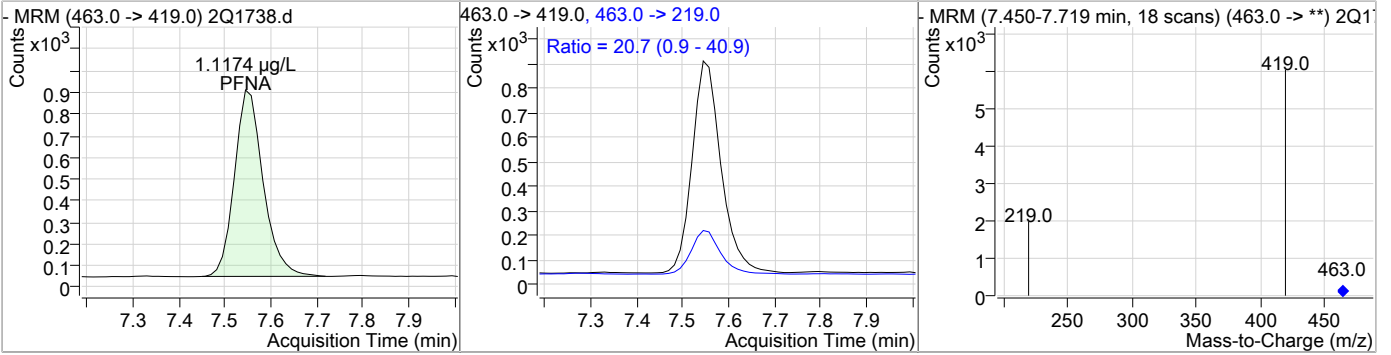
### Perfluorinated Compounds by LC/MS/MS



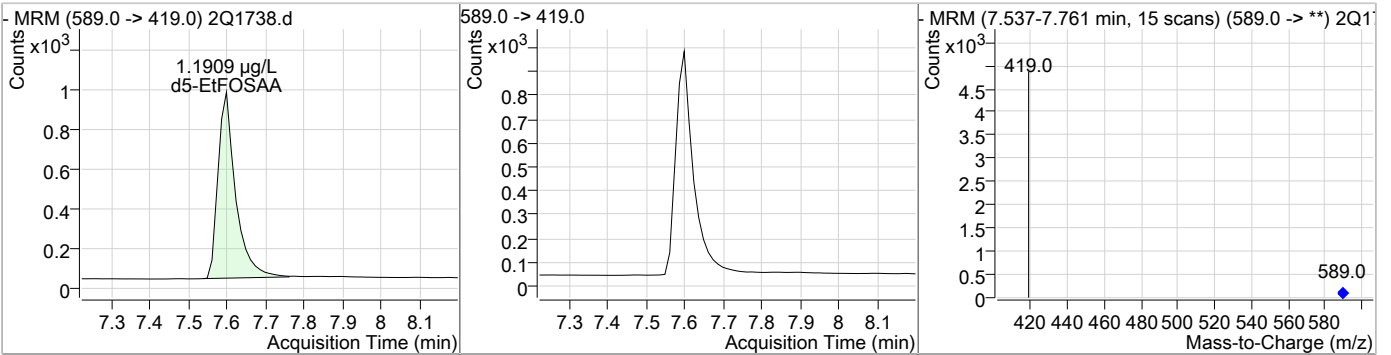
7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS

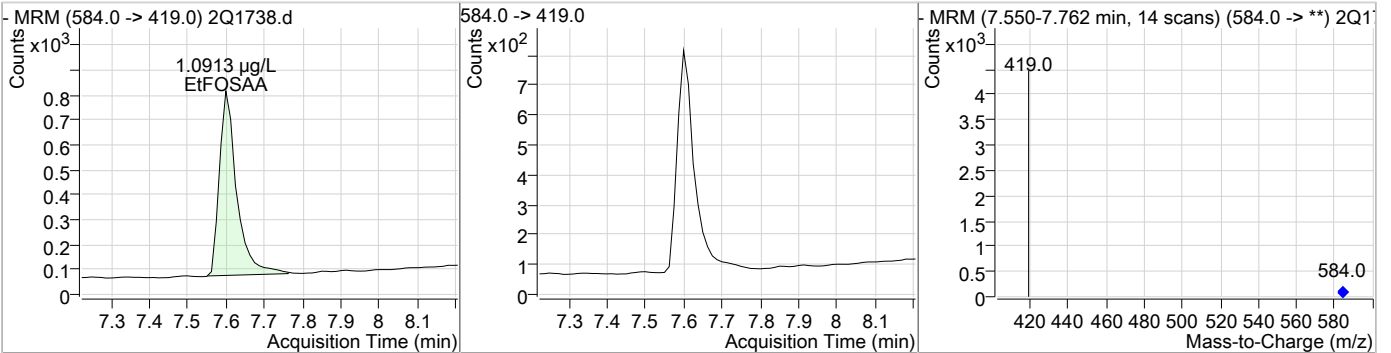
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	1.12	7.54	0.01	3738	463.0 -> 219.0	20.7	0.9	40.9



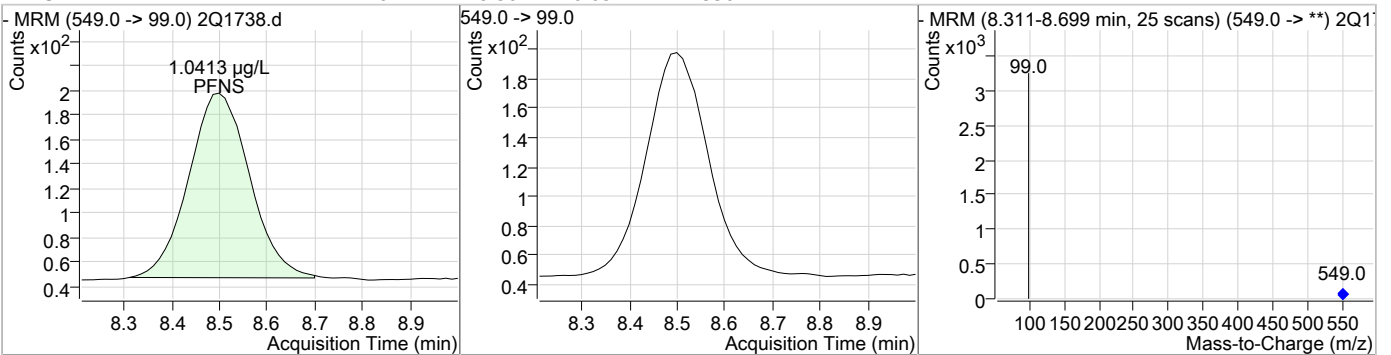
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	1.19	7.60	0.01	2970				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.09	7.60	0.00	2323				

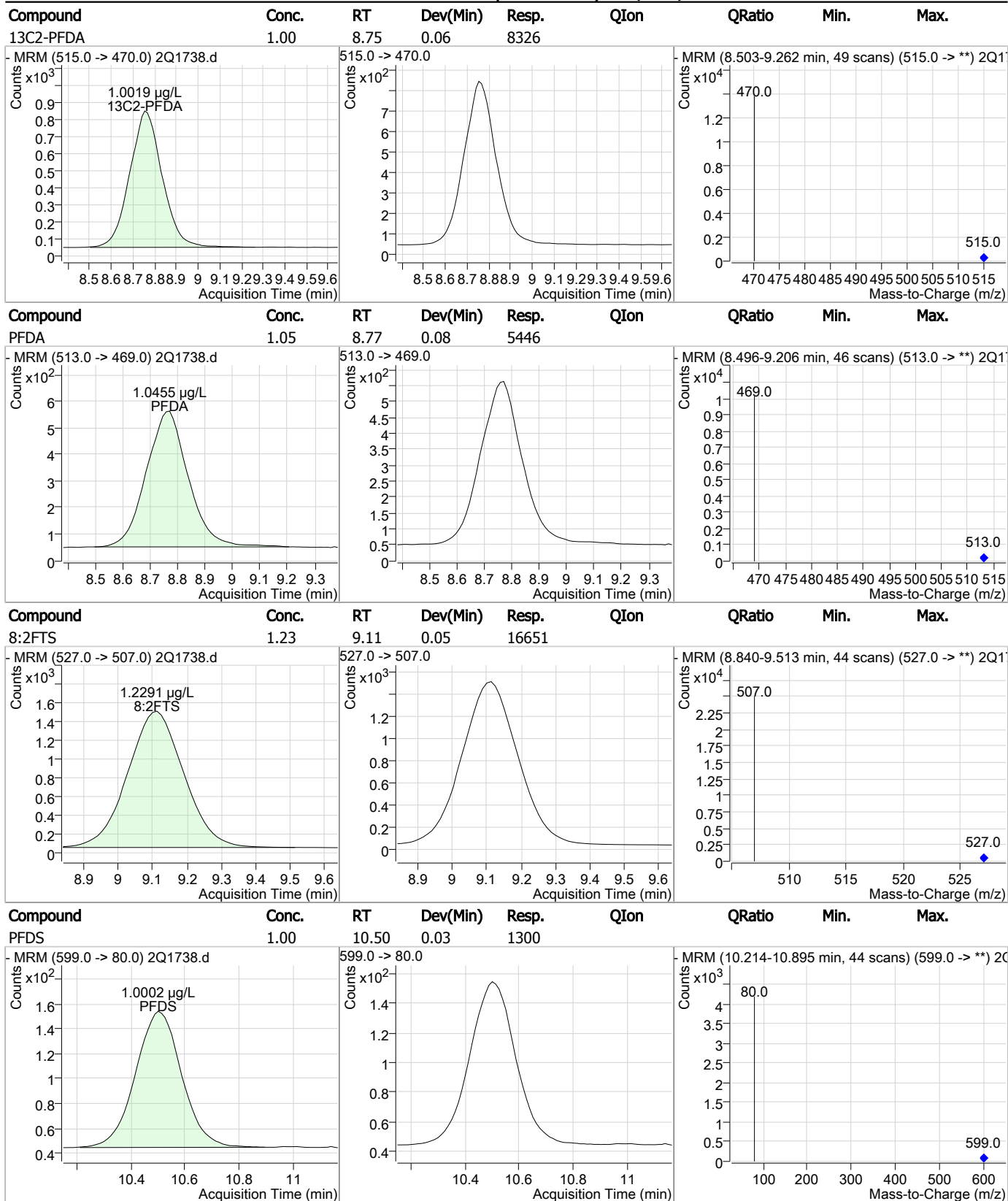


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	1.04	8.50	0.05	1336				



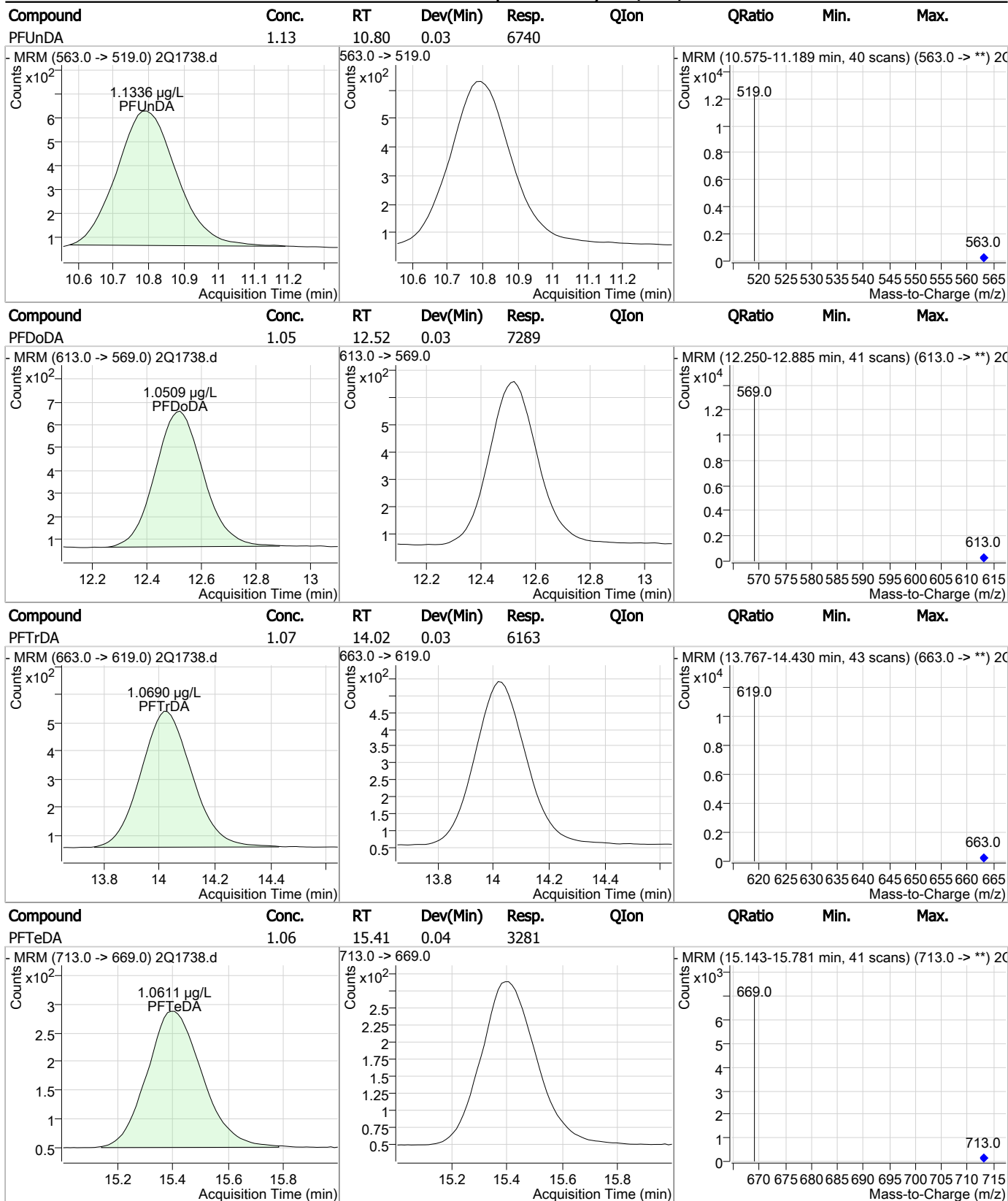
7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.1  
7

# Manual Integration Approval Summary

Sample Number: S2Q47-IC47                      Method: EPA 537  
Lab FileID: 2Q1738.D                      Analyst approved: 06/01/17 08:32 Mike Eger  
Injection Time: 05/30/17 15:13                      Supervisor approved: 06/01/17 14:43 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.47	Split peak

7.5.1.1

7

### Perfluorinated Compounds by LC/MS/MS

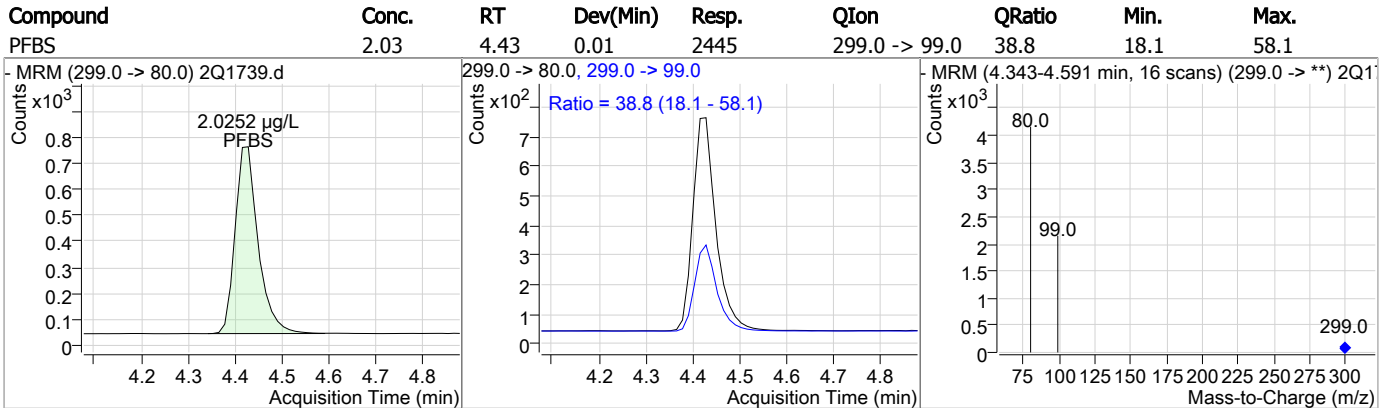
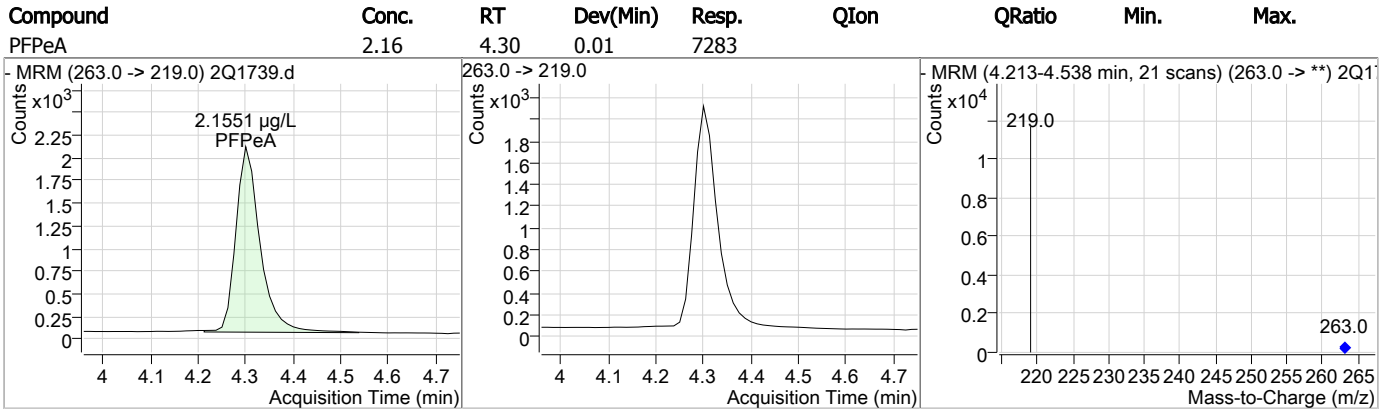
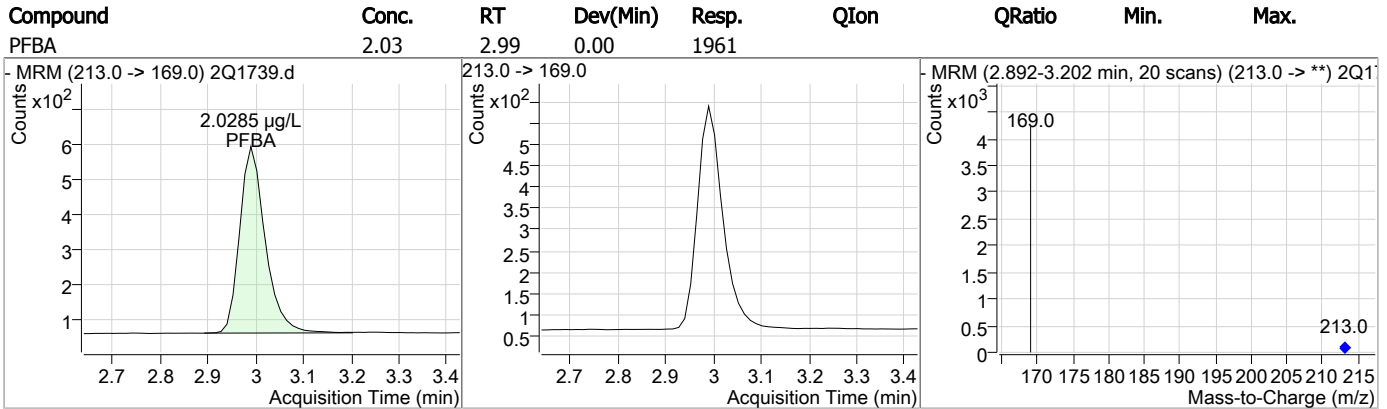
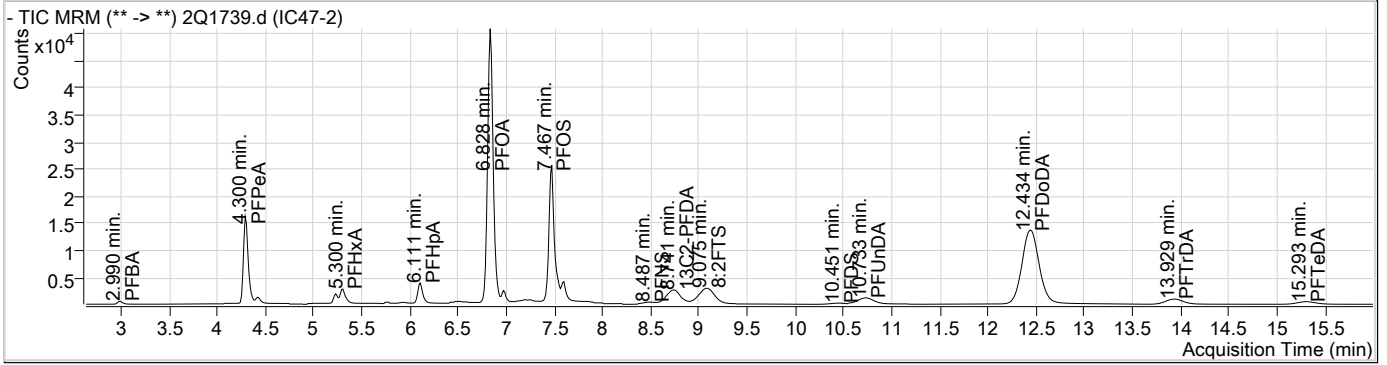
Data File : 2Q1739.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/30/2017 3:34:56 PM  
 Sample Name : IC47-2  
 Vial : Vial 3  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q47.batch.bin  
 Sample Information : OP65145,S2Q47,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.849	429.0 -> 409.0	112111	20.00 µg/L	0.013
13C2-PFDoDA	12.440	615.0 -> 570.0	151539	20.00 µg/L	-0.050
13C2-PFOA	6.827	415.0 -> 370.0	69351	20.00 µg/L	0.013
13C3-PFPeA	4.297	266.0 -> 222.0	48421	20.00 µg/L	0.000
13C4-PFOS	7.465	503.0 -> 80.0	40302	20.00 µg/L	0.013
d3-MeFOSAA	7.475	573.0 -> 419.0	43234	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.741	515.0 -> 470.0	16596	1.91 µg/L	0.050
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 9.5%		
13C2-PFHxA	5.310	315.0 -> 270.0	5959	1.97 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 9.9%		
d5-EtFOSAA	7.598	589.0 -> 419.0	5375	2.14 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 10.7%		
<b>Target Compounds</b>					
4:2FTS	5.232	327.0 -> 307.0	5706	2.05 µg/L	100
6:2FTS	6.850	427.0 -> 407.0	11890	2.10 µg/L	100
8:2FTS	9.075	527.0 -> 507.0	32477	2.38 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	4491	2.09 µg/L	100
FOSA	6.971	498.0 -> 78.0	5828	2.22 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	4861	2.09 µg/L	100
PFBA	2.990	213.0 -> 169.0	1961	2.03 µg/L	100
PFBS	4.429	299.0 -> 80.0	2445	2.03 µg/L	99
PFDA	8.745	513.0 -> 469.0	10419	1.91 µg/L	100
PFDoDA	12.434	613.0 -> 569.0	14543	2.09 µg/L	100
PFDS	10.451	599.0 -> 80.0	2505	1.94 µg/L	100
PFHpA	6.111	363.0 -> 319.0	9005	2.20 µg/L	93
PFHpS	6.784	449.0 -> 80.0	3505	2.10 µg/L	100
PFHxA	5.300	313.0 -> 269.0	2820	2.06 µg/L	86
PFHxS	6.094	399.0 -> 80.0	3196	2.10 µg/L	m 90
PFNA	7.545	463.0 -> 419.0	7388	2.11 µg/L	100
PFNS	8.487	549.0 -> 99.0	2601	2.04 µg/L	100
PFOA	6.828	413.0 -> 369.0	6037	2.19 µg/L	98
PFOS	7.467	499.0 -> 80.0	4636	2.12 µg/L	m 92
PFPeA	4.300	263.0 -> 219.0	7283	2.16 µg/L	100
PFPeS	5.342	349.0 -> 99.0	827	1.93 µg/L	100
PFTeDA	15.293	713.0 -> 669.0	6387	2.06 µg/L	100
PFTrDA	13.929	663.0 -> 619.0	12173	2.10 µg/L	100
PFUnDA	10.733	563.0 -> 519.0	13360	2.24 µg/L	100

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

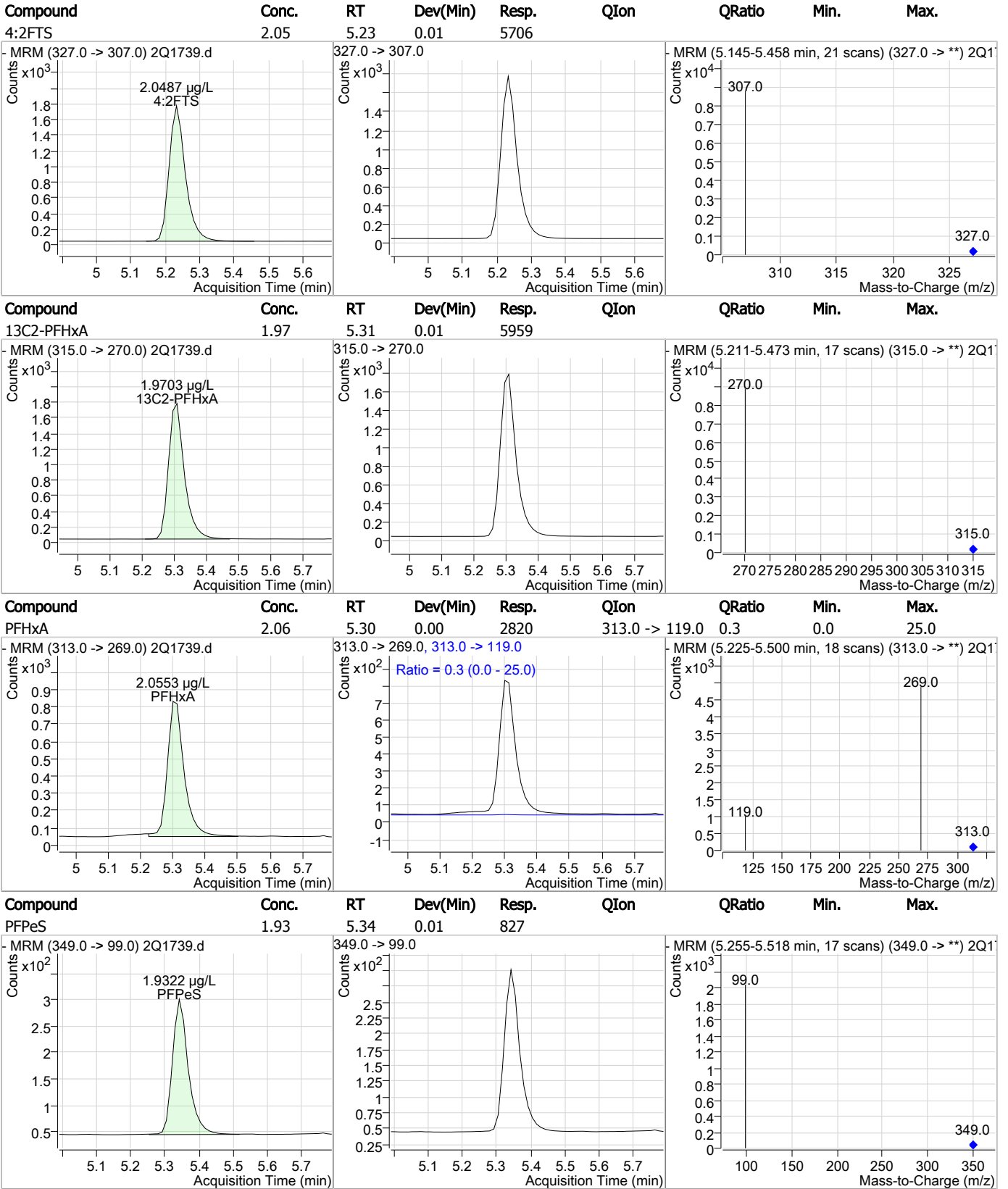
7.52  
7

### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS

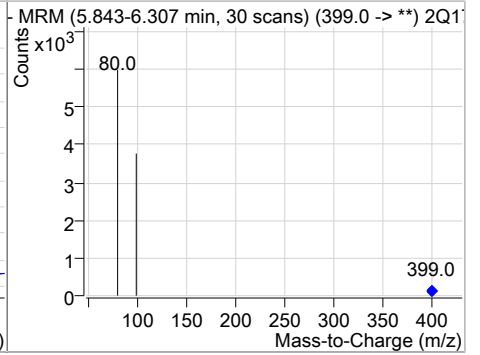
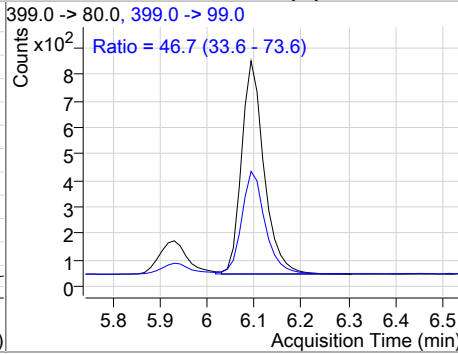
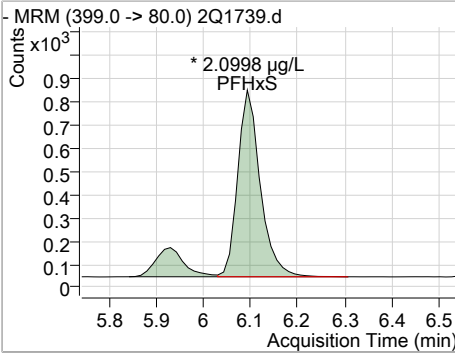


7.52

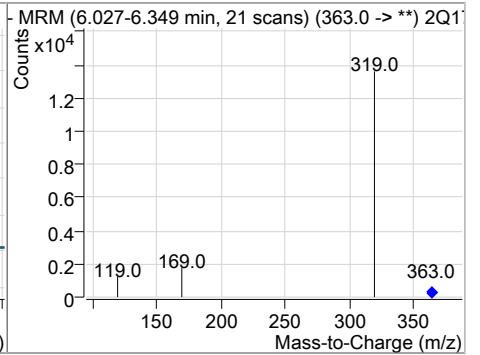
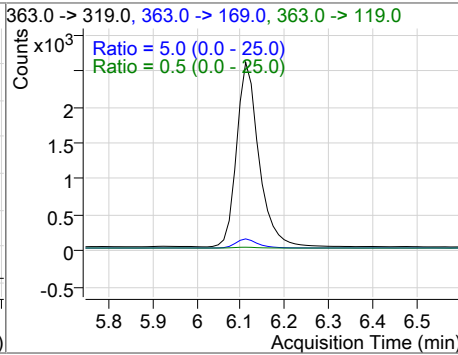
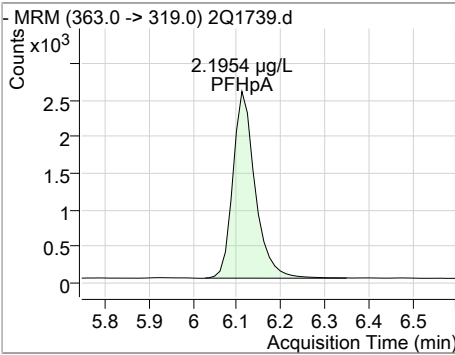
7

### Perfluorinated Compounds by LC/MS/MS

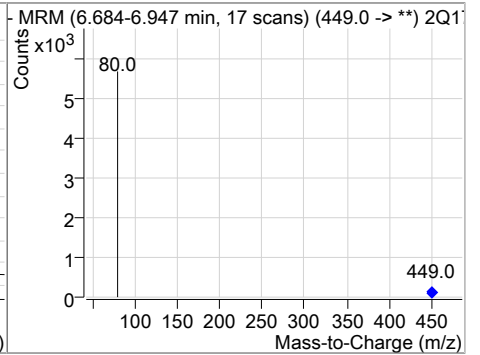
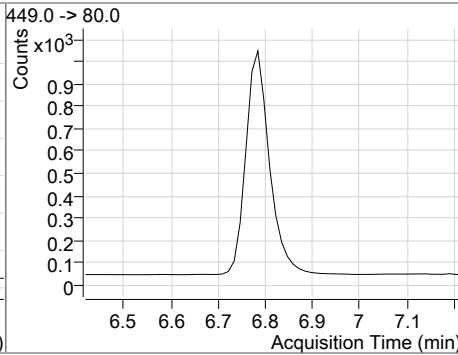
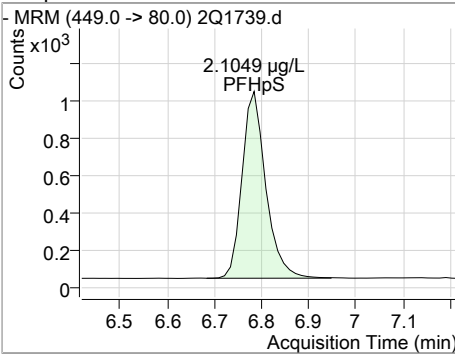
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.10	6.09	0.01	3196 (m)	399.0 -> 99.0	46.7	33.6	73.6



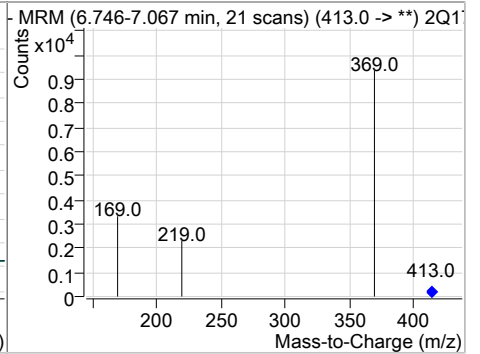
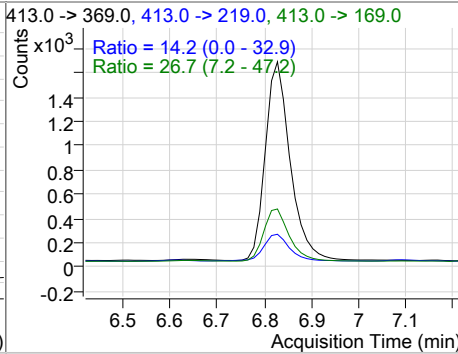
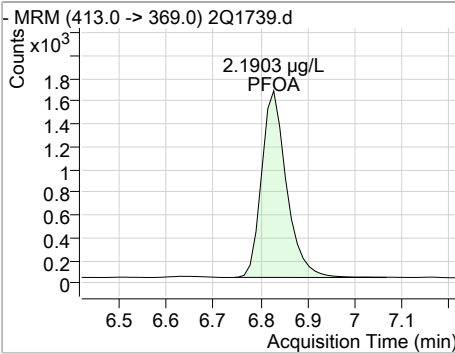
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.20	6.11	0.01	9005	363.0 -> 119.0 363.0 -> 169.0	0.5 5.0	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.10	6.78	0.01	3505				

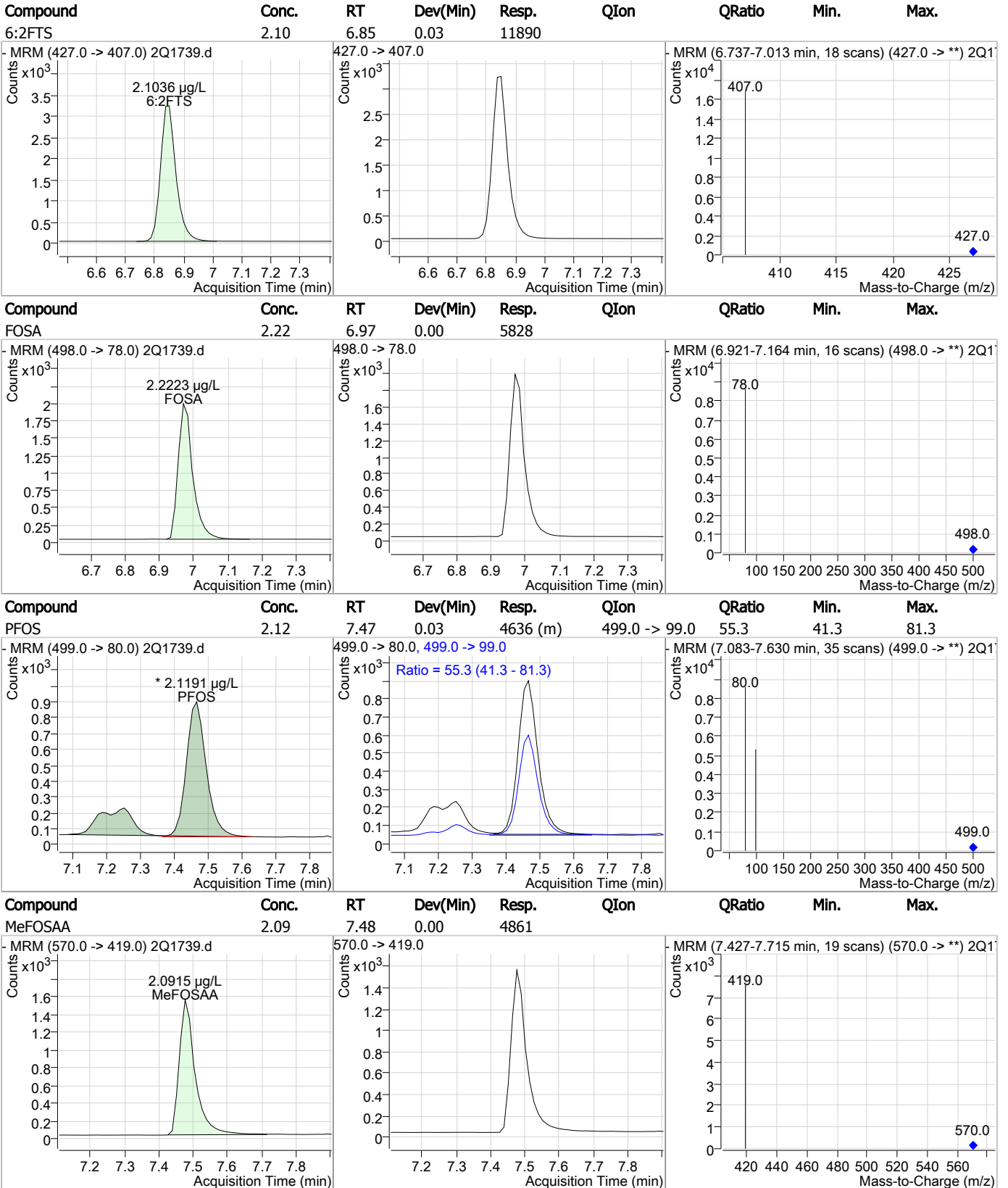


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.19	6.83	0.01	6037	413.0 -> 169.0 413.0 -> 219.0	26.7 14.2	7.2 0.0	47.2 32.9



7.52  
7

### Perfluorinated Compounds by LC/MS/MS

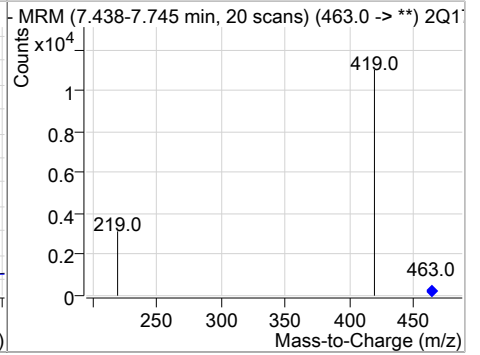
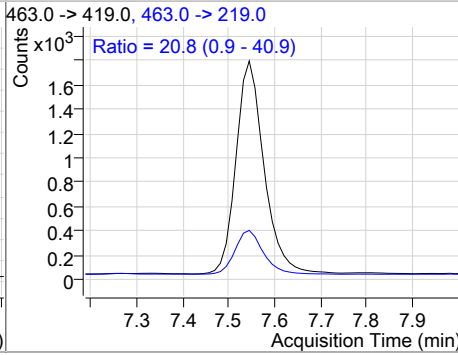
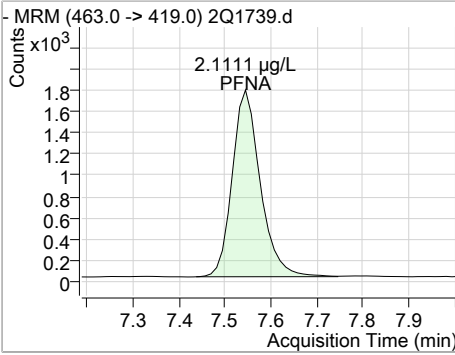


7.52

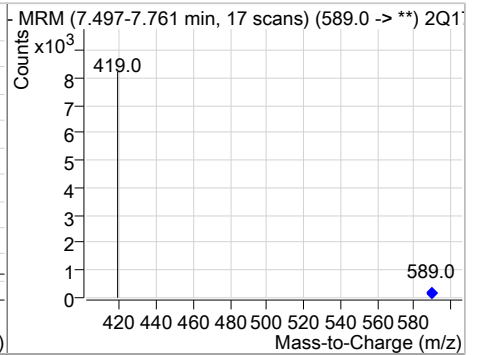
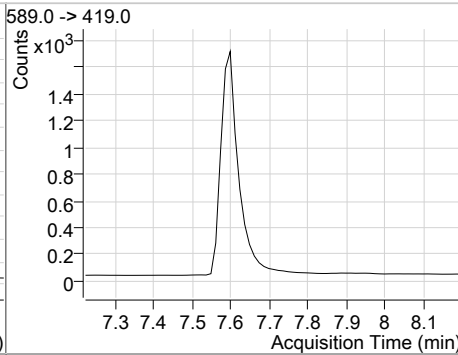
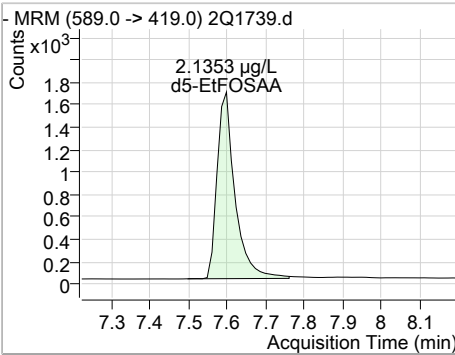
7

### Perfluorinated Compounds by LC/MS/MS

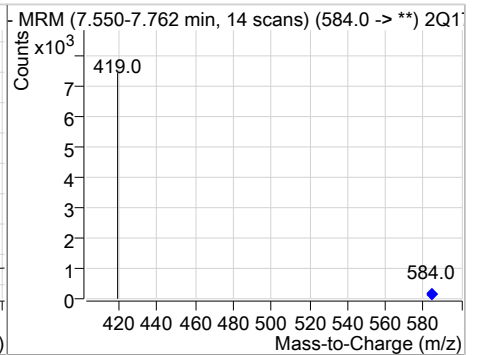
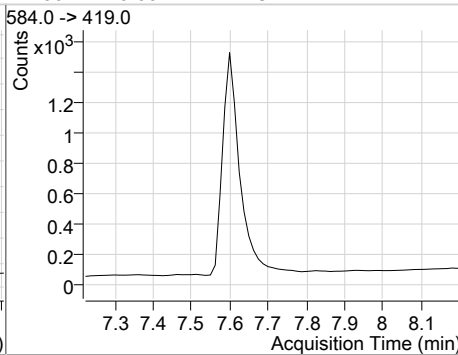
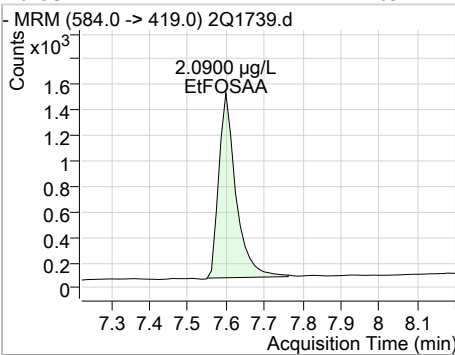
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.11	7.54	0.01	7388	463.0 -> 219.0	20.8	0.9	40.9



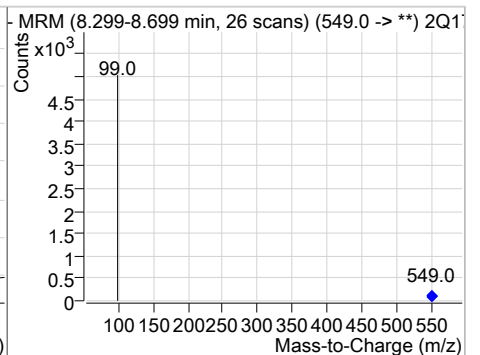
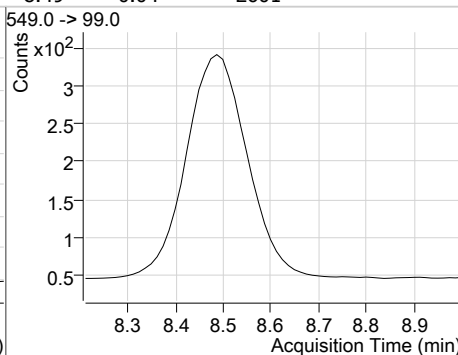
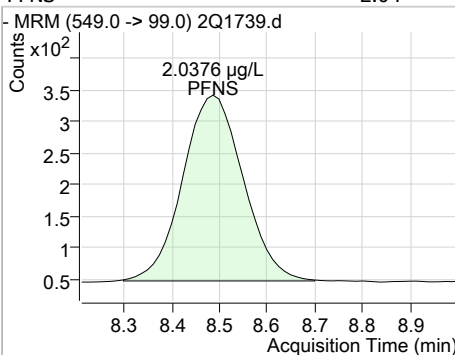
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	2.14	7.60	0.01	5375				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.09	7.60	0.00	4491				

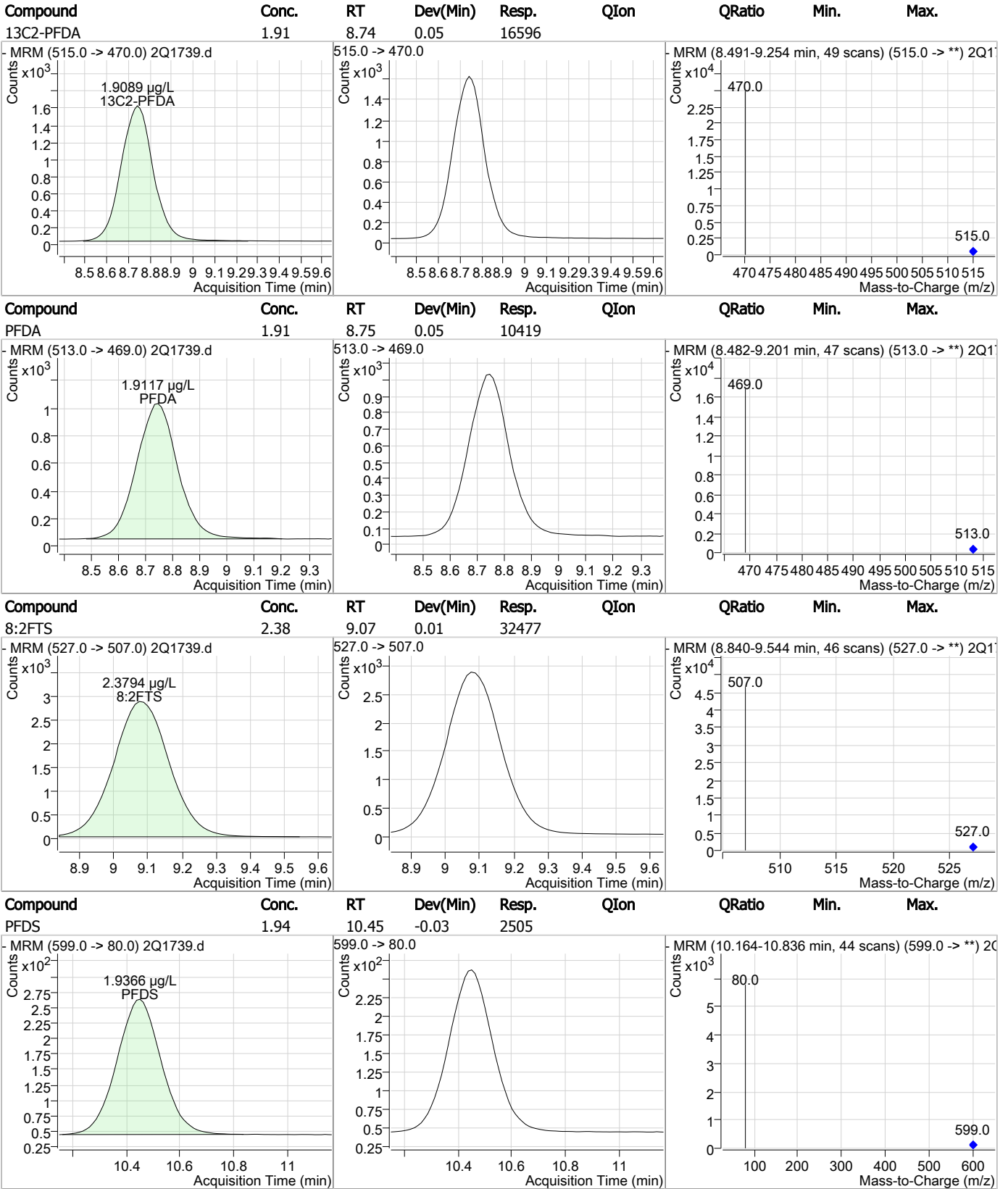


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.04	8.49	0.04	2601				



7.52  
7

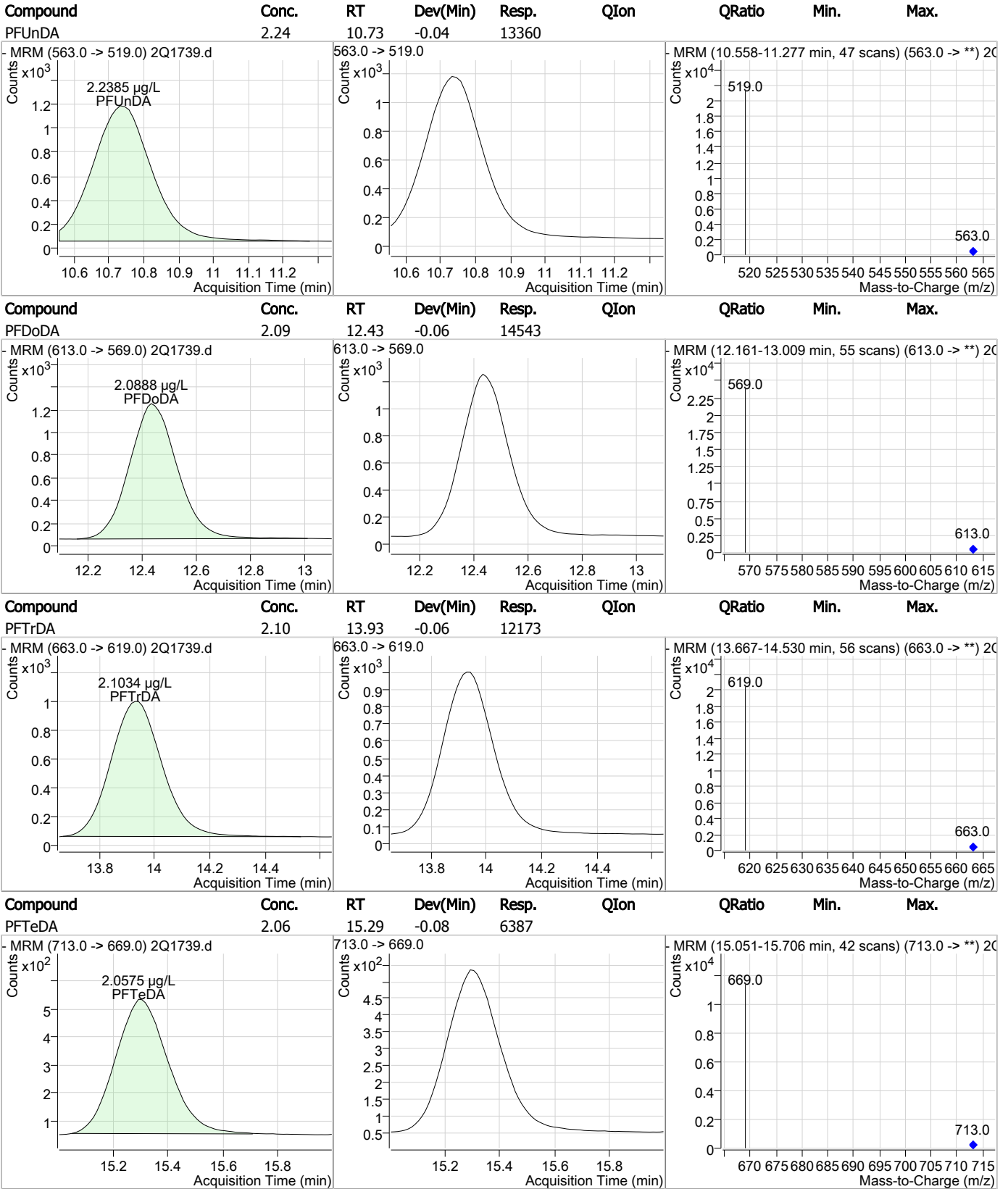
### Perfluorinated Compounds by LC/MS/MS



7.52

7

### Perfluorinated Compounds by LC/MS/MS



7.5.2

7

# Manual Integration Approval Summary

Sample Number: S2Q47-IC47                      Method: EPA 537  
Lab FileID: 2Q1739.D                      Analyst approved: 06/01/17 08:32 Mike Eger  
Injection Time: 05/30/17 15:34                      Supervisor approved: 06/01/17 14:43 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.47	Split peak

7.5.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 2Q1740.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/30/2017 3:56:44 PM  
 Sample Name : IC47-5  
 Vial : Vial 4  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q47.batch.bin  
 Sample Information : OP65145,S2Q47,260,,,1.0,1,water

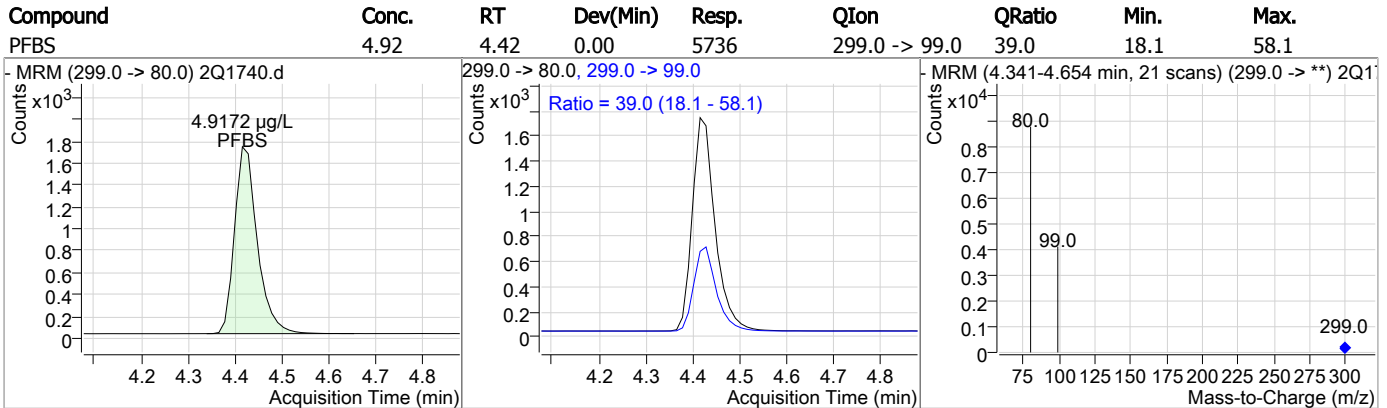
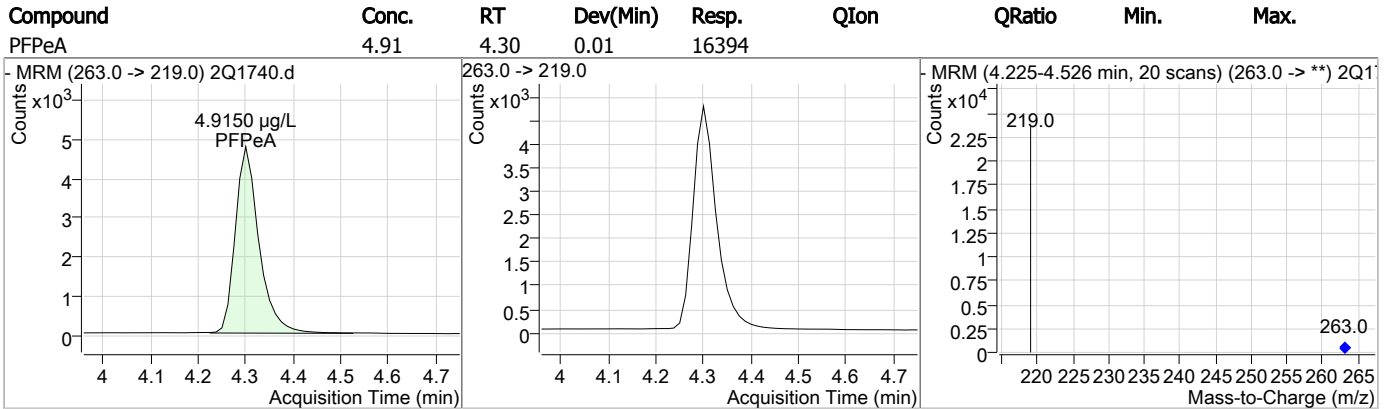
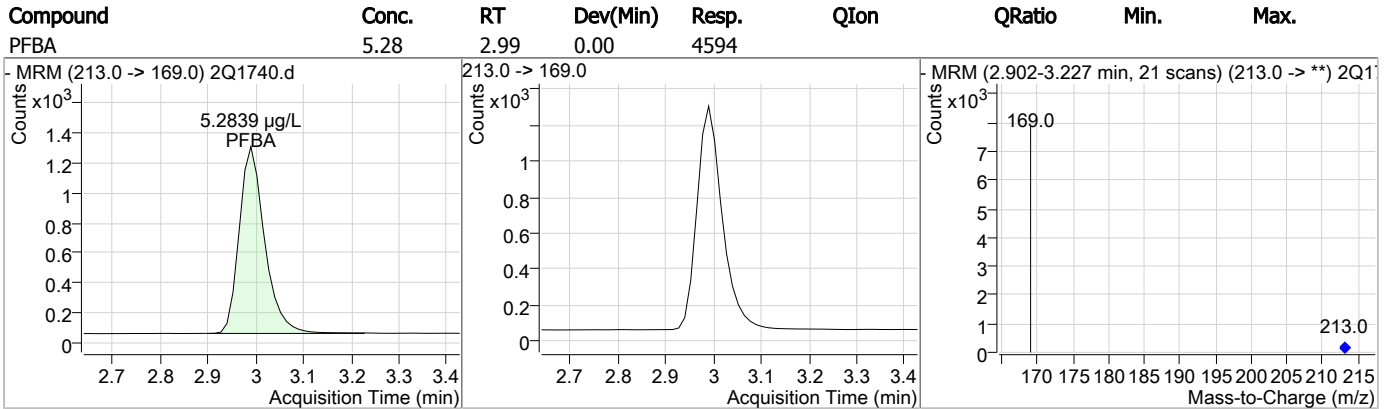
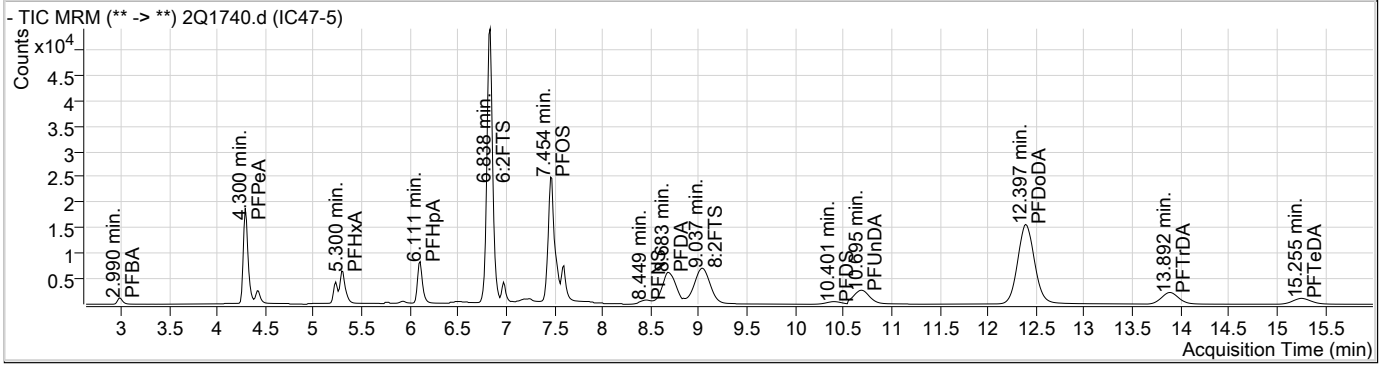
Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.836	429.0 -> 409.0	108472	20.00 µg/L	0.000
13C2-PFDoDA	12.390	615.0 -> 570.0	153805	20.00 µg/L	-0.100
13C2-PFOA	6.814	415.0 -> 370.0	62379	20.00 µg/L	0.000
13C3-PFPeA	4.297	266.0 -> 222.0	47795	20.00 µg/L	0.000
13C4-PFOS	7.453	503.0 -> 80.0	38943	20.00 µg/L	0.000
d3-MeFOSAA	7.475	573.0 -> 419.0	39016	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.691	515.0 -> 470.0	39078	5.00 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 25.0%		
13C2-PFHxA	5.310	315.0 -> 270.0	14399	5.29 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 26.5%		
d5-EtFOSAA	7.598	589.0 -> 419.0	11024	4.85 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 24.3%		
<b>Target Compounds</b>					
4:2FTS	5.232	327.0 -> 307.0	13742	5.13 µg/L	100
6:2FTS	6.838	427.0 -> 407.0	27534	5.06 µg/L	100
8:2FTS	9.037	527.0 -> 507.0	70198	5.32 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	9332	4.81 µg/L	100
FOSA	6.971	498.0 -> 78.0	11076	4.68 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	10263	4.89 µg/L	100
PFBA	2.990	213.0 -> 169.0	4594	5.28 µg/L	100
PFBS	4.416	299.0 -> 80.0	5736	4.92 µg/L	99
PFDA	8.683	513.0 -> 469.0	24799	5.06 µg/L	100
PFDoDA	12.397	613.0 -> 569.0	34722	4.91 µg/L	100
PFDS	10.401	599.0 -> 80.0	5943	4.76 µg/L	100
PFHpA	6.111	363.0 -> 319.0	19259	5.22 µg/L	93
PFHpS	6.772	449.0 -> 80.0	7960	4.95 µg/L	100
PFHxA	5.300	313.0 -> 269.0	6627	5.37 µg/L	86
PFHxS	6.094	399.0 -> 80.0	7306	4.97 µg/L	m 92
PFNA	7.532	463.0 -> 419.0	16584	5.27 µg/L	99
PFNS	8.449	549.0 -> 99.0	6179	5.01 µg/L	100
PFOA	6.816	413.0 -> 369.0	12773	5.15 µg/L	98
PFOS	7.454	499.0 -> 80.0	10705	5.06 µg/L	m 87
PFPeA	4.300	263.0 -> 219.0	16394	4.91 µg/L	100
PFPeS	5.342	349.0 -> 99.0	2021	4.78 µg/L	100
PFTeDA	15.255	713.0 -> 669.0	14963	4.75 µg/L	100
PFTTrDA	13.892	663.0 -> 619.0	27933	4.76 µg/L	100
PFUnDA	10.695	563.0 -> 519.0	29881	4.93 µg/L	100

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

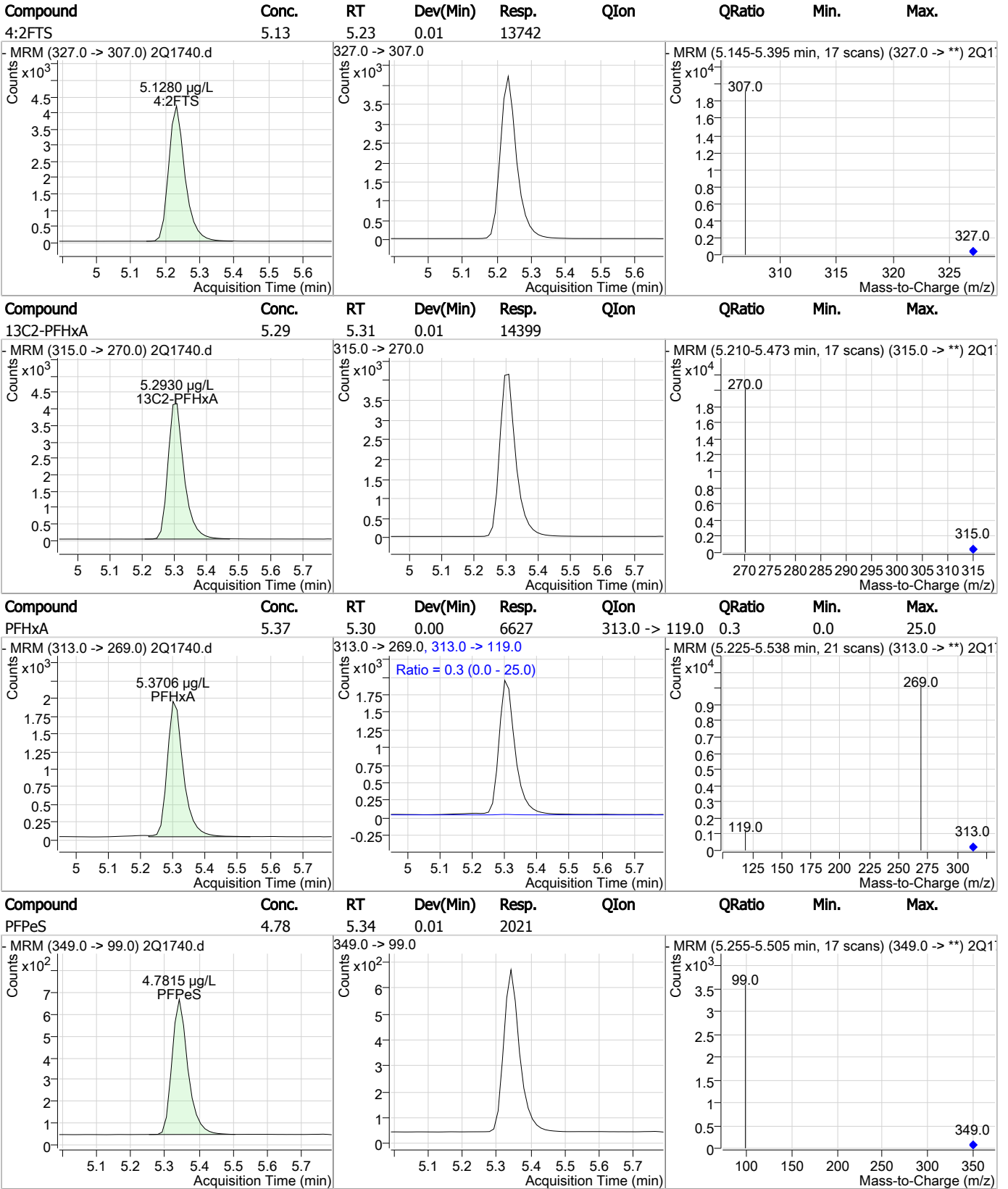
7.5.3  
7



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

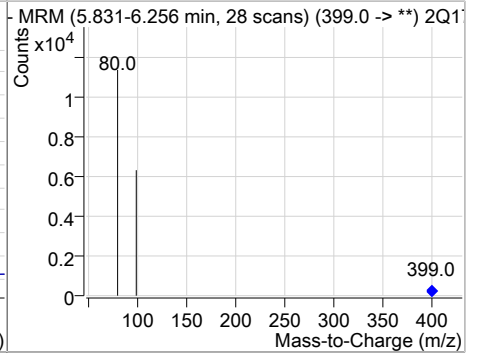
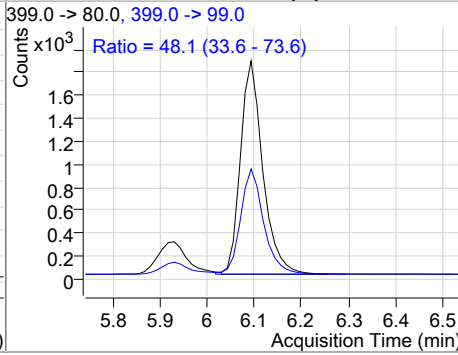
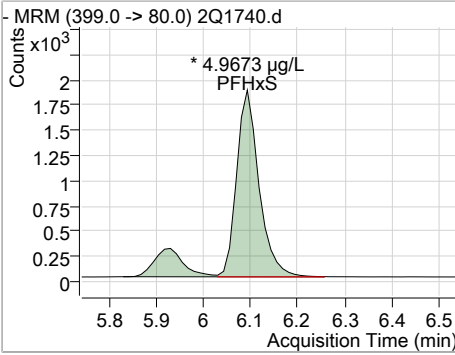


7.5.3

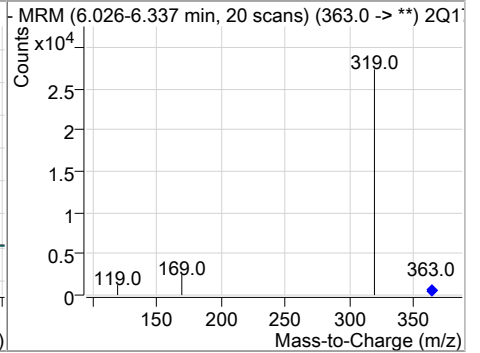
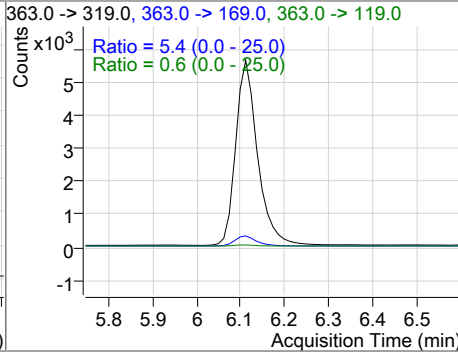
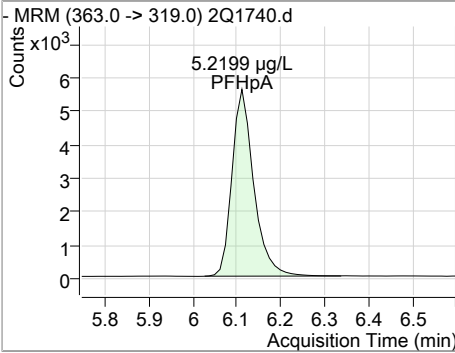
7

### Perfluorinated Compounds by LC/MS/MS

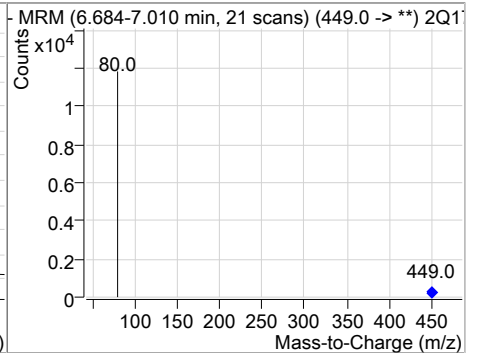
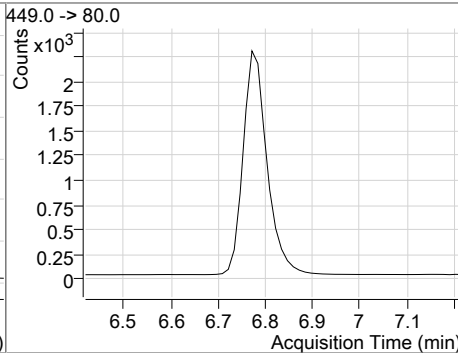
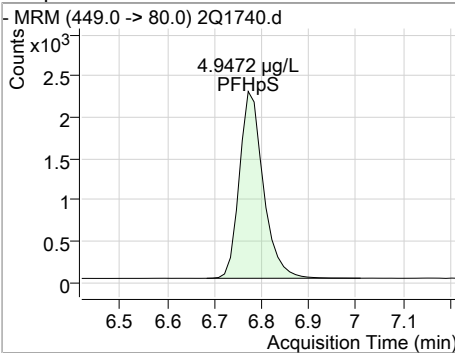
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	4.97	6.09	0.01	7306 (m)	399.0 -> 99.0	48.1	33.6	73.6



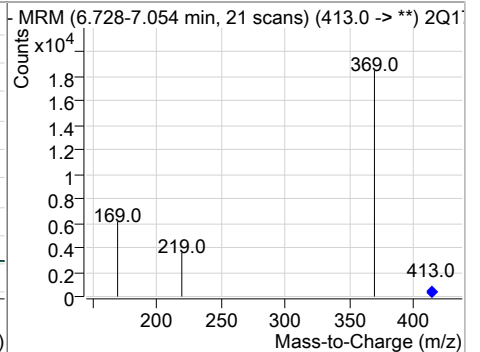
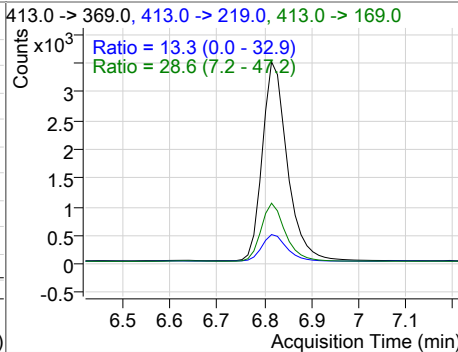
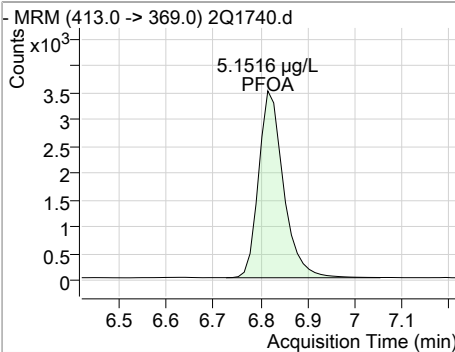
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	5.22	6.11	0.01	19259	363.0 -> 119.0 363.0 -> 169.0	0.6	0.0	25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.95	6.77	0.00	7960				

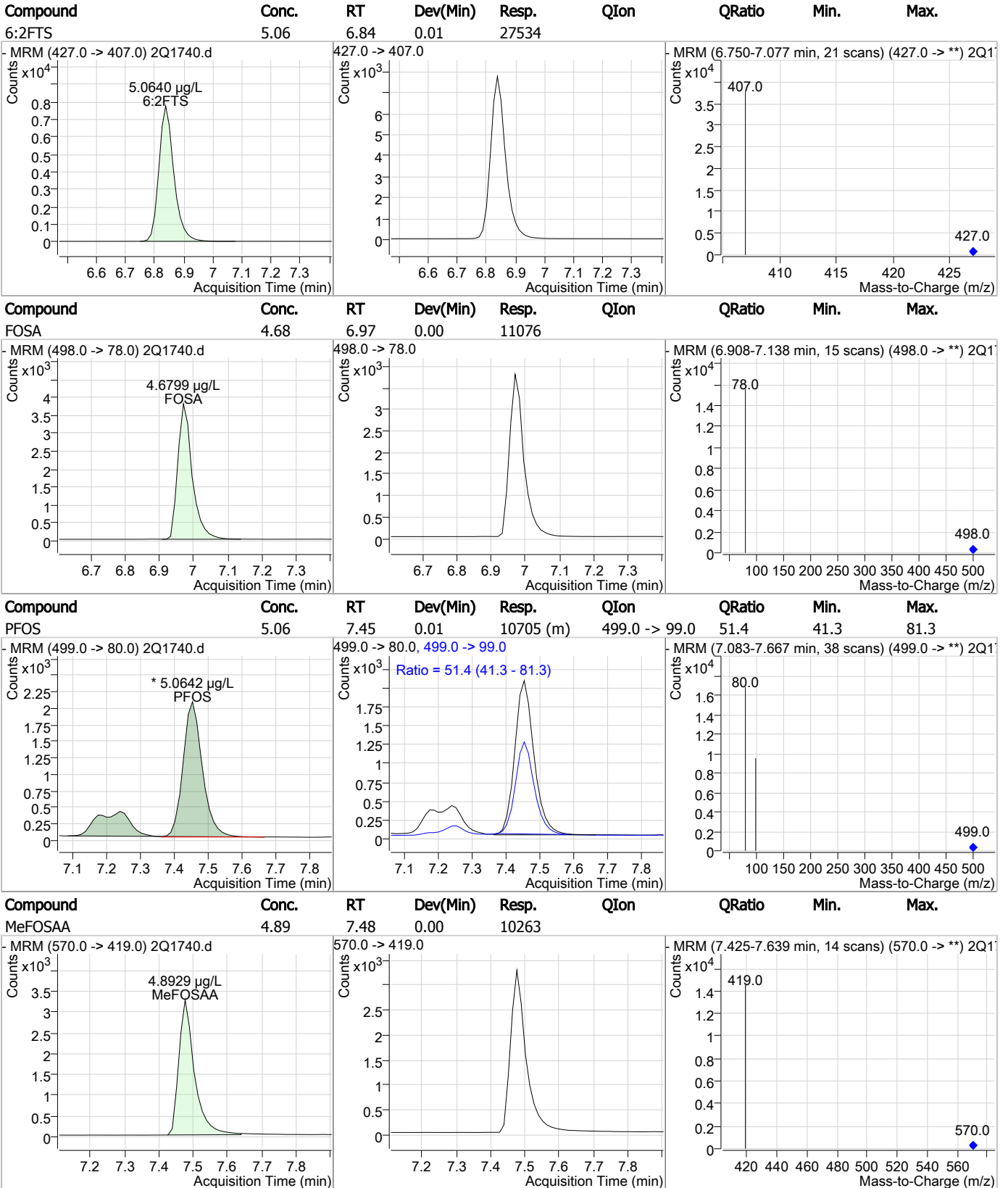


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	5.15	6.82	0.00	12773	413.0 -> 169.0 413.0 -> 219.0	28.6	7.2	47.2



7.53  
7

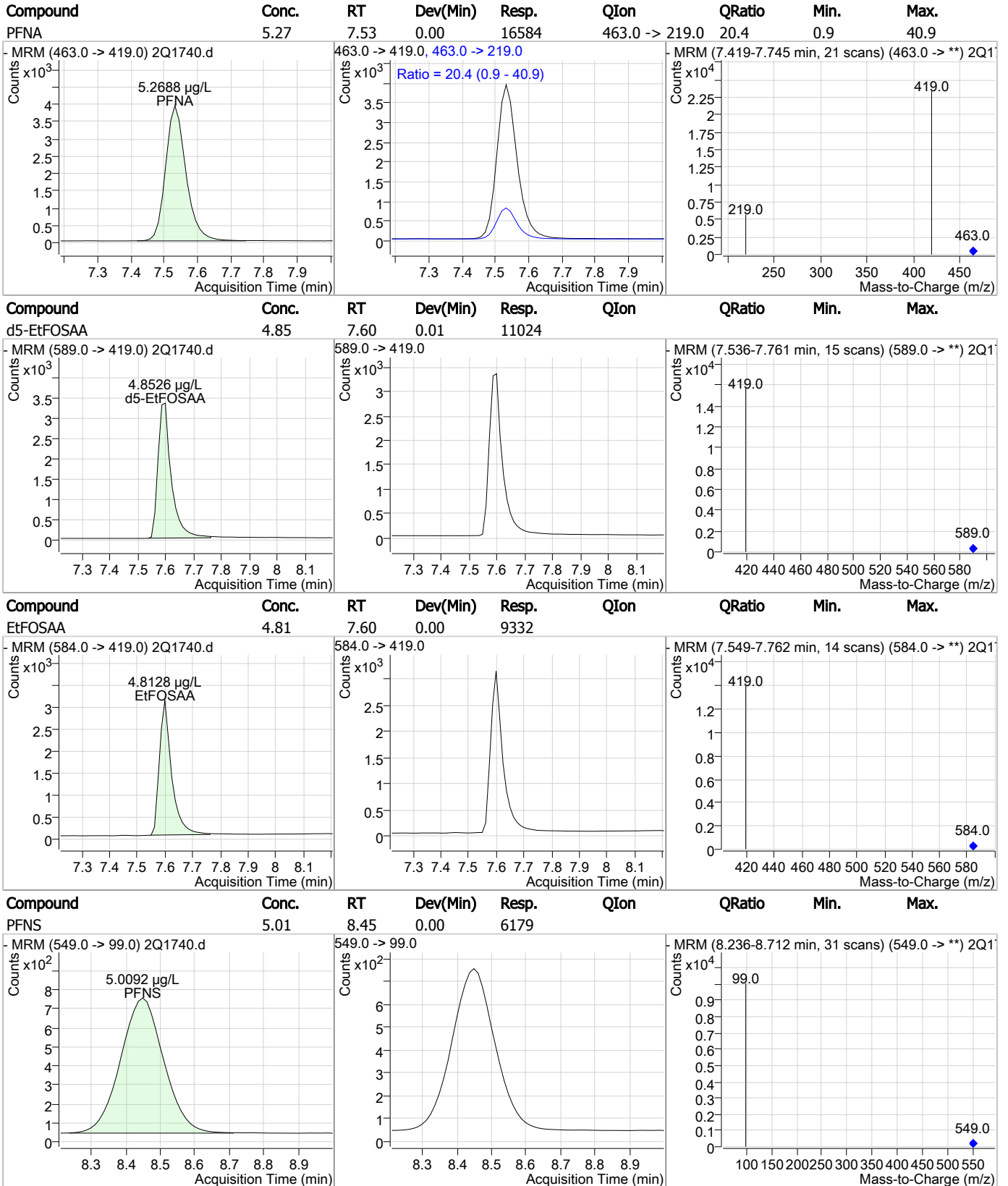
### Perfluorinated Compounds by LC/MS/MS



7.5.3

7

### Perfluorinated Compounds by LC/MS/MS



7.53

7

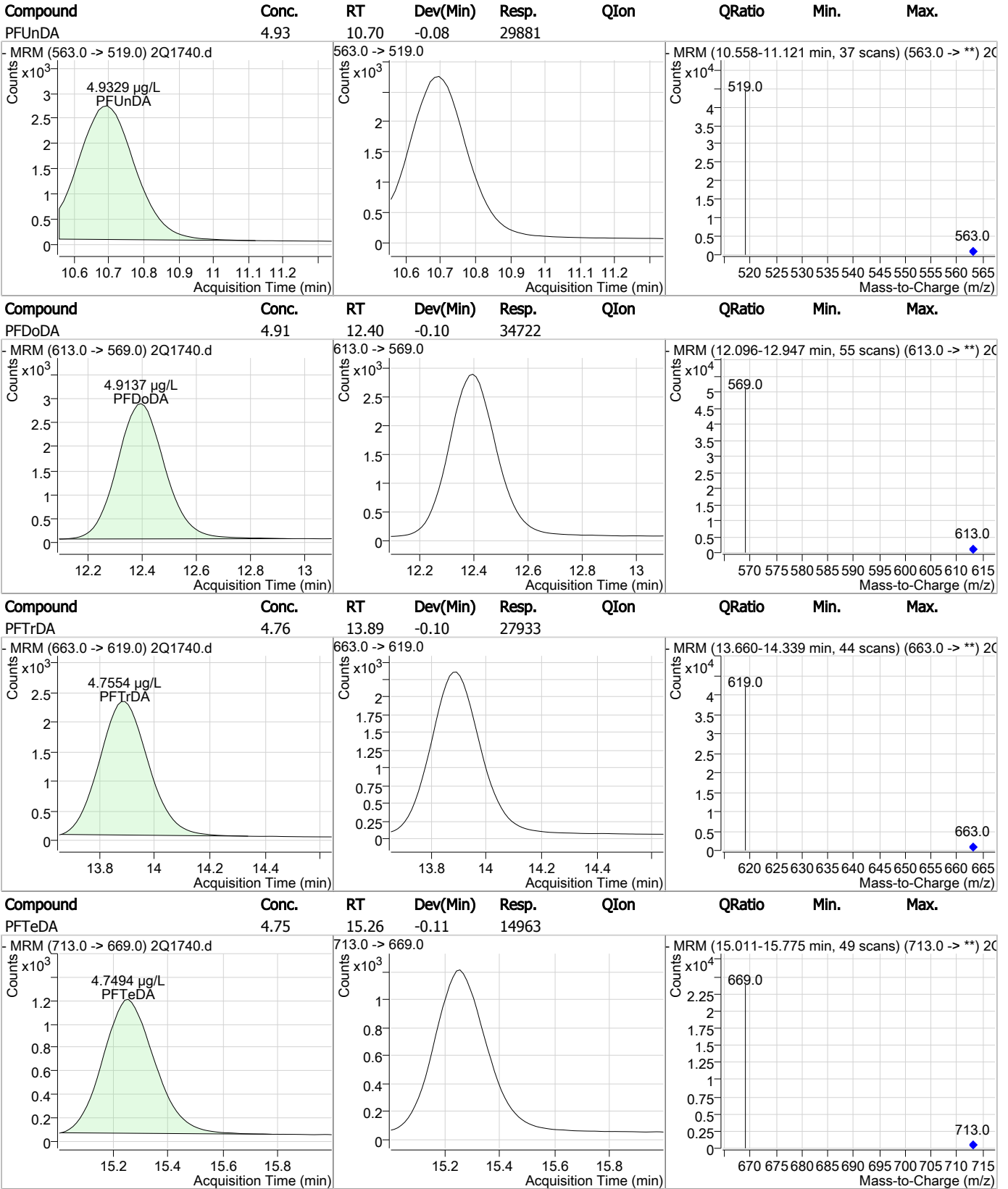
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	5.00	8.69	0.00	39078				
PFDA	5.06	8.68	-0.01	24799				
8:2FTS	5.32	9.04	-0.03	70198				
PFDS	4.76	10.40	-0.08	5943				

7.5.3

7

### Perfluorinated Compounds by LC/MS/MS



7.53  
7

# Manual Integration Approval Summary

Sample Number: S2Q47-IC47                      Method: EPA 537  
Lab FileID: 2Q1740.D                      Analyst approved: 06/01/17 08:32 Mike Eger  
Injection Time: 05/30/17 15:56                      Supervisor approved: 06/01/17 14:43 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.45	Split peak

7.5.3.1

7



### Perfluorinated Compounds by LC/MS/MS

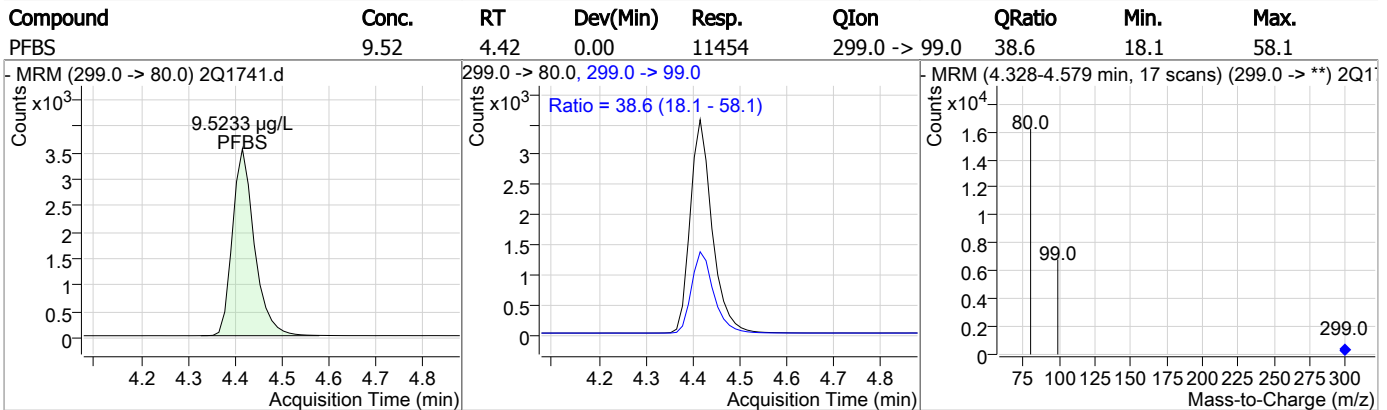
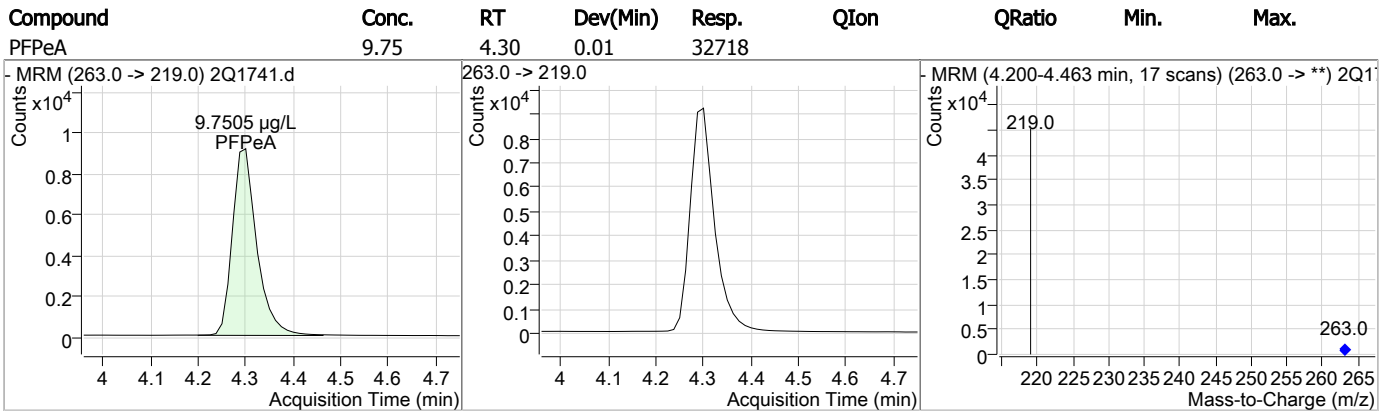
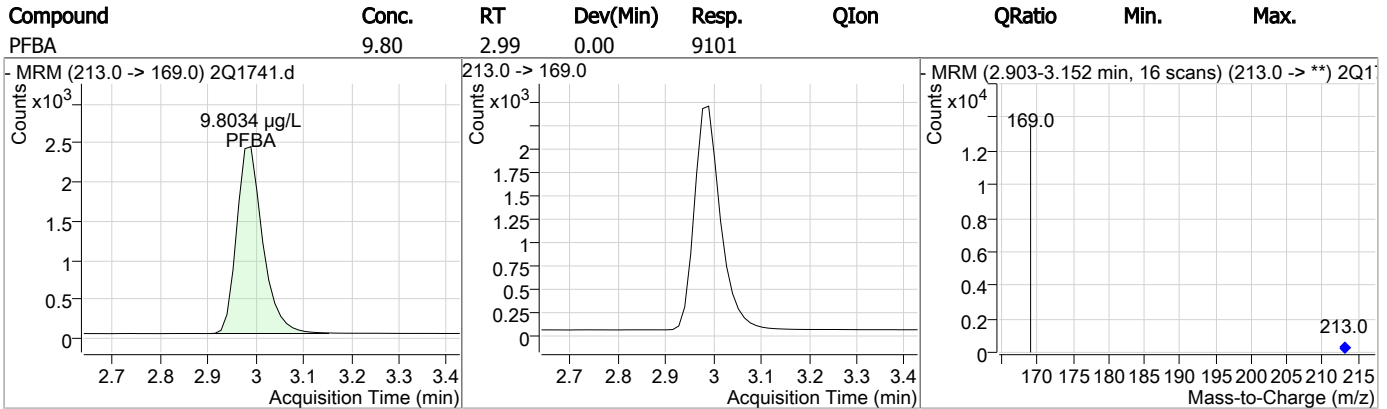
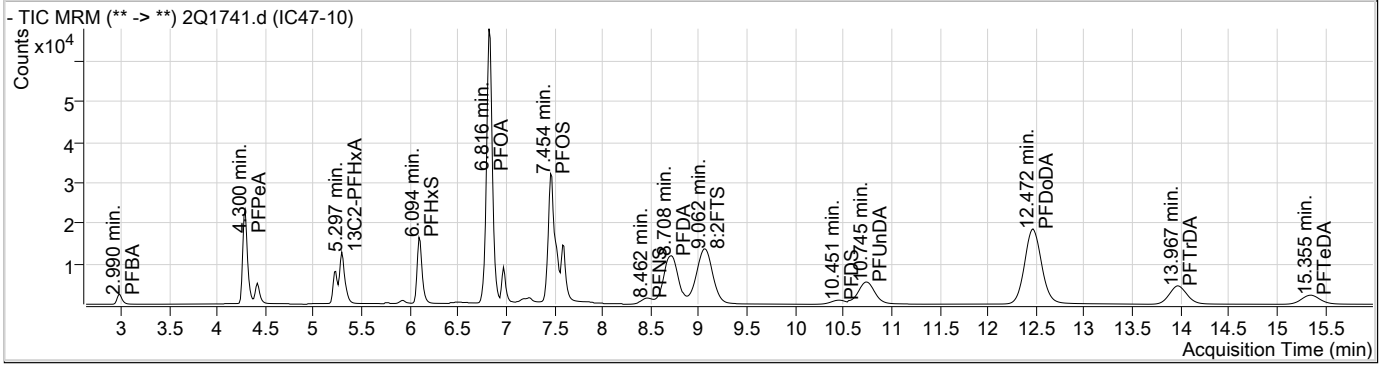
Data File : 2Q1741.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/30/2017 4:18:34 PM  
 Sample Name : IC47-10  
 Vial : Vial 5  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q47.batch.bin  
 Sample Information : OP65145,S2Q47,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.836	429.0 -> 409.0	113266	20.00 µg/L	0.000
13C2-PFDoDA	12.465	615.0 -> 570.0	154976	20.00 µg/L	-0.025
13C2-PFOA	6.814	415.0 -> 370.0	66614	20.00 µg/L	0.000
13C3-PFPeA	4.297	266.0 -> 222.0	48081	20.00 µg/L	0.000
13C4-PFOS	7.453	503.0 -> 80.0	40152	20.00 µg/L	0.000
d3-MeFOSAA	7.475	573.0 -> 419.0	41720	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.716	515.0 -> 470.0	78547	9.41 µg/L	0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 47.0%	
13C2-PFHxA	5.297	315.0 -> 270.0	28229	9.72 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 48.6%	
d5-EtFOSAA	7.585	589.0 -> 419.0	22791	9.38 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 46.9%	
<b>Target Compounds</b>					
4:2FTS	5.232	327.0 -> 307.0	27228	9.81 µg/L	100
6:2FTS	6.838	427.0 -> 407.0	55087	9.79 µg/L	100
8:2FTS	9.062	527.0 -> 507.0	144697	10.49 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	19466	9.39 µg/L	100
FOSA	6.971	498.0 -> 78.0	24947	9.86 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	21046	9.38 µg/L	100
PFBA	2.990	213.0 -> 169.0	9101	9.80 µg/L	100
PFBS	4.416	299.0 -> 80.0	11454	9.52 µg/L	99
PFDA	8.708	513.0 -> 469.0	49694	9.49 µg/L	100
PFDoDA	12.472	613.0 -> 569.0	69400	9.75 µg/L	100
PFDS	10.451	599.0 -> 80.0	12069	9.37 µg/L	100
PFHpA	6.111	363.0 -> 319.0	38414	9.75 µg/L	93
PFHpS	6.772	449.0 -> 80.0	15778	9.51 µg/L	100
PFHxA	5.300	313.0 -> 269.0	12856	9.76 µg/L	86
PFHxS	6.094	399.0 -> 80.0	14227	9.38 µg/L	m 94
PFNA	7.532	463.0 -> 419.0	33205	9.88 µg/L	99
PFNS	8.462	549.0 -> 99.0	12232	9.62 µg/L	100
PFOA	6.816	413.0 -> 369.0	26513	10.01 µg/L	100
PFOS	7.454	499.0 -> 80.0	21099	9.68 µg/L	m 88
PFPeA	4.300	263.0 -> 219.0	32718	9.75 µg/L	100
PFPeS	5.342	349.0 -> 99.0	4053	9.53 µg/L	100
PFTeDA	15.355	713.0 -> 669.0	30583	9.63 µg/L	100
PFTTrDA	13.967	663.0 -> 619.0	56622	9.57 µg/L	100
PFUnDA	10.745	563.0 -> 519.0	58156	9.53 µg/L	100

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

7.54  
7

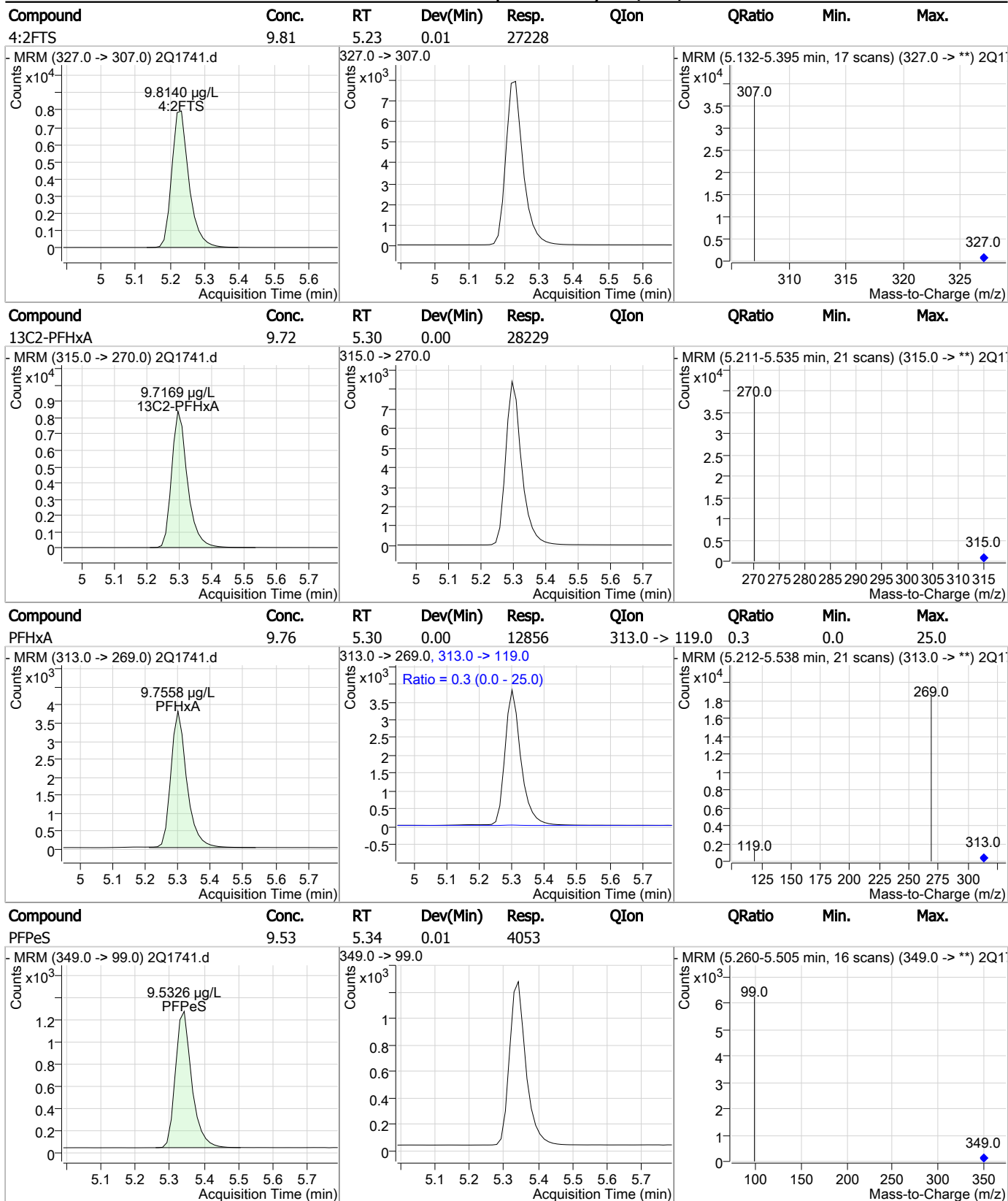
### Perfluorinated Compounds by LC/MS/MS



7.5.4

7

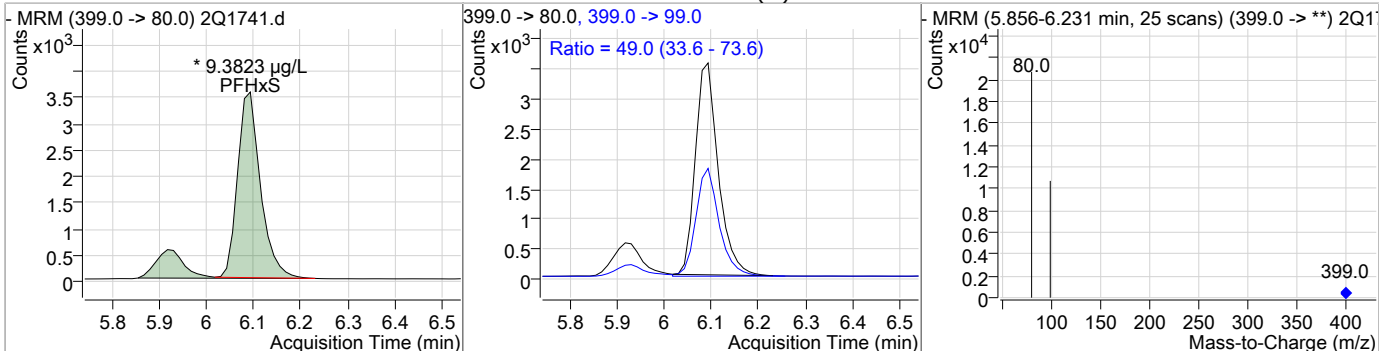
### Perfluorinated Compounds by LC/MS/MS



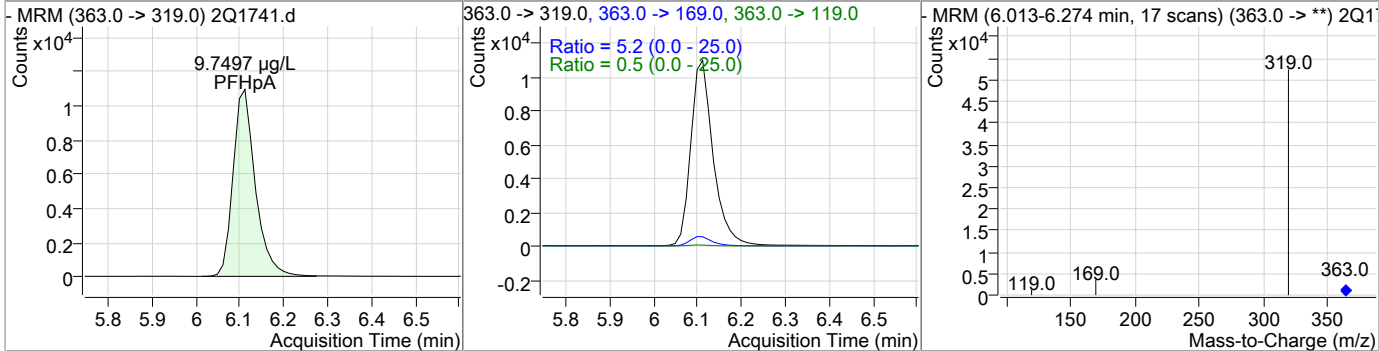
7.54  
7

### Perfluorinated Compounds by LC/MS/MS

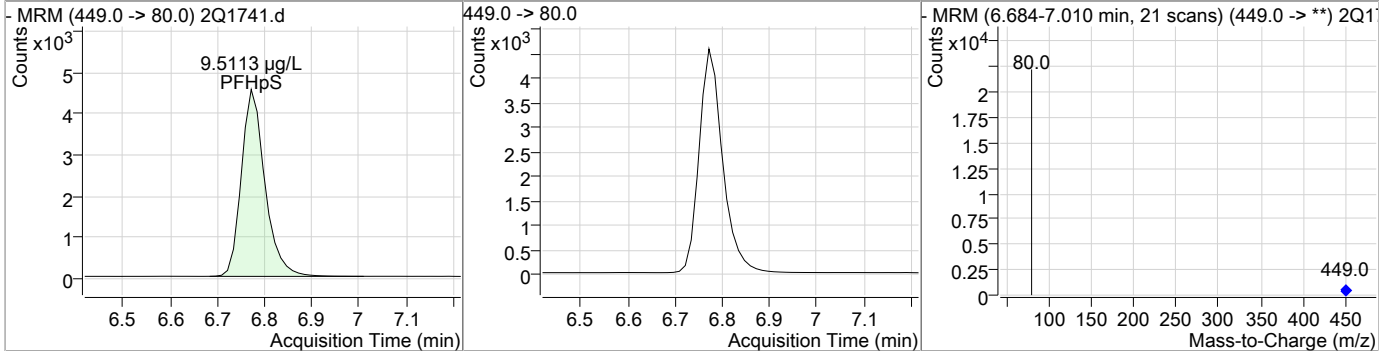
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	9.38	6.09	0.01	14227 (m)	399.0 -> 99.0	49.0	33.6	73.6



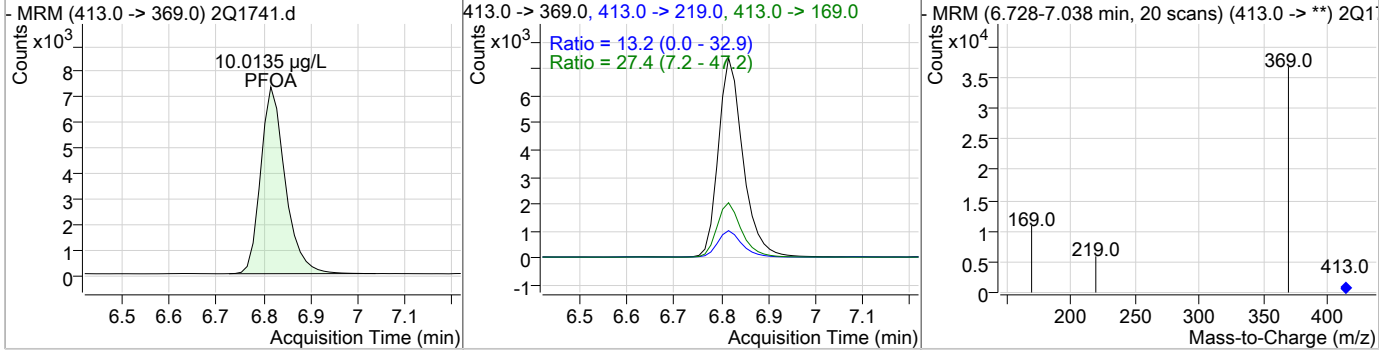
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	9.75	6.11	0.01	38414	363.0 -> 119.0 363.0 -> 169.0	5.2	0.0	25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	9.51	6.77	0.00	15778	449.0 -> 80.0			

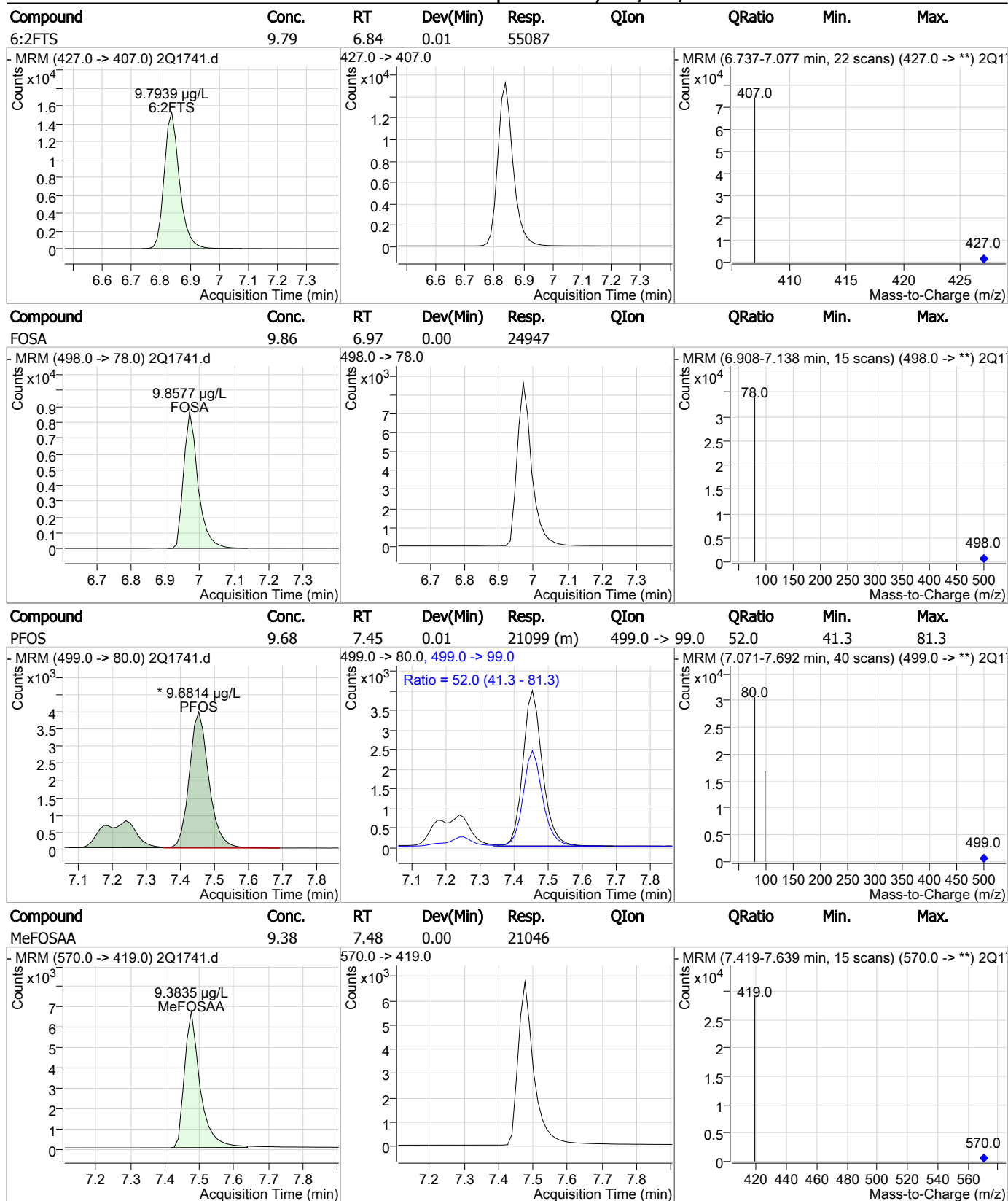


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	10.01	6.82	0.00	26513	413.0 -> 169.0 413.0 -> 219.0	27.4	7.2	47.2



7.5.4  
 7

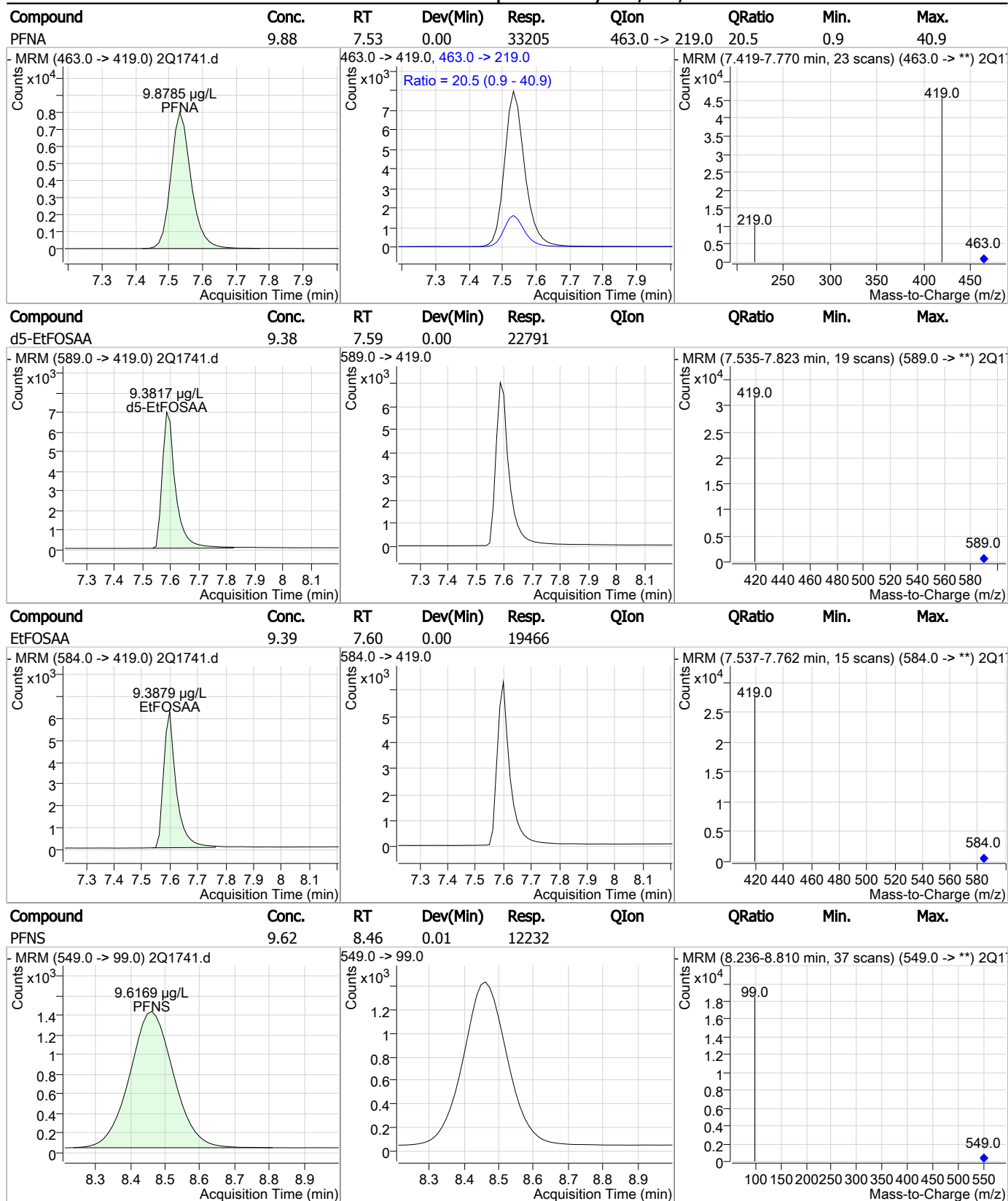
### Perfluorinated Compounds by LC/MS/MS



7.5.4

7

### Perfluorinated Compounds by LC/MS/MS



7.54

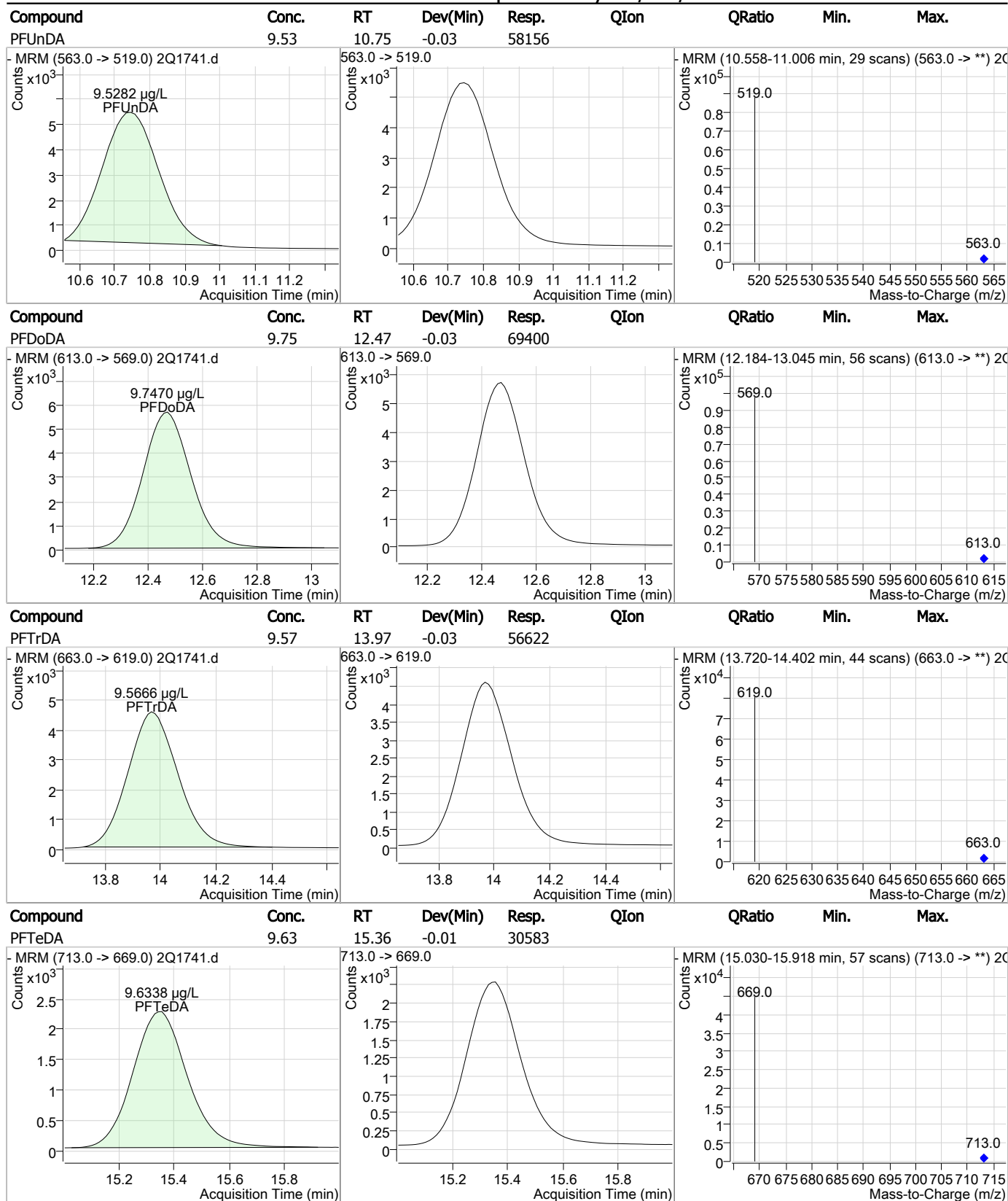
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	9.41	8.72	0.03	78547				
PFDA	9.49	8.71	0.01	49694				
8:2FTS	10.49	9.06	0.00	144697				
PFDS	9.37	10.45	-0.03	12069				

7.5.4  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.4

7



# Manual Integration Approval Summary

Sample Number: S2Q47-IC47                      Method: EPA 537  
Lab FileID: 2Q1741.D                      Analyst approved: 06/01/17 08:32 Mike Eger  
Injection Time: 05/30/17 16:18                      Supervisor approved: 06/01/17 14:43 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.45	Split peak

7.5.4.1

7

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

**Mike Eger**  
 06/01/17 14:43

Perfluorinated Compounds by LC/MS/MS

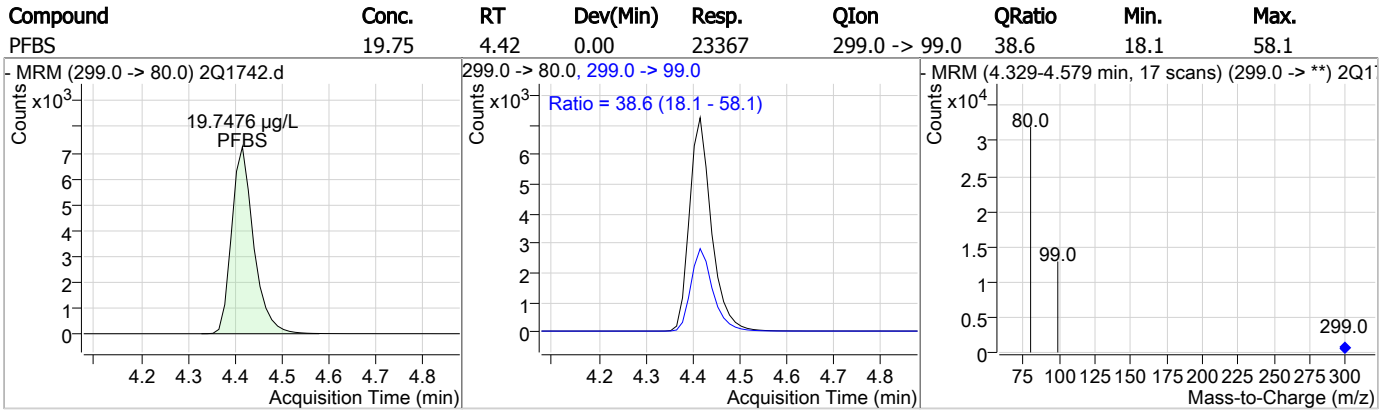
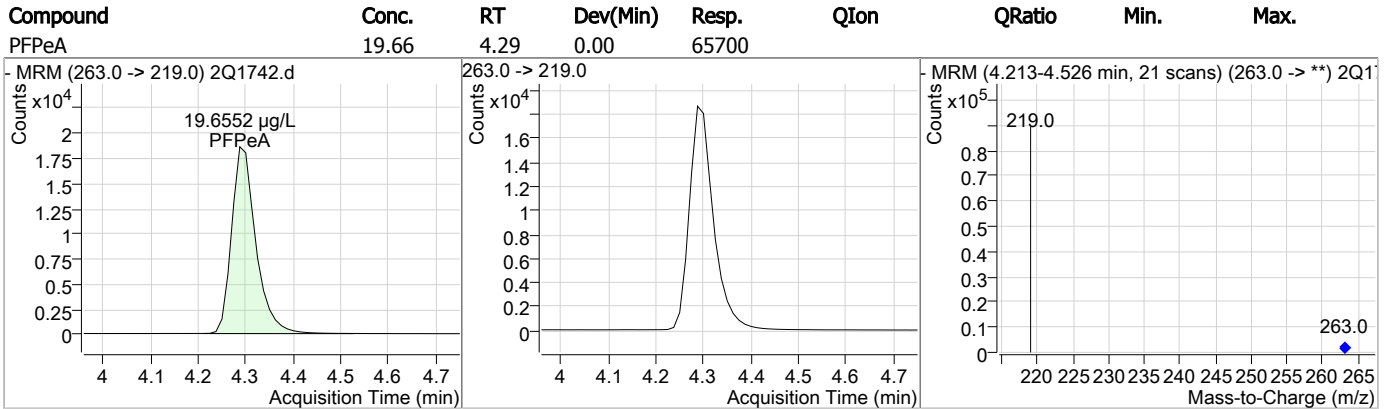
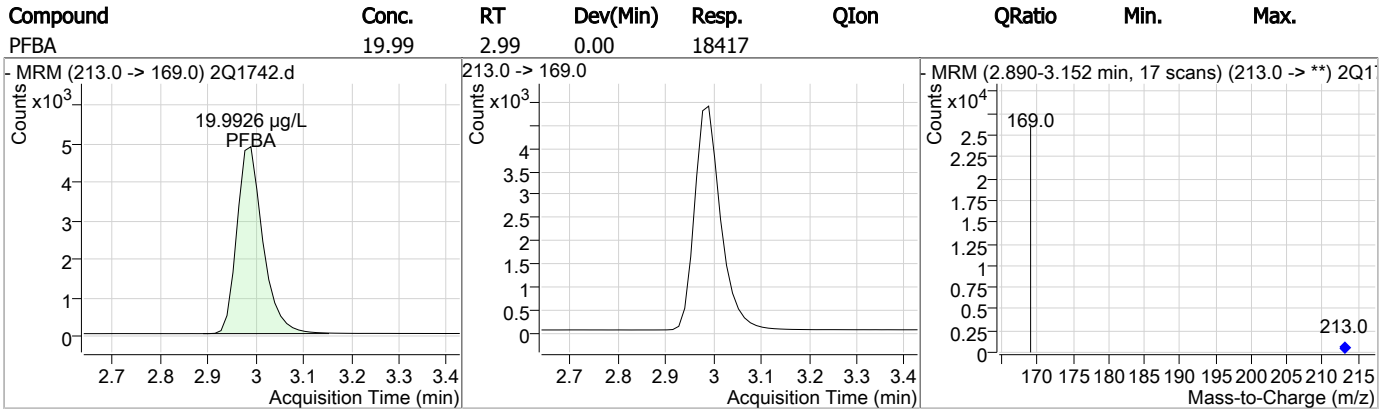
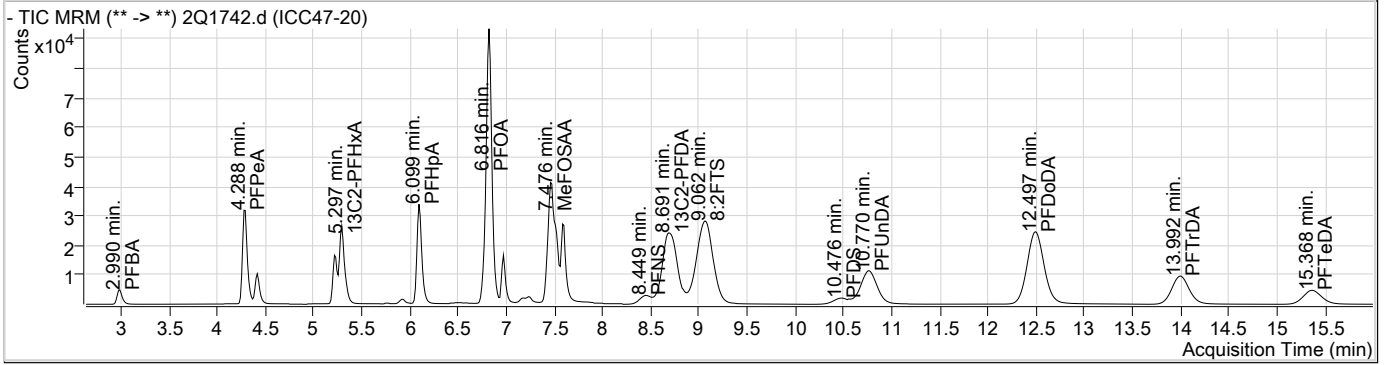
Data File : 2Q1742.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/30/2017 4:40:24 PM  
 Sample Name : ICC47-20  
 Vial : Vial 6  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q47.batch.bin  
 Sample Information : OP65145,S2Q47,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.836	429.0 -> 409.0	114877	20.00 µg/L	0.000
13C2-PFDoDA	12.491	615.0 -> 570.0	159346	20.00 µg/L	0.000
13C2-PFOA	6.814	415.0 -> 370.0	66098	20.00 µg/L	0.000
13C3-PFPeA	4.297	266.0 -> 222.0	47896	20.00 µg/L	0.000
13C4-PFOS	7.453	503.0 -> 80.0	39501	20.00 µg/L	0.000
d3-MeFOSAA	7.475	573.0 -> 419.0	38725	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.691	515.0 -> 470.0	163957	19.79 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 98.9%	
13C2-PFHxA	5.297	315.0 -> 270.0	58306	20.23 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 101.1%	
d5-EtFOSAA	7.585	589.0 -> 419.0	43953	19.49 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 97.5%	
<b>Target Compounds</b>					
4:2FTS	5.220	327.0 -> 307.0	55501	20.10 µg/L	100
6:2FTS	6.825	427.0 -> 407.0	112354	20.11 µg/L	100
8:2FTS	9.062	527.0 -> 507.0	299436	21.41 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	37827	19.65 µg/L	100
FOSA	6.971	498.0 -> 78.0	45851	19.52 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	41058	19.72 µg/L	100
PFBA	2.990	213.0 -> 169.0	18417	19.99 µg/L	100
PFBS	4.416	299.0 -> 80.0	23367	19.75 µg/L	99
PFDA	8.695	513.0 -> 469.0	103455	19.92 µg/L	100
PFDoDA	12.497	613.0 -> 569.0	144271	19.71 µg/L	100
PFDS	10.476	599.0 -> 80.0	25003	19.73 µg/L	100
PFHpA	6.099	363.0 -> 319.0	77485	19.82 µg/L	93
PFHpS	6.772	449.0 -> 80.0	32312	19.80 µg/L	100
PFHxA	5.300	313.0 -> 269.0	26847	20.53 µg/L	86
PFHxS	6.081	399.0 -> 80.0	29171	19.55 µg/L	m 94
PFNA	7.532	463.0 -> 419.0	66371	19.90 µg/L	98
PFNS	8.449	549.0 -> 99.0	25168	20.11 µg/L	100
PFOA	6.816	413.0 -> 369.0	51362	19.55 µg/L	98
PFOS	7.442	499.0 -> 80.0	42823	19.97 µg/L	m 86
PFPeA	4.288	263.0 -> 219.0	65700	19.66 µg/L	100
PFPeS	5.330	349.0 -> 99.0	8292	19.58 µg/L	100
PFTeDA	15.368	713.0 -> 669.0	63756	19.53 µg/L	100
PFTrDA	13.992	663.0 -> 619.0	118502	19.47 µg/L	100
PFUnDA	10.770	563.0 -> 519.0	121723	19.40 µg/L	100

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

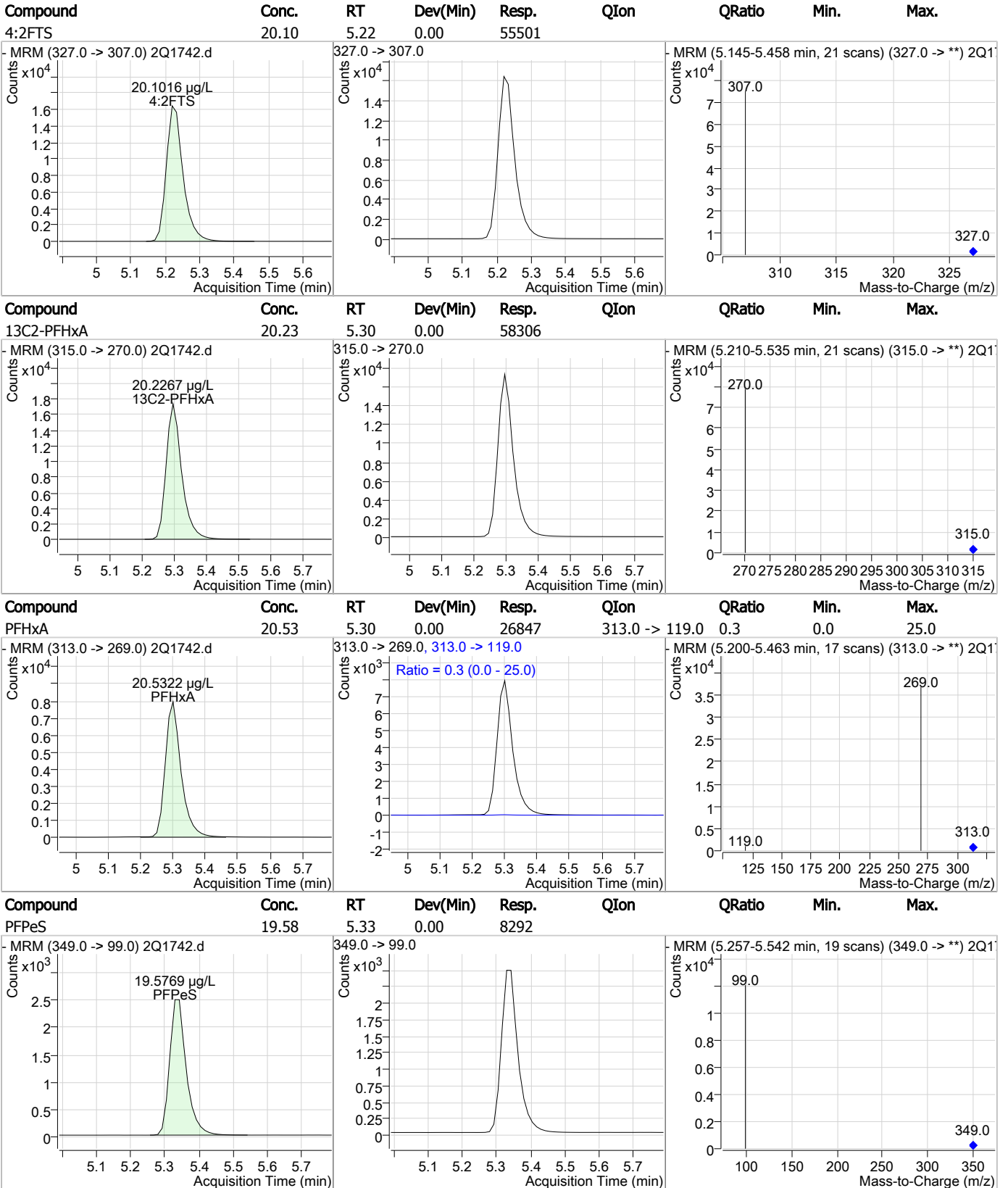
7.55  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.5  
7

### Perfluorinated Compounds by LC/MS/MS

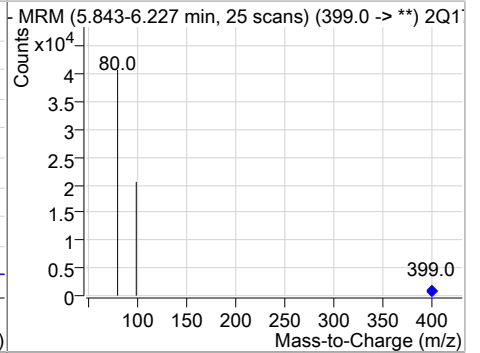
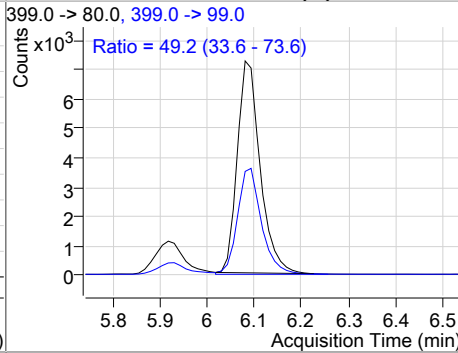
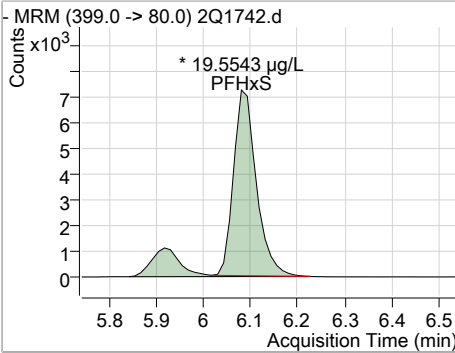


7.5.5

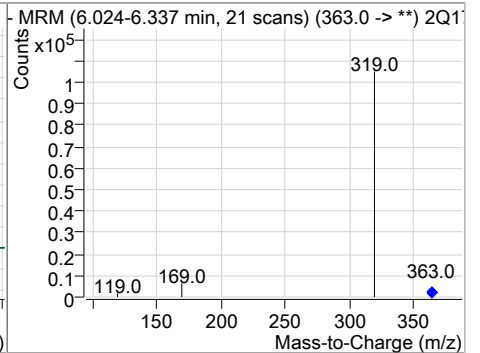
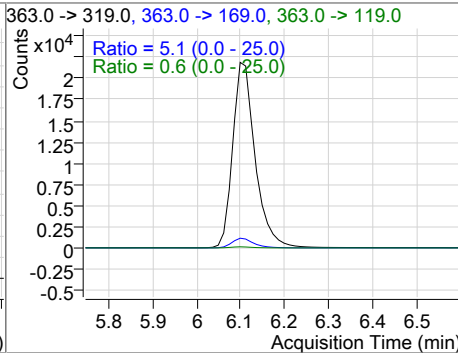
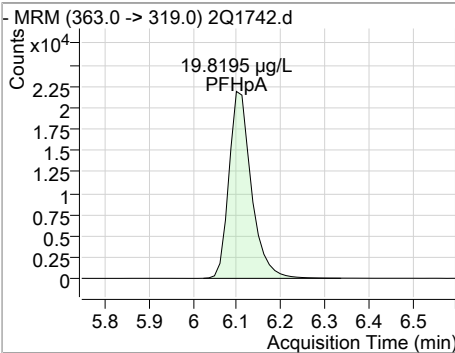
7

### Perfluorinated Compounds by LC/MS/MS

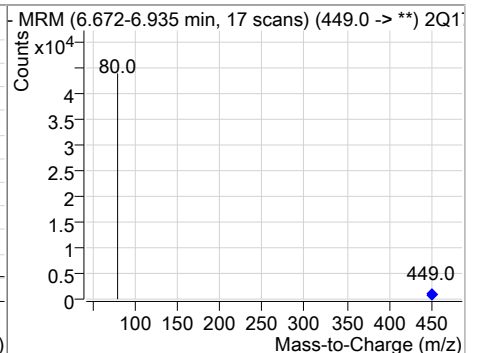
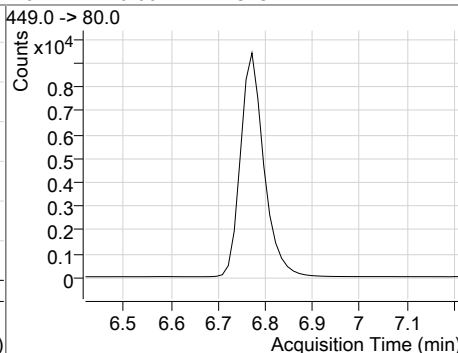
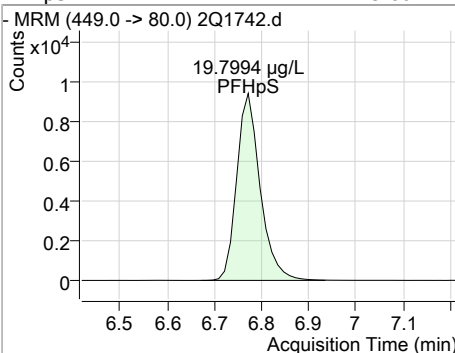
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.55	6.08	0.00	29171 (m)	399.0 -> 99.0	49.2	33.6	73.6



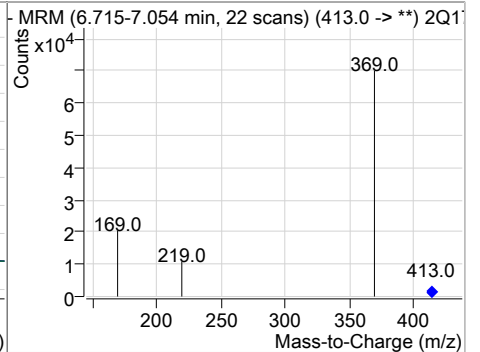
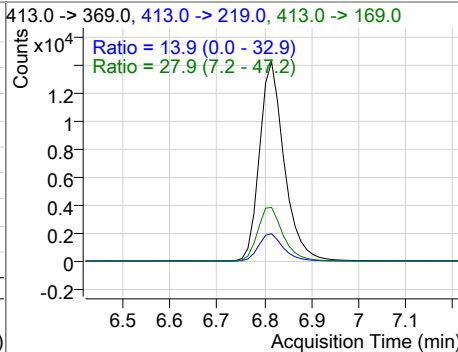
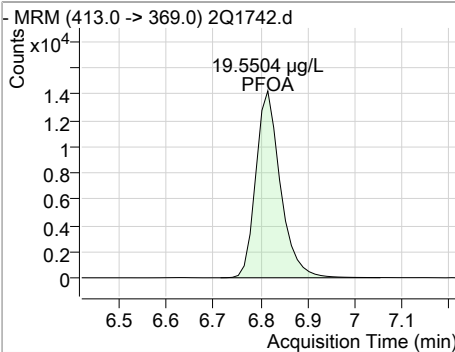
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	19.82	6.10	0.00	77485	363.0 -> 119.0 363.0 -> 169.0	5.1	0.0	25.0



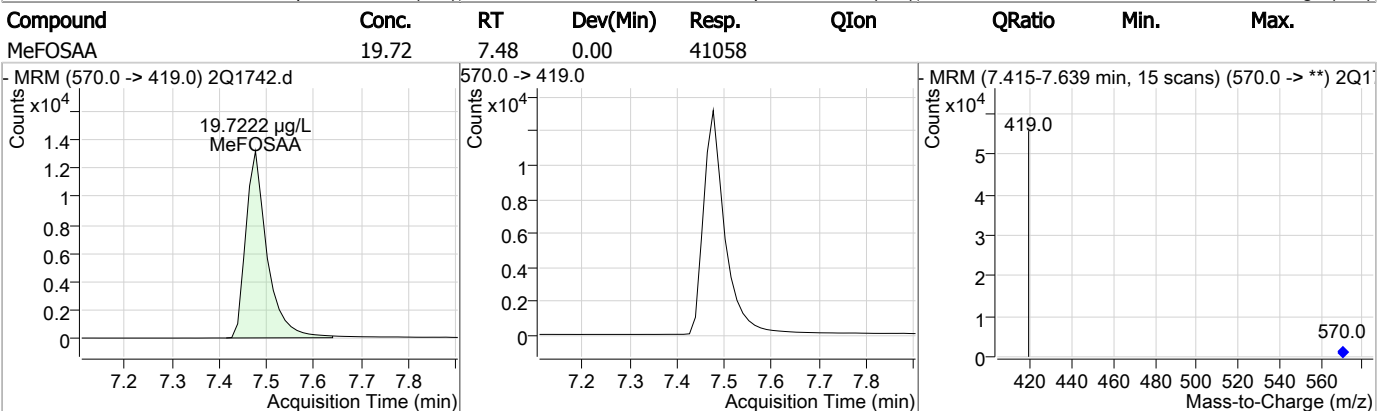
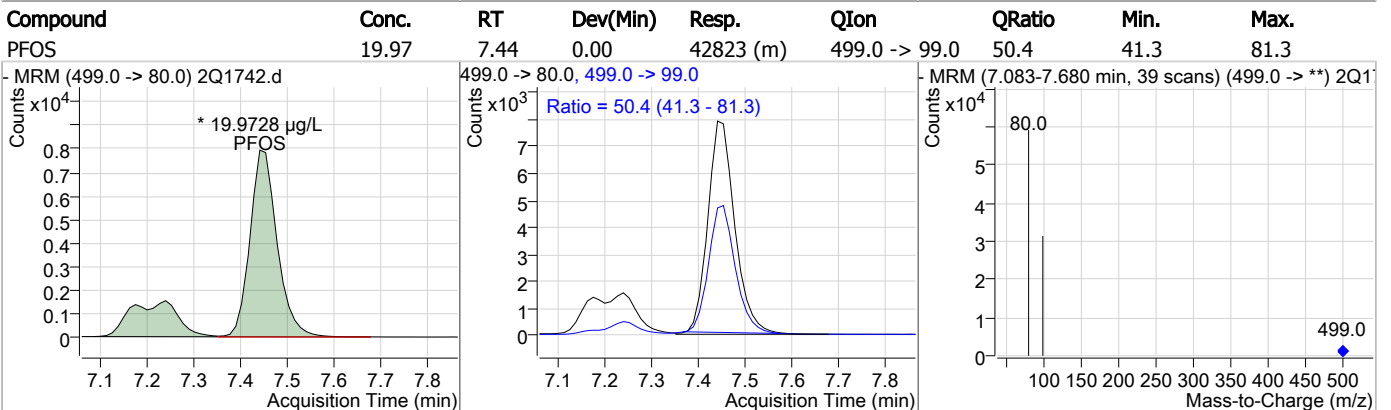
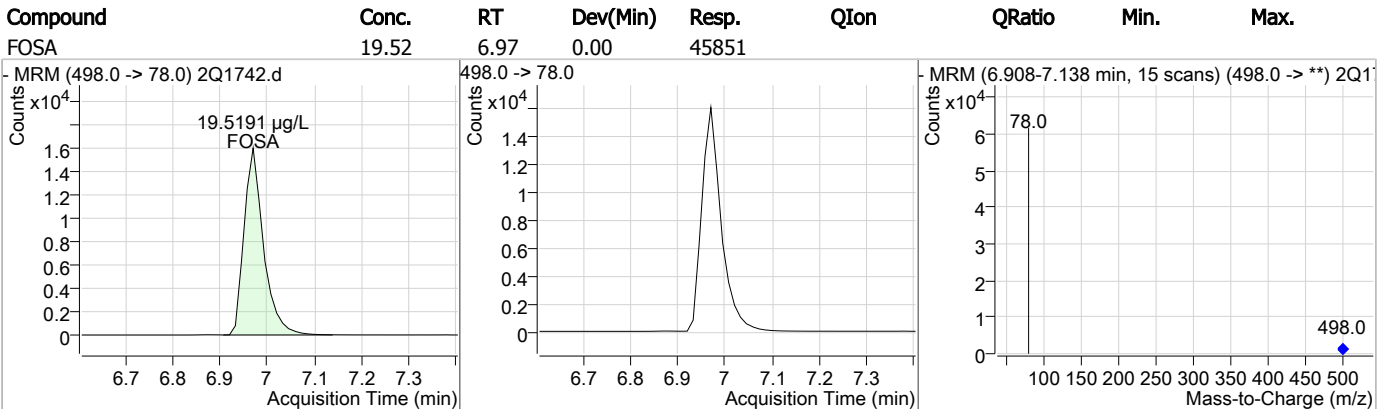
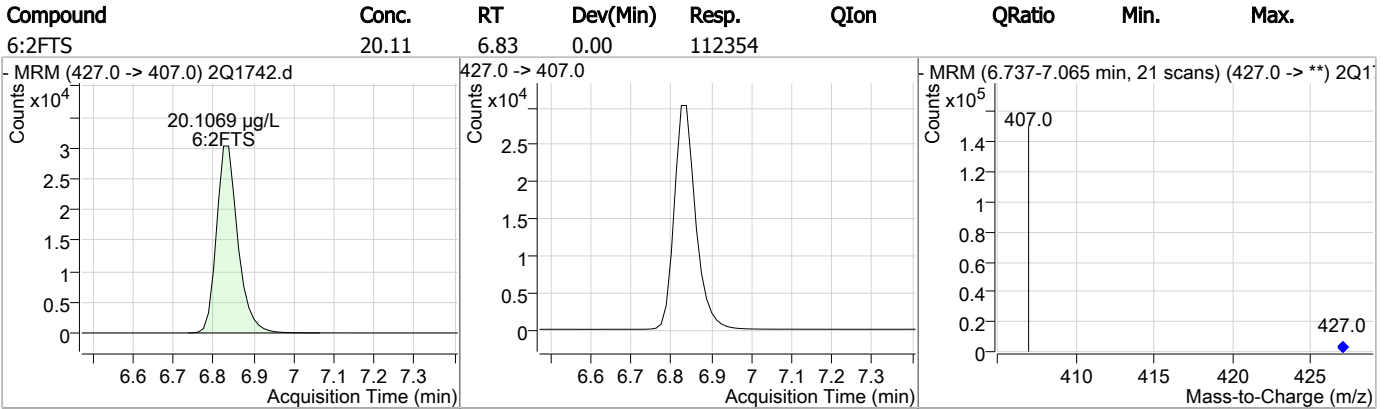
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.80	6.77	0.00	32312	449.0 -> 80.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.55	6.82	0.00	51362	413.0 -> 169.0 413.0 -> 219.0	27.9	7.2	47.2



### Perfluorinated Compounds by LC/MS/MS

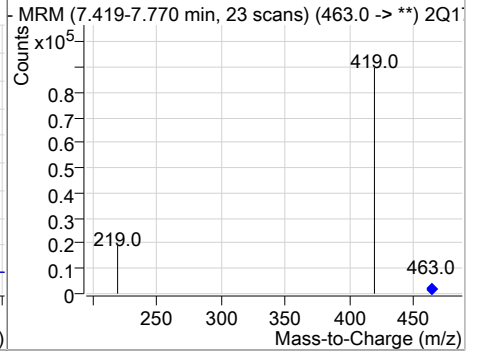
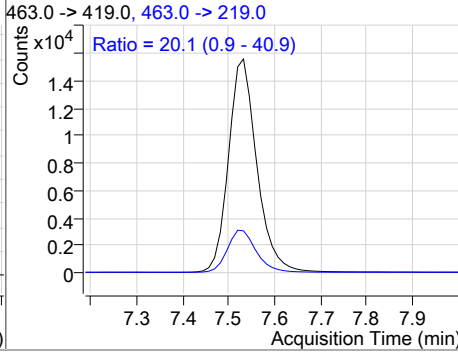
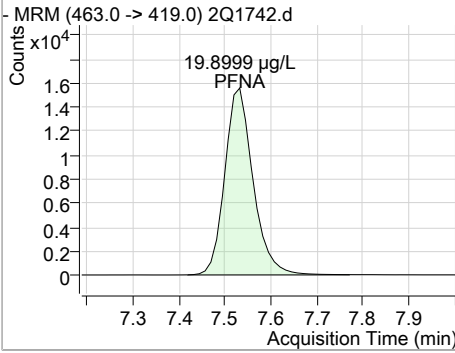


7.55

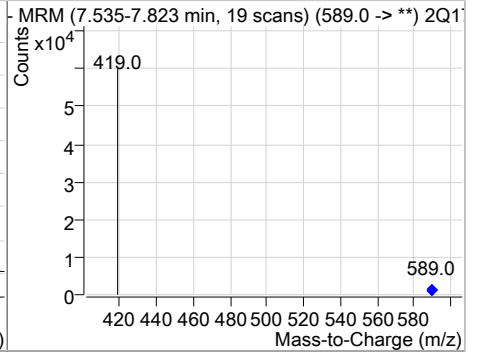
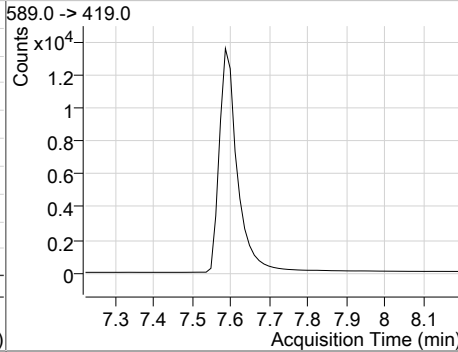
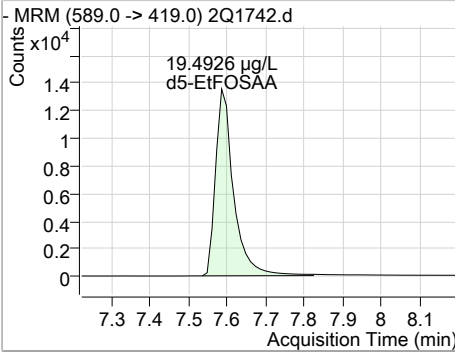
7

### Perfluorinated Compounds by LC/MS/MS

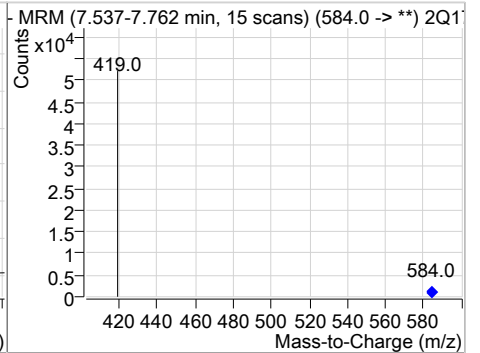
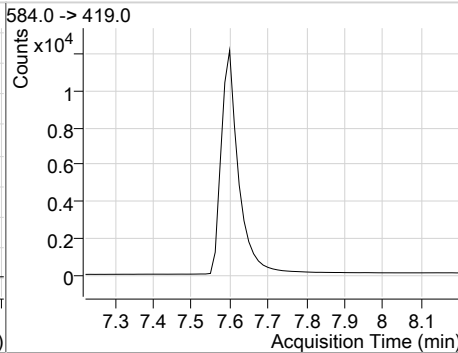
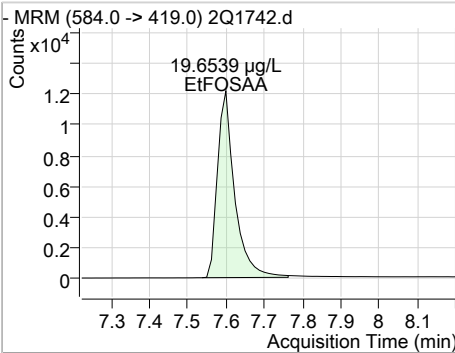
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	19.90	7.53	0.00	66371	463.0 -> 219.0	20.1	0.9	40.9



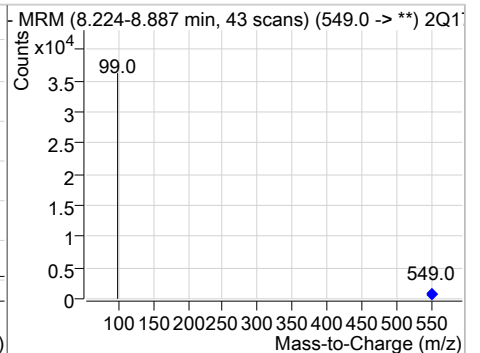
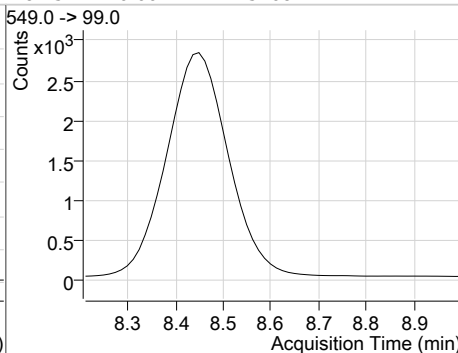
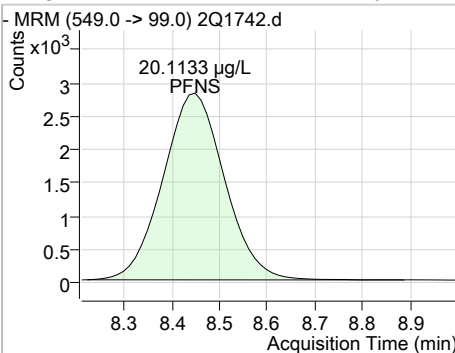
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	19.49	7.59	0.00	43953	589.0 -> 419.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	19.65	7.60	0.00	37827	584.0 -> 419.0			



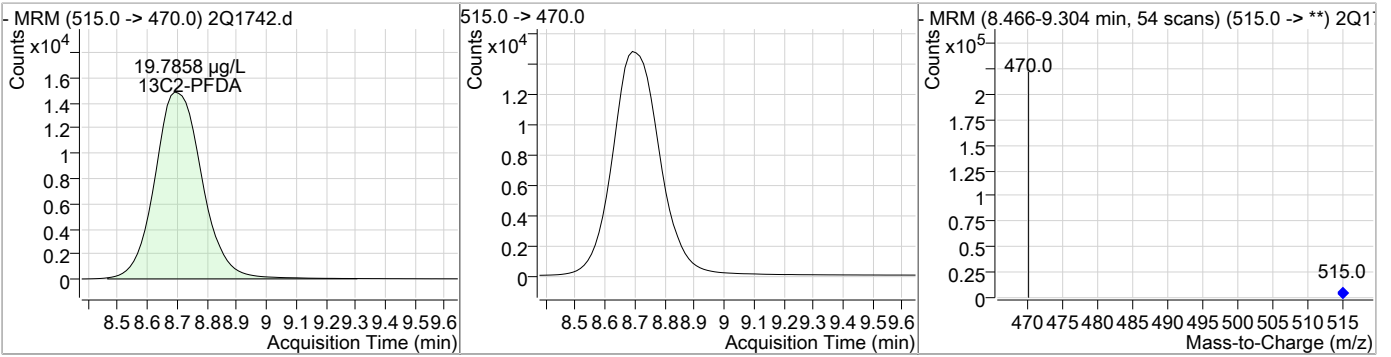
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	20.11	8.45	0.00	25168	549.0 -> 99.0			



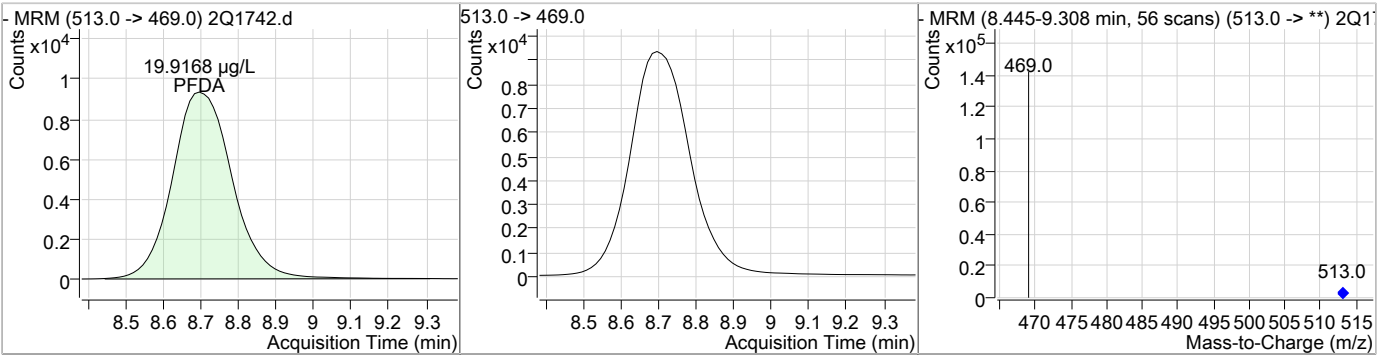
7.55  
 7

### Perfluorinated Compounds by LC/MS/MS

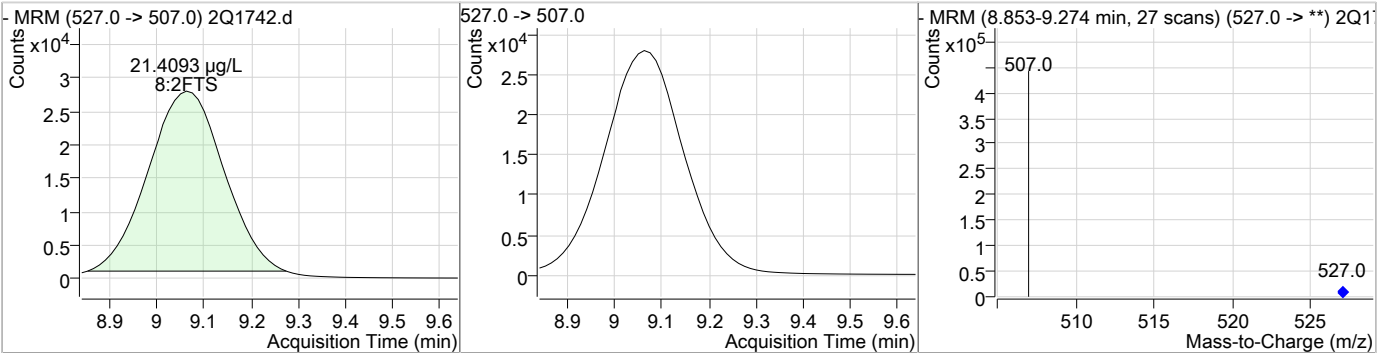
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



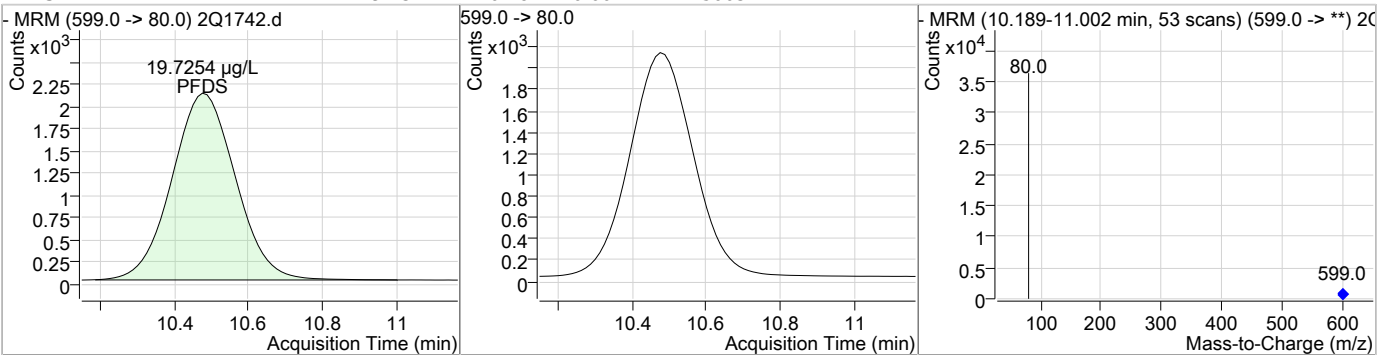
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



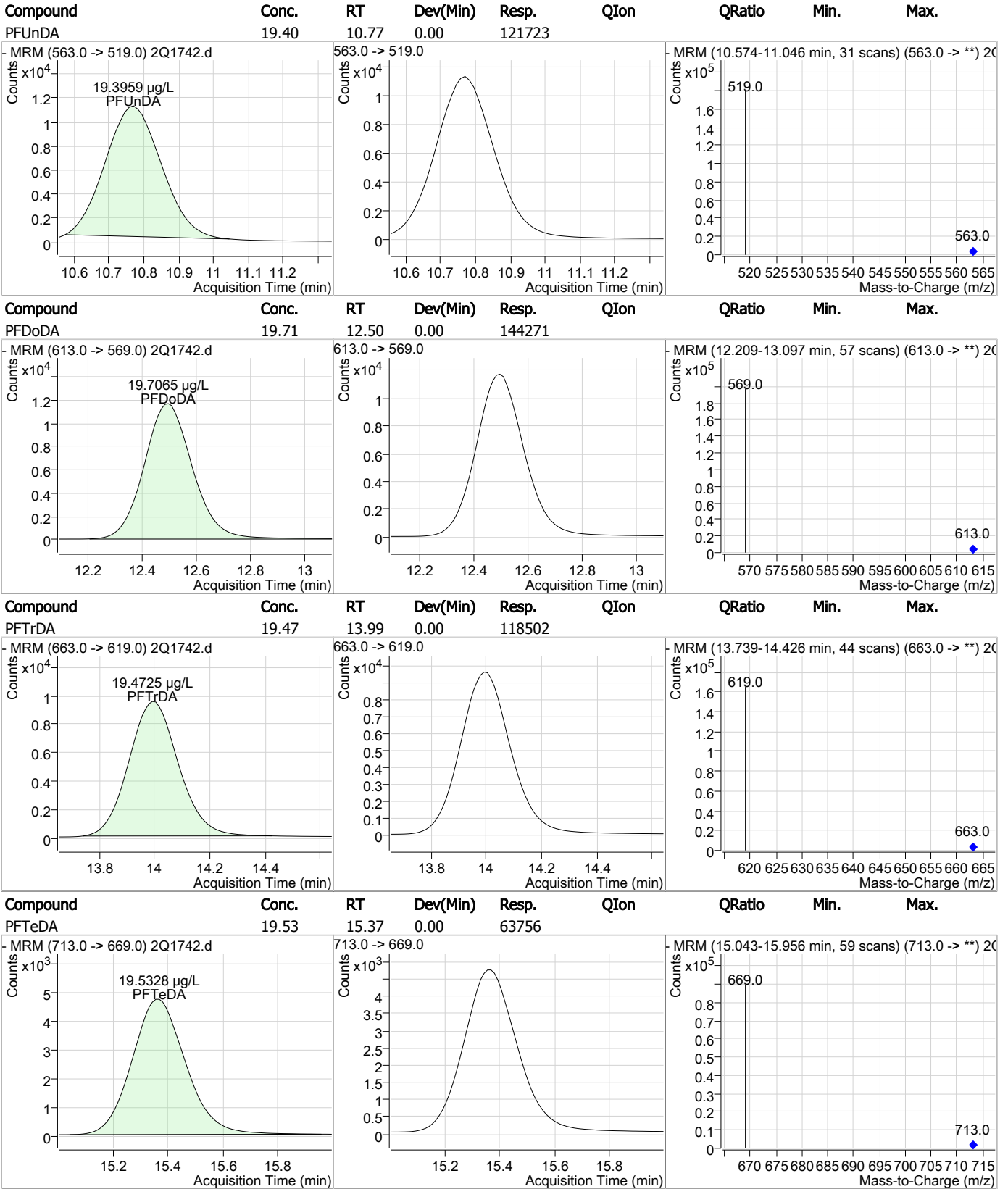
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



7.55  
7



### Perfluorinated Compounds by LC/MS/MS



7.55  
7

# Manual Integration Approval Summary

Sample Number: S2Q47-ICC47                      Method: EPA 537  
Lab FileID: 2Q1742.D                              Analyst approved: 06/01/17 08:32 Mike Eger  
Injection Time: 05/30/17 16:40                      Supervisor approved: 06/01/17 14:43 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.08	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.44	Split peak

7.5.5.1

7

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

**Mike Eger**  
 06/01/17 14:43

## Perfluorinated Compounds by LC/MS/MS

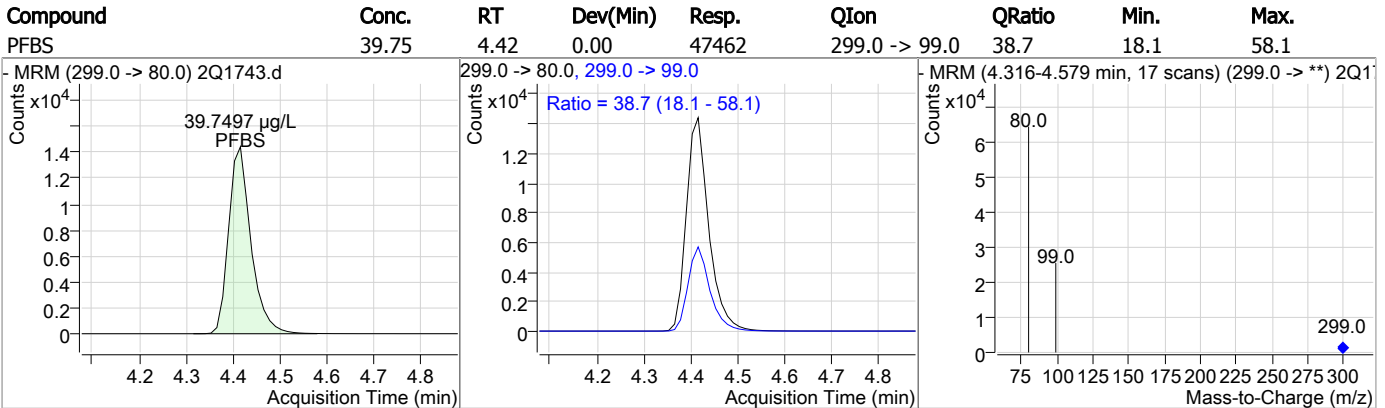
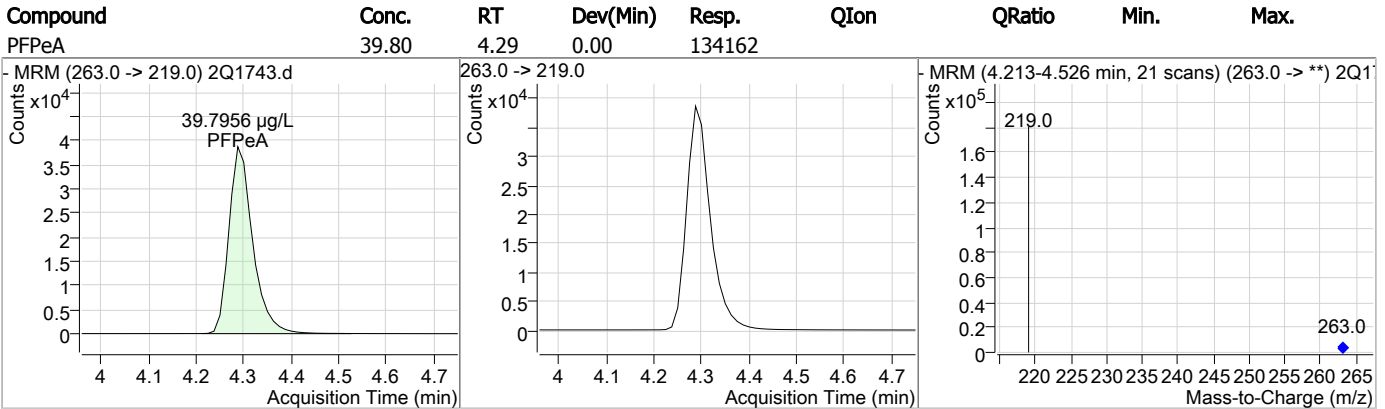
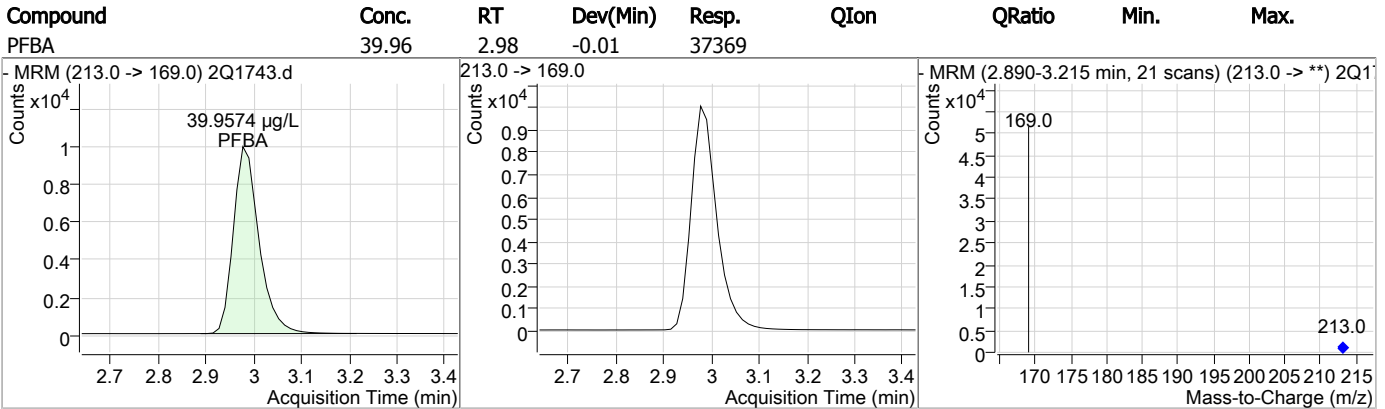
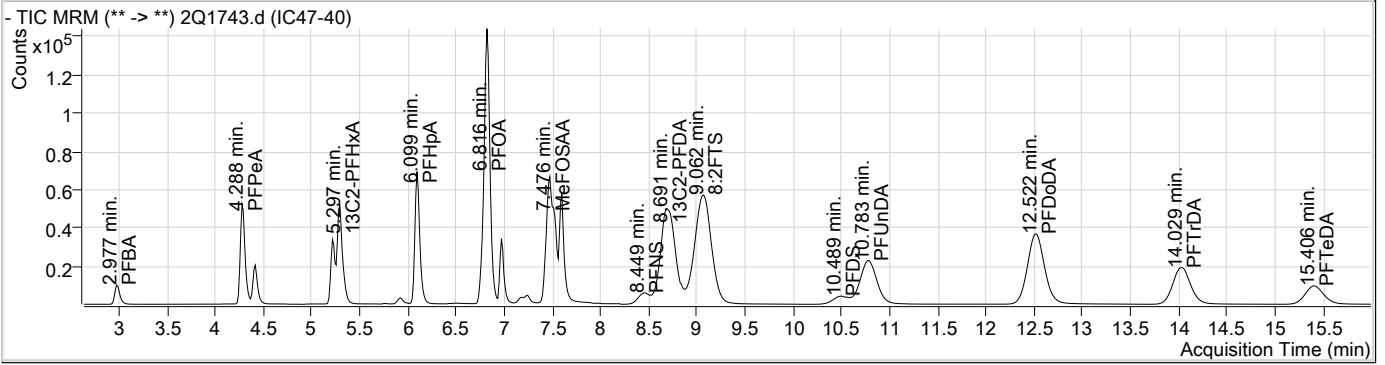
Data File : 2Q1743.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/30/2017 5:02:13 PM  
 Sample Name : IC47-40  
 Vial : Vial 7  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q47.batch.bin  
 Sample Information : OP65145,S2Q47,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.836	429.0 -> 409.0	121660	20.00 µg/L	0.000
13C2-PFDoDA	12.516	615.0 -> 570.0	160327	20.00 µg/L	0.025
13C2-PFOA	6.814	415.0 -> 370.0	67103	20.00 µg/L	0.000
13C3-PFPeA	4.285	266.0 -> 222.0	48306	20.00 µg/L	-0.013
13C4-PFOS	7.453	503.0 -> 80.0	39861	20.00 µg/L	0.000
d3-MeFOSAA	7.475	573.0 -> 419.0	39897	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.691	515.0 -> 470.0	336464	39.99 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 200.0%	
13C2-PFHxA	5.297	315.0 -> 270.0	116946	39.96 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 199.8%	
d5-EtFOSAA	7.598	589.0 -> 419.0	92259	39.71 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 198.6%	
<b>Target Compounds</b>					
4:2FTS	5.220	327.0 -> 307.0	112467	39.94 µg/L	100
6:2FTS	6.838	427.0 -> 407.0	227049	39.98 µg/L	100
8:2FTS	9.062	527.0 -> 507.0	614680	41.50 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	79171	39.93 µg/L	100
FOSA	6.971	498.0 -> 78.0	98038	40.51 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	85978	40.09 µg/L	100
PFBA	2.977	213.0 -> 169.0	37369	39.96 µg/L	100
PFBS	4.416	299.0 -> 80.0	47462	39.75 µg/L	99
PFDA	8.695	513.0 -> 469.0	213194	40.43 µg/L	100
PFDoDA	12.522	613.0 -> 569.0	296313	40.23 µg/L	100
PFDS	10.489	599.0 -> 80.0	51096	39.95 µg/L	100
PFHpA	6.099	363.0 -> 319.0	159901	40.29 µg/L	93
PFHpS	6.772	449.0 -> 80.0	65707	39.90 µg/L	100
PFHxA	5.300	313.0 -> 269.0	52955	39.89 µg/L	86
PFHxS	6.081	399.0 -> 80.0	59966	39.83 µg/L	m 93
PFNA	7.532	463.0 -> 419.0	135351	39.97 µg/L	98
PFNS	8.449	549.0 -> 99.0	50383	39.90 µg/L	100
PFOA	6.816	413.0 -> 369.0	107241	40.21 µg/L	99
PFOS	7.454	499.0 -> 80.0	85993	39.75 µg/L	m 88
PFPeA	4.288	263.0 -> 219.0	134162	39.80 µg/L	100
PFPeS	5.330	349.0 -> 99.0	16728	39.16 µg/L	100
PFTeDA	15.406	713.0 -> 669.0	130943	39.87 µg/L	100
PFTTrDA	14.029	663.0 -> 619.0	243045	39.69 µg/L	100
PFUnDA	10.783	563.0 -> 519.0	253805	40.20 µg/L	100

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

7.5.6  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.6

7

### Perfluorinated Compounds by LC/MS/MS

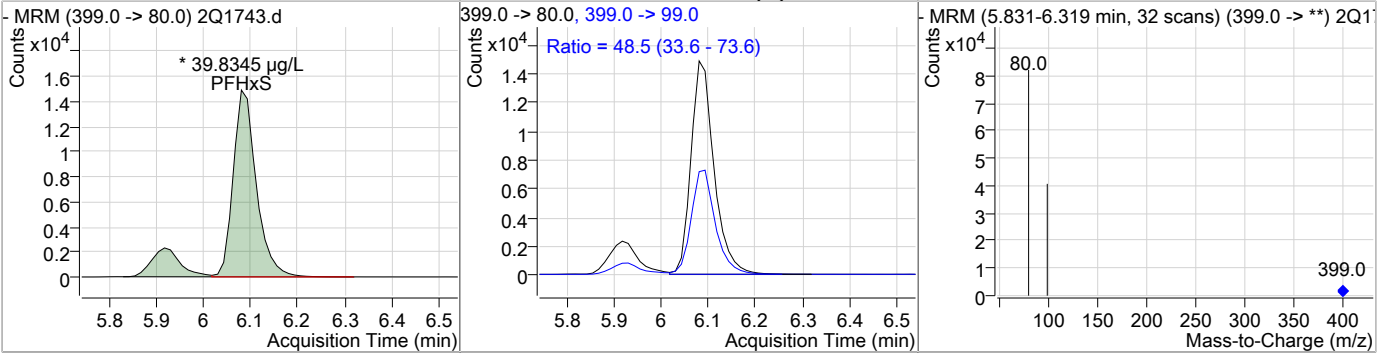
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	39.94	5.22	0.00	112467				
13C2-PFHxA	39.96	5.30	0.00	116946				
PFHxA	39.89	5.30	0.00	52955	313.0 -> 119.0	0.3	0.0	25.0
PFPeS	39.16	5.33	0.00	16728				

7.5.6

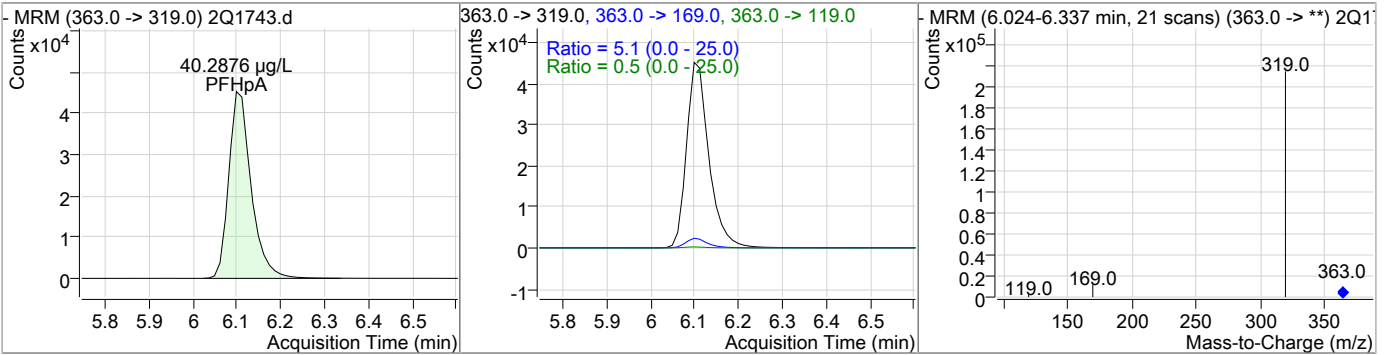
7

### Perfluorinated Compounds by LC/MS/MS

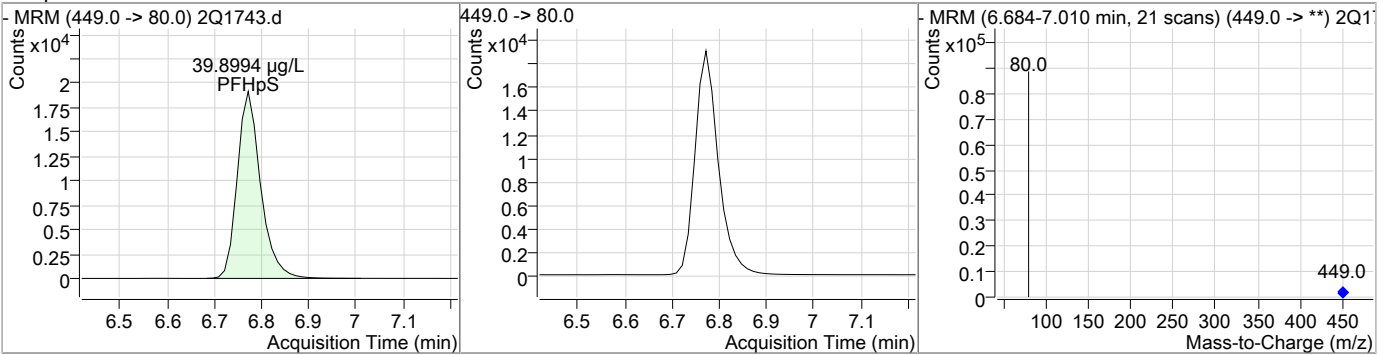
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	39.83	6.08	0.00	59966 (m)	399.0 -> 99.0	48.5	33.6	73.6



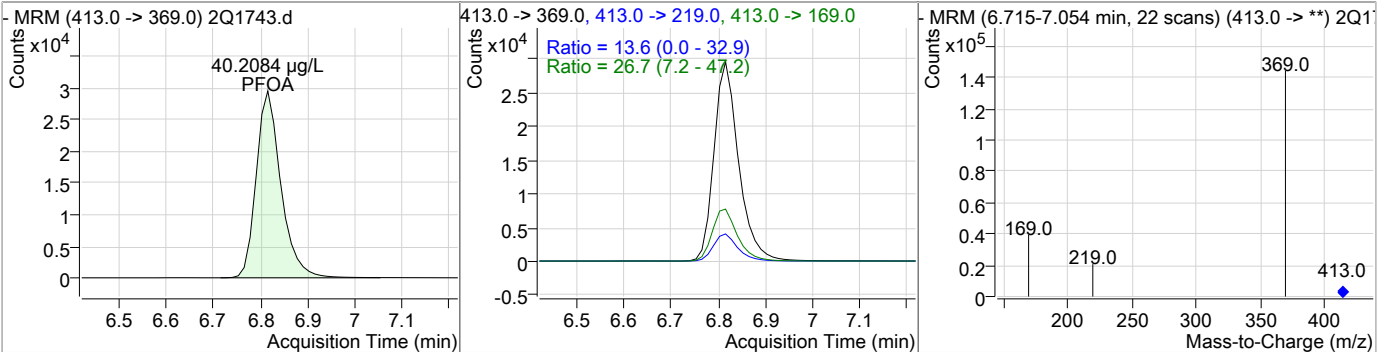
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	40.29	6.10	0.00	159901	363.0 -> 119.0 363.0 -> 169.0	5.1	0.0	25.0



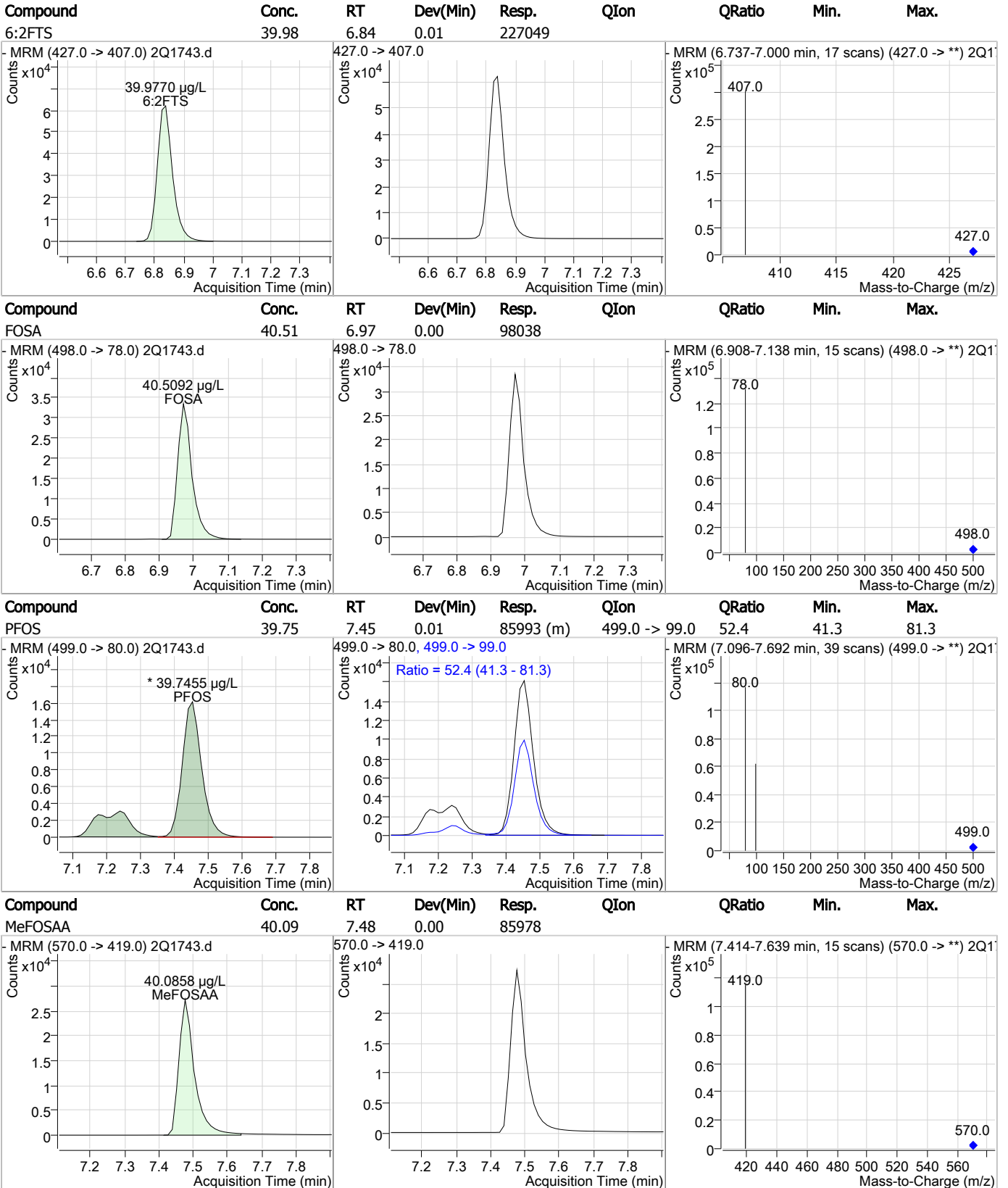
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	39.90	6.77	0.00	65707	449.0 -> 80.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	40.21	6.82	0.00	107241	413.0 -> 169.0 413.0 -> 219.0	26.7 13.6	7.2 0.0	47.2 32.9



### Perfluorinated Compounds by LC/MS/MS

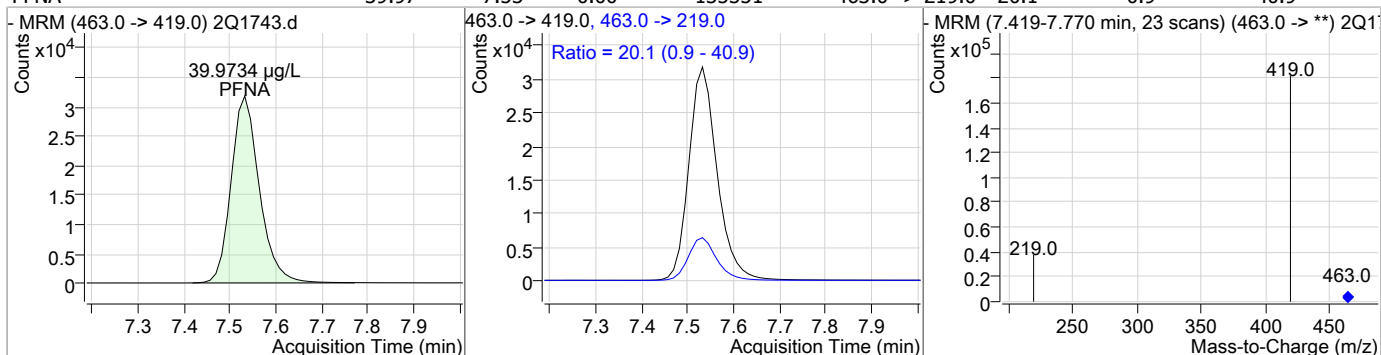


7.5.6

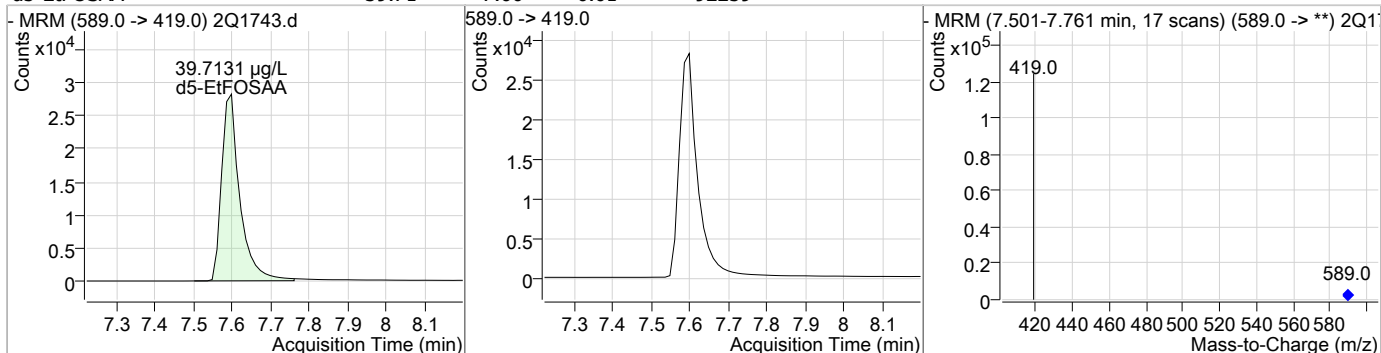
7

### Perfluorinated Compounds by LC/MS/MS

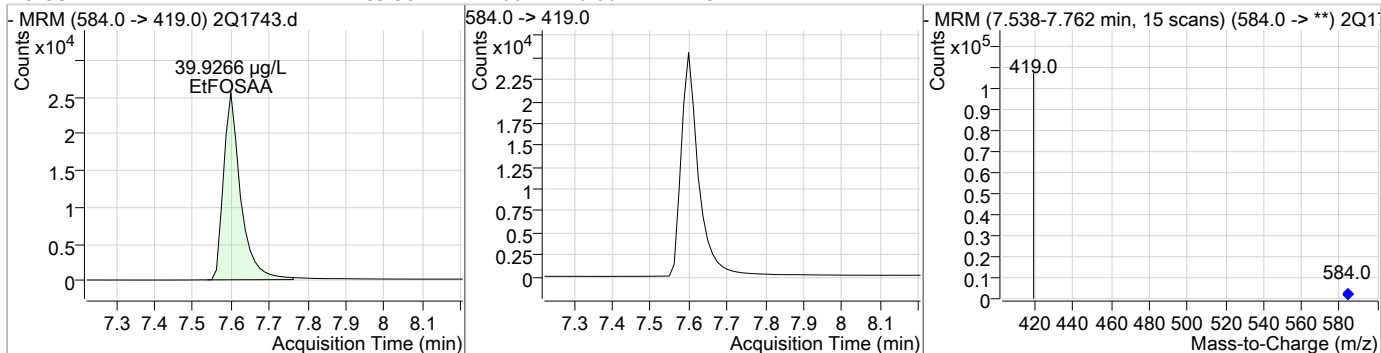
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	39.97	7.53	0.00	135351	463.0 -> 219.0	20.1	0.9	40.9



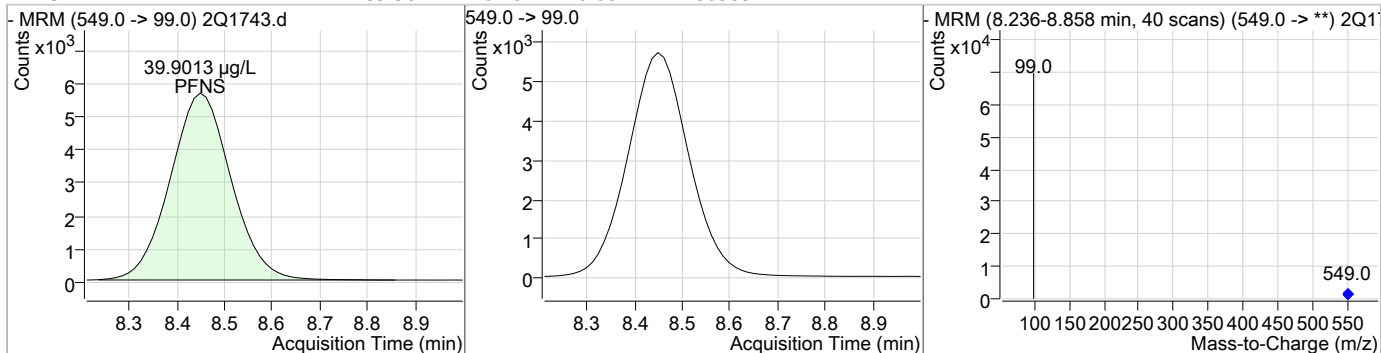
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	39.71	7.60	0.01	92259				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	39.93	7.60	0.00	79171				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	39.90	8.45	0.00	50383				



7.5.6  
 7



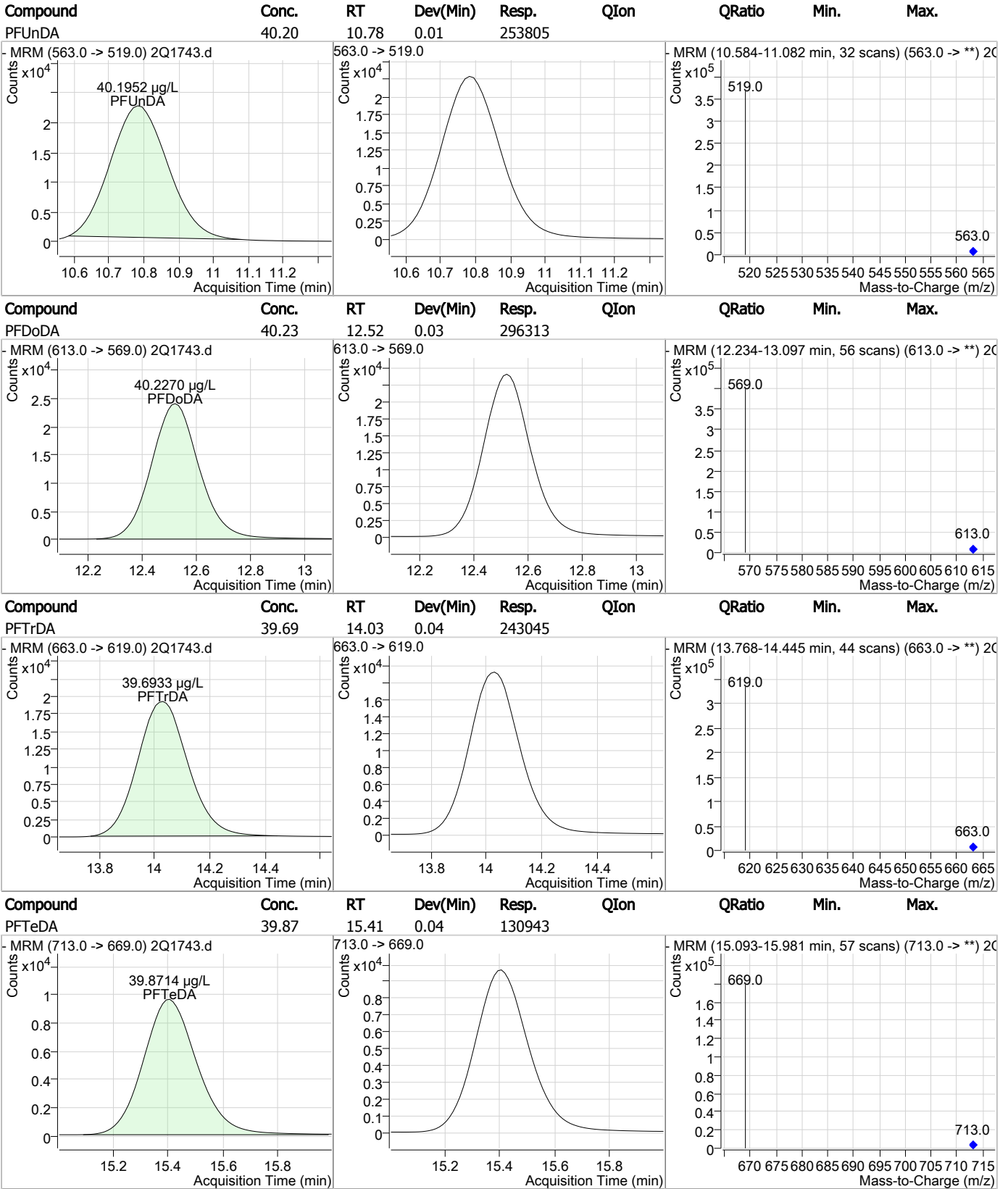
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	39.99	8.69	0.00	336464				
PFDA	40.43	8.70	0.00	213194				
8:2FTS	41.50	9.06	0.00	614680				
PFDS	39.95	10.49	0.01	51096				

7.5.6

7

### Perfluorinated Compounds by LC/MS/MS



7.5.6

7

# Manual Integration Approval Summary

Sample Number: S2Q47-IC47                      Method: EPA 537  
Lab FileID: 2Q1743.D                      Analyst approved: 06/01/17 08:32 Mike Eger  
Injection Time: 05/30/17 17:02                      Supervisor approved: 06/01/17 14:43 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.08	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.45	Split peak

7.5.6.1

7

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

Mike Eger  
 06/01/17 14:43

### Perfluorinated Compounds by LC/MS/MS

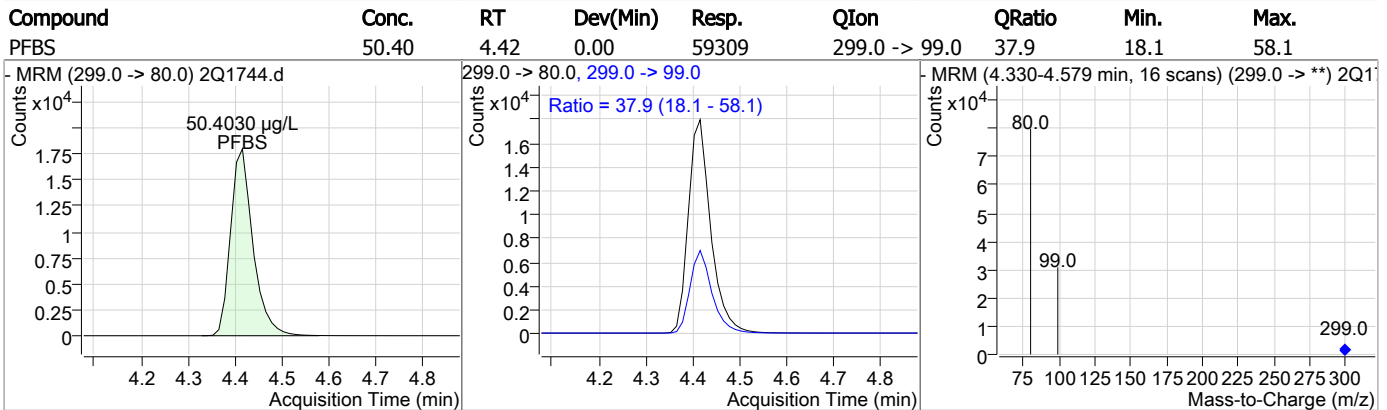
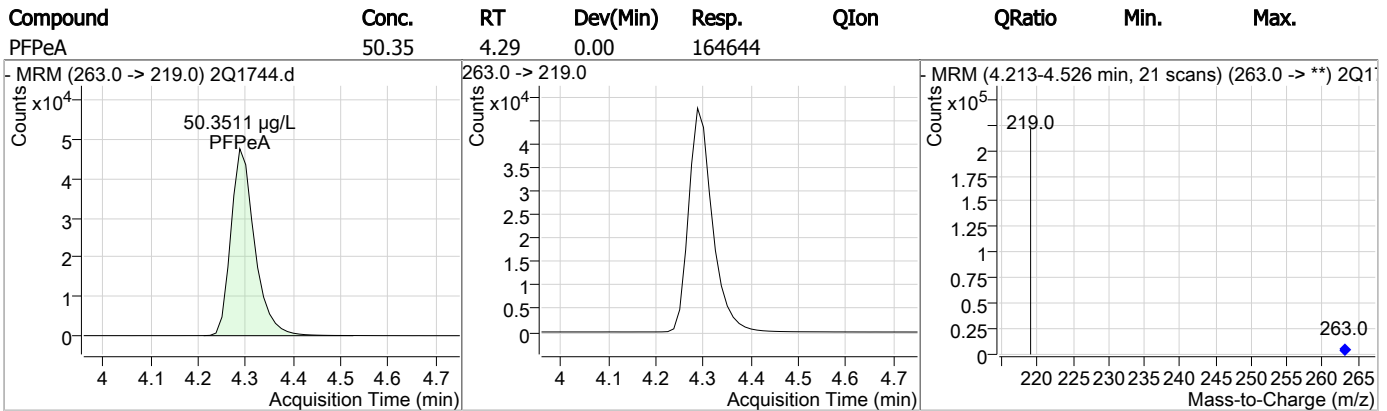
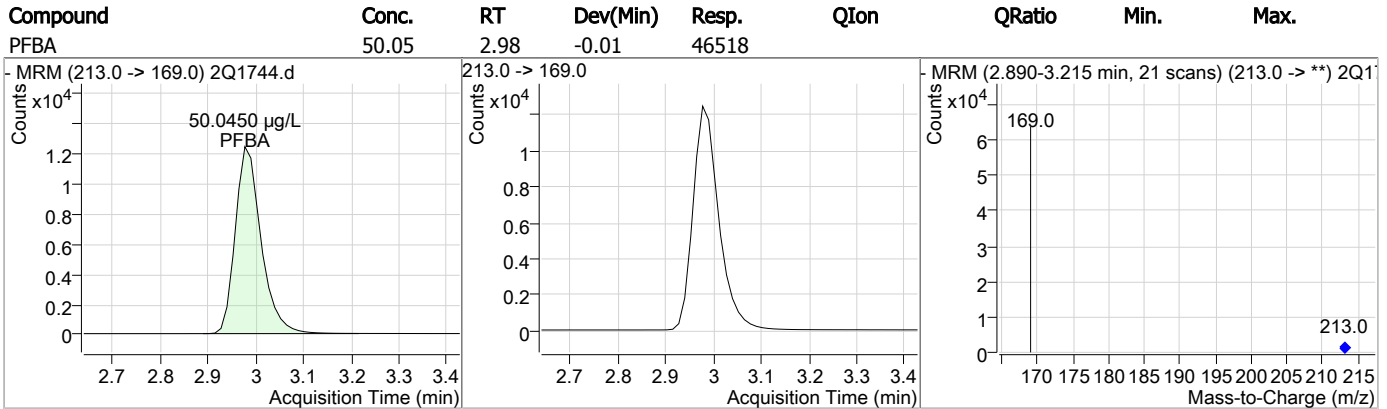
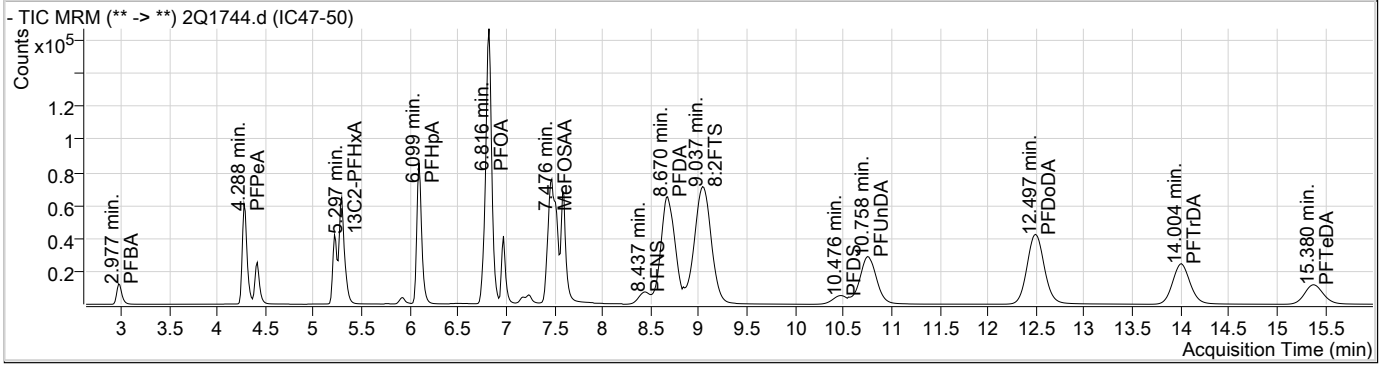
Data File : 2Q1744.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/30/2017 5:24:02 PM  
 Sample Name : IC47-50  
 Vial : Vial 8  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q47.batch.bin  
 Sample Information : OP65145,S2Q47,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.823	429.0 -> 409.0	123287	20.00 µg/L	-0.013
13C2-PFDoDA	12.491	615.0 -> 570.0	157209	20.00 µg/L	0.000
13C2-PFOA	6.814	415.0 -> 370.0	66695	20.00 µg/L	0.000
13C3-PFPeA	4.285	266.0 -> 222.0	46854	20.00 µg/L	-0.013
13C4-PFOS	7.453	503.0 -> 80.0	39282	20.00 µg/L	0.000
d3-MeFOSAA	7.475	573.0 -> 419.0	38768	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	8.678	515.0 -> 470.0	419858	50.21 µg/L	-0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 251.1%		
13C2-PFHxA	5.297	315.0 -> 270.0	145339	49.97 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 249.8%		
d5-EtFOSAA	7.585	589.0 -> 419.0	114136	50.56 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = 252.8%		
<b>Target Compounds</b>					
4:2FTS	5.220	327.0 -> 307.0	139987	50.03 µg/L	100
6:2FTS	6.825	427.0 -> 407.0	281703	50.00 µg/L	100
8:2FTS	9.037	527.0 -> 507.0	721804	48.09 µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	96979	50.33 µg/L	100
FOSA	6.971	498.0 -> 78.0	117191	49.83 µg/L	100
MeFOSAA	7.476	570.0 -> 419.0	104562	50.17 µg/L	100
PFBA	2.977	213.0 -> 169.0	46518	50.05 µg/L	100
PFBS	4.416	299.0 -> 80.0	59309	50.40 µg/L	100
PFDA	8.670	513.0 -> 469.0	260959	49.79 µg/L	100
PFDoDA	12.497	613.0 -> 569.0	361071	49.99 µg/L	100
PFDS	10.476	599.0 -> 80.0	63409	50.31 µg/L	100
PFHpA	6.099	363.0 -> 319.0	196687	49.86 µg/L	93
PFHpS	6.772	449.0 -> 80.0	81565	50.26 µg/L	100
PFHxA	5.300	313.0 -> 269.0	65807	49.88 µg/L	86
PFHxS	6.081	399.0 -> 80.0	74818	50.43 µg/L	m 93
PFNA	7.520	463.0 -> 419.0	168447	50.05 µg/L	98
PFNS	8.437	549.0 -> 99.0	62352	50.11 µg/L	100
PFOA	6.816	413.0 -> 369.0	132505	49.98 µg/L	99
PFOS	7.442	499.0 -> 80.0	107173	50.26 µg/L	m 88
PFPeA	4.288	263.0 -> 219.0	164644	50.35 µg/L	100
PFPeS	5.330	349.0 -> 99.0	21117	50.96 µg/L	100
PFTeDA	15.380	713.0 -> 669.0	162252	50.38 µg/L	100
PFTTrDA	14.004	663.0 -> 619.0	303575	50.56 µg/L	100
PFUnDA	10.758	563.0 -> 519.0	310657	50.17 µg/L	100

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

7.57  
7

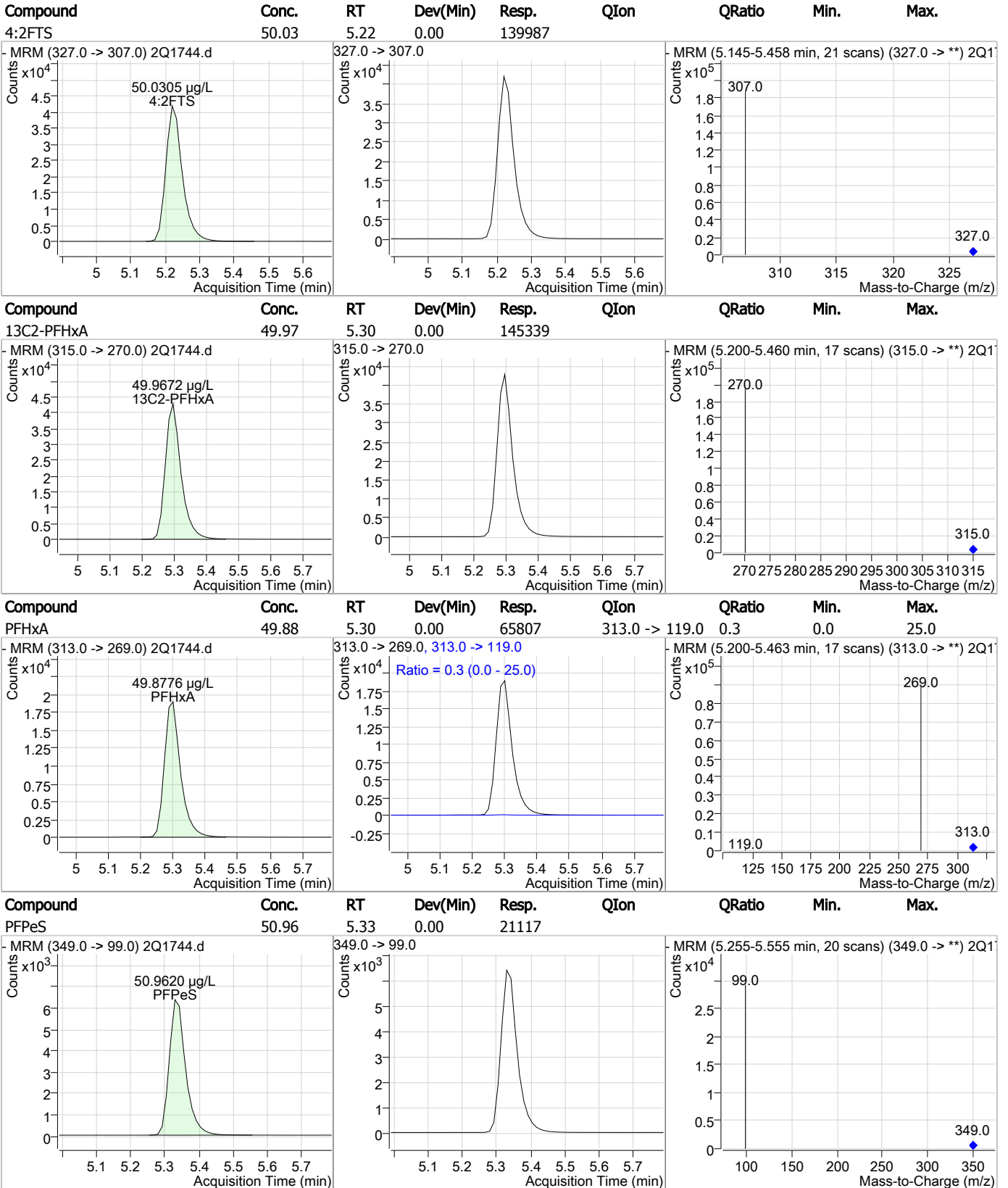
### Perfluorinated Compounds by LC/MS/MS



7.57

7

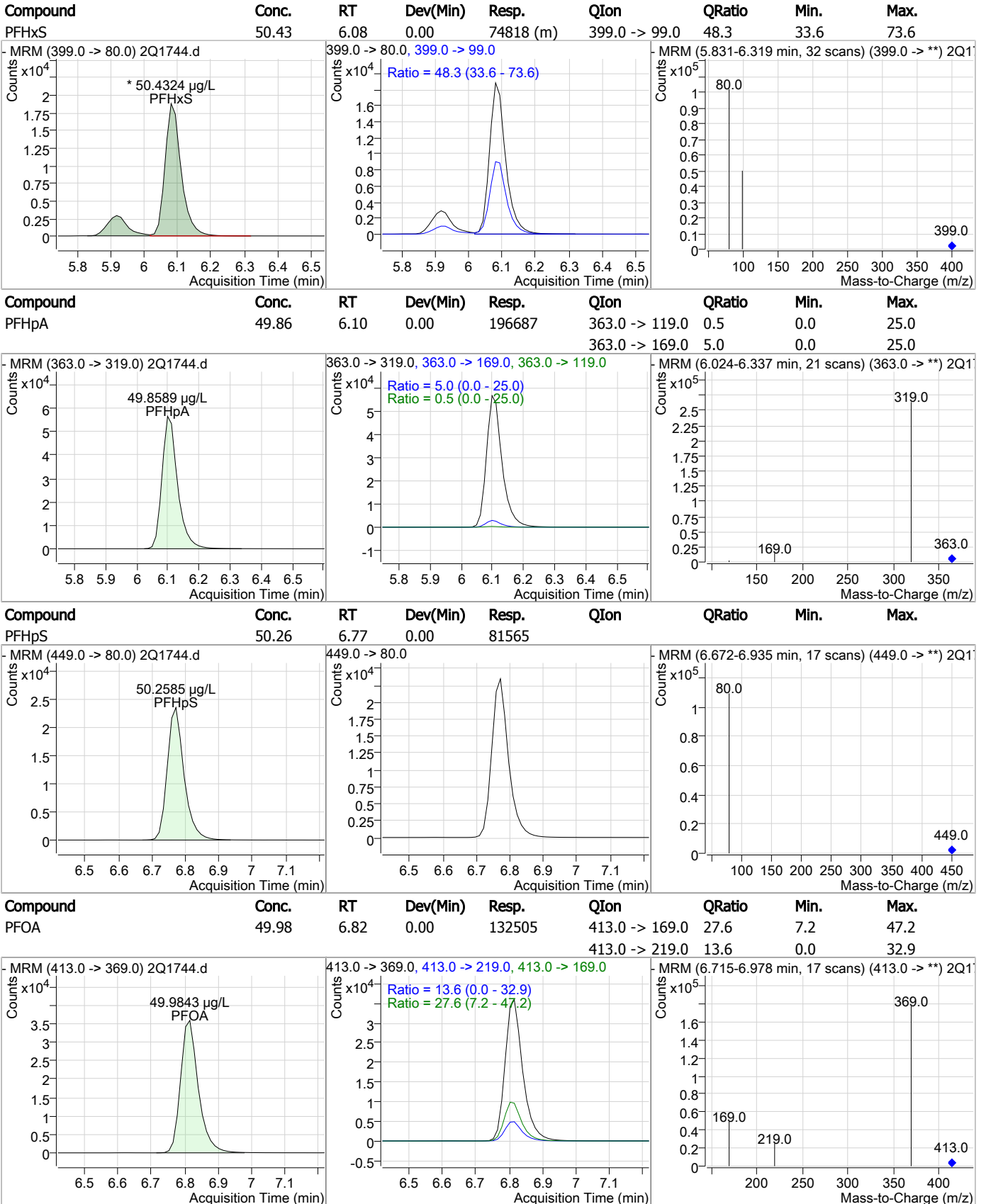
### Perfluorinated Compounds by LC/MS/MS



7.57

7

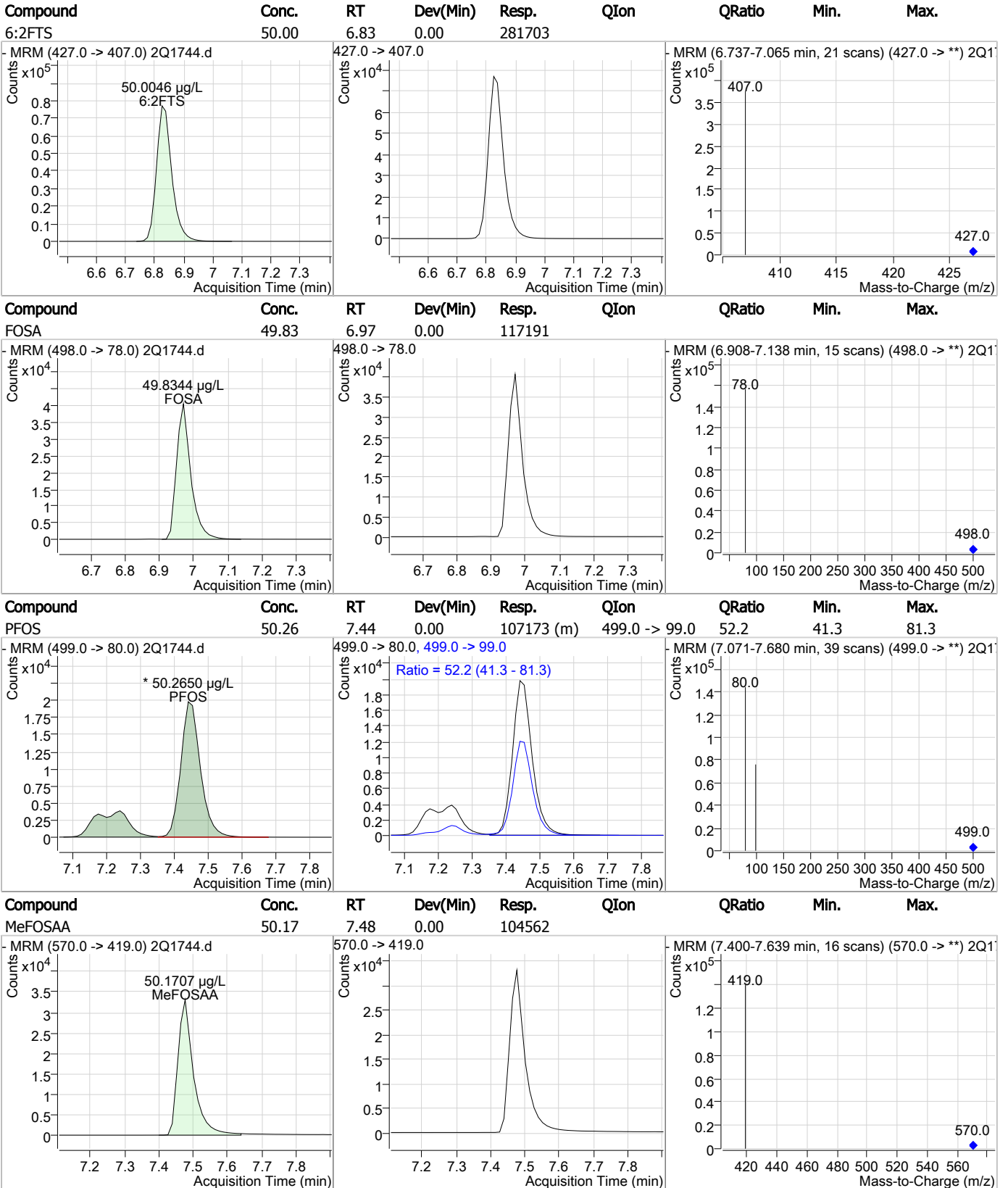
### Perfluorinated Compounds by LC/MS/MS



7.57

7

### Perfluorinated Compounds by LC/MS/MS



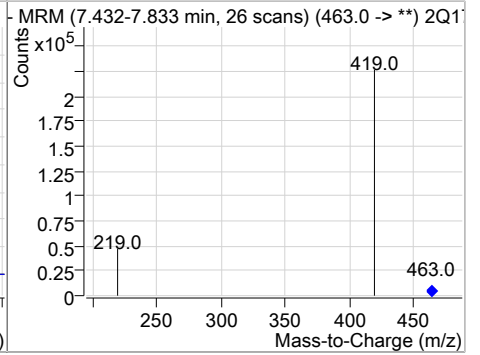
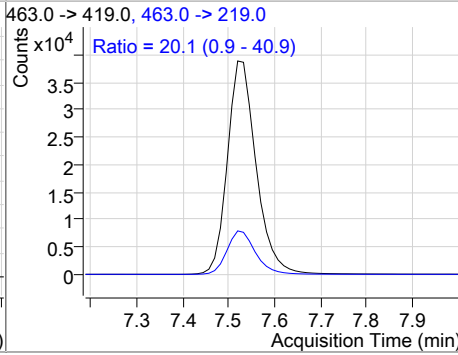
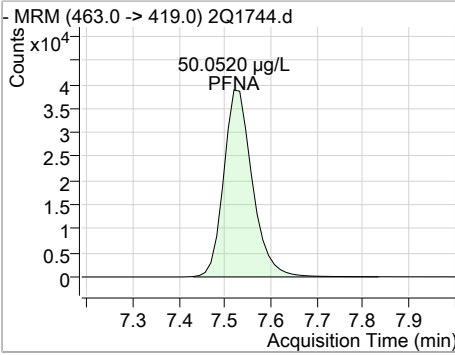
7.57

7

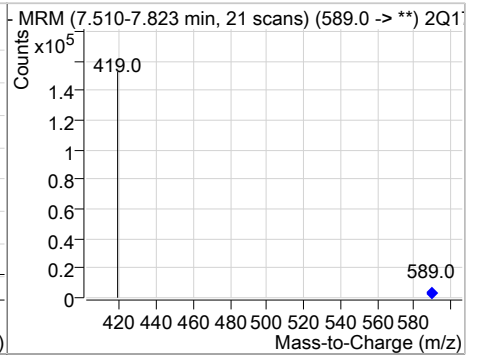
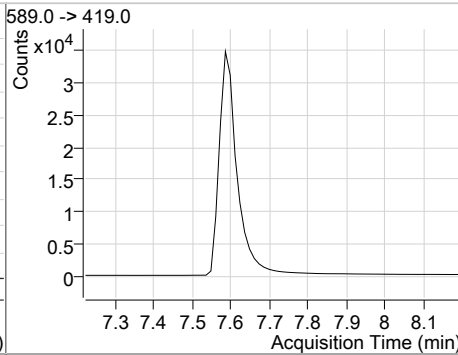
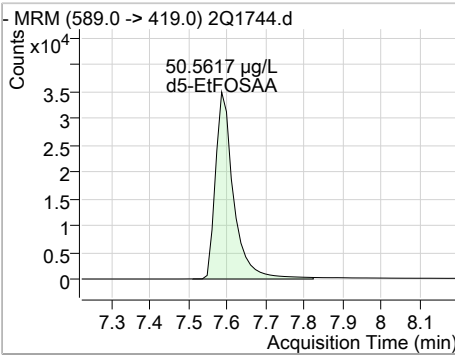


### Perfluorinated Compounds by LC/MS/MS

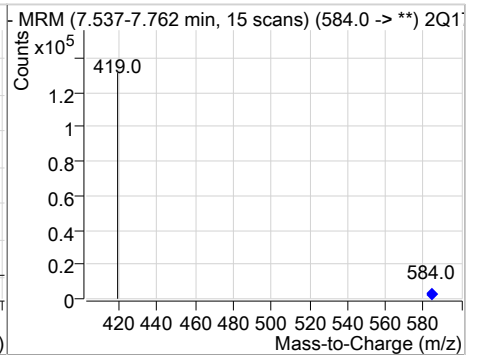
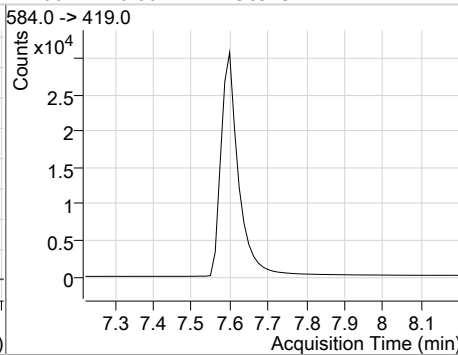
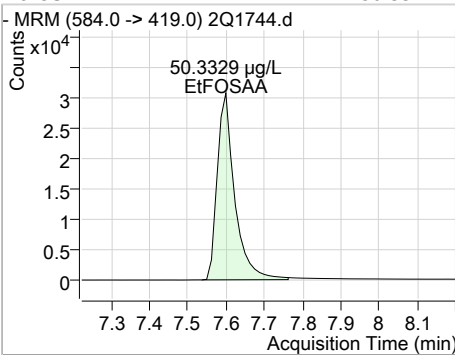
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	50.05	7.52	-0.01	168447	463.0 -> 219.0	20.1	0.9	40.9



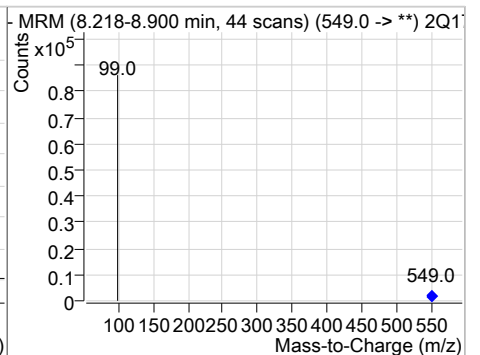
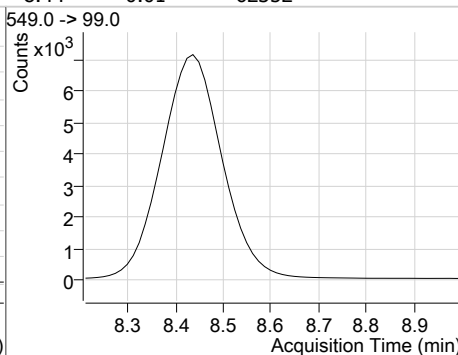
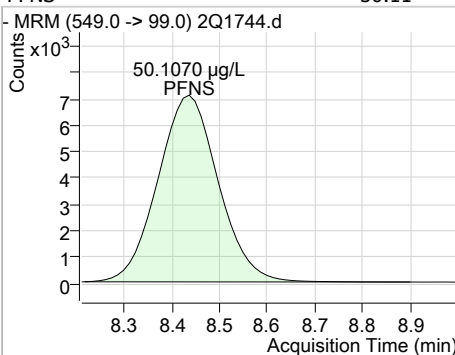
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	50.56	7.59	0.00	114136				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	50.33	7.60	0.00	96979				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	50.11	8.44	-0.01	62352				



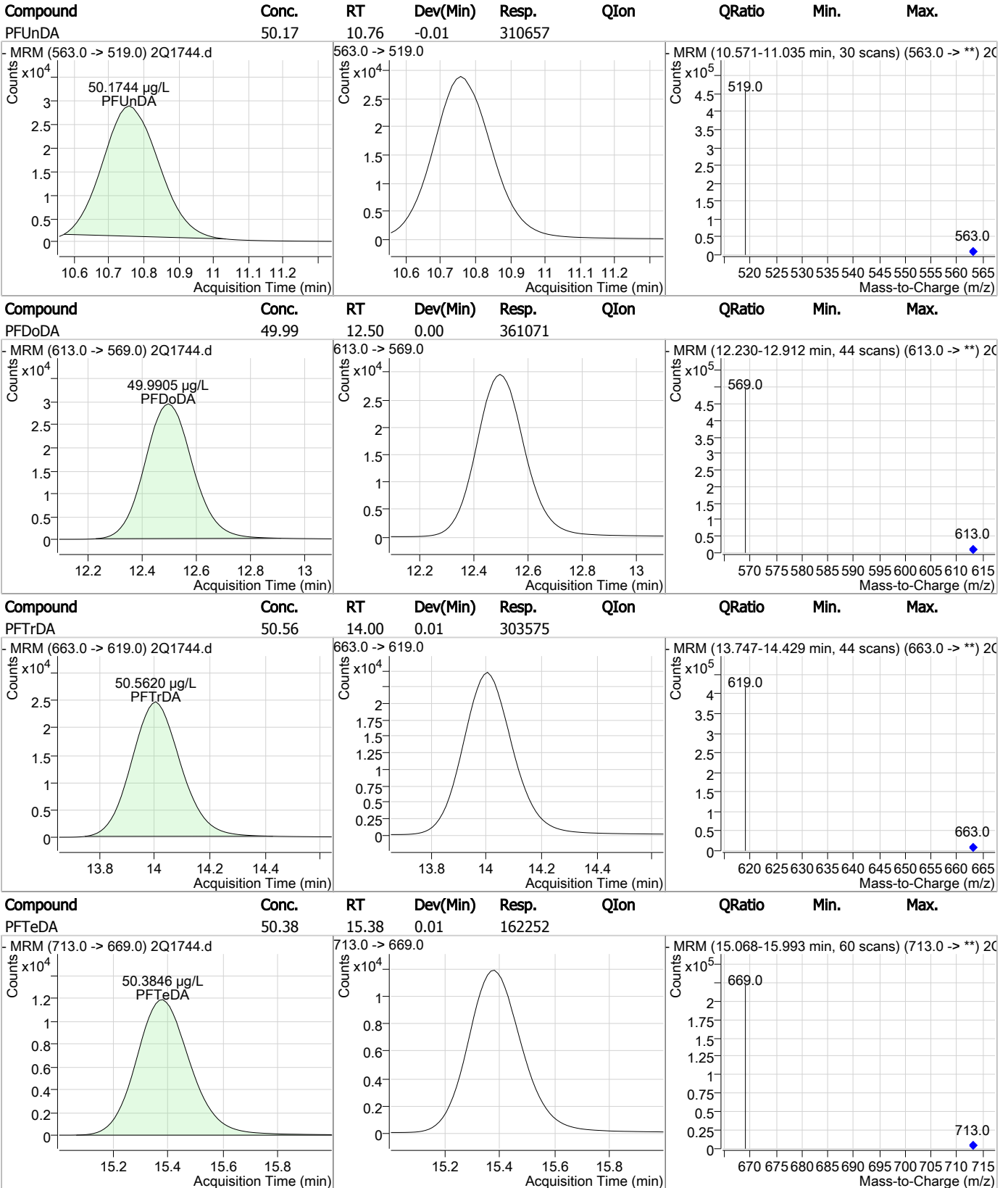
7.57  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDA	50.21	8.68	-0.01	419858				
PFDA	49.79	8.67	-0.03	260959				
8:2FTS	48.09	9.04	-0.03	721804				
PFDS	50.31	10.48	0.00	63409				

7.57  
7

### Perfluorinated Compounds by LC/MS/MS



7.57

7

# Manual Integration Approval Summary

Sample Number: S2Q47-IC47                      Method: EPA 537  
Lab FileID: 2Q1744.D                      Analyst approved: 06/01/17 08:32 Mike Eger  
Injection Time: 05/30/17 17:24                      Supervisor approved: 06/01/17 14:43 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.08	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.44	Split peak

7.5.7.1

7

## Perfluorinated Compounds by LC/MS/MS

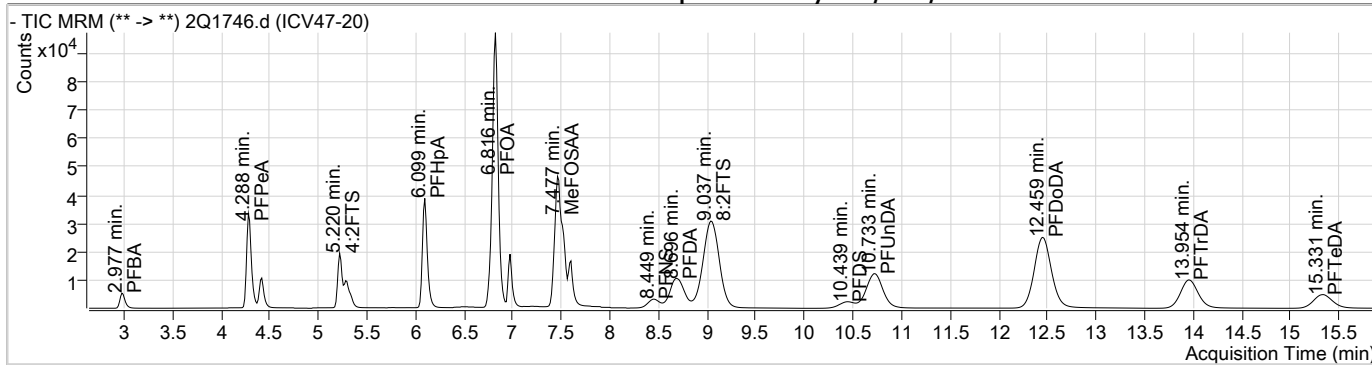
Data File : 2Q1746.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/30/2017 6:18:26 PM  
 Sample Name : ICV47-20  
 Vial : Vial 9  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q47.batch.bin  
 Sample Information : OP65145,S2Q47,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
13C2-6:2FTS	6.836	429.0 -> 409.0	115682	20.00	µg/L	0.000
13C2-PFDoDA	12.453	615.0 -> 570.0	157155	20.00	µg/L	-0.037
13C2-PFOA	6.814	415.0 -> 370.0	66336	20.00	µg/L	0.000
13C3-PFPeA	4.285	266.0 -> 222.0	46970	20.00	µg/L	-0.013
13C4-PFOS	7.453	503.0 -> 80.0	39974	20.00	µg/L	0.000
d3-MeFOSAA	7.475	573.0 -> 419.0	39903	20.00	µg/L	0.000
<b>System Monitoring Compounds</b>						
13C2-PFDA	8.681	515.0 -> 470.0	0	0.00	µg/L	m -0.010
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	7.585	589.0 -> 419.0	0	0.00	µg/L	m 0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%		Recovery = NA%			
<b>Target Compounds</b>						
4:2FTS	5.220	327.0 -> 307.0	63704	23.04	µg/L	QValue 100
6:2FTS	6.825	427.0 -> 407.0	121426	21.65	µg/L	100
8:2FTS	9.037	527.0 -> 507.0	341415	24.24	µg/L	100
EtFOSAA	7.599	584.0 -> 419.0	42938	21.65	µg/L	100
FOSA	6.971	498.0 -> 78.0	53901	22.27	µg/L	100
MeFOSAA	7.477	570.0 -> 419.0	46324	21.59	µg/L	100
PFBA	2.977	213.0 -> 169.0	19817	21.44	µg/L	100
PFBS	4.416	299.0 -> 80.0	24648	20.58	µg/L	99
PFDA	8.696	513.0 -> 469.0	108741	20.86	µg/L	100
PFDoDA	12.459	613.0 -> 569.0	152053	21.06	µg/L	100
PFDS	10.439	599.0 -> 80.0	26262	20.47	µg/L	100
PFHpA	6.099	363.0 -> 319.0	83025	21.16	µg/L	93
PFHpS	6.772	449.0 -> 80.0	34377	20.82	µg/L	100
PFHxA	5.300	313.0 -> 269.0	27627	21.05	µg/L	86
PFHxS	6.081	399.0 -> 80.0	32800	21.73	µg/L	93
PFNA	7.532	463.0 -> 419.0	71713	21.42	µg/L	99
PFNS	8.449	549.0 -> 99.0	26738	21.12	µg/L	100
PFOA	6.816	413.0 -> 369.0	56359	21.38	µg/L	99
PFOS	7.442	499.0 -> 80.0	42752	19.70	µg/L	99
PFPeA	4.288	263.0 -> 219.0	68866	21.01	µg/L	100
PFPeS	5.330	349.0 -> 99.0	8775	21.13	µg/L	100
PFTeDA	15.331	713.0 -> 669.0	66718	20.73	µg/L	100
PFTrDA	13.954	663.0 -> 619.0	127959	21.32	µg/L	100
PFUnDA	10.733	563.0 -> 519.0	139552	22.55	µg/L	100

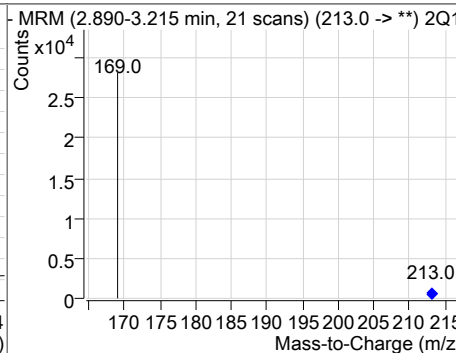
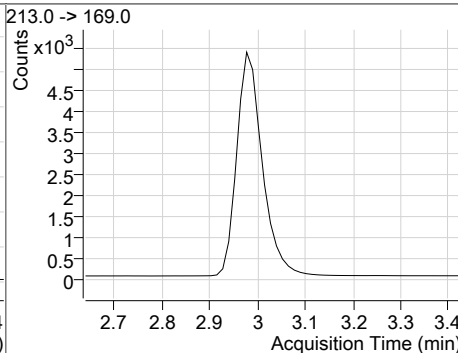
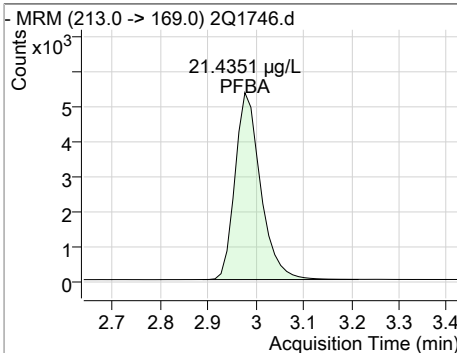
# = Qualifier out of range, m = manually integrated, + = Area summed

7.5.8  
7

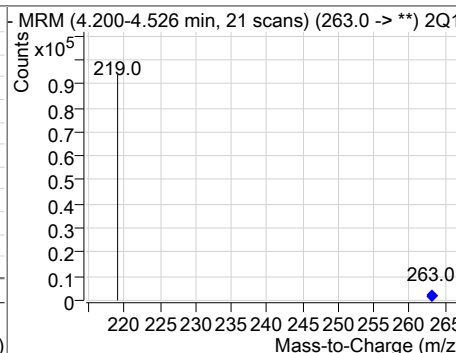
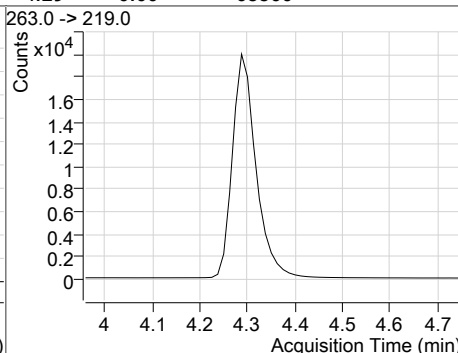
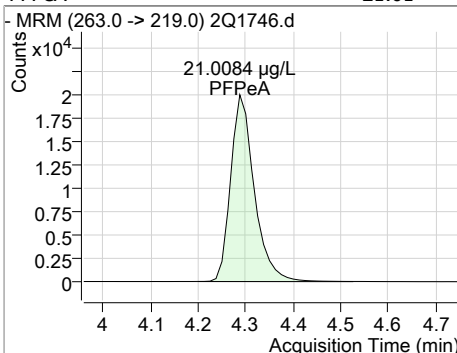
### Perfluorinated Compounds by LC/MS/MS



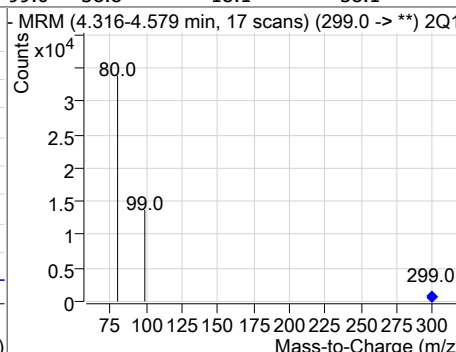
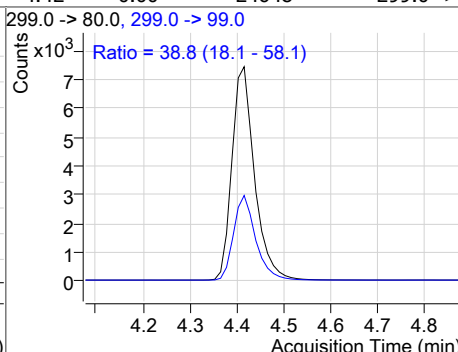
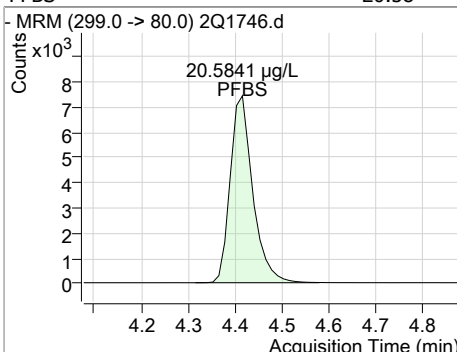
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBA	21.44	2.98	-0.01	19817				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	21.01	4.29	0.00	68866				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	20.58	4.42	0.00	24648	299.0 -> 99.0	38.8	18.1	58.1



7.5.8  
7

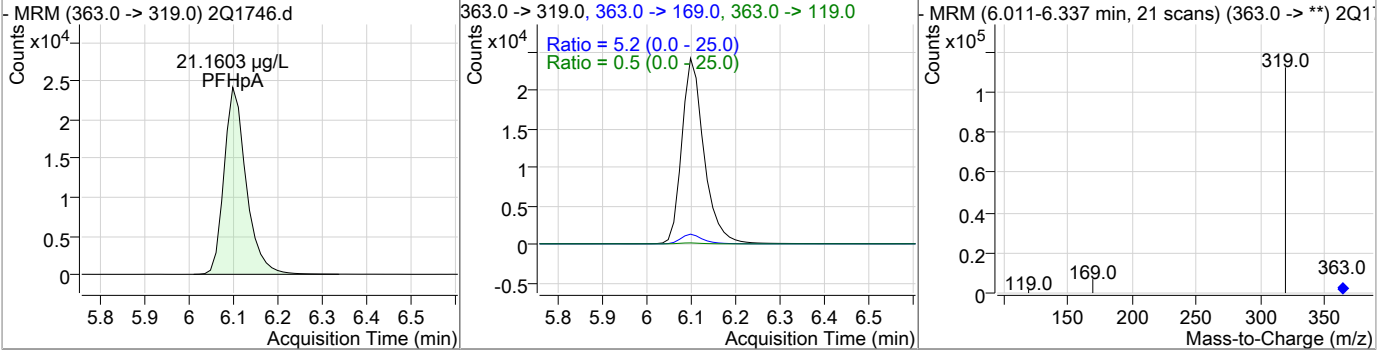
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.	
4:2FTS	23.04	5.22	0.00	63704					
PFHxA	21.05	5.30	0.00	27627	313.0 ->	119.0	0.3	0.0	25.0
PFPeS	21.13	5.33	0.00	8775					
PFHxS	21.73	6.08	0.00	32800	399.0 ->	99.0	48.6	33.6	73.6

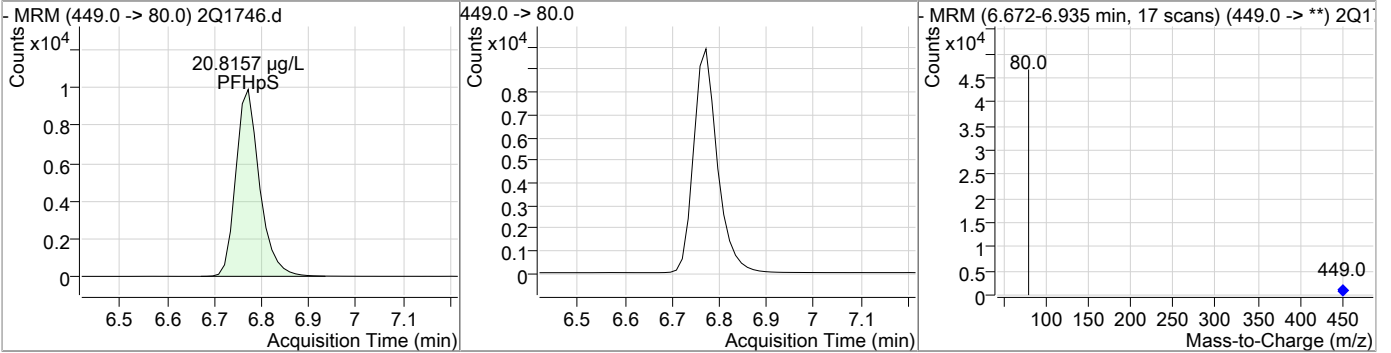
7.58  
7

### Perfluorinated Compounds by LC/MS/MS

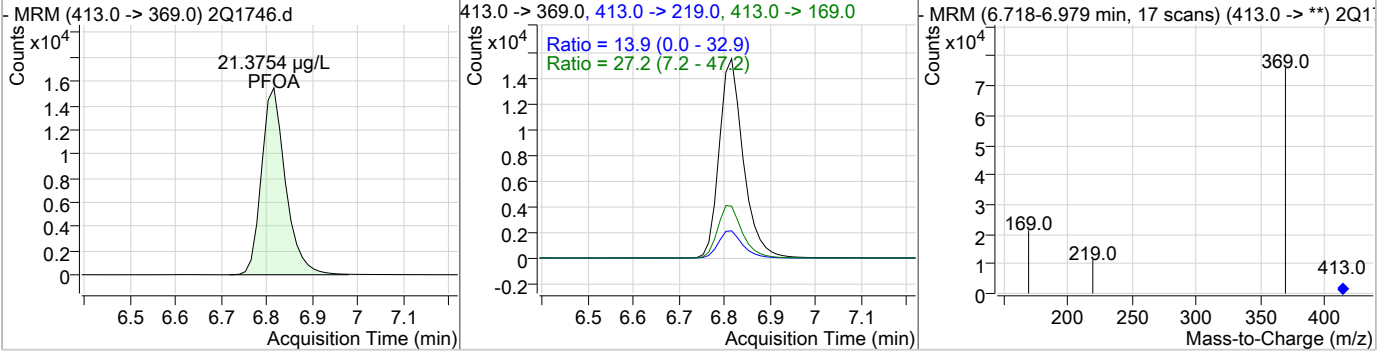
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.16	6.10	0.00	83025	363.0 -> 119.0	0.5	0.0	25.0
					363.0 -> 169.0	5.2	0.0	25.0



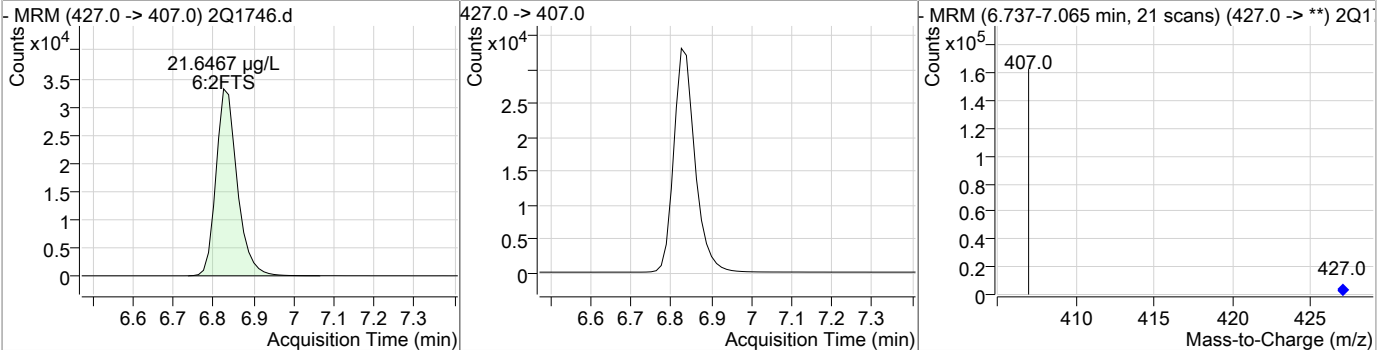
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	20.82	6.77	0.00	34377				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	21.38	6.82	0.00	56359	413.0 -> 169.0	27.2	7.2	47.2
					413.0 -> 219.0	13.9	0.0	32.9



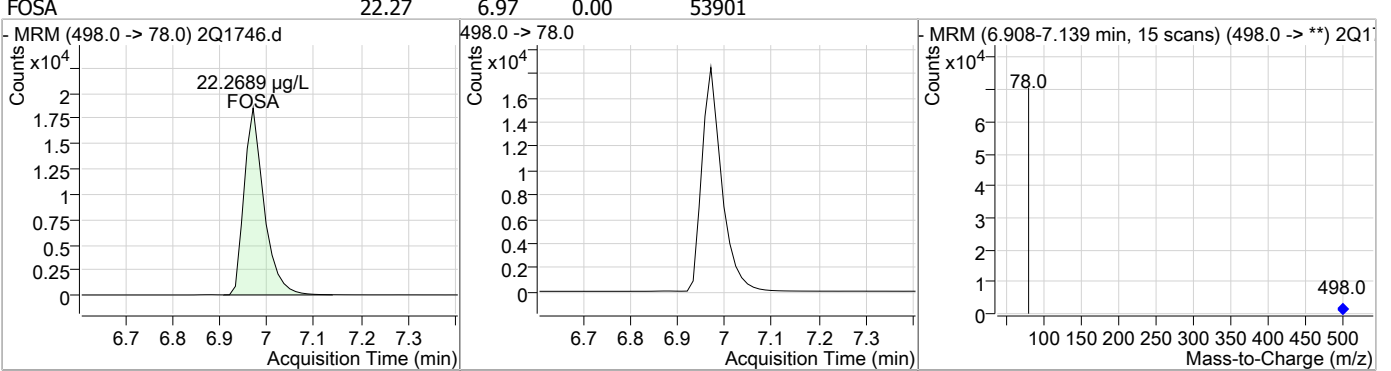
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	21.65	6.83	0.00	121426				



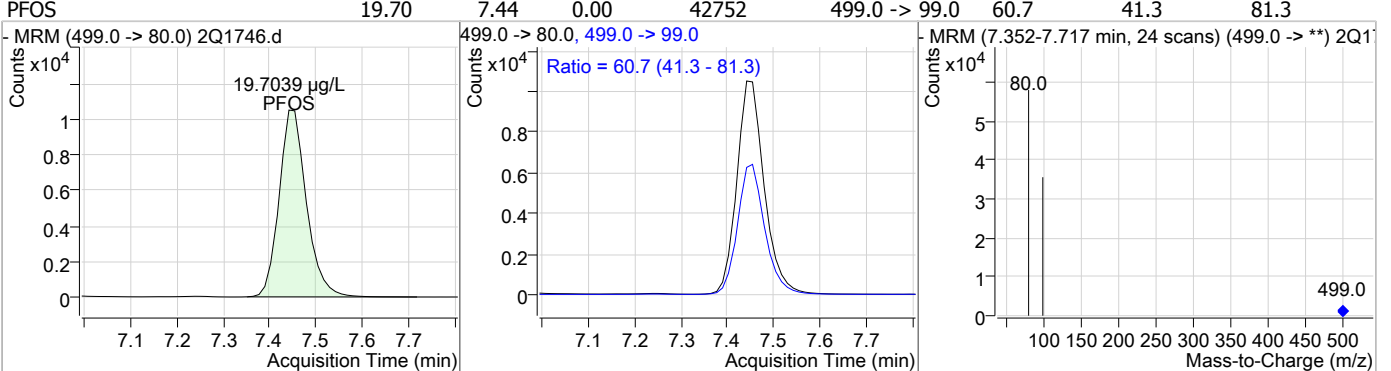


### Perfluorinated Compounds by LC/MS/MS

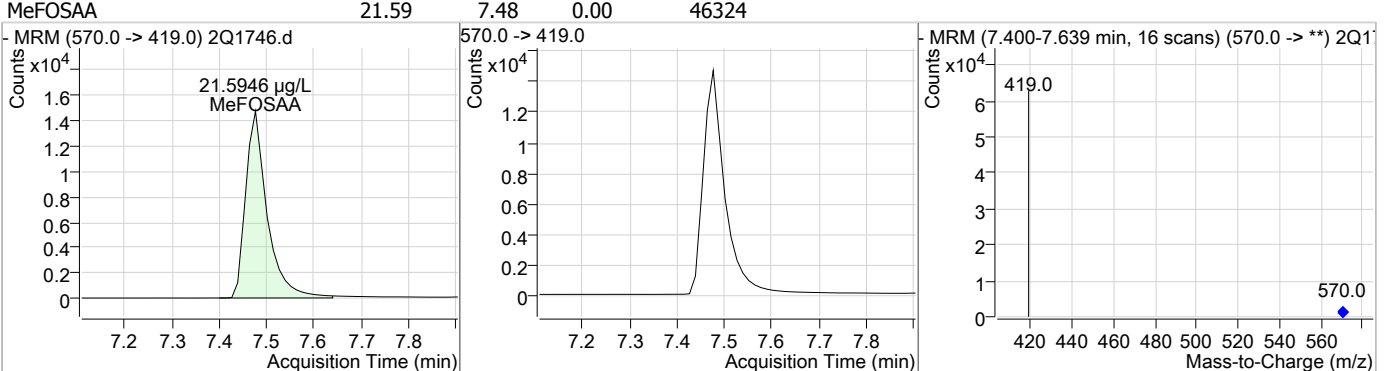
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



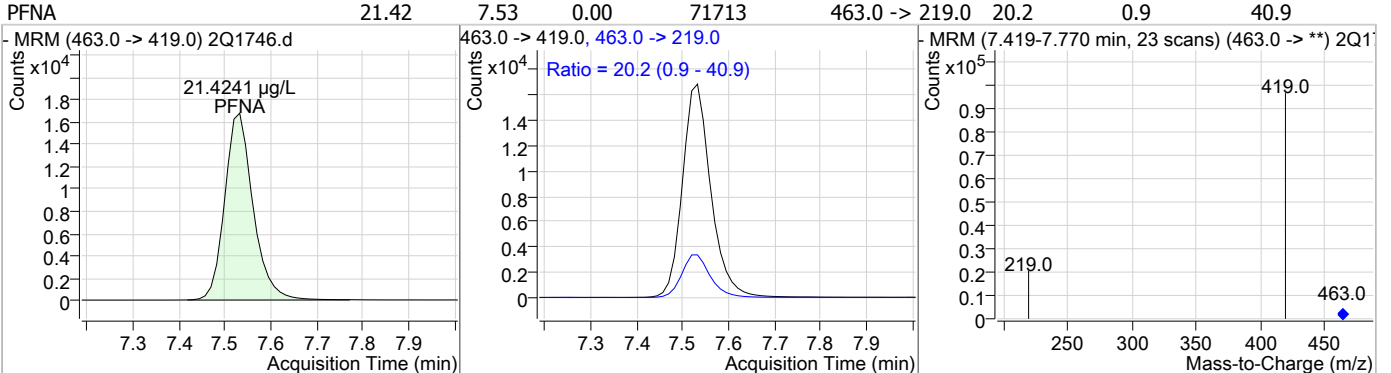
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



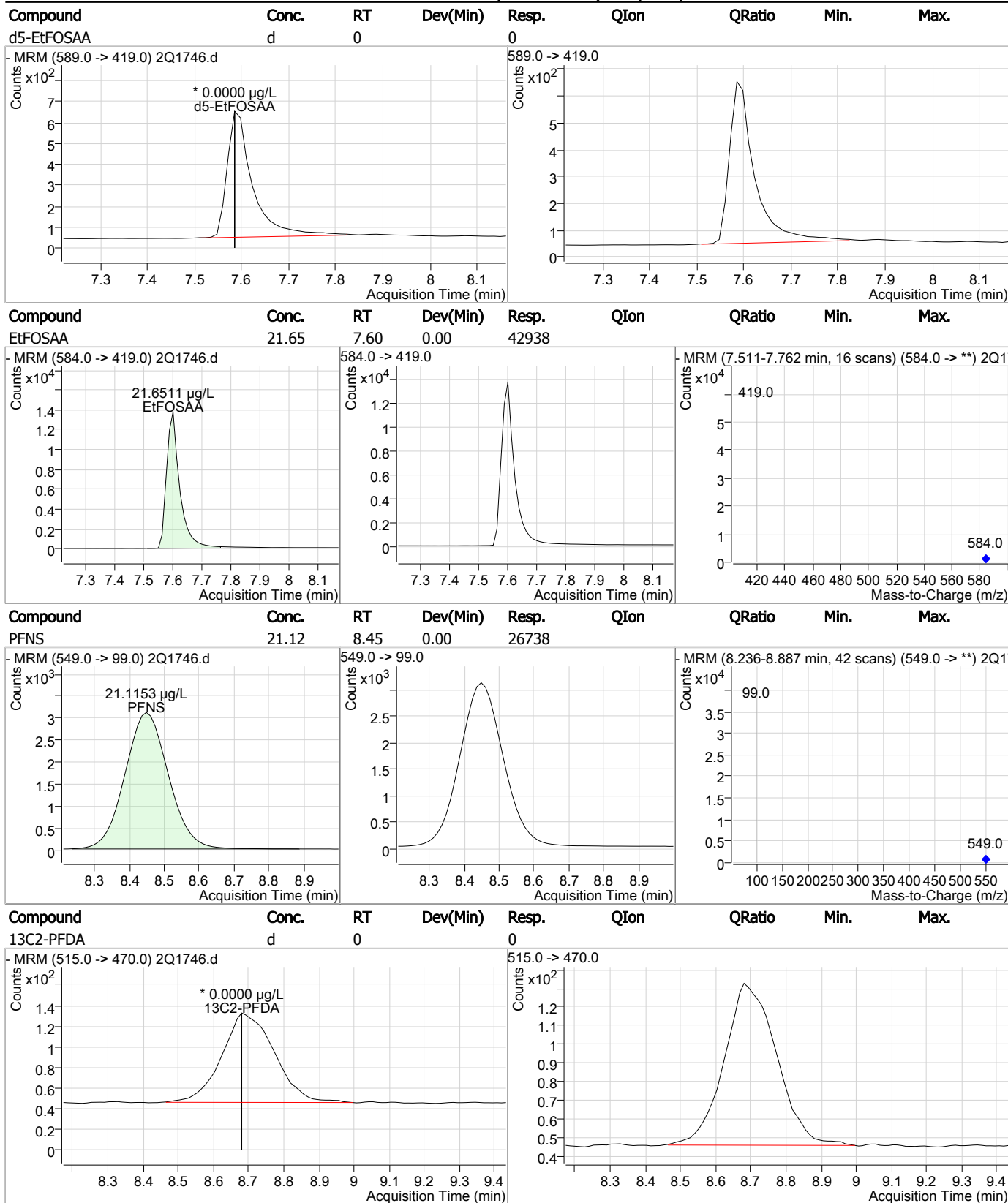
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------

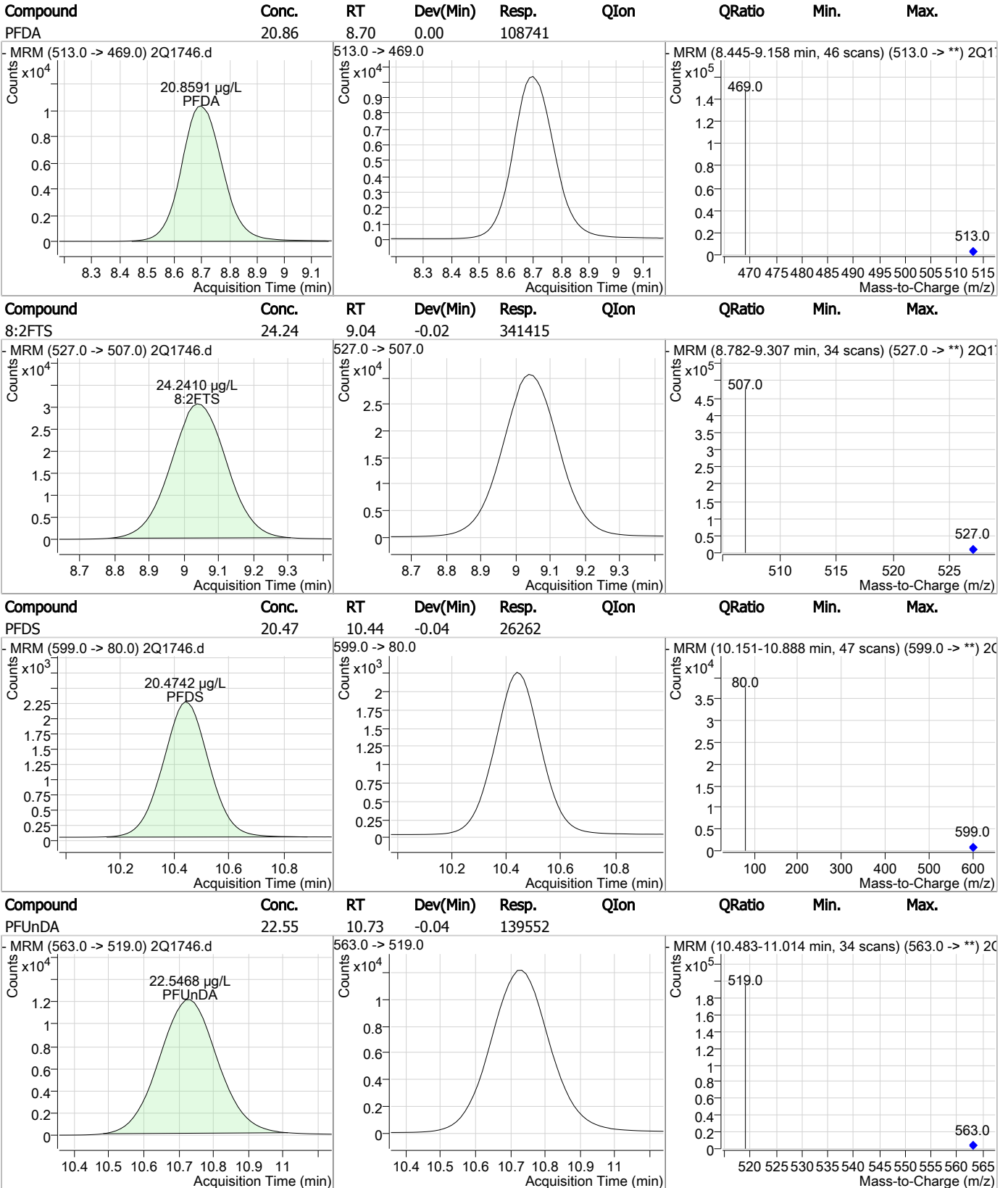


### Perfluorinated Compounds by LC/MS/MS



7.58  
7

### Perfluorinated Compounds by LC/MS/MS

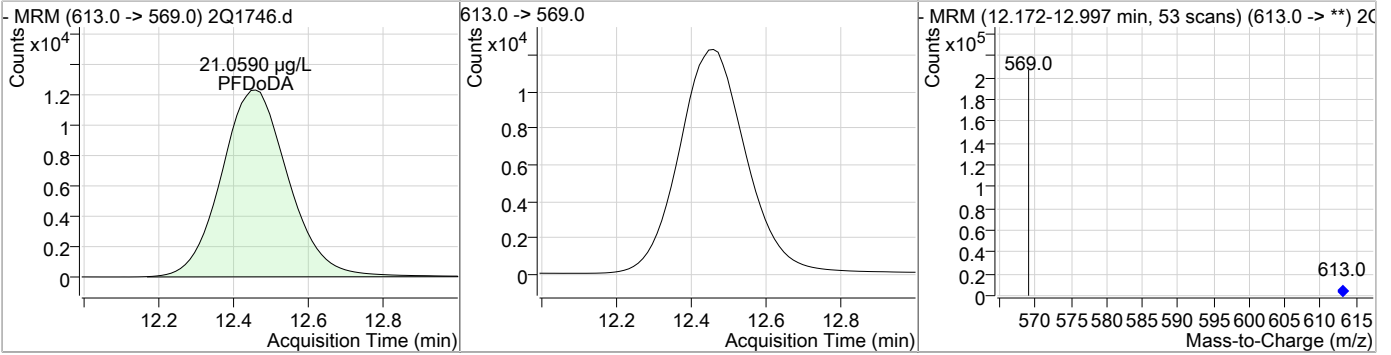


7.5.8

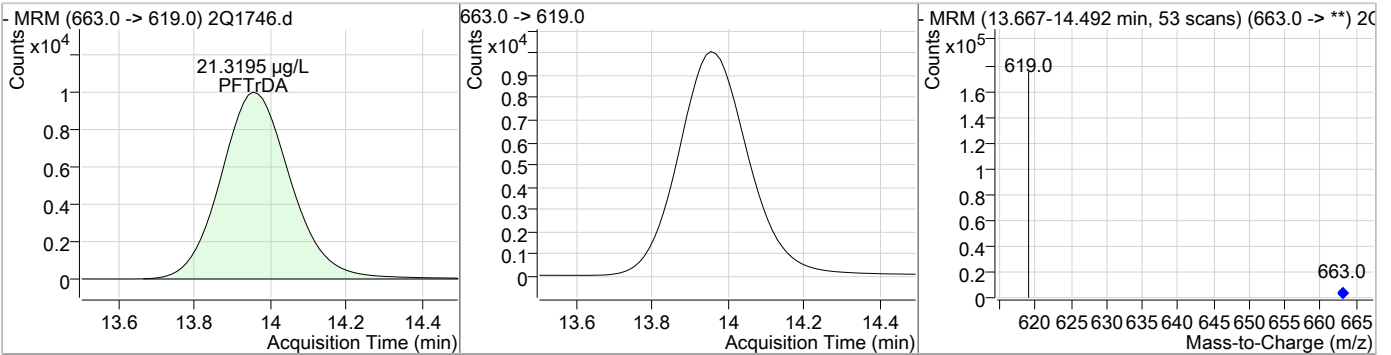
7

### Perfluorinated Compounds by LC/MS/MS

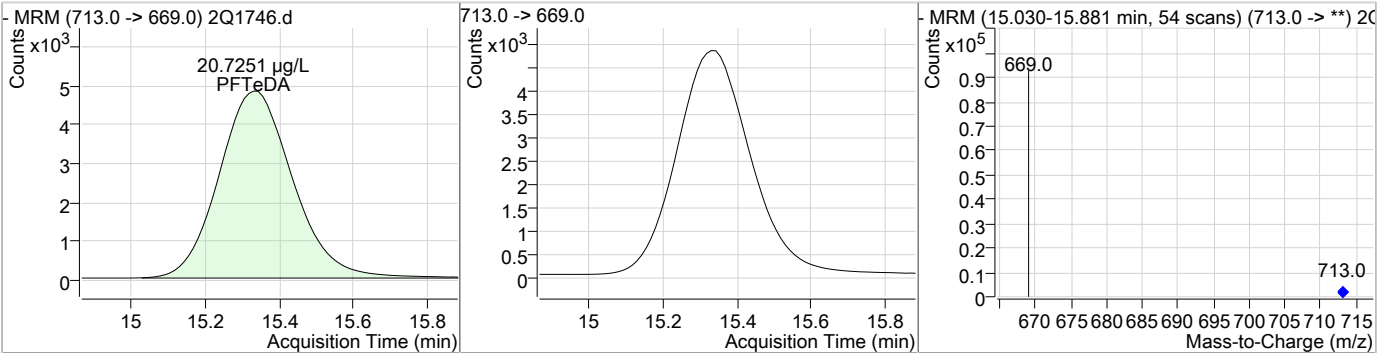
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	21.06	12.46	-0.04	152053				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	21.32	13.95	-0.04	127959				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	20.73	15.33	-0.04	66718				



7.5.8  
7

## Perfluorinated Compounds by LC/MS/MS

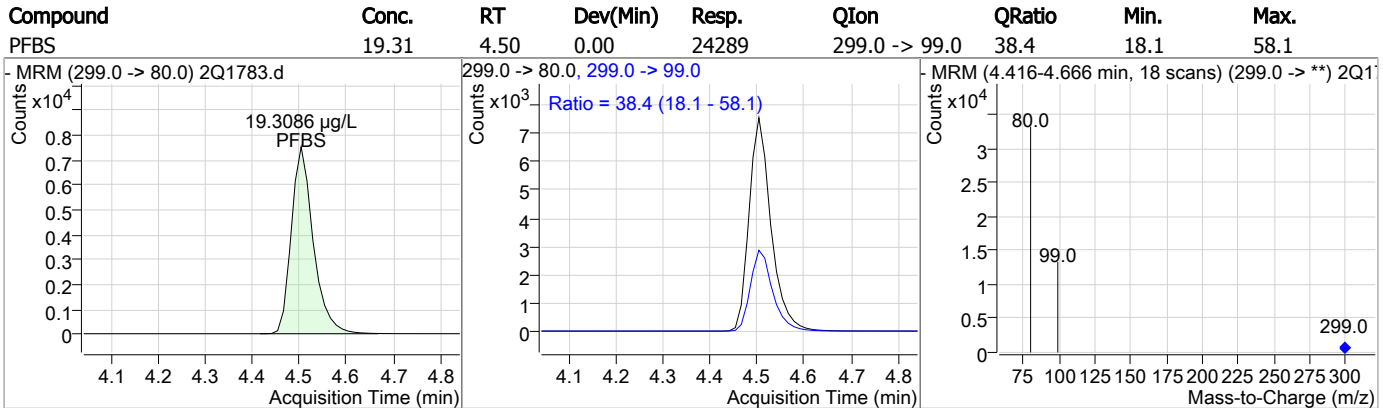
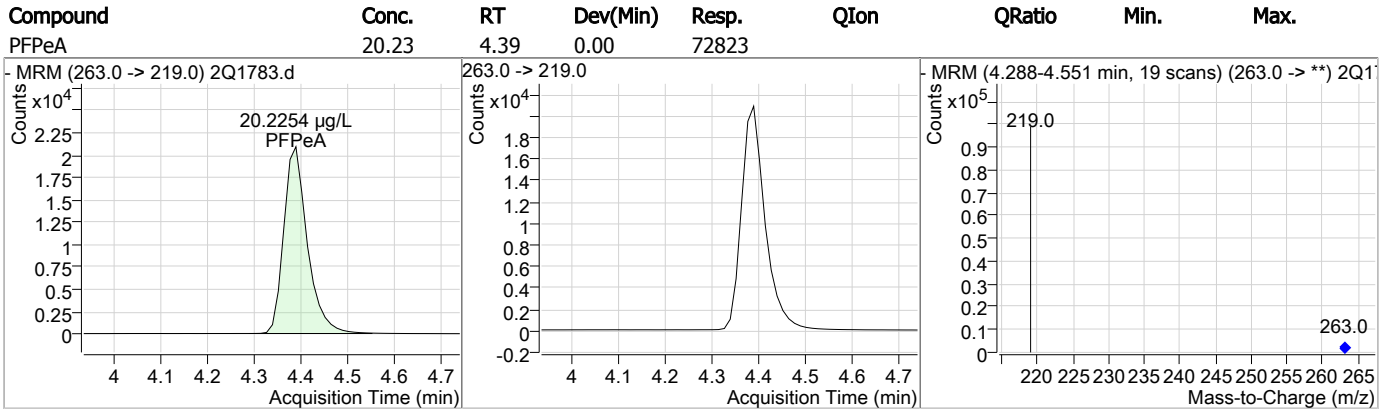
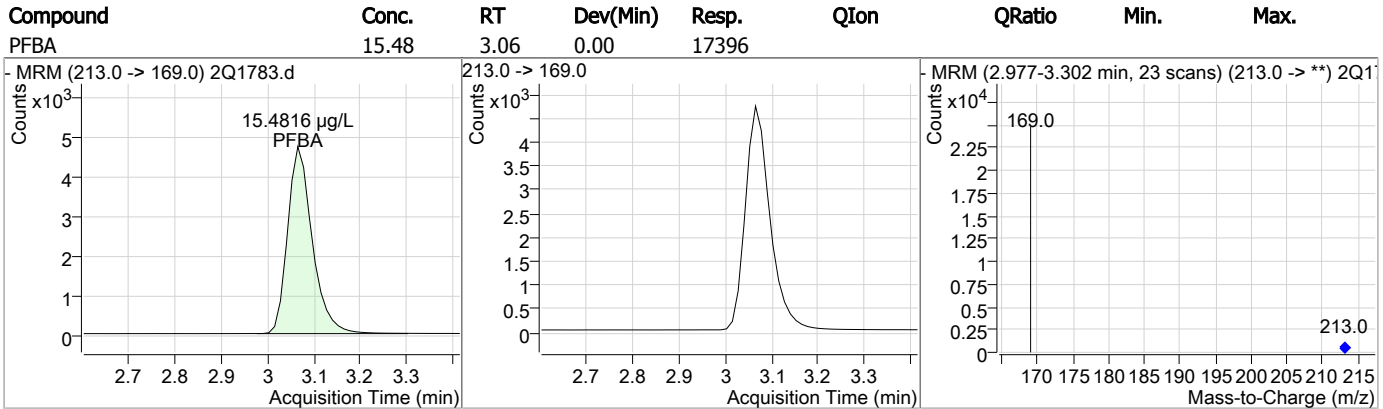
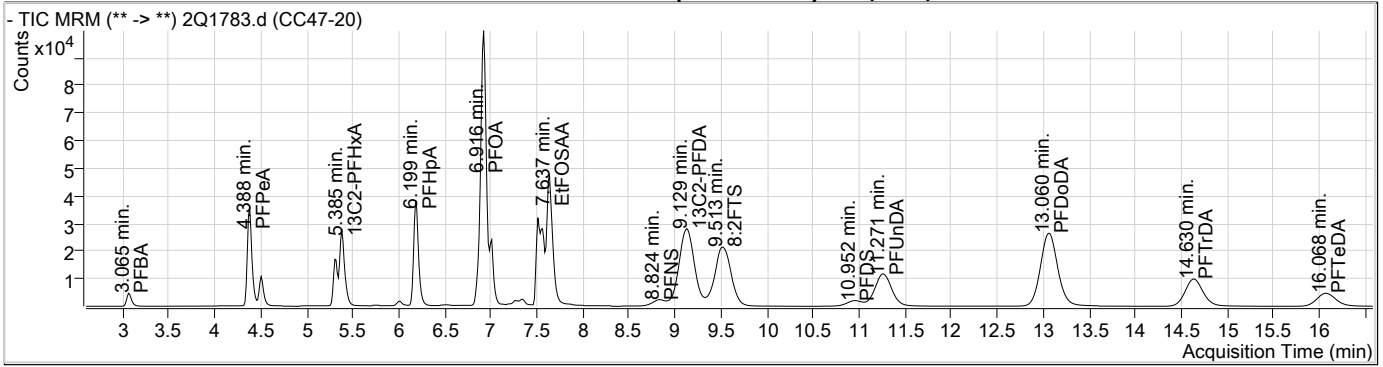
Data File : 2Q1783.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/31/2017 7:44:16 PM  
 Sample Name : CC47-20  
 Vial : Vial 6  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q48.batch.bin  
 Sample Information : OP65145,S2Q48,260,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.936	429.0 -> 409.0	121075	20.00 µg/L	0.000
13C2-PFDoDA	13.066	615.0 -> 570.0	180708	20.00 µg/L	0.000
13C2-PFOA	6.914	415.0 -> 370.0	80626	20.00 µg/L	0.000
13C3-PFPeA	4.385	266.0 -> 222.0	51592	20.00 µg/L	0.000
13C4-PFOS	7.566	503.0 -> 80.0	41993	20.00 µg/L	0.000
d3-MeFOSAA	7.513	573.0 -> 419.0	43847	20.00 µg/L	0.000
<b>System Monitoring Compounds</b>					
13C2-PFDA	9.129	515.0 -> 470.0	204725	20.25 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 101.3%	
13C2-PFHxA	5.385	315.0 -> 270.0	61818	17.58 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 87.9%	
d5-EtFOSAA	7.623	589.0 -> 419.0	48725	19.08 µg/L	0.000
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 95.4%	
<b>Target Compounds</b>					
4:2FTS	5.307	327.0 -> 307.0	57789	19.85 µg/L	QValue 100
6:2FTS	6.925	427.0 -> 407.0	120469	20.47 µg/L	100
8:2FTS	9.513	527.0 -> 507.0	262522	17.81 µg/L	100
EtFOSAA	7.637	584.0 -> 419.0	41257	18.93 µg/L	100
FOSA	7.008	498.0 -> 78.0	57610	21.66 µg/L	100
MeFOSAA	7.514	570.0 -> 419.0	46142	19.58 µg/L	100
PFBA	3.065	213.0 -> 169.0	17396	15.48 µg/L	100
PFBS	4.504	299.0 -> 80.0	24289	19.31 µg/L	99
PFDA	9.133	513.0 -> 469.0	120348	18.99 µg/L	100
PFDoDA	13.060	613.0 -> 569.0	163845	19.73 µg/L	100
PFDS	10.952	599.0 -> 80.0	24655	18.30 µg/L	100
PFHpA	6.199	363.0 -> 319.0	95703	20.07 µg/L	93
PFHpS	6.859	449.0 -> 80.0	34092	19.65 µg/L	100
PFHxA	5.387	313.0 -> 269.0	27629	17.32 µg/L	86
PFHxS	6.169	399.0 -> 80.0	31164	19.65 µg/L	m 92
PFNA	7.657	463.0 -> 419.0	82855	20.37 µg/L	96
PFNS	8.824	549.0 -> 99.0	23650	17.78 µg/L	100
PFOA	6.916	413.0 -> 369.0	63570	19.84 µg/L	98
PFOS	7.567	499.0 -> 80.0	45388	19.91 µg/L	m 87
PFPeA	4.388	263.0 -> 219.0	72823	20.23 µg/L	100
PFPeS	5.418	349.0 -> 99.0	7898	17.31 µg/L	100
PFTeDA	16.068	713.0 -> 669.0	68231	18.43 µg/L	100
PFTTrDA	14.630	663.0 -> 619.0	132836	19.25 µg/L	100
PFUnDA	11.271	563.0 -> 519.0	148446	20.86 µg/L	100

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

7.59  
7

### Perfluorinated Compounds by LC/MS/MS



7.59  
7

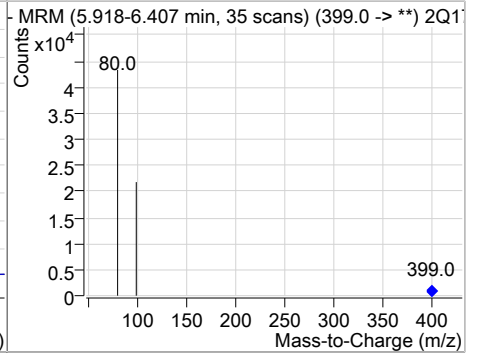
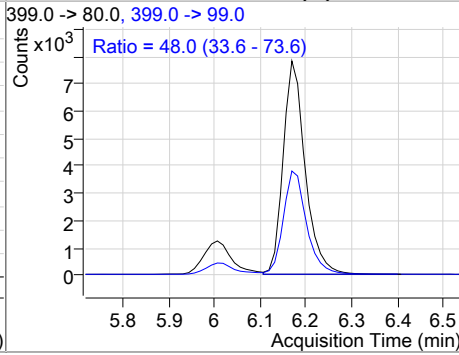
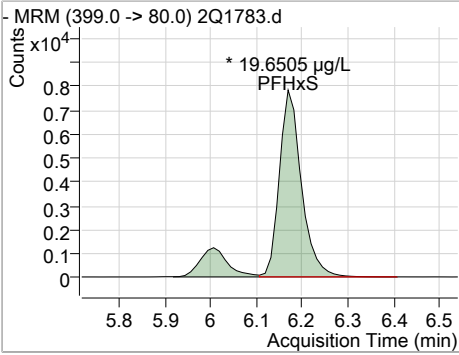
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.85	5.31	0.00	57789				
13C2-PFHxA	17.58	5.38	0.00	61818				
PFHxA	17.32	5.39	0.00	27629	313.0 -> 119.0	0.4	0.0	25.0
PFPeS	17.31	5.42	0.00	7898				

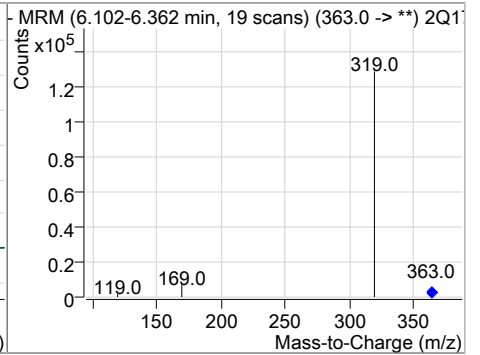
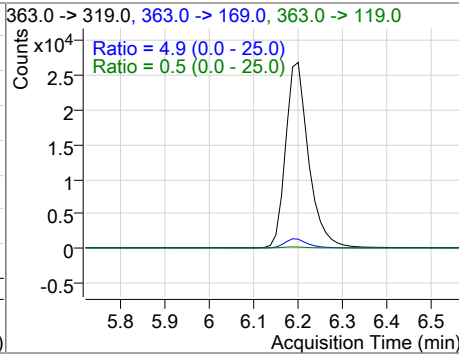
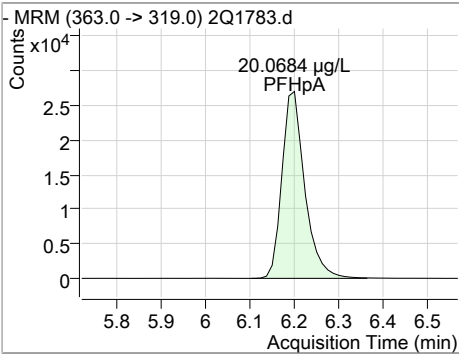
7.59  
7

### Perfluorinated Compounds by LC/MS/MS

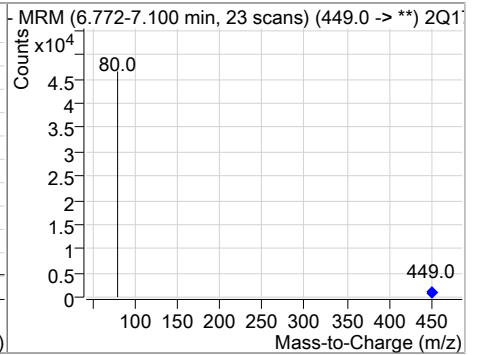
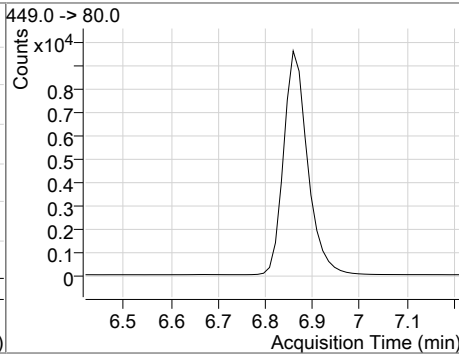
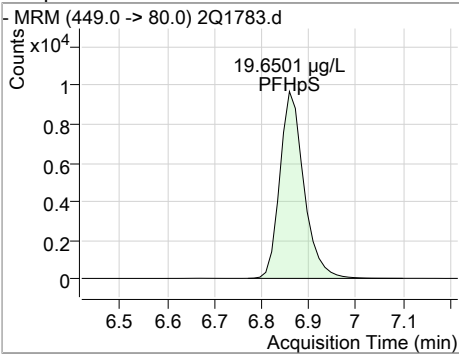
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.65	6.17	0.00	31164 (m)	399.0 -> 99.0	48.0	33.6	73.6



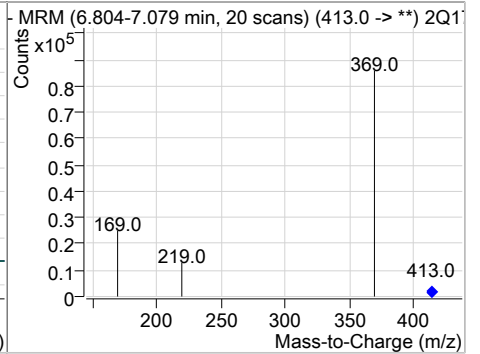
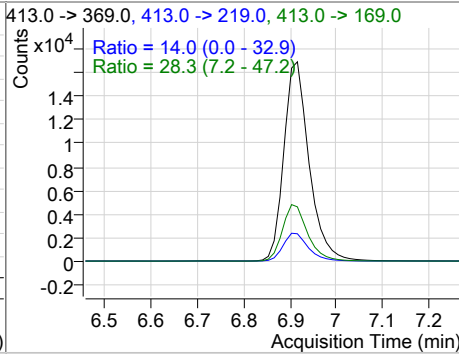
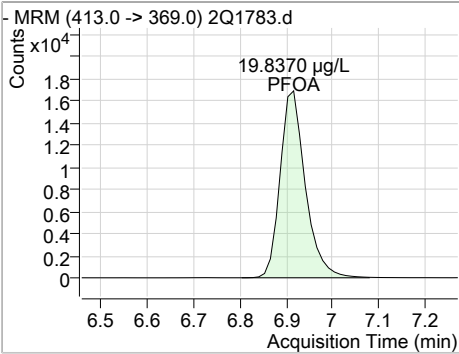
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.07	6.20	0.00	95703	363.0 -> 119.0 363.0 -> 169.0	0.5 4.9	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.65	6.86	0.00	34092	449.0 -> 80.0			

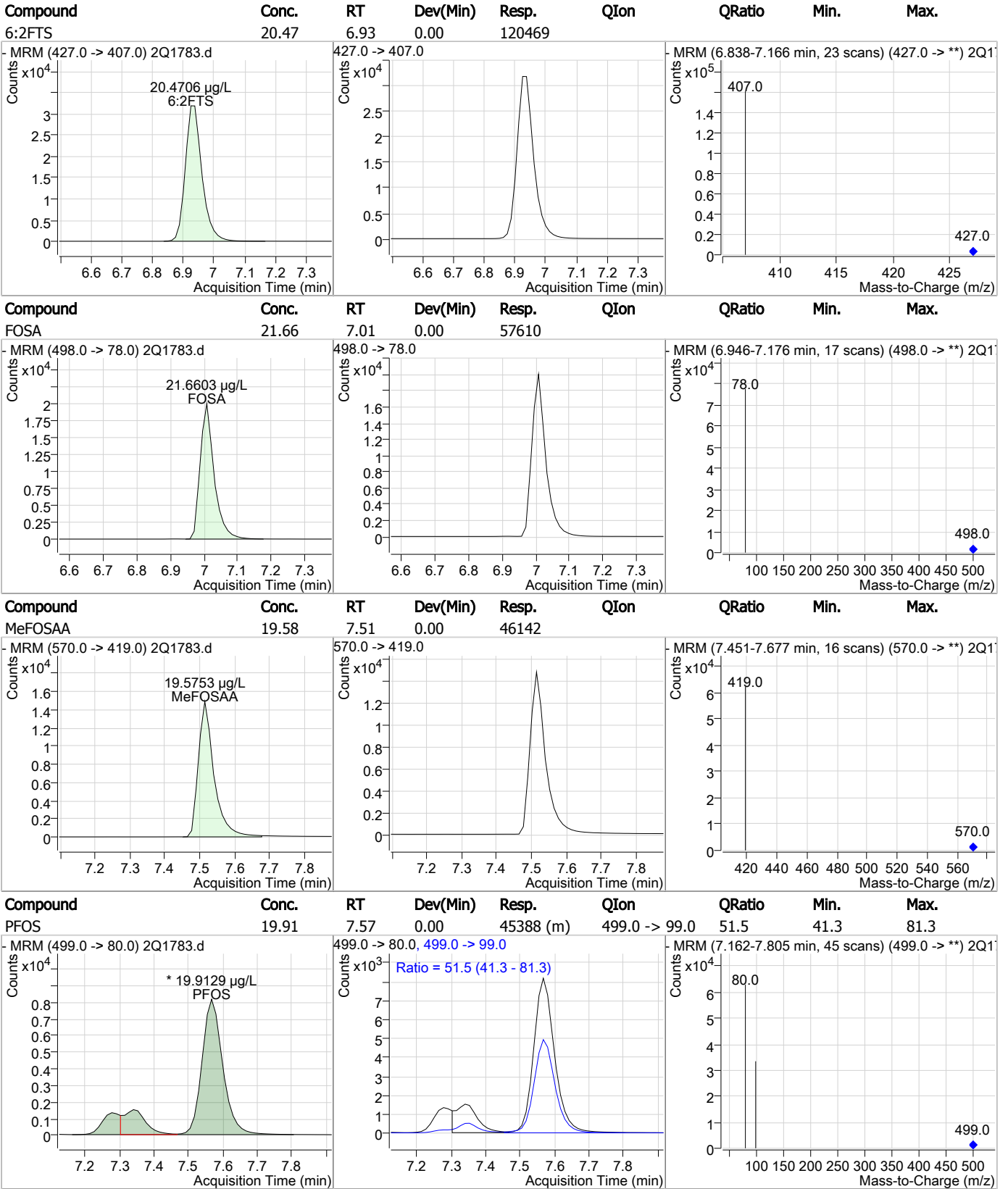


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.84	6.92	0.00	63570	413.0 -> 169.0 413.0 -> 219.0	28.3 14.0	7.2 0.0	47.2 32.9





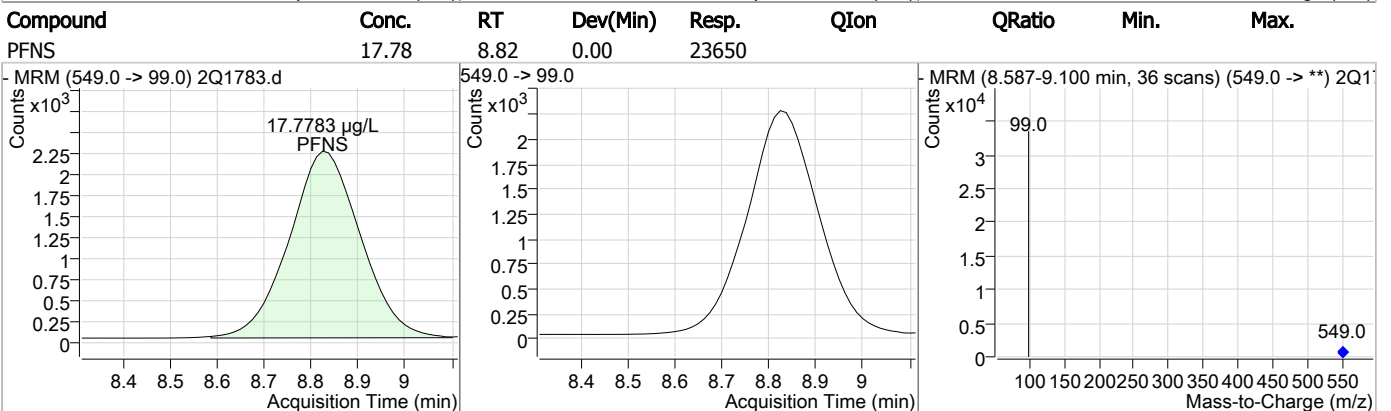
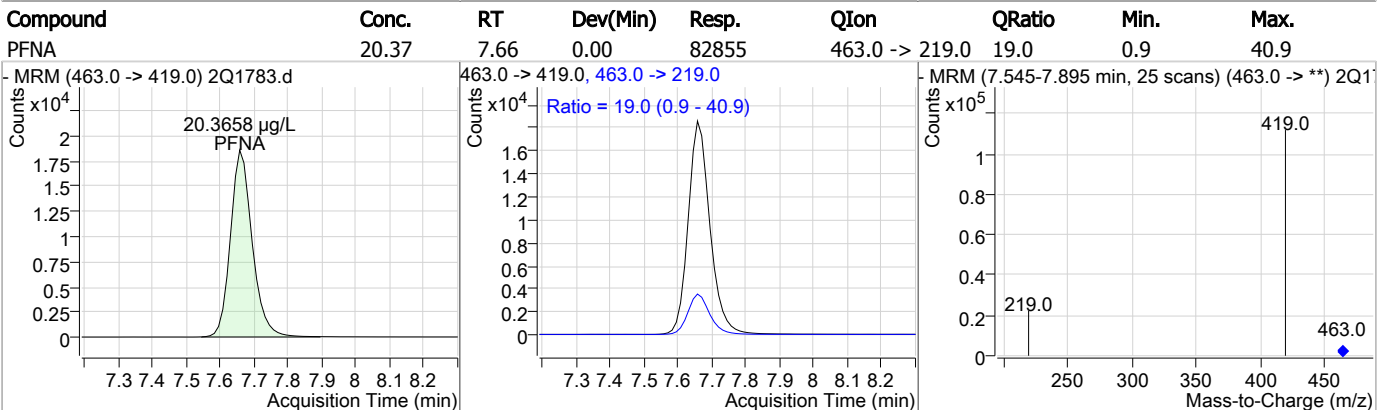
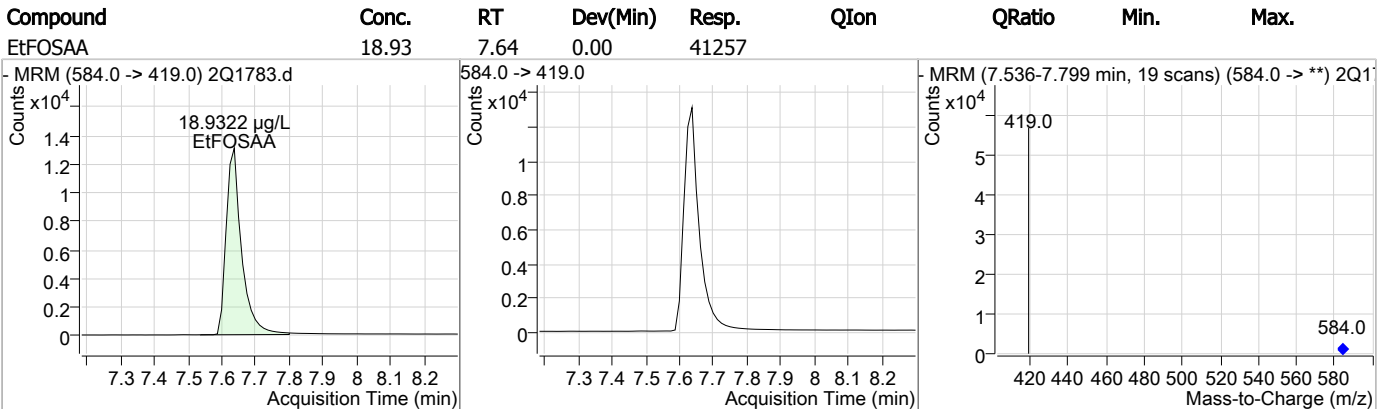
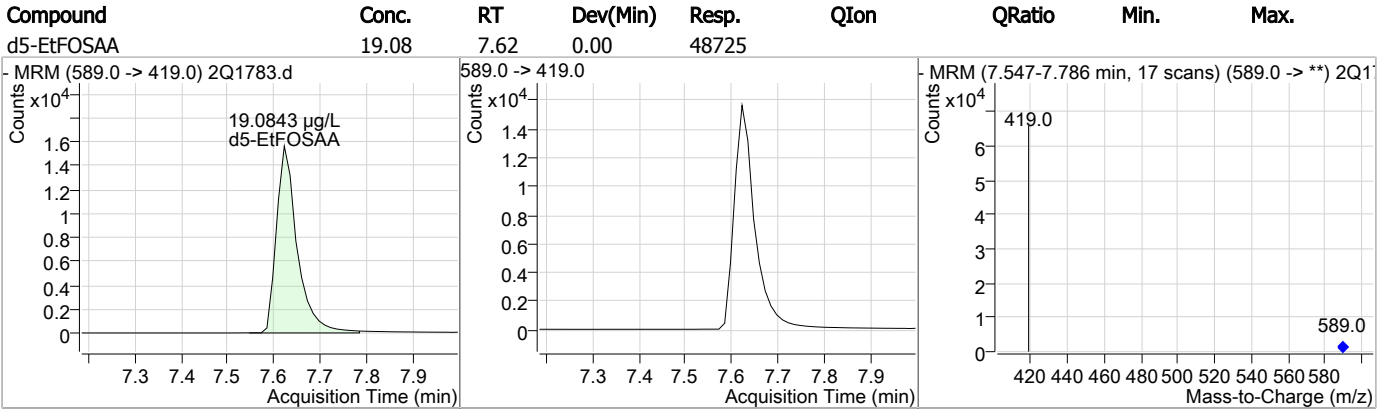
Perfluorinated Compounds by LC/MS/MS



7.59

7

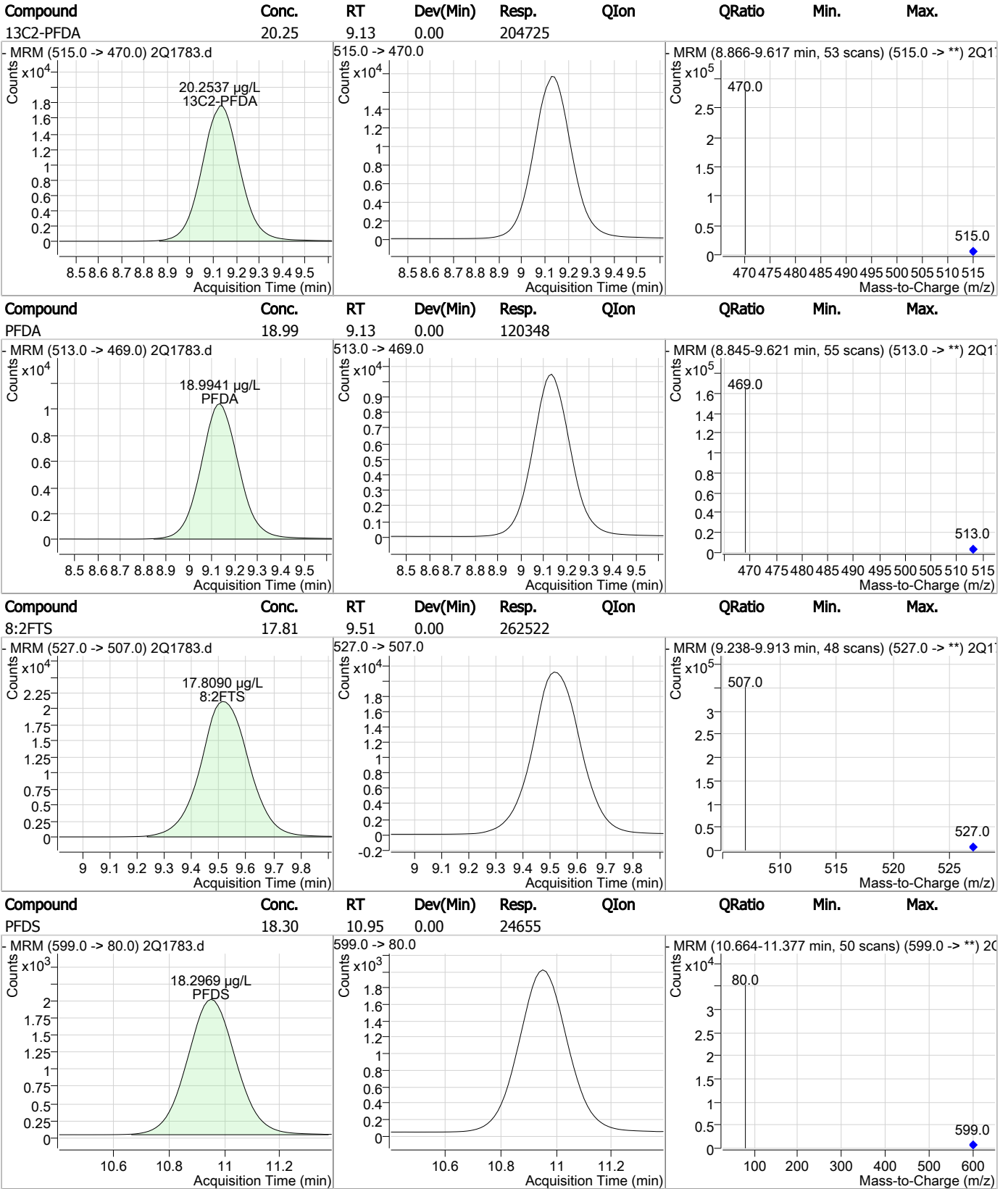
### Perfluorinated Compounds by LC/MS/MS



7.59

7

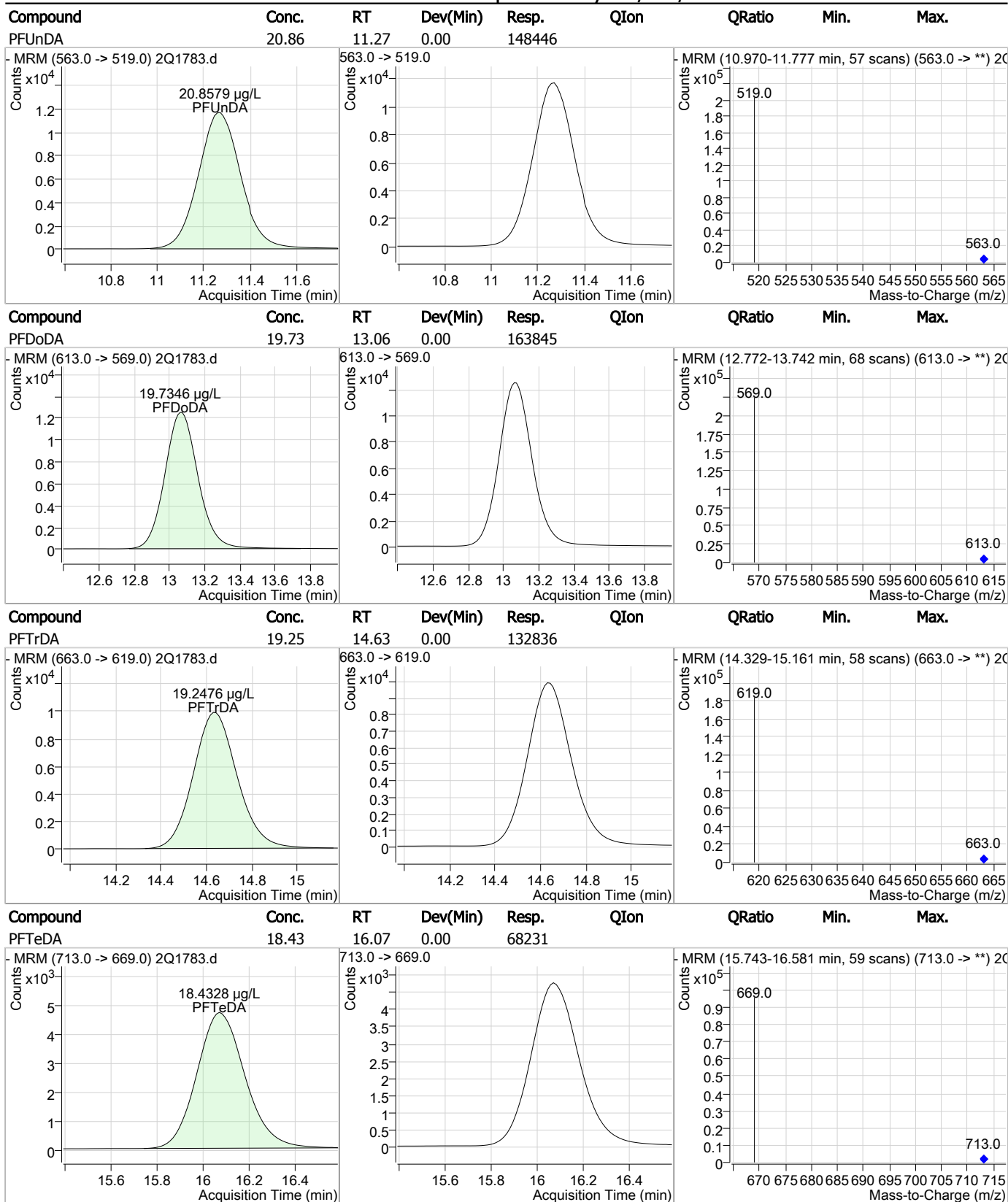
### Perfluorinated Compounds by LC/MS/MS



7.5.9

7

### Perfluorinated Compounds by LC/MS/MS



7.59

7

# Manual Integration Approval Summary

Sample Number: S2Q48-CC47                      Method: EPA 537  
Lab FileID: 2Q1783.D                      Analyst approved: 06/01/17 14:44 Mike Eger  
Injection Time: 05/31/17 19:44                      Supervisor approved: 06/01/17 17:00 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.17	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.57	Split peak

7.5.9.1

7

### Perfluorinated Compounds by LC/MS/MS

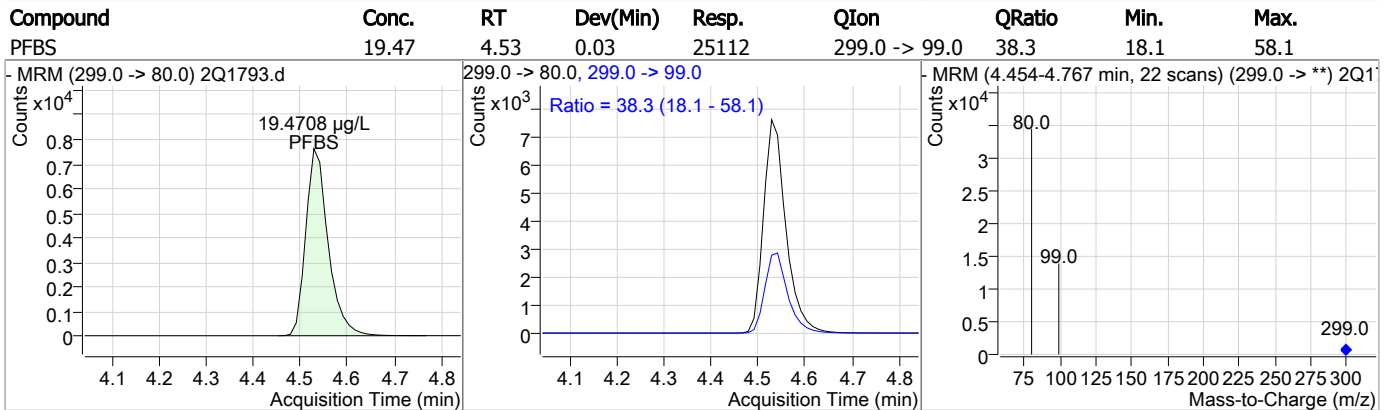
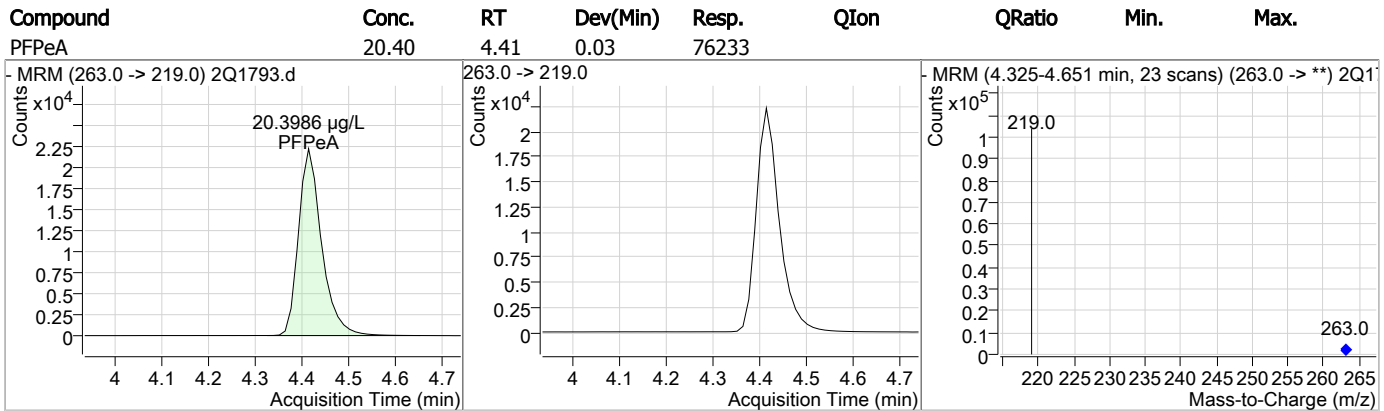
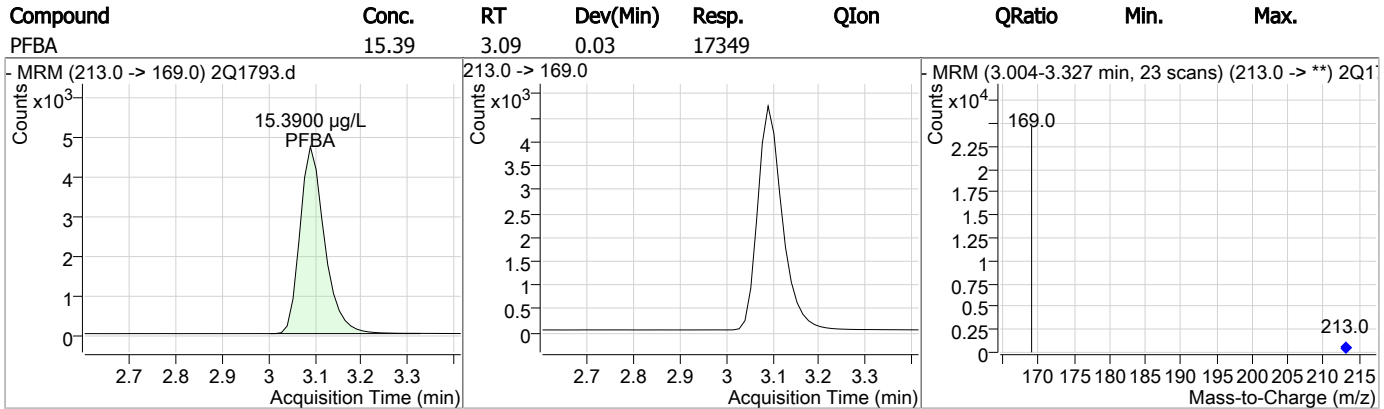
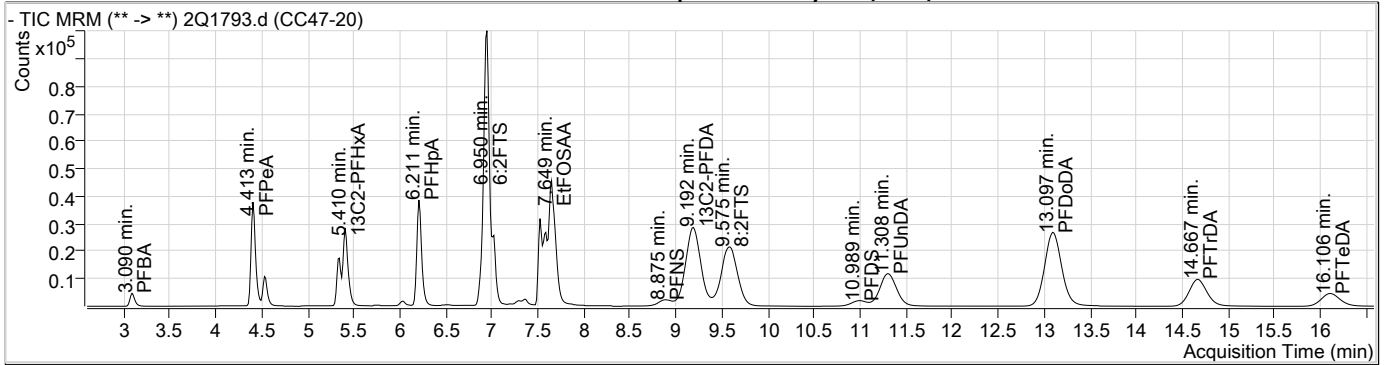
Data File : 2Q1793.d  
 Operator : NANCYF  
 Acq. Method : dMRM\_PFOA\_PFOS\_LIST.m  
 Acq. Date-Time : 5/31/2017 11:22:25 PM  
 Sample Name : CC47-20  
 Vial : Vial 6  
 DA Method File : PFC\_LIST\_0530.quantmethod.xml  
 Batch Name : S2Q48.batch.bin  
 Sample Information : OP65200,S2Q48,250,,,1.0,1,water

Compound	RT	QIon	Resp.	Conc. Units	Dev(Min)
<b>Internal Standards</b>					
13C2-6:2FTS	6.949	429.0 -> 409.0	124338	20.00 µg/L	0.013
13C2-PFDoDA	13.091	615.0 -> 570.0	180941	20.00 µg/L	0.025
13C2-PFOA	6.927	415.0 -> 370.0	80885	20.00 µg/L	0.013
13C3-PFPeA	4.410	266.0 -> 222.0	53549	20.00 µg/L	0.025
13C4-PFOS	7.591	503.0 -> 80.0	43054	20.00 µg/L	0.025
d3-MeFOSAA	7.525	573.0 -> 419.0	45631	20.00 µg/L	0.013
<b>System Monitoring Compounds</b>					
13C2-PFDA	9.192	515.0 -> 470.0	209455	20.66 µg/L	0.063
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 103.3%	
13C2-PFHxA	5.410	315.0 -> 270.0	63063	17.88 µg/L	0.025
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 89.4%	
d5-EtFOSAA	7.635	589.0 -> 419.0	52018	19.58 µg/L	0.013
Spiked Amount: 20.00	Range: 70.0 - 130.0%			Recovery = 97.9%	
<b>Target Compounds</b>					
4:2FTS	5.345	327.0 -> 307.0	59598	19.94 µg/L	100
6:2FTS	6.950	427.0 -> 407.0	124026	20.52 µg/L	100
8:2FTS	9.575	527.0 -> 507.0	265016	17.51 µg/L	100
EtFOSAA	7.649	584.0 -> 419.0	44223	19.50 µg/L	100
FOSA	7.021	498.0 -> 78.0	56954	20.58 µg/L	100
MeFOSAA	7.527	570.0 -> 419.0	48232	19.66 µg/L	100
PFBA	3.090	213.0 -> 169.0	17349	15.39 µg/L	100
PFBS	4.529	299.0 -> 80.0	25112	19.47 µg/L	100
PFDA	9.196	513.0 -> 469.0	120018	18.88 µg/L	100
PFDoDA	13.097	613.0 -> 569.0	165209	19.87 µg/L	100
PFDS	10.989	599.0 -> 80.0	24503	17.74 µg/L	100
PFHpA	6.211	363.0 -> 319.0	96011	20.07 µg/L	93
PFHpS	6.884	449.0 -> 80.0	34414	19.35 µg/L	100
PFHxA	5.412	313.0 -> 269.0	28068	17.54 µg/L	86
PFHxS	6.194	399.0 -> 80.0	31650	19.46 µg/L	m 93
PFNA	7.683	463.0 -> 419.0	83934	20.56 µg/L	98
PFNS	8.875	549.0 -> 99.0	23523	17.25 µg/L	100
PFOA	6.928	413.0 -> 369.0	64105	19.94 µg/L	98
PFOS	7.592	499.0 -> 80.0	46007	19.69 µg/L	m 87
PFPeA	4.413	263.0 -> 219.0	76233	20.40 µg/L	100
PFPeS	5.443	349.0 -> 99.0	7996	16.88 µg/L	100
PFTeDA	16.106	713.0 -> 669.0	66708	18.00 µg/L	100
PFTrDA	14.667	663.0 -> 619.0	132529	19.18 µg/L	100
PFUnDA	11.308	563.0 -> 519.0	148239	20.80 µg/L	100

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

7.5.10  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.10  
7

### Perfluorinated Compounds by LC/MS/MS

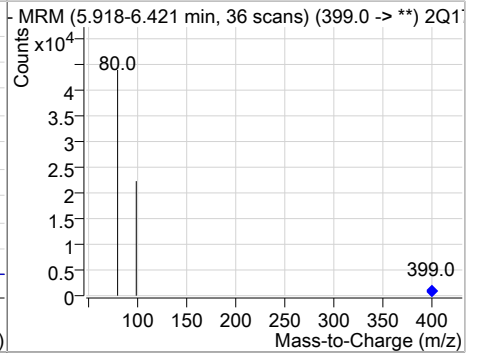
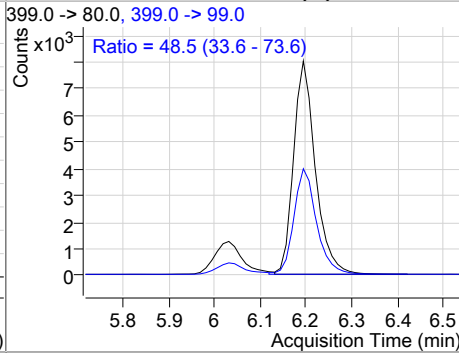
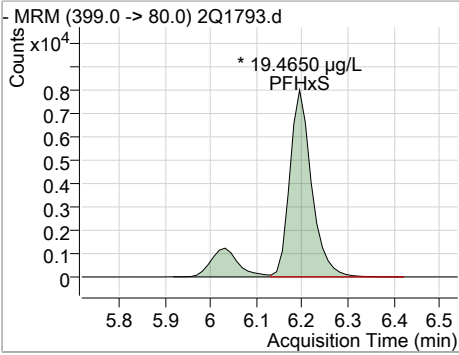
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
4:2FTS	19.94	5.34	0.04	59598				
13C2-PFHxA	17.88	5.41	0.03	63063				
PFHxA	17.54	5.41	0.03	28068	313.0 -> 119.0	0.4	0.0	25.0
PFPeS	16.88	5.44	0.03	7996				

7.5.10  
7

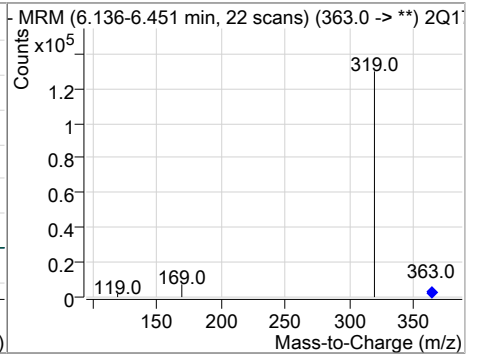
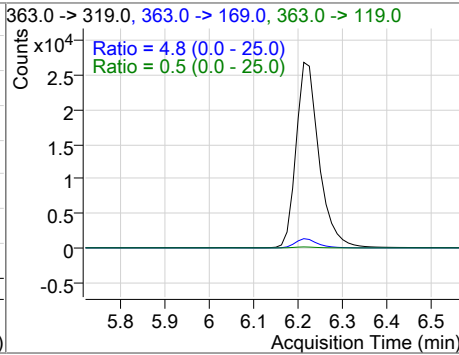
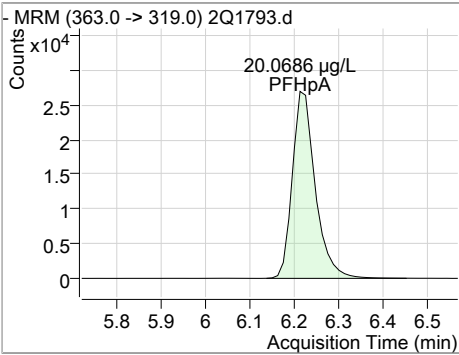


### Perfluorinated Compounds by LC/MS/MS

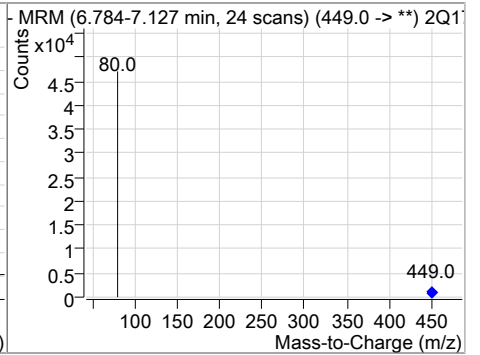
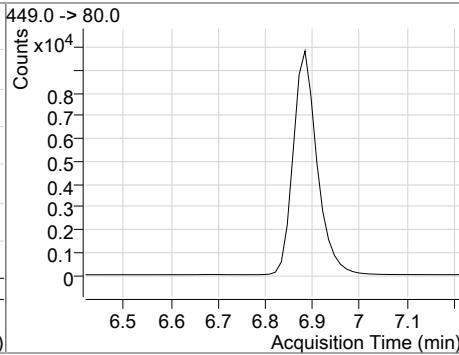
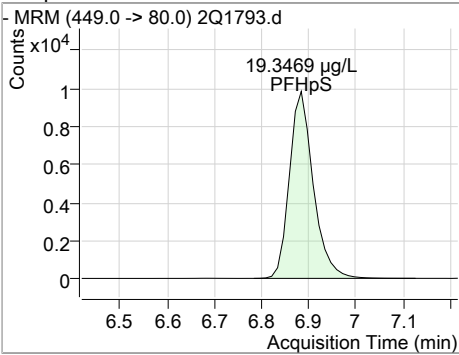
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	19.46	6.19	0.03	31650 (m)	399.0 -> 99.0	48.5	33.6	73.6



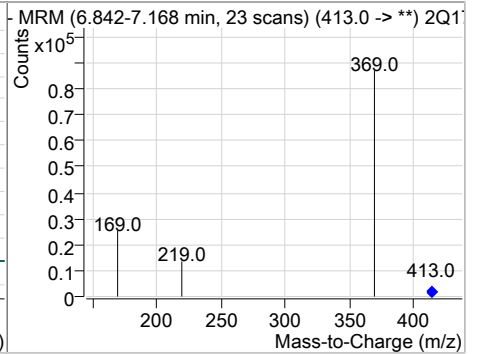
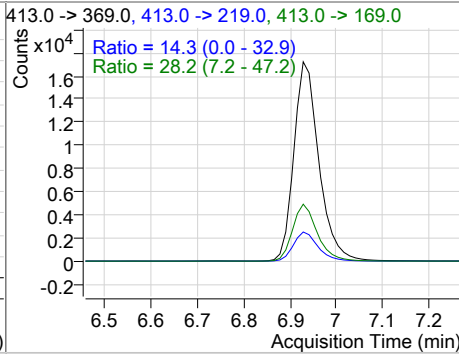
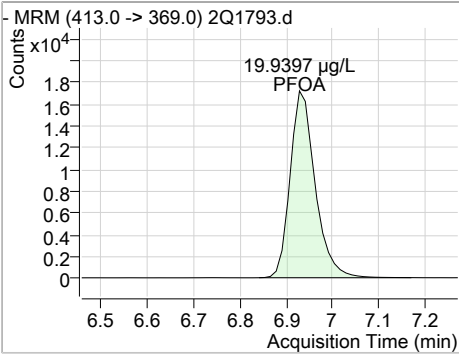
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	20.07	6.21	0.01	96011	363.0 -> 119.0 363.0 -> 169.0	0.5 4.8	0.0 0.0	25.0 25.0



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	19.35	6.88	0.03	34414	449.0 -> 80.0			

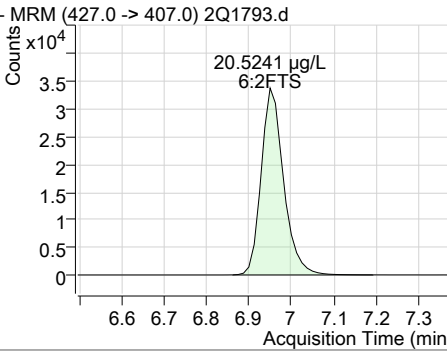
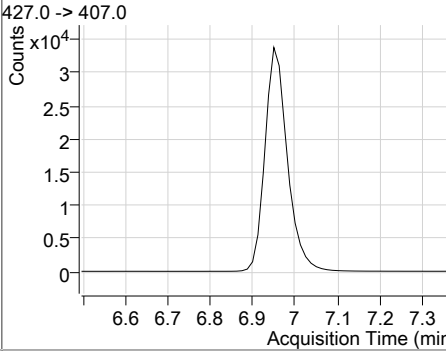
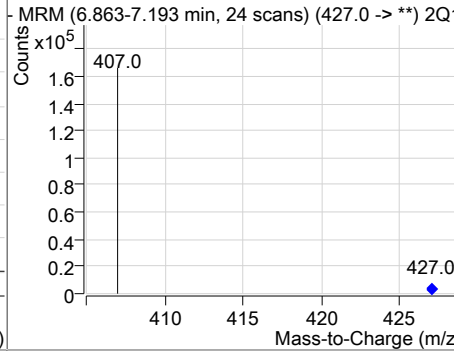
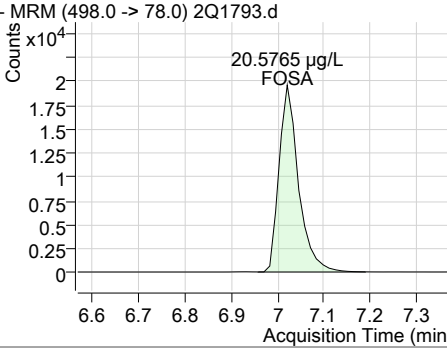
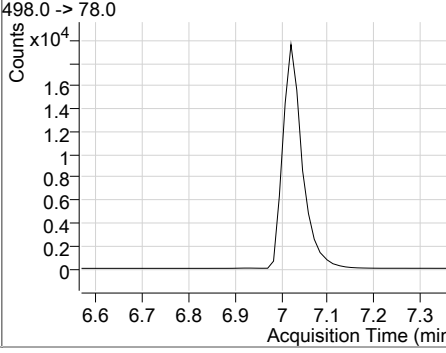
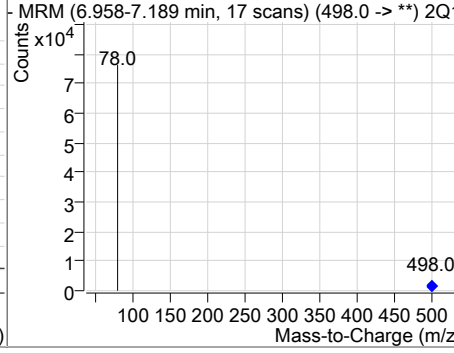
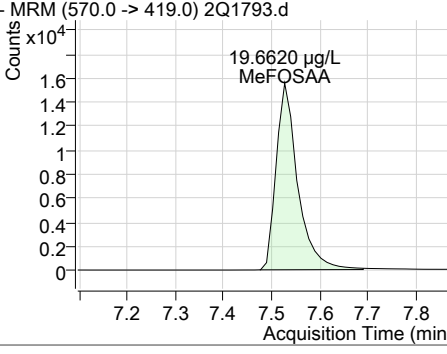
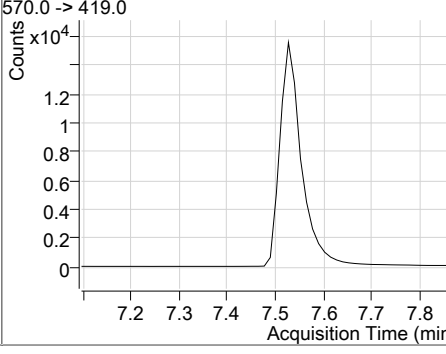
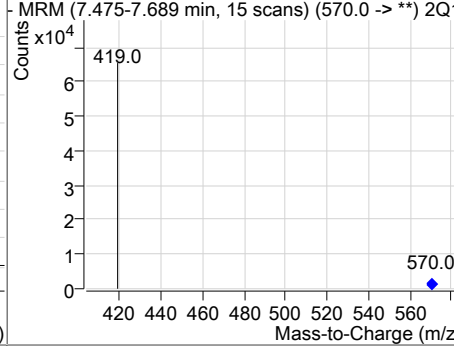
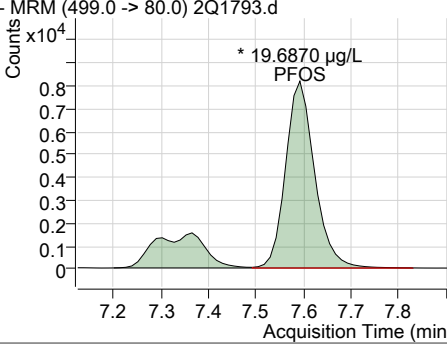
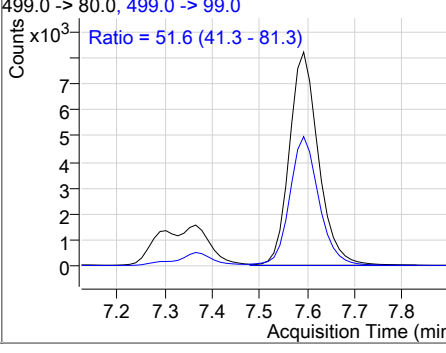
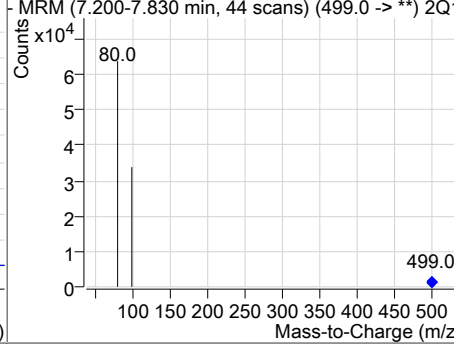


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	19.94	6.93	0.01	64105	413.0 -> 169.0 413.0 -> 219.0	28.2 14.3	7.2 0.0	47.2 32.9



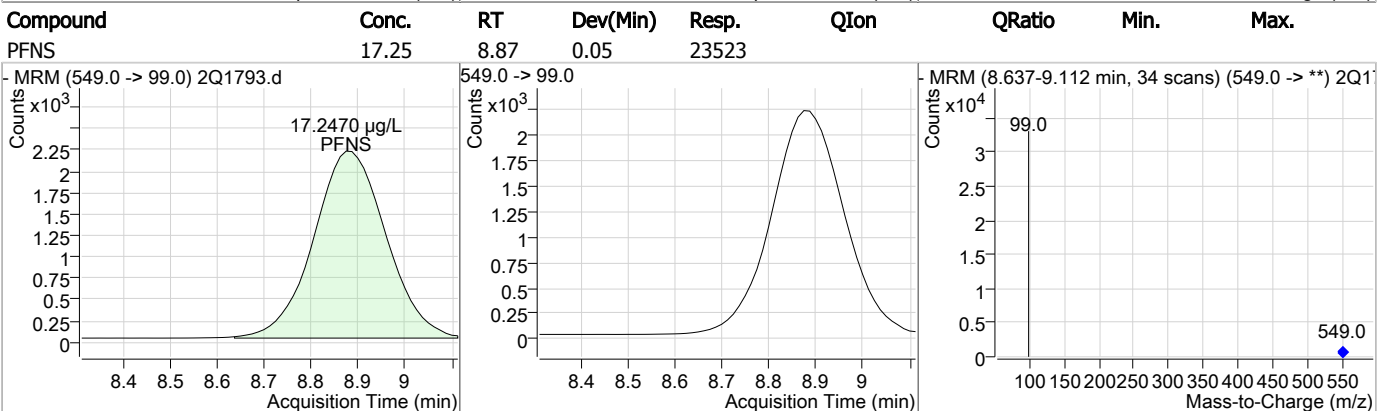
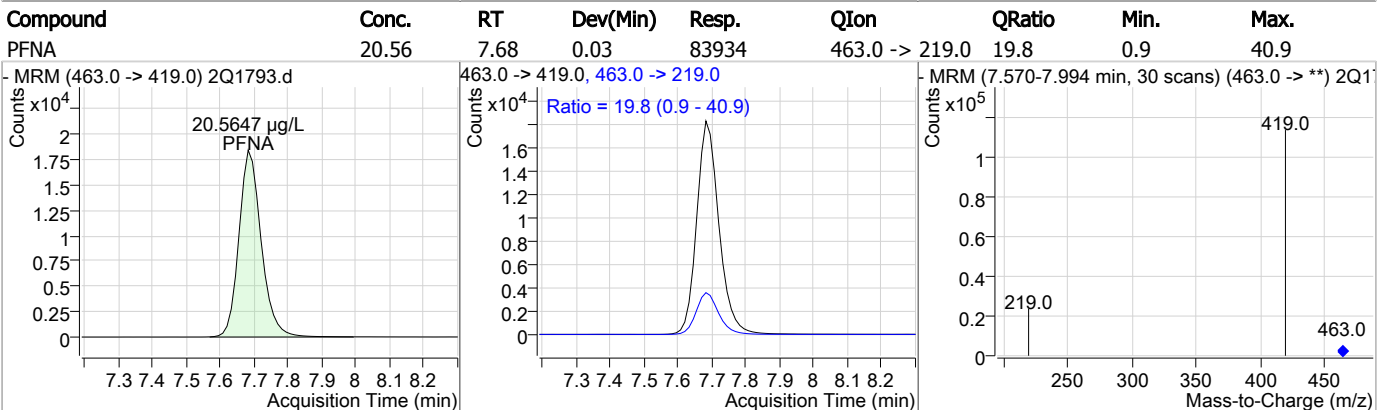
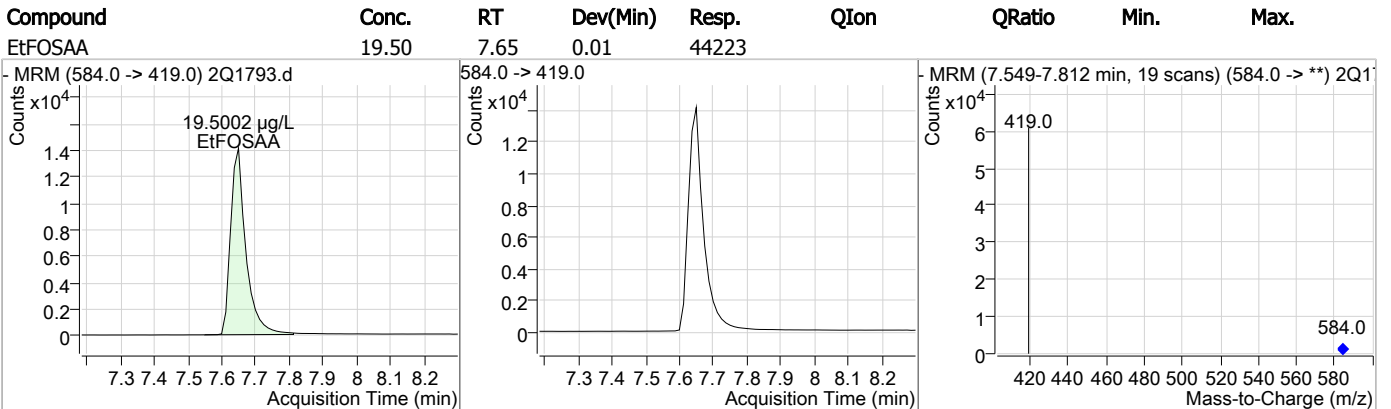
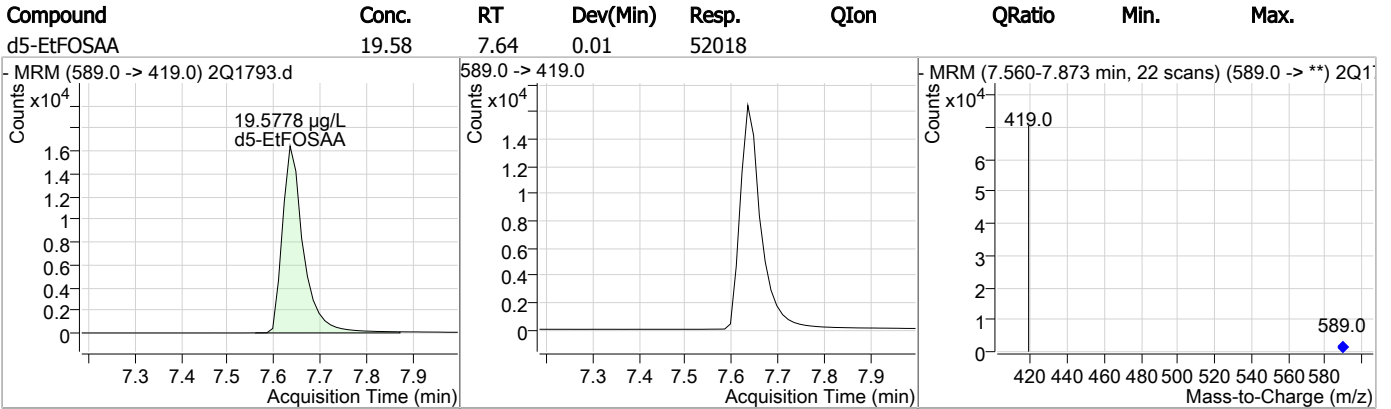
7.5.10  
7

### Perfluorinated Compounds by LC/MS/MS

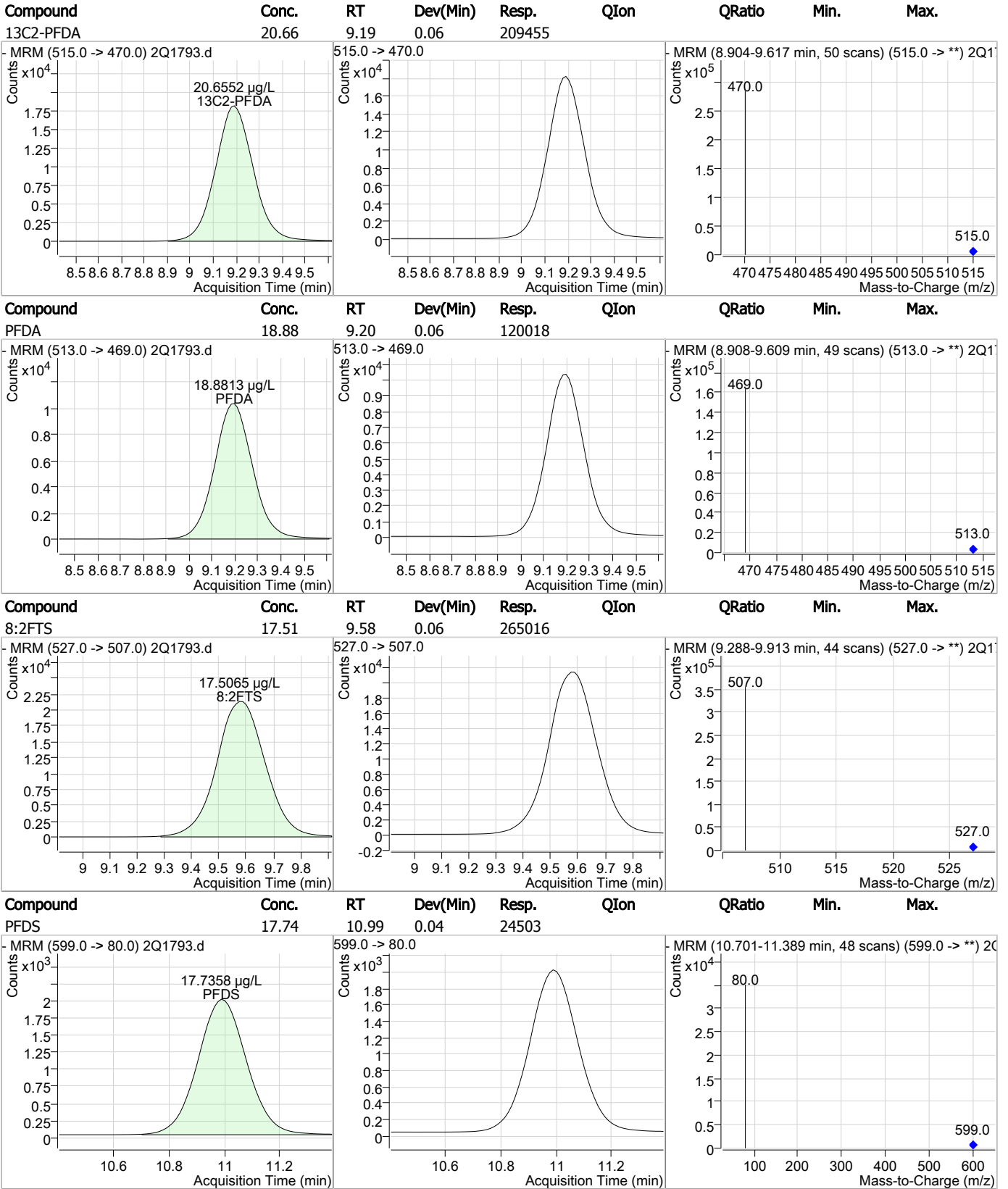
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	20.52	6.95	0.03	124026				
-MRM (427.0 -> 407.0) 2Q1793.d 			427.0 -> 407.0 			-MRM (6.863-7.193 min, 24 scans) (427.0 -> **) 2Q1793.d 		
FOSA	20.58	7.02	0.01	56954				
-MRM (498.0 -> 78.0) 2Q1793.d 			498.0 -> 78.0 			-MRM (6.958-7.189 min, 17 scans) (498.0 -> **) 2Q1793.d 		
MeFOSAA	19.66	7.53	0.01	48232				
-MRM (570.0 -> 419.0) 2Q1793.d 			570.0 -> 419.0 			-MRM (7.475-7.689 min, 15 scans) (570.0 -> **) 2Q1793.d 		
PFOS	19.69	7.59	0.03	46007 (m)	499.0 -> 99.0	51.6	41.3	81.3
-MRM (499.0 -> 80.0) 2Q1793.d 			499.0 -> 80.0, 499.0 -> 99.0 Ratio = 51.6 (41.3 - 81.3) 			-MRM (7.200-7.830 min, 44 scans) (499.0 -> **) 2Q1793.d 		

7.5.10  
7

### Perfluorinated Compounds by LC/MS/MS

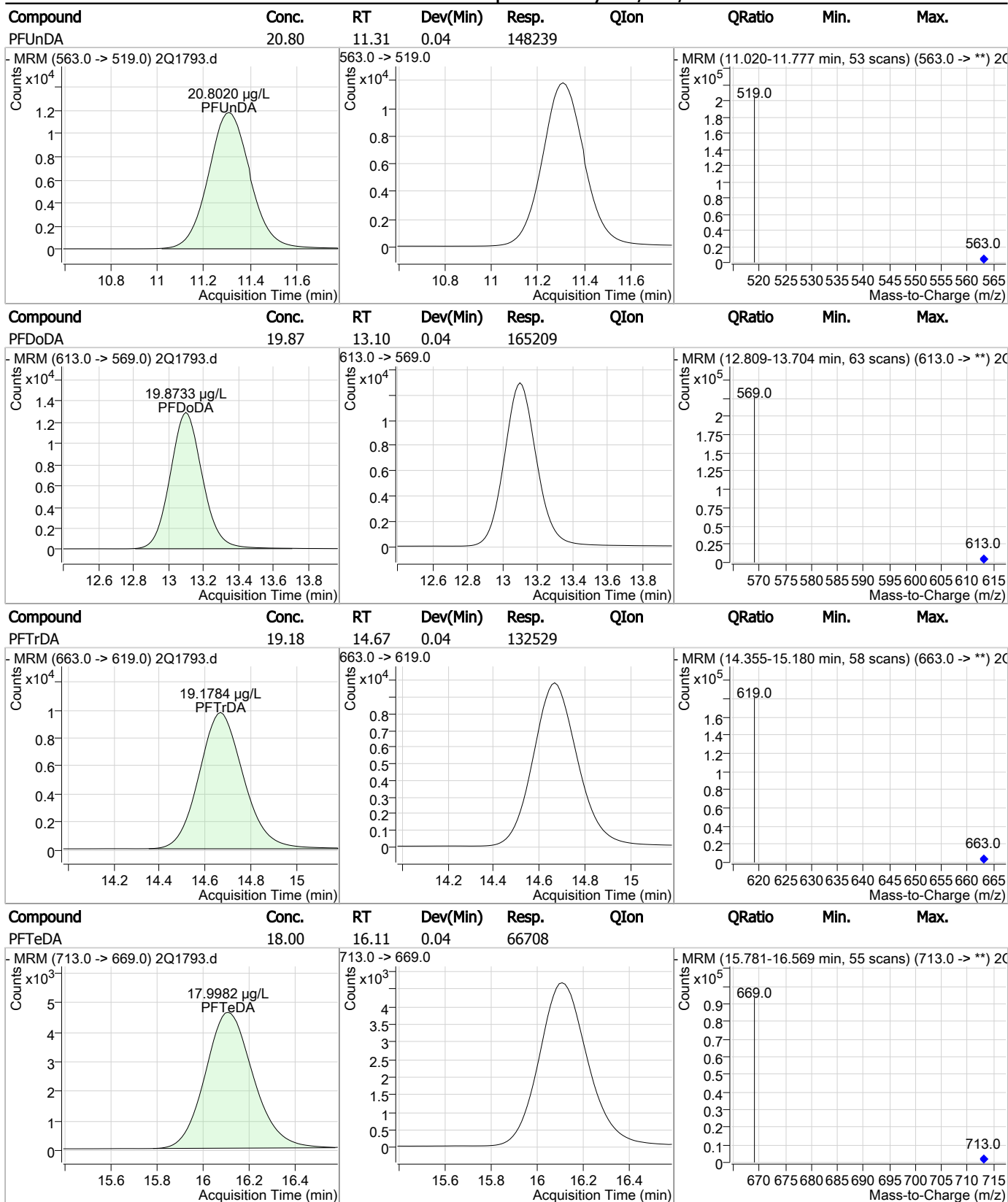


### Perfluorinated Compounds by LC/MS/MS



7.5.10  
7

### Perfluorinated Compounds by LC/MS/MS



7.5.10  
7

# Manual Integration Approval Summary

Sample Number: S2Q48-CC47                      Method: EPA 537  
Lab FileID: 2Q1793.D                      Analyst approved: 06/01/17 14:44 Mike Eger  
Injection Time: 05/31/17 23:22                      Supervisor approved: 06/01/17 17:07 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.59	Split peak

7.5.10.1

7

# Perfluorinated Compounds by LC/MS/MS.

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

**Mike Eger**  
 05/22/17 16:55

Data File : Q34170.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 10:43  
 Sample Name : IC893-1  
 Vial : Vial 2  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.272	266.0 -> 222.0	24413	20.000	µg/L	-0.012	
13C2-PFOA	6.839	415.0 -> 370.0	81800	20.000	µg/L	-0.012	
13C2-6:2FTS	6.861	429.0 -> 409.0	35917	20.000	µg/L	0.000	
d3-MeFOSAA	7.500	573.0 -> 419.0	16666	20.000	µg/L	0.000	
13C4-PFOS	7.502	503.0 -> 80.0	81420	20.000	µg/L	0.000	
13C2-PFDoDA	12.666	615.0 -> 570.0	40972	20.000	µg/L	0.025	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.297	315.0 -> 270.0	1838	1.21	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 6.06%				
d5-EtFOSAA	7.622	589.0 -> 419.0	740	1.33	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 6.66%				
13C2-PFDA	8.942	515.0 -> 470.0	3491	1.04	µg/L	0.015	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 5.19%				
<b>Target Compounds</b>							
							<b>Qvalue</b>
PFBA	2.952	213.0 -> 169.0	1336	1.276	µg/L		100
PFPeA	4.275	263.0 -> 219.0	779	1.152	µg/L		100
PFBS	4.404	299.0 -> 80.0	1797	1.115	µg/L		90
4:2FTS	5.220	327.0 -> 307.0	1828	1.246	µg/L		100
PFHxA	5.300	313.0 -> 269.0	1770	1.249	µg/L		99
PFPeS	5.342	349.0 -> 99.0	463	1.206	µg/L		100
PFHxS	6.106	399.0 -> 80.0	2683	1.130	µg/L # m		82
PFHpA	6.123	363.0 -> 319.0	1505	1.145	µg/L #		46
PFHpS	6.809	449.0 -> 80.0	2889	1.109	µg/L		100
PFOA	6.853	413.0 -> 369.0	4593	1.118	µg/L		79
6:2FTS	6.862	427.0 -> 407.0	1931	1.097	µg/L		100
FOSA	6.996	498.0 -> 78.0	5994	1.287	µg/L		100
PFOS	7.503	499.0 -> 80.0	4861	1.157	µg/L # m		74
MeFOSAA	7.513	570.0 -> 419.0	727	1.151	µg/L		100
PFNA	7.582	463.0 -> 419.0	1390	1.094	µg/L #		65
EtFOSAA	7.624	584.0 -> 419.0	632	1.053	µg/L		100
PFNS	8.649	549.0 -> 99.0	1195	1.164	µg/L		100
PFDA	8.932	513.0 -> 469.0	2608	0.928	µg/L #		90
8:2FTS	9.287	527.0 -> 507.0	1789	1.193	µg/L		100
PFDS	10.689	599.0 -> 80.0	2556	1.215	µg/L		100
PFUnDA	10.981	563.0 -> 519.0	2024	1.134	µg/L #		89
PFDoDA	12.670	613.0 -> 569.0	2114	1.202	µg/L		95
PFTrDA	14.142	663.0 -> 619.0	2020	1.247	µg/L #		74
PFTeDA	15.468	713.0 -> 669.0	1206	1.043	µg/L #		82

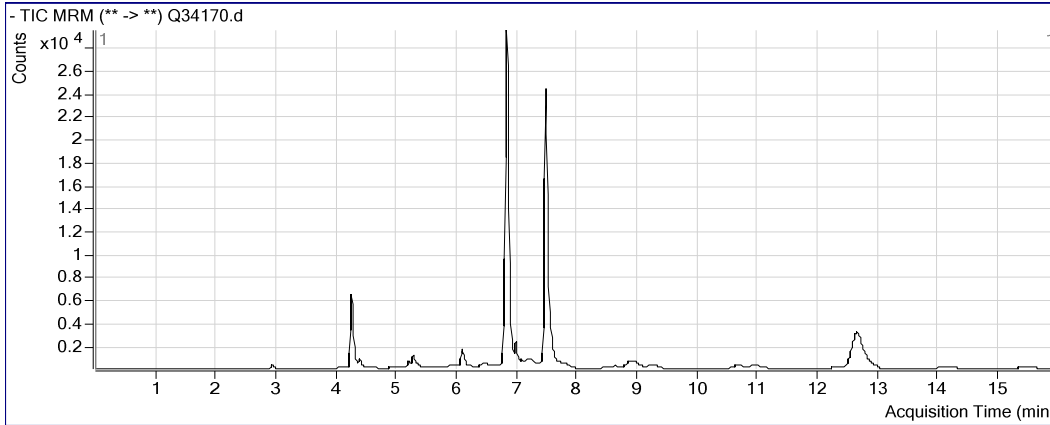
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

7.5.11

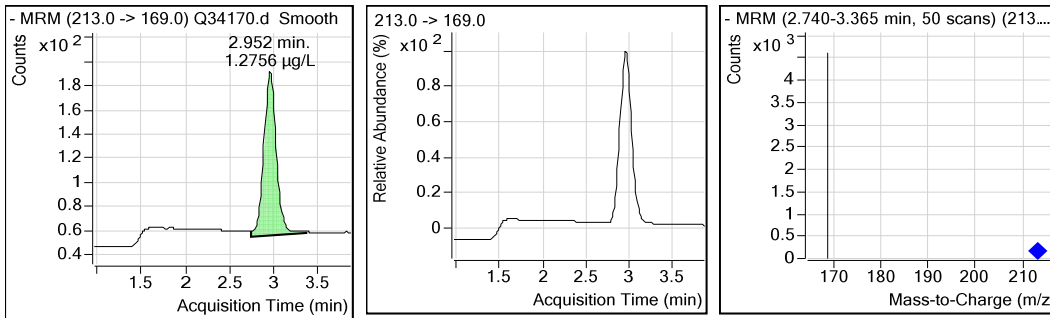
7

# Perfluorinated Compounds by LC/MS/MS.

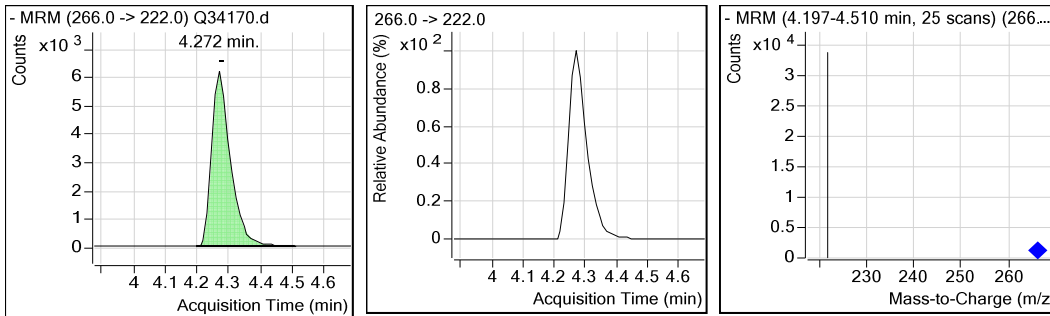
Data File : Q34170.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 10:43  
 Sample Name : IC893-1  
 Vial : Vial 2  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



**PFBA**



**13C3-PFPeA**

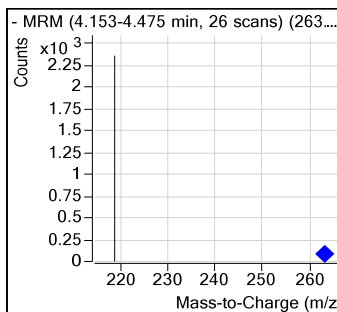
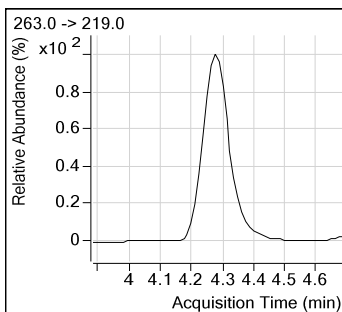
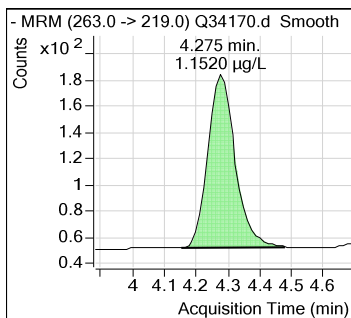


7.5.11  
7

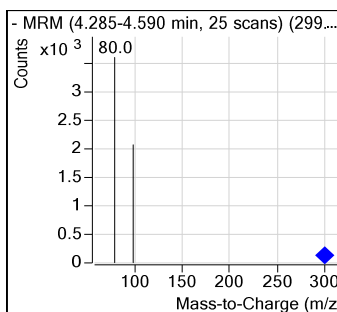
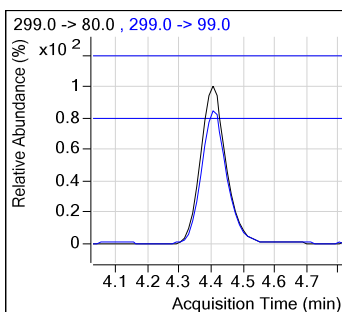
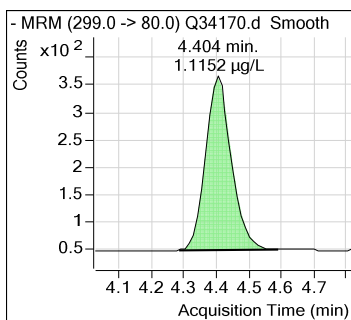


## Perfluorinated Compounds by LC/MS/MS.

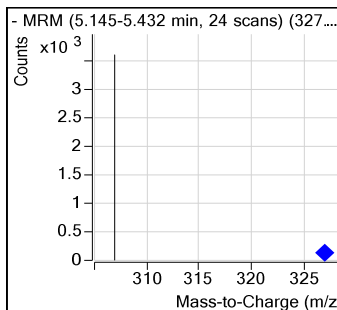
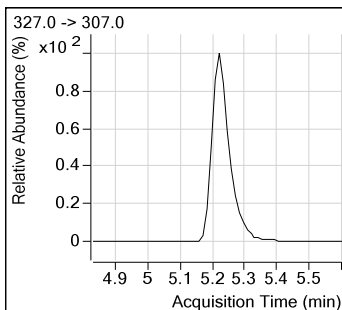
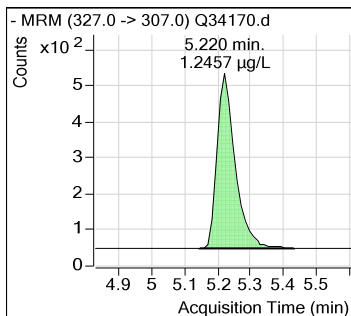
### PFPeA



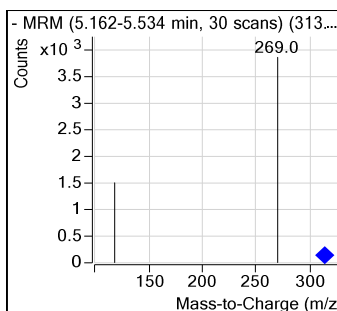
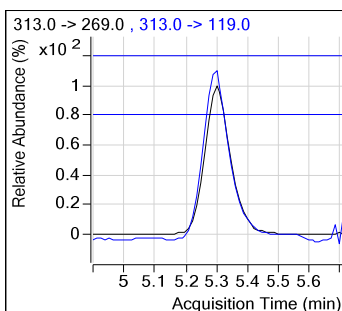
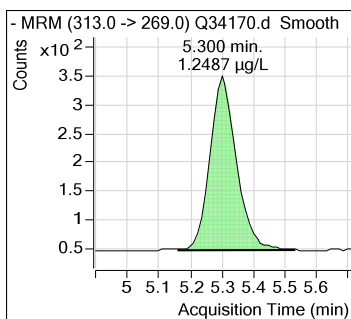
### PFBS



### 4:2F7S



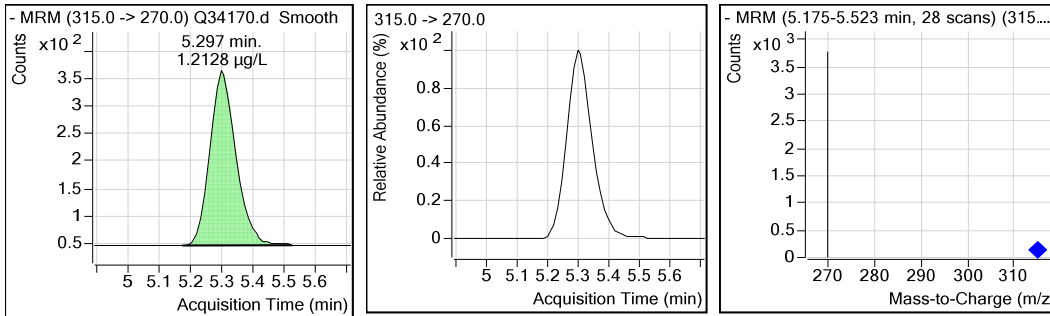
### PFHxA



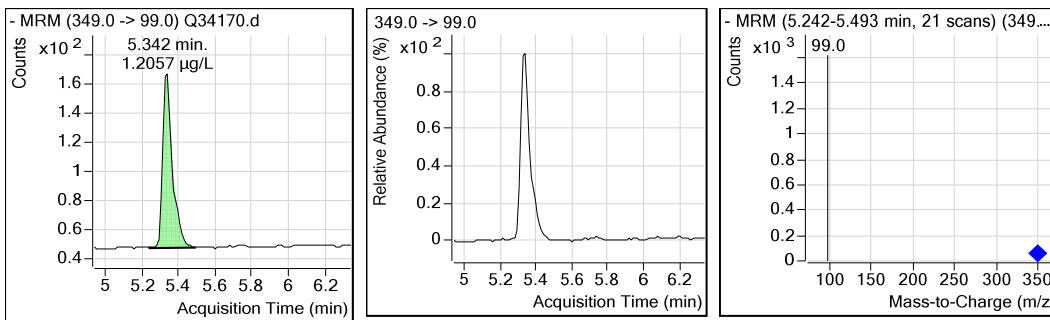
## Perfluorinated Compounds by LC/MS/MS.

7.5.11  
7

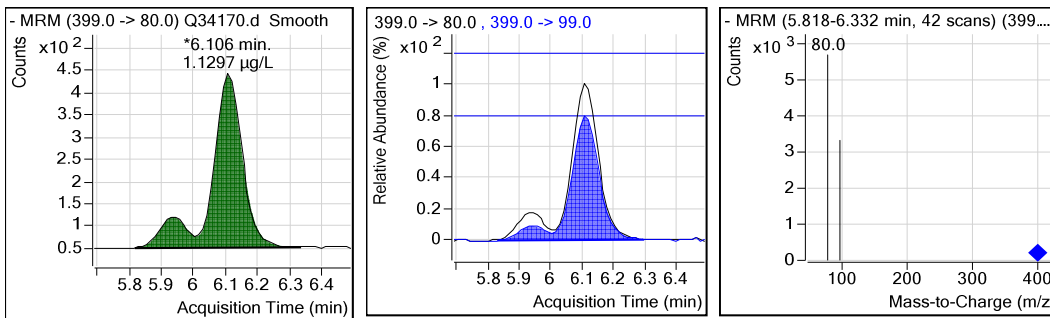
### 13C2-PFHxA



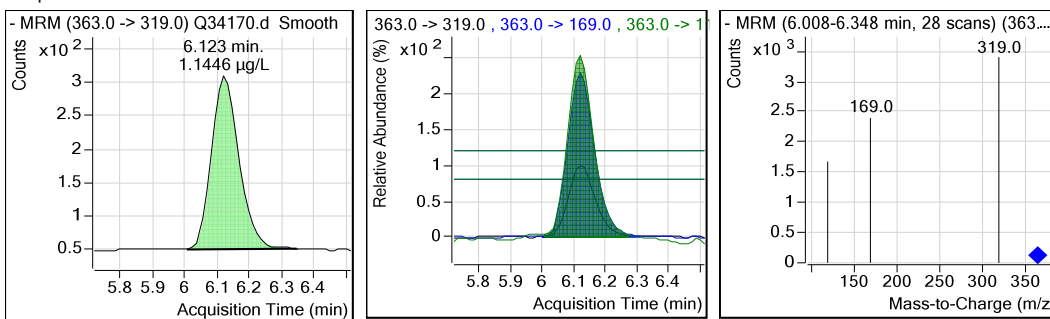
### PFPeS



### PFHxS



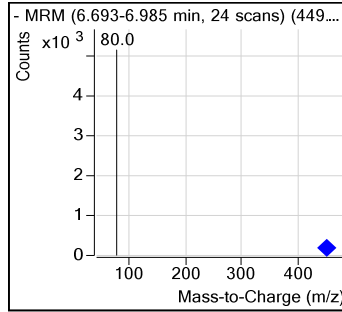
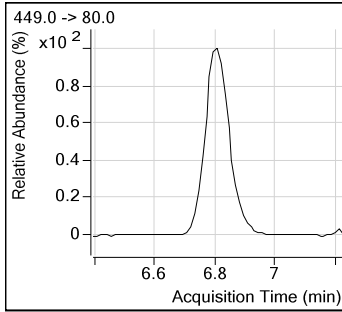
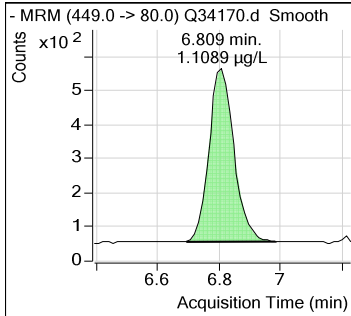
### PFHpA



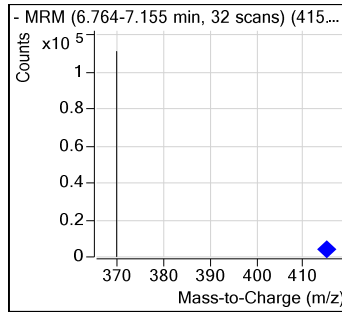
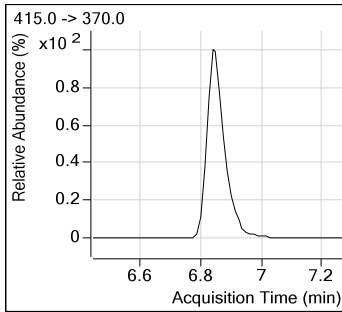
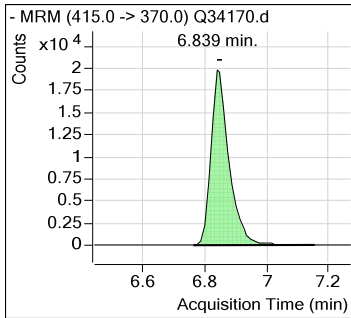
## Perfluorinated Compounds by LC/MS/MS.

7.5.11  
7

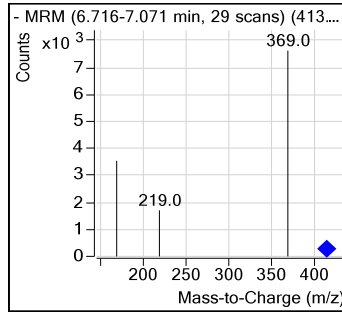
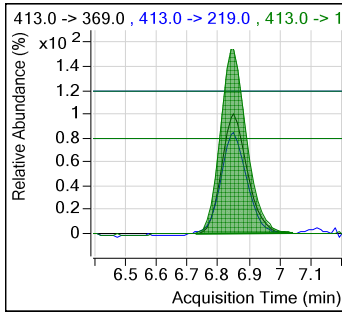
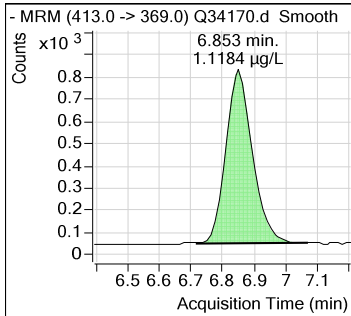
PFHpS



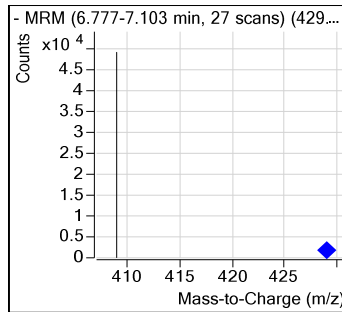
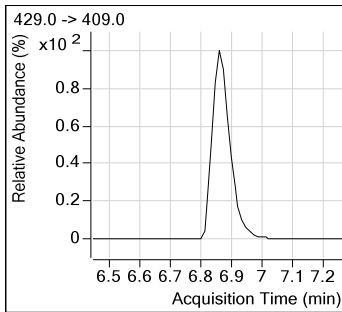
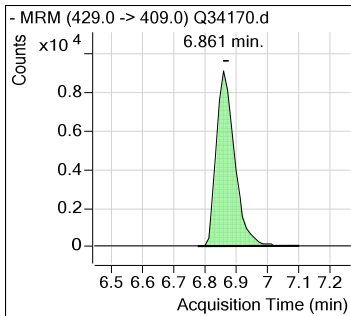
13C2-PFOA



PFOA

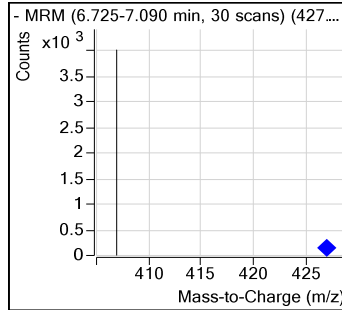
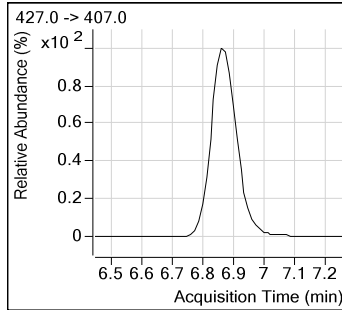
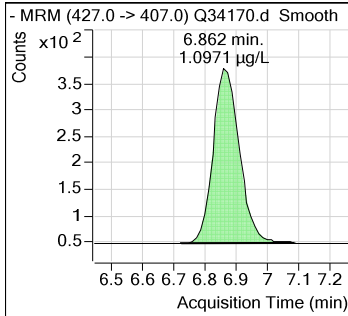


13C2-6:2FTS

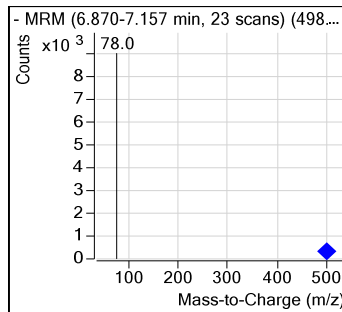
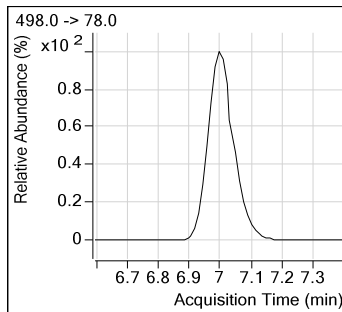
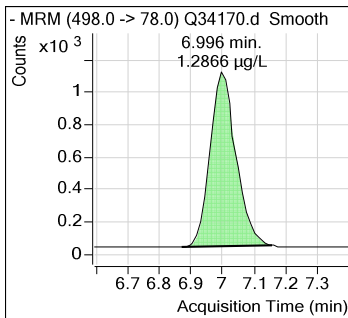


## Perfluorinated Compounds by LC/MS/MS.

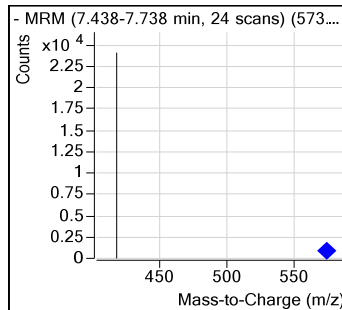
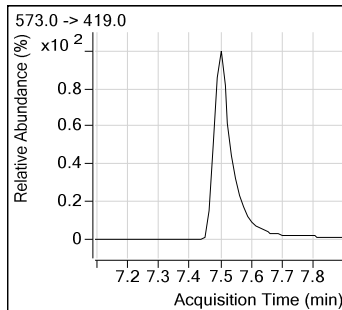
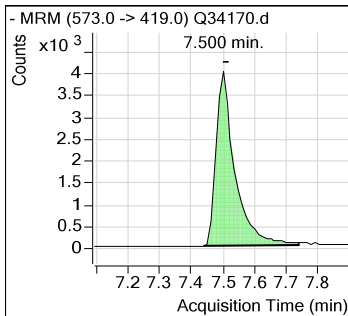
### 6:2FTS



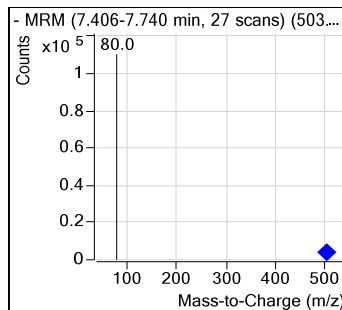
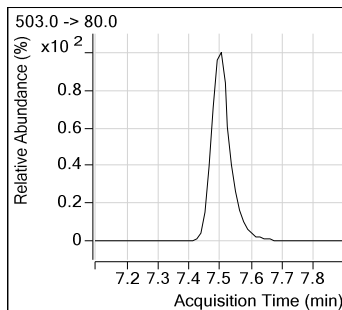
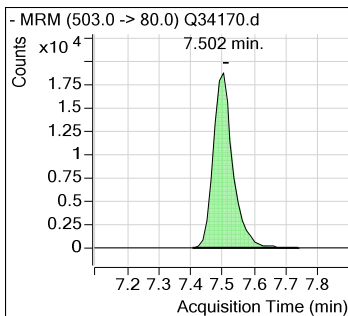
### FOSA



### d3-MeFOSAA



### 13C4-PFOS

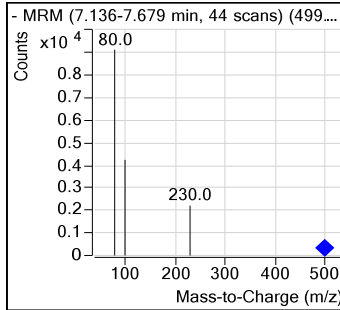
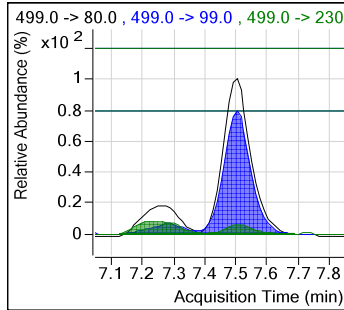
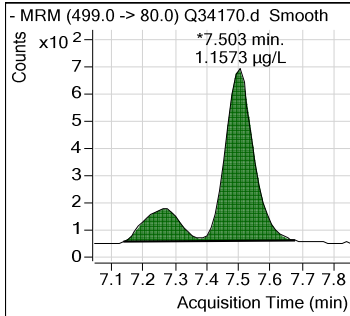


## Perfluorinated Compounds by LC/MS/MS.

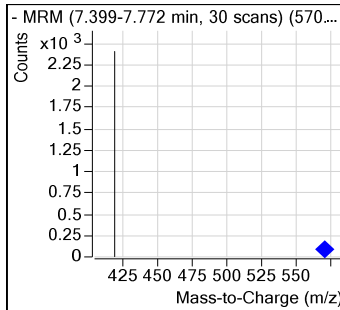
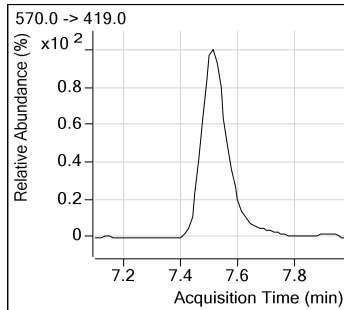
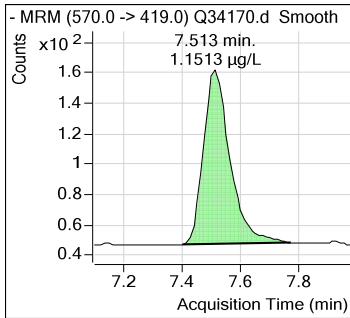
7.5.11

7

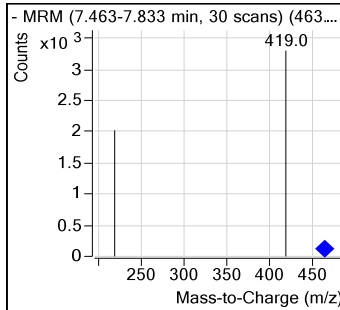
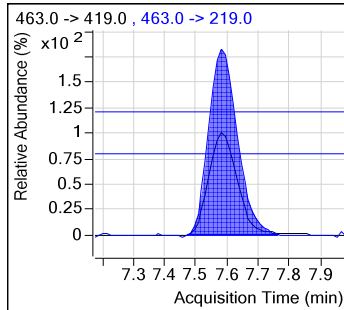
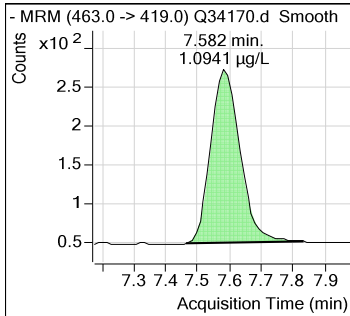
PFOS



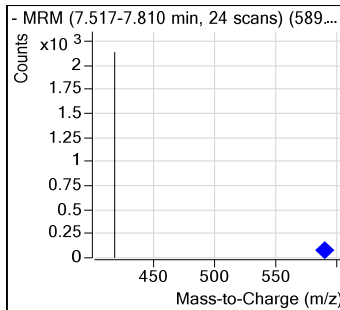
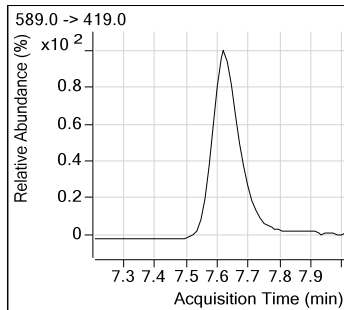
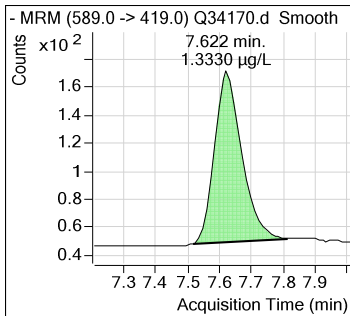
MeFOSAA



PFNA



d5-EtFOSAA

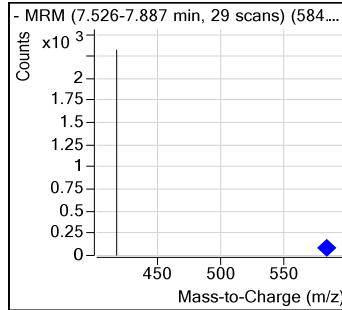
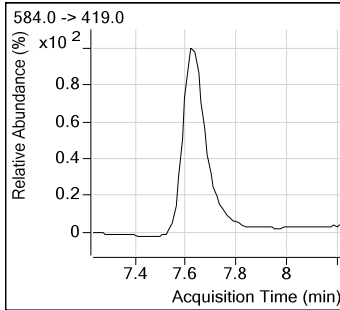
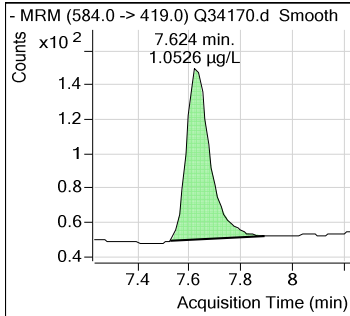


## Perfluorinated Compounds by LC/MS/MS.

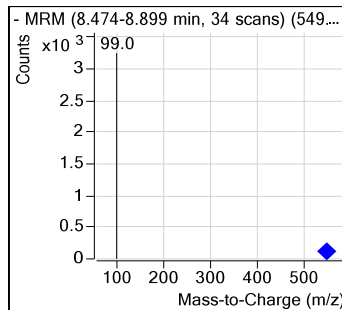
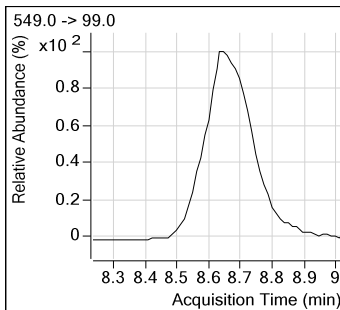
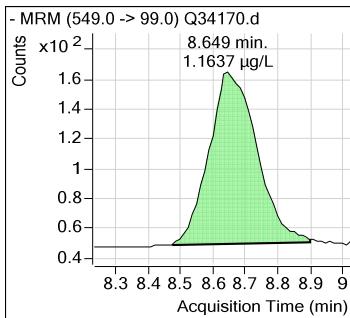
7.5.11

7

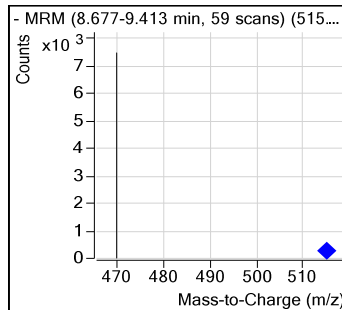
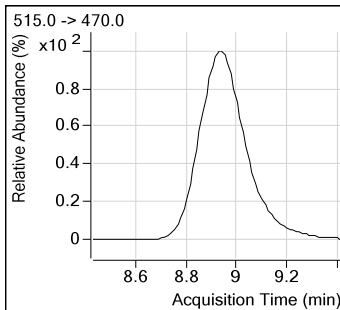
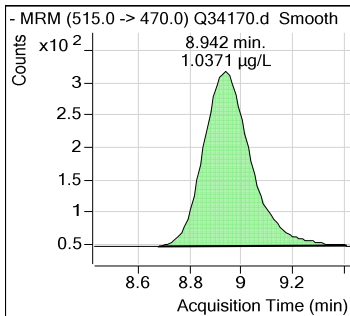
### EtFOSAA



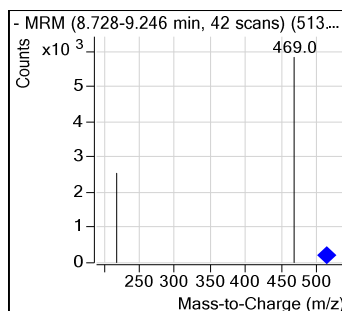
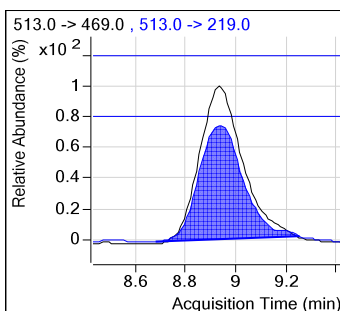
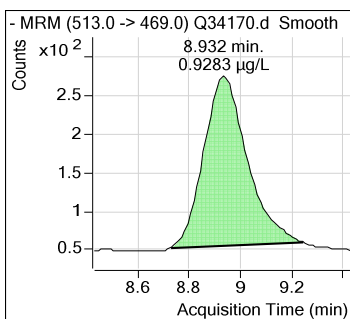
### PFNS



### 13C2-PFDA

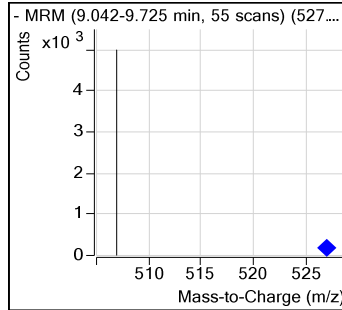
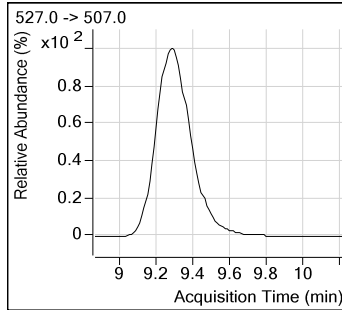
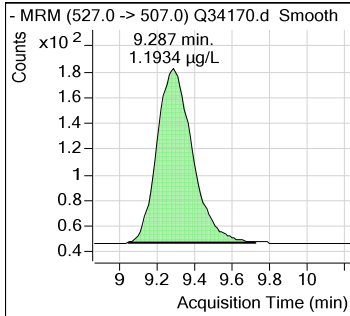


### PFDA

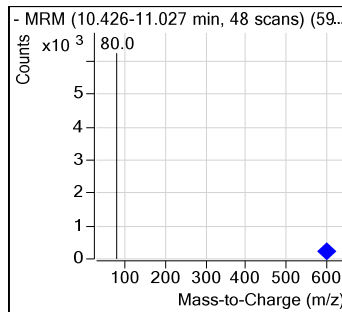
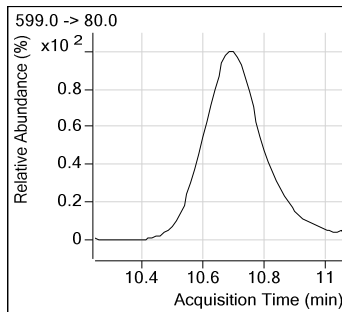
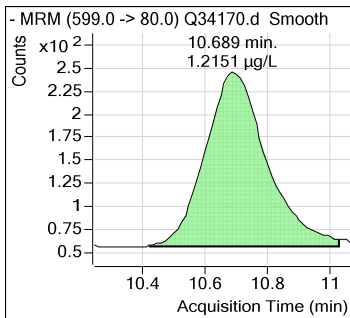


## Perfluorinated Compounds by LC/MS/MS.

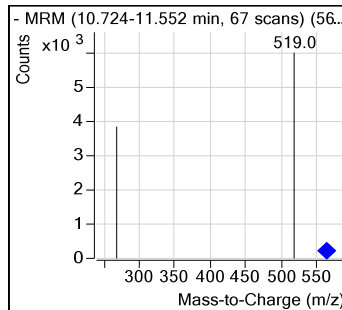
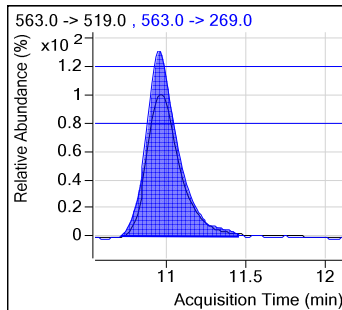
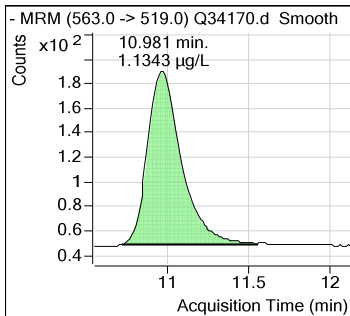
8:2FTS



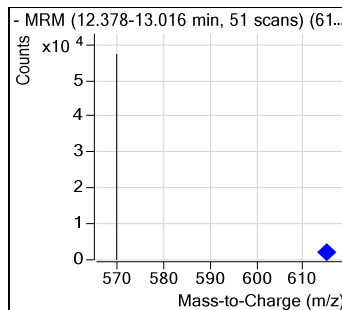
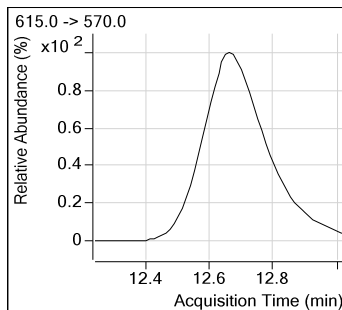
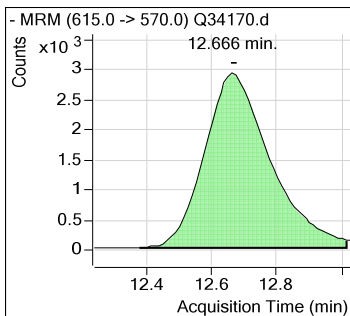
PFDS



PFUnDA



13C2-PFDoDA

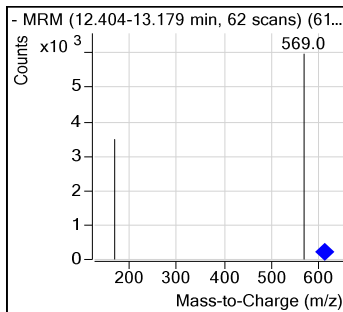
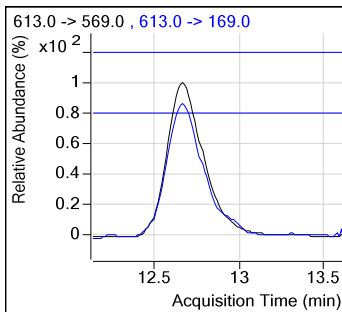
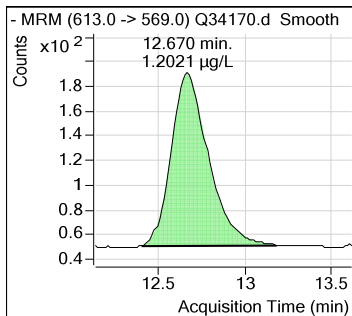


7.5.11  
7

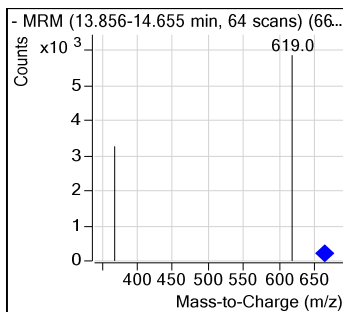
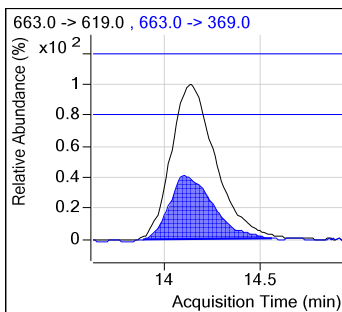
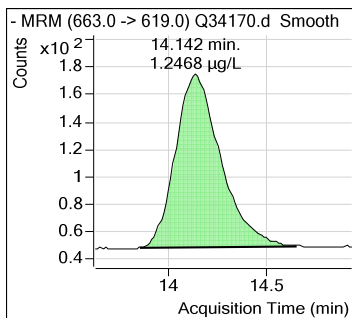
## Perfluorinated Compounds by LC/MS/MS.

7.5.11  
7

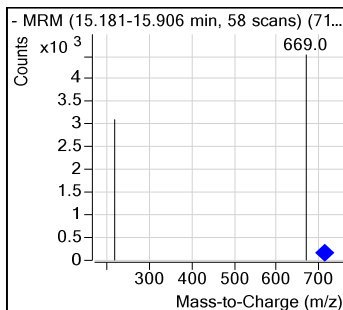
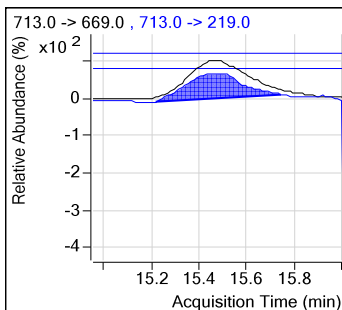
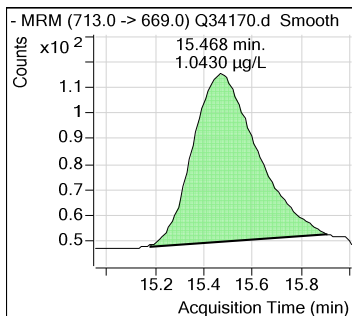
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**



# Manual Integration Approval Summary

Sample Number: SQ893-IC893                      Method: EPA 537 MOD  
Lab FileID: Q34170.D                              Analyst approved: 05/22/17 11:05 Nancy Saunders  
Injection Time: 05/19/17 10:43                      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.50	Split peak

7.5.11.1

7

# Perfluorinated Compounds by LC/MS/MS.

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

**Mike Eger**  
 05/22/17 16:55

Data File : Q34171.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 11:04  
 Sample Name : IC893-2  
 Vial : Vial 3  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04

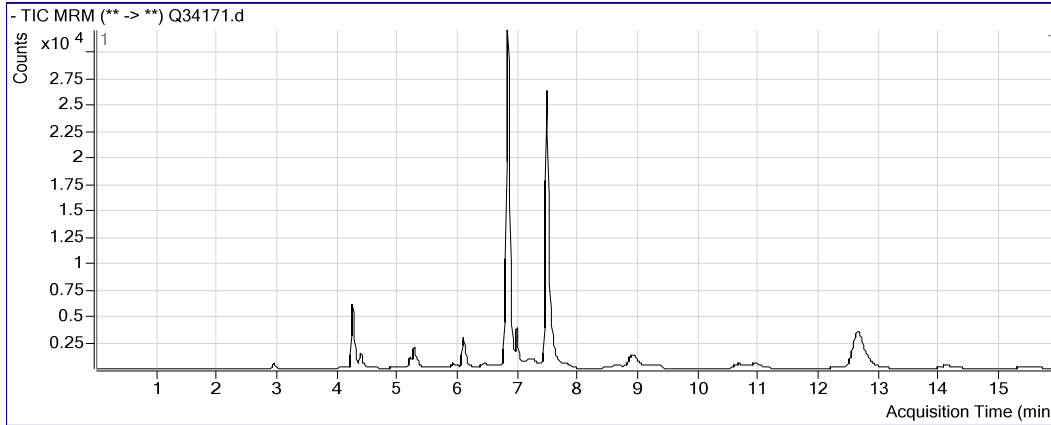
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	Qvalue
<b>Internal Standards</b>							
13C3-PFPeA	4.272	266.0 -> 222.0	22543	20.000	µg/L	-0.012	
13C2-PFOA	6.852	415.0 -> 370.0	82724	20.000	µg/L	0.000	
13C2-6:2FTS	6.861	429.0 -> 409.0	37702	20.000	µg/L	0.000	
d3-MeFOSAA	7.500	573.0 -> 419.0	17476	20.000	µg/L	0.000	
13C4-PFOS	7.502	503.0 -> 80.0	84151	20.000	µg/L	0.000	
13C2-PFDoDA	12.666	615.0 -> 570.0	43685	20.000	µg/L	0.025	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.297	315.0 -> 270.0	3285	2.14	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 10.72%				
d5-EtFOSAA	7.622	589.0 -> 419.0	1345	2.31	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 11.54%				
13C2-PFDA	8.942	515.0 -> 470.0	6147	1.81	µg/L	0.015	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 9.03%				
<b>Target Compounds</b>							
PFBA	2.952	213.0 -> 169.0	2138	2.210	µg/L		100
PFPeA	4.275	263.0 -> 219.0	1317	2.110	µg/L		100
PFBS	4.404	299.0 -> 80.0	3401	2.043	µg/L		93
4:2FTS	5.220	327.0 -> 307.0	3533	2.292	µg/L		100
PFHxA	5.300	313.0 -> 269.0	3035	2.117	µg/L		98
PFPeS	5.342	349.0 -> 99.0	823	2.074	µg/L		100
PFHxS	6.106	399.0 -> 80.0	5130	2.090	µg/L # m		81
PFHpA	6.123	363.0 -> 319.0	2862	2.152	µg/L #		48
PFHpS	6.809	449.0 -> 80.0	5478	2.034	µg/L		100
PFOA	6.853	413.0 -> 369.0	8643	2.081	µg/L		82
6:2FTS	6.862	427.0 -> 407.0	3902	2.114	µg/L		100
FOSA	6.996	498.0 -> 78.0	11202	2.293	µg/L		100
PFOS	7.503	499.0 -> 80.0	8597	1.980	µg/L # m		77
MeFOSAA	7.513	570.0 -> 419.0	1369	2.067	µg/L		100
PFNA	7.582	463.0 -> 419.0	2631	2.048	µg/L #		73
EtFOSAA	7.624	584.0 -> 419.0	1245	1.976	µg/L		100
PFNS	8.649	549.0 -> 99.0	2177	2.052	µg/L		100
PFDA	8.932	513.0 -> 469.0	5479	1.928	µg/L #		86
8:2FTS	9.275	527.0 -> 507.0	3650	2.314	µg/L		100
PFDS	10.689	599.0 -> 80.0	4936	2.264	µg/L		100
PFUnDA	10.968	563.0 -> 519.0	3973	2.088	µg/L #		90
PFDoDA	12.670	613.0 -> 569.0	3973	2.116	µg/L		95
PFTrDA	14.142	663.0 -> 619.0	3997	2.307	µg/L #		76
PFTeDA	15.468	713.0 -> 669.0	2390	1.939	µg/L #		83

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

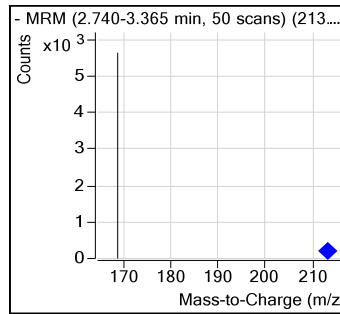
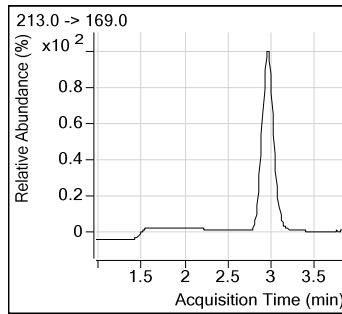
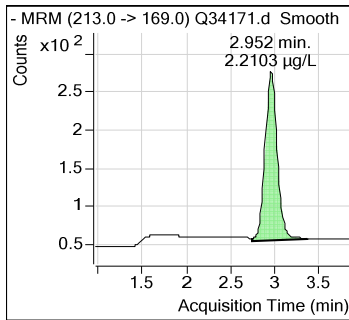
7.5.12  
7

# Perfluorinated Compounds by LC/MS/MS.

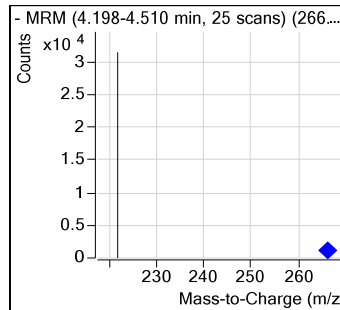
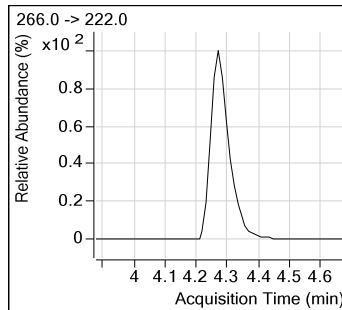
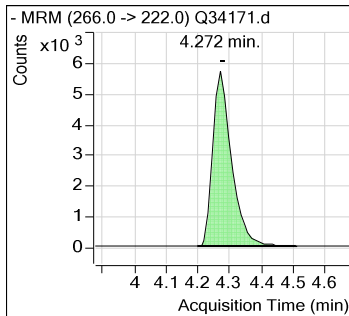
Data File : Q34171.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 11:04  
 Sample Name : IC893-2  
 Vial : Vial 3  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



**PFBA**



**13C3-PFPeA**

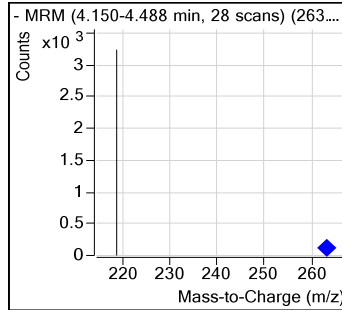
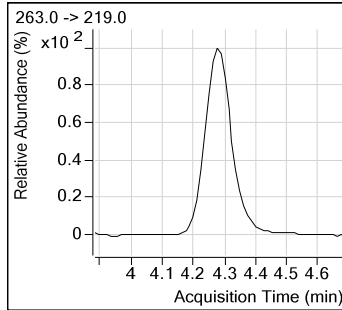
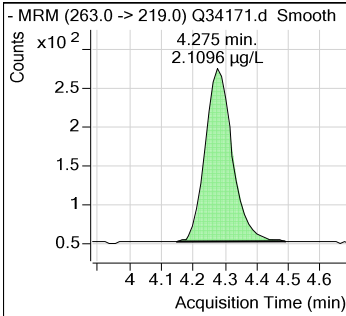


# Perfluorinated Compounds by LC/MS/MS.

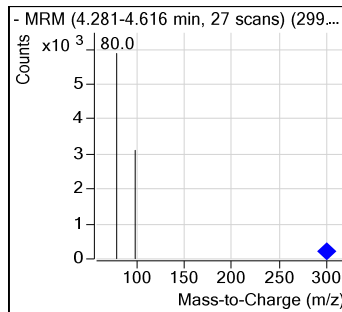
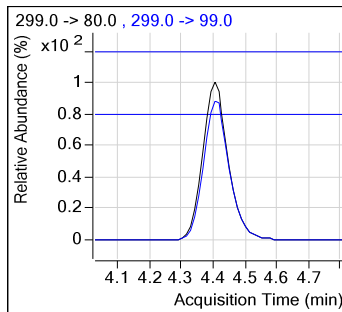
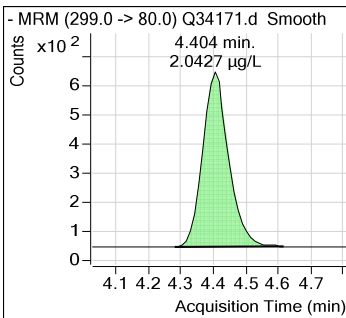
7.5.12

7

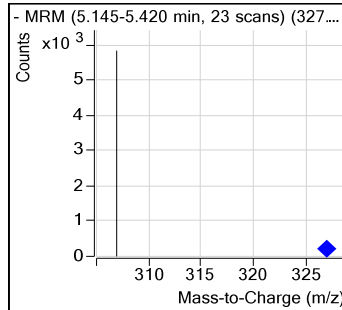
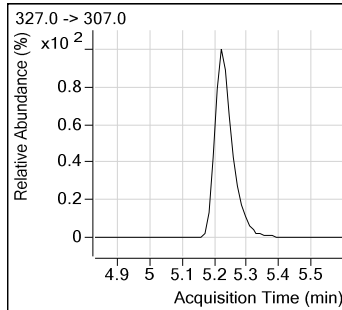
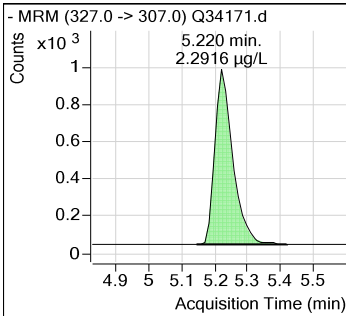
**PFPeA**



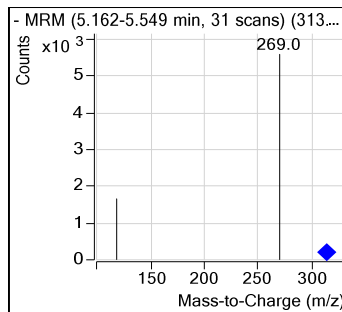
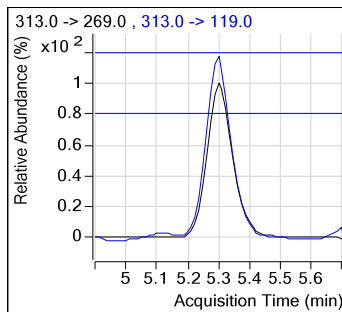
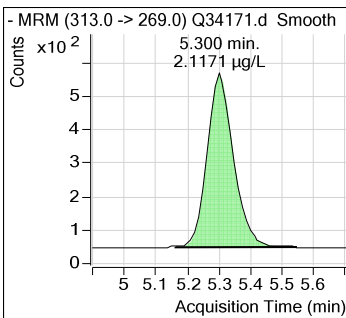
**PFBS**



**4:2FTS**



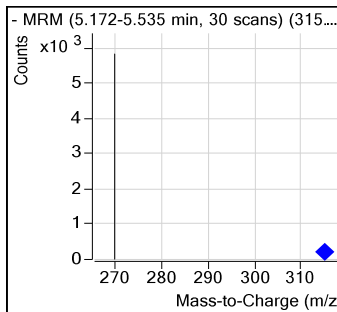
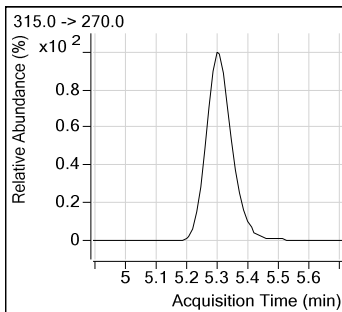
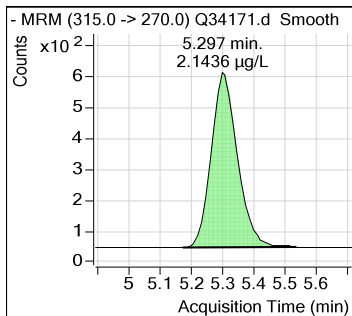
**PFHxA**



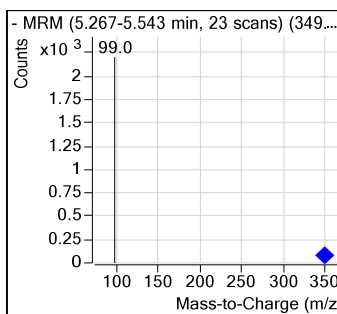
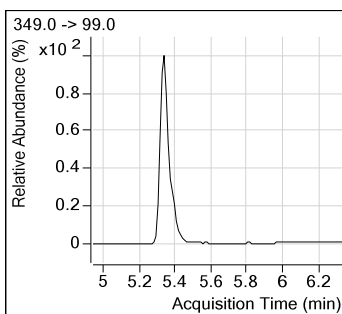
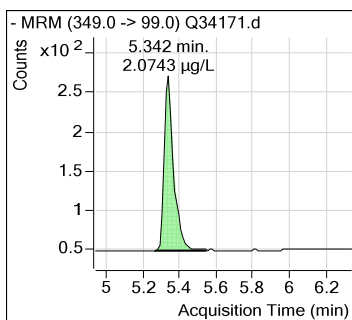
# Perfluorinated Compounds by LC/MS/MS.

7.5.12  
7

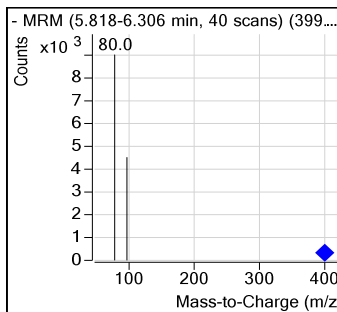
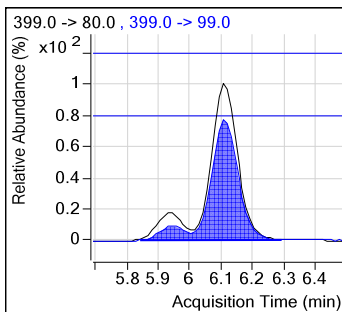
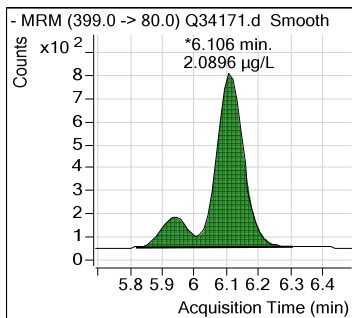
## 13C2-PFHxA



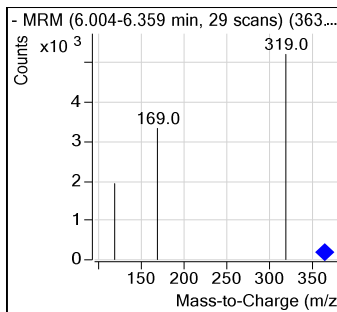
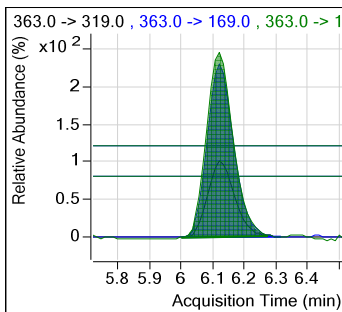
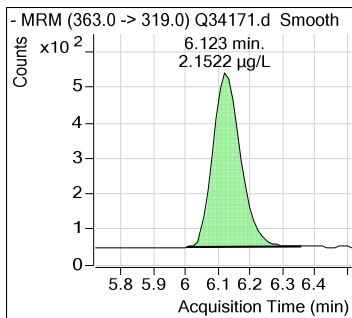
## PFPeS



## PFHxS



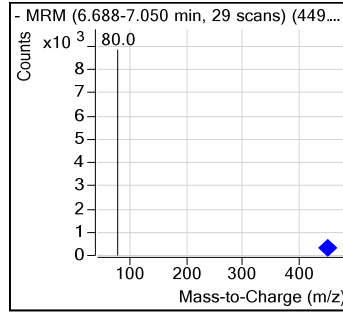
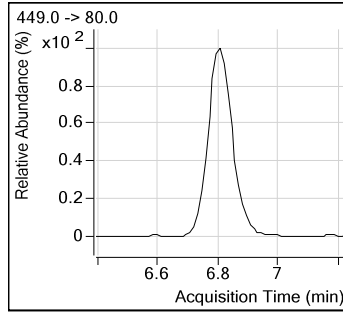
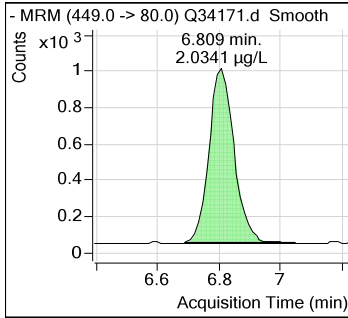
## PFHpA



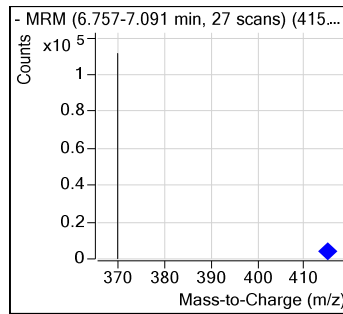
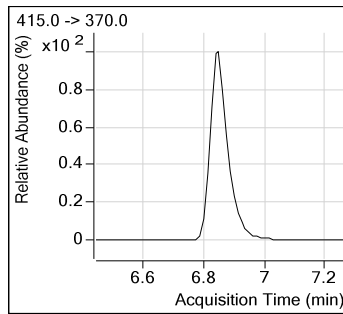
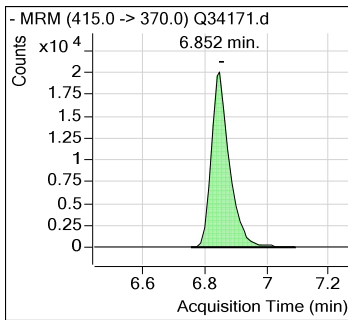
# Perfluorinated Compounds by LC/MS/MS.

7.5.12  
7

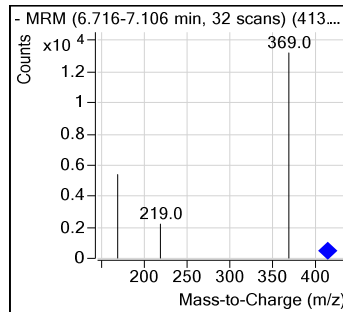
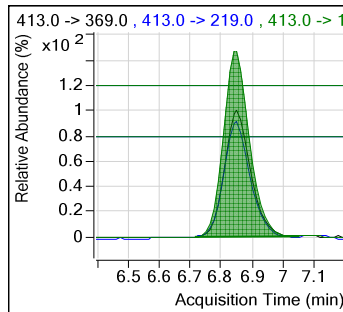
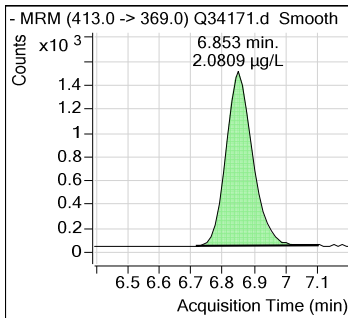
PFHpS



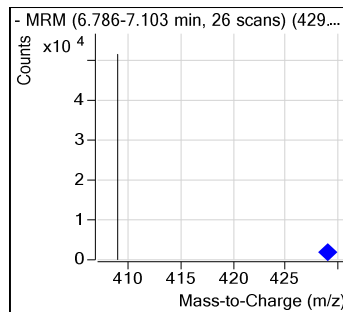
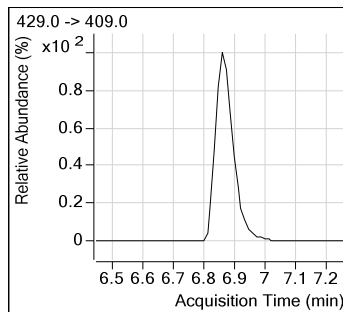
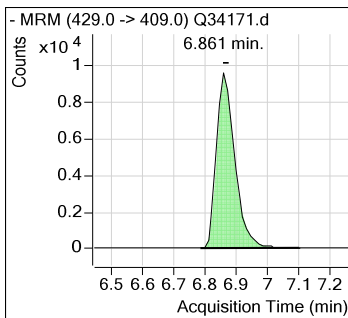
13C2-PFOA



PFOA



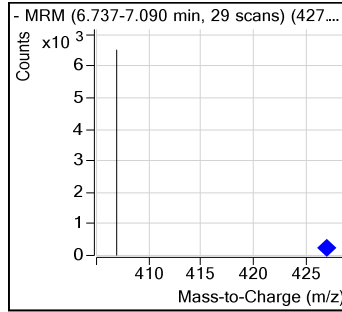
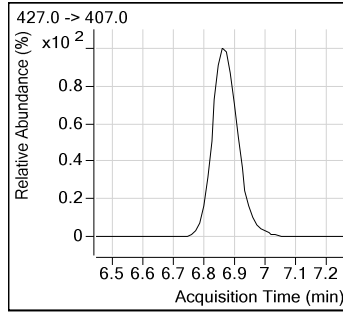
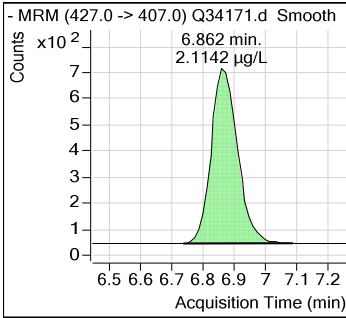
13C2-6:2FTS



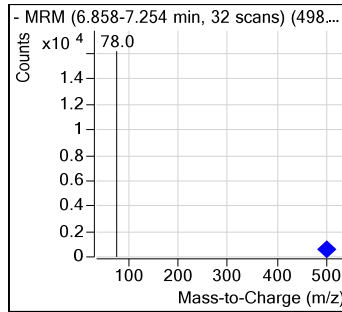
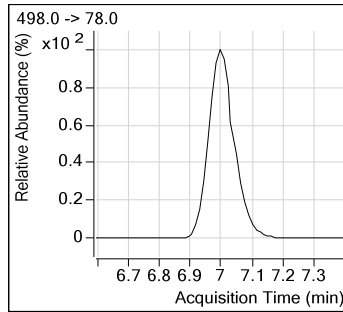
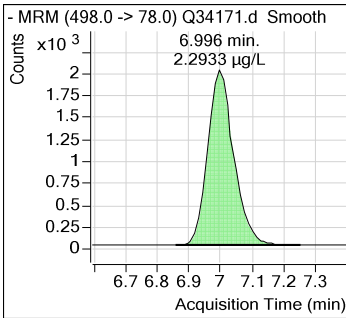
### Perfluorinated Compounds by LC/MS/MS.

7.5.12  
7

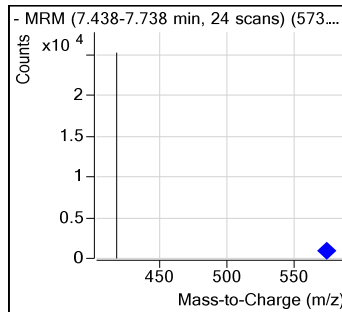
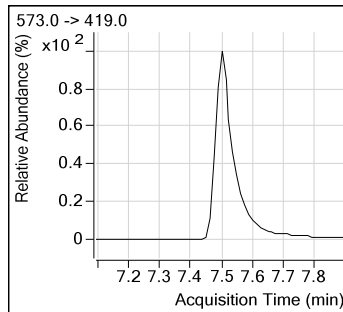
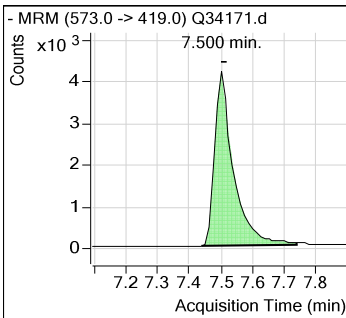
6:2FTS



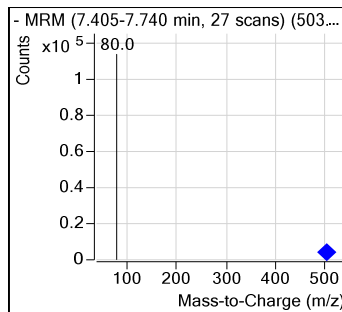
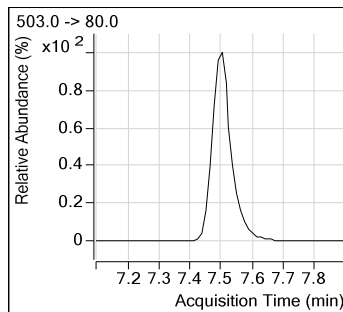
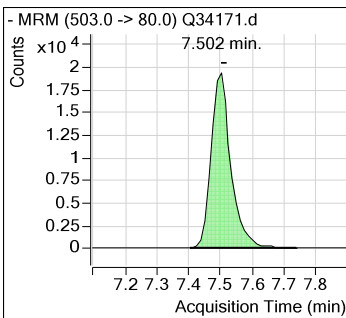
FOSA



d3-MeFOSAA



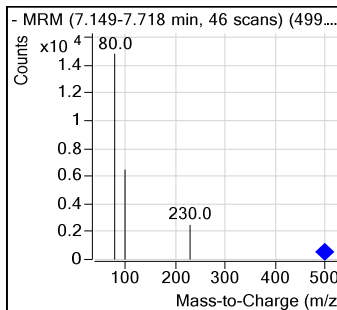
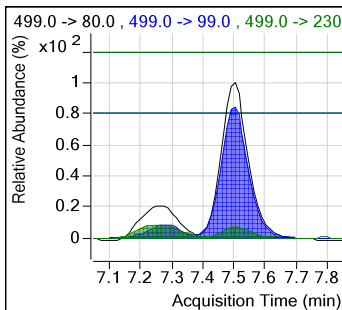
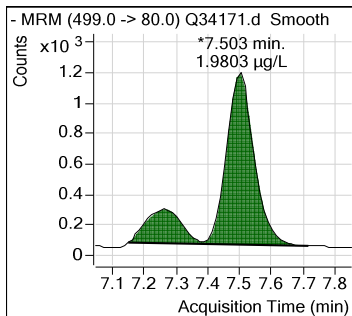
13C4-PFOS



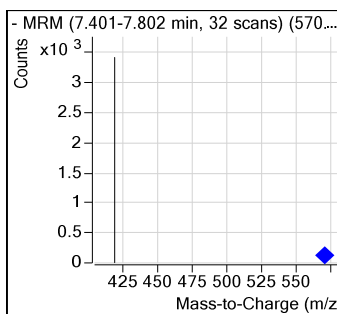
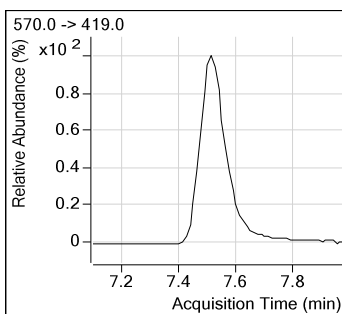
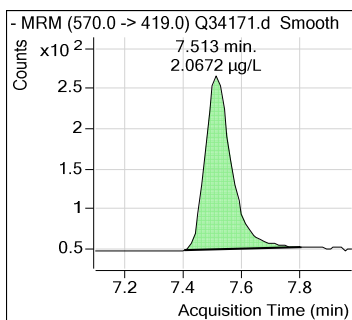
# Perfluorinated Compounds by LC/MS/MS.

7.5.12  
7

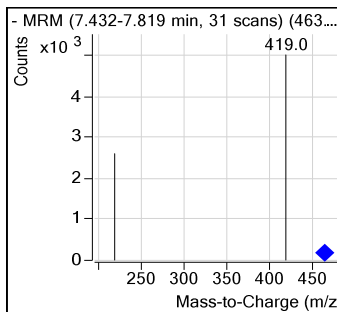
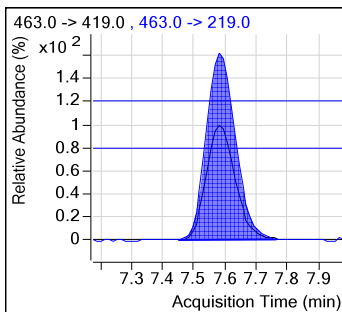
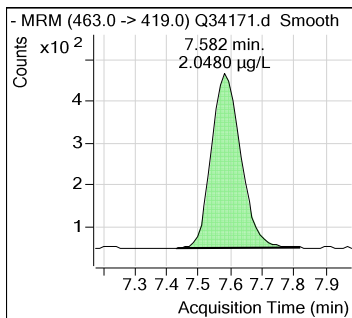
**PFOS**



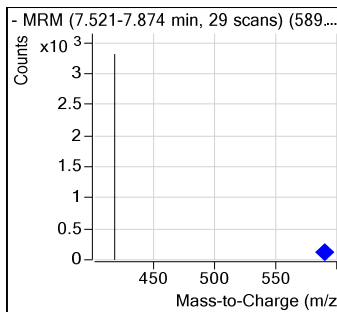
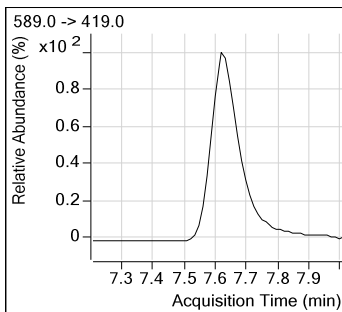
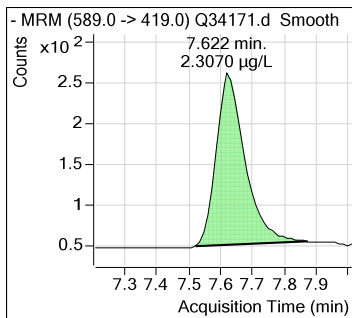
**MeFOSAA**



**PFNA**



**d5-EtFOSAA**

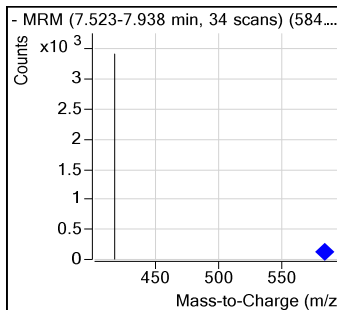
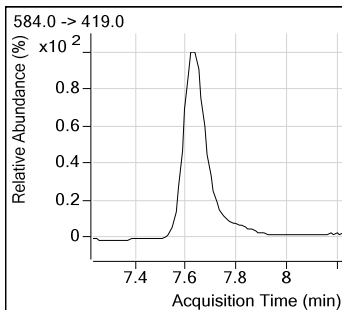
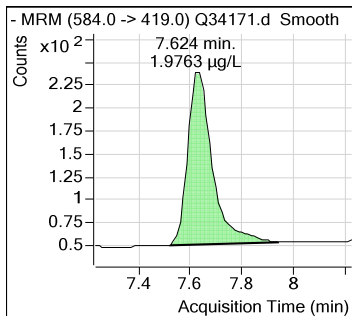




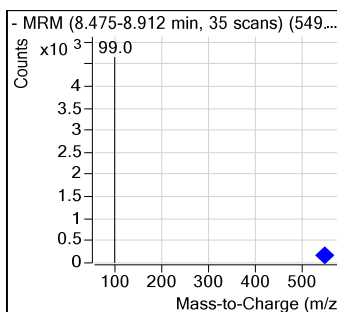
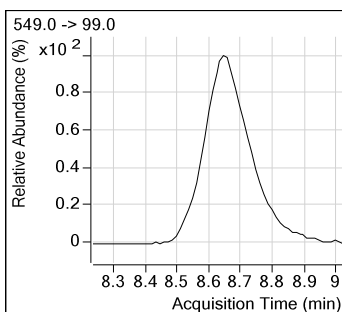
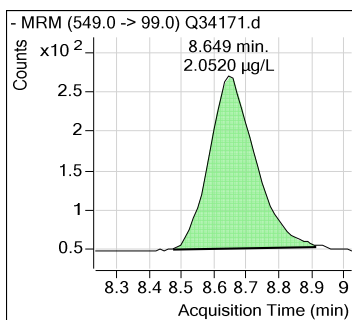
### Perfluorinated Compounds by LC/MS/MS.

7.5.12  
7

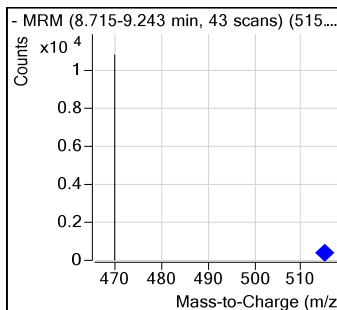
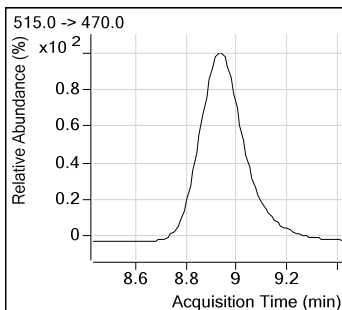
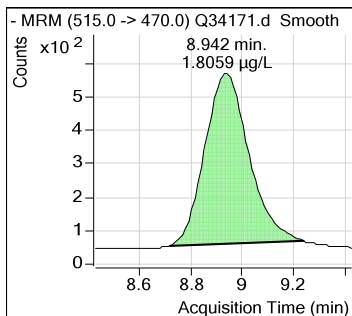
**EtFOSAA**



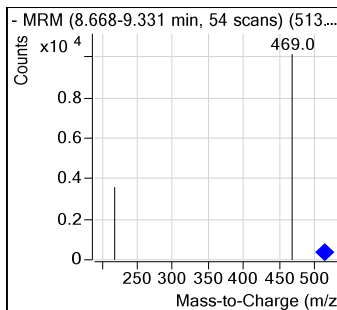
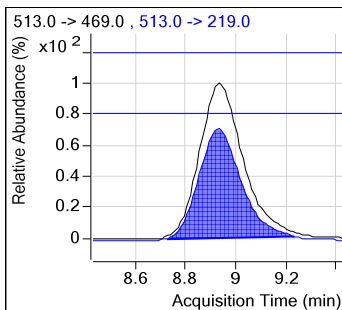
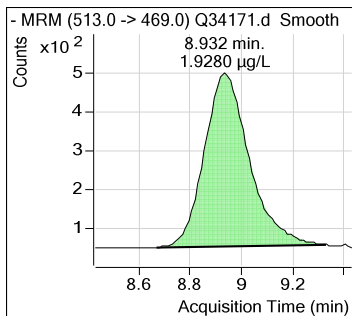
**PFNS**



**13C2-PFDA**

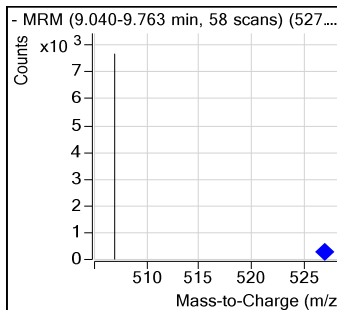
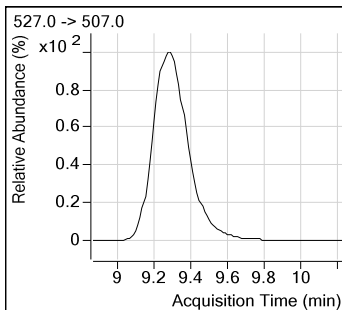
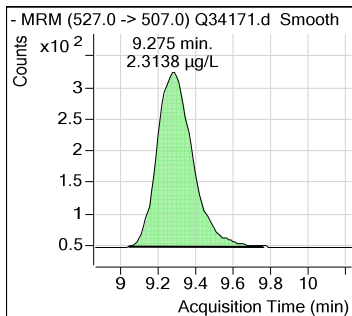


**PFDA**

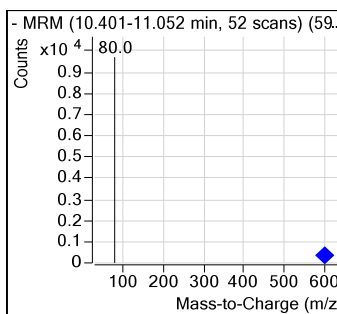
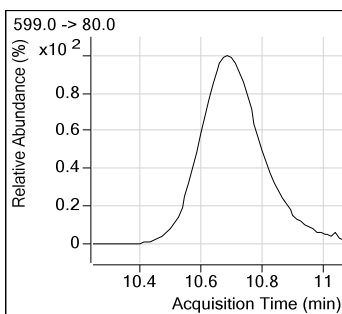
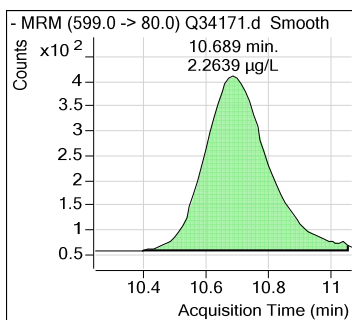


### Perfluorinated Compounds by LC/MS/MS.

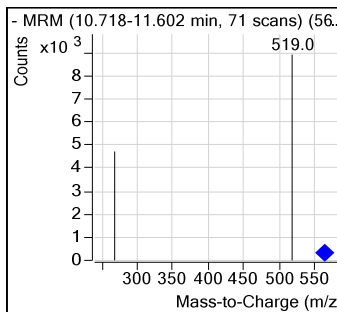
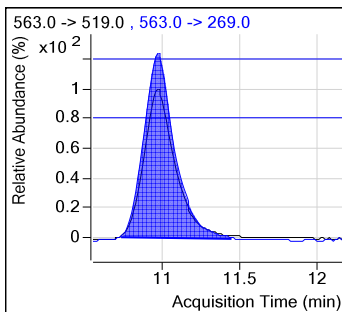
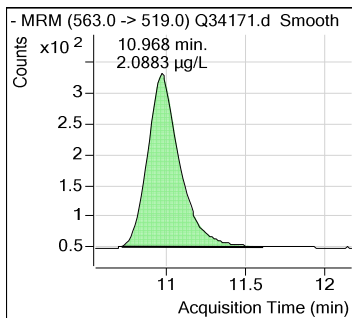
8:2FTS



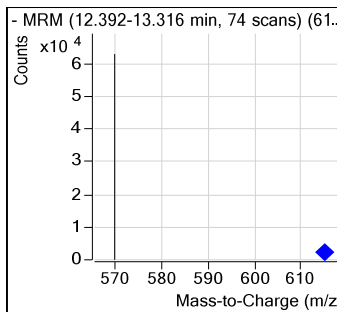
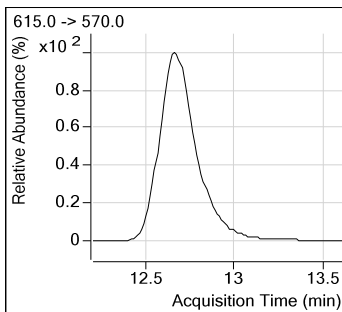
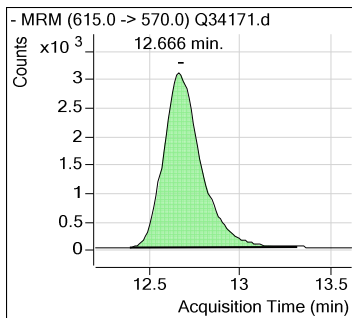
PFDS



PFUnDA



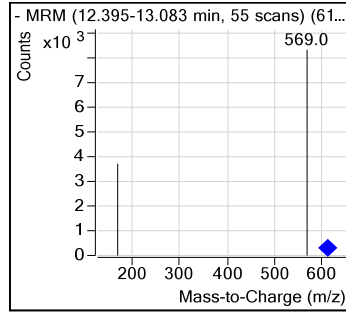
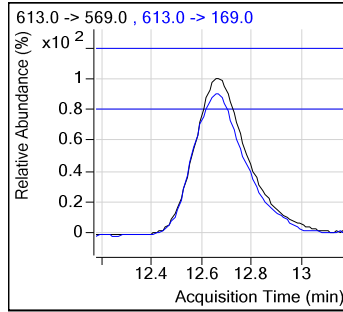
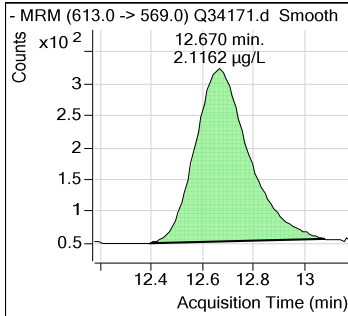
13C2-PFDoDA



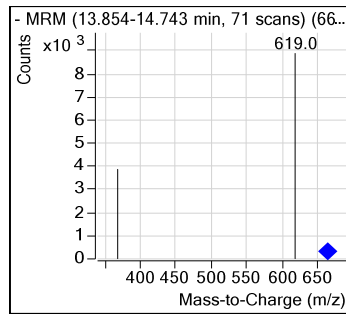
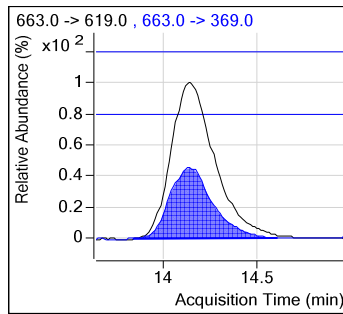
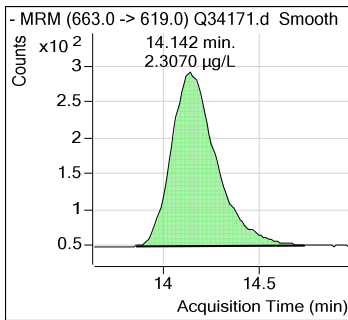
## Perfluorinated Compounds by LC/MS/MS.

7.5.12  
7

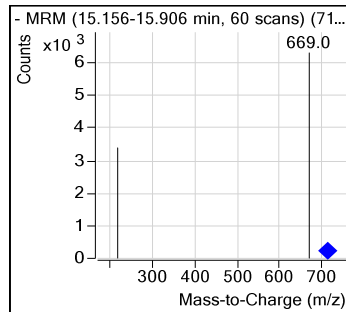
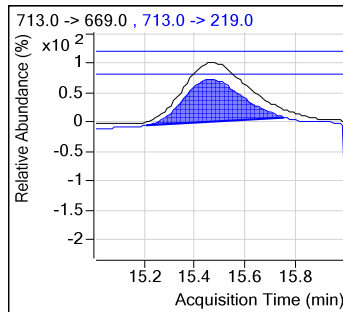
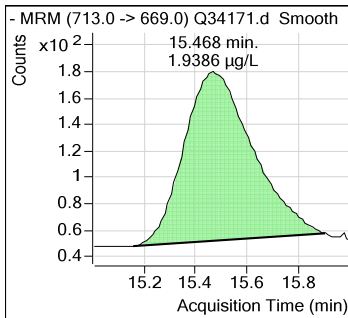
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**

# Manual Integration Approval Summary

Sample Number: SQ893-IC893                      Method: EPA 537 MOD  
Lab FileID: Q34171.D                              Analyst approved: 05/22/17 11:05 Nancy Saunders  
Injection Time: 05/19/17 11:04                      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.50	Split peak

7.5.12.1

7

# Perfluorinated Compounds by LC/MS/MS.

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

**Mike Eger**  
 05/22/17 16:55

Data File : Q34172.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 11:25  
 Sample Name : IC893-5  
 Vial : Vial 4  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.272	266.0 -> 222.0	22215	20.000	µg/L	-0.012	
13C2-PFOA	6.839	415.0 -> 370.0	81919	20.000	µg/L	-0.012	
13C2-6:2FTS	6.861	429.0 -> 409.0	37510	20.000	µg/L	0.000	
d3-MeFOSAA	7.500	573.0 -> 419.0	17843	20.000	µg/L	0.000	
13C4-PFOS	7.490	503.0 -> 80.0	85144	20.000	µg/L	-0.012	
13C2-PFDoDA	12.628	615.0 -> 570.0	43628	20.000	µg/L	-0.012	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.297	315.0 -> 270.0	7754	5.11	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 25.55%				
d5-EtFOSAA	7.622	589.0 -> 419.0	3260	5.44	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 27.18%				
13C2-PFDA	8.917	515.0 -> 470.0	15277	4.53	µg/L	-0.010	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 22.66%				
<b>Target Compounds</b>							
							<b>Qvalue</b>
PFBA	2.952	213.0 -> 169.0	4827	5.064	µg/L		100
PFPeA	4.275	263.0 -> 219.0	3053	4.961	µg/L		100
PFBS	4.404	299.0 -> 80.0	8144	4.834	µg/L		92
4:2FTS	5.220	327.0 -> 307.0	8421	5.479	µg/L		100
PFHxA	5.300	313.0 -> 269.0	7229	5.093	µg/L		99
PFPeS	5.330	349.0 -> 99.0	2011	5.012	µg/L		100
PFHxS	6.106	399.0 -> 80.0	12344	4.970	µg/L # m		77
PFHpA	6.123	363.0 -> 319.0	6533	4.961	µg/L #		45
PFHpS	6.809	449.0 -> 80.0	13221	4.852	µg/L		100
PFOA	6.853	413.0 -> 369.0	20380	4.955	µg/L		82
6:2FTS	6.862	427.0 -> 407.0	9361	5.114	µg/L		100
FOSA	6.996	498.0 -> 78.0	26899	5.396	µg/L		100
PFOS	7.491	499.0 -> 80.0	20245	4.609	µg/L # m		78
MeFOSAA	7.513	570.0 -> 419.0	3266	4.830	µg/L		100
PFNA	7.582	463.0 -> 419.0	6160	4.842	µg/L #		70
EtFOSAA	7.624	584.0 -> 419.0	3006	4.675	µg/L		100
PFNS	8.636	549.0 -> 99.0	5307	4.944	µg/L		100
PFDA	8.919	513.0 -> 469.0	13697	4.867	µg/L #		85
8:2FTS	9.262	527.0 -> 507.0	8852	5.597	µg/L		100
PFDS	10.664	599.0 -> 80.0	11960	5.375	µg/L		100
PFUnDA	10.943	563.0 -> 519.0	9576	5.040	µg/L #		91
PFDoDA	12.645	613.0 -> 569.0	9818	5.210	µg/L		95
PFTrDA	14.117	663.0 -> 619.0	9652	5.529	µg/L #		75
PFTeDA	15.431	713.0 -> 669.0	6326	5.138	µg/L #		85

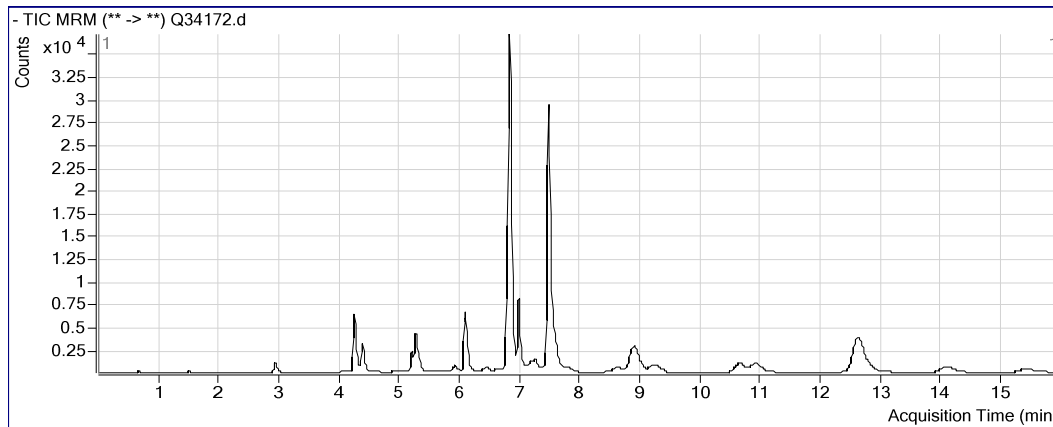
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

7.5.13

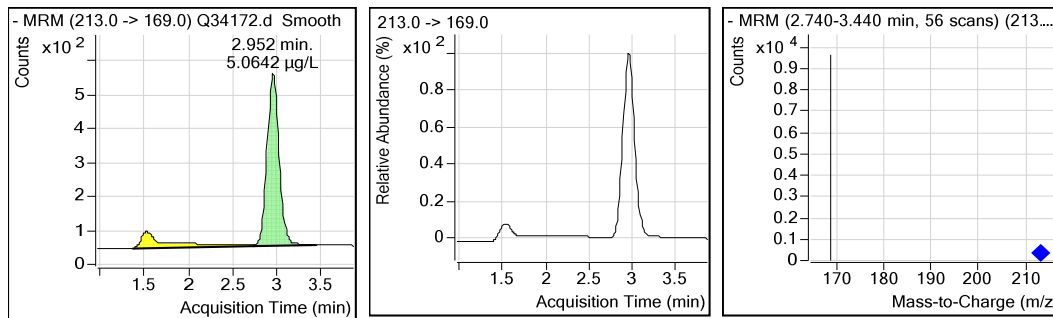
7

# Perfluorinated Compounds by LC/MS/MS.

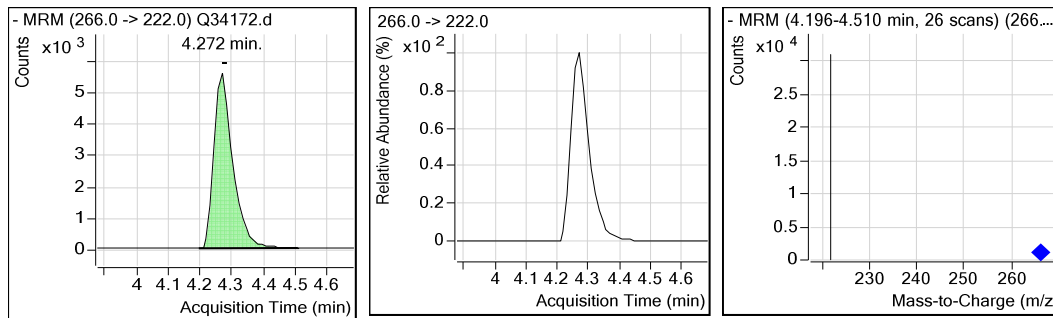
Data File : Q34172.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 11:25  
 Sample Name : IC893-5  
 Vial : Vial 4  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



**PFBA**



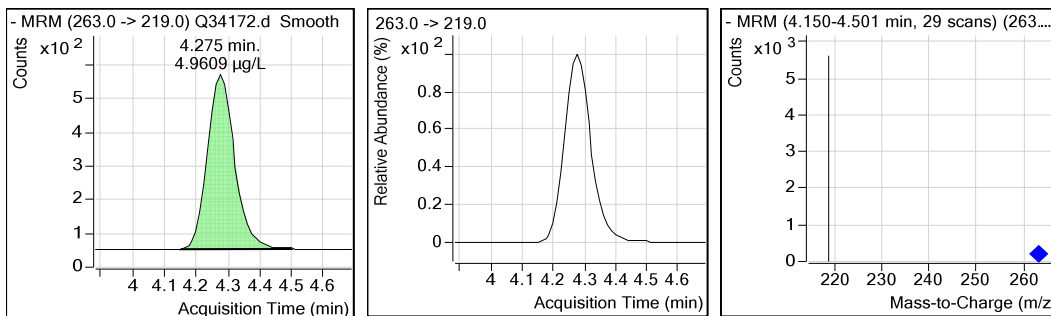
**13C3-PFPeA**



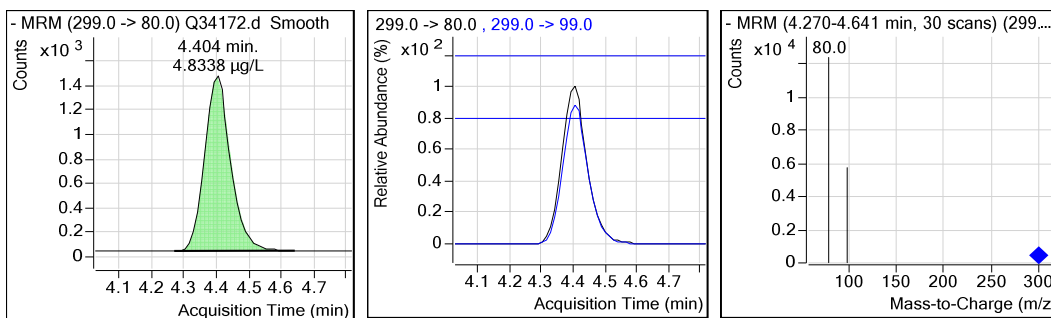
# Perfluorinated Compounds by LC/MS/MS.

7.5.13  
7

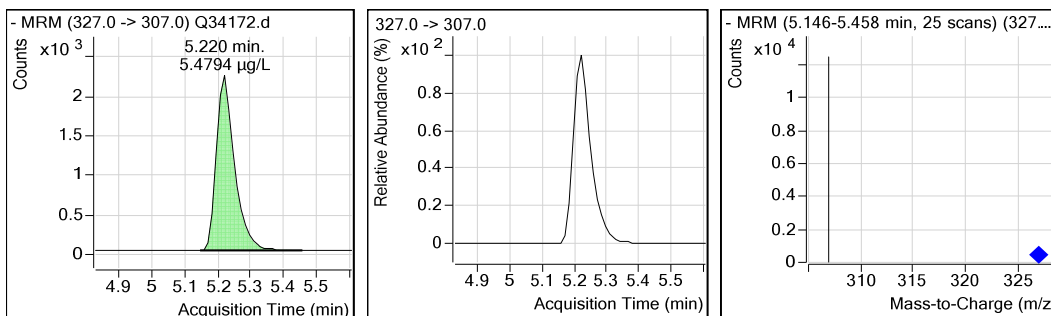
**PFPeA**



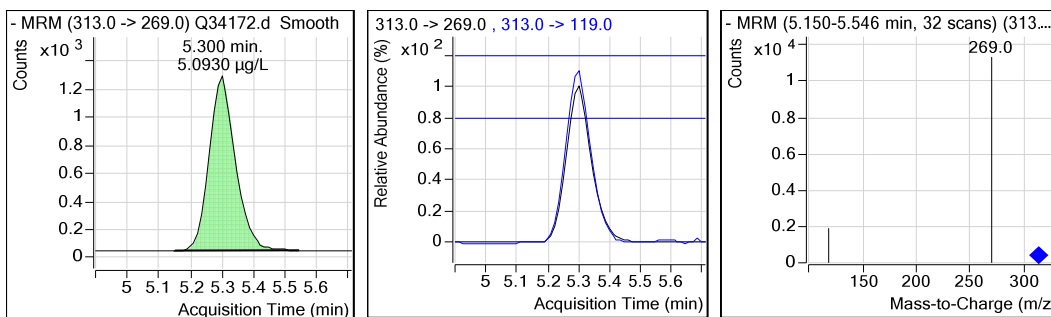
**PFBS**



**4:2FTS**



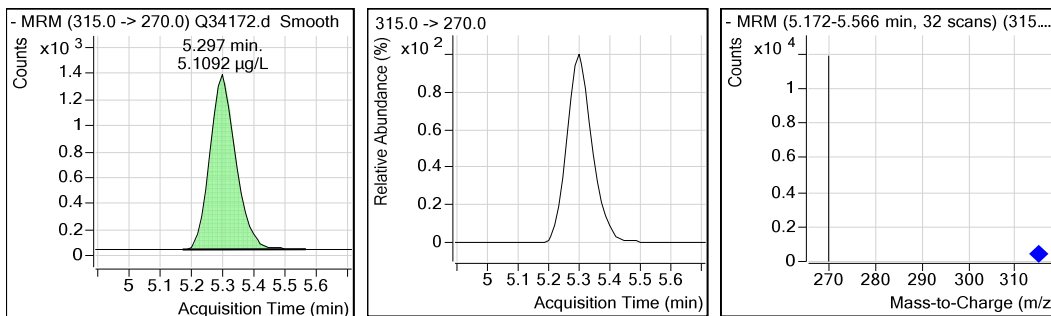
**PFHxA**



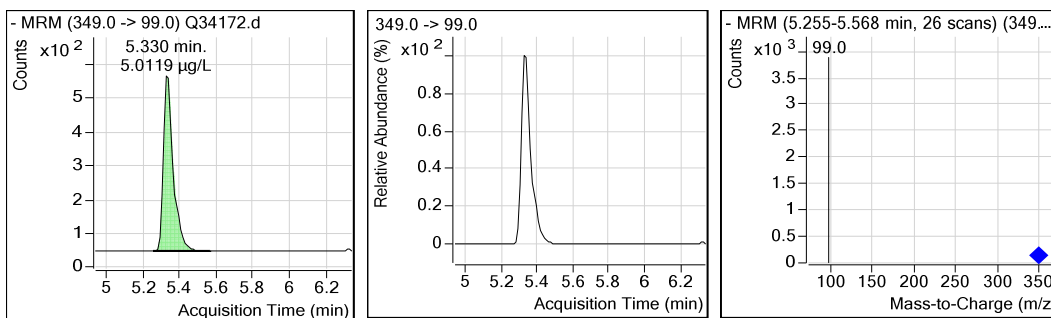
# Perfluorinated Compounds by LC/MS/MS.

7.5.13  
7

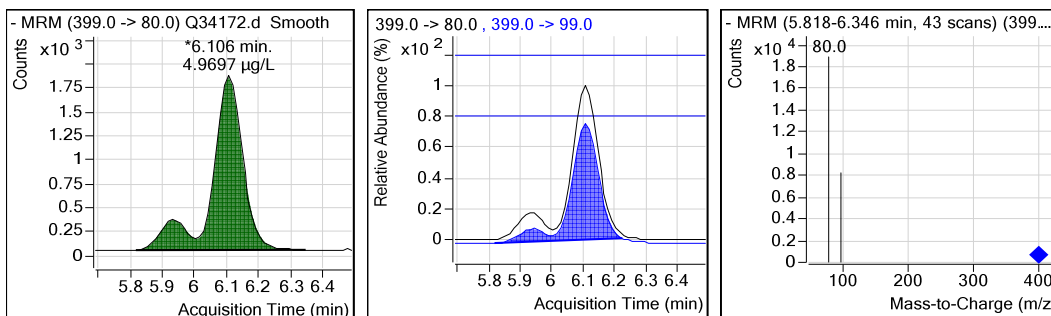
## 13C2-PFHxA



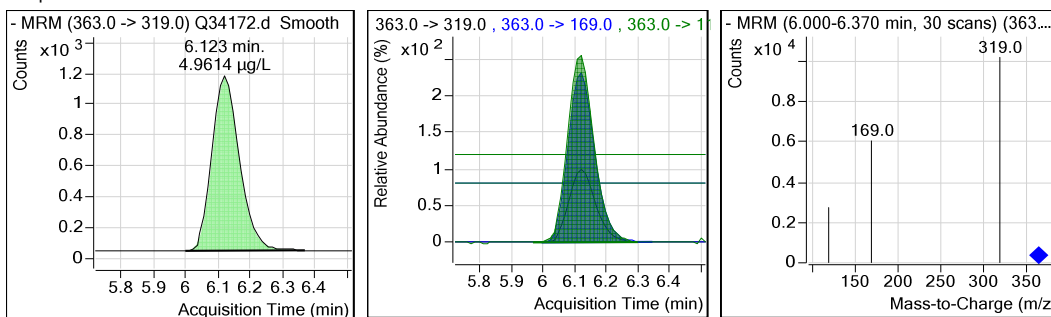
## PFPeS



## PFHxS



## PFHpA

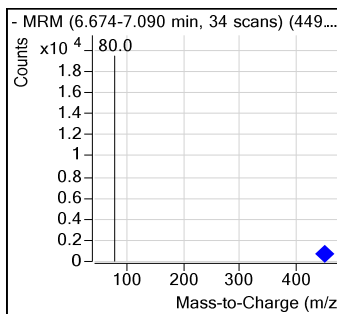
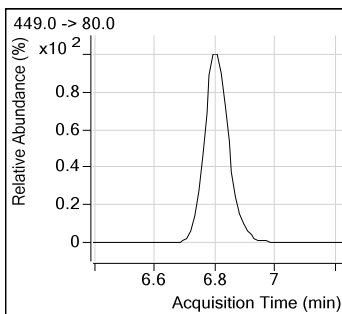
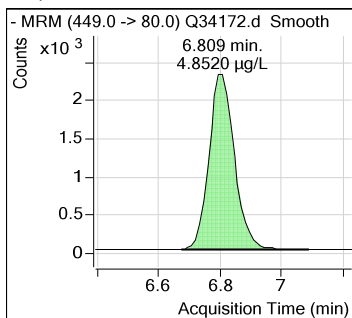




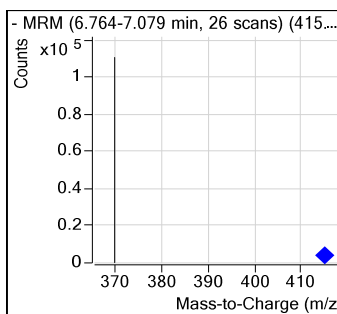
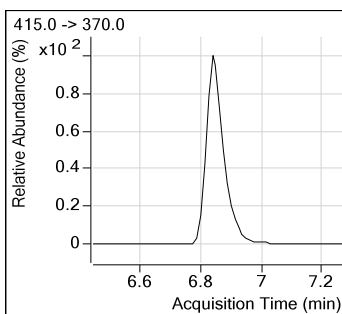
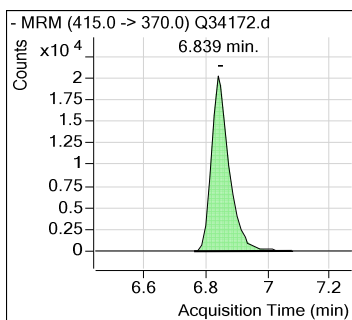
# Perfluorinated Compounds by LC/MS/MS.

7.5.13  
7

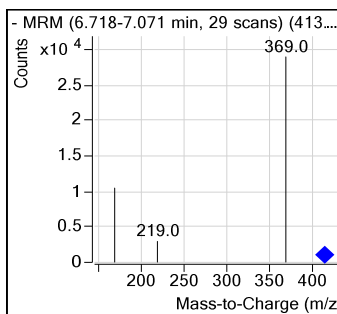
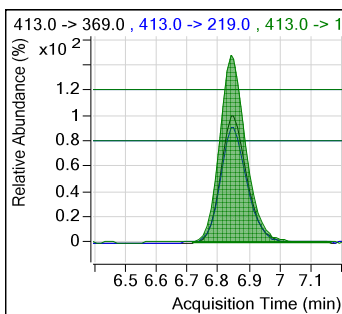
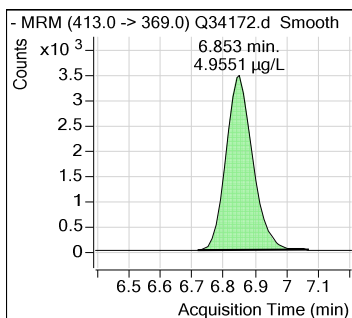
PFHpS



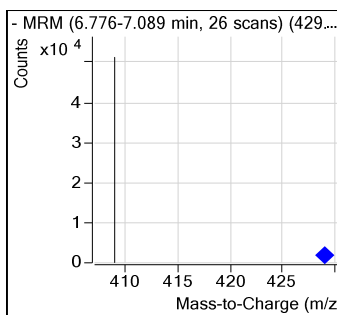
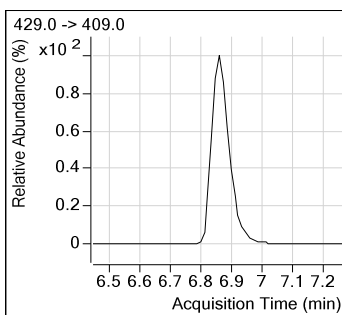
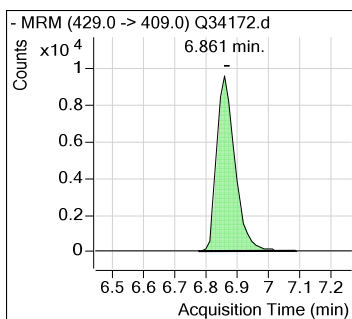
13C2-PFOA



PFOA

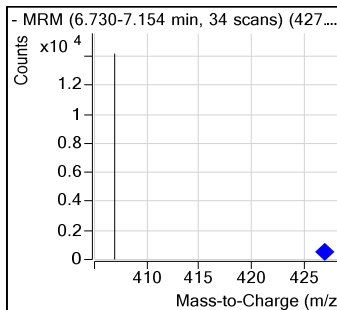
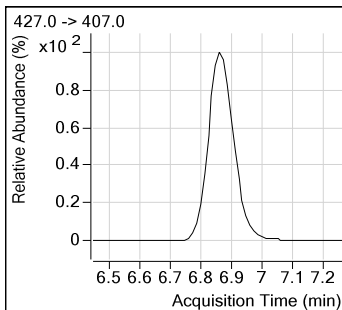
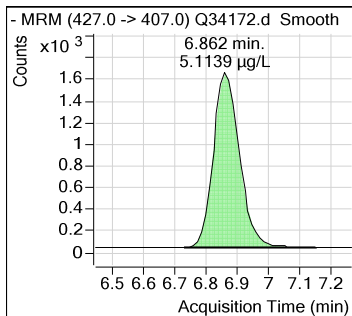


13C2-6:2FTS

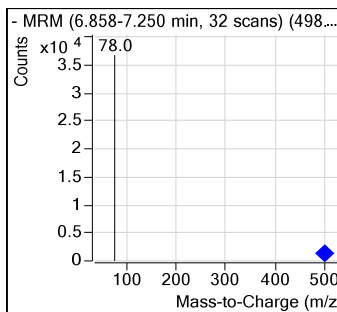
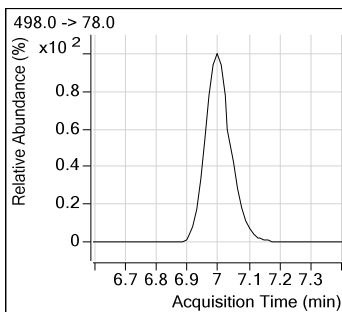
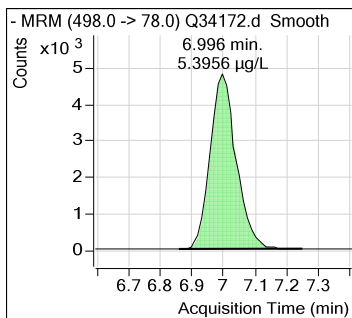


# Perfluorinated Compounds by LC/MS/MS.

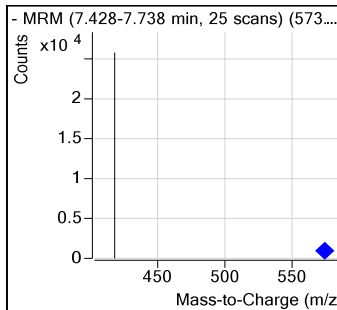
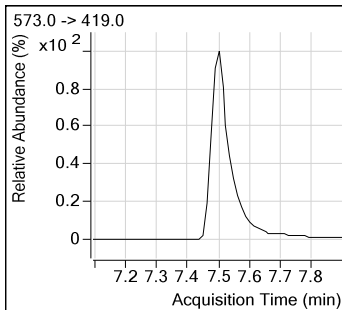
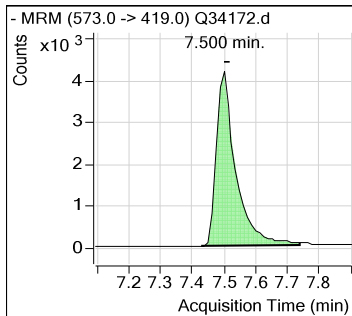
## 6:2FTS



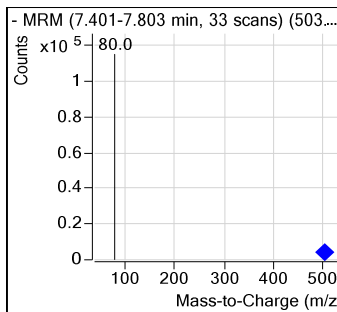
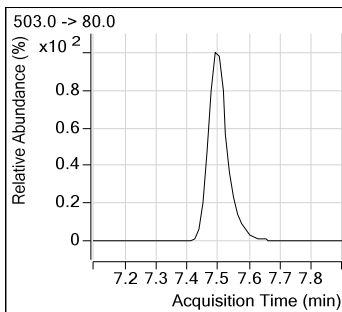
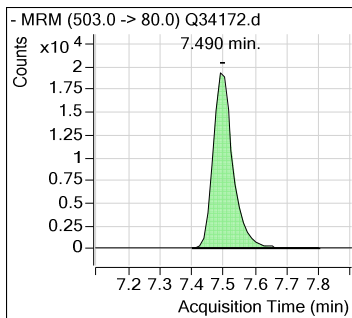
## FOSA



## d3-MeFOSAA

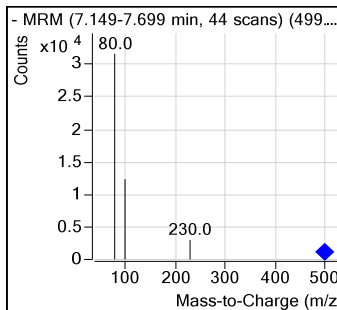
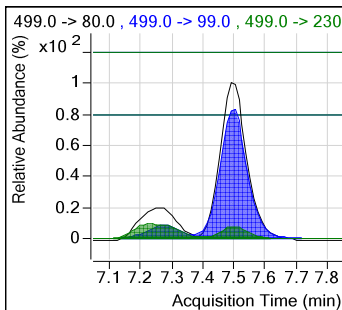
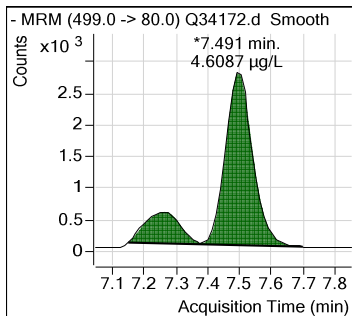


## 13C4-PFOS

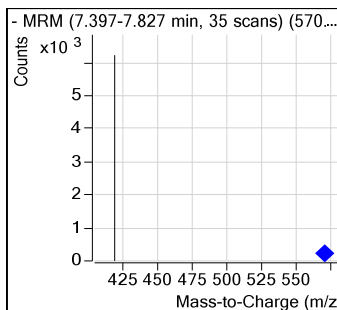
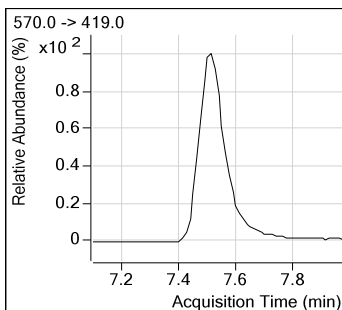
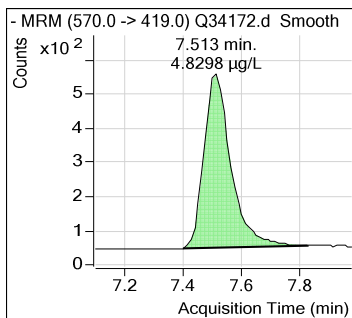


# Perfluorinated Compounds by LC/MS/MS.

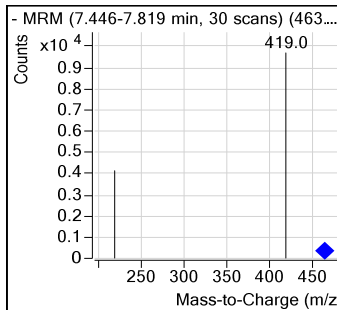
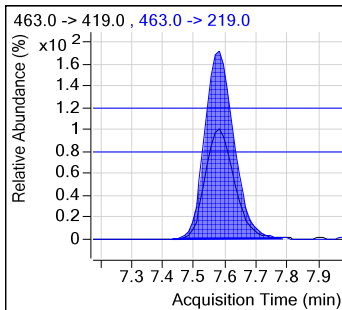
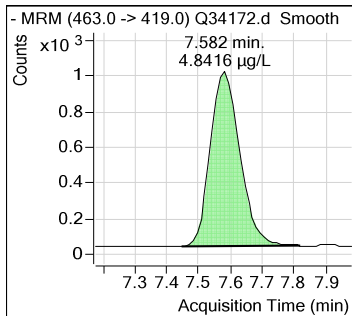
## PFOS



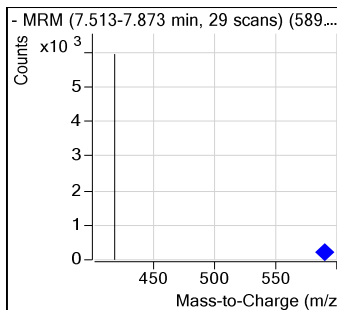
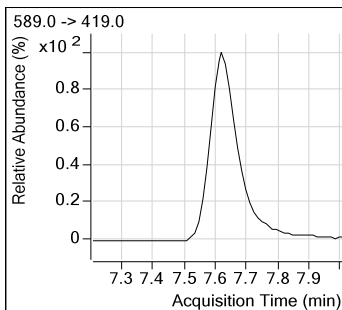
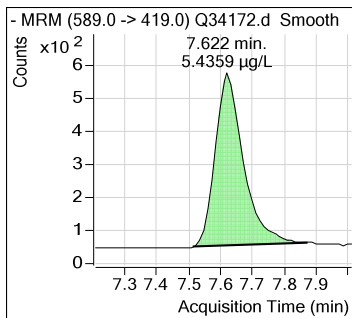
## MeFOSAA



## PFNA

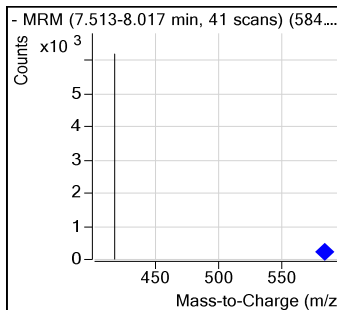
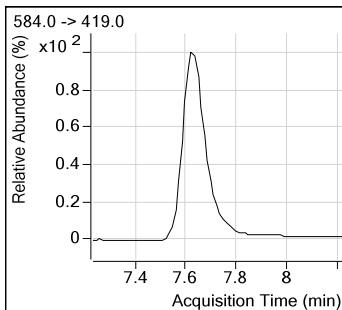
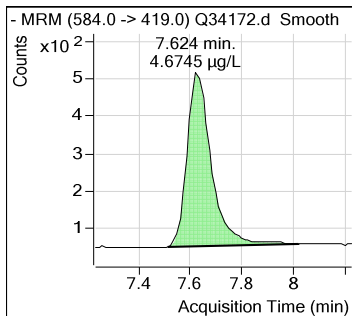


## d5-EtFOSAA

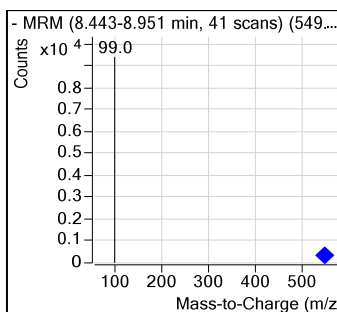
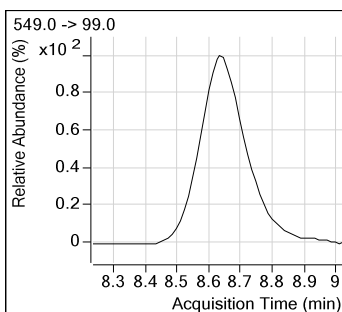
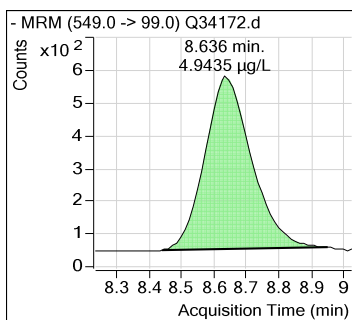


## Perfluorinated Compounds by LC/MS/MS.

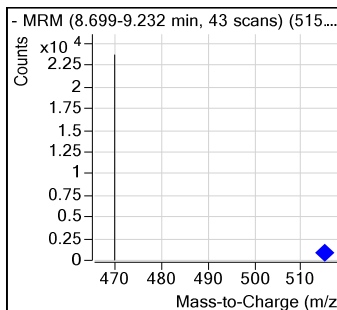
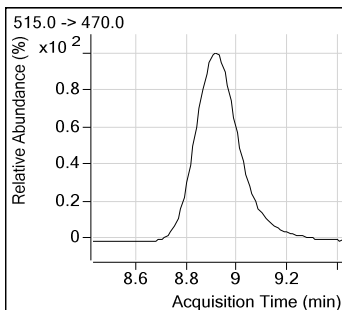
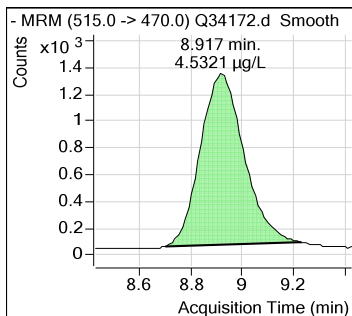
### EtFOSAA



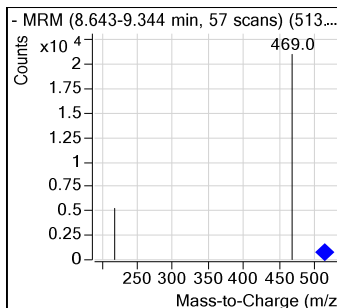
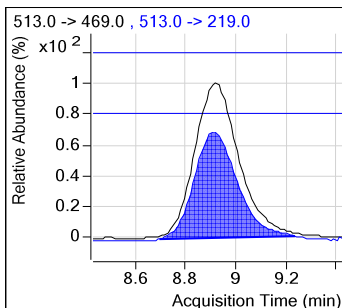
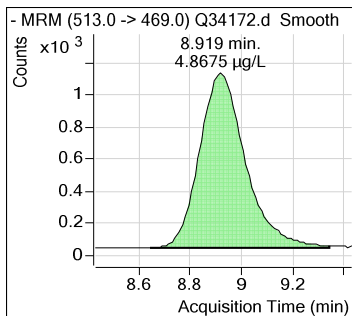
### PFNS



### 13C2-PFDA

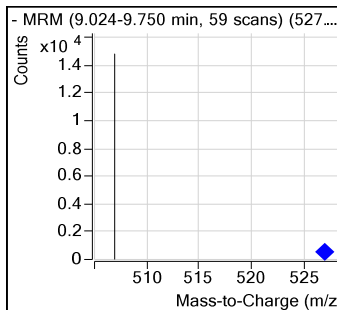
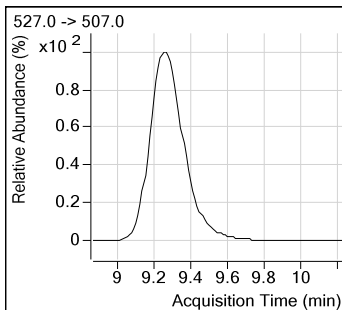
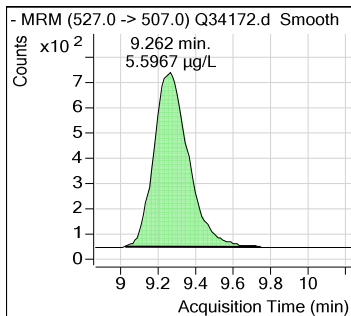


### PFDA

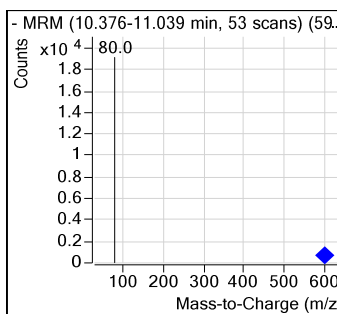
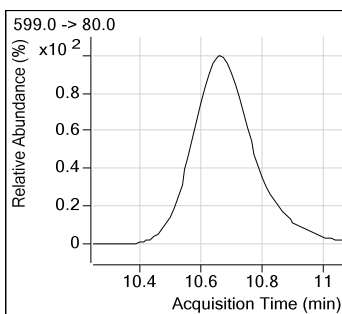
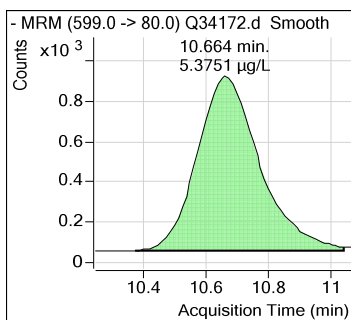


# Perfluorinated Compounds by LC/MS/MS.

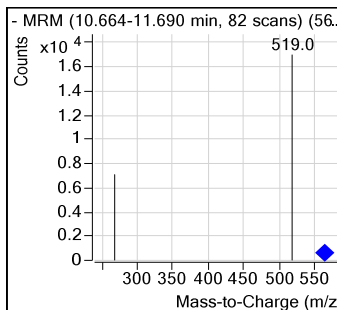
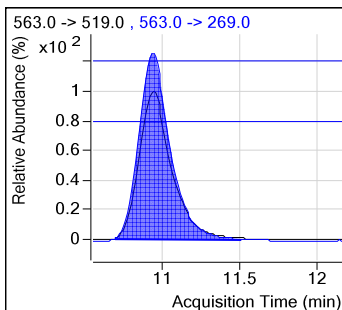
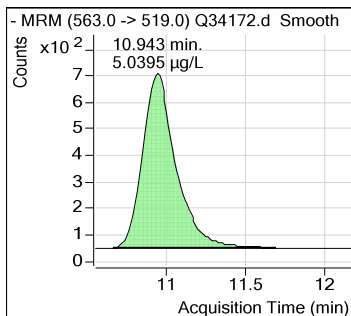
## 8:2FTS



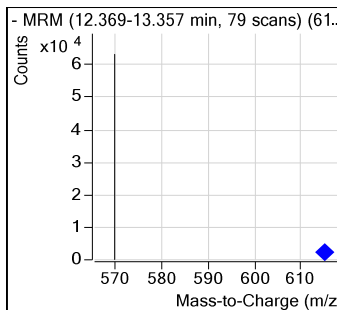
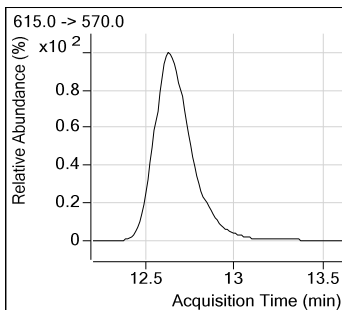
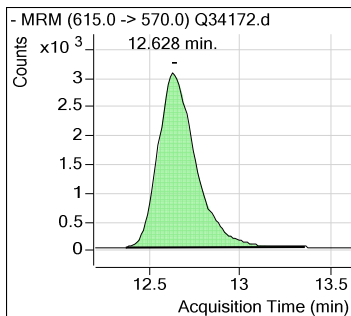
## PFDS



## PFUnDA

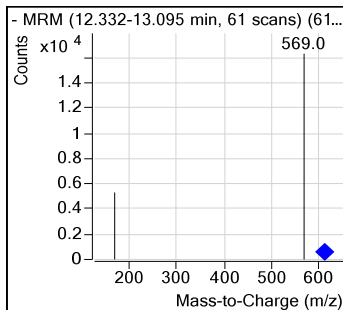
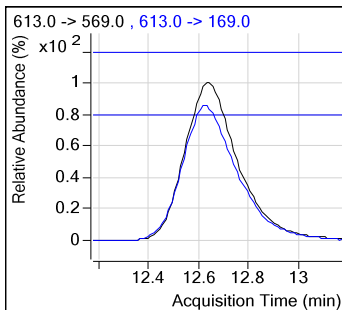
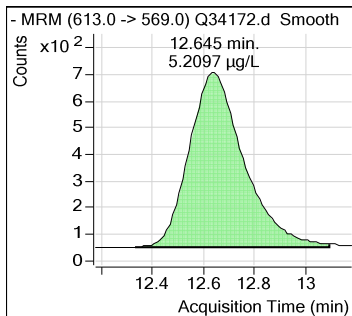


## 13C2-PFDoDA

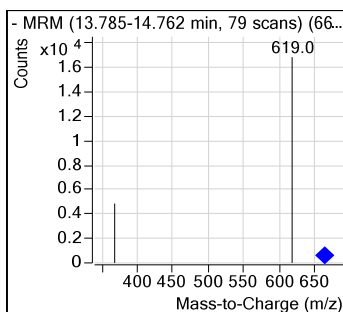
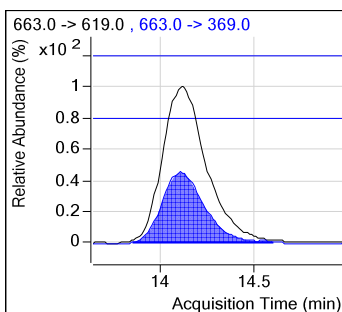
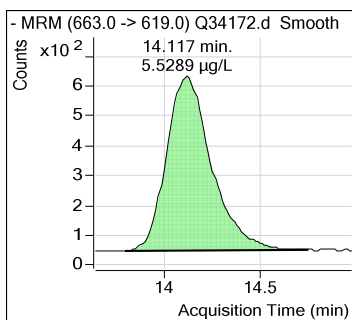


## Perfluorinated Compounds by LC/MS/MS.

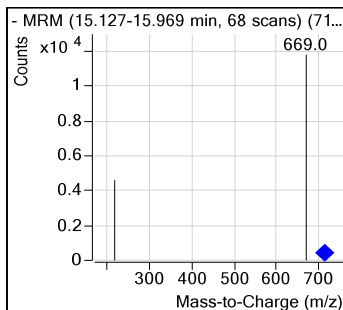
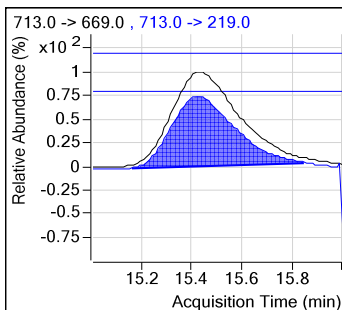
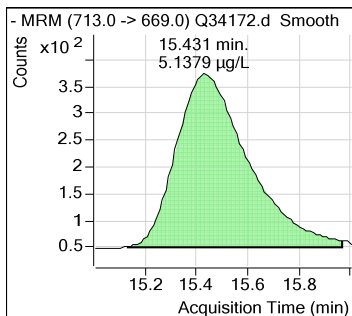
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**

# Manual Integration Approval Summary

Sample Number: SQ893-IC893                      Method: EPA 537 MOD  
Lab FileID: Q34172.D                              Analyst approved: 05/22/17 11:05 Nancy Saunders  
Injection Time: 05/19/17 11:25                      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.49	Split peak

7.5.13.1

7

# Perfluorinated Compounds by LC/MS/MS.

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

Mike Eger  
 05/22/17 16:55

Data File : Q34173.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 11:46  
 Sample Name : IC893-10  
 Vial : Vial 5  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	Qvalue
<b>Internal Standards</b>							
13C3-PFPeA	4.272	266.0 -> 222.0	21666	20.000	µg/L	-0.012	
13C2-PFOA	6.839	415.0 -> 370.0	84224	20.000	µg/L	-0.012	
13C2-6:2FTS	6.861	429.0 -> 409.0	39126	20.000	µg/L	0.000	
d3-MeFOSAA	7.500	573.0 -> 419.0	18354	20.000	µg/L	0.000	
13C4-PFOS	7.502	503.0 -> 80.0	86334	20.000	µg/L	0.000	
13C2-PFDoDA	12.666	615.0 -> 570.0	44907	20.000	µg/L	0.025	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.297	315.0 -> 270.0	15080	9.66	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 48.32%				
d5-EtFOSAA	7.622	589.0 -> 419.0	7028	11.24	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 56.21%				
13C2-PFDA	8.929	515.0 -> 470.0	32739	9.45	µg/L	0.002	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 47.23%				
<b>Target Compounds</b>							
PFBA	2.952	213.0 -> 169.0	9134	9.826	µg/L		100
PFPeA	4.275	263.0 -> 219.0	5984	9.971	µg/L		100
PFBS	4.404	299.0 -> 80.0	16633	9.736	µg/L		90
4:2FTS	5.220	327.0 -> 307.0	17042	10.597	µg/L		100
PFHxA	5.300	313.0 -> 269.0	14260	9.771	µg/L		98
PFPeS	5.330	349.0 -> 99.0	3966	9.747	µg/L		100
PFHxS	6.106	399.0 -> 80.0	24742	9.823	µg/L # m		82
PFHpA	6.123	363.0 -> 319.0	13117	9.689	µg/L #		46
PFHpS	6.809	449.0 -> 80.0	26803	9.701	µg/L		100
PFOA	6.853	413.0 -> 369.0	41062	9.711	µg/L		82
6:2FTS	6.862	427.0 -> 407.0	19365	10.198	µg/L		100
FOSA	6.996	498.0 -> 78.0	53865	10.511	µg/L		100
PFOS	7.503	499.0 -> 80.0	44108	9.903	µg/L # m		75
MeFOSAA	7.513	570.0 -> 419.0	6648	9.556	µg/L		100
PFNA	7.582	463.0 -> 419.0	12453	9.519	µg/L #		72
EtFOSAA	7.624	584.0 -> 419.0	6271	9.480	µg/L		100
PFNS	8.649	549.0 -> 99.0	10448	9.598	µg/L		100
PFDA	8.932	513.0 -> 469.0	24465	8.456	µg/L #		91
8:2FTS	9.275	527.0 -> 507.0	17664	10.583	µg/L		100
PFDS	10.689	599.0 -> 80.0	23802	10.404	µg/L		100
PFUnDA	10.968	563.0 -> 519.0	19450	9.945	µg/L #		90
PFDoDA	12.670	613.0 -> 569.0	20275	10.367	µg/L		94
PFTrDA	14.130	663.0 -> 619.0	19713	10.813	µg/L #		76
PFTeDA	15.456	713.0 -> 669.0	13005	10.262	µg/L #		85

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

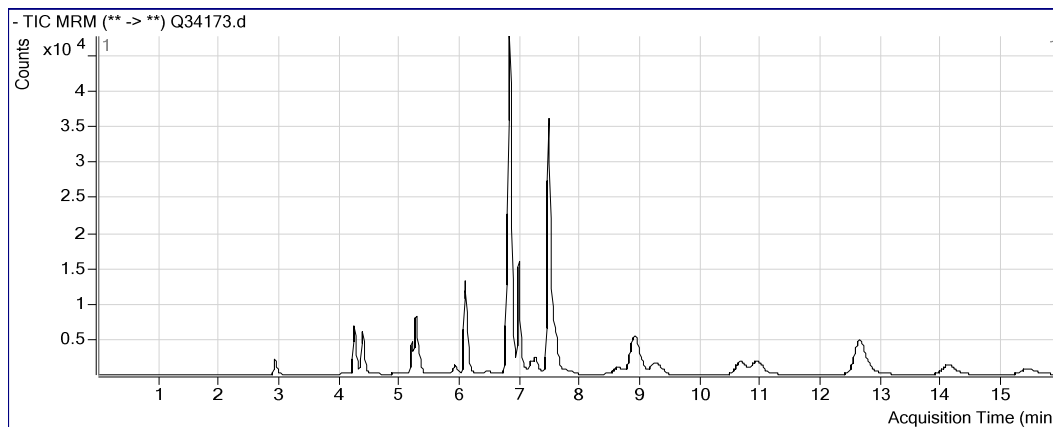
7.5.14

7

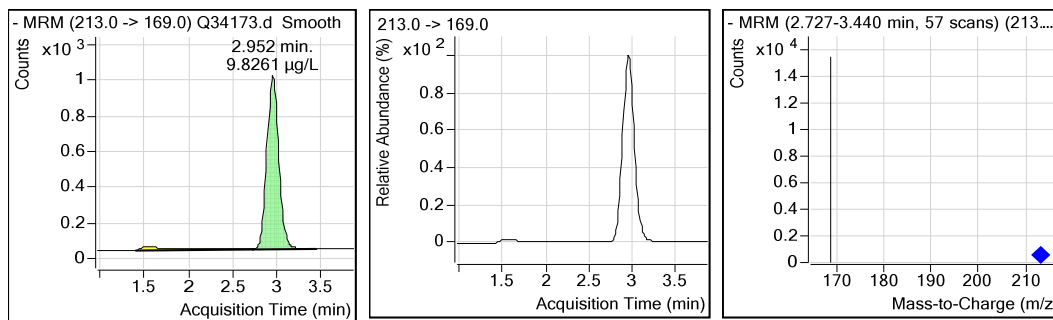


# Perfluorinated Compounds by LC/MS/MS.

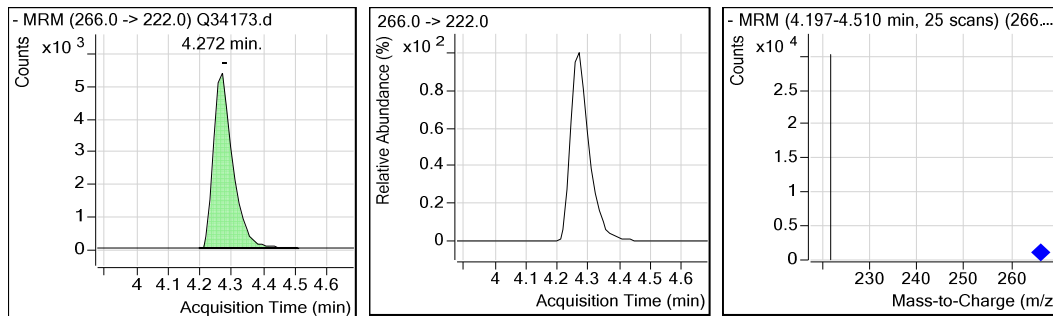
Data File : Q34173.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 11:46  
 Sample Name : IC893-10  
 Vial : Vial 5  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
 Last Calib Update : 2017-05-22 07:04



### PFBA

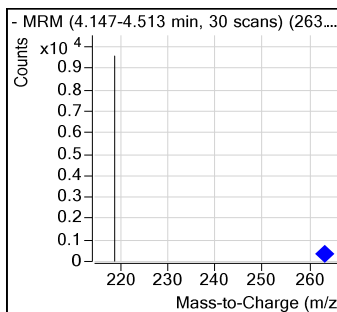
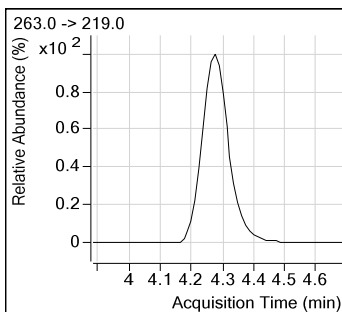
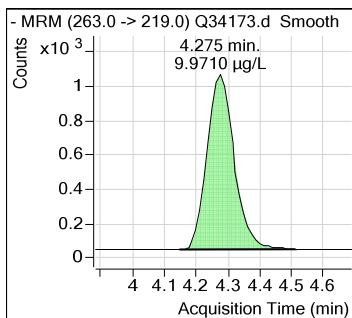


### 13C3-PFPeA

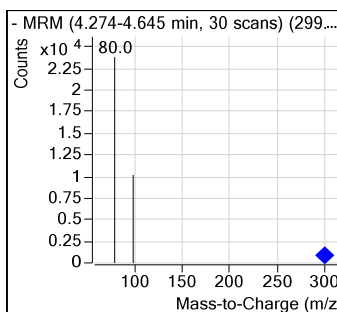
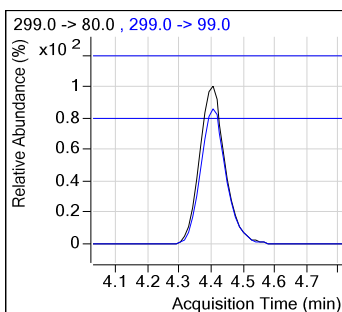
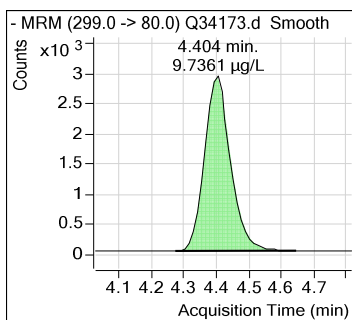


# Perfluorinated Compounds by LC/MS/MS.

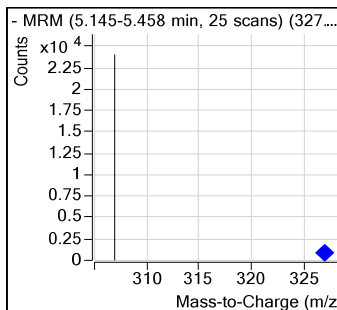
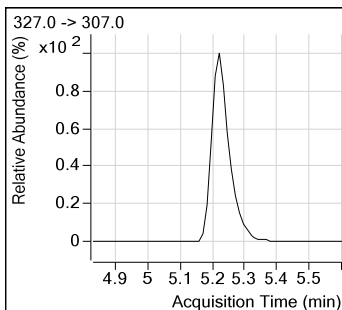
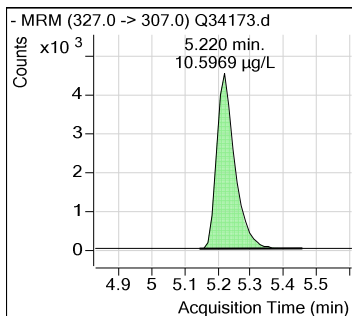
## PFPeA



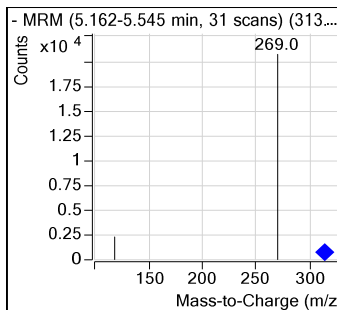
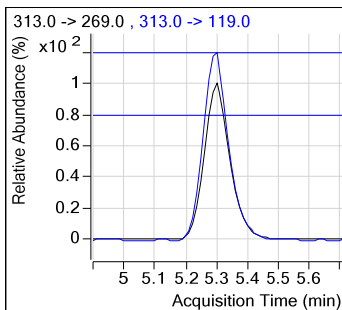
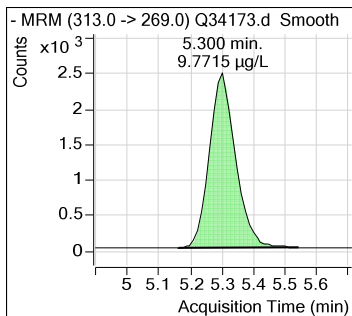
## PFBS



## 4:2FTS



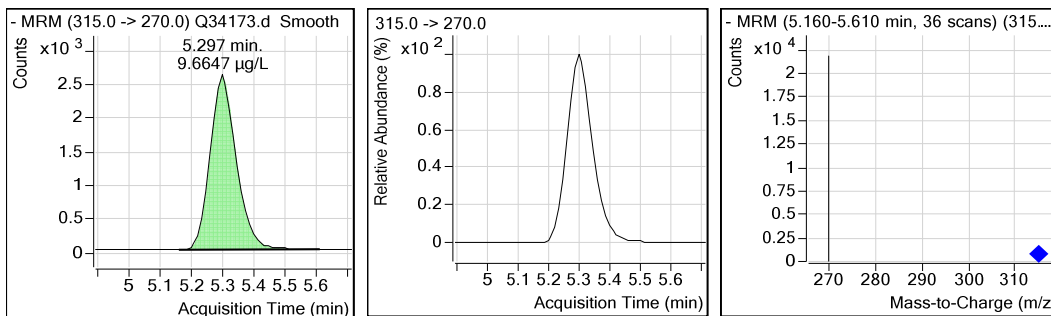
## PFHxA



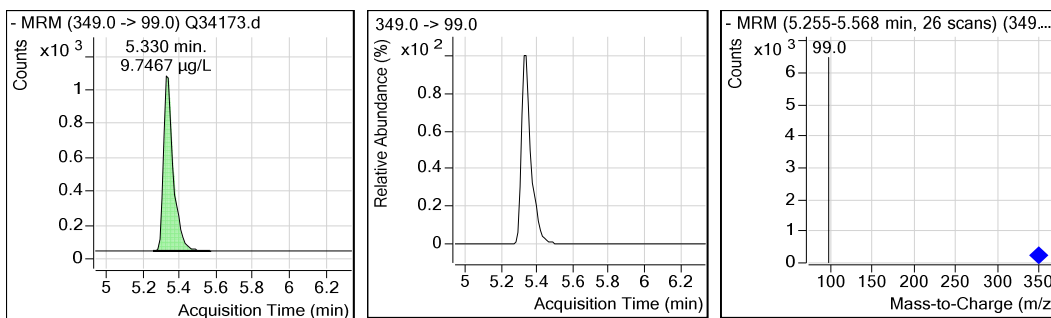
# Perfluorinated Compounds by LC/MS/MS.

7.5.14  
7

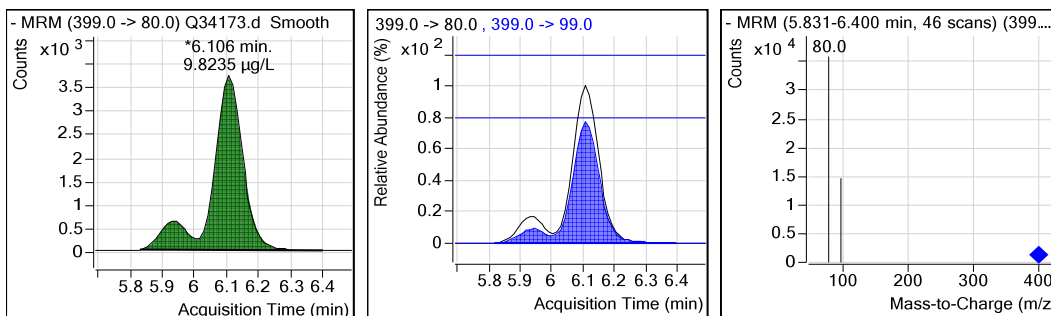
## 13C2-PFHxA



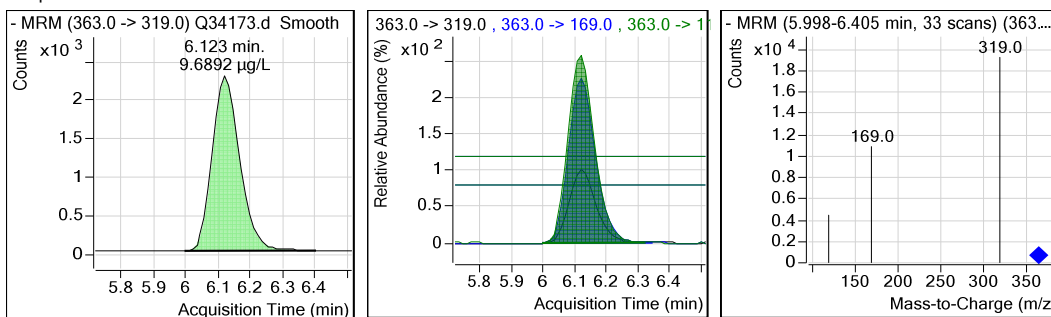
## PFPeS



## PFHxS



## PFHpA

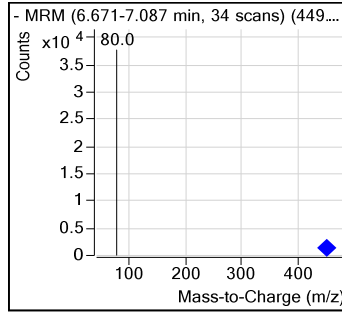
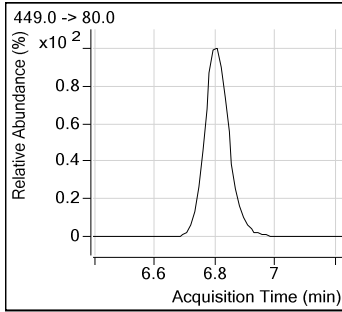
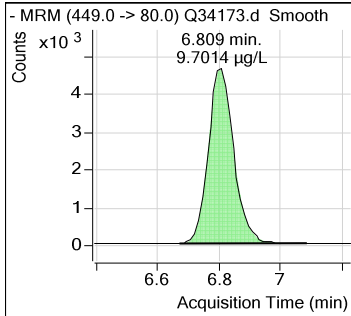


# Perfluorinated Compounds by LC/MS/MS.

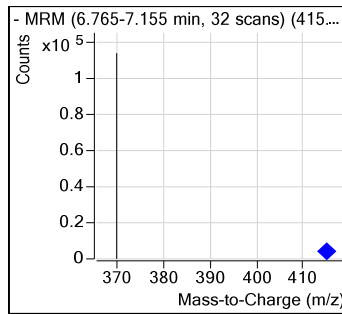
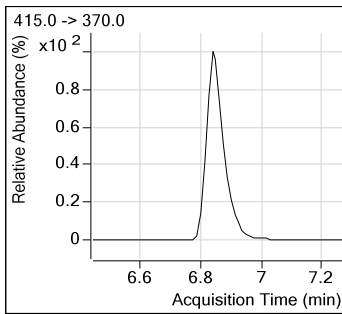
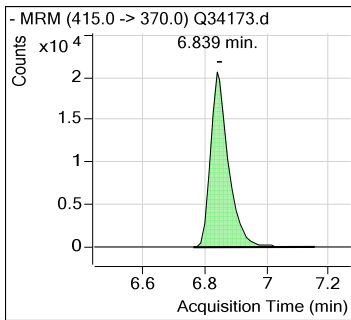
7.5.14

7

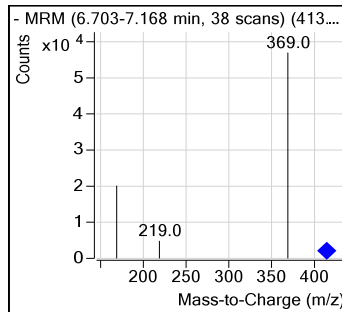
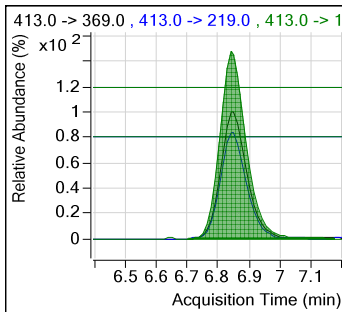
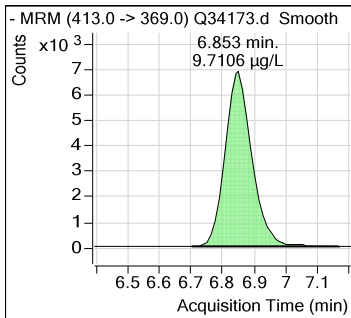
**PFHpS**



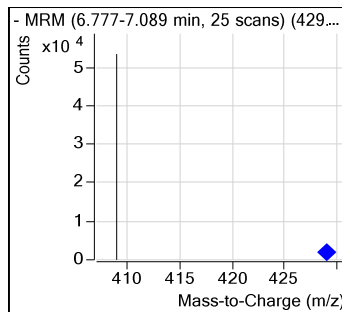
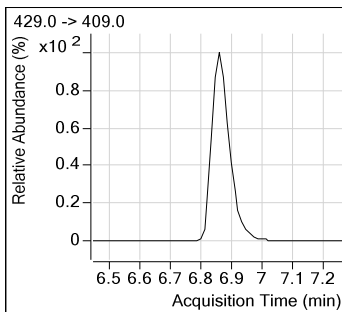
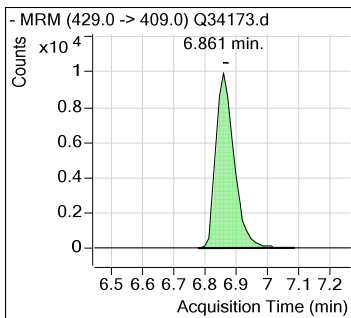
**13C2-PFOA**



**PFOA**

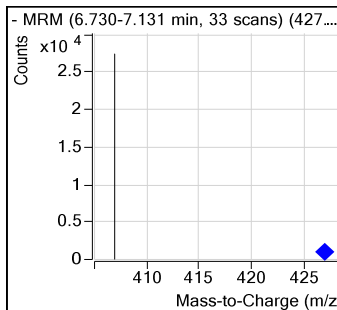
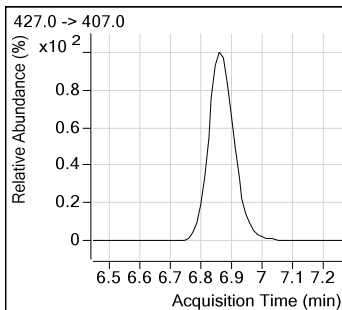
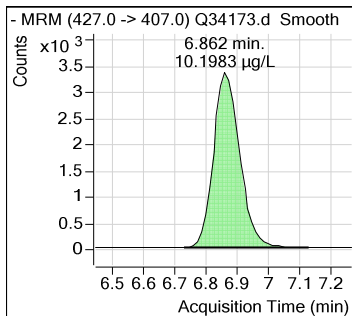


**13C2-6:2FTS**

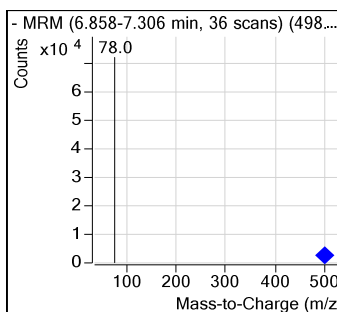
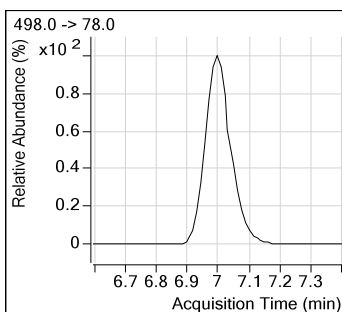
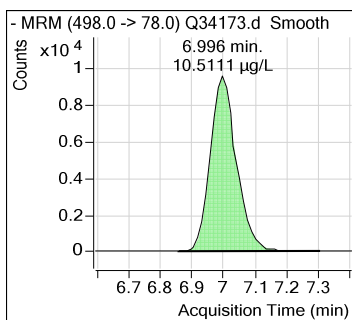


### Perfluorinated Compounds by LC/MS/MS.

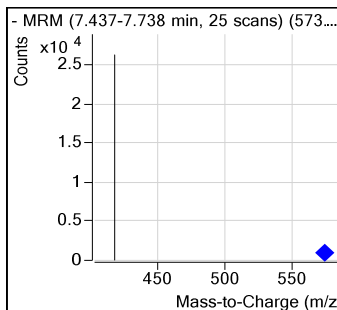
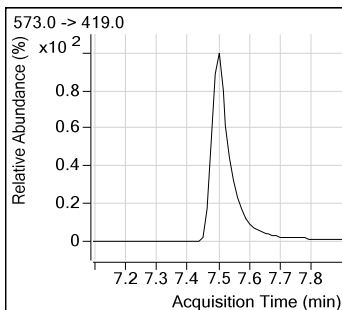
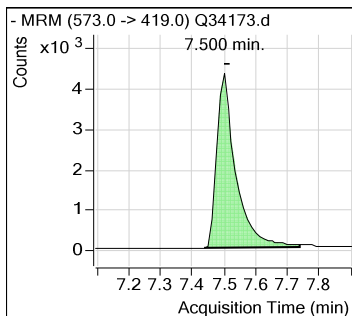
6:2FTS



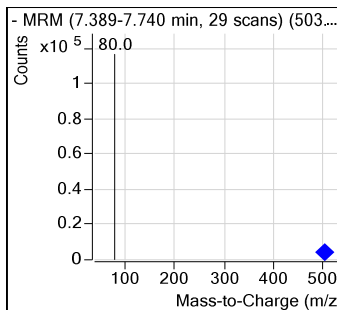
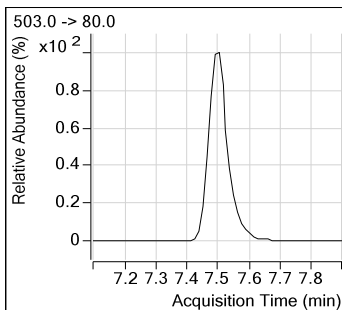
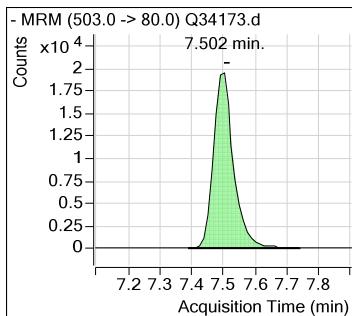
FOSA



d3-MeFOSAA



13C4-PFOS

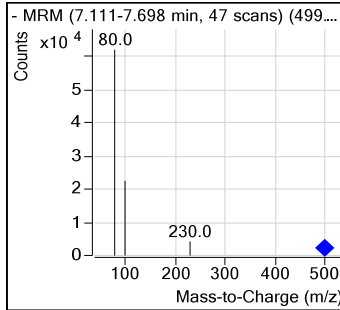
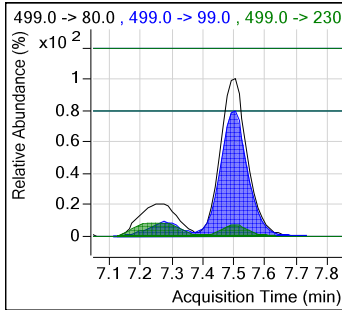
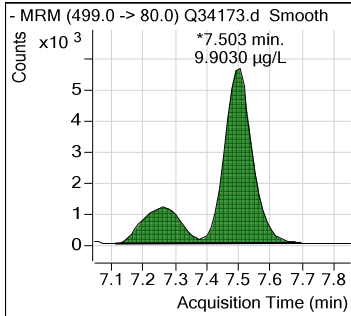


# Perfluorinated Compounds by LC/MS/MS.

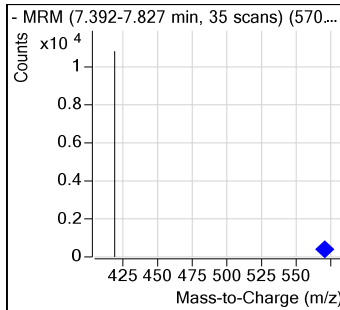
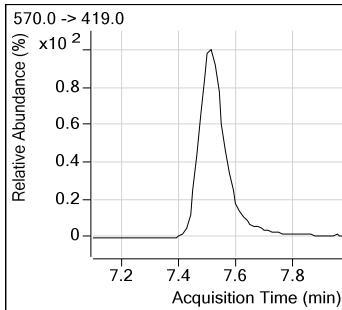
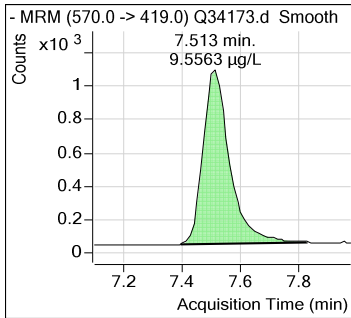
7.5.14

7

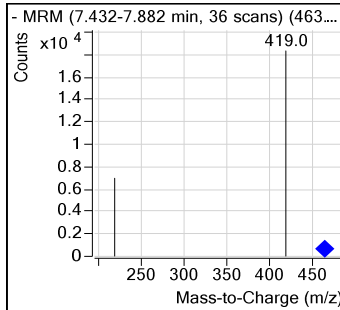
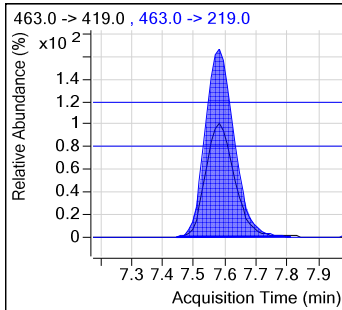
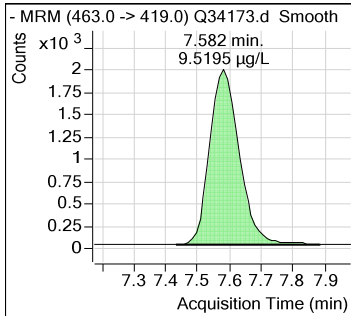
**PFOS**



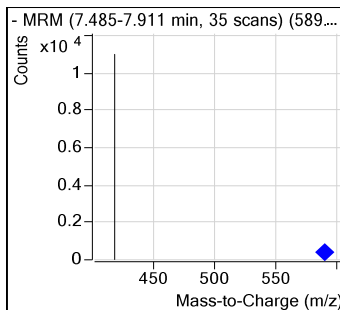
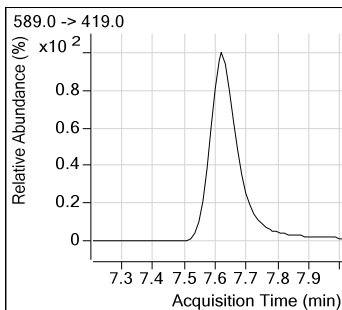
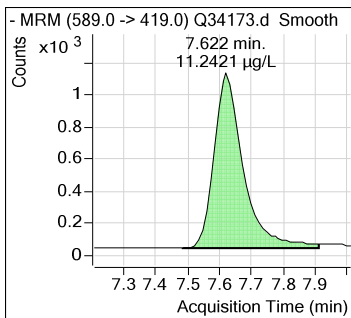
**MeFOSAA**



**PFNA**

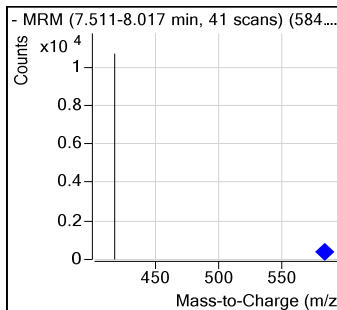
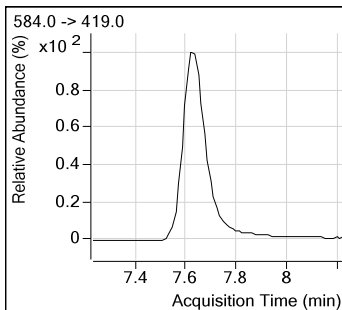
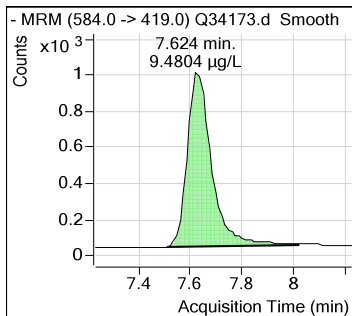


**d5-EtFOSAA**

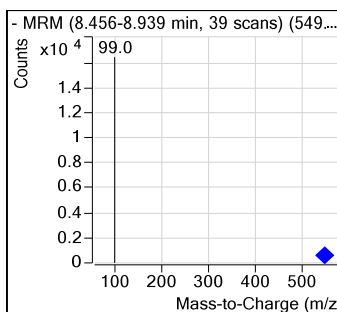
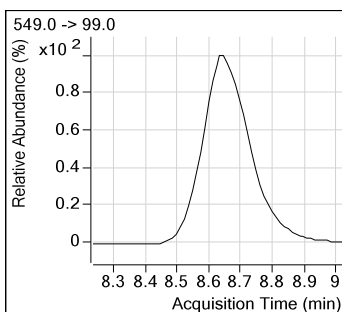
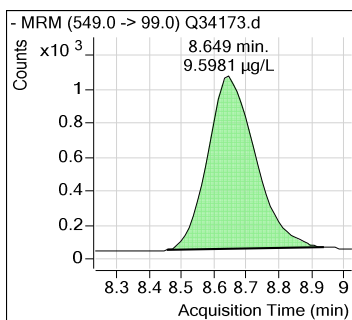


# Perfluorinated Compounds by LC/MS/MS.

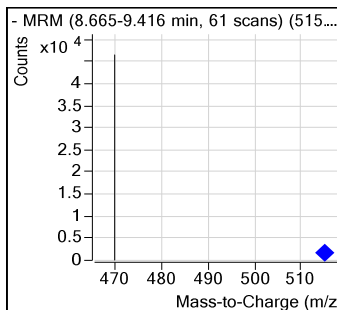
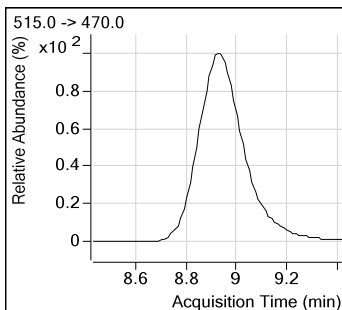
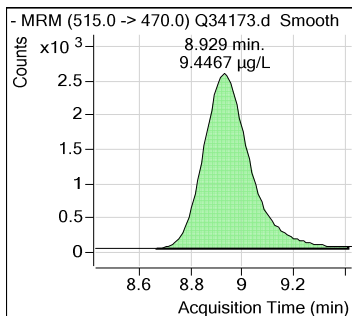
## EtFOSAA



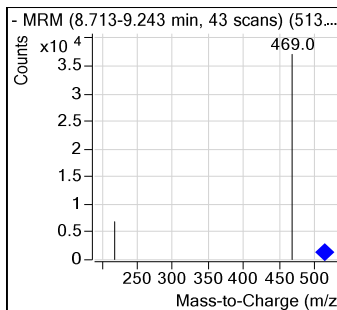
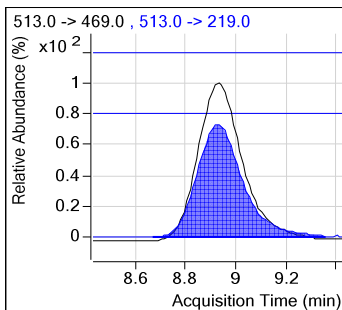
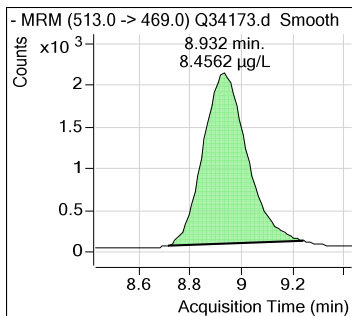
## PFNS



## 13C2-PFDA

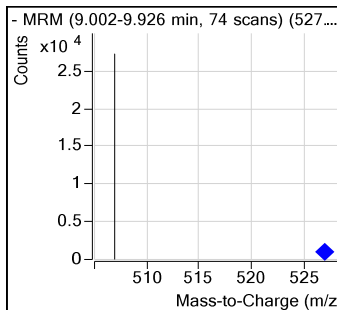
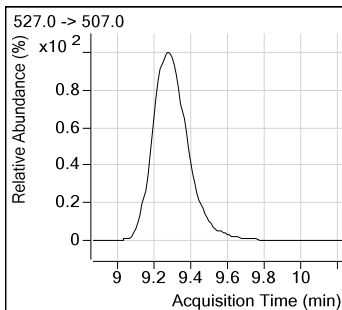
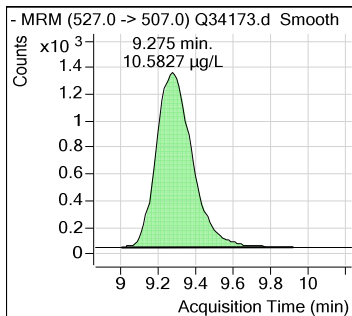


## PFDA

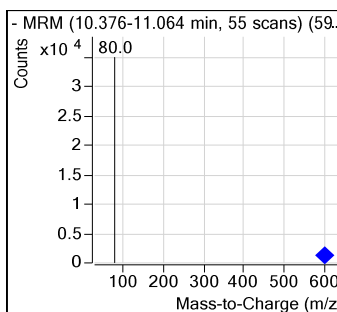
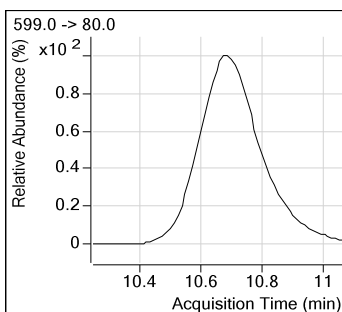
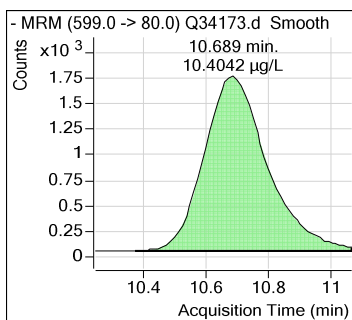


# Perfluorinated Compounds by LC/MS/MS.

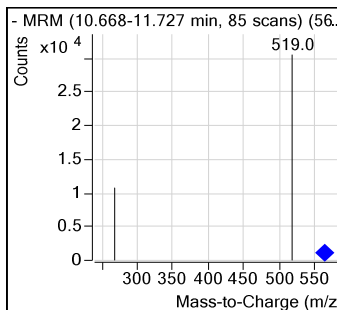
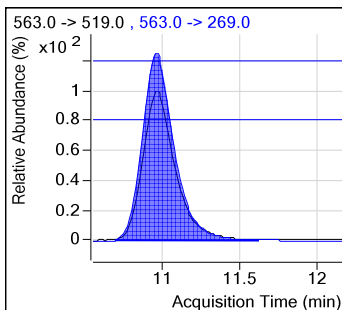
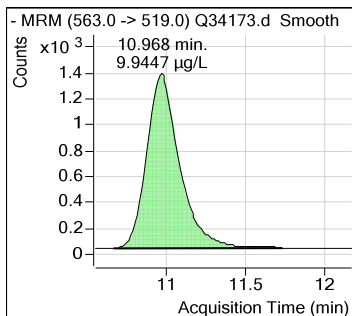
## 8:2FTS



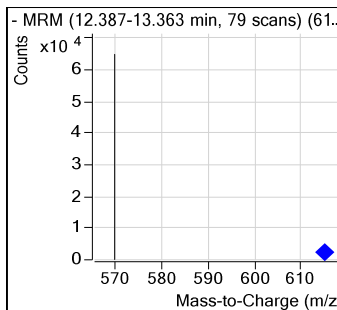
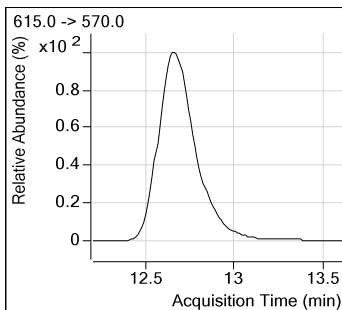
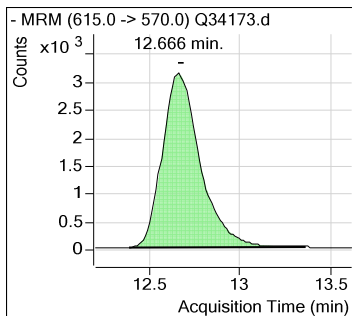
## PFDS



## PFUnDA



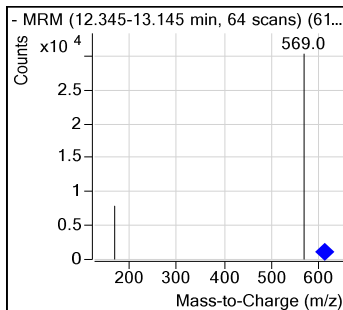
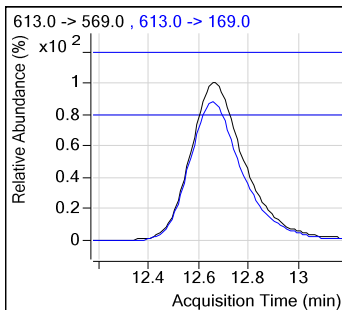
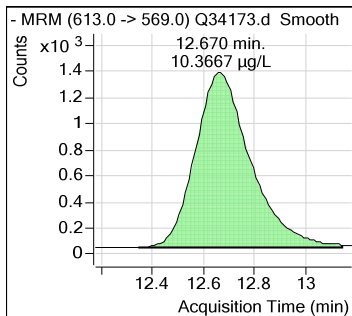
## 13C2-PFDoDA



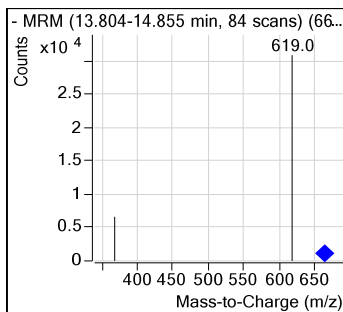
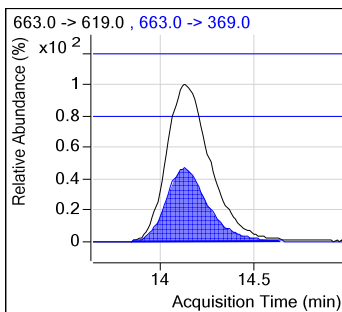
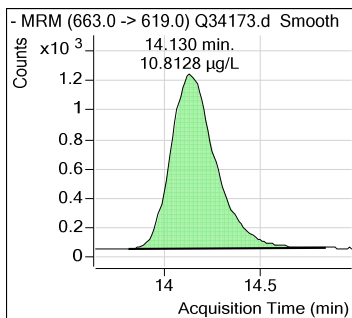


## Perfluorinated Compounds by LC/MS/MS.

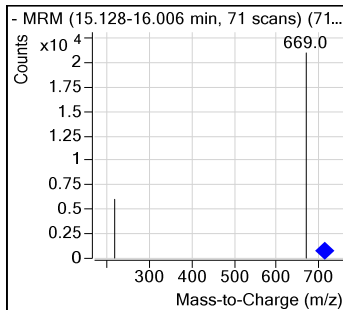
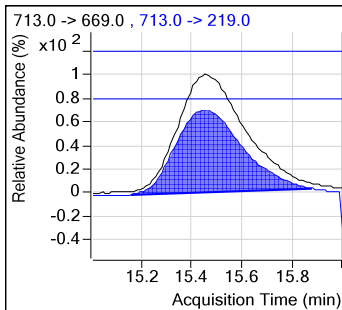
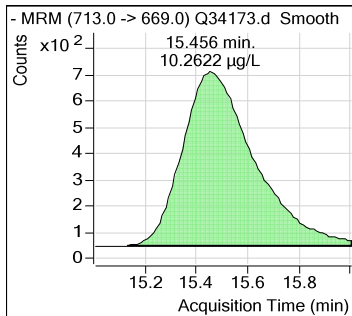
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**

# Manual Integration Approval Summary

Sample Number: SQ893-IC893                      Method: EPA 537 MOD  
Lab FileID: Q34173.D                              Analyst approved: 05/22/17 11:05 Nancy Saunders  
Injection Time: 05/19/17 11:46                      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.50	Split peak

7.5.14.1

7

## Perfluorinated Compounds by LC/MS/MS.

Manual Integrations  
APPROVED  
(compounds with "m" flag)

Mike Eger  
05/22/17 16:55

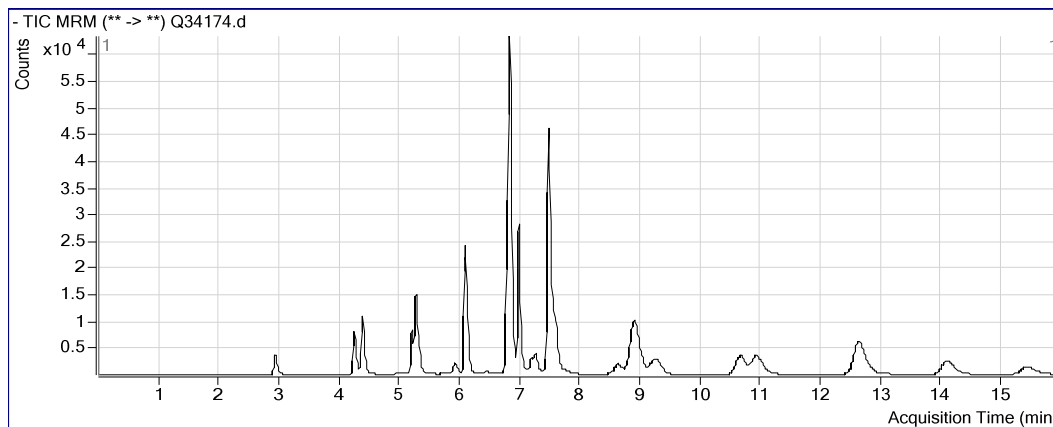
Data File : Q34174.d  
Operator : NANCYF  
Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
Acquisition date : 2017-05-19 12:06  
Sample Name : ICC893-20  
Vial : Vial 6  
Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
Quant Batch Name : SQ893.batch.bin  
Last Calib Update : 2017-05-22 07:04

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.272	266.0 -> 222.0	21219	20.000	µg/L	-0.012	
13C2-PFOA	6.839	415.0 -> 370.0	79752	20.000	µg/L	-0.012	
13C2-6:2FTS	6.861	429.0 -> 409.0	38364	20.000	µg/L	0.000	
d3-MeFOSAA	7.500	573.0 -> 419.0	17721	20.000	µg/L	0.000	
13C4-PFOS	7.502	503.0 -> 80.0	83115	20.000	µg/L	0.000	
13C2-PFDoDA	12.653	615.0 -> 570.0	43911	20.000	µg/L	0.013	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.297	315.0 -> 270.0	27985	18.94	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 94.71%				
d5-EtFOSAA	7.622	589.0 -> 419.0	12281	19.95	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 99.76%				
13C2-PFDA	8.929	515.0 -> 470.0	62386	19.01	µg/L	0.002	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 95.05%				
<b>Target Compounds</b>							
							<b>Qvalue</b>
PFBA	2.952	213.0 -> 169.0	17018	18.693	µg/L		100
PFPeA	4.275	263.0 -> 219.0	11006	18.726	µg/L		100
PFBS	4.404	299.0 -> 80.0	30559	18.581	µg/L		90
4:2FTS	5.220	327.0 -> 307.0	31342	19.764	µg/L		100
PFHxA	5.300	313.0 -> 269.0	26152	18.925	µg/L		98
PFPeS	5.330	349.0 -> 99.0	7403	18.897	µg/L		100
PFHxS	6.106	399.0 -> 80.0	45937	18.945	µg/L # m		80
PFHpA	6.123	363.0 -> 319.0	24272	18.934	µg/L #		45
PFHpS	6.809	449.0 -> 80.0	49935	18.774	µg/L		100
PFOA	6.853	413.0 -> 369.0	77413	19.333	µg/L		84
6:2FTS	6.862	427.0 -> 407.0	35876	19.463	µg/L		100
FOSA	6.996	498.0 -> 78.0	98193	19.870	µg/L		100
PFOS	7.503	499.0 -> 80.0	79039	18.433	µg/L # m		76
MeFOSAA	7.513	570.0 -> 419.0	12357	18.397	µg/L		100
PFNA	7.582	463.0 -> 419.0	23089	18.639	µg/L #		71
EtFOSAA	7.624	584.0 -> 419.0	11402	17.853	µg/L		100
PFNS	8.636	549.0 -> 99.0	19404	18.516	µg/L		100
PFDA	8.919	513.0 -> 469.0	50347	18.378	µg/L #		85
8:2FTS	9.275	527.0 -> 507.0	32668	19.554	µg/L		100
PFDS	10.676	599.0 -> 80.0	44758	19.810	µg/L		100
PFUnDA	10.956	563.0 -> 519.0	35997	18.822	µg/L #		87
PFDoDA	12.657	613.0 -> 569.0	38170	19.669	µg/L		93
PFTrDA	14.117	663.0 -> 619.0	35968	19.701	µg/L #		76
PFTeDA	15.443	713.0 -> 669.0	24228	19.552	µg/L #		88

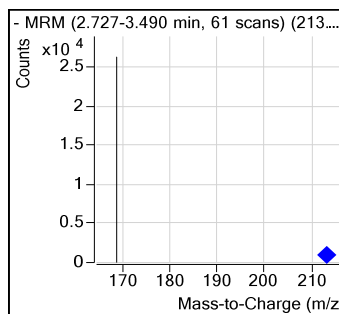
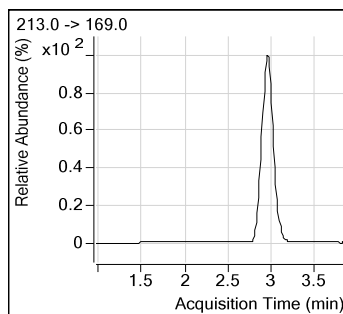
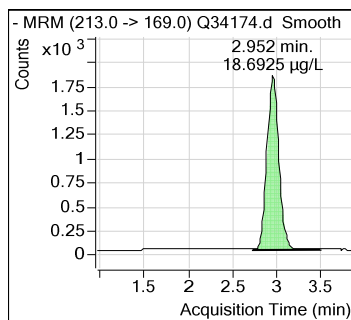
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

# Perfluorinated Compounds by LC/MS/MS.

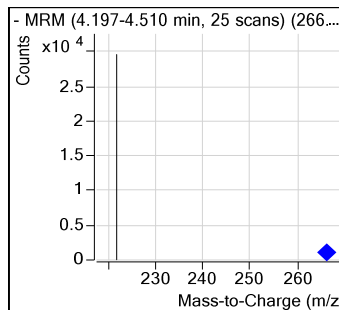
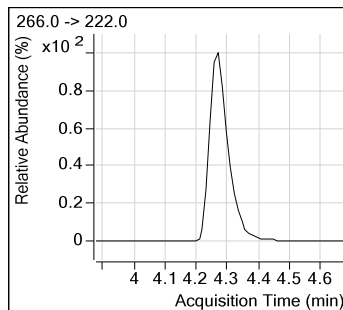
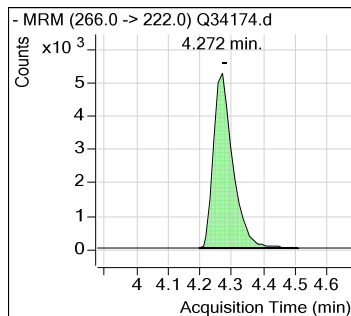
Data File : Q34174.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 12:06  
 Sample Name : ICC893-20  
 Vial : Vial 6  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



**PFBA**



**13C3-PFPeA**

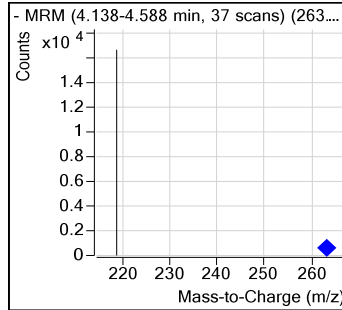
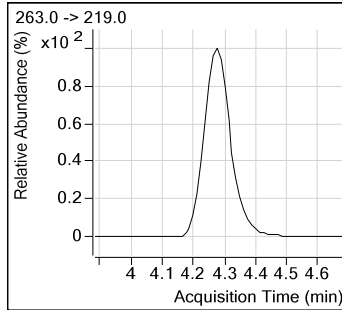
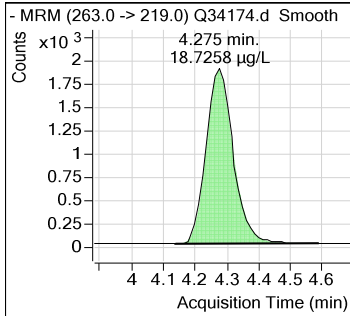


# Perfluorinated Compounds by LC/MS/MS.

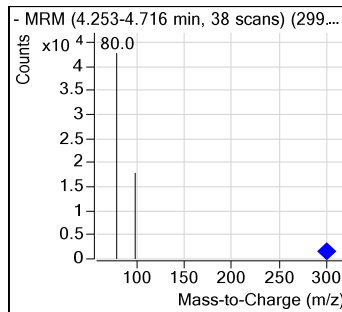
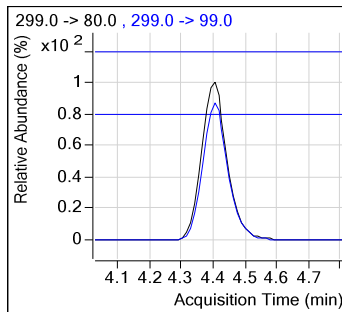
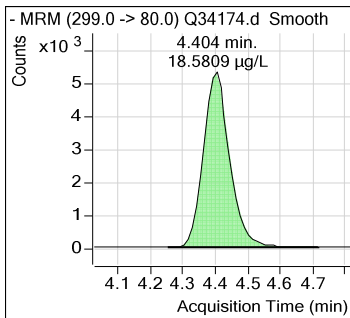
7.5.15

7

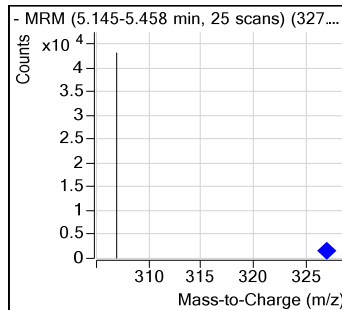
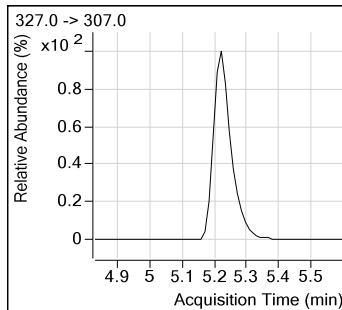
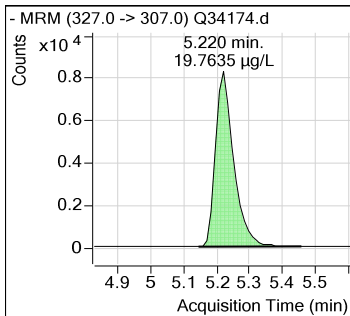
**PFPeA**



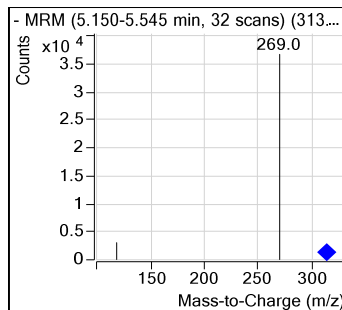
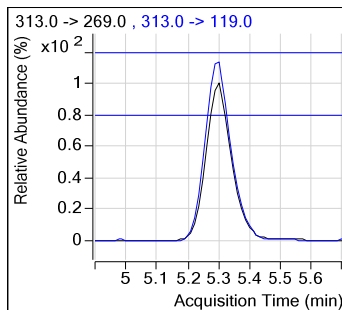
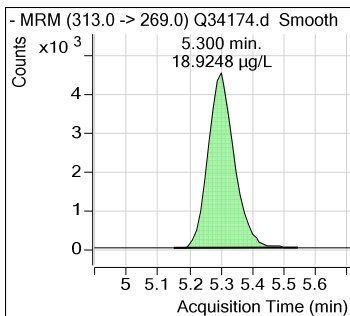
**PFBS**



**4:2FTS**



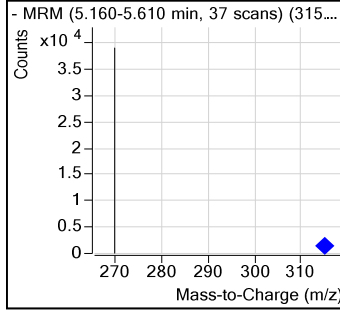
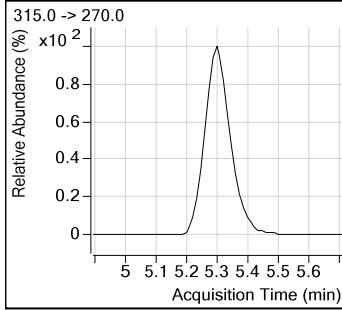
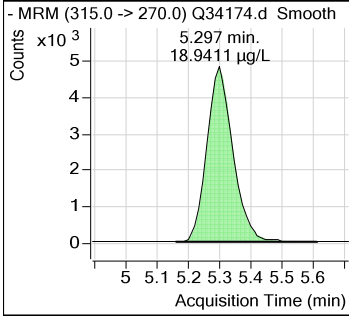
**PFHxA**



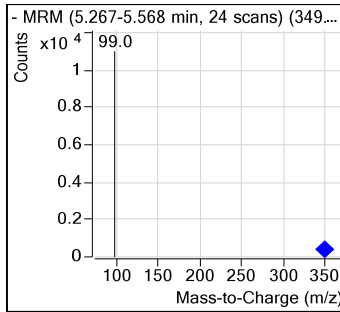
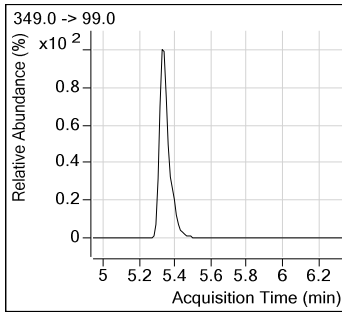
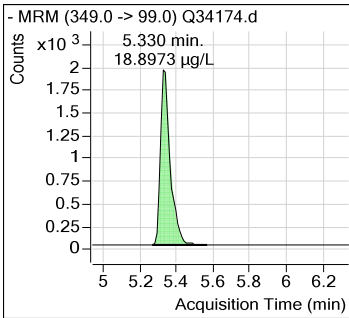
# Perfluorinated Compounds by LC/MS/MS.

7.5.15  
7

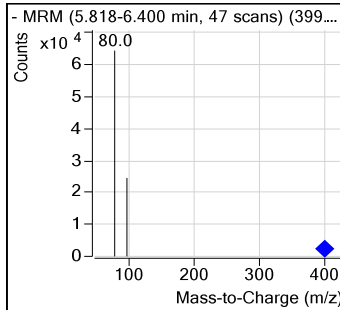
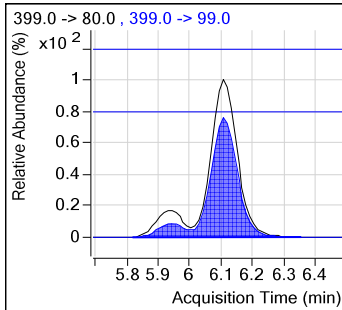
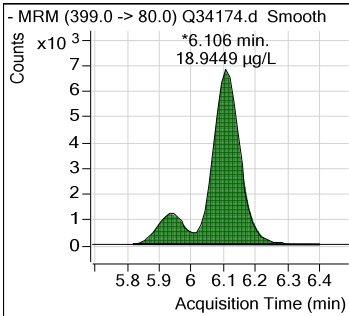
13C2-PFHxA



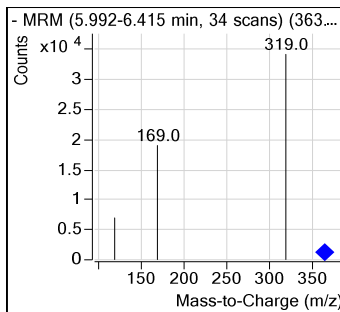
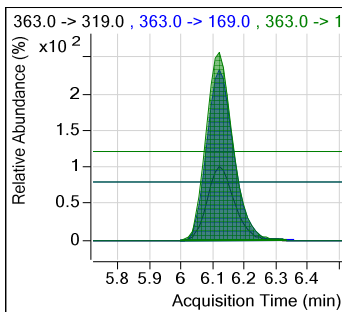
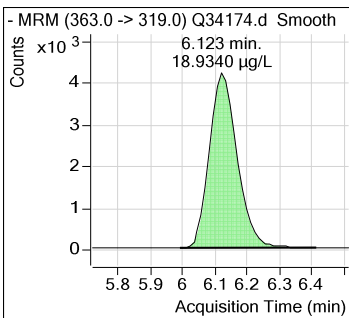
PFPeS



PFHxS

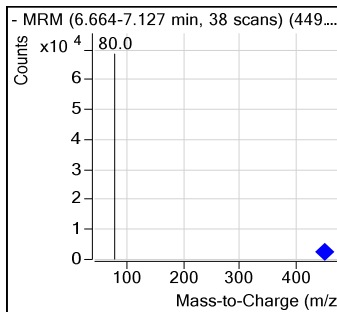
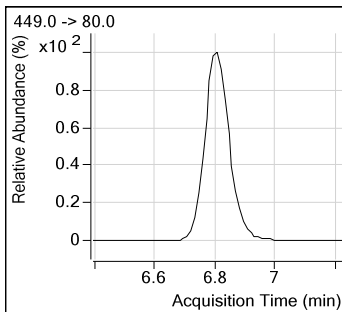
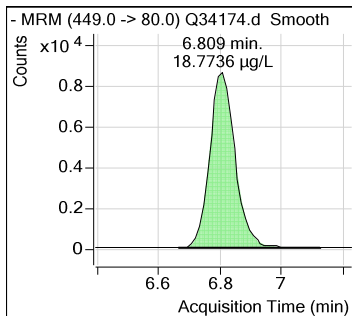


PFHpA

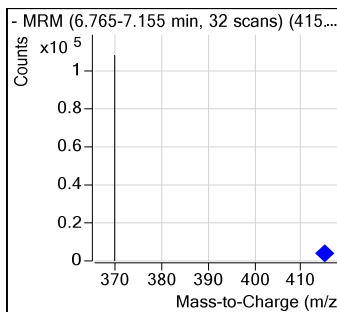
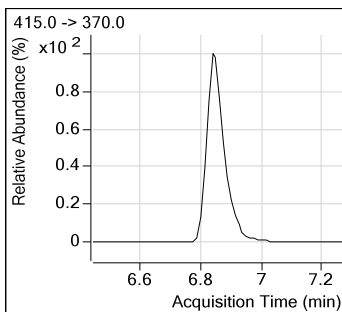
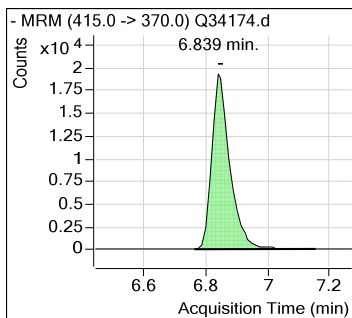


# Perfluorinated Compounds by LC/MS/MS.

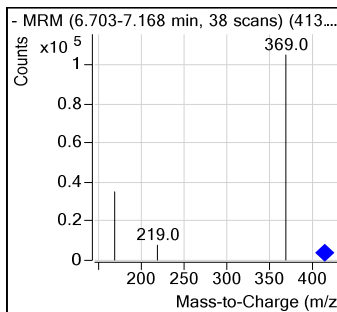
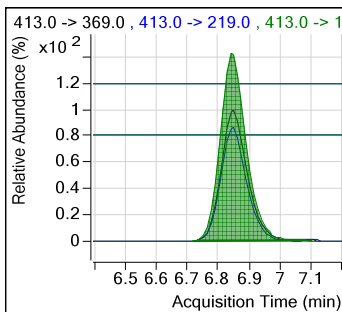
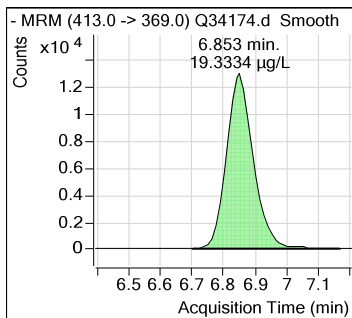
## PFHpS



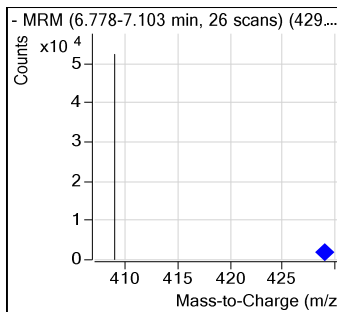
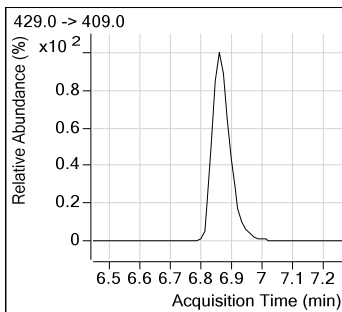
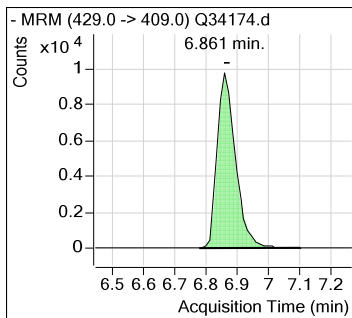
## 13C2-PFOA



## PFOA

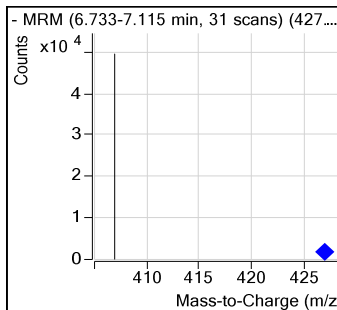
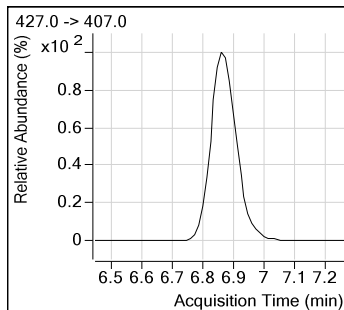
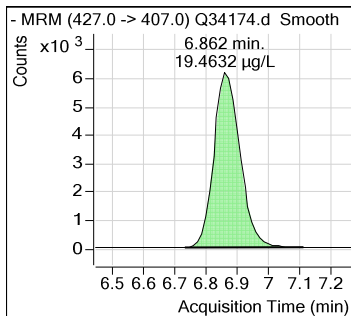


## 13C2-6:2FTS

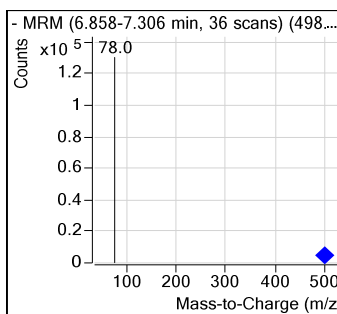
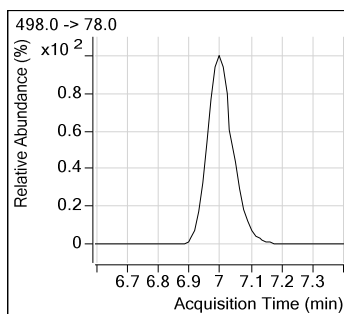
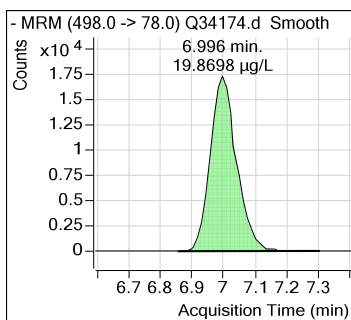


## Perfluorinated Compounds by LC/MS/MS.

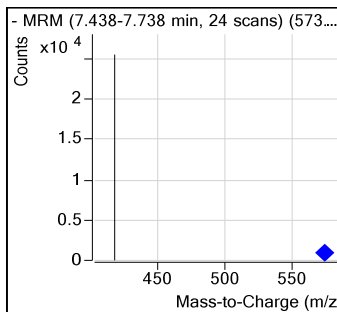
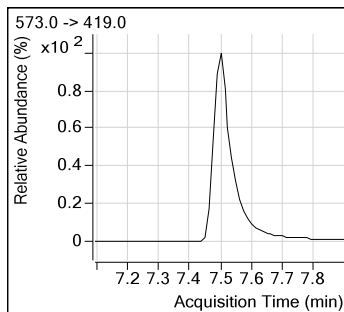
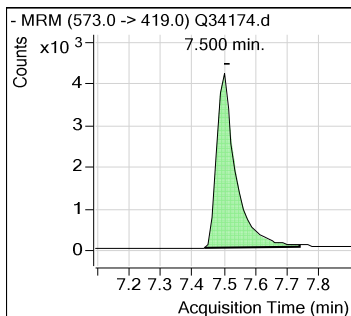
6:2FTS



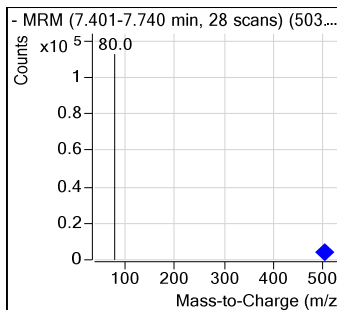
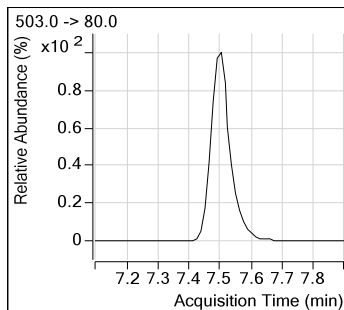
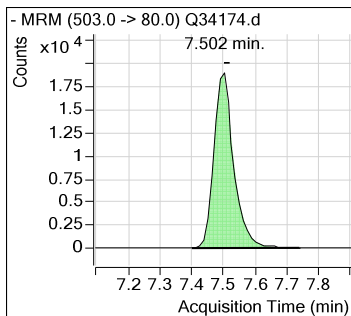
FOSA



d3-MeFOSAA



13C4-PFOS



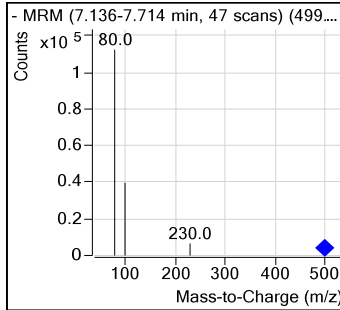
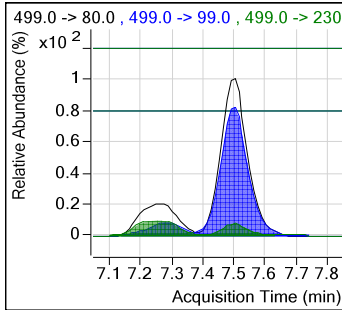
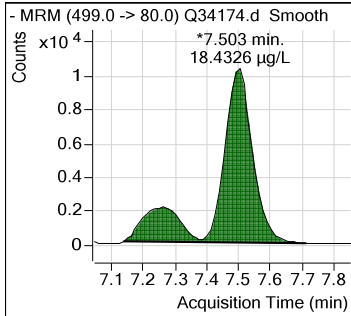
7.5.15

7

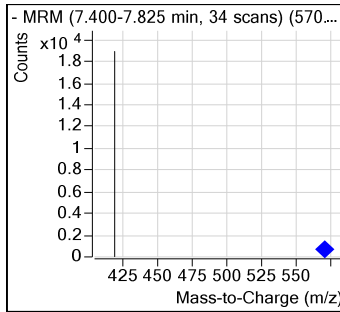
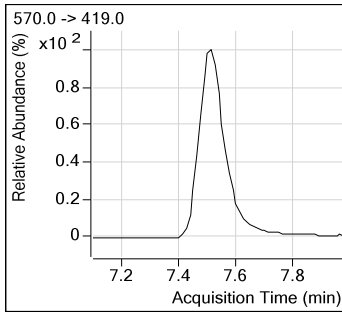
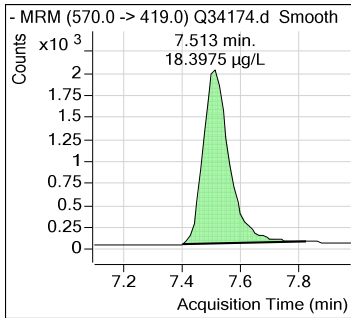


## Perfluorinated Compounds by LC/MS/MS.

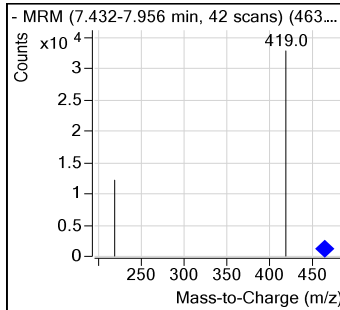
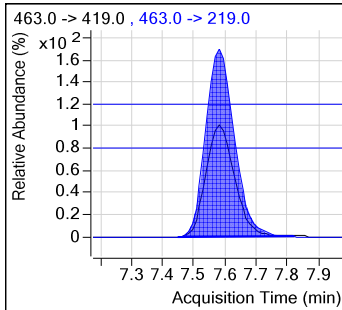
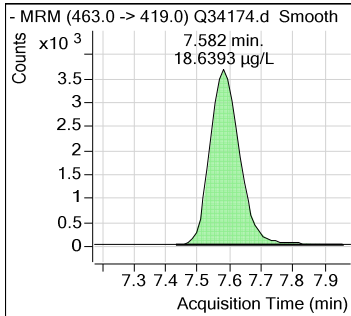
PFOS



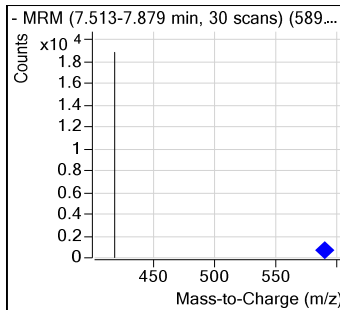
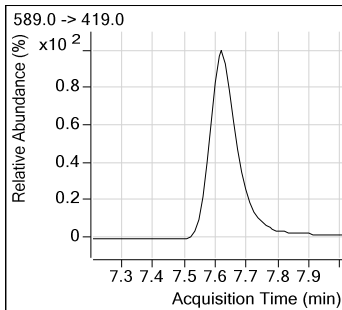
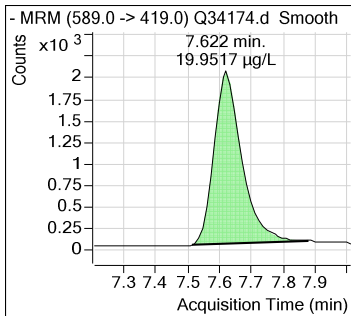
MeFOSAA



PFNA



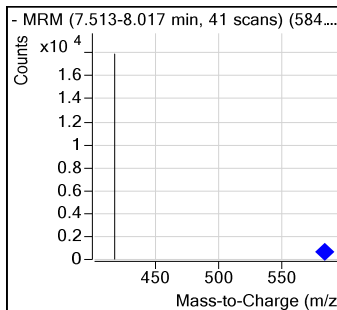
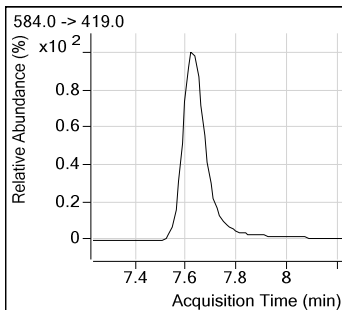
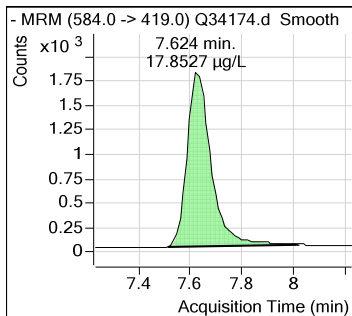
d5-EtFOSAA



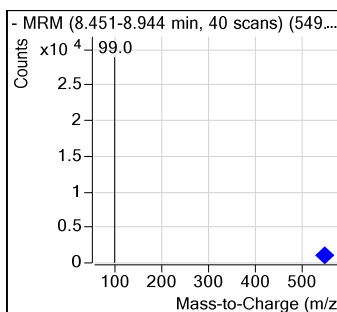
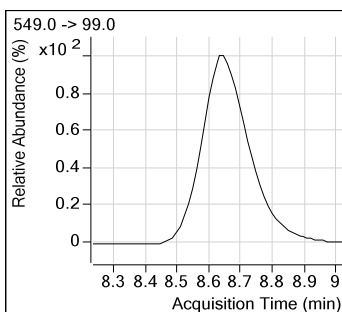
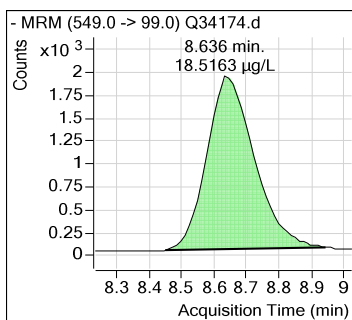
7.5.15  
7

## Perfluorinated Compounds by LC/MS/MS.

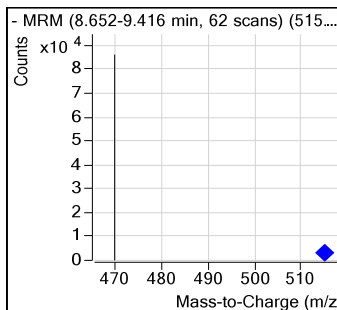
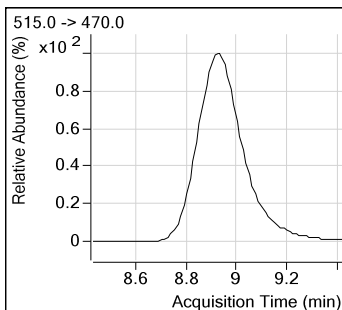
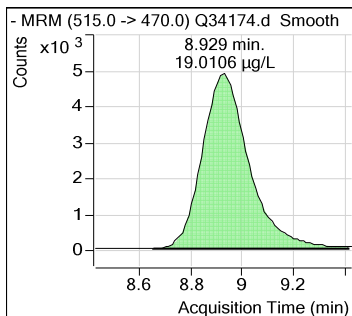
### EtFOSAA



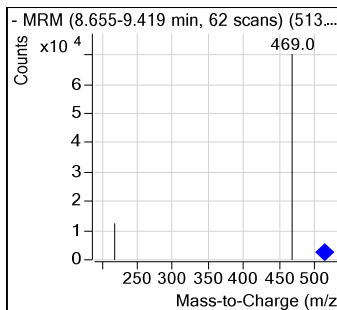
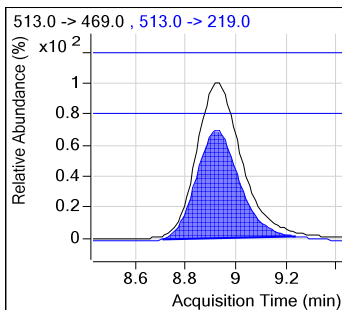
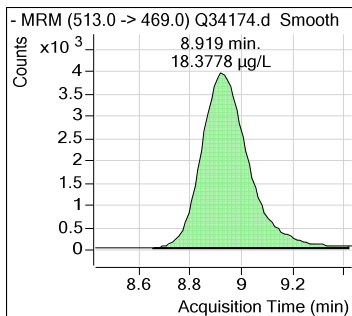
### PFNS



### 13C2-PFDA



### PFDA

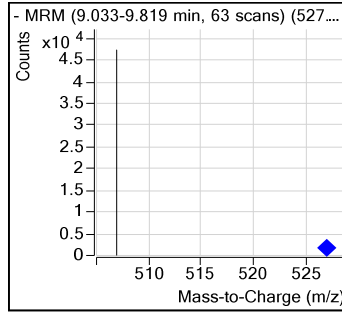
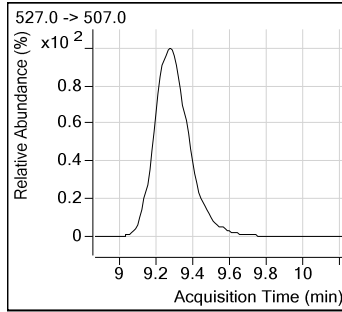
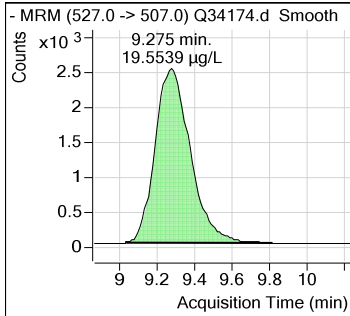


## Perfluorinated Compounds by LC/MS/MS.

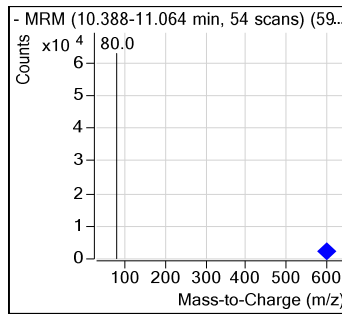
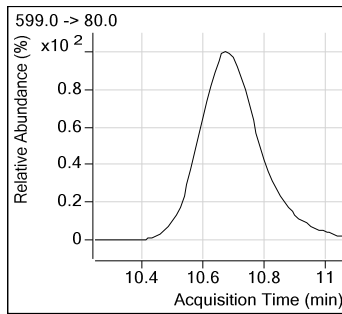
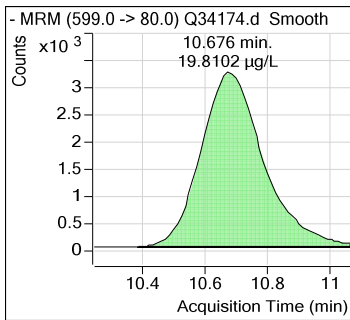
7.5.15

7

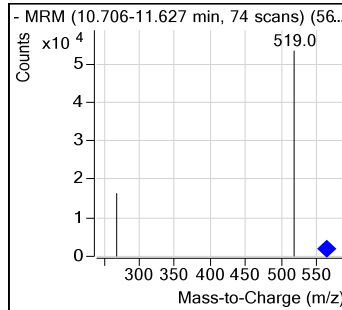
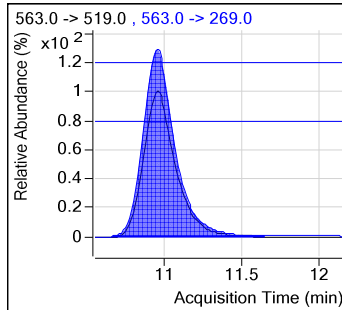
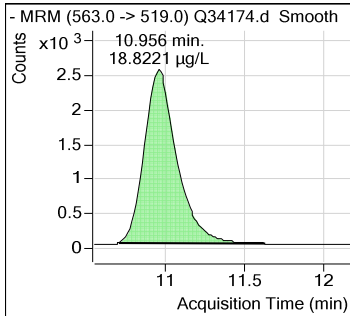
**8:2FTS**



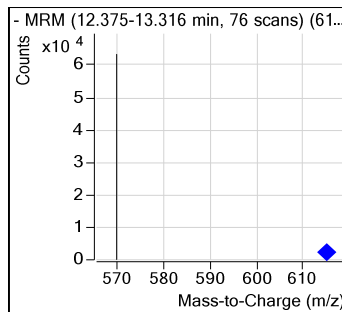
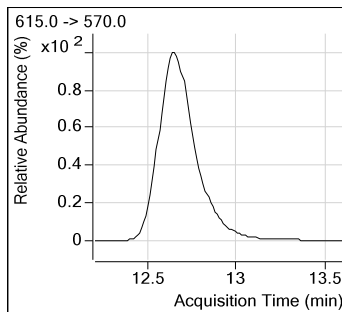
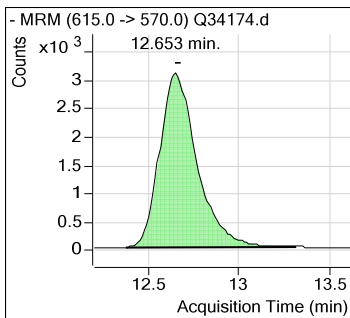
**PFDS**



**PFUnDA**

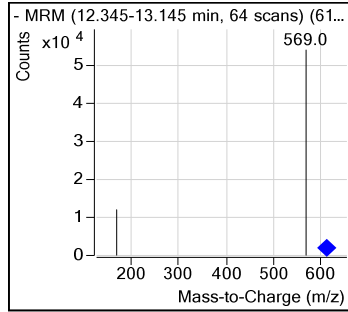
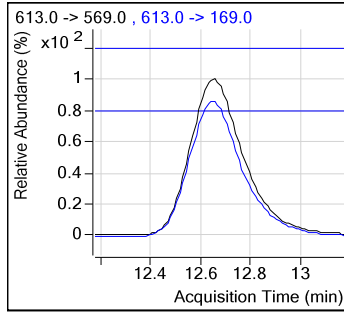
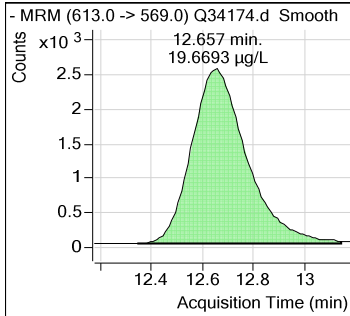


**13C2-PFDoDA**

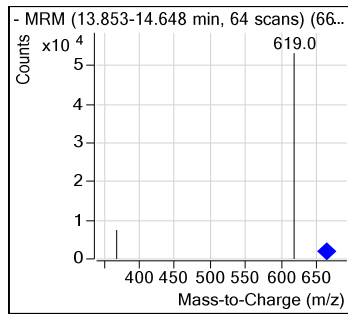
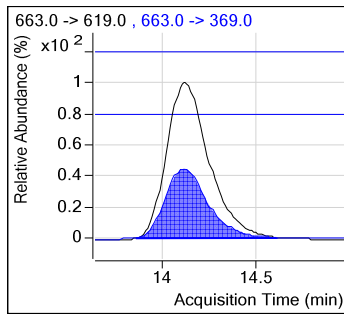
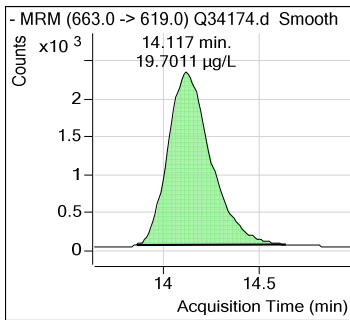


## Perfluorinated Compounds by LC/MS/MS.

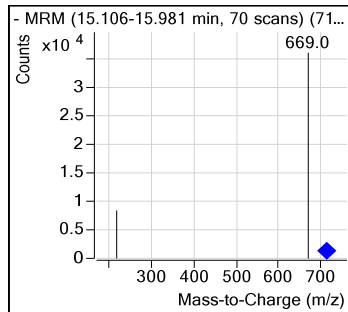
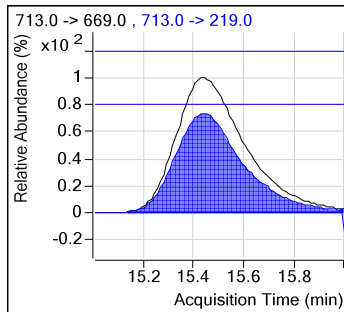
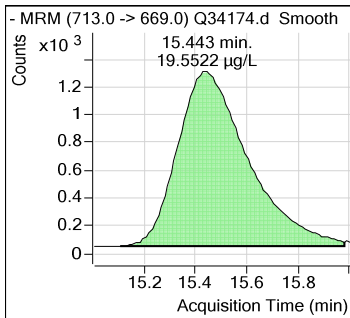
### PFD<sub>o</sub>DA



### PFT<sub>r</sub>DA



### PFT<sub>e</sub>DA



### Calibration Curve

7.5.15  
7

# Manual Integration Approval Summary

Sample Number: SQ893-ICC893      Method: EPA 537 MOD  
Lab FileID: Q34174.D      Analyst approved: 05/22/17 11:05 Nancy Saunders  
Injection Time: 05/19/17 12:06      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.50	Split peak

7.5.15.1

7

## Perfluorinated Compounds by LC/MS/MS.

Manual Integrations  
APPROVED  
(compounds with "m" flag)

Mike Eger  
05/22/17 16:55

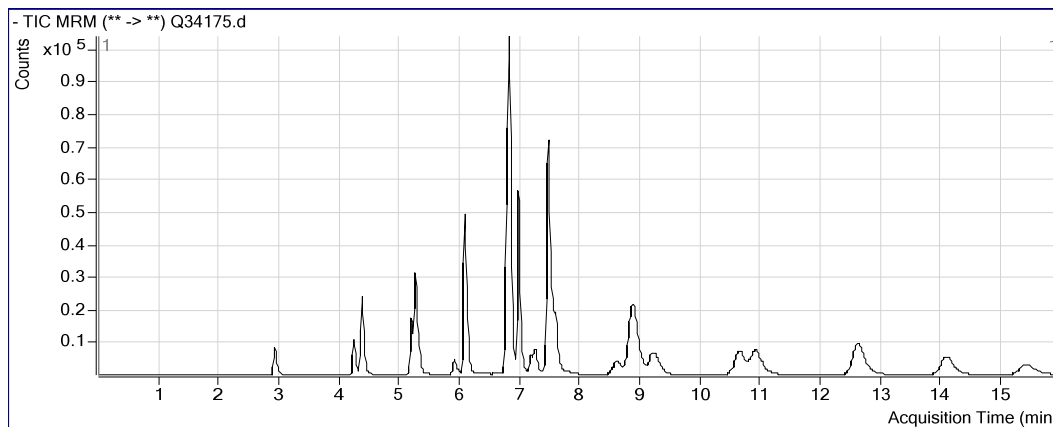
Data File : Q34175.d  
Operator : NANCYF  
Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
Acquisition date : 2017-05-19 12:27  
Sample Name : IC893-40  
Vial : Vial 7  
Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
Quant Batch Name : SQ893.batch.bin  
Last Calib Update : 2017-05-22 07:04

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.260	266.0 -> 222.0	21024	20.000	µg/L	-0.025	
13C2-PFOA	6.839	415.0 -> 370.0	79731	20.000	µg/L	-0.012	
13C2-6:2FTS	6.848	429.0 -> 409.0	40500	20.000	µg/L	-0.012	
d3-MeFOSAA	7.487	573.0 -> 419.0	18255	20.000	µg/L	-0.012	
13C4-PFOS	7.490	503.0 -> 80.0	83958	20.000	µg/L	-0.012	
13C2-PFDoDA	12.641	615.0 -> 570.0	44641	20.000	µg/L	0.000	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.285	315.0 -> 270.0	58239	39.43	µg/L	-0.025	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 197.14%				
d5-EtFOSAA	7.622	589.0 -> 419.0	25537	38.66	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 193.28%				
13C2-PFDA	8.904	515.0 -> 470.0	123579	37.67	µg/L	-0.023	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 188.34%				
<b>Target Compounds</b>							
							<b>Qvalue</b>
PFBA	2.952	213.0 -> 169.0	35667	39.539	µg/L		100
PFPeA	4.263	263.0 -> 219.0	22969	39.441	µg/L		100
PFBS	4.391	299.0 -> 80.0	65692	39.542	µg/L		90
4:2FTS	5.207	327.0 -> 307.0	66788	39.416	µg/L		100
PFHxA	5.287	313.0 -> 269.0	54158	39.201	µg/L		98
PFPeS	5.330	349.0 -> 99.0	15669	39.595	µg/L		100
PFHxS	6.094	399.0 -> 80.0	96913	39.567	µg/L # m		81
PFHpA	6.110	363.0 -> 319.0	51454	40.148	µg/L #		47
PFHpS	6.797	449.0 -> 80.0	106293	39.561	µg/L		100
PFOA	6.841	413.0 -> 369.0	157586	39.366	µg/L		83
6:2FTS	6.862	427.0 -> 407.0	74579	39.169	µg/L		100
FOSA	6.996	498.0 -> 78.0	199801	39.350	µg/L		100
PFOS	7.491	499.0 -> 80.0	172314	39.782	µg/L # m		75
MeFOSAA	7.501	570.0 -> 419.0	25854	37.369	µg/L		100
PFNA	7.570	463.0 -> 419.0	49068	39.623	µg/L #		71
EtFOSAA	7.624	584.0 -> 419.0	25258	38.392	µg/L		100
PFNS	8.624	549.0 -> 99.0	41666	39.361	µg/L		100
PFDA	8.894	513.0 -> 469.0	109012	39.803	µg/L #		87
8:2FTS	9.237	527.0 -> 507.0	73279	39.728	µg/L		100
PFDS	10.664	599.0 -> 80.0	95318	39.658	µg/L		100
PFUnDA	10.943	563.0 -> 519.0	78537	40.394	µg/L #		90
PFDoDA	12.632	613.0 -> 569.0	81373	39.979	µg/L		94
PFTrDA	14.105	663.0 -> 619.0	76872	39.367	µg/L #		76
PFTeDA	15.418	713.0 -> 669.0	51963	41.248	µg/L #		88

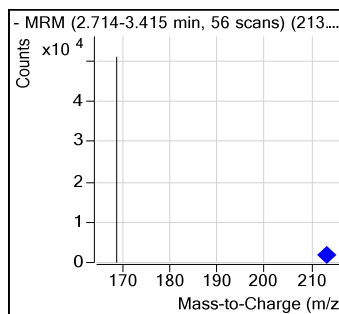
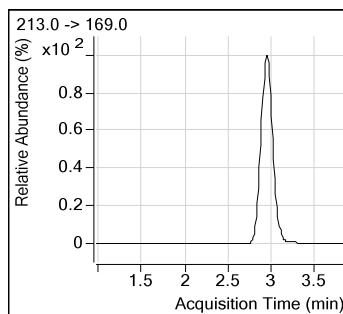
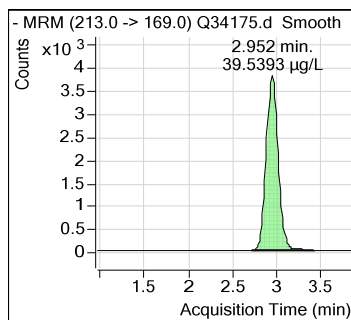
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

# Perfluorinated Compounds by LC/MS/MS.

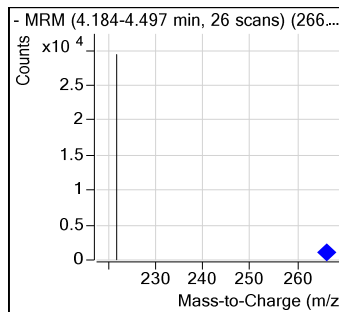
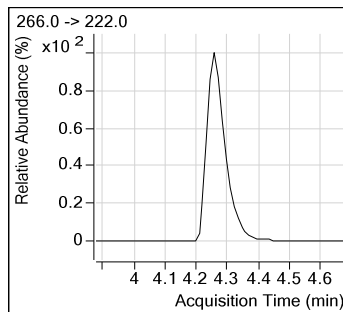
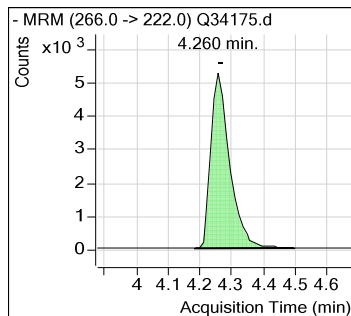
Data File : Q34175.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 12:27  
 Sample Name : IC893-40  
 Vial : Vial 7  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
 Last Calib Update : 2017-05-22 07:04



### PFBA



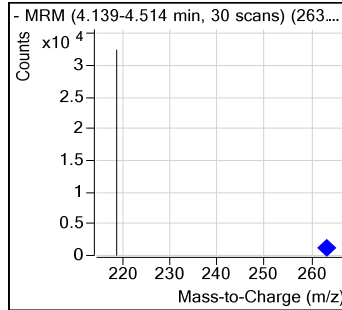
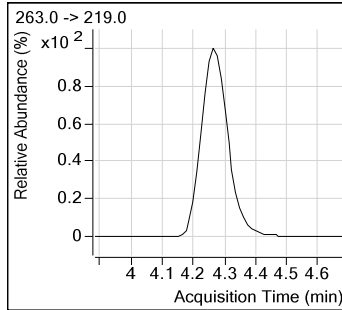
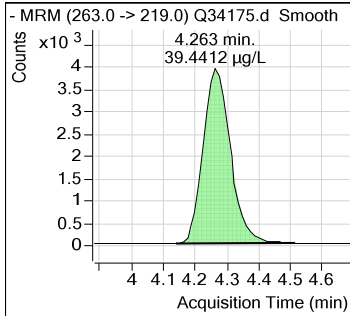
### 13C3-PFPeA



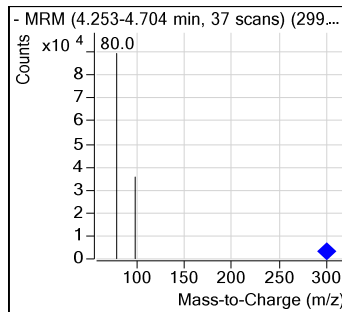
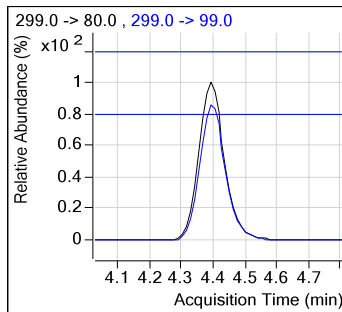
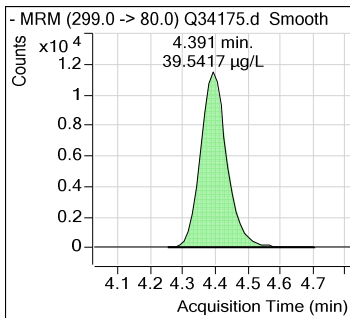
# Perfluorinated Compounds by LC/MS/MS.

7.5.16  
7

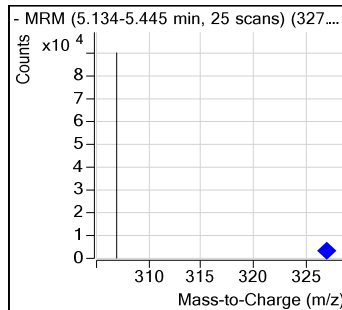
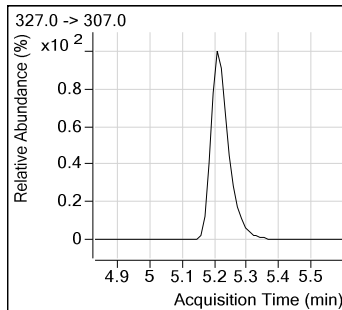
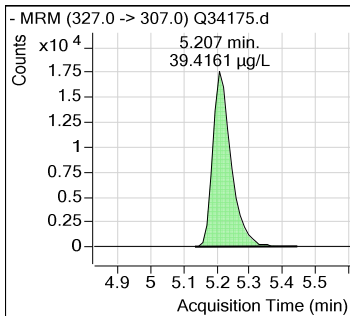
PFPeA



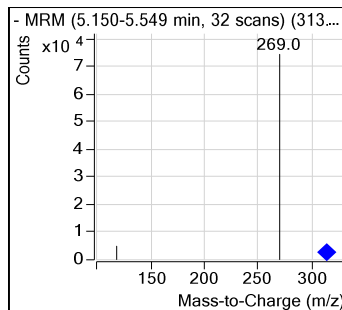
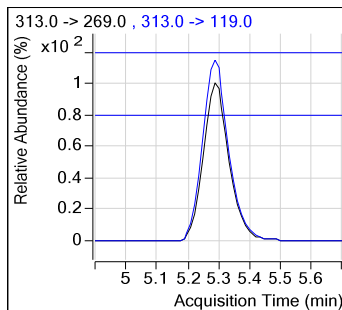
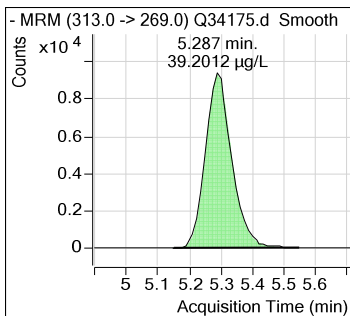
PFBS



4:2FTS



PFHxA

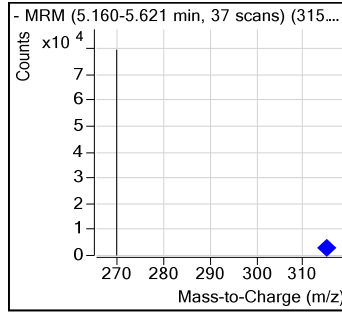
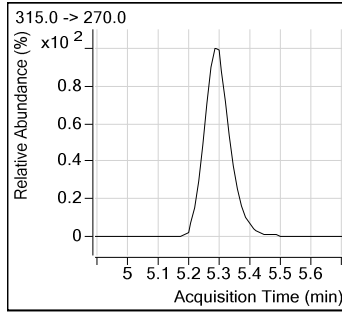
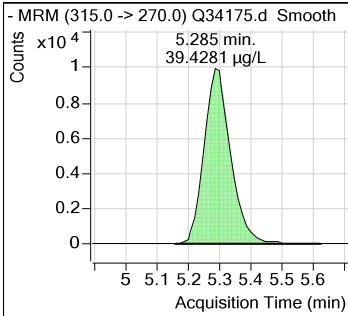




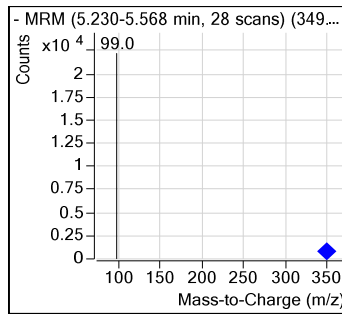
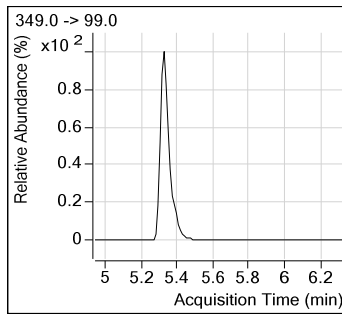
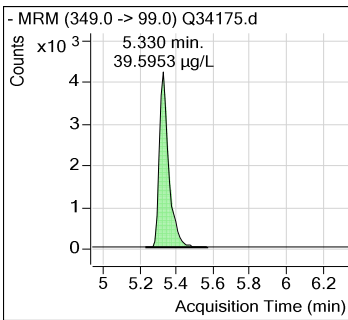
## Perfluorinated Compounds by LC/MS/MS.

7.5.16  
7

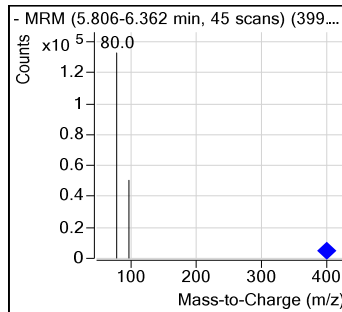
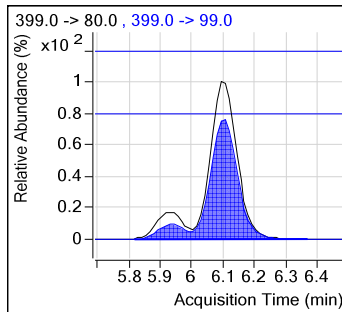
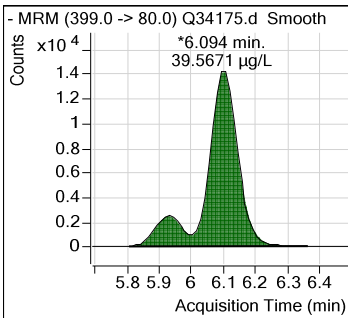
### 13C2-PFHxA



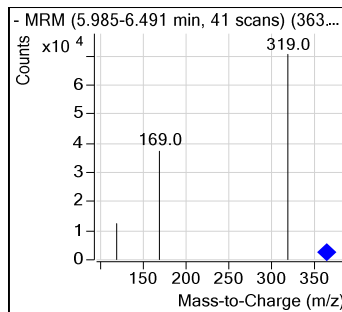
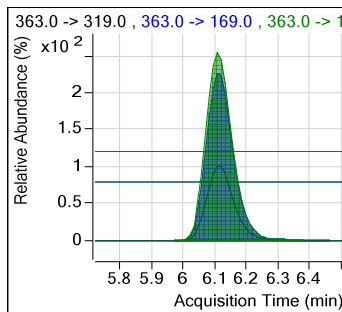
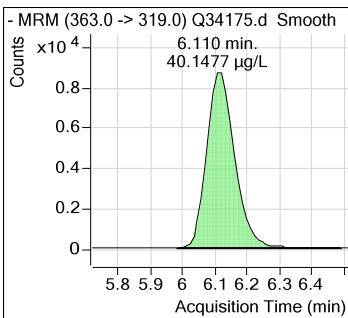
### PFPeS



### PFHxS



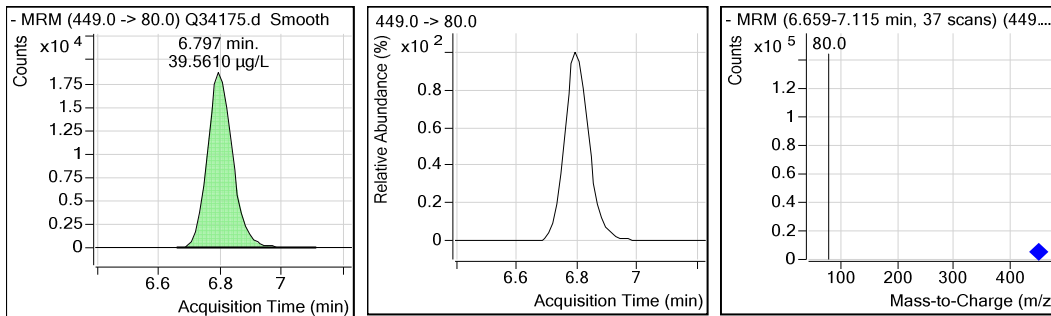
### PFHpA



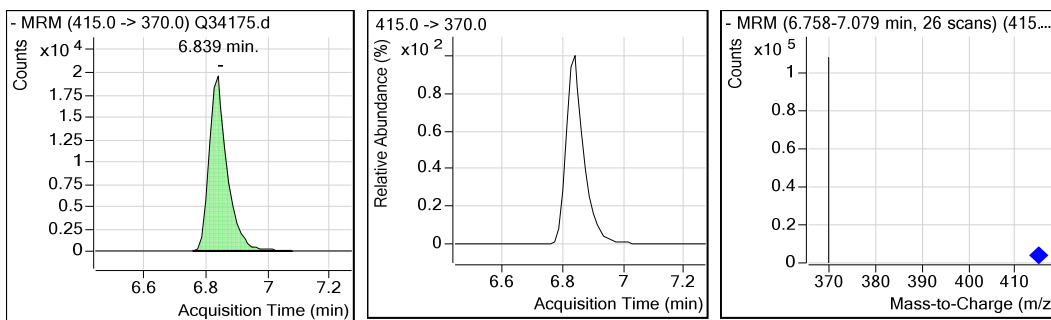
## Perfluorinated Compounds by LC/MS/MS.

7.5.16  
7

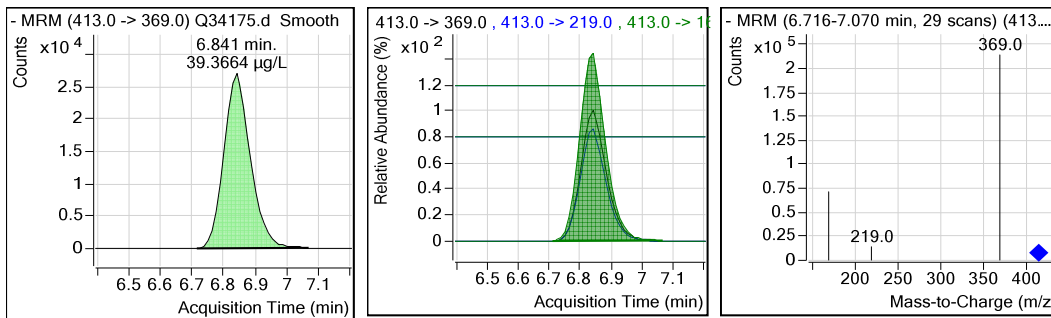
PFHpS



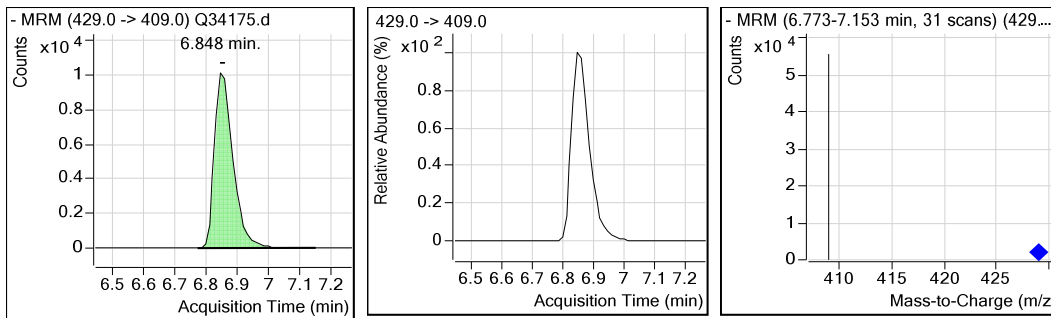
13C2-PFOA



PFOA



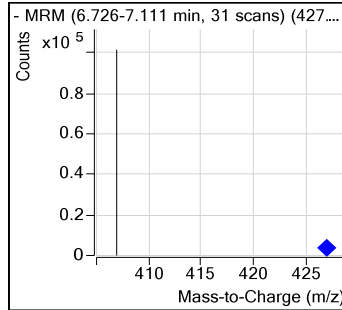
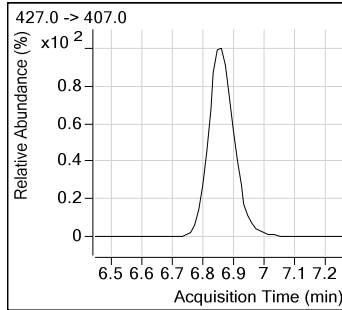
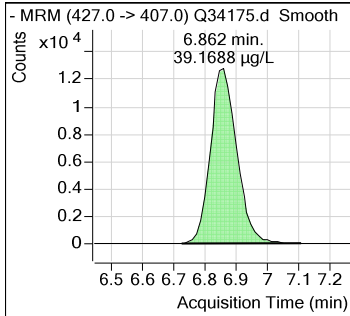
13C2-6:2FTS



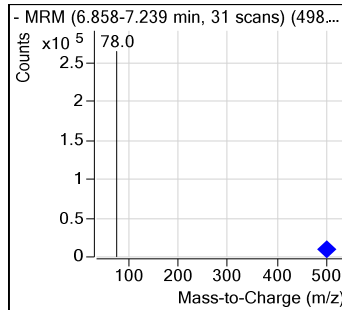
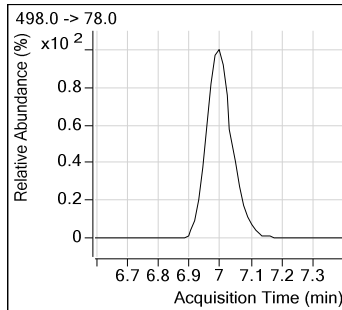
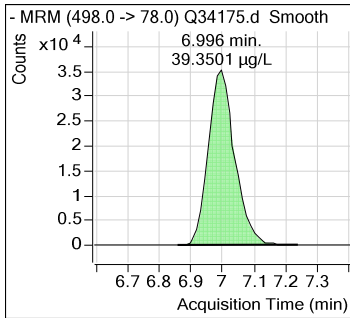
### Perfluorinated Compounds by LC/MS/MS.

7.5.16  
7

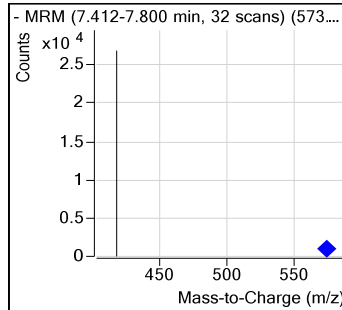
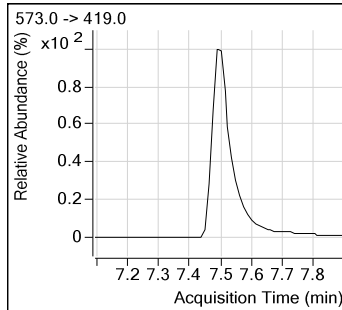
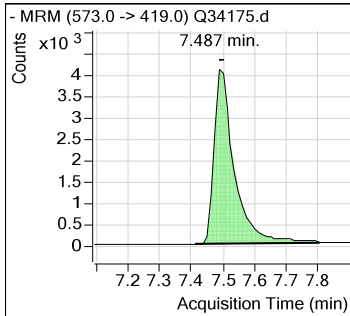
6:2FTS



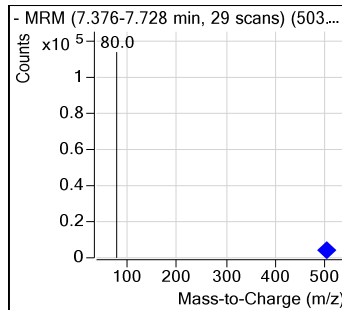
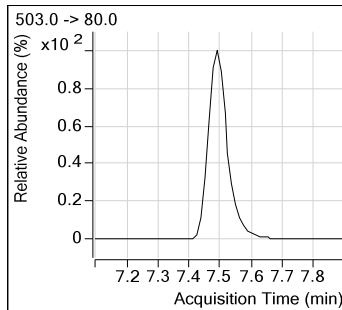
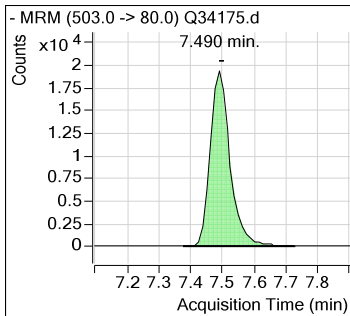
FOSA



d3-MeFOSAA



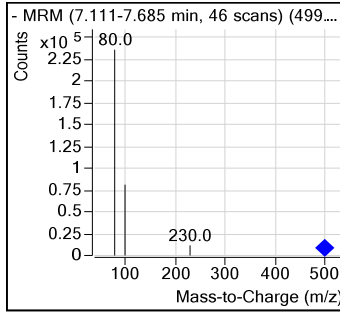
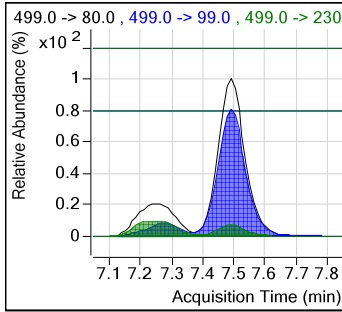
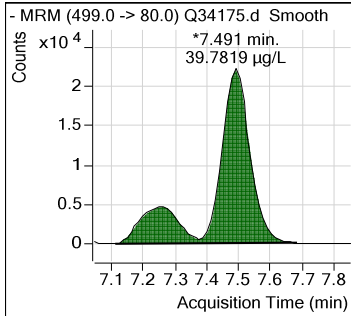
13C4-PFOS



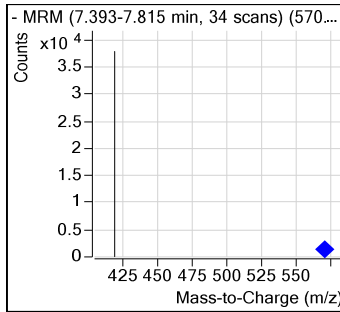
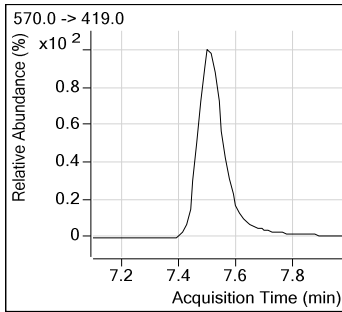
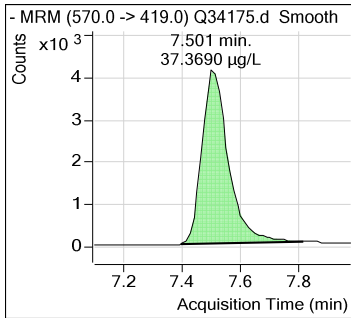
# Perfluorinated Compounds by LC/MS/MS.

7.5.16  
7

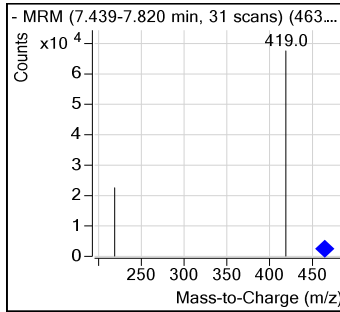
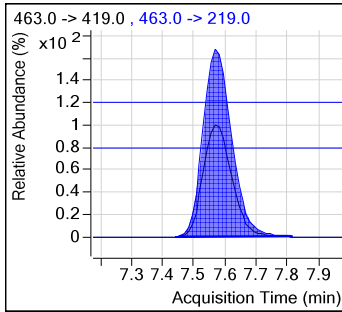
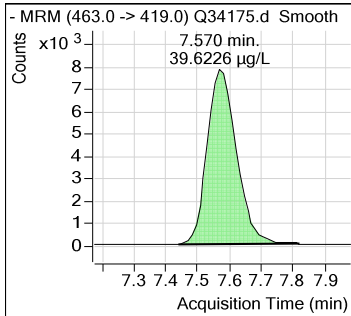
PFOS



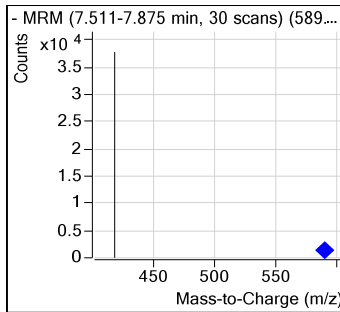
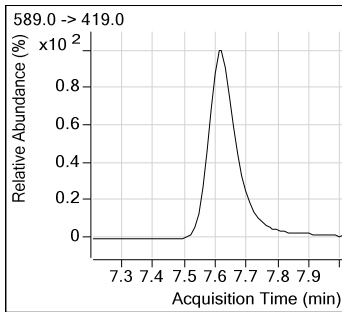
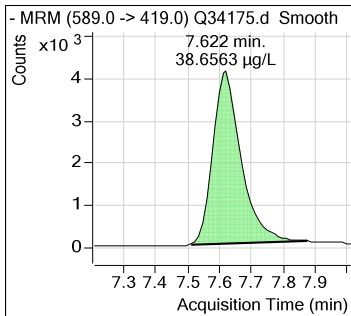
MeFOSAA



PFNA



d5-EtFOSAA

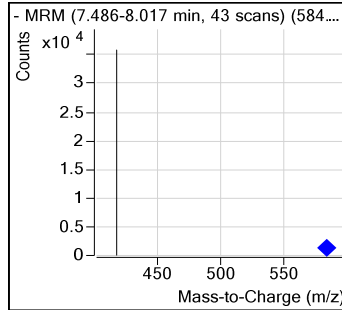
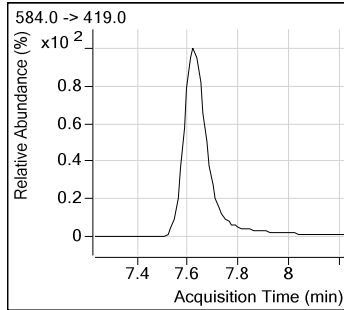
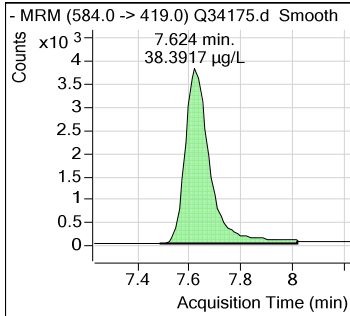


## Perfluorinated Compounds by LC/MS/MS.

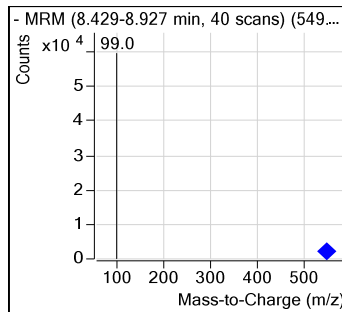
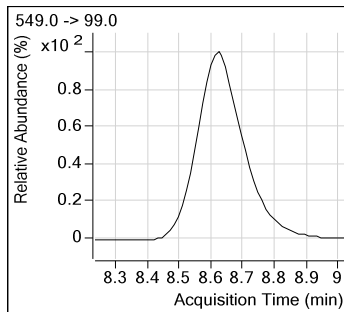
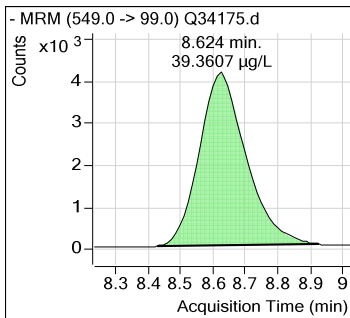
7.5.16

7

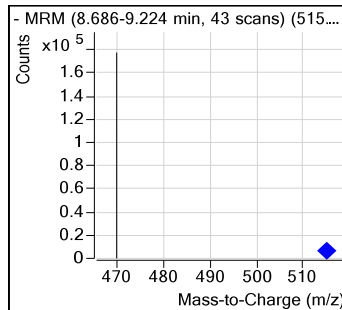
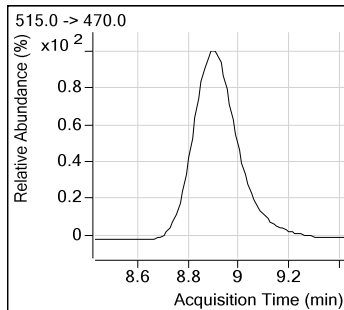
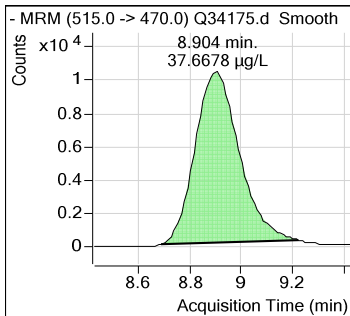
**EtFOSAA**



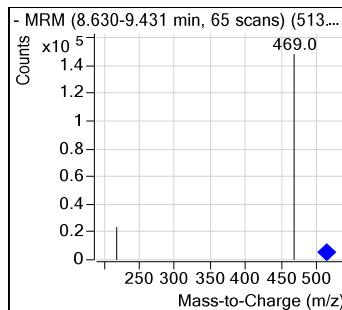
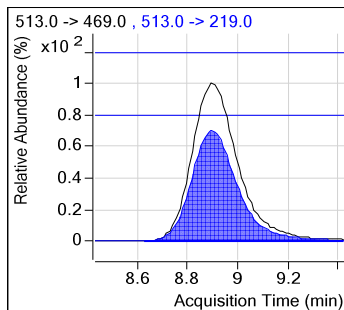
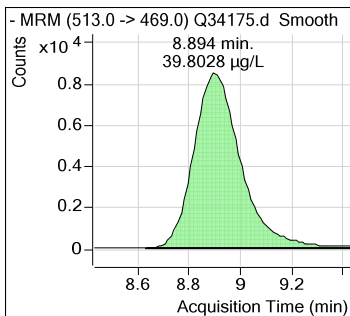
**PFNS**



**13C2-PFDA**



**PFDA**

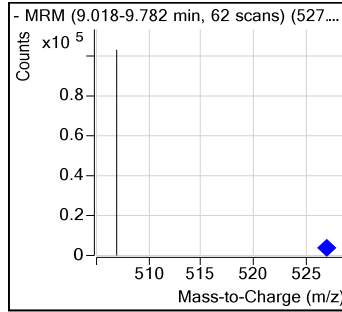
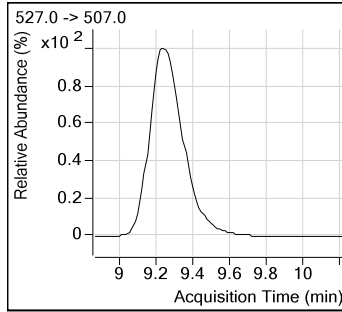
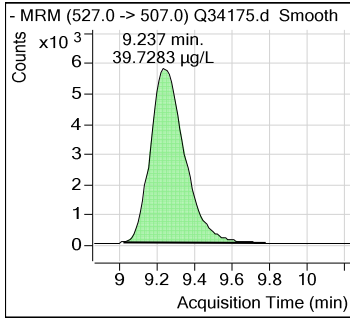


# Perfluorinated Compounds by LC/MS/MS.

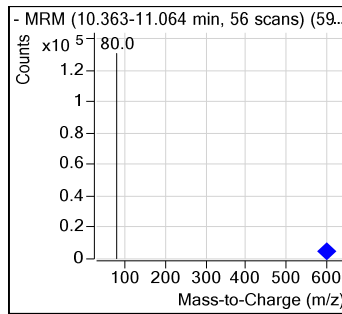
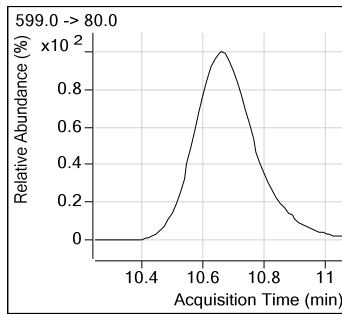
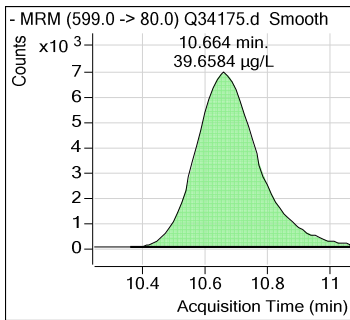
7.5.16

7

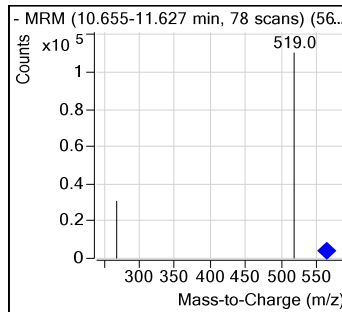
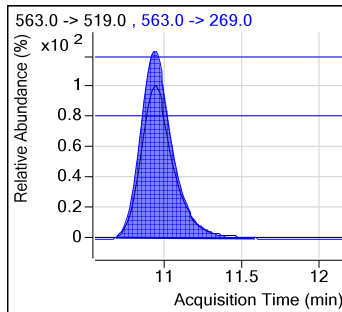
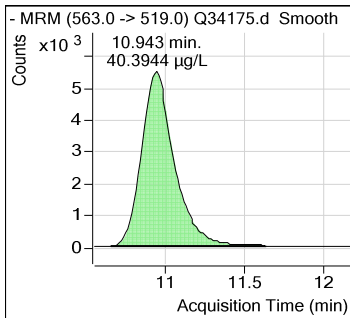
8:2FTS



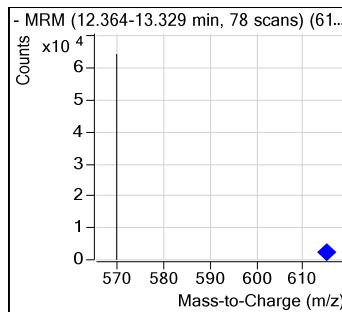
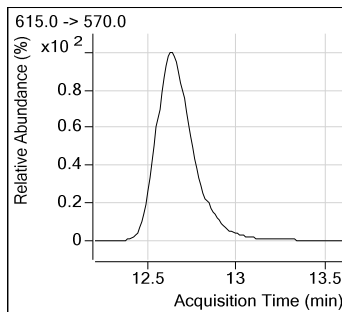
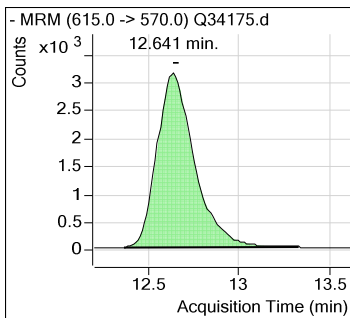
PFDS



PFUnDA



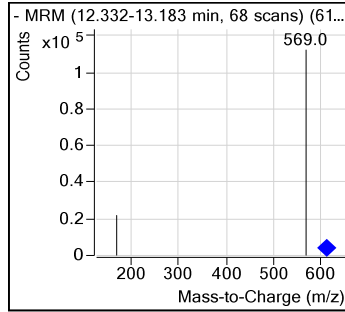
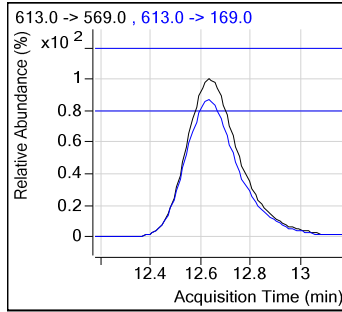
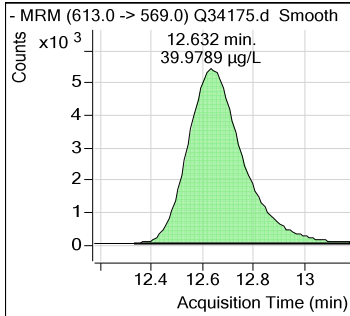
13C2-PFDoDA



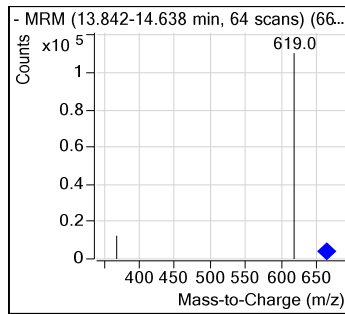
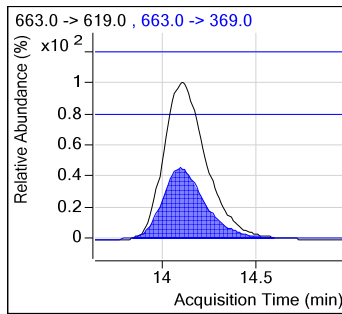
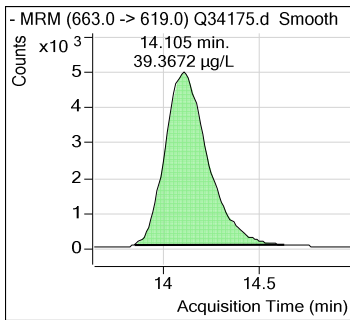
## Perfluorinated Compounds by LC/MS/MS.

7.5.16  
7

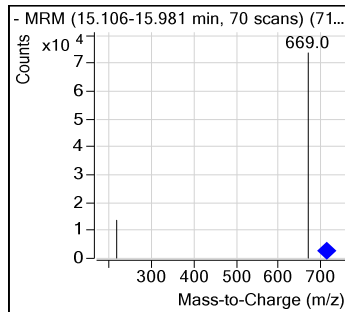
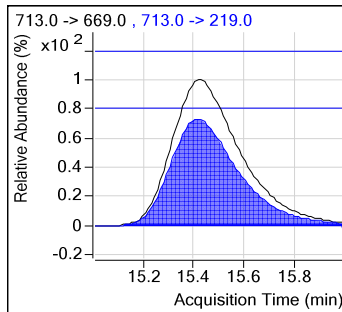
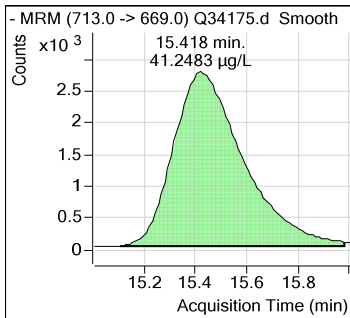
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**

# Manual Integration Approval Summary

Sample Number: SQ893-IC893                      Method: EPA 537 MOD  
Lab FileID: Q34175.D                              Analyst approved: 05/22/17 11:05 Nancy Saunders  
Injection Time: 05/19/17 12:27                      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.49	Split peak

7.5.16.1

7



## Perfluorinated Compounds by LC/MS/MS.

Manual Integrations  
APPROVED  
(compounds with "m" flag)

Mike Eger  
05/22/17 16:55

Data File : Q34176.d  
Operator : NANCYF  
Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
Acquisition date : 2017-05-19 12:47  
Sample Name : IC893-50  
Vial : Vial 8  
Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
Quant Batch Name : SQ893.batch.bin  
Last Calib Update : 2017-05-22 07:04

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.260	266.0 -> 222.0	21584	20.000	µg/L	-0.025	
13C2-PFOA	6.839	415.0 -> 370.0	81019	20.000	µg/L	-0.012	
13C2-6:2FTS	6.848	429.0 -> 409.0	41337	20.000	µg/L	-0.012	
d3-MeFOSAA	7.487	573.0 -> 419.0	18279	20.000	µg/L	-0.012	
13C4-PFOS	7.490	503.0 -> 80.0	84408	20.000	µg/L	-0.012	
13C2-PFDoDA	12.641	615.0 -> 570.0	46515	20.000	µg/L	0.000	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.285	315.0 -> 270.0	76439	50.93	µg/L	-0.025	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 254.64%				
d5-EtFOSAA	7.622	589.0 -> 419.0	34469	50.78	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 253.92%				
13C2-PFDA	8.892	515.0 -> 470.0	174775	52.43	µg/L	-0.035	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 262.13%				
<b>Target Compounds</b>							
							<b>Qvalue</b>
PFBA	2.940	213.0 -> 169.0	47144	50.906	µg/L		100
PFPeA	4.263	263.0 -> 219.0	30467	50.959	µg/L		100
PFBS	4.391	299.0 -> 80.0	85182	51.000	µg/L		91
4:2FTS	5.207	327.0 -> 307.0	87707	50.378	µg/L		100
PFHxA	5.287	313.0 -> 269.0	71731	51.096	µg/L		99
PFPeS	5.330	349.0 -> 99.0	20214	50.807	µg/L		100
PFHxS	6.094	399.0 -> 80.0	125095	50.801	µg/L	# m	81
PFHpA	6.110	363.0 -> 319.0	65591	50.365	µg/L	#	47
PFHpS	6.797	449.0 -> 80.0	137527	50.913	µg/L		100
PFOA	6.841	413.0 -> 369.0	206762	50.830	µg/L		83
6:2FTS	6.850	427.0 -> 407.0	97532	50.849	µg/L		100
FOSA	6.996	498.0 -> 78.0	255940	50.413	µg/L		100
PFOS	7.491	499.0 -> 80.0	221470	50.858	µg/L	# m	76
MeFOSAA	7.501	570.0 -> 419.0	36611	52.846	µg/L		100
PFNA	7.570	463.0 -> 419.0	64120	50.954	µg/L	#	74
EtFOSAA	7.624	584.0 -> 419.0	34443	52.282	µg/L		100
PFNS	8.611	549.0 -> 99.0	54475	51.186	µg/L		100
PFDA	8.894	513.0 -> 469.0	142305	51.133	µg/L	#	84
8:2FTS	9.237	527.0 -> 507.0	96667	50.205	µg/L		100
PFDS	10.651	599.0 -> 80.0	124603	50.218	µg/L		100
PFUnDA	10.931	563.0 -> 519.0	101612	50.157	µg/L	#	88
PFDoDA	12.632	613.0 -> 569.0	107759	50.047	µg/L		94
PFTrDA	14.105	663.0 -> 619.0	105386	50.396	µg/L	#	76
PFTeDA	15.418	713.0 -> 669.0	64471	49.116	µg/L	#	88

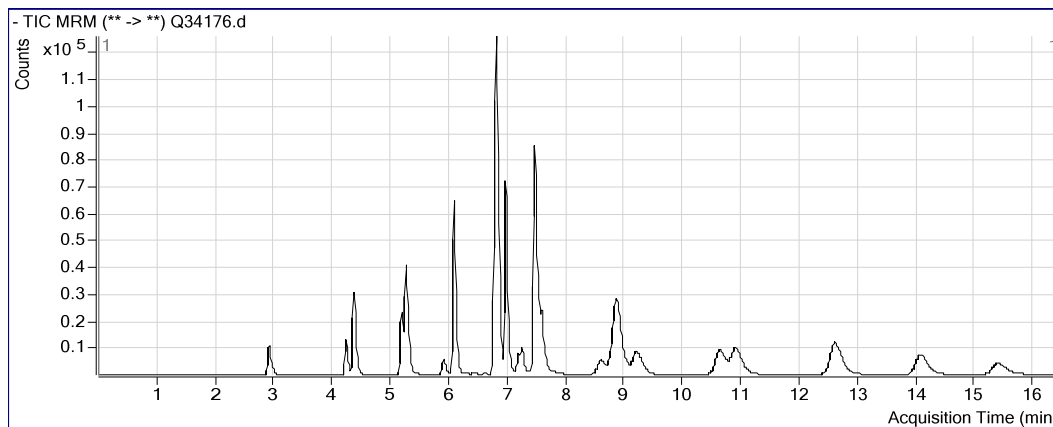
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

7.5.17

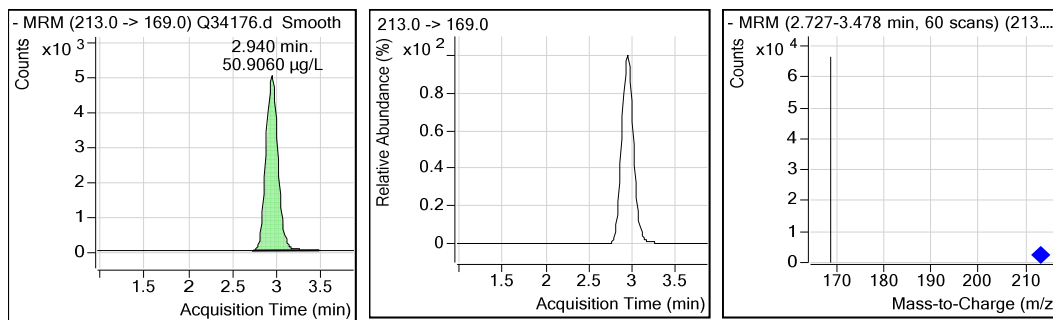
7

# Perfluorinated Compounds by LC/MS/MS.

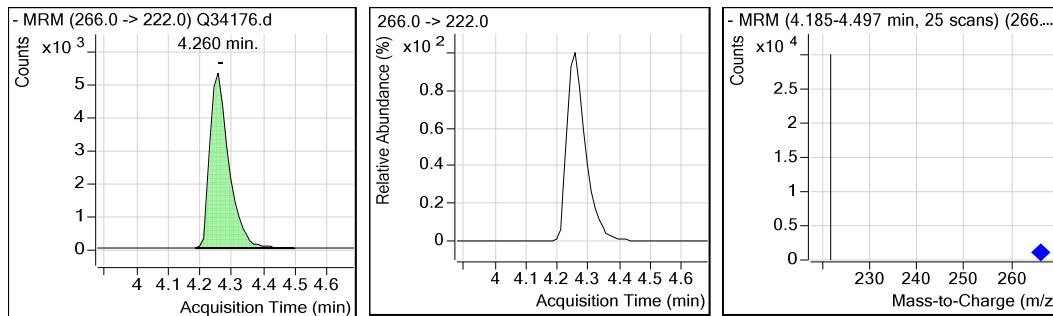
Data File : Q34176.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 12:47  
 Sample Name : IC893-50  
 Vial : Vial 8  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
 Last Calib Update : 2017-05-22 07:04



## PFBA



## 13C3-PFPeA

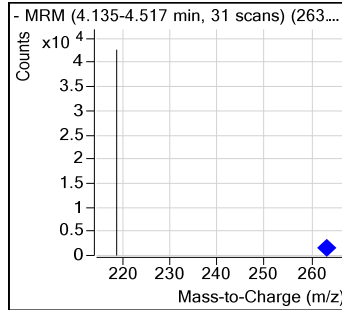
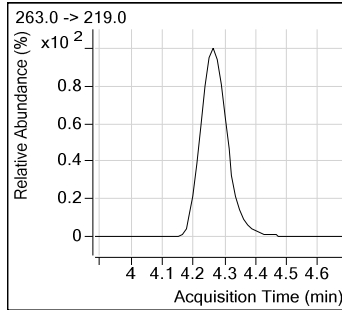
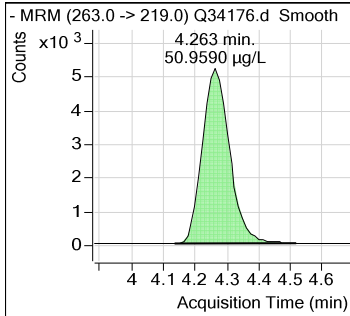


# Perfluorinated Compounds by LC/MS/MS.

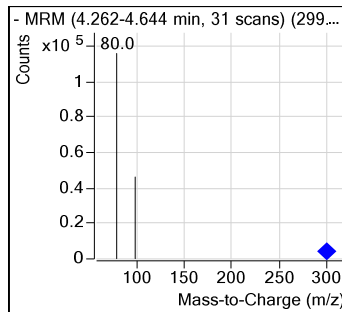
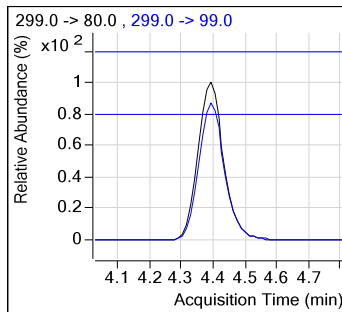
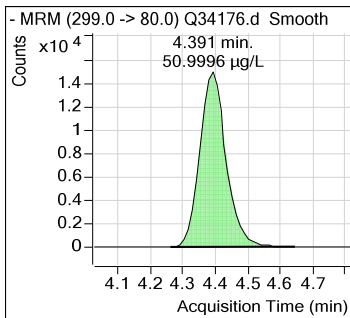
7.5.17

7

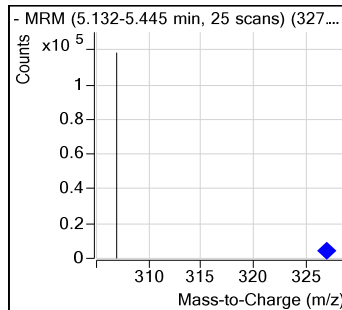
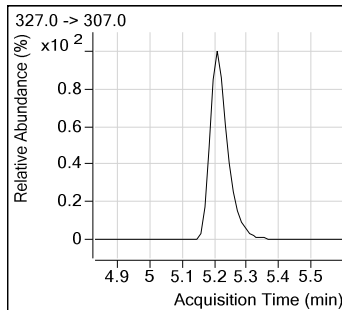
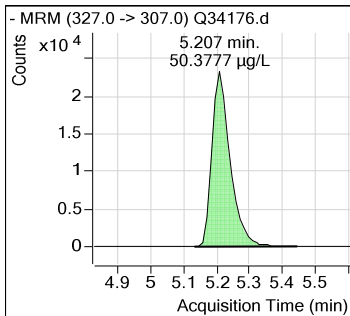
**PFPeA**



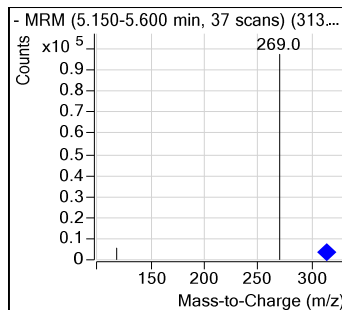
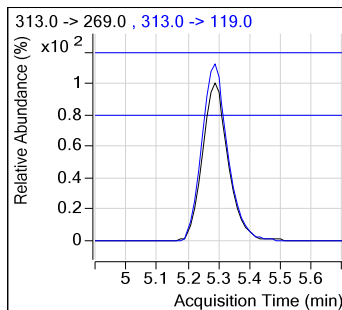
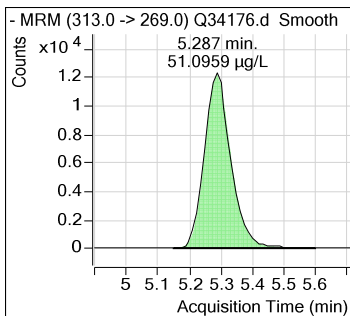
**PFBS**



**4:2FTS**



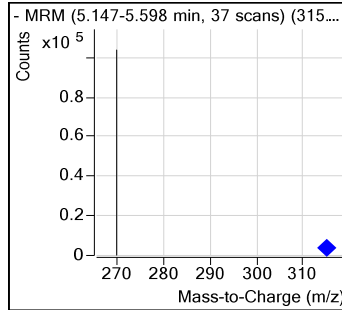
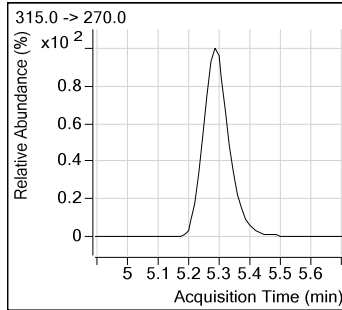
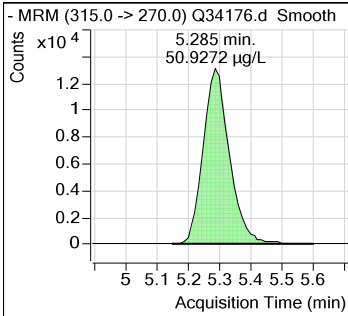
**PFHxA**



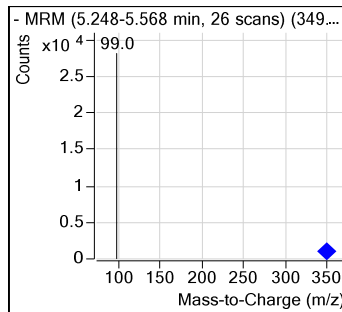
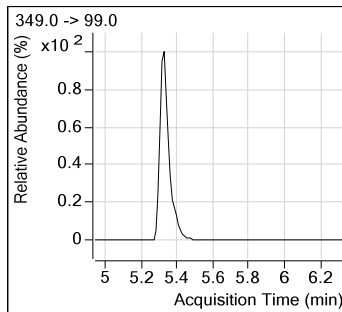
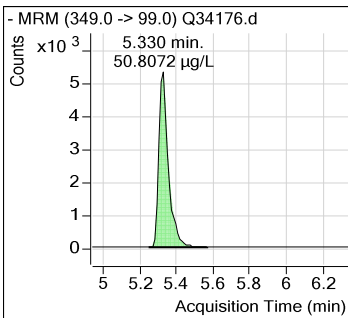
## Perfluorinated Compounds by LC/MS/MS.

7.5.17  
7

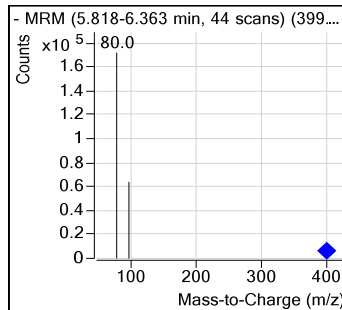
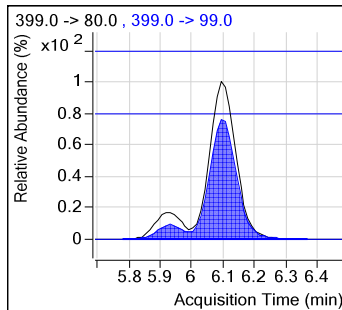
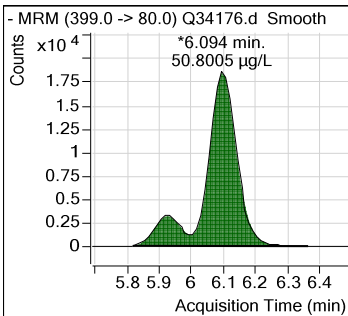
### 13C2-PFHxA



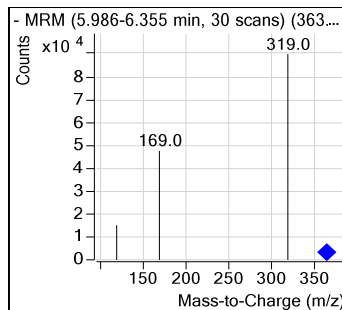
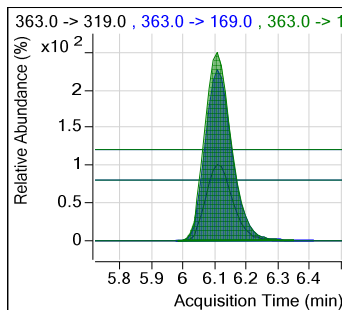
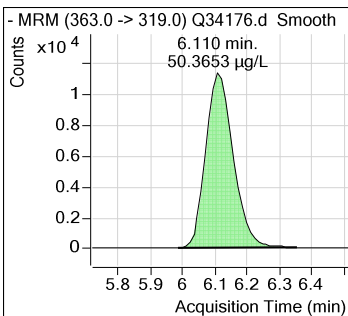
### PFPeS



### PFHxS



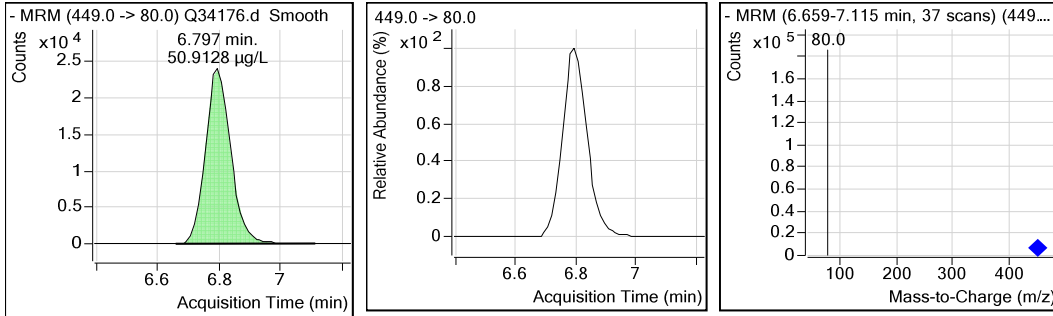
### PFHpA



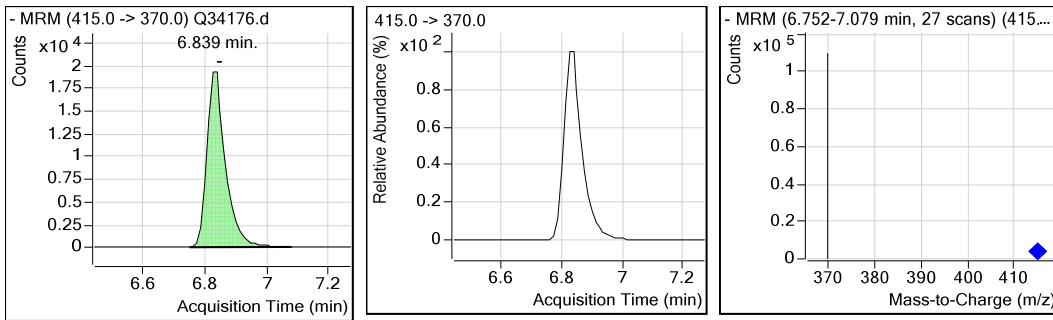
## Perfluorinated Compounds by LC/MS/MS.

7.5.17

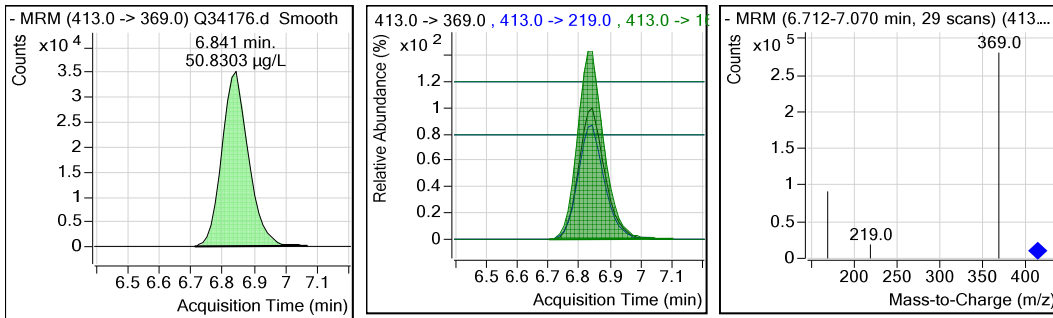
**PFHpS**



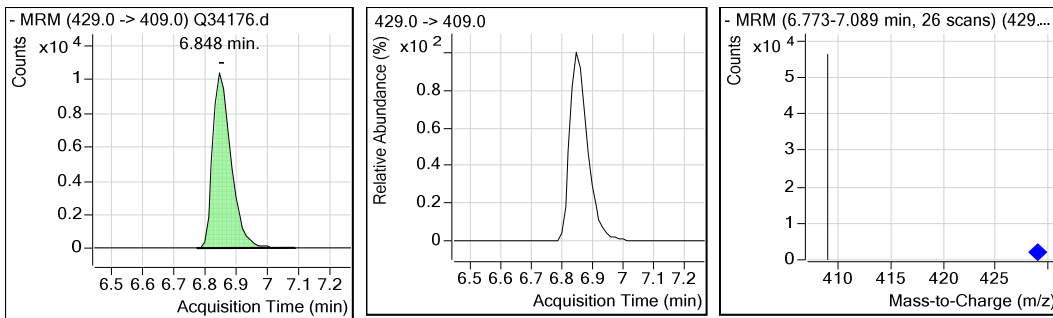
**13C2-PFOA**



**PFOA**



**13C2-6:2FTS**

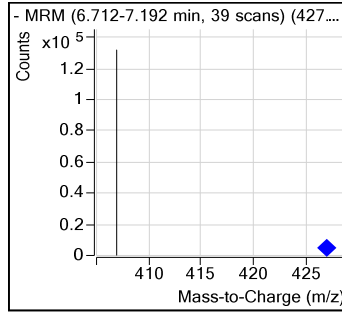
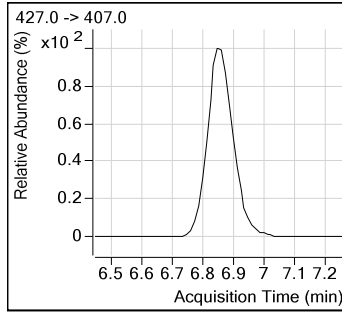
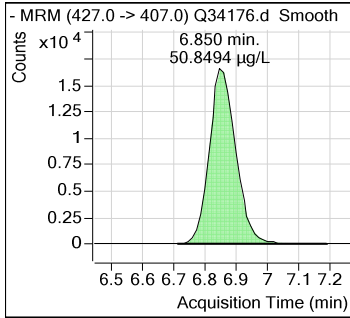


## Perfluorinated Compounds by LC/MS/MS.

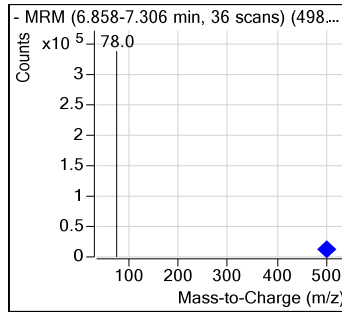
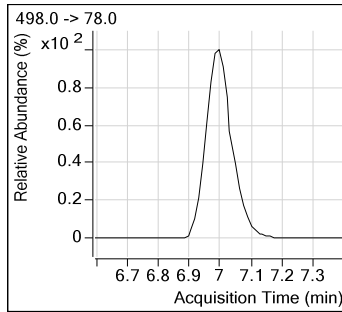
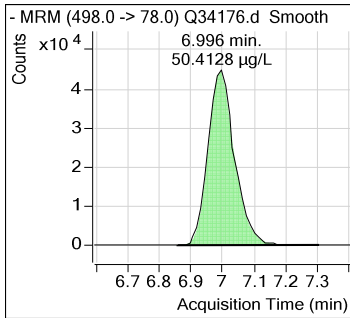
7.5.17

7

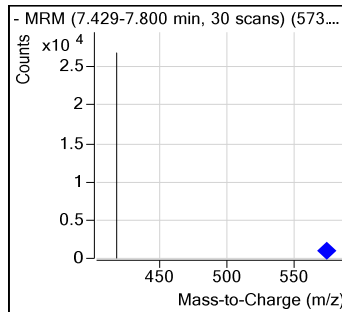
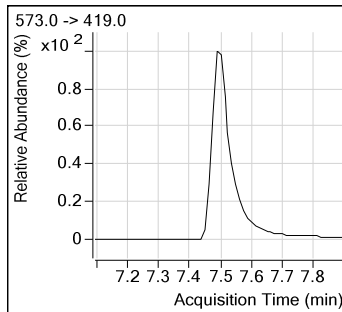
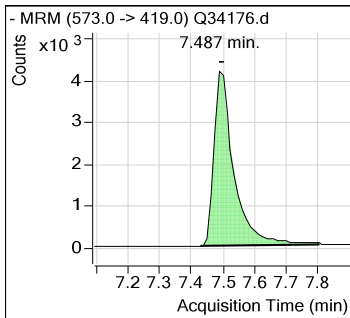
### 6:2FTS



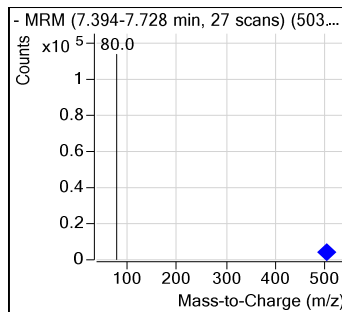
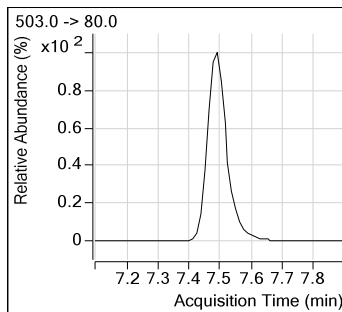
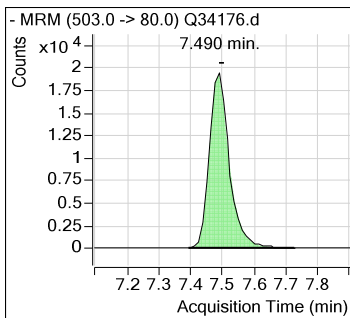
### FOSA



### d3-MeFOSAA



### 13C4-PFOS

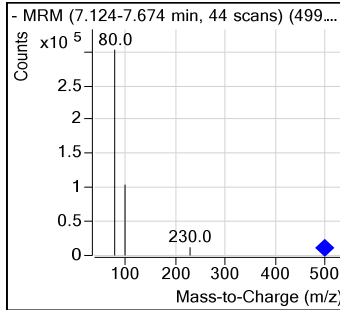
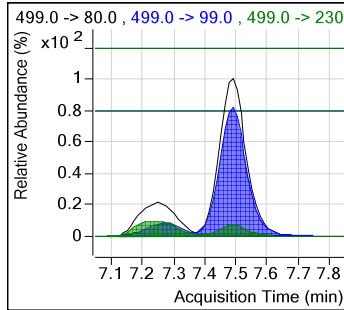
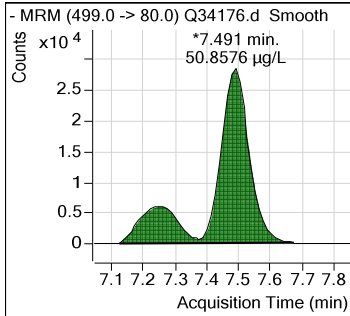


## Perfluorinated Compounds by LC/MS/MS.

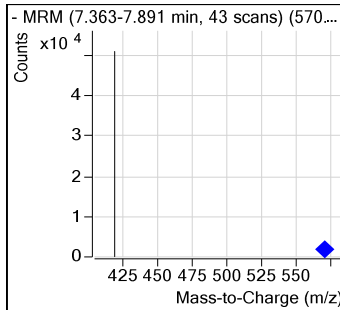
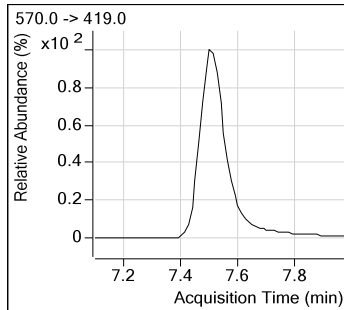
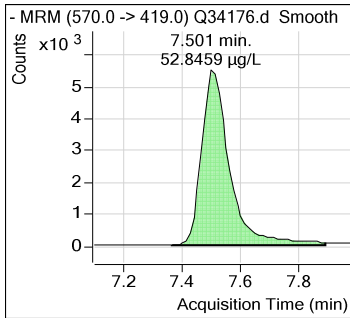
7.5.17

7

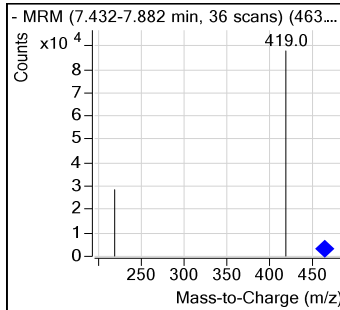
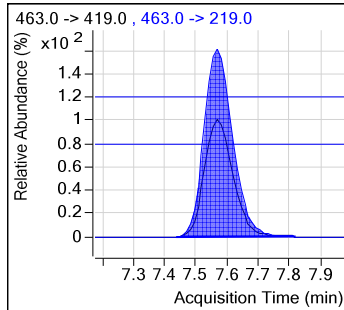
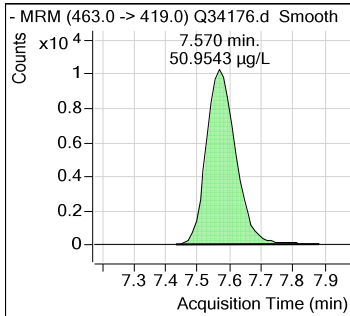
**PFOS**



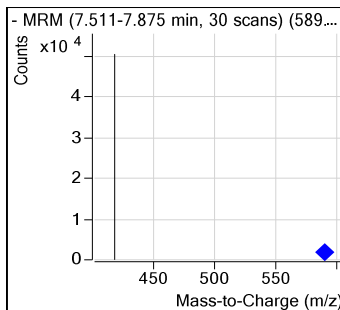
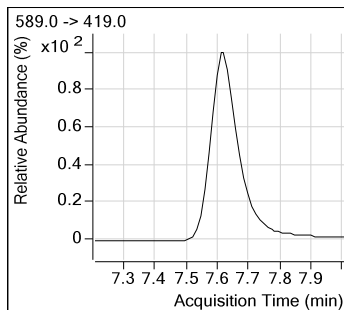
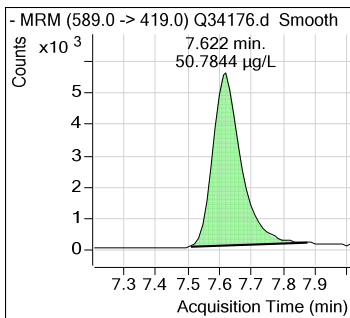
**MeFOSAA**



**PFNA**



**d5-EtFOSAA**

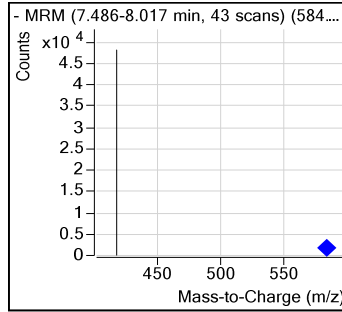
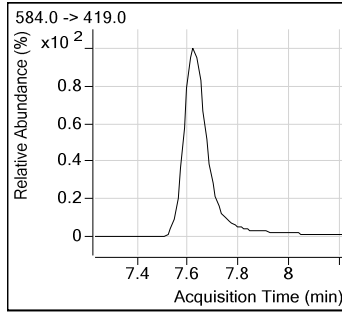
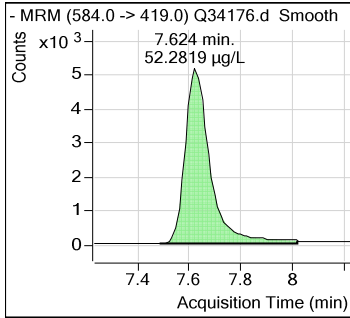


# Perfluorinated Compounds by LC/MS/MS.

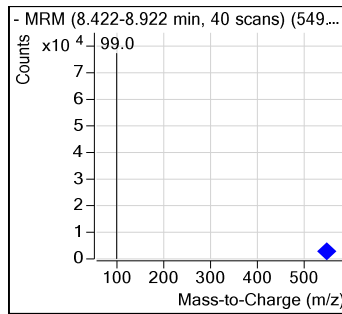
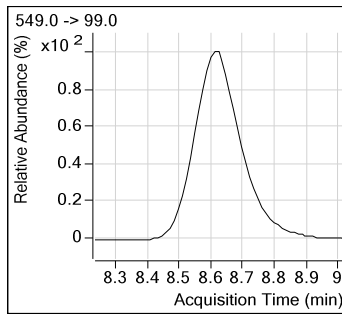
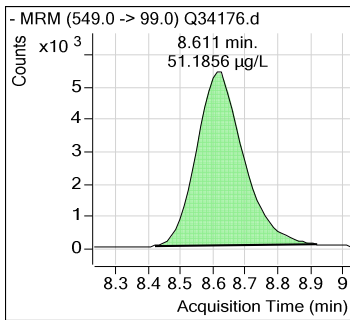
7.5.17

7

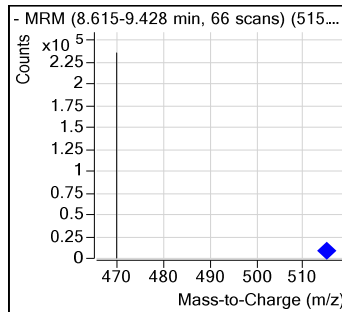
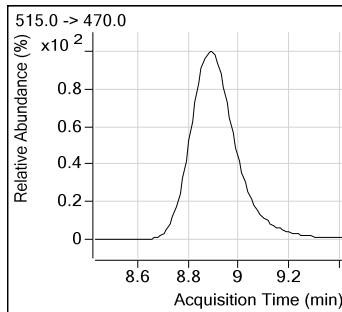
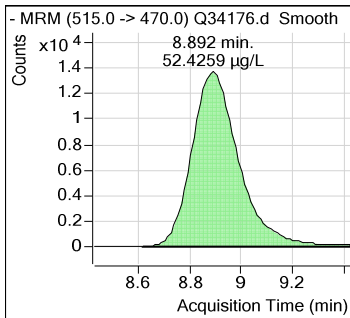
**EtFOSAA**



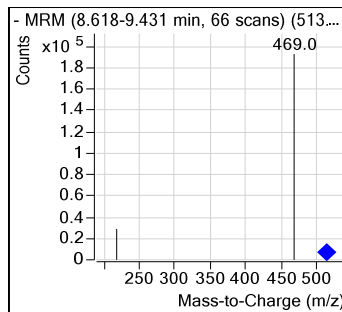
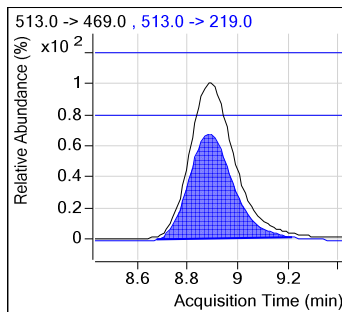
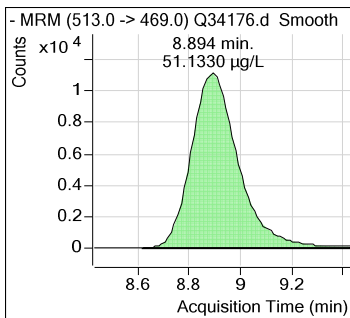
**PFNS**



**13C2-PFDA**



**PFDA**



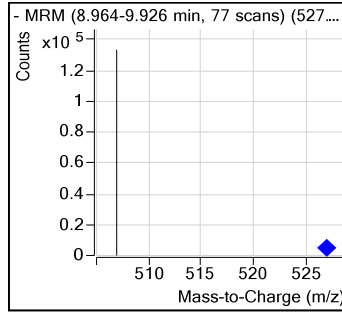
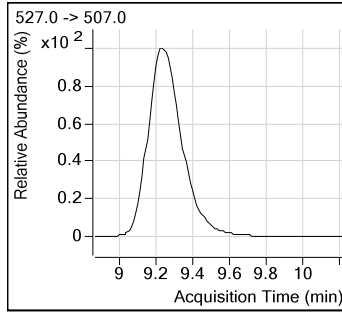
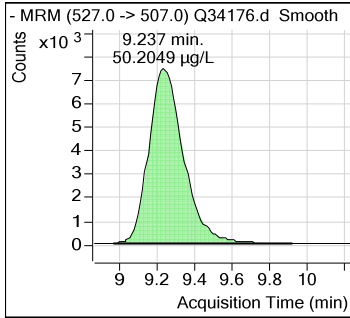


# Perfluorinated Compounds by LC/MS/MS.

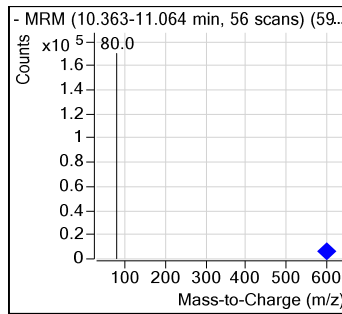
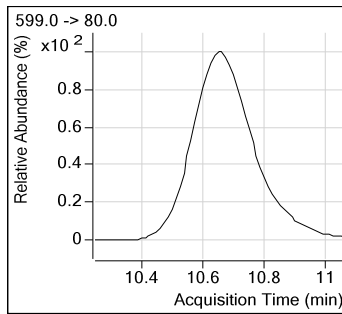
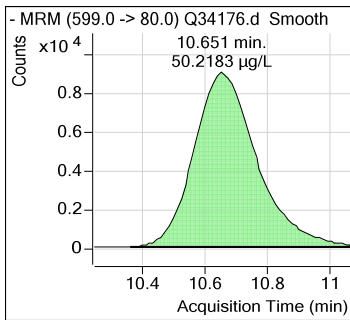
7.5.17

7

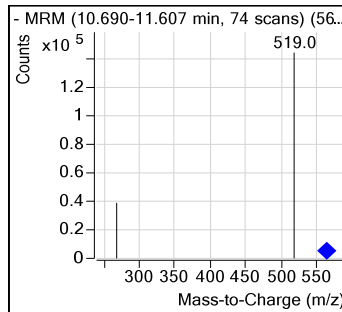
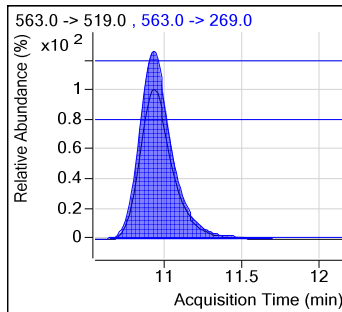
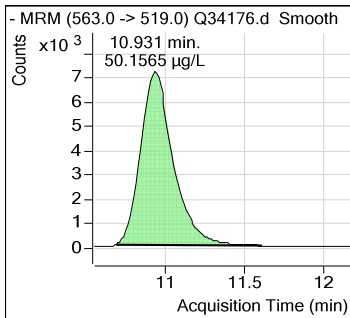
8:2FTS



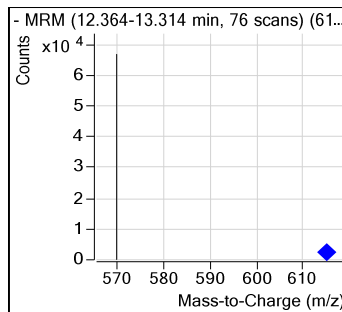
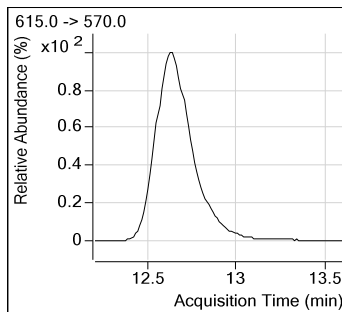
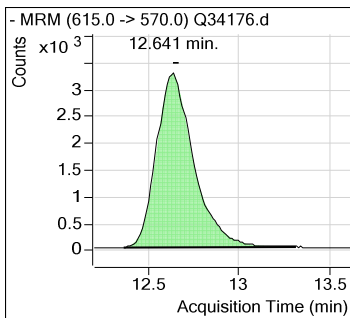
PFDS



PFUnDA



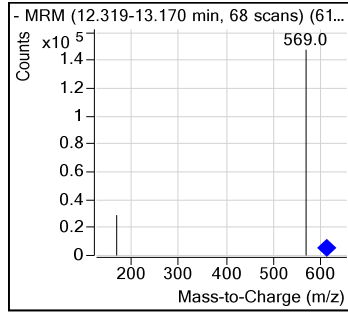
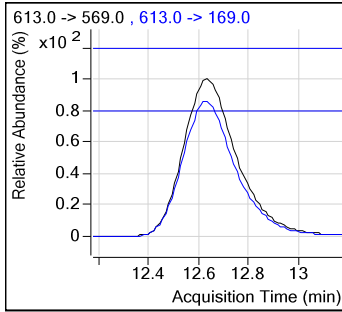
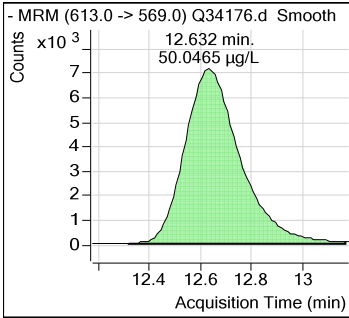
13C2-PFDoDA



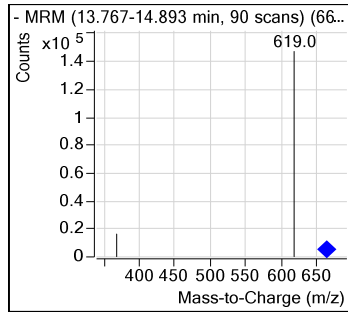
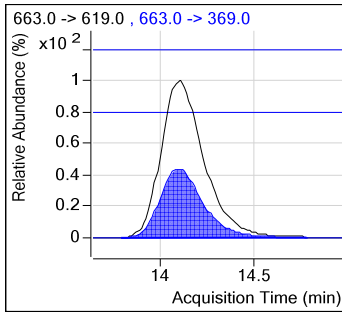
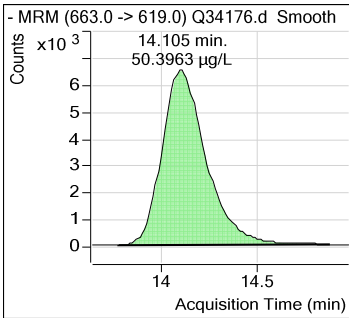
## Perfluorinated Compounds by LC/MS/MS.

7.5.17  
7

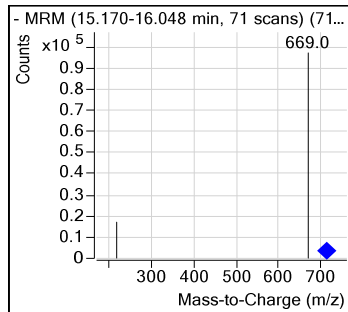
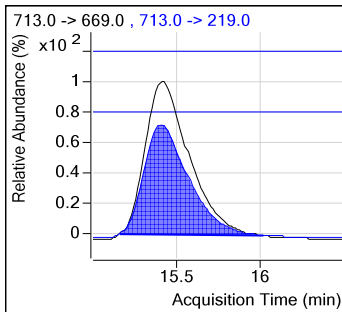
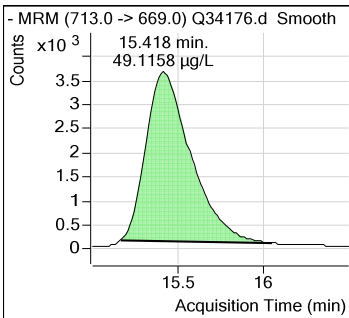
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**

# Manual Integration Approval Summary

Sample Number: SQ893-IC893                      Method: EPA 537 MOD  
Lab FileID: Q34176.D                              Analyst approved: 05/22/17 11:05 Nancy Saunders  
Injection Time: 05/19/17 12:47                      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.49	Split peak

7.5.17.1

7

## Perfluorinated Compounds by LC/MS/MS.

```

Data File           : Q34178.d
Operator            : NANCYF
Acq Method Name     : dMRM_PFOA_PFOA_LIST.m
Acquisition date    : 2017-05-19 13:31
Sample Name         : ICV893-20
Vial                 : Vial 9
Sample Info         : OP65005,SQ893,5.0,,,5.0,1,SOIL
Quant Method        : PFC_LIST_0519_SQ893.quantmethod.xml
Quant Batch Name    : SQ893.batch.bin
Last Calib Update   : 2017-05-22 07:04
    
```

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<b>Internal Standards</b>						
13C3-PFPeA	4.260	266.0 -> 222.0	29561	20.000	µg/L	-0.025
13C2-PFOA	6.839	415.0 -> 370.0	89184	20.000	µg/L	-0.012
13C2-6:2FTS	6.861	429.0 -> 409.0	40518	20.000	µg/L	0.000
d3-MeFOSAA	7.500	573.0 -> 419.0	18420	20.000	µg/L	0.000
13C4-PFOS	7.490	503.0 -> 80.0	86839	20.000	µg/L	-0.012
13C2-PFDoDA	12.641	615.0 -> 570.0	48458	20.000	µg/L	0.000
<b>System Monitoring Compounds</b>						
d5-EtFOSAA	7.622	589.0 -> 419.0	0	0.00	µg/L	0.000
Spiked Amount: 20.000		Range: 14 - 26		Recovery = 0.00%		
<b>Target Compounds</b>						
						<b>Qvalue</b>
PFBA	2.952	213.0 -> 169.0	30006	23.657	µg/L	100
PFPeA	4.263	263.0 -> 219.0	17010	20.774	µg/L	100
PFBS	4.391	299.0 -> 80.0	36905	21.477	µg/L	91
4:2FTS	5.207	327.0 -> 307.0	46372	27.554	µg/L	100
PFHxA	5.287	313.0 -> 269.0	36630	23.704	µg/L	98
PFPeS	5.330	349.0 -> 99.0	10348	25.281	µg/L	100
PFHxS	6.106	399.0 -> 80.0	55899	22.065	µg/L #	80
PFHpA	6.123	363.0 -> 319.0	32078	22.376	µg/L #	48
PFHpS	6.797	449.0 -> 80.0	61563	22.153	µg/L	100
PFOA	6.841	413.0 -> 369.0	96719	21.600	µg/L	84
6:2FTS	6.862	427.0 -> 407.0	45692	23.576	µg/L	100
FOSA	6.996	498.0 -> 78.0	129697	25.267	µg/L	100
PFOS	7.491	499.0 -> 80.0	93014	20.762	µg/L	78
MeFOSAA	7.501	570.0 -> 419.0	17054	24.427	µg/L	100
PFNA	7.582	463.0 -> 419.0	29119	21.022	µg/L #	73
EtFOSAA	7.624	584.0 -> 419.0	16341	24.615	µg/L	100
PFNS	8.636	549.0 -> 99.0	26643	24.333	µg/L	100
PFDA	8.919	513.0 -> 469.0	63499	20.728	µg/L #	85
8:2FTS	9.262	527.0 -> 507.0	43385	24.324	µg/L	100
PFDS	10.676	599.0 -> 80.0	52771	22.212	µg/L	100
PFUnDA	10.956	563.0 -> 519.0	44958	21.302	µg/L #	90
PFDoDA	12.645	613.0 -> 569.0	47321	22.016	µg/L	94
PFTrDA	14.117	663.0 -> 619.0	44612	22.009	µg/L #	75
PFTeDA	15.431	713.0 -> 669.0	29284	21.415	µg/L #	90

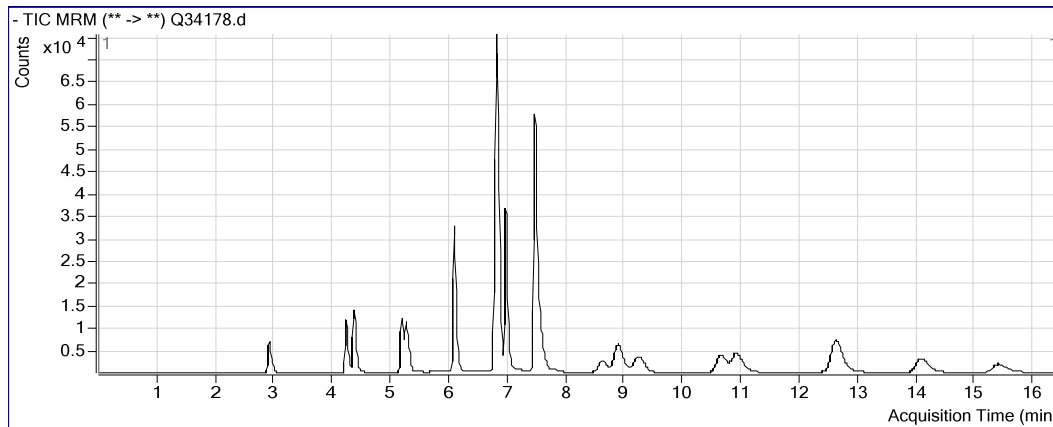
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

7.5.18

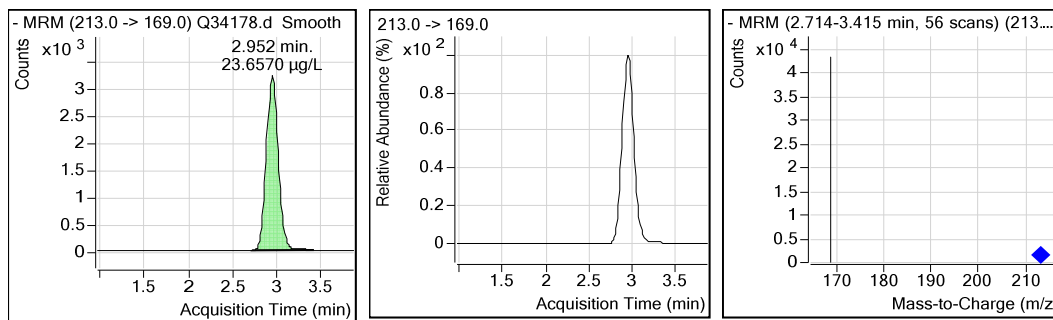
7

## Perfluorinated Compounds by LC/MS/MS.

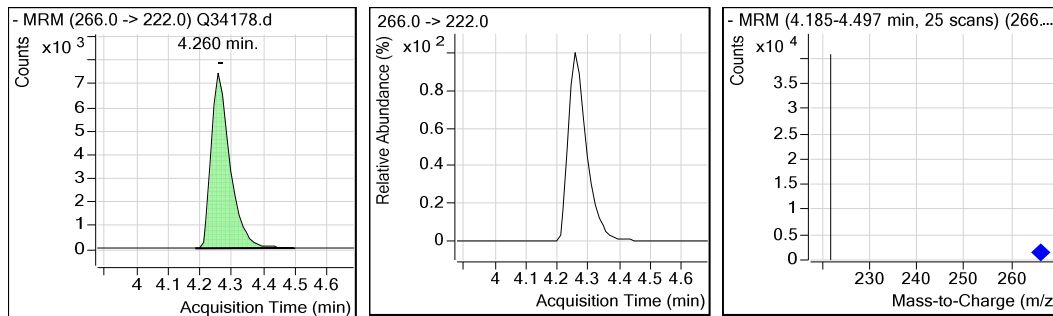
Data File : Q34178.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 13:31  
 Sample Name : ICV893-20  
 Vial : Vial 9  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
 Last Calib Update : 2017-05-22 07:04



### PFBA

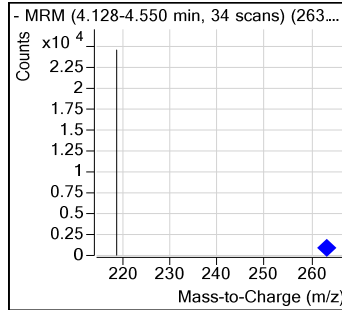
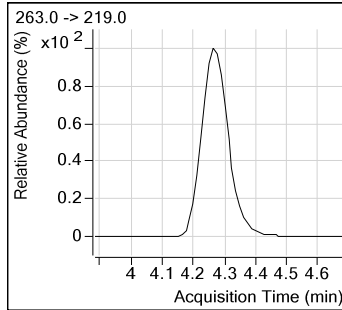
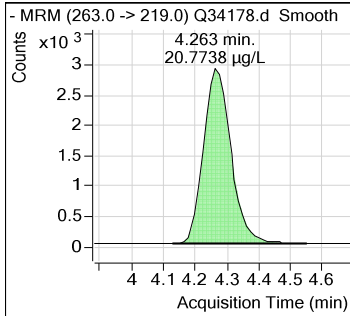


### 13C3-PFPeA

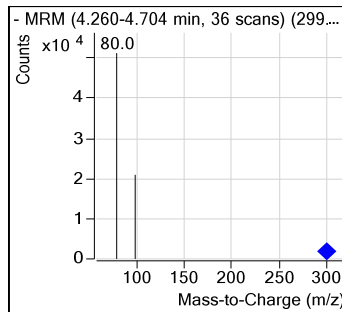
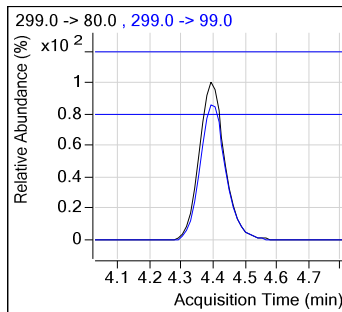
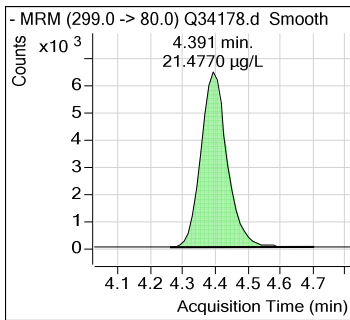


## Perfluorinated Compounds by LC/MS/MS.

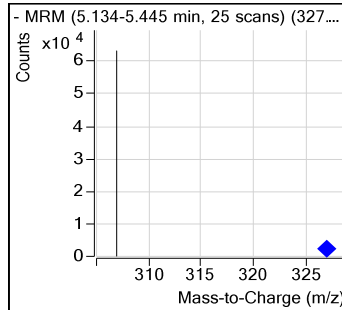
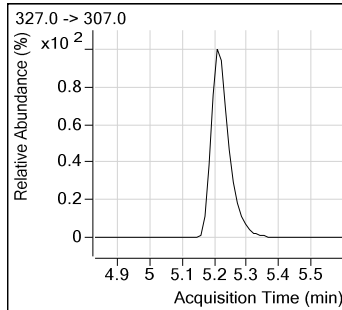
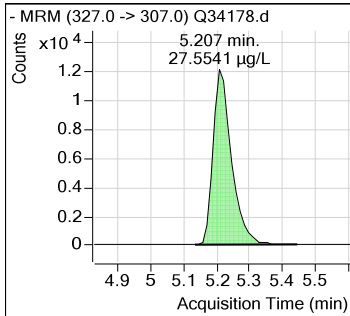
### PFPeA



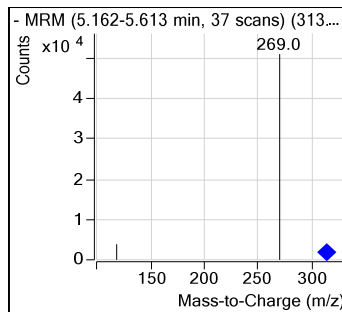
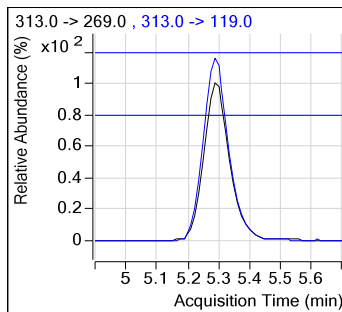
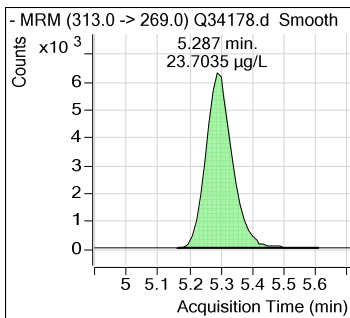
### PFBS



### 4:2F7S



### PFHxA

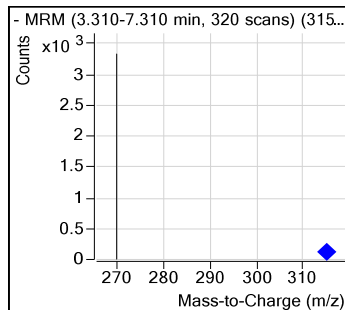
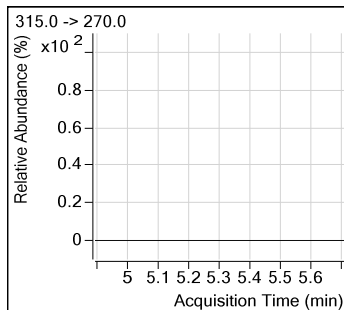
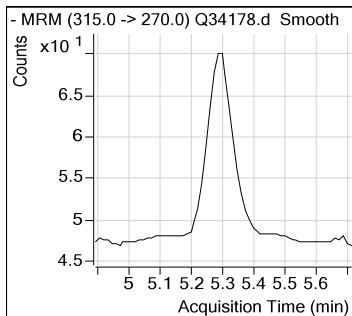


7.5.18  
7

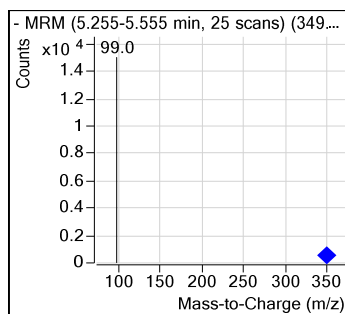
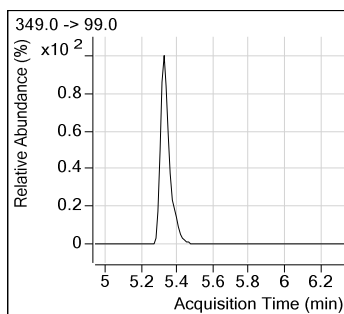
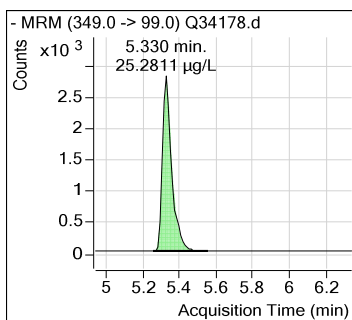
## Perfluorinated Compounds by LC/MS/MS.

7.5.18  
7

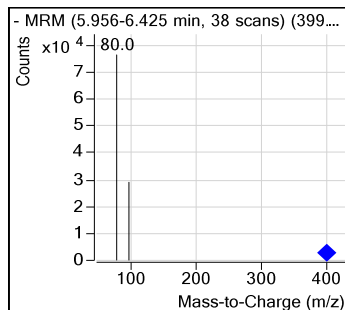
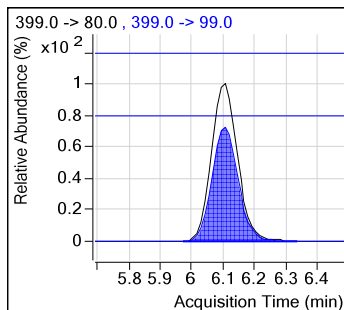
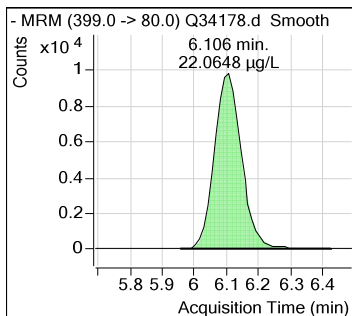
### 13C2-PFHxA



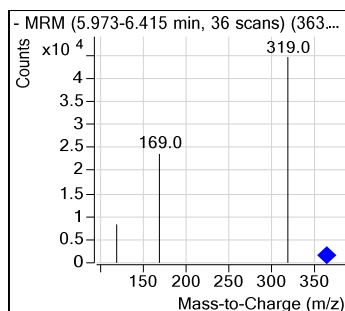
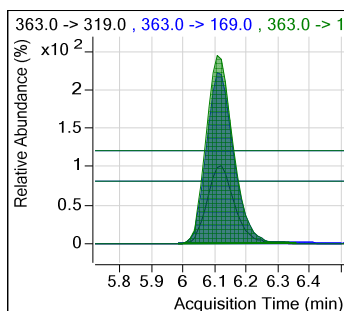
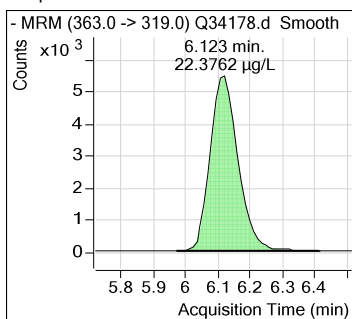
### PFPeS



### PFHxS



### PFHpA

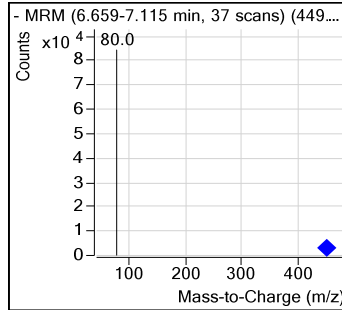
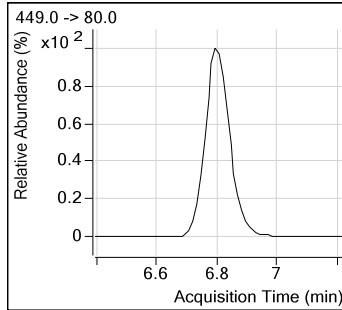
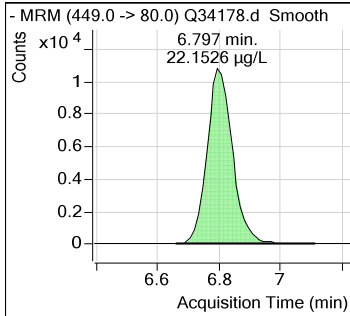


## Perfluorinated Compounds by LC/MS/MS.

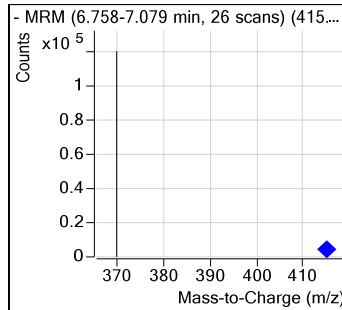
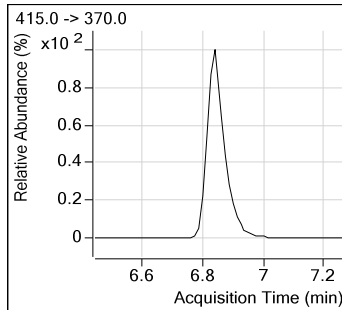
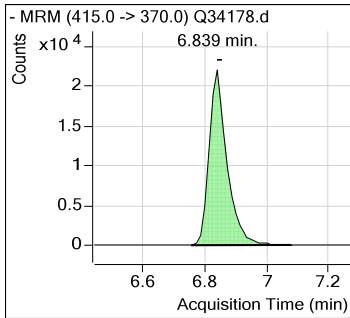
7.5.18

7

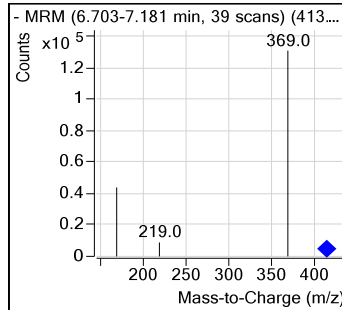
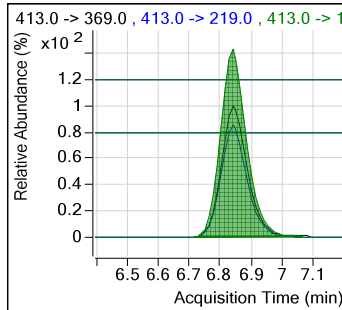
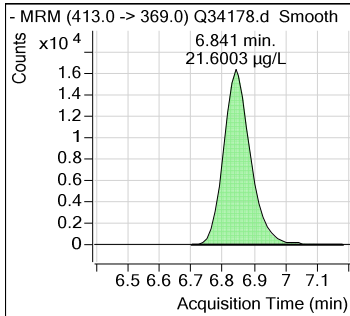
PFHpS



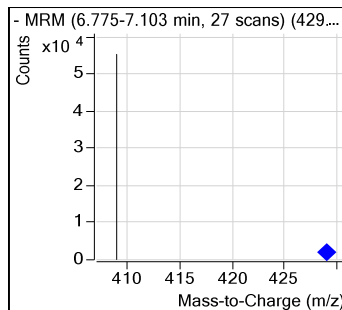
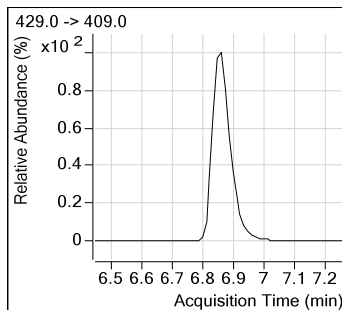
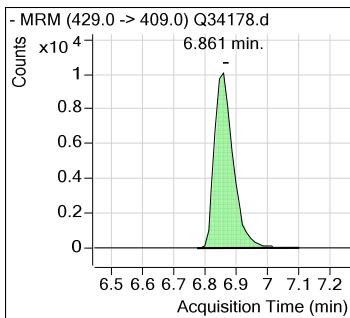
13C2-PFOA



PFOA



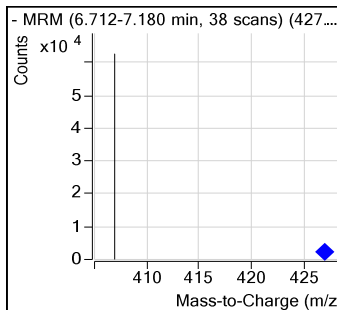
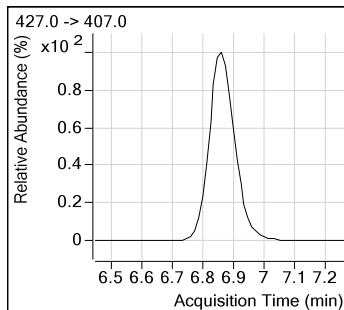
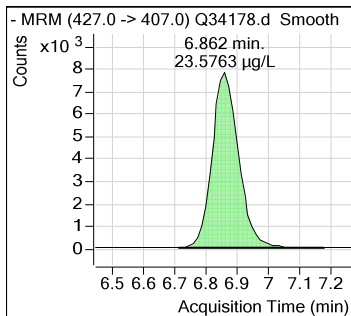
13C2-6:2FTS



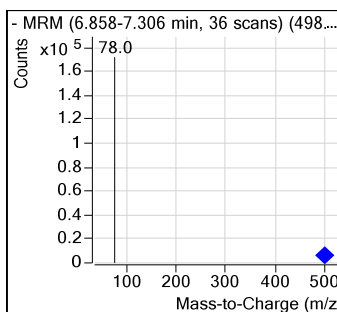
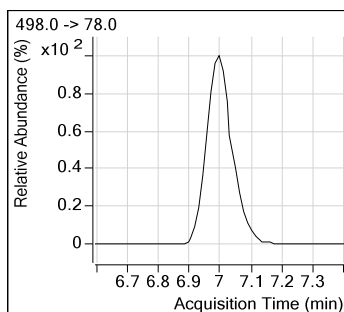
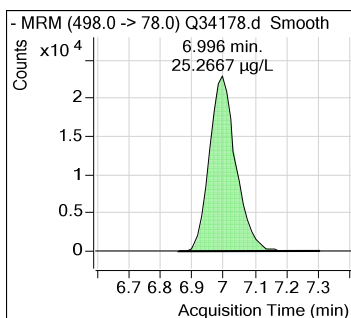


## Perfluorinated Compounds by LC/MS/MS.

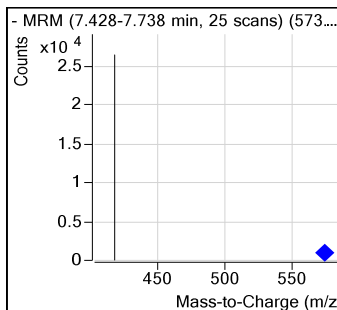
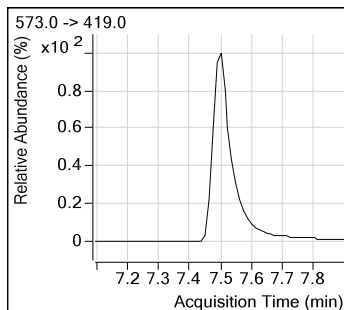
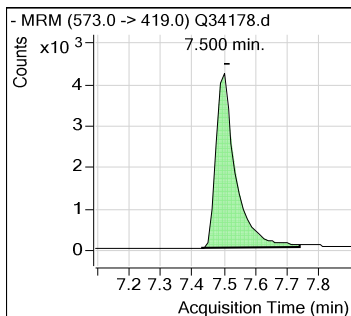
6:2FTS



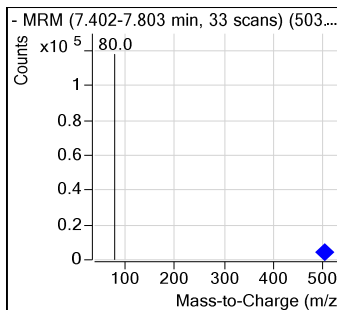
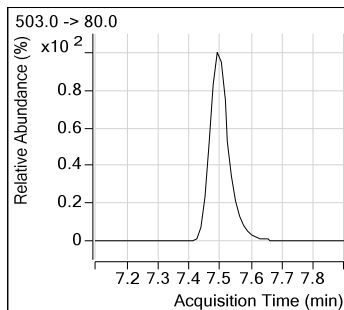
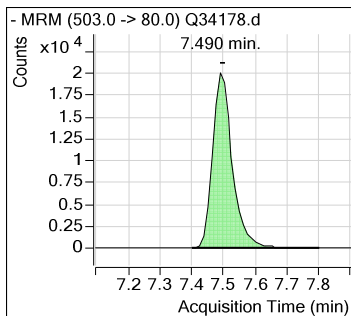
FOSA



d3-MeFOSAA



13C4-PFOS

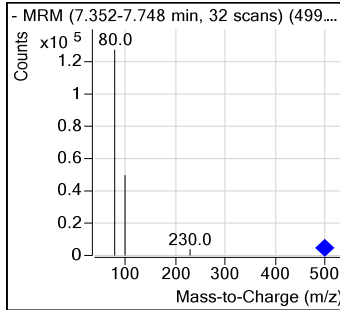
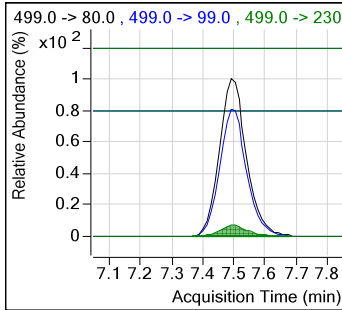
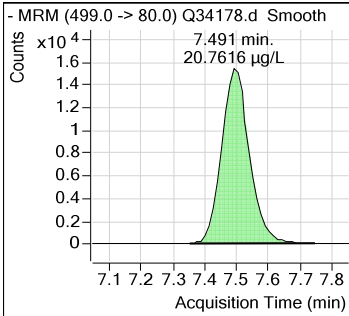


## Perfluorinated Compounds by LC/MS/MS.

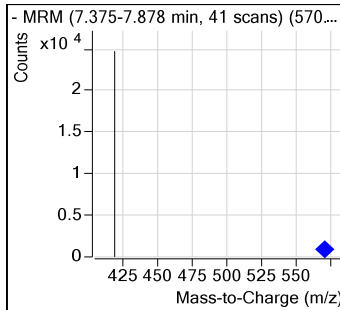
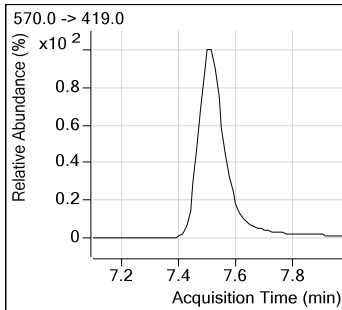
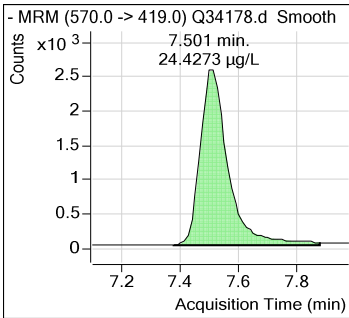
7.5.18

7

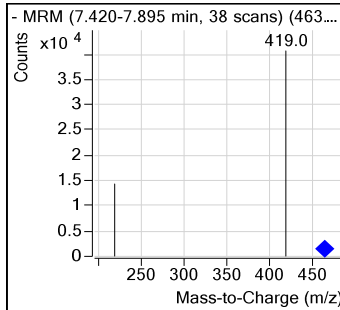
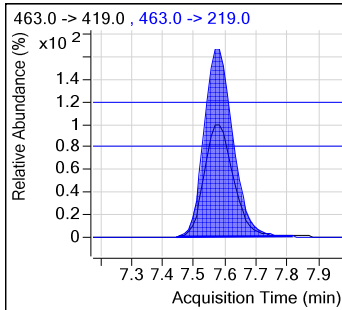
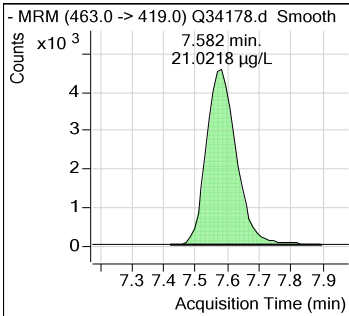
PFOS



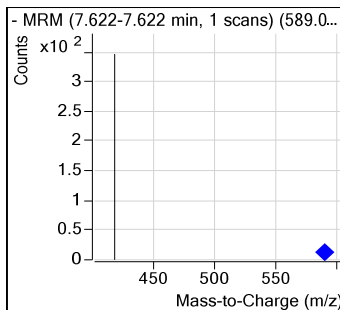
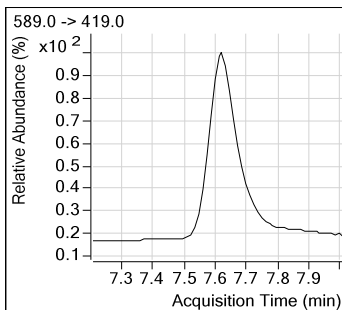
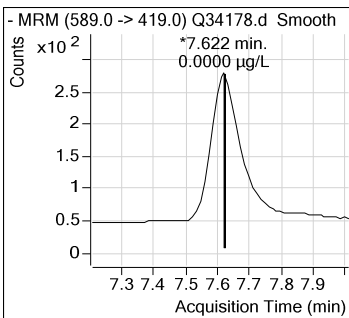
MeFOSAA



PFNA

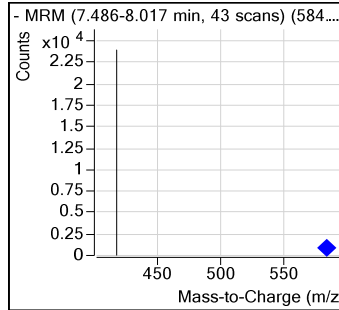
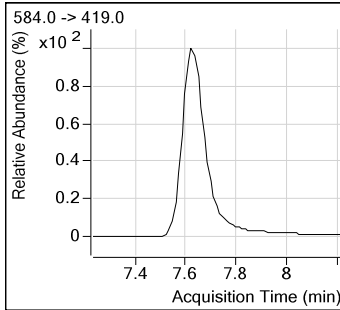
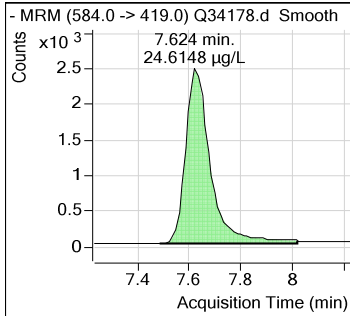


d5-EtFOSAA

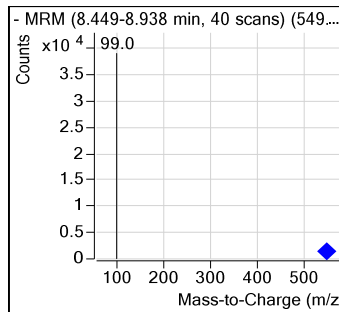
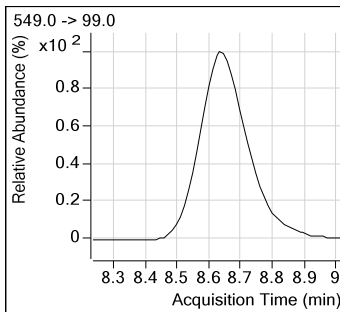
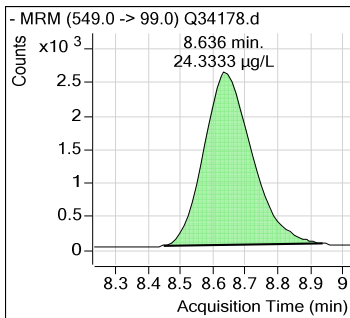


## Perfluorinated Compounds by LC/MS/MS.

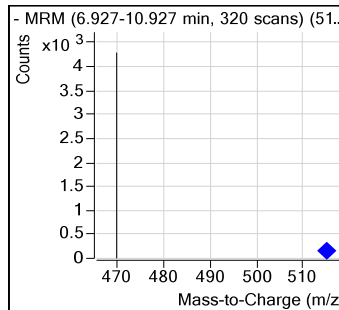
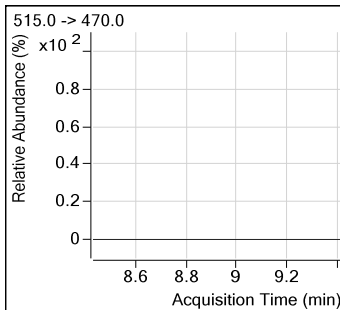
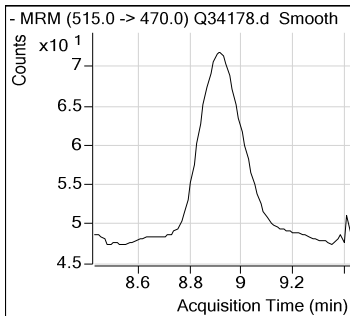
### EtFOSAA



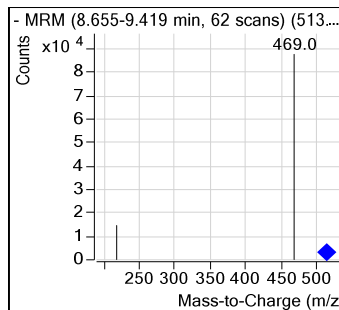
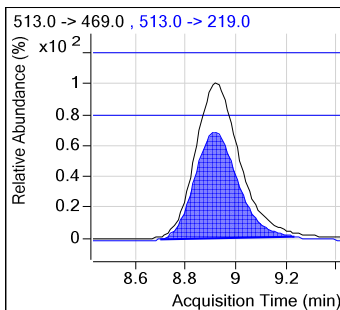
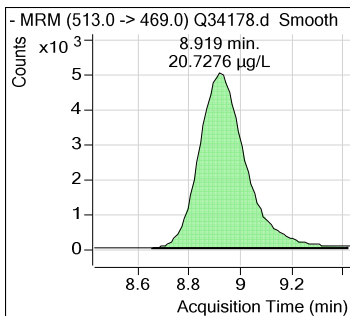
### PFNS



### 13C2-PFDA



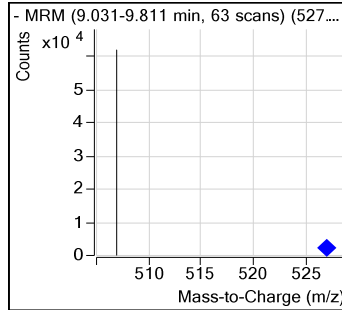
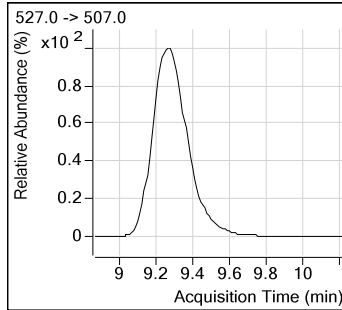
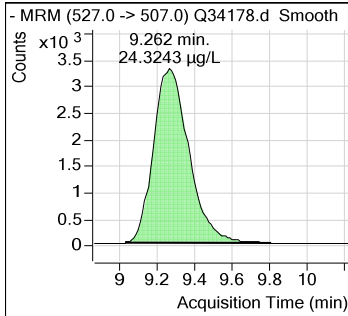
### PFDA



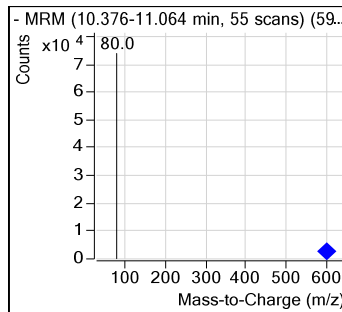
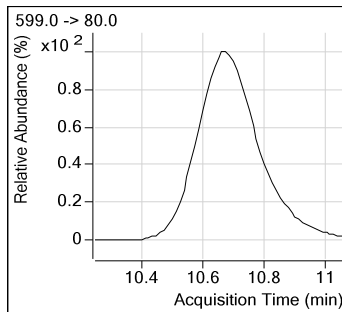
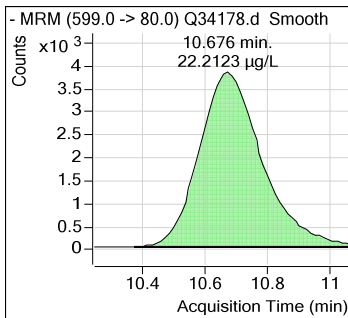
7.5.18  
7

## Perfluorinated Compounds by LC/MS/MS.

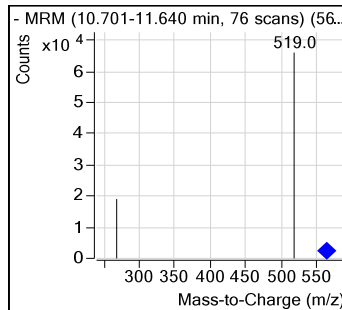
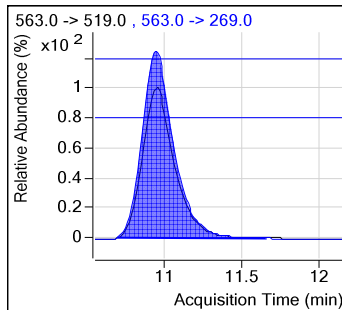
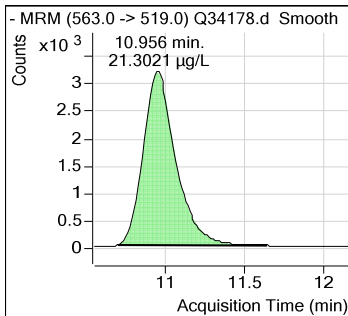
8:2FTS



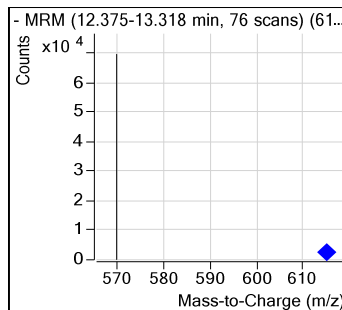
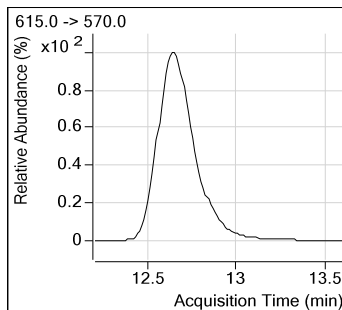
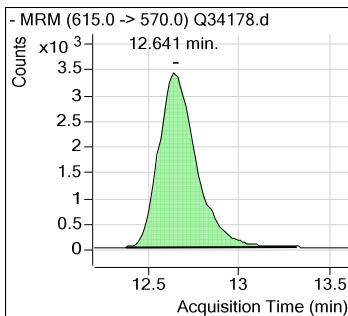
PFDS



PFUnDA



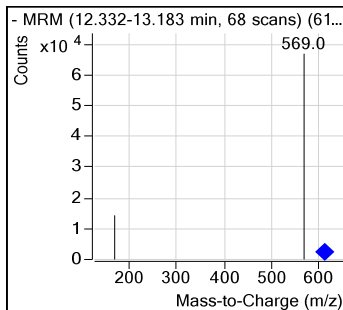
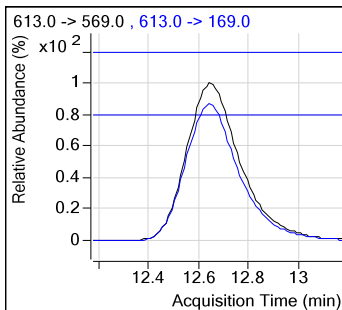
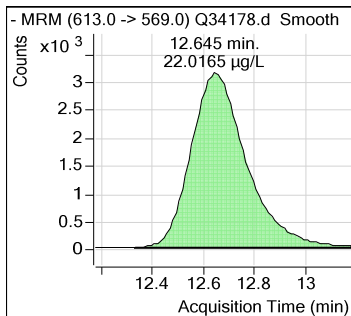
13C2-PFDoDA



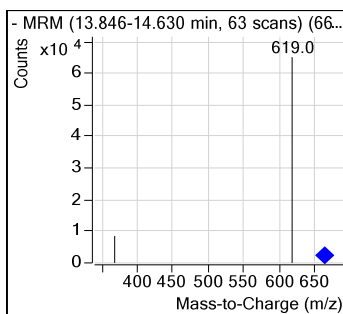
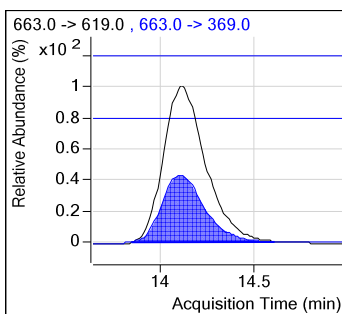
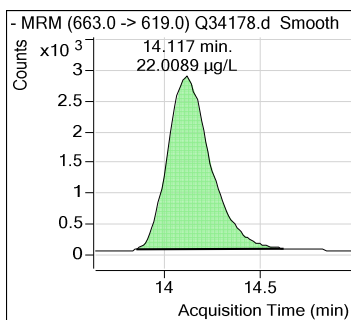
7.5.18  
7

## Perfluorinated Compounds by LC/MS/MS.

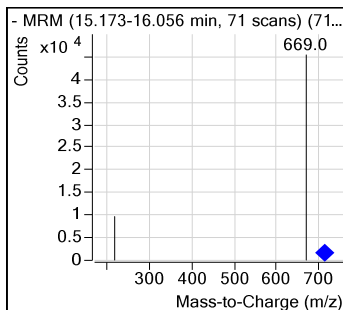
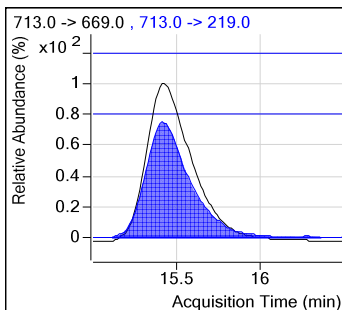
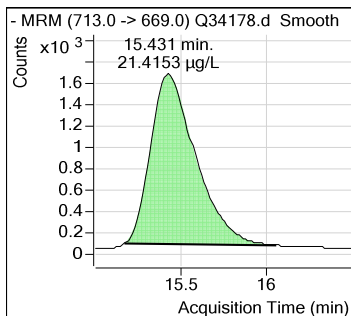
### PFD<sub>o</sub>DA



### PFT<sub>r</sub>DA



### PFT<sub>e</sub>DA



### Calibration Curve

# Perfluorinated Compounds by LC/MS/MS.

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

**Mike Eger**  
 05/22/17 16:55

Data File : Q34197.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 20:20  
 Sample Name : CC893-20  
 Vial : Vial 6  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	Qvalue
<b>Internal Standards</b>							
13C3-PFPeA	4.260	266.0 -> 222.0	35140	20.000	µg/L	-0.025	
13C2-PFOA	6.839	415.0 -> 370.0	101576	20.000	µg/L	-0.012	
13C2-6:2FTS	6.848	429.0 -> 409.0	42809	20.000	µg/L	-0.012	
d3-MeFOSAA	7.487	573.0 -> 419.0	21577	20.000	µg/L	-0.012	
13C4-PFOS	7.490	503.0 -> 80.0	94360	20.000	µg/L	-0.012	
13C2-PFDoDA	12.653	615.0 -> 570.0	63325	20.000	µg/L	0.013	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.285	315.0 -> 270.0	39107	20.78	µg/L	-0.025	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 103.91%				
d5-EtFOSAA	7.610	589.0 -> 419.0	16375	21.76	µg/L	-0.012	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 108.80%				
13C2-PFDA	8.917	515.0 -> 470.0	80372	19.23	µg/L	-0.010	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 96.15%				
<b>Target Compounds</b>							
PFBA	2.940	213.0 -> 169.0	31941	21.185	µg/L		100
PFPeA	4.263	263.0 -> 219.0	18106	18.602	µg/L		100
PFBS	4.391	299.0 -> 80.0	35543	19.036	µg/L		90
4:2FTS	5.207	327.0 -> 307.0	38049	21.479	µg/L		100
PFHxA	5.287	313.0 -> 269.0	36920	20.977	µg/L		99
PFPeS	5.330	349.0 -> 99.0	9556	21.484	µg/L		100
PFHxS	6.094	399.0 -> 80.0	51576	18.736	µg/L # m		80
PFHpA	6.110	363.0 -> 319.0	32000	19.599	µg/L #		47
PFHpS	6.797	449.0 -> 80.0	55336	18.325	µg/L		100
PFOA	6.841	413.0 -> 369.0	97645	19.147	µg/L		84
6:2FTS	6.862	427.0 -> 407.0	40080	19.487	µg/L		100
FOSA	6.983	498.0 -> 78.0	122994	20.442	µg/L		100
PFOS	7.491	499.0 -> 80.0	91699	18.837	µg/L # m		75
MeFOSAA	7.501	570.0 -> 419.0	14596	17.847	µg/L		100
PFNA	7.570	463.0 -> 419.0	30123	19.094	µg/L #		74
EtFOSAA	7.624	584.0 -> 419.0	13963	17.955	µg/L		100
PFNS	8.636	549.0 -> 99.0	24485	20.580	µg/L		100
PFDA	8.919	513.0 -> 469.0	66497	19.058	µg/L #		87
8:2FTS	9.275	527.0 -> 507.0	44780	23.792	µg/L		100
PFDS	10.689	599.0 -> 80.0	51966	20.237	µg/L		100
PFUnDA	10.956	563.0 -> 519.0	52548	19.053	µg/L #		90
PFDoDA	12.657	613.0 -> 569.0	54805	19.586	µg/L		94
PFTrDA	14.117	663.0 -> 619.0	52801	20.037	µg/L #		75
PFTeDA	15.431	713.0 -> 669.0	33125	18.536	µg/L #		90

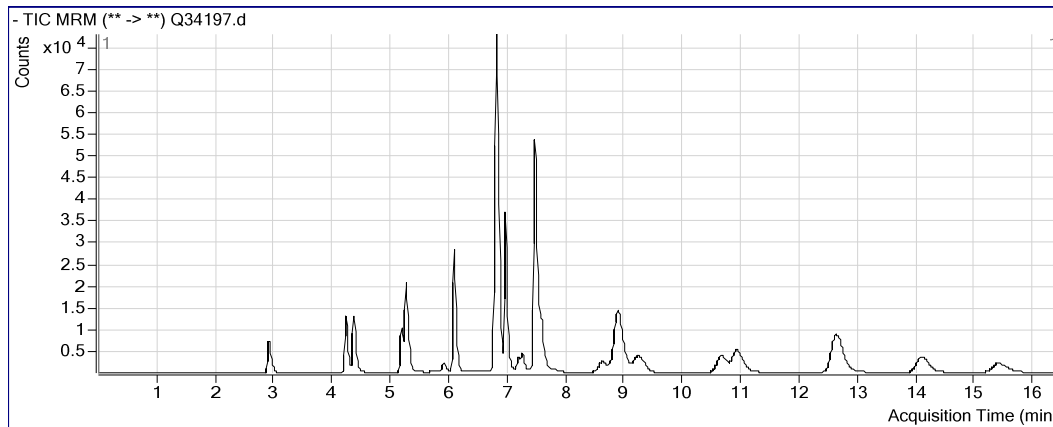
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

7.5.19

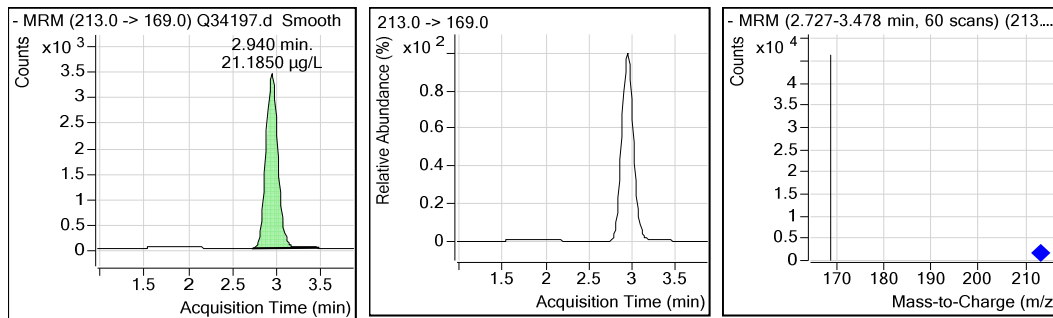
7

# Perfluorinated Compounds by LC/MS/MS.

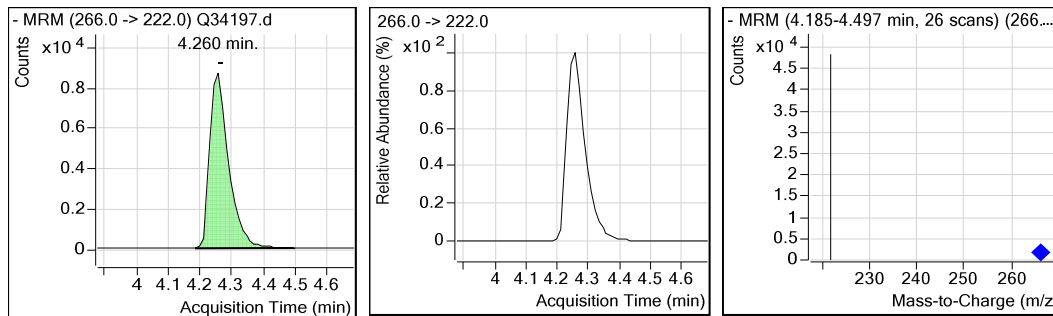
Data File : Q34197.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-19 20:20  
 Sample Name : CC893-20  
 Vial : Vial 6  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04



### PFBA



### 13C3-PFPeA

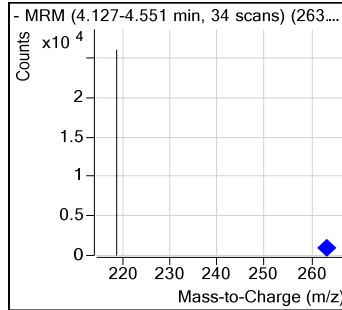
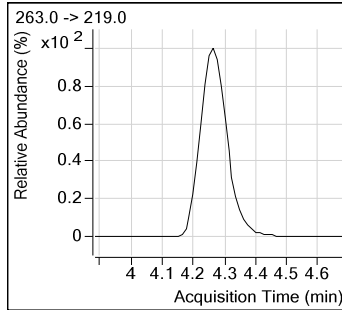
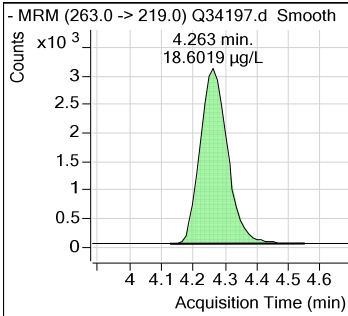


## Perfluorinated Compounds by LC/MS/MS.

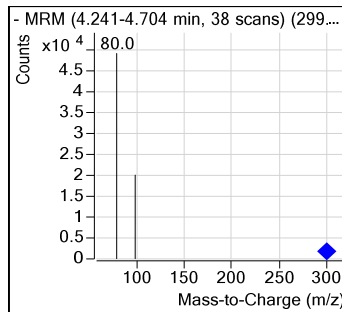
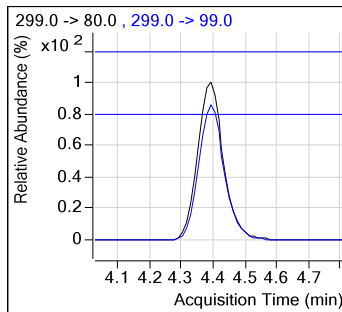
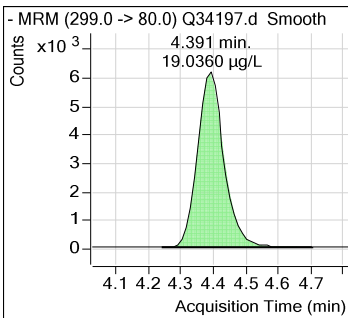
7.5.19

7

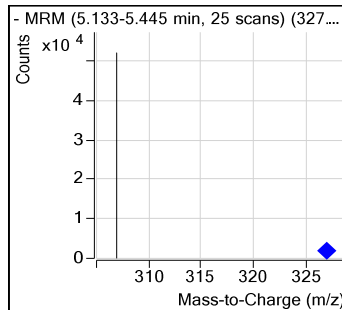
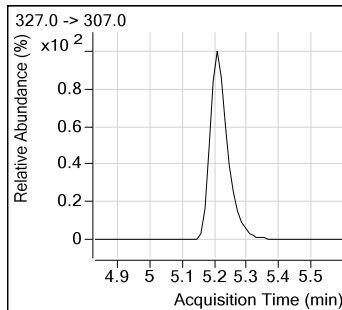
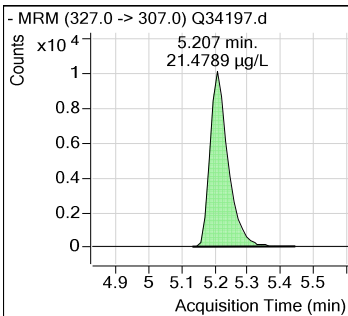
**PFPeA**



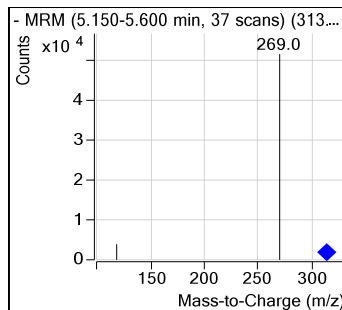
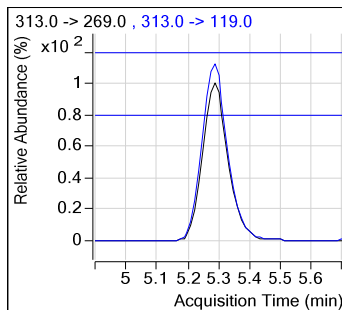
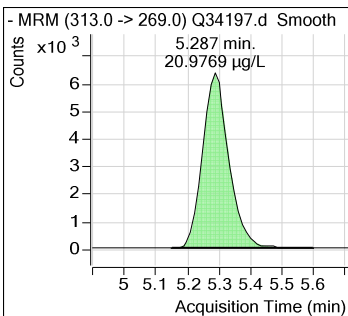
**PFBS**



**4:2FTS**



**PFHxA**



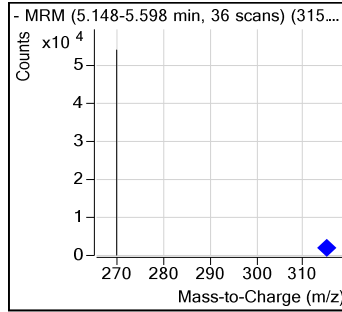
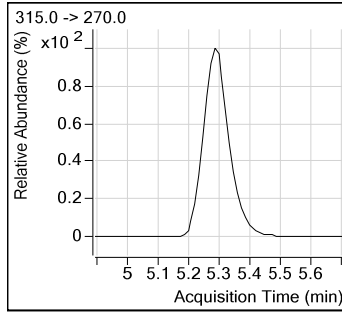
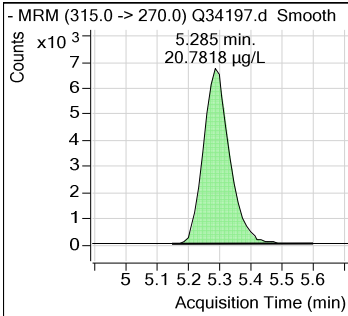


## Perfluorinated Compounds by LC/MS/MS.

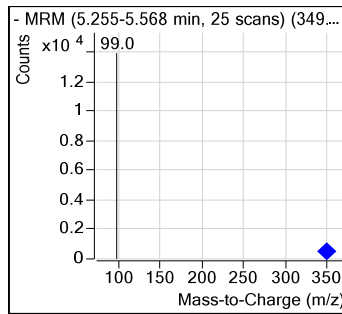
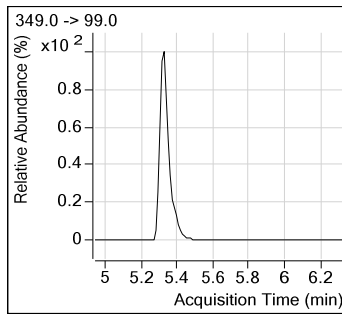
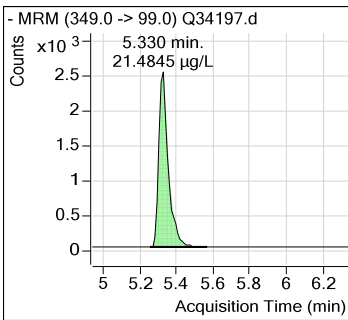
7.5.19

7

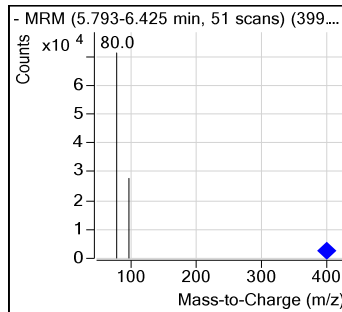
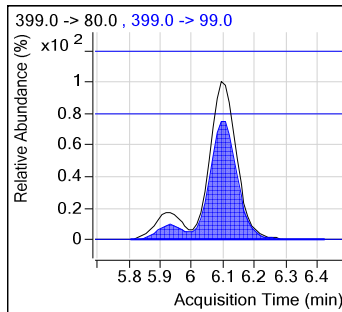
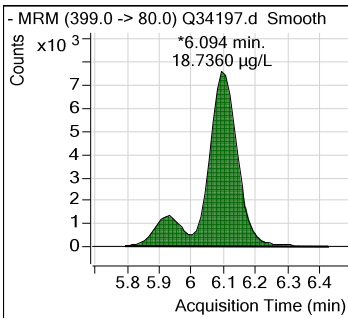
### 13C2-PFHxA



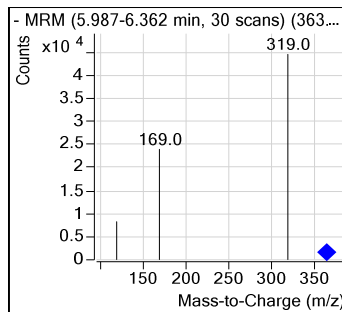
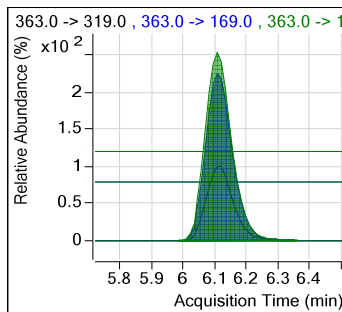
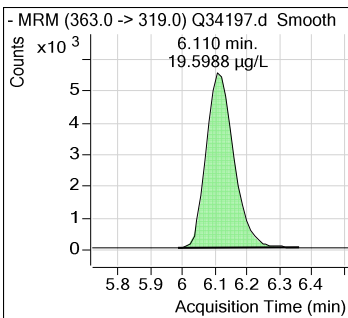
### PFPeS



### PFHxS



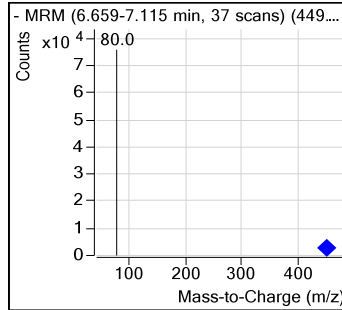
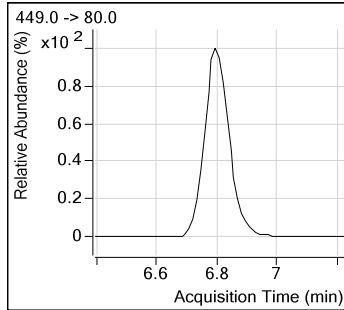
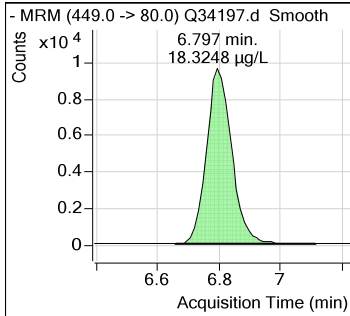
### PFHpA



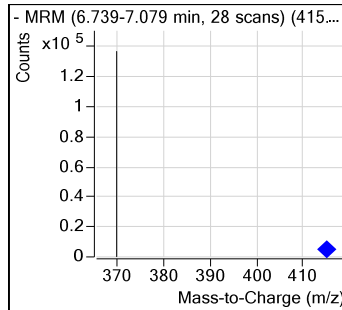
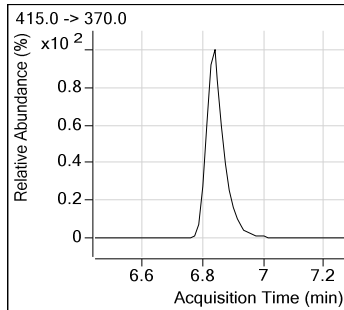
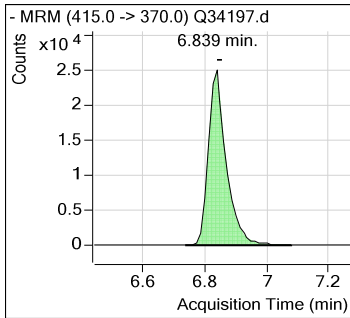
## Perfluorinated Compounds by LC/MS/MS.

7.5.19  
7

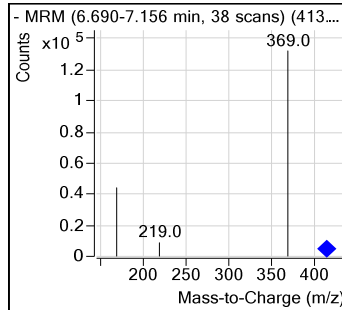
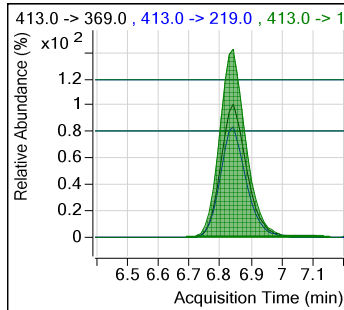
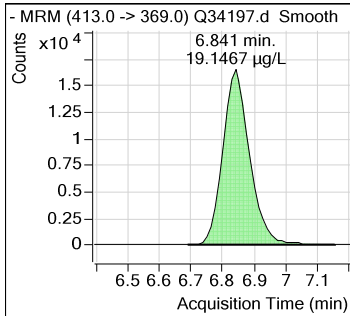
PFHpS



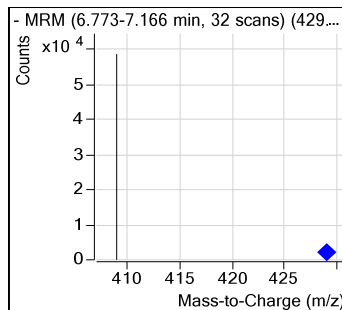
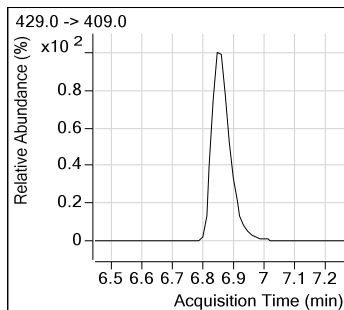
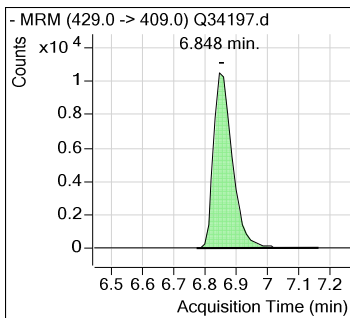
13C2-PFOA



PFOA



13C2-6:2FTS

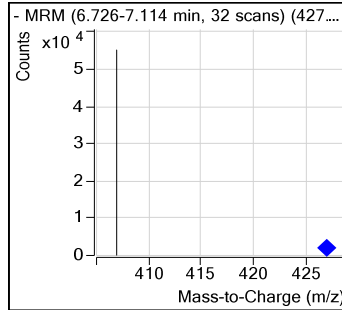
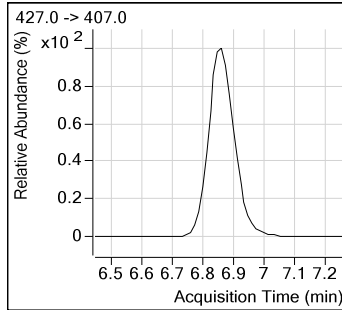
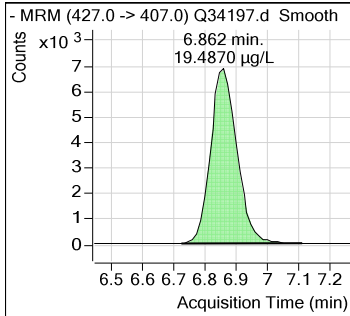


## Perfluorinated Compounds by LC/MS/MS.

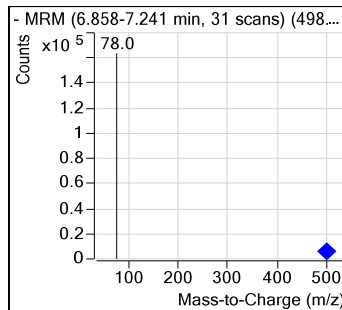
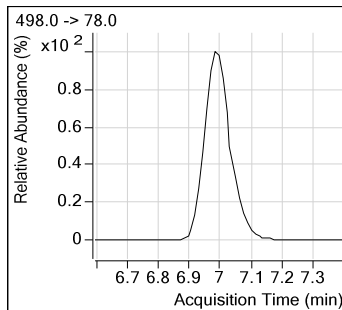
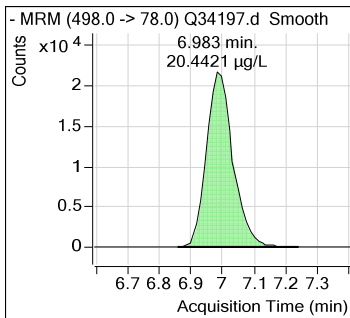
7.5.19

7

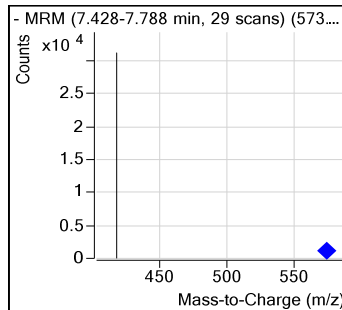
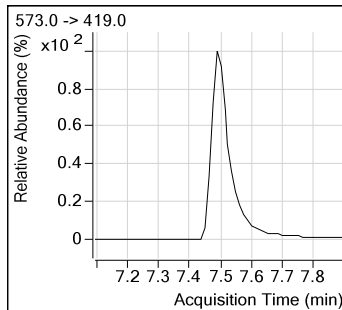
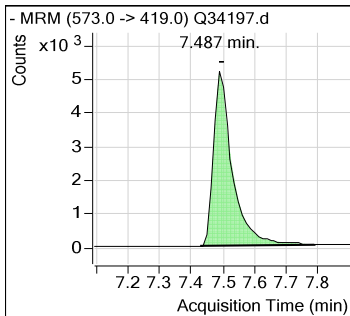
6:2FTS



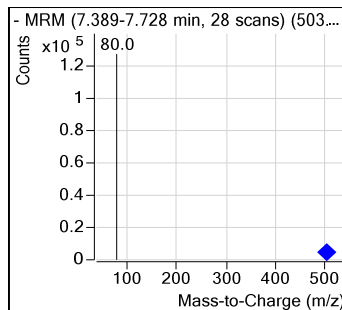
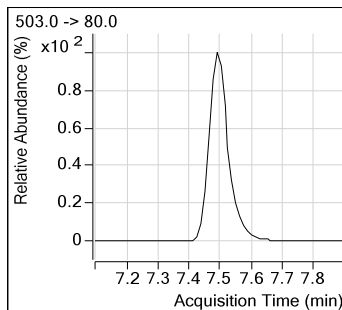
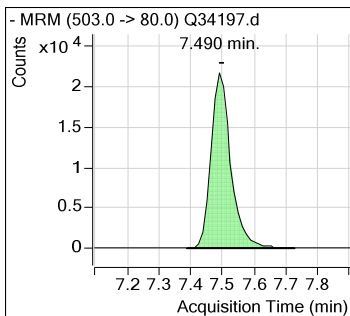
FOSA



d3-MeFOSAA

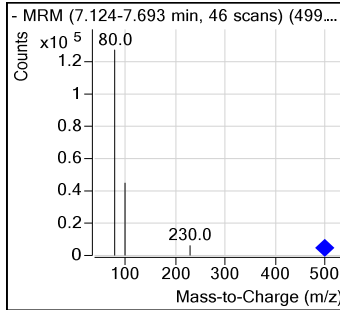
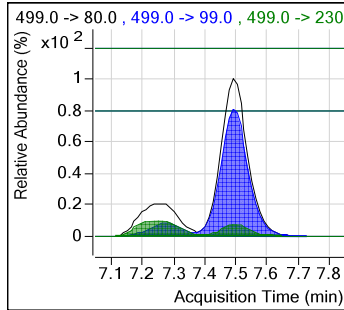
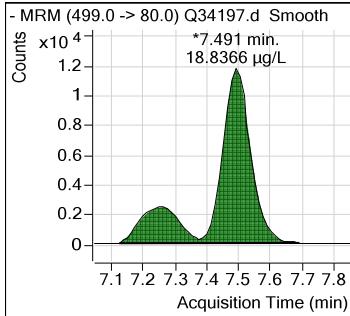


13C4-PFOS

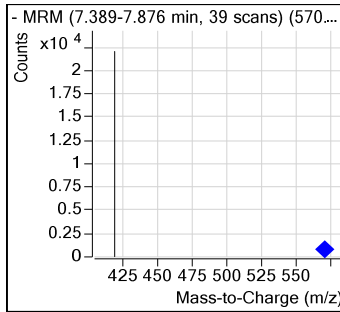
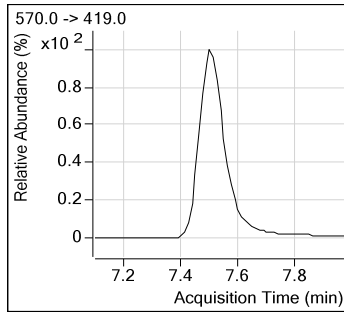
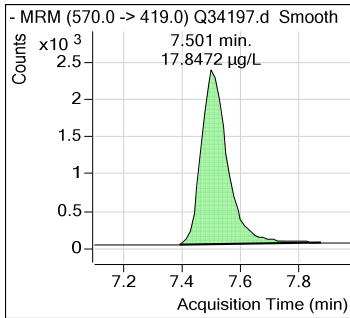


## Perfluorinated Compounds by LC/MS/MS.

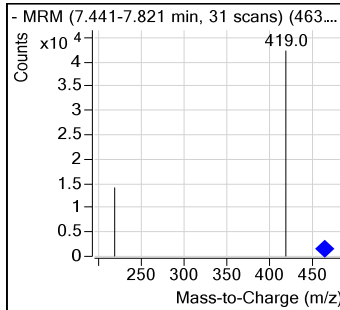
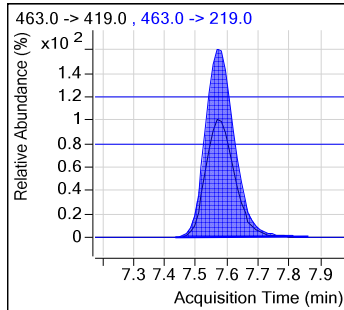
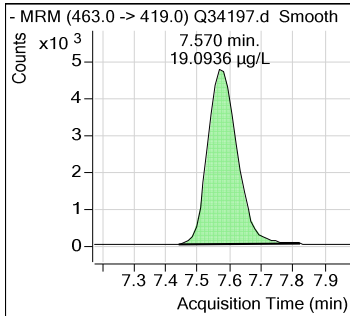
### PFOS



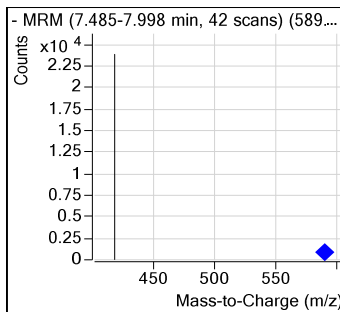
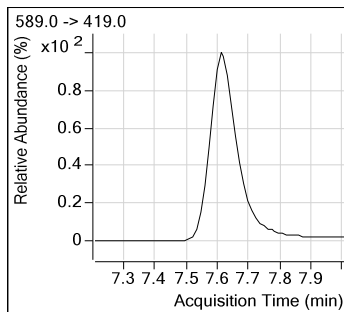
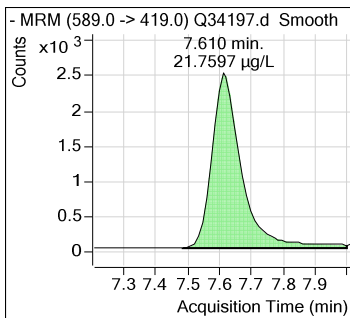
### MeFOSAA



### PFNA



### d5-EtFOSAA

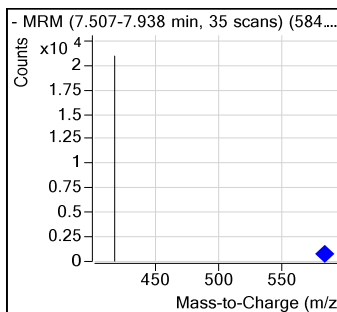
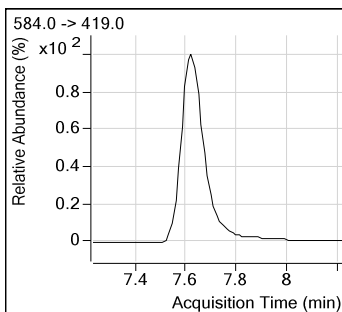
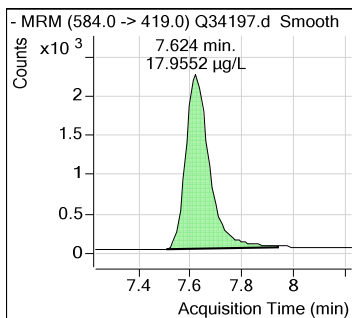


7.5.19  
7

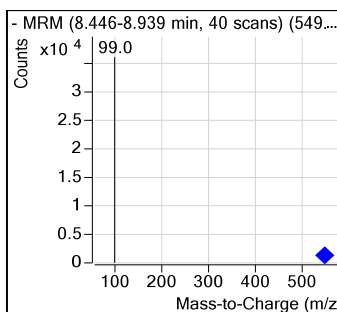
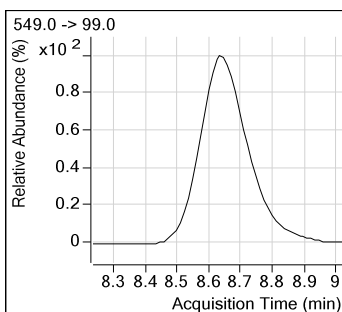
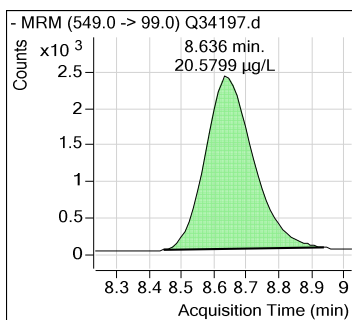
## Perfluorinated Compounds by LC/MS/MS.

7.5.19  
7

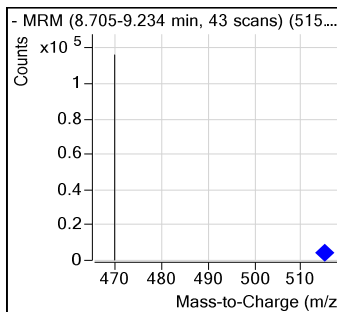
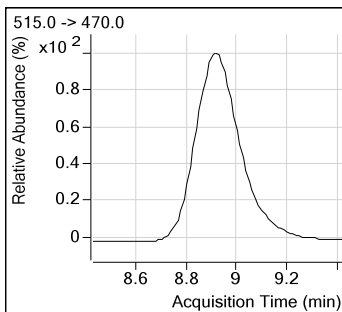
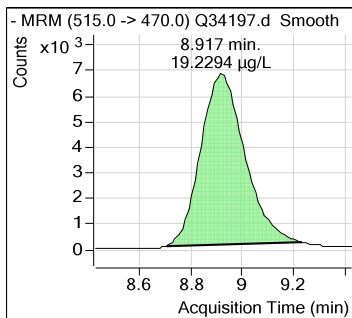
### EtFOSAA



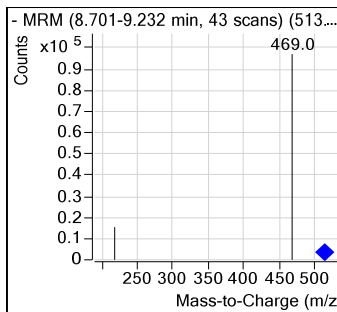
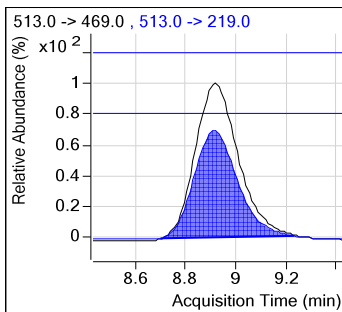
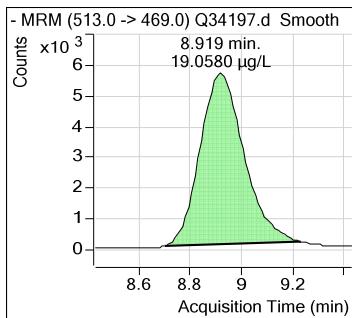
### PFNS



### 13C2-PFDA

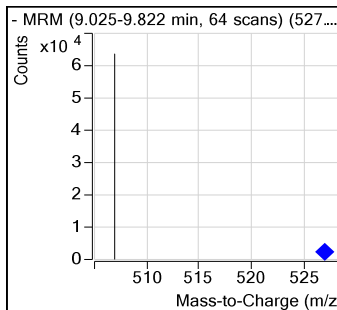
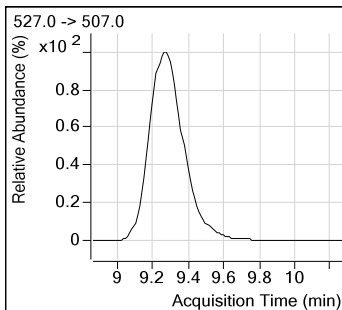
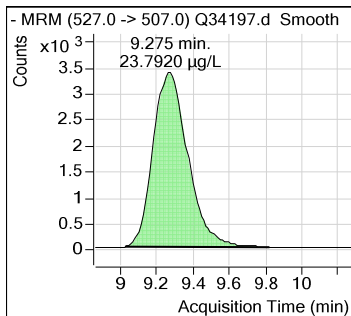


### PFDA

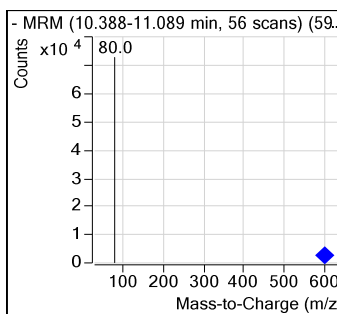
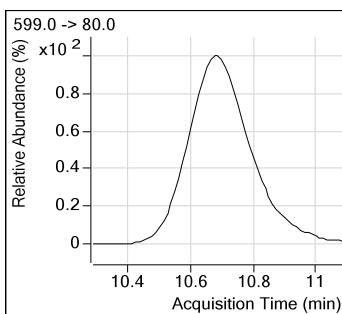
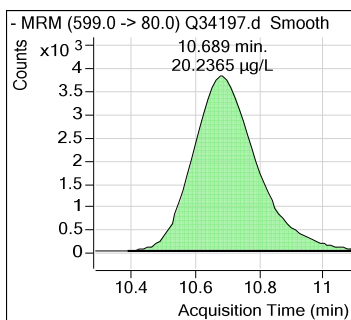


## Perfluorinated Compounds by LC/MS/MS.

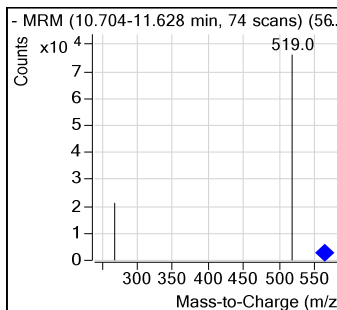
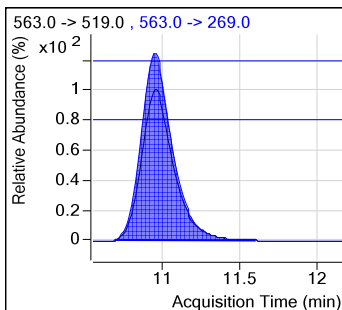
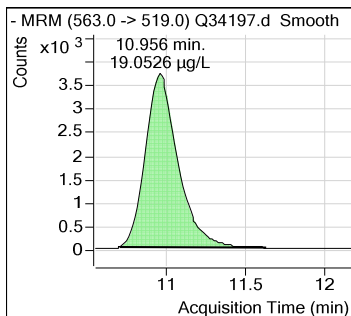
8:2FTS



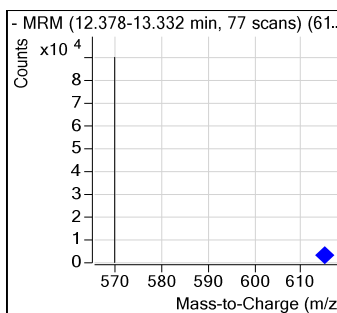
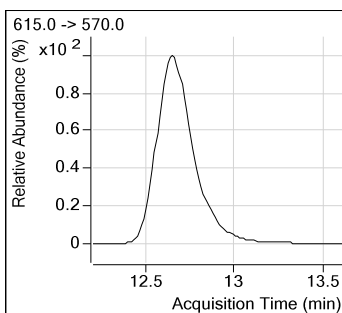
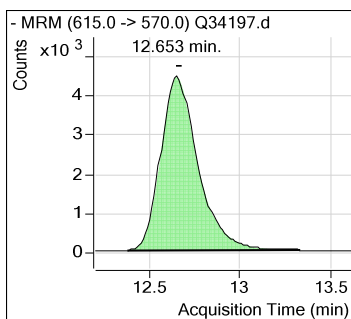
PFDS



PFUnDA

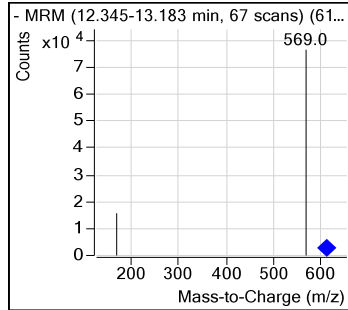
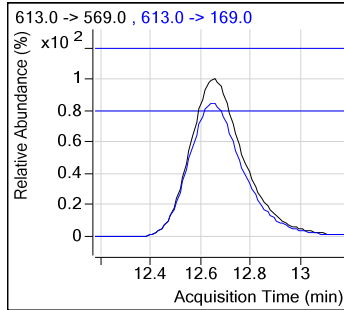
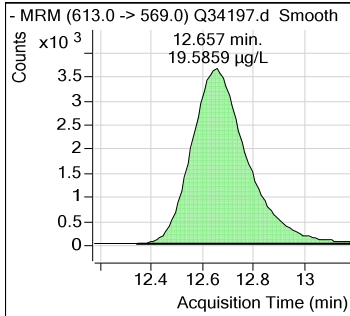


13C2-PFDoDA

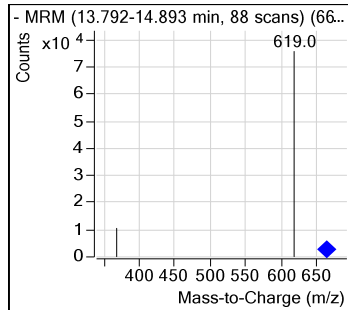
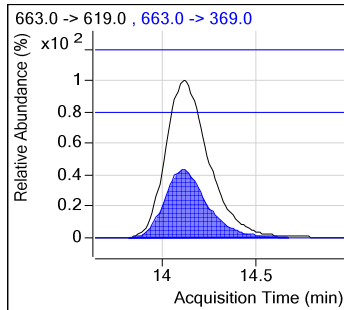
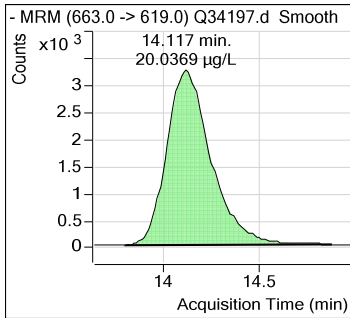


## Perfluorinated Compounds by LC/MS/MS.

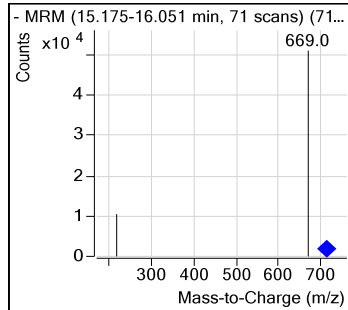
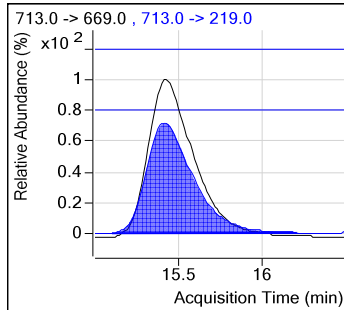
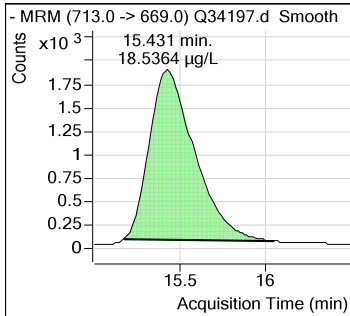
### PFD<sub>o</sub>DA



### PFT<sub>r</sub>DA



### PFT<sub>e</sub>DA



### Calibration Curve

7.5.19  
7

# Manual Integration Approval Summary

Sample Number: SQ893-CC893      Method: EPA 537 MOD  
Lab FileID: Q34197.D      Analyst approved: 05/22/17 11:06 Nancy Saunders  
Injection Time: 05/19/17 20:20      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.49	Split peak

7.5.19.1

7



# Perfluorinated Compounds by LC/MS/MS.

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

**Mike Eger**  
 05/22/17 16:55

Data File : Q34208.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-20 00:13  
 Sample Name : CC893-20  
 Vial : Vial 6  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
**Last Calib Update** : 2017-05-22 07:04

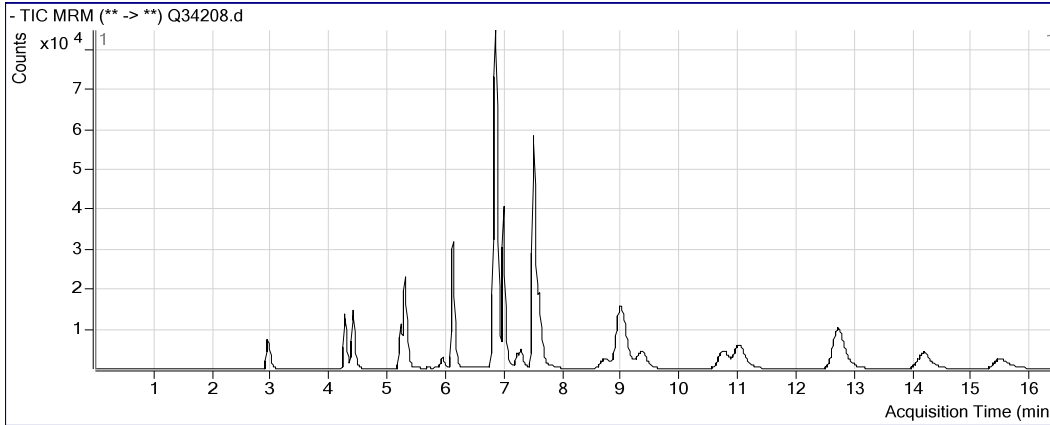
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
<b>Internal Standards</b>							
13C3-PFPeA	4.285	266.0 -> 222.0	35907	20.000	µg/L	0.000	
13C2-PFOA	6.864	415.0 -> 370.0	110495	20.000	µg/L	0.013	
13C2-6:2FTS	6.886	429.0 -> 409.0	49201	20.000	µg/L	0.025	
d3-MeFOSAA	7.500	573.0 -> 419.0	25265	20.000	µg/L	0.000	
13C4-PFOS	7.527	503.0 -> 80.0	105350	20.000	µg/L	0.025	
13C2-PFDoDA	12.728	615.0 -> 570.0	71734	20.000	µg/L	0.088	
<b>System Monitoring Compounds</b>							
13C2-PFHxA	5.322	315.0 -> 270.0	41885	20.46	µg/L	0.013	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 102.31%				
d5-EtFOSAA	7.622	589.0 -> 419.0	19324	21.92	µg/L	0.000	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 109.61%				
13C2-PFDA	9.017	515.0 -> 470.0	97771	21.50	µg/L	0.090	
Spiked Amount: 20.000	Range: 14 - 26		Recovery = 107.52%				
<b>Target Compounds</b>							
							<b>Qvalue</b>
PFBA	2.977	213.0 -> 169.0	31841	20.667	µg/L		100
PFPeA	4.300	263.0 -> 219.0	18674	18.775	µg/L		100
PFBS	4.416	299.0 -> 80.0	39672	19.031	µg/L		90
4:2FTS	5.232	327.0 -> 307.0	42436	20.852	µg/L		100
PFHxA	5.312	313.0 -> 269.0	39685	20.727	µg/L		98
PFPeS	5.355	349.0 -> 99.0	10413	20.969	µg/L		100
PFHxS	6.131	399.0 -> 80.0	57485	18.704	µg/L	# m	80
PFHpA	6.148	363.0 -> 319.0	35214	19.827	µg/L	#	47
PFHpS	6.822	449.0 -> 80.0	62264	18.468	µg/L		100
PFOA	6.866	413.0 -> 369.0	106877	19.265	µg/L		83
6:2FTS	6.888	427.0 -> 407.0	44943	19.002	µg/L		100
FOSA	7.008	498.0 -> 78.0	136890	19.428	µg/L		100
MeFOSAA	7.513	570.0 -> 419.0	17087	17.844	µg/L		100
PFOS	7.528	499.0 -> 80.0	103024	18.955	µg/L	# m	75
PFNA	7.607	463.0 -> 419.0	33214	19.353	µg/L	#	72
EtFOSAA	7.636	584.0 -> 419.0	16229	17.823	µg/L		100
PFNS	8.737	549.0 -> 99.0	26272	19.779	µg/L		100
PFDA	9.020	513.0 -> 469.0	80744	21.273	µg/L	#	84
8:2FTS	9.375	527.0 -> 507.0	48502	22.487	µg/L		100
PFDS	10.764	599.0 -> 80.0	57935	20.209	µg/L		100
PFUnDA	11.043	563.0 -> 519.0	61606	19.718	µg/L	#	91
PFDoDA	12.732	613.0 -> 569.0	61949	19.545	µg/L		94
PFTrDA	14.192	663.0 -> 619.0	58405	19.589	µg/L	#	76
PFTeDA	15.506	713.0 -> 669.0	40173	19.845	µg/L	#	87

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed

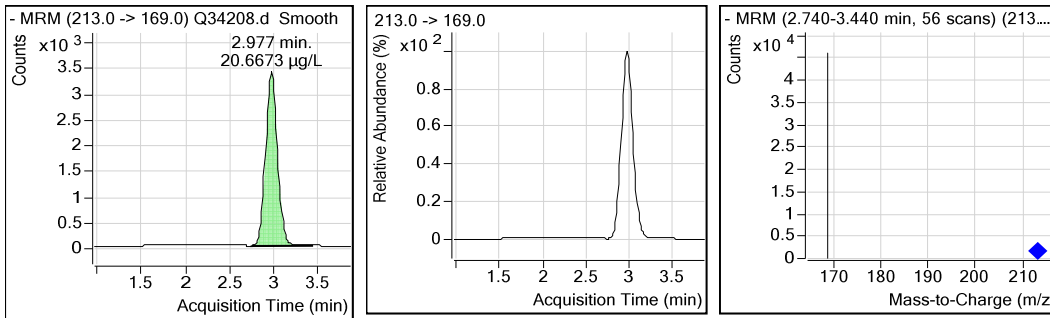
7.5.20  
7

# Perfluorinated Compounds by LC/MS/MS.

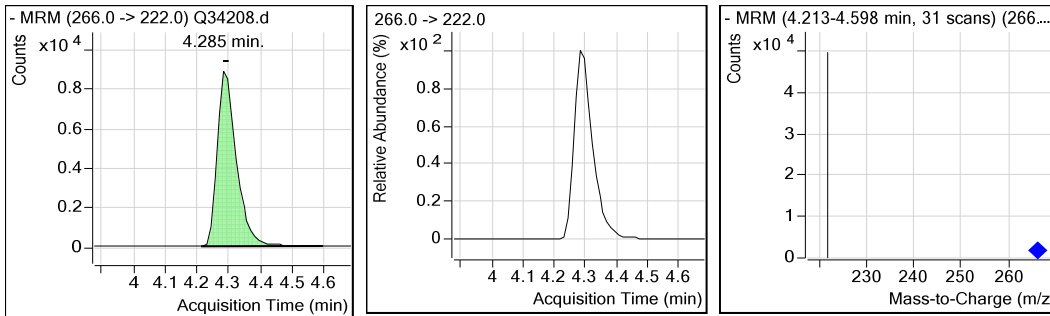
Data File : Q34208.d  
 Operator : NANCYF  
 Acq Method Name : dMRM\_PFOA\_PFOS\_LIST.m  
 Acquisition date : 2017-05-20 00:13  
 Sample Name : CC893-20  
 Vial : Vial 6  
 Sample Info : OP65005,SQ893,5.0,,,5.0,1,SOIL  
 Quant Method : PFC\_LIST\_0519\_SQ893.quantmethod.xml  
 Quant Batch Name : SQ893.batch.bin  
 Last Calib Update : 2017-05-22 07:04



### PFBA



### 13C3-PFPeA

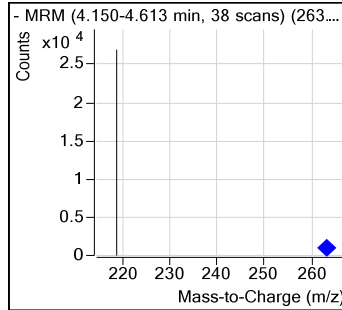
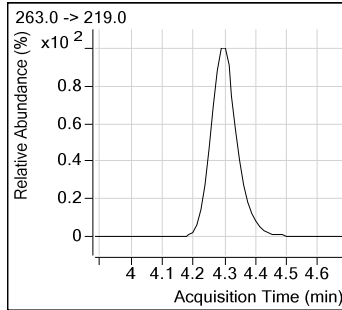
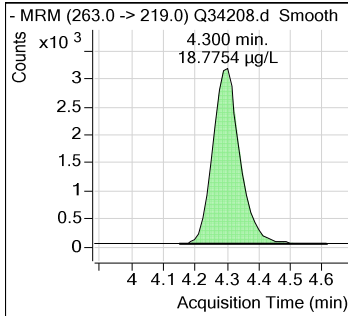


7.5.20  
7

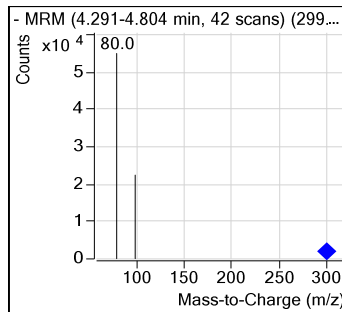
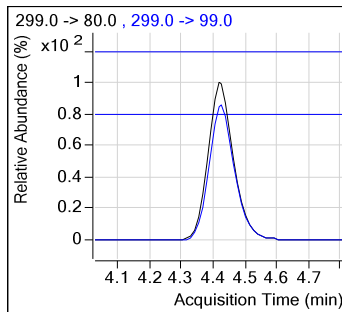
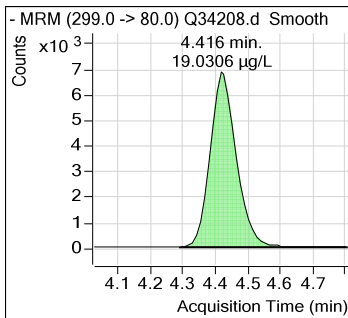
## Perfluorinated Compounds by LC/MS/MS.

7.5.20  
7

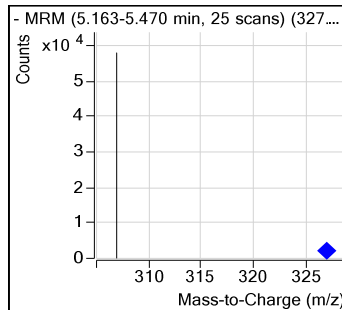
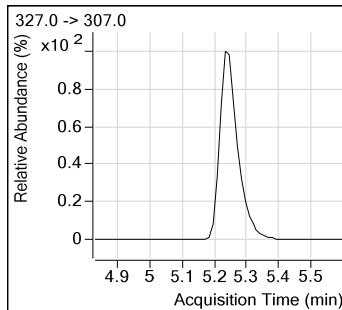
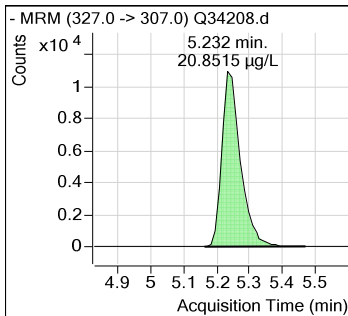
PFPeA



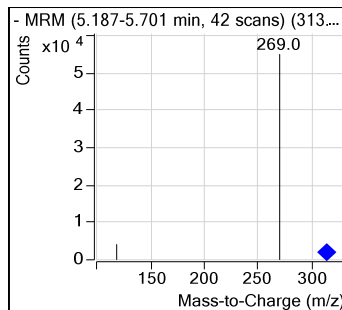
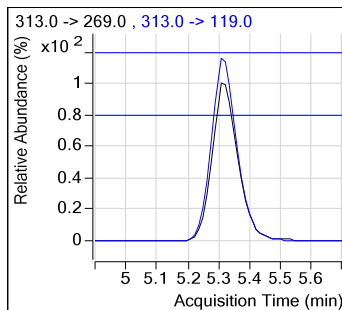
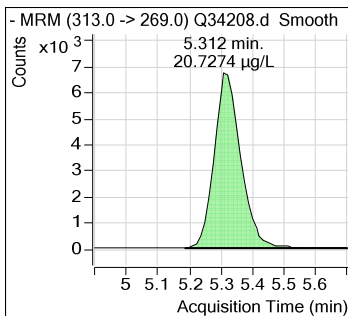
PFBS



4:2FTS



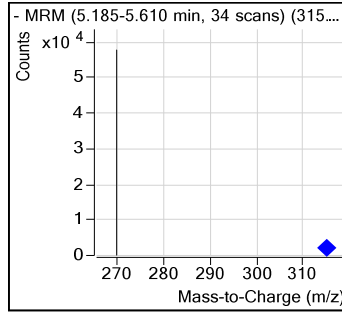
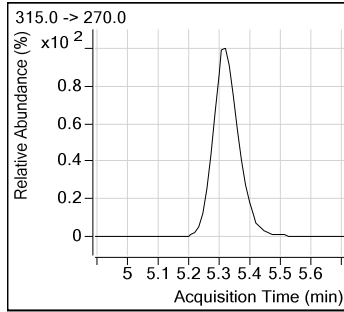
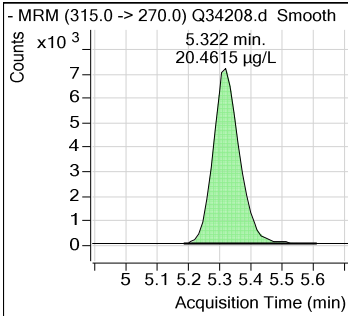
PFHxA



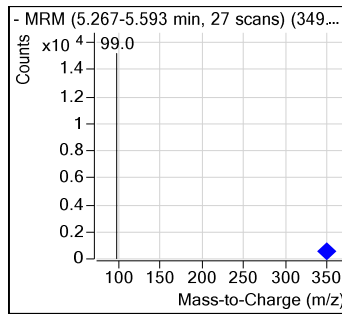
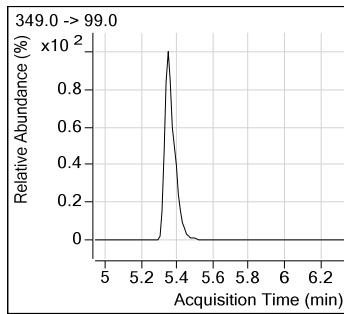
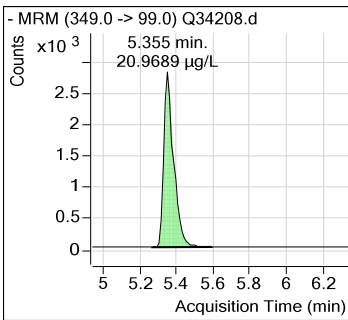
## Perfluorinated Compounds by LC/MS/MS.

7.5.20  
7

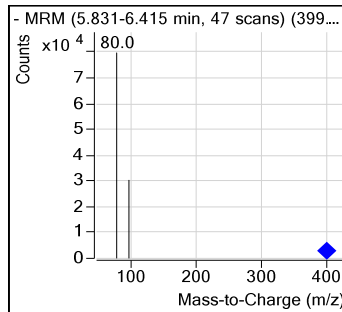
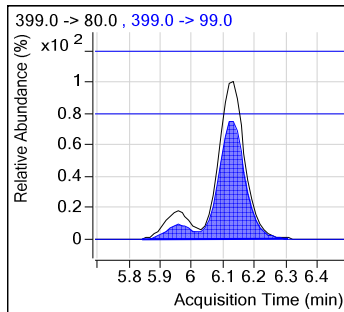
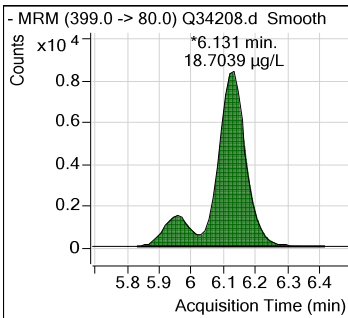
### 13C2-PFHxA



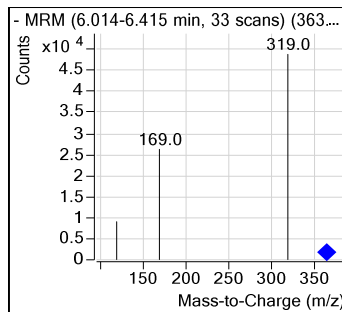
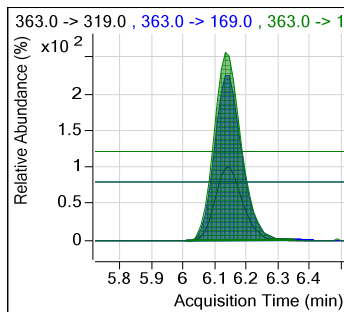
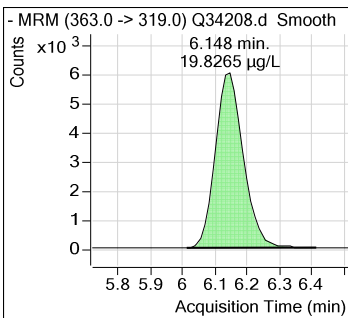
### PFPeS



### PFHxS



### PFHpA

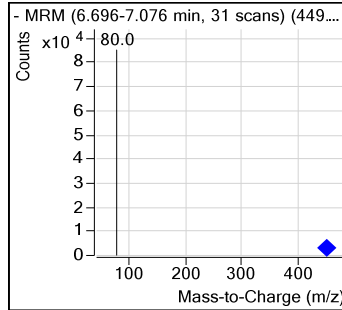
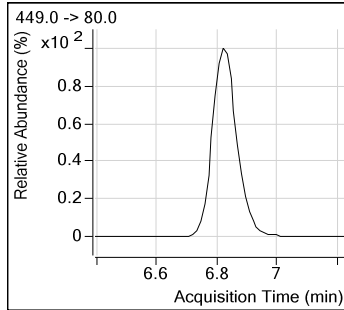
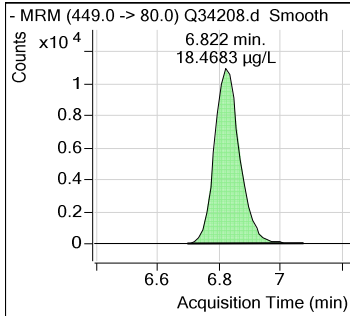


## Perfluorinated Compounds by LC/MS/MS.

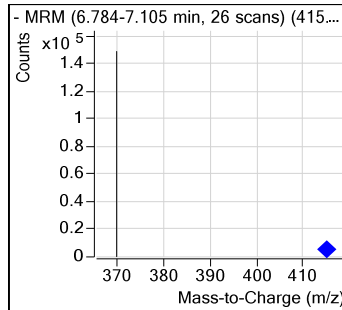
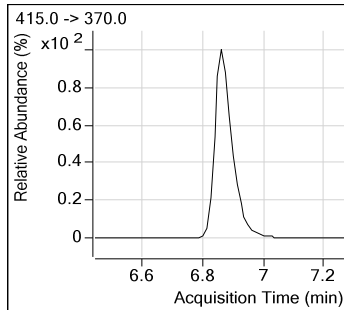
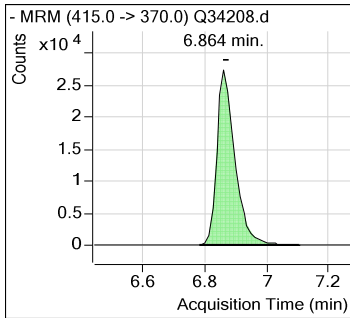
7.5.20

7

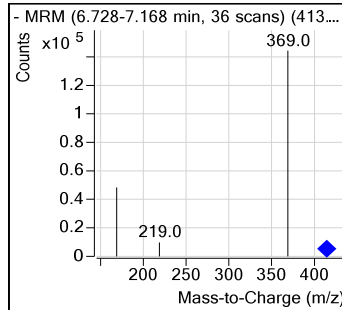
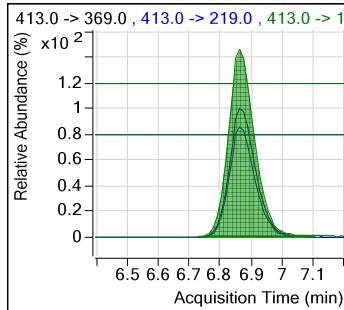
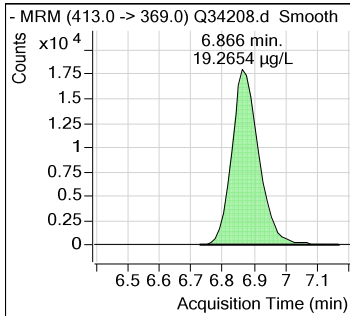
PFHpS



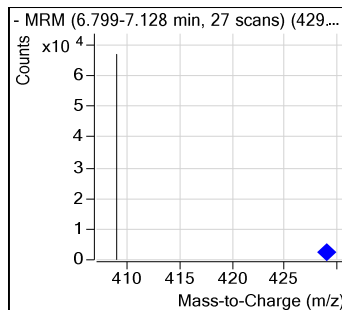
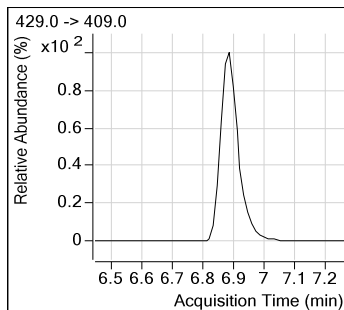
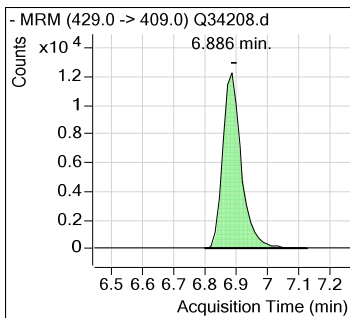
13C2-PFOA



PFOA

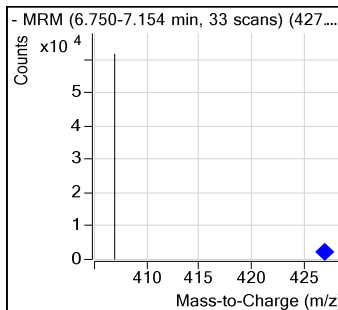
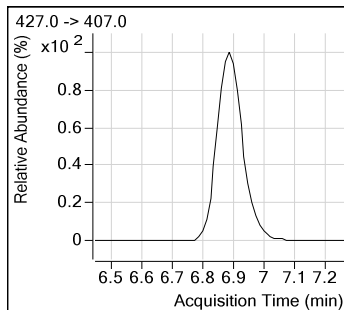
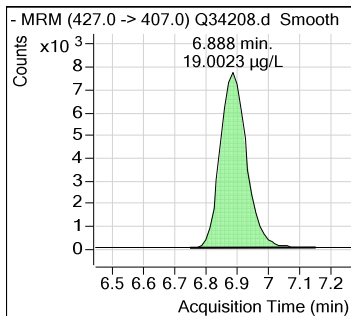


13C2-6:2FTS

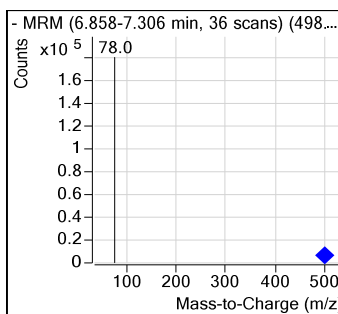
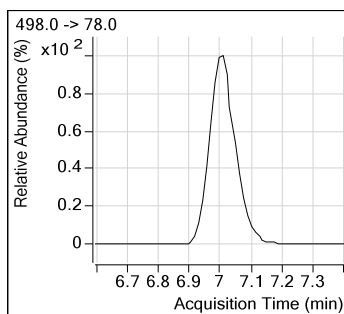
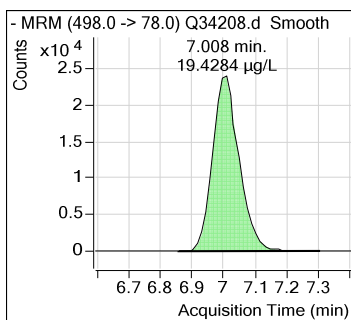


## Perfluorinated Compounds by LC/MS/MS.

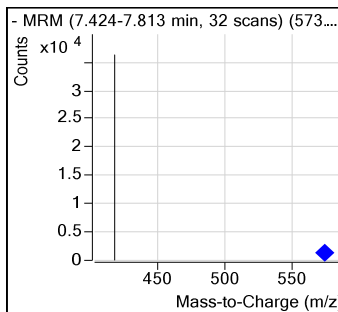
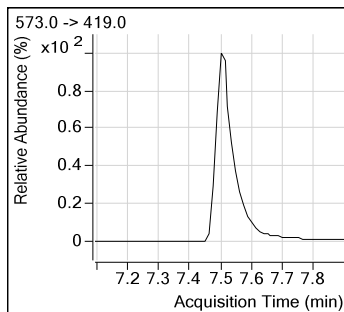
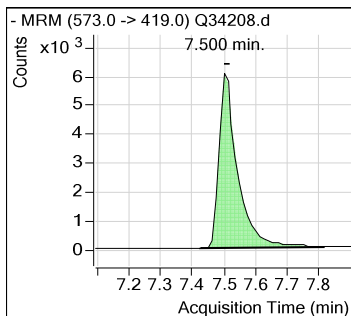
6:2FTS



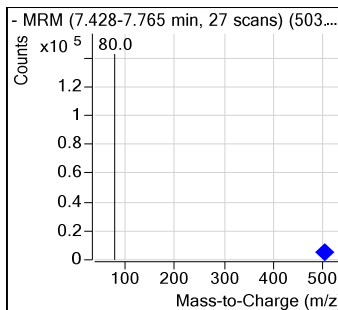
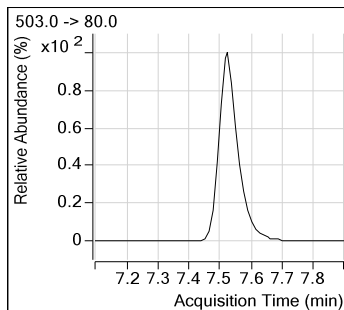
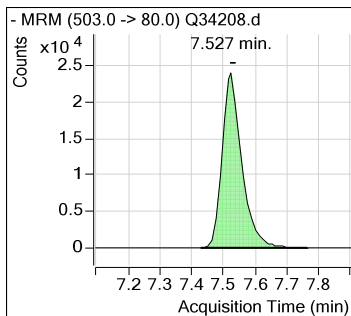
FOSA



d3-MeFOSAA



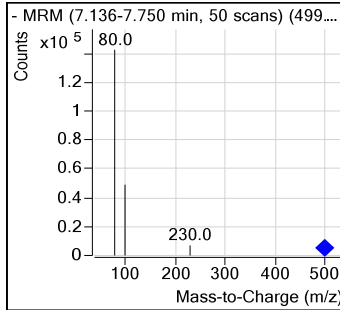
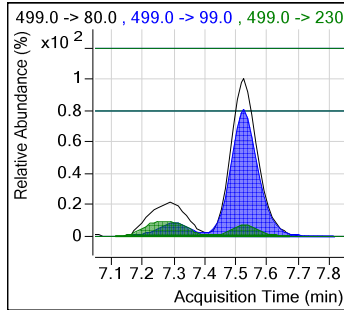
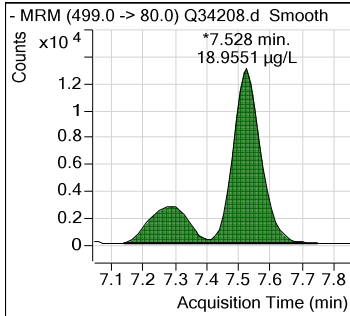
13C4-PFOS



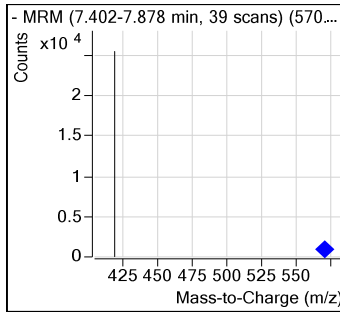
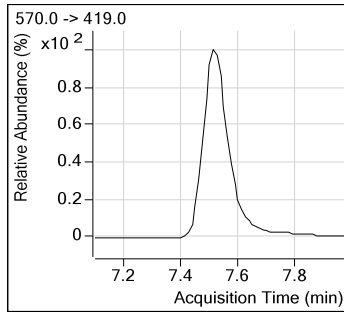
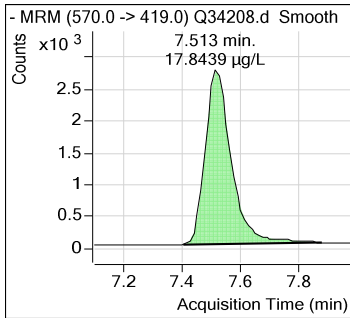
## Perfluorinated Compounds by LC/MS/MS.

7.5.20  
7

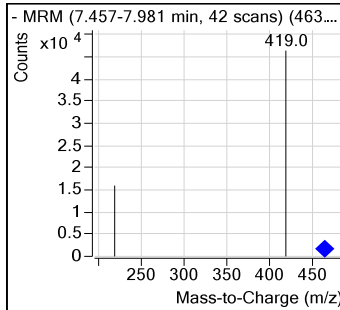
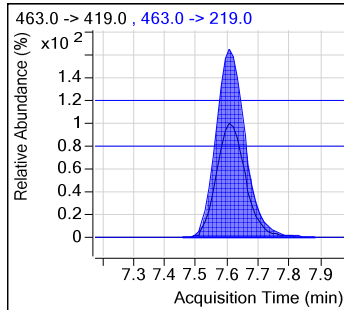
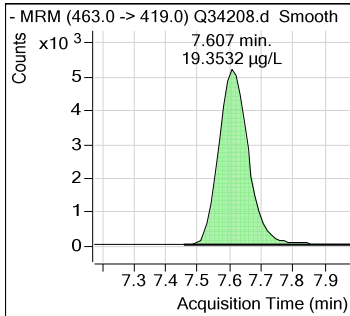
PFOS



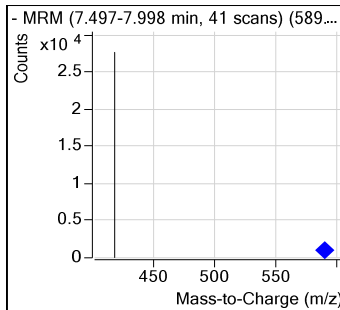
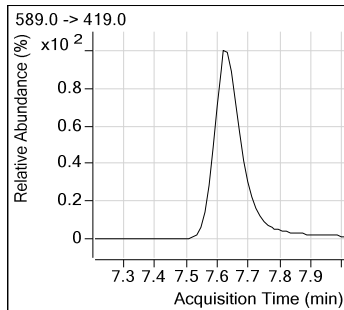
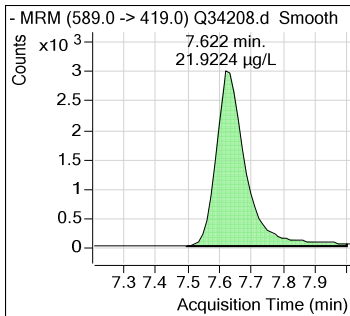
MeFOSAA



PFNA



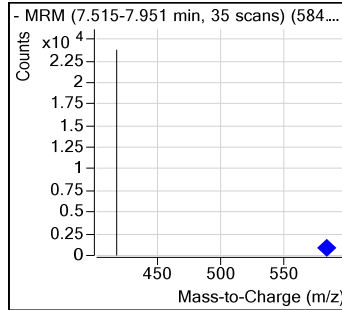
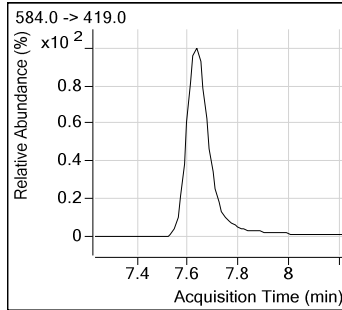
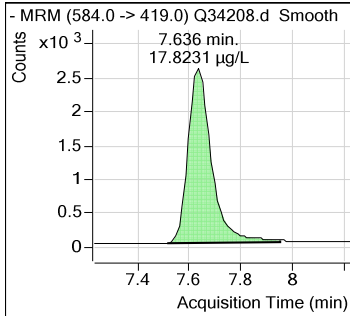
d5-EtFOSAA



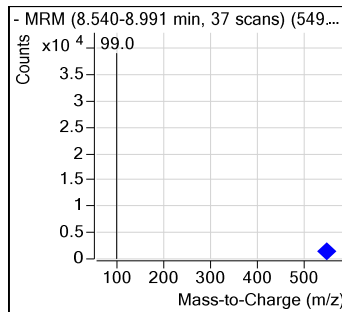
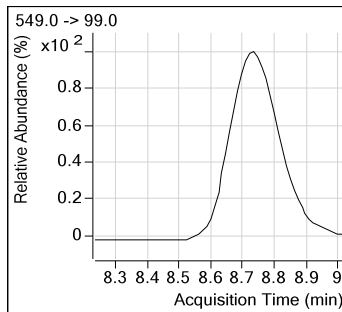
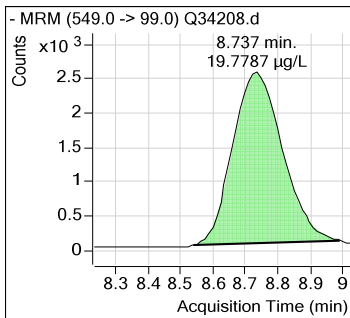
## Perfluorinated Compounds by LC/MS/MS.

7.5.20  
7

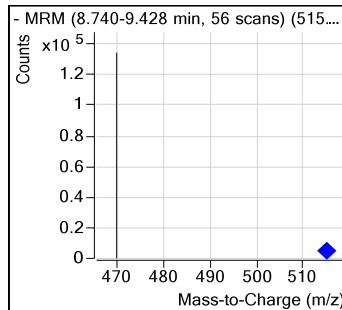
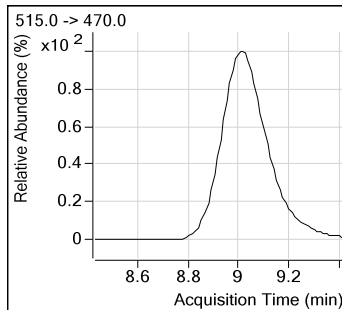
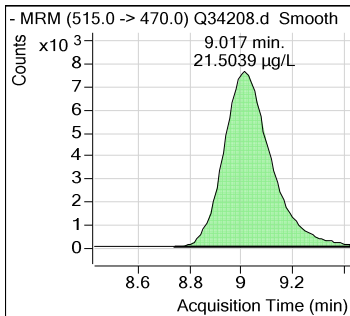
### EtFOSAA



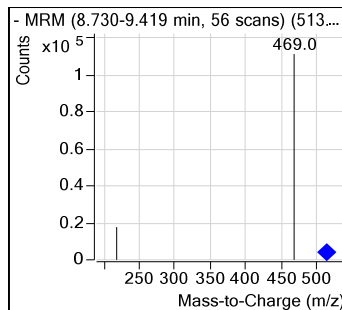
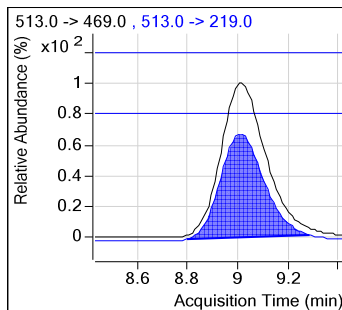
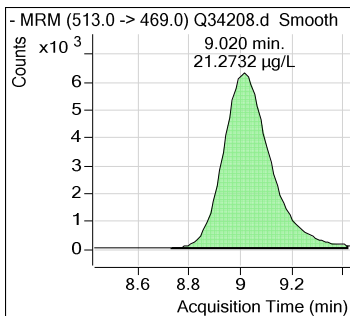
### PFNS



### 13C2-PFDA



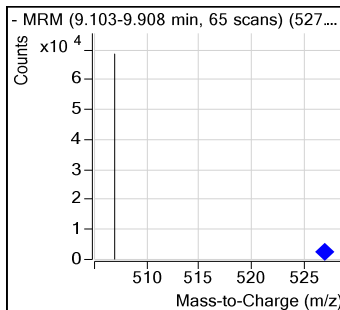
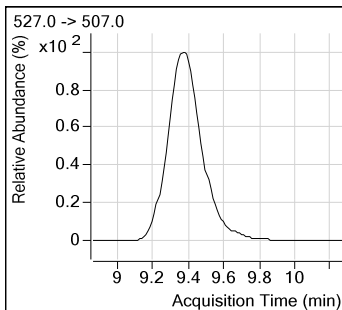
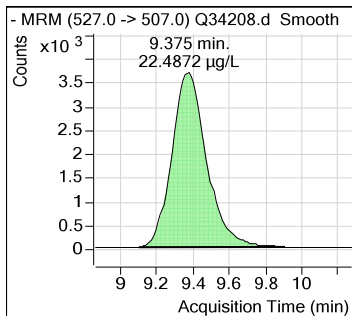
### PFDA



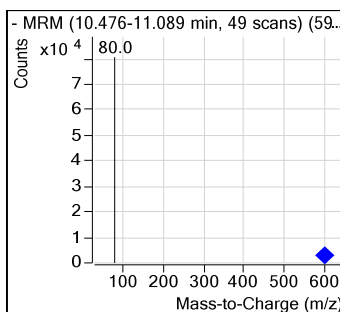
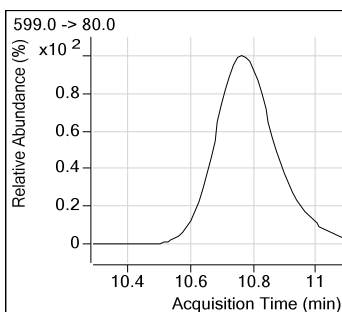
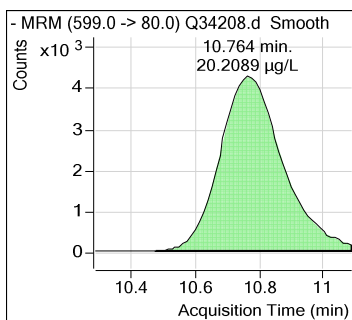


## Perfluorinated Compounds by LC/MS/MS.

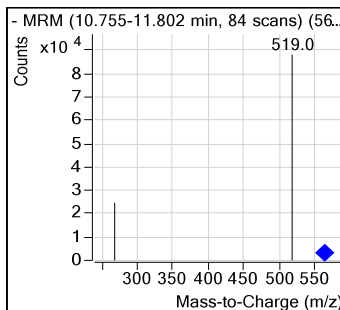
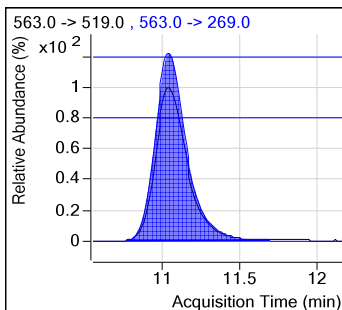
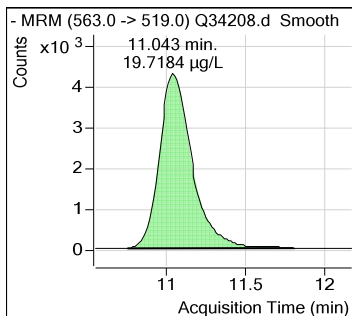
8:2FTS



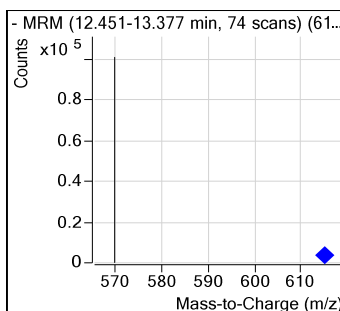
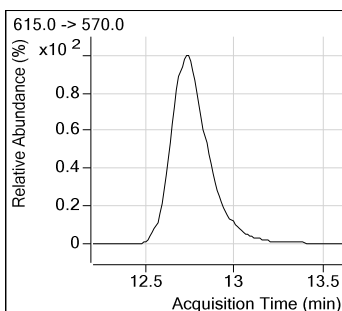
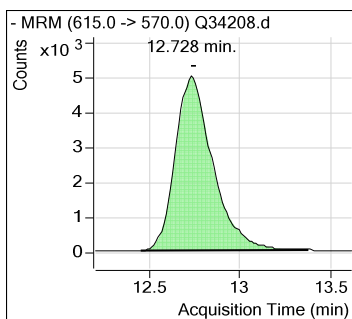
PFDS



PFUnDA



13C2-PFDoDA



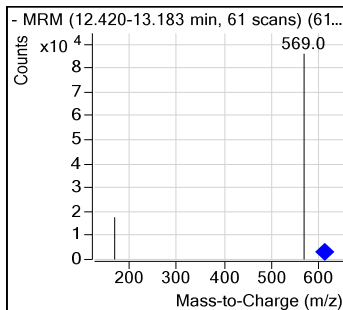
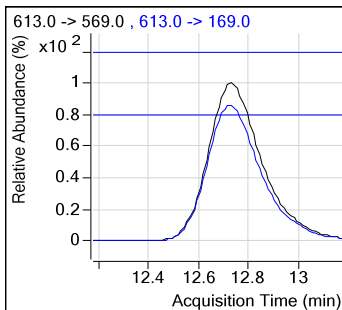
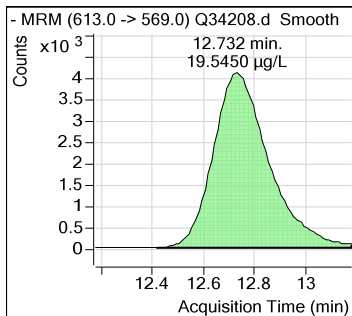
7.5.20

7

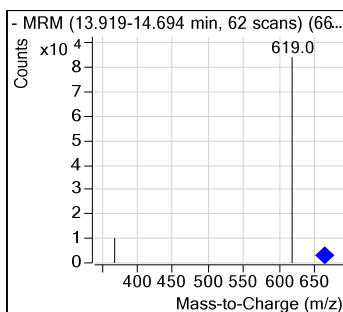
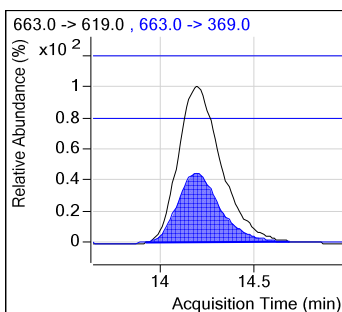
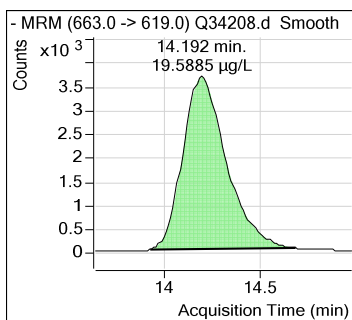
## Perfluorinated Compounds by LC/MS/MS.

7.5.20  
7

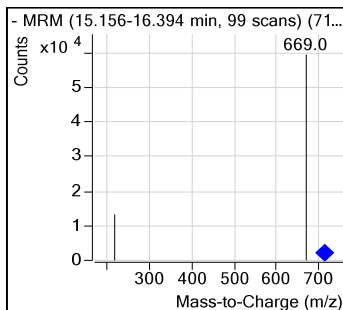
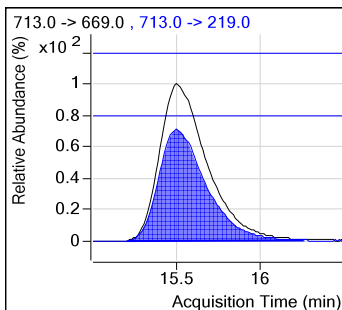
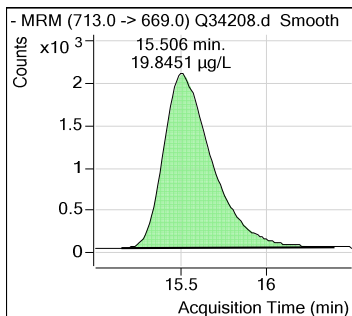
**PFD<sub>o</sub>DA**



**PFT<sub>r</sub>DA**



**PFT<sub>e</sub>DA**



**Calibration Curve**

# Manual Integration Approval Summary

Sample Number: SQ893-CC893      Method: EPA 537 MOD  
Lab FileID: Q34208.D      Analyst approved: 05/22/17 11:06 Nancy Saunders  
Injection Time: 05/20/17 00:13      Supervisor approved: 05/22/17 16:55 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		6.13	Split peak
Perfluorooctanesulfonic acid	1763-23-1		7.53	Split peak

7.5.20.1

7

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	05/20/17
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	344

METHODS:	S37MOD
ACQ. METHOD:	DMN PFC A PFC LIST
PROC. METHOD:	PFC LIST 0530
CALIB. DATE:	05/20/17
RUN BATCH:	S2Q 47

ANALYST:	<i>MP</i>
ELUENT A LOT #:	168473 of Acetic Acid
ELUENT B LOT #:	170575
WATER LOT #:	168473
ISTD Lot #:	LC847

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 1729	2	RT	PFC						
2Q 30	1	ccb							
2Q 31	2	cc44-20			100	500			Fail Recal.
2Q 32	2	cc44-1			5	500			↓
2Q 33	9	surc							↓
2Q 34	5	op65145-bs		op65145		1X			↓
2Q 35	6	↓ -mb		↓		1X			↓
2Q 36	1	ccb							↓
2Q 37	1	ccb							↓
2Q 38	2	ic47-1		LC852	5	500	SP		↓
2Q 39	3	↓ -2			10	500			↓
2Q 40	4	↓ -5			25	500			↓
2Q 41	5	↓ -10			60	500			↓
2Q 42	6	icc47-20			100	500			↓
2Q 43	7	ic47-40			200	500			↓
2Q 44	8	↓ -50			250	500			↓
2Q 45	1	ccb							
2Q 46	9	ICV47-20		LC839 8525A	5	500			<i>MP</i>
2Q 47	1	ccb							
2Q 48	21	op65145-bs		op65145		1X			RR

\*< 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

5 of 100

Analyst's Signature: *MP*

SGS ACCUTEST-ORLANDO

DATE: 05/30/17  
 COLUMN TYPE: Poroshell 120 E18  
 AMOUNT INJECTED: 5 ul  
 INSTRUMENT: LCMS2-2Q  
 HEAD PRESSURE: 348

LCMS2-2Q ANALYSIS LOG

METHODS: S37 MOD  
 ACQ. METHOD: dMCM PFOA PFS ust  
 PROC. METHOD: PFLIST0530  
 CALIB. DATE: 05/30/17  
 RUN BATCH: S2Q 47

ANALYST: *[Signature]*  
 ELUENT A LOT #: 168473 w/ Acetic acid  
 ELUENT B LOT #: 170575  
 WATER LOT #: 168473  
 ISTD Lot #: LC847

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON SCL*	COMMENTS
2Q 1749	22	0P6S14S-M6	PFC	0P6S14S	1X				RR
2Q 50	23	MC50374-1							
2Q 51	24	MC50375-3							
2Q 52	25	MC50381-3							
2Q 53	26	↓ 82-3							
2Q 54	10	FA44068-3							Instrument stopped
2Q 55	11	MC50394-3	↓	↓					RR
2Q	12	MC50379-9							
2Q	6	CC47-20			100/500				
2Q	1	ccb							
2Q		FA44192-3							
2Q		-1							
2Q		-1							
2Q		-2							
2Q		-2							
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									

\* < Conductivity Limit For Perchlorate by SW846 6850

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

SGS ACCUTEST-ORLANDO

LCMS2-2Q ANALYSIS LOG

DATE:	05/31/17
COLUMN TYPE:	Poroshell 120
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	355

METHODS:	537MOD
ACQ. METHOD:	dMRLM-PFOA-PFOS>List
PROC. METHOD:	PFCLIST0530
CALIB. DATE:	05/30/17
RUN BATCH:	S2Q 48

ANALYST:	MP
ELUENT A LOT #:	168473
ELUENT B LOT #:	
WATER LOT #:	168473
ISTD Lot #:	66847

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 1755	1	ccb	PFC						
2Q 56	6	CC47-20			100/500		SP		
2Q 57	6	RT							
2Q 58	2	CC47-1		LC852	5/500		SP		Reln
2Q 59	2	CC47-1					SP		✓ ± 50% pass
2Q 60	6	CC47-20			100/500		SP		✓ pass
2Q 61	10	FA44068-3	OP65104		IX				✓
2Q 62	11	MC50394-3		↓	IX				Revia RR
2Q 63	13	FA44192-3	OP65161		IX				Low Sum (1 bottle)
2Q 64	14	FA44192-1			50X		SP		✓
2Q 65	15	1 -1			250X		SP		RR 9/1000X
2Q 66	16	1 -2			50X		SP		✓
2Q 67	17	↓ -2			500X		SP		✓ RR-1000X
2Q 68	18	FA43941-16			2X				RR
2Q 69	19	↓			IX				RR
2Q 70	20	TD3446-13R		↓	IX		SP		✓
2Q 71	6	CC47-20		LC852	100/500		SP		pass
2Q 72	94	T-PFOA		LC809	50/500		SP		✓
2Q 73	1	ccb							✓
2Q 74	18	FA43941-16	✓	OP65161	2X		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: 05/31/17  
 COLUMN TYPE: Poroshell EC18  
 AMOUNT INJECTED: 5 ul  
 INSTRUMENT: LCMS2-2Q  
 HEAD PRESSURE:

METHODS: S37 MOD  
 ACQ. METHOD: dMFM-PTCA-PTC-LIST  
 PROC. METHOD: PFCUSTOS30  
 CALIB. DATE: 05/30/17  
 RUN BATCH: S2Q 48

ANALYST: *MLR*  
 ELUENT A LOT #: 168473  
 ELUENT B LOT #:  
 WATER LOT #: 168473  
 ISTD Lot #: LC847

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 1775	19	FA43941-16	PFC	OP65161	10X		SP		Low Surv. only.
2Q 76	11	MC50394-3		OP65104	1X				RR 1670 > 30%
2Q 77	22	OP65145-MB		OP65145	1X				✓
2Q 78	23	MC50374-1			1X				X4 DNR
2Q 79	24	MC50375-3			1X				X4
2Q 80	25	MC50381-3			1X				X4
2Q 81	26	MC50382-3			1X				X4
2Q 82	12	MC50379-2		↓	1X				Low Surv (in Bottle)
2Q 83	6	CC47-20		LC852	100/500		SP		PASS
2Q 84	1	CCb							-
2Q 85	27	OP65200-b5		OP65200	1X				✓
2Q 86	28	↓ -mb			1X				✓ BDC
2Q 87	29	FA43661-2			1X				✓
2Q 88	30	FA43662-1			1X				✓
2Q 89	31	FA43662-2			1X				✓
2Q 90	32	MC50445-2			1X				✓
2Q 91	33	OP65200-MS			1X		S		✓
2Q 92	34	↓ -msd		↓	1X		Low Rec.		✓
2Q 93	6	CC47-20		LC852	100/500				PASS
2Q ✓ 94	1	CCb	↓						-

\*< Conductivity Limit For Perchlorate by SW846 6850

Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration  
 All strikeouts must be 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:	05/21/17
COLUMN TYPE:	Poroshell EC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS2-2Q
HEAD PRESSURE:	

METHODS:	S37MOD
ACQ. METHOD:	AMPM-PCA-PDS List
PROC. METHOD:	PFC LIST CS30
CALIB. DATE:	05/30/17
RUN BATCH:	S2Q 48

ANALYST:	<i>[Signature]</i>
ELUENT A LOT #:	168473
ELUENT B LOT #:	
WATER LOT #:	168473
ISTD Lot #:	LC847

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
2Q 1795	35	MC50446-2	PFC	OP65200	1X	/	50		✓
2Q 96	36	MC50447-2			1X				low Surr PR
2Q 97	37	MC50448-1			1X				✓
2Q 98	38	↓ -3			1X				low Surr PR
2Q ↓ 99	39	MC50449-1			1X				✓
2Q 1800	40	↓ -3			1X				✓
2Q ↓ 01	6	EC47-20		LC852	100/500		9P		MISS
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									
2Q									

\*< Conductivity Limit For Perchlorate by SW846 6850  
 Manual Integration Rationale SOP QA029: MP Missed Peak, OP Overlapping Peak, SP Split Peak, PDB Poorly Defined Baseline, BR Baseline Ripple, PII Poor Instrument Integration  
 All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature: *[Signature]*



SGS ACCUTEST-ORLANDO

LCMS1-Q ANALYSIS LOG

DATE:	05-19-17
COLUMN TYPE:	Poruxs 11 AC16
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS1-Q
HEAD PRESSURE:	322

METHODS:	S37 MOD
ACQ. METHOD:	AMM PDA PDS LIST
PROC. METHOD:	PACLIST 0519 SQ 093
CALIB. DATE:	05-19-17
RUN BATCH:	SQ 093

ANALYST:	NAS
ELUENT A LOT #:	167425 w # of c
ELUENT B LOT #:	170575 ↓
WATER LOT #:	167425
ISTD Lot #:	LC647

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
Q 34162	3	rt	PFC	LC646	10/500				✓
Q 63	1	CLB							✓
Q 64	1	CLB							✓
Q 65	1	CLB							✓
Q 66	2	FCB93-1		LC646	5/500				Fix rt
Q 67	1	CCB							✓
Q 68	2	FCB93-1		LC646	5/500				Fix rt
Q 69	1	CCB							✓
Q 70	2	FCB93-1		LC646	5/500		SP		✓
Q 71	3	-2			10/500		SP		✓
Q 72	4	-5			25/500		SP		✓
Q 73	5	-10			50/500		SP		✓
Q 74	6	FCB93-20			100/500		SP		✓
Q 75	7	FCB93-40			200/500		SP		✓
Q 76	8	-50			250/500		SP		✓
Q 77	1	CCB							✓
Q 78	9	FCV893-20		LC634 64873	5/5/500				PASS, FOST. 412, PFC'S ↑
Q 79	10	0P65085-B5		0P65085	1F				✓
Q 80	11	-103					SP		✓ Et, me
Q 81	12	F443645-17 CFS					SP		✓ 2m rx

\* < 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.

LCMS1\_Q\_log.xls ME rev. 06/16

Analyst's Signature: 

SGS ACCUTEST-ORLANDO

LCMS1-Q ANALYSIS LOG

M05217

DATE:	0519-17
COLUMN TYPE:	Aeroshell AC18
AMOUNT INJECTED:	5 ul
INSTRUMENT:	LCMS1-Q
HEAD PRESSURE:	322

METHODS:	37 MOD
ACQ. METHOD:	AMP.M AC18-AC05.LIT
PROC. METHOD:	AC18.M 0519 52843
CALIB. DATE:	0519-17
RUN BATCH:	SQ 093


ANALYST:	MAS
ELUENT A LOT #:	167425 w Acshz
ELUENT B LOT #:	1670575 J
WATER LOT #:	167425
ISTD Lot #:	22847

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
Q 34182	13	FA43645-17cf	PAC	0065085	14		SP		✓
Q 83	14	-19cf			14		SP		✓ SS↓
Q 84	15	-19cf			14		SP		Not needed
Q 85	16	-30cf			14		SP		✓
Q 86	17	-35cf					SP		BAR SS↓
Q 87	18	-36cf					SP		BAR
Q 88	19	-37cf					SP		BAR
Q 89	6	CC893-20		LC846	100/100		SP	2	Pass
Q 90	1	CCB							✓
Q 91	44	FA43809-1		0065085	14		SP		✓ SS↓ AL IX
Q 92	20	FA43724-1cf					SP		✓ SS↓
Q 93	21	-2cf					SP	2	✓ SS↓
Q 94	22	-3cf					SP		✓ SS↓
Q 95	23	-8cf					SP		✓ SS↓, ↑
Q 96	24	FA43730-1cf					SP OP		✓ SS↓
Q 97	6	CC893-20		LC846	100/100		SP		Pass PeA ESTO ↑
Q 98	1	CCB							✓
Q 99	25	0065057-BS		0065057	14				✓ "BAR" for PeA ESTO ↑
Q 200	26	-MA					SP		BAR Pe ESTO ↑
Q 01	27	FA43661-2					SP	2	BAR (RA) no SS PeA ESTO ↑

\*< 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.

LCMS1\_Q\_log.xls ME rev. 06/16

Analyst's Signature: 

SGS ACCUTEST-ORLANDO

LCMS1-Q ANALYSIS LOG

DATE:	05-14-17
COLUMN TYPE:	Porosil B 2.1µ
AMOUNT INJECTED:	5 µl
INSTRUMENT:	LCMS1-Q
HEAD PRESSURE:	322

METHODS:	537.m
ACQ. METHOD:	LCMS1-Q ACQUISITION LIST
PROC. METHOD:	ACQUISITION LIST 0514 2017
CALIB. DATE:	05-14-17
RUN BATCH:	SQ 843

ANALYST:	NAS
ELUENT A LOT #:	167425 W Acetic
ELUENT B LOT #:	170717 +
WATER LOT #:	167425
ISTD Lot #:	LC847

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	ION RATIO	MANUAL INTS RATIONALE, PK #	SCON <CL*	COMMENTS
Q 34202	20	FA43662-2	PAC	0065057	17		I		ADL SSL (AL)
Q 03	24	-1					SP		ADL SSL (AL) X Duplicate
Q 04	30	FA43661-1					SP		ADL SSL ESTD ↑ ME 1.00
Q 05	31	0065057-MS							✓ SSL DATA ESTD ↑
Q 06	32	-MSD							✓ SSL ↓
Q 07	33	MC50397-1					SP		X F500P ADL SSL 2K ↓
Q 08	6	CL 843-20		LC846	100/150		SP		PASS DATA ESTD ↑
Q 09	1	CLB							✓
Q 10	34	FA43635-6		0065052	24		SP	I	✓ ESTD ↑
Q 11	35	-3		0065053	24		SP		✓
Q 12	36	MSD			24				X ESTD ↑
Q 13	37	00FA43645-21			14		SP		✓
Q 14	38	-24			14		SP		✓
Q 15	39	-25			24				X ESTD ↑ X matrix
Q 16	40	-25			54		SP		✓ ESTD DATA ↑ matrix
Q 17	41	-27			54		SP		✓ ESTD DATA ↑
Q 18	42	-28			54		SP		✓ ↓
Q 19	43	-29			14				X ESTD ↑
Q 20	6	CL 843-20		LC846	100/150		SP		PASS ME. DATA ESTD ↑
Q 21	1	CLB							✓

\*< 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.

LCMS1\_Q\_log.xls ME rev. 06/16

Analyst's Signature: 



**SGS ACCUTEST - ORLANDO**

**SPE LIQUID SAMPLE PREP REPORT**

Date/Time: 05/16/17 15001400  
 Started (mm/dd/yy 24:00) MB 05/16/17

Prep Method: 3535A or Method (circle)

Date/Time: 05/16/17  
 Finished (mm/dd/yy 24:00)

Analytical Method: LC 537 DW

Batch#: OP65057 Ext. By: MB, MV Conc. By: AA Viald By: MB

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP65057 MB	X	250	6	N/A	20ul		1ml	
OP65057 BS	X	250				10+10ul		
FA43661-1	1	260						
-2	1	260						
FA43662-1	1	250						
-2	1	260						
MC50397-1	1	260						
<del>AA 05/17/17</del>								
FA43661-1 MS	2	130	6	N/A	20ul	10+10ul	1ml	
-1 MSD	2	130	+	-	+	+	+	
DUP								

**Comments:**

Surr.1 ID: LC843 Conc: 1ppm Exp. Date: 11/03/17 Inj. By: MB Ver. By: MV  
 Surr.2 ID: — Conc: — Exp. Date: 08/05/17 Inj. By: — Ver. By: —  
 Spk.1 ID: LC839 Conc: 2ppm Exp. Date: 08/25/17 Inj. By: MB Ver. By: MV  
 Spk.2 ID: 84876 Conc: 2ppm Exp. Date: 11/11/17 Inj. By: MB Ver. By: MV

Initial Bath Temp (Therm ID): \_\_\_\_\_ Exchange Bath/N-Evap Temp (Therm ID): \_\_\_\_\_  
 Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_ Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_

Methanol Lot # 170294 SPE Lot # 5308-0072 pH Paper # 2300/6  
 Acetonitrile Lot # \_\_\_\_\_ SPE Lot # \_\_\_\_\_ Reagent # \_\_\_\_\_  
 Water Lot# OP64835 Syringe Filter Lot# \_\_\_\_\_ Solvent # \_\_\_\_\_

Relinquished By: [Signature]  
 Accepted By: [Signature]

Date: 05/17/17  
 Date: 05-17-17

7.7.1  
 7

SGS ACCUTEST - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 05/26/17 1000  
Started (mm/dd/yy 24:00)

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

Date/Time: 05/26/17 1600  
Finished (mm/dd/yy 24:00)

Analytical Method: LC 53

Batch#: OP 65200 Ext. By: MS

Conc. By: KC

Vialed By: MS MS KC 05/26/17

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP 65200 MB	X	250	6	N/A	20ul		1ml	
OP 65200 BS	X	250				10+10ul		
MC50445-1	1	250						
-2	1	250						
-3	1	260						
MC50446-1	1	260						
-2	1	260						
-3	1	260						
MC50447-1	1	250						
-2	1	250						
-3	1	260						
MC50448-1	1	260						
-2	1	250						
-3	1	260						
-4	1	250						
MC50449-1	1	250						
-2	1	250						
-3	1	260						
-4	1	260						
FA43661-2	2	260						
FA43662-1	2	250						
-2	2	260						
MS 50442-2	2	130	6	N/A	20ul	10+10ul		MC50445-2
MSD 50445-2	2	130	↓	↓	+	+	↓	
DUP								

Comments:

Surr.1 ID: LC843 Conc: 1 ppm Exp. Date: 11/03/17 Inj. By: MS Ver. By: MS  
 Surr.2 ID:        Conc:        Exp. Date:        Inj. By:        Ver. By:         
 Spk.1 ID: LC839 Conc: 2 ppm Exp. Date: 08/25/17 Inj. By: MS Ver. By: MS  
 Spk.2 ID: BS25A Conc: 2 ppm Exp. Date: 11/25/17 Inj. By: MS Ver. By: MS

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

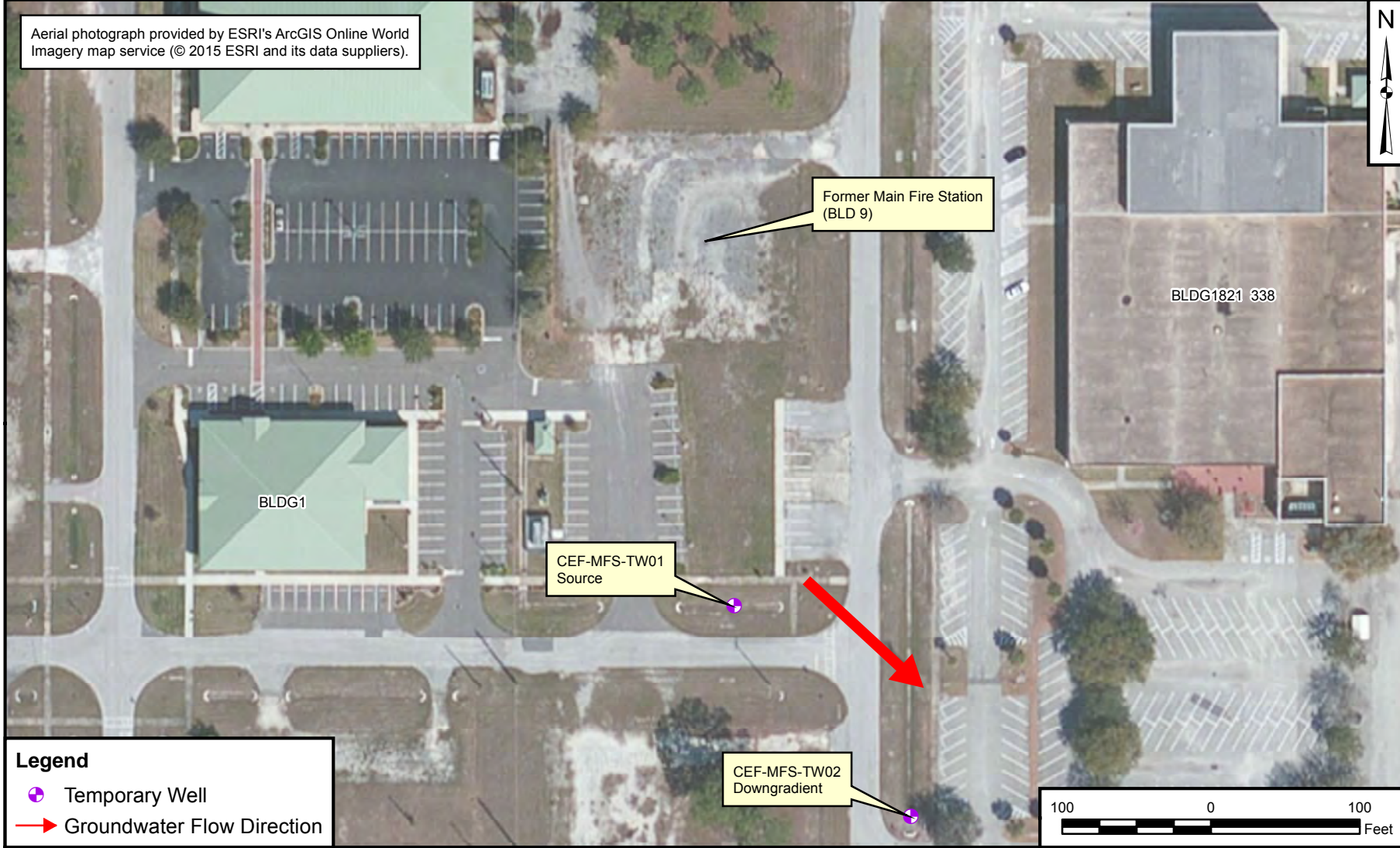
Methanol Lot # 170575 SPE Lot # 5300-0226 pH Paper # 2300/6  
 Acetonitrile Lot #        SPE Lot #        Reagent #         
 Water Lot# OP 65085 Syringe Filter Lot#        Solvent #       

Relinquished By: Michael Ganters  
 Accepted By:       



Date: 05/26/17  
 Date: 5/30/17

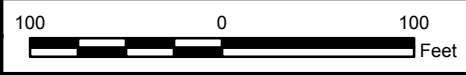
7.7.2  
7

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  
 FORMER FIRE STATION  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

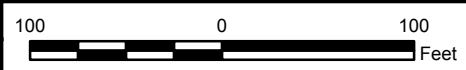
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER	
17-1	

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



**Legend**

-  Monitoring Well
-  Groundwater Flow Direction

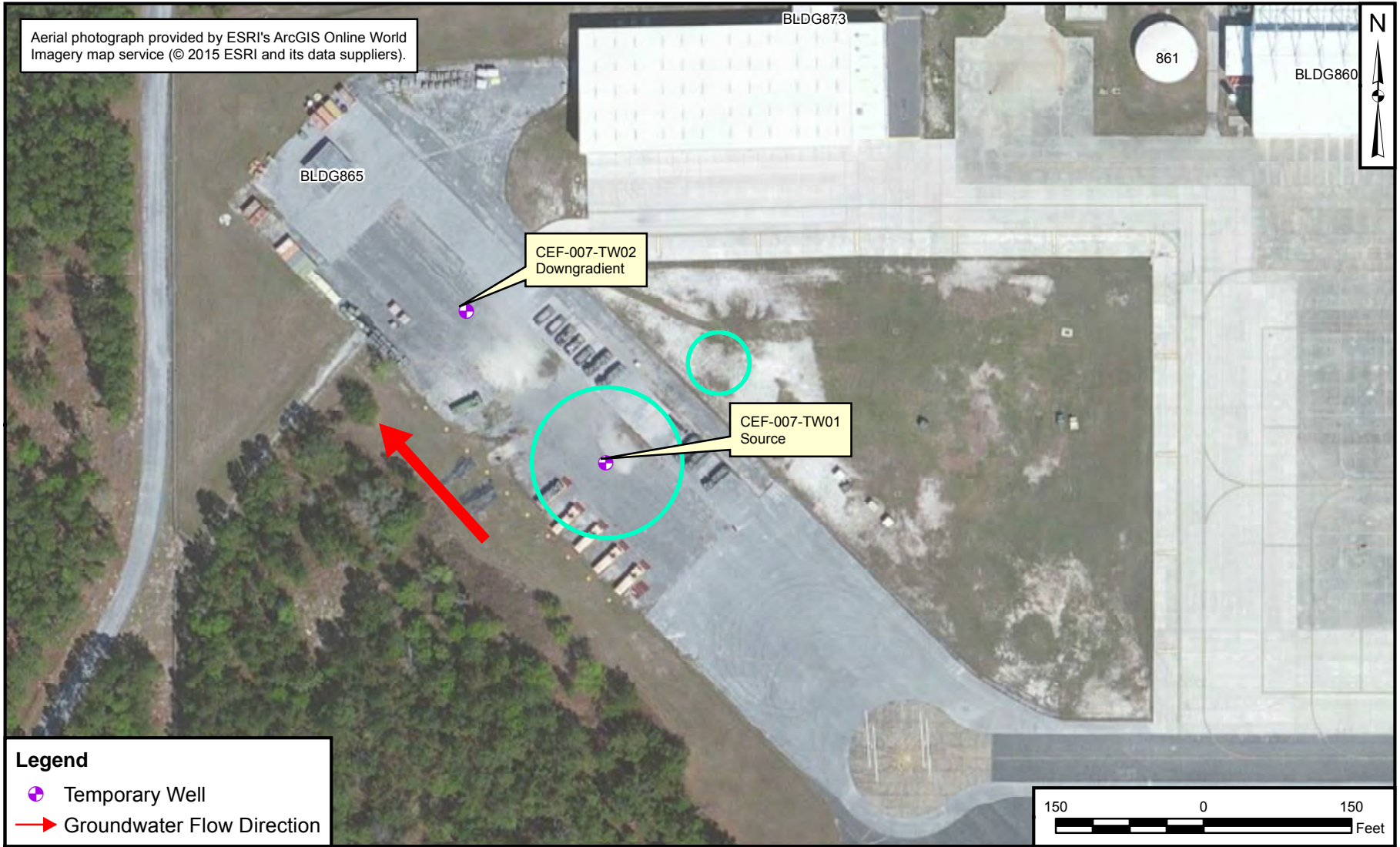


SITE LOCATION  
 CRASH FIRE STATION  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA



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

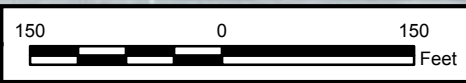


Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**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**

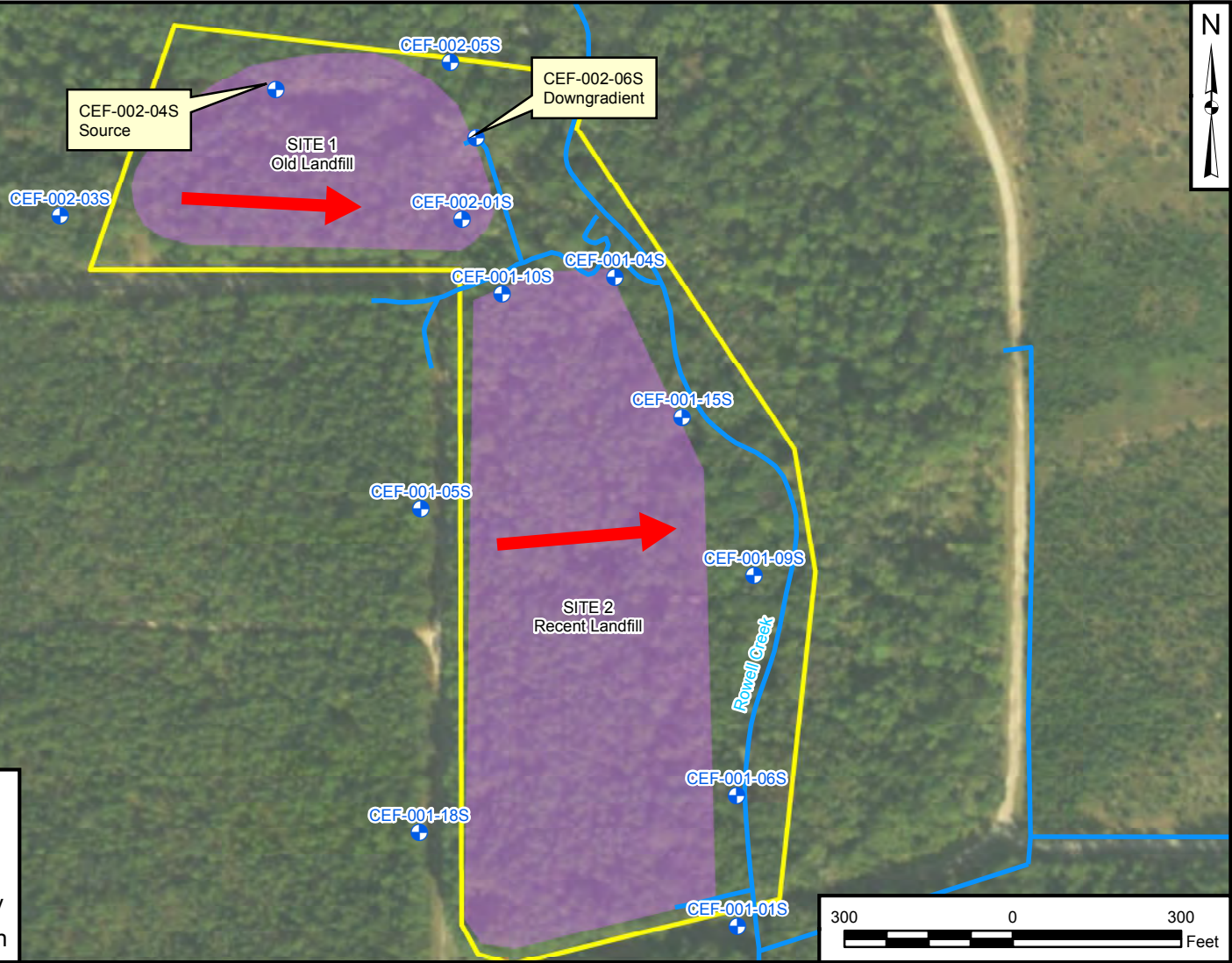
-  Temporary Well
-  Stream
-  Site Boundary
-  Groundwater Flow Direction



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**

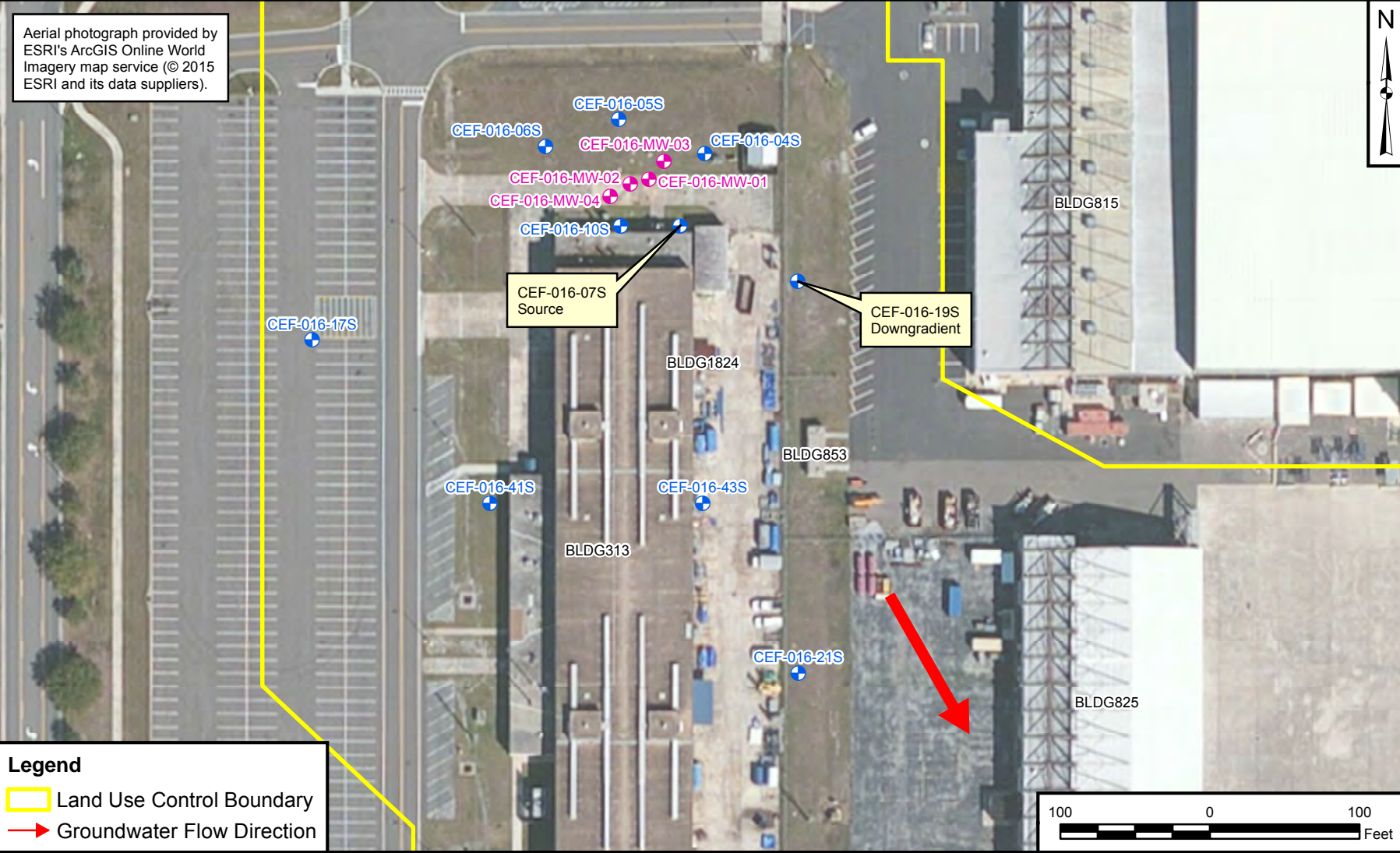
- Temporary Well
- Site Boundary
- Land Use Control Boundary
- Groundwater Flow Direction



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**

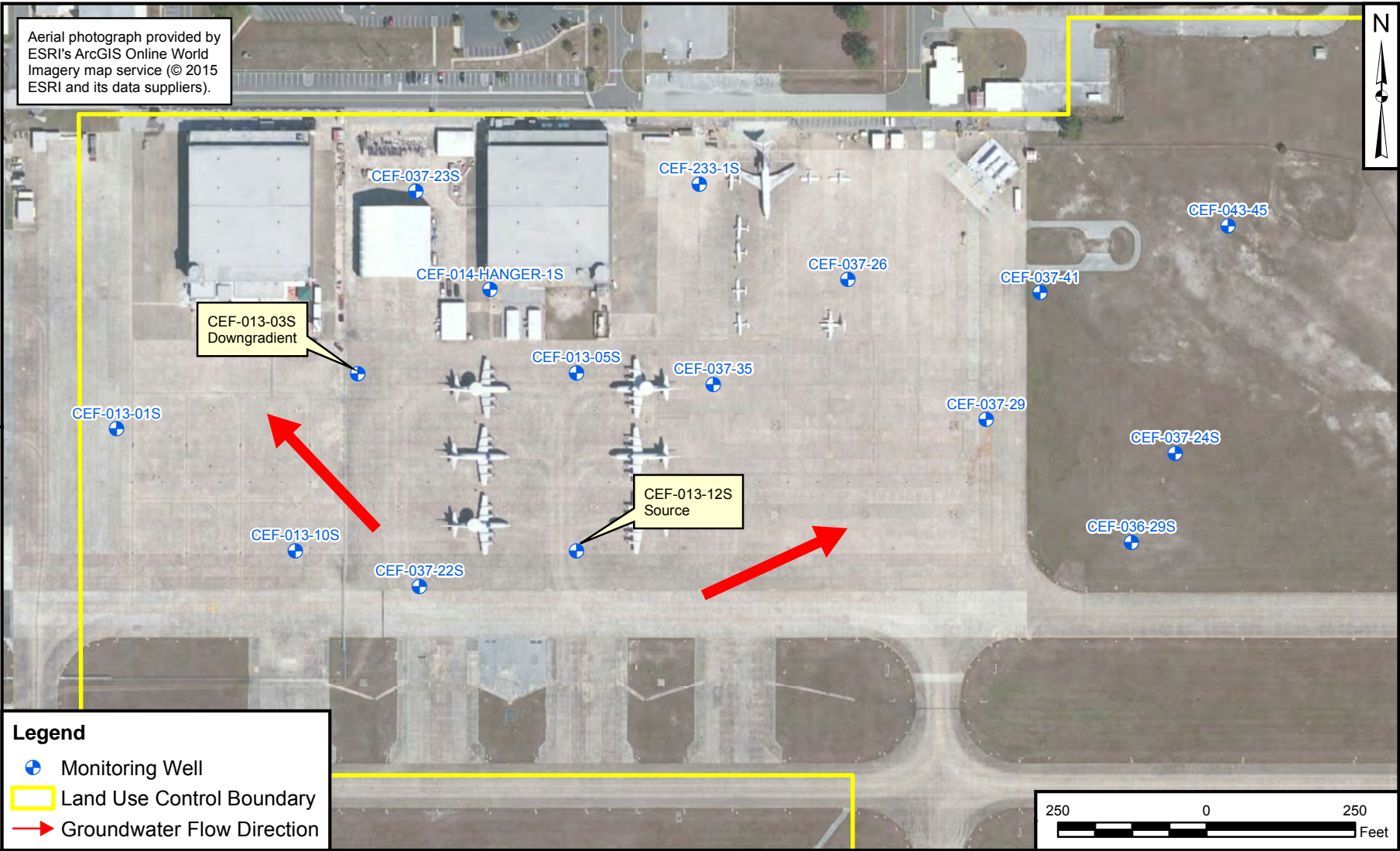
- Land Use Control Boundary
- Groundwater Flow Direction



SITE LOCATION  
SITE 16  
NAS CECIL FIELD  
CECIL FIELD, FLORIDA

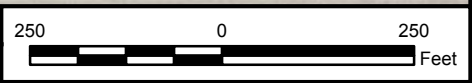
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-6	

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



**Legend**

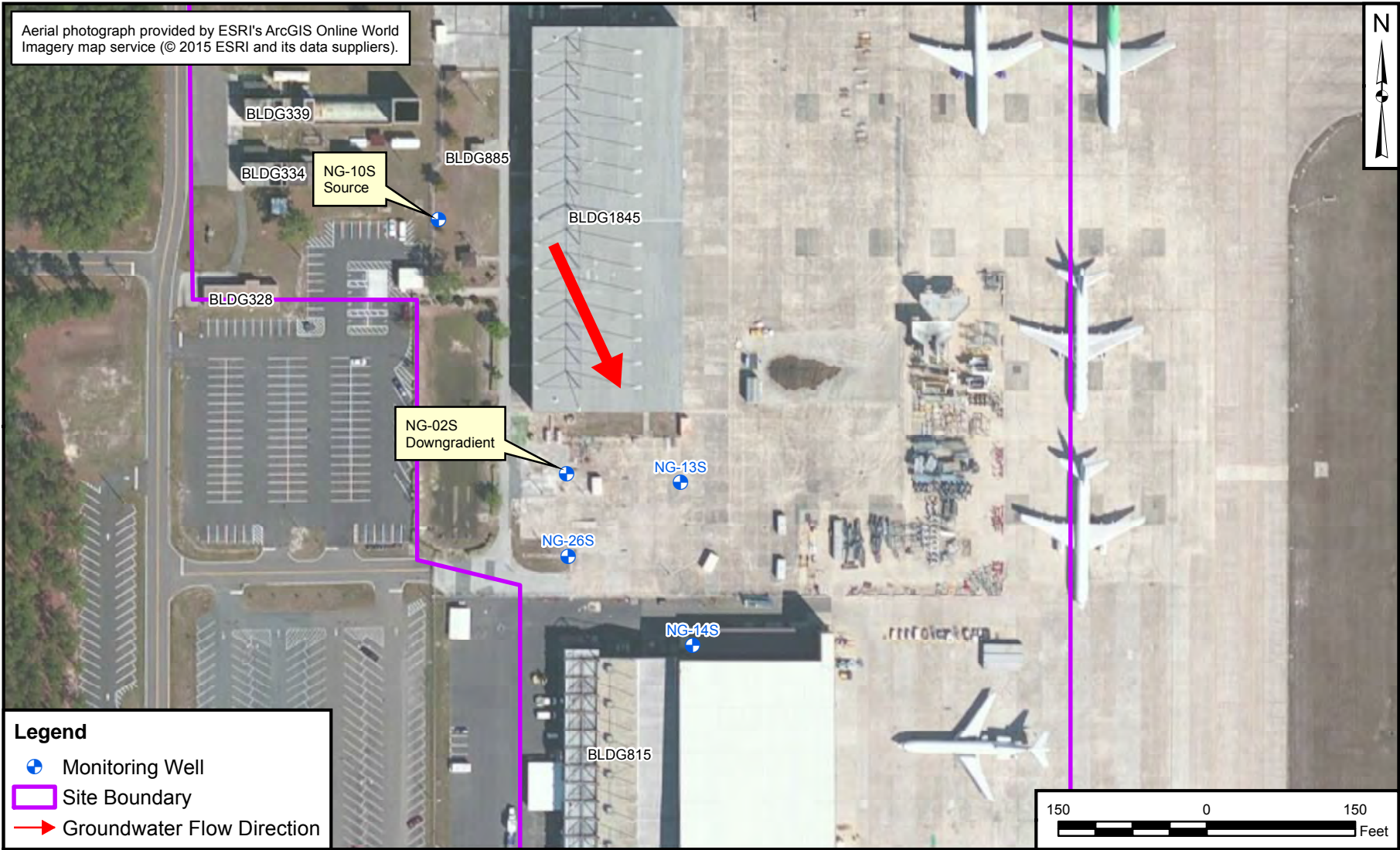
- Monitoring Well
- Land Use Control Boundary
- Groundwater Flow Direction



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).



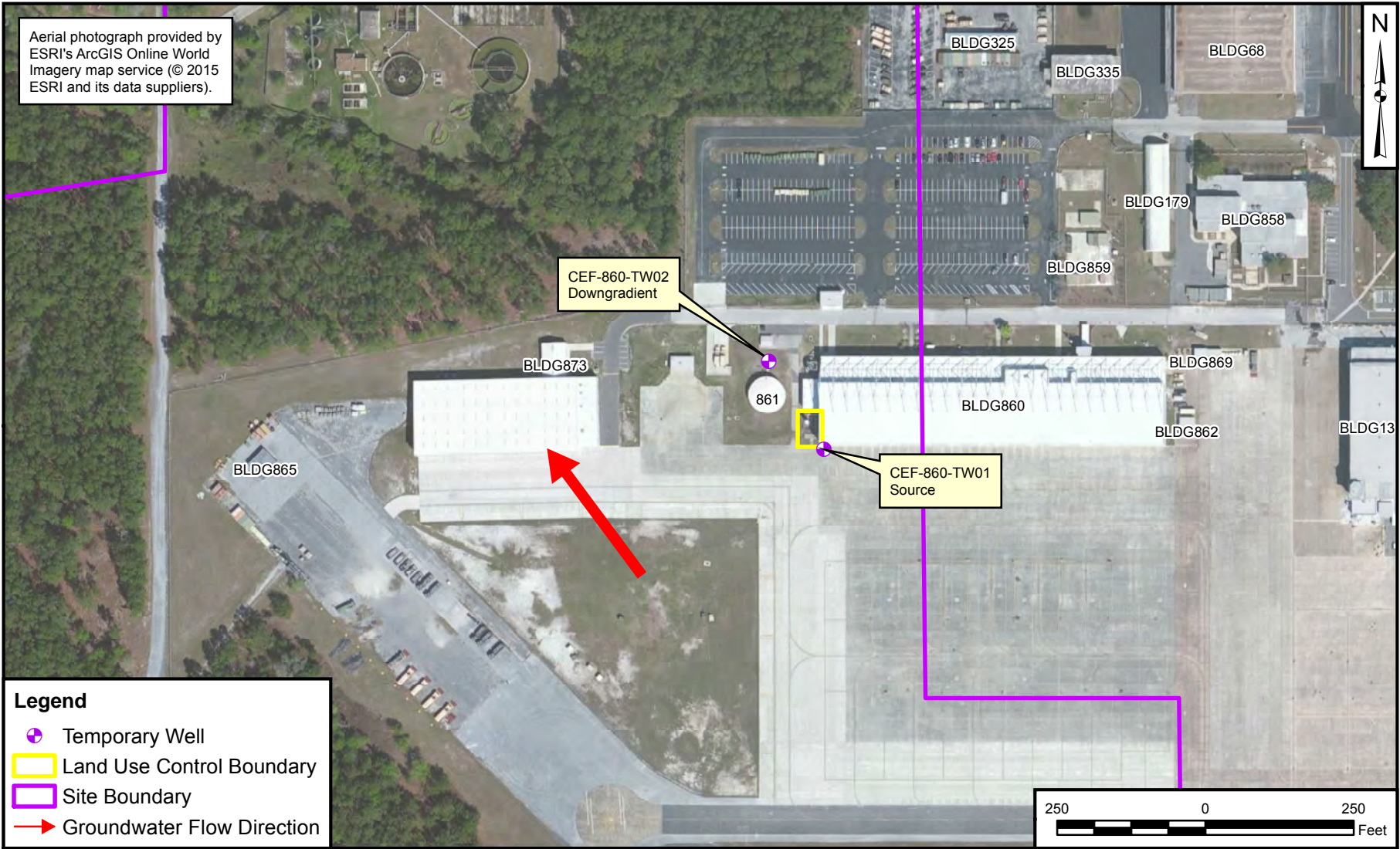
**Legend**

- 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	



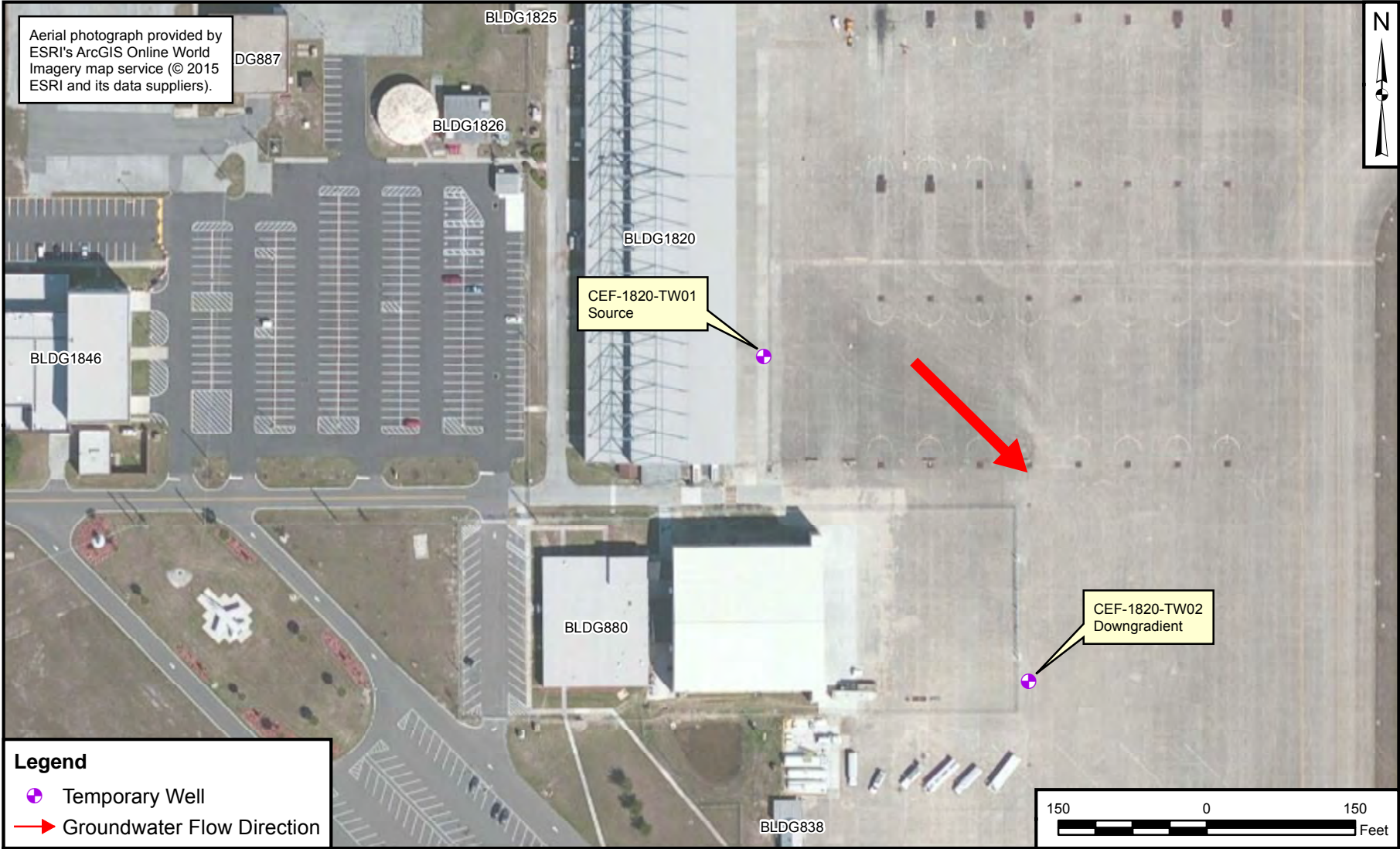
**Legend**

- 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	



**Legend**

- Temporary Well
- Groundwater Flow Direction

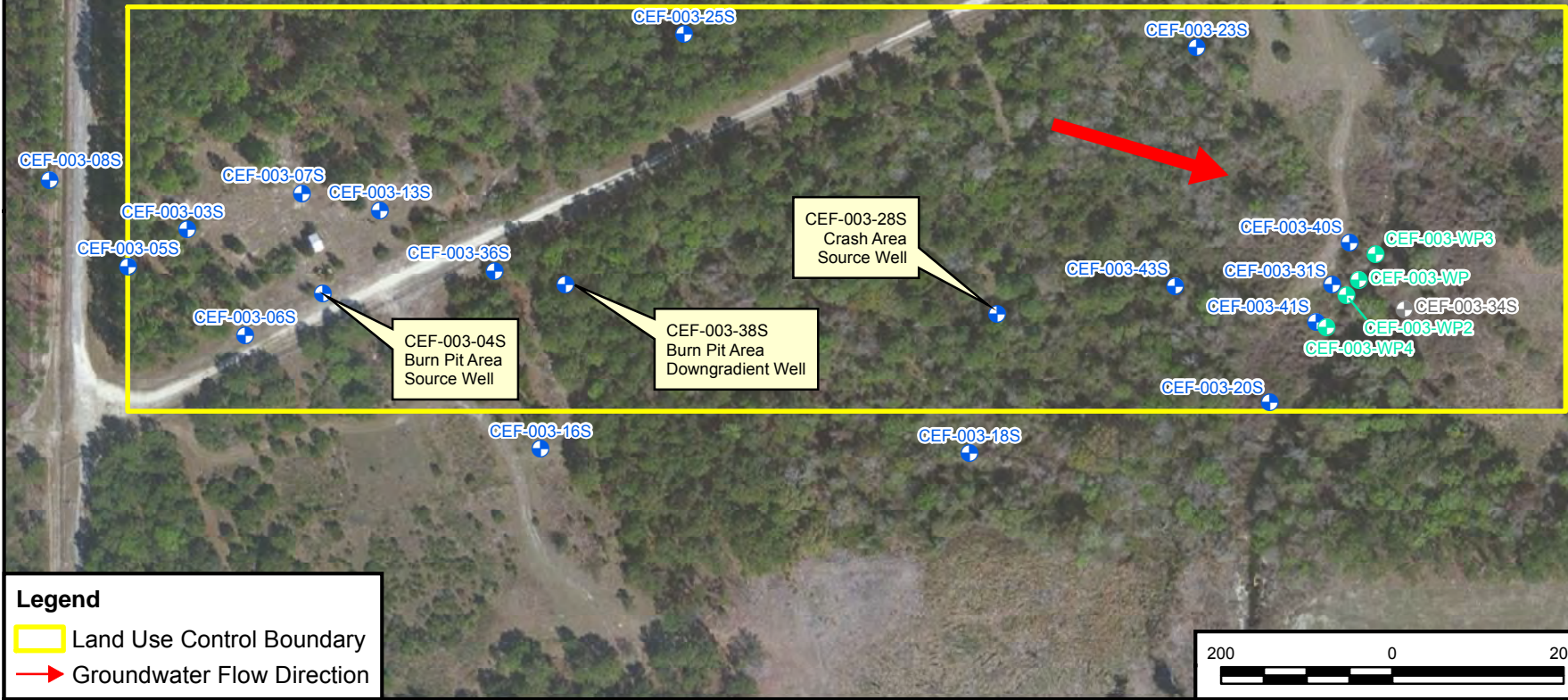


SITE LOCATION  
 BUILDING 1820  
 NAS CECIL FIELD  
 CECIL FIELD, FLORIDA

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

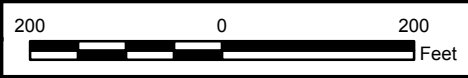


Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).



**Legend**

- Land Use Control Boundary
- ➔ Groundwater Flow Direction



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

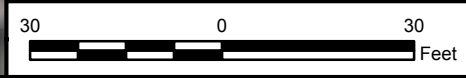
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-11	

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



**Legend**

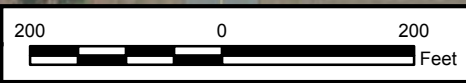
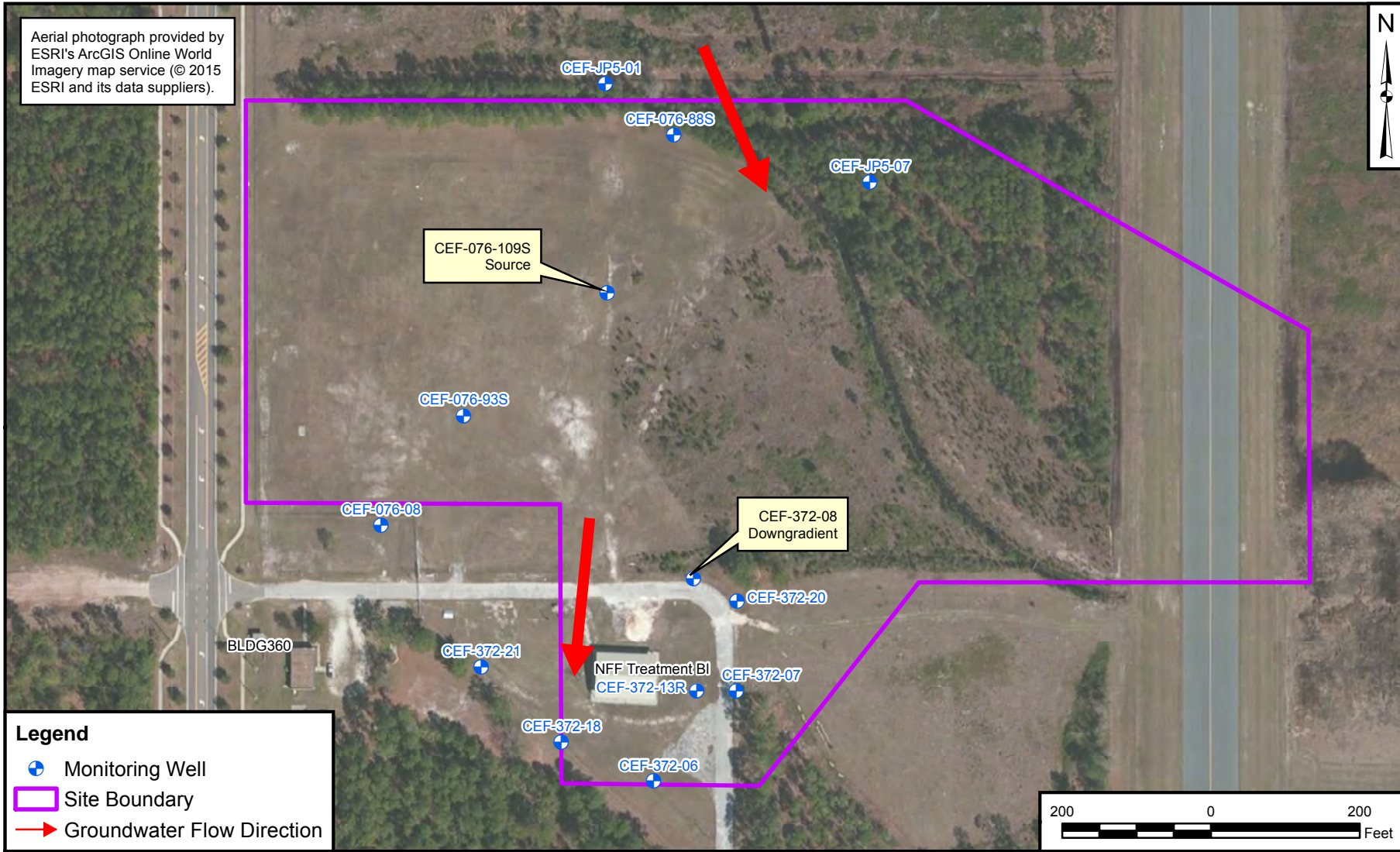
- Monitoring Well
- Groundwater Flow Direction



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**

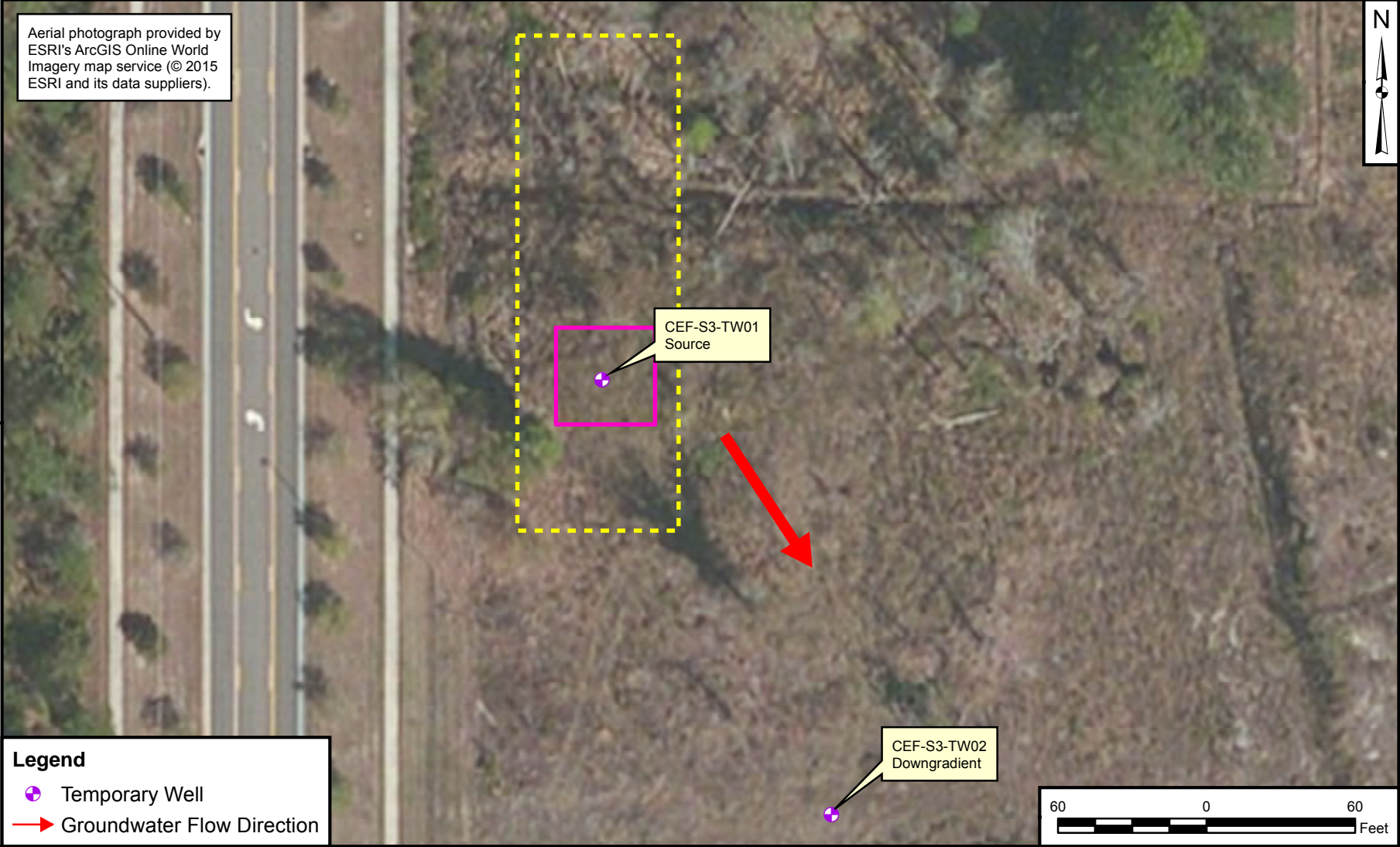
- Monitoring Well
- Site Boundary
- Groundwater Flow Direction



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

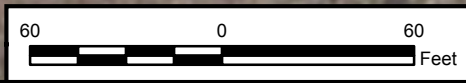
CTO JM10	
DRAWN BY	DATE
K. MOORE	02/21/17
CHECKED BY	DATE
T. JOHNSTON	03/27/17
FIGURE NUMBER 17-13	

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	