

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

*e-Hardcopy 2.0*  
*Automated Report*

## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC5258**

**Sampling Date: 04/13/23**



### Report to:

**AECOM, Inc**  
**7595 Technology Way**  
**Denver, CO 80237**  
**katie.abbott@aecom.com; mark.kromis@aecom.com;**  
**watson.tanji@aecom.com; kristin.rutherford@aecom.com**  
**ATTN: Katie Abbott**

**Total number of pages in report: 635**



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: Elvin Kumar 407-425-6700**

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

This report shall not be reproduced, except in its entirety, without the written approval of SGS.  
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:</b> FC5258-1: AF-RHMW225401-WGN01B-2304W2 .....	7
<b>4.2:</b> FC5258-2: AF-RHMW12A-WGN01LF-2304W2 .....	10
<b>4.3:</b> FC5258-3: AF-RHMW12A-WGFD01LF-2304W2 .....	13
<b>Section 5: Misc. Forms</b> .....	<b>16</b>
<b>5.1:</b> Chain of Custody .....	17
<b>5.2:</b> QC Evaluation: DOD QSM5.x Limits .....	20
<b>Section 6: MS Semi-volatiles - QC Data Summaries</b> .....	<b>21</b>
<b>6.1:</b> Method Blank Summary .....	22
<b>6.2:</b> Blank Spike Summary .....	30
<b>6.3:</b> Matrix Spike Summary .....	34
<b>6.4:</b> Duplicate Summary .....	36
<b>6.5:</b> Injection Standard Area Summaries .....	38
<b>6.6:</b> TDCA Retention Time Checks .....	40
<b>6.7:</b> Ion Ratio Summaries .....	42
<b>6.8:</b> Isotope Dilution Standard Recovery Summaries .....	44
<b>6.9:</b> Initial and Continuing Calibration Summaries .....	47
<b>6.10:</b> Run Sequence Reports .....	65
<b>Section 7: MS Semi-volatiles - Raw Data</b> .....	<b>67</b>
<b>7.1:</b> Samples .....	68
<b>7.2:</b> Method Blanks .....	105
<b>7.3:</b> Blank Spikes .....	153
<b>7.4:</b> Matrix Spikes .....	197
<b>7.5:</b> Duplicates .....	219
<b>7.6:</b> Retention Time Markers .....	231
<b>7.7:</b> Initial and Continuing Calibrations .....	257
<b>7.8:</b> Instrument Run Logs .....	589
<b>7.9:</b> Standard Prep Logs .....	591
<b>7.10:</b> Sample Prep Logs .....	635



### Sample Summary

AECOM, INC.

Job No: FC5258

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5258-1	04/13/23	09:00 NH	04/14/23	AQ	Ground Water	AF-RHMW225401-WGN01B-2304W2
FC5258-2	04/13/23	12:30 RS	04/14/23	AQ	Ground Water	AF-RHMW12A-WGN01LF-2304W2
FC5258-3	04/13/23	12:30 RS	04/14/23	AQ	Ground Water	AF-RHMW12A-WGFD01LF-2304W2

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC5258

**Site:** N6274223F0104 RH Fire Suppression System

**Report Date:** 4/21/2023 12:05:36 PM

On 04/14/2023, 3 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2.9 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5258 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### MS Semi-volatiles By Method EPA DRAFT 1633

**Matrix:** AQ

**Batch ID:** OP96450

Sample(s) FC5258-1MS, FC5258-2DUP, FC5258-1MS were used as the QC samples indicated.

Blank Spike Recovery(s) for 7:3 Fluorotelomer carboxylate are outside control limits.

FC5258-1 for 7:3 Fluorotelomer carboxylate: Associated BS and Low Level BS outside of control limits high, sample was ND.

FC5258-2 for 7:3 Fluorotelomer carboxylate: Associated BS and Low Level BS outside of control limits high, sample was ND.

FC5258-3 for 7:3 Fluorotelomer carboxylate: Associated BS and Low Level BS outside of control limits high, sample was ND.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

---

Kim Benham, Client Services (*Signature on File*)

# Summary of Hits

**Job Number:** FC5258  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 04/13/23



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method
FC5258-1	AF-RHMW225401-WGN01B-2304W2					
		Perfluoropentanoic acid	1.6 J	8.8	1.8	ng/l EPA DRAFT 1633
		Perfluorohexanoic acid	1.3 J	4.4	0.88	ng/l EPA DRAFT 1633
		Perfluoroheptanoic acid	0.94 J	4.4	0.88	ng/l EPA DRAFT 1633
		Perfluorooctanoic acid	1.1 J	4.4	0.88	ng/l EPA DRAFT 1633
		Perfluorobutanesulfonic acid	0.89 J	4.4	0.88	ng/l EPA DRAFT 1633
		Perfluorohexanesulfonic acid	1.4 J	4.4	1.8	ng/l EPA DRAFT 1633
		Perfluorooctanesulfonic acid	0.98 J	4.4	1.8	ng/l EPA DRAFT 1633
FC5258-2	AF-RHMW12A-WGN01LF-2304W2					
		Perfluorobutanoic acid	2.0 J	18	3.6	ng/l EPA DRAFT 1633
		Perfluoropentanoic acid	4.7 J	9.1	1.8	ng/l EPA DRAFT 1633
		Perfluorohexanoic acid	1.3 J	4.5	0.91	ng/l EPA DRAFT 1633
FC5258-3	AF-RHMW12A-WGFD01LF-2304W2					
		Perfluoropentanoic acid	4.5 J	9.4	1.9	ng/l EPA DRAFT 1633
		Perfluorohexanoic acid	1.3 J	4.7	0.94	ng/l EPA DRAFT 1633

**Sample Results**

---

**Report of Analysis**

---

SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW225401-WGN01B-2304W2		
Lab Sample ID:	FC5258-1	Date Sampled:	04/13/23
Matrix:	AQ - Ground Water	Date Received:	04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q13220.D	1	04/20/23 05:54	NG	04/18/23 10:00	OP96450	S5Q205
Run #2							

Run #	Initial Volume	Final Volume
Run #1	570 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	3.5 U	18	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.6	8.8	1.8	0.82	ng/l	J
307-24-4	Perfluorohexanoic acid	1.3	4.4	0.88	0.44	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.94	4.4	0.88	0.44	ng/l	J
335-67-1	Perfluorooctanoic acid	1.1	4.4	0.88	0.44	ng/l	J
375-95-1	Perfluorononanoic acid	1.8 U	4.4	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.4	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.4	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.88 U	4.4	0.88	0.44	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	0.89	4.4	0.88	0.44	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.4	4.4	1.8	0.61	ng/l	J
375-92-8	Perfluoroheptanesulfonic acid	0.88 U	4.4	0.88	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	0.98	4.4	1.8	0.47	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.4	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.4	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.0 U	18	7.0	2.8	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.0	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U	18	7.0	3.6	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.8 U	4.4	1.8	0.59	ng/l	
31506-32-8	MeFOSA	1.8 U	4.4	1.8	0.88	ng/l	
4151-50-2	EtFOSA	1.8 U	4.4	1.8	0.88	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW225401-WGN01B-2304W2		
Lab Sample ID:	FC5258-1	Date Sampled:	04/13/23
Matrix:	AQ - Ground Water	Date Received:	04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	3.5 U	4.4	3.5	0.88	ng/l	
2991-50-6	EtFOSAA	3.5 U	4.4	3.5	1.2	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	8.8 U	44	8.8	3.8	ng/l	
1691-99-2	EtFOSE	18 U	44	18	6.5	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	3.5 U	18	3.5	0.88	ng/l	
919005-14-4	ADONA	3.5 U	18	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	8.8	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	8.8	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	8.8	3.5	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	18	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	18	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	8.8	1.8	0.68	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	22	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylat <sup>a</sup>	18 U	110	18	6.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	111%		20-150%
	13C5-PFPeA	109%		20-150%
	13C5-PFHxA	108%		20-150%
	13C4-PFHpA	106%		20-150%
	13C8-PFOA	108%		20-150%
	13C9-PFNA	106%		20-150%
	13C6-PFDA	107%		20-150%
	13C7-PFUnDA	106%		20-150%
	13C2-PFDoDA	95%		20-150%
	13C2-PFTeDA	81%		20-150%
	13C3-PFBS	123%		20-150%
	13C3-PFHxS	107%		20-150%

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



## Report of Analysis

Client Sample ID:	AF-RHMW225401-WGN01B-2304W2	
Lab Sample ID:	FC5258-1	Date Sampled: 04/13/23
Matrix:	AQ - Ground Water	Date Received: 04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	99%		20-150%
	13C8-FOSA	104%		20-150%
	d3-MeFOSA	95%		20-150%
	d5-EtFOSA	90%		20-150%
	d3-MeFOSAA	106%		20-150%
	d5-EtFOSAA	118%		20-150%
	d7-MeFOSE	99%		20-150%
	d9-EtFOSE	87%		20-150%
	13C2-4:2FTS	132%		20-150%
	13C2-6:2FTS	109%		20-150%
	13C2-8:2FTS	105%		20-150%
	13C3-HFPO-DA	108%		20-150%

(a) Associated BS and Low Level BS outside of control limits high, sample was ND.

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

SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW12A-WGN01LF-2304W2		
Lab Sample ID:	FC5258-2	Date Sampled:	04/13/23
Matrix:	AQ - Ground Water	Date Received:	04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q13222.D	1	04/20/23 06:22	NG	04/18/23 10:00	OP96450	S5Q205
Run #2							

Run #	Initial Volume	Final Volume
Run #1	550 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	2.0	18	3.6	1.7	ng/l	J
2706-90-3	Perfluoropentanoic acid	4.7	9.1	1.8	0.85	ng/l	J
307-24-4	Perfluorohexanoic acid	1.3	4.5	0.91	0.45	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	4.5	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	4.5	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.91 U	4.5	0.91	0.45	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	4.5	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.91 U	4.5	0.91	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	4.5	1.8	0.49	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	4.5	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	4.5	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.8 U	4.5	1.8	0.61	ng/l	
31506-32-8	MeFOSA	1.8 U	4.5	1.8	0.91	ng/l	
4151-50-2	EtFOSA	1.8 U	4.5	1.8	0.91	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2304W2	
Lab Sample ID:	FC5258-2	Date Sampled: 04/13/23
Matrix:	AQ - Ground Water	Date Received: 04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

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

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	9.1 U	45	9.1	4.0	ng/l	
1691-99-2	EtFOSE	18 U	45	18	6.7	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	3.6 U	18	3.6	0.91	ng/l	
919005-14-4	ADONA	3.6 U	18	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	9.1	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	9.1	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	9.1	3.6	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	18	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	18	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	9.1	1.8	0.71	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	23	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	110	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylat <sup>a</sup>	18 U	110	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	108%		20-150%
	13C5-PFPeA	111%		20-150%
	13C5-PFHxA	109%		20-150%
	13C4-PFHpA	109%		20-150%
	13C8-PFOA	107%		20-150%
	13C9-PFNA	103%		20-150%
	13C6-PFDA	95%		20-150%
	13C7-PFUnDA	93%		20-150%
	13C2-PFDoDA	83%		20-150%
	13C2-PFTeDA	75%		20-150%
	13C3-PFBS	113%		20-150%
	13C3-PFHxS	102%		20-150%

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

## Report of Analysis

Client Sample ID:	AF-RHMW12A-WGN01LF-2304W2		
Lab Sample ID:	FC5258-2	Date Sampled:	04/13/23
Matrix:	AQ - Ground Water	Date Received:	04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%		20-150%
	13C8-FOSA	100%		20-150%
	d3-MeFOSA	94%		20-150%
	d5-EtFOSA	94%		20-150%
	d3-MeFOSAA	104%		20-150%
	d5-EtFOSAA	117%		20-150%
	d7-MeFOSE	91%		20-150%
	d9-EtFOSE	88%		20-150%
	13C2-4:2FTS	117%		20-150%
	13C2-6:2FTS	115%		20-150%
	13C2-8:2FTS	93%		20-150%
	13C3-HFPO-DA	111%		20-150%

(a) Associated BS and Low Level BS outside of control limits high, sample was ND.

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

SGS North America Inc.

## Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW12A-WGFD01LF-2304W2		
Lab Sample ID:	FC5258-3	Date Sampled:	04/13/23
Matrix:	AQ - Ground Water	Date Received:	04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5Q13224.D	1	04/20/23 06:51	NG	04/18/23 10:00	OP96450	S5Q205
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	3.8 U	19	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	4.5	9.4	1.9	0.89	ng/l	J
307-24-4	Perfluorohexanoic acid	1.3	4.7	0.94	0.47	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	4.7	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	4.7	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	4.7	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	0.94 U	4.7	0.94	0.47	ng/l	
<b>PERFLUOROALKYL SULFONIC ACIDS</b>							
375-73-5	Perfluorobutanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	4.7	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	0.94 U	4.7	0.94	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	4.7	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	4.7	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	4.7	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	
<b>FLUOROTELOMER SULFONIC ACIDS</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	
<b>PERFLUOROOCCTANE SULFONAMIDES</b>							
754-91-6	PFOSA	1.9 U	4.7	1.9	0.63	ng/l	
31506-32-8	MeFOSA	1.9 U	4.7	1.9	0.94	ng/l	
4151-50-2	EtFOSA	1.9 U	4.7	1.9	0.94	ng/l	

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2304W2		
Lab Sample ID:	FC5258-3	Date Sampled:	04/13/23
Matrix:	AQ - Ground Water	Date Received:	04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

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

**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	9.4 U	47	9.4	4.1	ng/l	
1691-99-2	EtFOSE	19 U	47	19	7.0	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	3.8 U	19	3.8	0.94	ng/l	
919005-14-4	ADONA	3.8 U	19	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	9.4	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	9.4	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	9.4	3.8	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	19	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	19	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	9.4	1.9	0.74	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	24	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	120	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylat <sup>a</sup>	19 U	120	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
---------	------------------------	--------	--------	--------

13C4-PFBA	110%			20-150%
13C5-PFPeA	119%			20-150%
13C5-PFHxA	114%			20-150%
13C4-PFHpA	111%			20-150%
13C8-PFOA	109%			20-150%
13C9-PFNA	107%			20-150%
13C6-PFDA	102%			20-150%
13C7-PFUnDA	102%			20-150%
13C2-PFDoDA	93%			20-150%
13C2-PFTeDA	82%			20-150%
13C3-PFBS	116%			20-150%
13C3-PFHxS	118%			20-150%

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

## Report of Analysis

Client Sample ID:	AF-RHMW12A-WGFD01LF-2304W2	
Lab Sample ID:	FC5258-3	Date Sampled: 04/13/23
Matrix:	AQ - Ground Water	Date Received: 04/14/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	101%		20-150%
	13C8-FOSA	105%		20-150%
	d3-MeFOSA	105%		20-150%
	d5-EtFOSA	107%		20-150%
	d3-MeFOSAA	112%		20-150%
	d5-EtFOSAA	129%		20-150%
	d7-MeFOSE	100%		20-150%
	d9-EtFOSE	99%		20-150%
	13C2-4:2FTS	108%		20-150%
	13C2-6:2FTS	105%		20-150%
	13C2-8:2FTS	115%		20-150%
	13C3-HFPO-DA	116%		20-150%

(a) Associated BS and Low Level BS outside of control limits high, sample was ND.

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

**Misc. Forms**

**Custody Documents and Other Forms**

---

**Includes the following where applicable:**

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits







SGS North America Inc - Orlando  
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811  
TEL: 407-425-6700 FAX: 407-425-0707  
www.sgs.com

**FC5258**  
SGS - ORLANDO JOB #

COC #: 2304W2AFSG05

PAGE 1 OF 1

Client / Reporting Information		Project Information		Analytical Information												Matrix Codes	
Company Name: AECOM		Project Name: N6274223F0104 RH Fire Suppression System		<div style="position: relative; height: 100px;"> <span style="position: absolute; top: 10px; left: 10px; font-size: 2em;">AW</span> <span style="position: absolute; top: 50px; left: 10px; font-size: 2em;">4/13/23</span> </div>												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe	
Address: 1001 Bishop St. Ste 1600		Street															
City: Honolulu State: HI Zip: 96813		City: Honolulu State: Hawaii															
Project Contact: Katie Abbott Email: katie.abbott@aecom.com		Project # 60697810															
Project Manager: Watson Tanji Email: watson.tanji@aecom.com		Fax #		PFAS EPA Draft 1633													
Phone #: 303-796-4624 / 808-954-4512		Client Purchase Order #															
Sampler(s) Name(s) (Printed)		LAB USE ONLY															
Sampler 1: <i>Ryan S. Williams</i>																	
Sampler 2:																	
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION											PFAS EPA Draft 1633	LAB USE ONLY
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH-ZnAc	DI WATER	MECH		
2	AF-RHMW12A-WGN01LF-2304W2	4/13/23	1230	CP	GW	3		X								X	
1	AF-RHMW12A-WGFD01LF-2304W2	4/13/23	1230	CP	GW	3		X								X	
		AW 4/13/23															
Turnaround Time ( Business days)				Data Deliverable Information								Comments / Remarks					
10 Day (Business)		Approved By: / Date:		<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S								EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW  United AWB 016-13645903					
7 Day																	
5 Day																	
3 Day RUSH																	
2 Day RUSH																	
1 Day RUSH																	
Other																	
Rush T/A Data Available VIA Email or Lablink				Sample Custody must be documented below each time samples change possession, including courier delivery.													
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation				Relinquished By/Affiliation				Date Time:		Received By/Affiliation			
1 Ryan S. Williams / AECOM		4/13/23 1536		2 <i>[Signature]</i> AECOM				3 <i>[Signature]</i> AECOM				4/13/23 1500		4 <i>[Signature]</i>			
Relinquished by/Affiliation		Date Time:		Received By/Affiliation				Relinquished By/Affiliation				Date Time:		Received By/Affiliation			
5				6				7				8					
Lab Use Only: Cooler Temperature (s) Celsius (corrected):				<a href="http://www.sgs.com/en/terms-and-conditions">http://www.sgs.com/en/terms-and-conditions</a>													

PFAS\_COCs\_ALL.xls Rev 031318

FC5258: Chain of Custody

Page 2 of 3



## SGS Sample Receipt Summary

Job Number: FC5258

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 4/14/2023 3:30:00 PM

Delivery Method: United Cargo/Airspace

Airbill #'s: United Cargo AWB #: 016-13645903

Therm ID: IR 1;

Therm CF: -0.1;

# of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.0);

Cooler Temps (Corrected) °C: Cooler 1: (2.9);

**Cooler Information**

Y or N

- |                             |                                     |                          |
|-----------------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact     | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Temp criteria achieved   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Cooler temp verification | IR Gun                              |                          |
| 5. Cooler media             | Ice (Bag)                           |                          |

**Sample Information**

Y or N    N/A

- |   |                                     |                                     |                                     |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Sample labels present on bottles                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 2. Samples preserved properly                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 3. Sufficient volume/containers recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 4. Condition of sample                              | Intact                              |                                     |                                     |
| 5. Sample recvd within HT                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 6. Dates/Times/IDs on COC match Sample Label        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 7. VOCs have headspace                              | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 8. Bottles received for unspecified tests           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                                     |
| 9. Compositing instructions clear                   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 10. Voa Soil Kits/Jars received past 48hrs?         | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11. % Solids Jar received?                          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12. Residual Chlorine Present?                      | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**Trip Blank Information**

Y or N    N/A

- |                                |                          |                          |                                     |
|--------------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

W or S    N/A

- |                        |                          |                          |                                     |
|------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Type Of TB Received | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|------------------------|--------------------------|--------------------------|-------------------------------------|

**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 \_\_\_\_\_ 230320 \_\_\_\_\_

pH 10-12 \_\_\_\_\_ 25BDH07 \_\_\_\_\_

Other: (Specify) pH 1.0 - 12.0 \_\_\_\_\_ 222221 \_\_\_\_\_

Residual Chlorine Test Strip Lot #: \_\_\_\_\_

Comments

SM001  
Rev. Date 05/24/17

Technician: NATHANS

Date: 4/14/2023 3:30:00 PM

Reviewer: CD

Date: 4/17/2023

FC5258: Chain of Custody

Page 3 of 3

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FC5258  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 04/13/23

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

No DOD QSM5.x Limits found for methods in this job.

---

\* Sample used for QC is not from job FC5258

5.2  
5

## MS Semi-volatiles

---

## QC Data Summaries

---

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Injection Standard Area Summaries
- TDCA Retention Time Checks
- Ion Ratio Summaries
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

**Instrument Blank**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S5Q205-IBLK	5Q13182.D	1	04/19/23	NG	n/a	n/a	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

# Instrument Blank

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S5Q205-IBLK	5Q13182.D	1	04/19/23	NG	n/a	n/a	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	0.0281	0.13	0.0079	ug/l	J

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 20-150%
	13C5-PFPeA	102% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	99% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	104% 20-150%
	13C6-PFDA	102% 20-150%
	13C7-PFUnDA	102% 20-150%
	13C2-PFDoDA	101% 20-150%
	13C2-PFTeDA	96% 20-150%
	13C3-PFBS	100% 20-150%
	13C3-PFHxS	97% 20-150%
	13C8-PFOS	106% 20-150%
	13C8-FOSA	103% 20-150%
	d3-MeFOSA	97% 20-150%
	d5-EtFOSA	104% 20-150%
	d3-MeFOSAA	103% 20-150%
	d5-EtFOSAA	118% 20-150%
	d7-MeFOSE	102% 20-150%
	d9-EtFOSE	99% 20-150%
	13C2-4:2FTS	105% 20-150%
	13C2-6:2FTS	110% 20-150%
	13C2-8:2FTS	102% 20-150%
	13C3-HFPO-DA	100% 20-150%

6.1.1  
6

## Continuing Calibration Blank

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S5Q205-ICCB	5Q13216.D	1	04/20/23	NG	n/a	n/a	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	



# Continuing Calibration Blank

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S5Q205-ICCB	5Q13216.D	1	04/20/23	NG	n/a	n/a	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	103% 20-150%
	13C4-PFHpA	103% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	97% 20-150%
	13C6-PFDA	100% 20-150%
	13C7-PFUnDA	100% 20-150%
	13C2-PFDoDA	97% 20-150%
	13C2-PFTeDA	93% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	100% 20-150%
	13C8-PFOS	102% 20-150%
	13C8-FOSA	102% 20-150%
	d3-MeFOSA	101% 20-150%
	d5-EtFOSA	105% 20-150%
	d3-MeFOSAA	110% 20-150%
	d5-EtFOSAA	131% 20-150%
	d7-MeFOSE	100% 20-150%
	d9-EtFOSE	100% 20-150%
	13C2-4:2FTS	108% 20-150%
	13C2-6:2FTS	108% 20-150%
	13C2-8:2FTS	98% 20-150%
	13C3-HFPO-DA	105% 20-150%

## Continuing Calibration Blank

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S5Q205-ICCB	5Q13226.D	1	04/20/23	NG	n/a	n/a	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

# Continuing Calibration Blank

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S5Q205-ICCB	5Q13226.D	1	04/20/23	NG	n/a	n/a	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	99% 20-150%
	13C9-PFNA	100% 20-150%
	13C6-PFDA	104% 20-150%
	13C7-PFUnDA	103% 20-150%
	13C2-PFDoDA	98% 20-150%
	13C2-PFTeDA	93% 20-150%
	13C3-PFBS	96% 20-150%
	13C3-PFHxS	100% 20-150%
	13C8-PFOS	102% 20-150%
	13C8-FOSA	102% 20-150%
	d3-MeFOSAA	112% 20-150%
	d5-EtFOSAA	129% 20-150%
	13C2-4:2FTS	110% 20-150%
	13C2-6:2FTS	115% 20-150%
	13C2-8:2FTS	108% 20-150%

## Method Blank Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-MB	5Q13219.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.020	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.010	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0050	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0050	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0050	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0050	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0050	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0050	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0050	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0050	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0050	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0050	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0050	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0050	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0050	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0050	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0050	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0050	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0050	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0050	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.050	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.050	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.020	0.0010	ug/l	
919005-14-4	ADONA	ND	0.020	0.0019	ug/l	
377-73-1	PFMPA	ND	0.010	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.010	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.010	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.020	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.020	0.0018	ug/l	

# Method Blank Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-MB	5Q13219.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.010	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.025	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.13	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.13	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	121% 20-150%
	13C5-PFPeA	122% 20-150%
	13C5-PFHxA	121% 20-150%
	13C4-PFHpA	121% 20-150%
	13C8-PFOA	121% 20-150%
	13C9-PFNA	117% 20-150%
	13C6-PFDA	119% 20-150%
	13C7-PFUnDA	120% 20-150%
	13C2-PFDoDA	107% 20-150%
	13C2-PFTeDA	90% 20-150%
	13C3-PFBS	123% 20-150%
	13C3-PFHxS	117% 20-150%
	13C8-PFOS	118% 20-150%
	13C8-FOSA	111% 20-150%
	d3-MeFOSA	104% 20-150%
	d5-EtFOSA	104% 20-150%
	d3-MeFOSAA	123% 20-150%
	d5-EtFOSAA	111% 20-150%
	d7-MeFOSE	106% 20-150%
	d9-EtFOSE	104% 20-150%
	13C2-4:2FTS	146% 20-150%
	13C2-6:2FTS	129% 20-150%
	13C2-8:2FTS	120% 20-150%
	13C3-HFPO-DA	122% 20-150%

**Blank Spike Summary**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-LLBS	5Q13218.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0271	90	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0140	93	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0072	96	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0067	89	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0067	89	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0090	120	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0068	91	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0068	91	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0070	93	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0064	85	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0076	101	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0067	101	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0064	91	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0064	93	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0073	102	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0069	99	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0070	97	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0064	88	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0055	76	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0262	93	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0286	100	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0275	95	40-150
754-91-6	PFOSA	0.0075	0.0074	99	40-150
31506-32-8	MeFOSA	0.015	0.0168	112	40-150
4151-50-2	EtFOSA	0.015	0.0159	106	40-150
2355-31-9	MeFOSAA	0.0075	0.0065	87	40-150
2991-50-6	EtFOSAA	0.0075	0.0066	88	40-150
24448-09-7	MeFOSE	0.0375	0.0391	104	40-150
1691-99-2	EtFOSE	0.0375	0.0390	104	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0168	112	40-150
919005-14-4	ADONA	0.0142	0.0158	111	40-150
377-73-1	PFMPA	0.015	0.0188	125	40-150
863090-89-5	PFMBA	0.015	0.0165	110	40-150
151772-58-6	NFDHA	0.015	0.0183	122	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0157	112	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0133	94	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-LLBS	5Q13218.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0150	112	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0383	102	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.204	109	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.333	178*	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	117%	20-150%
	13C5-PFPeA	116%	20-150%
	13C5-PFHxA	114%	20-150%
	13C4-PFHpA	112%	20-150%
	13C8-PFOA	117%	20-150%
	13C9-PFNA	117%	20-150%
	13C6-PFDA	120%	20-150%
	13C7-PFUnDA	117%	20-150%
	13C2-PFDoDA	104%	20-150%
	13C2-PFTeDA	85%	20-150%
	13C3-PFBS	117%	20-150%
	13C3-PFHxS	113%	20-150%
	13C8-PFOS	113%	20-150%
	13C8-FOSA	113%	20-150%
	d3-MeFOSA	105%	20-150%
	d5-EtFOSA	103%	20-150%
	d3-MeFOSAA	124%	20-150%
	d5-EtFOSAA	142%	20-150%
	d7-MeFOSE	98%	20-150%
	d9-EtFOSE	96%	20-150%
	13C2-4:2FTS	142%	20-150%
	13C2-6:2FTS	124%	20-150%
	13C2-8:2FTS	121%	20-150%
	13C3-HFPO-DA	116%	20-150%

\* = Outside of Control Limits.

**Blank Spike Summary**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-BS	5Q13217.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0969	97	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0479	96	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0235	94	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0250	100	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0242	97	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0248	99	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0240	96	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0249	100	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0247	99	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0243	97	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0236	94	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0221	100	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0236	100	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0219	96	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0244	102	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0232	100	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0270	112	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0244	101	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0232	96	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0991	106	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0858	90	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0954	99	40-150
754-91-6	PFOSA	0.025	0.0246	98	40-150
31506-32-8	MeFOSA	0.05	0.0570	114	40-150
4151-50-2	EtFOSA	0.05	0.0564	113	40-150
2355-31-9	MeFOSAA	0.025	0.0243	97	40-150
2991-50-6	EtFOSAA	0.025	0.0243	97	40-150
24448-09-7	MeFOSE	0.125	0.136	109	40-150
1691-99-2	EtFOSE	0.125	0.140	112	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0579	116	40-150
919005-14-4	ADONA	0.0473	0.0548	116	40-150
377-73-1	PFMPA	0.05	0.0479	96	40-150
863090-89-5	PFMBA	0.05	0.0571	114	40-150
151772-58-6	NFDHA	0.05	0.0607	121	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0545	117	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0535	113	40-150

\* = Outside of Control Limits.



# Blank Spike Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-BS	5Q13217.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0520	117	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.123	98	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.710	114	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.953	152*	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	36%	20-150%
	13C5-PFPeA	117%	20-150%
	13C5-PFHxA	115%	20-150%
	13C4-PFHpA	112%	20-150%
	13C8-PFOA	111%	20-150%
	13C9-PFNA	114%	20-150%
	13C6-PFDA	109%	20-150%
	13C7-PFUnDA	107%	20-150%
	13C2-PFDoDA	106%	20-150%
	13C2-PFTeDA	94%	20-150%
	13C3-PFBS	118%	20-150%
	13C3-PFHxS	111%	20-150%
	13C8-PFOS	106%	20-150%
	13C8-FOSA	110%	20-150%
	d3-MeFOSA	112%	20-150%
	d5-EtFOSA	107%	20-150%
	d3-MeFOSAA	122%	20-150%
	d5-EtFOSAA	130%	20-150%
	d7-MeFOSE	105%	20-150%
	d9-EtFOSE	105%	20-150%
	13C2-4:2FTS	123%	20-150%
	13C2-6:2FTS	127%	20-150%
	13C2-8:2FTS	108%	20-150%
	13C3-HFPO-DA	116%	20-150%

\* = Outside of Control Limits.

## Matrix Spike Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-MS	5Q13221.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205
FC5258-1	5Q13220.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	FC5258-1 ug/l	Spike Q	MS ug/l	MS %	Limits	
375-22-4	Perfluorobutanoic acid	0.018 U		0.0943	0.0873	93	40-150
2706-90-3	Perfluoropentanoic acid	0.0016 J		0.0472	0.0455	93	40-150
307-24-4	Perfluorohexanoic acid	0.0013 J		0.0236	0.0234	94	40-150
375-85-9	Perfluoroheptanoic acid	0.00094 J		0.0236	0.0231	94	40-150
335-67-1	Perfluorooctanoic acid	0.0011 J		0.0236	0.0229	92	40-150
375-95-1	Perfluorononanoic acid	0.0044 U		0.0236	0.0228	97	40-150
335-76-2	Perfluorodecanoic acid	0.0044 U		0.0236	0.0224	95	40-150
2058-94-8	Perfluoroundecanoic acid	0.0044 U		0.0236	0.0231	98	40-150
307-55-1	Perfluorododecanoic acid	0.0044 U		0.0236	0.0226	96	40-150
72629-94-8	Perfluorotridecanoic acid	0.0044 U		0.0236	0.0215	91	40-150
376-06-7	Perfluorotetradecanoic acid	0.0044 U		0.0236	0.0225	95	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00089 J		0.0209	0.0199	91	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0044 U		0.0222	0.0202	91	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0014 J		0.0216	0.0223	97	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0044 U		0.0225	0.0226	101	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00098 J		0.0219	0.0228	100	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0044 U		0.0227	0.0230	101	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0044 U		0.0228	0.0217	95	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0044 U		0.0229	0.0201	88	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U		0.0884	0.0831	94	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U		0.0896	0.0930	104	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U		0.0906	0.0890	98	40-150
754-91-6	PFOSA	0.0044 U		0.0236	0.0219	93	40-150
31506-32-8	MeFOSA	0.0044 U		0.0472	0.0533	113	40-150
4151-50-2	EtFOSA	0.0044 U		0.0472	0.0524	111	40-150
2355-31-9	MeFOSAA	0.0044 U		0.0236	0.0218	92	40-150
2991-50-6	EtFOSAA	0.0044 U		0.0236	0.0224	95	40-150
24448-09-7	MeFOSE	0.044 U		0.118	0.126	107	40-150
1691-99-2	EtFOSE	0.044 U		0.118	0.128	109	40-150
13252-13-6	HFPO-DA (GenX)	0.018 U		0.0472	0.0538	114	40-150
919005-14-4	ADONA	0.018 U		0.0446	0.0514	115	40-150
377-73-1	PFMPA	0.0088 U		0.0472	0.0572	121	40-150
863090-89-5	PFMBA	0.0088 U		0.0472	0.0535	113	40-150
151772-58-6	NFDHA	0.0088 U		0.0472	0.0518	110	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018 U		0.0441	0.0500	113	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018 U		0.0446	0.0466	105	40-150

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-MS	5Q13221.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205
FC5258-1	5Q13220.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	FC5258-1 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0088 U	0.042	0.0468	111	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.022 U	0.118	0.125	106	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.11 U	0.59	0.673	114	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.11 U	0.59	0.667	113	40-150

CAS No.	ID Standard Recoveries	MS	FC5258-1	Limits
	13C4-PFBA	114%	111%	20-150%
	13C5-PFPeA	116%	109%	20-150%
	13C5-PFHxA	113%	108%	20-150%
	13C4-PFHpA	112%	106%	20-150%
	13C8-PFOA	114%	108%	20-150%
	13C9-PFNA	112%	106%	20-150%
	13C6-PFDA	109%	107%	20-150%
	13C7-PFUnDA	116%	106%	20-150%
	13C2-PFDoDA	109%	95%	20-150%
	13C2-PFTeDA	92%	81%	20-150%
	13C3-PFBS	134%	123%	20-150%
	13C3-PFHxS	113%	107%	20-150%
	13C8-PFOS	102%	99%	20-150%
	13C8-FOSA	108%	104%	20-150%
	d3-MeFOSA	98%	95%	20-150%
	d5-EtFOSA	96%	90%	20-150%
	d3-MeFOSAA	132%	106%	20-150%
	d5-EtFOSAA	139%	118%	20-150%
	d7-MeFOSE	107%	99%	20-150%
	d9-EtFOSE	97%	87%	20-150%
	13C2-4:2FTS	155%* a	132%	20-150%
	13C2-6:2FTS	126%	109%	20-150%
	13C2-8:2FTS	122%	105%	20-150%
	13C3-HFPO-DA	111%	108%	20-150%

(a) Outside control limits.

\* = Outside of Control Limits.

**Duplicate Summary**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-DUP	5Q13223.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205
FC5258-2	5Q13222.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	FC5258-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0020	J	0.0020	J	0	30
2706-90-3	Perfluoropentanoic acid	0.0047	J	0.0044	J	7	30
307-24-4	Perfluorohexanoic acid	0.0013	J	0.0012	J	8	30
375-85-9	Perfluoroheptanoic acid	0.0045	U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0045	U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0045	U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0045	U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0045	U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0045	U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0045	U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0045	U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0045	U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0045	U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0045	U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0045	U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0045	U	ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0045	U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0045	U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0045	U	ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.018	U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.018	U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.018	U	ND		nc	30
754-91-6	PFOSA	0.0045	U	ND		nc	30
31506-32-8	MeFOSA	0.0045	U	ND		nc	30
4151-50-2	EtFOSA	0.0045	U	ND		nc	30
2355-31-9	MeFOSAA	0.0045	U	ND		nc	30
2991-50-6	EtFOSAA	0.0045	U	ND		nc	30
24448-09-7	MeFOSE	0.045	U	ND		nc	30
1691-99-2	EtFOSE	0.045	U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.018	U	ND		nc	30
919005-14-4	ADONA	0.018	U	ND		nc	30
377-73-1	PFMPA	0.0091	U	ND		nc	30
863090-89-5	PFMBA	0.0091	U	ND		nc	30
151772-58-6	NFDHA	0.0091	U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.018	U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.018	U	ND		nc	30

\* = Outside of Control Limits.

# Duplicate Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96450-DUP	5Q13223.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205
FC5258-2	5Q13222.D	1	04/20/23	NG	04/18/23	OP96450	S5Q205

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5258-1, FC5258-2, FC5258-3

CAS No.	Compound	FC5258-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0091	U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.023	U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.11	U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.11	U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC5258-2	Limits
	13C4-PFBA	117%	108%	20-150%
	13C5-PFPeA	122%	111%	20-150%
	13C5-PFHxA	116%	109%	20-150%
	13C4-PFHpA	115%	109%	20-150%
	13C8-PFOA	114%	107%	20-150%
	13C9-PFNA	113%	103%	20-150%
	13C6-PFDA	104%	95%	20-150%
	13C7-PFUnDA	99%	93%	20-150%
	13C2-PFDoDA	89%	83%	20-150%
	13C2-PFTeDA	77%	75%	20-150%
	13C3-PFBS	119%	113%	20-150%
	13C3-PFHxS	112%	102%	20-150%
	13C8-PFOS	104%	96%	20-150%
	13C8-FOSA	110%	100%	20-150%
	d3-MeFOSA	105%	94%	20-150%
	d5-EtFOSA	102%	94%	20-150%
	d3-MeFOSAA	111%	104%	20-150%
	d5-EtFOSAA	120%	117%	20-150%
	d7-MeFOSE	96%	91%	20-150%
	d9-EtFOSE	92%	88%	20-150%
	13C2-4:2FTS	131%	117%	20-150%
	13C2-6:2FTS	113%	115%	20-150%
	13C2-8:2FTS	105%	93%	20-150%
	13C3-HFPO-DA	120%	111%	20-150%

\* = Outside of Control Limits.

# Injection Standard Area Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S5Q205-CC205	Injection Date:	04/20/23
Lab File ID:	5Q13214.D	Injection Time:	04:28
Instrument ID:	GCMS5Q	Method:	EPA DRAFT 1633

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Initial Cal <sup>b</sup>	31226	2.77	42803	5.31	57752	6.97	20600	7.54	18963	8.08
Check Std <sup>c</sup>	34634	2.75	45523	5.29	62268	6.95	22221	7.52	20647	8.04
Upper Limit <sup>d</sup>	62452	3.15	85606	5.69	115504	7.35	41200	7.92	37926	8.44
Lower Limit <sup>e</sup>	9368	2.35	12841	4.89	17326	6.55	6180	7.12	5689	7.64

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF <sup>a</sup>
S5Q205-ICCB	32353	2.75	42344	5.29	59067	6.94	21790	7.51	19309	8.04	1
OP96450-BS	25105	2.75	30104	5.29	41708	6.95	15114	7.52	13898	8.05	1
OP96450-LLBS	25362	2.77	31464	5.30	40960	6.95	15156	7.52	13575	8.04	1
OP96450-MB	25433	2.77	30331	5.30	40408	6.95	14816	7.52	13276	8.04	1
FC5258-1	28900	2.77	31884	5.30	42728	6.95	15944	7.52	14118	8.05	1
OP96450-MS	31233	2.77	33527	5.29	46040	6.95	17229	7.52	16201	8.04	1
FC5258-2	26380	2.77	30985	5.29	41776	6.95	15414	7.52	13567	8.04	1
OP96450-DUP	26729	2.77	31191	5.29	42096	6.95	15309	7.52	14046	8.04	1
FC5258-3	26667	2.77	30826	5.29	43227	6.94	15477	7.52	14439	8.04	1
S5Q205-ECC205	34746	2.75	46331	5.29	62315	6.94	22584	7.51	20585	8.04	1

- IS 1 = 13C3-PFBA
- IS 2 = 13C2-PFHxA
- IS 3 = 13C4-PFOA
- IS 4 = 13C5-PFNA
- IS 5 = 13C2-PFDA

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S5Q205-ICC205 5Q13177.D 04/19/23 19:38. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

6.5.1  
6

# Injection Standard Area Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S5Q205-CC205	Injection Date:	04/20/23
Lab File ID:	5Q13214.D	Injection Time:	04:28
Instrument ID:	GCMS5Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal <sup>b</sup>	4914	7.10	10210	8.27
Check Std <sup>c</sup>	5108	7.08	10453	8.23
Upper Limit <sup>d</sup>	9828	7.48	20420	8.63
Lower Limit <sup>e</sup>	1474	6.68	3063	7.83

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF <sup>a</sup>
S5Q205-ICCB	4998	7.06	9731	8.23	1
OP96450-BS	3531	7.08	7121	8.23	1
OP96450-LLBS	3460	7.08	7119	8.23	1
OP96450-MB	3463	7.08	6923	8.23	1
FC5258-1	3642	7.08	7606	8.23	1
OP96450-MS	3708	7.08	8157	8.23	1
FC5258-2	3694	7.08	7092	8.23	1
OP96450-DUP	3720	7.08	7153	8.23	1
FC5258-3	3623	7.08	7293	8.23	1
S5Q205-ECC205	5223	7.06	10418	8.23	1

IS 6 = 18O2-PFHXS  
 IS 7 = 13C4-PFOS

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S5Q205-ICC205 5Q13177.D 04/19/23 19:38. Area is AVERAGE of initial cal points.
- (c) Check Std Limit = -70 to +100% of initial cal area.
- (d) Upper Limit = +100% of initial standard area; Retention time +0.4 minutes of check standard.
- (e) Lower Limit = -70% of initial standard area; Retention time -0.4 minutes of check standard.

**TDCA Retention Time Check**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S5Q205-RT	Injection Date:	04/19/23
Lab File ID:	5Q13150.D	Injection Time:	13:07
Instrument ID:	GCMS5Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.356	--	--
TDCA	6.672	1.684	1.000
TCDCA	6.498	1.858	1.000
TUDCA	5.616	2.740	1.000

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S5Q205-IC205	5Q13173.D	04/19/23	18:41	05:34	Mass Calibration Verification
S5Q205-IC205	5Q13174.D	04/19/23	18:55	05:48	Initial cal 1
S5Q205-IC205	5Q13175.D	04/19/23	19:10	06:03	Initial cal 2
S5Q205-IC205	5Q13176.D	04/19/23	19:24	06:17	Initial cal 3
S5Q205-ICC205	5Q13177.D	04/19/23	19:38	06:31	Initial cal 4
S5Q205-IC205	5Q13178.D	04/19/23	19:53	06:46	Initial cal 5
S5Q205-IC205	5Q13179.D	04/19/23	20:07	07:00	Initial cal 6
S5Q205-IC205	5Q13180.D	04/19/23	20:21	07:14	Initial cal 7
S5Q205-IC205	5Q13181.D	04/19/23	20:36	07:29	Initial cal 8
S5Q205-IBLK	5Q13182.D	04/19/23	20:50	07:43	Instrument Blank
S5Q205-ICV205	5Q13183.D	04/19/23	21:04	07:57	Initial cal verification 4
S5Q205-ICV205	5Q13184.D	04/19/23	21:19	08:12	Initial cal verification 20
S5Q205-CC205	5Q13185.D	04/19/23	21:33	08:26	Continuing cal 4
S5Q205-CC205	5Q13186.D	04/19/23	21:47	08:40	Continuing cal 1.0LL
OP96411-BS	5Q13187.D	04/19/23	22:02	08:55	Blank Spike
OP96411-LLBS	5Q13188.D	04/19/23	22:16	09:09	Blank Spike
OP96411-MB	5Q13189.D	04/19/23	22:30	09:23	Method Blank
ZZZZZZ	5Q13190.D	04/19/23	22:44	09:37	(unrelated sample)
ZZZZZZ	5Q13191.D	04/19/23	22:59	09:52	(unrelated sample)
ZZZZZZ	5Q13192.D	04/19/23	23:13	10:06	(unrelated sample)
ZZZZZZ	5Q13193.D	04/19/23	23:27	10:20	(unrelated sample)
ZZZZZZ	5Q13194.D	04/19/23	23:42	10:35	(unrelated sample)
S5Q205-CC205	5Q13195.D	04/19/23	23:56	10:49	Continuing cal 4
S5Q205-ICCB	5Q13196.D	04/20/23	00:10	11:03	Continuing Calibration Blank
FC3921-6	5Q13197.D	04/20/23	00:25	11:18	(used for QC only; not part of job FC5258)
OP96411-MS	5Q13198.D	04/20/23	00:39	11:32	Matrix Spike
OP96411-MSD	5Q13199.D	04/20/23	00:53	11:46	Matrix Spike Duplicate
ZZZZZZ	5Q13200.D	04/20/23	01:08	12:01	(unrelated sample)
ZZZZZZ	5Q13201.D	04/20/23	01:22	12:15	(unrelated sample)
ZZZZZZ	5Q13202.D	04/20/23	01:36	12:29	(unrelated sample)
ZZZZZZ	5Q13203.D	04/20/23	01:50	12:43	(unrelated sample)
ZZZZZZ	5Q13204.D	04/20/23	02:05	12:58	(unrelated sample)
ZZZZZZ	5Q13205.D	04/20/23	02:19	13:12	(unrelated sample)
ZZZZZZ	5Q13206.D	04/20/23	02:33	13:26	(unrelated sample)



# TDCA Retention Time Check

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S5Q205-RT	Injection Date:	04/19/23
Lab File ID:	5Q13150.D	Injection Time:	13:07
Instrument ID:	GCMS5Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S5Q205-CC205	5Q13207.D	04/20/23	02:48	13:41	Continuing cal 4
S5Q205-ICCB	5Q13208.D	04/20/23	03:02	13:55	Continuing Calibration Blank
ZZZZZZ	5Q13209.D	04/20/23	03:16	14:09	(unrelated sample)
ZZZZZZ	5Q13210.D	04/20/23	03:31	14:24	(unrelated sample)
ZZZZZZ	5Q13211.D	04/20/23	03:45	14:38	(unrelated sample)
ZZZZZZ	5Q13212.D	04/20/23	03:59	14:52	(unrelated sample)
ZZZZZZ	5Q13213.D	04/20/23	04:13	15:06	(unrelated sample)
S5Q205-CC205	5Q13214.D	04/20/23	04:28	15:21	Continuing cal 4
S5Q205-CC205	5Q13215.D	04/20/23	04:42	15:35	Continuing cal 1.0LL
S5Q205-ICCB	5Q13216.D	04/20/23	04:56	15:49	Continuing Calibration Blank
OP96450-BS	5Q13217.D	04/20/23	05:11	16:04	Blank Spike
OP96450-LLBS	5Q13218.D	04/20/23	05:25	16:18	Blank Spike
OP96450-MB	5Q13219.D	04/20/23	05:39	16:32	Method Blank
FC5258-1	5Q13220.D	04/20/23	05:54	16:47	AF-RHMW225401-WGN01B-2304W2
OP96450-MS	5Q13221.D	04/20/23	06:08	17:01	Matrix Spike
FC5258-2	5Q13222.D	04/20/23	06:22	17:15	AF-RHMW12A-WGN01LF-2304W2
OP96450-DUP	5Q13223.D	04/20/23	06:37	17:30	Duplicate
FC5258-3	5Q13224.D	04/20/23	06:51	17:44	AF-RHMW12A-WGFD01LF-2304W2
S5Q205-ECC205	5Q13225.D	04/20/23	07:05	17:58	Ending cal 4
S5Q205-ICCB	5Q13226.D	04/20/23	07:20	18:13	Continuing Calibration Blank

6.6.1

6

# Ion Ratio Summary

Job Number: FC5258  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S5Q205 Method: EPA DRAFT 1633

Lab Sample ID	Lab File ID	Ion Ratios (Set 1)		PFHxA	PFHpA	PFOA	PFBS	PFHxS
		PFBA	PFPeA					
S5Q205-ICC205	5Q13177.D	0	0	4.5	23.1	23.1	46.7	53.3
FC5258-1	5Q13220.D		0	5.7	22.3	30.6	45.1	59.7
FC5258-2	5Q13222.D	0	0	5.3				
FC5258-3	5Q13224.D		0	4.5				

6.7.1

6

# Ion Ratio Summary

**Job Number:** FC5258  
**Account:** AECOMCOD AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System

<b>Run ID:</b> S5Q205	<b>Method:</b> EPA DRAFT 1633
-----------------------	-------------------------------

Lab Sample ID	Lab File ID	Ion Ratios (Set 2) PFOS
S5Q205-ICC205	5Q13177.D	52.7
FC5258-1	5Q13220.D	59
FC5258-2	5Q13222.D	
FC5258-3	5Q13224.D	

# Isotope Dilution Standard Recovery Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
------------------------	------------

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4	S5	S6	S7	S8
FC5258-1	5Q13220.D	111	109	108	106	108	106	107	106
FC5258-2	5Q13222.D	108	111	109	109	107	103	95	93
FC5258-3	5Q13224.D	110	119	114	111	109	107	102	102
OP96450-BS	5Q13217.D	36	117	115	112	111	114	109	107
OP96450-DUP	5Q13223.D	117	122	116	115	114	113	104	99
OP96450-LLBS	5Q13218.D	117	116	114	112	117	117	120	117
OP96450-MB	5Q13219.D	121	122	121	121	121	117	119	120
OP96450-MS	5Q13221.D	114	116	113	112	114	112	109	116
S5Q205-IBLK	5Q13182.D	99	102	100	99	99	104	102	102
S5Q205-ICCB	5Q13216.D	99	103	103	103	99	97	100	100
S5Q205-ICCB	5Q13226.D	100	101	99	100	99	100	104	103

<b>Isotope Dilution Standards</b>	<b>Recovery Limits</b>
-----------------------------------	------------------------

S1 = 13C4-PFBA	20-150%
S2 = 13C5-PFPeA	20-150%
S3 = 13C5-PFHxA	20-150%
S4 = 13C4-PFHpA	20-150%
S5 = 13C8-PFOA	20-150%
S6 = 13C9-PFNA	20-150%
S7 = 13C6-PFDA	20-150%
S8 = 13C7-PFUnDA	20-150%

6.8.1

6

# Isotope Dilution Standard Recovery Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
------------------------	------------

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S9	S10	S11	S12	S13	S14	S15	S16
FC5258-1	5Q13220.D	95	81	123	107	99	104	95	90
FC5258-2	5Q13222.D	83	75	113	102	96	100	94	94
FC5258-3	5Q13224.D	93	82	116	118	101	105	105	107
OP96450-BS	5Q13217.D	106	94	118	111	106	110	112	107
OP96450-DUP	5Q13223.D	89	77	119	112	104	110	105	102
OP96450-LLBS	5Q13218.D	104	85	117	113	113	113	105	103
OP96450-MB	5Q13219.D	107	90	123	117	118	111	104	104
OP96450-MS	5Q13221.D	109	92	134	113	102	108	98	96
S5Q205-IBLK	5Q13182.D	101	96	100	97	106	103	97	104
S5Q205-ICCB	5Q13216.D	97	93	98	100	102	102	101	105
S5Q205-ICCB	5Q13226.D	98	93	96	100	102	102		

Isotope Dilution Standards	Recovery Limits
S9 = 13C2-PFDoDA	20-150%
S10 = 13C2-PFTeDA	20-150%
S11 = 13C3-PFBS	20-150%
S12 = 13C3-PFHxS	20-150%
S13 = 13C8-PFOS	20-150%
S14 = 13C8-FOSA	20-150%
S15 = d3-MeFOSA	20-150%
S16 = d5-EtFOSA	20-150%

6.8.1

6

# Isotope Dilution Standard Recovery Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Method: EPA DRAFT 1633	Matrix: AQ
------------------------	------------

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S17	S18	S19	S20	S21	S22	S23	S24
FC5258-1	5Q13220.D	106	118	99	87	132	109	105	108
FC5258-2	5Q13222.D	104	117	91	88	117	115	93	111
FC5258-3	5Q13224.D	112	129	100	99	108	105	115	116
OP96450-BS	5Q13217.D	122	130	105	105	123	127	108	116
OP96450-DUP	5Q13223.D	111	120	96	92	131	113	105	120
OP96450-LLBS	5Q13218.D	124	142	98	96	142	124	121	116
OP96450-MB	5Q13219.D	123	111	106	104	146	129	120	122
OP96450-MS	5Q13221.D	132	139	107	97	155* a	126	122	111
S5Q205-IBLK	5Q13182.D	103	118	102	99	105	110	102	100
S5Q205-ICCB	5Q13216.D	110	131	100	100	108	108	98	105
S5Q205-ICCB	5Q13226.D	112	129			110	115	108	

<b>Isotope Dilution Standards</b>	<b>Recovery Limits</b>
-----------------------------------	------------------------

S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-150%
S22 = 13C2-6:2FTS	20-150%
S23 = 13C2-8:2FTS	20-150%
S24 = 13C3-HFPO-DA	20-150%

(a) Outside control limits.

# Initial Calibration Summary

Job Number: FC5258  
Account: AECOM/CD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ICC205  
Lab FileID: 5Q13177.D

## Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Level Name	1	2	3	4	5	6	7	8	Avg RF	%RSD
D:\MassHunter\Methods	1633_041923_S5Q205.quantmethod.xml	D:\MassHunter\Data\041923_1633_S5Q205	4/20/2023 12:20:32 PM	D:\MassHunter\Data\041923_1633_S5Q205\5Q13174.d	1	0.3940	0.3430	0.3450	0.3510	0.3571	0.3547	0.4009	0.3693	0.3644	6.046
D:\MassHunter\Data\041923_1633_S5Q205	5Q13175.d			D:\MassHunter\Data\041923_1633_S5Q205\5Q13176.d	2	0.4965	0.4333	0.4643	0.5098	0.5382	0.4695	0.5963	0.5388	0.5058	10.223
D:\MassHunter\Data\041923_1633_S5Q205	5Q13176.d			D:\MassHunter\Data\041923_1633_S5Q205\5Q13177.d	3	0.0664	0.0611	0.0629	0.0562	0.0660	0.0637	0.0650	0.0698	0.0639	6.322
D:\MassHunter\Data\041923_1633_S5Q205	5Q13177.d			D:\MassHunter\Data\041923_1633_S5Q205\5Q13178.d	4	1.0511	0.9194	0.9347	0.9099	0.9741	0.9402	1.0551	1.0086	0.9741	5.946
D:\MassHunter\Data\041923_1633_S5Q205	5Q13178.d			D:\MassHunter\Data\041923_1633_S5Q205\5Q13179.d	5	0.6675	0.5994	0.6131	0.5844	0.6566	0.6284	0.6791	0.6554	0.6355	5.398
D:\MassHunter\Data\041923_1633_S5Q205	5Q13179.d			D:\MassHunter\Data\041923_1633_S5Q205\5Q13180.d	6	0.0674	0.0582	0.0638	0.0601	0.0606	0.0596	0.0648	0.0569	0.0614	5.824
D:\MassHunter\Data\041923_1633_S5Q205	5Q13180.d			D:\MassHunter\Data\041923_1633_S5Q205\5Q13181.d	7	0.6652	0.6121	0.6314	0.5958	0.6180	0.6116	0.6791	0.6345	0.6310	4.500
D:\MassHunter\Data\041923_1633_S5Q205	5Q13181.d				8	0.8433	0.7856	0.7920	0.7835	0.8023	0.8043	0.8950	0.8337	0.8175	4.660
						0.1307	0.1148	0.1170	0.1136	0.1186	0.1202	0.1293	0.1210	0.1206	5.213
						0.0711	0.0603	0.0599	0.0570	0.0602	0.0609	0.0654	0.0634	0.0623	6.998
						1.0703	0.9278	0.9995	0.9792	1.0173	0.9957	1.1263	1.0329	1.0186	5.887
						0.9403	0.8467	0.8811	0.8632	0.8859	0.8570	0.9759	0.9113	0.8952	4.982
						0.6395	0.5933	0.5822	0.5891	0.5959	0.5878	0.6598	0.6204	0.6085	4.658
						1.3352	1.0689	1.0764	1.0282	1.0433	1.0481	1.2098	1.0939	1.1130	9.524
						0.8591	0.8990	0.8728	0.8550	0.8717	0.8863	1.0334	0.9207	0.8997	6.462

Generated at 12:20 PM on 4/20/2023

Page 1 of 4

# Initial Calibration Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ICC205  
 Lab FileID: 5Q13177.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.7374	0.7543	0.7724	0.7321	0.7576	0.7670	0.8293	0.7280	0.7598	4.265
T PFTfDA	Avg RF	0.9420	0.7836	0.8669	0.7990	0.8606	0.8470	0.8782	0.7863	0.8454	6.412
I M2-PFTeDA	Avg RF	1.0513	0.9169	0.9169	0.8823	0.8683	0.8488	0.9871	0.8748	0.9183	7.471
T PFTeDA	Avg RF										
I M8-FOSA	Avg RF	0.8025	0.7457	0.7878	0.7500	0.7795	0.7518	0.8613	0.7883	0.7834	4.833
T FOSA	Avg RF										
I M3-PFBS	Avg RF	0.7782	0.7476	0.8303	0.7211	0.7747	0.7684	0.8793	0.8435	0.7929	6.703
T PFBS	Avg RF										
I M3-PFHxS	Avg RF	0.8640	0.7330	0.7948	0.7642	0.8006	0.7758	0.8753	0.7941	0.8002	6.010
T PFPeS	Avg RF	0.9365	0.7705	0.8311	0.8823	0.8747	0.8560	0.9631	0.8920	0.8758	6.837
T PFHxS	Avg RF										
I M8-PFOS	Avg RF	0.6851	0.5948	0.6581	0.6485	0.6379	0.6759	0.7274	0.6785	0.6633	5.856
T PFHpS	Avg RF	0.9112	0.8802	0.8591	0.8306	0.8121	0.8626	0.9435	0.8767	0.8720	4.807
T PFOs	Avg RF	0.4930	0.4770	0.5072	0.4902	0.4705	0.4957	0.5353	0.4794	0.4936	4.160
T PFNS	Avg RF	0.5573	0.4891	0.5347	0.5276	0.5047	0.5274	0.5802	0.5279	0.5311	5.328
T PFDS	Avg RF	0.4337	0.4701	0.4217	0.4065	0.4069	0.4269	0.4627	0.4209	0.4312	5.493
T PFDoDS	Avg RF										
I M2-4:2FTS	Avg RF	6.5683	5.3601	5.7652	5.5514	5.8772	6.1867	6.2211	5.5810	5.8889	6.926
T 4:2FTS	Avg RF										
I M2-6:2FTS	Avg RF	3.9792	3.9548	3.9898	3.9562	3.7607	3.9848	4.2066	3.5462	3.9223	4.936
T 6:2FTS	Avg RF										
I M2-8:2FTS	Avg RF	2.4288	2.1342	2.1328	1.8801	1.9725	2.0028	2.1860	1.8637	2.0751	8.973
T 8:2FTS	Avg RF										
I M3-MeFOSAA	Avg RF	0.8990	0.8913	0.7924	0.7630	0.8155	0.8057	0.9122	0.8624	0.8427	6.613
T MeFOSAA	Avg RF										
I M3-HFO-DA	Avg RF	0.8205	0.7406	0.7703	0.7631	0.7779	0.7642	0.8558	0.7952	0.7860	4.694
T HFO-DA	Avg RF	2.9229	2.5680	2.7545	2.7440	2.7576	2.6925	2.9551	2.6709	2.7582	4.631
T ADONA	Avg RF	1.4112	1.0972	1.2380	1.2102	1.2014	1.1545	1.2456	1.0714	1.2037	8.731
T 9CH-PF3ONS	Avg RF	1.2465	1.0974	1.1562	1.1163	1.1405	1.0967	1.1904	1.0571	1.1376	5.278
T 11CH-PF3OUds	Avg RF										
I M5-EFOSAA	Avg RF	0.6826	0.5827	0.6167	0.6024	0.5982	0.6337	0.6763	0.6786	0.6339	6.354
T EFOSAA	Avg RF										
I M7-MeFOSE	Avg RF	1.0567	0.8810	0.8432	0.8156	0.8369	0.8413	0.9263	0.8825	0.8854	8.748
T MeFOSE	Avg RF										
I M9-EFOSE	Avg RF	0.9648	0.8190	0.7922	0.7723	0.7956	0.7803	0.8912	0.8114	0.8284	8.006
T EFOSE	Avg RF										

Generated at 12:20 PM on 4/20/2023

Page 2 of 4



# Initial Calibration Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ICC205  
 Lab FileID: 5Q13177.D

## Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA		0.9125	0.7870	0.7947	0.7949	0.8007	0.7902	0.9151	0.8336	0.8286	6.583
T EFOSA	Avg RF					ISTD					
I M3-MeFOSA		0.9397	0.8366	0.8416	0.8556	0.8069	0.7979	0.9226	0.8354	0.8545	5.970
T MeFOSA	Avg RF					ISTD					
I 13C4-PFOS		0.6724	0.6768	0.6533	0.6998	0.6754	0.6681	0.6866	0.6215	0.6692	3.514
S d3-MeFOSAA	Linear					ISTD					
S 13C8-PFOS	Linear	1.0407	1.0417	1.0175	1.0453	1.0781	1.0235	1.0882	1.0168	1.0440	2.559
S d5-EFOSAA	Linear	0.9707	0.8972	0.9107	0.9132	0.9261	0.8545	0.9955	0.8440	0.9140	5.660
S 13C8-FOSA	Linear	1.4956	1.4939	1.4496	1.5161	1.4878	1.5103	1.5648	1.5230	1.5051	2.192
S d7-MeFOSE	Linear	0.7153	0.7795	0.6978	0.7470	0.7152	0.7186	0.7485	0.7014	0.7279	3.840
S d3-MeFOSA	Linear	0.7030	0.7127	0.6609	0.6732	0.6944	0.7322	0.7208	0.7006	0.6997	3.383
S d9-EFOSE	Linear	1.0614	1.1239	1.0348	1.0489	1.0201	1.0206	1.0015	0.9692	1.0351	4.424
S d5-EFOSA	Linear	0.9239	0.9615	0.9124	0.9294	0.9364	0.9557	0.9322	0.8941	0.9307	2.344
I 13C3-PFBA		0.9595	0.9506	0.9641	0.9413	0.9678	0.9612	0.9711	0.9480	0.9579	1.080
S 13C4-PFBA	Linear					ISTD					
I 1802-PFHxS		0.0890	0.1003	0.0919	0.0901	0.0880	0.0765	0.0824	0.0735	0.0865	10.038
S 13C2-4:2FTS	Linear	1.6590	1.6356	1.5438	1.6231	1.4595	1.4620	1.5466	1.3113	1.5301	7.588
S 13C3-PFBS	Linear	0.2110	0.2029	0.2066	0.1890	0.2043	0.1762	0.1761	0.1583	0.1905	9.868
S 13C2-6:2FTS	Linear	1.5152	1.5763	1.5802	1.5038	1.5033	1.5079	1.5838	1.4784	1.5311	2.740
S 13C3-PFHxS	Linear	0.3299	0.2968	0.3150	0.3001	0.2967	0.2629	0.2635	0.2248	0.2862	11.805
S 13C2-8:2FTS	Linear					ISTD					
I 13C4-PFOA		0.8227	0.8170	0.8273	0.7949	0.8090	0.8321	0.8207	0.8169	0.8176	1.411
S 13C8-PFOA	Linear					ISTD					
I 13C2-PFDA		0.6483	0.6939	0.6641	0.6415	0.6707	0.6723	0.6440	0.6264	0.6577	3.276
S 13C6-PFDA	Linear	0.8335	0.8744	0.8554	0.8392	0.8457	0.8217	0.7830	0.7343	0.8234	5.438
S 13C7-PFUnDA	Linear	0.9794	1.0148	0.9791	0.9937	0.9829	0.9665	1.0075	0.9959	0.9900	1.622
S 13C2-PFDODA	Linear	0.8459	0.8467	0.8335	0.8207	0.8538	0.8605	0.8299	0.8369	0.8410	1.562
S 13C2-PFTeDA	Linear					ISTD					
I 13C5-PFNA		0.9986	0.9804	1.0160	0.9839	1.0273	1.0316	1.0462	1.0460	1.0162	2.573
S 13C9-PFNA	Linear					ISTD					
I 13C2-PFHxA		0.5313	0.5465	0.5550	0.5466	0.5173	0.5352	0.5581	0.5178	0.5385	2.915
S 13C5-PPeA	Linear	0.9349	0.9430	0.9473	0.9190	0.9527	0.9383	0.9515	0.9221	0.9386	1.355
S 13C5-PFHxA	Linear	0.4549	0.4598	0.4639	0.4534	0.4693	0.4783	0.4796	0.4746	0.4667	2.203
S 13C3-HFPO-DA	Linear	0.8328	0.8323	0.8419	0.8156	0.8412	0.8513	0.8374	0.8279	0.8350	1.277
S 13C4-PFHpA	Linear					ISTD					

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

# Initial Calibration Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ICC205  
 Lab FileID: 5Q13177.D

## Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	$y = 0.957943 * x$	
S 13C5-PFPeA	Linear	$y = 0.538490 * x$	
S 13C2-4:2FTS	Linear	$y = 0.086481 * x$	
S 13C3-PFBS	Linear	$y = 1.530099 * x$	
S 13C5-PFHxA	Linear	$y = 0.938597 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.466734 * x$	
S 13C4-PFHpA	Linear	$y = 0.835042 * x$	
S 13C2-6:2FTS	Linear	$y = 0.190530 * x$	
S 13C8-PFOA	Linear	$y = 0.817574 * x$	
S 13C3-PFHxS	Linear	$y = 1.531117 * x$	
S 13C9-PFNA	Linear	$y = 1.016243 * x$	
S 13C2-8:2FTS	Linear	$y = 0.286197 * x$	
S 13C6-PEDA	Linear	$y = 0.657653 * x$	
S d3-MeFOSAA	Linear	$y = 0.669247 * x$	
S 13C8-PFOS	Linear	$y = 1.043972 * x$	
S d5-EFOSAA	Linear	$y = 0.913997 * x$	
S 13C7-PFUridA	Linear	$y = 0.823402 * x$	
S 13C2-PFDODA	Linear	$y = 0.989980 * x$	
S 13C8-FOSA	Linear	$y = 1.505121 * x$	
S 13C2-PFTeDA	Linear	$y = 0.840995 * x$	
S d7-MeFOSE	Linear	$y = 0.727918 * x$	
S d3-MeFOSA	Linear	$y = 0.699717 * x$	
S d9-EFOSE	Linear	$y = 1.035070 * x$	
S d5-EFOSA	Linear	$y = 0.930709 * x$	

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

**Initial Calibration Verification**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ICV205  
 Lab FileID: 5Q13183.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041923\_1633\_S5Q205\s5q205.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13174.d  
 2:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13175.d  
 3:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13176.d  
 4:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13177.d  
 5:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13178.d  
 6:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13179.d  
 7:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13180.d  
 8:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13181.d

Data File: 5Q13183  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.312	6.2	106.2
13C2-6:2FTS	5.000	5.558	11.2	111.2
13C2-8:2FTS	5.000	4.967	-0.7	99.3
13C2-PFDoDA	1.250	1.226	-2.0	98.0
13C2-PFTeDA	1.250	1.245	-0.4	99.6
13C3-PFBS	2.500	2.572	2.9	102.9
13C3-PFHxS	2.500	2.417	-3.3	96.7
13C4-PFBA	10.000	10.042	0.4	100.4
13C4-PFHpA	2.500	2.532	1.3	101.3
13C5-PFHxA	2.500	2.571	2.8	102.8
13C5-PFPeA	5.000	5.110	2.2	102.2
13C6-PFDA	1.250	1.240	-0.8	99.2
13C7-PFUnDA	1.250	1.238	-1.0	99.0
13C8-FOSA	2.500	2.483	-0.7	99.3
13C8-PFOA	2.500	2.493	-0.3	99.7
13C8-PFOS	2.500	2.479	-0.8	99.2
13C9-PFNA	1.250	1.252	0.2	100.2
4:2FTS	9.375	7.708	-17.8	82.2
6:2FTS	9.500	7.795	-17.9	82.1
8:2FTS	9.600	8.409	-12.4	87.6
d3-MeFOSAA	5.000	4.839	-3.2	96.8
EtFOSAA	2.500	1.956	-21.8	78.2
FOSA	2.500	2.004	-19.8	80.2
MeFOSAA	2.500	2.132	-14.7	85.3
PFBA	10.000	8.367	-16.3	83.7
PFBS	2.218	1.824	-17.8	82.2
PFDA	2.500	2.157	-13.7	86.3
PFDoDA	2.500	2.169	-13.2	86.8
PFDS	2.413	1.981	-17.9	82.1
PFHpA	2.500	2.035	-18.6	81.4
PFHpS	2.383	2.046	-14.1	85.9
PFHxA	2.500	2.009	-19.6	80.4
PFHxS	2.285	1.961	-14.2	85.8
PFNA	2.500	2.118	-15.3	84.7
PFNS	2.405	2.011	-16.4	83.6
PFOA	2.500	2.084	-16.6	83.4
PFOS	2.320	1.882	-18.9	81.1

# Initial Calibration Verification

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ICV205  
 Lab FileID: 5Q13183.D

PFPeA	5.000	4.066	-18.7	81.3
PFPeS	2.353	2.032	-13.6	86.4
PFTeDA	2.500	2.054	-17.8	82.2
PFTrDA	2.500	2.148	-14.1	85.9
PFUnDA	2.500	2.164	-13.5	86.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.754	0.6	100.6
13C3-HFPO-DA	10.000	10.210	2.1	102.1
9C1-PF3ONS	4.675	4.727	1.1	101.1
ADONA	4.725	4.718	-0.1	99.9
HFPO-DA	5.000	4.978	-0.4	99.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.071	-3.3	96.7
5:3FTCA	62.400	62.207	-0.3	99.7
7:3FTCA	62.400	61.524	-1.4	98.6
d3-MeFOSA	2.500	2.304	-7.8	92.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.723	-5.5	94.5
EtFOSE	12.500	12.232	-2.1	97.9
MeFOSA	5.000	5.514	10.3	110.3
MeFOSE	12.500	12.397	-0.8	99.2
PFDoDS	2.425	1.968	-18.9	81.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.071	1.4	101.4
d7-MeFOSE	25.000	23.962	-4.2	95.8
d9-EtFOSE	25.000	24.110	-3.6	96.4
d5-EtFOSA	2.500	2.440	-2.4	97.6
NFDHA	5.000	5.103	2.1	102.1
PFMBA	5.000	5.051	1.0	101.0
PFMPA	5.000	5.624	12.5	112.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.499	1.1	101.1

CC Criteria: +/- 30%

**Initial Calibration Verification**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ICV205  
 Lab FileID: 5Q13184.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041923\_1633\_S5Q205\s5q205.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13174.d  
 2:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13175.d  
 3:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13176.d  
 4:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13177.d  
 5:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13178.d  
 6:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13179.d  
 7:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13180.d  
 8:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13181.d

Data File: 5Q13184  
 Type : QC  
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.038	0.8	100.8
13C2-6:2FTS	5.000	4.992	-0.2	99.8
13C2-8:2FTS	5.000	4.964	-0.7	99.3
13C2-PFDoDA	1.250	1.209	-3.2	96.8
13C2-PFTeDA	1.250	1.209	-3.2	96.8
13C3-PFBS	2.500	2.379	-4.8	95.2
13C3-PFHxS	2.500	2.385	-4.6	95.4
13C4-PFBA	10.000	9.986	-0.1	99.9
13C4-PFHpA	2.500	2.480	-0.8	99.2
13C5-PFHxA	2.500	2.525	1.0	101.0
13C5-PFPeA	5.000	5.169	3.4	103.4
13C6-PFDA	1.250	1.172	-6.2	93.8
13C7-PFUnDA	1.250	1.244	-0.5	99.5
13C8-FOSA	2.500	2.482	-0.7	99.3
13C8-PFOA	2.500	2.481	-0.8	99.2
13C8-PFOS	2.500	2.446	-2.2	97.8
13C9-PFNA	1.250	1.189	-4.9	95.1
4:2FTS	20.000	22.895	14.5	114.5
6:2FTS	20.000	23.155	15.8	115.8
8:2FTS	20.000	22.500	12.5	112.5
d3-MeFOSAA	5.000	4.813	-3.7	96.3
EtFOSAA	20.000	22.952	14.8	114.8
FOSA	20.000	23.407	17.0	117.0
MeFOSAA	20.000	22.442	12.2	112.2
PFBA	20.000	21.921	9.6	109.6
PFBS	20.000	24.860	24.3	124.3
PFDA	20.000	23.792	19.0	119.0
PFDoDA	20.000	20.738	3.7	103.7
PFDS	20.000	22.810	14.1	114.1
PFHpA	20.000	22.590	13.0	113.0
PFHpS	20.000	23.274	16.4	116.4
PFHxA	20.000	23.132	15.7	115.7
PFHxS	20.000	25.065	25.3	125.3
PFNA	20.000	25.785	28.9	128.9
PFNS	20.000	23.169	15.8	115.8
PFOA	20.000	22.450	12.2	112.2
PFOS	20.000	19.538	-2.3	97.7

# Initial Calibration Verification

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ICV205  
 Lab FileID: 5Q13184.D

PFPeA	20.000	23.964	19.8	119.8
PFPeS	20.000	24.788	23.9	123.9
PFTeDA	20.000	23.977	19.9	119.9
PFTTrDA	20.000	20.856	4.3	104.3
PFUnDA	20.000	22.124	10.6	110.6
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	22.831	14.2	114.2
13C3-HFPO-DA	10.000	10.411	4.1	104.1
9C1-PF3ONS	20.000	21.675	8.4	108.4
ADONA	20.000	22.063	10.3	110.3
HFPO-DA	20.000	21.592	8.0	108.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	21.311	6.6	106.6
5:3FTCA	20.000	24.022	20.1	120.1
7:3FTCA	20.000	22.891	14.5	114.5
d3-MeFOSA	2.500	2.459	-1.7	98.3
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	22.677	13.4	113.4
EtFOSE	100.000	116.220	16.2	116.2
MeFOSA	20.000	22.772	13.9	113.9
MeFOSE	100.000	111.291	11.3	111.3
PFDoDS	20.000	21.867	9.3	109.3
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.439	8.8	108.8
d7-MeFOSE	25.000	24.546	-1.8	98.2
d9-EtFOSE	25.000	22.701	-9.2	90.8
d5-EtFOSA	2.500	2.435	-2.6	97.4
NFDHA	20.000	23.270	16.4	116.4
PFMBA	20.000	23.158	15.8	115.8
PFMPA	20.000	25.532	27.7	127.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	20.735	3.7	103.7

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-CC205  
 Lab FileID: 5Q13185.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041923\_1633\_S5Q205\s5q205.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13174.d  
 2:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13175.d  
 3:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13176.d  
 4:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13177.d  
 5:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13178.d  
 6:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13179.d  
 7:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13180.d  
 8:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13181.d

Data File: 5Q13185  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.566	11.3	111.3
13C2-6:2FTS	5.000	4.890	-2.2	97.8
13C2-8:2FTS	5.000	5.257	5.1	105.1
13C2-PFDoDA	1.250	1.204	-3.7	96.3
13C2-PFTeDA	1.250	1.195	-4.4	95.6
13C3-PFBS	2.500	2.434	-2.7	97.3
13C3-PFHxS	2.500	2.438	-2.5	97.5
13C4-PFBA	10.000	9.922	-0.8	99.2
13C4-PFHpA	2.500	2.442	-2.3	97.7
13C5-PFHxA	2.500	2.468	-1.3	98.7
13C5-PFPeA	5.000	4.941	-1.2	98.8
13C6-PFDA	1.250	1.239	-0.9	99.1
13C7-PFUnDA	1.250	1.264	1.1	101.1
13C8-FOSA	2.500	2.486	-0.6	99.4
13C8-PFOA	2.500	2.456	-1.8	98.2
13C8-PFOS	2.500	2.452	-1.9	98.1
13C9-PFNA	1.250	1.269	1.5	101.5
4:2FTS	9.375	8.348	-11.0	89.0
6:2FTS	9.500	9.685	1.9	101.9
8:2FTS	9.600	8.475	-11.7	88.3
d3-MeFOSAA	5.000	4.932	-1.4	98.6
EtFOSAA	2.500	2.477	-0.9	99.1
FOSA	2.500	2.359	-5.6	94.4
MeFOSAA	2.500	2.310	-7.6	92.4
PFBA	10.000	9.588	-4.1	95.9
PFBS	2.218	2.231	0.6	100.6
PFDA	2.500	2.395	-4.2	95.8
PFDoDA	2.500	2.443	-2.3	97.7
PFDS	2.413	2.398	-0.6	99.4
PFHpA	2.500	2.386	-4.6	95.4
PFHpS	2.383	2.381	-0.1	99.9
PFHxA	2.500	2.331	-6.8	93.2
PFHxS	2.285	2.099	-8.2	91.8
PFNA	2.500	2.424	-3.0	97.0
PFNS	2.405	2.457	2.1	102.1
PFOA	2.500	2.373	-5.1	94.9
PFOS	2.320	2.158	-7.0	93.0

# Continuing Calibration Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-CC205  
 Lab FileID: 5Q13185.D

PFPeA	5.000	4.783	-4.3	95.7
PFPeS	2.353	2.205	-6.3	93.7
PFTeDA	2.500	2.402	-3.9	96.1
PFTTrDA	2.500	2.534	1.4	101.4
PFUnDA	2.500	2.418	-3.3	96.7
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.587	-2.9	97.1
13C3-HFPO-DA	10.000	9.913	-0.9	99.1
9C1-PF3ONS	4.675	4.568	-2.3	97.7
ADONA	4.725	4.669	-1.2	98.8
HFPO-DA	5.000	4.928	-1.4	98.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.148	-10.7	89.3
5:3FTCA	62.400	57.919	-7.2	92.8
7:3FTCA	62.400	57.841	-7.3	92.7
d3-MeFOSA	2.500	2.475	-1.0	99.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.686	-6.3	93.7
EtFOSE	12.500	11.837	-5.3	94.7
MeFOSA	5.000	4.920	-1.6	98.4
MeFOSE	12.500	11.879	-5.0	95.0
PFDoDS	2.425	2.367	-2.4	97.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.151	3.0	103.0
d7-MeFOSE	25.000	24.806	-0.8	99.2
d9-EtFOSE	25.000	24.454	-2.2	97.8
d5-EtFOSA	2.500	2.504	0.1	100.1
NFDHA	5.000	4.786	-4.3	95.7
PFMBA	5.000	4.737	-5.3	94.7
PFMPA	5.000	5.232	4.6	104.6
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.215	-5.3	94.7

CC Criteria: +/- 30%



**Continuing Calibration Summary**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-CC205  
 Lab FileID: 5Q13186.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041923\_1633\_S5Q205\s5q205.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13174.d  
 2:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13175.d  
 3:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13176.d  
 4:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13177.d  
 5:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13178.d  
 6:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13179.d  
 7:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13180.d  
 8:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13181.d

Data File: 5Q13186  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.073	1.5	101.5
13C2-6:2FTS	5.000	5.263	5.3	105.3
13C2-8:2FTS	5.000	5.083	1.7	101.7
13C2-PFDoDA	1.250	1.231	-1.6	98.4
13C2-PFTeDA	1.250	1.204	-3.7	96.3
13C3-PFBS	2.500	2.694	7.8	107.8
13C3-PFHxS	2.500	2.404	-3.8	96.2
13C4-PFBA	10.000	10.001	0.0	100.0
13C4-PFHpA	2.500	2.491	-0.3	99.7
13C5-PFHxA	2.500	2.560	2.4	102.4
13C5-PFPeA	5.000	5.031	0.6	100.6
13C6-PFDA	1.250	1.203	-3.8	96.2
13C7-PFUnDA	1.250	1.277	2.2	102.2
13C8-FOSA	2.500	2.466	-1.4	98.6
13C8-PFOA	2.500	2.509	0.4	100.4
13C8-PFOS	2.500	2.517	0.7	100.7
13C9-PFNA	1.250	1.282	2.6	102.6
4:2FTS	0.750	0.893	19.1	119.1
6:2FTS	0.760	0.782	2.9	102.9
8:2FTS	0.768	0.789	2.7	102.7
d3-MeFOSAA	5.000	5.122	2.4	102.4
EtFOSAA	0.200	0.189	-5.3	94.7
FOSA	0.200	0.227	13.4	113.4
MeFOSAA	0.200	0.229	14.4	114.4
PFBA	0.800	0.821	2.7	102.7
PFBS	0.177	0.195	10.2	110.2
PFDA	0.200	0.225	12.5	112.5
PFDoDA	0.200	0.221	10.4	110.4
PFDS	0.193	0.232	20.2	120.2
PFHpA	0.200	0.219	9.4	109.4
PFHpS	0.191	0.241	26.0	126.0
PFHxA	0.200	0.225	12.3	112.3
PFHxS	0.183	0.185	0.8	100.8
PFNA	0.200	0.229	14.3	114.3
PFNS	0.192	0.214	11.4	111.4
PFOA	0.200	0.207	3.7	103.7
PFOS	0.186	0.198	6.7	106.7

# Continuing Calibration Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-CC205  
 Lab FileID: 5Q13186.D

PFPeA	0.400	0.411	2.7	102.7
PFPeS	0.188	0.189	0.4	100.4
PFTeDA	0.200	0.241	20.4	120.4
PFTTrDA	0.200	0.222	11.1	111.1
PFUnDA	0.200	0.209	4.4	104.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.396	4.7	104.7
13C3-HFPO-DA	10.000	10.199	2.0	102.0
9C1-PF3ONS	0.367	0.399	8.7	108.7
ADONA	0.378	0.408	7.9	107.9
HFPO-DA	0.400	0.448	12.0	112.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.087	8.9	108.9
5:3FTCA	4.992	5.254	5.2	105.2
7:3FTCA	4.992	5.142	3.0	103.0
d3-MeFOSA	2.500	2.517	0.7	100.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.362	-9.4	90.6
EtFOSE	1.000	1.051	5.1	105.1
MeFOSA	0.400	0.405	1.1	101.1
MeFOSE	1.000	1.194	19.4	119.4
PFDoDS	0.194	0.214	10.4	110.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	6.230	24.6	124.6
d7-MeFOSE	25.000	25.000	0.0	100.0
d9-EtFOSE	25.000	25.204	0.8	100.8
d5-EtFOSA	2.500	2.564	2.6	102.6
NFDHA	0.400	0.417	4.3	104.3
PFMBA	0.400	0.417	4.1	104.1
PFMPA	0.400	0.436	8.9	108.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.354	-0.7	99.3

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-CC205  
 Lab FileID: 5Q13214.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041923\_1633\_S5Q205\s5q205.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13174.d  
 2:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13175.d  
 3:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13176.d  
 4:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13177.d  
 5:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13178.d  
 6:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13179.d  
 7:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13180.d  
 8:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13181.d

Data File: 5Q13214  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.632	12.6	112.6
13C2-6:2FTS	5.000	5.303	6.1	106.1
13C2-8:2FTS	5.000	5.046	0.9	100.9
13C2-PFDoDA	1.250	1.193	-4.5	95.5
13C2-PFTeDA	1.250	1.124	-10.0	90.0
13C3-PFBS	2.500	2.566	2.6	102.6
13C3-PFHxS	2.500	2.431	-2.8	97.2
13C4-PFBA	10.000	9.955	-0.4	99.6
13C4-PFHpA	2.500	2.480	-0.8	99.2
13C5-PFHxA	2.500	2.487	-0.5	99.5
13C5-PFPeA	5.000	5.067	1.3	101.3
13C6-PFDA	1.250	1.196	-4.3	95.7
13C7-PFUnDA	1.250	1.219	-2.5	97.5
13C8-FOSA	2.500	2.521	0.8	100.8
13C8-PFOA	2.500	2.430	-2.8	97.2
13C8-PFOS	2.500	2.524	1.0	101.0
13C9-PFNA	1.250	1.246	-0.3	99.7
4:2FTS	9.375	8.355	-10.9	89.1
6:2FTS	9.500	9.318	-1.9	98.1
8:2FTS	9.600	9.638	0.4	100.4
d3-MeFOSAA	5.000	5.214	4.3	104.3
EtFOSAA	2.500	2.384	-4.6	95.4
FOSA	2.500	2.357	-5.7	94.3
MeFOSAA	2.500	2.370	-5.2	94.8
PFBA	10.000	9.398	-6.0	94.0
PFBS	2.218	2.276	2.6	102.6
PFDA	2.500	2.396	-4.2	95.8
PFDoDA	2.500	2.375	-5.0	95.0
PFDS	2.413	2.303	-4.5	95.5
PFHpA	2.500	2.424	-3.1	96.9
PFHpS	2.383	2.349	-1.4	98.6
PFHxA	2.500	2.375	-5.0	95.0
PFHxS	2.285	2.258	-1.2	98.8
PFNA	2.500	2.437	-2.5	97.5
PFNS	2.405	2.352	-2.2	97.8
PFOA	2.500	2.431	-2.7	97.3
PFOS	2.320	2.197	-5.3	94.7

# Continuing Calibration Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-CC205  
 Lab FileID: 5Q13214.D

PFPeA	5.000	4.767	-4.7	95.3
PFPeS	2.353	2.408	2.3	102.3
PFTeDA	2.500	2.444	-2.3	97.7
PFTTrDA	2.500	2.330	-6.8	93.2
PFUnDA	2.500	2.485	-0.6	99.4
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.572	-3.2	96.8
13C3-HFPO-DA	10.000	10.117	1.2	101.2
9C1-PF3ONS	4.675	4.489	-4.0	96.0
ADONA	4.725	4.584	-3.0	97.0
HFPO-DA	5.000	4.961	-0.8	99.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.486	-8.0	92.0
5:3FTCA	62.400	58.199	-6.7	93.3
7:3FTCA	62.400	56.689	-9.2	90.8
d3-MeFOSA	2.500	2.461	-1.6	98.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.647	-7.1	92.9
EtFOSE	12.500	11.583	-7.3	92.7
MeFOSA	5.000	5.013	0.3	100.3
MeFOSE	12.500	11.715	-6.3	93.7
PFDoDS	2.425	2.228	-8.1	91.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	6.060	21.2	121.2
d7-MeFOSE	25.000	24.867	-0.5	99.5
d9-EtFOSE	25.000	23.848	-4.6	95.4
d5-EtFOSA	2.500	2.621	4.8	104.8
NFDHA	5.000	4.878	-2.4	97.6
PFMBA	5.000	4.653	-6.9	93.1
PFMPA	5.000	5.226	4.5	104.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.260	-4.3	95.7

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-CC205  
 Lab FileID: 5Q13215.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041923\_1633\_S5Q205\s5q205.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13174.d  
 2:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13175.d  
 3:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13176.d  
 4:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13177.d  
 5:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13178.d  
 6:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13179.d  
 7:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13180.d  
 8:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13181.d

Data File: 5Q13215  
 Type : QC  
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.282	5.6	105.6
13C2-6:2FTS	5.000	5.693	13.9	113.9
13C2-8:2FTS	5.000	5.103	2.1	102.1
13C2-PFDoDA	1.250	1.192	-4.6	95.4
13C2-PFTeDA	1.250	1.143	-8.5	91.5
13C3-PFBS	2.500	2.395	-4.2	95.8
13C3-PFHxS	2.500	2.442	-2.3	97.7
13C4-PFBA	10.000	10.027	0.3	100.3
13C4-PFHpA	2.500	2.526	1.0	101.0
13C5-PFHxA	2.500	2.563	2.5	102.5
13C5-PFPeA	5.000	5.039	0.8	100.8
13C6-PFDA	1.250	1.222	-2.3	97.7
13C7-PFUnDA	1.250	1.241	-0.7	99.3
13C8-FOSA	2.500	2.474	-1.1	98.9
13C8-PFOA	2.500	2.466	-1.4	98.6
13C8-PFOS	2.500	2.531	1.2	101.2
13C9-PFNA	1.250	1.260	0.8	100.8
4:2FTS	0.750	0.944	25.9	125.9
6:2FTS	0.760	0.832	9.5	109.5
8:2FTS	0.768	0.863	12.4	112.4
d3-MeFOSAA	5.000	5.233	4.7	104.7
EtFOSAA	0.200	0.213	6.7	106.7
FOSA	0.200	0.227	13.3	113.3
MeFOSAA	0.200	0.216	8.2	108.2
PFBA	0.800	0.829	3.6	103.6
PFBS	0.177	0.210	18.8	118.8
PFDA	0.200	0.248	23.9	123.9
PFDoDA	0.200	0.218	8.9	108.9
PFDS	0.193	0.230	19.4	119.4
PFHpA	0.200	0.210	5.1	105.1
PFHpS	0.191	0.198	3.5	103.5
PFHxA	0.200	0.212	6.1	106.1
PFHxS	0.183	0.198	8.1	108.1
PFNA	0.200	0.234	17.1	117.1
PFNS	0.192	0.245	27.4	127.4
PFOA	0.200	0.244	21.8	121.8
PFOS	0.186	0.198	6.3	106.3

# Continuing Calibration Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-CC205  
 Lab FileID: 5Q13215.D

PFPeA	0.400	0.429	7.2	107.2
PFPeS	0.188	0.190	1.1	101.1
PFTeDA	0.200	0.223	11.5	111.5
PFTTrDA	0.200	0.213	6.3	106.3
PFUnDA	0.200	0.238	19.1	119.1
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.381	0.7	100.7
13C3-HFPO-DA	10.000	10.261	2.6	102.6
9C1-PF3ONS	0.367	0.354	-3.6	96.4
ADONA	0.378	0.386	2.2	102.2
HFPO-DA	0.400	0.449	12.2	112.2
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	1.025	2.7	102.7
5:3FTCA	4.992	5.089	1.9	101.9
7:3FTCA	4.992	5.279	5.8	105.8
d3-MeFOSA	2.500	2.513	0.5	100.5
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.392	-1.9	98.1
EtFOSE	1.000	1.170	17.0	117.0
MeFOSA	0.400	0.383	-4.3	95.7
MeFOSE	1.000	1.182	18.2	118.2
PFDoDS	0.194	0.201	3.8	103.8
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	7.021	# 40.4	140.4
d7-MeFOSE	25.000	24.680	-1.3	98.7
d9-EtFOSE	25.000	24.651	-1.4	98.6
d5-EtFOSA	2.500	2.627	5.1	105.1
NFDHA	0.400	0.423	5.7	105.7
PFMBA	0.400	0.409	2.3	102.3
PFMPA	0.400	0.369	-7.7	92.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	0.356	0.366	2.8	102.8

CC Criteria: +/- 30%

**Continuing Calibration Summary**

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ECC205  
 Lab FileID: 5Q13225.D

## Continuing Calibration Report

Batch: D:\MassHunter\Data\041923\_1633\_S5Q205\s5q205.batch.bin

## Level ID: Calibration File

1:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13174.d  
 2:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13175.d  
 3:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13176.d  
 4:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13177.d  
 5:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13178.d  
 6:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13179.d  
 7:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13180.d  
 8:D:\MassHunter\Data\041923\_1633\_S5Q205\5Q13181.d

Data File: 5Q13225  
 Type : QC  
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.050	1.0	101.0
13C2-6:2FTS	5.000	5.184	3.7	103.7
13C2-8:2FTS	5.000	5.129	2.6	102.6
13C2-PFDoDA	1.250	1.207	-3.4	96.6
13C2-PFTeDA	1.250	1.122	-10.2	89.8
13C3-PFBS	2.500	2.482	-0.7	99.3
13C3-PFHxS	2.500	2.443	-2.3	97.7
13C4-PFBA	10.000	9.965	-0.4	99.6
13C4-PFHpA	2.500	2.439	-2.4	97.6
13C5-PFHxA	2.500	2.437	-2.5	97.5
13C5-PFPeA	5.000	5.024	0.5	100.5
13C6-PFDA	1.250	1.251	0.1	100.1
13C7-PFUnDA	1.250	1.227	-1.8	98.2
13C8-FOSA	2.500	2.575	3.0	103.0
13C8-PFOA	2.500	2.490	-0.4	99.6
13C8-PFOS	2.500	2.395	-4.2	95.8
13C9-PFNA	1.250	1.218	-2.5	97.5
4:2FTS	9.375	9.143	-2.5	97.5
6:2FTS	9.500	9.141	-3.8	96.2
8:2FTS	9.600	9.483	-1.2	98.8
d3-MeFOSAA	5.000	5.325	6.5	106.5
EtFOSAA	2.500	2.528	1.1	101.1
FOSA	2.500	2.275	-9.0	91.0
MeFOSAA	2.500	2.309	-7.6	92.4
PFBA	10.000	9.367	-6.3	93.7
PFBS	2.218	2.167	-2.3	97.7
PFDA	2.500	2.328	-6.9	93.1
PFDoDA	2.500	2.374	-5.0	95.0
PFDS	2.413	2.471	2.4	102.4
PFHpA	2.500	2.410	-3.6	96.4
PFHpS	2.383	2.463	3.4	103.4
PFHxA	2.500	2.368	-5.3	94.7
PFHxS	2.285	2.092	-8.5	91.5
PFNA	2.500	2.438	-2.5	97.5
PFNS	2.405	2.568	6.8	106.8
PFOA	2.500	2.326	-7.0	93.0
PFOS	2.320	2.238	-3.6	96.4

# Continuing Calibration Summary

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample: S5Q205-ECC205  
 Lab FileID: 5Q13225.D

PFPeA	5.000	4.736	-5.3	94.7
PFPeS	2.353	2.342	-0.5	99.5
PFTeDA	2.500	2.451	-2.0	98.0
PFTTrDA	2.500	2.347	-6.1	93.9
PFUnDA	2.500	2.437	-2.5	97.5
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.485	-5.1	94.9
13C3-HFPO-DA	10.000	10.057	0.6	100.6
9C1-PF3ONS	4.675	4.462	-4.5	95.5
ADONA	4.725	4.564	-3.4	96.6
HFPO-DA	5.000	4.925	-1.5	98.5
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	11.241	-9.9	90.1
5:3FTCA	62.400	58.827	-5.7	94.3
7:3FTCA	62.400	57.033	-8.6	91.4
d3-MeFOSA	2.500	2.580	3.2	103.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.738	-5.2	94.8
EtFOSE	12.500	11.554	-7.6	92.4
MeFOSA	5.000	4.481	-10.4	89.6
MeFOSE	12.500	11.398	-8.8	91.2
PFDoDS	2.425	2.332	-3.8	96.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.841	16.8	116.8
d7-MeFOSE	25.000	24.757	-1.0	99.0
d9-EtFOSE	25.000	24.012	-4.0	96.0
d5-EtFOSA	2.500	2.600	4.0	104.0
NFDHA	5.000	4.742	-5.2	94.8
PFMBA	5.000	4.615	-7.7	92.3
PFMPA	5.000	5.122	2.4	102.4
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.255	-4.4	95.6

CC Criteria: +/- 30%



## Run Sequence Report

Job Number: FC5258  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S5Q205	Method: EPA DRAFT 1633	Instrument ID: GCMS5Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S5Q205-RT	5Q13150.D	04/19/23 13:07	n/a	Retention Time Marker
S5Q205-RT	5Q13172.D	04/19/23 18:27	n/a	Retention Time Marker
S5Q205-IC205	5Q13173.D	04/19/23 18:41	n/a	Mass Calibration Verification
S5Q205-IC205	5Q13174.D	04/19/23 18:55	n/a	Initial cal 1
S5Q205-IC205	5Q13175.D	04/19/23 19:10	n/a	Initial cal 2
S5Q205-IC205	5Q13176.D	04/19/23 19:24	n/a	Initial cal 3
S5Q205-ICC205	5Q13177.D	04/19/23 19:38	n/a	Initial cal 4
S5Q205-IC205	5Q13178.D	04/19/23 19:53	n/a	Initial cal 5
S5Q205-IC205	5Q13179.D	04/19/23 20:07	n/a	Initial cal 6
S5Q205-IC205	5Q13180.D	04/19/23 20:21	n/a	Initial cal 7
S5Q205-IC205	5Q13181.D	04/19/23 20:36	n/a	Initial cal 8
S5Q205-IBLK	5Q13182.D	04/19/23 20:50	n/a	Instrument Blank
S5Q205-ICV205	5Q13183.D	04/19/23 21:04	n/a	Initial cal verification 4
S5Q205-ICV205	5Q13184.D	04/19/23 21:19	n/a	Initial cal verification 20
S5Q205-CC205	5Q13185.D	04/19/23 21:33	n/a	Continuing cal 4
S5Q205-CC205	5Q13186.D	04/19/23 21:47	n/a	Continuing cal 1.0LL
OP96411-BS	5Q13187.D	04/19/23 22:02	OP96411	Blank Spike
OP96411-LLBS	5Q13188.D	04/19/23 22:16	OP96411	Blank Spike
OP96411-MB	5Q13189.D	04/19/23 22:30	OP96411	Method Blank
ZZZZZZ	5Q13190.D	04/19/23 22:44	OP96411	(unrelated sample)
ZZZZZZ	5Q13191.D	04/19/23 22:59	OP96411	(unrelated sample)
ZZZZZZ	5Q13192.D	04/19/23 23:13	OP96411	(unrelated sample)
ZZZZZZ	5Q13193.D	04/19/23 23:27	OP96411	(unrelated sample)
ZZZZZZ	5Q13194.D	04/19/23 23:42	OP96411	(unrelated sample)
S5Q205-CC205	5Q13195.D	04/19/23 23:56	n/a	Continuing cal 4
S5Q205-ICCB	5Q13196.D	04/20/23 00:10	n/a	Continuing Calibration Blank
FC3921-6	5Q13197.D	04/20/23 00:25	OP96411	(used for QC only; not part of job FC5258)
OP96411-MS	5Q13198.D	04/20/23 00:39	OP96411	Matrix Spike
OP96411-MSD	5Q13199.D	04/20/23 00:53	OP96411	Matrix Spike Duplicate
ZZZZZZ	5Q13200.D	04/20/23 01:08	OP96411	(unrelated sample)
ZZZZZZ	5Q13201.D	04/20/23 01:22	OP96411	(unrelated sample)
ZZZZZZ	5Q13202.D	04/20/23 01:36	OP96411	(unrelated sample)
ZZZZZZ	5Q13203.D	04/20/23 01:50	OP96411	(unrelated sample)
ZZZZZZ	5Q13204.D	04/20/23 02:05	OP96411	(unrelated sample)
ZZZZZZ	5Q13205.D	04/20/23 02:19	OP96411	(unrelated sample)
ZZZZZZ	5Q13206.D	04/20/23 02:33	OP96411	(unrelated sample)
S5Q205-CC205	5Q13207.D	04/20/23 02:48	n/a	Continuing cal 4
S5Q205-ICCB	5Q13208.D	04/20/23 03:02	n/a	Continuing Calibration Blank
ZZZZZZ	5Q13209.D	04/20/23 03:16	OP96411	(unrelated sample)
ZZZZZZ	5Q13210.D	04/20/23 03:31	OP96411	(unrelated sample)
ZZZZZZ	5Q13211.D	04/20/23 03:45	OP96411	(unrelated sample)
ZZZZZZ	5Q13212.D	04/20/23 03:59	OP96411	(unrelated sample)
ZZZZZZ	5Q13213.D	04/20/23 04:13	OP96411	(unrelated sample)
S5Q205-CC205	5Q13214.D	04/20/23 04:28	n/a	Continuing cal 4
S5Q205-CC205	5Q13215.D	04/20/23 04:42	n/a	Continuing cal 1.0LL
S5Q205-ICCB	5Q13216.D	04/20/23 04:56	n/a	Continuing Calibration Blank

# Run Sequence Report

Job Number: FC5258  
Account: AECOMCOD AECOM, INC.  
Project: N6274223F0104 RH Fire Suppression System

Run ID: S5Q205	Method: EPA DRAFT 1633	Instrument ID: GCMS5Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP96450-BS	5Q13217.D	04/20/23 05:11	OP96450	Blank Spike
OP96450-LLBS	5Q13218.D	04/20/23 05:25	OP96450	Blank Spike
OP96450-MB	5Q13219.D	04/20/23 05:39	OP96450	Method Blank
FC5258-1	5Q13220.D	04/20/23 05:54	OP96450	AF-RHMW225401-WGN01B-2304W2
OP96450-MS	5Q13221.D	04/20/23 06:08	OP96450	Matrix Spike
FC5258-2	5Q13222.D	04/20/23 06:22	OP96450	AF-RHMW12A-WGN01LF-2304W2
OP96450-DUP	5Q13223.D	04/20/23 06:37	OP96450	Duplicate
FC5258-3	5Q13224.D	04/20/23 06:51	OP96450	AF-RHMW12A-WGFD01LF-2304W2
S5Q205-ECC205	5Q13225.D	04/20/23 07:05	n/a	Ending cal 4
S5Q205-ICCB	5Q13226.D	04/20/23 07:20	n/a	Continuing Calibration Blank

6.10.1

6

**MS Semi-volatiles**

---

**Raw Data**

---

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Norman Farmer  
 04/21/23 10:49

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13220.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 5:54:07 AM  
 Sample Name : fc5258-1  
 Vial : P3-E9  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96450,S5Q205,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	61224	10.00	µg/L m	0.000
M5-PFPeA	4.103	268.3 -> 223.0	37563	5.00	µg/L	-0.012
M5-PFHxA	5.296	318.0 -> 273.0	32463	2.50	µg/L	-0.012
M4-PFHpA	6.267	367.1 -> 322.0	28227	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	37741	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	17250	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	9923	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	12348	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	13260	1.25	µg/L	-0.051
M2-PFTeDA	9.861	715.2 -> 670.0	9601	1.25	µg/L	-0.050
M8-FOSA	9.186	506.1 -> 77.8	11922	2.50	µg/L	0.000
M3-PFBS	5.226	302.1 -> 79.9	6898	2.50	µg/L m	-0.025
M3-PFHxS	7.078	402.1 -> 79.9	5953	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	7856	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	834	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1511	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	2179	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	10819	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	63996	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	16396	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	54859	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	68659	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	6378	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	5040	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	7606	2.50	µg/L	-0.037
13C3-PFBA	2.768	216.0 -> 172.0	28900	5.00	µg/L m	0.000
18O2-PFHxS	7.077	403.0 -> 83.9	3642	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	42728	2.50	µg/L	-0.026
13C2-PFDA	8.053	515.1 -> 470.1	14118	1.25	µg/L	-0.025
13C5-PFNA	7.519	468.0 -> 423.0	15944	1.25	µg/L	-0.025
13C2-PFHxA	5.297	315.1 -> 270.0	31884	2.50	µg/L	-0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	834	6.62	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 132.4%			
13C2-6:2FTS	6.698	429.1 -> 80.9	1511	5.44	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%			
13C2-8:2FTS	7.814	529.1 -> 80.9	2179	5.23	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%			
13C2-PFDoDA	9.015	615.1 -> 570.0	13260	1.19	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.9%			
13C2-PFTeDA	9.861	715.2 -> 670.0	9601	1.01	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 80.9%			
13C3-PFBS	5.226	302.1 -> 79.9	6863	3.08	µg/L m	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 123.2%			
13C3-PFHxS	7.078	402.1 -> 79.9	5953	2.67	µg/L	-0.025

7.1.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C4-PFBA	2.765	216.8 -> 171.9	61240	11.06 µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C4-PFHpA	6.267	367.1 -> 322.0	28227	2.65 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%	
13C5-PFHxA	5.296	318.0 -> 273.0	32463	2.71 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.5%	
13C5-PFPeA	4.103	268.3 -> 223.0	37563	5.47 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.4%	
13C6-PFDA	8.040	519.1 -> 474.1	9923	1.34 µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C7-PFUnDA	8.547	570.0 -> 525.1	12348	1.33 µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C8-FOSA	9.186	506.1 -> 77.8	11922	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C8-PFOA	6.949	421.1 -> 376.0	37741	2.70 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C8-PFOS	8.230	507.1 -> 79.9	7856	2.47 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C9-PFNA	7.519	472.1 -> 427.0	17250	1.33 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.5%	
d3-MeFOSAA	8.074	573.2 -> 419.0	10819	5.31 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	5.676	286.9 -> 168.9	63996	10.75 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
d3-MeFOSA	10.417	515.0 -> 219.0	5040	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.7%	
d5-EtFOSAA	8.296	589.2 -> 419.0	16396	5.90 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.9%	
d7-MeFOSE	10.301	623.2 -> 58.9	54859	24.77 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d9-EtFOSE	10.610	639.2 -> 58.9	68659	21.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
d5-EtFOSA	10.712	531.1 -> 219.0	6378	2.25 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.1%	

Target Compounds

Compound	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	5.227	298.7 -> 79.9	222	0.10 µg/L m	98
		298.7 -> 98.8	100		
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.267	599.0 -> 98.8				
		363.1 -> 319.0	1237	0.11 µg/L	m	98
PFHpS	-	363.1 -> 169.0	276			
		449.0 -> 79.9	-	N.D.		
PFHxA	5.286	449.0 -> 98.9				
		313.0 -> 269.0	1251	0.15 µg/L		96
PFHxS	7.079	313.0 -> 118.9	72			
		398.7 -> 79.9	330	0.16 µg/L	m	91
PFNA	-	398.7 -> 98.9	197			
		463.0 -> 419.0	-	N.D.		
PFNS	-	463.0 -> 219.0				
		548.8 -> 79.9	-	N.D.		
PFOA	6.950	548.8 -> 98.9				
		413.0 -> 369.0	1629	0.12 µg/L	m	85
PFOS	8.019	413.0 -> 169.0	499			
		498.9 -> 79.9	305	0.11 µg/L	m	91
PFPeA	4.104	498.9 -> 98.8	180			
		263.0 -> 219.0	1323	0.18 µg/L		100
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0	-	N.D.		
MeFOSA	-	511.9 -> 169.0				
		616.1 -> 58.9	-	N.D.		
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9	-	N.D.		
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				
PFMBA	-					
PFMPA	-					
PFEESA	-					

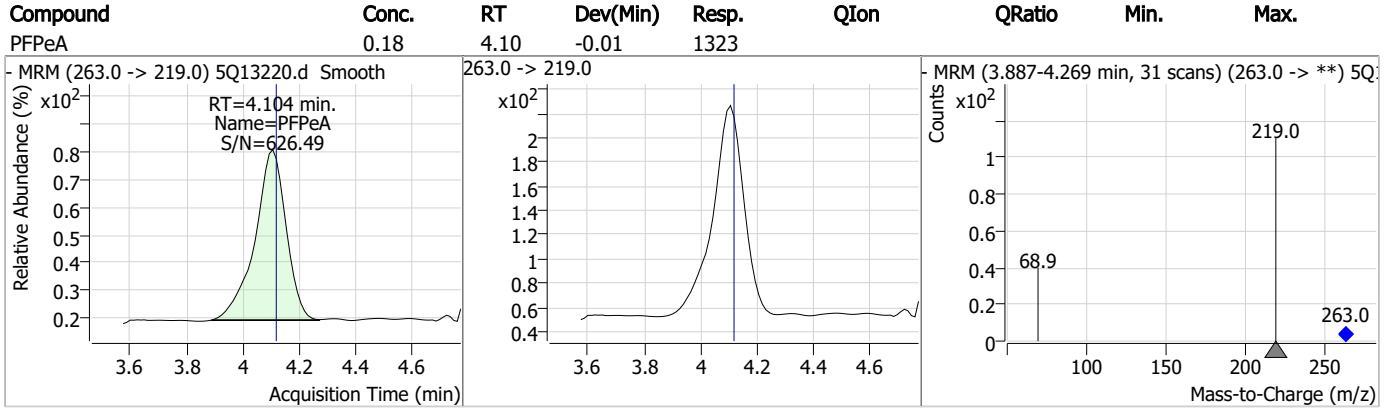
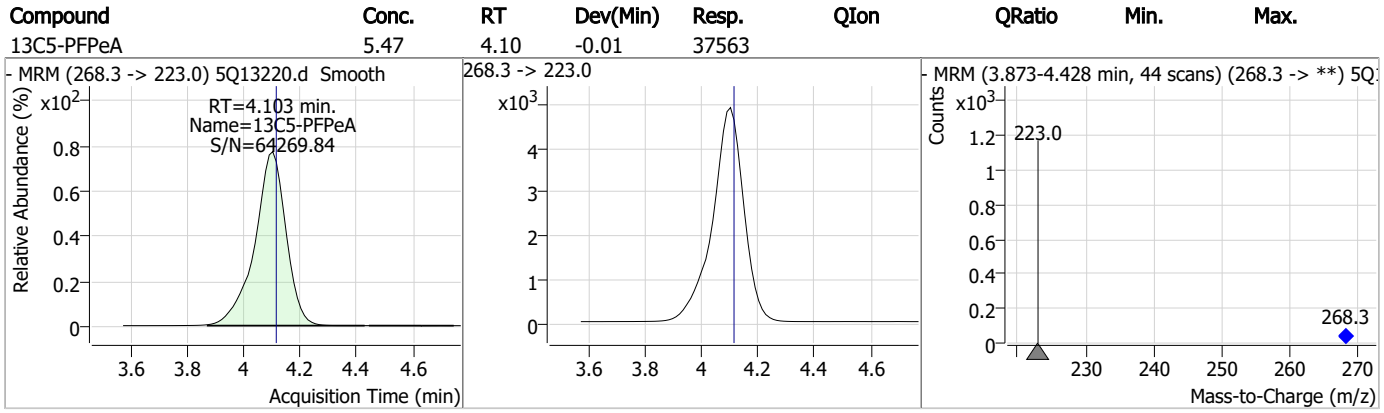
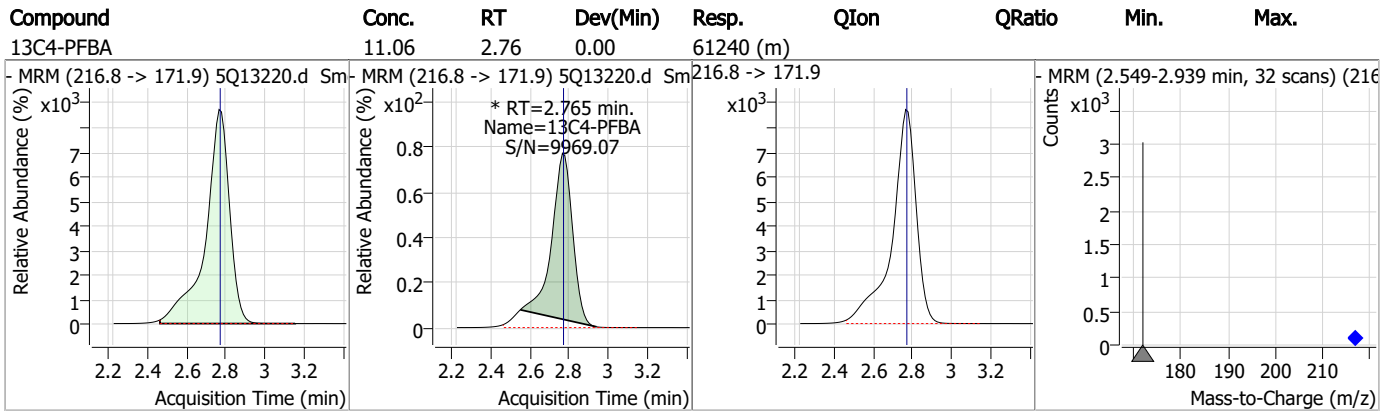
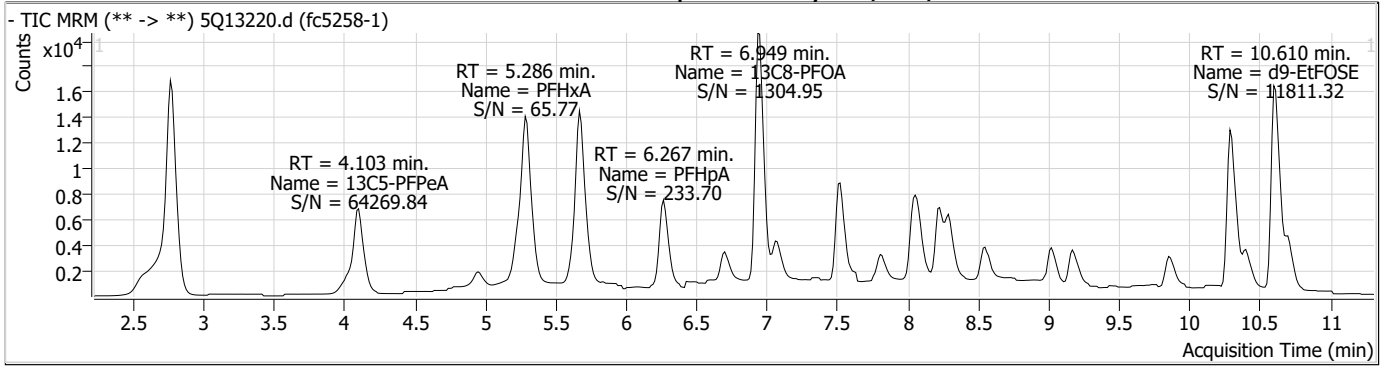
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

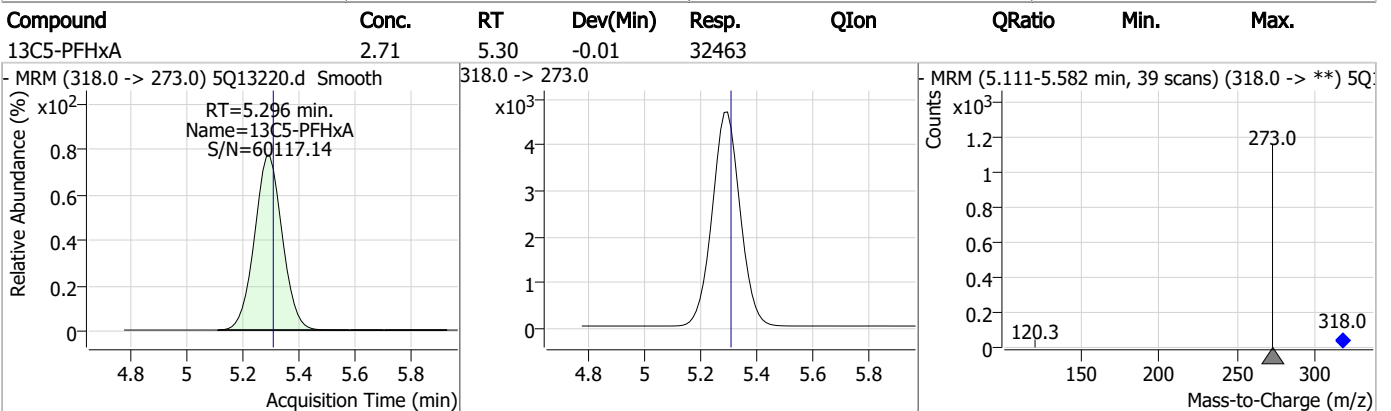
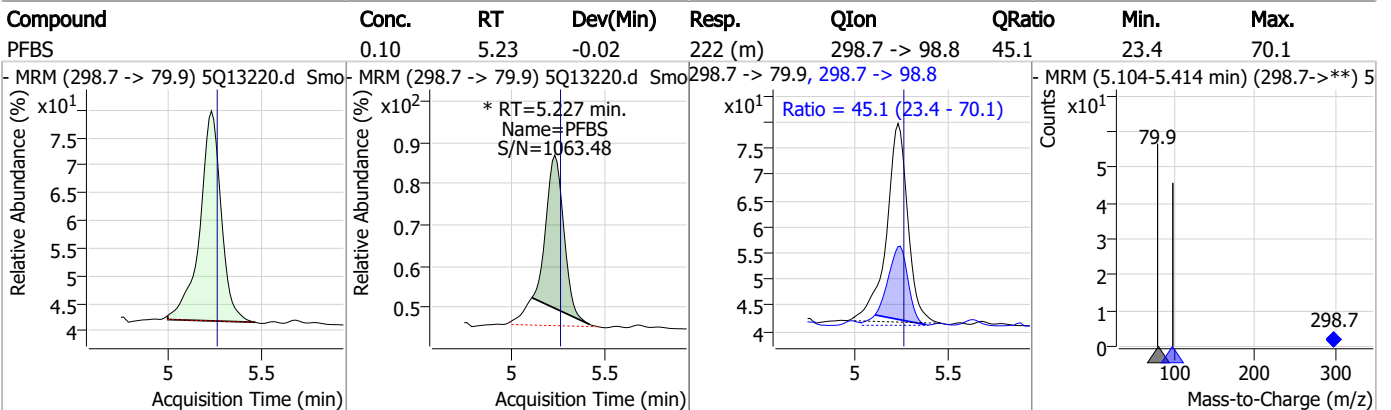
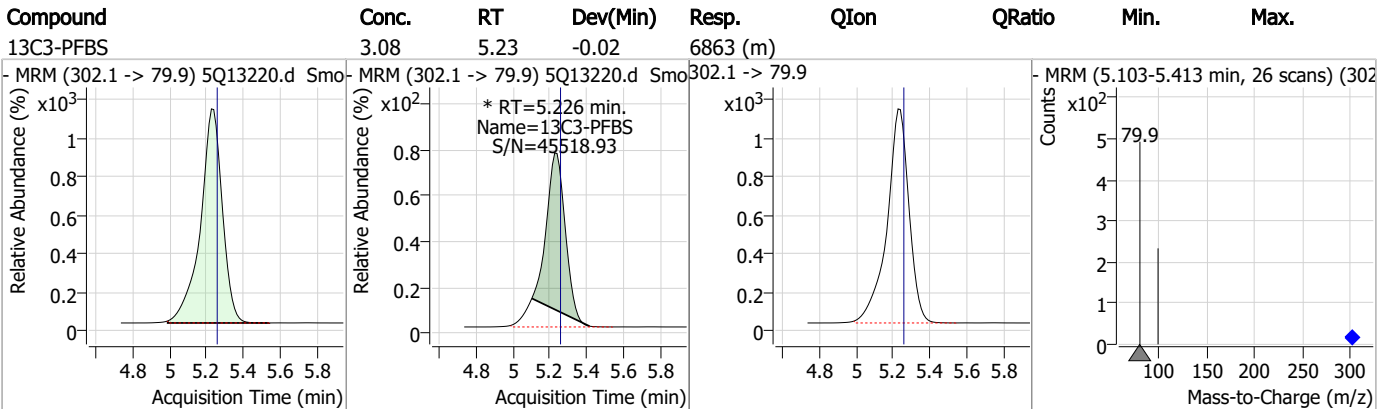
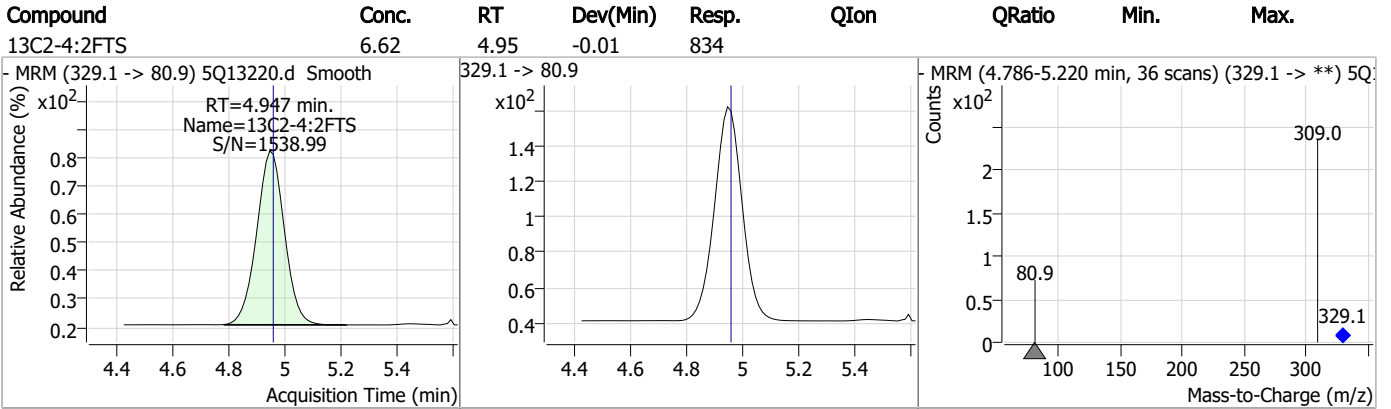
7.1.1  
7

### Perfluorinated Compounds by LC/MS/MS

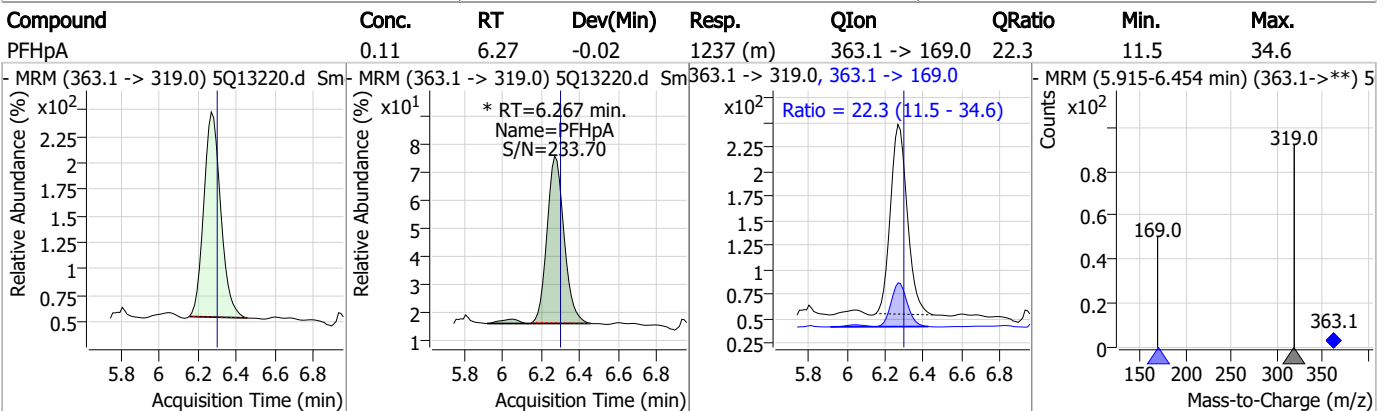
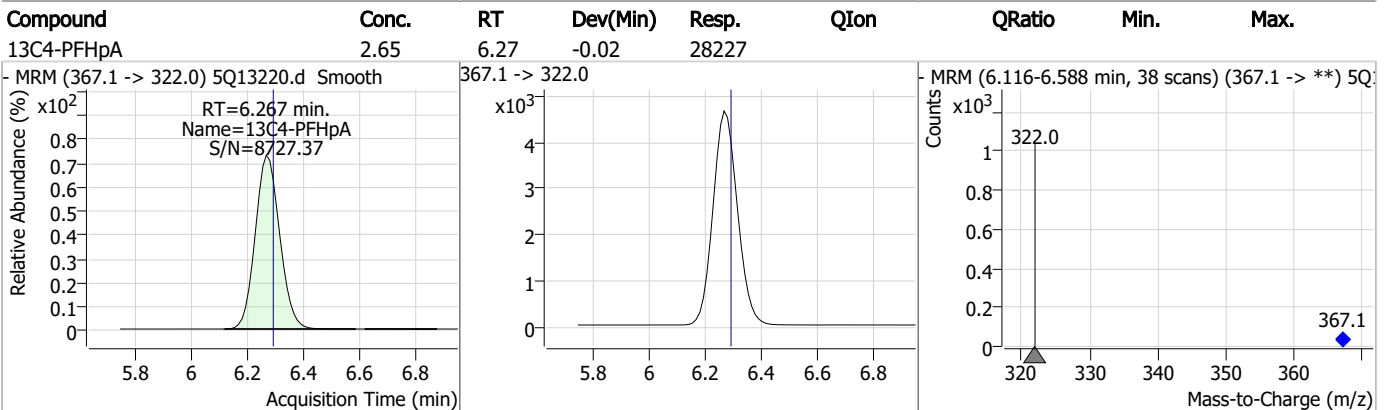
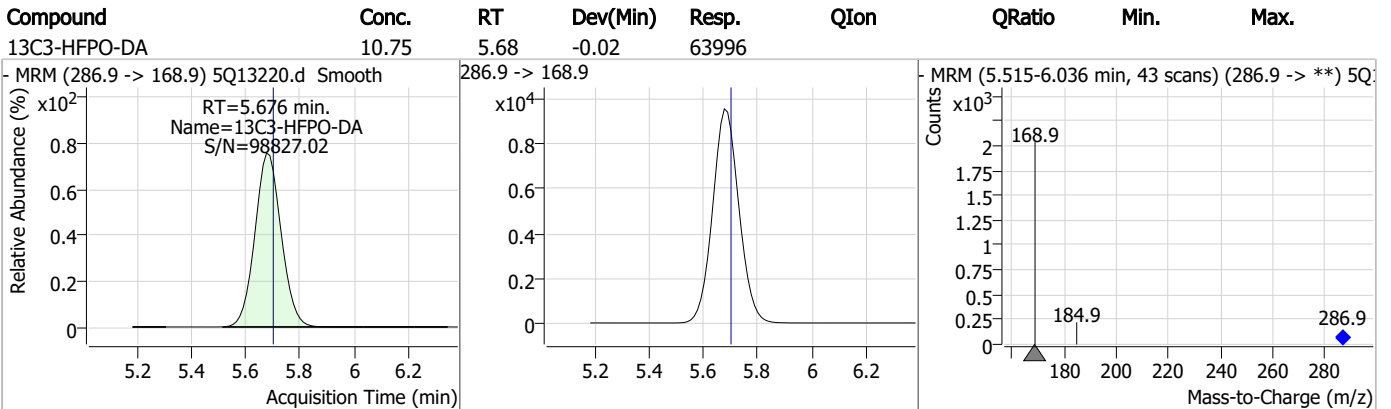
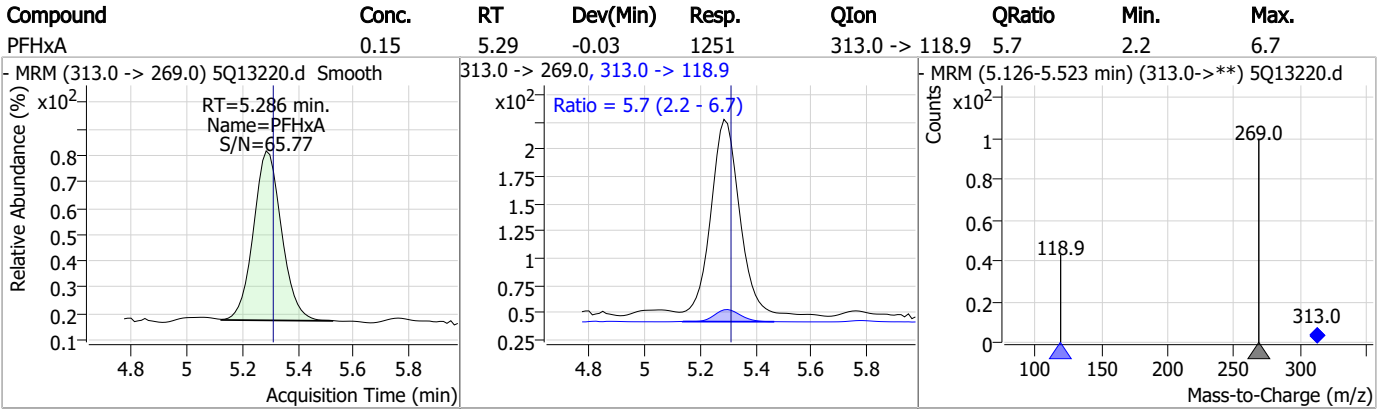




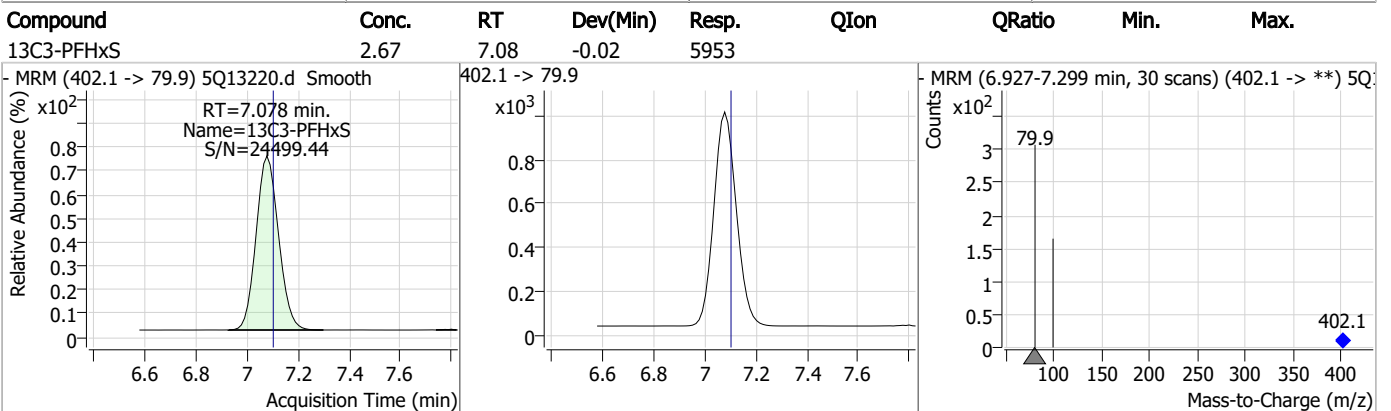
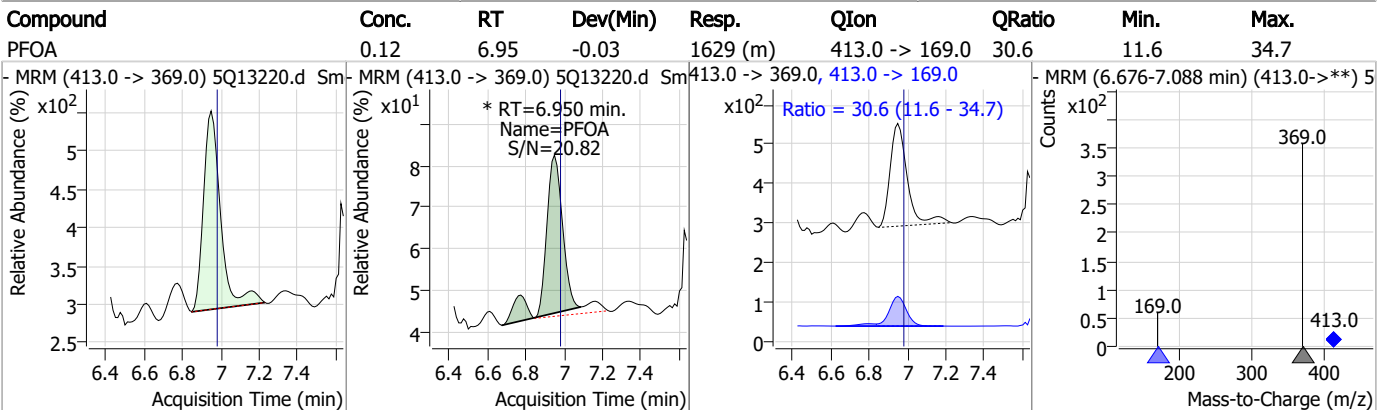
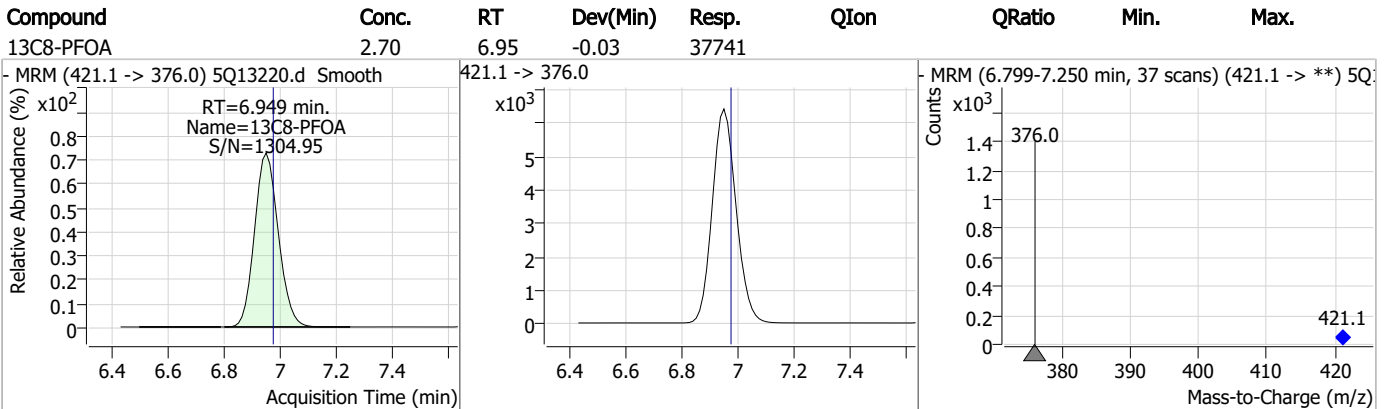
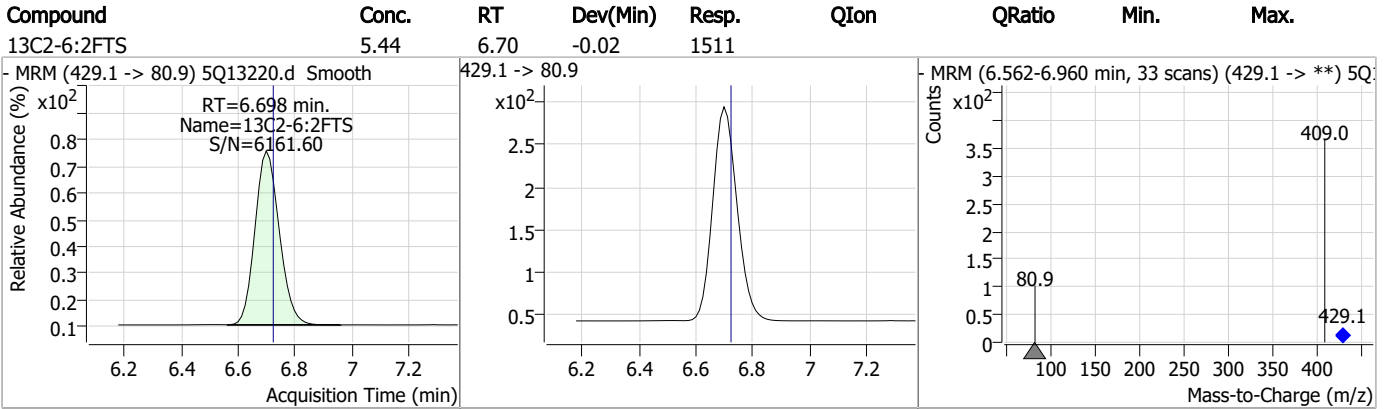
### Perfluorinated Compounds by LC/MS/MS



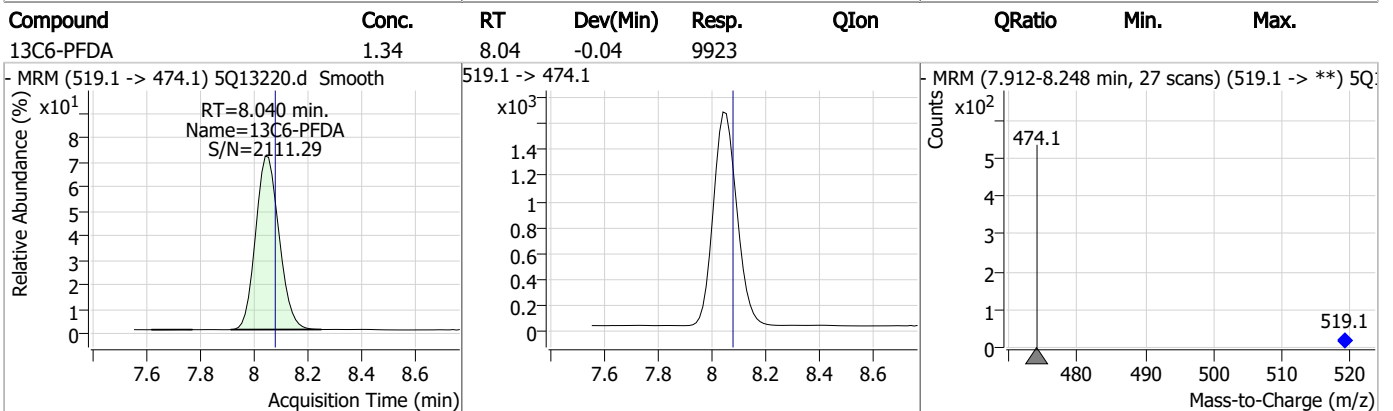
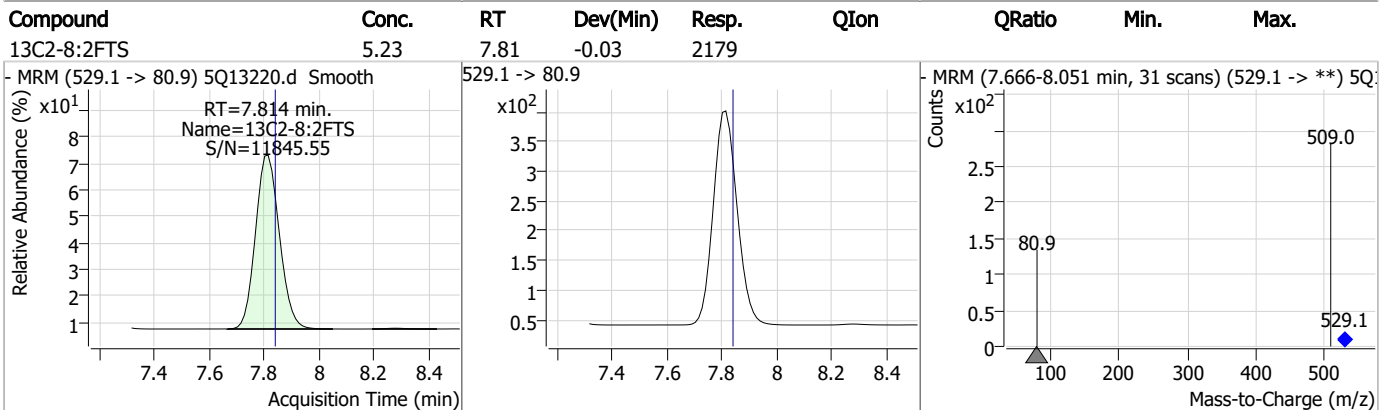
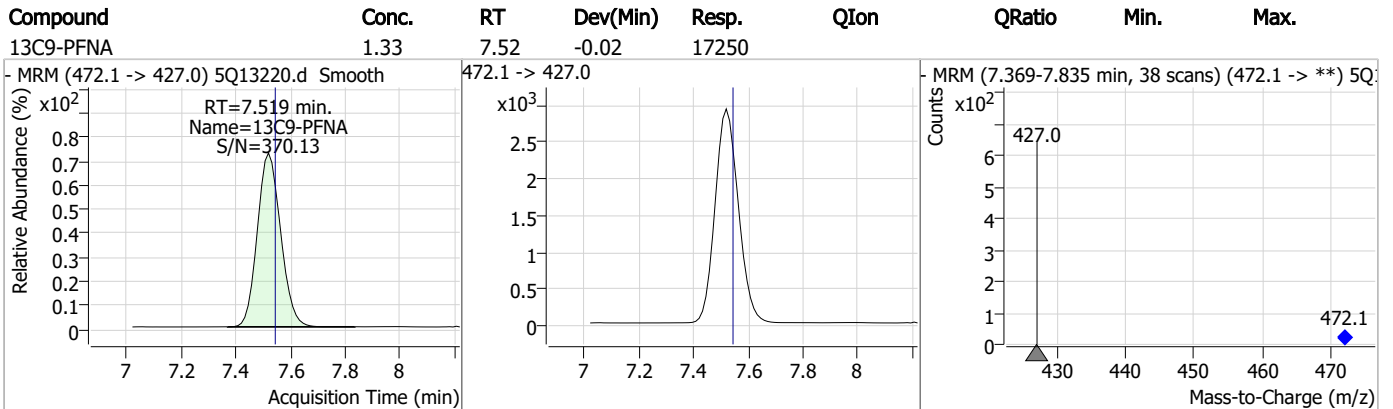
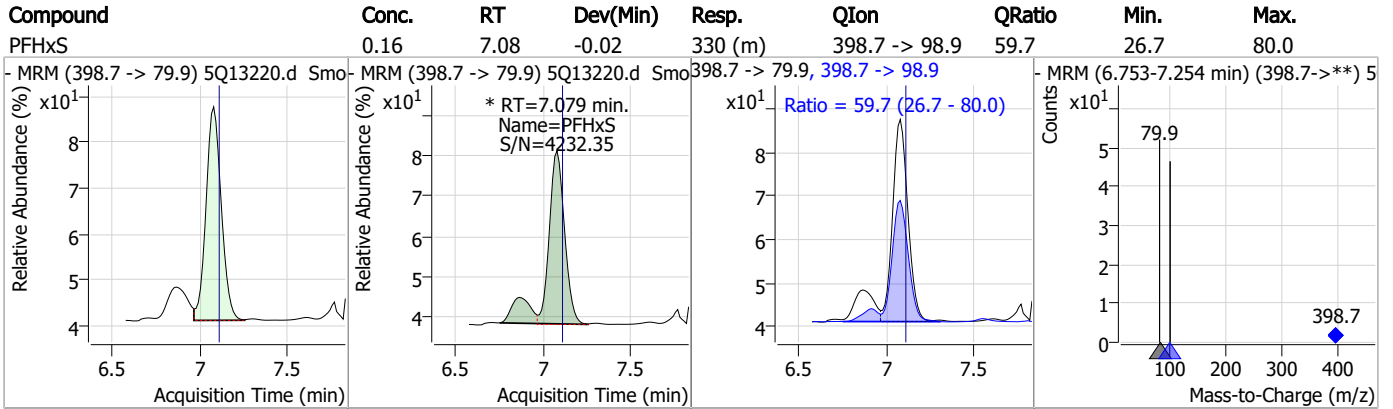
### Perfluorinated Compounds by LC/MS/MS



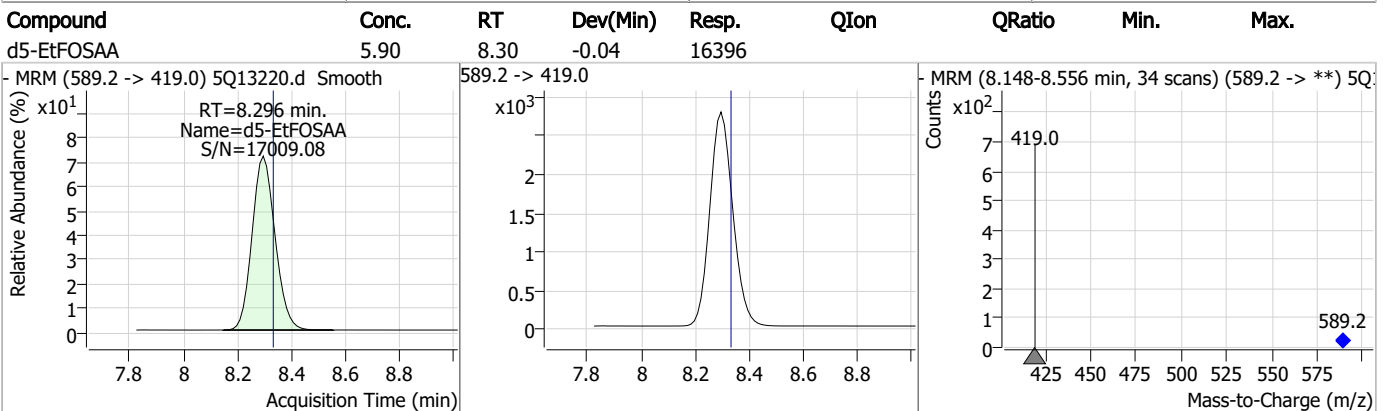
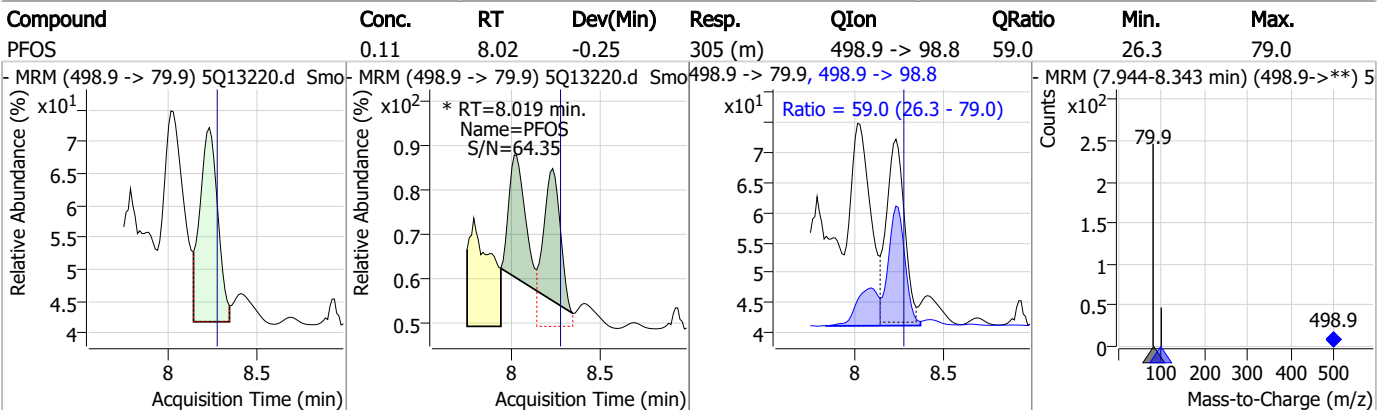
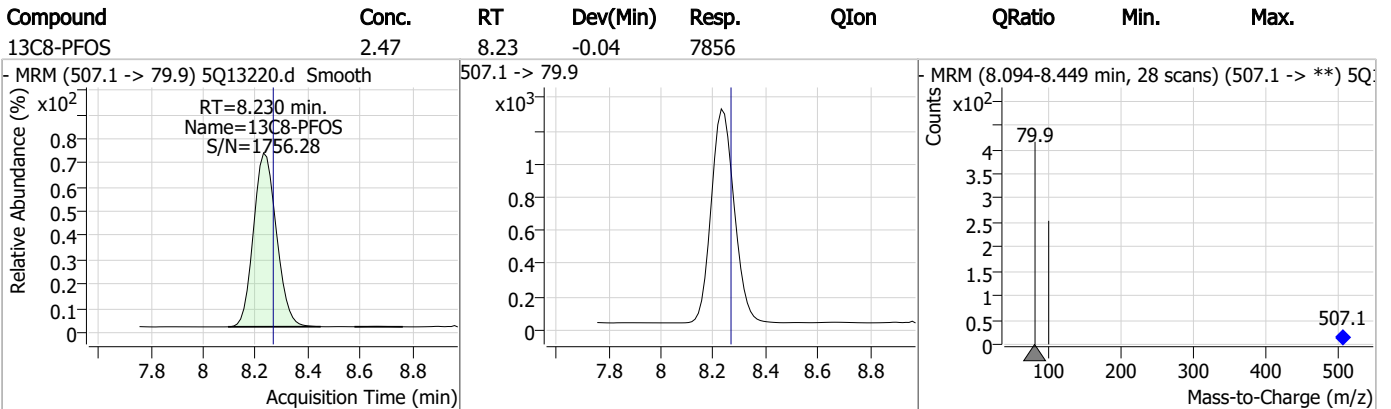
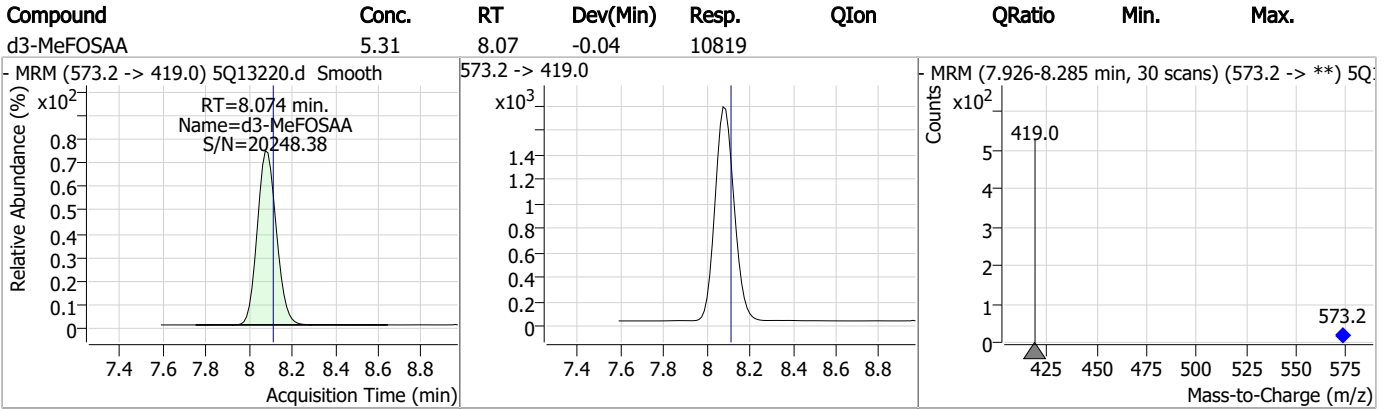
### Perfluorinated Compounds by LC/MS/MS



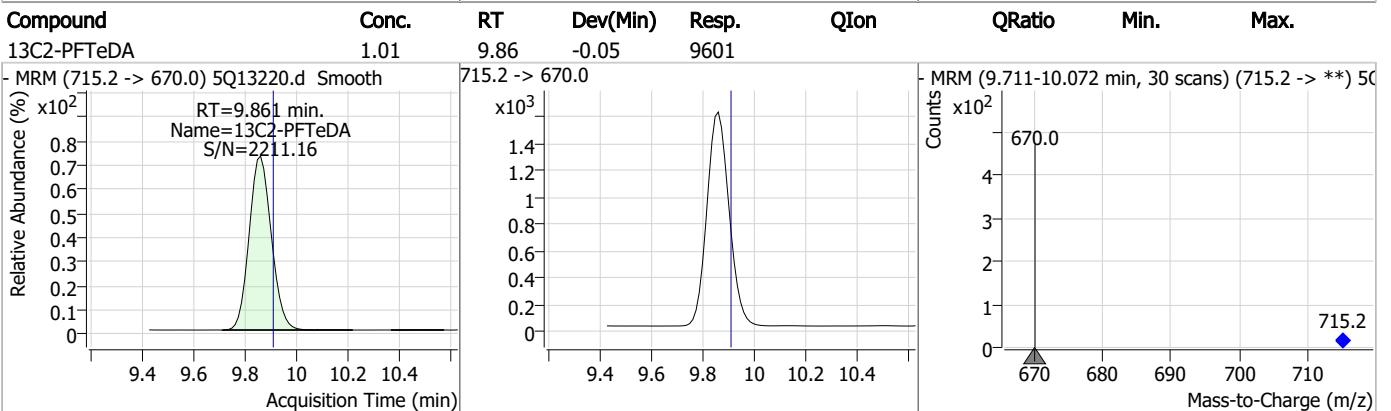
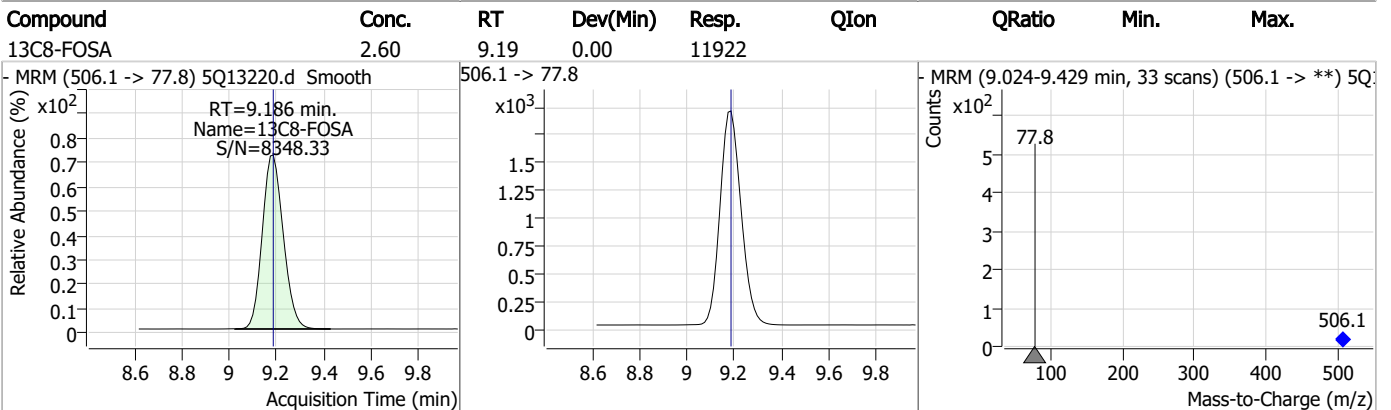
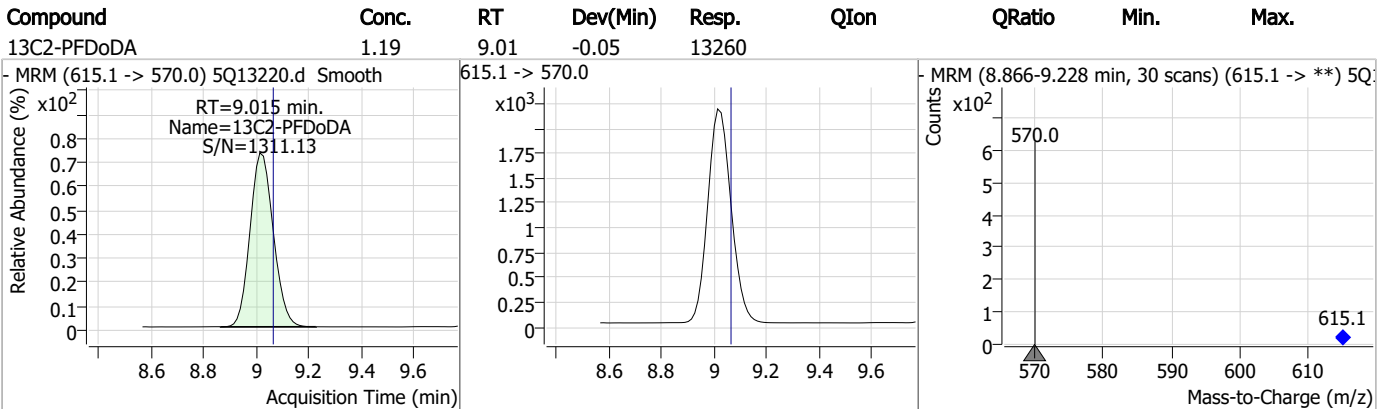
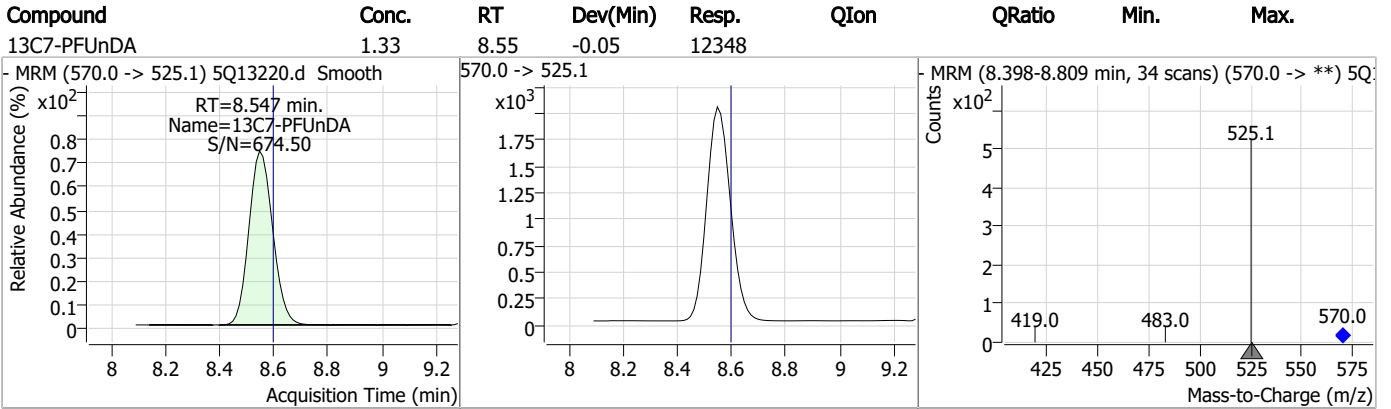
### Perfluorinated Compounds by LC/MS/MS



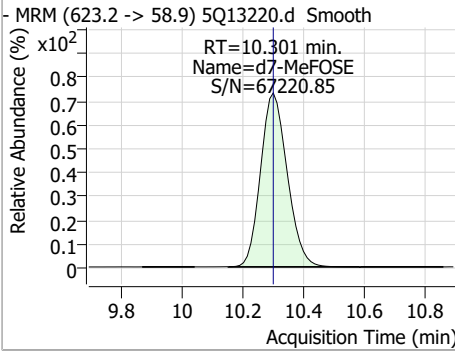
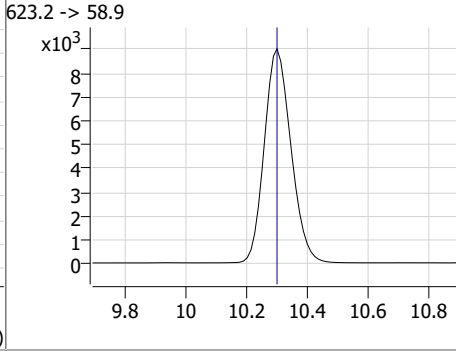
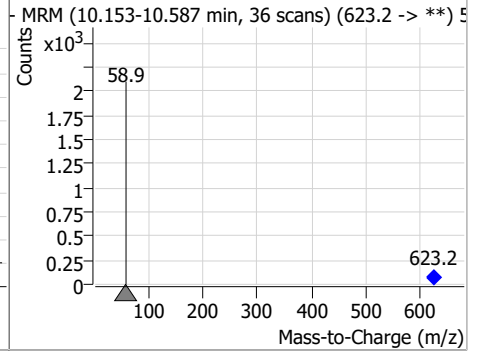
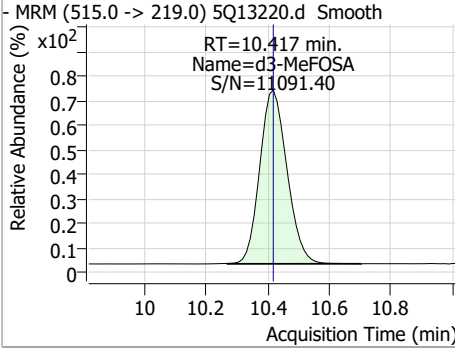
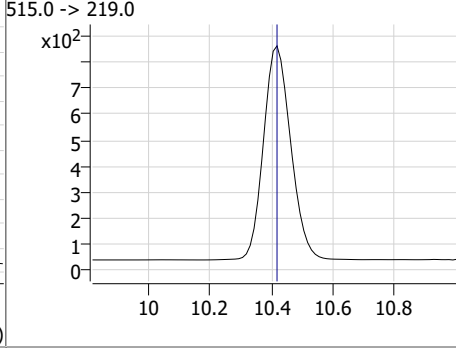
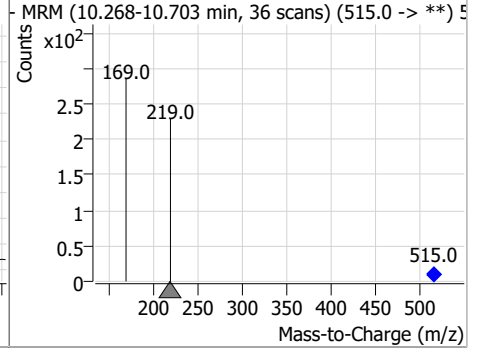
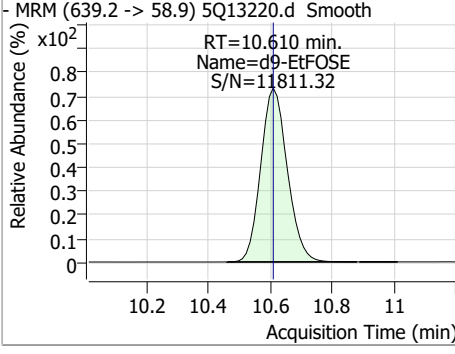
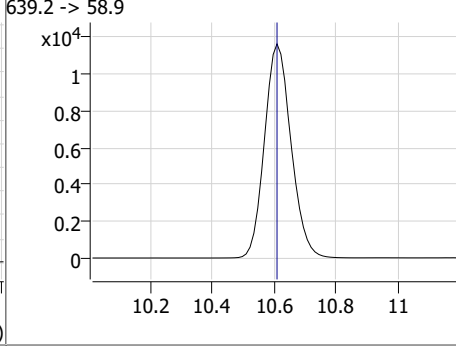
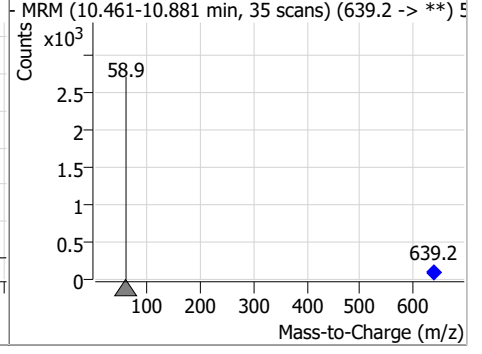
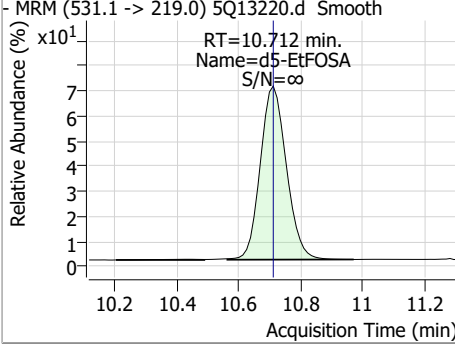
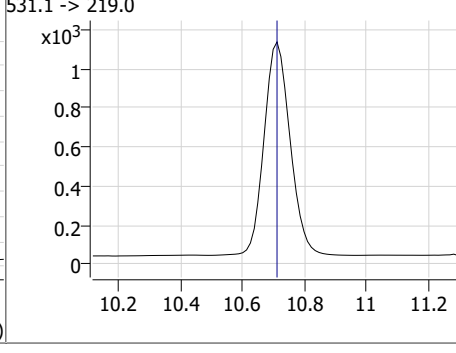
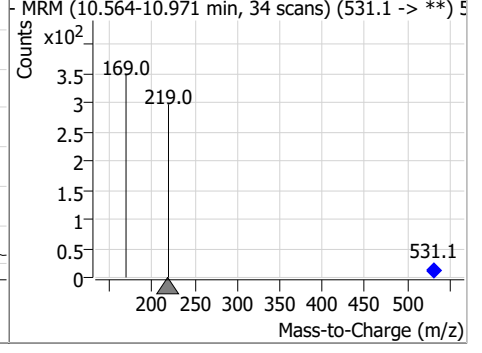
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.77	10.30	0.00	54859				
- MRM (623.2 -> 58.9) 5Q13220.d Smooth RT=10.301 min. Name=d7-MeFOSE S/N=67220.85			623.2 -> 58.9		- MRM (10.153-10.587 min, 36 scans) (623.2 -> **) 5			
								
d3-MeFOSA	2.37	10.42	0.00	5040				
- MRM (515.0 -> 219.0) 5Q13220.d Smooth RT=10.417 min. Name=d3-MeFOSA S/N=11091.40			515.0 -> 219.0		- MRM (10.268-10.703 min, 36 scans) (515.0 -> **) 5			
								
d9-EtFOSE	21.80	10.61	0.00	68659				
- MRM (639.2 -> 58.9) 5Q13220.d Smooth RT=10.610 min. Name=d9-EtFOSE S/N=11811.32			639.2 -> 58.9		- MRM (10.461-10.881 min, 35 scans) (639.2 -> **) 5			
								
d5-EtFOSA	2.25	10.71	0.00	6378				
- MRM (531.1 -> 219.0) 5Q13220.d Smooth RT=10.712 min. Name=d5-EtFOSA S/N=∞			531.1 -> 219.0		- MRM (10.564-10.971 min, 34 scans) (531.1 -> **) 5			
								

7.1.1  
7



# Manual Integration Approval Summary

**Sample Number:** FC5258-1                      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13220.D                      **Analyst approved:** 04/20/23 15:28 Lindsay Ritner  
**Injection Time:** 04/20/23 05:54              **Supervisor approved:** 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.23	Poor instrument integration
Perfluoroheptanoic acid	375-85-9		6.27	Split peak
Perfluorooctanoic acid	335-67-1		6.95	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.08	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.02	Split peak

7.1.1.1  
7



Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Norman Farmer  
 04/21/23 10:49

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13222.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 6:22:42 AM  
 Sample Name : fc5258-2  
 Vial : P3-F2  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96450,S5Q205,550,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	54789	10.00	µg/L m	0.000
M5-PFPeA	4.103	268.3 -> 223.0	36995	5.00	µg/L	-0.012
M5-PFHxA	5.284	318.0 -> 273.0	31810	2.50	µg/L	-0.025
M4-PFHpA	6.267	367.1 -> 322.0	28171	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	36617	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	16099	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	8511	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	10411	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	11083	1.25	µg/L	-0.051
M2-PFTeDA	9.861	715.2 -> 670.0	8544	1.25	µg/L	-0.050
M8-FOSA	9.186	506.1 -> 77.8	10689	2.50	µg/L	0.000
M3-PFBS	5.226	302.1 -> 79.9	6455	2.50	µg/L m	-0.025
M3-PFHxS	7.078	402.1 -> 79.9	5742	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	7085	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	750	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1625	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	1967	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	9908	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	64043	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	15209	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	47116	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	64614	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	6230	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	4681	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	7092	2.50	µg/L	-0.037
13C3-PFBA	2.768	216.0 -> 172.0	26380	5.00	µg/L m	0.000
18O2-PFHxS	7.077	403.0 -> 83.9	3694	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	41776	2.50	µg/L	-0.026
13C2-PFDA	8.041	515.1 -> 470.1	13567	1.25	µg/L	-0.037
13C5-PFNA	7.519	468.0 -> 423.0	15414	1.25	µg/L	-0.025
13C2-PFHxA	5.285	315.1 -> 270.0	30985	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	750	5.87	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%			
13C2-6:2FTS	6.698	429.1 -> 80.9	1625	5.77	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.4%			
13C2-8:2FTS	7.814	529.1 -> 80.9	1967	4.65	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.0%			
13C2-PFDoDA	9.015	615.1 -> 570.0	11083	1.03	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 82.5%			
13C2-PFTeDA	9.861	715.2 -> 670.0	8544	0.94	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 74.9%			
13C3-PFBS	5.226	302.1 -> 79.9	6390	2.83	µg/L m	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.1%			
13C3-PFHxS	7.078	402.1 -> 79.9	5742	2.54	µg/L	-0.025

7.12  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%			
13C4-PFBA	2.765	216.8 -> 171.9	54694	10.82	µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 108.2%			
13C4-PFHpA	6.267	367.1 -> 322.0	28171	2.72	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.9%			
13C5-PFHxA	5.284	318.0 -> 273.0	31810	2.73	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.4%			
13C5-PFPeA	4.103	268.3 -> 223.0	36995	5.54	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%			
13C6-PFDA	8.040	519.1 -> 474.1	8511	1.19	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.4%			
13C7-PFUnDA	8.547	570.0 -> 525.1	10411	1.16	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%			
13C8-FOSA	9.186	506.1 -> 77.8	10689	2.50	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%			
13C8-PFOA	6.949	421.1 -> 376.0	36617	2.68	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.2%			
13C8-PFOS	8.230	507.1 -> 79.9	7085	2.39	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.7%			
13C9-PFNA	7.519	472.1 -> 427.0	16099	1.28	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.8%			
d3-MeFOSAA	8.074	573.2 -> 419.0	9908	5.22	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%			
13C3-HFPO-DA	5.676	286.9 -> 168.9	64043	11.07	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 110.7%			
d3-MeFOSA	10.417	515.0 -> 219.0	4681	2.36	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.3%			
d5-EtFOSAA	8.296	589.2 -> 419.0	15209	5.87	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.3%			
d7-MeFOSE	10.301	623.2 -> 58.9	47116	22.82	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 91.3%			
d9-EtFOSE	10.610	639.2 -> 58.9	64614	22.01	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 88.0%			
d5-EtFOSA	10.712	531.1 -> 219.0	6230	2.36	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.4%			

Target Compounds

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.			
		327.1 -> 80.9					
6:2FTS	-	427.1 -> 407.0	-	N.D.			
		427.1 -> 80.9					
8:2FTS	-	527.1 -> 507.0	-	N.D.			
		527.1 -> 80.8					
EtFOSAA	-	584.2 -> 419.1	-	N.D.			
		584.2 -> 526.0					
FOSA	-	498.1 -> 77.9	-	N.D.			
		498.1 -> 478.0					
MeFOSAA	-	570.1 -> 419.0	-	N.D.			
		570.1 -> 483.0					
PFBA	2.771	212.8 -> 168.9	429	0.21	µg/L m	100	
PFBS	-	298.7 -> 79.9	-	N.D.			
		298.7 -> 98.8					
PFDA	-	512.9 -> 469.0	-	N.D.			
		512.9 -> 219.0					
PFDODA	-	613.1 -> 569.0	-	N.D.			
		613.1 -> 319.0					
PFDS	-	599.0 -> 79.9	-	N.D.			

7.12  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8			
PFHpA	-	363.1 -> 319.0	-	N.D.	
		363.1 -> 169.0			
PFHpS	-	449.0 -> 79.9	-	N.D.	
		449.0 -> 98.9			
PFHxA	5.299	313.0 -> 269.0	1191	0.15 µg/L	98
		313.0 -> 118.9	63		
PFHxS	-	398.7 -> 79.9	-	N.D.	
		398.7 -> 98.9			
PFNA	-	463.0 -> 419.0	-	N.D.	
		463.0 -> 219.0			
PFNS	-	548.8 -> 79.9	-	N.D.	
		548.8 -> 98.9			
PFOA	-	413.0 -> 369.0	-	N.D.	
		413.0 -> 169.0			
PFOS	-	498.9 -> 79.9	-	N.D.	
		498.9 -> 98.8			
PFPeA	4.104	263.0 -> 219.0	3708	0.51 µg/L	100
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
MeFOSA	-	511.9 -> 219.0	-	N.D.	
		511.9 -> 169.0			
MeFOSE	-	616.1 -> 58.9	-	N.D.	
PFDoDS	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
NFDHA	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
PFMBA	-	279.0 -> 85.1	-	N.D.	
PFMPA	-	229.0 -> 84.9	-	N.D.	
PFEESA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

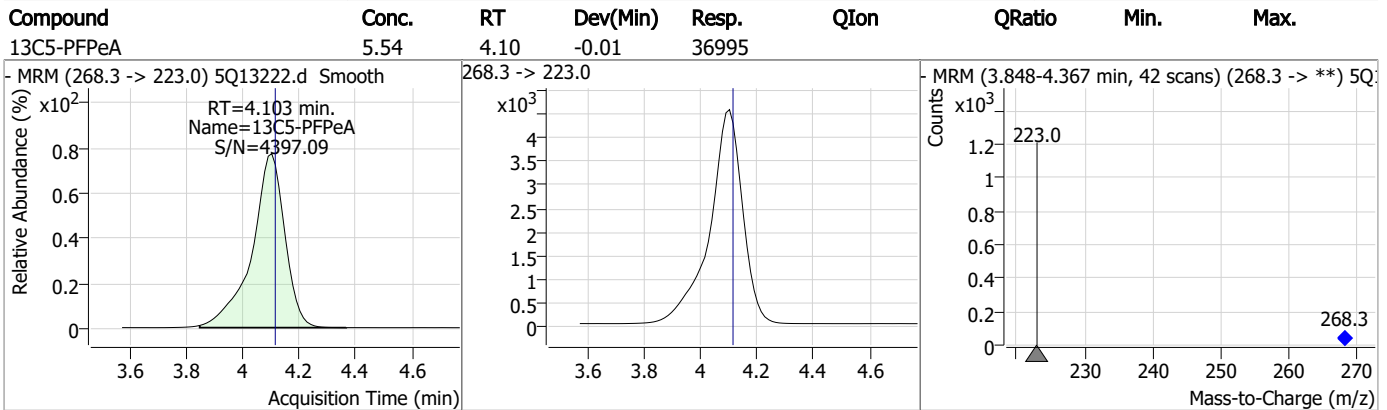
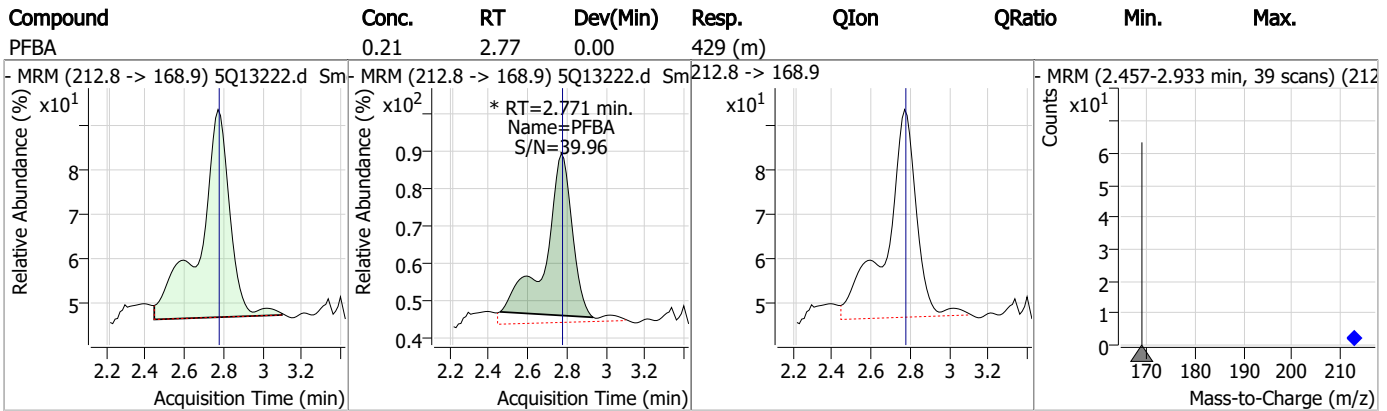
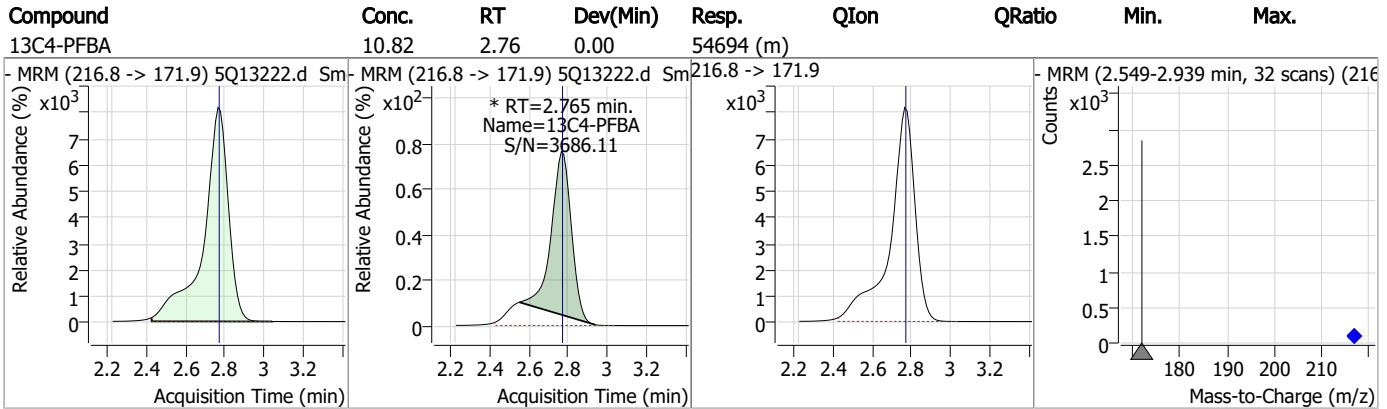
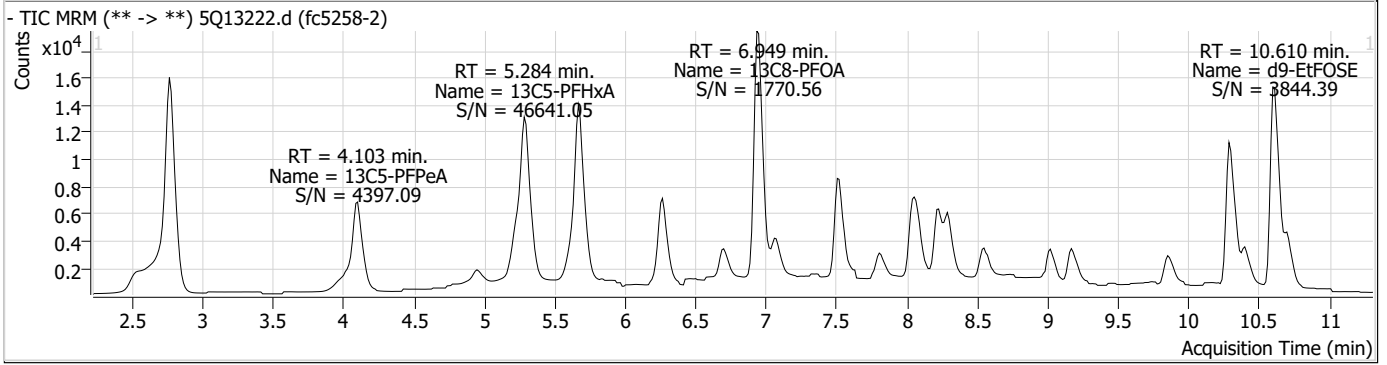
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.1.2  
7



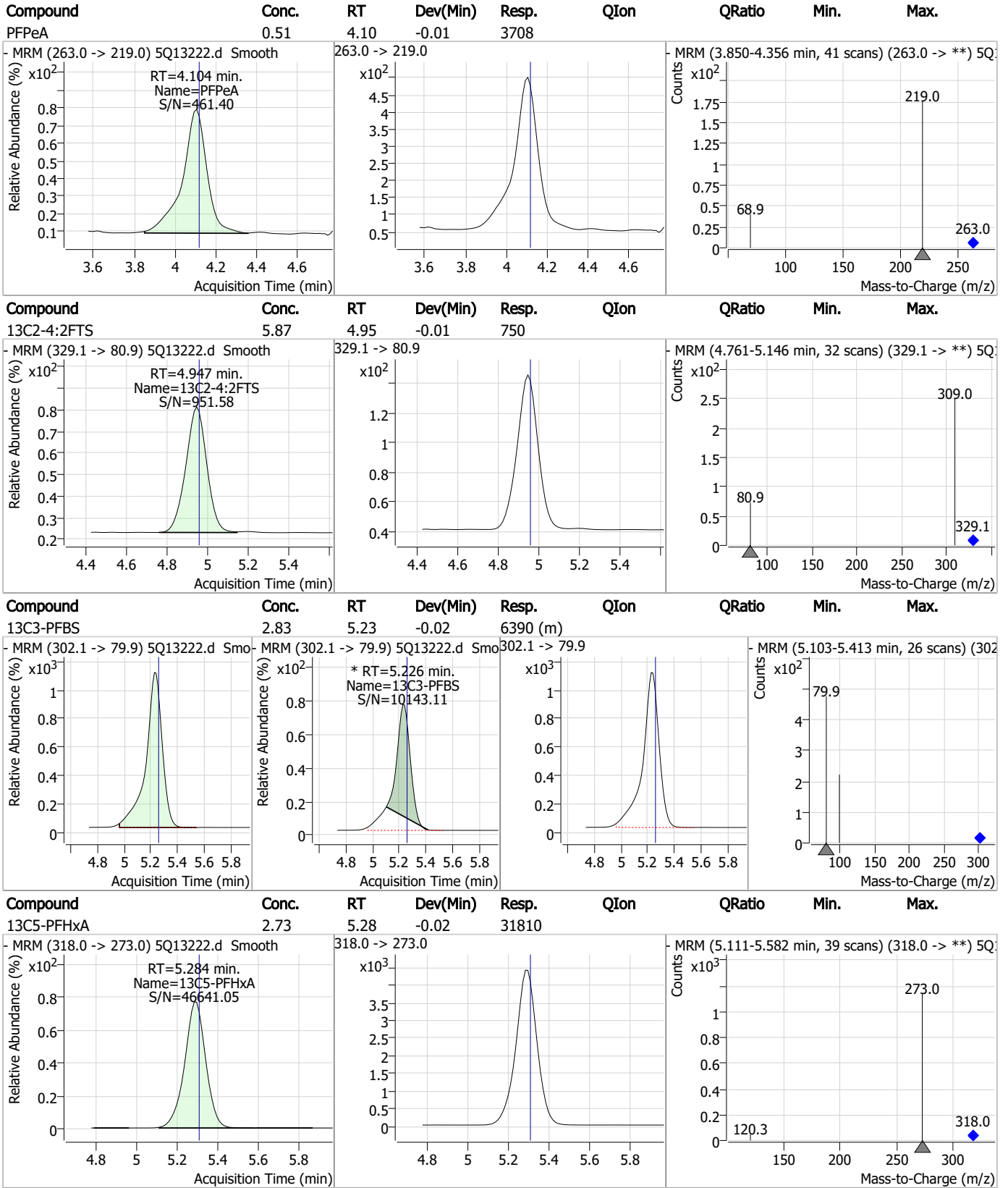
### Perfluorinated Compounds by LC/MS/MS



7.1.2

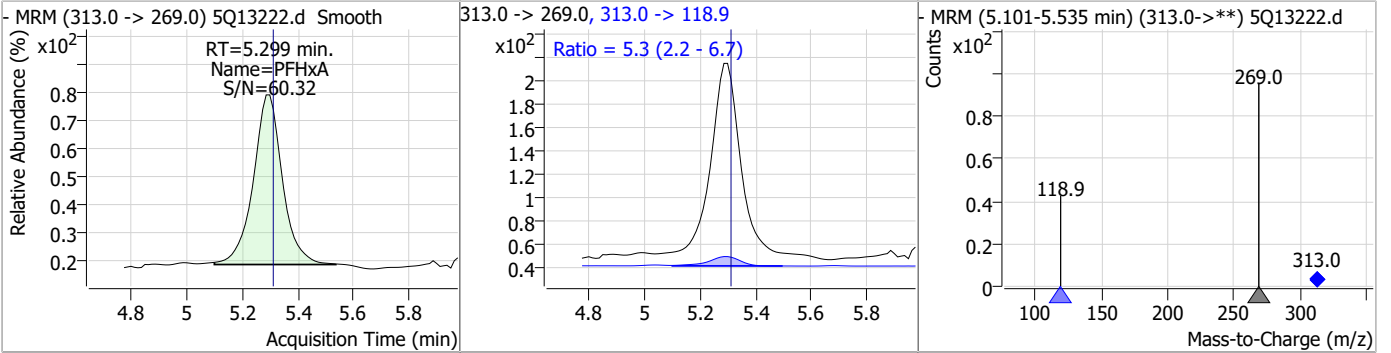
7

### Perfluorinated Compounds by LC/MS/MS

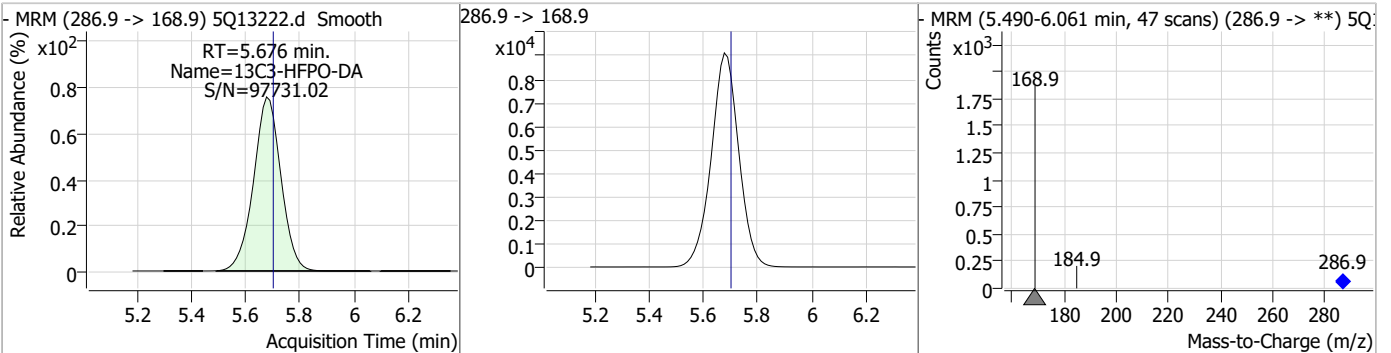


### Perfluorinated Compounds by LC/MS/MS

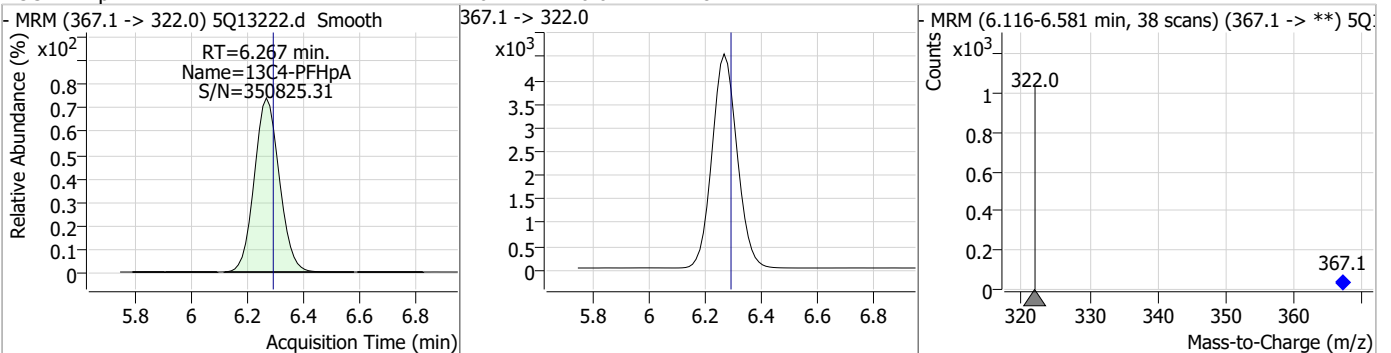
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.15	5.30	-0.01	1191	313.0 -> 118.9	5.3	2.2	6.7



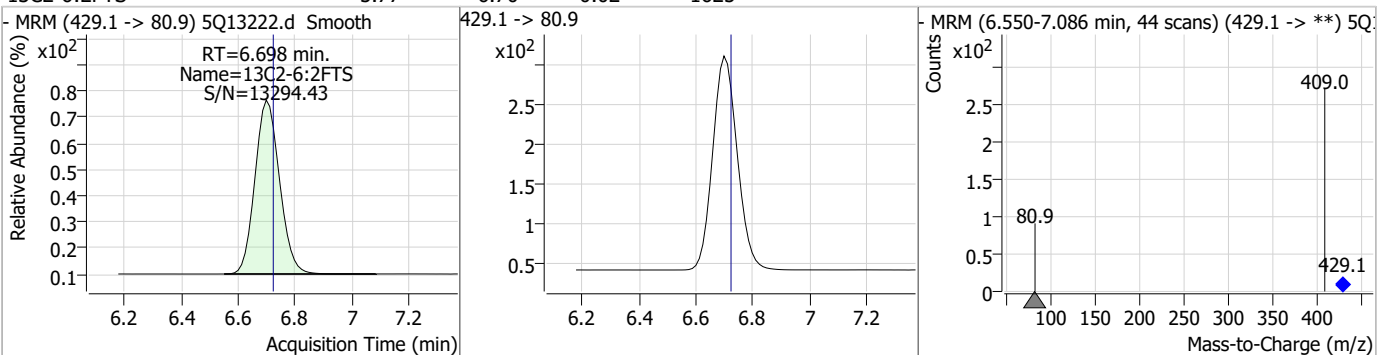
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.07	5.68	-0.02	64043				



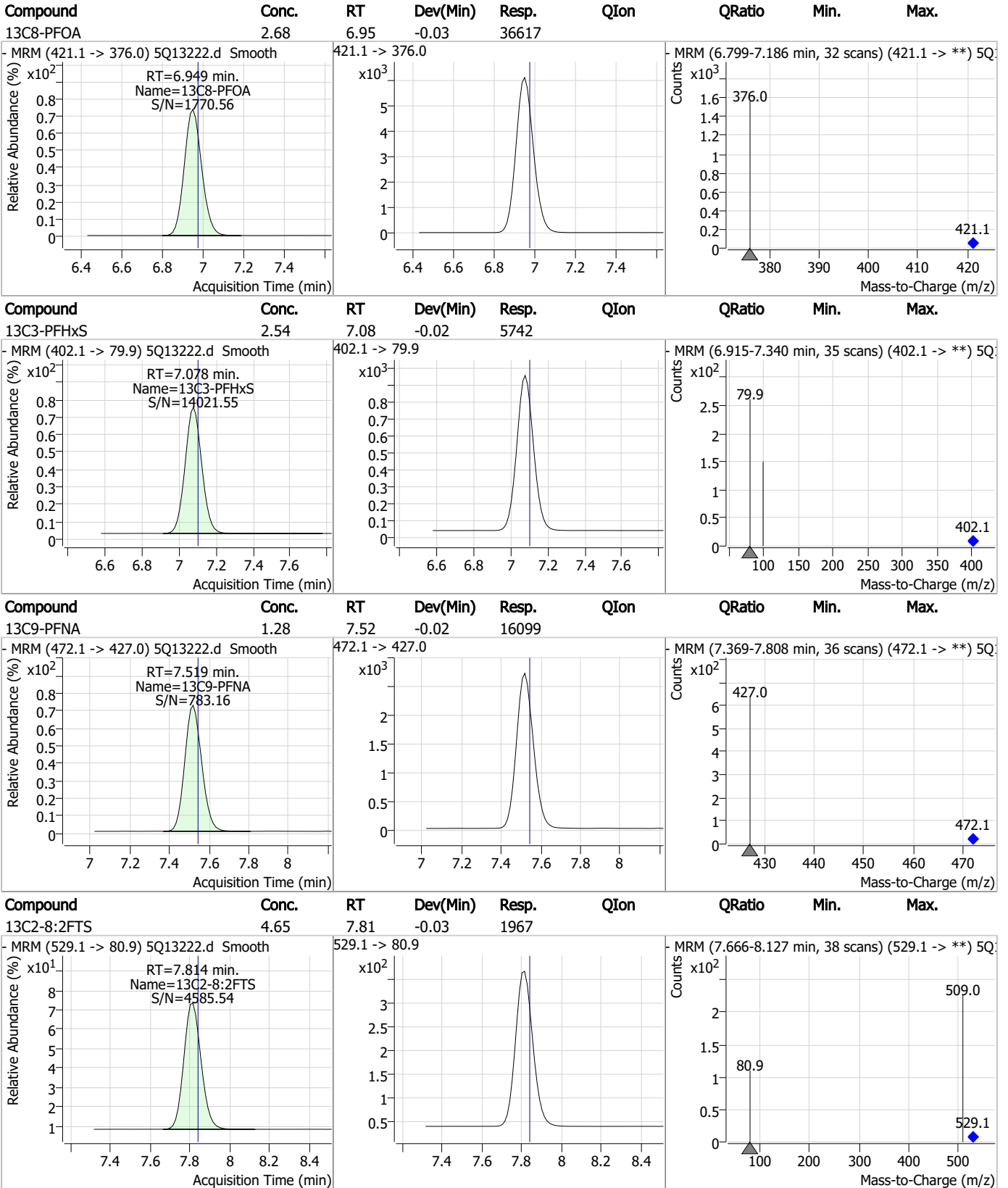
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.72	6.27	-0.02	28171				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.77	6.70	-0.02	1625				



### Perfluorinated Compounds by LC/MS/MS

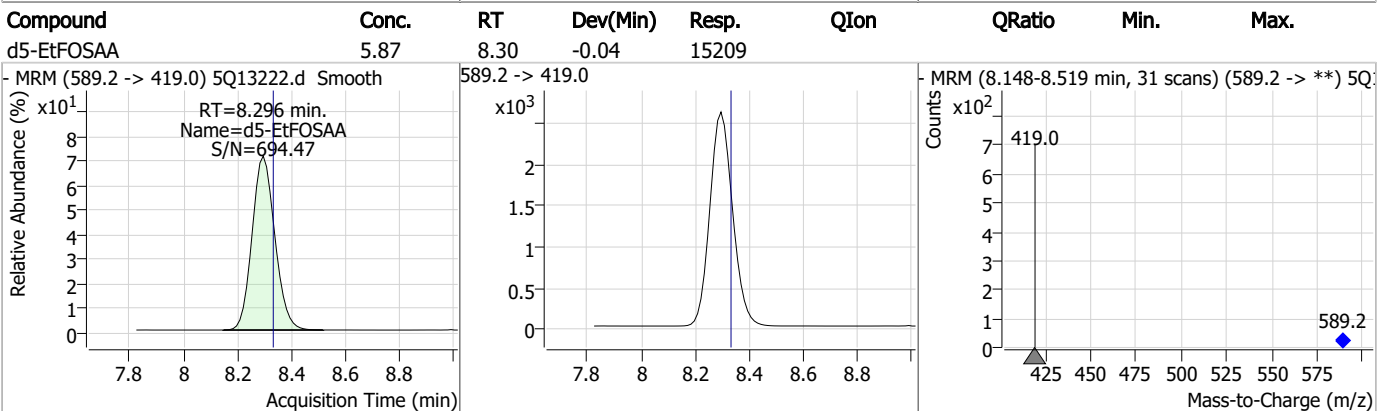
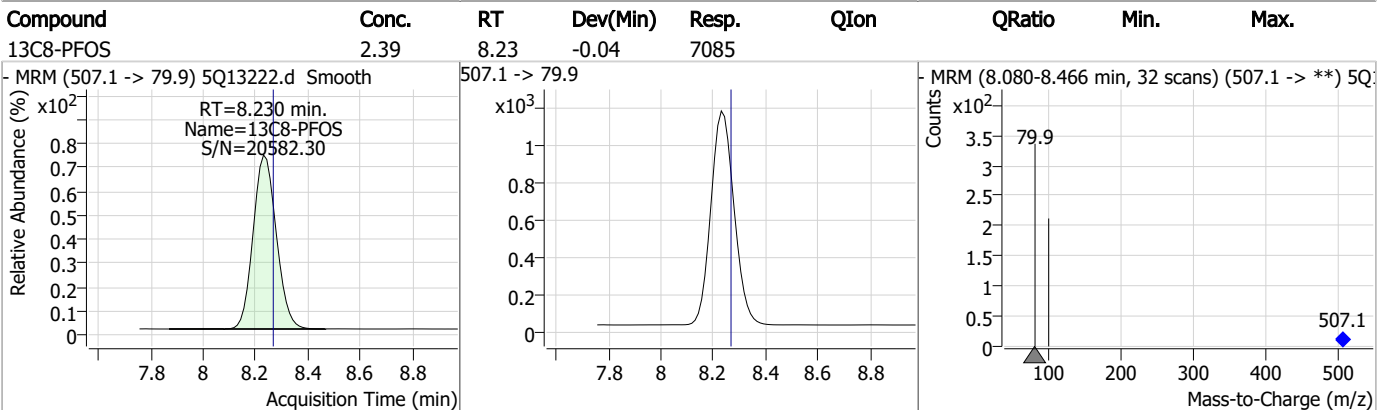
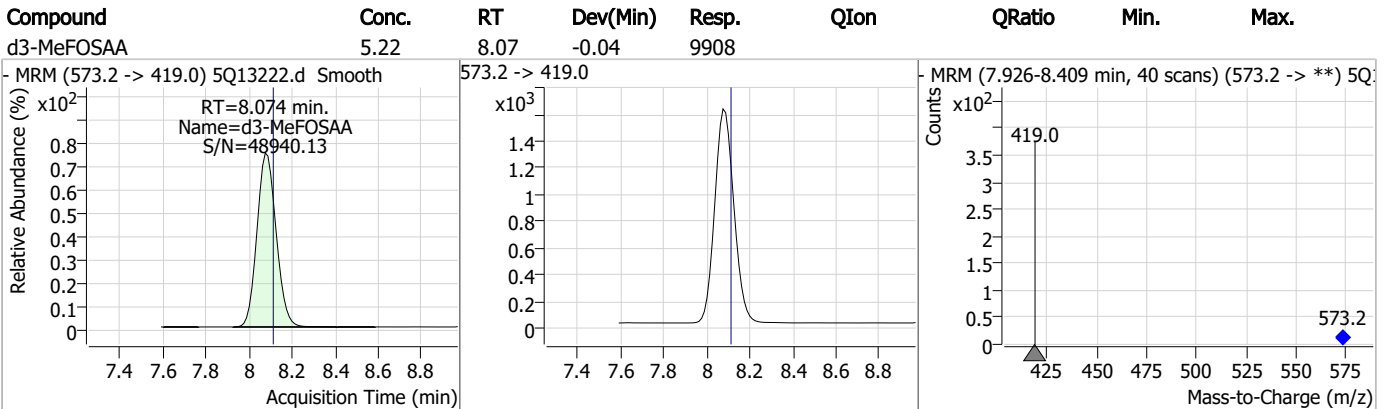
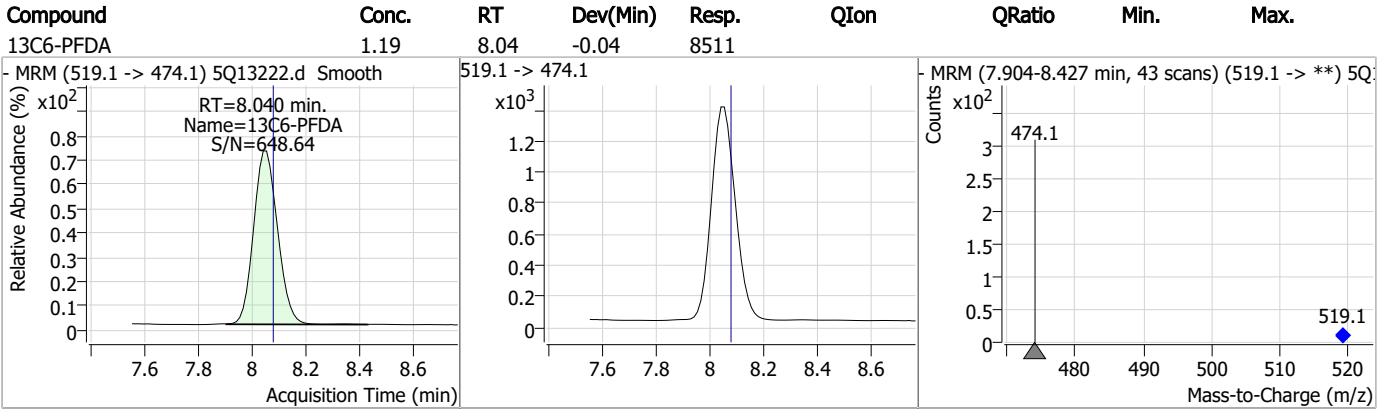


7.1.2

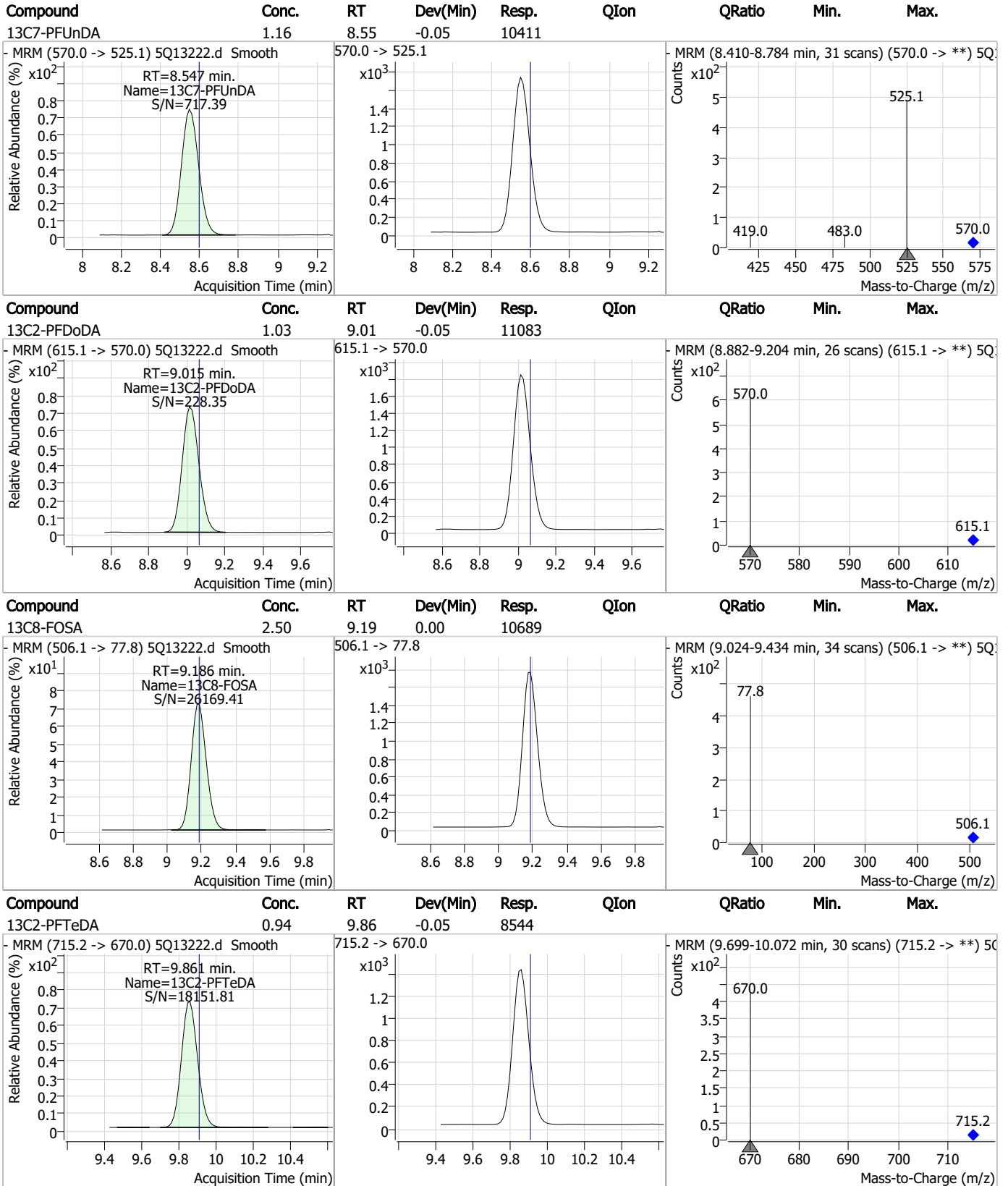
7



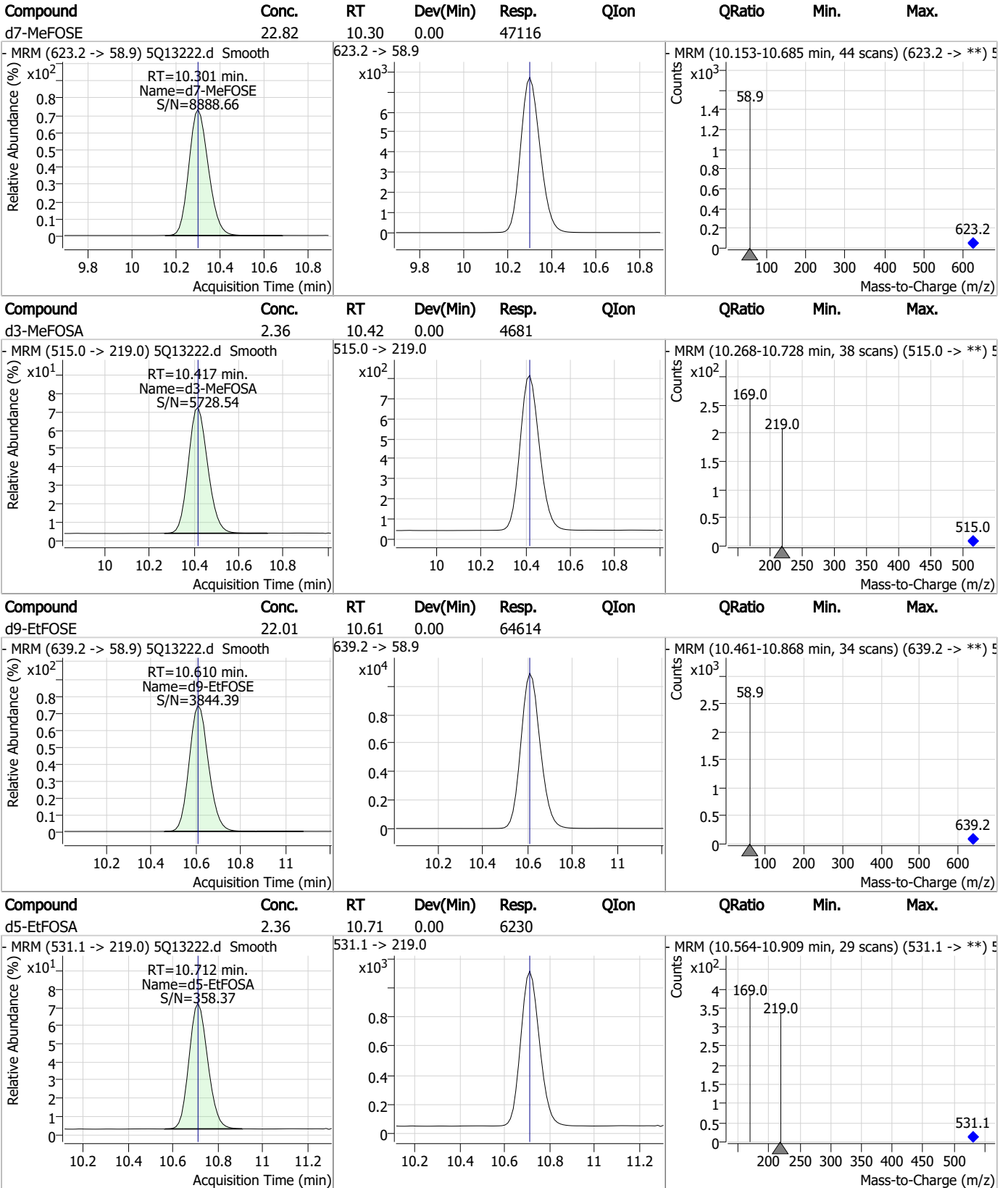
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



# Manual Integration Approval Summary

Sample Number: FC5258-2                      Method: EPA DRAFT 1633  
Lab FileID: 5Q13222.D                      Analyst approved: 04/20/23 15:28 Lindsay Ritner  
Injection Time: 04/20/23 06:22                      Supervisor approved: 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.77	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration

7.1.2.1  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13224.d  
Operator : natashag  
Acq. Method : 1633.m  
Acq. Date-Time : 4/20/2023 6:51:23 AM  
Sample Name : fc5258-3  
Vial : P3-F4  
DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
Batch Name : s5q205.batch.bin  
Sample Information : OP96450,S5Q205,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	56294	10.00	µg/L	m 0.000
M5-PFPeA	4.103	268.3 -> 223.0	39659	5.00	µg/L	-0.012
M5-PFHxA	5.284	318.0 -> 273.0	32918	2.50	µg/L	-0.025
M4-PFHpA	6.267	367.1 -> 322.0	28616	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	38668	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	16808	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	9705	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	12130	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	13305	1.25	µg/L	-0.051
M2-PFTeDA	9.848	715.2 -> 670.0	9898	1.25	µg/L	-0.062
M8-FOSA	9.173	506.1 -> 77.8	11564	2.50	µg/L	-0.012
M3-PFBS	5.226	302.1 -> 79.9	6462	2.50	µg/L	m -0.025
M3-PFHxS	7.078	402.1 -> 79.9	6570	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	7691	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	679	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1443	5.00	µg/L	-0.025
M2-8:2FTS	7.802	529.1 -> 80.9	2387	5.00	µg/L	-0.039
M3-MeFOSAA	8.074	573.2 -> 419.0	10947	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	66626	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	17194	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	52951	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	75091	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	7267	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	5365	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	7293	2.50	µg/L	-0.037
13C3-PFBA	2.768	216.0 -> 172.0	26667	5.00	µg/L	m 0.000
18O2-PFHxS	7.077	403.0 -> 83.9	3623	2.50	µg/L	-0.025
13C4-PFOA	6.937	417.1 -> 372.0	43227	2.50	µg/L	-0.038
13C2-PFDA	8.041	515.1 -> 470.1	14439	1.25	µg/L	-0.037
13C5-PFNA	7.519	468.0 -> 423.0	15477	1.25	µg/L	-0.025
13C2-PFHxA	5.285	315.1 -> 270.0	30826	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	679	5.42	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.4%		
13C2-6:2FTS	6.698	429.1 -> 80.9	1443	5.23	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%		
13C2-8:2FTS	7.802	529.1 -> 80.9	2387	5.76	µg/L	-0.039
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 115.1%		
13C2-PFDoDA	9.015	615.1 -> 570.0	13305	1.16	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.1%		
13C2-PFTeDA	9.848	715.2 -> 670.0	9898	1.02	µg/L	-0.062
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 81.5%		
13C3-PFBS	5.226	302.1 -> 79.9	6431	2.90	µg/L	m -0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 116.0%		
13C3-PFHxS	7.078	402.1 -> 79.9	6570	2.96	µg/L	-0.025

7.1.3  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50 13C4-PFBA	2.765	216.8 -> 171.9	56377	11.03	µg/L m	0.000
Spiked Amount: 10.00 13C4-PFHpA	6.267	367.1 -> 322.0	28616	2.78	µg/L	-0.025
Spiked Amount: 2.50 13C5-PFHxA	5.284	318.0 -> 273.0	32918	2.84	µg/L	-0.025
Spiked Amount: 2.50 13C5-PFPeA	4.103	268.3 -> 223.0	39659	5.97	µg/L	-0.012
Spiked Amount: 5.00 13C6-PFDA	8.040	519.1 -> 474.1	9705	1.28	µg/L	-0.037
Spiked Amount: 1.25 13C7-PFUnDA	8.547	570.0 -> 525.1	12130	1.28	µg/L	-0.051
Spiked Amount: 1.25 13C8-FOSA	9.173	506.1 -> 77.8	11564	2.63	µg/L	-0.012
Spiked Amount: 2.50 13C8-PFOA	6.949	421.1 -> 376.0	38668	2.74	µg/L	-0.025
Spiked Amount: 2.50 13C8-PFOS	8.230	507.1 -> 79.9	7691	2.53	µg/L	-0.037
Spiked Amount: 2.50 13C9-PFNA	7.519	472.1 -> 427.0	16808	1.34	µg/L	-0.025
Spiked Amount: 1.25 d3-MeFOSAA	8.074	573.2 -> 419.0	10947	5.61	µg/L	-0.037
Spiked Amount: 5.00 13C3-HFPO-DA	5.676	286.9 -> 168.9	66626	11.58	µg/L	-0.025
Spiked Amount: 10.00 d3-MeFOSA	10.417	515.0 -> 219.0	5365	2.63	µg/L	0.000
Spiked Amount: 2.50 d5-EtFOSAA	8.296	589.2 -> 419.0	17194	6.45	µg/L	-0.037
Spiked Amount: 5.00 d7-MeFOSE	10.301	623.2 -> 58.9	52951	24.94	µg/L	0.000
Spiked Amount: 25.00 d9-EtFOSE	10.610	639.2 -> 58.9	75091	24.87	µg/L	0.000
Spiked Amount: 25.00 d5-EtFOSA	10.712	531.1 -> 219.0	7267	2.68	µg/L	0.000
Spiked Amount: 2.50		Range: 50.0 - 150.0%			Recovery = 107.1%	

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0 327.1 -> 80.9	-	N.D.		
6:2FTS	-	427.1 -> 407.0 427.1 -> 80.9	-	N.D.		
8:2FTS	-	527.1 -> 507.0 527.1 -> 80.8	-	N.D.		
EtFOSAA	-	584.2 -> 419.1 584.2 -> 526.0	-	N.D.		
FOSA	-	498.1 -> 77.9 498.1 -> 478.0	-	N.D.		
MeFOSAA	-	570.1 -> 419.0 570.1 -> 483.0	-	N.D.		
PFBA	2.771	212.8 -> 168.9	385	0.19	µg/L m	100
PFBS	-	298.7 -> 79.9 298.7 -> 98.8	-	N.D.		
PFDA	-	512.9 -> 469.0 512.9 -> 219.0	-	N.D.		
PFDODA	-	613.1 -> 569.0 613.1 -> 319.0	-	N.D.		
PFDS	-	599.0 -> 79.9	-	N.D.		



7.13  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	5.286	449.0 -> 98.9	1128	0.14 µg/L	100
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	50	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	4.104	498.9 -> 98.8	3726	0.48 µg/L	100
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

### Perfluorinated Compounds by LC/MS/MS

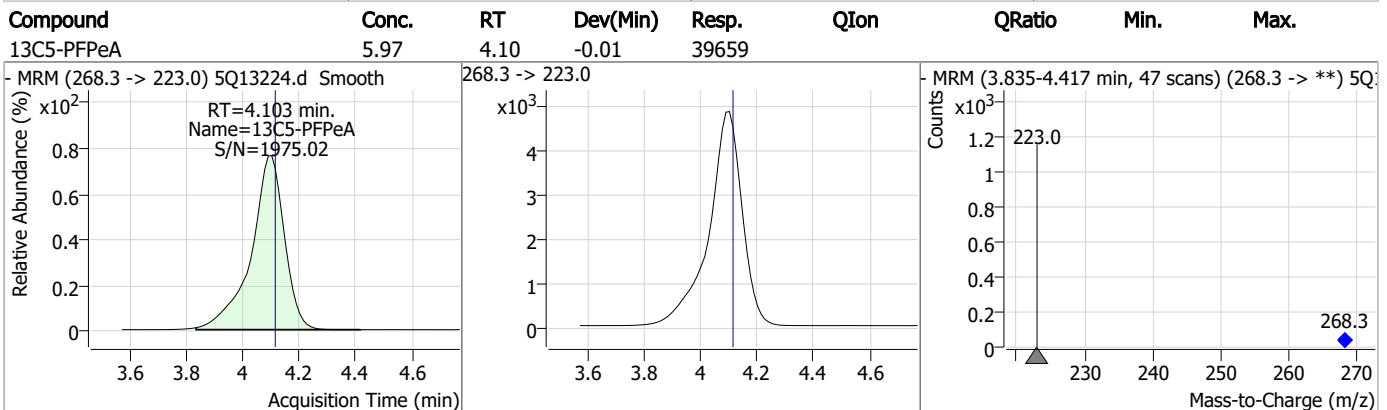
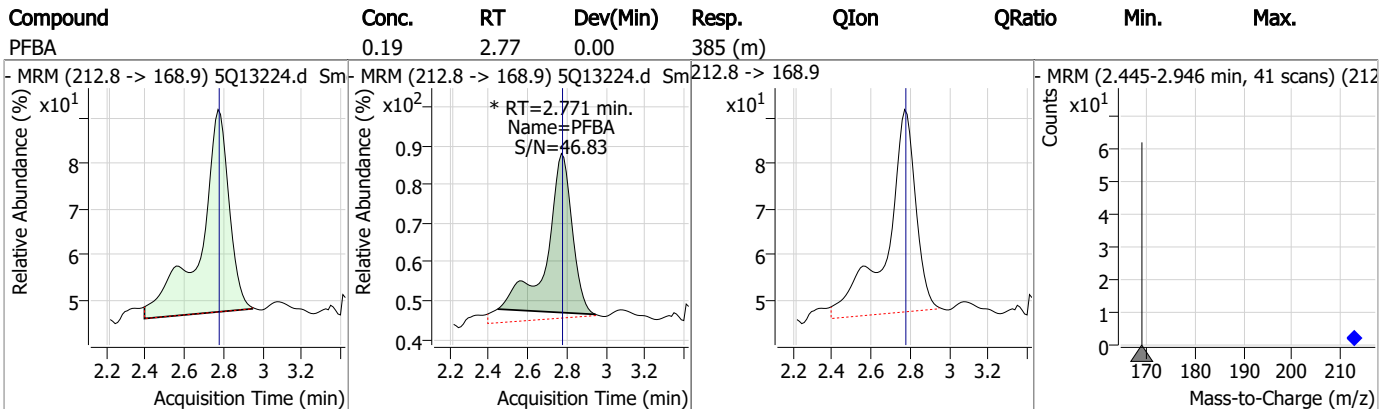
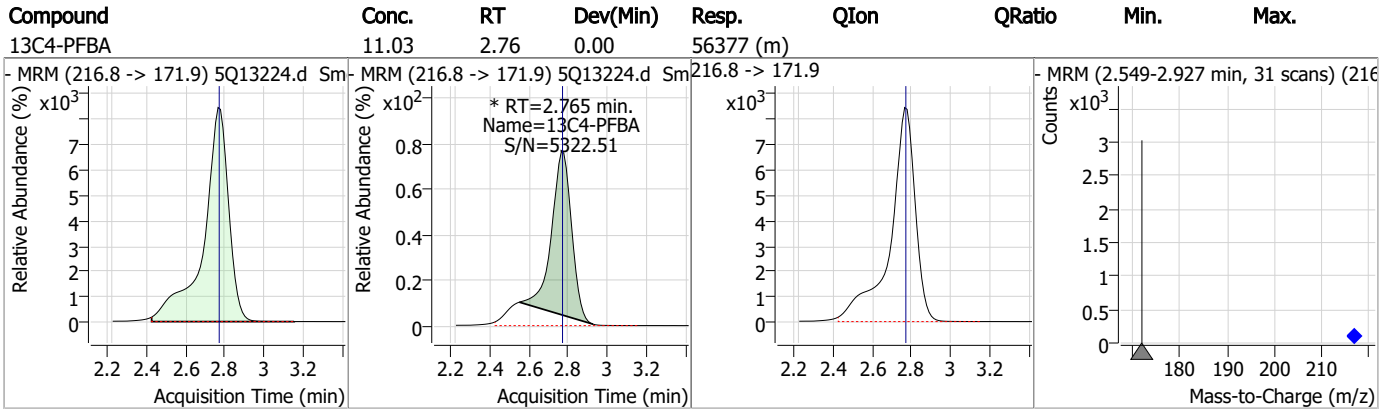
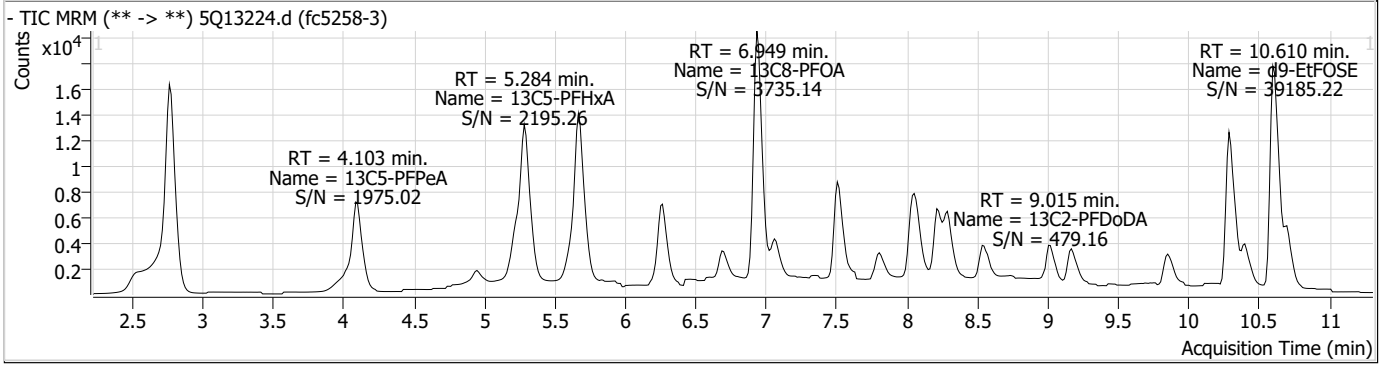
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.1.3  
7

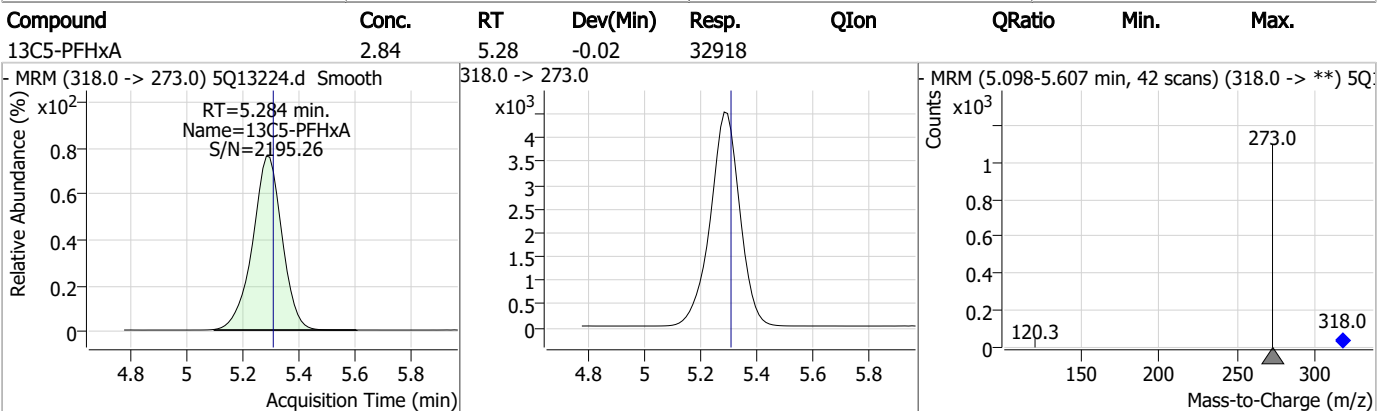
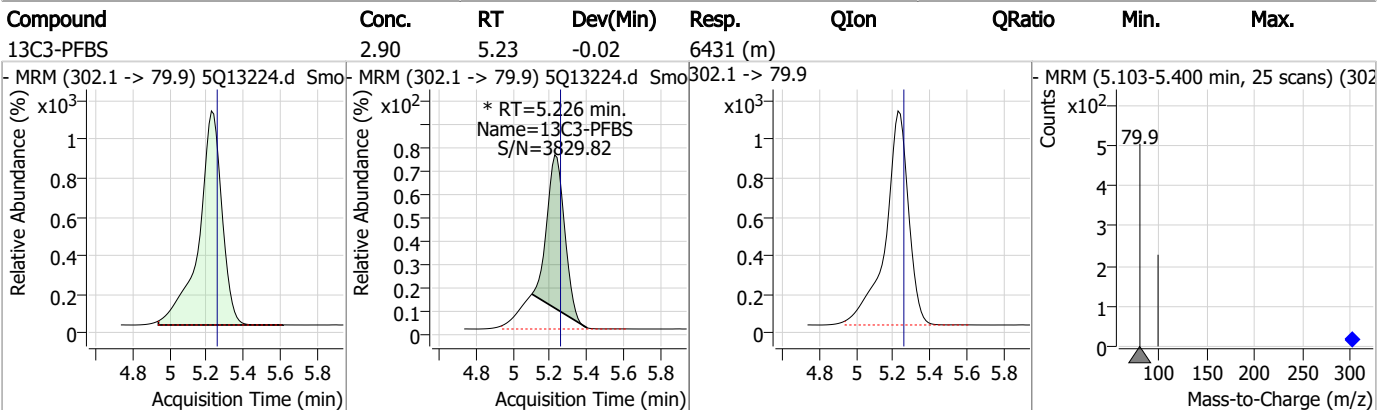
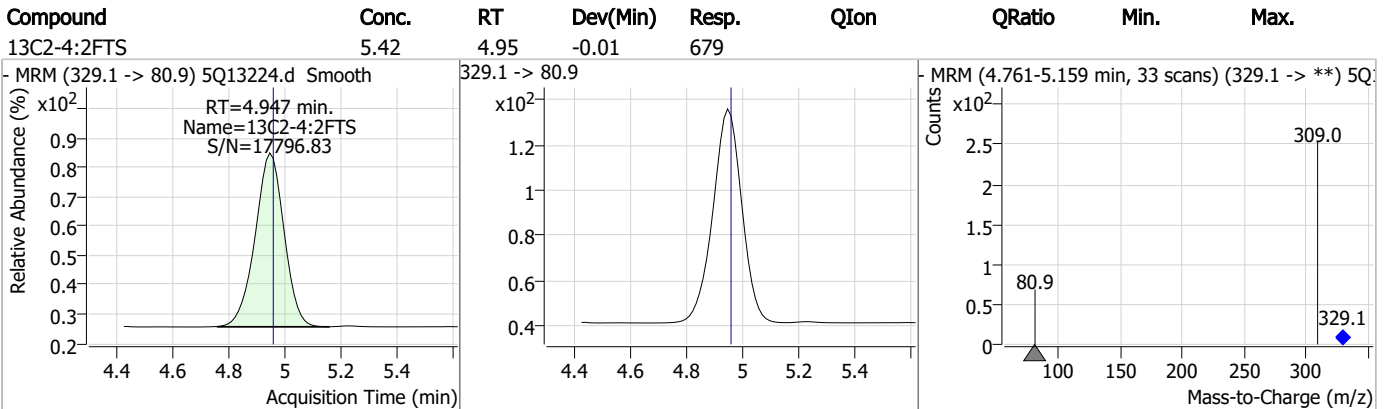
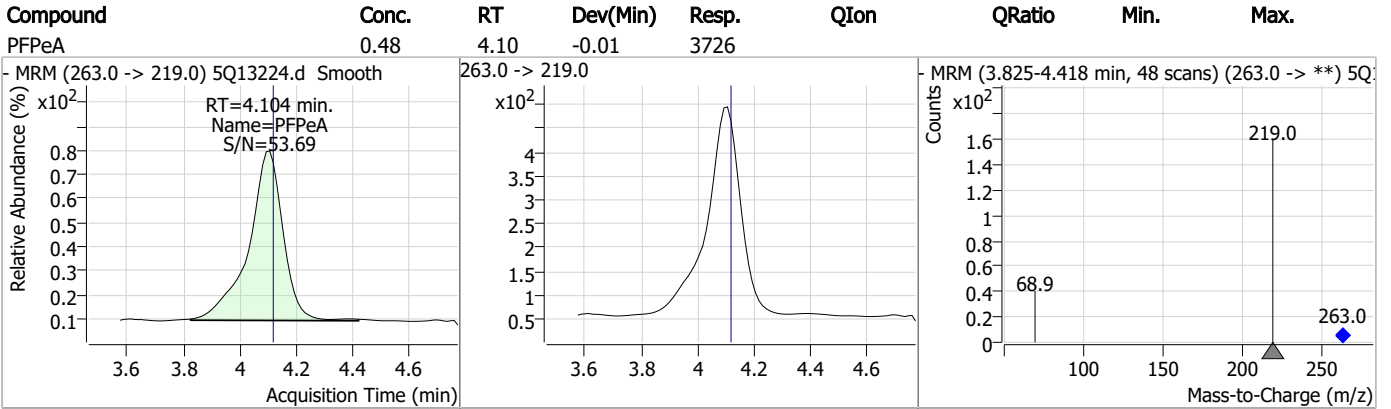




### Perfluorinated Compounds by LC/MS/MS

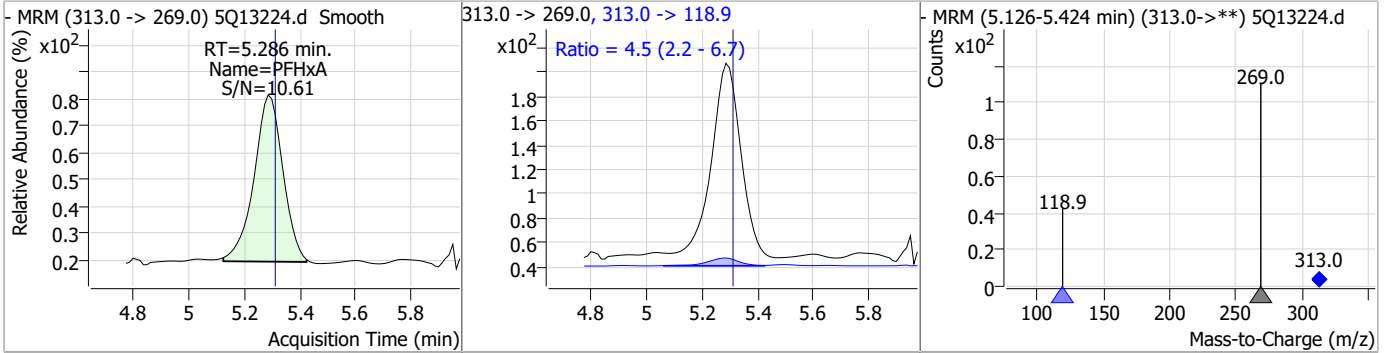


### Perfluorinated Compounds by LC/MS/MS

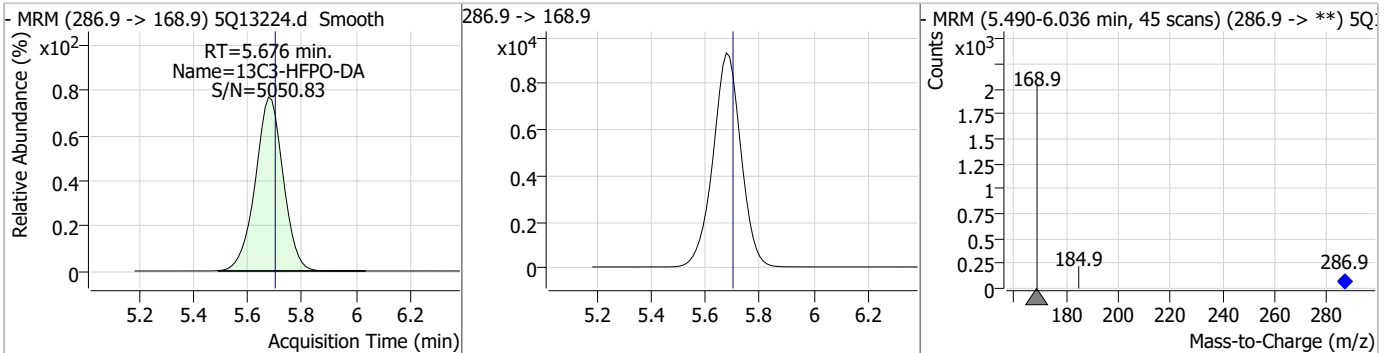


### Perfluorinated Compounds by LC/MS/MS

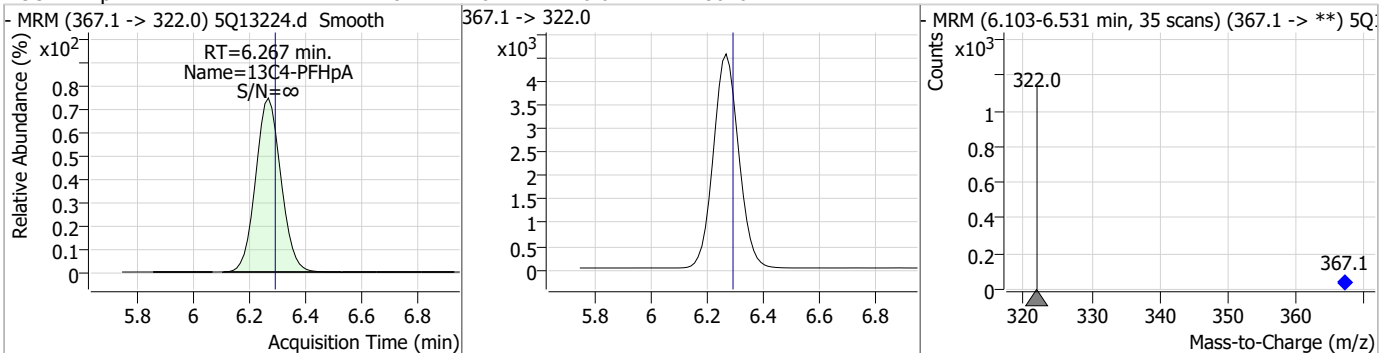
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.14	5.29	-0.03	1128	313.0 -> 118.9	4.5	2.2	6.7



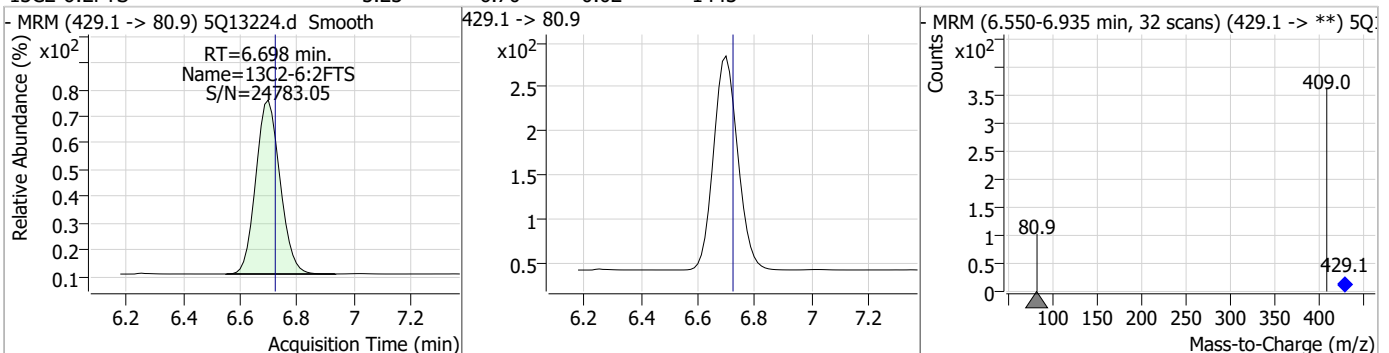
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	11.58	5.68	-0.02	66626				



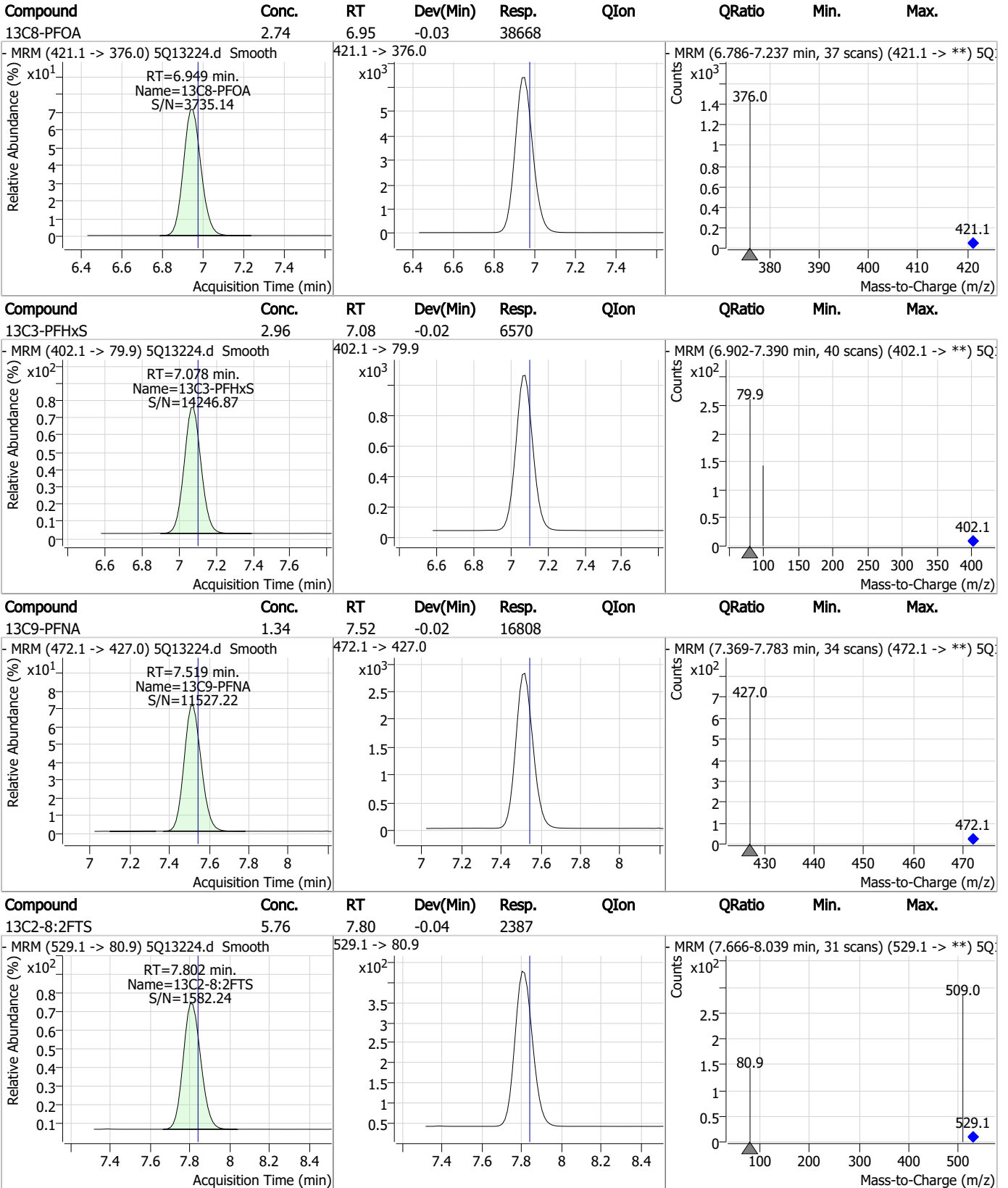
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.78	6.27	-0.02	28616				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.23	6.70	-0.02	1443				



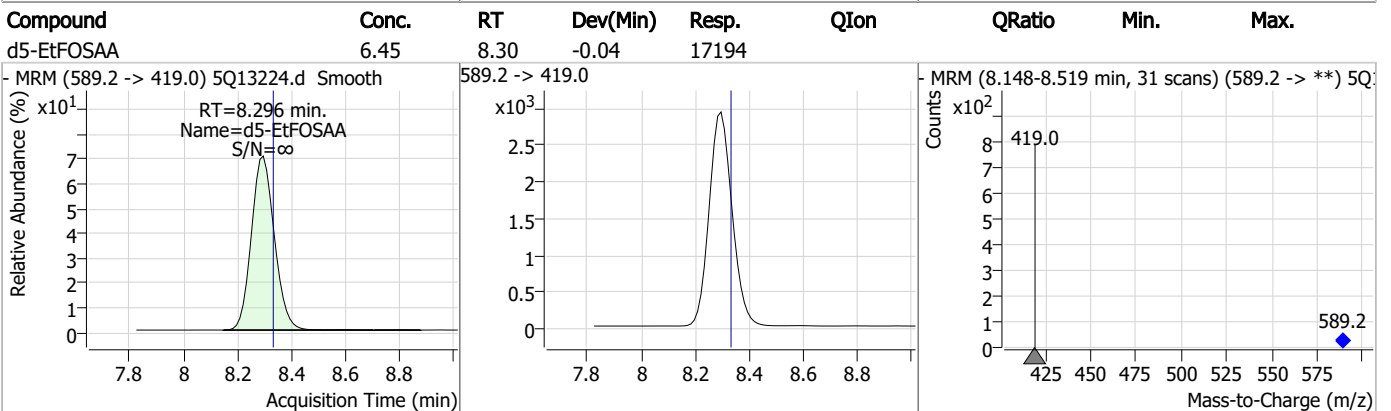
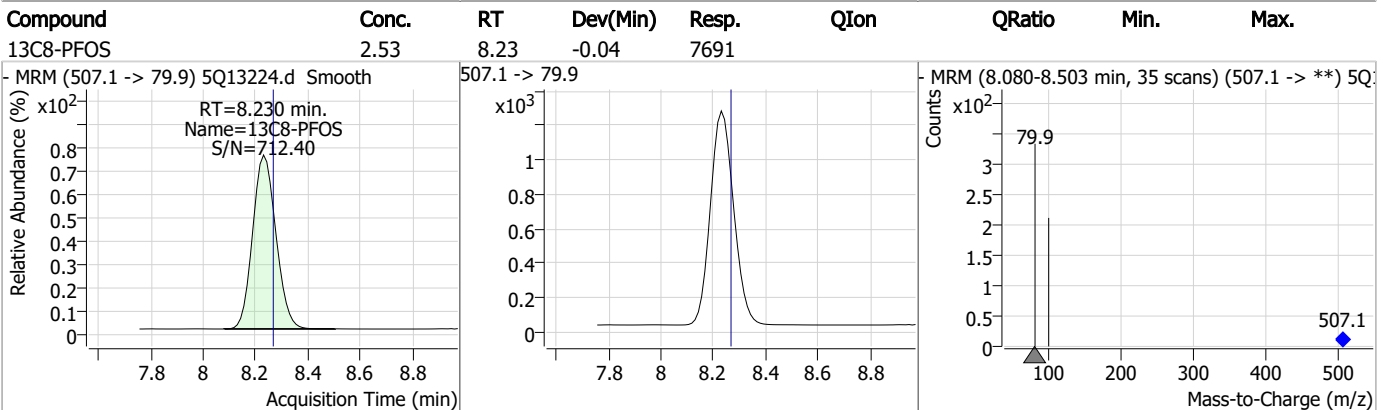
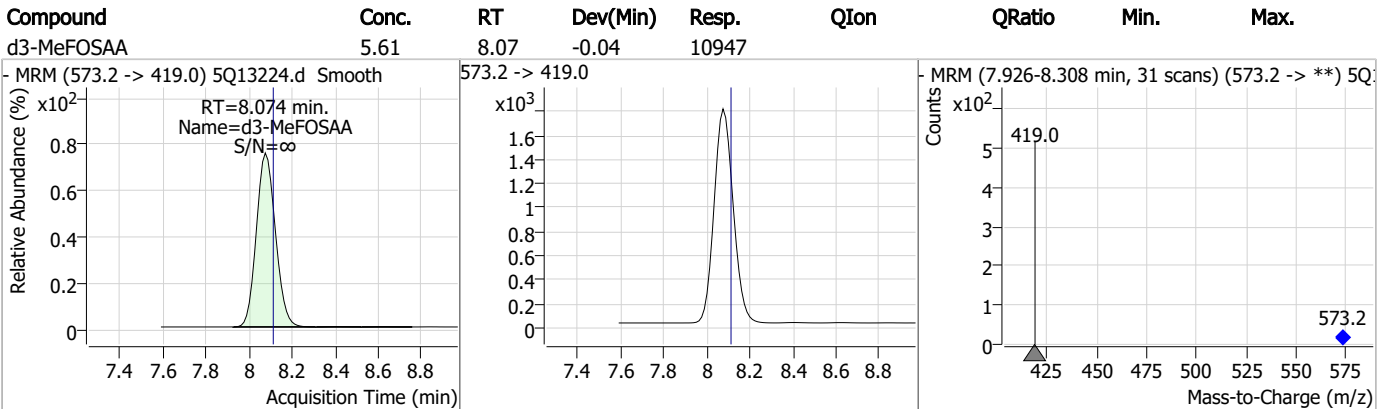
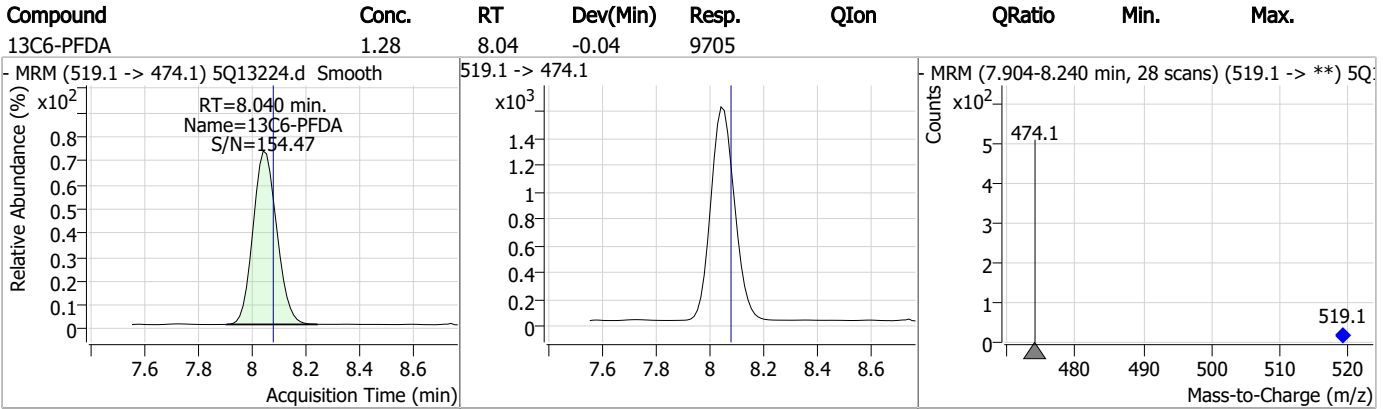
### Perfluorinated Compounds by LC/MS/MS



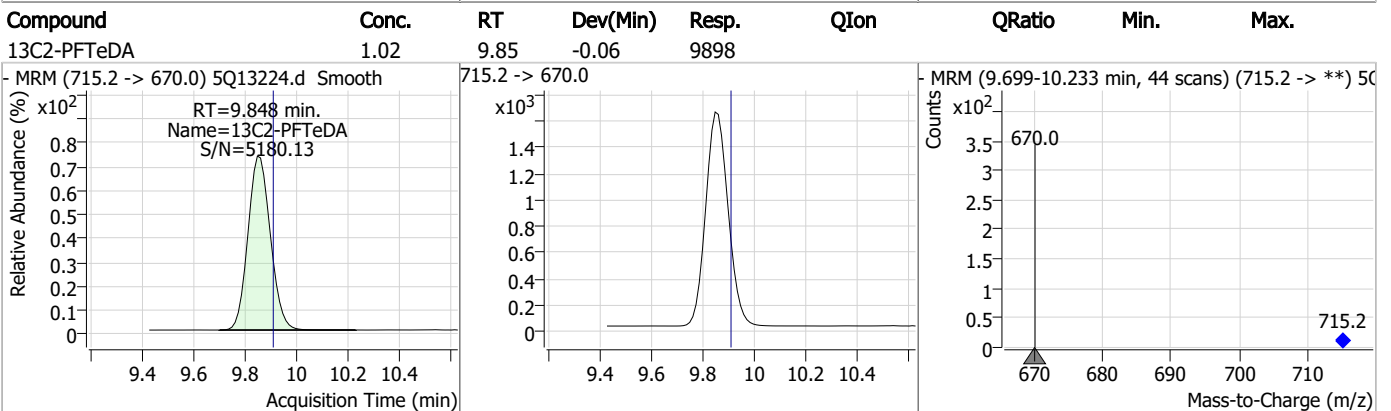
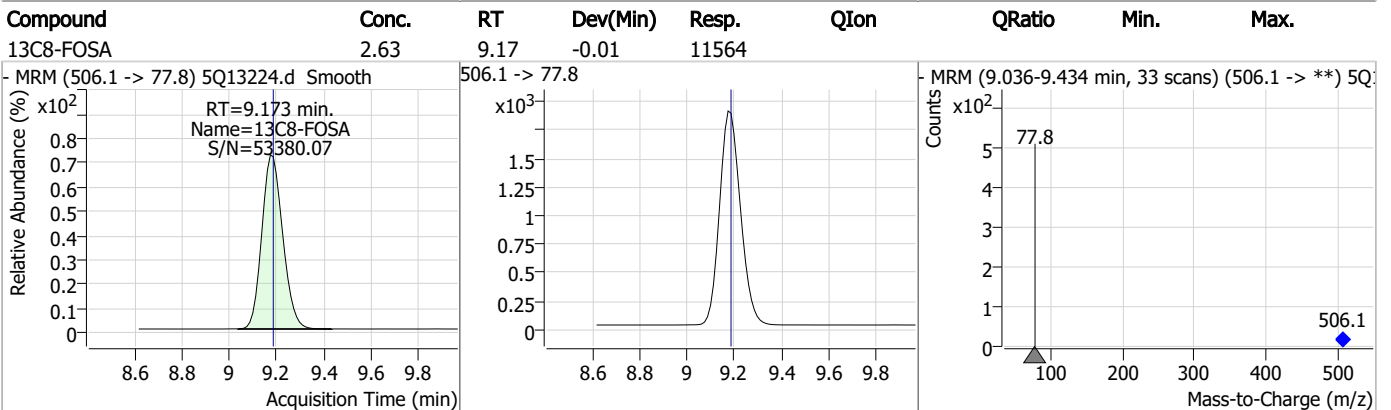
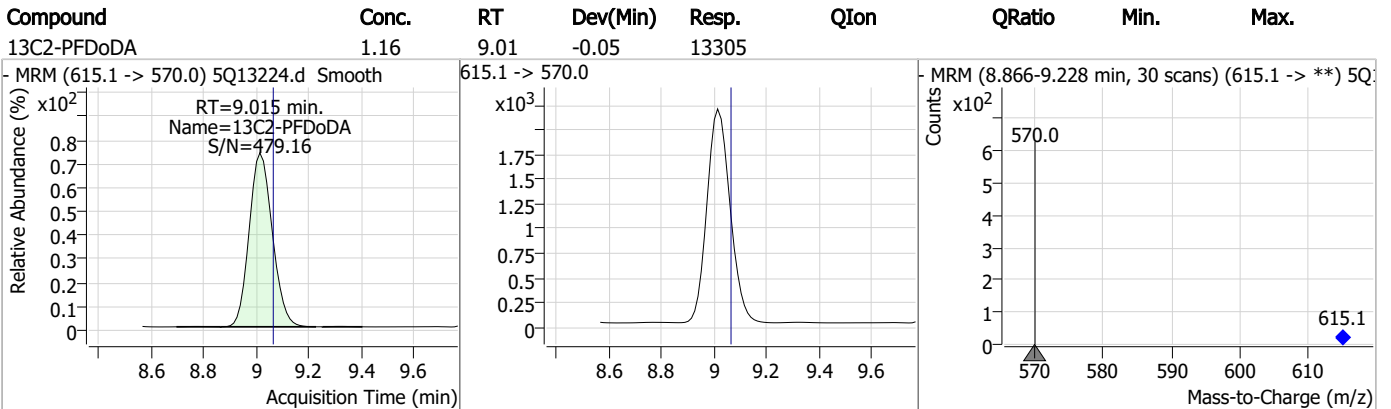
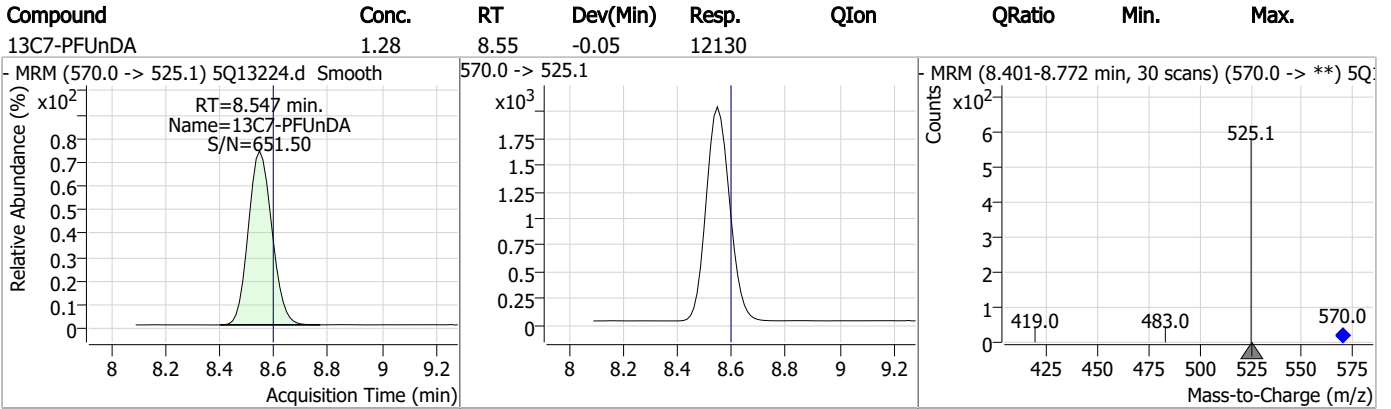
7.1.3

7

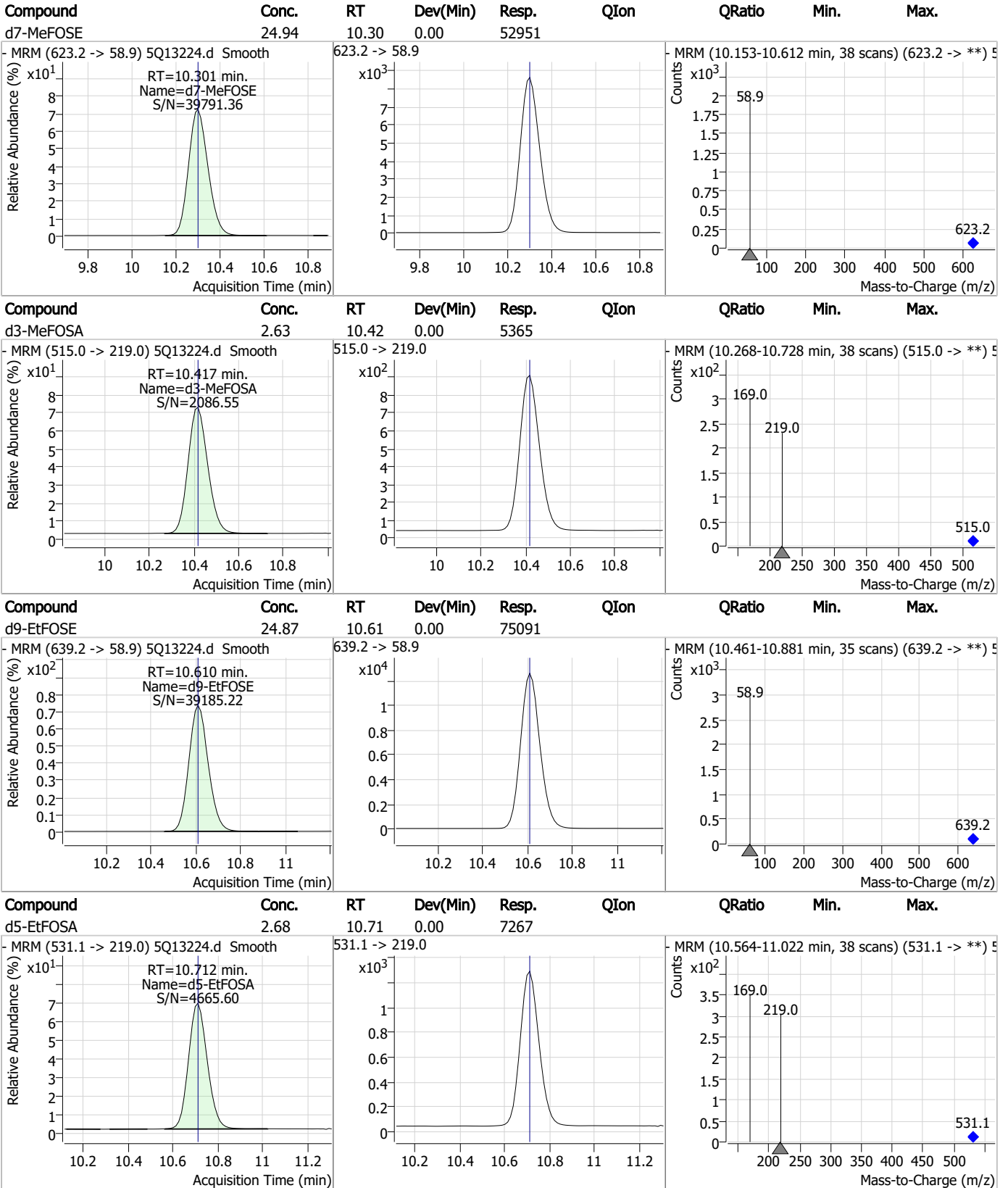
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



# Manual Integration Approval Summary

Sample Number: FC5258-3                      Method: EPA DRAFT 1633  
Lab FileID: 5Q13224.D                      Analyst approved: 04/20/23 15:28 Lindsay Ritner  
Injection Time: 04/20/23 06:51                      Supervisor approved: 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.77	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration

7.1.3.1  
7



### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13219.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 5:39:47 AM  
 Sample Name : op96450-mb  
 Vial : P3-E8  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96450,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	59115	10.00	µg/L	m 0.000
M5-PFPeA	4.103	268.3 -> 223.0	39970	5.00	µg/L	-0.012
M5-PFHxA	5.296	318.0 -> 273.0	34373	2.50	µg/L	-0.012
M4-PFHpA	6.267	367.1 -> 322.0	30752	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	39908	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	17630	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	10367	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	13073	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	14063	1.25	µg/L	-0.051
M2-PFTeDA	9.861	715.2 -> 670.0	10099	1.25	µg/L	-0.050
M8-FOSA	9.186	506.1 -> 77.8	11578	2.50	µg/L	0.000
M3-PFBS	5.238	302.1 -> 79.9	6761	2.50	µg/L	m -0.012
M3-PFHxS	7.078	402.1 -> 79.9	6219	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	8540	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	874	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1708	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	2375	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	11399	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	68861	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	14039	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	53205	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	74427	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	6702	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	5042	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	6923	2.50	µg/L	-0.037
13C3-PFBA	2.768	216.0 -> 172.0	25433	5.00	µg/L	m 0.000
18O2-PFHxS	7.077	403.0 -> 83.9	3463	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	40408	2.50	µg/L	-0.026
13C2-PFDA	8.041	515.1 -> 470.1	13276	1.25	µg/L	-0.037
13C5-PFNA	7.519	468.0 -> 423.0	14816	1.25	µg/L	-0.025
13C2-PFHxA	5.297	315.1 -> 270.0	30331	2.50	µg/L	-0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	874	7.30	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 145.9%			
13C2-6:2FTS	6.698	429.1 -> 80.9	1708	6.47	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.4%			
13C2-8:2FTS	7.814	529.1 -> 80.9	2375	5.99	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.8%			
13C2-PFDoDA	9.015	615.1 -> 570.0	14063	1.34	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.0%			
13C2-PFTeDA	9.861	715.2 -> 670.0	10099	1.13	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.5%			
13C3-PFBS	5.238	302.1 -> 79.9	6503	3.07	µg/L	m -0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 122.7%			
13C3-PFHxS	7.078	402.1 -> 79.9	6219	2.93	µg/L	-0.025

7.21  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.3%			
13C4-PFBA	2.765	216.8 -> 171.9	59097	12.13	µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 121.3%			
13C4-PFHpA	6.267	367.1 -> 322.0	30752	3.04	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 121.4%			
13C5-PFHxA	5.296	318.0 -> 273.0	34373	3.02	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.7%			
13C5-PFPeA	4.103	268.3 -> 223.0	39970	6.12	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.4%			
13C6-PFDA	8.040	519.1 -> 474.1	10367	1.48	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 118.7%			
13C7-PFUnDA	8.547	570.0 -> 525.1	13073	1.49	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 119.6%			
13C8-FOSA	9.186	506.1 -> 77.8	11578	2.78	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%			
13C8-PFOA	6.949	421.1 -> 376.0	39908	3.02	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 120.8%			
13C8-PFOS	8.230	507.1 -> 79.9	8540	2.95	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.2%			
13C9-PFNA	7.519	472.1 -> 427.0	17630	1.46	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 117.1%			
d3-MeFOSAA	8.074	573.2 -> 419.0	11399	6.15	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.0%			
13C3-HFPO-DA	5.676	286.9 -> 168.9	68861	12.16	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 121.6%			
d3-MeFOSA	10.417	515.0 -> 219.0	5042	2.60	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.1%			
d5-EtFOSAA	8.296	589.2 -> 419.0	14039	5.55	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.9%			
d7-MeFOSE	10.301	623.2 -> 58.9	53205	26.39	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.6%			
d9-EtFOSE	10.610	639.2 -> 58.9	74427	25.96	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.9%			
d5-EtFOSA	10.712	531.1 -> 219.0	6702	2.60	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%			

Target Compounds

Compound	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

7.2.1  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.		
		363.1 -> 319.0				
PFHpS	-	363.1 -> 169.0	-	N.D.		
		449.0 -> 79.9				
PFHxA	-	449.0 -> 98.9	-	N.D.		
		313.0 -> 269.0				
PFHxS	-	313.0 -> 118.9	-	N.D.		
		398.7 -> 79.9				
PFNA	-	398.7 -> 98.9	-	N.D.		
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	6.938	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	-	N.D.		
		498.9 -> 79.9				
PFPeA	-	498.9 -> 98.8	-	N.D.		
		263.0 -> 219.0				
PFPeS	-	349.1 -> 79.9	-	N.D.		
		349.1 -> 98.9				
PFTeDA	-	713.1 -> 669.0	-	N.D.		
		713.1 -> 168.9				
PFTrDA	-	663.0 -> 619.0	-	N.D.		
		663.0 -> 168.9				
PFUnDA	-	563.1 -> 519.0	-	N.D.		
		563.1 -> 269.1				
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.		
		532.8 -> 353.0				
ADONA	-	376.9 -> 250.9	-	N.D.		
		376.9 -> 84.8				
HFPO-DA	-	284.9 -> 168.9	-	N.D.		
		284.9 -> 184.9				
3:3FTCA	-	241.0 -> 177.0	-	N.D.		
		241.0 -> 117.0				
5:3FTCA	-	341.0 -> 237.1	-	N.D.		
		341.0 -> 217.0				
7:3FTCA	-	441.0 -> 316.9	-	N.D.		
		441.0 -> 336.9				
EtFOSA	-	526.0 -> 219.0	-	N.D.		
		526.0 -> 169.0				
EtFOSE	-	630.0 -> 58.9	-	N.D.		
		511.9 -> 219.0				
MeFOSA	-	511.9 -> 169.0	-	N.D.		
		616.1 -> 58.9				
MeFOSE	-	699.1 -> 79.9	-	N.D.		
		699.1 -> 98.8				
PFDoDS	-	295.0 -> 201.0	-	N.D.		
		295.0 -> 84.9				
NFDHA	-	279.0 -> 85.1	-	N.D.		
		229.0 -> 84.9				
PFMBA	-	314.8 -> 134.9	-	N.D.		
		314.8 -> 82.9				

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

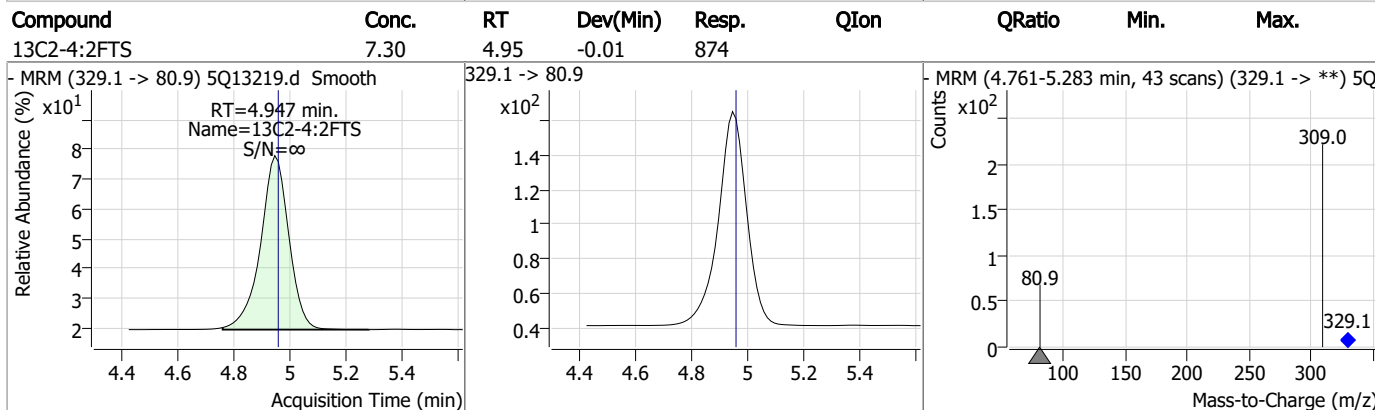
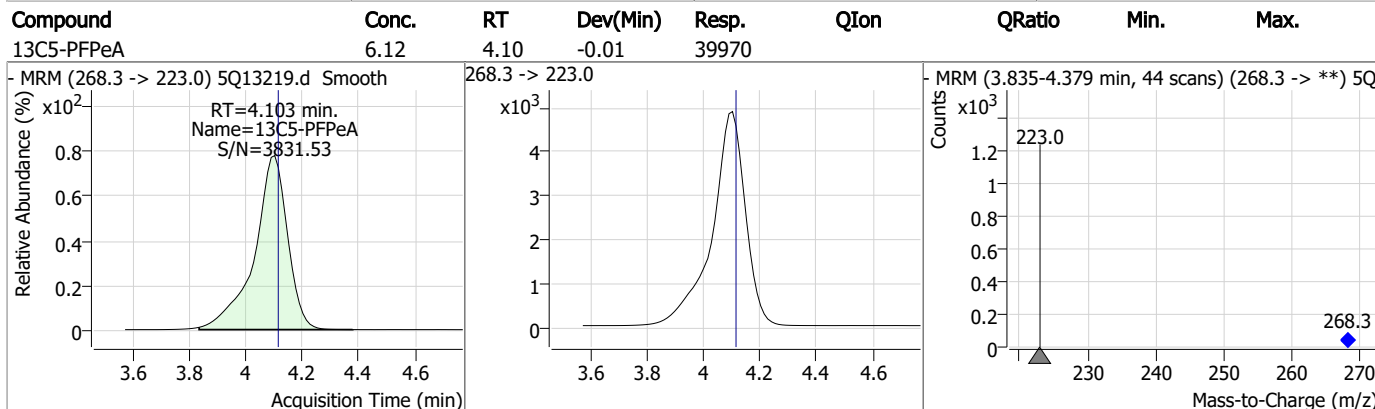
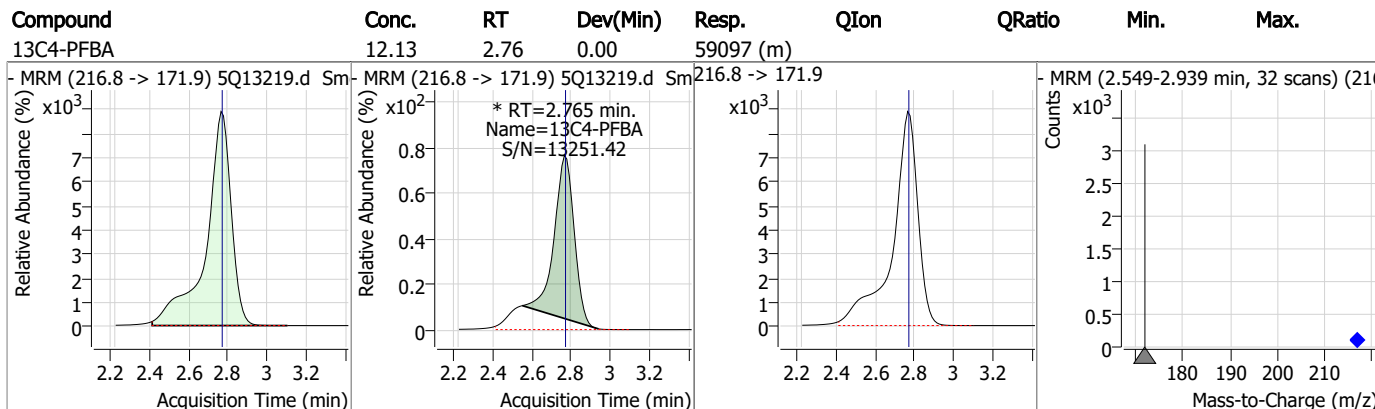
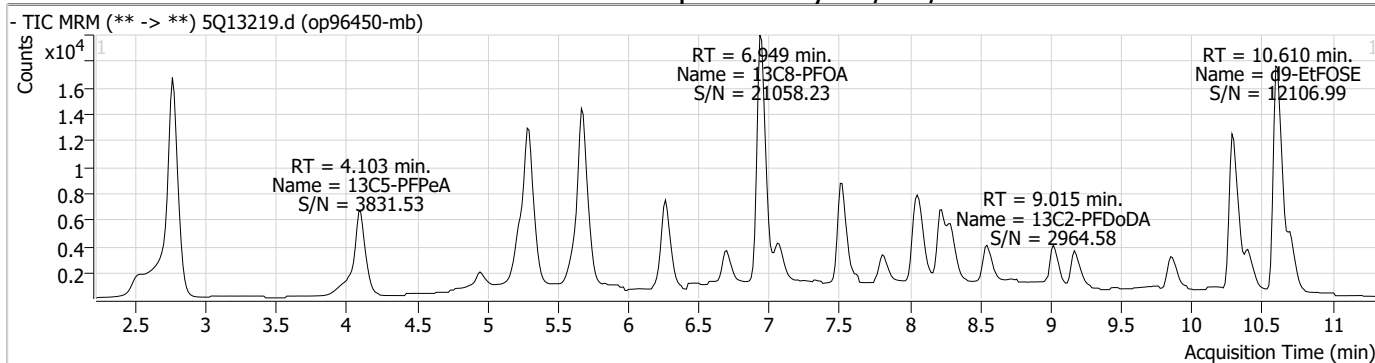
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

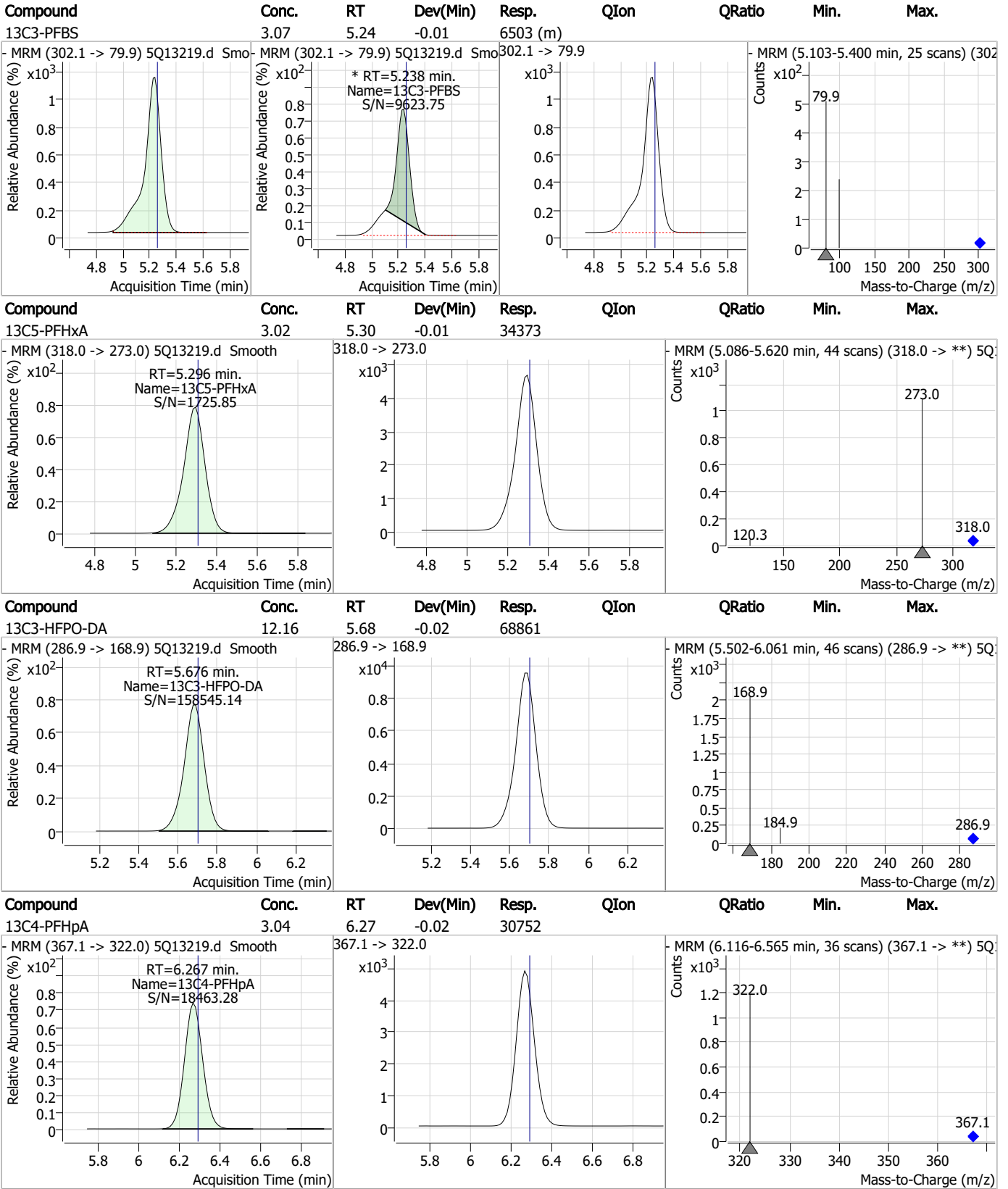
7.2.1

7

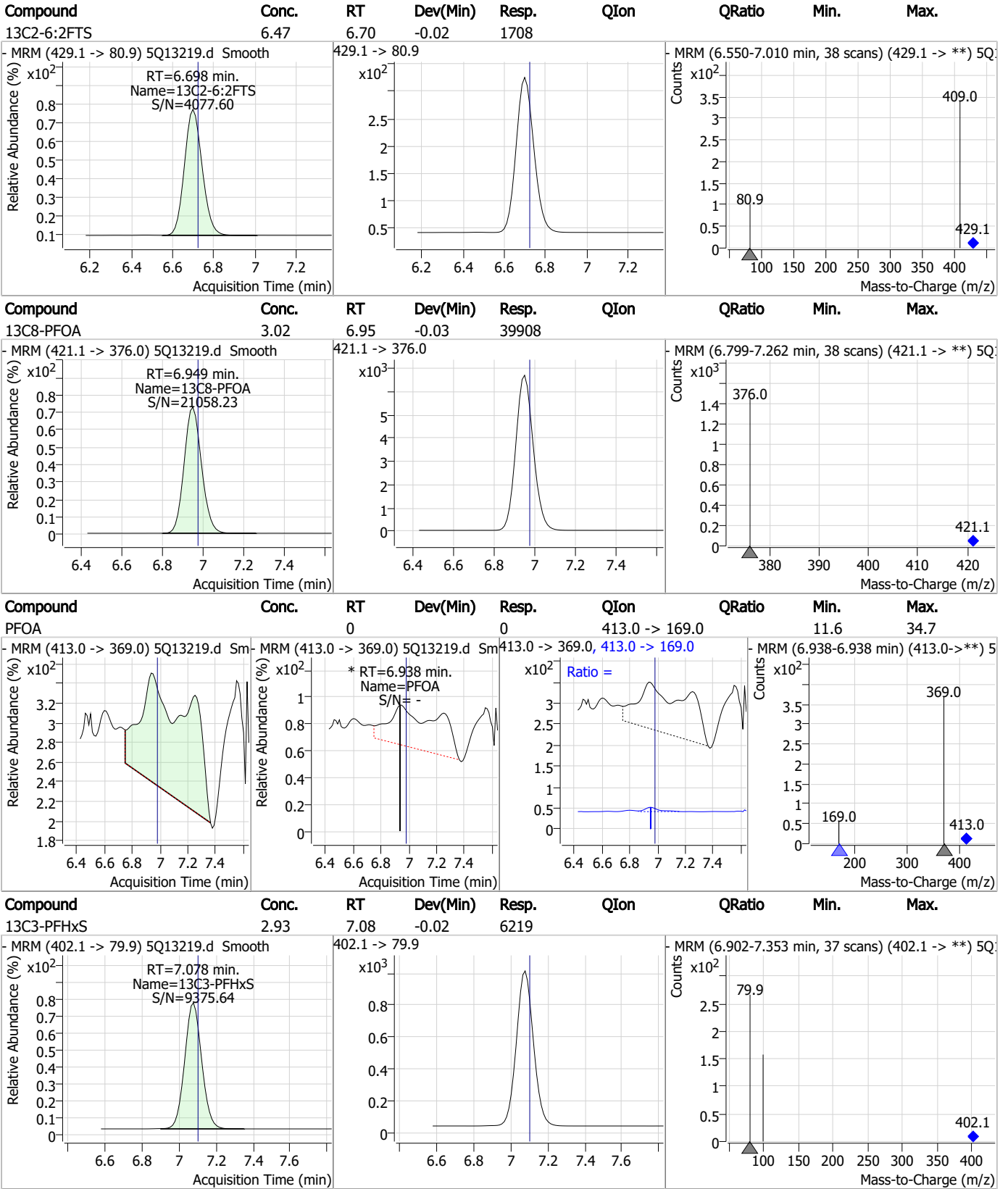
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



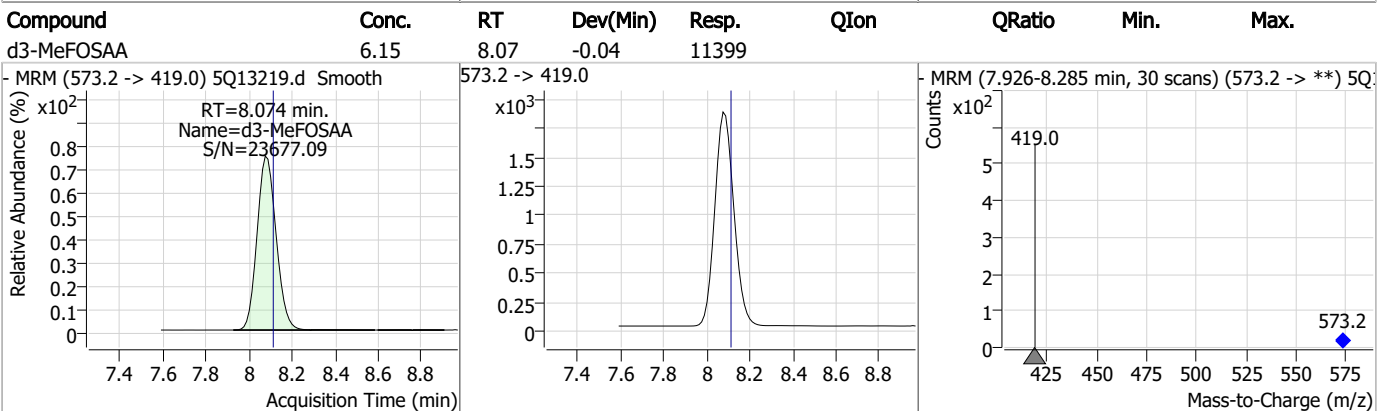
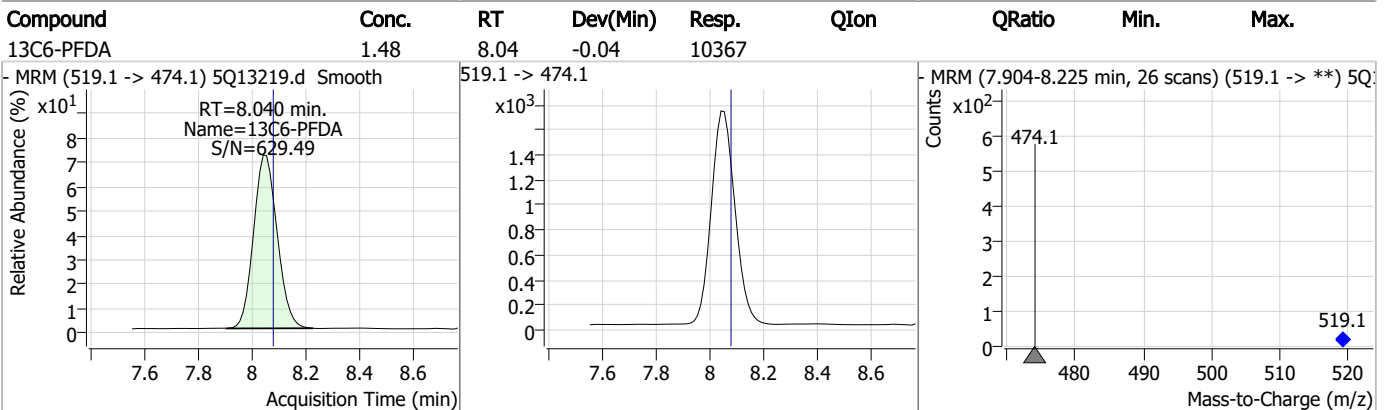
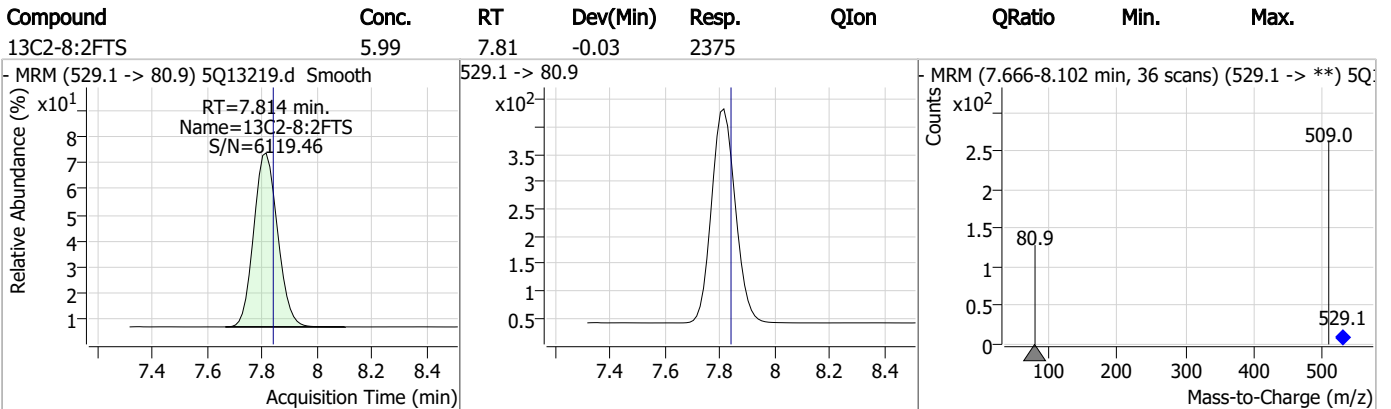
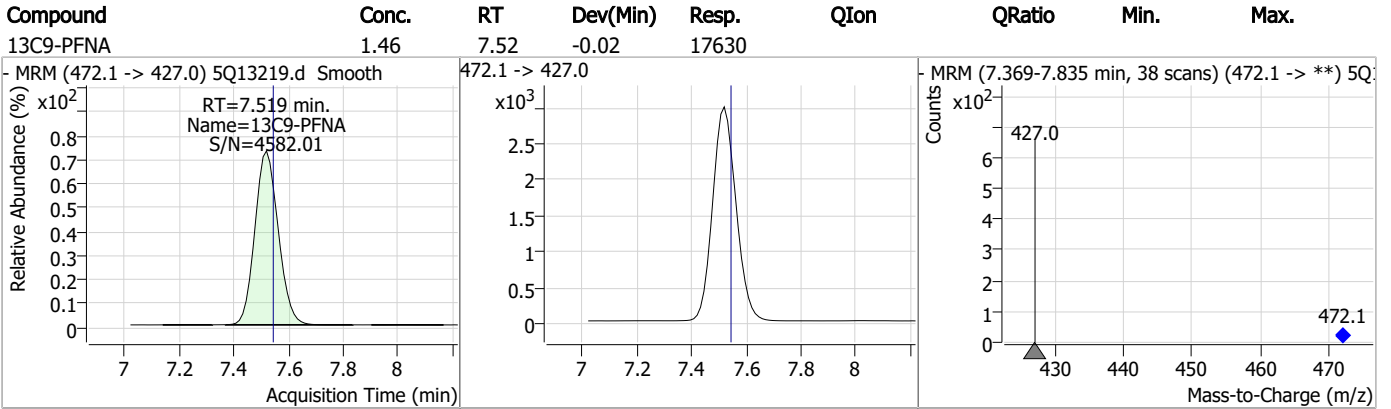
### Perfluorinated Compounds by LC/MS/MS



7.2.1

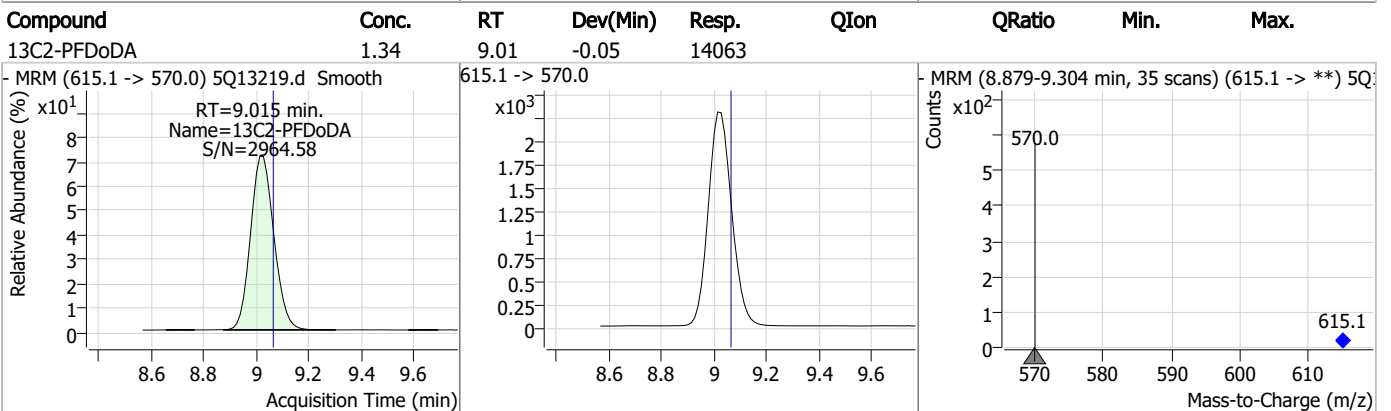
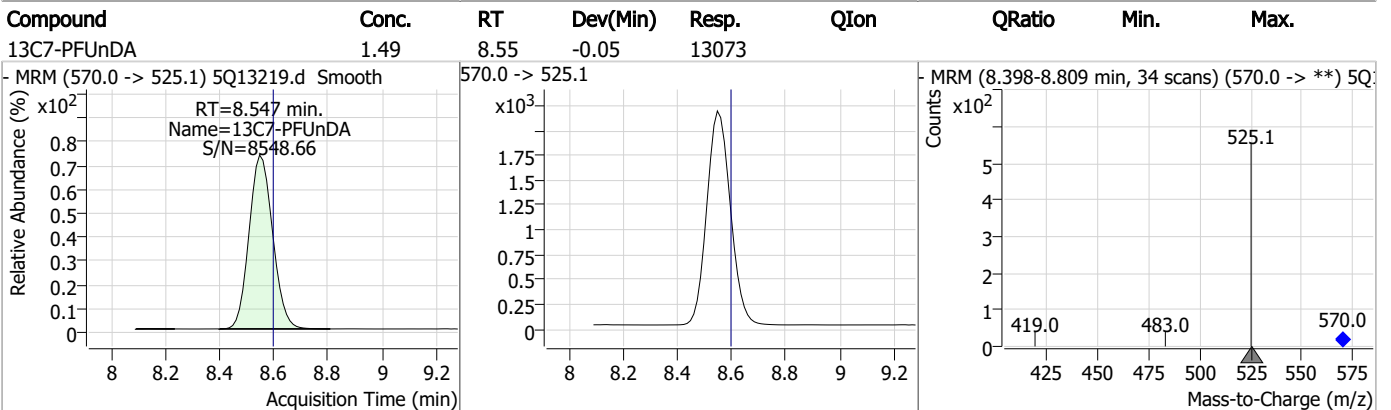
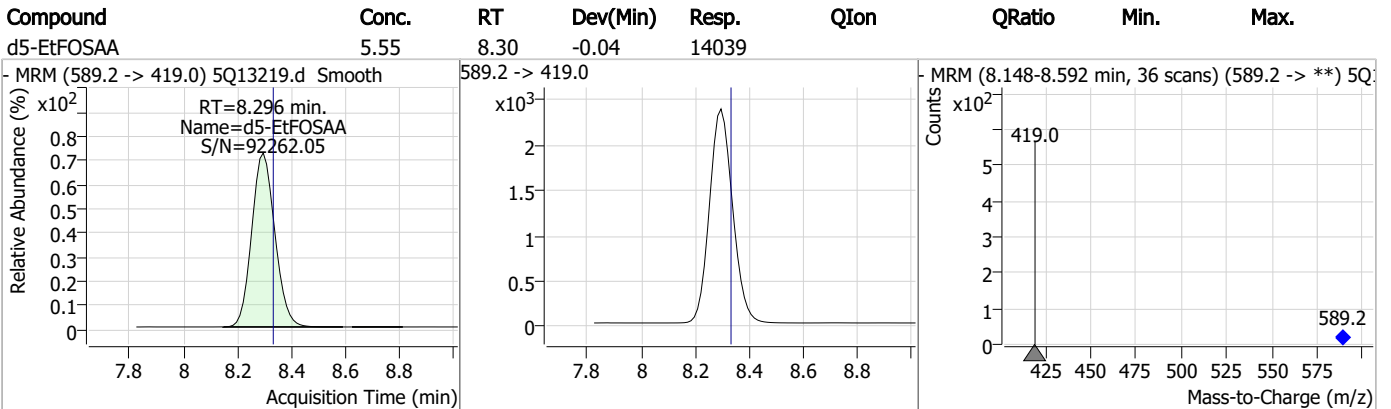
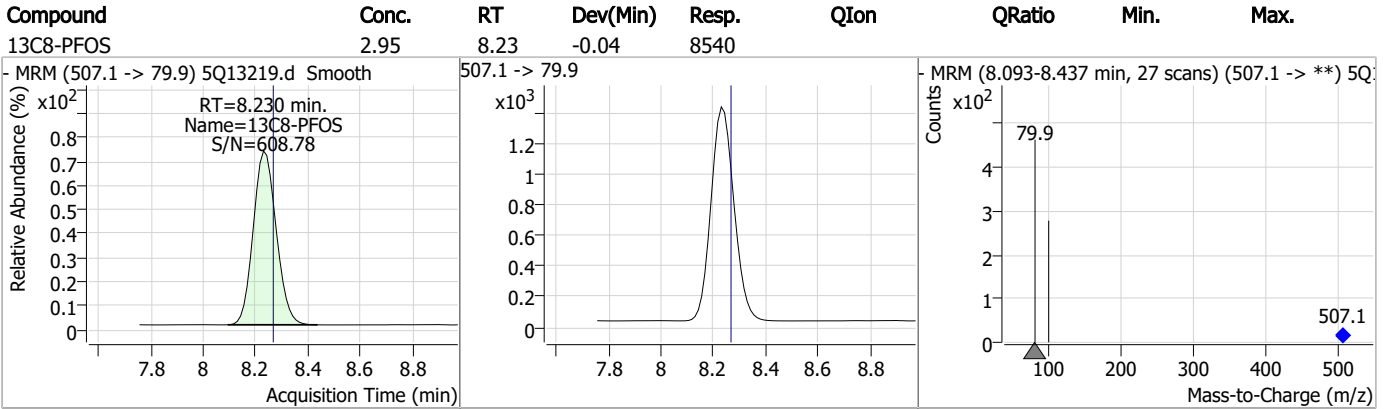
7

Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

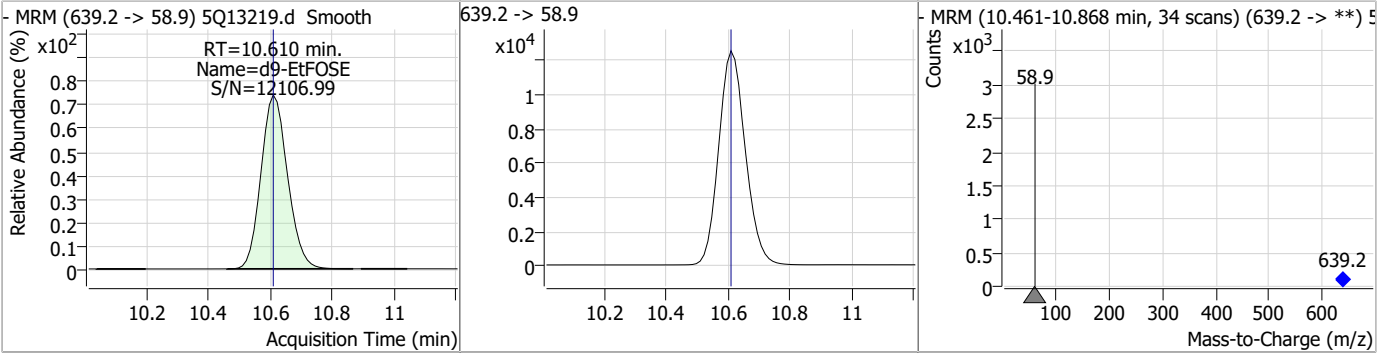
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.78	9.19	0.00	11578				
<p>MRM (506.1 -&gt; 77.8) 5Q13219.d Smooth                      RT=9.186 min.                      Name=13C8-FOSA                      S/N=16292.21</p>			<p>506.1 -&gt; 77.8</p>			<p>MRM (9.036-9.496 min, 38 scans) (506.1 -&gt; **) 5Q13219.d Smooth</p>		
13C2-PFTeDA	1.13	9.86	-0.05	10099				
<p>MRM (715.2 -&gt; 670.0) 5Q13219.d Smooth                      RT=9.861 min.                      Name=13C2-PFTeDA                      S/N=30083.19</p>			<p>715.2 -&gt; 670.0</p>			<p>MRM (9.711-10.113 min, 33 scans) (715.2 -&gt; **) 5Q13219.d Smooth</p>		
d7-MeFOSE	26.39	10.30	0.00	53205				
<p>MRM (623.2 -&gt; 58.9) 5Q13219.d Smooth                      RT=10.301 min.                      Name=d7-MeFOSE                      S/N=359722.77</p>			<p>623.2 -&gt; 58.9</p>			<p>MRM (10.153-10.685 min, 44 scans) (623.2 -&gt; **) 5Q13219.d Smooth</p>		
d3-MeFOSA	2.60	10.42	0.00	5042				
<p>MRM (515.0 -&gt; 219.0) 5Q13219.d Smooth                      RT=10.417 min.                      Name=d3-MeFOSA                      S/N=14414.38</p>			<p>515.0 -&gt; 219.0</p>			<p>MRM (10.268-10.705 min, 36 scans) (515.0 -&gt; **) 5Q13219.d Smooth</p>		

7.2.1

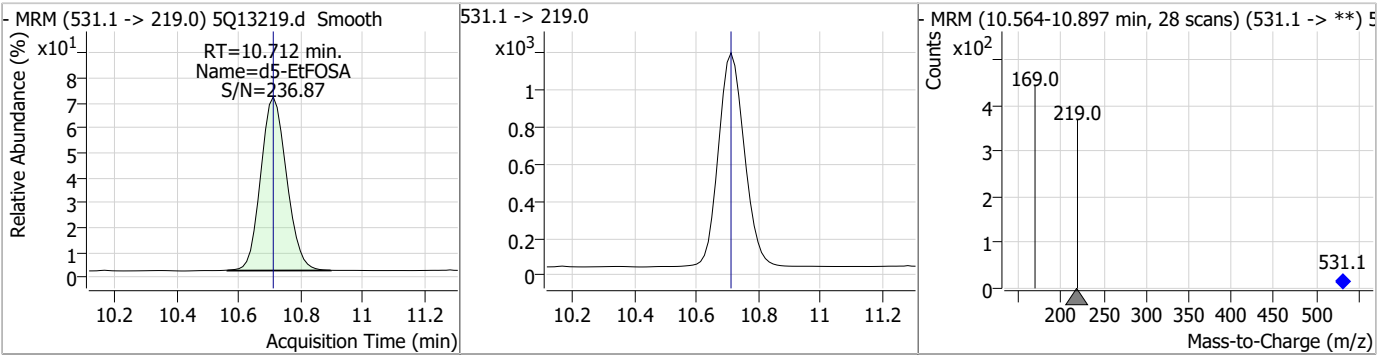
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.96	10.61	0.00	74427				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.60	10.71	0.00	6702				



7.2.1

7

# Manual Integration Approval Summary

Sample Number: OP96450-MB                      Method: EPA DRAFT 1633  
Lab FileID: 5Q13219.D                      Analyst approved: 04/20/23 15:12 Lindsay Ritner  
Injection Time: 04/20/23 05:39                      Supervisor approved: 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
13C3-PFBS			5.24	Poor instrument integration

7.2.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13182.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 8:50:28 PM  
 Sample Name : iblk  
 Vial : P3-A1  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	61759	10.00	µg/L	m 0.000
M5-PFPeA	4.103	268.3 -> 223.0	47196	5.00	µg/L	-0.012
M5-PFHxA	5.296	318.0 -> 273.0	40025	2.50	µg/L	-0.012
M4-PFHpA	6.279	367.1 -> 322.0	35522	2.50	µg/L	-0.012
M8-PFOA	6.962	421.1 -> 376.0	46698	2.50	µg/L	-0.012
M9-PFNA	7.544	472.1 -> 427.0	21016	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	12865	1.25	µg/L	0.000
M7-PFUnDA	8.585	570.0 -> 525.1	16154	1.25	µg/L	-0.012
M2-PFDoDA	9.054	615.1 -> 570.0	19230	1.25	µg/L	-0.012
M2-PFTeDA	9.898	715.2 -> 670.0	15407	1.25	µg/L	-0.012
M8-FOSA	9.186	506.1 -> 77.8	15225	2.50	µg/L	0.000
M3-PFBS	5.238	302.1 -> 79.9	7641	2.50	µg/L	m -0.012
M3-PFHxS	7.090	402.1 -> 79.9	7314	2.50	µg/L	-0.012
M8-PFOS	8.267	507.1 -> 79.9	10875	2.50	µg/L	0.000
M2-4:2FTS	4.960	329.1 -> 80.9	899	5.00	µg/L	0.000
M2-6:2FTS	6.711	429.1 -> 80.9	2060	5.00	µg/L	-0.012
M2-8:2FTS	7.841	529.1 -> 80.9	2887	5.00	µg/L	0.000
M3-MeFOSAA	8.111	573.2 -> 419.0	13581	5.00	µg/L	0.000
M3-HFPO-DA	5.688	286.9 -> 168.9	80181	10.00	µg/L	-0.012
M5-EtFOSAA	8.321	589.2 -> 419.0	21107	5.00	µg/L	-0.012
M7-MeFOSE	10.301	623.2 -> 58.9	72799	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	100691	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	9486	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6658	2.50	µg/L	0.000
13C4-PFOS	8.268	502.8 -> 79.9	9823	2.50	µg/L	0.000
13C3-PFBA	2.755	216.0 -> 172.0	32412	5.00	µg/L	m -0.012
18O2-PFHxS	7.089	403.0 -> 83.9	4932	2.50	µg/L	-0.012
13C4-PFOA	6.962	417.1 -> 372.0	57485	2.50	µg/L	-0.012
13C2-PFDA	8.078	515.1 -> 470.1	19183	1.25	µg/L	0.000
13C5-PFNA	7.544	468.0 -> 423.0	19849	1.25	µg/L	0.000
13C2-PFHxA	5.297	315.1 -> 270.0	42853	2.50	µg/L	-0.012

**System Monitoring Compounds**

13C2-4:2FTS	4.960	329.1 -> 80.9	899	5.27	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%			
13C2-6:2FTS	6.711	429.1 -> 80.9	2060	5.48	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.6%			
13C2-8:2FTS	7.841	529.1 -> 80.9	2887	5.11	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%			
13C2-PFDoDA	9.054	615.1 -> 570.0	19230	1.27	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%			
13C2-PFTeDA	9.898	715.2 -> 670.0	15407	1.19	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%			
13C3-PFBS	5.238	302.1 -> 79.9	7509	2.49	µg/L	m -0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%			
13C3-PFHxS	7.090	402.1 -> 79.9	7314	2.42	µg/L	-0.012

7.22  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C4-PFBA	2.765	216.8 -> 171.9	61592	9.92	µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C4-PFHpA	6.279	367.1 -> 322.0	35522	2.48	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C5-PFHxA	5.296	318.0 -> 273.0	40025	2.49	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C5-PFPeA	4.103	268.3 -> 223.0	47196	5.11	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C6-PFDA	8.077	519.1 -> 474.1	12865	1.27	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C7-PFUnDA	8.585	570.0 -> 525.1	16154	1.28	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.3%		
13C8-FOSA	9.186	506.1 -> 77.8	15225	2.57	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C8-PFOA	6.962	421.1 -> 376.0	46698	2.48	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C8-PFOS	8.267	507.1 -> 79.9	10875	2.65	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.0%		
13C9-PFNA	7.544	472.1 -> 427.0	21016	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.2%		
d3-MeFOSAA	8.111	573.2 -> 419.0	13581	5.16	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C3-HFPO-DA	5.688	286.9 -> 168.9	80181	10.02	µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%		
d3-MeFOSA	10.417	515.0 -> 219.0	6658	2.42	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%		
d5-EtFOSAA	8.321	589.2 -> 419.0	21107	5.88	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 117.5%		
d7-MeFOSE	10.301	623.2 -> 58.9	72799	25.45	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.8%		
d9-EtFOSE	10.610	639.2 -> 58.9	100691	24.76	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
d5-EtFOSA	10.712	531.1 -> 219.0	9486	2.59	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.8%		

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	8.322	584.2 -> 419.1	279	0.10	µg/L m	86
		584.2 -> 526.0	137			
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	8.112	570.1 -> 419.0	174	0.08	µg/L m	82
		570.1 -> 483.0	53			
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

7.22  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	7.348	441.0 -> 316.9	2805	2.81 µg/L	87
		441.0 -> 336.9	5683		
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.2.2  
7

### Perfluorinated Compounds by LC/MS/MS

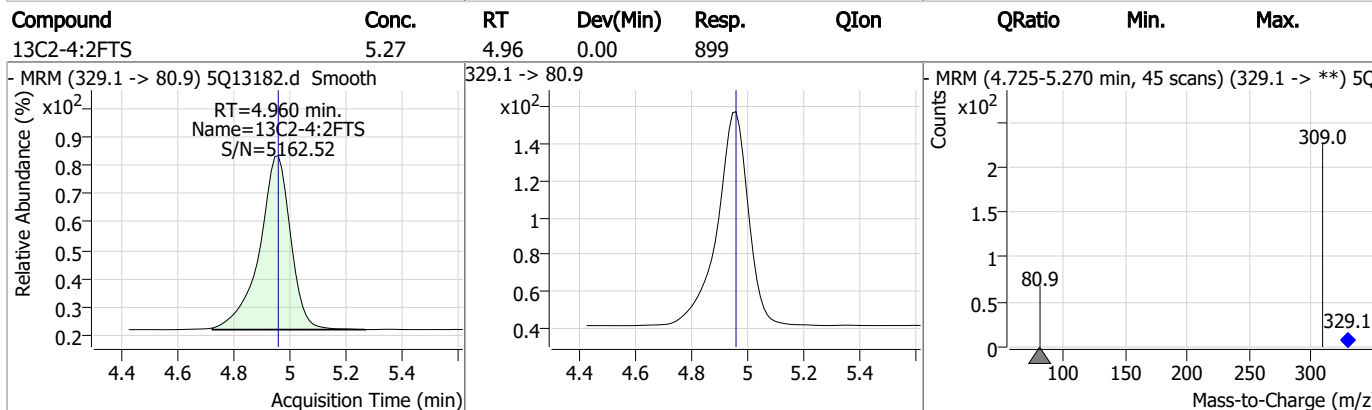
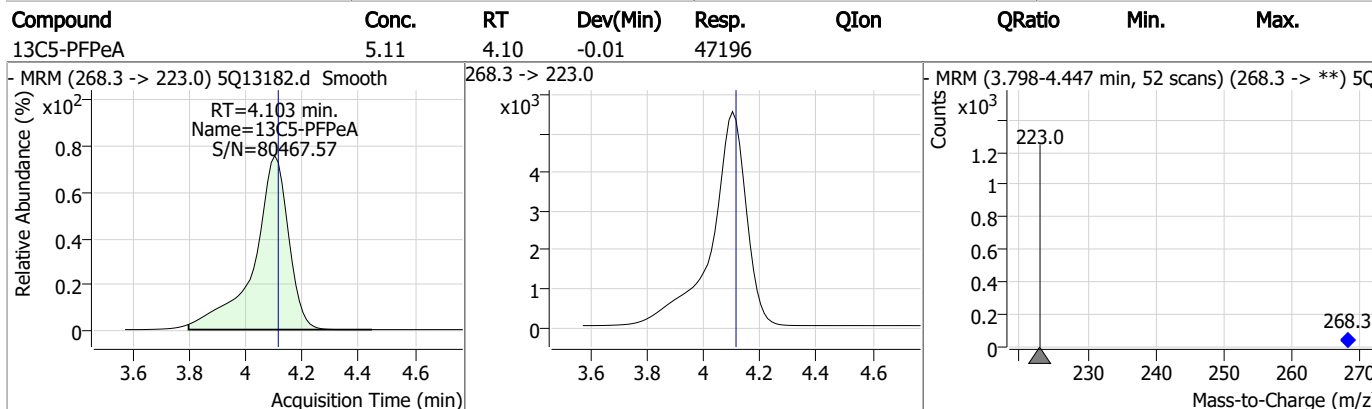
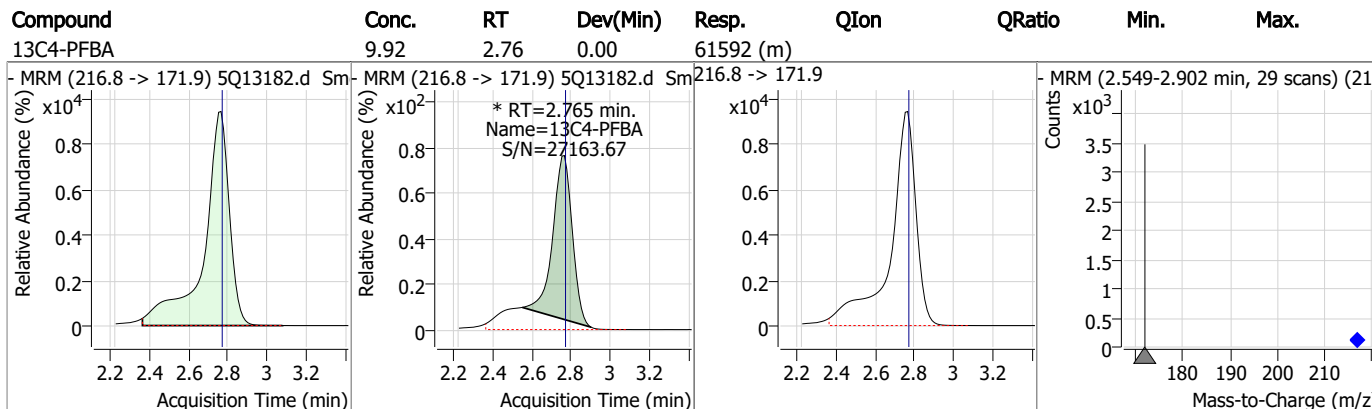
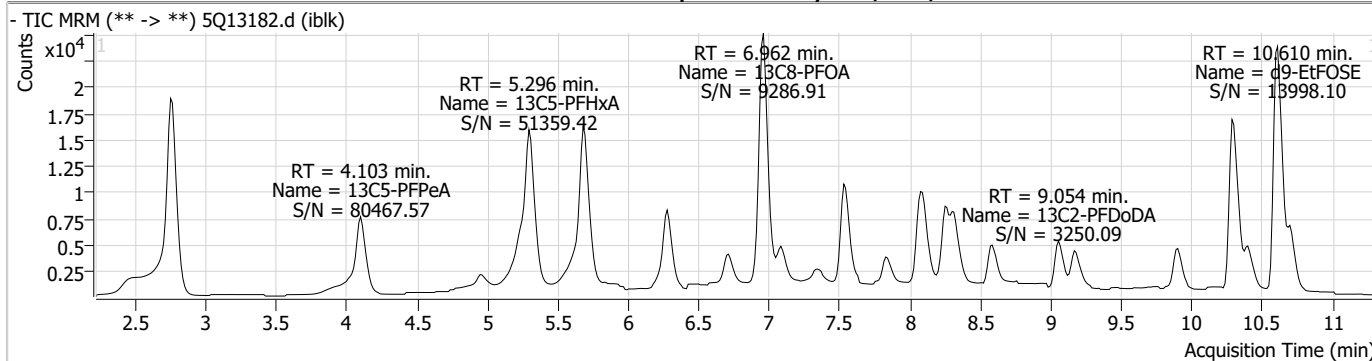
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.2.2

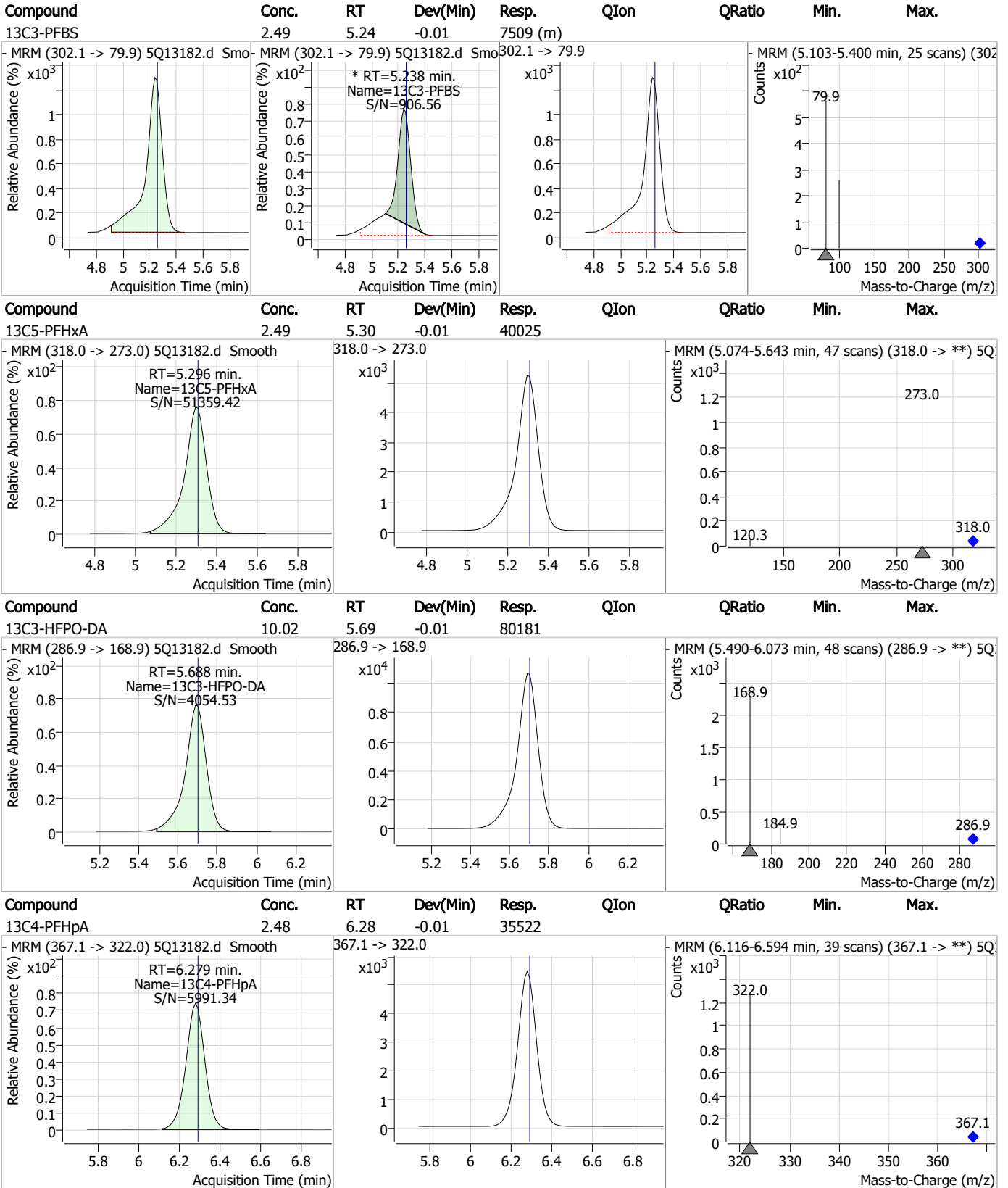
7



### Perfluorinated Compounds by LC/MS/MS



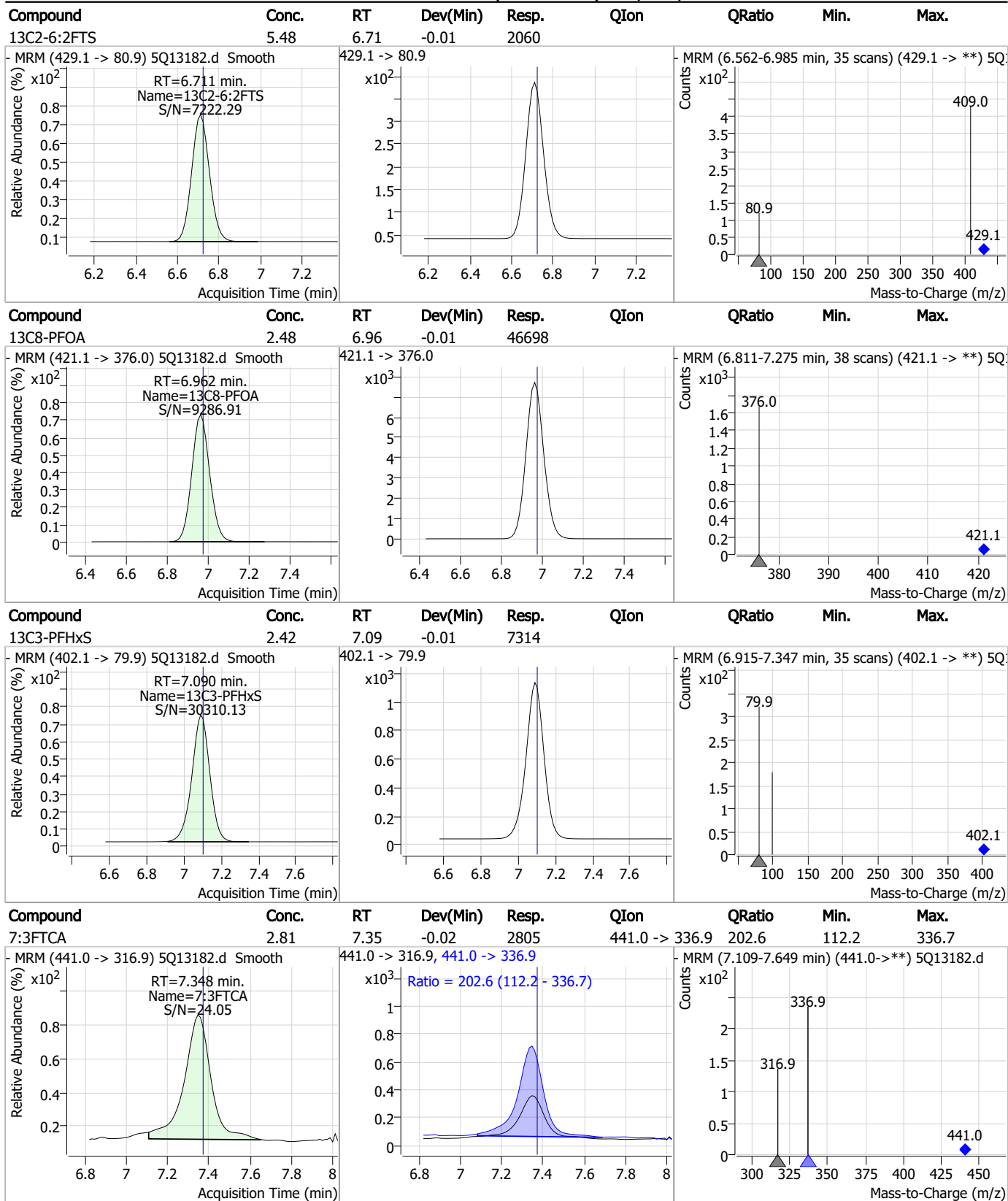
## Perfluorinated Compounds by LC/MS/MS



7.2.2

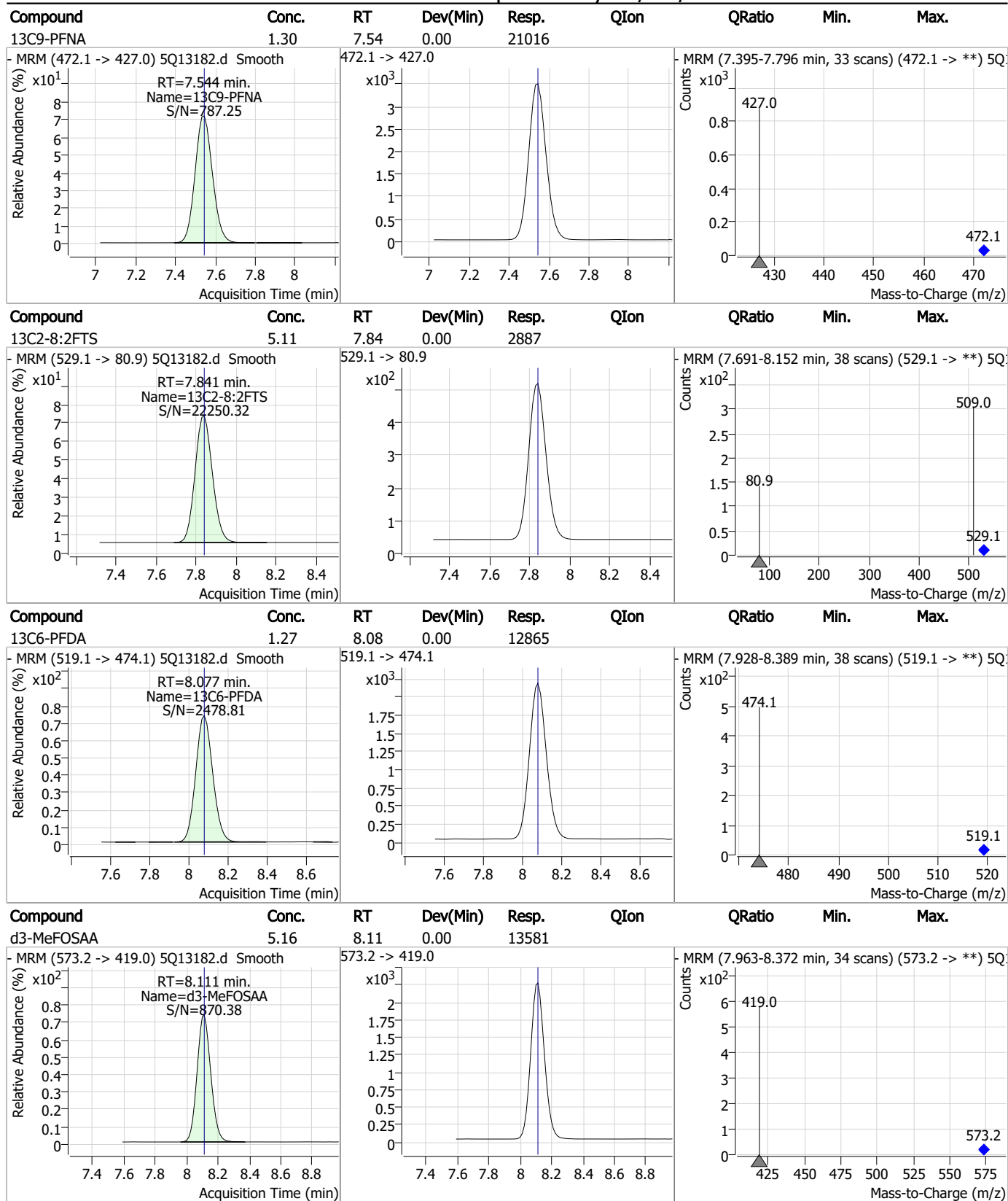
7

### Perfluorinated Compounds by LC/MS/MS



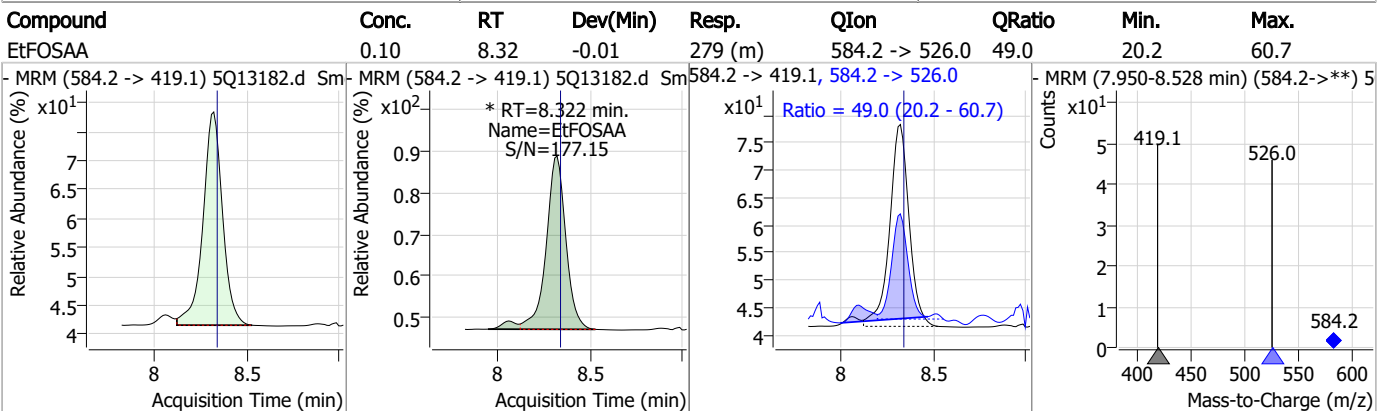
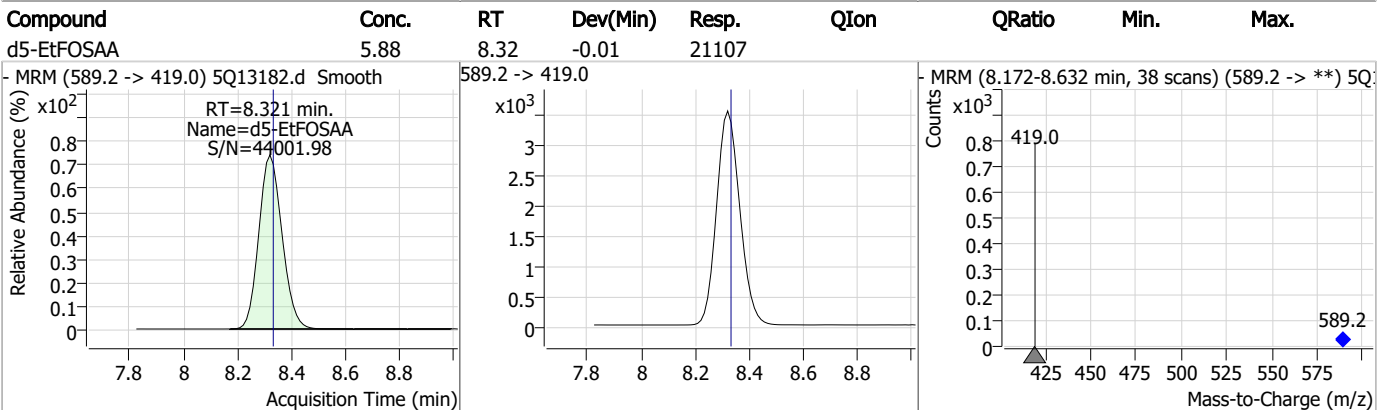
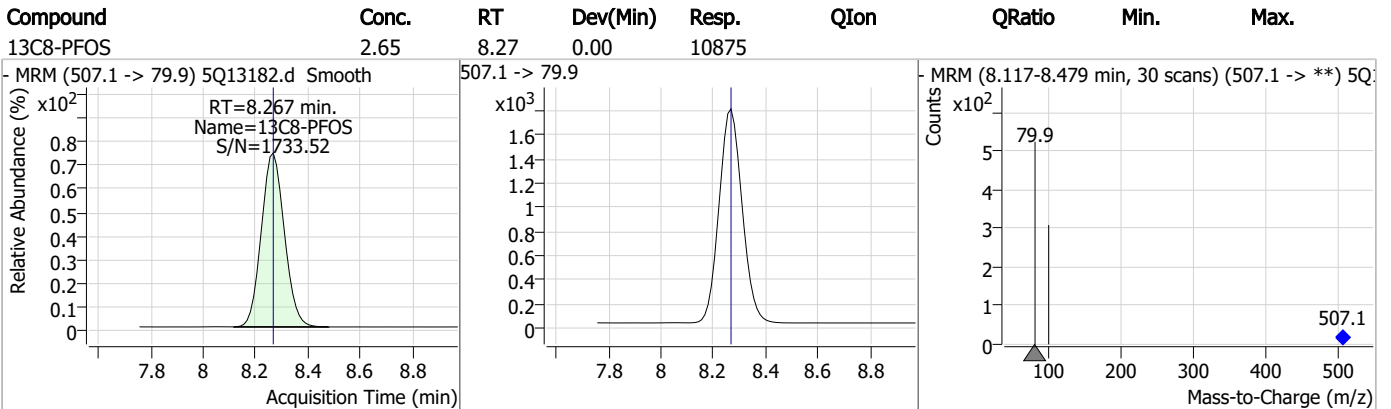
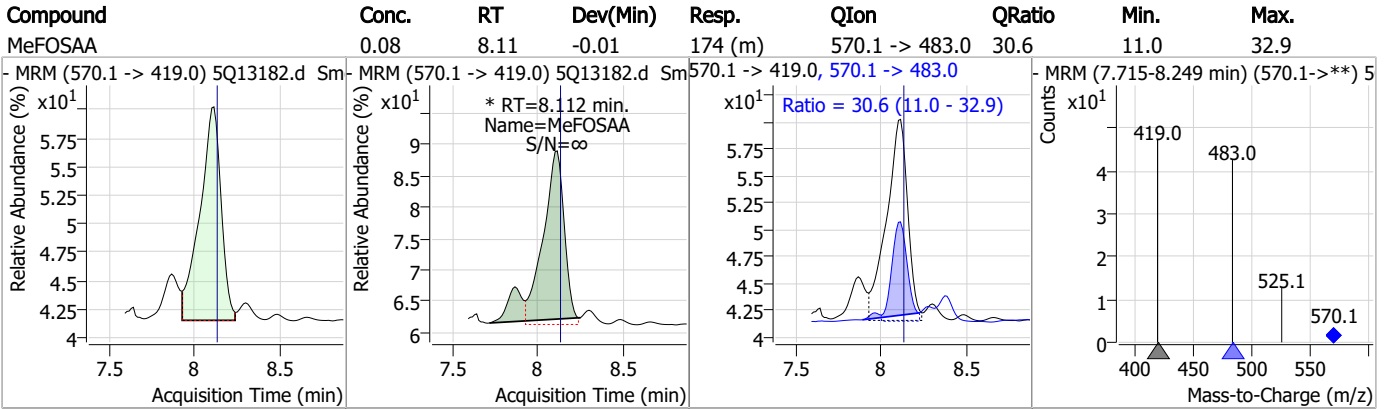
7.2.2  
7

### Perfluorinated Compounds by LC/MS/MS



7.2.2  
7

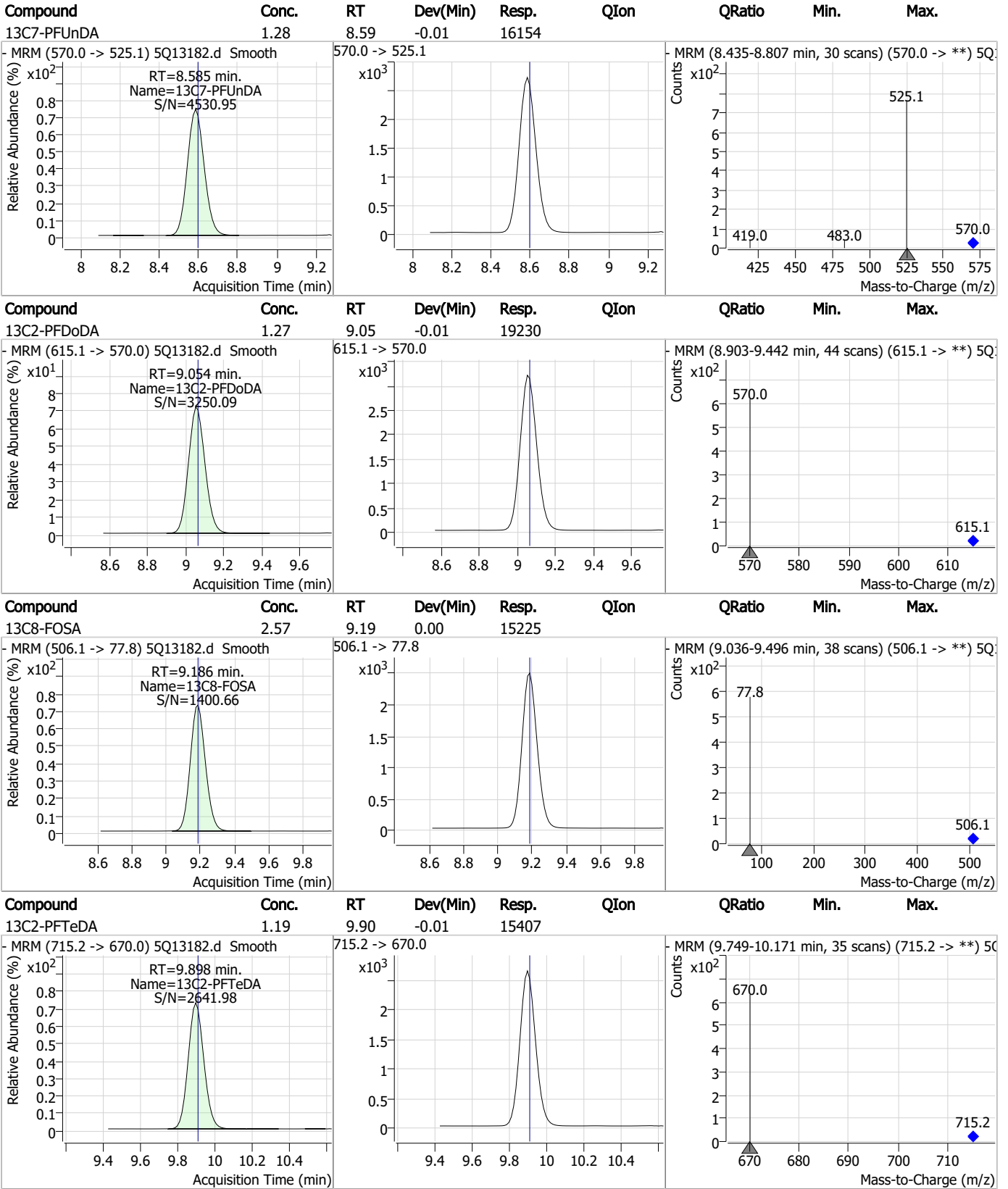
### Perfluorinated Compounds by LC/MS/MS



7.2.2

7

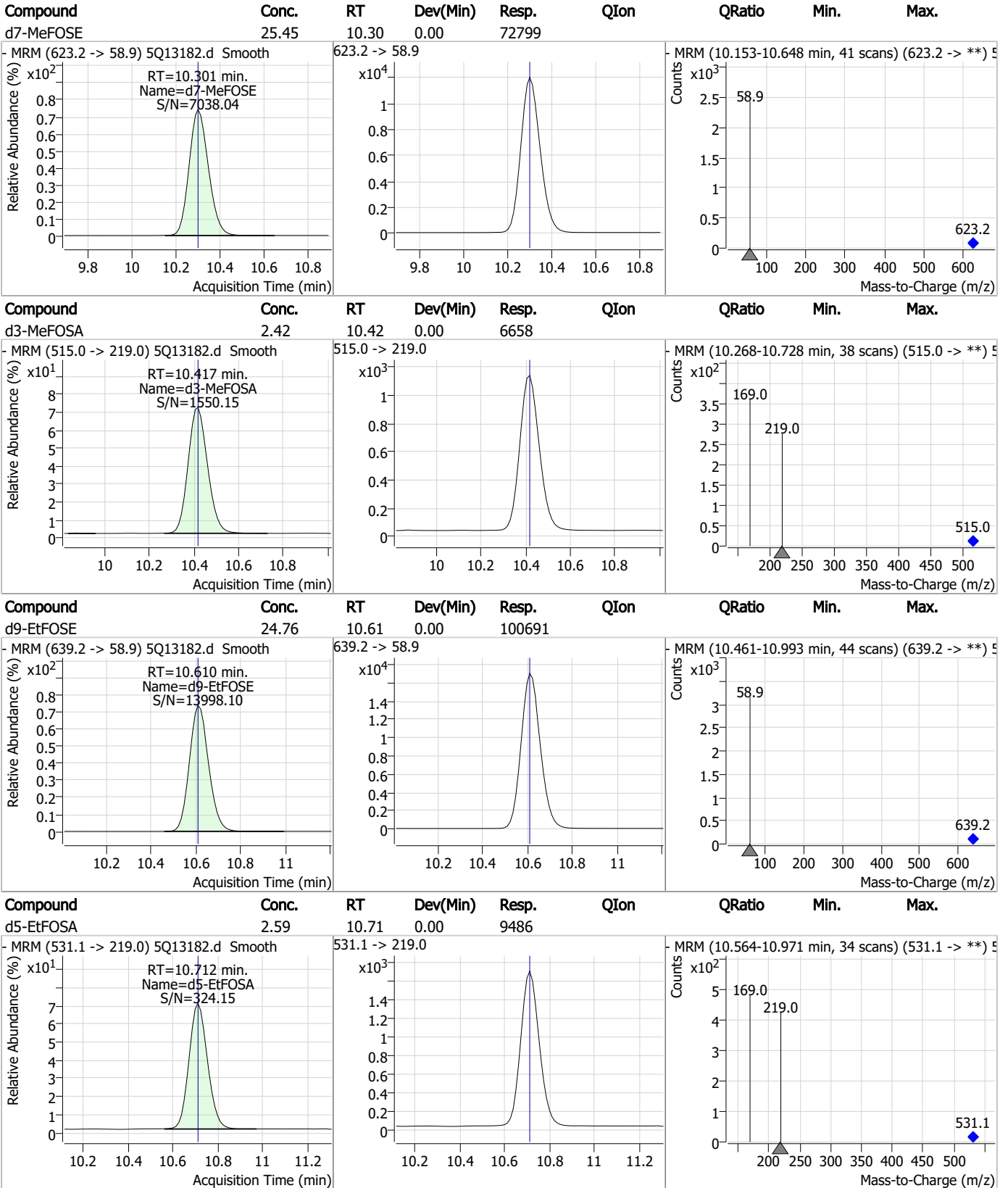
### Perfluorinated Compounds by LC/MS/MS



7.2.2

7

### Perfluorinated Compounds by LC/MS/MS



7.2.2

7



# Manual Integration Approval Summary

Sample Number: S5Q205-IBLK      Method: EPA DRAFT 1633  
Lab FileID: 5Q13182.D      Analyst approved: 04/20/23 15:12 Lindsay Ritner  
Injection Time: 04/19/23 20:50      Supervisor approved: 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-PFBA			2.75	Poor instrument integration
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBS			5.24	Poor instrument integration
MeFOSAA	2355-31-9		8.11	Split peak
EtFOSAA	2991-50-6		8.32	Split peak

7.2.2.1

7



### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13216.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 4:56:53 AM  
 Sample Name : iccb  
 Vial : P3-A1  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.752	216.8 -> 171.9	60912	10.00	µg/L	m -0.013
M5-PFPeA	4.091	268.3 -> 223.0	47026	5.00	µg/L	-0.025
M5-PFHxA	5.284	318.0 -> 273.0	40898	2.50	µg/L	-0.025
M4-PFHpA	6.267	367.1 -> 322.0	36261	2.50	µg/L	-0.025
M8-PFOA	6.936	421.1 -> 376.0	47712	2.50	µg/L	-0.038
M9-PFNA	7.506	472.1 -> 427.0	21452	1.25	µg/L	-0.037
M6-PFDA	8.040	519.1 -> 474.1	12740	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	15937	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	18542	1.25	µg/L	-0.051
M2-PFTeDA	9.861	715.2 -> 670.0	15068	1.25	µg/L	-0.050
M8-FOSA	9.173	506.1 -> 77.8	14961	2.50	µg/L	-0.012
M3-PFBS	5.226	302.1 -> 79.9	7768	2.50	µg/L	m -0.025
M3-PFHxS	7.065	402.1 -> 79.9	7622	2.50	µg/L	-0.037
M8-PFOS	8.230	507.1 -> 79.9	10368	2.50	µg/L	-0.037
M2-4:2FTS	4.935	329.1 -> 80.9	934	5.00	µg/L	-0.025
M2-6:2FTS	6.686	429.1 -> 80.9	2054	5.00	µg/L	-0.037
M2-8:2FTS	7.802	529.1 -> 80.9	2791	5.00	µg/L	-0.039
M3-MeFOSAA	8.074	573.2 -> 419.0	14294	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	83127	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	23240	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	70991	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	100233	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	9467	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6889	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	9731	2.50	µg/L	-0.037
13C3-PFBA	2.755	216.0 -> 172.0	32353	5.00	µg/L	m -0.012
18O2-PFHxS	7.064	403.0 -> 83.9	4998	2.50	µg/L	-0.037
13C4-PFOA	6.937	417.1 -> 372.0	59067	2.50	µg/L	-0.038
13C2-PFDA	8.041	515.1 -> 470.1	19309	1.25	µg/L	-0.037
13C5-PFNA	7.507	468.0 -> 423.0	21790	1.25	µg/L	-0.037
13C2-PFHxA	5.285	315.1 -> 270.0	42344	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.935	329.1 -> 80.9	934	5.40	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%			
13C2-6:2FTS	6.686	429.1 -> 80.9	2054	5.39	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%			
13C2-8:2FTS	7.802	529.1 -> 80.9	2791	4.88	µg/L	-0.039
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%			
13C2-PFDoDA	9.015	615.1 -> 570.0	18542	1.21	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%			
13C2-PFTeDA	9.861	715.2 -> 670.0	15068	1.16	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%			
13C3-PFBS	5.226	302.1 -> 79.9	7489	2.45	µg/L	m -0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%			
13C3-PFHxS	7.065	402.1 -> 79.9	7622	2.49	µg/L	-0.037

7.2.3  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C4-PFBA	2.752	216.8 -> 171.9	61091	9.86 µg/L m	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C4-PFHpA	6.267	367.1 -> 322.0	36261	2.56 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C5-PFHxA	5.284	318.0 -> 273.0	40898	2.57 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C5-PFPeA	4.091	268.3 -> 223.0	47026	5.16 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.1%		
13C6-PFDA	8.040	519.1 -> 474.1	12740	1.25 µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C7-PFUnDA	8.547	570.0 -> 525.1	15937	1.25 µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C8-FOSA	9.173	506.1 -> 77.8	14961	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C8-PFOA	6.936	421.1 -> 376.0	47712	2.47 µg/L	-0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C8-PFOS	8.230	507.1 -> 79.9	10368	2.55 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C9-PFNA	7.506	472.1 -> 427.0	21452	1.21 µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
d3-MeFOSAA	8.074	573.2 -> 419.0	14294	5.49 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.7%		
13C3-HFPO-DA	5.676	286.9 -> 168.9	83127	10.52 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 105.2%		
d3-MeFOSA	10.417	515.0 -> 219.0	6889	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
d5-EtFOSAA	8.296	589.2 -> 419.0	23240	6.53 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.6%		
d7-MeFOSE	10.301	623.2 -> 58.9	70991	25.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
d9-EtFOSE	10.610	639.2 -> 58.9	100233	24.88 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.5%		
d5-EtFOSA	10.712	531.1 -> 219.0	9467	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.	
		327.1 -> 80.9			
6:2FTS	-	427.1 -> 407.0	-	N.D.	
		427.1 -> 80.9			
8:2FTS	-	527.1 -> 507.0	-	N.D.	
		527.1 -> 80.8			
EtFOSAA	-	584.2 -> 419.1	-	N.D.	
		584.2 -> 526.0			
FOSA	-	498.1 -> 77.9	-	N.D.	
		498.1 -> 478.0			
MeFOSAA	-	570.1 -> 419.0	-	N.D.	
		570.1 -> 483.0			
PFBA	-	212.8 -> 168.9	-	N.D.	
PFBS	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	-	512.9 -> 469.0	-	N.D.	
		512.9 -> 219.0			
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.2.3  
7

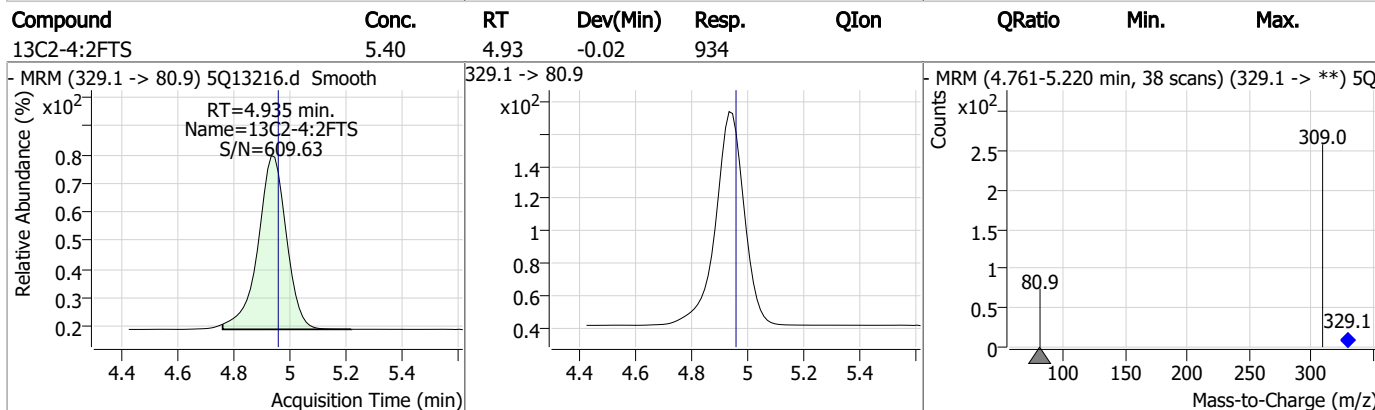
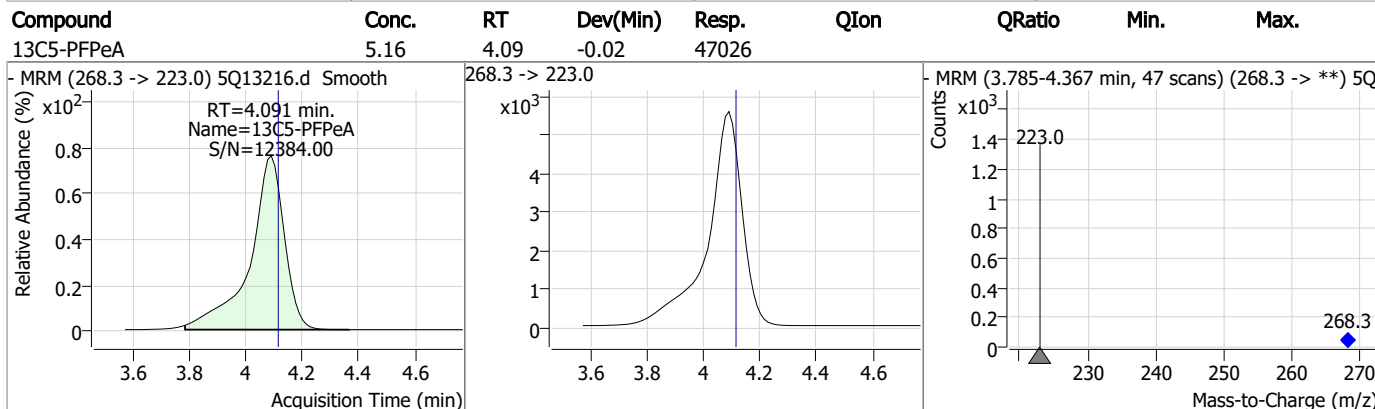
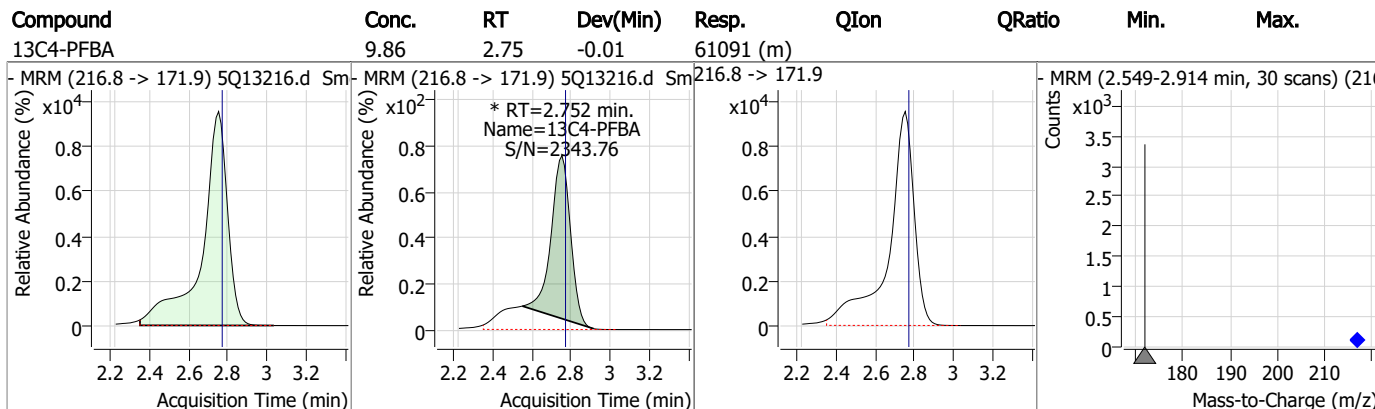
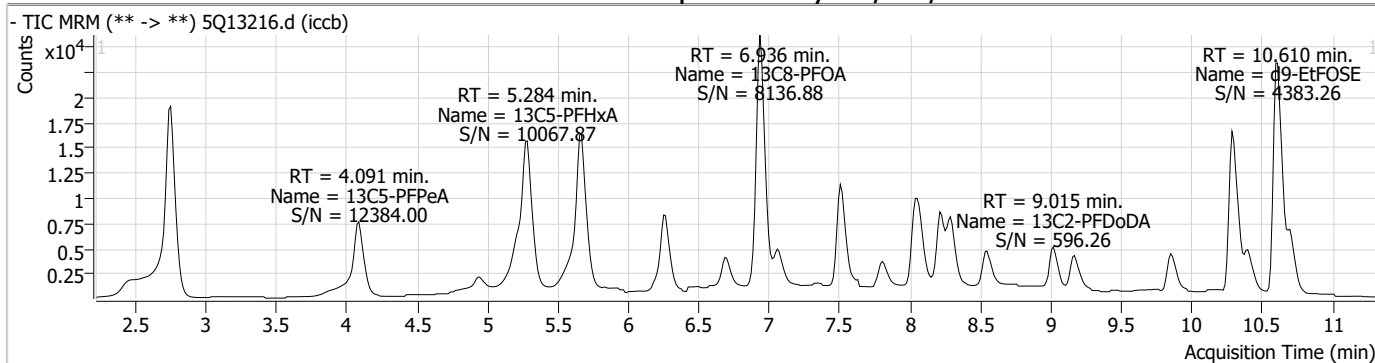
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.2.3

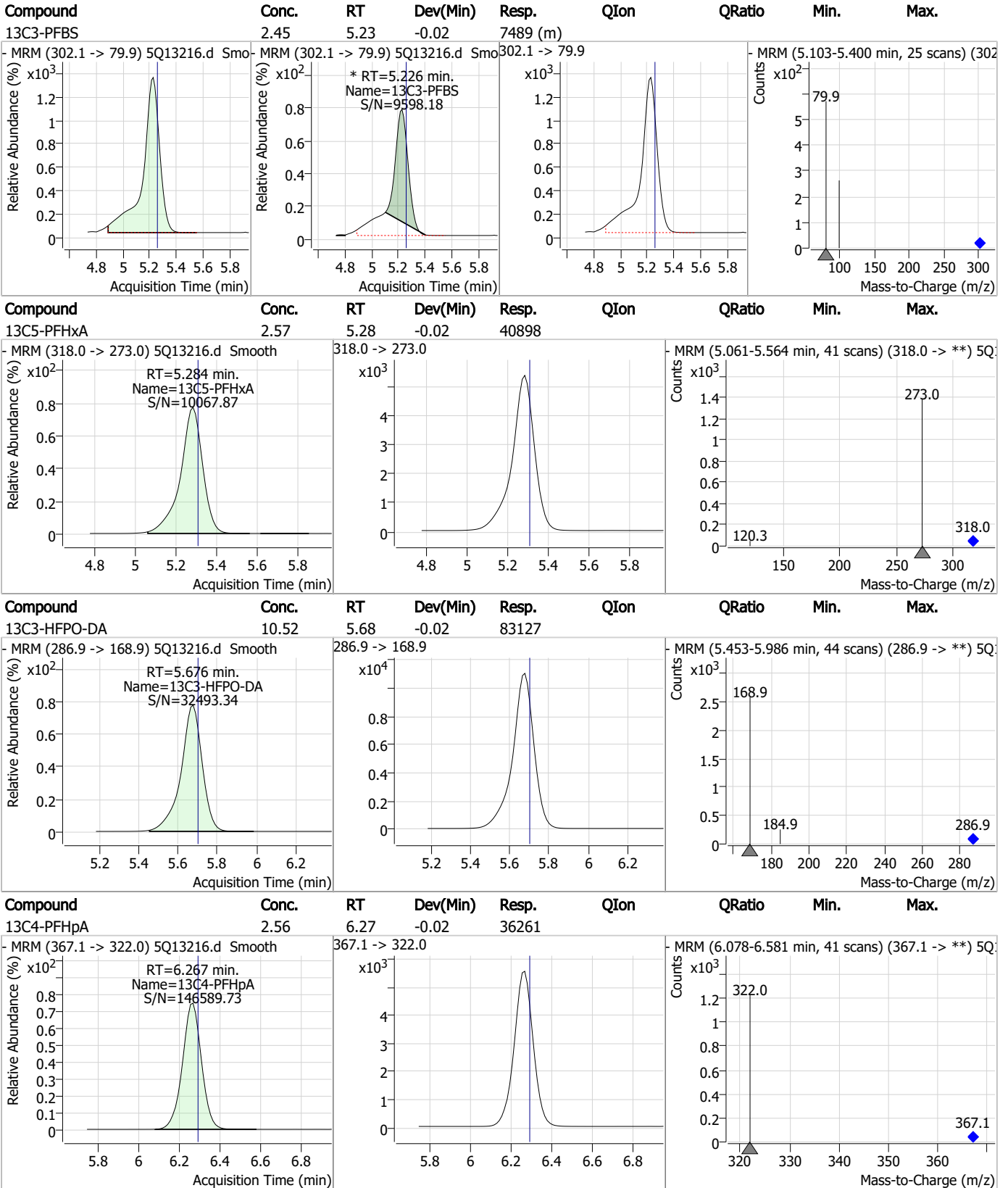
7

### Perfluorinated Compounds by LC/MS/MS



7.2.3  
7

### Perfluorinated Compounds by LC/MS/MS

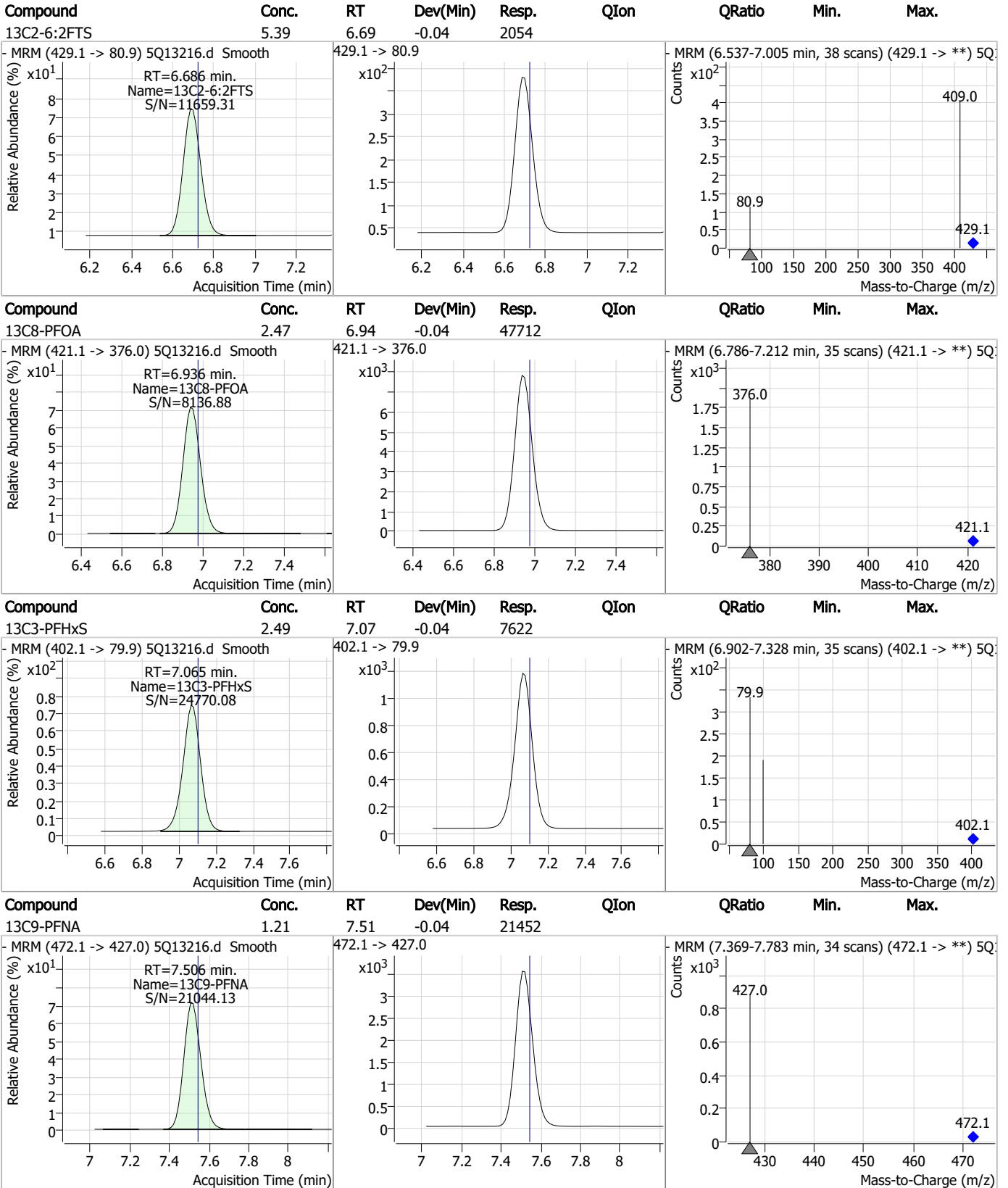


7.2.3

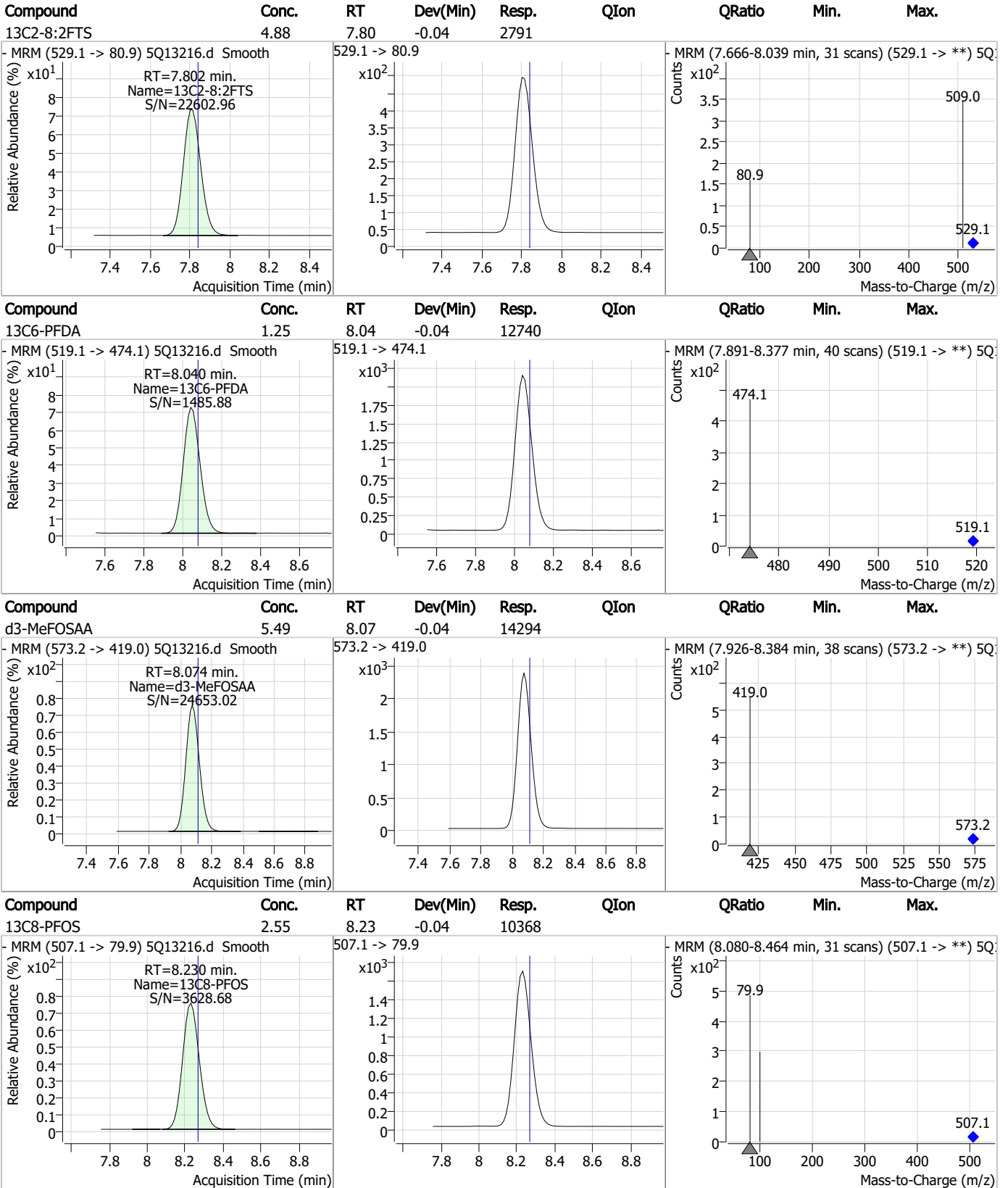
7



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



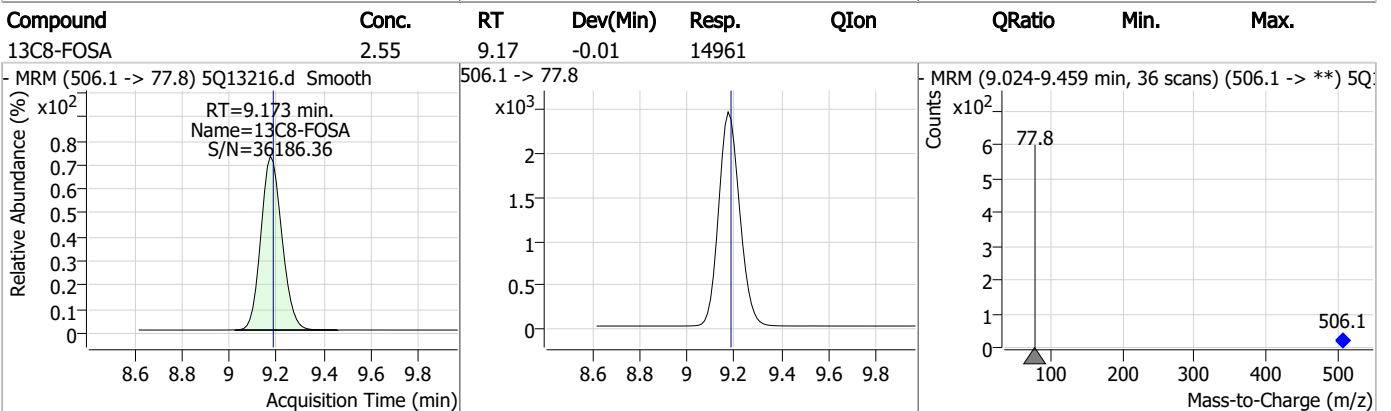
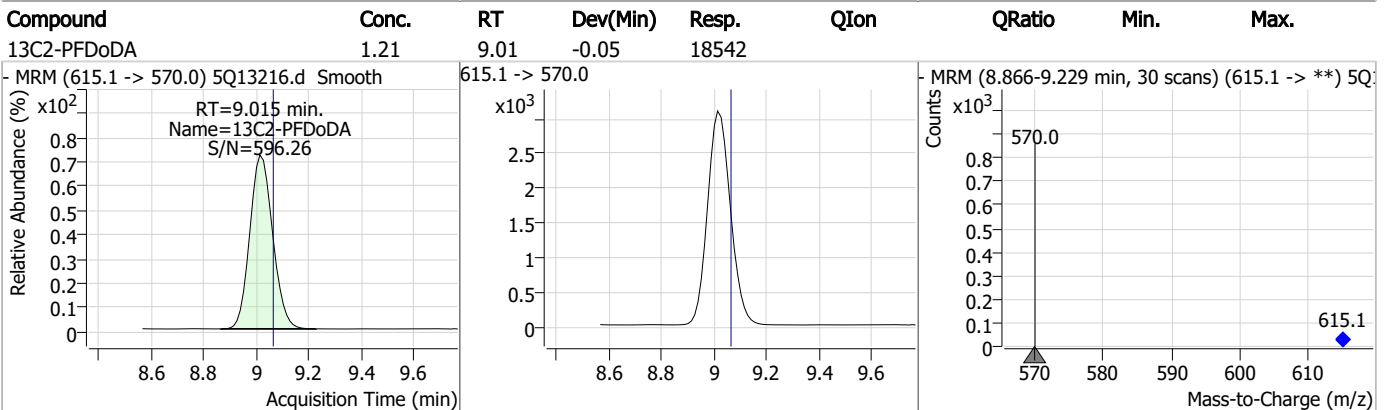
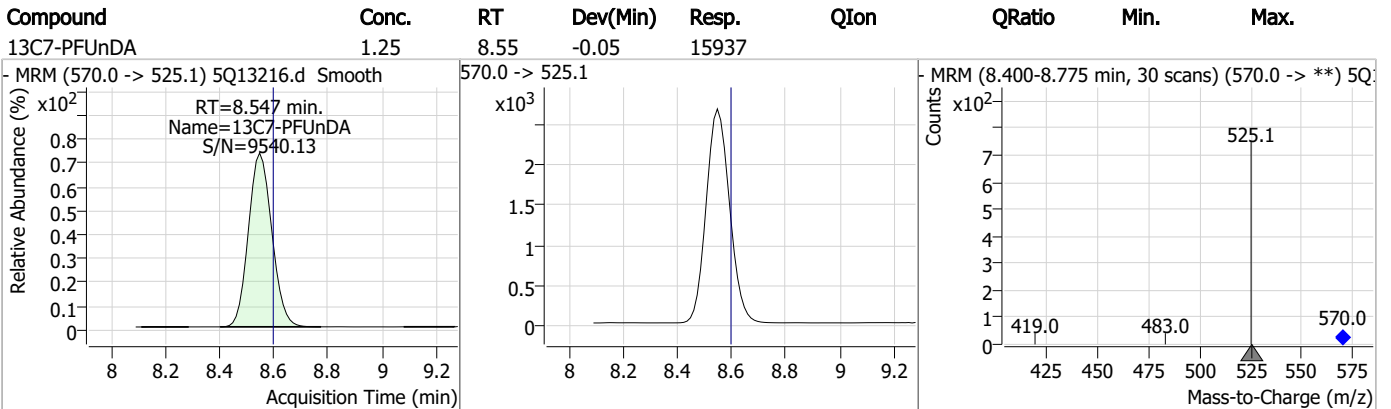
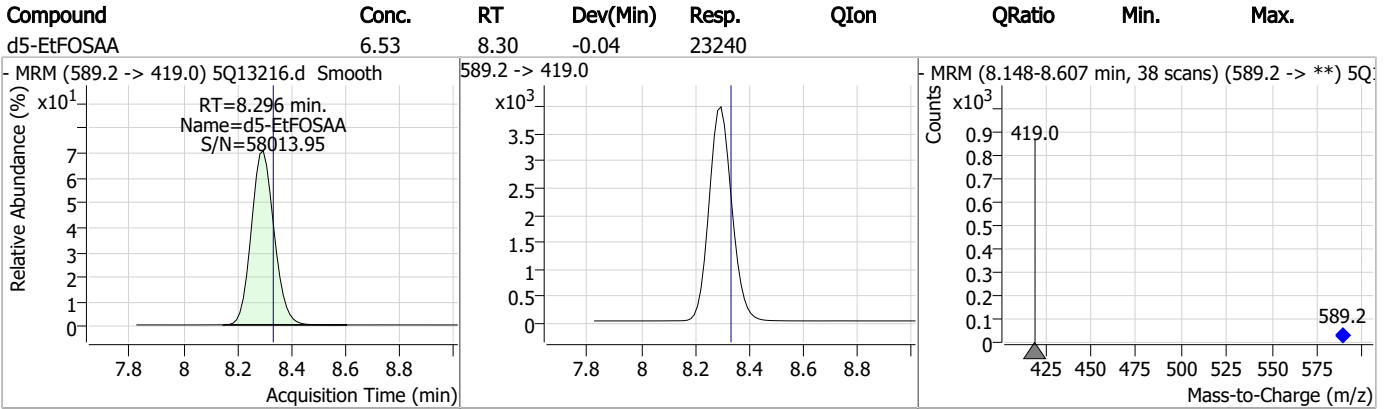
7.2.3

7

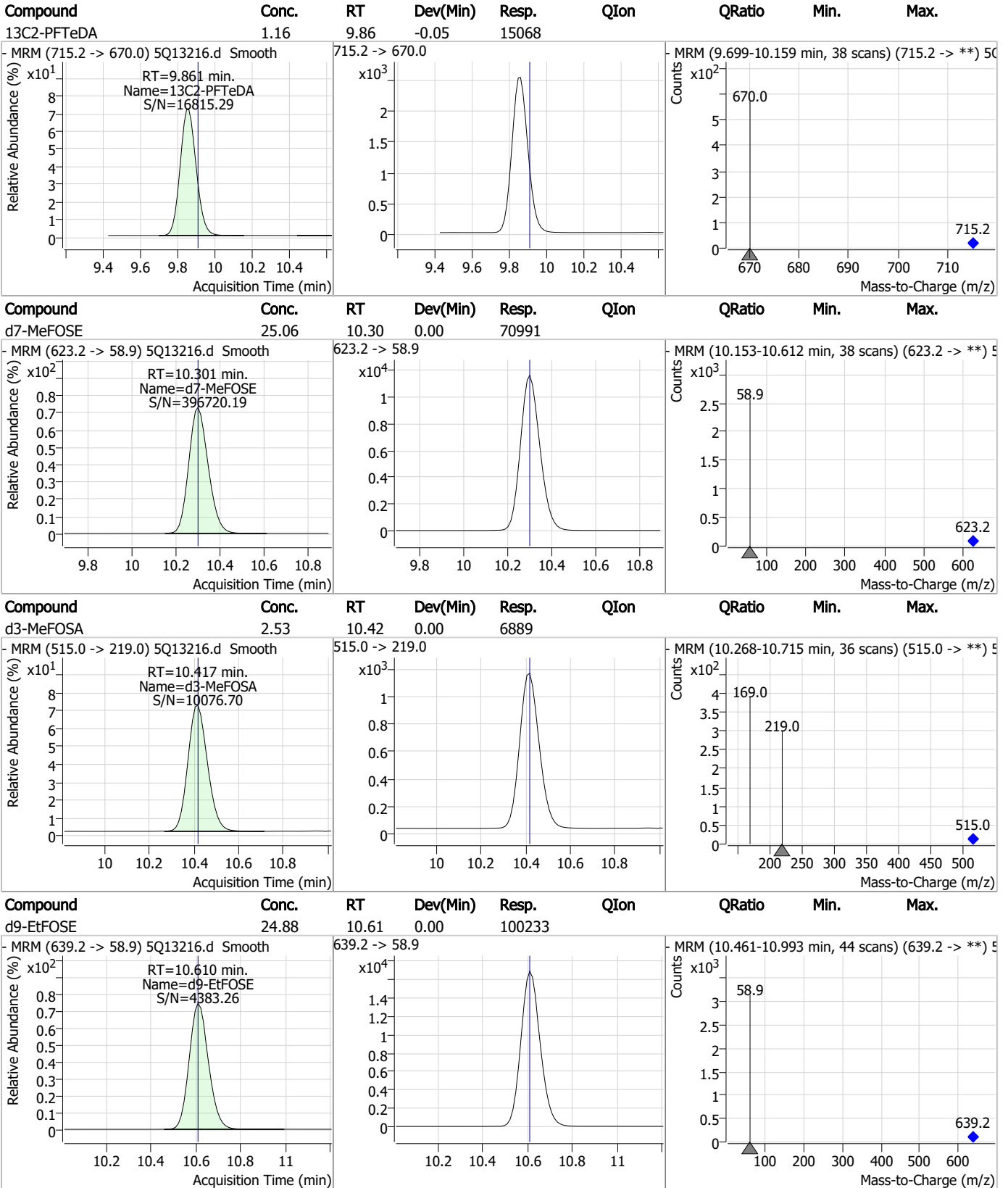




### Perfluorinated Compounds by LC/MS/MS



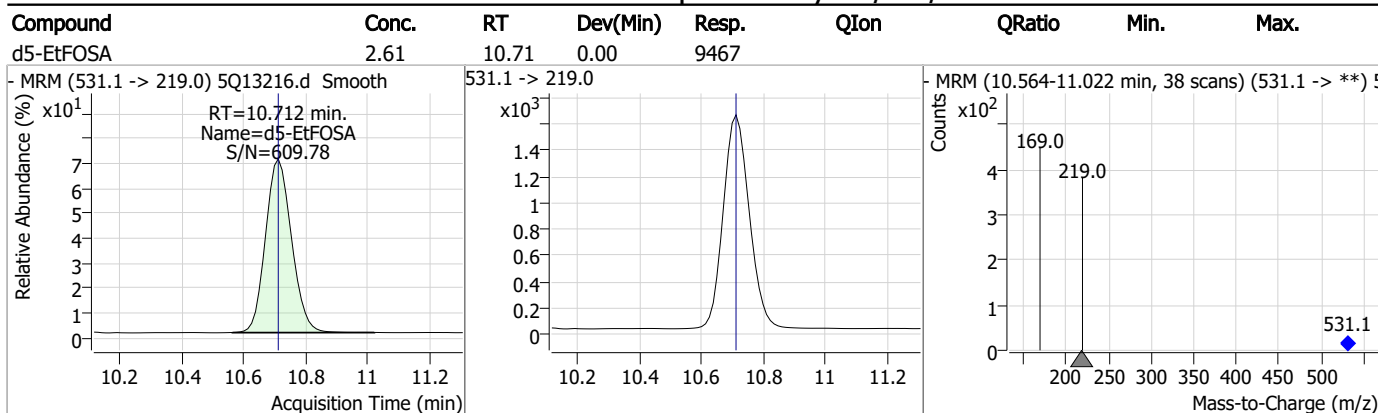
### Perfluorinated Compounds by LC/MS/MS



7.2.3

7

### Perfluorinated Compounds by LC/MS/MS



7.2.3

7

# Manual Integration Approval Summary

Sample Number: S5Q205-ICCB                      Method: EPA DRAFT 1633  
Lab FileID: 5Q13216.D                      Analyst approved: 04/20/23 15:12 Lindsay Ritner  
Injection Time: 04/20/23 04:56                      Supervisor approved: 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.75	Poor instrument integration
13C3-PFBA			2.75	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration

7.2.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13226.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 7:20:02 AM  
 Sample Name : iccb  
 Vial : P3-A1  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.752	216.8 -> 171.9	61506	10.00	µg/L	m -0.013
M5-PFPeA	4.078	268.3 -> 223.0	47849	5.00	µg/L	-0.037
M5-PFHxA	5.284	318.0 -> 273.0	40976	2.50	µg/L	-0.025
M4-PFHpA	6.254	367.1 -> 322.0	36708	2.50	µg/L	-0.037
M8-PFOA	6.936	421.1 -> 376.0	47772	2.50	µg/L	-0.038
M9-PFNA	7.506	472.1 -> 427.0	21834	1.25	µg/L	-0.037
M6-PFDA	8.040	519.1 -> 474.1	13020	1.25	µg/L	-0.037
M7-PFUnDA	8.534	570.0 -> 525.1	16267	1.25	µg/L	-0.063
M2-PFDoDA	9.003	615.1 -> 570.0	18493	1.25	µg/L	-0.063
M2-PFTeDA	9.848	715.2 -> 670.0	14939	1.25	µg/L	-0.062
M8-FOSA	9.173	506.1 -> 77.8	14908	2.50	µg/L	-0.012
M3-PFBS	5.213	302.1 -> 79.9	7481	2.50	µg/L	m -0.037
M3-PFHxS	7.065	402.1 -> 79.9	7465	2.50	µg/L	-0.037
M8-PFOS	8.217	507.1 -> 79.9	10281	2.50	µg/L	-0.051
M2-4:2FTS	4.935	329.1 -> 80.9	929	5.00	µg/L	-0.025
M2-6:2FTS	6.686	429.1 -> 80.9	2128	5.00	µg/L	-0.037
M2-8:2FTS	7.802	529.1 -> 80.9	3023	5.00	µg/L	-0.039
M3-MeFOSAA	8.074	573.2 -> 419.0	14535	5.00	µg/L	-0.037
M3-HFPO-DA	5.663	286.9 -> 168.9	85074	10.00	µg/L	-0.037
M5-EtFOSAA	8.284	589.2 -> 419.0	22876	5.00	µg/L	-0.050
M7-MeFOSE	10.301	623.2 -> 58.9	71458	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	97372	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	9589	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6952	2.50	µg/L	0.000
13C4-PFOS	8.217	502.8 -> 79.9	9670	2.50	µg/L	-0.051
13C3-PFBA	2.743	216.0 -> 172.0	31980	5.00	µg/L	m -0.025
18O2-PFHxS	7.064	403.0 -> 83.9	4875	2.50	µg/L	-0.037
13C4-PFOA	6.937	417.1 -> 372.0	58937	2.50	µg/L	-0.038
13C2-PFDA	8.041	515.1 -> 470.1	19105	1.25	µg/L	-0.037
13C5-PFNA	7.507	468.0 -> 423.0	21404	1.25	µg/L	-0.037
13C2-PFHxA	5.285	315.1 -> 270.0	44160	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.935	329.1 -> 80.9	929	5.51	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%			
13C2-6:2FTS	6.686	429.1 -> 80.9	2128	5.73	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.6%			
13C2-8:2FTS	7.802	529.1 -> 80.9	3023	5.42	µg/L	-0.039
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.3%			
13C2-PFDoDA	9.003	615.1 -> 570.0	18493	1.22	µg/L	-0.063
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%			
13C2-PFTeDA	9.848	715.2 -> 670.0	14939	1.16	µg/L	-0.062
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.0%			
13C3-PFBS	5.213	302.1 -> 79.9	7171	2.40	µg/L	m -0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%			
13C3-PFHxS	7.065	402.1 -> 79.9	7465	2.50	µg/L	-0.037

7.24  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%			
13C4-PFBA	2.752	216.8 -> 171.9	61506	10.04	µg/L m	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.4%			
13C4-PFHpA	6.254	367.1 -> 322.0	36708	2.49	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.5%			
13C5-PFHxA	5.284	318.0 -> 273.0	40976	2.47	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%			
13C5-PFPeA	4.078	268.3 -> 223.0	47849	5.03	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%			
13C6-PFDA	8.040	519.1 -> 474.1	13020	1.30	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%			
13C7-PFUnDA	8.534	570.0 -> 525.1	16267	1.29	µg/L	-0.063
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.4%			
13C8-FOSA	9.173	506.1 -> 77.8	14908	2.56	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%			
13C8-PFOA	6.936	421.1 -> 376.0	47772	2.48	µg/L	-0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%			
13C8-PFOS	8.217	507.1 -> 79.9	10281	2.55	µg/L	-0.051
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%			
13C9-PFNA	7.506	472.1 -> 427.0	21834	1.25	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%			
d3-MeFOSAA	8.074	573.2 -> 419.0	14535	5.61	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.3%			
13C3-HFPO-DA	5.663	286.9 -> 168.9	85074	10.32	µg/L	-0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 103.2%			
d3-MeFOSA	10.417	515.0 -> 219.0	6952	2.57	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%			
d5-EtFOSAA	8.284	589.2 -> 419.0	22876	6.47	µg/L	-0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 129.4%			
d7-MeFOSE	10.301	623.2 -> 58.9	71458	25.38	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.5%			
d9-EtFOSE	10.610	639.2 -> 58.9	97372	24.32	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.3%			
d5-EtFOSA	10.712	531.1 -> 219.0	9589	2.66	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.5%			

Target Compounds

Target Compounds	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

7.2.4  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	-	449.0 -> 98.9	-	N.D.	
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	-	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	-	498.9 -> 98.8	-	N.D.	
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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



7.2.4  
7

### Perfluorinated Compounds by LC/MS/MS

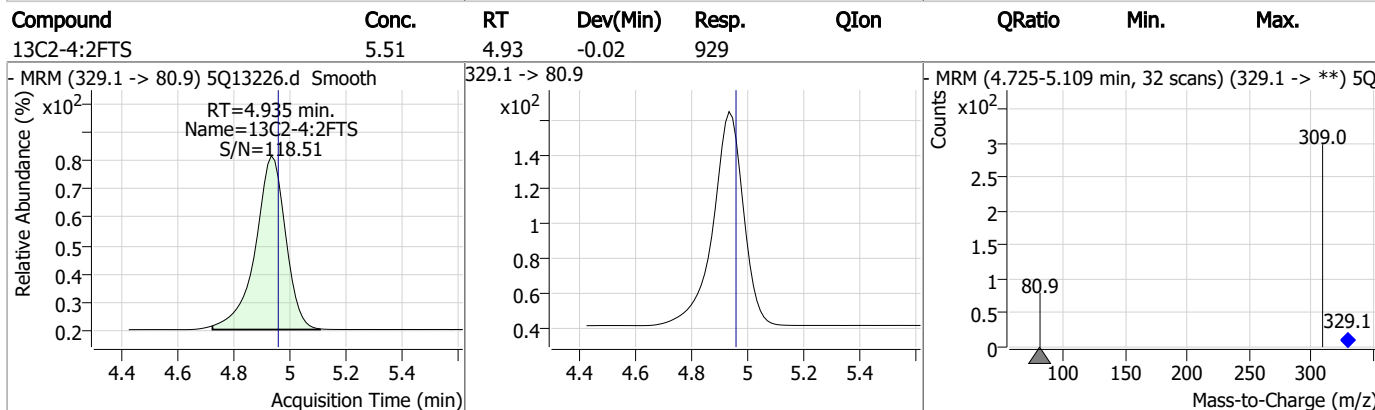
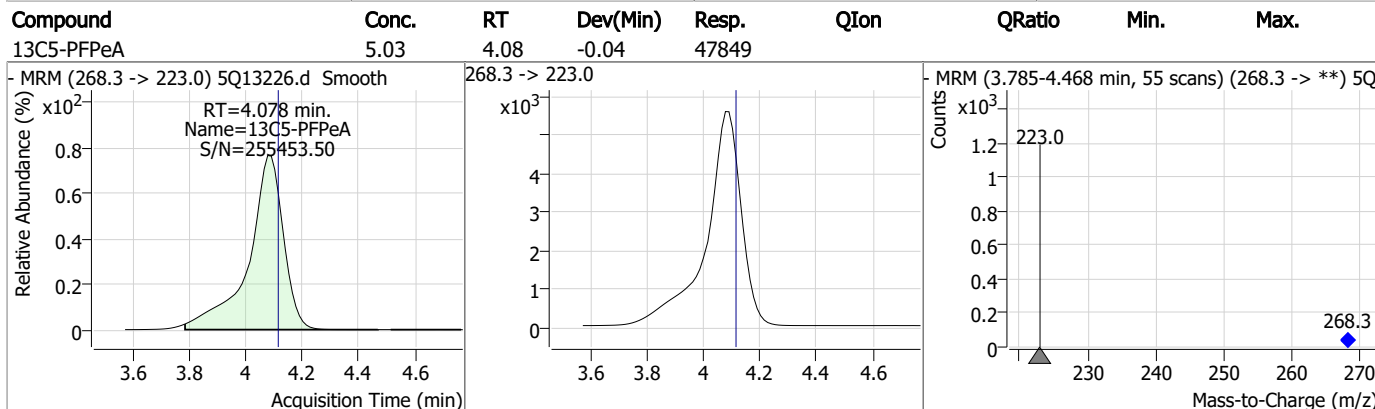
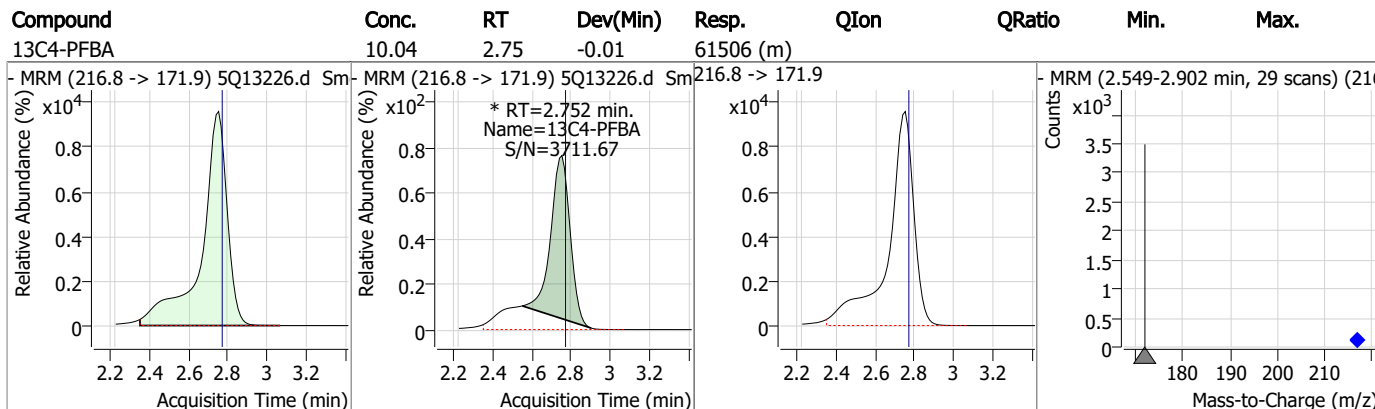
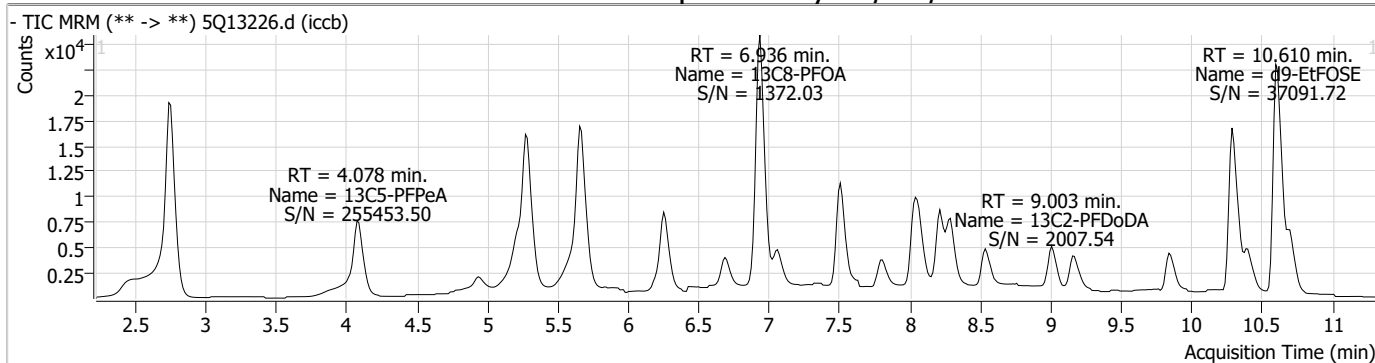
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.2.4

7

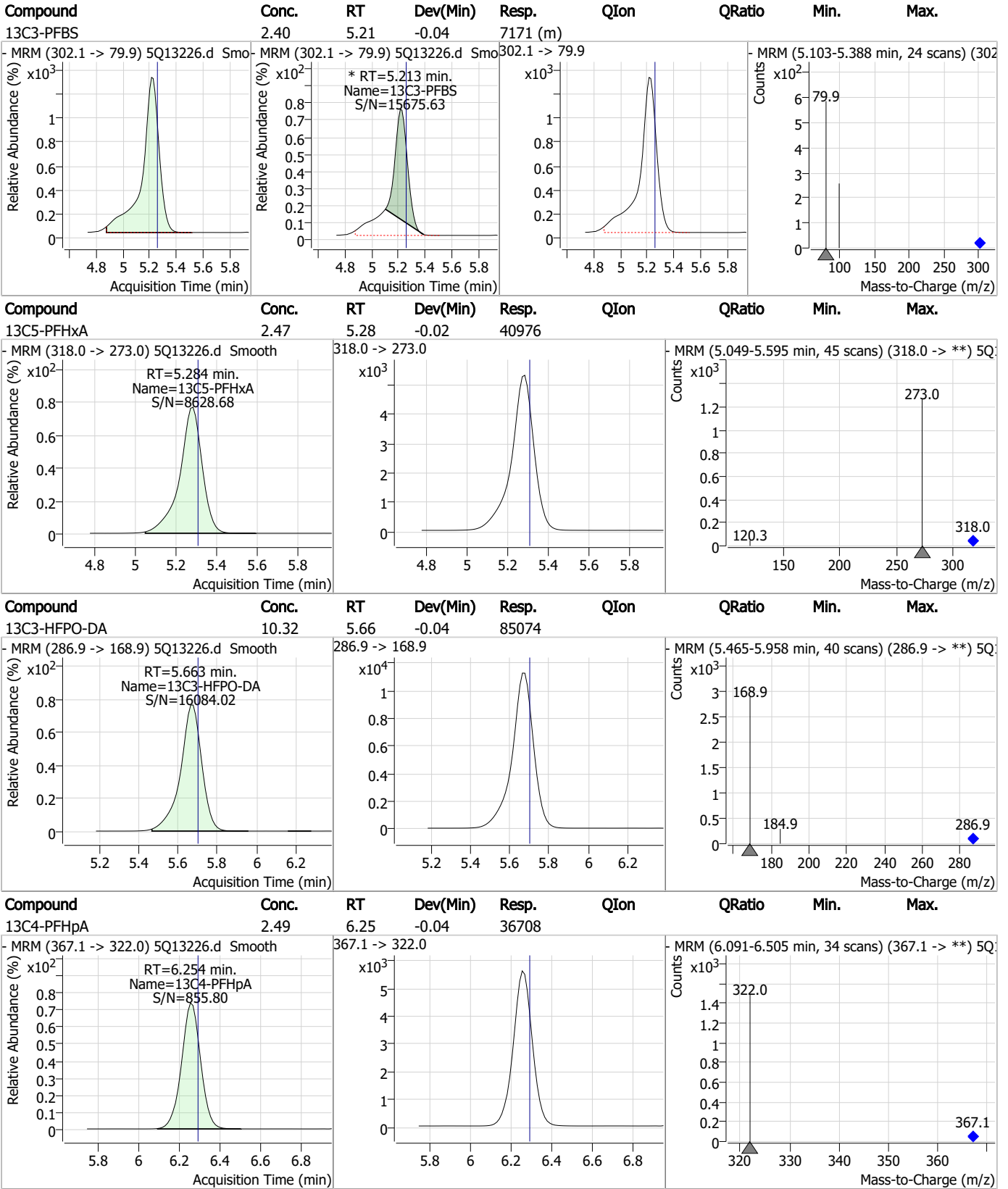


### Perfluorinated Compounds by LC/MS/MS



7.2.4  
7

### Perfluorinated Compounds by LC/MS/MS

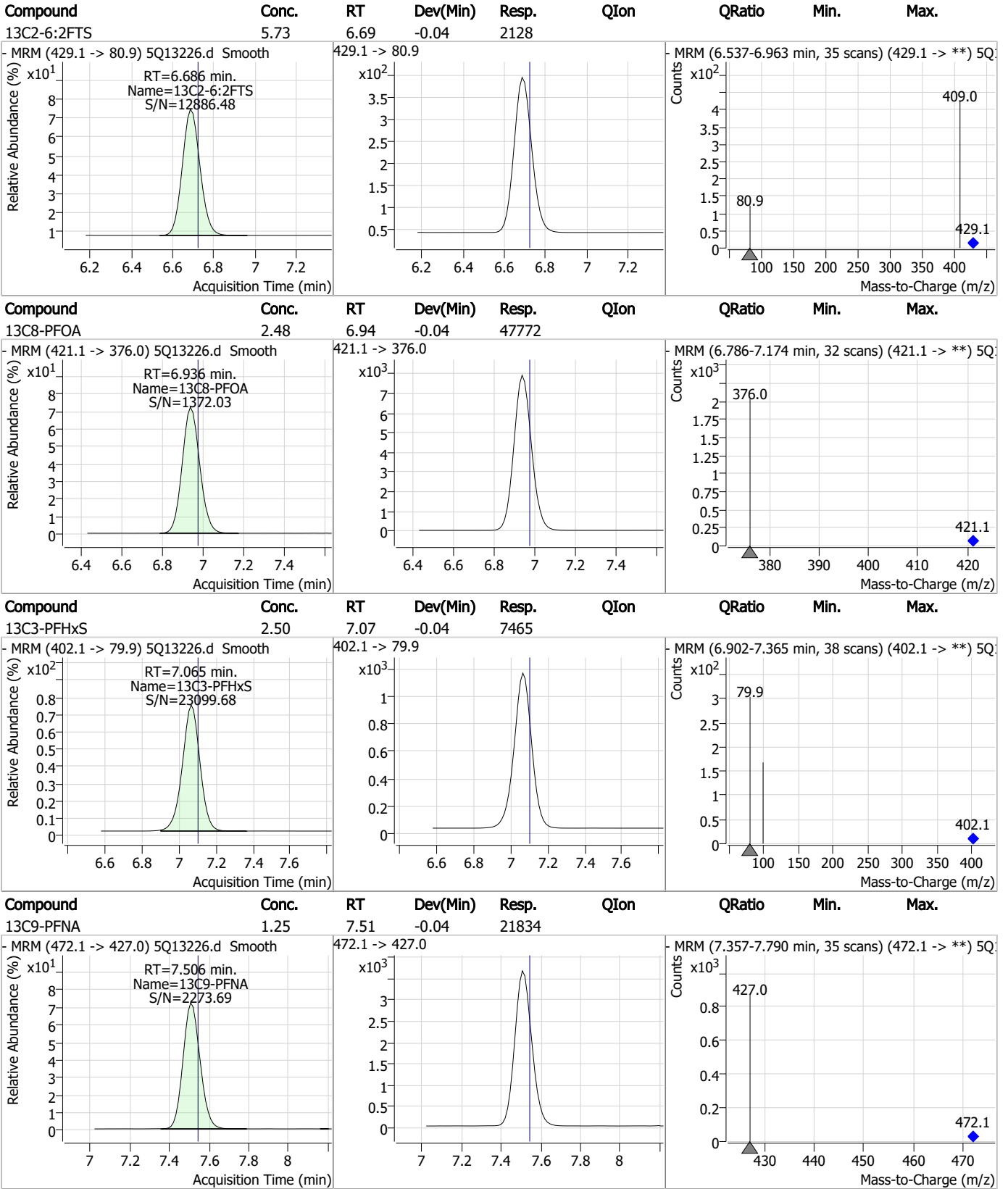


7.2.4

7



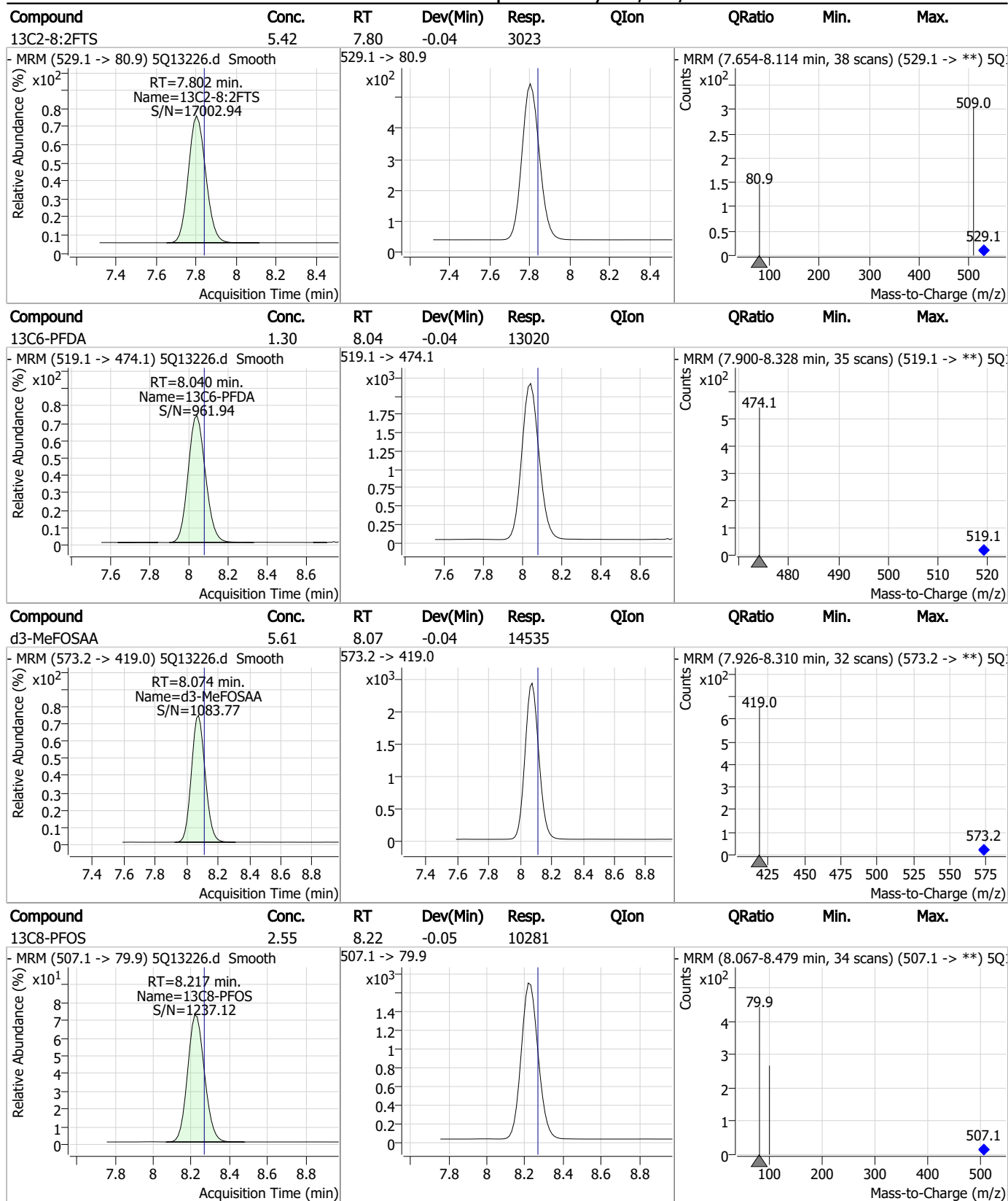
### Perfluorinated Compounds by LC/MS/MS



7.2.4

7

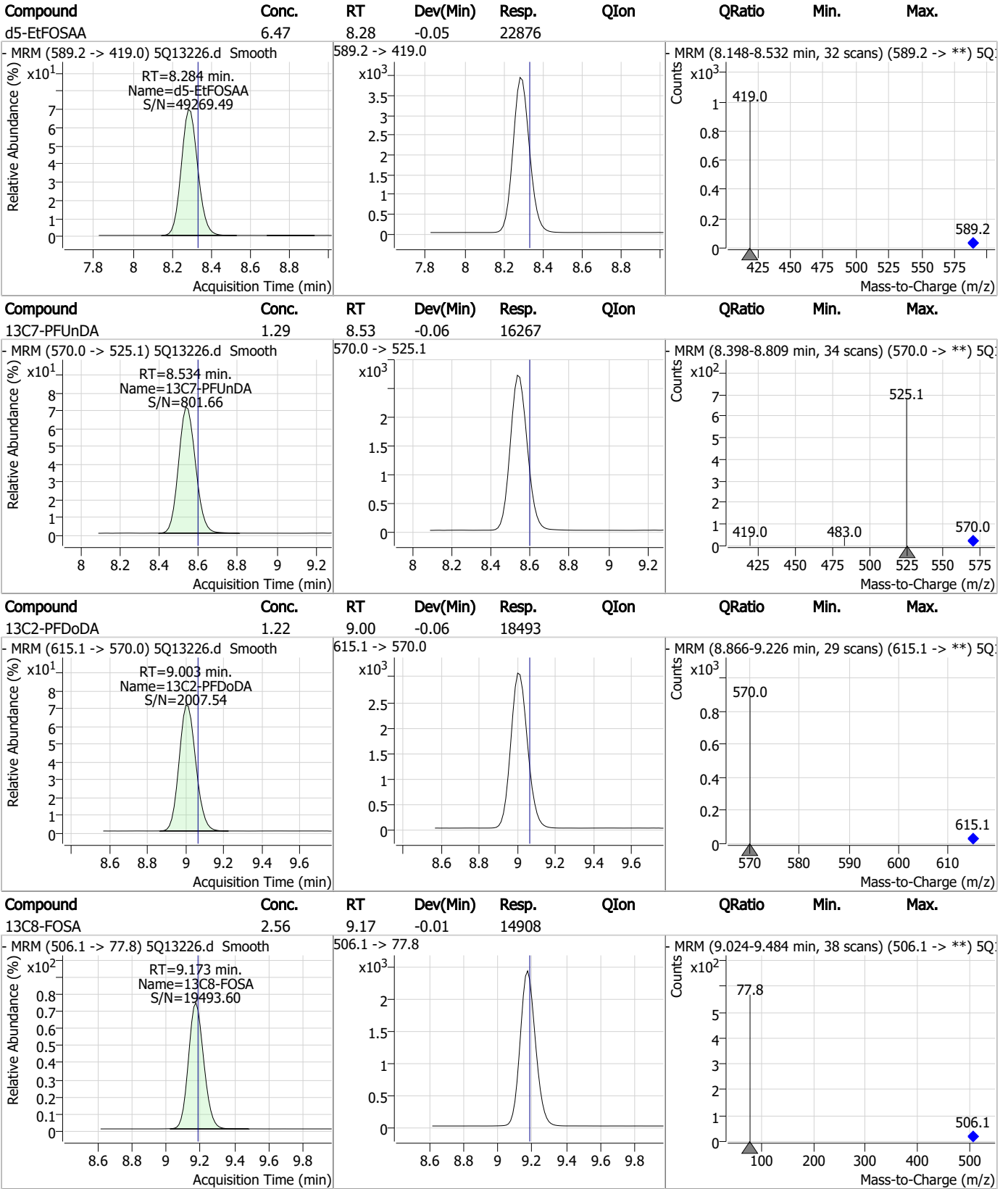
### Perfluorinated Compounds by LC/MS/MS



7.2.4  
7



### Perfluorinated Compounds by LC/MS/MS

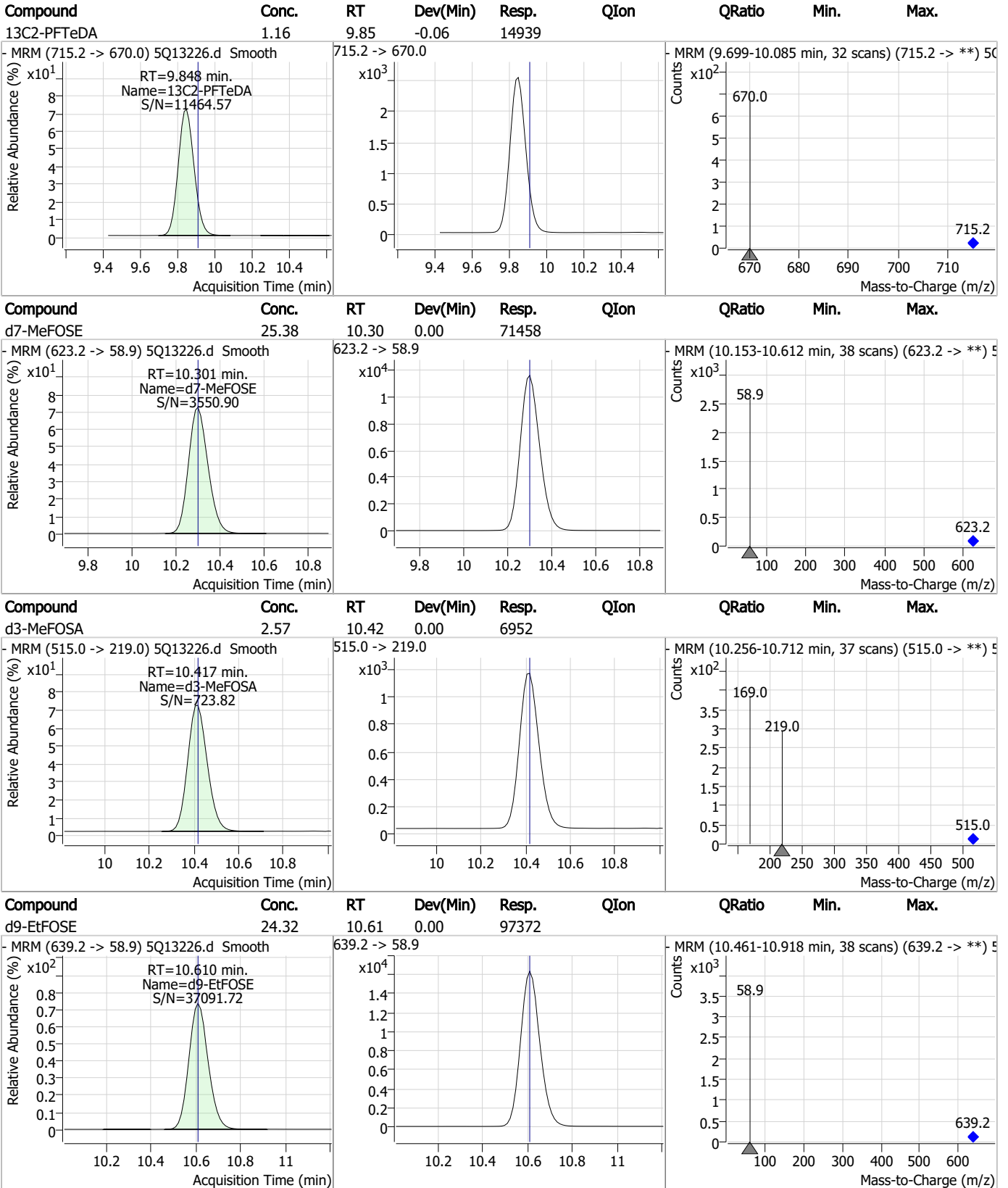


7.2.4

7



### Perfluorinated Compounds by LC/MS/MS

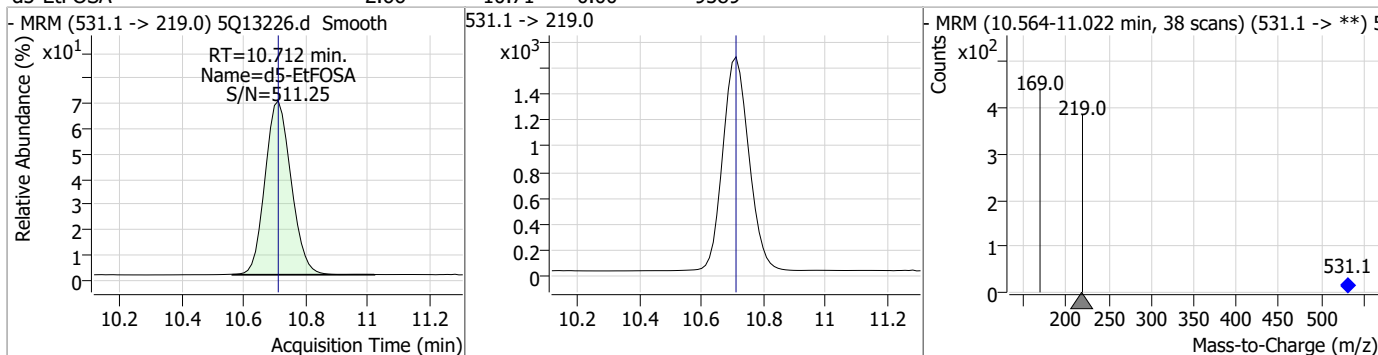


7.2.4

7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.66	10.71	0.00	9589				



7.2.4

7

# Manual Integration Approval Summary

Sample Number: S5Q205-ICCB                      Method: EPA DRAFT 1633  
Lab FileID: 5Q13226.D                      Analyst approved: 04/20/23 15:12 Lindsay Ritner  
Injection Time: 04/20/23 07:20                      Supervisor approved: 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-PFBA			2.74	Poor instrument integration
13C4-PFBA			2.75	Poor instrument integration
13C3-PFBS			5.21	Poor instrument integration

7.2.4.1

7



Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13217.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 5:11:11 AM  
 Sample Name : op96450-bs  
 Vial : P3-E6  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96450,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	17317	10.00	µg/L	m 0.000
M5-PFPeA	4.091	268.3 -> 223.0	38025	5.00	µg/L	-0.025
M5-PFHxA	5.284	318.0 -> 273.0	32612	2.50	µg/L	-0.025
M4-PFHpA	6.267	367.1 -> 322.0	28113	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	37739	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	17519	1.25	µg/L	-0.025
M6-PFDA	8.053	519.1 -> 474.1	9925	1.25	µg/L	-0.025
M7-PFUnDA	8.547	570.0 -> 525.1	12200	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	14606	1.25	µg/L	-0.051
M2-PFTeDA	9.861	715.2 -> 670.0	11016	1.25	µg/L	-0.050
M8-FOSA	9.173	506.1 -> 77.8	11775	2.50	µg/L	-0.012
M3-PFBS	5.226	302.1 -> 79.9	6362	2.50	µg/L	m -0.025
M3-PFHxS	7.078	402.1 -> 79.9	6008	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	7902	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	750	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1710	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	2185	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	11600	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	64971	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	16919	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	54641	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	77420	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	7067	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	5570	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	7121	2.50	µg/L	-0.037
13C3-PFBA	2.755	216.0 -> 172.0	25105	5.00	µg/L	m -0.012
18O2-PFHxS	7.077	403.0 -> 83.9	3531	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	41708	2.50	µg/L	-0.026
13C2-PFDA	8.053	515.1 -> 470.1	13898	1.25	µg/L	-0.025
13C5-PFNA	7.519	468.0 -> 423.0	15114	1.25	µg/L	-0.025
13C2-PFHxA	5.285	315.1 -> 270.0	30104	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	750	6.14	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.8%			
13C2-6:2FTS	6.698	429.1 -> 80.9	1710	6.35	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 127.1%			
13C2-8:2FTS	7.814	529.1 -> 80.9	2185	5.41	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%			
13C2-PFDoDA	9.015	615.1 -> 570.0	14606	1.33	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%			
13C2-PFTeDA	9.861	715.2 -> 670.0	11016	1.18	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.3%			
13C3-PFBS	5.226	302.1 -> 79.9	6356	2.94	µg/L	m -0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.6%			
13C3-PFHxS	7.078	402.1 -> 79.9	6008	2.78	µg/L	-0.025

7.3.1  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.1%		
13C4-PFBA	2.765	216.8 -> 171.9	17317	3.60 µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 36.0%		
13C4-PFHpA	6.267	367.1 -> 322.0	28113	2.80 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C5-PFHxA	5.284	318.0 -> 273.0	32612	2.89 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 115.4%		
13C5-PFPeA	4.091	268.3 -> 223.0	38025	5.86 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.3%		
13C6-PFDA	8.053	519.1 -> 474.1	9925	1.36 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.6%		
13C7-PFUnDA	8.547	570.0 -> 525.1	12200	1.33 µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C8-FOSA	9.173	506.1 -> 77.8	11775	2.75 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C8-PFOA	6.949	421.1 -> 376.0	37739	2.77 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C8-PFOS	8.230	507.1 -> 79.9	7902	2.66 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C9-PFNA	7.519	472.1 -> 427.0	17519	1.43 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 114.1%		
d3-MeFOSAA	8.074	573.2 -> 419.0	11600	6.08 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.7%		
13C3-HFPO-DA	5.676	286.9 -> 168.9	64971	11.56 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 115.6%		
d3-MeFOSA	10.417	515.0 -> 219.0	5570	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
d5-EtFOSAA	8.296	589.2 -> 419.0	16919	6.50 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 130.0%		
d7-MeFOSE	10.301	623.2 -> 58.9	54641	26.35 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.4%		
d9-EtFOSE	10.610	639.2 -> 58.9	77420	26.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
d5-EtFOSA	10.712	531.1 -> 219.0	7067	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.6%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	4.948	327.1 -> 307.0	8757	9.91 µg/L	98
		327.1 -> 80.9	4579		
6:2FTS	6.699	427.1 -> 407.0	11513	8.58 µg/L	100
		427.1 -> 80.9	4815		
8:2FTS	7.815	527.1 -> 507.0	8654	9.54 µg/L	97
		527.1 -> 80.8	4044		
EtFOSAA	8.297	584.2 -> 419.1	5216	2.43 µg/L m	97
		584.2 -> 526.0	2022		
FOSA	9.176	498.1 -> 77.9	9087	2.46 µg/L	100
		498.1 -> 478.0	303		
MeFOSAA	8.088	570.1 -> 419.0	4743	2.43 µg/L m	93
		570.1 -> 483.0	1194		
PFBA	2.758	212.8 -> 168.9	6117	9.69 µg/L m	100
PFBS	5.227	298.7 -> 79.9	4455	2.21 µg/L m	93
		298.7 -> 98.8	1872		
PFDA	8.054	512.9 -> 469.0	21247	2.40 µg/L	98
		512.9 -> 219.0	4005		
PFDODA	9.016	613.1 -> 569.0	21961	2.47 µg/L	98
		613.1 -> 319.0	3462		
PFDS	9.206	599.0 -> 79.9	4104	2.44 µg/L	93

7.3.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2262			
PFHpA	6.267	363.1 -> 319.0	28601	2.50	µg/L	98
		363.1 -> 169.0	6286			
PFHpS	7.685	449.0 -> 79.9	5114	2.44	µg/L	97
		449.0 -> 98.9	2816			
PFHxA	5.286	313.0 -> 269.0	19305	2.35	µg/L	99
		313.0 -> 118.9	919			
PFHxS	7.066	398.7 -> 79.9	4611	2.19	µg/L	m 92
		398.7 -> 98.9	2716			
PFNA	7.520	463.0 -> 419.0	21116	2.48	µg/L	99
		463.0 -> 219.0	4708			
PFNS	8.747	548.8 -> 79.9	4209	2.70	µg/L	94
		548.8 -> 98.9	2245			
PFOA	6.950	413.0 -> 369.0	32749	2.42	µg/L	99
		413.0 -> 169.0	7721			
PFOS	8.232	498.9 -> 79.9	6402	2.32	µg/L	m 92
		498.9 -> 98.8	3733			
PFPeA	4.092	263.0 -> 219.0	35451	4.79	µg/L	100
PFPeS	6.331	349.1 -> 79.9	4545	2.36	µg/L	99
		349.1 -> 98.9	2177			
PFTeDA	9.861	713.1 -> 669.0	19091	2.36	µg/L	99
		713.1 -> 168.9	2670			
PFTrDA	9.452	663.0 -> 619.0	23970	2.43	µg/L	99
		663.0 -> 168.9	3998			
PFUnDA	8.547	563.1 -> 519.0	21860	2.49	µg/L	96
		563.1 -> 269.1	4515			
11CI-PF3OUdS	9.516	630.9 -> 450.9	39538	5.35	µg/L	99
		632.9 -> 452.9	12297			
9CI-PF3ONS	8.600	530.8 -> 351.0	42624	5.45	µg/L	99
		532.8 -> 353.0	13341			
ADONA	6.530	376.9 -> 250.9	98162	5.48	µg/L	99
		376.9 -> 84.8	28516			
HFPO-DA	5.677	284.9 -> 168.9	29552	5.79	µg/L	99
		284.9 -> 184.9	2672			
3:3FTCA	3.561	241.0 -> 177.0	5979	12.31	µg/L	99
		241.0 -> 117.0	650			
5:3FTCA	5.905	341.0 -> 237.1	111818	71.05	µg/L	98
		341.0 -> 217.0	74513			
7:3FTCA	7.360	441.0 -> 316.9	77436	95.31	µg/L	98
		441.0 -> 336.9	175964			
EtFOSA	10.713	526.0 -> 219.0	13220	5.64	µg/L	m 100
		526.0 -> 169.0	20574			
EtFOSE	10.636	630.0 -> 58.9	35798	13.95	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	10853	5.70	µg/L	m 95
		511.9 -> 169.0	17296			
MeFOSE	10.314	616.1 -> 58.9	26325	13.60	µg/L	m 100
PFDoDS	10.013	699.1 -> 79.9	3162	2.32	µg/L	95
		699.1 -> 98.8	1801			
NFDHA	5.167	295.0 -> 201.0	4863	6.07	µg/L	99
		295.0 -> 84.9	1384			
PFMBA	4.505	279.0 -> 85.1	27605	5.71	µg/L	100
PFMPA	3.278	229.0 -> 84.9	18435	4.79	µg/L	100
PFEESA	5.795	314.8 -> 134.9	55458	5.20	µg/L	100
		314.8 -> 82.9	1731			

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

7.3.1  
7

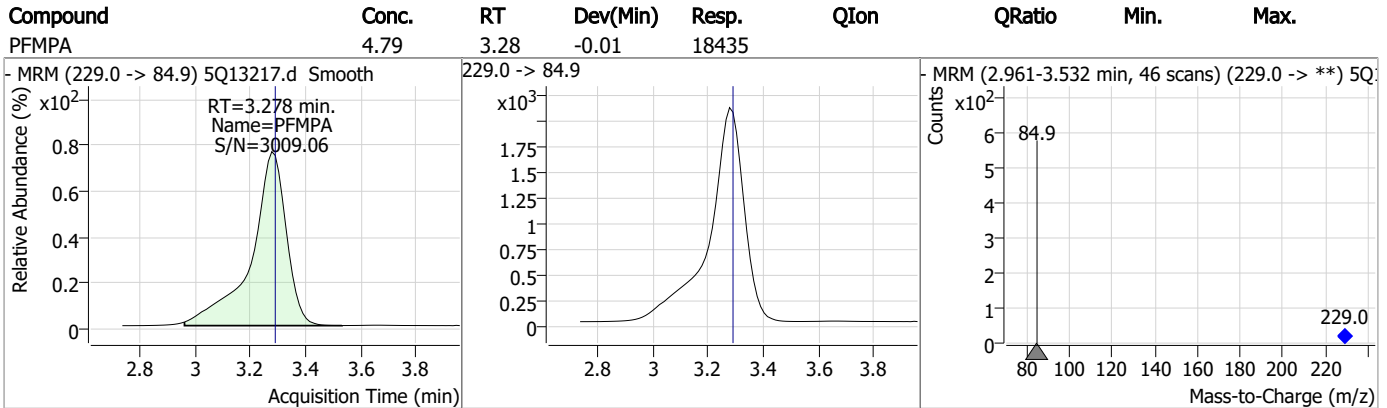
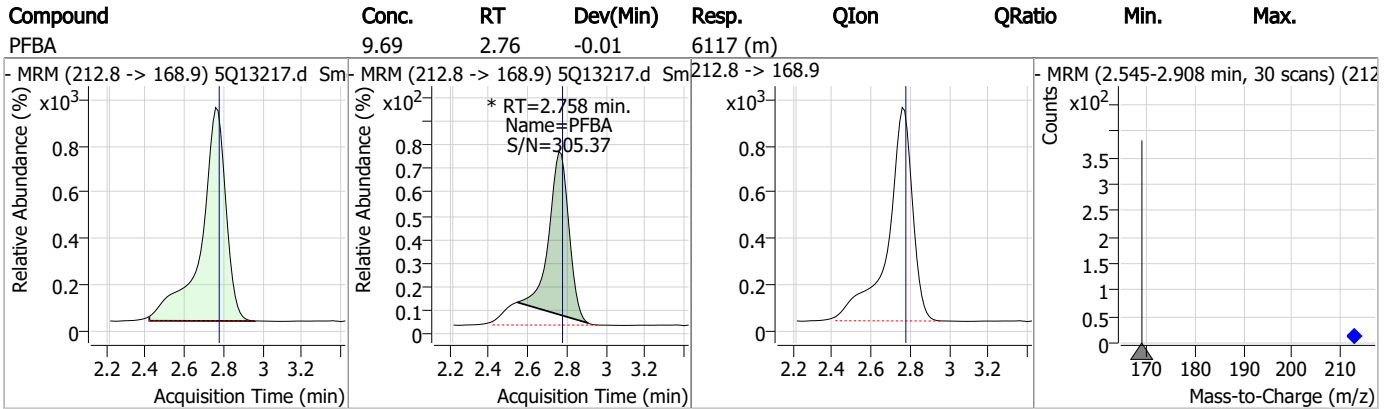
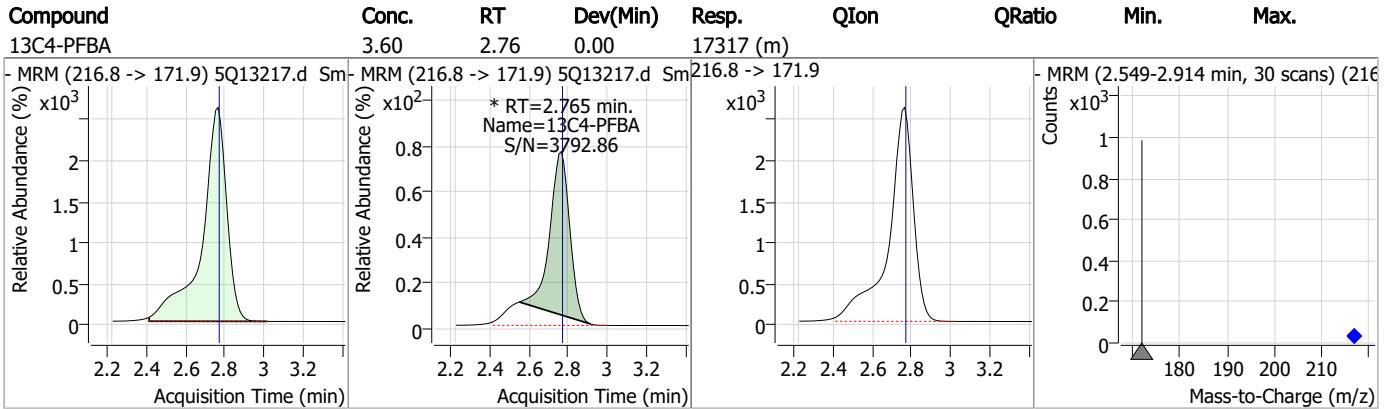
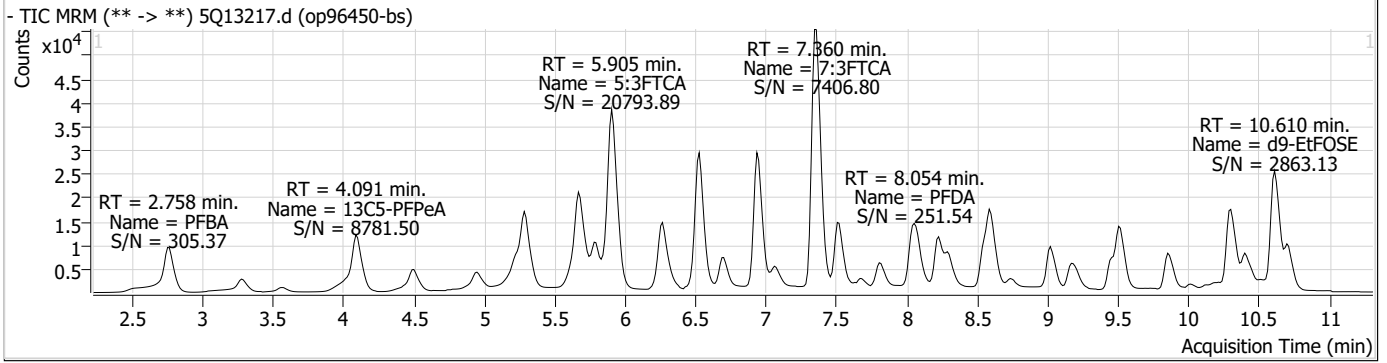
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.3.1

7

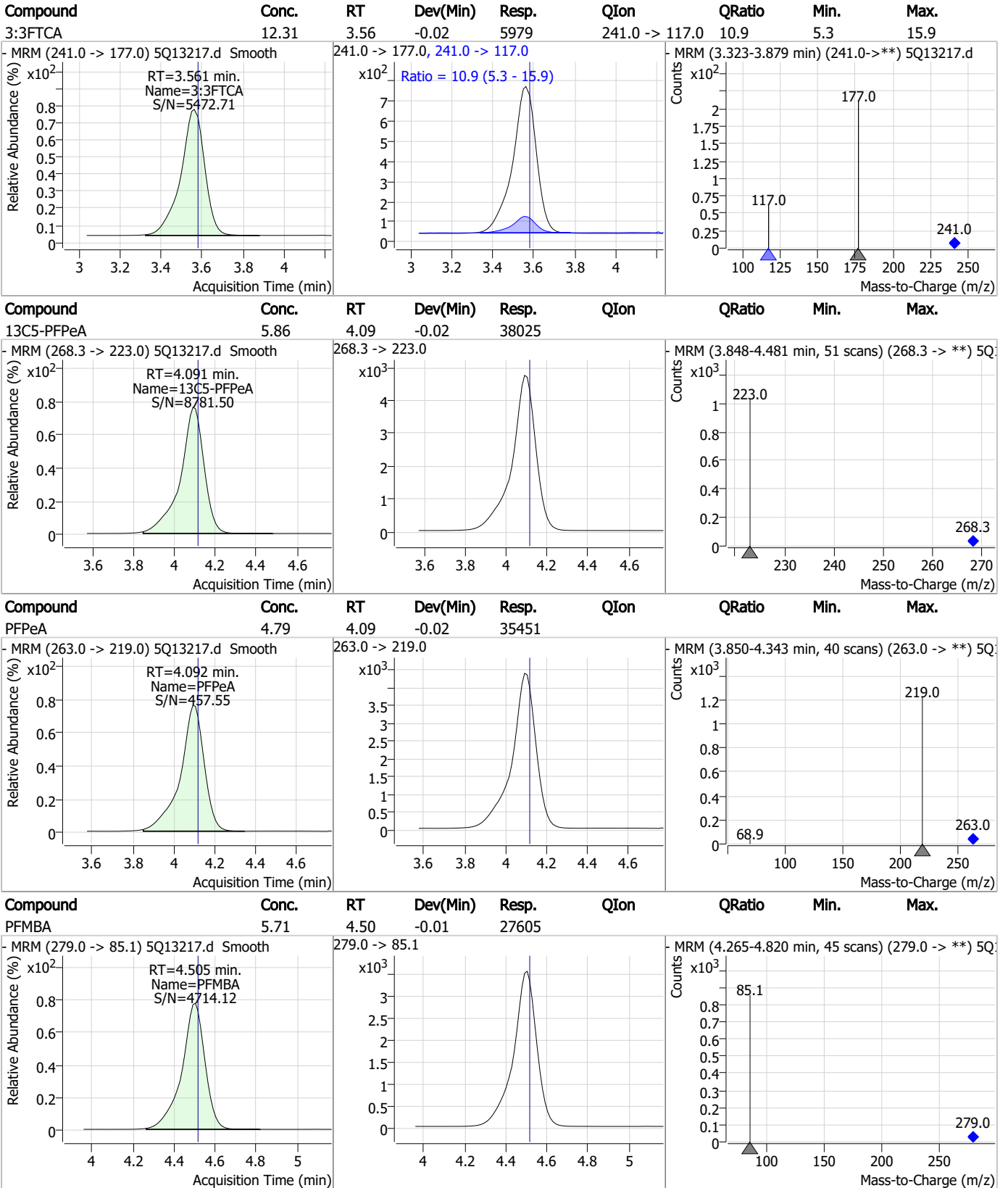
### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

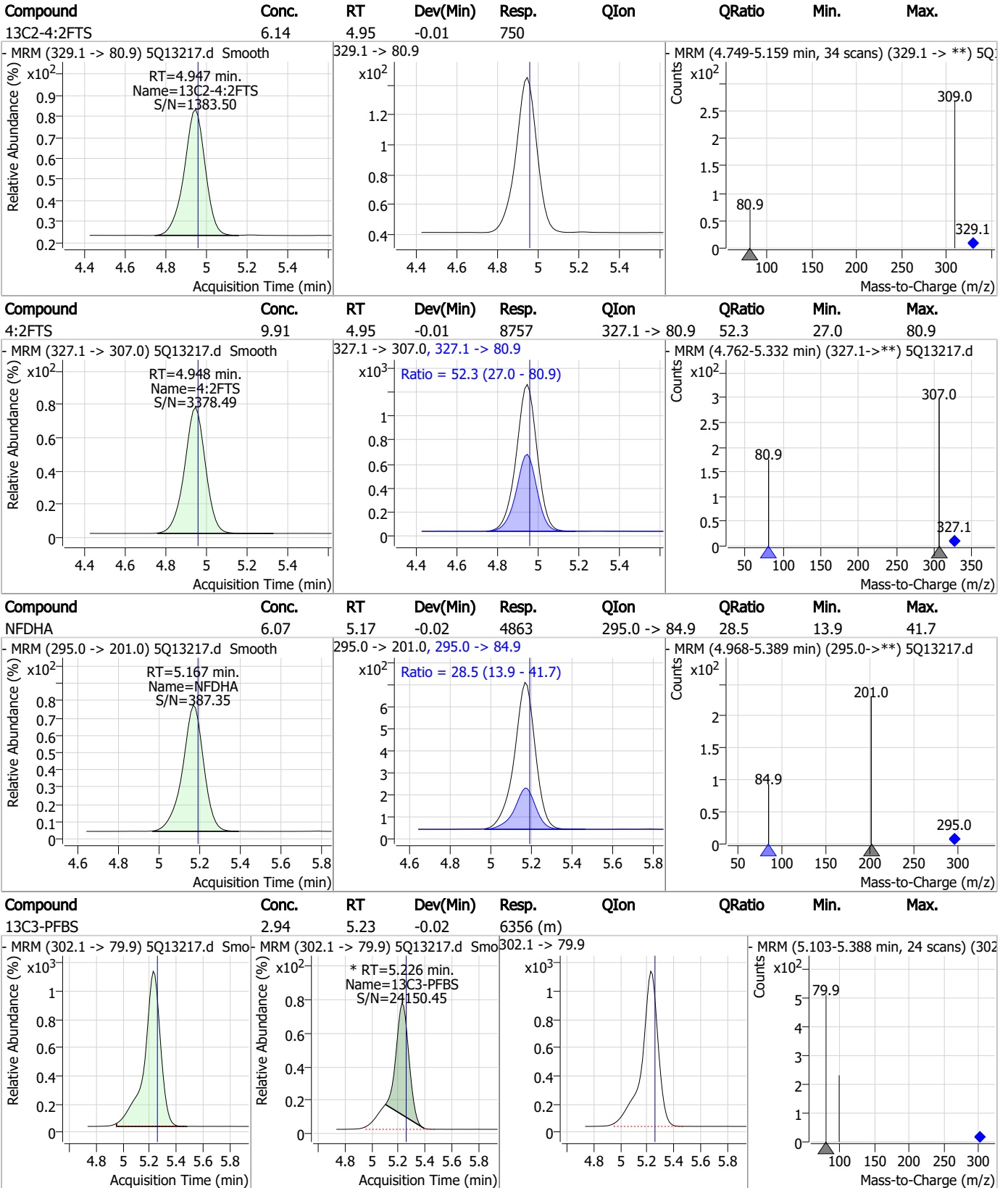
### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

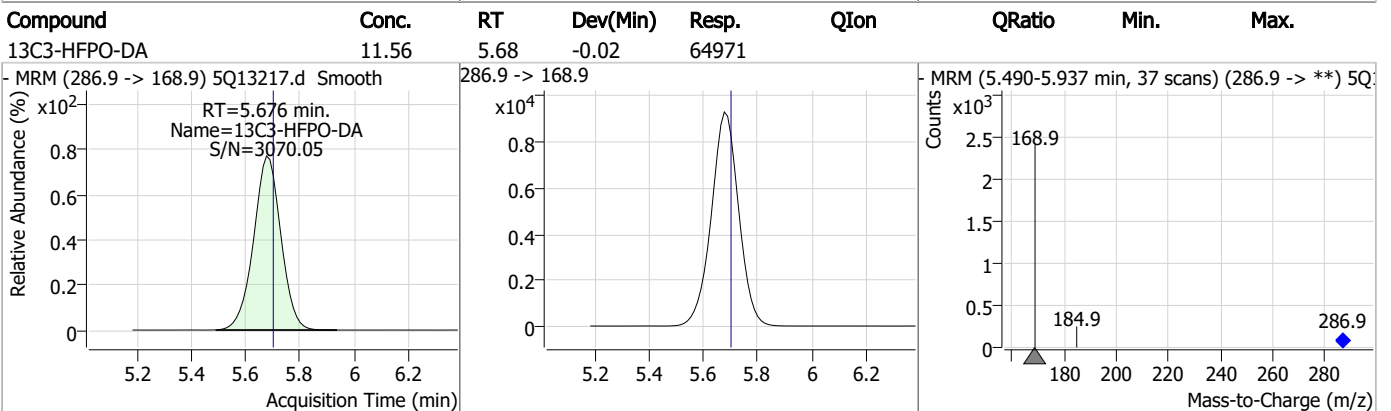
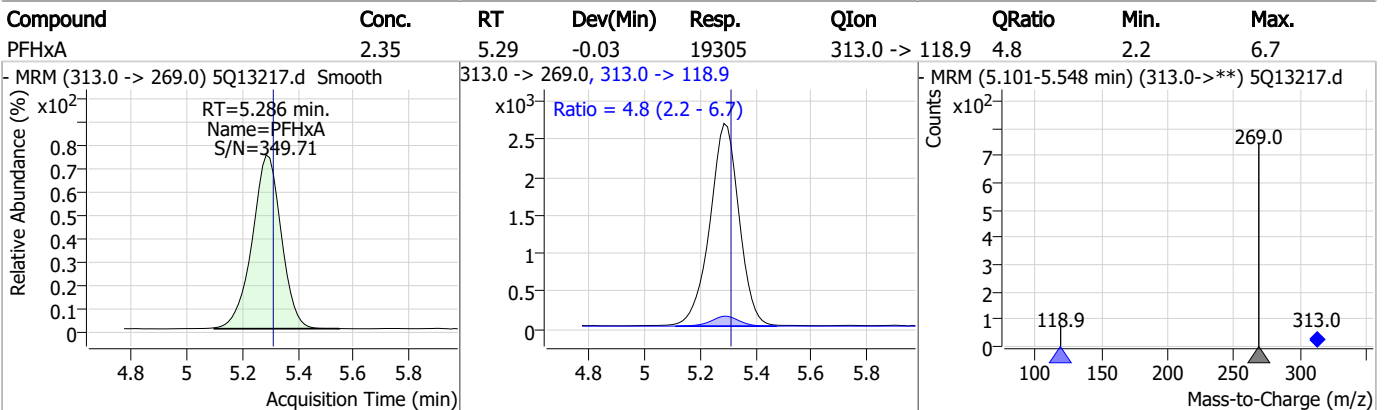
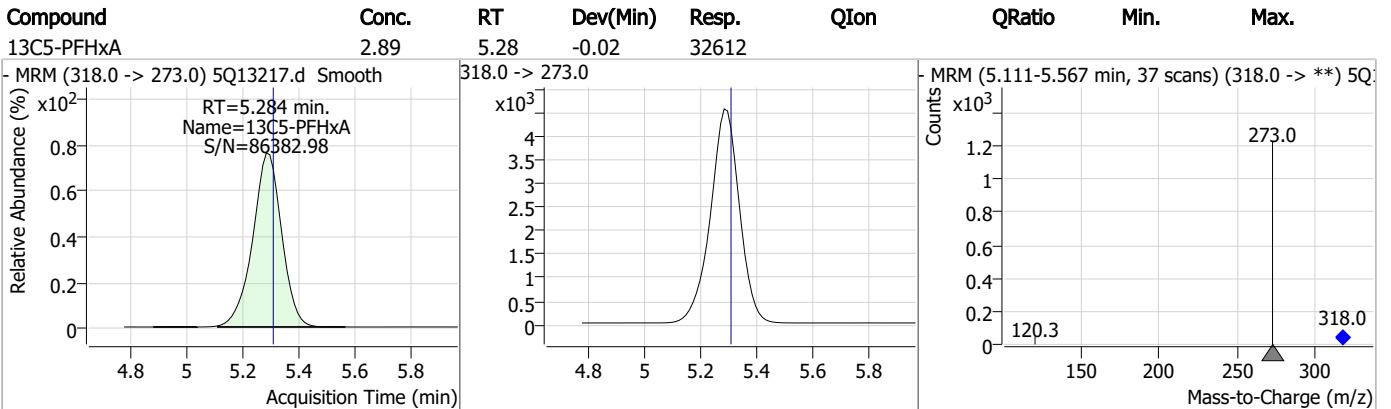
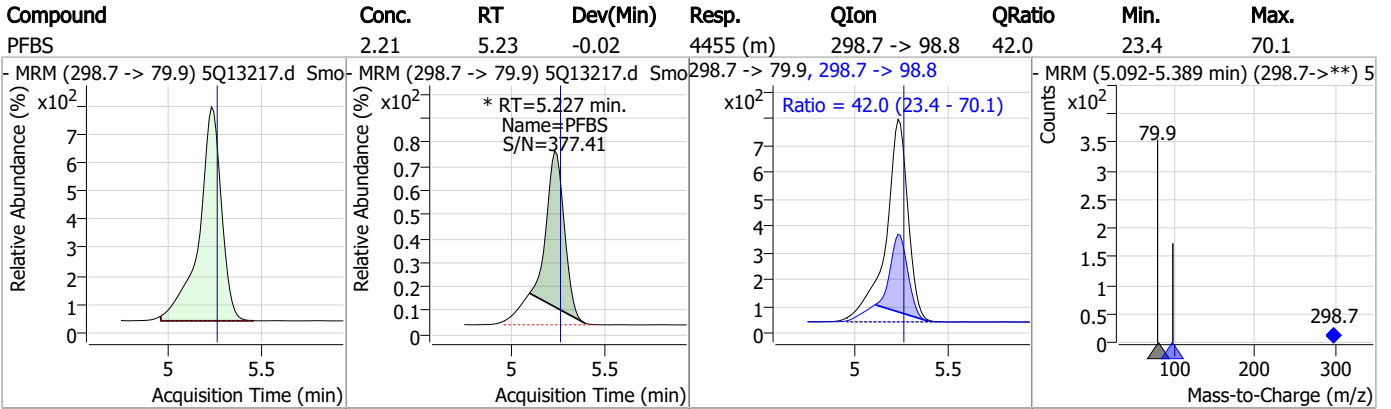
### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

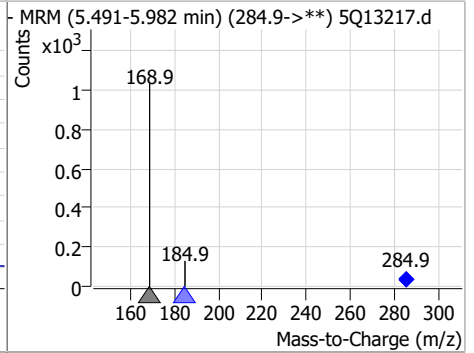
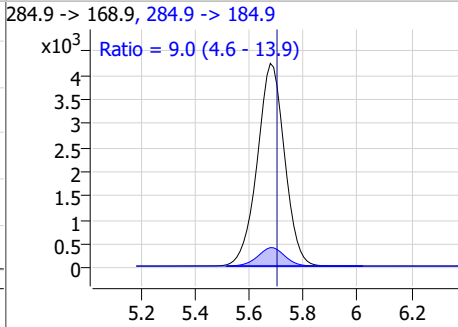
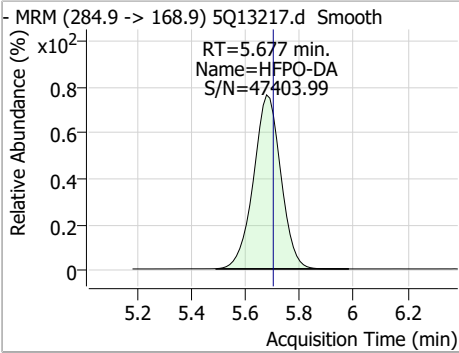
### Perfluorinated Compounds by LC/MS/MS



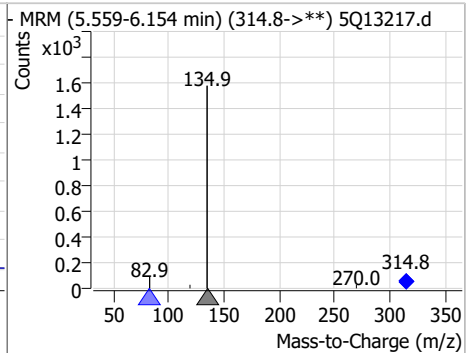
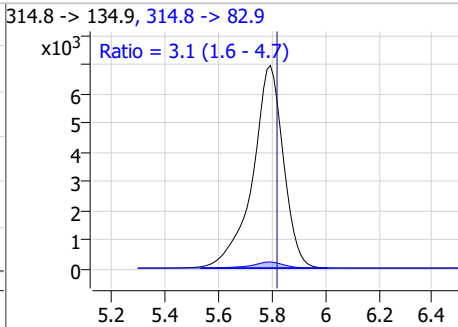
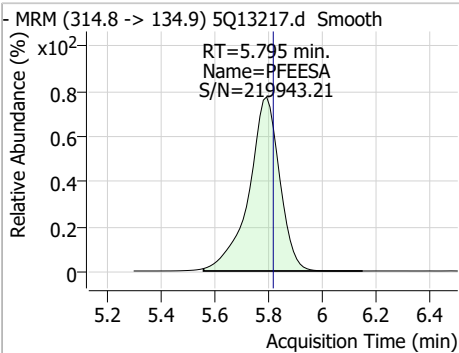


### Perfluorinated Compounds by LC/MS/MS

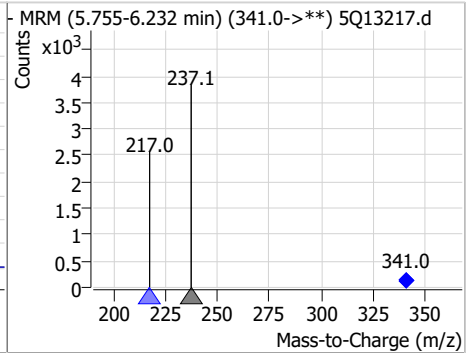
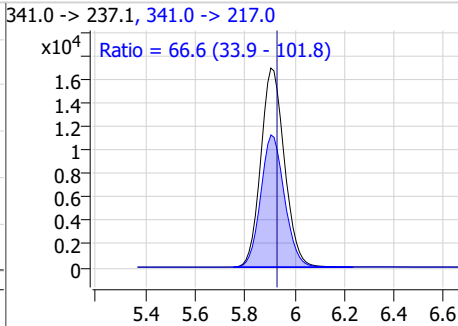
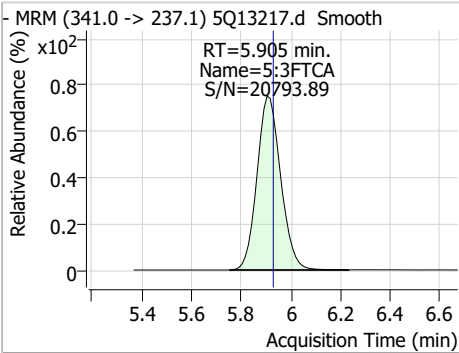
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.79	5.68	-0.02	29552	284.9 -> 184.9	9.0	4.6	13.9



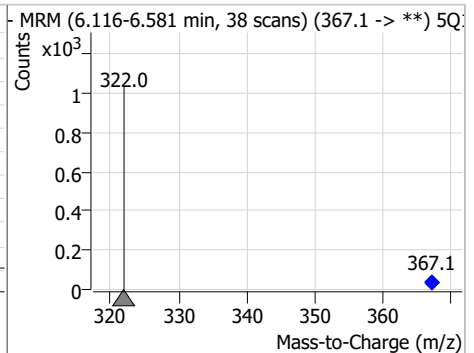
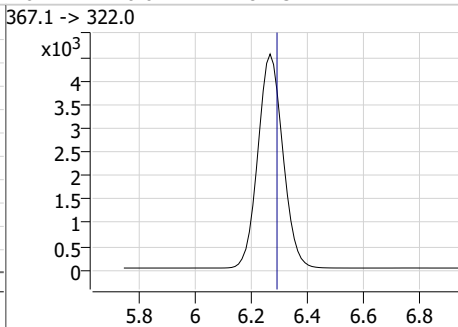
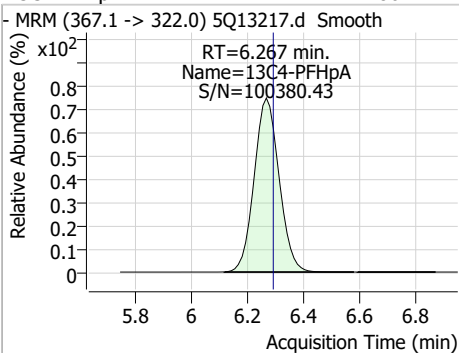
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	5.20	5.79	-0.02	55458	314.8 -> 82.9	3.1	1.6	4.7



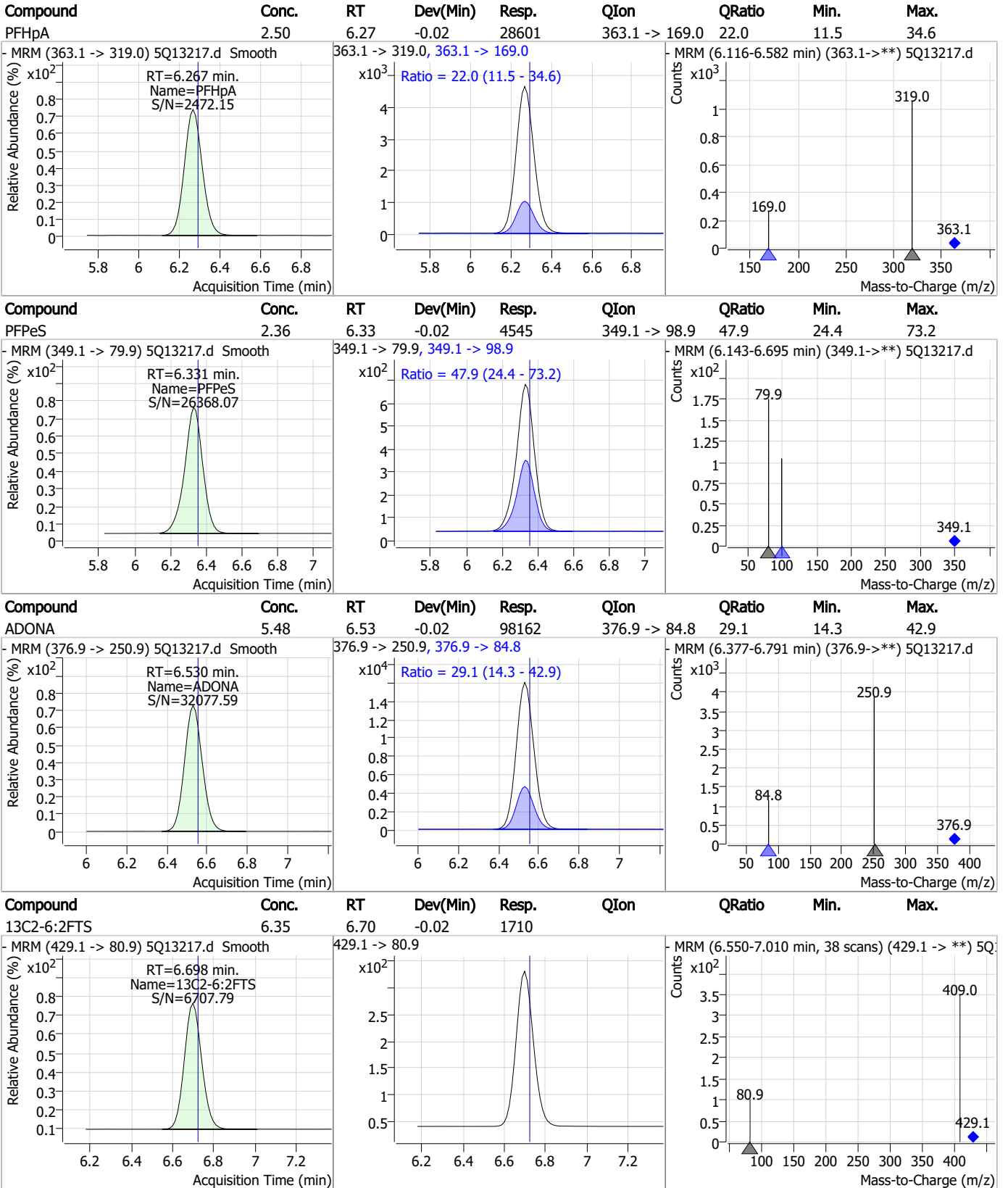
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	71.05	5.90	-0.02	111818	341.0 -> 217.0	66.6	33.9	101.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.80	6.27	-0.02	28113	367.1 -> 322.0			



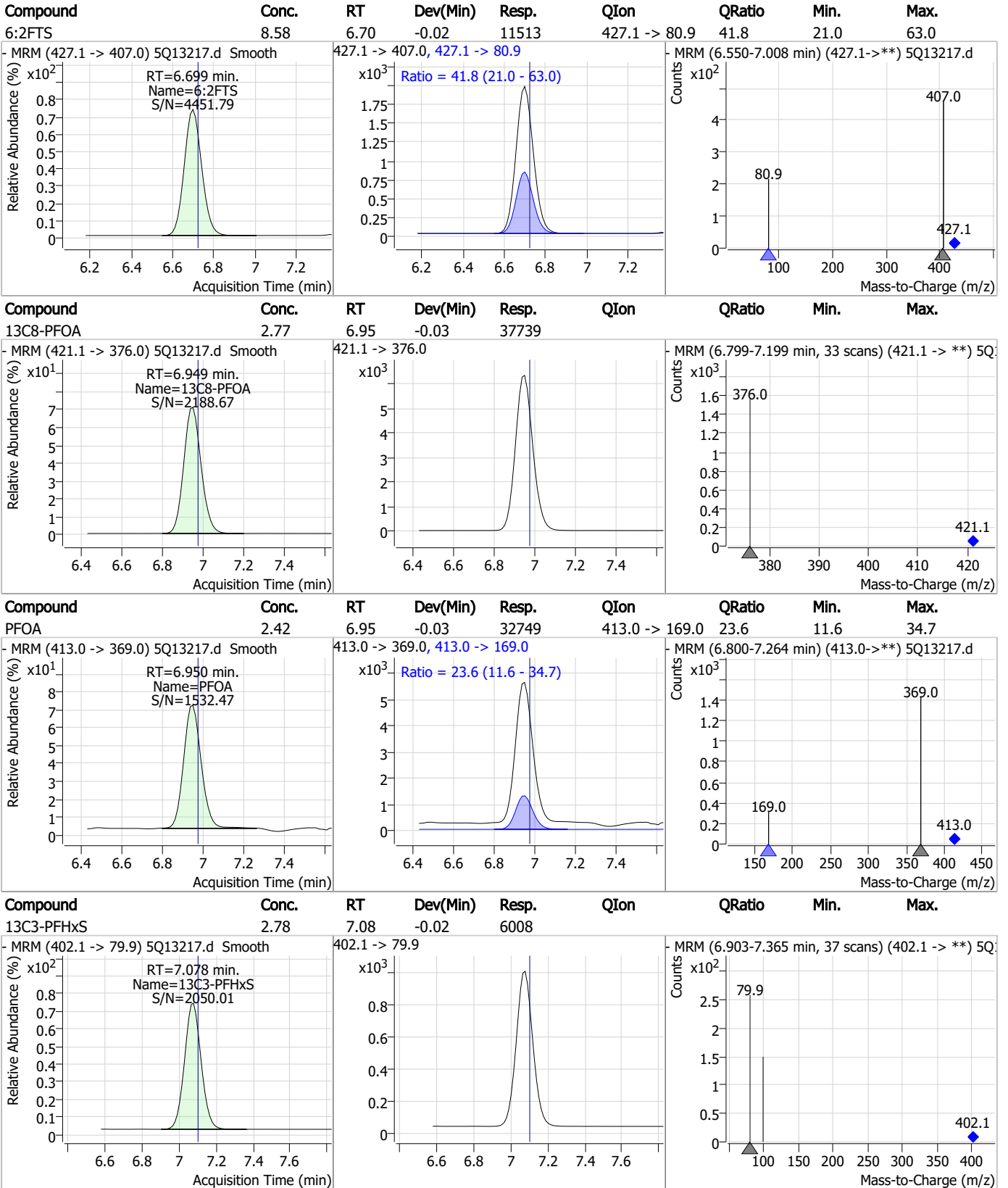
### Perfluorinated Compounds by LC/MS/MS



7.3.1  
7



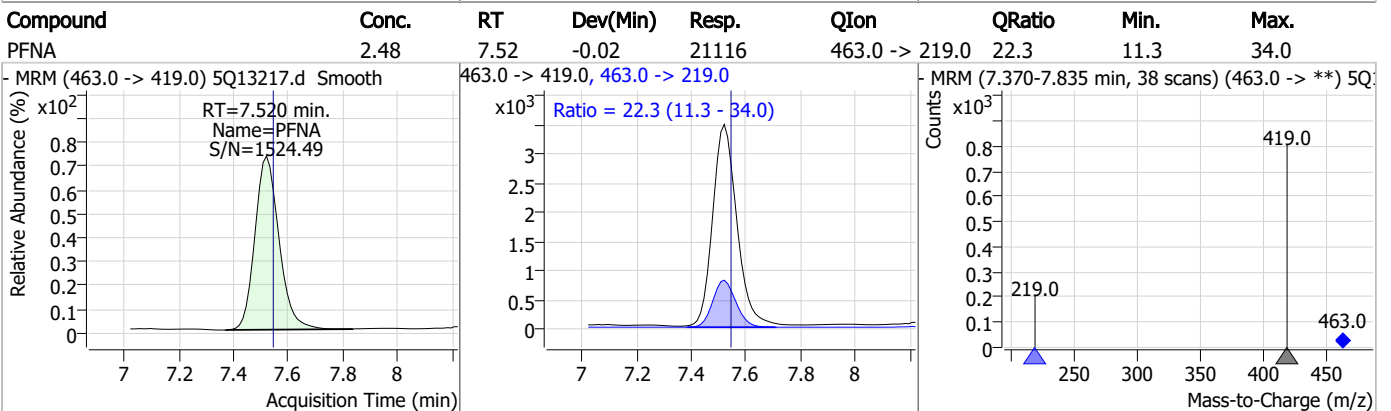
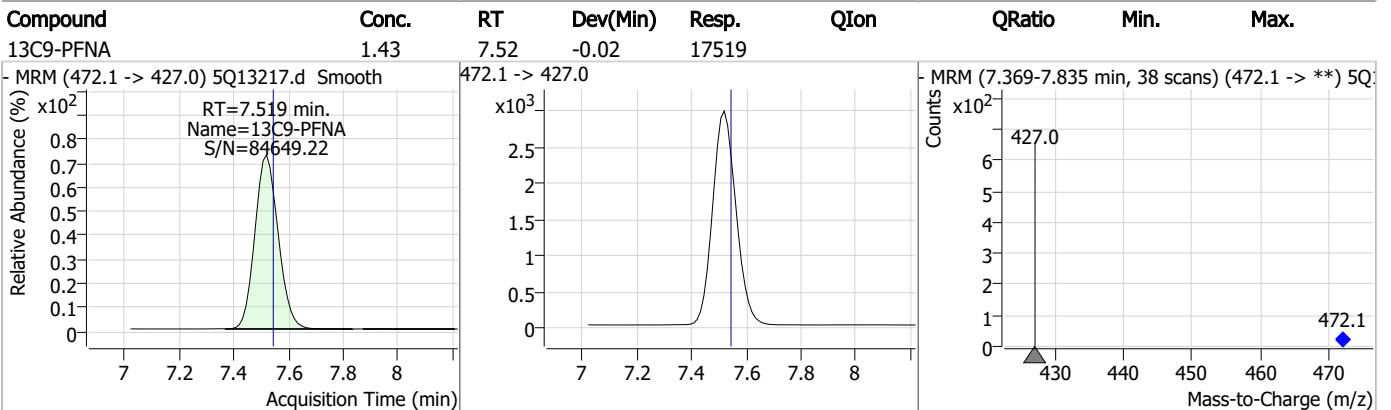
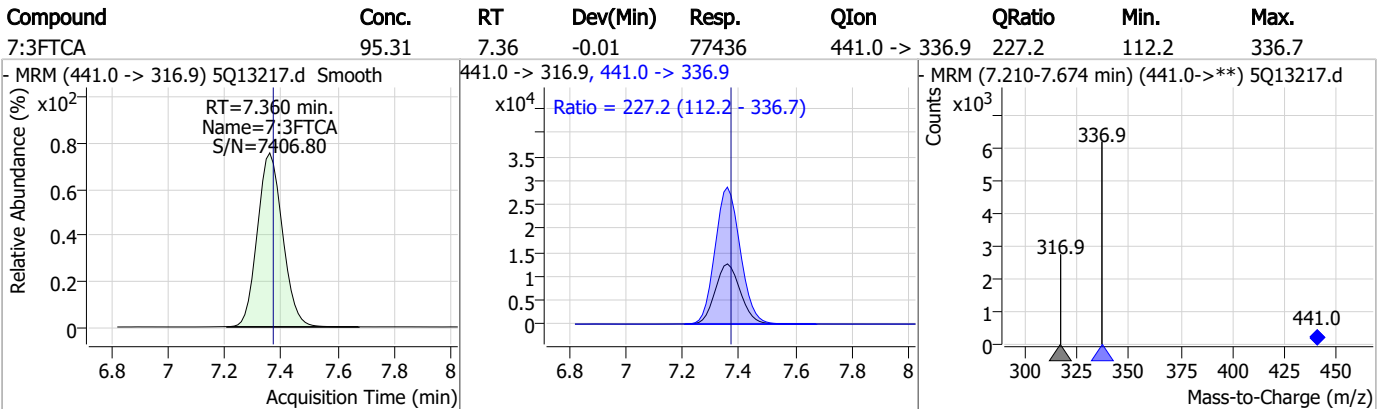
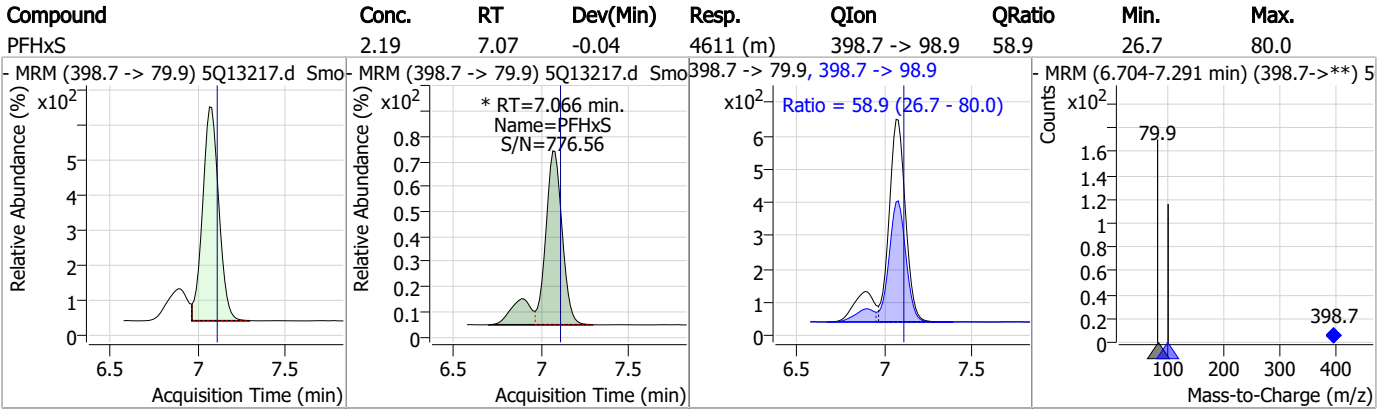
### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

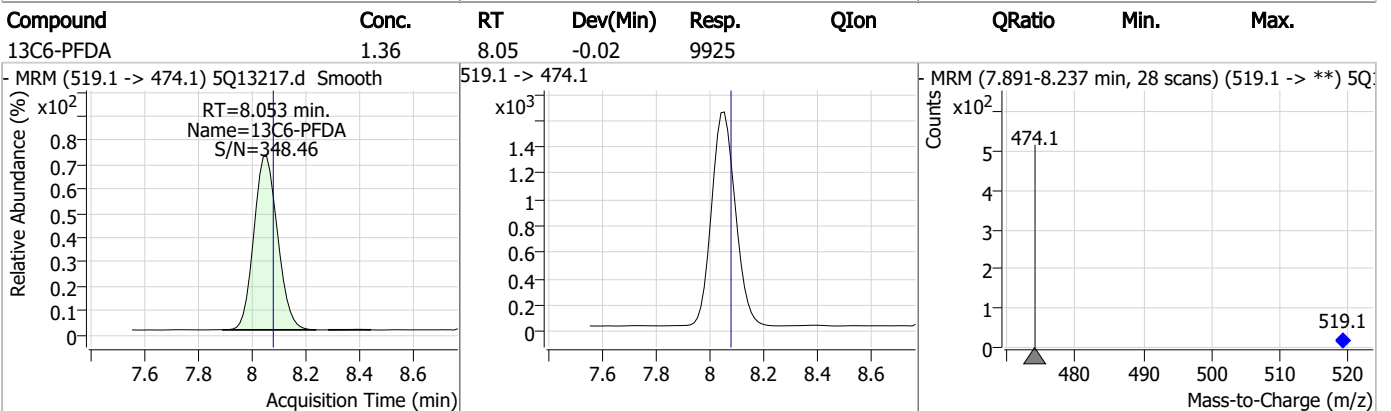
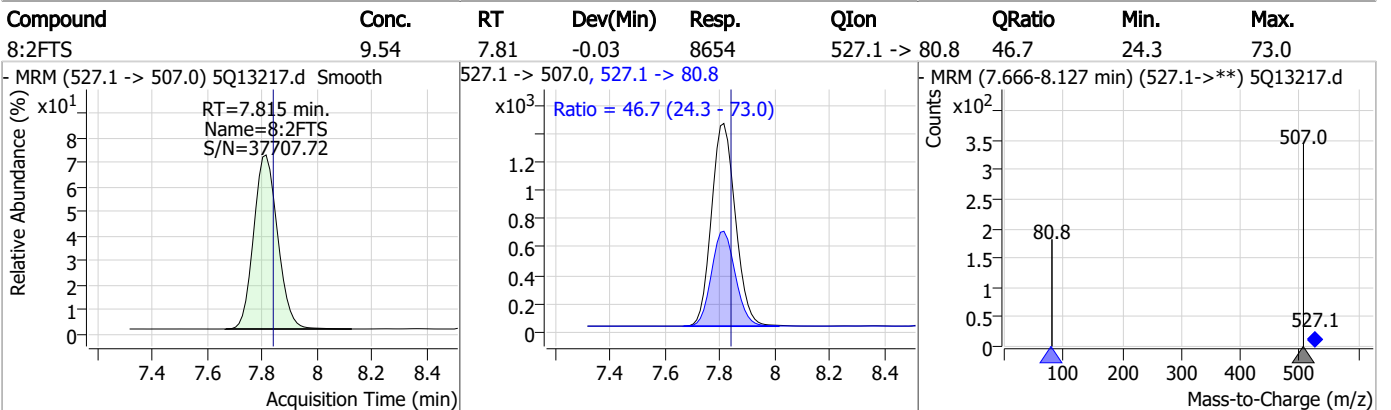
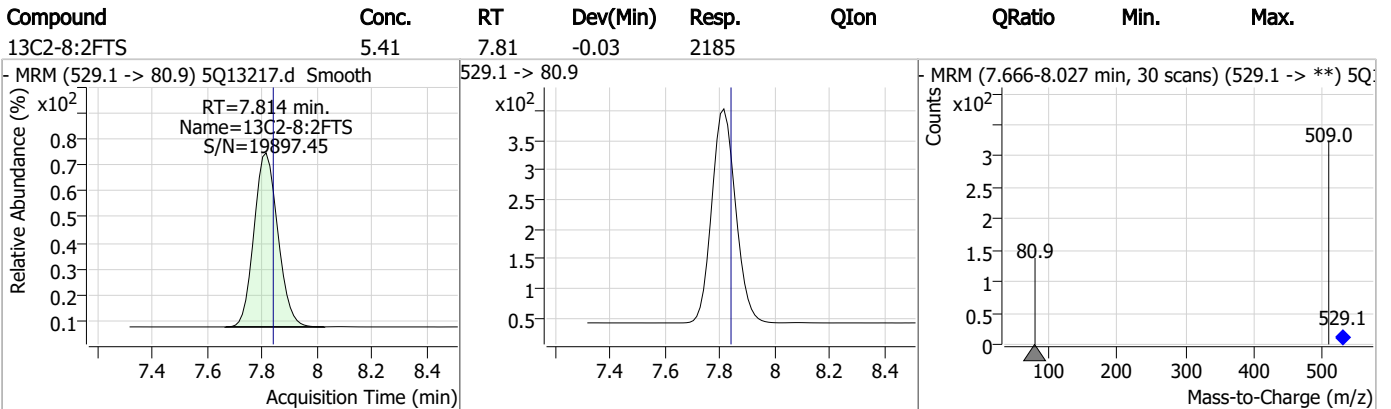
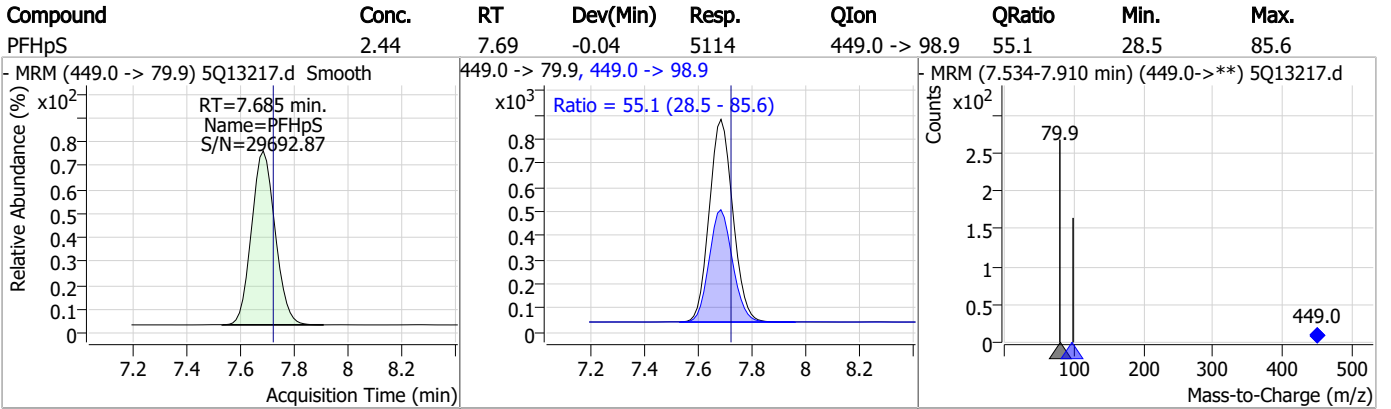
### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

### Perfluorinated Compounds by LC/MS/MS

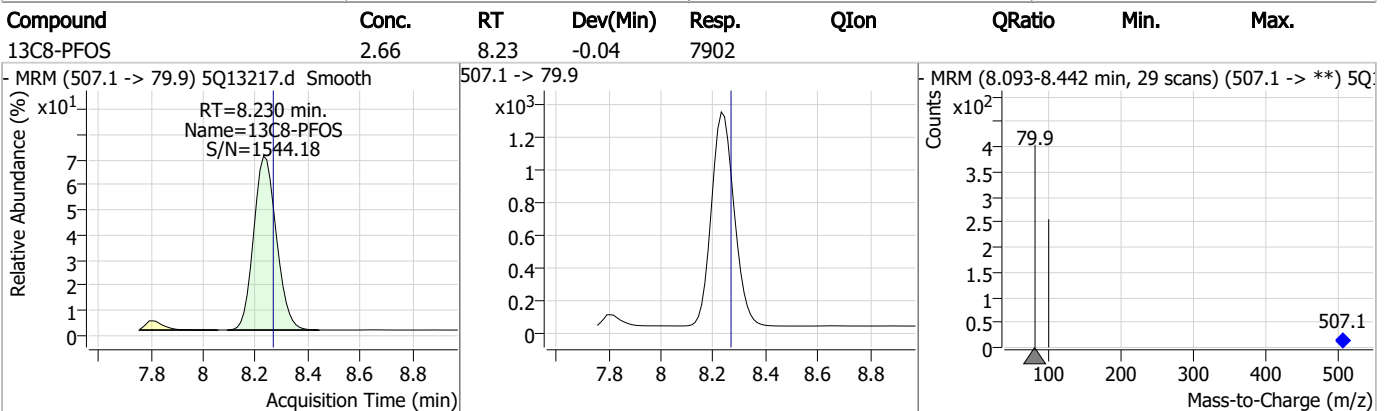
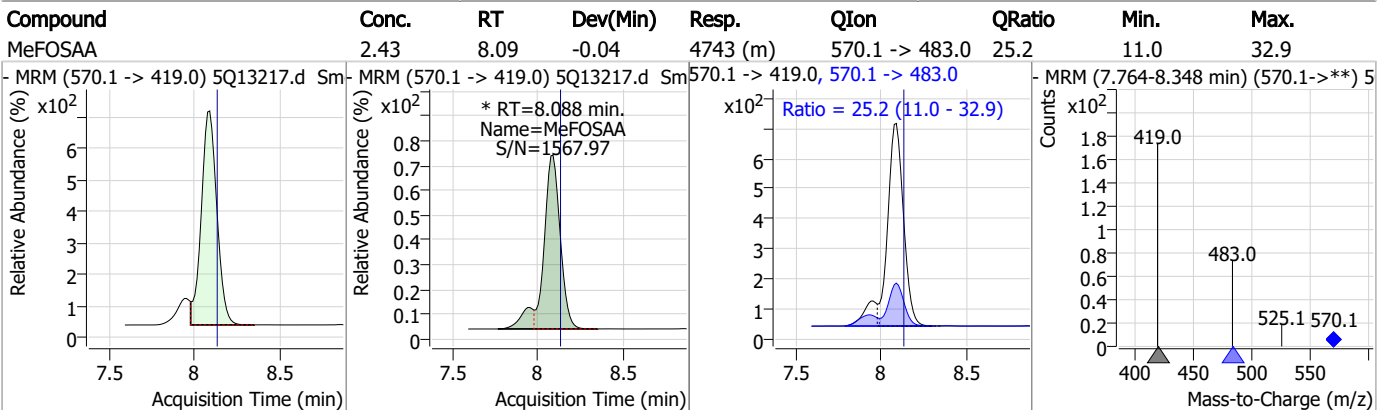
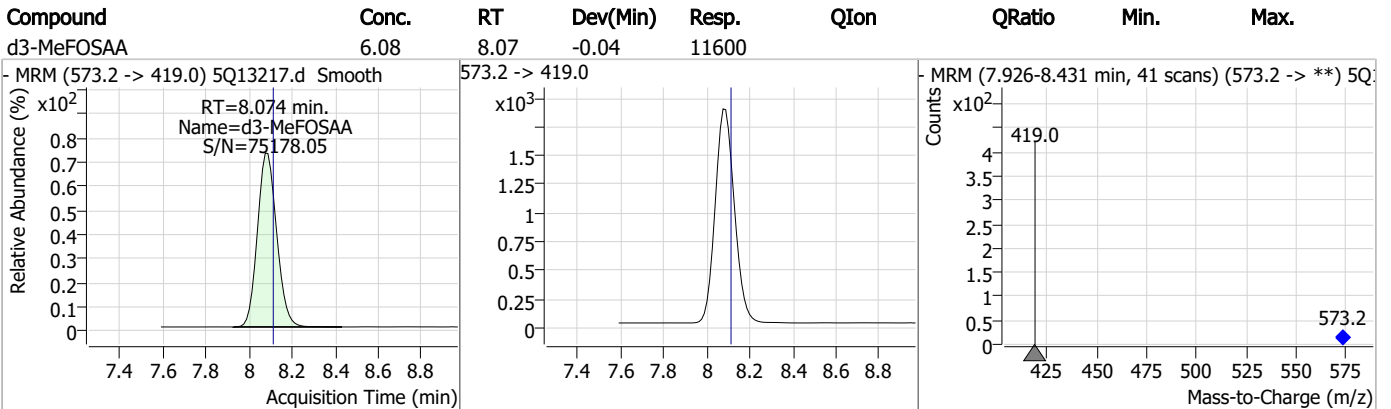
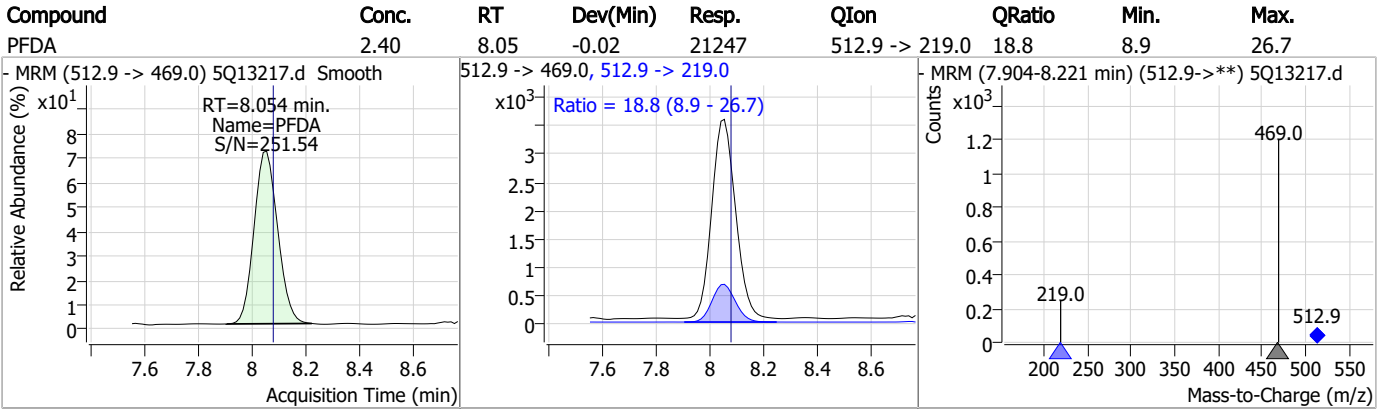


7.3.1

7



### Perfluorinated Compounds by LC/MS/MS



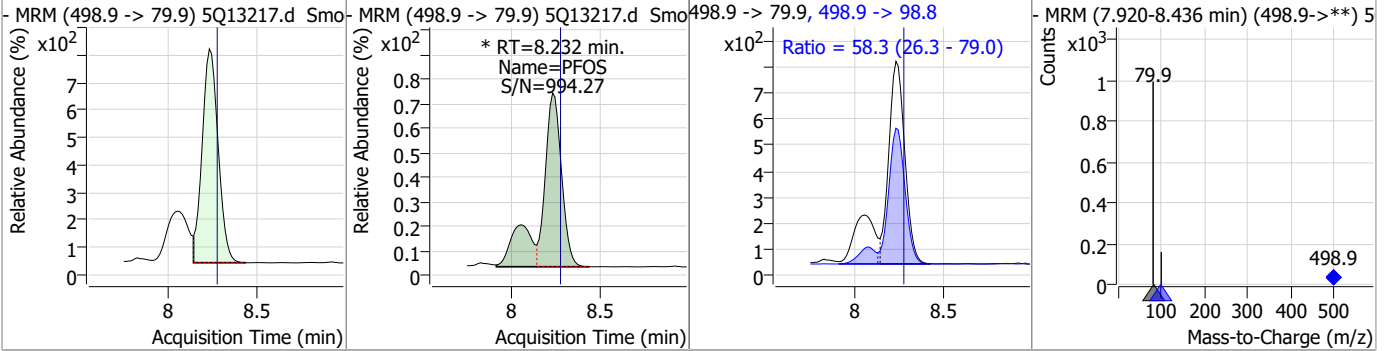
7.3.1

7

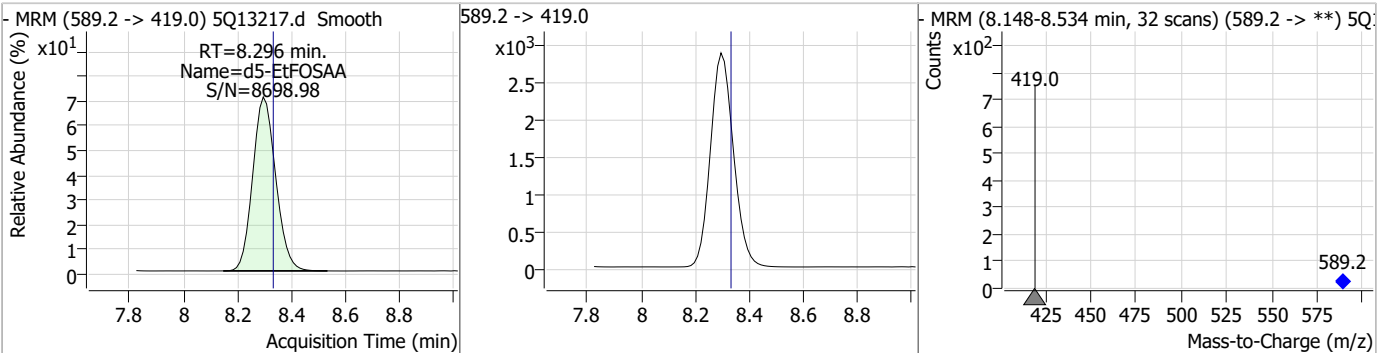


### Perfluorinated Compounds by LC/MS/MS

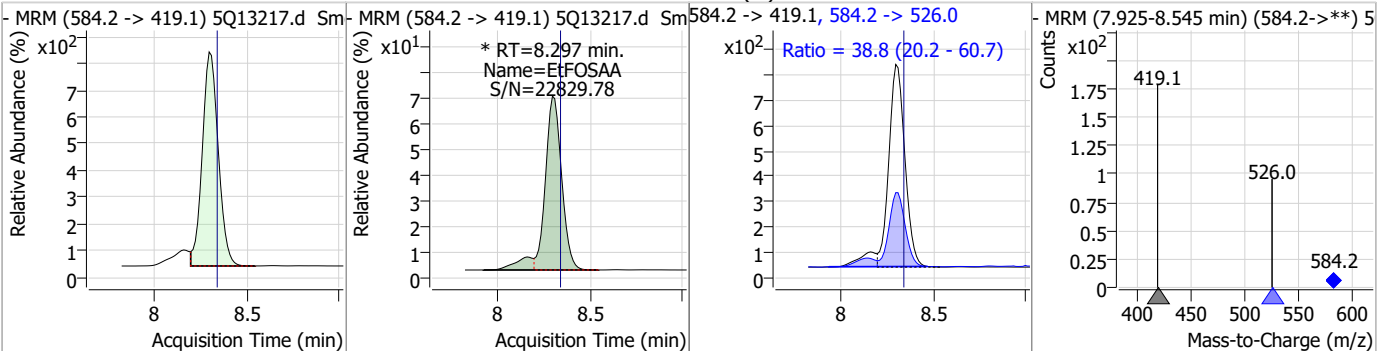
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.32	8.23	-0.04	6402 (m)	498.9 -> 98.8	58.3	26.3	79.0



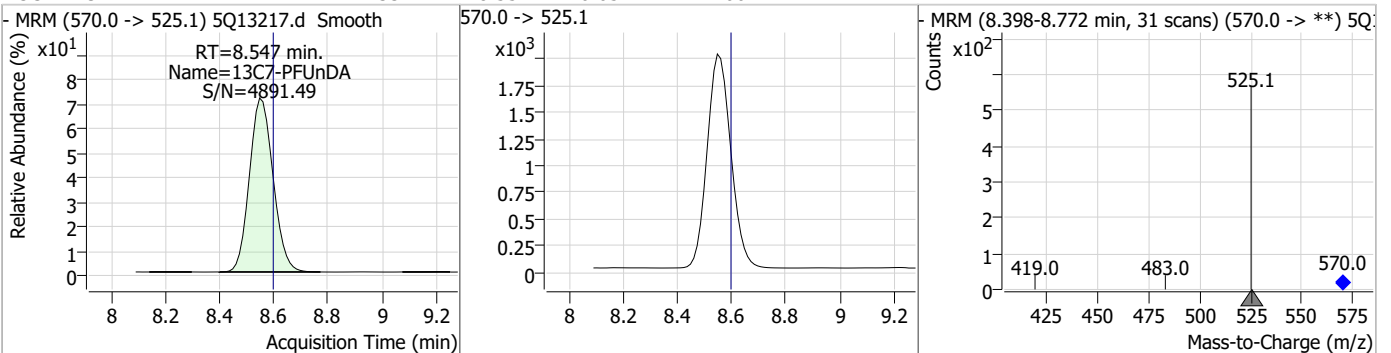
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	6.50	8.30	-0.04	16919				



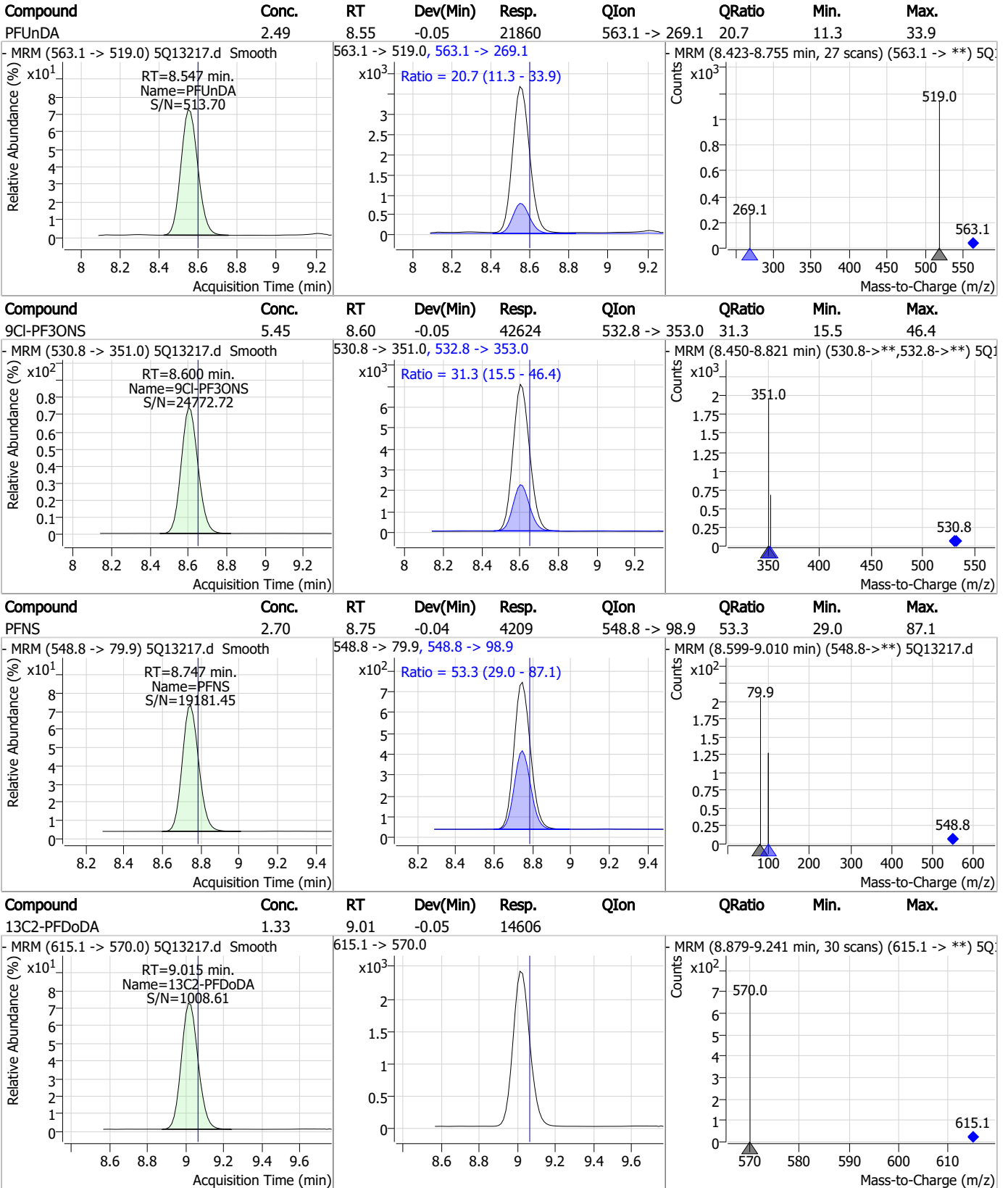
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.43	8.30	-0.04	5216 (m)	584.2 -> 526.0	38.8	20.2	60.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.33	8.55	-0.05	12200				



### Perfluorinated Compounds by LC/MS/MS



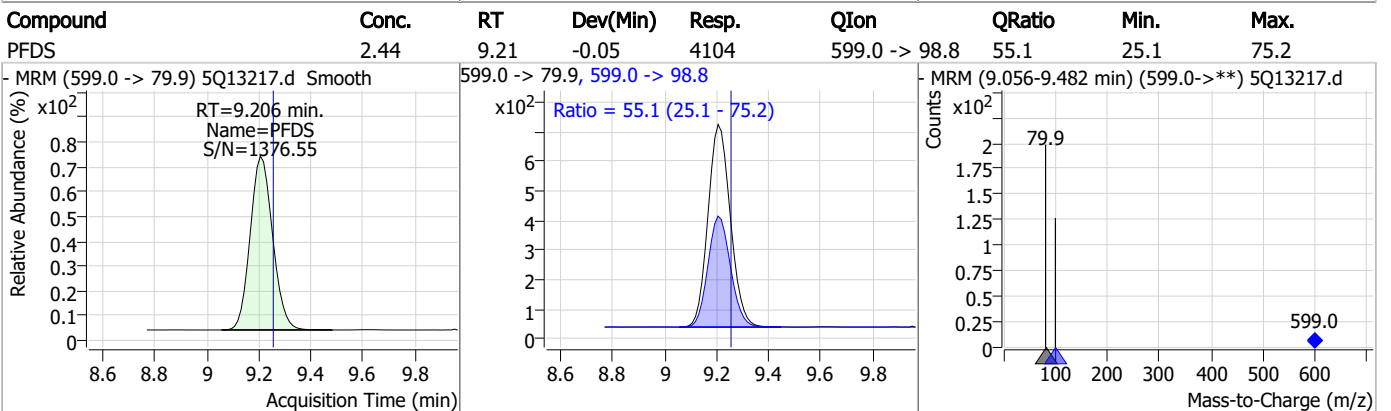
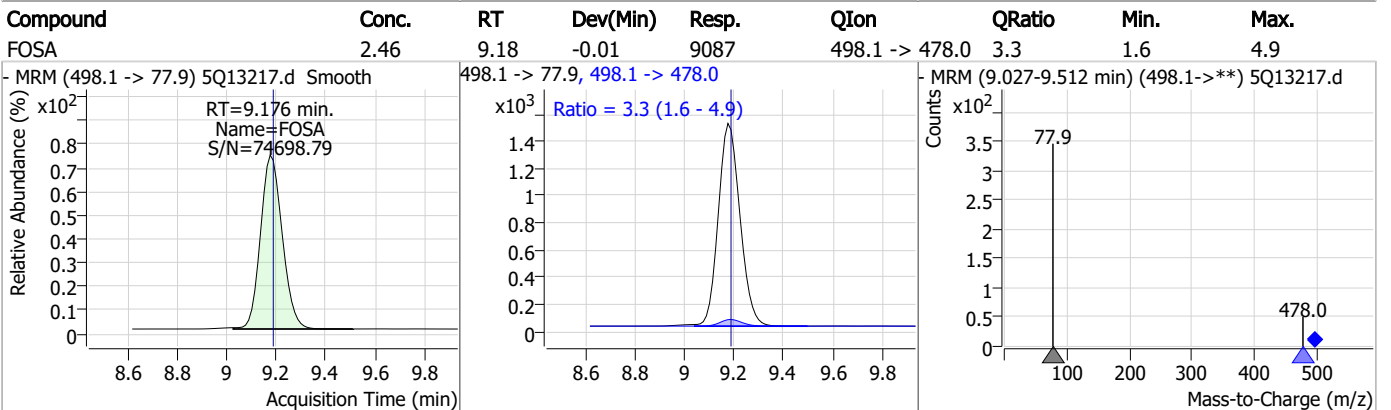
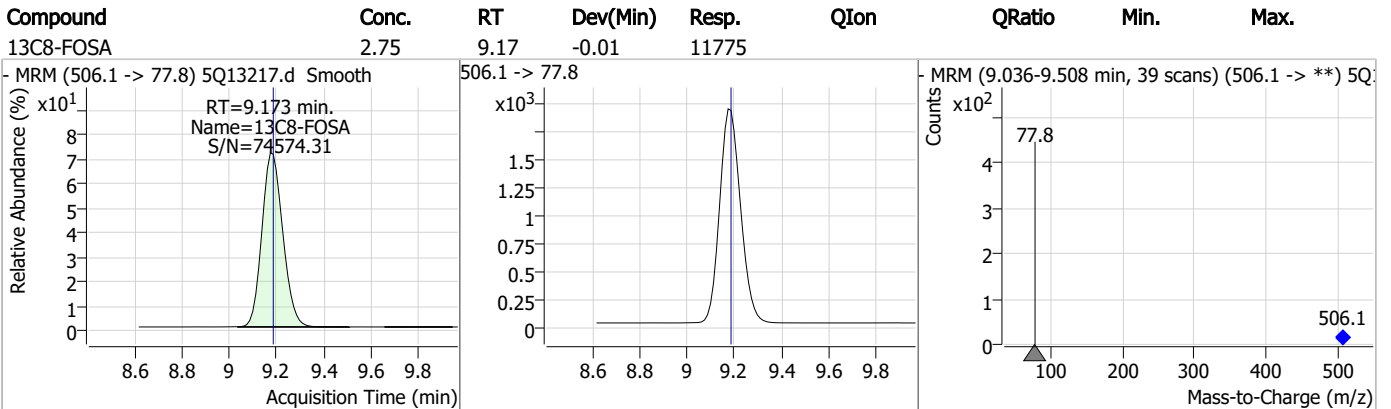
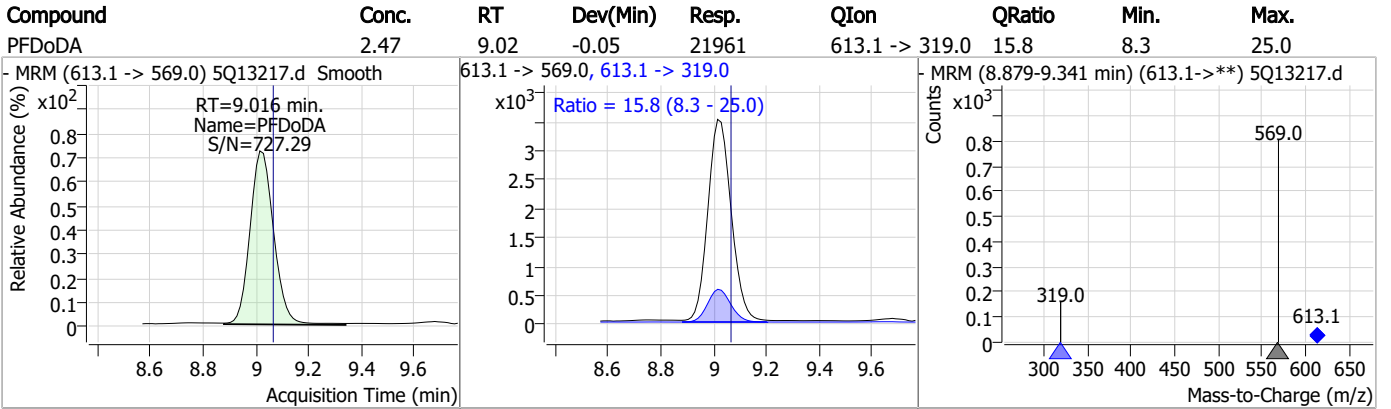
7.3.1

7





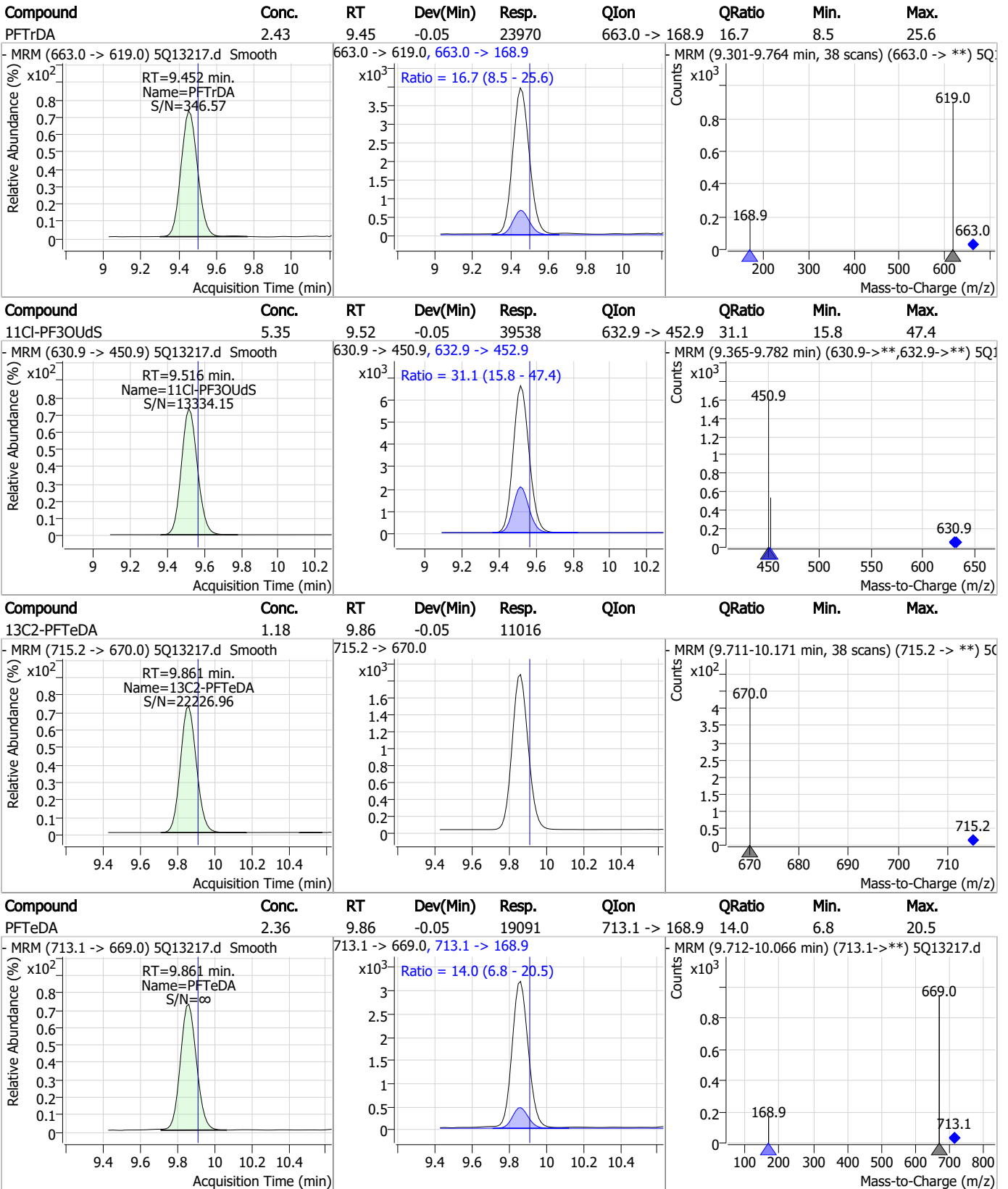
### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

### Perfluorinated Compounds by LC/MS/MS

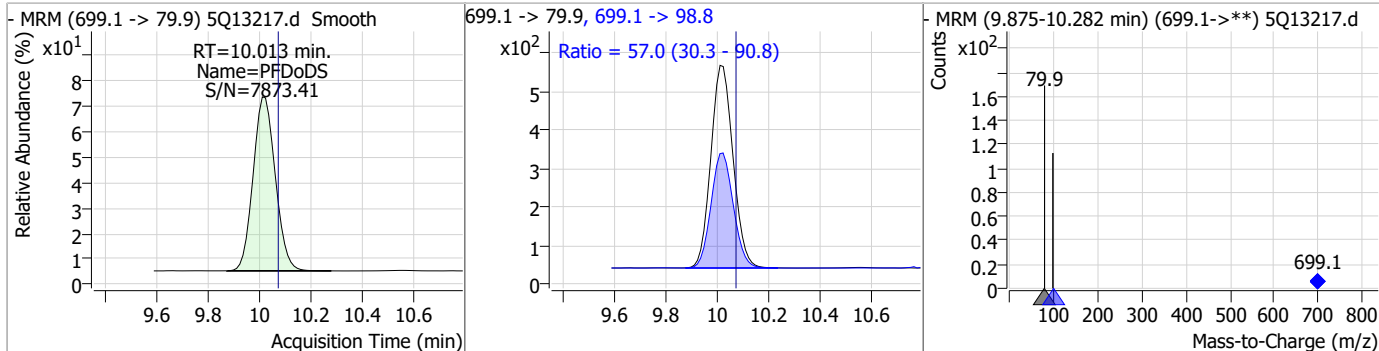


7.3.1

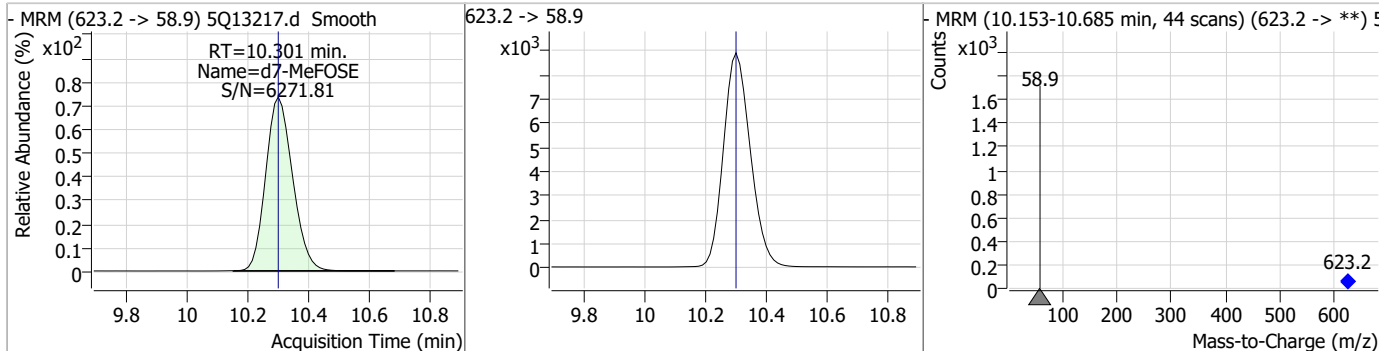
7

### Perfluorinated Compounds by LC/MS/MS

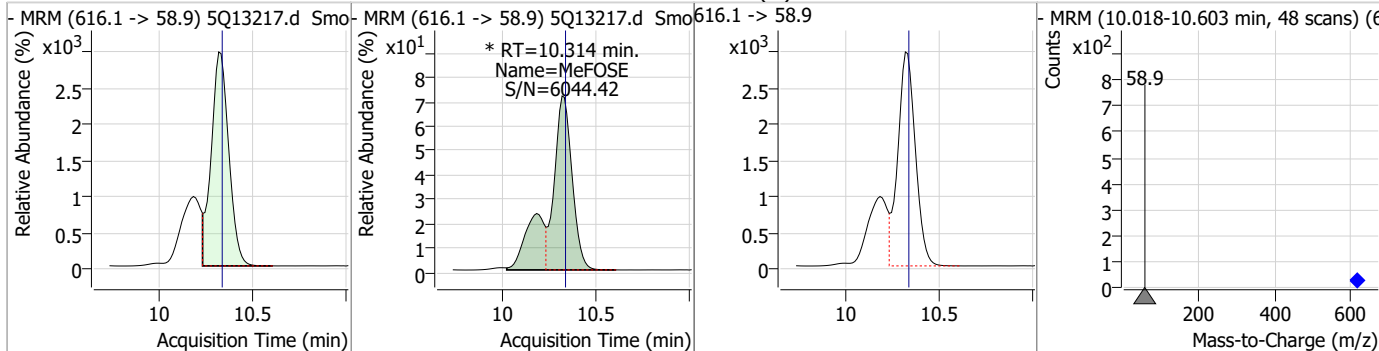
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.32	10.01	-0.06	3162	699.1 -> 98.8	57.0	30.3	90.8



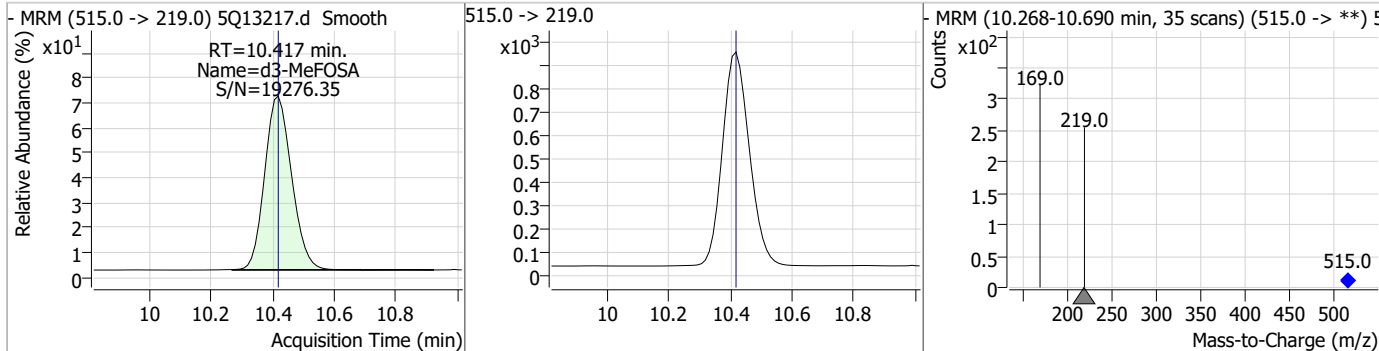
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.35	10.30	0.00	54641				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.60	10.31	-0.01	26325 (m)				

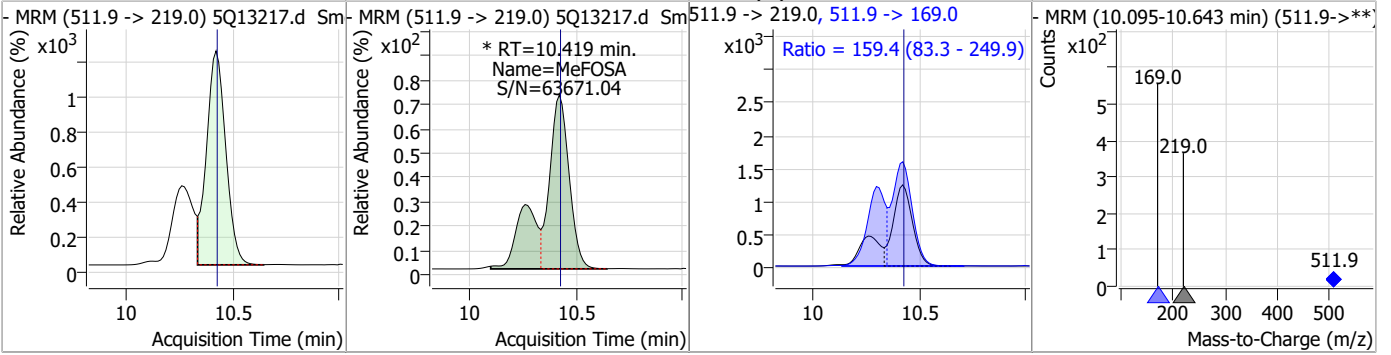


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.79	10.42	0.00	5570				

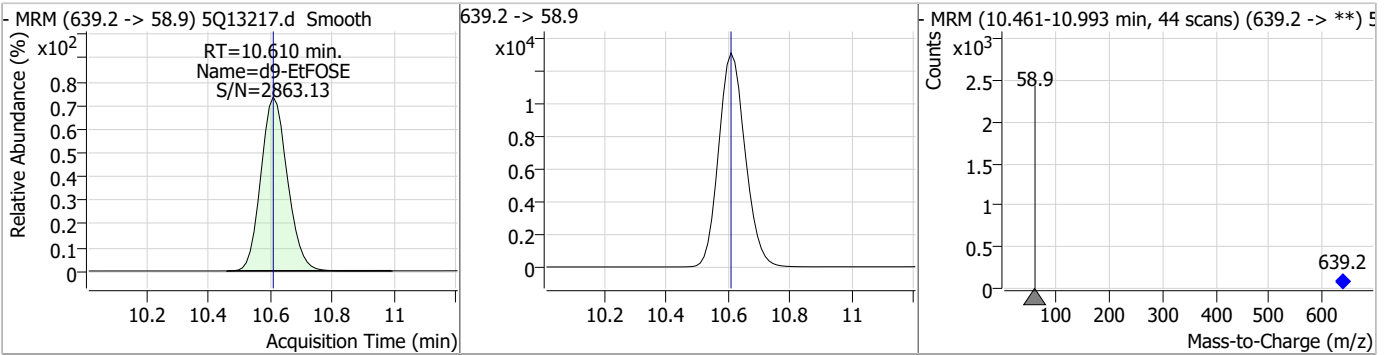


### Perfluorinated Compounds by LC/MS/MS

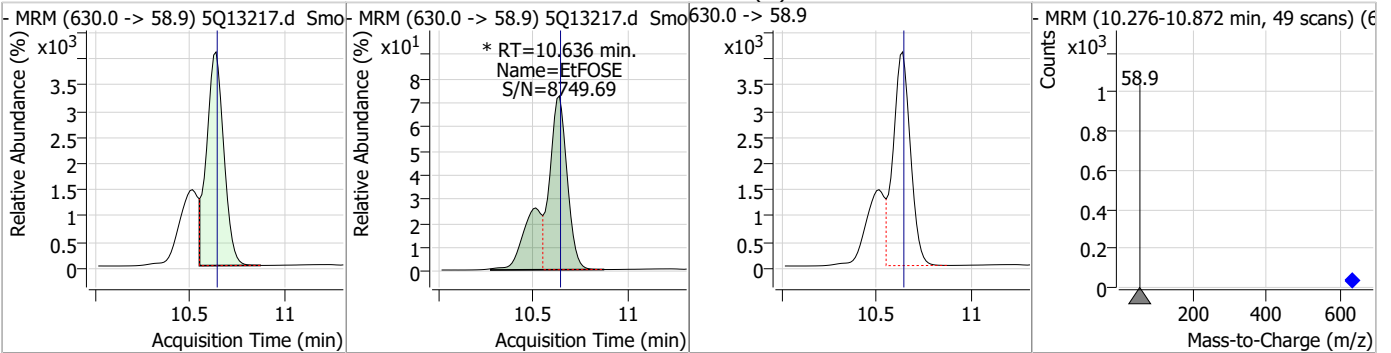
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.70	10.42	0.00	10853 (m)	511.9 -> 169.0	159.4	83.3	249.9



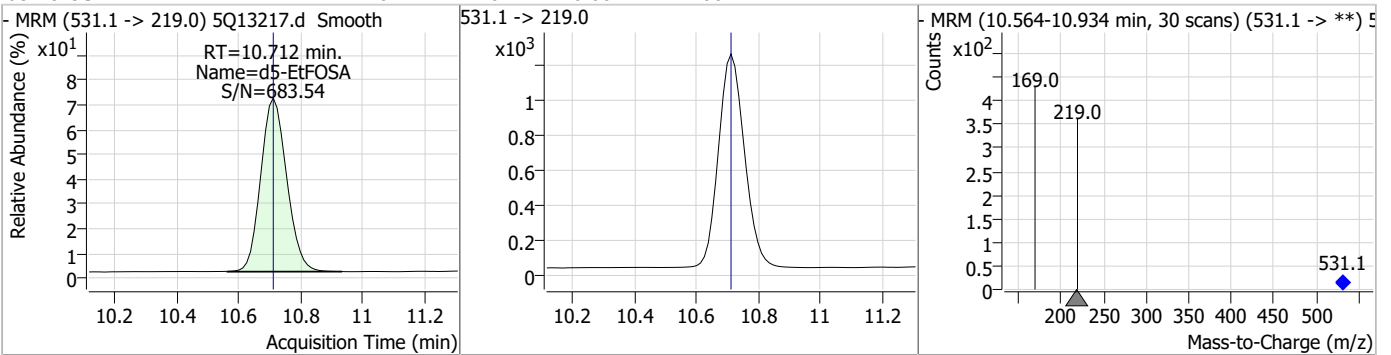
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.26	10.61	0.00	77420				



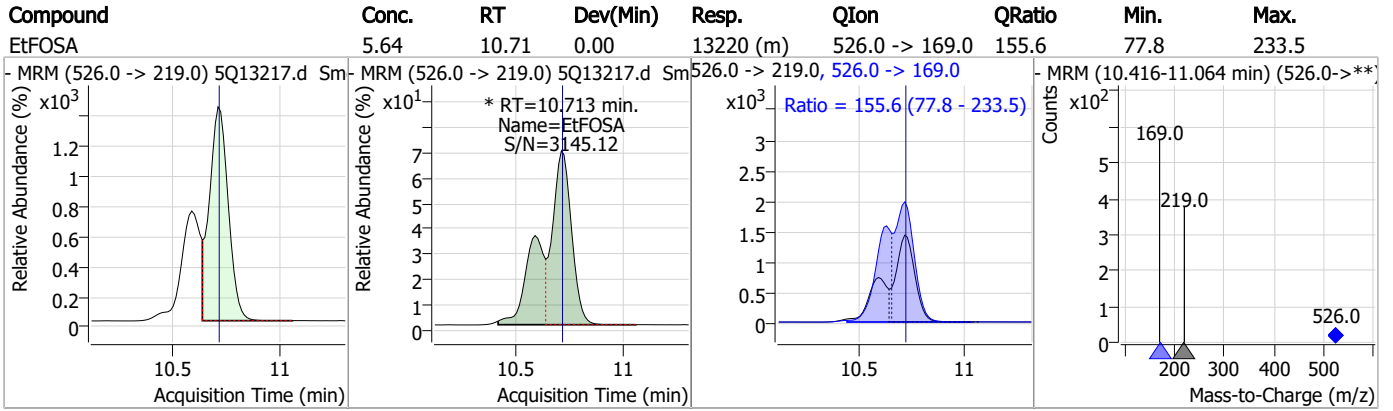
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.95	10.64	0.00	35798 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.67	10.71	0.00	7067				



### Perfluorinated Compounds by LC/MS/MS



7.3.1

7

# Manual Integration Approval Summary

Sample Number: OP96450-BS                      Method: EPA DRAFT 1633  
Lab FileID: 5Q13217.D                      Analyst approved: 04/20/23 15:12 Lindsay Ritner  
Injection Time: 04/20/23 05:11                      Supervisor approved: 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-PFBA			2.75	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.76	Poor instrument integration
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.23	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.07	Split peak
MeFOSAA	2355-31-9		8.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSE	24448-09-7		10.31	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.3.1.1

7

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13218.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 5:25:28 AM  
 Sample Name : op96450-llbs:3  
 Vial : P3-E7  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96450,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	56684	10.00	µg/L m	0.000
M5-PFPeA	4.103	268.3 -> 223.0	39234	5.00	µg/L	-0.012
M5-PFHxA	5.296	318.0 -> 273.0	33810	2.50	µg/L	-0.012
M4-PFHpA	6.267	367.1 -> 322.0	29532	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	39334	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	17973	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	10715	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	13103	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	13962	1.25	µg/L	-0.051
M2-PFTeDA	9.861	715.2 -> 670.0	9658	1.25	µg/L	-0.050
M8-FOSA	9.173	506.1 -> 77.8	12161	2.50	µg/L	-0.012
M3-PFBS	5.238	302.1 -> 79.9	6351	2.50	µg/L m	-0.012
M3-PFHxS	7.078	402.1 -> 79.9	6005	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	8384	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	849	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1642	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	2406	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	11850	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	67892	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	18490	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	50970	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	70807	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	6794	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	5253	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	7119	2.50	µg/L	-0.037
13C3-PFBA	2.768	216.0 -> 172.0	25362	5.00	µg/L m	0.000
18O2-PFHxS	7.077	403.0 -> 83.9	3460	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	40960	2.50	µg/L	-0.026
13C2-PFDA	8.041	515.1 -> 470.1	13575	1.25	µg/L	-0.037
13C5-PFNA	7.519	468.0 -> 423.0	15156	1.25	µg/L	-0.025
13C2-PFHxA	5.297	315.1 -> 270.0	31464	2.50	µg/L	-0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	849	7.09	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 141.8%			
13C2-6:2FTS	6.698	429.1 -> 80.9	1642	6.22	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.5%			
13C2-8:2FTS	7.814	529.1 -> 80.9	2406	6.07	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.5%			
13C2-PFDoDA	9.015	615.1 -> 570.0	13962	1.30	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.9%			
13C2-PFTeDA	9.861	715.2 -> 670.0	9658	1.06	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 84.6%			
13C3-PFBS	5.238	302.1 -> 79.9	6205	2.93	µg/L m	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.2%			
13C3-PFHxS	7.078	402.1 -> 79.9	6005	2.83	µg/L	-0.025

7.32  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.3%		
13C4-PFBA	2.765	216.8 -> 171.9	56684	11.67 µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 116.7%		
13C4-PFHpA	6.267	367.1 -> 322.0	29532	2.81 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.4%		
13C5-PFHxA	5.296	318.0 -> 273.0	33810	2.86 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 114.5%		
13C5-PFPeA	4.103	268.3 -> 223.0	39234	5.79 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.8%		
13C6-PFDA	8.040	519.1 -> 474.1	10715	1.50 µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 120.0%		
13C7-PFUnDA	8.547	570.0 -> 525.1	13103	1.47 µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 117.2%		
13C8-FOSA	9.173	506.1 -> 77.8	12161	2.84 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 113.5%		
13C8-PFOA	6.949	421.1 -> 376.0	39334	2.94 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 117.5%		
13C8-PFOS	8.230	507.1 -> 79.9	8384	2.82 µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 112.8%		
13C9-PFNA	7.519	472.1 -> 427.0	17973	1.46 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 116.7%		
d3-MeFOSAA	8.074	573.2 -> 419.0	11850	6.22 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.4%		
13C3-HFPO-DA	5.676	286.9 -> 168.9	67892	11.56 µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 115.6%		
d3-MeFOSA	10.417	515.0 -> 219.0	5253	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.5%		
d5-EtFOSAA	8.296	589.2 -> 419.0	18490	7.10 µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 142.1%		
d7-MeFOSE	10.301	623.2 -> 58.9	50970	24.59 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.4%		
d9-EtFOSE	10.610	639.2 -> 58.9	70807	24.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
d5-EtFOSA	10.712	531.1 -> 219.0	6794	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	4.948	327.1 -> 307.0	2614	2.62 µg/L	92
		327.1 -> 80.9	1567		
6:2FTS	6.699	427.1 -> 407.0	3687	2.86 µg/L	95
		427.1 -> 80.9	1434		
8:2FTS	7.802	527.1 -> 507.0	2742	2.75 µg/L	99
		527.1 -> 80.8	1349		
EtFOSAA	8.297	584.2 -> 419.1	1538	0.66 µg/L m	90
		584.2 -> 526.0	718		
FOSA	9.176	498.1 -> 77.9	2829	0.74 µg/L	97
		498.1 -> 478.0	121		
MeFOSAA	8.075	570.1 -> 419.0	1291	0.65 µg/L m	86
		570.1 -> 483.0	367		
PFBA	2.771	212.8 -> 168.9	5597	2.71 µg/L m	100
PFBS	5.239	298.7 -> 79.9	1341	0.67 µg/L m	86
		298.7 -> 98.8	501		
PFDA	8.054	512.9 -> 469.0	6455	0.68 µg/L	99
		512.9 -> 219.0	1178		
PFDODA	9.016	613.1 -> 569.0	5906	0.70 µg/L	100
		613.1 -> 319.0	994		
PFDS	9.206	599.0 -> 79.9	1144	0.64 µg/L	95

7.3.2  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	611			
PFHpA	6.267	363.1 -> 319.0	8102	0.67	µg/L	97
		363.1 -> 169.0	1759			
PFHpS	7.685	449.0 -> 79.9	1630	0.73	µg/L	97
		449.0 -> 98.9	897			
PFHxA	5.299	313.0 -> 269.0	6185	0.72	µg/L	99
		313.0 -> 118.9	264			
PFHxS	7.079	398.7 -> 79.9	1340	0.64	µg/L	m 98
		398.7 -> 98.9	734			
PFNA	7.520	463.0 -> 419.0	7846	0.90	µg/L	89
		463.0 -> 219.0	1352			
PFNS	8.747	548.8 -> 79.9	1163	0.70	µg/L	98
		548.8 -> 98.9	659			
PFOA	6.950	413.0 -> 369.0	9398	0.67	µg/L	95
		413.0 -> 169.0	2414			
PFOS	8.232	498.9 -> 79.9	2018	0.69	µg/L	m 93
		498.9 -> 98.8	971			
PFPeA	4.104	263.0 -> 219.0	10665	1.40	µg/L	100
PFPeS	6.331	349.1 -> 79.9	1234	0.64	µg/L	95
		349.1 -> 98.9	647			
PFTeDA	9.861	713.1 -> 669.0	5416	0.76	µg/L	99
		713.1 -> 168.9	718			
PFTrDA	9.452	663.0 -> 619.0	6056	0.64	µg/L	95
		663.0 -> 168.9	1171			
PFUnDA	8.547	563.1 -> 519.0	6383	0.68	µg/L	97
		563.1 -> 269.1	1364			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	10284	1.33	µg/L	100
		632.9 -> 452.9	3253			
9Cl-PF3ONS	8.600	530.8 -> 351.0	12829	1.57	µg/L	98
		532.8 -> 353.0	4148			
ADONA	6.530	376.9 -> 250.9	29513	1.58	µg/L	99
		376.9 -> 84.8	8538			
HFPO-DA	5.689	284.9 -> 168.9	8949	1.68	µg/L	99
		284.9 -> 184.9	853			
3:3FTCA	3.579	241.0 -> 177.0	1919	3.83	µg/L	98
		241.0 -> 117.0	215			
5:3FTCA	5.917	341.0 -> 237.1	33208	20.35	µg/L	99
		341.0 -> 217.0	22168			
7:3FTCA	7.360	441.0 -> 316.9	28028	33.28	µg/L	100
		441.0 -> 336.9	62722			
EtFOSA	10.713	526.0 -> 219.0	3588	1.59	µg/L	m 96
		526.0 -> 169.0	5402			
EtFOSE	10.636	630.0 -> 58.9	9143	3.90	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	3022	1.68	µg/L	m 95
		511.9 -> 169.0	4828			
MeFOSE	10.314	616.1 -> 58.9	7057	3.91	µg/L	m 100
PFDoDS	10.025	699.1 -> 79.9	802	0.55	µg/L	93
		699.1 -> 98.8	445			
NFDHA	5.167	295.0 -> 201.0	1519	1.83	µg/L	96
		295.0 -> 84.9	393			
PFMBA	4.505	279.0 -> 85.1	8230	1.65	µg/L	100
PFMPA	3.290	229.0 -> 84.9	7445	1.88	µg/L	100
PFEESA	5.795	314.8 -> 134.9	16611	1.50	µg/L	99
		314.8 -> 82.9	476			

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

7.3.2  
7

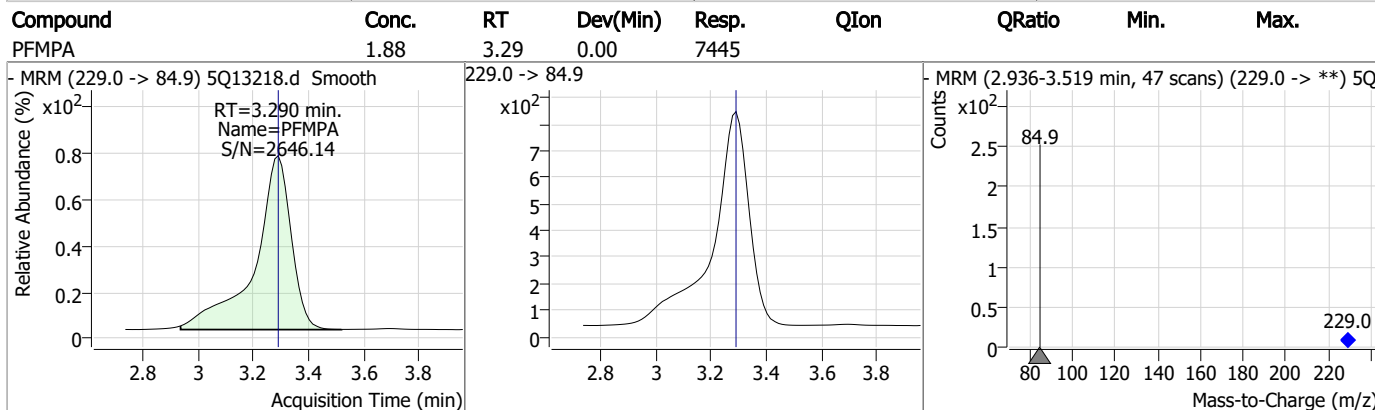
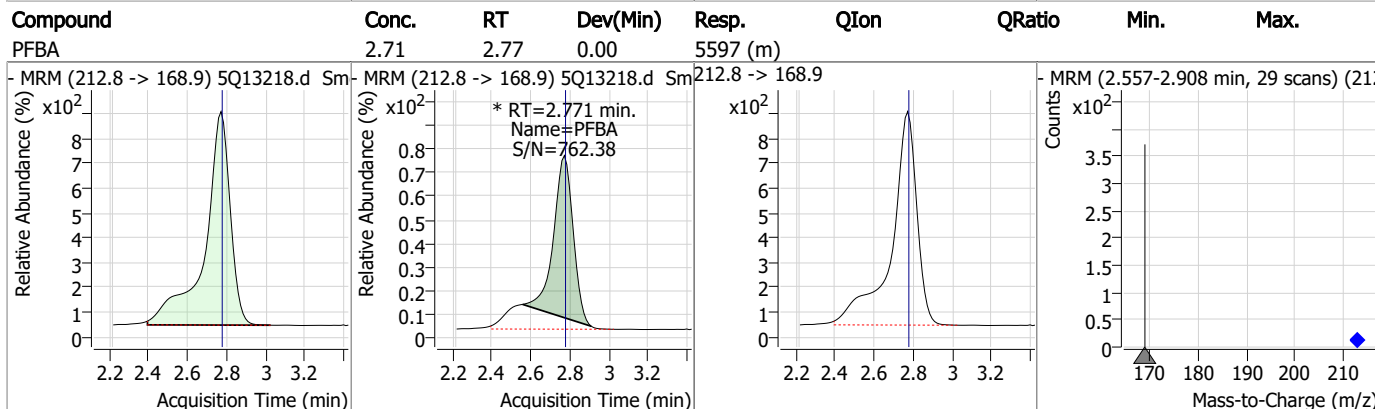
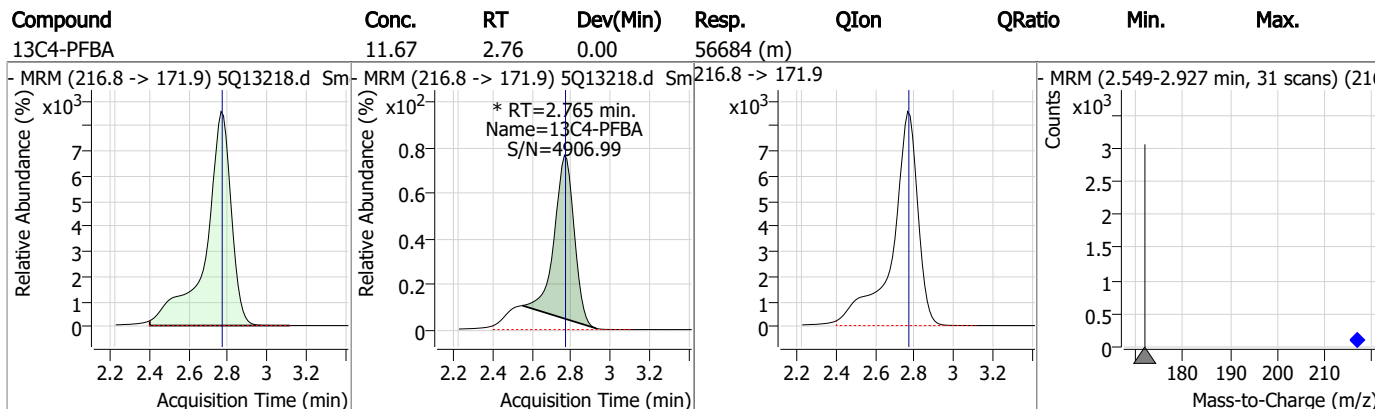
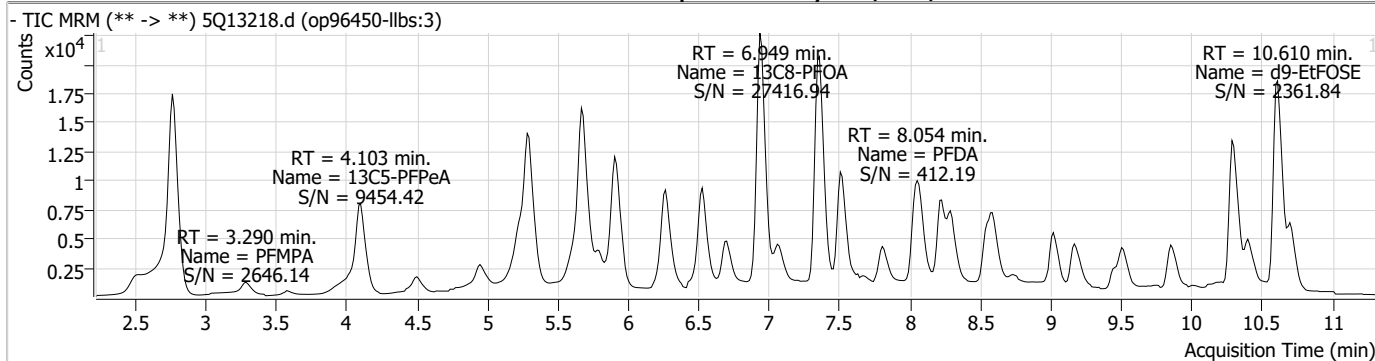
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.3.2

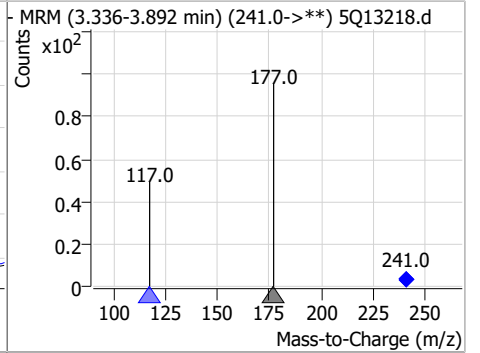
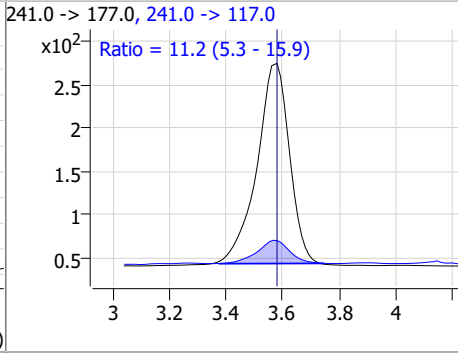
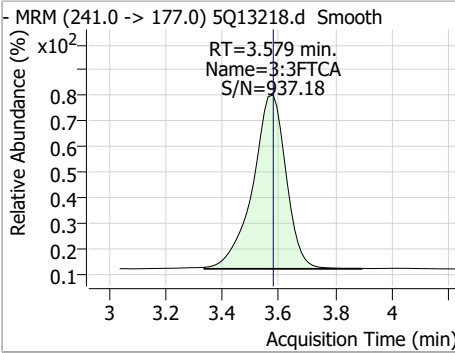
7

### Perfluorinated Compounds by LC/MS/MS

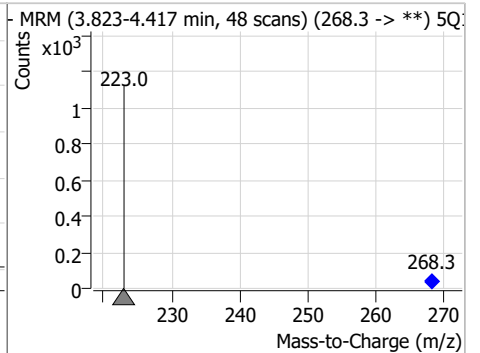
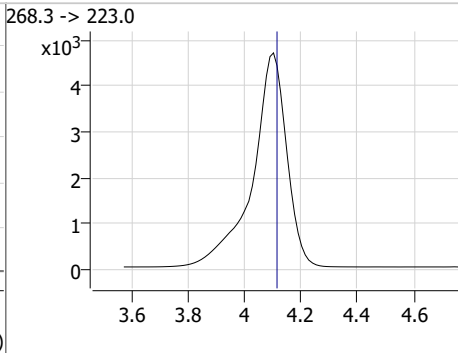
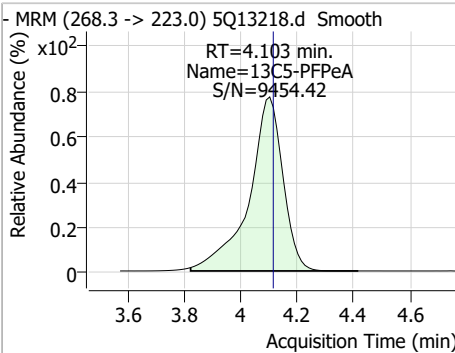


### Perfluorinated Compounds by LC/MS/MS

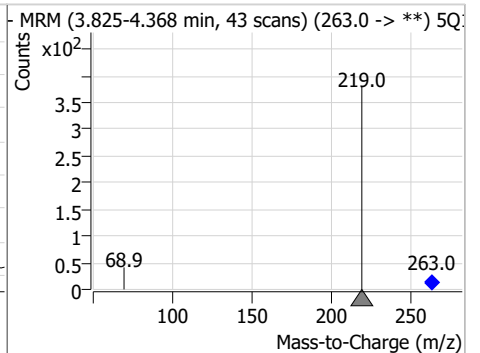
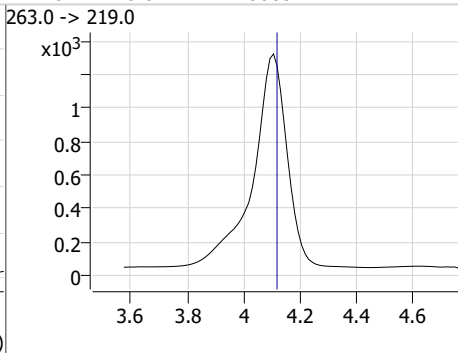
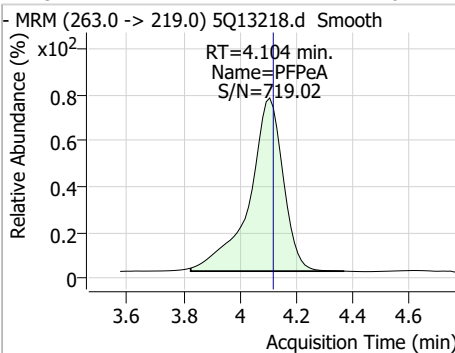
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	3.83	3.58	0.00	1919	241.0 -> 117.0	11.2	5.3	15.9



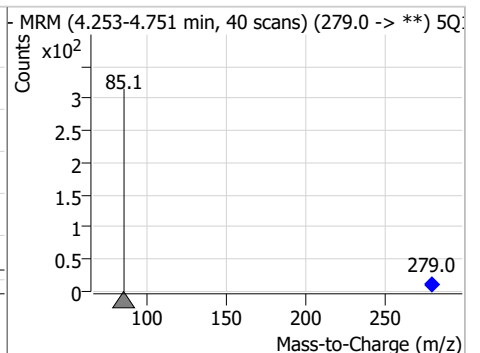
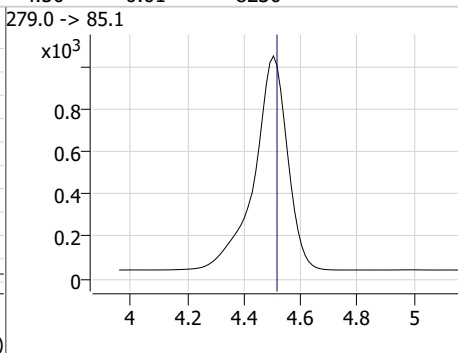
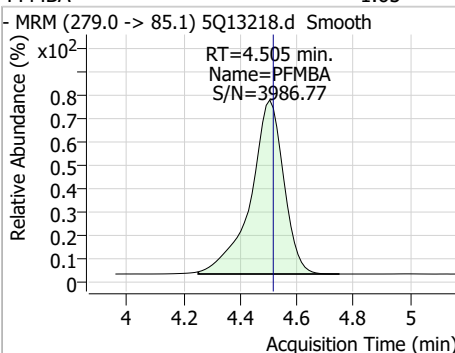
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.79	4.10	-0.01	39234				



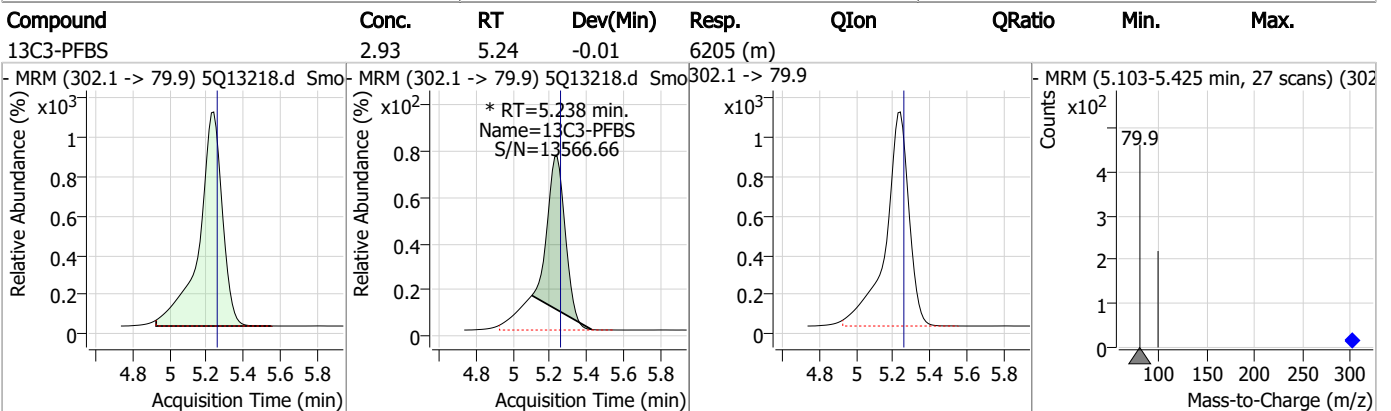
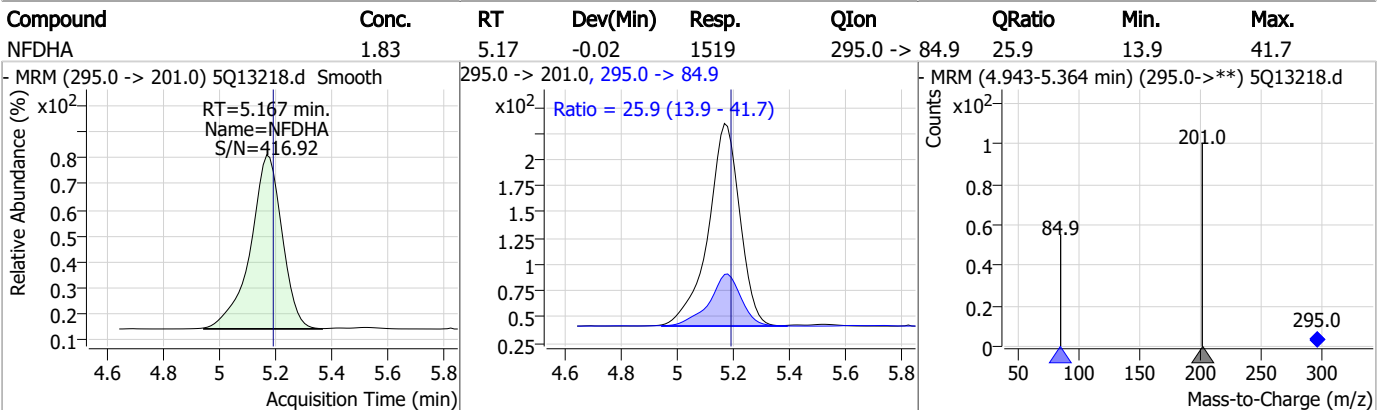
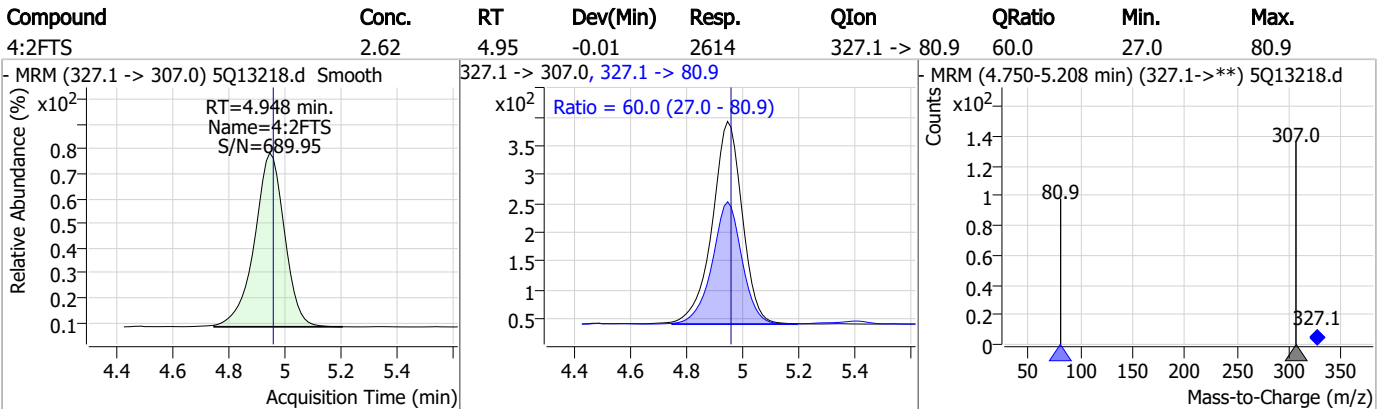
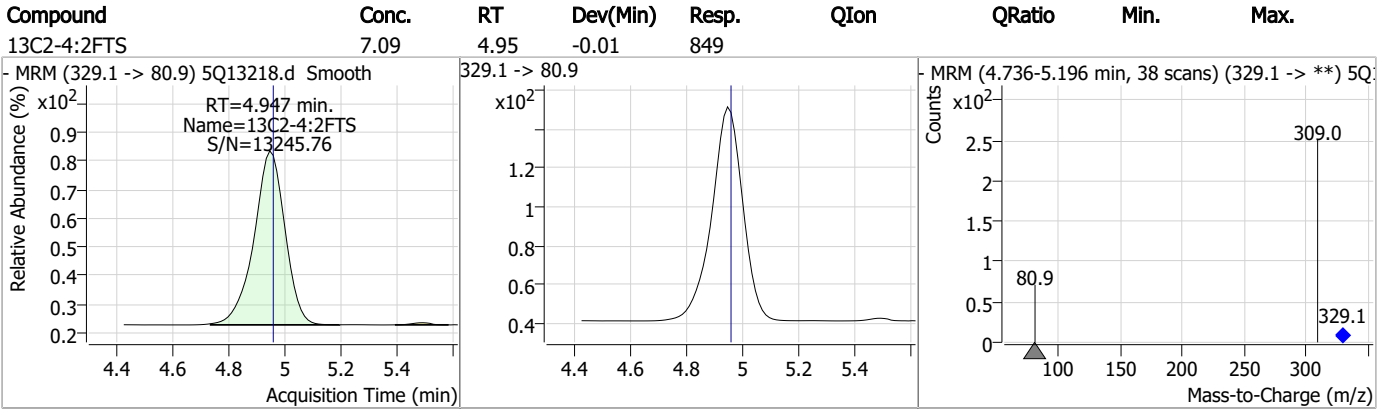
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	1.40	4.10	-0.01	10665				



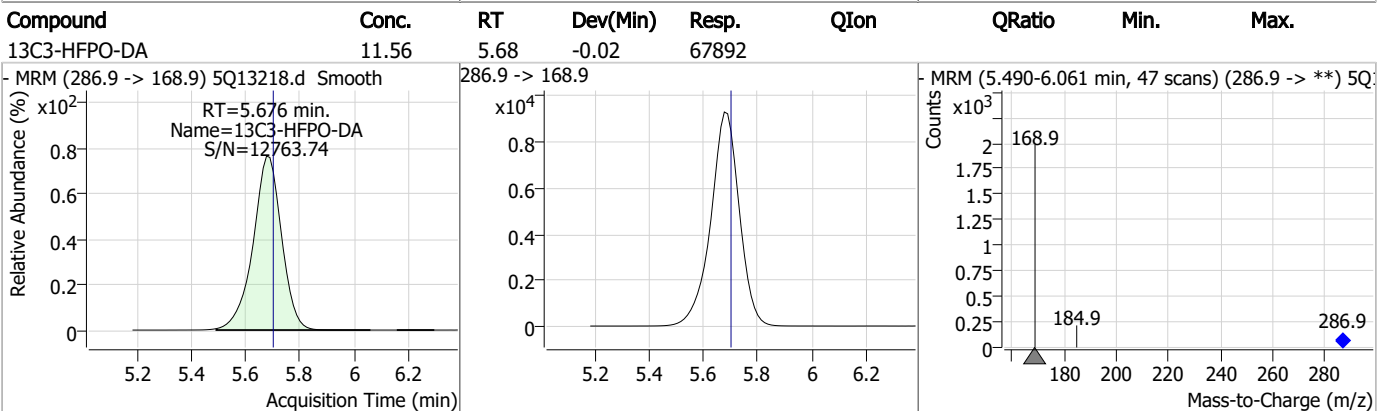
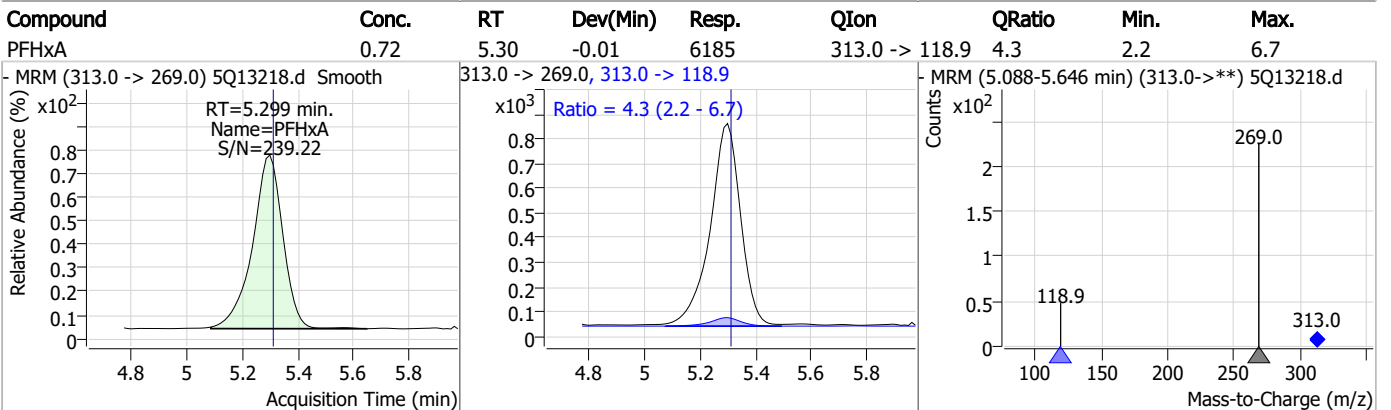
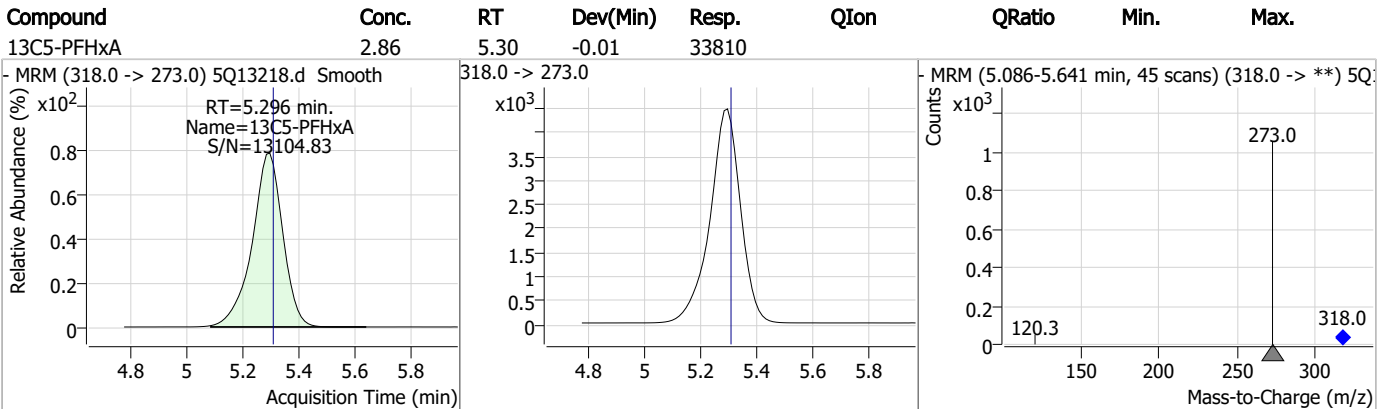
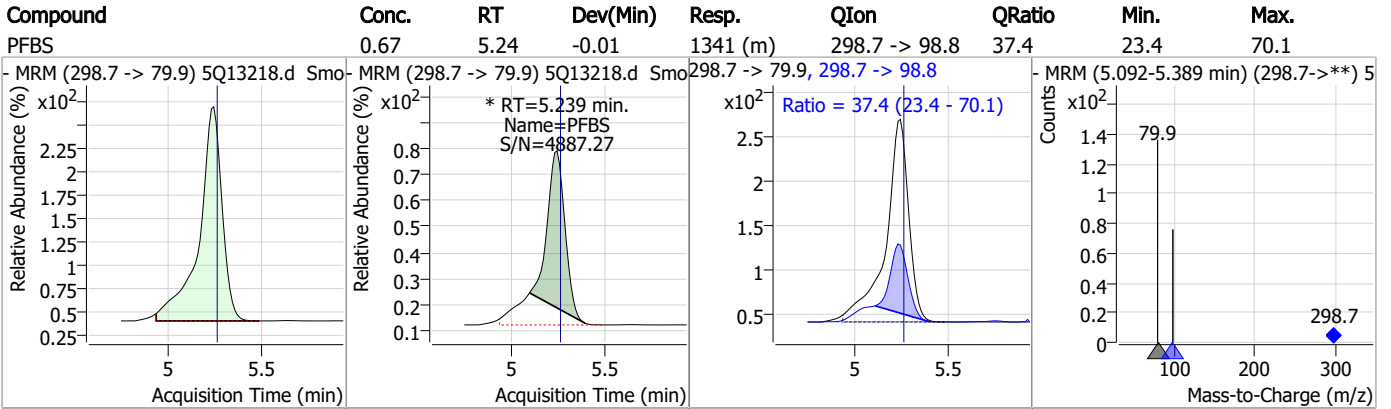
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	1.65	4.50	-0.01	8230				



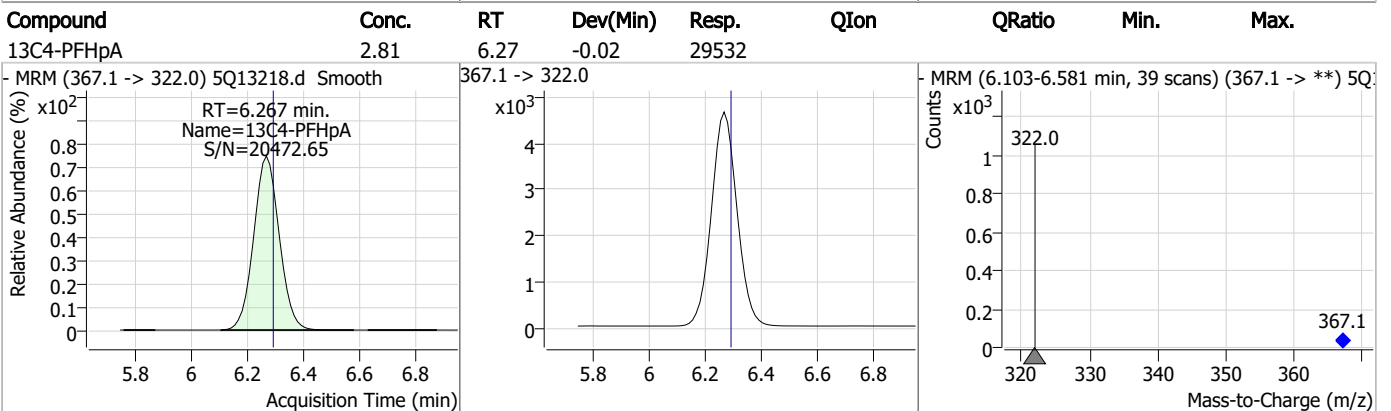
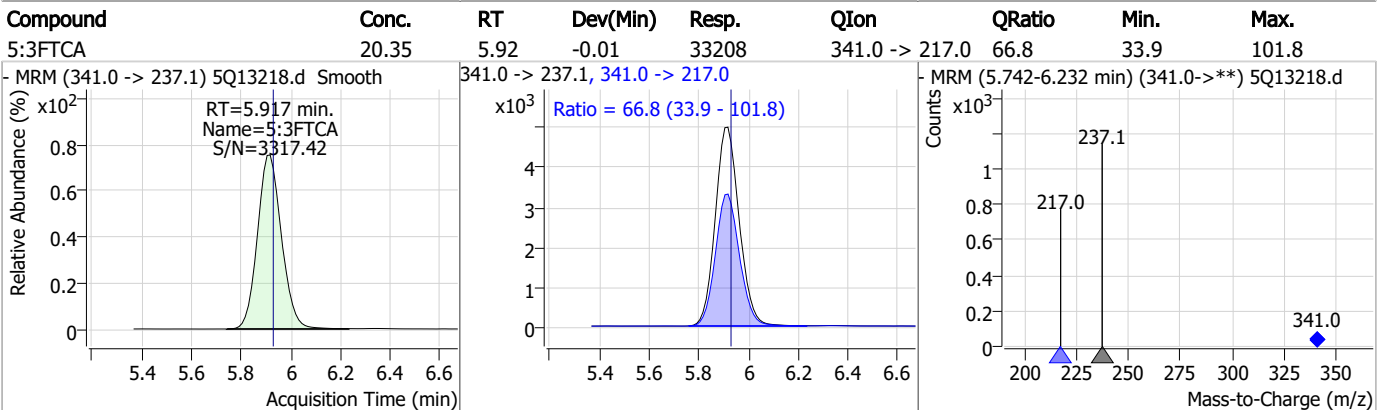
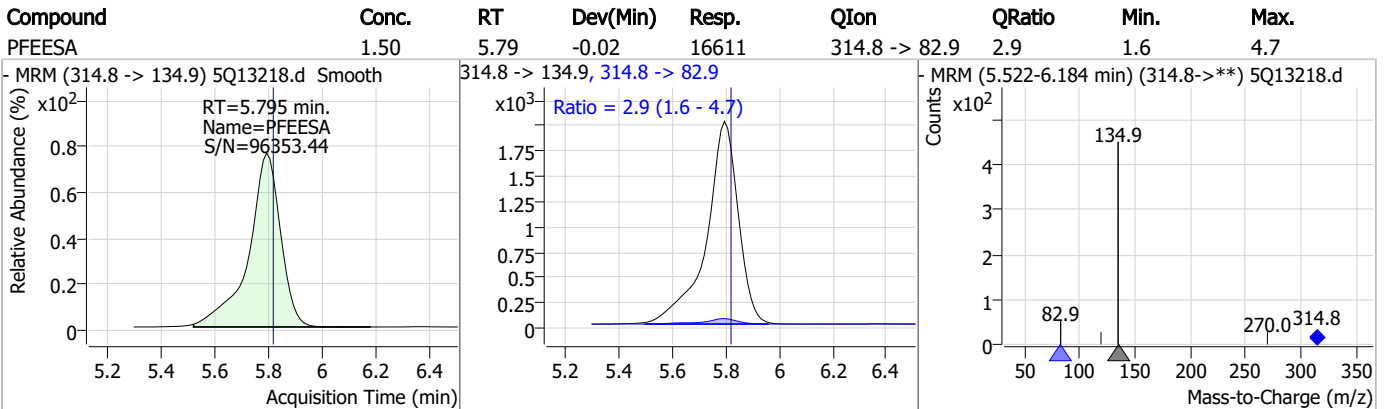
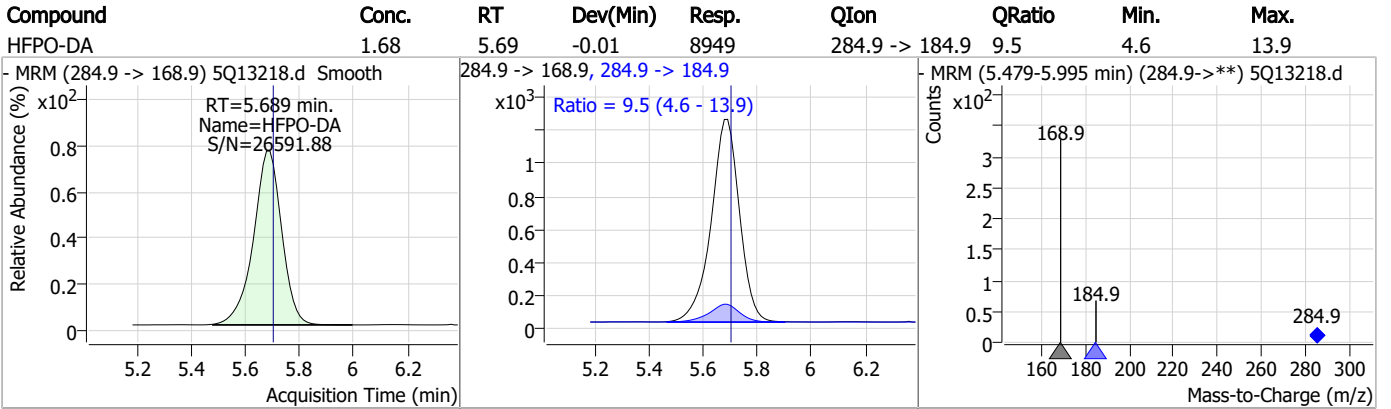
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



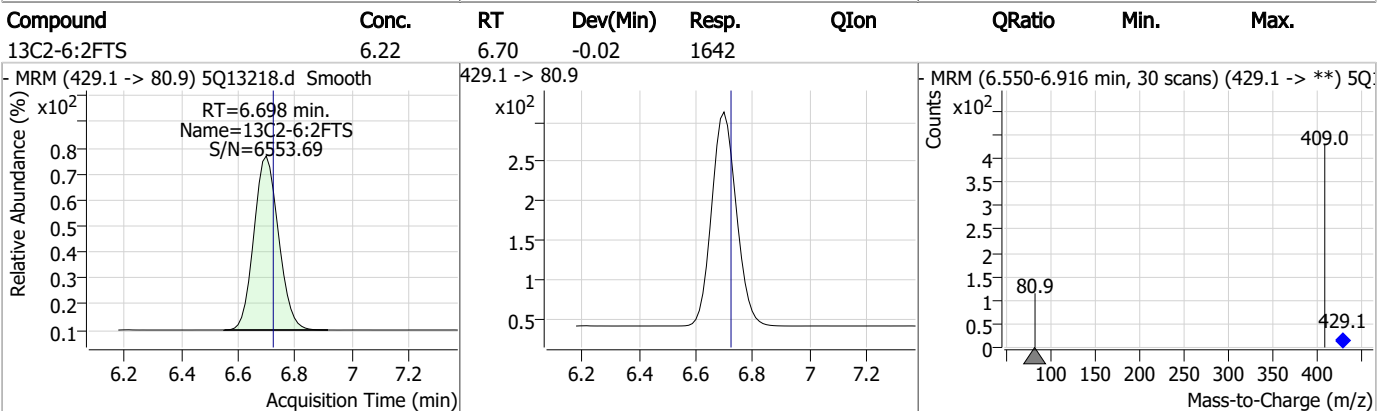
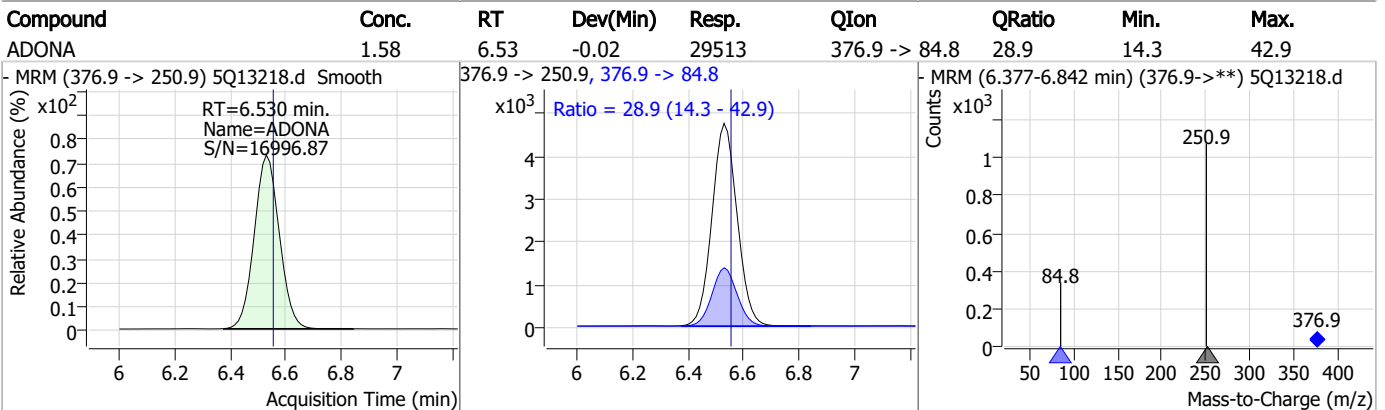
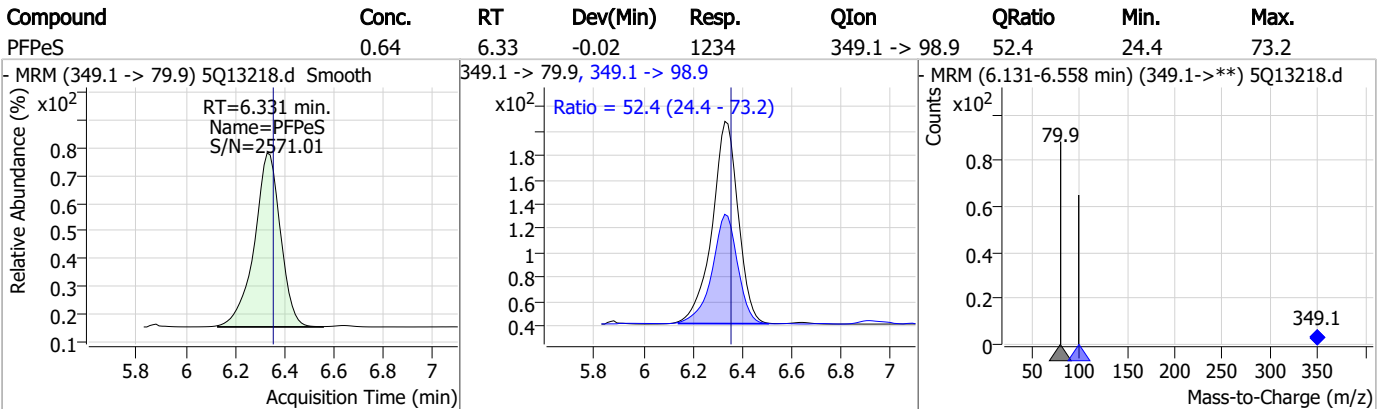
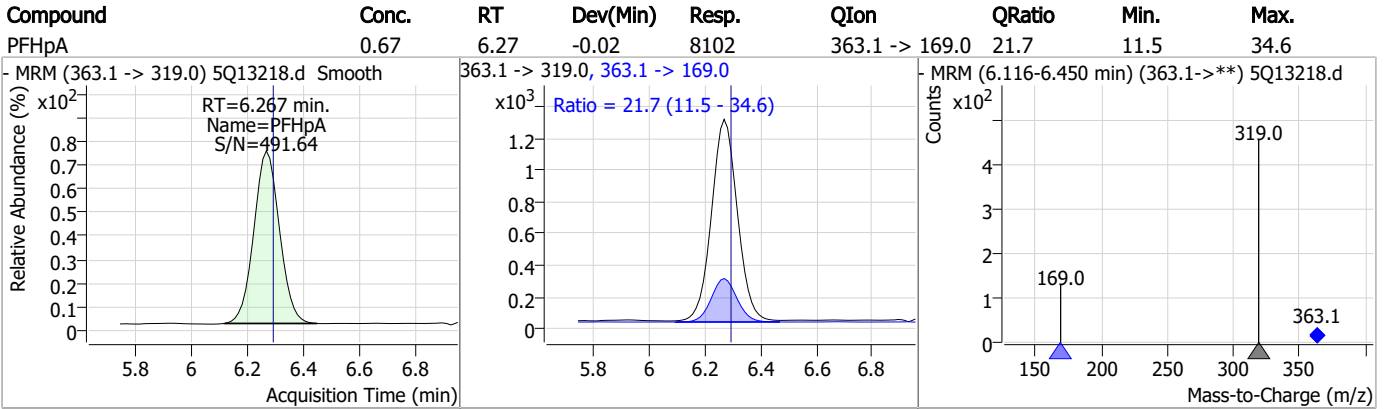
### Perfluorinated Compounds by LC/MS/MS



7.3.2

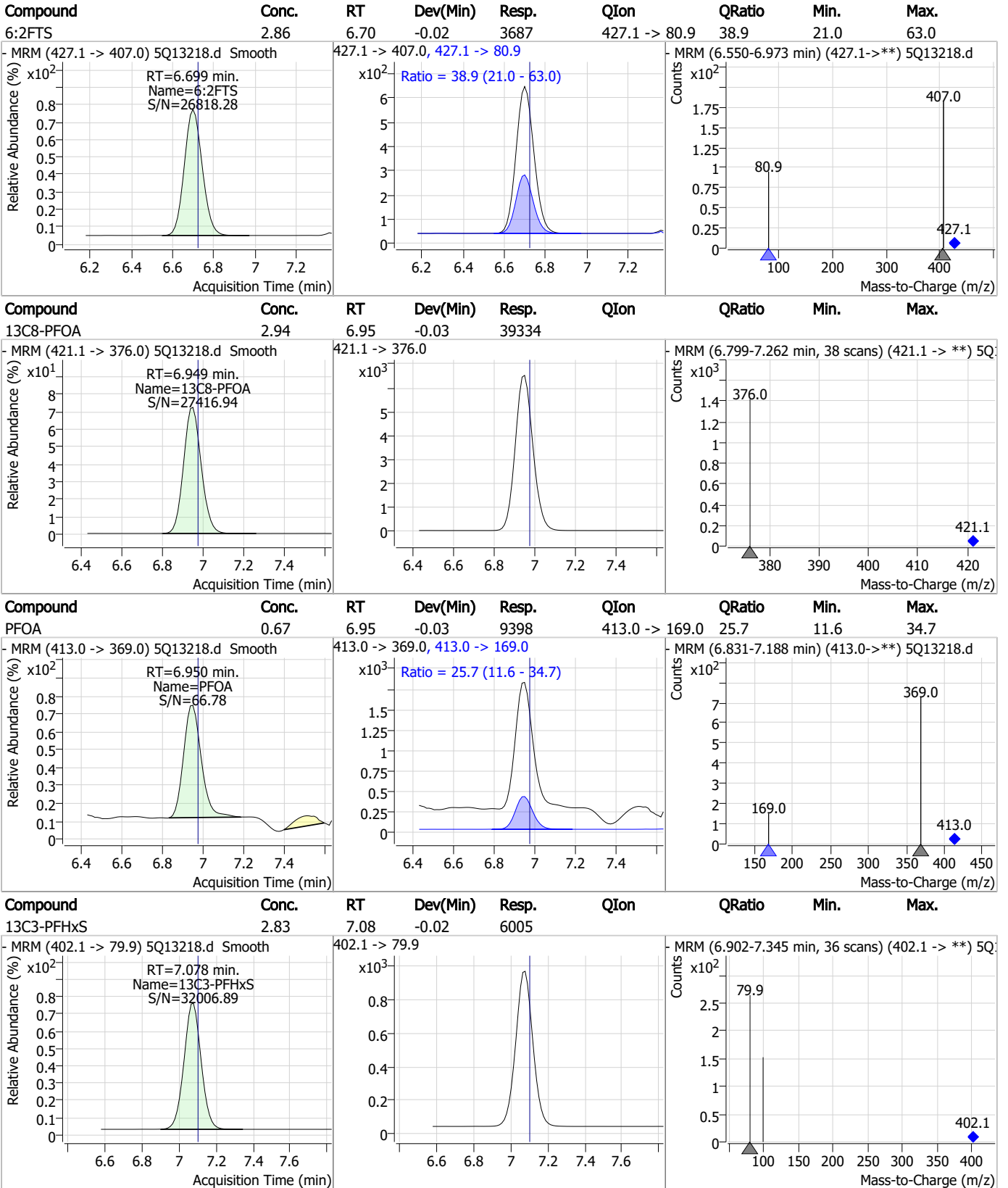
7

### Perfluorinated Compounds by LC/MS/MS





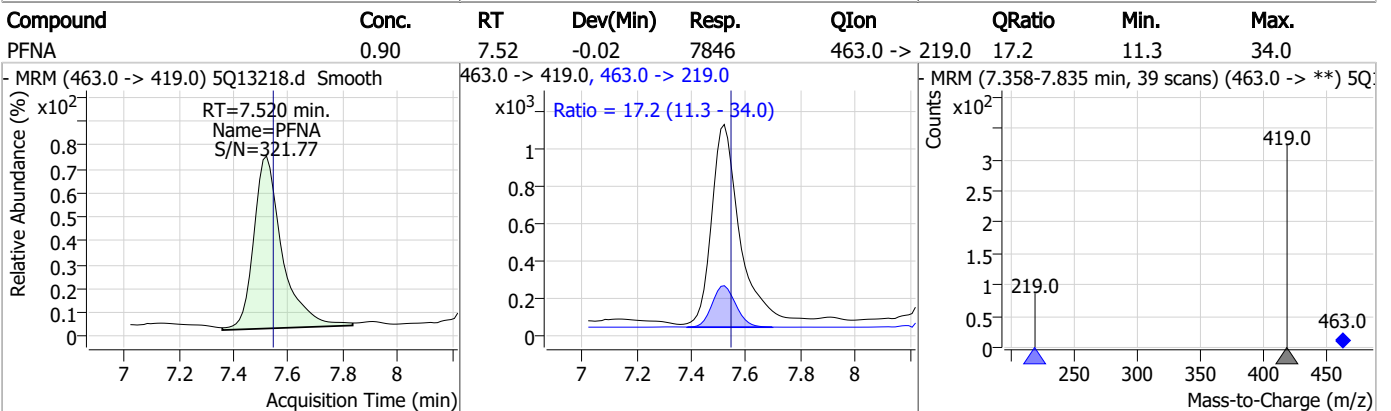
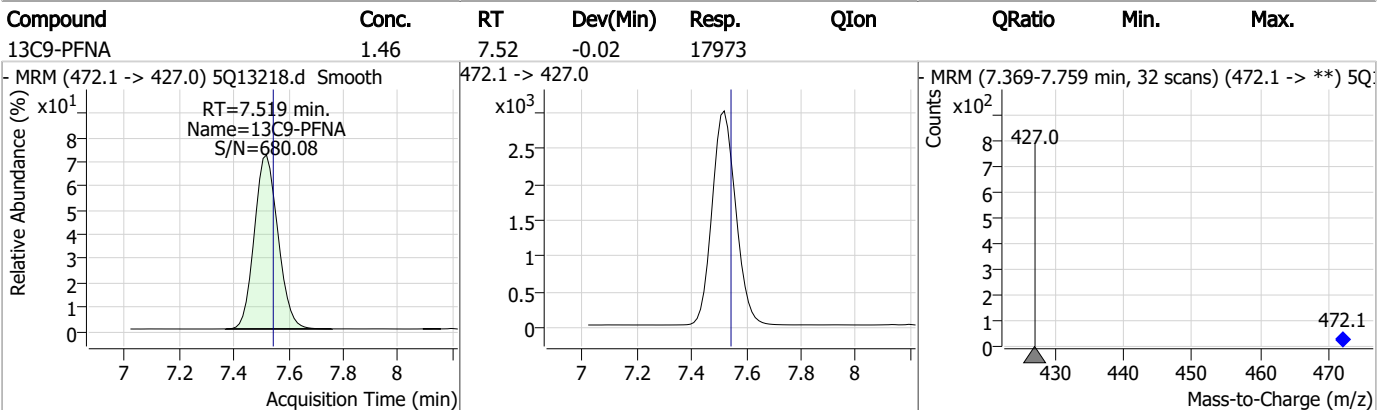
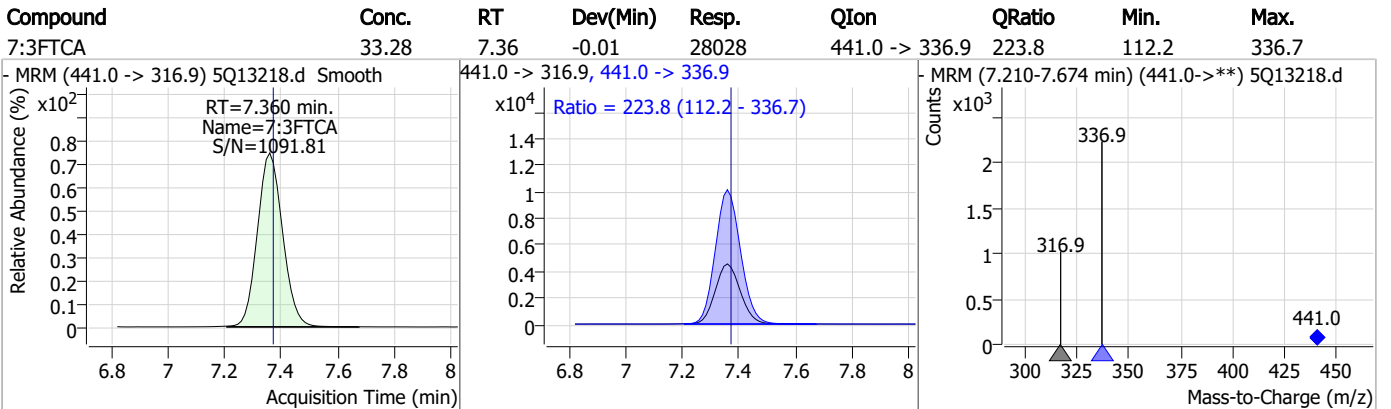
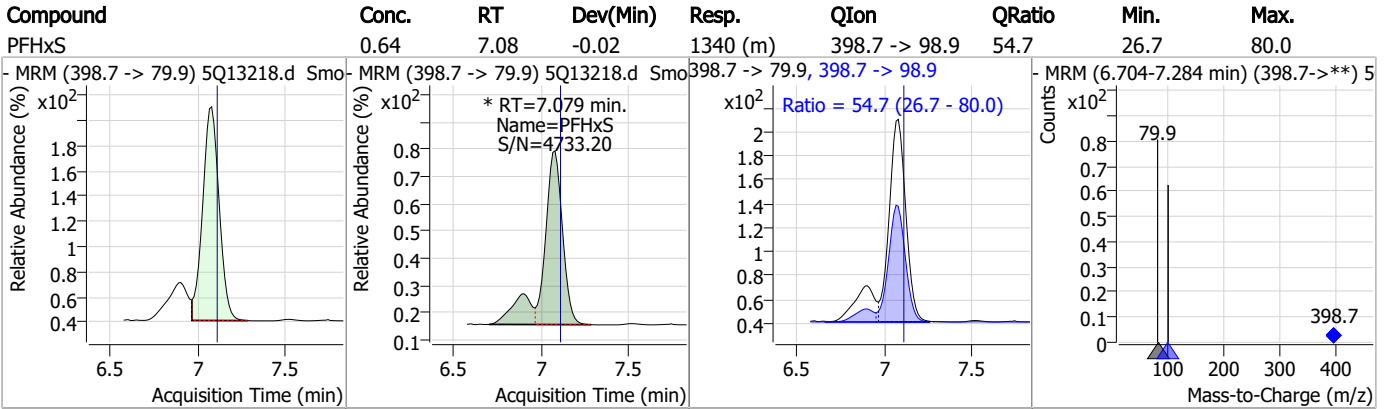
Perfluorinated Compounds by LC/MS/MS



7.3.2  
7



### Perfluorinated Compounds by LC/MS/MS

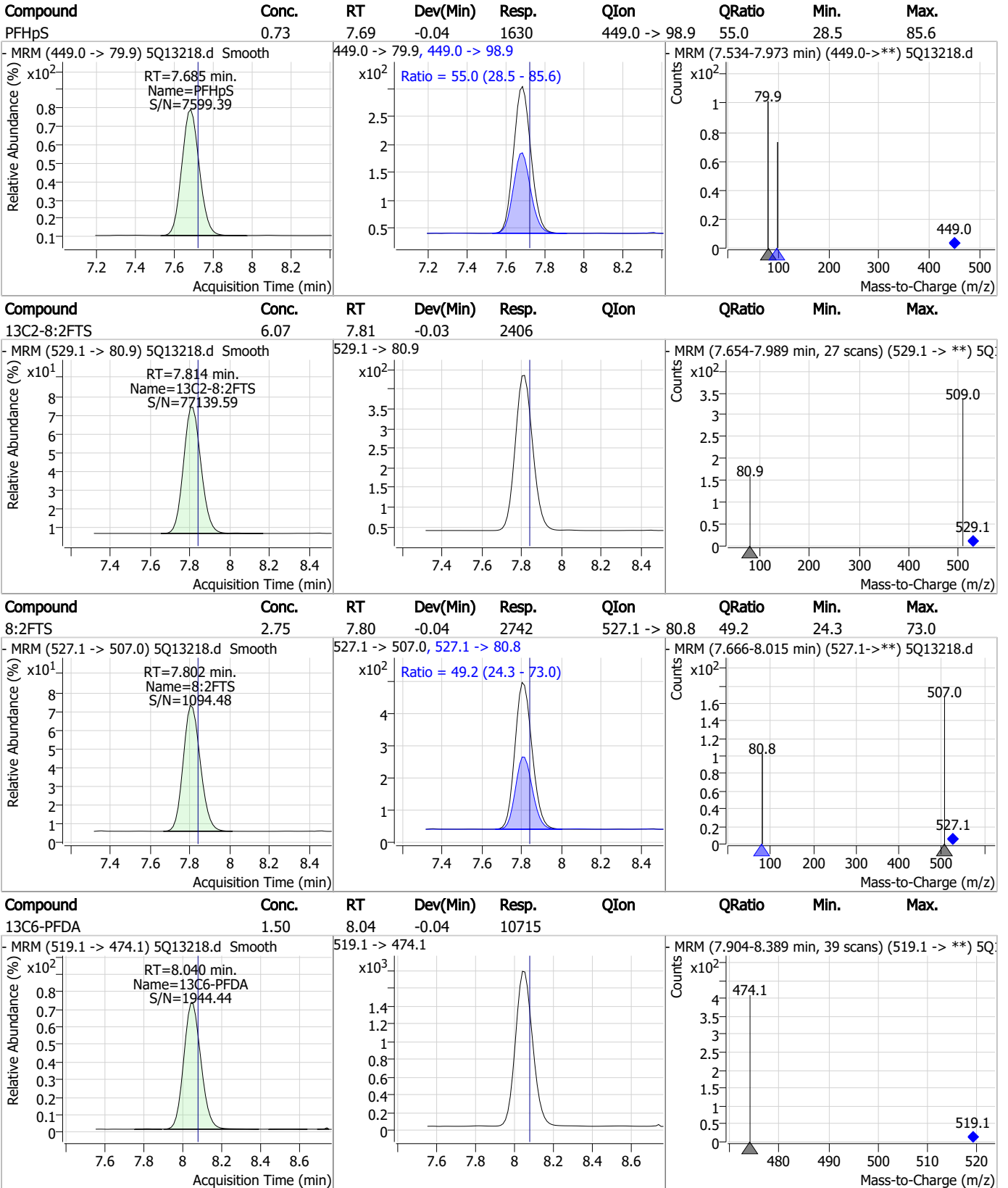


7.3.2

7



### Perfluorinated Compounds by LC/MS/MS



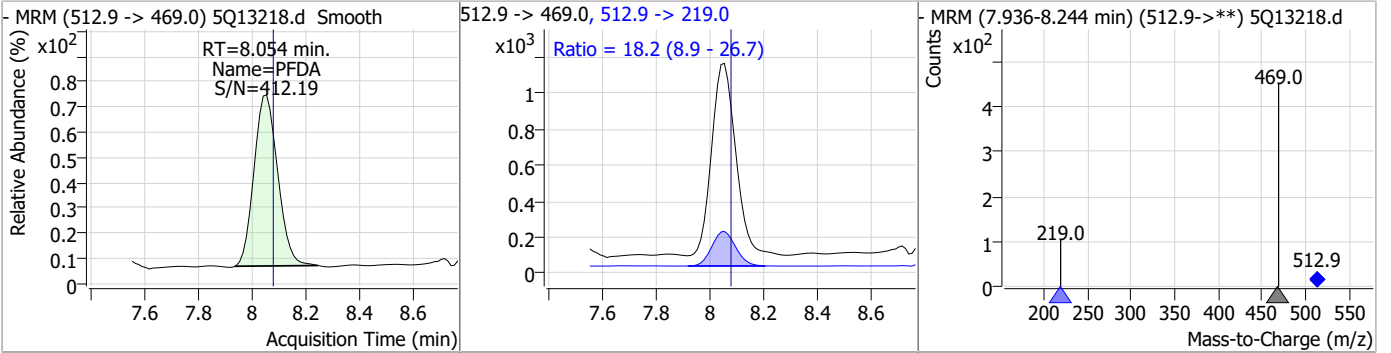
7.3.2

7

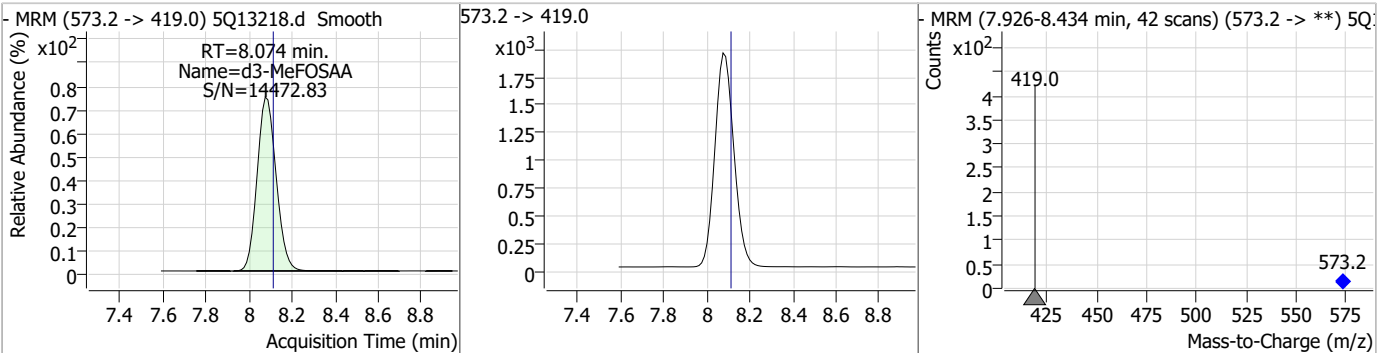


### Perfluorinated Compounds by LC/MS/MS

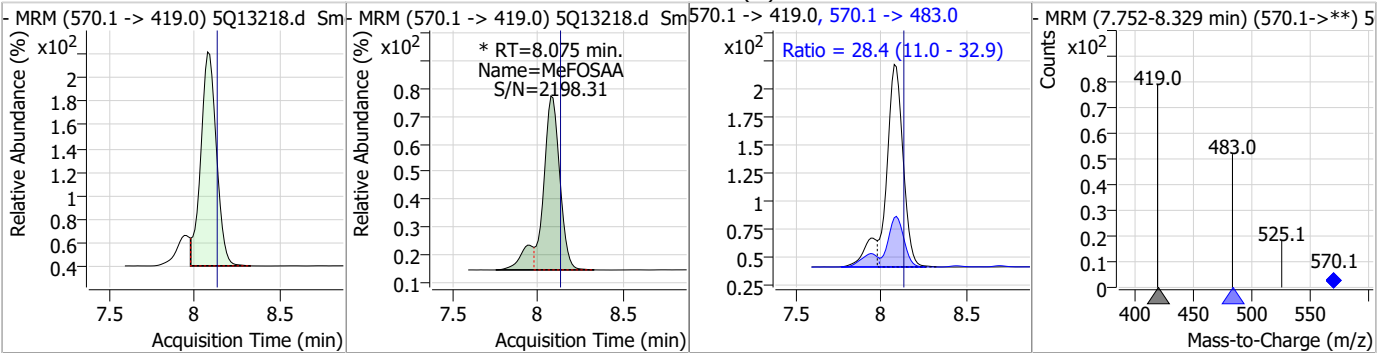
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.68	8.05	-0.02	6455	512.9 -> 219.0	18.2	8.9	26.7



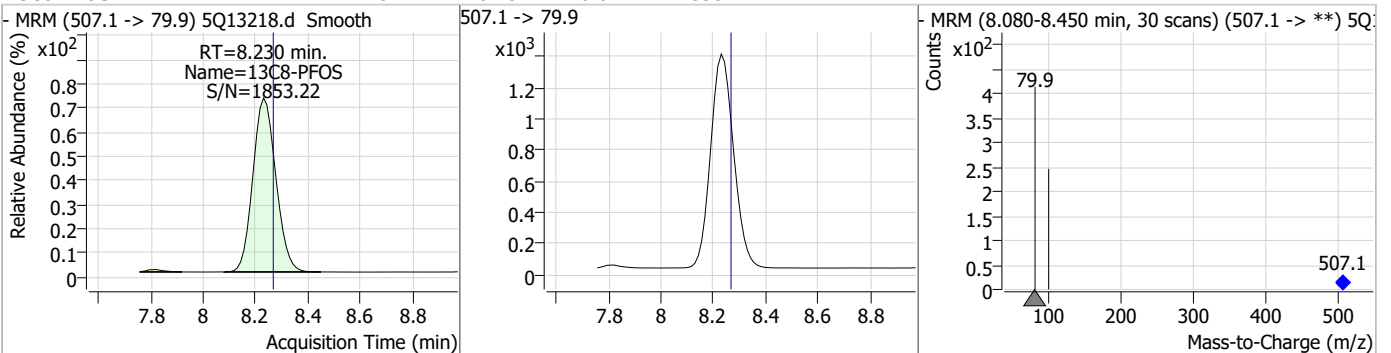
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	6.22	8.07	-0.04	11850				



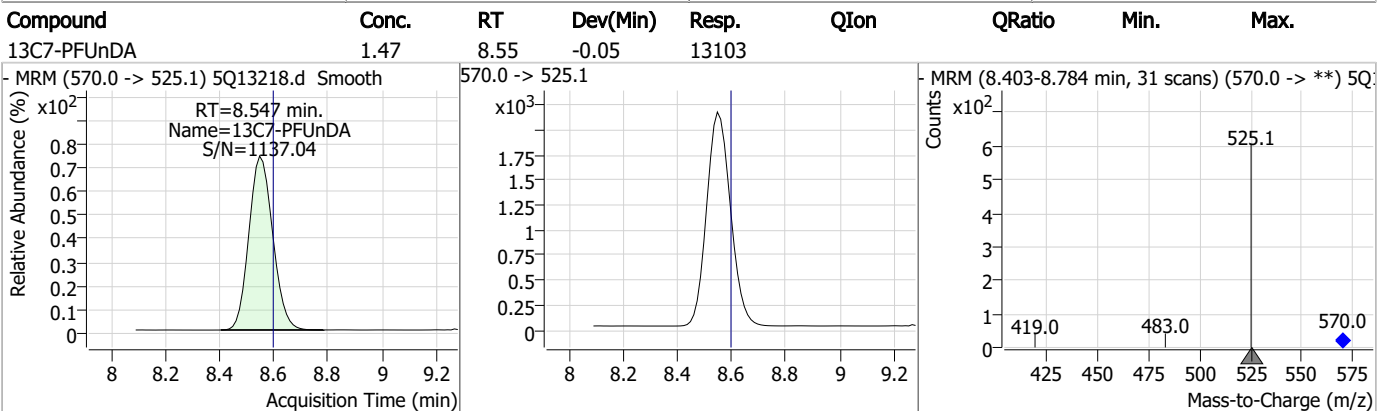
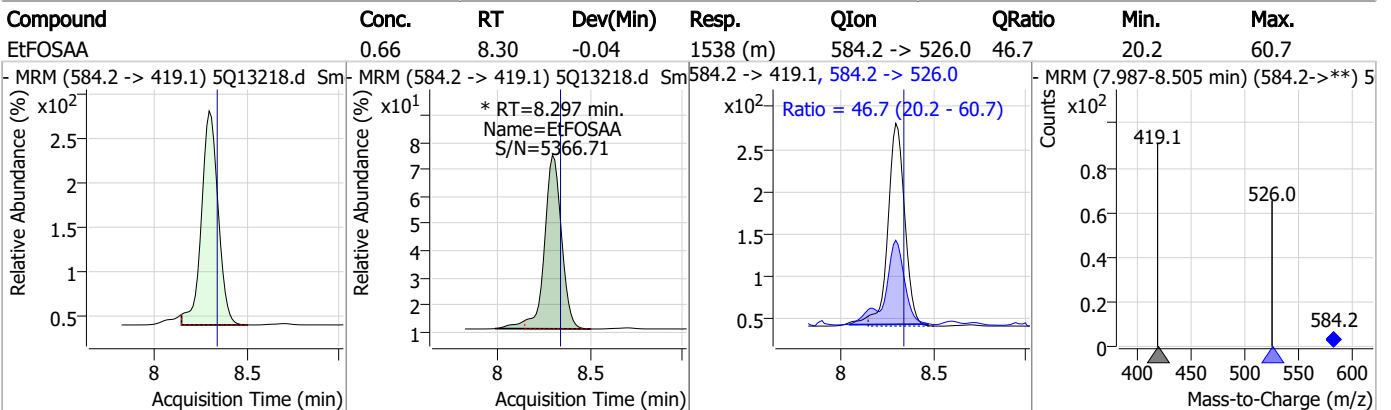
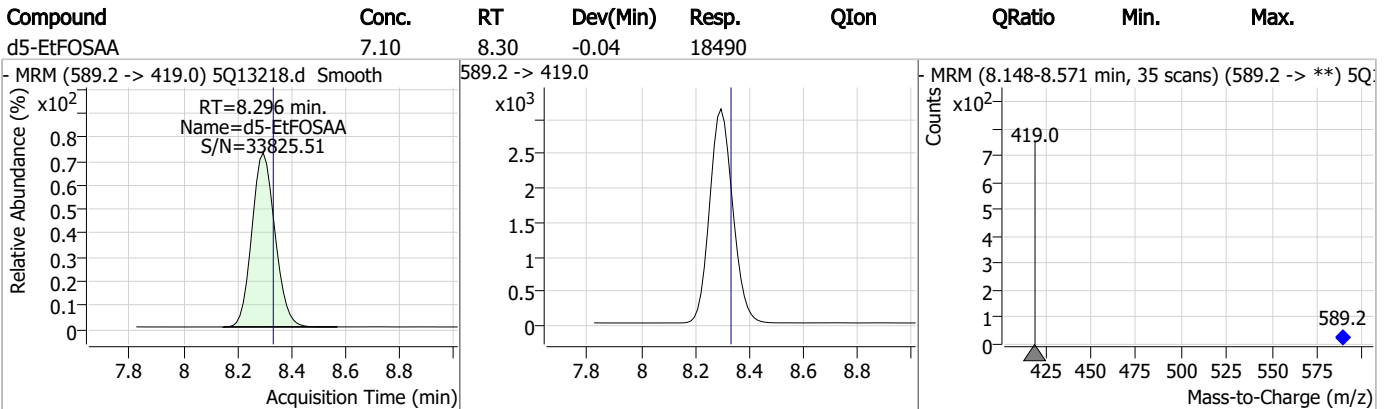
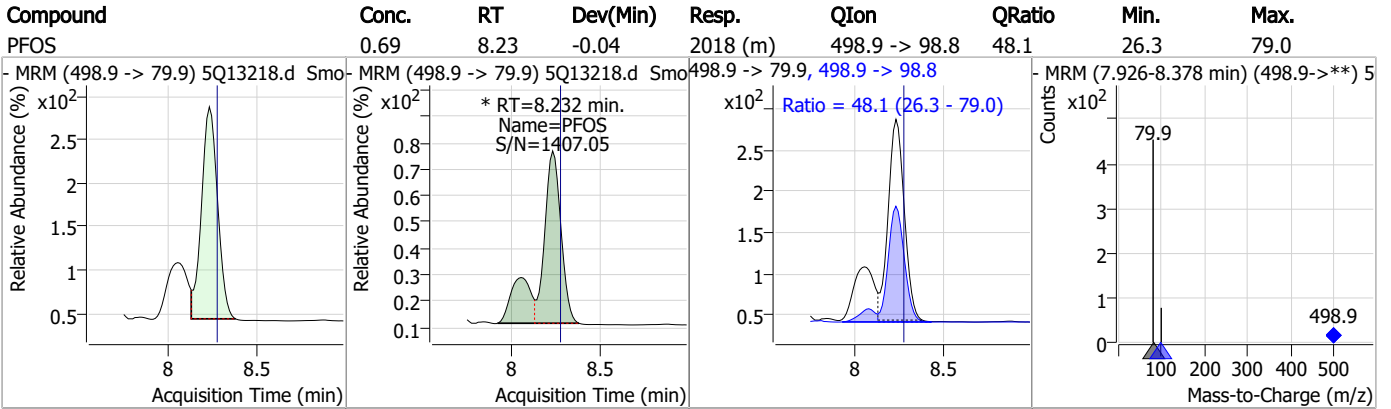
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.65	8.08	-0.05	1291 (m)	570.1 -> 483.0	28.4	11.0	32.9



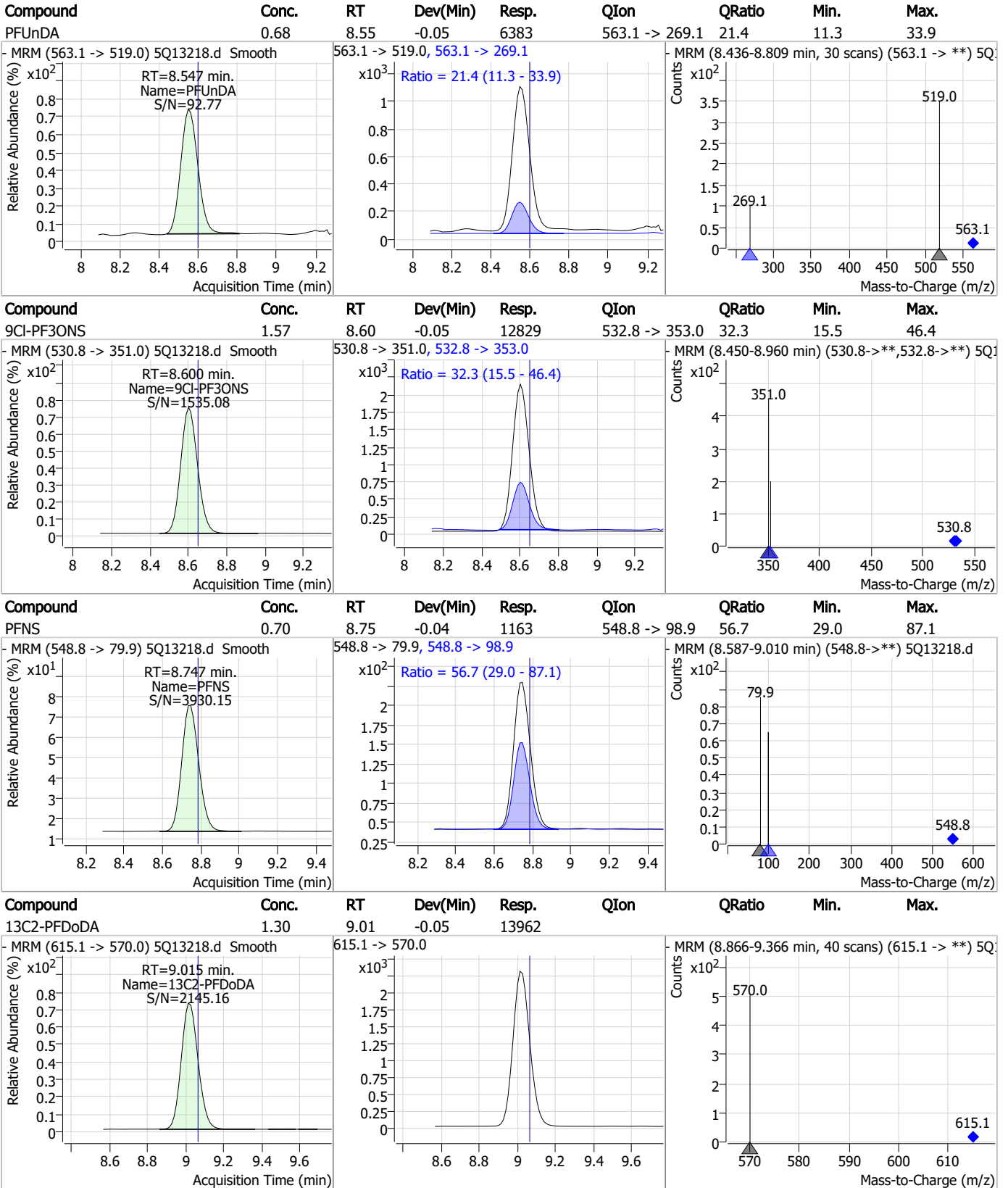
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.82	8.23	-0.04	8384				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



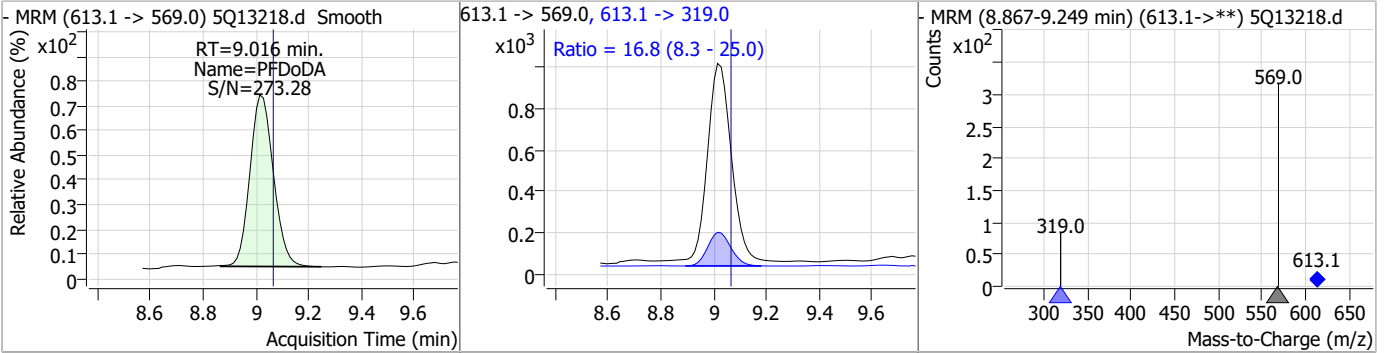
7.3.2

7

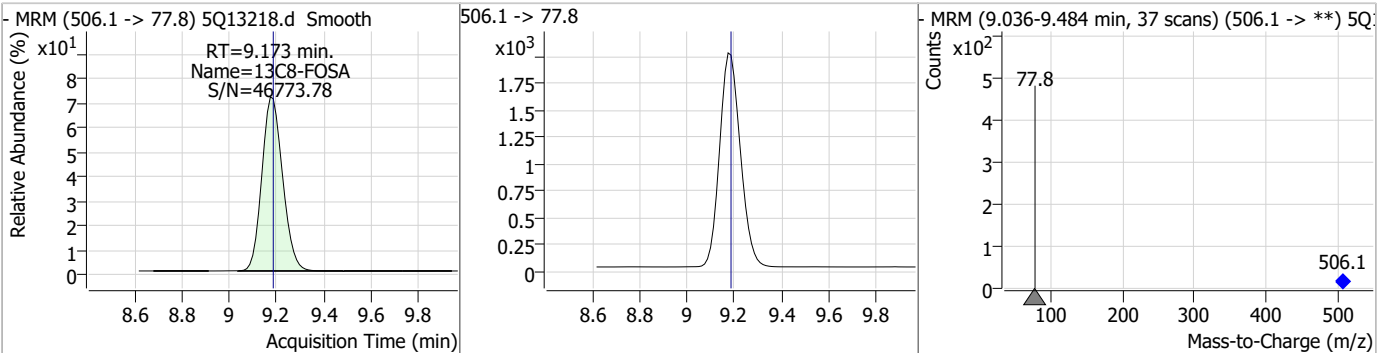


### Perfluorinated Compounds by LC/MS/MS

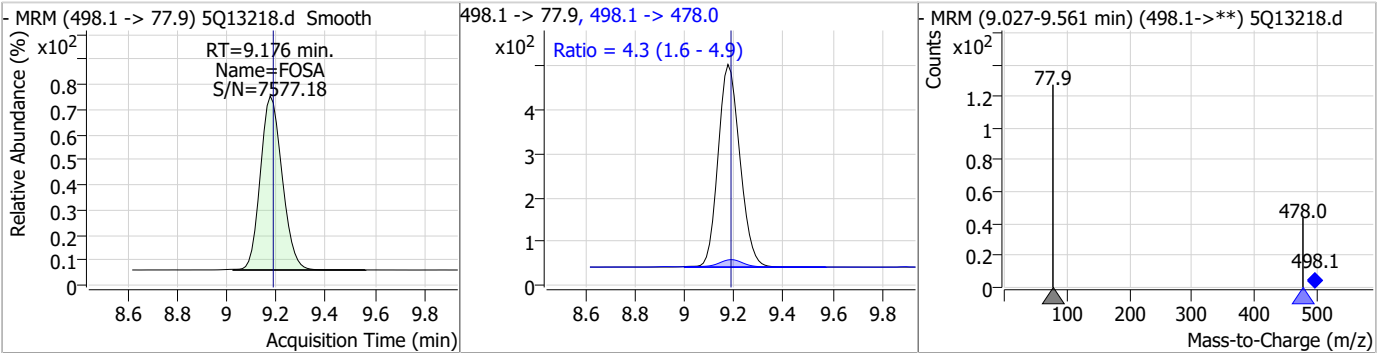
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.70	9.02	-0.05	5906	613.1 -> 319.0	16.8	8.3	25.0



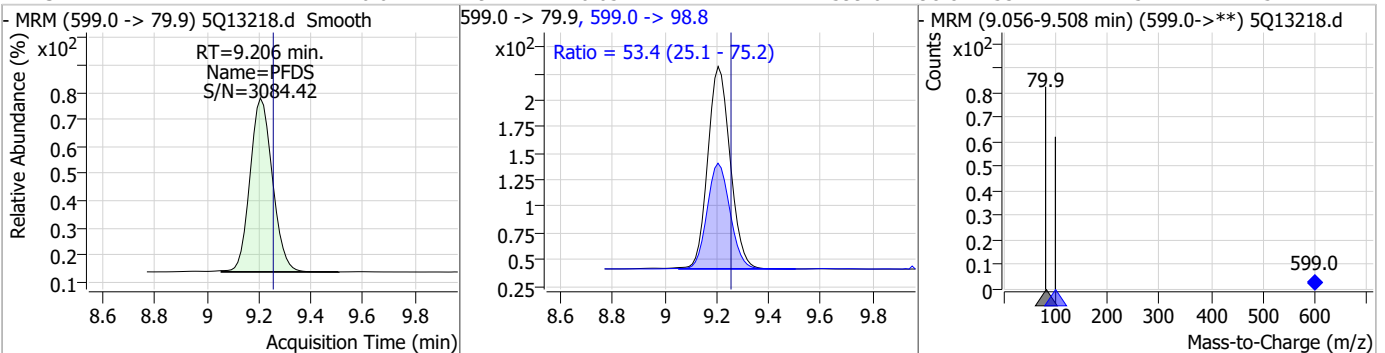
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.84	9.17	-0.01	12161	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.74	9.18	-0.01	2829	498.1 -> 478.0	4.3	1.6	4.9

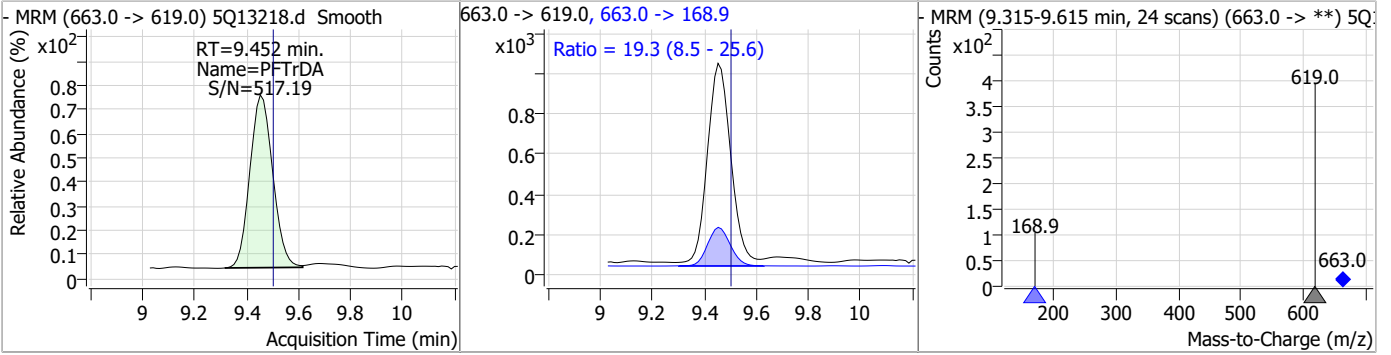


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.64	9.21	-0.05	1144	599.0 -> 98.8	53.4	25.1	75.2

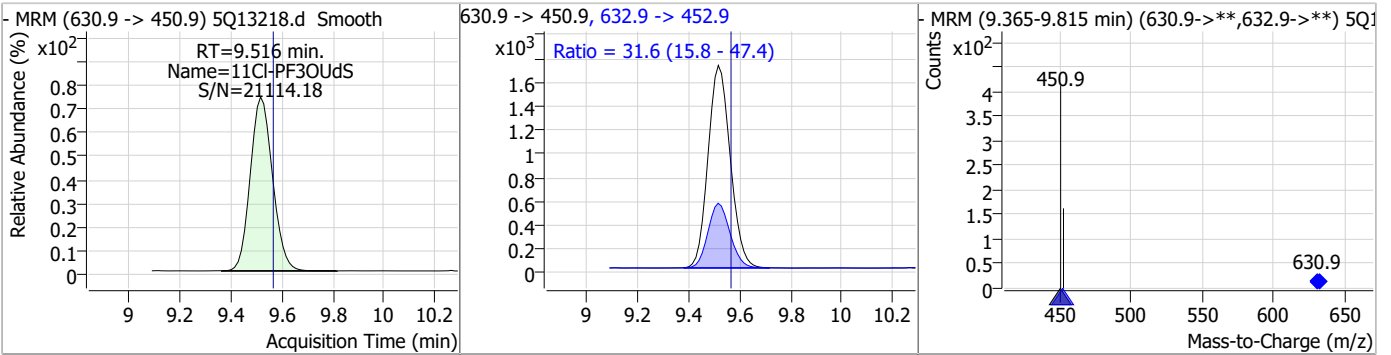


### Perfluorinated Compounds by LC/MS/MS

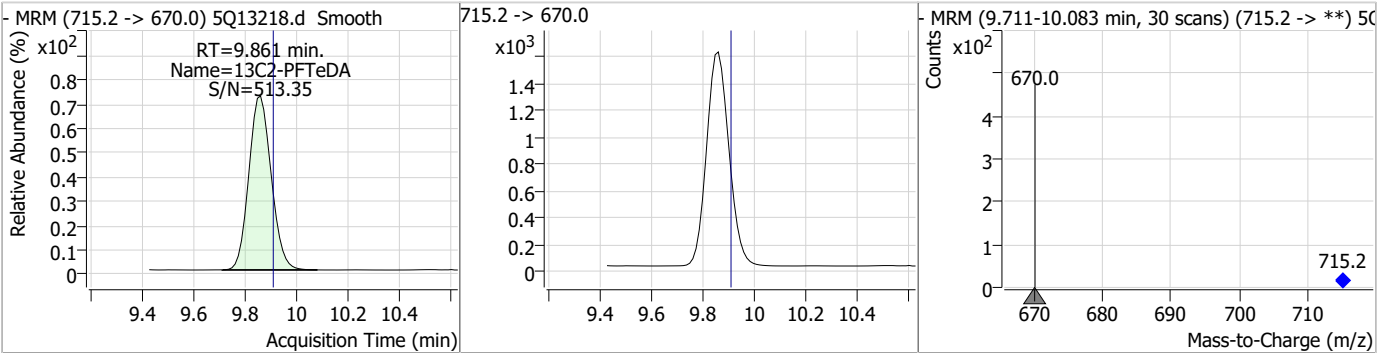
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.64	9.45	-0.05	6056	663.0 -> 168.9	19.3	8.5	25.6



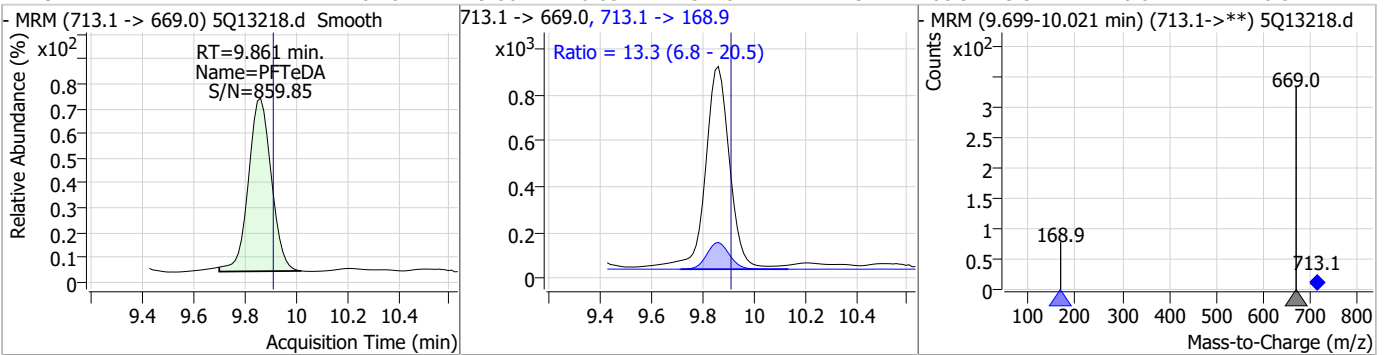
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	1.33	9.52	-0.05	10284	632.9 -> 452.9	31.6	15.8	47.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.06	9.86	-0.05	9658	715.2 -> 670.0			

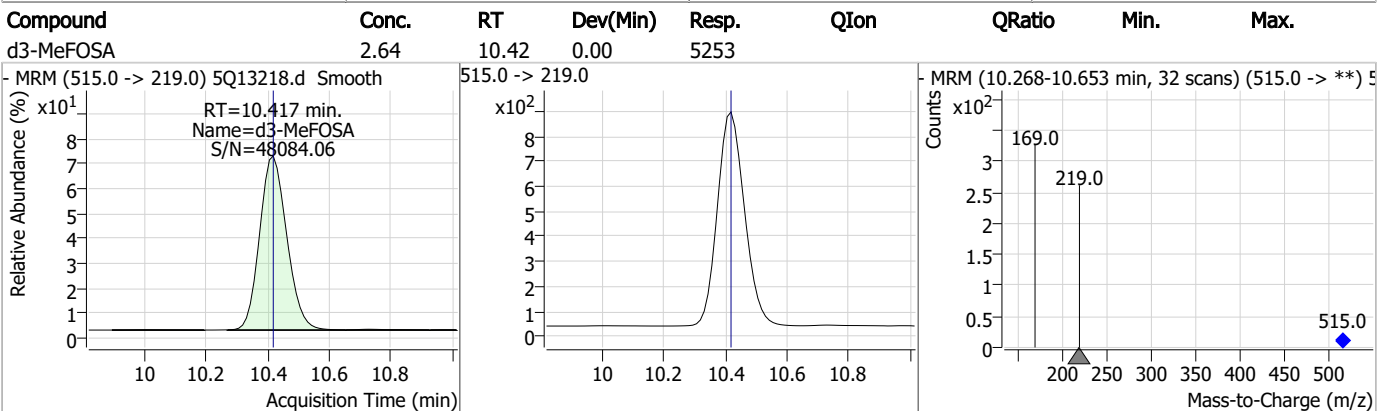
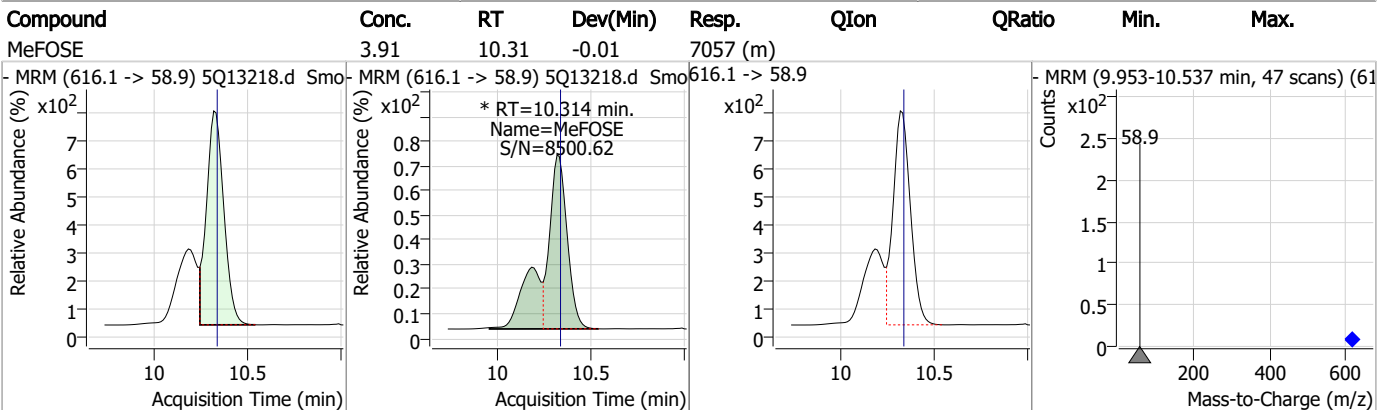
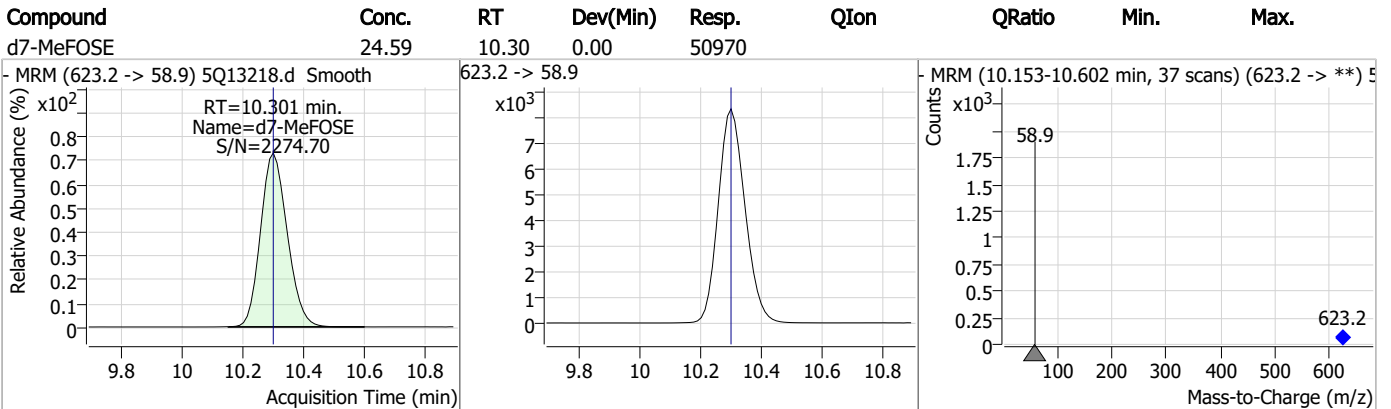
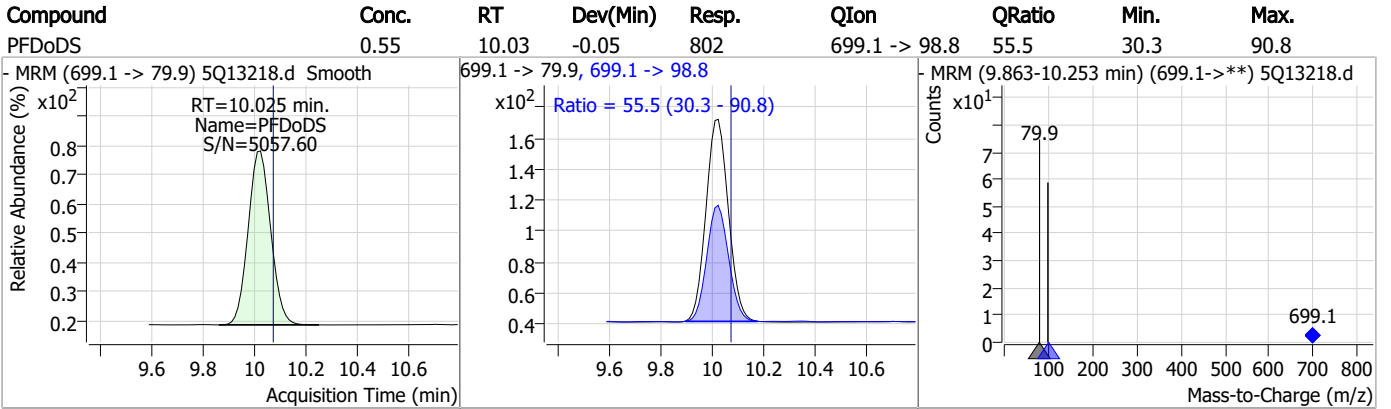


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.76	9.86	-0.05	5416	713.1 -> 168.9	13.3	6.8	20.5





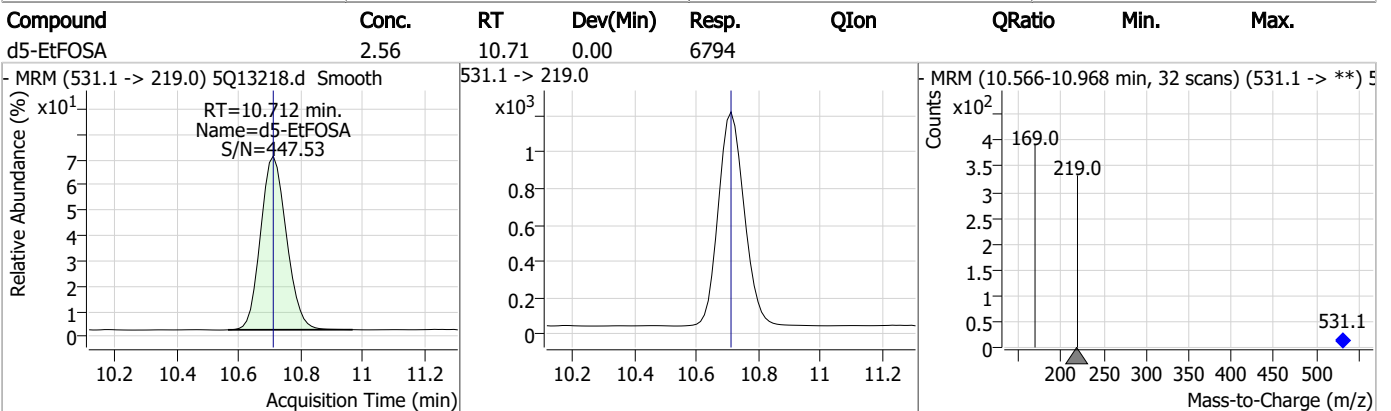
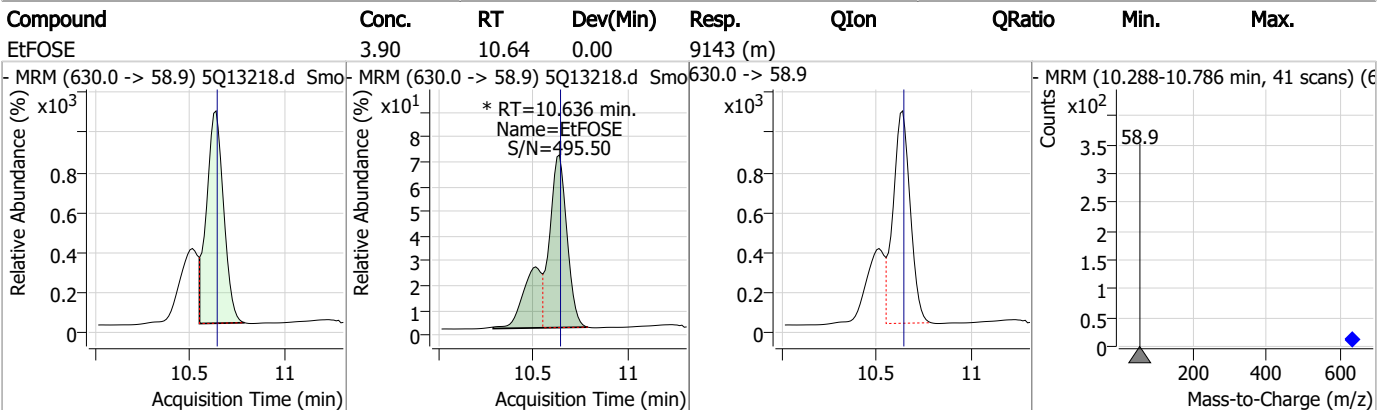
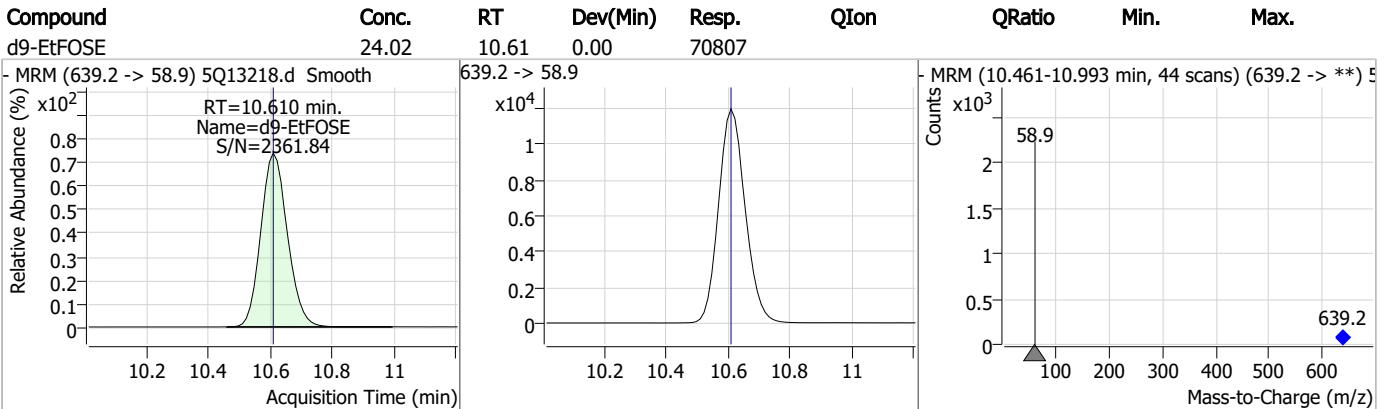
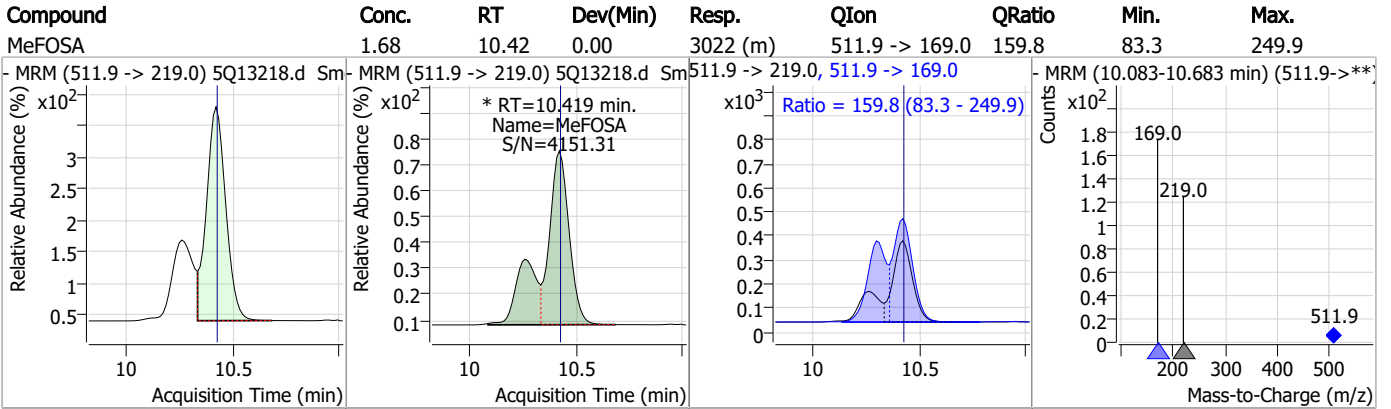
### Perfluorinated Compounds by LC/MS/MS



7.3.2

7

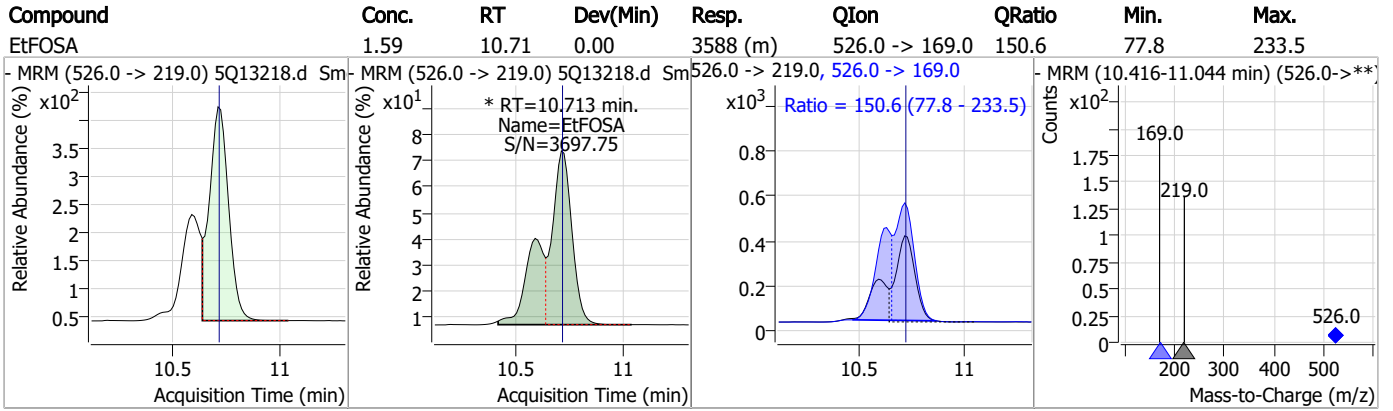
### Perfluorinated Compounds by LC/MS/MS



7.3.2

7

### Perfluorinated Compounds by LC/MS/MS



7.3.2

7

# Manual Integration Approval Summary

**Sample Number:** OP96450-LLBS      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13218.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/20/23 05:25      **Supervisor approved:** 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.77	Poor instrument integration
13C3-PFBS			5.24	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.24	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.08	Split peak
MeFOSAA	2355-31-9		8.07	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSE	24448-09-7		10.31	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.3.2.1  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13221.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 6:08:25 AM  
 Sample Name : op96450-ms  
 Vial : P3-F1  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96450,S5Q205,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	67971	10.00	µg/L m	0.000
M5-PFPeA	4.103	268.3 -> 223.0	41940	5.00	µg/L	-0.012
M5-PFHxA	5.284	318.0 -> 273.0	35481	2.50	µg/L	-0.025
M4-PFHpA	6.267	367.1 -> 322.0	31469	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	42913	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	19589	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	11632	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	15412	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	17525	1.25	µg/L	-0.051
M2-PFTeDA	9.861	715.2 -> 670.0	12600	1.25	µg/L	-0.050
M8-FOSA	9.186	506.1 -> 77.8	13229	2.50	µg/L	0.000
M3-PFBS	5.226	302.1 -> 79.9	7608	2.50	µg/L m	-0.025
M3-PFHxS	7.078	402.1 -> 79.9	6405	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	8679	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	994	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1784	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	2585	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	14364	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	69355	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	20652	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	63582	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	82135	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	7259	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	5609	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	8157	2.50	µg/L	-0.037
13C3-PFBA	2.768	216.0 -> 172.0	31233	5.00	µg/L m	0.000
18O2-PFHxS	7.077	403.0 -> 83.9	3708	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	46040	2.50	µg/L	-0.025
13C2-PFDA	8.041	515.1 -> 470.1	16201	1.25	µg/L	-0.037
13C5-PFNA	7.519	468.0 -> 423.0	17229	1.25	µg/L	-0.025
13C2-PFHxA	5.285	315.1 -> 270.0	33527	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	994	7.75	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 155.0%			
13C2-6:2FTS	6.698	429.1 -> 80.9	1784	6.31	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.3%			
13C2-8:2FTS	7.814	529.1 -> 80.9	2585	6.09	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.8%			
13C2-PFDoDA	9.015	615.1 -> 570.0	17525	1.37	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.3%			
13C2-PFTeDA	9.861	715.2 -> 670.0	12600	1.16	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.5%			
13C3-PFBS	5.226	302.1 -> 79.9	7608	3.35	µg/L m	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 134.1%			
13C3-PFHxS	7.078	402.1 -> 79.9	6405	2.82	µg/L	-0.025

7.4.1  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.8%		
13C4-PFBA	2.765	216.8 -> 171.9	67971	11.36	µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 113.6%		
13C4-PFHpA	6.267	367.1 -> 322.0	31469	2.81	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.4%		
13C5-PFHxA	5.284	318.0 -> 273.0	35481	2.82	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.8%		
13C5-PFPeA	4.103	268.3 -> 223.0	41940	5.81	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.2%		
13C6-PFDA	8.040	519.1 -> 474.1	11632	1.36	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.2%		
13C7-PFUnDA	8.547	570.0 -> 525.1	15412	1.44	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 115.5%		
13C8-FOSA	9.186	506.1 -> 77.8	13229	2.69	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.8%		
13C8-PFOA	6.949	421.1 -> 376.0	42913	2.85	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.0%		
13C8-PFOS	8.230	507.1 -> 79.9	8679	2.55	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%		
13C9-PFNA	7.519	472.1 -> 427.0	19589	1.40	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.9%		
d3-MeFOSAA	8.074	573.2 -> 419.0	14364	6.58	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 131.6%		
13C3-HFPO-DA	5.676	286.9 -> 168.9	69355	11.08	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 110.8%		
d3-MeFOSA	10.417	515.0 -> 219.0	5609	2.46	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%		
d5-EtFOSAA	8.296	589.2 -> 419.0	20652	6.93	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 138.5%		
d7-MeFOSE	10.301	623.2 -> 58.9	63582	26.77	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.1%		
d9-EtFOSE	10.610	639.2 -> 58.9	82135	24.32	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.3%		
d5-EtFOSA	10.712	531.1 -> 219.0	7259	2.39	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%		
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.948	327.1 -> 307.0	10315	8.81	µg/L	96
		327.1 -> 80.9	5874			
6:2FTS	6.699	427.1 -> 407.0	13797	9.86	µg/L	97
		427.1 -> 80.9	5543			
8:2FTS	7.815	527.1 -> 507.0	10119	9.43	µg/L	93
		527.1 -> 80.8	4417			
EtFOSAA	8.297	584.2 -> 419.1	6206	2.37	µg/L m	97
		584.2 -> 526.0	2645			
FOSA	9.176	498.1 -> 77.9	9609	2.32	µg/L	100
		498.1 -> 478.0	328			
MeFOSAA	8.088	570.1 -> 419.0	5598	2.31	µg/L m	90
		570.1 -> 483.0	1485			
PFBA	2.771	212.8 -> 168.9	22925	9.26	µg/L m	100
PFBS	5.227	298.7 -> 79.9	5082	2.11	µg/L m	100
		298.7 -> 98.8	2362			
PFDA	8.041	512.9 -> 469.0	24605	2.38	µg/L	98
		512.9 -> 219.0	4548			
PFDODA	9.016	613.1 -> 569.0	25518	2.40	µg/L	98
		613.1 -> 319.0	4035			
PFDS	9.206	599.0 -> 79.9	4250	2.30	µg/L	94

7.4.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2298			
PFHpA	6.267	363.1 -> 319.0	31380	2.45	µg/L	m 97
		363.1 -> 169.0	6798			
PFHpS	7.685	449.0 -> 79.9	5523	2.40	µg/L	97
		449.0 -> 98.9	3034			
PFHxA	5.286	313.0 -> 269.0	22213	2.48	µg/L	100
		313.0 -> 118.9	983			
PFHxS	7.079	398.7 -> 79.9	5294	2.36	µg/L	m 99
		398.7 -> 98.9	2792			
PFNA	7.520	463.0 -> 419.0	23080	2.42	µg/L	100
		463.0 -> 219.0	5184			
PFNS	8.735	548.8 -> 79.9	4170	2.43	µg/L	99
		548.8 -> 98.9	2389			
PFOA	6.950	413.0 -> 369.0	37262	2.43	µg/L	m 98
		413.0 -> 169.0	8973			
PFOS	8.232	498.9 -> 79.9	7310	2.41	µg/L	m 99
		498.9 -> 98.8	3896			
PFPeA	4.104	263.0 -> 219.0	39378	4.82	µg/L	100
PFPeS	6.331	349.1 -> 79.9	4397	2.14	µg/L	94
		349.1 -> 98.9	2328			
PFTeDA	9.861	713.1 -> 669.0	22039	2.38	µg/L	100
		713.1 -> 168.9	2987			
PFTrDA	9.452	663.0 -> 619.0	27037	2.28	µg/L	99
		663.0 -> 168.9	4549			
PFUnDA	8.547	563.1 -> 519.0	27192	2.45	µg/L	96
		563.1 -> 269.1	5638			
11CI-PF3OUdS	9.516	630.9 -> 450.9	38948	4.94	µg/L	100
		632.9 -> 452.9	12399			
9CI-PF3ONS	8.600	530.8 -> 351.0	44261	5.30	µg/L	100
		532.8 -> 353.0	13701			
ADONA	6.530	376.9 -> 250.9	104307	5.45	µg/L	100
		376.9 -> 84.8	30003			
HFPO-DA	5.677	284.9 -> 168.9	31064	5.70	µg/L	99
		284.9 -> 184.9	2791			
3:3FTCA	3.579	241.0 -> 177.0	7109	13.27	µg/L	100
		241.0 -> 117.0	755			
5:3FTCA	5.917	341.0 -> 237.1	122209	71.37	µg/L	99
		341.0 -> 217.0	81588			
7:3FTCA	7.360	441.0 -> 316.9	62495	70.70	µg/L	98
		441.0 -> 336.9	142351			
EtFOSA	10.713	526.0 -> 219.0	13365	5.55	µg/L	m 99
		526.0 -> 169.0	20601			
EtFOSE	10.636	630.0 -> 58.9	36815	13.53	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	10826	5.65	µg/L	m 98
		511.9 -> 169.0	17714			
MeFOSE	10.326	616.1 -> 58.9	30047	13.34	µg/L	m 100
PFDoDS	10.013	699.1 -> 79.9	3186	2.13	µg/L	100
		699.1 -> 98.8	1939			
NFDHA	5.167	295.0 -> 201.0	4784	5.49	µg/L	98
		295.0 -> 84.9	1283			
PFMBA	4.505	279.0 -> 85.1	30222	5.67	µg/L	100
PFMPA	3.290	229.0 -> 84.9	25722	6.06	µg/L	100
PFEESA	5.795	314.8 -> 134.9	57601	4.96	µg/L	99
		314.8 -> 82.9	1687			

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

### Perfluorinated Compounds by LC/MS/MS

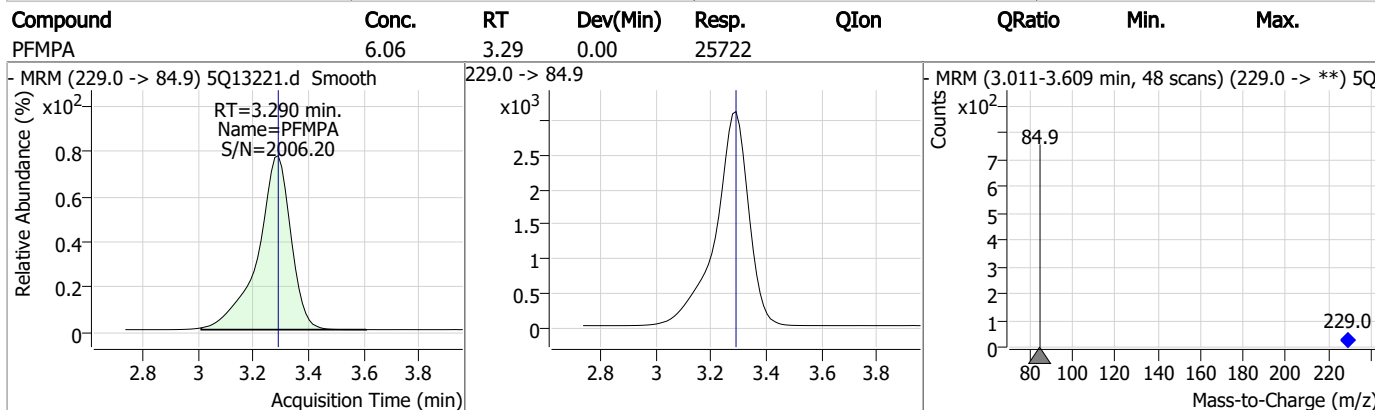
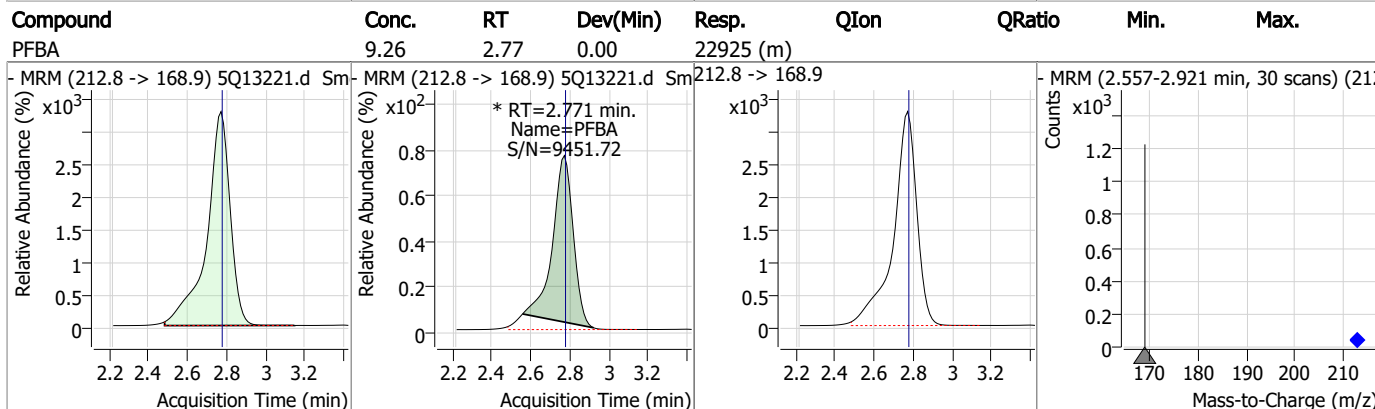
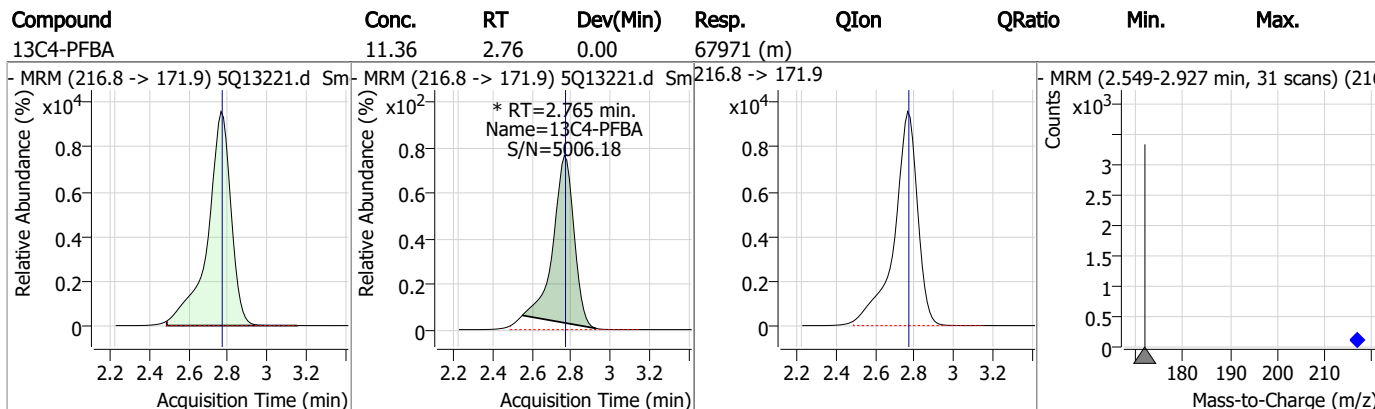
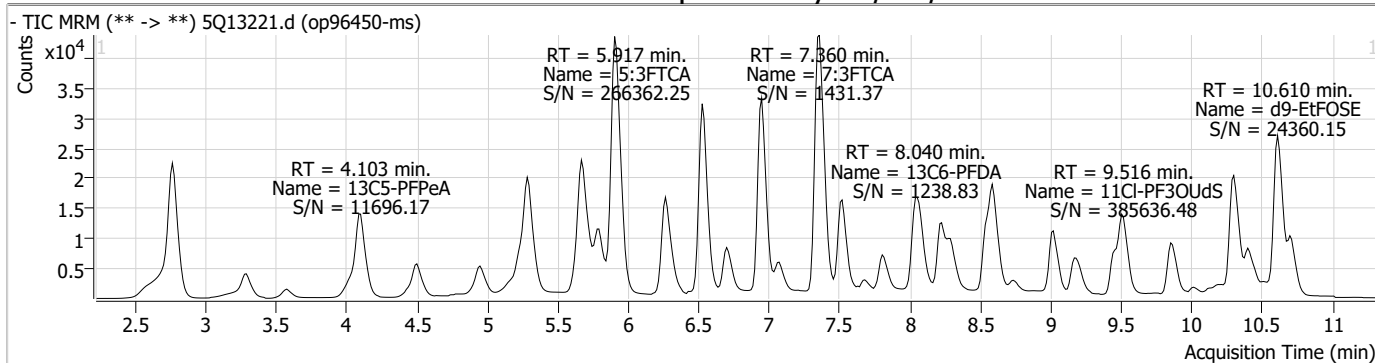
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.4.1

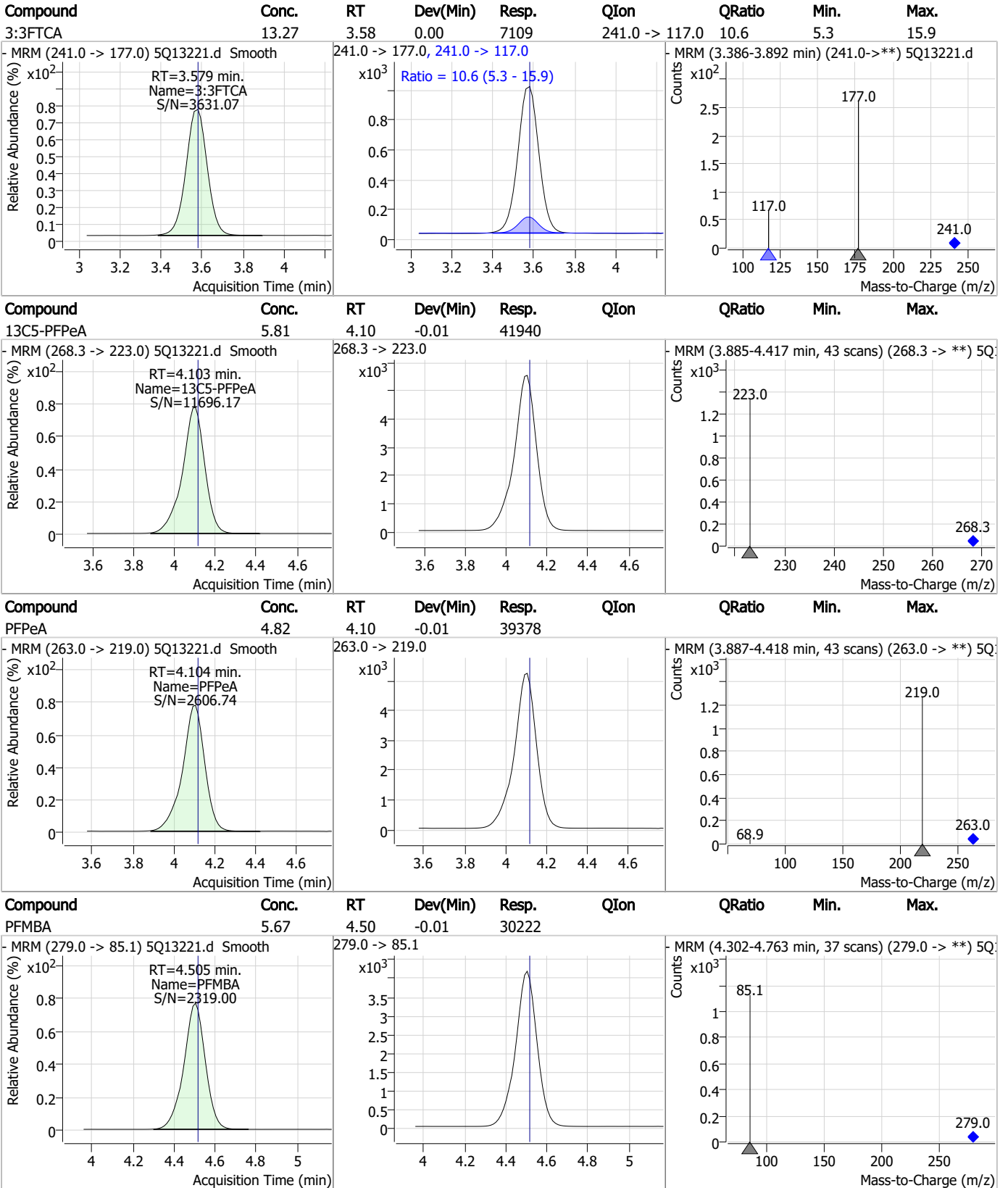
7



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

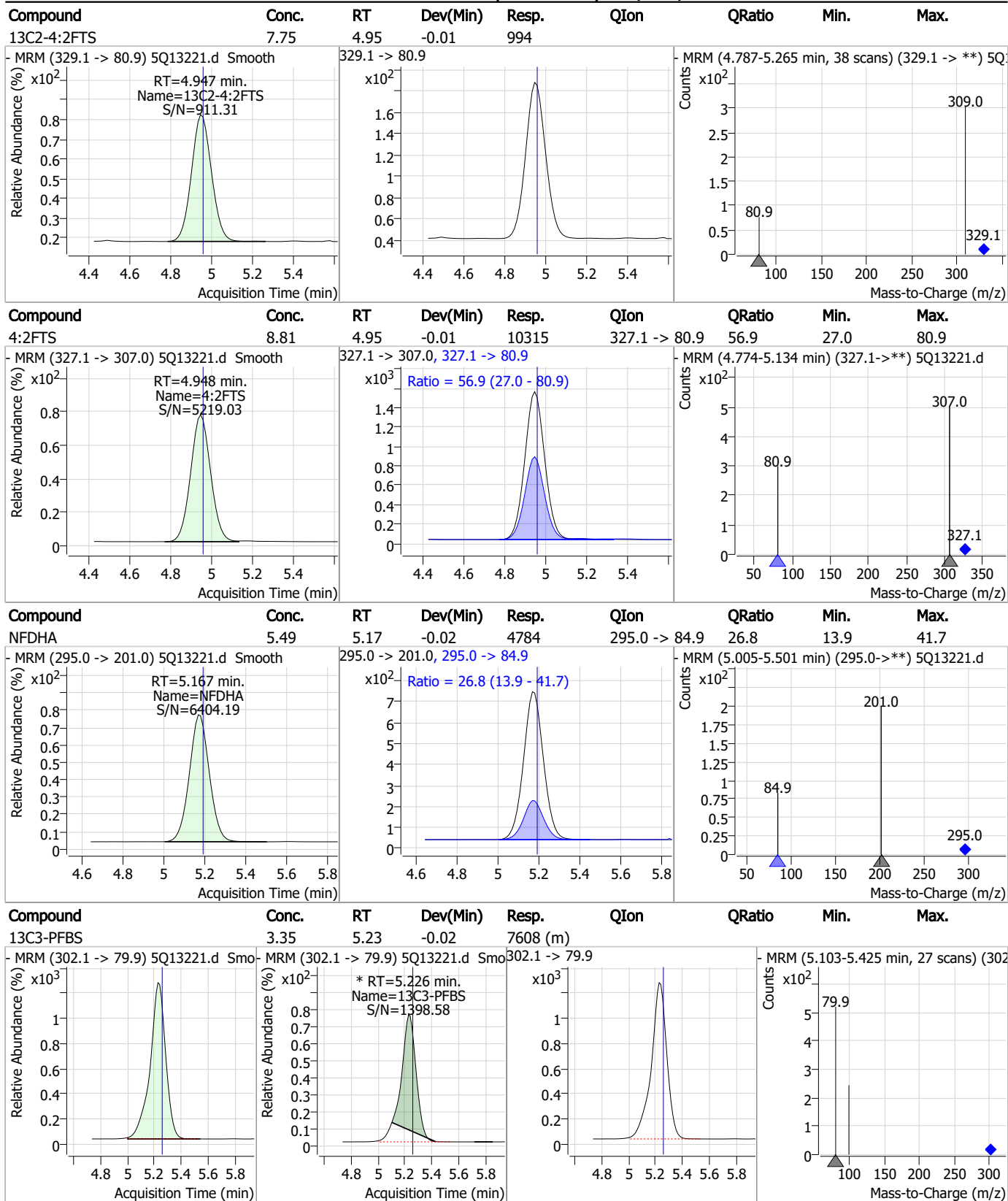


7.4.1

7

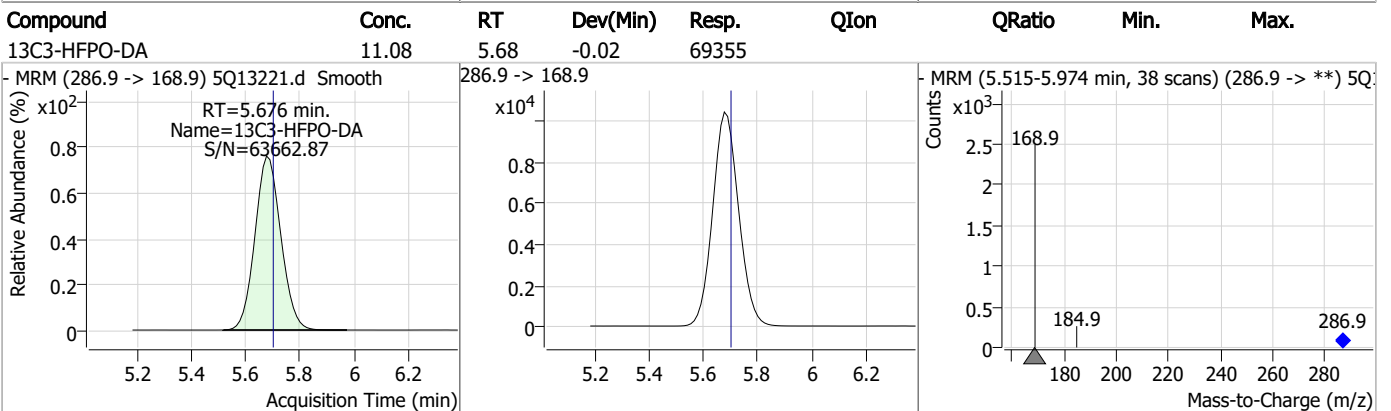
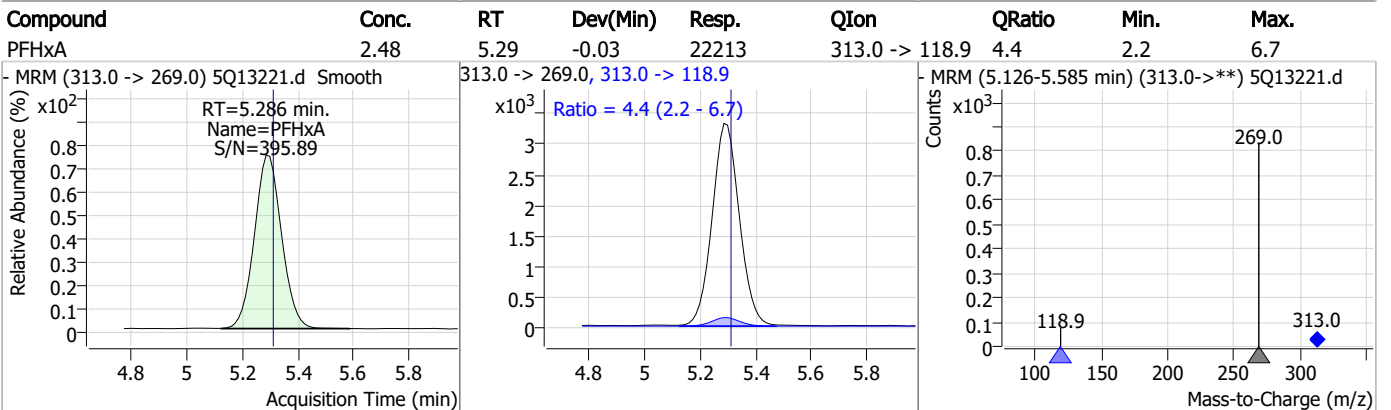
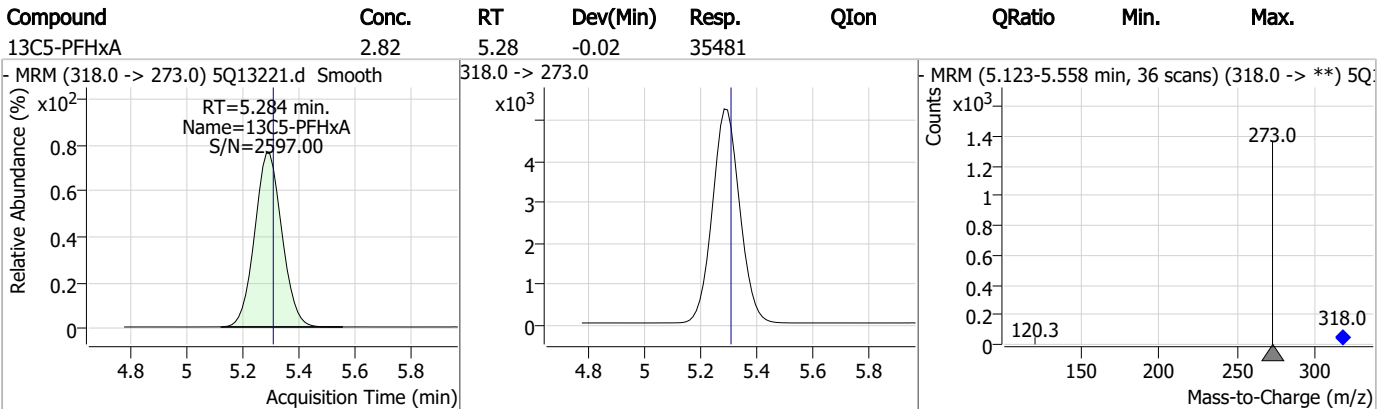
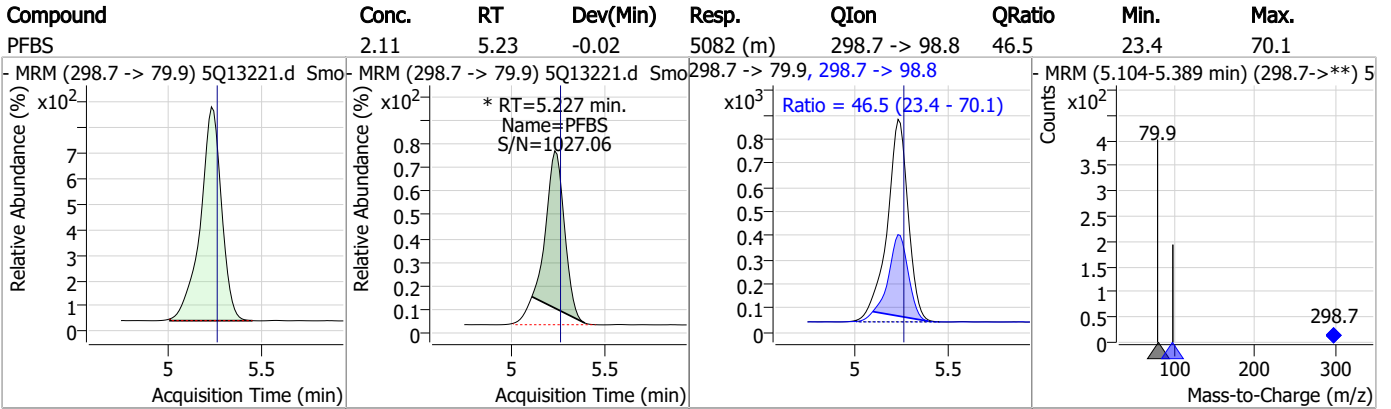


### Perfluorinated Compounds by LC/MS/MS

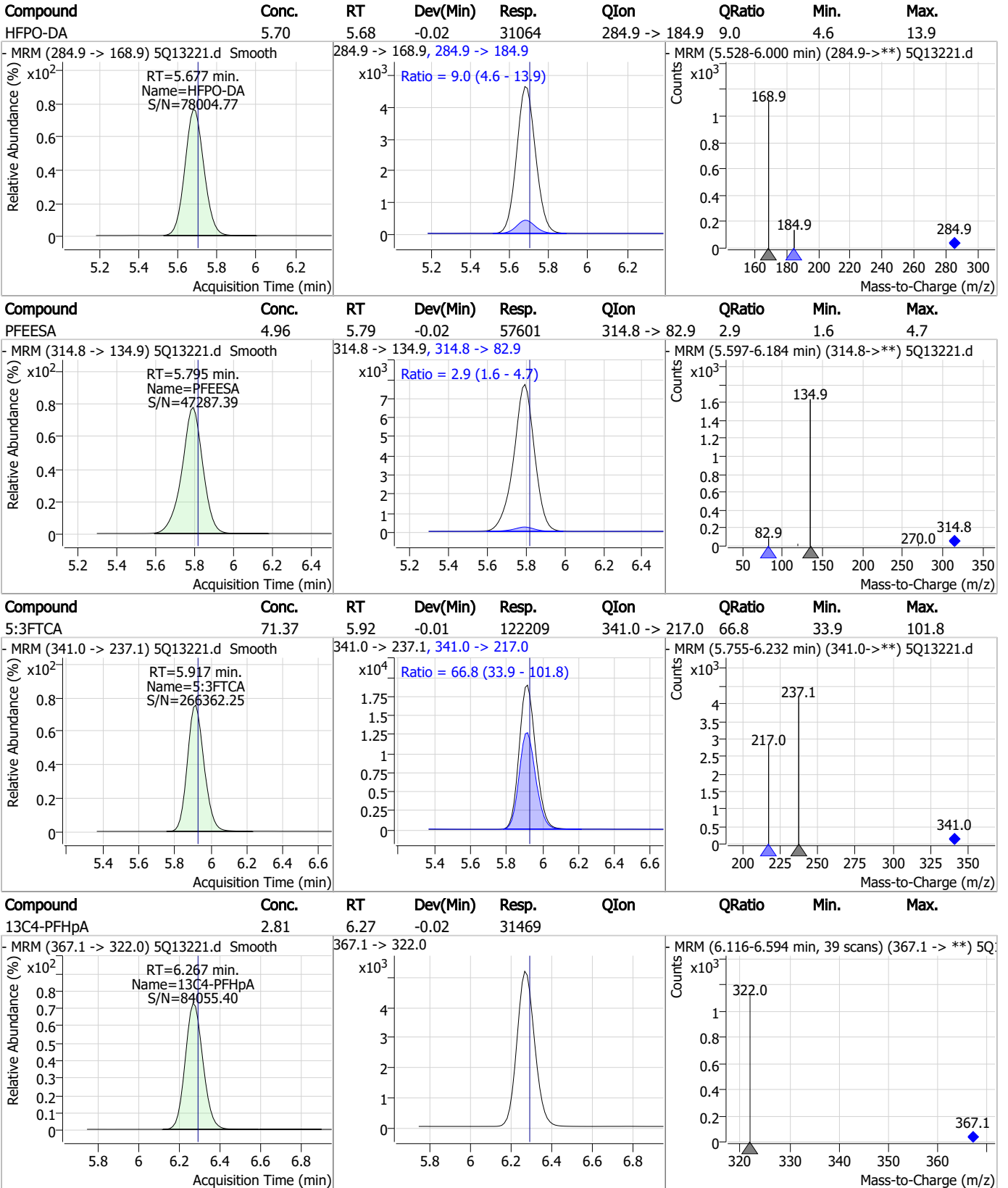


7.4.1  
7

### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

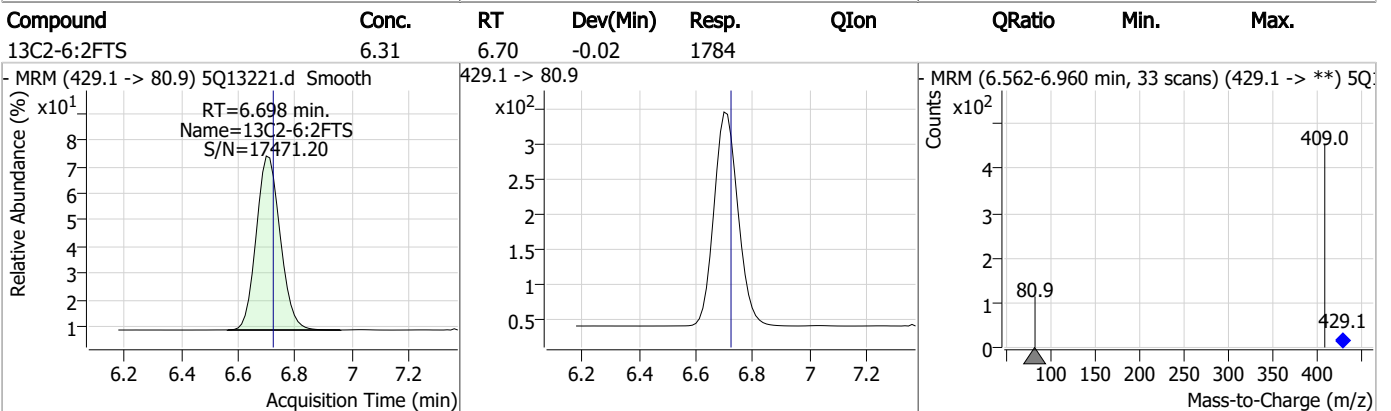
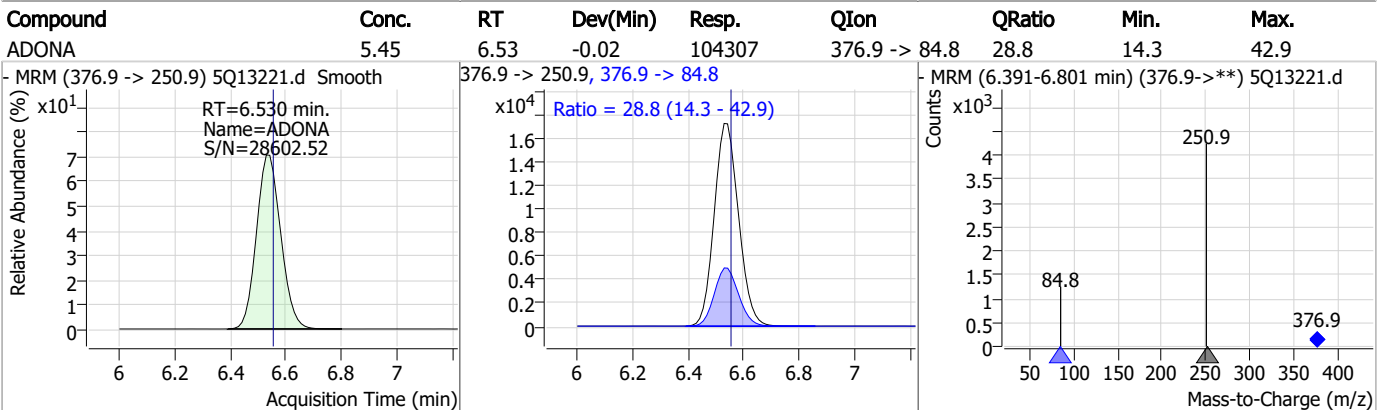
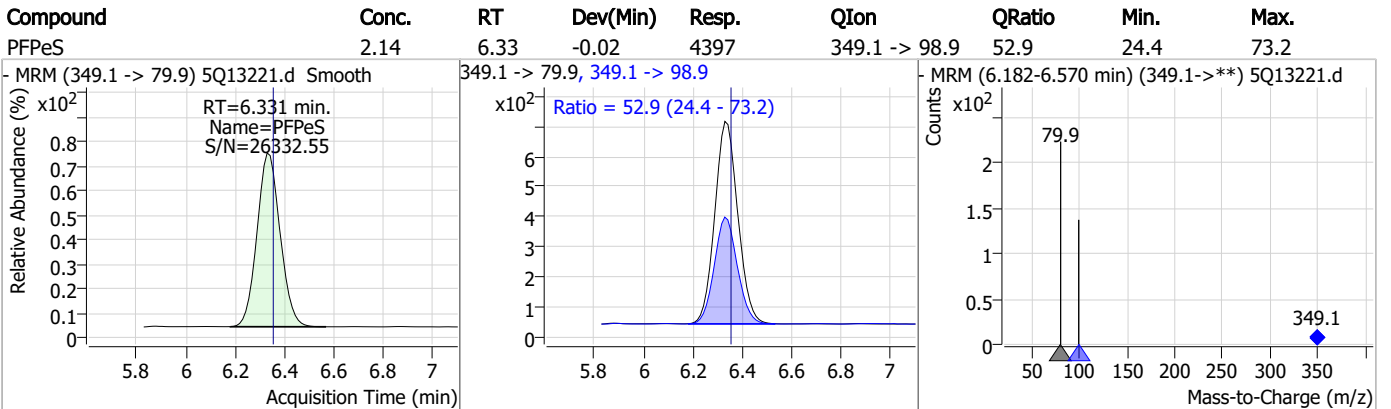
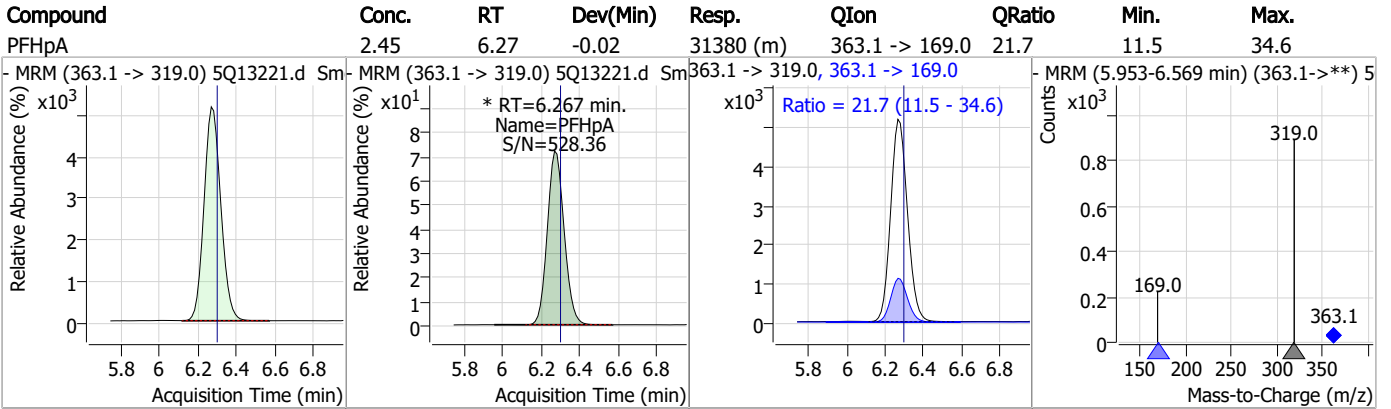


7.4.1

7



### Perfluorinated Compounds by LC/MS/MS

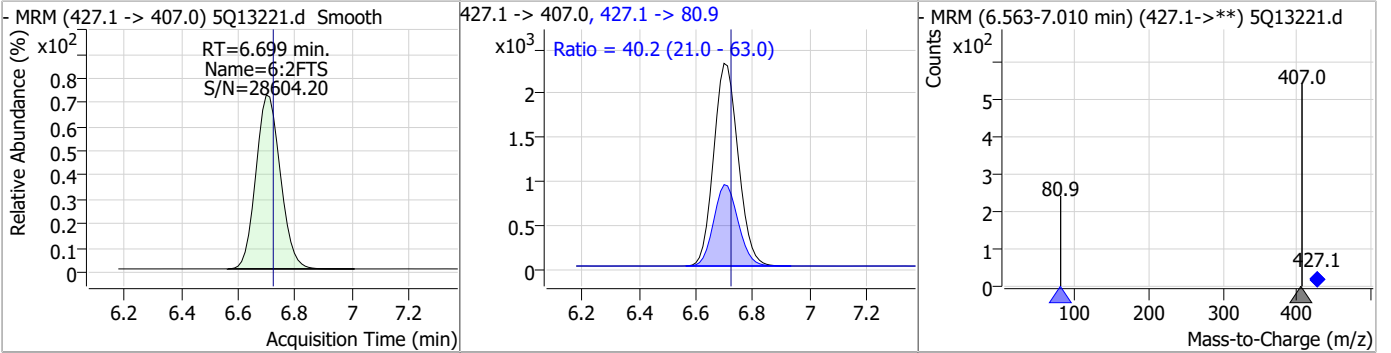


7.4.1

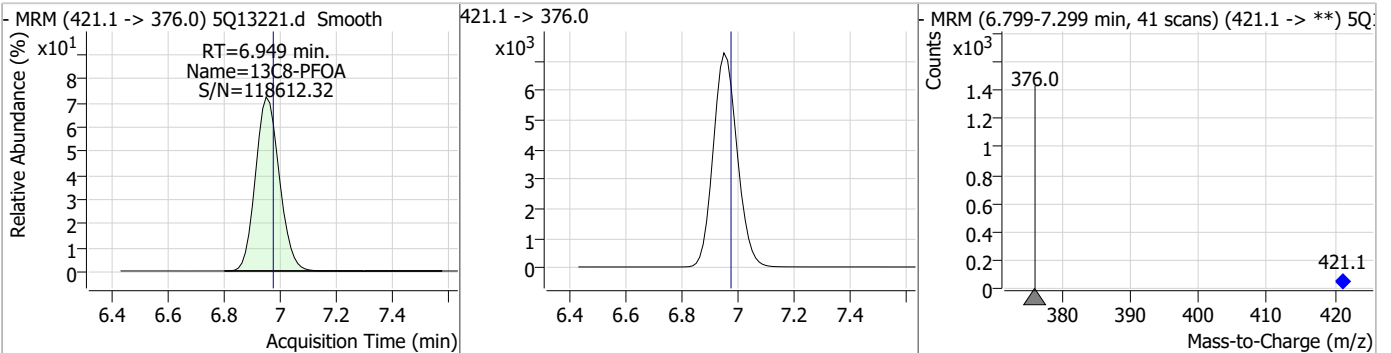
7

### Perfluorinated Compounds by LC/MS/MS

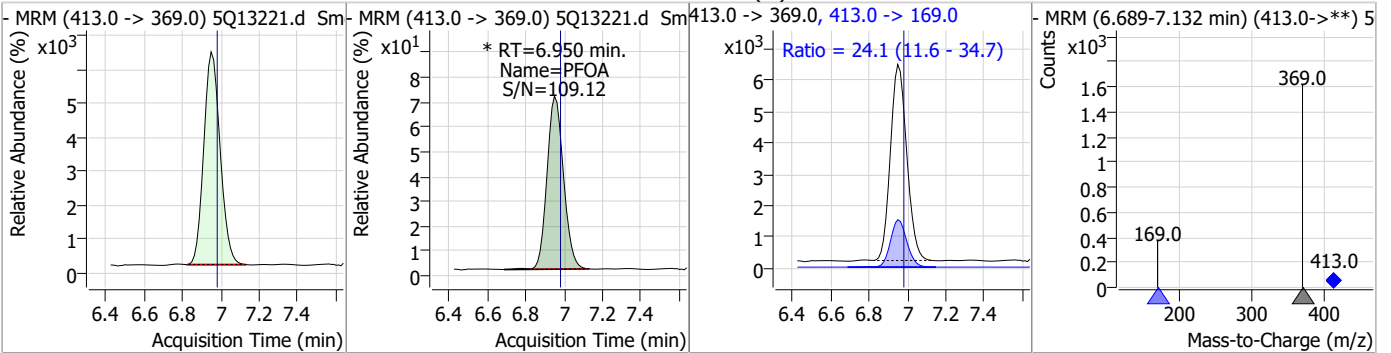
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	9.86	6.70	-0.02	13797	427.1 -> 80.9	40.2	21.0	63.0



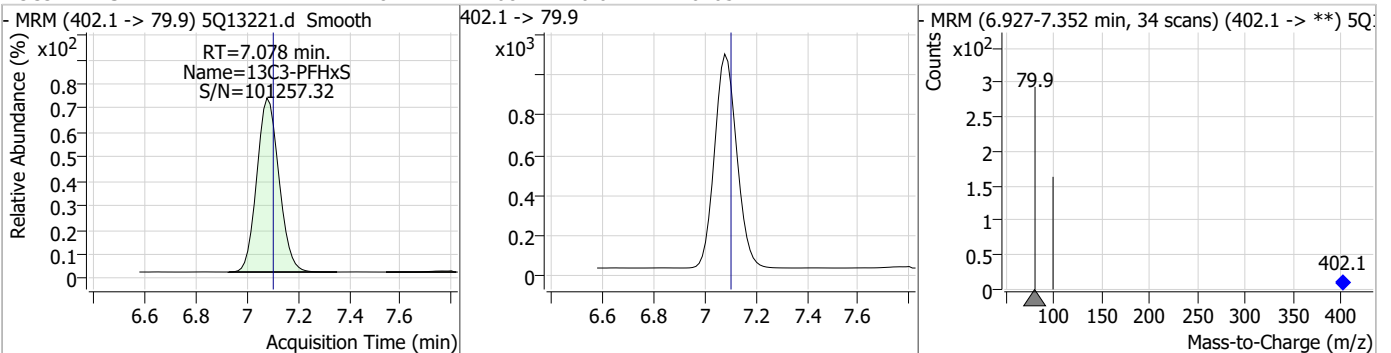
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.85	6.95	-0.03	42913				



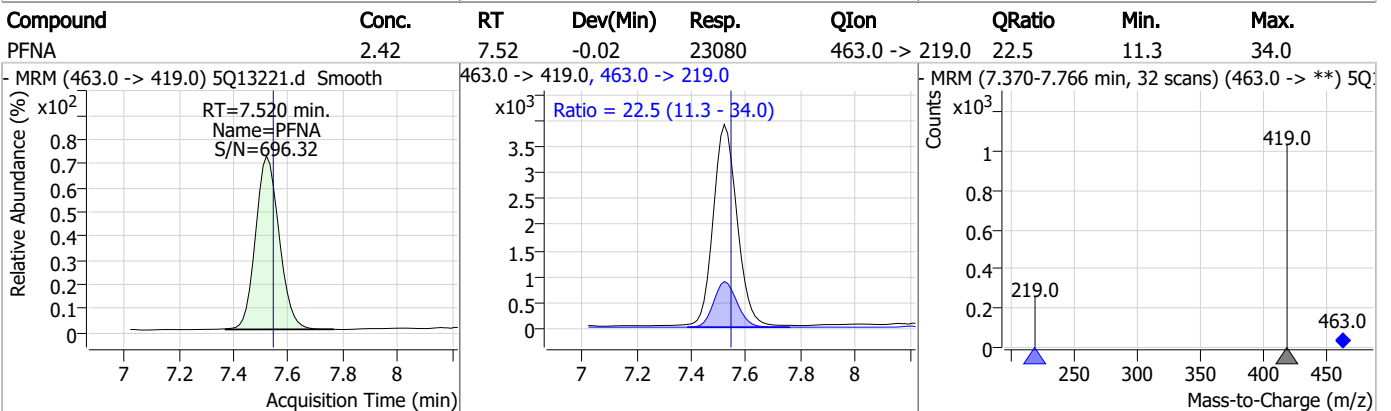
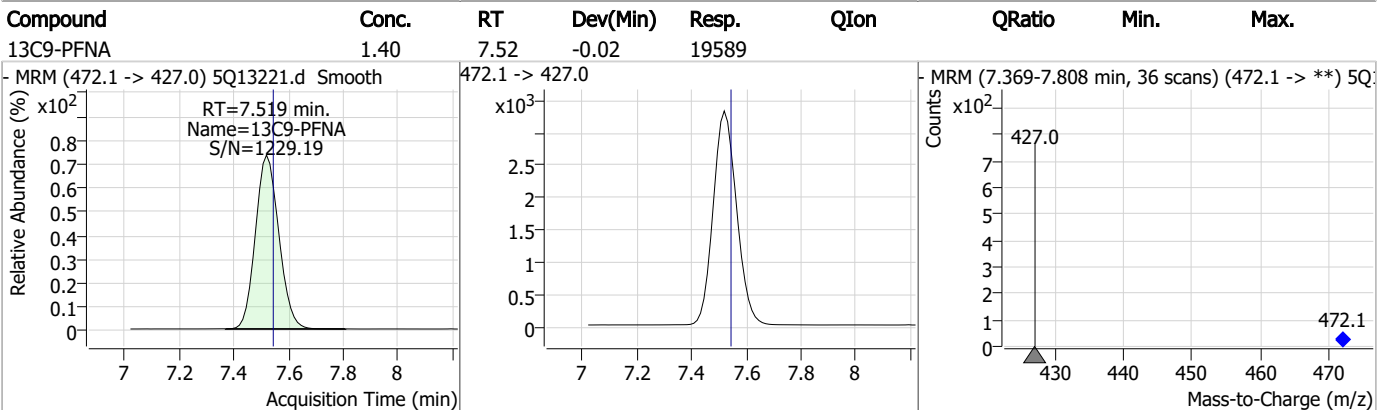
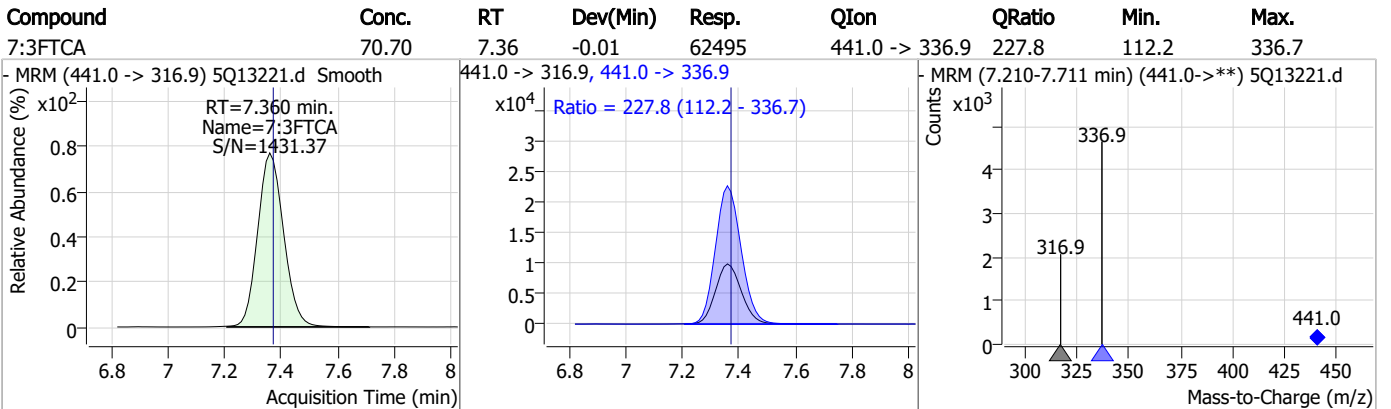
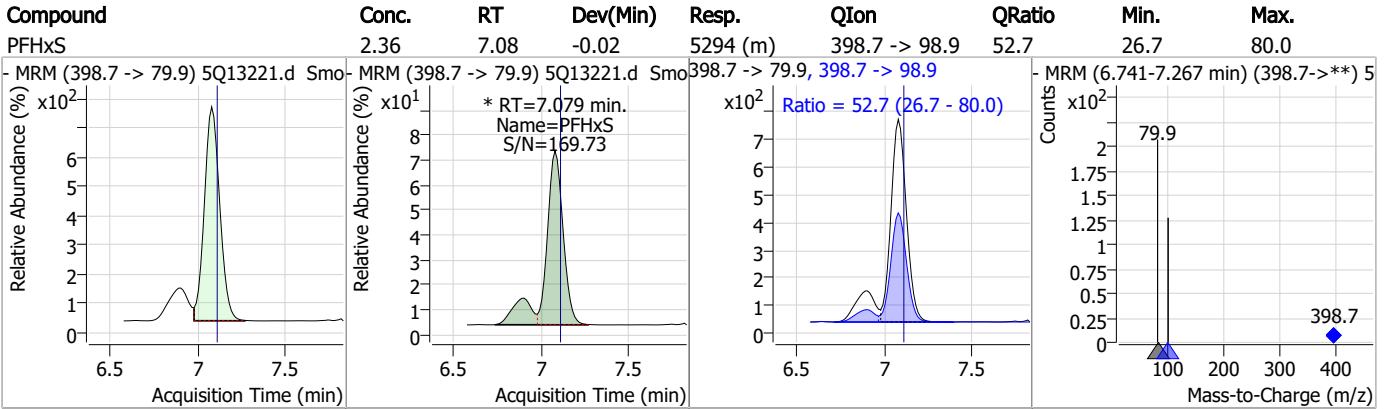
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	2.43	6.95	-0.03	37262 (m)	413.0 -> 169.0	24.1	11.6	34.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.82	7.08	-0.02	6405				



### Perfluorinated Compounds by LC/MS/MS

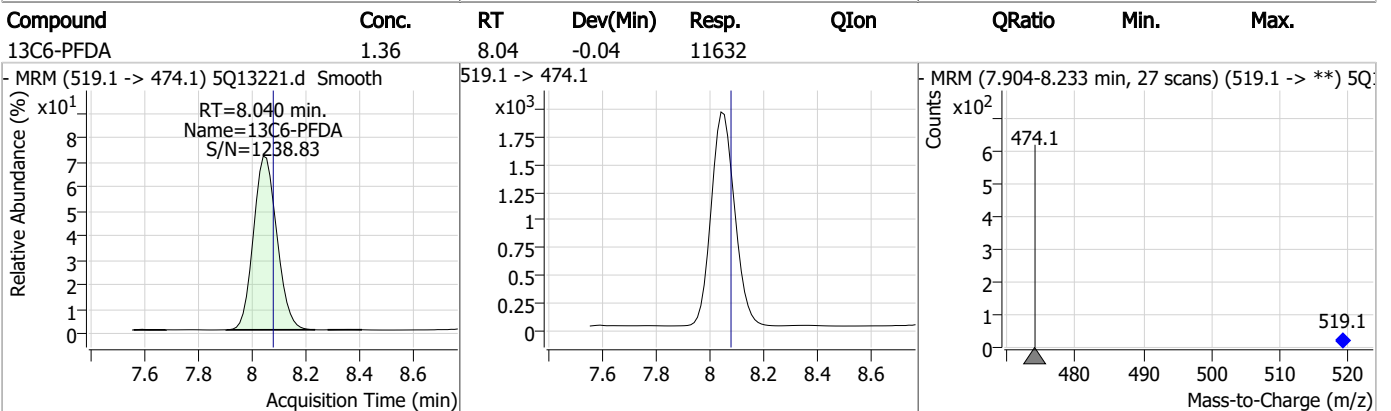
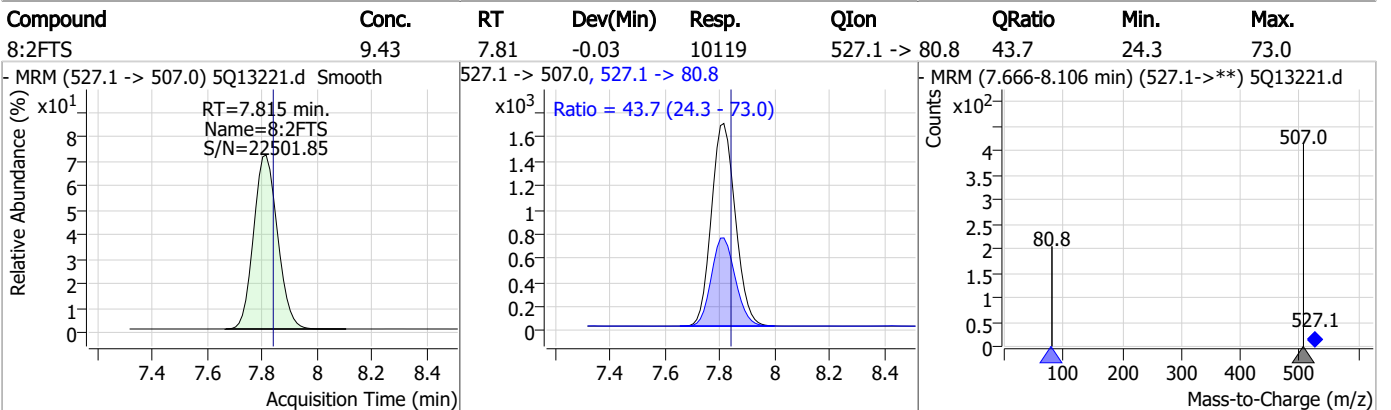
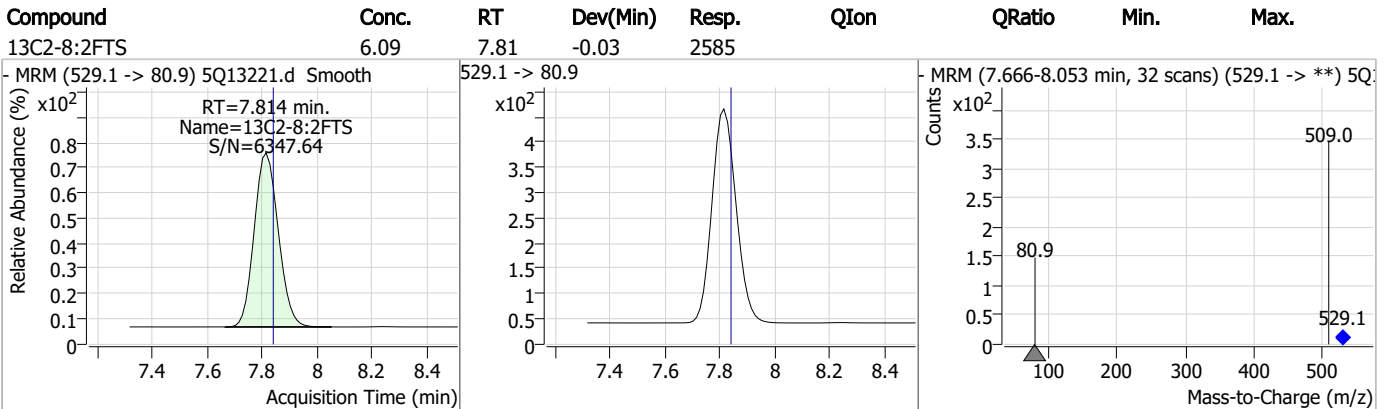
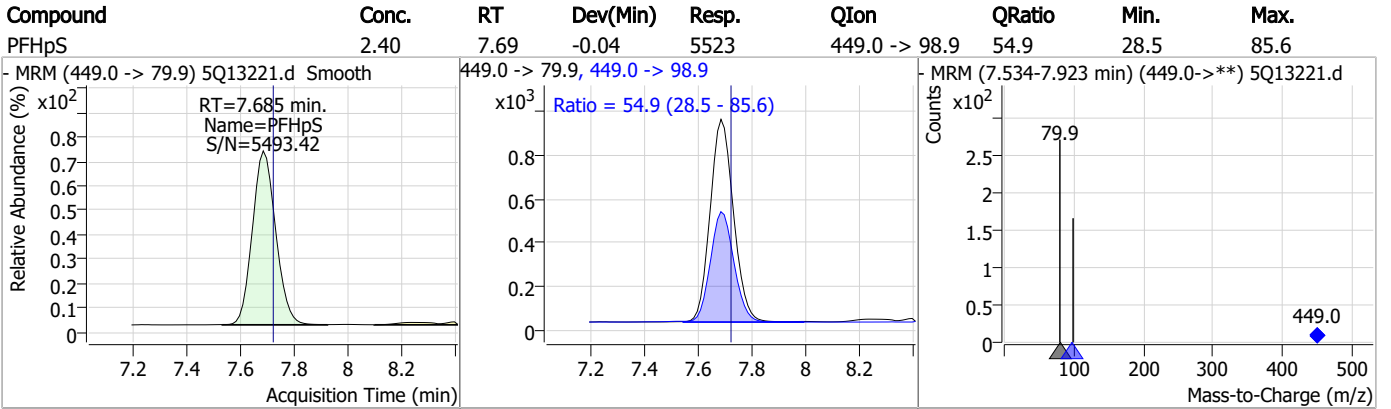


7.4.1

7



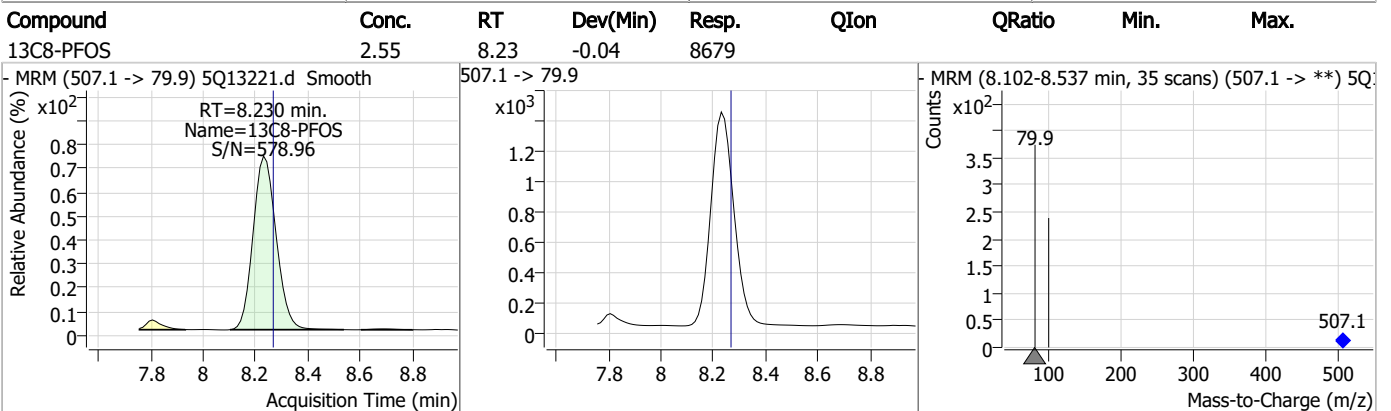
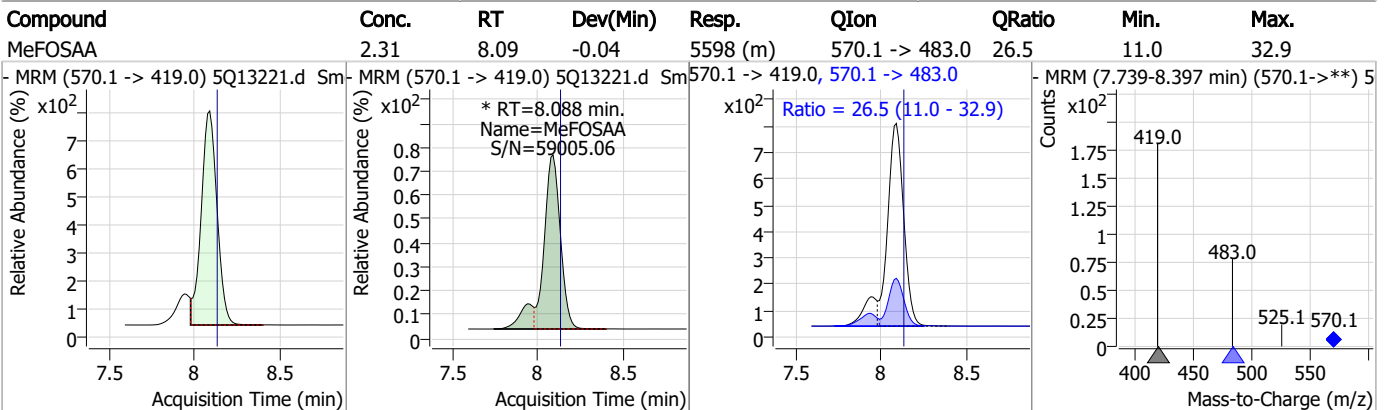
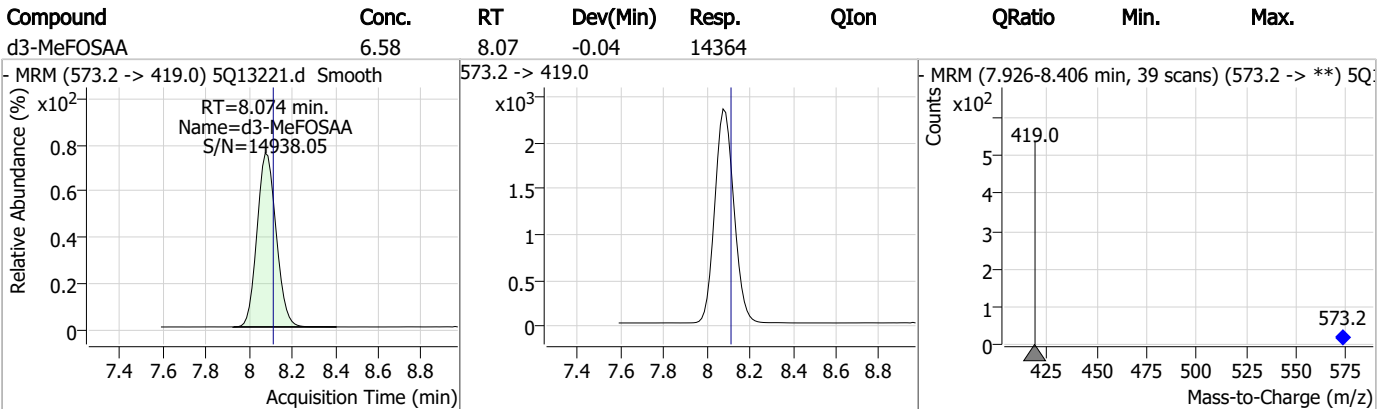
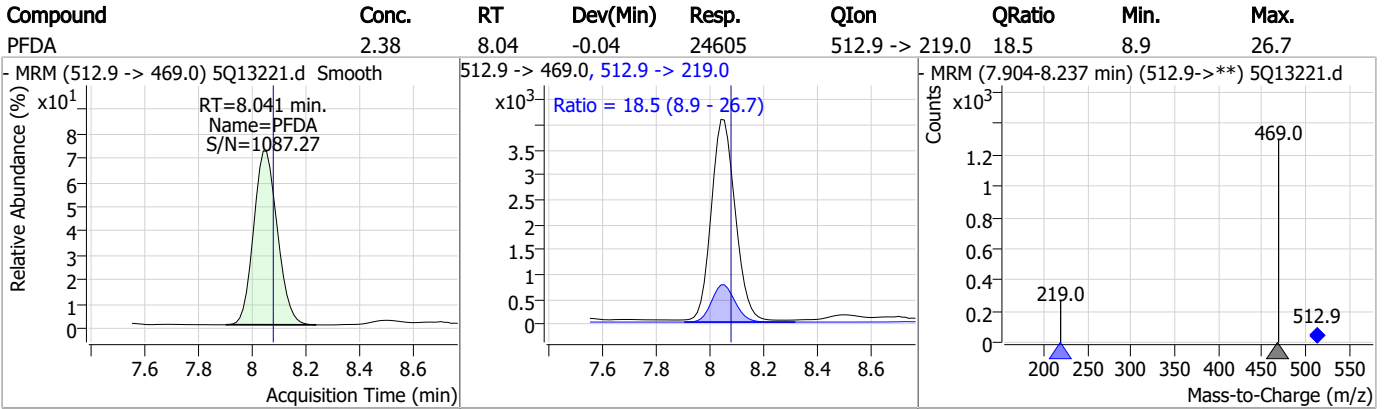
### Perfluorinated Compounds by LC/MS/MS



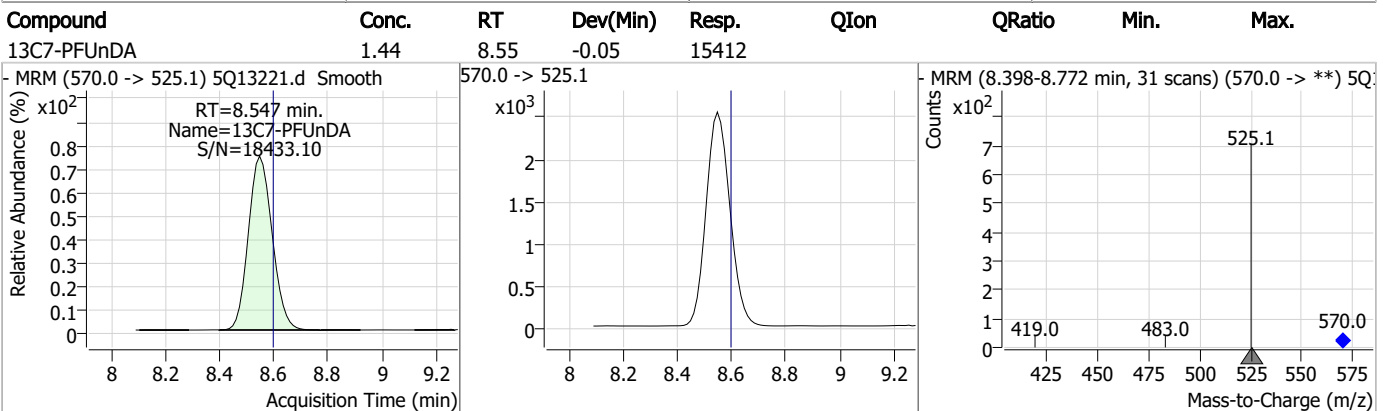
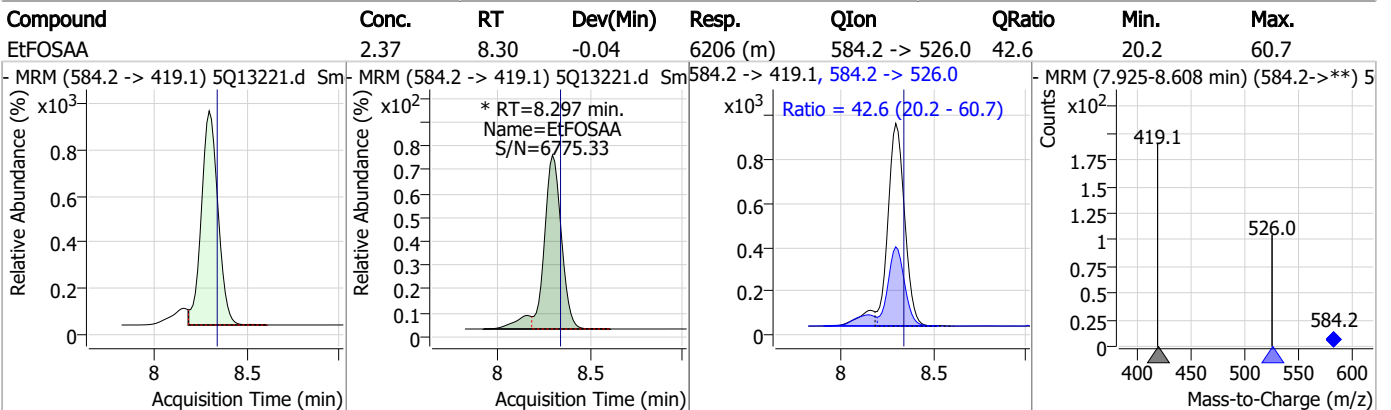
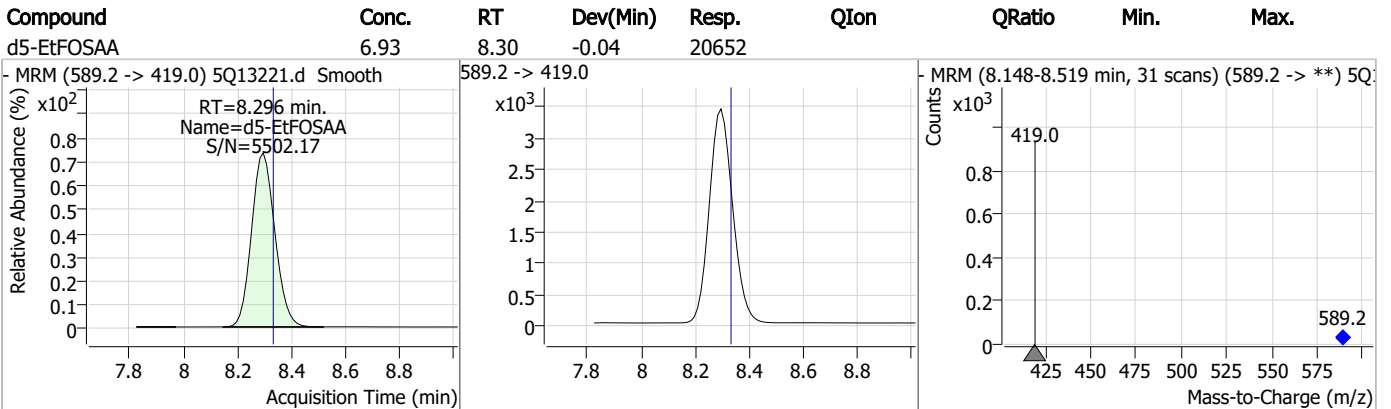
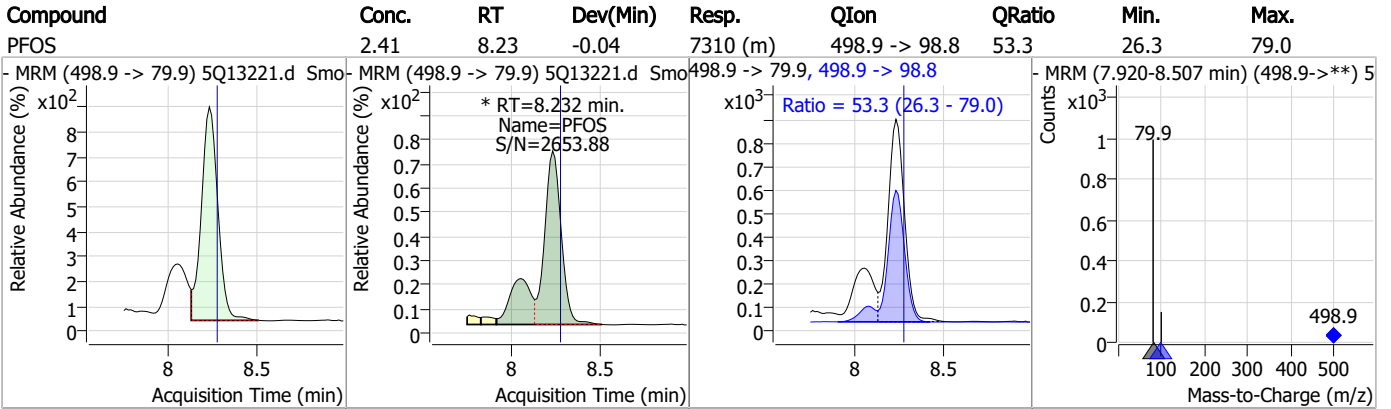
7.4.1

7

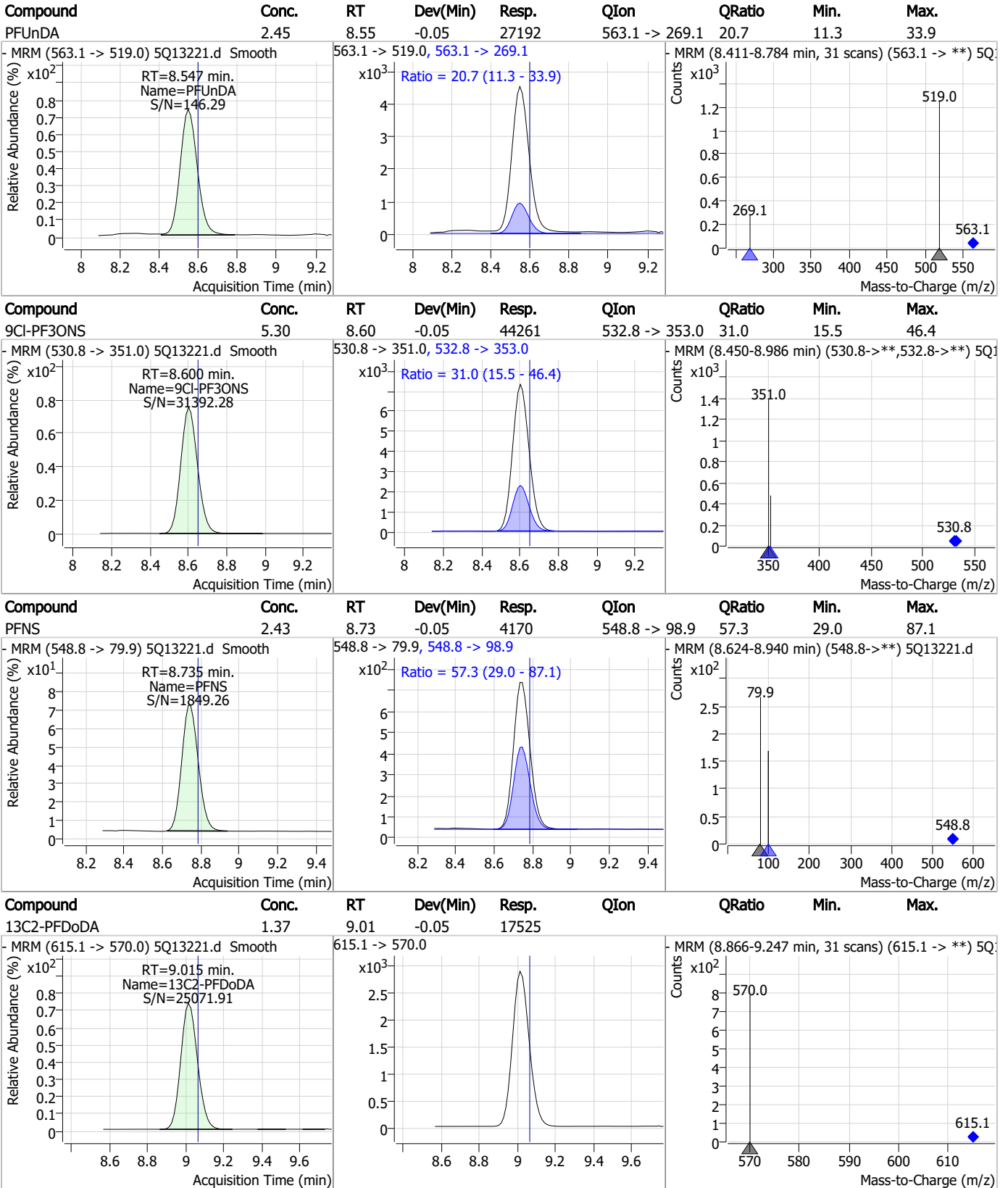
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



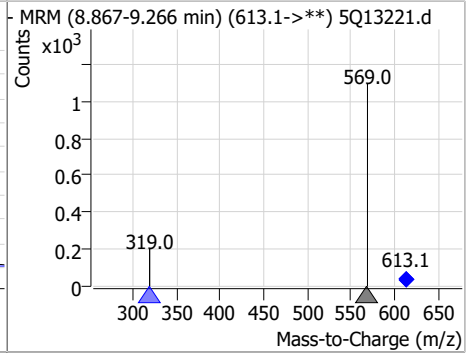
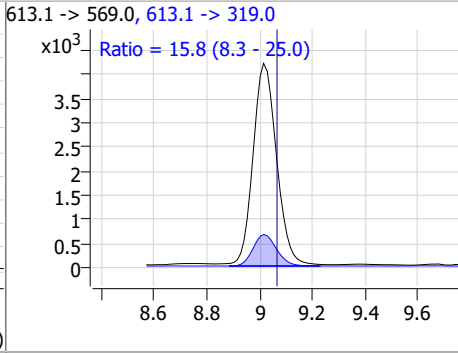
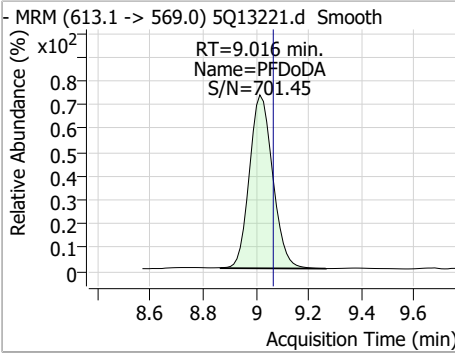
7.4.1

7

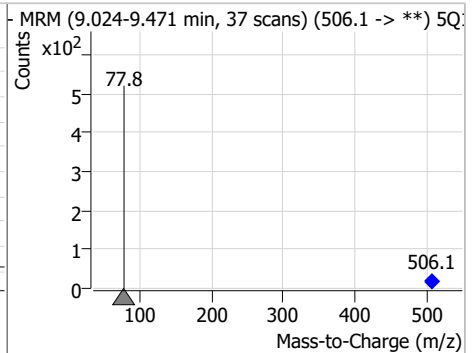
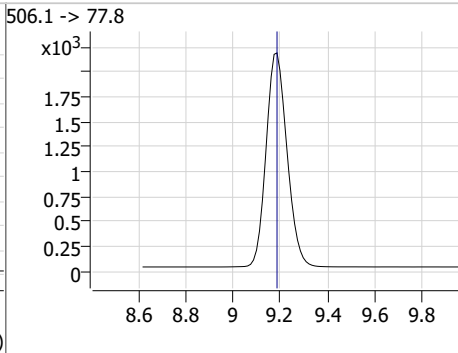
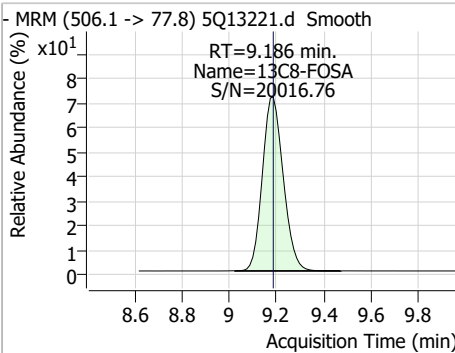


### Perfluorinated Compounds by LC/MS/MS

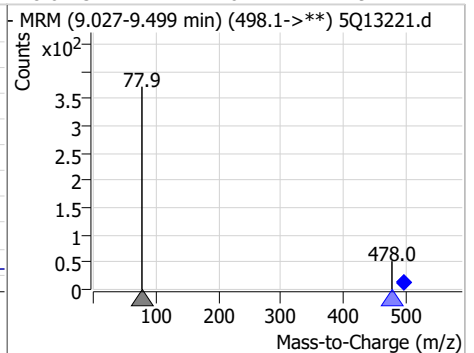
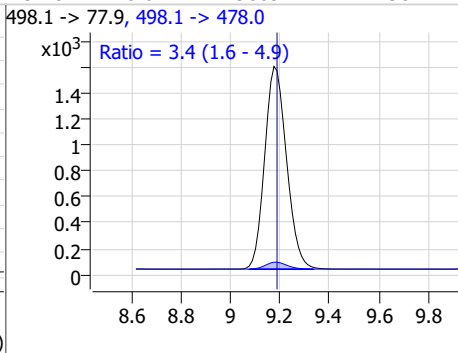
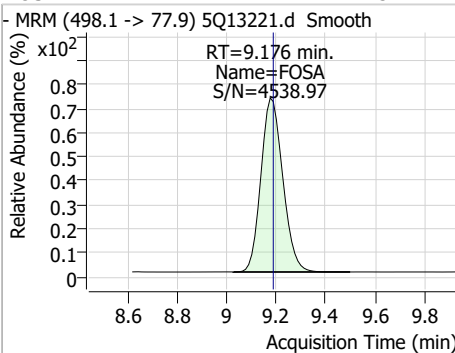
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.40	9.02	-0.05	25518	613.1 -> 319.0	15.8	8.3	25.0



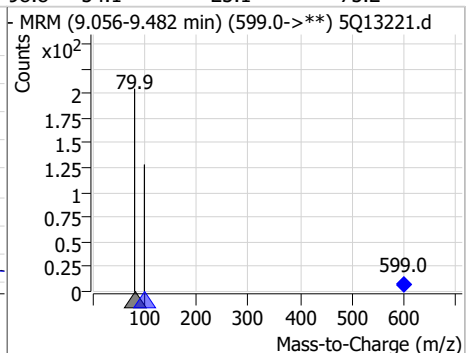
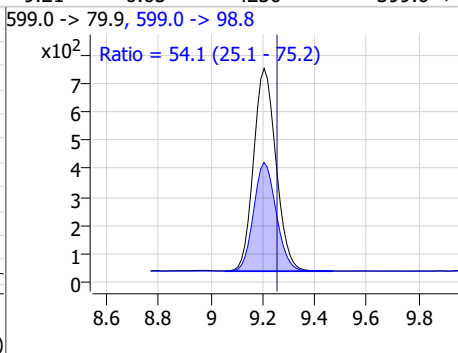
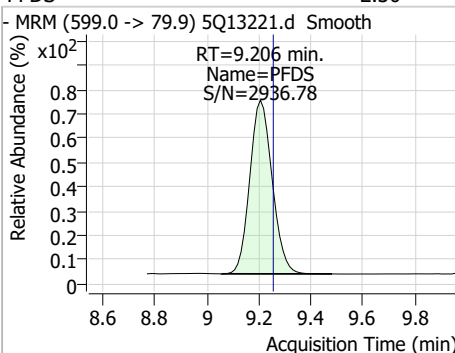
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.69	9.19	0.00	13229				



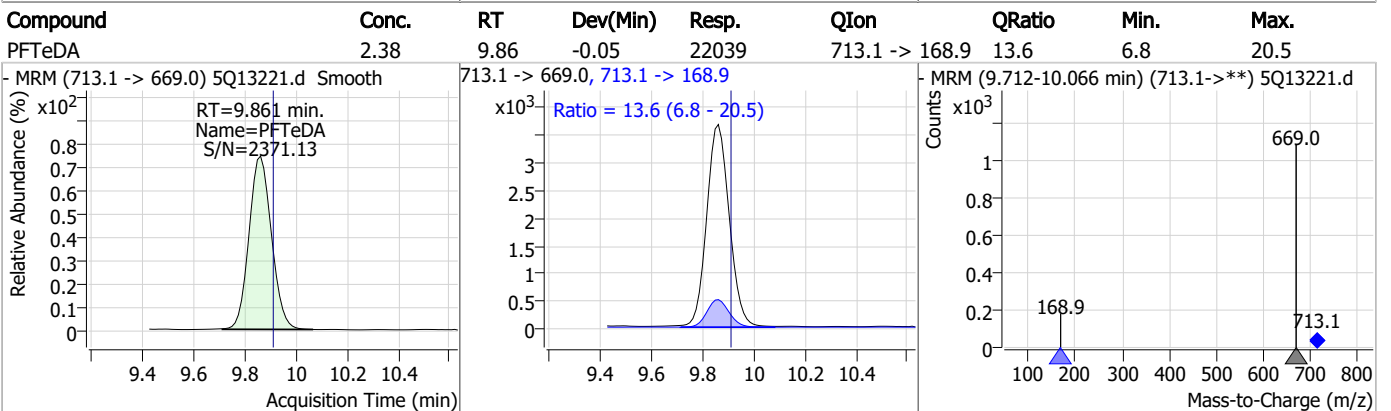
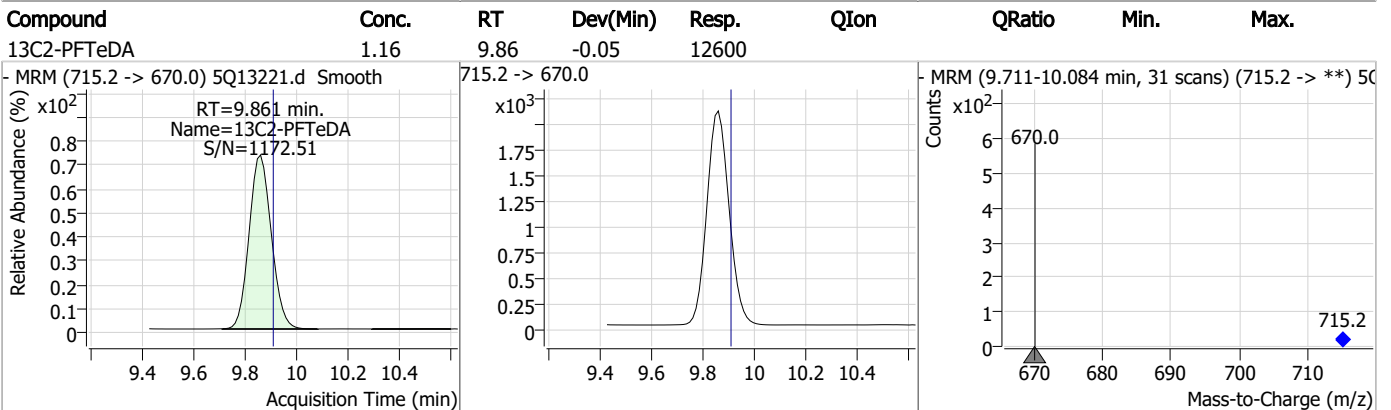
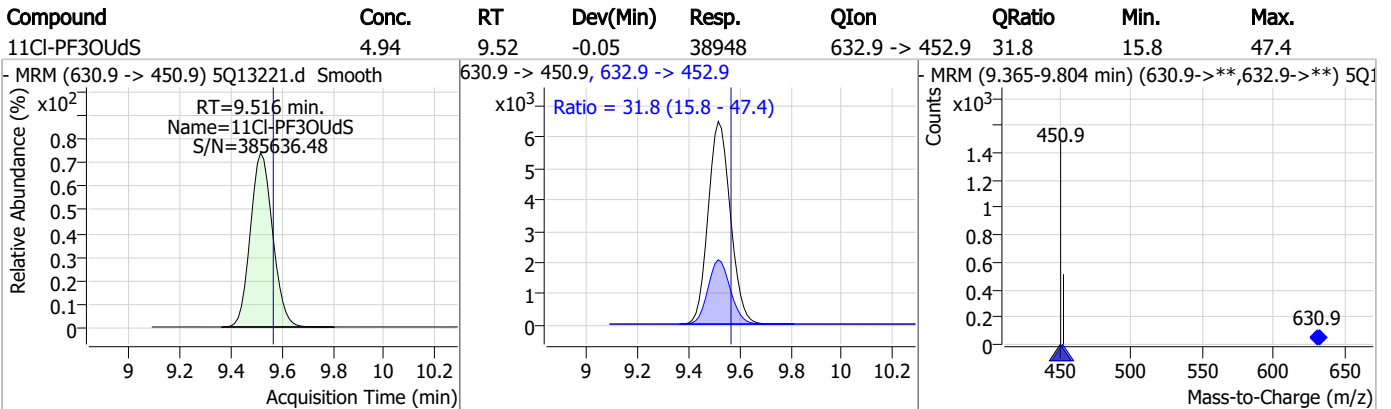
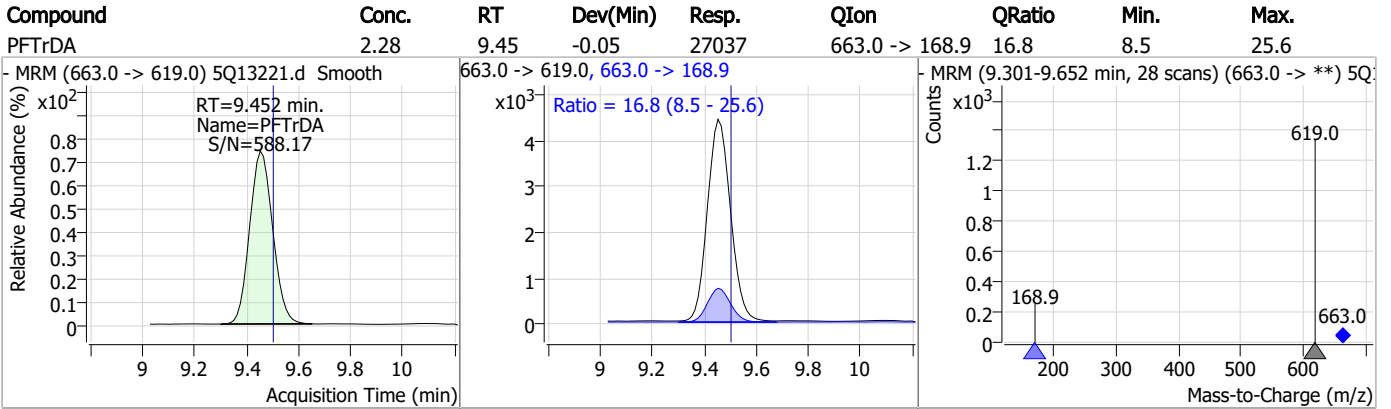
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.32	9.18	-0.01	9609	498.1 -> 478.0	3.4	1.6	4.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.30	9.21	-0.05	4250	599.0 -> 98.8	54.1	25.1	75.2



### Perfluorinated Compounds by LC/MS/MS



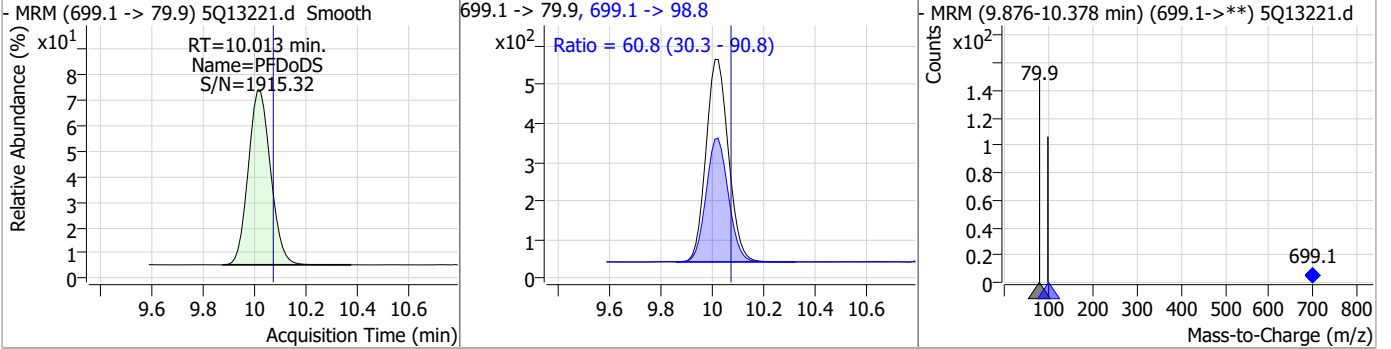
7.4.1

7

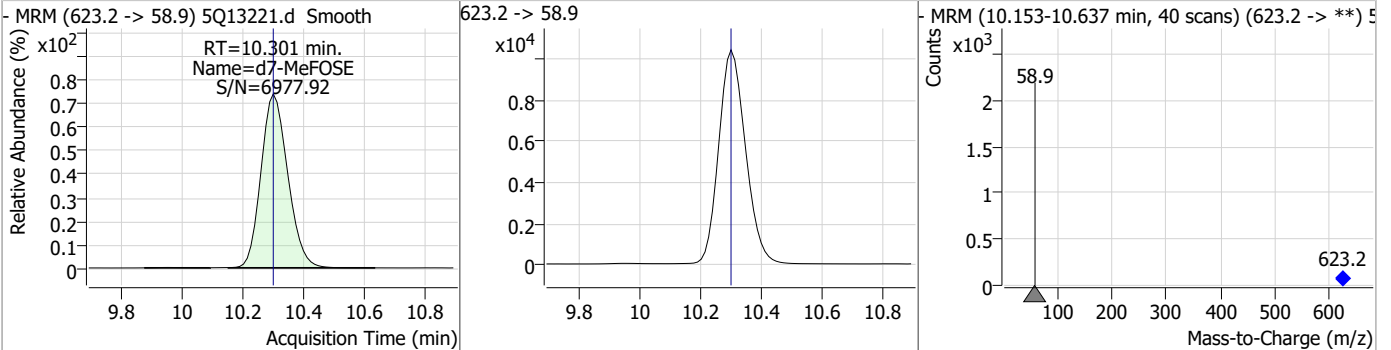


### Perfluorinated Compounds by LC/MS/MS

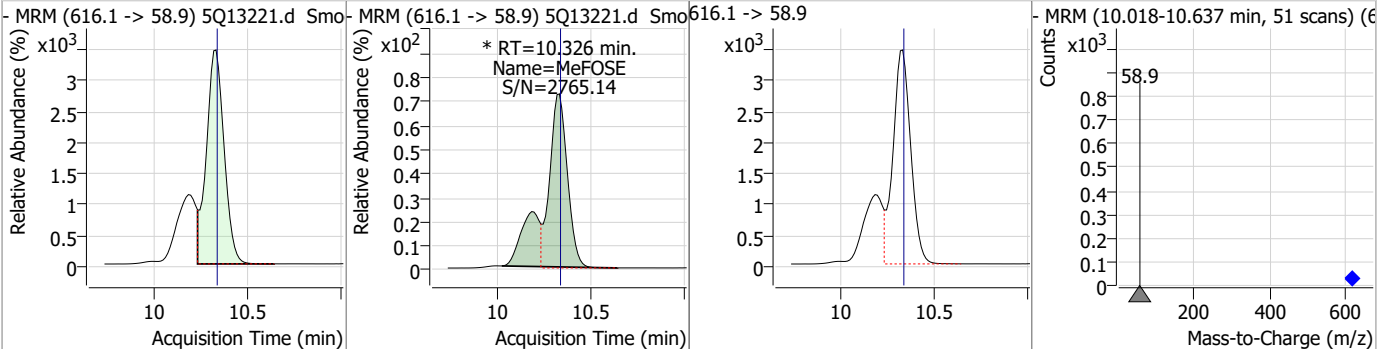
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD <sub>2</sub> DS	2.13	10.01	-0.06	3186	699.1 -> 98.8	60.8	30.3	90.8



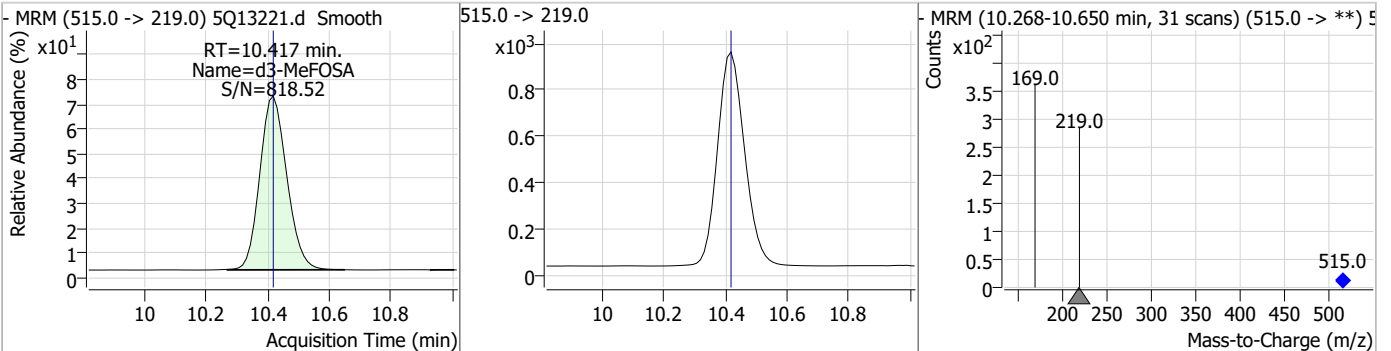
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.77	10.30	0.00	63582				



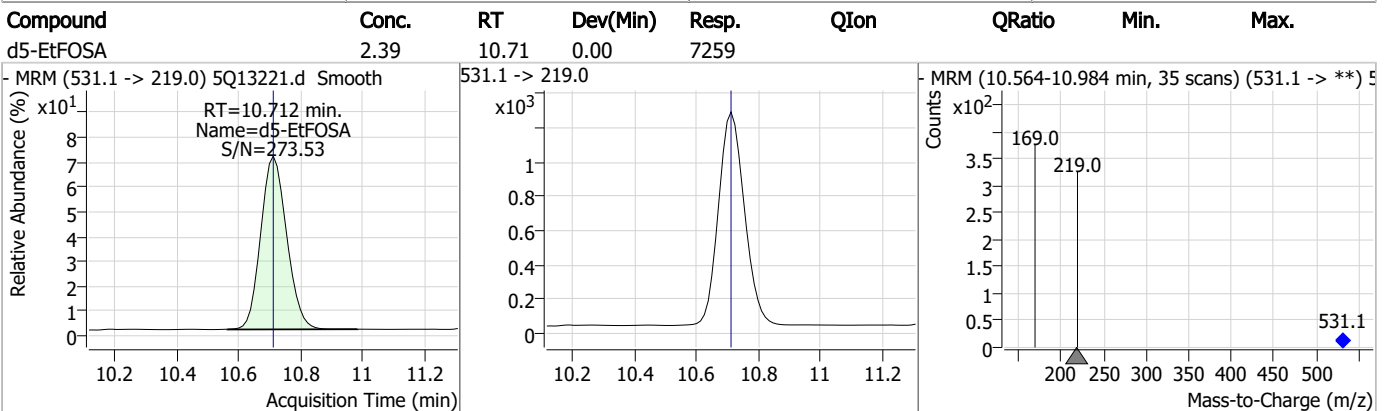
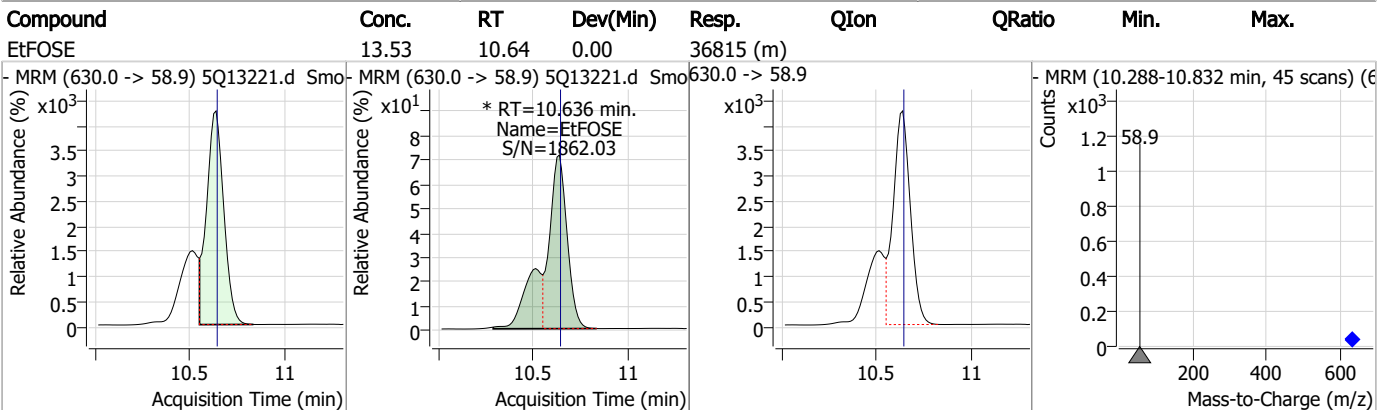
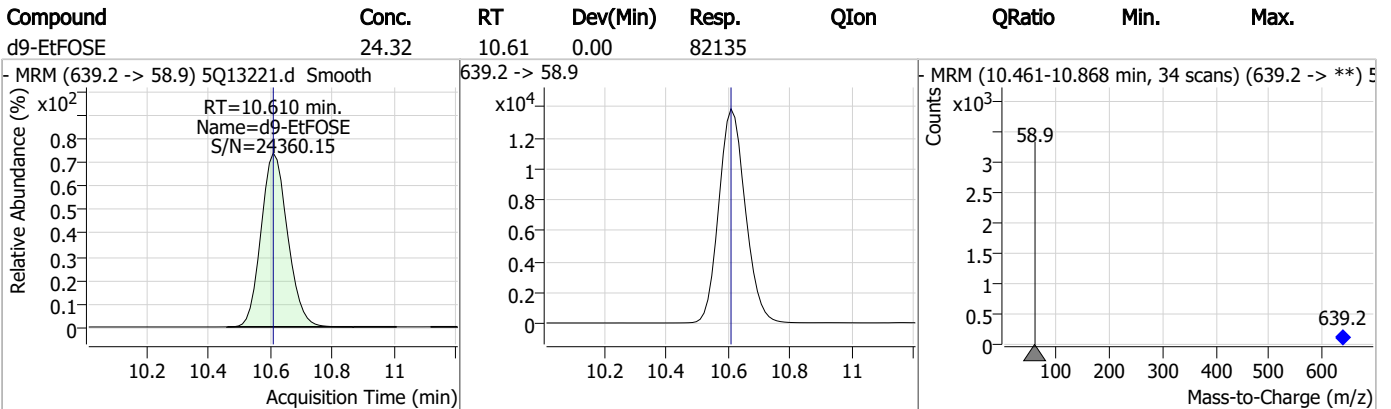
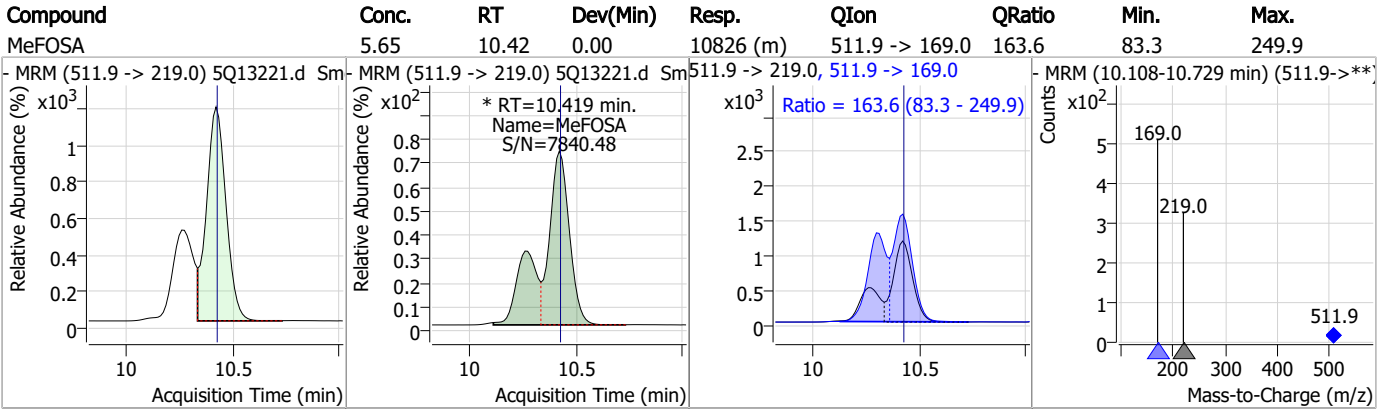
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	13.34	10.33	0.00	30047 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.42	0.00	5609				



### Perfluorinated Compounds by LC/MS/MS

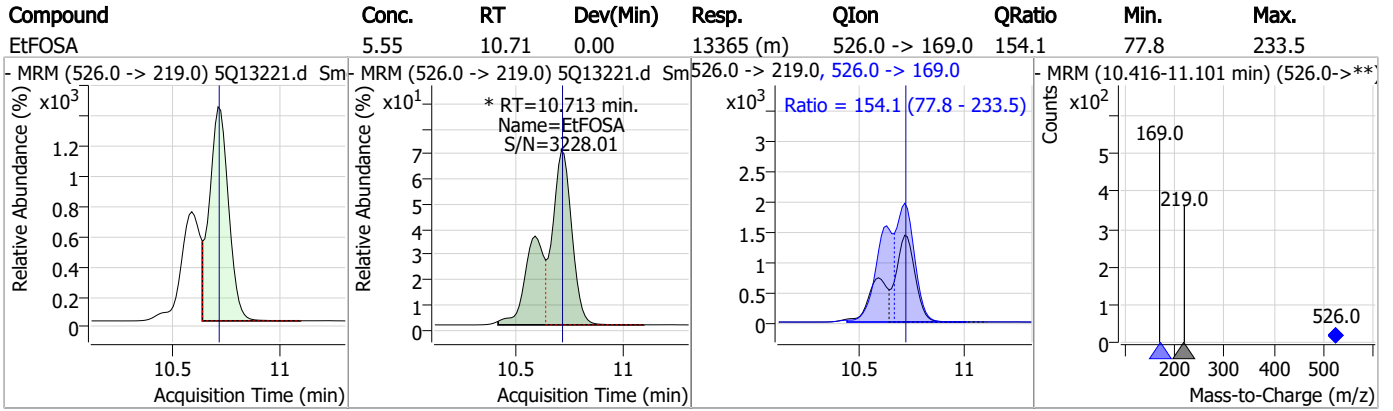


7.4.1

7



### Perfluorinated Compounds by LC/MS/MS



7.4.1

7

# Manual Integration Approval Summary

**Sample Number:** OP96450-MS      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13221.D      **Analyst approved:** 04/20/23 15:28 Lindsay Ritner  
**Injection Time:** 04/20/23 06:08      **Supervisor approved:** 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.77	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.23	Poor instrument integration
Perfluoroheptanoic acid	375-85-9		6.27	Split peak
Perfluorooctanoic acid	335-67-1		6.95	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.08	Split peak
MeFOSAA	2355-31-9		8.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.4.1.1

7

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13223.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 6:37:00 AM  
 Sample Name : op96450-dup  
 Vial : P3-F3  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96450,S5Q205,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	59922	10.00	µg/L m	0.000
M5-PFPeA	4.103	268.3 -> 223.0	40964	5.00	µg/L	-0.012
M5-PFHxA	5.284	318.0 -> 273.0	33933	2.50	µg/L	-0.025
M4-PFHpA	6.267	367.1 -> 322.0	29857	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	39157	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	17598	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	9637	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	11455	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	12387	1.25	µg/L	-0.051
M2-PFTeDA	9.848	715.2 -> 670.0	9133	1.25	µg/L	-0.062
M8-FOSA	9.186	506.1 -> 77.8	11828	2.50	µg/L	0.000
M3-PFBS	5.226	302.1 -> 79.9	6801	2.50	µg/L m	-0.025
M3-PFHxS	7.078	402.1 -> 79.9	6384	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	7736	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	843	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1600	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	2230	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	10661	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	69972	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	15659	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	49926	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	68312	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	6761	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	5253	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	7153	2.50	µg/L	-0.037
13C3-PFBA	2.768	216.0 -> 172.0	26729	5.00	µg/L m	0.000
18O2-PFHxS	7.077	403.0 -> 83.9	3720	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	42096	2.50	µg/L	-0.026
13C2-PFDA	8.041	515.1 -> 470.1	14046	1.25	µg/L	-0.037
13C5-PFNA	7.519	468.0 -> 423.0	15309	1.25	µg/L	-0.025
13C2-PFHxA	5.285	315.1 -> 270.0	31191	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	843	6.55	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 131.0%			
13C2-6:2FTS	6.698	429.1 -> 80.9	1600	5.64	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.9%			
13C2-8:2FTS	7.814	529.1 -> 80.9	2230	5.24	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%			
13C2-PFDoDA	9.015	615.1 -> 570.0	12387	1.11	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.1%			
13C2-PFTeDA	9.848	715.2 -> 670.0	9133	0.97	µg/L	-0.062
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.3%			
13C3-PFBS	5.226	302.1 -> 79.9	6753	2.97	µg/L m	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 118.6%			
13C3-PFHxS	7.078	402.1 -> 79.9	6384	2.80	µg/L	-0.025

7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%		
13C4-PFBA	2.765	216.8 -> 171.9	60073	11.73	µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 117.3%		
13C4-PFHpA	6.267	367.1 -> 322.0	29857	2.87	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.6%		
13C5-PFHxA	5.284	318.0 -> 273.0	33933	2.90	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 115.9%		
13C5-PFPeA	4.103	268.3 -> 223.0	40964	6.10	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 121.9%		
13C6-PFDA	8.040	519.1 -> 474.1	9637	1.30	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C7-PFUnDA	8.547	570.0 -> 525.1	11455	1.24	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C8-FOSA	9.186	506.1 -> 77.8	11828	2.75	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.9%		
13C8-PFOA	6.949	421.1 -> 376.0	39157	2.84	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 113.8%		
13C8-PFOS	8.230	507.1 -> 79.9	7736	2.59	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%		
13C9-PFNA	7.519	472.1 -> 427.0	17598	1.41	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.1%		
d3-MeFOSAA	8.074	573.2 -> 419.0	10661	5.57	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.4%		
13C3-HFPO-DA	5.676	286.9 -> 168.9	69972	12.02	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 120.2%		
d3-MeFOSA	10.417	515.0 -> 219.0	5253	2.62	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%		
d5-EtFOSAA	8.296	589.2 -> 419.0	15659	5.99	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 119.8%		
d7-MeFOSE	10.301	623.2 -> 58.9	49926	23.97	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.9%		
d9-EtFOSE	10.610	639.2 -> 58.9	68312	23.07	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.3%		
d5-EtFOSA	10.712	531.1 -> 219.0	6761	2.54	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%		

**Target Compounds**

Compound	RT	Transition	Response	Conc.	Units	QValue
4:2FTS	-	327.1 -> 307.0	-	N.D.		
		327.1 -> 80.9				
6:2FTS	-	427.1 -> 407.0	-	N.D.		
		427.1 -> 80.9				
8:2FTS	-	527.1 -> 507.0	-	N.D.		
		527.1 -> 80.8				
EtFOSAA	-	584.2 -> 419.1	-	N.D.		
		584.2 -> 526.0				
FOSA	-	498.1 -> 77.9	-	N.D.		
		498.1 -> 478.0				
MeFOSAA	-	570.1 -> 419.0	-	N.D.		
		570.1 -> 483.0				
PFBA	2.771	212.8 -> 168.9	461	0.21	µg/L	100
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	-	512.9 -> 469.0	-	N.D.		
		512.9 -> 219.0				
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

7.5.1  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
PFHpA	-	599.0 -> 98.8	-	N.D.	
		363.1 -> 319.0			
PFHpS	-	363.1 -> 169.0	-	N.D.	
		449.0 -> 79.9			
PFHxA	5.286	449.0 -> 98.9	1116	0.13 µg/L	97
		313.0 -> 269.0			
PFHxS	-	313.0 -> 118.9	40	N.D.	
		398.7 -> 79.9			
PFNA	-	398.7 -> 98.9	-	N.D.	
		463.0 -> 419.0			
PFNS	-	463.0 -> 219.0	-	N.D.	
		548.8 -> 79.9			
PFOA	-	548.8 -> 98.9	-	N.D.	
		413.0 -> 369.0			
PFOS	-	413.0 -> 169.0	-	N.D.	
		498.9 -> 79.9			
PFPeA	4.104	498.9 -> 98.8	3722	0.47 µg/L	100
		263.0 -> 219.0			
PFPeS	-	349.1 -> 79.9	-	N.D.	
		349.1 -> 98.9			
PFTeDA	-	713.1 -> 669.0	-	N.D.	
		713.1 -> 168.9			
PFTrDA	-	663.0 -> 619.0	-	N.D.	
		663.0 -> 168.9			
PFUnDA	-	563.1 -> 519.0	-	N.D.	
		563.1 -> 269.1			
11Cl-PF3OUdS	-	630.9 -> 450.9	-	N.D.	
		632.9 -> 452.9			
9Cl-PF3ONS	-	530.8 -> 351.0	-	N.D.	
		532.8 -> 353.0			
ADONA	-	376.9 -> 250.9	-	N.D.	
		376.9 -> 84.8			
HFPO-DA	-	284.9 -> 168.9	-	N.D.	
		284.9 -> 184.9			
3:3FTCA	-	241.0 -> 177.0	-	N.D.	
		241.0 -> 117.0			
5:3FTCA	-	341.0 -> 237.1	-	N.D.	
		341.0 -> 217.0			
7:3FTCA	-	441.0 -> 316.9	-	N.D.	
		441.0 -> 336.9			
EtFOSA	-	526.0 -> 219.0	-	N.D.	
		526.0 -> 169.0			
EtFOSE	-	630.0 -> 58.9	-	N.D.	
		511.9 -> 219.0			
MeFOSA	-	511.9 -> 169.0	-	N.D.	
		616.1 -> 58.9			
MeFOSE	-	699.1 -> 79.9	-	N.D.	
		699.1 -> 98.8			
PFDoDS	-	295.0 -> 201.0	-	N.D.	
		295.0 -> 84.9			
NFDHA	-	279.0 -> 85.1	-	N.D.	
		229.0 -> 84.9			
PFMBA	-	314.8 -> 134.9	-	N.D.	
		314.8 -> 82.9			

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

7.5.1  
7

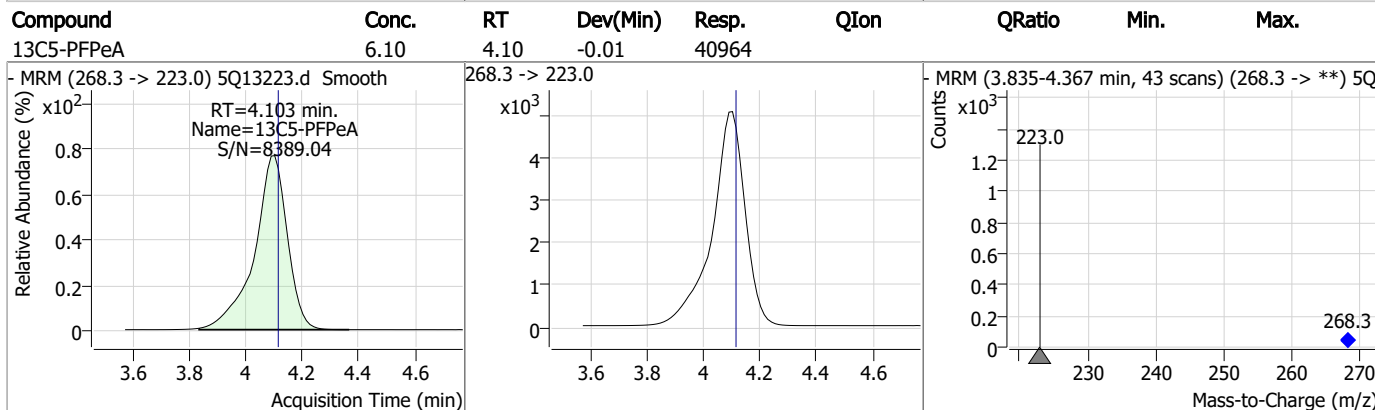
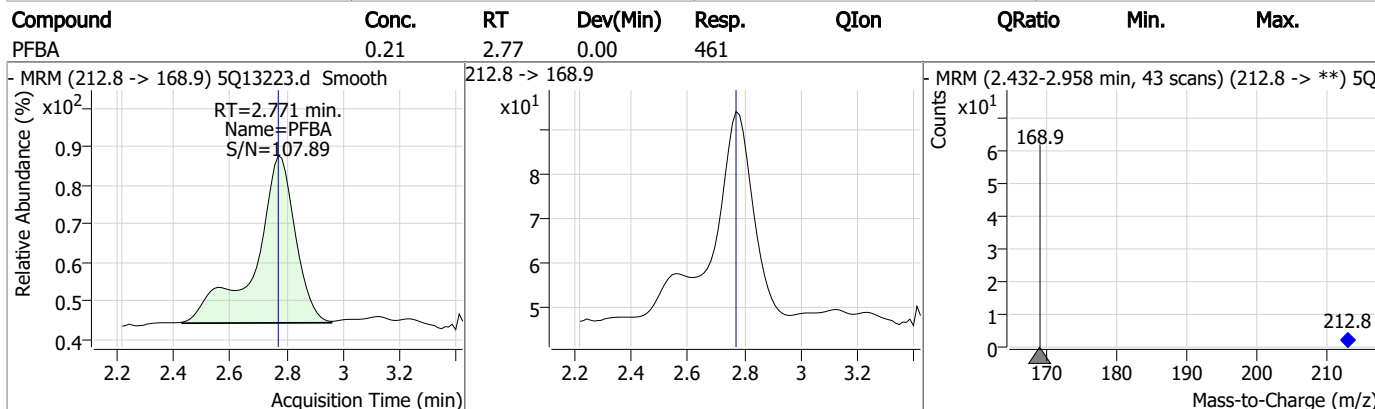
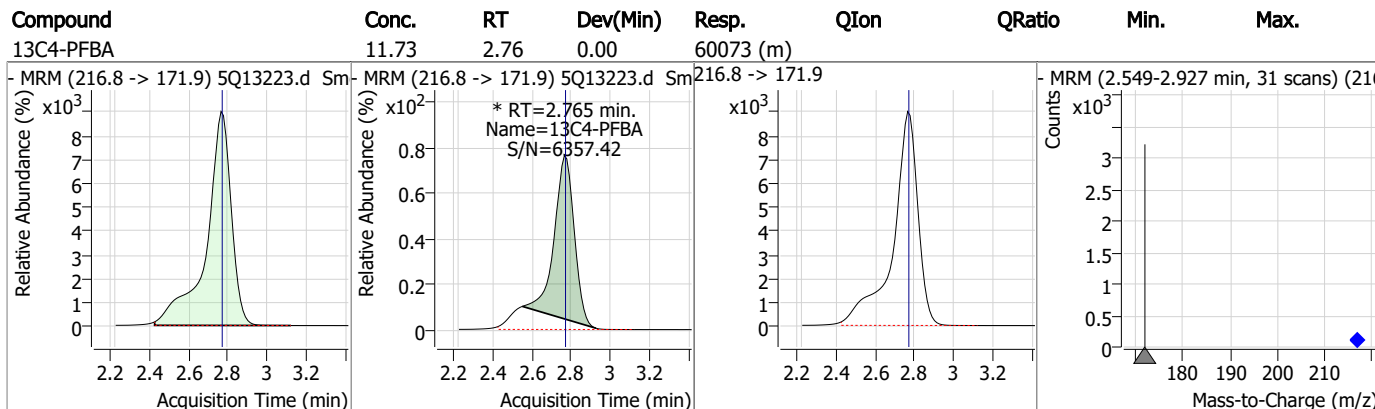
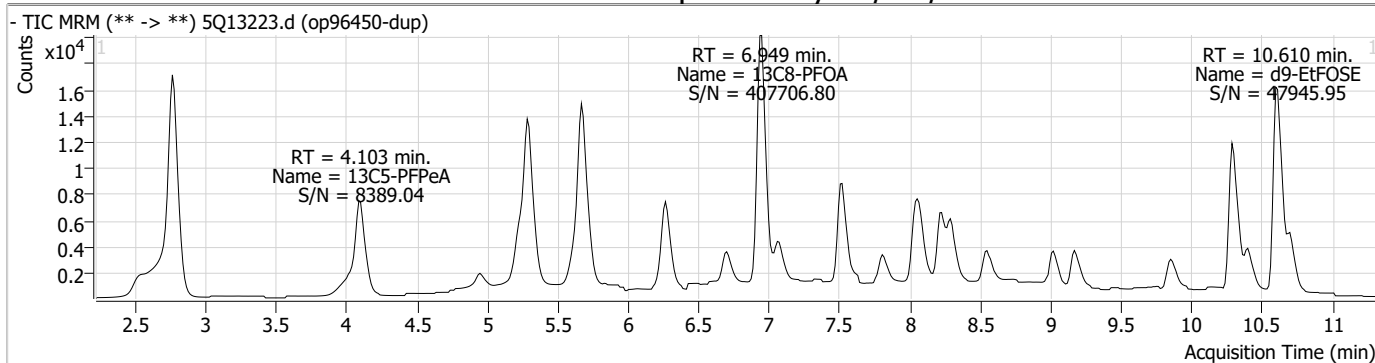
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.5.1

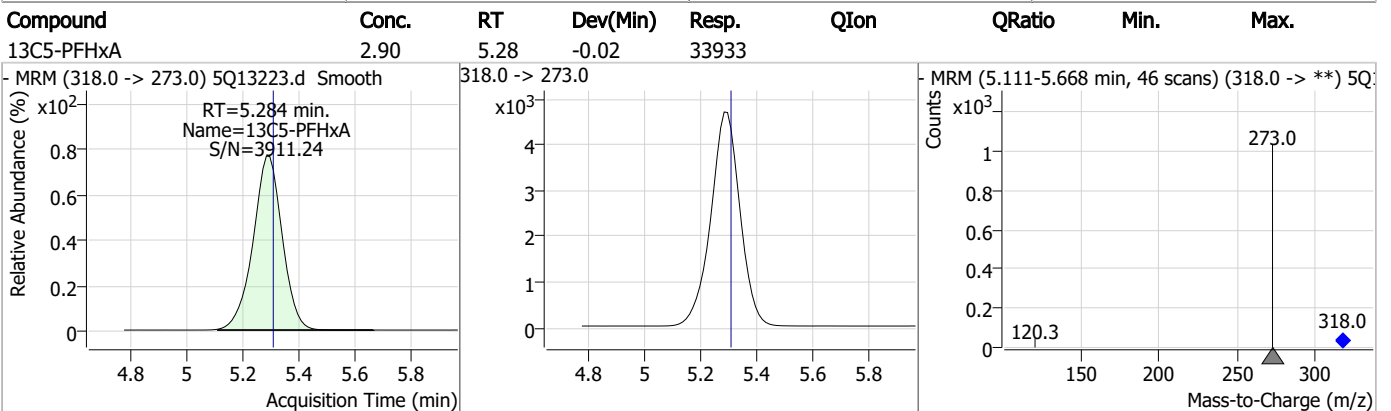
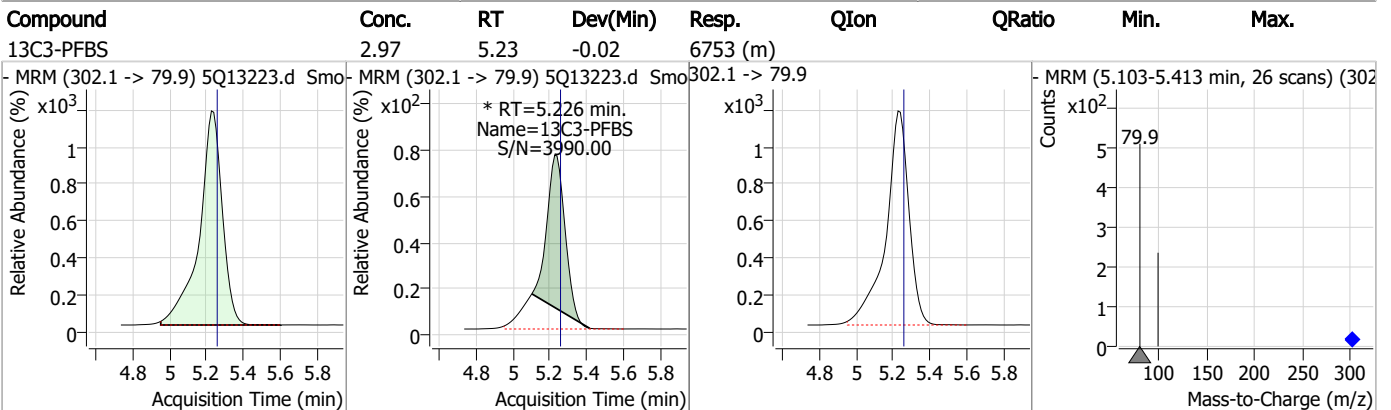
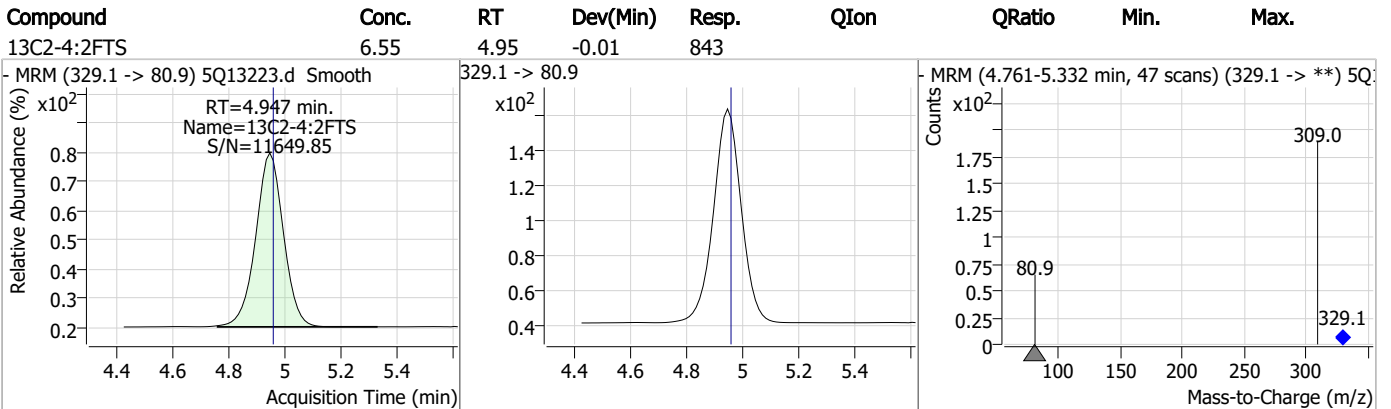
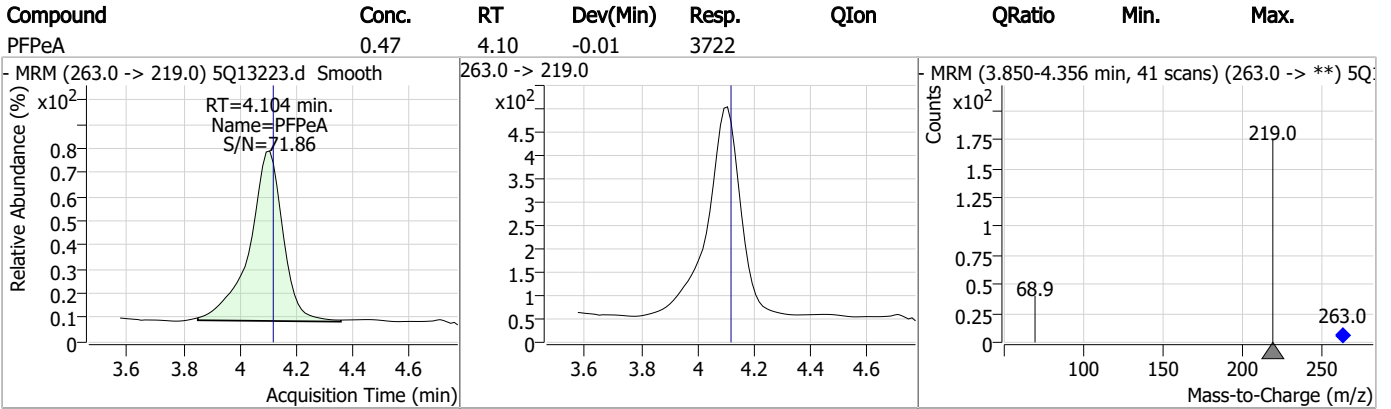
7

### Perfluorinated Compounds by LC/MS/MS



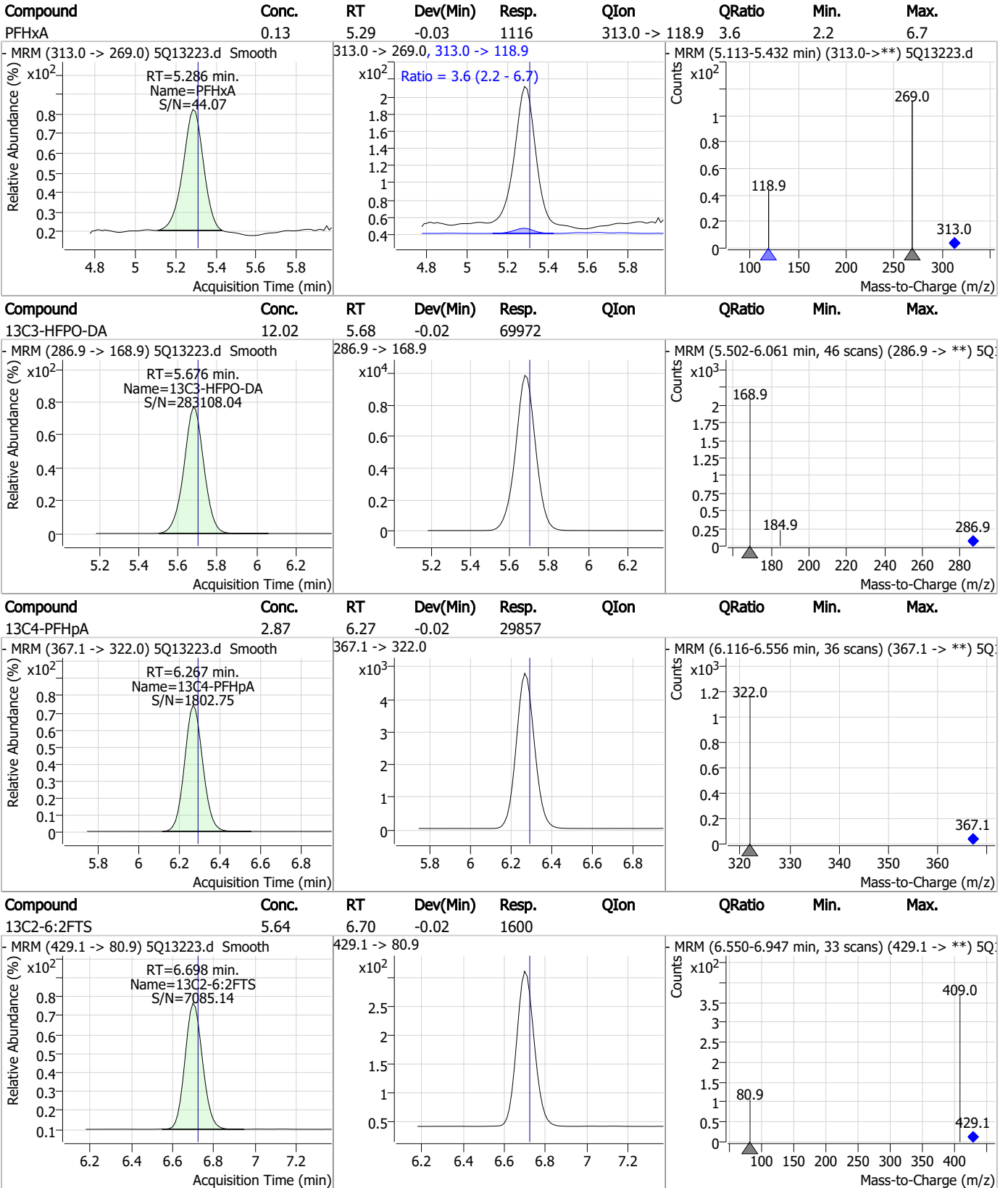
7.5.1  
7

### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS



7.5.1

7

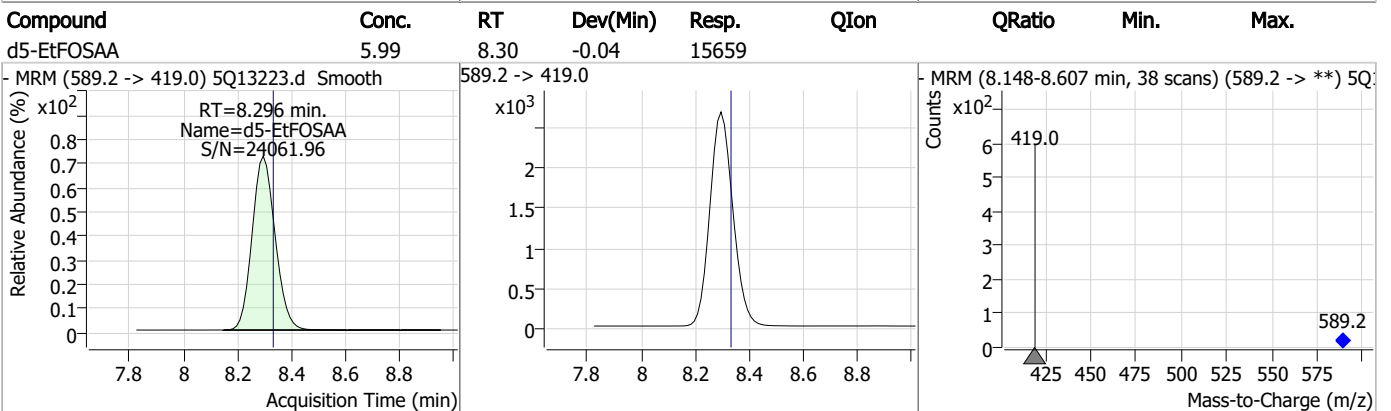
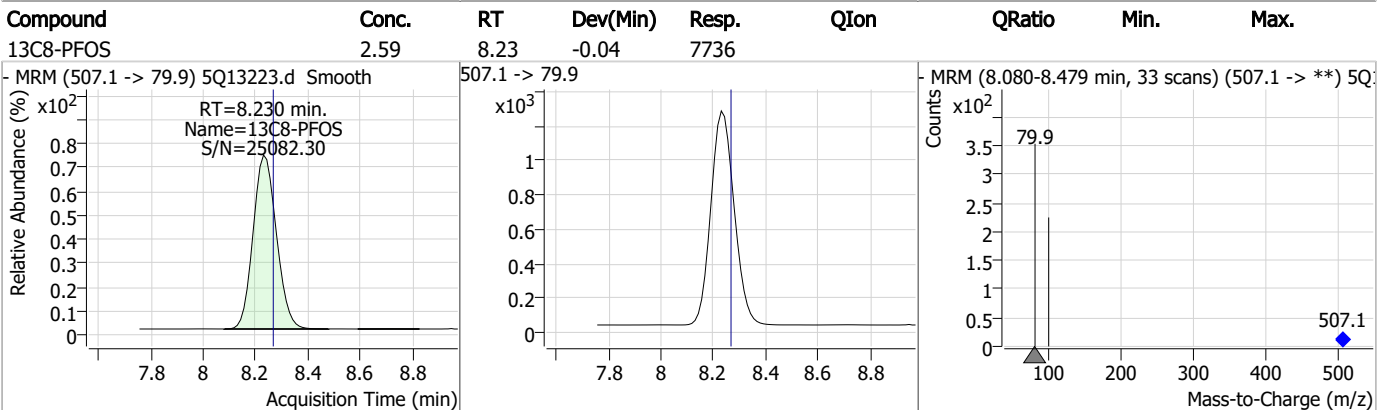
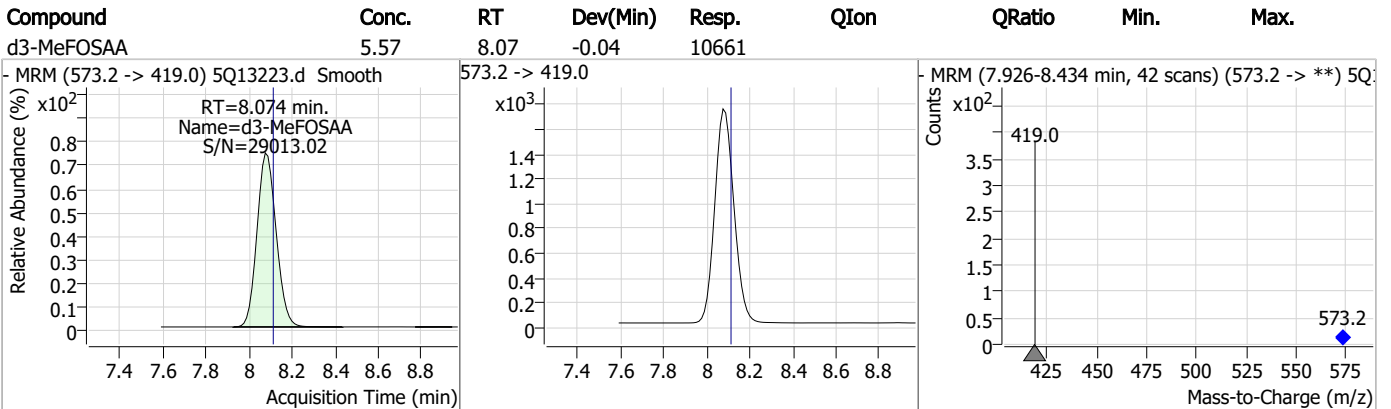
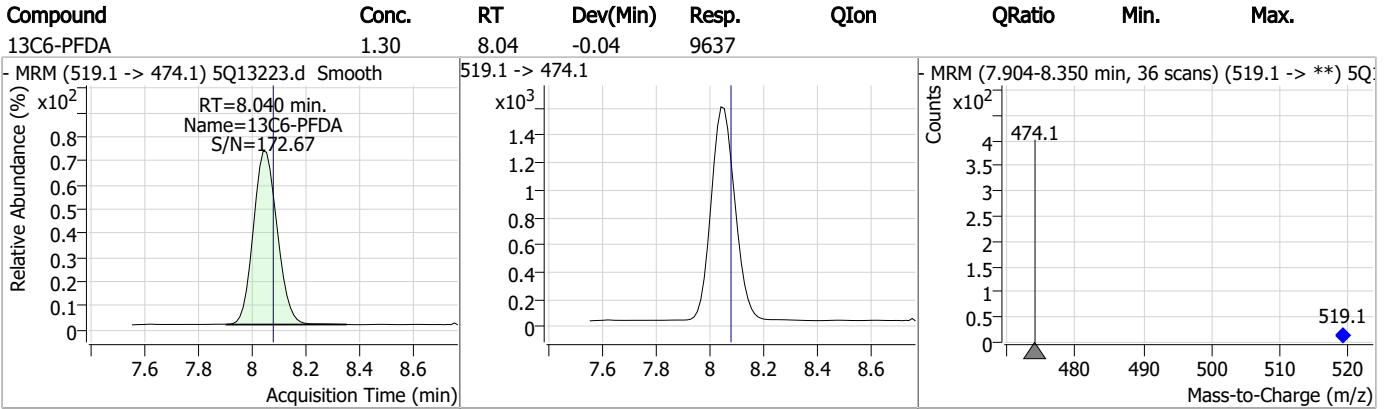
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.84	6.95	-0.03	39157				
13C3-PFHxS	2.80	7.08	-0.02	6384				
13C9-PFNA	1.41	7.52	-0.02	17598				
13C2-8:2FTS	5.24	7.81	-0.03	2230				

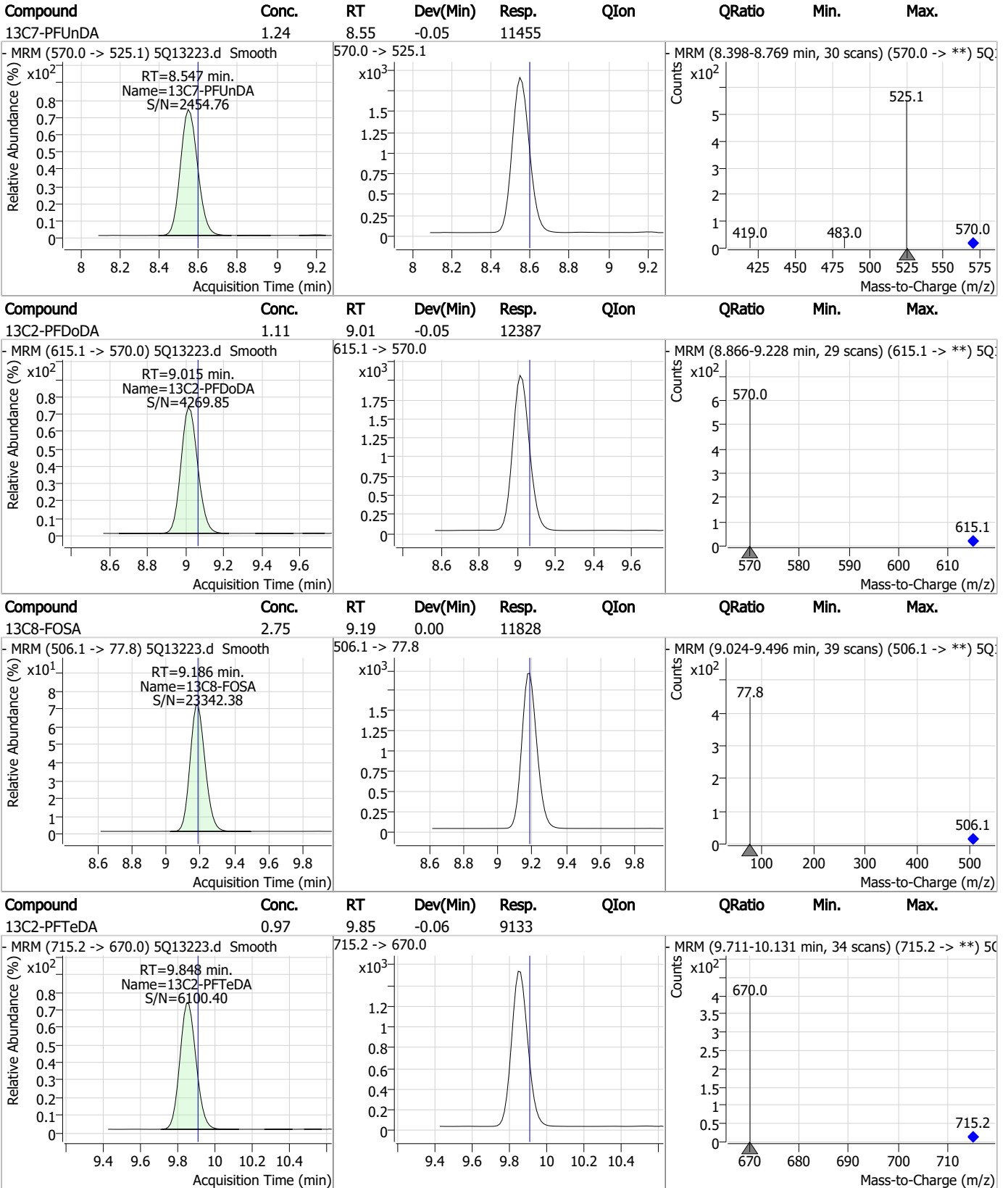
7.5.1

7

### Perfluorinated Compounds by LC/MS/MS



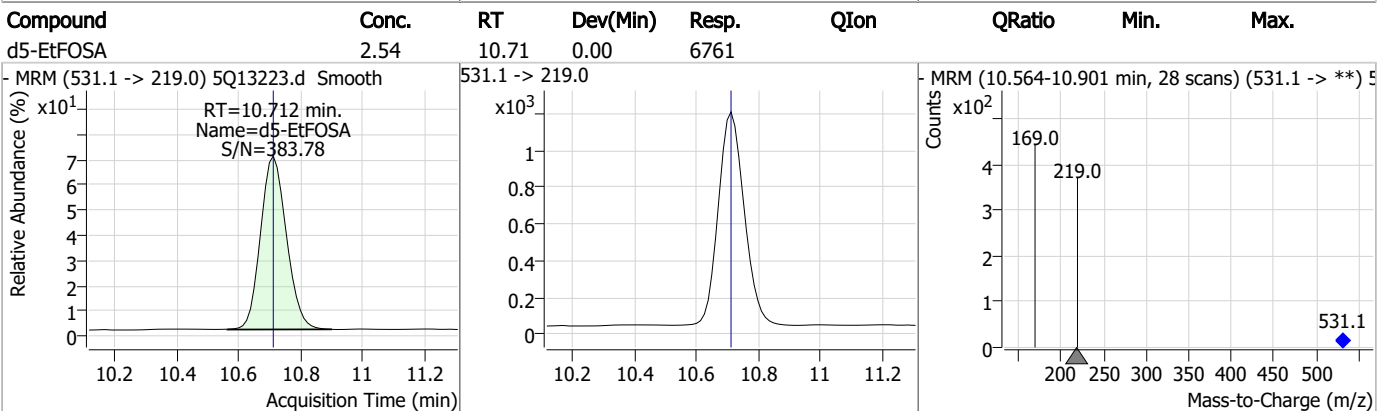
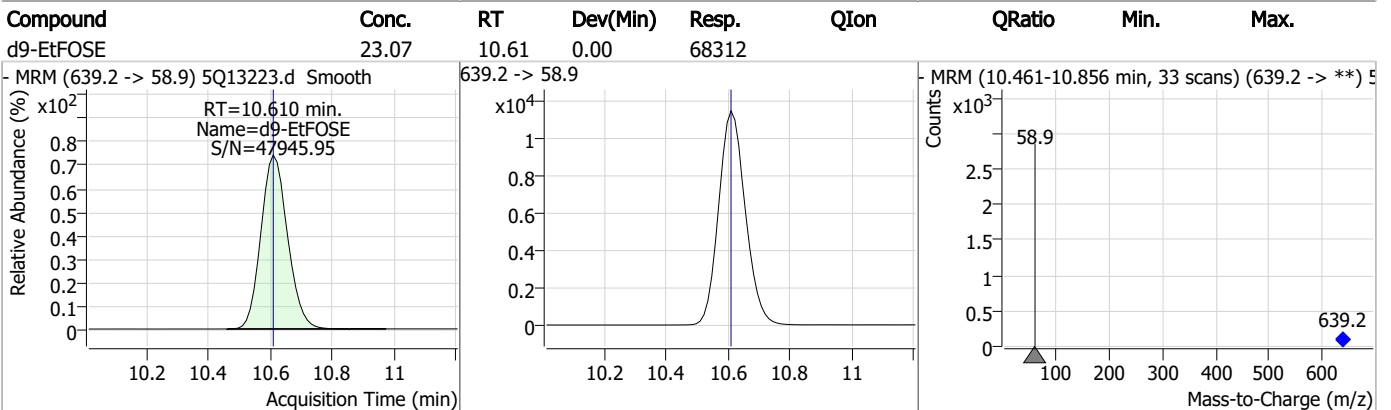
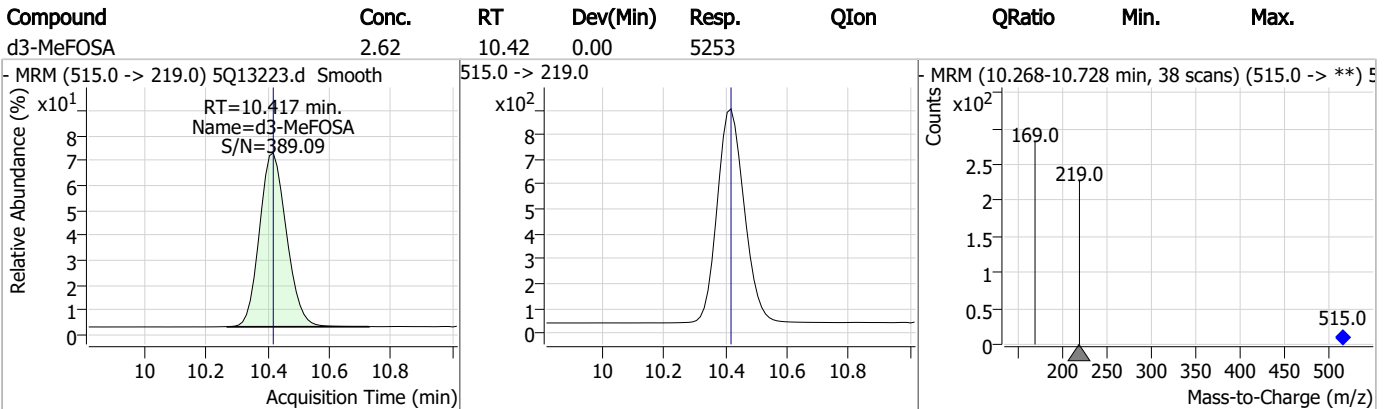
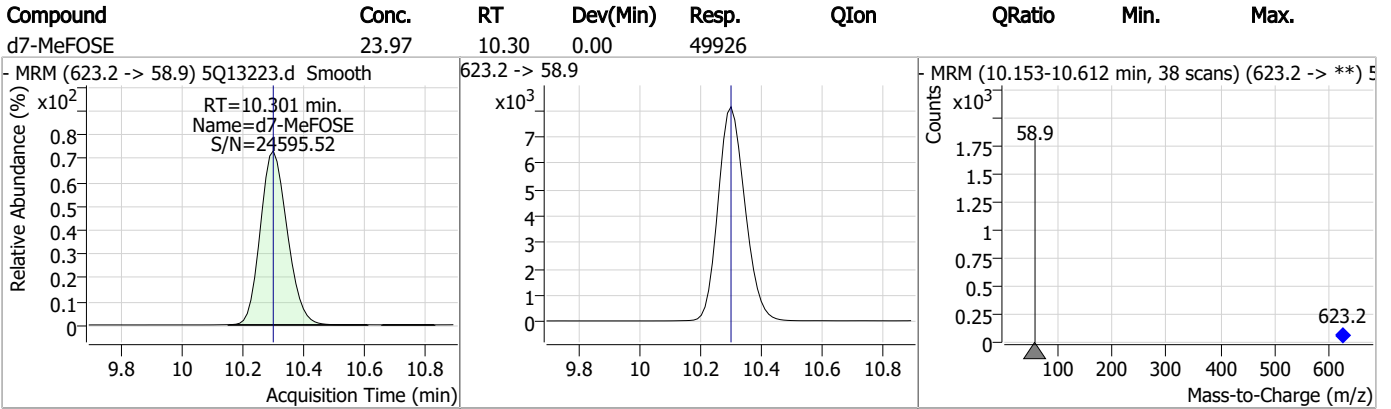
### Perfluorinated Compounds by LC/MS/MS



7.5.1

7

Perfluorinated Compounds by LC/MS/MS



7.5.1

7

# Manual Integration Approval Summary

Sample Number: OP96450-DUP      Method: EPA DRAFT 1633  
Lab FileID: 5Q13223.D      Analyst approved: 04/20/23 15:28 Lindsay Ritner  
Injection Time: 04/20/23 06:37      Supervisor approved: 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration

7.5.1.1

7

Manual Integrations  
**APPROVED**  
 (compounds with "m" flag)  
 Norman Farmer  
 04/21/23 10:12

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13150.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 1:07:08 PM  
 Sample Name : RT TDCA  
 Vial : P3-B1  
 DA Method File : TDCA.quantmethod.xml  
 Batch Name : s5q205\_TDCA.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
<b>Internal Standards</b>							
M8-PFOS	8.354	507.1 -> 79.9	15812	2.50	µg/L	0.000	
13C4-PFOS	8.355	502.8 -> 79.9	15491	2.50	µg/L	0.000	
<b>System Monitoring Compounds</b>							
13C8-PFOS	8.355	502.8 -> 79.9	15491	4.84	µg/L	0.000	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 193.7%				
<b>Target Compounds</b>							
PFOS	8.356	498.9 -> 79.9 498.9 -> 98.8	14555 8203	1.78	µg/L	m	95
TCDCa	6.498	498.9 -> 79.9	3477	0.42	ng/ml		100
TDCA	6.672	498.9 -> 79.9	4669	0.57	ng/ml		100
TUDCA	5.616	498.9 -> 79.9	5470	0.67	ng/ml		100

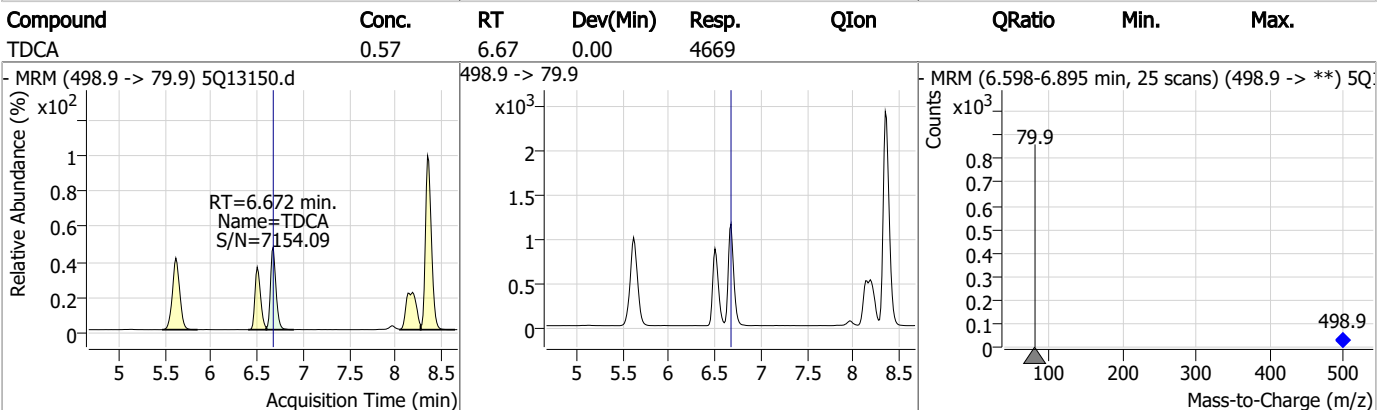
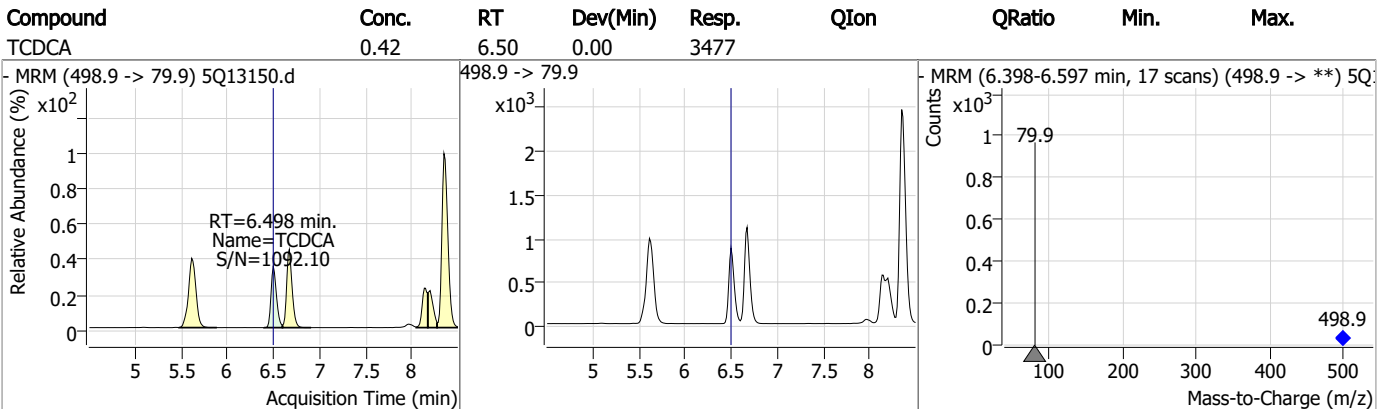
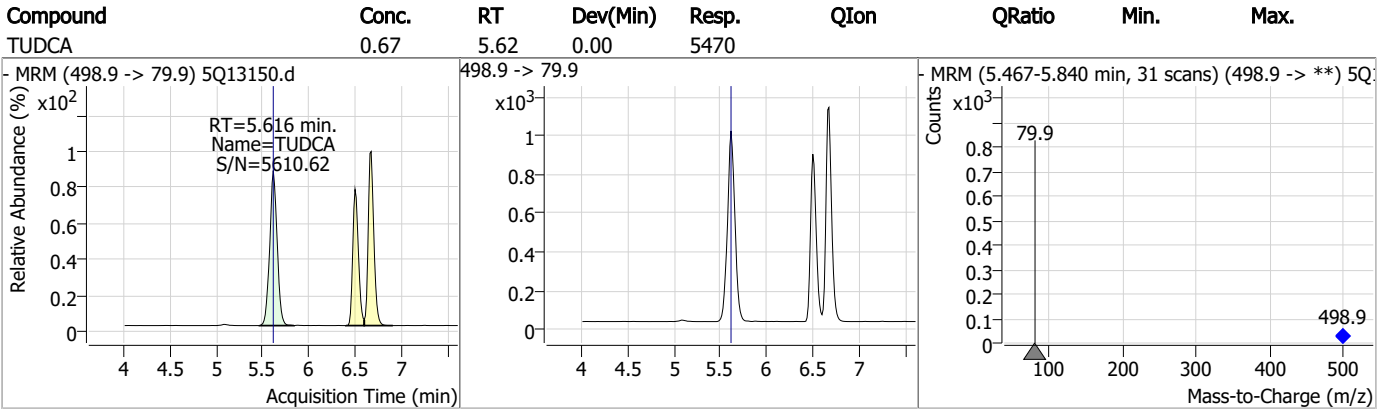
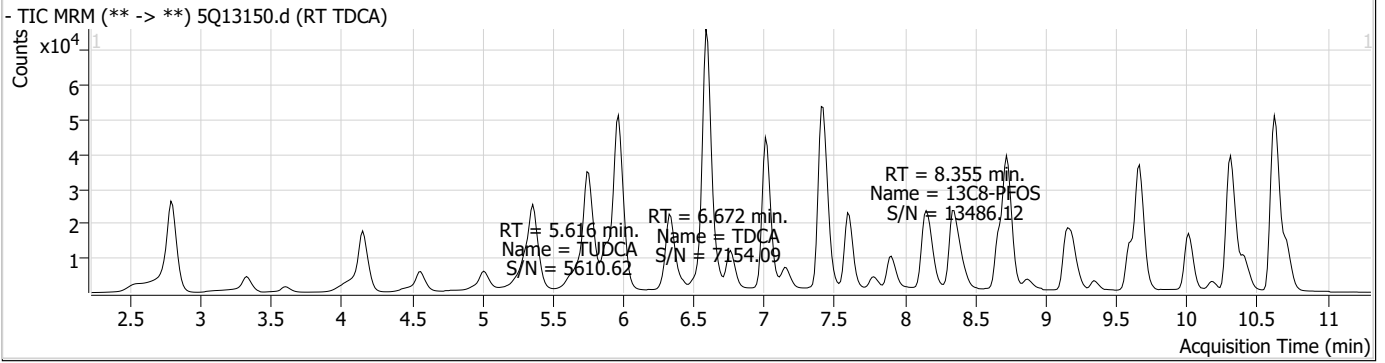
# = Qualifier out of range, m = manually integrated, + = Area summed

7.6.1

7

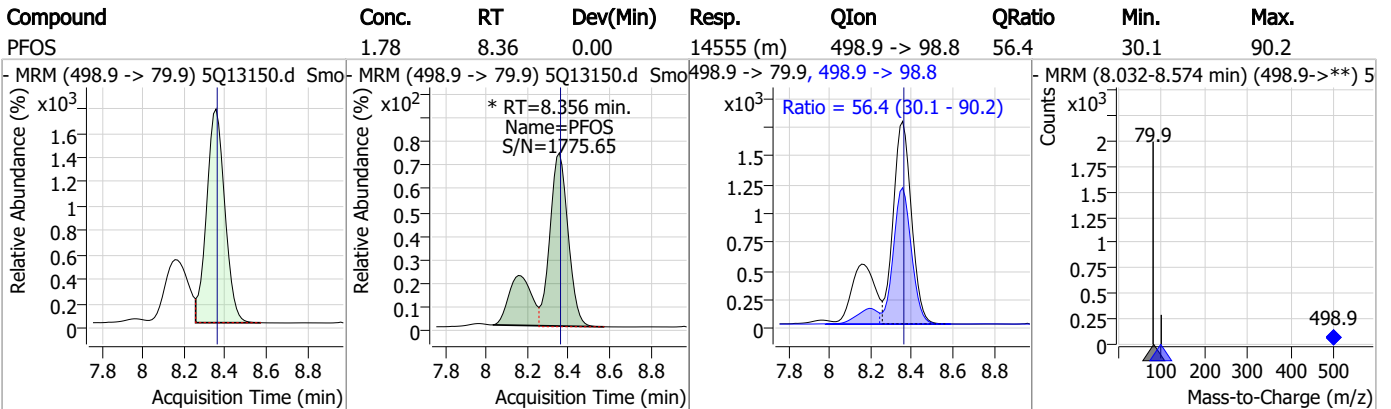
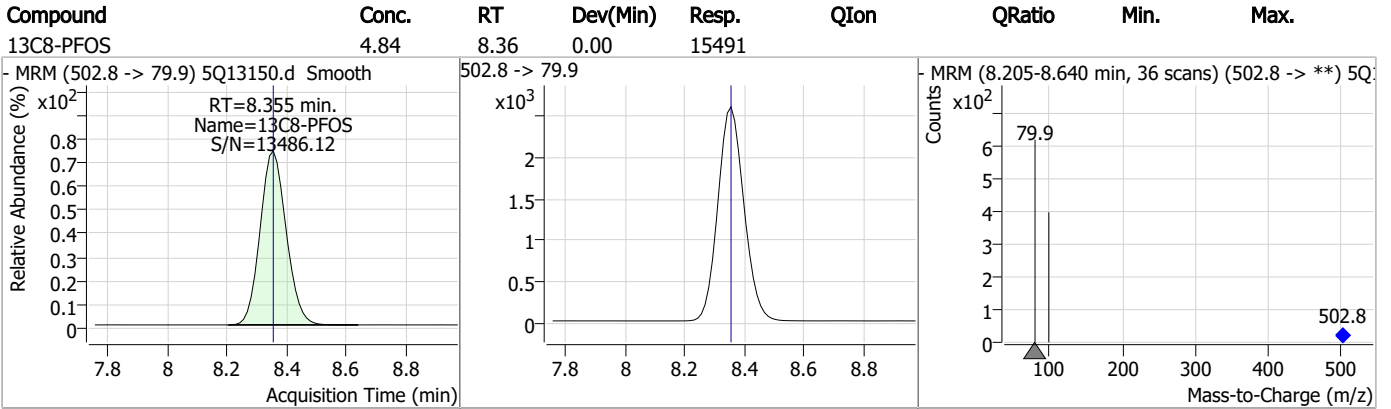


### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS



7.6.1  
7



# Manual Integration Approval Summary

Sample Number: S5Q205-RT                      Method: EPA DRAFT 1633  
Lab FileID: 5Q13150.D                      Analyst approved: 04/20/23 15:12 Lindsay Ritner  
Injection Time: 04/19/23 13:07                      Supervisor approved: 04/21/23 10:12 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak

7.6.1.1

7

## Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13172.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 6:27:20 PM  
 Sample Name : RT br/lr  
 Vial : P3-B2  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.777	216.8 -> 171.9	66774	10.00	µg/L m	0.012
M5-PFPeA	4.116	268.3 -> 223.0	51550	5.00	µg/L	0.000
M5-PFHxA	5.321	318.0 -> 273.0	43931	2.50	µg/L	0.012
M4-PFHpA	6.291	367.1 -> 322.0	37835	2.50	µg/L	0.000
M8-PFOA	6.974	421.1 -> 376.0	48946	2.50	µg/L	0.000
M9-PFNA	7.557	472.1 -> 427.0	22372	1.25	µg/L	0.014
M6-PFDA	8.091	519.1 -> 474.1	13767	1.25	µg/L	0.013
M7-PFUnDA	8.598	570.0 -> 525.1	16900	1.25	µg/L	0.000
M2-PFDoDA	9.078	615.1 -> 570.0	20312	1.25	µg/L	0.012
M2-PFTeDA	9.923	715.2 -> 670.0	17499	1.25	µg/L	0.012
M8-FOSA	9.198	506.1 -> 77.8	16538	2.50	µg/L	0.012
M3-PFBS	5.263	302.1 -> 79.9	8610	2.50	µg/L m	0.012
M3-PFHxS	7.115	402.1 -> 79.9	8100	2.50	µg/L	0.012
M8-PFOS	8.280	507.1 -> 79.9	11641	2.50	µg/L	0.012
M2-4:2FTS	4.972	329.1 -> 80.9	811	5.00	µg/L	0.012
M2-6:2FTS	6.723	429.1 -> 80.9	1690	5.00	µg/L	0.000
M2-8:2FTS	7.853	529.1 -> 80.9	2864	5.00	µg/L	0.012
M3-MeFOSAA	8.124	573.2 -> 419.0	14403	5.00	µg/L	0.012
M3-HFPO-DA	5.713	286.9 -> 168.9	85869	10.00	µg/L	0.012
M5-EtFOSAA	8.333	589.2 -> 419.0	19259	5.00	µg/L	0.000
M7-MeFOSE	10.301	623.2 -> 58.9	77653	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	105644	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	9776	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7496	2.50	µg/L	0.000
13C4-PFOS	8.281	502.8 -> 79.9	11289	2.50	µg/L	0.012
13C3-PFBA	2.780	216.0 -> 172.0	34953	5.00	µg/L m	0.012
18O2-PFHxS	7.114	403.0 -> 83.9	5119	2.50	µg/L	0.012
13C4-PFOA	6.975	417.1 -> 372.0	60312	2.50	µg/L	0.000
13C2-PFDA	8.091	515.1 -> 470.1	20415	1.25	µg/L	0.013
13C5-PFNA	7.558	468.0 -> 423.0	21747	1.25	µg/L	0.014
13C2-PFHxA	5.322	315.1 -> 270.0	46686	2.50	µg/L	0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.972	329.1 -> 80.9	811	4.58	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.6%			
13C2-6:2FTS	6.723	429.1 -> 80.9	1690	4.33	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.6%			
13C2-8:2FTS	7.853	529.1 -> 80.9	2864	4.89	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%			
13C2-PFDoDA	9.078	615.1 -> 570.0	20312	1.26	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%			
13C2-PFTeDA	9.923	715.2 -> 670.0	17499	1.27	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.9%			
13C3-PFBS	5.263	302.1 -> 79.9	8610	2.75	µg/L m	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.9%			
13C3-PFHxS	7.115	402.1 -> 79.9	8100	2.58	µg/L	0.012

7.6.2  
7

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C4-PFBA	2.777	216.8 -> 171.9	66963	10.00 µg/L	m 0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C4-PFHpA	6.291	367.1 -> 322.0	37835	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C5-PFHxA	5.321	318.0 -> 273.0	43931	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C5-PFPeA	4.116	268.3 -> 223.0	51550	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C6-PFDA	8.091	519.1 -> 474.1	13767	1.28 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C7-PFUnDA	8.598	570.0 -> 525.1	16900	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C8-FOSA	9.198	506.1 -> 77.8	16538	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C8-PFOA	6.974	421.1 -> 376.0	48946	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C8-PFOS	8.280	507.1 -> 79.9	11641	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.8%		
13C9-PFNA	7.557	472.1 -> 427.0	22372	1.27 µg/L	0.014
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
d3-MeFOSAA	8.124	573.2 -> 419.0	14403	4.77 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C3-HFPO-DA	5.713	286.9 -> 168.9	85869	9.85 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
d3-MeFOSA	10.417	515.0 -> 219.0	7496	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.9%		
d5-EtFOSAA	8.333	589.2 -> 419.0	19259	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.3%		
d7-MeFOSE	10.301	623.2 -> 58.9	77653	23.63 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
d9-EtFOSE	10.610	639.2 -> 58.9	105644	22.60 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 90.4%		
d5-EtFOSA	10.712	531.1 -> 219.0	9776	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.1%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	4.973	327.1 -> 307.0	53538	56.06 µg/L	100
		327.1 -> 80.9	28723		
6:2FTS	6.723	427.1 -> 407.0	78925	59.54 µg/L	98
		427.1 -> 80.9	32124		
8:2FTS	7.853	527.1 -> 507.0	63798	53.67 µg/L	93
		527.1 -> 80.8	28067		
EtFOSAA	8.346	584.2 -> 419.1	34464	14.12 µg/L	m 98
		584.2 -> 526.0	14476		
FOSA	9.188	498.1 -> 77.9	179000	34.54 µg/L	m 99
		498.1 -> 478.0	5477		
MeFOSAA	8.125	570.1 -> 419.0	35237	14.52 µg/L	m 93
		570.1 -> 483.0	8938		
PFBA	2.771	212.8 -> 168.9	141480	58.15 µg/L	m 100
PFBS	5.264	298.7 -> 79.9	35823	13.12 µg/L	m 94
		298.7 -> 98.8	15395		
PFDA	8.091	512.9 -> 469.0	169269	13.81 µg/L	99
		512.9 -> 219.0	30907		
PFDoDA	9.079	613.1 -> 569.0	183243	14.84 µg/L	100
		613.1 -> 319.0	30319		
PFDS	9.268	599.0 -> 79.9	34754	14.05 µg/L	96

7.6.2  
7

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	18253			
PFHpA	6.292	363.1 -> 319.0	234335	15.20	µg/L	98
		363.1 -> 169.0	51935			
PFHpS	7.722	449.0 -> 79.9	43044	13.94	µg/L	99
		449.0 -> 98.9	24304			
PFHxA	5.324	313.0 -> 269.0	161162	14.54	µg/L	99
		313.0 -> 118.9	6975			
PFHxS	7.116	398.7 -> 79.9	37175	13.10	µg/L	m 93
		398.7 -> 98.9	21652			
PFNA	7.408	463.0 -> 419.0	331159	30.41	µg/L	m 97
		463.0 -> 219.0	80754			
PFNS	8.798	548.8 -> 79.9	32830	14.29	µg/L	98
		548.8 -> 98.9	18582			
PFOA	6.976	413.0 -> 369.0	564275	32.20	µg/L	m 97
		413.0 -> 169.0	138402			
PFOS	8.281	498.9 -> 79.9	55272	13.61	µg/L	m 96
		498.9 -> 98.8	30885			
PFPeA	4.117	263.0 -> 219.0	288703	28.75	µg/L	100
PFPeS	6.368	349.1 -> 79.9	35742	13.78	µg/L	100
		349.1 -> 98.9	17425			
PFTeDA	9.923	713.1 -> 669.0	182916	14.23	µg/L	98
		713.1 -> 168.9	23691			
PFTrDA	9.514	663.0 -> 619.0	201965	14.70	µg/L	100
		663.0 -> 168.9	34217			
PFUnDA	8.598	563.1 -> 519.0	182349	14.99	µg/L	96
		563.1 -> 269.1	38126			
11CI-PF3OUdS	9.579	630.9 -> 450.9	274079	28.06	µg/L	98
		632.9 -> 452.9	84114			
9CI-PF3ONS	8.661	530.8 -> 351.0	283636	27.44	µg/L	100
		532.8 -> 353.0	88621			
ADONA	6.554	376.9 -> 250.9	655147	27.66	µg/L	99
		376.9 -> 84.8	189678			
HFPO-DA	5.714	284.9 -> 168.9	200075	29.65	µg/L	99
		284.9 -> 184.9	18126			
3:3FTCA	3.580	241.0 -> 177.0	46235	70.19	µg/L	99
		241.0 -> 117.0	5057			
5:3FTCA	5.930	341.0 -> 237.1	763235	360.00	µg/L	100
		341.0 -> 217.0	515983			
7:3FTCA	7.386	441.0 -> 316.9	384881	351.67	µg/L	98
		441.0 -> 336.9	850547			
EtFOSA	10.726	526.0 -> 219.0	165793	51.17	µg/L	m 99
		526.0 -> 169.0	256032			
EtFOSE	10.636	630.0 -> 58.9	320408	91.53	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	127295	49.68	µg/L	m 97
		511.9 -> 169.0	207727			
MeFOSE	10.326	616.1 -> 58.9	250870	91.22	µg/L	m 100
PFDoDS	10.087	699.1 -> 79.9	28352	14.12	µg/L	98
		699.1 -> 98.8	16648			
NFDHA	5.203	295.0 -> 201.0	30897	28.62	µg/L	98
		295.0 -> 84.9	8209			
PFMBA	4.530	279.0 -> 85.1	187527	28.62	µg/L	100
PFMPA	3.303	229.0 -> 84.9	165119	31.66	µg/L	100
PFEESA	5.833	314.8 -> 134.9	377585	26.29	µg/L	100
		314.8 -> 82.9	11114			

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

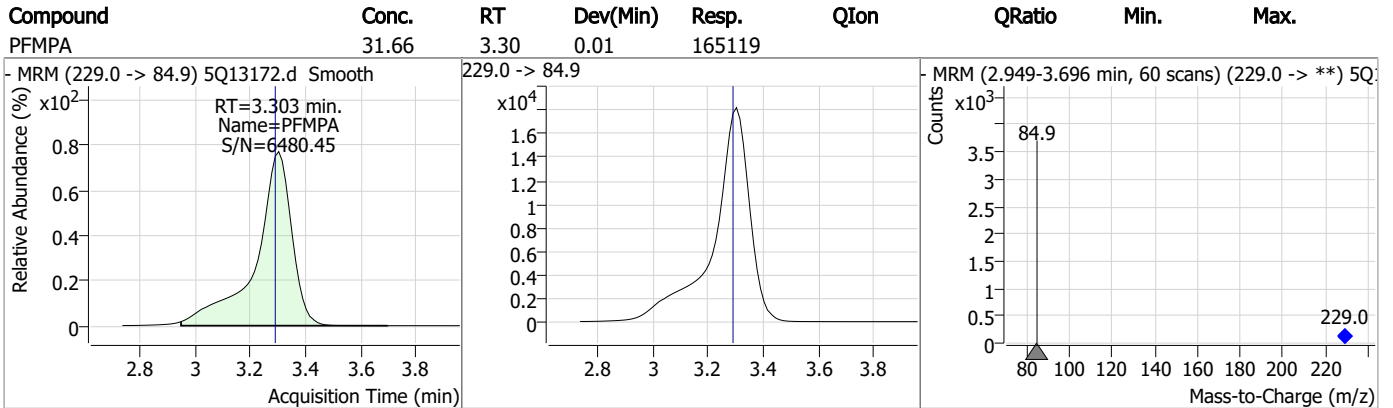
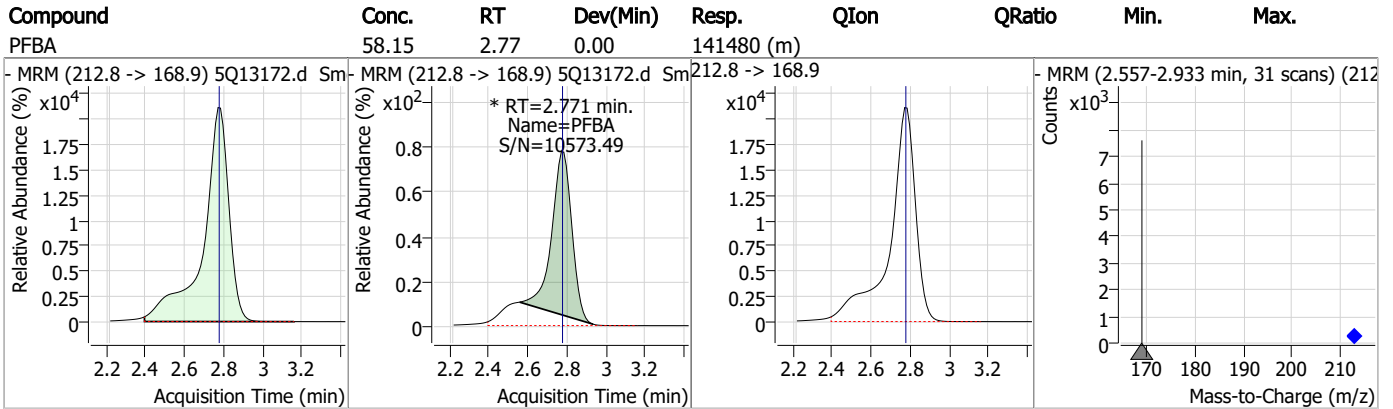
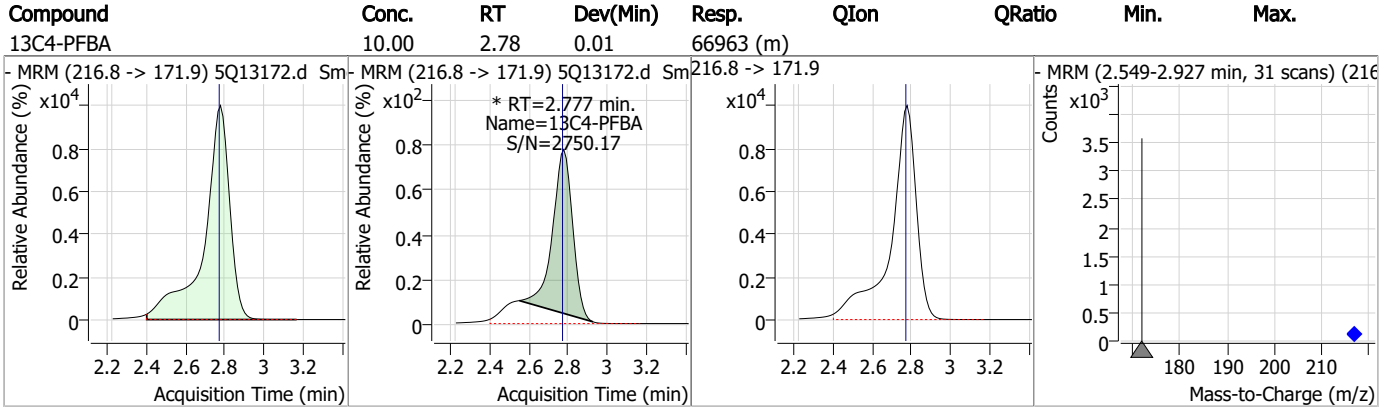
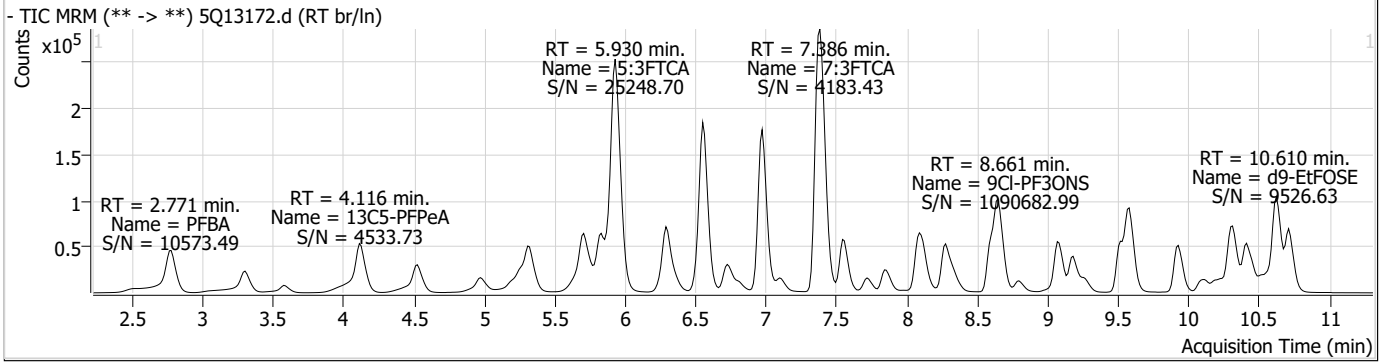
# Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.6.2

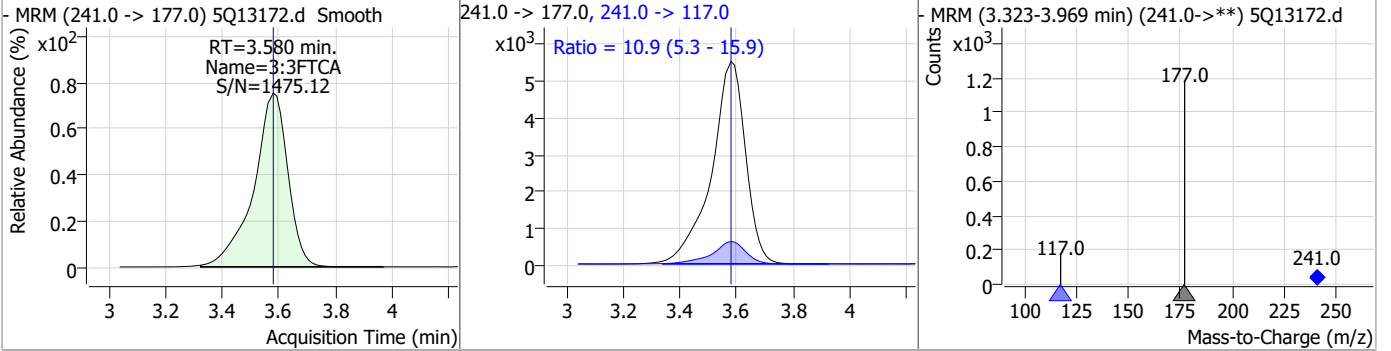
7

# Perfluorinated Compounds by LC/MS/MS

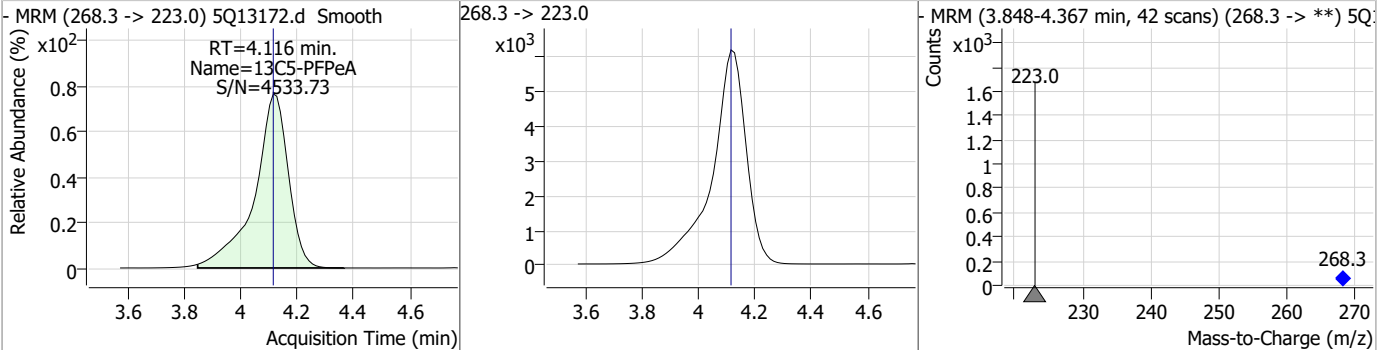


# Perfluorinated Compounds by LC/MS/MS

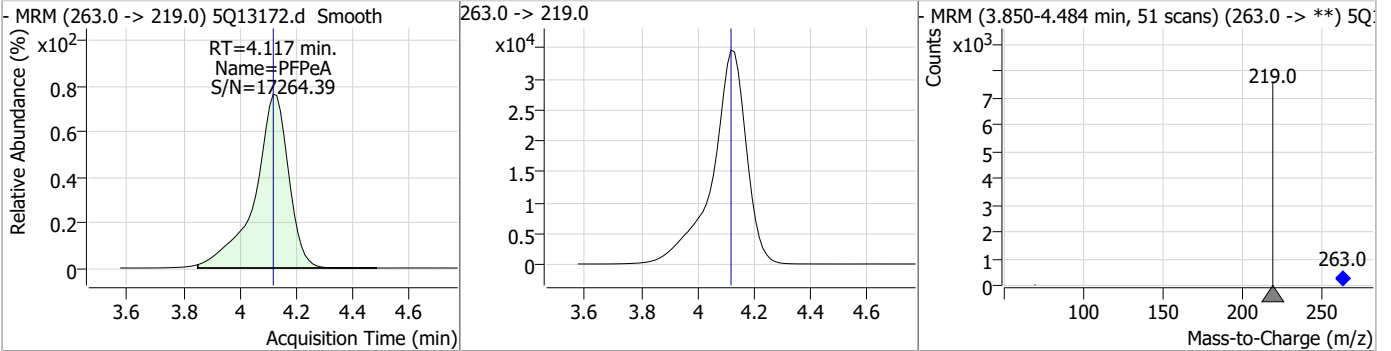
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	70.19	3.58	0.00	46235	241.0 -> 117.0	10.9	5.3	15.9



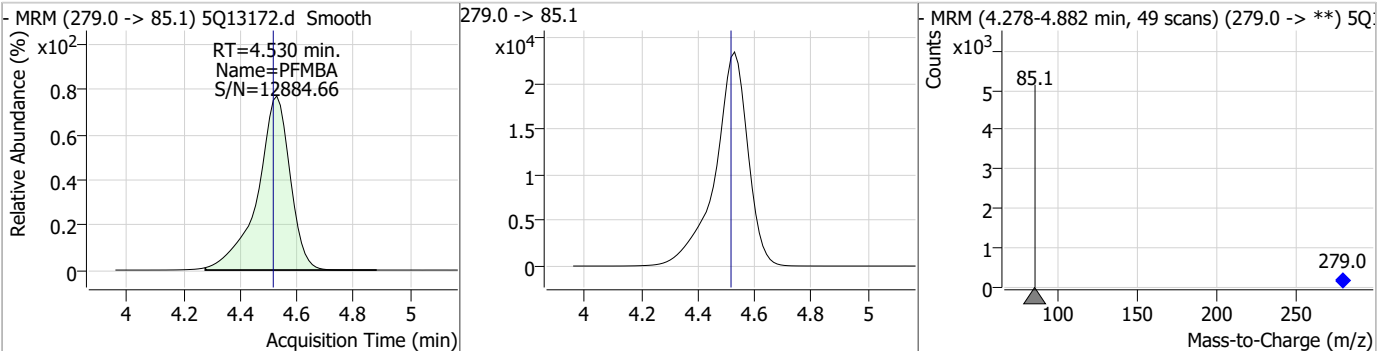
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.13	4.12	0.00	51550				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	28.75	4.12	0.00	288703				

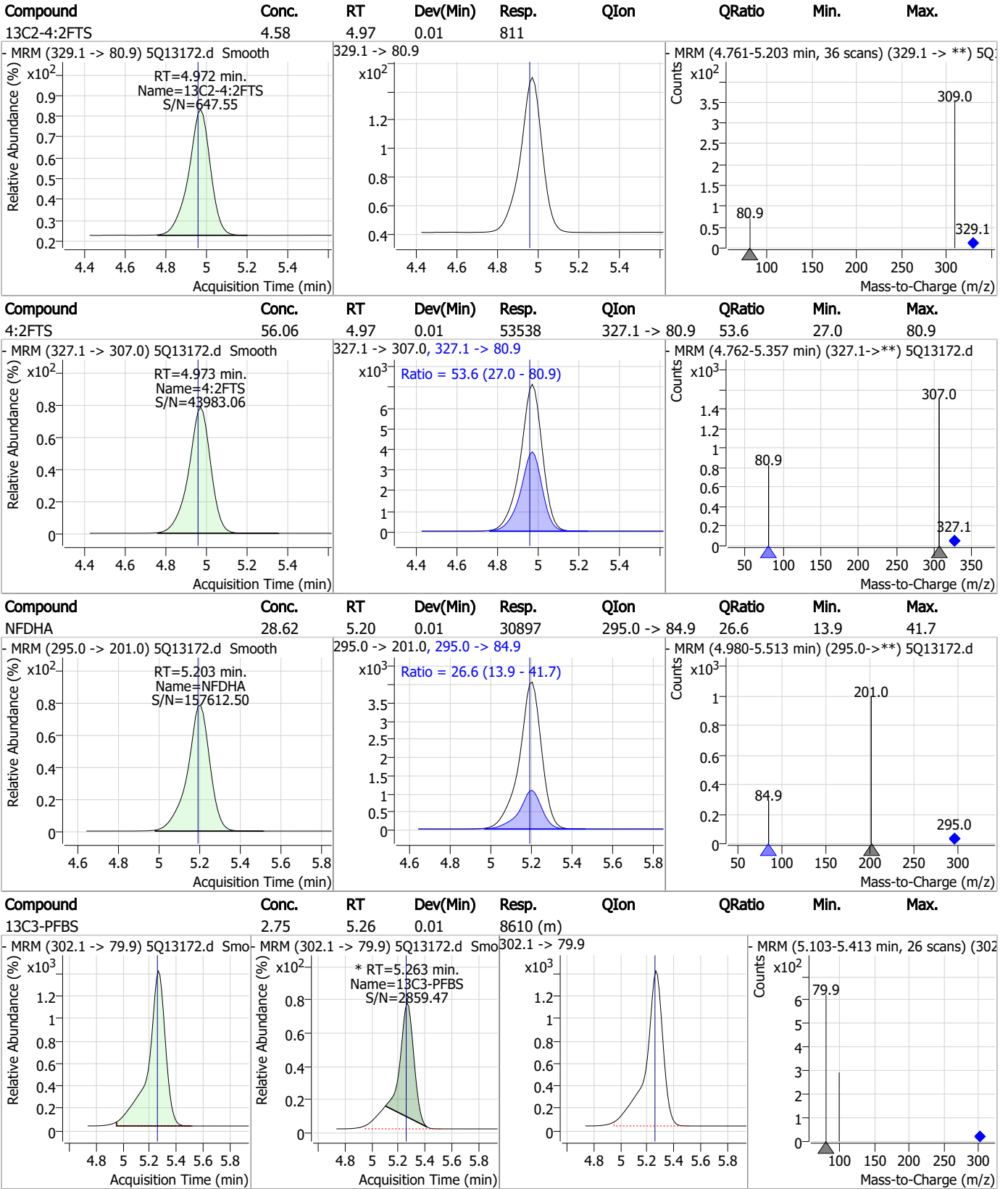


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	28.62	4.53	0.01	187527				



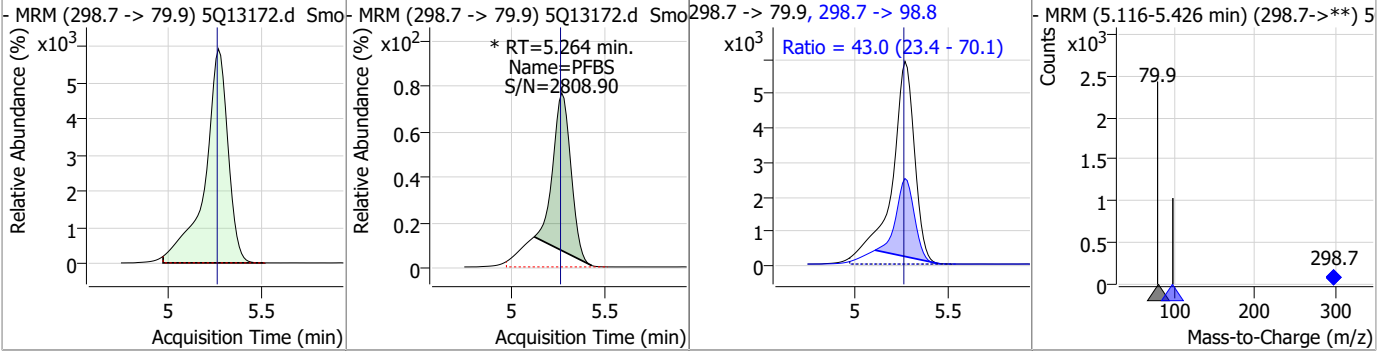


# Perfluorinated Compounds by LC/MS/MS

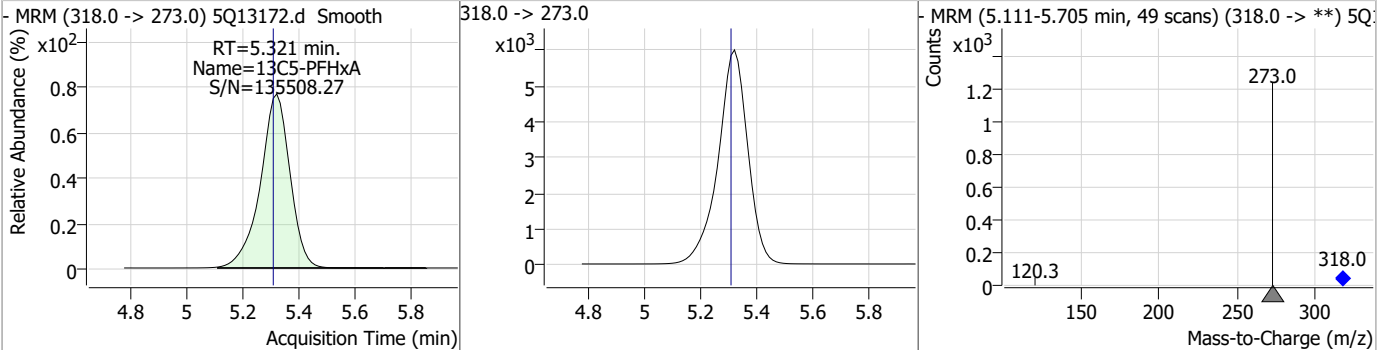


# Perfluorinated Compounds by LC/MS/MS

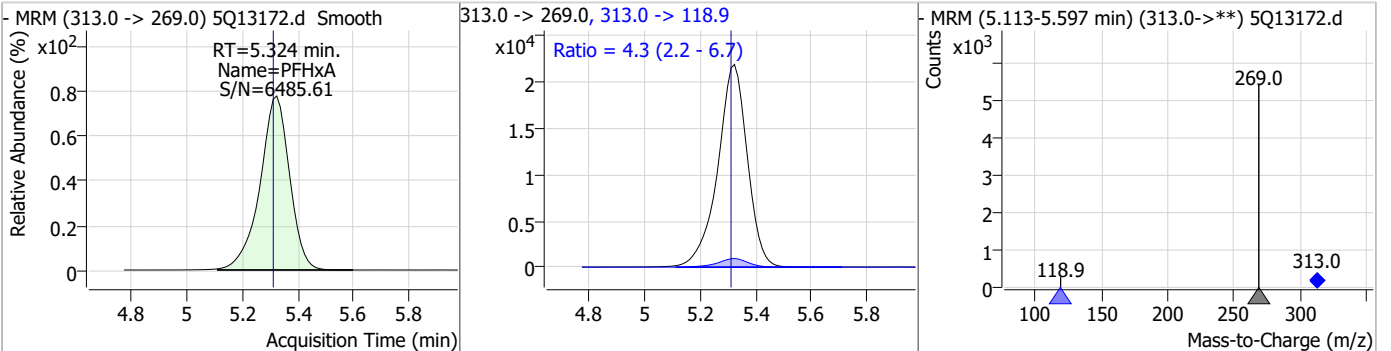
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	13.12	5.26	0.01	35823 (m)	298.7 -> 98.8	43.0	23.4	70.1



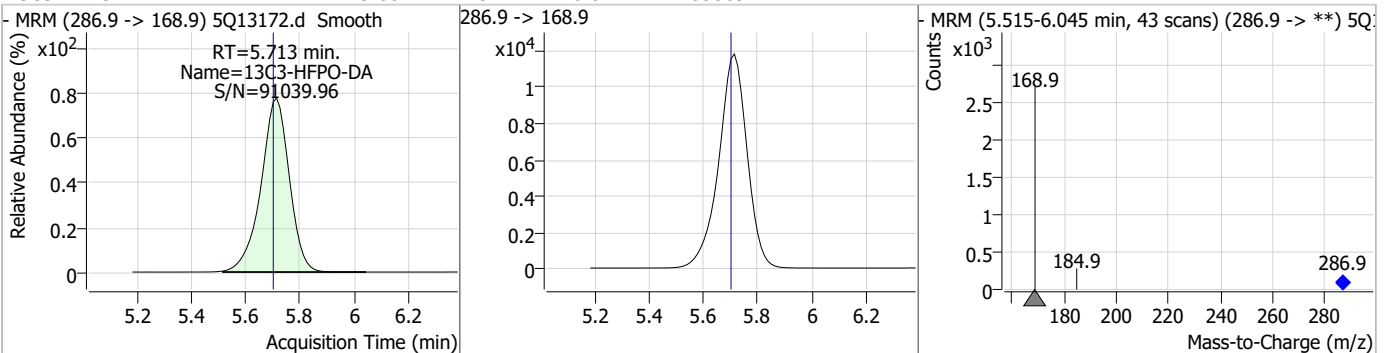
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.32	0.01	43931				



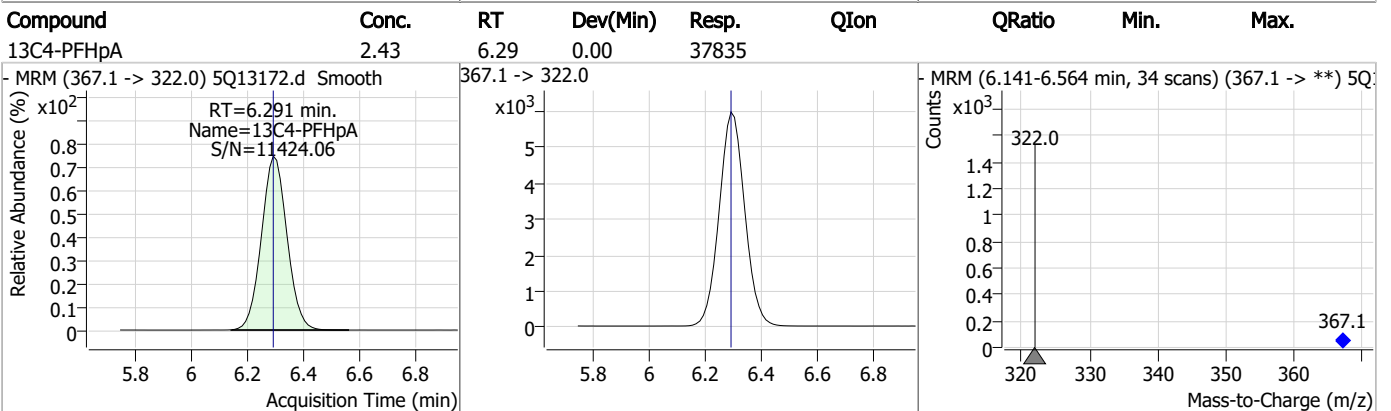
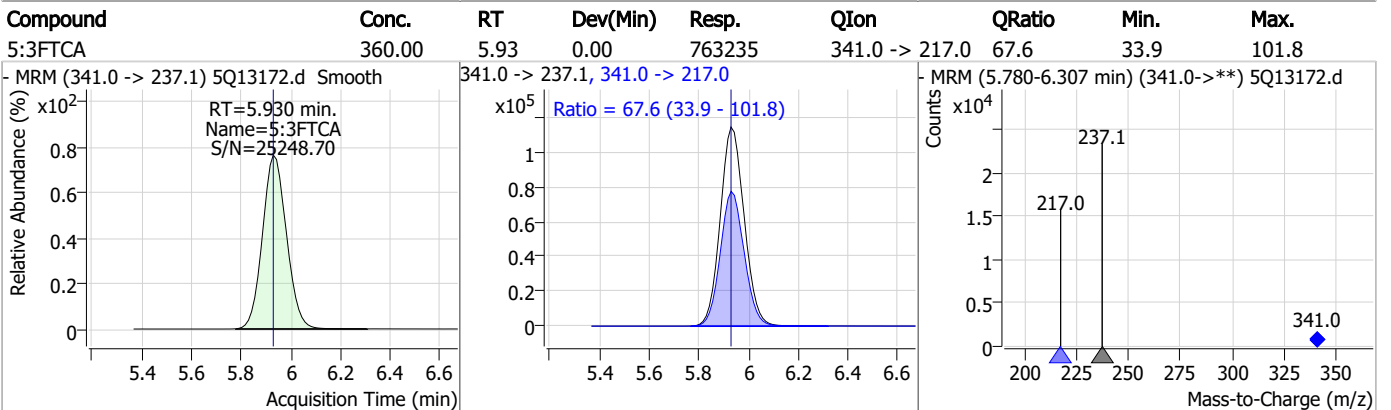
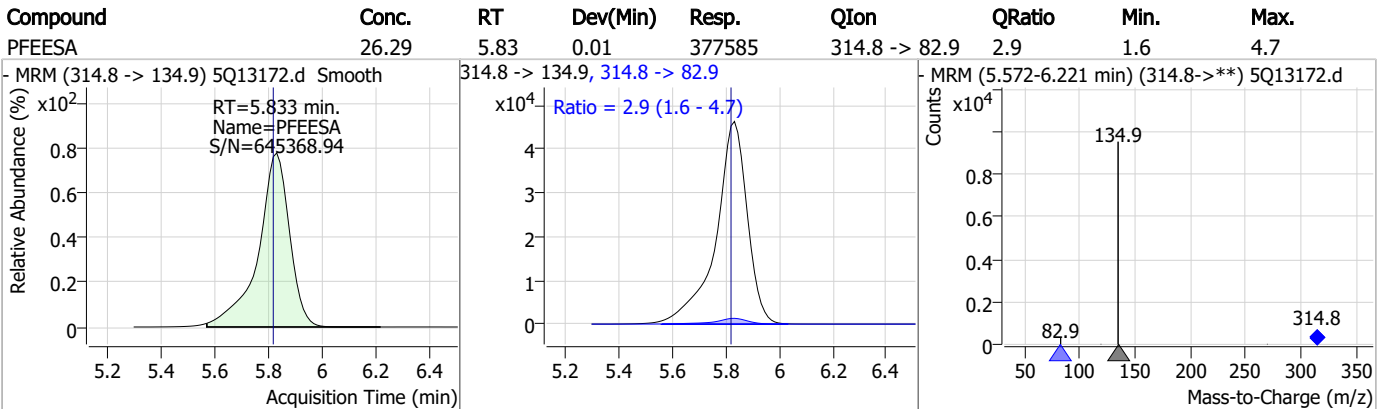
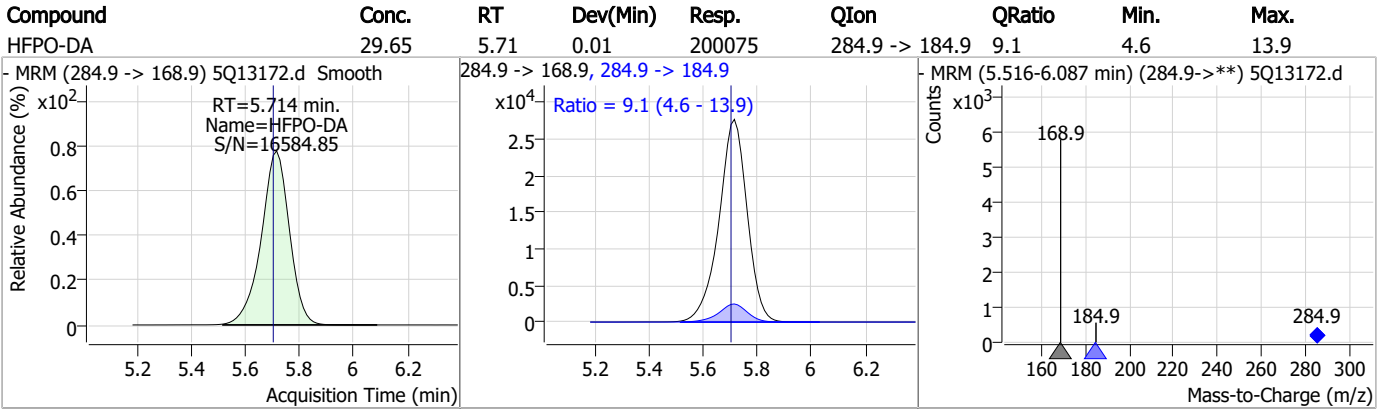
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	14.54	5.32	0.01	161162	313.0 -> 118.9	4.3	2.2	6.7



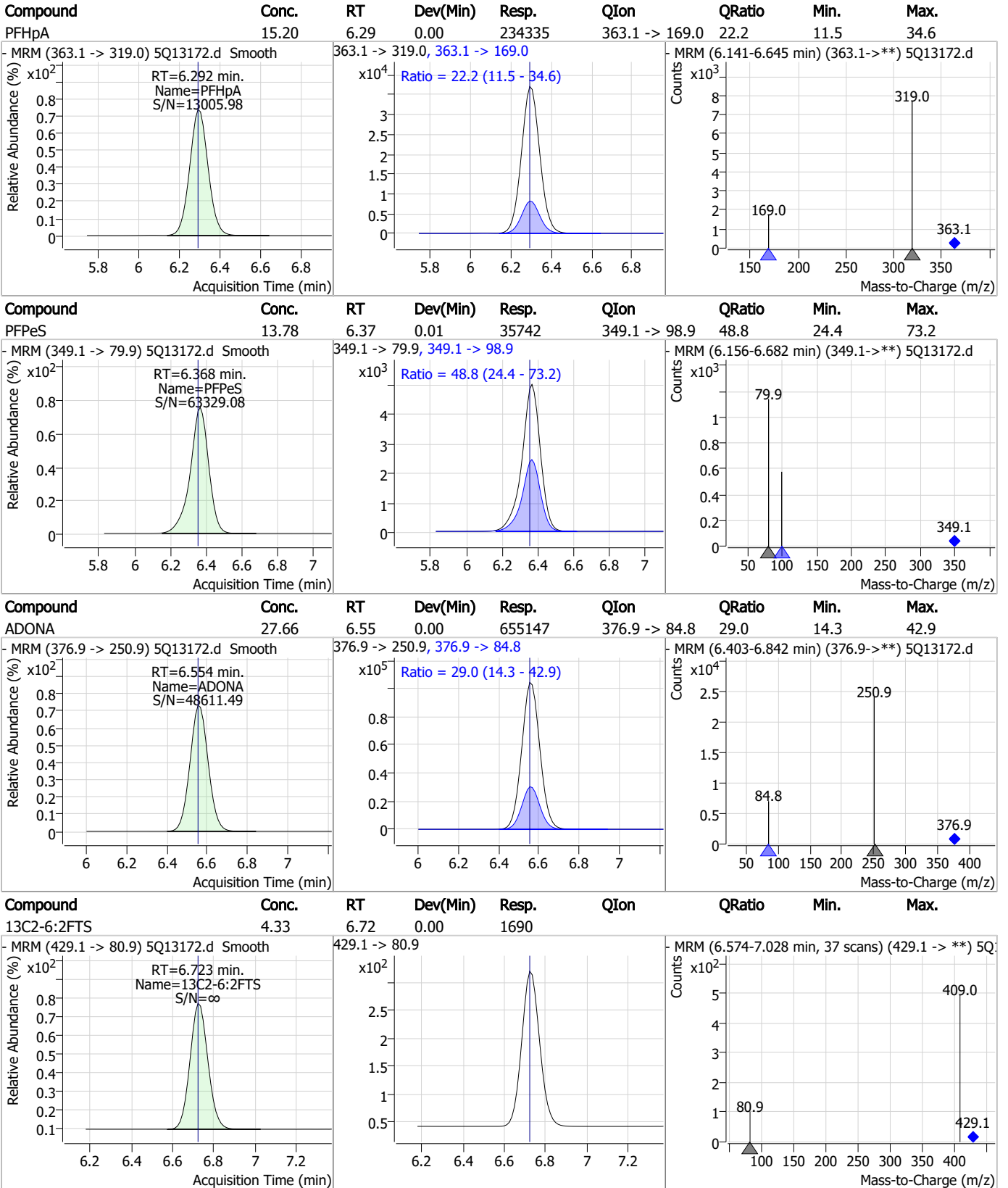
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.85	5.71	0.01	85869				



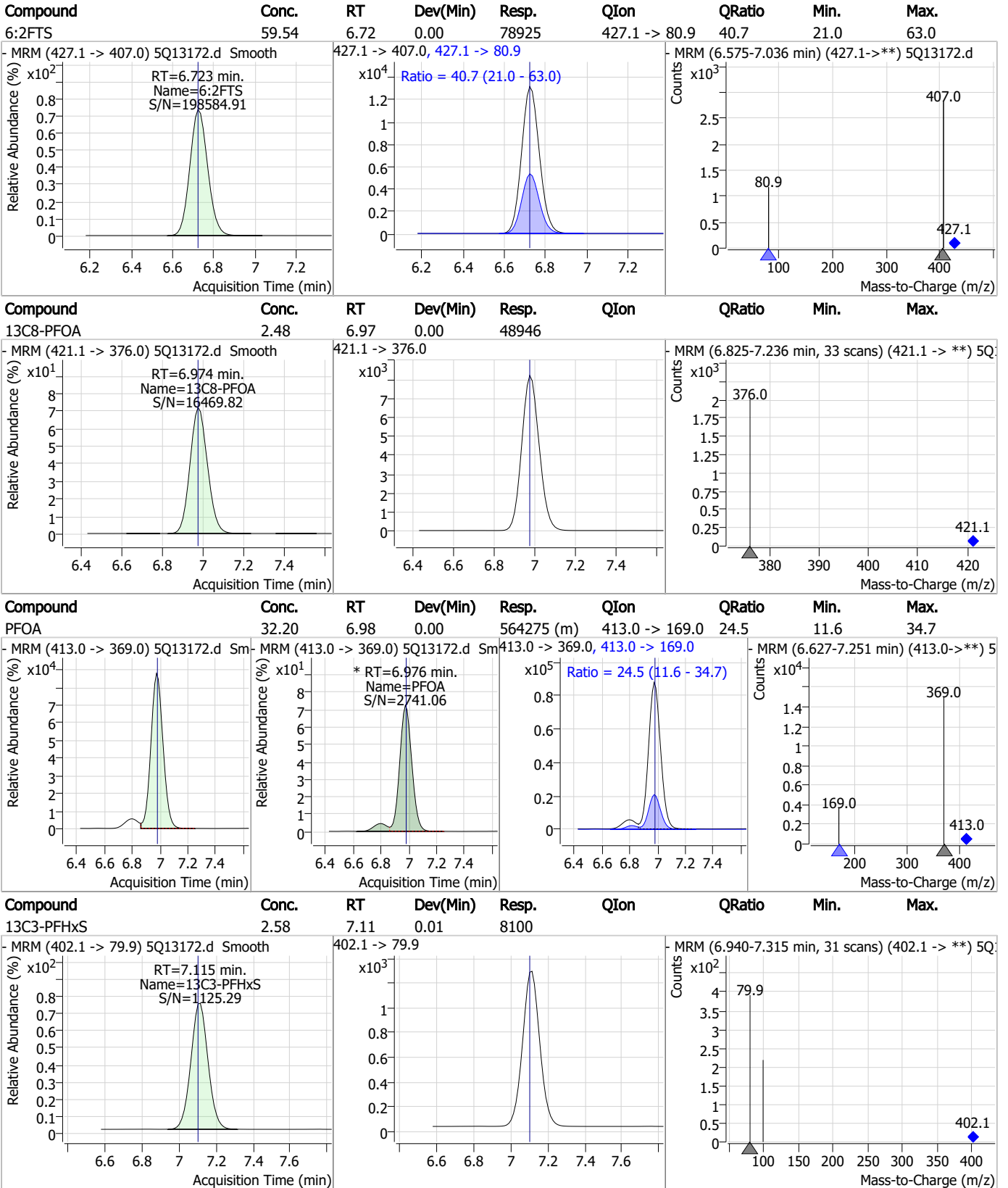
# Perfluorinated Compounds by LC/MS/MS



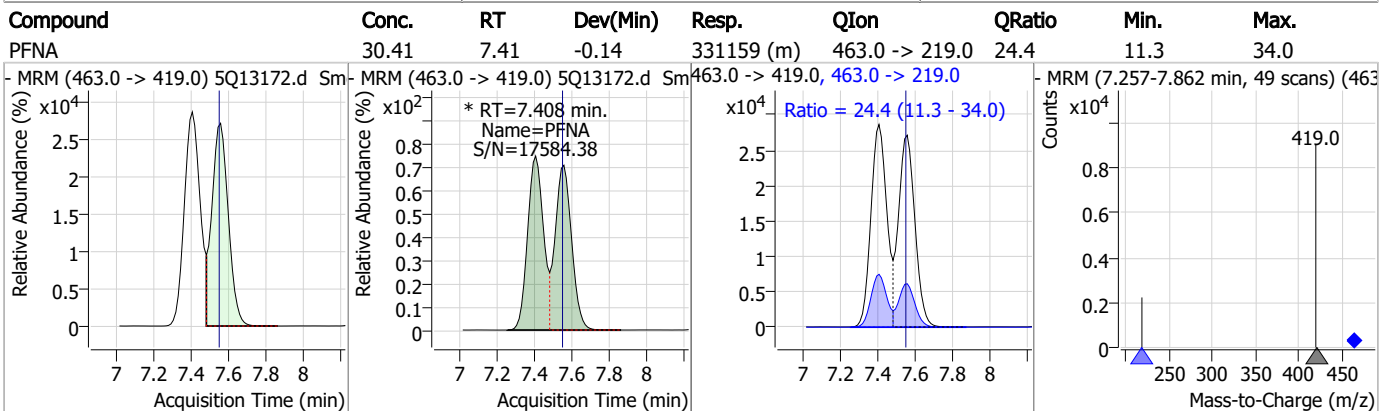
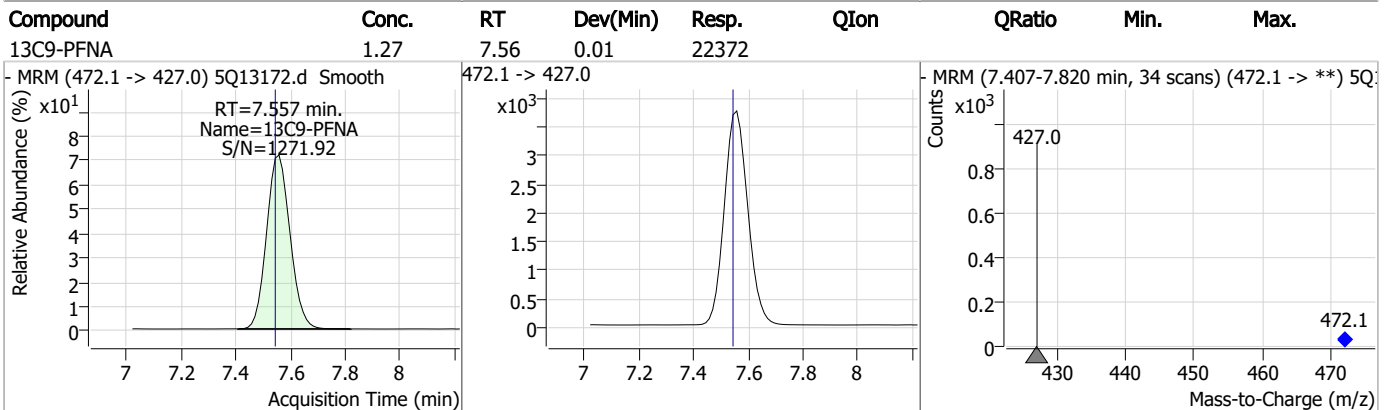
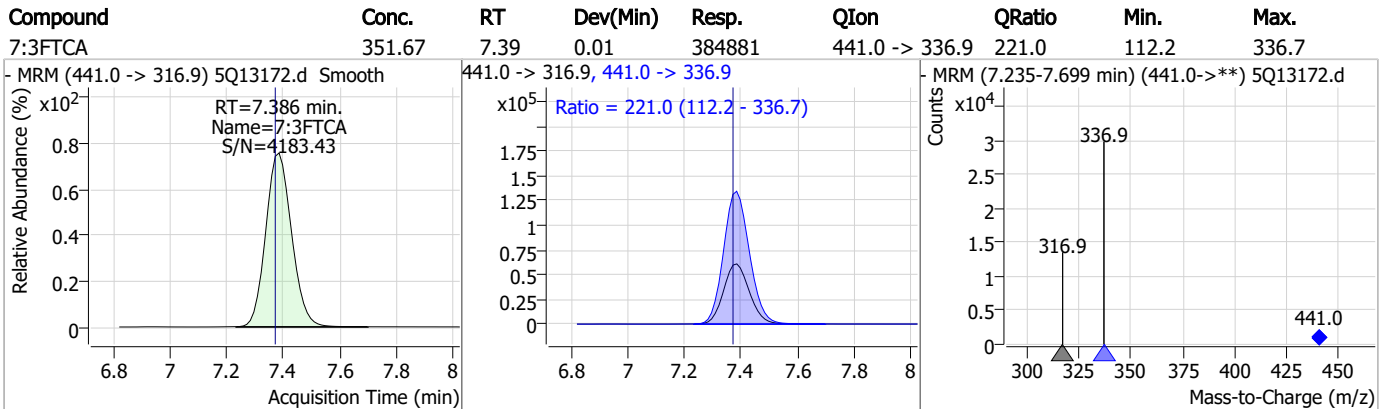
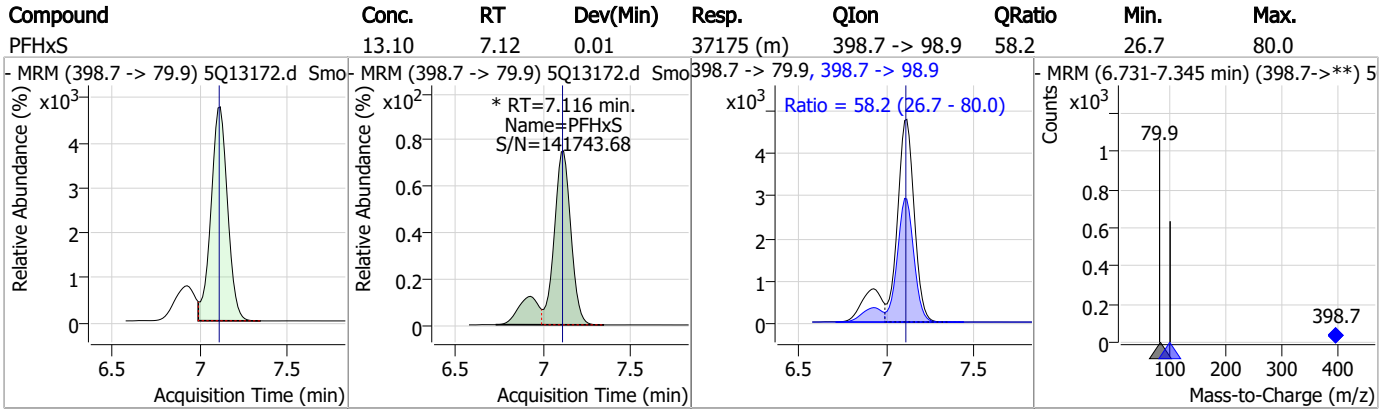
# Perfluorinated Compounds by LC/MS/MS



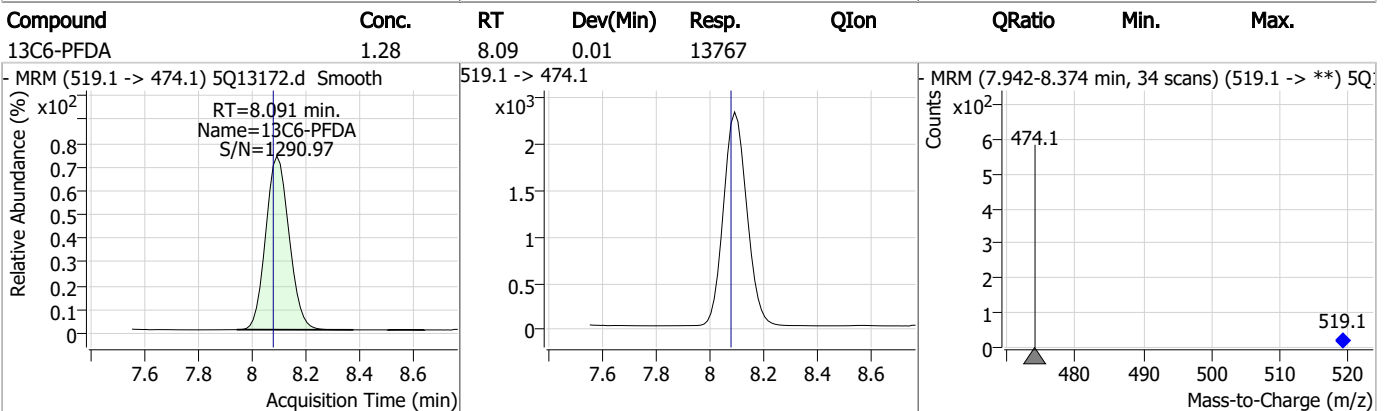
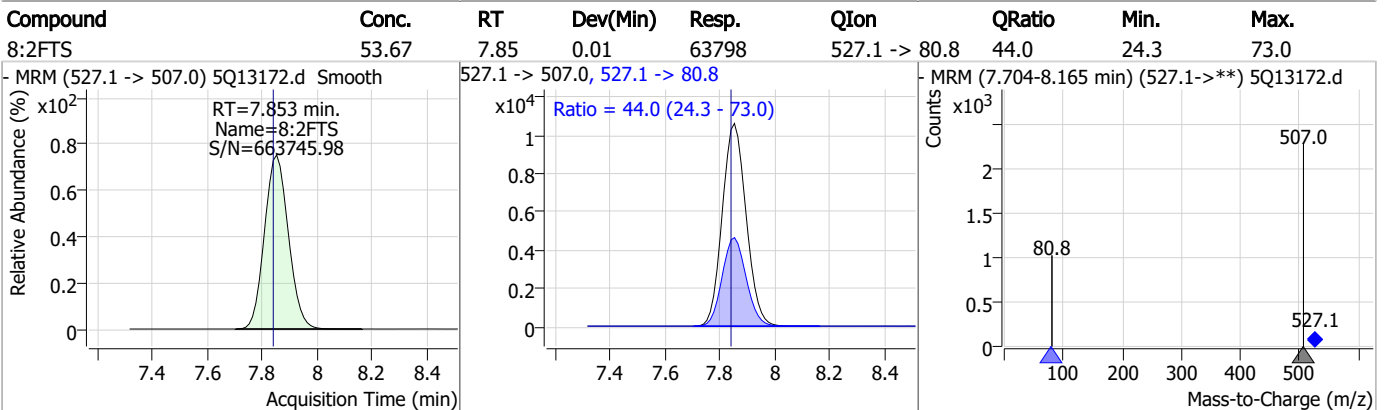
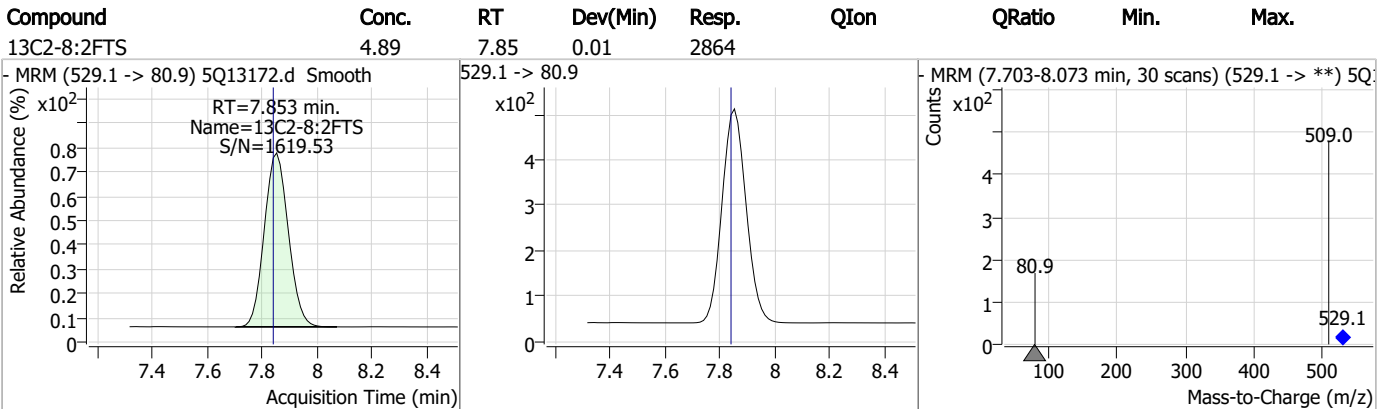
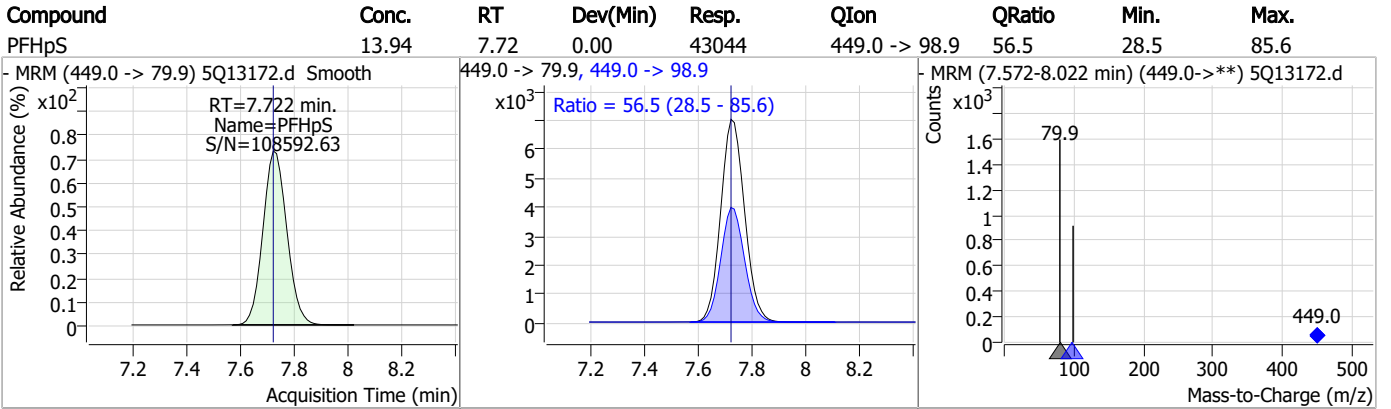
# Perfluorinated Compounds by LC/MS/MS



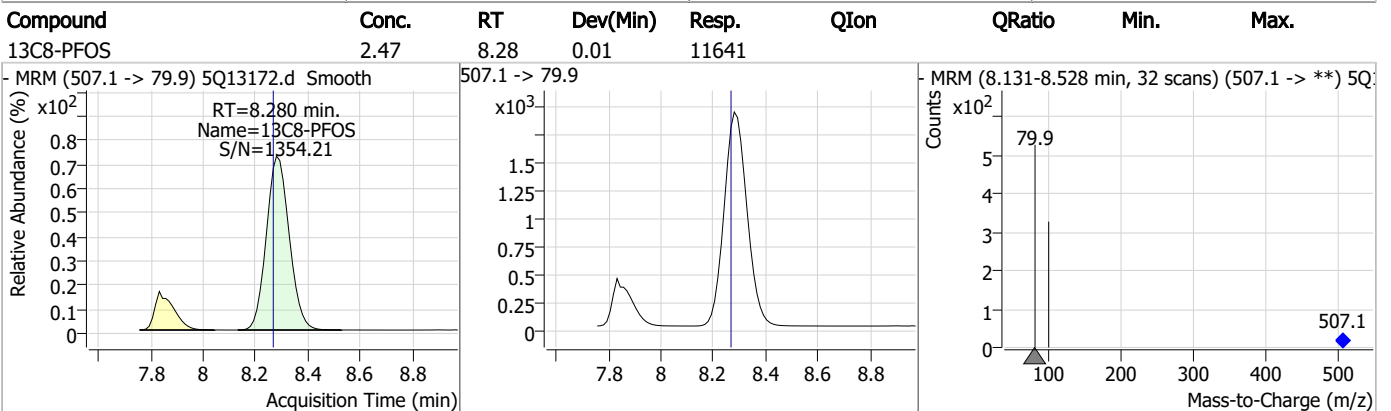
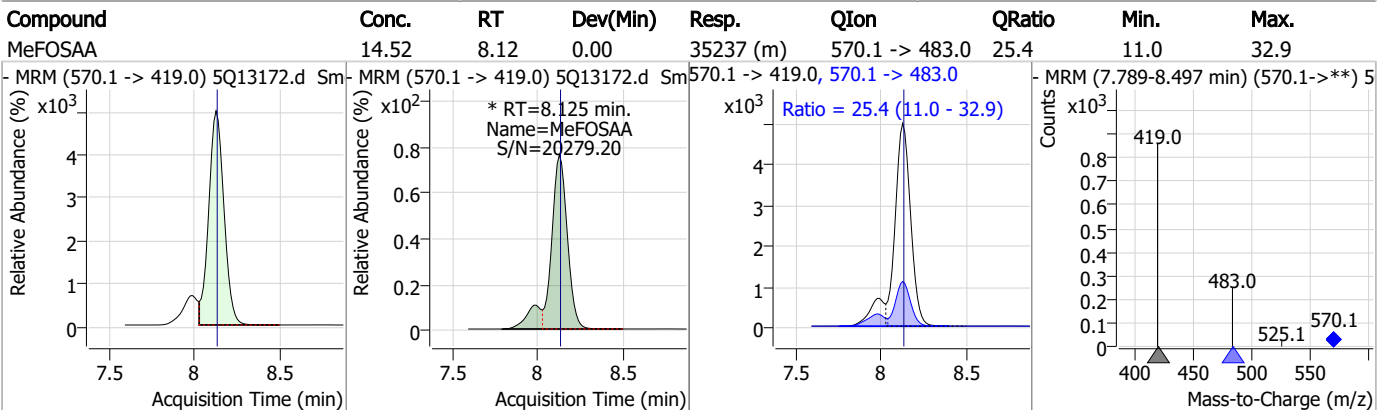
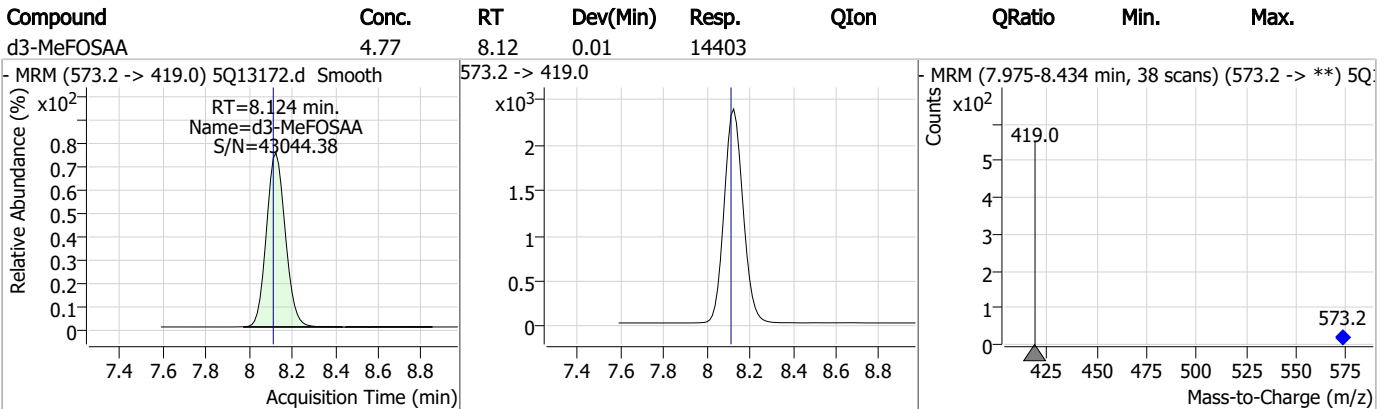
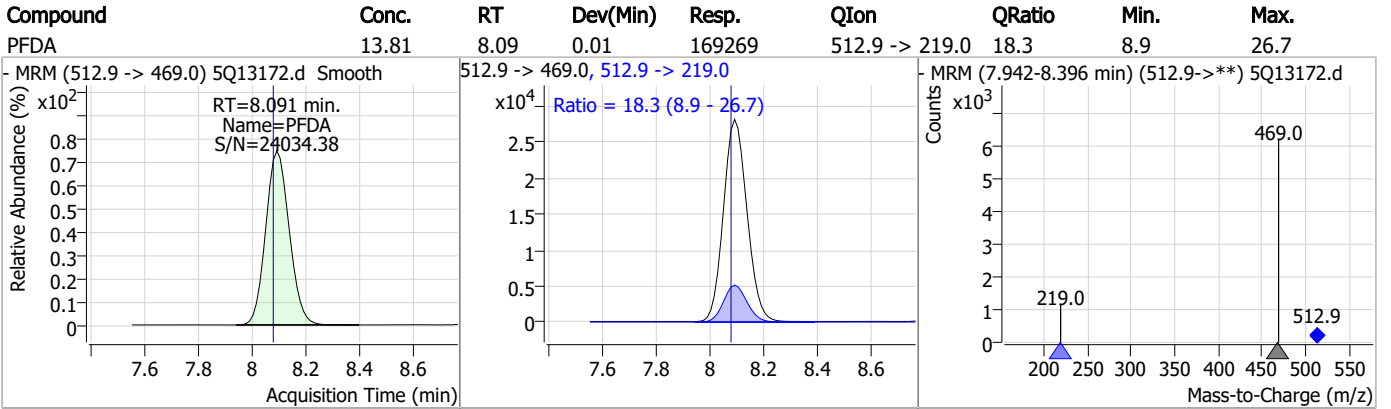
# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS



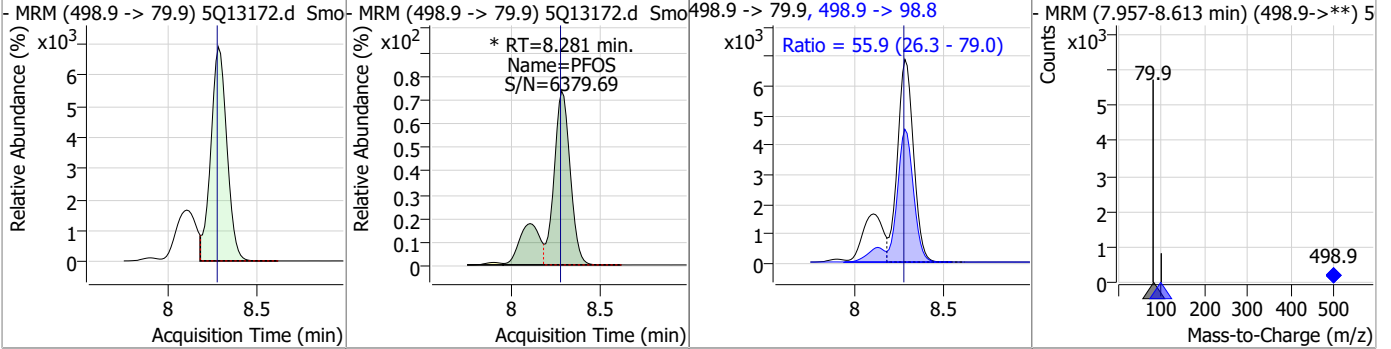
# Perfluorinated Compounds by LC/MS/MS



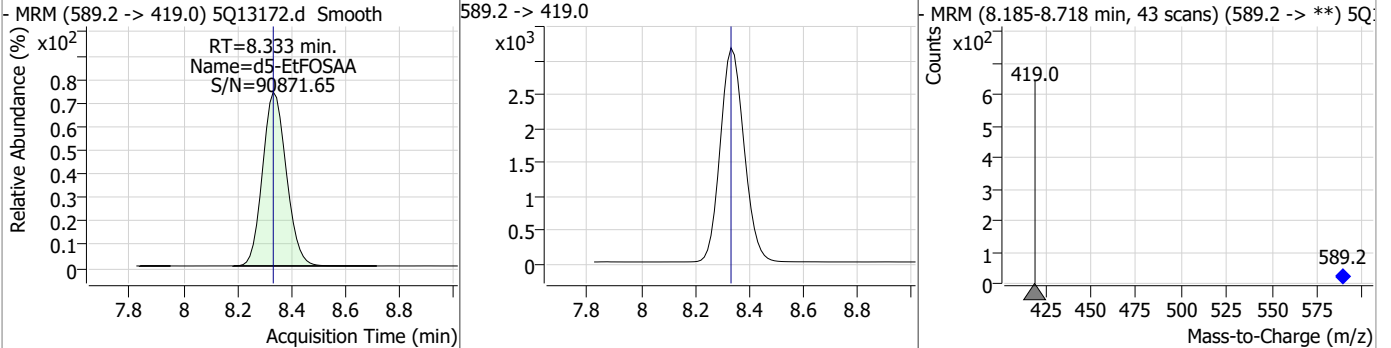


# Perfluorinated Compounds by LC/MS/MS

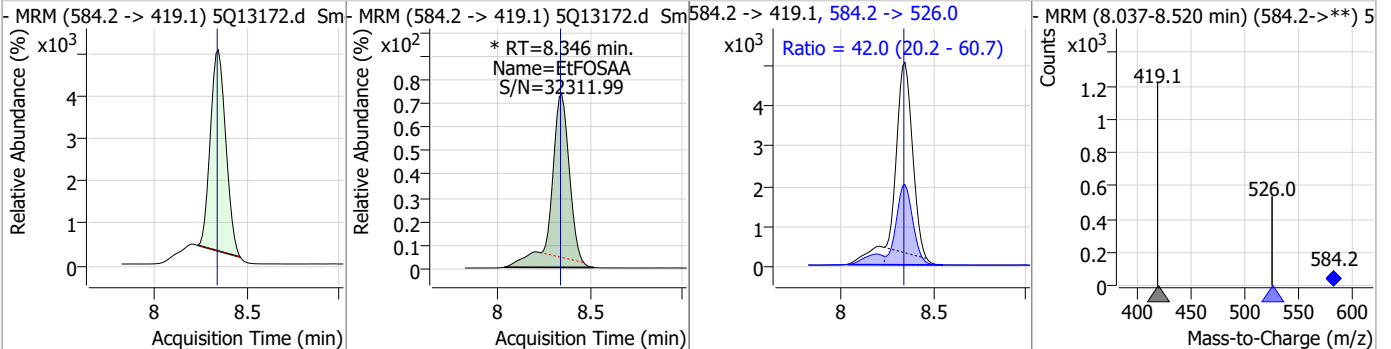
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	13.61	8.28	0.01	55272 (m)	498.9 -> 98.8	55.9	26.3	79.0



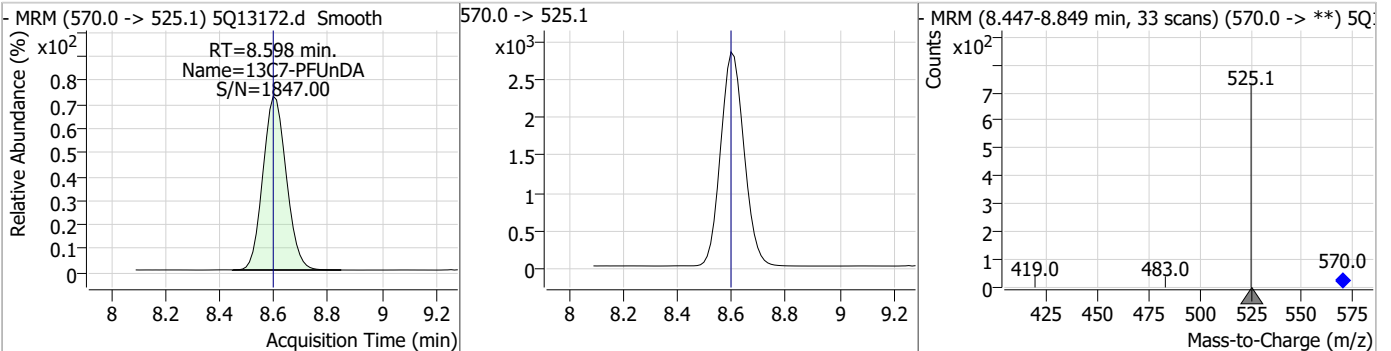
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.67	8.33	0.00	19259				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	14.12	8.35	0.01	34464 (m)	584.2 -> 526.0	42.0	20.2	60.7

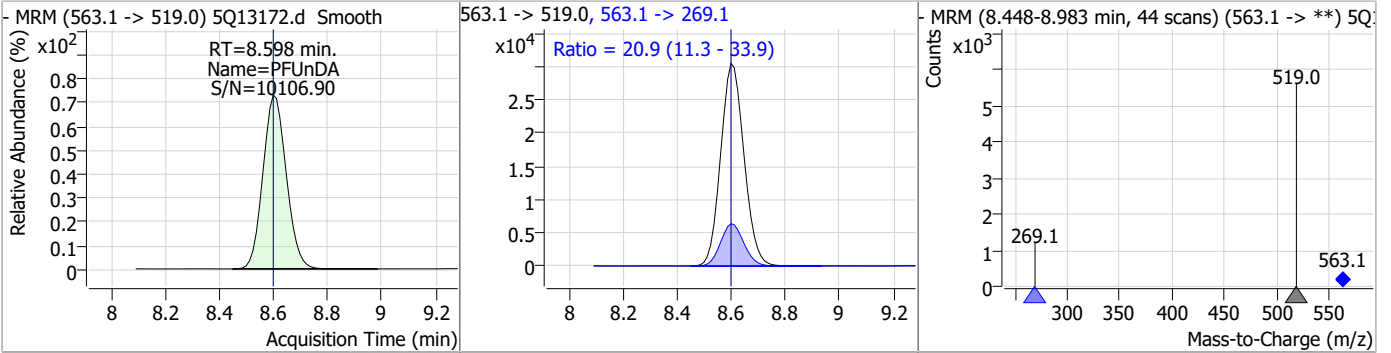


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.26	8.60	0.00	16900				

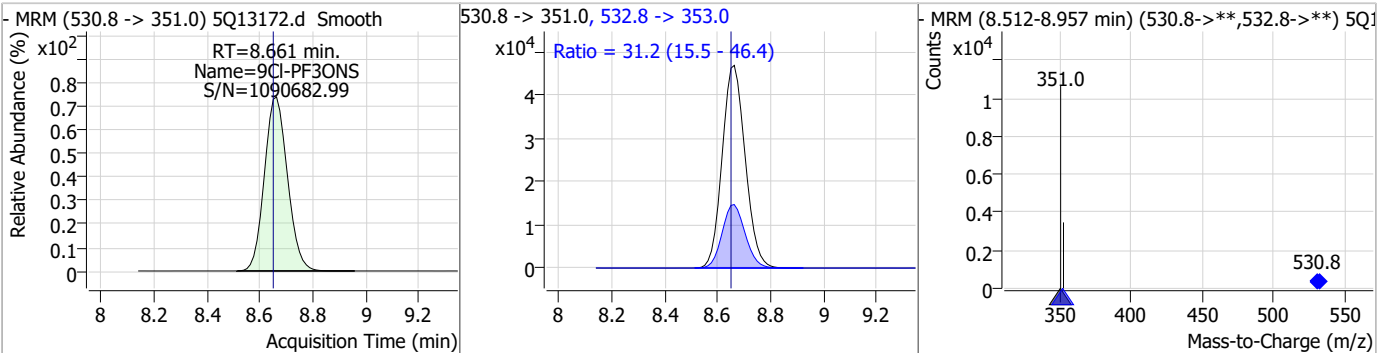


# Perfluorinated Compounds by LC/MS/MS

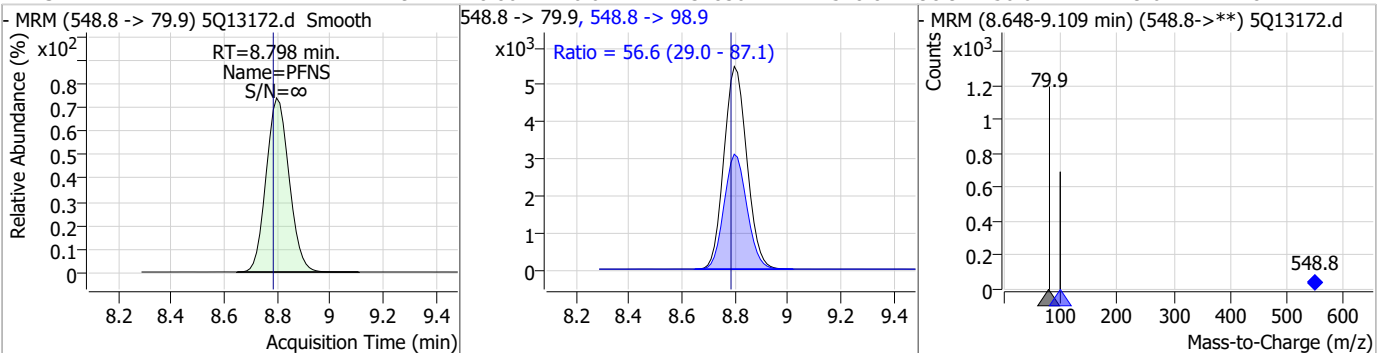
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	14.99	8.60	0.00	182349	563.1 -> 269.1	20.9	11.3	33.9



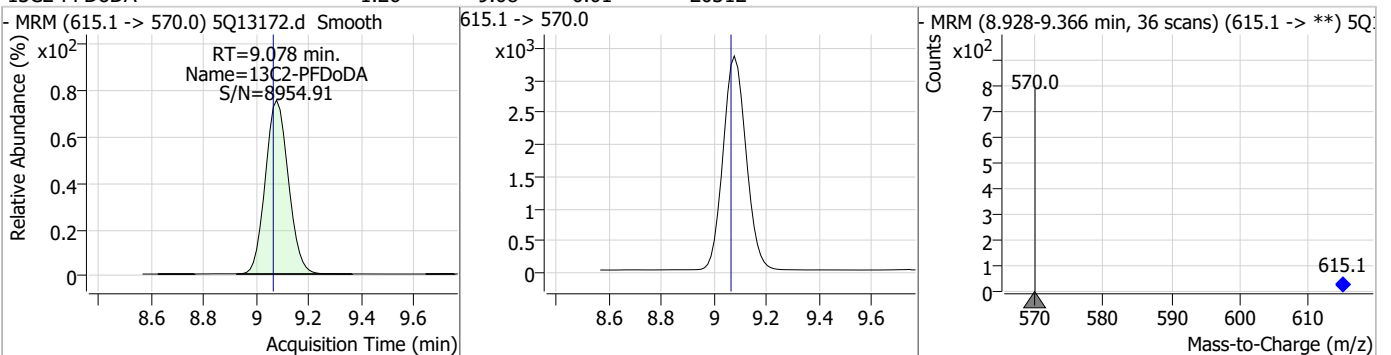
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	27.44	8.66	0.01	283636	532.8 -> 353.0	31.2	15.5	46.4



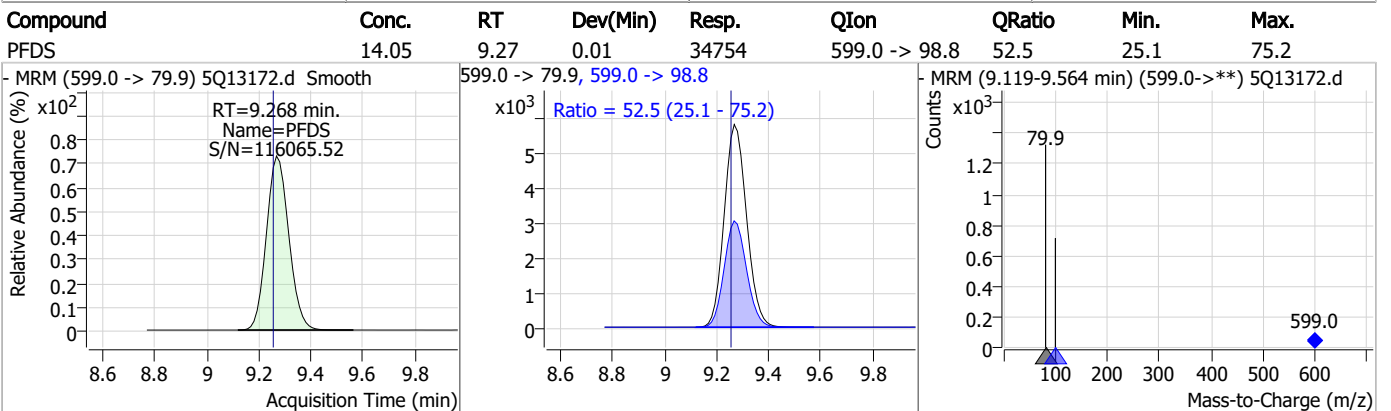
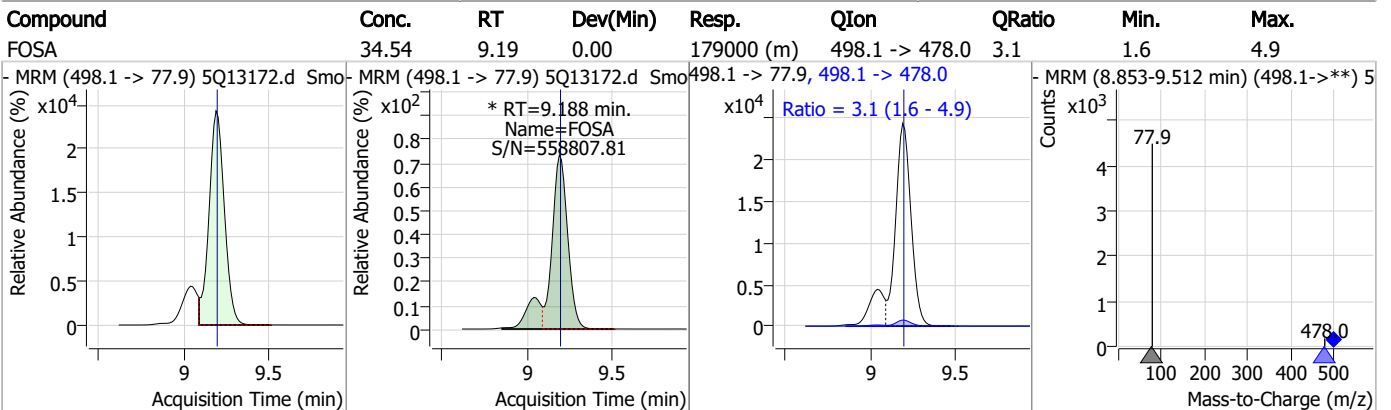
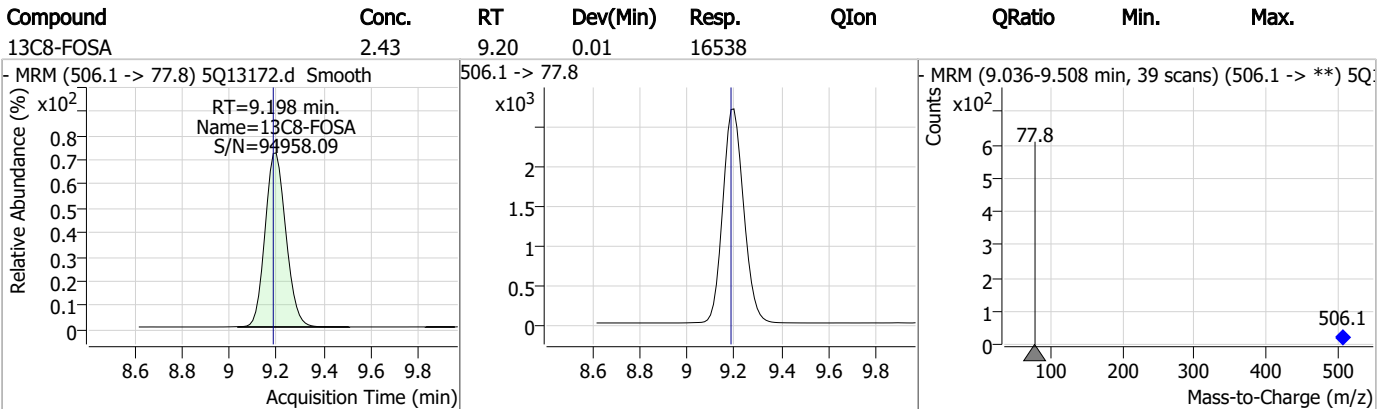
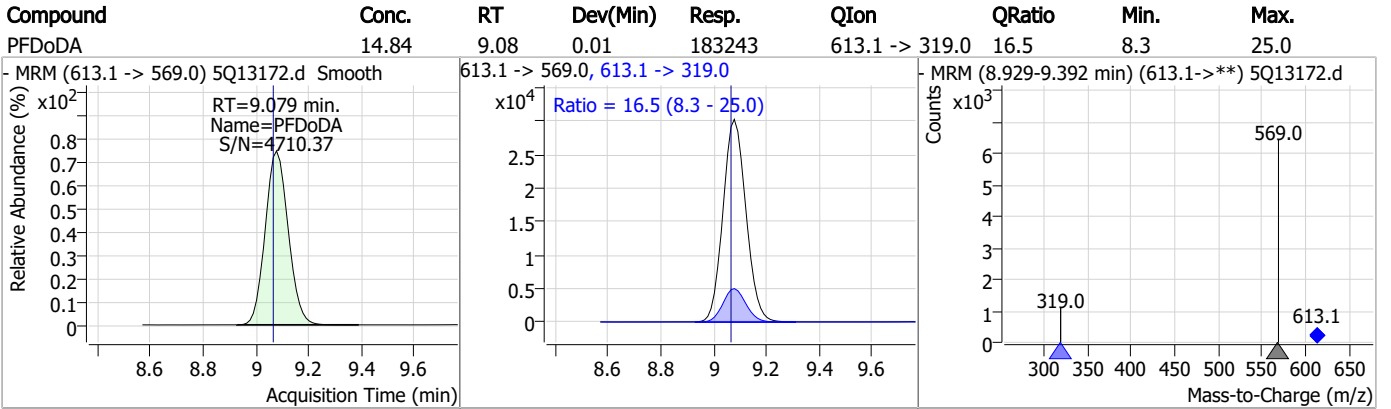
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	14.29	8.80	0.01	32830	548.8 -> 98.9	56.6	29.0	87.1



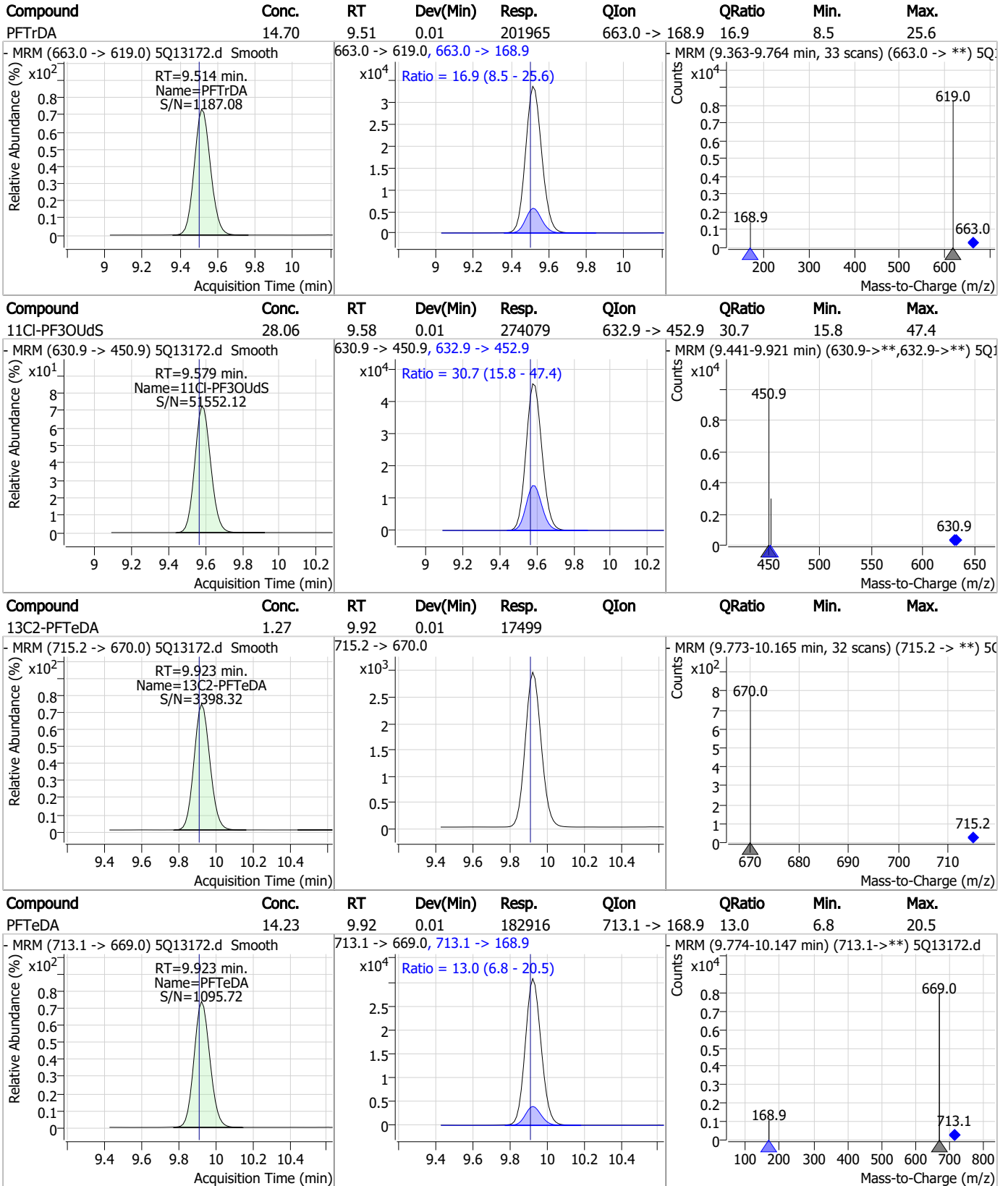
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.26	9.08	0.01	20312	615.1 -> 570.0	-	-	-



# Perfluorinated Compounds by LC/MS/MS



# Perfluorinated Compounds by LC/MS/MS

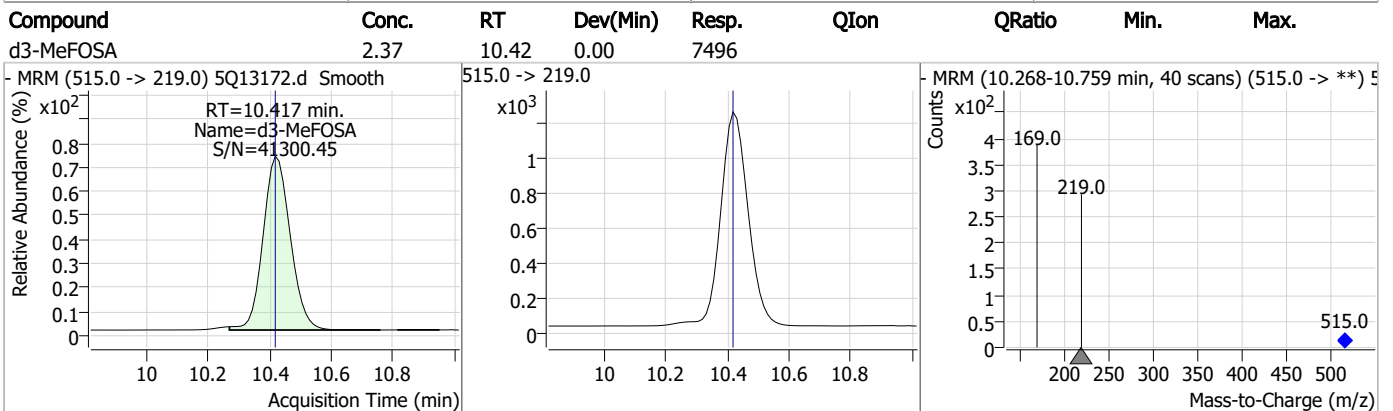
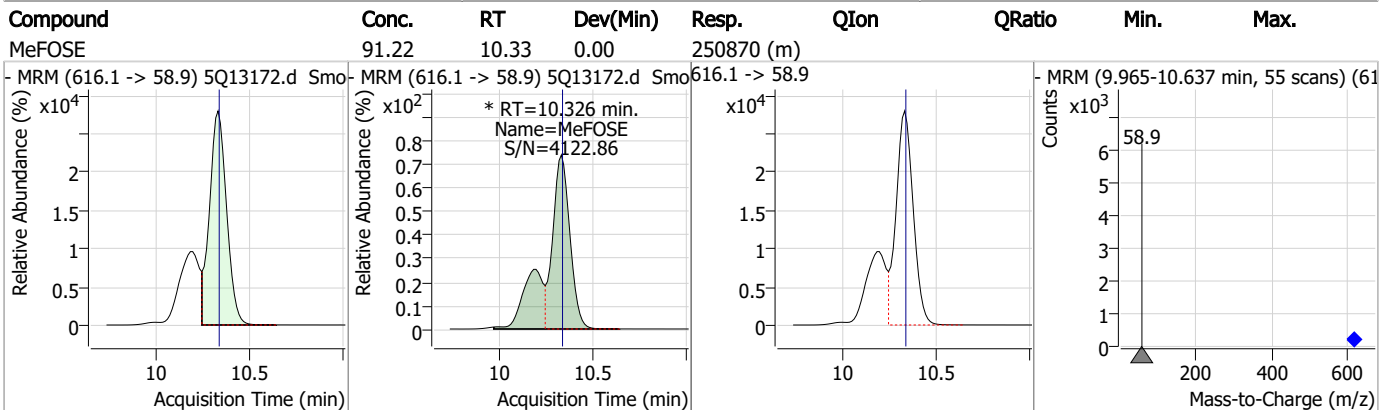
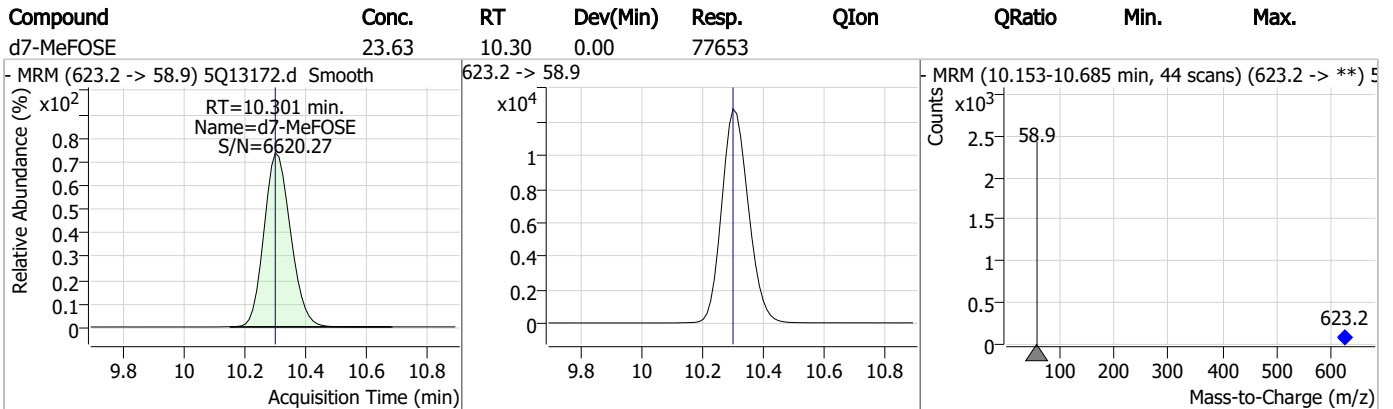
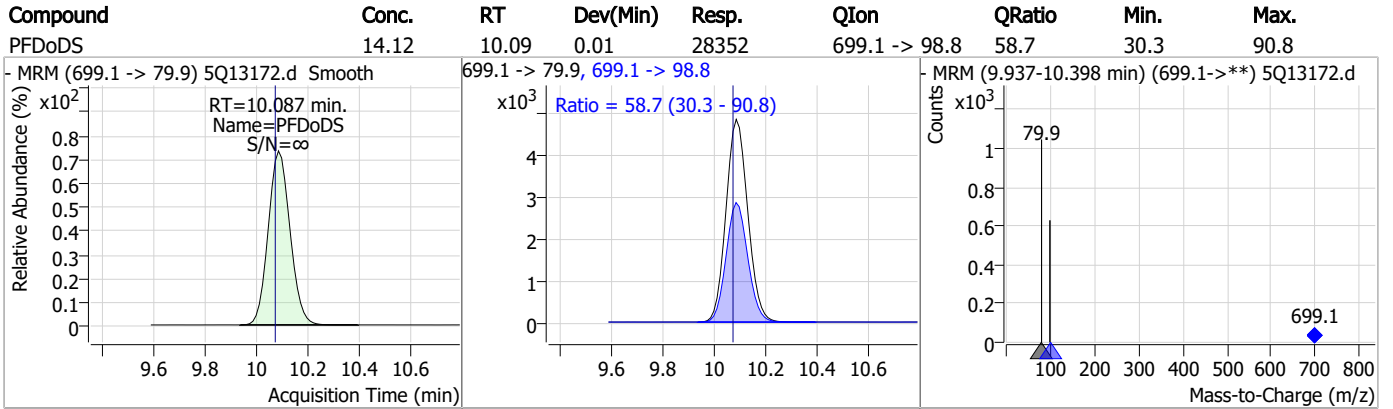


7.6.2

7

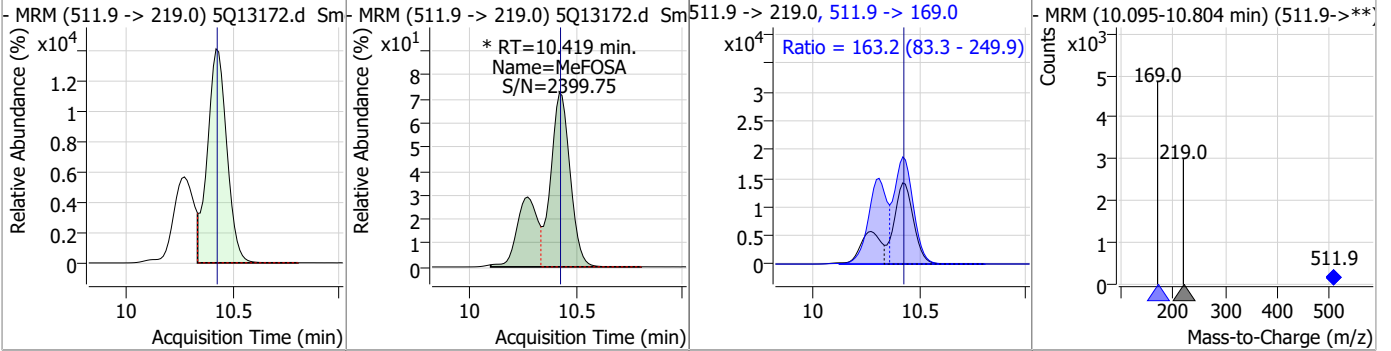


# Perfluorinated Compounds by LC/MS/MS

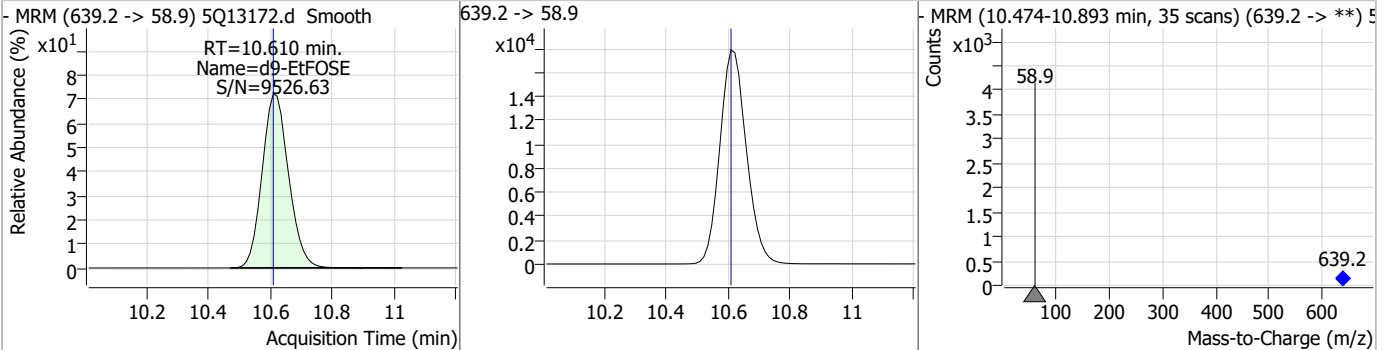


# Perfluorinated Compounds by LC/MS/MS

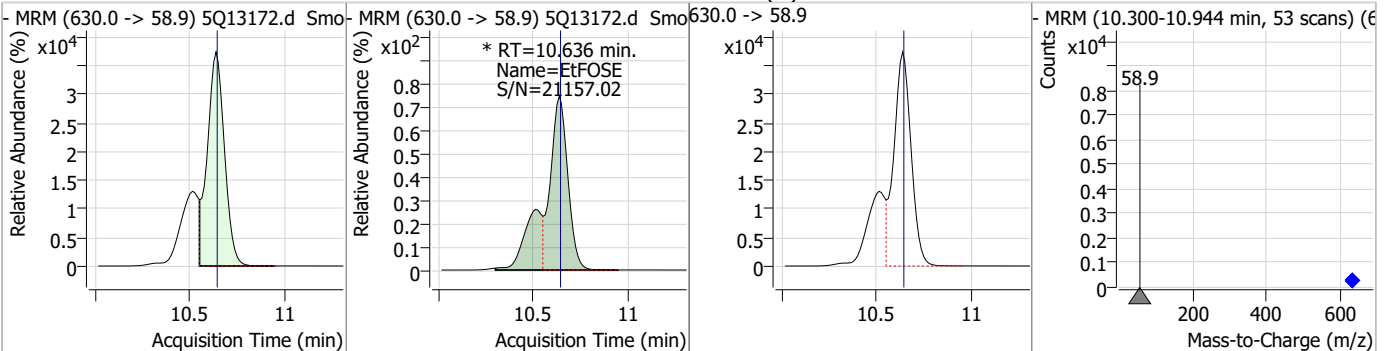
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	49.68	10.42	0.00	127295 (m)	511.9 -> 169.0	163.2	83.3	249.9



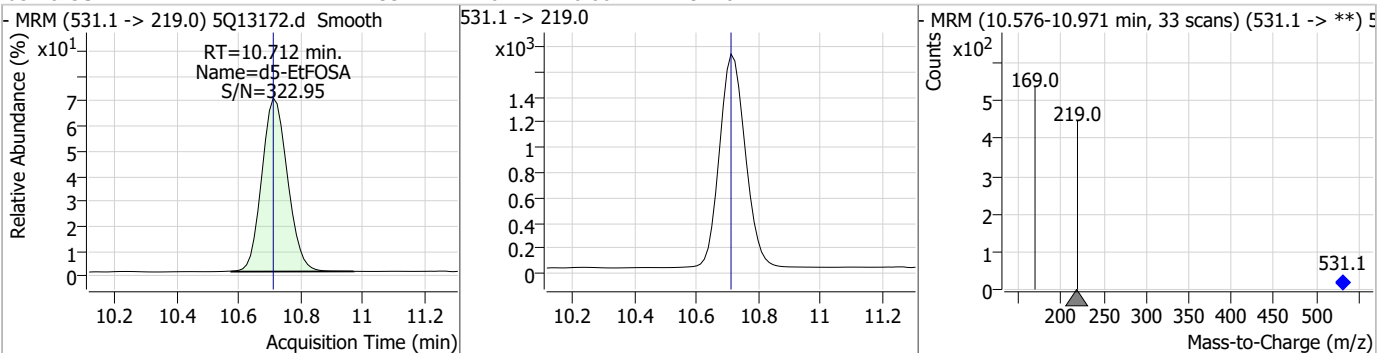
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.60	10.61	0.00	105644				



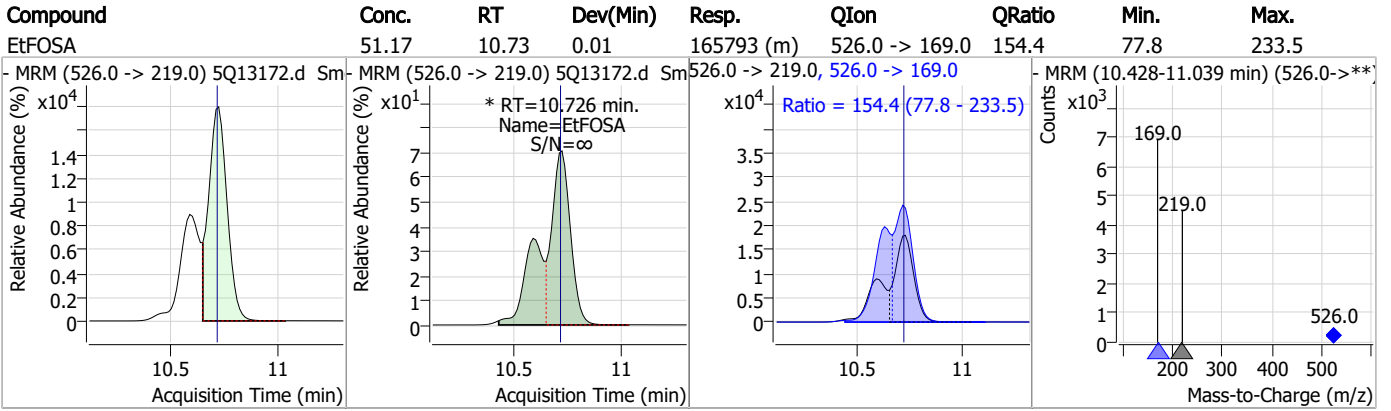
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	91.53	10.64	0.00	320408 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.33	10.71	0.00	9776				



# Perfluorinated Compounds by LC/MS/MS



7.6.2

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-RT                      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13172.D                      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 18:27              **Supervisor approved:** 04/21/23 10:12 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		2.77	Poor instrument integration
13C4-PFBA			2.78	Poor instrument integration
13C3-PFBA			2.78	Poor instrument integration
13C3-PFBS			5.26	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.26	Poor instrument integration
Perfluorooctanoic acid	335-67-1		6.98	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.12	Split peak
Perfluorononanoic acid	375-95-1		7.41	Split peak
MeFOSAA	2355-31-9		8.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.35	Split peak
PFOSA	754-91-6		9.19	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.73	Split peak

7.6.2.1  
7



## QQQ Check Tune Report



**Instrument Name** LCMS5Q  
**MS Model** G6470B  
**MS Instrument Serial** SG2221G211  
**Software\_Firmware Version** 10.1.67, FW: A.00.08.112  
**Tune Date & Time** 17 April 2023 10:39:56  
**File Path** D:\MassHunter\Tune\QQQ\G6470B\atunes.TUNE.XML  
**Ion Source** AJS ESI  
**Ionization Mode** AJS ESI  
**Tuned Resolution** All  
**Vacuum Pressure** 1.35E+0 [R] (Torr); 4.36E-5 [H] (Torr)

### Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	3500
Nozzle Voltage (V)	1500
Sheath Gas Temp (°C)	250
Sheath Gas Flow (l/min)	7

7.7.1

7

### QQQ Check Tune Report



#### Negative Results

**Analyzer: MS1 Polarity: Negative Width: Unit**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.95	-0.04	Pass	0.70	0.72	0.02	Pass	290447
302.00	301.91	-0.09	Pass	0.70	0.75	0.05	Pass	103251
601.98	601.88	-0.10	Pass	0.70	0.74	0.04	Pass	446991
1033.99	1033.88	-0.11	Pass	0.70	0.71	0.01	Pass	628429
1633.95	1633.76	-0.19	Pass	0.70	0.68	-0.02	Pass	1137448
2233.91	2233.64	-0.27	Pass	0.70	0.71	0.01	Pass	673424

**Analyzer: MS2 Polarity: Negative Width: Unit**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.07	0.07	Pass	0.70	0.60	-0.10	Pass	51465
112.99	112.99	0.00	Pass	0.70	0.67	-0.03	Pass	196396
302.00	301.98	-0.02	Pass	0.70	0.71	0.01	Pass	76467
601.98	601.90	-0.08	Pass	0.70	0.75	0.05	Pass	183273
1033.99	1033.86	-0.13	Pass	0.70	0.75	0.05	Pass	200054
1633.95	1633.80	-0.15	Pass	0.70	0.75	0.05	Pass	440917
2233.91	2233.75	-0.16	Pass	0.70	0.75	0.05	Pass	211736

**Analyzer: MS1 Polarity: Negative Width: Wide**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.93	-0.06	Pass	1.20	1.16	-0.04	Pass	386716
302.00	301.87	-0.13	Pass	1.20	1.41	0.21	Pass	147015
601.98	601.83	-0.15	Pass	1.20	1.53	0.33	Pass	714018
1033.99	1033.83	-0.16	Pass	1.20	1.49	0.29	Pass	1232178
1633.95	1633.72	-0.23	Pass	1.20	1.34	0.14	Pass	2280301
2233.91	2233.57	-0.34	Pass	1.20	1.12	-0.08	Pass	1384893

**Analyzer: MS2 Polarity: Negative Width: Wide**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.06	0.06	Pass	1.20	1.17	-0.03	Pass	71005
112.99	112.97	-0.02	Pass	1.20	1.21	0.01	Pass	306732
302.00	301.95	-0.05	Pass	1.20	1.32	0.12	Pass	112413
601.98	601.88	-0.10	Pass	1.20	1.43	0.23	Pass	367105
1033.99	1033.86	-0.13	Pass	1.20	1.43	0.23	Pass	552176
1633.95	1633.77	-0.18	Pass	1.20	1.42	0.22	Pass	1361224
2233.91	2233.78	-0.13	Pass	1.20	1.30	0.10	Pass	590409

**Analyzer: MS1 Polarity: Negative Width: Widest**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.90	-0.09	Pass	2.50	2.41	-0.09	Pass	525980
302.00	301.81	-0.19	Pass	2.50	2.62	0.12	Pass	185756
601.98	601.85	-0.13	Pass	2.50	2.82	0.32	Pass	1009944
1033.99	1033.85	-0.14	Pass	2.50	2.81	0.31	Pass	2174683
1633.95	1633.73	-0.22	Pass	2.50	2.76	0.26	Pass	5081506
2233.91	2233.59	-0.32	Pass	2.50	2.67	0.17	Pass	4247549

**Analyzer: MS2 Polarity: Negative Width: Widest**

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.04	0.04	Pass	2.50	2.39	-0.11	Pass	90160
112.99	112.98	-0.01	Pass	2.50	2.48	-0.02	Pass	415782
302.00	301.97	-0.03	Pass	2.50	2.51	0.01	Pass	151183
601.98	601.93	-0.05	Pass	2.50	2.59	0.09	Pass	575059
1033.99	1033.86	-0.13	Pass	2.50	2.55	0.05	Pass	1046471
1633.95	1633.81	-0.14	Pass	2.50	2.49	-0.01	Pass	3331563
2233.91	2233.68	-0.23	Pass	2.50	2.41	-0.09	Pass	1936509

7.7.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13174.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 6:55:56 PM  
 Sample Name : ic205-1  
 Vial : P3-A2  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.790	216.8 -> 171.9	54917	10.00	µg/L	m 0.025
M5-PFPeA	4.128	268.3 -> 223.0	39995	5.00	µg/L	0.012
M5-PFHxA	5.321	318.0 -> 273.0	35190	2.50	µg/L	0.012
M4-PFHpA	6.291	367.1 -> 322.0	31346	2.50	µg/L	0.000
M8-PFOA	6.974	421.1 -> 376.0	41558	2.50	µg/L	0.000
M9-PFNA	7.544	472.1 -> 427.0	17813	1.25	µg/L	0.000
M6-PFDA	8.091	519.1 -> 474.1	11002	1.25	µg/L	0.013
M7-PFUnDA	8.598	570.0 -> 525.1	14145	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	16621	1.25	µg/L	0.000
M2-PFTeDA	9.923	715.2 -> 670.0	14357	1.25	µg/L	0.012
M8-FOSA	9.198	506.1 -> 77.8	13323	2.50	µg/L	0.012
M3-PFBS	5.276	302.1 -> 79.9	7597	2.50	µg/L	m 0.025
M3-PFHxS	7.103	402.1 -> 79.9	6480	2.50	µg/L	0.000
M8-PFOS	8.280	507.1 -> 79.9	9270	2.50	µg/L	0.012
M2-4:2FTS	4.972	329.1 -> 80.9	761	5.00	µg/L	0.012
M2-6:2FTS	6.723	429.1 -> 80.9	1805	5.00	µg/L	0.000
M2-8:2FTS	7.853	529.1 -> 80.9	2822	5.00	µg/L	0.012
M3-MeFOSAA	8.111	573.2 -> 419.0	11979	5.00	µg/L	0.000
M3-HFPO-DA	5.713	286.9 -> 168.9	68492	10.00	µg/L	0.012
M5-EtFOSAA	8.333	589.2 -> 419.0	17294	5.00	µg/L	0.000
M7-MeFOSE	10.301	623.2 -> 58.9	63717	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	94552	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	8230	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6263	2.50	µg/L	0.000
13C4-PFOS	8.281	502.8 -> 79.9	8908	2.50	µg/L	0.012
13C3-PFBA	2.780	216.0 -> 172.0	28619	5.00	µg/L	m 0.012
18O2-PFHxS	7.114	403.0 -> 83.9	4277	2.50	µg/L	0.012
13C4-PFOA	6.975	417.1 -> 372.0	50511	2.50	µg/L	0.000
13C2-PFDA	8.091	515.1 -> 470.1	16971	1.25	µg/L	0.013
13C5-PFNA	7.544	468.0 -> 423.0	17839	1.25	µg/L	0.000
13C2-PFHxA	5.322	315.1 -> 270.0	37640	2.50	µg/L	0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.972	329.1 -> 80.9	761	5.14	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%			
13C2-6:2FTS	6.723	429.1 -> 80.9	1805	5.54	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.7%			
13C2-8:2FTS	7.853	529.1 -> 80.9	2822	5.76	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.3%			
13C2-PFDoDA	9.066	615.1 -> 570.0	16621	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%			
13C2-PFTeDA	9.923	715.2 -> 670.0	14357	1.26	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%			
13C3-PFBS	5.276	302.1 -> 79.9	7095	2.71	µg/L	m 0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.4%			
13C3-PFHxS	7.103	402.1 -> 79.9	6480	2.47	µg/L	0.000

7.7.2  
7

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C4-PFBA	2.790	216.8 -> 171.9	54917	10.02 µg/L m	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C4-PFHpA	6.291	367.1 -> 322.0	31346	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C5-PFHxA	5.321	318.0 -> 273.0	35190	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C5-PFPeA	4.128	268.3 -> 223.0	39995	4.93 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C6-PFDA	8.091	519.1 -> 474.1	11002	1.23 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C7-PFUnDA	8.598	570.0 -> 525.1	14145	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C8-FOSA	9.198	506.1 -> 77.8	13323	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C8-PFOA	6.974	421.1 -> 376.0	41558	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C8-PFOS	8.280	507.1 -> 79.9	9270	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C9-PFNA	7.544	472.1 -> 427.0	17813	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
d3-MeFOSAA	8.111	573.2 -> 419.0	11979	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-HFPO-DA	5.713	286.9 -> 168.9	68492	9.75 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
d3-MeFOSA	10.417	515.0 -> 219.0	6263	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
d5-EtFOSAA	8.333	589.2 -> 419.0	17294	5.31 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
d7-MeFOSE	10.301	623.2 -> 58.9	63717	24.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.3%		
d9-EtFOSE	10.610	639.2 -> 58.9	94552	25.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
d5-EtFOSA	10.712	531.1 -> 219.0	8230	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	4.973	327.1 -> 307.0	750	0.84 µg/L	99
		327.1 -> 80.9	409		
6:2FTS	6.723	427.1 -> 407.0	1092	0.77 µg/L	92
		427.1 -> 80.9	517		
8:2FTS	7.841	527.1 -> 507.0	1053	0.90 µg/L	84
		527.1 -> 80.8	395		
EtFOSAA	8.334	584.2 -> 419.1	472	0.22 µg/L m	89
		584.2 -> 526.0	158		
FOSA	9.188	498.1 -> 77.9	855	0.20 µg/L	99
		498.1 -> 478.0	24		
MeFOSAA	8.125	570.1 -> 419.0	431	0.21 µg/L m	79
		570.1 -> 483.0	137		
PFBA	2.783	212.8 -> 168.9	1731	0.87 µg/L m	100
PFBS	5.264	298.7 -> 79.9	419	0.17 µg/L m	93
		298.7 -> 98.8	176		
PFDA	8.091	512.9 -> 469.0	2350	0.24 µg/L	99
		512.9 -> 219.0	413		
PFDODA	9.067	613.1 -> 569.0	1961	0.19 µg/L	88
		613.1 -> 319.0	429		
PFDS	9.268	599.0 -> 79.9	399	0.20 µg/L	89

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.292	599.0 -> 98.8	230	0.21	µg/L	96
		363.1 -> 319.0	2684			
PFHpS	7.722	363.1 -> 169.0	678	0.20	µg/L	97
		449.0 -> 79.9	485			
PFHxA	5.324	449.0 -> 98.9	290	0.21	µg/L	96
		313.0 -> 269.0	1873			
PFHxS	7.103	313.0 -> 118.9	107	0.20	µg/L	m
		398.7 -> 79.9	444			
PFNA	7.545	398.7 -> 98.9	265	0.21	µg/L	99
		463.0 -> 419.0	1823			
PFNS	8.798	463.0 -> 219.0	424	0.19	µg/L	97
		548.8 -> 79.9	351			
PFOA	6.976	548.8 -> 98.9	211	0.21	µg/L	98
		413.0 -> 369.0	3126			
PFOS	8.281	413.0 -> 169.0	759	0.19	µg/L	m
		498.9 -> 79.9	628			
PFPeA	4.129	498.9 -> 98.8	378	0.43	µg/L	100
		263.0 -> 219.0	3363			
PFPeS	6.368	349.1 -> 79.9	421	0.20	µg/L	93
		349.1 -> 98.9	227			
PFTeDA	9.923	713.1 -> 669.0	2415	0.23	µg/L	99
		713.1 -> 168.9	322			
PFTrDA	9.514	663.0 -> 619.0	2505	0.22	µg/L	95
		663.0 -> 168.9	379			
PFUnDA	8.598	563.1 -> 519.0	1944	0.19	µg/L	91
		563.1 -> 269.1	523			
11Cl-PF3OUdS	9.579	630.9 -> 450.9	3227	0.41	µg/L	99
		632.9 -> 452.9	1034			
9Cl-PF3ONS	8.649	530.8 -> 351.0	3551	0.43	µg/L	91
		532.8 -> 353.0	921			
ADONA	6.554	376.9 -> 250.9	7567	0.40	µg/L	98
		376.9 -> 84.8	2225			
HFPO-DA	5.714	284.9 -> 168.9	2248	0.42	µg/L	96
		284.9 -> 184.9	241			
3:3FTCA	3.592	241.0 -> 177.0	530	1.04	µg/L	97
		241.0 -> 117.0	62			
5:3FTCA	5.943	341.0 -> 237.1	9186	5.41	µg/L	96
		341.0 -> 217.0	5927			
7:3FTCA	7.386	441.0 -> 316.9	4996	5.70	µg/L	86
		441.0 -> 336.9	10107			
EtFOSA	10.726	526.0 -> 219.0	1202	0.44	µg/L	m
		526.0 -> 169.0	1821			
EtFOSE	10.636	630.0 -> 58.9	3649	1.16	µg/L	m
		511.9 -> 219.0	942			
MeFOSA	10.419	511.9 -> 169.0	1431	0.44	µg/L	m
		616.1 -> 58.9	2693			
MeFOSE	10.326	699.1 -> 79.9	312	1.19	µg/L	m
		699.1 -> 98.8	175			
PFDoDS	10.087	295.0 -> 201.0	379	0.20	µg/L	94
		295.0 -> 84.9	124			
NFDHA	5.203	279.0 -> 85.1	2136	0.42	µg/L	100
		229.0 -> 84.9	1589			
PFMBA	4.530	314.8 -> 134.9	4226	0.37	µg/L	97
		314.8 -> 82.9	89			

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

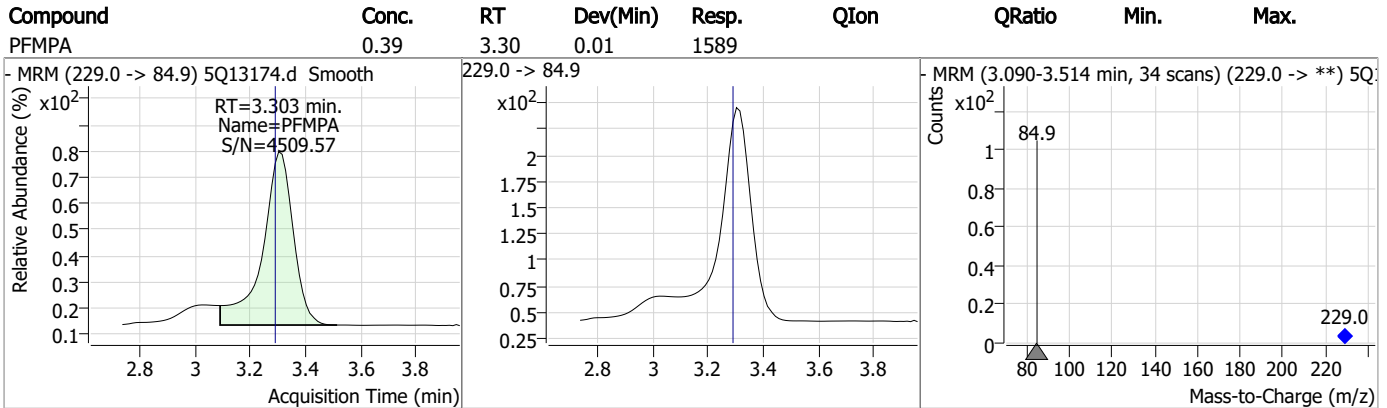
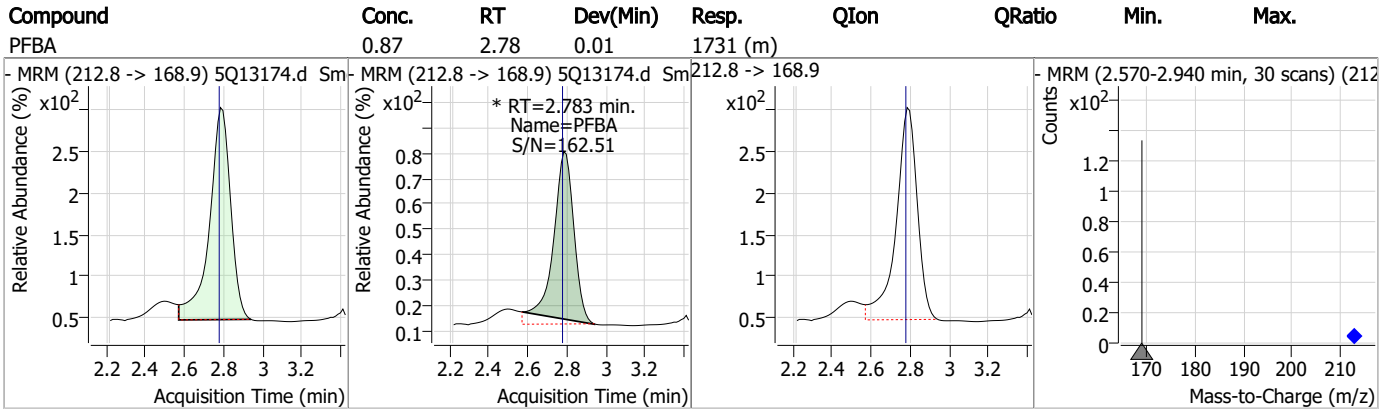
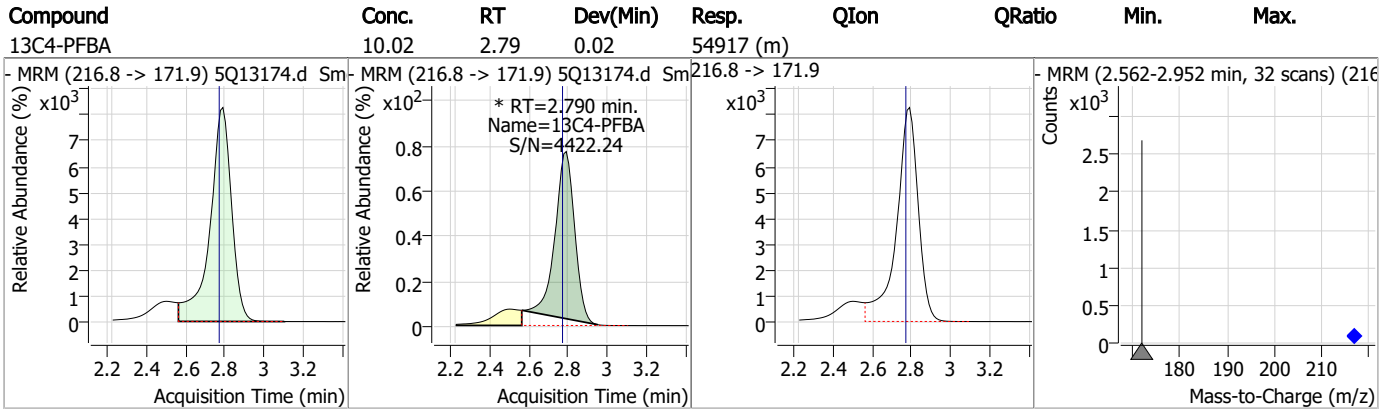
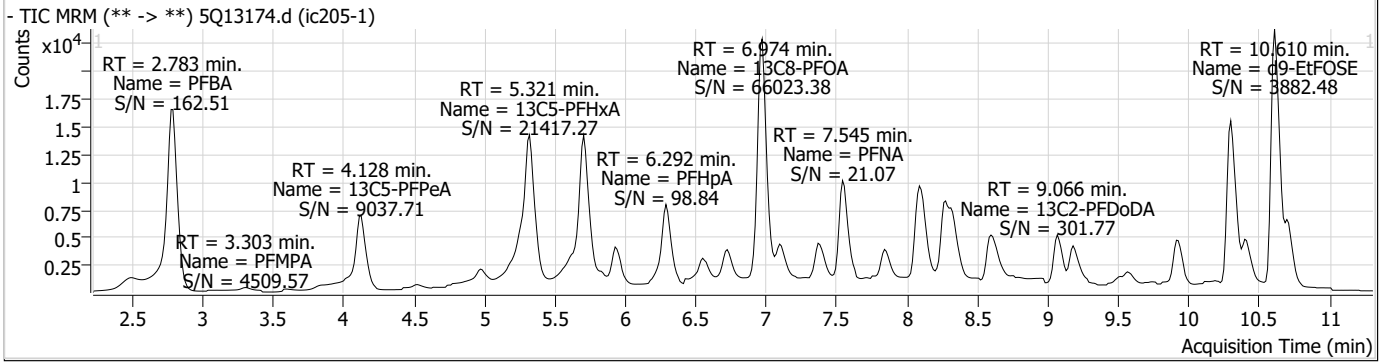
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.2  
7



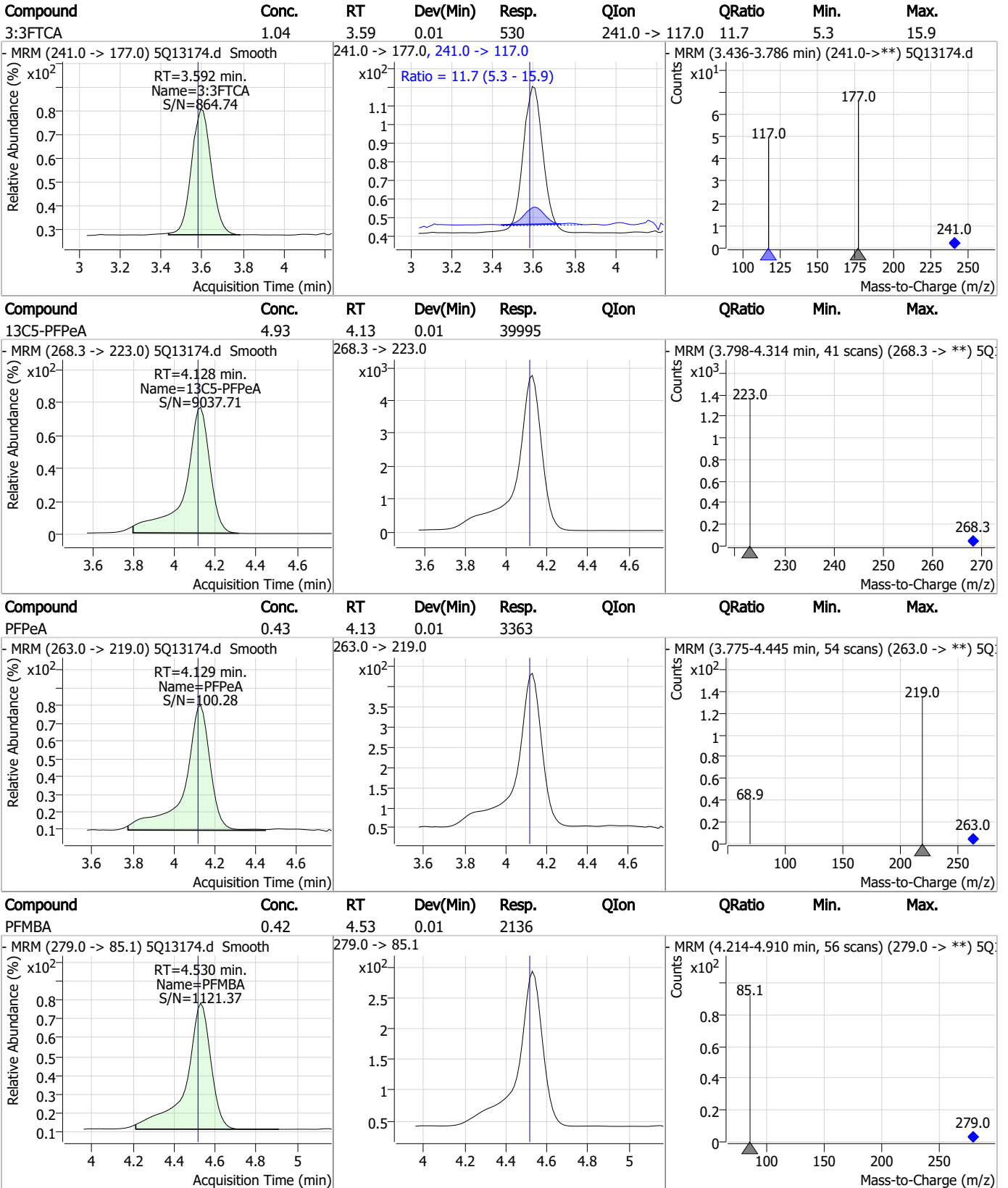
### Perfluorinated Compounds by LC/MS/MS



7.7.2  
7



### Perfluorinated Compounds by LC/MS/MS



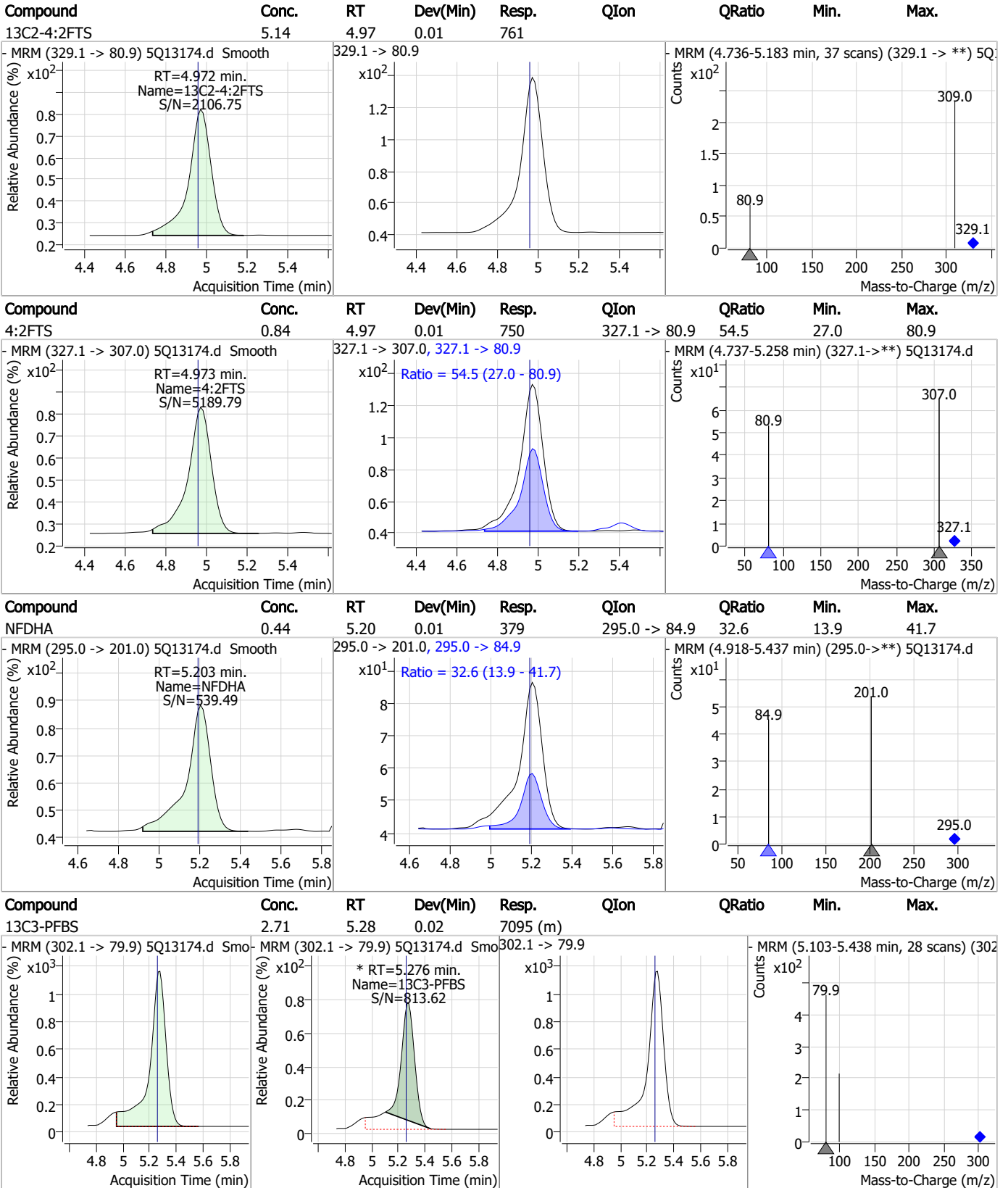
7.7.2

7

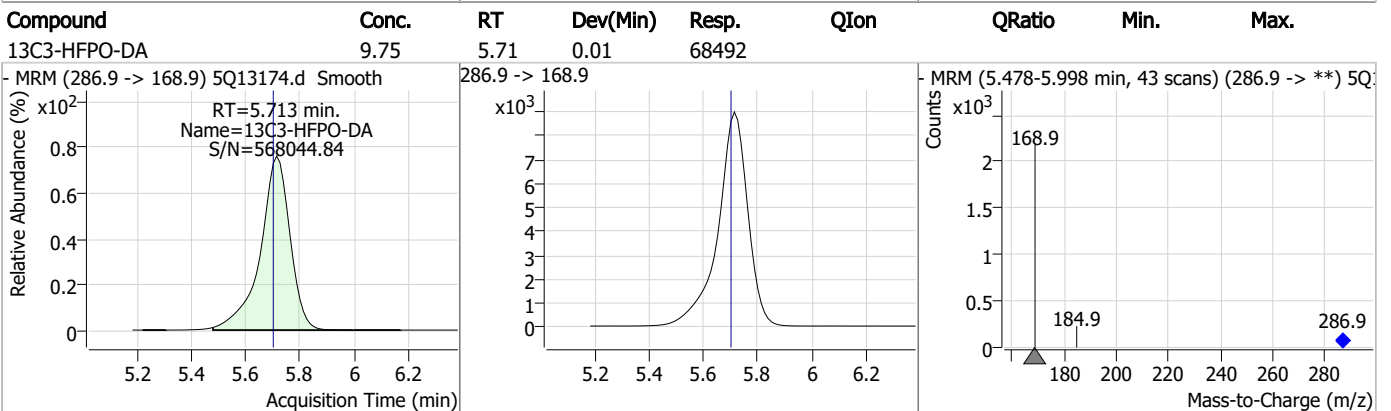
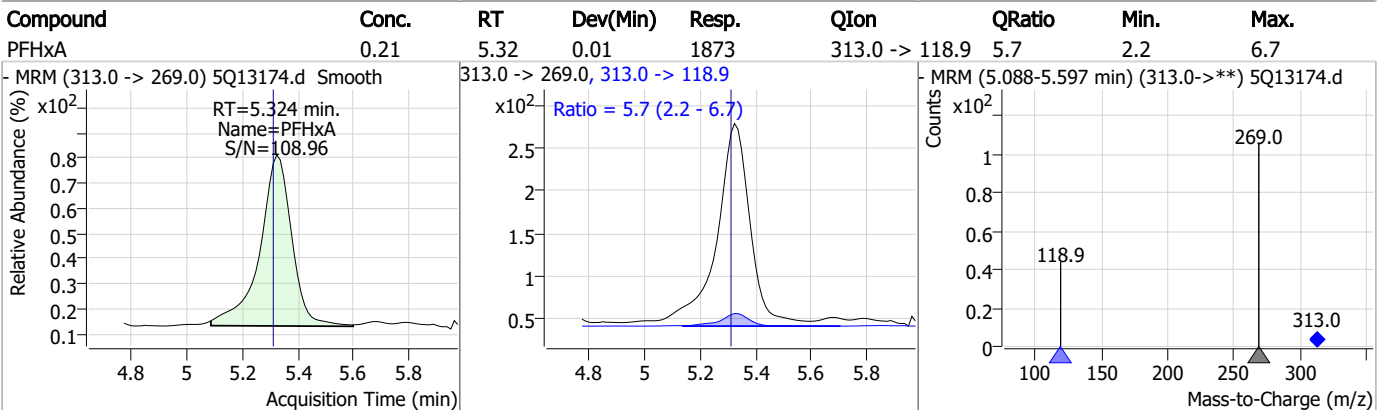
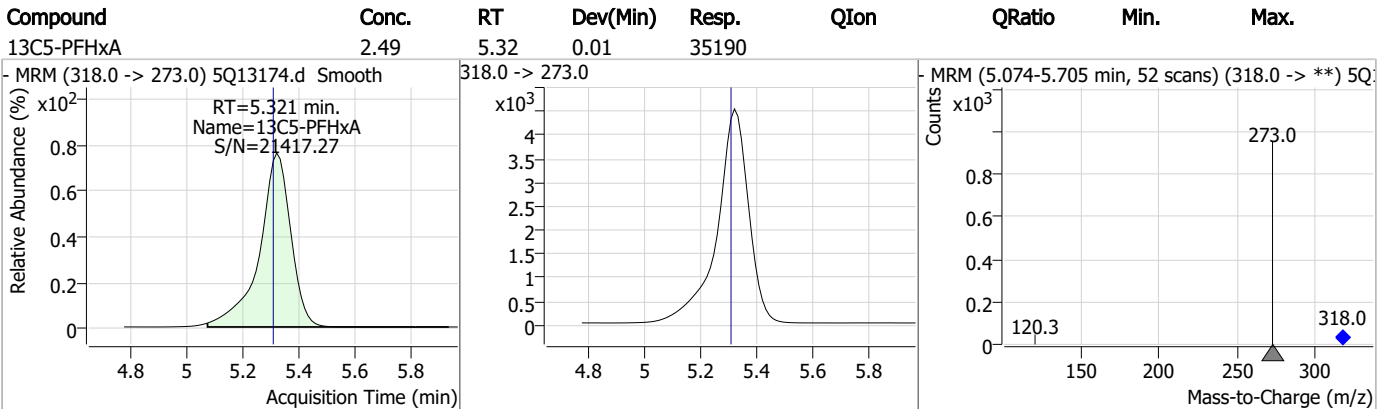
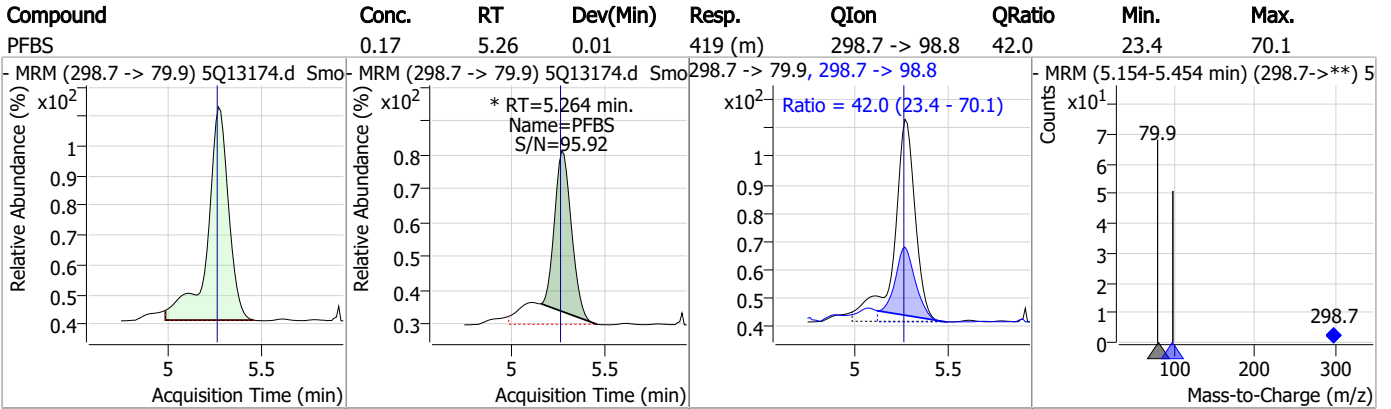




### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

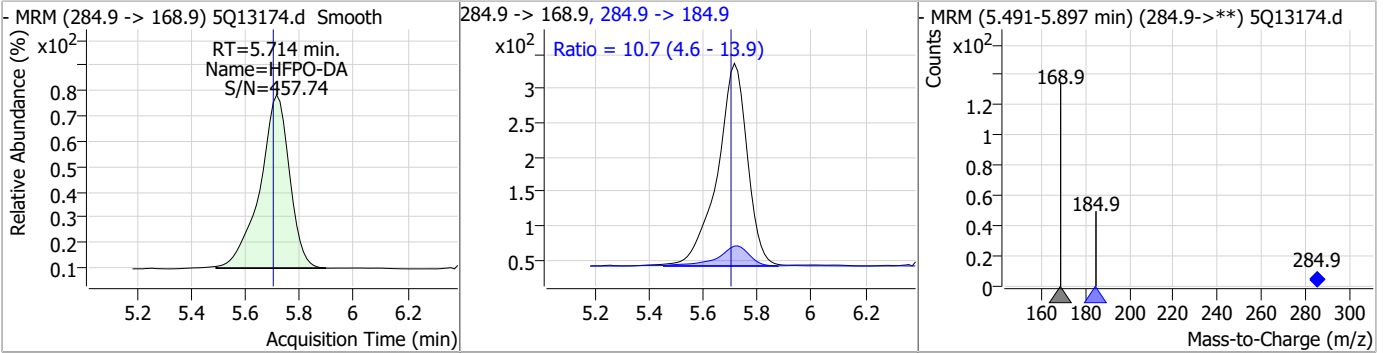


7.7.2

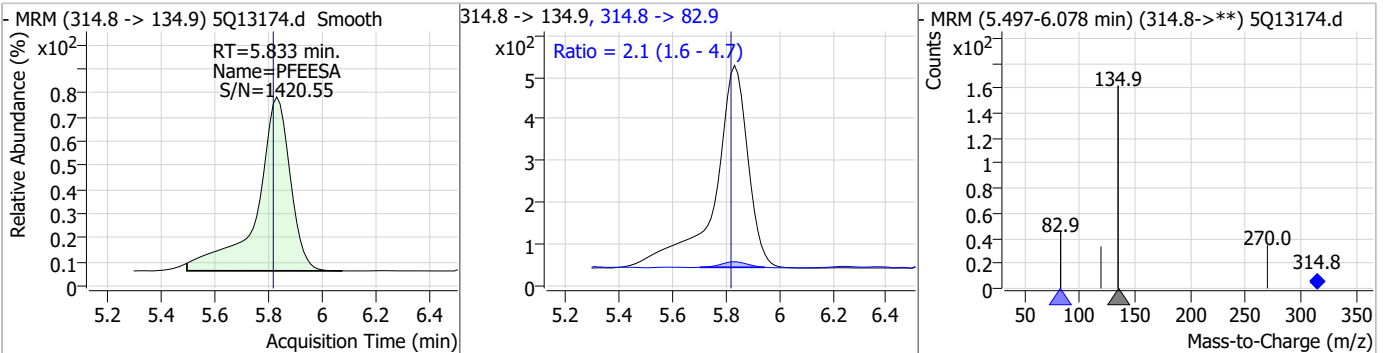
7

### Perfluorinated Compounds by LC/MS/MS

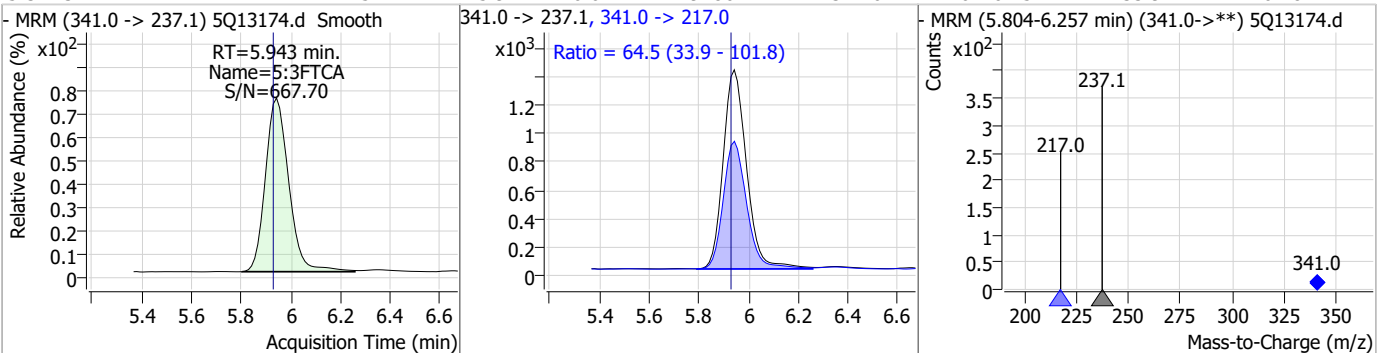
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.42	5.71	0.01	2248	284.9 -> 184.9	10.7	4.6	13.9



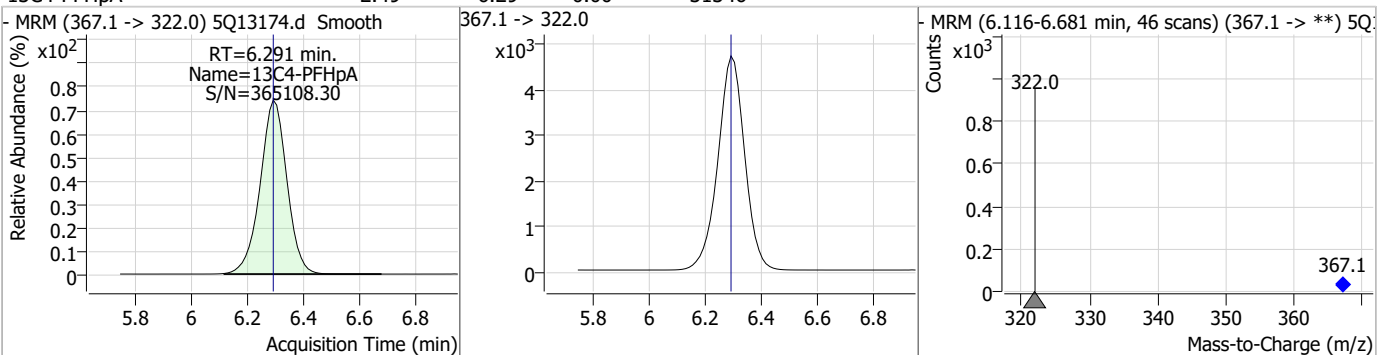
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.37	5.83	0.01	4226	314.8 -> 82.9	2.1	1.6	4.7



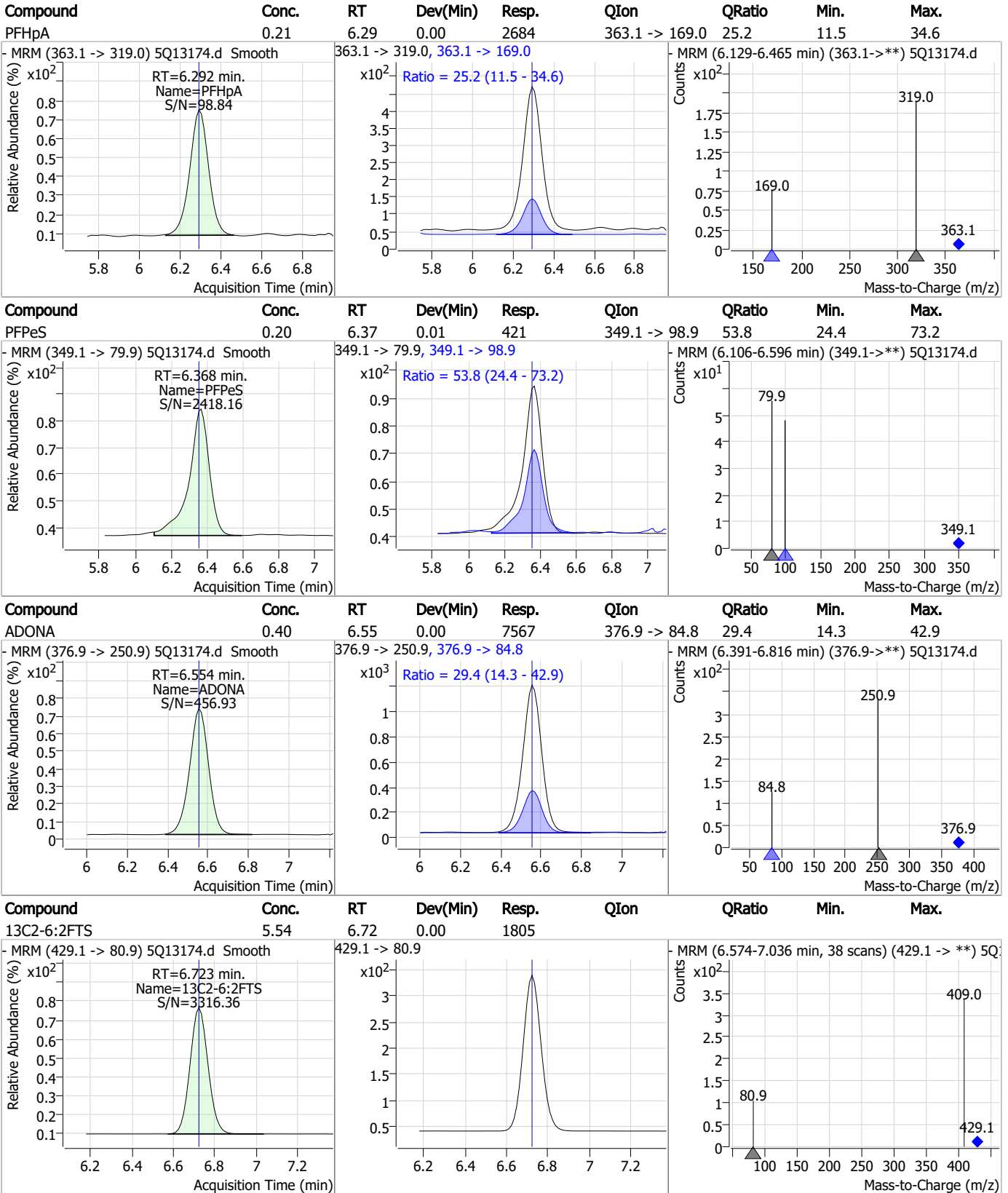
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.41	5.94	0.01	9186	341.0 -> 217.0	64.5	33.9	101.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.29	0.00	31346	367.1 -> 322.0			



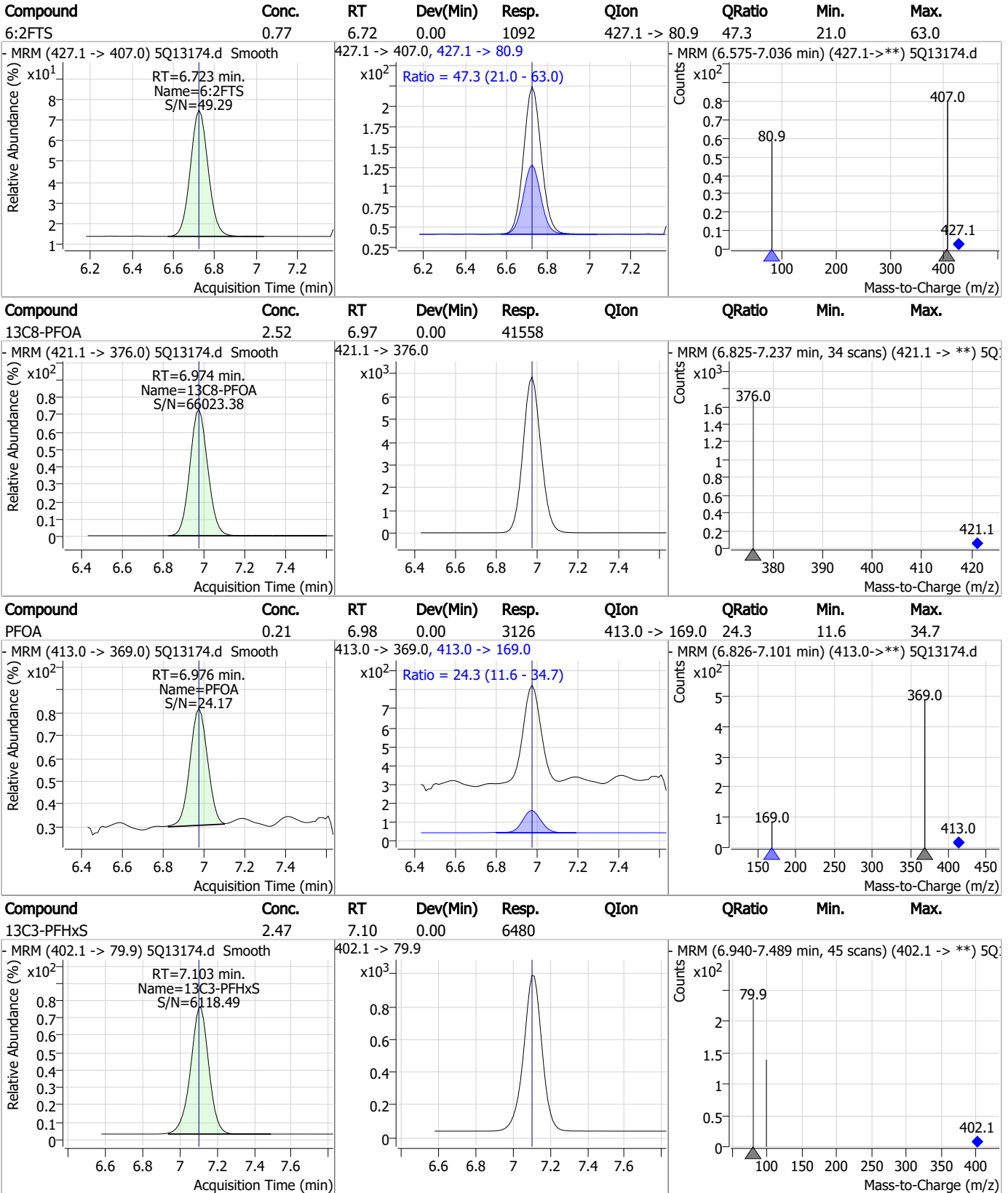
### Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Perfluorinated Compounds by LC/MS/MS

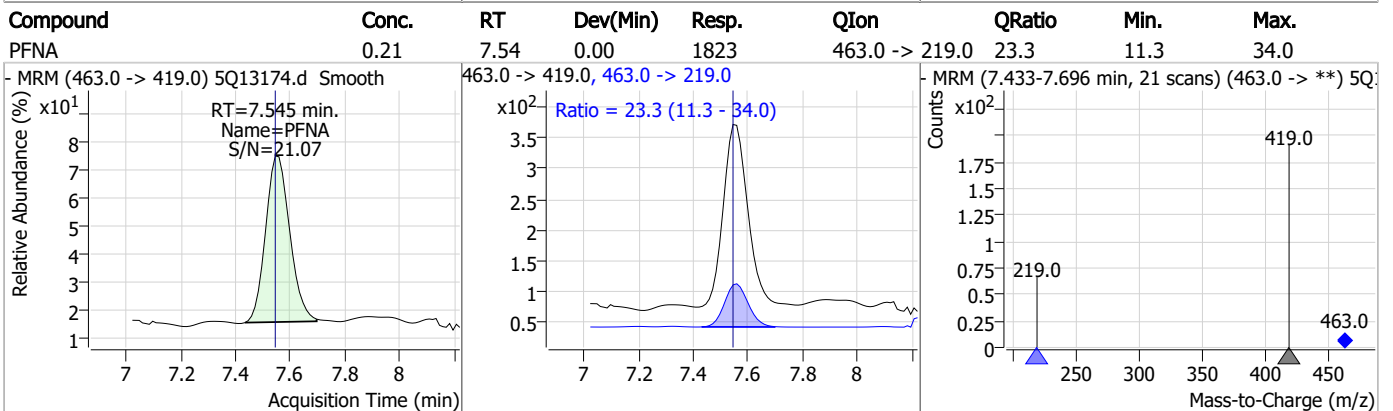
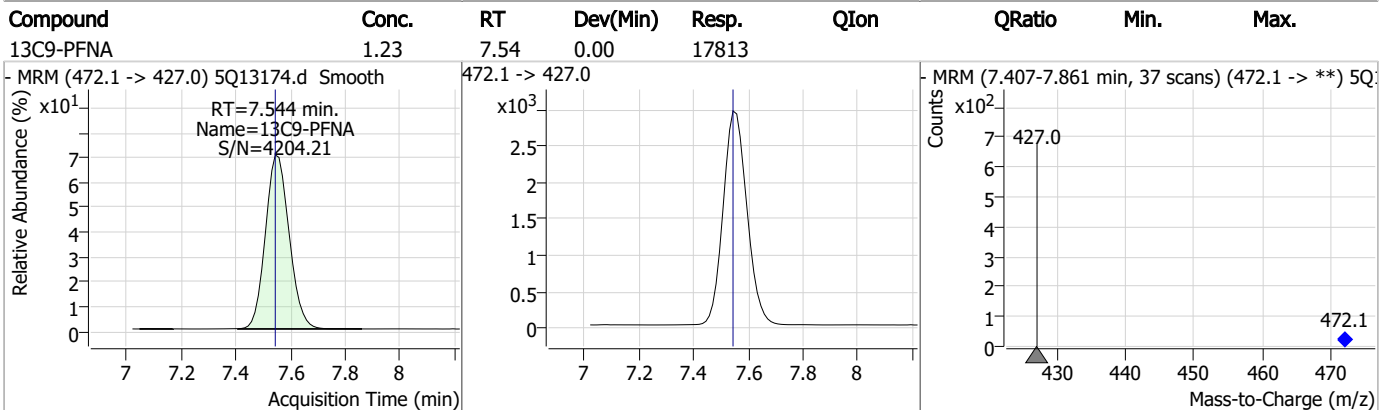
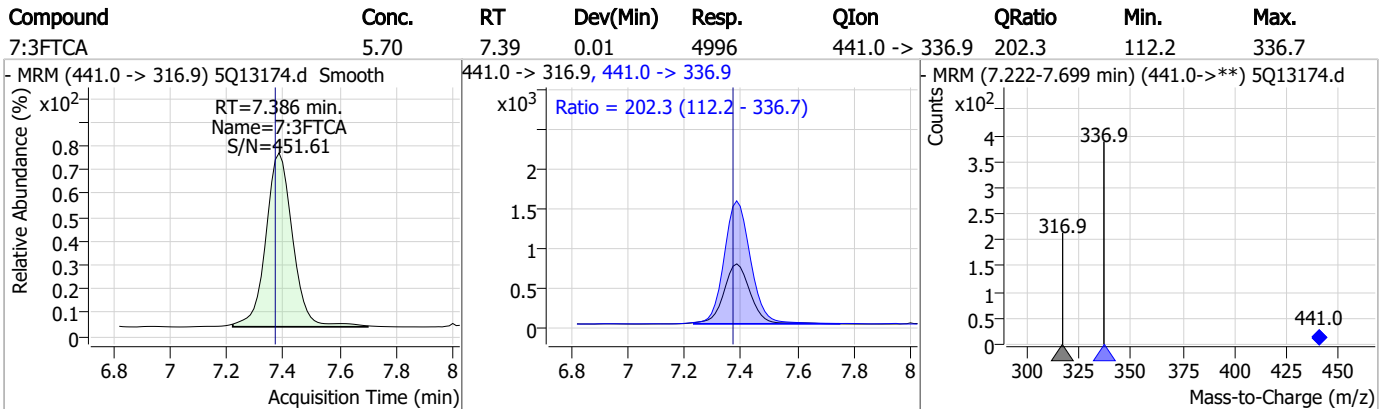
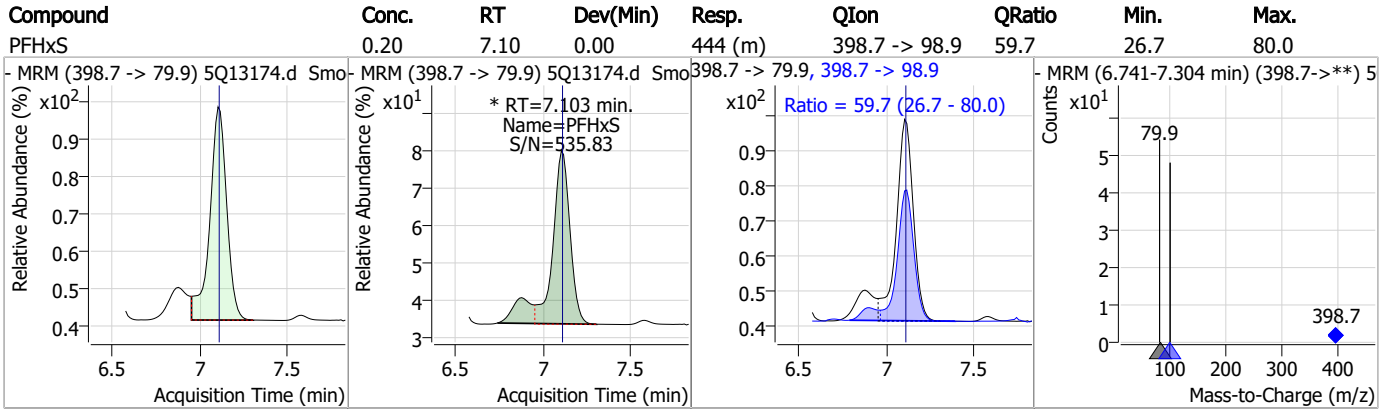


7.7.2

7



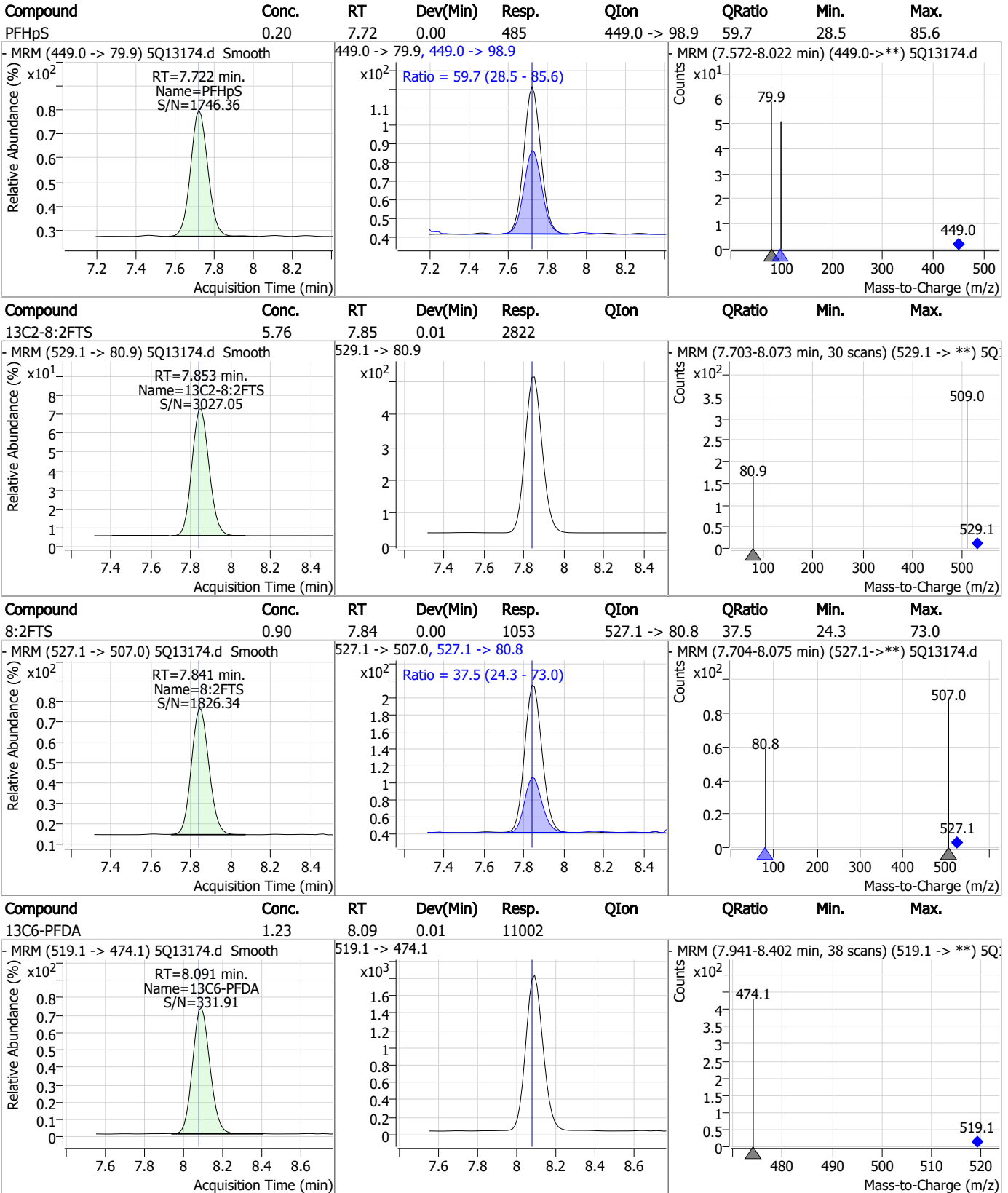
### Perfluorinated Compounds by LC/MS/MS



7.7.2

7

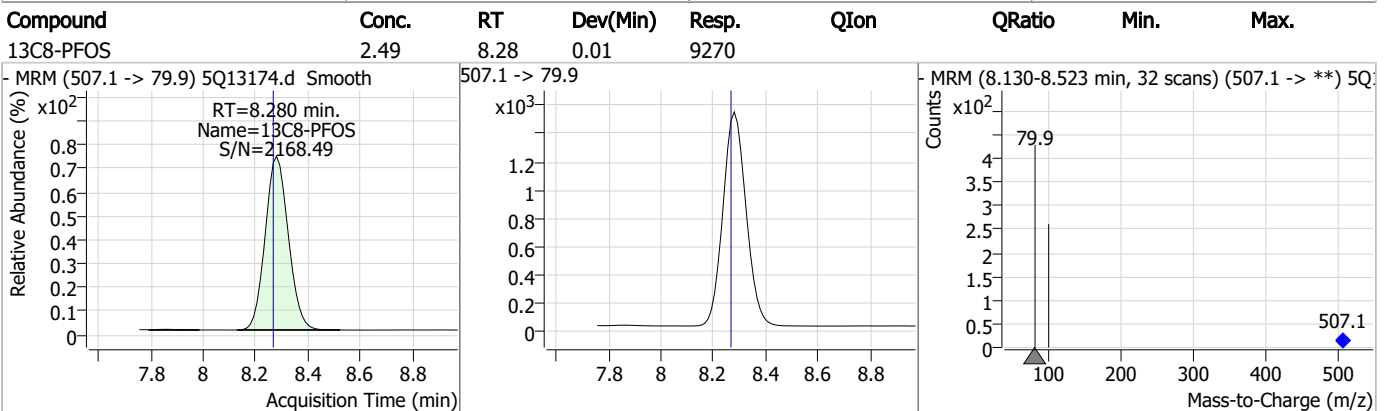
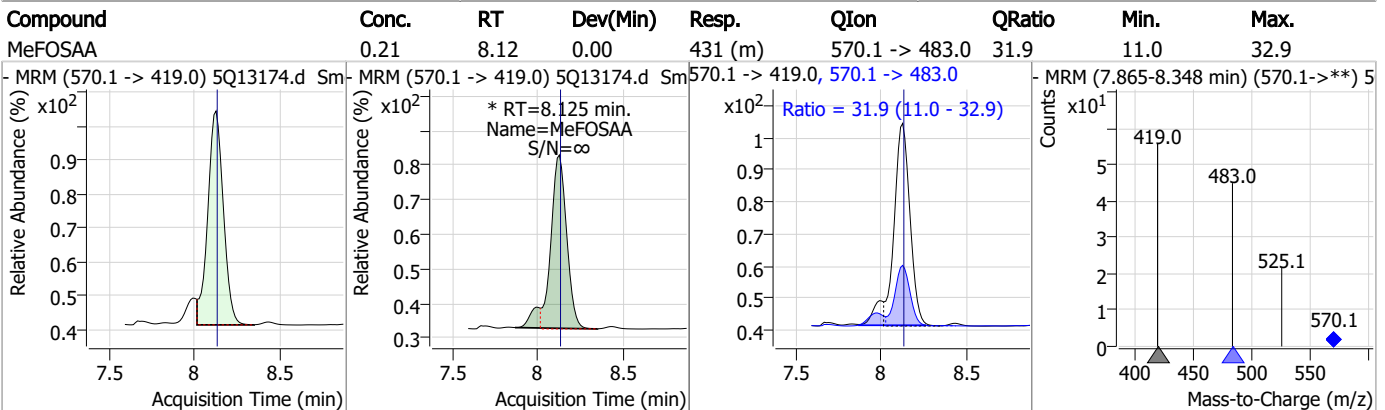
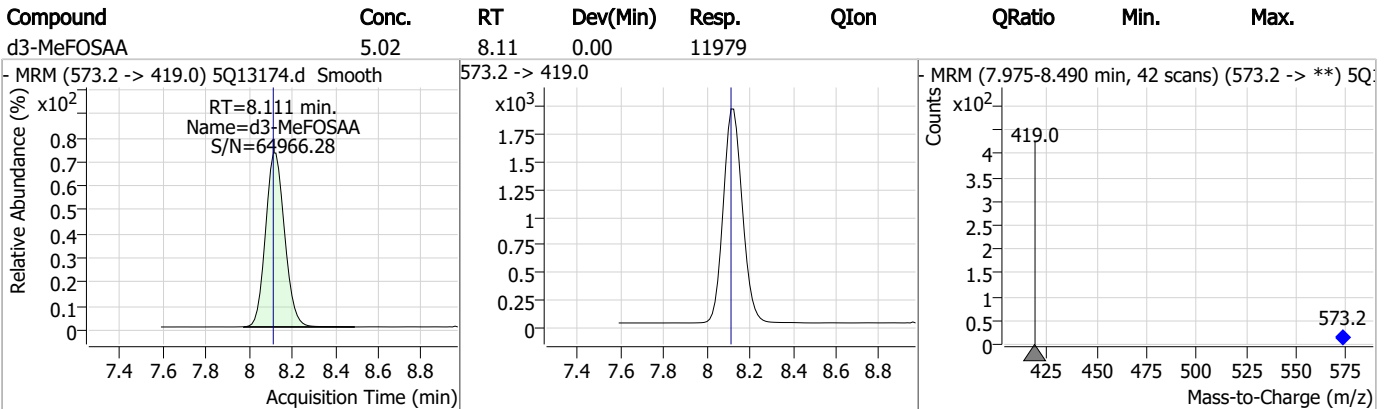
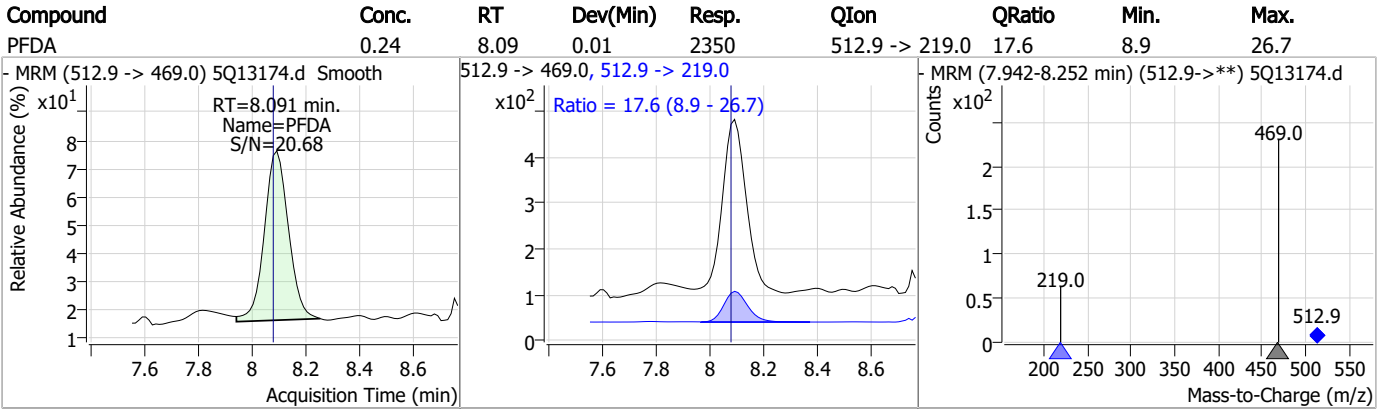
### Perfluorinated Compounds by LC/MS/MS



7.7.2

7

### Perfluorinated Compounds by LC/MS/MS

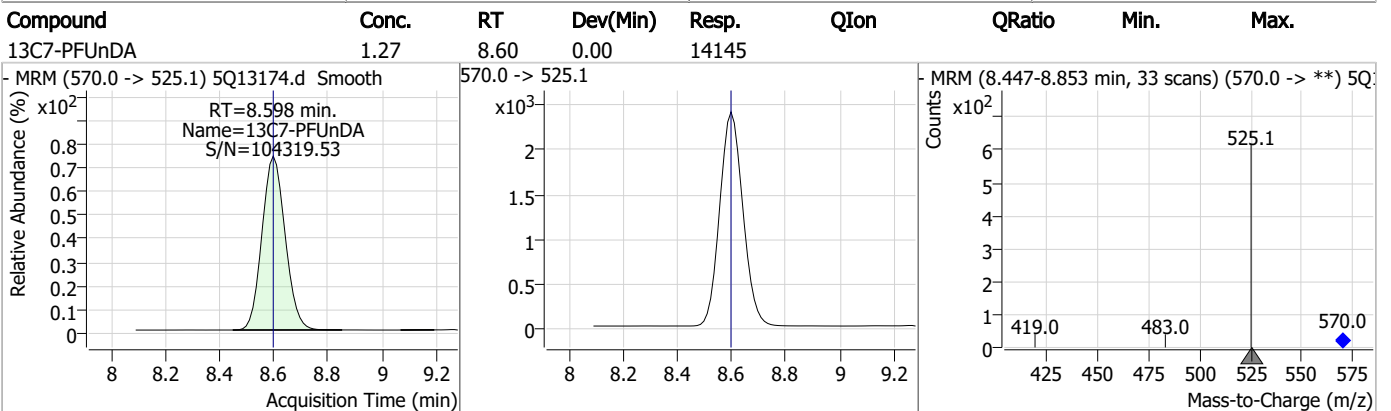
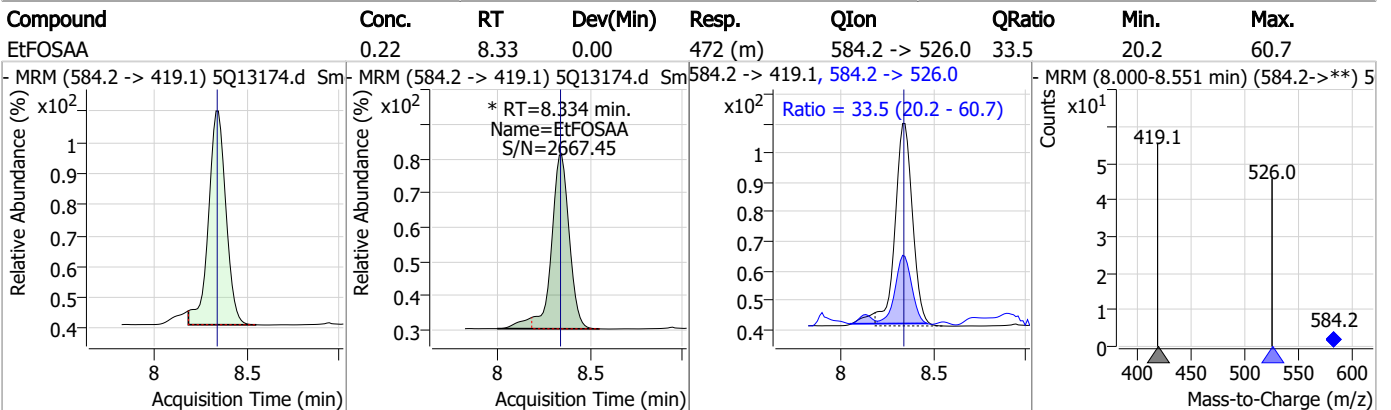
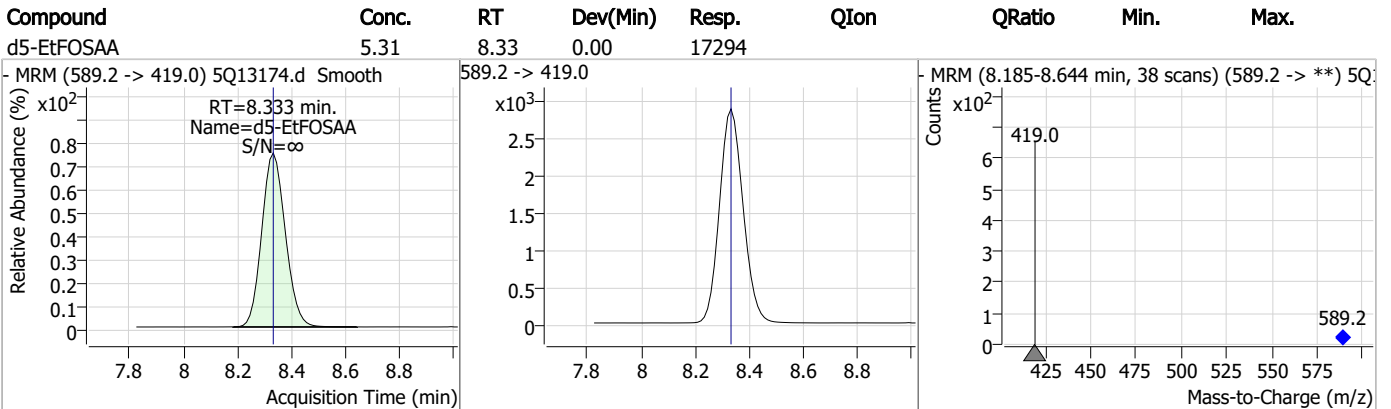
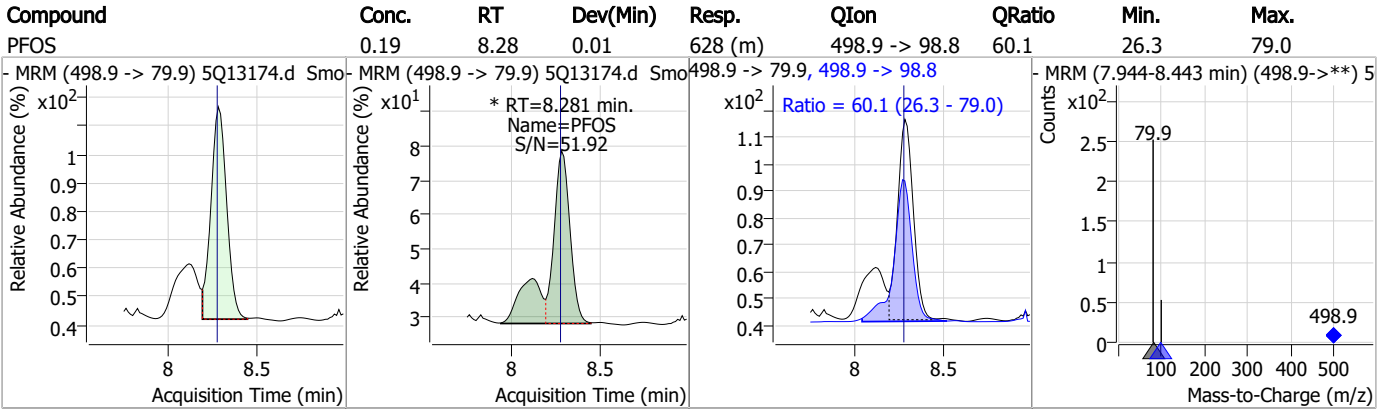


7.7.2

7



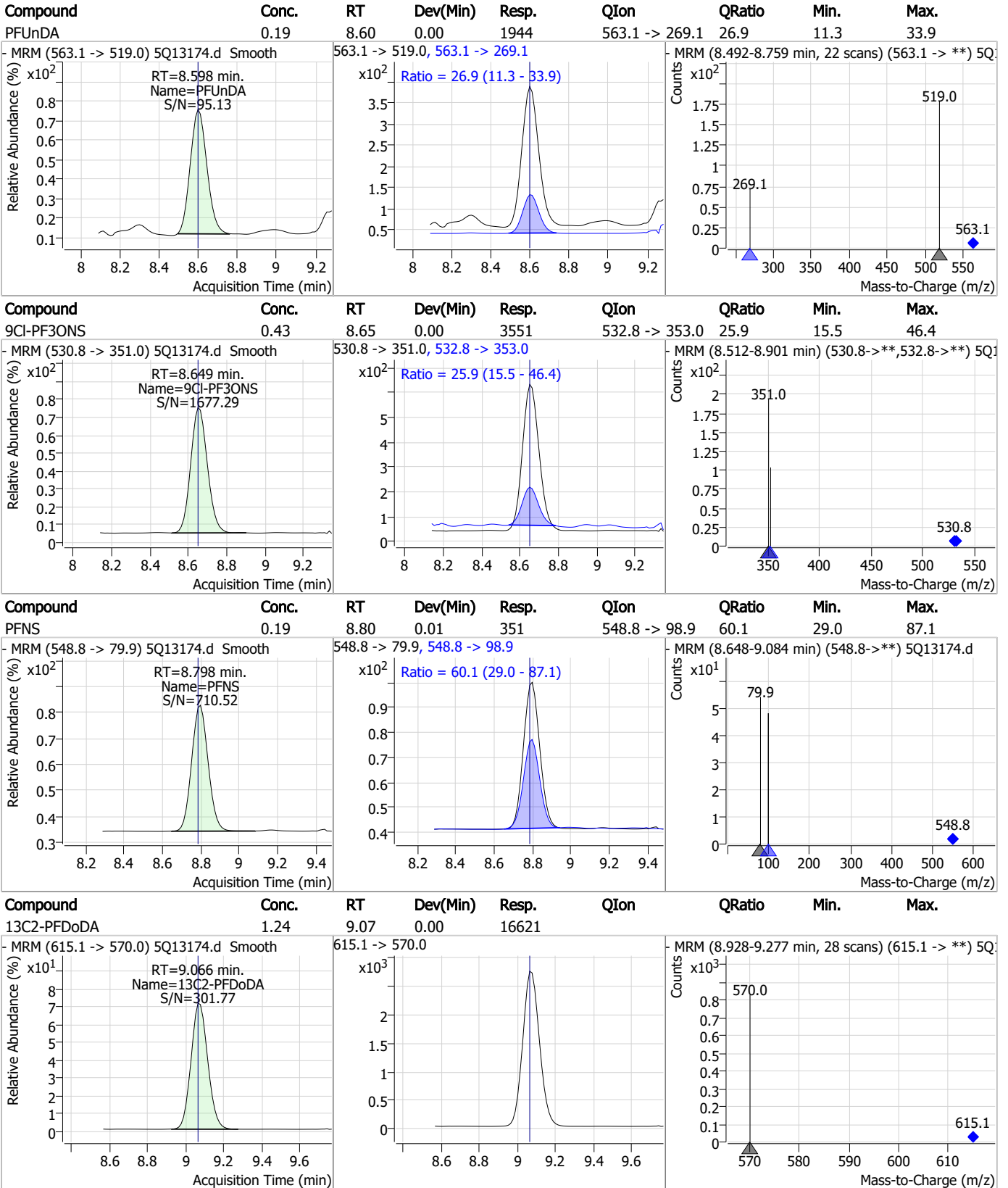
### Perfluorinated Compounds by LC/MS/MS



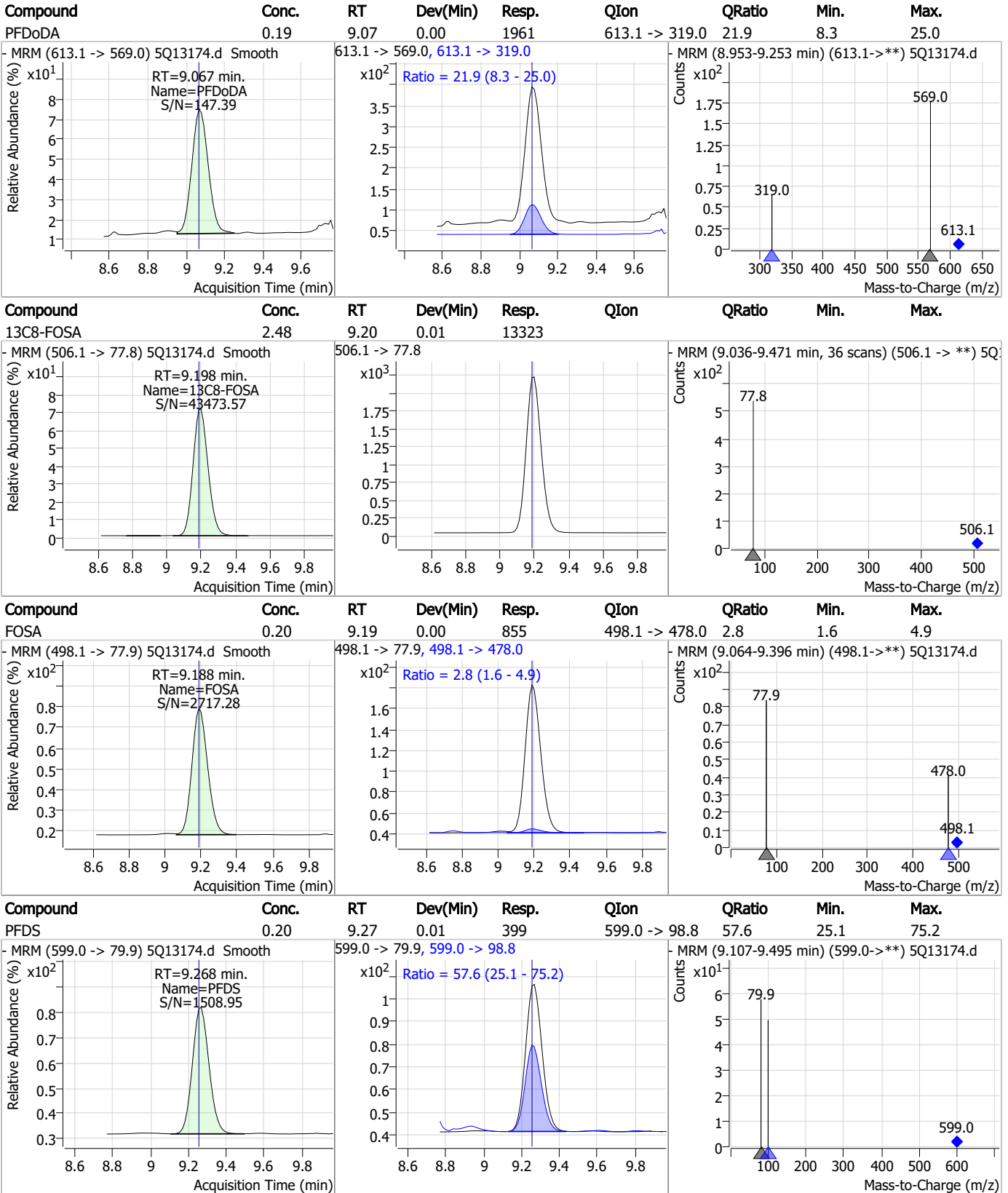
7.7.2

7

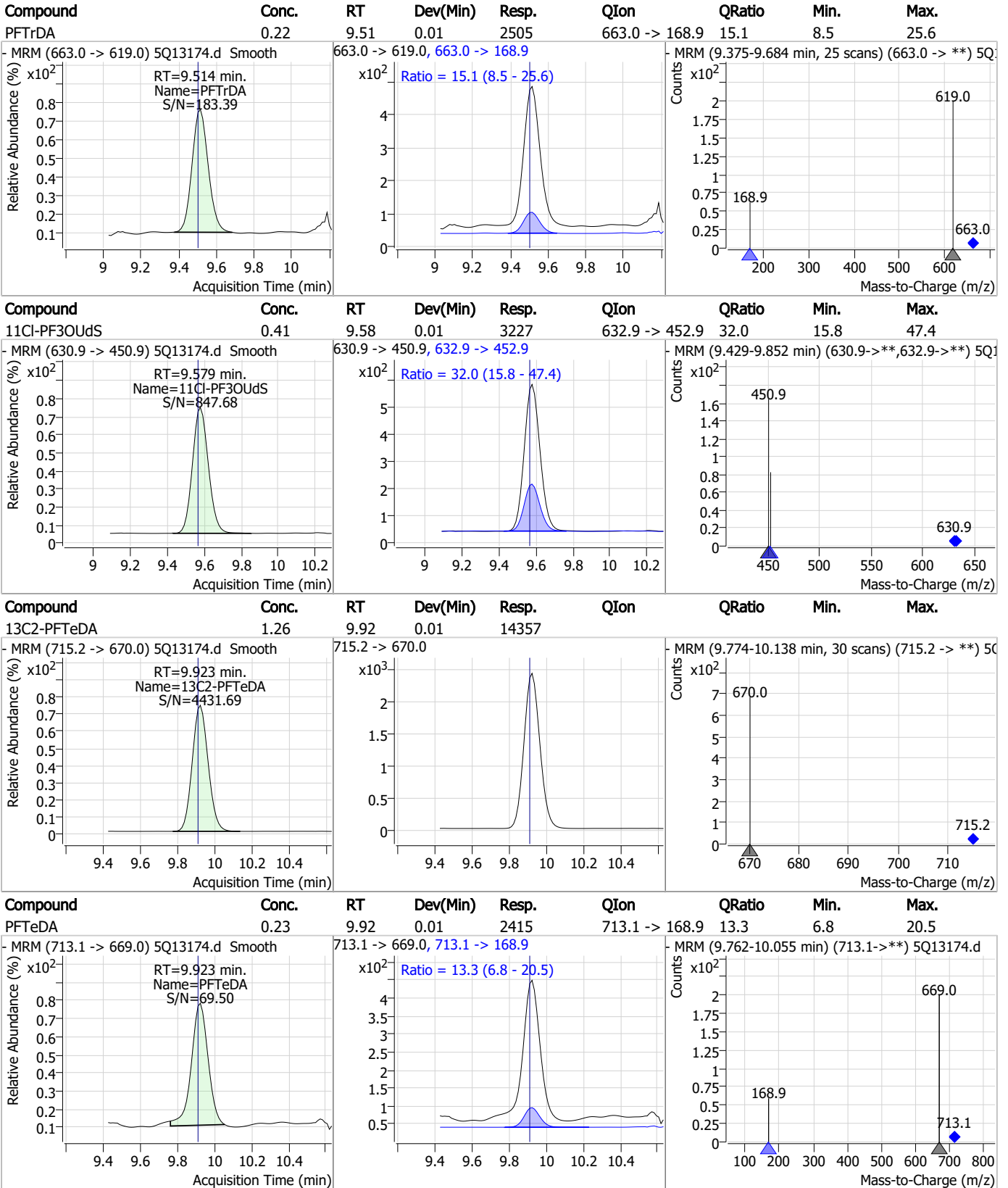
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

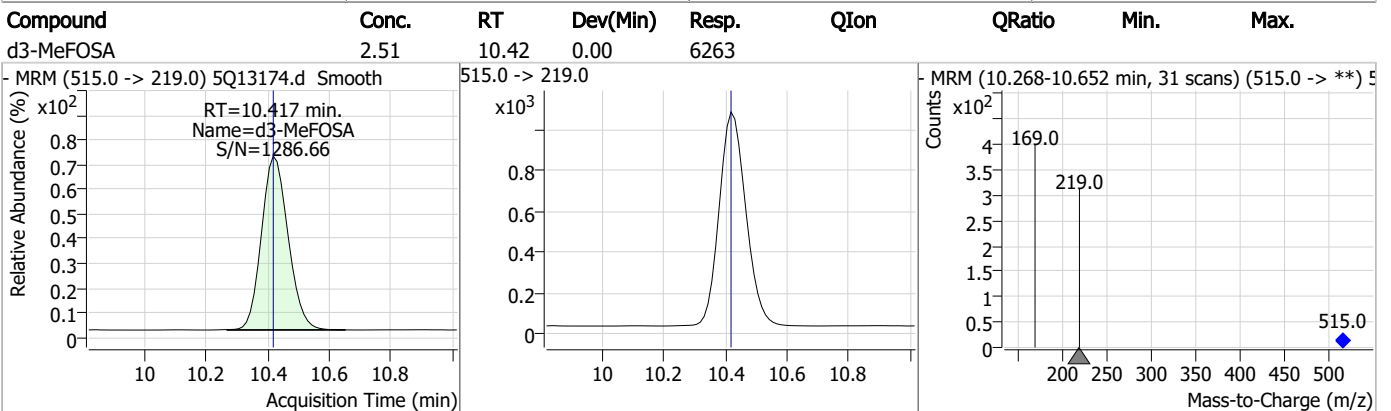
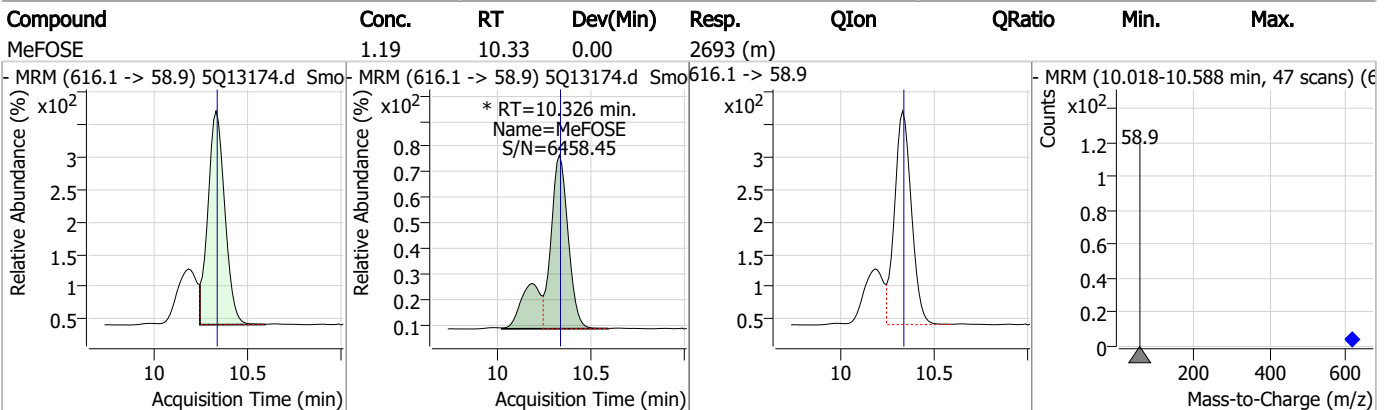
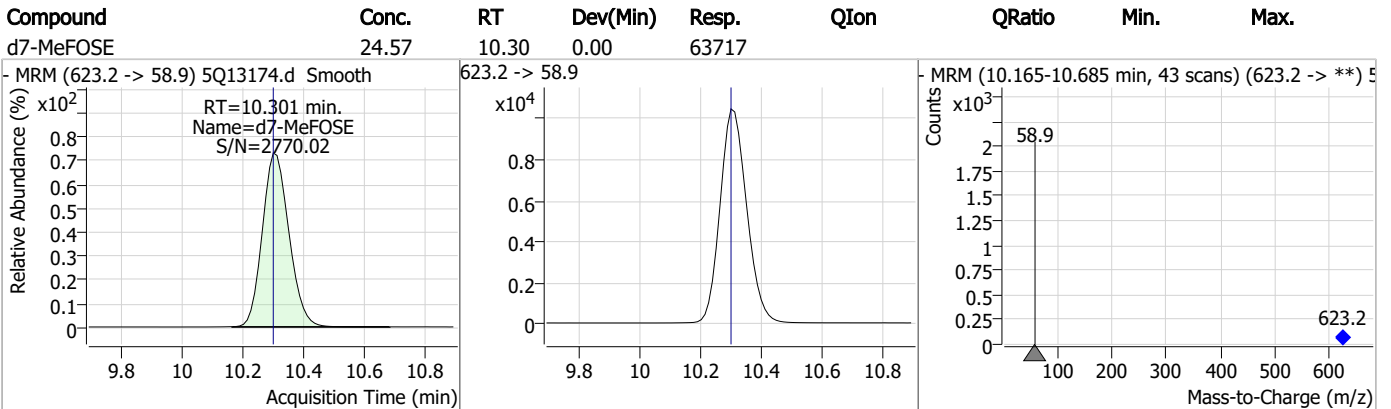
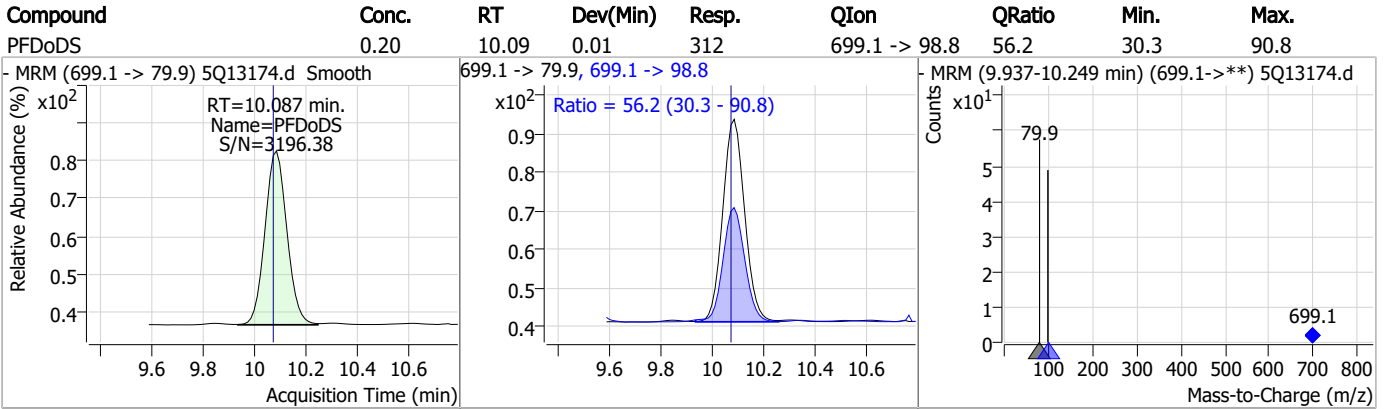


7.7.2

7



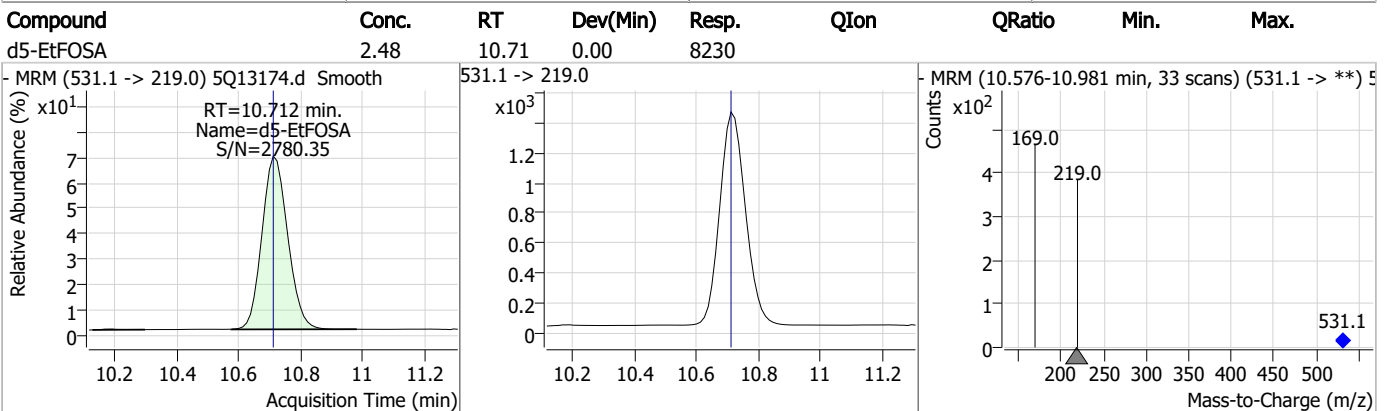
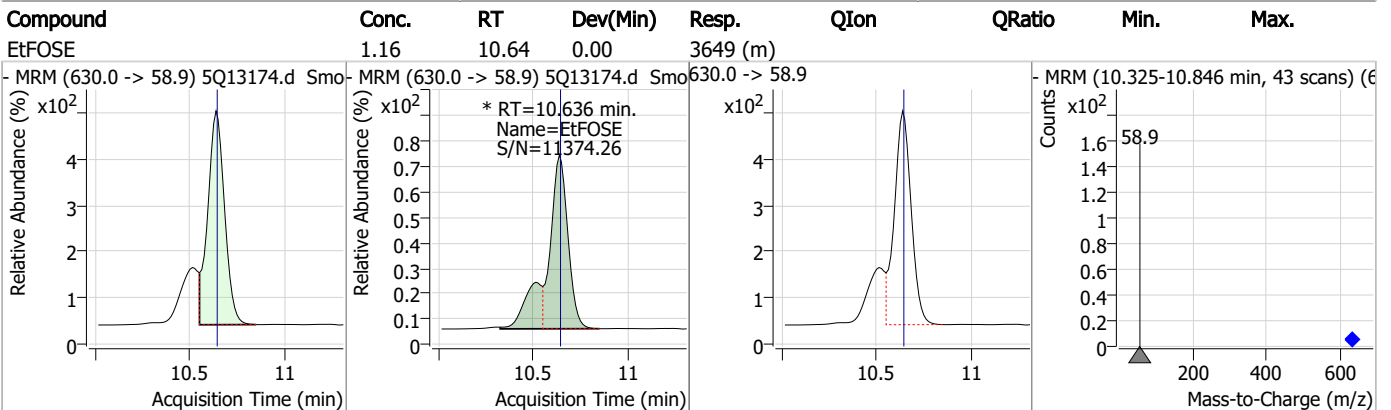
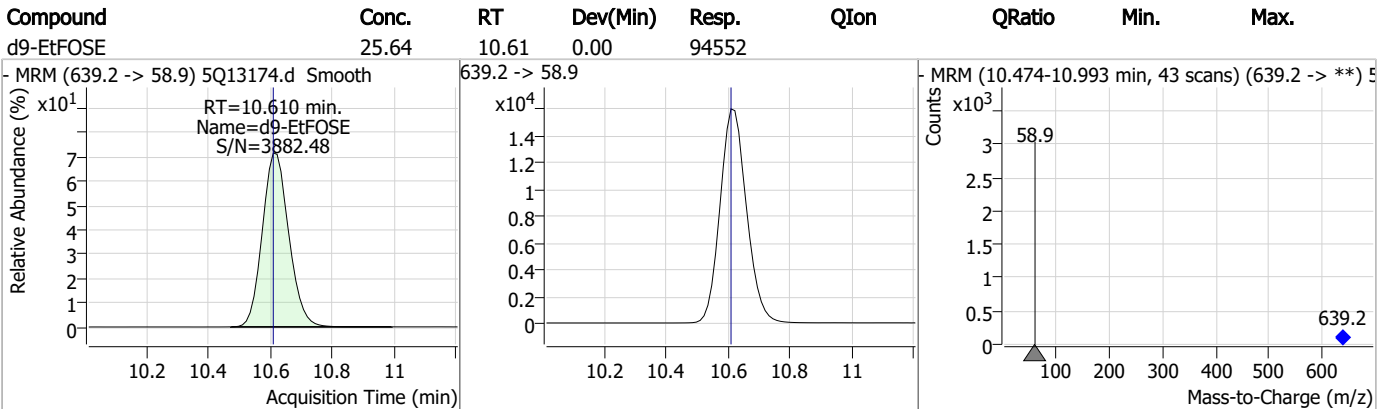
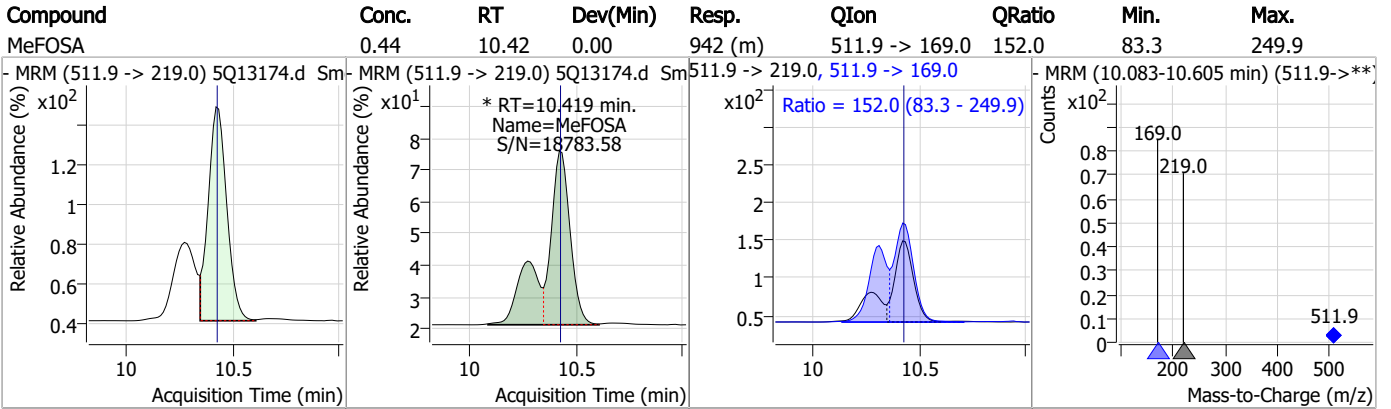
### Perfluorinated Compounds by LC/MS/MS



7.7.2

7

### Perfluorinated Compounds by LC/MS/MS

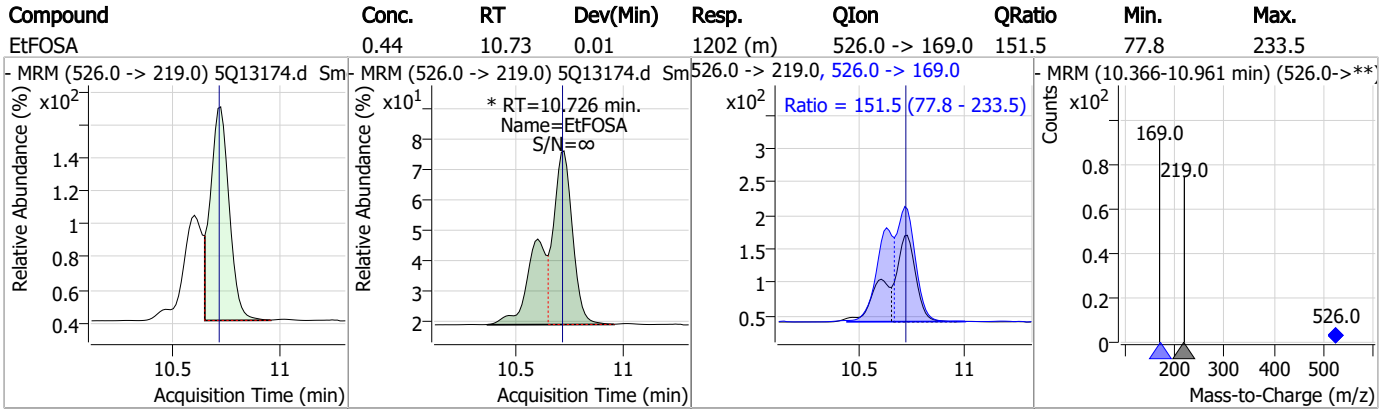


7.7.2

7



### Perfluorinated Compounds by LC/MS/MS



7.7.2

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-IC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13174.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 18:55      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-PFBA			2.78	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.78	Poor instrument integration
13C4-PFBA			2.79	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.26	Poor instrument integration
13C3-PFBS			5.28	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
MeFOSAA	2355-31-9		8.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.73	Split peak

7.7.2.1  
7



Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13175.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 7:10:18 PM  
 Sample Name : ic205-2  
 Vial : P3-A3  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.790	216.8 -> 171.9	62986	10.00	µg/L	m 0.025
M5-PFPeA	4.128	268.3 -> 223.0	47914	5.00	µg/L	0.012
M5-PFHxA	5.321	318.0 -> 273.0	41340	2.50	µg/L	0.012
M4-PFHpA	6.291	367.1 -> 322.0	36486	2.50	µg/L	0.000
M8-PFOA	6.974	421.1 -> 376.0	48362	2.50	µg/L	0.000
M9-PFNA	7.544	472.1 -> 427.0	20950	1.25	µg/L	0.000
M6-PFDA	8.091	519.1 -> 474.1	13006	1.25	µg/L	0.013
M7-PFUnDA	8.598	570.0 -> 525.1	16391	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	19022	1.25	µg/L	0.000
M2-PFTeDA	9.923	715.2 -> 670.0	15871	1.25	µg/L	0.012
M8-FOSA	9.198	506.1 -> 77.8	15436	2.50	µg/L	0.012
M3-PFBS	5.263	302.1 -> 79.9	8177	2.50	µg/L	m 0.012
M3-PFHxS	7.103	402.1 -> 79.9	7779	2.50	µg/L	0.000
M8-PFOS	8.280	507.1 -> 79.9	10764	2.50	µg/L	0.012
M2-4:2FTS	4.972	329.1 -> 80.9	990	5.00	µg/L	0.012
M2-6:2FTS	6.723	429.1 -> 80.9	2003	5.00	µg/L	0.000
M2-8:2FTS	7.841	529.1 -> 80.9	2929	5.00	µg/L	0.000
M3-MeFOSAA	8.124	573.2 -> 419.0	13987	5.00	µg/L	0.012
M3-HFPO-DA	5.713	286.9 -> 168.9	80629	10.00	µg/L	0.012
M5-EtFOSAA	8.333	589.2 -> 419.0	18542	5.00	µg/L	0.000
M7-MeFOSE	10.301	623.2 -> 58.9	80546	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	116133	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	9935	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7364	2.50	µg/L	0.000
13C4-PFOS	8.281	502.8 -> 79.9	10333	2.50	µg/L	0.012
13C3-PFBA	2.780	216.0 -> 172.0	33165	5.00	µg/L	m 0.012
18O2-PFHxS	7.114	403.0 -> 83.9	4935	2.50	µg/L	0.012
13C4-PFOA	6.975	417.1 -> 372.0	59192	2.50	µg/L	0.000
13C2-PFDA	8.091	515.1 -> 470.1	18745	1.25	µg/L	0.013
13C5-PFNA	7.544	468.0 -> 423.0	21369	1.25	µg/L	0.000
13C2-PFHxA	5.322	315.1 -> 270.0	43839	2.50	µg/L	0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.972	329.1 -> 80.9	990	5.80	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.0%			
13C2-6:2FTS	6.723	429.1 -> 80.9	2003	5.32	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.5%			
13C2-8:2FTS	7.841	529.1 -> 80.9	2929	5.19	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%			
13C2-PFDoDA	9.066	615.1 -> 570.0	19022	1.28	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.5%			
13C2-PFTeDA	9.923	715.2 -> 670.0	15871	1.26	µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%			
13C3-PFBS	5.263	302.1 -> 79.9	8071	2.67	µg/L	m 0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.9%			
13C3-PFHxS	7.103	402.1 -> 79.9	7779	2.57	µg/L	0.000

7.7.3  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%			
13C4-PFBA	2.790	216.8 -> 171.9	63056	9.92	µg/L	m 0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.2%			
13C4-PFHpA	6.291	367.1 -> 322.0	36486	2.49	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%			
13C5-PFHxA	5.321	318.0 -> 273.0	41340	2.51	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%			
13C5-PFPeA	4.128	268.3 -> 223.0	47914	5.07	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%			
13C6-PFDA	8.091	519.1 -> 474.1	13006	1.32	µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%			
13C7-PFUnDA	8.598	570.0 -> 525.1	16391	1.33	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%			
13C8-FOSA	9.198	506.1 -> 77.8	15436	2.48	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%			
13C8-PFOA	6.974	421.1 -> 376.0	48362	2.50	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%			
13C8-PFOS	8.280	507.1 -> 79.9	10764	2.49	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.8%			
13C9-PFNA	7.544	472.1 -> 427.0	20950	1.21	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%			
d3-MeFOSAA	8.124	573.2 -> 419.0	13987	5.06	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%			
13C3-HFPO-DA	5.713	286.9 -> 168.9	80629	9.85	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.5%			
d3-MeFOSA	10.417	515.0 -> 219.0	7364	2.55	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%			
d5-EtFOSAA	8.333	589.2 -> 419.0	18542	4.91	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%			
d7-MeFOSE	10.301	623.2 -> 58.9	80546	26.77	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 107.1%			
d9-EtFOSE	10.610	639.2 -> 58.9	116133	27.15	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 108.6%			
d5-EtFOSA	10.712	531.1 -> 219.0	9935	2.58	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.3%			
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.973	327.1 -> 307.0	1592	1.37	µg/L	97
		327.1 -> 80.9	897			
6:2FTS	6.723	427.1 -> 407.0	2408	1.53	µg/L	99
		427.1 -> 80.9	991			
8:2FTS	7.853	527.1 -> 507.0	1921	1.58	µg/L	97
		527.1 -> 80.8	899			
EtFOSAA	8.346	584.2 -> 419.1	864	0.37	µg/L	m 96
		584.2 -> 526.0	371			
FOSA	9.188	498.1 -> 77.9	1842	0.38	µg/L	100
		498.1 -> 478.0	59			
MeFOSAA	8.125	570.1 -> 419.0	997	0.42	µg/L	m 97
		570.1 -> 483.0	233			
PFBA	2.783	212.8 -> 168.9	3456	1.51	µg/L	m 100
PFBS	5.264	298.7 -> 79.9	868	0.33	µg/L	m 91
		298.7 -> 98.8	355			
PFDA	8.091	512.9 -> 469.0	4449	0.38	µg/L	93
		512.9 -> 219.0	659			
PFDODA	9.067	613.1 -> 569.0	4592	0.40	µg/L	98
		613.1 -> 319.0	798			
PFDS	9.268	599.0 -> 79.9	813	0.36	µg/L	90

7.7.3  
7

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	462			
PFHpA	6.292	363.1 -> 319.0	5416	0.36	µg/L	100
		363.1 -> 169.0	1242			
PFHpS	7.722	449.0 -> 79.9	976	0.34	µg/L	93
		449.0 -> 98.9	604			
PFHxA	5.324	313.0 -> 269.0	4049	0.39	µg/L	98
		313.0 -> 118.9	213			
PFHxS	7.103	398.7 -> 79.9	877	0.32	µg/L	m 96
		398.7 -> 98.9	494			
PFNA	7.545	463.0 -> 419.0	3977	0.39	µg/L	99
		463.0 -> 219.0	924			
PFNS	8.798	548.8 -> 79.9	791	0.37	µg/L	97
		548.8 -> 98.9	439			
PFOA	6.976	413.0 -> 369.0	6551	0.38	µg/L	97
		413.0 -> 169.0	1596			
PFOS	8.281	498.9 -> 79.9	1406	0.37	µg/L	m 95
		498.9 -> 98.8	786			
PFPeA	4.129	263.0 -> 219.0	7049	0.76	µg/L	100
PFPeS	6.368	349.1 -> 79.9	858	0.34	µg/L	100
		349.1 -> 98.9	416			
PFTeDA	9.923	713.1 -> 669.0	4657	0.40	µg/L	99
		713.1 -> 168.9	617			
PFTrDA	9.514	663.0 -> 619.0	4770	0.37	µg/L	98
		663.0 -> 168.9	848			
PFUnDA	8.598	563.1 -> 519.0	4715	0.40	µg/L	99
		563.1 -> 269.1	1094			
11Cl-PF3OUdS	9.579	630.9 -> 450.9	6689	0.73	µg/L	98
		632.9 -> 452.9	2184			
9Cl-PF3ONS	8.649	530.8 -> 351.0	6617	0.68	µg/L	90
		532.8 -> 353.0	2406			
ADONA	6.554	376.9 -> 250.9	15654	0.70	µg/L	98
		376.9 -> 84.8	4665			
HFPO-DA	5.714	284.9 -> 168.9	4777	0.75	µg/L	99
		284.9 -> 184.9	431			
3:3FTCA	3.604	241.0 -> 177.0	1169	1.91	µg/L	98
		241.0 -> 117.0	132			
5:3FTCA	5.943	341.0 -> 237.1	18837	9.44	µg/L	98
		341.0 -> 217.0	12505			
7:3FTCA	7.386	441.0 -> 316.9	9895	9.61	µg/L	95
		441.0 -> 336.9	21445			
EtFOSA	10.726	526.0 -> 219.0	2502	0.76	µg/L	m 99
		526.0 -> 169.0	3852			
EtFOSE	10.636	630.0 -> 58.9	7609	1.98	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	1971	0.78	µg/L	m 89
		511.9 -> 169.0	2995			
MeFOSE	10.326	616.1 -> 58.9	5677	1.99	µg/L	m 100
PFDoDS	10.087	699.1 -> 79.9	785	0.42	µg/L	100
		699.1 -> 98.8	474			
NFDHA	5.203	295.0 -> 201.0	770	0.76	µg/L	91
		295.0 -> 84.9	178			
PFMBA	4.530	279.0 -> 85.1	4595	0.75	µg/L	100
PFMPA	3.303	229.0 -> 84.9	3322	0.69	µg/L	100
PFEESA	5.833	314.8 -> 134.9	9249	0.68	µg/L	100
		314.8 -> 82.9	276			

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

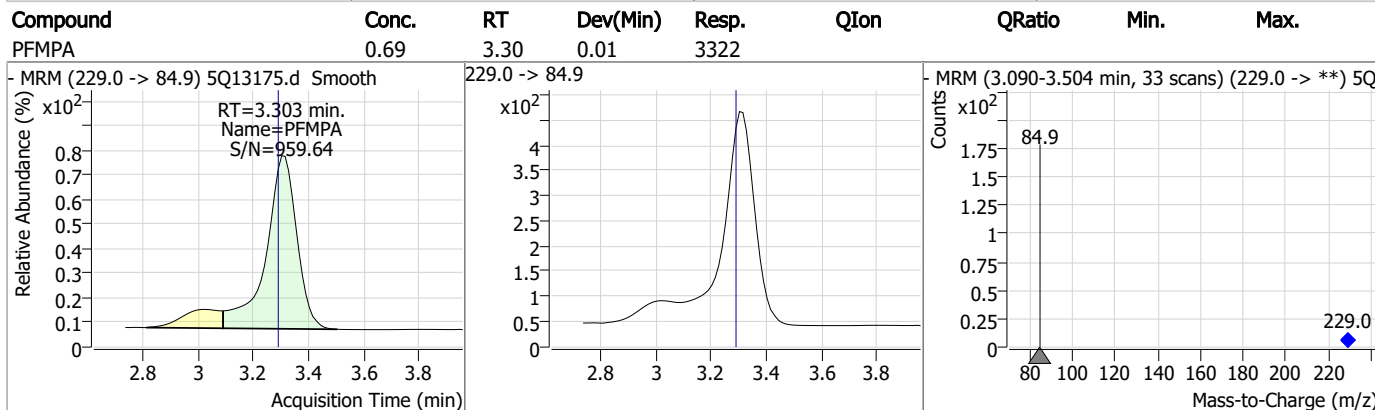
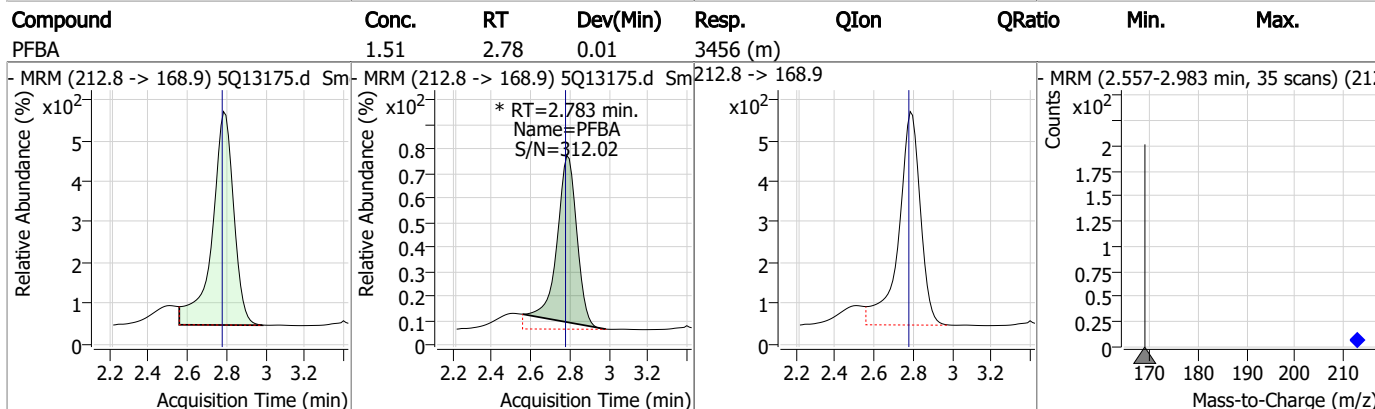
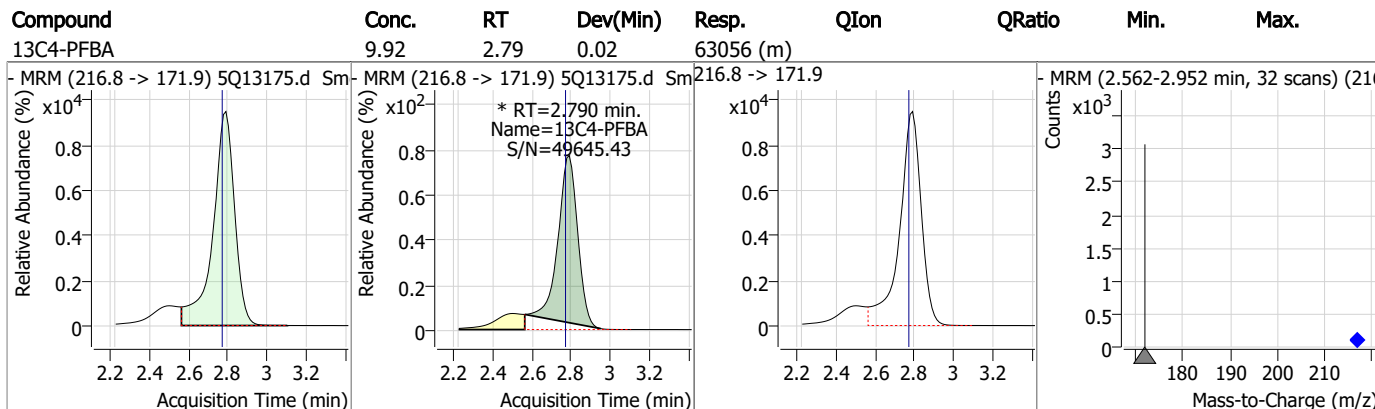
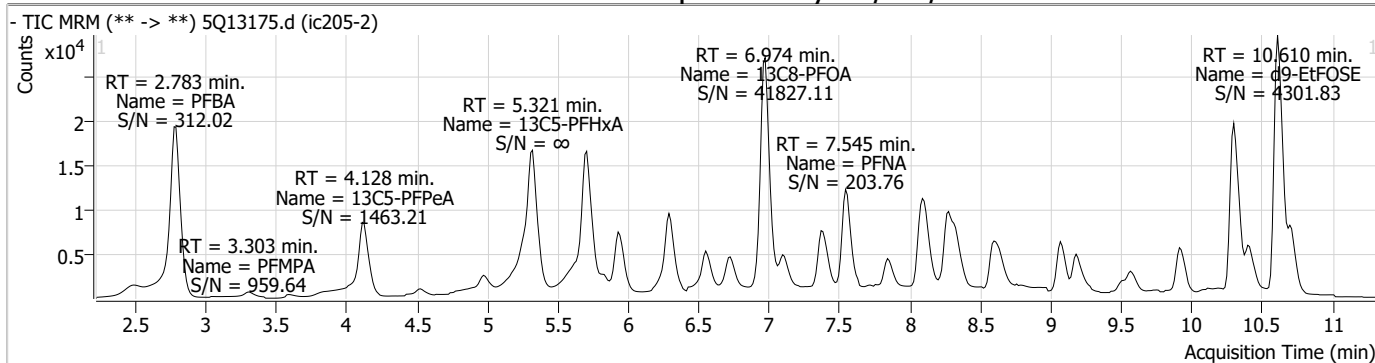
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.3  
7

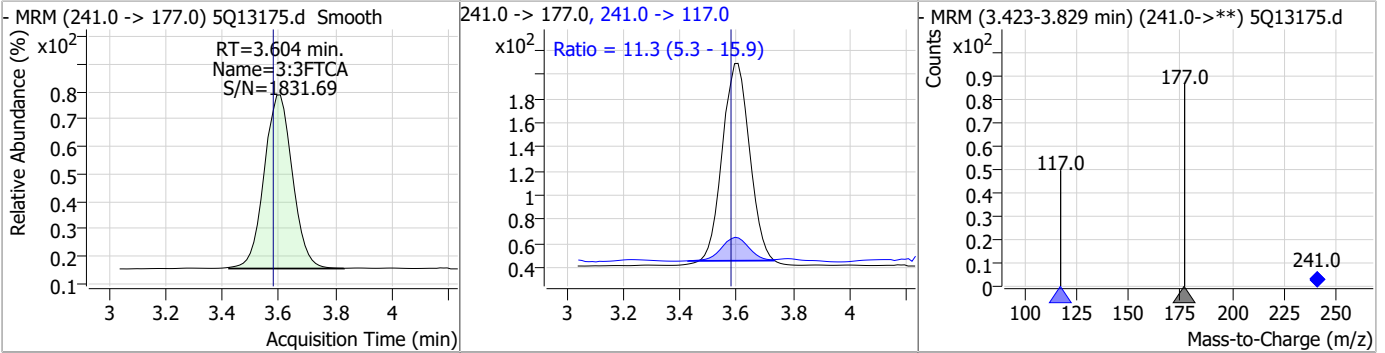


### Perfluorinated Compounds by LC/MS/MS

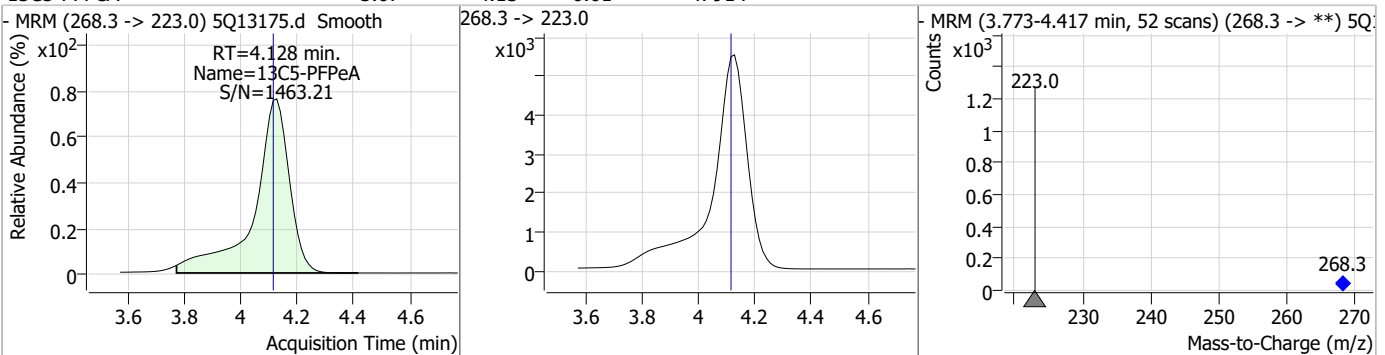


### Perfluorinated Compounds by LC/MS/MS

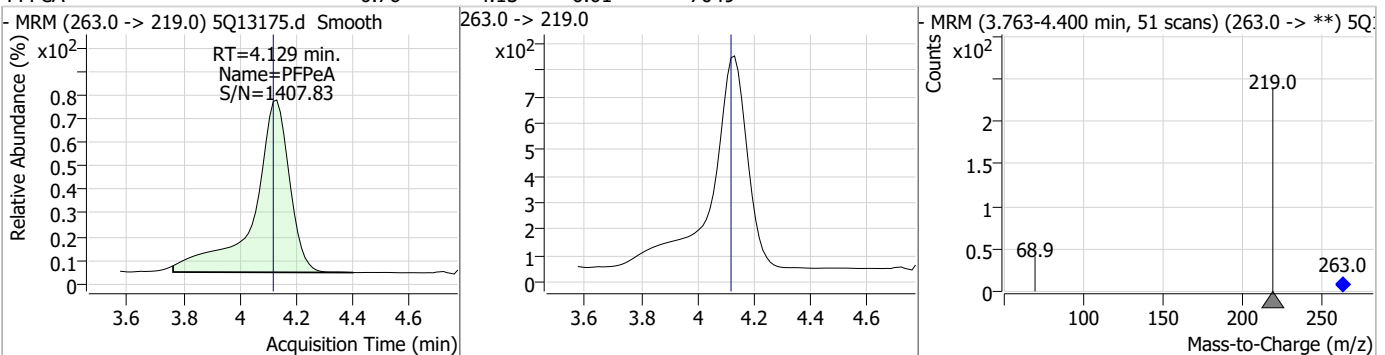
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	1.91	3.60	0.02	1169	241.0 -> 117.0	11.3	5.3	15.9



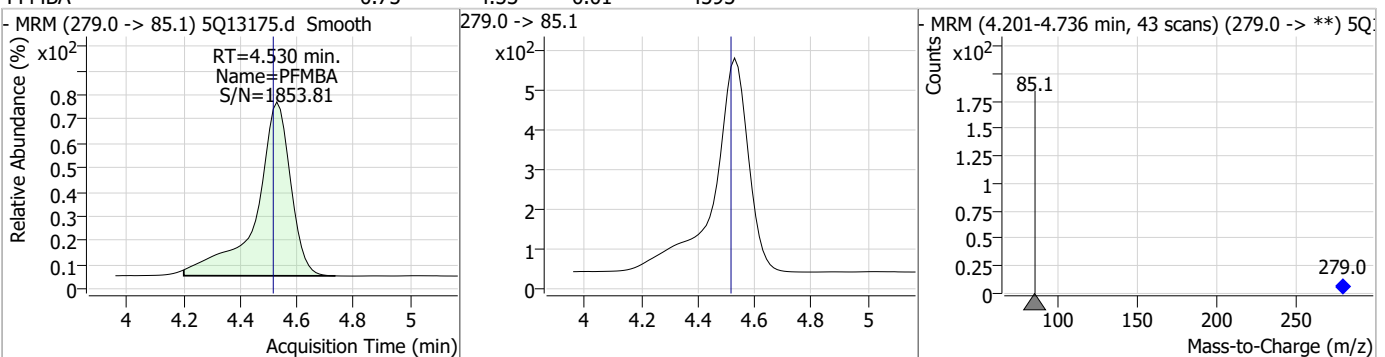
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.07	4.13	0.01	47914				



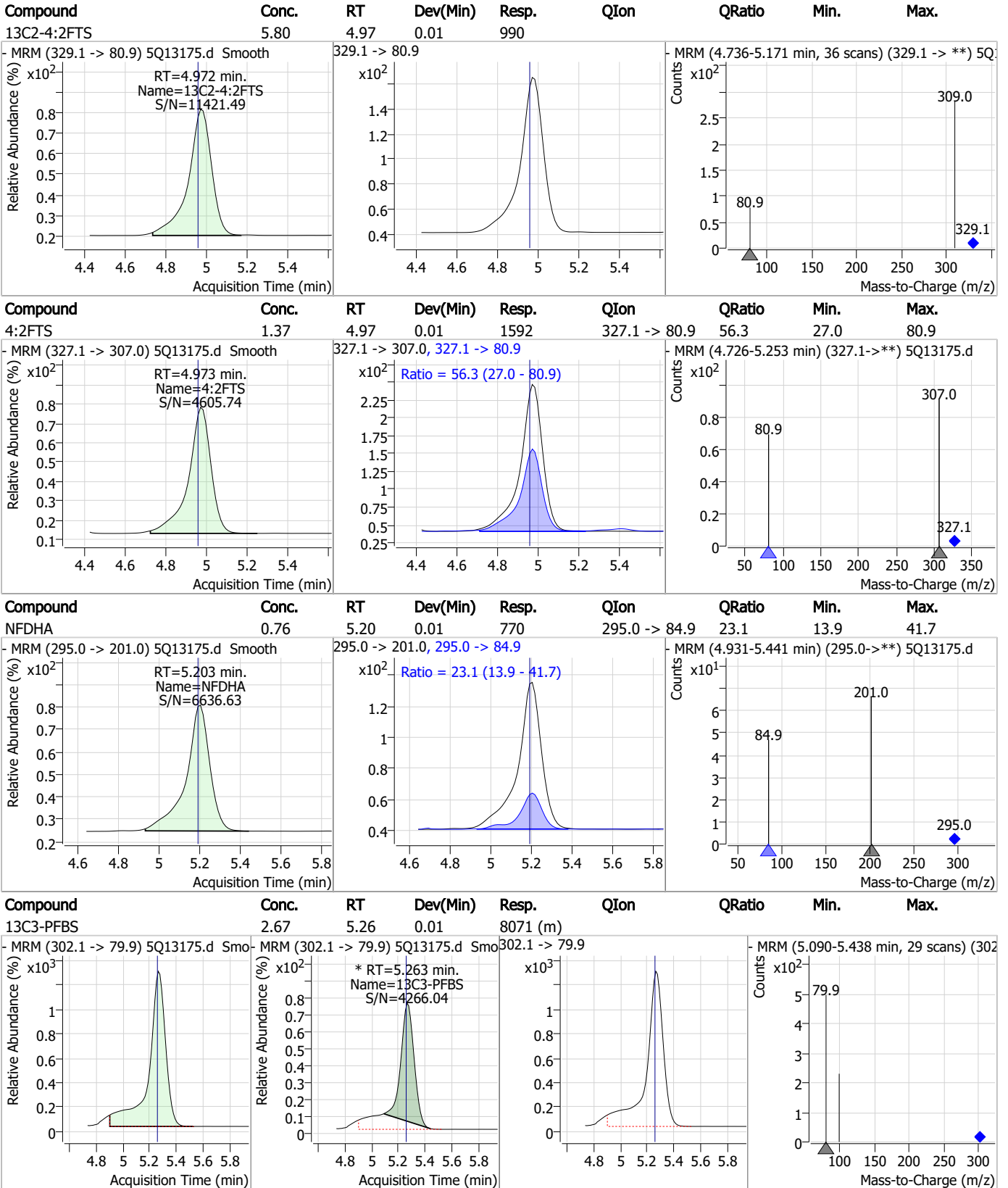
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	0.76	4.13	0.01	7049				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	0.75	4.53	0.01	4595				



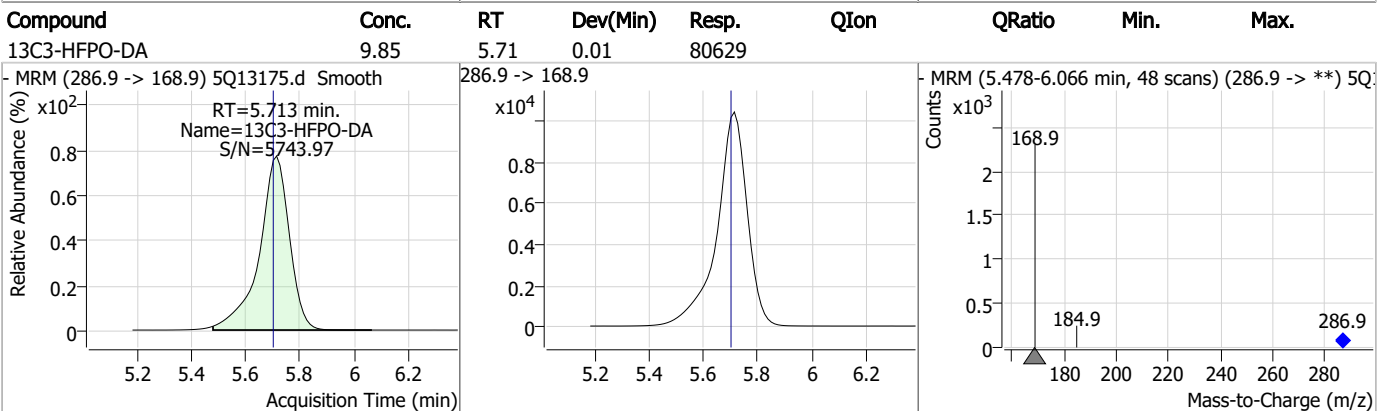
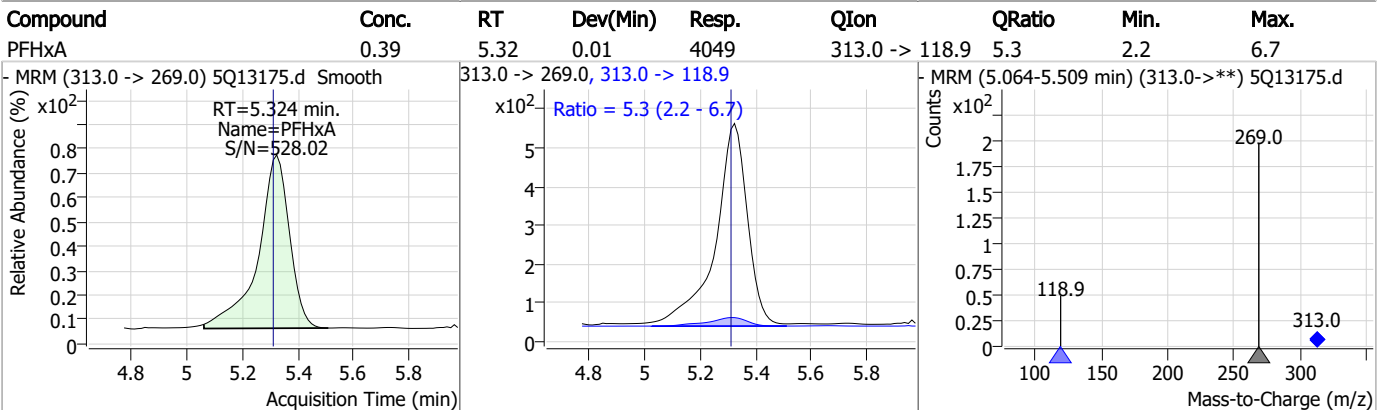
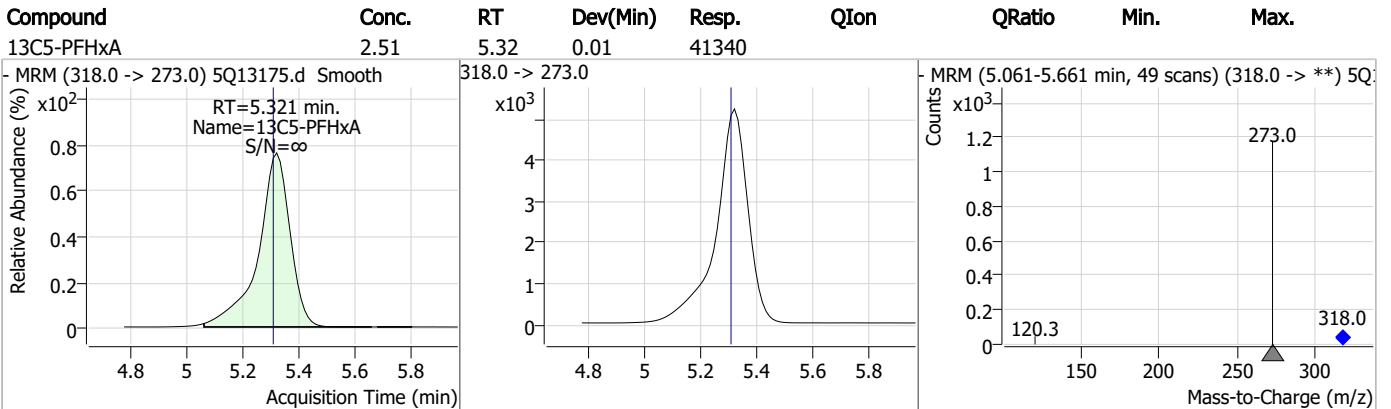
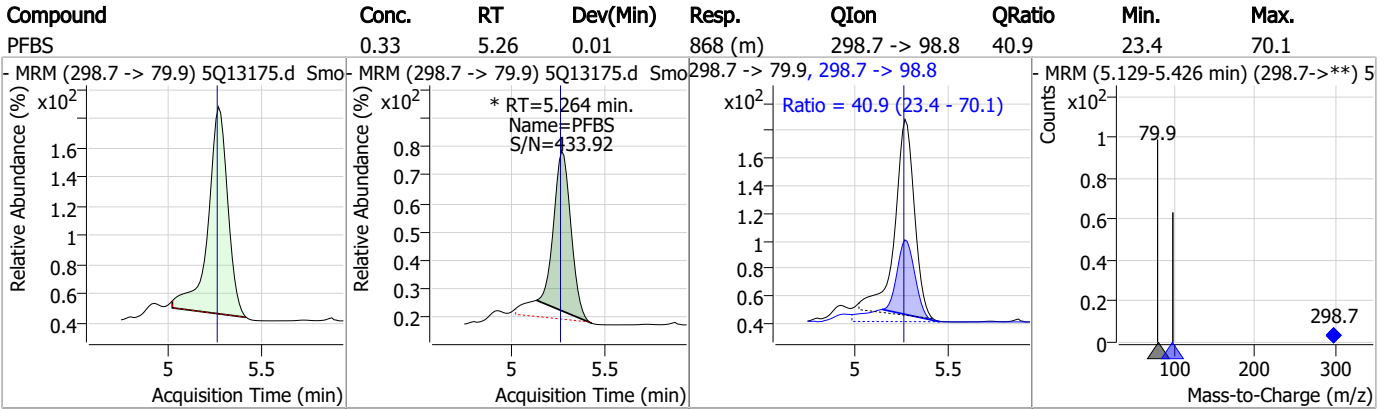
### Perfluorinated Compounds by LC/MS/MS



7.7.3

7

### Perfluorinated Compounds by LC/MS/MS



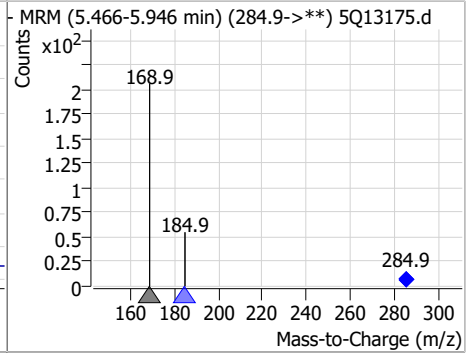
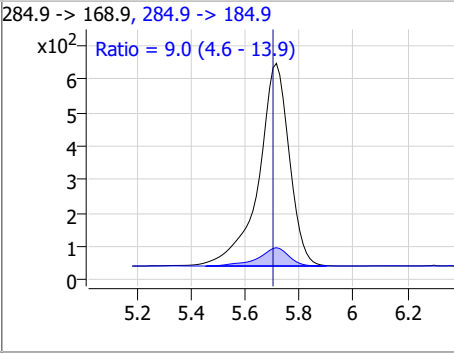
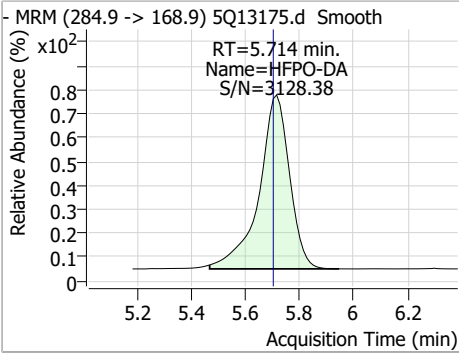
7.7.3

7

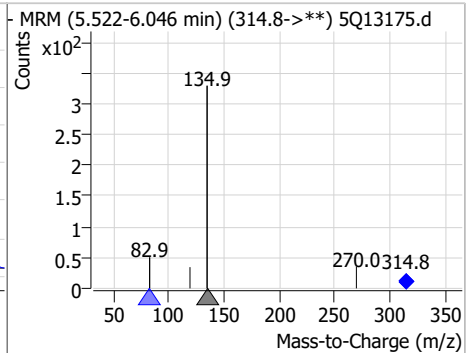
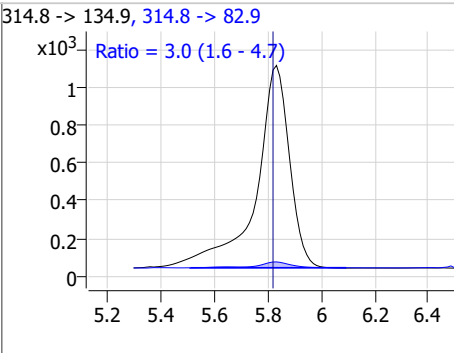
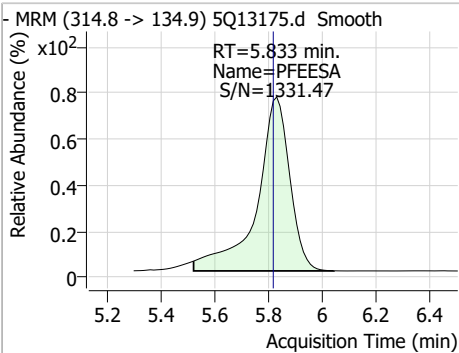


### Perfluorinated Compounds by LC/MS/MS

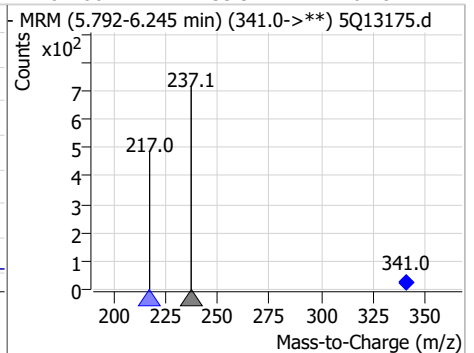
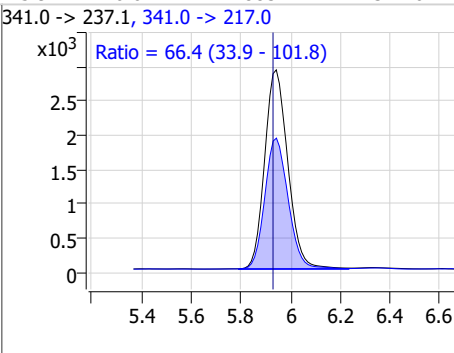
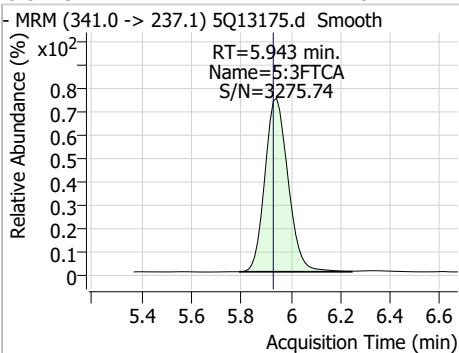
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.75	5.71	0.01	4777	284.9 -> 184.9	9.0	4.6	13.9



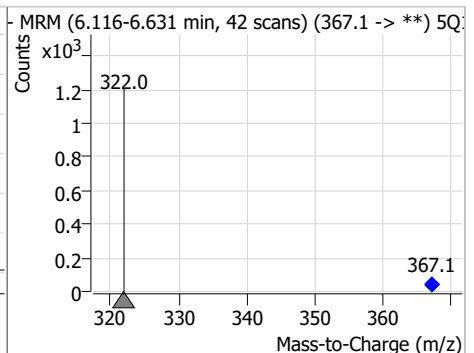
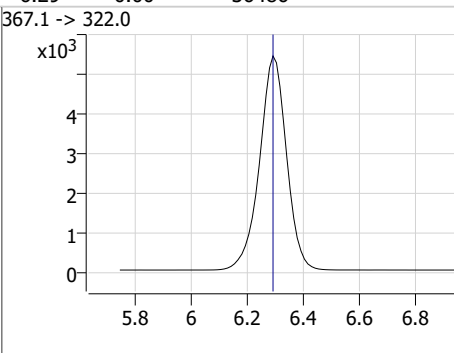
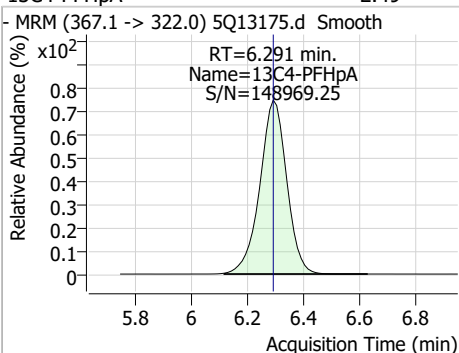
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.68	5.83	0.01	9249	314.8 -> 82.9	3.0	1.6	4.7



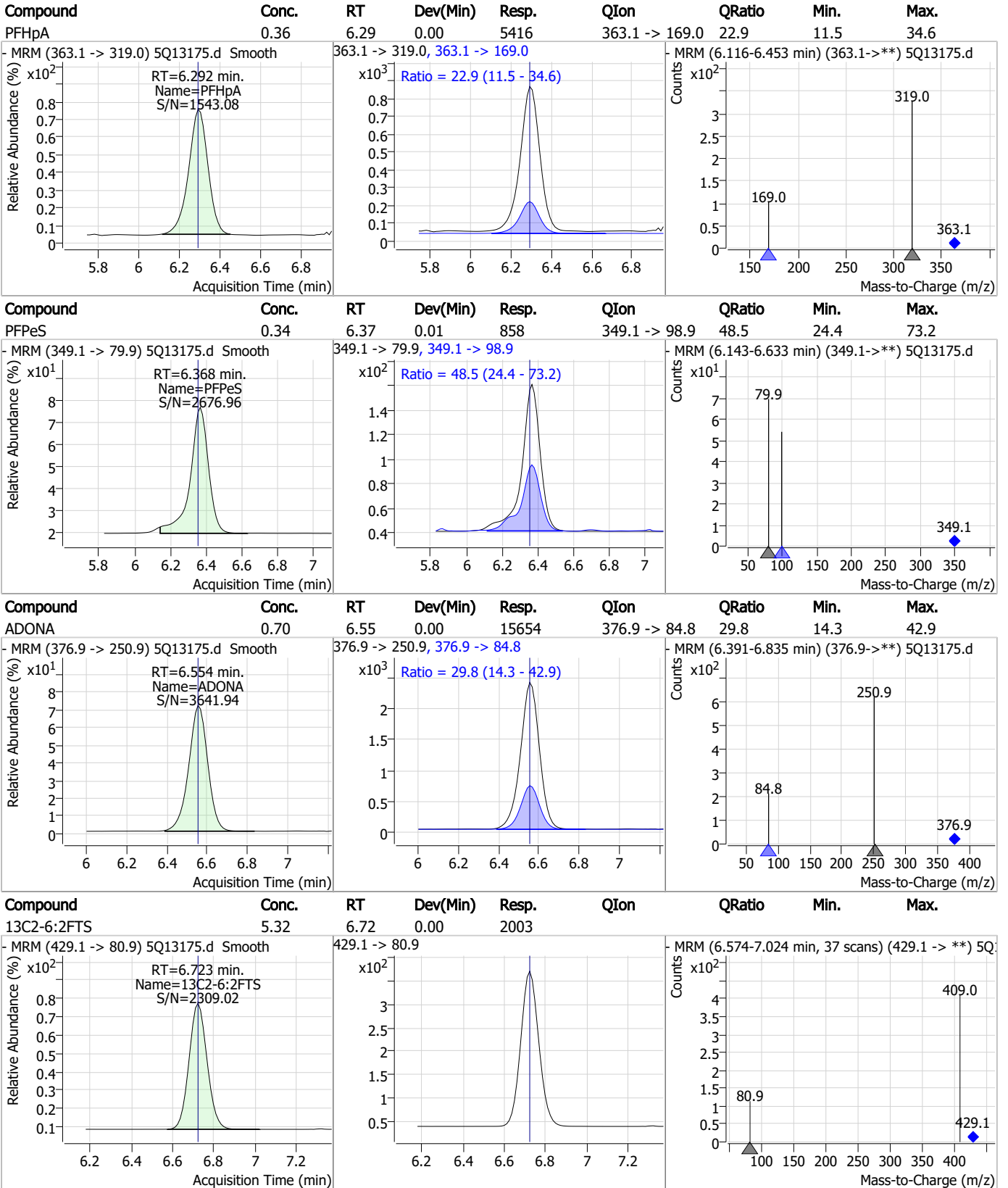
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	9.44	5.94	0.01	18837	341.0 -> 217.0	66.4	33.9	101.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.29	0.00	36486	367.1 -> 322.0			



### Perfluorinated Compounds by LC/MS/MS

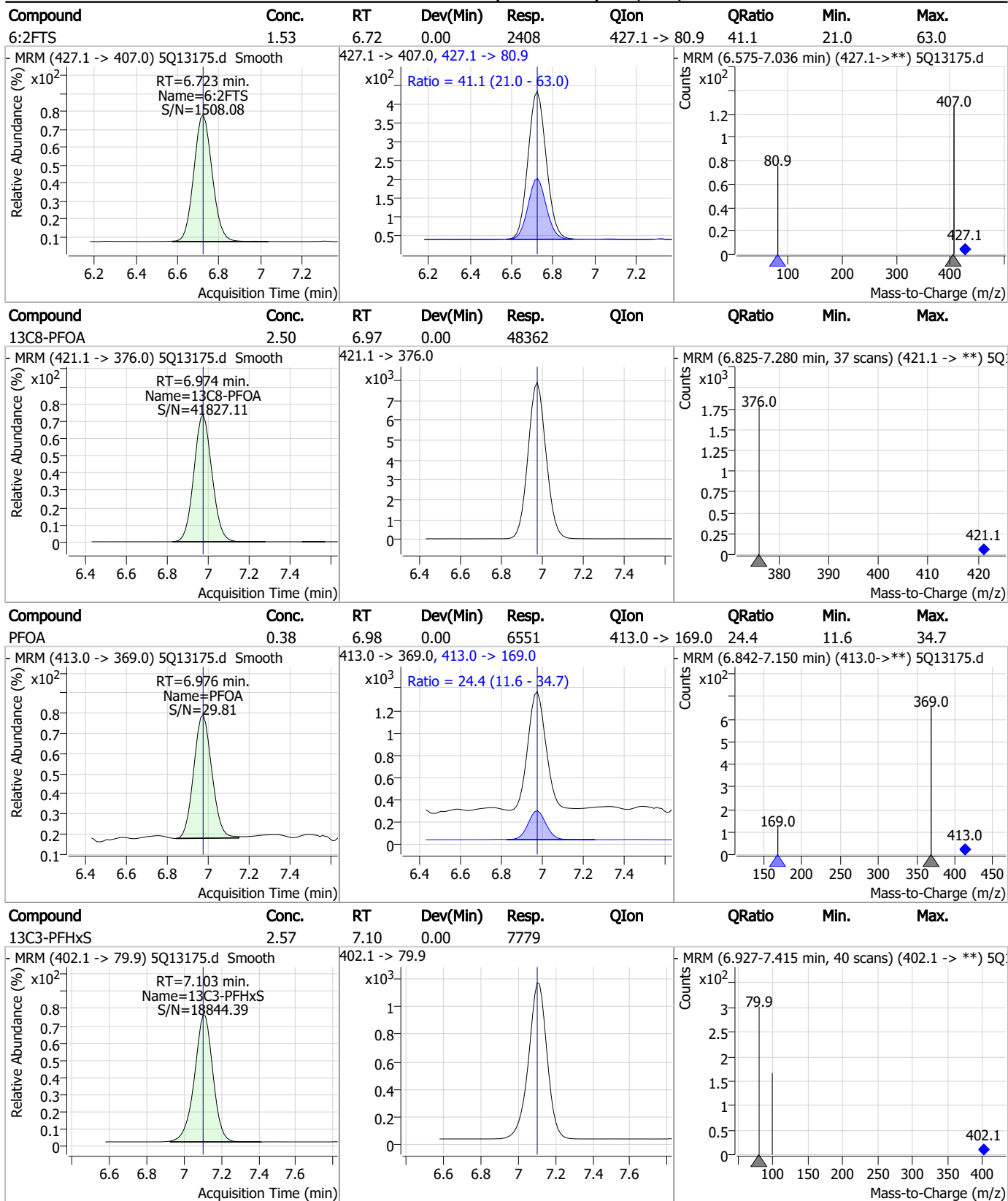


7.7.3

7

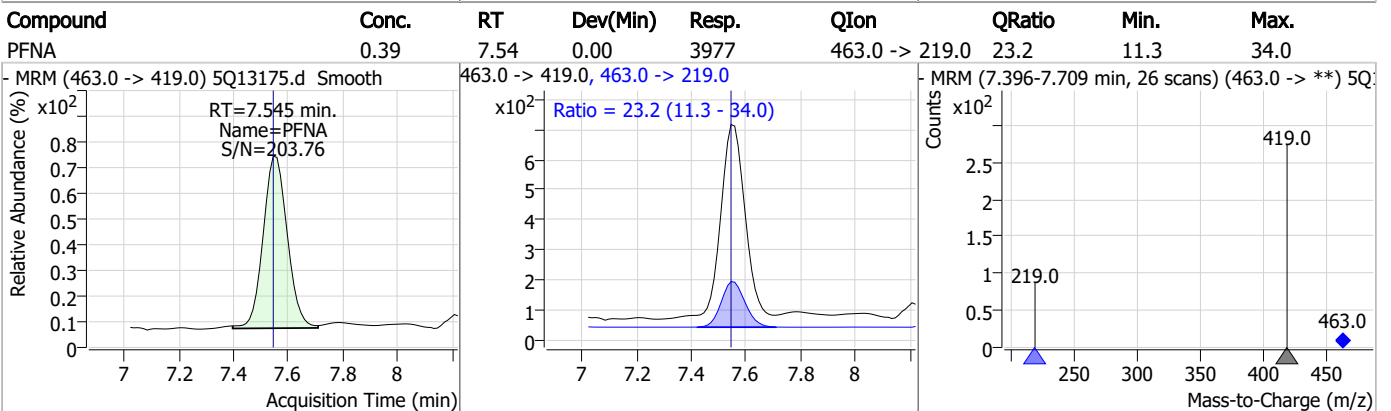
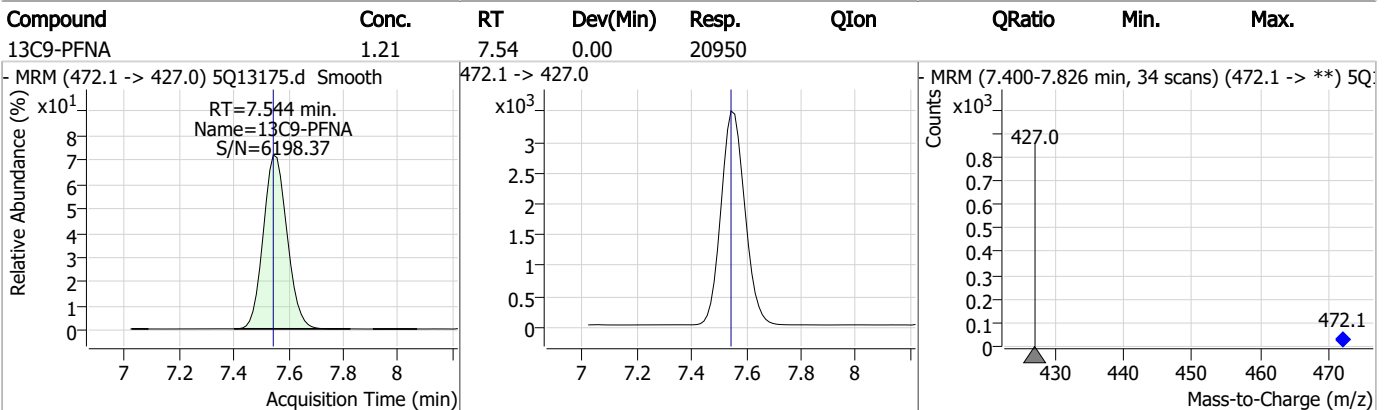
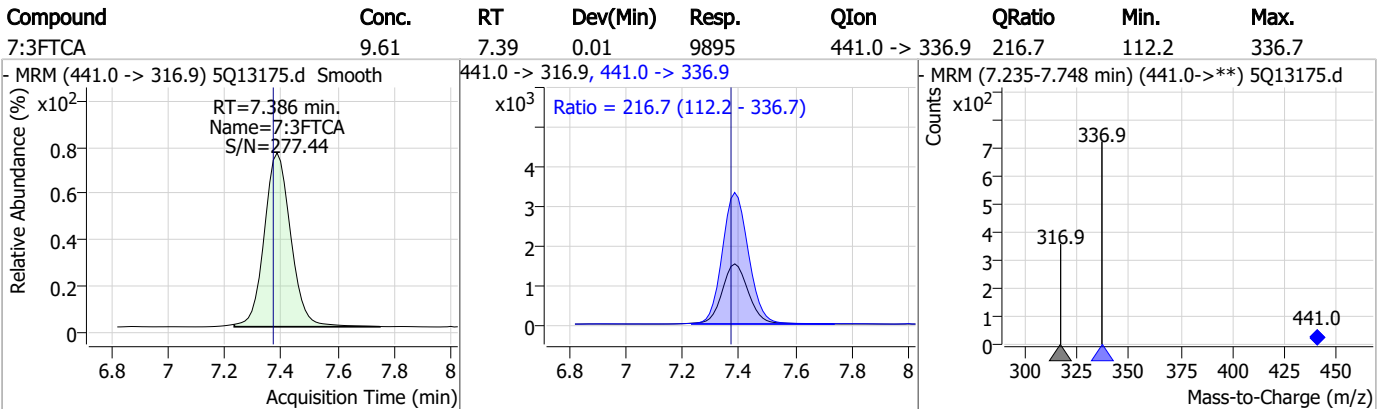
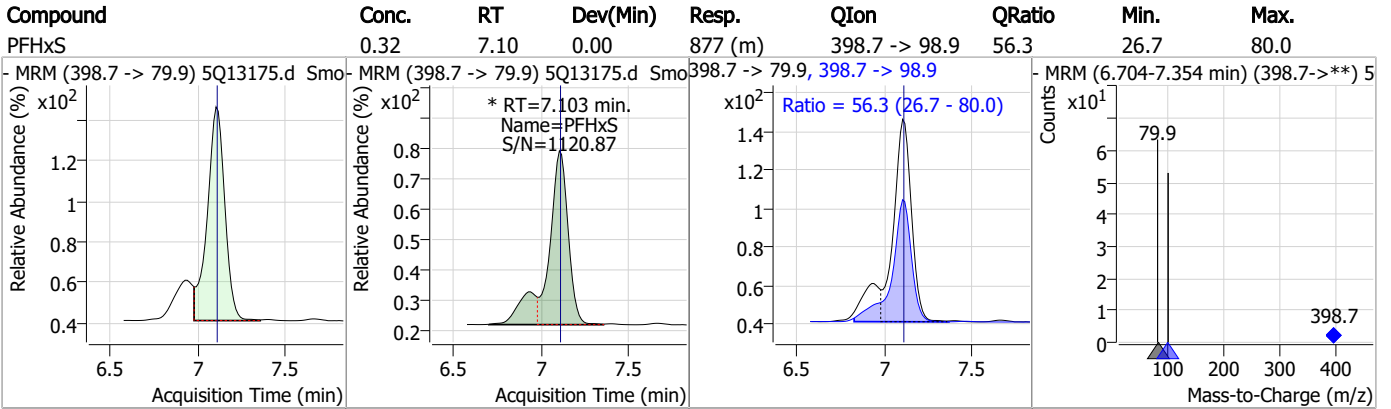


### Perfluorinated Compounds by LC/MS/MS



7.7.3  
7

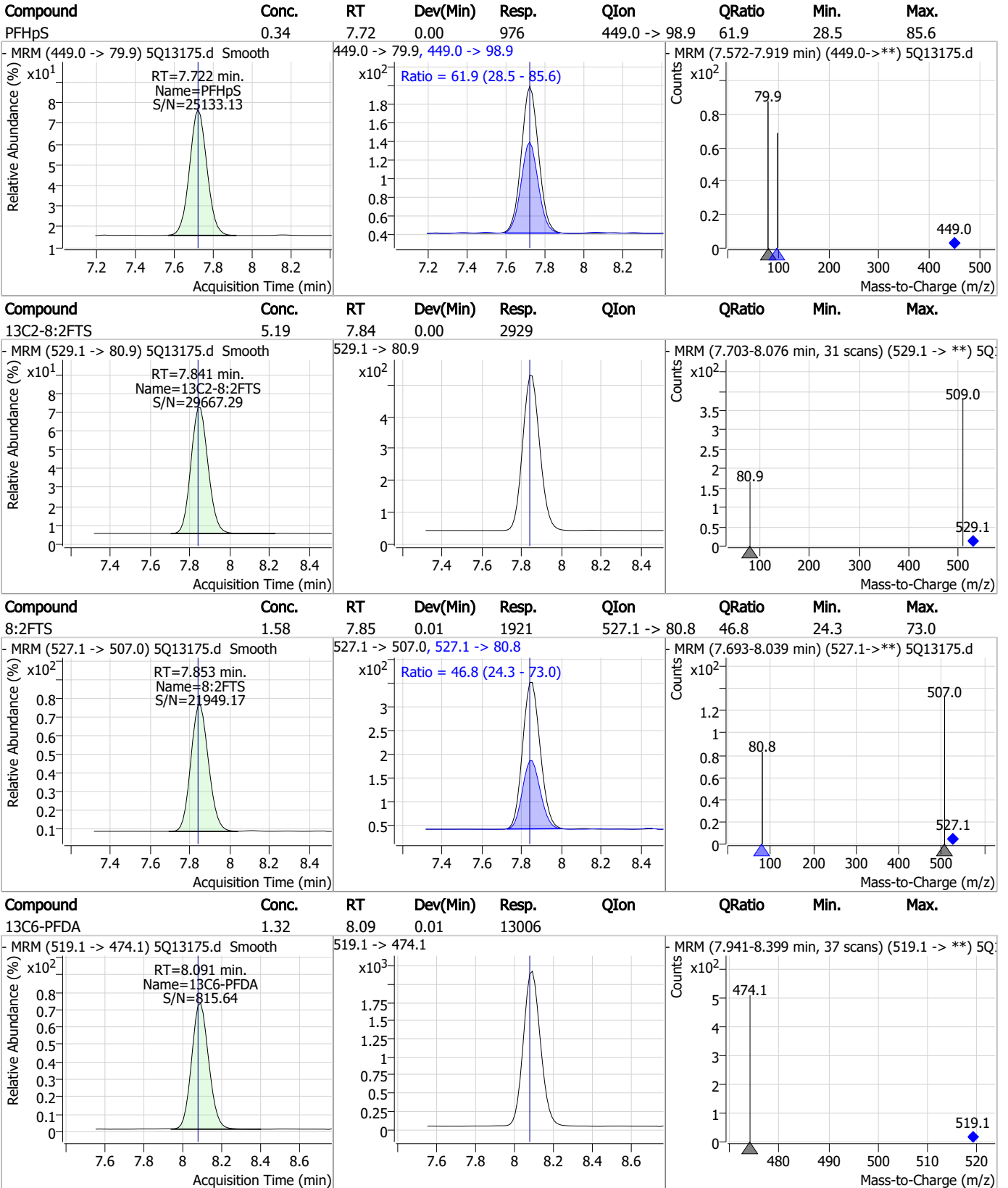
### Perfluorinated Compounds by LC/MS/MS



7.7.3

7

### Perfluorinated Compounds by LC/MS/MS

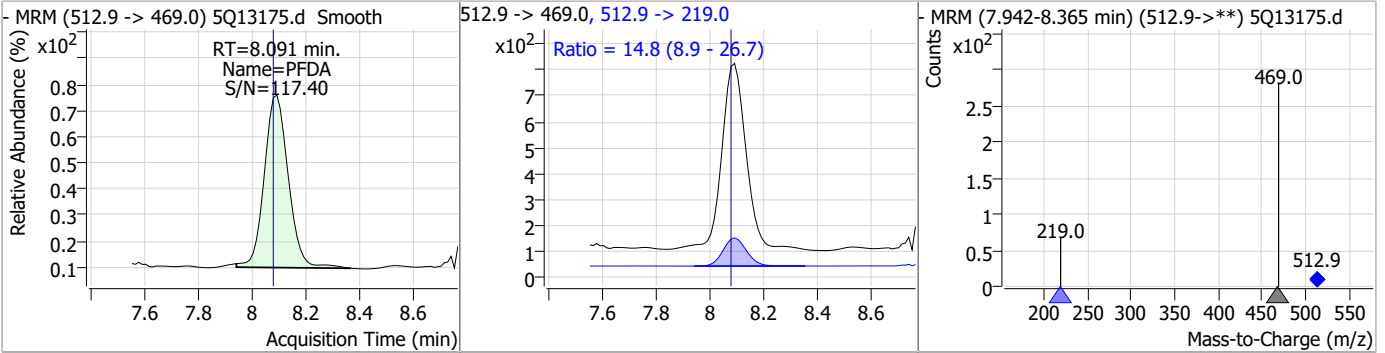


7.7.3

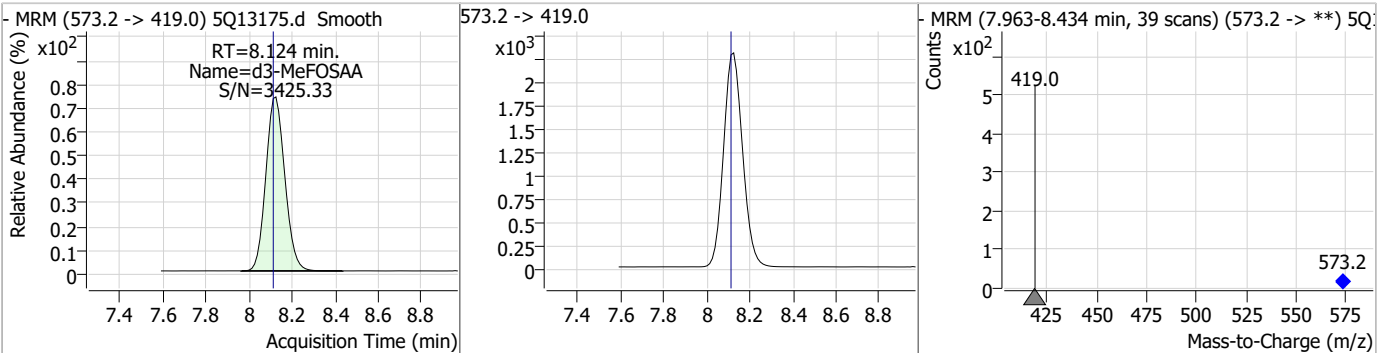
7

### Perfluorinated Compounds by LC/MS/MS

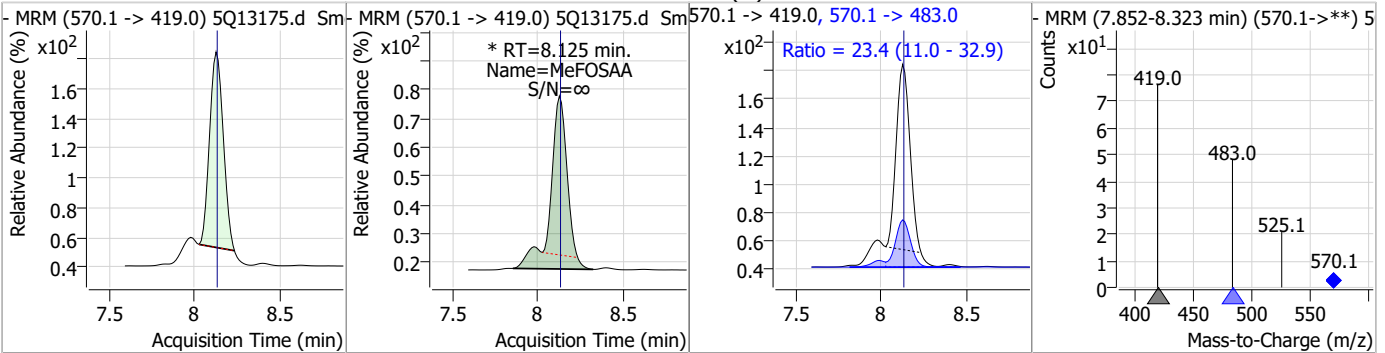
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.38	8.09	0.01	4449	512.9 -> 219.0	14.8	8.9	26.7



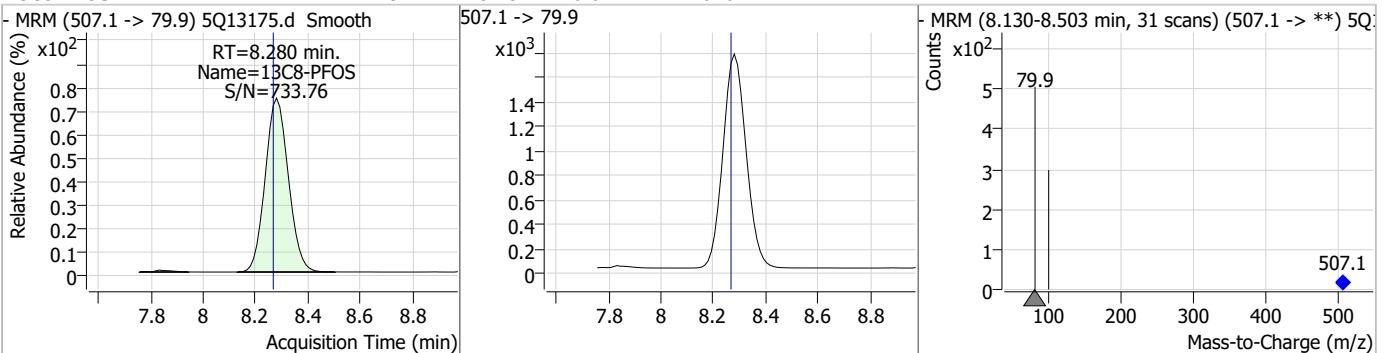
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.06	8.12	0.01	13987				



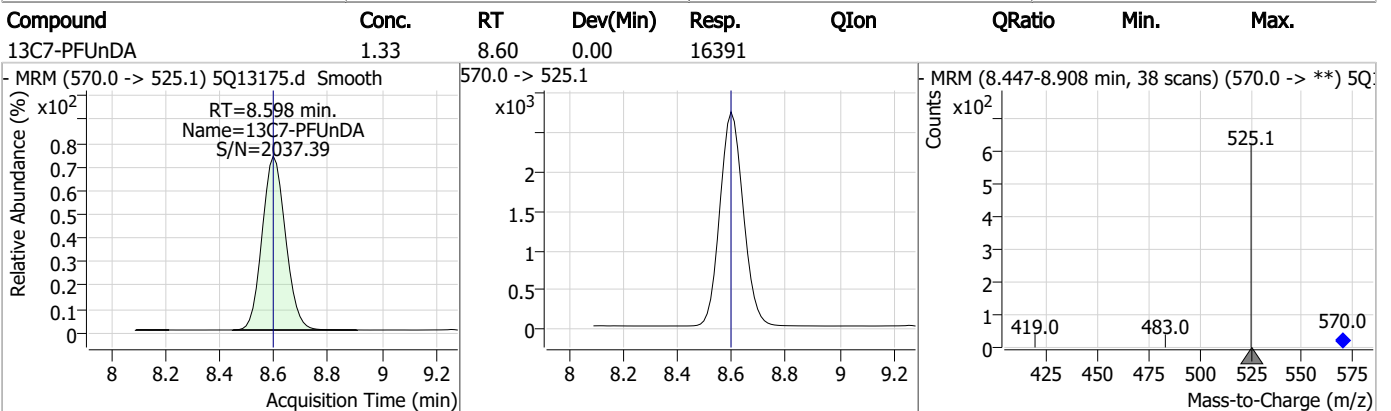
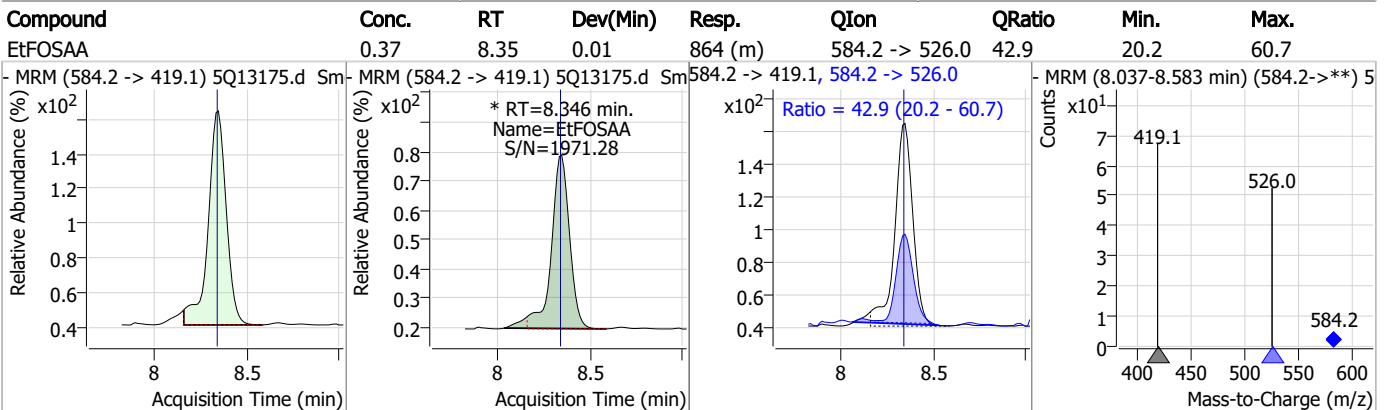
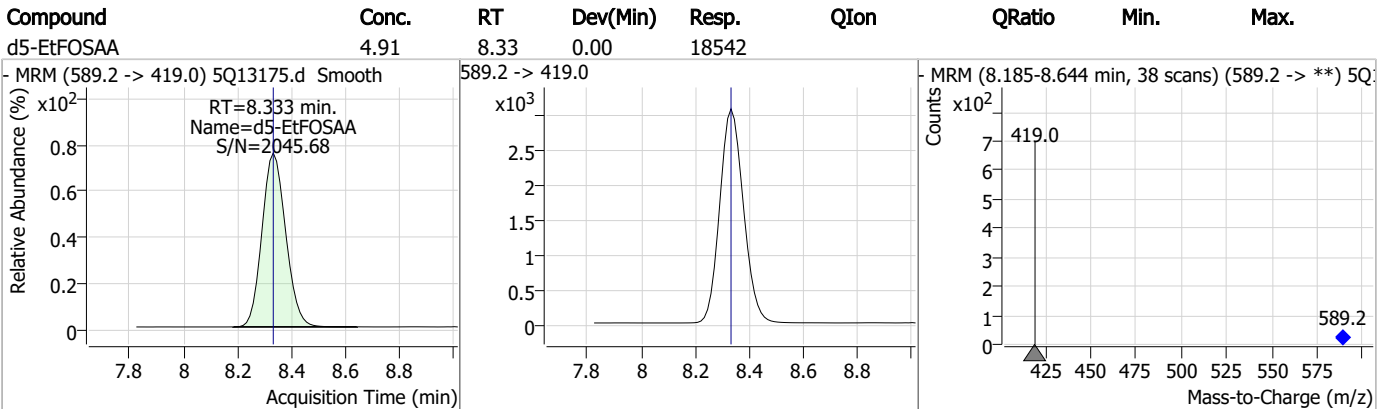
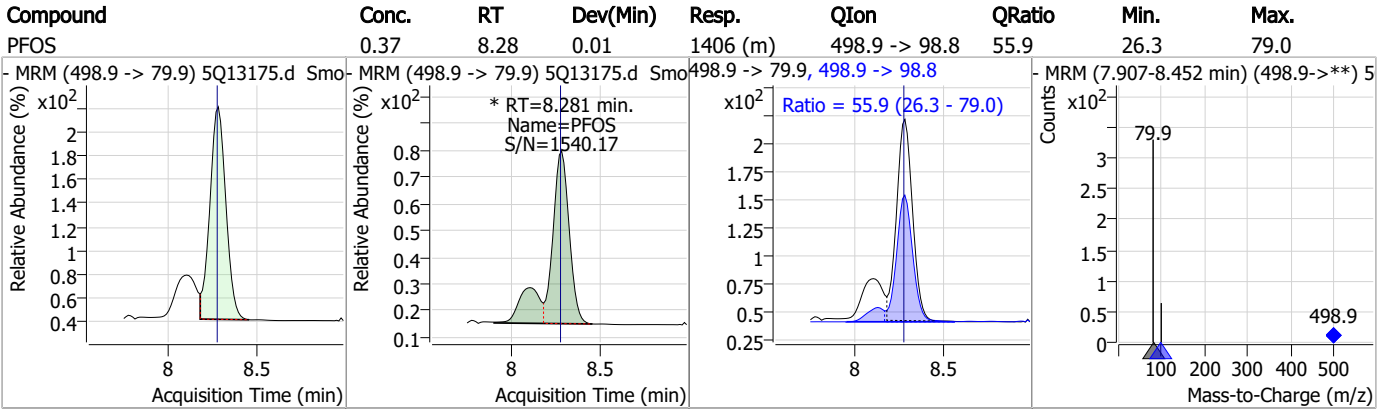
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.42	8.12	0.00	997 (m)	570.1 -> 483.0	23.4	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.49	8.28	0.01	10764				



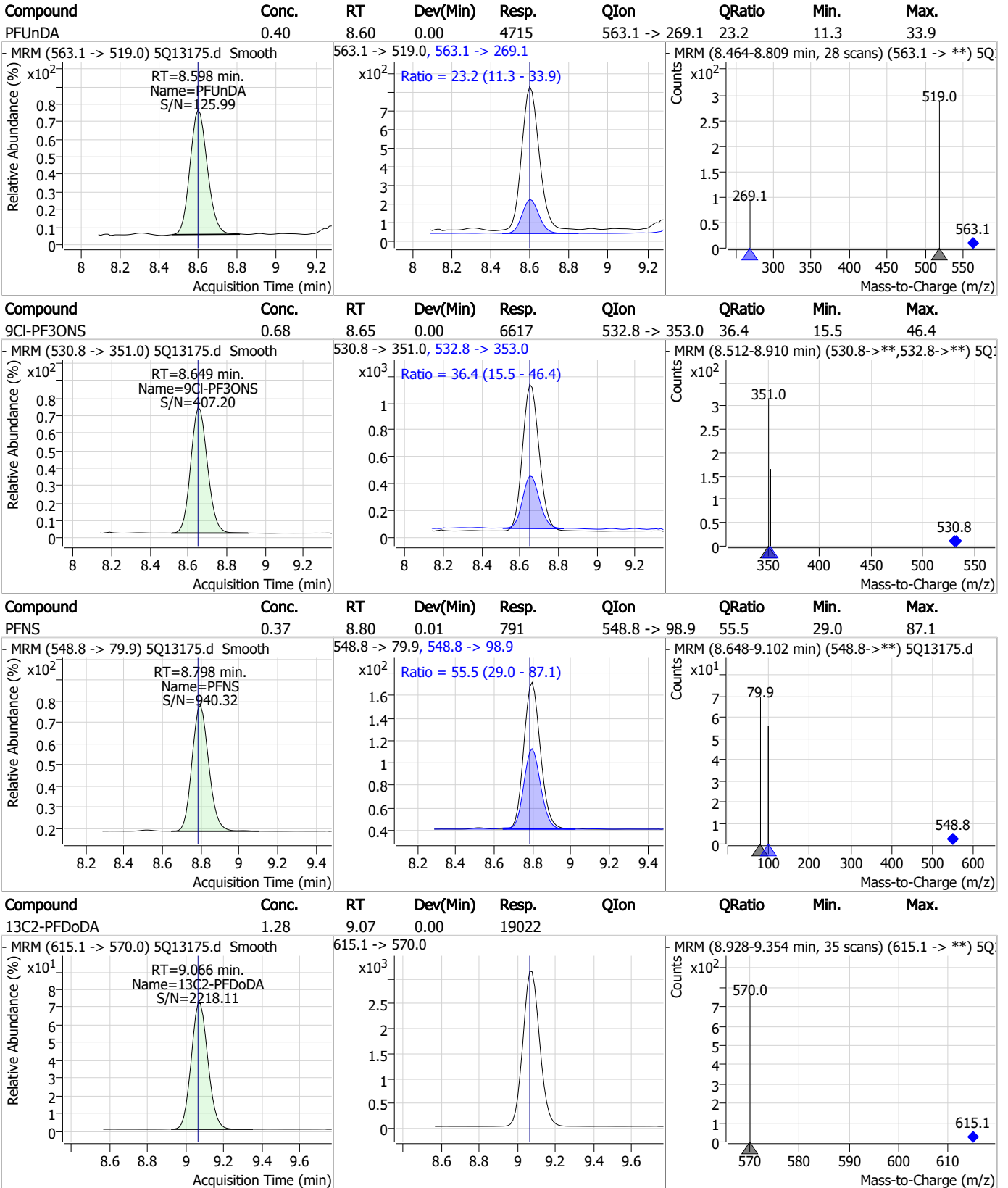
### Perfluorinated Compounds by LC/MS/MS



7.7.3

7

### Perfluorinated Compounds by LC/MS/MS



7.7.3

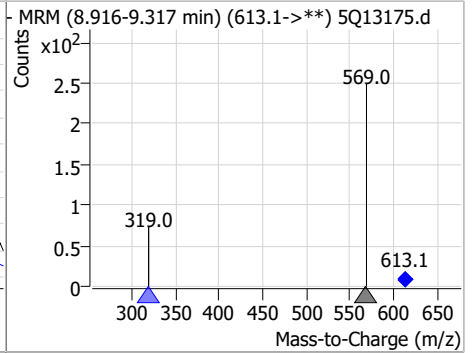
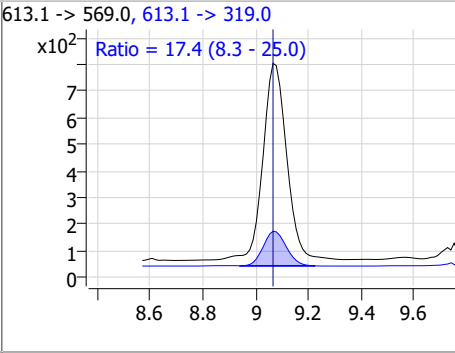
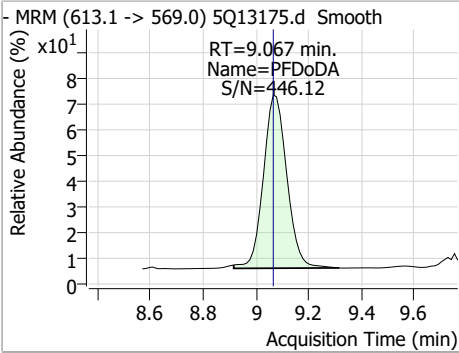
7



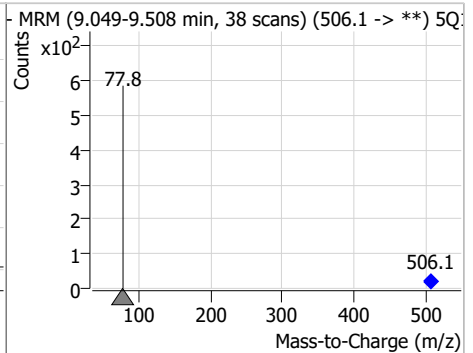
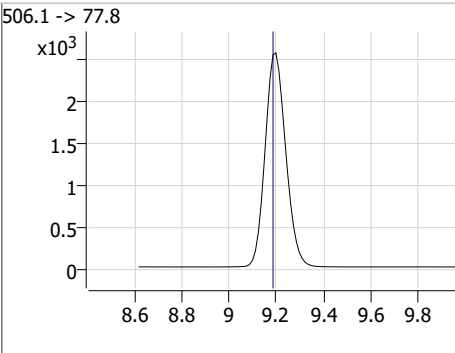
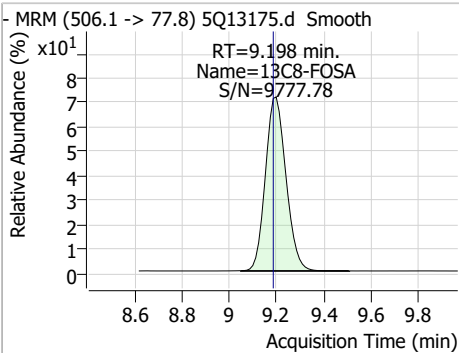


### Perfluorinated Compounds by LC/MS/MS

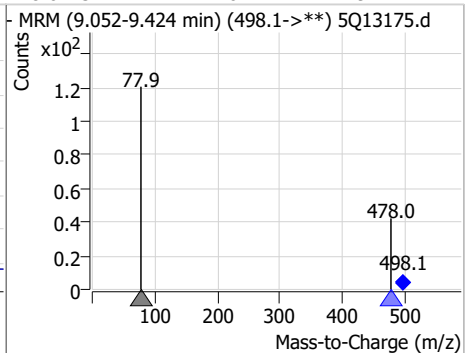
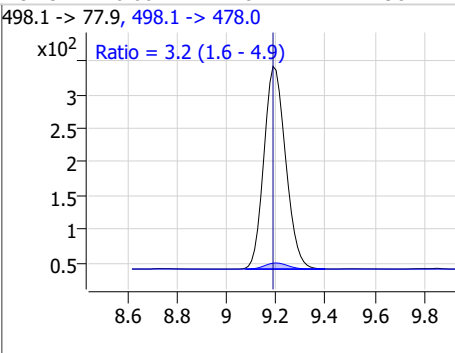
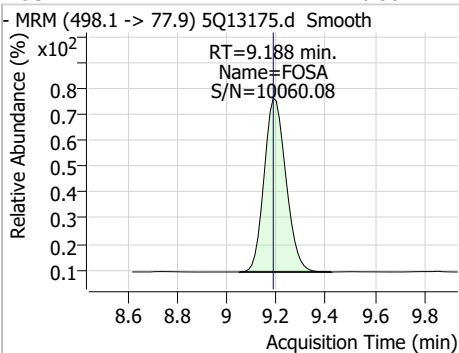
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	0.40	9.07	0.00	4592	613.1 -> 319.0	17.4	8.3	25.0



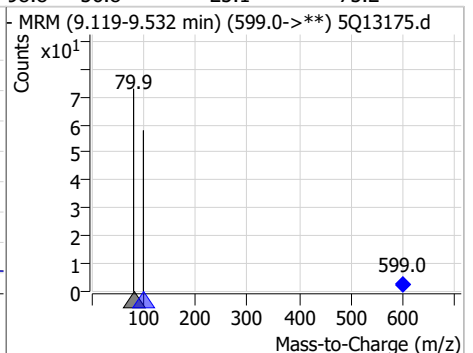
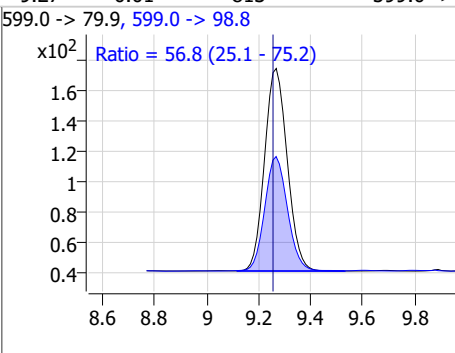
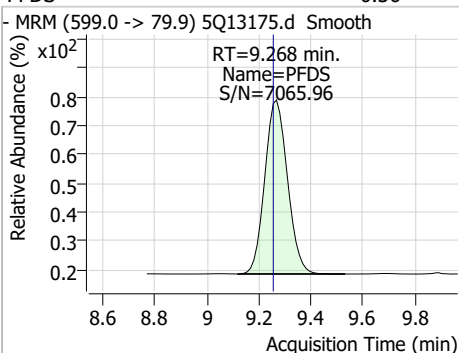
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.20	0.01	15436				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.38	9.19	0.00	1842	498.1 -> 478.0	3.2	1.6	4.9

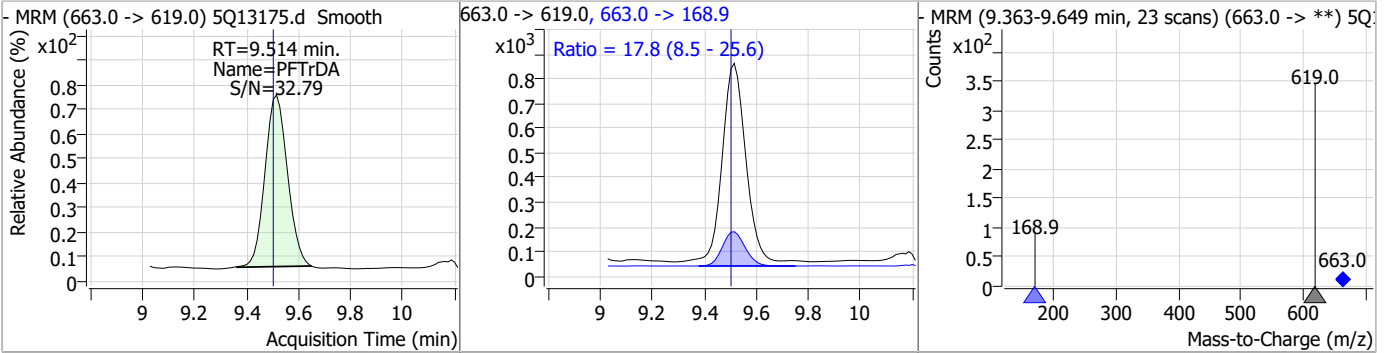


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	0.36	9.27	0.01	813	599.0 -> 98.8	56.8	25.1	75.2

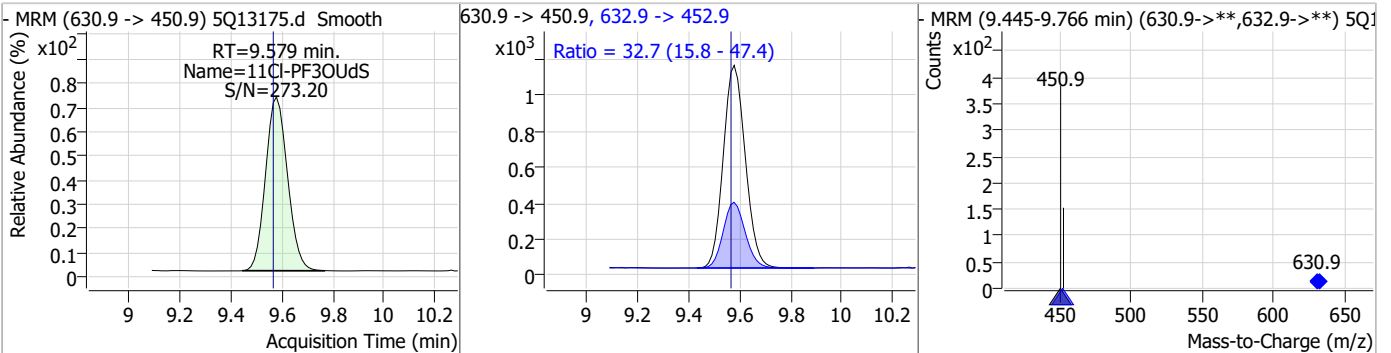


### Perfluorinated Compounds by LC/MS/MS

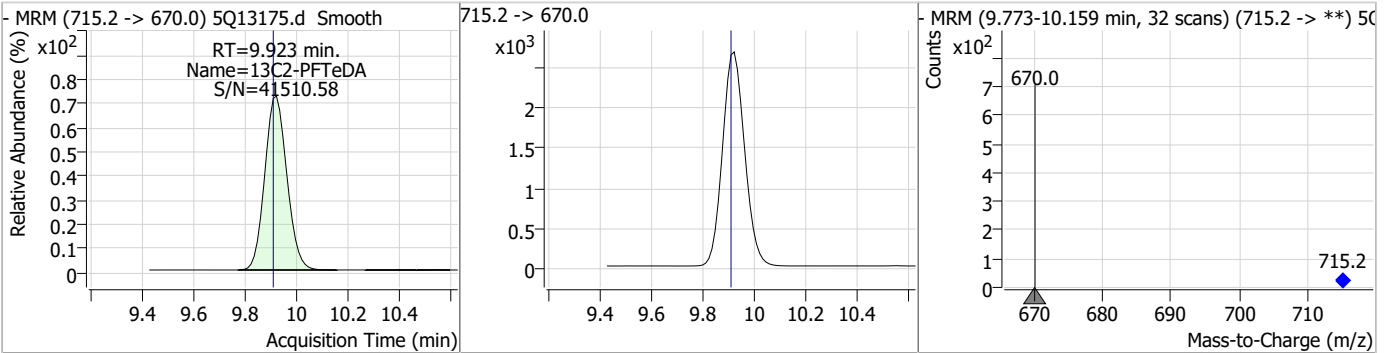
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.37	9.51	0.01	4770	663.0 -> 168.9	17.8	8.5	25.6



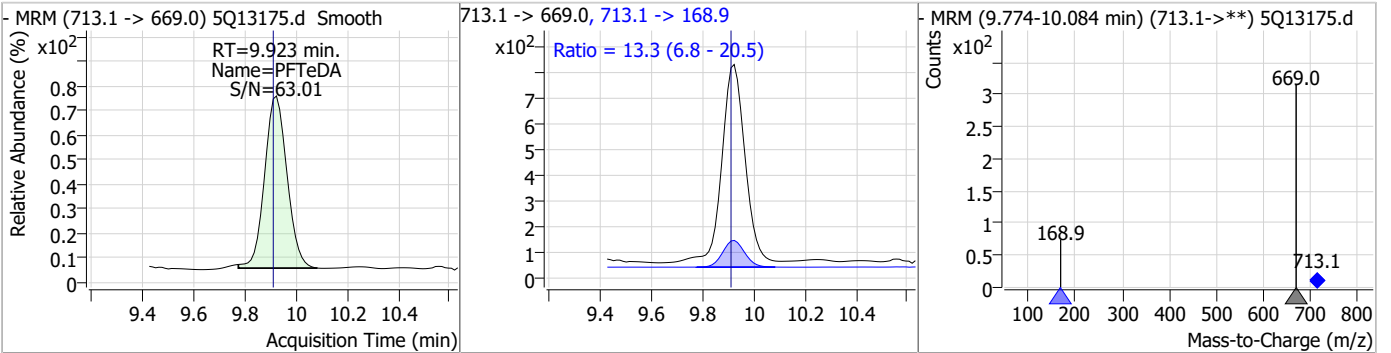
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.73	9.58	0.01	6689	632.9 -> 452.9	32.7	15.8	47.4



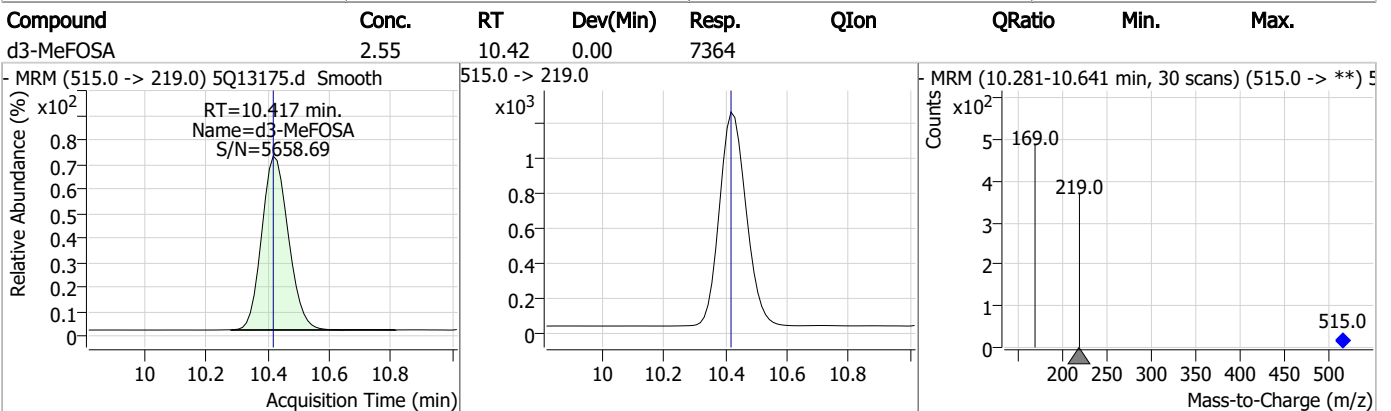
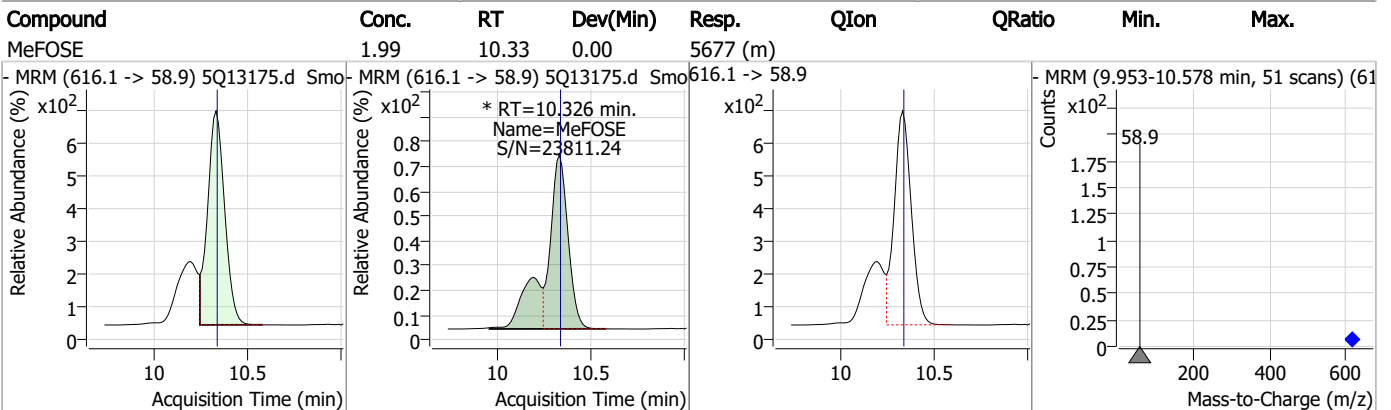
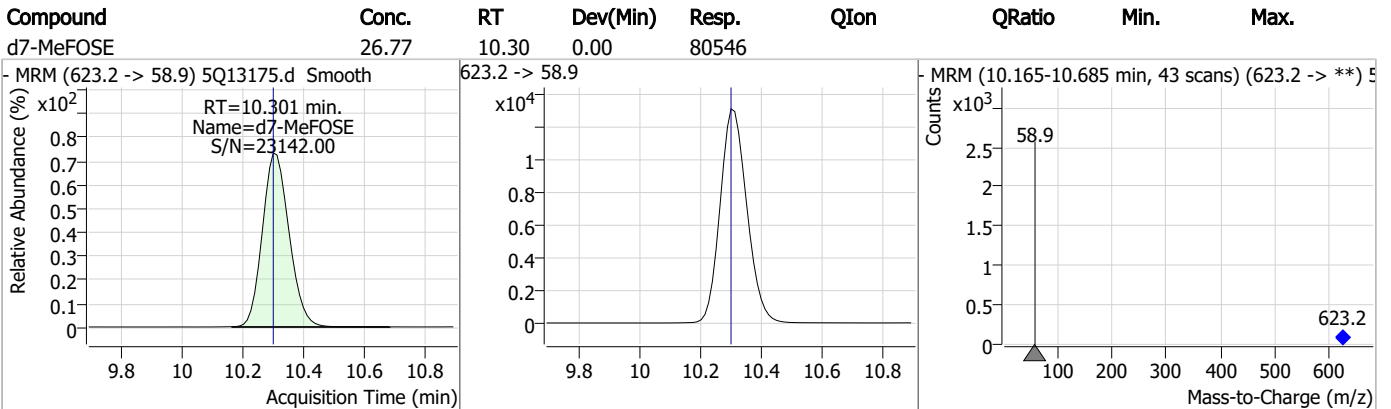
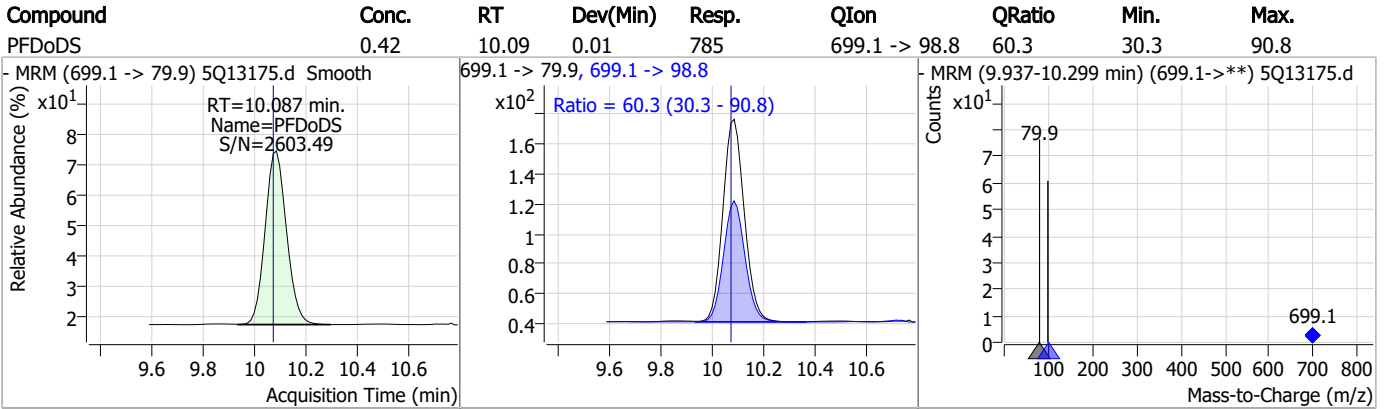
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.92	0.01	15871	715.2 -> 670.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.40	9.92	0.01	4657	713.1 -> 168.9	13.3	6.8	20.5



### Perfluorinated Compounds by LC/MS/MS

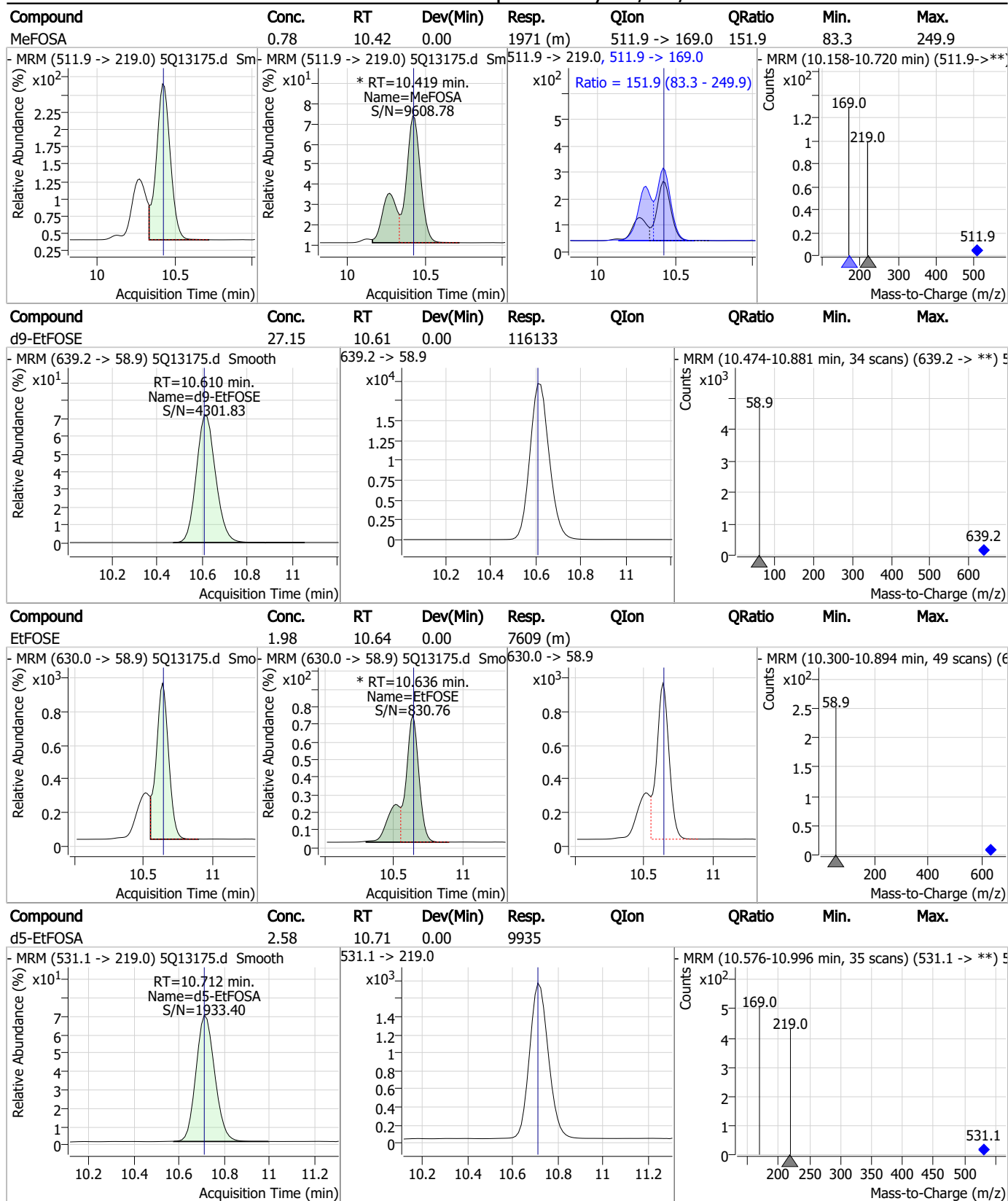


7.7.3

7

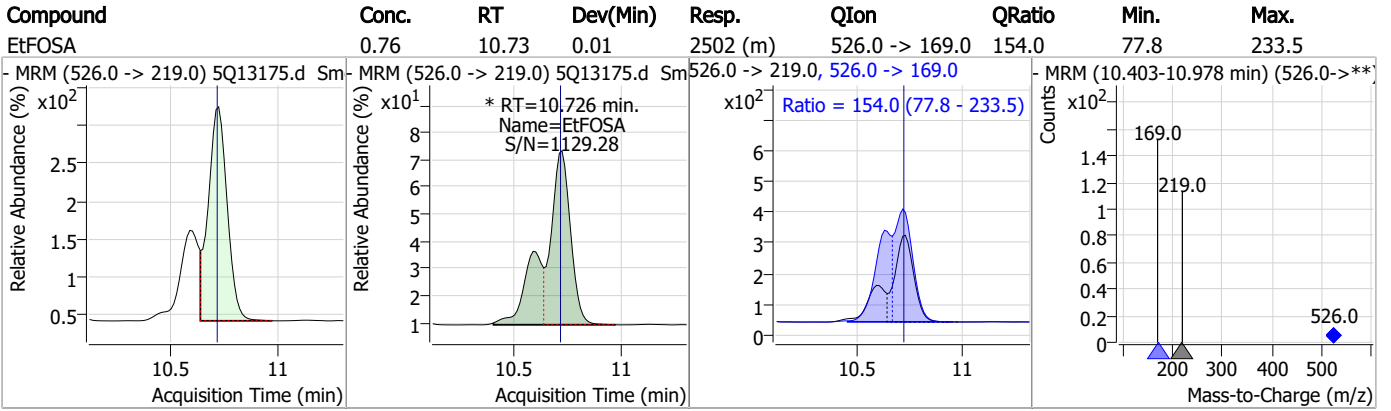


### Perfluorinated Compounds by LC/MS/MS



7.7.3  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.3

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-IC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13175.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 19:10      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-PFBA			2.78	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.78	Poor instrument integration
13C4-PFBA			2.79	Poor instrument integration
13C3-PFBS			5.26	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.26	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
MeFOSAA	2355-31-9		8.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.35	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.73	Split peak

7.7.3.1  
7

## Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13176.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 7:24:36 PM  
 Sample Name : ic205-3  
 Vial : P3-A4  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.790	216.8 -> 171.9	67343	10.00	µg/L m	0.025
M5-PFPeA	4.116	268.3 -> 223.0	51413	5.00	µg/L	0.000
M5-PFHxA	5.321	318.0 -> 273.0	43875	2.50	µg/L	0.012
M4-PFHpA	6.291	367.1 -> 322.0	38992	2.50	µg/L	0.000
M8-PFOA	6.974	421.1 -> 376.0	51902	2.50	µg/L	0.000
M9-PFNA	7.544	472.1 -> 427.0	22291	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	13530	1.25	µg/L	0.000
M7-PFUnDA	8.598	570.0 -> 525.1	17427	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	19948	1.25	µg/L	0.000
M2-PFTeDA	9.910	715.2 -> 670.0	16981	1.25	µg/L	0.000
M8-FOSA	9.186	506.1 -> 77.8	16553	2.50	µg/L	0.000
M3-PFBS	5.263	302.1 -> 79.9	7977	2.50	µg/L m	0.012
M3-PFHxS	7.103	402.1 -> 79.9	8326	2.50	µg/L	0.000
M8-PFOS	8.280	507.1 -> 79.9	11619	2.50	µg/L	0.012
M2-4:2FTS	4.972	329.1 -> 80.9	969	5.00	µg/L	0.012
M2-6:2FTS	6.723	429.1 -> 80.9	2177	5.00	µg/L	0.000
M2-8:2FTS	7.841	529.1 -> 80.9	3319	5.00	µg/L	0.000
M3-MeFOSAA	8.112	573.2 -> 419.0	14921	5.00	µg/L	0.000
M3-HFPO-DA	5.713	286.9 -> 168.9	85949	10.00	µg/L	0.012
M5-EtFOSAA	8.333	589.2 -> 419.0	20798	5.00	µg/L	0.000
M7-MeFOSE	10.301	623.2 -> 58.9	79683	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	118166	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	10418	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7546	2.50	µg/L	0.000
13C4-PFOS	8.281	502.8 -> 79.9	11419	2.50	µg/L	0.012
13C3-PFBA	2.780	216.0 -> 172.0	35200	5.00	µg/L m	0.012
18O2-PFHxS	7.102	403.0 -> 83.9	5269	2.50	µg/L	0.000
13C4-PFOA	6.975	417.1 -> 372.0	62738	2.50	µg/L	0.000
13C2-PFDA	8.091	515.1 -> 470.1	20373	1.25	µg/L	0.013
13C5-PFNA	7.544	468.0 -> 423.0	21939	1.25	µg/L	0.000
13C2-PFHxA	5.322	315.1 -> 270.0	46315	2.50	µg/L	0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.972	329.1 -> 80.9	969	5.31	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.3%			
13C2-6:2FTS	6.723	429.1 -> 80.9	2177	5.42	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%			
13C2-8:2FTS	7.841	529.1 -> 80.9	3319	5.50	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%			
13C2-PFDoDA	9.066	615.1 -> 570.0	19948	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.9%			
13C2-PFTeDA	9.910	715.2 -> 670.0	16981	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.1%			
13C3-PFBS	5.263	302.1 -> 79.9	8134	2.52	µg/L m	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%			
13C3-PFHxS	7.103	402.1 -> 79.9	8326	2.58	µg/L	0.000

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%		
13C4-PFBA	2.790	216.8 -> 171.9	67876	10.06	µg/L	m 0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
13C4-PFHpA	6.291	367.1 -> 322.0	38992	2.52	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C5-PFHxA	5.321	318.0 -> 273.0	43875	2.52	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C5-PFPeA	4.116	268.3 -> 223.0	51413	5.15	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%		
13C6-PFDA	8.077	519.1 -> 474.1	13530	1.26	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C7-PFUnDA	8.598	570.0 -> 525.1	17427	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%		
13C8-FOSA	9.186	506.1 -> 77.8	16553	2.41	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C8-PFOA	6.974	421.1 -> 376.0	51902	2.53	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%		
13C8-PFOS	8.280	507.1 -> 79.9	11619	2.44	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C9-PFNA	7.544	472.1 -> 427.0	22291	1.25	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.0%		
d3-MeFOSAA	8.112	573.2 -> 419.0	14921	4.88	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%		
13C3-HFPO-DA	5.713	286.9 -> 168.9	85949	9.94	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%		
d3-MeFOSA	10.417	515.0 -> 219.0	7546	2.36	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%		
d5-EtFOSAA	8.333	589.2 -> 419.0	20798	4.98	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
d7-MeFOSE	10.301	623.2 -> 58.9	79683	23.97	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.9%		
d9-EtFOSE	10.610	639.2 -> 58.9	118166	24.99	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%		
d5-EtFOSA	10.712	531.1 -> 219.0	10418	2.45	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%		
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.973	327.1 -> 307.0	5236	4.59	µg/L	99
		327.1 -> 80.9	2853			
6:2FTS	6.723	427.1 -> 407.0	8250	4.83	µg/L	100
		427.1 -> 80.9	3456			
8:2FTS	7.841	527.1 -> 507.0	6795	4.93	µg/L	96
		527.1 -> 80.8	3122			
EtFOSAA	8.334	584.2 -> 419.1	3207	1.22	µg/L	m 94
		584.2 -> 526.0	1411			
FOSA	9.188	498.1 -> 77.9	6521	1.26	µg/L	98
		498.1 -> 478.0	173			
MeFOSAA	8.125	570.1 -> 419.0	2956	1.18	µg/L	m 95
		570.1 -> 483.0	718			
PFBA	2.783	212.8 -> 168.9	11617	4.73	µg/L	m 100
PFBS	5.264	298.7 -> 79.9	2938	1.16	µg/L	m 89
		298.7 -> 98.8	1163			
PFDA	8.091	512.9 -> 469.0	14564	1.21	µg/L	97
		512.9 -> 219.0	2765			
PFDODA	9.067	613.1 -> 569.0	15408	1.27	µg/L	99
		613.1 -> 319.0	2647			
PFDS	9.256	599.0 -> 79.9	2997	1.21	µg/L	96



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1593			
PFHpA	6.292	363.1 -> 319.0	19487	1.23	µg/L	98
		363.1 -> 169.0	4278			
PFHpS	7.722	449.0 -> 79.9	3643	1.18	µg/L	93
		449.0 -> 98.9	2266			
PFHxA	5.324	313.0 -> 269.0	13852	1.25	µg/L	99
		313.0 -> 118.9	585			
PFHxS	7.103	398.7 -> 79.9	3164	1.08	µg/L	m 97
		398.7 -> 98.9	1760			
PFNA	7.545	463.0 -> 419.0	12978	1.20	µg/L	94
		463.0 -> 219.0	3317			
PFNS	8.798	548.8 -> 79.9	2836	1.24	µg/L	97
		548.8 -> 98.9	1594			
PFOA	6.976	413.0 -> 369.0	22865	1.23	µg/L	100
		413.0 -> 169.0	5237			
PFOS	8.281	498.9 -> 79.9	4632	1.14	µg/L	m 99
		498.9 -> 98.8	2488			
PFPeA	4.129	263.0 -> 219.0	24027	2.40	µg/L	100
PFPeS	6.368	349.1 -> 79.9	3113	1.17	µg/L	100
		349.1 -> 98.9	1526			
PFTeDA	9.911	713.1 -> 669.0	15571	1.25	µg/L	100
		713.1 -> 168.9	2088			
PFTrDA	9.514	663.0 -> 619.0	17293	1.28	µg/L	99
		663.0 -> 168.9	3069			
PFUnDA	8.598	563.1 -> 519.0	15210	1.21	µg/L	97
		563.1 -> 269.1	3222			
11CI-PF3OUdS	9.579	630.9 -> 450.9	23477	2.40	µg/L	98
		632.9 -> 452.9	7204			
9CI-PF3ONS	8.649	530.8 -> 351.0	24873	2.40	µg/L	99
		532.8 -> 353.0	7576			
ADONA	6.554	376.9 -> 250.9	55931	2.36	µg/L	99
		376.9 -> 84.8	16423			
HFPO-DA	5.714	284.9 -> 168.9	16552	2.45	µg/L	98
		284.9 -> 184.9	1652			
3:3FTCA	3.592	241.0 -> 177.0	4037	6.15	µg/L	99
		241.0 -> 117.0	448			
5:3FTCA	5.943	341.0 -> 237.1	64046	30.25	µg/L	99
		341.0 -> 217.0	43952			
7:3FTCA	7.386	441.0 -> 316.9	32794	30.00	µg/L	98
		441.0 -> 336.9	72356			
EtFOSA	10.713	526.0 -> 219.0	8279	2.40	µg/L	m 99
		526.0 -> 169.0	12987			
EtFOSE	10.636	630.0 -> 58.9	23403	5.98	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	6351	2.46	µg/L	m 99
		511.9 -> 169.0	10681			
MeFOSE	10.326	616.1 -> 58.9	16798	5.95	µg/L	m 100
PFDoDS	10.075	699.1 -> 79.9	2377	1.19	µg/L	96
		699.1 -> 98.8	1503			
NFDHA	5.203	295.0 -> 201.0	2801	2.60	µg/L	95
		295.0 -> 84.9	704			
PFMBA	4.530	279.0 -> 85.1	15760	2.41	µg/L	100
PFMPA	3.303	229.0 -> 84.9	11936	2.29	µg/L	100
PFEESA	5.833	314.8 -> 134.9	30925	2.16	µg/L	99
		314.8 -> 82.9	899			

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

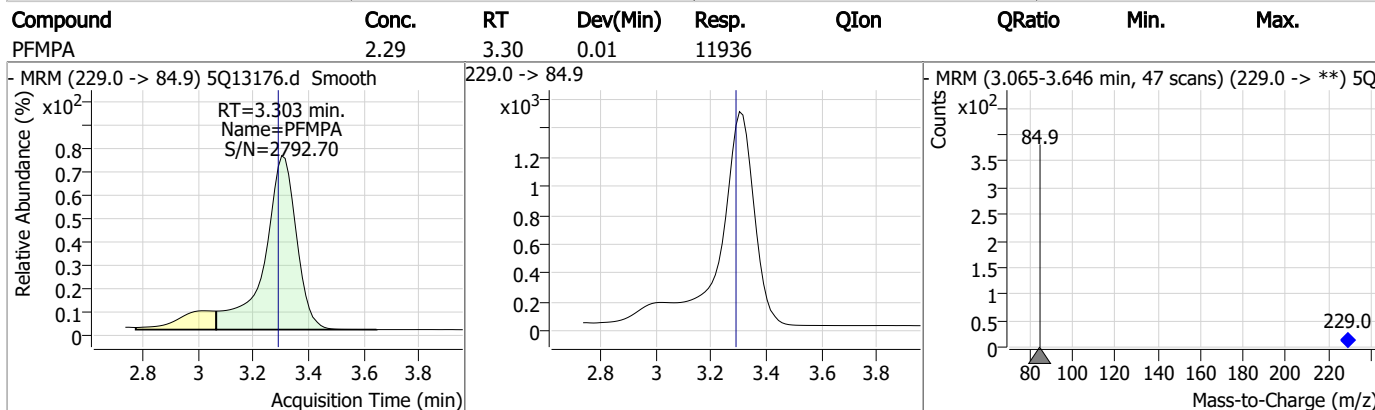
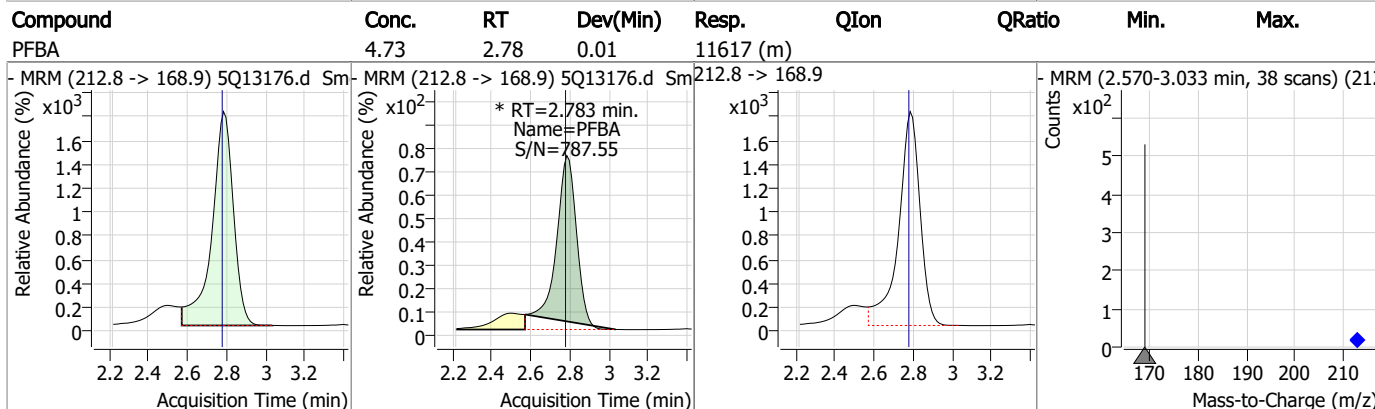
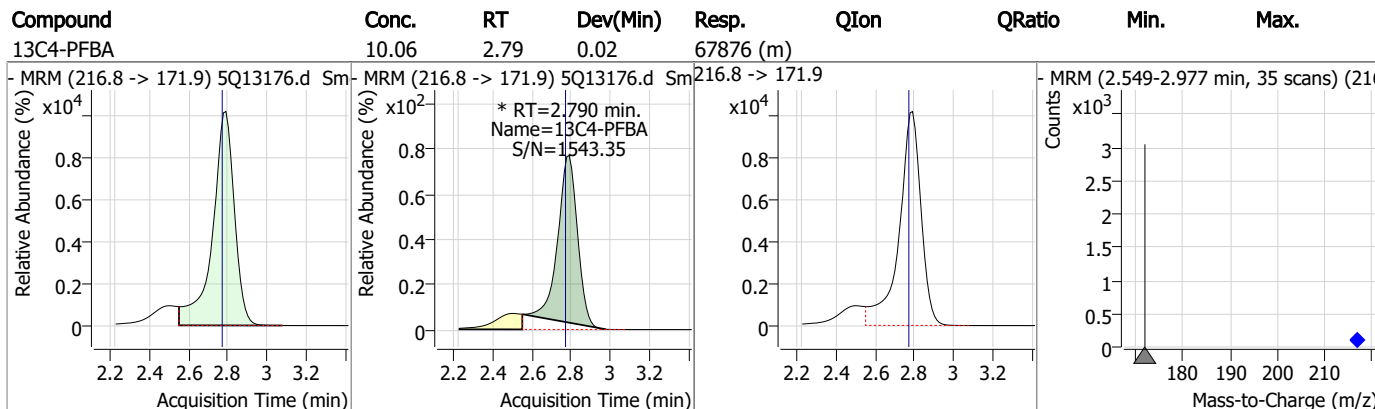
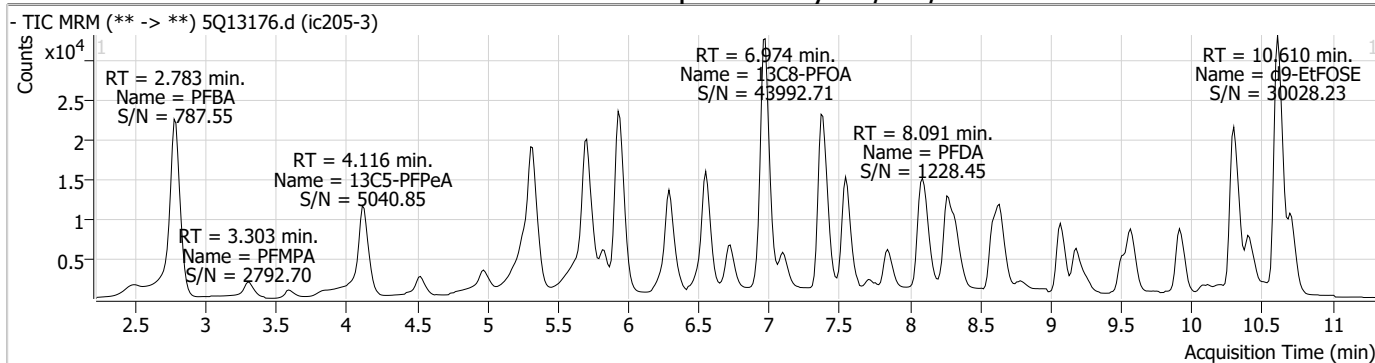
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.4

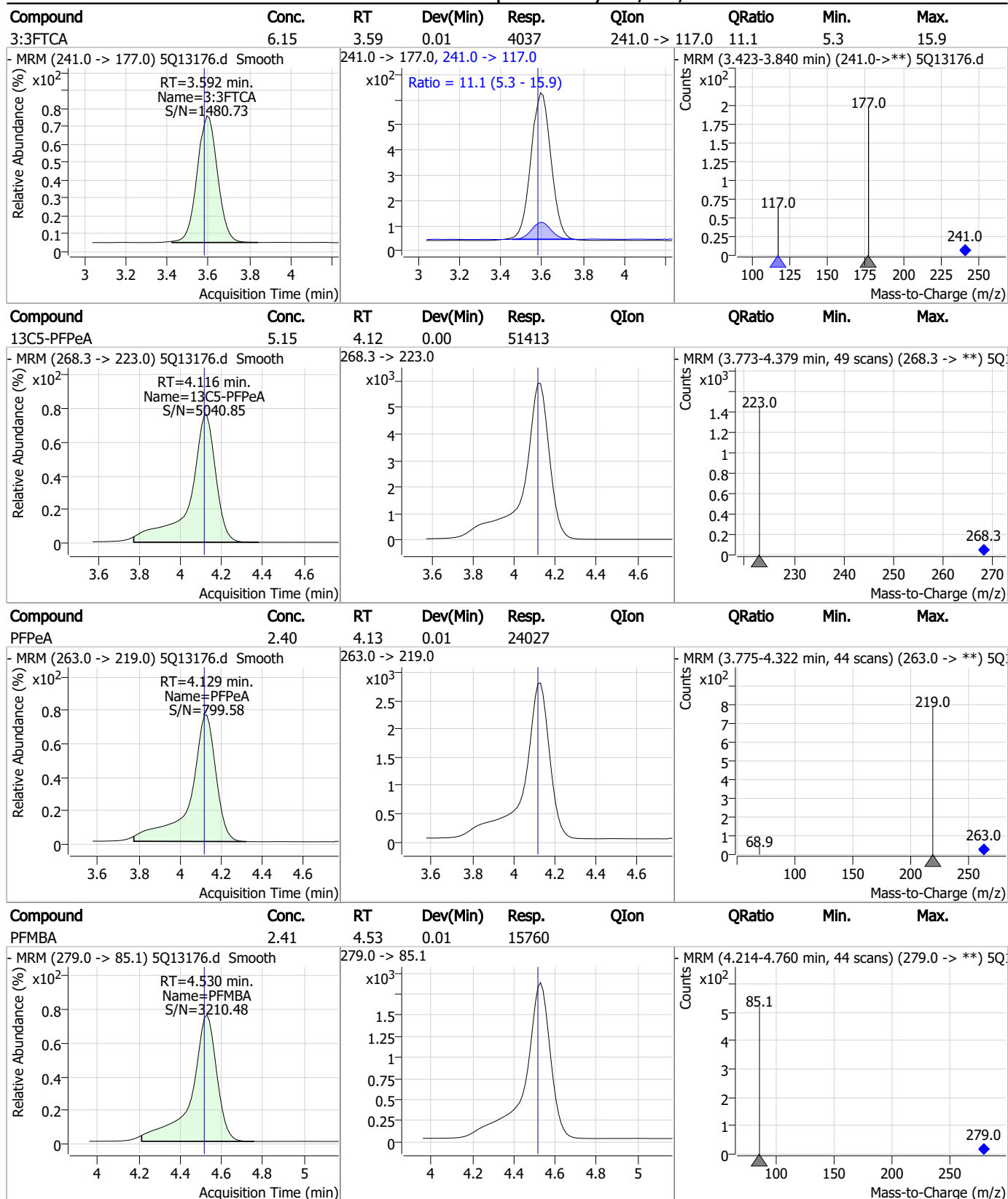
7

### Perfluorinated Compounds by LC/MS/MS



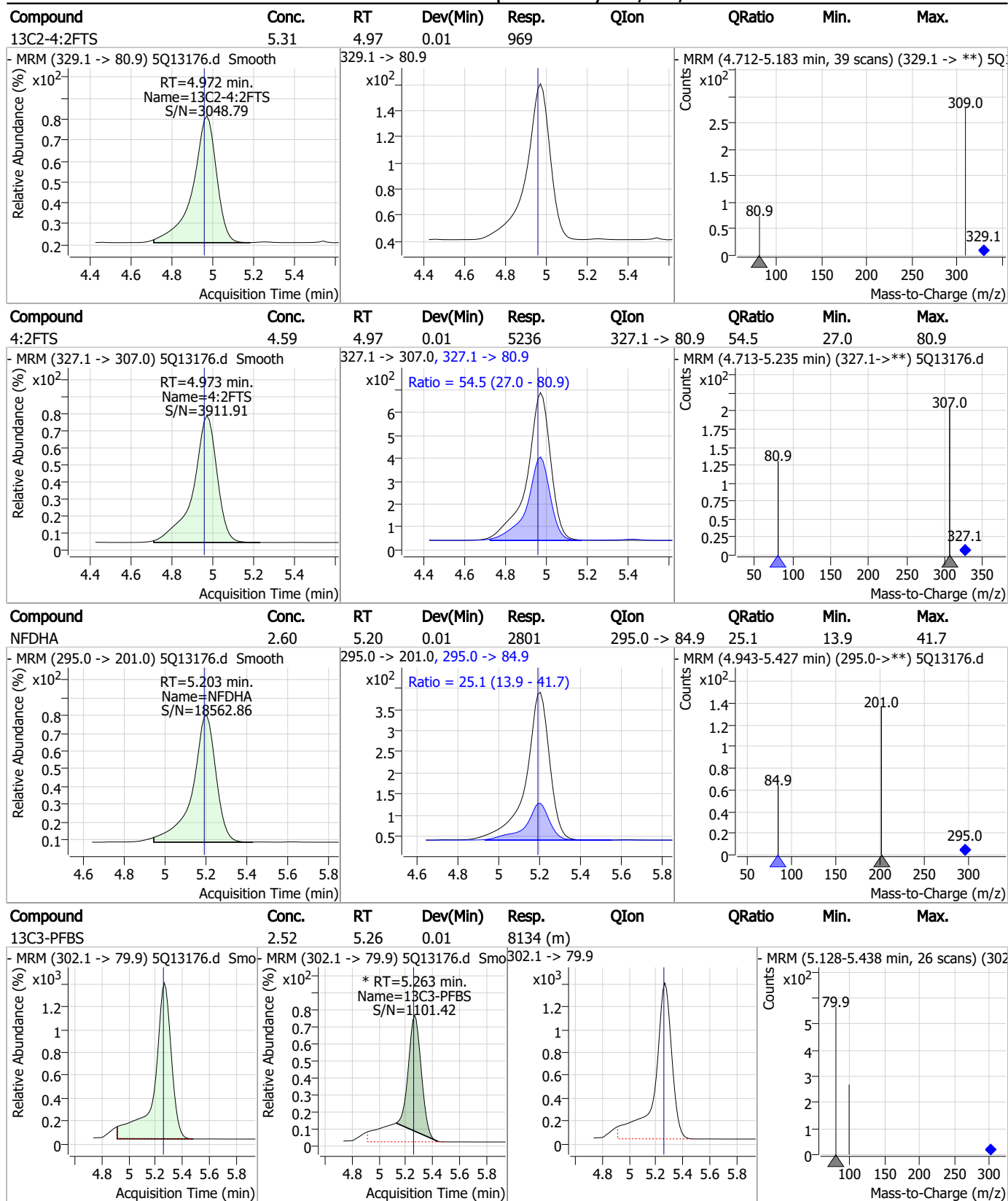
7.7.4  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

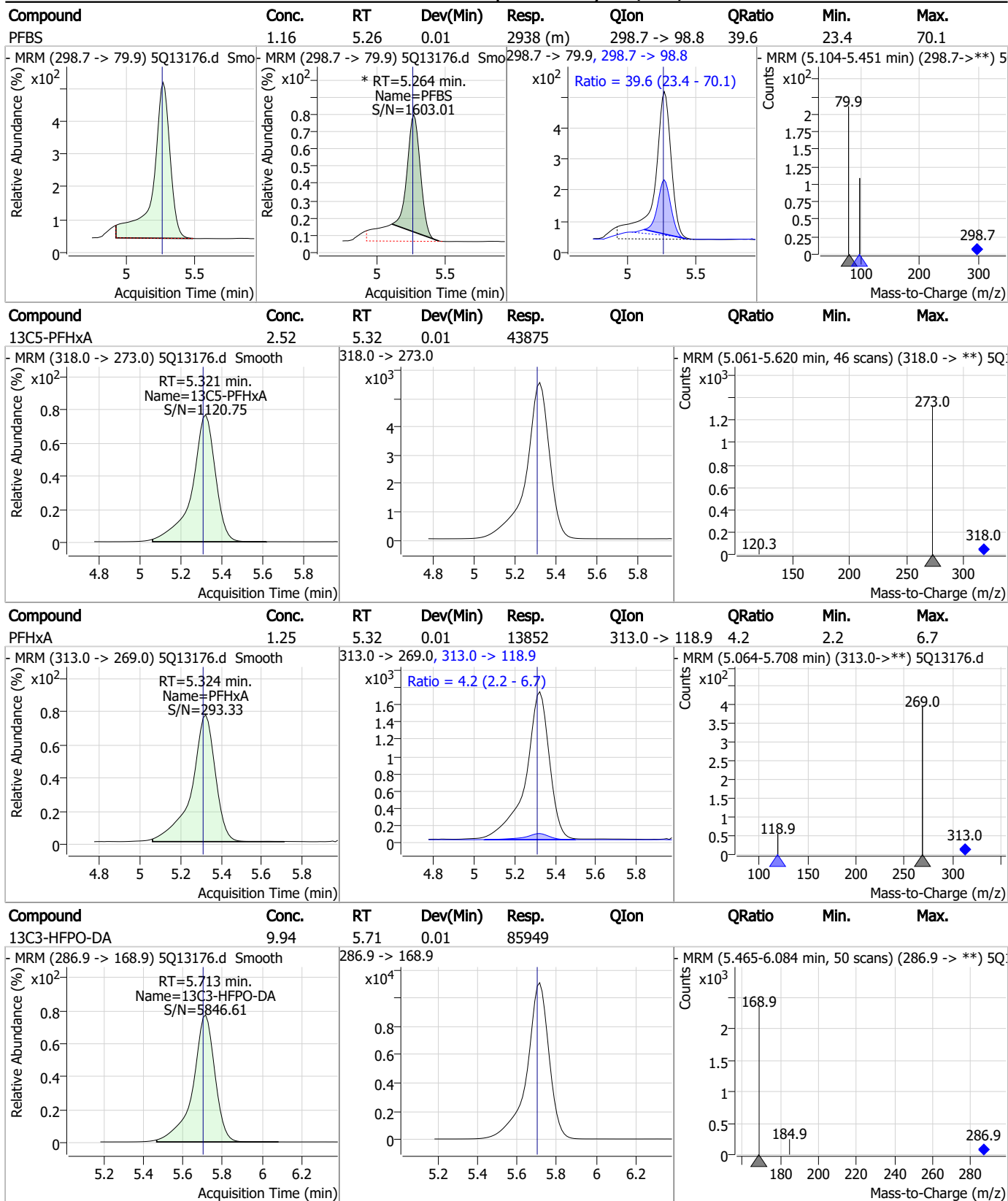
### Perfluorinated Compounds by LC/MS/MS



7.7.4

7

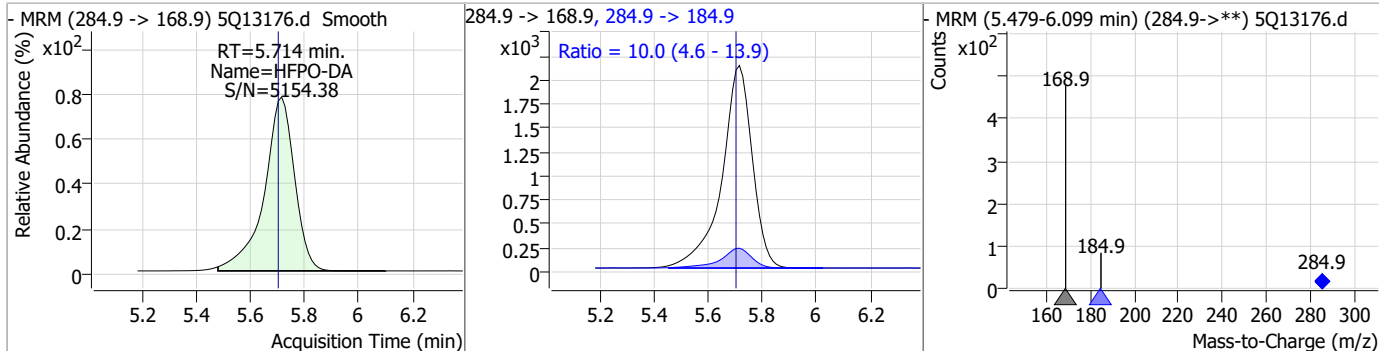
### Perfluorinated Compounds by LC/MS/MS



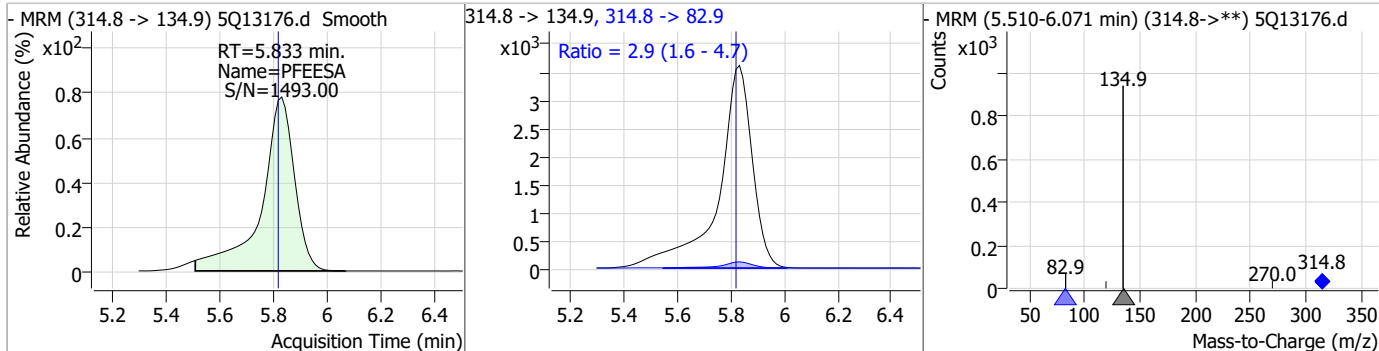
7.7.4  
7

### Perfluorinated Compounds by LC/MS/MS

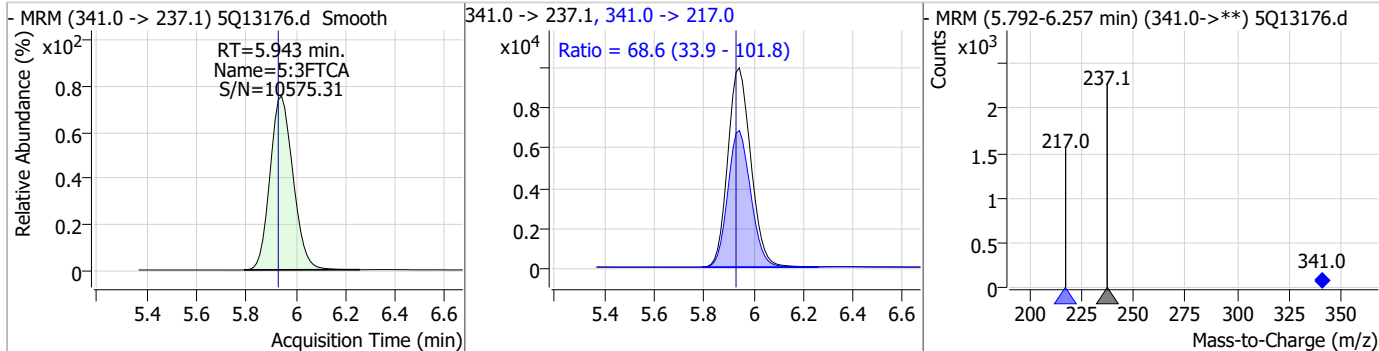
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	2.45	5.71	0.01	16552	284.9 -> 184.9	10.0	4.6	13.9



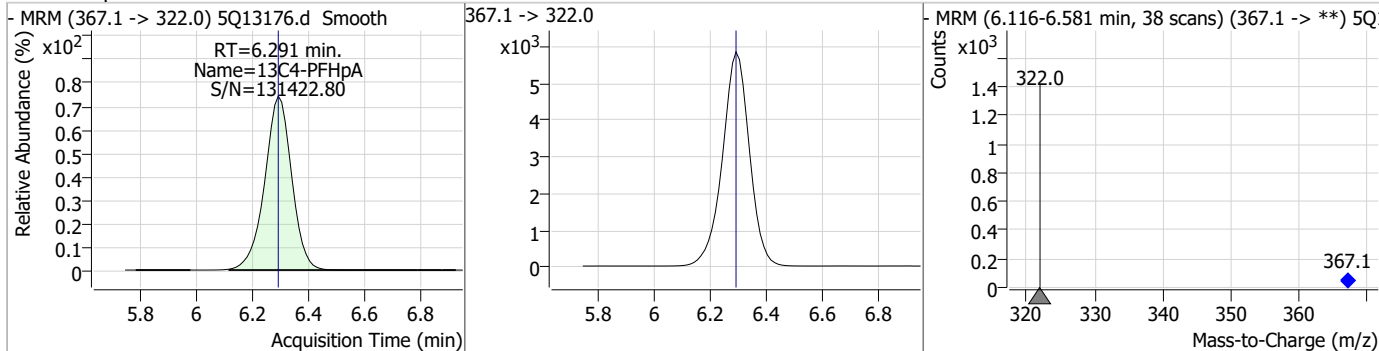
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	2.16	5.83	0.01	30925	314.8 -> 82.9	2.9	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	30.25	5.94	0.01	64046	341.0 -> 217.0	68.6	33.9	101.8

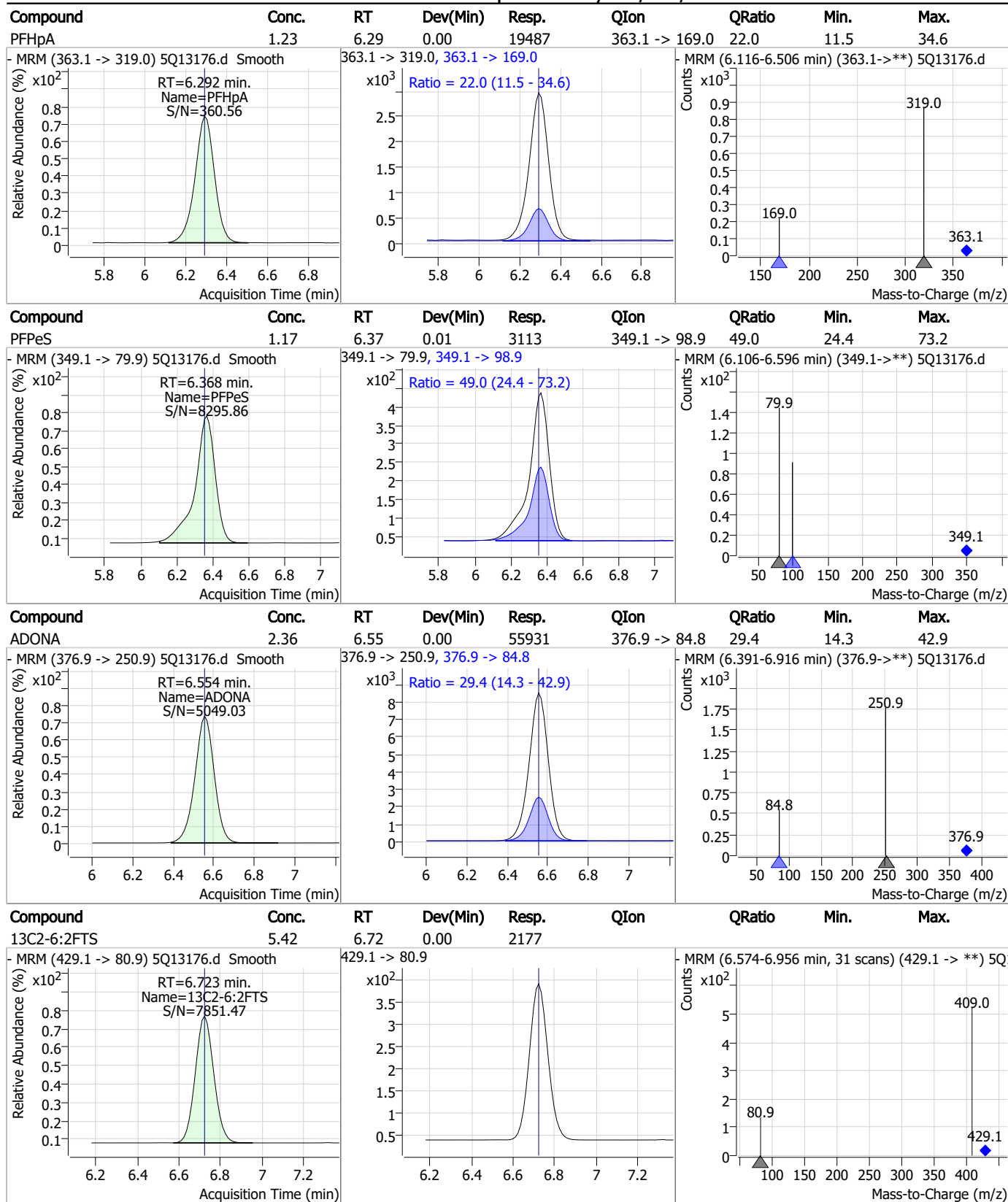


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.52	6.29	0.00	38992	367.1 -> 322.0			



7.7.4  
7

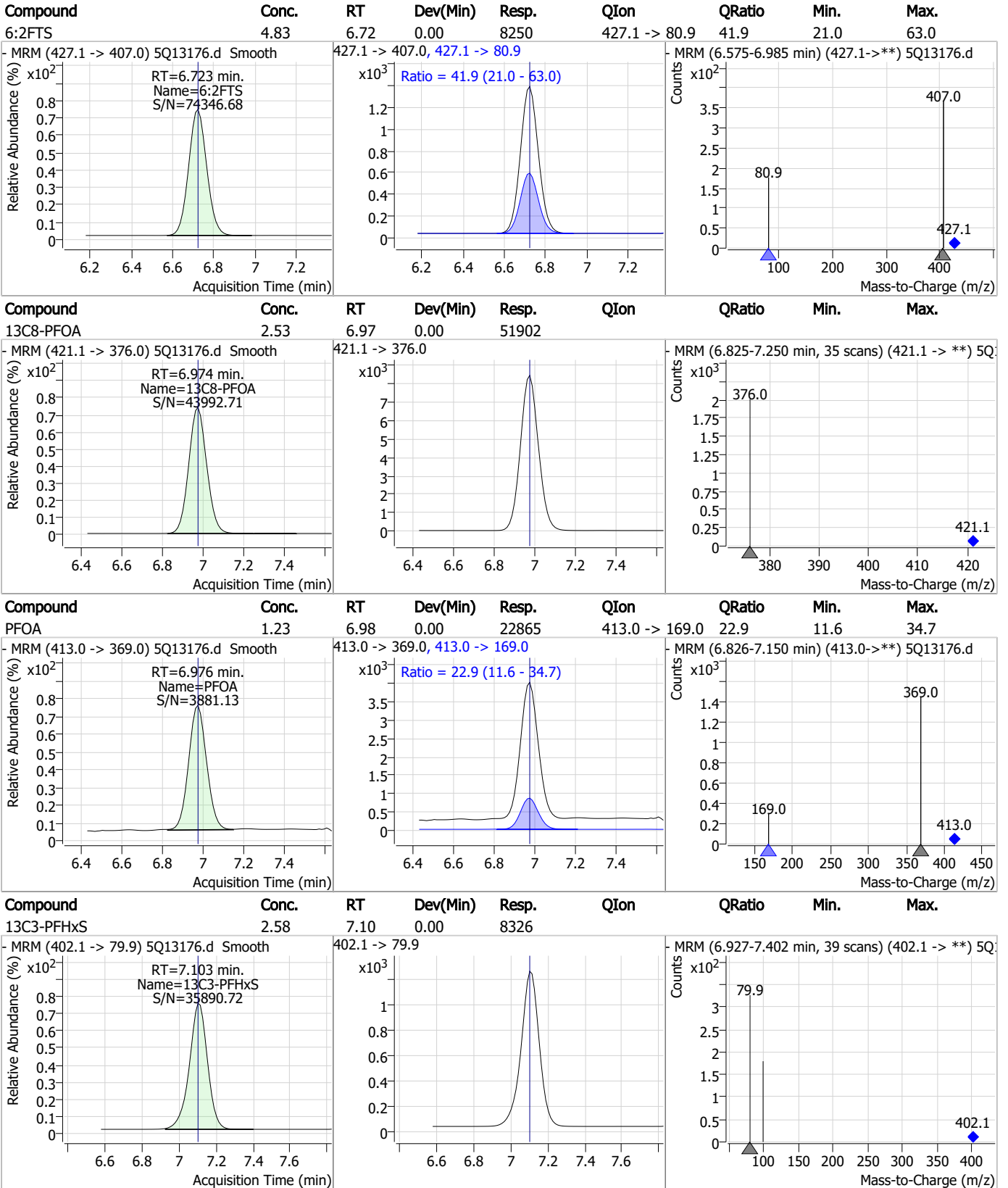
### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7



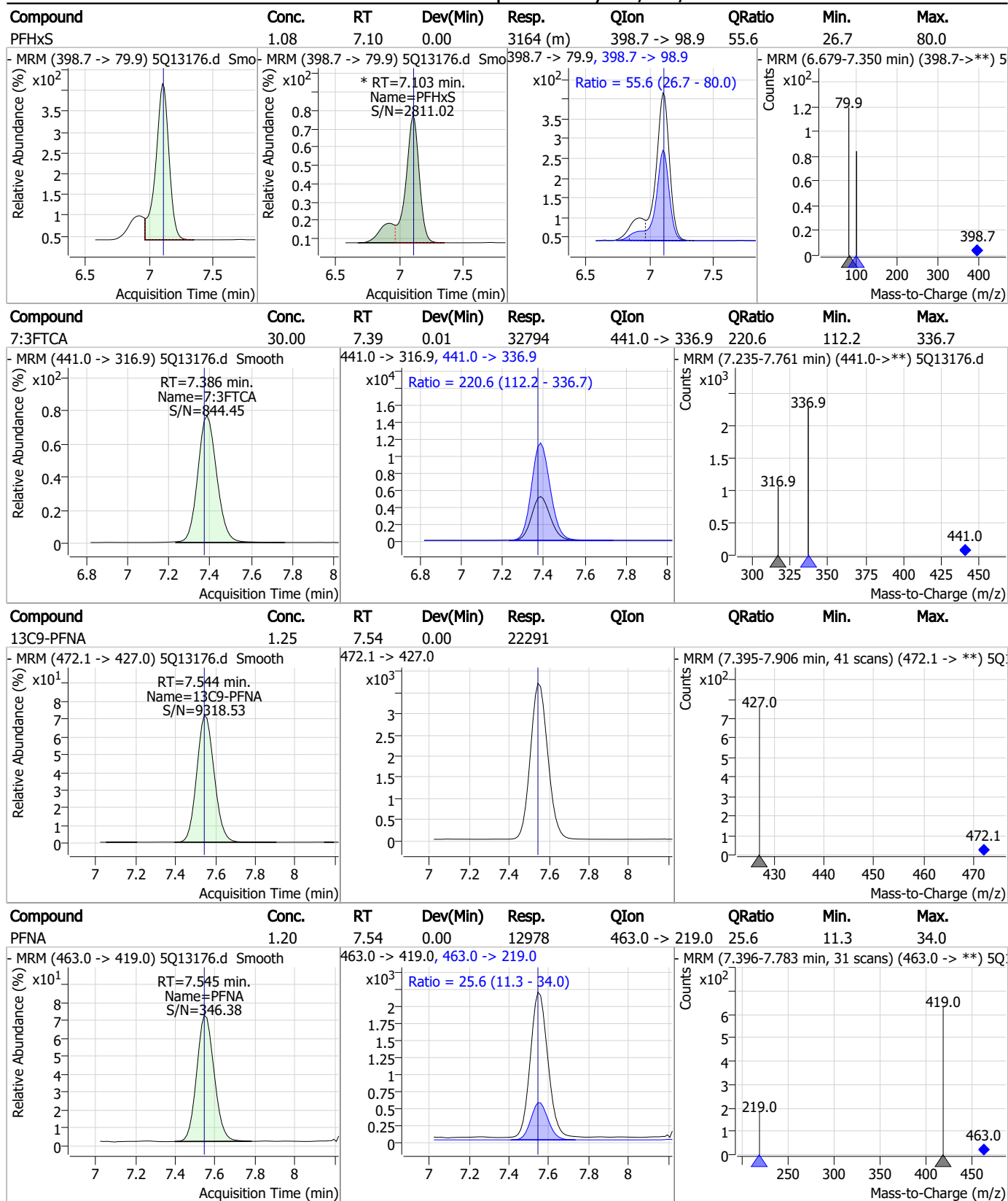
### Perfluorinated Compounds by LC/MS/MS



7.7.4

7

### Perfluorinated Compounds by LC/MS/MS



7.7.4  
7

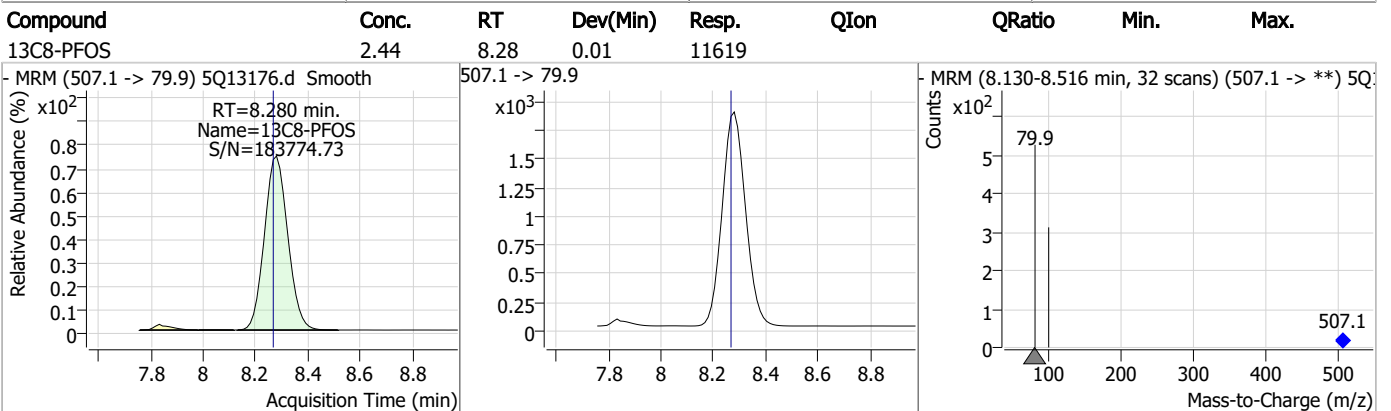
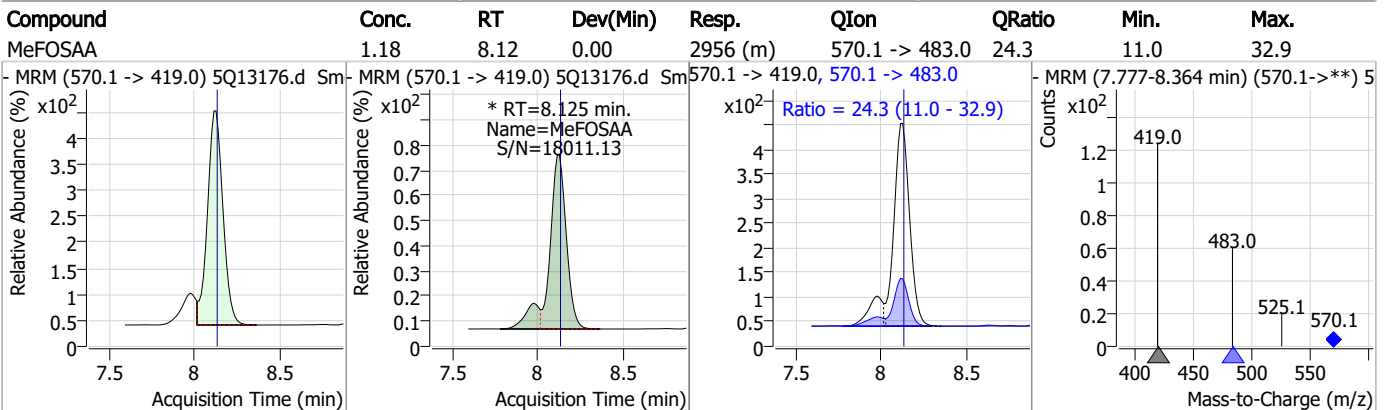
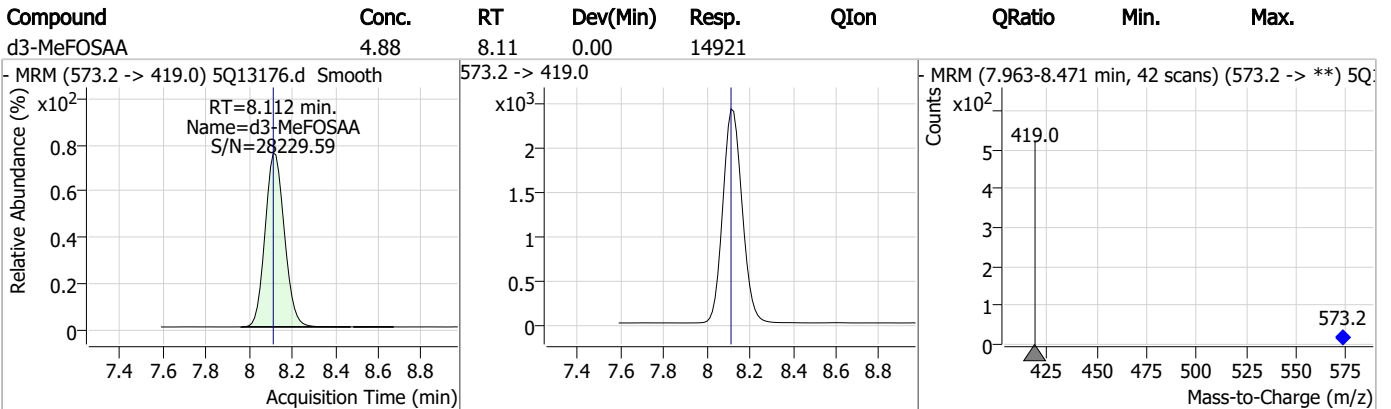
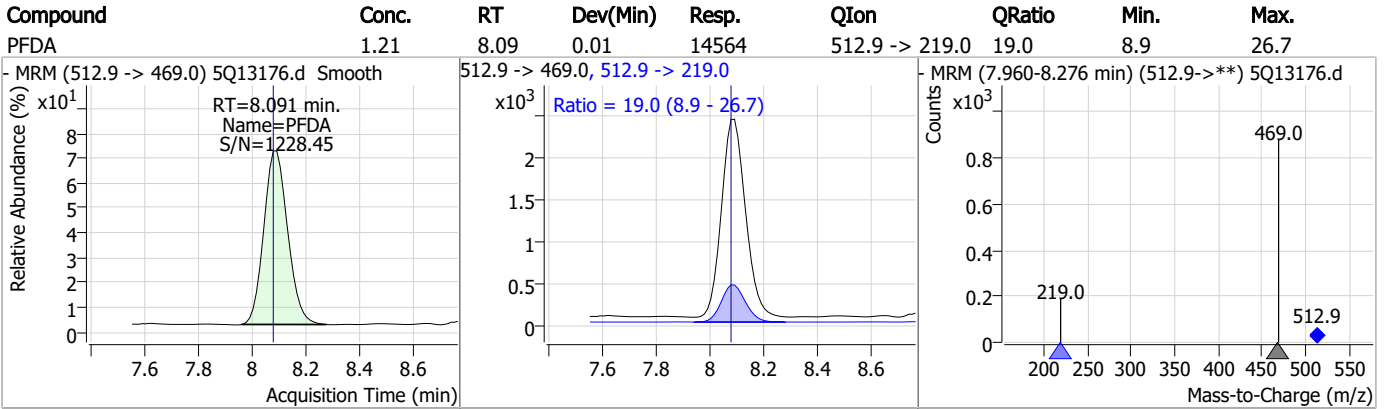
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	1.18	7.72	0.00	3643	449.0 -> 98.9	62.2	28.5	85.6
13C2-8:2FTS	5.50	7.84	0.00	3319				
8:2FTS	4.93	7.84	0.00	6795	527.1 -> 80.8	45.9	24.3	73.0
13C6-PFDA	1.26	8.08	0.00	13530				

7.7.4

7

### Perfluorinated Compounds by LC/MS/MS

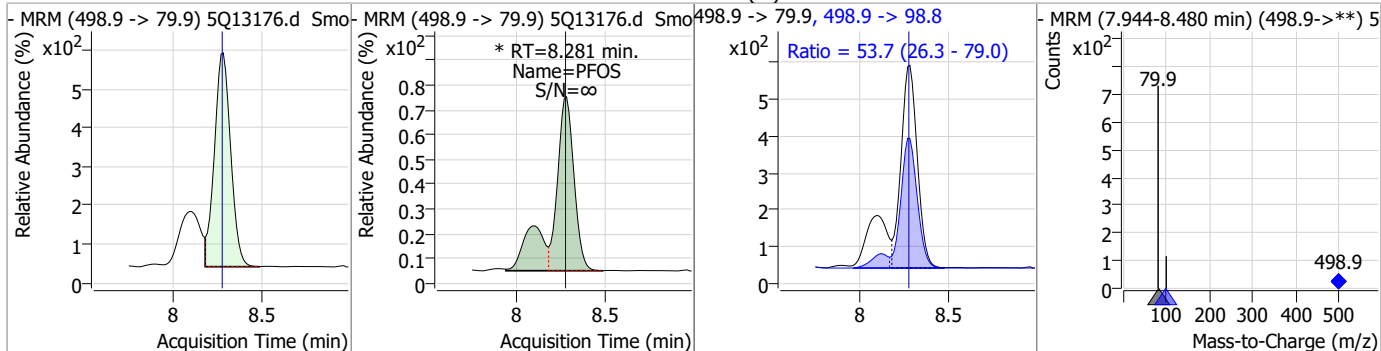


7.7.4

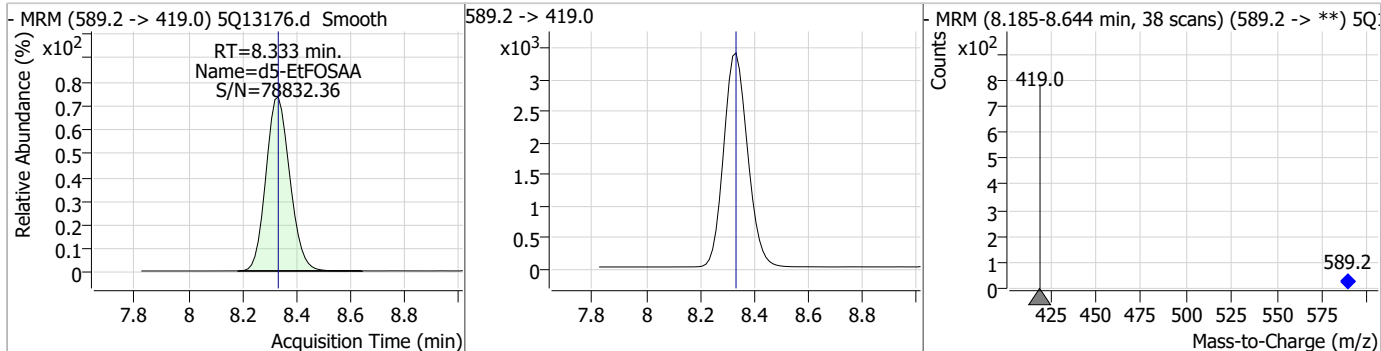
7

### Perfluorinated Compounds by LC/MS/MS

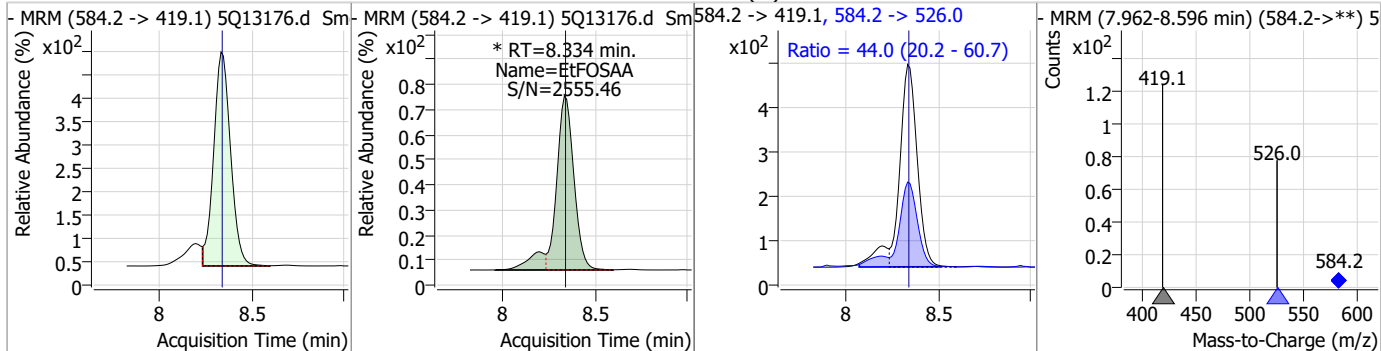
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.14	8.28	0.01	4632 (m)	498.9 -> 98.8	53.7	26.3	79.0



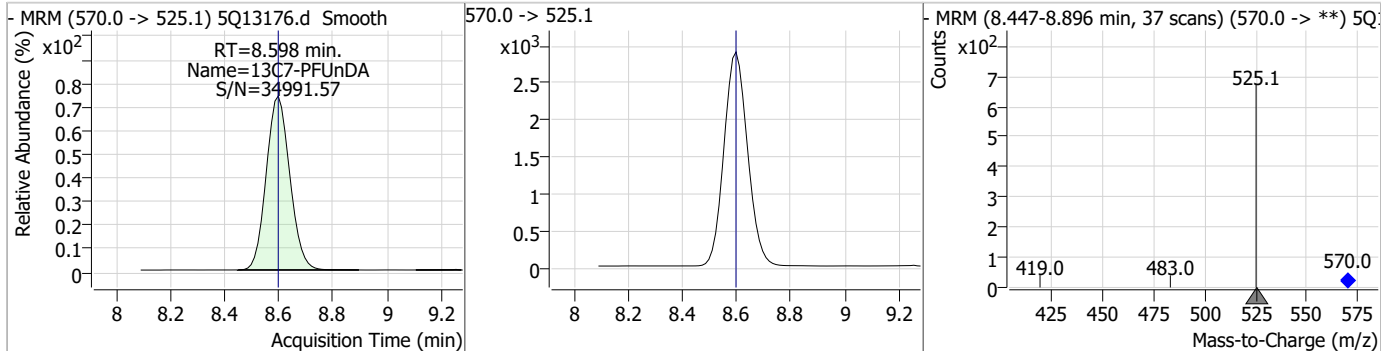
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	4.98	8.33	0.00	20798				



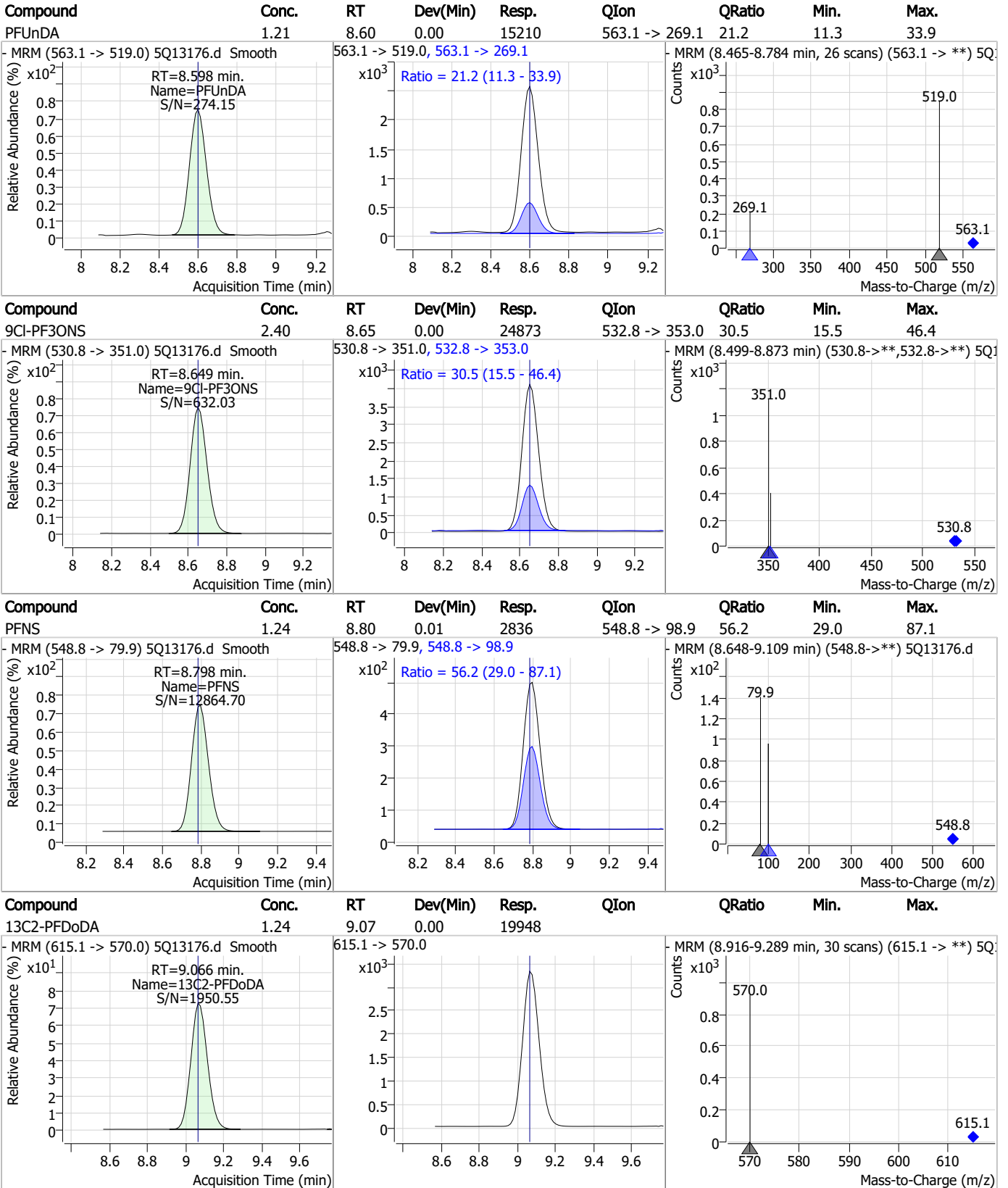
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.22	8.33	0.00	3207 (m)	584.2 -> 526.0	44.0	20.2	60.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.30	8.60	0.00	17427				

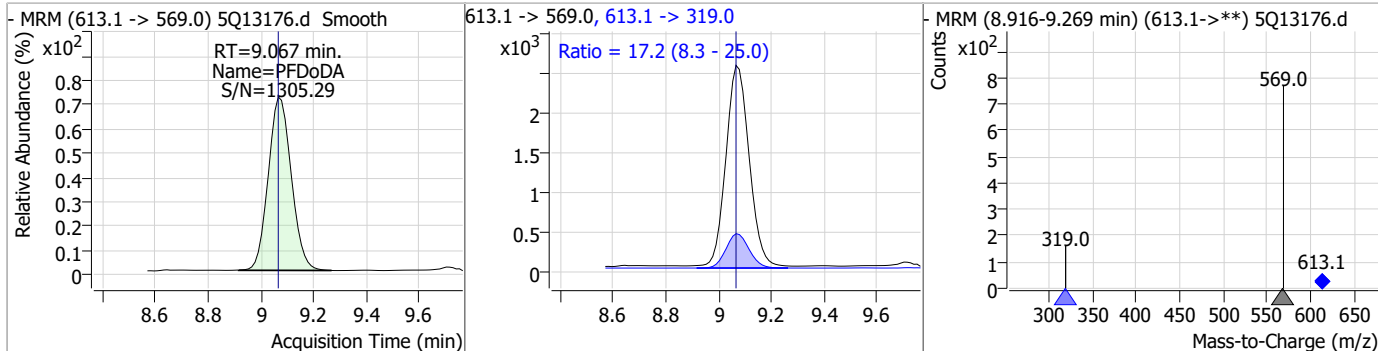


Perfluorinated Compounds by LC/MS/MS

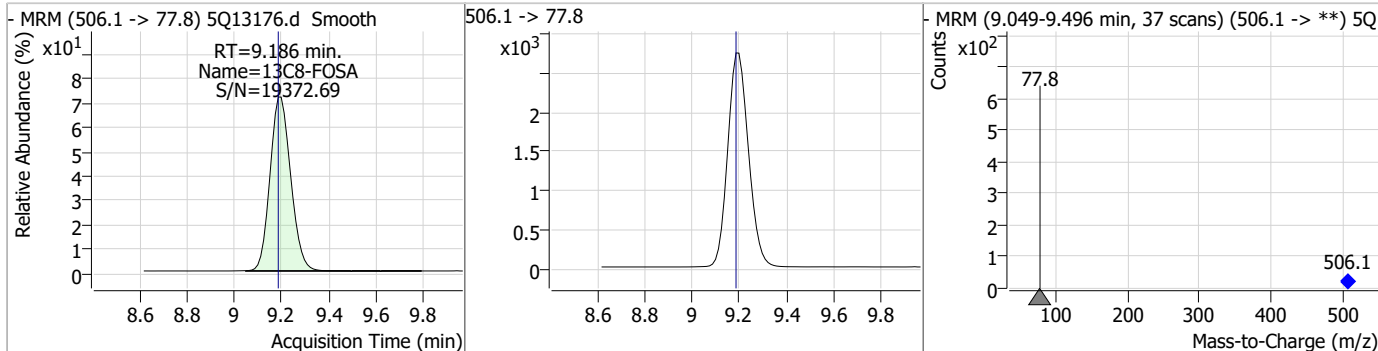


### Perfluorinated Compounds by LC/MS/MS

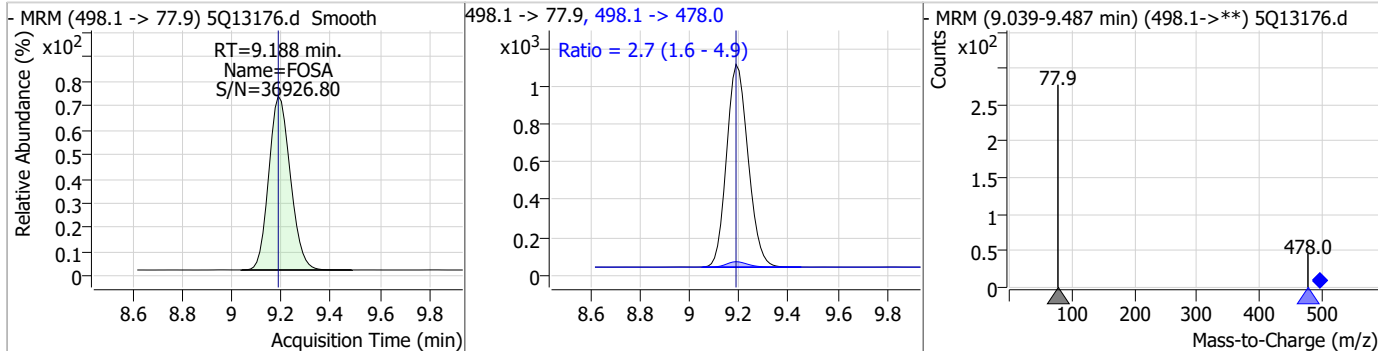
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	1.27	9.07	0.00	15408	613.1 -> 319.0	17.2	8.3	25.0



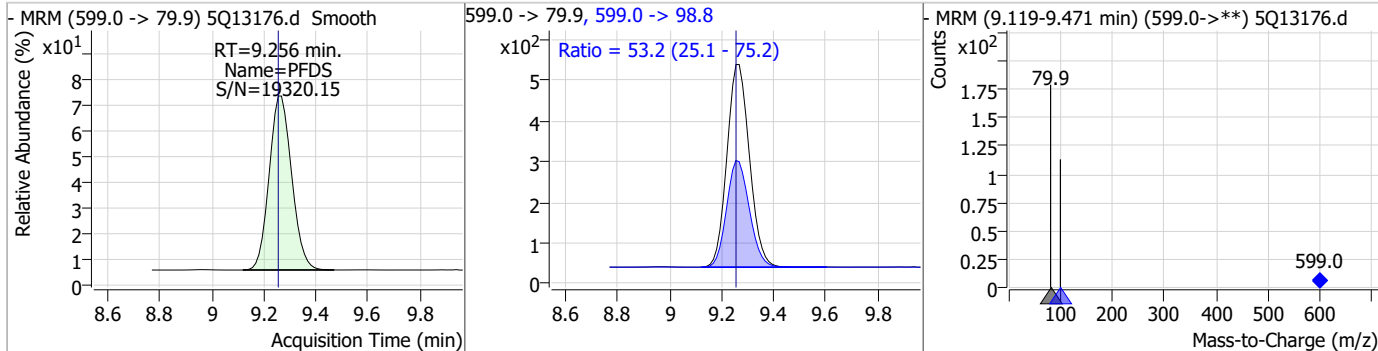
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.41	9.19	0.00	16553				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.26	9.19	0.00	6521	498.1 -> 478.0	2.7	1.6	4.9

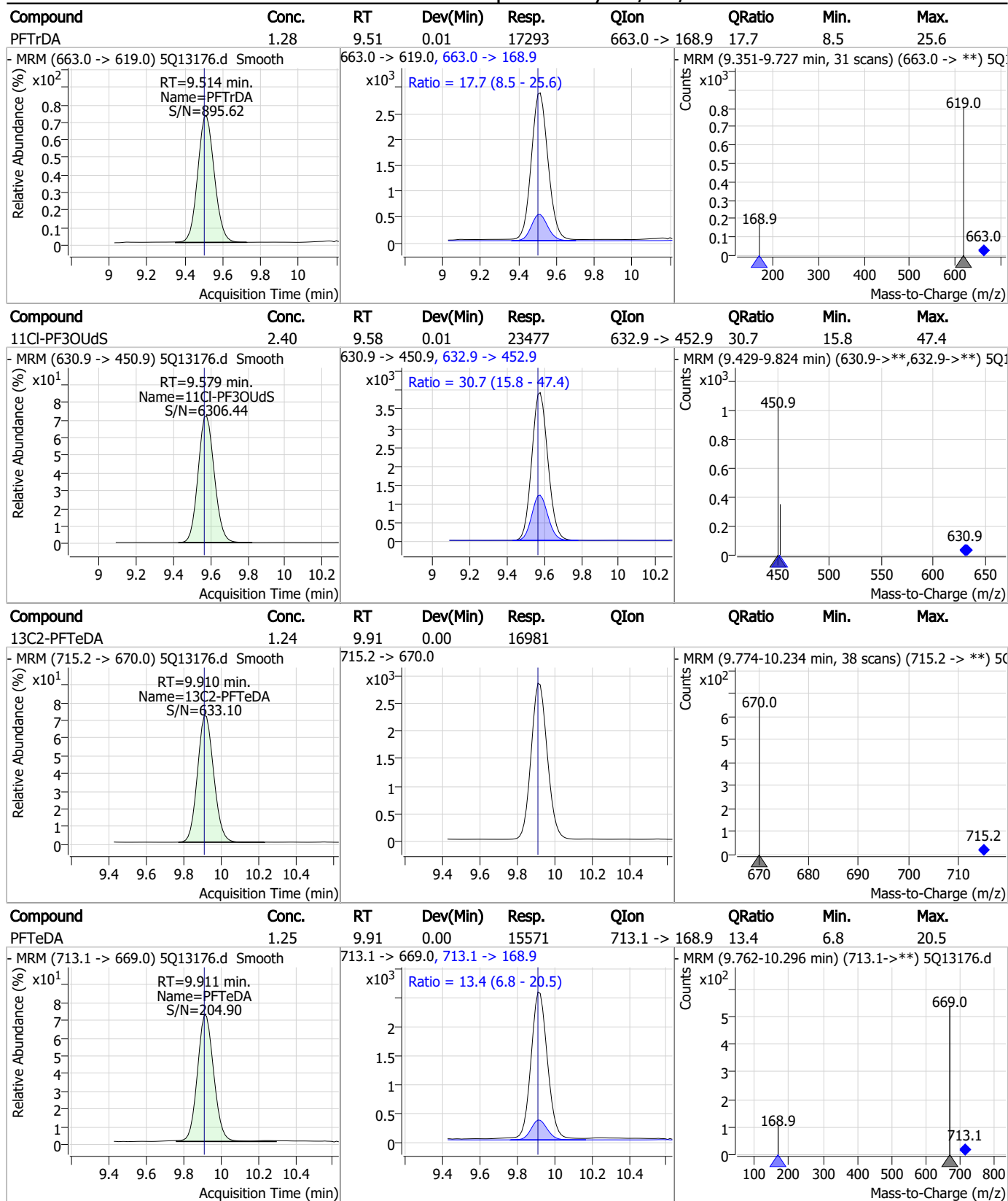


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	1.21	9.26	0.00	2997	599.0 -> 98.8	53.2	25.1	75.2



7.7.4  
7

### Perfluorinated Compounds by LC/MS/MS

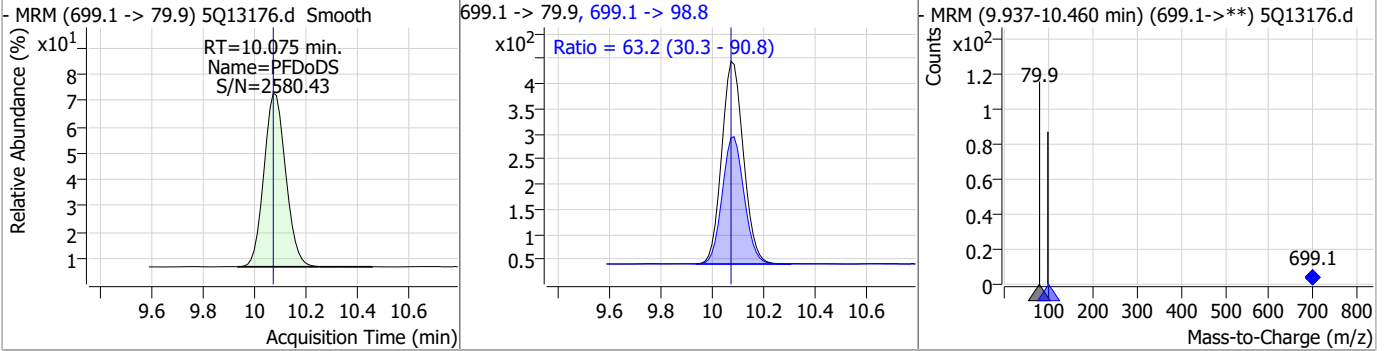


7.7.4  
7

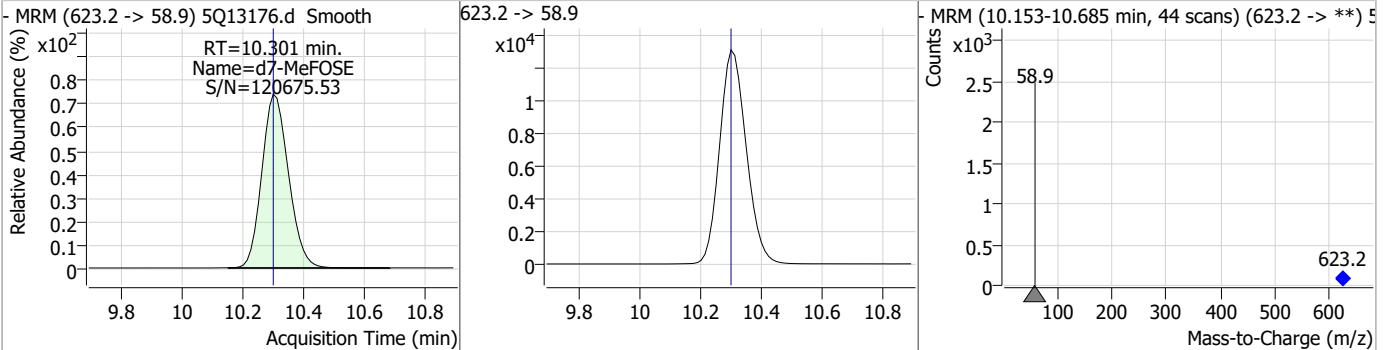


Perfluorinated Compounds by LC/MS/MS

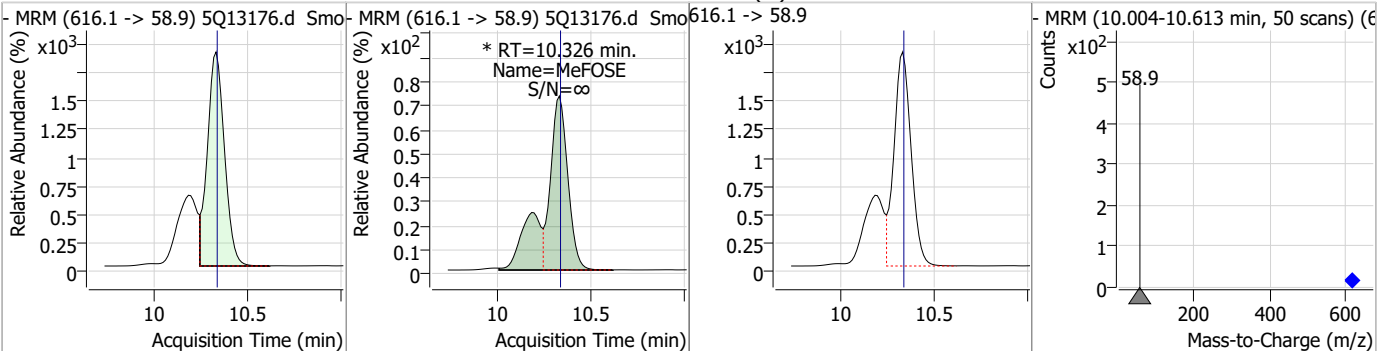
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	1.19	10.07	0.00	2377	699.1 -> 98.8	63.2	30.3	90.8



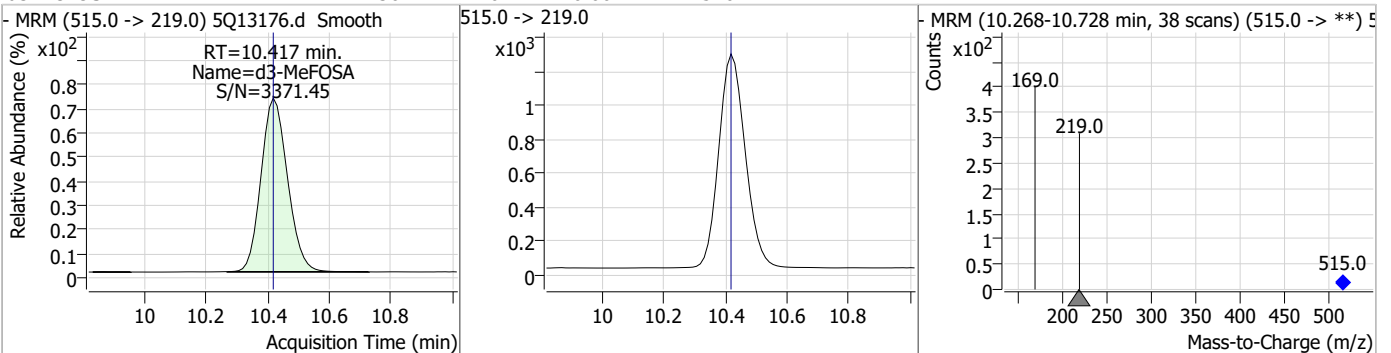
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.97	10.30	0.00	79683				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	5.95	10.33	0.00	16798 (m)				

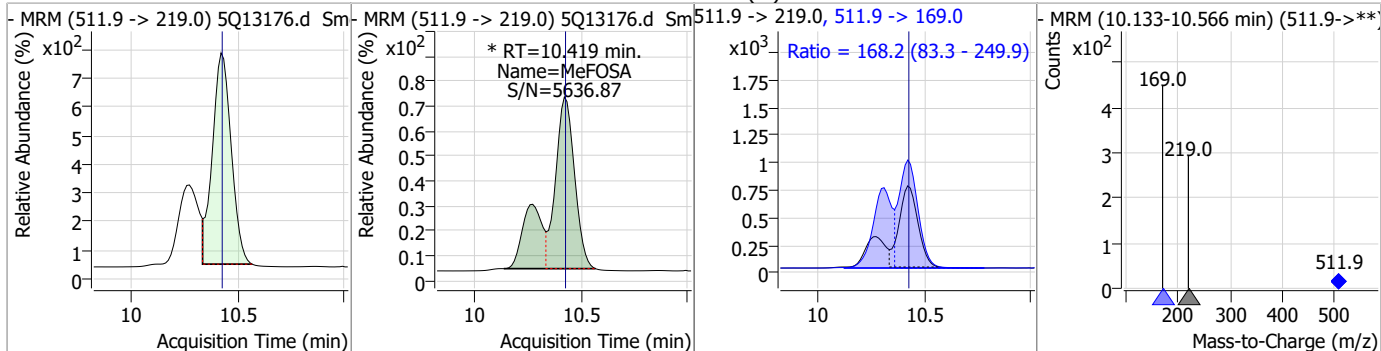


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.36	10.42	0.00	7546				

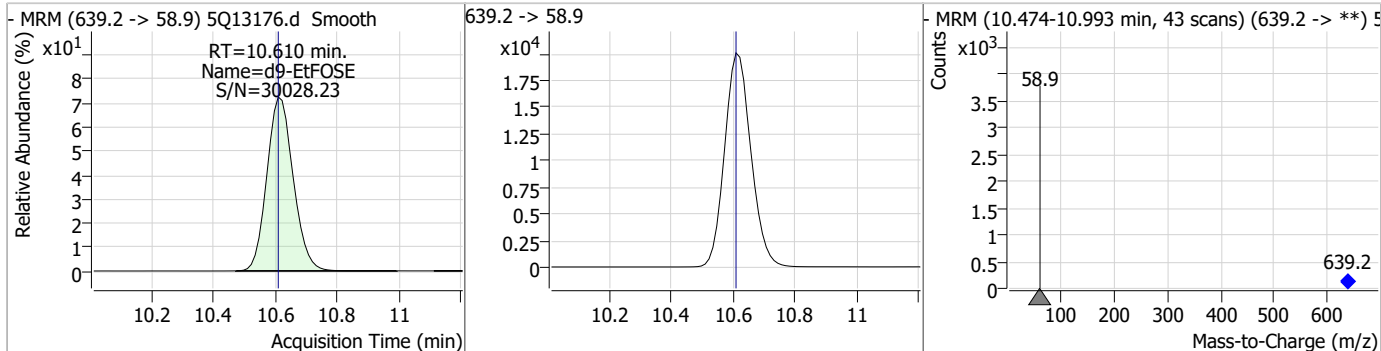


### Perfluorinated Compounds by LC/MS/MS

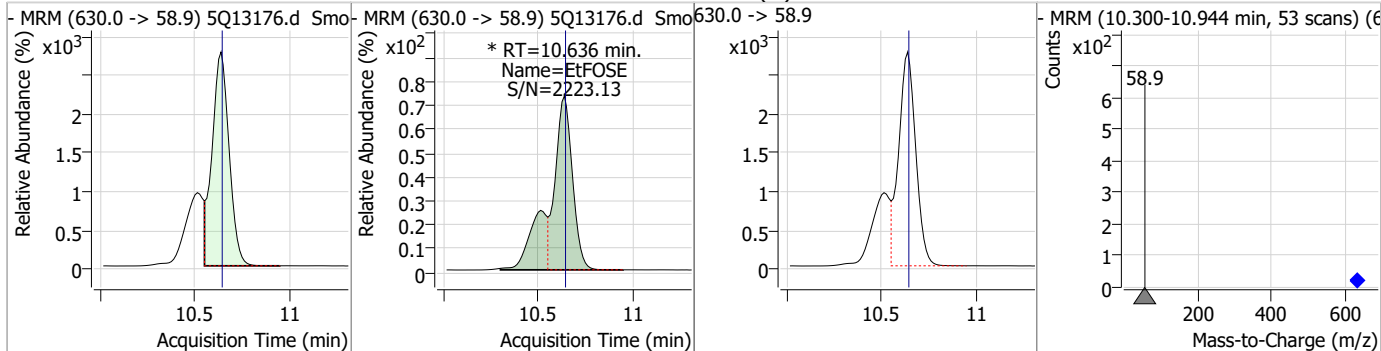
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	2.46	10.42	0.00	6351 (m)	511.9 -> 169.0	168.2	83.3	249.9



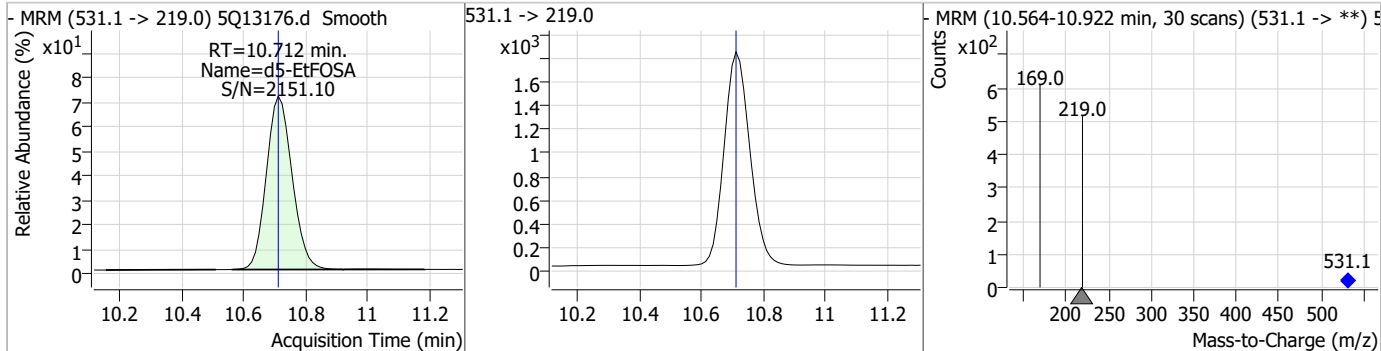
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.99	10.61	0.00	118166				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	5.98	10.64	0.00	23403 (m)				

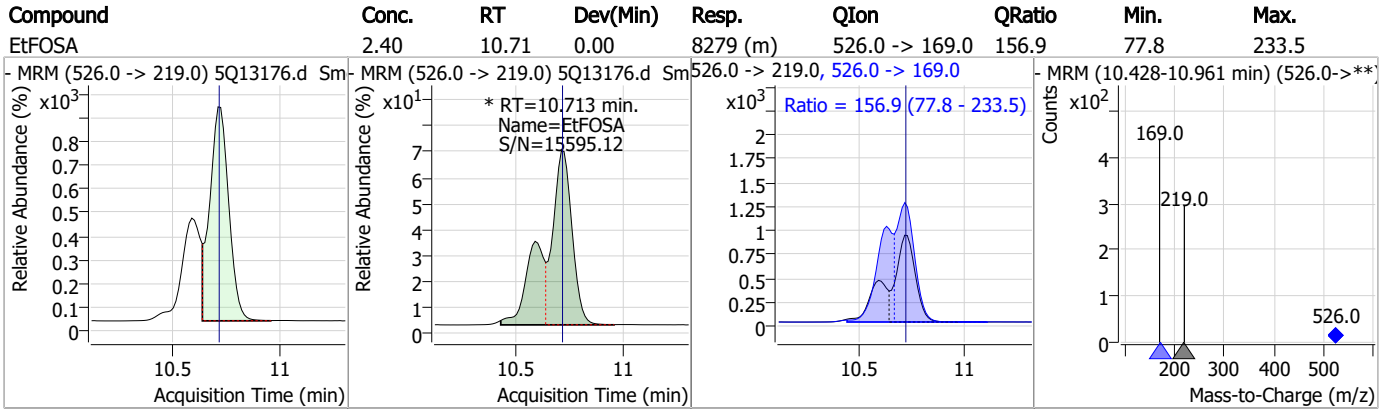


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.45	10.71	0.00	10418				



7.7.4  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.4

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-IC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13176.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 19:24      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-PFBA			2.78	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.78	Poor instrument integration
13C4-PFBA			2.79	Poor instrument integration
13C3-PFBS			5.26	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.26	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
MeFOSAA	2355-31-9		8.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.28	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.4.1  
7

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

**Norman Farmer**  
**04/21/23 10:44**

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13177.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 7:38:54 PM  
 Sample Name : icc205-4  
 Vial : P3-A5  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	64976	10.00	µg/L m	0.000
M5-PFPeA	4.116	268.3 -> 223.0	49850	5.00	µg/L	0.000
M5-PFHxA	5.309	318.0 -> 273.0	41905	2.50	µg/L	0.000
M4-PFHpA	6.291	367.1 -> 322.0	37189	2.50	µg/L	0.000
M8-PFOA	6.974	421.1 -> 376.0	48740	2.50	µg/L	0.000
M9-PFNA	7.544	472.1 -> 427.0	21940	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	12976	1.25	µg/L	0.000
M7-PFUnDA	8.597	570.0 -> 525.1	16974	1.25	µg/L	0.000
M2-PFDoDA	9.066	615.1 -> 570.0	20098	1.25	µg/L	0.000
M2-PFTeDA	9.910	715.2 -> 670.0	16601	1.25	µg/L	0.000
M8-FOSA	9.186	506.1 -> 77.8	16111	2.50	µg/L	0.000
M3-PFBS	5.251	302.1 -> 79.9	7886	2.50	µg/L m	0.000
M3-PFHxS	7.103	402.1 -> 79.9	7761	2.50	µg/L	0.000
M8-PFOS	8.267	507.1 -> 79.9	11108	2.50	µg/L	0.000
M2-4:2FTS	4.960	329.1 -> 80.9	930	5.00	µg/L	0.000
M2-6:2FTS	6.723	429.1 -> 80.9	1951	5.00	µg/L	0.000
M2-8:2FTS	7.841	529.1 -> 80.9	3098	5.00	µg/L	0.000
M3-MeFOSAA	8.111	573.2 -> 419.0	14874	5.00	µg/L	0.000
M3-HFPO-DA	5.701	286.9 -> 168.9	82700	10.00	µg/L	0.000
M5-EtFOSAA	8.333	589.2 -> 419.0	19410	5.00	µg/L	0.000
M7-MeFOSE	10.301	623.2 -> 58.9	79385	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	111468	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	9877	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7154	2.50	µg/L	0.000
13C4-PFOS	8.268	502.8 -> 79.9	10627	2.50	µg/L	0.000
13C3-PFBA	2.768	216.0 -> 172.0	34736	5.00	µg/L m	0.000
18O2-PFHxS	7.102	403.0 -> 83.9	5161	2.50	µg/L	0.000
13C4-PFOA	6.975	417.1 -> 372.0	61318	2.50	µg/L	0.000
13C2-PFDA	8.078	515.1 -> 470.1	20226	1.25	µg/L	0.000
13C5-PFNA	7.544	468.0 -> 423.0	22300	1.25	µg/L	0.000
13C2-PFHxA	5.310	315.1 -> 270.0	45599	2.50	µg/L	0.000

**System Monitoring Compounds**

13C2-4:2FTS	4.960	329.1 -> 80.9	930	5.21	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%			
13C2-6:2FTS	6.723	429.1 -> 80.9	1951	4.96	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.2%			
13C2-8:2FTS	7.841	529.1 -> 80.9	3098	5.24	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%			
13C2-PFDoDA	9.066	615.1 -> 570.0	20098	1.25	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.4%			
13C2-PFTeDA	9.910	715.2 -> 670.0	16601	1.22	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%			
13C3-PFBS	5.251	302.1 -> 79.9	8377	2.65	µg/L m	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.1%			
13C3-PFHxS	7.103	402.1 -> 79.9	7761	2.46	µg/L	0.000

7.7.5  
7



## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C4-PFBA	2.765	216.8 -> 171.9	65394	9.83 µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C4-PFHpA	6.291	367.1 -> 322.0	37189	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C5-PFHxA	5.309	318.0 -> 273.0	41905	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.9%		
13C5-PFPeA	4.116	268.3 -> 223.0	49850	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C6-PFDA	8.077	519.1 -> 474.1	12976	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C7-PFUnDA	8.597	570.0 -> 525.1	16974	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C8-FOSA	9.186	506.1 -> 77.8	16111	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C8-PFOA	6.974	421.1 -> 376.0	48740	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C8-PFOS	8.267	507.1 -> 79.9	11108	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C9-PFNA	7.544	472.1 -> 427.0	21940	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
d3-MeFOSAA	8.111	573.2 -> 419.0	14874	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C3-HFPO-DA	5.701	286.9 -> 168.9	82700	9.71 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 97.1%		
d3-MeFOSA	10.417	515.0 -> 219.0	7154	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%		
d5-EtFOSAA	8.333	589.2 -> 419.0	19410	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
d7-MeFOSE	10.301	623.2 -> 58.9	79385	25.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
d9-EtFOSE	10.610	639.2 -> 58.9	111468	25.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 101.3%		
d5-EtFOSA	10.712	531.1 -> 219.0	9877	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	4.960	327.1 -> 307.0	9684	8.84 µg/L	100
		327.1 -> 80.9	5221		
6:2FTS	6.723	427.1 -> 407.0	14662	9.58 µg/L	100
		427.1 -> 80.9	6153		
8:2FTS	7.841	527.1 -> 507.0	11182	8.70 µg/L	100
		527.1 -> 80.8	5445		
EtFOSAA	8.334	584.2 -> 419.1	5846	2.38 µg/L m	100
		584.2 -> 526.0	2365		
FOSA	9.188	498.1 -> 77.9	12083	2.39 µg/L	100
		498.1 -> 478.0	397		
MeFOSAA	8.125	570.1 -> 419.0	5674	2.26 µg/L m	100
		570.1 -> 483.0	1243		
PFBA	2.771	212.8 -> 168.9	22805	9.63 µg/L m	100
PFBS	5.252	298.7 -> 79.9	5045	2.02 µg/L m	100
		298.7 -> 98.8	2357		
PFDA	8.078	512.9 -> 469.0	26684	2.31 µg/L	100
		512.9 -> 219.0	4757		
PFDODA	9.067	613.1 -> 569.0	29427	2.41 µg/L	100
		613.1 -> 319.0	4903		
PFDS	9.256	599.0 -> 79.9	5657	2.40 µg/L	100

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2837			
PFHpA	6.292	363.1 -> 319.0	36416	2.40	µg/L	100
		363.1 -> 169.0	8398			
PFHpS	7.722	449.0 -> 79.9	6866	2.33	µg/L	100
		449.0 -> 98.9	3920			
PFHxA	5.312	313.0 -> 269.0	24965	2.36	µg/L	100
		313.0 -> 118.9	1111			
PFHxS	7.103	398.7 -> 79.9	6259	2.30	µg/L	m 100
		398.7 -> 98.9	3337			
PFNA	7.545	463.0 -> 419.0	25847	2.42	µg/L	100
		463.0 -> 219.0	5861			
PFNS	8.786	548.8 -> 79.9	5239	2.39	µg/L	100
		548.8 -> 98.9	3043			
PFOA	6.976	413.0 -> 369.0	42074	2.41	µg/L	100
		413.0 -> 169.0	9728			
PFOS	8.269	498.9 -> 79.9	8562	2.21	µg/L	m 100
		498.9 -> 98.8	4510			
PFPeA	4.117	263.0 -> 219.0	45359	4.67	µg/L	100
PFPeS	6.356	349.1 -> 79.9	5582	2.25	µg/L	100
		349.1 -> 98.9	2723			
PFTeDA	9.911	713.1 -> 669.0	29295	2.40	µg/L	100
		713.1 -> 168.9	3995			
PFTrDA	9.502	663.0 -> 619.0	32118	2.36	µg/L	100
		663.0 -> 168.9	5487			
PFUnDA	8.598	563.1 -> 519.0	29024	2.38	µg/L	100
		563.1 -> 269.1	6565			
11CI-PF3OUdS	9.566	630.9 -> 450.9	43619	4.64	µg/L	100
		632.9 -> 452.9	13771			
9CI-PF3ONS	8.649	530.8 -> 351.0	46788	4.70	µg/L	100
		532.8 -> 353.0	14482			
ADONA	6.554	376.9 -> 250.9	107222	4.70	µg/L	100
		376.9 -> 84.8	30665			
HFPO-DA	5.702	284.9 -> 168.9	31555	4.85	µg/L	100
		284.9 -> 184.9	2930			
3:3FTCA	3.579	241.0 -> 177.0	6996	10.98	µg/L	100
		241.0 -> 117.0	743			
5:3FTCA	5.930	341.0 -> 237.1	118855	58.77	µg/L	100
		341.0 -> 217.0	80670			
7:3FTCA	7.372	441.0 -> 316.9	59598	57.09	µg/L	100
		441.0 -> 336.9	133784			
EtFOSA	10.713	526.0 -> 219.0	15703	4.80	µg/L	m 100
		526.0 -> 169.0	24447			
EtFOSE	10.636	630.0 -> 58.9	43045	11.65	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	12242	5.01	µg/L	m 100
		511.9 -> 169.0	20392			
MeFOSE	10.326	616.1 -> 58.9	32375	11.51	µg/L	m 100
PFDoDS	10.075	699.1 -> 79.9	4380	2.29	µg/L	100
		699.1 -> 98.8	2651			
NFDHA	5.190	295.0 -> 201.0	5036	4.89	µg/L	100
		295.0 -> 84.9	1401			
PFMBA	4.517	279.0 -> 85.1	29131	4.60	µg/L	100
PFMPA	3.290	229.0 -> 84.9	25415	5.04	µg/L	100
PFEESA	5.820	314.8 -> 134.9	58445	4.27	µg/L	100
		314.8 -> 82.9	1816			

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

### Perfluorinated Compounds by LC/MS/MS

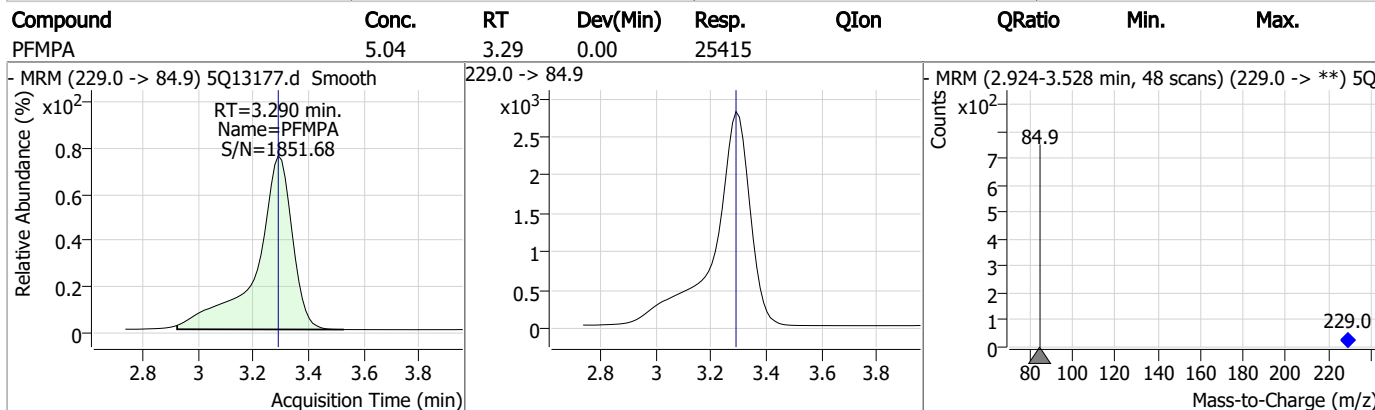
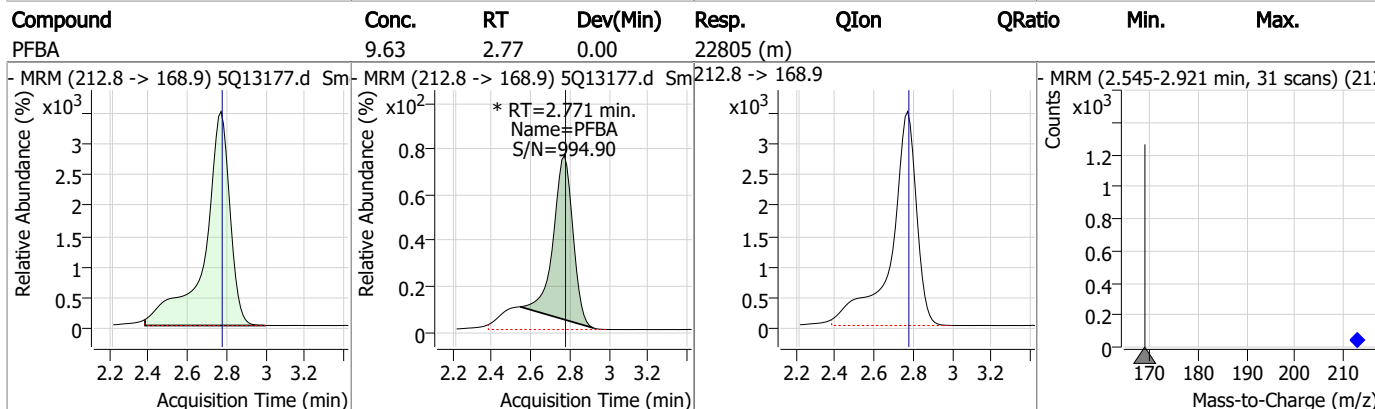
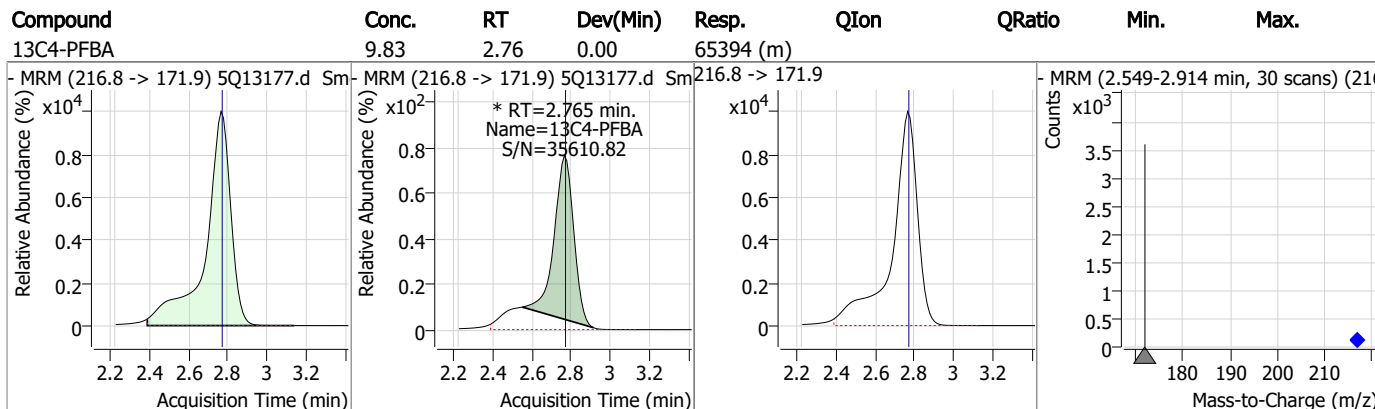
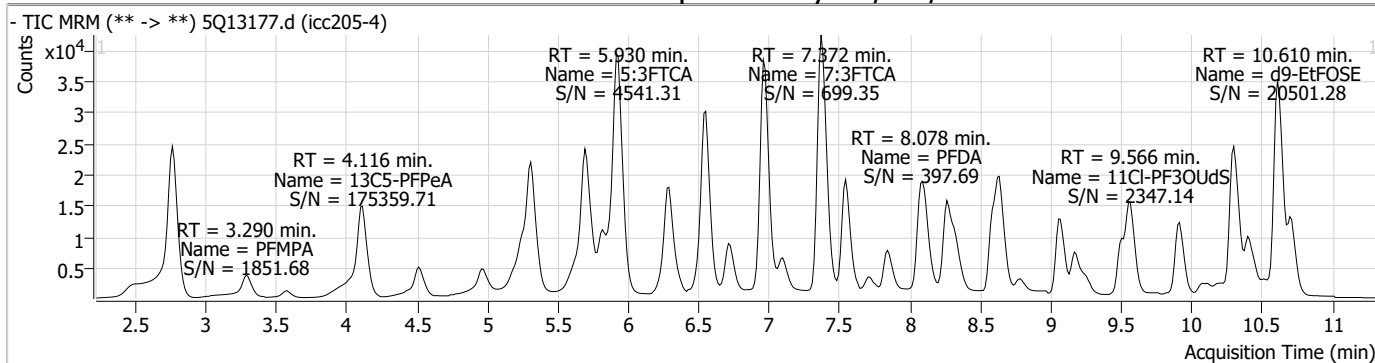
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.5

7

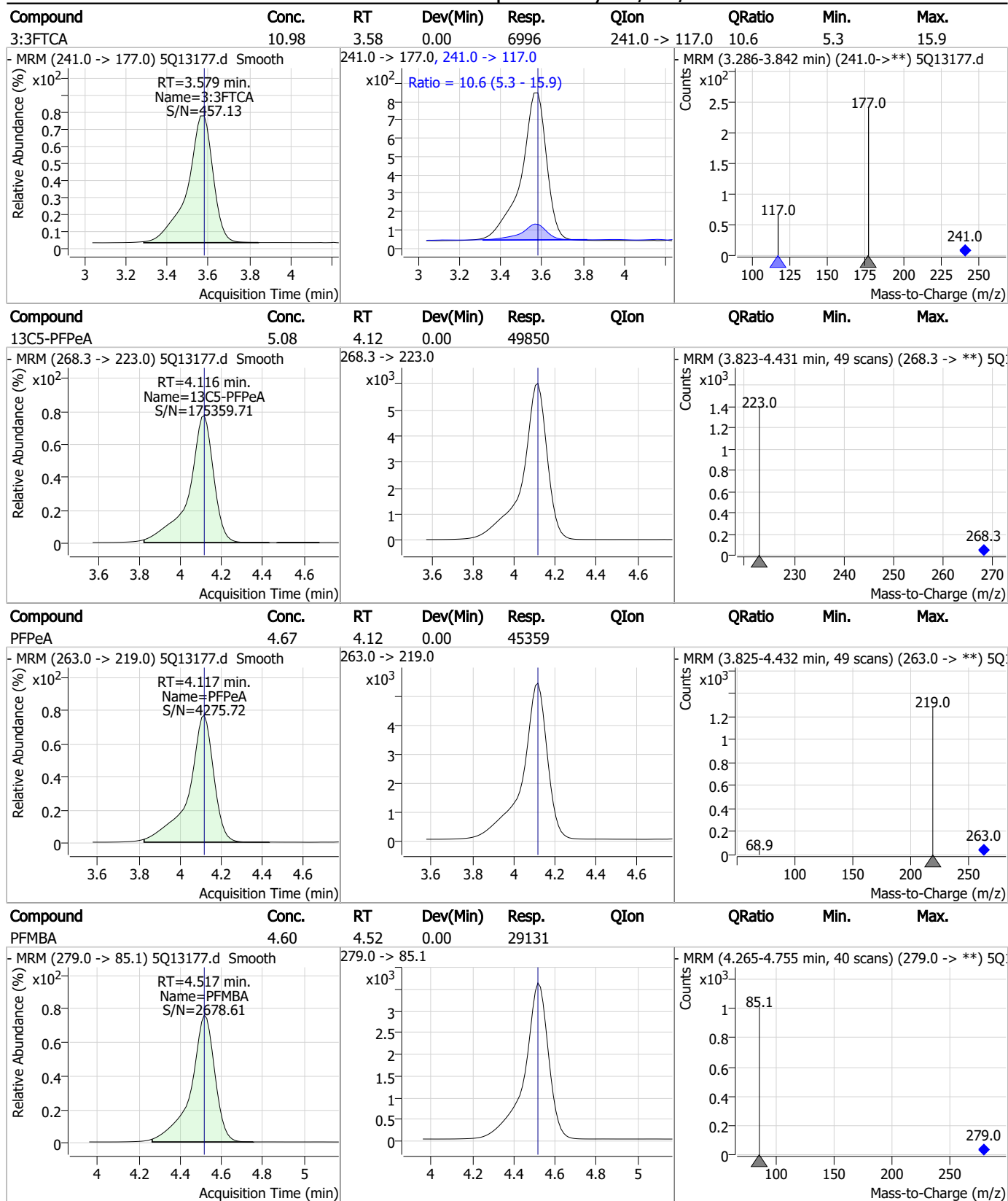


### Perfluorinated Compounds by LC/MS/MS



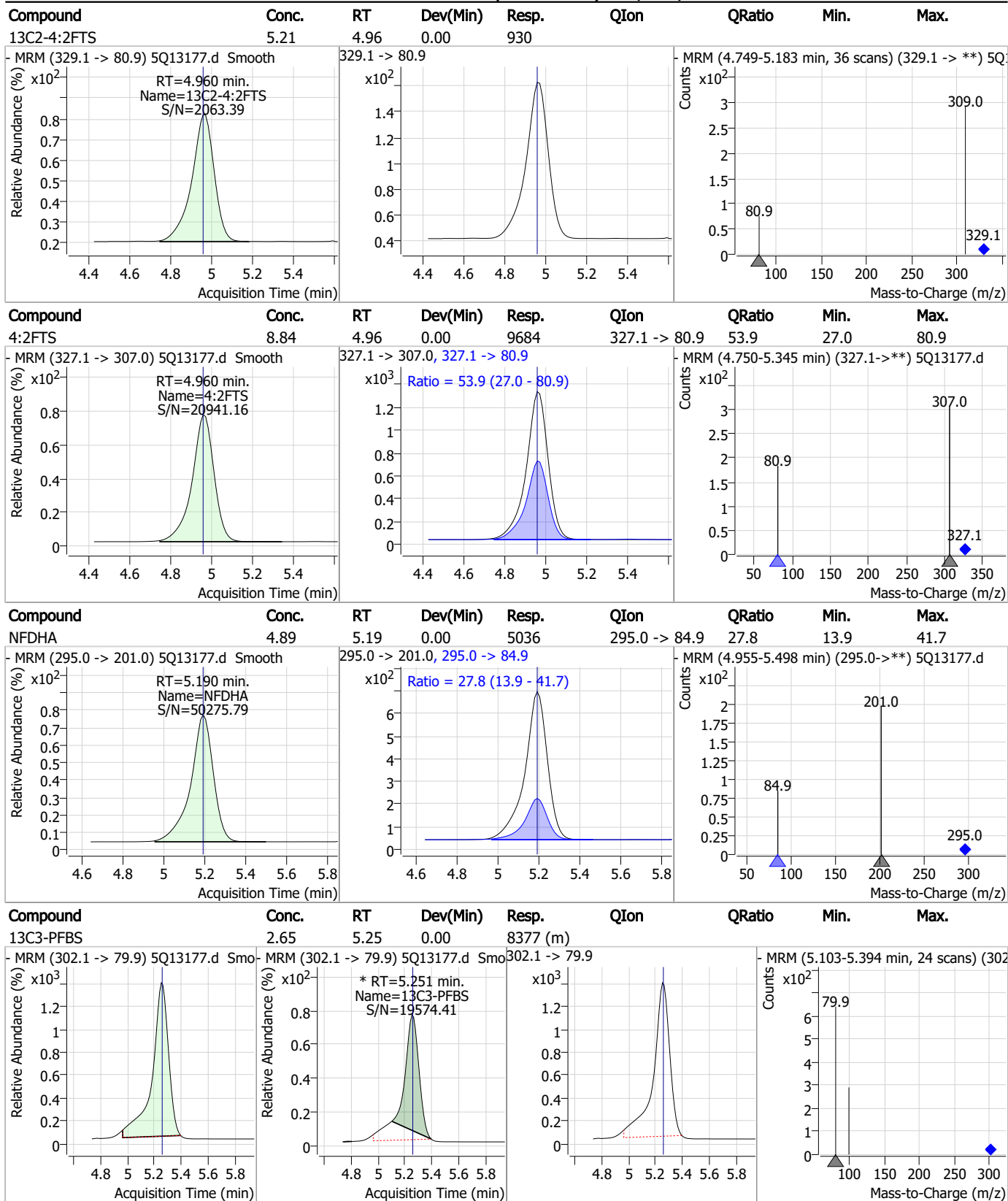
7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

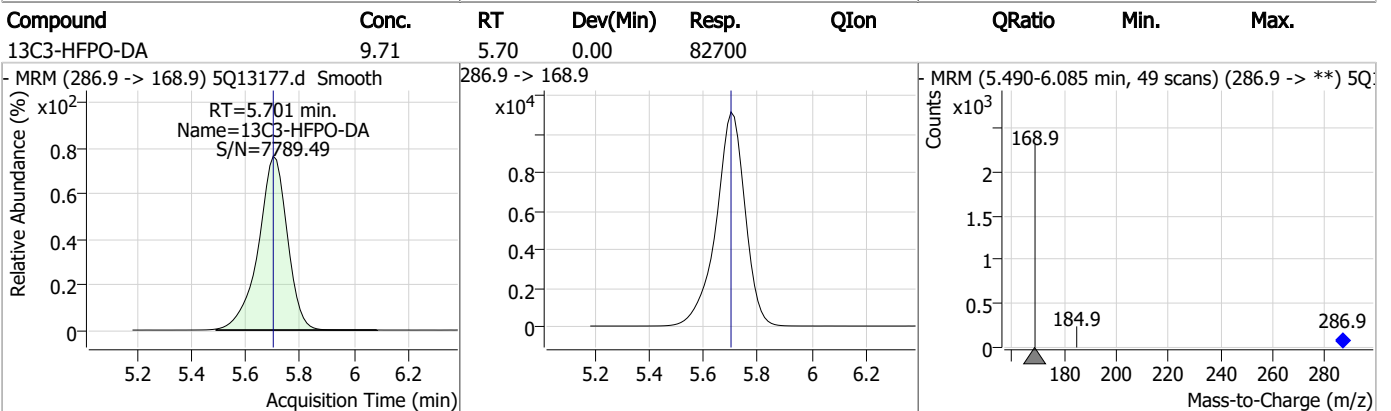
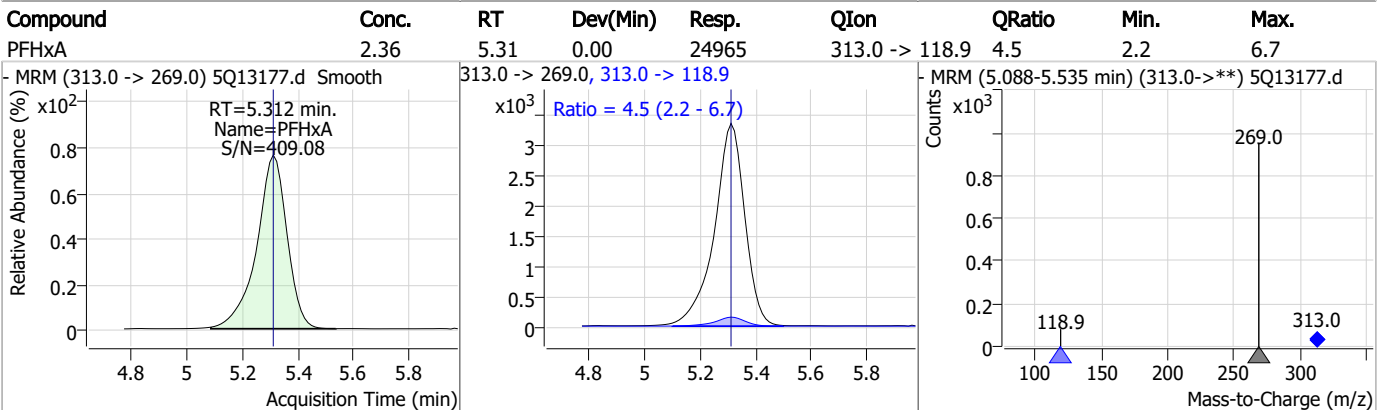
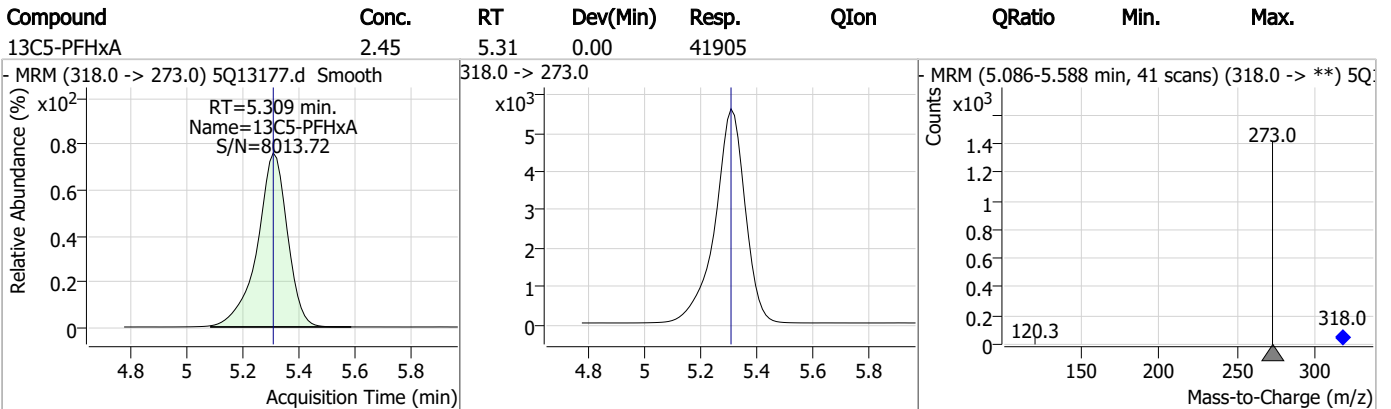
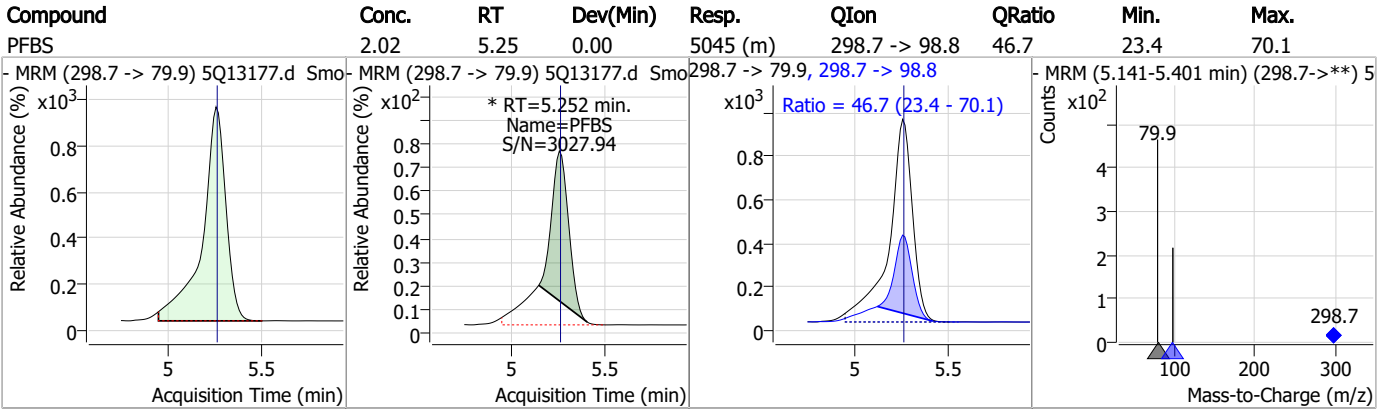
### Perfluorinated Compounds by LC/MS/MS



7.7.5

7

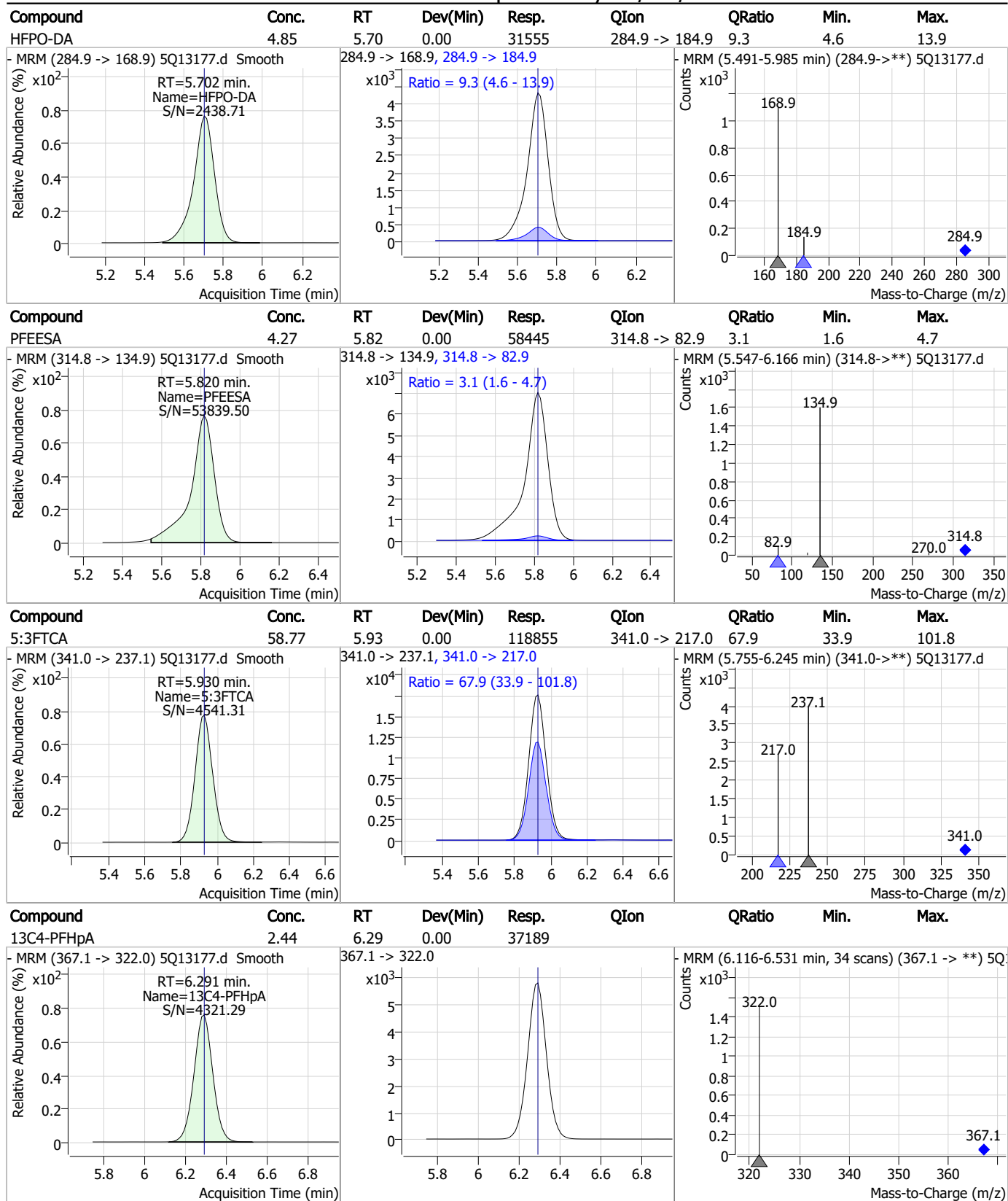
### Perfluorinated Compounds by LC/MS/MS



7.7.5

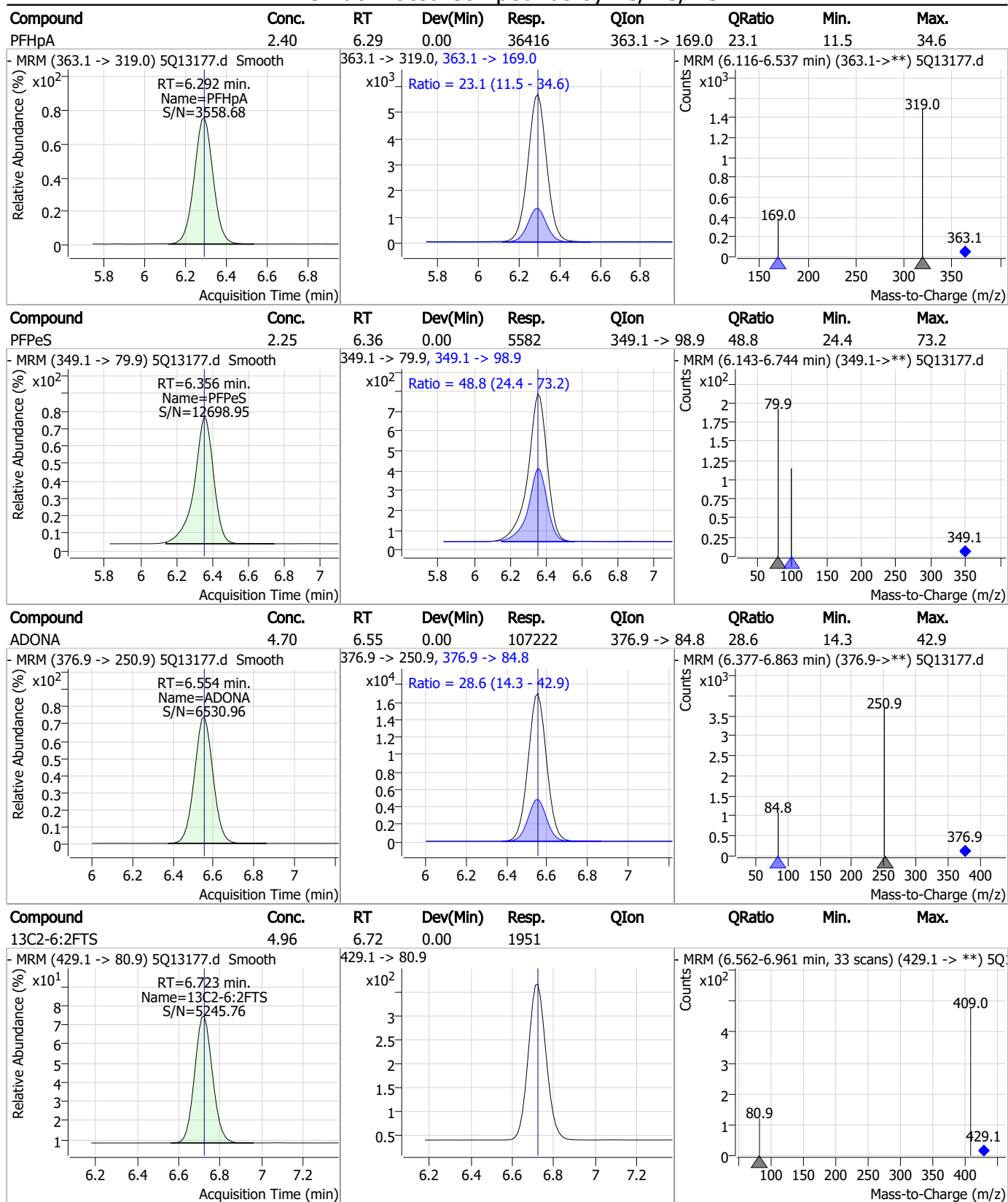
7

### Perfluorinated Compounds by LC/MS/MS



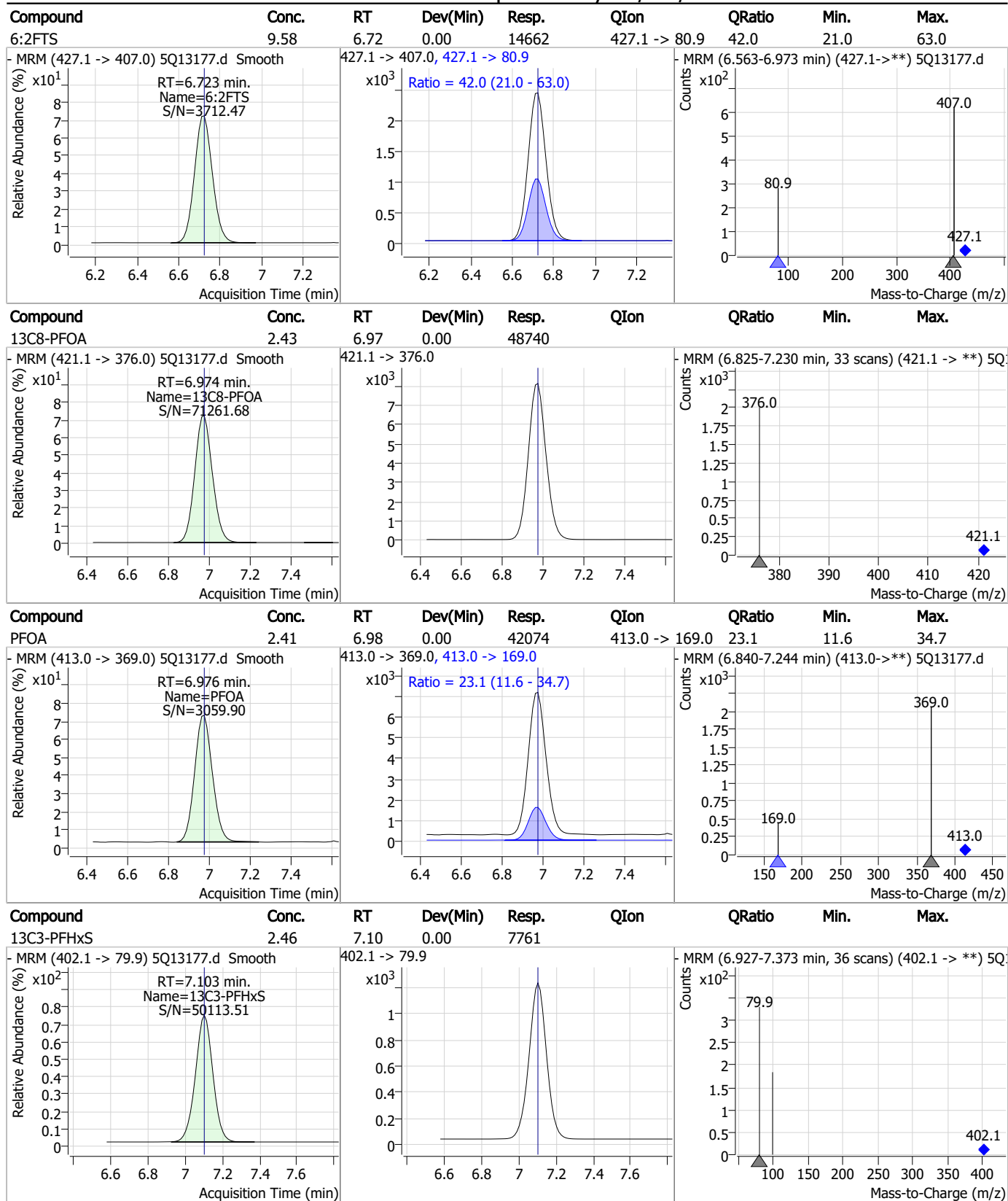
7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

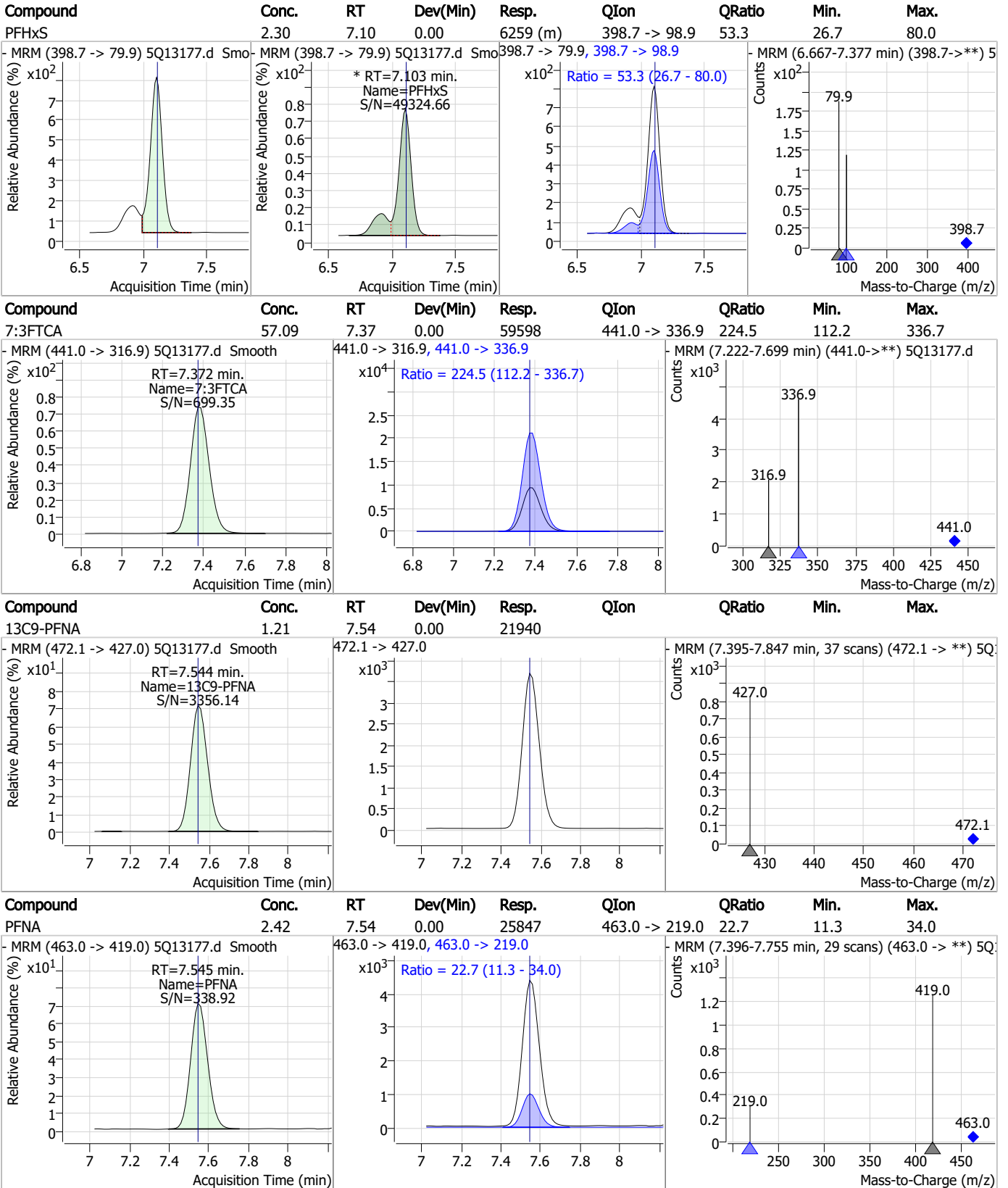
### Perfluorinated Compounds by LC/MS/MS



7.7.5

7

### Perfluorinated Compounds by LC/MS/MS

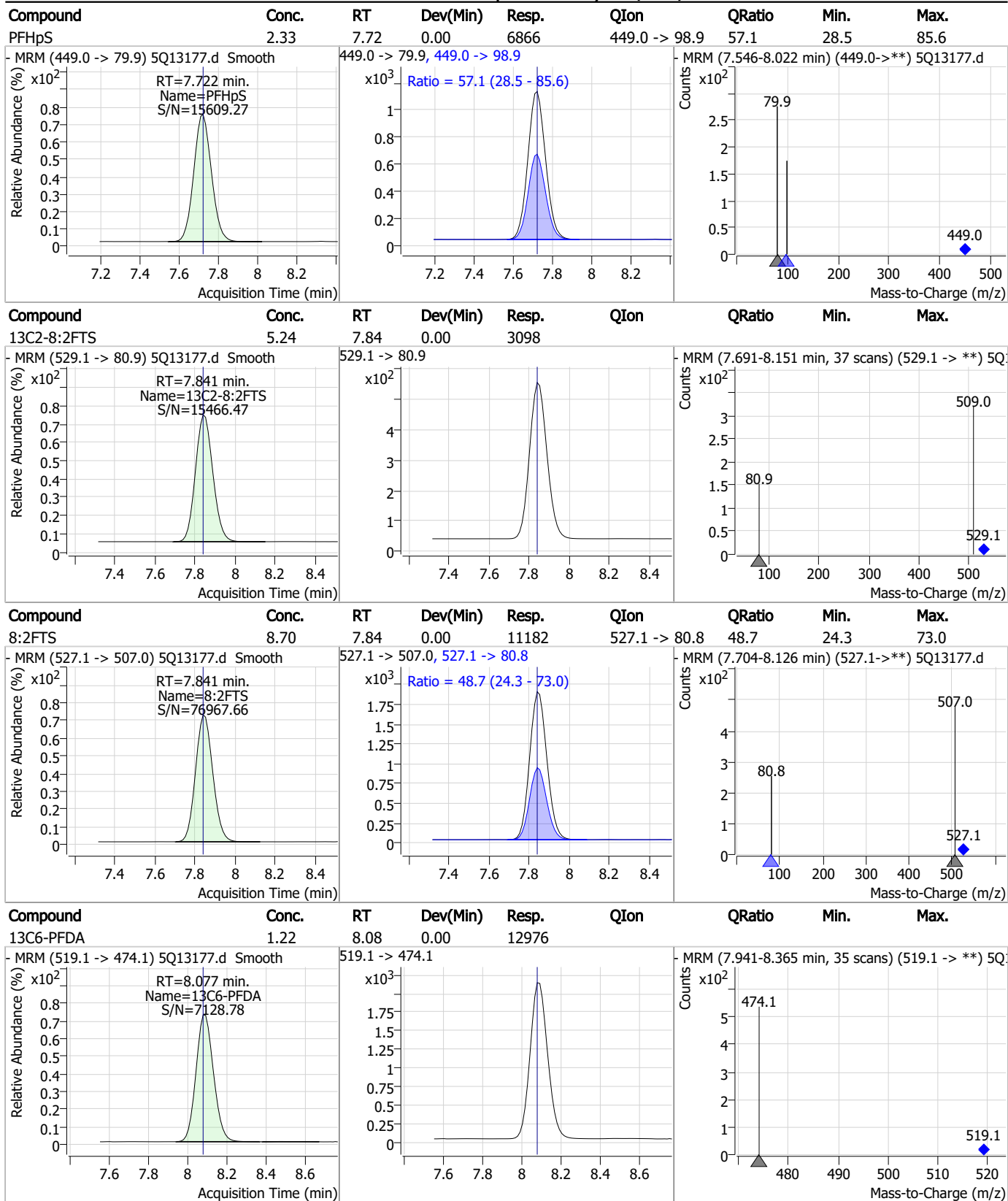


7.7.5

7



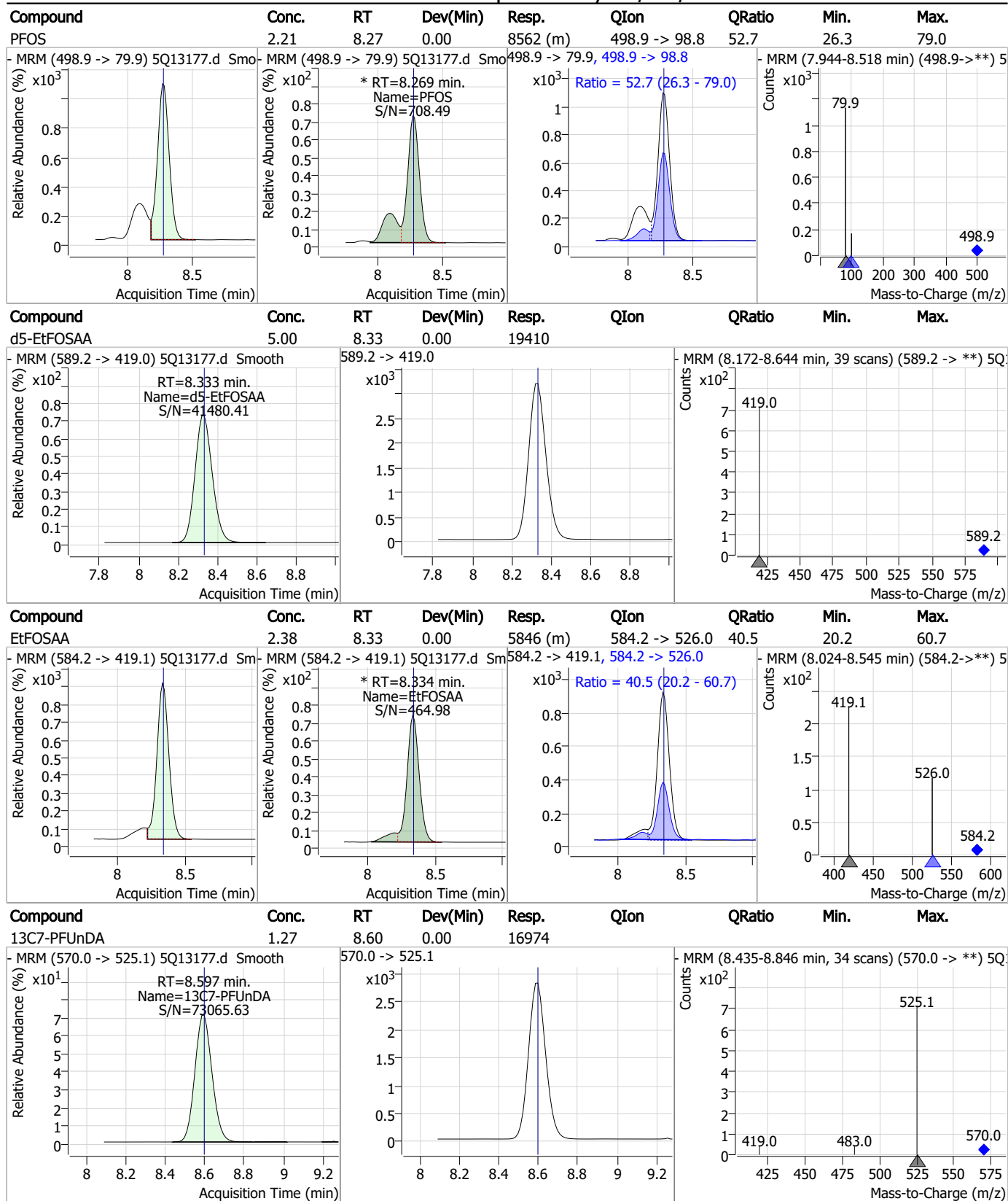
### Perfluorinated Compounds by LC/MS/MS



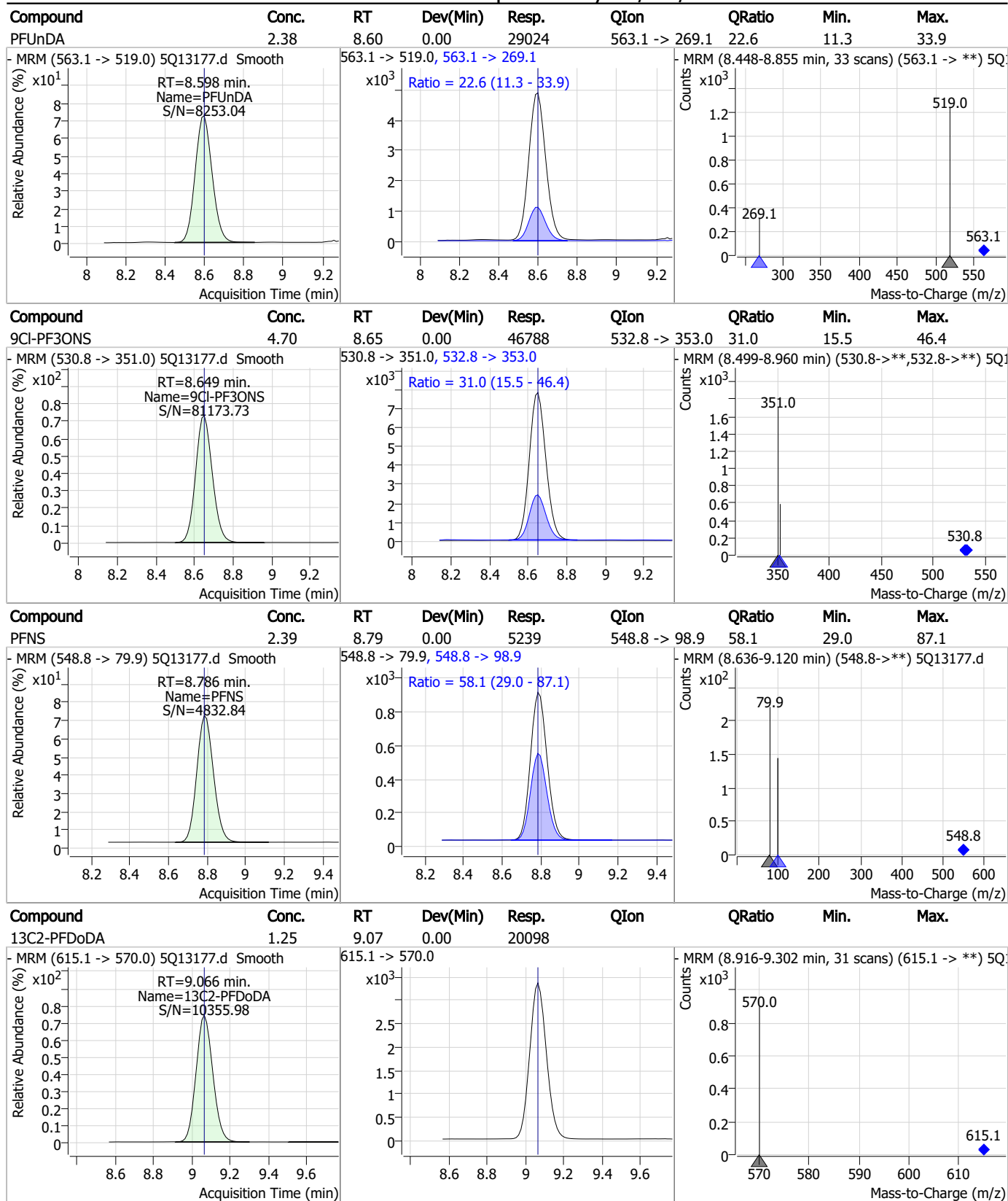
7.7.5  
7



### Perfluorinated Compounds by LC/MS/MS

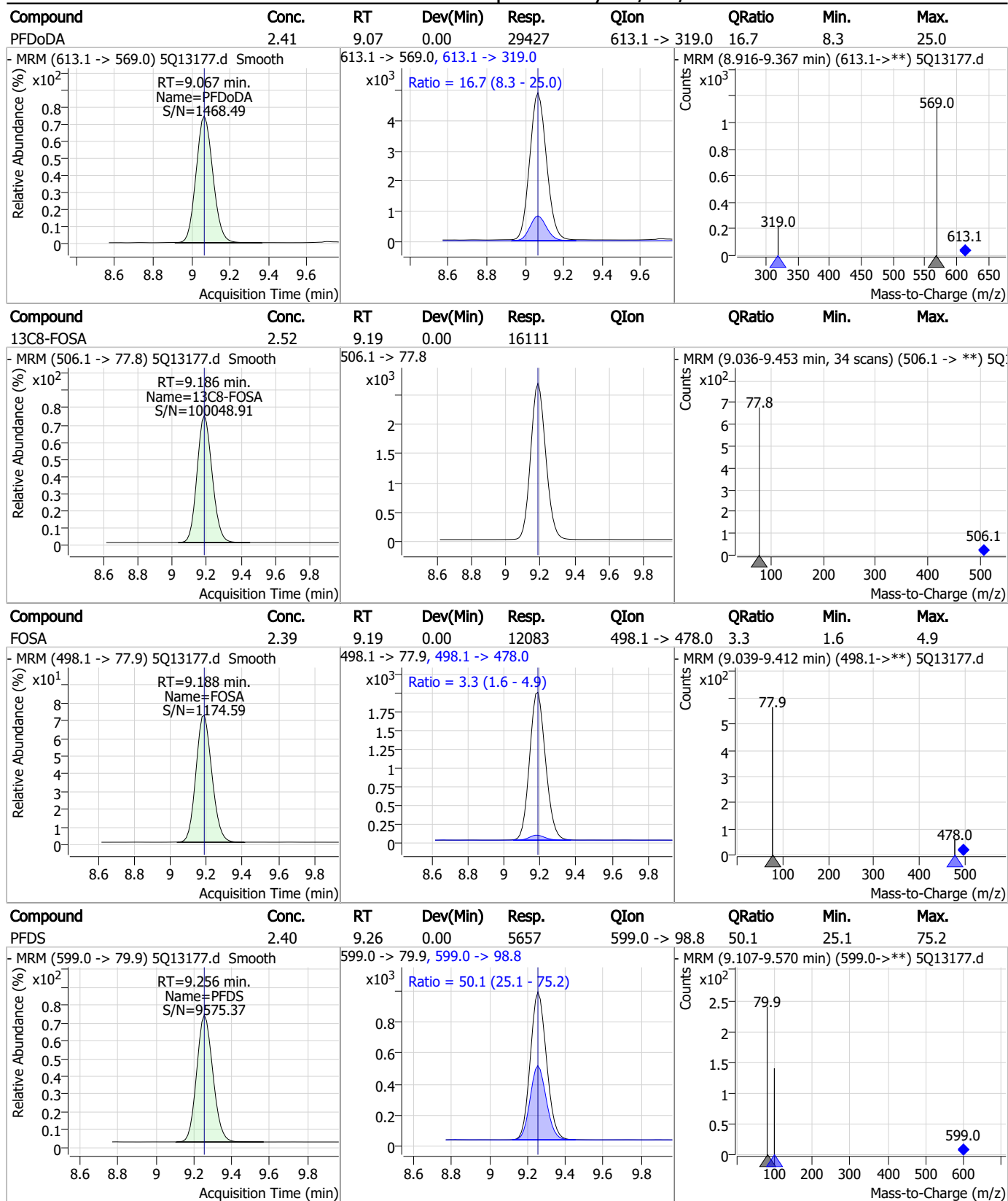


### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

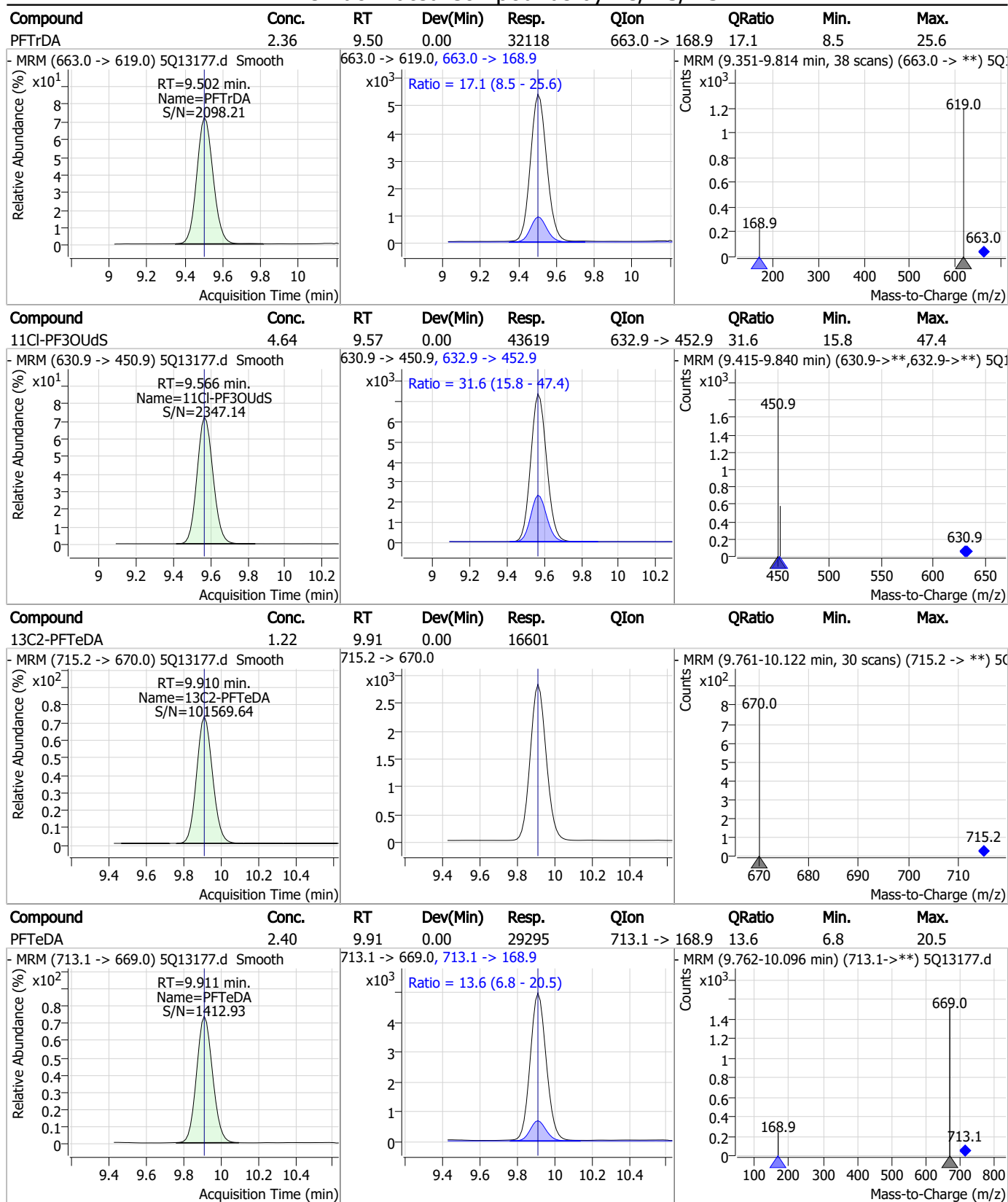
### Perfluorinated Compounds by LC/MS/MS



7.7.5

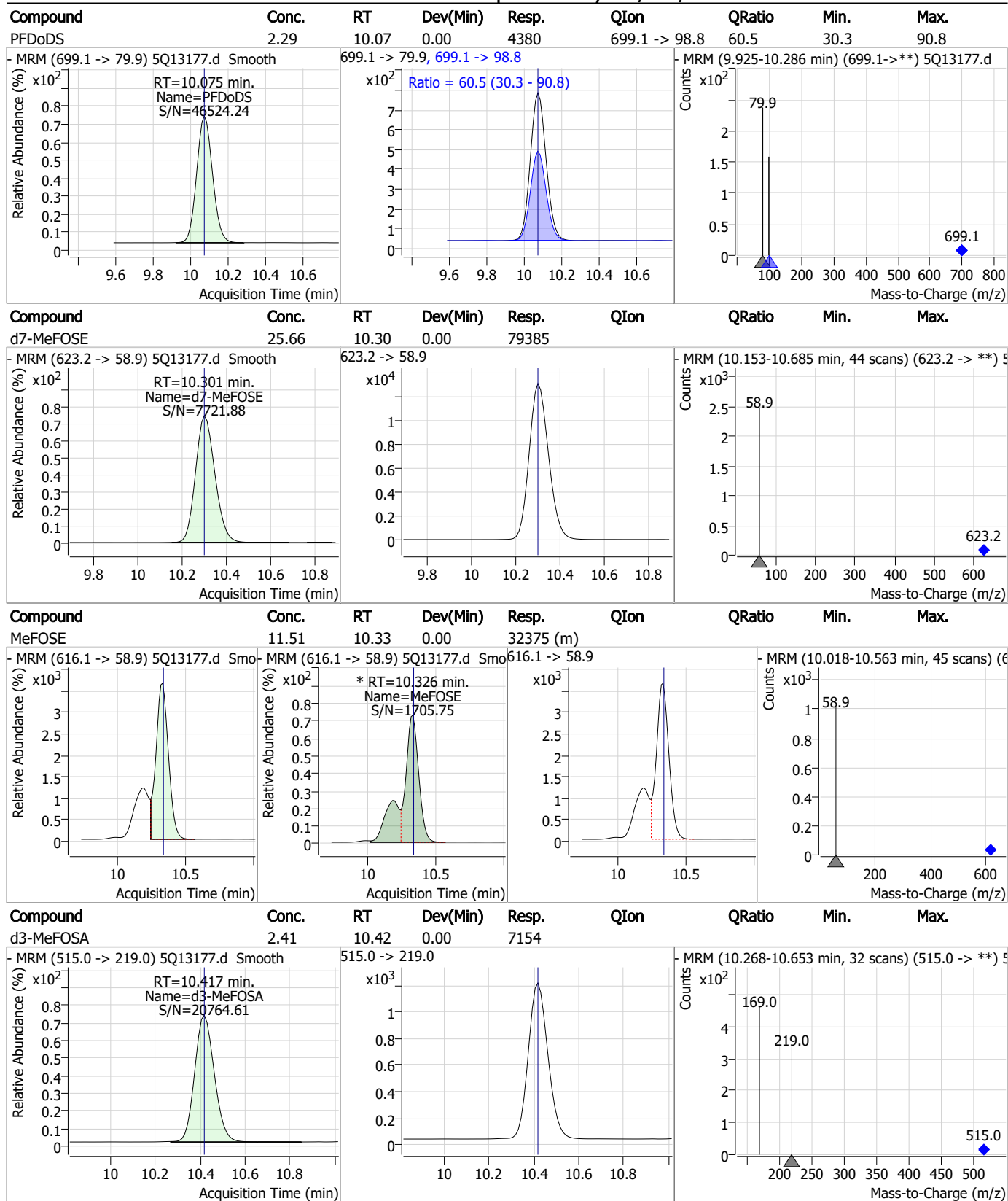
7

### Perfluorinated Compounds by LC/MS/MS



7.7.5  
7

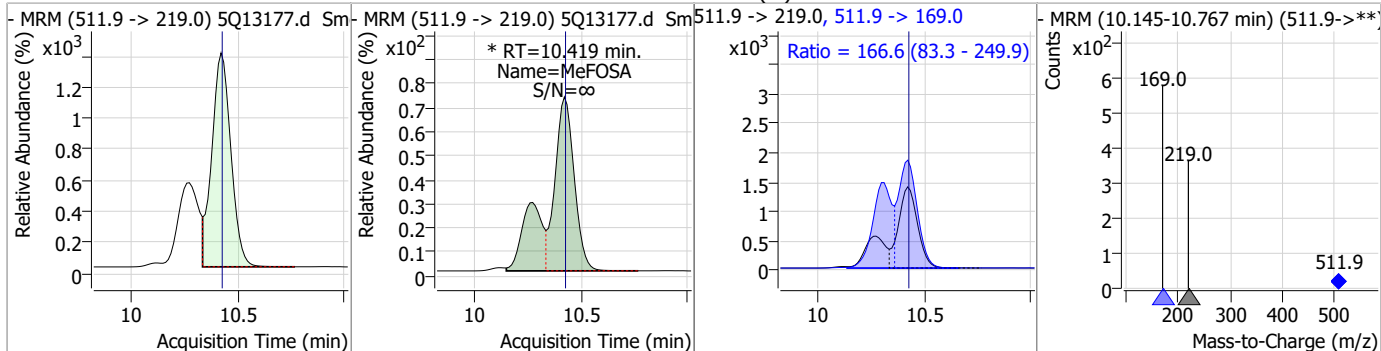
### Perfluorinated Compounds by LC/MS/MS



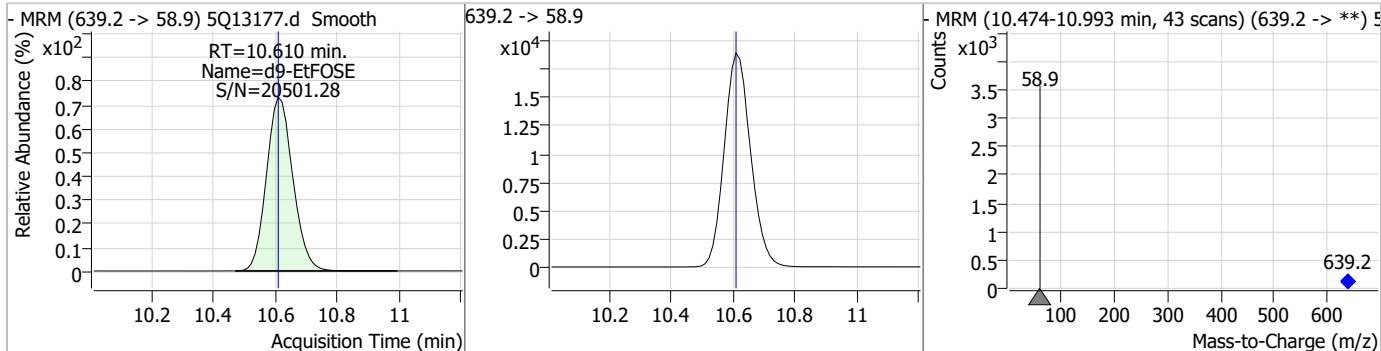
7.7.5  
7

### Perfluorinated Compounds by LC/MS/MS

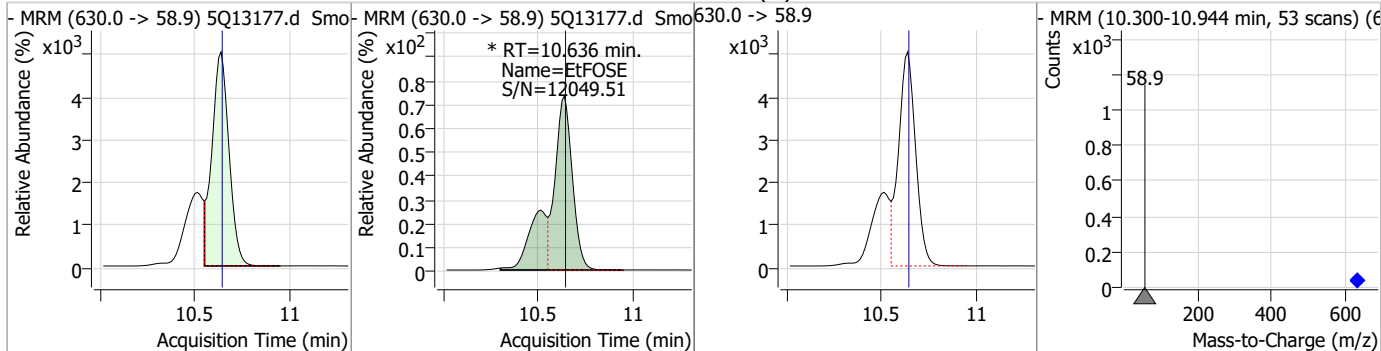
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.01	10.42	0.00	12242 (m)	511.9 -> 169.0	166.6	83.3	249.9



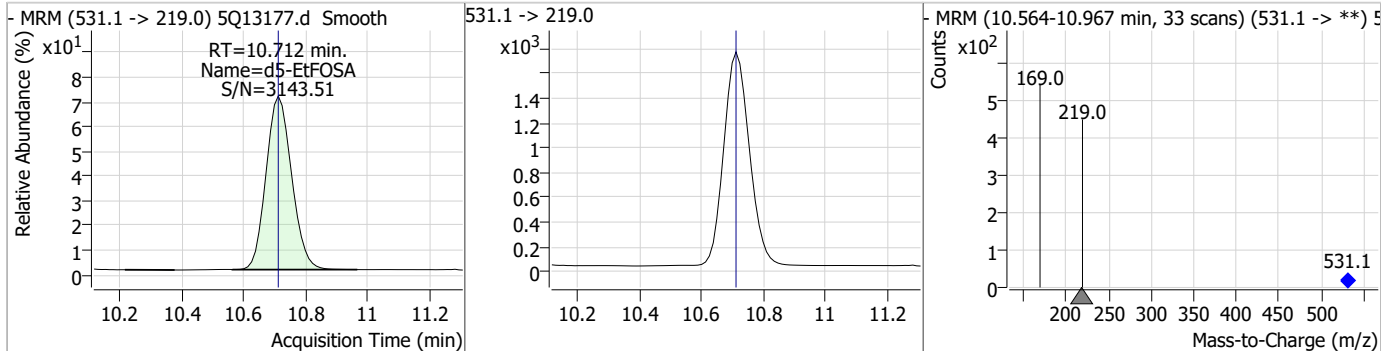
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.33	10.61	0.00	111468				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.65	10.64	0.00	43045 (m)				

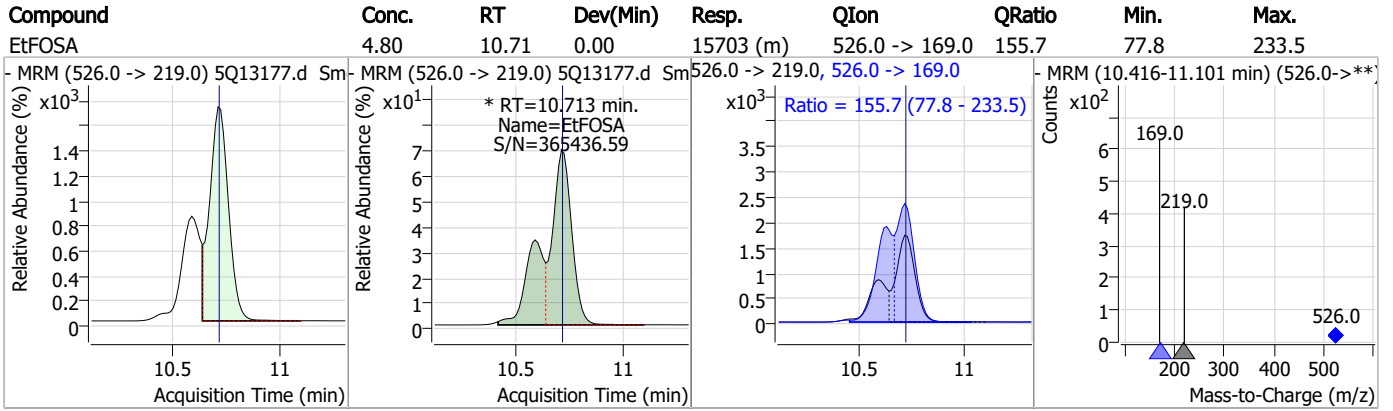


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.50	10.71	0.00	9877				





### Perfluorinated Compounds by LC/MS/MS



7.7.5

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-ICC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13177.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 19:38      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.77	Poor instrument integration
13C3-PFBS			5.25	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.25	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
MeFOSAA	2355-31-9		8.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.5.1  
7

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

**Norman Farmer**  
**04/21/23 10:44**

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13178.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 7:53:12 PM  
 Sample Name : ic205-5  
 Vial : P3-A6  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.777	216.8 -> 171.9	61069	10.00	µg/L m	0.012
M5-PFPeA	4.116	268.3 -> 223.0	45360	5.00	µg/L	0.000
M5-PFHxA	5.309	318.0 -> 273.0	41765	2.50	µg/L	0.000
M4-PFHpA	6.291	367.1 -> 322.0	36879	2.50	µg/L	0.000
M8-PFOA	6.962	421.1 -> 376.0	48563	2.50	µg/L	-0.012
M9-PFNA	7.544	472.1 -> 427.0	22008	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	13219	1.25	µg/L	0.000
M7-PFUnDA	8.585	570.0 -> 525.1	16667	1.25	µg/L	-0.012
M2-PFDoDA	9.066	615.1 -> 570.0	19372	1.25	µg/L	0.000
M2-PFTeDA	9.910	715.2 -> 670.0	16827	1.25	µg/L	0.000
M8-FOSA	9.186	506.1 -> 77.8	15820	2.50	µg/L	0.000
M3-PFBS	5.251	302.1 -> 79.9	7753	2.50	µg/L m	0.000
M3-PFHxS	7.103	402.1 -> 79.9	7585	2.50	µg/L	0.000
M8-PFOS	8.267	507.1 -> 79.9	11464	2.50	µg/L	0.000
M2-4:2FTS	4.972	329.1 -> 80.9	888	5.00	µg/L	0.012
M2-6:2FTS	6.711	429.1 -> 80.9	2061	5.00	µg/L	-0.012
M2-8:2FTS	7.841	529.1 -> 80.9	2994	5.00	µg/L	0.000
M3-MeFOSAA	8.111	573.2 -> 419.0	14363	5.00	µg/L	0.000
M3-HFPO-DA	5.701	286.9 -> 168.9	82306	10.00	µg/L	0.000
M5-EtFOSAA	8.321	589.2 -> 419.0	19695	5.00	µg/L	-0.012
M7-MeFOSE	10.301	623.2 -> 58.9	76045	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	108467	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	9957	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7383	2.50	µg/L	0.000
13C4-PFOS	8.268	502.8 -> 79.9	10633	2.50	µg/L	0.000
13C3-PFBA	2.780	216.0 -> 172.0	31661	5.00	µg/L m	0.012
18O2-PFHxS	7.102	403.0 -> 83.9	5046	2.50	µg/L	0.000
13C4-PFOA	6.962	417.1 -> 372.0	60031	2.50	µg/L	-0.012
13C2-PFDA	8.078	515.1 -> 470.1	19708	1.25	µg/L	0.000
13C5-PFNA	7.544	468.0 -> 423.0	21422	1.25	µg/L	0.000
13C2-PFHxA	5.310	315.1 -> 270.0	43841	2.50	µg/L	0.000
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.972	329.1 -> 80.9	888	5.09	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%			
13C2-6:2FTS	6.711	429.1 -> 80.9	2061	5.36	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%			
13C2-8:2FTS	7.841	529.1 -> 80.9	2994	5.18	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%			
13C2-PFDoDA	9.066	615.1 -> 570.0	19372	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%			
13C2-PFTeDA	9.910	715.2 -> 670.0	16827	1.27	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%			
13C3-PFBS	5.251	302.1 -> 79.9	7364	2.38	µg/L m	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.4%			
13C3-PFHxS	7.103	402.1 -> 79.9	7585	2.45	µg/L	0.000

7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C4-PFBA	2.777	216.8 -> 171.9	61280	10.10	µg/L m	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C4-PFHpA	6.291	367.1 -> 322.0	36879	2.52	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%		
13C5-PFHxA	5.309	318.0 -> 273.0	41765	2.54	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.5%		
13C5-PFPeA	4.116	268.3 -> 223.0	45360	4.80	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.1%		
13C6-PFDA	8.077	519.1 -> 474.1	13219	1.27	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.0%		
13C7-PFUnDA	8.585	570.0 -> 525.1	16667	1.28	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.7%		
13C8-FOSA	9.186	506.1 -> 77.8	15820	2.47	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C8-PFOA	6.962	421.1 -> 376.0	48563	2.47	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%		
13C8-PFOS	8.267	507.1 -> 79.9	11464	2.58	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.3%		
13C9-PFNA	7.544	472.1 -> 427.0	22008	1.26	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%		
d3-MeFOSAA	8.111	573.2 -> 419.0	14363	5.05	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%		
13C3-HFPO-DA	5.701	286.9 -> 168.9	82306	10.06	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
d3-MeFOSA	10.417	515.0 -> 219.0	7383	2.48	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%		
d5-EtFOSAA	8.321	589.2 -> 419.0	19695	5.07	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
d7-MeFOSE	10.301	623.2 -> 58.9	76045	24.56	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
d9-EtFOSE	10.610	639.2 -> 58.9	108467	24.64	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
d5-EtFOSA	10.712	531.1 -> 219.0	9957	2.52	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%		
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.973	327.1 -> 307.0	19581	18.71	µg/L	99
		327.1 -> 80.9	10629			
6:2FTS	6.711	427.1 -> 407.0	29458	18.22	µg/L	100
		427.1 -> 80.9	12374			
8:2FTS	7.841	527.1 -> 507.0	22677	18.25	µg/L	98
		527.1 -> 80.8	10764			
EtFOSAA	8.334	584.2 -> 419.1	11781	4.72	µg/L m	95
		584.2 -> 526.0	5141			
FOSA	9.188	498.1 -> 77.9	24664	4.98	µg/L	99
		498.1 -> 478.0	743			
MeFOSAA	8.112	570.1 -> 419.0	11713	4.84	µg/L m	95
		570.1 -> 483.0	2851			
PFBA	2.783	212.8 -> 168.9	43610	19.60	µg/L m	100
PFBS	5.252	298.7 -> 79.9	10655	4.33	µg/L m	90
		298.7 -> 98.8	4244			
PFDA	8.078	512.9 -> 469.0	55166	4.69	µg/L	99
		512.9 -> 219.0	10017			
PFDODA	9.067	613.1 -> 569.0	58704	4.99	µg/L	100
		613.1 -> 319.0	9693			
PFDS	9.256	599.0 -> 79.9	11166	4.59	µg/L	95

7.7.6  
7

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	5944			
PFHpA	6.292	363.1 -> 319.0	75033	4.99	µg/L	98
		363.1 -> 169.0	16671			
PFHpS	7.710	449.0 -> 79.9	13938	4.58	µg/L	97
		449.0 -> 98.9	7648			
PFHxA	5.312	313.0 -> 269.0	51620	4.90	µg/L	100
		313.0 -> 118.9	2358			
PFHxS	7.103	398.7 -> 79.9	12129	4.56	µg/L	m 95
		398.7 -> 98.9	6914			
PFNA	7.545	463.0 -> 419.0	52454	4.90	µg/L	99
		463.0 -> 219.0	11758			
PFNS	8.786	548.8 -> 79.9	10379	4.59	µg/L	97
		548.8 -> 98.9	6235			
PFOA	6.963	413.0 -> 369.0	86045	4.95	µg/L	98
		413.0 -> 169.0	20725			
PFOS	8.269	498.9 -> 79.9	17279	4.32	µg/L	m 93
		498.9 -> 98.8	9945			
PFPeA	4.117	263.0 -> 219.0	88367	10.00	µg/L	100
PFPeS	6.356	349.1 -> 79.9	11429	4.71	µg/L	100
		349.1 -> 98.9	5602			
PFTeDA	9.911	713.1 -> 669.0	58441	4.73	µg/L	100
		713.1 -> 168.9	7848			
PFTrDA	9.502	663.0 -> 619.0	66685	5.09	µg/L	100
		663.0 -> 168.9	11474			
PFUnDA	8.586	563.1 -> 519.0	58118	4.84	µg/L	96
		563.1 -> 269.1	11898			
11CI-PF3OUdS	9.566	630.9 -> 450.9	88706	9.47	µg/L	99
		632.9 -> 452.9	27360			
9CI-PF3ONS	8.649	530.8 -> 351.0	92456	9.33	µg/L	99
		532.8 -> 353.0	29333			
ADONA	6.554	376.9 -> 250.9	214486	9.45	µg/L	99
		376.9 -> 84.8	62649			
HFPO-DA	5.702	284.9 -> 168.9	64026	9.90	µg/L	99
		284.9 -> 184.9	6108			
3:3FTCA	3.592	241.0 -> 177.0	14955	25.80	µg/L	99
		241.0 -> 117.0	1635			
5:3FTCA	5.930	341.0 -> 237.1	247364	122.73	µg/L	100
		341.0 -> 217.0	167503			
7:3FTCA	7.386	441.0 -> 316.9	125437	120.56	µg/L	100
		441.0 -> 336.9	281290			
EtFOSA	10.713	526.0 -> 219.0	31892	9.66	µg/L	m 100
		526.0 -> 169.0	49524			
EtFOSE	10.636	630.0 -> 58.9	86296	24.01	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	23830	9.44	µg/L	m 100
		511.9 -> 169.0	39624			
MeFOSE	10.326	616.1 -> 58.9	63639	23.63	µg/L	m 100
PFDoDS	10.075	699.1 -> 79.9	9050	4.58	µg/L	98
		699.1 -> 98.8	5325			
NFDHA	5.190	295.0 -> 201.0	10121	9.86	µg/L	99
		295.0 -> 84.9	2856			
PFMBA	4.517	279.0 -> 85.1	59570	10.33	µg/L	100
PFMPA	3.303	229.0 -> 84.9	48821	10.64	µg/L	100
PFEESA	5.820	314.8 -> 134.9	119295	8.74	µg/L	100
		314.8 -> 82.9	3576			

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

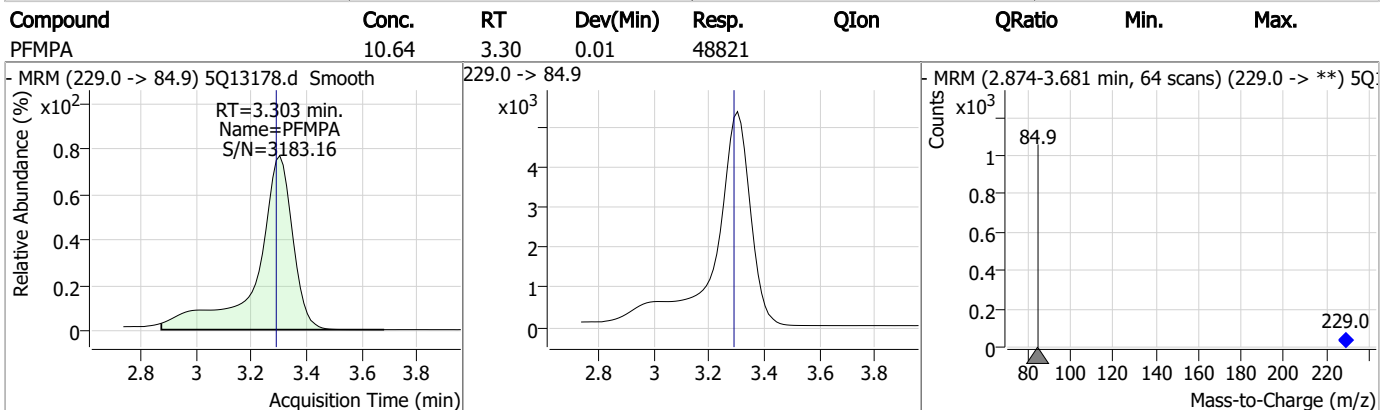
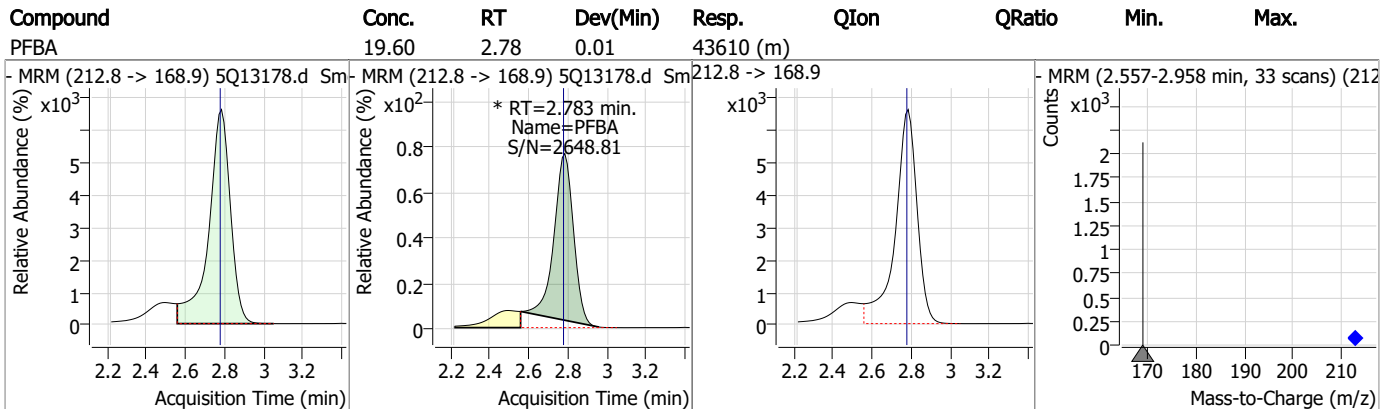
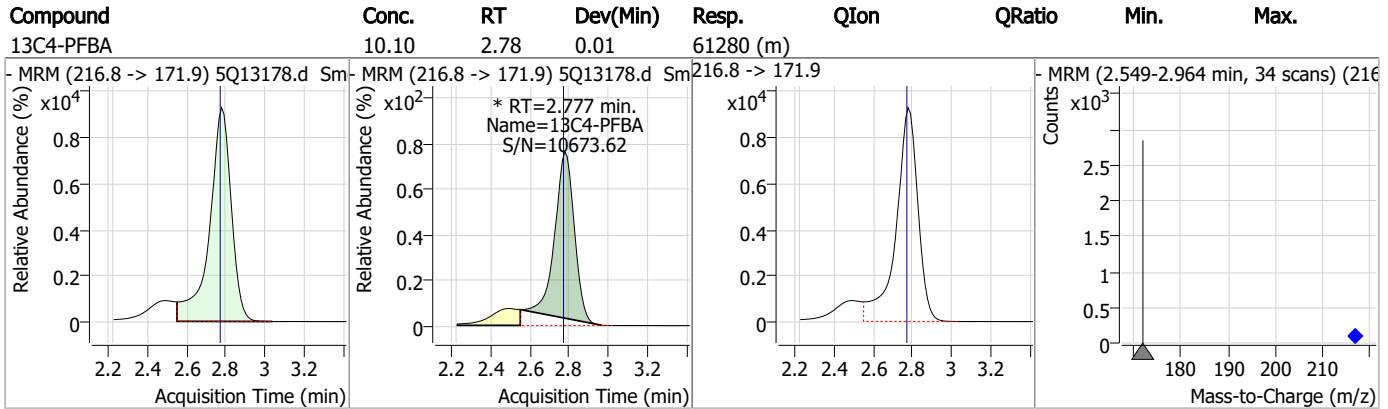
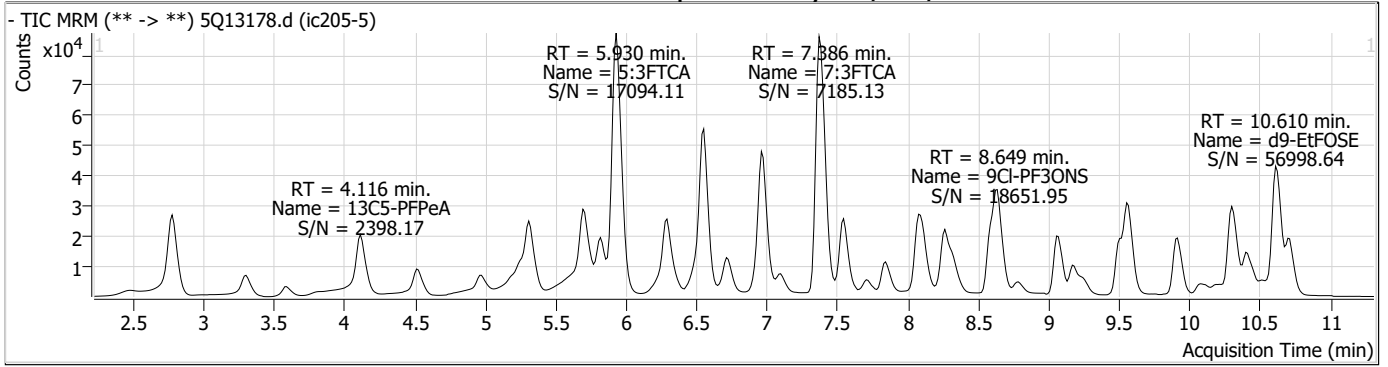
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

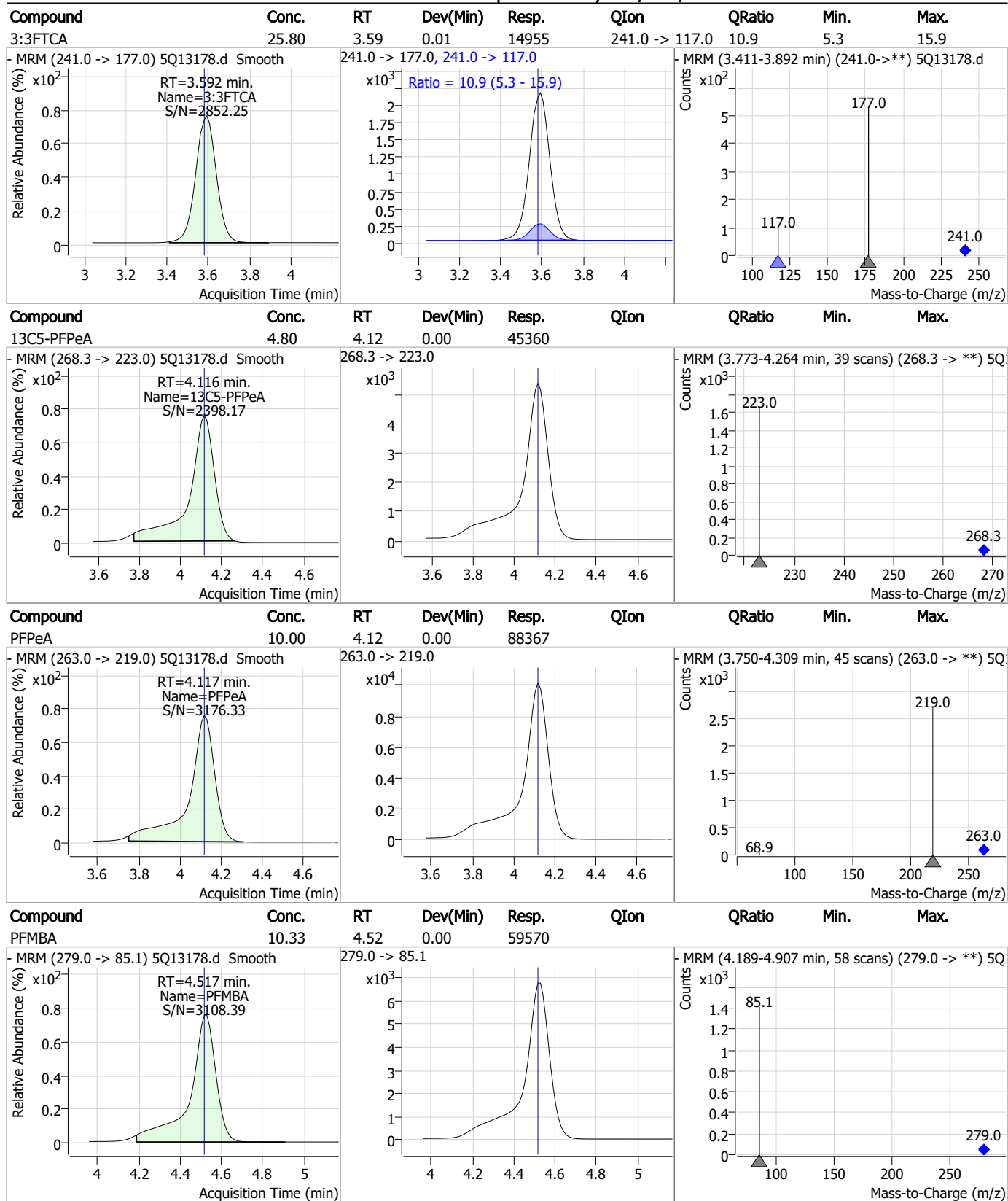
7.7.6

7

### Perfluorinated Compounds by LC/MS/MS



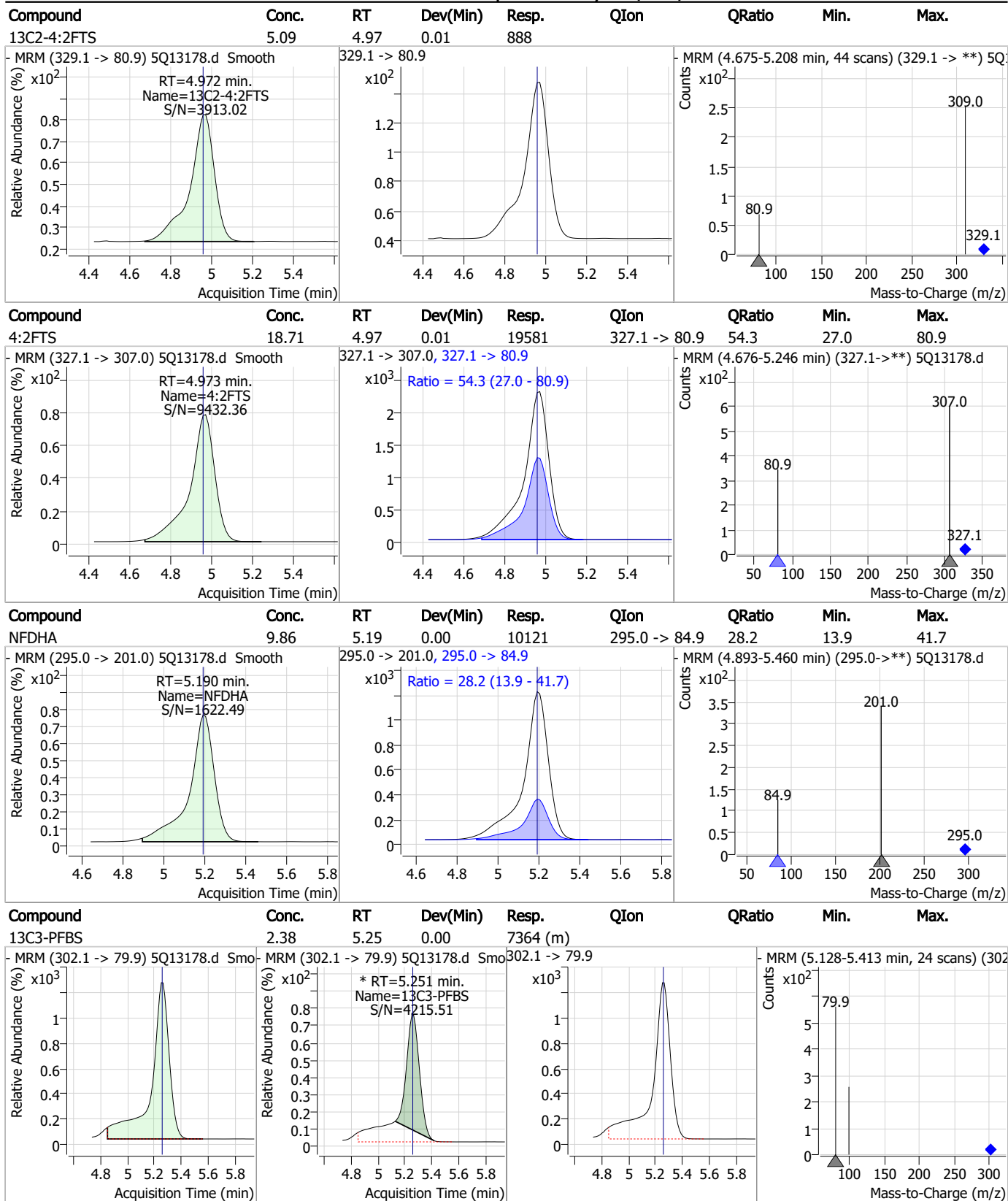
### Perfluorinated Compounds by LC/MS/MS



7.7.6  
7



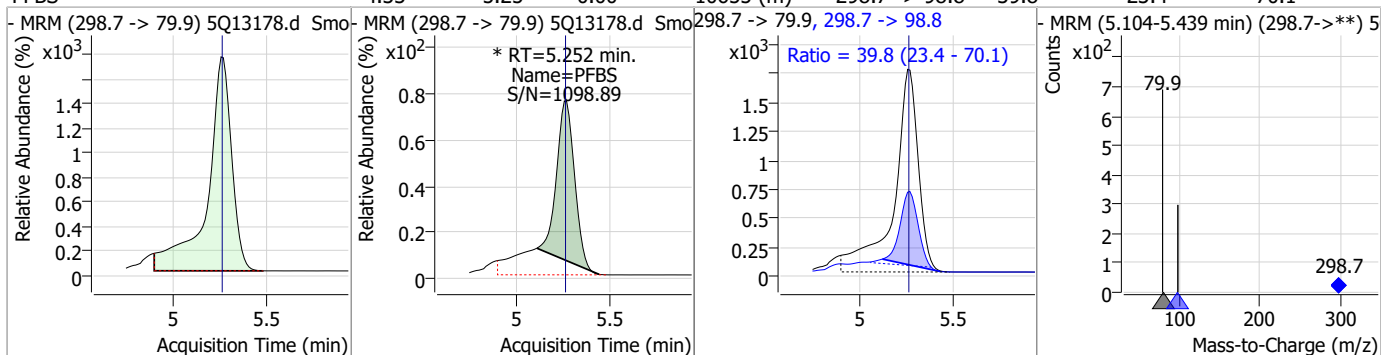
### Perfluorinated Compounds by LC/MS/MS



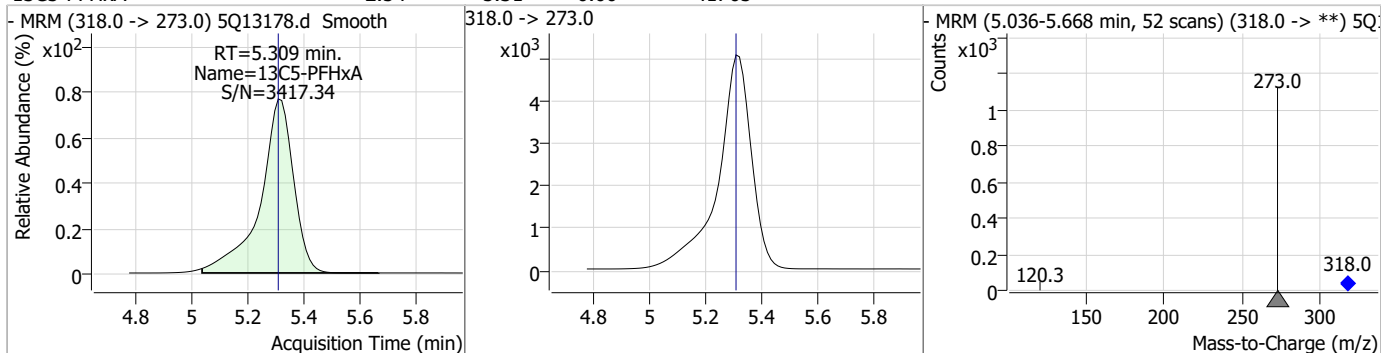
7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS

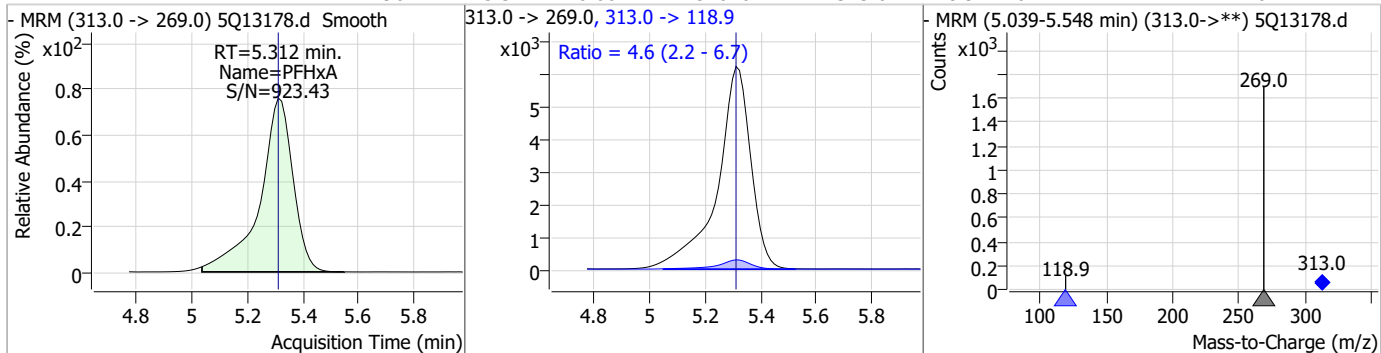
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	4.33	5.25	0.00	10655 (m)	298.7 -> 98.8	39.8	23.4	70.1



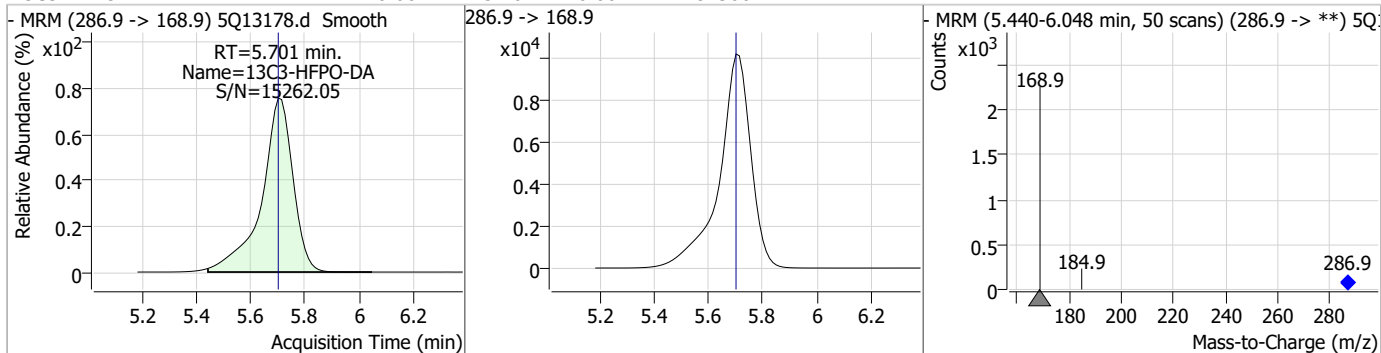
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.54	5.31	0.00	41765				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	4.90	5.31	0.00	51620	313.0 -> 118.9	4.6	2.2	6.7

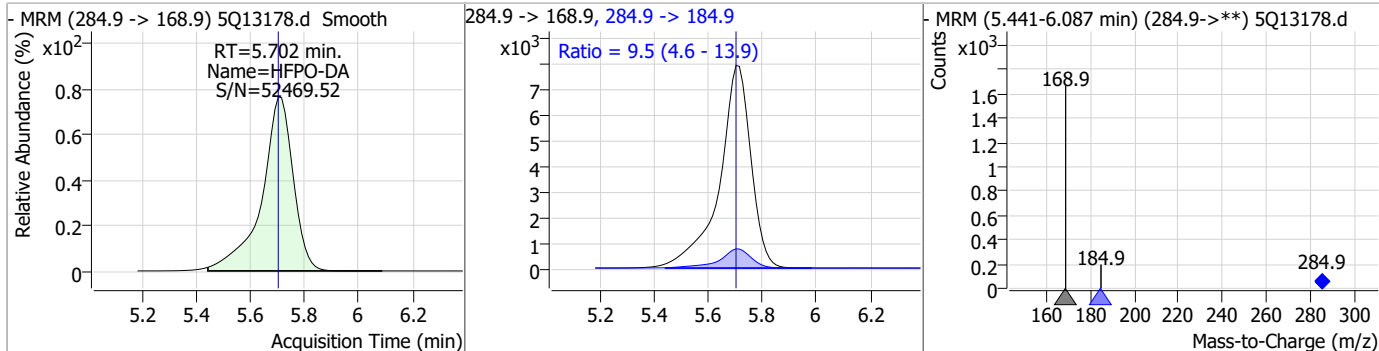


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.06	5.70	0.00	82306				

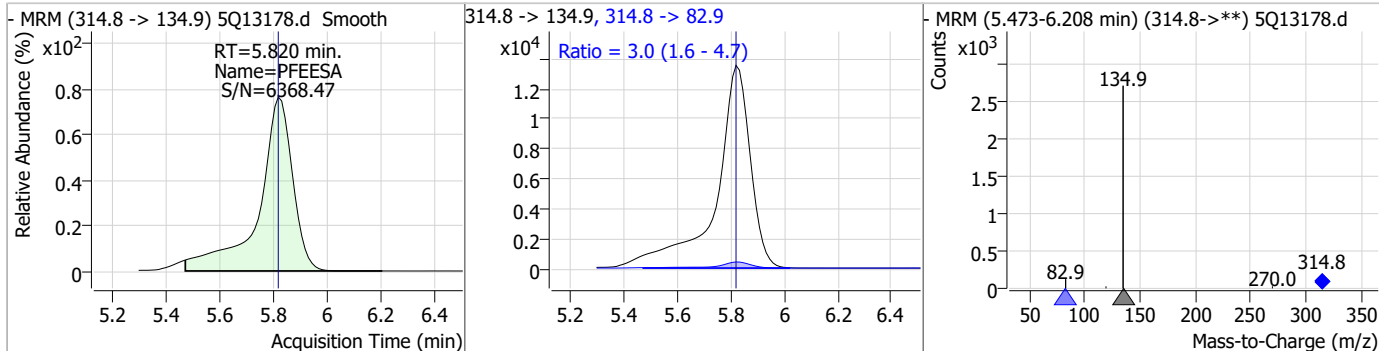


### Perfluorinated Compounds by LC/MS/MS

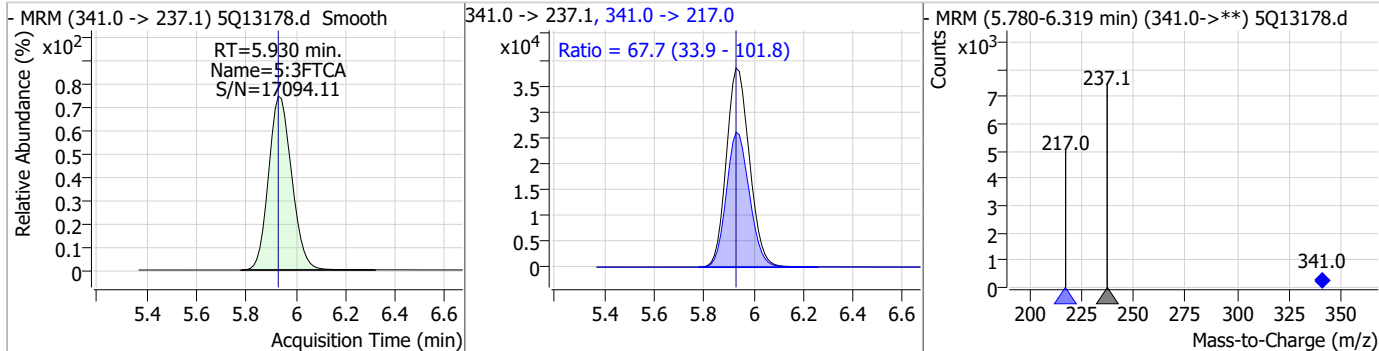
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	9.90	5.70	0.00	64026	284.9 -> 184.9	9.5	4.6	13.9



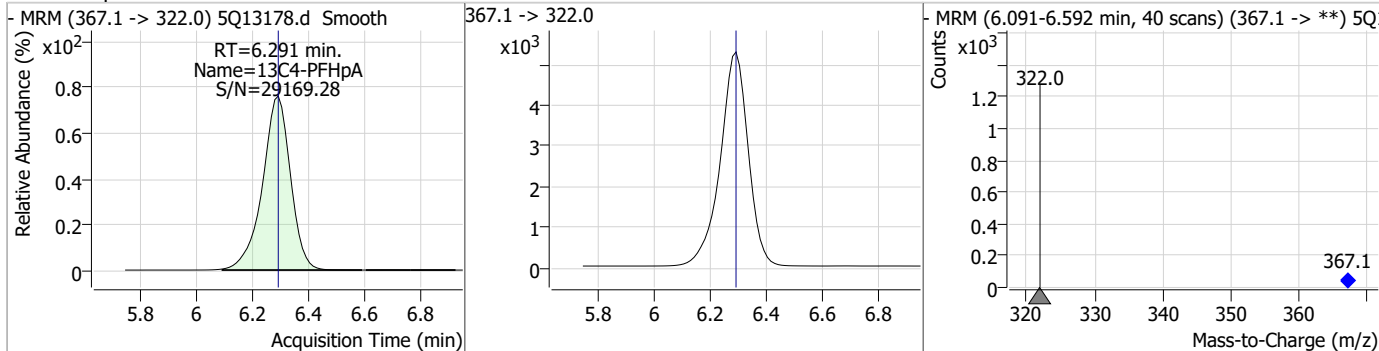
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.74	5.82	0.00	119295	314.8 -> 82.9	3.0	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	122.73	5.93	0.00	247364	341.0 -> 217.0	67.7	33.9	101.8

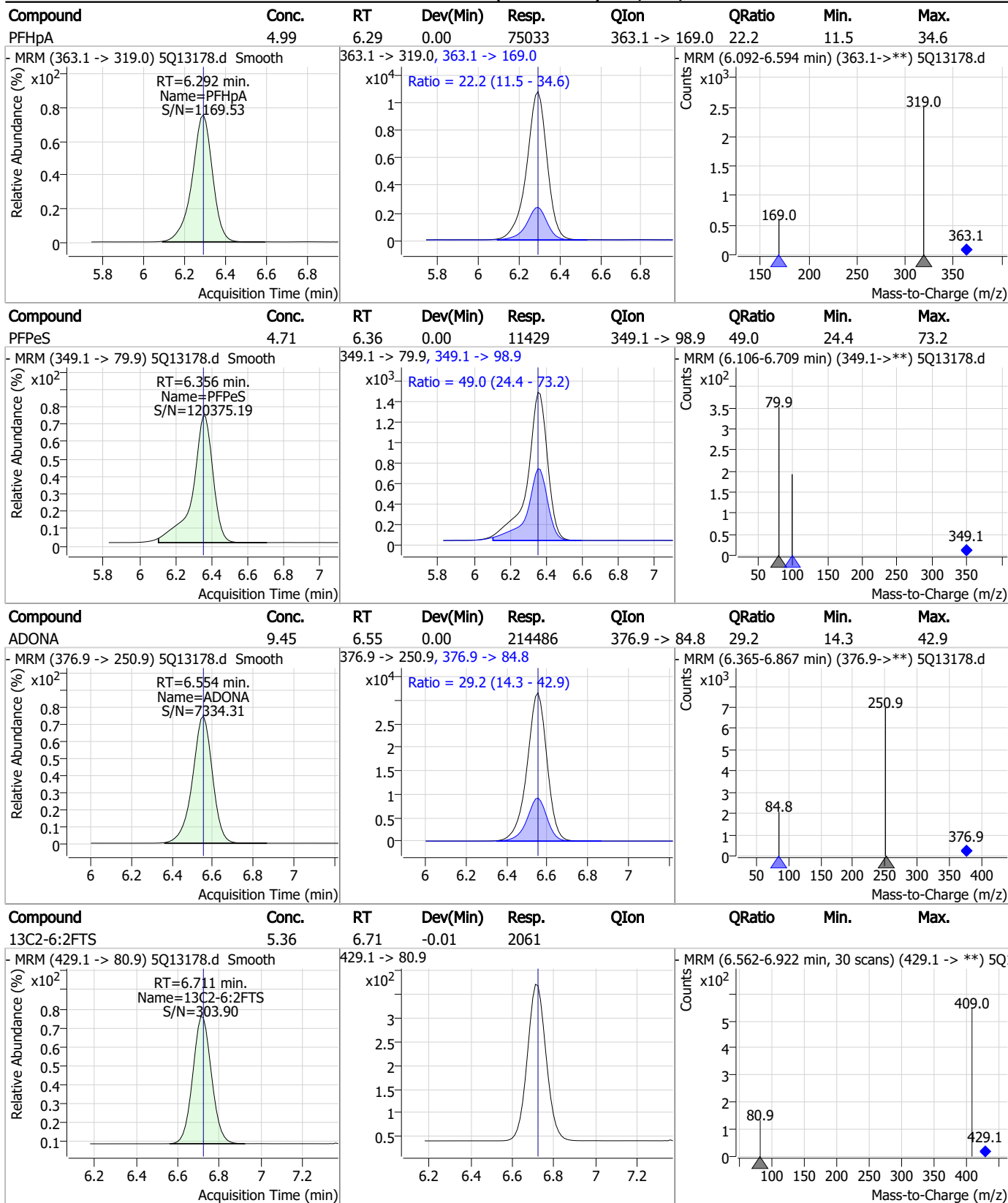


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.52	6.29	0.00	36879	367.1 -> 322.0			



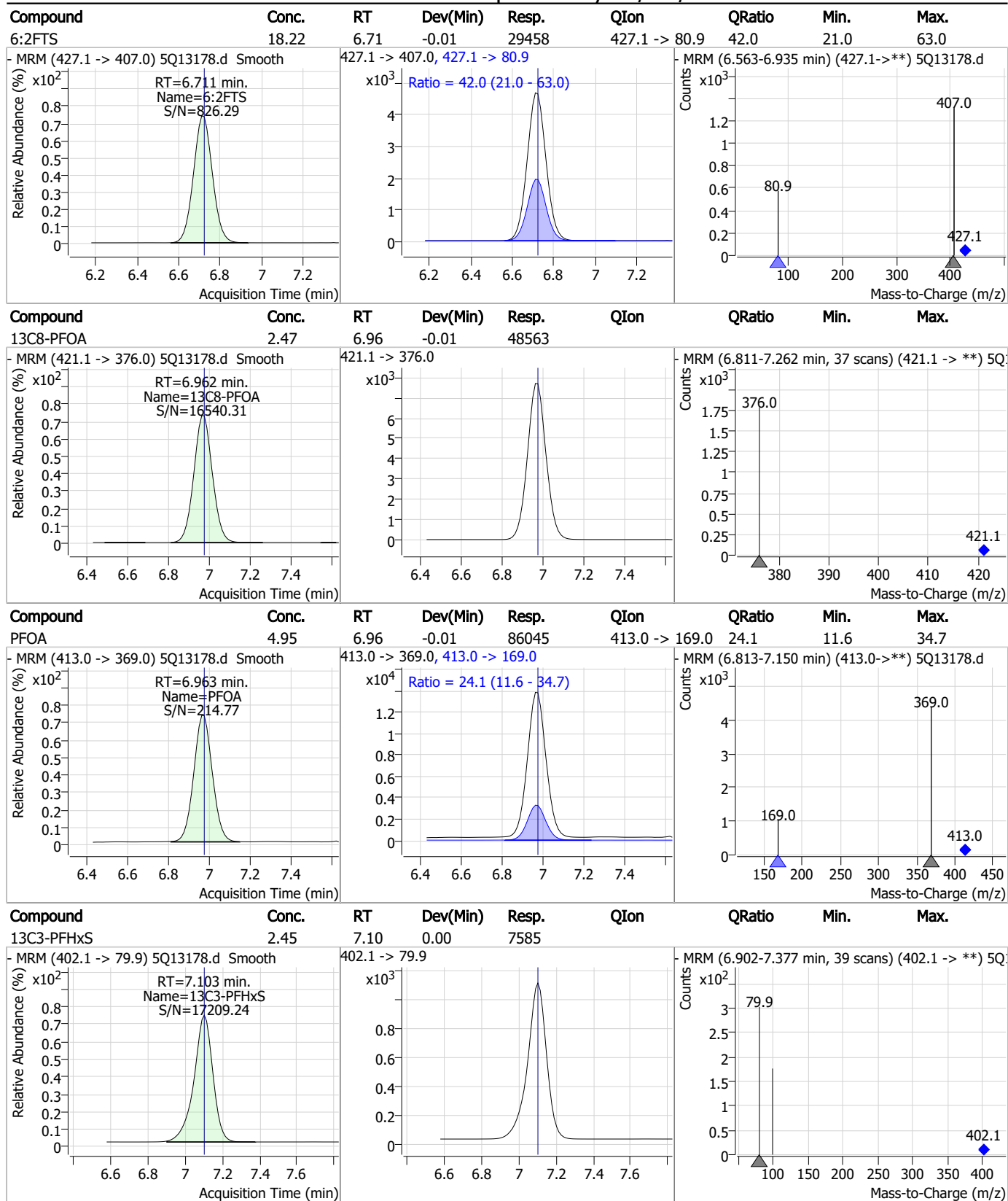
7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS



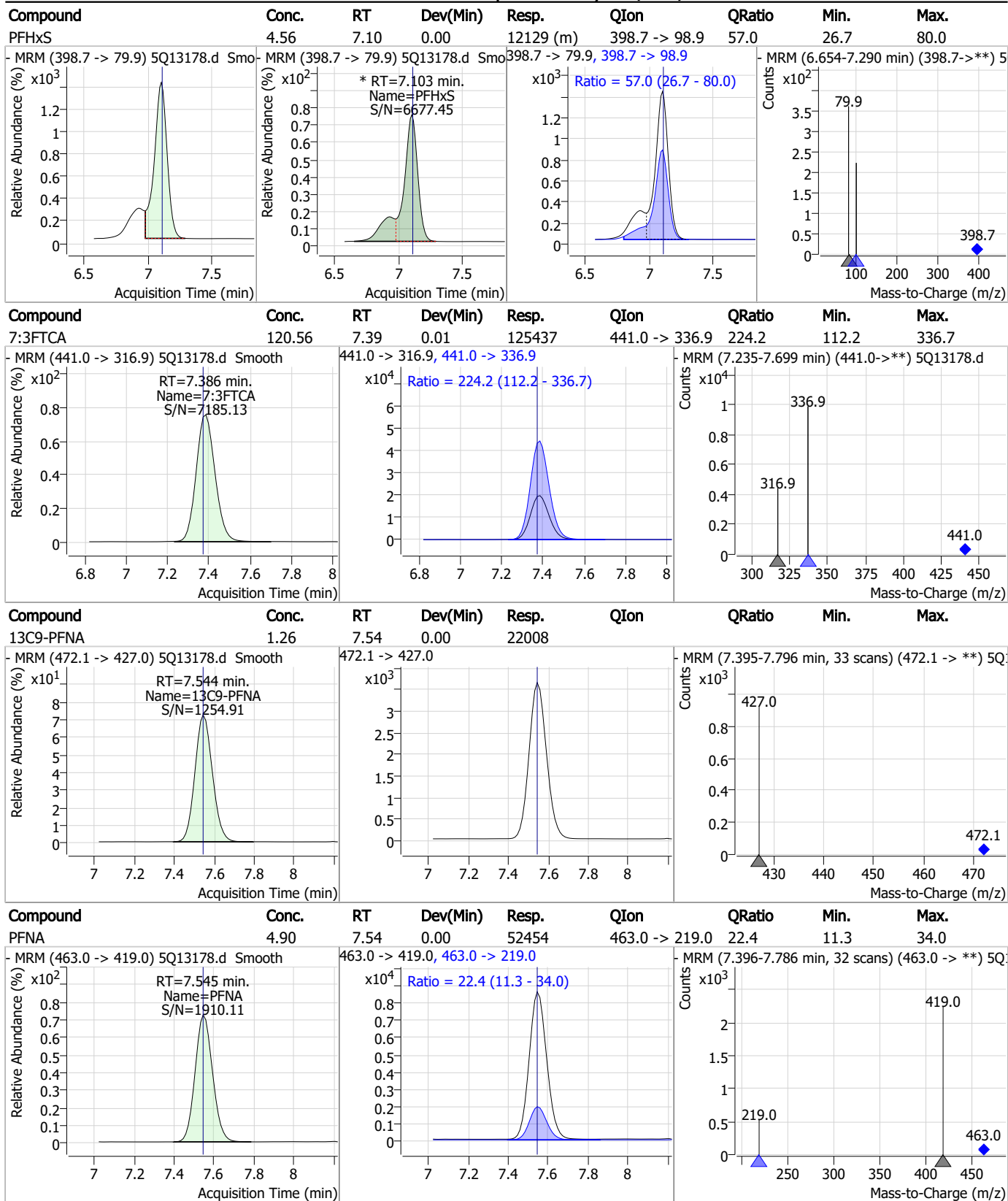
7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS



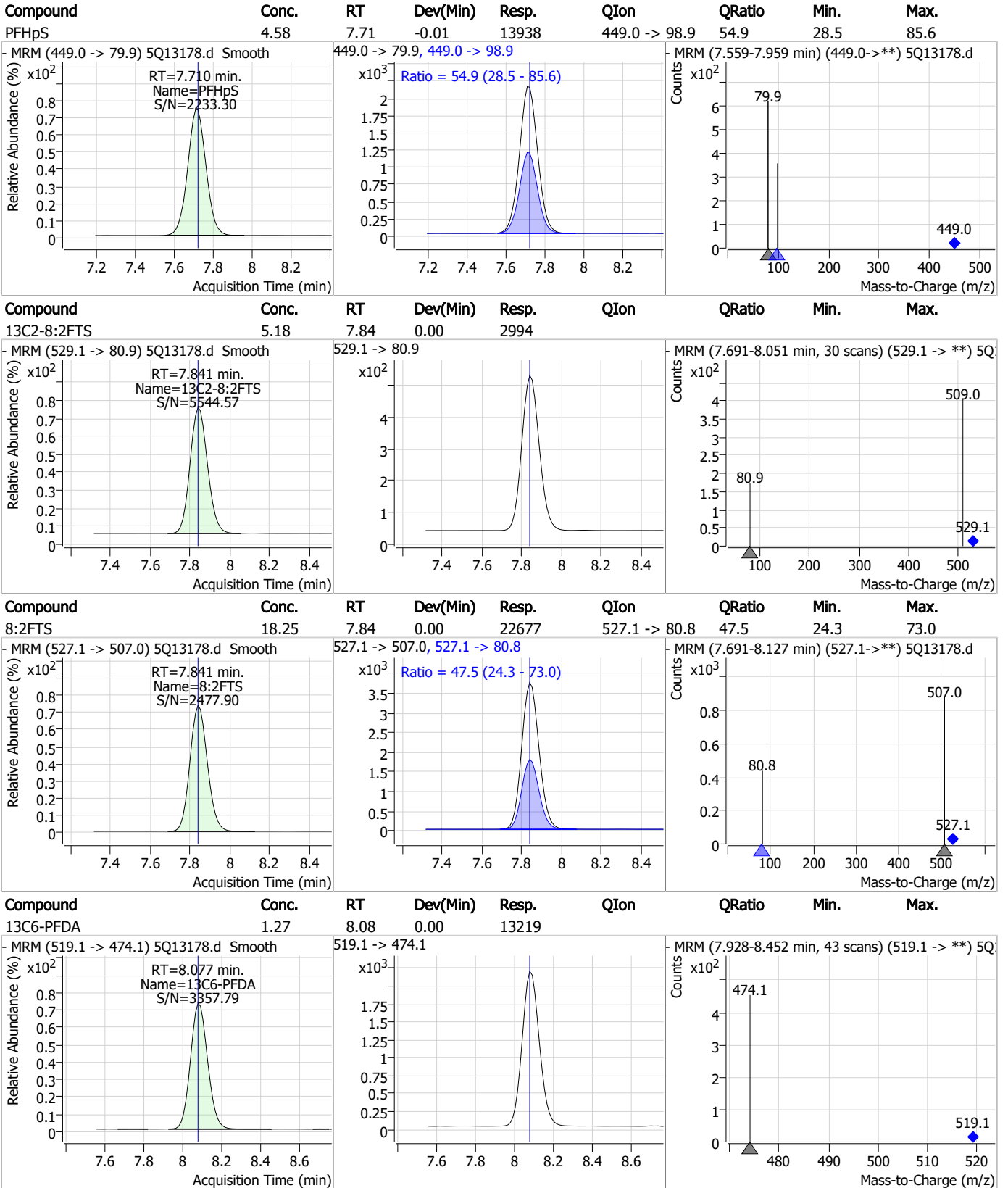
7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS

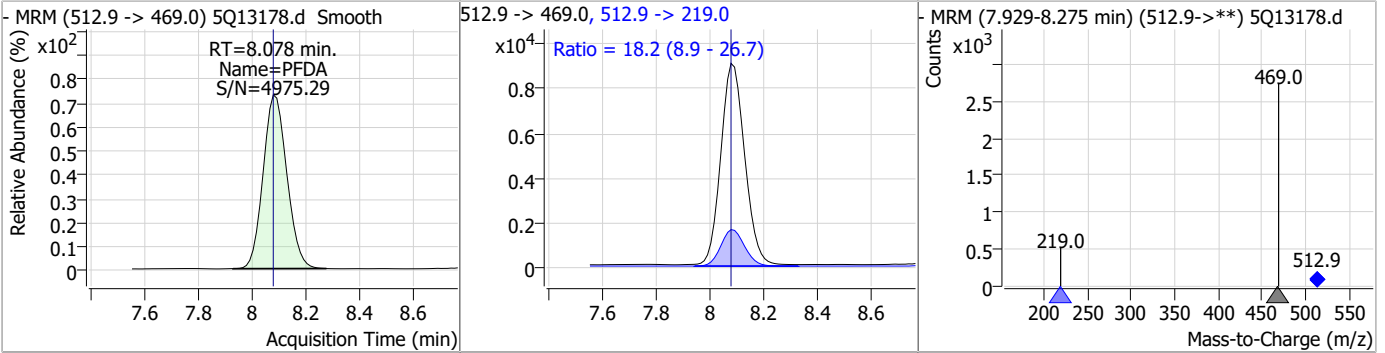


7.7.6

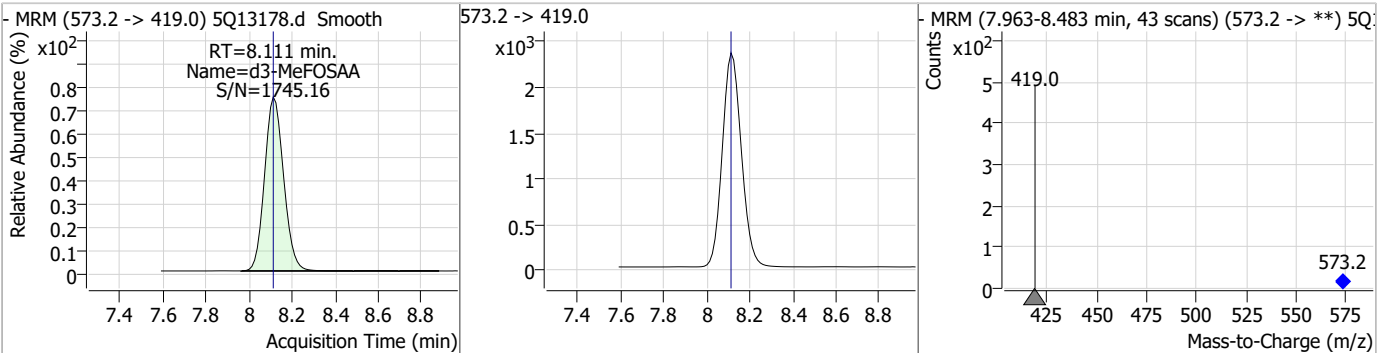
7

### Perfluorinated Compounds by LC/MS/MS

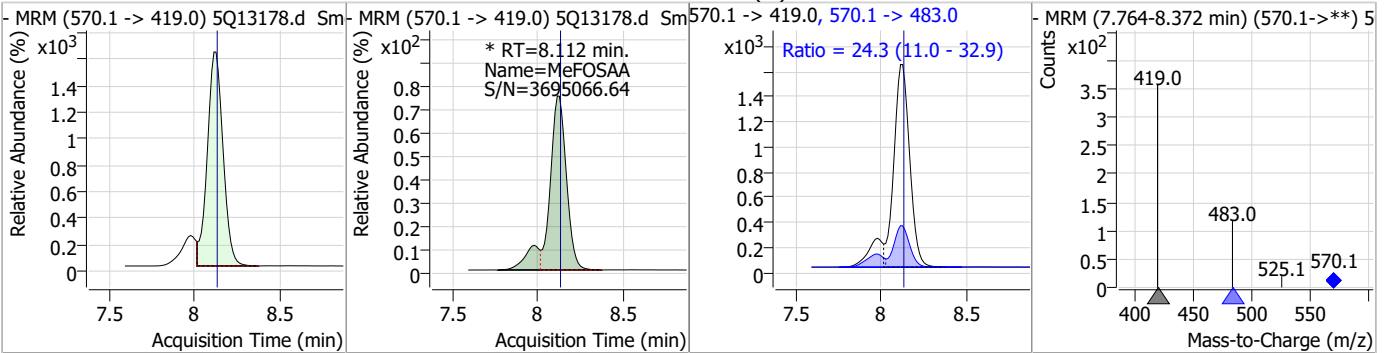
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	4.69	8.08	0.00	55166	512.9 -> 219.0	18.2	8.9	26.7



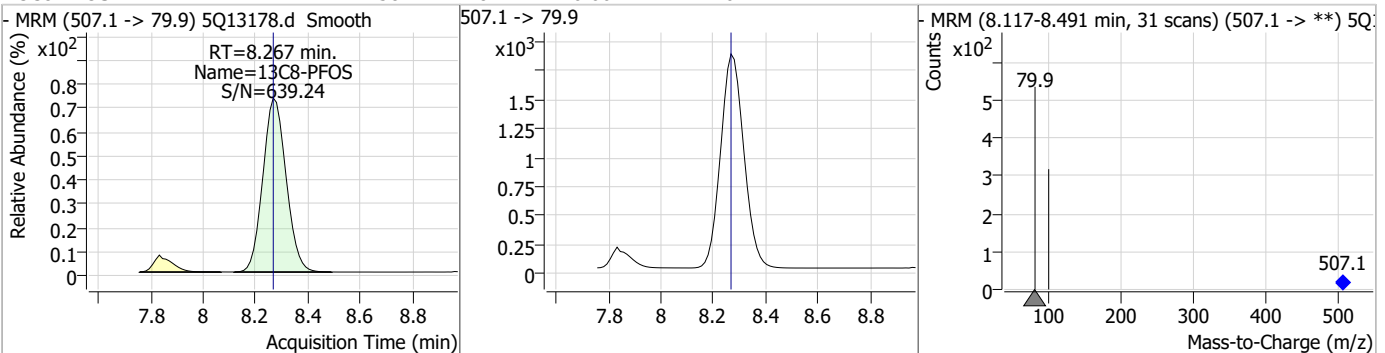
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.05	8.11	0.00	14363				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	4.84	8.11	-0.01	11713 (m)	570.1 -> 483.0	24.3	11.0	32.9



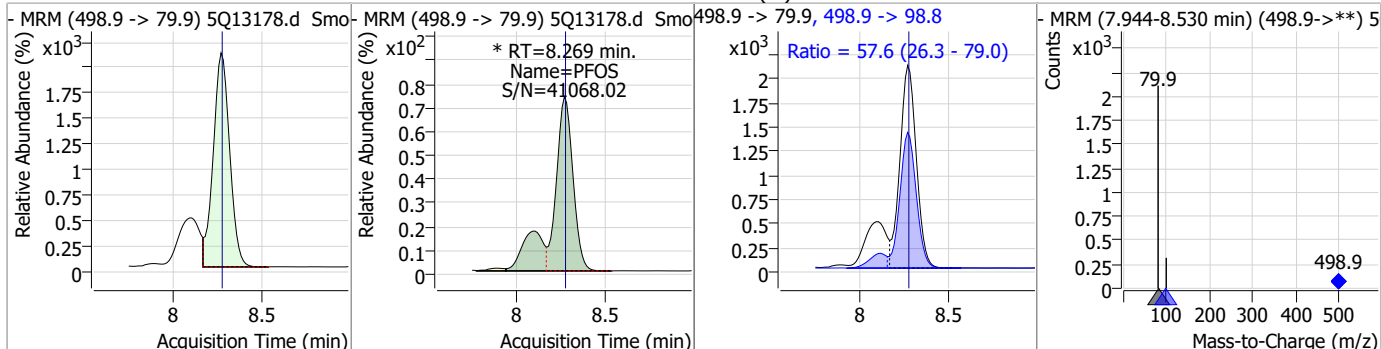
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.58	8.27	0.00	11464				



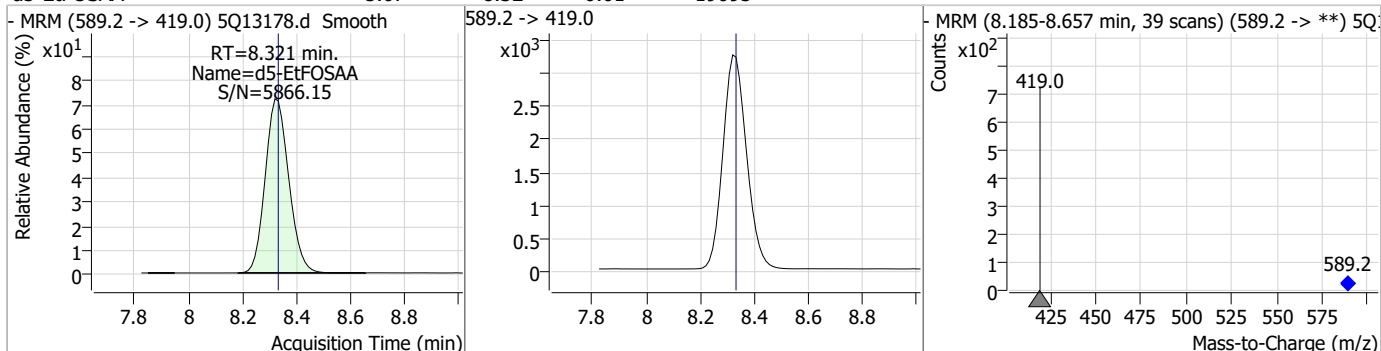


### Perfluorinated Compounds by LC/MS/MS

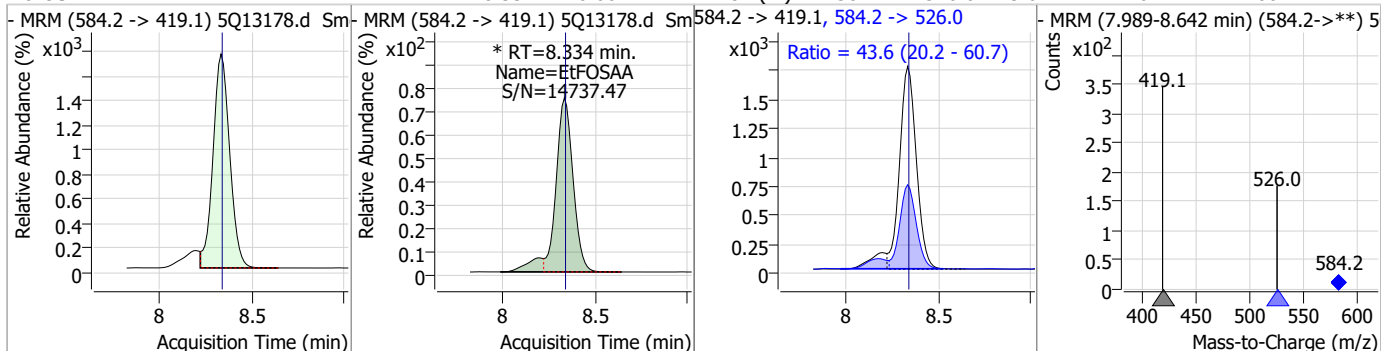
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	4.32	8.27	0.00	17279 (m)	498.9 -> 98.8	57.6	26.3	79.0



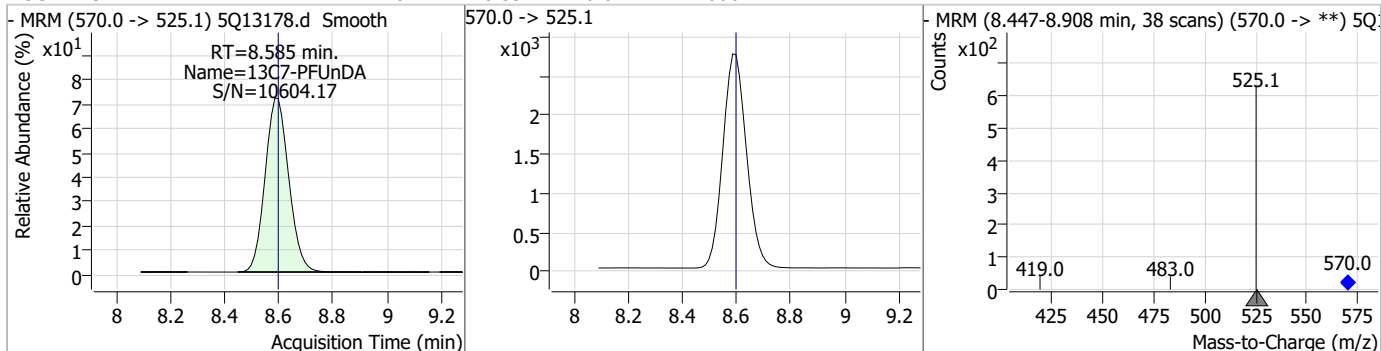
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.07	8.32	-0.01	19695				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	4.72	8.33	0.00	11781 (m)	584.2 -> 526.0	43.6	20.2	60.7

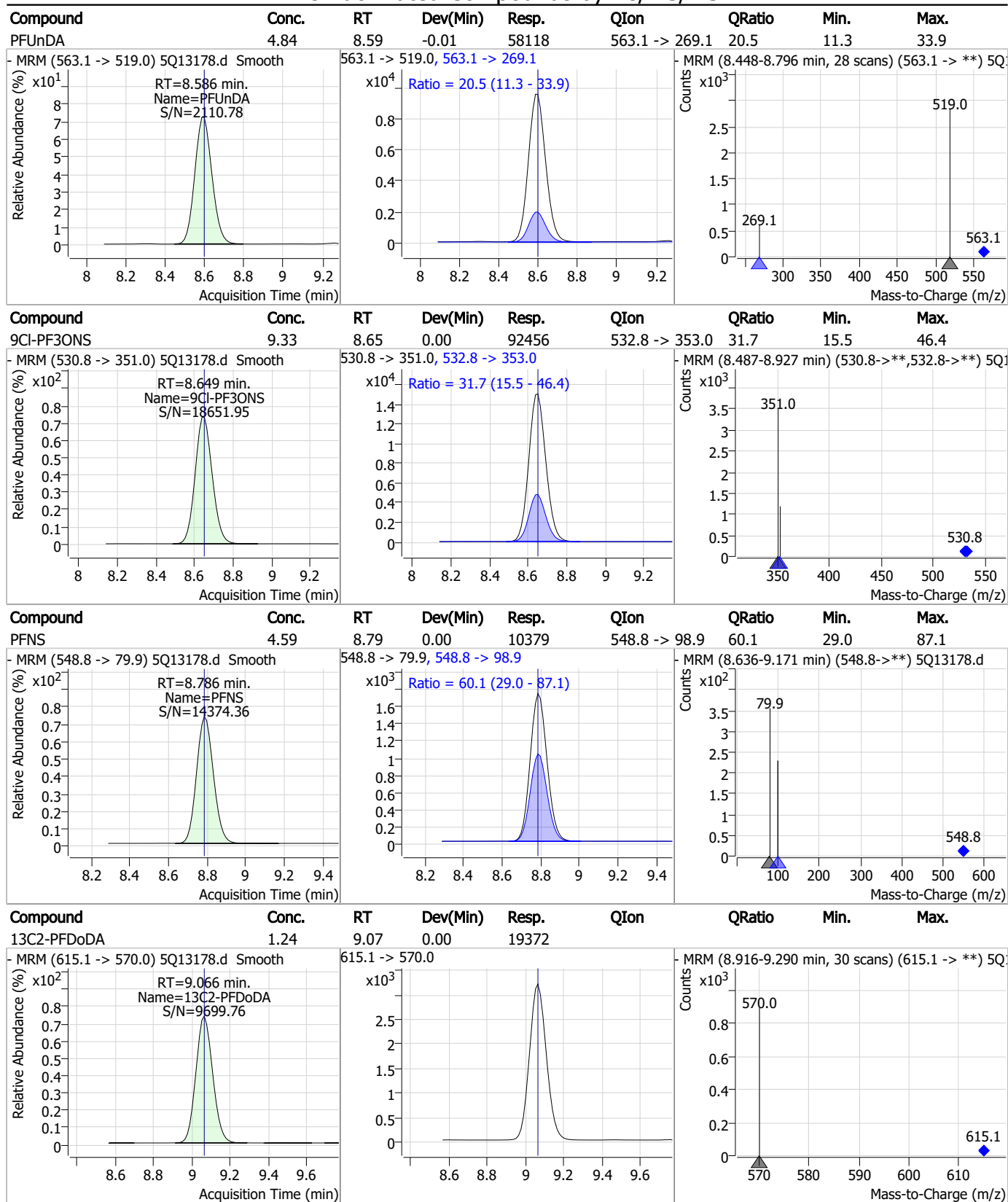


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.59	-0.01	16667				



7.7.6  
7

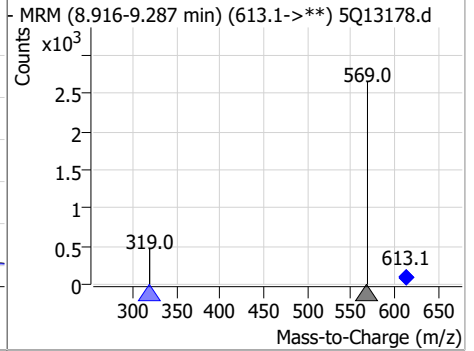
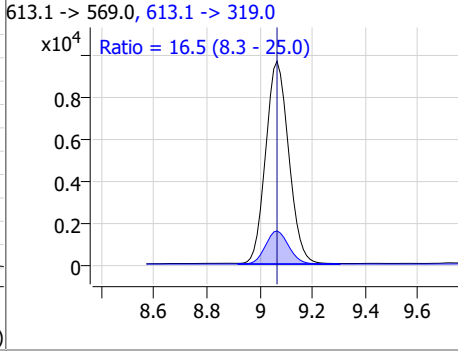
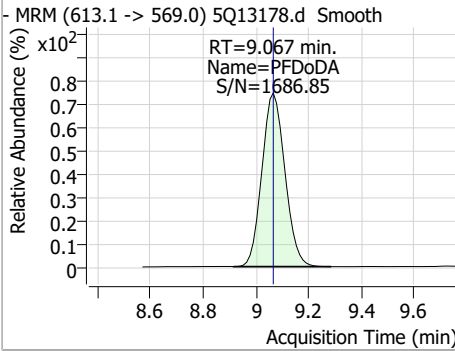
### Perfluorinated Compounds by LC/MS/MS



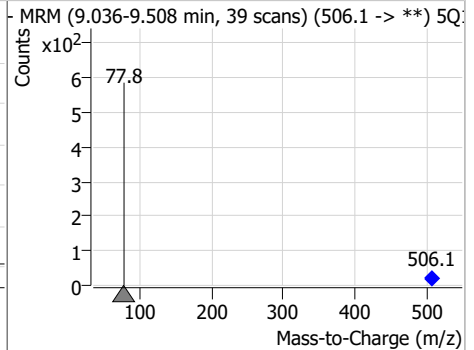
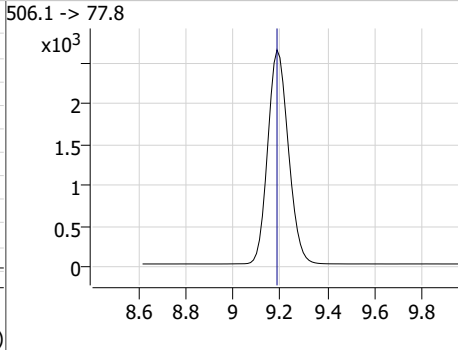
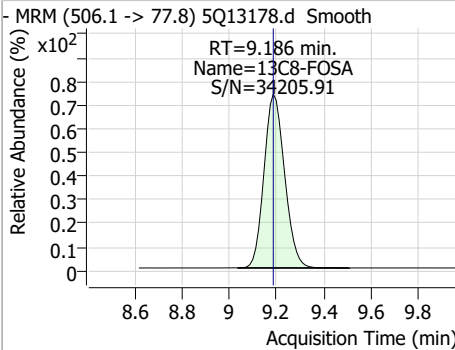
7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS

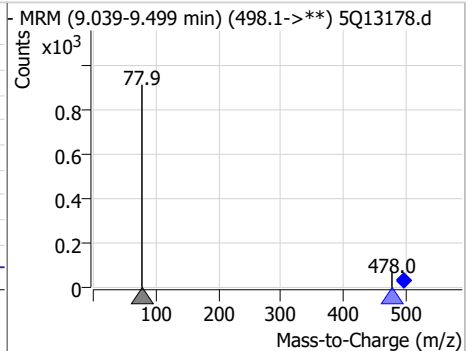
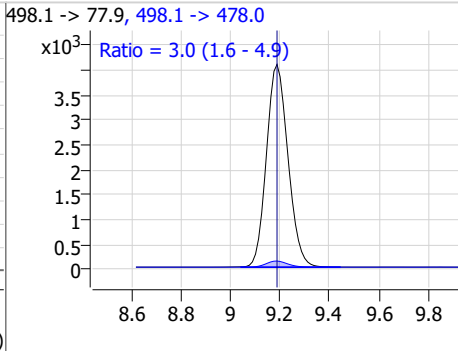
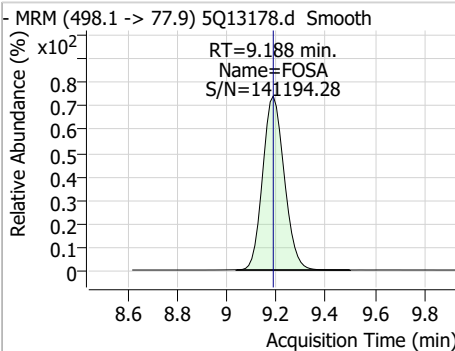
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	4.99	9.07	0.00	58704	613.1 -> 319.0	16.5	8.3	25.0



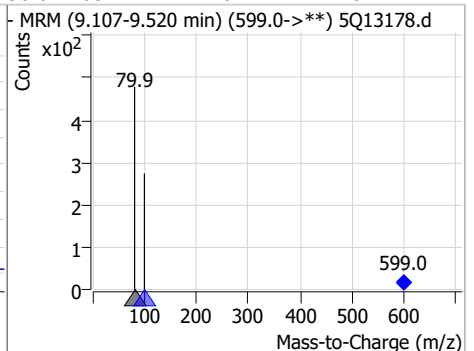
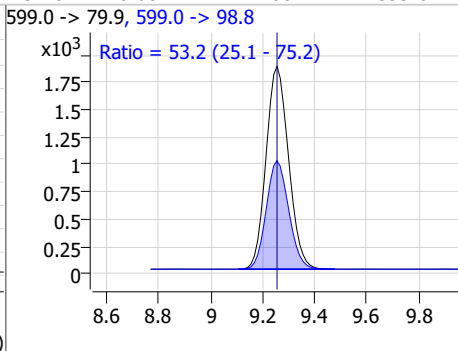
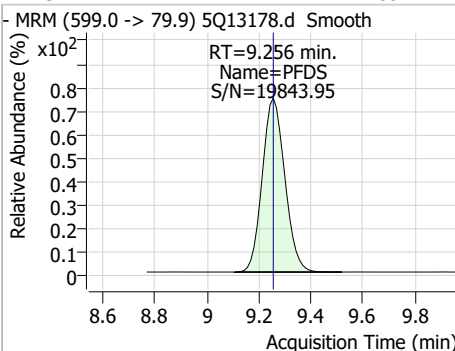
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.19	0.00	15820				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.98	9.19	0.00	24664	498.1 -> 478.0	3.0	1.6	4.9



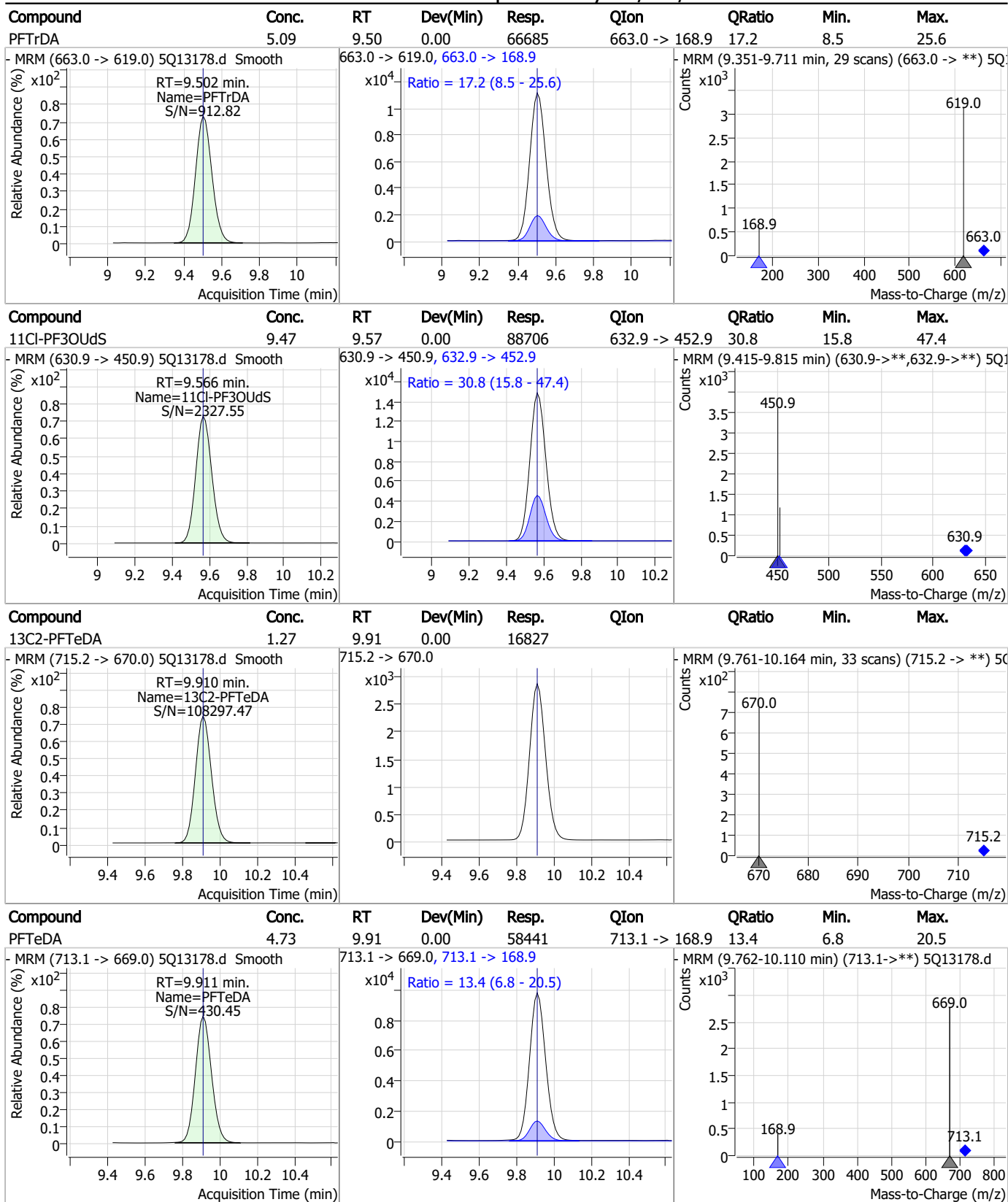
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	4.59	9.26	0.00	11166	599.0 -> 98.8	53.2	25.1	75.2



7.7.6

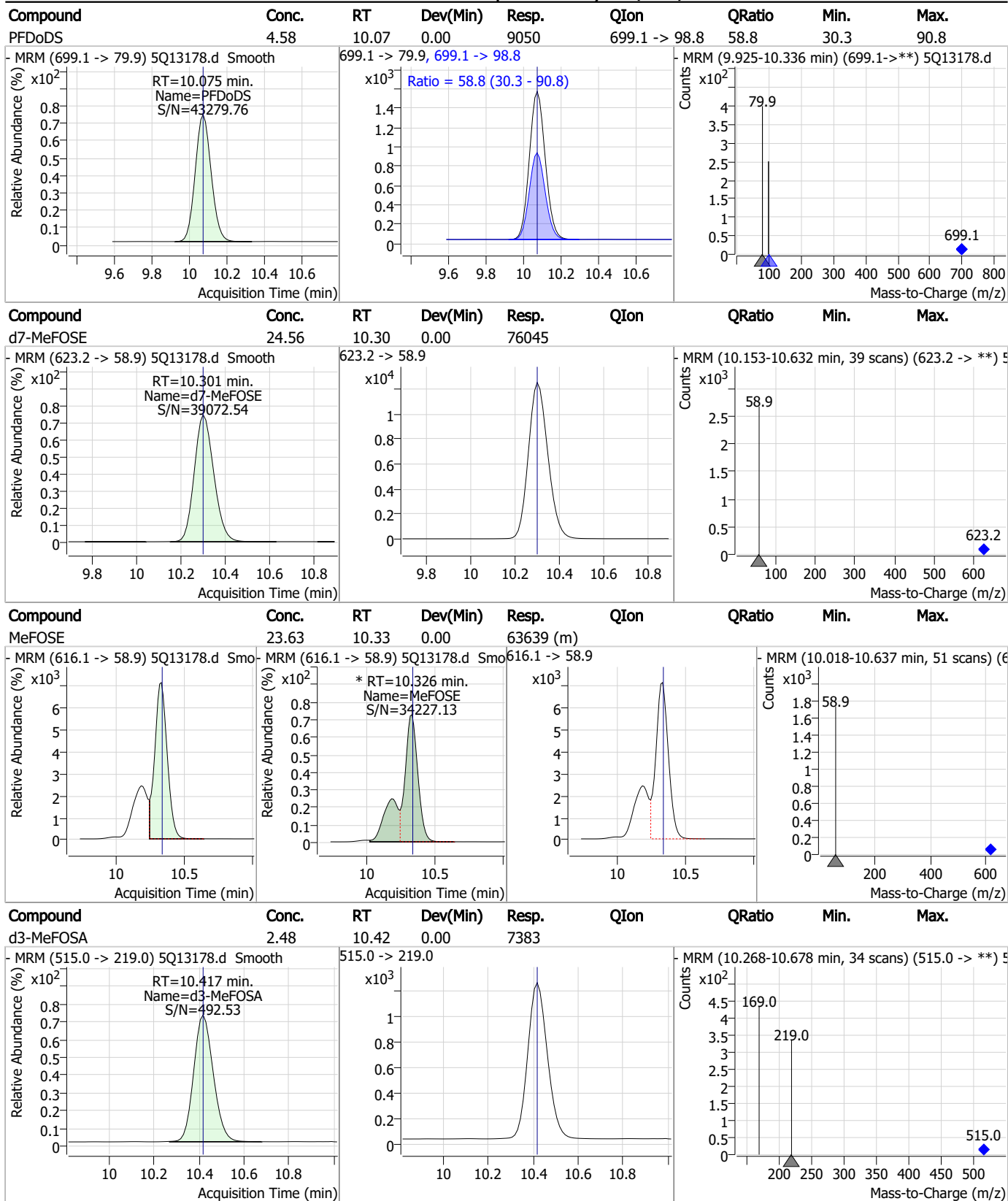
7

### Perfluorinated Compounds by LC/MS/MS



7.7.6  
7

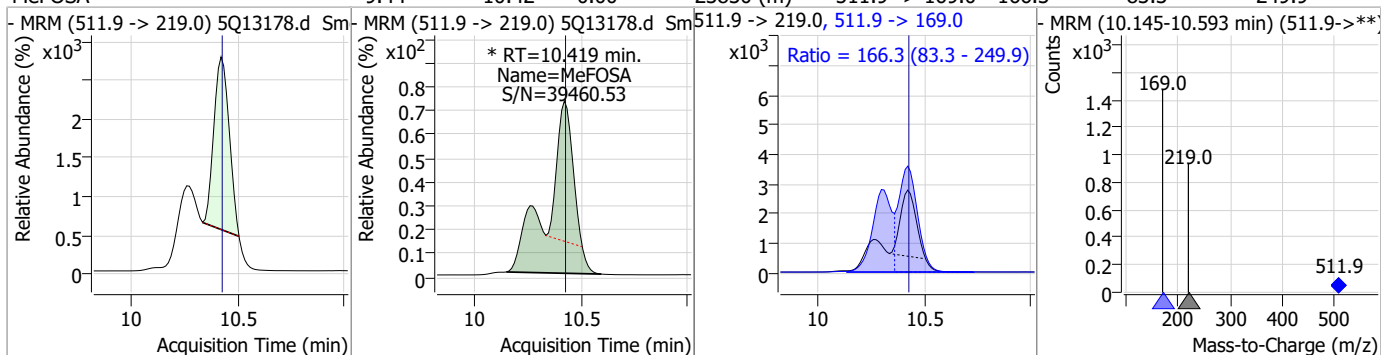
### Perfluorinated Compounds by LC/MS/MS



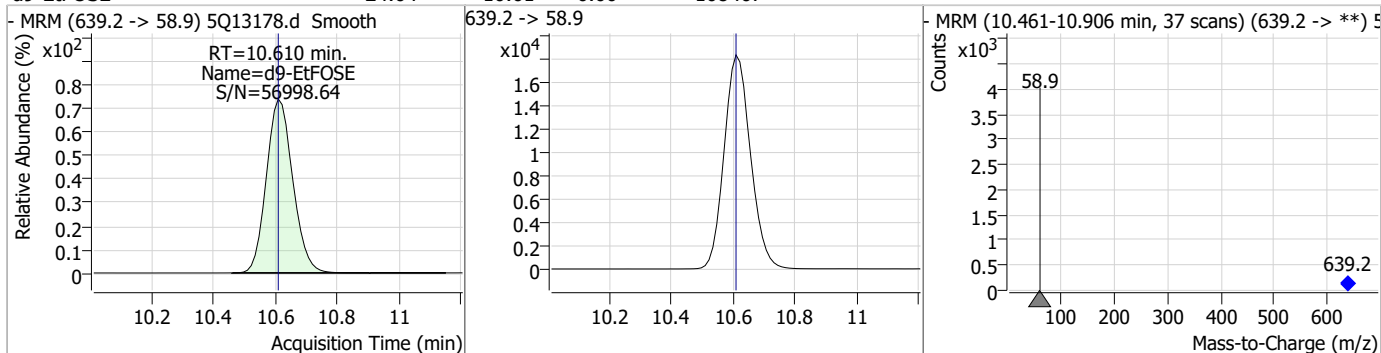
7.7.6  
7

### Perfluorinated Compounds by LC/MS/MS

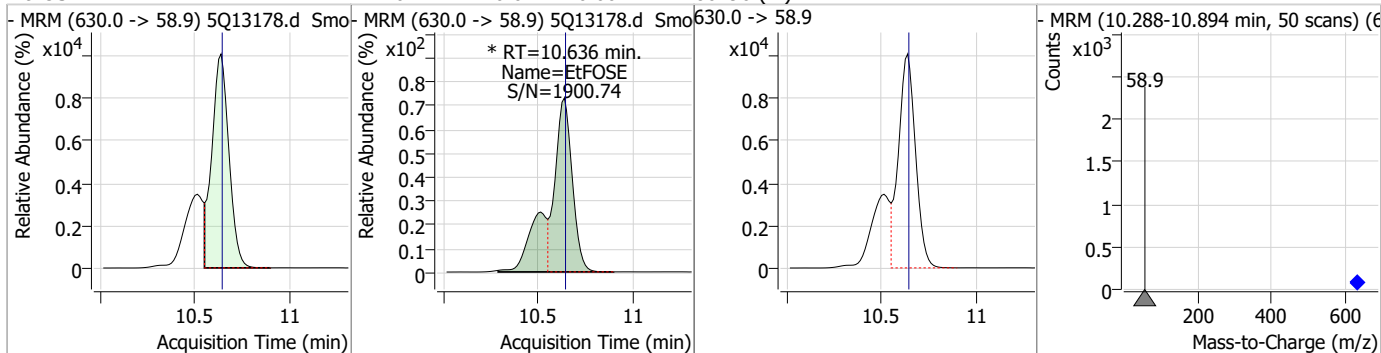
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	9.44	10.42	0.00	23830 (m)	511.9 -> 169.0	166.3	83.3	249.9



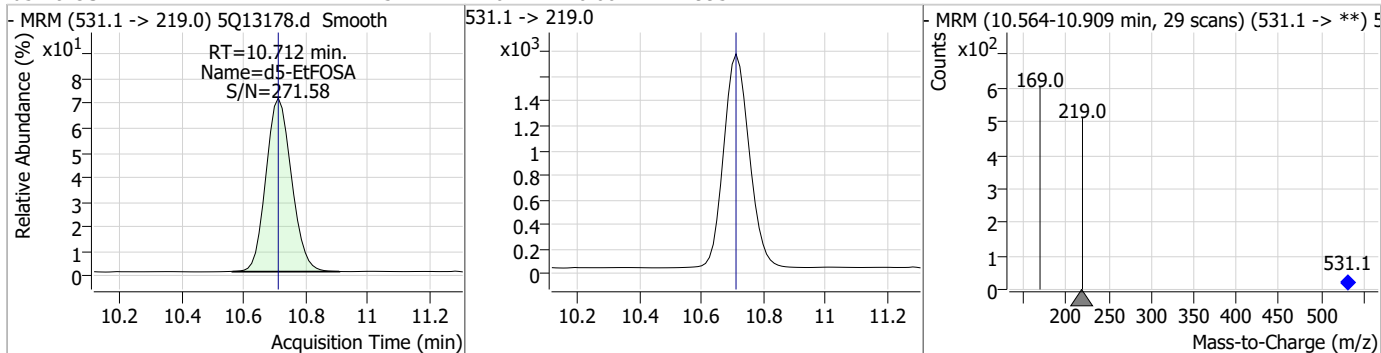
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.64	10.61	0.00	108467				



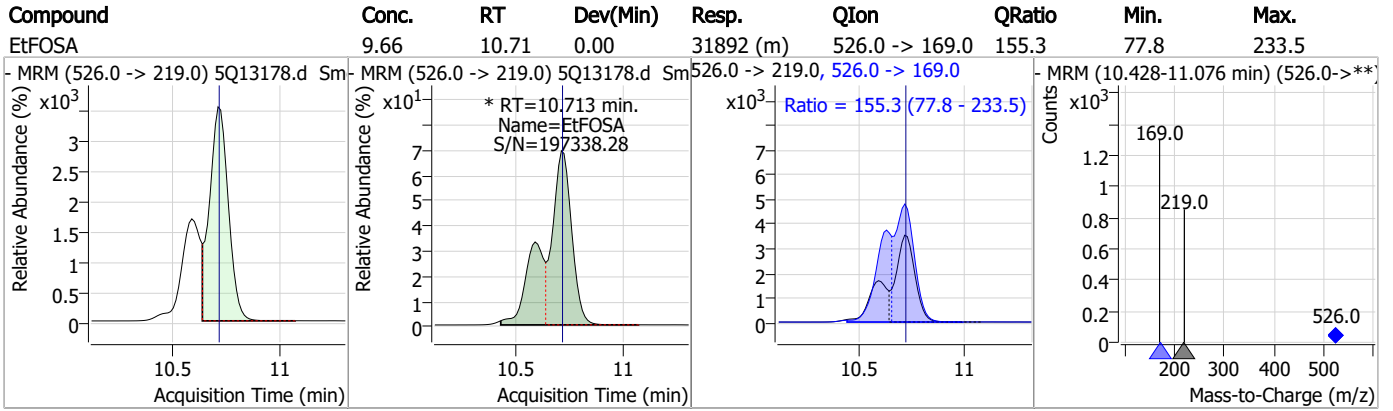
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	24.01	10.64	0.00	86296 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.52	10.71	0.00	9957				



Perfluorinated Compounds by LC/MS/MS



7.7.6

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-IC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13178.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 19:53      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.78	Poor instrument integration
13C3-PFBA			2.78	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.78	Poor instrument integration
13C3-PFBS			5.25	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.25	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
MeFOSAA	2355-31-9		8.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.6.1  
7



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

**Norman Farmer**  
**04/21/23 10:44**

## Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13179.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 8:07:30 PM  
 Sample Name : ic205-6  
 Vial : P3-A7  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.777	216.8 -> 171.9	63330	10.00	µg/L	m 0.012
M5-PFPeA	4.116	268.3 -> 223.0	47636	5.00	µg/L	0.000
M5-PFHxA	5.309	318.0 -> 273.0	41754	2.50	µg/L	0.000
M4-PFHpA	6.291	367.1 -> 322.0	37882	2.50	µg/L	0.000
M8-PFOA	6.974	421.1 -> 376.0	50754	2.50	µg/L	0.000
M9-PFNA	7.544	472.1 -> 427.0	22489	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	13245	1.25	µg/L	0.000
M7-PFUnDA	8.585	570.0 -> 525.1	16187	1.25	µg/L	-0.012
M2-PFDoDA	9.066	615.1 -> 570.0	19041	1.25	µg/L	0.000
M2-PFTeDA	9.910	715.2 -> 670.0	16953	1.25	µg/L	0.000
M8-FOSA	9.186	506.1 -> 77.8	16204	2.50	µg/L	0.000
M3-PFBS	5.251	302.1 -> 79.9	7991	2.50	µg/L	m 0.000
M3-PFHxS	7.103	402.1 -> 79.9	7906	2.50	µg/L	0.000
M8-PFOS	8.267	507.1 -> 79.9	10981	2.50	µg/L	0.000
M2-4:2FTS	4.972	329.1 -> 80.9	802	5.00	µg/L	0.012
M2-6:2FTS	6.723	429.1 -> 80.9	1847	5.00	µg/L	0.000
M2-8:2FTS	7.841	529.1 -> 80.9	2757	5.00	µg/L	0.000
M3-MeFOSAA	8.112	573.2 -> 419.0	14337	5.00	µg/L	0.000
M3-HFPO-DA	5.701	286.9 -> 168.9	85135	10.00	µg/L	0.000
M5-EtFOSAA	8.333	589.2 -> 419.0	18337	5.00	µg/L	0.000
M7-MeFOSE	10.301	623.2 -> 58.9	77102	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	109502	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	10254	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7857	2.50	µg/L	0.000
13C4-PFOS	8.268	502.8 -> 79.9	10729	2.50	µg/L	0.000
13C3-PFBA	2.780	216.0 -> 172.0	32944	5.00	µg/L	m 0.012
18O2-PFHxS	7.102	403.0 -> 83.9	5243	2.50	µg/L	0.000
13C4-PFOA	6.975	417.1 -> 372.0	60994	2.50	µg/L	0.000
13C2-PFDA	8.078	515.1 -> 470.1	19701	1.25	µg/L	0.000
13C5-PFNA	7.544	468.0 -> 423.0	21801	1.25	µg/L	0.000
13C2-PFHxA	5.310	315.1 -> 270.0	44500	2.50	µg/L	0.000
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.972	329.1 -> 80.9	802	4.42	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 88.5%			
13C2-6:2FTS	6.723	429.1 -> 80.9	1847	4.62	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.5%			
13C2-8:2FTS	7.841	529.1 -> 80.9	2757	4.59	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.9%			
13C2-PFDoDA	9.066	615.1 -> 570.0	19041	1.22	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%			
13C2-PFTeDA	9.910	715.2 -> 670.0	16953	1.28	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.3%			
13C3-PFBS	5.251	302.1 -> 79.9	7666	2.39	µg/L	m 0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%			
13C3-PFHxS	7.103	402.1 -> 79.9	7906	2.46	µg/L	0.000

7.7.7  
7



### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C4-PFBA	2.777	216.8 -> 171.9	63330	10.03 µg/L m	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C4-PFHpA	6.291	367.1 -> 322.0	37882	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C5-PFHxA	5.309	318.0 -> 273.0	41754	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.0%		
13C5-PFPeA	4.116	268.3 -> 223.0	47636	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C6-PFDA	8.077	519.1 -> 474.1	13245	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C7-PFUnDA	8.585	570.0 -> 525.1	16187	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C8-FOSA	9.186	506.1 -> 77.8	16204	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C8-PFOA	6.974	421.1 -> 376.0	50754	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C8-PFOS	8.267	507.1 -> 79.9	10981	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C9-PFNA	7.544	472.1 -> 427.0	22489	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
d3-MeFOSAA	8.112	573.2 -> 419.0	14337	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%		
13C3-HFPO-DA	5.701	286.9 -> 168.9	85135	10.25 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
d3-MeFOSA	10.417	515.0 -> 219.0	7857	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.6%		
d5-EtFOSAA	8.333	589.2 -> 419.0	18337	4.67 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.5%		
d7-MeFOSE	10.301	623.2 -> 58.9	77102	24.68 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
d9-EtFOSE	10.610	639.2 -> 58.9	109502	24.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.6%		
d5-EtFOSA	10.712	531.1 -> 219.0	10254	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.7%		
<b>Target Compounds</b>					<b>QValue</b>
4:2FTS	4.973	327.1 -> 307.0	46530	49.25 µg/L	100
		327.1 -> 80.9	24999		
6:2FTS	6.711	427.1 -> 407.0	69932	48.26 µg/L	97
		427.1 -> 80.9	28106		
8:2FTS	7.841	527.1 -> 507.0	53005	46.33 µg/L	95
		527.1 -> 80.8	24163		
EtFOSAA	8.334	584.2 -> 419.1	29048	12.50 µg/L m	99
		584.2 -> 526.0	11543		
FOSA	9.188	498.1 -> 77.9	60907	12.00 µg/L	100
		498.1 -> 478.0	2024		
MeFOSAA	8.125	570.1 -> 419.0	28876	11.95 µg/L m	94
		570.1 -> 483.0	7096		
PFBA	2.783	212.8 -> 168.9	112326	48.68 µg/L m	100
PFBS	5.252	298.7 -> 79.9	27236	10.75 µg/L m	92
		298.7 -> 98.8	11320		
PFDA	8.078	512.9 -> 469.0	138816	11.77 µg/L	100
		512.9 -> 219.0	24929		
PFDoDA	9.067	613.1 -> 569.0	146034	12.62 µg/L	100
		613.1 -> 319.0	24209		
PFDS	9.256	599.0 -> 79.9	27945	11.98 µg/L	95

7.7.7

## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	14873			
PFHpA	6.292	363.1 -> 319.0	188589	12.22	µg/L	97
		363.1 -> 169.0	41190			
PFHpS	7.722	449.0 -> 79.9	35367	12.14	µg/L	98
		449.0 -> 98.9	19684			
PFHxA	5.312	313.0 -> 269.0	127688	12.12	µg/L	100
		313.0 -> 118.9	5760			
PFHxS	7.103	398.7 -> 79.9	30930	11.17	µg/L	m 96
		398.7 -> 98.9	17285			
PFNA	7.545	463.0 -> 419.0	132193	12.08	µg/L	99
		463.0 -> 219.0	30686			
PFNS	8.786	548.8 -> 79.9	26182	12.08	µg/L	100
		548.8 -> 98.9	15181			
PFOA	6.963	413.0 -> 369.0	217476	11.97	µg/L	99
		413.0 -> 169.0	51196			
PFOS	8.269	498.9 -> 79.9	43951	11.47	µg/L	m 95
		498.9 -> 98.8	24772			
PFPeA	4.117	263.0 -> 219.0	223932	24.13	µg/L	100
PFPeS	6.356	349.1 -> 79.9	28860	11.40	µg/L	99
		349.1 -> 98.9	14270			
PFTeDA	9.911	713.1 -> 669.0	143887	11.55	µg/L	100
		713.1 -> 168.9	19534			
PFTrDA	9.502	663.0 -> 619.0	161269	12.52	µg/L	100
		663.0 -> 168.9	27776			
PFUnDA	8.598	563.1 -> 519.0	143472	12.31	µg/L	97
		563.1 -> 269.1	30047			
11Cl-PF3OUdS	9.566	630.9 -> 450.9	220588	22.78	µg/L	99
		632.9 -> 452.9	68090			
9Cl-PF3ONS	8.649	530.8 -> 351.0	229740	22.42	µg/L	99
		532.8 -> 353.0	72959			
ADONA	6.554	376.9 -> 250.9	541539	23.06	µg/L	99
		376.9 -> 84.8	158402			
HFPO-DA	5.702	284.9 -> 168.9	162639	24.31	µg/L	99
		284.9 -> 184.9	14794			
3:3FTCA	3.592	241.0 -> 177.0	37872	62.22	µg/L	99
		241.0 -> 117.0	4209			
5:3FTCA	5.930	341.0 -> 237.1	626145	310.73	µg/L	100
		341.0 -> 217.0	425965			
7:3FTCA	7.386	441.0 -> 316.9	317607	305.33	µg/L	99
		441.0 -> 336.9	706070			
EtFOSA	10.713	526.0 -> 219.0	81022	23.84	µg/L	m 98
		526.0 -> 169.0	124185			
EtFOSE	10.636	630.0 -> 58.9	213607	58.87	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	62684	23.34	µg/L	m 98
		511.9 -> 169.0	102422			
MeFOSE	10.326	616.1 -> 58.9	162168	59.38	µg/L	m 100
PFDoDS	10.075	699.1 -> 79.9	22734	12.00	µg/L	100
		699.1 -> 98.8	13671			
NFDHA	5.190	295.0 -> 201.0	24872	24.24	µg/L	97
		295.0 -> 84.9	6588			
PFMBA	4.517	279.0 -> 85.1	149674	24.72	µg/L	100
PFMPA	3.303	229.0 -> 84.9	111823	23.20	µg/L	100
PFEESA	5.820	314.8 -> 134.9	298904	21.89	µg/L	100
		314.8 -> 82.9	8855			

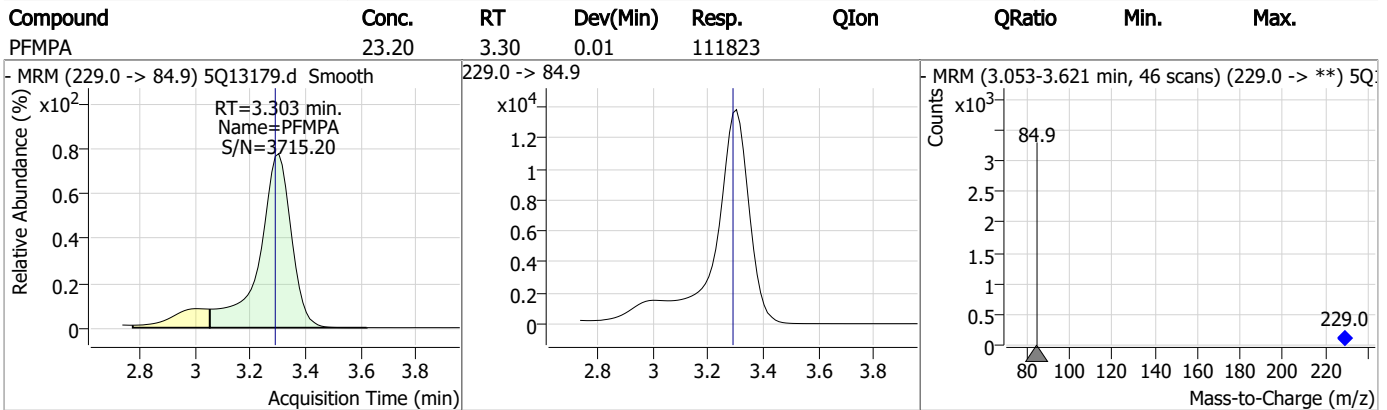
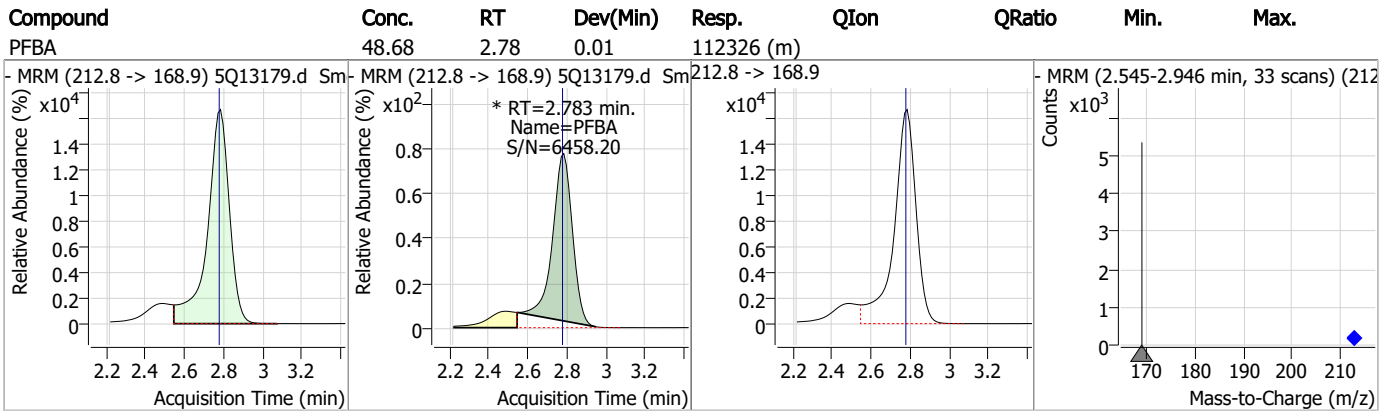
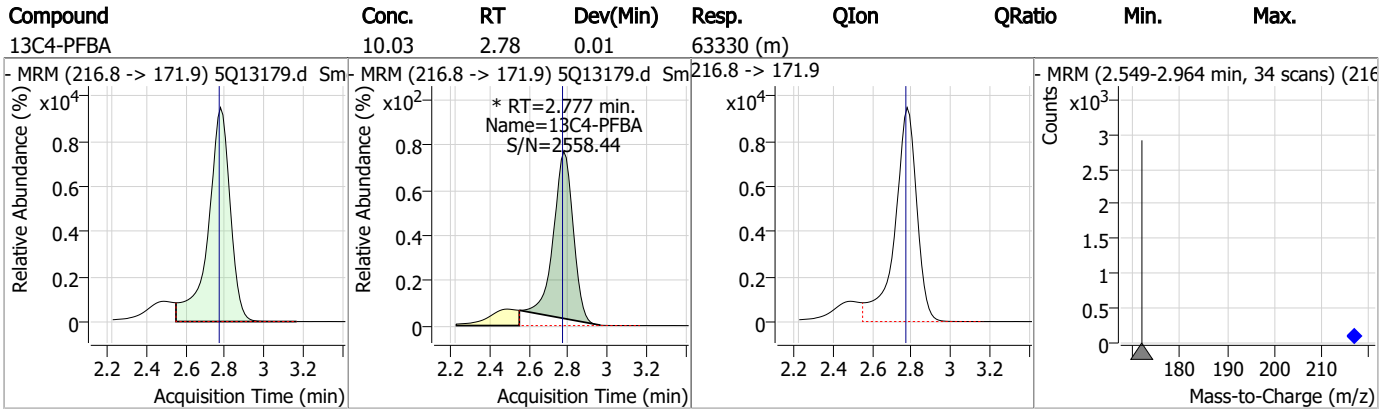
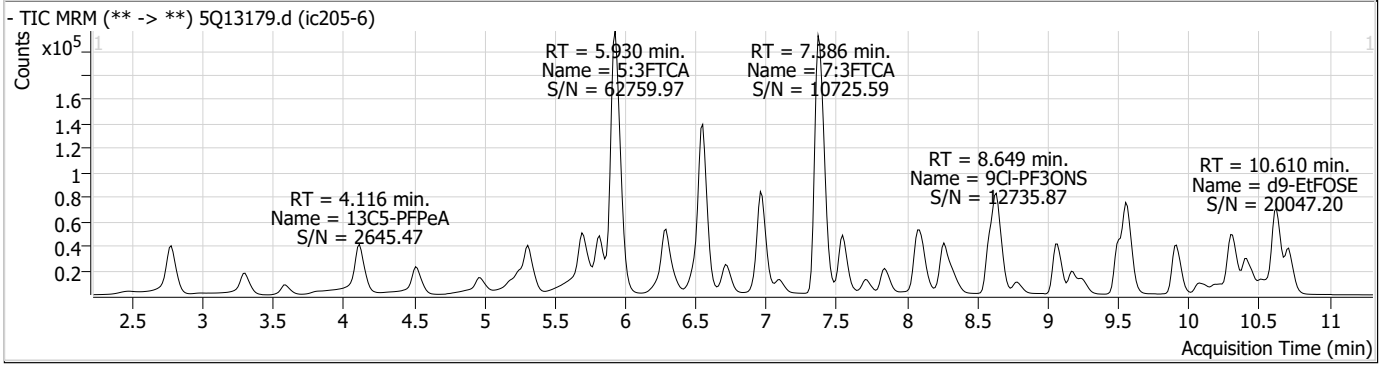
# = Qualifier out of range, m = manually integrated, + = Area summed

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
----------	----	------------	----------	-------	-------	----------

7.7.7  
7

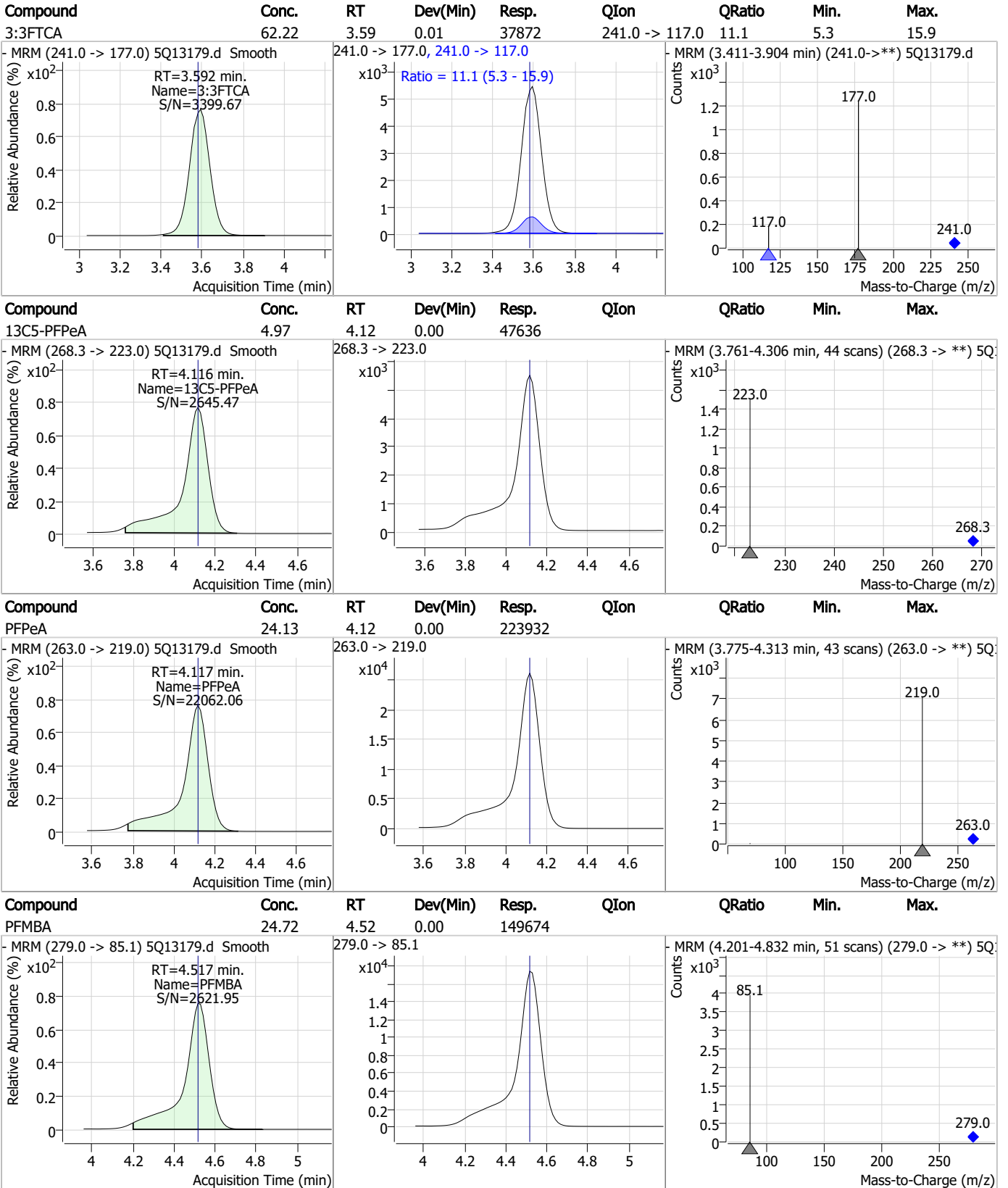
### Perfluorinated Compounds by LC/MS/MS



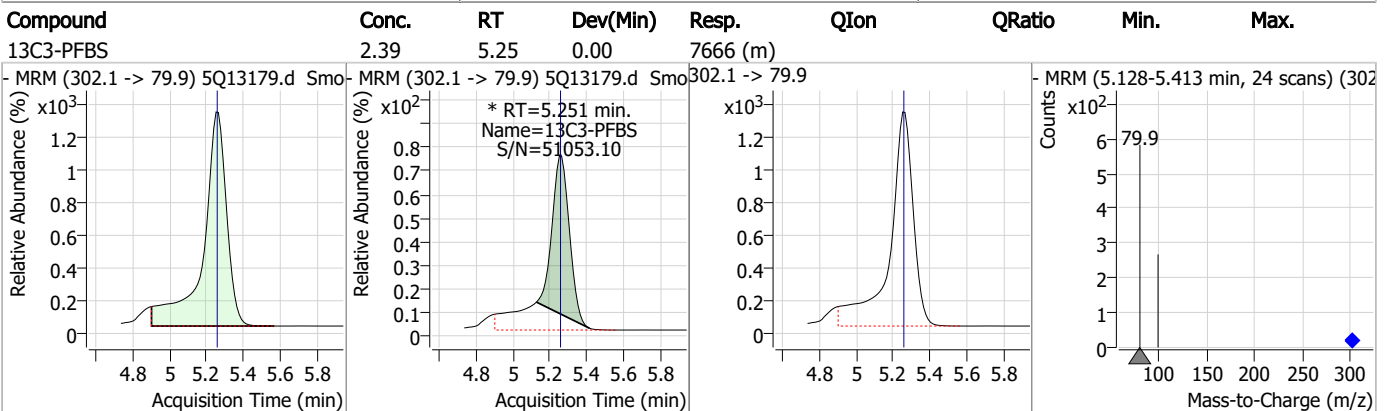
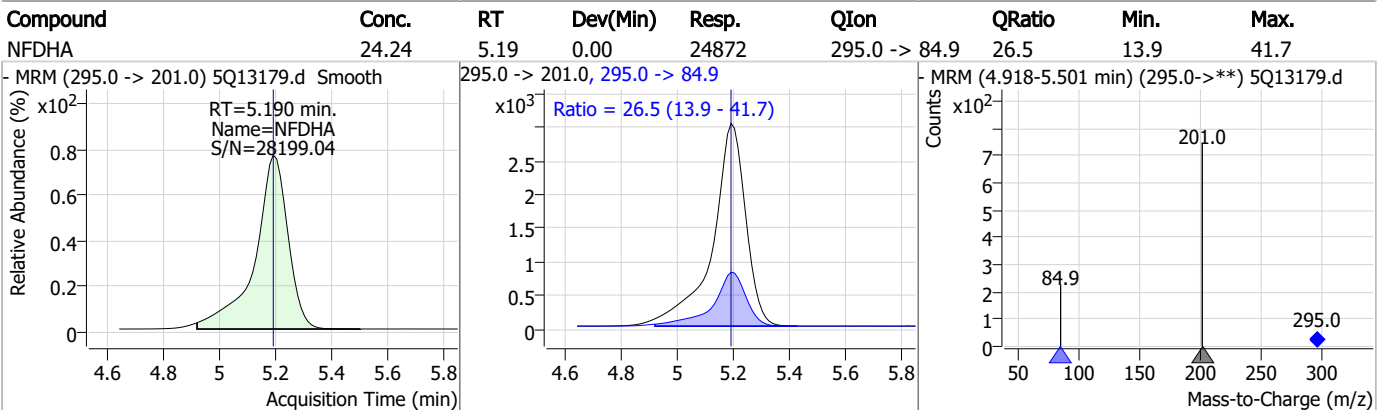
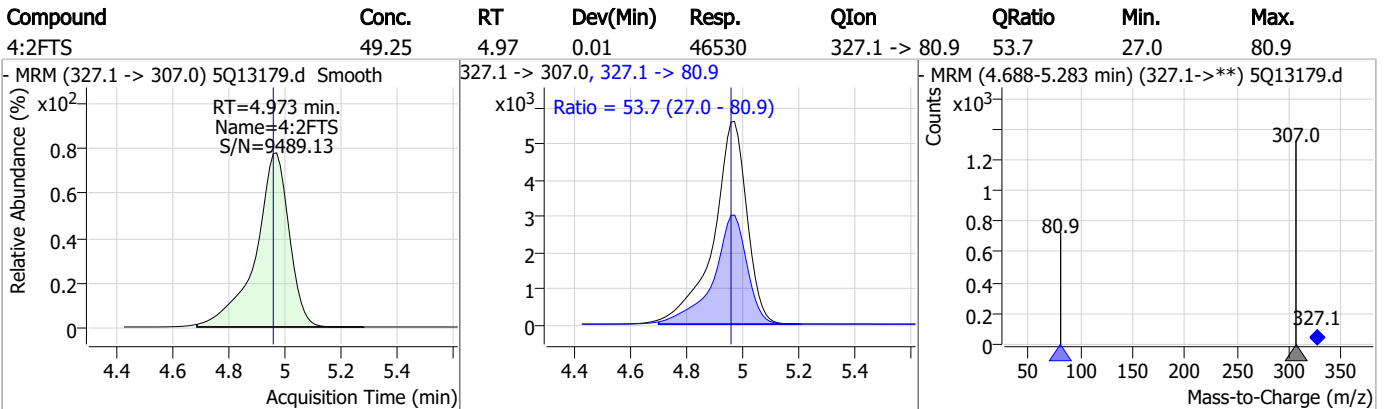
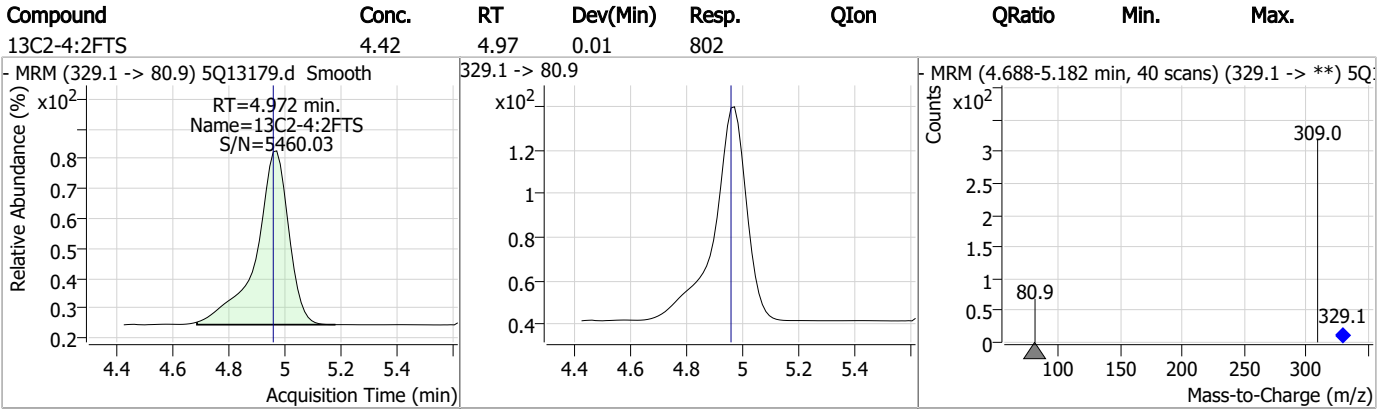
7.7.7

7

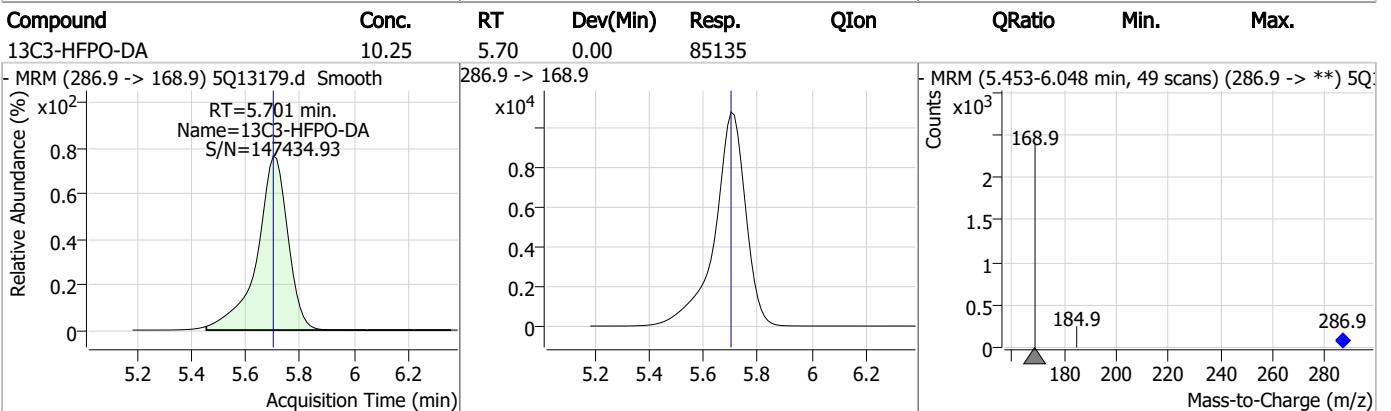
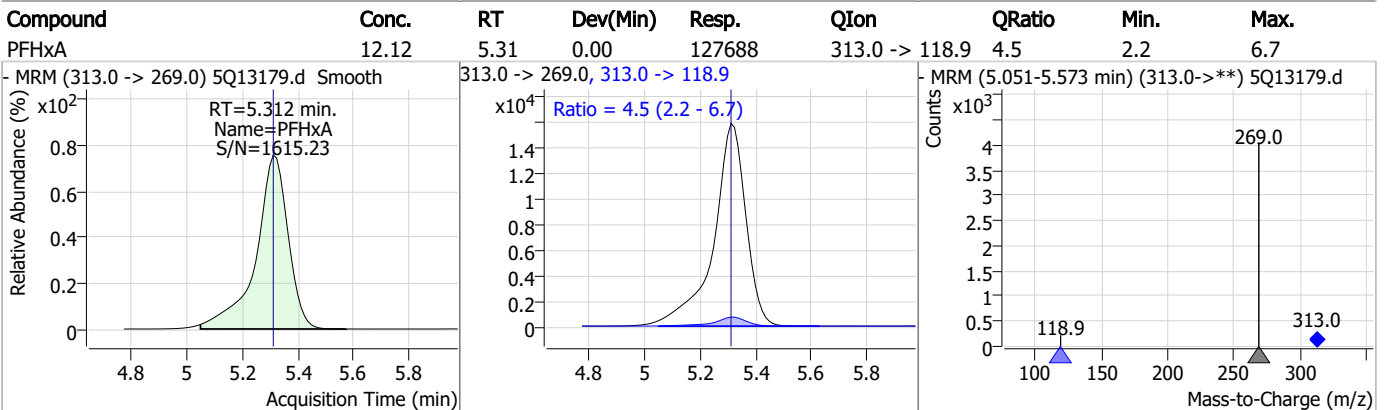
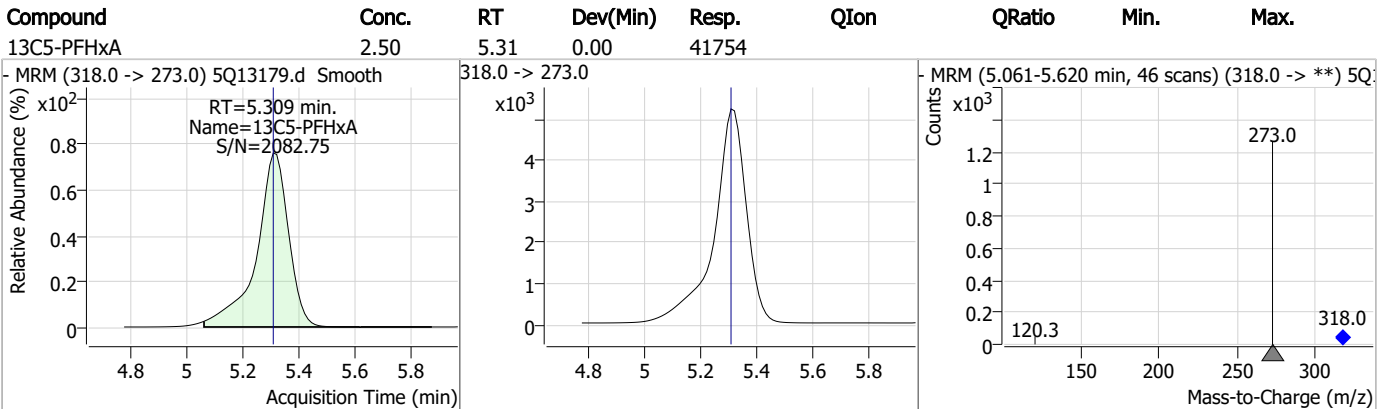
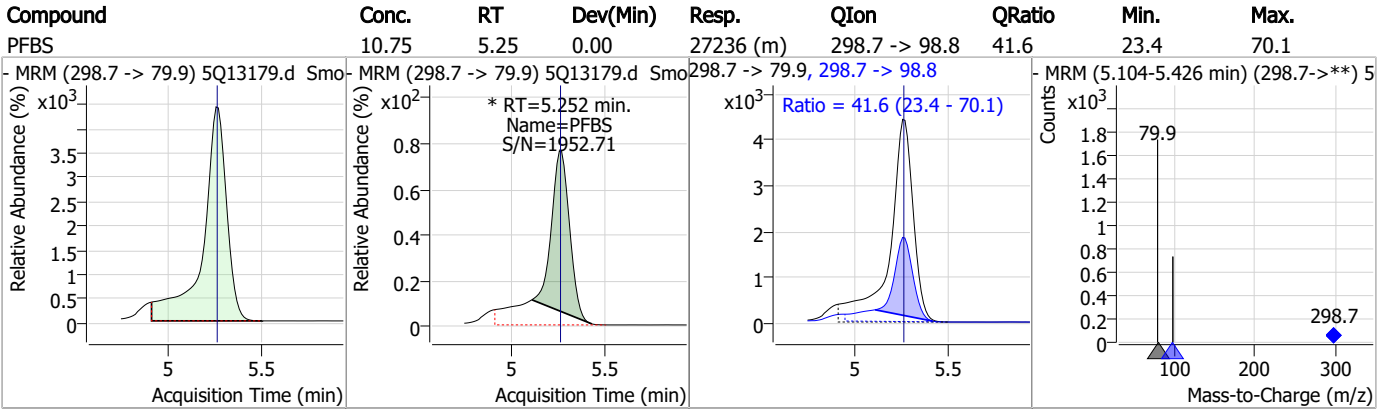
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

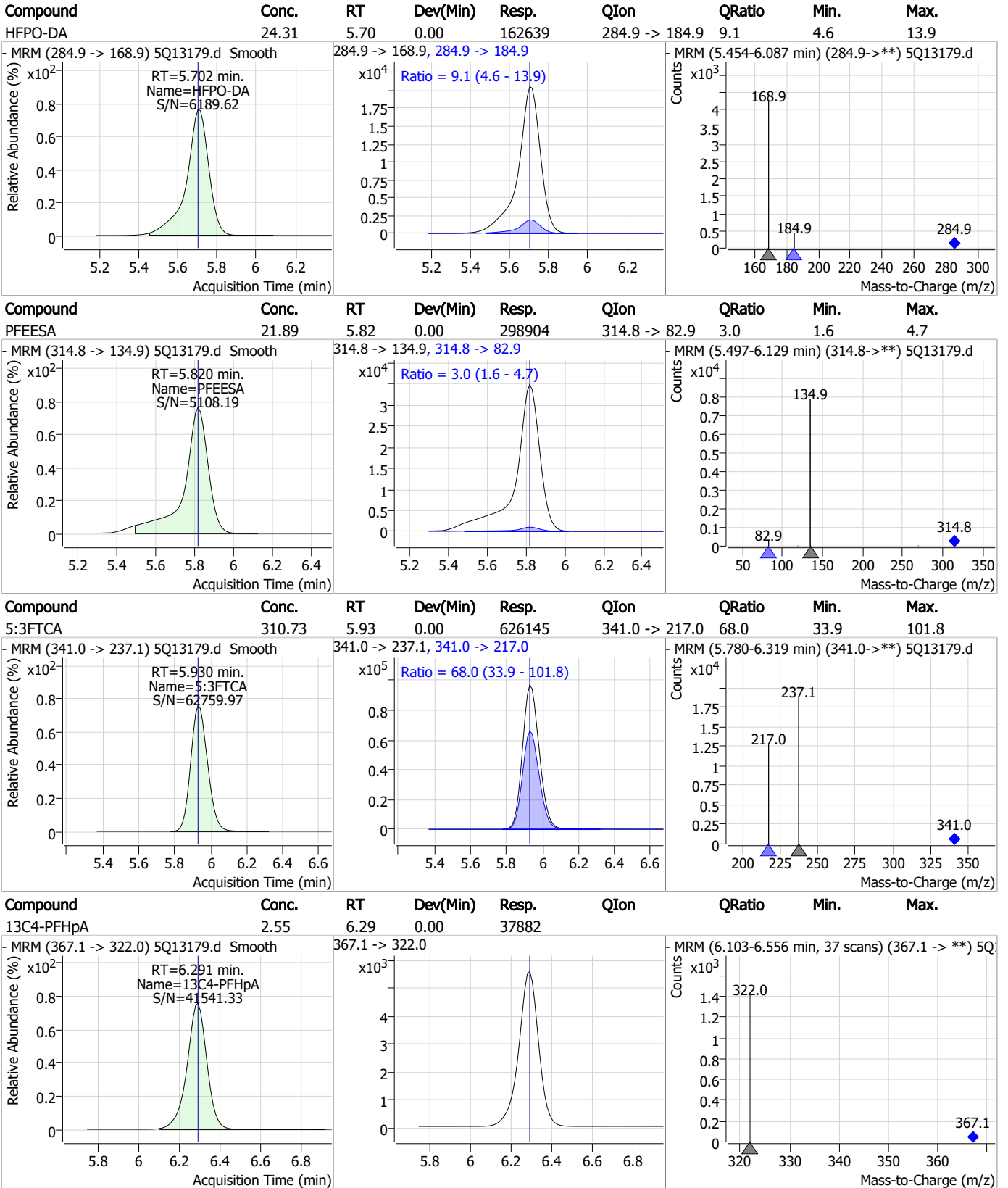


### Perfluorinated Compounds by LC/MS/MS



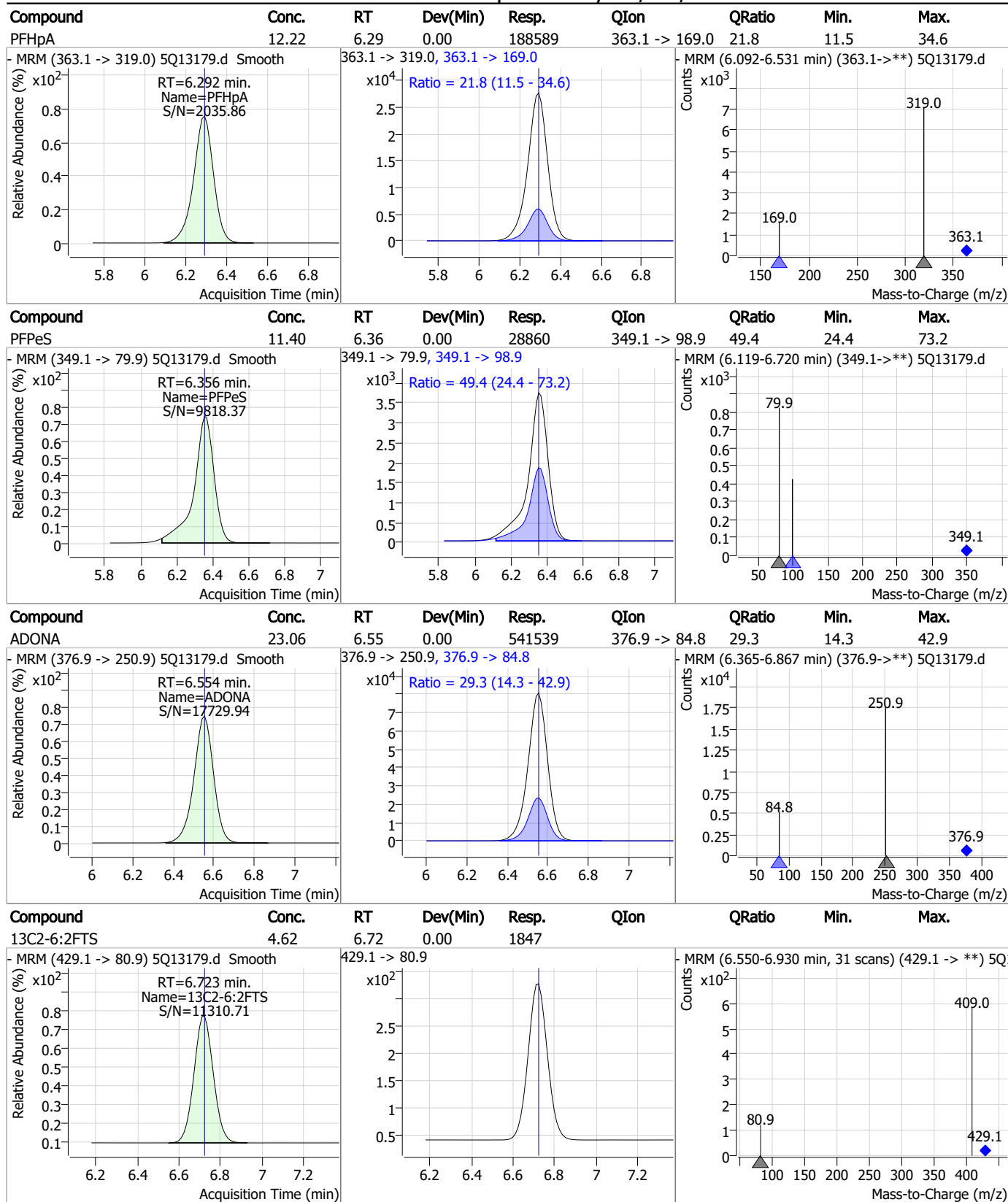


### Perfluorinated Compounds by LC/MS/MS



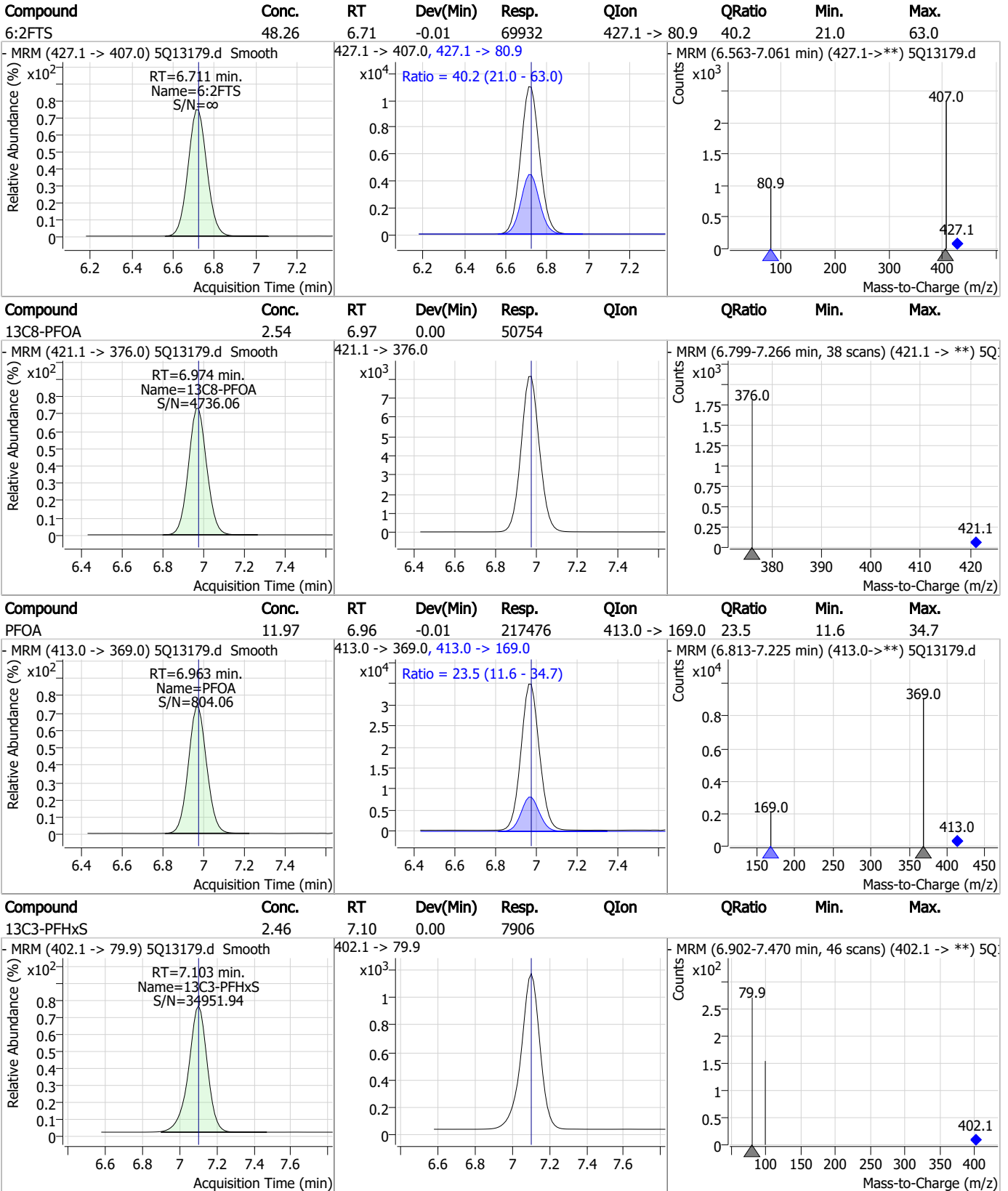
7.7.7  
7

### Perfluorinated Compounds by LC/MS/MS



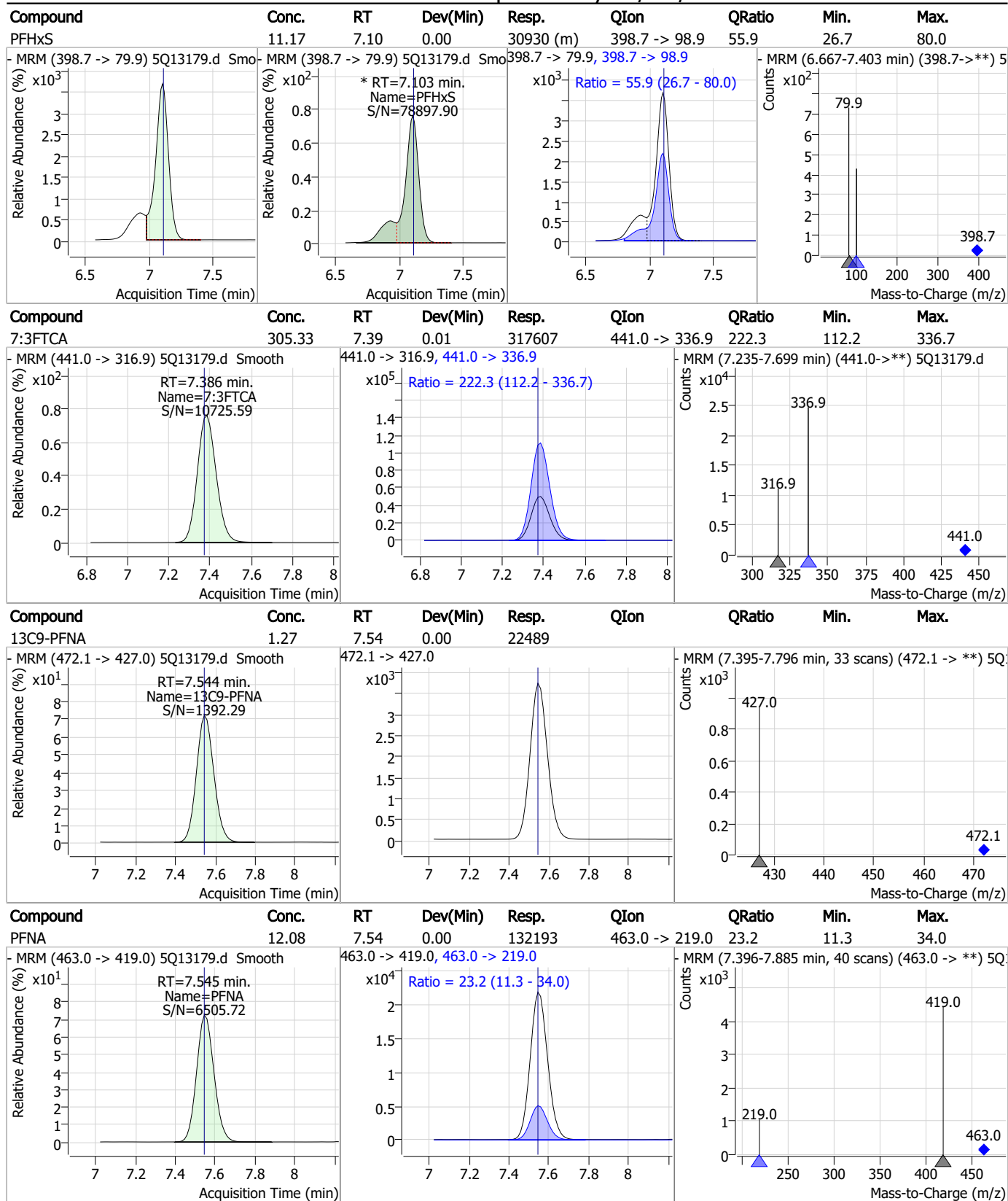
7.7.7  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.7  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.7

### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	12.14	7.72	0.00	35367	449.0 -> 98.9	55.7	28.5	85.6
13C2-8:2FTS	4.59	7.84	0.00	2757	529.1 -> 80.9			
8:2FTS	46.33	7.84	0.00	53005	527.1 -> 80.8	45.6	24.3	73.0
13C6-PFDA	1.28	8.08	0.00	13245	519.1 -> 474.1			

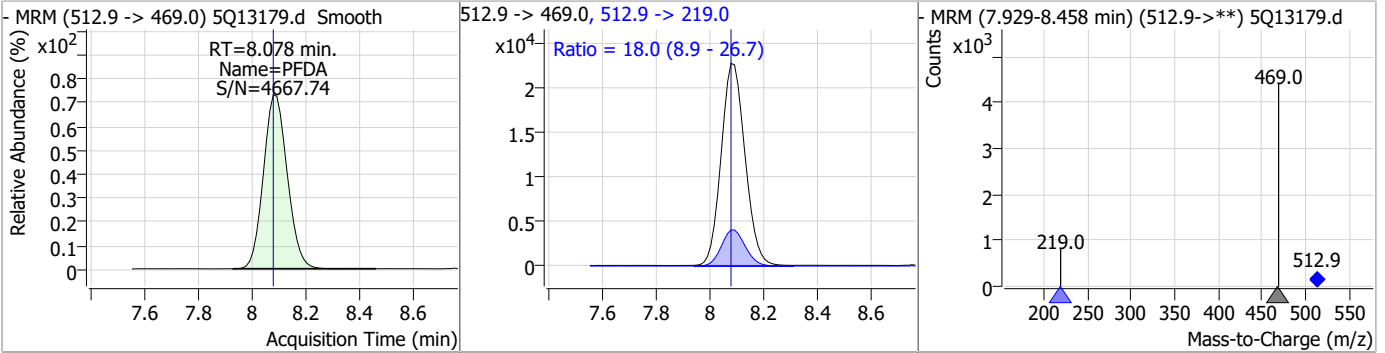
7.7.7

7

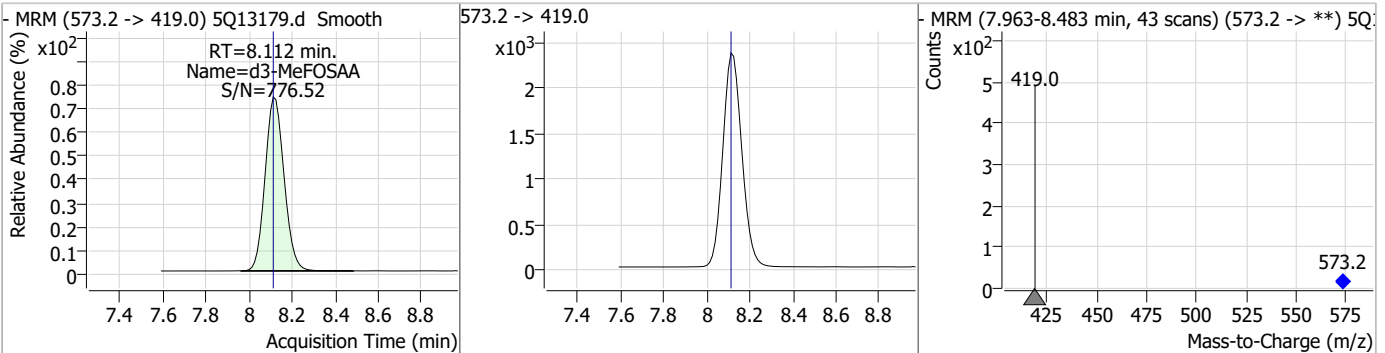


### Perfluorinated Compounds by LC/MS/MS

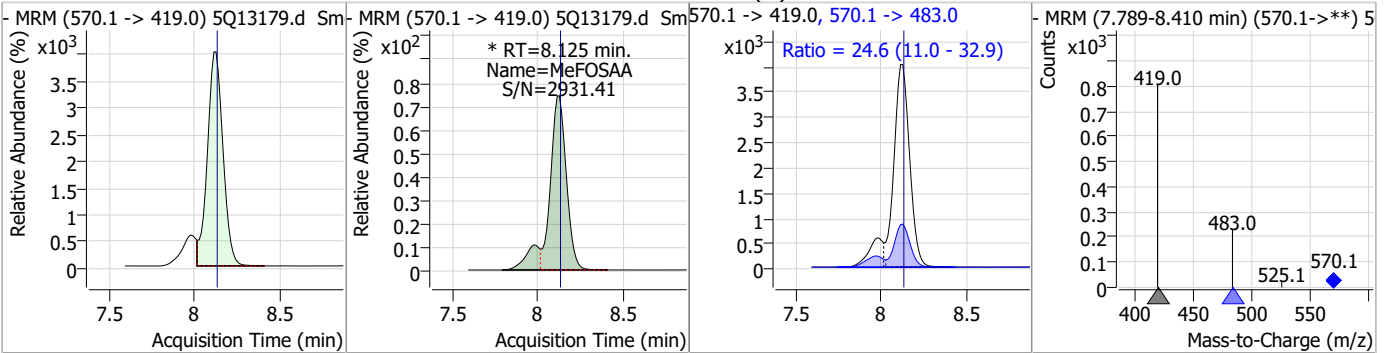
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	11.77	8.08	0.00	138816	512.9 -> 219.0	18.0	8.9	26.7



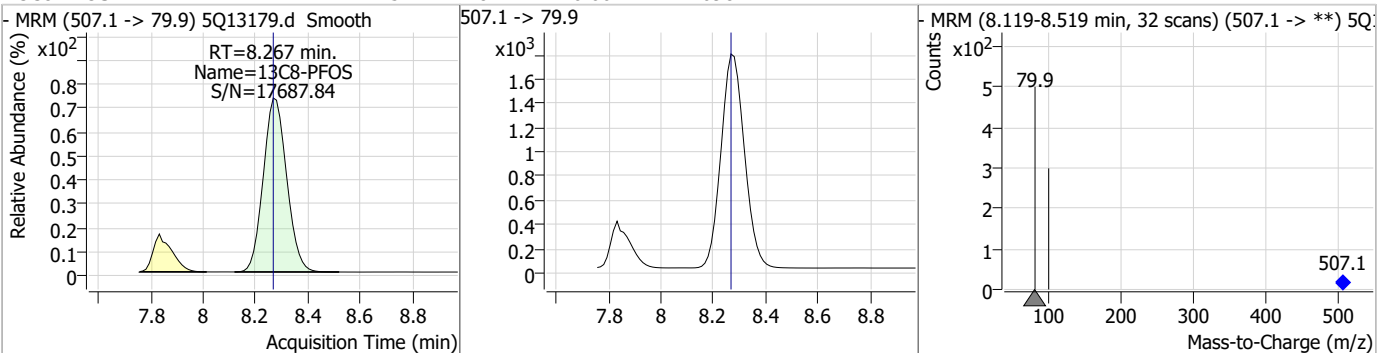
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.99	8.11	0.00	14337				



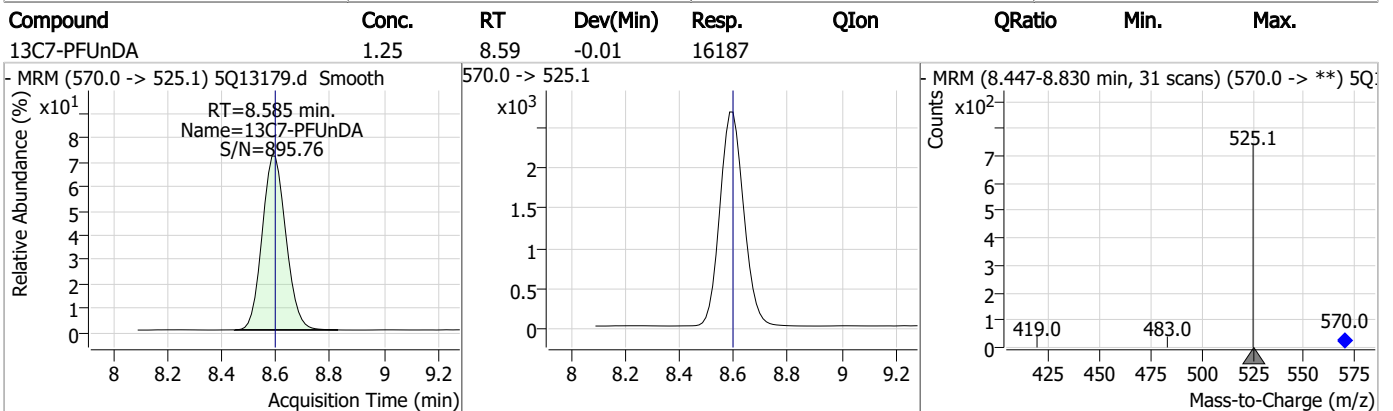
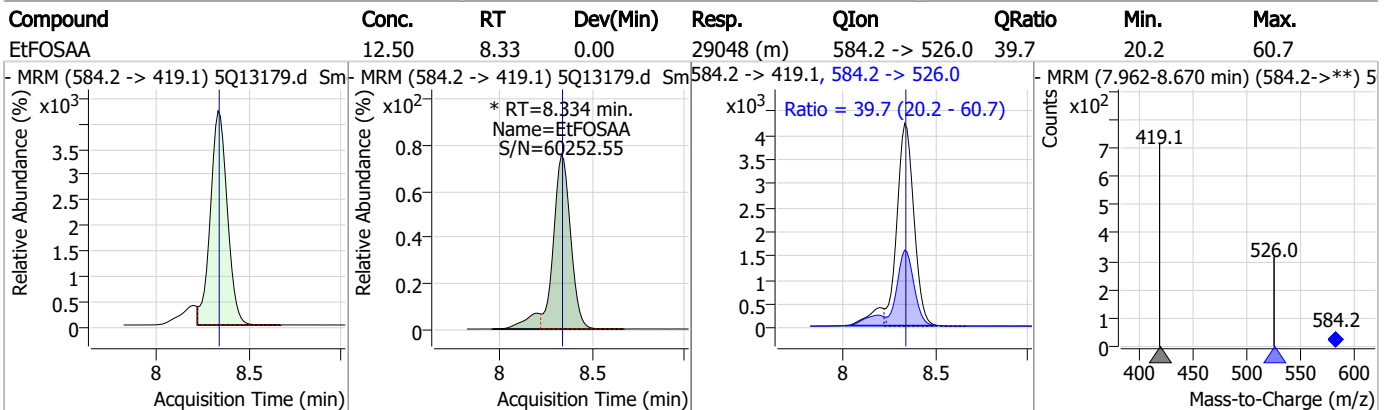
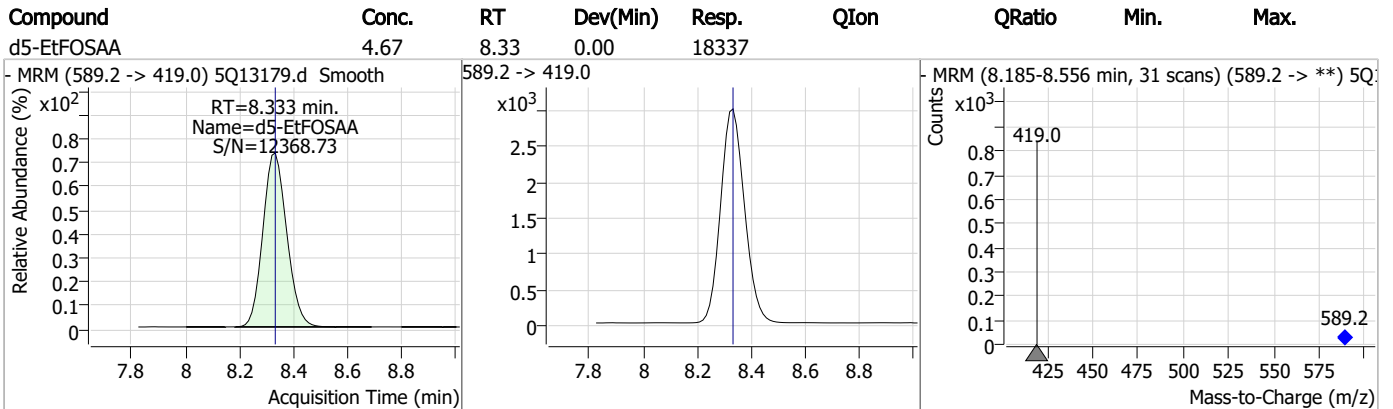
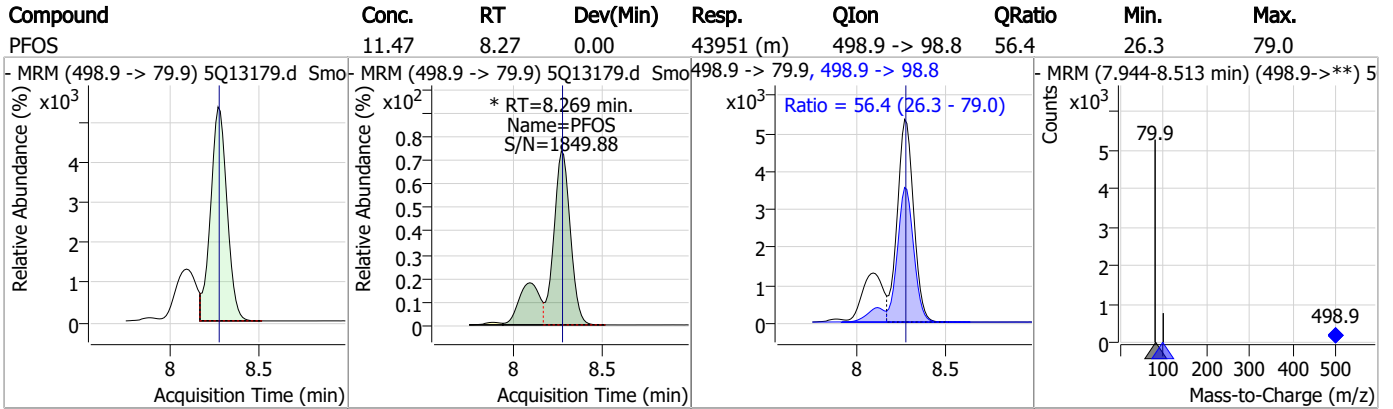
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	11.95	8.12	0.00	28876 (m)	570.1 -> 483.0	24.6	11.0	32.9



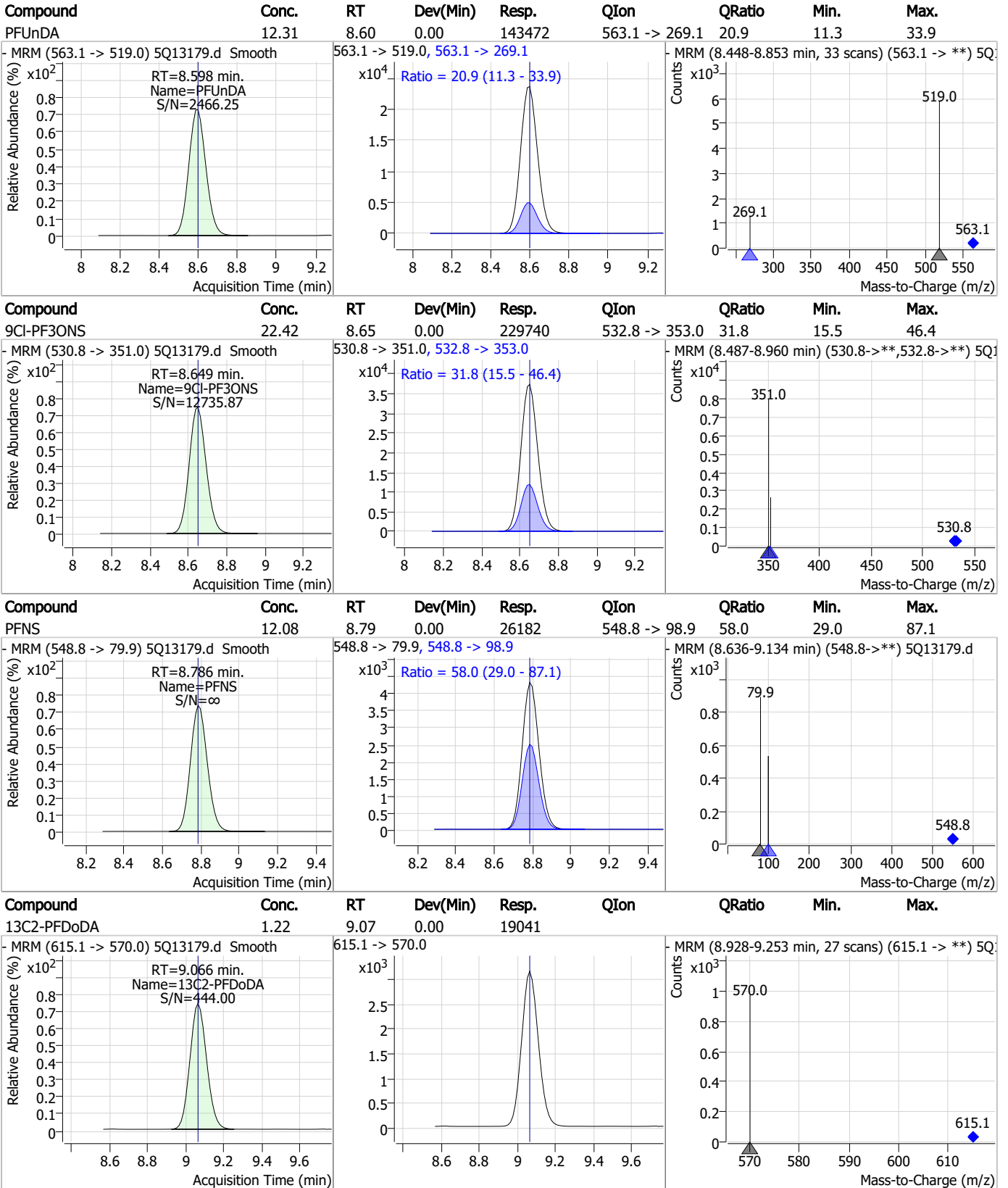
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.45	8.27	0.00	10981				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

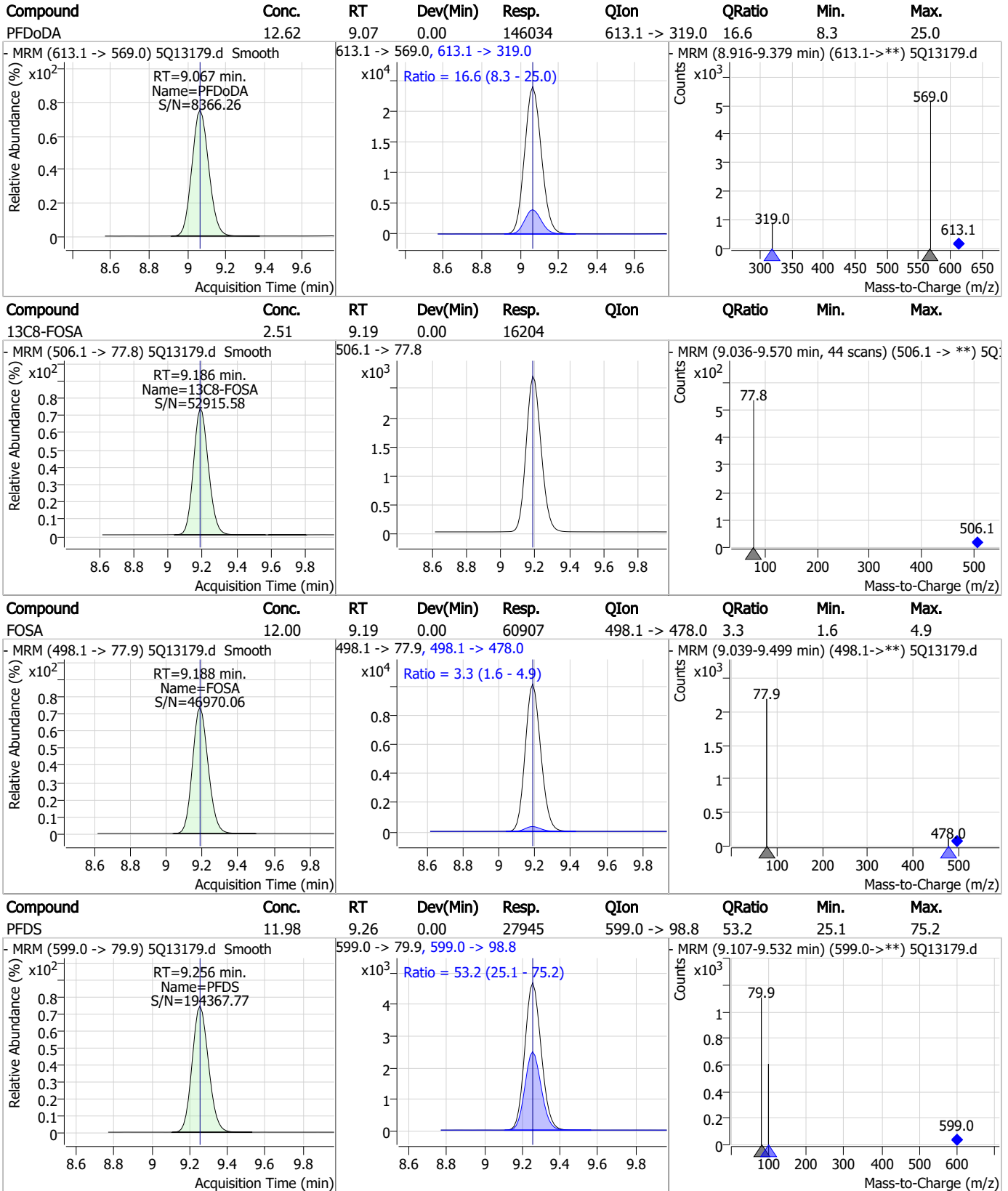


7.7.7

7



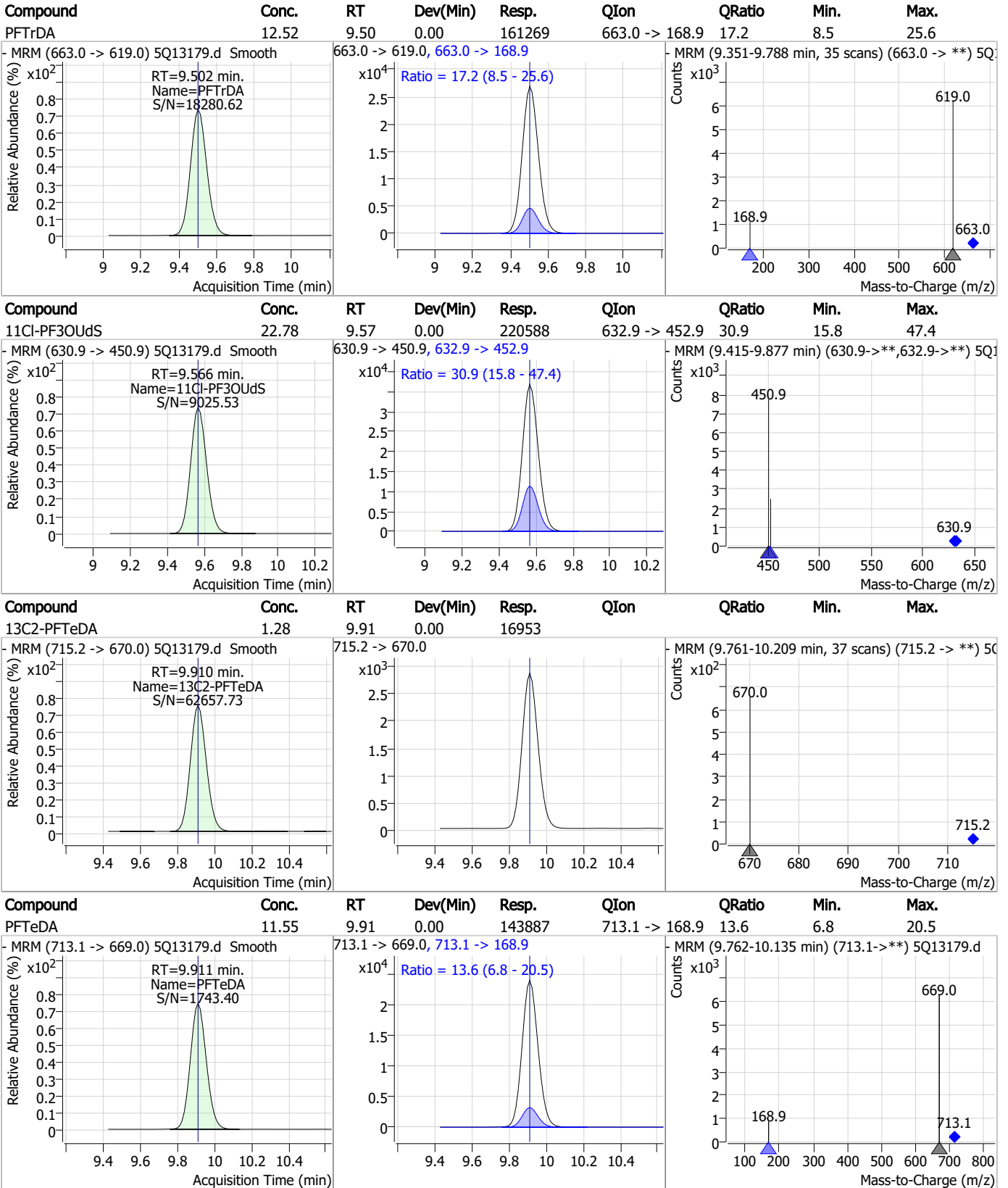
### Perfluorinated Compounds by LC/MS/MS



7.7.7

7

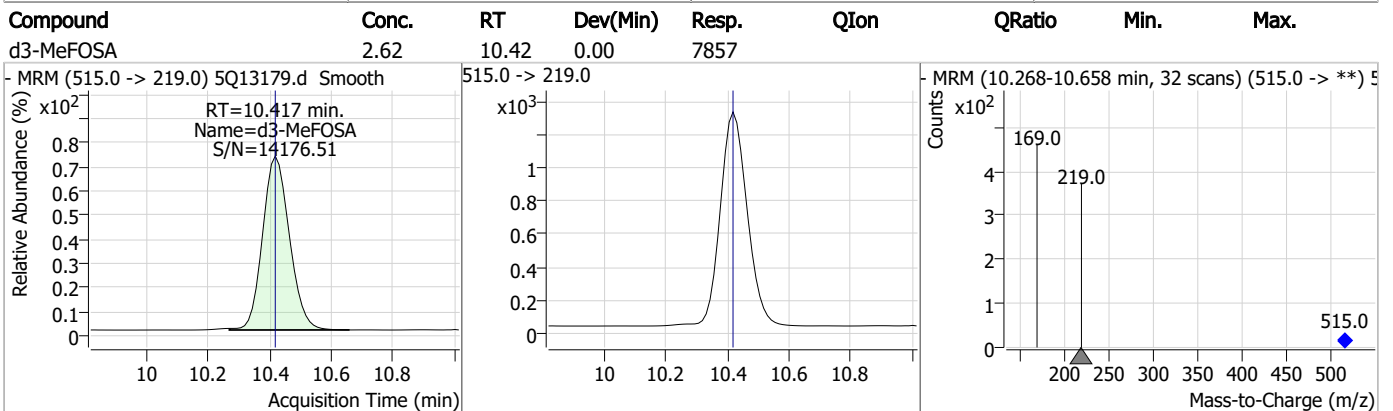
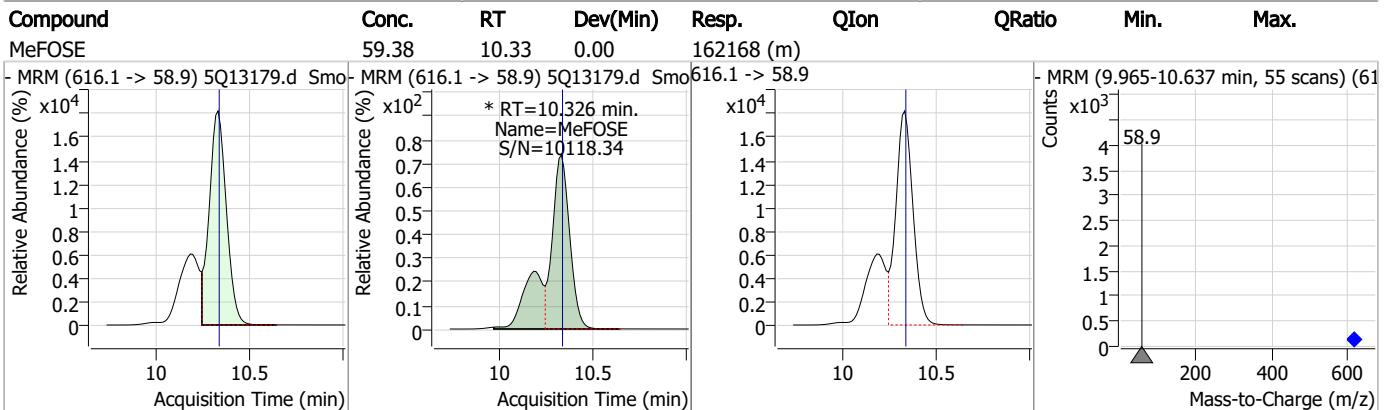
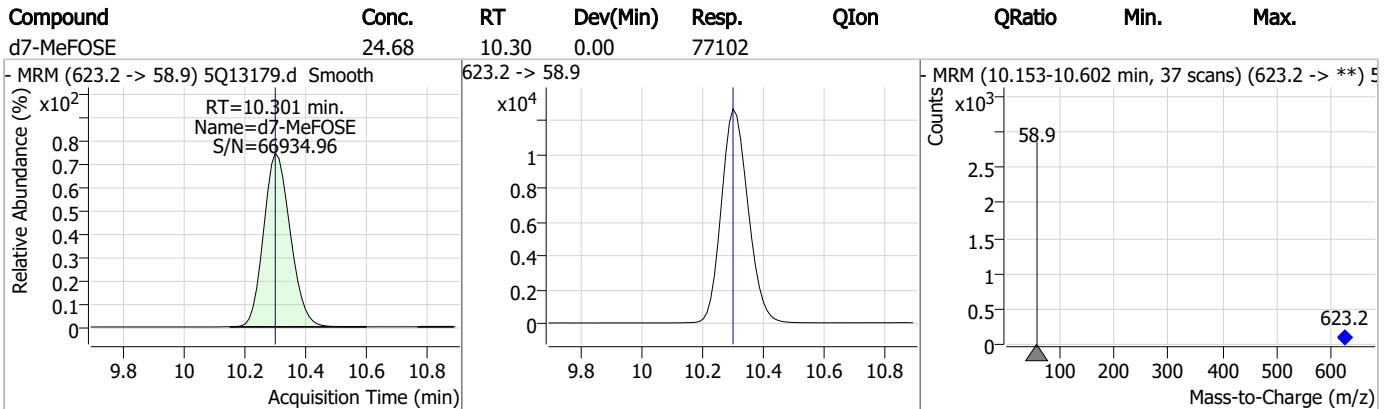
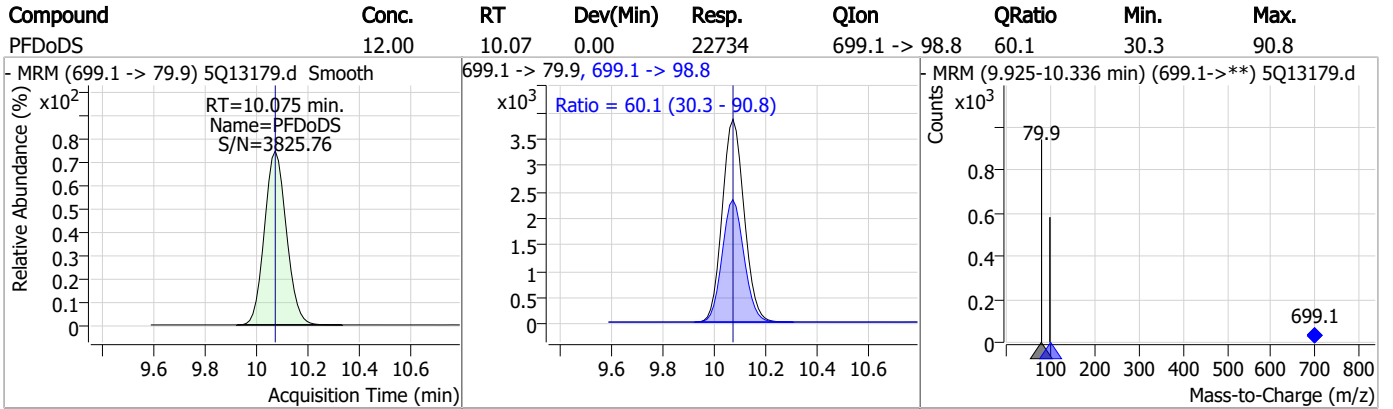
### Perfluorinated Compounds by LC/MS/MS



7.7.7  
7

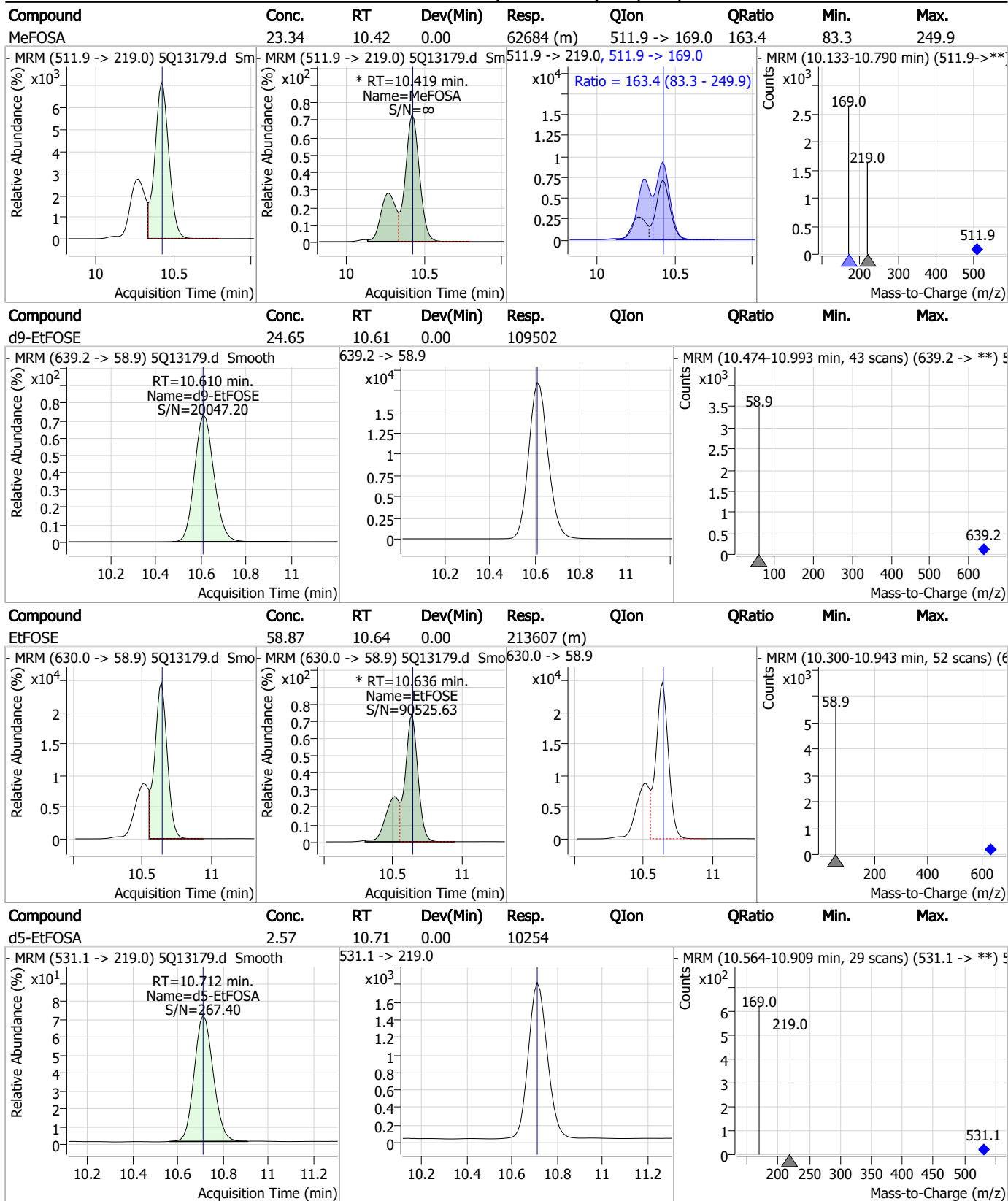


### Perfluorinated Compounds by LC/MS/MS



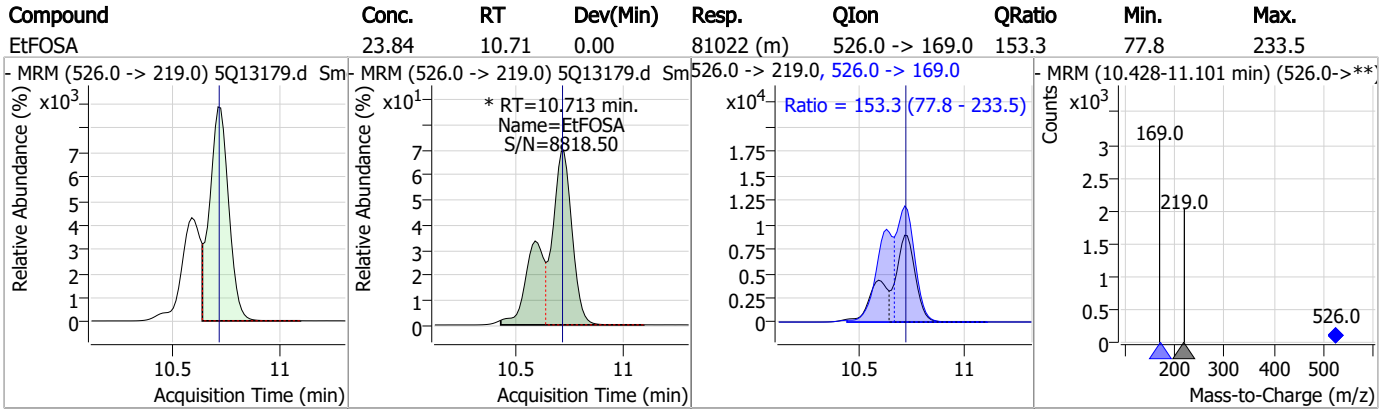
7.7.7  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.7  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.7

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-IC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13179.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 20:07      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.78	Poor instrument integration
13C3-PFBA			2.78	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.78	Poor instrument integration
13C3-PFBS			5.25	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.25	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.10	Split peak
MeFOSAA	2355-31-9		8.12	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.7.1  
7

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

**Norman Farmer**  
**04/21/23 10:44**

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13180.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 8:21:48 PM  
 Sample Name : ic205-7  
 Vial : P3-A8  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	51829	10.00	µg/L m	0.000
M5-PFPeA	4.103	268.3 -> 223.0	44100	5.00	µg/L	-0.012
M5-PFHxA	5.309	318.0 -> 273.0	37594	2.50	µg/L	0.000
M4-PFHpA	6.279	367.1 -> 322.0	33085	2.50	µg/L	-0.012
M8-PFOA	6.962	421.1 -> 376.0	43885	2.50	µg/L	-0.012
M9-PFNA	7.544	472.1 -> 427.0	19980	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	11341	1.25	µg/L	0.000
M7-PFUnDA	8.585	570.0 -> 525.1	13791	1.25	µg/L	-0.012
M2-PFDoDA	9.054	615.1 -> 570.0	17744	1.25	µg/L	-0.012
M2-PFTeDA	9.898	715.2 -> 670.0	14615	1.25	µg/L	-0.012
M8-FOSA	9.186	506.1 -> 77.8	14339	2.50	µg/L	0.000
M3-PFBS	5.238	302.1 -> 79.9	6855	2.50	µg/L m	-0.012
M3-PFHxS	7.090	402.1 -> 79.9	7020	2.50	µg/L	-0.012
M8-PFOS	8.267	507.1 -> 79.9	9972	2.50	µg/L	0.000
M2-4:2FTS	4.960	329.1 -> 80.9	731	5.00	µg/L	0.000
M2-6:2FTS	6.711	429.1 -> 80.9	1561	5.00	µg/L	-0.012
M2-8:2FTS	7.841	529.1 -> 80.9	2335	5.00	µg/L	0.000
M3-MeFOSAA	8.112	573.2 -> 419.0	12583	5.00	µg/L	0.000
M3-HFPO-DA	5.688	286.9 -> 168.9	75796	10.00	µg/L	-0.012
M5-EtFOSAA	8.321	589.2 -> 419.0	18245	5.00	µg/L	-0.012
M7-MeFOSE	10.301	623.2 -> 58.9	68593	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	91779	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	8543	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6605	2.50	µg/L	0.000
13C4-PFOS	8.268	502.8 -> 79.9	9164	2.50	µg/L	0.000
13C3-PFBA	2.755	216.0 -> 172.0	26866	5.00	µg/L m	-0.012
18O2-PFHxS	7.089	403.0 -> 83.9	4432	2.50	µg/L	-0.012
13C4-PFOA	6.962	417.1 -> 372.0	53476	2.50	µg/L	-0.012
13C2-PFDA	8.078	515.1 -> 470.1	17612	1.25	µg/L	0.000
13C5-PFNA	7.544	468.0 -> 423.0	19098	1.25	µg/L	0.000
13C2-PFHxA	5.310	315.1 -> 270.0	39509	2.50	µg/L	0.000
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.960	329.1 -> 80.9	731	4.77	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.3%			
13C2-6:2FTS	6.711	429.1 -> 80.9	1561	4.62	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.4%			
13C2-8:2FTS	7.841	529.1 -> 80.9	2335	4.60	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.1%			
13C2-PFDoDA	9.054	615.1 -> 570.0	17744	1.27	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.8%			
13C2-PFTeDA	9.898	715.2 -> 670.0	14615	1.23	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%			
13C3-PFBS	5.238	302.1 -> 79.9	6855	2.53	µg/L m	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.1%			
13C3-PFHxS	7.090	402.1 -> 79.9	7020	2.59	µg/L	-0.012

7.7.8  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.4%				
13C4-PFBA	2.765	216.8 -> 171.9	52177	10.14	µg/L	m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.4%				
13C4-PFHpA	6.279	367.1 -> 322.0	33085	2.51	µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%				
13C5-PFHxA	5.309	318.0 -> 273.0	37594	2.53	µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.4%				
13C5-PFPeA	4.103	268.3 -> 223.0	44100	5.18	µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.6%				
13C6-PFDA	8.077	519.1 -> 474.1	11341	1.22	µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.9%				
13C7-PFUnDA	8.585	570.0 -> 525.1	13791	1.19	µg/L		-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.1%				
13C8-FOSA	9.186	506.1 -> 77.8	14339	2.60	µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.0%				
13C8-PFOA	6.962	421.1 -> 376.0	43885	2.51	µg/L		-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%				
13C8-PFOS	8.267	507.1 -> 79.9	9972	2.61	µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.2%				
13C9-PFNA	7.544	472.1 -> 427.0	19980	1.29	µg/L		0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%				
d3-MeFOSAA	8.112	573.2 -> 419.0	12583	5.13	µg/L		0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%				
13C3-HFPO-DA	5.688	286.9 -> 168.9	75796	10.28	µg/L		-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.8%				
d3-MeFOSA	10.417	515.0 -> 219.0	6605	2.58	µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.0%				
d5-EtFOSAA	8.321	589.2 -> 419.0	18245	5.45	µg/L		-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%				
d7-MeFOSE	10.301	623.2 -> 58.9	68593	25.71	µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.8%				
d9-EtFOSE	10.610	639.2 -> 58.9	91779	24.19	µg/L		0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.8%				
d5-EtFOSA	10.712	531.1 -> 219.0	8543	2.50	µg/L		0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.2%				
<b>Target Compounds</b>							<b>QValue</b>
4:2FTS	4.960	327.1 -> 307.0	85243	99.04	µg/L		99
		327.1 -> 80.9	46678				
6:2FTS	6.711	427.1 -> 407.0	124784	101.89	µg/L		98
		427.1 -> 80.9	50487				
8:2FTS	7.841	527.1 -> 507.0	98021	101.13	µg/L		93
		527.1 -> 80.8	42820				
EtFOSAA	8.334	584.2 -> 419.1	61698	26.67	µg/L	m	99
		584.2 -> 526.0	25260				
FOSA	9.176	498.1 -> 77.9	123507	27.49	µg/L		99
		498.1 -> 478.0	3832				
MeFOSAA	8.112	570.1 -> 419.0	57393	27.06	µg/L	m	96
		570.1 -> 483.0	13790				
PFBA	2.758	212.8 -> 168.9	207795	110.03	µg/L	m	100
PFBS	5.239	298.7 -> 79.9	53464	24.59	µg/L	m	96
		298.7 -> 98.8	23420				
PFDA	8.078	512.9 -> 469.0	274417	27.17	µg/L		99
		512.9 -> 219.0	50089				
PFDODA	9.054	613.1 -> 569.0	294296	27.29	µg/L		99
		613.1 -> 319.0	47615				
PFDS	9.243	599.0 -> 79.9	55828	26.35	µg/L		95

7.7.8

7





## Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	29834			
PFHpA	6.280	363.1 -> 319.0	372649	27.64	µg/L	98
		363.1 -> 169.0	82127			
PFHpS	7.710	449.0 -> 79.9	69130	26.13	µg/L	99
		449.0 -> 98.9	38792			
PFHxA	5.299	313.0 -> 269.0	255303	26.91	µg/L	100
		313.0 -> 118.9	11604			
PFHxS	7.091	398.7 -> 79.9	61794	25.13	µg/L	m 97
		398.7 -> 98.9	34089			
PFNA	7.545	463.0 -> 419.0	263642	27.11	µg/L	100
		463.0 -> 219.0	60112			
PFNS	8.786	548.8 -> 79.9	51355	26.09	µg/L	98
		548.8 -> 98.9	29088			
PFOA	6.963	413.0 -> 369.0	428261	27.25	µg/L	98
		413.0 -> 169.0	102213			
PFOS	8.269	498.9 -> 79.9	87311	25.10	µg/L	m 95
		498.9 -> 98.8	49014			
PFPeA	4.104	263.0 -> 219.0	465308	54.16	µg/L	100
PFPeS	6.356	349.1 -> 79.9	57819	25.73	µg/L	99
		349.1 -> 98.9	27769			
PFTeDA	9.898	713.1 -> 669.0	288524	26.87	µg/L	99
		713.1 -> 168.9	37802			
PFTrDA	9.490	663.0 -> 619.0	311662	25.97	µg/L	100
		663.0 -> 168.9	53239			
PFUnDA	8.586	563.1 -> 519.0	285040	28.71	µg/L	96
		563.1 -> 269.1	59417			
11Cl-PF3OUdS	9.554	630.9 -> 450.9	426318	49.44	µg/L	100
		632.9 -> 452.9	133919			
9Cl-PF3ONS	8.637	530.8 -> 351.0	441385	48.38	µg/L	100
		532.8 -> 353.0	137250			
ADONA	6.542	376.9 -> 250.9	1058315	50.62	µg/L	99
		376.9 -> 84.8	308787			
HFPO-DA	5.702	284.9 -> 168.9	324338	54.44	µg/L	99
		284.9 -> 184.9	28991			
3:3FTCA	3.561	241.0 -> 177.0	71541	126.96	µg/L	99
		241.0 -> 117.0	7926			
5:3FTCA	5.917	341.0 -> 237.1	1213001	668.58	µg/L	99
		341.0 -> 217.0	816367			
7:3FTCA	7.372	441.0 -> 316.9	614133	655.72	µg/L	99
		441.0 -> 336.9	1372956			
EtFOSA	10.713	526.0 -> 219.0	156354	55.22	µg/L	m 99
		526.0 -> 169.0	241251			
EtFOSE	10.636	630.0 -> 58.9	408987	134.49	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	121877	53.98	µg/L	m 99
		511.9 -> 169.0	201003			
MeFOSE	10.326	616.1 -> 58.9	317696	130.77	µg/L	m 100
PFDoDS	10.062	699.1 -> 79.9	44753	26.02	µg/L	100
		699.1 -> 98.8	27116			
NFDHA	5.178	295.0 -> 201.0	48724	52.75	µg/L	97
		295.0 -> 84.9	12770			
PFMBA	4.505	279.0 -> 85.1	299476	53.43	µg/L	100
PFMPA	3.290	229.0 -> 84.9	262980	58.94	µg/L	100
PFEESA	5.807	314.8 -> 134.9	598916	48.72	µg/L	100
		314.8 -> 82.9	17606			

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

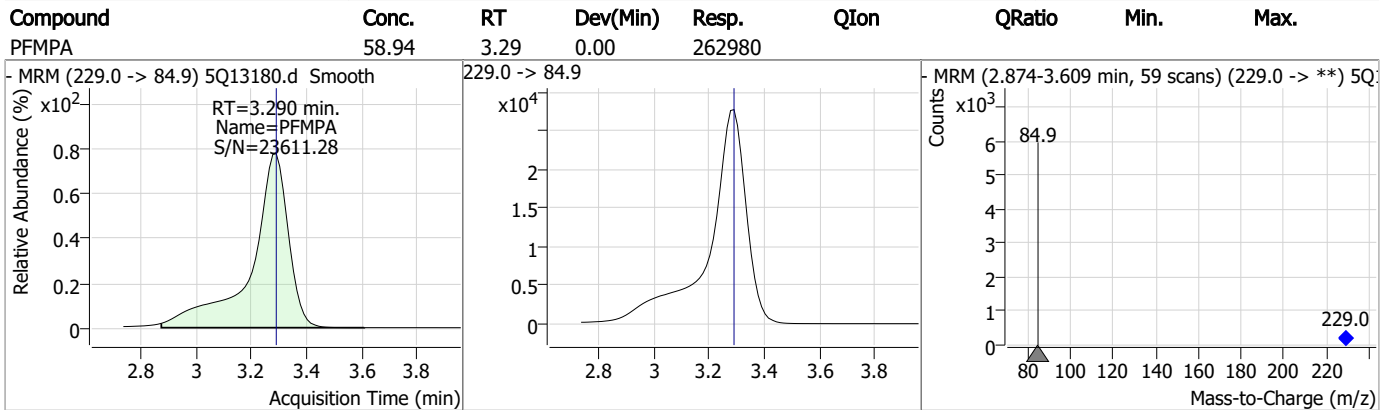
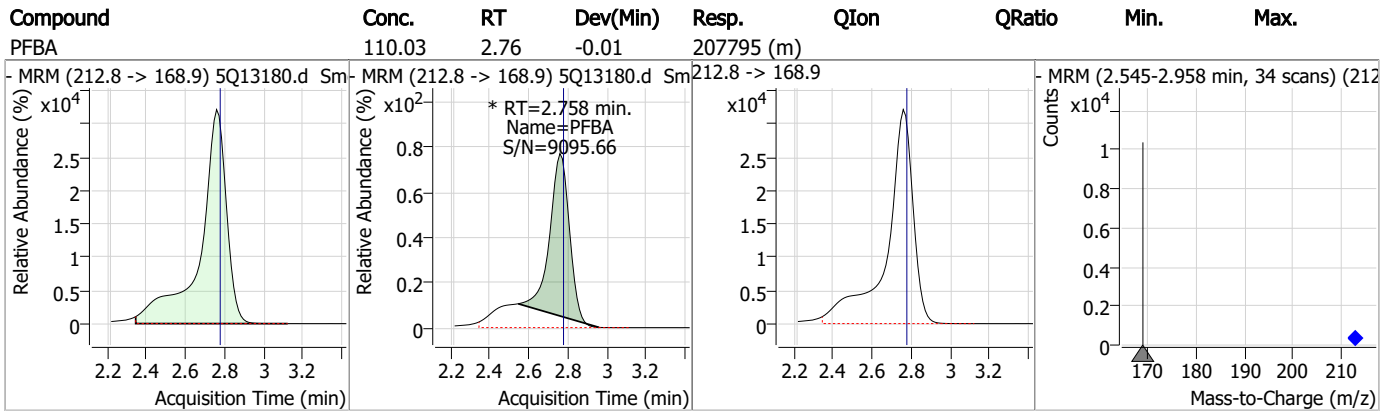
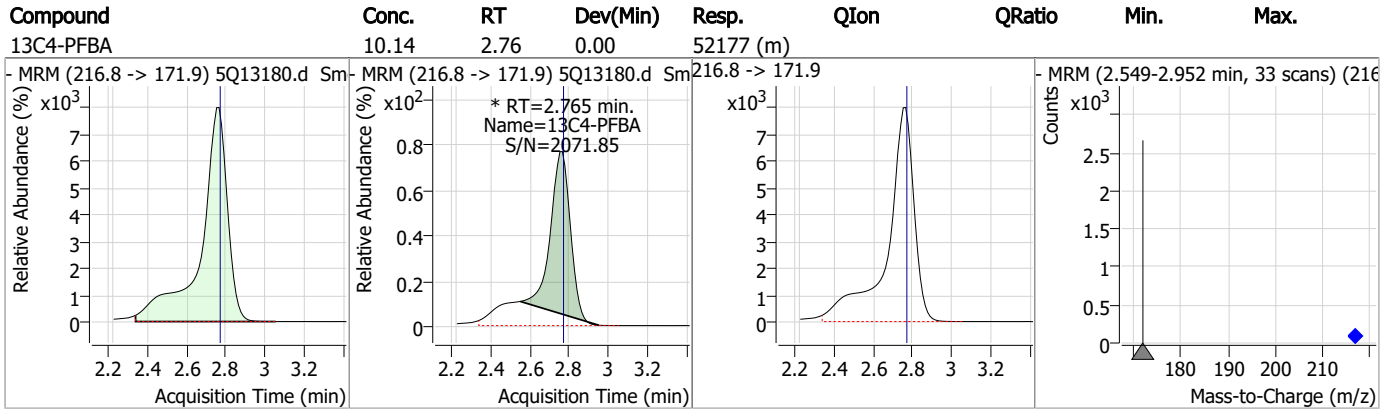
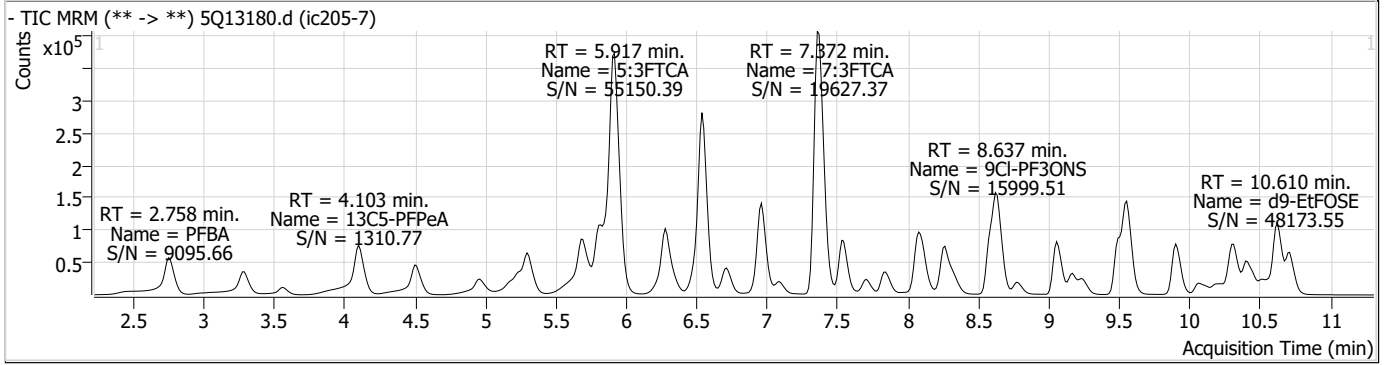
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.8  
7



### Perfluorinated Compounds by LC/MS/MS

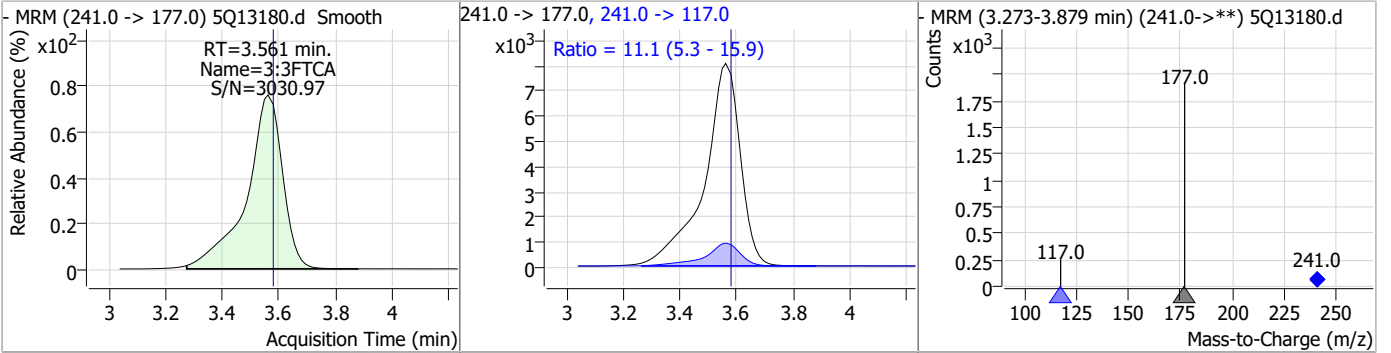


7.7.8

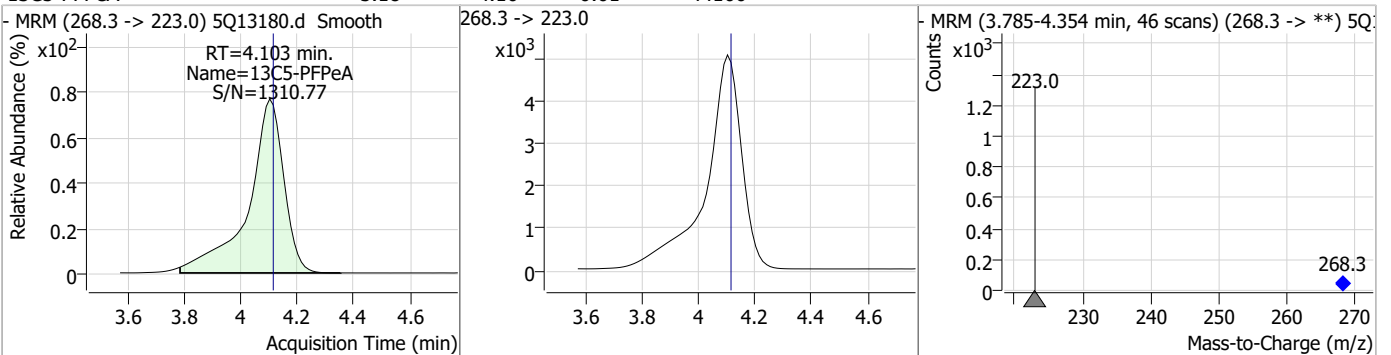
7

### Perfluorinated Compounds by LC/MS/MS

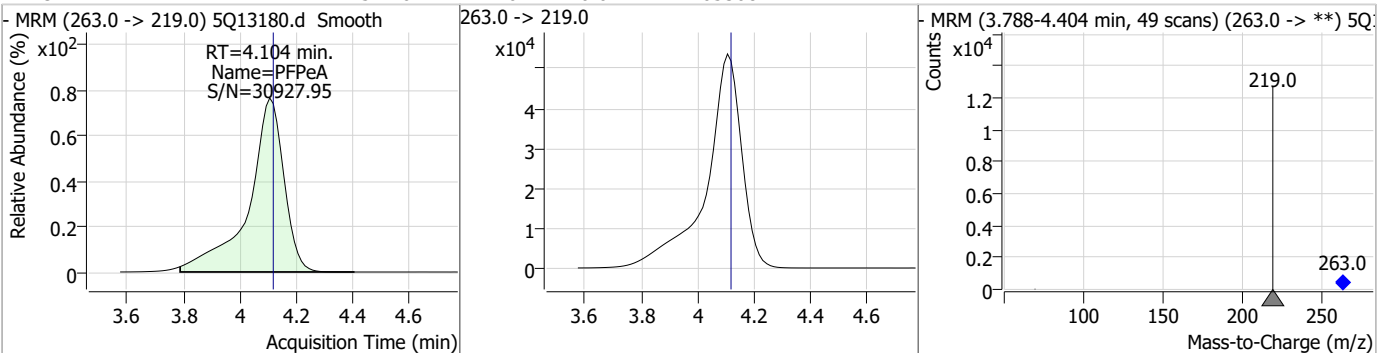
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	126.96	3.56	-0.02	71541	241.0 -> 117.0	11.1	5.3	15.9



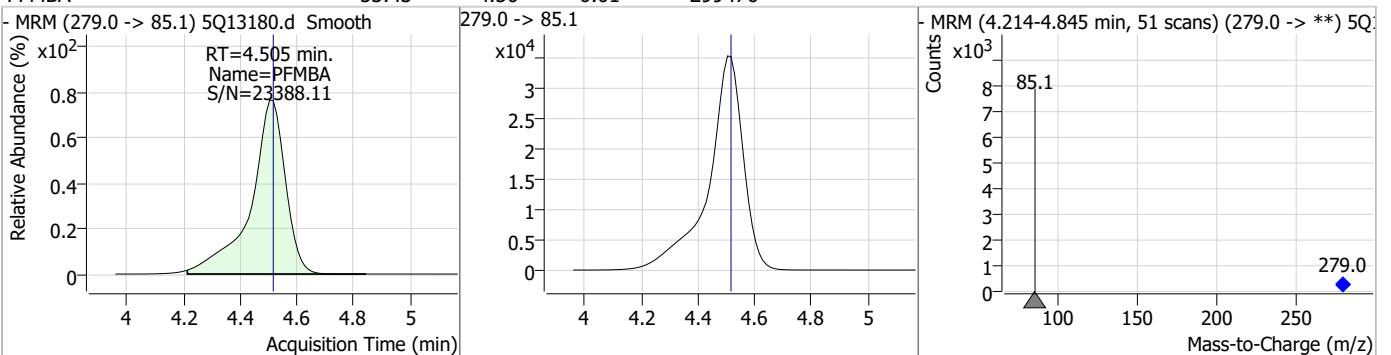
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.18	4.10	-0.01	44100				



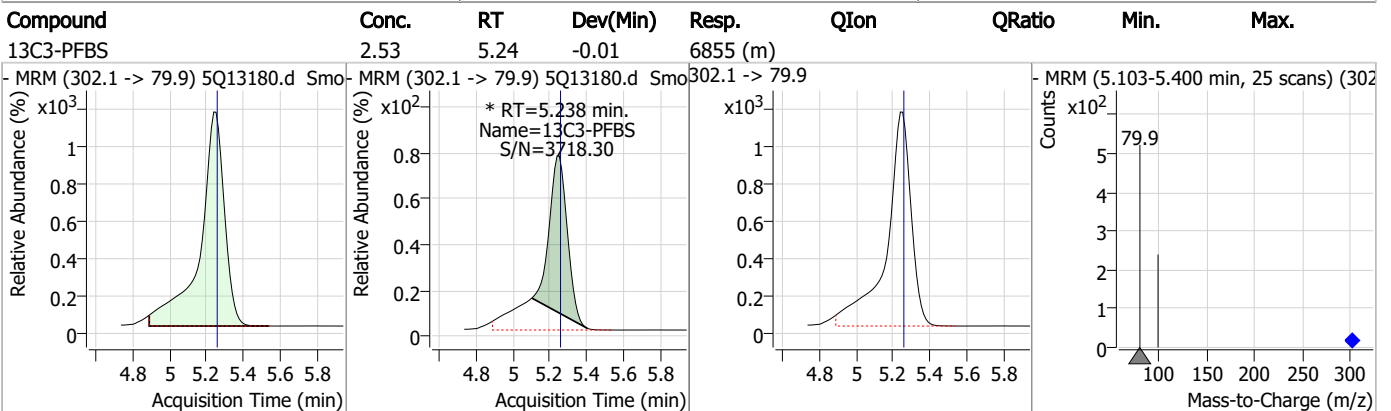
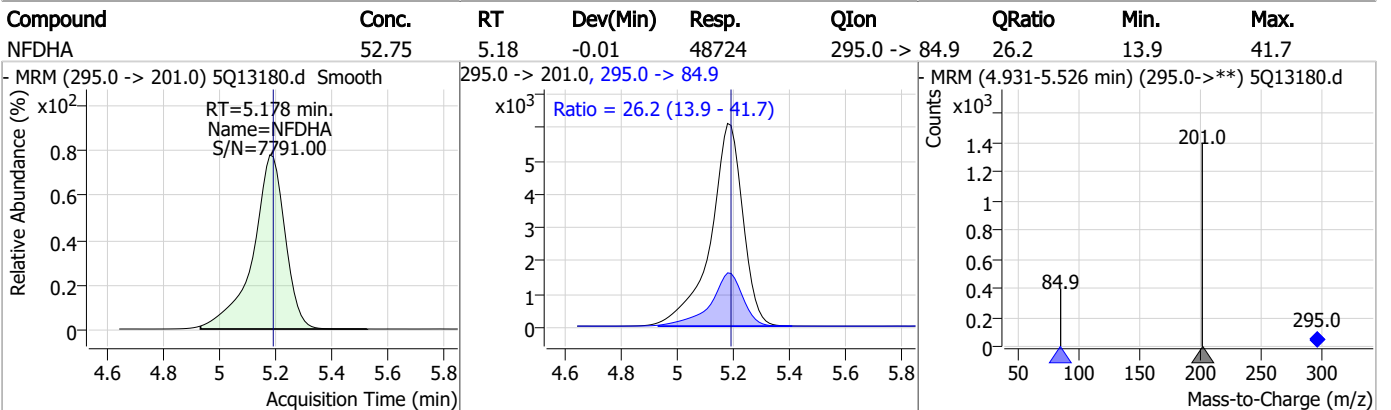
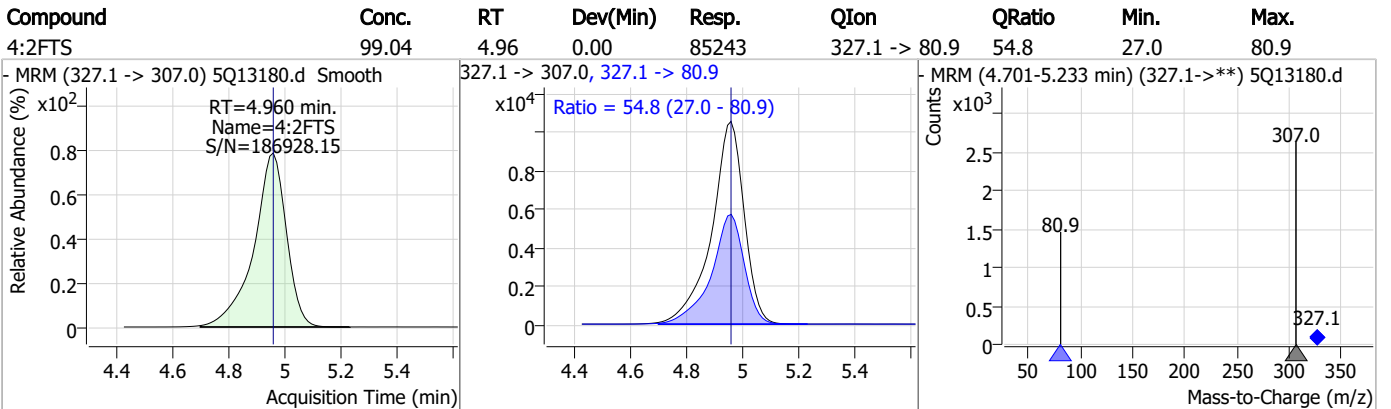
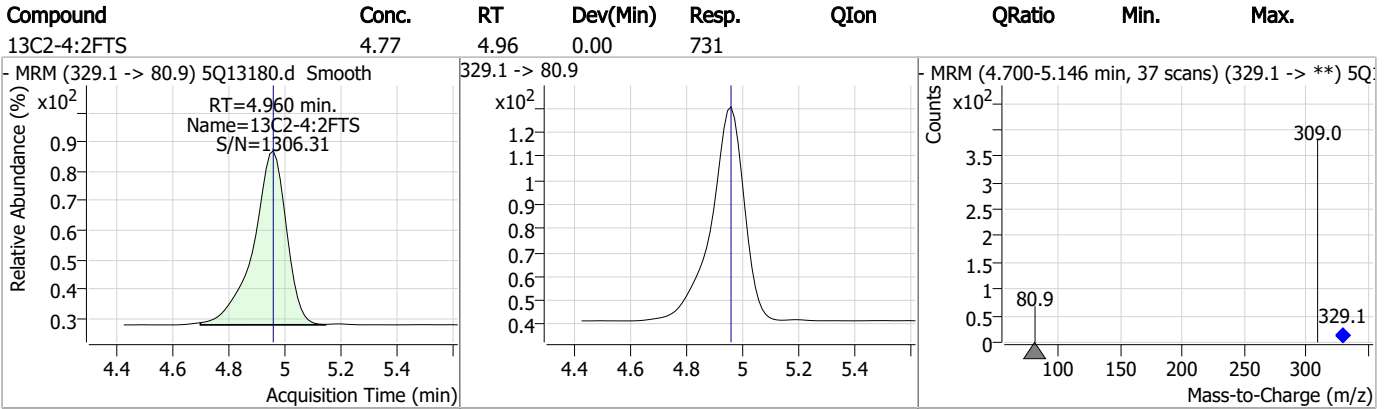
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	54.16	4.10	-0.01	465308				



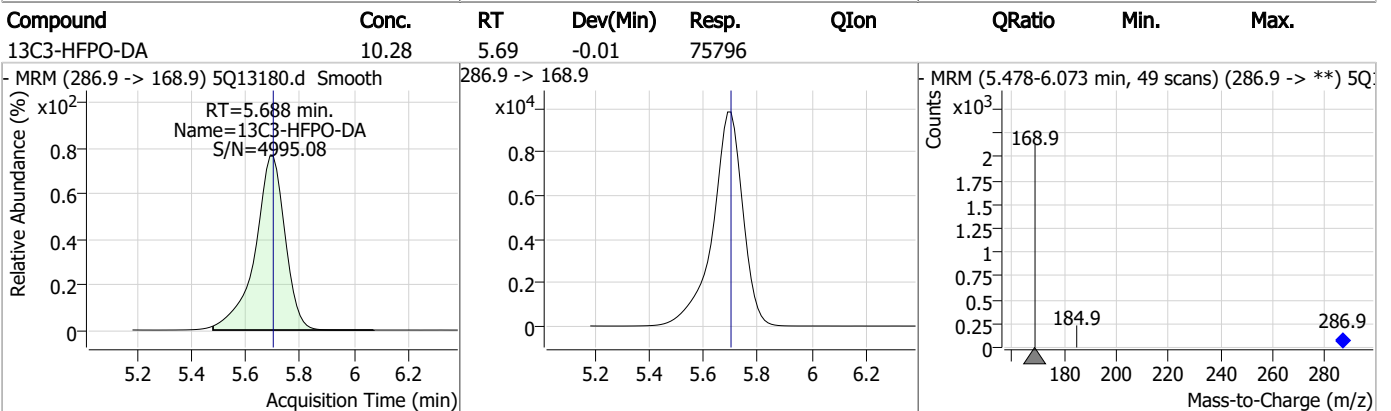
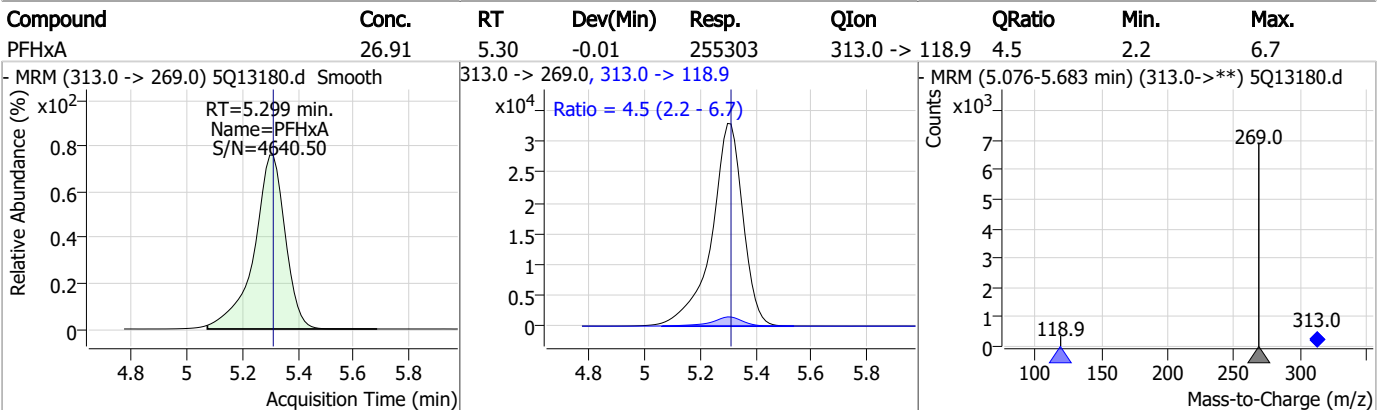
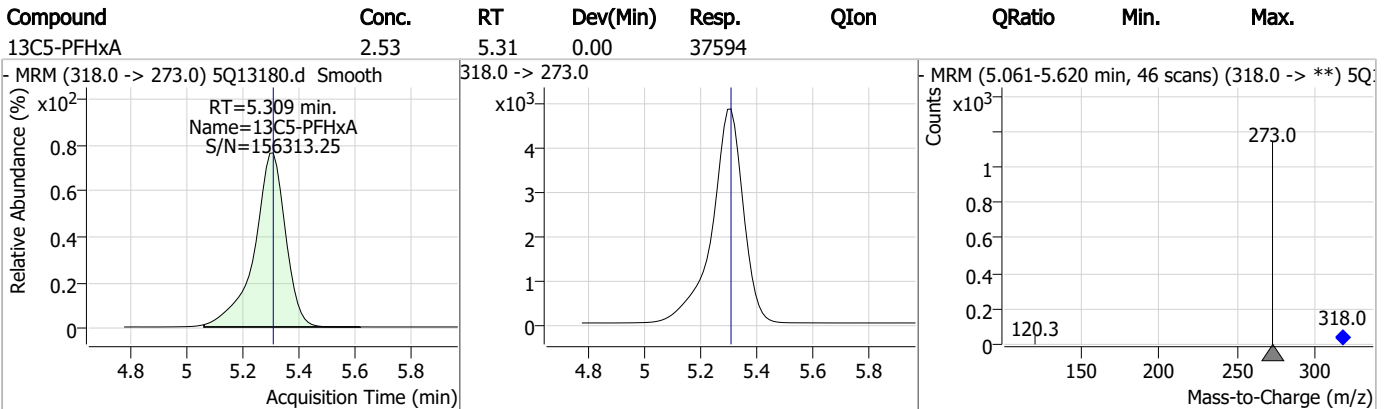
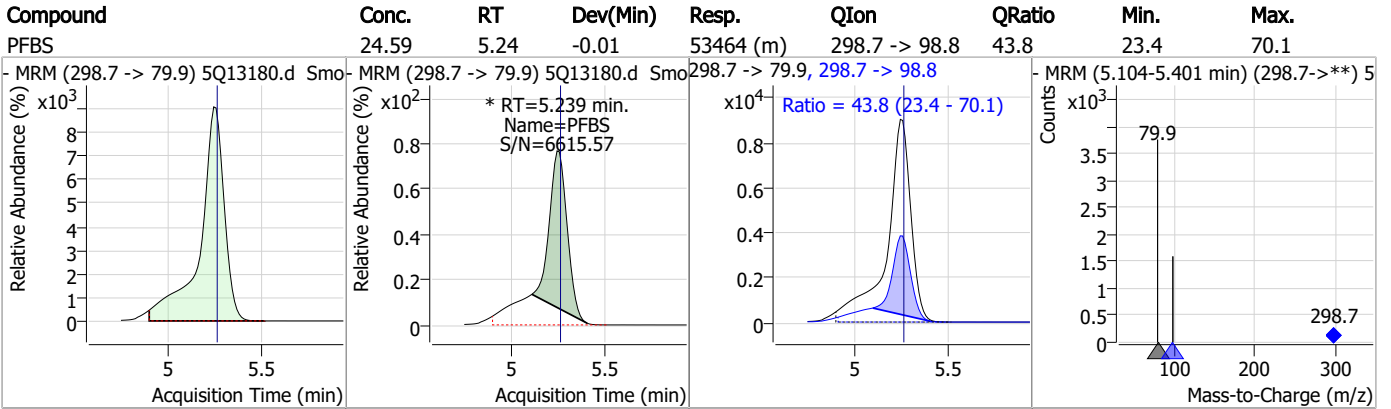
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	53.43	4.50	-0.01	299476				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS

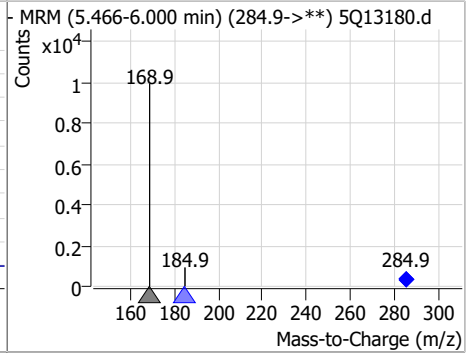
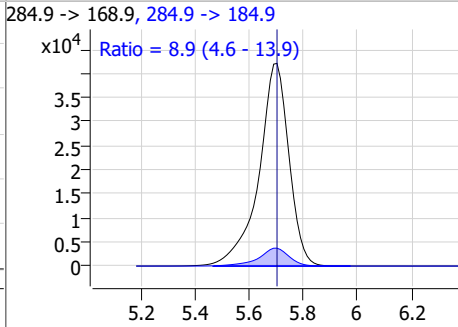
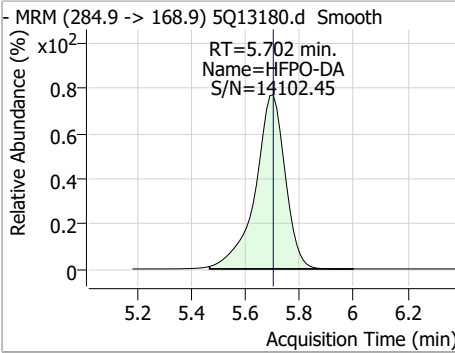


7.7.8

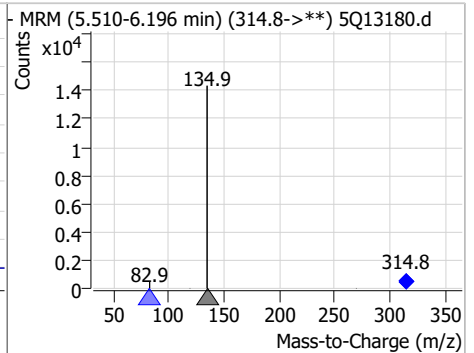
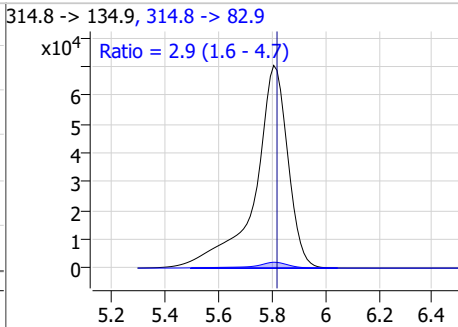
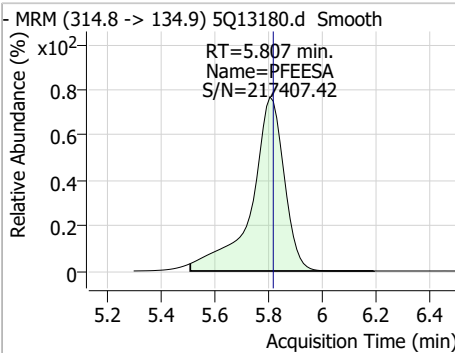
7

### Perfluorinated Compounds by LC/MS/MS

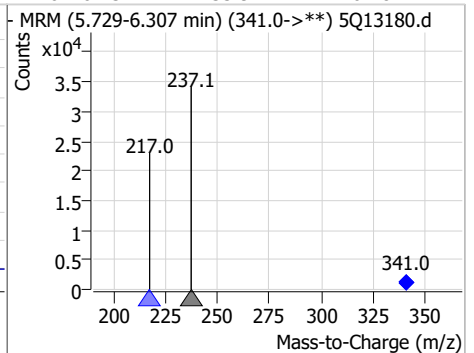
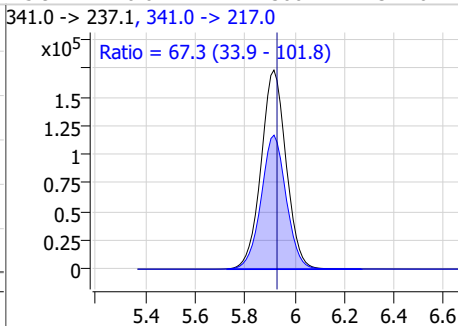
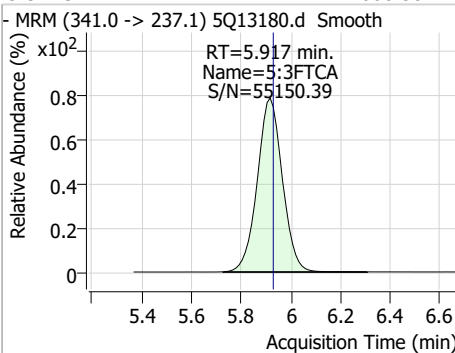
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	54.44	5.70	0.00	324338	284.9 -> 184.9	8.9	4.6	13.9



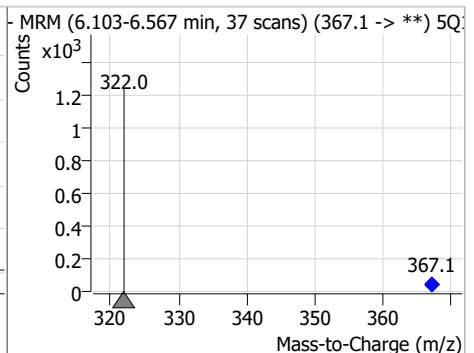
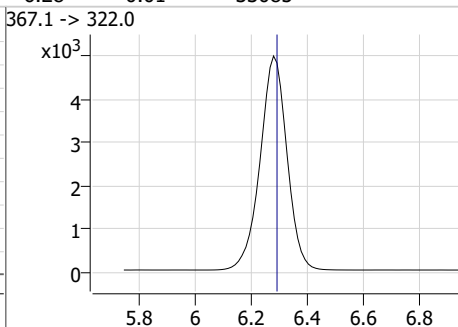
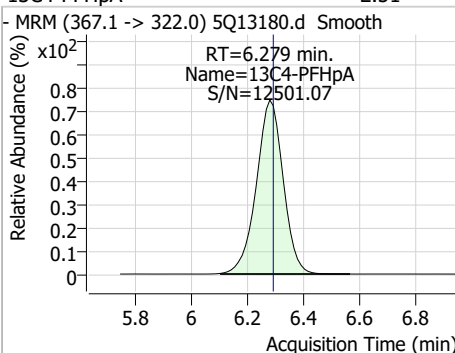
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	48.72	5.81	-0.01	598916	314.8 -> 82.9	2.9	1.6	4.7



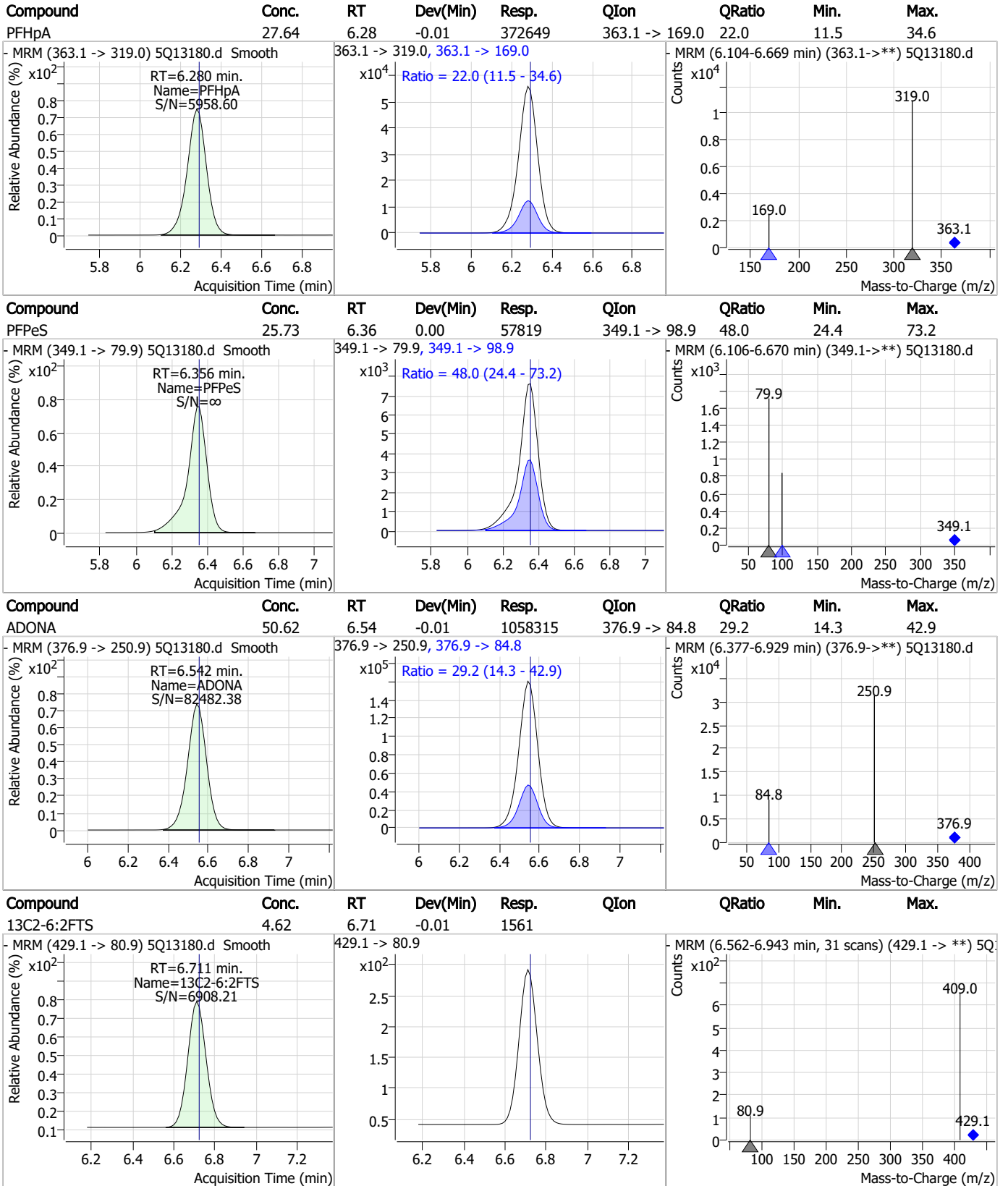
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	668.58	5.92	-0.01	1213001	341.0 -> 217.0	67.3	33.9	101.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.51	6.28	-0.01	33085	367.1 -> 322.0			



### Perfluorinated Compounds by LC/MS/MS

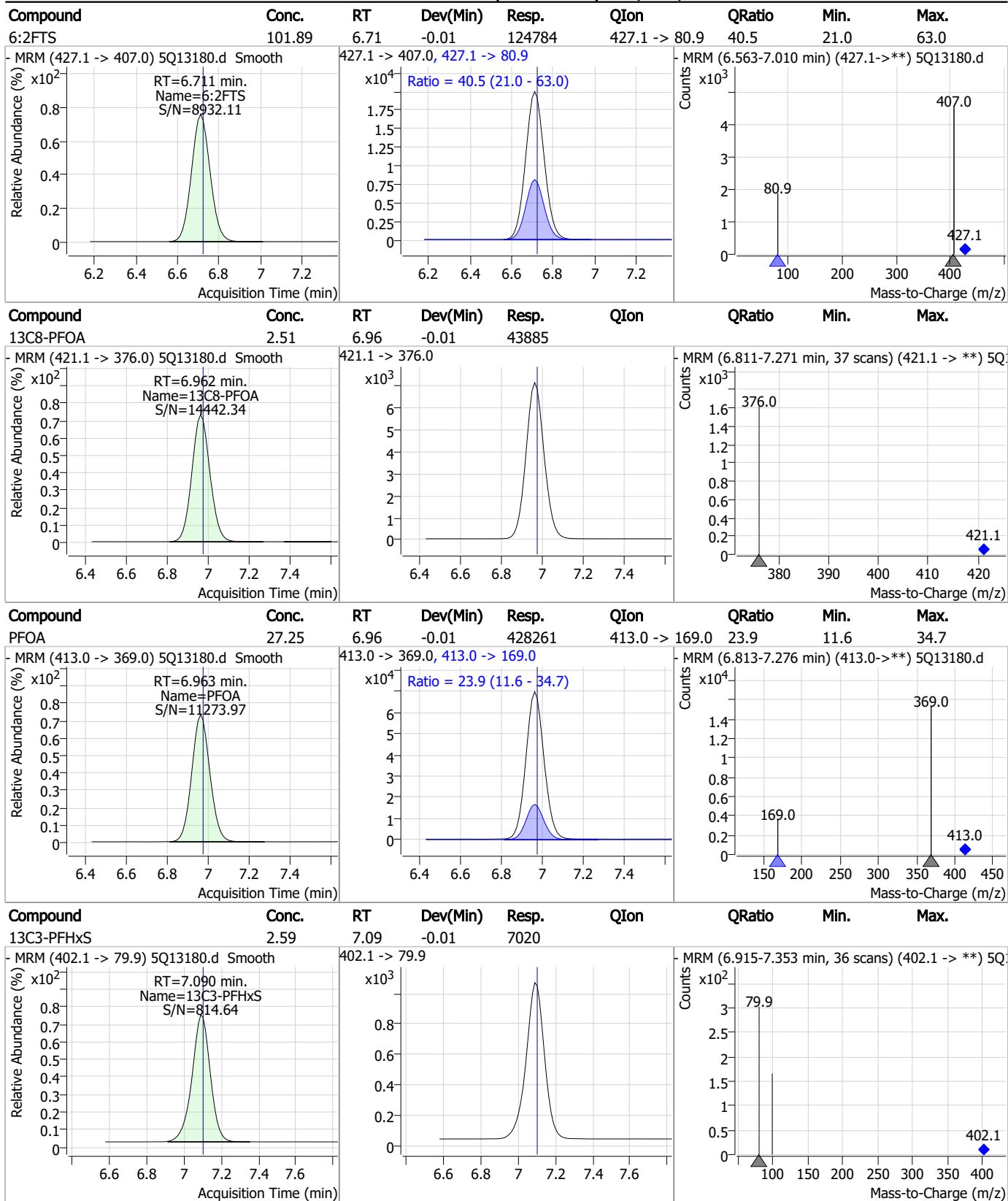


7.7.8

7

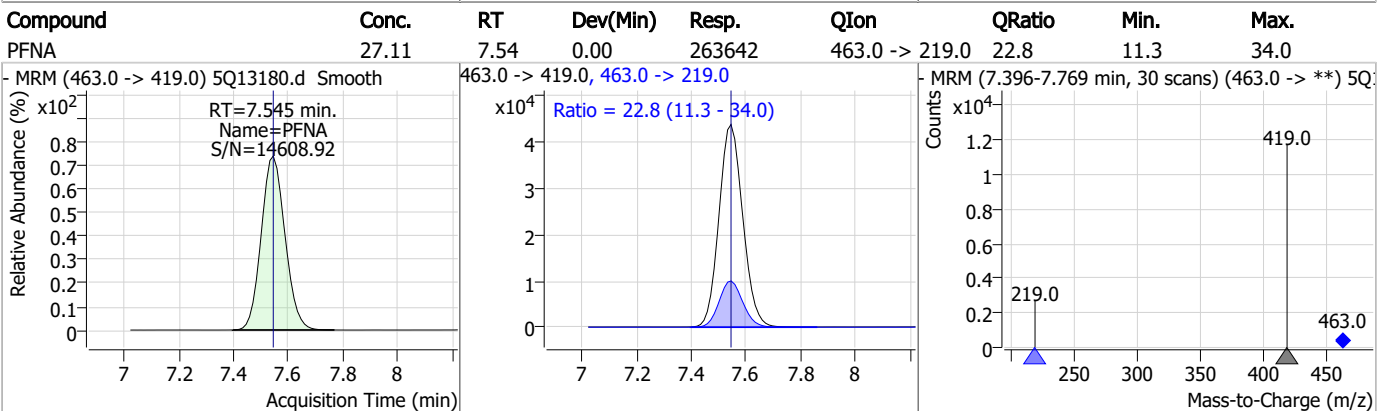
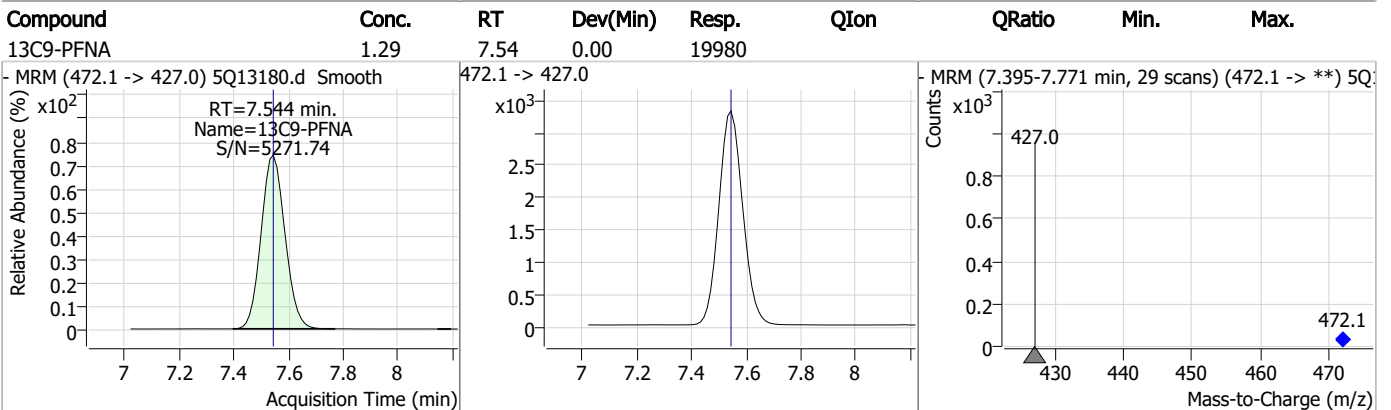
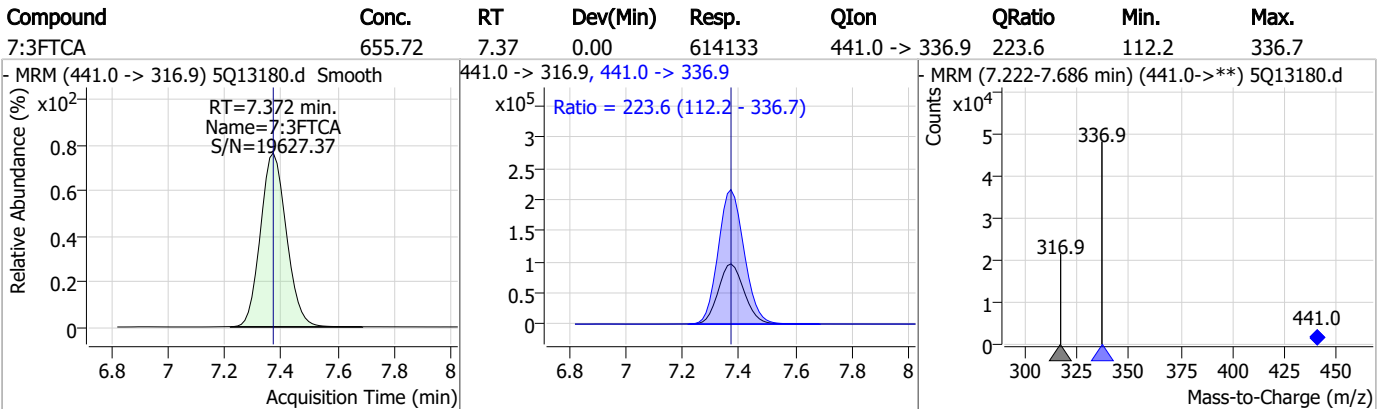
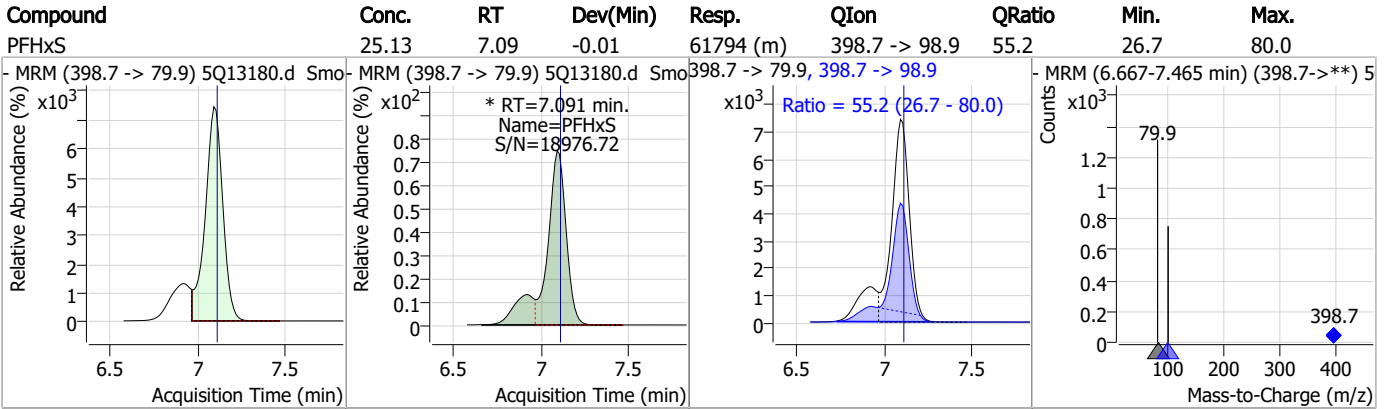


### Perfluorinated Compounds by LC/MS/MS



7.7.8  
7

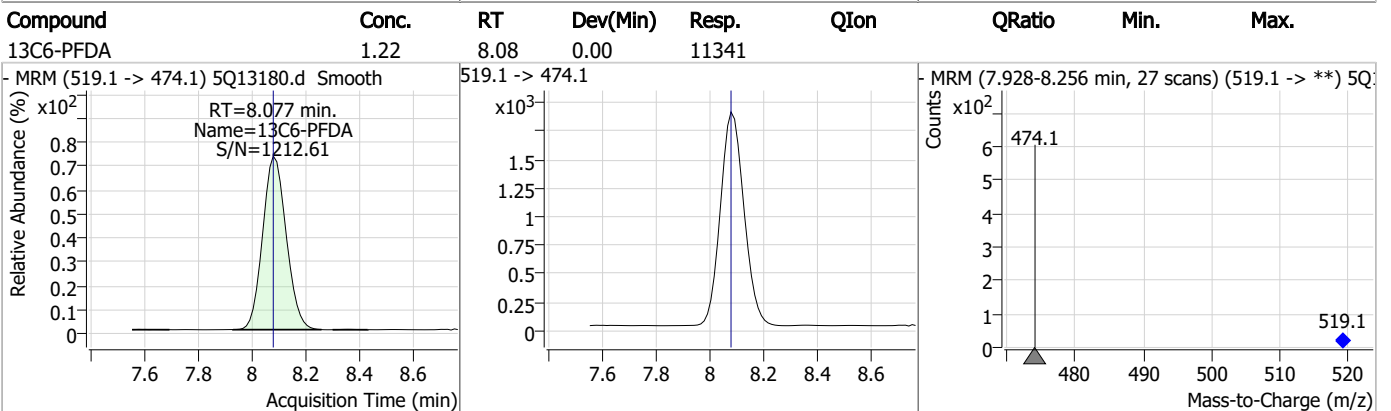
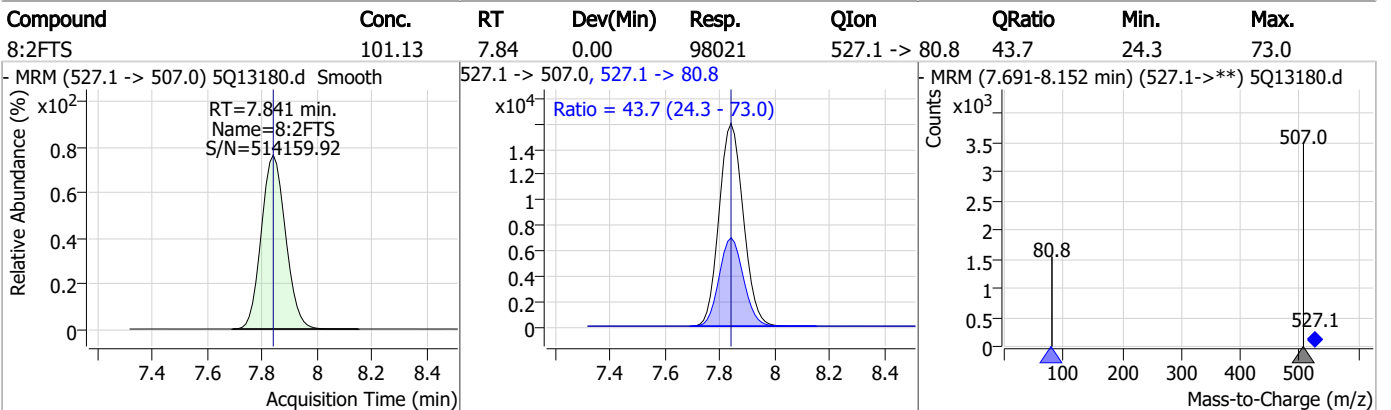
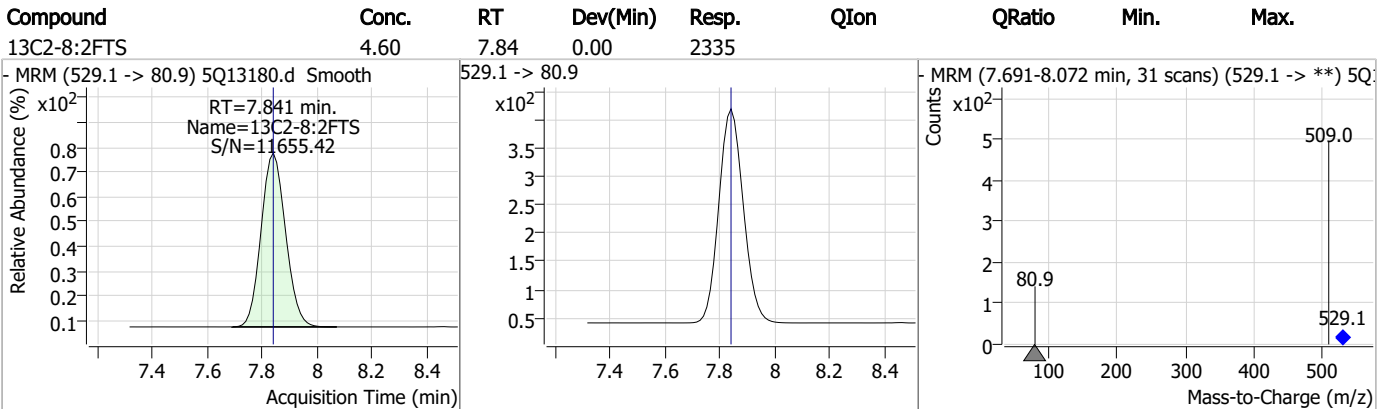
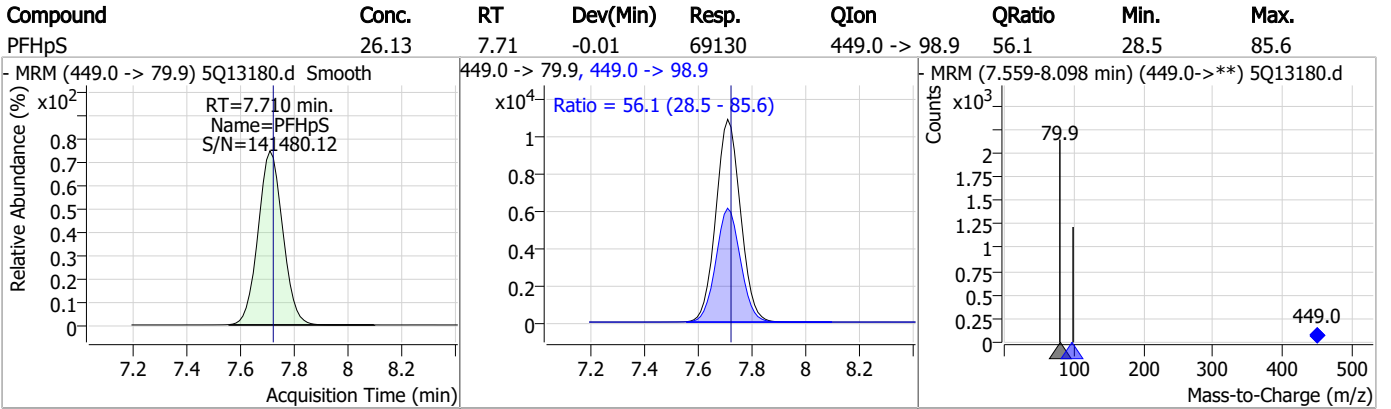
### Perfluorinated Compounds by LC/MS/MS



7.7.8

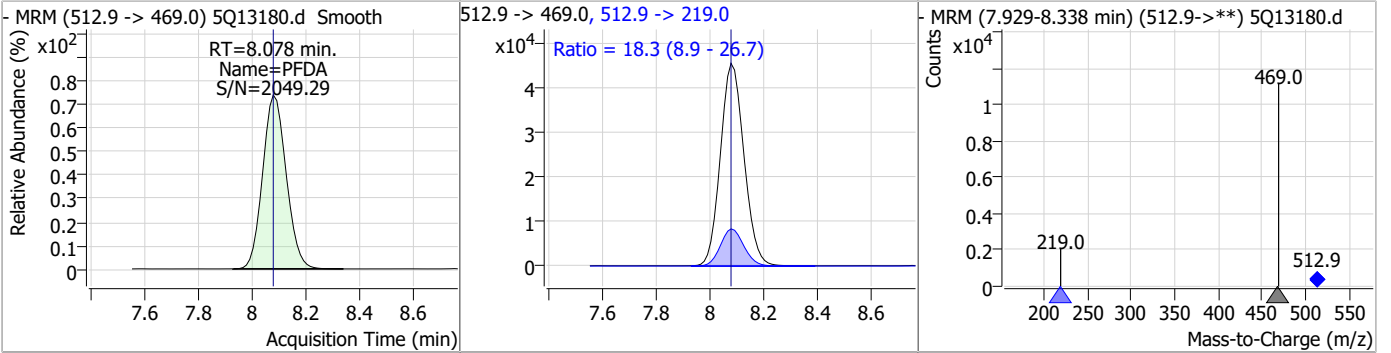
7

### Perfluorinated Compounds by LC/MS/MS

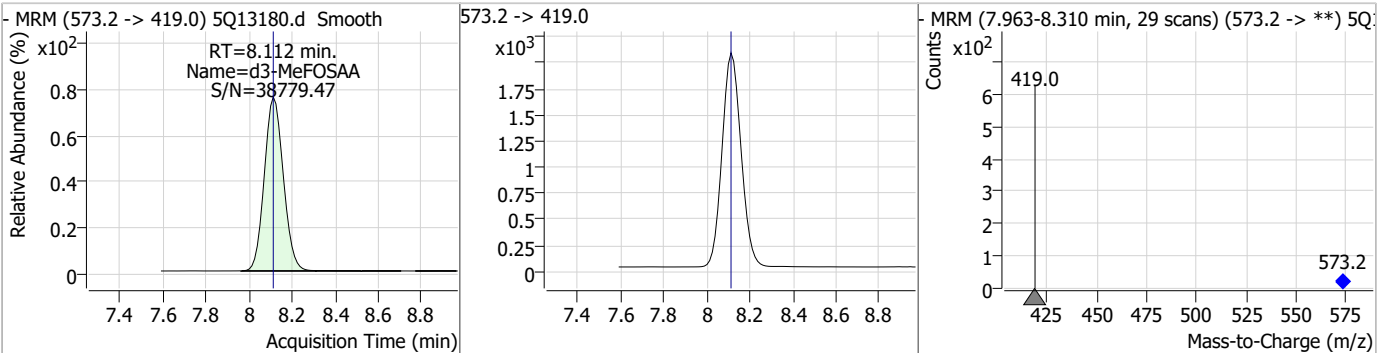


### Perfluorinated Compounds by LC/MS/MS

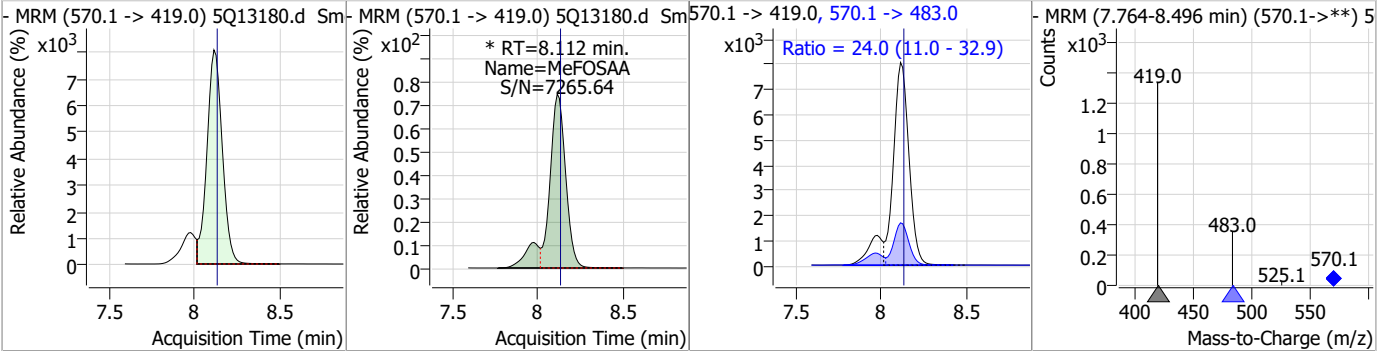
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	27.17	8.08	0.00	274417	512.9 -> 219.0	18.3	8.9	26.7



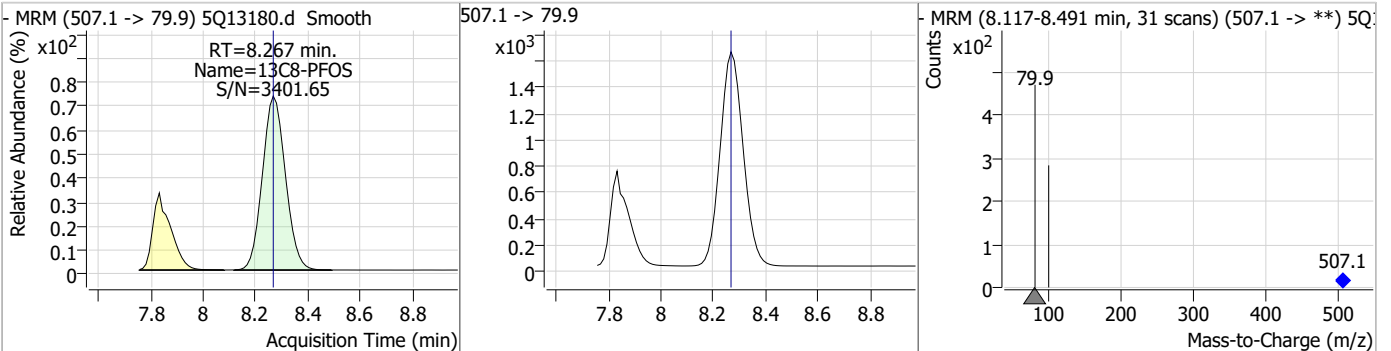
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.13	8.11	0.00	12583				



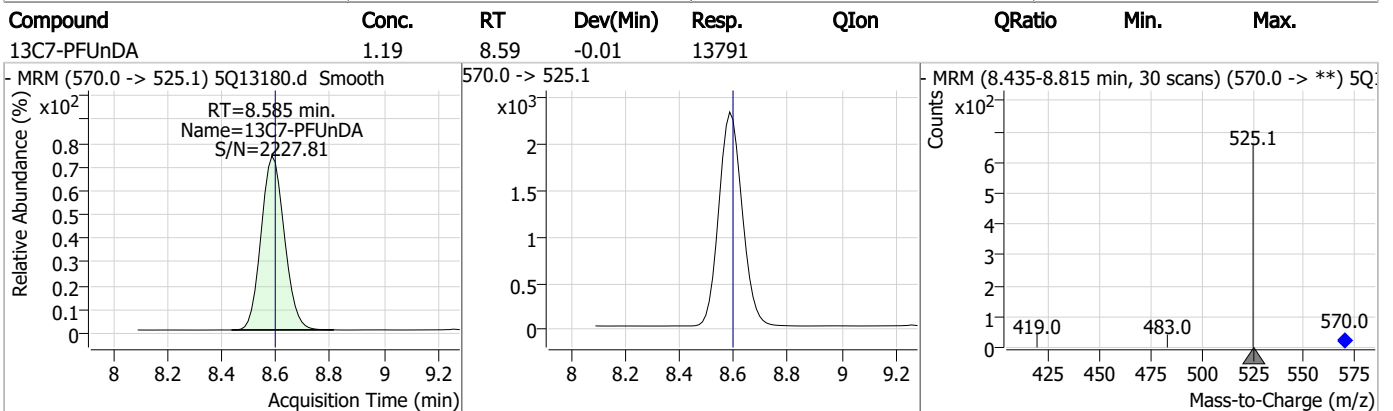
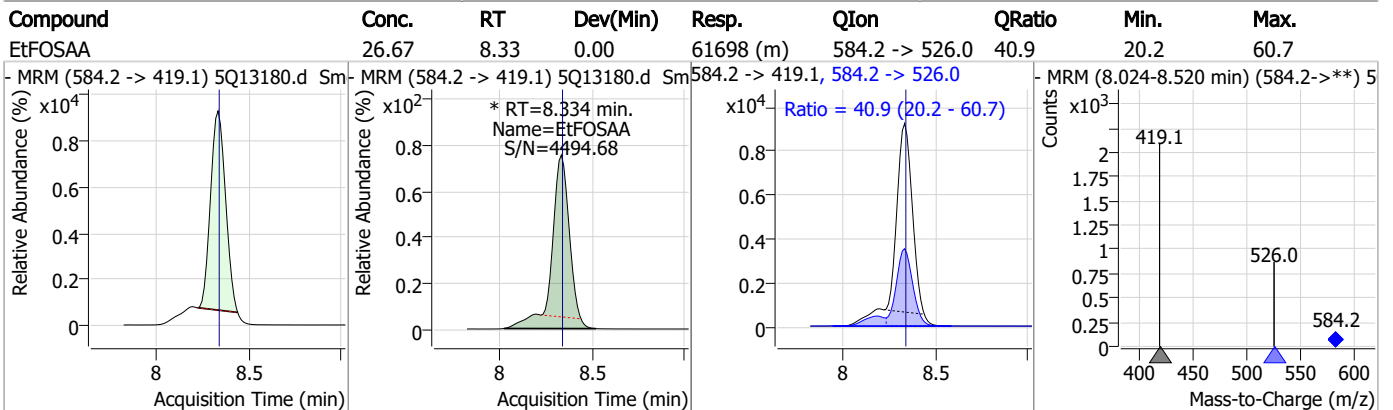
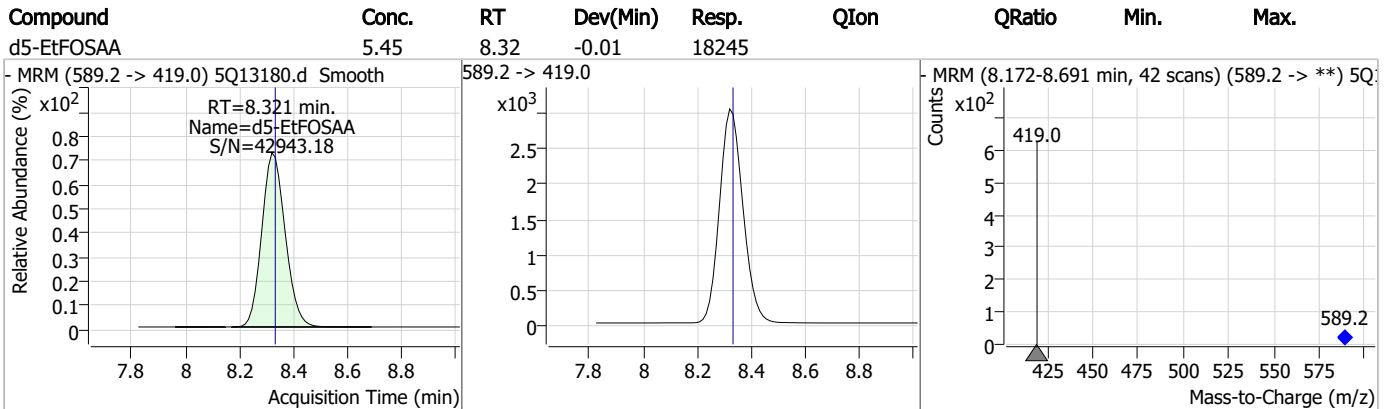
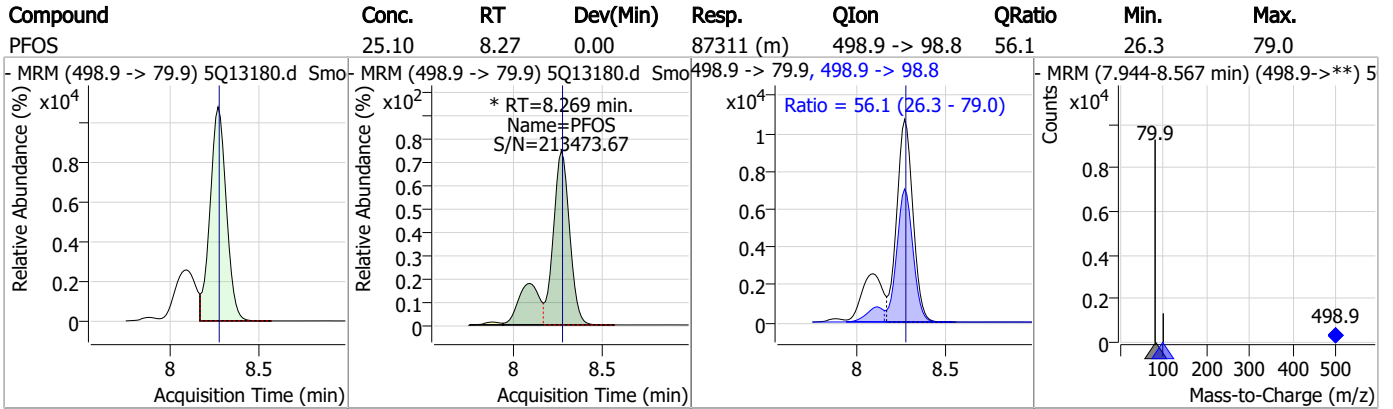
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	27.06	8.11	-0.01	57393 (m)	570.1 -> 483.0	24.0	11.0	32.9



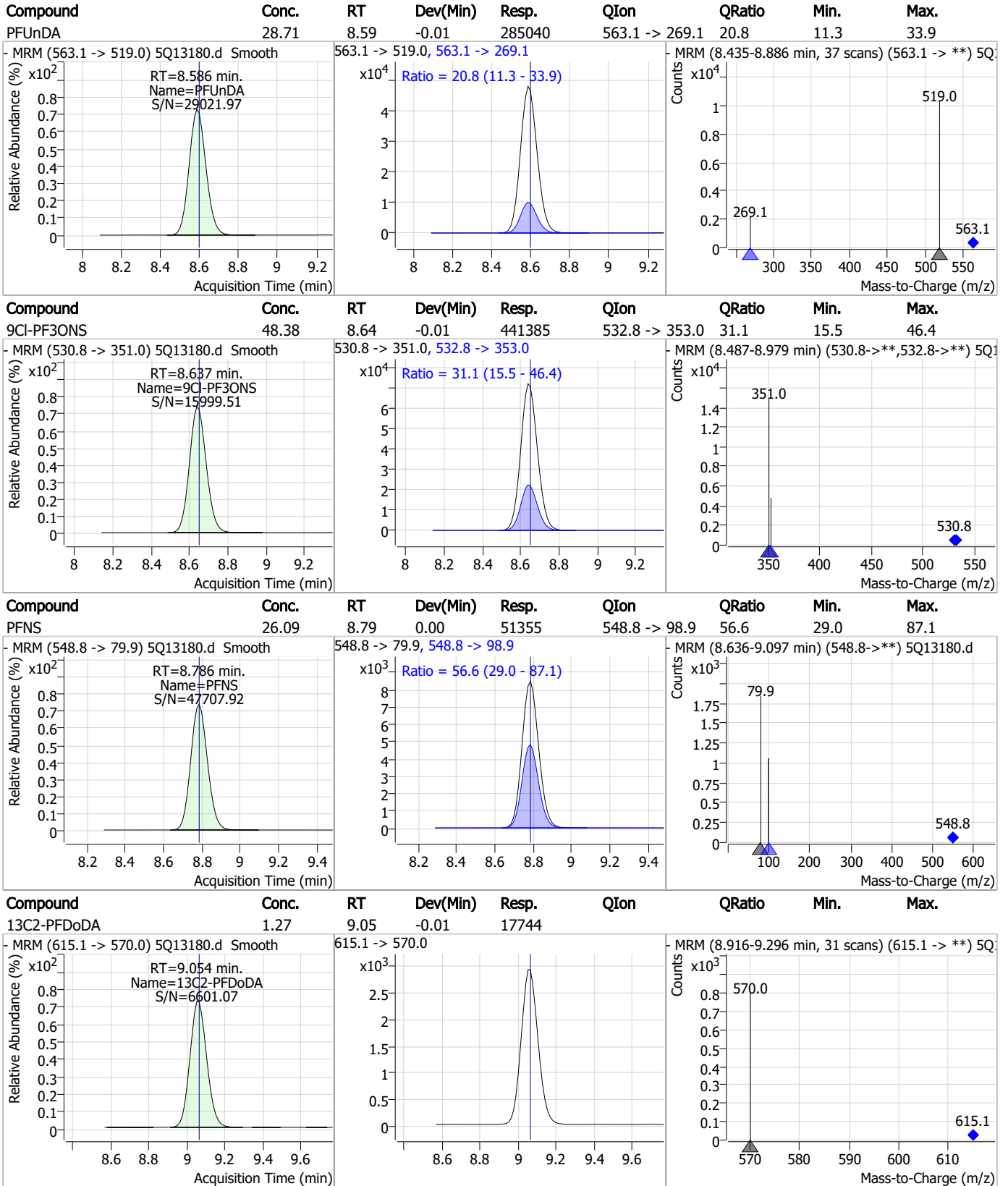
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.61	8.27	0.00	9972				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



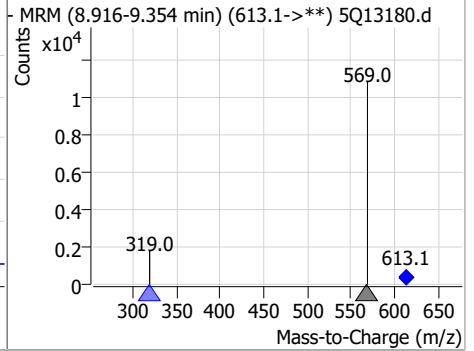
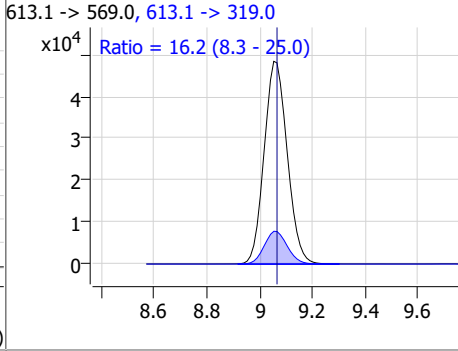
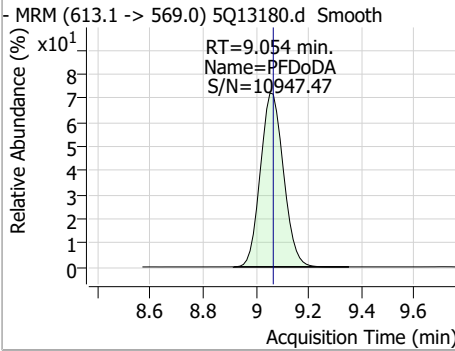
7.7.8

7

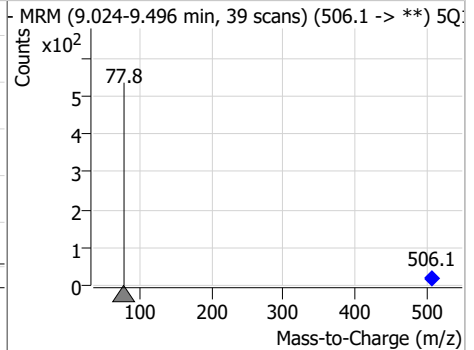
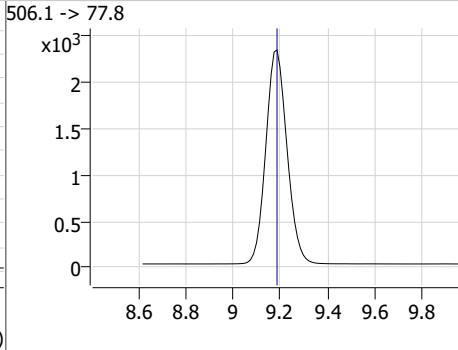
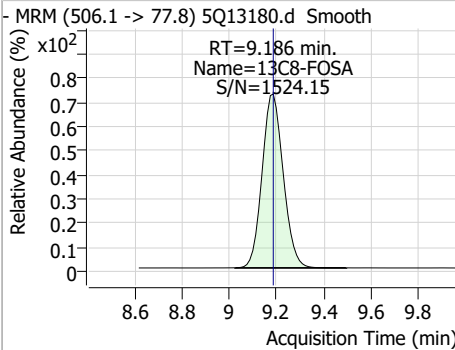


### Perfluorinated Compounds by LC/MS/MS

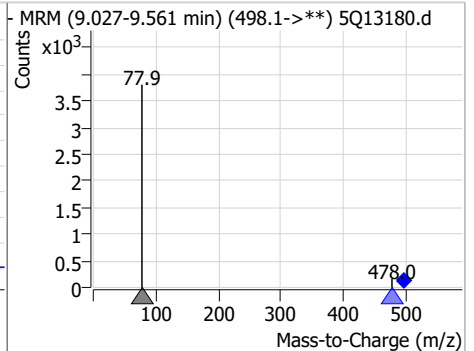
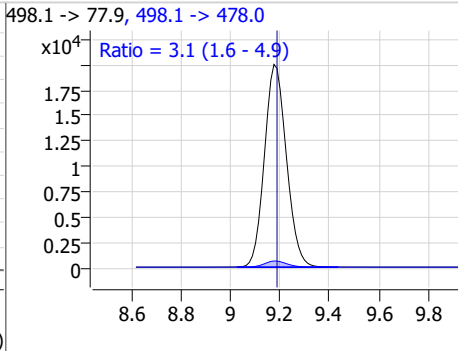
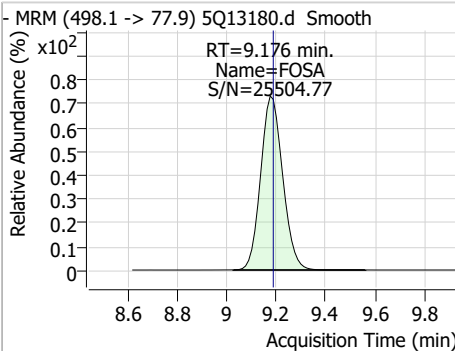
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	27.29	9.05	-0.01	294296	613.1 -> 319.0	16.2	8.3	25.0



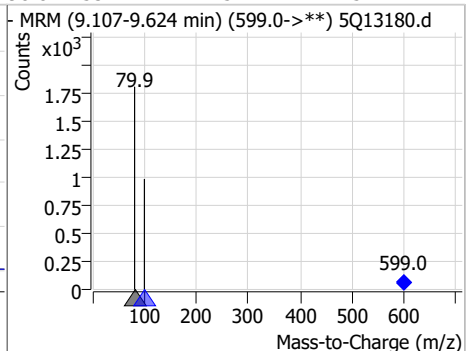
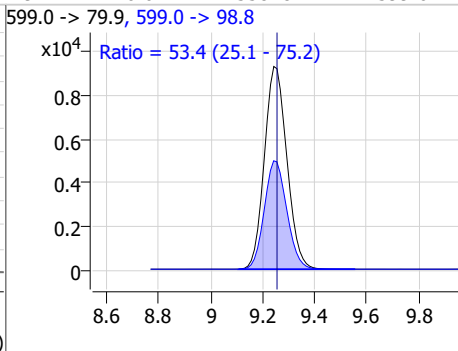
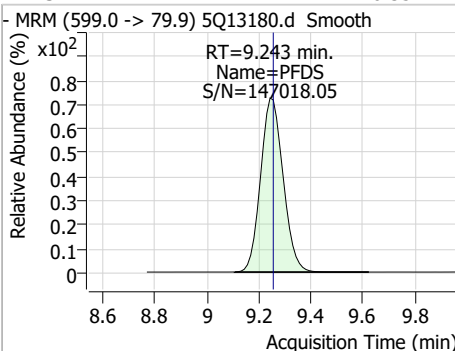
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.60	9.19	0.00	14339				



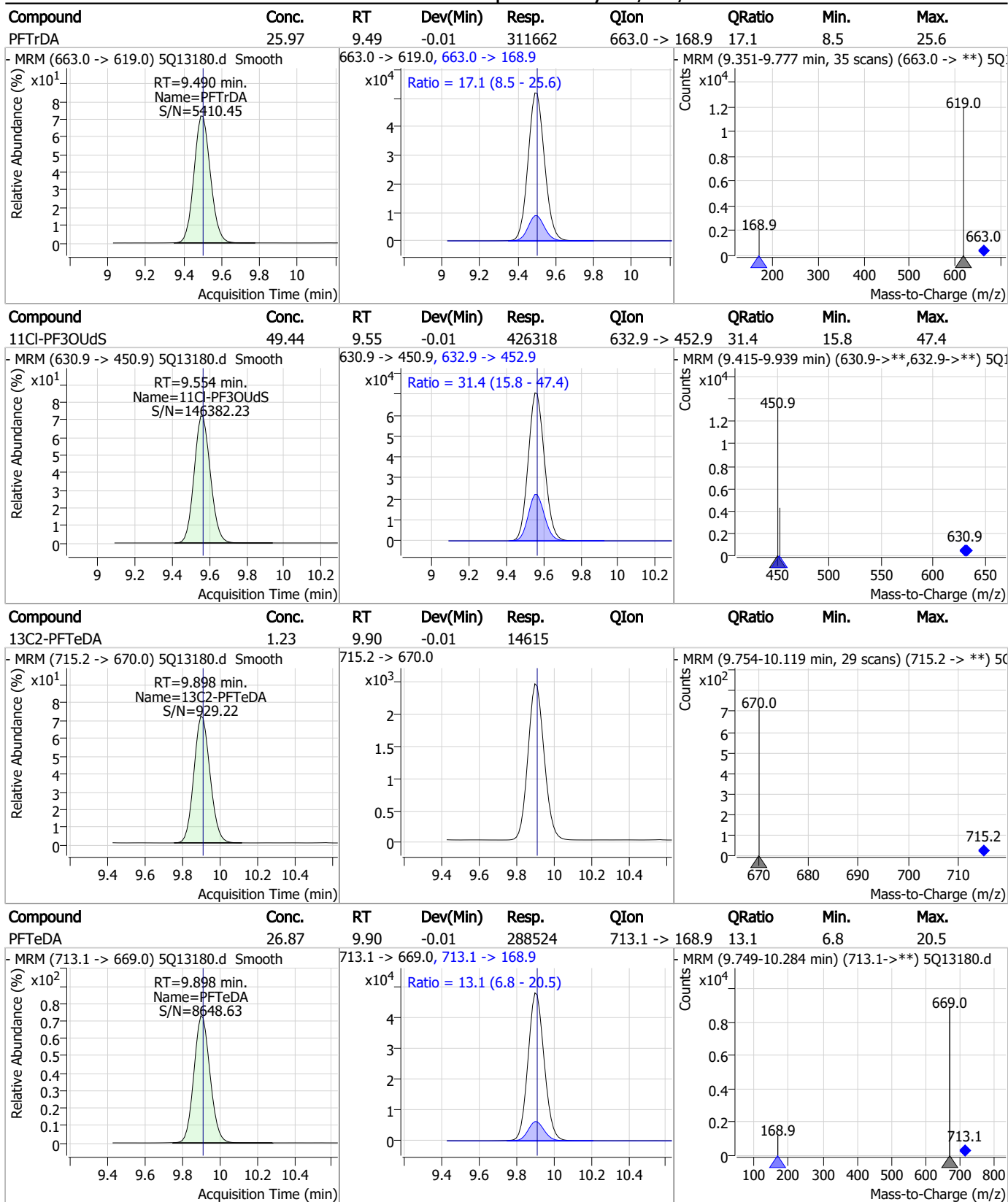
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	27.49	9.18	-0.01	123507	498.1 -> 478.0	3.1	1.6	4.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	26.35	9.24	-0.01	55828	599.0 -> 98.8	53.4	25.1	75.2



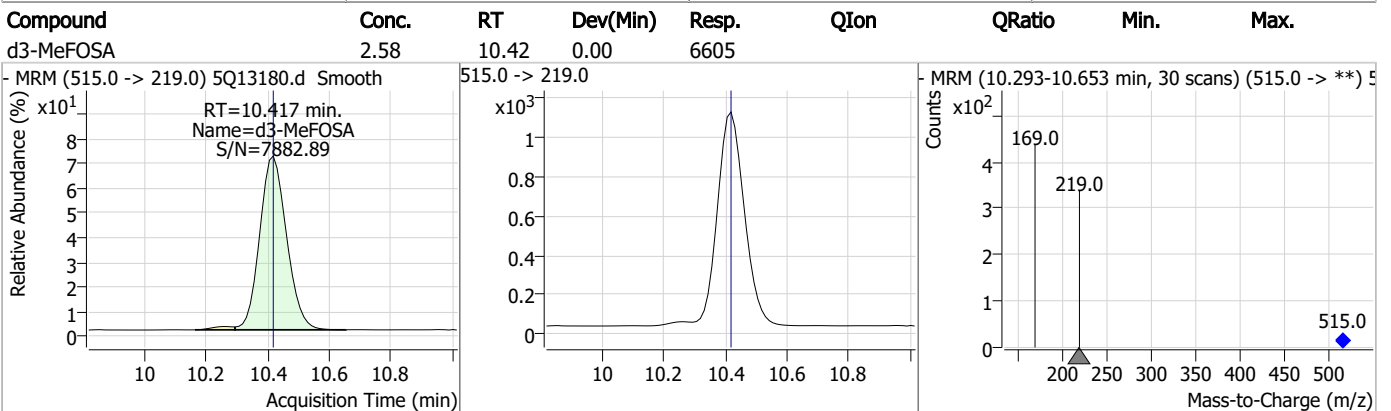
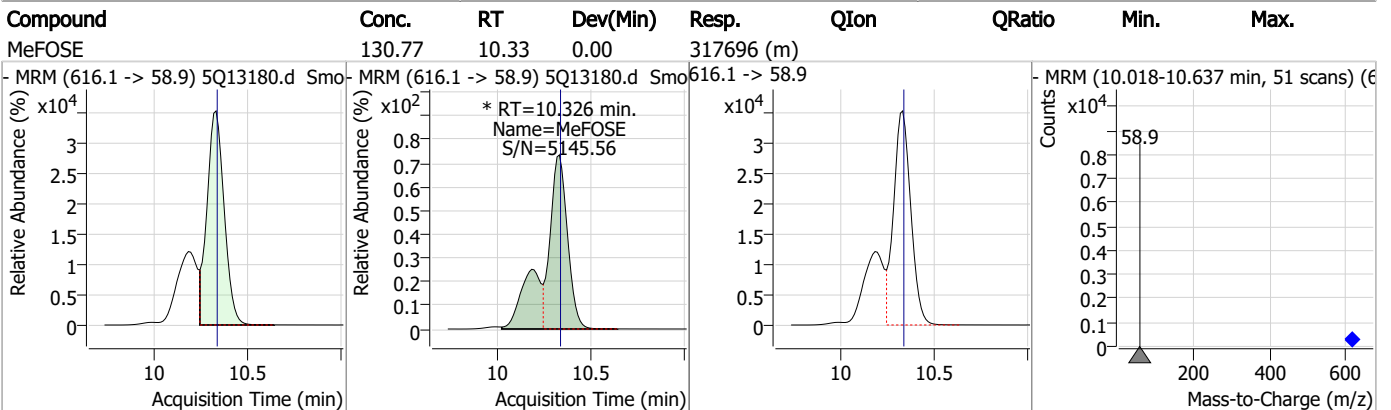
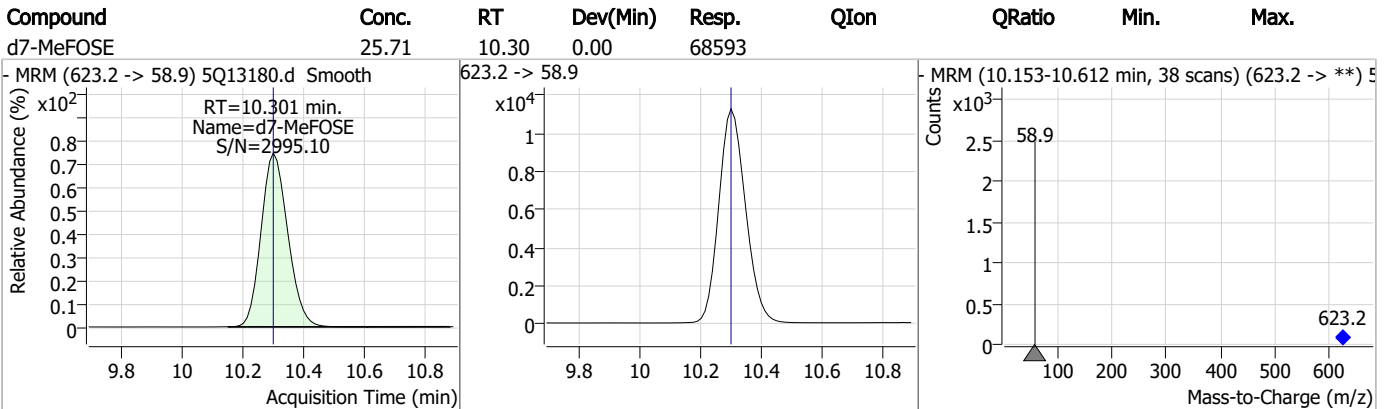
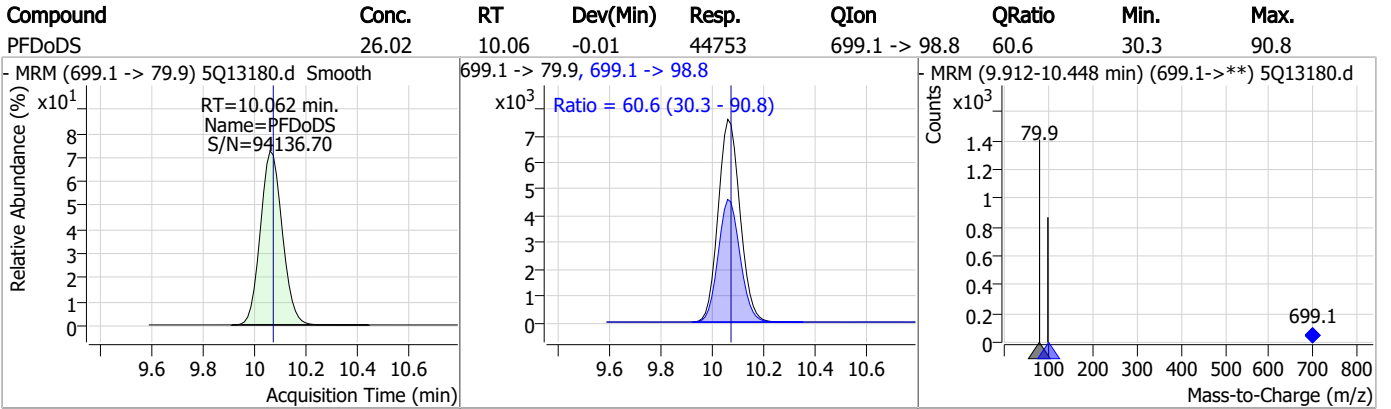
### Perfluorinated Compounds by LC/MS/MS



7.7.8  
7



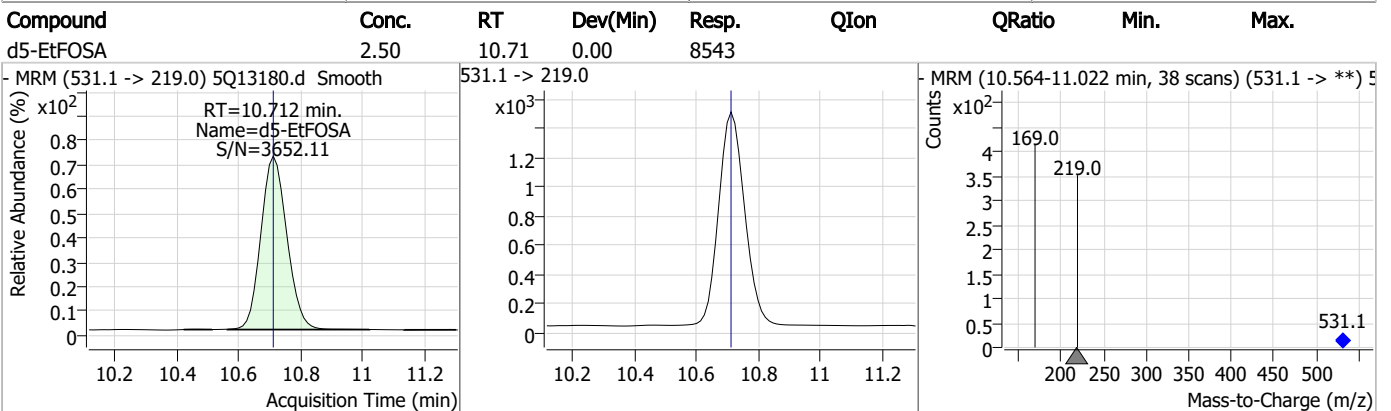
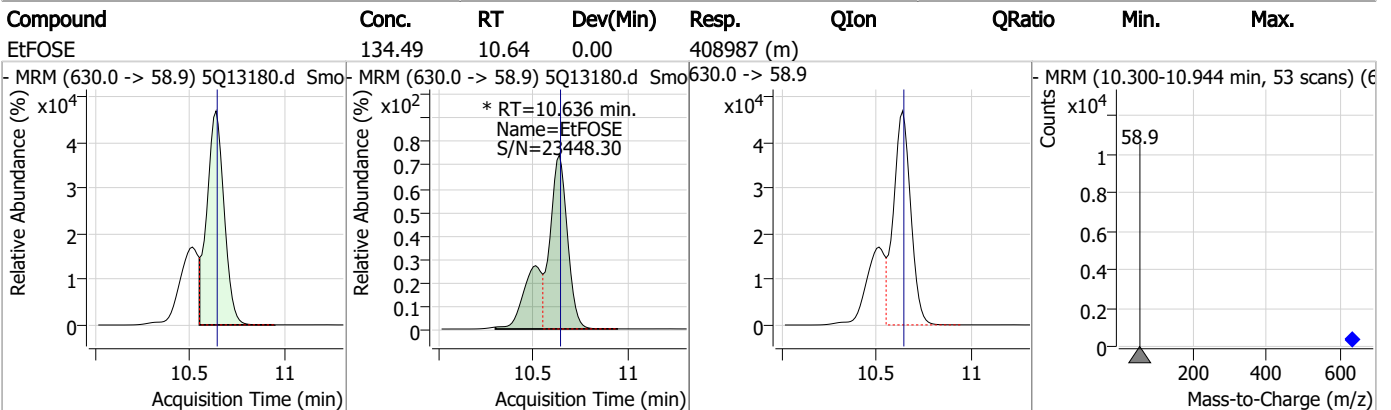
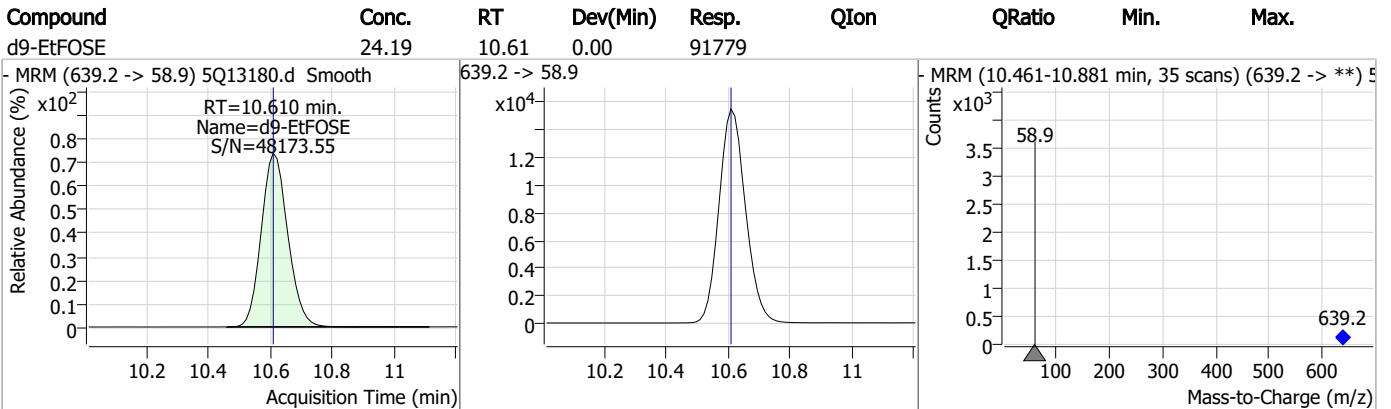
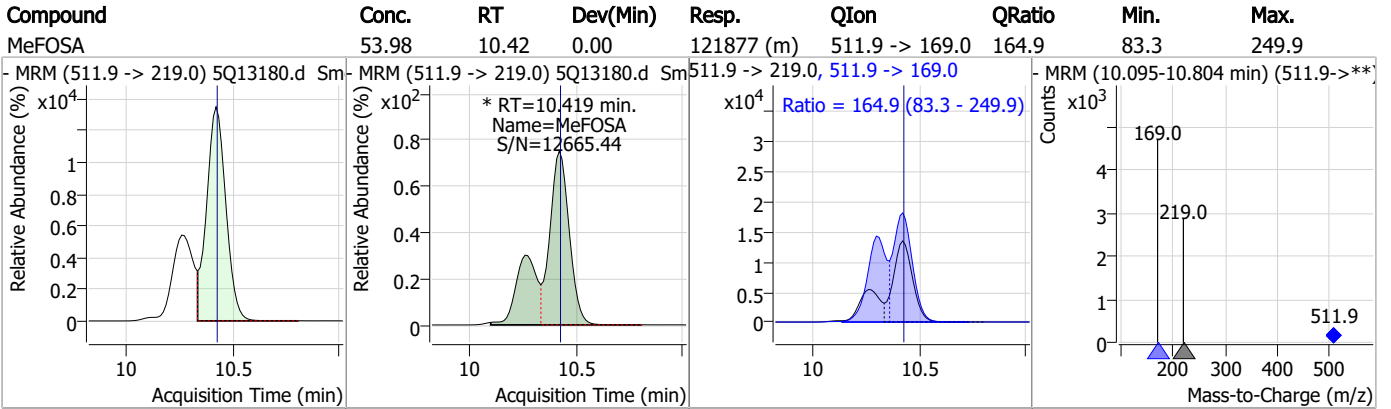
### Perfluorinated Compounds by LC/MS/MS



7.7.8

7

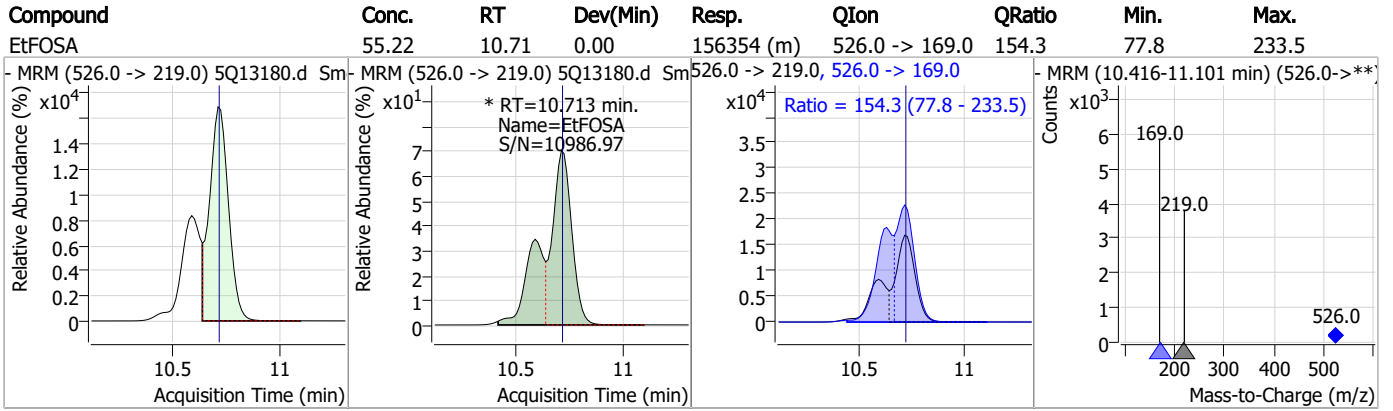
### Perfluorinated Compounds by LC/MS/MS



7.7.8

7

### Perfluorinated Compounds by LC/MS/MS



7.7.8

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-IC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13180.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 20:21      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-PFBA			2.75	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.76	Poor instrument integration
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBS			5.24	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.24	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
MeFOSAA	2355-31-9		8.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.8.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13181.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 8:36:08 PM  
 Sample Name : ic205-8  
 Vial : P3-A9  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.777	216.8 -> 171.9	50470	10.00	µg/L m	0.012
M5-PFPeA	4.116	268.3 -> 223.0	42652	5.00	µg/L	0.000
M5-PFHxA	5.309	318.0 -> 273.0	37973	2.50	µg/L	0.000
M4-PFHpA	6.279	367.1 -> 322.0	34096	2.50	µg/L	-0.012
M8-PFOA	6.962	421.1 -> 376.0	43913	2.50	µg/L	-0.012
M9-PFNA	7.544	472.1 -> 427.0	19912	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	11505	1.25	µg/L	0.000
M7-PFUnDA	8.585	570.0 -> 525.1	13487	1.25	µg/L	-0.012
M2-PFDoDA	9.066	615.1 -> 570.0	18291	1.25	µg/L	0.000
M2-PFTeDA	9.910	715.2 -> 670.0	15370	1.25	µg/L	0.000
M8-FOSA	9.186	506.1 -> 77.8	15027	2.50	µg/L	0.000
M3-PFBS	5.251	302.1 -> 79.9	6620	2.50	µg/L m	0.000
M3-PFHxS	7.090	402.1 -> 79.9	7314	2.50	µg/L	-0.012
M8-PFOS	8.267	507.1 -> 79.9	10033	2.50	µg/L	0.000
M2-4:2FTS	4.960	329.1 -> 80.9	727	5.00	µg/L	0.000
M2-6:2FTS	6.711	429.1 -> 80.9	1566	5.00	µg/L	-0.012
M2-8:2FTS	7.841	529.1 -> 80.9	2224	5.00	µg/L	0.000
M3-MeFOSAA	8.111	573.2 -> 419.0	12266	5.00	µg/L	0.000
M3-HFPO-DA	5.701	286.9 -> 168.9	78175	10.00	µg/L	0.000
M5-EtFOSAA	8.321	589.2 -> 419.0	16655	5.00	µg/L	-0.012
M7-MeFOSE	10.301	623.2 -> 58.9	69208	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	95636	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	8823	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6913	2.50	µg/L	0.000
13C4-PFOS	8.268	502.8 -> 79.9	9867	2.50	µg/L	0.000
13C3-PFBA	2.780	216.0 -> 172.0	26618	5.00	µg/L m	0.012
18O2-PFHxS	7.102	403.0 -> 83.9	4947	2.50	µg/L	0.000
13C4-PFOA	6.962	417.1 -> 372.0	53754	2.50	µg/L	-0.012
13C2-PFDA	8.078	515.1 -> 470.1	18366	1.25	µg/L	0.000
13C5-PFNA	7.544	468.0 -> 423.0	19035	1.25	µg/L	0.000
13C2-PFHxA	5.310	315.1 -> 270.0	41182	2.50	µg/L	0.000

**System Monitoring Compounds**

13C2-4:2FTS	4.960	329.1 -> 80.9	727	4.25	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 85.0%			
13C2-6:2FTS	6.711	429.1 -> 80.9	1566	4.15	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 83.1%			
13C2-8:2FTS	7.841	529.1 -> 80.9	2224	3.93	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 78.5%			
13C2-PFDoDA	9.066	615.1 -> 570.0	18291	1.26	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%			
13C2-PFTeDA	9.910	715.2 -> 670.0	15370	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%			
13C3-PFBS	5.251	302.1 -> 79.9	6487	2.14	µg/L m	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.7%			
13C3-PFHxS	7.090	402.1 -> 79.9	7314	2.41	µg/L	-0.012

7.7.9  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C4-PFBA	2.777	216.8 -> 171.9	50470	9.90 µg/L m	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C4-PFHpA	6.279	367.1 -> 322.0	34096	2.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C5-PFHxA	5.309	318.0 -> 273.0	37973	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C5-PFPeA	4.116	268.3 -> 223.0	42652	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C6-PFDA	8.077	519.1 -> 474.1	11505	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.3%		
13C7-PFUnDA	8.585	570.0 -> 525.1	13487	1.11 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.2%		
13C8-FOSA	9.186	506.1 -> 77.8	15027	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C8-PFOA	6.962	421.1 -> 376.0	43913	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C8-PFOS	8.267	507.1 -> 79.9	10033	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C9-PFNA	7.544	472.1 -> 427.0	19912	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.9%		
d3-MeFOSAA	8.111	573.2 -> 419.0	12266	4.64 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C3-HFPO-DA	5.701	286.9 -> 168.9	78175	10.17 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
d3-MeFOSA	10.417	515.0 -> 219.0	6913	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
d5-EtFOSAA	8.321	589.2 -> 419.0	16655	4.62 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.3%		
d7-MeFOSE	10.301	623.2 -> 58.9	69208	24.09 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 96.4%		
d9-EtFOSE	10.610	639.2 -> 58.9	95636	23.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 93.6%		
d5-EtFOSA	10.712	531.1 -> 219.0	8823	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		

Target Compounds	RT	Transition	Response	Conc. Units	QValue
4:2FTS	4.960	327.1 -> 307.0	190312	222.12 µg/L	98
		327.1 -> 80.9	100467		
6:2FTS	6.711	427.1 -> 407.0	263795	214.72 µg/L	96
		427.1 -> 80.9	104303		
8:2FTS	7.841	527.1 -> 507.0	198946	215.55 µg/L	93
		527.1 -> 80.8	86817		
EtFOSAA	8.334	584.2 -> 419.1	141284	66.91 µg/L m	100
		584.2 -> 526.0	57370		
FOSA	9.188	498.1 -> 77.9	296157	62.89 µg/L	99
		498.1 -> 478.0	8794		
MeFOSAA	8.112	570.1 -> 419.0	132216	63.96 µg/L m	95
		570.1 -> 483.0	31931		
PFBA	2.783	212.8 -> 168.9	465924	253.36 µg/L m	100
PFBS	5.252	298.7 -> 79.9	123821	58.97 µg/L m	92
		298.7 -> 98.8	51518		
PFDA	8.078	512.9 -> 469.0	629240	61.43 µg/L	99
		512.9 -> 219.0	115498		
PFDoDA	9.067	613.1 -> 569.0	665818	59.89 µg/L	100
		613.1 -> 319.0	111777		
PFDS	9.256	599.0 -> 79.9	127785	59.95 µg/L	95

7.7.9  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.280	599.0 -> 98.8	68282	63.37	µg/L	98
		363.1 -> 319.0	880426			
PFHpS	7.710	363.1 -> 169.0	194373	60.93	µg/L	98
		449.0 -> 79.9	162195			
PFHxA	5.312	449.0 -> 98.9	89943	62.85	µg/L	100
		313.0 -> 269.0	602356			
PFHxS	7.091	313.0 -> 118.9	26612	58.18	µg/L	96
		398.7 -> 79.9	149077			
PFNA	7.545	398.7 -> 98.9	83192	63.73	µg/L	99
		463.0 -> 419.0	617703			
PFNS	8.786	463.0 -> 219.0	142603	58.40	µg/L	98
		548.8 -> 79.9	115684			
PFOA	6.963	548.8 -> 98.9	65629	63.63	µg/L	98
		413.0 -> 369.0	1000504			
PFOS	8.269	413.0 -> 169.0	239029	58.31	µg/L	94
		498.9 -> 79.9	204058			
PFPeA	4.117	498.9 -> 98.8	116810	129.42	µg/L	100
		263.0 -> 219.0	1075431			
PFPeS	6.356	349.1 -> 79.9	136647	58.37	µg/L	99
		349.1 -> 98.9	65318			
PFTeDA	9.911	713.1 -> 669.0	672285	59.54	µg/L	100
		713.1 -> 168.9	90860			
PFTrDA	9.502	663.0 -> 619.0	719078	58.12	µg/L	100
		663.0 -> 168.9	122904			
PFUnDA	8.586	563.1 -> 519.0	620838	63.95	µg/L	97
		563.1 -> 269.1	130397			
11Cl-PF3OUdS	9.566	630.9 -> 450.9	976125	109.76	µg/L	99
		632.9 -> 452.9	304909			
9Cl-PF3ONS	8.637	530.8 -> 351.0	978866	104.03	µg/L	99
		532.8 -> 353.0	309404			
ADONA	6.542	376.9 -> 250.9	2466380	114.39	µg/L	99
		376.9 -> 84.8	723843			
HFPO-DA	5.702	284.9 -> 168.9	777090	126.48	µg/L	99
		284.9 -> 184.9	69876			
3:3FTCA	3.592	241.0 -> 177.0	185976	341.26	µg/L	100
		241.0 -> 117.0	19909			
5:3FTCA	5.917	341.0 -> 237.1	2866166	1564.02	µg/L	100
		341.0 -> 217.0	1955304			
7:3FTCA	7.372	441.0 -> 316.9	1502293	1588.03	µg/L	98
		441.0 -> 336.9	3320553			
EtFOSA	10.713	526.0 -> 219.0	367731	125.76	µg/L	99
		526.0 -> 169.0	568326			
EtFOSE	10.636	630.0 -> 58.9	969979	306.10	µg/L	100
		511.9 -> 219.0	288739			
MeFOSA	10.419	511.9 -> 169.0	472657	122.20	µg/L	98
		616.1 -> 58.9	763473			
MeFOSE	10.326	699.1 -> 79.9	102411	311.47	µg/L	100
		699.1 -> 98.8	61653			
PFDoDS	10.075	295.0 -> 201.0	108099	59.18	µg/L	100
		295.0 -> 84.9	28388			
NFDHA	5.190	279.0 -> 85.1	698898	115.86	µg/L	97
		229.0 -> 84.9	574479			
PFMBA	4.517	314.8 -> 134.9	1408813	128.93	µg/L	100
		314.8 -> 82.9	42085			
PFMPA	3.303			133.13	µg/L	100
PFEESA	5.820			113.46	µg/L	100

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

### Perfluorinated Compounds by LC/MS/MS

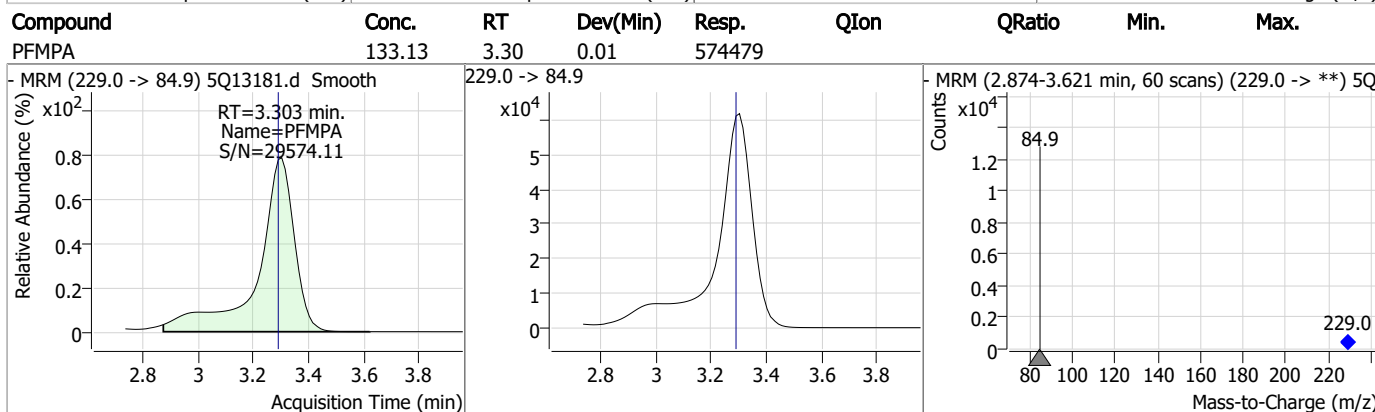
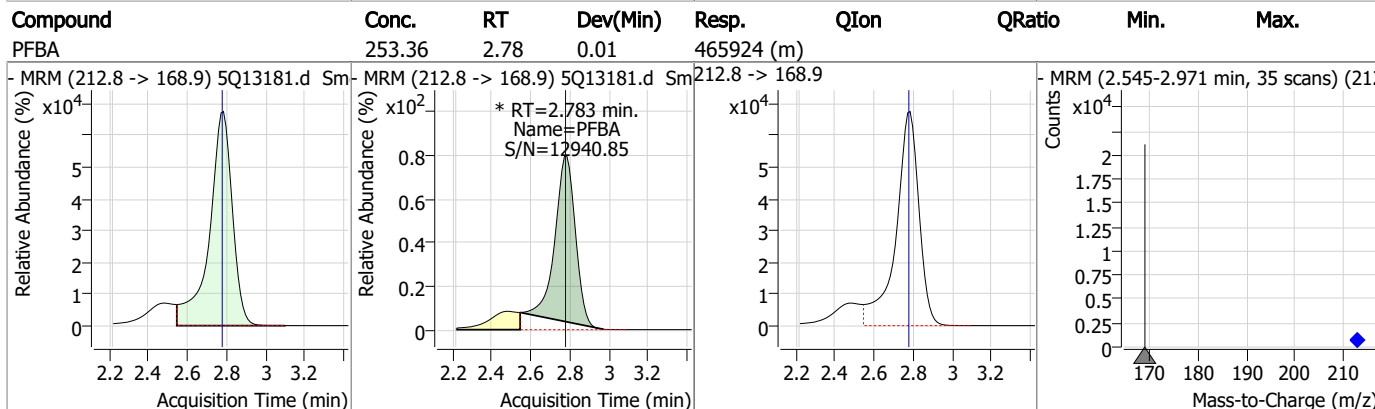
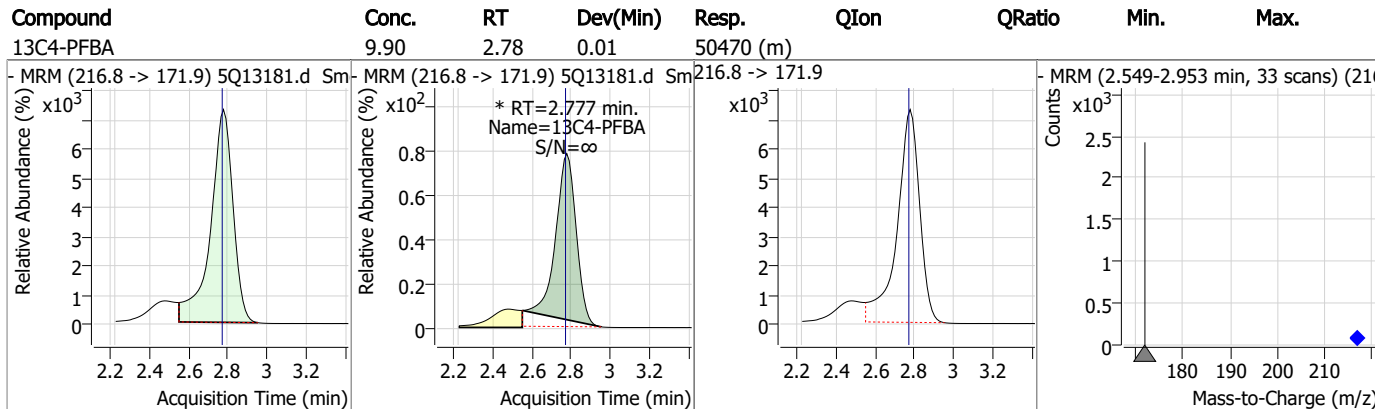
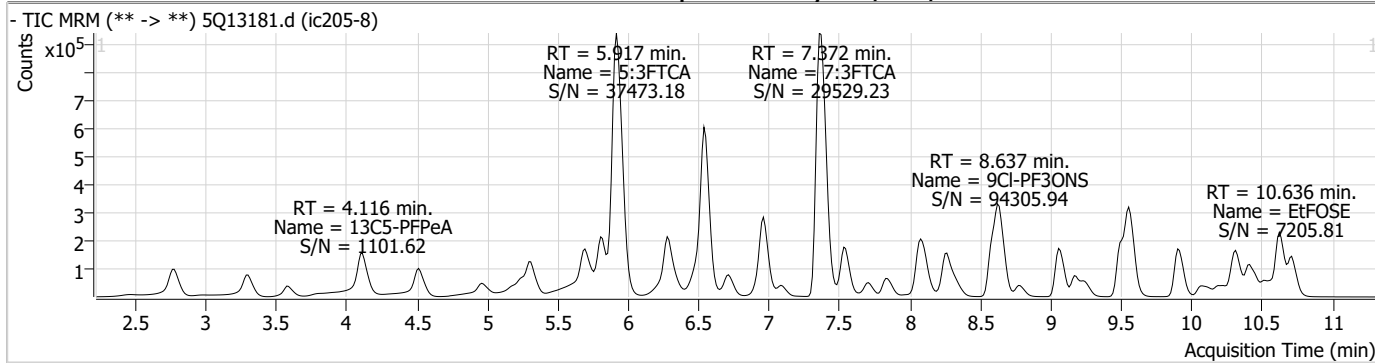
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.9

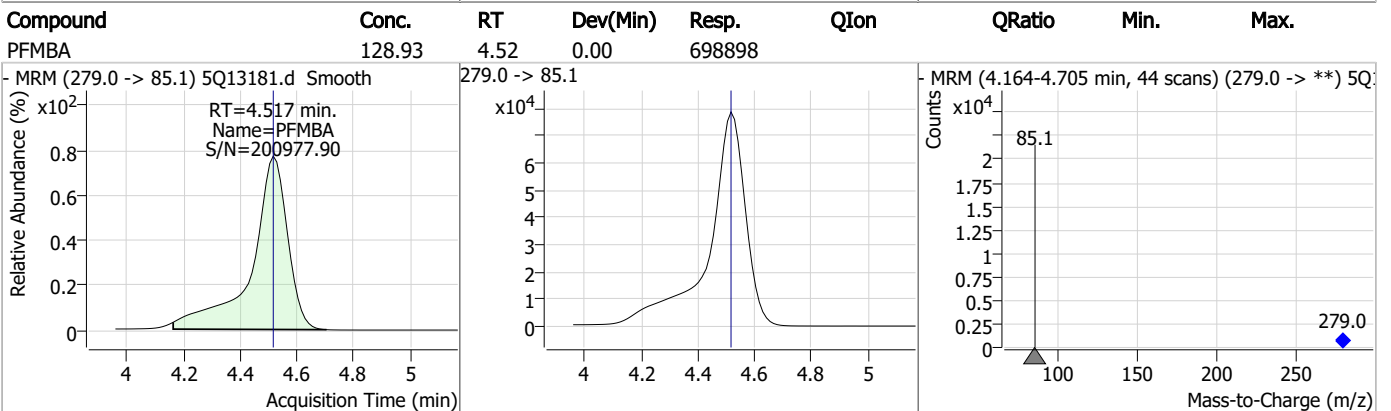
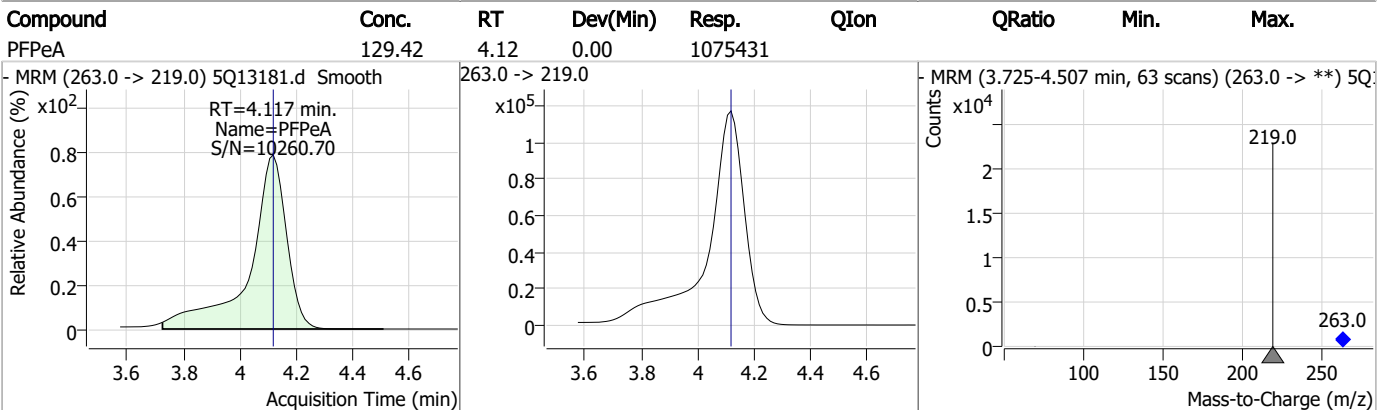
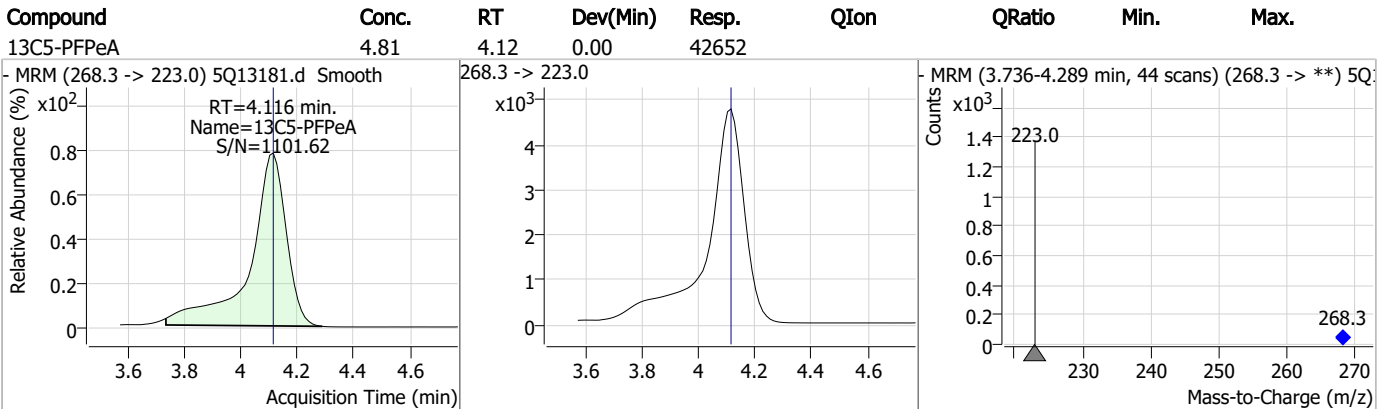
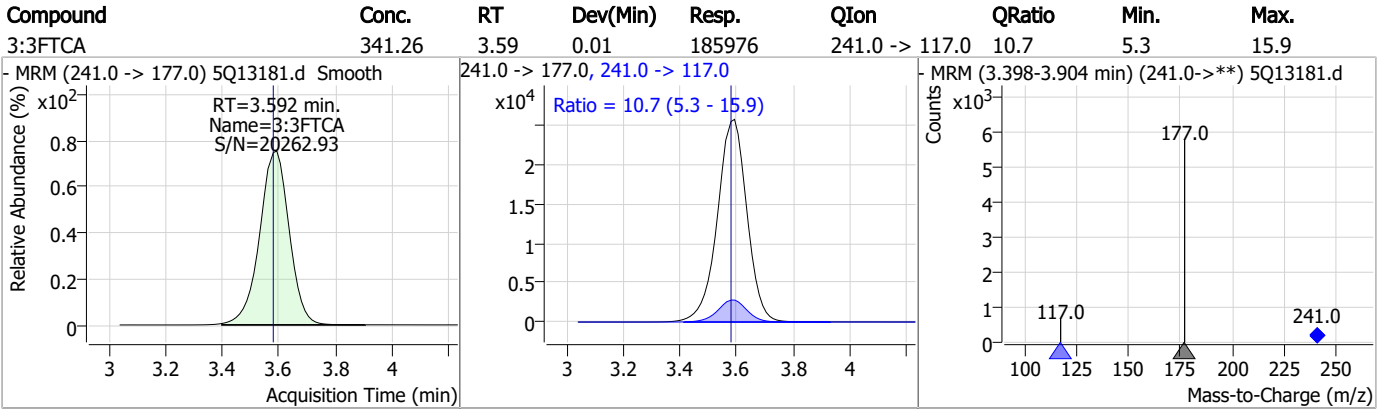
7



### Perfluorinated Compounds by LC/MS/MS



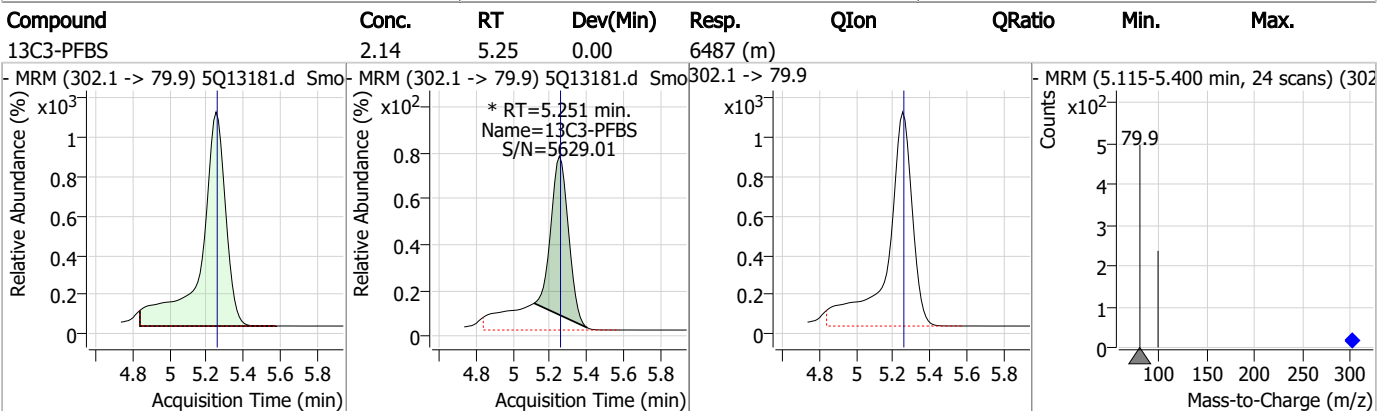
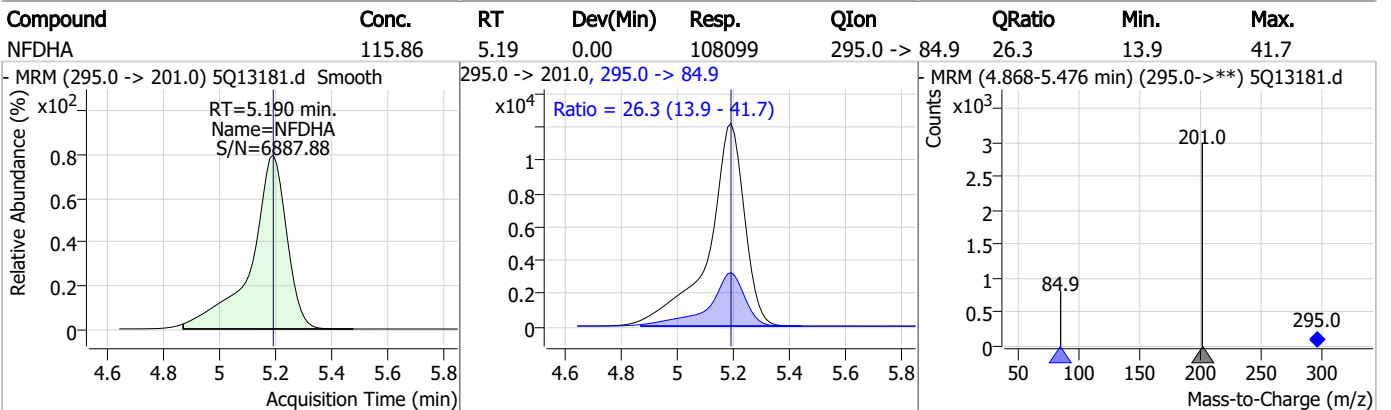
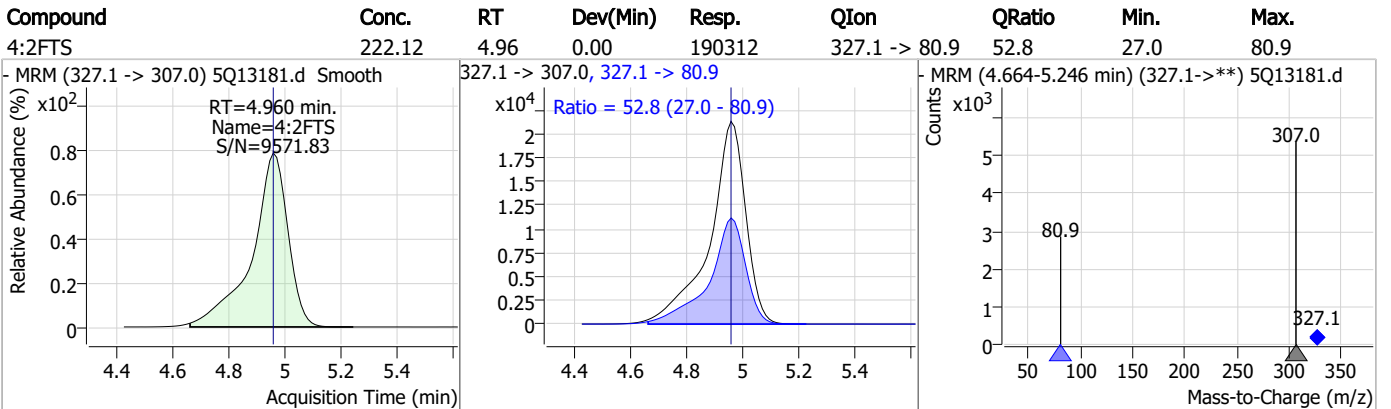
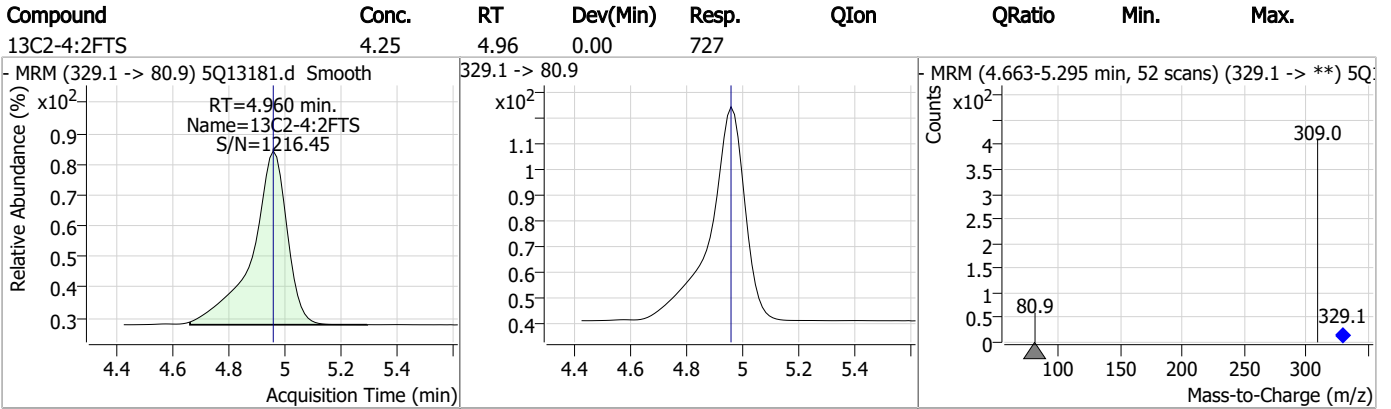
### Perfluorinated Compounds by LC/MS/MS



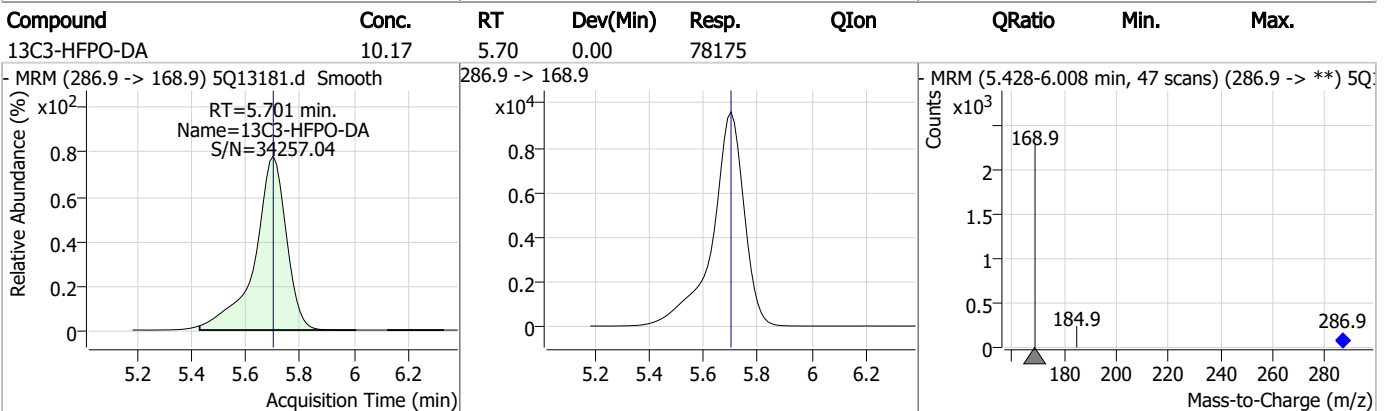
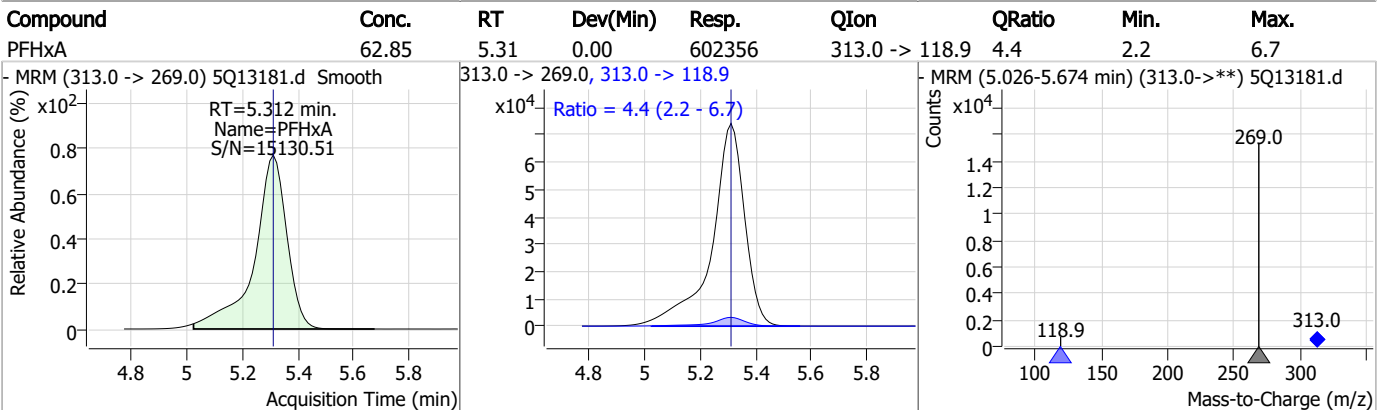
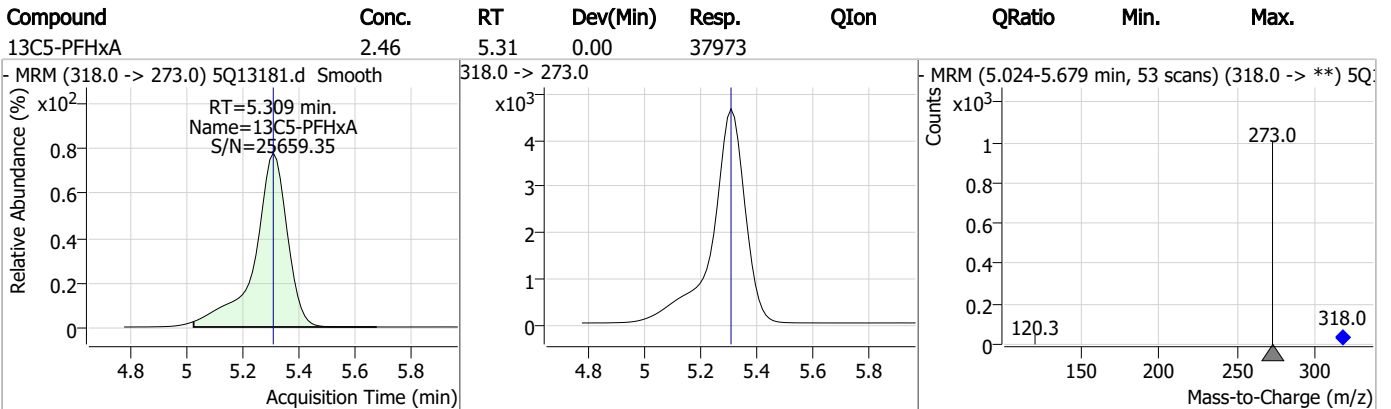
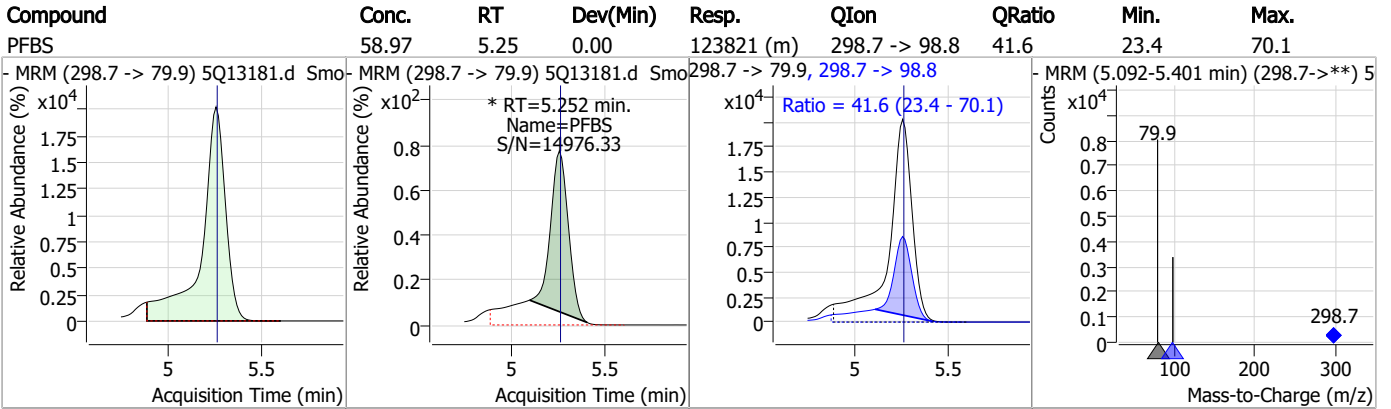
7.7.9

7

### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



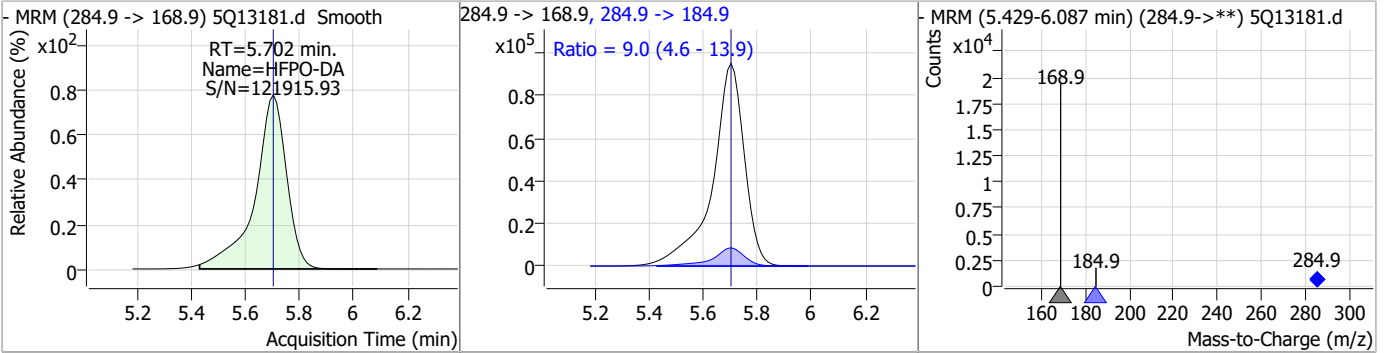
7.7.9

7

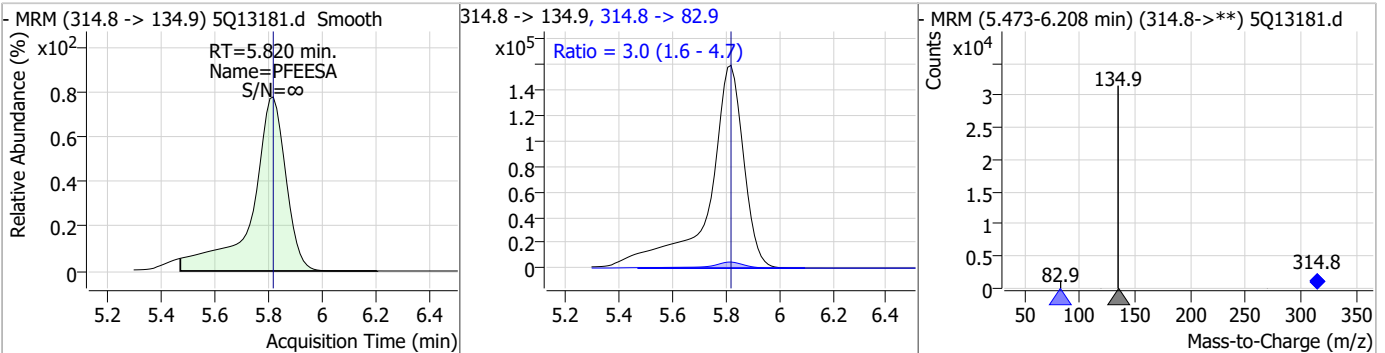


### Perfluorinated Compounds by LC/MS/MS

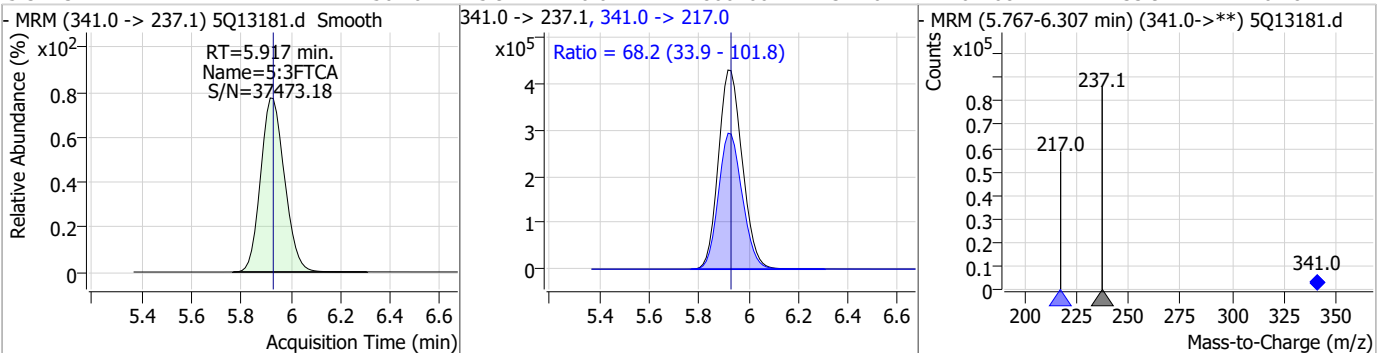
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	126.48	5.70	0.00	777090	284.9 -> 184.9	9.0	4.6	13.9



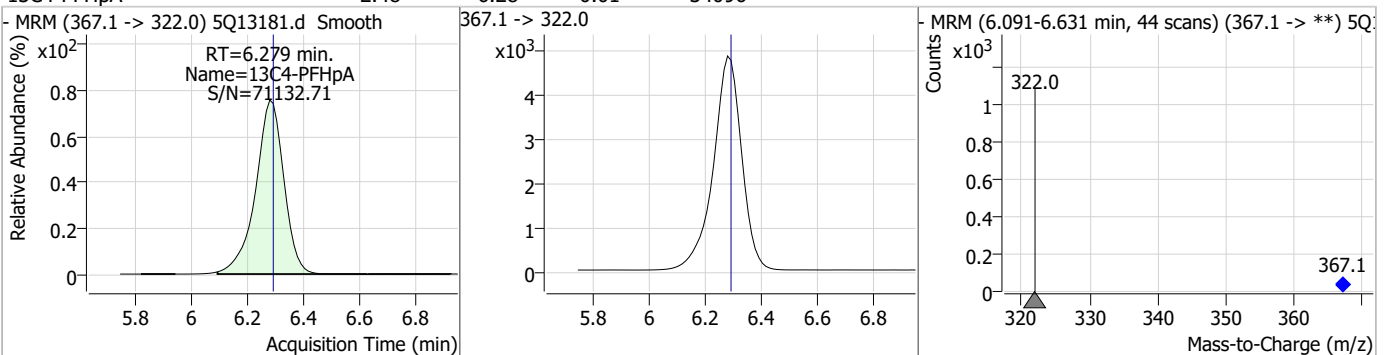
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	113.46	5.82	0.00	1408813	314.8 -> 82.9	3.0	1.6	4.7



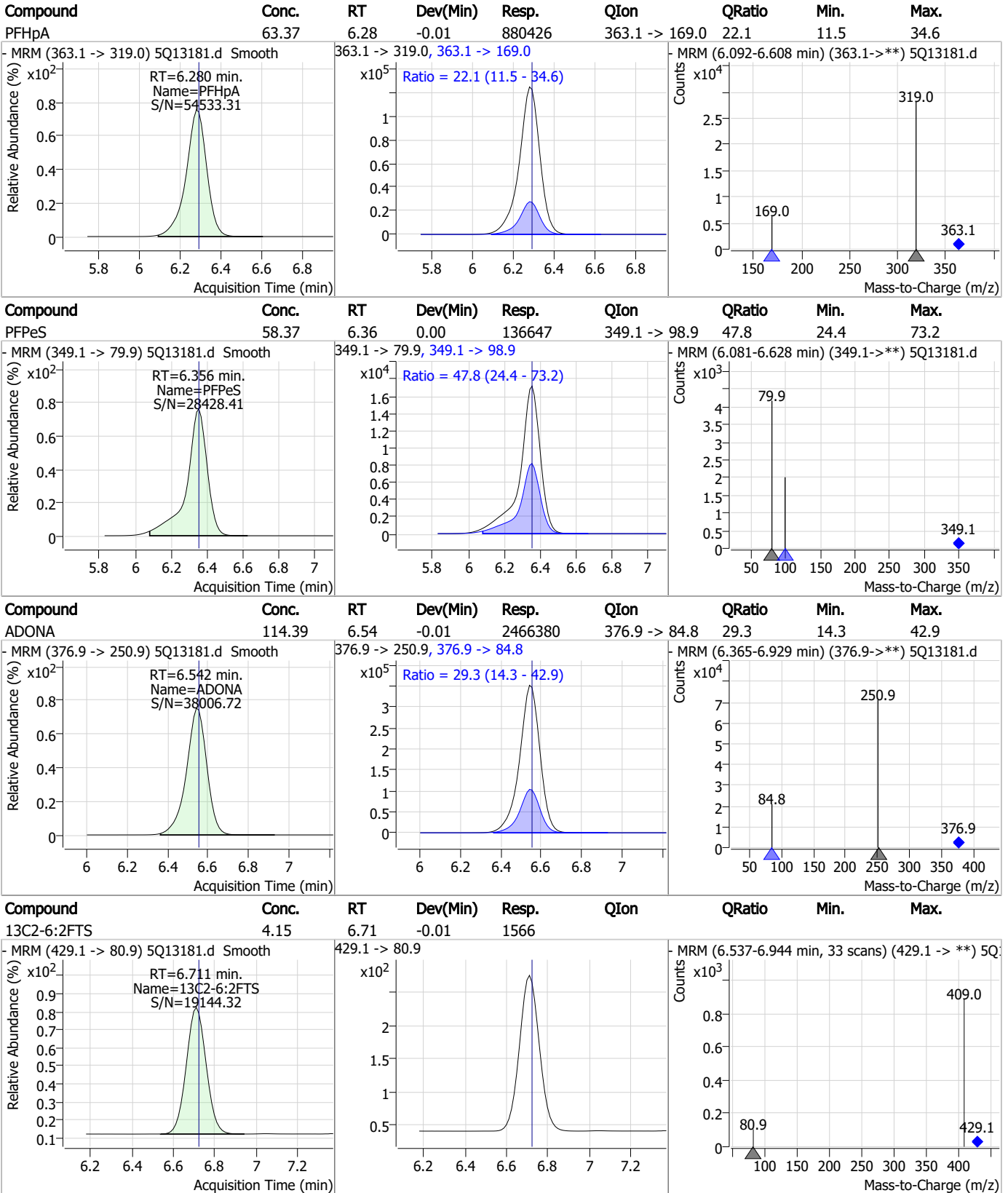
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1564.02	5.92	-0.01	2866166	341.0 -> 217.0	68.2	33.9	101.8



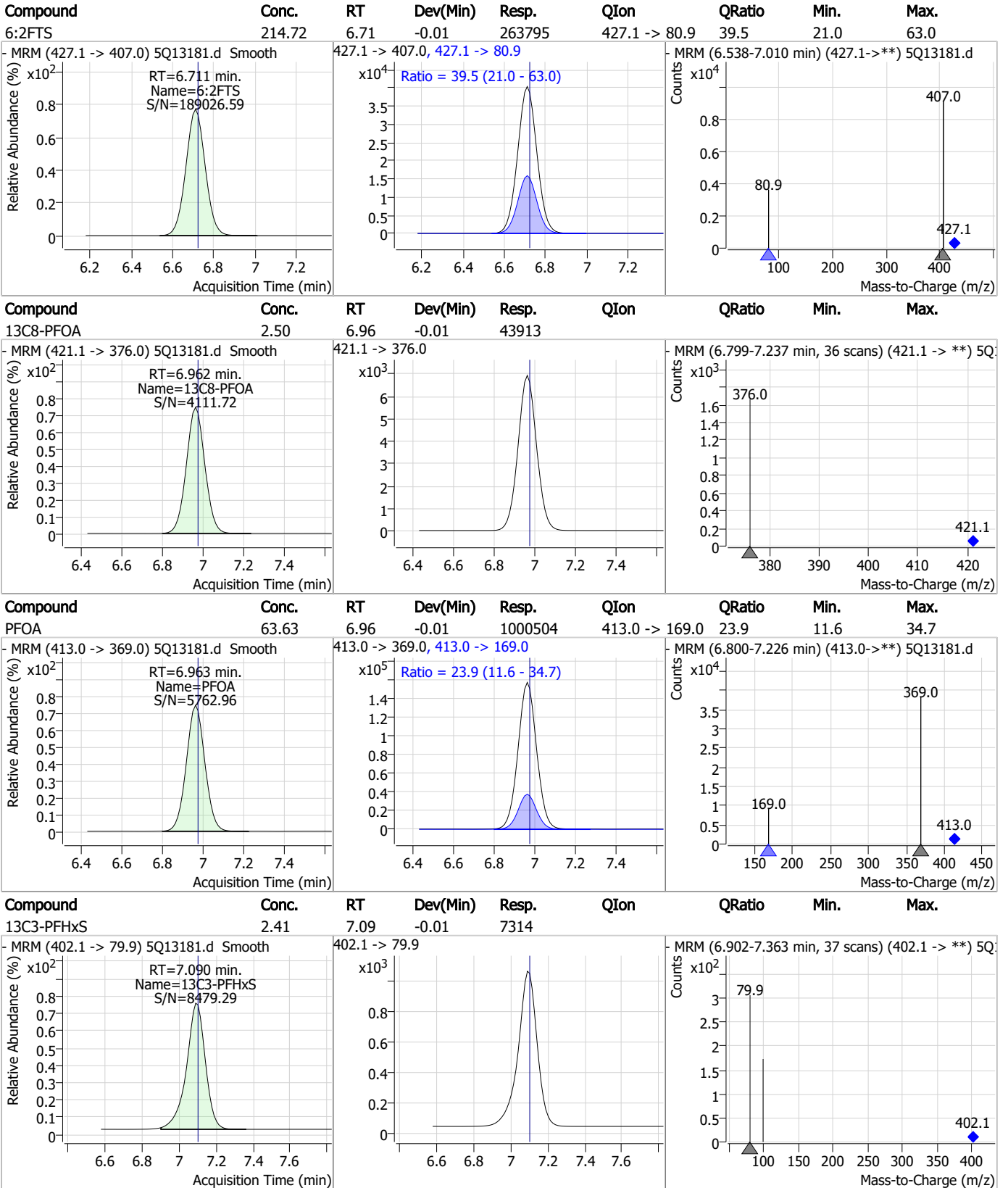
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.48	6.28	-0.01	34096	367.1 -> 322.0	-	-	-



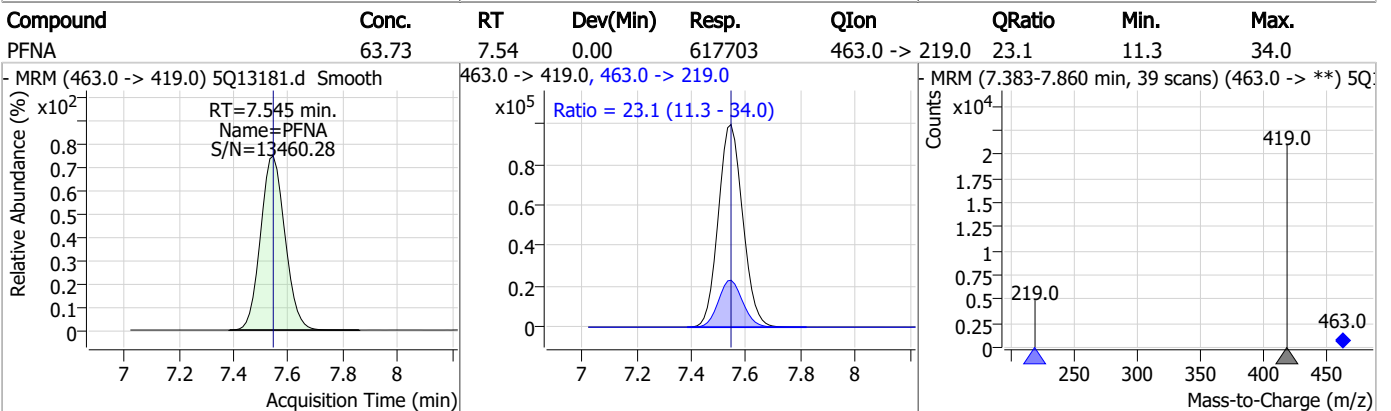
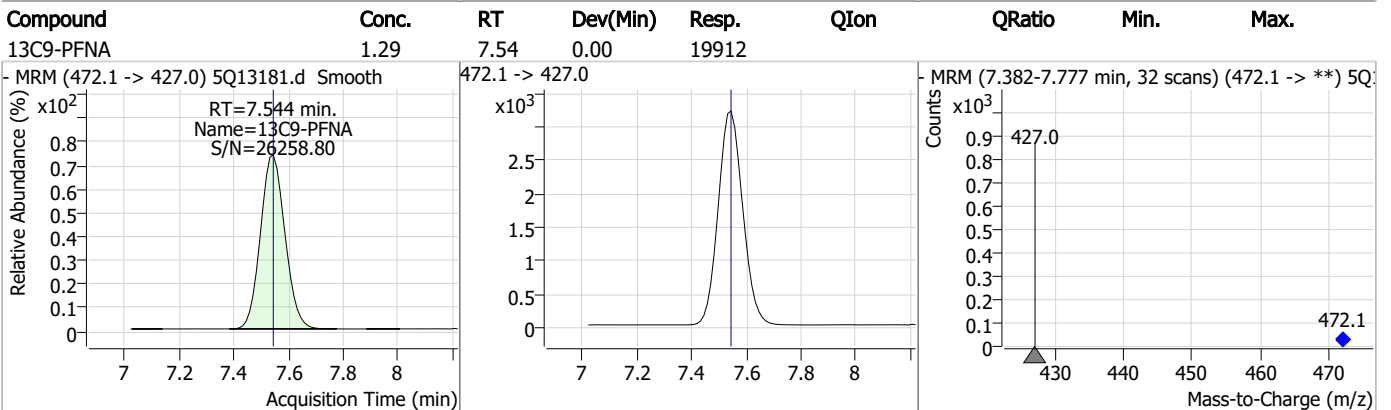
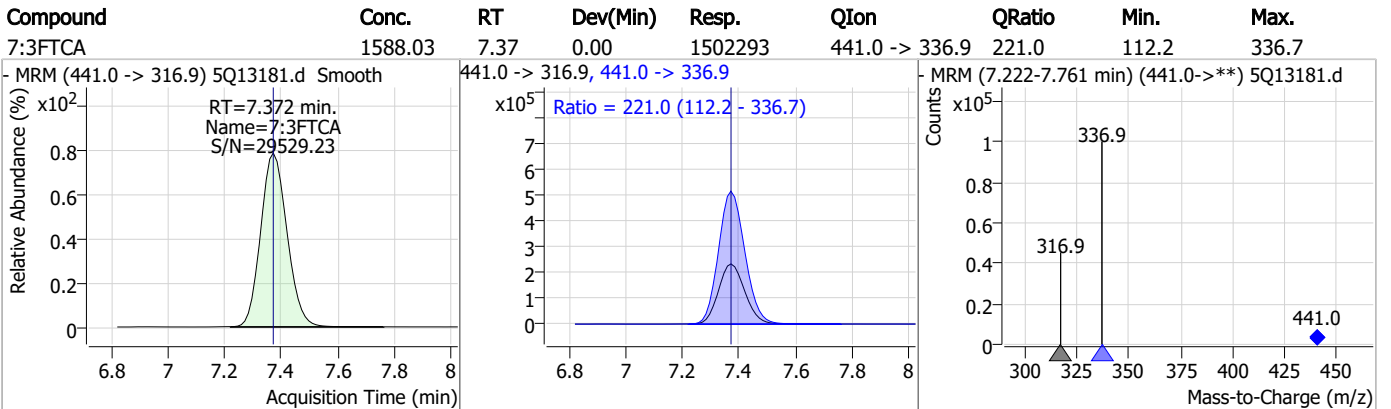
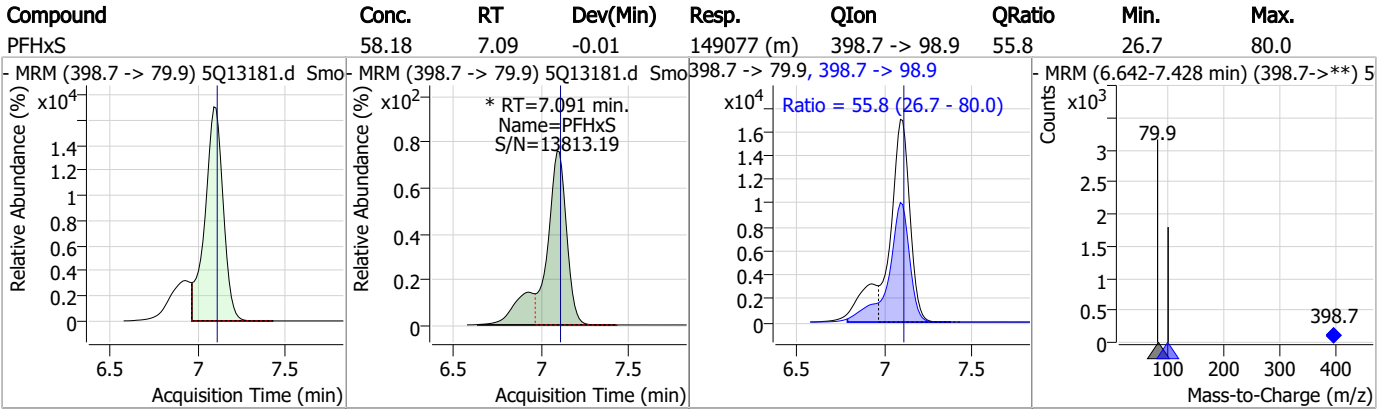
### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



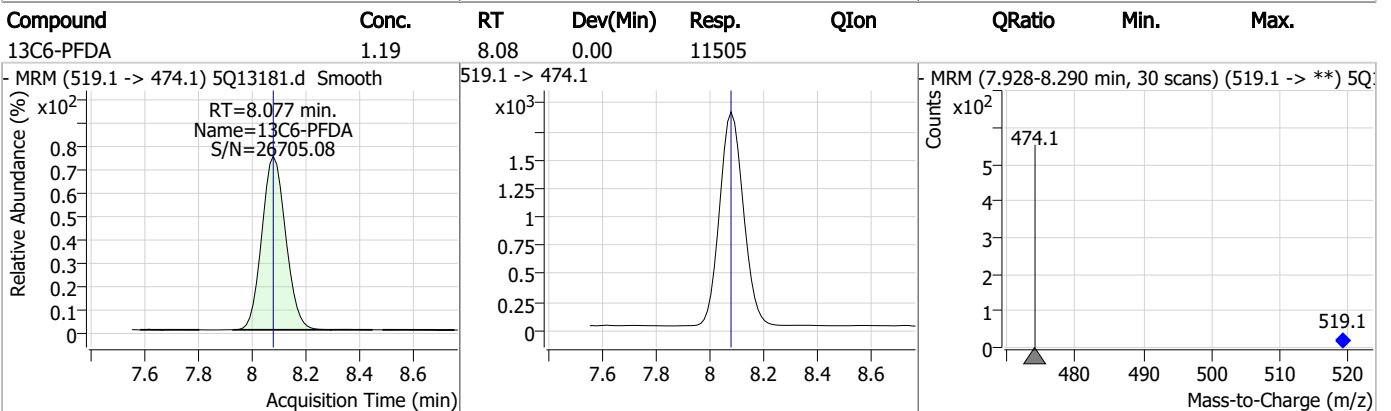
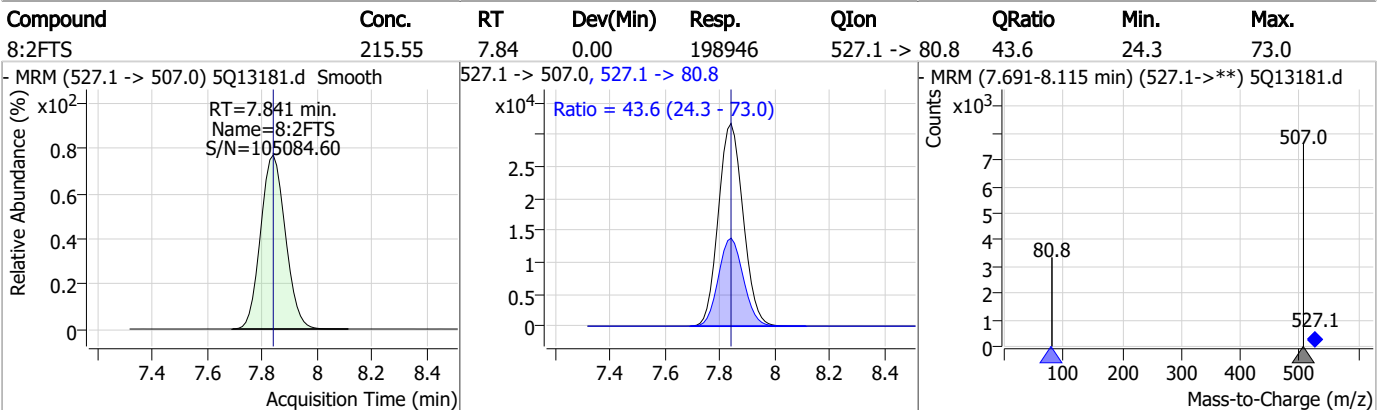
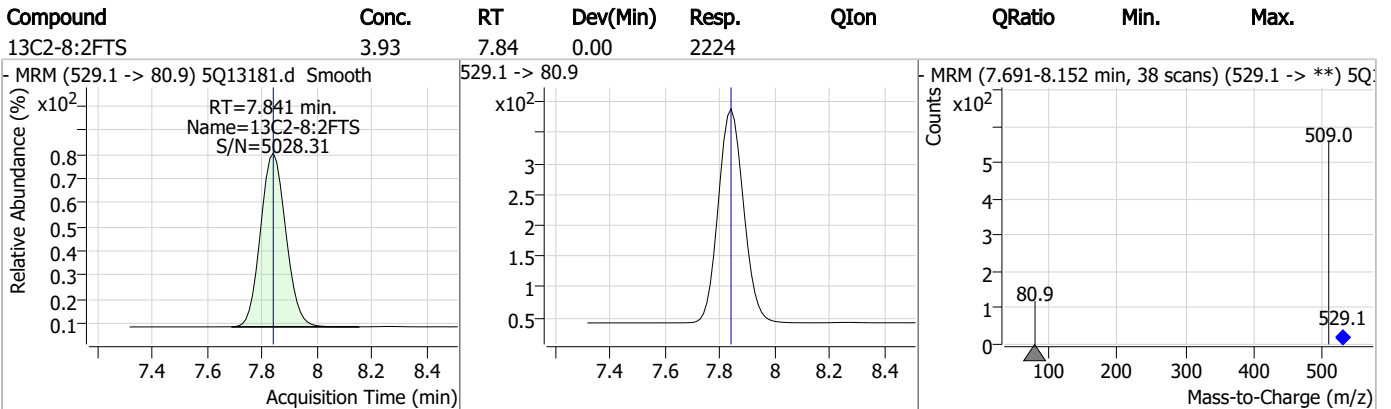
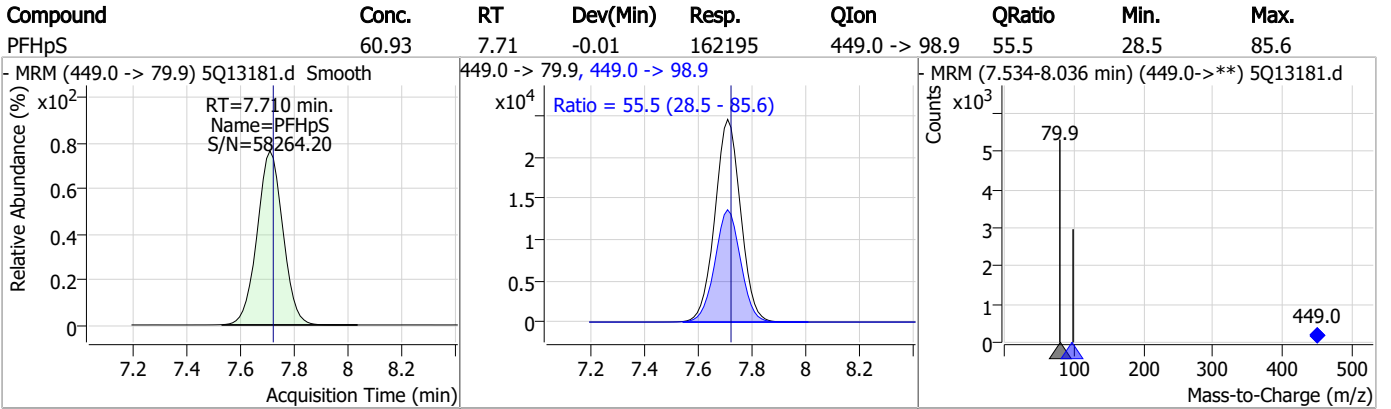
7.7.9

7





### Perfluorinated Compounds by LC/MS/MS

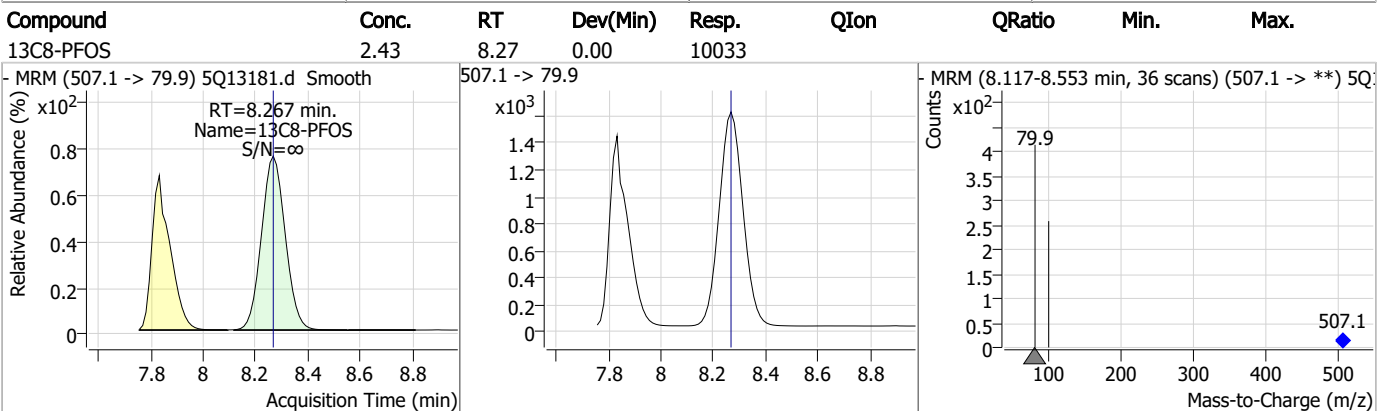
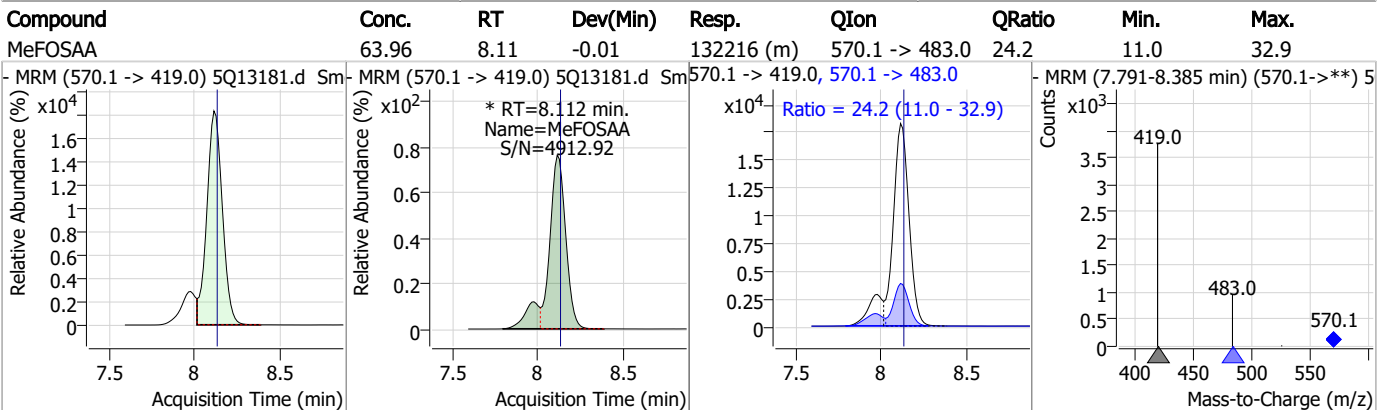
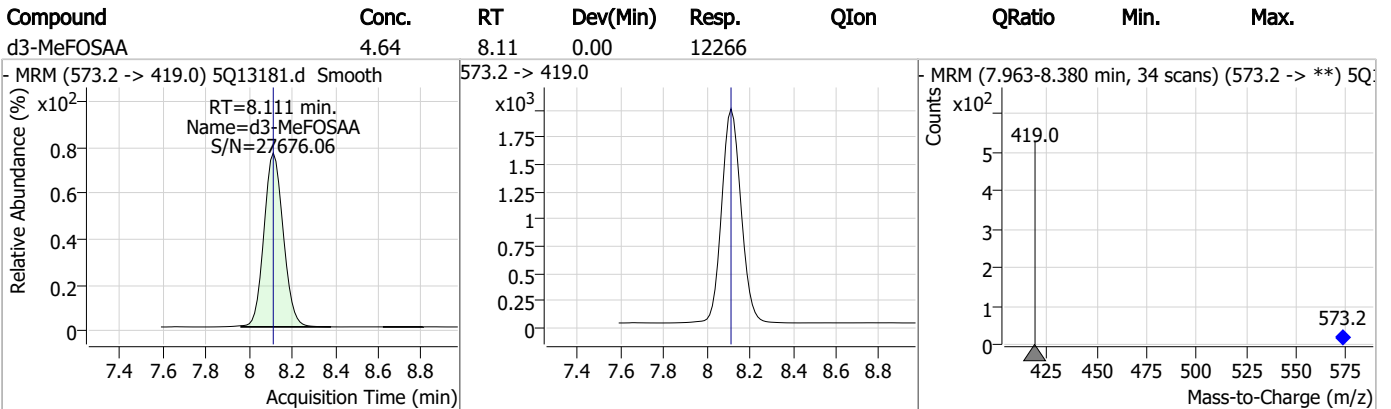
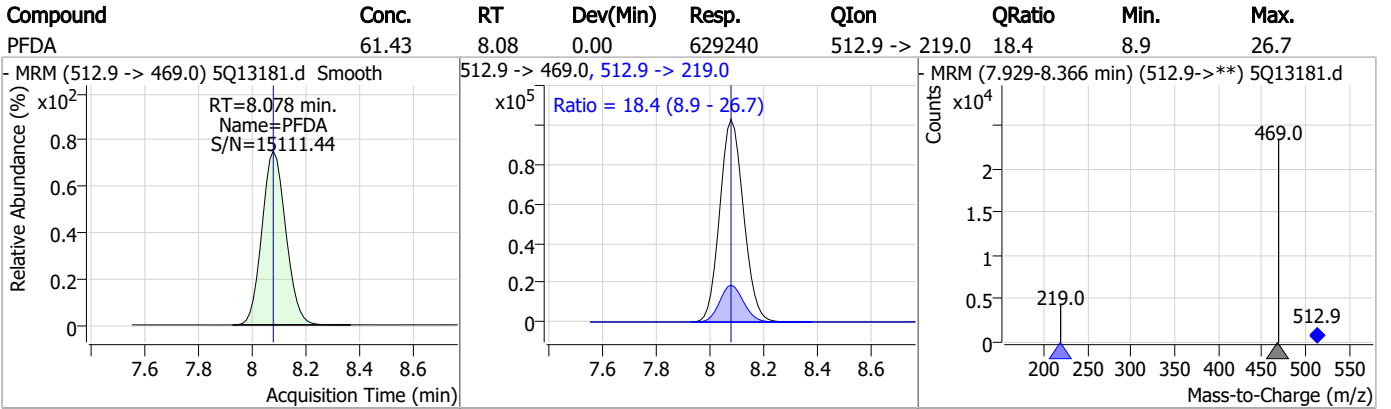


7.7.9

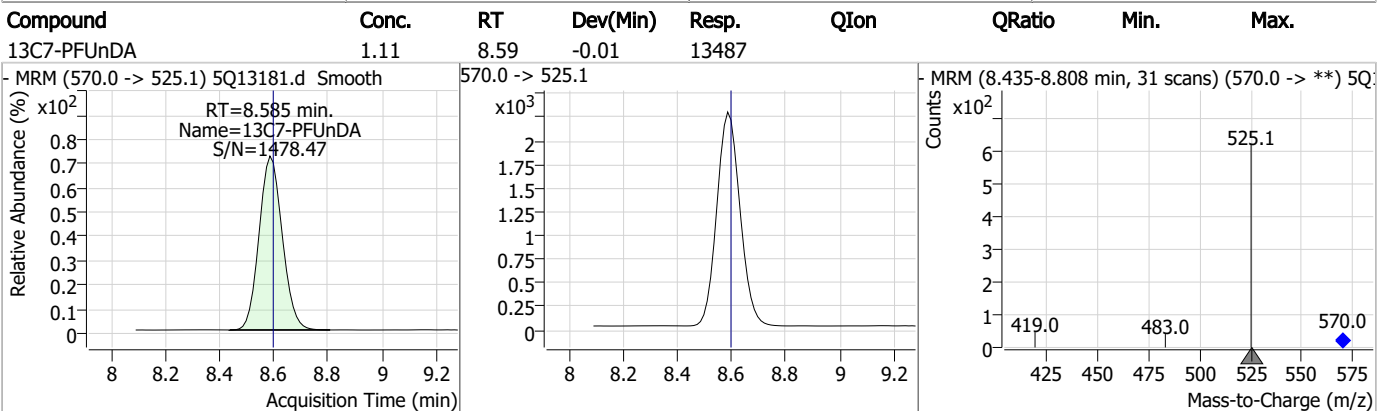
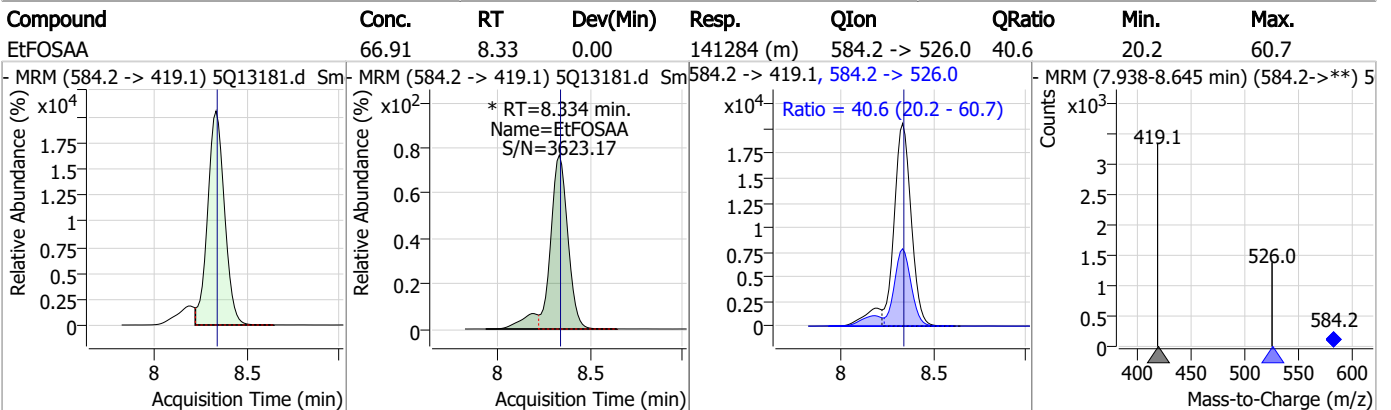
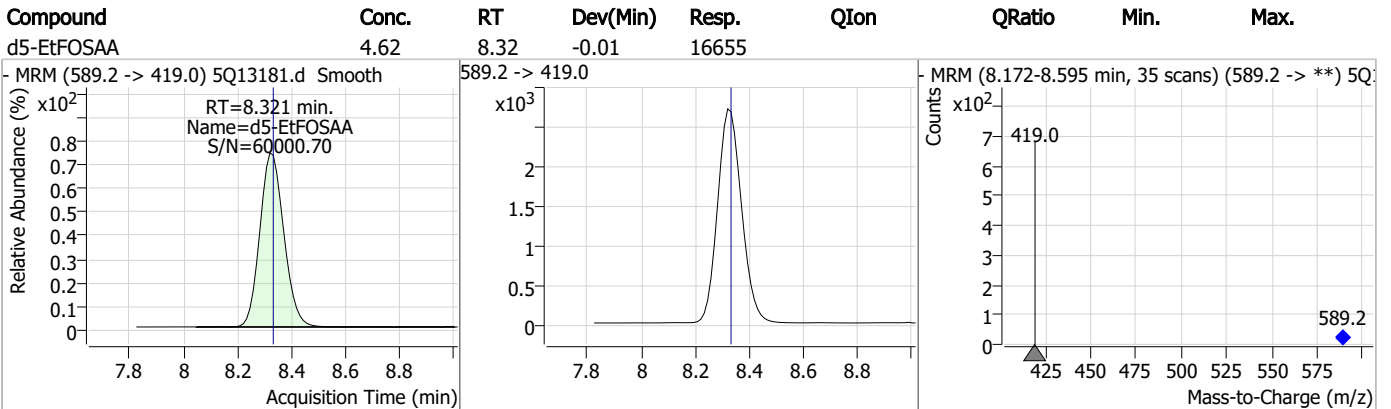
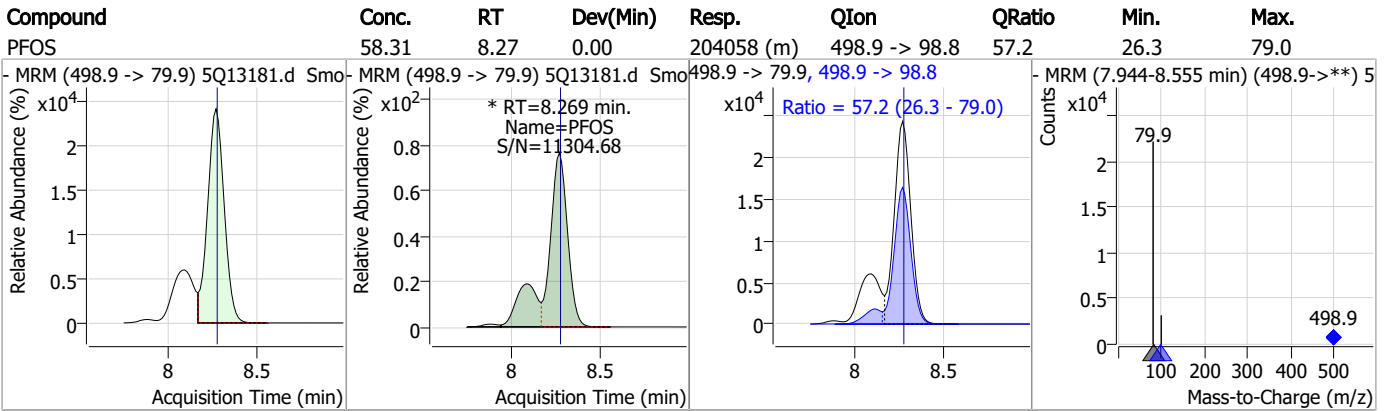
7



### Perfluorinated Compounds by LC/MS/MS

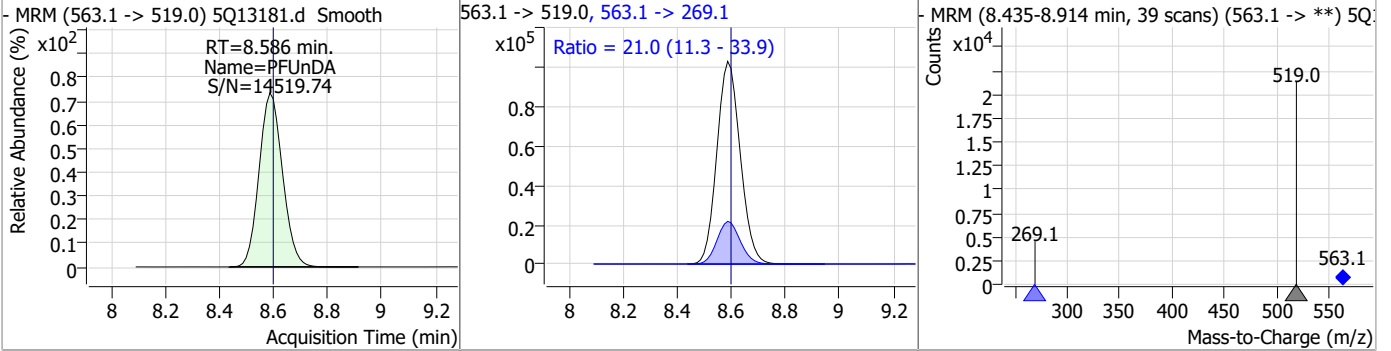


### Perfluorinated Compounds by LC/MS/MS

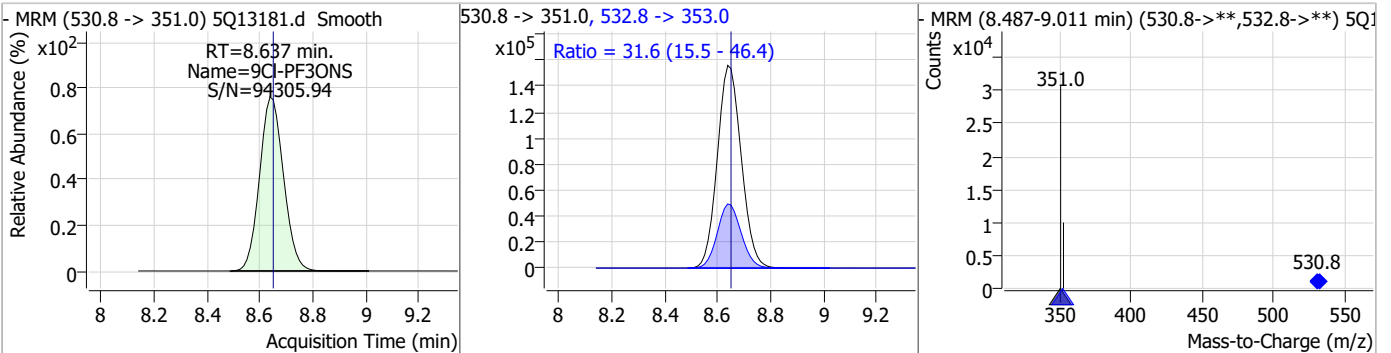


### Perfluorinated Compounds by LC/MS/MS

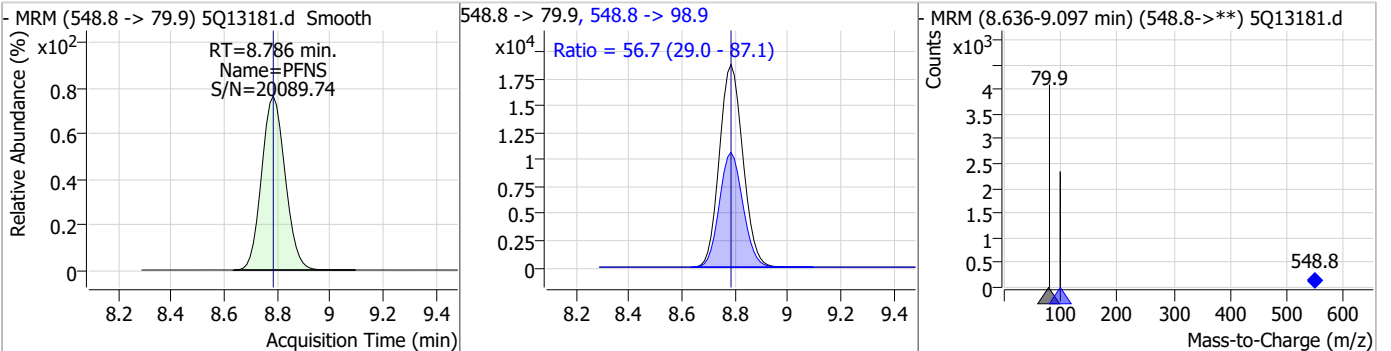
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	63.95	8.59	-0.01	620838	563.1 -> 269.1	21.0	11.3	33.9



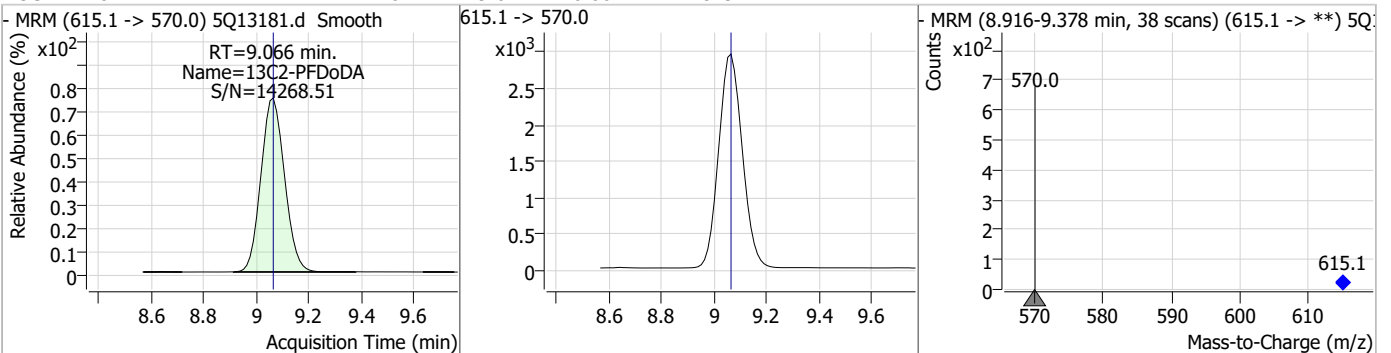
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	104.03	8.64	-0.01	978866	532.8 -> 353.0	31.6	15.5	46.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	58.40	8.79	0.00	115684	548.8 -> 98.9	56.7	29.0	87.1



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.26	9.07	0.00	18291	615.1 -> 570.0	-	-	-



### Perfluorinated Compounds by LC/MS/MS

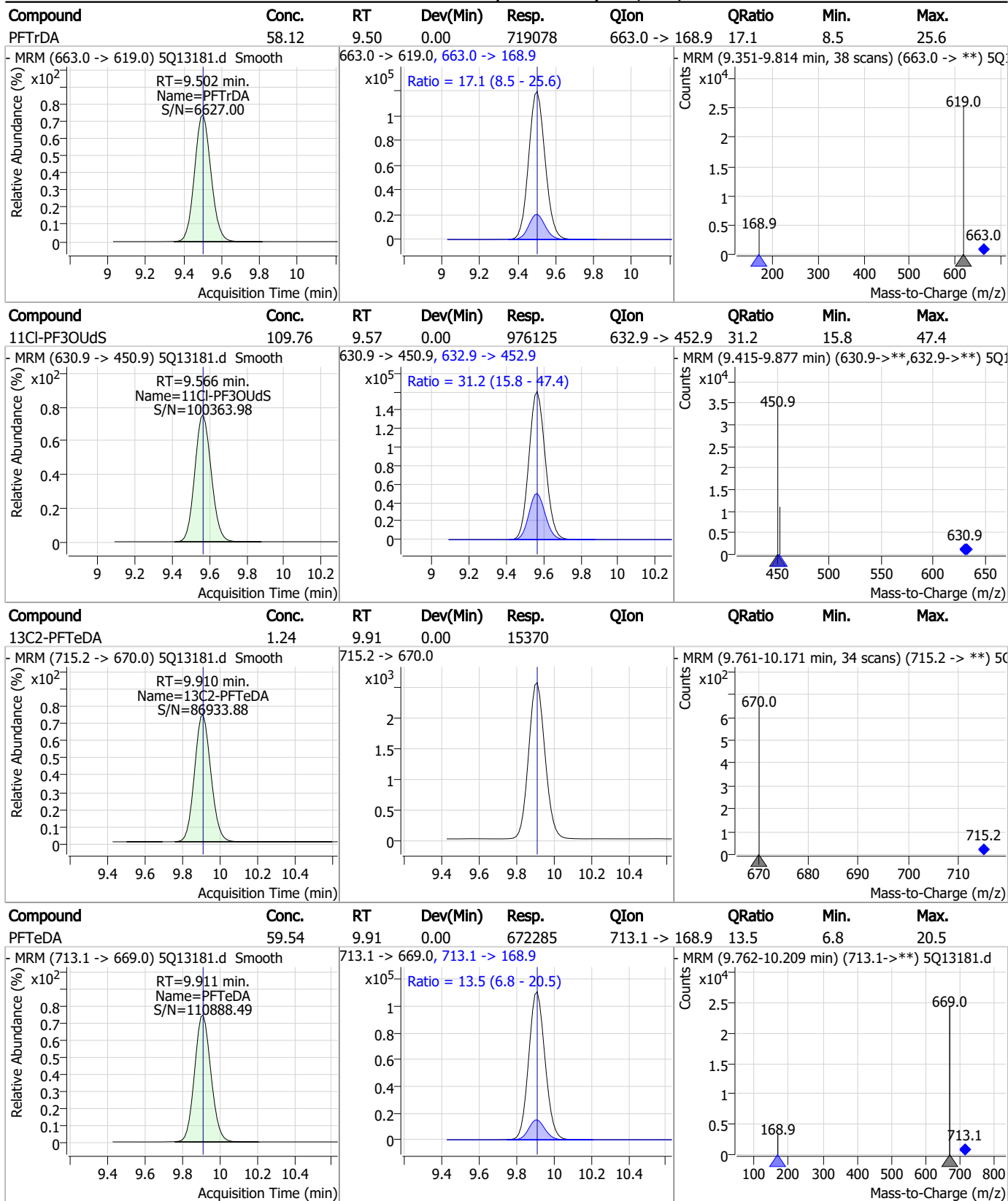
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	59.89	9.07	0.00	665818	613.1 -> 319.0	16.8	8.3	25.0
13C8-FOSA	2.53	9.19	0.00	15027				
FOSA	62.89	9.19	0.00	296157	498.1 -> 478.0	3.0	1.6	4.9
PFDS	59.95	9.26	0.00	127785	599.0 -> 98.8	53.4	25.1	75.2

7.7.9

7

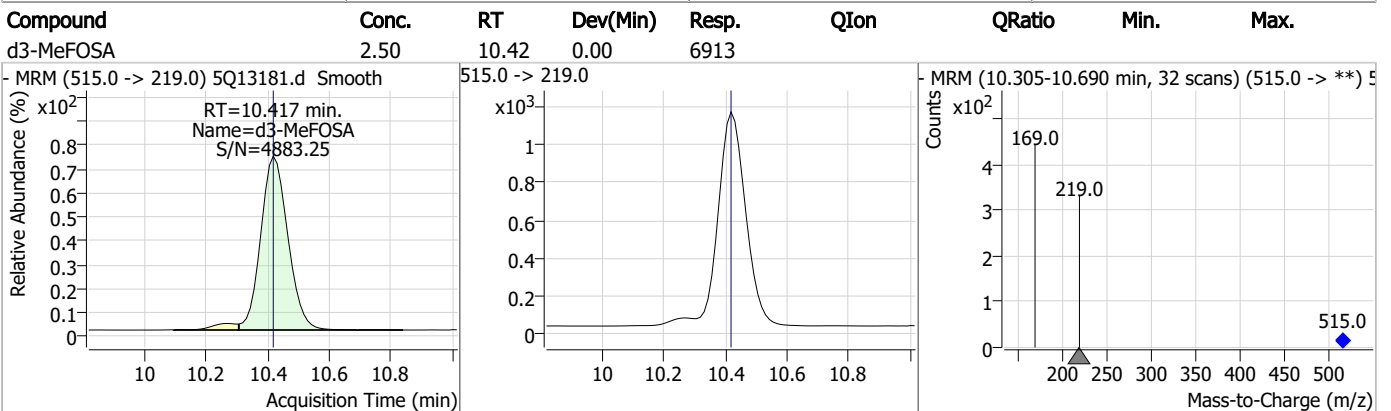
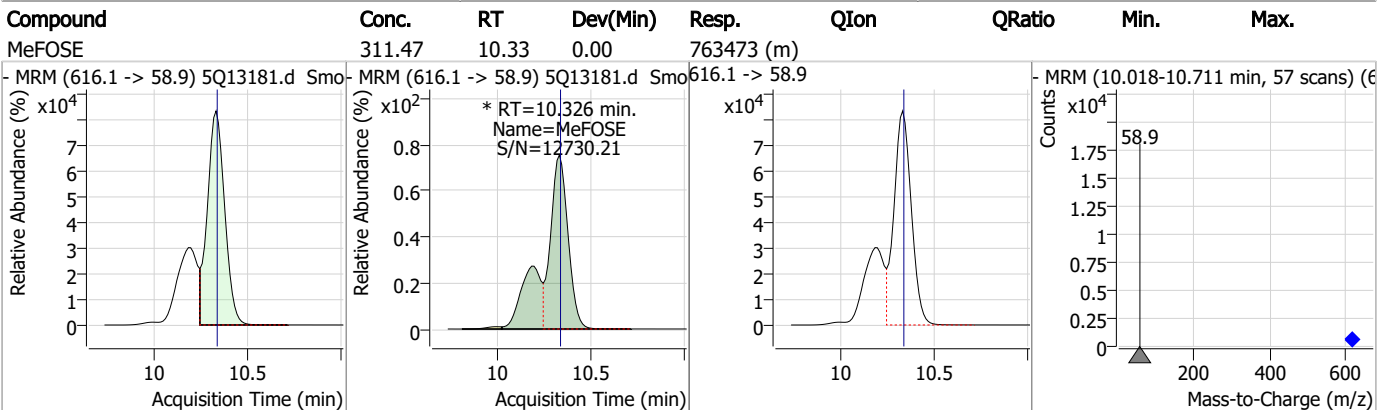
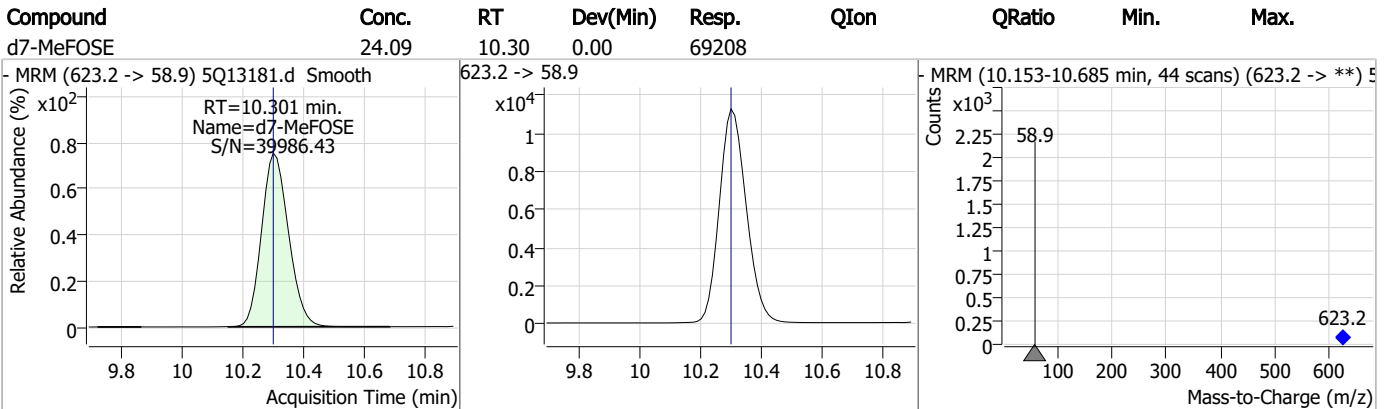
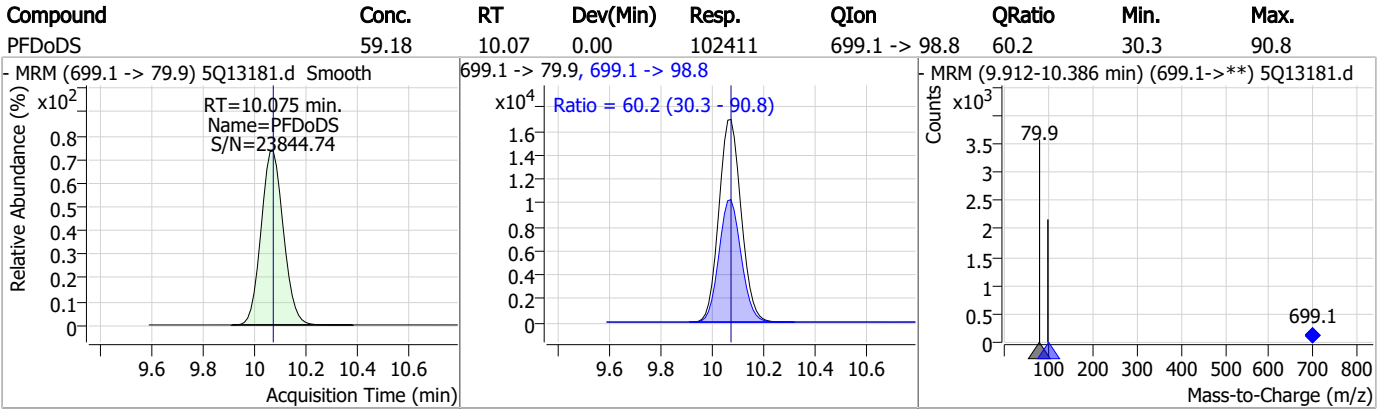


### Perfluorinated Compounds by LC/MS/MS



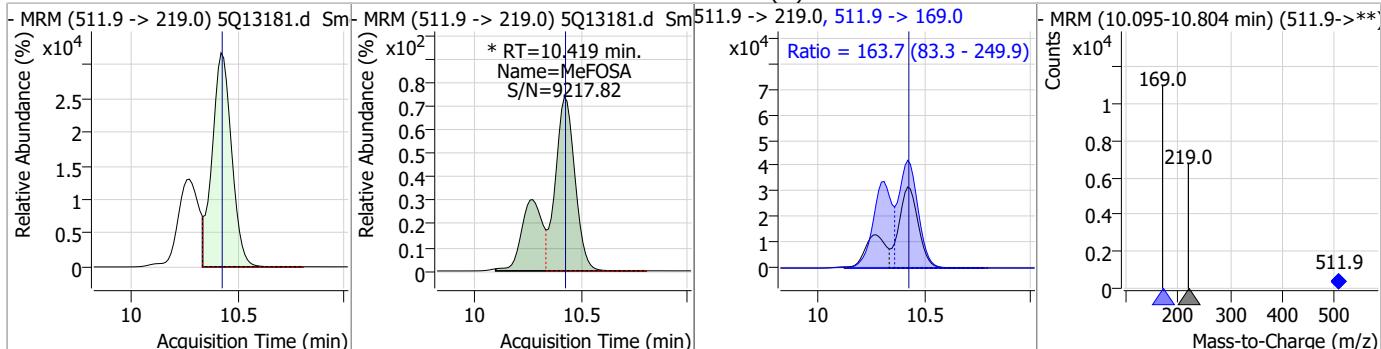
7.7.9  
7

### Perfluorinated Compounds by LC/MS/MS

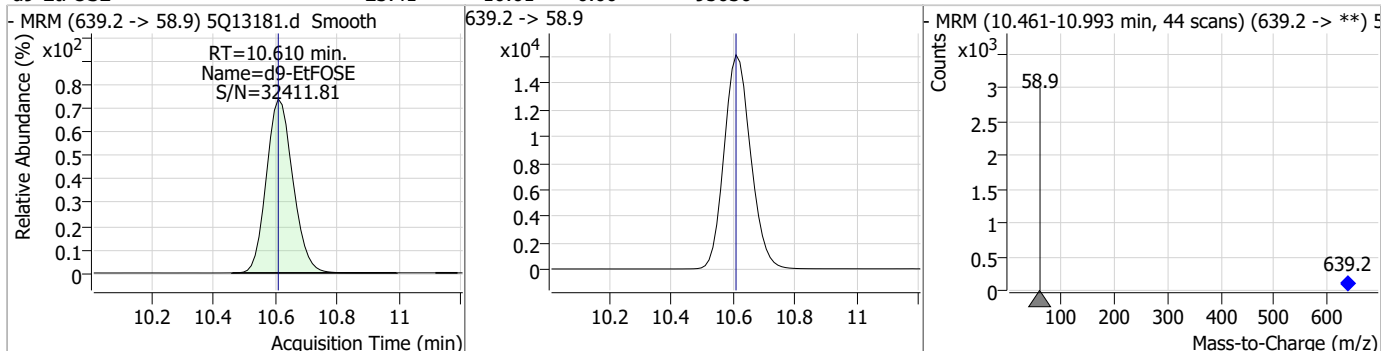


### Perfluorinated Compounds by LC/MS/MS

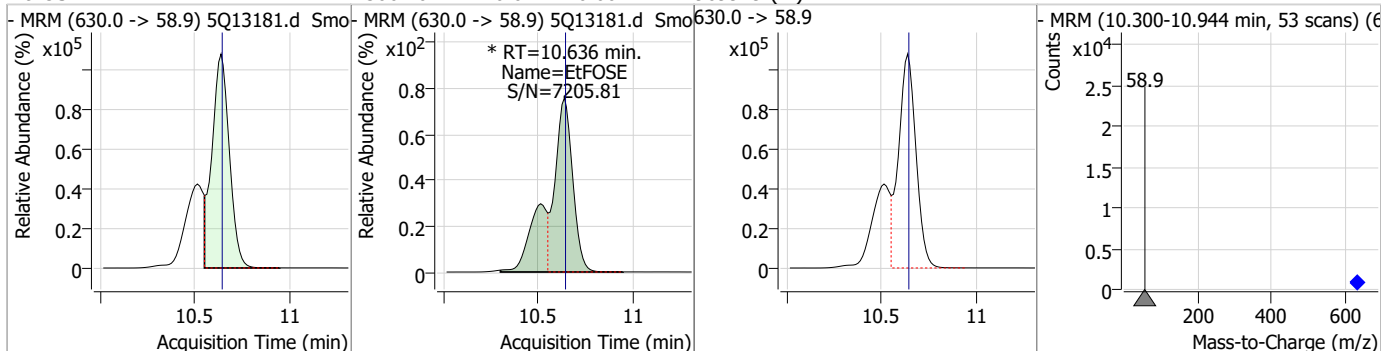
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	122.20	10.42	0.00	288739 (m)	511.9 -> 169.0	163.7	83.3	249.9



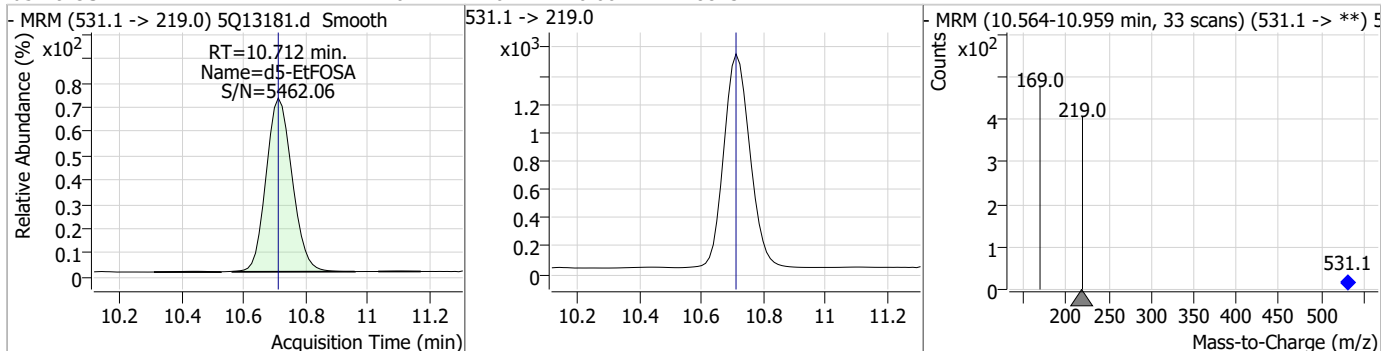
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.41	10.61	0.00	95636				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	306.10	10.64	0.00	969979 (m)				

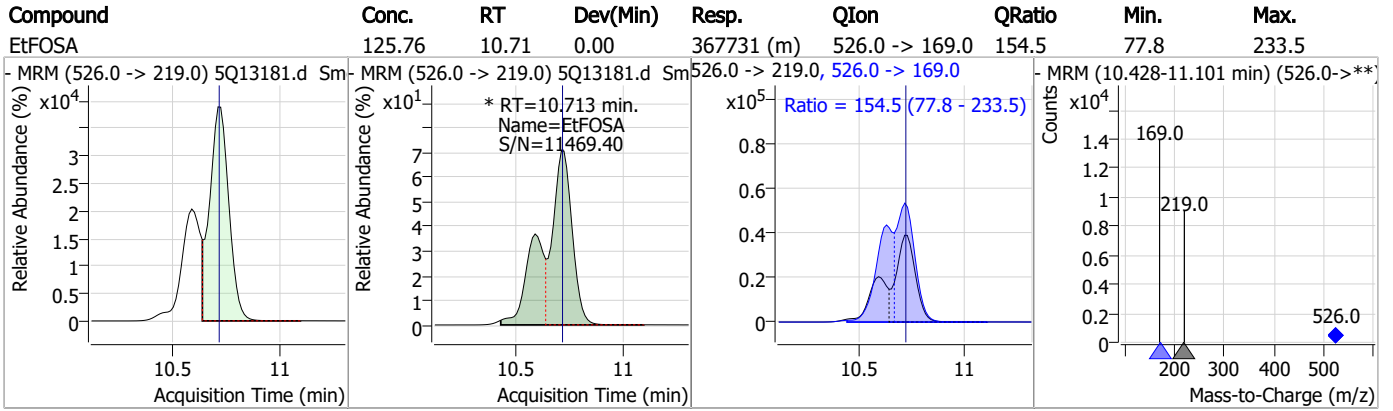


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.40	10.71	0.00	8823				





### Perfluorinated Compounds by LC/MS/MS



7.7.9

7



# Manual Integration Approval Summary

**Sample Number:** S5Q205-IC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13181.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 20:36      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.78	Poor instrument integration
13C3-PFBA			2.78	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.78	Poor instrument integration
13C3-PFBS			5.25	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.25	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
MeFOSAA	2355-31-9		8.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.9.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13183.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 9:04:48 PM  
 Sample Name : icv205-4  
 Vial : P3-B3  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.752	216.8 -> 171.9	60434	10.00	µg/L m	-0.013
M5-PFPeA	4.103	268.3 -> 223.0	45861	5.00	µg/L	-0.012
M5-PFHxA	5.296	318.0 -> 273.0	40223	2.50	µg/L	-0.012
M4-PFHpA	6.279	367.1 -> 322.0	35234	2.50	µg/L	-0.012
M8-PFOA	6.962	421.1 -> 376.0	46244	2.50	µg/L	-0.012
M9-PFNA	7.531	472.1 -> 427.0	20743	1.25	µg/L	-0.012
M6-PFDA	8.065	519.1 -> 474.1	12459	1.25	µg/L	-0.012
M7-PFUnDA	8.585	570.0 -> 525.1	15578	1.25	µg/L	-0.012
M2-PFDoDA	9.054	615.1 -> 570.0	18544	1.25	µg/L	-0.012
M2-PFTeDA	9.898	715.2 -> 670.0	16006	1.25	µg/L	-0.012
M8-FOSA	9.186	506.1 -> 77.8	15285	2.50	µg/L	0.000
M3-PFBS	5.238	302.1 -> 79.9	7570	2.50	µg/L m	-0.012
M3-PFHxS	7.090	402.1 -> 79.9	7120	2.50	µg/L	-0.012
M8-PFOS	8.255	507.1 -> 79.9	10585	2.50	µg/L	-0.012
M2-4:2FTS	4.960	329.1 -> 80.9	884	5.00	µg/L	0.000
M2-6:2FTS	6.711	429.1 -> 80.9	2037	5.00	µg/L	-0.012
M2-8:2FTS	7.828	529.1 -> 80.9	2735	5.00	µg/L	-0.012
M3-MeFOSAA	8.099	573.2 -> 419.0	13246	5.00	µg/L	-0.012
M3-HFPO-DA	5.688	286.9 -> 168.9	79421	10.00	µg/L	-0.012
M5-EtFOSAA	8.321	589.2 -> 419.0	18957	5.00	µg/L	-0.012
M7-MeFOSE	10.301	623.2 -> 58.9	71336	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	102066	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	9287	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6594	2.50	µg/L	0.000
13C4-PFOS	8.256	502.8 -> 79.9	10225	2.50	µg/L	-0.012
13C3-PFBA	2.755	216.0 -> 172.0	31411	5.00	µg/L m	-0.012
18O2-PFHxS	7.089	403.0 -> 83.9	4810	2.50	µg/L	-0.012
13C4-PFOA	6.962	417.1 -> 372.0	56717	2.50	µg/L	-0.012
13C2-PFDA	8.078	515.1 -> 470.1	19105	1.25	µg/L	0.000
13C5-PFNA	7.532	468.0 -> 423.0	20379	1.25	µg/L	-0.012
13C2-PFHxA	5.297	315.1 -> 270.0	41667	2.50	µg/L	-0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.960	329.1 -> 80.9	884	5.31	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%			
13C2-6:2FTS	6.711	429.1 -> 80.9	2037	5.56	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.2%			
13C2-8:2FTS	7.828	529.1 -> 80.9	2735	4.97	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%			
13C2-PFDoDA	9.054	615.1 -> 570.0	18544	1.23	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%			
13C2-PFTeDA	9.898	715.2 -> 670.0	16006	1.25	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%			
13C3-PFBS	5.238	302.1 -> 79.9	7570	2.57	µg/L m	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%			
13C3-PFHxS	7.090	402.1 -> 79.9	7120	2.42	µg/L	-0.012

7.7.10  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%		
13C4-PFBA	2.752	216.8 -> 171.9	60434	10.04	µg/L m	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.4%		
13C4-PFHpA	6.279	367.1 -> 322.0	35234	2.53	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C5-PFHxA	5.296	318.0 -> 273.0	40223	2.57	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%		
13C5-PFPeA	4.103	268.3 -> 223.0	45861	5.11	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%		
13C6-PFDA	8.065	519.1 -> 474.1	12459	1.24	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C7-PFUnDA	8.585	570.0 -> 525.1	15578	1.24	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%		
13C8-FOSA	9.186	506.1 -> 77.8	15285	2.48	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C8-PFOA	6.962	421.1 -> 376.0	46244	2.49	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%		
13C8-PFOS	8.255	507.1 -> 79.9	10585	2.48	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C9-PFNA	7.531	472.1 -> 427.0	20743	1.25	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%		
d3-MeFOSAA	8.099	573.2 -> 419.0	13246	4.84	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%		
13C3-HFPO-DA	5.688	286.9 -> 168.9	79421	10.21	µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.1%		
d3-MeFOSA	10.417	515.0 -> 219.0	6594	2.30	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.2%		
d5-EtFOSAA	8.321	589.2 -> 419.0	18957	5.07	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%		
d7-MeFOSE	10.301	623.2 -> 58.9	71336	23.96	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.8%		
d9-EtFOSE	10.610	639.2 -> 58.9	102066	24.11	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.4%		
d5-EtFOSA	10.712	531.1 -> 219.0	9287	2.44	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%		
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.960	327.1 -> 307.0	8024	7.71	µg/L	98
		327.1 -> 80.9	4460			
6:2FTS	6.711	427.1 -> 407.0	12458	7.80	µg/L	99
		427.1 -> 80.9	5131			
8:2FTS	7.829	527.1 -> 507.0	9543	8.41	µg/L	98
		527.1 -> 80.8	4544			
EtFOSAA	8.322	584.2 -> 419.1	4701	1.96	µg/L m	95
		584.2 -> 526.0	2043			
FOSA	9.176	498.1 -> 77.9	9599	2.00	µg/L	100
		498.1 -> 478.0	316			
MeFOSAA	8.112	570.1 -> 419.0	4759	2.13	µg/L m	96
		570.1 -> 483.0	1132			
PFBA	2.758	212.8 -> 168.9	18425	8.37	µg/L m	100
PFBS	5.239	298.7 -> 79.9	4379	1.82	µg/L m	92
		298.7 -> 98.8	1809			
PFDA	8.078	512.9 -> 469.0	23929	2.16	µg/L	98
		512.9 -> 219.0	4014			
PFDODA	9.054	613.1 -> 569.0	24453	2.17	µg/L	100
		613.1 -> 319.0	4047			
PFDS	9.243	599.0 -> 79.9	4455	1.98	µg/L	93

7.7.10  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.280	599.0 -> 98.8	2437	2.03	µg/L	100
		363.1 -> 319.0	29214			
PFHpS	7.710	363.1 -> 169.0	6697	2.05	µg/L	96
		449.0 -> 79.9	5746			
PFHxA	5.299	449.0 -> 98.9	3114	2.01	µg/L	99
		313.0 -> 269.0	20397			
PFHxS	7.091	313.0 -> 118.9	870	1.96	µg/L	100
		398.7 -> 79.9	4892			
PFNA	7.532	398.7 -> 98.9	2613	2.12	µg/L	99
		463.0 -> 419.0	21382			
PFNS	8.773	463.0 -> 219.0	4761	2.01	µg/L	94
		548.8 -> 79.9	4202			
PFOA	6.963	548.8 -> 98.9	2269	2.08	µg/L	99
		413.0 -> 369.0	34512			
PFOS	8.257	413.0 -> 169.0	8116	1.88	µg/L	98
		498.9 -> 79.9	6948			
PFPeA	4.104	498.9 -> 98.8	3748	4.07	µg/L	100
		263.0 -> 219.0	36332			
PFPeS	6.343	349.1 -> 79.9	4631	2.03	µg/L	99
		349.1 -> 98.9	2228			
PFTeDA	9.898	713.1 -> 669.0	24156	2.05	µg/L	98
		713.1 -> 168.9	3120			
PFTrDA	9.490	663.0 -> 619.0	26944	2.15	µg/L	98
		663.0 -> 168.9	4796			
PFUnDA	8.586	563.1 -> 519.0	24261	2.16	µg/L	96
		563.1 -> 269.1	5015			
11CI-PF3OUdS	9.554	630.9 -> 450.9	42956	4.75	µg/L	99
		632.9 -> 452.9	13451			
9CI-PF3ONS	8.637	530.8 -> 351.0	45188	4.73	µg/L	98
		532.8 -> 353.0	14394			
ADONA	6.542	376.9 -> 250.9	103358	4.72	µg/L	99
		376.9 -> 84.8	30259			
HFPO-DA	5.689	284.9 -> 168.9	31075	4.98	µg/L	100
		284.9 -> 184.9	2846			
3:3FTCA	3.548	241.0 -> 177.0	7073	12.07	µg/L	99
		241.0 -> 117.0	777			
5:3FTCA	5.917	341.0 -> 237.1	120753	62.21	µg/L	98
		341.0 -> 217.0	80486			
7:3FTCA	7.372	441.0 -> 316.9	61651	61.52	µg/L	100
		441.0 -> 336.9	138603			
EtFOSA	10.713	526.0 -> 219.0	14537	4.72	µg/L	93
		526.0 -> 169.0	24014			
EtFOSE	10.636	630.0 -> 58.9	41369	12.23	µg/L	100
		511.9 -> 219.0	12428			
MeFOSA	10.419	511.9 -> 169.0	20039	5.51	µg/L	96
		616.1 -> 58.9	31321			
MeFOSE	10.326	699.1 -> 79.9	3592	12.40	µg/L	100
		699.1 -> 98.8	2132			
PFDoDS	10.062	295.0 -> 201.0	5043	1.97	µg/L	98
		295.0 -> 84.9	1324			
NFDHA	5.178	279.0 -> 85.1	29440	5.10	µg/L	97
		229.0 -> 84.9	26096			
PFMBA	4.505	314.8 -> 134.9	59168	5.05	µg/L	100
		314.8 -> 82.9	1804			
PFMPA	3.278			5.62	µg/L	100
PFEESA	5.807			4.50	µg/L	100

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

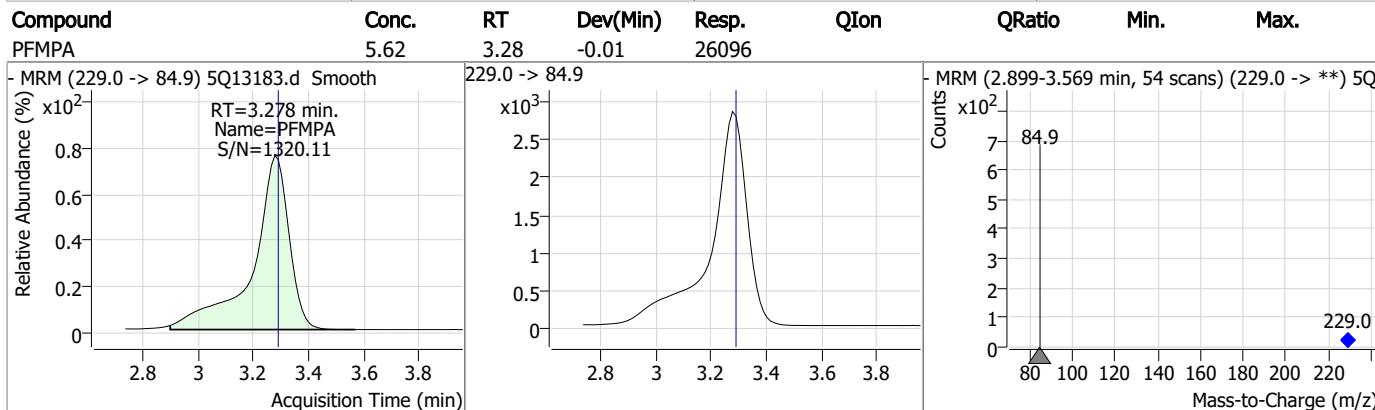
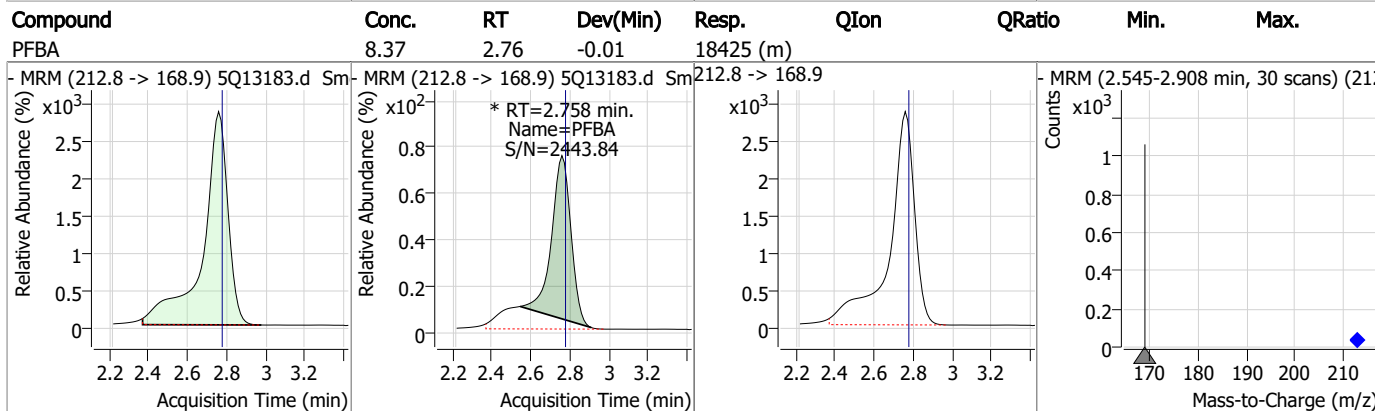
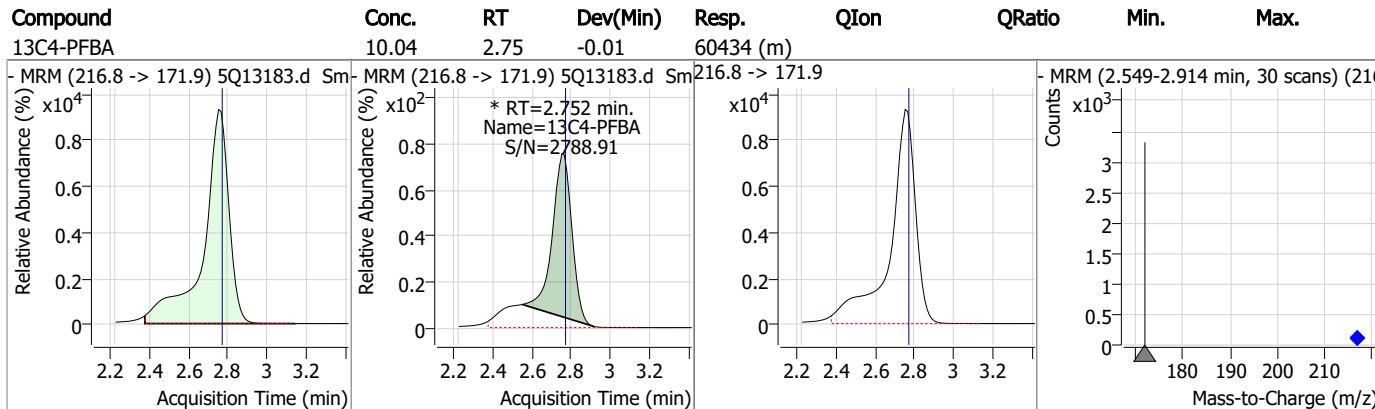
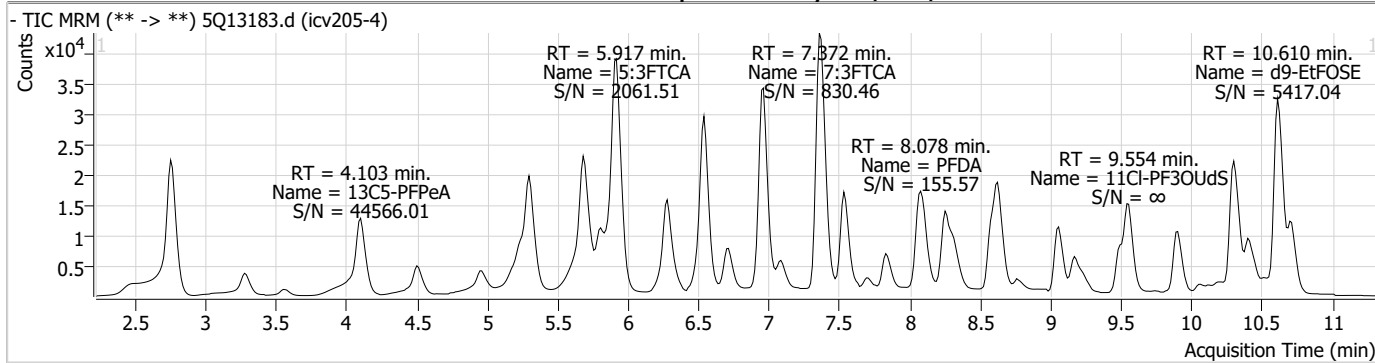
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.10

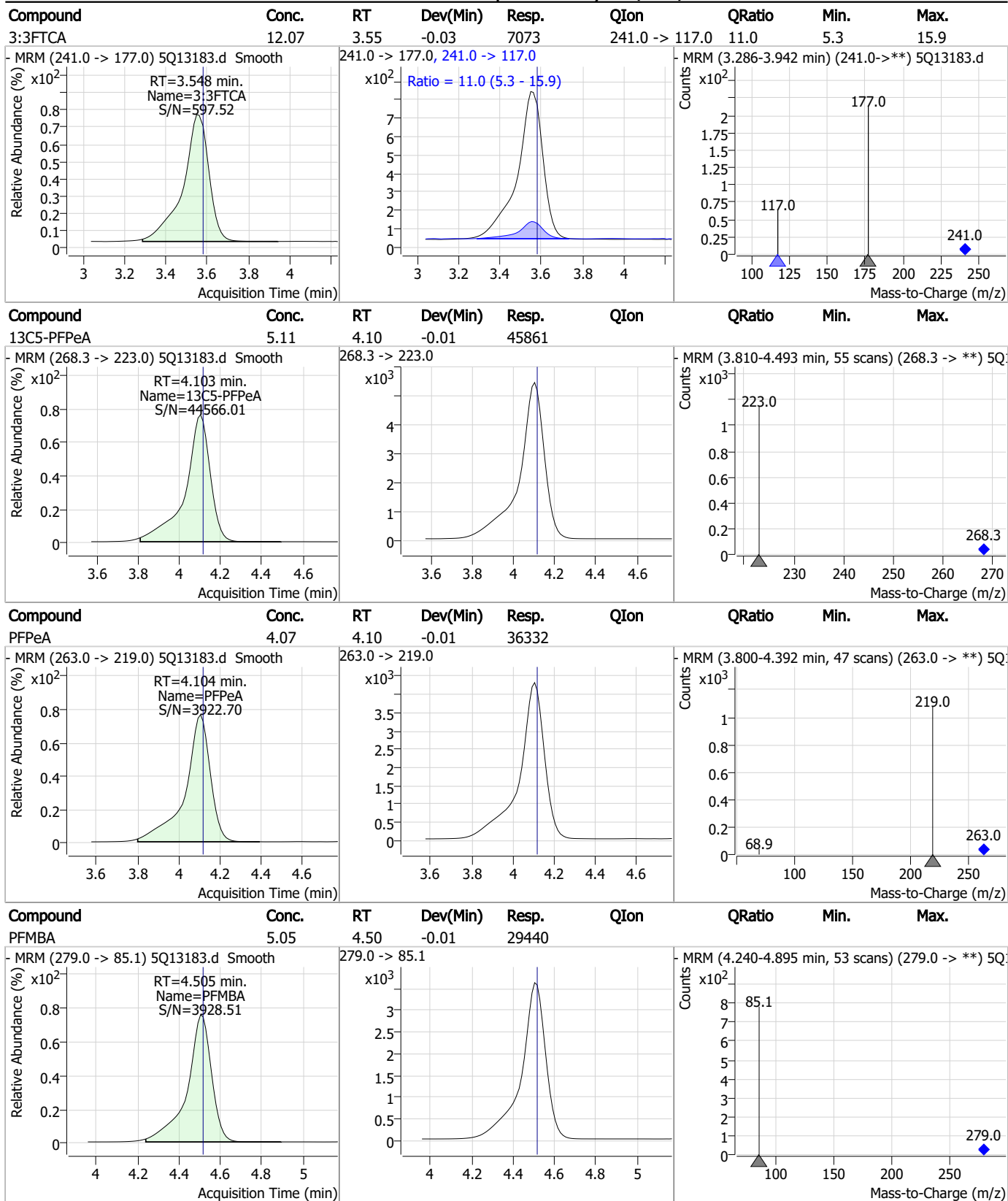
7

### Perfluorinated Compounds by LC/MS/MS



7.7.10  
7

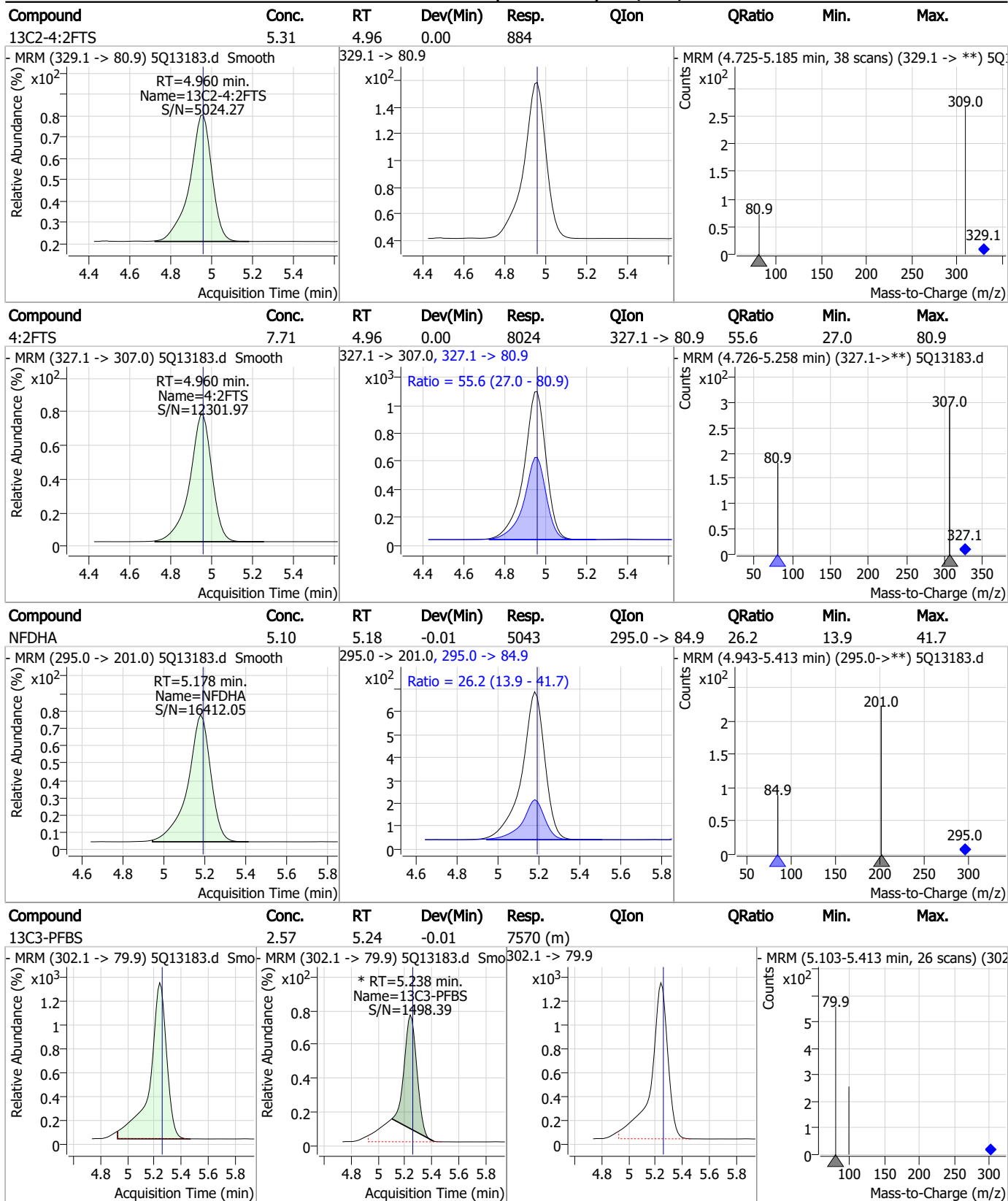
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

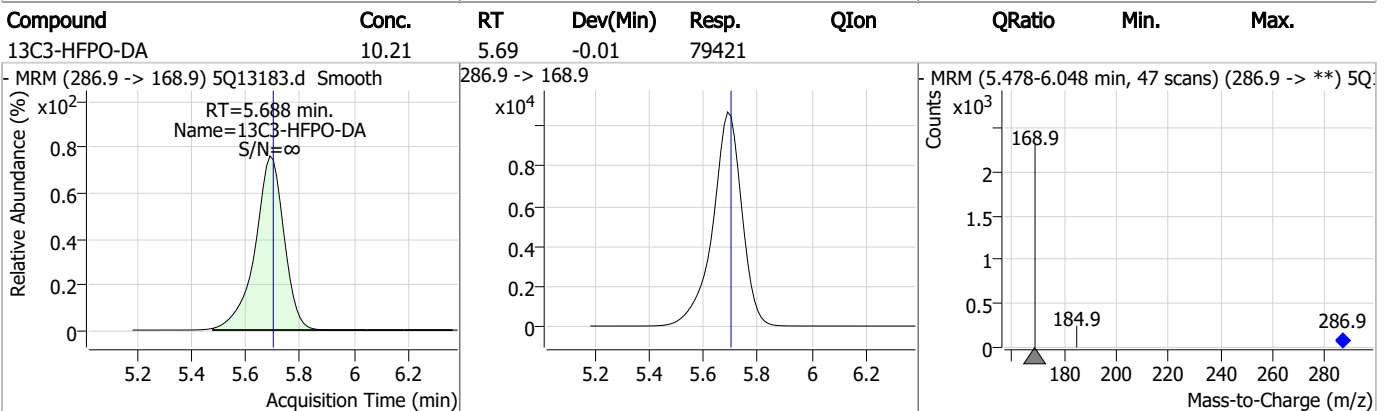
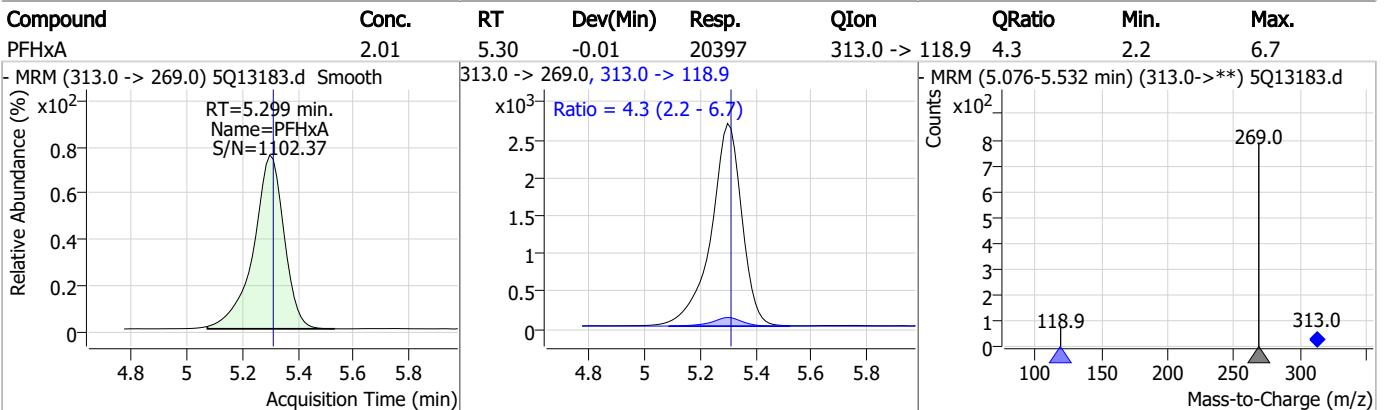
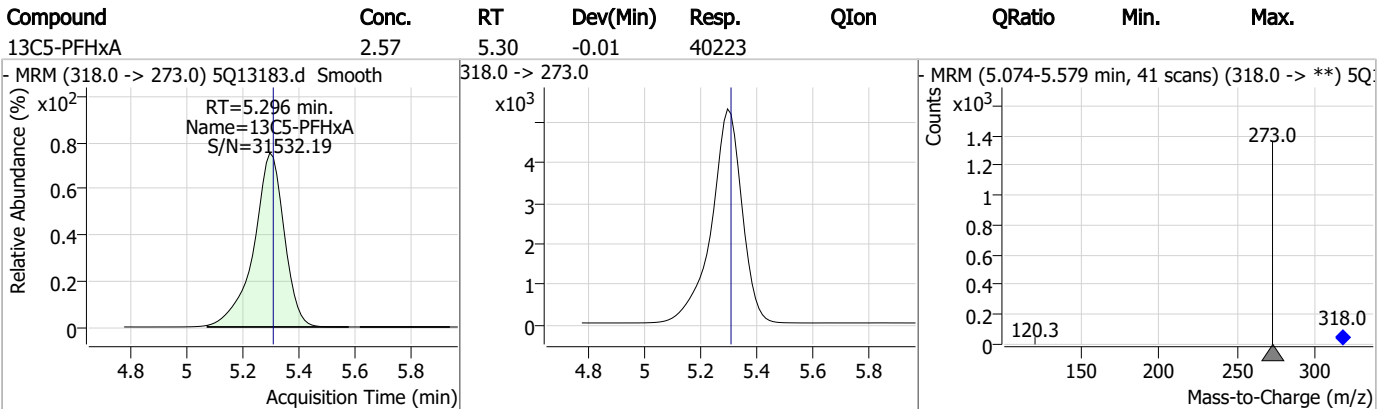
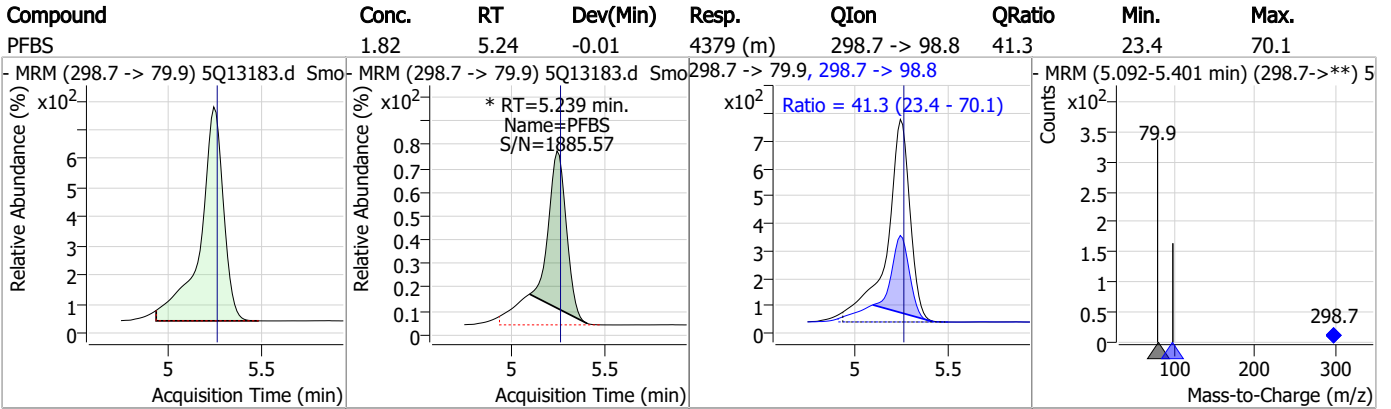


### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

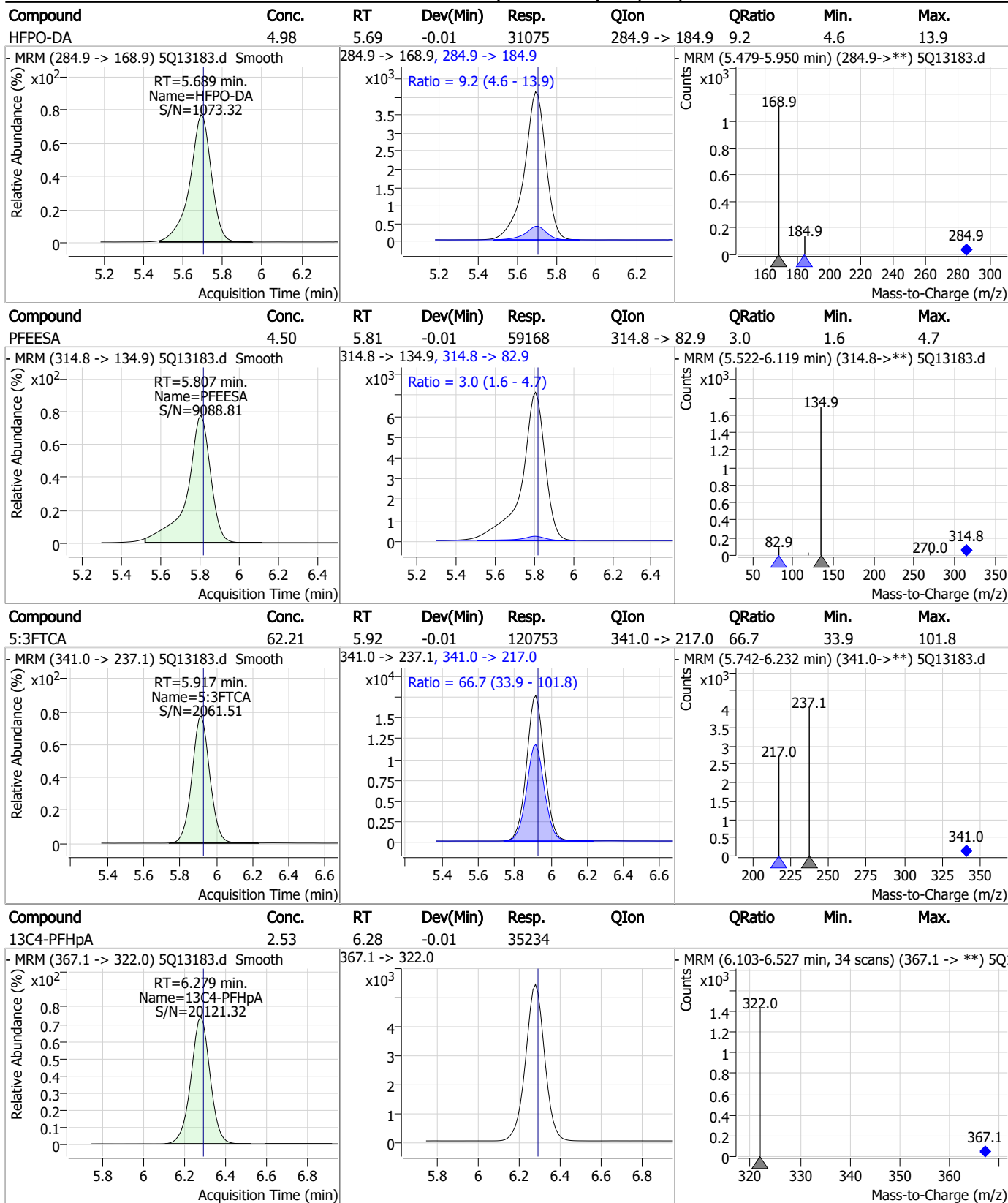
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7

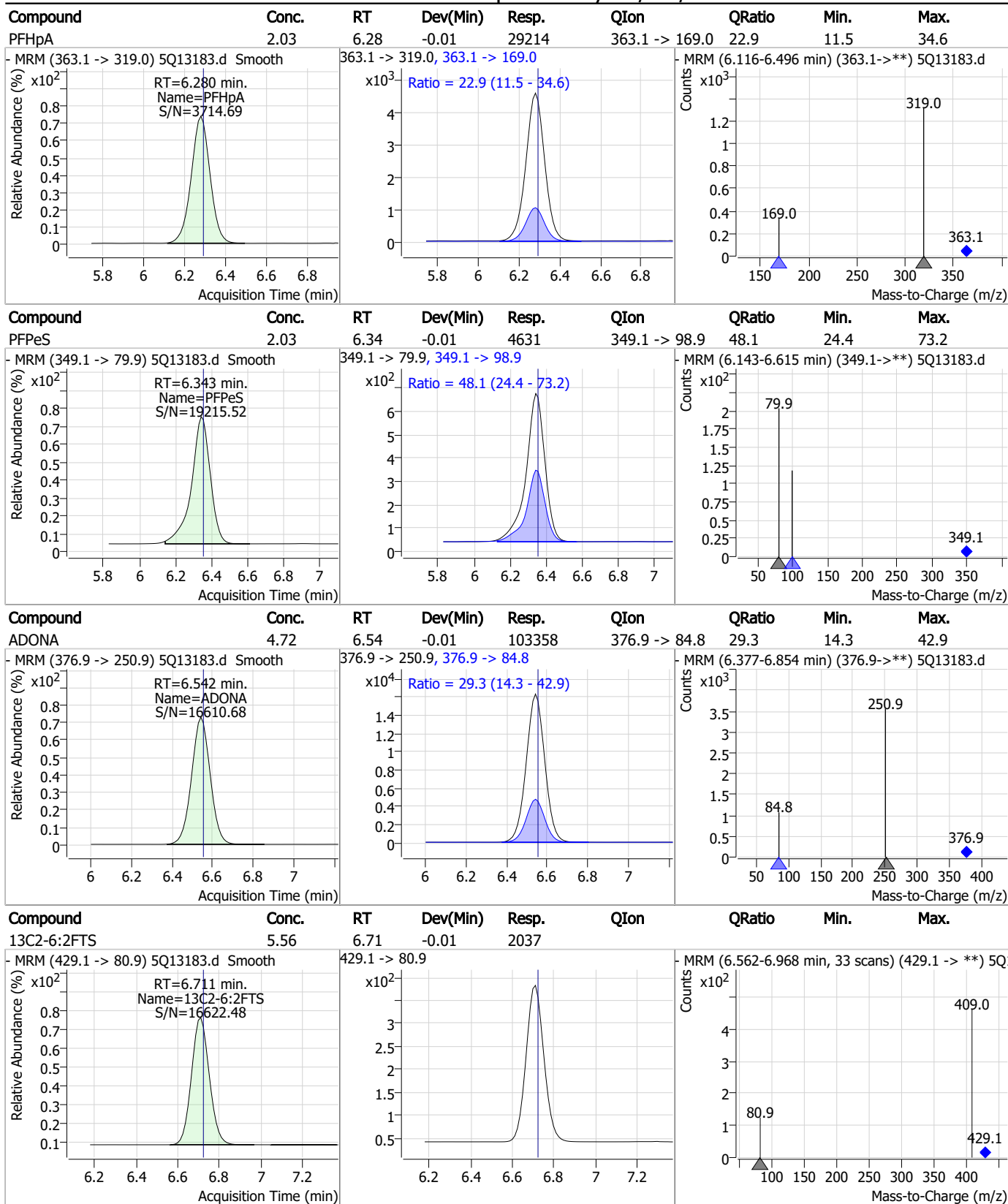


### Perfluorinated Compounds by LC/MS/MS



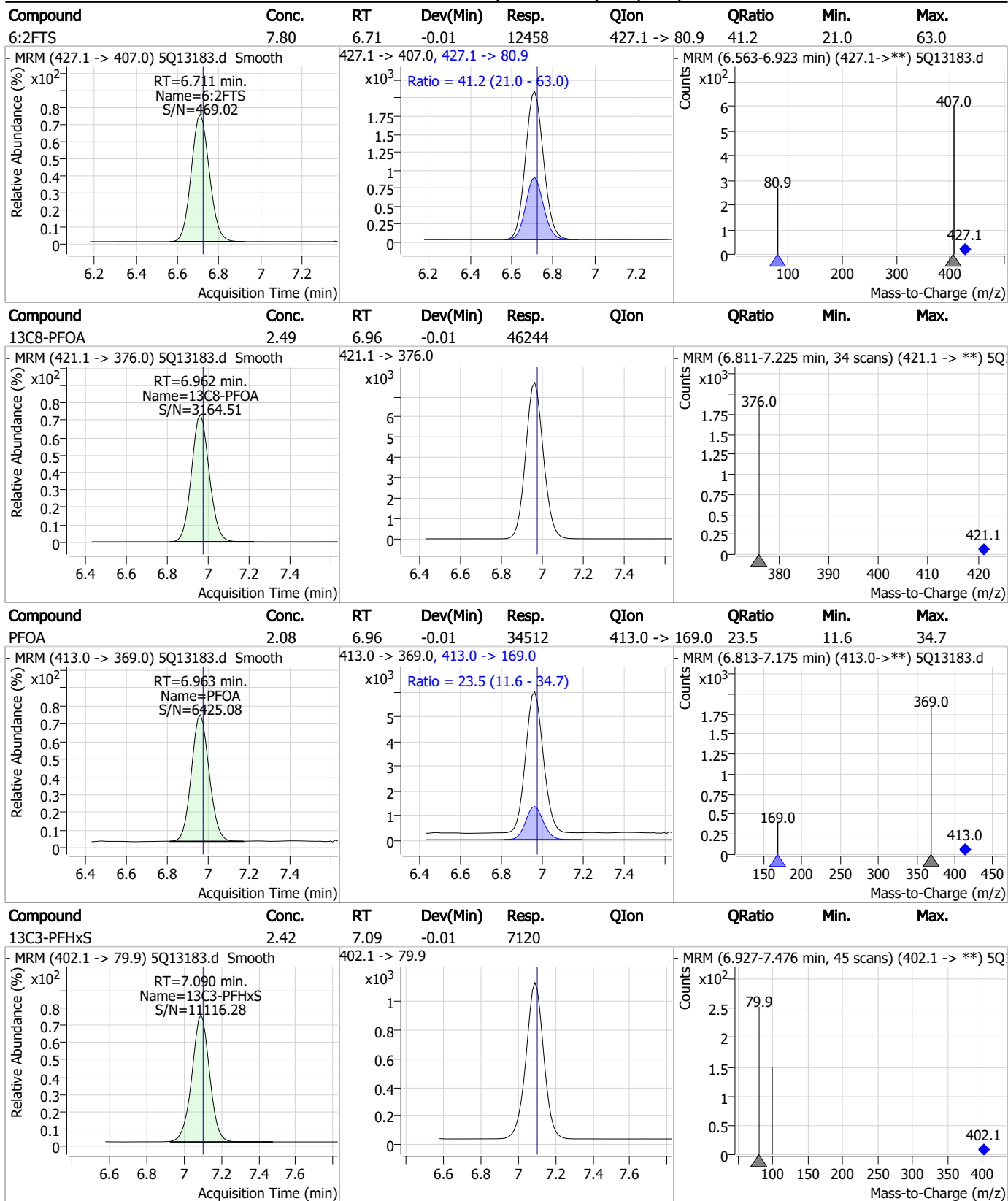
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



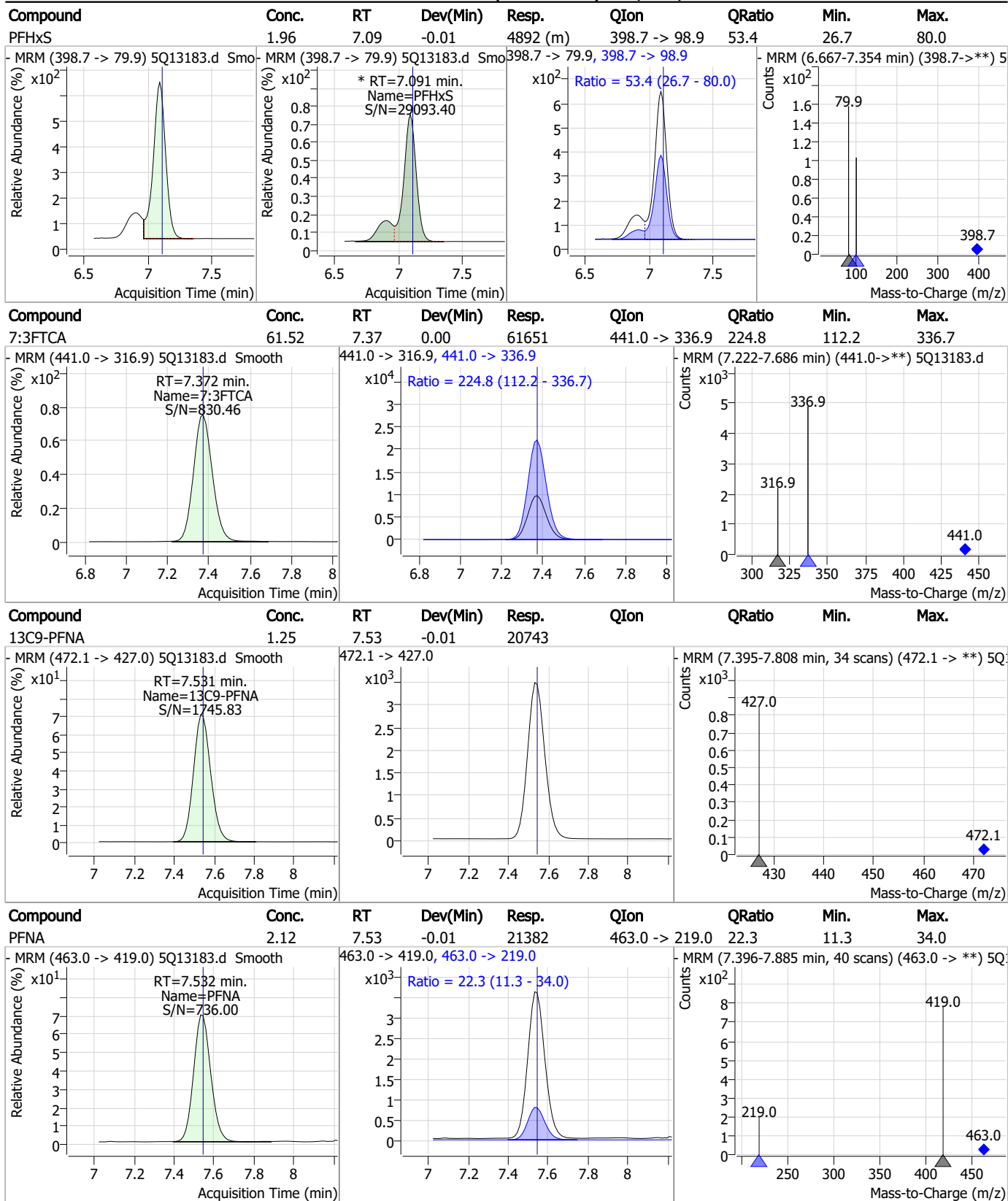
7.7.10 7

### Perfluorinated Compounds by LC/MS/MS



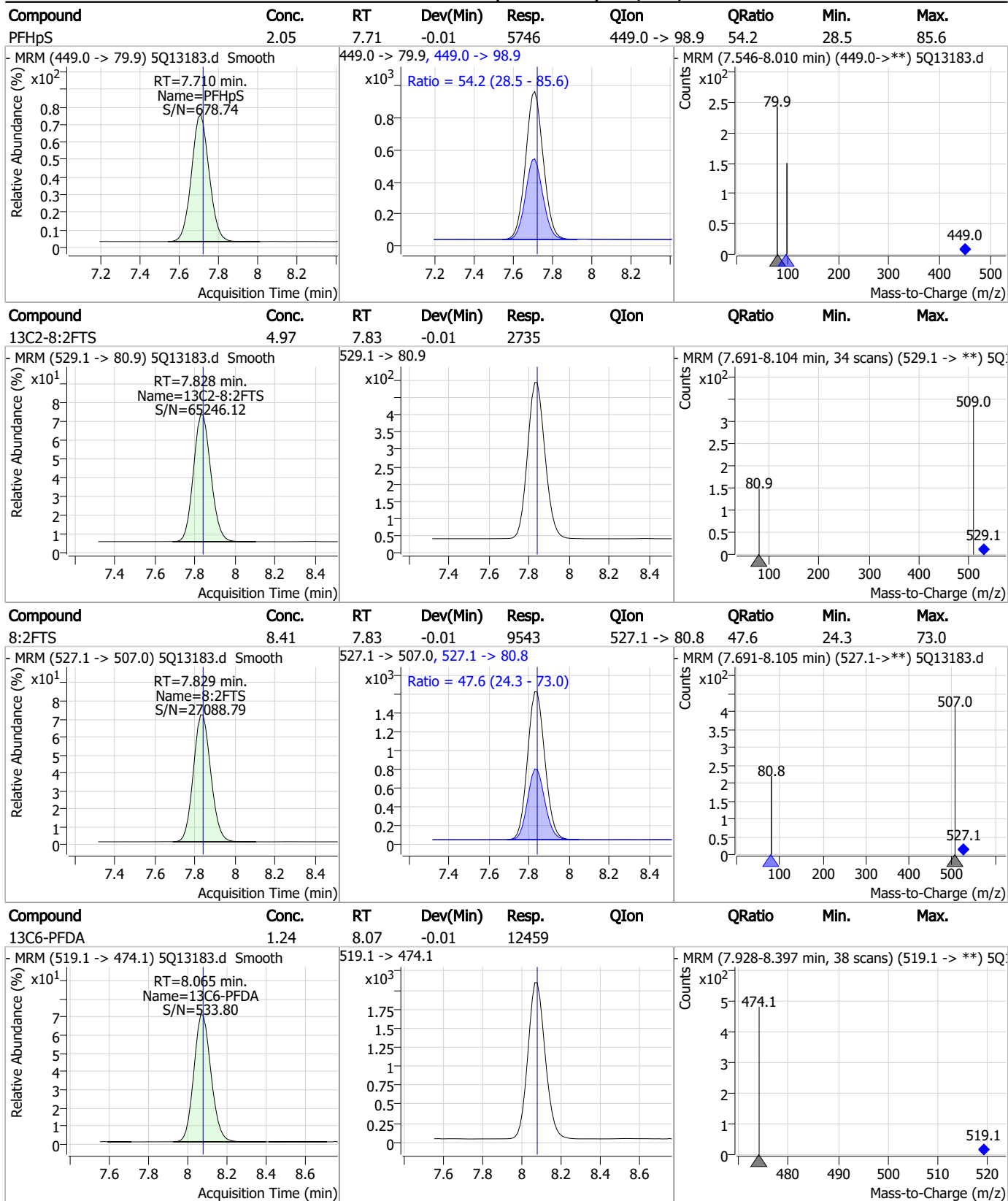
7.7.10  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.10  
7

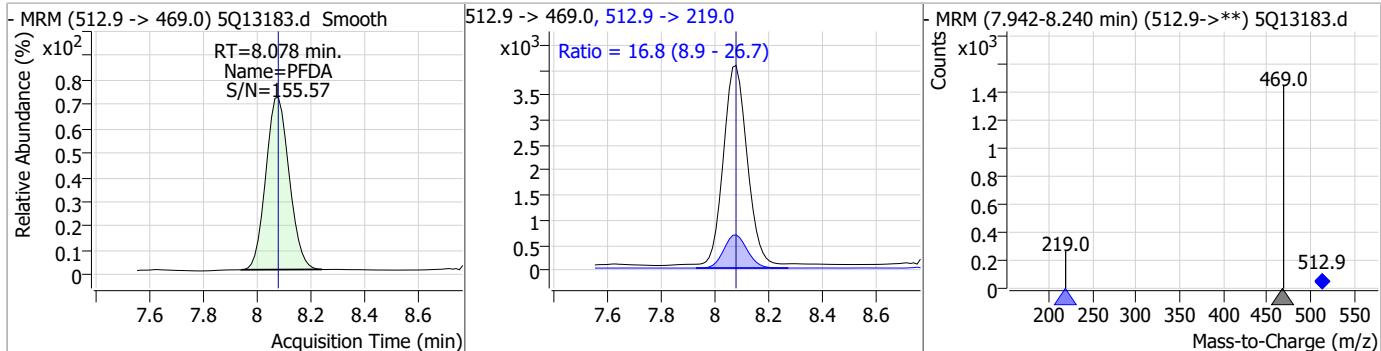
### Perfluorinated Compounds by LC/MS/MS



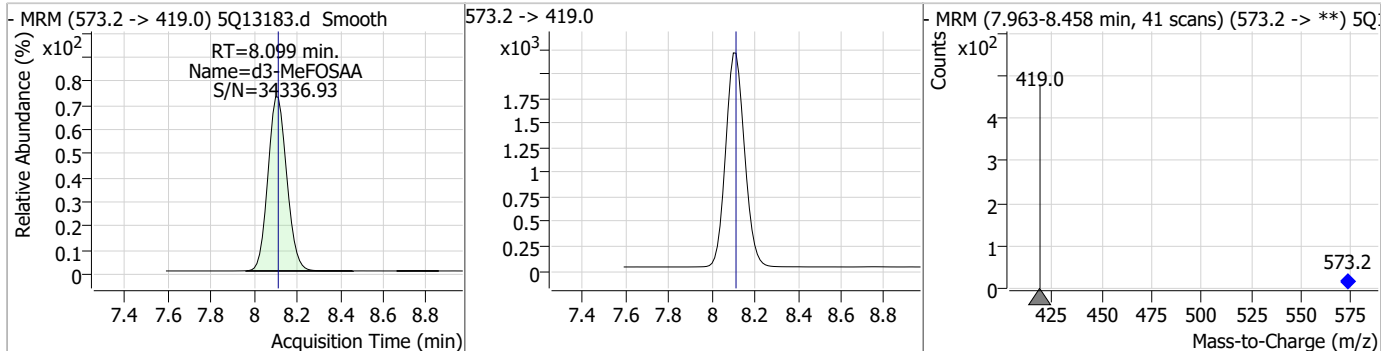
7.7.10  
7

### Perfluorinated Compounds by LC/MS/MS

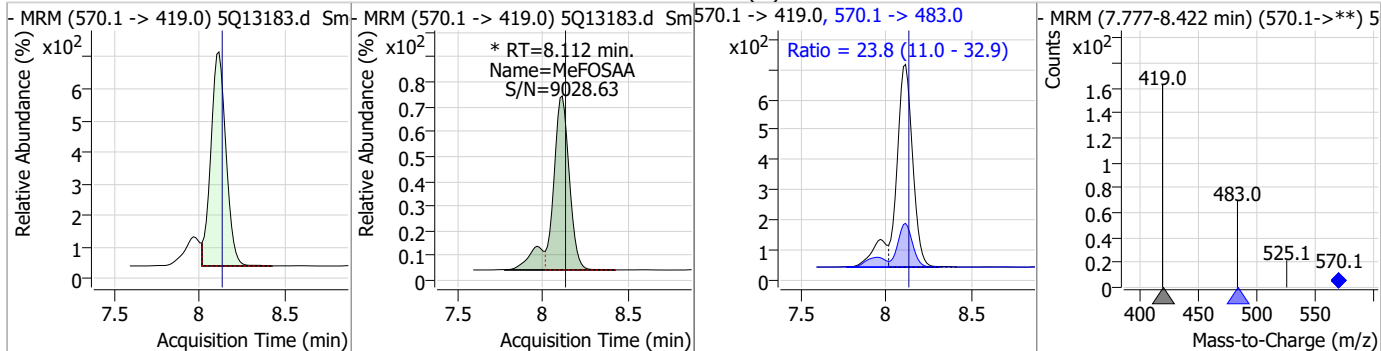
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.16	8.08	0.00	23929	512.9 -> 219.0	16.8	8.9	26.7



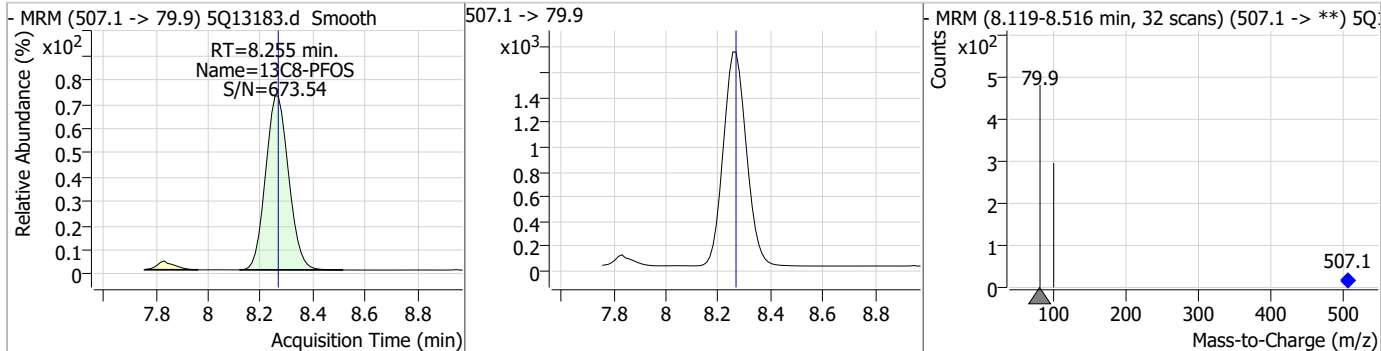
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.84	8.10	-0.01	13246				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.13	8.11	-0.01	4759 (m)	570.1 -> 483.0	23.8	11.0	32.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.48	8.25	-0.01	10585				

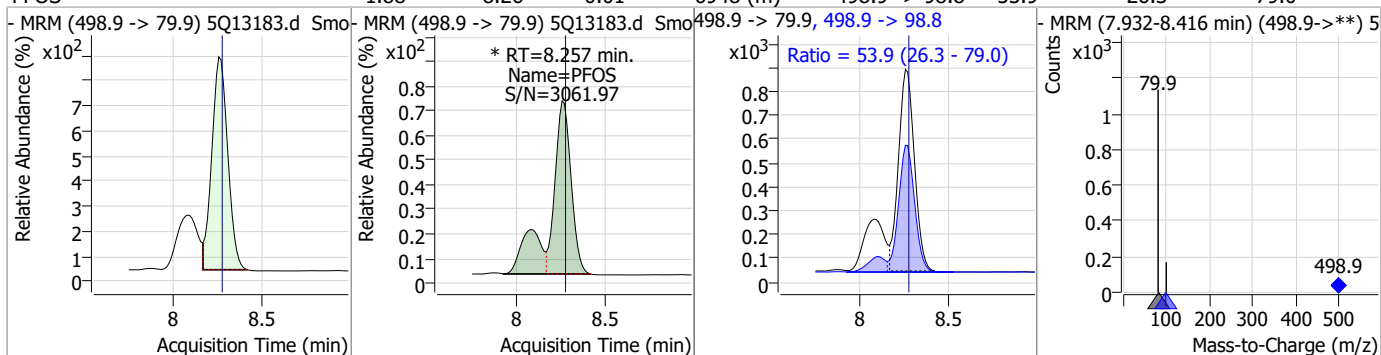


7.7.10  
7

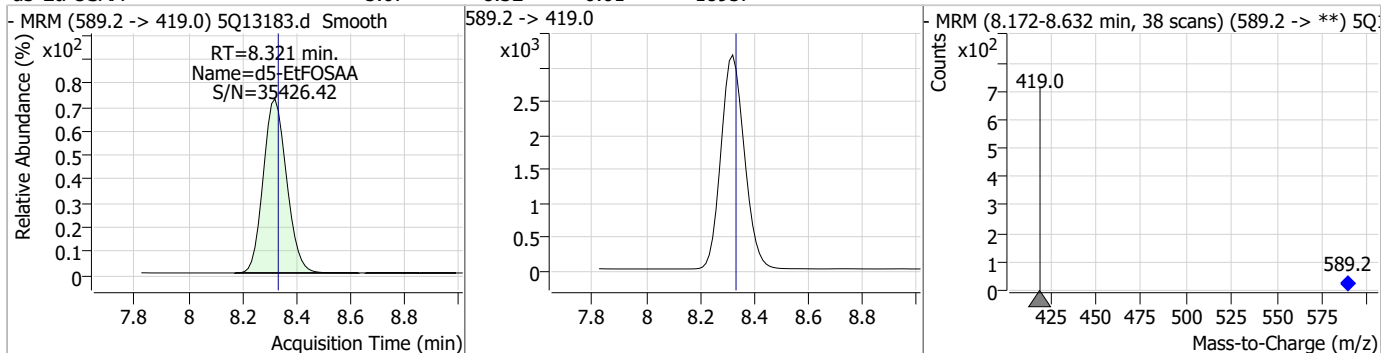


### Perfluorinated Compounds by LC/MS/MS

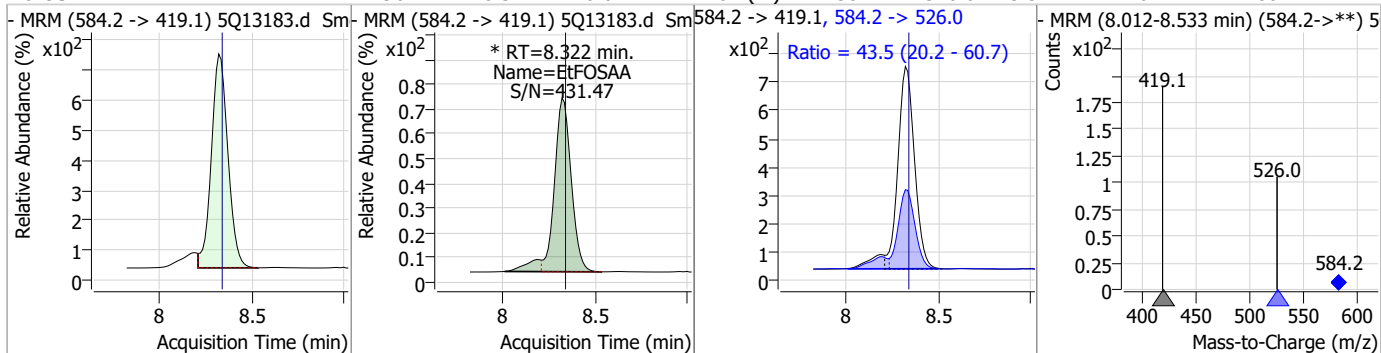
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	1.88	8.26	-0.01	6948 (m)	498.9 -> 98.8	53.9	26.3	79.0



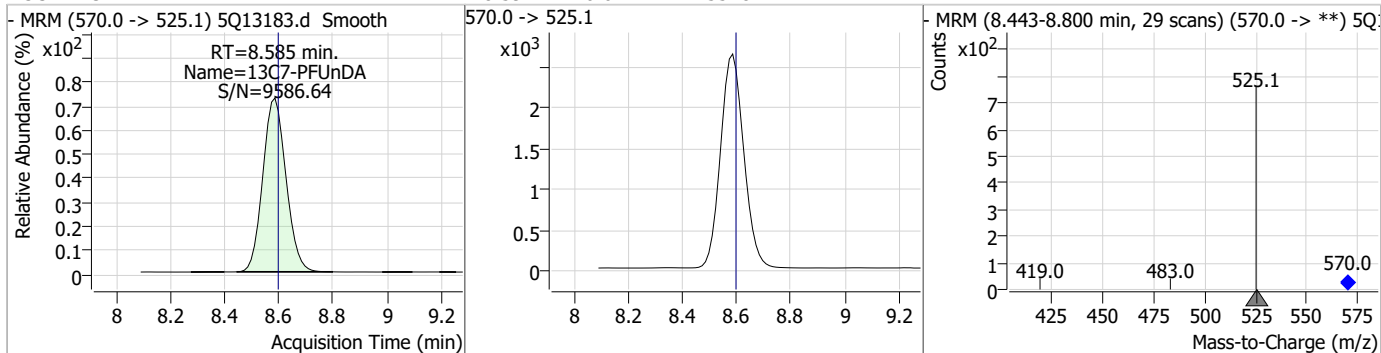
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.07	8.32	-0.01	18957				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	1.96	8.32	-0.01	4701 (m)	584.2 -> 526.0	43.5	20.2	60.7

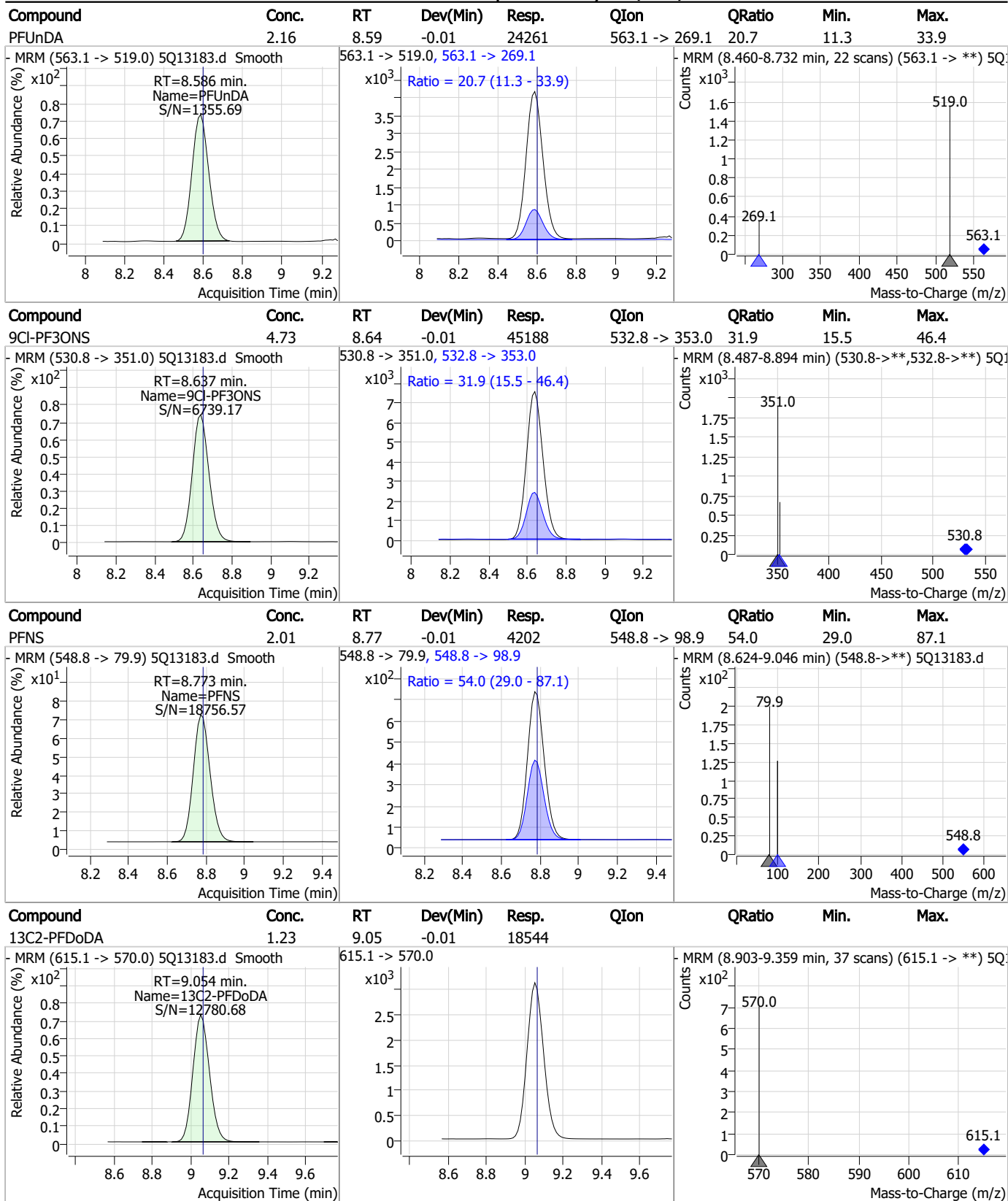


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.59	-0.01	15578				



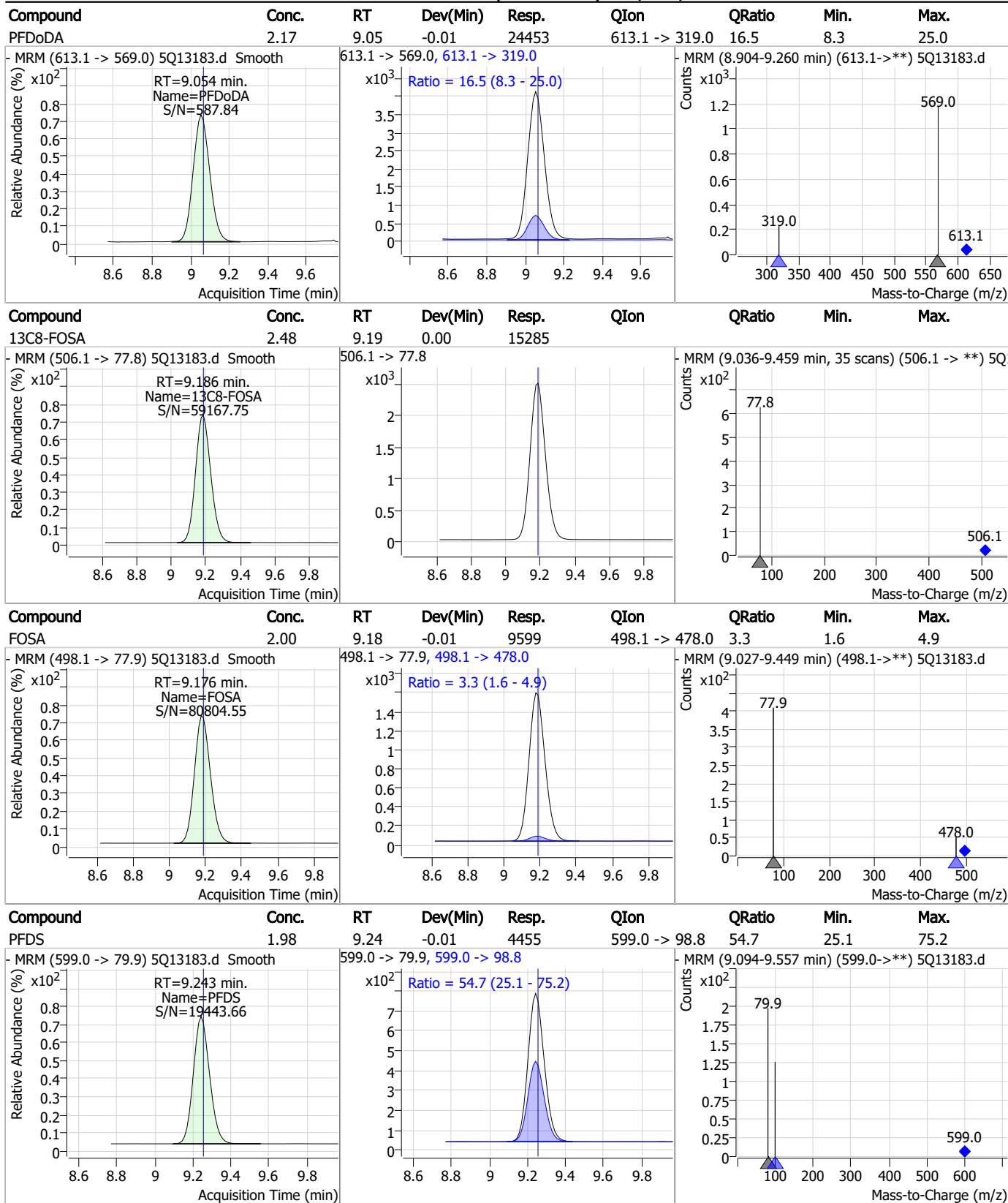
7.7.10  
7

### Perfluorinated Compounds by LC/MS/MS



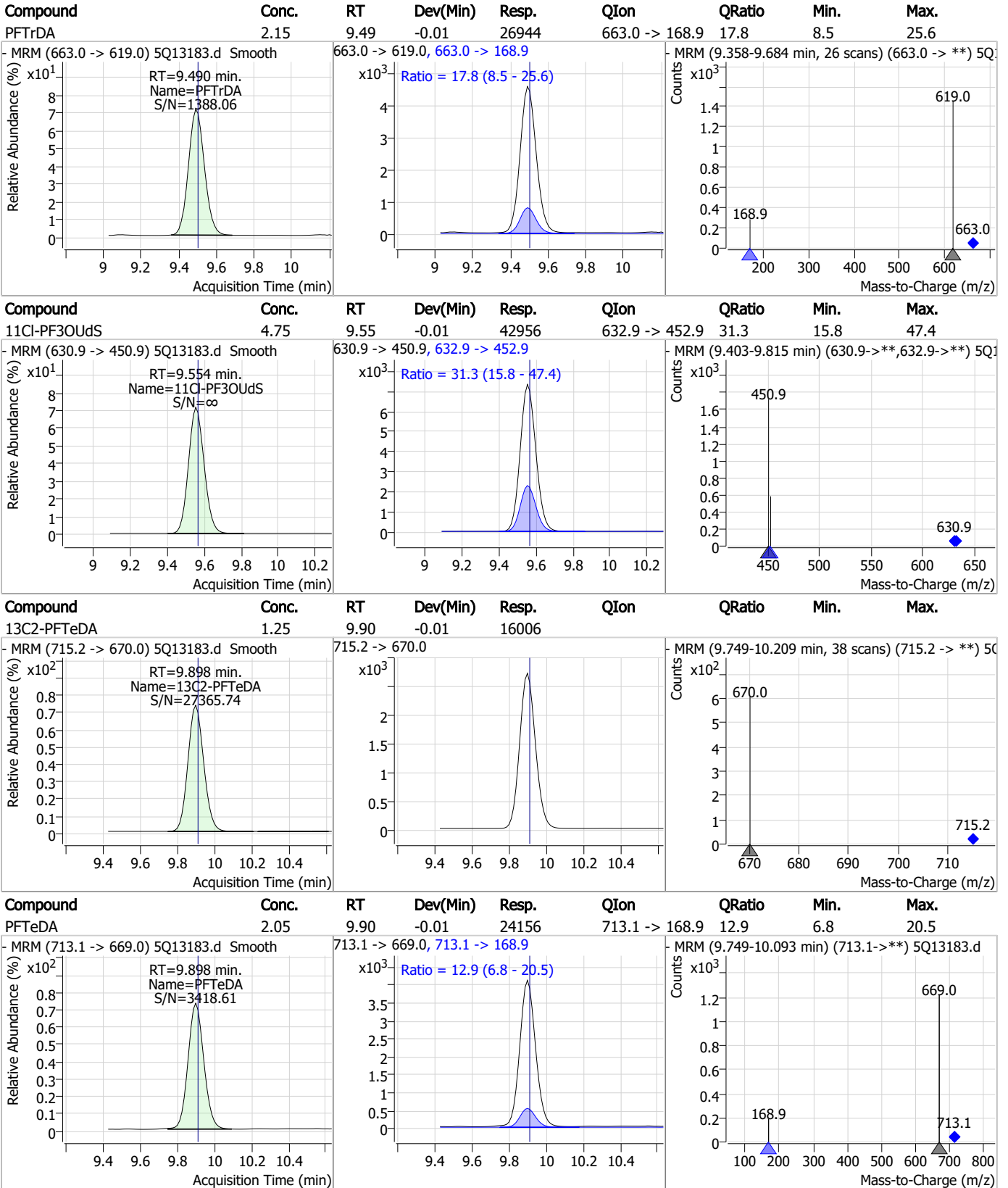
7.7.10  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.10  
7

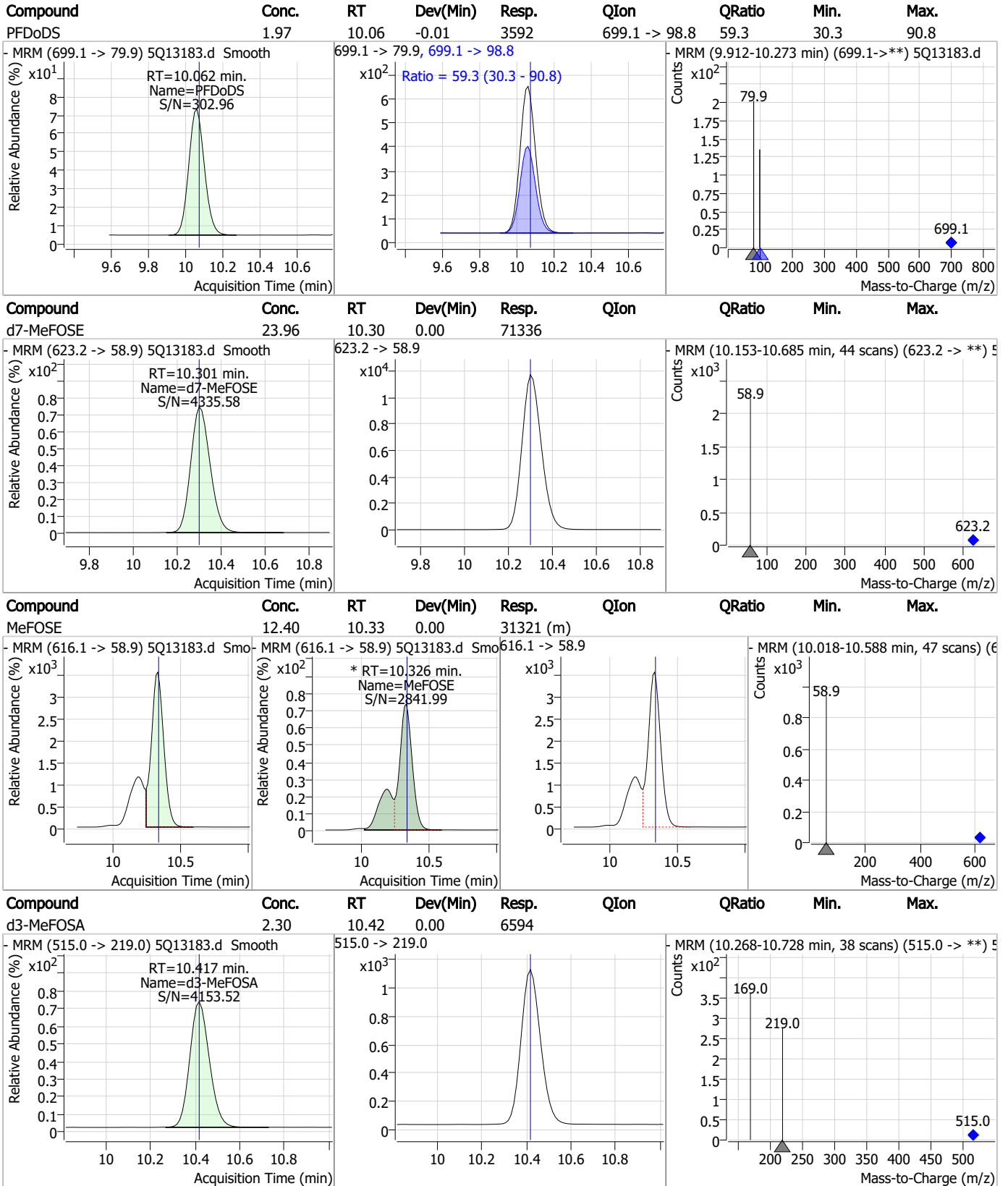
### Perfluorinated Compounds by LC/MS/MS



7.7.10 7



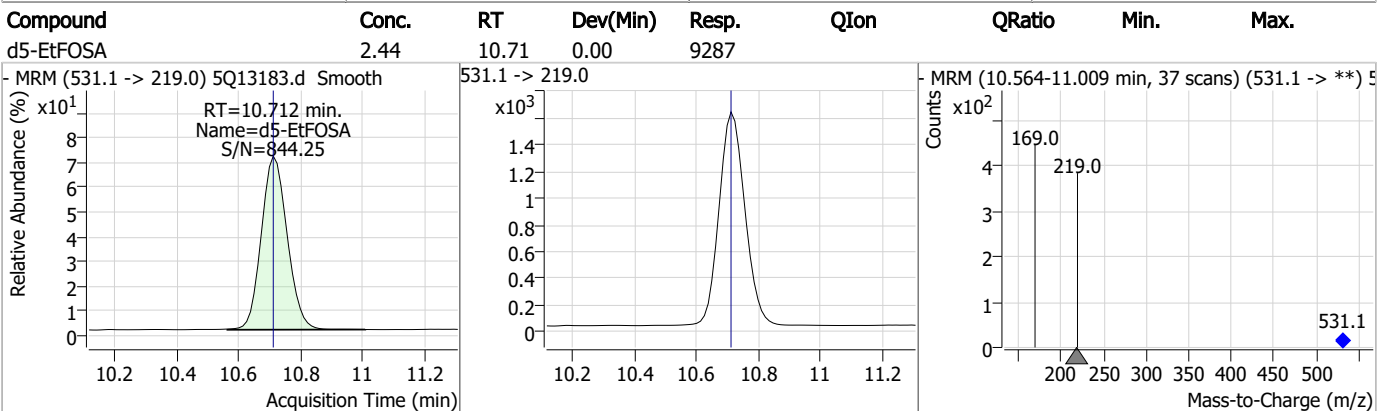
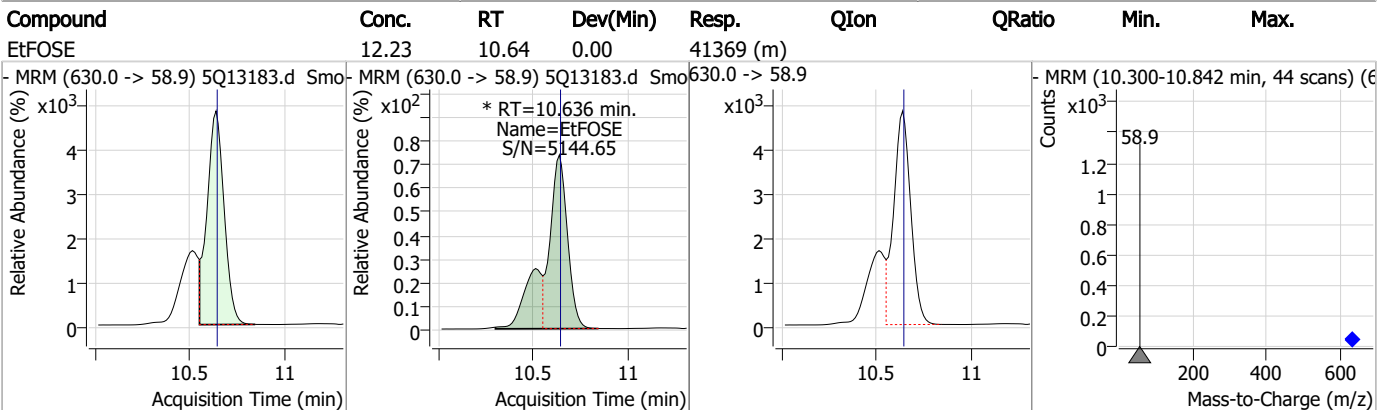
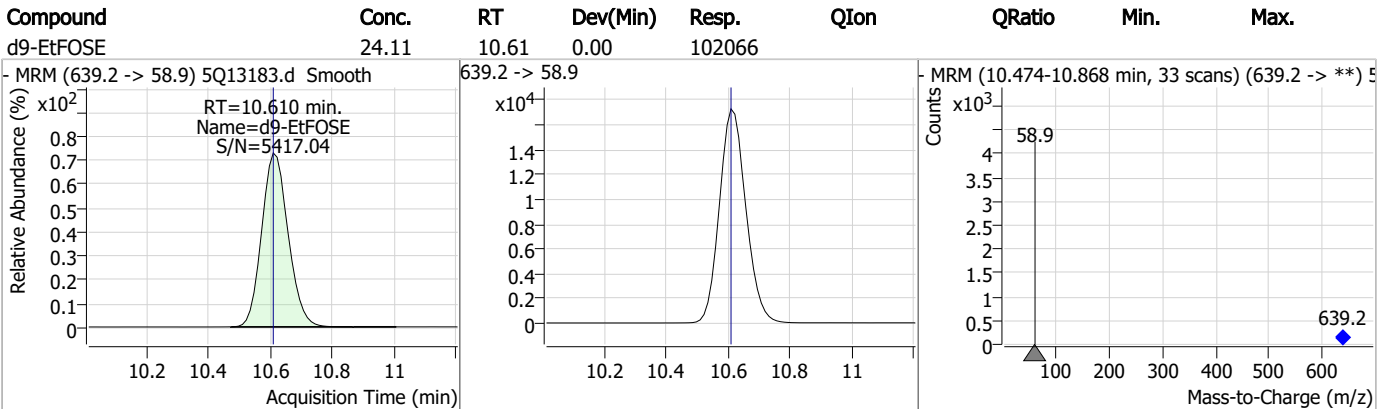
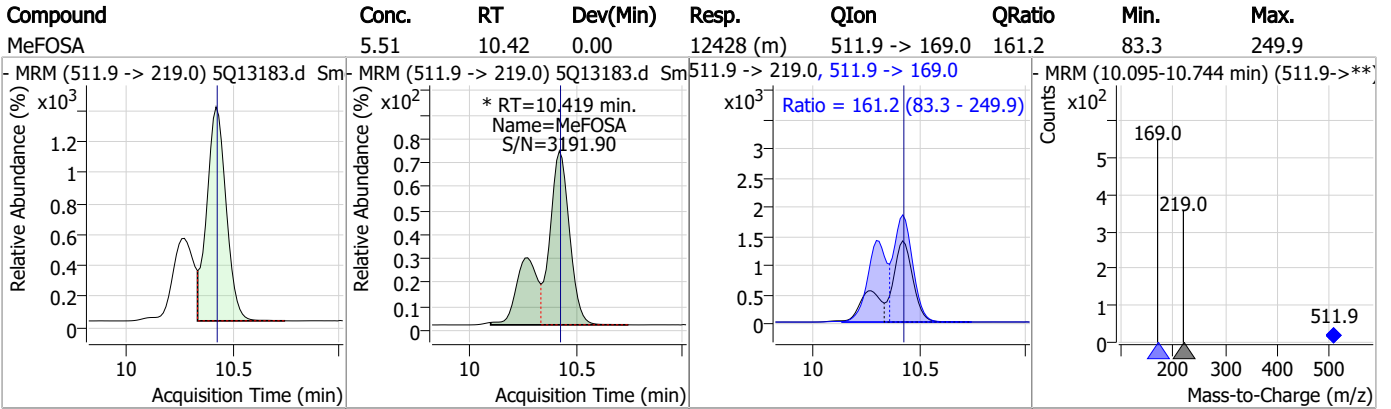
### Perfluorinated Compounds by LC/MS/MS



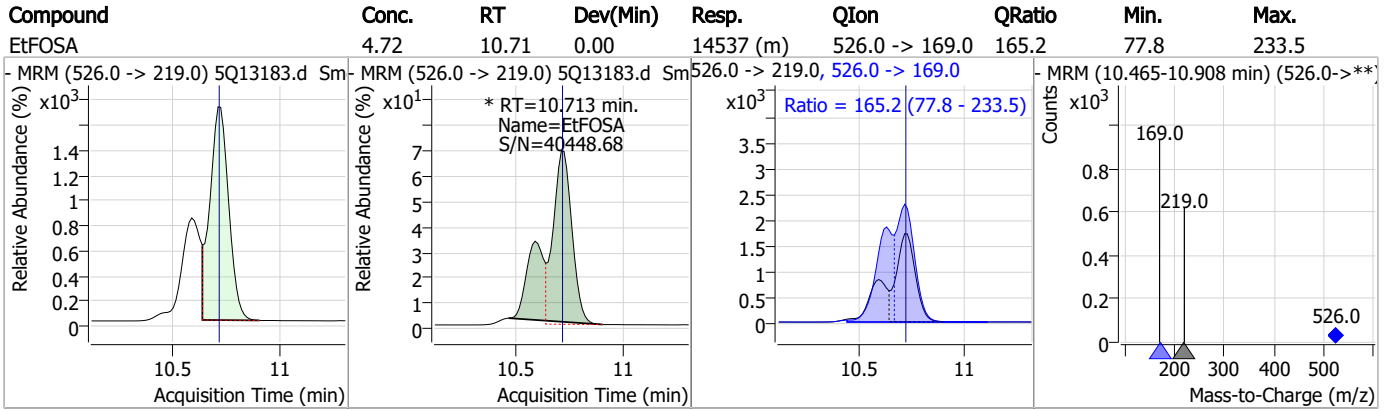
7.7.10 7



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.7.10  
7



# Manual Integration Approval Summary

Sample Number: S5Q205-ICV205      Method: EPA DRAFT 1633  
Lab FileID: 5Q13183.D      Analyst approved: 04/20/23 15:12 Lindsay Ritner  
Injection Time: 04/19/23 21:04      Supervisor approved: 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.75	Poor instrument integration
13C3-PFBA			2.75	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.76	Poor instrument integration
13C3-PFBS			5.24	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.24	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
MeFOSAA	2355-31-9		8.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.26	Split peak
EtFOSAA	2991-50-6		8.32	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.10.1

7



### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13184.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 9:19:06 PM  
 Sample Name : icv205-20  
 Vial : P3-B4  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	74746	10.00	µg/L m	0.000
M5-PFPeA	4.103	268.3 -> 223.0	56461	5.00	µg/L	-0.012
M5-PFHxA	5.296	318.0 -> 273.0	48077	2.50	µg/L	-0.012
M4-PFHpA	6.279	367.1 -> 322.0	42004	2.50	µg/L	-0.012
M8-PFOA	6.962	421.1 -> 376.0	55335	2.50	µg/L	-0.012
M9-PFNA	7.544	472.1 -> 427.0	23530	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	14062	1.25	µg/L	0.000
M7-PFUnDA	8.585	570.0 -> 525.1	18676	1.25	µg/L	-0.012
M2-PFDoDA	9.054	615.1 -> 570.0	21837	1.25	µg/L	-0.012
M2-PFTeDA	9.898	715.2 -> 670.0	18551	1.25	µg/L	-0.012
M8-FOSA	9.186	506.1 -> 77.8	18338	2.50	µg/L	0.000
M3-PFBS	5.238	302.1 -> 79.9	8710	2.50	µg/L m	-0.012
M3-PFHxS	7.090	402.1 -> 79.9	8535	2.50	µg/L	-0.012
M8-PFOS	8.267	507.1 -> 79.9	12534	2.50	µg/L	0.000
M2-4:2FTS	4.960	329.1 -> 80.9	1018	5.00	µg/L	0.000
M2-6:2FTS	6.711	429.1 -> 80.9	2223	5.00	µg/L	-0.012
M2-8:2FTS	7.841	529.1 -> 80.9	3320	5.00	µg/L	0.000
M3-MeFOSAA	8.111	573.2 -> 419.0	15811	5.00	µg/L	0.000
M3-HFPO-DA	5.701	286.9 -> 168.9	98568	10.00	µg/L	0.000
M5-EtFOSAA	8.321	589.2 -> 419.0	24402	5.00	µg/L	-0.012
M7-MeFOSE	10.301	623.2 -> 58.9	87705	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	115340	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	11123	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	8445	2.50	µg/L	0.000
13C4-PFOS	8.268	502.8 -> 79.9	12272	2.50	µg/L	0.000
13C3-PFBA	2.768	216.0 -> 172.0	39066	5.00	µg/L m	0.000
18O2-PFHxS	7.102	403.0 -> 83.9	5842	2.50	µg/L	0.000
13C4-PFOA	6.962	417.1 -> 372.0	68195	2.50	µg/L	-0.012
13C2-PFDA	8.078	515.1 -> 470.1	22798	1.25	µg/L	0.000
13C5-PFNA	7.544	468.0 -> 423.0	24336	1.25	µg/L	0.000
13C2-PFHxA	5.297	315.1 -> 270.0	50712	2.50	µg/L	-0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.960	329.1 -> 80.9	1018	5.04	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%			
13C2-6:2FTS	6.711	429.1 -> 80.9	2223	4.99	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.8%			
13C2-8:2FTS	7.841	529.1 -> 80.9	3320	4.96	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%			
13C2-PFDoDA	9.054	615.1 -> 570.0	21837	1.21	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%			
13C2-PFTeDA	9.898	715.2 -> 670.0	18551	1.21	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%			
13C3-PFBS	5.238	302.1 -> 79.9	8506	2.38	µg/L m	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.2%			
13C3-PFHxS	7.090	402.1 -> 79.9	8535	2.39	µg/L	-0.012

7.7.11  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.4%		
13C4-PFBA	2.765	216.8 -> 171.9	74746	9.99	µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%		
13C4-PFHpA	6.279	367.1 -> 322.0	42004	2.48	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C5-PFHxA	5.296	318.0 -> 273.0	48077	2.53	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C5-PFPeA	4.103	268.3 -> 223.0	56461	5.17	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%		
13C6-PFDA	8.077	519.1 -> 474.1	14062	1.17	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.8%		
13C7-PFUnDA	8.585	570.0 -> 525.1	18676	1.24	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C8-FOSA	9.186	506.1 -> 77.8	18338	2.48	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%		
13C8-PFOA	6.962	421.1 -> 376.0	55335	2.48	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C8-PFOS	8.267	507.1 -> 79.9	12534	2.45	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C9-PFNA	7.544	472.1 -> 427.0	23530	1.19	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%		
d3-MeFOSAA	8.111	573.2 -> 419.0	15811	4.81	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%		
13C3-HFPO-DA	5.701	286.9 -> 168.9	98568	10.41	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.1%		
d3-MeFOSA	10.417	515.0 -> 219.0	8445	2.46	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%		
d5-EtFOSAA	8.321	589.2 -> 419.0	24402	5.44	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.8%		
d7-MeFOSE	10.301	623.2 -> 58.9	87705	24.55	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.2%		
d9-EtFOSE	10.610	639.2 -> 58.9	115340	22.70	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.8%		
d5-EtFOSA	10.712	531.1 -> 219.0	11123	2.43	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%		
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.960	327.1 -> 307.0	27453	22.89	µg/L	98
		327.1 -> 80.9	15111			
6:2FTS	6.711	427.1 -> 407.0	40377	23.16	µg/L	98
		427.1 -> 80.9	16460			
8:2FTS	7.841	527.1 -> 507.0	31003	22.50	µg/L	98
		527.1 -> 80.8	14662			
EtFOSAA	8.322	584.2 -> 419.1	71007	22.95	µg/L m	100
		584.2 -> 526.0	28670			
FOSA	9.176	498.1 -> 77.9	134503	23.41	µg/L	99
		498.1 -> 478.0	4066			
MeFOSAA	8.112	570.1 -> 419.0	59802	22.44	µg/L m	94
		570.1 -> 483.0	14819			
PFBA	2.758	212.8 -> 168.9	59702	21.92	µg/L m	100
PFBS	5.239	298.7 -> 79.9	68675	24.86	µg/L m	92
		298.7 -> 98.8	28225			
PFDA	8.078	512.9 -> 469.0	297886	23.79	µg/L	100
		512.9 -> 219.0	53296			
PFDoDA	9.054	613.1 -> 569.0	275247	20.74	µg/L	99
		613.1 -> 319.0	45191			
PFDS	9.243	599.0 -> 79.9	60738	22.81	µg/L	96

7.7.11  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	32227			
PFHpA	6.280	363.1 -> 319.0	386618	22.59	µg/L	98
		363.1 -> 169.0	85466			
PFHpS	7.710	449.0 -> 79.9	77396	23.27	µg/L	97
		449.0 -> 98.9	42633			
PFHxA	5.299	313.0 -> 269.0	280683	23.13	µg/L	100
		313.0 -> 118.9	12450			
PFHxS	7.091	398.7 -> 79.9	74944	25.06	µg/L	m 96
		398.7 -> 98.9	42101			
PFNA	7.545	463.0 -> 419.0	295341	25.78	µg/L	100
		463.0 -> 219.0	66810			
PFNS	8.773	548.8 -> 79.9	57331	23.17	µg/L	98
		548.8 -> 98.9	32362			
PFOA	6.963	413.0 -> 369.0	444817	22.45	µg/L	99
		413.0 -> 169.0	105011			
PFOS	8.269	498.9 -> 79.9	85417	19.54	µg/L	m 98
		498.9 -> 98.8	46097			
PFPeA	4.104	263.0 -> 219.0	263612	23.96	µg/L	100
PFPeS	6.356	349.1 -> 79.9	67722	24.79	µg/L	100
		349.1 -> 98.9	32879			
PFTeDA	9.898	713.1 -> 669.0	326768	23.98	µg/L	99
		713.1 -> 168.9	43259			
PFTrDA	9.490	663.0 -> 619.0	308045	20.86	µg/L	99
		663.0 -> 168.9	53401			
PFUnDA	8.586	563.1 -> 519.0	297411	22.12	µg/L	96
		563.1 -> 269.1	61989			
11Cl-PF3OUdS	9.554	630.9 -> 450.9	256017	22.83	µg/L	99
		632.9 -> 452.9	79497			
9Cl-PF3ONS	8.637	530.8 -> 351.0	257162	21.68	µg/L	99
		532.8 -> 353.0	81192			
ADONA	6.542	376.9 -> 250.9	599828	22.06	µg/L	99
		376.9 -> 84.8	175702			
HFPO-DA	5.702	284.9 -> 168.9	167275	21.59	µg/L	99
		284.9 -> 184.9	15236			
3:3FTCA	3.561	241.0 -> 177.0	15374	21.31	µg/L	97
		241.0 -> 117.0	1777			
5:3FTCA	5.917	341.0 -> 237.1	55735	24.02	µg/L	100
		341.0 -> 217.0	37666			
7:3FTCA	7.372	441.0 -> 316.9	27417	22.89	µg/L	97
		441.0 -> 336.9	60350			
EtFOSA	10.726	526.0 -> 219.0	83598	22.68	µg/L	78
		526.0 -> 169.0	106560			
EtFOSE	10.636	630.0 -> 58.9	444156	116.22	µg/L	100
MeFOSA	10.419	511.9 -> 219.0	65733	22.77	µg/L	74
		511.9 -> 169.0	85992			
MeFOSE	10.326	616.1 -> 58.9	345708	111.29	µg/L	100
PFDoDS	10.062	699.1 -> 79.9	47269	21.87	µg/L	99
		699.1 -> 98.8	28276			
NFDHA	5.178	295.0 -> 201.0	27488	23.27	µg/L	98
		295.0 -> 84.9	7358			
PFMBA	4.505	279.0 -> 85.1	166187	23.16	µg/L	100
PFMPA	3.290	229.0 -> 84.9	145844	25.53	µg/L	100
PFEESA	5.807	314.8 -> 134.9	325959	20.73	µg/L	100
		314.8 -> 82.9	9663			

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

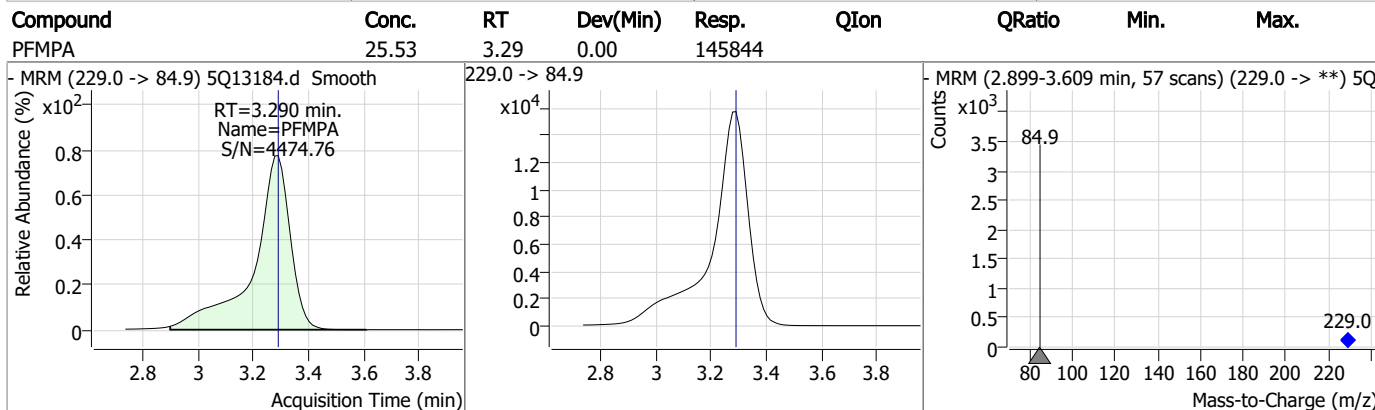
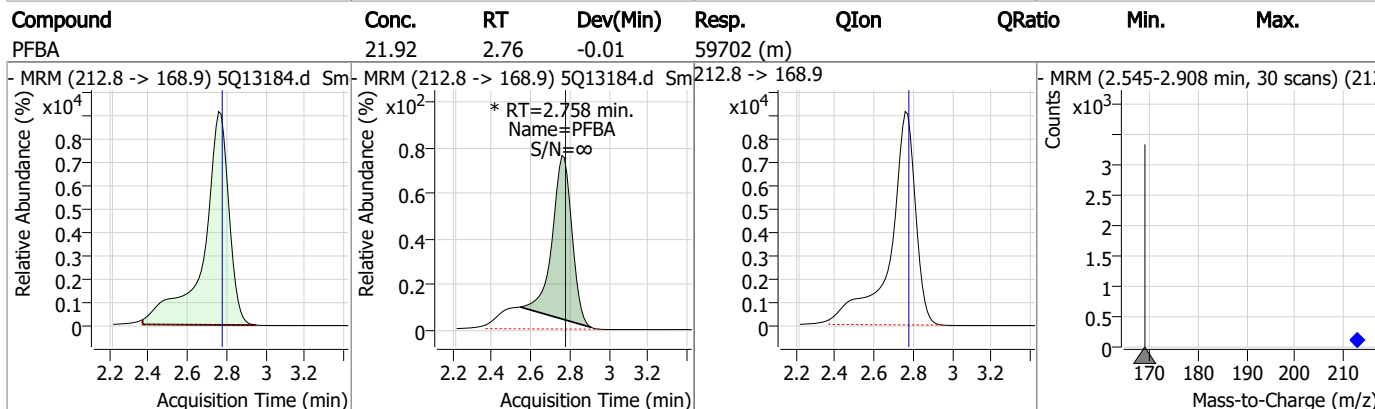
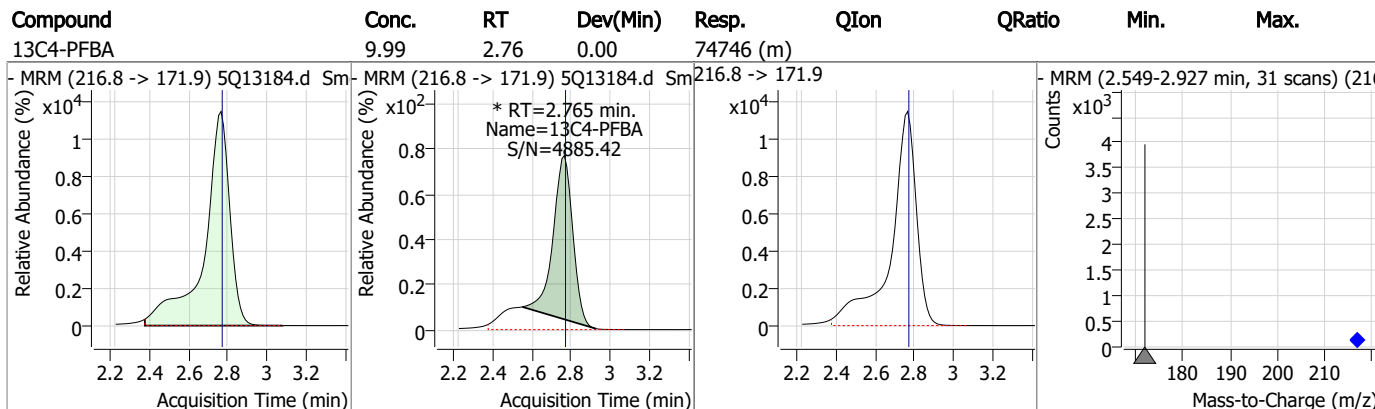
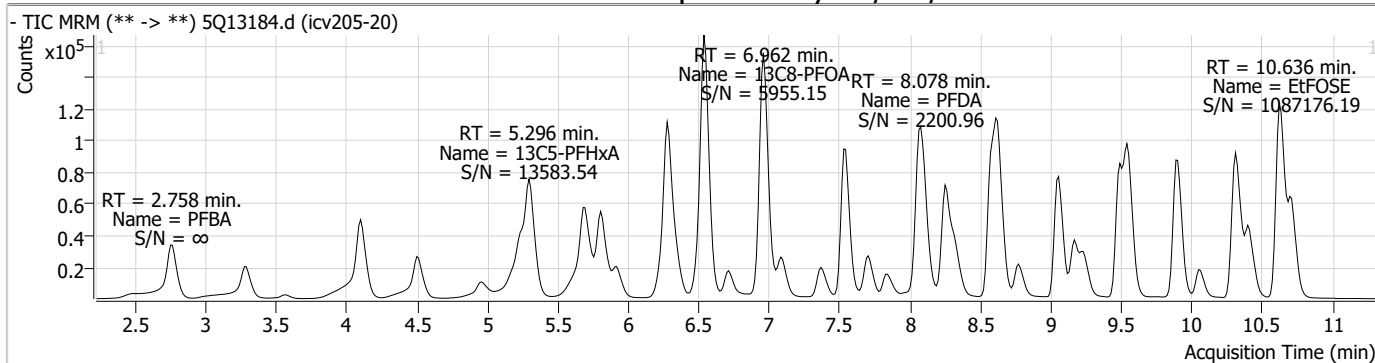
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.11

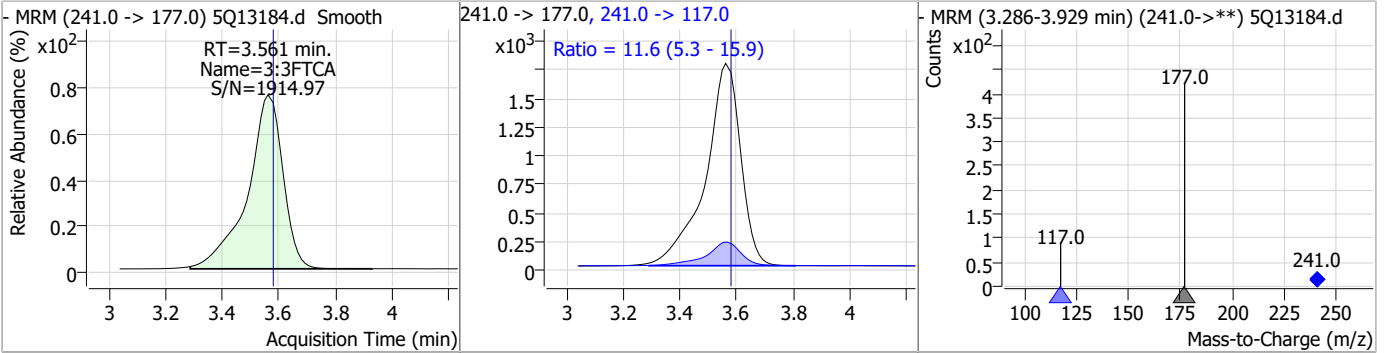
7

### Perfluorinated Compounds by LC/MS/MS

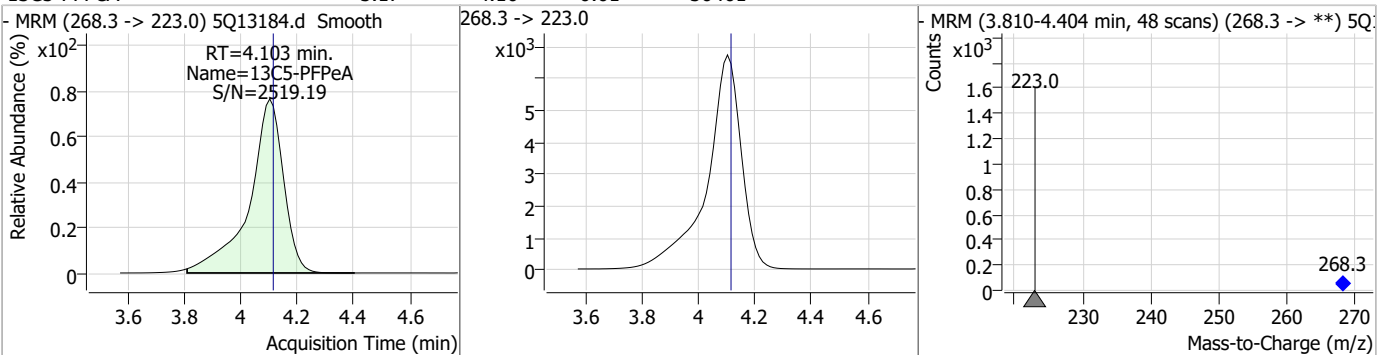


### Perfluorinated Compounds by LC/MS/MS

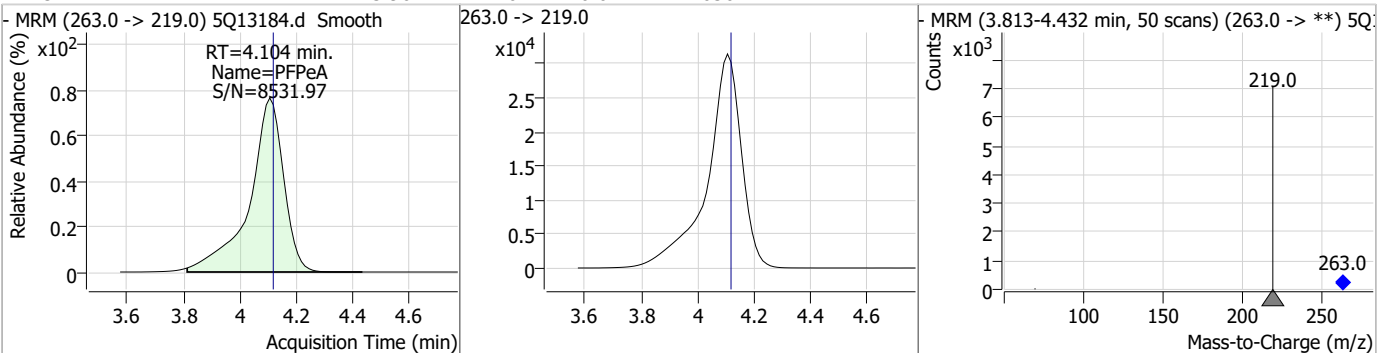
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	21.31	3.56	-0.02	15374	241.0 -> 117.0	11.6	5.3	15.9



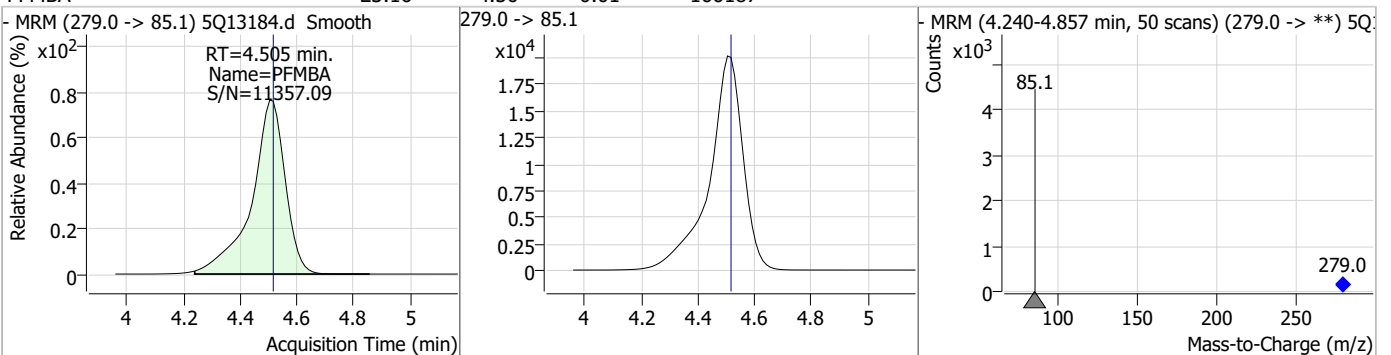
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.17	4.10	-0.01	56461				



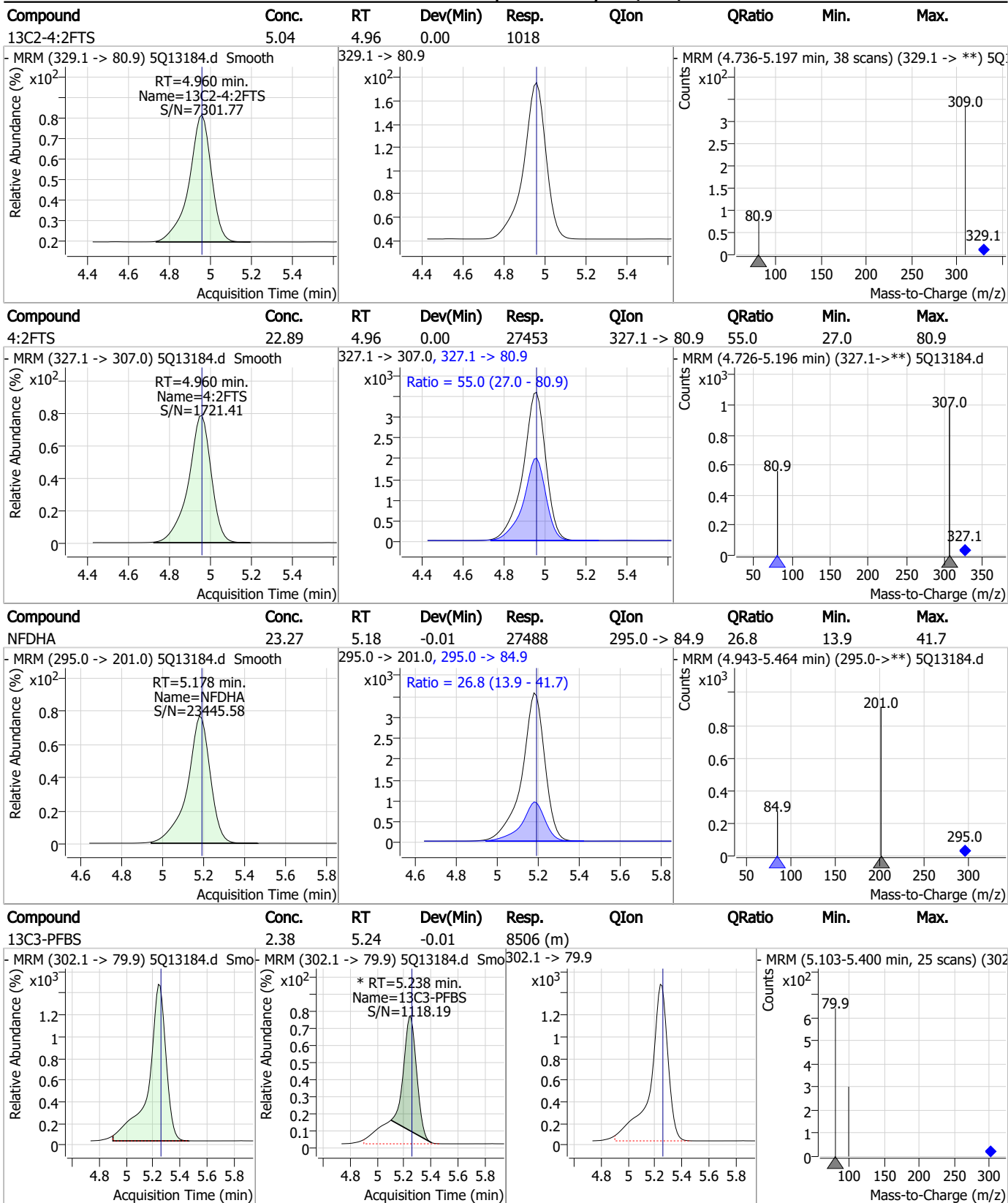
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	23.96	4.10	-0.01	263612				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	23.16	4.50	-0.01	166187				

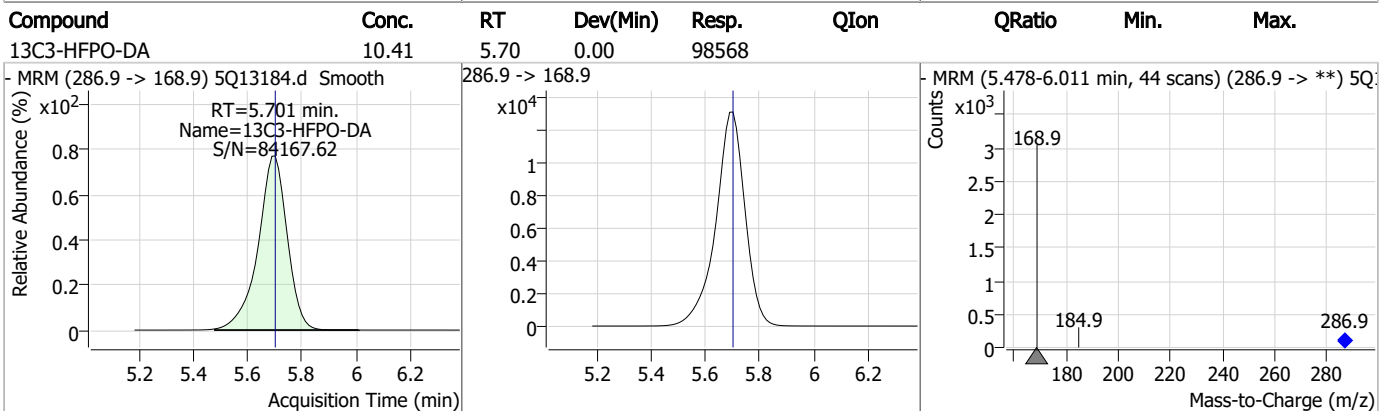
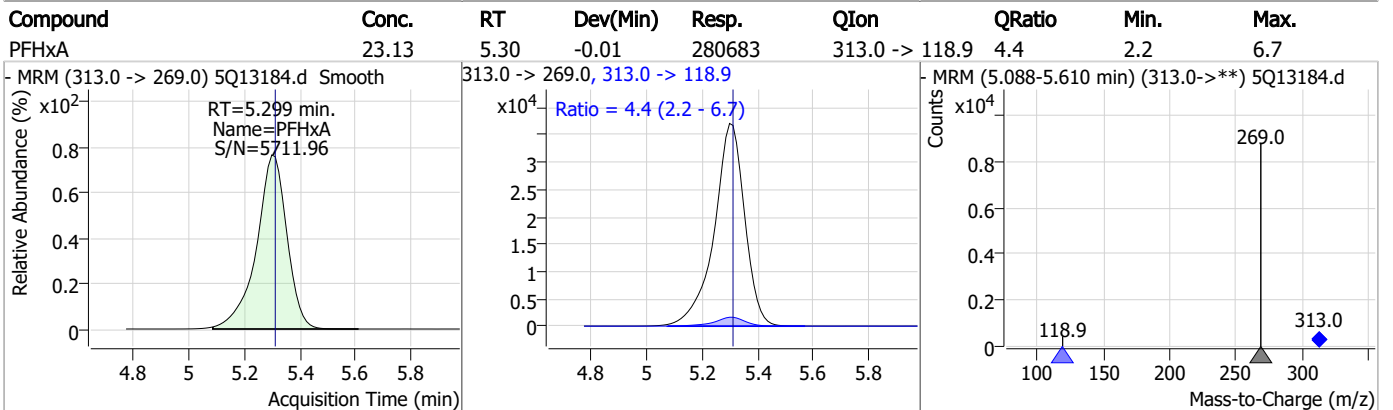
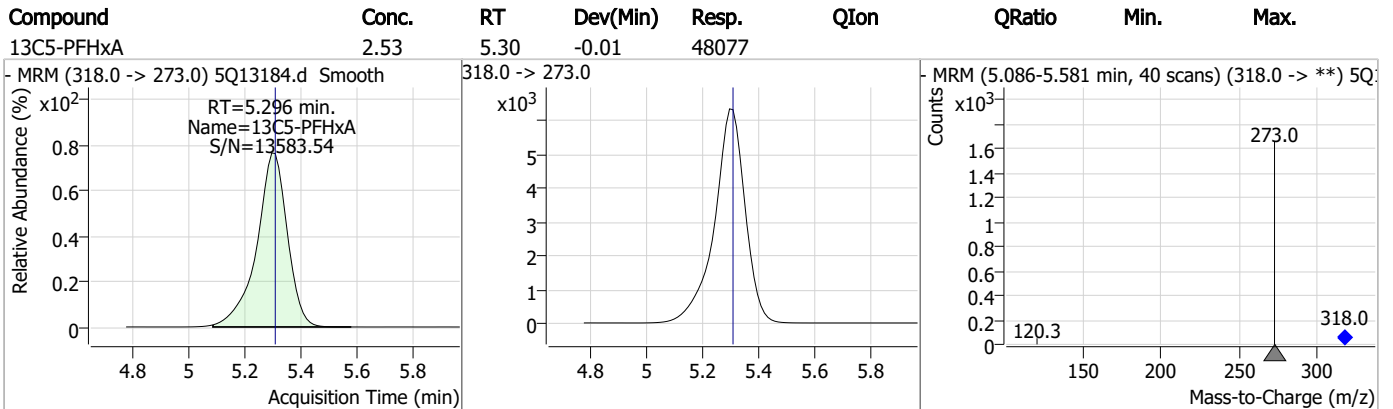
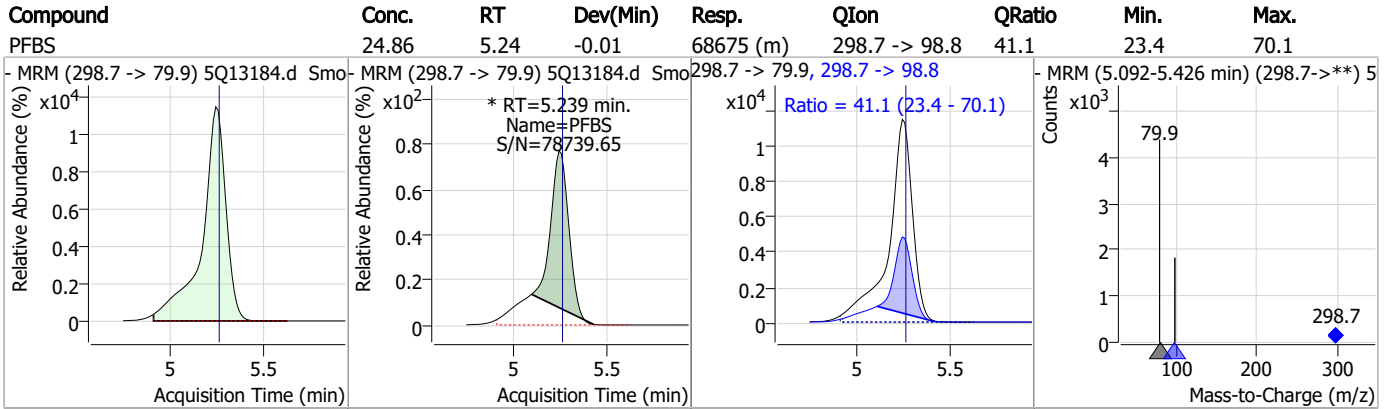


### Perfluorinated Compounds by LC/MS/MS



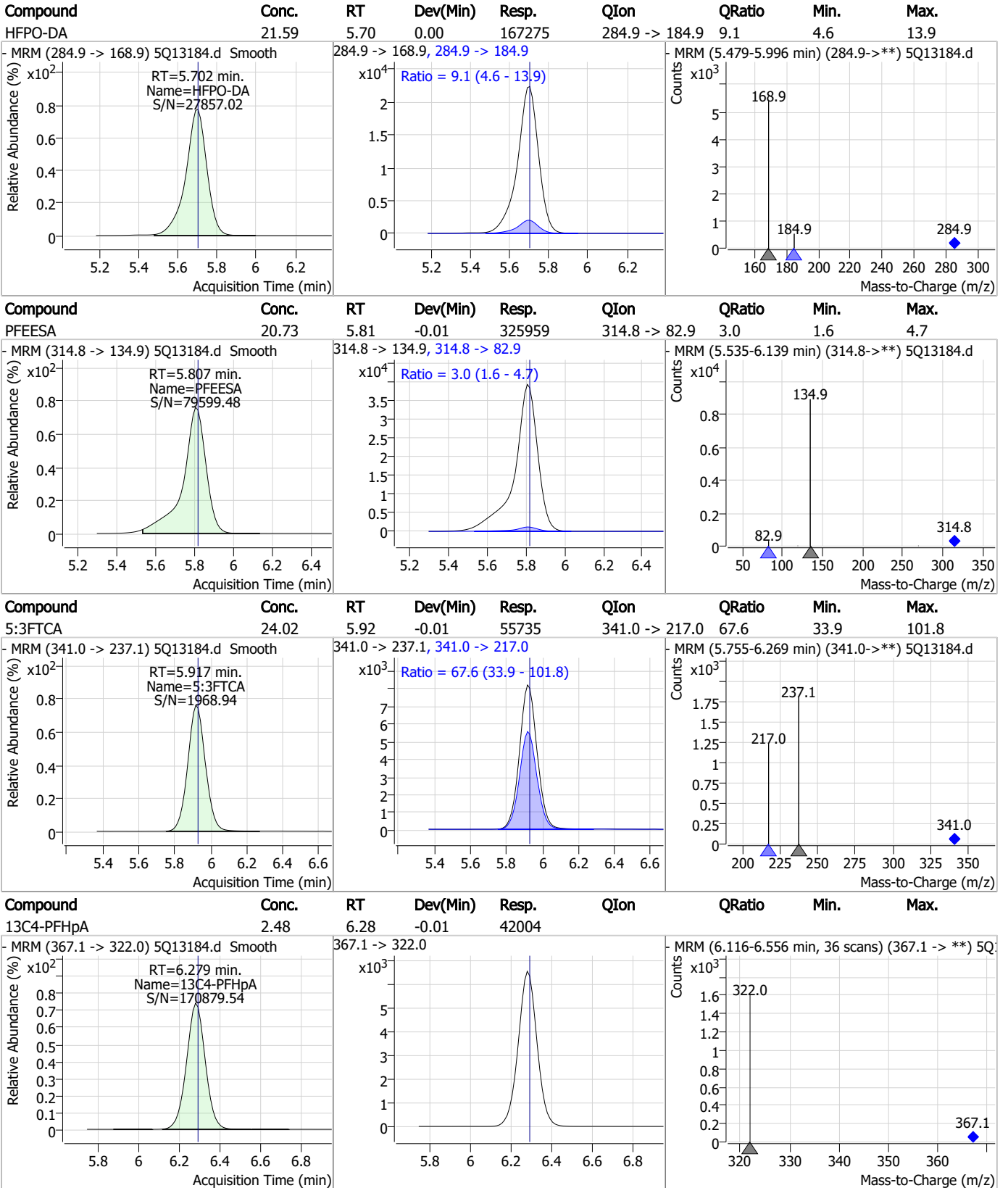
7.7.11

### Perfluorinated Compounds by LC/MS/MS





### Perfluorinated Compounds by LC/MS/MS



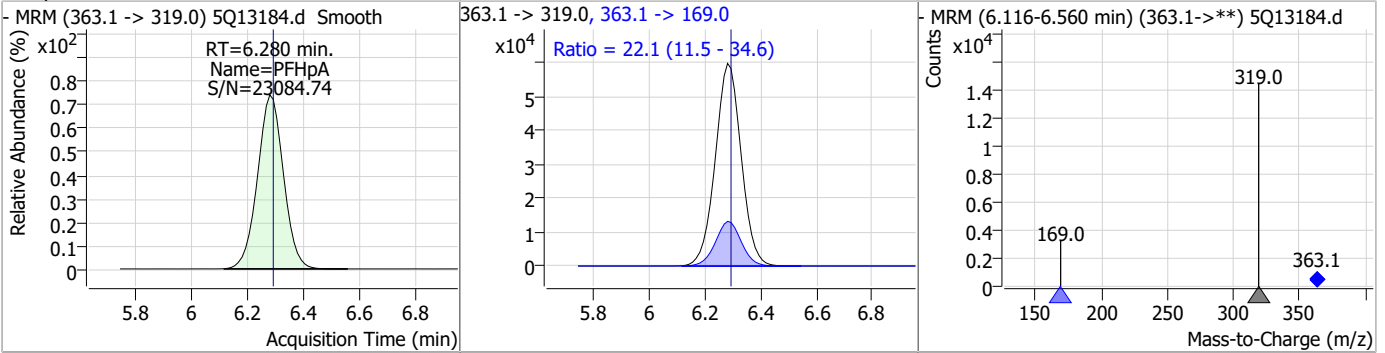
7.7.11

7

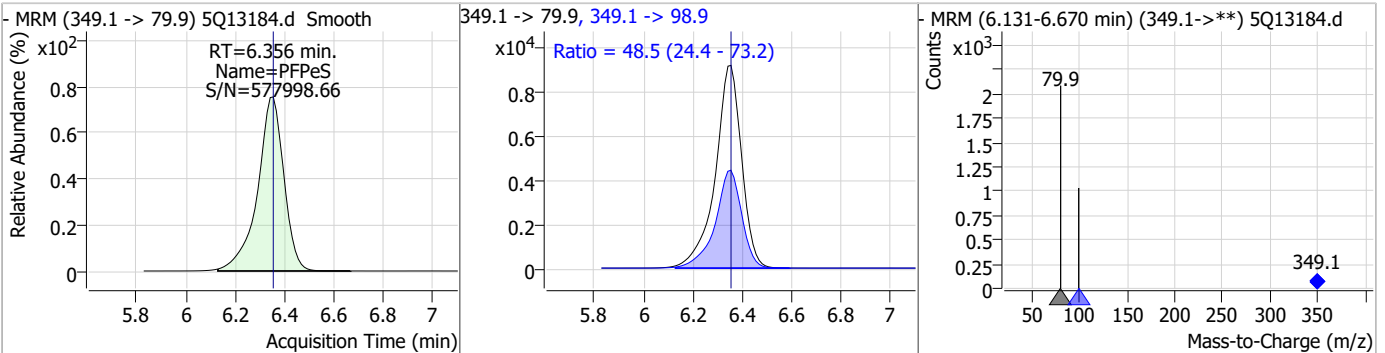


### Perfluorinated Compounds by LC/MS/MS

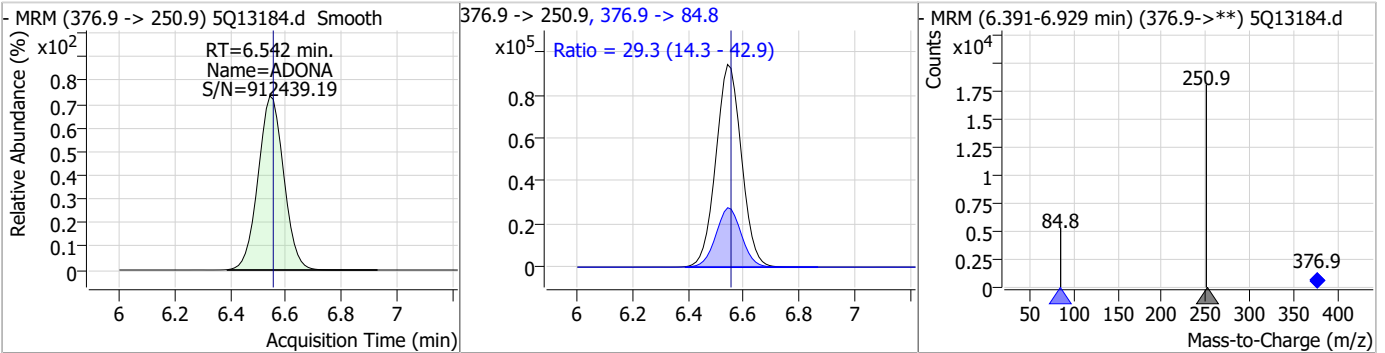
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	22.59	6.28	-0.01	386618	363.1 -> 169.0	22.1	11.5	34.6



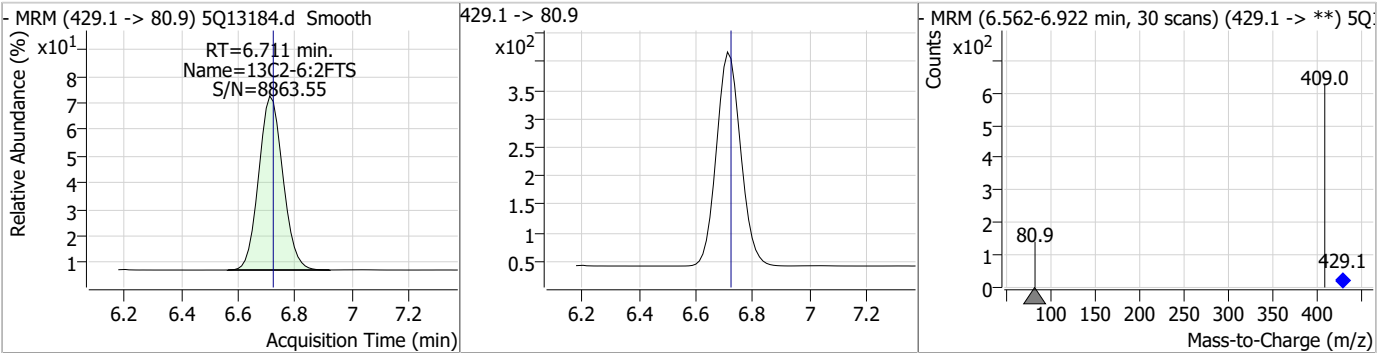
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	24.79	6.36	0.00	67722	349.1 -> 98.9	48.5	24.4	73.2



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	22.06	6.54	-0.01	599828	376.9 -> 84.8	29.3	14.3	42.9

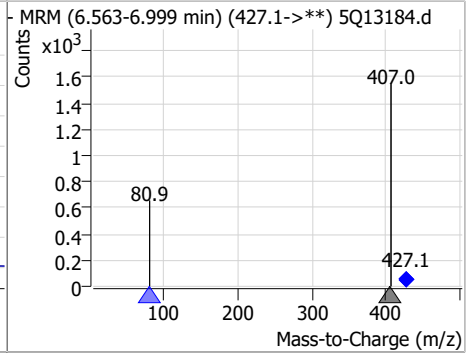
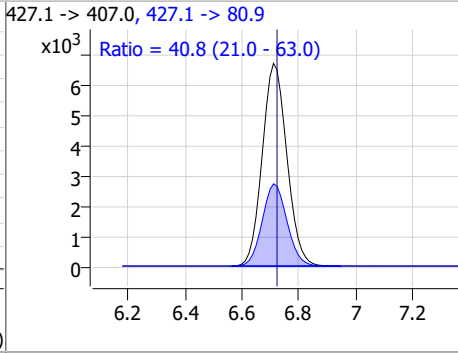
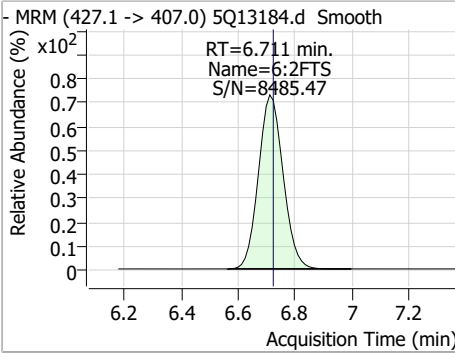


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.99	6.71	-0.01	2223	429.1 -> 80.9			

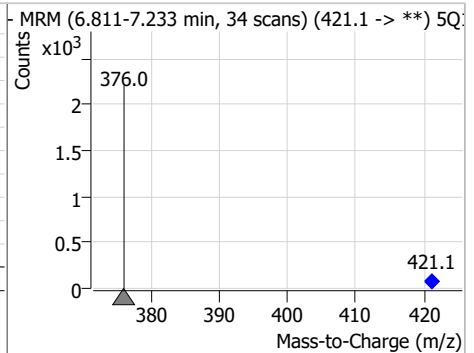
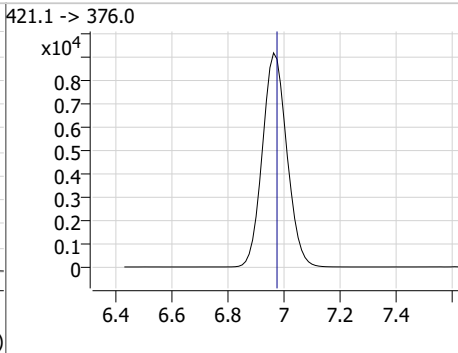
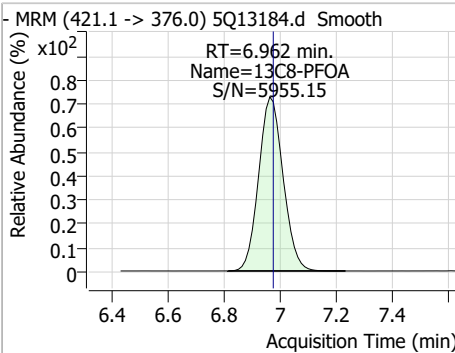


### Perfluorinated Compounds by LC/MS/MS

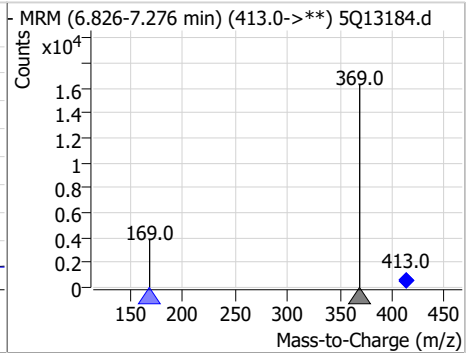
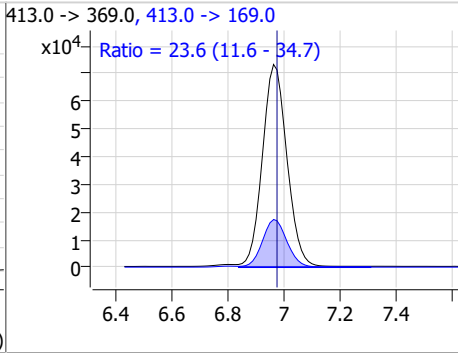
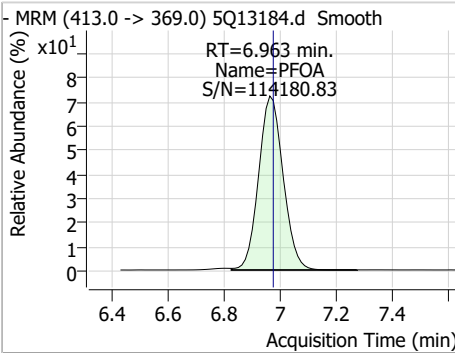
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
6:2FTS	23.16	6.71	-0.01	40377	427.1 -> 80.9	40.8	21.0	63.0



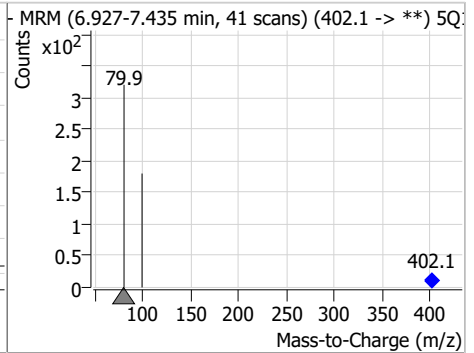
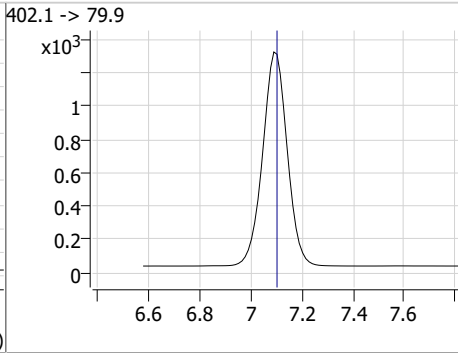
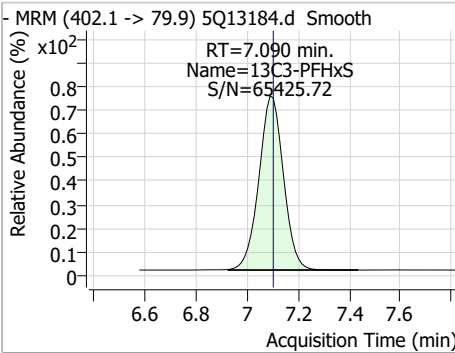
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.48	6.96	-0.01	55335	421.1 -> 376.0			



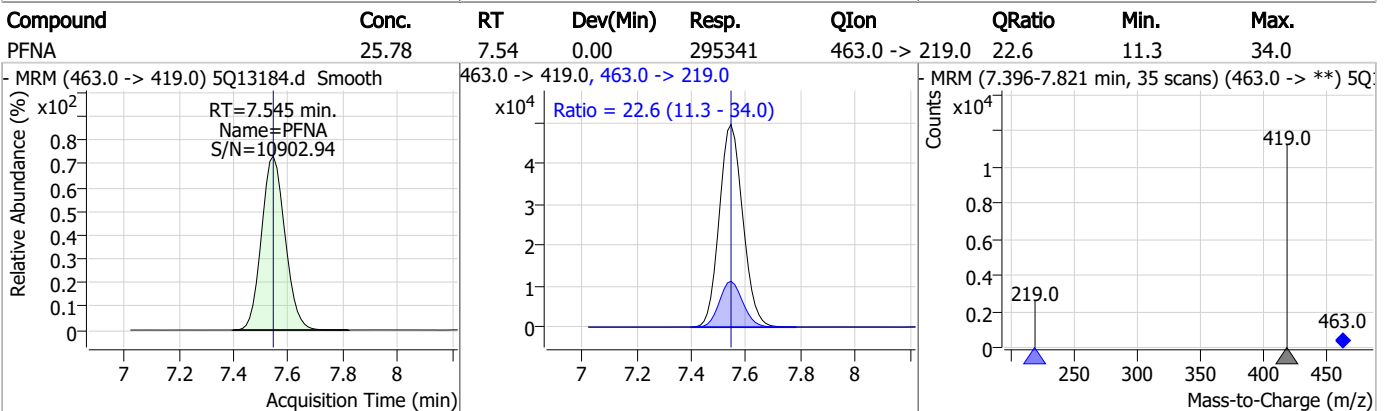
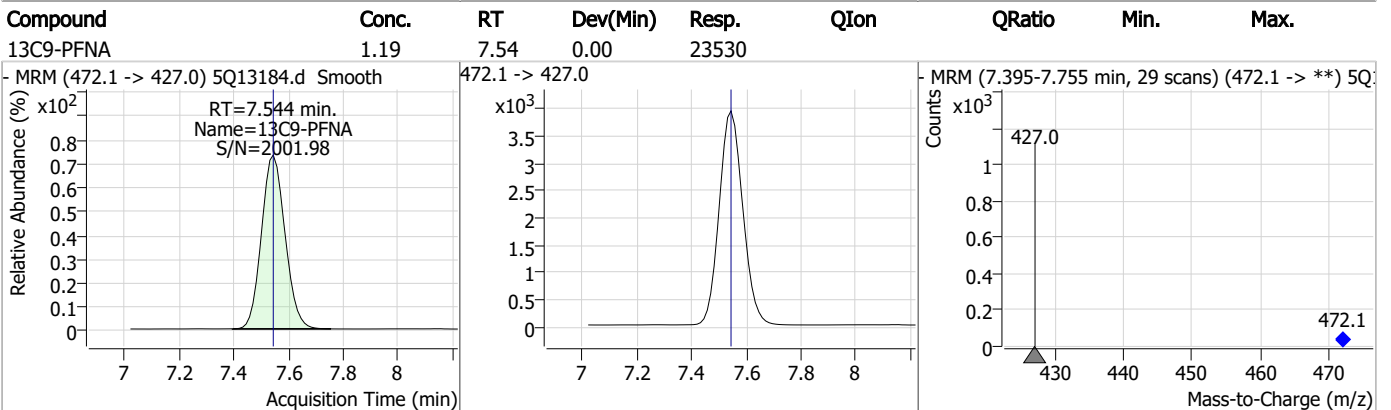
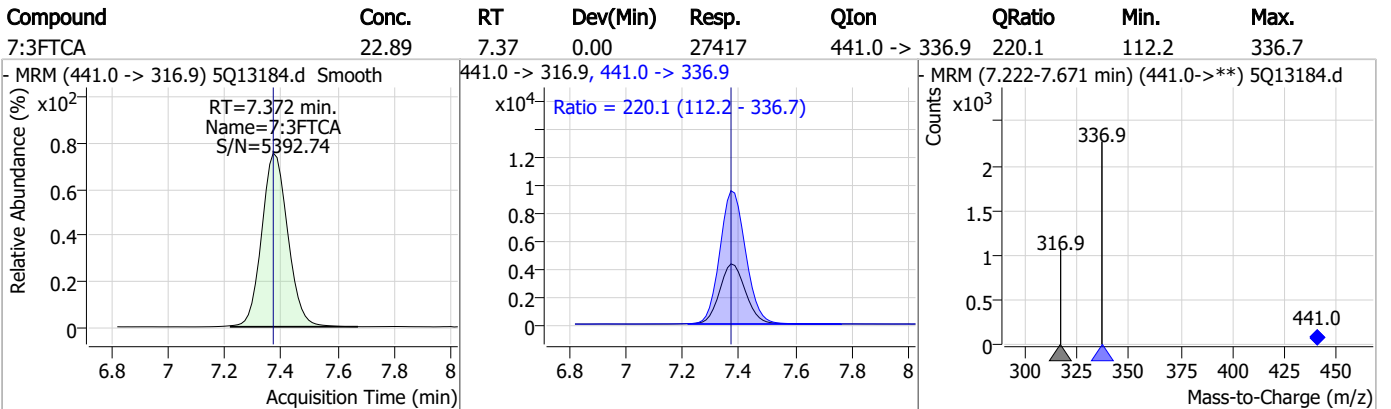
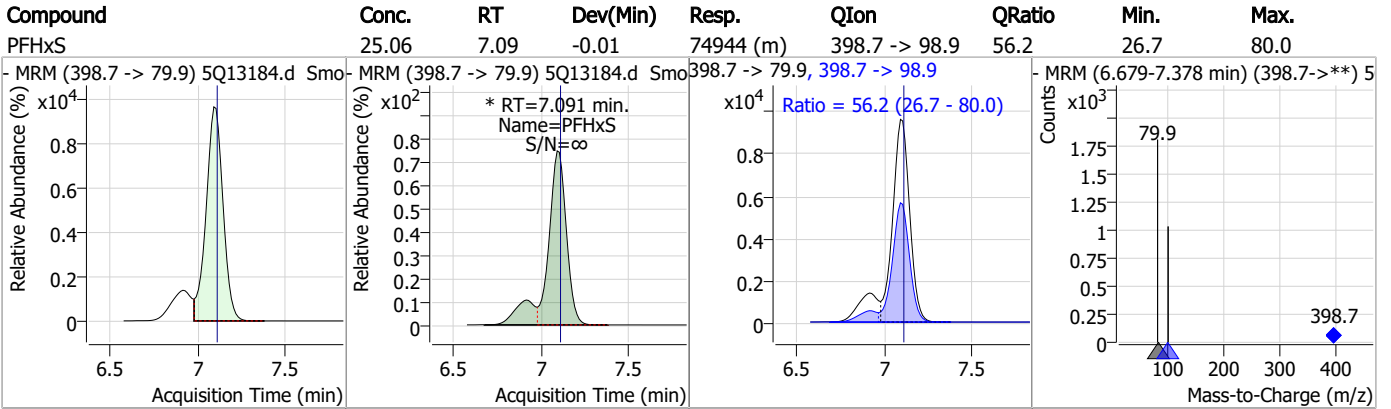
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOA	22.45	6.96	-0.01	444817	413.0 -> 169.0	23.6	11.6	34.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.39	7.09	-0.01	8535	402.1 -> 79.9			

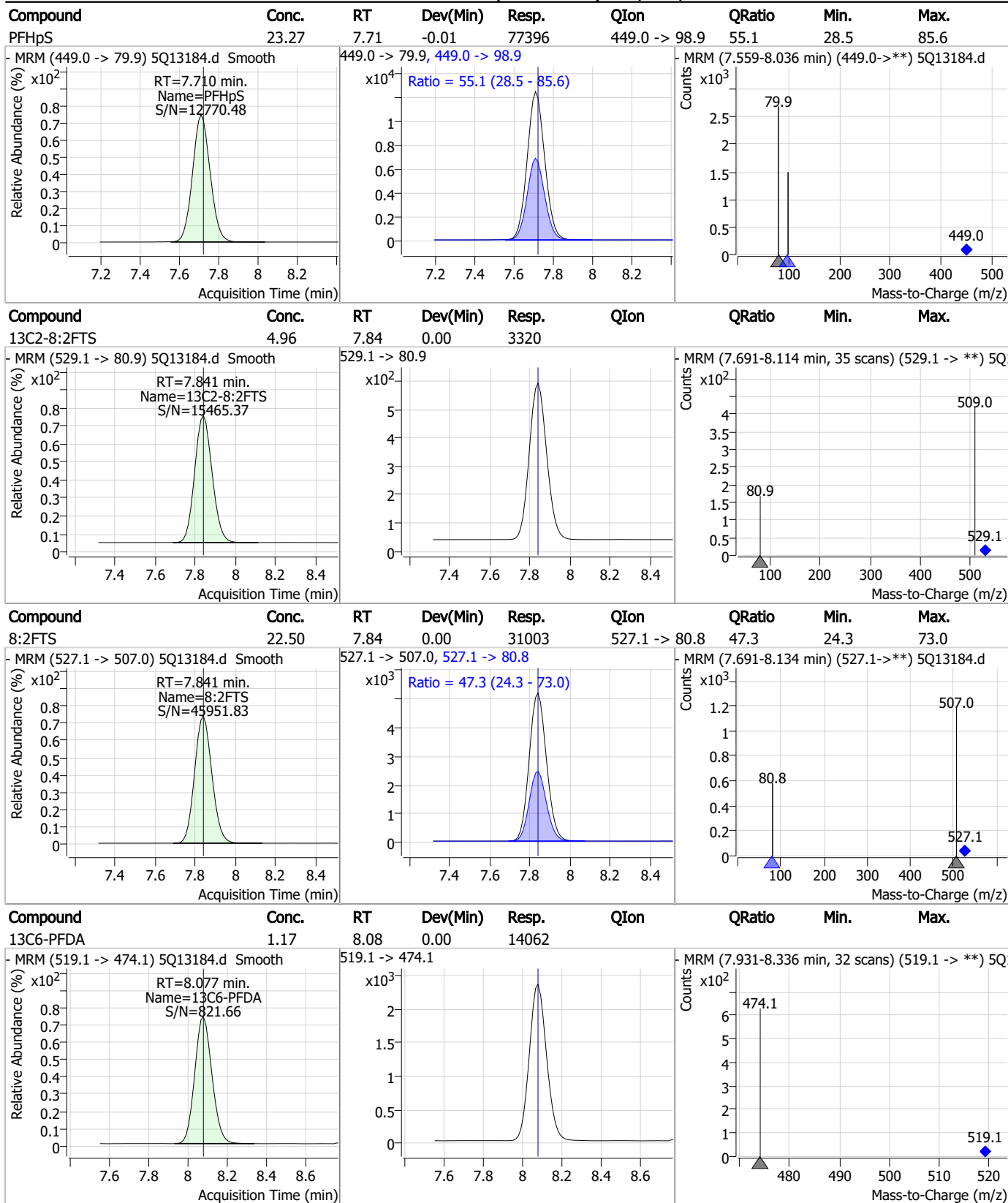


### Perfluorinated Compounds by LC/MS/MS



7.7.11  
7

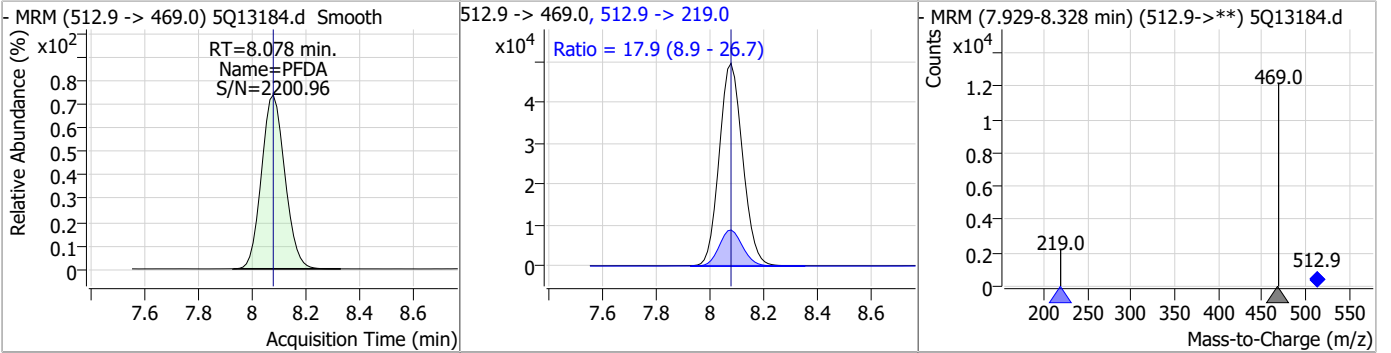
### Perfluorinated Compounds by LC/MS/MS



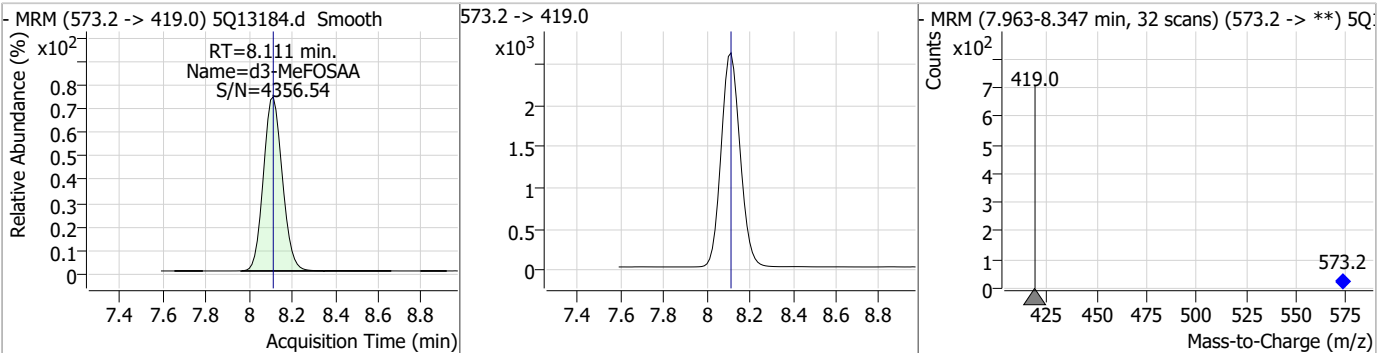
7.7.11

### Perfluorinated Compounds by LC/MS/MS

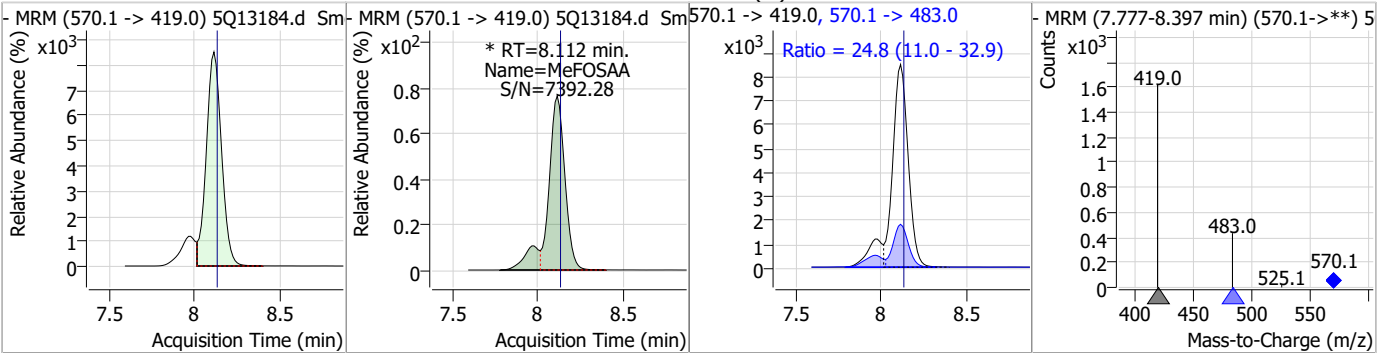
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	23.79	8.08	0.00	297886	512.9 -> 219.0	17.9	8.9	26.7



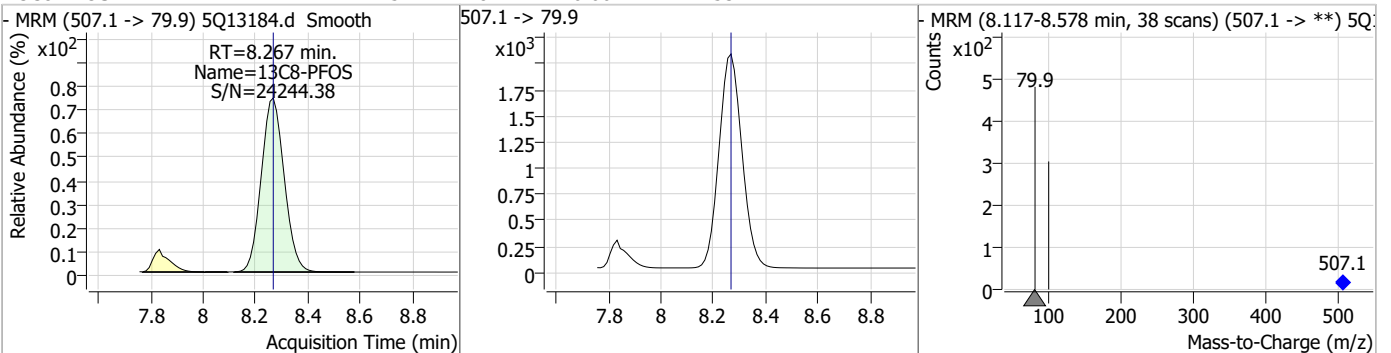
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.81	8.11	0.00	15811				



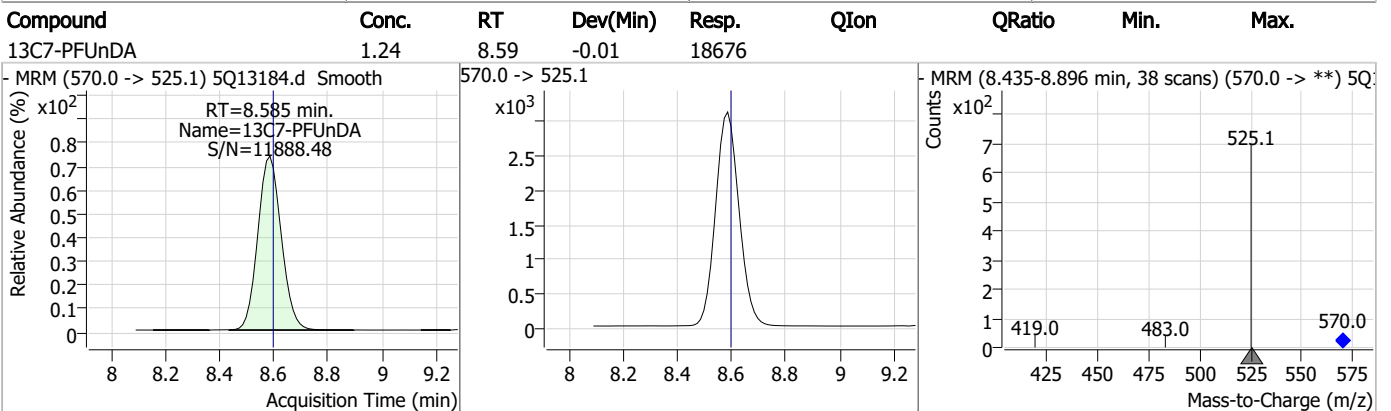
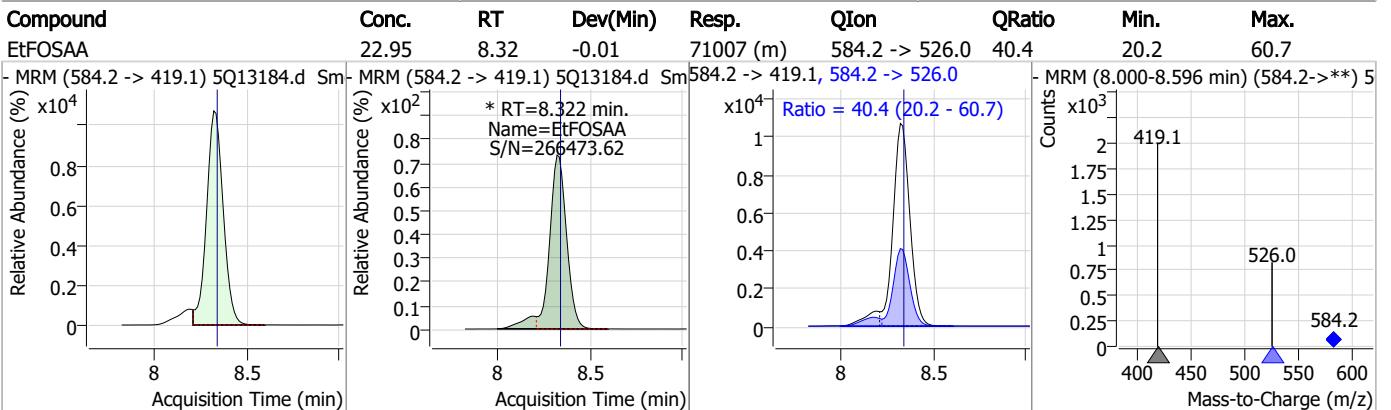
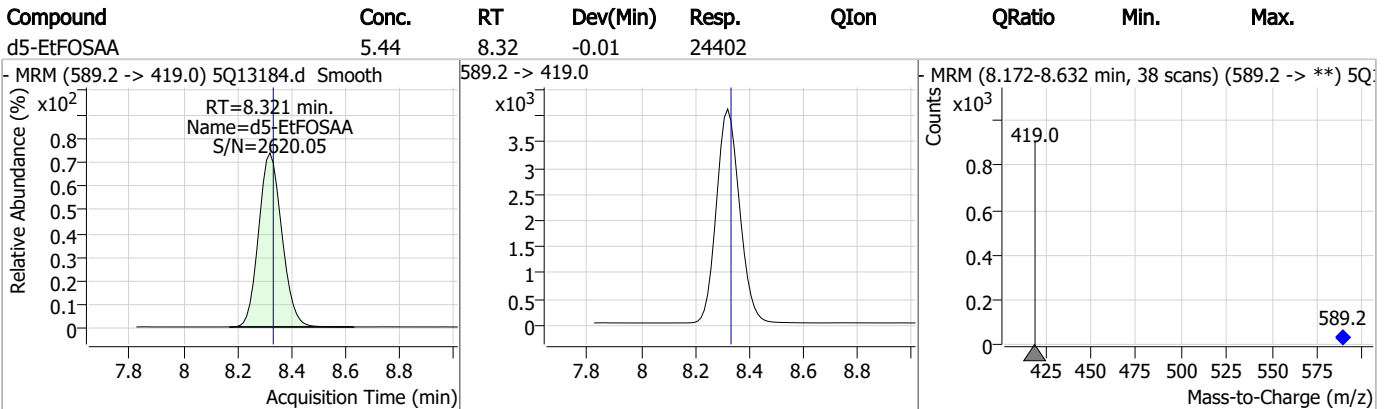
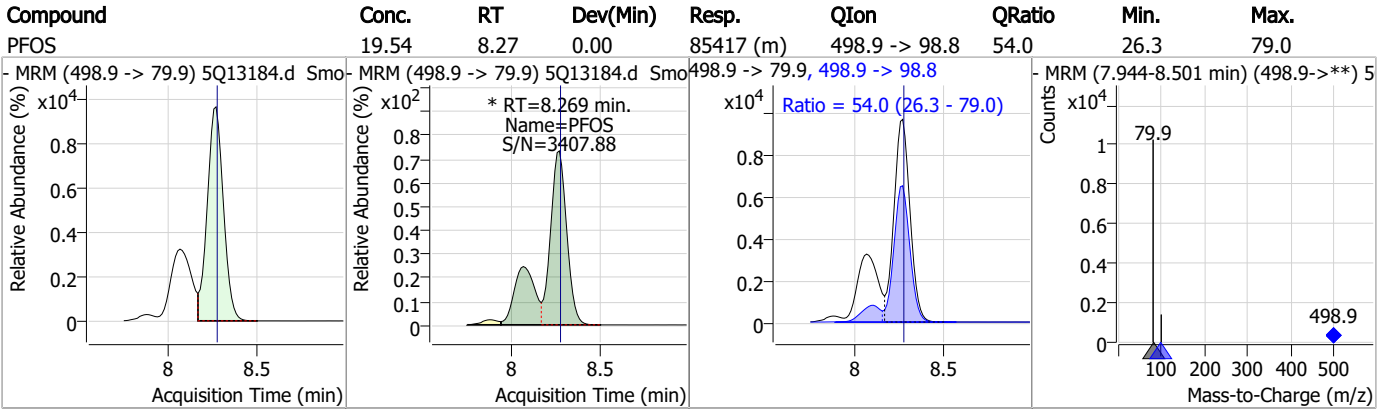
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	22.44	8.11	-0.01	59802 (m)	570.1 -> 483.0	24.8	11.0	32.9



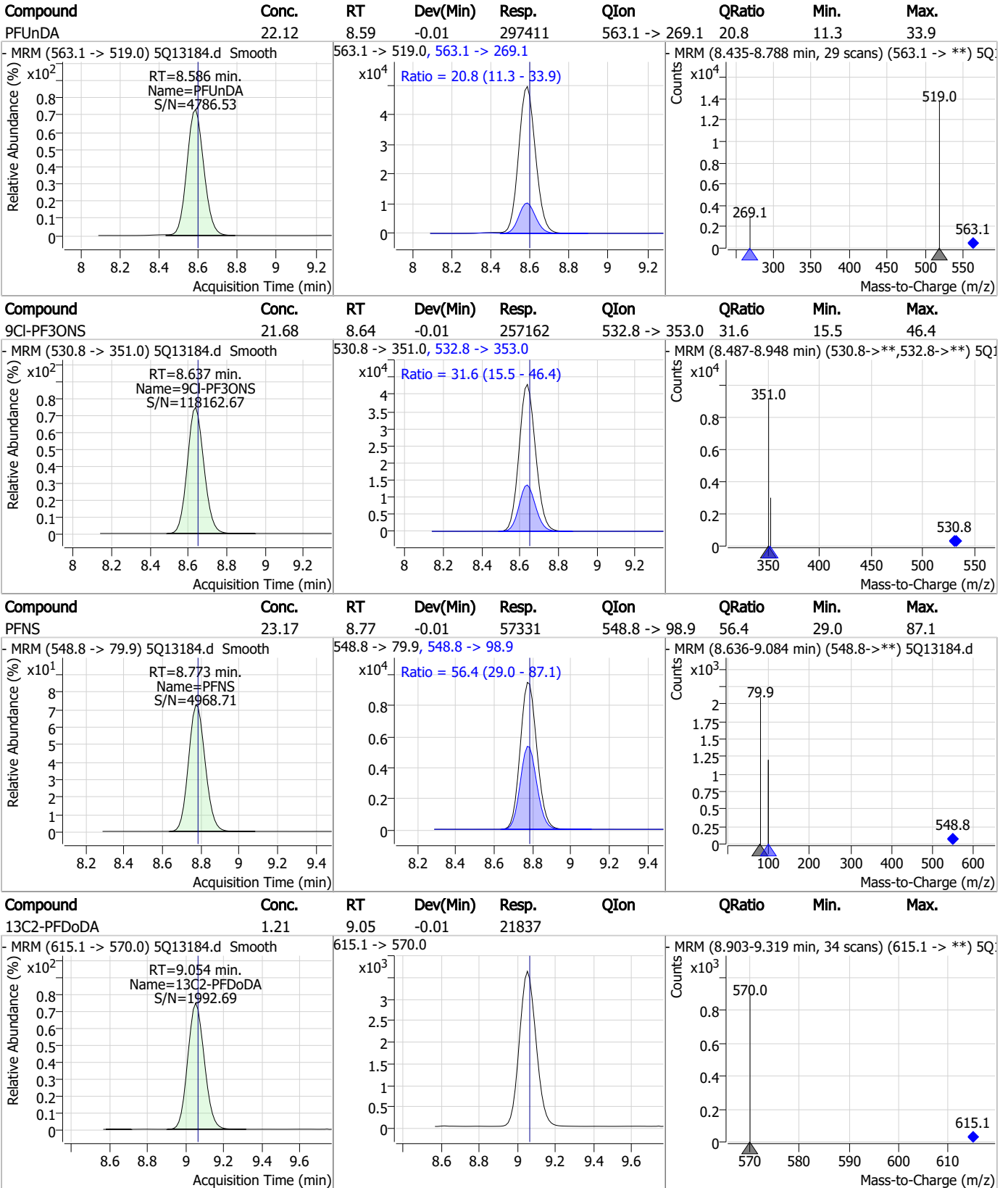
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.45	8.27	0.00	12534				



### Perfluorinated Compounds by LC/MS/MS



### Perfluorinated Compounds by LC/MS/MS



7.7.11

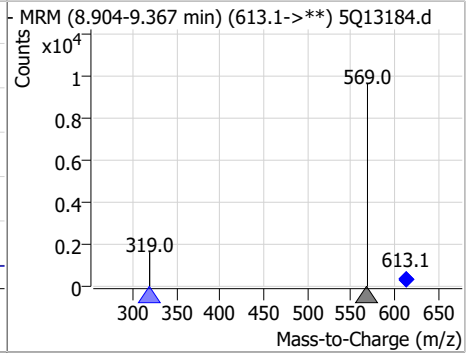
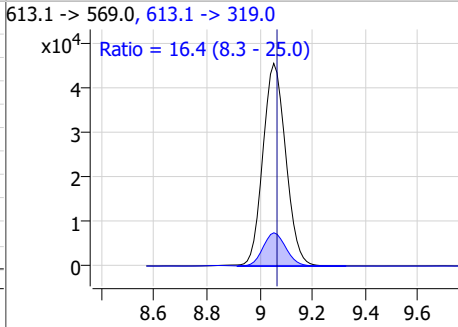
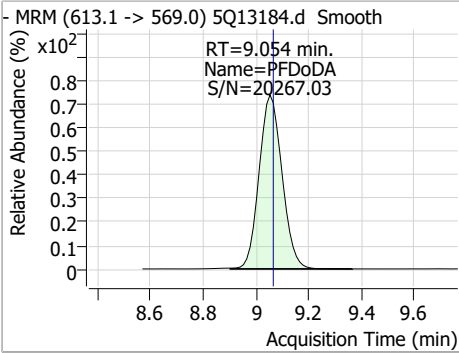
7



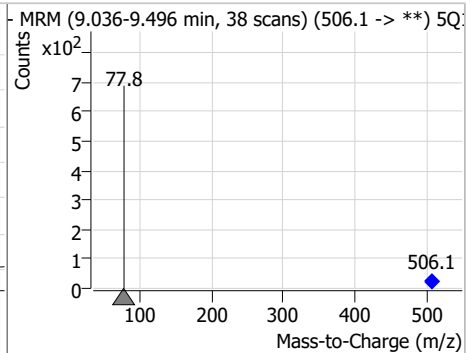
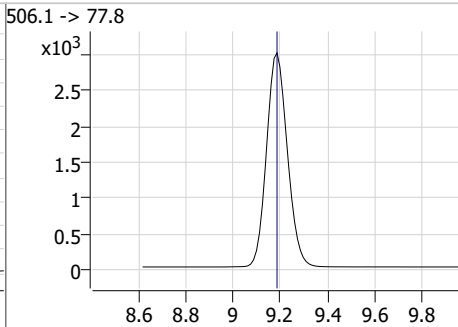
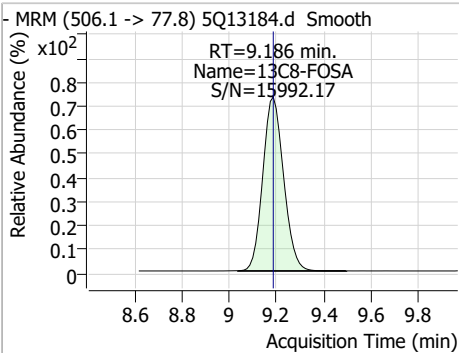


### Perfluorinated Compounds by LC/MS/MS

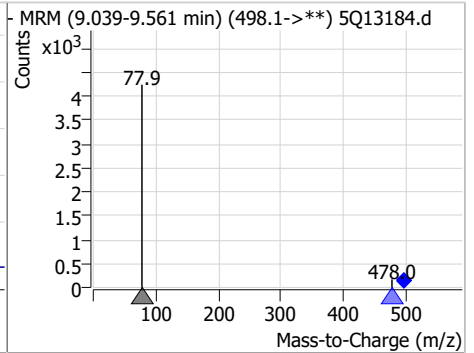
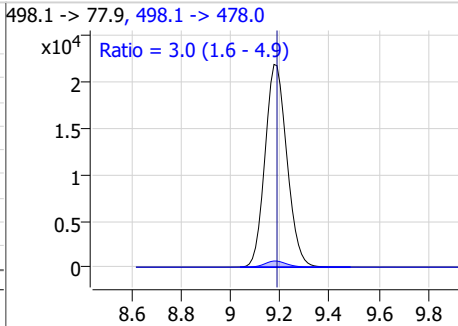
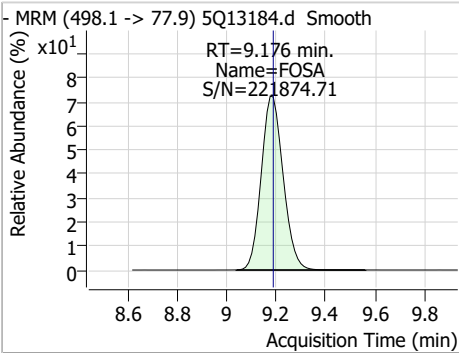
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	20.74	9.05	-0.01	275247	613.1 -> 319.0	16.4	8.3	25.0



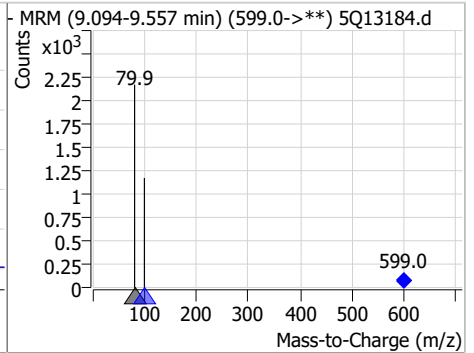
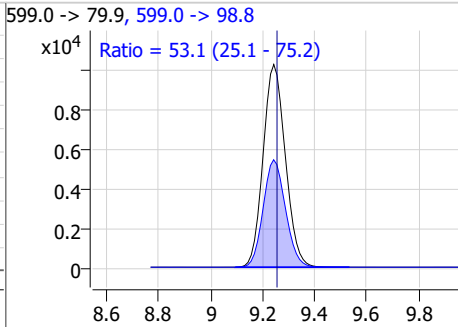
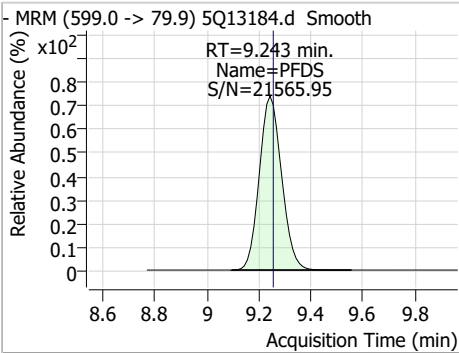
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.19	0.00	18338				



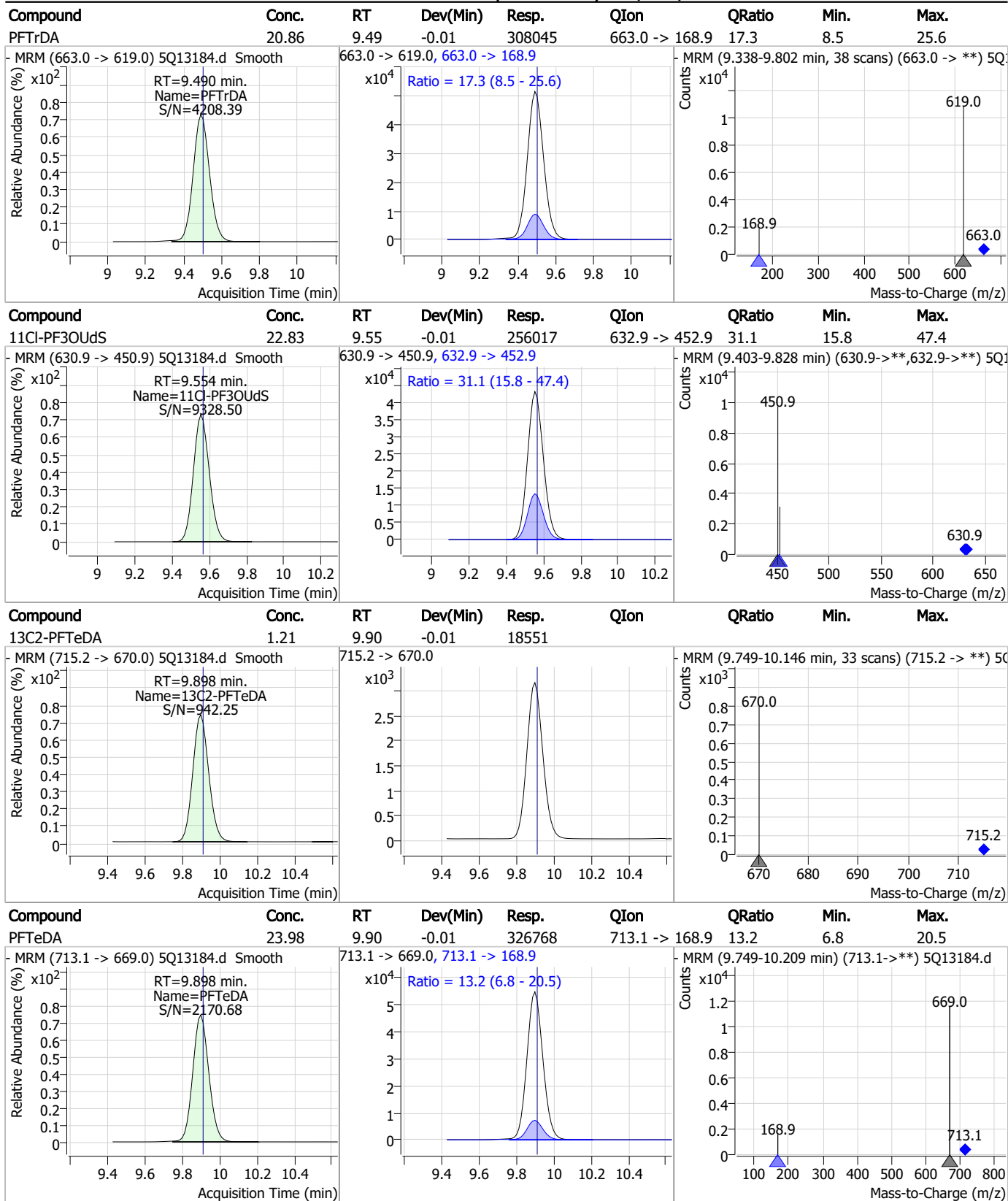
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	23.41	9.18	-0.01	134503	498.1 -> 478.0	3.0	1.6	4.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	22.81	9.24	-0.01	60738	599.0 -> 98.8	53.1	25.1	75.2



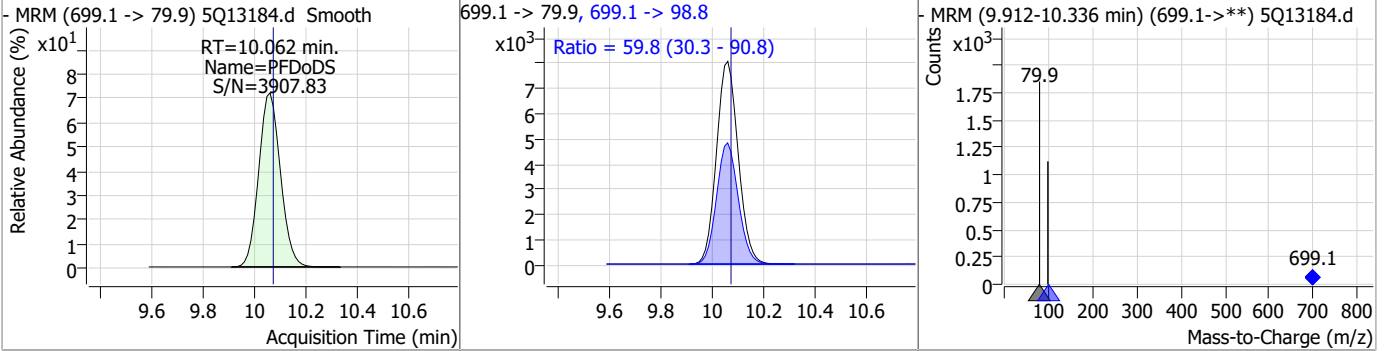
### Perfluorinated Compounds by LC/MS/MS



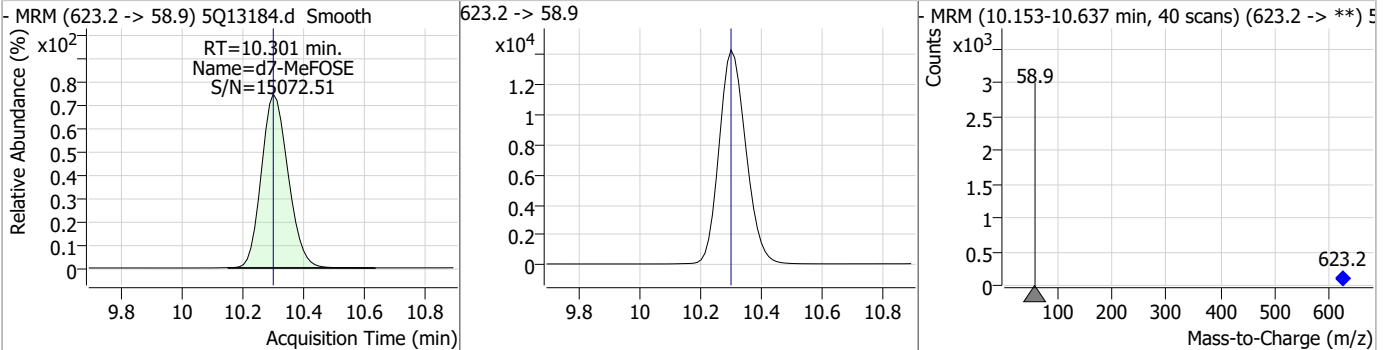
7.7.11  
7

### Perfluorinated Compounds by LC/MS/MS

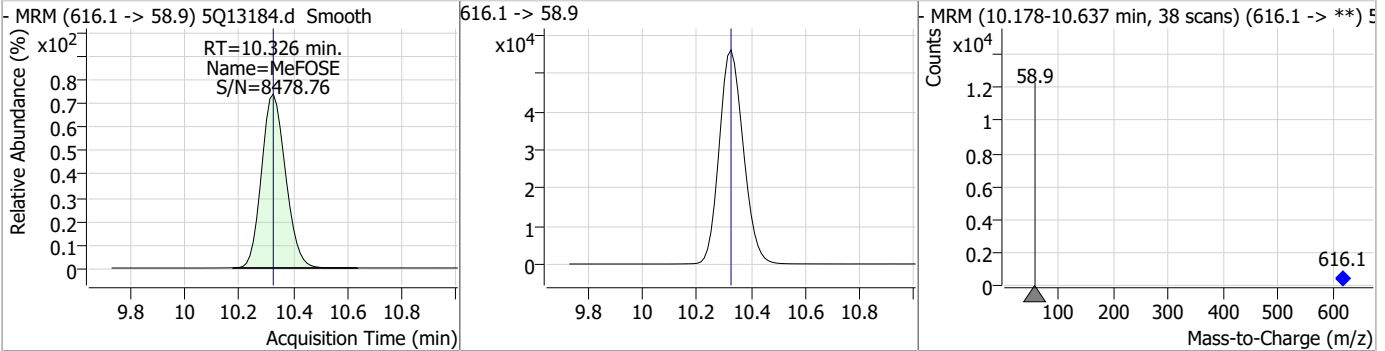
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	21.87	10.06	-0.01	47269	699.1 -> 98.8	59.8	30.3	90.8



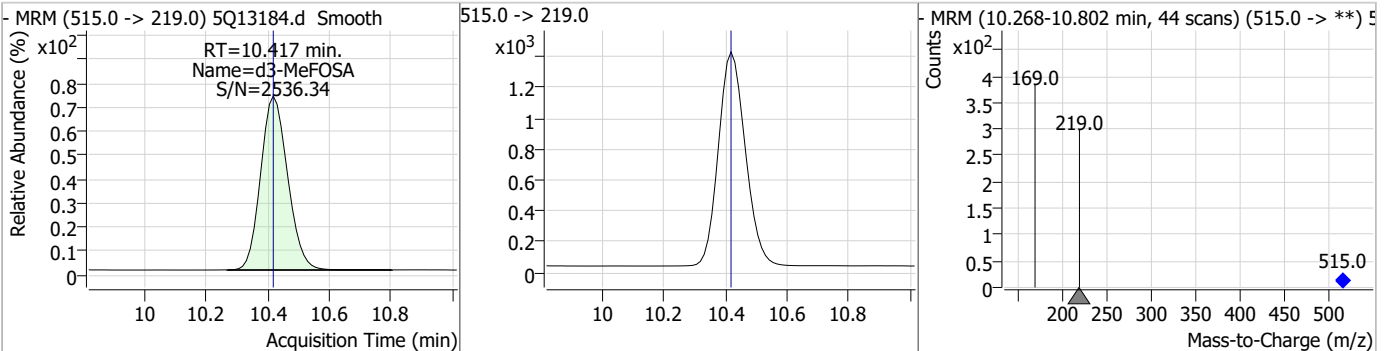
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.55	10.30	0.00	87705				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	111.29	10.33	0.00	345708				

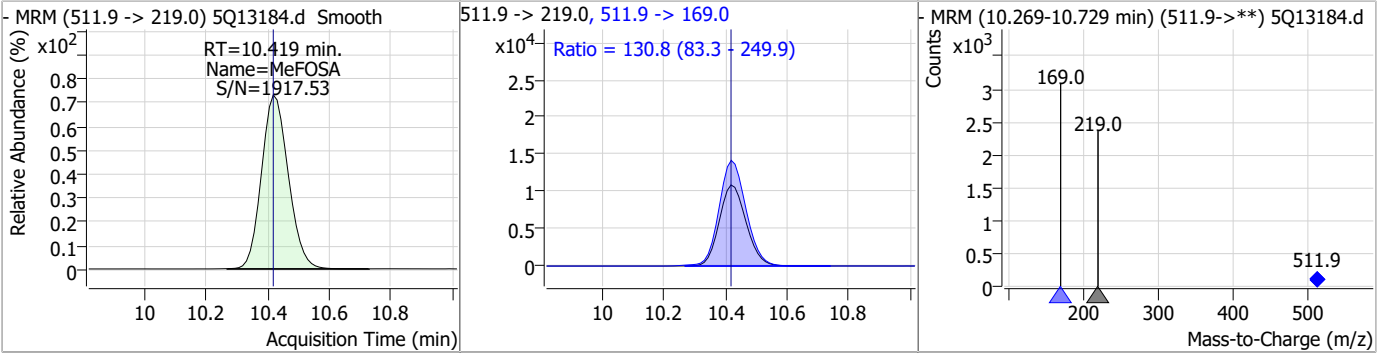


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.42	0.00	8445				

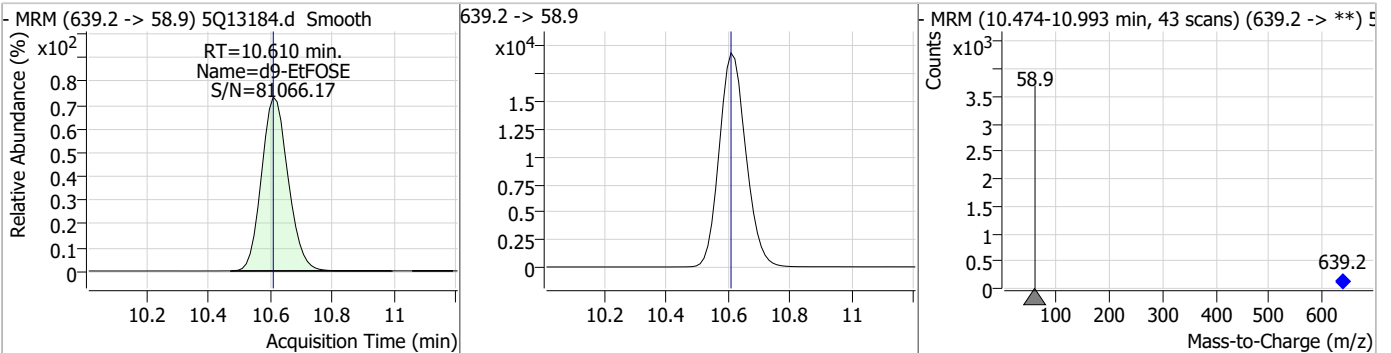


### Perfluorinated Compounds by LC/MS/MS

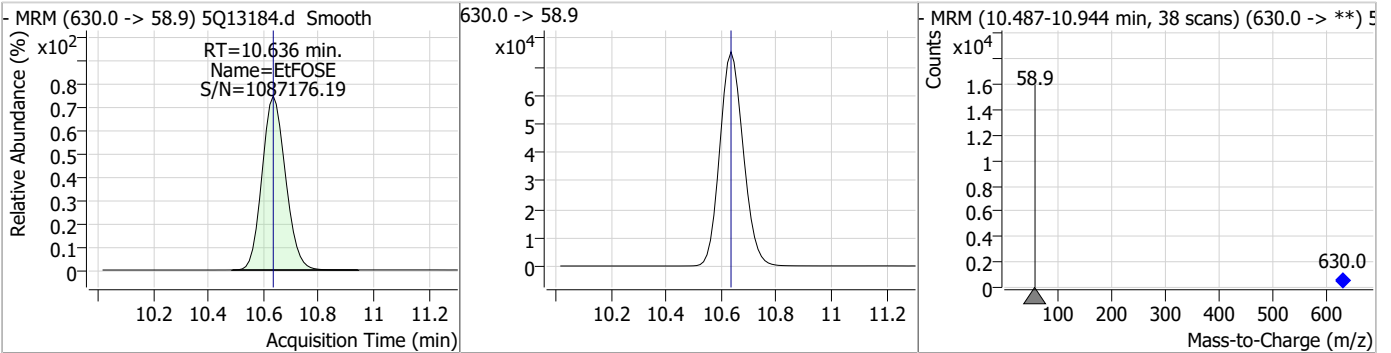
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	22.77	10.42	0.00	65733	511.9 -> 169.0	130.8	83.3	249.9



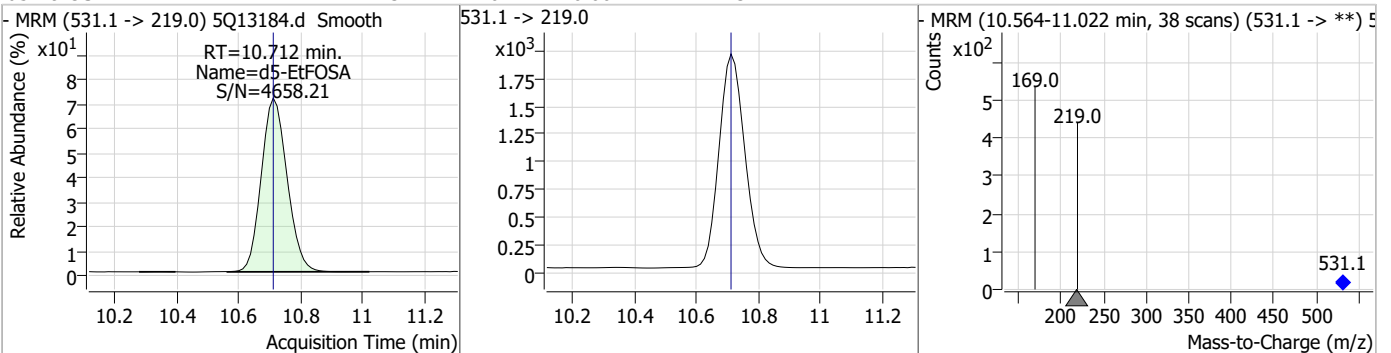
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	22.70	10.61	0.00	115340				



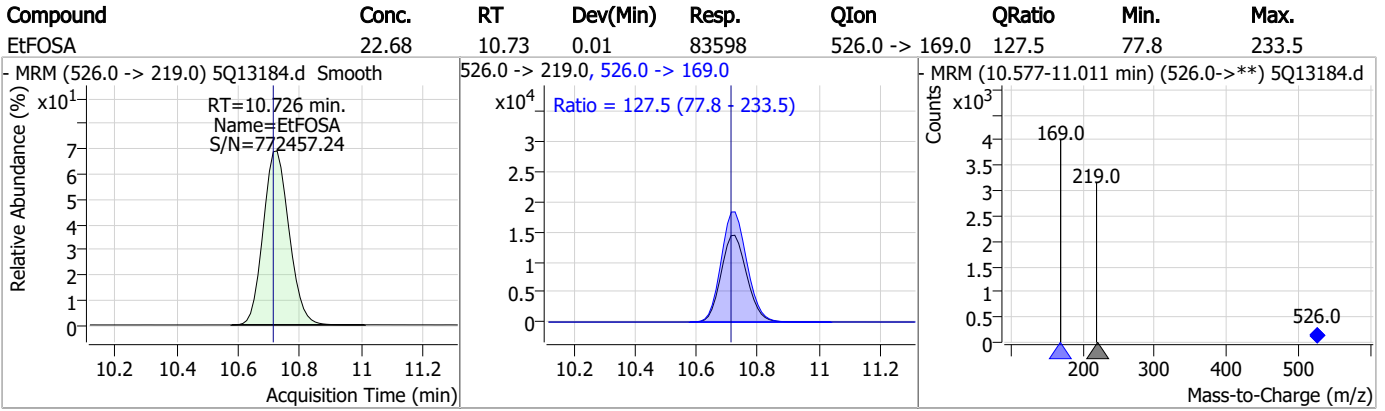
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	116.22	10.64	0.00	444156				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.43	10.71	0.00	11123				



### Perfluorinated Compounds by LC/MS/MS



7.7.11

7

# Manual Integration Approval Summary

Sample Number: S5Q205-ICV205  
Lab FileID: 5Q13184.D  
Injection Time: 04/19/23 21:19

Method: EPA DRAFT 1633  
Analyst approved: 04/20/23 15:12 Lindsay Ritner  
Supervisor approved: 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		2.76	Poor instrument integration
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
13C3-PFBS			5.24	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.24	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
MeFOSAA	2355-31-9		8.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.27	Split peak
EtFOSAA	2991-50-6		8.32	Split peak

7.7.11.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13185.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 9:33:26 PM  
 Sample Name : cc205-4  
 Vial : P3-A5  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	65089	10.00	µg/L	m 0.000
M5-PFPeA	4.103	268.3 -> 223.0	48687	5.00	µg/L	-0.012
M5-PFHxA	5.296	318.0 -> 273.0	42383	2.50	µg/L	-0.012
M4-PFHpA	6.279	367.1 -> 322.0	37318	2.50	µg/L	-0.012
M8-PFOA	6.962	421.1 -> 376.0	48948	2.50	µg/L	-0.012
M9-PFNA	7.531	472.1 -> 427.0	22406	1.25	µg/L	-0.012
M6-PFDA	8.077	519.1 -> 474.1	13267	1.25	µg/L	0.000
M7-PFUnDA	8.585	570.0 -> 525.1	16946	1.25	µg/L	-0.012
M2-PFDoDA	9.054	615.1 -> 570.0	19416	1.25	µg/L	-0.012
M2-PFTeDA	9.898	715.2 -> 670.0	16372	1.25	µg/L	-0.012
M8-FOSA	9.186	506.1 -> 77.8	16061	2.50	µg/L	0.000
M3-PFBS	5.238	302.1 -> 79.9	8103	2.50	µg/L	m -0.012
M3-PFHxS	7.090	402.1 -> 79.9	7923	2.50	µg/L	-0.012
M8-PFOS	8.255	507.1 -> 79.9	10986	2.50	µg/L	-0.012
M2-4:2FTS	4.960	329.1 -> 80.9	1022	5.00	µg/L	0.000
M2-6:2FTS	6.711	429.1 -> 80.9	1978	5.00	µg/L	-0.012
M2-8:2FTS	7.841	529.1 -> 80.9	3194	5.00	µg/L	0.000
M3-MeFOSAA	8.099	573.2 -> 419.0	14169	5.00	µg/L	-0.012
M3-HFPO-DA	5.688	286.9 -> 168.9	84663	10.00	µg/L	-0.012
M5-EtFOSAA	8.321	589.2 -> 419.0	20209	5.00	µg/L	-0.012
M7-MeFOSE	10.301	623.2 -> 58.9	77507	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	108651	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	10002	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7433	2.50	µg/L	0.000
13C4-PFOS	8.256	502.8 -> 79.9	10731	2.50	µg/L	-0.012
13C3-PFBA	2.755	216.0 -> 172.0	34592	5.00	µg/L	m -0.012
18O2-PFHxS	7.089	403.0 -> 83.9	5307	2.50	µg/L	-0.012
13C4-PFOA	6.962	417.1 -> 372.0	60947	2.50	µg/L	-0.012
13C2-PFDA	8.078	515.1 -> 470.1	20356	1.25	µg/L	0.000
13C5-PFNA	7.532	468.0 -> 423.0	21713	1.25	µg/L	-0.012
13C2-PFHxA	5.297	315.1 -> 270.0	45749	2.50	µg/L	-0.012
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.960	329.1 -> 80.9	1022	5.57	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.3%			
13C2-6:2FTS	6.711	429.1 -> 80.9	1978	4.89	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.8%			
13C2-8:2FTS	7.841	529.1 -> 80.9	3194	5.26	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.1%			
13C2-PFDoDA	9.054	615.1 -> 570.0	19416	1.20	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%			
13C2-PFTeDA	9.898	715.2 -> 670.0	16372	1.20	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.6%			
13C3-PFBS	5.238	302.1 -> 79.9	7905	2.43	µg/L	m -0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.3%			
13C3-PFHxS	7.090	402.1 -> 79.9	7923	2.44	µg/L	-0.012

7.7.12  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C4-PFBA	2.765	216.8 -> 171.9	65758	9.92	µg/L	m
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C4-PFHpA	6.279	367.1 -> 322.0	37318	2.44	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C5-PFHxA	5.296	318.0 -> 273.0	42383	2.47	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%		
13C5-PFPeA	4.103	268.3 -> 223.0	48687	4.94	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.8%		
13C6-PFDA	8.077	519.1 -> 474.1	13267	1.24	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%		
13C7-PFUnDA	8.585	570.0 -> 525.1	16946	1.26	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%		
13C8-FOSA	9.186	506.1 -> 77.8	16061	2.49	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%		
13C8-PFOA	6.962	421.1 -> 376.0	48948	2.46	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C8-PFOS	8.255	507.1 -> 79.9	10986	2.45	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%		
13C9-PFNA	7.531	472.1 -> 427.0	22406	1.27	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%		
d3-MeFOSAA	8.099	573.2 -> 419.0	14169	4.93	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%		
13C3-HFPO-DA	5.688	286.9 -> 168.9	84663	9.91	µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%		
d3-MeFOSA	10.417	515.0 -> 219.0	7433	2.47	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%		
d5-EtFOSAA	8.321	589.2 -> 419.0	20209	5.15	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.0%		
d7-MeFOSE	10.301	623.2 -> 58.9	77507	24.81	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.2%		
d9-EtFOSE	10.610	639.2 -> 58.9	108651	24.45	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
d5-EtFOSA	10.712	531.1 -> 219.0	10002	2.50	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%		
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.960	327.1 -> 307.0	10046	8.35	µg/L	99
		327.1 -> 80.9	5325			
6:2FTS	6.711	427.1 -> 407.0	15026	9.69	µg/L	98
		427.1 -> 80.9	6094			
8:2FTS	7.841	527.1 -> 507.0	11233	8.47	µg/L	99
		527.1 -> 80.8	5429			
EtFOSAA	8.322	584.2 -> 419.1	6346	2.48	µg/L	m
		584.2 -> 526.0	2498			
FOSA	9.176	498.1 -> 77.9	11873	2.36	µg/L	98
		498.1 -> 478.0	310			
MeFOSAA	8.112	570.1 -> 419.0	5517	2.31	µg/L	m
		570.1 -> 483.0	1304			
PFBA	2.758	212.8 -> 168.9	22739	9.59	µg/L	m
PFBS	5.239	298.7 -> 79.9	5734	2.23	µg/L	m
		298.7 -> 98.8	2309			
PFDA	8.078	512.9 -> 469.0	28287	2.39	µg/L	98
		512.9 -> 219.0	4796			
PFDODA	9.054	613.1 -> 569.0	28835	2.44	µg/L	100
		613.1 -> 319.0	4777			
PFDS	9.243	599.0 -> 79.9	5598	2.40	µg/L	97

7.7.12  
7





Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2928			
PFHpA	6.280	363.1 -> 319.0	36280	2.39	µg/L	99
		363.1 -> 169.0	8260			
PFHpS	7.710	449.0 -> 79.9	6940	2.38	µg/L	99
		449.0 -> 98.9	3889			
PFHxA	5.299	313.0 -> 269.0	24934	2.33	µg/L	100
		313.0 -> 118.9	1142			
PFHxS	7.091	398.7 -> 79.9	5825	2.10	µg/L	m 91
		398.7 -> 98.9	3483			
PFNA	7.532	463.0 -> 419.0	26438	2.42	µg/L	99
		463.0 -> 219.0	5931			
PFNS	8.773	548.8 -> 79.9	5328	2.46	µg/L	99
		548.8 -> 98.9	3049			
PFOA	6.963	413.0 -> 369.0	41597	2.37	µg/L	99
		413.0 -> 169.0	9805			
PFOS	8.257	498.9 -> 79.9	8268	2.16	µg/L	m 94
		498.9 -> 98.8	4684			
PFPeA	4.104	263.0 -> 219.0	45373	4.78	µg/L	100
PFPeS	6.343	349.1 -> 79.9	5593	2.21	µg/L	97
		349.1 -> 98.9	2833			
PFTeDA	9.898	713.1 -> 669.0	28893	2.40	µg/L	98
		713.1 -> 168.9	3651			
PFTrDA	9.490	663.0 -> 619.0	33276	2.53	µg/L	99
		663.0 -> 168.9	5904			
PFUnDA	8.586	563.1 -> 519.0	29498	2.42	µg/L	97
		563.1 -> 269.1	6230			
11CI-PF3OUdS	9.554	630.9 -> 450.9	44183	4.59	µg/L	99
		632.9 -> 452.9	14096			
9CI-PF3ONS	8.637	530.8 -> 351.0	46555	4.57	µg/L	98
		532.8 -> 353.0	14985			
ADONA	6.542	376.9 -> 250.9	109025	4.67	µg/L	99
		376.9 -> 84.8	31746			
HFPO-DA	5.689	284.9 -> 168.9	32789	4.93	µg/L	98
		284.9 -> 184.9	2860			
3:3FTCA	3.561	241.0 -> 177.0	6935	11.15	µg/L	97
		241.0 -> 117.0	807			
5:3FTCA	5.917	341.0 -> 237.1	118466	57.92	µg/L	99
		341.0 -> 217.0	81351			
7:3FTCA	7.372	441.0 -> 316.9	61073	57.84	µg/L	97
		441.0 -> 336.9	133886			
EtFOSA	10.713	526.0 -> 219.0	15533	4.69	µg/L	m 100
		526.0 -> 169.0	24096			
EtFOSE	10.636	630.0 -> 58.9	42614	11.84	µg/L	m 100
MeFOSA	10.419	511.9 -> 219.0	12501	4.92	µg/L	m 96
		511.9 -> 169.0	20077			
MeFOSE	10.326	616.1 -> 58.9	32609	11.88	µg/L	m 100
PFDoDS	10.062	699.1 -> 79.9	4484	2.37	µg/L	99
		699.1 -> 98.8	2666			
NFDHA	5.178	295.0 -> 201.0	4984	4.79	µg/L	98
		295.0 -> 84.9	1331			
PFMBA	4.505	279.0 -> 85.1	29313	4.74	µg/L	100
PFMPA	3.290	229.0 -> 84.9	25769	5.23	µg/L	100
PFEESA	5.807	314.8 -> 134.9	58418	4.22	µg/L	100
		314.8 -> 82.9	1804			

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

7.7.12  
7

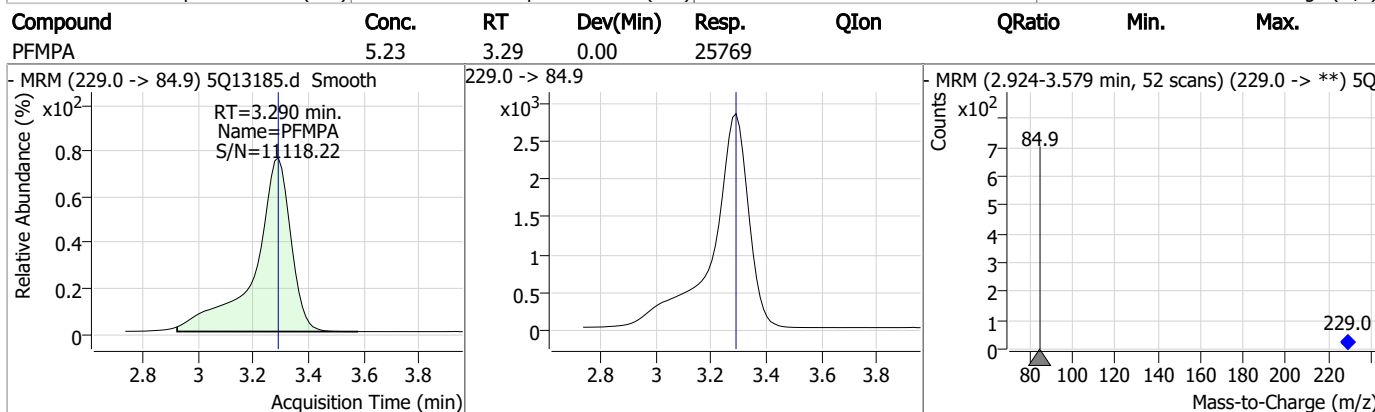
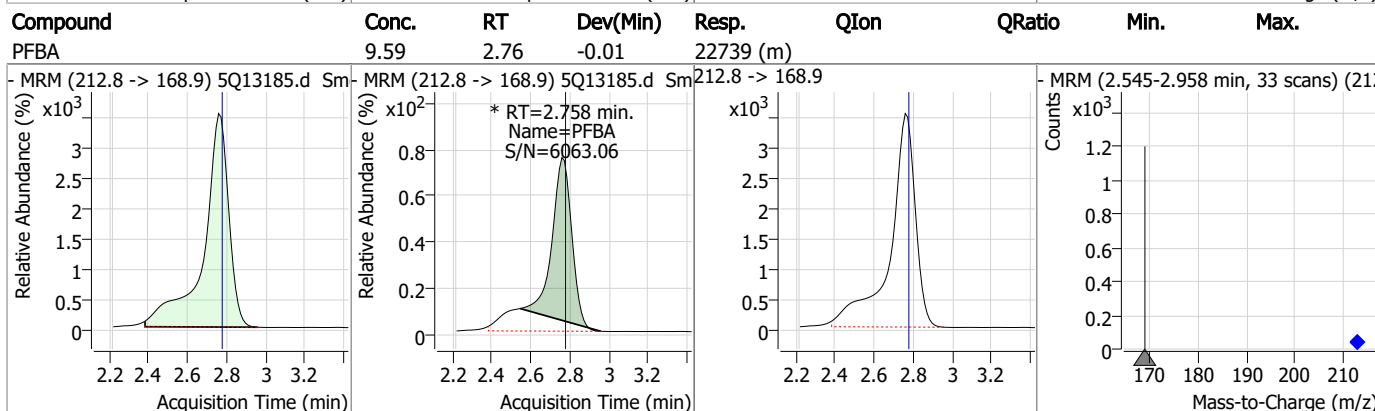
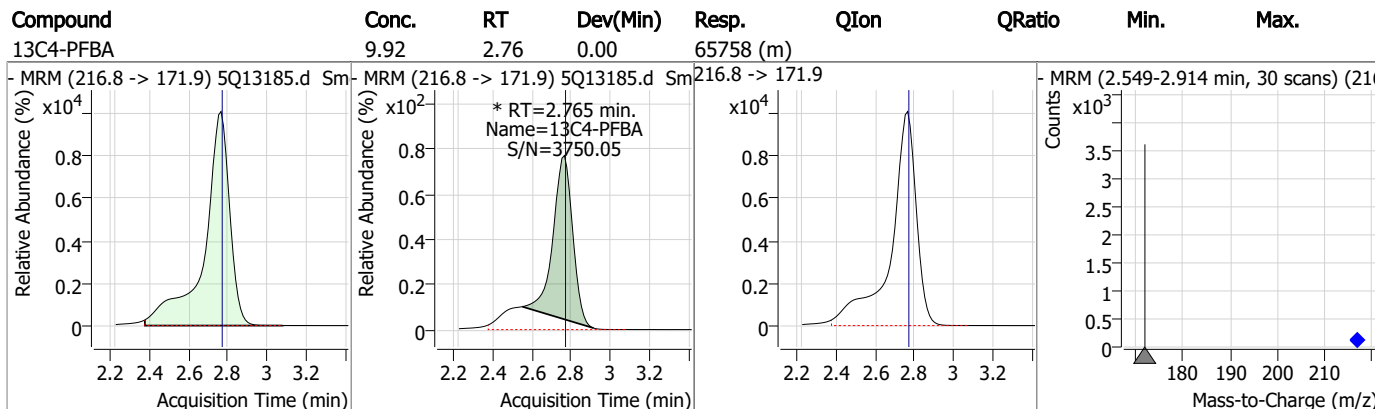
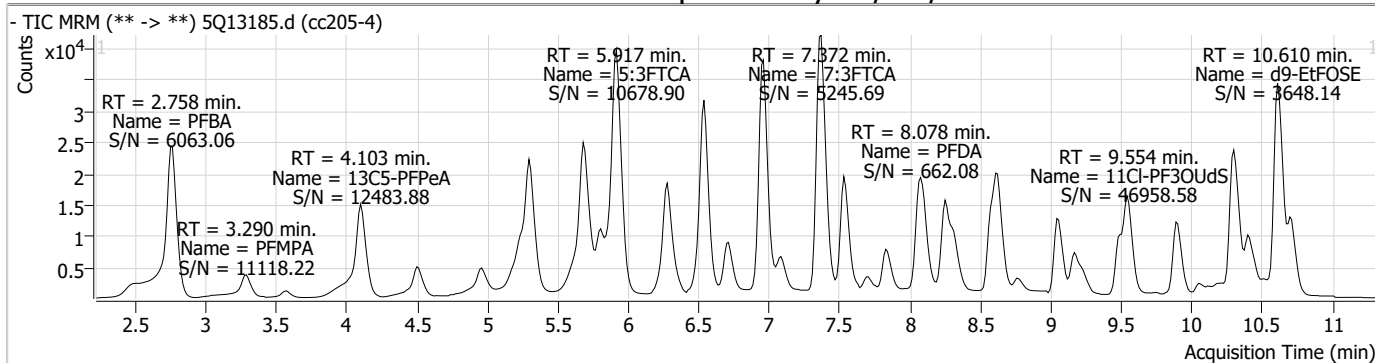
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.12

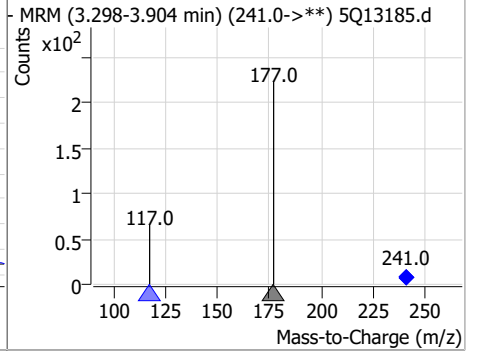
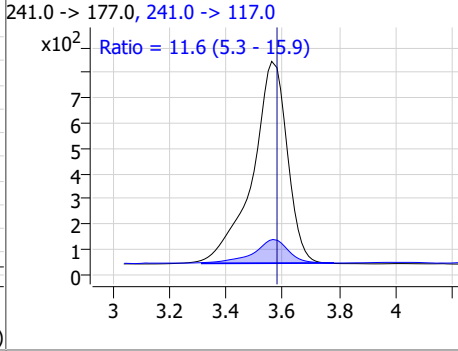
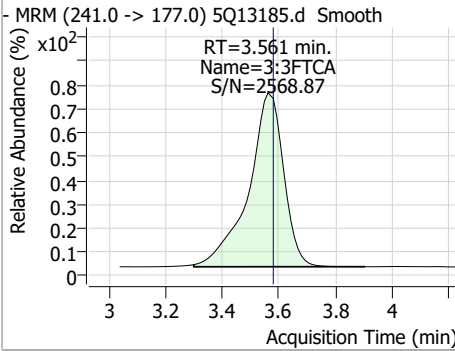
7

### Perfluorinated Compounds by LC/MS/MS

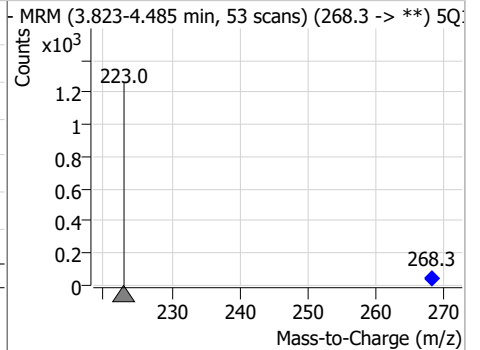
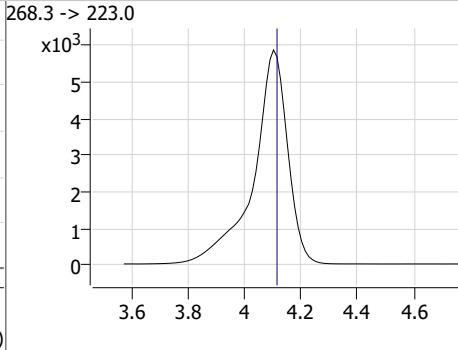
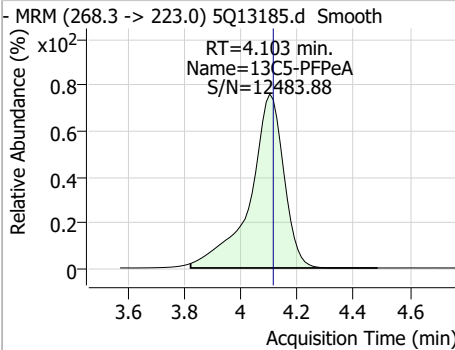


### Perfluorinated Compounds by LC/MS/MS

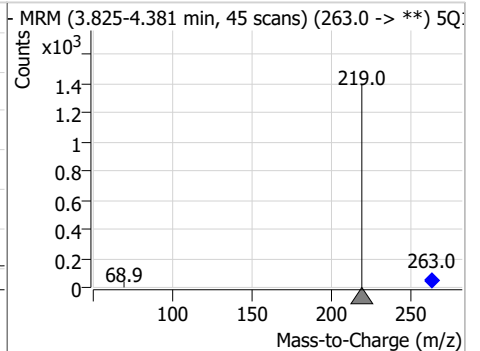
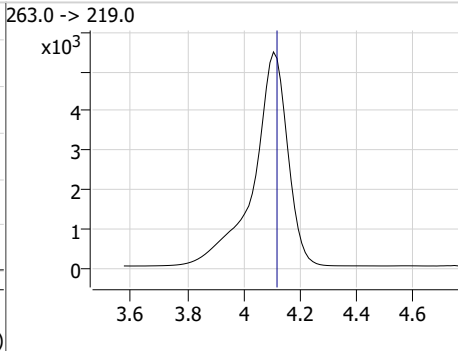
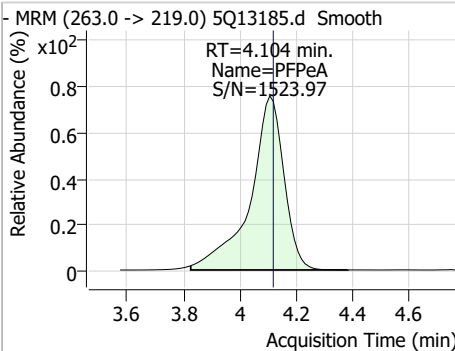
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.15	3.56	-0.02	6935	241.0 -> 117.0	11.6	5.3	15.9



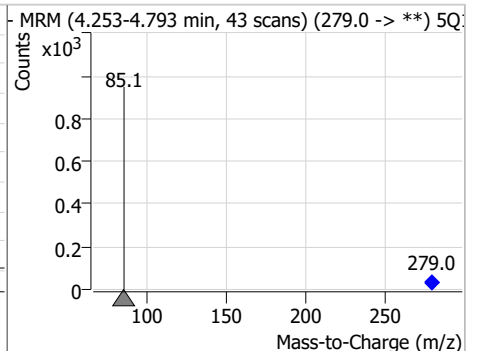
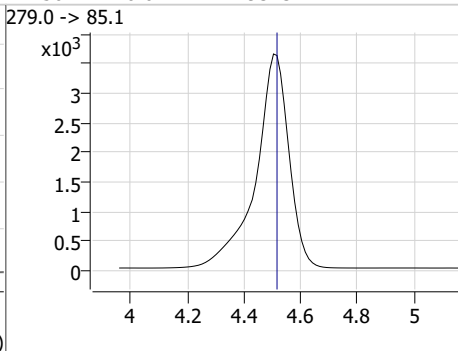
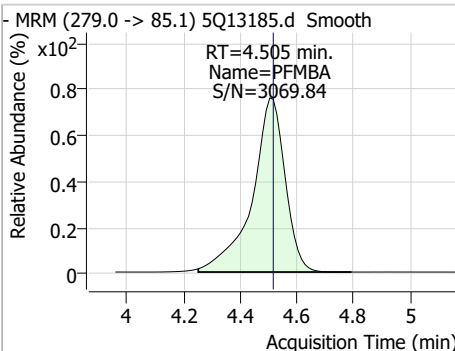
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.94	4.10	-0.01	48687				



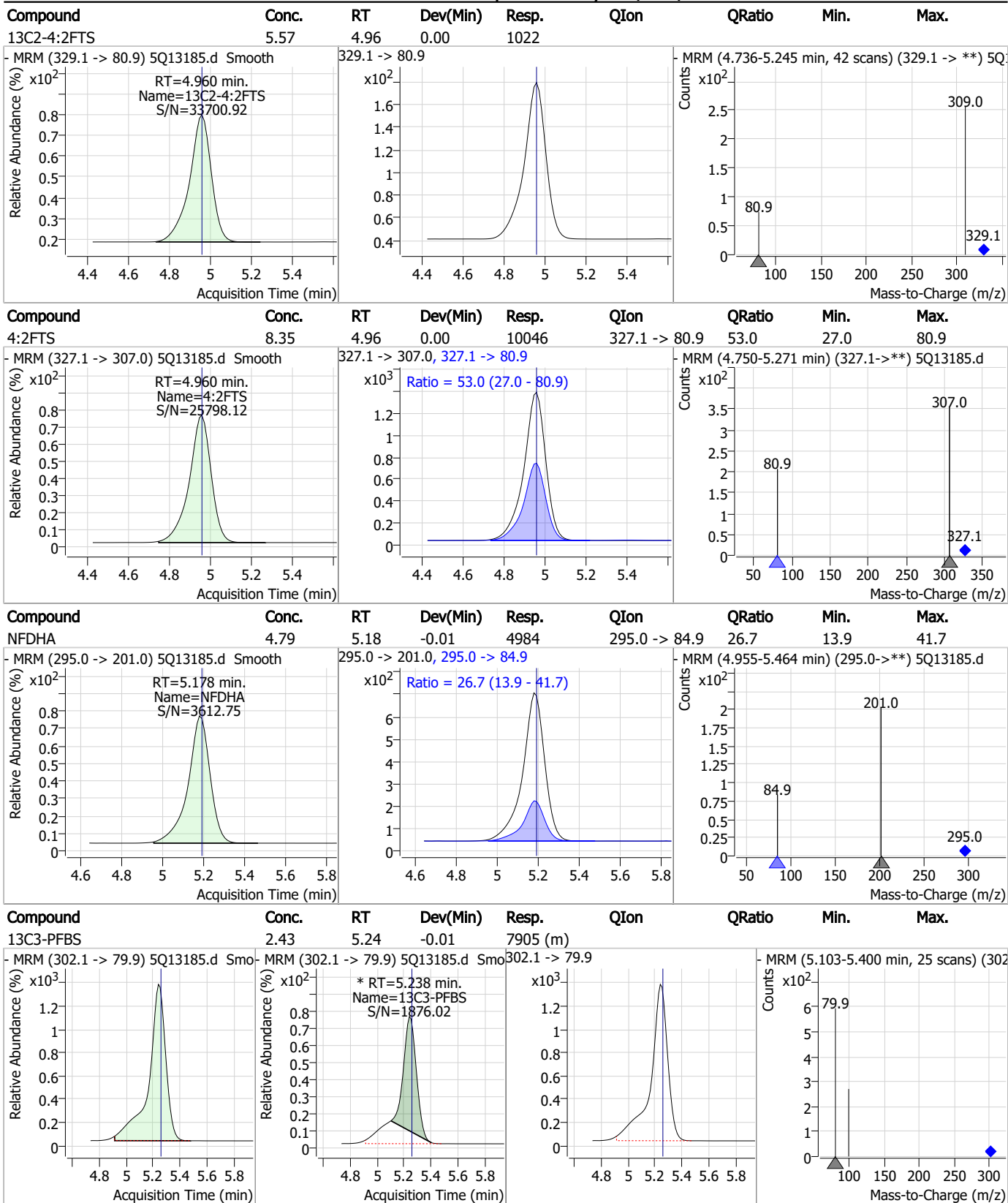
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.78	4.10	-0.01	45373				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.74	4.50	-0.01	29313				



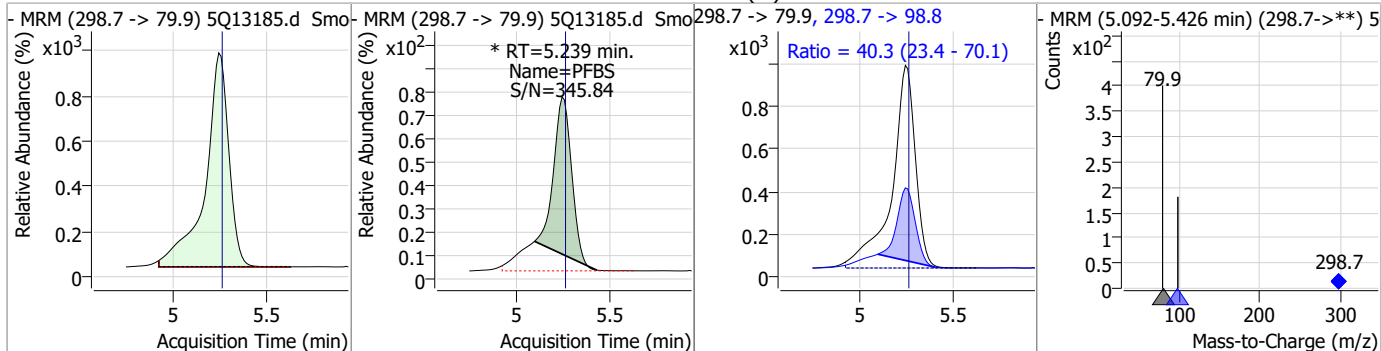
### Perfluorinated Compounds by LC/MS/MS



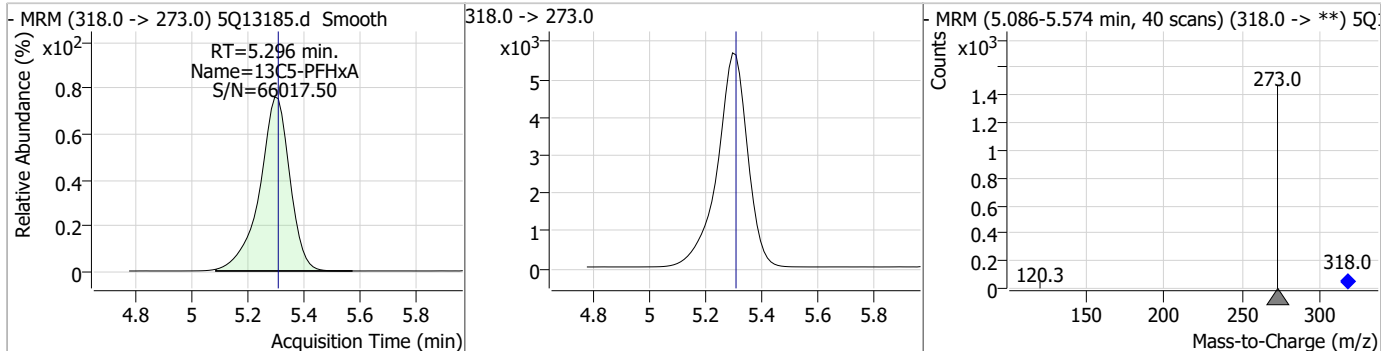
7.7.12  
7

### Perfluorinated Compounds by LC/MS/MS

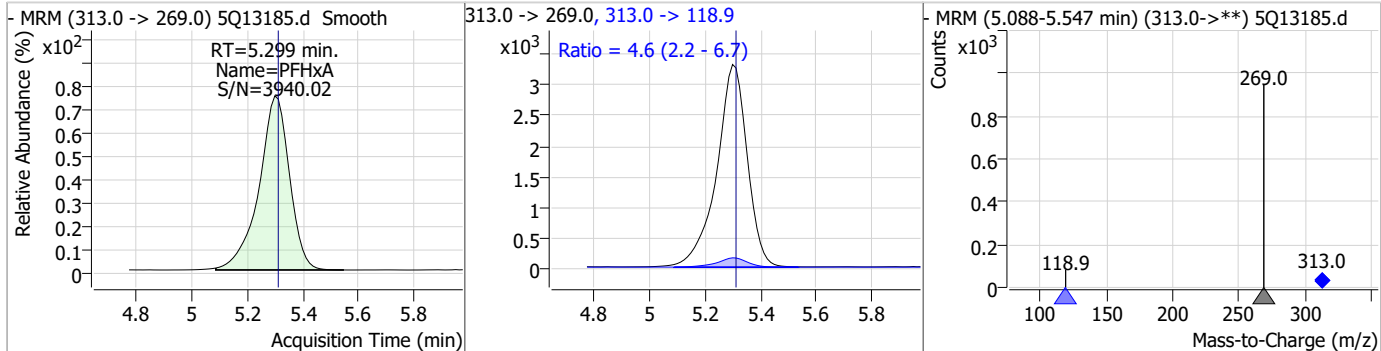
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.23	5.24	-0.01	5734 (m)	298.7 -> 98.8	40.3	23.4	70.1



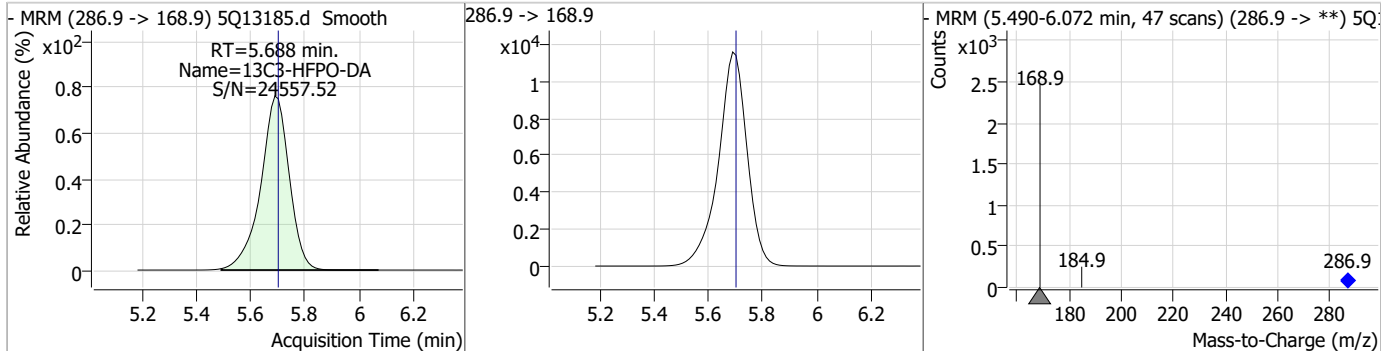
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.47	5.30	-0.01	42383				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.33	5.30	-0.01	24934	313.0 -> 118.9	4.6	2.2	6.7

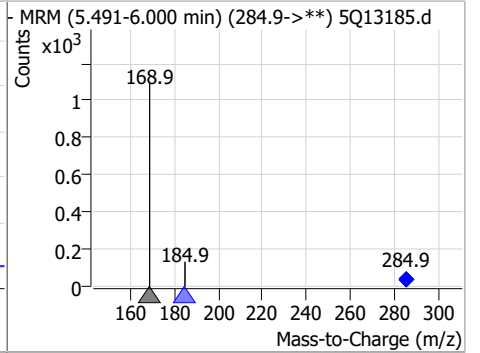
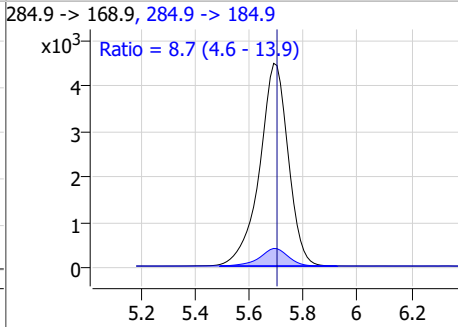
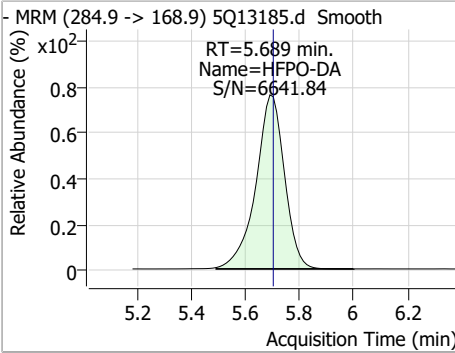


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.91	5.69	-0.01	84663				

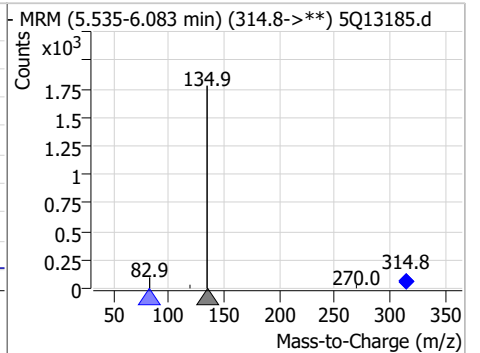
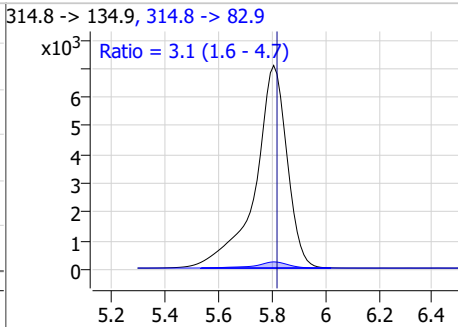
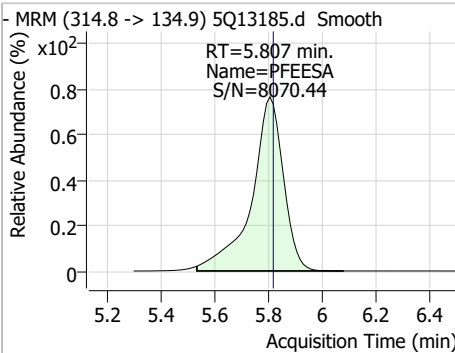


### Perfluorinated Compounds by LC/MS/MS

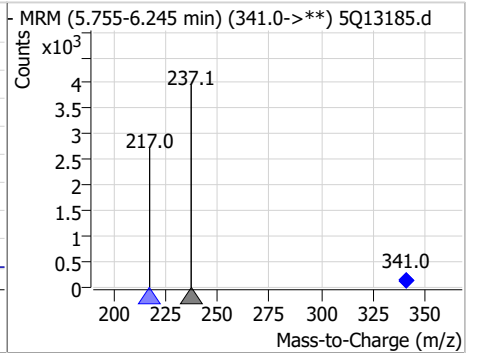
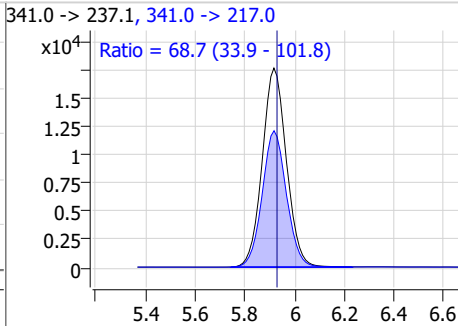
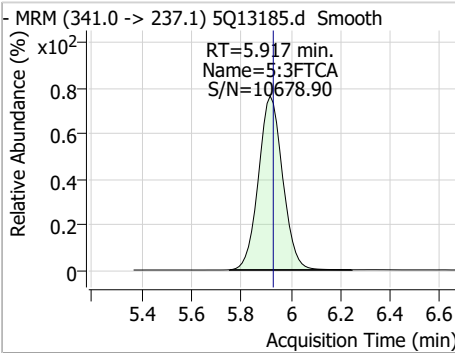
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.93	5.69	-0.01	32789	284.9 -> 184.9	8.7	4.6	13.9



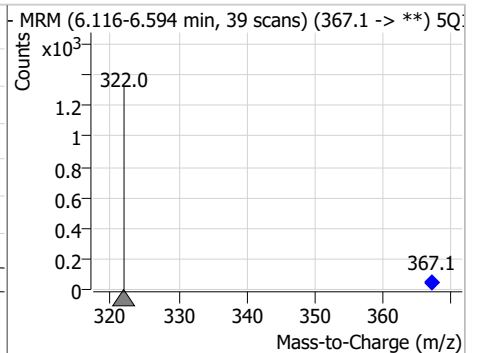
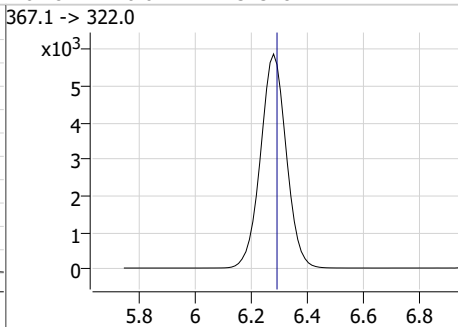
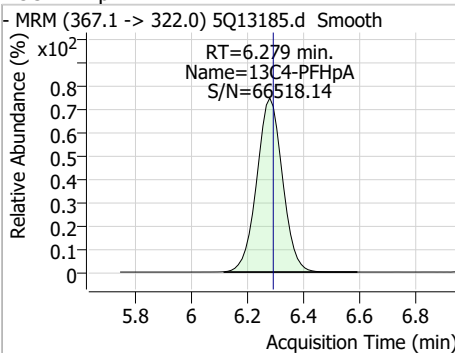
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.22	5.81	-0.01	58418	314.8 -> 82.9	3.1	1.6	4.7



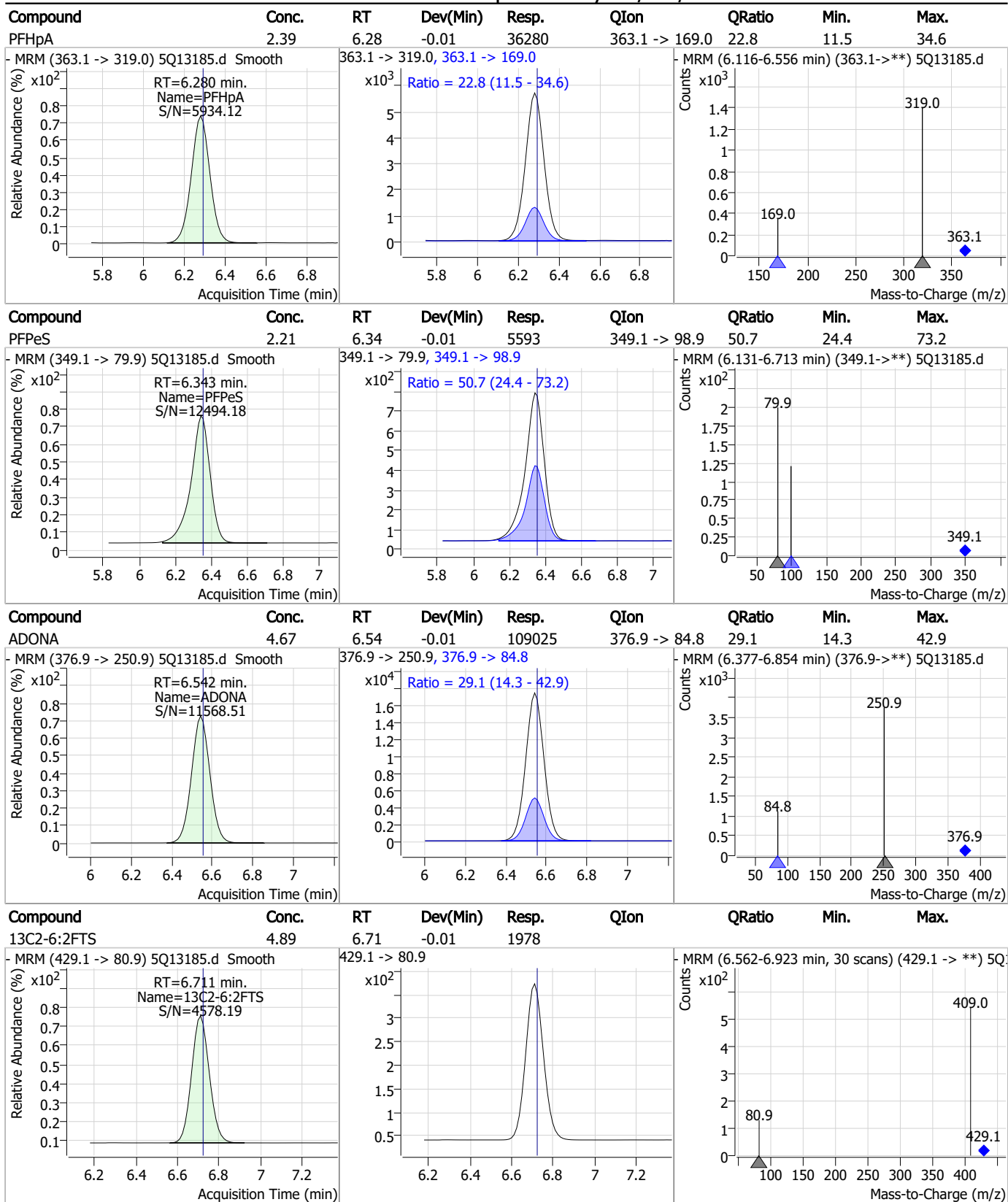
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	57.92	5.92	-0.01	118466	341.0 -> 217.0	68.7	33.9	101.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.44	6.28	-0.01	37318	367.1 -> 322.0			



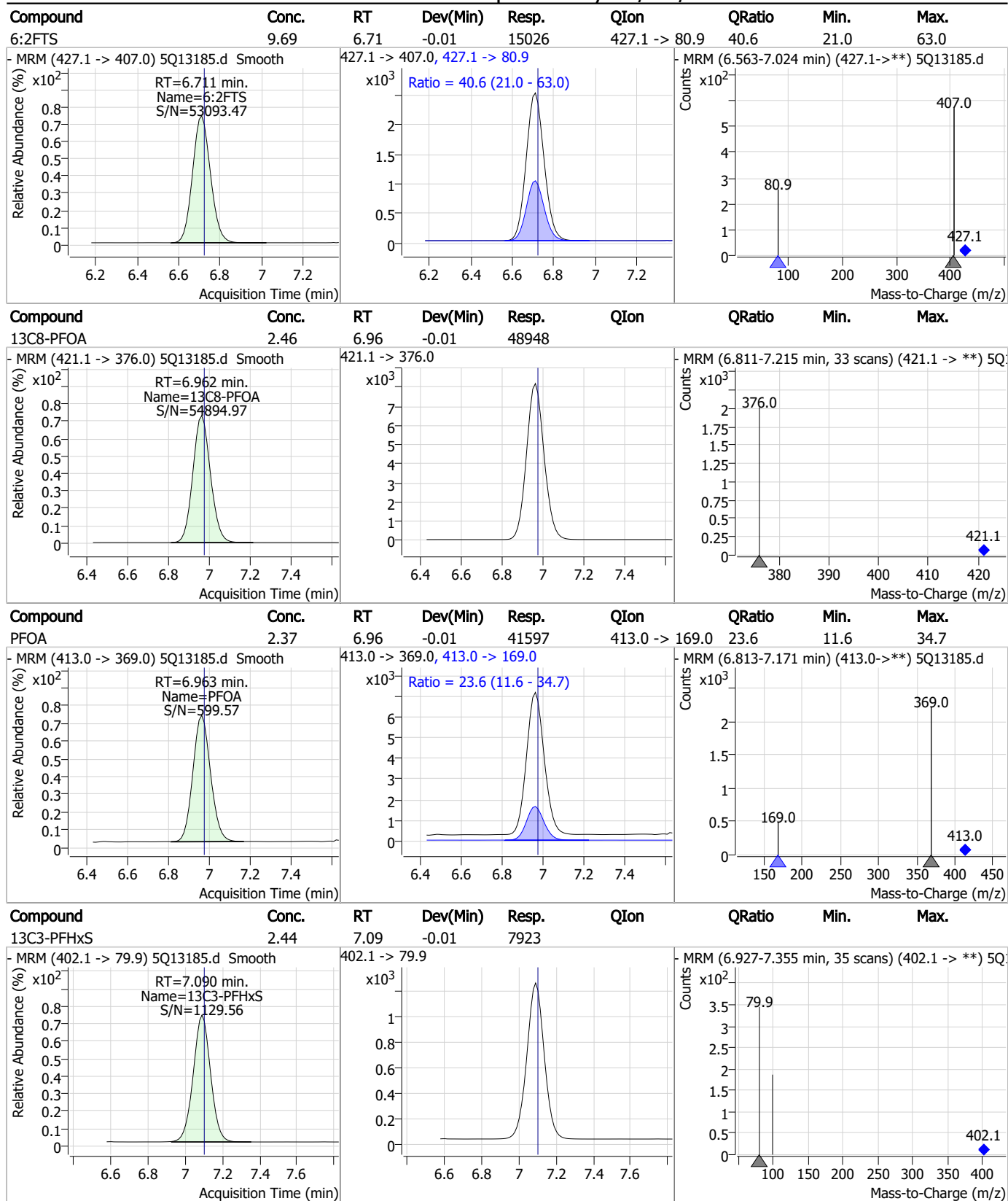
### Perfluorinated Compounds by LC/MS/MS



7.7.12  
7

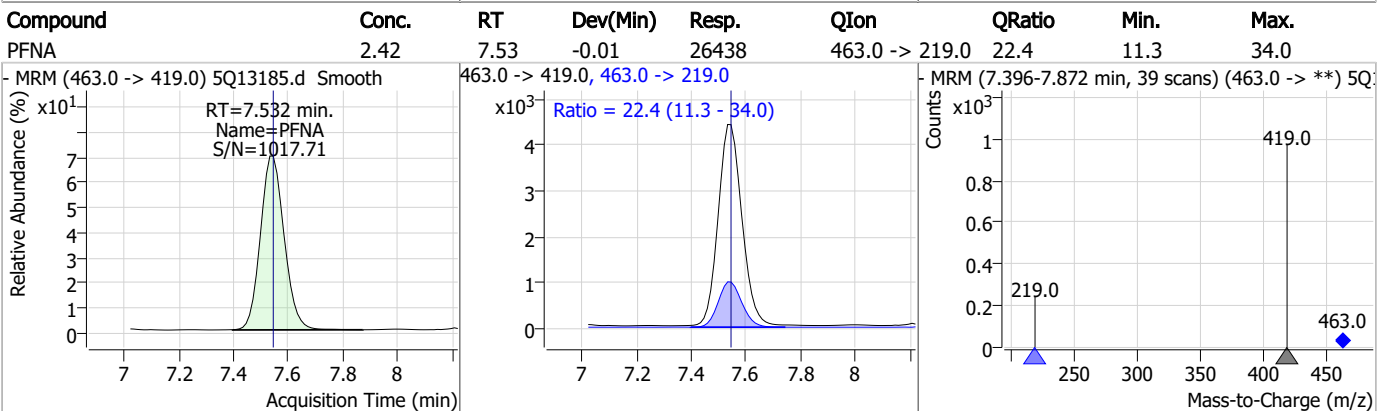
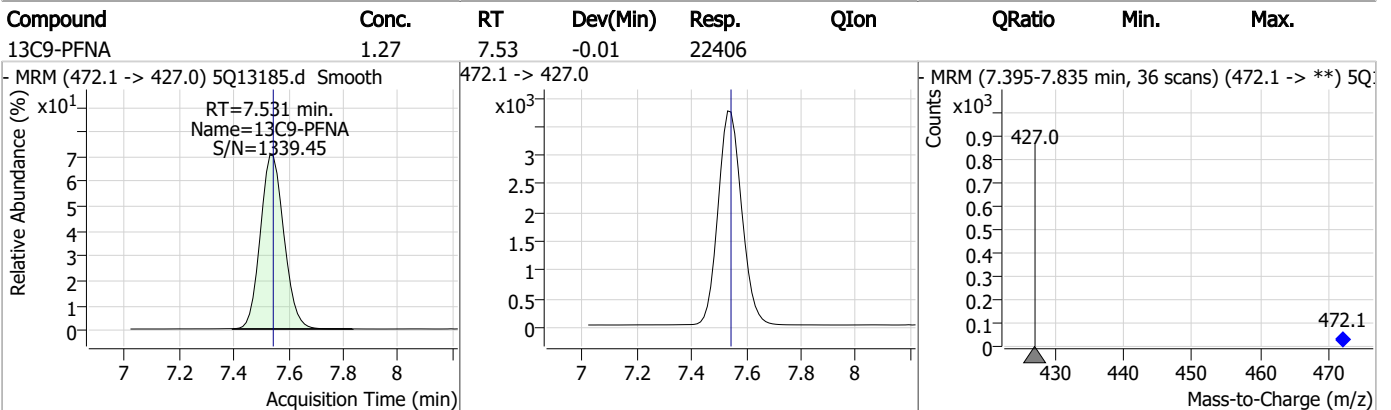
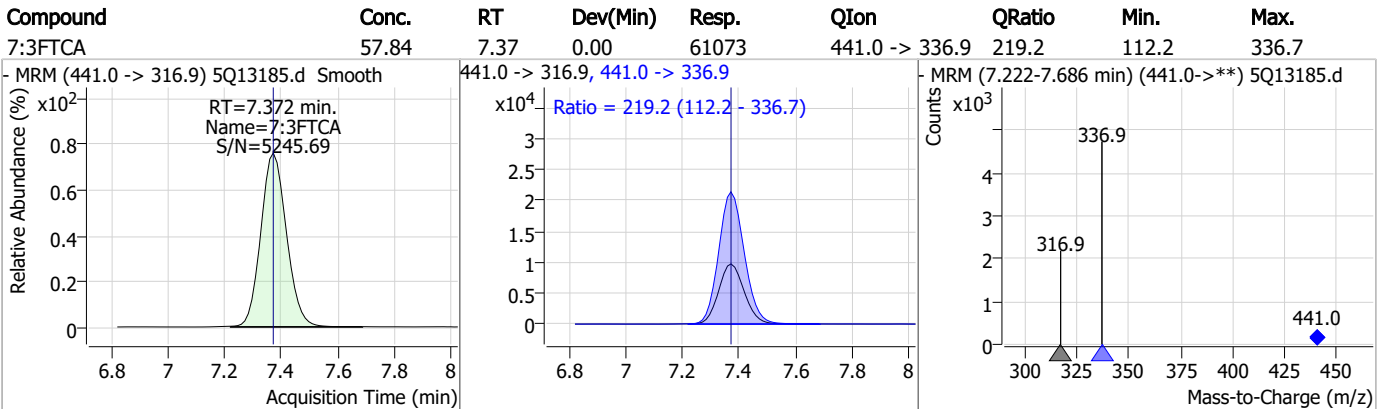
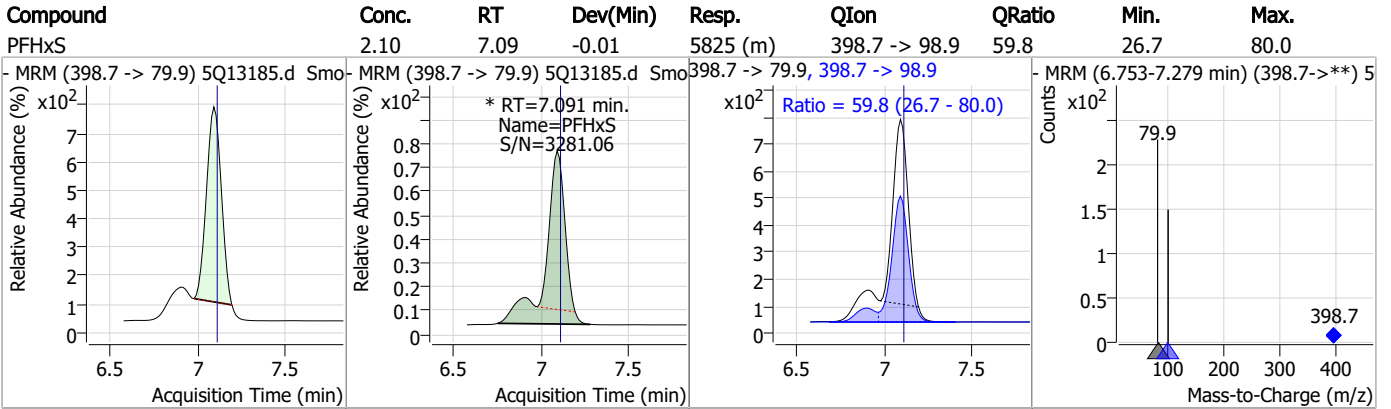


### Perfluorinated Compounds by LC/MS/MS



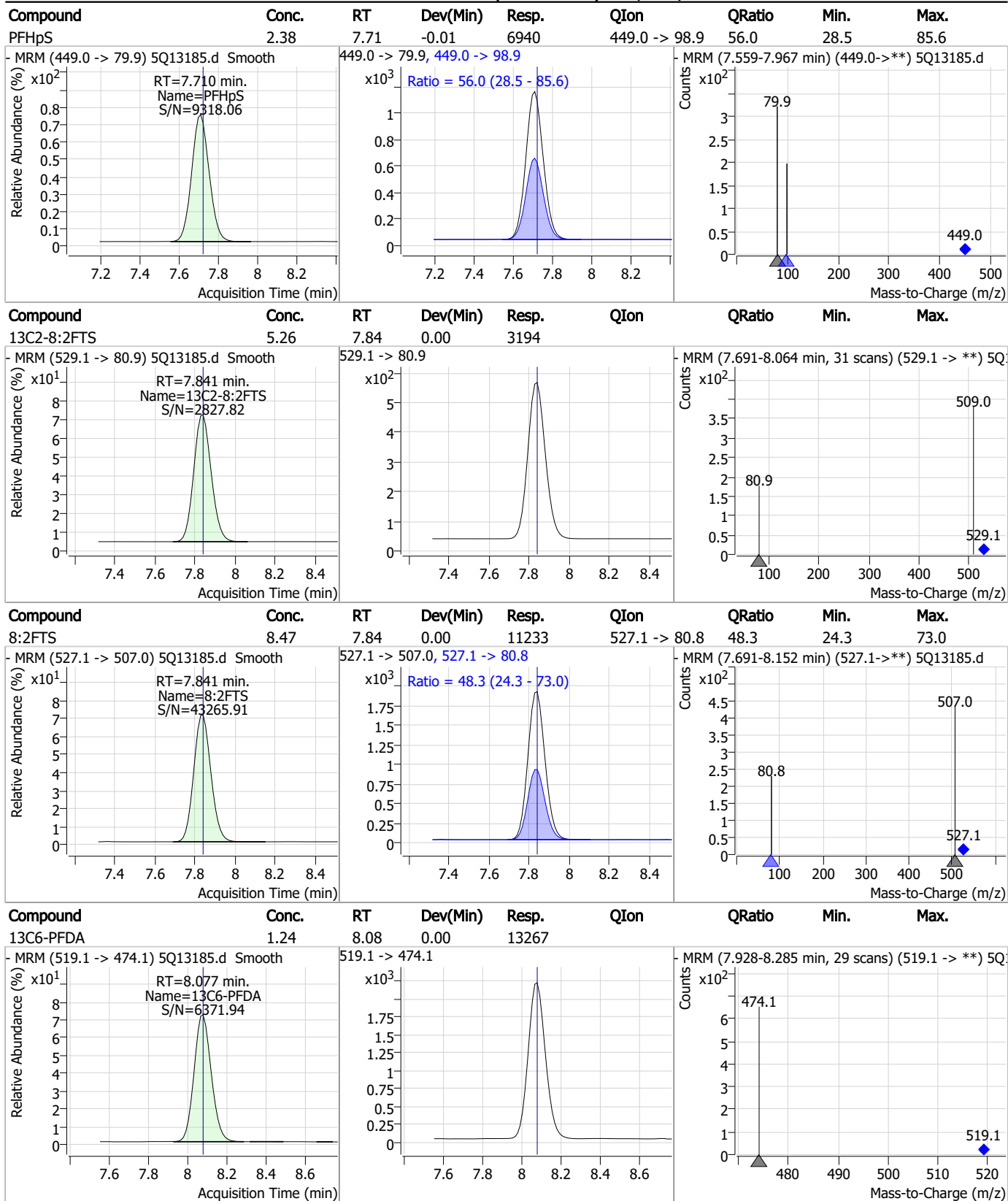
7.7.12

### Perfluorinated Compounds by LC/MS/MS



7.7.12  
7

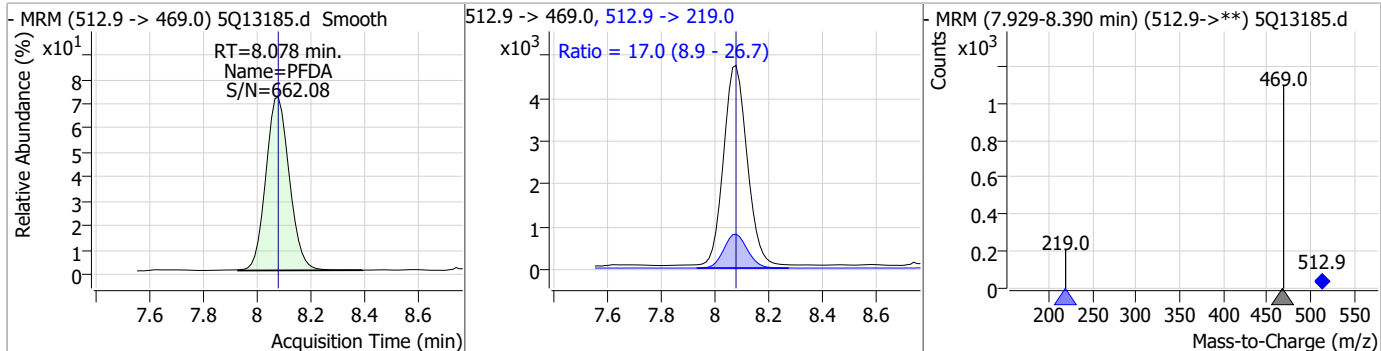
### Perfluorinated Compounds by LC/MS/MS



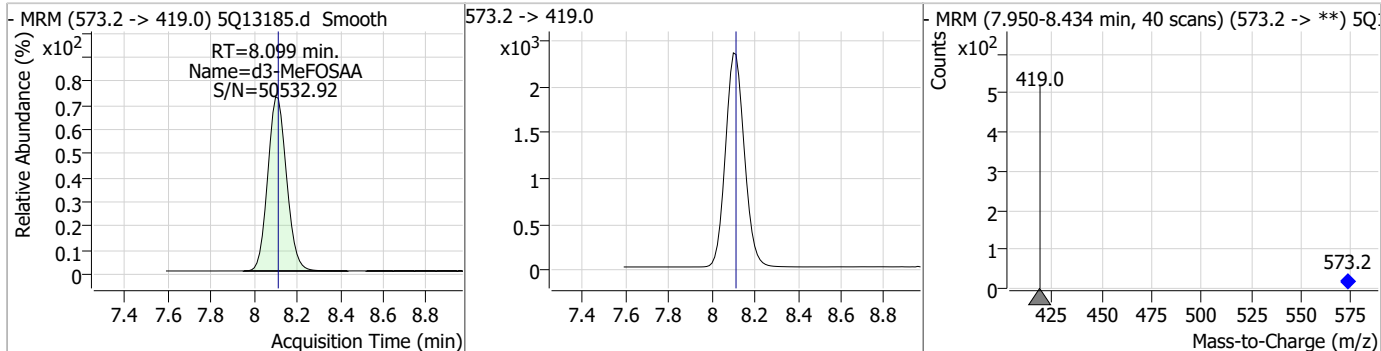
7.7.12  
7

### Perfluorinated Compounds by LC/MS/MS

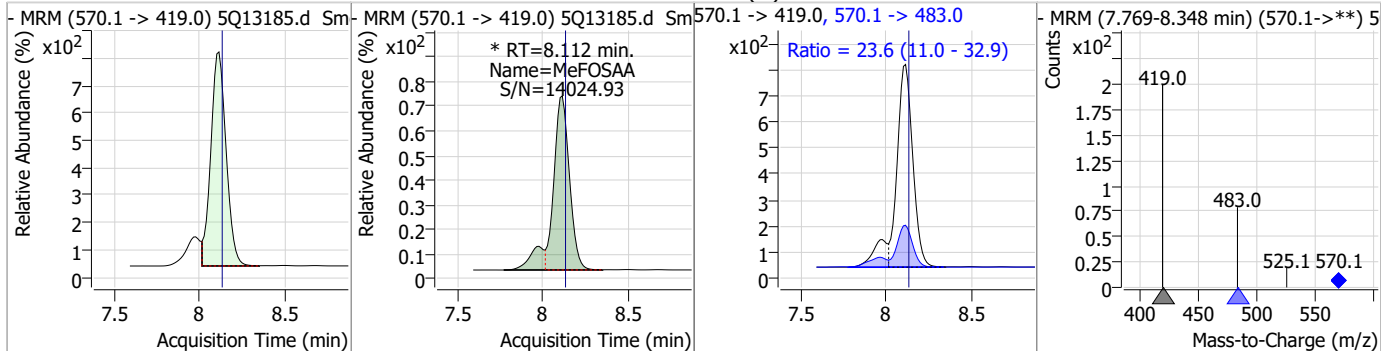
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.39	8.08	0.00	28287	512.9 -> 219.0	17.0	8.9	26.7



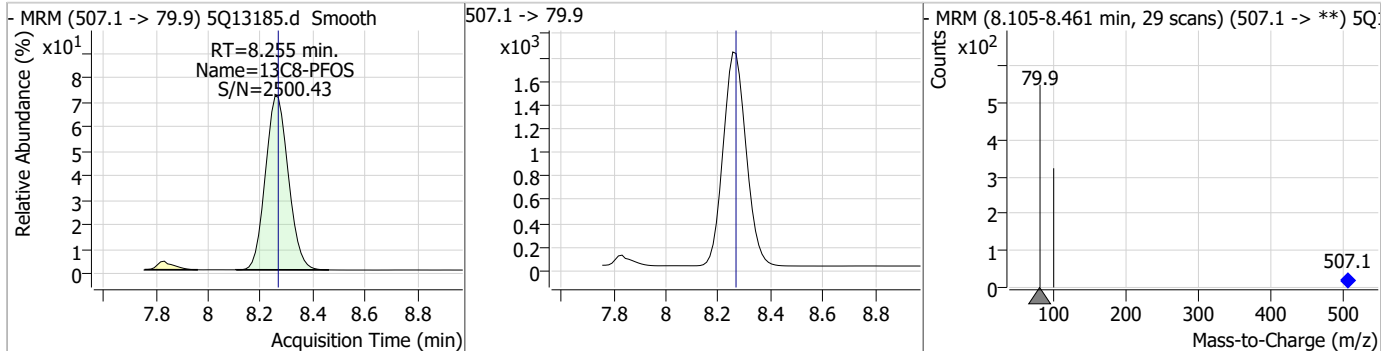
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	4.93	8.10	-0.01	14169				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.31	8.11	-0.01	5517 (m)	570.1 -> 483.0	23.6	11.0	32.9



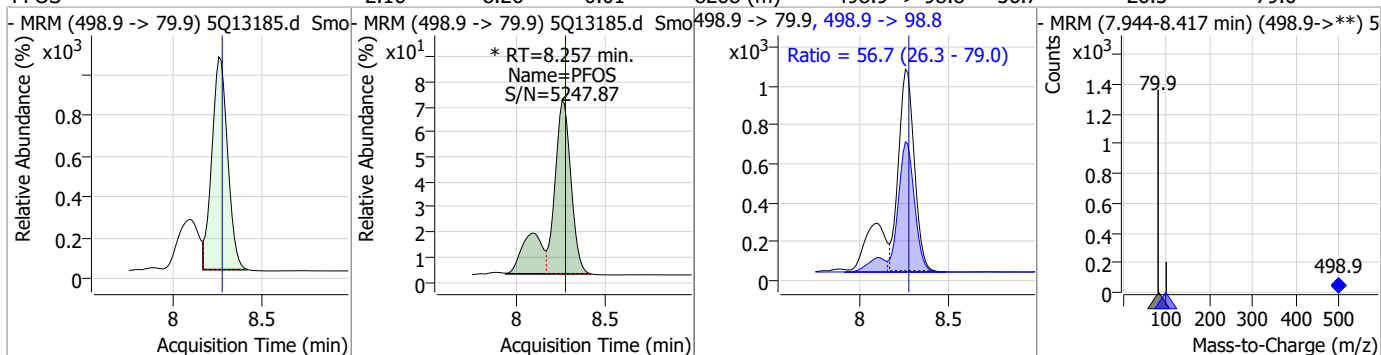
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.45	8.25	-0.01	10986				



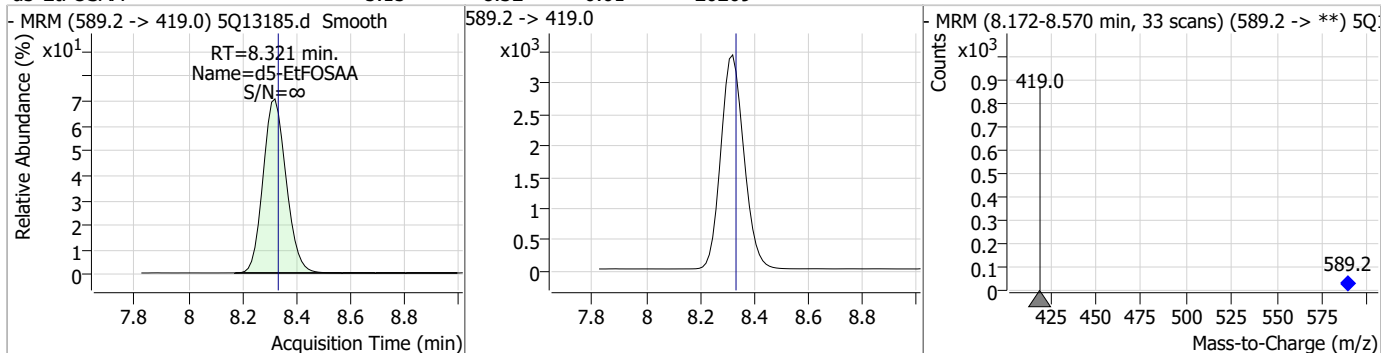
7.7.12  
7

### Perfluorinated Compounds by LC/MS/MS

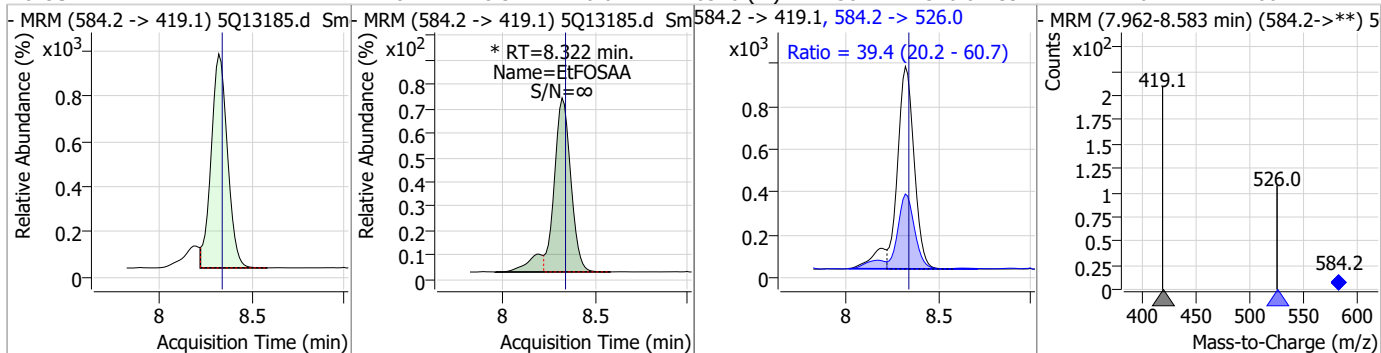
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.16	8.26	-0.01	8268 (m)	498.9 -> 98.8	56.7	26.3	79.0



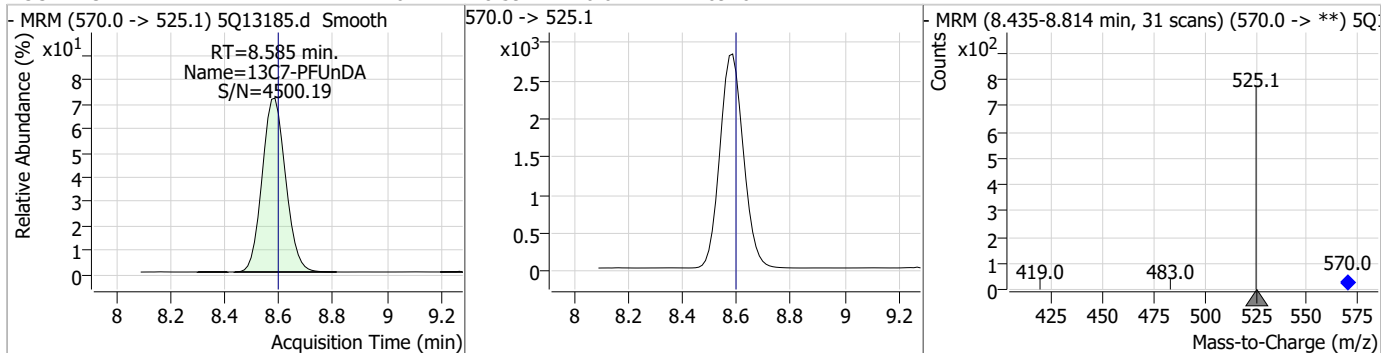
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.15	8.32	-0.01	20209				



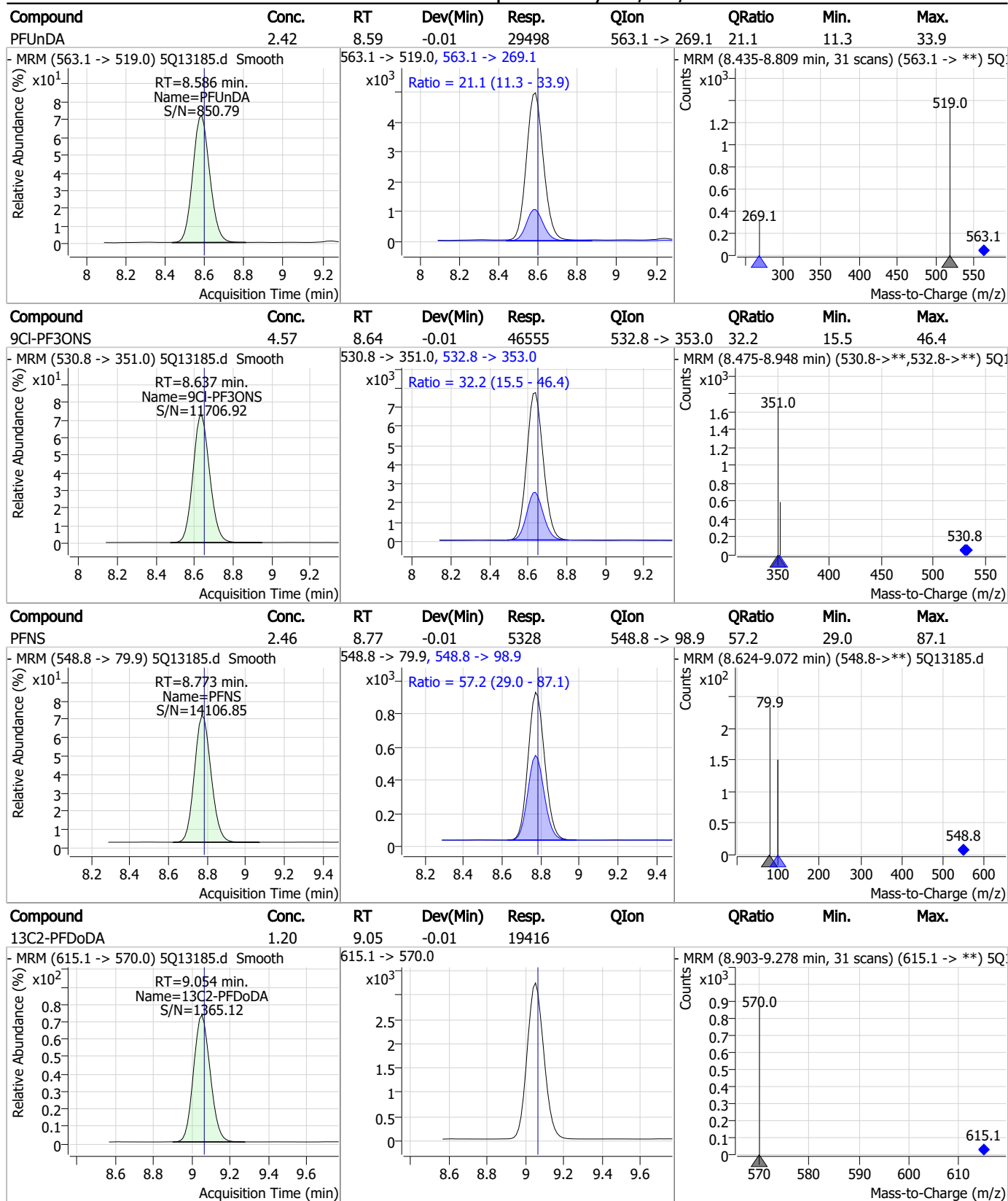
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.48	8.32	-0.01	6346 (m)	584.2 -> 526.0	39.4	20.2	60.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.26	8.59	-0.01	16946				



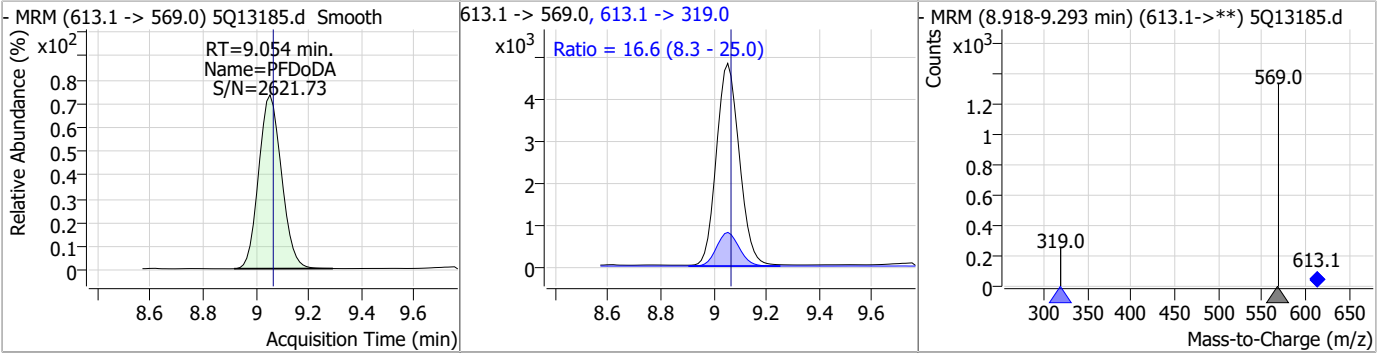
### Perfluorinated Compounds by LC/MS/MS



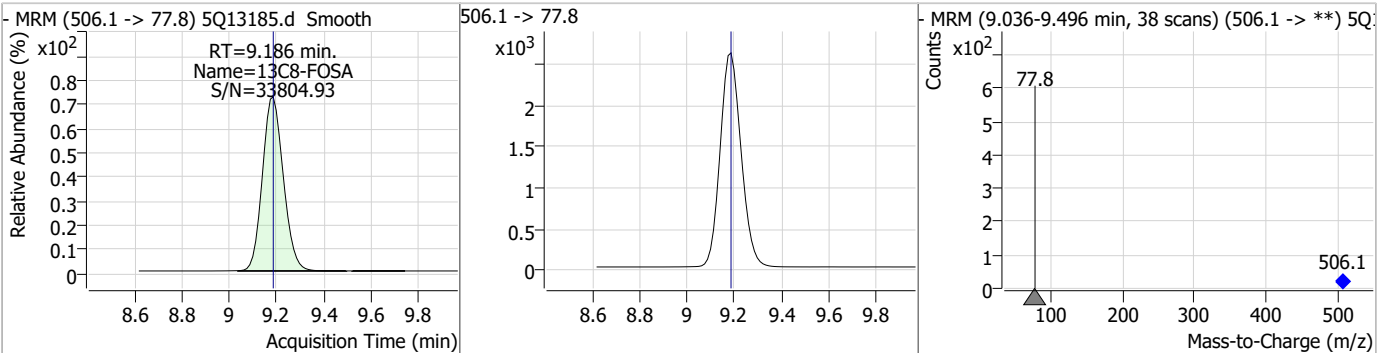
7.7.12  
7

### Perfluorinated Compounds by LC/MS/MS

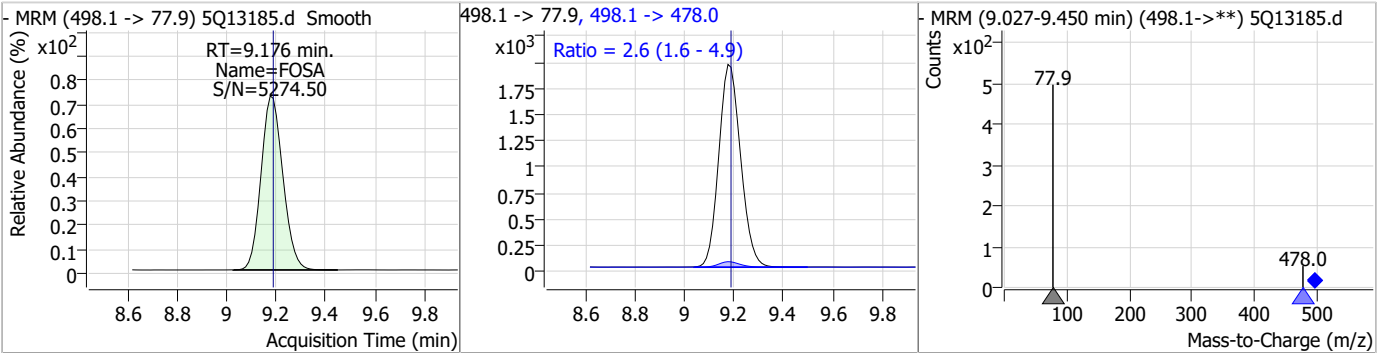
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.44	9.05	-0.01	28835	613.1 -> 319.0	16.6	8.3	25.0



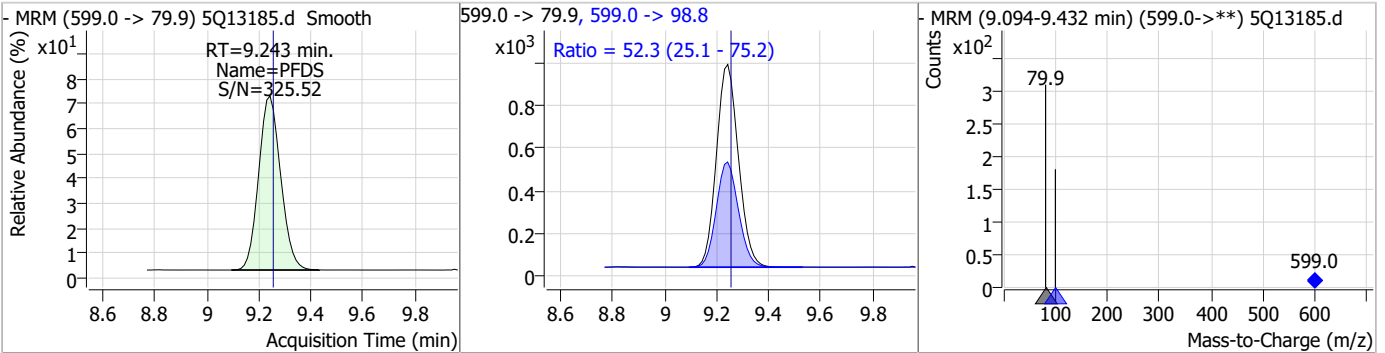
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.49	9.19	0.00	16061				



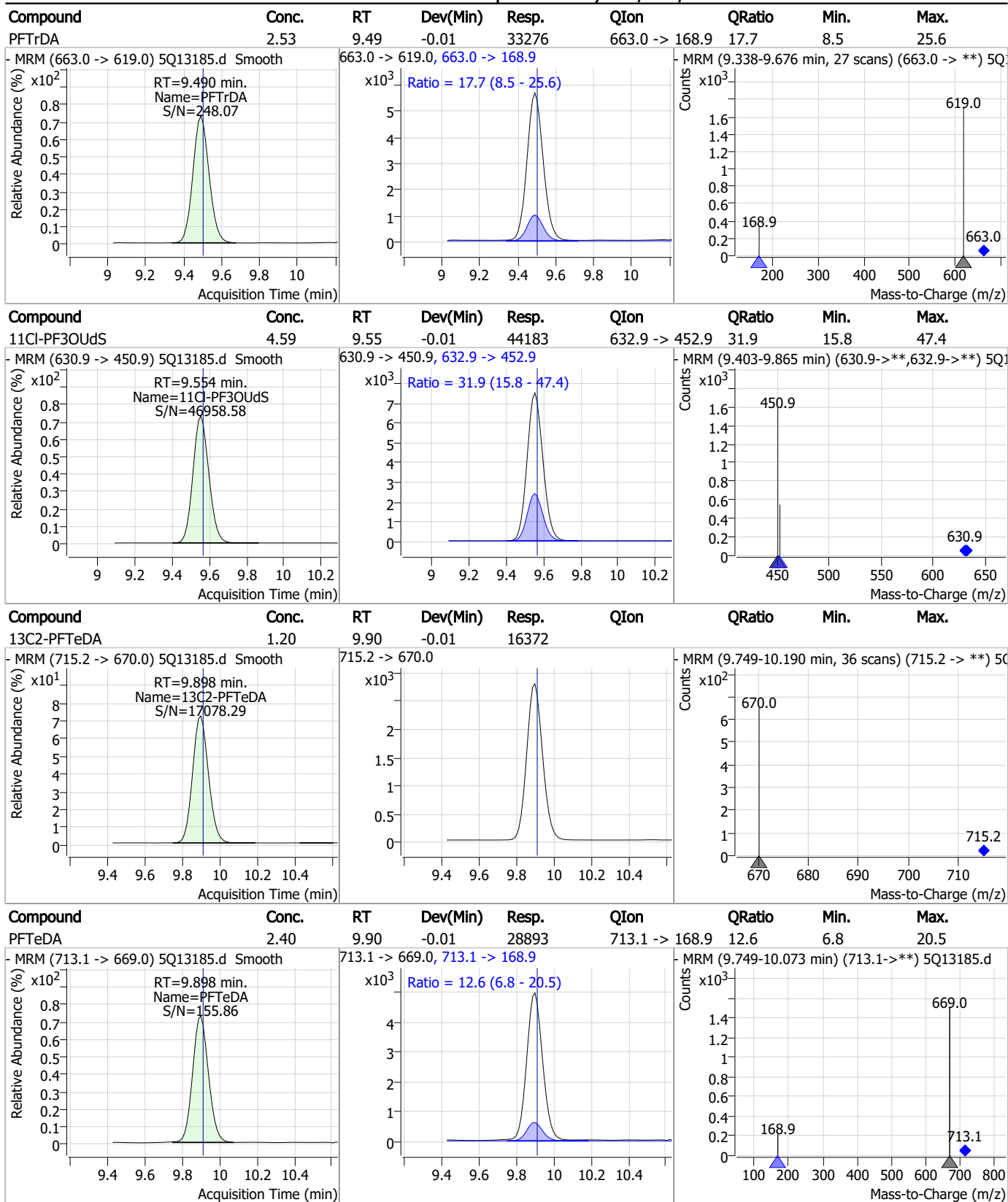
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.36	9.18	-0.01	11873	498.1 -> 478.0	2.6	1.6	4.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.40	9.24	-0.01	5598	599.0 -> 98.8	52.3	25.1	75.2



### Perfluorinated Compounds by LC/MS/MS

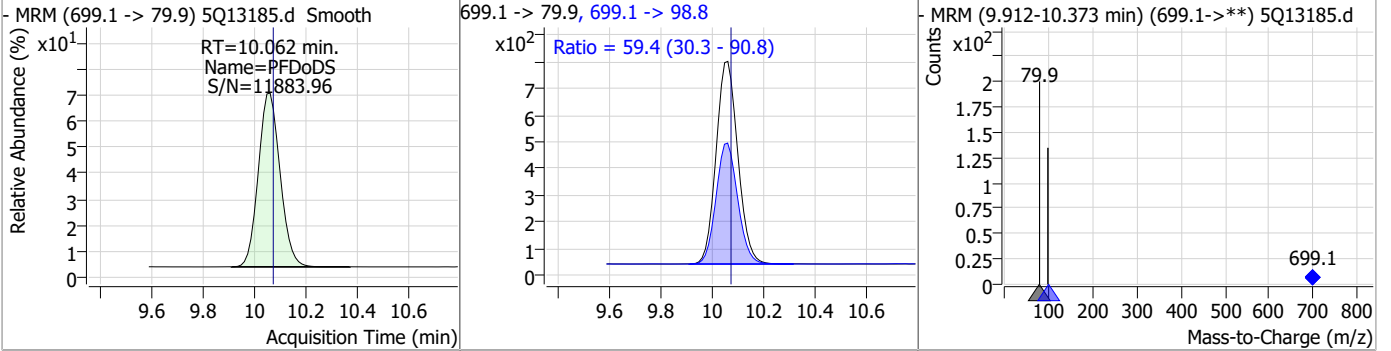


7.7.12  
7

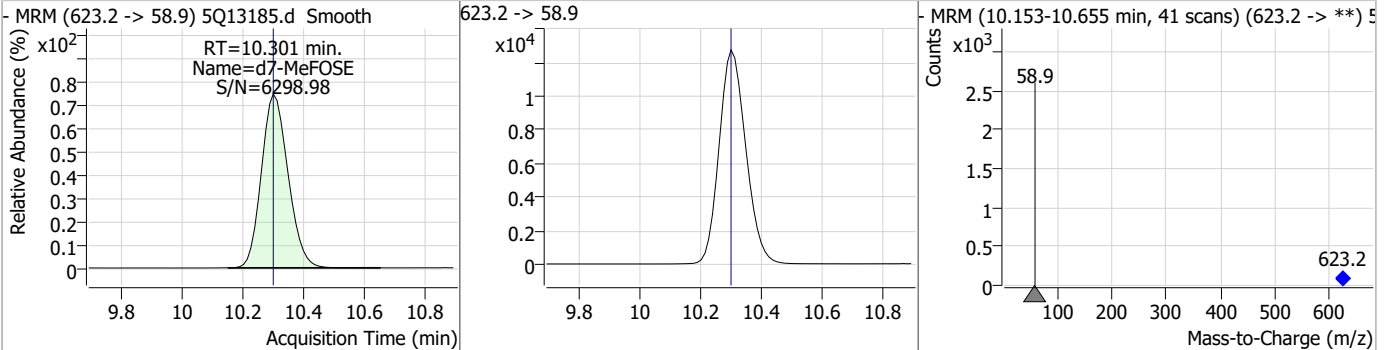


### Perfluorinated Compounds by LC/MS/MS

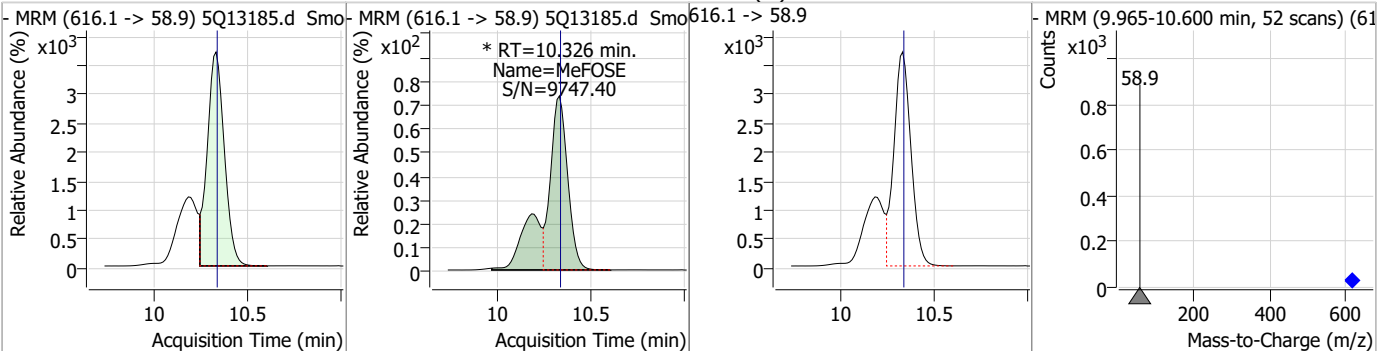
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	2.37	10.06	-0.01	4484	699.1 -> 98.8	59.4	30.3	90.8



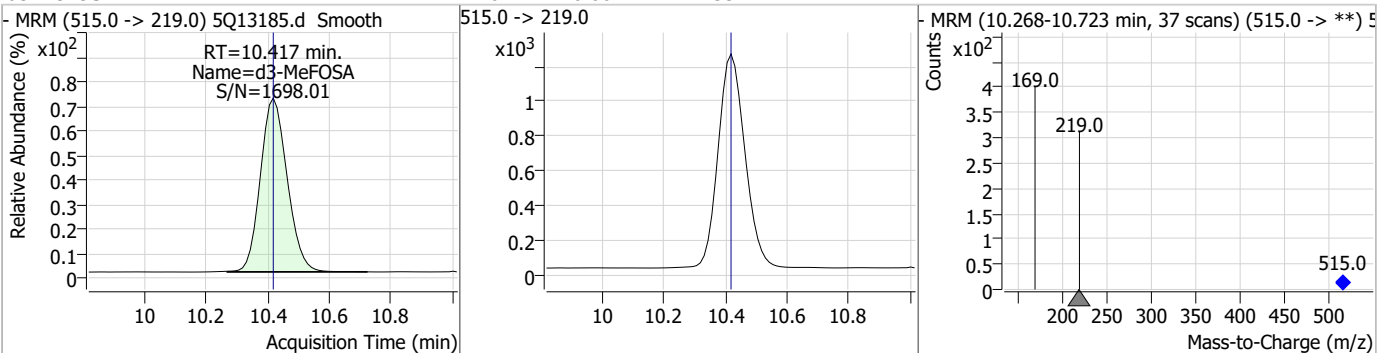
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.81	10.30	0.00	77507				



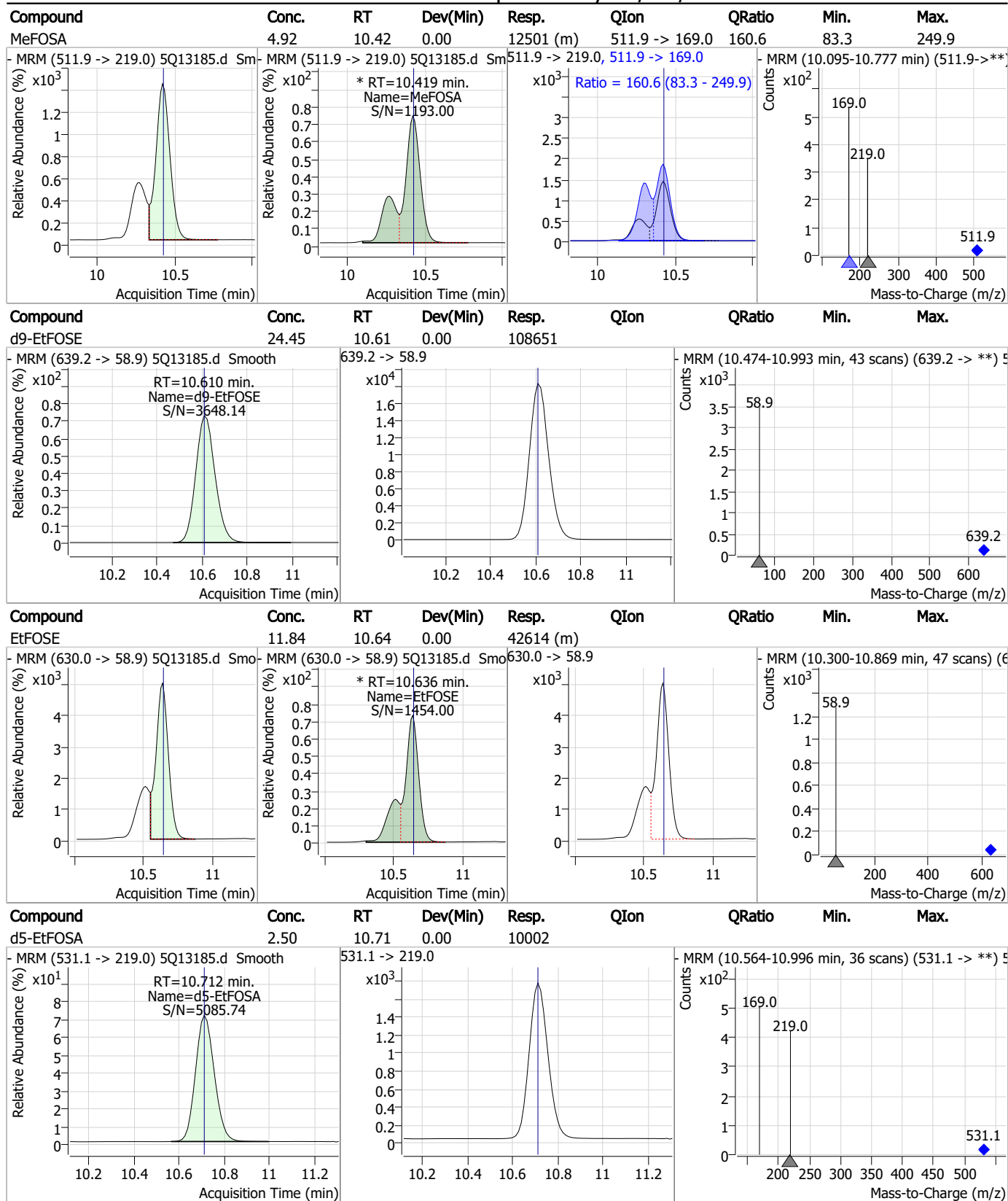
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.88	10.33	0.00	32609 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	10.42	0.00	7433				



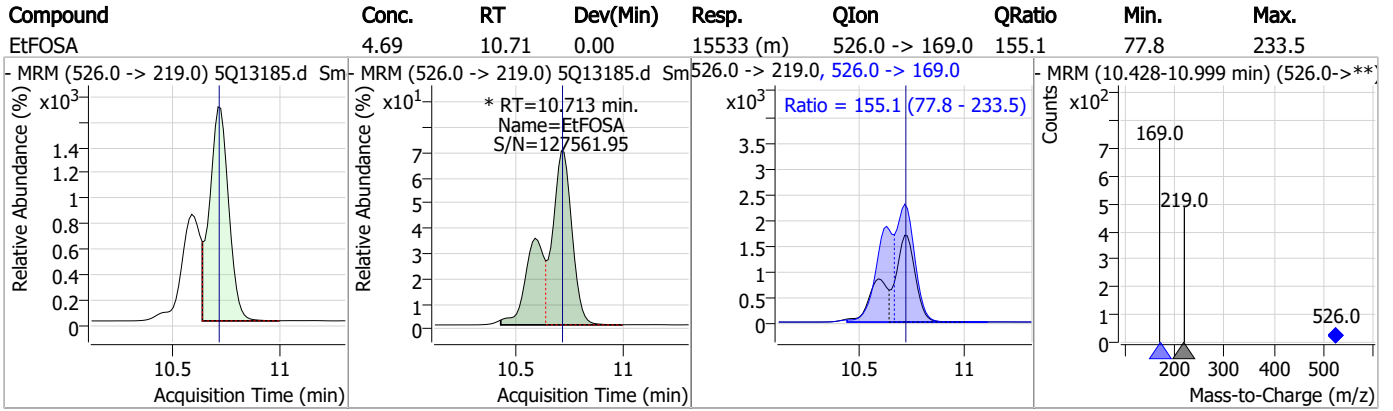
### Perfluorinated Compounds by LC/MS/MS



7.7.12  
7



### Perfluorinated Compounds by LC/MS/MS



7.7.12  
7



# Manual Integration Approval Summary

**Sample Number:** S5Q205-CC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13185.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 21:33      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C3-PFBA			2.75	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.76	Poor instrument integration
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBS			5.24	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.24	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
MeFOSAA	2355-31-9		8.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.26	Split peak
EtFOSAA	2991-50-6		8.32	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.12.1  
7

### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13186.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/19/2023 9:47:44 PM  
 Sample Name : cc205-1.0LL  
 Vial : P3-A2  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.777	216.8 -> 171.9	55972	10.00	µg/L m	0.012
M5-PFPeA	4.103	268.3 -> 223.0	40546	5.00	µg/L	-0.012
M5-PFHxA	5.309	318.0 -> 273.0	35956	2.50	µg/L	0.000
M4-PFHpA	6.279	367.1 -> 322.0	31133	2.50	µg/L	-0.012
M8-PFOA	6.962	421.1 -> 376.0	42109	2.50	µg/L	-0.012
M9-PFNA	7.544	472.1 -> 427.0	18874	1.25	µg/L	0.000
M6-PFDA	8.077	519.1 -> 474.1	10867	1.25	µg/L	0.000
M7-PFUnDA	8.585	570.0 -> 525.1	14446	1.25	µg/L	-0.012
M2-PFDoDA	9.054	615.1 -> 570.0	16733	1.25	µg/L	-0.012
M2-PFTeDA	9.898	715.2 -> 670.0	13907	1.25	µg/L	-0.012
M8-FOSA	9.186	506.1 -> 77.8	13145	2.50	µg/L	0.000
M3-PFBS	5.251	302.1 -> 79.9	6925	2.50	µg/L m	0.000
M3-PFHxS	7.090	402.1 -> 79.9	6559	2.50	µg/L	-0.012
M8-PFOS	8.255	507.1 -> 79.9	9306	2.50	µg/L	-0.012
M2-4:2FTS	4.960	329.1 -> 80.9	782	5.00	µg/L	0.000
M2-6:2FTS	6.711	429.1 -> 80.9	1787	5.00	µg/L	-0.012
M2-8:2FTS	7.841	529.1 -> 80.9	2593	5.00	µg/L	0.000
M3-MeFOSAA	8.111	573.2 -> 419.0	12140	5.00	µg/L	0.000
M3-HFPO-DA	5.701	286.9 -> 168.9	71236	10.00	µg/L	0.000
M5-EtFOSAA	8.321	589.2 -> 419.0	20164	5.00	µg/L	-0.012
M7-MeFOSE	10.301	623.2 -> 58.9	64445	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	92386	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	8451	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6236	2.50	µg/L	0.000
13C4-PFOS	8.256	502.8 -> 79.9	8853	2.50	µg/L	-0.012
13C3-PFBA	2.780	216.0 -> 172.0	28965	5.00	µg/L m	0.012
18O2-PFHxS	7.089	403.0 -> 83.9	4455	2.50	µg/L	-0.012
13C4-PFOA	6.962	417.1 -> 372.0	51321	2.50	µg/L	-0.012
13C2-PFDA	8.078	515.1 -> 470.1	17170	1.25	µg/L	0.000
13C5-PFNA	7.544	468.0 -> 423.0	18105	1.25	µg/L	0.000
13C2-PFHxA	5.310	315.1 -> 270.0	37413	2.50	µg/L	0.000
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.960	329.1 -> 80.9	782	5.07	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%			
13C2-6:2FTS	6.711	429.1 -> 80.9	1787	5.26	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%			
13C2-8:2FTS	7.841	529.1 -> 80.9	2593	5.08	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%			
13C2-PFDoDA	9.054	615.1 -> 570.0	16733	1.23	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.4%			
13C2-PFTeDA	9.898	715.2 -> 670.0	13907	1.20	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%			
13C3-PFBS	5.251	302.1 -> 79.9	7347	2.69	µg/L m	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.8%			
13C3-PFHxS	7.090	402.1 -> 79.9	6559	2.40	µg/L	-0.012

7.7.13  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.2%			
13C4-PFBA	2.777	216.8 -> 171.9	55501	10.00	µg/L m	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%			
13C4-PFHpA	6.279	367.1 -> 322.0	31133	2.49	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.7%			
13C5-PFHxA	5.309	318.0 -> 273.0	35956	2.56	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.4%			
13C5-PFPeA	4.103	268.3 -> 223.0	40546	5.03	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%			
13C6-PFDA	8.077	519.1 -> 474.1	10867	1.20	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.2%			
13C7-PFUnDA	8.585	570.0 -> 525.1	14446	1.28	µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%			
13C8-FOSA	9.186	506.1 -> 77.8	13145	2.47	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%			
13C8-PFOA	6.962	421.1 -> 376.0	42109	2.51	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%			
13C8-PFOS	8.255	507.1 -> 79.9	9306	2.52	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%			
13C9-PFNA	7.544	472.1 -> 427.0	18874	1.28	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%			
d3-MeFOSAA	8.111	573.2 -> 419.0	12140	5.12	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.4%			
13C3-HFPO-DA	5.701	286.9 -> 168.9	71236	10.20	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.0%			
d3-MeFOSA	10.417	515.0 -> 219.0	6236	2.52	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%			
d5-EtFOSAA	8.321	589.2 -> 419.0	20164	6.23	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 124.6%			
d7-MeFOSE	10.301	623.2 -> 58.9	64445	25.00	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.0%			
d9-EtFOSE	10.610	639.2 -> 58.9	92386	25.20	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.8%			
d5-EtFOSA	10.712	531.1 -> 219.0	8451	2.56	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%			
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.960	327.1 -> 307.0	823	0.89	µg/L	88
		327.1 -> 80.9	371			
6:2FTS	6.711	427.1 -> 407.0	1096	0.78	µg/L	97
		427.1 -> 80.9	480			
8:2FTS	7.841	527.1 -> 507.0	849	0.79	µg/L	96
		527.1 -> 80.8	389			
EtFOSAA	8.322	584.2 -> 419.1	484	0.19	µg/L m	95
		584.2 -> 526.0	182			
FOSA	9.188	498.1 -> 77.9	935	0.23	µg/L	98
		498.1 -> 478.0	38			
MeFOSAA	8.112	570.1 -> 419.0	468	0.23	µg/L m	87
		570.1 -> 483.0	132			
PFBA	2.771	212.8 -> 168.9	1675	0.82	µg/L m	100
PFBS	5.239	298.7 -> 79.9	429	0.20	µg/L m	98
		298.7 -> 98.8	194			
PFDA	8.066	512.9 -> 469.0	2178	0.23	µg/L	97
		512.9 -> 219.0	361			
PFDODA	9.054	613.1 -> 569.0	2245	0.22	µg/L	96
		613.1 -> 319.0	337			
PFDS	9.243	599.0 -> 79.9	459	0.23	µg/L	90

7.7.13  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.280	599.0 -> 98.8	260	0.22	µg/L	93
		363.1 -> 319.0	2776			
PFHpS	7.710	363.1 -> 169.0	549	0.24	µg/L	91
		449.0 -> 79.9	594			
PFHxA	5.312	449.0 -> 98.9	298	0.22	µg/L	96
		313.0 -> 269.0	2039			
PFHxS	7.091	313.0 -> 118.9	117	0.18	µg/L	m
		398.7 -> 79.9	424			
PFNA	7.545	398.7 -> 98.9	258	0.23	µg/L	92
		463.0 -> 419.0	2100			
PFNS	8.786	463.0 -> 219.0	399	0.21	µg/L	96
		548.8 -> 79.9	393			
PFOA	6.963	548.8 -> 98.9	241	0.21	µg/L	98
		413.0 -> 369.0	3127			
PFOS	8.257	413.0 -> 169.0	748	0.20	µg/L	m
		498.9 -> 79.9	644			
PFPeA	4.117	498.9 -> 98.8	372	0.41	µg/L	100
		263.0 -> 219.0	3245			
PFPeS	6.343	349.1 -> 79.9	396	0.19	µg/L	98
		349.1 -> 98.9	187			
PFTeDA	9.898	713.1 -> 669.0	2461	0.24	µg/L	98
		713.1 -> 168.9	317			
PFTrDA	9.490	663.0 -> 619.0	2516	0.22	µg/L	95
		663.0 -> 168.9	376			
PFUnDA	8.586	563.1 -> 519.0	2170	0.21	µg/L	100
		563.1 -> 269.1	487			
11Cl-PF3OUdS	9.554	630.9 -> 450.9	3207	0.40	µg/L	98
		632.9 -> 452.9	976			
9Cl-PF3ONS	8.637	530.8 -> 351.0	3424	0.40	µg/L	97
		532.8 -> 353.0	1125			
ADONA	6.542	376.9 -> 250.9	8016	0.41	µg/L	97
		376.9 -> 84.8	2161			
HFPO-DA	5.702	284.9 -> 168.9	2508	0.45	µg/L	97
		284.9 -> 184.9	258			
3:3FTCA	3.592	241.0 -> 177.0	563	1.09	µg/L	97
		241.0 -> 117.0	53			
5:3FTCA	5.930	341.0 -> 237.1	9116	5.25	µg/L	96
		341.0 -> 217.0	5919			
7:3FTCA	7.372	441.0 -> 316.9	4606	5.14	µg/L	97
		441.0 -> 336.9	10577			
EtFOSA	10.726	526.0 -> 219.0	1015	0.36	µg/L	m
		526.0 -> 169.0	1865			
EtFOSE	10.636	630.0 -> 58.9	3218	1.05	µg/L	m
		511.9 -> 219.0	862			
MeFOSA	10.419	511.9 -> 169.0	1487	0.40	µg/L	m
		616.1 -> 58.9	2725			
MeFOSE	10.326	699.1 -> 79.9	344	1.19	µg/L	m
		699.1 -> 98.8	204			
PFDoDS	10.050	295.0 -> 201.0	368	0.21	µg/L	98
		295.0 -> 84.9	97			
NFDHA	5.190	279.0 -> 85.1	2146	0.42	µg/L	100
		229.0 -> 84.9	1786			
PFMBA	4.517	314.8 -> 134.9	4158	0.44	µg/L	100
		314.8 -> 82.9	190			
PFMPA	3.290			0.35	µg/L	96
PFEESA	5.807					

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

7.7.13  
7



### Perfluorinated Compounds by LC/MS/MS

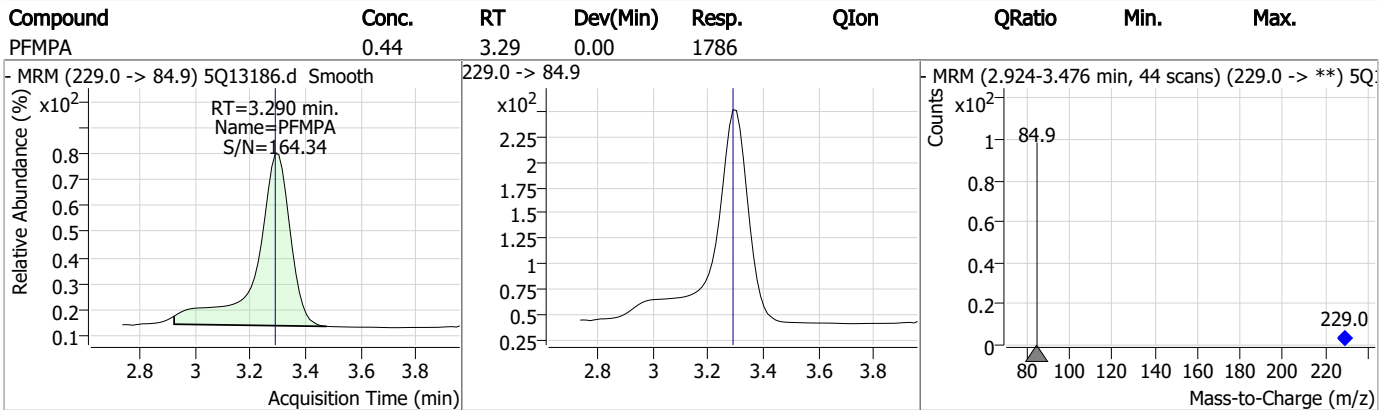
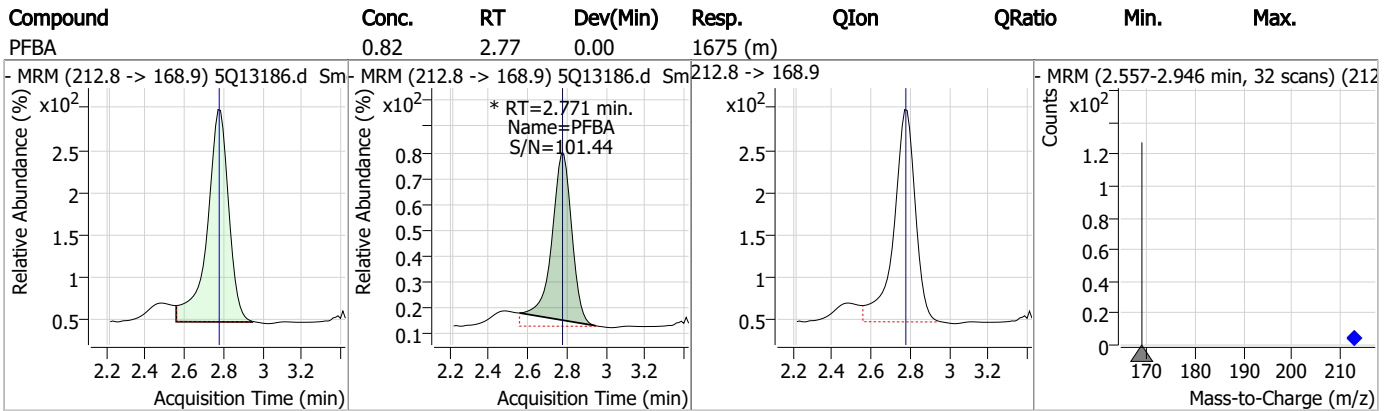
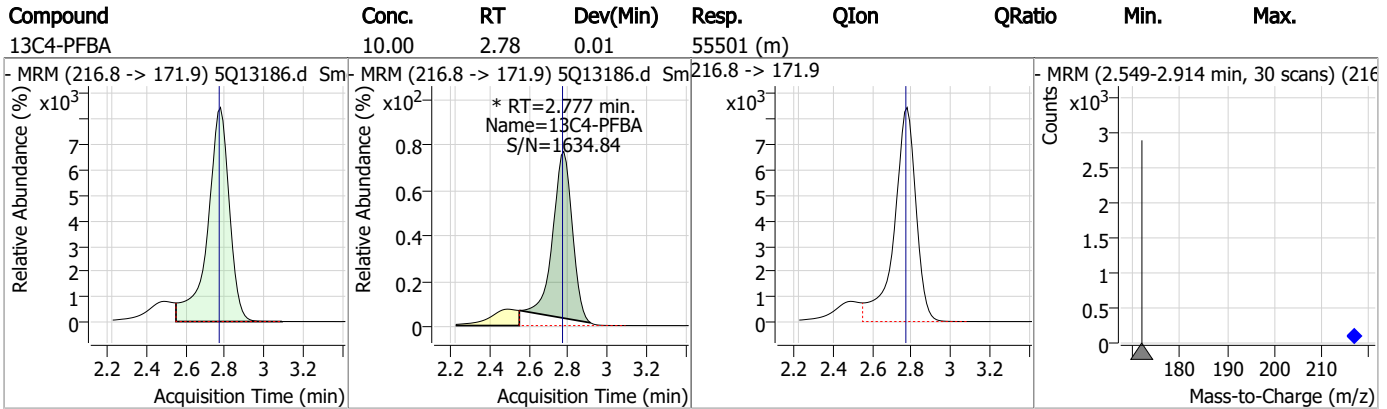
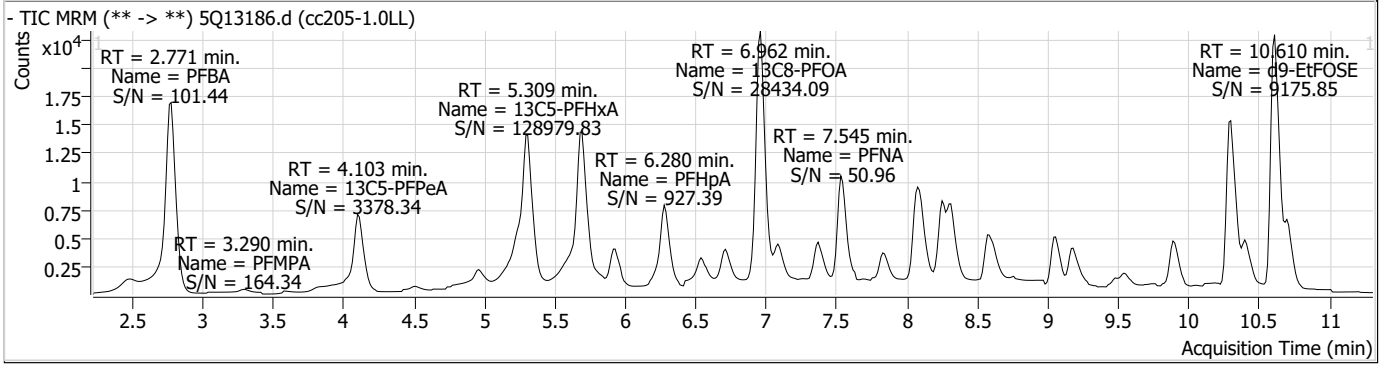
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.13

7



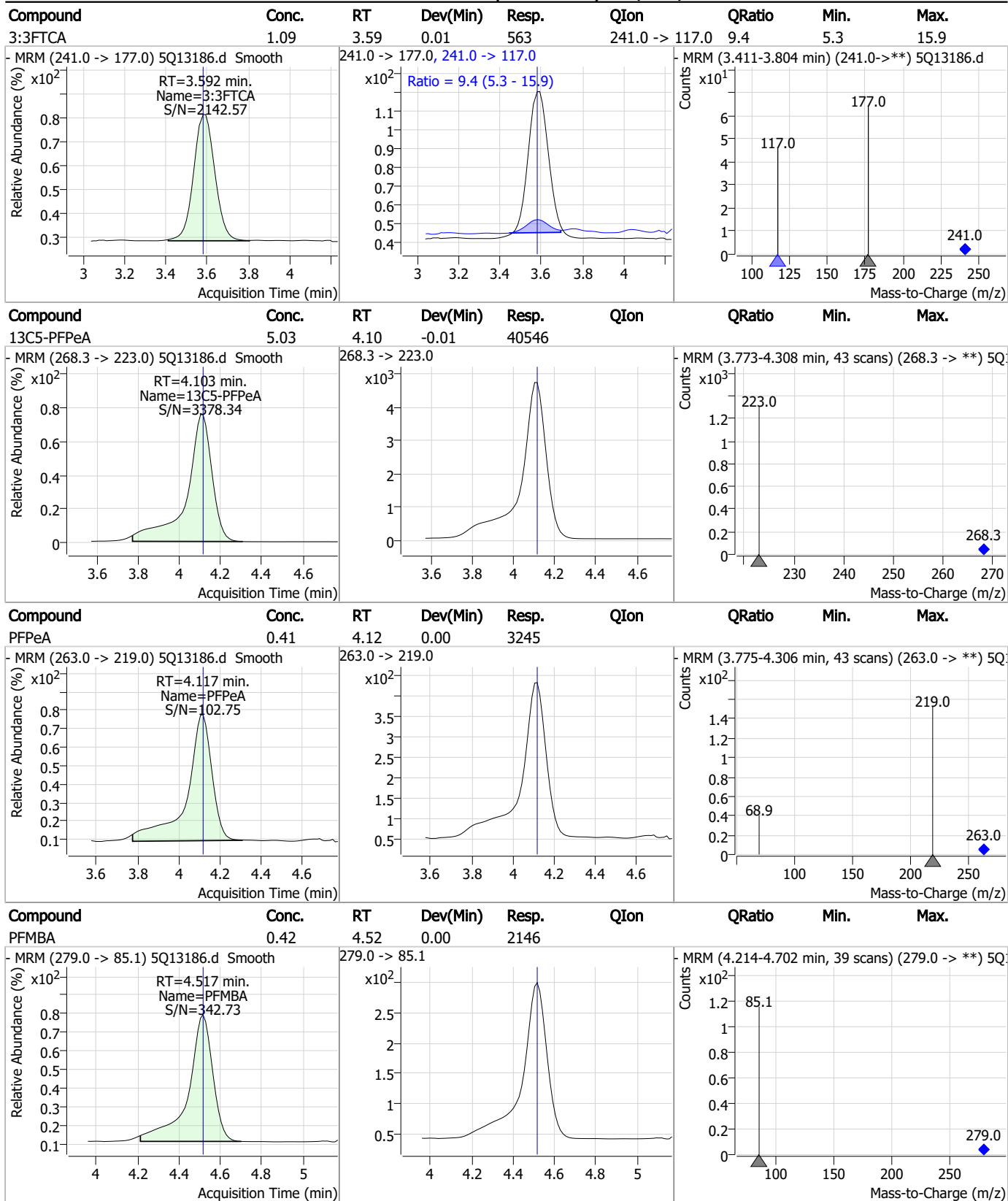
### Perfluorinated Compounds by LC/MS/MS



7.7.13  
7

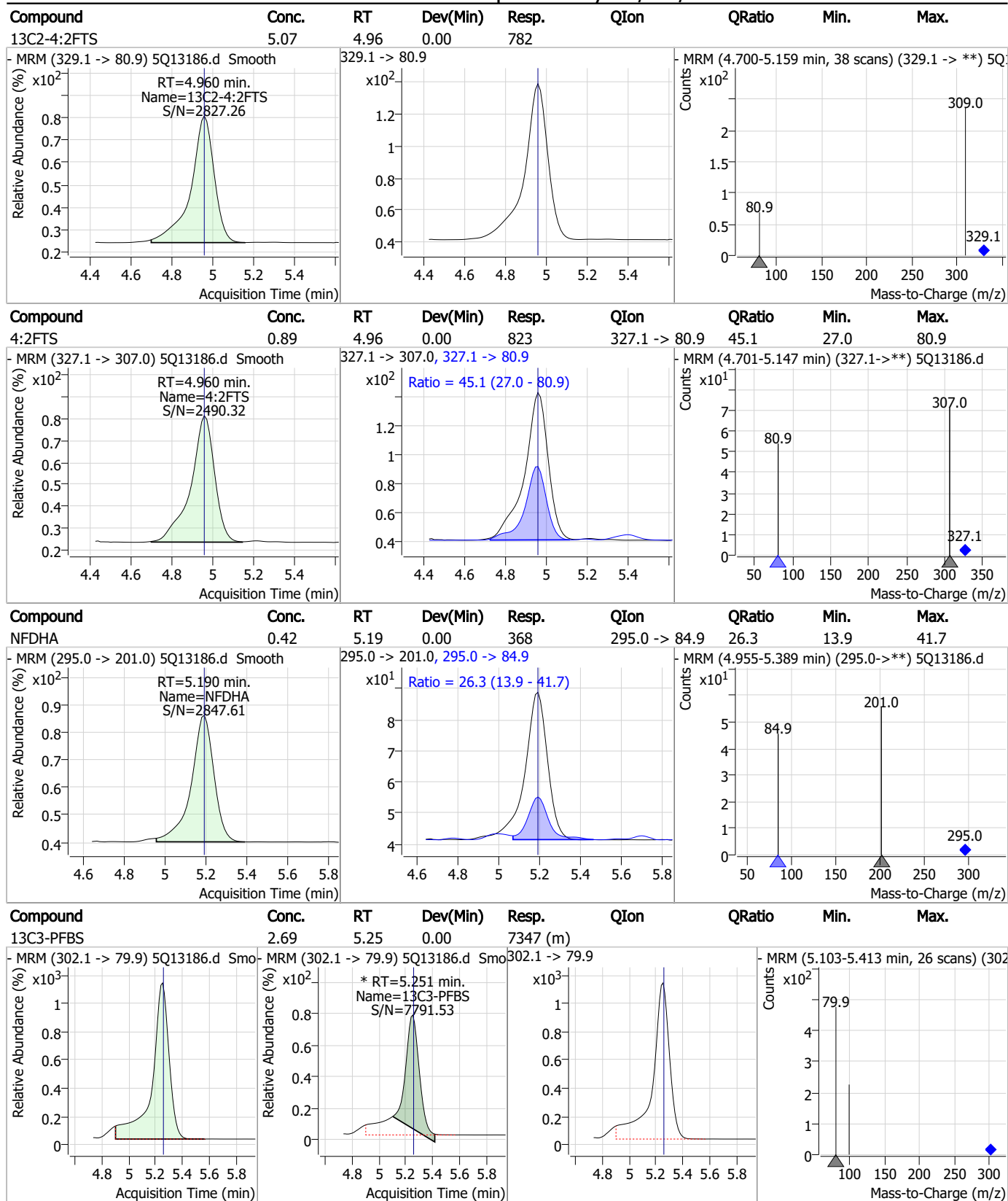


### Perfluorinated Compounds by LC/MS/MS



7.7.13  
7

### Perfluorinated Compounds by LC/MS/MS

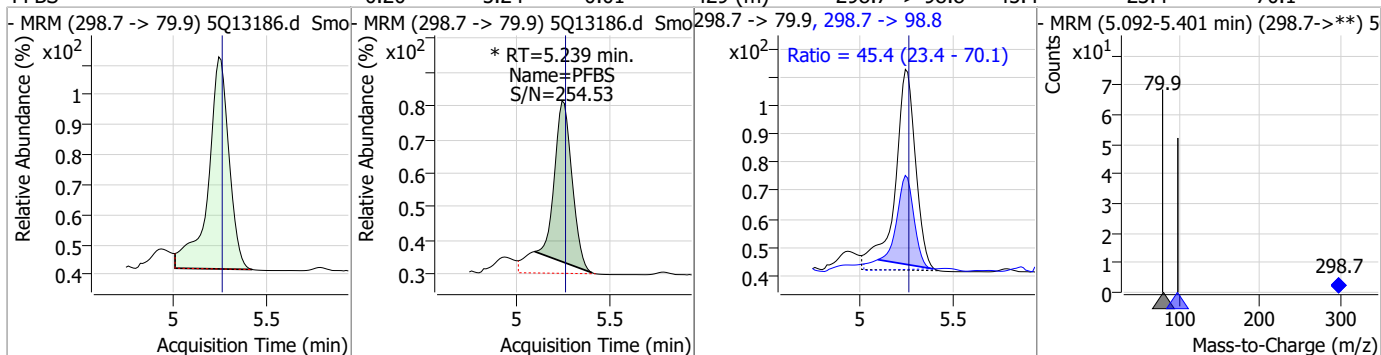


7.7.13  
7

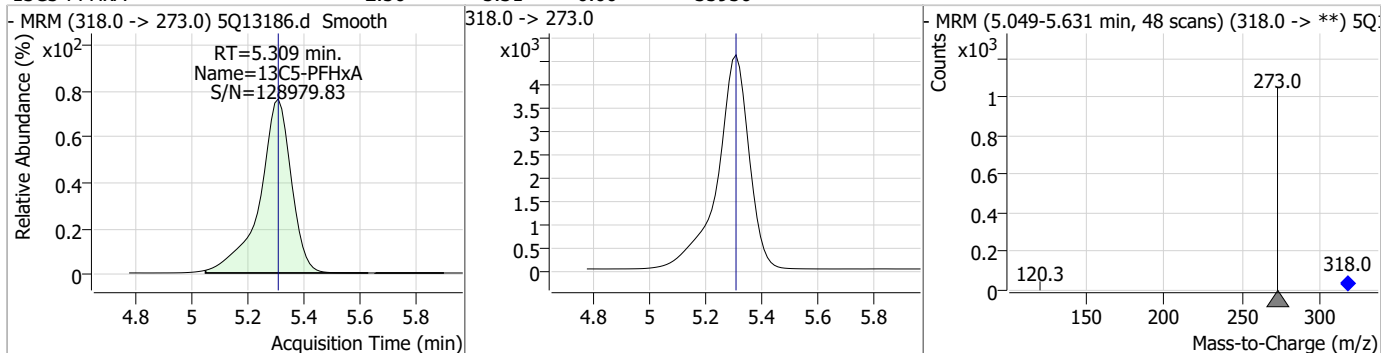


### Perfluorinated Compounds by LC/MS/MS

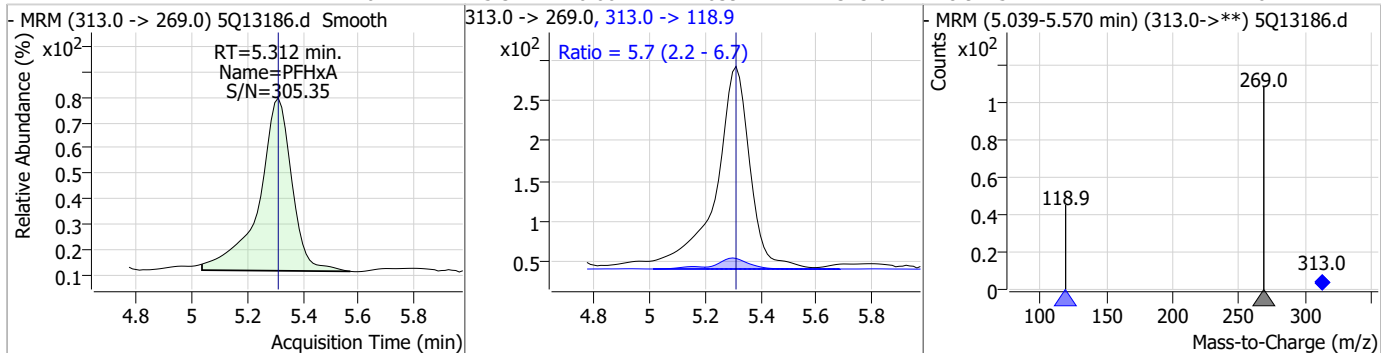
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.20	5.24	-0.01	429 (m)	298.7 -> 98.8	45.4	23.4	70.1



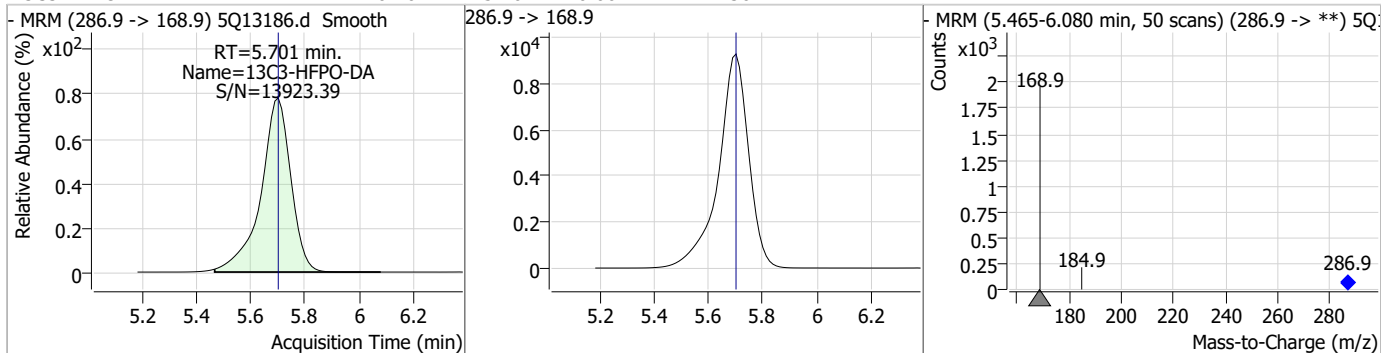
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.31	0.00	35956				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.22	5.31	0.00	2039	313.0 -> 118.9	5.7	2.2	6.7

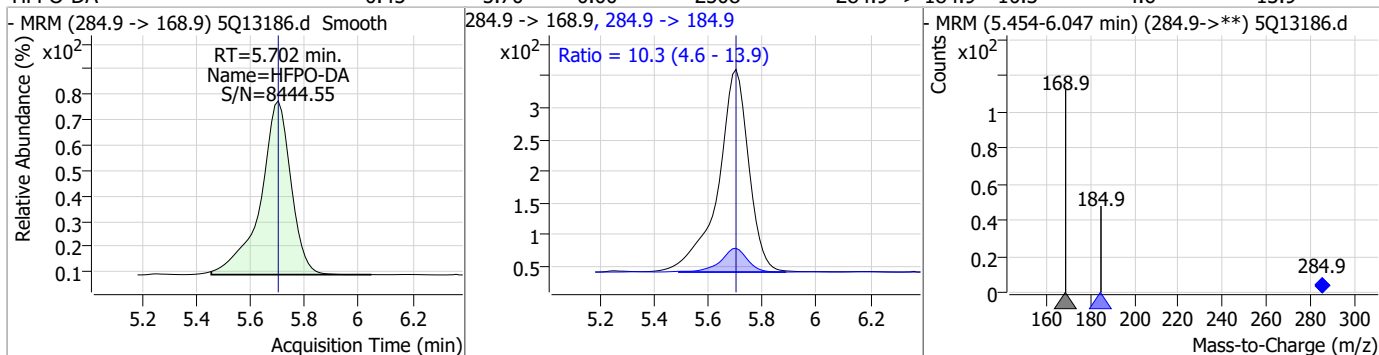


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.20	5.70	0.00	71236				

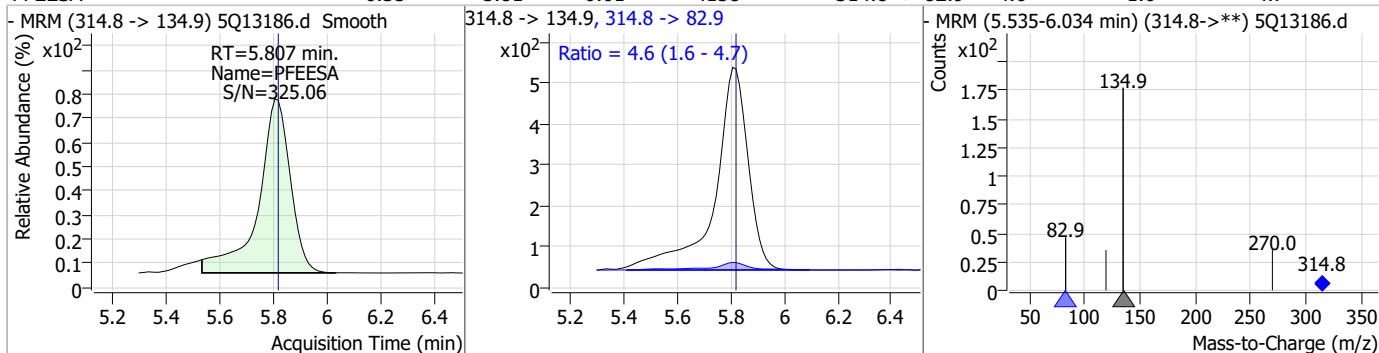


### Perfluorinated Compounds by LC/MS/MS

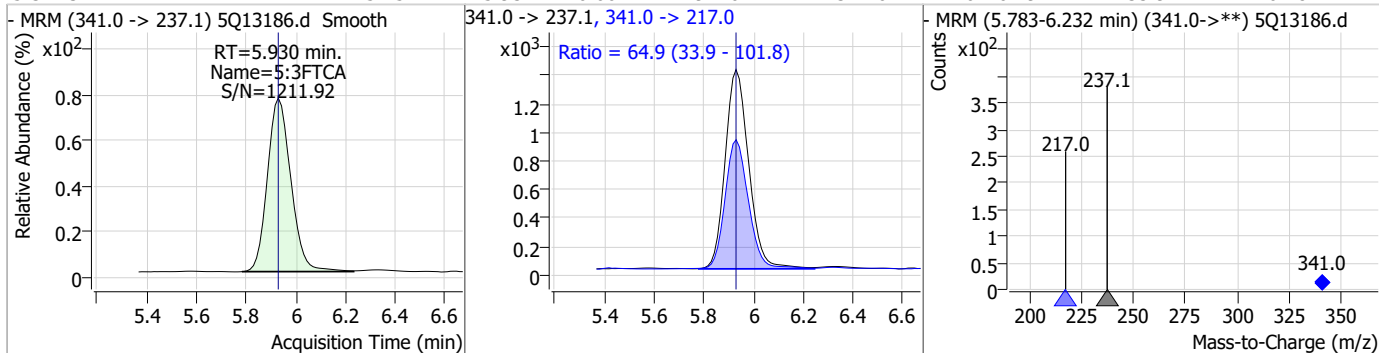
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.45	5.70	0.00	2508	284.9 -> 184.9	10.3	4.6	13.9



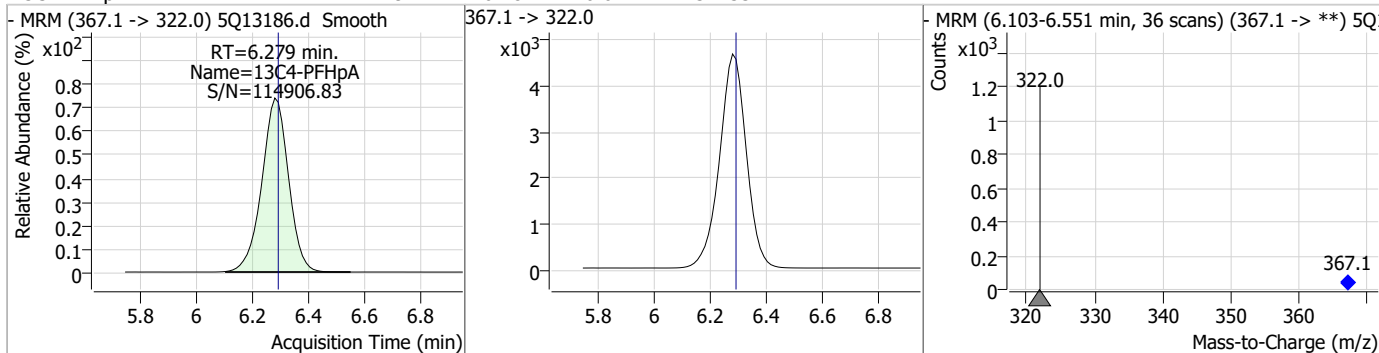
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.35	5.81	-0.01	4158	314.8 -> 82.9	4.6	1.6	4.7



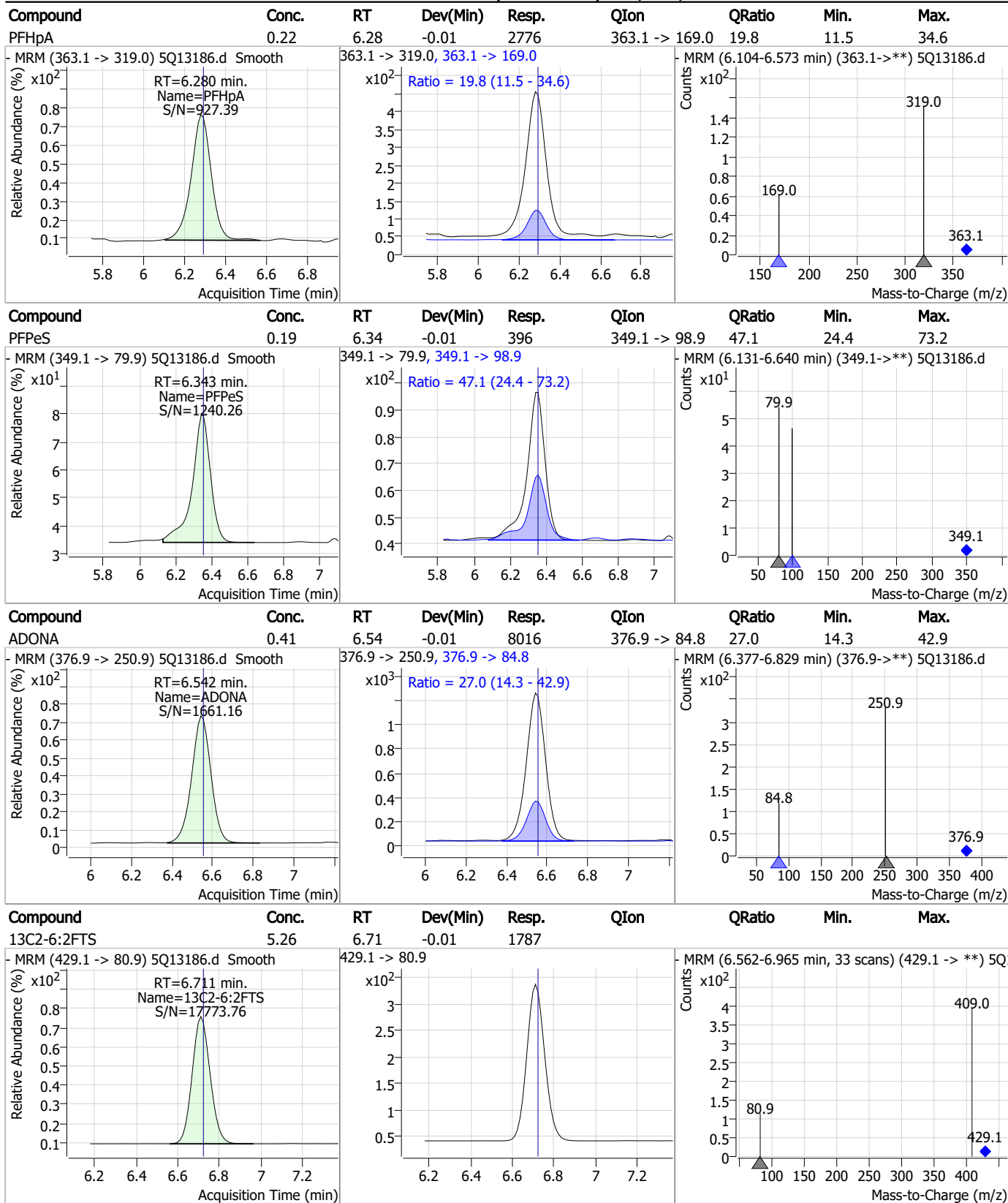
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.25	5.93	0.00	9116	341.0 -> 217.0	64.9	33.9	101.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.28	-0.01	31133	367.1 -> 322.0			

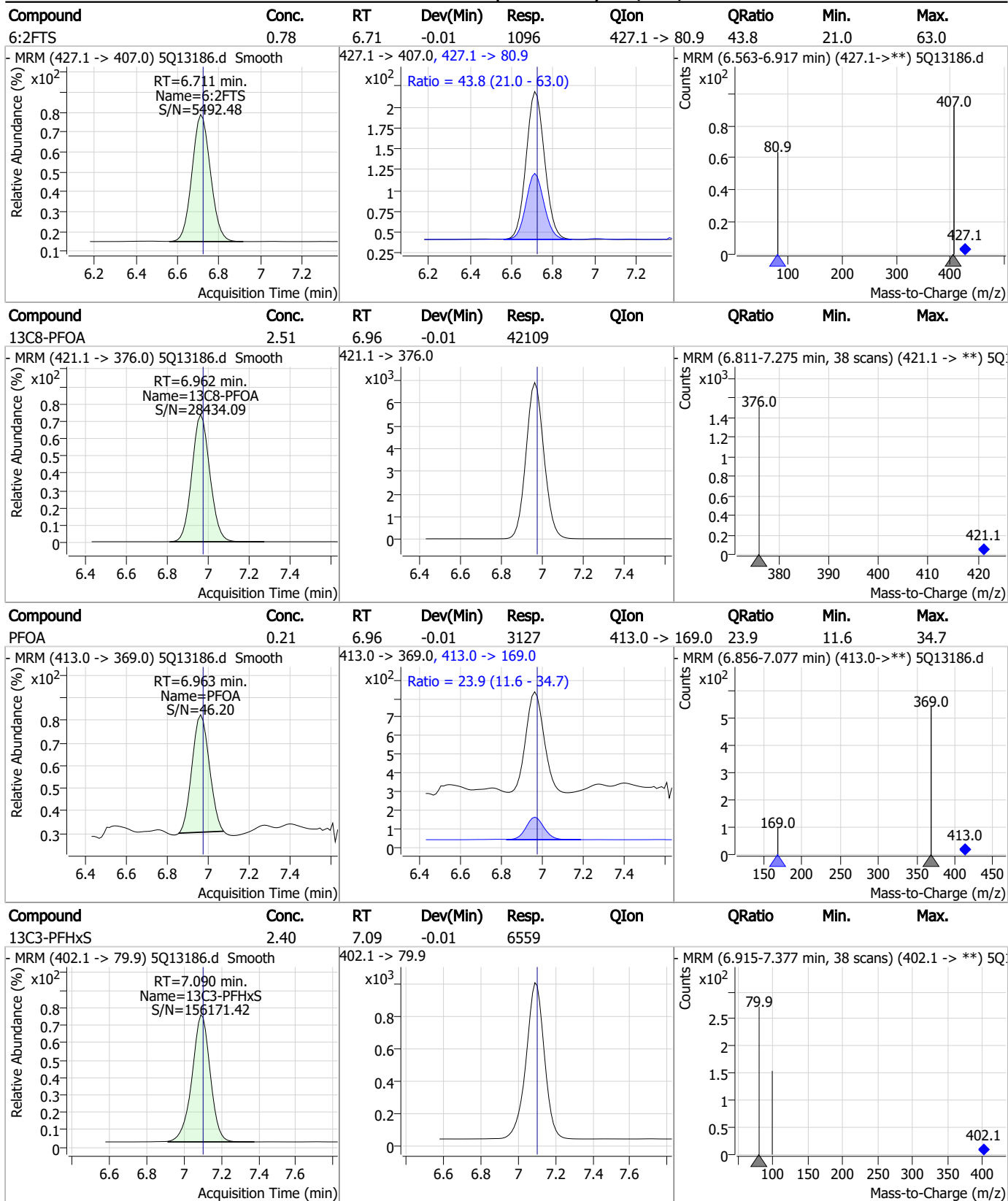


### Perfluorinated Compounds by LC/MS/MS



7.7.13  
7

### Perfluorinated Compounds by LC/MS/MS

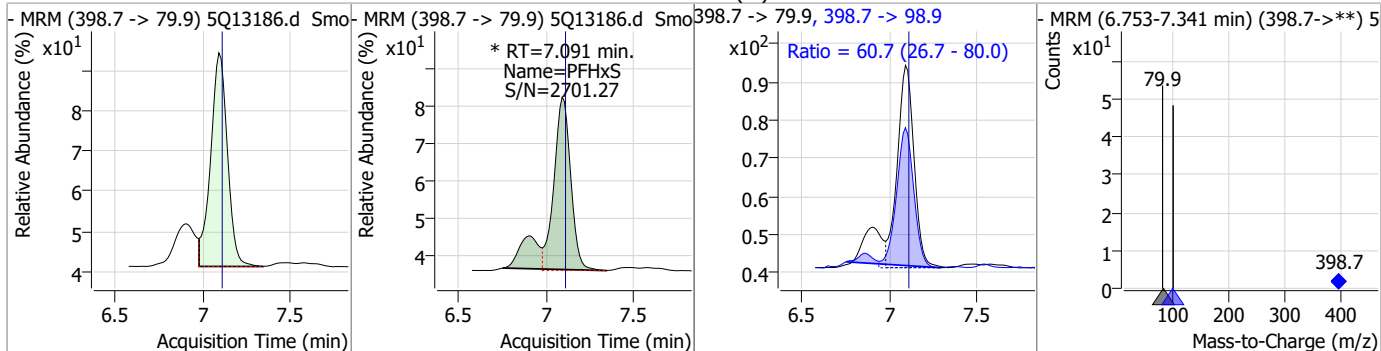


7.7.13

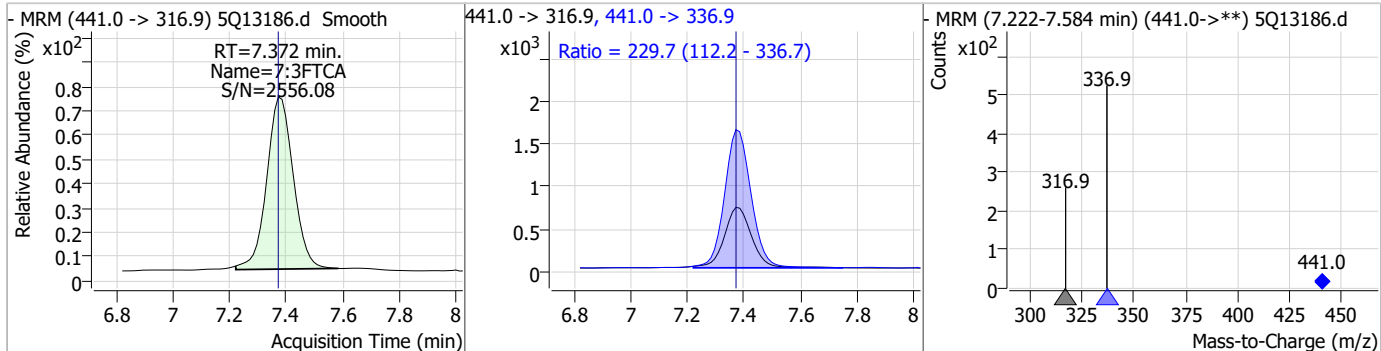
7

### Perfluorinated Compounds by LC/MS/MS

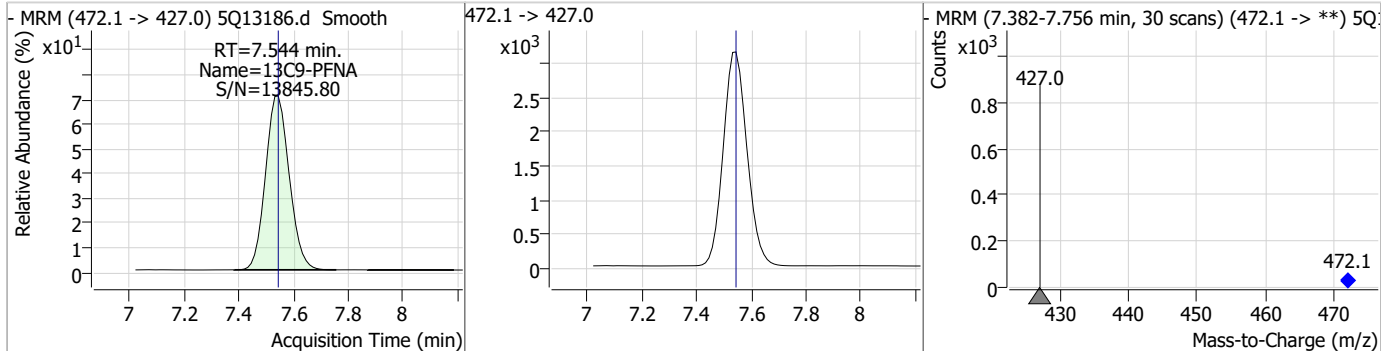
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	0.18	7.09	-0.01	424 (m)	398.7 -> 98.9	60.7	26.7	80.0



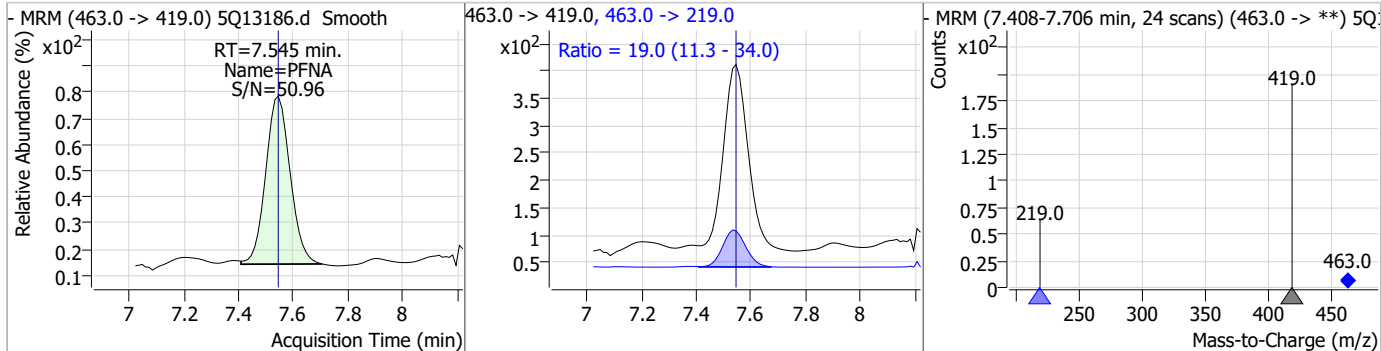
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	5.14	7.37	0.00	4606	441.0 -> 336.9	229.7	112.2	336.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.28	7.54	0.00	18874				



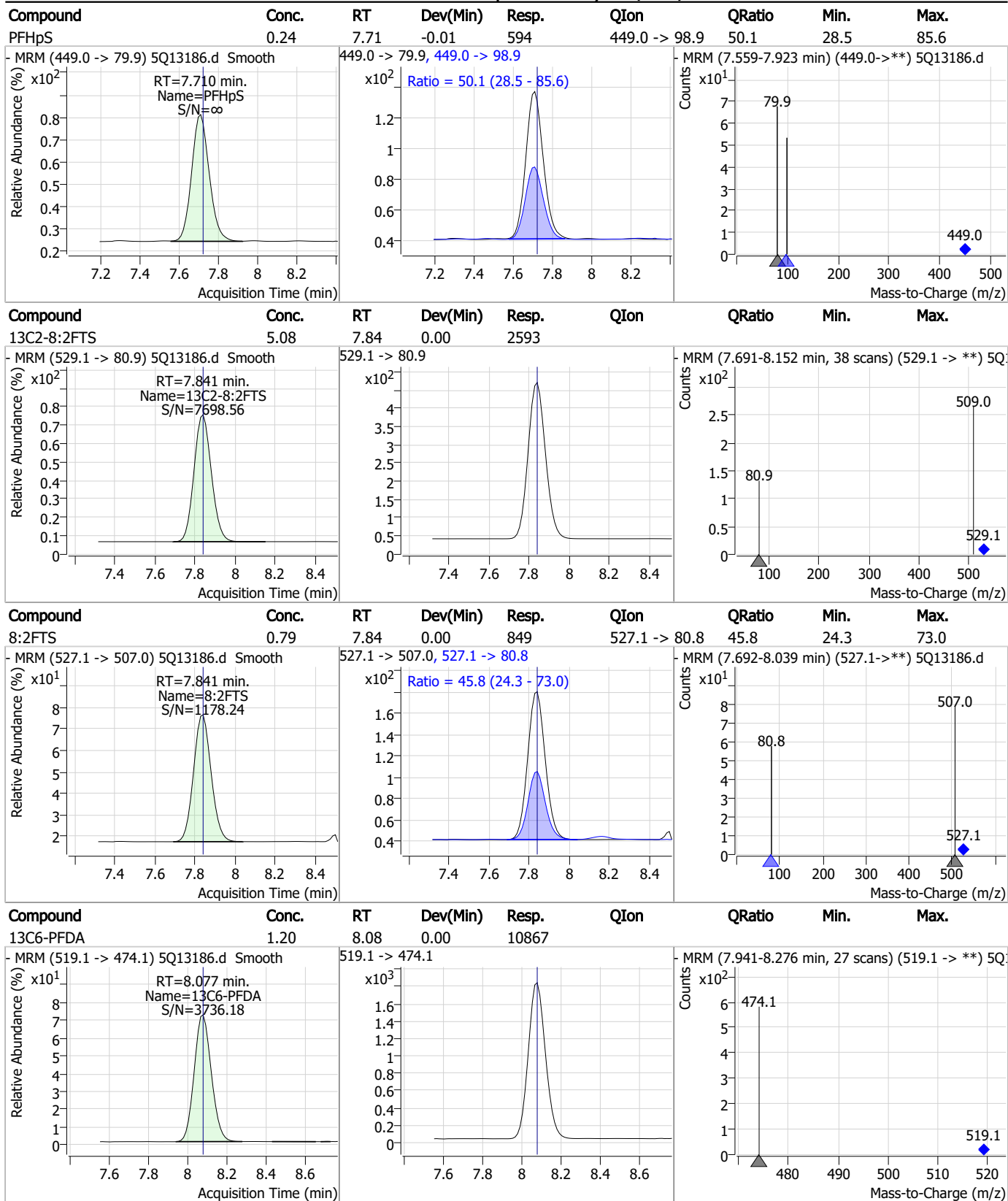
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	0.23	7.54	0.00	2100	463.0 -> 219.0	19.0	11.3	34.0



7.7.13  
7



### Perfluorinated Compounds by LC/MS/MS

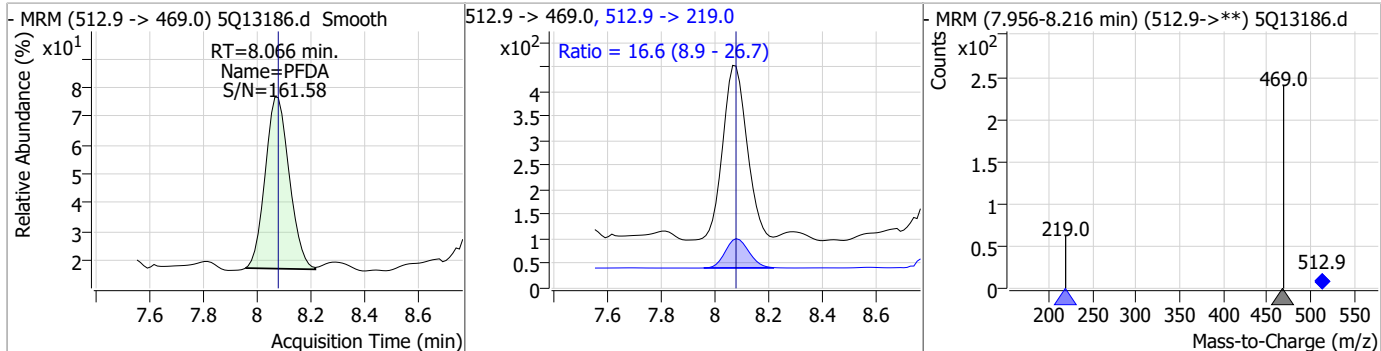


7.7.13

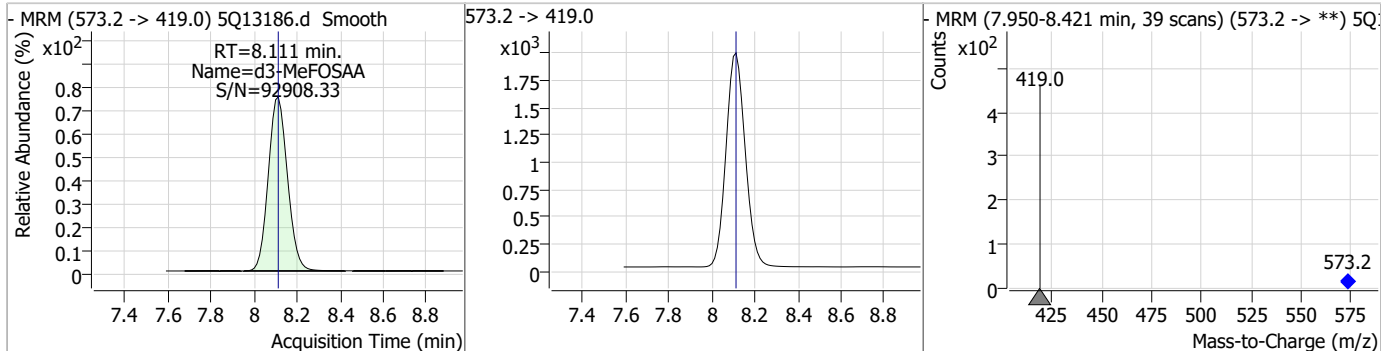
7

### Perfluorinated Compounds by LC/MS/MS

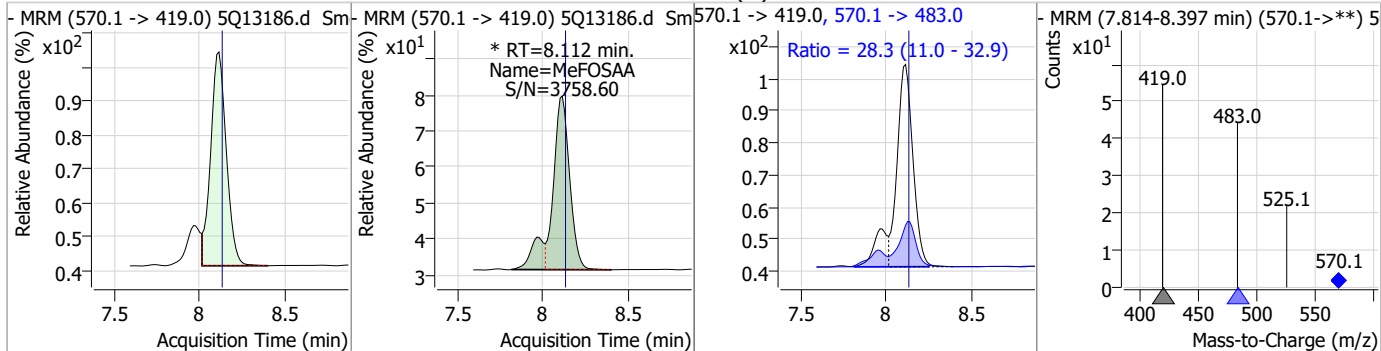
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.23	8.07	-0.01	2178	512.9 -> 219.0	16.6	8.9	26.7



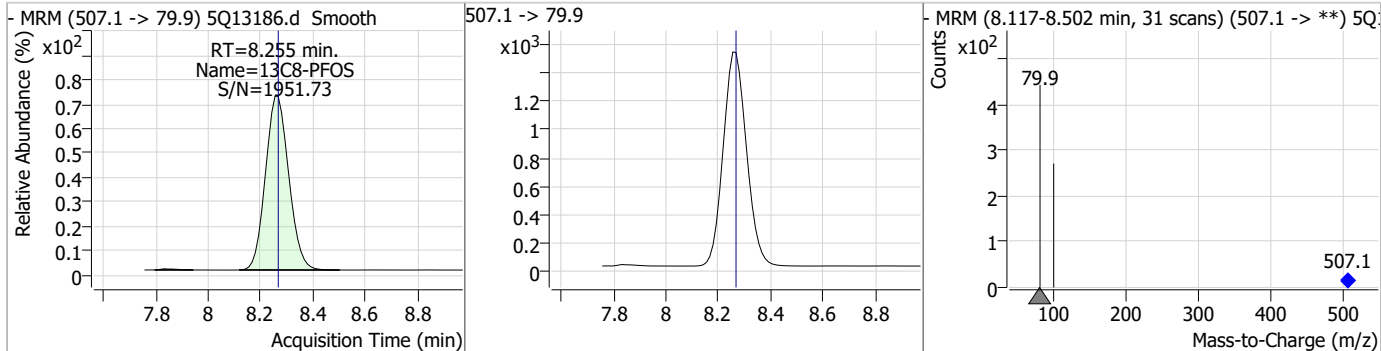
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.12	8.11	0.00	12140				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.23	8.11	-0.01	468 (m)	570.1 -> 483.0	28.3	11.0	32.9



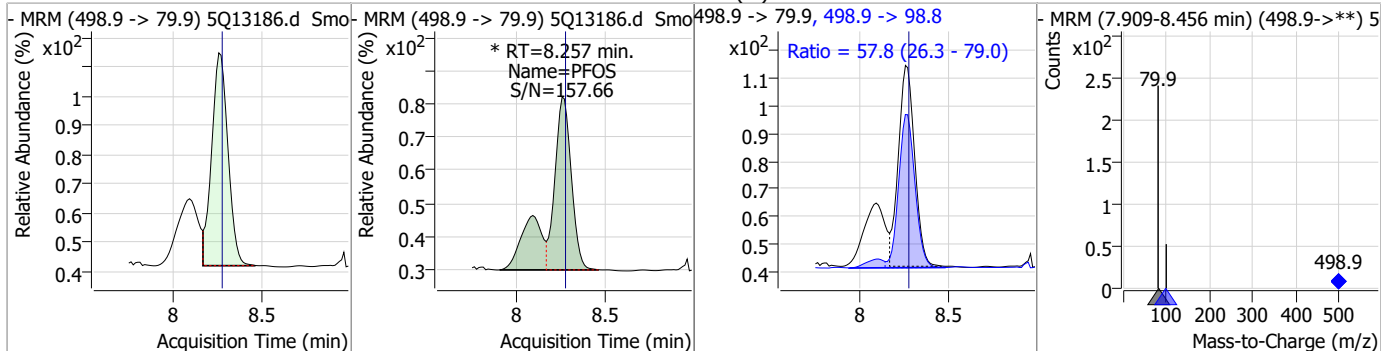
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.52	8.25	-0.01	9306				



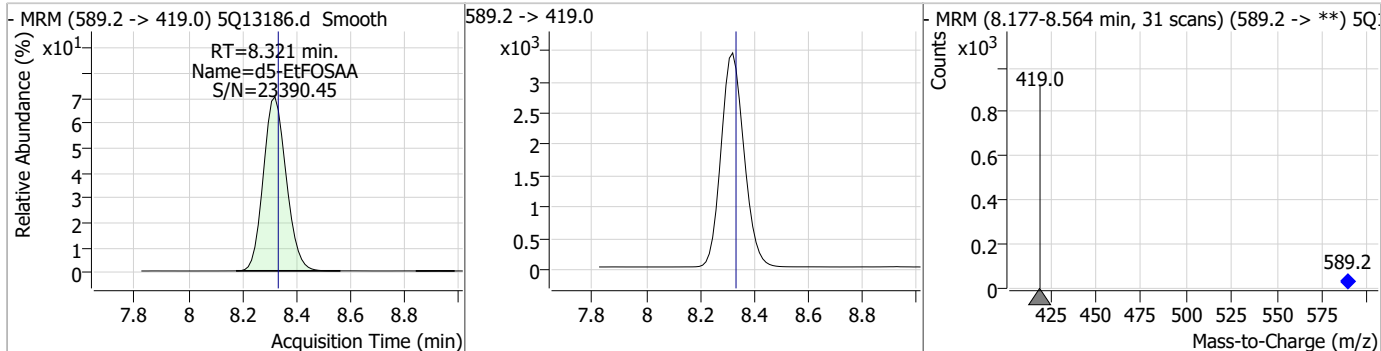
7.7.13  
7

### Perfluorinated Compounds by LC/MS/MS

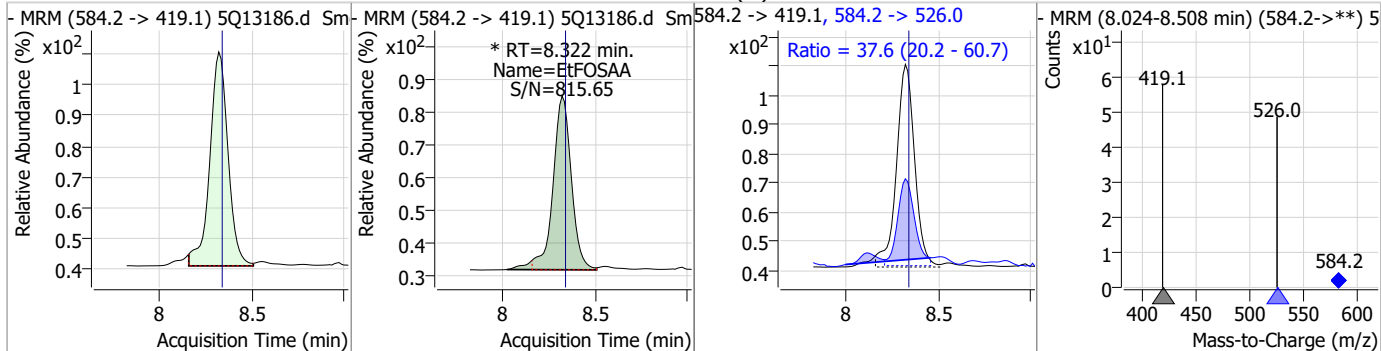
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.20	8.26	-0.01	644 (m)	498.9 -> 98.8	57.8	26.3	79.0



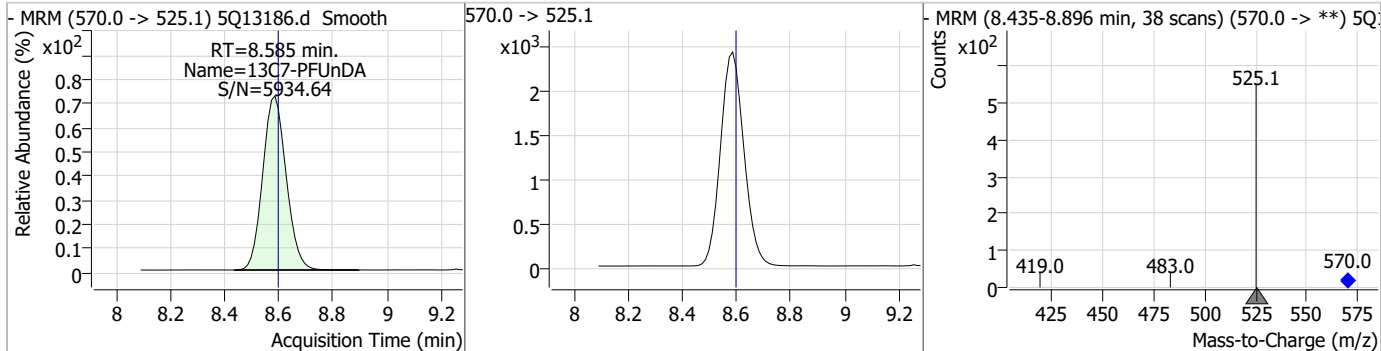
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	6.23	8.32	-0.01	20164				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.19	8.32	-0.01	484 (m)	584.2 -> 526.0	37.6	20.2	60.7

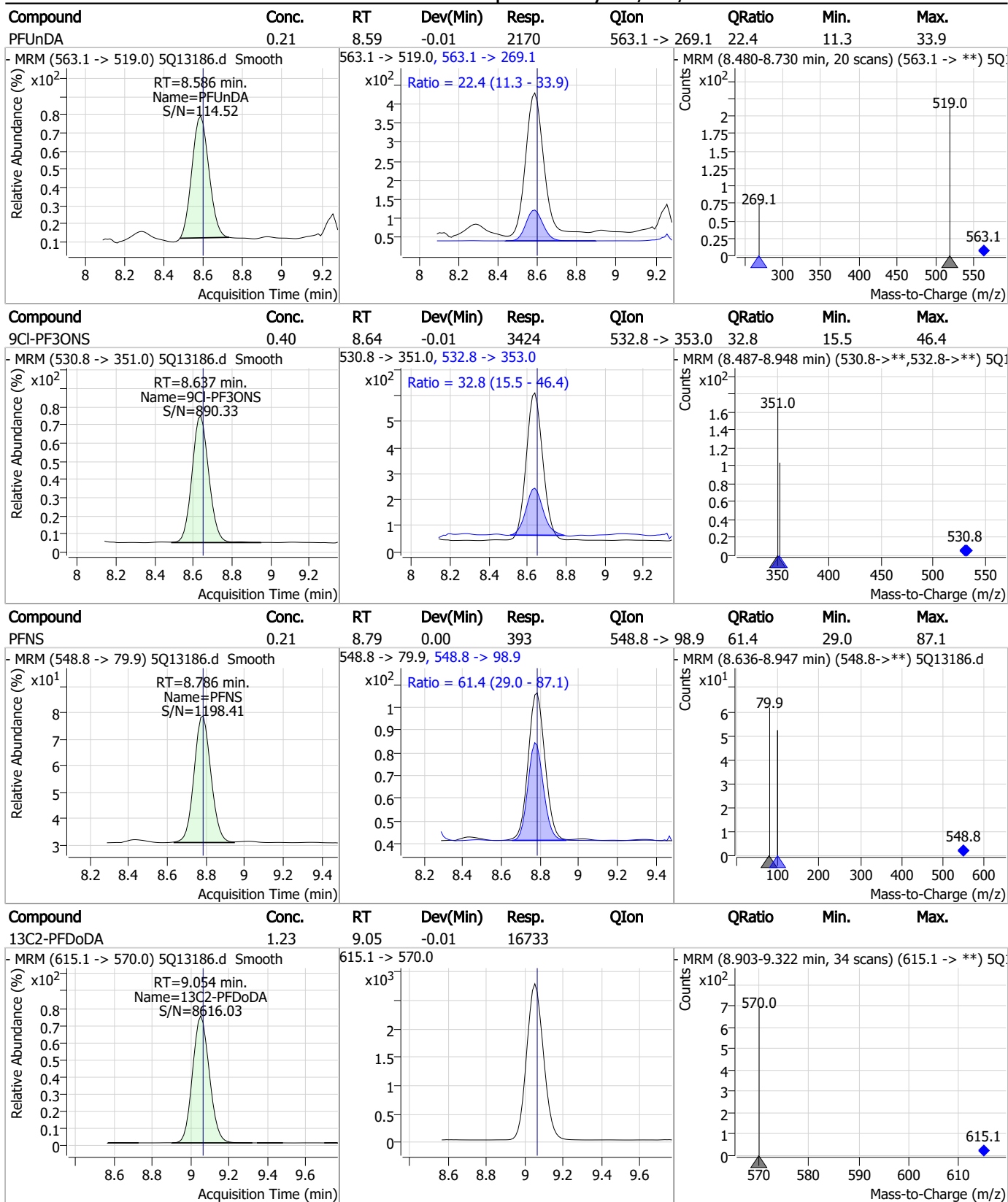


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.28	8.59	-0.01	14446				



7.7.13  
7

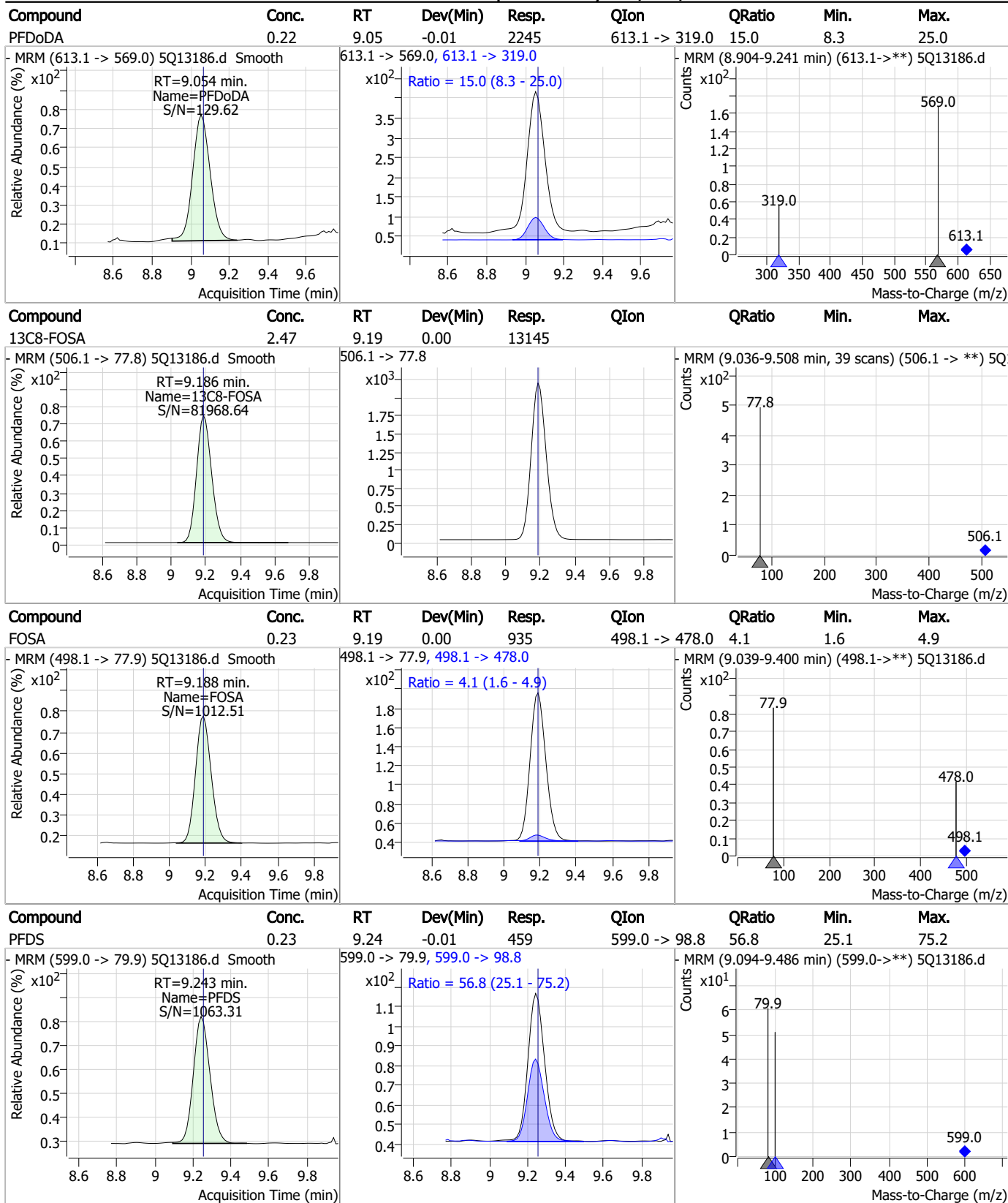
### Perfluorinated Compounds by LC/MS/MS



7.7.13  
7

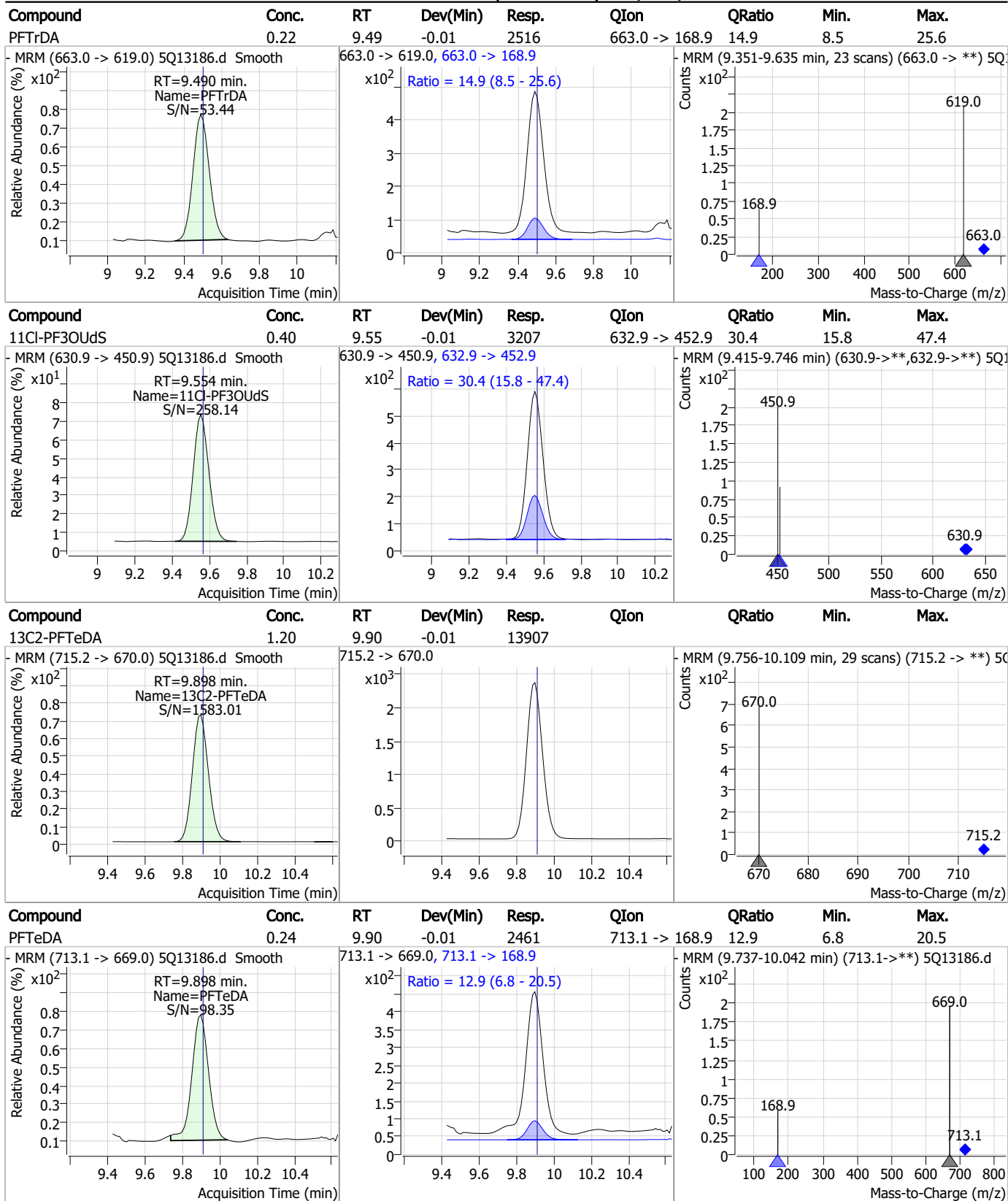


### Perfluorinated Compounds by LC/MS/MS



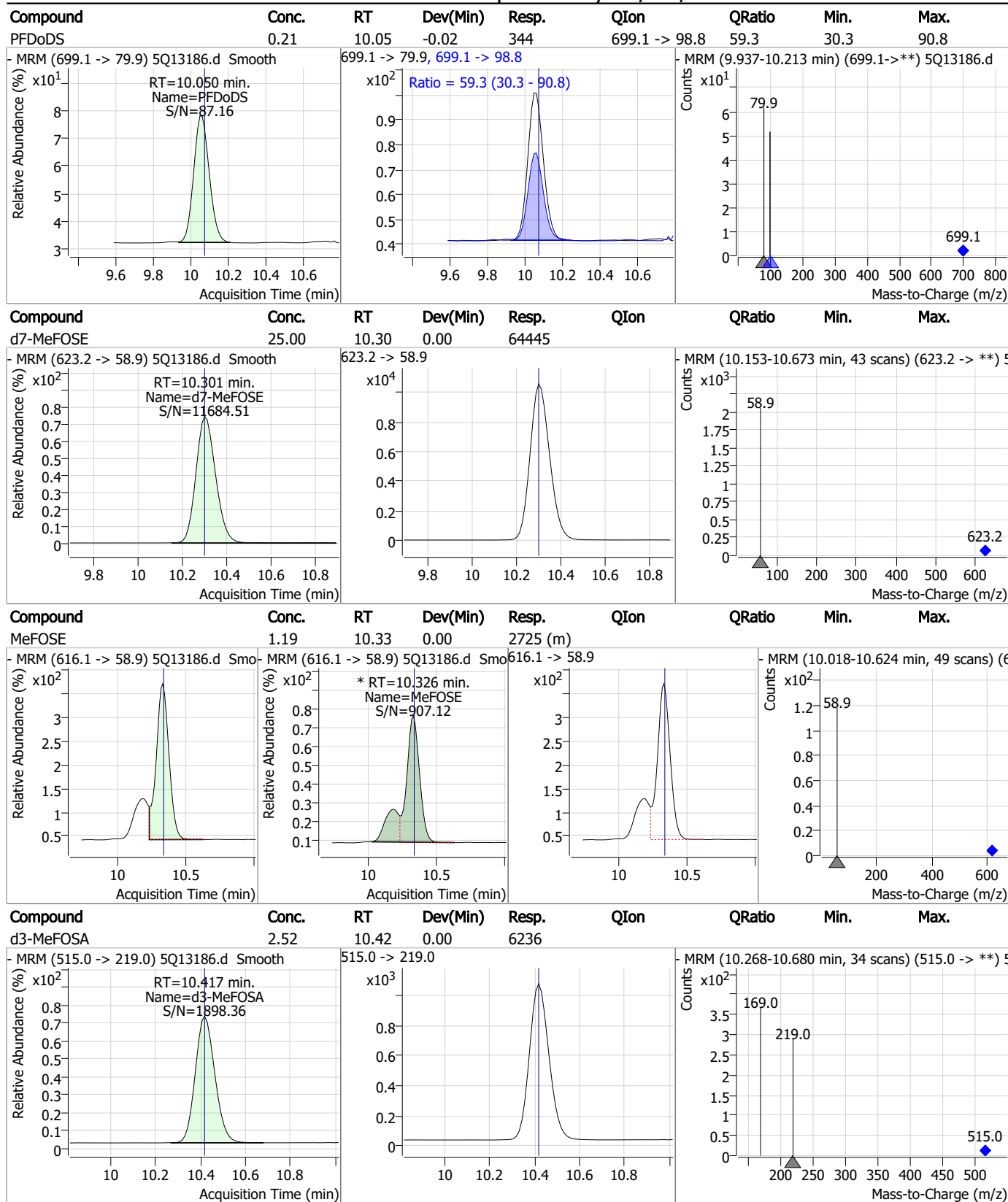
7.7.13  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.13  
7

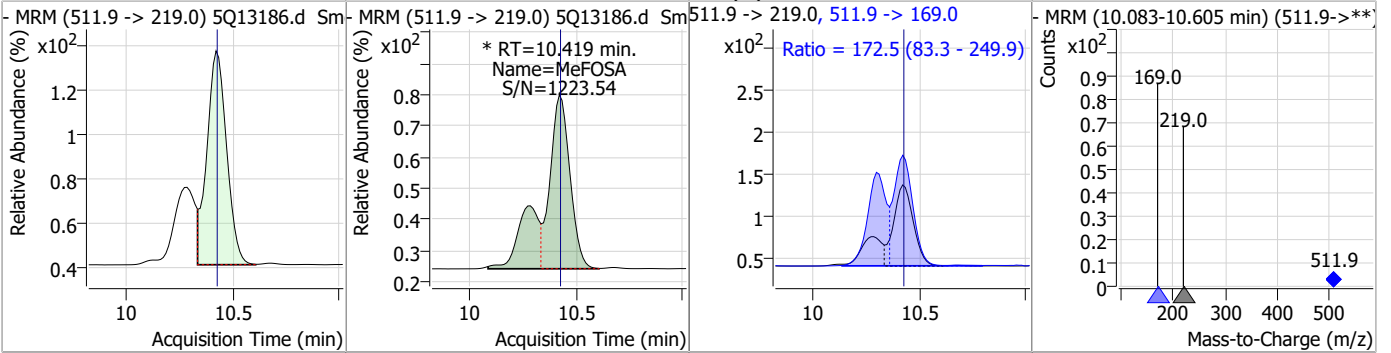
### Perfluorinated Compounds by LC/MS/MS



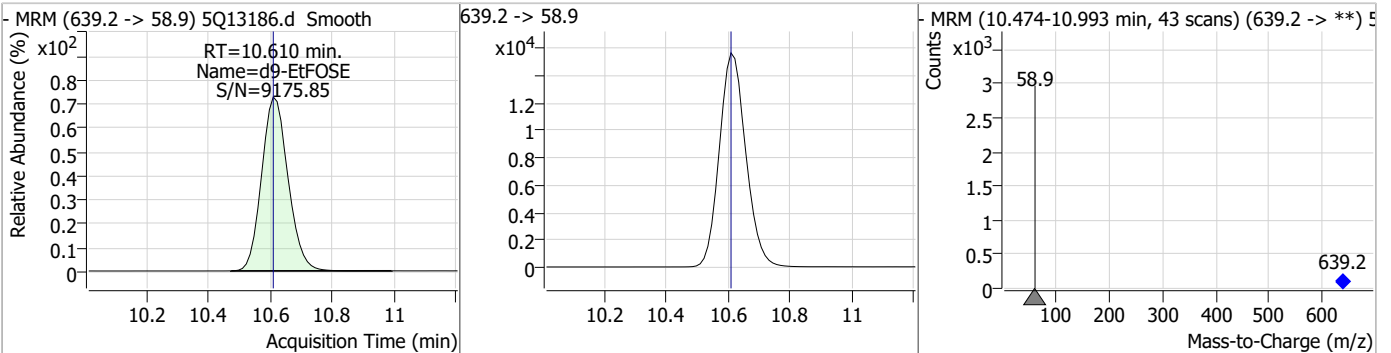
7.7.13  
7

### Perfluorinated Compounds by LC/MS/MS

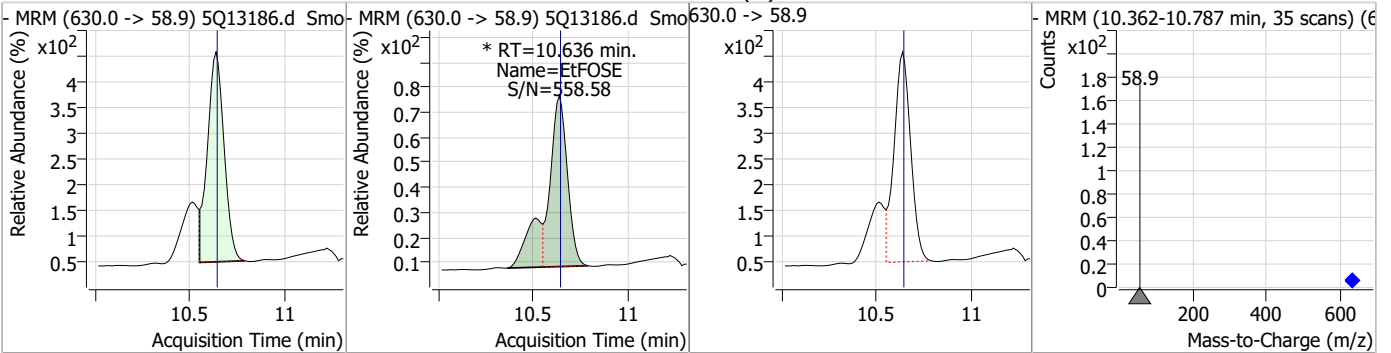
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.40	10.42	0.00	862 (m)	511.9 -> 169.0	172.5	83.3	249.9



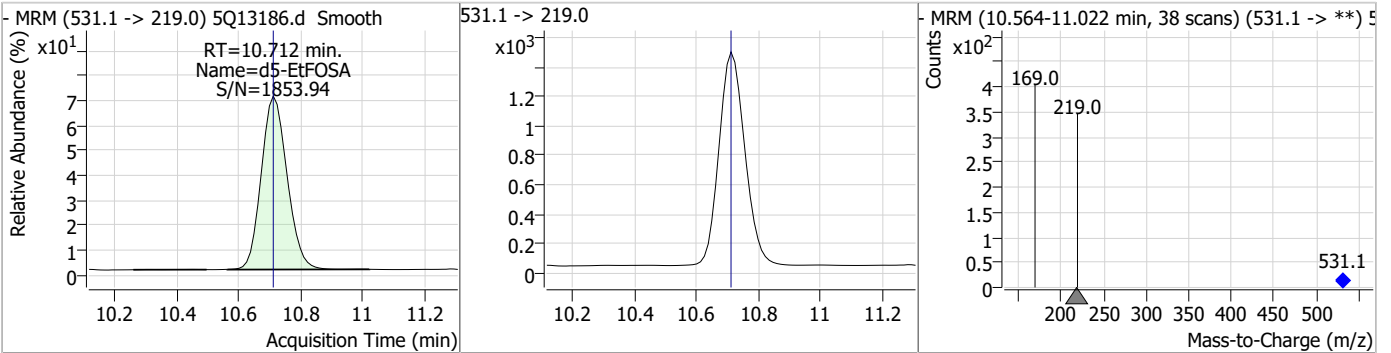
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.20	10.61	0.00	92386				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.05	10.64	0.00	3218 (m)				

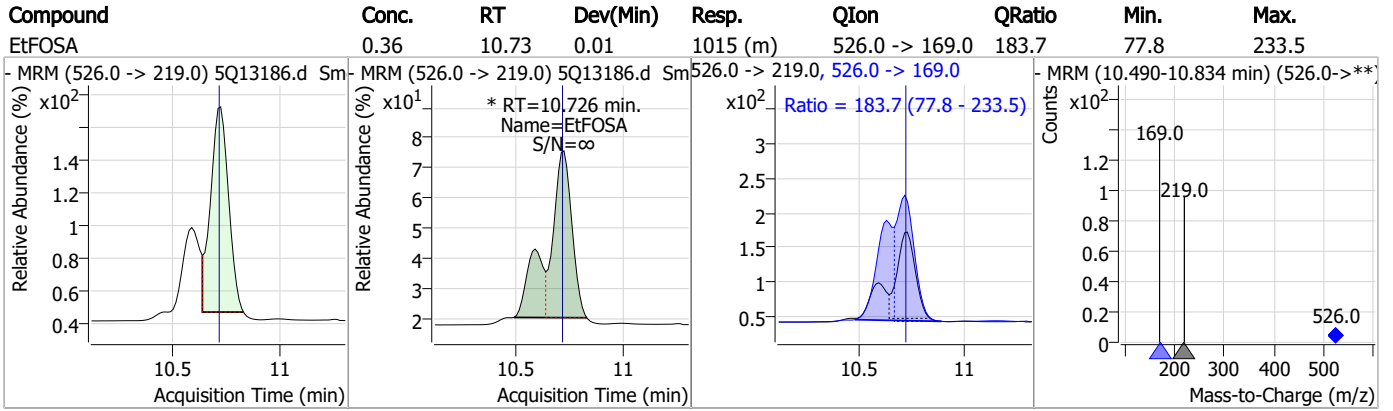


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.56	10.71	0.00	8451				





### Perfluorinated Compounds by LC/MS/MS



7.7.13

7



# Manual Integration Approval Summary

**Sample Number:** S5Q205-CC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13186.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/19/23 21:47      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorobutanoic acid	375-22-4		2.77	Poor instrument integration
13C4-PFBA			2.78	Poor instrument integration
13C3-PFBA			2.78	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.24	Poor instrument integration
13C3-PFBS			5.25	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.09	Split peak
MeFOSAA	2355-31-9		8.11	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.26	Split peak
EtFOSAA	2991-50-6		8.32	Split peak
MeFOSE	24448-09-7		10.33	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.73	Split peak

7.7.13.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13214.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 4:28:12 AM  
 Sample Name : cc205-4  
 Vial : P3-A5  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.752	216.8 -> 171.9	66058	10.00	µg/L	m -0.013
M5-PFPeA	4.091	268.3 -> 223.0	49684	5.00	µg/L	-0.025
M5-PFHxA	5.284	318.0 -> 273.0	42510	2.50	µg/L	-0.025
M4-PFHpA	6.267	367.1 -> 322.0	37709	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	49491	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	22511	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	12988	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	16583	1.25	µg/L	-0.051
M2-PFDoDA	9.029	615.1 -> 570.0	19515	1.25	µg/L	-0.037
M2-PFTeDA	9.861	715.2 -> 670.0	15619	1.25	µg/L	-0.050
M8-FOSA	9.173	506.1 -> 77.8	15866	2.50	µg/L	-0.012
M3-PFBS	5.226	302.1 -> 79.9	8009	2.50	µg/L	m -0.025
M3-PFHxS	7.078	402.1 -> 79.9	7605	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	11016	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	995	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	2064	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	2950	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	14590	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	85983	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	23158	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	75683	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	103209	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	10200	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7200	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	10453	2.50	µg/L	-0.037
13C3-PFBA	2.755	216.0 -> 172.0	34634	5.00	µg/L	m -0.012
18O2-PFHxS	7.077	403.0 -> 83.9	5108	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	62268	2.50	µg/L	-0.026
13C2-PFDA	8.041	515.1 -> 470.1	20647	1.25	µg/L	-0.037
13C5-PFNA	7.519	468.0 -> 423.0	22221	1.25	µg/L	-0.025
13C2-PFHxA	5.285	315.1 -> 270.0	45523	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	995	5.63	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.6%			
13C2-6:2FTS	6.698	429.1 -> 80.9	2064	5.30	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%			
13C2-8:2FTS	7.814	529.1 -> 80.9	2950	5.05	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%			
13C2-PFDoDA	9.029	615.1 -> 570.0	19515	1.19	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.5%			
13C2-PFTeDA	9.861	715.2 -> 670.0	15619	1.12	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.0%			
13C3-PFBS	5.226	302.1 -> 79.9	8022	2.57	µg/L	m -0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%			
13C3-PFHxS	7.078	402.1 -> 79.9	7605	2.43	µg/L	-0.025

7.7.14  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C4-PFBA	2.752	216.8 -> 171.9	66058	9.96	µg/L m	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C4-PFHpA	6.267	367.1 -> 322.0	37709	2.48	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%		
13C5-PFHxA	5.284	318.0 -> 273.0	42510	2.49	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%		
13C5-PFPeA	4.091	268.3 -> 223.0	49684	5.07	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C6-PFDA	8.040	519.1 -> 474.1	12988	1.20	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.7%		
13C7-PFUnDA	8.547	570.0 -> 525.1	16583	1.22	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C8-FOSA	9.173	506.1 -> 77.8	15866	2.52	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%		
13C8-PFOA	6.949	421.1 -> 376.0	49491	2.43	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.2%		
13C8-PFOS	8.230	507.1 -> 79.9	11016	2.52	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C9-PFNA	7.519	472.1 -> 427.0	22511	1.25	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.7%		
d3-MeFOSAA	8.074	573.2 -> 419.0	14590	5.21	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.3%		
13C3-HFPO-DA	5.676	286.9 -> 168.9	85983	10.12	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.2%		
d3-MeFOSA	10.417	515.0 -> 219.0	7200	2.46	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%		
d5-EtFOSAA	8.296	589.2 -> 419.0	23158	6.06	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 121.2%		
d7-MeFOSE	10.301	623.2 -> 58.9	75683	24.87	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.5%		
d9-EtFOSE	10.610	639.2 -> 58.9	103209	23.85	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.4%		
d5-EtFOSA	10.712	531.1 -> 219.0	10200	2.62	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%		
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.948	327.1 -> 307.0	9791	8.35	µg/L	99
		327.1 -> 80.9	5197			
6:2FTS	6.699	427.1 -> 407.0	15090	9.32	µg/L	98
		427.1 -> 80.9	6145			
8:2FTS	7.815	527.1 -> 507.0	11802	9.64	µg/L	94
		527.1 -> 80.8	5249			
EtFOSAA	8.297	584.2 -> 419.1	7001	2.38	µg/L m	97
		584.2 -> 526.0	2949			
FOSA	9.176	498.1 -> 77.9	11717	2.36	µg/L	99
		498.1 -> 478.0	353			
MeFOSAA	8.088	570.1 -> 419.0	5827	2.37	µg/L m	97
		570.1 -> 483.0	1369			
PFBA	2.758	212.8 -> 168.9	22621	9.40	µg/L m	100
PFBS	5.227	298.7 -> 79.9	5781	2.28	µg/L m	88
		298.7 -> 98.8	2255			
PFDA	8.041	512.9 -> 469.0	27711	2.40	µg/L	98
		512.9 -> 219.0	5120			
PFDODA	9.016	613.1 -> 569.0	28165	2.37	µg/L	98
		613.1 -> 319.0	4942			
PFDS	9.206	599.0 -> 79.9	5391	2.30	µg/L	91

7.7.14  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.267	599.0 -> 98.8	3020	2.42	µg/L	97
		363.1 -> 319.0	37237			
PFHpS	7.685	363.1 -> 169.0	8142	2.35	µg/L	100
		449.0 -> 79.9	6866			
PFHxA	5.286	449.0 -> 98.9	3911	2.38	µg/L	99
		313.0 -> 269.0	25483			
PFHxS	7.079	313.0 -> 118.9	1200	2.26	µg/L	92
		398.7 -> 79.9	6015			
PFNA	7.520	398.7 -> 98.9	3532	2.44	µg/L	99
		463.0 -> 419.0	26710			
PFNS	8.747	463.0 -> 219.0	5949	2.35	µg/L	94
		548.8 -> 79.9	5116			
PFOA	6.950	548.8 -> 98.9	2760	2.43	µg/L	99
		413.0 -> 369.0	43088			
PFOS	8.232	413.0 -> 169.0	10068	2.20	µg/L	98
		498.9 -> 79.9	8443			
PFPeA	4.092	498.9 -> 98.8	4577	4.77	µg/L	100
		263.0 -> 219.0	46142			
PFPeS	6.331	349.1 -> 79.9	5862	2.41	µg/L	99
		349.1 -> 98.9	2914			
PFTeDA	9.861	713.1 -> 669.0	28039	2.44	µg/L	99
		713.1 -> 168.9	3742			
PFTrDA	9.452	663.0 -> 619.0	30753	2.33	µg/L	98
		663.0 -> 168.9	5472			
PFUnDA	8.547	563.1 -> 519.0	29660	2.48	µg/L	96
		563.1 -> 269.1	6106			
11CI-PF3OUdS	9.516	630.9 -> 450.9	44726	4.57	µg/L	99
		632.9 -> 452.9	13881			
9CI-PF3ONS	8.600	530.8 -> 351.0	46456	4.49	µg/L	97
		532.8 -> 353.0	15233			
ADONA	6.530	376.9 -> 250.9	108715	4.58	µg/L	99
		376.9 -> 84.8	31531			
HFPO-DA	5.677	284.9 -> 168.9	33528	4.96	µg/L	99
		284.9 -> 184.9	3013			
3:3FTCA	3.548	241.0 -> 177.0	7291	11.49	µg/L	99
		241.0 -> 117.0	753			
5:3FTCA	5.905	341.0 -> 237.1	119397	58.20	µg/L	99
		341.0 -> 217.0	79904			
7:3FTCA	7.360	441.0 -> 316.9	60036	56.69	µg/L	99
		441.0 -> 336.9	135373			
EtFOSA	10.713	526.0 -> 219.0	15709	4.65	µg/L	94
		526.0 -> 169.0	23312			
EtFOSE	10.636	630.0 -> 58.9	39611	11.58	µg/L	100
		511.9 -> 219.0	12339			
MeFOSA	10.419	511.9 -> 169.0	20049	5.01	µg/L	97
		616.1 -> 58.9	31401			
MeFOSE	10.314	699.1 -> 79.9	4234	11.71	µg/L	100
		699.1 -> 98.8	2590			
PFDoDS	10.025	295.0 -> 201.0	5095	2.23	µg/L	99
		295.0 -> 84.9	1403			
NFDHA	5.167	279.0 -> 85.1	29384	4.88	µg/L	99
		229.0 -> 84.9	26271			
PFMBA	4.505	314.8 -> 134.9	59214	4.65	µg/L	100
		314.8 -> 82.9	1711			
PFMPA	3.278			5.23	µg/L	100
PFEESA	5.795			4.26	µg/L	99

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

7.7.14  
7

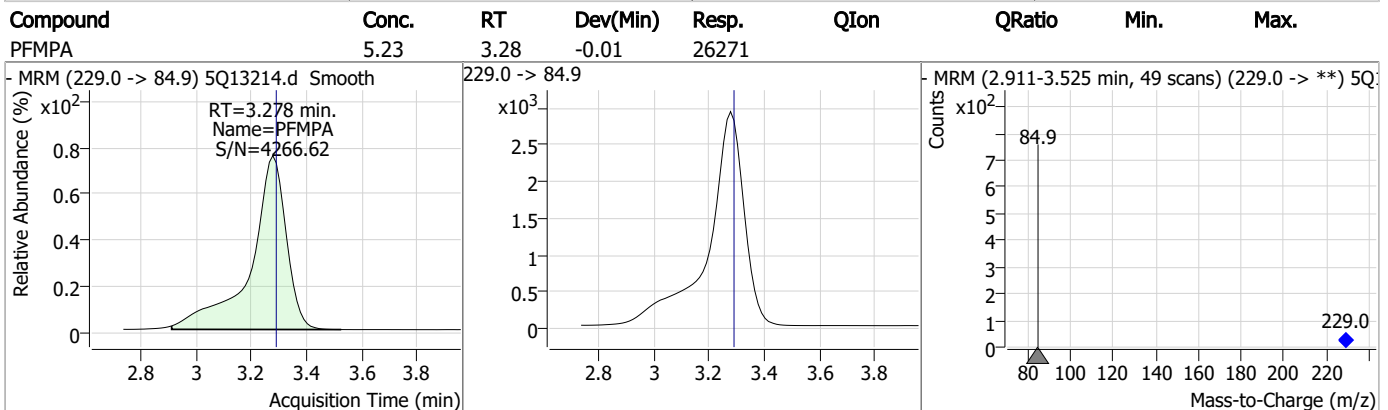
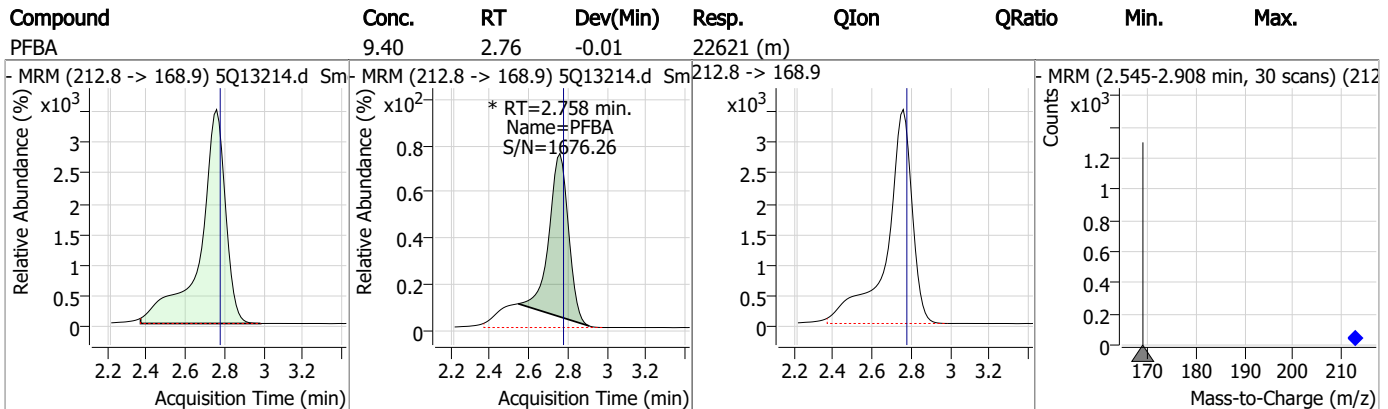
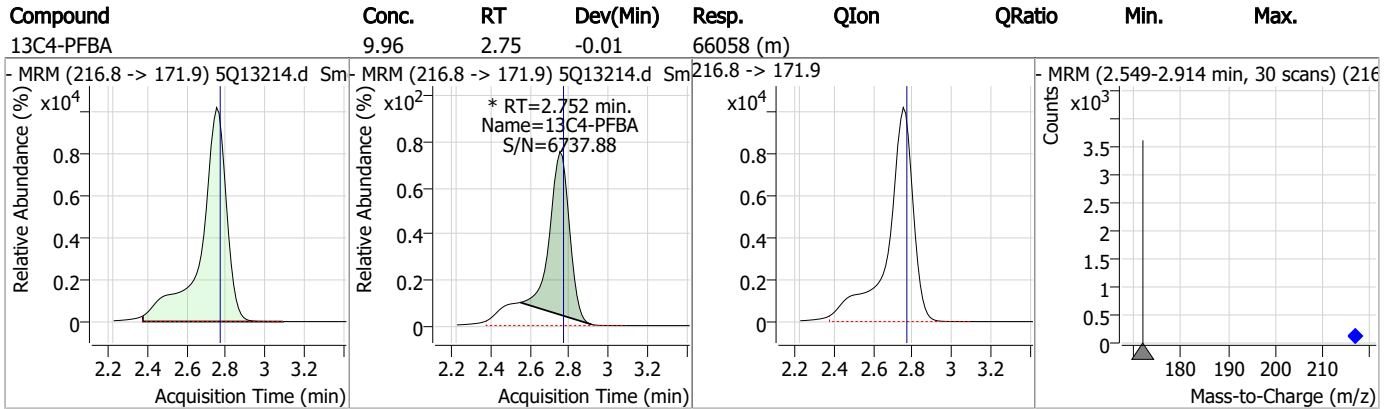
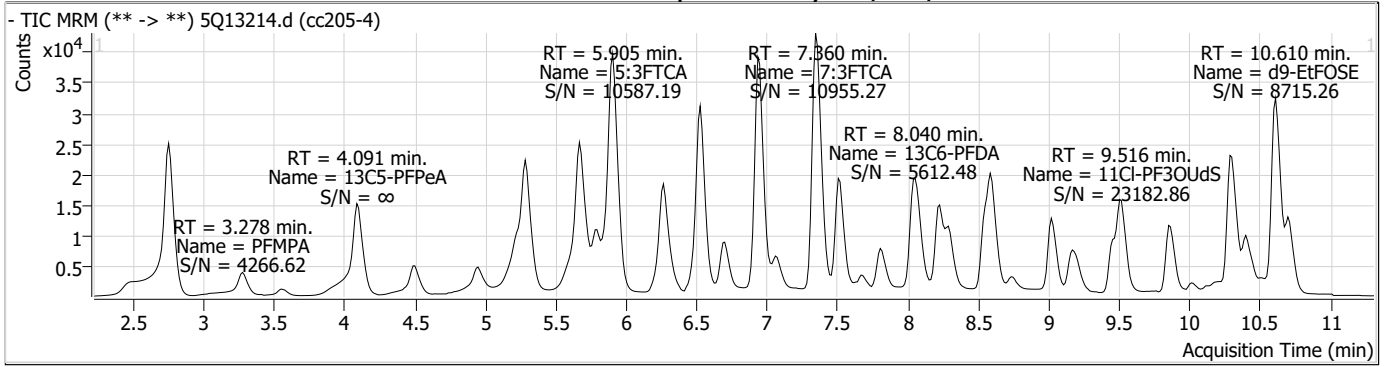
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.14

7

### Perfluorinated Compounds by LC/MS/MS

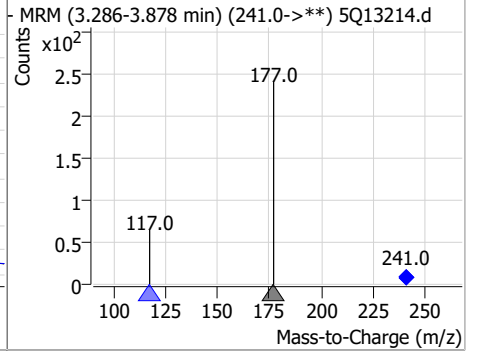
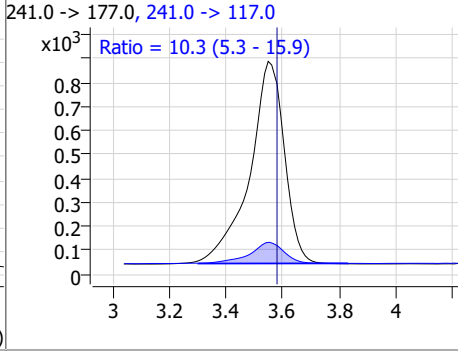
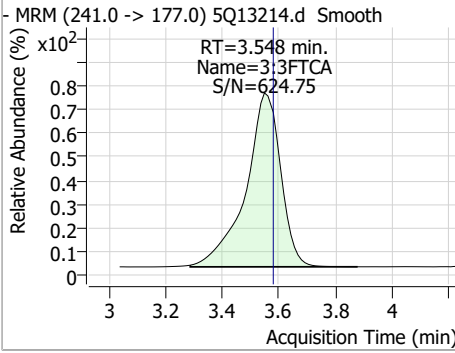


7.7.14

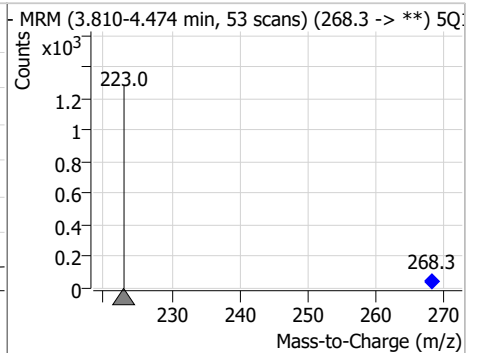
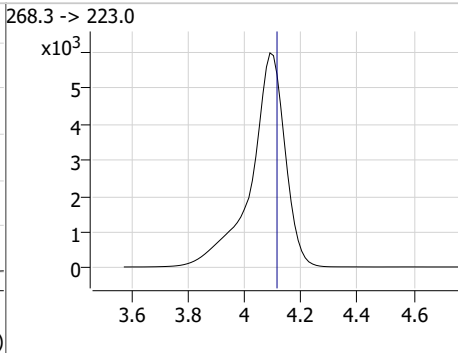
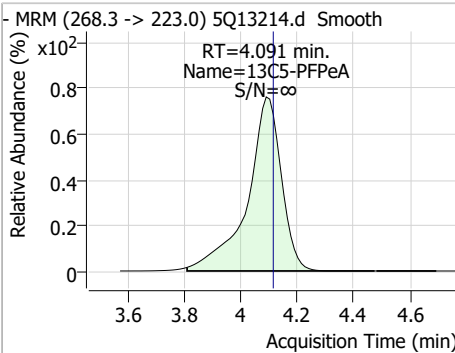
7

### Perfluorinated Compounds by LC/MS/MS

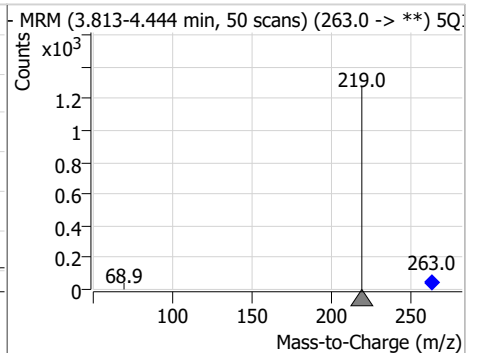
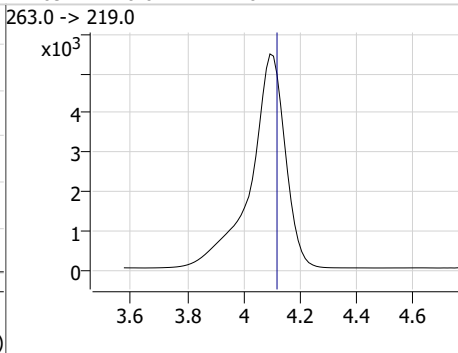
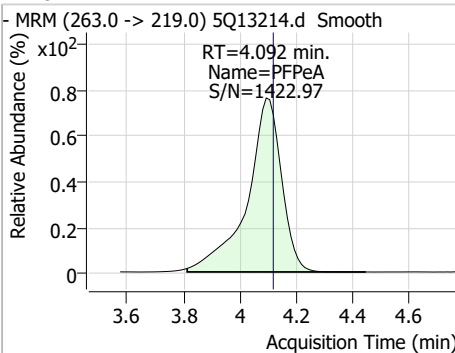
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.49	3.55	-0.03	7291	241.0 -> 117.0	10.3	5.3	15.9



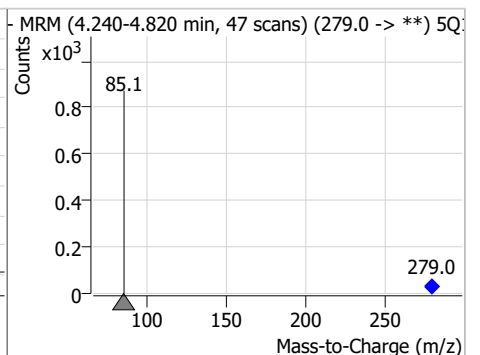
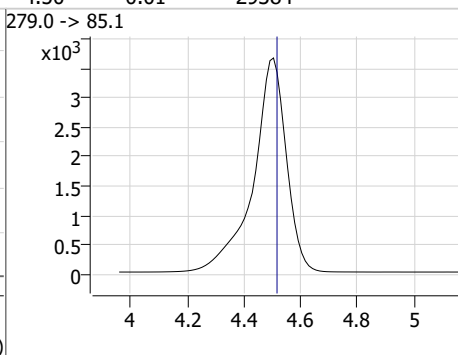
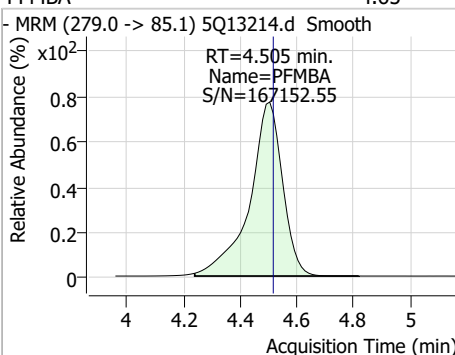
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.07	4.09	-0.02	49684				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.77	4.09	-0.02	46142				

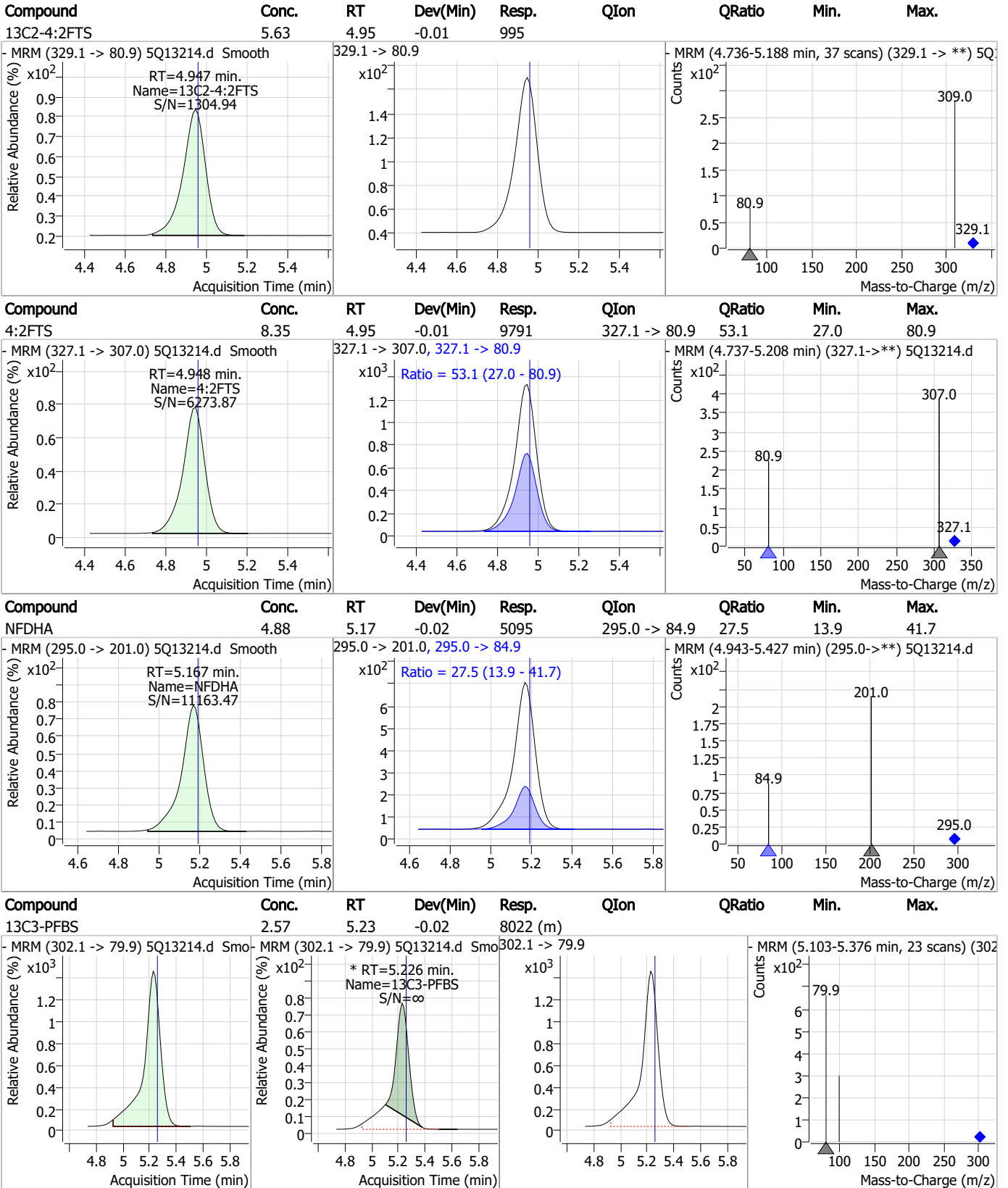


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.65	4.50	-0.01	29384				





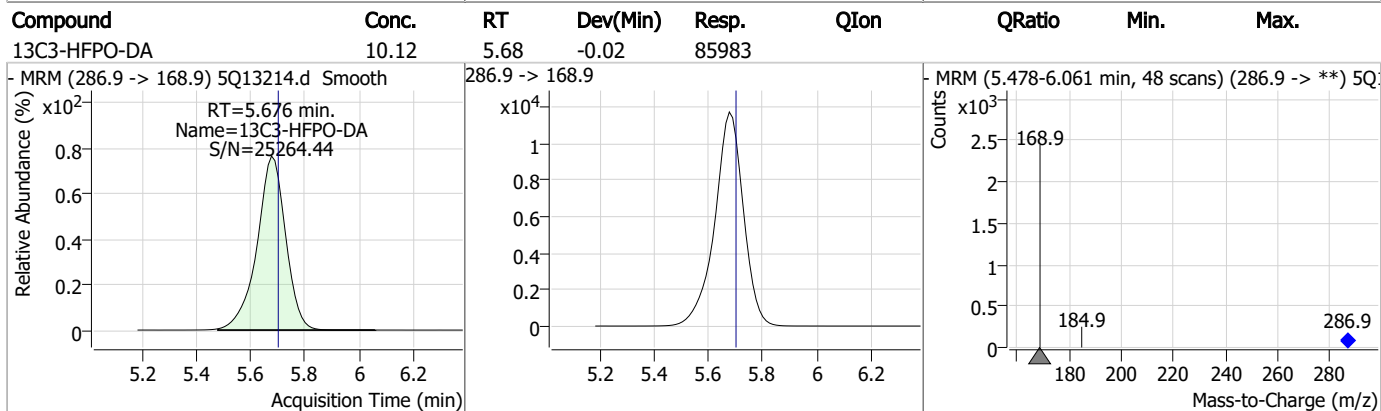
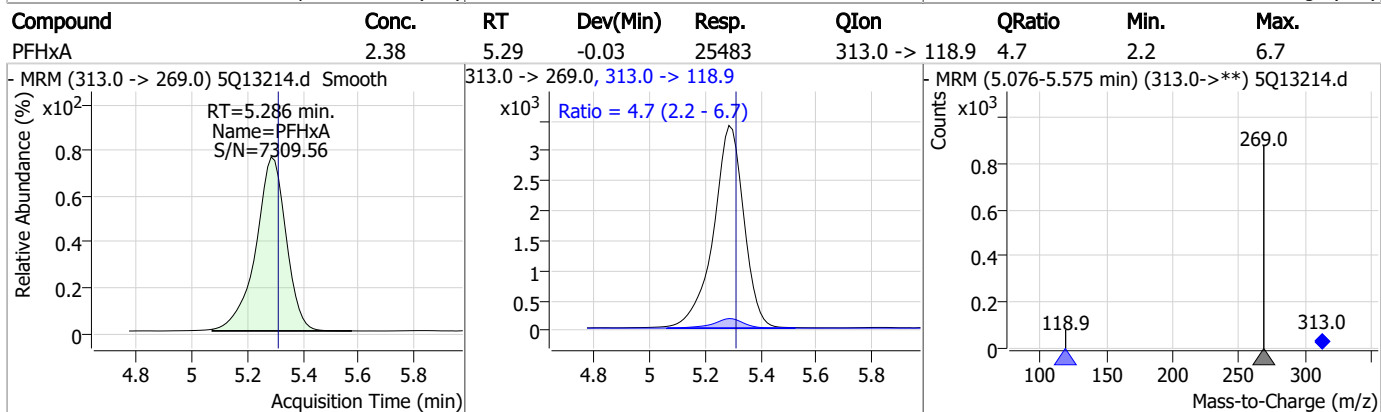
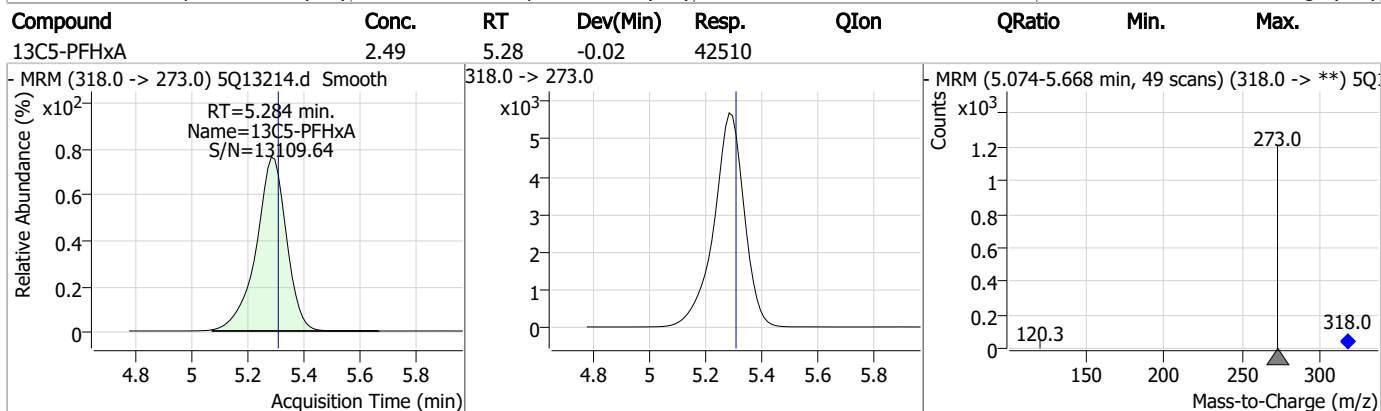
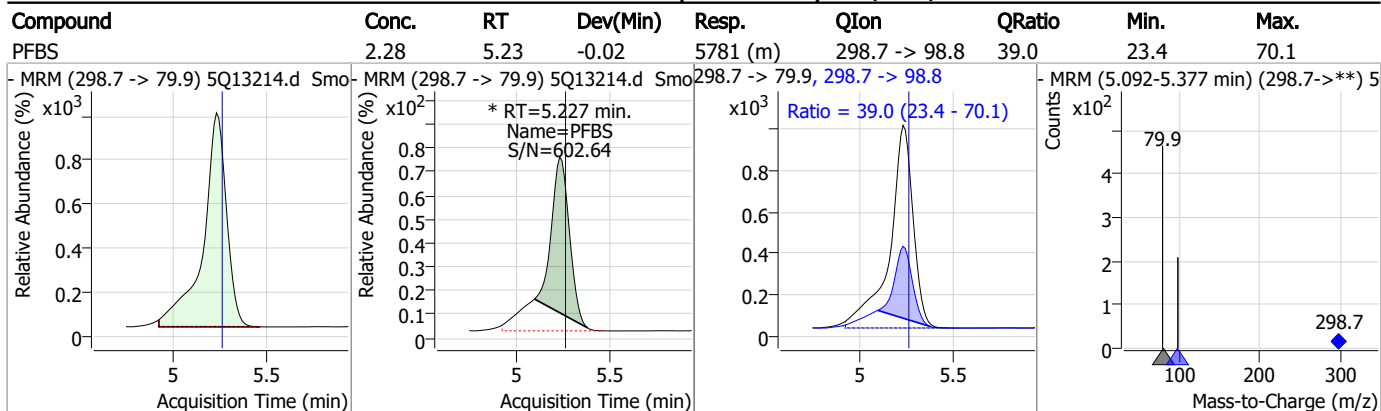
### Perfluorinated Compounds by LC/MS/MS



7.7.14

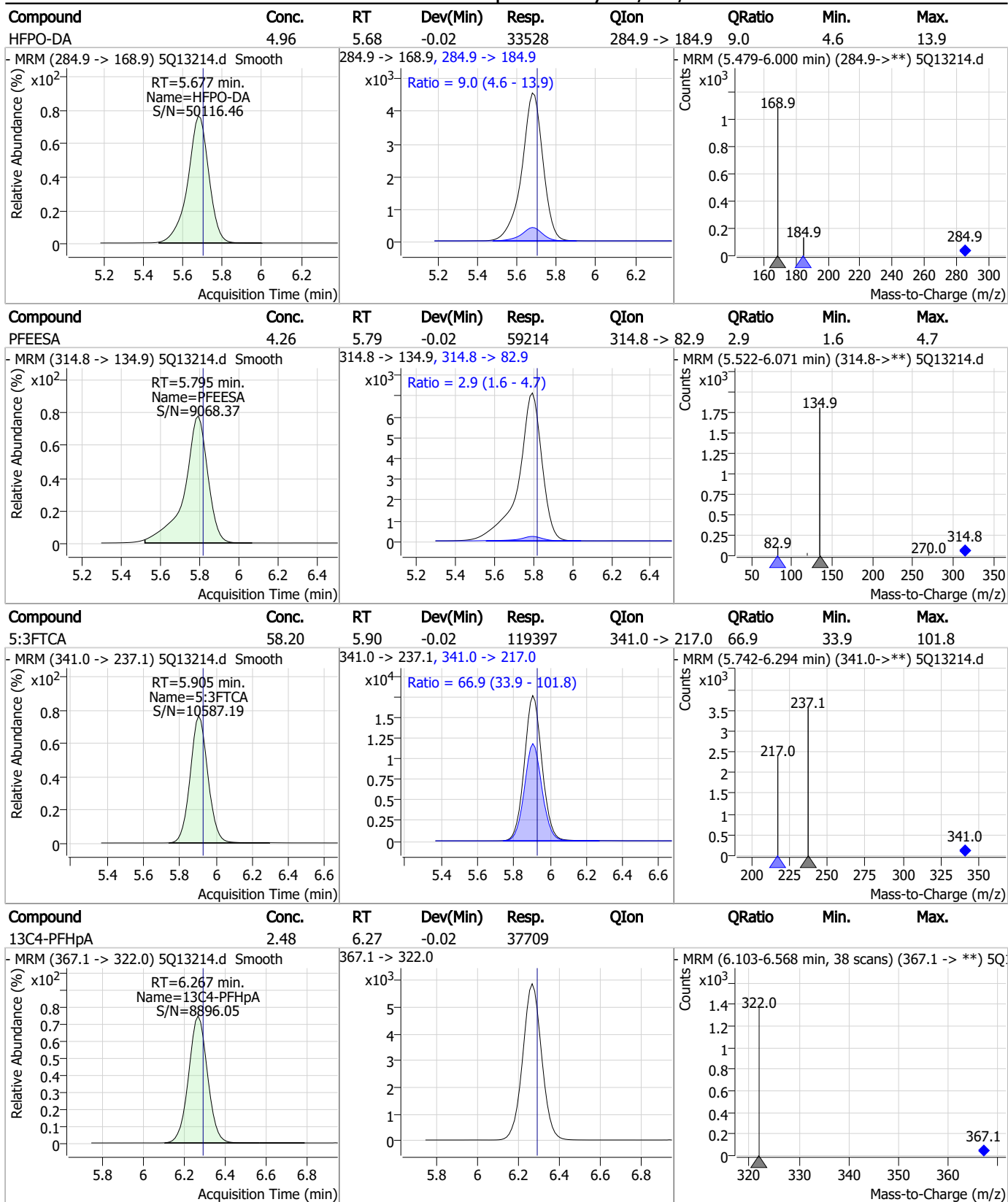


### Perfluorinated Compounds by LC/MS/MS



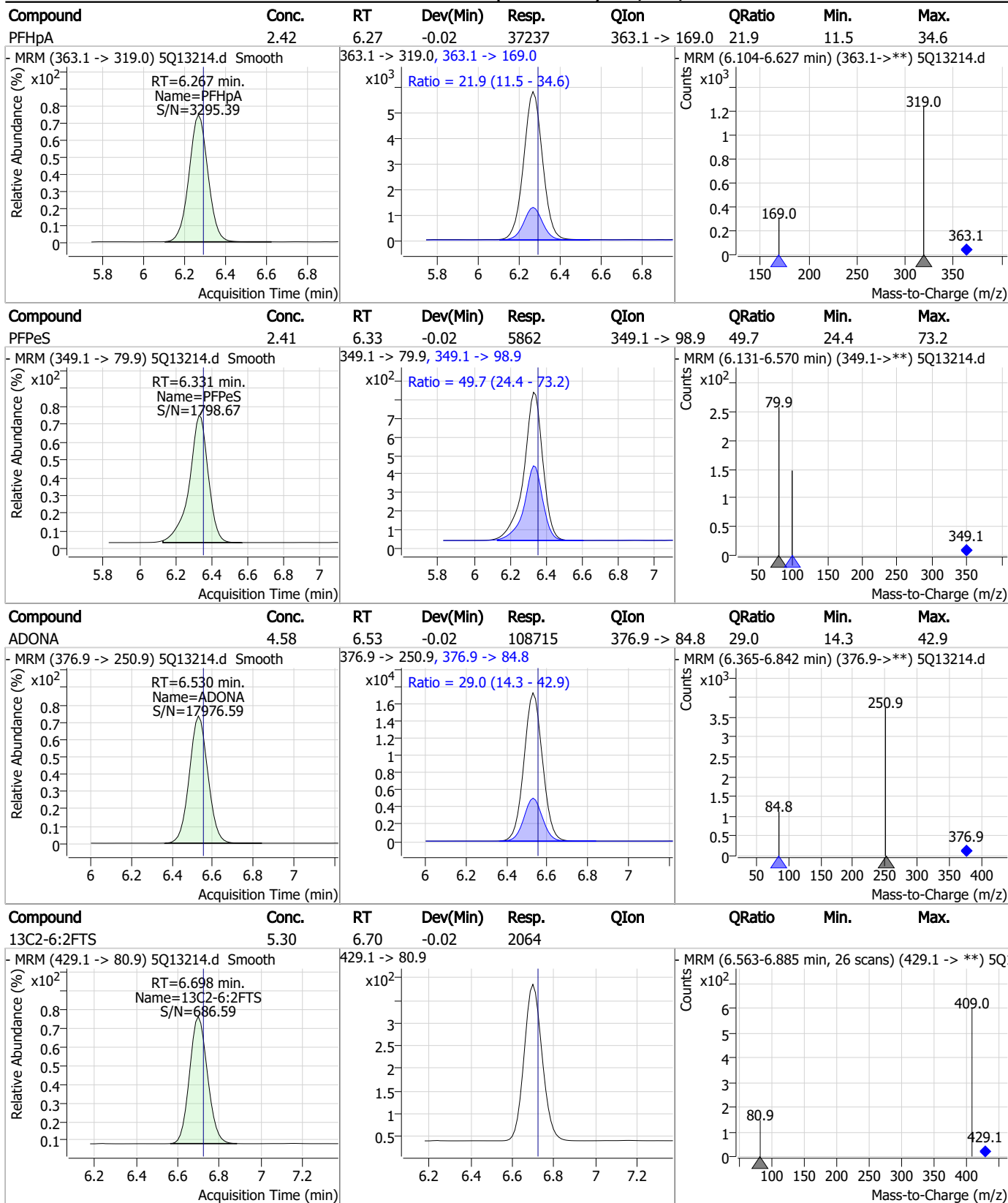
7.7.14

### Perfluorinated Compounds by LC/MS/MS



7.7.14  
7

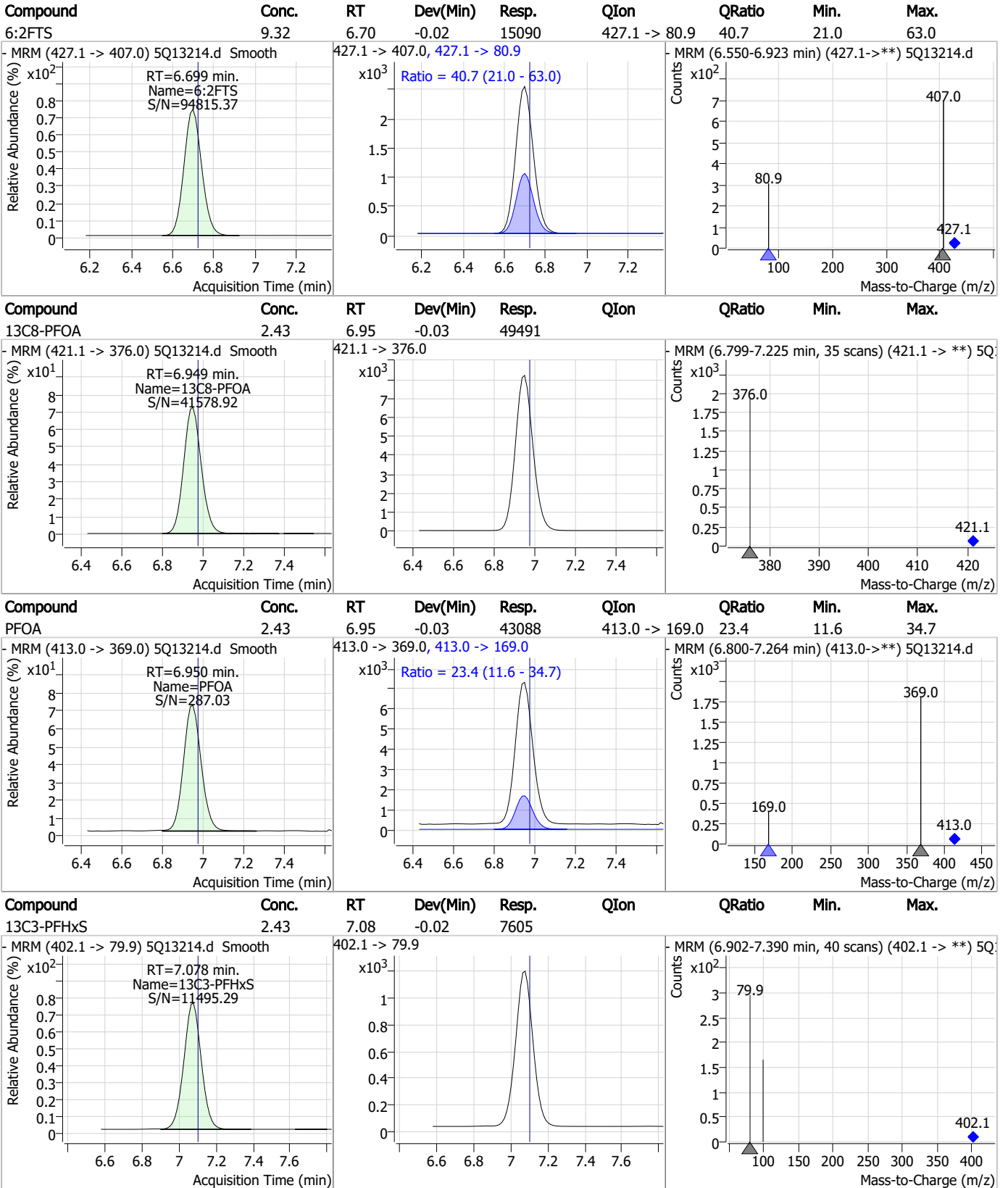
### Perfluorinated Compounds by LC/MS/MS



7.7.14  
7



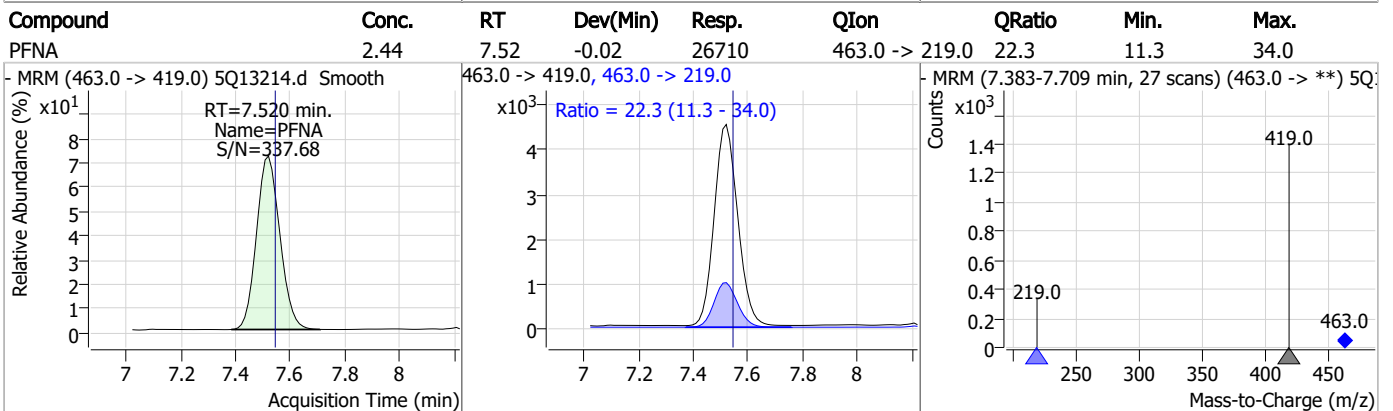
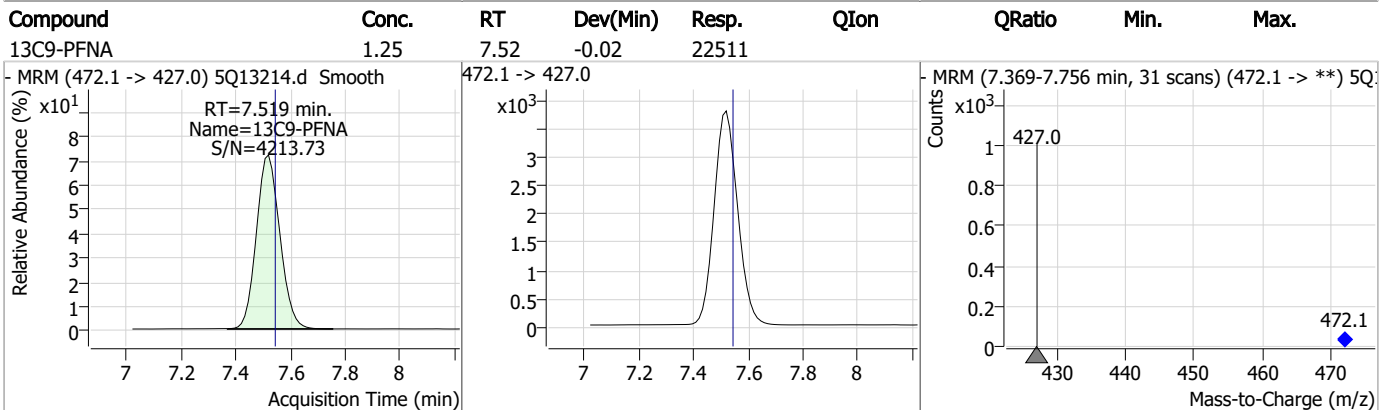
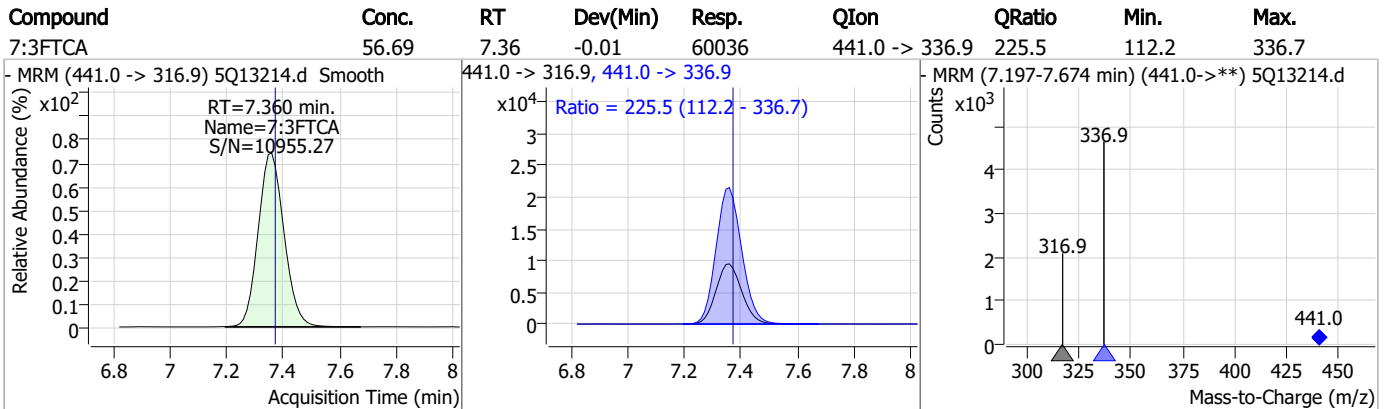
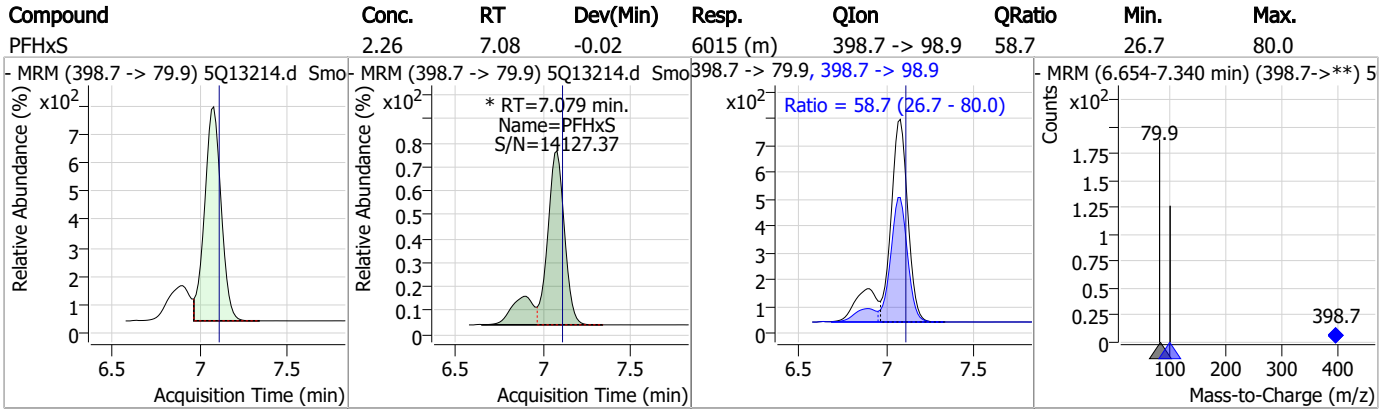
### Perfluorinated Compounds by LC/MS/MS



7.7.14

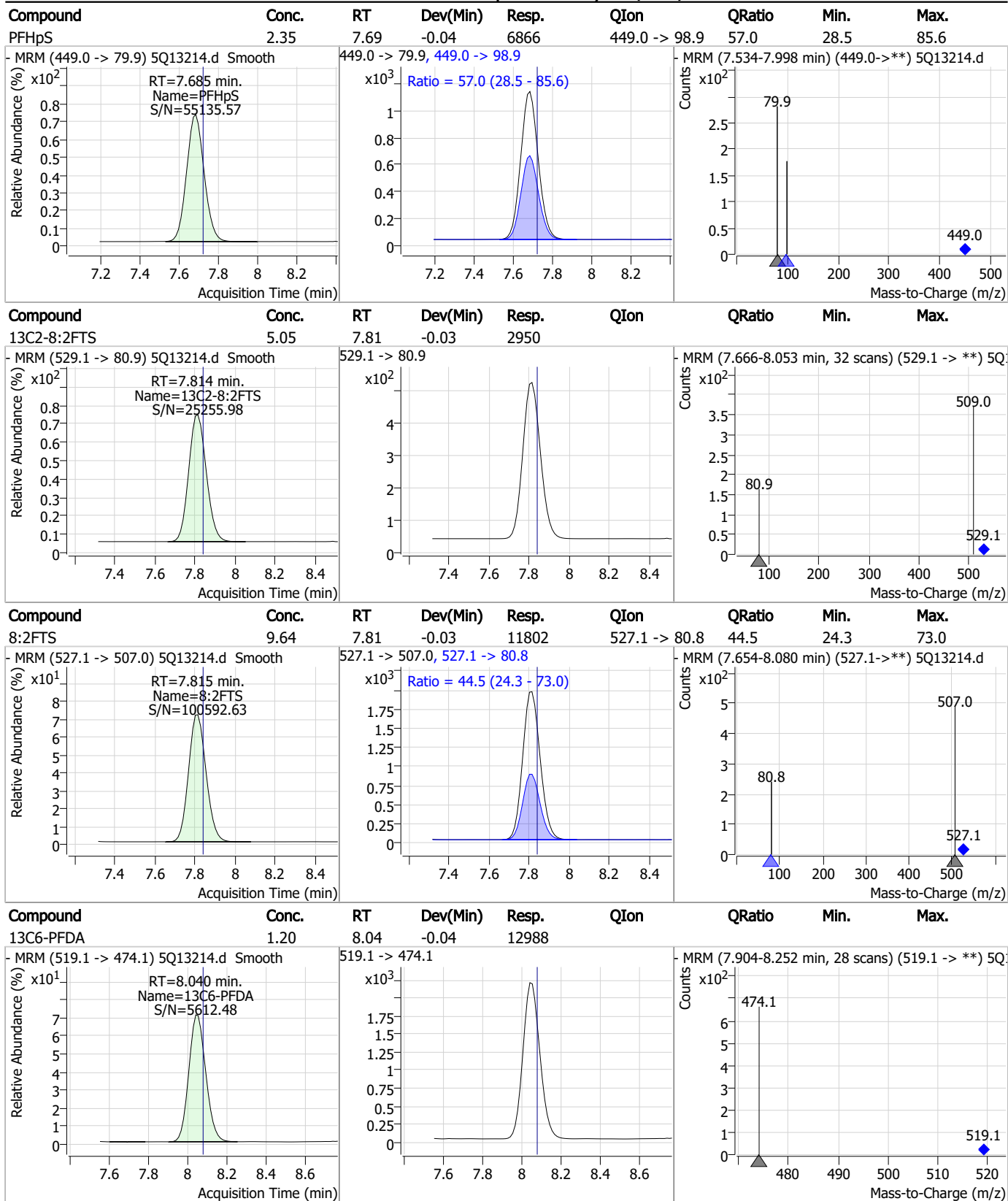


## Perfluorinated Compounds by LC/MS/MS



7.7.14  
7

### Perfluorinated Compounds by LC/MS/MS

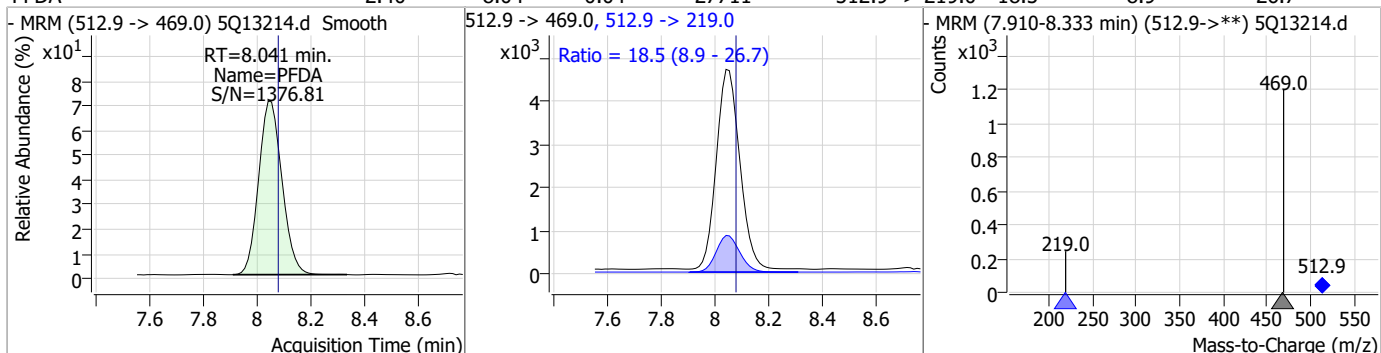


7.7.14

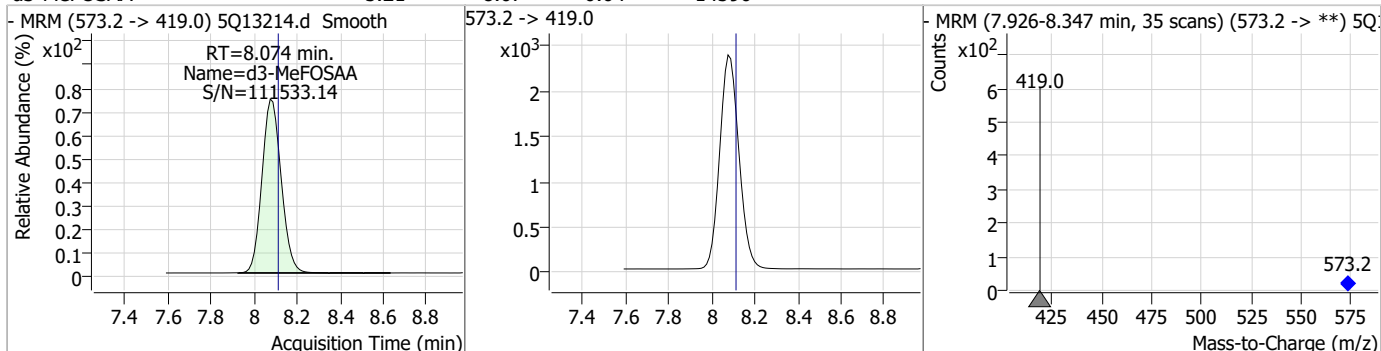
7

### Perfluorinated Compounds by LC/MS/MS

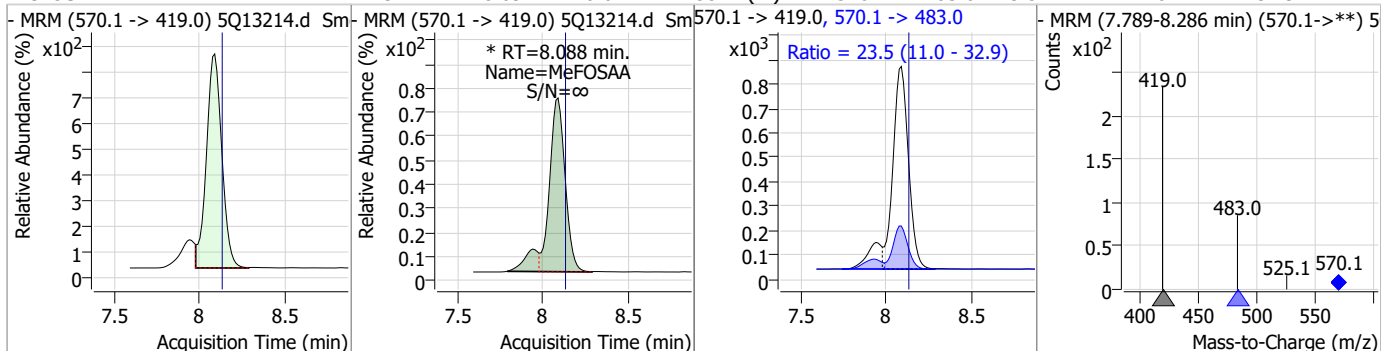
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.40	8.04	-0.04	27711	512.9 -> 219.0	18.5	8.9	26.7



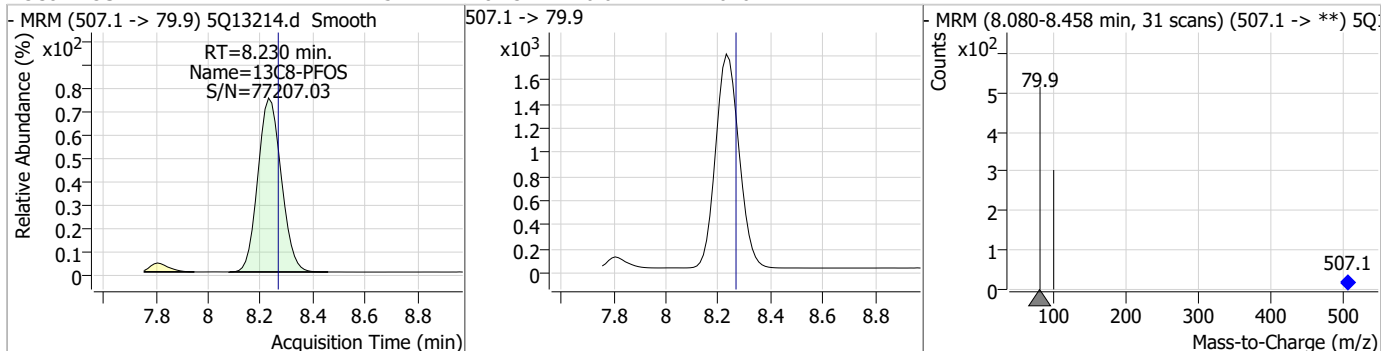
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.21	8.07	-0.04	14590				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.37	8.09	-0.04	5827 (m)	570.1 -> 483.0	23.5	11.0	32.9



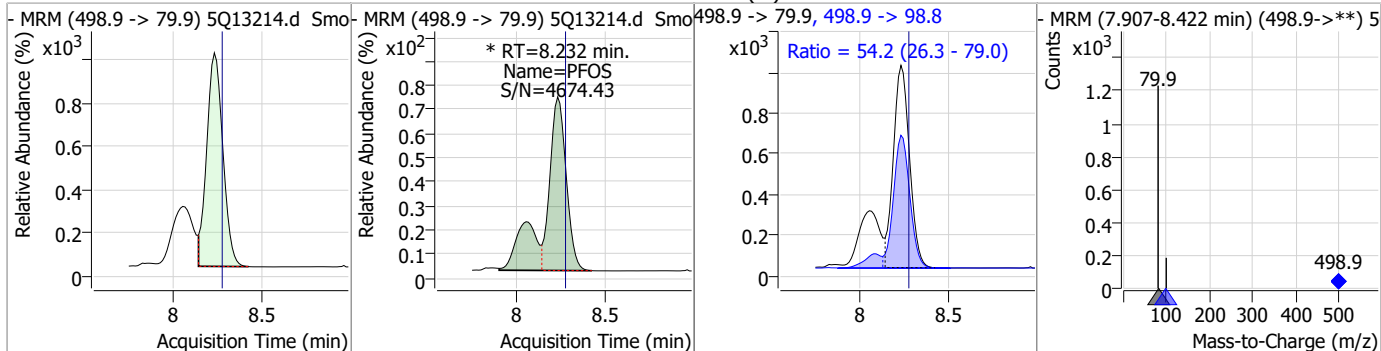
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.52	8.23	-0.04	11016				



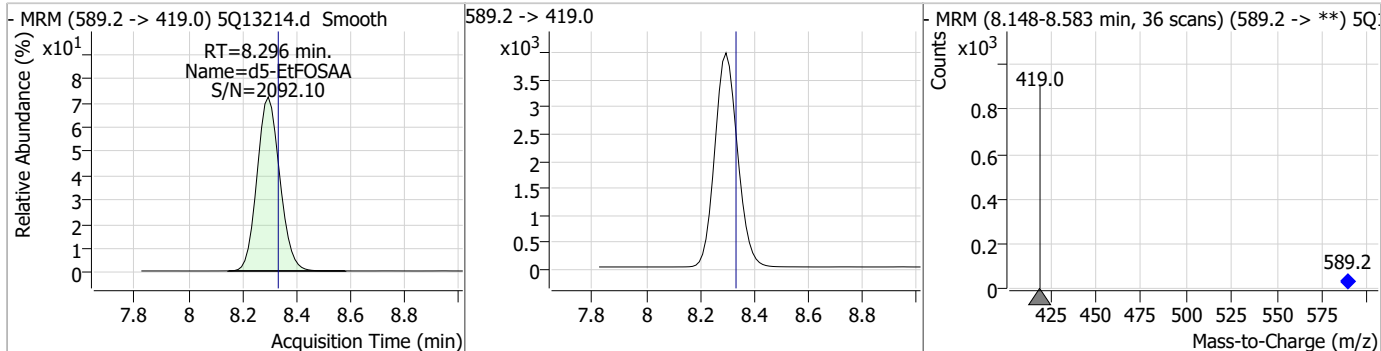


### Perfluorinated Compounds by LC/MS/MS

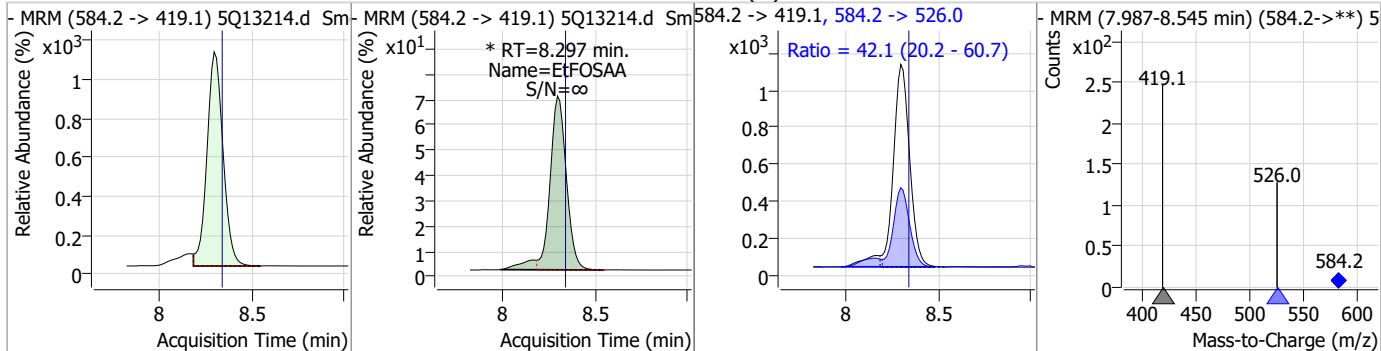
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.20	8.23	-0.04	8443 (m)	498.9 -> 98.8	54.2	26.3	79.0



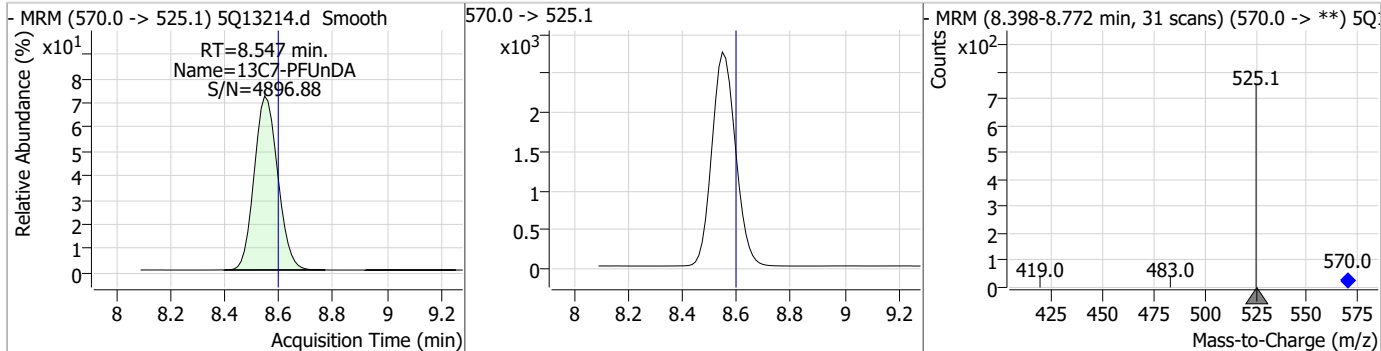
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	6.06	8.30	-0.04	23158				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.38	8.30	-0.04	7001 (m)	584.2 -> 526.0	42.1	20.2	60.7

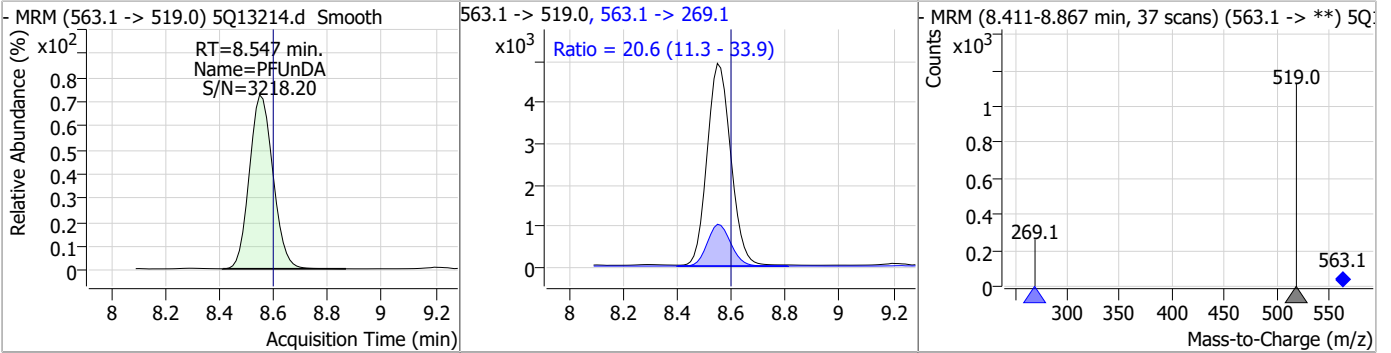


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.22	8.55	-0.05	16583				

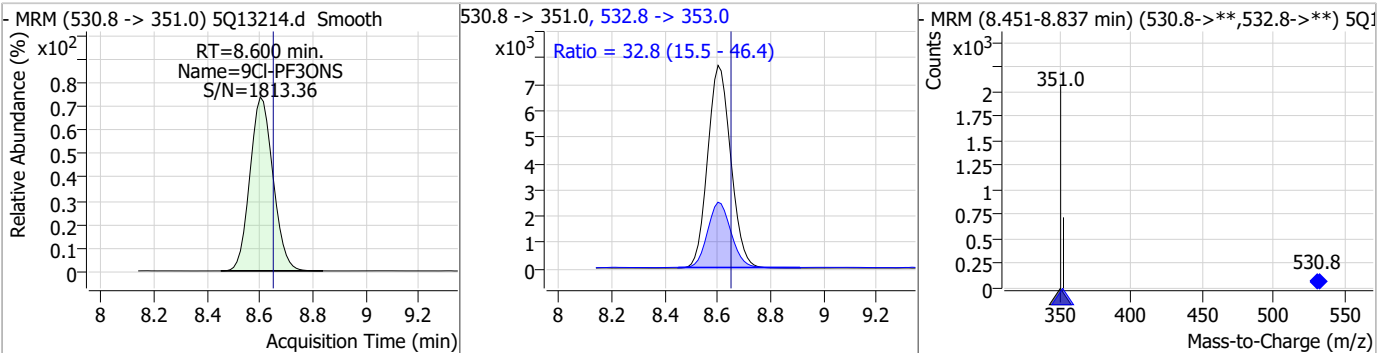


### Perfluorinated Compounds by LC/MS/MS

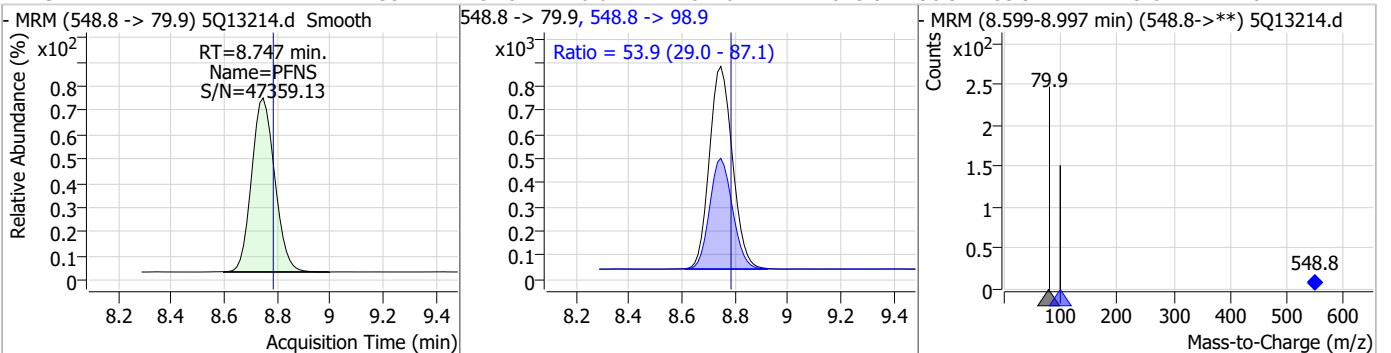
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.48	8.55	-0.05	29660	563.1 -> 269.1	20.6	11.3	33.9



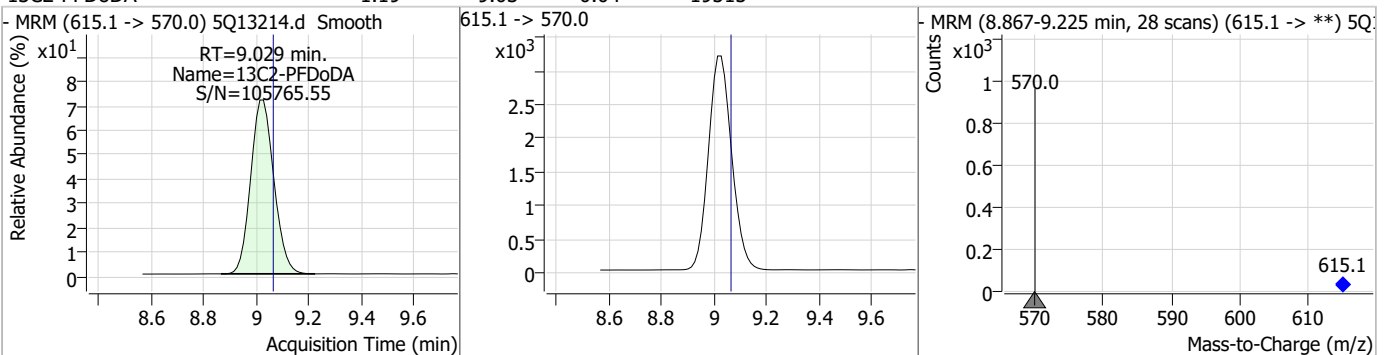
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.49	8.60	-0.05	46456	532.8 -> 353.0	32.8	15.5	46.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.35	8.75	-0.04	5116	548.8 -> 98.9	53.9	29.0	87.1

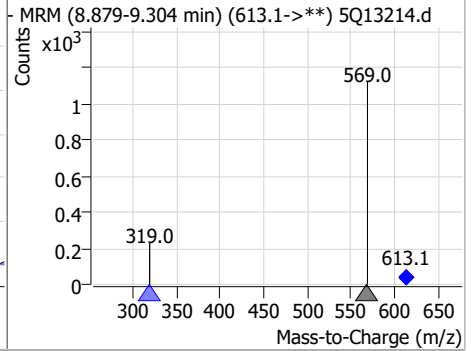
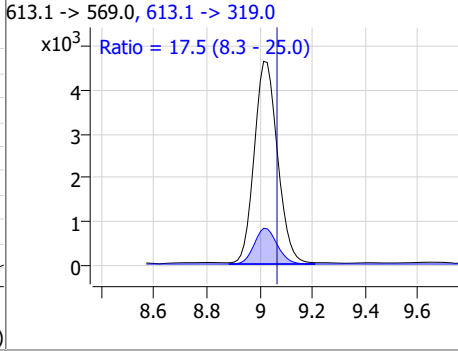
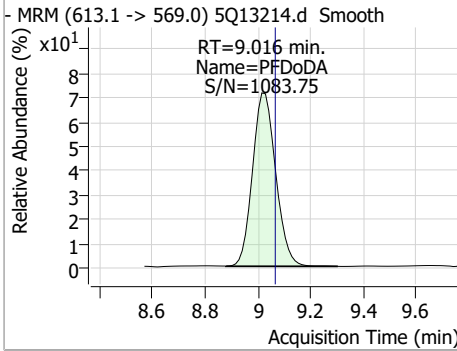


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.19	9.03	-0.04	19515	615.1 -> 570.0	-	-	-

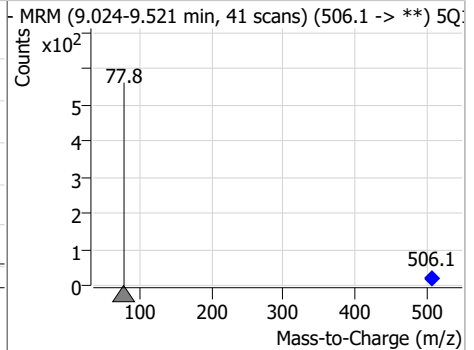
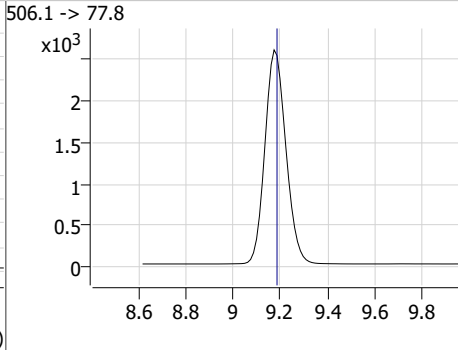
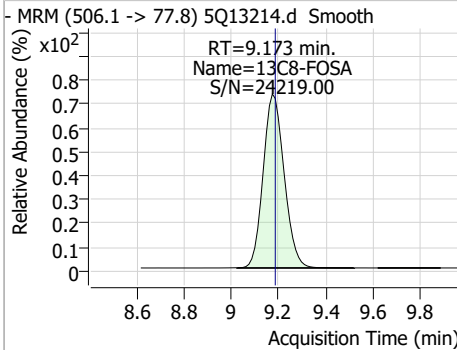


### Perfluorinated Compounds by LC/MS/MS

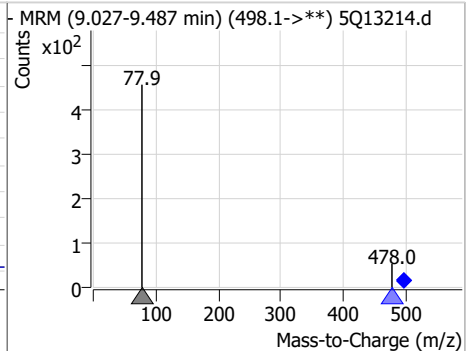
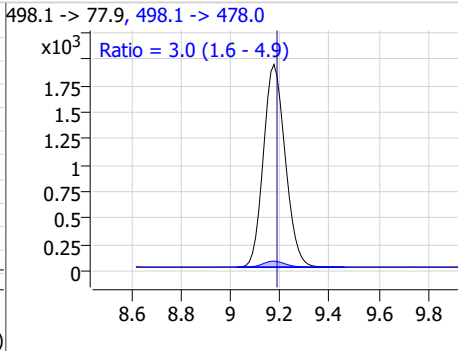
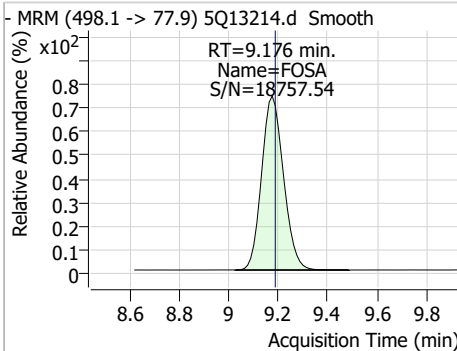
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	2.37	9.02	-0.05	28165	613.1 -> 319.0	17.5	8.3	25.0



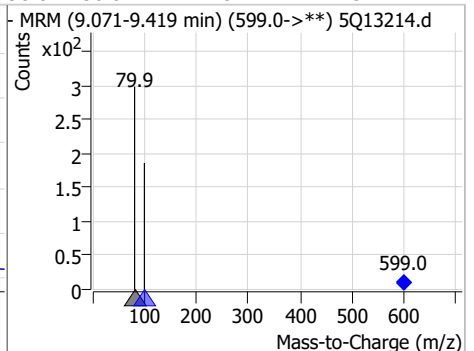
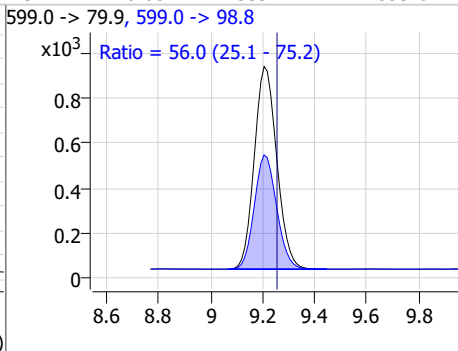
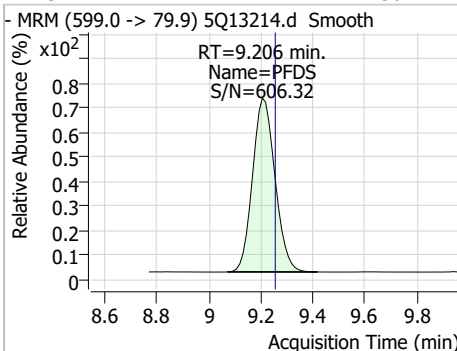
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.17	-0.01	15866	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.36	9.18	-0.01	11717	498.1 -> 478.0	3.0	1.6	4.9

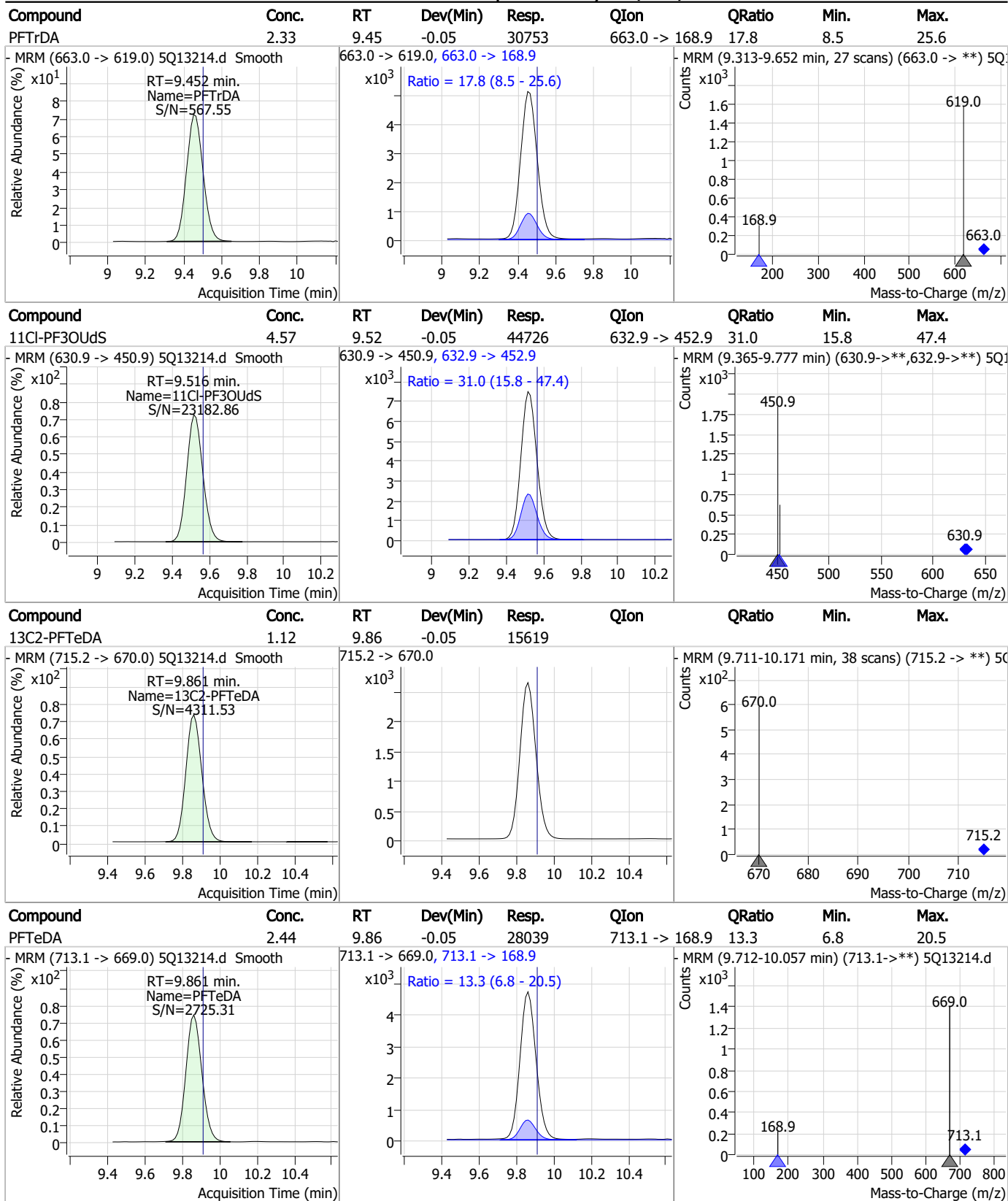


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.30	9.21	-0.05	5391	599.0 -> 98.8	56.0	25.1	75.2



7.7.14  
7

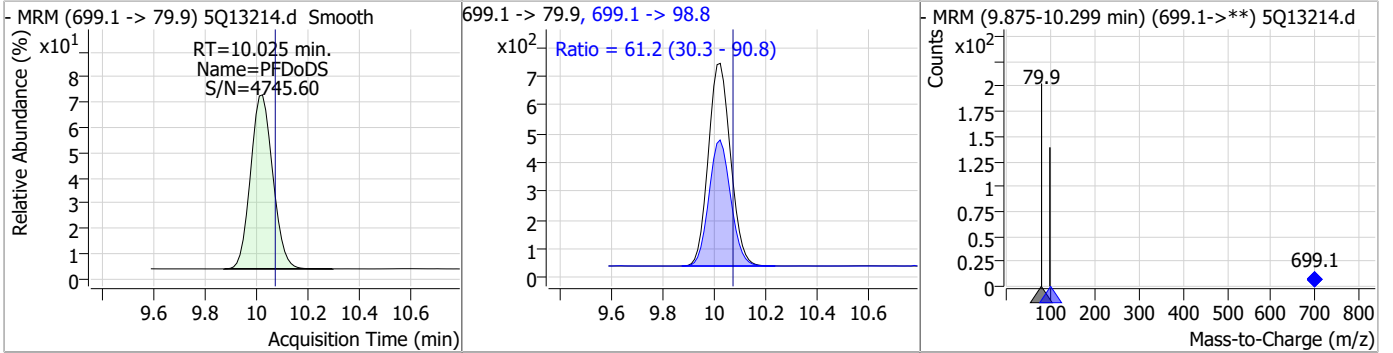
### Perfluorinated Compounds by LC/MS/MS



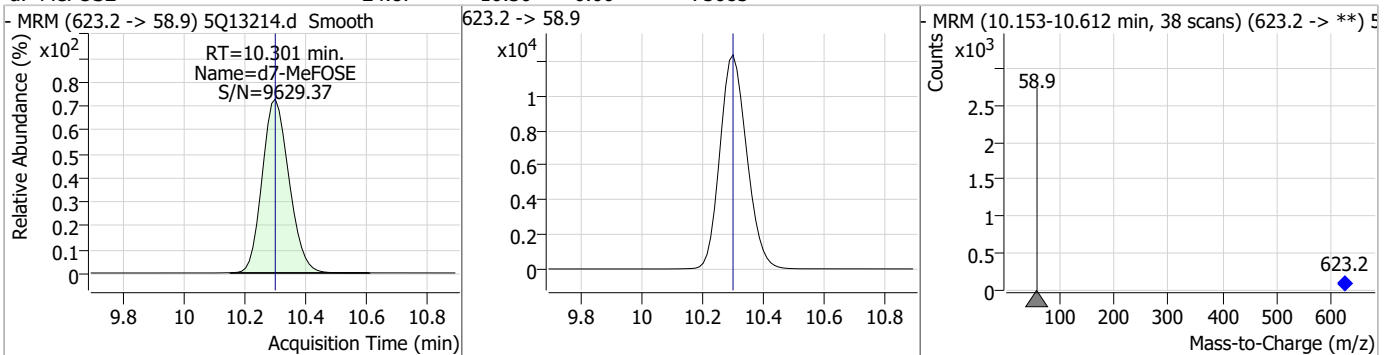
7.7.14

### Perfluorinated Compounds by LC/MS/MS

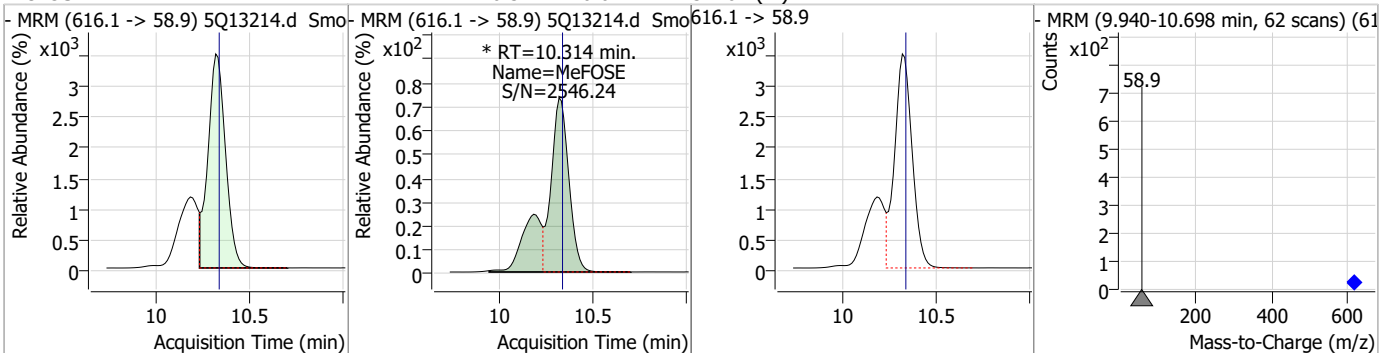
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.23	10.03	-0.05	4234	699.1 -> 98.8	61.2	30.3	90.8



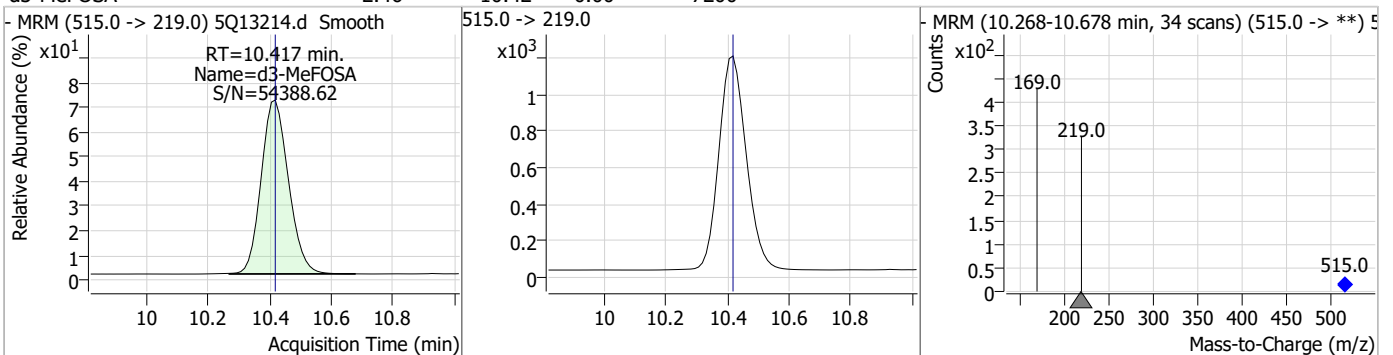
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.87	10.30	0.00	75683				



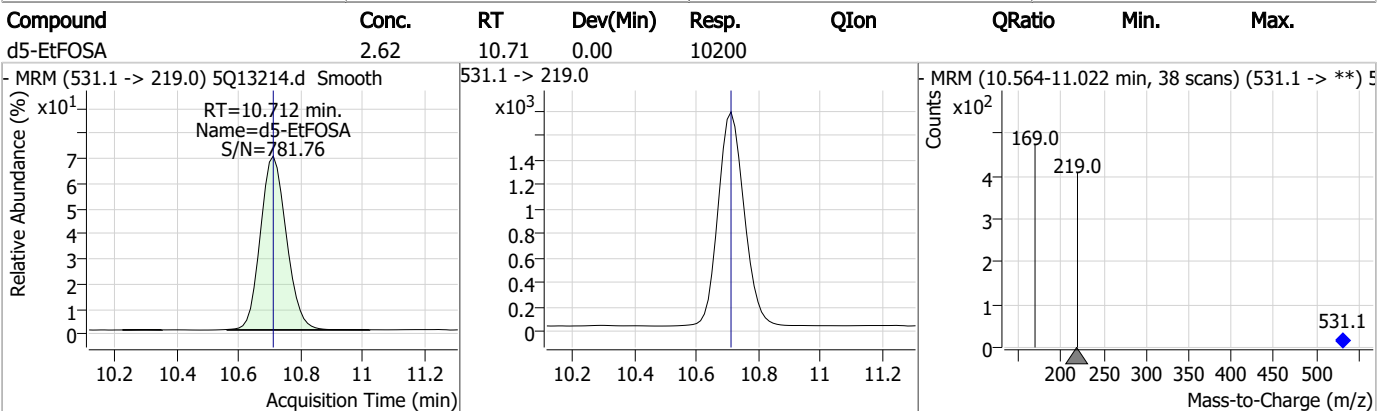
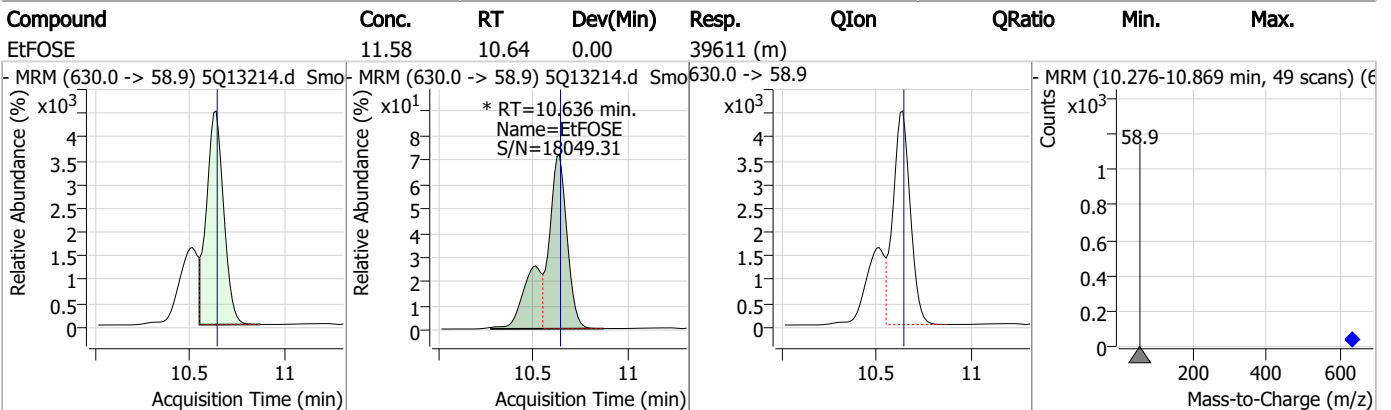
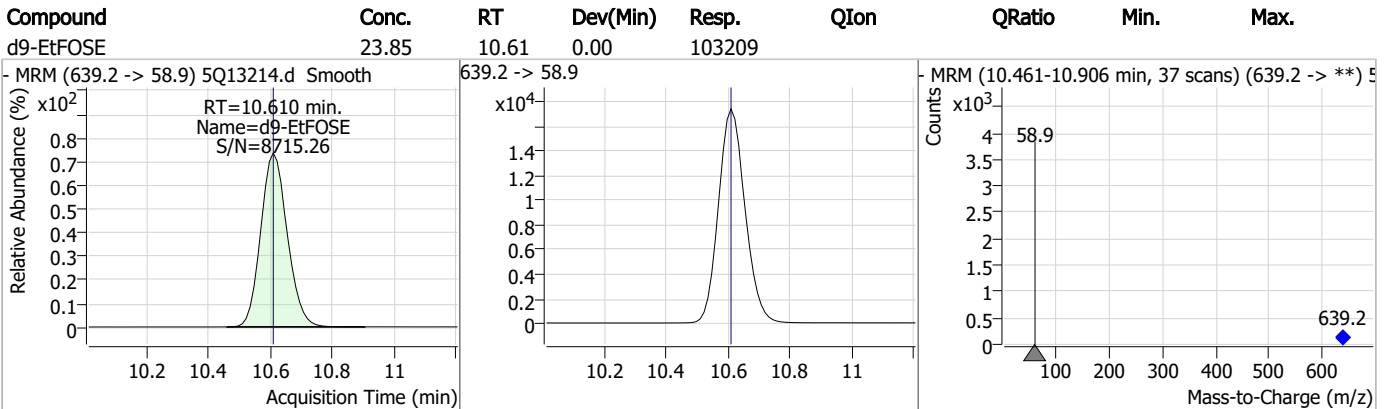
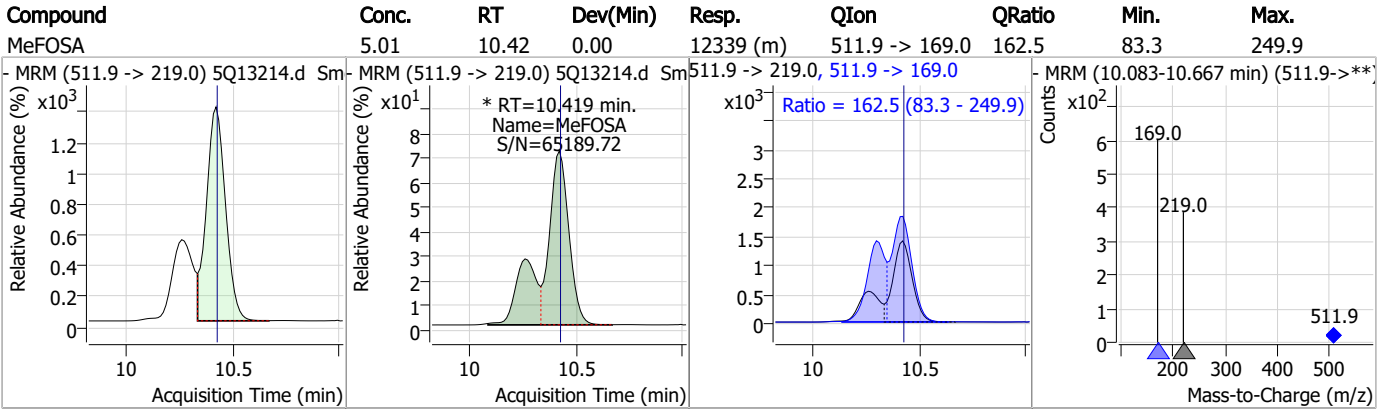
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.71	10.31	-0.01	31401 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.42	0.00	7200				

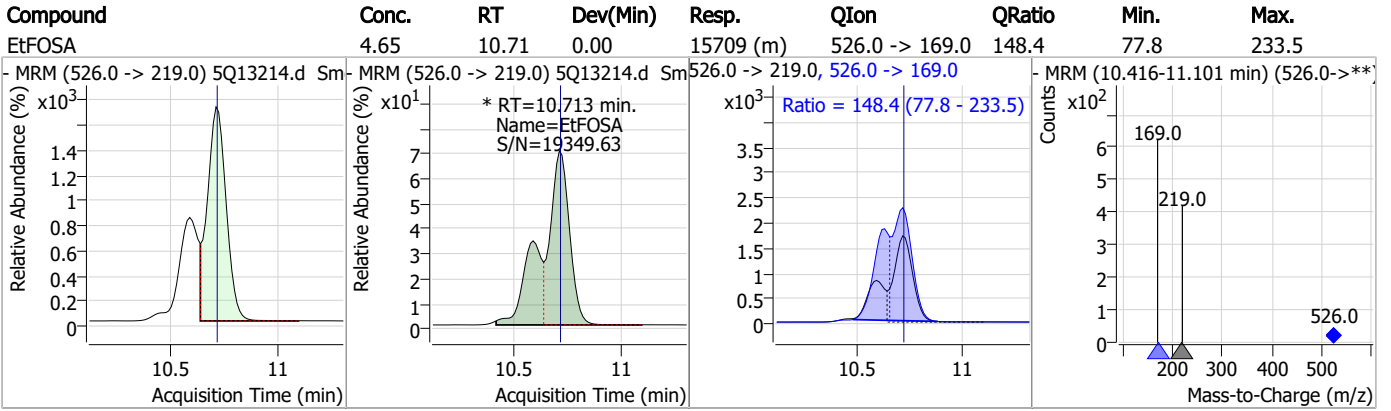


### Perfluorinated Compounds by LC/MS/MS



7.7.14  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.14  
7



# Manual Integration Approval Summary

**Sample Number:** S5Q205-CC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13214.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/20/23 04:28      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.75	Poor instrument integration
13C3-PFBA			2.75	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.76	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.23	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.08	Split peak
MeFOSAA	2355-31-9		8.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSE	24448-09-7		10.31	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.14.1  
7



### Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13215.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 4:42:34 AM  
 Sample Name : cc205-1.0LL  
 Vial : P3-A2  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.765	216.8 -> 171.9	56006	10.00	µg/L m	0.000
M5-PFPeA	4.103	268.3 -> 223.0	41032	5.00	µg/L	-0.012
M5-PFHxA	5.296	318.0 -> 273.0	36370	2.50	µg/L	-0.012
M4-PFHpA	6.267	367.1 -> 322.0	31890	2.50	µg/L	-0.025
M8-PFOA	6.949	421.1 -> 376.0	41477	2.50	µg/L	-0.025
M9-PFNA	7.519	472.1 -> 427.0	18679	1.25	µg/L	-0.025
M6-PFDA	8.040	519.1 -> 474.1	11190	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	14236	1.25	µg/L	-0.051
M2-PFDoDA	9.029	615.1 -> 570.0	16442	1.25	µg/L	-0.037
M2-PFTeDA	9.861	715.2 -> 670.0	13391	1.25	µg/L	-0.050
M8-FOSA	9.173	506.1 -> 77.8	12886	2.50	µg/L	-0.012
M3-PFBS	5.226	302.1 -> 79.9	6243	2.50	µg/L m	-0.025
M3-PFHxS	7.078	402.1 -> 79.9	6501	2.50	µg/L	-0.025
M8-PFOS	8.230	507.1 -> 79.9	9145	2.50	µg/L	-0.037
M2-4:2FTS	4.947	329.1 -> 80.9	794	5.00	µg/L	-0.012
M2-6:2FTS	6.698	429.1 -> 80.9	1886	5.00	µg/L	-0.025
M2-8:2FTS	7.814	529.1 -> 80.9	2539	5.00	µg/L	-0.026
M3-MeFOSAA	8.074	573.2 -> 419.0	12121	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	72419	10.00	µg/L	-0.025
M5-EtFOSAA	8.296	589.2 -> 419.0	22211	5.00	µg/L	-0.037
M7-MeFOSE	10.301	623.2 -> 58.9	62178	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	88311	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	8463	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	6086	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	8653	2.50	µg/L	-0.037
13C3-PFBA	2.768	216.0 -> 172.0	29273	5.00	µg/L m	0.000
18O2-PFHxS	7.077	403.0 -> 83.9	4347	2.50	µg/L	-0.025
13C4-PFOA	6.949	417.1 -> 372.0	51437	2.50	µg/L	-0.026
13C2-PFDA	8.041	515.1 -> 470.1	17409	1.25	µg/L	-0.037
13C5-PFNA	7.519	468.0 -> 423.0	18231	1.25	µg/L	-0.025
13C2-PFHxA	5.285	315.1 -> 270.0	37803	2.50	µg/L	-0.024
<b>System Monitoring Compounds</b>						
13C2-4:2FTS	4.947	329.1 -> 80.9	794	5.28	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.6%			
13C2-6:2FTS	6.698	429.1 -> 80.9	1886	5.69	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.9%			
13C2-8:2FTS	7.814	529.1 -> 80.9	2539	5.10	µg/L	-0.026
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%			
13C2-PFDoDA	9.029	615.1 -> 570.0	16442	1.19	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 95.4%			
13C2-PFTeDA	9.861	715.2 -> 670.0	13391	1.14	µg/L	-0.050
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.5%			
13C3-PFBS	5.226	302.1 -> 79.9	6372	2.40	µg/L m	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%			
13C3-PFHxS	7.078	402.1 -> 79.9	6501	2.44	µg/L	-0.025

7.7.15  
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.7%			
13C4-PFBA	2.765	216.8 -> 171.9	56236	10.03	µg/L m	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.3%			
13C4-PFHpA	6.267	367.1 -> 322.0	31890	2.53	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.0%			
13C5-PFHxA	5.296	318.0 -> 273.0	36370	2.56	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.5%			
13C5-PFPeA	4.103	268.3 -> 223.0	41032	5.04	µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%			
13C6-PFDA	8.040	519.1 -> 474.1	11190	1.22	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%			
13C7-PFUnDA	8.547	570.0 -> 525.1	14236	1.24	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%			
13C8-FOSA	9.173	506.1 -> 77.8	12886	2.47	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.9%			
13C8-PFOA	6.949	421.1 -> 376.0	41477	2.47	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%			
13C8-PFOS	8.230	507.1 -> 79.9	9145	2.53	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%			
13C9-PFNA	7.519	472.1 -> 427.0	18679	1.26	µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%			
d3-MeFOSAA	8.074	573.2 -> 419.0	12121	5.23	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%			
13C3-HFPO-DA	5.676	286.9 -> 168.9	72419	10.26	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.6%			
d3-MeFOSA	10.417	515.0 -> 219.0	6086	2.51	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%			
d5-EtFOSAA	8.296	589.2 -> 419.0	22211	7.02	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 140.4%			
d7-MeFOSE	10.301	623.2 -> 58.9	62178	24.68	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.7%			
d9-EtFOSE	10.610	639.2 -> 58.9	88311	24.65	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 98.6%			
d5-EtFOSA	10.712	531.1 -> 219.0	8463	2.63	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%			
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.948	327.1 -> 307.0	883	0.94	µg/L	85
		327.1 -> 80.9	378			
6:2FTS	6.699	427.1 -> 407.0	1231	0.83	µg/L	94
		427.1 -> 80.9	473			
8:2FTS	7.802	527.1 -> 507.0	910	0.86	µg/L	97
		527.1 -> 80.8	426			
EtFOSAA	8.297	584.2 -> 419.1	601	0.21	µg/L m	96
		584.2 -> 526.0	259			
FOSA	9.176	498.1 -> 77.9	915	0.23	µg/L	99
		498.1 -> 478.0	28			
MeFOSAA	8.088	570.1 -> 419.0	442	0.22	µg/L m	81
		570.1 -> 483.0	137			
PFBA	2.771	212.8 -> 168.9	1691	0.83	µg/L m	100
PFBS	5.227	298.7 -> 79.9	416	0.21	µg/L m	81
		298.7 -> 98.8	142			
PFDA	8.041	512.9 -> 469.0	2469	0.25	µg/L	97
		512.9 -> 219.0	411			
PFDODA	9.029	613.1 -> 569.0	2177	0.22	µg/L	100
		613.1 -> 319.0	362			
PFDS	9.206	599.0 -> 79.9	448	0.23	µg/L	98

7.7.15  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.267	599.0 -> 98.8	219	0.21	µg/L	99
		363.1 -> 319.0	2731			
PFHpS	7.685	363.1 -> 169.0	650	0.20	µg/L	79
		449.0 -> 79.9	480			
PFHxA	5.299	449.0 -> 98.9	349	0.21	µg/L	98
		313.0 -> 269.0	1947			
PFHxS	7.079	313.0 -> 118.9	99	0.20	µg/L	m
		398.7 -> 79.9	451			
PFNA	7.520	398.7 -> 98.9	231	0.23	µg/L	100
		463.0 -> 419.0	2130			
PFNS	8.747	463.0 -> 219.0	483	0.24	µg/L	94
		548.8 -> 79.9	442			
PFOA	6.950	548.8 -> 98.9	235	0.24	µg/L	100
		413.0 -> 369.0	3617			
PFOS	8.232	413.0 -> 169.0	827	0.20	µg/L	m
		498.9 -> 79.9	630			
PFPeA	4.104	498.9 -> 98.8	388	0.43	µg/L	100
		263.0 -> 219.0	3429			
PFPeS	6.331	349.1 -> 79.9	396	0.19	µg/L	92
		349.1 -> 98.9	213			
PFTeDA	9.861	713.1 -> 669.0	2193	0.22	µg/L	96
		713.1 -> 168.9	262			
PFTrDA	9.452	663.0 -> 619.0	2364	0.21	µg/L	97
		663.0 -> 168.9	372			
PFUnDA	8.547	563.1 -> 519.0	2441	0.24	µg/L	91
		563.1 -> 269.1	442			
11Cl-PF3OUdS	9.516	630.9 -> 450.9	3137	0.38	µg/L	96
		632.9 -> 452.9	1068			
9Cl-PF3ONS	8.600	530.8 -> 351.0	3088	0.35	µg/L	91
		532.8 -> 353.0	1115			
ADONA	6.530	376.9 -> 250.9	7715	0.39	µg/L	95
		376.9 -> 84.8	2393			
HFPO-DA	5.677	284.9 -> 168.9	2555	0.45	µg/L	95
		284.9 -> 184.9	188			
3:3FTCA	3.579	241.0 -> 177.0	537	1.02	µg/L	92
		241.0 -> 117.0	73			
5:3FTCA	5.917	341.0 -> 237.1	8933	5.09	µg/L	100
		341.0 -> 217.0	6035			
7:3FTCA	7.360	441.0 -> 316.9	4783	5.28	µg/L	92
		441.0 -> 336.9	10142			
EtFOSA	10.713	526.0 -> 219.0	1100	0.39	µg/L	m
		526.0 -> 169.0	1843			
EtFOSE	10.636	630.0 -> 58.9	3423	1.17	µg/L	m
		511.9 -> 219.0	797			
MeFOSA	10.419	511.9 -> 169.0	1476	0.38	µg/L	m
		616.1 -> 58.9	2604			
MeFOSE	10.314	699.1 -> 79.9	318	1.18	µg/L	m
		699.1 -> 98.8	192			
PFDoDS	10.025	295.0 -> 201.0	378	0.20	µg/L	100
		295.0 -> 84.9	117			
NFDHA	5.167	279.0 -> 85.1	2134	0.41	µg/L	100
		229.0 -> 84.9	1533			
PFMBA	4.505	314.8 -> 134.9	4351	0.37	µg/L	100
		314.8 -> 82.9	138			

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

7.7.15  
7

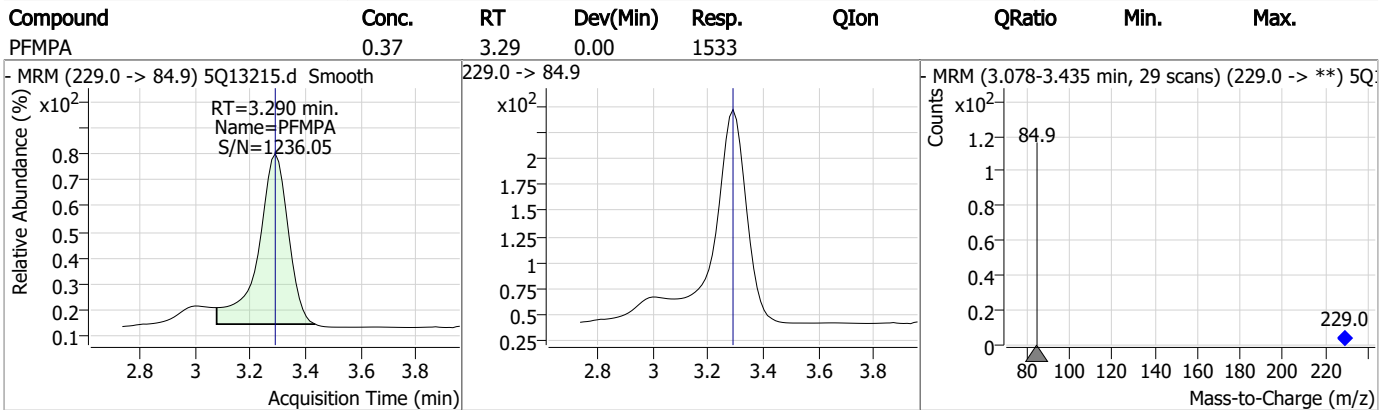
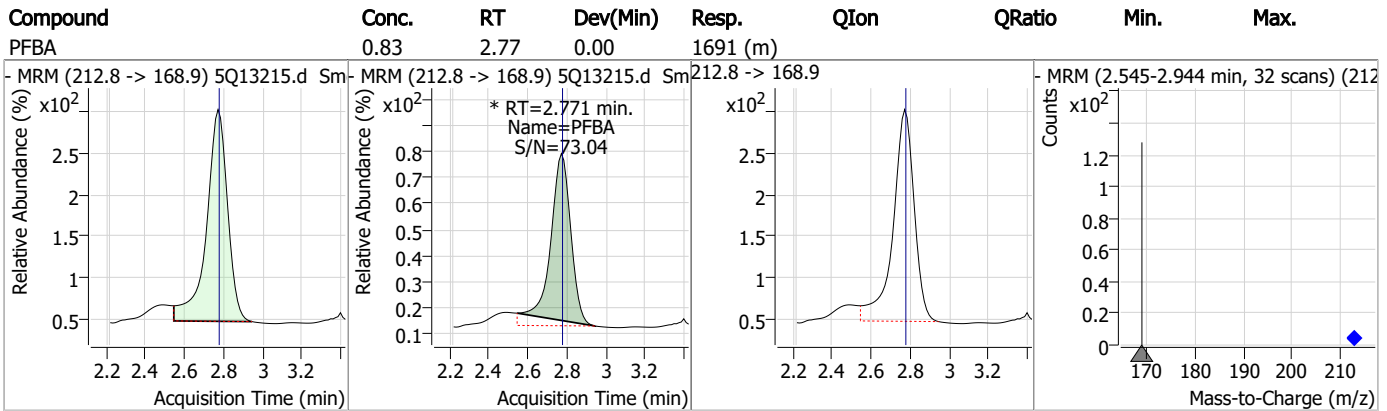
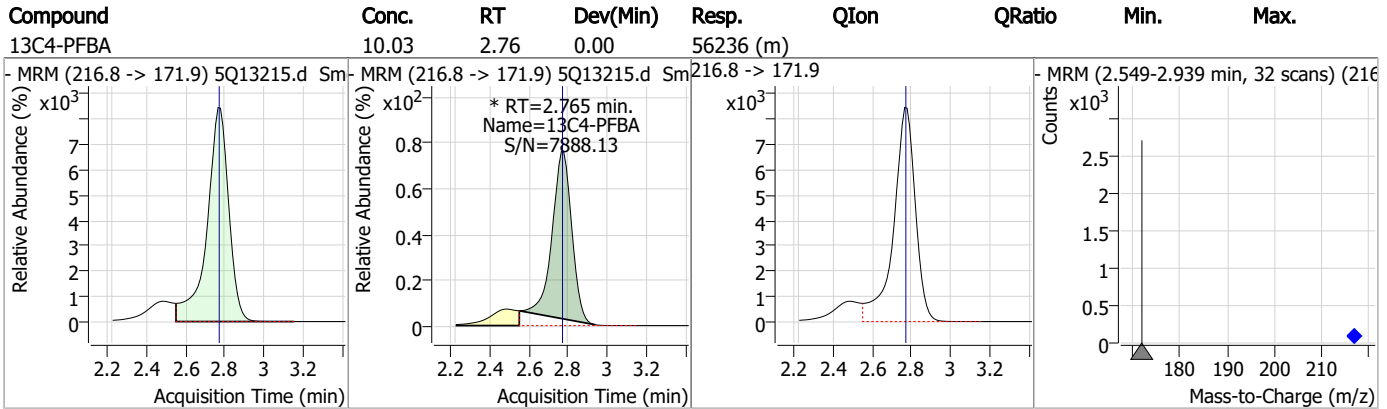
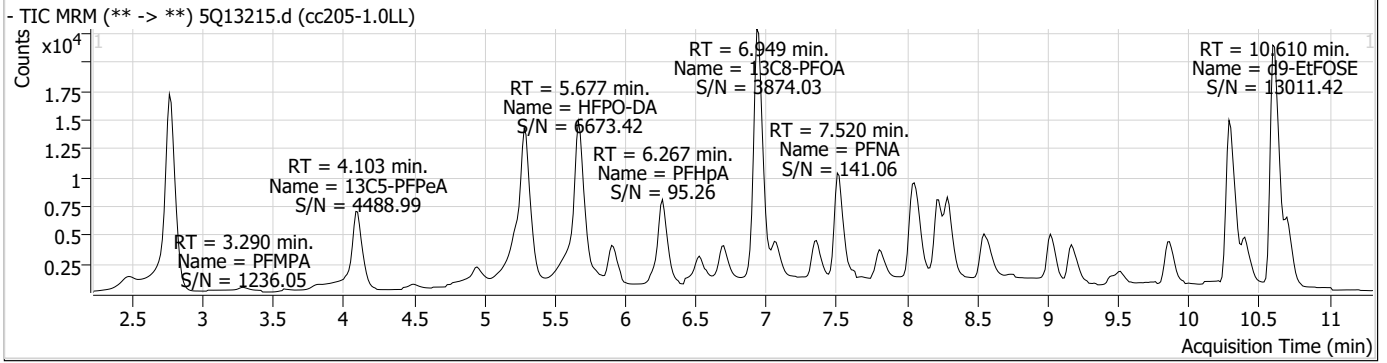
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.15

7

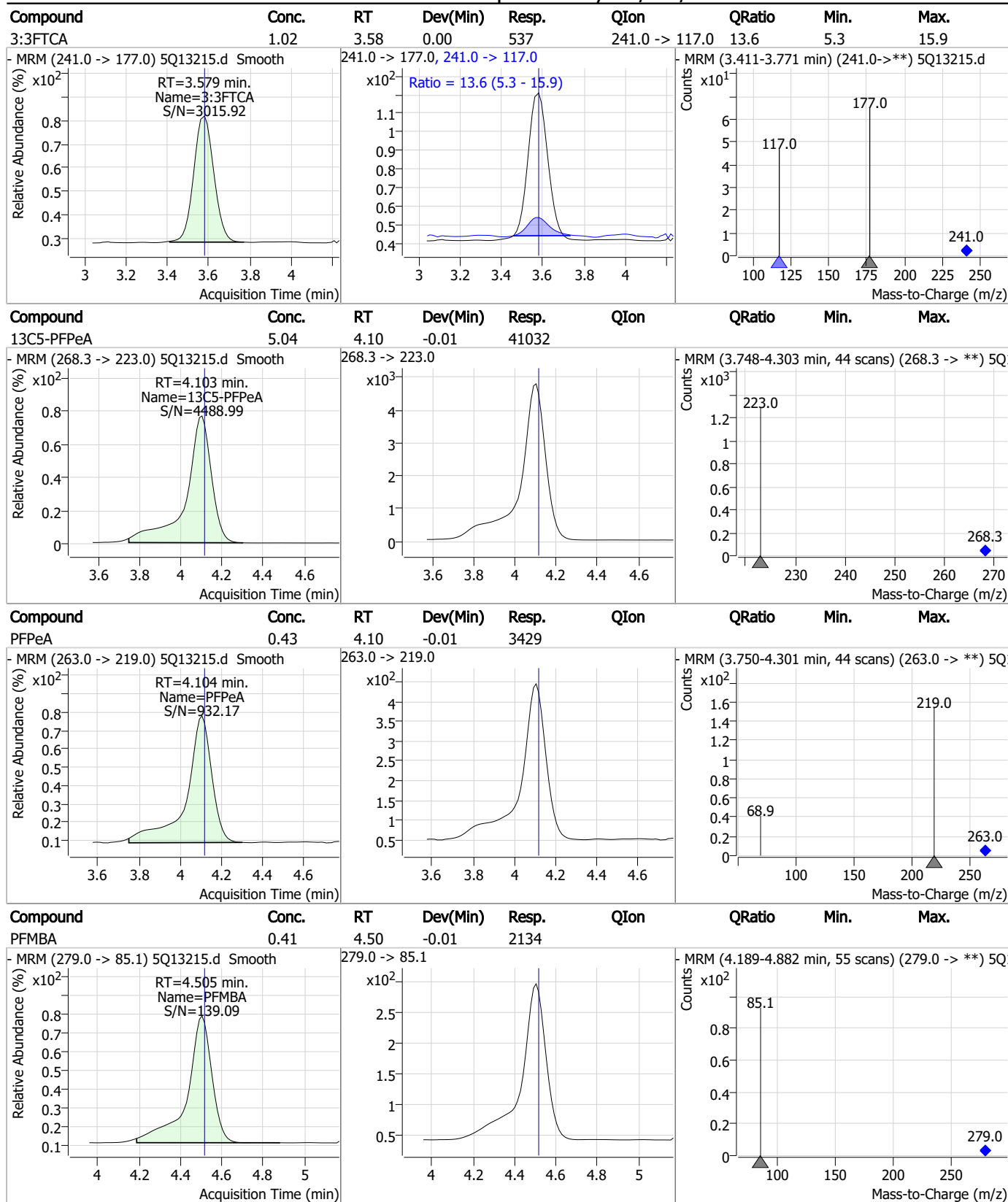
### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7

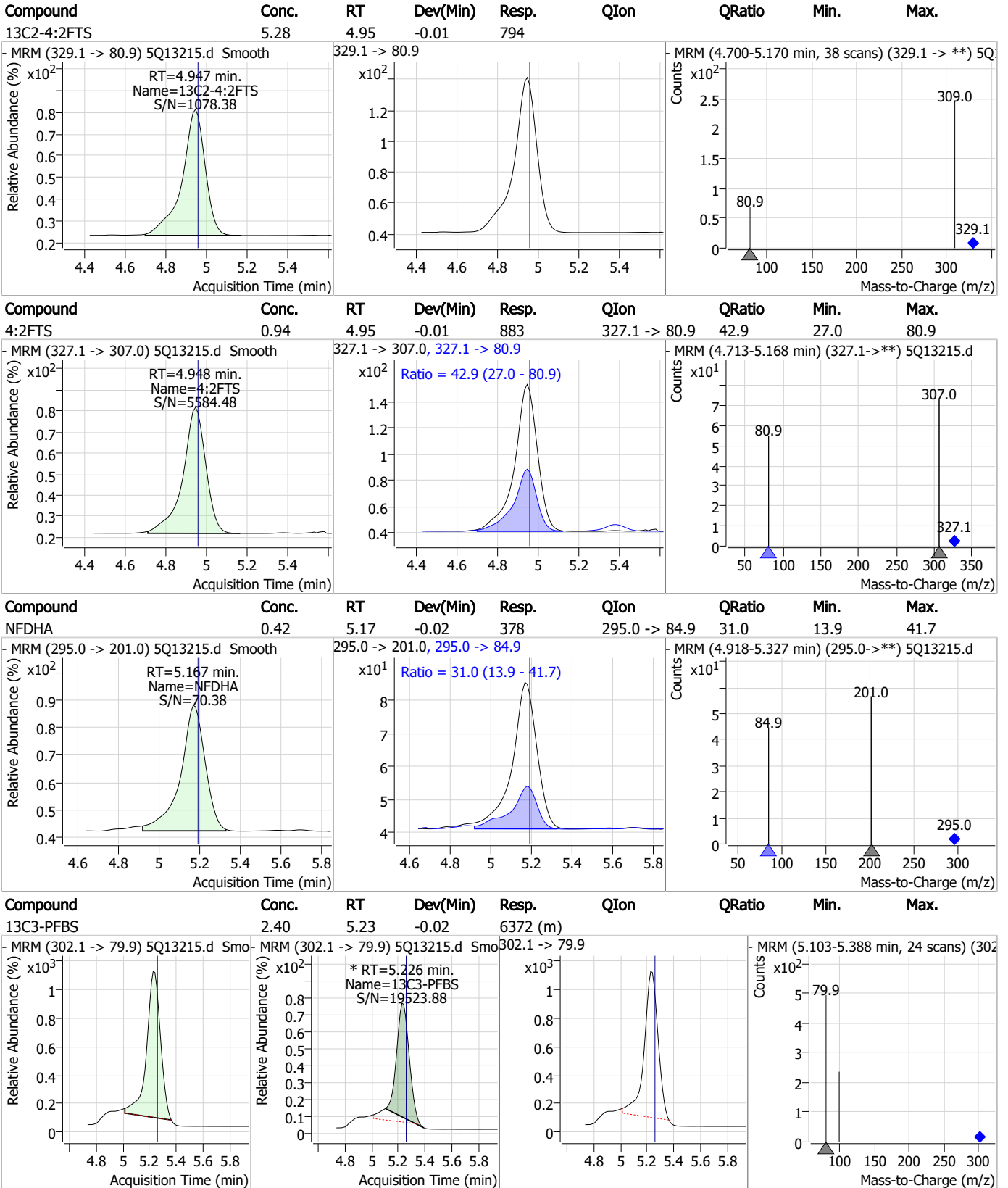


### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7

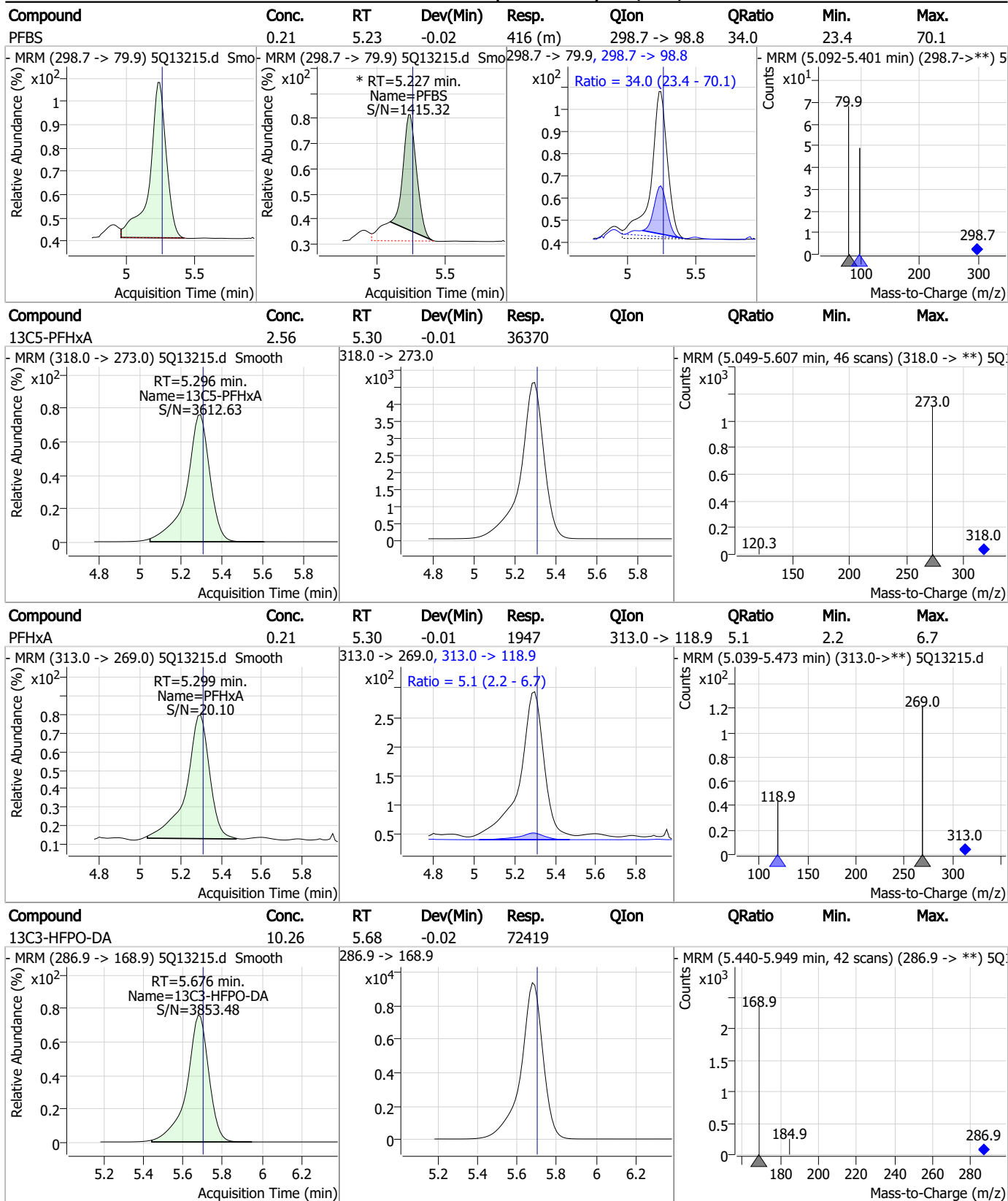
### Perfluorinated Compounds by LC/MS/MS



7.7.15 7



### Perfluorinated Compounds by LC/MS/MS



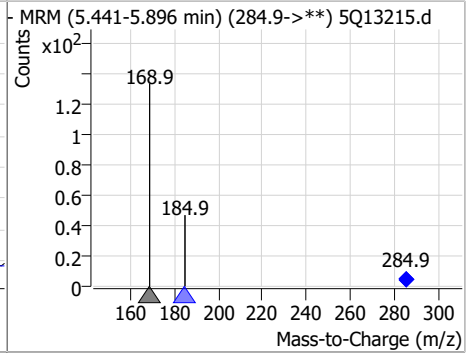
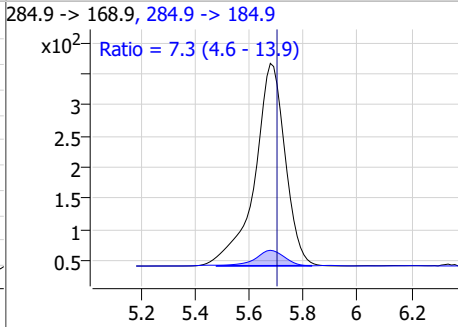
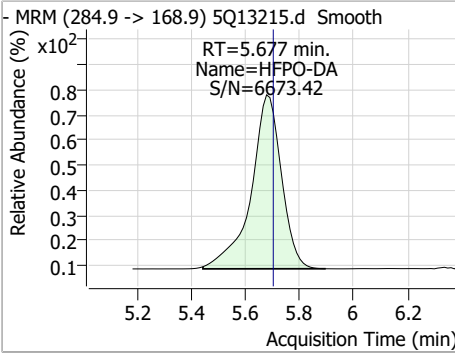
7.7.15

7

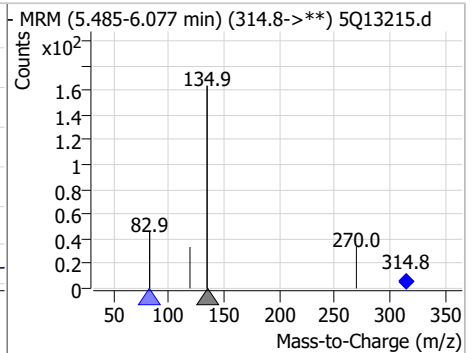
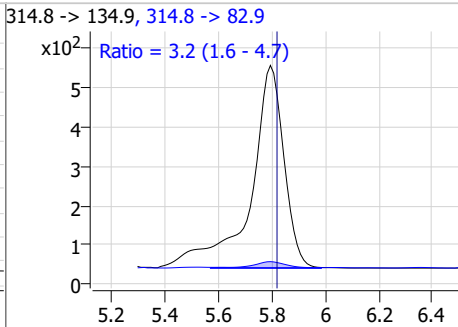
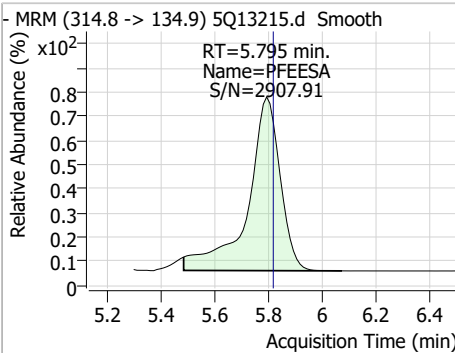


### Perfluorinated Compounds by LC/MS/MS

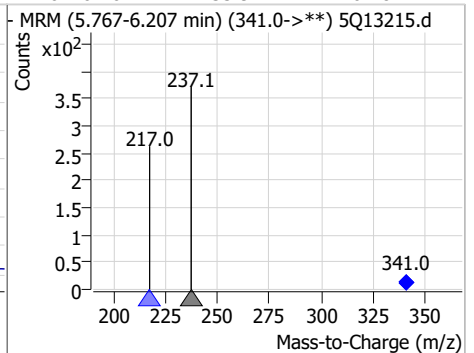
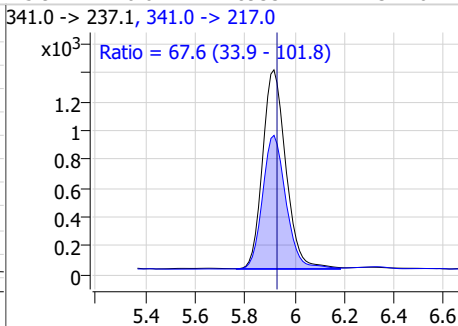
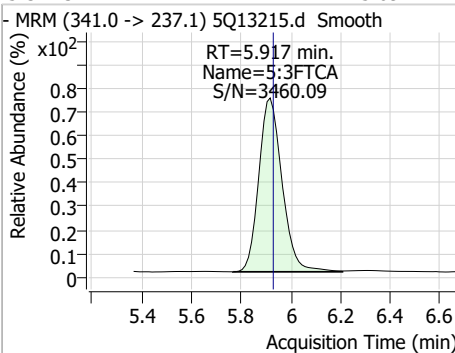
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.45	5.68	-0.02	2555	284.9 -> 184.9	7.3	4.6	13.9



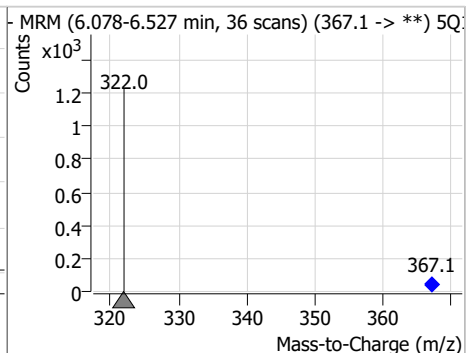
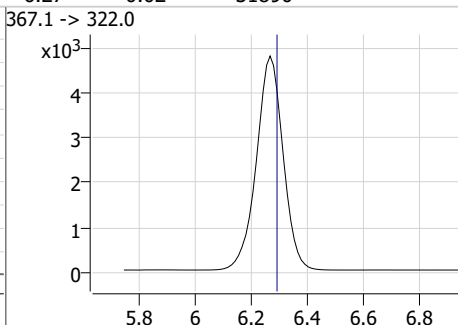
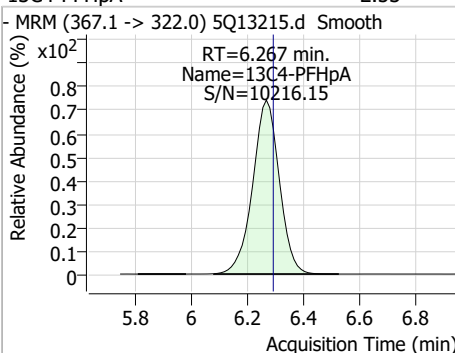
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.37	5.79	-0.02	4351	314.8 -> 82.9	3.2	1.6	4.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	5.09	5.92	-0.01	8933	341.0 -> 217.0	67.6	33.9	101.8

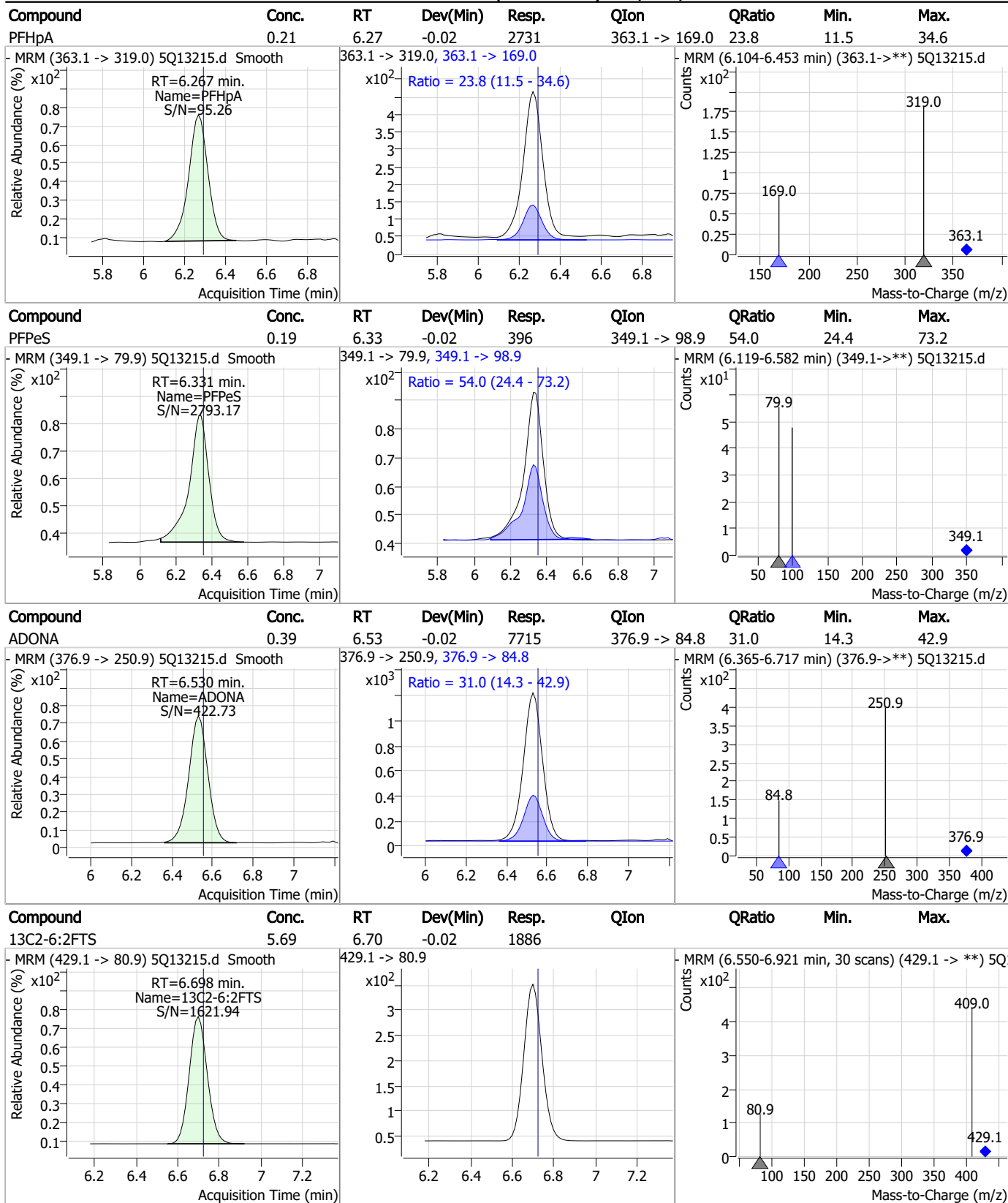


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.53	6.27	-0.02	31890	367.1 -> 322.0			



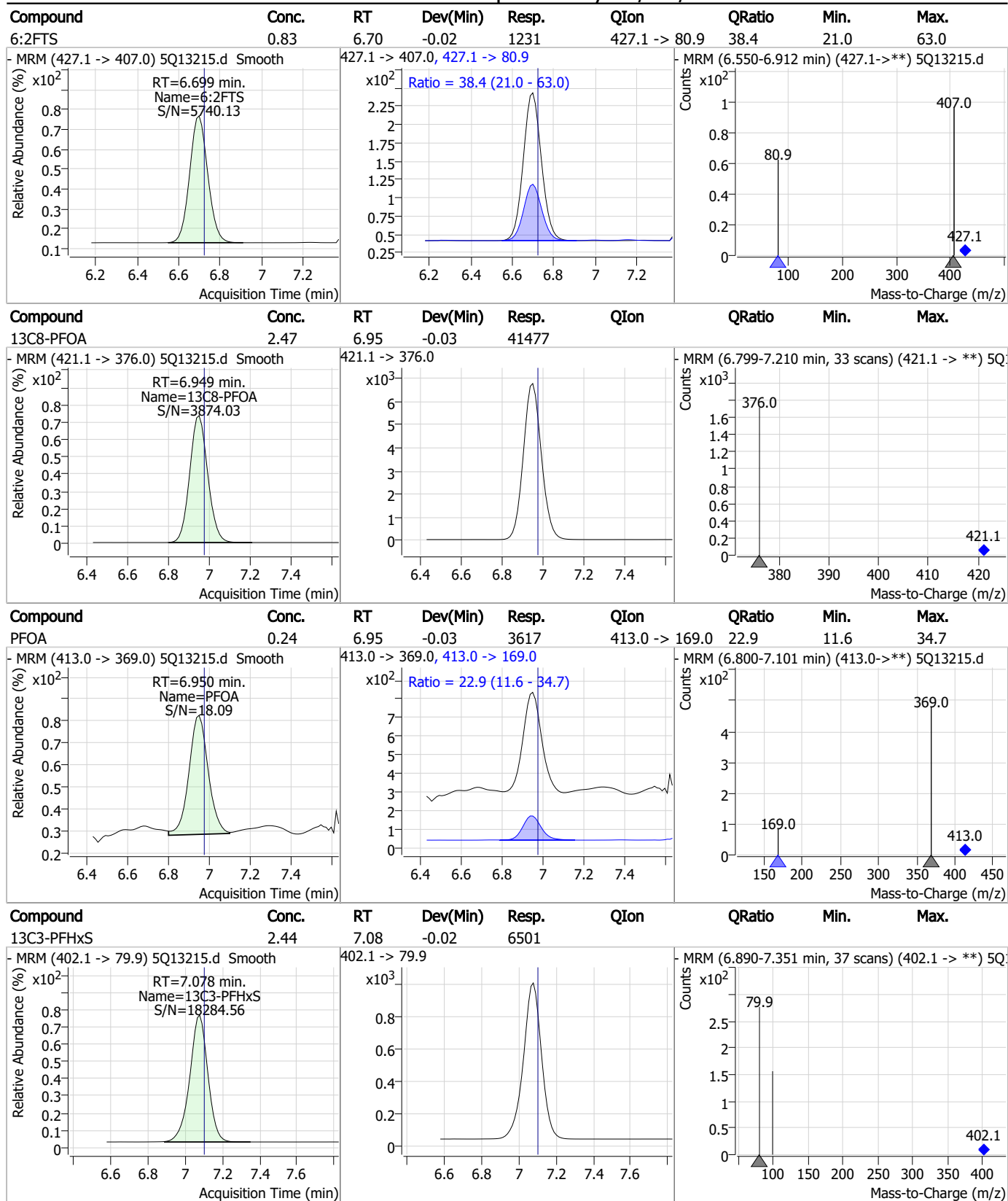
7.7.15  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7

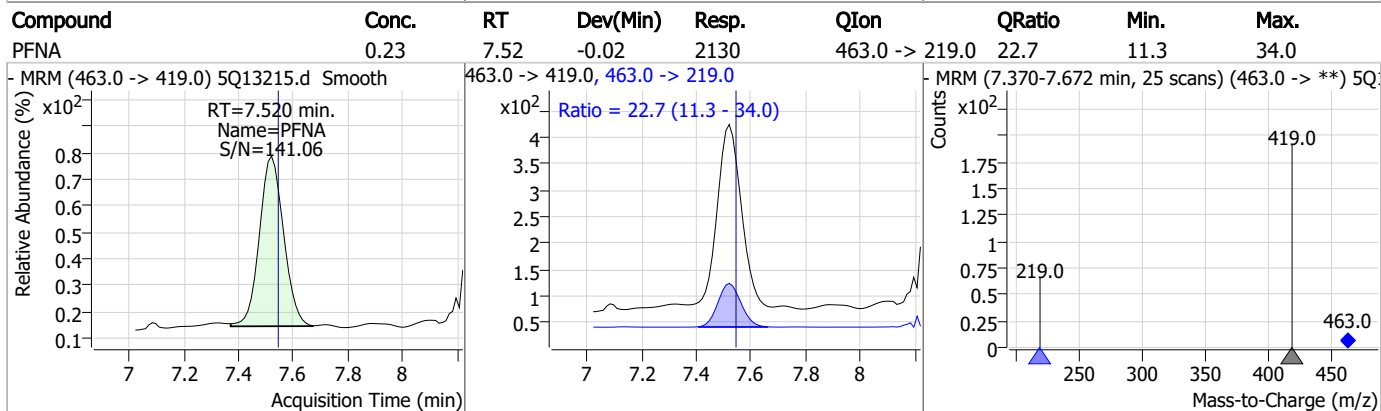
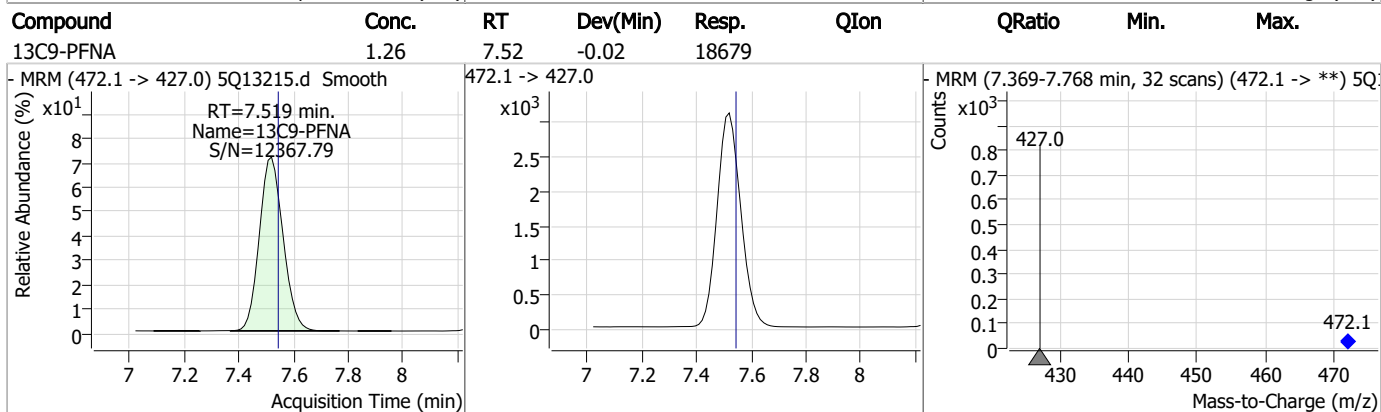
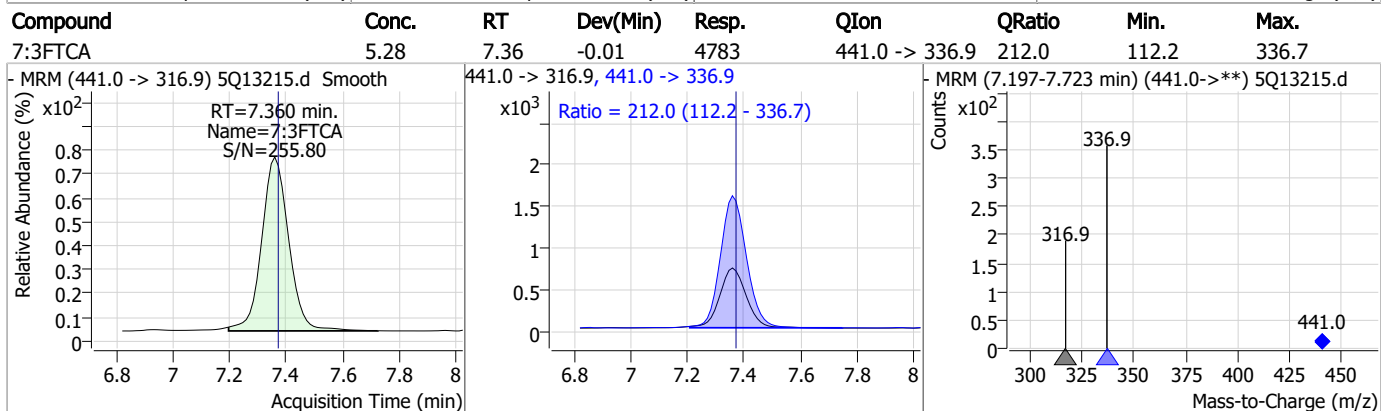
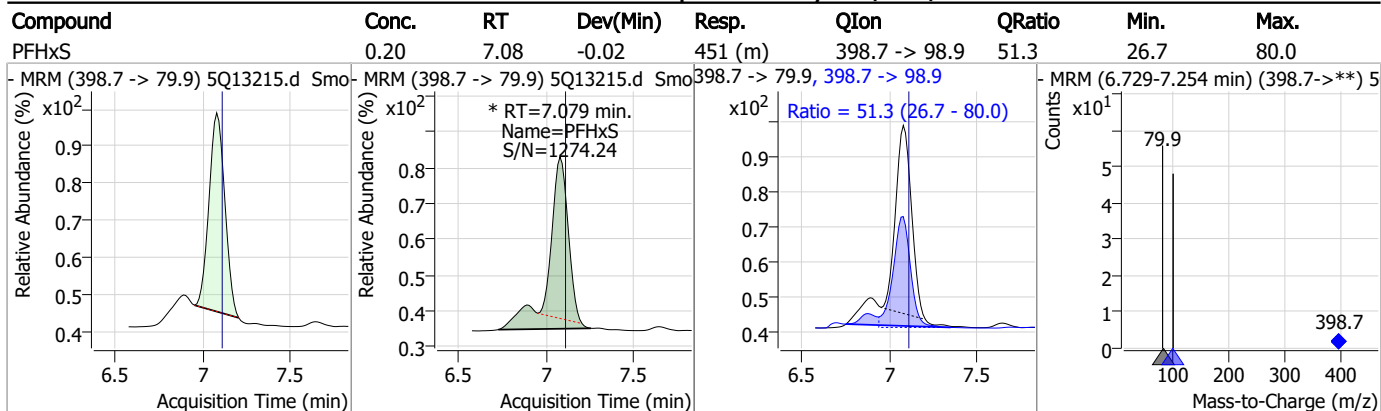
### Perfluorinated Compounds by LC/MS/MS



7.7.15

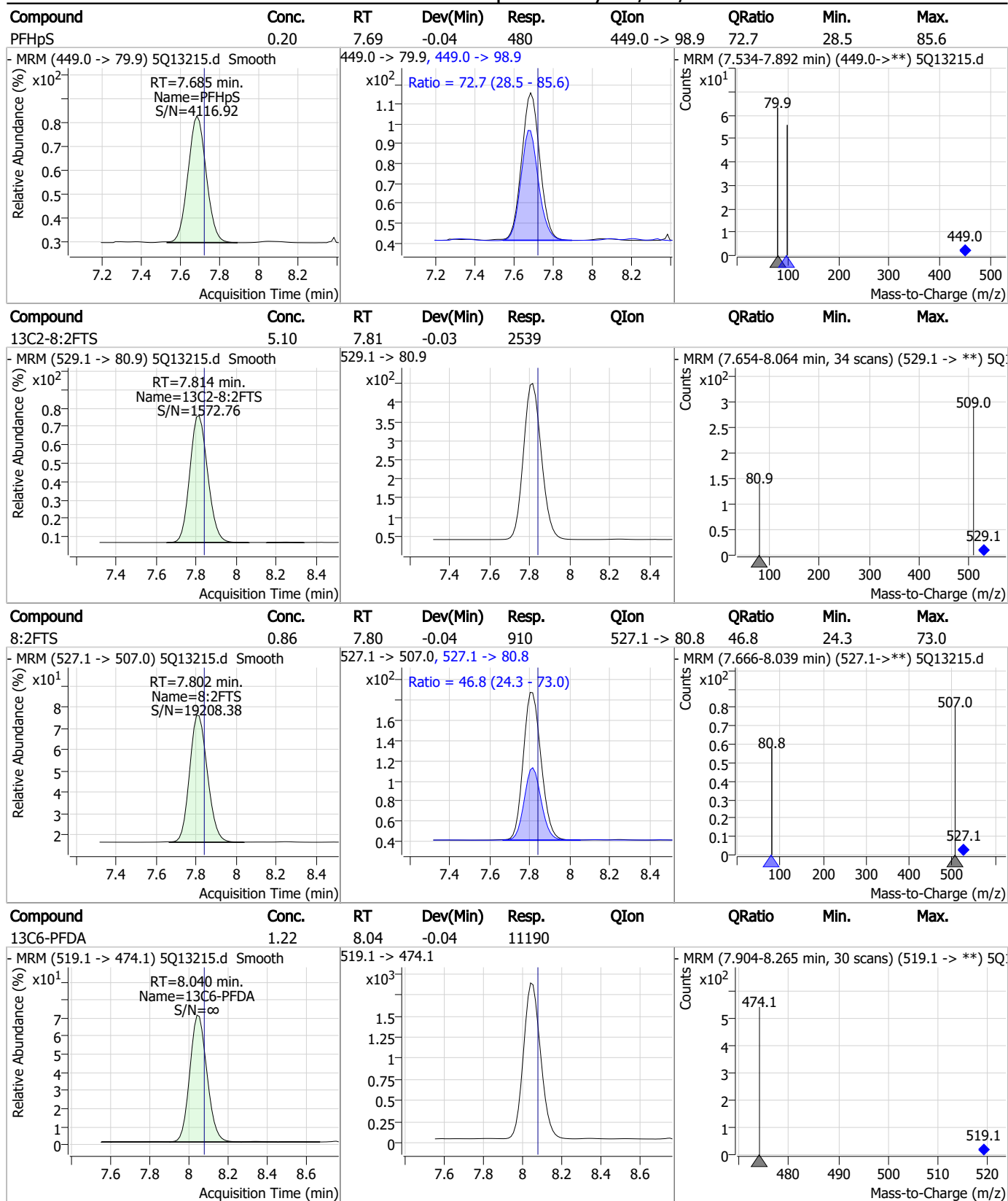
7

### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7

### Perfluorinated Compounds by LC/MS/MS

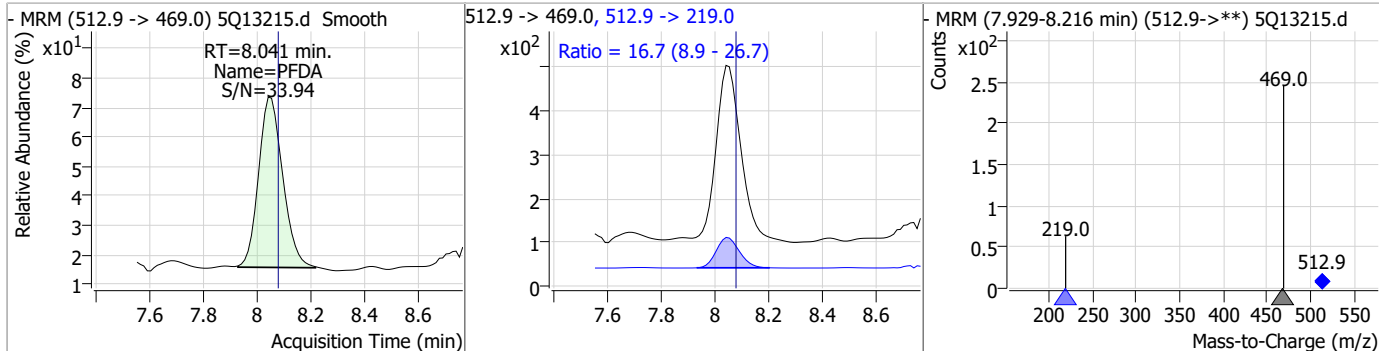


7.7.15

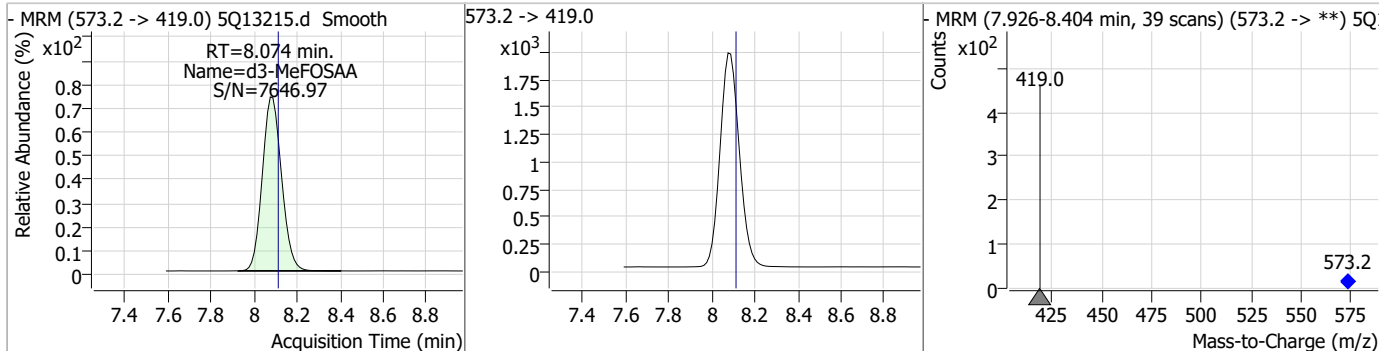


### Perfluorinated Compounds by LC/MS/MS

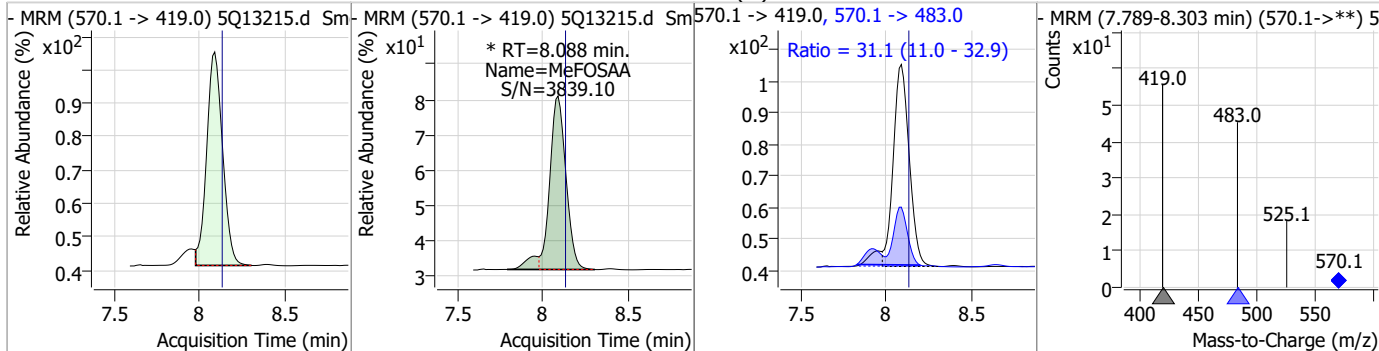
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.25	8.04	-0.04	2469	512.9 -> 219.0	16.7	8.9	26.7



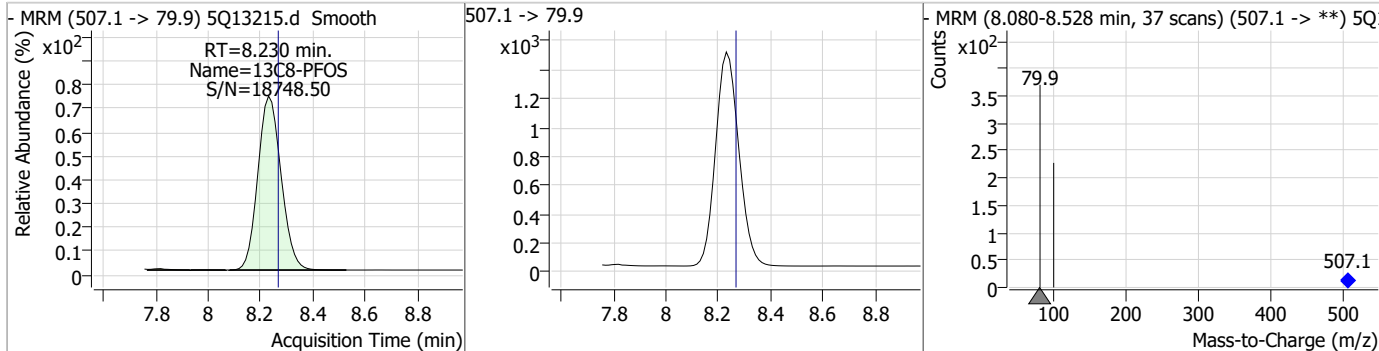
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.23	8.07	-0.04	12121				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.22	8.09	-0.04	442 (m)	570.1 -> 483.0	31.1	11.0	32.9



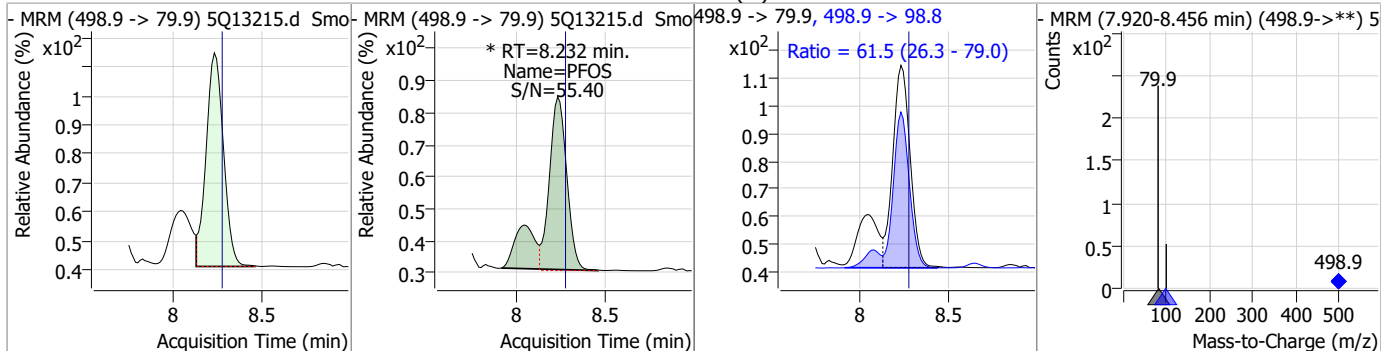
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.53	8.23	-0.04	9145				



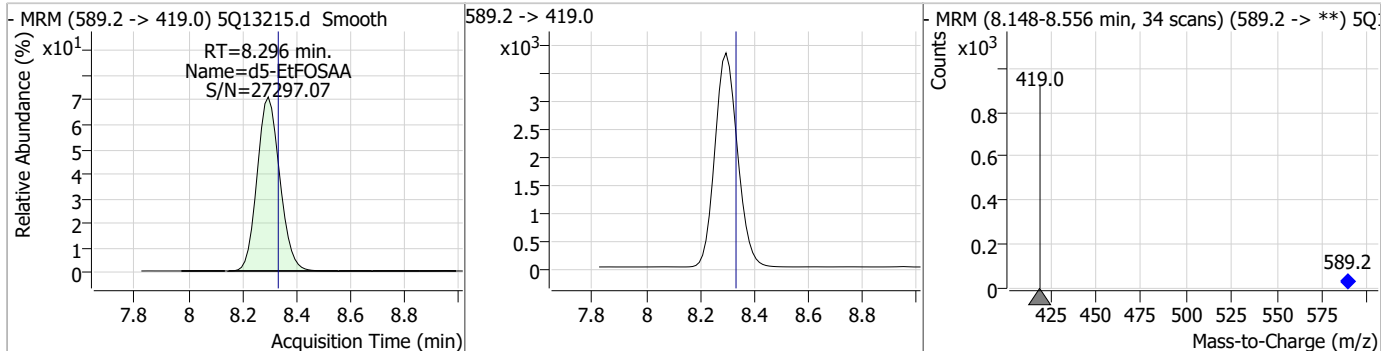
7.7.15  
7

### Perfluorinated Compounds by LC/MS/MS

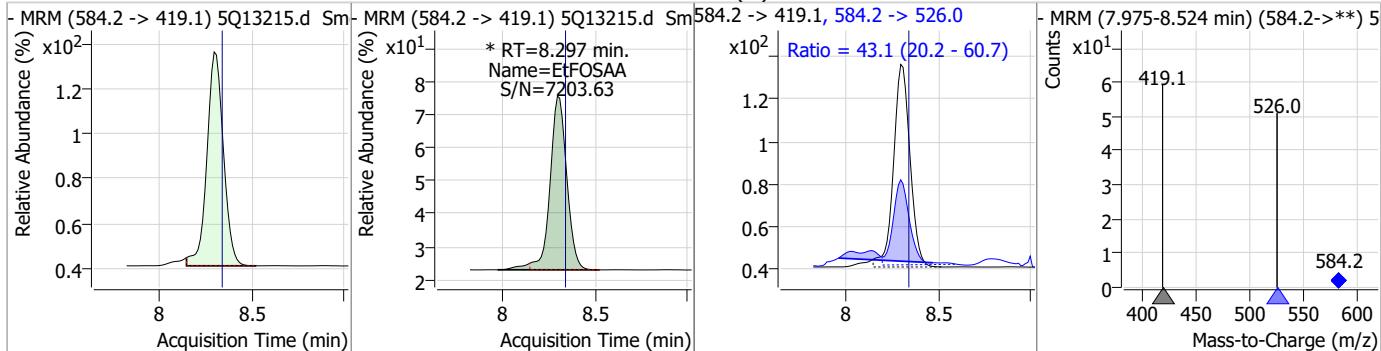
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.20	8.23	-0.04	630 (m)	498.9 -> 98.8	61.5	26.3	79.0



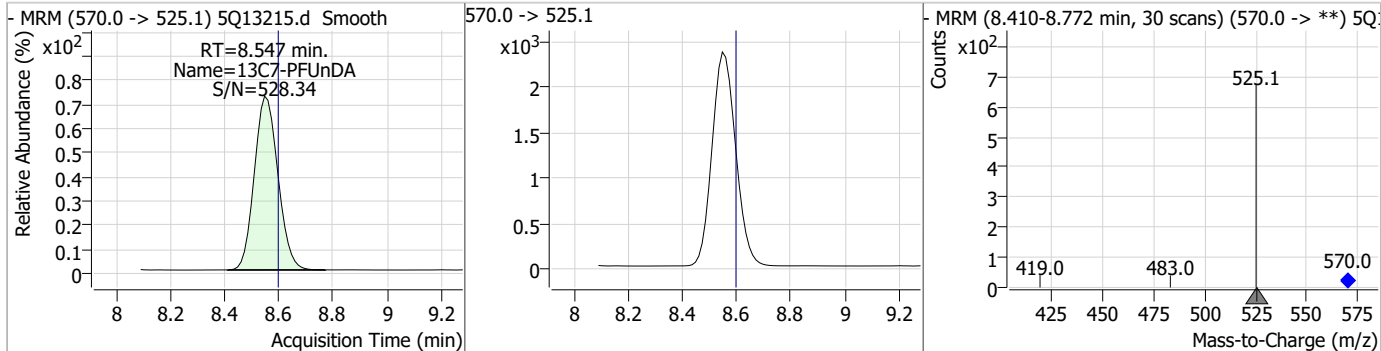
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	7.02	8.30	-0.04	22211				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.21	8.30	-0.04	601 (m)	584.2 -> 526.0	43.1	20.2	60.7

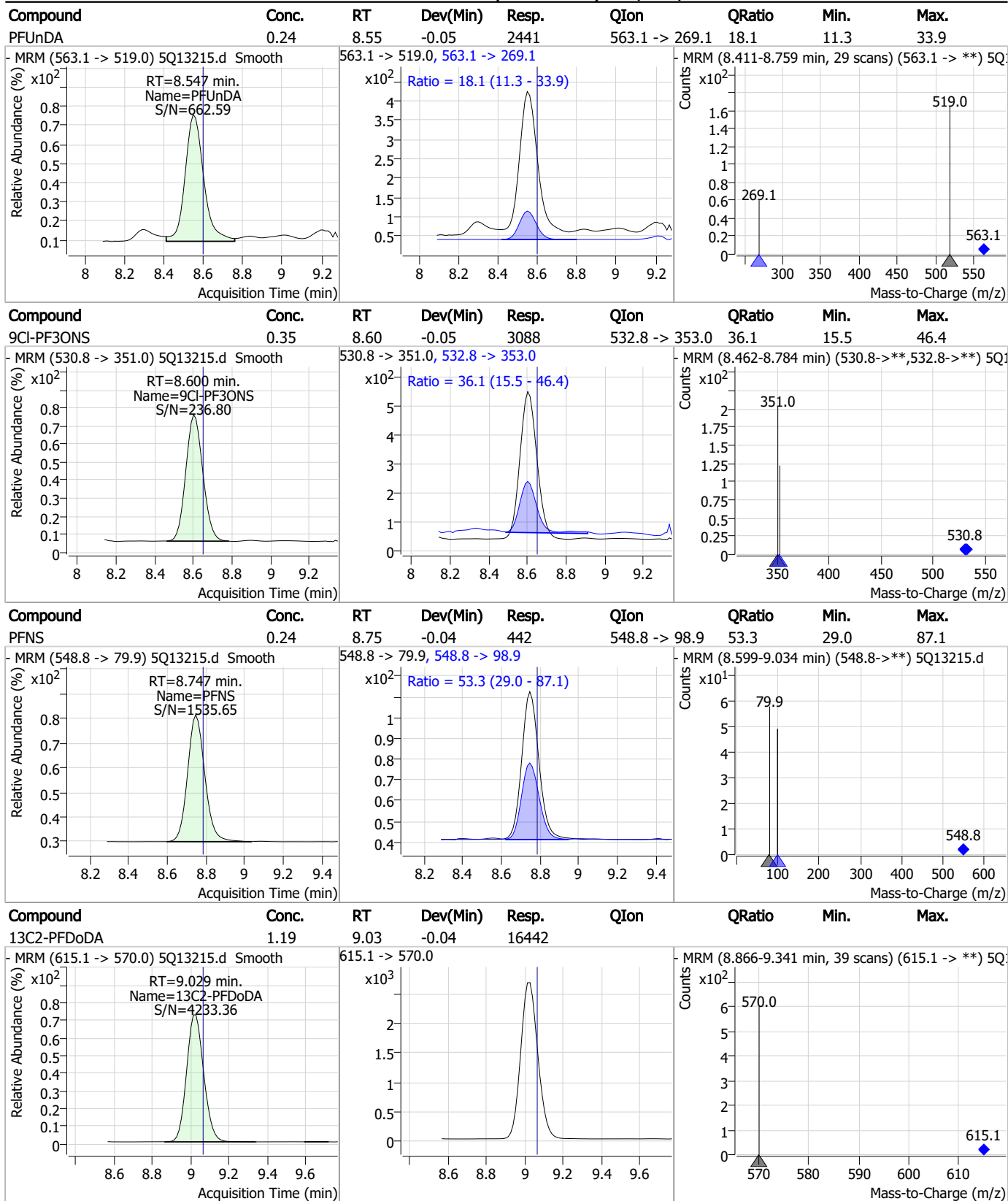


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.24	8.55	-0.05	14236				



7.7.15  
7

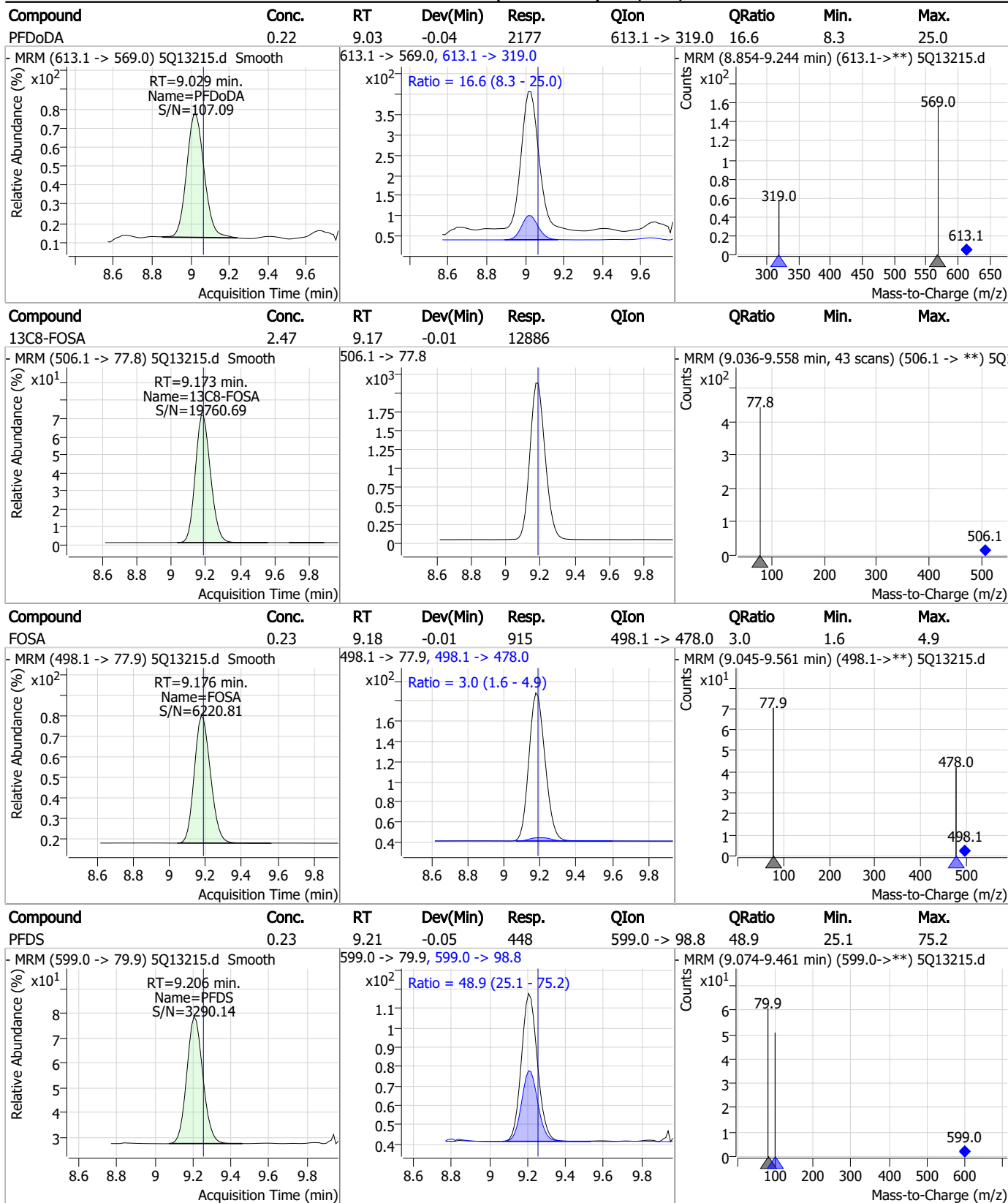
### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7



### Perfluorinated Compounds by LC/MS/MS

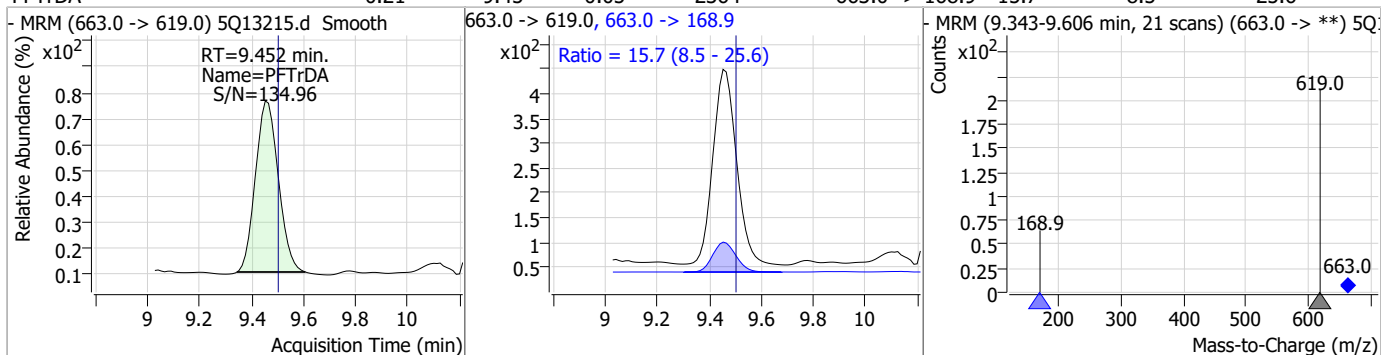


7.7.15  
7

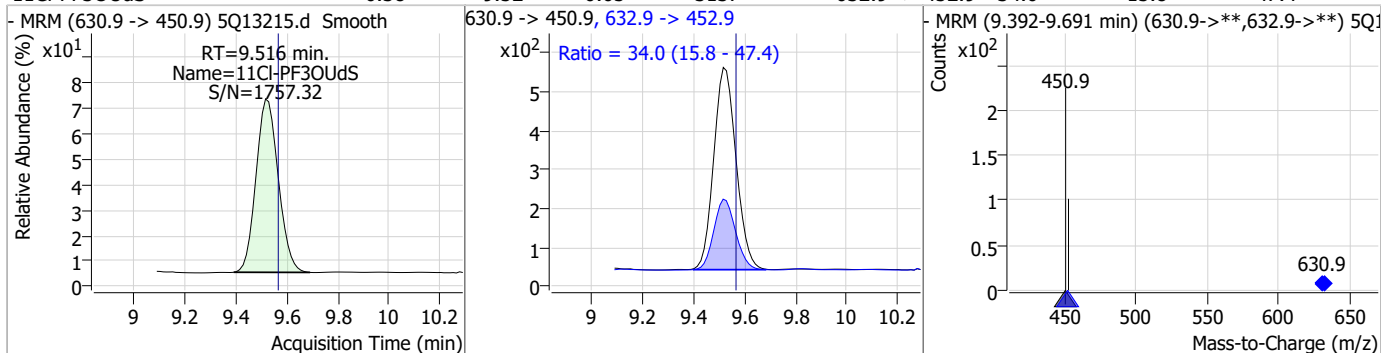


### Perfluorinated Compounds by LC/MS/MS

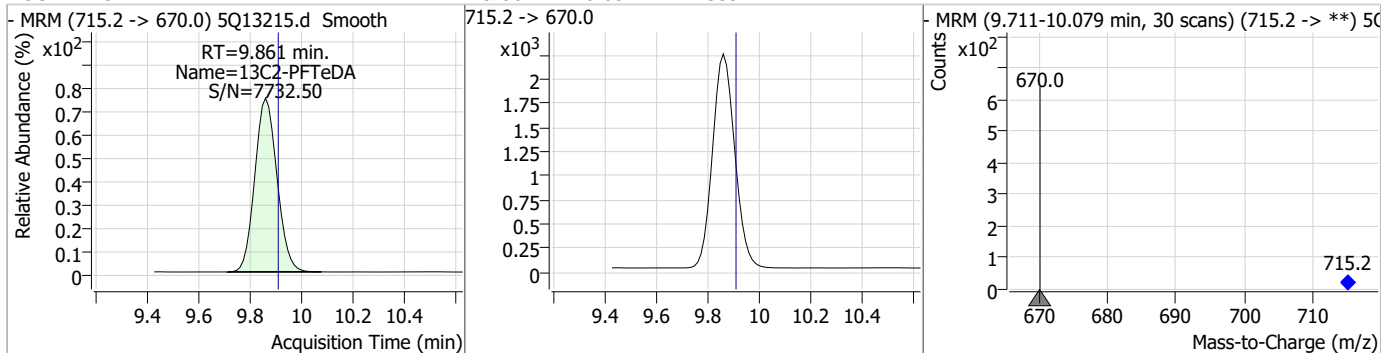
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTrDA	0.21	9.45	-0.05	2364	663.0 -> 168.9	15.7	8.5	25.6



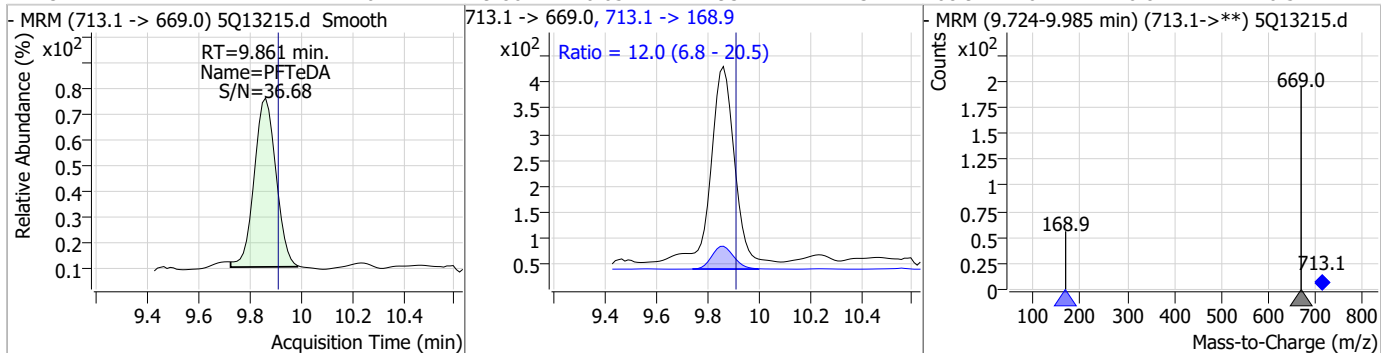
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
11Cl-PF3OUdS	0.38	9.52	-0.05	3137	632.9 -> 452.9	34.0	15.8	47.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.14	9.86	-0.05	13391				



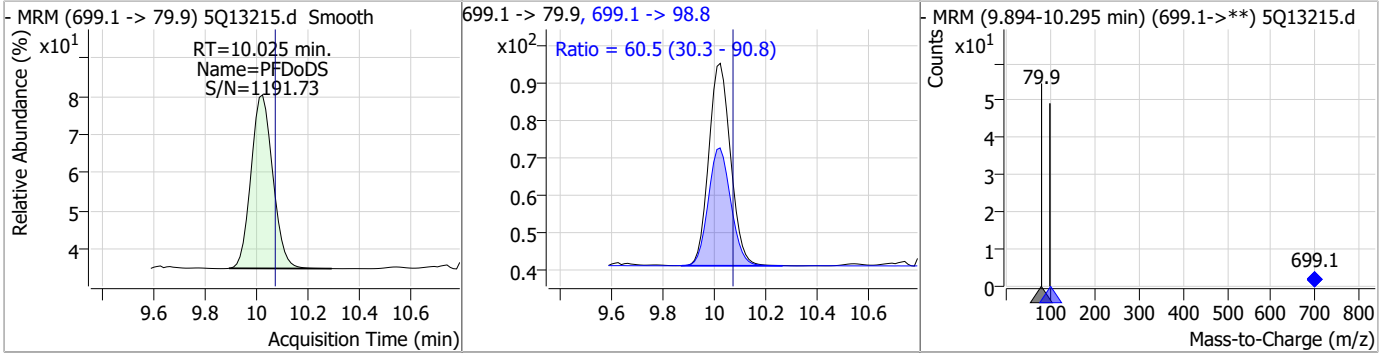
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.22	9.86	-0.05	2193	713.1 -> 168.9	12.0	6.8	20.5



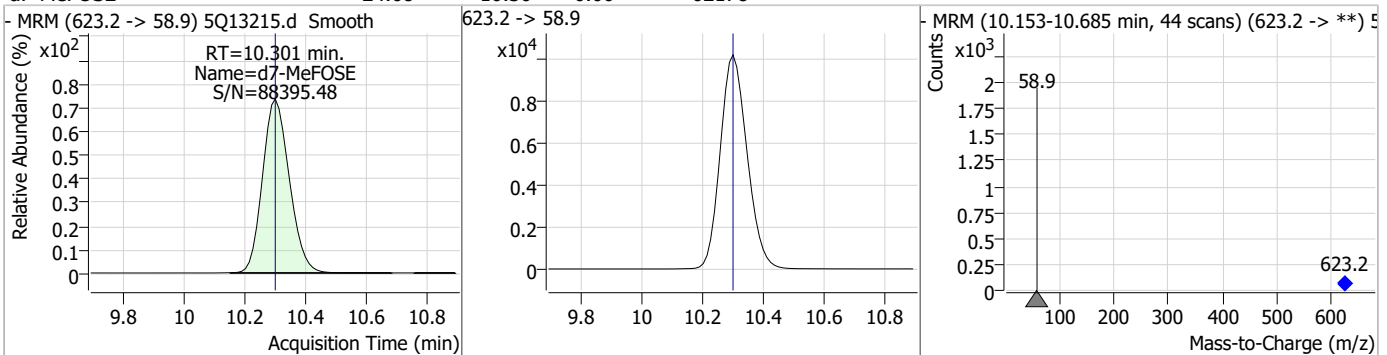
7.7.15  
7

### Perfluorinated Compounds by LC/MS/MS

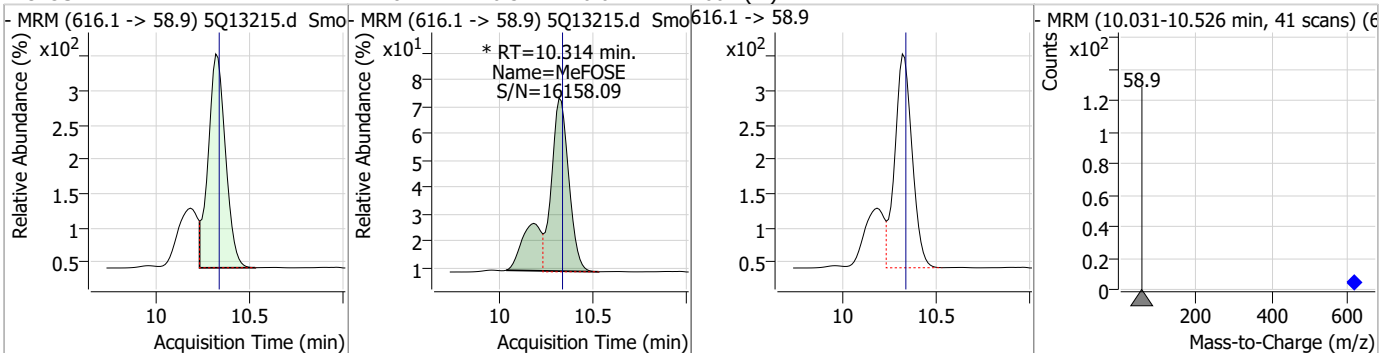
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.20	10.03	-0.05	318	699.1 -> 98.8	60.5	30.3	90.8



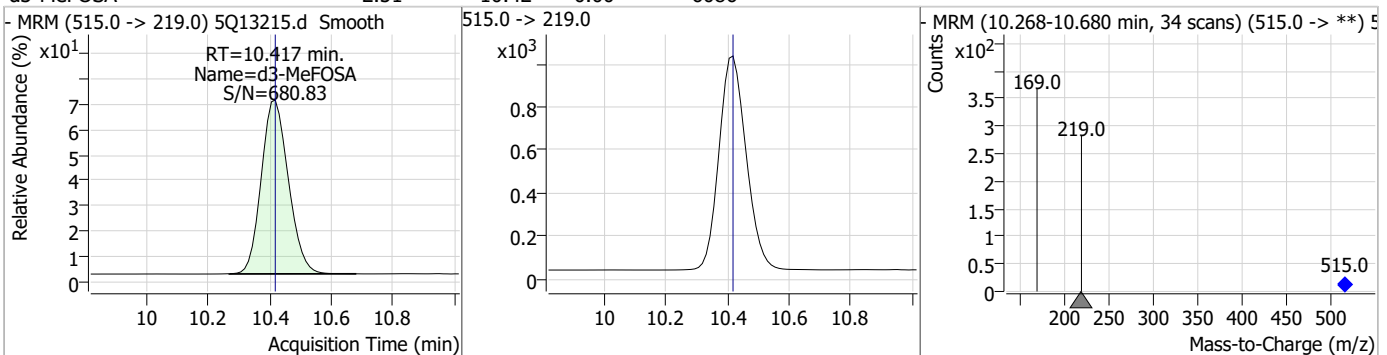
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.68	10.30	0.00	62178				



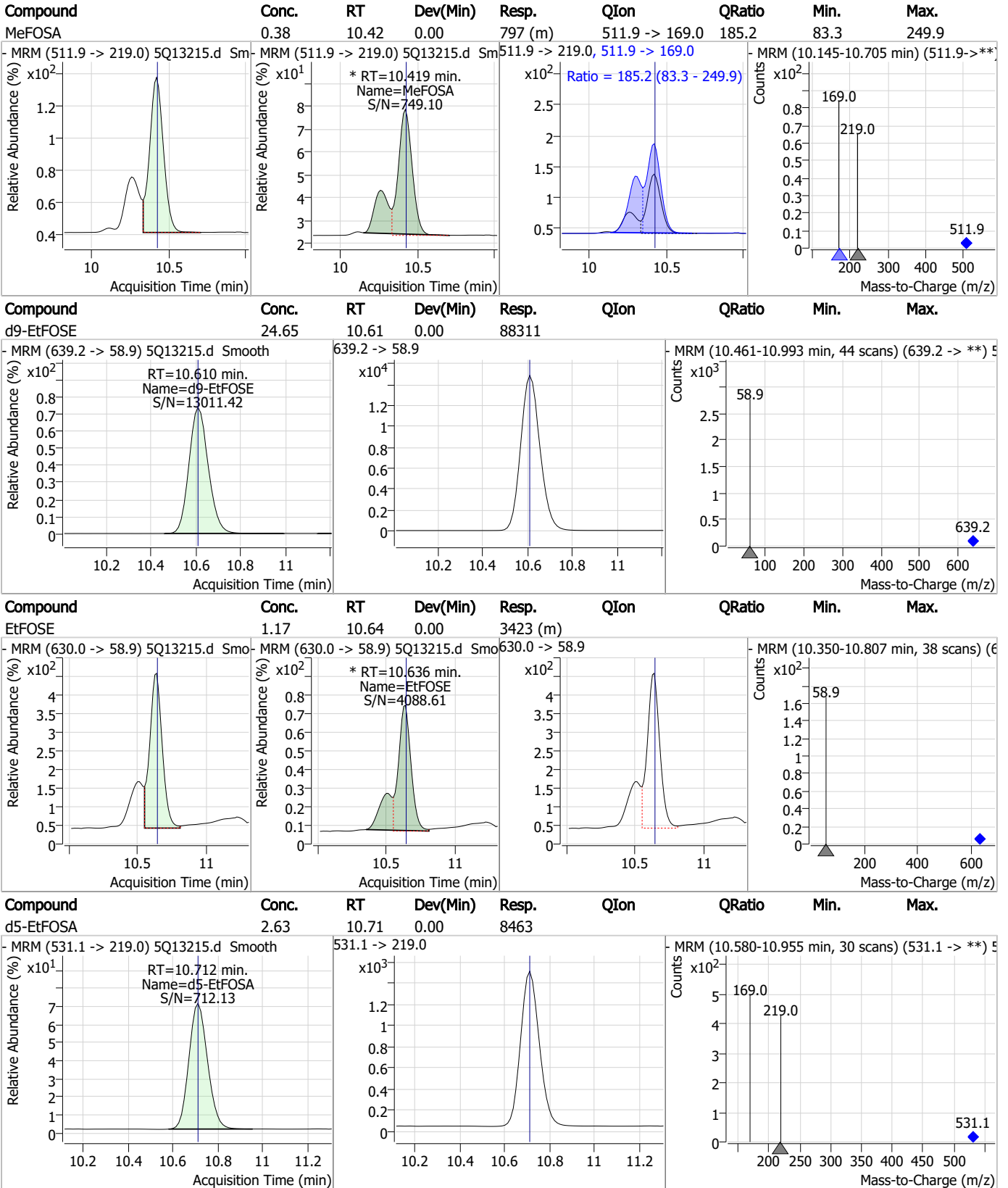
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.18	10.31	-0.01	2604 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	10.42	0.00	6086				



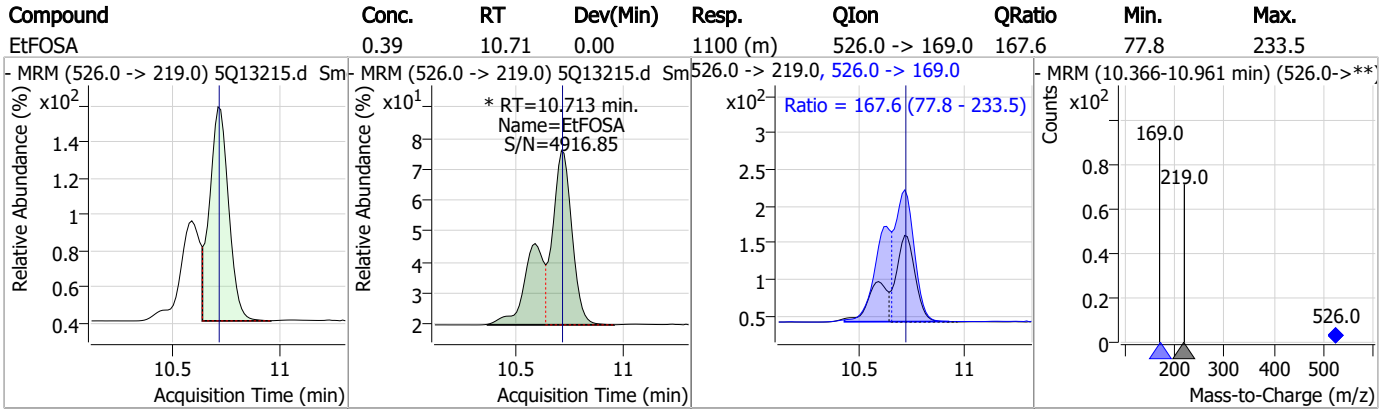
### Perfluorinated Compounds by LC/MS/MS



7.7.15  
7



### Perfluorinated Compounds by LC/MS/MS



7.7.15

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-CC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13215.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/20/23 04:42      **Supervisor approved:** 04/21/23 10:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.77	Poor instrument integration
13C3-PFBA			2.77	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.77	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.23	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.08	Split peak
MeFOSAA	2355-31-9		8.09	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSE	24448-09-7		10.31	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.15.1  
7

Perfluorinated Compounds by LC/MS/MS

Data File : 5Q13225.d  
 Operator : natashag  
 Acq. Method : 1633.m  
 Acq. Date-Time : 4/20/2023 7:05:44 AM  
 Sample Name : ecc205-4  
 Vial : P3-A5  
 DA Method File : 1633\_041923\_S5Q205.quantmethod.xml  
 Batch Name : s5q205.batch.bin  
 Sample Information : OP96301,S5Q205,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
<b>Internal Standards</b>						
M4-PFBA	2.752	216.8 -> 171.9	66337	10.00	µg/L	m -0.013
M5-PFPeA	4.091	268.3 -> 223.0	50135	5.00	µg/L	-0.025
M5-PFHxA	5.284	318.0 -> 273.0	42395	2.50	µg/L	-0.025
M4-PFHpA	6.254	367.1 -> 322.0	37749	2.50	µg/L	-0.037
M8-PFOA	6.936	421.1 -> 376.0	50744	2.50	µg/L	-0.038
M9-PFNA	7.506	472.1 -> 427.0	22371	1.25	µg/L	-0.037
M6-PFDA	8.040	519.1 -> 474.1	13550	1.25	µg/L	-0.037
M7-PFUnDA	8.547	570.0 -> 525.1	16643	1.25	µg/L	-0.051
M2-PFDoDA	9.015	615.1 -> 570.0	19683	1.25	µg/L	-0.051
M2-PFTeDA	9.848	715.2 -> 670.0	15541	1.25	µg/L	-0.062
M8-FOSA	9.173	506.1 -> 77.8	16152	2.50	µg/L	-0.012
M3-PFBS	5.226	302.1 -> 79.9	8242	2.50	µg/L	m -0.025
M3-PFHxS	7.065	402.1 -> 79.9	7816	2.50	µg/L	-0.037
M8-PFOS	8.230	507.1 -> 79.9	10421	2.50	µg/L	-0.037
M2-4:2FTS	4.935	329.1 -> 80.9	912	5.00	µg/L	-0.025
M2-6:2FTS	6.686	429.1 -> 80.9	2063	5.00	µg/L	-0.037
M2-8:2FTS	7.802	529.1 -> 80.9	3067	5.00	µg/L	-0.039
M3-MeFOSAA	8.074	573.2 -> 419.0	14852	5.00	µg/L	-0.037
M3-HFPO-DA	5.676	286.9 -> 168.9	86986	10.00	µg/L	-0.025
M5-EtFOSAA	8.284	589.2 -> 419.0	22248	5.00	µg/L	-0.050
M7-MeFOSE	10.301	623.2 -> 58.9	75102	25.00	µg/L	0.000
M9-EtFOSE	10.610	639.2 -> 58.9	103578	25.00	µg/L	0.000
M5-EtFOSA	10.712	531.1 -> 219.0	10083	2.50	µg/L	0.000
M3-MeFOSA	10.417	515.0 -> 219.0	7523	2.50	µg/L	0.000
13C4-PFOS	8.231	502.8 -> 79.9	10418	2.50	µg/L	-0.037
13C3-PFBA	2.755	216.0 -> 172.0	34746	5.00	µg/L	m -0.012
18O2-PFHxS	7.064	403.0 -> 83.9	5223	2.50	µg/L	-0.037
13C4-PFOA	6.937	417.1 -> 372.0	62315	2.50	µg/L	-0.038
13C2-PFDA	8.041	515.1 -> 470.1	20585	1.25	µg/L	-0.037
13C5-PFNA	7.507	468.0 -> 423.0	22584	1.25	µg/L	-0.037
13C2-PFHxA	5.285	315.1 -> 270.0	46331	2.50	µg/L	-0.024

**System Monitoring Compounds**

13C2-4:2FTS	4.935	329.1 -> 80.9	912	5.05	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%			
13C2-6:2FTS	6.686	429.1 -> 80.9	2063	5.18	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%			
13C2-8:2FTS	7.802	529.1 -> 80.9	3067	5.13	µg/L	-0.039
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.6%			
13C2-PFDoDA	9.015	615.1 -> 570.0	19683	1.21	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%			
13C2-PFTeDA	9.848	715.2 -> 670.0	15541	1.12	µg/L	-0.062
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.8%			
13C3-PFBS	5.226	302.1 -> 79.9	7935	2.48	µg/L	m -0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.3%			
13C3-PFHxS	7.065	402.1 -> 79.9	7816	2.44	µg/L	-0.037

7.7.16  
7

### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%		
13C4-PFBA	2.752	216.8 -> 171.9	66337	9.96	µg/L m	-0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C4-PFHpA	6.254	367.1 -> 322.0	37749	2.44	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%		
13C5-PFHxA	5.284	318.0 -> 273.0	42395	2.44	µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.5%		
13C5-PFPeA	4.091	268.3 -> 223.0	50135	5.02	µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%		
13C6-PFDA	8.040	519.1 -> 474.1	13550	1.25	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%		
13C7-PFUnDA	8.547	570.0 -> 525.1	16643	1.23	µg/L	-0.051
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%		
13C8-FOSA	9.173	506.1 -> 77.8	16152	2.58	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C8-PFOA	6.936	421.1 -> 376.0	50744	2.49	µg/L	-0.038
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%		
13C8-PFOS	8.230	507.1 -> 79.9	10421	2.40	µg/L	-0.037
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%		
13C9-PFNA	7.506	472.1 -> 427.0	22371	1.22	µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%		
d3-MeFOSAA	8.074	573.2 -> 419.0	14852	5.33	µg/L	-0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.5%		
13C3-HFPO-DA	5.676	286.9 -> 168.9	86986	10.06	µg/L	-0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%		
d3-MeFOSA	10.417	515.0 -> 219.0	7523	2.58	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%		
d5-EtFOSAA	8.284	589.2 -> 419.0	22248	5.84	µg/L	-0.050
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 116.8%		
d7-MeFOSE	10.301	623.2 -> 58.9	75102	24.76	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%		
d9-EtFOSE	10.610	639.2 -> 58.9	103578	24.01	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.0%		
d5-EtFOSA	10.712	531.1 -> 219.0	10083	2.60	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%		
<b>Target Compounds</b>						<b>QValue</b>
4:2FTS	4.936	327.1 -> 307.0	9826	9.14	µg/L	97
		327.1 -> 80.9	5482			
6:2FTS	6.686	427.1 -> 407.0	14796	9.14	µg/L	99
		427.1 -> 80.9	6161			
8:2FTS	7.802	527.1 -> 507.0	12069	9.48	µg/L	93
		527.1 -> 80.8	5284			
EtFOSAA	8.297	584.2 -> 419.1	7131	2.53	µg/L m	98
		584.2 -> 526.0	2976			
FOSA	9.176	498.1 -> 77.9	11516	2.28	µg/L	100
		498.1 -> 478.0	386			
MeFOSAA	8.075	570.1 -> 419.0	5781	2.31	µg/L m	98
		570.1 -> 483.0	1323			
PFBA	2.758	212.8 -> 168.9	22640	9.37	µg/L m	100
PFBS	5.227	298.7 -> 79.9	5665	2.17	µg/L m	87
		298.7 -> 98.8	2165			
PFDA	8.041	512.9 -> 469.0	28083	2.33	µg/L	100
		512.9 -> 219.0	5042			
PFDoDA	9.016	613.1 -> 569.0	28405	2.37	µg/L	100
		613.1 -> 319.0	4748			
PFDS	9.193	599.0 -> 79.9	5471	2.47	µg/L	94

7.7.16  
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.267	599.0 -> 98.8	2981	2.41	µg/L	98
		363.1 -> 319.0	37063			
PFHpS	7.673	363.1 -> 169.0	8228	2.46	µg/L	99
		449.0 -> 79.9	6809			
PFHxA	5.286	449.0 -> 98.9	3937	2.37	µg/L	100
		313.0 -> 269.0	25340			
PFHxS	7.066	313.0 -> 118.9	1165	2.09	µg/L	91
		398.7 -> 79.9	5726			
PFNA	7.507	398.7 -> 98.9	3432	2.44	µg/L	98
		463.0 -> 419.0	26547			
PFNS	8.735	463.0 -> 219.0	6327	2.57	µg/L	99
		548.8 -> 79.9	5283			
PFOA	6.938	548.8 -> 98.9	3030	2.33	µg/L	98
		413.0 -> 369.0	42263			
PFOS	8.218	413.0 -> 169.0	10119	2.24	µg/L	91
		498.9 -> 79.9	8133			
PFPeA	4.092	498.9 -> 98.8	4825	4.74	µg/L	100
		263.0 -> 219.0	46259			
PFPeS	6.331	349.1 -> 79.9	5858	2.34	µg/L	99
		349.1 -> 98.9	2824			
PFTeDA	9.849	713.1 -> 669.0	27983	2.45	µg/L	99
		713.1 -> 168.9	3734			
PFTrDA	9.452	663.0 -> 619.0	31251	2.35	µg/L	99
		663.0 -> 168.9	5453			
PFUnDA	8.547	563.1 -> 519.0	29199	2.44	µg/L	99
		563.1 -> 269.1	6439			
11Cl-PF3OUdS	9.504	630.9 -> 450.9	44383	4.49	µg/L	100
		632.9 -> 452.9	14009			
9Cl-PF3ONS	8.588	530.8 -> 351.0	46722	4.46	µg/L	97
		532.8 -> 353.0	15218			
ADONA	6.530	376.9 -> 250.9	109491	4.56	µg/L	99
		376.9 -> 84.8	30923			
HFPO-DA	5.677	284.9 -> 168.9	33669	4.92	µg/L	100
		284.9 -> 184.9	3149			
3:3FTCA	3.548	241.0 -> 177.0	7201	11.24	µg/L	99
		241.0 -> 117.0	789			
5:3FTCA	5.905	341.0 -> 237.1	120357	58.83	µg/L	99
		341.0 -> 217.0	80693			
7:3FTCA	7.348	441.0 -> 316.9	60236	57.03	µg/L	99
		441.0 -> 336.9	134135			
EtFOSA	10.713	526.0 -> 219.0	15833	4.74	µg/L	97
		526.0 -> 169.0	24025			
EtFOSE	10.636	630.0 -> 58.9	39655	11.55	µg/L	100
		511.9 -> 219.0	11521			
MeFOSA	10.419	511.9 -> 169.0	19951	4.48	µg/L	95
		616.1 -> 58.9	30318			
MeFOSE	10.314	699.1 -> 79.9	4191	11.40	µg/L	100
		699.1 -> 98.8	2517			
PFDoDS	10.013	295.0 -> 201.0	4939	2.33	µg/L	99
		295.0 -> 84.9	1429			
NFDHA	5.167	279.0 -> 85.1	29407	4.74	µg/L	98
		229.0 -> 84.9	25978			
PFMBA	4.492	314.8 -> 134.9	58987	4.62	µg/L	100
		314.8 -> 82.9	1752			
PFMPA	3.278			5.12	µg/L	100
PFEESA	5.783			4.26	µg/L	100

7.7.16  
7

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



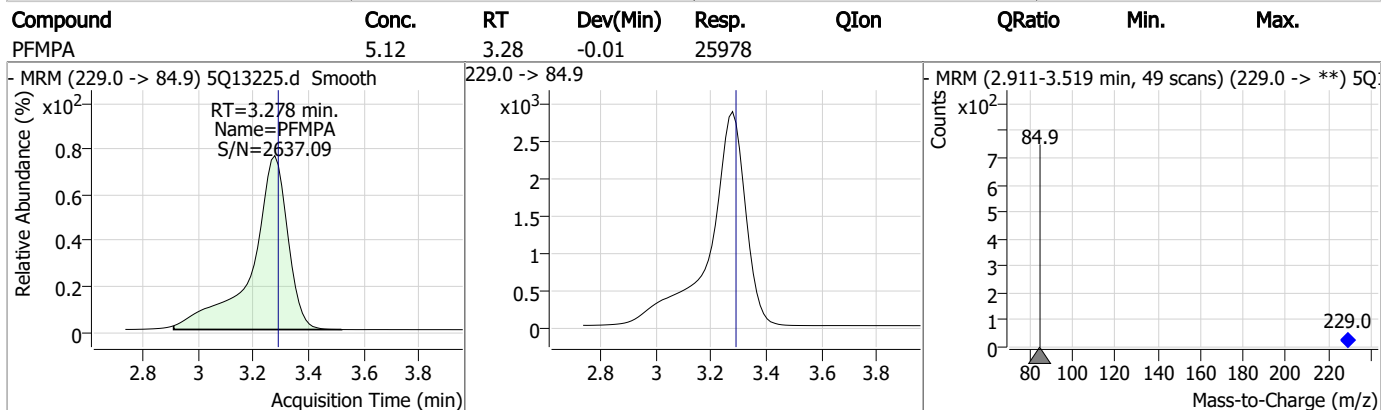
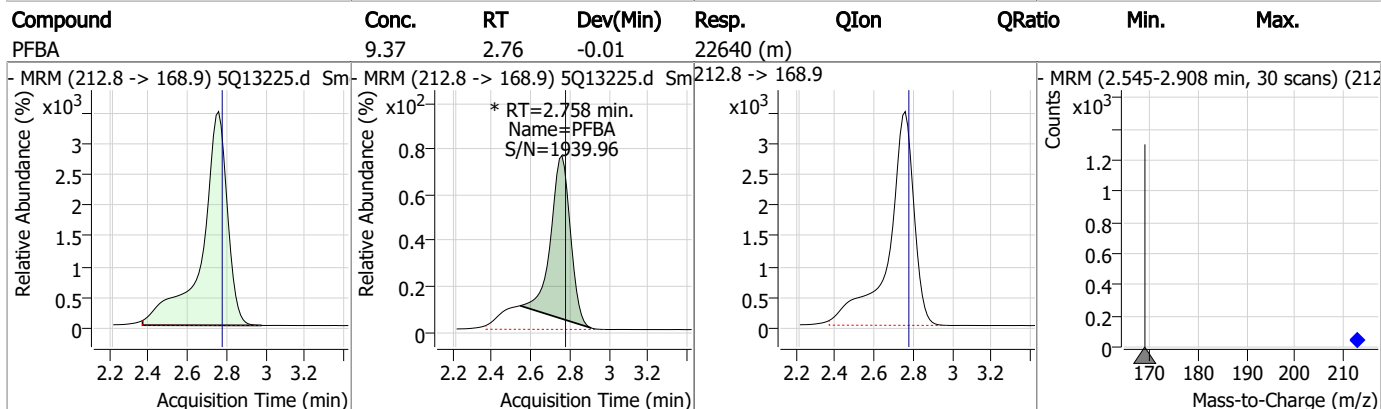
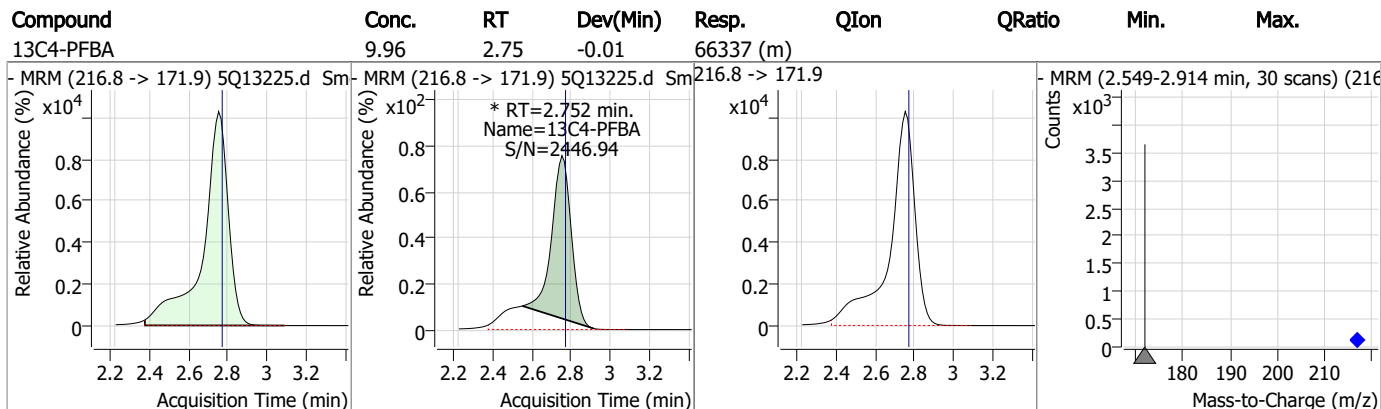
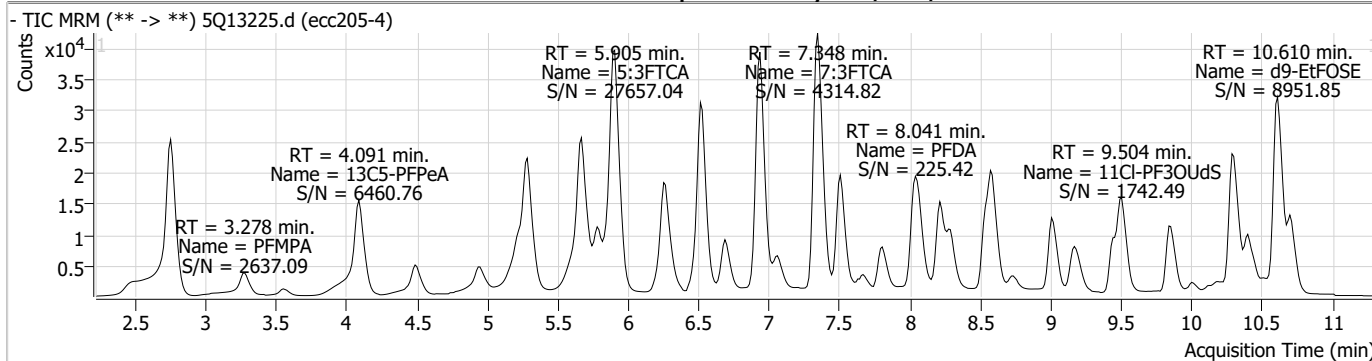
### Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.16

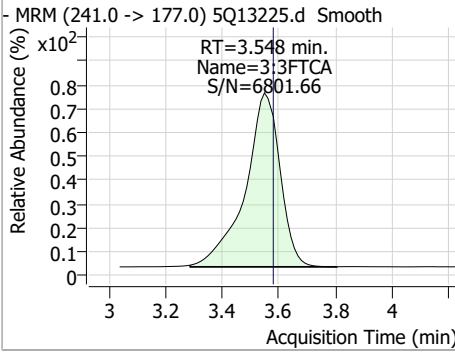
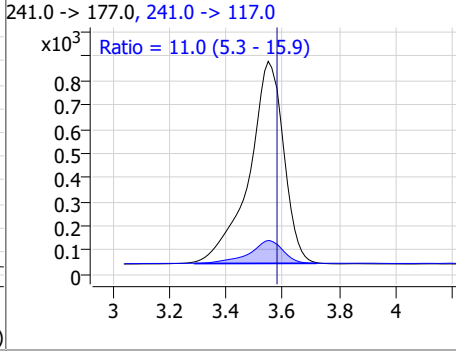
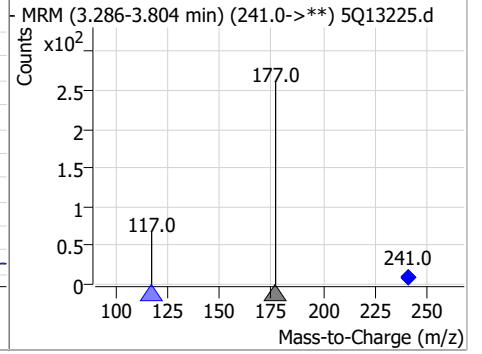
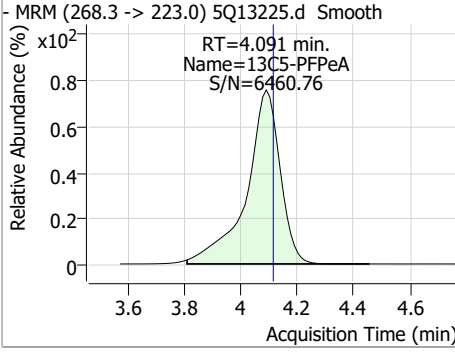
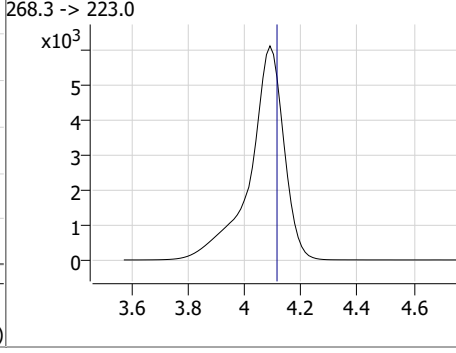
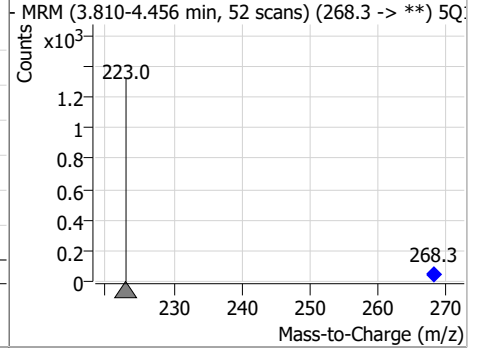
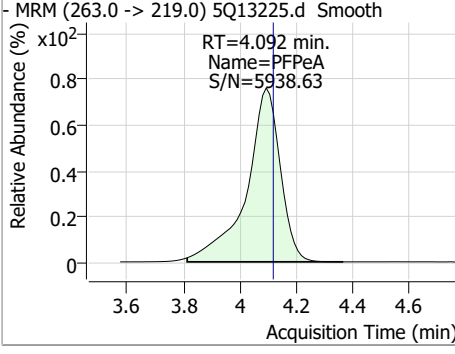
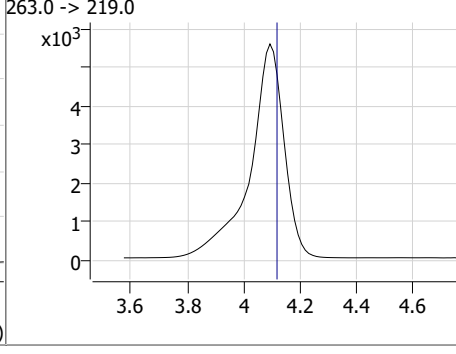
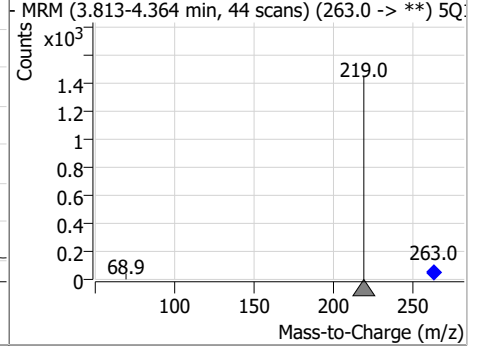
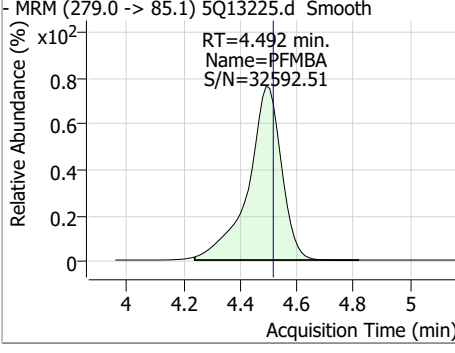
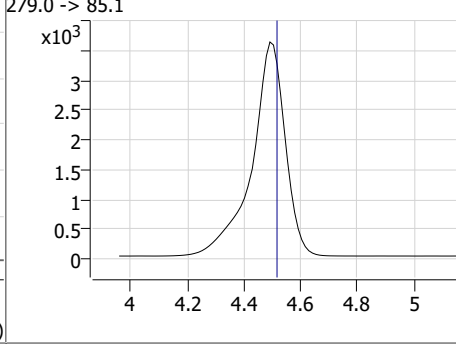
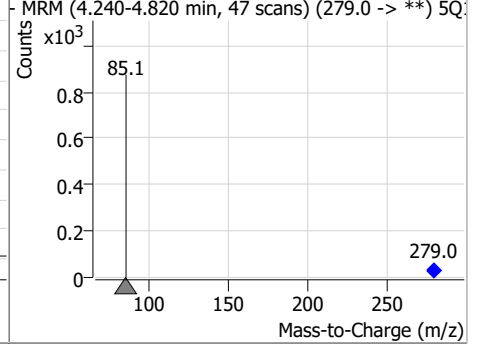
7

### Perfluorinated Compounds by LC/MS/MS



7.7.16  
7

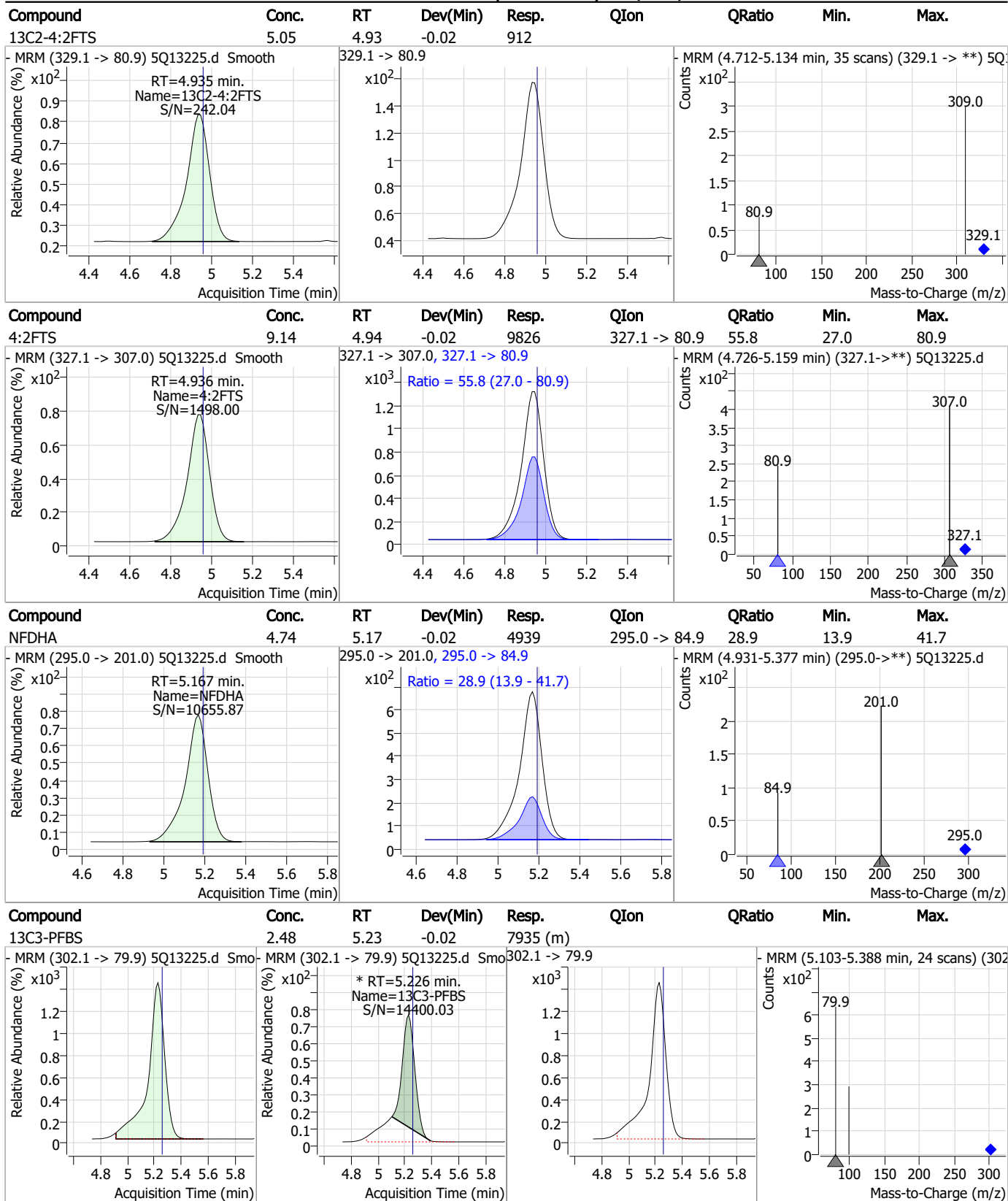
### Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	11.24	3.55	-0.03	7201	241.0 -> 117.0	11.0	5.3	15.9
								
13C5-PFPeA	5.02	4.09	-0.02	50135				
								
PFPeA	4.74	4.09	-0.02	46259				
								
PFMBA	4.62	4.49	-0.02	29407				
								

7.7.16 7



### Perfluorinated Compounds by LC/MS/MS

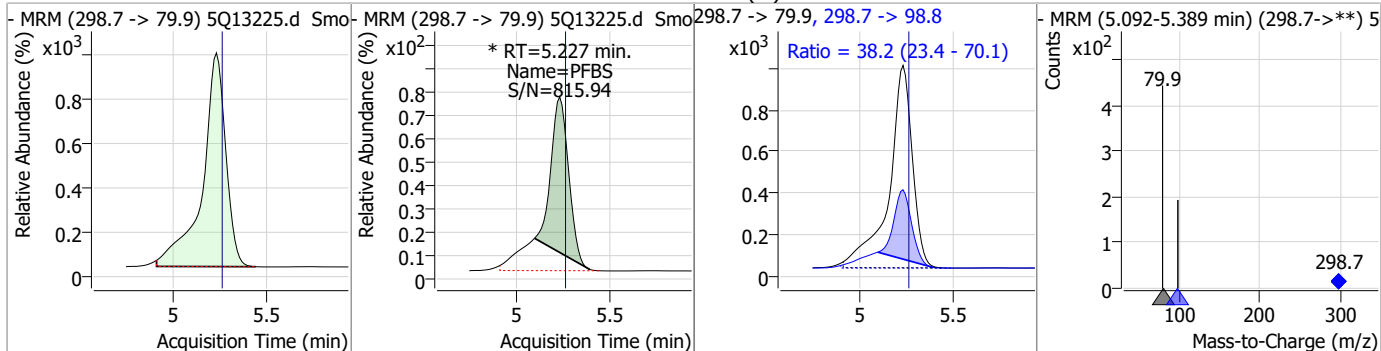


7.7.16

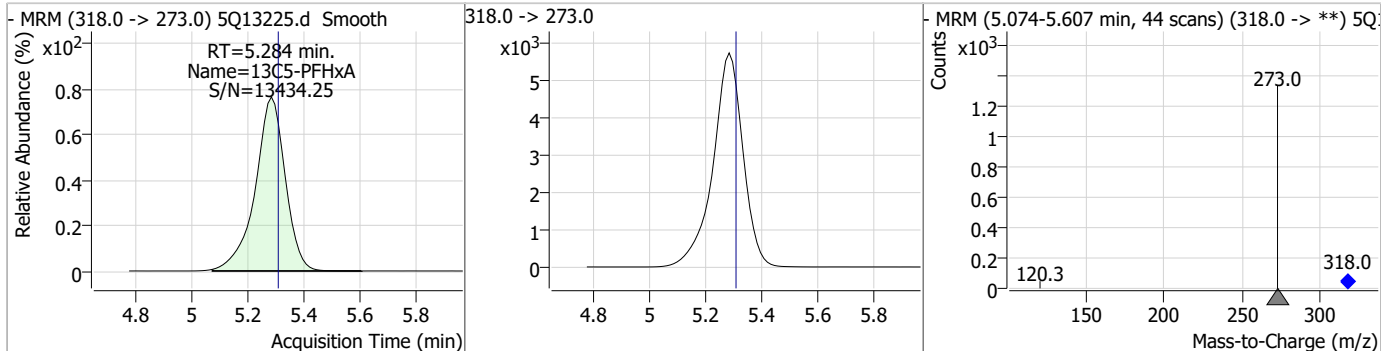
7

### Perfluorinated Compounds by LC/MS/MS

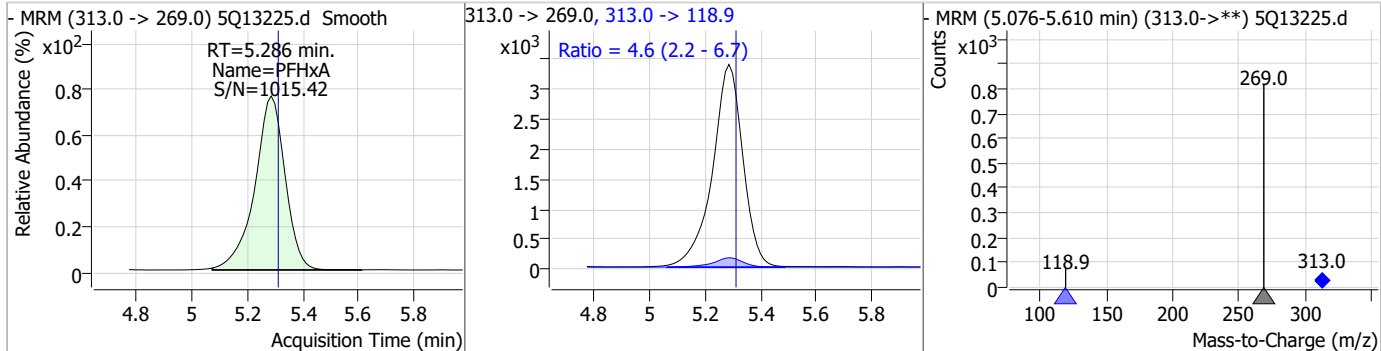
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.17	5.23	-0.02	5665 (m)	298.7 -> 98.8	38.2	23.4	70.1



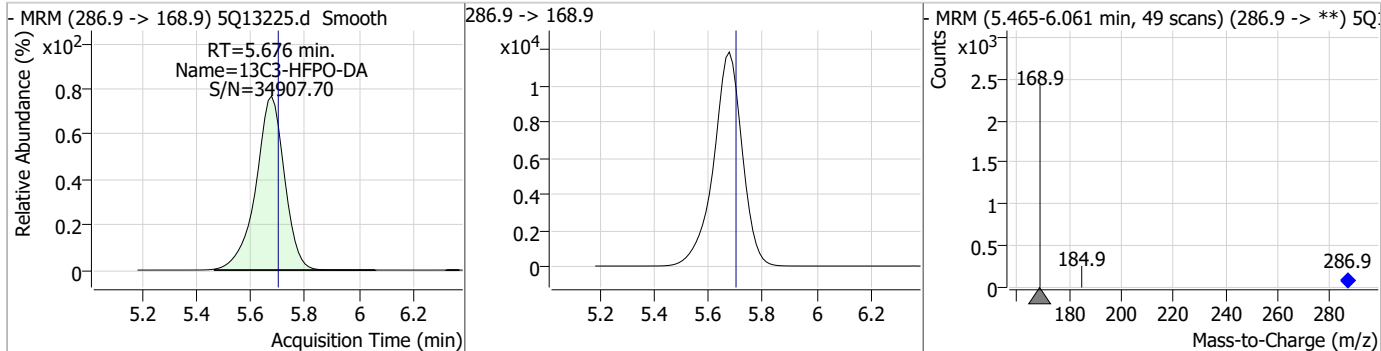
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.28	-0.02	42395				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.37	5.29	-0.03	25340	313.0 -> 118.9	4.6	2.2	6.7

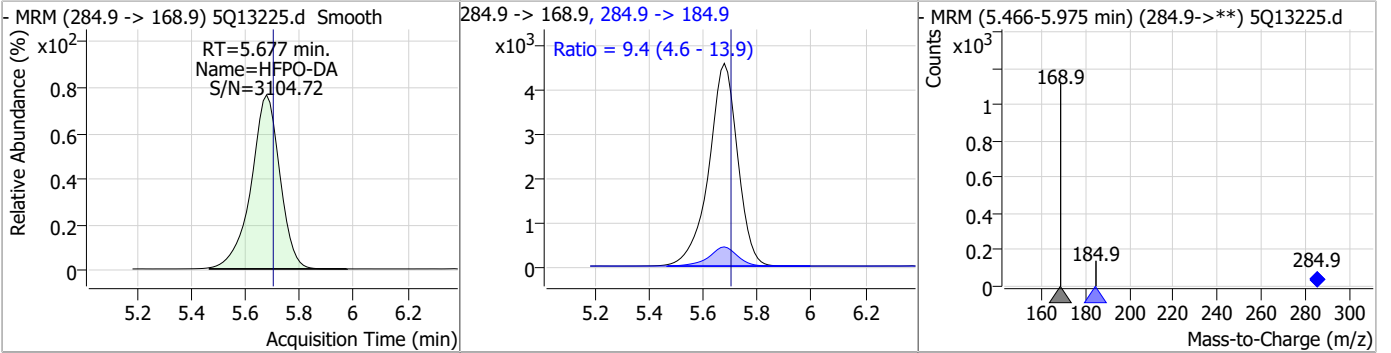


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.06	5.68	-0.02	86986				

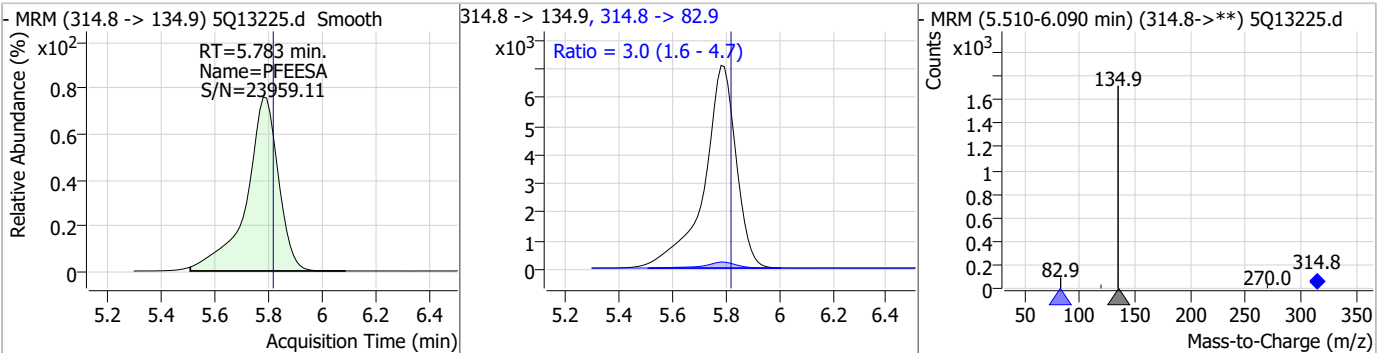


### Perfluorinated Compounds by LC/MS/MS

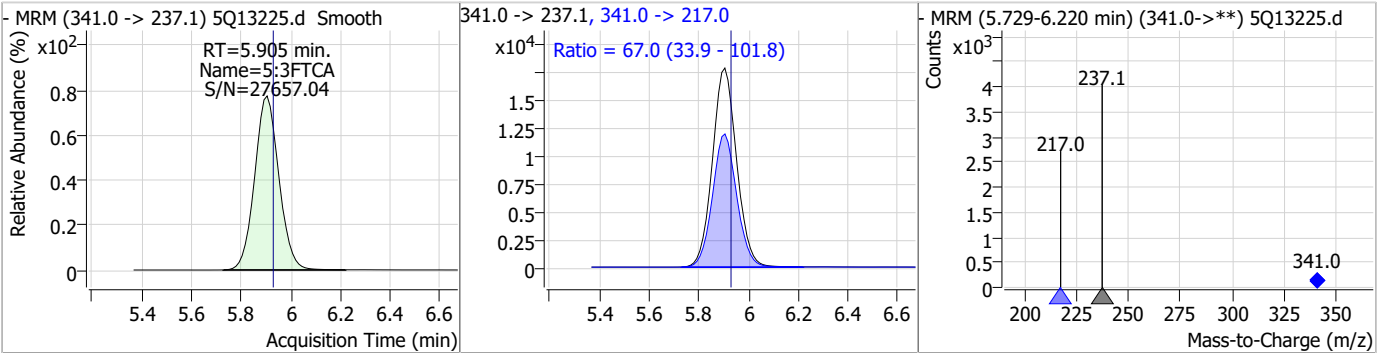
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.92	5.68	-0.02	33669	284.9 -> 184.9	9.4	4.6	13.9



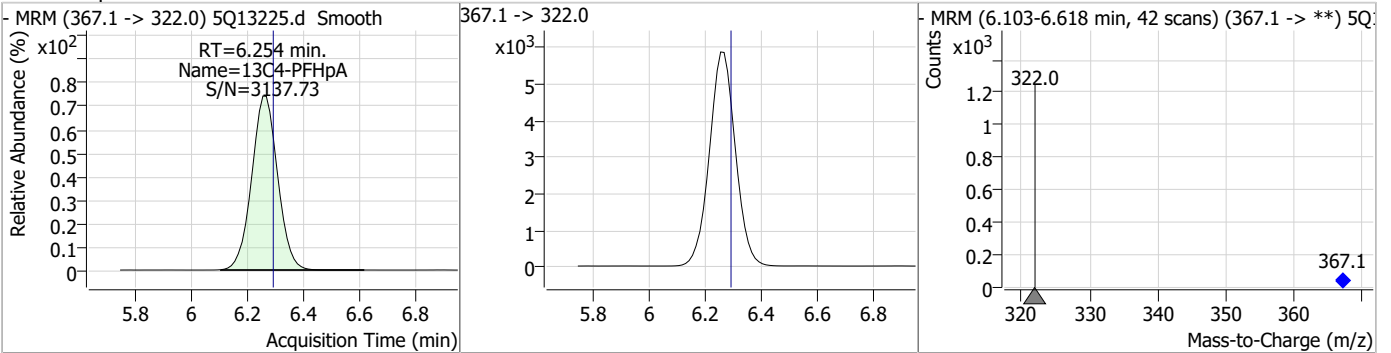
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.26	5.78	-0.04	58987	314.8 -> 82.9	3.0	1.6	4.7



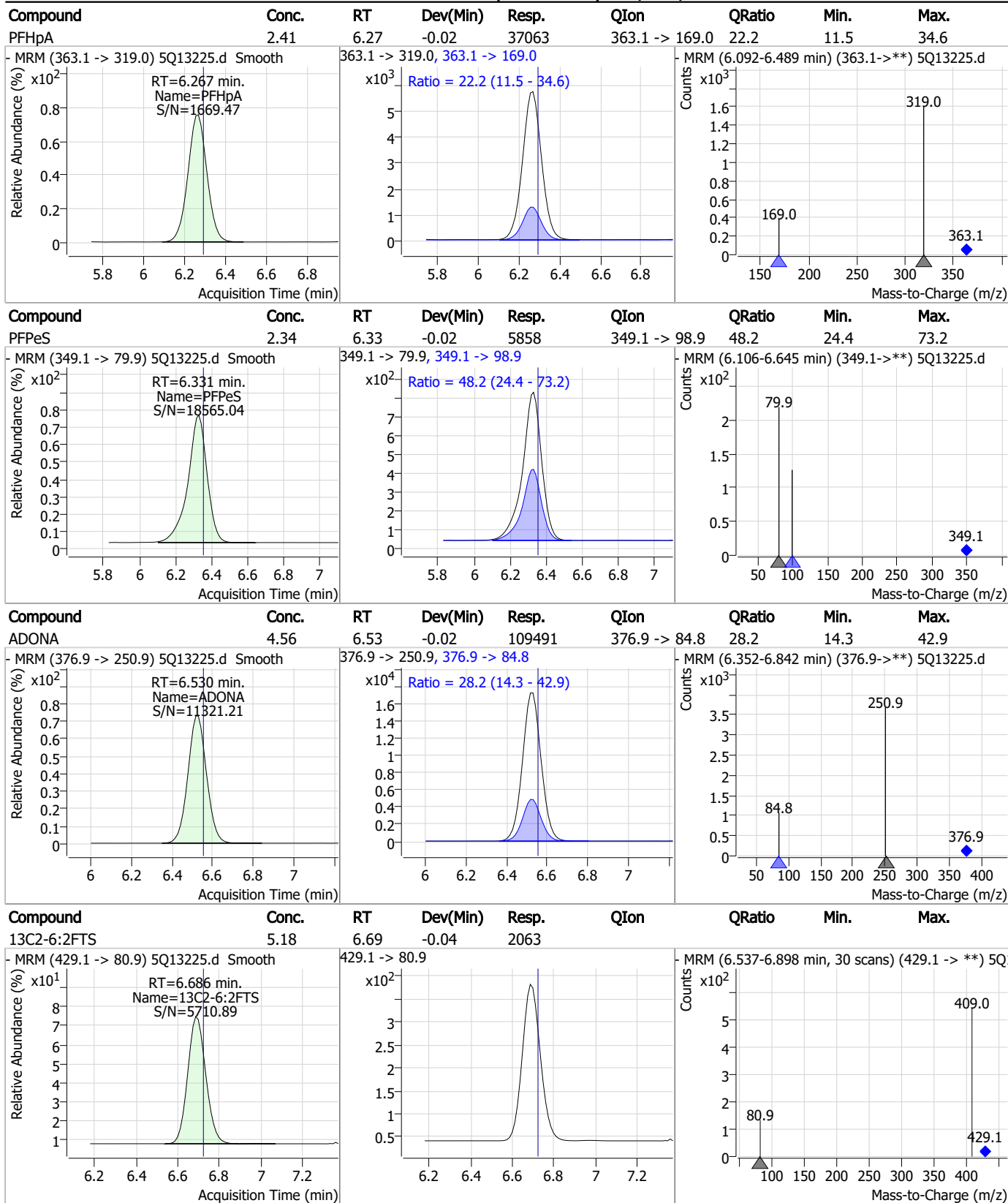
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	58.83	5.90	-0.02	120357	341.0 -> 217.0	67.0	33.9	101.8



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.44	6.25	-0.04	37749	367.1 -> 322.0			



### Perfluorinated Compounds by LC/MS/MS

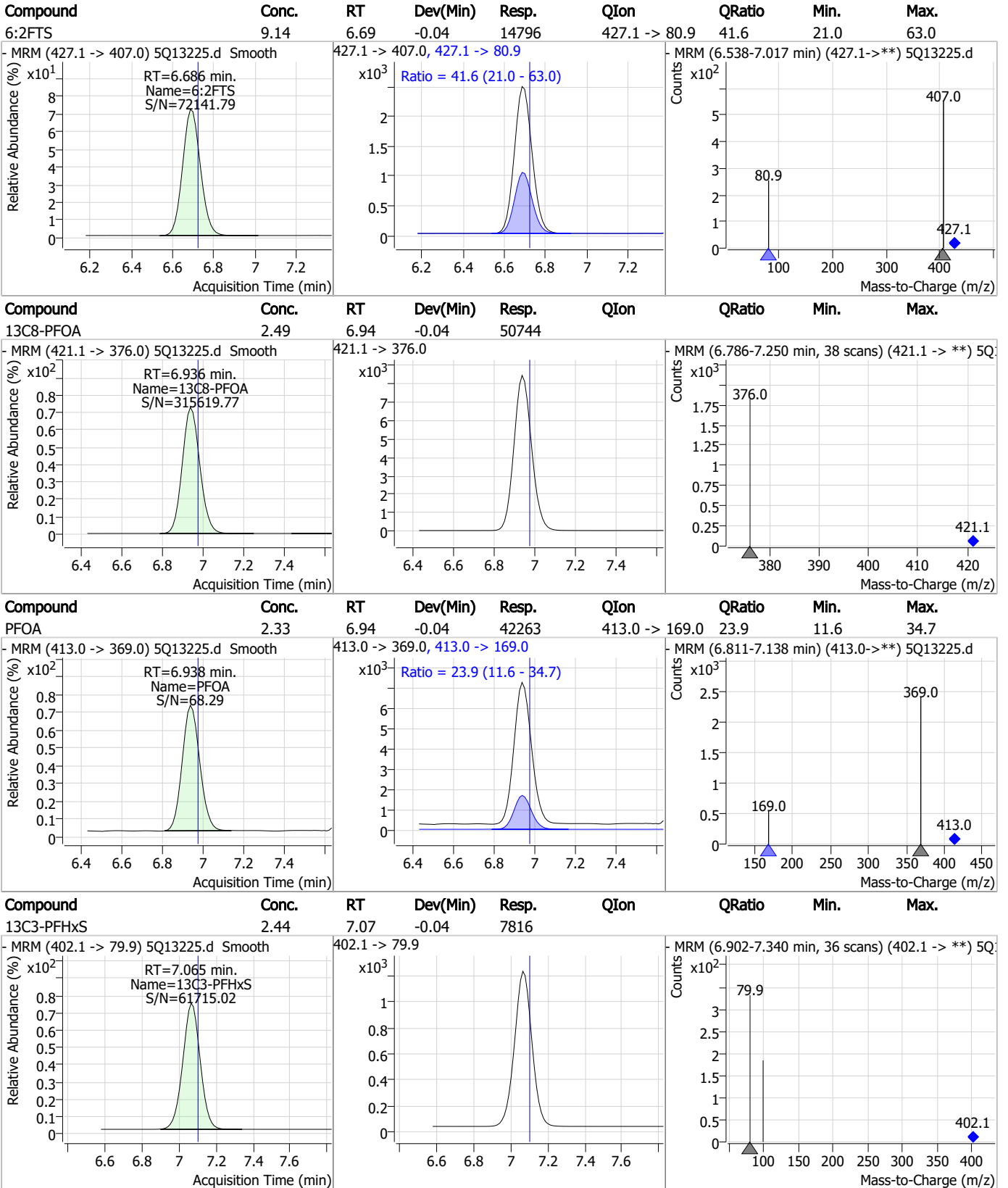


7.7.16  
7





### Perfluorinated Compounds by LC/MS/MS

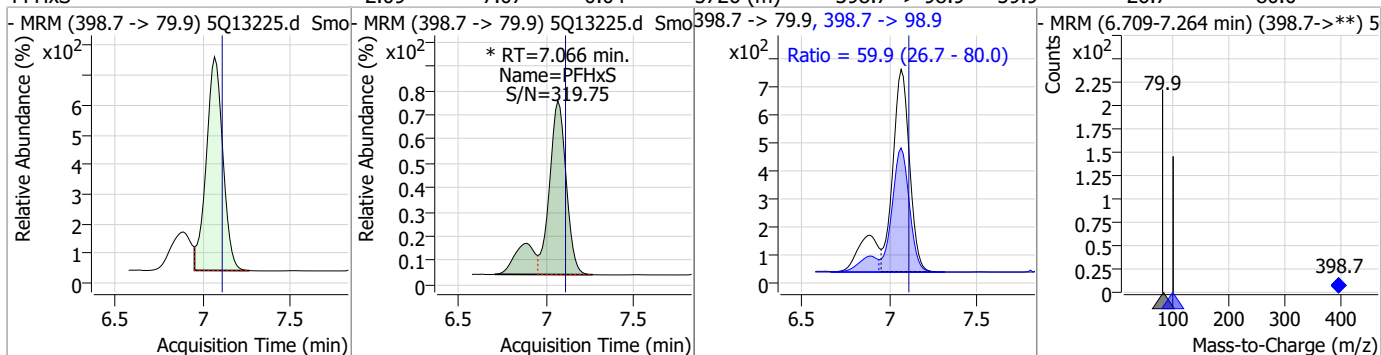


7.7.16 7

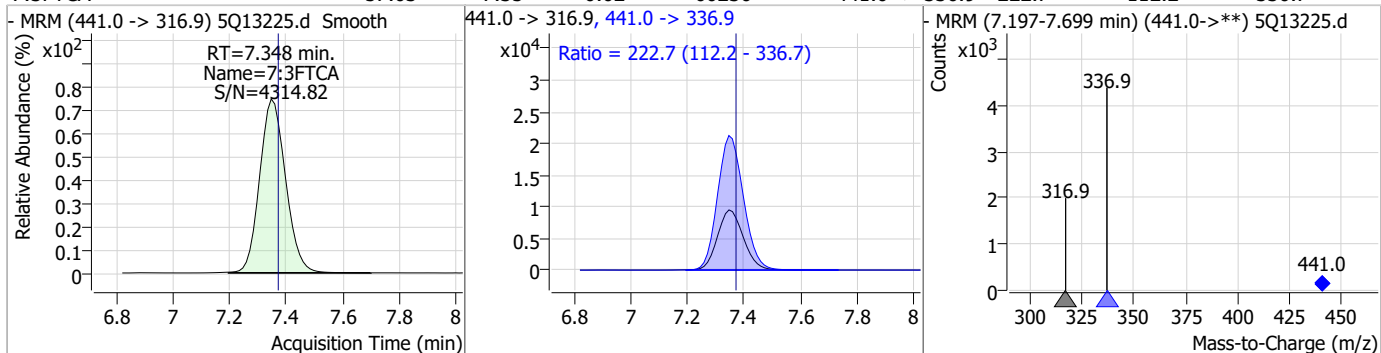


### Perfluorinated Compounds by LC/MS/MS

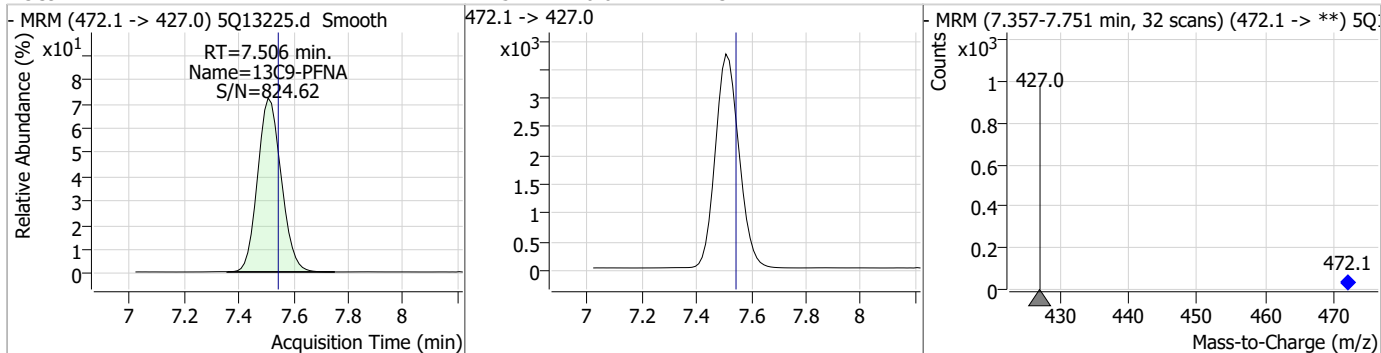
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.09	7.07	-0.04	5726 (m)	398.7 -> 98.9	59.9	26.7	80.0



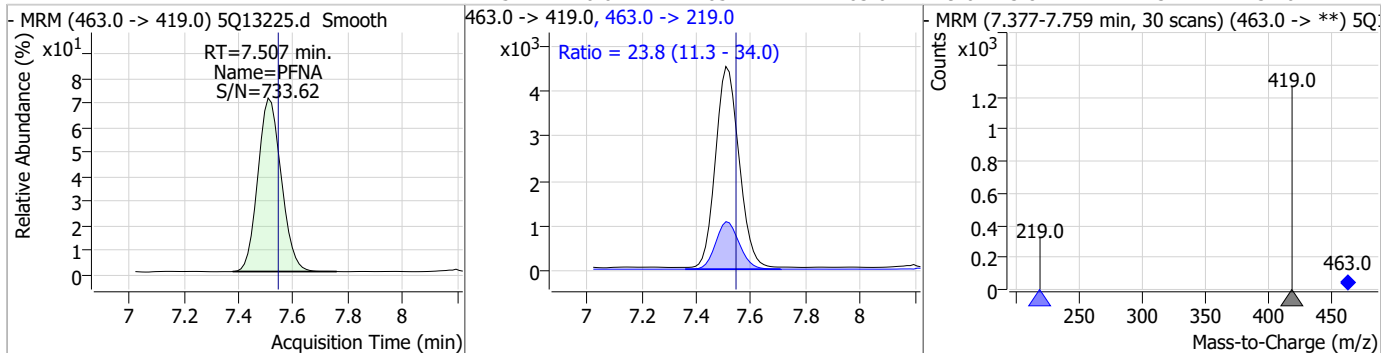
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	57.03	7.35	-0.02	60236	441.0 -> 336.9	222.7	112.2	336.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.22	7.51	-0.04	22371	472.1 -> 427.0	23.8	11.3	34.0

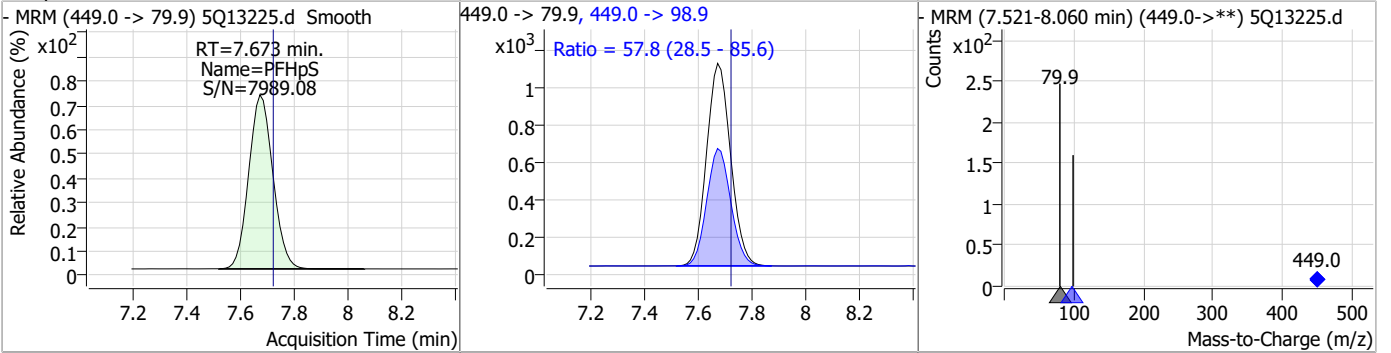


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.44	7.51	-0.04	26547	463.0 -> 219.0	23.8	11.3	34.0

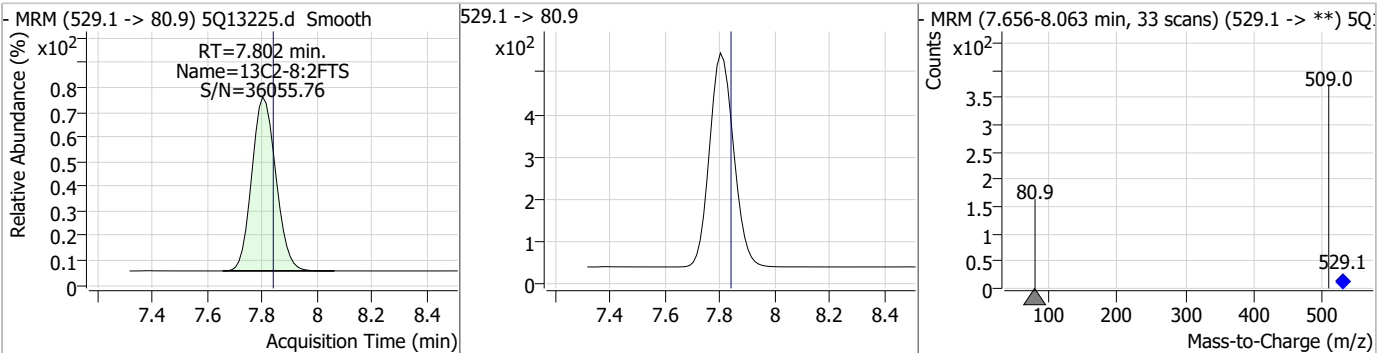


### Perfluorinated Compounds by LC/MS/MS

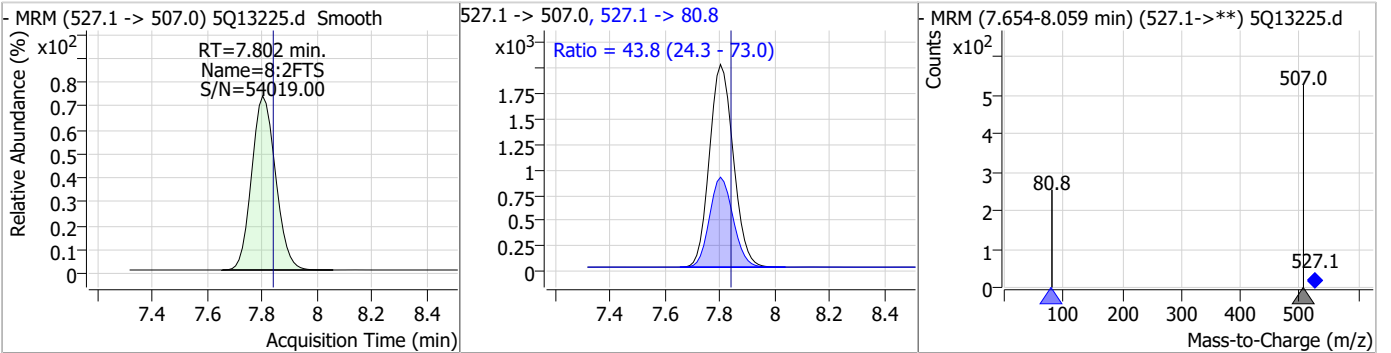
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.46	7.67	-0.05	6809	449.0 -> 98.9	57.8	28.5	85.6



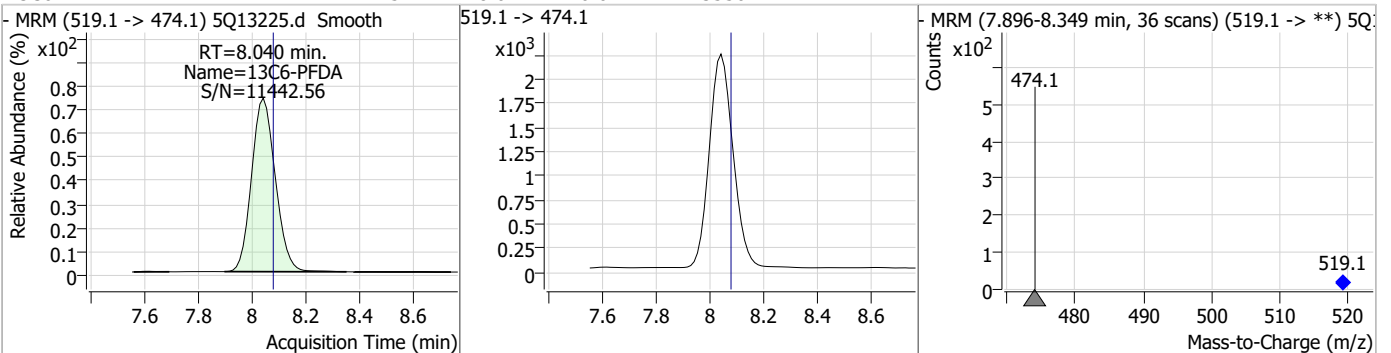
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-8:2FTS	5.13	7.80	-0.04	3067				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
8:2FTS	9.48	7.80	-0.04	12069	527.1 -> 80.8	43.8	24.3	73.0

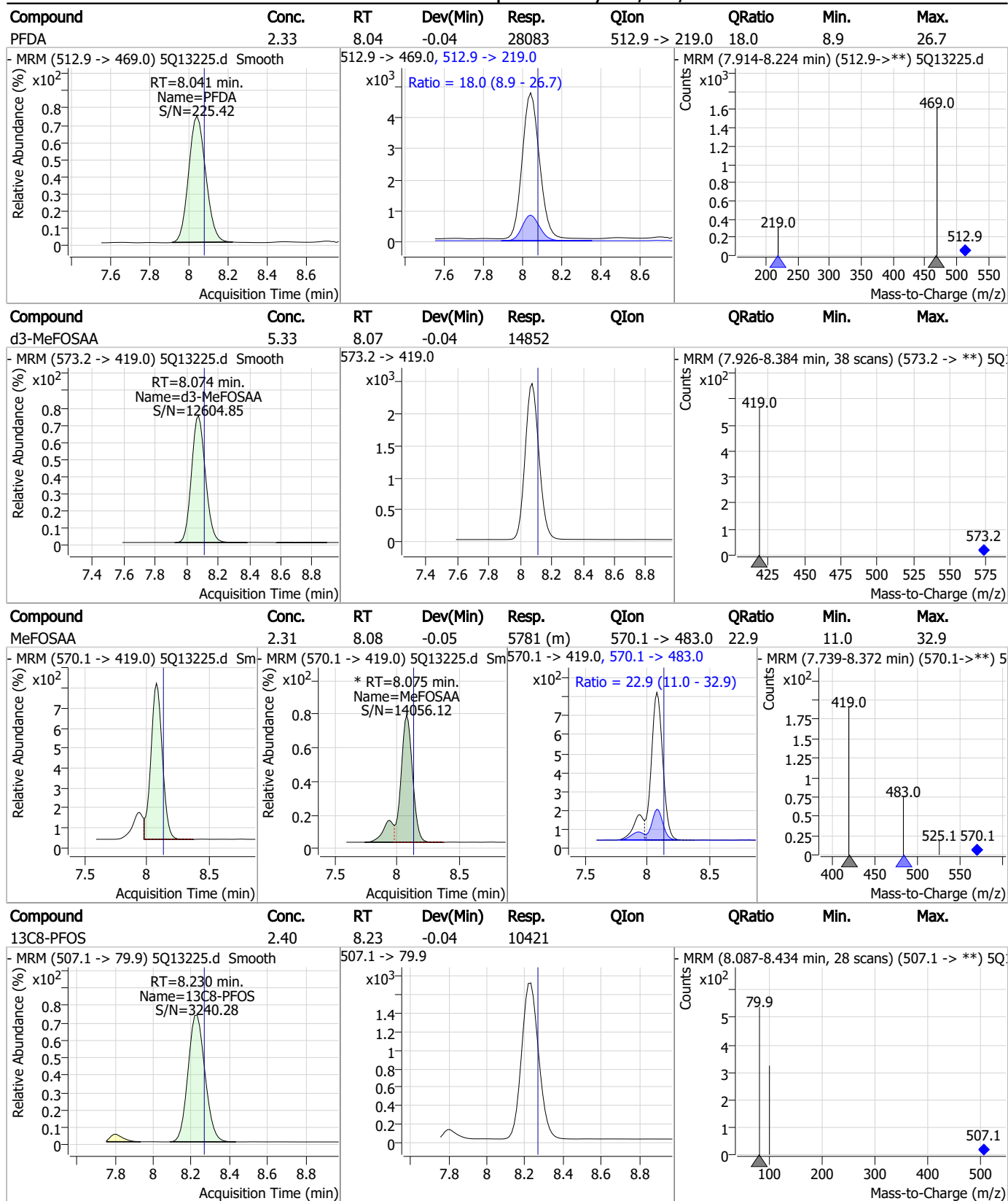


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C6-PFDA	1.25	8.04	-0.04	13550				



7.7.16  
7

### Perfluorinated Compounds by LC/MS/MS



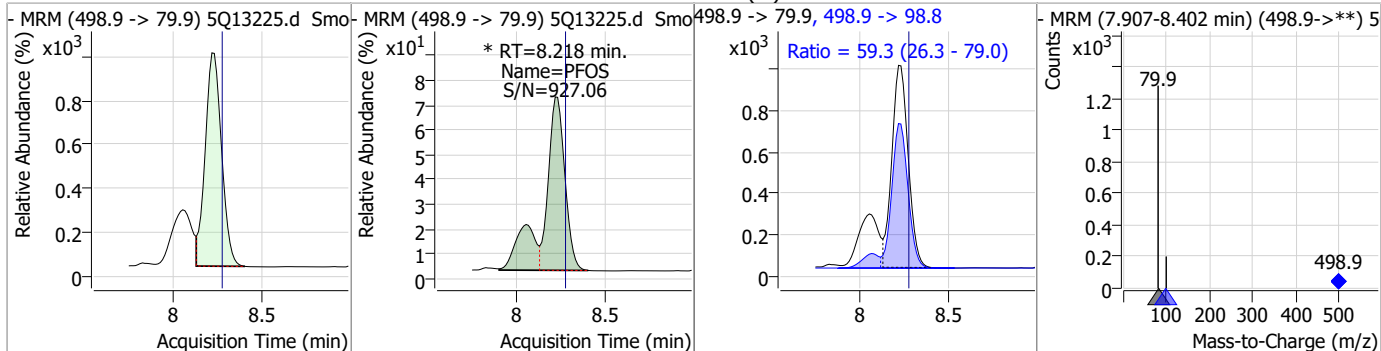
7.7.16

7

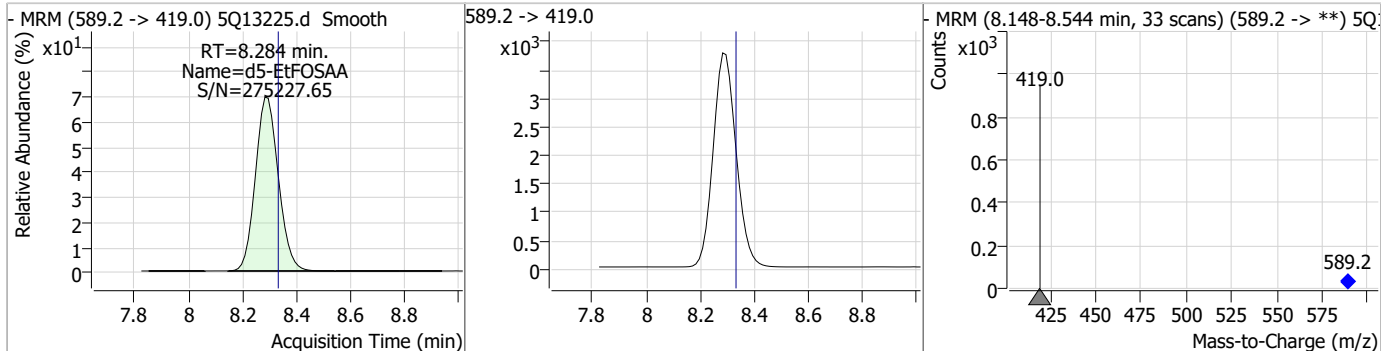


### Perfluorinated Compounds by LC/MS/MS

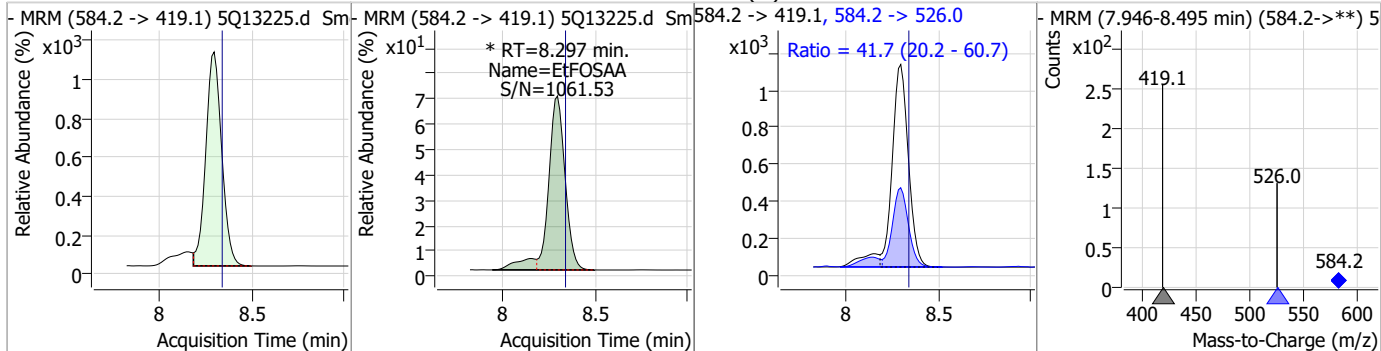
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.24	8.22	-0.05	8133 (m)	498.9 -> 98.8	59.3	26.3	79.0



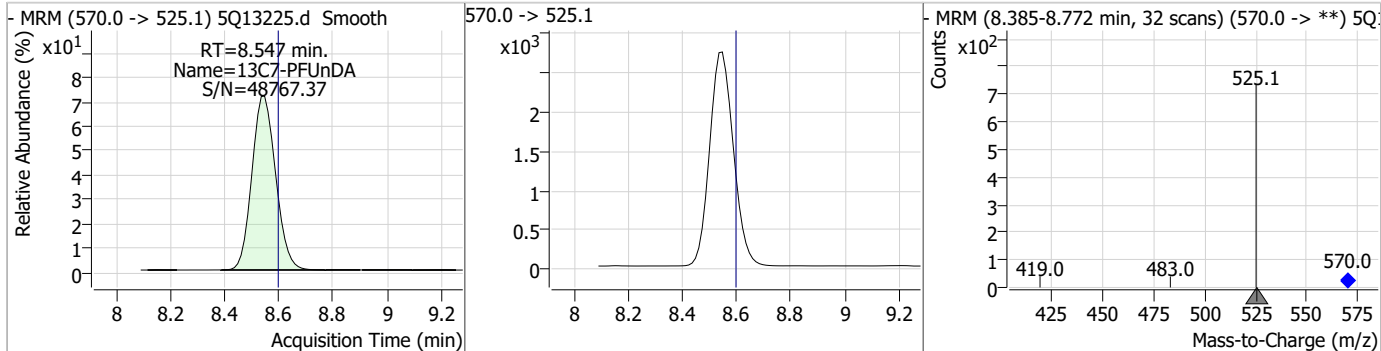
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.84	8.28	-0.05	22248				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.53	8.30	-0.04	7131 (m)	584.2 -> 526.0	41.7	20.2	60.7

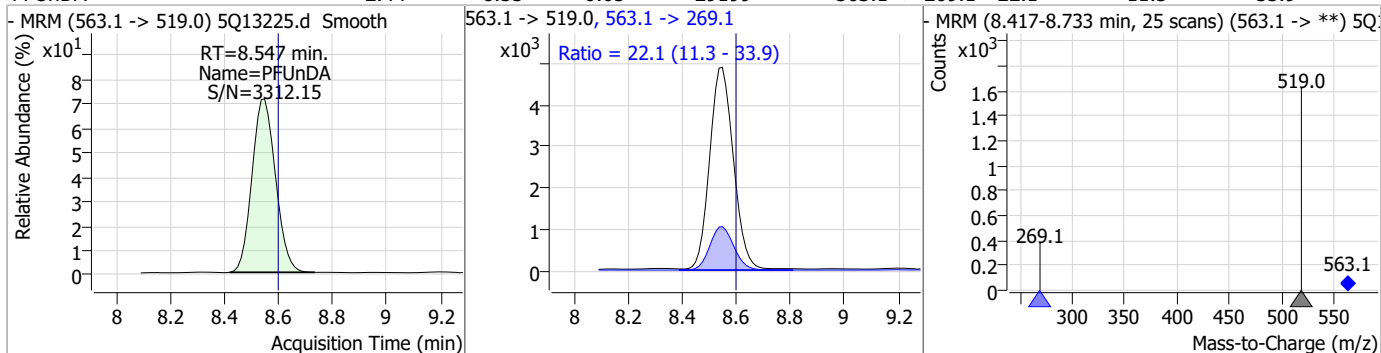


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.23	8.55	-0.05	16643				

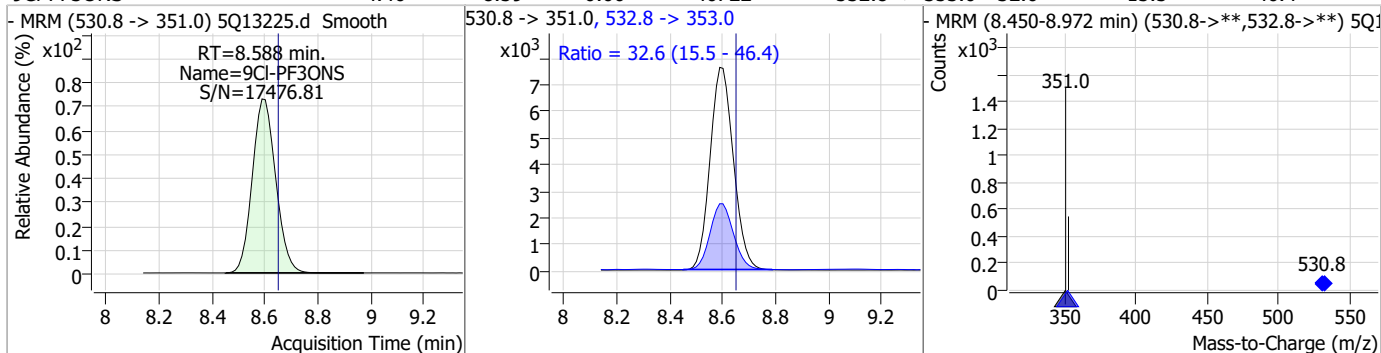


### Perfluorinated Compounds by LC/MS/MS

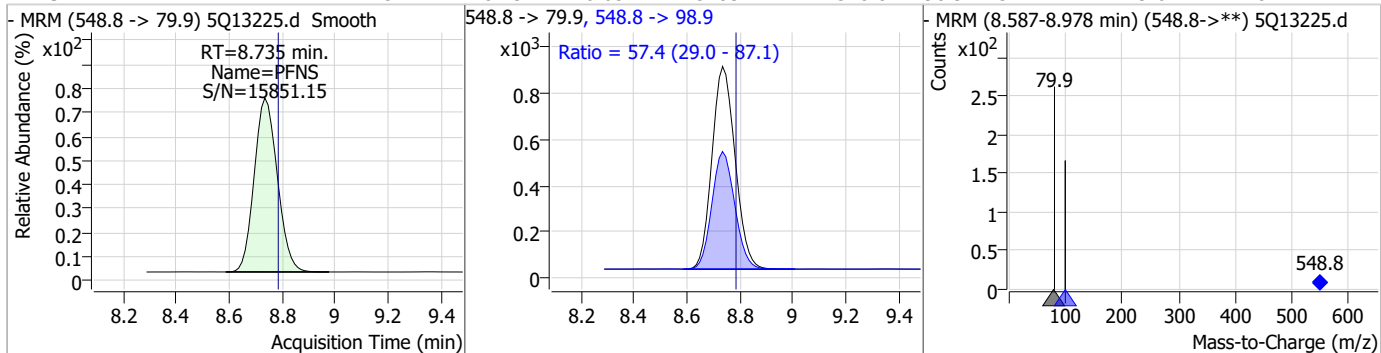
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.44	8.55	-0.05	29199	563.1 -> 269.1	22.1	11.3	33.9



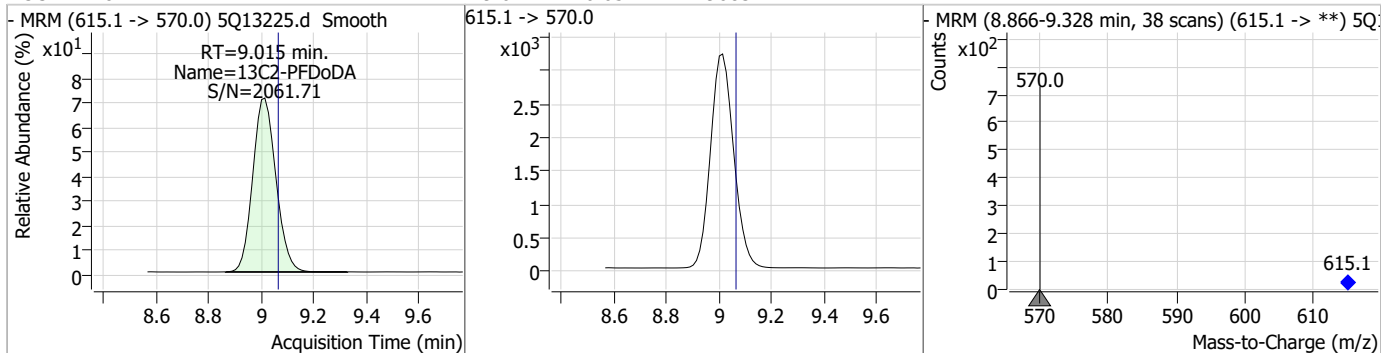
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	4.46	8.59	-0.06	46722	532.8 -> 353.0	32.6	15.5	46.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.57	8.73	-0.05	5283	548.8 -> 98.9	57.4	29.0	87.1

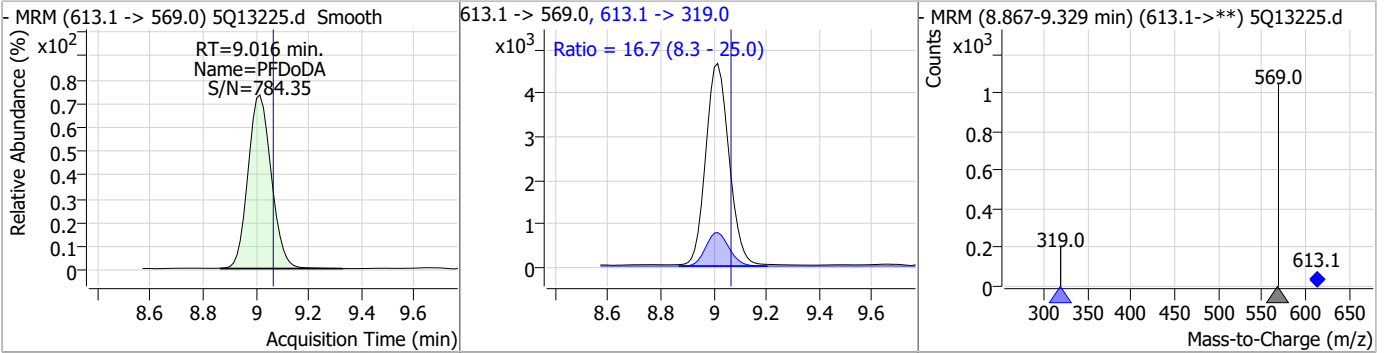


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.21	9.01	-0.05	19683	615.1 -> 570.0			

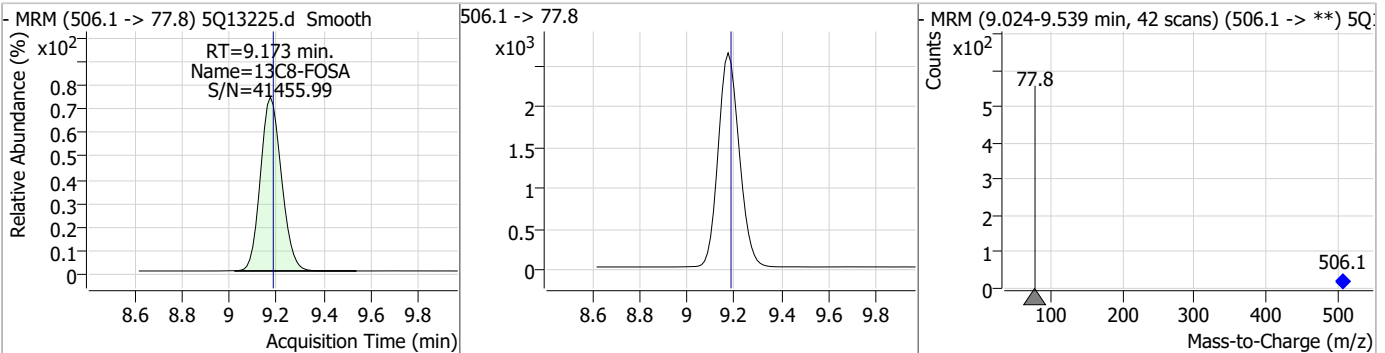


### Perfluorinated Compounds by LC/MS/MS

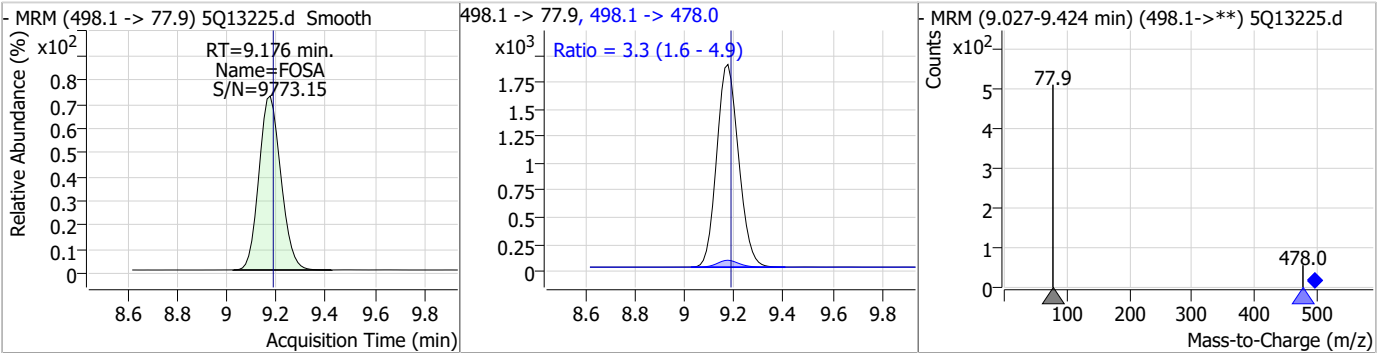
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDA	2.37	9.02	-0.05	28405	613.1 -> 319.0	16.7	8.3	25.0



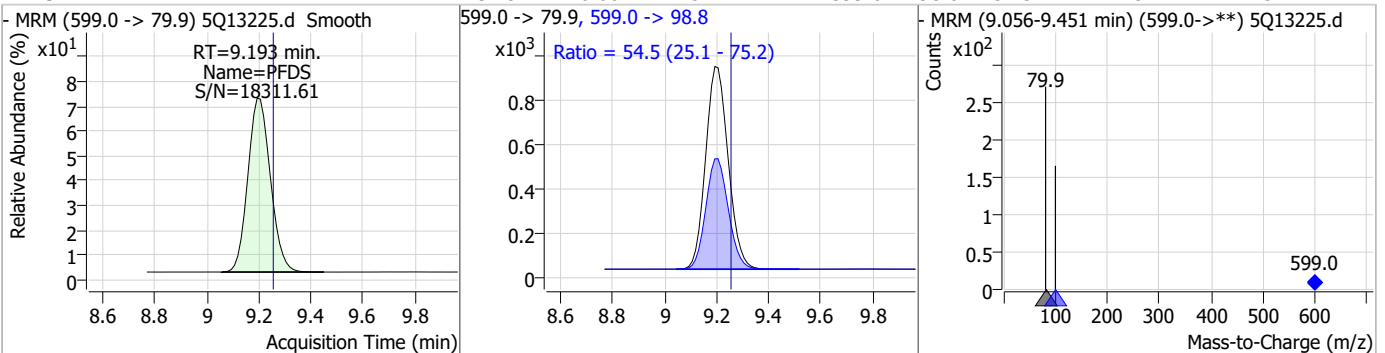
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.58	9.17	-0.01	16152				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.28	9.18	-0.01	11516	498.1 -> 478.0	3.3	1.6	4.9

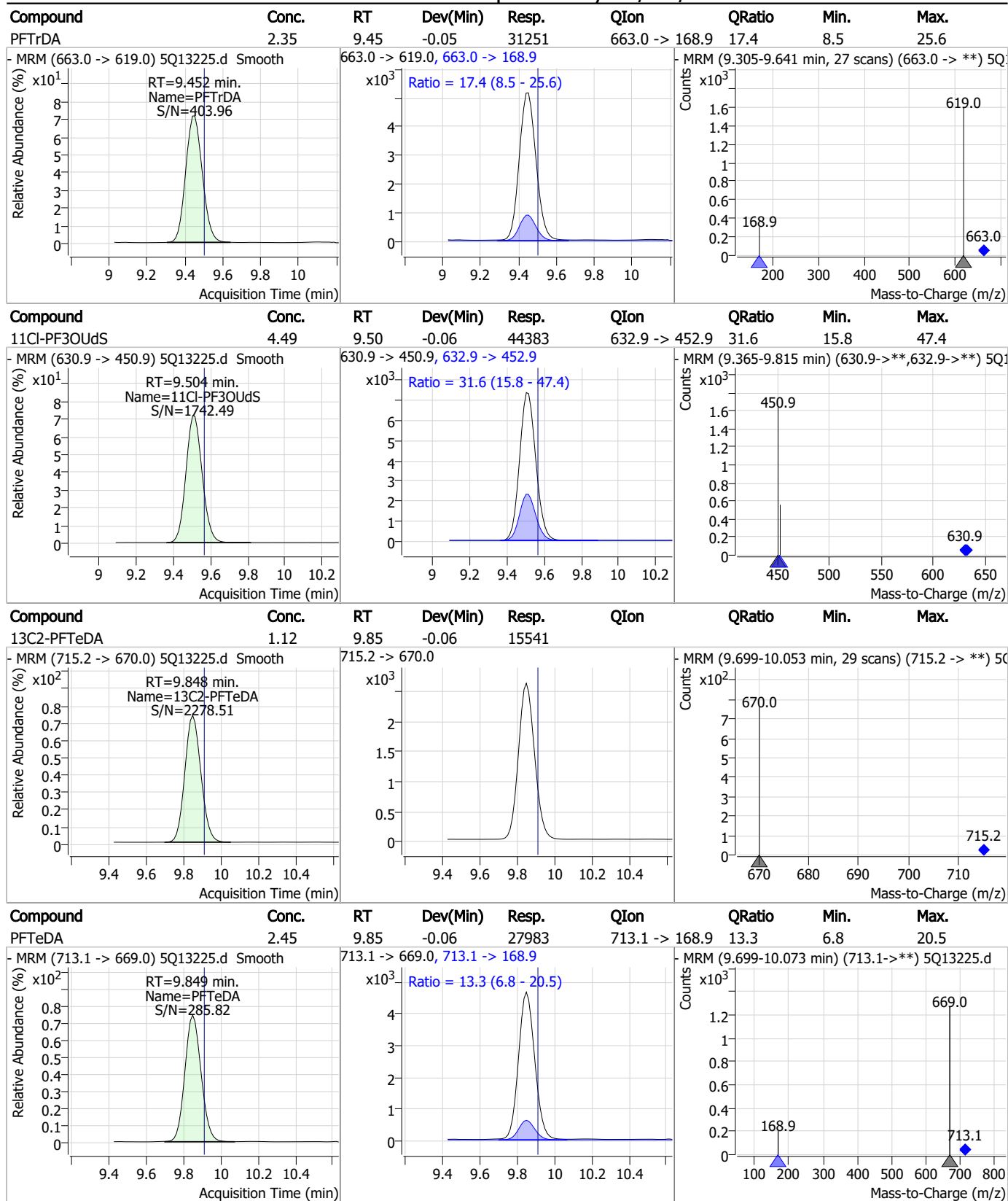


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDS	2.47	9.19	-0.06	5471	599.0 -> 98.8	54.5	25.1	75.2



7.7.16  
7

### Perfluorinated Compounds by LC/MS/MS

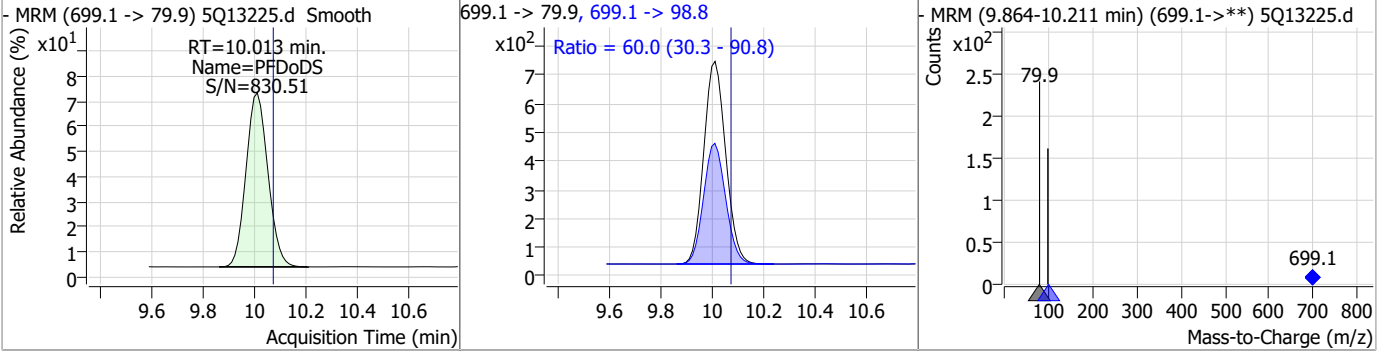


7.7.16  
7

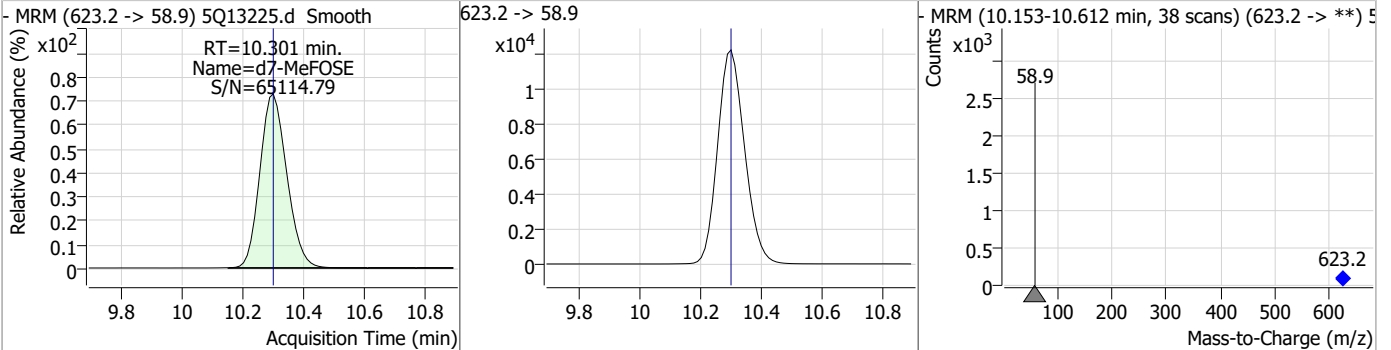


### Perfluorinated Compounds by LC/MS/MS

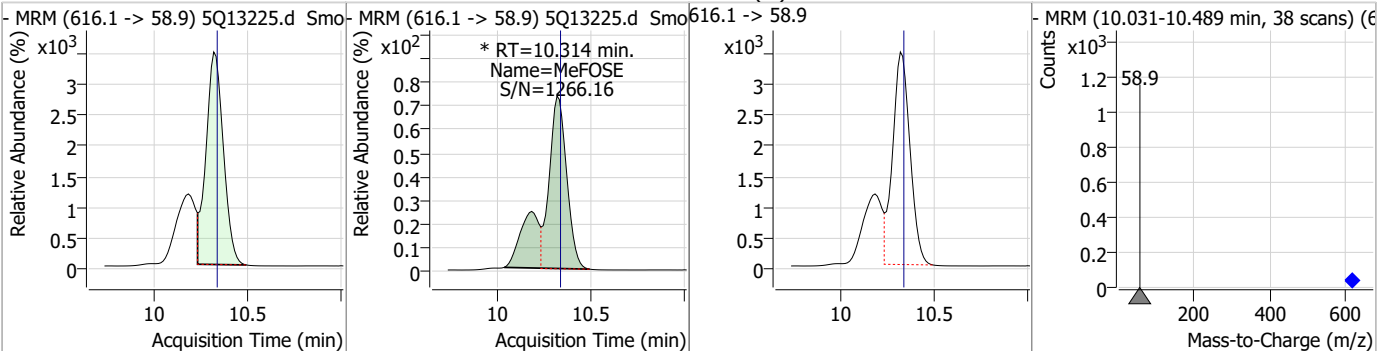
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PfDoDS	2.33	10.01	-0.06	4191	699.1 -> 98.8	60.0	30.3	90.8



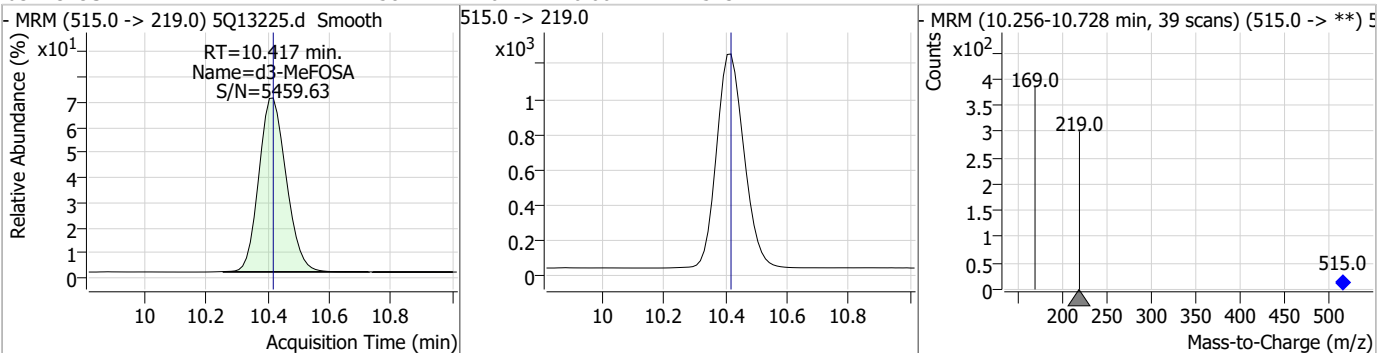
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.76	10.30	0.00	75102				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.40	10.31	-0.01	30318 (m)				



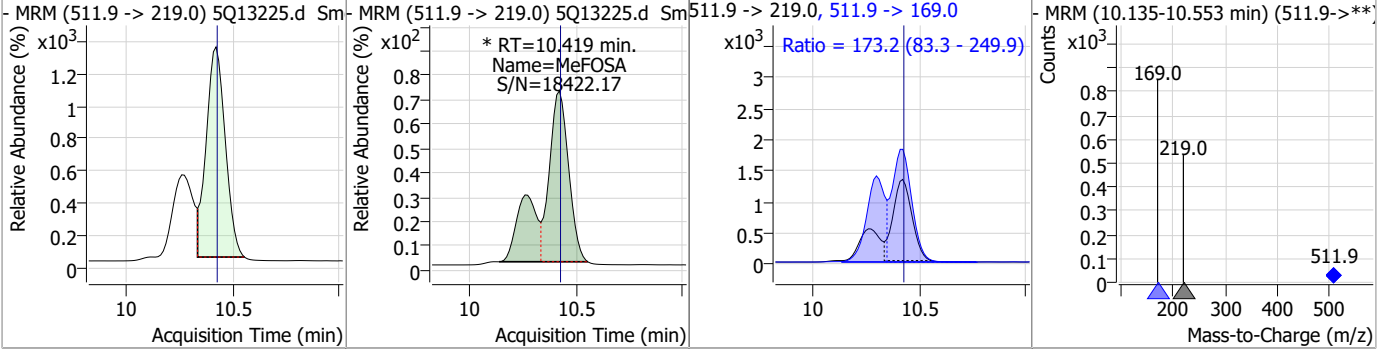
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.58	10.42	0.00	7523				



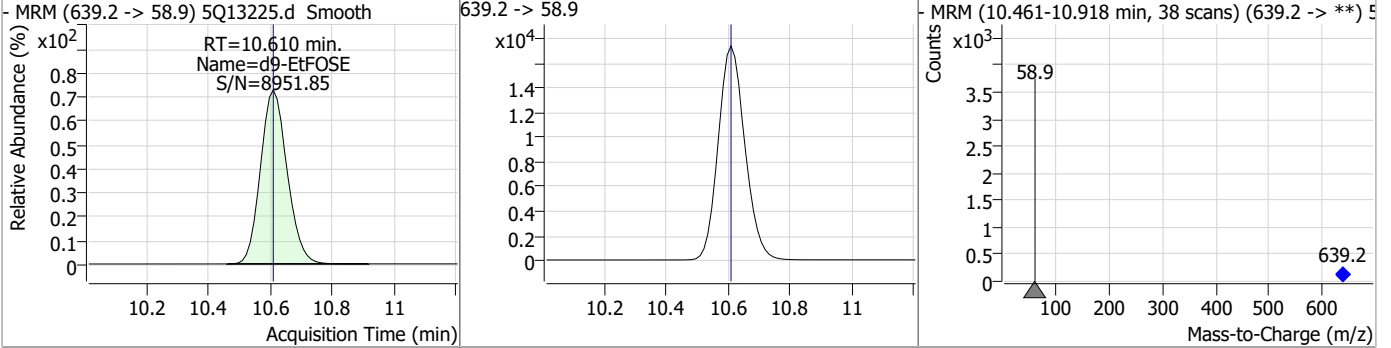
7.7.16  
7

### Perfluorinated Compounds by LC/MS/MS

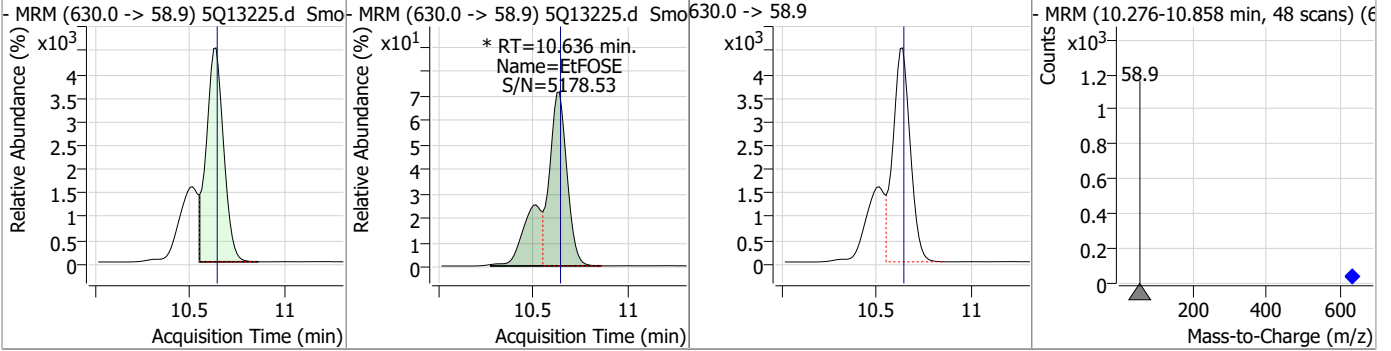
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.48	10.42	0.00	11521 (m)	511.9 -> 169.0	173.2	83.3	249.9



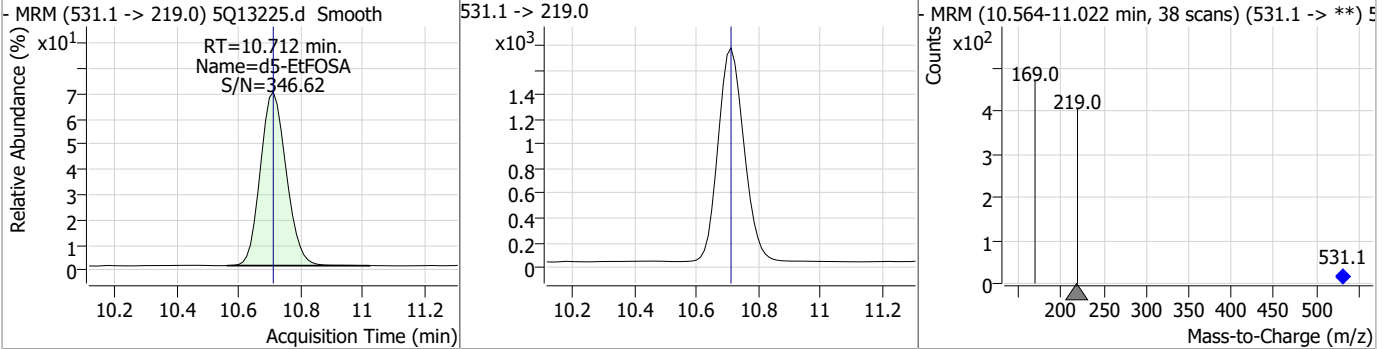
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.01	10.61	0.00	103578				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	11.55	10.64	0.00	39655 (m)				

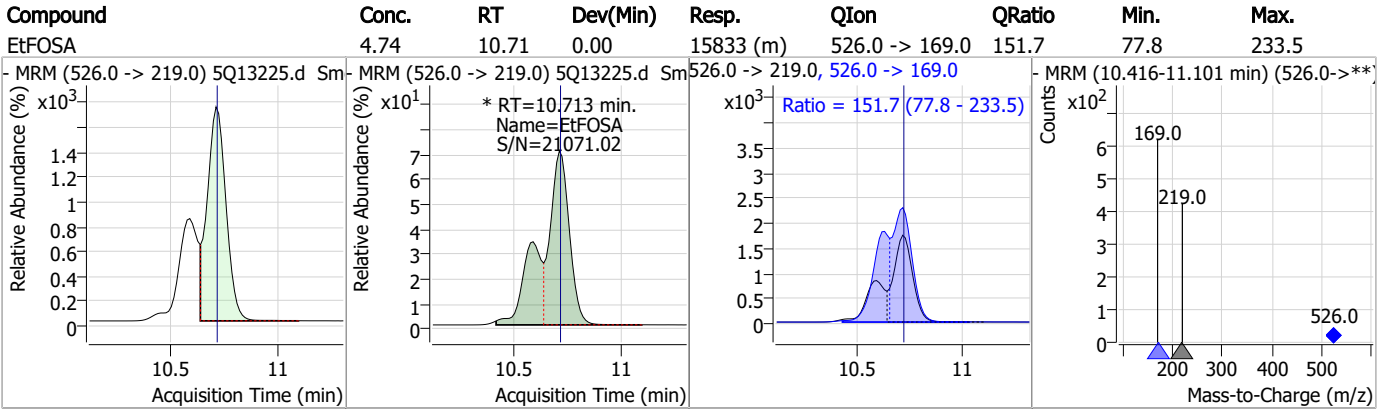


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.60	10.71	0.00	10083				



7.7.16  
7

### Perfluorinated Compounds by LC/MS/MS



7.7.16

7

# Manual Integration Approval Summary

**Sample Number:** S5Q205-ECC205      **Method:** EPA DRAFT 1633  
**Lab FileID:** 5Q13225.D      **Analyst approved:** 04/20/23 15:12 Lindsay Ritner  
**Injection Time:** 04/20/23 07:05      **Supervisor approved:** 04/21/23 10:49 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
13C4-PFBA			2.75	Poor instrument integration
13C3-PFBA			2.75	Poor instrument integration
Perfluorobutanoic acid	375-22-4		2.76	Poor instrument integration
13C3-PFBS			5.23	Poor instrument integration
Perfluorobutanesulfonic acid	375-73-5		5.23	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.07	Split peak
MeFOSAA	2355-31-9		8.07	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.22	Split peak
EtFOSAA	2991-50-6		8.30	Split peak
MeFOSE	24448-09-7		10.31	Split peak
MeFOSA	31506-32-8		10.42	Split peak
EtFOSE	1691-99-2		10.64	Split peak
EtFOSA	4151-50-2		10.71	Split peak

7.7.16.1

7

SGS ORLANDO

<b>DATE:</b>	04/19/23
<b>COLUMN TYPE:</b>	Poroshell EC18
<b>AMOUNT INJ:</b>	6 ul
<b>INSTRUMENT:</b>	LCMS5-5Q

LCMS2-2Q ANALYSIS LOG

<b>METHODS:</b>	1633
<b>PROC. METH:</b>	1633_041923_S5Q205
<b>CAL DATE:</b>	04/19/23
<b>ANALYST:</b>	LR / NG
<b>RUN BATCH:</b>	S5Q205

<b>ELUENT A LOT #:</b>	224863 w5%ACN 214785 2mlMAMAC.11387
<b>ELUENT B LOT #:</b>	ACN 214785
<b>IC/CC STD LOT #:</b>	LCMS2098
<b>ICV STD LOT #:</b>	LCMS2098B/2100B
<b>ISTD/ID STD LOT #:</b>	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
27	5Q13170.d	P3-A1	ccb	1633.m	Sample		OP96301,S5Q205,500,,5.0,1,water	-
28	5Q13171.d	P3-B1	RT TDCA	1633.m	Sample		OP96301,S5Q205,500,,5.0,1,water	✓
29	5Q13172.d	P3-B2	RT br/in	1633.m	Sample		OP96301,S5Q205,500,,5.0,1,water	✓
30	5Q13173.d	P3-A1	ic205-0	1633.m	Sample		OP96301,S5Q205,500,,5.0,1,water	check tune file ✓
31	5Q13174.d	P3-A2	ic205-1	1633.m	Calibration	1.6/500	OP96301,S5Q205,500,,5.0,1,water	✓
32	5Q13175.d	P3-A3	ic205-2	1633.m	Calibration	4/500	OP96301,S5Q205,500,,5.0,1,water	✓
33	5Q13176.d	P3-A4	ic205-3	1633.m	Calibration	10/500	OP96301,S5Q205,500,,5.0,1,water	✓
34	5Q13177.d	P3-A5	icc205-4	1633.m	Calibration	20/500	OP96301,S5Q205,500,,5.0,1,water	✓
35	5Q13178.d	P3-A6	ic205-5	1633.m	Calibration	40/500	OP96301,S5Q205,500,,5.0,1,water	✓
36	5Q13179.d	P3-A7	ic205-6	1633.m	Calibration	100/500	OP96301,S5Q205,500,,5.0,1,water	✓
37	5Q13180.d	P3-A8	ic205-7	1633.m	Calibration	200/500	OP96301,S5Q205,500,,5.0,1,water	✓
38	5Q13181.d	P3-A9	ic205-8	1633.m	Calibration	1x	OP96301,S5Q205,500,,5.0,1,water	✓
39	5Q13182.d	P3-A1	iblk	1633.m	Sample		OP96301,S5Q205,500,,5.0,1,water	✓
40	5Q13183.d	P3-B3	icv205-4	1633.m	QC	20/500	OP96301,S5Q205,500,,5.0,1,water	✓
41	5Q13184.d	P3-B4	icv205-20	1633.m	QC	100/500	OP96301,S5Q205,500,,5.0,1,water	✓
42	5Q13185.d	P3-A5	cc205-4	1633.m	QC	20/500	OP96301,S5Q205,500,,5.0,1,water	✓
43	5Q13186.d	P3-A2	cc205-1.0LL	1633.m	QC	1.6/500	OP96301,S5Q205,500,,5.0,1,water	✓
44	5Q13187.d	P3-C1	op96411-bs	1633.m	Sample		OP96411,S5Q205,500,,5.0,1,water	✓
45	5Q13188.d	P3-C2	op96411-llbs:3	1633.m	Sample		OP96411,S5Q205,500,,5.0,1,water	✓
46	5Q13189.d	P3-C3	op96411-mb	1633.m	Sample		OP96411,S5Q205,500,,5.0,1,water	✓
47	5Q13190.d	P3-C4	fc3921-1	1633.m	Sample		OP96411,S5Q205,575,,5.0,1,water	rr, 6:2 hit (EFF)
48	5Q13191.d	P3-C5	fc3921-2	1633.m	Sample		OP96411,S5Q205,550,,5.0,1,water	✓
49	5Q13192.d	P3-C6	fc3921-3	1633.m	Sample		OP96411,S5Q205,545,,5.0,1,water	✓
50	5Q13193.d	P3-C7	fc3921-4	1633.m	Sample		OP96411,S5Q205,560,,5.0,1,water	✓
51	5Q13194.d	P3-C8	fc3921-5	1633.m	Sample		OP96411,S5Q205,560,,5.0,1,water	✓
52	5Q13195.d	P3-A5	cc205-4	1633.m	QC	20/500	OP96301,S5Q205,500,,5.0,1,water	✓
53	5Q13196.d	P3-A1	iccb	1633.m	Sample		OP96301,S5Q205,500,,5.0,1,water	✓
54	5Q13197.d	P3-C9	fc3921-6	1633.m	Sample		OP96411,S5Q205,550,,5.0,1,water	rr, PFOA hit (ACB)
55	5Q13198.d	P3-D1	op96411-ms	1633.m	Sample		OP96411,S5Q205,555,,5.0,1,water	✓
56	5Q13199.d	P3-D2	op96411-msd	1633.m	Sample		OP96411,S5Q205,560,,5.0,1,water	✓
57	5Q13200.d	P3-D3	fc3921-7	1633.m	Sample		OP96411,S5Q205,555,,5.0,1,water	✓
58	5Q13201.d	P3-D4	fc3921-8	1633.m	Sample		OP96411,S5Q205,550,,5.0,1,water	rr, e val, PFNS Qualifier OLC
59	5Q13202.d	P3-D5	fc3921-9	1633.m	Sample		OP96411,S5Q205,575,,5.0,1,water	✓
60	5Q13203.d	P3-D6	fc3921-10	1633.m	Sample		OP96411,S5Q205,565,,5.0,1,water	✓
61	5Q13204.d	P3-D7	fc3921-11	1633.m	Sample		OP96411,S5Q205,560,,5.0,1,water	✓

Printed 4/20/2023 @ 3:29 PM



LCMS2-2Q ANALYSIS LOG

SGS ORLANDO

62	5Q13205.d	P3-D8	fc3921-12	1633.m	Sample	OP96411,S5Q205,500,,,5.0,1,water	rr, e val
63	5Q13206.d	P3-D9	fc3921-13	1633.m	Sample	OP96411,S5Q205,500,,,5.0,1,water	rr, e val
64	5Q13207.d	P3-A5	cc205-4	1633.m	QC	20/500	✓
65	5Q13208.d	P3-A1	iccb	1633.m	Sample	OP96301,S5Q205,500,,,5.0,1,water	✓
66	5Q13209.d	P3-E1	fc3921-14	1633.m	Sample	OP96411,S5Q205,500,,,5.0,1,water	rr, hits (EFF)
67	5Q13210.d	P3-E2	fc3921-15	1633.m	Sample	OP96411,S5Q205,500,,,5.0,1,water	rr, PFOA hit (ACB)
68	5Q13211.d	P3-E3	fc3921-16	1633.m	Sample	OP96411,S5Q205,500,,,5.0,1,water	✓
69	5Q13212.d	P3-E4	fc3921-17	1633.m	Sample	OP96411,S5Q205,500,,,5.0,1,water	✓
70	5Q13213.d	P3-E5	fc3921-18	1633.m	Sample	OP96411,S5Q205,530,,,5.0,1,water	✓
71	5Q13214.d	P3-A5	cc205-4	1633.m	QC	20/500	✓
72	5Q13215.d	P3-A2	cc205-1.0LL	1633.m	QC	1.6/500	✓
73	5Q13216.d	P3-A1	iccb	1633.m	Sample	OP96301,S5Q205,500,,,5.0,1,water	✓
74	5Q13217.d	P3-E6	op96450-bs	1633.m	Sample	OP96450,S5Q205,500,,,5.0,1,water	✓
75	5Q13218.d	P3-E7	op96450-llbs:3	1633.m	Sample	OP96450,S5Q205,500,,,5.0,1,water	✓
76	5Q13219.d	P3-E8	op96450-mb	1633.m	Sample	OP96450,S5Q205,500,,,5.0,1,water	✓
77	5Q13220.d	P3-E9	fc5258-1	1633.m	Sample	OP96450,S5Q205,570,,,5.0,1,water	✓
78	5Q13221.d	P3-F1	op96450-ms	1633.m	Sample	OP96450,S5Q205,530,,,5.0,1,water	✓
79	5Q13222.d	P3-F2	fc5258-2	1633.m	Sample	OP96450,S5Q205,550,,,5.0,1,water	✓
80	5Q13223.d	P3-F3	op96450-dup	1633.m	Sample	OP96450,S5Q205,530,,,5.0,1,water	✓
81	5Q13224.d	P3-F4	fc5258-3	1633.m	Sample	OP96450,S5Q205,530,,,5.0,1,water	✓
82	5Q13225.d	P3-A5	ecc205-4	1633.m	QC	20/500	✓
83	5Q13226.d	P3-A1	iccb	1633.m	Sample	OP96301,S5Q205,500,,,5.0,1,water	✓

Printed 4/20/2023 @ 3:29 PM



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2098A	1033 SPIKE Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	2.50uL	4mL	0.25 ppm	1033 MIX	4/6/23	10/6/23	MW
		11672B	MXH			4/16/24				250ppb				
		LCMS 2097	Br-In Et, Me	Sgs	9/1	10/28/23	3ppm	250uL		312.5ppb				
		11674B	PFAC MXF	Wellington	1/11/25	3/30/24	2ppm	250uL		350ppb				
		11675	PFAC MXG		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11642B	PFAC MXJ		9/14/26	3/23/24	4-20 ppm	312uL		312/1000 ppb				
LCMS 2099	537.1 Du std. (INTERNAL)	11070	MSF-PEA	Wellington Labs	07/06/25	04/06/24	50ppm	80uL	4mL	1.0ppm	2011MSA 41, H2O	04/13/23	06/15/23	NG
		10438A	Mw:2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10512B	d3-N-MSDCAA		10/22/25	05/15/23		160uL		2.0ppm				NG
		10498A	M-FO5		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M-ARFA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (90)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	160ppb	75% MeOH 5% H2O	4/11/23	7/24/23	MW
2101	List 40 spike (Std)	LCMS 2067	40 List ADD ON #1	Sgs wld.		8/23/23	1.0ppm	400uL			(2, 40031)			
		LCMS 2070	40 List ADD ON #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	Fose Std.			7/24/23	5.0ppm	400uL		50ppb				
LCMS 2101	Fose std.	11336	N-et Fose	Wellington	5/13/27	9/19/23	50ppm	200uL	2.0mL	5ppm	95% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me Fose		5/13/27	9/19/23	50ppm	200uL						

\* B/C checked are normal

\* tested & passed on 10/11/23

MS 2100 91B \* 100% 100uL 100uL

\* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

(1,000)



Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2095A-J	(10ppb) PFC ID SURF	A-J 11669	PFAC-2YES	Wellington Labs	01/15/23	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	05/10/23	03/28/23	09/26/23	NS
↓	↓	11585	M2HFO-DA	↓	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSA	↓	05/06/27	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 2096A-B	1033 spike Cal cert.	11672	PFAC-MxH	Wellington Labs	8/15/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 2.50ppb	1033 MIX	3/30/23	9/30/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	170 ppm	250uL	↓	0.25 0.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxG	↓	11/1/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxG	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
LCMS 2097A-B	BR-LN metet for 1033	11428	PFAC-MxJ	Wellington Labs	08/23/27	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/16/23	10/28/23	MU
↓	↓	11497	br-N metosa	↓	10/07/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Effosa	↓	10/07/27	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metose	↓	10/07/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effose	↓	10/07/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
<del>_____</del>														

\* tested & used on 3/20/24

\*\* based on date opened as specified in each SGS - Orlando SOP.





Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2067	40 List std. ADD-ON #1	10726A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% meth 5% H2O	2/8/23	3/21/23	MV
		10840	L <sup>-</sup> PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N <sup>-</sup> McFOSA		8/3/26	8/23/23								
		10837	N <sup>-</sup> EtFOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFODA		5/7/26	10/18/23								
		11116 B	3:3 FTCA PFAPA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFAPA		11/11/25	8/23/23								
		11116 A	7:3 FTCA FHPA		11/12/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA PF50HxA		3/31/25	10/18/23								
		10764	PFMPA PF406A		3/31/25	2/8/24								
		10765B	NFHDA 3.6-08APA		3/31/25	10/18/23								
					NS	02/10/23								

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
* 2074 A-B LCMS 2074 A-B	PFC SPIKE	11613	PROA-SD C8000MS	Absolute	11/09/27	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	02/23/23	UG
↓	↓	10829	N-Me- FSA-M	Wellington Labs	02/23/26	09/23/23	50ppm	40uL	↓	↓	↓	↓	↓	NG
↓	↓	11250	FBSA-1	↓	11/10/26	11/08/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11249	FHSA-1	↓	12/29/26	11/03/23	↓	↓	↓	↓	↓	↓	↓	NG
↓	↓	11332	FTECS	↓	03/28/27	10/18/23	↓	↓	↓	↓	↓	↓	↓	NG
* 2075 A-F LCMS 2075 A-F	(10 PPB) PFC ID SURF	11639	MPAC- 24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	02/23/23	NG
↓	↓	11585	N2HFO- DA	Wellington Labs	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11385	A-N- NEFOSA-M	Wellington Labs	05/10/27	01/01/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
LCMS 2076	40 List std. ADDON #2	11250	FBSA-1	Wellington Labs	11/10/26	11/8/23	50ppm	80uL	4.0mL	1ppm	95% MeOH 5% H2O	2/17/23	5/19/26	MV
↓	↓	11249	FHSA-1	↓	2/29/26	11/3/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
↓	↓	11140	L-PFAS	↓	7/12/26	5/26/23	50ppm	80uL	↓	↓	↓	↓	↓	↓
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Acetate	Sigma Aldrich	---	1/25/24	99.9%	0.62g	4L	2mM	MA	2/28/23	4/28/23	MV
↓	↓	224870	HPLC water	Fisher	---	2/28/23	↓	3,800ml	↓	95%	↓	↓	↓	↓
↓	↓	220225	Acetonil trile	↓	---	2/20/24	↓	200mL	↓	5%	↓	↓	↓	↓
↓	↓					n/a	n/a	n/a	2/28/23					
↓	↓					Continue next page #1								

\* based on date opened as specified in each SGS - Orlando SOP.

Organic Standards Preparation Log

SGS - Orlando Std. #	Name Description	Parent Std. #	Parent Name	Parent Vendor	Vendor Exp. Date	Lab* Exp. Date	Parent Conc.	Vol. Used	Final Vol.	Final Conc.	Diluent Lot	Prep. Date	Exp. Date	Initials
LCMS 2052	1633 prep mix	Lot: 221044	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
↓	↓	Lot: 219481	NH4OH	↓	—	9/19/23	100%	3.3 mL	↓	1%	↓	↓	↓	↓
↓	↓	Lot: 224863	H2O	↓	—	1/17/24	100%	1.7 mL	↓	4%	↓	↓	↓	↓
↓	↓	Lot: 224297	Acetic ACID	↓	—	6/24	99.7%	0.625 mL	↓	.625%	↓	↓	↓	↓
LCMS 2053	(spike) Full list std	11568	PF6A 200 28	SGS standards	11/9/27	1/10/24	1.0 ppm	400 NL	4.0 mL	100 ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
↓	↓	LCMS 1987	40 list add-on #1	↓	—	3/21/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 1986	40 list add-on #2	↓	—	4/8/23	1.0 ppm	400 NL	↓	↓	↓	↓	↓	↓
↓	↓	LCMS 2054	Fosc std.	↓	—	7/24/23	5.0 ppm	400 NL	↓	500 ppb	↓	↓	↓	↓
LCMS 2054	Fosc std.	11336	N-Et-FOSE	Wellington	5/13/27	9/19/23	50 ppm	200 NL	2.0 mL	5 ppm	95% MeOH 5% H2O	12/4/23	7/24/23	MV
↓	↓	11338	N-Me FOSE	↓	5/13/27	9/19/23	50 ppm	200 NL	↓	↓	↓	↓	↓	↓
LCMS 2055	1633 Cal std.	10855	PFAC-MxH	Wellington	9/14/26	1/17/24	1-4 ppm	250 NL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
↓	↓	10853I	PFAC-MxI	↓	9/14/26	1/11/24	1-10 ppm	250 NL	↓	62.5 125 250 ppb	↓	↓	↓	↓
↓	↓	11579B	PFAC-MxF	↓	1/11/25	1/11/24	2 ppm	500 NL	↓	250 ppb	↓	↓	↓	↓
↓	↓	11607A	PFAC-MxG	↓	3/4/25	1/24/24	2 ppm	250 NL	↓	125 ppb	↓	↓	↓	↓
↓	↓	10854I	PFAC-MxJ	↓	9/14/26	1/11/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11492	PFAC-MxJ	↓	9/14/26	1/24/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11603	PFAC-MxJ	↓	9/14/26	1/24/24	4-20 ppm	312 NL	↓	312/100 ppb	↓	↓	↓	↓

\* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819

11494



**WELLINGTON  
LABORATORIES**

**CERTIFICATE OF ANALYSIS  
DOCUMENTATION**

**br-NMeFOSE**

**2-(N-Methylperfluorooctanesulfonamido)ethanol  
Isomeric Mix**

<b><u>PRODUCT CODE:</u></b>	br-NMeFOSE
<b><u>LOT NUMBER:</u></b>	brNMeFOSE0922
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/02/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

**DESCRIPTION:**

The chemical purity has been determined to be ≥98% 2-(N-methylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

**DOCUMENTATION/ DATA ATTACHED:**

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- CAS #: 24448-09-7 (for linear isomer).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

brNMeFOSE0922 (1 of 7)  
rev1

7.9.1

7

11495



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol  
Isomeric Mix**

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSE
<b><u>LOT NUMBER:</u></b>	brNEtFOSE1022
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/12/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% 2-(N-ethylperfluorooctanesulfonamido)ethanol linear and branched isomers. The full name, structure, and percent composition for each of the isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 3: LC/MS Data (SIR)
- Figure 4: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 1691-99-2 (for linear isomer).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

brNEtFOSE1022 (1 of 7)  
rev1

7.9.1

7

11497



**WELLINGTON**  
LABORATORIES

**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**br-NMeFOSA**

**N-Methylperfluorooctanesulfonamide**  
**Isomeric Mix**

**PRODUCT CODE:** br-NMeFOSA  
**LOT NUMBER:** brNMeFOSA0822  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**SOLVENT(S):** Methanol  
**DATE PREPARED:** (mm/dd/yyyy) 08/18/2022  
**LAST TESTED:** (mm/dd/yyyy) 08/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 08/23/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DESCRIPTION:**

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

**DOCUMENTATION/ DATA ATTACHED:**

Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR  
Figure 1: LC/MS Data (Full Scan and Mass Spectrum)  
Figure 2: LC/MS Data (SIR)  
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- CAS #: 31506-32-8 (for linear isomer).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA**  
**519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

brNMeFOSA0822 (1 of 6)  
rev1

11498



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### br-NEtFOSA

#### N-Ethylperfluorooctanesulfonamide Isomeric Mix

<b><u>PRODUCT CODE:</u></b>	br-NEtFOSA
<b><u>LOT NUMBER:</u></b>	brNEtFOSA0922
<b><u>CONCENTRATION:</u></b>	50.0 ± 2.5 µg/mL
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	08/23/2022
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	10/07/2022
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	10/07/2027
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamide (linear and branched isomers). The full name, structure, and percent composition for each of the identified isomeric components are given in Table A.

### DOCUMENTATION/ DATA ATTACHED:

- Table A: Isomeric Components and Percent Composition by <sup>19</sup>F-NMR
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS Data (SIR)
- Figure 3: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- CAS #: 4151-50-2 (for linear isomer).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

brNEtFOSA0922 (1 of 6)  
rev1

7.9.1

7

11642 A-B  
REC'D: 02/06/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic  
Acid Solution/Mixture

<b><u>PRODUCT CODE:</u></b>	PFAC-MXJ
<b><u>LOT NUMBER:</u></b>	PFACMXJ0921
<b><u>SOLVENT(S):</u></b>	Methanol
<b><u>DATE PREPARED:</u></b> (mm/dd/yyyy)	09/08/2021
<b><u>LAST TESTED:</u></b> (mm/dd/yyyy)	09/14/2021
<b><u>EXPIRY DATE:</u></b> (mm/dd/yyyy)	09/14/2026
<b><u>RECOMMENDED STORAGE:</u></b>	Store ampoule in a cool, dark place

### DESCRIPTION:

PFAC-MXJ is a solution/mixture of three native X:3 fluorotelomer carboxylic acids. The components and their concentrations are given in Table A.

The individual components have a chemical purity of >98%.

### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:13, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

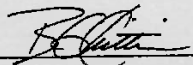
PFACMXJ:0921 (1 of 5)  
rev1

7.9.1  
7



**Table A: PFAC-MXJ; Components and Concentrations ( $\mu\text{g}/\text{mL}$ ;  $\pm 5\%$  in methanol)**

Compound	Acronym	Concentration ( $\mu\text{g}/\text{mL}$ )
3-Perfluoropropyl propanoic acid	FPrPA	4.00
3-Perfluoropentyl propanoic acid	FPePA	20.0
3-Perfluoroheptyl propanoic acid	FHpPA	20.0

Certified By:   
 B.G. Chittim, General Manager

Date: 10/02/2021  
(m/mcd/yyyy)

11672  
rec'd: 02/23/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXH

**Native PFAS  
Solution/Mixture**

<b>PRODUCT CODE:</b>	PFAC-MXH
<b>LOT NUMBER:</b>	PFACMXH0822
<b>SOLVENT(S):</b>	Methanol/Isopropanol (2%)/Water (<1%)
<b>DATE PREPARED:</b> (mm/dd/yyyy)	08/05/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	08/08/2022
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	08/08/2027
<b>RECOMMENDED STORAGE:</b>	Refrigerate ampoule

#### DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>14</sub>), eight native perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>5</sub>, C<sub>7</sub>, C<sub>9</sub>, C<sub>10</sub> and C<sub>12</sub> linear; C<sub>6</sub> and C<sub>8</sub> linear and branched), three native fluorotelomer sulfonates (4:2, 6:2, and 8:2), two native linear and branched perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide (FOSA). The components and their concentrations are given in Table A.

The individual components of this mixture all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

- Table A: Components and Concentrations of the Solution/Mixture
- Table B: Isomeric Components and Percent Composition of N-MeFOSAA
- Table C: Isomeric Components and Percent Composition of N-EtFOSAA
- Table D: Isomeric Components and Percent Composition of PFHxSK
- Table E: Isomeric Components and Percent Composition of PFOSK
- Figure 1: LC/MS Data (SIR)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com**

Form# 13, Issued 2004-11-10  
Revision# 9, Revised 2020-12-23

PFACMXH0822 1 of 11  
rev0

7.9.1

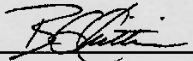
7

**Table A: PFAC-MXH; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (2%)/water (<1%))

Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-butanoic acid	PFBA	4000		1
Perfluoro-n-pentanoic acid	PFPeA	2000		2
Perfluoro-n-hexanoic acid	PFHxA	1000		5
Perfluoro-n-heptanoic acid	PFHpA	1000		7
Perfluoro-n-octanoic acid	PFOA	1000		11
Perfluoro-n-nonanoic acid	PFNA	1000		14
Perfluoro-n-decanoic acid	PFDA	1000		18
Perfluoro-n-undecanoic acid	PFUDA	1000		24
Perfluoro-n-dodecanoic acid	PFDoA	1000		26
Perfluoro-n-tridecanoic acid	PFTriDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid <sup>a</sup>	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid <sup>a</sup>	N-EtFOSAA: linear isomer	775		22
	N-EtFOSAA: ∑ branched isomers	225		21
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate <sup>c</sup>	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate <sup>d</sup>	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000	970	28
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000	3750	4
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000	3800	10
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000	3840	16

<sup>a</sup> See Table B for percent composition of linear and branched N-MeFOSAA isomers.  
<sup>b</sup> See Table C for percent composition of linear and branched N-EtFOSAA isomers.  
<sup>c</sup> See Table D for percent composition of linear and branched PFHxSK isomers.  
<sup>d</sup> See Table E for percent composition of linear and branched PFOSK isomers.

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 08/09/2022  
(mm/dd/yyyy)

11674 A-B  
rec'd: 02/23/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXF

#### Native Replacement PFAS Solution/Mixture

<b>PRODUCT CODE:</b>	PFAC-MXF
<b>LOT NUMBER:</b>	PFACMXF0122
<b>SOLVENT(S):</b>	Methanol / Water (<1%)
<b>DATE PREPARED:</b> (mm/dd/yyyy)	01/10/2022
<b>LAST TESTED:</b> (mm/dd/yyyy)	01/11/2022
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	01/11/2025
<b>RECOMMENDED STORAGE:</b>	Refrigerate ampoule

#### DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonanoate (NaDONA), the major and minor components of F-53B (9CI-PF3ONS and 11CI-PF3OUDS), and GenX (HFPO-DA). The components and their concentrations are given in Table A.

The individual native components of this mixture all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

**Table A:**

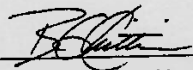
**PFAC-MXF; Components and Concentrations (ng/mL; ± 5% in Methanol/Water (<1%))**

Compound	Acronym	Concentration* (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the acid	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid	HFPO-DA	2000		A
Sodium dodecafluoro-3H-4,8-dioxananoate	NaDONA	2000	1890	B
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000	1870	C
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000	1890	D

\* Concentrations have been rounded to three significant figures.

Certified By: \_\_\_\_\_

B.G. Chittim, General Manager



Date: 01/12/2022

(mm/dd/yyyy)

11675  
rec'd: 02/23/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### PFAC-MXG

#### Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

**PRODUCT CODE:** PFAC-MXG  
**LOT NUMBER:** PFACMXG1122  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 11/30/2022  
**LAST TESTED:** (mm/dd/yyyy) 12/01/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 12/01/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

#### DESCRIPTION:

PFAC-MXG is a solution/mixture of three native perfluoroalkyl ether carboxylic acids and a native perfluoroalkyl ether sulfonate. The components and their concentrations are given in Table A.

The individual components all have chemical purities of >98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

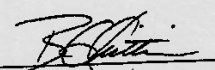
7.9.1  
7

**PFAC-MXG; Components and Concentrations (ng/mL; ± 5% in methanol/water (<1%))**

**Table A**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000		A
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000		B
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000		D
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000	1780	C

\* Concentrations have been rounded to three significant figures.

Certified By:  Date: 12/09/2022  
(mm/dd/yyyy)  
 B.G. Chittim, General Manager

7.9.1  
7

10685A



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FPePA

**LOT NUMBER:**

FPePA1120

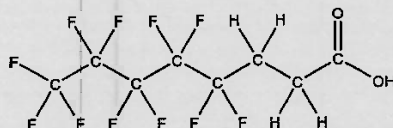
**COMPOUND:**

3-Perfluoropentyl propanoic acid

**STRUCTURE:**

**CAS #:**

914637-49-3



**MOLECULAR FORMULA:**

C<sub>8</sub>H<sub>5</sub>F<sub>11</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

342.11

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/11/2020

**EXPIRY DATE:** (mm/dd/yyyy)

11/11/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains <1% of the unsaturated 5:3 telomer acid (C<sub>8</sub>H<sub>3</sub>F<sub>11</sub>O<sub>2</sub>) as an impurity determined by <sup>19</sup>F NMR.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

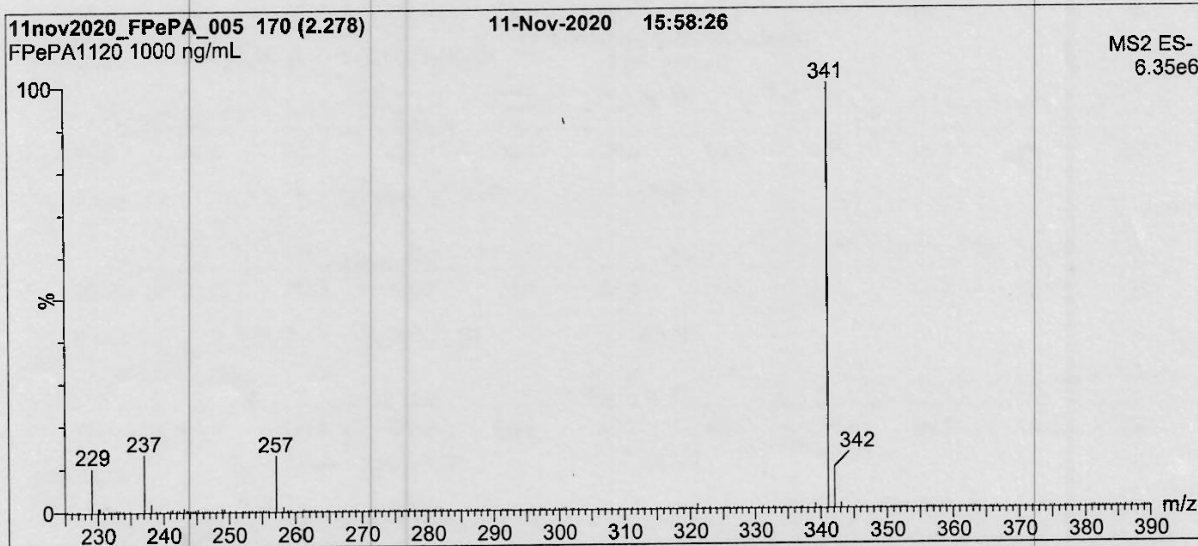
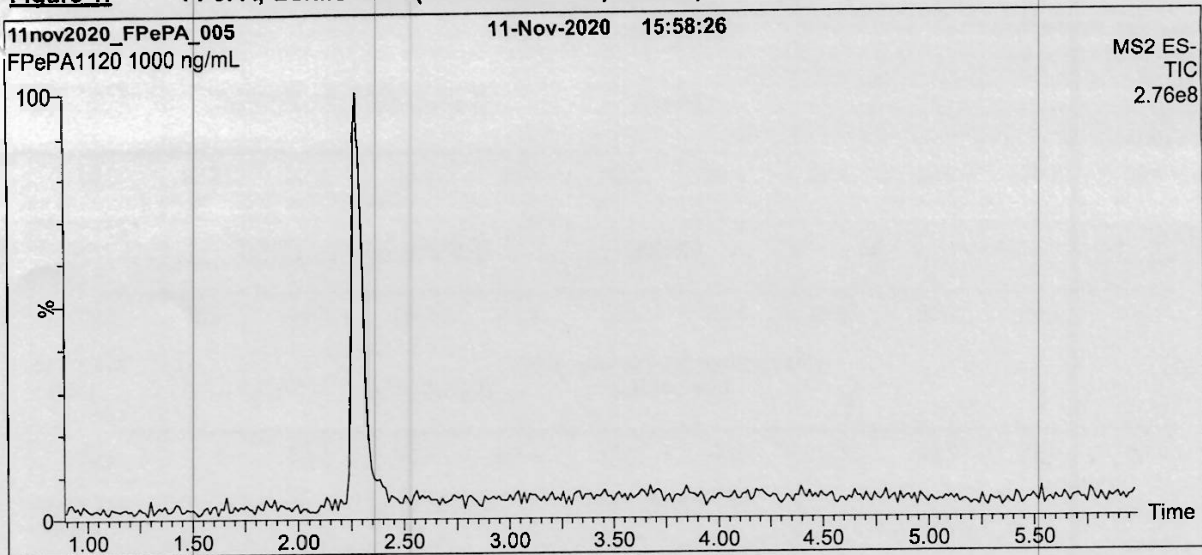
**Date:** 11/27/2020

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com



**Figure 1: FPePA; LC/MS Data (TIC and Mass Spectrum)**



**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>1a</sub>  
1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 8 min and hold for  
2 min before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300 μL/min

**MS Parameters:**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 0.50  
Cone Voltage (V) = 18.50  
Desolvation Temperature (°C) = 500  
Desolvation Gas Flow (L/hr) = 1000

Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

10726 A

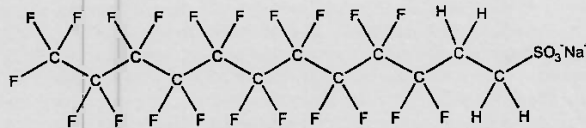


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** 10:2FTS **LOT NUMBER:** 102FTS0221  
**COMPOUND:** Sodium 1H,1H,2H,2H-perfluorododecanesulfonate

**STRUCTURE:** **CAS #:** 108026-35-3



**MOLECULAR FORMULA:**  $C_{12}H_4F_{21}SO_3Na$  **MOLECULAR WEIGHT:** 650.18  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt) **SOLVENT(S):** Methanol  
48.3 ± 2.4 µg/mL (10:2FTS acid)  
48.2 ± 2.4 µg/mL (10:2FTS anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 03/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 03/03/2026  
**RECOMMENDED STORAGE:** Refrigerate ampoule

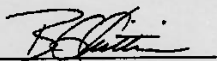
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**  **Date:** 03/05/2021  
B.G. Chittim, General Manager (mm/dd/yyyy)

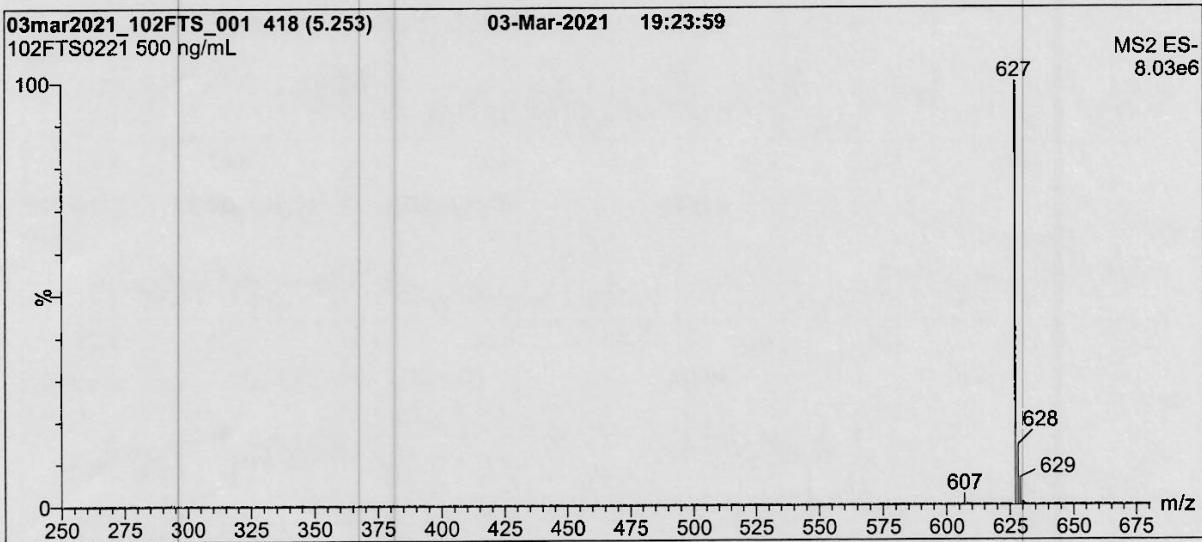
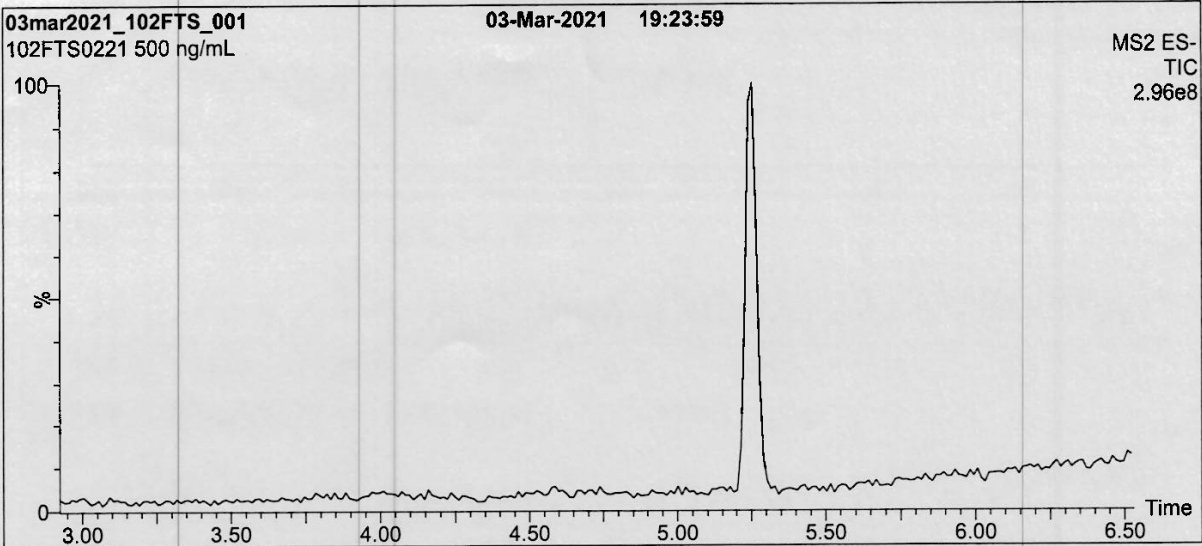
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

7.9.1

7

**Figure 1:** 10:2FTS; LC/MS Data (Full Scan and Mass Spectrum)



**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 40% H<sub>2</sub>O / 60% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 3 min  
before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (250 - 850 amu)  
Source: Electrospray (negative)  
Capillary Voltage (kV) = 2.00  
Cone Voltage (V) = 25.00  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000

10762 A-B



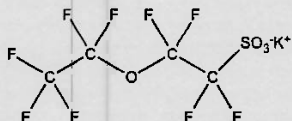
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PFEESA *rec'd  
8/20/21  
WPH* **LOT NUMBER:** PFEESA0520

**COMPOUND:** Potassium perfluoro(2-ethoxyethane)sulfonate

**STRUCTURE:** **CAS #:** 117205-07-9



**MOLECULAR FORMULA:** C<sub>4</sub>F<sub>8</sub>SO<sub>4</sub>K **MOLECULAR WEIGHT:** 354.19

**CONCENTRATION:** 50.0 ± 2.5 µg/ml (K salt) **SOLVENT(S):** Methanol

44.6 ± 2.2 µg/ml (PFEESA acid)

44.5 ± 2.2 µg/ml (PFEESA anion)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 05/13/2020

**EXPIRY DATE:** (mm/dd/yyyy) 05/13/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

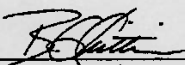
Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~ 0.2% of perfluoro-n-octanoic acid (PFOA).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**  **Date:** 05/29/2020  
(mm/dd/yyyy)  
 B.G. Chittim, General Manager

**Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA**  
 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:27, Issued 2004-11-10  
 Revision#:7, Revised 2020-01-09

PFEESA0520 (1 of 4)  
 rev0

7.9.1

7

10763 A-B



# WELLINGTON LABORATORIES

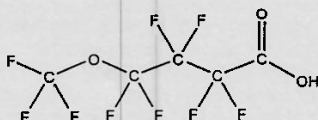
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF5OHxA *res'd with 8/20/21* **LOT NUMBER:** PF5OHxA0320

**COMPOUND:** Perfluoro-5-oxahexanoic acid

**SYNONYM:** Perfluoro-4-methoxybutanoic acid (PFMBA)

**STRUCTURE:** **CAS #:** 863090-89-5



**MOLECULAR FORMULA:** C<sub>5</sub>HF<sub>9</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 280.05

**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
Water (<1%)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy) 03/31/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

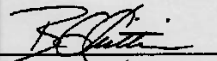
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**  **Date:** 12/21/2020  
(mm/dd/yyyy)

B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

PF5OHxA0320 (1 of 4)  
rev1

7.9.1  
7

10764A-B



# WELLINGTON LABORATORIES

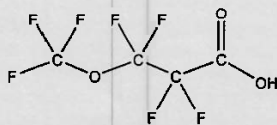
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** PF4OPeA *rec'd  
WPH  
8/20/21* **LOT NUMBER:** PF4OPeA0320

**COMPOUND:** Perfluoro-4-oxapentanoic acid

**SYNONYM:** Perfluoro-3-methoxypropanoic acid (PFMPA)

**STRUCTURE:** **CAS #:** 377-73-1



**MOLECULAR FORMULA:** C<sub>4</sub>HF<sub>7</sub>O<sub>3</sub> **MOLECULAR WEIGHT:** 230.04

**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
Water (<1%)

**CHEMICAL PURITY:** >98%

**LAST TESTED:** (mm/dd/yyyy) 03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy) 03/31/2025

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

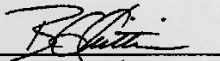
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 12/21/2020  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

PF4OPeA0320 (1 of 4)  
rev1

7.9.1

7

10765 A-13



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

3,6-OPFHpA

rec'd  
WPH  
8/20/21

**LOT NUMBER:**

36OPFHpA0320

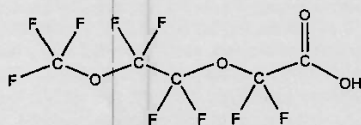
**COMPOUND:**

Perfluoro-3,6-dioxahexanoic acid

**STRUCTURE:**

**CAS #:**

151772-58-6



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>8</sub>O<sub>4</sub>

**MOLECULAR WEIGHT:**

296.04

**CONCENTRATION:**

50.0 ± 2.5 µg/ml

**SOLVENT(S):**

Methanol  
Water (<1%)

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

03/31/2020

**EXPIRY DATE:** (mm/dd/yyyy)

03/31/2025

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 05/27/2020  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

10829



# WELLINGTON LABORATORIES

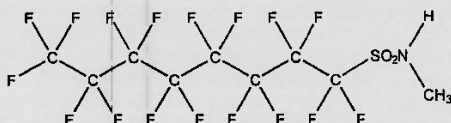
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** N-MeFOSA-M  
**COMPOUND:** N-methylperfluoro-1-octanesulfonamide

**LOT NUMBER:** NMeFOSA0721M

**STRUCTURE:**

**CAS #:** 31506-32-8



rec'd  
WPA  
10/5/21

**MOLECULAR FORMULA:** C<sub>8</sub>H<sub>4</sub>F<sub>17</sub>NO<sub>2</sub>S  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 08/03/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 08/03/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 513.17  
**SOLVENT(S):** Methanol

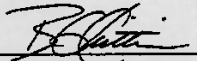
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 08/04/2021  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:27, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

NMeFOSA0721M (1 of 4)  
rev0

7.9.1

7





# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-EtFOSA-M

10837

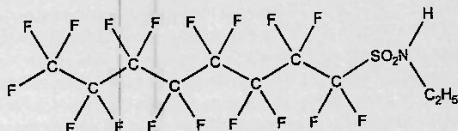
**LOT NUMBER:** NEtFOSA0821M

**COMPOUND:**

N-ethylperfluoro-1-octanesulfonamide

**STRUCTURE:**

**CAS #:** 4151-50-2



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>9</sub>F<sub>17</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:**

527.20

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

08/12/2021

**EXPIRY DATE:** (mm/dd/yyyy)

08/12/2026

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

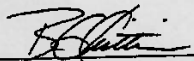
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

  
B.G. Chittim, General Manager

**Date:** 08/16/2021

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA

10



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

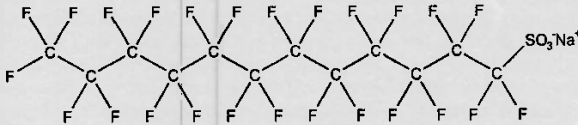
10840

**PRODUCT CODE:** L-PFDoS  
**COMPOUND:** Sodium perfluoro-1-dodecanesulfonate

**LOT NUMBER:** LPFDoS0721

**STRUCTURE:**

**CAS #:** 1260224-54-1



**MOLECULAR FORMULA:** C<sub>12</sub>F<sub>25</sub>SO<sub>3</sub>Na  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt)  
48.5 ± 2.4 µg/mL (PFDoS acid)  
48.4 ± 2.4 µg/mL (PFDoS anion)  
**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 07/09/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 07/09/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**MOLECULAR WEIGHT:** 722.14  
**SOLVENT(S):** Methanol


**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~0.2% of perfluoro-n-dodecanoic acid (PFDoA).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager  
**Date:** 07/16/2021  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

LPFDoS0721 (1 of 4)  
rev0

7.9.1

7



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

PFODA

10847 NS 01/18/23

**LOT NUMBER:**

PFODA0821

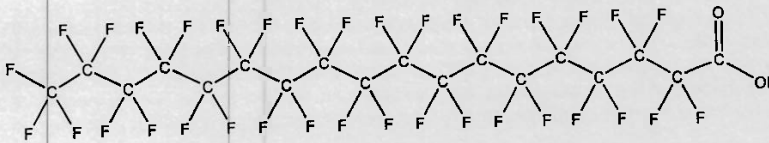
**COMPOUND:**

Perfluoro-n-octadecanoic acid

**STRUCTURE:**

**CAS #:**

16517-11-6



**MOLECULAR FORMULA:**

C<sub>18</sub>H<sub>35</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

914.14

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol  
Water (<1%)

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

09/03/2021

**EXPIRY DATE:** (mm/dd/yyyy)

09/03/2026

**RECOMMENDED STORAGE:**

Store ampoule at ambient temperature in a dark place

### DOCUMENTATION/ DATA ATTACHED:

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- The solubility of this product in methanol is very sensitive to storage conditions and solvent composition. The stated validity period applies to the sealed ampoules stored at ambient temperature.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

**Date:** 09/28/2021

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

7.9.1  
7



# WELLINGTON LABORATORIES

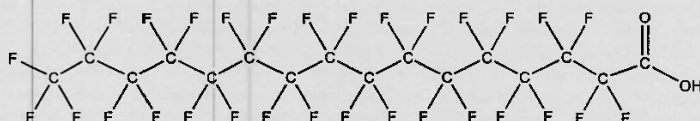
## CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 \* NG 01/18/23

**PRODUCT CODE:** PFHxDA **LOT NUMBER:** PFHxDA0421

**COMPOUND:** Perfluoro-n-hexadecanoic acid

**STRUCTURE:** **CAS #:** 67905-19-5



**MOLECULAR FORMULA:** C<sub>16</sub>HF<sub>31</sub>O<sub>2</sub> **MOLECULAR WEIGHT:** 814.13  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL **SOLVENT(S):** Methanol  
 Water (<1%)

**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 05/07/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 05/07/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

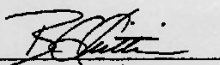
**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

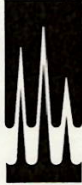
**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
 B.G. Chittim, General Manager **Date:** 05/25/2021  
 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

1116 A/B NW

1116B on the back NW



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHpPA

**LOT NUMBER:**

FHpPA1020

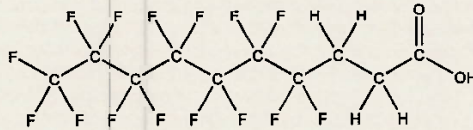
**COMPOUND:**

3-Perfluoroheptyl propanoic acid

**STRUCTURE:**

**CAS #:**

812-70-4



**MOLECULAR FORMULA:**

C<sub>10</sub>H<sub>5</sub>F<sub>15</sub>O<sub>2</sub>

**MOLECULAR WEIGHT:**

442.12

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/12/2020

**EXPIRY DATE:** (mm/dd/yyyy)

11/12/2025

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

**Date:** 11/27/2020

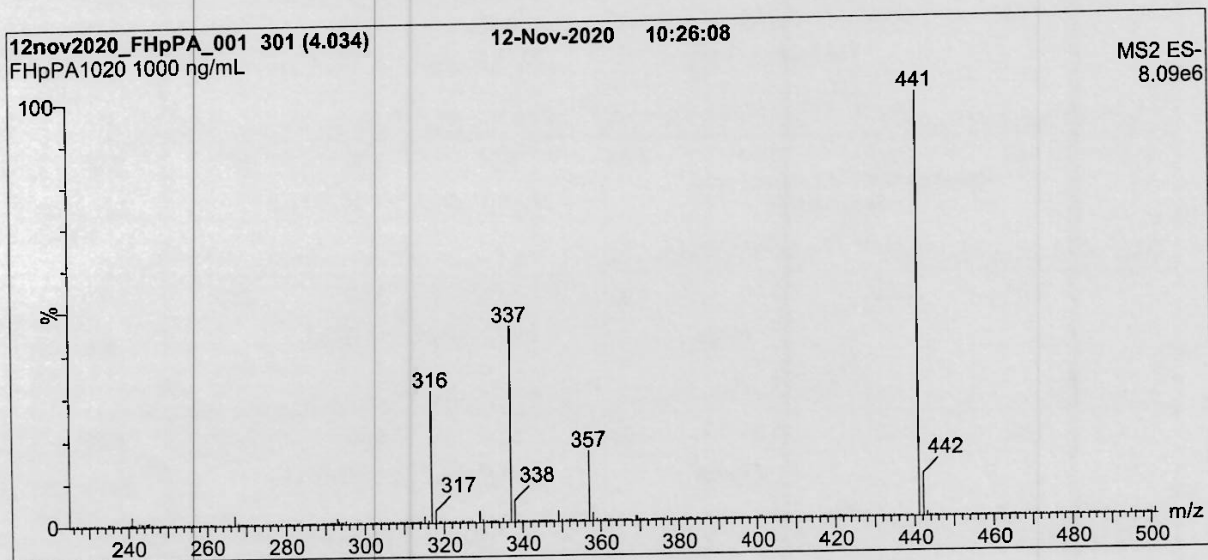
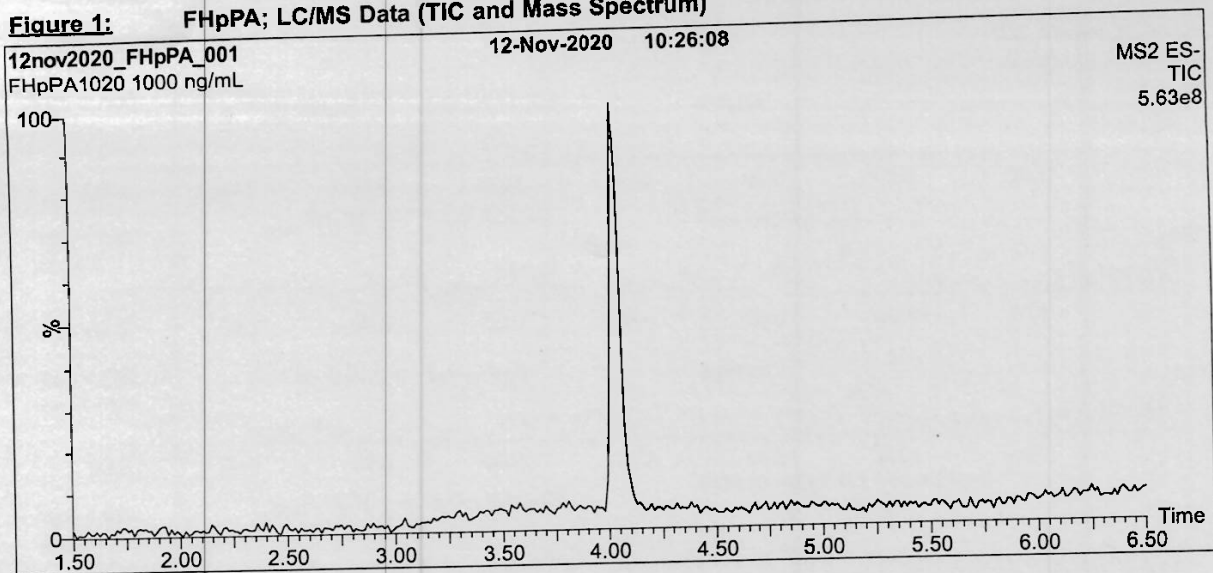
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10  
Revision#: 8, Revised 2020-09-10

FHpPA1020 (1 of 4)  
rev0

**Figure 1: FHpPA; LC/MS Data (TIC and Mass Spectrum)**



**Conditions for Figure 1:**

Waters Acquity Ultra Performance LC  
Waters Xevo TQ-S micro MS

**Chromatographic Conditions:**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 45% H<sub>2</sub>O / 55% (80:20 MeOH:ACN)  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 8 min and hold for  
2 min before returning to initial conditions in 0.75 min.  
Time: 12 min

Flow: 300  $\mu$ L/min

**MS Parameters:**

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)  
Capillary Voltage (kV) = 0.50  
Cone Voltage (V) = 28.50  
Desolvation Temperature ( $^{\circ}$ C) = 500  
Desolvation Gas Flow (L/hr) = 1000

FPrPA(3:3FTEA) 1116 B



**WELLINGTON**  
LABORATORIES

**CERTIFICATE OF ANALYSIS**  
DOCUMENTATION

**PRODUCT CODE:**

FPrPA

**LOT NUMBER:**

FPrPA0122

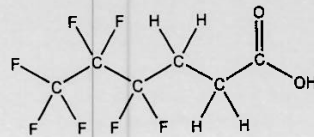
**COMPOUND:**

3-Perfluoropropyl propanoic acid

**STRUCTURE:**

**CAS #:**

356-02-5



**MOLECULAR FORMULA:**

$C_6H_5F_7O_2$

**MOLECULAR WEIGHT:**

242.09

**CONCENTRATION:**

$50.0 \pm 2.5 \mu\text{g/mL}$

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

02/03/2022

**EXPIRY DATE:** (mm/dd/yyyy)

02/03/2027

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains <1% of the unsaturated 3:3 telomer acid ( $C_6H_3F_7O_2$ ) as an impurity determined by  $^{19}\text{F}$  NMR.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 02/04/2022  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

11140



# WELLINGTON LABORATORIES

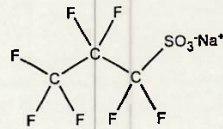
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** L-PFPrS  
**COMPOUND:** Sodium perfluoro-1-propanesulfonate

**LOT NUMBER:** LPFPrS0721

**STRUCTURE:**

**CAS #:** Not available



**MOLECULAR FORMULA:** C<sub>3</sub>F<sub>7</sub>SO<sub>3</sub>Na  
**CONCENTRATION:** 50.0 ± 2.5 µg/mL (Na salt)  
46.0 ± 2.3 µg/mL (PFPrS acid)  
45.8 ± 2.3 µg/mL (PFPrS anion)

**MOLECULAR WEIGHT:** 272.07  
**SOLVENT(S):** Methanol

**CHEMICAL PURITY:** >98%  
**LAST TESTED:** (mm/dd/yyyy) 07/12/2021  
**EXPIRY DATE:** (mm/dd/yyyy) 07/12/2026  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim, General Manager

**Date:** 08/04/2021  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#:27, Issued 2004-11-10  
Revision#:9, Revised 2020-12-23

LPFPrS0721 (1 of 4)  
rev0

7.9.1

7



11252 11249  
7/1/22 KA



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FHxSA-I

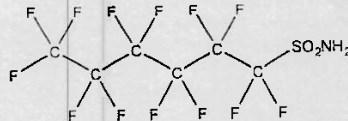
**LOT NUMBER:** FHxSA12211

**COMPOUND:**

Perfluoro-1-hexanesulfonamide

**STRUCTURE:**

**CAS #:** 41997-13-1



**MOLECULAR FORMULA:**

C<sub>6</sub>H<sub>2</sub>F<sub>13</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:** 399.13

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):** isopropanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

12/29/2021

**EXPIRY DATE:** (mm/dd/yyyy)

12/29/2026

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 01/10/2022

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

11250 Lx 7/1122



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

FBSA-I

**LOT NUMBER:**

FBSA11211

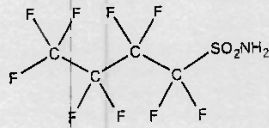
**COMPOUND:**

Perfluoro-1-butanesulfonamide

**STRUCTURE:**

**CAS #:**

30334-69-1



**MOLECULAR FORMULA:**

C<sub>4</sub>H<sub>2</sub>F<sub>9</sub>NO<sub>2</sub>S

**MOLECULAR WEIGHT:**

299.11

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Isopropanol

**CHEMICAL PURITY:**

>98%

**LAST TESTED:** (mm/dd/yyyy)

11/10/2021

**EXPIRY DATE:** (mm/dd/yyyy)

11/10/2026

**RECOMMENDED STORAGE:**

Refrigerate ampoule

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**

B.G. Chittim, General Manager

**Date:** 11/10/2021

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

FBSA11211 (1 of 4)  
rev0

7.9.1  
7

11332



# WELLINGTON LABORATORIES

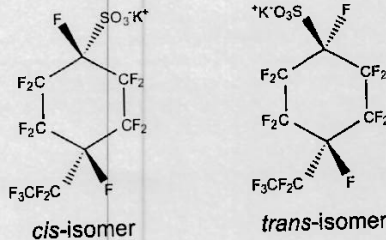
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**  
**COMPOUND:**

PFECHS  
Potassium perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)

**LOT NUMBER:** PFECHS0222

**STRUCTURE:**



**CAS #:** 335-24-0

**MOLECULAR FORMULA:**  
**CONCENTRATION:**

$C_8F_{15}SO_3K$   
50.0 ± 2.5 µg/mL (K salt)  
46.2 ± 2.3 µg/mL (PFECHS acid)  
46.1 ± 2.3 µg/mL (PFECHS anion)  
>98%

**MOLECULAR WEIGHT:** 500.22  
**SOLVENT(S):** Methanol

**CHEMICAL PURITY:**

**LAST TESTED:** (mm/dd/yyyy)

03/28/2022

**EXPIRY DATE:** (mm/dd/yyyy)

03/28/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains a mixture of the *cis/trans* isomers of PFECHS at a ratio of 1:1.27 (*cis:trans*).

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

B.G. Chittim, General Manager

Date: 03/30/2022  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com



11338



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:**

N-MeFOSE-M

**LOT NUMBER:**

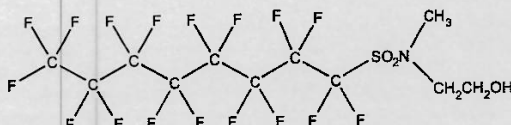
NMeFOSE0522M

**COMPOUND:**

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

**STRUCTURE:****CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C<sub>11</sub>H<sub>8</sub>F<sub>17</sub>NO<sub>3</sub>S**MOLECULAR WEIGHT:**

557.22

**CONCENTRATION:**

50.0 ± 2.5 µg/mL

**SOLVENT(S):**

Methanol

**CHEMICAL PURITY:**

&gt;98%

**LAST TESTED:** (mm/dd/yyyy)

05/13/2022 (HRGC/LRMS)

05/13/2022 (LC/MS)

**EXPIRY DATE:** (mm/dd/yyyy)

05/13/2027

**RECOMMENDED STORAGE:**

Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: HRGC/LRMS Data (Full Scan and Mass Spectrum)

Figure 2: LC/MS Data (Full Scan and Mass Spectrum)

Figure 3: LC/MS/MS Data (Selected MRM Transitions)

**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- In order to see the molecular ion (adduct free), the LC mobile phase should be free of ammonium acetate buffer.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Certified By:

  
B.G. Chittim, General Manager
Date: 06/14/2022  
(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

11615 A-5  
rec'd 01/19/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-IS

Mass-Labelled PFAS Injection  
Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-IS  
**LOT NUMBER:** MPFACHIFIS1122  
**SOLVENT(S):** Methanol/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 11/28/2022  
**LAST TESTED:** (mm/dd/yyyy) 11/29/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/29/2027  
**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

### DESCRIPTION:

MPFAC-HIF-IS is a solution/mixture of five mass-labelled ( $^{13}\text{C}$ ) perfluoroalkylcarboxylic acids ( $\text{C}_4$ ,  $\text{C}_6$ ,  $\text{C}_8$ - $\text{C}_{10}$ ) and two mass-labelled ( $^{18}\text{O}$  and  $^{13}\text{C}$ ) perfluoroalkanesulfonates ( $\text{C}_6$  and  $\text{C}_8$ ). The components and their concentrations are given in Table A.

The individual mass-labelled perfluoroalkylcarboxylic acids and mass-labelled perfluoroalkanesulfonates all have chemical purities of >98% and isotopic purities of  $\geq 99\%$  per  $^{13}\text{C}$  or >94% per  $^{18}\text{O}$ .

### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

**Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, ± 5% in methanol/water (<1%))**

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-(2,3,4- <sup>13</sup> C <sub>3</sub> )butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- <sup>13</sup> C <sub>5</sub> )nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- <sup>13</sup> C <sub>2</sub> )decanoic acid	MPFDA	250		7
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-hexane( <sup>18</sup> O <sub>2</sub> )sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- <sup>13</sup> C <sub>4</sub> )octanesulfonate	MPFOS	500	479	6

\* Concentrations have been rounded to three significant figures.

Certified By:   
 B.G. Chittim, General Manager

Date: 12/05/2022  
(mm/dd/yyyy)



11626  
rec'd 01/26/23

**CERTIFIED WEIGHT REPORT**

Part Number: **64029A**  
Lot Number: **110922**  
Description: **PFOA - DOD**  
28 components  
Expiration Date: **110827**  
Recommended Storage: **Freezer (0 °C)**  
Nominal Concentration (µg/mL): **1.0**  
NIST Test ID#: **6UTB**

Solvent(s): **Methanol (1 mM KOH)**  
**2-Propanol**  
Lot# **102722** (98%)  
**32500** (2%)

Formulated By: <i>P. S. Chauhan</i>	110922
Prepared By: <i>Prashant Chauhan</i>	DATE
Reviewed By: <i>Pedro L. Rentes</i>	110922
	DATE

Volume(s) shown below were combined and diluted to (mL):  
Note: All assigned values are anion concentrations.

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-) µg/mL	SDS Information (Solvent Safety Info. On Attached pg.)		
									Free Acid CAS#	OSHA PEL (TWA)	LD50
1. Perfluoro-n-butanoic acid (PFBA)	99542	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-22-4	N/A	N/A
2. Perfluoro-n-pentanoic acid (PFPeA)	99543	050222	0.02	2.00	0.017	50.3	1.01	0.02	2706-90-3	N/A	N/A
3. Perfluorohexanoic acid (PFHxA)	99199	071122	0.02	2.00	0.017	50.2	1.00	0.02	307-24-4	N/A	N/A
4. Perfluoroheptanoic acid (PFHpA)	99197	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-85-9	N/A	N/A
5. Perfluorooctanoic acid (br-PFOA)*	99202	080522	0.02	2.00	0.017	50.2	1.00	0.02	335-67-1 (L)	N/A	ipr-rat 189mg/kg
6. Perfluorononanoic acid (PFNA)	99200	110922	0.02	2.00	0.017	50.1	1.00	0.02	375-95-1	N/A	N/A
7. Perfluorodecanoic acid (PFDA)	99195	110922	0.02	2.00	0.017	50.0	1.00	0.02	335-76-2	N/A	rat 57mg/kg
8. Perfluoroundecanoic acid (PFUnA)	99205	071522	0.02	2.00	0.017	50.2	1.00	0.02	2058-94-8	N/A	N/A
9. Perfluorododecanoic acid (PFDoA)	99196	071522	0.02	2.00	0.017	50.1	1.00	0.02	307-55-1	N/A	N/A
10. Perfluorotridecanoic acid (PTTDA)	99204	110922	0.02	2.00	0.017	50.1	1.00	0.02	72629-94-8	N/A	N/A
11. Perfluorotetradecanoic acid (PFTeDA)	99203	033022	0.02	2.00	0.017	50.1	1.00	0.02	376-06-7	N/A	N/A
12. Perfluorooctanesulfonamide (FOSA)	3677	FOSA03221	0.02	2.00	0.017	50.0	1.00	0.05	2355-31-9 (L)	N/A	N/A
13. N-Methylperfluorooctanesulfonamidoacetic acid (br-NMeFOSAA)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
14. N-Ethylperfluorooctanesulfonamidoacetic acid (br-NEFOSAA)*	4163	brNEFOSAA1121	0.02	2.00	0.017	50.0	1.00	0.05	2991-50-6 (L)	N/A	N/A
15. Perfluorobutanesulfonic acid (PFBS)	99194	080522	0.02	2.00	0.017	50.2	1.00	0.02	375-73-5	N/A	N/A
16. Perfluoro-1-pentanesulfonic acid (PFPeS)	99544	032422	0.02	2.00	0.017	50.1	1.00	0.02	2706-91-4	N/A	N/A
17. Perfluorohexanesulfonic acid (br-PFHxS)*	99198	071522	0.02	2.00	0.017	50.2	1.00	0.02	355-46-4 (L)	N/A	N/A
18. Perfluoro-1-heptanesulfonic acid (PFHpS)	3672	LPFHPS0822	0.021	2.10	0.017	47.6	1.00	0.05	375-92-8	N/A	N/A
19. Heptadecafluorooctanesulfonic acid (br-PFOS)*	99201	033022	0.02	2.00	0.017	50.1	1.00	0.02	1763-23-1 (L)	N/A	N/A
20. Perfluoro-1-nonanesulfonic acid (PFNS)	3957	LPFNS1021	0.021	2.10	0.017	48.0	1.01	0.05	68259-12-1	N/A	N/A
21. Perfluoro-1-decanesulfonic acid (PFDS)	3671	LPFDS0222	0.021	2.10	0.017	48.2	1.01	0.05	335-77-3	N/A	N/A
22. 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	65271	080522	0.02	2.00	0.017	50.2	1.00	0.05	757124-72-4	N/A	N/A
23. 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	65272	071522	0.02	2.00	0.017	50.2	1.00	0.05	29108-34-4	N/A	N/A
24. 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	3662	82FTS0822	0.021	2.10	0.017	47.9	1.01	0.05	39108-34-4	N/A	N/A
25. 2-(Heptafluoropropoxy)-2,3,3,3-tetrafluoropropanoic acid (HFPO-DA)	99666	080522	0.02	2.00	0.017	50.1	1.00	0.02	13252-13-6	N/A	N/A
26. 11-Chlorooctadecafluoro-3-oxadecane-1-sulfonic acid (11Cl-PF3OUdS)	4165	11ClPF3OUdS0522	0.021	2.12	0.017	47.1	1.00	0.05	763051-92-9	N/A	N/A
27. 9-Chlorooctadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	4164	9ClPF3ONS0522	0.021	2.14	0.017	46.8	1.00	0.05	756426-58-1	N/A	N/A
28. Dodecafluoro-3H-4,8-dioxanonanoic acid (ADONA)	4103	NaDONA0922	0.021	2.12	0.017	47.1	1.00	0.05	919005-14-4	N/A	N/A
Perfluorooctanoic acid (linear)*	99202	080522	0.02	2.00	0.004	49.6	0.99	0.010	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorooctanoic acid (branched isomer)*	99202	080522	0.02	2.00	0.004	0.6	0.01	0.001	335-67-1 (L)	N/A	ipr-rat 189mg/kg
Perfluorohexanesulfonic acid (linear)*	99198	071522	0.02	2.00	0.017	44.2	0.88	0.02	355-46-4 (L)	N/A	N/A
Perfluorohexanesulfonic acid (branched isomer)*	99198	071522	0.02	2.00	0.017	6.0	0.12	0.0021	355-46-4 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (linear)*	99201	033022	0.02	2.00	0.017	38.1	0.76	0.02	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	7.5	0.15	0.003	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	4.0	0.08	0.002	1763-23-1 (L)	N/A	N/A
Heptadecafluorooctanesulfonic acid (branched isomer)*	99201	033022	0.02	2.00	0.017	0.5	0.010	0.0002	1763-23-1 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	36.0	0.72	0.04	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	6.5	0.13	0.011	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	5.0	0.10	0.005	2355-31-9 (L)	N/A	N/A
N-Methylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4162	brNMeFOSAA0422	0.02	2.00	0.017	2.5	0.05	0.0009	2355-31-9 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (linear)*	4163	brNEFOSAA1121	0.02	2.00	0.017	36.6	0.73	0.04	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	7.7	0.15	0.009	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	6.3	0.11	0.005	2991-50-6 (L)	N/A	N/A
N-Ethylperfluoro-1-octanesulfonamidoacetic acid (branched)*	4163	brNEFOSAA1121	0.02	2.00	0.017	0.4	0.007	0.0006	2991-50-6 (L)	N/A	N/A

\*Concentrations for branched and linear isomers are based on LCMS chromatographic analysis only.

A qualitative standard (Sect. 3.19) is available for PFOA that contains the linear and branched isomers (Wellington Labs, Cat. No. T-PFOA, or equivalent). This qualitative PFOA standard must be purchased and used to identify the retention times of the branched PFOA isomers, but the linear only PFOA standard must be used for quantitation (Sect. 12.2) until a quantitative PFOA standard containing the branched and linear isomers becomes commercially available.

The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.  
Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).  
Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.  
All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.  
Uncertainty Reference: Taylor, B.N. and Kaye, C.E. "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).



7.9.1  
7



11636 A-J  
rec'd 02/06/23



# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

### MPFAC-HIF-ES

#### Mass-Labelled PFAS Extraction Standard Solution/Mixture

**PRODUCT CODE:** MPFAC-HIF-ES  
**LOT NUMBER:** MPFACHIFES1022  
**SOLVENT(S):** Methanol/Isopropanol (1%)/Water (<1%)  
**DATE PREPARED:** (mm/dd/yyyy) 10/28/2022  
**LAST TESTED:** (mm/dd/yyyy) 11/23/2022  
**EXPIRY DATE:** (mm/dd/yyyy) 11/23/2025  
**RECOMMENDED STORAGE:** Refrigerate ampoule

#### DESCRIPTION:

MPFAC-HIF-ES is a solution/mixture of ten mass-labelled (<sup>13</sup>C) perfluoroalkylcarboxylic acids (C<sub>4</sub>-C<sub>12</sub>, C<sub>14</sub>), three mass-labelled (<sup>13</sup>C) perfluoroalkanesulfonates (C<sub>4</sub>, C<sub>6</sub>, and C<sub>8</sub>), three mass-labelled (one <sup>13</sup>C and two <sup>2</sup>H) perfluoro-1-octanesulfonamides, three mass-labelled (<sup>13</sup>C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (<sup>2</sup>H) perfluorooctanesulfonamidoethanols, and mass-labelled (<sup>13</sup>C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual <sup>13</sup>C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual <sup>2</sup>H-labelled components all have chemical purities >98% and isotopic purities of ≥98%.

#### DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture  
Figure 1: LC/MS Data (SIR)  
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

#### ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA  
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 13, Issued 2004-11-10  
Revision#: 9, Revised 2020-12-23

MPFACHIFES1022 (1 of 7)  
rev0

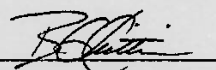
7.9.1

7

**Table A: MPFAC-HIF-ES; Components and Concentrations**  
(ng/mL, ± 5% in methanol/isopropanol (1%)/water (<1%))

Compound	Acronym	Concentration (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Perfluoro-n-( <sup>13</sup> C <sub>4</sub> )butanoic acid	MPFBA	2000		1
Perfluoro-n-( <sup>13</sup> C <sub>5</sub> )pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- <sup>13</sup> C <sub>6</sub> )hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- <sup>13</sup> C <sub>6</sub> )heptanoic acid	M4PFHpA	500		7
Perfluoro-n-( <sup>13</sup> C <sub>8</sub> )octanoic acid	M8PFOA	500		10
Perfluoro-n-( <sup>13</sup> C <sub>9</sub> )nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- <sup>13</sup> C <sub>10</sub> )decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- <sup>13</sup> C <sub>11</sub> )undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- <sup>13</sup> C <sub>12</sub> )dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- <sup>13</sup> C <sub>14</sub> )tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonamide	M8FOSA	500		17
N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d <sub>3</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>3</sub> -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d <sub>5</sub> -perfluoro-1-octanesulfonamido)ethan-d <sub>5</sub> -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)( <sup>13</sup> C <sub>3</sub> )propanoic acid	M3HFPO-DA	2000		6
Compound	Acronym	Concentration* (ng/mL)		Peak Assignment in Figure 1
		as the salt	as the acid	
Sodium perfluoro-1-(2,3,4- <sup>13</sup> C <sub>3</sub> )butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- <sup>13</sup> C <sub>3</sub> )hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-( <sup>13</sup> C <sub>8</sub> )octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- <sup>13</sup> C <sub>2</sub> )decanesulfonate	M2-8:2FTS	1000	960	13

\* Concentrations have been rounded to three significant figures.

Certified By:   
B.G. Chittim, General Manager

Date: 11/24/2022  
(mm/dd/yyyy)

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time Started: 04/18/23 10:00  
(mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM)

Date/Time Finished: 04/19/23 14:00  
(mm/dd/yy 24:00)

Balance ID: \_\_\_\_\_

Batch#: OP96450 Ext. By: GH

Conc. By: \_\_\_\_\_ Viald By: \_\_\_\_\_

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount (ul)	Spike Amount (ul)	Final Volume (ml)	Manifold ID	Comments
OP 96450 MB		500	7	N/A	25		5	AC	
OP 96450 BS		500	7			200			
OP 96450 LLBS		500	7			100			
FC5258-1	2	510	7						
	2	550	7						
	3	530	7	N/A	25		5	AG	
OPFC5258-1 MS	3	530	7	N/A	25	200	5	AG	
OP MSD									
OPFC5258-2 DUP	3	530	7	N/A	25		5	AG	

Comments:

EIS (SURR) ID: 11741D-F Conc: 250-5000 ng/ml Exp. Date: 04/11/24 Inj. By: GH Ver. By: DBL  
 SPIKE.1 ID: LCMS 2104A Conc: VARIED Exp. Date: 10/14/23 Inj. By: GH Ver. By: DBL  
 SPIKE.2 ID: \_\_\_\_\_ Conc: \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Inj. By: \_\_\_\_\_ Ver. By: \_\_\_\_\_  
 NIS (ISTD) ID: 11702G-H Conc: 250-1000 ng/ml Exp. Date: 04/18/24 Inj. By: NG Ver. By: MV

TurboVap Temp (Therm ID): \_\_\_\_\_ N-Evap Temp (Therm ID): \_\_\_\_\_  
 Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_ Observed Temp °C: \_\_\_\_\_ Corr. Temp °C: \_\_\_\_\_

Methanol Lot # 224231 1% NH4OH MeOH PF 301 SPE Lot # S23-001184  
 Water Lot# OP96255 0.3M Formic Acid PF 300 Syringe filter Lot # \_\_\_\_\_  
 Acetic Acid# 194003 3% NH4OH Sol \_\_\_\_\_ pH paper Lot# 215322  
 0.1M Formic PF359 5% Formic Acid \_\_\_\_\_ Carbon Lot# 160898

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

Date: 04/18/23  
 Date: 04/19/23

7.10.1  
7