

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: FC5578

Sampling Date: 04/25/23



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: 1120



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-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Summary of Hits	5
Section 4: Sample Results	6
4.1: FC5578-1: AF-HDMW225303-WGN01LF-2304W4	7
4.2: FC5578-2: AF-RHMW10-WGN01LF-2304W4	10
Section 5: Misc. Forms	13
5.1: Chain of Custody	14
5.2: QC Evaluation: DOD QSM5.x Limits	17
Section 6: MS Semi-volatiles - QC Data Summaries	18
6.1: Method Blank Summary	19
6.2: Blank Spike Summary	29
6.3: Matrix Spike Summary	35
6.4: Duplicate Summary	37
6.5: Injection Standard Area Summaries	39
6.6: TDCA Retention Time Checks	45
6.7: Isotope Dilution Standard Recovery Summaries	52
6.8: Initial and Continuing Calibration Summaries	55
6.9: Run Sequence Reports	87
Section 7: MS Semi-volatiles - Raw Data	93
7.1: Samples	94
7.2: Method Blanks	131
7.3: Blank Spikes	202
7.4: Matrix Spikes	290
7.5: Duplicates	312
7.6: Retention Time Markers	323
7.7: Initial and Continuing Calibrations	400
7.8: Instrument Run Logs	1021
7.9: Standard Prep Logs	1028
7.10: Sample Prep Logs	1119



Sample Summary

AECOM, INC.

Job No: FC5578

N6274223F0104 RH Fire Suppression System
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC5578-1	04/25/23	09:50 MM	04/26/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2304W4
FC5578-2	04/25/23	12:15 MM	04/26/23	AQ	Ground Water	AF-RHMW10-WGN01LF-2304W4

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: AECOM, INC.

Job No: FC5578

Site: N6274223F0104 RH Fire Suppression System

Report Date: 5/5/2023 5:01:39 PM

On 04/26/2023, 2 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 4.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC5578 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: OP96603

Sample(s) FC5514-3MS, FC5522-4DUP were used as the QC samples indicated.

Sample(s) FC5578-1 have surrogates outside control limits.

OP96603-BS for d9-EtFOSE: Outside control limits.

OP96603-BS for d7-MeFOSE: Outside control limits.

FC5578-1 for d7-MeFOSE: Outside control limits.

OP96603-LLBS for d9-EtFOSE: Outside control limits.

OP96603-LLBS for d7-MeFOSE: Outside control limits.

Matrix: AQ

Batch ID: OP96698

OP96698-BS: Insufficient sample for MS/MSD.

OP96698-LLBS for d3-MeFOSA: Outside control limits.

OP96698-LLBS for d7-MeFOSE: Outside control limits.

OP96698-LLBS for d9-EtFOSE: Outside control limits.

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: FC5578
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/25/23



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

FC5578-1 AF-HDMW225303-WGN01LF-2304W4

No hits reported in this sample.

FC5578-2 AF-RHMW10-WGN01LF-2304W4

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-HDMW225303-WGN01LF-2304W4		
Lab Sample ID:	FC5578-1	Date Sampled:	04/25/23
Matrix:	AQ - Ground Water	Date Received:	04/26/23
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	6Q17089.D	1	04/28/23 22:00	MV	04/27/23 10:00	OP96603	S6Q258
Run #2	4Q43959.D	1	05/04/23 13:58	NG	05/03/23 14:00	OP96698	S4Q635

Run #	Initial Volume	Final Volume
Run #1	540 ml	5.0 ml
Run #2	540 ml	5.0 ml

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

PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	3.7 U	15	3.7	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.4	1.9	0.87	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
335-67-1	Perfluorooctanoic acid	0.93 U	3.7	0.93	0.46	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.7	1.9	0.56	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.7	1.9	0.78	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.7	1.9	0.46	ng/l	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.7	1.9	0.46	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.7	1.9	0.65	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.7	1.9	0.46	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.7	1.9	0.50	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.7	1.9	0.53	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.7	1.9	0.59	ng/l	
79780-39-5	Perfluorododecanesulfonic acid	3.7 U	4.6	3.7	1.1	ng/l	

FLUOROTELOMER SULFONIC ACIDS

757124-72-4	4:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l	

PERFLUOROOCCTANE SULFONAMIDES

754-91-6	PFOSA	1.9 U	3.7	1.9	0.62	ng/l	
31506-32-8	MeFOSA	3.7 U ^a	7.4	3.7	0.93	ng/l	
4151-50-2	EtFOSA	3.7 U ^a	7.4	3.7	0.93	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-HDMW225303-WGN01LF-2304W4	
Lab Sample ID:	FC5578-1	Date Sampled: 04/25/23
Matrix:	AQ - Ground Water	Date Received: 04/26/23
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	3.7 U	4.6	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	

PERFLUOROOCCTANE SULFONAMIDO ETHANOLS

24448-09-7	MeFOSE	19 U ^a	37	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U ^a	37	19	6.9	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.9 U	3.7	1.9	0.93	ng/l	
919005-14-4	ADONA	3.7 U	7.4	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	7.4	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	7.4	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	7.4	3.7	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	7.4	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	7.4	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	7.4	1.9	0.72	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	19	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	93	19	8.1	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	93	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	106%	101%	20-150%
	13C5-PFPeA	102%	102%	20-150%
	13C5-PFHxA	101%	100%	20-150%
	13C4-PFHpA	106%	101%	20-150%
	13C8-PFOA	98%	98%	20-150%
	13C9-PFNA	96%	95%	20-150%
	13C6-PFDA	95%	85%	20-150%
	13C7-PFUnDA	81%	88%	20-150%
	13C2-PFDoDA	75%	79%	20-150%
	13C2-PFTeDA	70%	68%	20-150%
	13C3-PFBS	108%	96%	20-150%
	13C3-PFHxS	108%	94%	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

4.1
4

Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2304W4	
Lab Sample ID:	FC5578-1	Date Sampled: 04/25/23
Matrix:	AQ - Ground Water	Date Received: 04/26/23
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	97%	84%	20-150%
	13C8-FOSA	32%	39%	20-150%
	d3-MeFOSA	26%	39%	20-150%
	d5-EtFOSA	26%	41%	20-150%
	d3-MeFOSAA	91%	82%	20-150%
	d5-EtFOSAA	87%	89%	20-150%
	d7-MeFOSE	19% ^b	32%	20-150%
	d9-EtFOSE	23%	35%	20-150%
	13C2-4:2FTS	111%	103%	20-180%
	13C2-6:2FTS	110%	117%	20-180%
	13C2-8:2FTS	101%	96%	20-180%
	13C3-HFPO-DA	96%	97%	20-150%

(a) Result is from Run# 2

(b) Outside control limits.

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	AF-RHMW10-WGN01LF-2304W4		
Lab Sample ID:	FC5578-2	Date Sampled:	04/25/23
Matrix:	AQ - Ground Water	Date Received:	04/26/23
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	6Q17090.D	1	04/28/23 22:15	MV	04/27/23 10:00	OP96603	S6Q258
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
PERFLUOROALKYL CARBOXYLIC ACIDS							
375-22-4	Perfluorobutanoic acid	3.5 U	14	3.5	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.0	1.8	0.82	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	0.88 U	3.5	0.88	0.44	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.5	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.5	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.5	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.5	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS							
375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.5 U	4.4	3.5	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.5	1.8	0.61	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.5	1.8	0.44	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.8 U	3.5	1.8	0.47	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.5	1.8	0.50	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.5	1.8	0.56	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.5 U	4.4	3.5	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS							
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	
PERFLUOROOCCTANE SULFONAMIDES							
754-91-6	PFOSA	1.8 U	3.5	1.8	0.59	ng/l	
31506-32-8	MeFOSA	3.5 U	7.0	3.5	0.88	ng/l	
4151-50-2	EtFOSA	3.5 U	7.0	3.5	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-RHMW10-WGN01LF-2304W4		
Lab Sample ID:	FC5578-2	Date Sampled:	04/25/23
Matrix:	AQ - Ground Water	Date Received:	04/26/23
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	18 U	35	18	3.8	ng/l	
1691-99-2	EtFOSE	18 U	35	18	6.5	ng/l	

PER and POLYFLUOROETHER CARBOXYLIC ACIDS

13252-13-6	HFPO-DA (GenX)	1.8 U	3.5	1.8	0.88	ng/l	
919005-14-4	ADONA	3.5 U	7.0	3.5	1.6	ng/l	
377-73-1	PFMPA	1.8 U	7.0	1.8	0.88	ng/l	
863090-89-5	PFMBA	3.5 U	7.0	3.5	1.0	ng/l	
151772-58-6	NFDHA	3.5 U	7.0	3.5	1.1	ng/l	

PER and POLYFLUOROETHER SULFONIC ACIDS

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.5 U	7.0	3.5	1.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.5 U	7.0	3.5	1.5	ng/l	
113507-82-7	PFEESA	1.8 U	7.0	1.8	0.68	ng/l	

FLUOROTELOMER CARBOXYLIC ACIDS

356-02-5	3:3 Fluorotelomer carboxylate	8.8 U	18	8.8	4.0	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	88	18	7.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	88	18	6.9	ng/l	

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

	13C4-PFBA	110%		20-150%
	13C5-PFPeA	112%		20-150%
	13C5-PFHxA	112%		20-150%
	13C4-PFHpA	111%		20-150%
	13C8-PFOA	105%		20-150%
	13C9-PFNA	110%		20-150%
	13C6-PFDA	99%		20-150%
	13C7-PFUnDA	102%		20-150%
	13C2-PFDoDA	82%		20-150%
	13C2-PFTeDA	83%		20-150%
	13C3-PFBS	107%		20-150%
	13C3-PFHxS	106%		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-RHMW10-WGN01LF-2304W4		Date Sampled:	04/25/23
Lab Sample ID:	FC5578-2		Date Received:	04/26/23
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA DRAFT 1633 EPA 1633 DRAFT			
Project:	N6274223F0104 RH Fire Suppression System			

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	119%		20-150%
	13C8-FOSA	44%		20-150%
	d3-MeFOSA	32%		20-150%
	d5-EtFOSA	31%		20-150%
	d3-MeFOSAA	109%		20-150%
	d5-EtFOSAA	93%		20-150%
	d7-MeFOSE	20%		20-150%
	d9-EtFOSE	23%		20-150%
	13C2-4:2FTS	104%		20-180%
	13C2-6:2FTS	110%		20-180%
	13C2-8:2FTS	100%		20-180%
	13C3-HFPO-DA	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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

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

SGS Sample Receipt Summary

Job Number: FC5578

Client: AECOM

Project: N6274223F0104 RH Fire Suppression System

Date / Time Received: 4/26/2023 9:30:00 AM

Delivery Method: United Cargo/Airspace

Airbill #s: United Cargo AWB #: 016-49142623

Therm ID: IR 1;

Therm CF: -0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (4.9);

Cooler Temps (Corrected) °C: Cooler 1: (4.8);

Cooler Information

Y or N

- 1. Custody Seals Present
- 2. Custody Seals Intact
- 3. Temp criteria achieved
- 4. Cooler temp verification IR Gun
- 5. Cooler media Ice (Bag)

Trip Blank Information

Y or N

N/A

- 1. Trip Blank present / cooler
 - 2. Trip Blank listed on COC
- W or S N/A
- 3. Type Of TB Received

Sample Information

Y or N

N/A

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

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____

Number of 5035 Field Kits: _____

Number of Lab Filtered Metals: _____

Test Strip Lot #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: SHAYLAP

Date: 4/26/2023 9:30:00 AM

Reviewer: CD

Date: 5/1/2023

FC5578: Chain of Custody

Page 3 of 3

QC Evaluation: DOD QSM5.x Limits

Job Number: FC5578
Account: AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System
Collected: 04/25/23

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 FC5578

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
- Isotope Dilution Standard Recovery Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Instrument Blank

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-IBLK	6Q17059.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-IBLK	6Q17059.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 20-150%
	13C5-PFPeA	98% 20-150%
	13C5-PFHxA	95% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	97% 20-150%
	13C9-PFNA	95% 20-150%
	13C6-PFDA	109% 20-150%
	13C7-PFUnDA	104% 20-150%
	13C2-PFDoDA	102% 20-150%
	13C2-PFTeDA	97% 20-150%
	13C3-PFBS	105% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	115% 20-150%
	13C8-FOSA	112% 20-150%
	d3-MeFOSA	106% 20-150%
	d5-EtFOSA	106% 20-150%
	d3-MeFOSAA	112% 20-150%
	d5-EtFOSAA	111% 20-150%
	d7-MeFOSE	103% 20-150%
	d9-EtFOSE	109% 20-150%
	13C2-4:2FTS	102% 20-180%
	13C2-6:2FTS	109% 20-180%
	13C2-8:2FTS	108% 20-180%
	13C3-HFPO-DA	102% 20-150%

Instrument Blank

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q635-IBLK	4Q43953.D	1	05/04/23	NG	n/a	n/a	S4Q635

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1

CAS No.	Compound	Result	RL	MDL	Units	Q
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	100%	20-150%
	13C5-PFPeA	106%	20-150%
	13C5-PFHxA	102%	20-150%
	13C4-PFHpA	102%	20-150%
	13C8-PFOA	101%	20-150%
	13C9-PFNA	96%	20-150%
	13C6-PFDA	101%	20-150%
	13C7-PFUnDA	100%	20-150%
	13C2-PFDoDA	97%	20-150%
	13C2-PFTeDA	93%	20-150%
	13C3-PFBS	99%	20-150%
	13C3-PFHxS	92%	20-150%
	13C8-PFOS	102%	20-150%
	13C8-FOSA	93%	20-150%
	d3-MeFOSA	94%	20-150%
	d5-EtFOSA	96%	20-150%
	d3-MeFOSAA	103%	20-150%
	d5-EtFOSAA	100%	20-150%
	d7-MeFOSE	82%	20-150%
	d9-EtFOSE	81%	20-150%
	13C2-4:2FTS	117%	20-180%
	13C2-6:2FTS	119%	20-180%
	13C2-8:2FTS	127%	20-180%
	13C3-HFPO-DA	101%	20-150%

Continuing Calibration Blank

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17083.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17083.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 20-150%
	13C5-PFPeA	97% 20-150%
	13C5-PFHxA	100% 20-150%
	13C4-PFHpA	98% 20-150%
	13C8-PFOA	96% 20-150%
	13C9-PFNA	103% 20-150%
	13C6-PFDA	102% 20-150%
	13C7-PFUnDA	105% 20-150%
	13C2-PFDoDA	102% 20-150%
	13C2-PFTeDA	101% 20-150%
	13C3-PFBS	102% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	104% 20-150%
	13C8-FOSA	104% 20-150%
	d3-MeFOSA	97% 20-150%
	d5-EtFOSA	100% 20-150%
	d3-MeFOSAA	105% 20-150%
	d5-EtFOSAA	107% 20-150%
	d7-MeFOSE	106% 20-150%
	d9-EtFOSE	99% 20-150%
	13C2-4:2FTS	99% 20-180%
	13C2-6:2FTS	104% 20-180%
	13C2-8:2FTS	97% 20-180%
	13C3-HFPO-DA	89% 20-150%

Method Blank Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-MB	6Q17074.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Method Blank Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-MB	6Q17074.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	108% 20-150%
	13C5-PFPeA	110% 20-150%
	13C5-PFHxA	109% 20-150%
	13C4-PFHpA	108% 20-150%
	13C8-PFOA	112% 20-150%
	13C9-PFNA	101% 20-150%
	13C6-PFDA	104% 20-150%
	13C7-PFUnDA	104% 20-150%
	13C2-PFDoDA	94% 20-150%
	13C2-PFTeDA	77% 20-150%
	13C3-PFBS	108% 20-150%
	13C3-PFHxS	112% 20-150%
	13C8-PFOS	103% 20-150%
	13C8-FOSA	41% 20-150%
	d3-MeFOSA	28% 20-150%
	d5-EtFOSA	26% 20-150%
	d3-MeFOSAA	95% 20-150%
	d5-EtFOSAA	90% 20-150%
	d7-MeFOSE	20% 20-150%
	d9-EtFOSE	23% 20-150%
	13C2-4:2FTS	118% 20-180%
	13C2-6:2FTS	115% 20-180%
	13C2-8:2FTS	112% 20-180%
	13C3-HFPO-DA	104% 20-150%

Method Blank Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96698-MB	4Q43958.D	1	05/04/23	NG	05/03/23	OP96698	S4Q635

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1

CAS No.	Compound	Result	RL	MDL	Units	Q
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	103% 20-150%
	13C5-PFHxA	102% 20-150%
	13C4-PFHpA	105% 20-150%
	13C8-PFOA	100% 20-150%
	13C9-PFNA	109% 20-150%
	13C6-PFDA	99% 20-150%
	13C7-PFUnDA	96% 20-150%
	13C2-PFDoDA	85% 20-150%
	13C2-PFTeDA	73% 20-150%
	13C3-PFBS	97% 20-150%
	13C3-PFHxS	93% 20-150%
	13C8-PFOS	102% 20-150%
	13C8-FOSA	49% 20-150%
	d3-MeFOSA	41% 20-150%
	d5-EtFOSA	40% 20-150%
	d3-MeFOSAA	102% 20-150%
	d5-EtFOSAA	97% 20-150%
	d7-MeFOSE	32% 20-150%
	d9-EtFOSE	36% 20-150%
	13C2-4:2FTS	115% 20-180%
	13C2-6:2FTS	121% 20-180%
	13C2-8:2FTS	123% 20-180%
	13C3-HFPO-DA	99% 20-150%

Continuing Calibration Blank

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17071.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96603-BS, OP96603-LLBS, OP96603-DUP, OP96603-MB, OP96603-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	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	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	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	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S6Q258-ICCB	6Q17071.D	1	04/28/23	MV	n/a	n/a	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

OP96603-BS, OP96603-LLBS, OP96603-DUP, OP96603-MB, OP96603-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	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	98% 20-150%
	13C8-PFOA	91% 20-150%
	13C9-PFNA	108% 20-150%
	13C6-PFDA	96% 20-150%
	13C7-PFUnDA	98% 20-150%
	13C2-PFDoDA	93% 20-150%
	13C2-PFTeDA	92% 20-150%
	13C3-PFBS	106% 20-150%
	13C3-PFHxS	106% 20-150%
	13C8-PFOS	102% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSAA	103% 20-150%
	d5-EtFOSAA	108% 20-150%
	13C2-4:2FTS	120% 20-180%
	13C2-6:2FTS	109% 20-180%
	13C2-8:2FTS	106% 20-180%

Blank Spike Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-LLBS	6Q17073.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0303	101	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0149	99	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0072	96	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0077	103	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0089	119	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0076	101	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0077	103	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0074	99	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0073	97	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0074	99	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0082	109	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0068	102	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0075	106	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0074	108	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0072	101	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0063	91	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0072	100	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0073	101	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0059	81	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0286	102	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0277	97	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0305	106	40-150
754-91-6	PFOSA	0.0075	0.0083	111	40-150
31506-32-8	MeFOSA	0.015	0.0147	98	40-150
4151-50-2	EtFOSA	0.015	0.0159	106	40-150
2355-31-9	MeFOSAA	0.0075	0.0077	103	40-150
2991-50-6	EtFOSAA	0.0075	0.0068	91	40-150
24448-09-7	MeFOSE	0.0375	0.0398	106	40-150
1691-99-2	EtFOSE	0.0375	0.0342	91	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0146	97	40-150
919005-14-4	ADONA	0.0142	0.0147	104	40-150
377-73-1	PFMPA	0.015	0.0146	97	40-150
863090-89-5	PFMBA	0.015	0.0150	100	40-150
151772-58-6	NFDHA	0.015	0.0145	97	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0148	106	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0139	98	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-LLBS	6Q17073.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0132	99	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0313	83	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.160	85	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.155	83	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	109%	20-150%
	13C5-PFPeA	105%	20-150%
	13C5-PFHxA	103%	20-150%
	13C4-PFHpA	104%	20-150%
	13C8-PFOA	96%	20-150%
	13C9-PFNA	103%	20-150%
	13C6-PFDA	119%	20-150%
	13C7-PFUnDA	114%	20-150%
	13C2-PFDoDA	105%	20-150%
	13C2-PFTeDA	87%	20-150%
	13C3-PFBS	109%	20-150%
	13C3-PFHxS	105%	20-150%
	13C8-PFOS	106%	20-150%
	13C8-FOSA	42%	20-150%
	d3-MeFOSA	30%	20-150%
	d5-EtFOSA	24%	20-150%
	d3-MeFOSAA	109%	20-150%
	d5-EtFOSAA	108%	20-150%
	d7-MeFOSE	16%* a	20-150%
	d9-EtFOSE	19%* a	20-150%
	13C2-4:2FTS	112%	20-180%
	13C2-6:2FTS	112%	20-180%
	13C2-8:2FTS	108%	20-180%
	13C3-HFPO-DA	99%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96698-LLBS	4Q43957.D	1	05/04/23	NG	05/03/23	OP96698	S4Q635

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
31506-32-8	MeFOSA	0.015	0.0143	95	40-150
4151-50-2	EtFOSA	0.015	0.0136	91	40-150
24448-09-7	MeFOSE	0.0375	0.0335	89	40-150
1691-99-2	EtFOSE	0.0375	0.0353	94	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	79%	20-150%
	13C5-PFPeA	78%	20-150%
	13C5-PFHxA	74%	20-150%
	13C4-PFHpA	76%	20-150%
	13C8-PFOA	77%	20-150%
	13C9-PFNA	73%	20-150%
	13C6-PFDA	69%	20-150%
	13C7-PFUnDA	70%	20-150%
	13C2-PFDoDA	64%	20-150%
	13C2-PFTeDA	55%	20-150%
	13C3-PFBS	85%	20-150%
	13C3-PFHxS	83%	20-150%
	13C8-PFOS	82%	20-150%
	13C8-FOSA	26%	20-150%
	d3-MeFOSA	19%* a	20-150%
	d5-EtFOSA	22%	20-150%
	d3-MeFOSAA	70%	20-150%
	d5-EtFOSAA	70%	20-150%
	d7-MeFOSE	17%* a	20-150%
	d9-EtFOSE	19%* a	20-150%
	13C2-4:2FTS	84%	20-180%
	13C2-6:2FTS	79%	20-180%
	13C2-8:2FTS	95%	20-180%
	13C3-HFPO-DA	71%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-BS	6Q17072.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.100	100	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0505	101	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0236	94	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0255	102	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0247	99	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0248	99	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0257	103	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0234	94	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0263	105	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0247	99	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0237	95	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0216	97	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0233	99	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0216	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0253	106	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0259	112	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0256	106	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0256	106	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0221	91	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.106	113	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0859	90	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.100	104	40-150
754-91-6	PFOSA	0.025	0.0288	115	40-150
31506-32-8	MeFOSA	0.05	0.0518	104	40-150
4151-50-2	EtFOSA	0.05	0.0502	100	40-150
2355-31-9	MeFOSAA	0.025	0.0256	102	40-150
2991-50-6	EtFOSAA	0.025	0.0233	93	40-150
24448-09-7	MeFOSE	0.125	0.130	104	40-150
1691-99-2	EtFOSE	0.125	0.121	97	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0508	102	40-150
919005-14-4	ADONA	0.0473	0.0477	101	40-150
377-73-1	PFMPA	0.05	0.0490	98	40-150
863090-89-5	PFMBA	0.05	0.0498	100	40-150
151772-58-6	NFDHA	0.05	0.0506	101	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0505	108	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0479	101	40-150

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-BS	6Q17072.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0437	98	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.0985	79	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.524	84	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.473	76	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	107%	20-150%
	13C5-PFPeA	104%	20-150%
	13C5-PFHxA	104%	20-150%
	13C4-PFHpA	102%	20-150%
	13C8-PFOA	107%	20-150%
	13C9-PFNA	109%	20-150%
	13C6-PFDA	112%	20-150%
	13C7-PFUnDA	103%	20-150%
	13C2-PFDoDA	98%	20-150%
	13C2-PFTeDA	87%	20-150%
	13C3-PFBS	111%	20-150%
	13C3-PFHxS	109%	20-150%
	13C8-PFOS	108%	20-150%
	13C8-FOSA	49%	20-150%
	d3-MeFOSA	44%	20-150%
	d5-EtFOSA	42%	20-150%
	d3-MeFOSAA	114%	20-150%
	d5-EtFOSAA	114%	20-150%
	d7-MeFOSE	15%* a	20-150%
	d9-EtFOSE	16%* a	20-150%
	13C2-4:2FTS	101%	20-180%
	13C2-6:2FTS	115%	20-180%
	13C2-8:2FTS	101%	20-180%
	13C3-HFPO-DA	98%	20-150%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96698-BS ^a	4Q43956.D	1	05/04/23	NG	05/03/23	OP96698	S4Q635

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
31506-32-8	MeFOSA	0.05	0.0516	103	40-150
4151-50-2	EtFOSA	0.05	0.0482	96	40-150
24448-09-7	MeFOSE	0.125	0.120	96	40-150
1691-99-2	EtFOSE	0.125	0.124	99	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	106%	20-150%
	13C5-PFPeA	109%	20-150%
	13C5-PFHxA	102%	20-150%
	13C4-PFHpA	105%	20-150%
	13C8-PFOA	104%	20-150%
	13C9-PFNA	109%	20-150%
	13C6-PFDA	100%	20-150%
	13C7-PFUnDA	99%	20-150%
	13C2-PFDoDA	92%	20-150%
	13C2-PFTeDA	79%	20-150%
	13C3-PFBS	104%	20-150%
	13C3-PFHxS	101%	20-150%
	13C8-PFOS	105%	20-150%
	13C8-FOSA	49%	20-150%
	d3-MeFOSA	36%	20-150%
	d5-EtFOSA	38%	20-150%
	d3-MeFOSAA	110%	20-150%
	d5-EtFOSAA	109%	20-150%
	d7-MeFOSE	32%	20-150%
	d9-EtFOSE	34%	20-150%
	13C2-4:2FTS	111%	20-180%
	13C2-6:2FTS	115%	20-180%
	13C2-8:2FTS	123%	20-180%
	13C3-HFPO-DA	104%	20-150%

(a) Insufficient sample for MS/MSD.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-MS	6Q17078.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258
FC5514-3	6Q17077.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	FC5514-3 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	0.0926	0.0955	103	40-150
2706-90-3	Perfluoropentanoic acid	0.0073 U	0.0463	0.0467	101	40-150
307-24-4	Perfluorohexanoic acid	0.0036 U	0.0231	0.0218	94	40-150
375-85-9	Perfluoroheptanoic acid	0.0036 U	0.0231	0.0251	108	40-150
335-67-1	Perfluorooctanoic acid	0.0036 U	0.0231	0.0249	108	40-150
375-95-1	Perfluorononanoic acid	0.0036 U	0.0231	0.0241	104	40-150
335-76-2	Perfluorodecanoic acid	0.0036 U	0.0231	0.0271	117	40-150
2058-94-8	Perfluoroundecanoic acid	0.0036 U	0.0231	0.0249	108	40-150
307-55-1	Perfluorododecanoic acid	0.0036 U	0.0231	0.0228	98	40-150
72629-94-8	Perfluorotridecanoic acid	0.0036 U	0.0231	0.0236	102	40-150
376-06-7	Perfluorotetradecanoic acid	0.0036 U	0.0231	0.0266	115	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0036 U	0.0205	0.0214	104	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0045 U	0.0218	0.0246	113	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0036 U	0.0212	0.0229	108	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0036 U	0.0221	0.0265	120	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0036 U	0.0215	0.0213	99	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0036 U	0.0223	0.0211	95	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0036 U	0.0223	0.0212	95	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0045 U	0.0225	0.0216	96	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.018 U	0.0868	0.0929	107	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U	0.088	0.105	119	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.018 U	0.0889	0.0937	105	40-150
754-91-6	PFOSA	0.0036 U	0.0231	0.0247	107	40-150
31506-32-8	MeFOSA	0.0073 U	0.0463	0.0512	111	40-150
4151-50-2	EtFOSA	0.0073 U	0.0463	0.0428	92	40-150
2355-31-9	MeFOSAA	0.0045 U	0.0231	0.0252	109	40-150
2991-50-6	EtFOSAA	0.0045 U	0.0231	0.0235	102	40-150
24448-09-7	MeFOSE	0.036 U	0.116	0.119	103	40-150
1691-99-2	EtFOSE	0.036 U	0.116	0.121	105	40-150
13252-13-6	HFPO-DA (GenX)	0.0036 U	0.0463	0.0457	99	40-150
919005-14-4	ADONA	0.0073 U	0.0438	0.0457	104	40-150
377-73-1	PFMPA	0.0073 U	0.0463	0.0459	99	40-150
863090-89-5	PFMBA	0.0073 U	0.0463	0.0474	102	40-150
151772-58-6	NFDHA	0.0073 U	0.0463	0.0457	99	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0073 U	0.0433	0.0391	90	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0073 U	0.0438	0.0337	77	40-150

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-MS	6Q17078.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258
FC5514-3	6Q17077.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	FC5514-3 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0073 U	0.0412	0.0416	101	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.018 U	0.116	0.0874	76	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.091 U	0.579	0.450	78	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.091 U	0.579	0.403	70	40-150

CAS No.	ID Standard Recoveries	MS	FC5514-3	Limits
	13C4-PFBA	96%	102%	20-150%
	13C5-PFPeA	107%	105%	20-150%
	13C5-PFHxA	108%	104%	20-150%
	13C4-PFHpA	104%	106%	20-150%
	13C8-PFOA	99%	112%	20-150%
	13C9-PFNA	97%	91%	20-150%
	13C6-PFDA	89%	95%	20-150%
	13C7-PFUnDA	81%	84%	20-150%
	13C2-PFDoDA	77%	74%	20-150%
	13C2-PFTeDA	74%	75%	20-150%
	13C3-PFBS	111%	98%	20-150%
	13C3-PFHxS	100%	100%	20-150%
	13C8-PFOS	88%	98%	20-150%
	13C8-FOSA	39%	51%	20-150%
	d3-MeFOSA	29%	35%	20-150%
	d5-EtFOSA	33%	31%	20-150%
	d3-MeFOSAA	82%	88%	20-150%
	d5-EtFOSAA	77%	80%	20-150%
	d7-MeFOSE	22%	27%	20-150%
	d9-EtFOSE	24%	29%	20-150%
	13C2-4:2FTS	105%	101%	20-180%
	13C2-6:2FTS	99%	103%	20-180%
	13C2-8:2FTS	94%	95%	20-180%
	13C3-HFPO-DA	100%	103%	20-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-DUP	6Q17080.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258
FC5522-4	6Q17087.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	FC5522-4 ug/l	DUP Q ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	ND		nc	30
2706-90-3	Perfluoropentanoic acid	0.0074 U	ND		nc	30
307-24-4	Perfluorohexanoic acid	0.0037 U	ND		nc	30
375-85-9	Perfluoroheptanoic acid	0.0037 U	ND		nc	30
335-67-1	Perfluorooctanoic acid	0.0037 U	ND		nc	30
375-95-1	Perfluorononanoic acid	0.0037 U	ND		nc	30
335-76-2	Perfluorodecanoic acid	0.0037 U	ND		nc	30
2058-94-8	Perfluoroundecanoic acid	0.0037 U	ND		nc	30
307-55-1	Perfluorododecanoic acid	0.0037 U	ND		nc	30
72629-94-8	Perfluorotridecanoic acid	0.0037 U	ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0037 U	ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0037 U	ND		nc	30
2706-91-4	Perfluoropentanesulfonic acid	0.0046 U	ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.0037 U	ND		nc	30
375-92-8	Perfluoroheptanesulfonic acid	0.0037 U	ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0037 U	ND		nc	30
68259-12-1	Perfluorononanesulfonic acid	0.0037 U	ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	0.0037 U	ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	0.0046 U	ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U	ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	ND		nc	30
754-91-6	PFOSA	0.0037 U	ND		nc	30
31506-32-8	MeFOSA	0.0074 U	ND		nc	30
4151-50-2	EtFOSA	0.0074 U	ND		nc	30
2355-31-9	MeFOSAA	0.0046 U	ND		nc	30
2991-50-6	EtFOSAA	0.0046 U	ND		nc	30
24448-09-7	MeFOSE	0.037 U	ND		nc	30
1691-99-2	EtFOSE	0.037 U	ND		nc	30
13252-13-6	HFPO-DA (GenX)	0.0037 U	ND		nc	30
919005-14-4	ADONA	0.0074 U	ND		nc	30
377-73-1	PFMPA	0.0074 U	ND		nc	30
863090-89-5	PFMBA	0.0074 U	ND		nc	30
151772-58-6	NFDHA	0.0074 U	ND		nc	30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0074 U	ND		nc	30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0074 U	ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP96603-DUP	6Q17080.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258
FC5522-4	6Q17087.D	1	04/28/23	MV	04/27/23	OP96603	S6Q258

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC5578-1, FC5578-2

CAS No.	Compound	FC5522-4 ug/l	DUP Q	ug/l	Q	RPD	Limits
113507-82-7PFEESA		0.0074 U		ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U		ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.093 U		ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.093 U		ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC5522-4	Limits
	13C4-PFBA	98%	100%	20-150%
	13C5-PFPeA	106%	108%	20-150%
	13C5-PFHxA	107%	108%	20-150%
	13C4-PFHpA	102%	107%	20-150%
	13C8-PFOA	107%	105%	20-150%
	13C9-PFNA	106%	101%	20-150%
	13C6-PFDA	96%	94%	20-150%
	13C7-PFUnDA	80%	88%	20-150%
	13C2-PFDoDA	76%	84%	20-150%
	13C2-PFTeDA	68%	77%	20-150%
	13C3-PFBS	112%	102%	20-150%
	13C3-PFHxS	103%	102%	20-150%
	13C8-PFOS	88%	98%	20-150%
	13C8-FOSA	36%	44%	20-150%
	d3-MeFOSA	27%	31%	20-150%
	d5-EtFOSA	27%	33%	20-150%
	d3-MeFOSAA	81%	82%	20-150%
	d5-EtFOSAA	85%	86%	20-150%
	d7-MeFOSE	20%	26%	20-150%
	d9-EtFOSE	24%	27%	20-150%
	13C2-4:2FTS	105%	104%	20-180%
	13C2-6:2FTS	107%	107%	20-180%
	13C2-8:2FTS	99%	98%	20-180%
	13C3-HFPO-DA	98%	100%	20-150%

* = Outside of Control Limits.

Injection Standard Area Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q635-CC634	Injection Date:	05/04/23
Lab File ID:	4Q43954.D	Injection Time:	12:47
Instrument ID:	GCMS4Q	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 ^b	68618	2.93	45028	5.54	53770	7.12	24678	7.68	18492	8.18
Check Std ^c	70749	2.94	44734	5.54	54303	7.12	25559	7.66	17827	8.17
Upper Limit ^d	137236	3.34	90056	5.94	107540	7.52	49356	8.06	36984	8.57
Lower Limit ^e	20585	2.54	13508	5.14	16131	6.72	7403	7.26	5548	7.77

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
OP96698-BS ^f	68442	2.93	42469	5.55	53060	7.14	23541	7.68	17870	8.19	1
OP96698-LLBS	68720	2.92	43151	5.55	51879	7.14	24102	7.67	18374	8.18	1
OP96698-MB	69188	2.94	42181	5.54	52602	7.12	23493	7.67	17724	8.17	1
FC5578-1	70050	2.94	43871	5.55	54578	7.14	25269	7.68	18403	8.19	1
ZZZZZZ	69808	2.93	44172	5.55	53870	7.15	24428	7.70	18014	8.20	1
ZZZZZZ	69447	3.00	42585	5.56	51515	7.15	25249	7.70	17505	8.20	1
ZZZZZZ	69930	2.93	45860	5.55	50510	7.15	22480	7.71	16790	8.20	10
ZZZZZZ	69650	2.93	42940	5.55	53150	7.15	22670	7.70	16280	8.20	10

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: S4Q634-ICC634 4Q43887.D 05/03/23 11:54. 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.
- (f) Insufficient sample for MS/MSD.

6.5.1
6

Injection Standard Area Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S4Q635-CC634	Injection Date:	05/04/23
Lab File ID:	4Q43954.D	Injection Time:	12:47
Instrument ID:	GCMS4Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	5105	7.23	11432	8.33
Check Std ^c	5384	7.22	11307	8.32
Upper Limit ^d	10210	7.62	22864	8.72
Lower Limit ^e	1532	6.82	3430	7.92

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
OP96698-BS ^f	4867	7.24	10978	8.34	1
OP96698-LLBS	4786	7.23	11246	8.33	1
OP96698-MB	5002	7.22	10775	8.32	1
FC5578-1	5211	7.23	11490	8.34	1
ZZZZZZ	5104	7.24	11160	8.35	1
ZZZZZZ	4905	7.24	11221	8.34	1
ZZZZZZ	5860	7.24	12790	8.35	10
ZZZZZZ	5620	7.25	13580	8.35	10

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S4Q634-ICC634 4Q43887.D 05/03/23 11:54. 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.
- (f) Insufficient sample for MS/MSD.

6.5.1
6

Injection Standard Area Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/28/23
Lab File ID:	6Q17070.D	Injection Time:	17:25
Instrument ID:	GCMS6Q	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 ^b	78317	2.90	58371	5.47	87768	7.06	28425	7.59	24754	8.08
Check Std ^c	80508	2.90	58127	5.48	82517	7.08	28386	7.59	23971	8.08
Upper Limit ^d	156634	3.30	116742	5.88	175536	7.48	56850	7.99	49508	8.48
Lower Limit ^e	23495	2.50	17511	5.08	26330	6.68	8528	7.19	7426	7.68

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S6Q258-ICCB	81442	2.90	59103	5.47	95786	7.08	27938	7.59	25988	8.08	1
OP96603-BS	73687	2.90	55956	5.47	77551	7.08	26399	7.59	23140	8.08	1
OP96603-LLBS	74197	2.90	56547	5.47	85328	7.08	27822	7.59	21299	8.08	1
OP96603-MB	75144	2.90	54512	5.47	80645	7.06	28084	7.59	22692	8.08	1
ZZZZZZ	75432	2.90	56938	5.47	84158	7.06	28267	7.59	23425	8.08	1
ZZZZZZ	79159	2.91	57753	5.47	89722	7.06	28785	7.59	24400	8.08	1
FC5514-3	74577	2.90	55766	5.48	80414	7.08	28275	7.59	22749	8.08	1
OP96603-MS	73897	2.90	54269	5.47	81287	7.06	25907	7.59	22236	8.08	1
ZZZZZZ	73021	2.90	53652	5.47	82005	7.06	27002	7.59	22377	8.08	1
OP96603-DUP	74053	2.90	54666	5.47	82238	7.08	27498	7.59	23395	8.08	1
ZZZZZZ	76587	2.91	56066	5.47	82711	7.06	28952	7.59	22838	8.08	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: S6Q258-IC258 6Q17054.D 04/28/23 13:33. 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.

Injection Standard Area Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/28/23
Lab File ID:	6Q17070.D	Injection Time:	17:25
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9722	7.18	15123	8.24
Check Std ^c	9596	7.19	15280	8.24
Upper Limit ^d	19444	7.59	30246	8.64
Lower Limit ^e	2917	6.79	4537	7.84

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q258-ICCB	9156	7.19	15222	8.23	1
OP96603-BS	8892	7.18	12959	8.24	1
OP96603-LLBS	8896	7.18	13900	8.24	1
OP96603-MB	8956	7.18	14379	8.24	1
ZZZZZZ	9257	7.18	13222	8.23	1
ZZZZZZ	9456	7.18	14391	8.24	1
FC5514-3	9314	7.19	13608	8.24	1
OP96603-MS	8691	7.18	13340	8.23	1
ZZZZZZ	9188	7.18	12656	8.24	1
OP96603-DUP	9033	7.18	13578	8.24	1
ZZZZZZ	9678	7.18	14874	8.23	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. 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.

6.5.2
6

Injection Standard Area Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/28/23
Lab File ID:	6Q17082.D	Injection Time:	20:19
Instrument ID:	GCMS6Q	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 ^b	78317	2.90	58371	5.47	87768	7.06	28425	7.59	24754	8.08
Check Std ^c	79871	2.90	56521	5.47	85885	7.06	29079	7.59	24997	8.06
Upper Limit ^d	156634	3.30	116742	5.87	175536	7.46	56850	7.99	49508	8.46
Lower Limit ^e	23495	2.50	17511	5.07	26330	6.66	8528	7.19	7426	7.66

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	DF ^a
S6Q258-ICCB	81720	2.90	62188	5.47	92317	7.08	28536	7.59	24914	8.08	1
ZZZZZZ	76134	2.90	55218	5.47	86090	7.08	27511	7.59	23364	8.08	1
ZZZZZZ	72489	2.90	53327	5.47	82561	7.06	25718	7.59	22638	8.08	1
ZZZZZZ	75414	2.90	57672	5.47	83815	7.08	28803	7.59	21890	8.08	1
FC5522-4	76926	2.90	56311	5.47	84528	7.08	28692	7.59	23680	8.08	1
ZZZZZZ	74754	2.90	57990	5.47	78802	7.06	27396	7.59	22511	8.08	1
FC5578-1	76611	2.91	58746	5.47	87641	7.06	28259	7.59	24126	8.08	1
FC5578-2	74713	2.91	54837	5.47	85937	7.06	27792	7.59	23854	8.08	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: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. 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.

6.5.3
6

Injection Standard Area Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Check Std:	S6Q258-CC258	Injection Date:	04/28/23
Lab File ID:	6Q17082.D	Injection Time:	20:19
Instrument ID:	GCMS6Q	Method:	EPA DRAFT 1633

	IS 6 AREA	RT	IS 7 AREA	RT
Initial Cal ^b	9722	7.18	15123	8.24
Check Std ^c	9340	7.18	13645	8.23
Upper Limit ^d	19444	7.58	30246	8.63
Lower Limit ^e	2917	6.78	4537	7.83

Lab Sample ID	IS 6 AREA	RT	IS 7 AREA	RT	DF ^a
S6Q258-ICCB	9930	7.18	14908	8.24	1
ZZZZZZ	9095	7.19	14706	8.24	1
ZZZZZZ	8253	7.18	13016	8.24	1
ZZZZZZ	9059	7.19	13505	8.24	1
FC5522-4	9418	7.18	14483	8.24	1
ZZZZZZ	9077	7.18	13055	8.23	1
FC5578-1	9213	7.18	14145	8.23	1
FC5578-2	9520	7.18	13553	8.24	1

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

- (a) Sample areas corrected for dilution where applicable.
- (b) Initial Cal is: S6Q258-ICC258 6Q17054.D 04/28/23 13:33. 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: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q634-RT	Injection Date:	05/03/23
Lab File ID:	4Q43881.D	Injection Time:	10:23
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.305	--	--
TDCA	6.847	1.458	1.000
TCDCA	6.686	1.619	1.000
TUDCA	5.842	2.463	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
S4Q634-IC634	4Q43883.D	05/03/23	10:58	00:35	Mass Calibration Verification
S4Q634-IC634	4Q43884.D	05/03/23	11:12	00:49	Initial cal 1
S4Q634-IC634	4Q43885.D	05/03/23	11:26	01:03	Initial cal 2
S4Q634-IC634	4Q43886.D	05/03/23	11:40	01:17	Initial cal 3
S4Q634-ICC634	4Q43887.D	05/03/23	11:54	01:31	Initial cal 4
S4Q634-IC634	4Q43888.D	05/03/23	12:08	01:45	Initial cal 5
S4Q634-IC634	4Q43889.D	05/03/23	12:22	01:59	Initial cal 6
S4Q634-IC634	4Q43890.D	05/03/23	12:36	02:13	Initial cal 7
S4Q634-IC634	4Q43891.D	05/03/23	12:50	02:27	Initial cal 8
S4Q634-IBLK	4Q43892.D	05/03/23	13:04	02:41	Instrument Blank
S4Q634-IBLK	4Q43892.D	05/03/23	13:04	02:41	Instrument Blank
S4Q634-ICV634	4Q43894.D	05/03/23	13:20	02:57	Initial cal verification 20
S4Q634-ICV634	4Q43895.D	05/03/23	13:35	03:12	Initial cal verification 4
S4Q634-CC634	4Q43897.D	05/03/23	13:51	03:28	Continuing cal 1.0LL
OP96662-BS	4Q43898.D	05/03/23	14:05	03:42	Blank Spike
OP96662-LLBS	4Q43899.D	05/03/23	14:19	03:56	Blank Spike
OP96662-MB	4Q43900.D	05/03/23	14:33	04:10	Method Blank
ZZZZZZ	4Q43901.D	05/03/23	14:47	04:24	(unrelated sample)
ZZZZZZ	4Q43902.D	05/03/23	15:01	04:38	(unrelated sample)
ZZZZZZ	4Q43903.D	05/03/23	15:15	04:52	(unrelated sample)
ZZZZZZ	4Q43904.D	05/03/23	15:29	05:06	(unrelated sample)
FC5685-3	4Q43905.D	05/03/23	15:43	05:20	(used for QC only; not part of job FC5578)
OP96662-MS	4Q43906.D	05/03/23	15:57	05:34	Matrix Spike
S4Q634-CC634	4Q43907.D	05/03/23	16:11	05:48	Continuing cal 4
S4Q634-ICCB	4Q43908.D	05/03/23	16:25	06:02	Continuing Calibration Blank
FC5685-4	4Q43909.D	05/03/23	16:39	06:16	(used for QC only; not part of job FC5578)
OP96662-DUP	4Q43910.D	05/03/23	16:54	06:31	Duplicate
ZZZZZZ	4Q43911.D	05/03/23	17:08	06:45	(unrelated sample)
OP96659-BS	4Q43912.D	05/03/23	17:22	06:59	Blank Spike
OP96659-LLBS	4Q43913.D	05/03/23	17:36	07:13	Blank Spike
OP96659-MB	4Q43914.D	05/03/23	17:50	07:27	Method Blank
ZZZZZZ	4Q43916.D	05/03/23	18:18	07:55	(unrelated sample)
S4Q634-CC634	4Q43917.D	05/03/23	18:32	08:09	Continuing cal 4
S4Q634-ICCB	4Q43918.D	05/03/23	18:46	08:23	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q634-RT	Injection Date:	05/03/23
Lab File ID:	4Q43881.D	Injection Time:	10:23
Instrument ID:	GCMS4Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
S4Q634-ICCB	4Q43918.D	05/03/23	18:46	08:23	Continuing Calibration Blank
ZZZZZZ	4Q43919.D	05/03/23	19:00	08:37	(unrelated sample)
ZZZZZZ	4Q43920.D	05/03/23	19:14	08:51	(unrelated sample)
ZZZZZZ	4Q43921.D	05/03/23	19:28	09:05	(unrelated sample)
ZZZZZZ	4Q43922.D	05/03/23	19:42	09:19	(unrelated sample)
OP96657-BS	4Q43923.D	05/03/23	19:56	09:33	Blank Spike
OP96657-LLBS	4Q43924.D	05/03/23	20:10	09:47	Blank Spike
OP96657-MB	4Q43925.D	05/03/23	20:24	10:01	Method Blank
ZZZZZZ	4Q43926.D	05/03/23	20:38	10:15	(unrelated sample)
S4Q634-CC634	4Q43927.D	05/03/23	20:53	10:30	Continuing cal 4
S4Q634-ICCB	4Q43928.D	05/03/23	21:07	10:44	Continuing Calibration Blank
S4Q634-ICCB	4Q43928.D	05/03/23	21:07	10:44	Continuing Calibration Blank
FC5371-11	4Q43929.D	05/03/23	21:21	10:58	(used for QC only; not part of job FC5578)
OP96657-MS	4Q43930.D	05/03/23	21:35	11:12	Matrix Spike
OP96657-MSD	4Q43931.D	05/03/23	21:49	11:26	Matrix Spike Duplicate
ZZZZZZ	4Q43932.D	05/03/23	22:03	11:40	(unrelated sample)
ZZZZZZ	4Q43933.D	05/03/23	22:17	11:54	(unrelated sample)
ZZZZZZ	4Q43935.D	05/03/23	22:45	12:22	(unrelated sample)
ZZZZZZ	4Q43936.D	05/03/23	22:59	12:36	(unrelated sample)
ZZZZZZ	4Q43938.D	05/03/23	23:27	13:04	(unrelated sample)
S4Q634-CC634	4Q43939.D	05/03/23	23:41	13:18	Continuing cal 4
S4Q634-ICCB	4Q43940.D	05/03/23	23:55	13:32	Continuing Calibration Blank
S4Q634-ICCB	4Q43940.D	05/03/23	23:55	13:32	Continuing Calibration Blank
ZZZZZZ	4Q43941.D	05/04/23	00:09	13:46	(unrelated sample)
FC5371-20	4Q43942.D	05/04/23	00:23	14:00	(used for QC only; not part of job FC5578)
OP96657-MS2	4Q43943.D	05/04/23	00:37	14:14	Matrix Spike
OP96657-MSD2	4Q43944.D	05/04/23	00:51	14:28	Matrix Spike Duplicate
ZZZZZZ	4Q43945.D	05/04/23	01:05	14:42	(unrelated sample)
S4Q634-ECC634	4Q43946.D	05/04/23	01:19	14:56	Ending cal 4
S4Q634-ICCB	4Q43947.D	05/04/23	01:34	15:11	Continuing Calibration Blank
S4Q634-ICCB	4Q43947.D	05/04/23	01:34	15:11	Continuing Calibration Blank

6.6.1

6

TDCA Retention Time Check

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S4Q635-RT	Injection Date:	05/04/23
Lab File ID:	4Q43950.D	Injection Time:	11:51
Instrument ID:	GCMS4Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.305	--	--
TDCA	6.835	1.470	1.000
TCDCA	6.686	1.619	1.000
TUDCA	5.842	2.463	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
S4Q635-IBLK	4Q43953.D	05/04/23	12:33	00:42	Instrument Blank
S4Q635-IBLK	4Q43953.D	05/04/23	12:33	00:42	Instrument Blank
S4Q635-CC634	4Q43954.D	05/04/23	12:47	00:56	Continuing cal 4
S4Q635-CC634	4Q43955.D	05/04/23	13:02	01:11	Continuing cal 1.0LL
OP96698-BS	4Q43956.D	05/04/23	13:16	01:25	Blank Spike
OP96698-LLBS	4Q43957.D	05/04/23	13:30	01:39	Blank Spike
OP96698-MB	4Q43958.D	05/04/23	13:44	01:53	Method Blank
FC5578-1	4Q43959.D	05/04/23	13:58	02:07	AF-HDMW225303-WGN01LF-2304W4
ZZZZZZ	4Q43960.D	05/04/23	14:12	02:21	(unrelated sample)
ZZZZZZ	4Q43961.D	05/04/23	14:28	02:37	(unrelated sample)
ZZZZZZ	4Q43963.D	05/04/23	14:56	03:05	(unrelated sample)
ZZZZZZ	4Q43965.D	05/04/23	15:24	03:33	(unrelated sample)
S4Q635-CC634	4Q43966.D	05/04/23	15:38	03:47	Continuing cal 4
S4Q635-ICCB	4Q43967.D	05/04/23	15:52	04:01	Continuing Calibration Blank
OP96701-BS	4Q43968.D	05/04/23	16:06	04:15	Blank Spike
OP96701-LLBS	4Q43969.D	05/04/23	16:20	04:29	Blank Spike
OP96701-MB	4Q43970.D	05/04/23	16:35	04:44	Method Blank
ZZZZZZ	4Q43971.D	05/04/23	16:49	04:58	(unrelated sample)
FC5726-2	4Q43972.D	05/04/23	17:03	05:12	(used for QC only; not part of job FC5578)
OP96701-MS	4Q43973.D	05/04/23	17:17	05:26	Matrix Spike
FC5726-3	4Q43974.D	05/04/23	17:31	05:40	(used for QC only; not part of job FC5578)
OP96701-DUP	4Q43975.D	05/04/23	17:45	05:54	Duplicate
ZZZZZZ	4Q43976.D	05/04/23	17:59	06:08	(unrelated sample)
ZZZZZZ	4Q43977.D	05/04/23	18:13	06:22	(unrelated sample)
S4Q635-CC634	4Q43978.D	05/04/23	18:27	06:36	Continuing cal 4
S4Q635-ICCB	4Q43979.D	05/04/23	18:41	06:50	Continuing Calibration Blank
S4Q635-ICCB	4Q43979.D	05/04/23	18:41	06:50	Continuing Calibration Blank
FC5685-4	4Q43980.D	05/04/23	18:55	07:04	(used for QC only; not part of job FC5578)
OP96657-BS	4Q43982.D	05/04/23	19:23	07:32	Blank Spike
OP96657-LLBS	4Q43983.D	05/04/23	19:37	07:46	Blank Spike
ZZZZZZ	4Q43984.D	05/04/23	19:51	08:00	(unrelated sample)
ZZZZZZ	4Q43985.D	05/04/23	20:05	08:14	(unrelated sample)
ZZZZZZ	4Q43986.D	05/04/23	20:20	08:29	(unrelated sample)
ZZZZZZ	4Q43987.D	05/04/23	20:34	08:43	(unrelated sample)

TDCA Retention Time Check

Job Number: FC5578
Account: AECOMCOD AECOM, INC.
Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q635-RT	Injection Date: 05/04/23
Lab File ID: 4Q43950.D	Injection Time: 11:51
Instrument ID: GCMS4Q	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4Q43988.D	05/04/23	20:48	08:57	(unrelated sample)
S4Q635-ECC634	4Q43989.D	05/04/23	21:02	09:11	Ending cal 4
S4Q635-ICCB	4Q43990.D	05/04/23	21:16	09:25	Continuing Calibration Blank
S4Q635-ICCB	4Q43990.D	05/04/23	21:16	09:25	Continuing Calibration Blank

6.6.2

6

TDCA Retention Time Check

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Compound	RT (min)	RT Difference	Low Limit
PFOS	8.228	--	--
TDCA	6.775	1.453	1.000
TCDCA	6.626	1.602	1.000
TUDCA	5.774	2.454	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
S6Q258-IC258	6Q17050.D	04/28/23	12:35	00:29	Mass Calibration Verification
S6Q258-IC258	6Q17051.D	04/28/23	12:50	00:44	Initial cal 1
S6Q258-IC258	6Q17052.D	04/28/23	13:04	00:58	Initial cal 2
S6Q258-IC258	6Q17053.D	04/28/23	13:19	01:13	Initial cal 3
S6Q258-ICC258	6Q17054.D	04/28/23	13:33	01:27	Initial cal 4
S6Q258-IC258	6Q17055.D	04/28/23	13:48	01:42	Initial cal 5
S6Q258-IC258	6Q17056.D	04/28/23	14:02	01:56	Initial cal 6
S6Q258-IC258	6Q17057.D	04/28/23	14:17	02:11	Initial cal 7
S6Q258-IC258	6Q17058.D	04/28/23	14:31	02:25	Initial cal 8
S6Q258-IBLK	6Q17059.D	04/28/23	14:46	02:40	Instrument Blank
S6Q258-ICV258	6Q17060.D	04/28/23	15:00	02:54	Initial cal verification 4
S6Q258-ICV258	6Q17061.D	04/28/23	15:15	03:09	Initial cal verification 20
S6Q258-CC258	6Q17062.D	04/28/23	15:29	03:23	Continuing cal 4
S6Q258-CC258	6Q17063.D	04/28/23	15:44	03:38	Continuing cal 1.0LL
OP96604-BS	6Q17064.D	04/28/23	15:58	03:52	Blank Spike
OP96604-LLBS	6Q17065.D	04/28/23	16:13	04:07	Blank Spike
OP96604-MB	6Q17066.D	04/28/23	16:27	04:21	Method Blank
ZZZZZZ	6Q17067.D	04/28/23	16:42	04:36	(unrelated sample)
ZZZZZZ	6Q17068.D	04/28/23	16:56	04:50	(unrelated sample)
ZZZZZZ	6Q17069.D	04/28/23	17:11	05:05	(unrelated sample)
S6Q258-CC258	6Q17070.D	04/28/23	17:25	05:19	Continuing cal 4
S6Q258-ICCB	6Q17071.D	04/28/23	17:40	05:34	Continuing Calibration Blank
OP96603-BS	6Q17072.D	04/28/23	17:54	05:48	Blank Spike
OP96603-LLBS	6Q17073.D	04/28/23	18:09	06:03	Blank Spike
OP96603-MB	6Q17074.D	04/28/23	18:23	06:17	Method Blank
ZZZZZZ	6Q17075.D	04/28/23	18:37	06:31	(unrelated sample)
ZZZZZZ	6Q17076.D	04/28/23	18:52	06:46	(unrelated sample)
FC5514-3	6Q17077.D	04/28/23	19:06	07:00	(used for QC only; not part of job FC5578)
OP96603-MS	6Q17078.D	04/28/23	19:21	07:15	Matrix Spike
ZZZZZZ	6Q17079.D	04/28/23	19:35	07:29	(unrelated sample)
OP96603-DUP	6Q17080.D	04/28/23	19:50	07:44	Duplicate
ZZZZZZ	6Q17081.D	04/28/23	20:04	07:58	(unrelated sample)
S6Q258-CC258	6Q17082.D	04/28/23	20:19	08:13	Continuing cal 4
S6Q258-ICCB	6Q17083.D	04/28/23	20:33	08:27	Continuing Calibration Blank

TDCA Retention Time Check

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q17084.D	04/28/23	20:48	08:42	(unrelated sample)
ZZZZZZ	6Q17085.D	04/28/23	21:02	08:56	(unrelated sample)
ZZZZZZ	6Q17086.D	04/28/23	21:17	09:11	(unrelated sample)
FC5522-4	6Q17087.D	04/28/23	21:31	09:25	(used for QC only; not part of job FC5578)
ZZZZZZ	6Q17088.D	04/28/23	21:46	09:40	(unrelated sample)
FC5578-1	6Q17089.D	04/28/23	22:00	09:54	AF-HDMW225303-WGN01LF-2304W4
FC5578-2	6Q17090.D	04/28/23	22:15	10:09	AF-RHMW10-WGN01LF-2304W4
S6Q258-CC258	6Q17091.D	04/28/23	22:29	10:23	Continuing cal 4
S6Q258-ICCB	6Q17092.D	04/28/23	22:44	10:38	Continuing Calibration Blank
OP96579-BS	6Q17093.D	04/28/23	22:58	10:52	Blank Spike
OP96579-LLBS	6Q17094.D	04/28/23	23:13	11:07	Blank Spike
OP96579-MB	6Q17095.D	04/28/23	23:27	11:21	Method Blank
ZZZZZZ	6Q17096.D	04/28/23	23:42	11:36	(unrelated sample)
ZZZZZZ	6Q17097.D	04/28/23	23:56	11:50	(unrelated sample)
ZZZZZZ	6Q17099.D	04/29/23	00:25	12:19	(unrelated sample)
FC5240-5	6Q17100.D	04/29/23	00:40	12:34	(used for QC only; not part of job FC5578)
S6Q258-CC258	6Q17103.D	04/29/23	01:23	13:17	Continuing cal 4
S6Q258-ICCB	6Q17104.D	04/29/23	01:38	13:32	Continuing Calibration Blank
ZZZZZZ	6Q17105.D	04/29/23	01:52	13:46	(unrelated sample)
ZZZZZZ	6Q17107.D	04/29/23	02:21	14:15	(unrelated sample)
ZZZZZZ	6Q17108.D	04/29/23	02:36	14:30	(unrelated sample)
ZZZZZZ	6Q17109.D	04/29/23	02:50	14:44	(unrelated sample)
ZZZZZZ	6Q17110.D	04/29/23	03:04	14:58	(unrelated sample)
ZZZZZZ	6Q17111.D	04/29/23	03:19	15:13	(unrelated sample)
ZZZZZZ	6Q17112.D	04/29/23	03:33	15:27	(unrelated sample)
ZZZZZZ	6Q17113.D	04/29/23	03:48	15:42	(unrelated sample)
ZZZZZZ	6Q17114.D	04/29/23	04:02	15:56	(unrelated sample)
S6Q258-CC258	6Q17115.D	04/29/23	04:17	16:11	Continuing cal 4
S6Q258-CC258	6Q17116.D	04/29/23	04:31	16:25	Continuing cal 1.0LL
S6Q258-ICCB	6Q17117.D	04/29/23	04:46	16:40	Continuing Calibration Blank
ZZZZZZ	6Q17118.D	04/29/23	05:00	16:54	(unrelated sample)
OP96566-BS	6Q17119.D	04/29/23	05:15	17:09	Blank Spike
OP96566-LLBS	6Q17120.D	04/29/23	05:29	17:23	Blank Spike
OP96566-MB	6Q17121.D	04/29/23	05:44	17:38	Method Blank
ZZZZZZ	6Q17122.D	04/29/23	05:58	17:52	(unrelated sample)
FC5200-2	6Q17123.D	04/29/23	06:13	18:07	(used for QC only; not part of job FC5578)
OP96566-MS	6Q17124.D	04/29/23	06:27	18:21	Matrix Spike
OP96566-MSD	6Q17125.D	04/29/23	06:42	18:36	Matrix Spike Duplicate
ZZZZZZ	6Q17126.D	04/29/23	06:56	18:50	(unrelated sample)
ZZZZZZ	6Q17127.D	04/29/23	07:11	19:05	(unrelated sample)
S6Q258-CC258	6Q17128.D	04/29/23	07:25	19:19	Continuing cal 4
S6Q258-ICCB	6Q17129.D	04/29/23	07:40	19:34	Continuing Calibration Blank
ZZZZZZ	6Q17130.D	04/29/23	07:54	19:48	(unrelated sample)
ZZZZZZ	6Q17131.D	04/29/23	08:09	20:03	(unrelated sample)

6.6.3

6

TDCA Retention Time Check

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample:	S6Q258-RT	Injection Date:	04/28/23
Lab File ID:	6Q17048.D	Injection Time:	12:06
Instrument ID:	GCMS6Q		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	6Q17132.D	04/29/23	08:23	20:17	(unrelated sample)
ZZZZZZ	6Q17133.D	04/29/23	08:38	20:32	(unrelated sample)
ZZZZZZ	6Q17134.D	04/29/23	08:52	20:46	(unrelated sample)
ZZZZZZ	6Q17135.D	04/29/23	09:07	21:01	(unrelated sample)
ZZZZZZ	6Q17136.D	04/29/23	09:21	21:15	(unrelated sample)
ZZZZZZ	6Q17137.D	04/29/23	09:35	21:29	(unrelated sample)
ZZZZZZ	6Q17138.D	04/29/23	09:50	21:44	(unrelated sample)
ZZZZZZ	6Q17139.D	04/29/23	10:04	21:58	(unrelated sample)
S6Q258-CC258	6Q17140.D	04/29/23	10:19	22:13	Continuing cal 4
S6Q258-ICCB	6Q17141.D	04/29/23	10:33	22:27	Continuing Calibration Blank
ZZZZZZ	6Q17142.D	04/29/23	10:48	22:42	(unrelated sample)
ZZZZZZ	6Q17143.D	04/29/23	11:02	22:56	(unrelated sample)
ZZZZZZ	6Q17144.D	04/29/23	11:17	23:11	(unrelated sample)
ZZZZZZ	6Q17145.D	04/29/23	11:31	23:25	(unrelated sample)
S6Q258-ECC258	6Q17146.D	04/29/23	11:46	23:40	Ending cal 4
S6Q258-ICCB	6Q17147.D	04/29/23	12:00	23:54	Continuing Calibration Blank

6.6.3
6

Isotope Dilution Standard Recovery Summary

Job Number: FC5578
 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
FC5578-1	4Q43959.D	101	102	100	101	98	95	85	88
FC5578-1	6Q17089.D	106	102	101	106	98	96	95	81
FC5578-2	6Q17090.D	110	112	112	111	105	110	99	102
OP96603-BS	6Q17072.D	107	104	104	102	107	109	112	103
OP96603-DUP	6Q17080.D	98	106	107	102	107	106	96	80
OP96603-LLBS	6Q17073.D	109	105	103	104	96	103	119	114
OP96603-MB	6Q17074.D	108	110	109	108	112	101	104	104
OP96603-MS	6Q17078.D	96	107	108	104	99	97	89	81
OP96698-BS	4Q43956.D	106	109	102	105	104	109	100	99
OP96698-LLBS	4Q43957.D	79	78	74	76	77	73	69	70
OP96698-MB	4Q43958.D	101	103	102	105	100	109	99	96
S4Q635-IBLK	4Q43953.D	100	106	102	102	101	96	101	100
S6Q258-IBLK	6Q17059.D	99	98	95	100	97	95	109	104
S6Q258-ICCB	6Q17083.D	99	97	100	98	96	103	102	105
S6Q258-ICCB	6Q17071.D	100	101	99	98	91	108	96	98

Isotope Dilution Standards	Recovery Limits
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%

6.7.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC5578
 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
FC5578-1	4Q43959.D	79	68	96	94	84	39	39	41
FC5578-1	6Q17089.D	75	70	108	108	97	32	26	26
FC5578-2	6Q17090.D	82	83	107	106	119	44	32	31
OP96603-BS	6Q17072.D	98	87	111	109	108	49	44	42
OP96603-DUP	6Q17080.D	76	68	112	103	88	36	27	27
OP96603-LLBS	6Q17073.D	105	87	109	105	106	42	30	24
OP96603-MB	6Q17074.D	94	77	108	112	103	41	28	26
OP96603-MS	6Q17078.D	77	74	111	100	88	39	29	33
OP96698-BS	4Q43956.D	92	79	104	101	105	49	36	38
OP96698-LLBS	4Q43957.D	64	55	85	83	82	26	19* a	22
OP96698-MB	4Q43958.D	85	73	97	93	102	49	41	40
S4Q635-IBLK	4Q43953.D	97	93	99	92	102	93	94	96
S6Q258-IBLK	6Q17059.D	102	97	105	101	115	112	106	106
S6Q258-ICCB	6Q17083.D	102	101	102	101	104	104	97	100
S6Q258-ICCB	6Q17071.D	93	92	106	106	102	100		

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%

(a) Outside control limits.

6.7.1
6

Isotope Dilution Standard Recovery Summary

Job Number: FC5578
 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
FC5578-1	4Q43959.D	82	89	32	35	103	117	96	97
FC5578-1	6Q17089.D	91	87	19* a	23	111	110	101	96
FC5578-2	6Q17090.D	109	93	20	23	104	110	100	102
OP96603-BS	6Q17072.D	114	114	15* a	16* a	101	115	101	98
OP96603-DUP	6Q17080.D	81	85	20	24	105	107	99	98
OP96603-LLBS	6Q17073.D	109	108	16* b	19* b	112	112	108	99
OP96603-MB	6Q17074.D	95	90	20	23	118	115	112	104
OP96603-MS	6Q17078.D	82	77	22	24	105	99	94	100
OP96698-BS	4Q43956.D	110	109	32	34	111	115	123	104
OP96698-LLBS	4Q43957.D	70	70	17* a	19* a	84	79	95	71
OP96698-MB	4Q43958.D	102	97	32	36	115	121	123	99
S4Q635-IBLK	4Q43953.D	103	100	82	81	117	119	127	101
S6Q258-IBLK	6Q17059.D	112	111	103	109	102	109	108	102
S6Q258-ICCB	6Q17083.D	105	107	106	99	99	104	97	89
S6Q258-ICCB	6Q17071.D	103	108			120	109	106	

Isotope Dilution Standards	Recovery Limits
S17 = d3-MeFOSAA	20-150%
S18 = d5-EtFOSAA	20-150%
S19 = d7-MeFOSE	20-150%
S20 = d9-EtFOSE	20-150%
S21 = 13C2-4:2FTS	20-180%
S22 = 13C2-6:2FTS	20-180%
S23 = 13C2-8:2FTS	20-180%
S24 = 13C3-HFPO-DA	20-150%

- (a) Outside control limits.
- (b) Outside control limits.

6.7.1

6

Initial Calibration Summary

Job Number: FC5578
 Account: AECOM/CD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICC634
 Lab FileID: 4Q43887.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_050323_S4Q634.quantmethod.xml	D:\MassHunter\Data\050323_1633_S4Q634	5/3/2023 2:36:06 PM	D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d	1	0.2504	0.2538	0.2537	0.2602	0.2588	0.2798	0.2885	0.2970	0.2678	6.711			
D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d	D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d												
Curve Fit																		
I M4-PFBA	Avg RF	0.2504	0.2538	0.2537	0.2602	0.2588	0.2798	0.2885	ISTD							0.2970	0.2678	6.711
T PFBA																		
ISTD																		
I M5-PFPeA	Avg RF	0.5750	0.6115	0.6080	0.6163	0.6026	0.6527	0.6722	ISTD							0.6921	0.6288	6.286
T 3:3FTCA	Avg RF	0.0478	0.0517	0.0503	0.0510	0.0495	0.0540	0.0565	ISTD							0.0626	0.0529	9.003
T PFPeA	Avg RF	1.0898	1.1688	1.1491	1.1980	1.1723	1.2688	1.2816	ISTD							1.2954	1.2030	6.035
T PFMBa	Avg RF	0.6517	0.6614	0.6512	0.6538	0.6369	0.6931	0.7034	ISTD							0.7197	0.6714	4.441
ISTD																		
I M5-PFHxA	Avg RF	0.0674	0.0747	0.0720	0.0724	0.0661	0.0716	0.0707	ISTD							0.0647	0.0699	4.965
T NFDHA	Avg RF	0.9533	0.9081	0.9479	0.9673	0.9184	1.0146	1.0493	ISTD							1.0780	0.9796	6.279
T PFHxA	Avg RF	0.6957	0.7073	0.7124	0.7334	0.6927	0.7903	0.7981	ISTD							0.8015	0.7414	6.397
T PFEEsA	Avg RF	0.1206	0.1232	0.1300	0.1350	0.1268	0.1392	0.1434	ISTD							0.1450	0.1329	6.915
T 5:3FTCA	Avg RF	0.0620	0.0637	0.0665	0.0702	0.0670	0.0722	0.0752	ISTD							0.0756	0.0691	7.359
T 7:3FTCA									ISTD									
ISTD																		
I M4-PFHpA	Avg RF	1.3498	1.5110	1.5459	1.5452	1.5753	1.7086	1.6655	ISTD							1.7394	1.5801	7.913
T PFHpA									ISTD									
ISTD																		
I M8-PFOA	Avg RF	1.3945	1.3613	1.3697	1.5034	1.3513	1.5014	1.5441	ISTD							1.5125	1.4423	5.553
T PFOA									ISTD									
ISTD																		
I M9-PFNA	Avg RF	0.9948	0.9058	0.8803	0.8935	0.9013	0.9685	0.9454	ISTD							0.9220	0.9264	4.296
T PFNA									ISTD									
ISTD																		
I M6-PFDA	Avg RF	0.8758	0.8681	0.9454	0.9120	0.9343	1.0187	0.9840	ISTD							1.0488	0.9484	6.852
T PFDA									ISTD									
ISTD																		
I M7-PFUnDA	Avg RF	0.7913	0.7501	0.8195	0.8568	0.8063	0.9016	0.9386	ISTD							0.9278	0.8490	8.072
T PFUnDA									ISTD									
ISTD																		
I M2-PFDODA									ISTD									

Generated at 2:36 PM on 5/3/2023

Page 1 of 4

Initial Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICC634
 Lab FileID: 4Q43887.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	1.0517	0.9317	0.9713	0.9511	0.9772	1.0612	1.0552	1.0246	1.0030	5.111
T PFTfDA	Avg RF	1.5121	1.2188	1.3516	1.3026	1.3355	1.3884	1.3320	1.2823	1.3404	6.405
I M2-PFTeDA	Avg RF	1.0874	1.1761	1.1742	1.2028	1.2067	1.2859	1.3553	1.3005	1.2236	6.981
T PFTeDA						ISTD					
I M8-FOSA	Avg RF	1.0199	1.0337	1.0399	1.0094	0.9598	1.0939	1.0715	1.1528	1.0476	5.585
T FOSA						ISTD					
I M3-PFBS	Avg RF	0.9762	0.9895	0.9259	1.0263	0.9986	1.0891	1.0880	1.1104	1.0255	6.333
T PFBS						ISTD					
I M3-PFHxS	Avg RF	0.8228	0.9177	0.8171	0.8943	0.8276	0.8739	0.9197	0.9591	0.8790	5.998
T PFPeS	Avg RF	0.9489	0.9500	0.9507	1.0599	1.0278	1.0253	1.0789	1.1563	1.0247	7.219
T PFHxS						ISTD					
I M8-PFOS	Avg RF	0.9069	0.7781	0.9593	0.8466	0.8745	0.9619	0.8979	0.9794	0.9006	7.515
T PFHpS	Avg RF	1.3089	1.0233	1.2520	1.2364	1.1129	1.3196	1.3138	1.2207	1.2235	8.626
T PFOs	Avg RF	0.5375	0.5103	0.6127	0.5196	0.5189	0.5548	0.5302	0.5821	0.5458	6.514
T PFNS	Avg RF	0.5712	0.6140	0.6741	0.6171	0.5955	0.6407	0.5899	0.6518	0.6193	5.558
T PFDS	Avg RF	0.5744	0.4802	0.5883	0.5423	0.5478	0.5826	0.5373	0.5686	0.5527	6.308
T PFDoDS						ISTD					
I M2-4:2FTS	Avg RF	7.7011	8.0461	8.0228	8.3503	7.8109	7.4550	8.9479	8.0189	8.0441	5.620
T 4:2FTS						ISTD					
I M2-6:2FTS	Avg RF	4.5824	4.8856	4.7997	5.3724	4.4974	4.7330	5.1432	4.6215	4.8294	6.168
T 6:2FTS						ISTD					
I M2-8:2FTS	Avg RF	2.6507	2.3592	2.9342	3.0041	2.9492	2.7714	3.0994	2.5303	2.7873	9.201
T 8:2FTS						ISTD					
I M3-MeFOSAA	Avg RF	1.0154	0.8321	0.7942	0.7955	0.8322	0.9054	0.8576	0.9393	0.8715	8.835
T MeFOSAA						ISTD					
I M3-HFO-DA	Avg RF	0.9249	0.9004	0.9267	0.9394	0.9088	1.0230	1.0020	1.0195	0.9556	5.314
T HFO-DA	Avg RF	9.9265	9.9475	9.8908	10.01	9.7701	10.46	10.24	10.20	10.06	2.258
T ADONA	Avg RF	4.3417	4.5268	4.6403	4.5503	4.4417	4.8388	4.6559	4.6434	4.5799	3.302
T 9Cl-PF3ONS	Avg RF	3.2726	3.4845	3.4936	3.6619	3.6116	3.8301	3.7290	3.6859	3.5961	4.847
T 11Cl-PF3OUds						ISTD					
I M5-EFOSAA	Avg RF	0.9545	0.9537	0.9862	0.8150	0.9424	0.9961	1.0072	1.0294	0.9605	6.864
T EFOSAA						ISTD					
I M7-MeFOSE	Avg RF	1.1230	1.0416	0.9123	1.0158	0.8815	1.0215	1.0555	1.1636	1.0268	9.268
T MeFOSE						ISTD					
I M9-EFOSE	Avg RF	0.9071	0.9448	0.9234	0.9458	0.9337	0.9977	1.0397	1.0504	0.9678	5.623
T EFOSE						ISTD					

Page 2 of 4

Generated at 2:36 PM on 5/3/2023

Initial Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICC634
 Lab FileID: 4Q43887.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EtFOSA	Avg RF	0.8263	1.0054	1.0110	1.0788	0.9993	1.1318	1.1661	1.1600	1.0473	10.776
I M3-MeFOSA											
T MeFOSA	Avg RF	0.8291	0.8709	0.9209	0.9057	0.9259	1.0268	1.0333	1.0217	0.9418	8.196
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.5858	0.6032	0.6022	0.6539	0.6144	0.6079	0.6982	0.6828	0.6311	6.608
S 13C8-PFOS	Linear	0.8673	0.9865	0.8358	0.9730	0.9142	0.9282	1.0539	0.9710	0.9412	7.418
S d5-EFOSAA	Linear	0.4472	0.4981	0.4701	0.5664	0.5250	0.5192	0.5559	0.5754	0.5197	8.850
S 13C8-FOSA	Linear	1.4476	1.5207	1.4801	1.7116	1.7515	1.5014	1.5770	1.5524	1.5678	6.968
S d7-MeFOSE	Linear	0.6942	0.7871	0.8307	0.9697	0.9467	0.6923	0.6787	0.6234	0.7778	16.563
S d3-MeFOSA	Linear	0.9149	0.9977	0.9568	1.0593	0.9573	0.9404	0.9859	1.0311	0.9804	4.890
S d9-EFOSE	Linear	1.0482	1.1457	1.1884	1.3249	1.2785	0.9836	0.9499	0.8920	1.1014	14.328
S d5-EFOSA	Linear	1.0190	1.0393	1.0002	1.0300	1.0340	1.0444	1.0900	1.0808	1.0422	2.880
I 13C3-PFBA											
S 13C4-PFBA	Linear	0.9419	0.9424	0.9441	0.9489	0.9425	0.9416	0.9399	0.9258	0.9409	0.708
I 18O2-PFHxS											
S 13C2-4:2FTS	Linear	0.1148	0.1010	0.1095	0.0977	0.1033	0.1072	0.0917	0.0877	0.1016	8.935
S 13C3-PBBS	Linear	2.4774	2.3246	2.6089	2.2592	2.3778	2.2863	2.3961	2.1298	2.3575	6.150
S 13C2-6:2FTS	Linear	0.2018	0.1846	0.1959	0.1742	0.1956	0.1866	0.1682	0.1585	0.1832	8.231
S 13C3-PFHxS	Linear	1.5780	1.5174	1.6873	1.4849	1.5504	1.5703	1.5824	1.4264	1.5496	4.979
S 13C2-8:2FTS	Linear	0.3000	0.2936	0.2924	0.2737	0.2876	0.2969	0.2645	0.2787	0.2859	4.357
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.8048	0.8379	0.8309	0.8093	0.8265	0.8219	0.8063	0.8294	0.8209	1.528
I 13C2-PFDA											
S 13C6-PFDA	Linear	1.0744	1.0307	1.0830	1.0667	1.0646	1.0841	1.1362	1.0251	1.0706	3.228
S 13C7-PFUDA	Linear	1.1430	1.0538	1.1673	1.1173	1.1842	1.1414	1.0804	1.0247	1.1140	5.044
S 13C2-PFDODA	Linear	1.1355	1.1282	1.2168	1.2688	1.2865	1.2138	1.2274	1.2123	1.2112	4.621
S 13C2-PFTEA	Linear	0.9810	0.9567	1.0416	1.0420	1.0806	0.9685	0.9062	0.9075	0.9855	6.520
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.8245	0.8755	0.8324	0.8282	0.8204	0.8292	0.8848	0.9024	0.8497	3.812
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.7803	0.7635	0.7594	0.7761	0.7821	0.7803	0.7656	0.7531	0.7701	1.435
S 13C5-PFHxA	Linear	1.1387	1.0991	1.0961	1.0805	1.1224	1.1056	1.0817	1.0850	1.1011	1.874
S 13C3-HPOdA	Linear	0.1628	0.1588	0.1598	0.1632	0.1644	0.1655	0.1701	0.1711	0.1645	2.681
S 13C4-PFHpA	Linear	0.6701	0.6325	0.6289	0.6410	0.6353	0.6389	0.6604	0.6415	0.6436	2.218

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

Initial Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICC634
 Lab FileID: 4Q43887.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PBBA	Linear	$y = 0.940892 * x$	
S 13C5-PFPeA	Linear	$y = 0.770055 * x$	
S 13C2-4:2FTS	Linear	$y = 0.101613 * x$	
S 13C3-PFBS	Linear	$y = 2.357511 * x$	
S 13C5-PFHxA	Linear	$y = 1.101142 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.164465 * x$	
S 13C4-PFHpA	Linear	$y = 0.643569 * x$	
S 13C2-6:2FTS	Linear	$y = 0.183170 * x$	
S 13C8-PFOA	Linear	$y = 0.820904 * x$	
S 13C3-PFHxS	Linear	$y = 1.549646 * x$	
S 13C9-PFNA	Linear	$y = 0.849685 * x$	
S 13C2-8:2FTS	Linear	$y = 0.285923 * x$	
S 13C6-PEDA	Linear	$y = 1.070585 * x$	
S d3-MeFOSAA	Linear	$y = 0.631061 * x$	
S 13C8-PFOS	Linear	$y = 0.941239 * x$	
S d5-EFOSAA	Linear	$y = 0.519656 * x$	
S 13C7-PFUInDA	Linear	$y = 1.114017 * x$	
S 13C2-PFDODA	Linear	$y = 1.211165 * x$	
S 13C8-FOSA	Linear	$y = 1.567785 * x$	
S 13C2-PFTeDA	Linear	$y = 0.985520 * x$	
S d7-MeFOSE	Linear	$y = 0.777842 * x$	
S d3-MeFOSA	Linear	$y = 0.980410 * x$	
S d9-EFOSE	Linear	$y = 1.101380 * x$	
S d5-EFOSA	Linear	$y = 1.042215 * x$	

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

Initial Calibration Verification

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICV634
 Lab FileID: 4Q43894.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050323_1633_S4Q634\s4q634.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q43894
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.232	4.6	104.6
13C2-6:2FTS	5.000	5.310	6.2	106.2
13C2-8:2FTS	5.000	5.361	7.2	107.2
13C2-PFDoDA	1.250	1.329	6.3	106.3
13C2-PFTeDA	1.250	1.210	-3.2	96.8
13C3-PFBS	2.500	2.370	-5.2	94.8
13C3-PFHxS	2.500	2.439	-2.4	97.6
13C4-PFBA	10.000	10.101	1.0	101.0
13C4-PFHpA	2.500	2.581	3.2	103.2
13C5-PFHxA	2.500	2.494	-0.2	99.8
13C5-PFPeA	5.000	5.155	3.1	103.1
13C6-PFDA	1.250	1.317	5.4	105.4
13C7-PFUnDA	1.250	1.264	1.1	101.1
13C8-FOSA	2.500	2.395	-4.2	95.8
13C8-PFOA	2.500	2.593	3.7	103.7
13C8-PFOS	2.500	2.590	3.6	103.6
13C9-PFNA	1.250	1.283	2.6	102.6
4:2FTS	20.000	21.008	5.0	105.0
6:2FTS	20.000	19.784	-1.1	98.9
8:2FTS	20.000	19.681	-1.6	98.4
d3-MeFOSAA	5.000	5.156	3.1	103.1
EtFOSAA	20.000	19.622	-1.9	98.1
FOSA	20.000	21.189	5.9	105.9
MeFOSAA	20.000	21.188	5.9	105.9
PFBA	20.000	19.285	-3.6	96.4
PFBS	20.000	21.672	8.4	108.4
PFDA	20.000	21.489	7.4	107.4
PFDoDA	20.000	18.483	-7.6	92.4
PFDS	20.000	20.356	1.8	101.8
PFHpA	20.000	20.571	2.9	102.9
PFHpS	20.000	20.453	2.3	102.3
PFHxA	20.000	21.781	8.9	108.9
PFHxS	20.000	21.628	8.1	108.1
PFNA	20.000	21.766	8.8	108.8
PFNS	20.000	19.676	-1.6	98.4
PFOA	20.000	20.675	3.4	103.4
PFOS	20.000	17.958	-10.2	89.8

Initial Calibration Verification

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICV634
 Lab FileID: 4Q43894.D

PFPeA	20.000	22.207	11.0	111.0
PFPeS	20.000	21.124	5.6	105.6
PFTeDA	20.000	22.200	11.0	111.0
PFTTrDA	20.000	17.597	-12.0	88.0
PFUnDA	20.000	21.187	5.9	105.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDODA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	20.000	20.956	4.8	104.8
13C3-HFPO-DA	10.000	10.436	4.4	104.4
9C1-PF3ONS	20.000	20.003	0.0	100.0
ADONA	20.000	20.063	0.3	100.3
HFPO-DA	20.000	19.289	-3.6	96.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.642	3.2	103.2
5:3FTCA	20.000	21.505	7.5	107.5
7:3FTCA	20.000	19.966	-0.2	99.8
d3-MeFOSA	2.500	2.334	-6.6	93.4
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	22.087	10.4	110.4
EtFOSE	100.000	117.541	17.5	117.5
MeFOSA	20.000	21.625	8.1	108.1
MeFOSE	100.000	115.447	15.4	115.4
PFDODS	20.000	18.910	-5.4	94.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.377	7.5	107.5
d7-MeFOSE	25.000	19.407	-22.4	77.6
d9-EtFOSE	25.000	19.443	-22.2	77.8
d5-EtFOSA	2.500	2.486	-0.6	99.4
NFDHA	20.000	22.218	11.1	111.1
PFMBA	20.000	21.080	5.4	105.4
PFMPA	20.000	21.251	6.3	106.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	20.000	19.156	-4.2	95.8

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICV634
 Lab FileID: 4Q43895.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050323_1633_S4Q634\s4q634.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q43895
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.225	4.5	104.5
13C2-6:2FTS	5.000	5.427	8.5	108.5
13C2-8:2FTS	5.000	5.503	10.1	110.1
13C2-PFDoDA	1.250	1.352	8.2	108.2
13C2-PFTeDA	1.250	1.175	-6.0	94.0
13C3-PFBS	2.500	2.446	-2.2	97.8
13C3-PFHxS	2.500	2.501	0.0	100.0
13C4-PFBA	10.000	9.953	-0.5	99.5
13C4-PFHpA	2.500	2.507	0.3	100.3
13C5-PFHxA	2.500	2.463	-1.5	98.5
13C5-PFPeA	5.000	5.107	2.1	102.1
13C6-PFDA	1.250	1.390	11.2	111.2
13C7-PFUnDA	1.250	1.321	5.7	105.7
13C8-FOSA	2.500	2.358	-5.7	94.3
13C8-PFOA	2.500	2.569	2.8	102.8
13C8-PFOS	2.500	2.663	6.5	106.5
13C9-PFNA	1.250	1.253	0.2	100.2
4:2FTS	9.375	9.629	2.7	102.7
6:2FTS	9.500	9.570	0.7	100.7
8:2FTS	9.600	9.305	-3.1	96.9
d3-MeFOSAA	5.000	5.122	2.4	102.4
EtFOSAA	2.500	2.476	-1.0	99.0
FOSA	2.500	2.374	-5.0	95.0
MeFOSAA	2.500	2.411	-3.5	96.5
PFBA	10.000	9.658	-3.4	96.6
PFBS	2.218	2.126	-4.2	95.8
PFDA	2.500	2.394	-4.3	95.7
PFDoDA	2.500	2.428	-2.9	97.1
PFDS	2.413	2.127	-11.9	88.1
PFHpA	2.500	2.493	-0.3	99.7
PFHpS	2.383	2.285	-4.1	95.9
PFHxA	2.500	2.426	-2.9	97.1
PFHxS	2.285	2.247	-1.7	98.3
PFNA	2.500	2.420	-3.2	96.8
PFNS	2.405	2.162	-10.1	89.9
PFOA	2.500	2.445	-2.2	97.8
PFOS	2.320	2.145	-7.6	92.4

Initial Calibration Verification

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q634-ICV634
 Lab FileID: 4Q43895.D

PFPeA	5.000	4.862	-2.8	97.2
PFPeS	2.353	2.157	-8.3	91.7
PFTeDA	2.500	2.573	2.9	102.9
PFTTrDA	2.500	2.326	-6.9	93.1
PFUnDA	2.500	2.535	1.4	101.4
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	4.708	-0.4	99.6
13C3-HFPO-DA	10.000	9.782	-2.2	97.8
9C1-PF3ONS	4.675	4.643	-0.7	99.3
ADONA	4.725	4.705	-0.4	99.6
HFPO-DA	5.000	5.194	3.9	103.9
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.478	0.0	100.0
5:3FTCA	62.400	61.286	-1.8	98.2
7:3FTCA	62.400	63.299	1.4	101.4
d3-MeFOSA	2.500	2.227	-10.9	89.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.831	-3.4	96.6
EtFOSE	12.500	12.331	-1.3	98.7
MeFOSA	5.000	5.497	9.9	109.9
MeFOSE	12.500	11.966	-4.3	95.7
PFDoDS	2.425	2.184	-9.9	90.1
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.122	2.4	102.4
d7-MeFOSE	25.000	19.955	-20.2	79.8
d9-EtFOSE	25.000	19.264	-22.9	77.1
d5-EtFOSA	2.500	2.483	-0.7	99.3
NFDHA	5.000	4.925	-1.5	98.5
PFMBA	5.000	4.790	-4.2	95.8
PFMPA	5.000	4.814	-3.7	96.3
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.399	-1.1	98.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q635-CC634
 Lab FileID: 4Q43954.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050423_1633_S4Q635\s4q635.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q43954
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.061	1.2	101.2
13C2-6:2FTS	5.000	5.145	2.9	102.9
13C2-8:2FTS	5.000	5.168	3.4	103.4
13C2-PFDoDA	1.250	1.225	-2.0	98.0
13C2-PFTeDA	1.250	1.206	-3.5	96.5
13C3-PFBS	2.500	2.301	-8.0	92.0
13C3-PFHxS	2.500	2.383	-4.7	95.3
13C4-PFBA	10.000	9.980	-0.2	99.8
13C4-PFHpA	2.500	2.518	0.7	100.7
13C5-PFHxA	2.500	2.486	-0.5	99.5
13C5-PFPeA	5.000	5.046	0.9	100.9
13C6-PFDA	1.250	1.312	5.0	105.0
13C7-PFUnDA	1.250	1.328	6.2	106.2
13C8-FOSA	2.500	2.489	-0.4	99.6
13C8-PFOA	2.500	2.531	1.2	101.2
13C8-PFOS	2.500	2.425	-3.0	97.0
13C9-PFNA	1.250	1.299	3.9	103.9
4:2FTS	9.375	9.320	-0.6	99.4
6:2FTS	9.500	9.577	0.8	100.8
8:2FTS	9.600	10.038	4.6	104.6
d3-MeFOSAA	5.000	5.442	8.8	108.8
EtFOSAA	2.500	2.555	2.2	102.2
FOSA	2.500	2.377	-4.9	95.1
MeFOSAA	2.500	2.304	-7.8	92.2
PFBA	10.000	9.721	-2.8	97.2
PFBS	2.218	2.187	-1.4	98.6
PFDA	2.500	2.352	-5.9	94.1
PFDoDA	2.500	2.500	0.0	100.0
PFDS	2.413	2.505	3.8	103.8
PFHpA	2.500	2.437	-2.5	97.5
PFHpS	2.383	2.480	4.1	104.1
PFHxA	2.500	2.390	-4.4	95.6
PFHxS	2.285	2.081	-8.9	91.1
PFNA	2.500	2.286	-8.5	91.5
PFNS	2.405	2.397	-0.3	99.7
PFOA	2.500	2.277	-8.9	91.1
PFOS	2.320	2.438	5.1	105.1

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q635-CC634
 Lab FileID: 4Q43954.D

PFPeA	5.000	4.862	-2.8	97.2
PFPeS	2.353	2.240	-4.8	95.2
PFTeDA	2.500	2.494	-0.3	99.7
PFTrDA	2.500	2.513	0.5	100.5
PFUnDA	2.500	2.436	-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	4.779	1.1	101.1
13C3-HFPO-DA	10.000	9.670	-3.3	96.7
9C1-PF3ONS	4.675	4.680	0.1	100.1
ADONA	4.725	4.715	-0.2	99.8
HFPO-DA	5.000	4.922	-1.6	98.4
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.100	-3.0	97.0
5:3FTCA	62.400	61.581	-1.3	98.7
7:3FTCA	62.400	64.228	2.9	102.9
d3-MeFOSA	2.500	2.465	-1.4	98.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.816	-3.7	96.3
EtFOSE	12.500	12.867	2.9	102.9
MeFOSA	5.000	4.913	-1.7	98.3
MeFOSE	12.500	11.927	-4.6	95.4
PFDoDS	2.425	2.271	-6.4	93.6
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.367	7.3	107.3
d7-MeFOSE	25.000	22.107	-11.6	88.4
d9-EtFOSE	25.000	21.559	-13.8	86.2
d5-EtFOSA	2.500	2.578	3.1	103.1
NFDHA	5.000	4.984	-0.3	99.7
PFMBA	5.000	4.857	-2.9	97.1
PFMPA	5.000	4.873	-2.5	97.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.298	-3.4	96.6

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q635-CC634
 Lab FileID: 4Q43955.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050423_1633_S4Q635\s4q635.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q43955
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.749	15.0	115.0
13C2-6:2FTS	5.000	5.895	17.9	117.9
13C2-8:2FTS	5.000	5.710	14.2	114.2
13C2-PFDoDA	1.250	1.242	-0.7	99.3
13C2-PFTeDA	1.250	1.130	-9.6	90.4
13C3-PFBS	2.500	2.378	-4.9	95.1
13C3-PFHxS	2.500	2.380	-4.8	95.2
13C4-PFBA	10.000	10.018	0.2	100.2
13C4-PFHpA	2.500	2.678	7.1	107.1
13C5-PFHxA	2.500	2.522	0.9	100.9
13C5-PFPeA	5.000	5.351	7.0	107.0
13C6-PFDA	1.250	1.297	3.8	103.8
13C7-PFUnDA	1.250	1.253	0.2	100.2
13C8-FOSA	2.500	2.337	-6.5	93.5
13C8-PFOA	2.500	2.578	3.1	103.1
13C8-PFOS	2.500	2.409	-3.6	96.4
13C9-PFNA	1.250	1.269	1.6	101.6
4:2FTS	0.750	0.666	-11.1	88.9
6:2FTS	0.760	0.741	-2.5	97.5
8:2FTS	0.768	0.692	-9.9	90.1
d3-MeFOSAA	5.000	5.231	4.6	104.6
EtFOSAA	0.200	0.145	-27.4	72.6
FOSA	0.200	0.219	9.4	109.4
MeFOSAA	0.200	0.175	-12.6	87.4
PFBA	0.800	0.770	-3.7	96.3
PFBS	0.177	0.172	-3.1	96.9
PFDA	0.200	0.160	-20.2	79.8
PFDoDA	0.200	0.187	-6.3	93.7
PFDS	0.193	0.191	-0.8	99.2
PFHpA	0.200	0.189	-5.5	94.5
PFHpS	0.191	0.170	-10.8	89.2
PFHxA	0.200	0.182	-8.8	91.2
PFHxS	0.183	0.154	-15.7	84.3
PFNA	0.200	0.179	-10.6	89.4
PFNS	0.192	0.226	17.6	117.6
PFOA	0.200	0.171	-14.7	85.3
PFOS	0.186	0.197	5.7	105.7

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q635-CC634
 Lab FileID: 4Q43955.D

PFPeA	0.400	0.372	-6.9	93.1
PFPeS	0.188	0.203	7.9	107.9
PFTeDA	0.200	0.196	-2.0	98.0
PFTTrDA	0.200	0.197	-1.4	98.6
PFUnDA	0.200	0.214	6.9	106.9
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	0.378	0.352	-6.9	93.1
13C3-HFPO-DA	10.000	9.922	-0.8	99.2
9C1-PF3ONS	0.367	0.363	-1.1	98.9
ADONA	0.378	0.359	-5.0	95.0
HFPO-DA	0.400	0.419	4.8	104.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.922	-7.6	92.4
5:3FTCA	4.992	4.668	-6.5	93.5
7:3FTCA	4.992	5.107	2.3	102.3
d3-MeFOSA	2.500	2.243	-10.3	89.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.355	-11.2	88.8
EtFOSE	1.000	0.832	-16.8	83.2
MeFOSA	0.400	0.427	6.7	106.7
MeFOSE	1.000	1.040	4.0	104.0
PFDoDS	0.194	0.206	6.2	106.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.542	10.8	110.8
d7-MeFOSE	25.000	19.149	-23.4	76.6
d9-EtFOSE	25.000	20.039	-19.8	80.2
d5-EtFOSA	2.500	2.546	1.8	101.8
NFDHA	0.400	0.378	-5.5	94.5
PFMBA	0.400	0.365	-8.7	91.3
PFMPA	0.400	0.369	-7.8	92.2
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.324	-8.9	91.1

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q635-CC634
 Lab FileID: 4Q43966.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\050423_1633_S4Q635\s4q635.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\050323_1633_S4Q634\4Q43884.d
 2:D:\MassHunter\Data\050323_1633_S4Q634\4Q43885.d
 3:D:\MassHunter\Data\050323_1633_S4Q634\4Q43886.d
 4:D:\MassHunter\Data\050323_1633_S4Q634\4Q43887.d
 5:D:\MassHunter\Data\050323_1633_S4Q634\4Q43888.d
 6:D:\MassHunter\Data\050323_1633_S4Q634\4Q43889.d
 7:D:\MassHunter\Data\050323_1633_S4Q634\4Q43890.d
 8:D:\MassHunter\Data\050323_1633_S4Q634\4Q43891.d

Data File: 4Q43966
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.212	4.2	104.2
13C2-6:2FTS	5.000	5.306	6.1	106.1
13C2-8:2FTS	5.000	5.299	6.0	106.0
13C2-PFDoDA	1.250	1.292	3.3	103.3
13C2-PFTeDA	1.250	1.160	-7.2	92.8
13C3-PFBS	2.500	2.146	-14.2	85.8
13C3-PFHxS	2.500	2.219	-11.3	88.7
13C4-PFBA	10.000	10.022	0.2	100.2
13C4-PFHpA	2.500	2.636	5.4	105.4
13C5-PFHxA	2.500	2.609	4.4	104.4
13C5-PFPeA	5.000	5.250	5.0	105.0
13C6-PFDA	1.250	1.248	-0.1	99.9
13C7-PFUnDA	1.250	1.308	4.6	104.6
13C8-FOSA	2.500	2.264	-9.5	90.5
13C8-PFOA	2.500	2.503	0.1	100.1
13C8-PFOS	2.500	2.435	-2.6	97.4
13C9-PFNA	1.250	1.189	-4.9	95.1
4:2FTS	9.375	9.331	-0.5	99.5
6:2FTS	9.500	10.007	5.3	105.3
8:2FTS	9.600	10.932	13.9	113.9
d3-MeFOSAA	5.000	5.314	6.3	106.3
EtFOSAA	2.500	2.632	5.3	105.3
FOSA	2.500	2.595	3.8	103.8
MeFOSAA	2.500	2.471	-1.2	98.8
PFBA	10.000	9.811	-1.9	98.1
PFBS	2.218	2.340	5.5	105.5
PFDA	2.500	2.488	-0.5	99.5
PFDoDA	2.500	2.394	-4.2	95.8
PFDS	2.413	2.266	-6.1	93.9
PFHpA	2.500	2.438	-2.5	97.5
PFHpS	2.383	2.256	-5.3	94.7
PFHxA	2.500	2.338	-6.5	93.5
PFHxS	2.285	2.373	3.9	103.9
PFNA	2.500	2.497	-0.1	99.9
PFNS	2.405	2.406	0.0	100.0
PFOA	2.500	2.395	-4.2	95.8
PFOS	2.320	2.419	4.3	104.3

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S4Q635-CC634
 Lab FileID: 4Q43966.D

PFPeA	5.000	4.938	-1.2	98.8
PFPeS	2.353	2.304	-2.1	97.9
PFTeDA	2.500	2.389	-4.5	95.5
PFTTrDA	2.500	2.415	-3.4	96.6
PFUnDA	2.500	2.462	-1.5	98.5
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	5.034	6.5	106.5
13C3-HFPO-DA	10.000	9.653	-3.5	96.5
9C1-PF3ONS	4.675	4.933	5.5	105.5
ADONA	4.725	4.996	5.7	105.7
HFPO-DA	5.000	5.228	4.6	104.6
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.358	-1.0	99.0
5:3FTCA	62.400	62.404	0.0	100.0
7:3FTCA	62.400	64.899	4.0	104.0
d3-MeFOSA	2.500	2.314	-7.4	92.6
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.070	1.4	101.4
EtFOSE	12.500	12.025	-3.8	96.2
MeFOSA	5.000	5.055	1.1	101.1
MeFOSE	12.500	10.664	-14.7	85.3
PFDoDS	2.425	2.236	-7.8	92.2
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.056	1.1	101.1
d7-MeFOSE	25.000	20.577	-17.7	82.3
d9-EtFOSE	25.000	19.747	-21.0	79.0
d5-EtFOSA	2.500	2.404	-3.8	96.2
NFDHA	5.000	4.491	-10.2	89.8
PFMBA	5.000	4.788	-4.2	95.8
PFMPA	5.000	4.903	-1.9	98.1
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.175	-6.2	93.8

CC Criteria: +/- 30%

Initial Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Method Path	Method File	Batch Name	Last Calib Update	Calibration Files	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD									
D:\MassHunter\Methods	1633_042823_S6Q258.quantmethod.xml	D:\MassHunter\Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d	Avg RF	0.2679	0.3411	0.3350	0.3345	0.3343	0.3560	0.3555	0.3586	0.3354	8.704									
D:\MassHunter\Data\042823_1633_S6Q258	6Q17052.d	D:\MassHunter\Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d	Avg RF	0.5534	0.6958	0.6738	0.6926	0.6719	0.7184	0.7327	0.7144	0.6816	8.215									
D:\MassHunter\Data\042823_1633_S6Q258	6Q17053.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d	Avg RF	0.0705	0.0853	0.0839	0.0854	0.0832	0.0888	0.0918	0.0923	0.0852	8.051									
D:\MassHunter>Data\042823_1633_S6Q258	6Q17054.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d	Avg RF	1.0890	1.4118	1.3529	1.3948	1.3510	1.4354	1.4393	1.4213	1.3619	8.470									
D:\MassHunter>Data\042823_1633_S6Q258	6Q17055.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d	Avg RF	0.7289	0.9372	0.9302	0.9062	0.9000	0.9747	0.9719	0.9602	0.9137	8.724									
D:\MassHunter>Data\042823_1633_S6Q258	6Q17056.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d	Avg RF	0.0924	0.1059	0.1085	0.1138	0.1070	0.1098	0.1087	0.1109	0.1071	5.978									
D:\MassHunter>Data\042823_1633_S6Q258	6Q17057.d	D:\MassHunter>Data\042823_1633_S6Q258	4/30/2023 11:14:07 PM	D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d	Avg RF	0.9337	0.9749	0.9719	1.0248	0.9391	0.9855	1.0140	1.0640	0.9885	4.456									
I M4-PFBA	T PFBA	I M5-PFPeA	T PFMPA	T 3:3FTCA	T PFPeA	T PFMBa	I M5-PFHxA	T NFDHA	T PFHxA	T PFEEA	T 5:3FTCA	T 7:3FTCA	I M4-PFHpA	T PFHpA	I M8-PFOA	T PFOA	I M9-PFNA	T PFNA	I M6-PFDA	T PFDA	I M7-PFUnDA	T PFUnDA	I M2-PFDODA	

Generated at 11:14 PM on 4/30/2023

Page 1 of 4

Initial Calibration Summary

Job Number: FC5578
 Account: AECOM AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
T PFDoDA	Avg RF	0.9498	1.0097	1.0351	0.9922	0.9618	0.9909	1.0005	0.9995	0.9799	5.757
T PFTfDA	Avg RF	0.8800	1.0800	1.2190	1.1538	1.0259	1.1082	1.1040	1.1060	1.0846	9.191
I M2-PFTeDA	Avg RF	1.2297	1.1654	1.2744	1.3445	1.2487	1.2752	1.2903	1.2780	1.2633	4.095
T PFTeDA						ISTD					
I M8-FOSA	Avg RF	0.7241	0.8823	0.9240	0.9311	0.8719	0.9530	0.9337	0.9460	0.8958	8.387
T FOSA						ISTD					
I M3-PFBS	Avg RF	0.9900	1.0604	1.2037	1.0909	1.1495	1.1758	1.1649	1.1391	1.1218	6.272
T PFBS						ISTD					
I M3-PFHxS	Avg RF	1.1142	1.3575	1.3874	1.5015	1.5088	1.5119	1.4605	1.5403	1.4227	9.850
T PFPeS	Avg RF	1.1307	1.3584	1.3234	1.4038	1.4542	1.3938	1.3439	1.4907	1.3624	8.000
T PFHxS						ISTD					
I M8-PFOS	Avg RF	1.2396	1.3892	1.3410	1.4022	1.2683	1.3583	1.4681	1.3727	1.3549	5.406
T PFHpS	Avg RF	1.0820	1.2982	1.2020	1.2763	1.0582	1.1692	1.3780	1.1940	1.2072	8.952
T PFOS	Avg RF	1.0741	1.3189	1.1382	1.2830	1.1067	1.2770	1.2832	1.1724	1.2067	7.842
T PFNS	Avg RF	0.6543	0.7949	0.7473	0.8889	0.7690	0.8238	0.8851	0.8109	0.7968	9.574
T PFDS	Avg RF	0.3631	0.4108	0.4266	0.4292	0.3881	0.4113	0.4587	0.4085	0.4120	6.908
T PFDoDS						ISTD					
I M2-4:2FTS	Avg RF	6.5839	7.6224	7.8025	7.9899	7.3204	7.4323	8.6434	7.1239	7.5648	8.115
T 4:2FTS						ISTD					
I M2-6:2FTS	Avg RF	4.1902	6.3557	5.4667	5.5760	5.7874	5.7764	5.7730	5.0746	5.5000	11.640
T 6:2FTS						ISTD					
I M2-8:2FTS	Avg RF	2.8828	3.2021	3.5036	2.7950	2.8896	3.1162	2.8608	2.5513	2.9752	9.772
T 8:2FTS						ISTD					
I M3-MeFOSAA	Avg RF	0.7488	0.8086	0.9885	0.9908	0.9644	1.0654	0.8877	1.0569	0.9389	12.177
T MeFOSAA						ISTD					
I M3-HFO-DA	Avg RF	0.7655	0.9574	0.9633	0.9421	0.9699	1.0051	0.9504	1.0235	0.9471	8.284
T HFO-DA	Avg RF	12.49	15.97	15.35	14.99	14.26	16.20	15.95	15.64	15.11	8.140
T ADONA	Avg RF	4.5509	5.4384	5.6390	5.0224	5.2393	6.0500	5.6295	5.8389	5.4260	8.840
T 9Cl-PF3ONS	Avg RF	2.9355	3.5787	3.4026	3.1114	3.3245	3.8064	3.6531	3.6416	3.4317	8.646
T 11Cl-PF3OUds						ISTD					
I M5-EFOSAA	Avg RF	0.8151	0.8287	0.8485	0.8176	0.8298	0.8342	0.8912	0.9334	0.8498	4.878
T EFOSAA						ISTD					
I M7-MeFOSE	Avg RF	0.9092	1.1285	1.0835	1.1583	1.0690	1.1657	1.2295	1.1758	1.1149	8.767
T MeFOSE						ISTD					
I M9-EFOSE	Avg RF	0.8167	0.9916	1.0152	1.0782	1.0195	1.1330	1.1697	1.1051	1.0411	10.546
T EFOSE						ISTD					

Page 2 of 4

Generated at 11:14 PM on 4/30/2023

Initial Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I M5-EFOSA											
T EFOSA	Avg RF	0.8405	1.0777	1.0264	1.0291	1.0321	1.0467	1.0742	1.0933	1.0275	7.751
I M3-MeFOSA											
T MeFOSA	Avg RF	0.9407	1.2197	1.1872	1.1241	1.0857	1.2316	1.1625	1.0488	1.1250	8.691
I 13C4-PFOS											
S d3-MeFOSAA	Linear	0.7903	0.7879	0.7270	0.7454	0.7269	0.7189	0.7652	0.6985	0.7450	4.476
S 13C8-PFOS	Linear	0.7137	0.7546	0.7912	0.7201	0.7735	0.8167	0.6829	0.7728	0.7532	5.909
S d5-EFOSAA	Linear	0.6302	0.6081	0.6178	0.6172	0.6210	0.6769	0.5686	0.6141	0.6192	4.797
S 13C8-FOSA	Linear	1.7538	1.5938	1.7258	1.6348	1.6338	1.6719	1.5682	1.6403	1.6528	3.784
S d7-MeFOSE	Linear	0.6867	0.6498	0.7120	0.6546	0.6687	0.6688	0.5965	0.6121	0.6561	5.736
S d3-MeFOSA	Linear	0.6243	0.5990	0.6188	0.6231	0.6151	0.6209	0.6012	0.6926	0.6244	4.675
S d9-EFOSE	Linear	0.8665	0.8296	0.8886	0.7917	0.8021	0.7952	0.7007	0.7397	0.8018	7.705
S d5-EFOSA	Linear	0.8058	0.7425	0.8013	0.7734	0.7622	0.7789	0.7360	0.7337	0.7667	3.673
I 13C3-PFBA											
S 13C4-PFBA	Linear	1.1568	1.1544	1.1564	1.1628	1.1436	1.1619	1.1553	1.1522	1.1554	0.518
I 1802-PFHxS											
S 13C2-4:2FTS	Linear	0.1129	0.1153	0.1170	0.1111	0.1183	0.1191	0.1123	0.1132	0.1149	2.588
S 13C3-PFBS	Linear	2.2665	2.3040	2.3580	2.4059	2.4195	2.3877	2.3536	2.3177	2.3516	2.248
S 13C2-6:2FTS	Linear	1.4406	0.1308	0.1465	0.1452	0.1401	0.1383	0.1339	0.1407	0.1395	3.772
S 13C3-PFHxS	Linear	1.3271	1.3864	1.3864	1.2862	1.2901	1.3283	1.3885	1.3092	1.3308	2.917
S 13C2-8:2FTS	Linear	0.1435	0.1461	0.1444	0.1534	0.1524	0.1529	0.1530	0.1545	0.1500	3.015
I 13C4-PFOA											
S 13C8-PFOA	Linear	0.9585	0.9611	0.9486	1.0038	0.9762	0.9130	0.9632	0.9945	0.9648	2.916
I 13C2-PFDA											
S 13C6-PFDA	Linear	0.7786	0.8626	0.8880	0.8692	0.7998	0.8172	0.7811	0.7994	0.8245	5.178
S 13C7-PFUDA	Linear	1.0685	0.9958	1.2025	1.0666	1.0377	1.0530	1.0243	0.9958	1.0555	6.235
S 13C2-PFDODA	Linear	1.0581	1.0451	1.0450	1.0252	1.0476	1.0464	1.0199	1.0342	1.0402	1.224
S 13C2-PFTeDA	Linear	0.7095	0.7556	0.7513	0.6867	0.6777	0.6779	0.6828	0.6881	0.7037	4.591
I 13C5-PFNA											
S 13C9-PFNA	Linear	0.9341	0.9486	0.9675	0.9838	1.0250	0.9371	0.8831	0.9444	0.9530	4.334
I 13C2-PFHxA											
S 13C5-PPeA	Linear	0.5571	0.5550	0.5831	0.5706	0.5635	0.5470	0.5535	0.5380	0.5585	2.502
S 13C5-PFHxA	Linear	1.1550	1.1888	1.2842	1.2108	1.2140	1.1963	1.2317	1.1655	1.2058	3.360
S 13C3-HPPO-DA	Linear	0.1732	0.1704	0.1838	0.1884	0.1763	0.1694	0.1790	0.1754	0.1770	3.692
S 13C4-PFHpA	Linear	1.0091	0.9868	1.1117	1.0591	1.0424	1.0061	0.9782	0.9878	1.0226	4.465

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

Initial Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICC258
 Lab FileID: 6Q17054.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	%RSE
S 13C4-PFBA	Linear	$y = 1.155425 * x$	
S 13C5-PFPeA	Linear	$y = 0.558470 * x$	
S 13C2-4:2FTS	Linear	$y = 0.114918 * x$	
S 13C3-PFBS	Linear	$y = 2.351622 * x$	
S 13C5-PFHxA	Linear	$y = 1.205792 * x$	
S 13C3-HFPO-DA	Linear	$y = 0.176981 * x$	
S 13C4-PFHpA	Linear	$y = 1.022642 * x$	
S 13C2-6:2FTS	Linear	$y = 0.139493 * x$	
S 13C8-PFOA	Linear	$y = 0.964849 * x$	
T PFOA	Linear	$y = 1.207189 * x - 0.032197$	5.8267
S 13C3-PFHxS	Linear	$y = 1.336806 * x$	
S 13C9-PFNA	Linear	$y = 0.952962 * x$	
S 13C2-8:2FTS	Linear	$y = 0.150038 * x$	
S 13C6-PFDA	Linear	$y = 0.824480 * x$	
S d3-MeFOSAA	Linear	$y = 0.745011 * x$	
S 13C8-PFOS	Linear	$y = 0.753188 * x$	
S d5-EFOSAA	Linear	$y = 0.619235 * x$	
S 13C7-PFUnDA	Linear	$y = 1.055532 * x$	
S 13C2-PFDoDA	Linear	$y = 1.040185 * x$	
S 13C8-FOSA	Linear	$y = 1.652821 * x$	
S 13C2-PFTeDA	Linear	$y = 0.703707 * x$	
S d7-MeFOSE	Linear	$y = 0.656143 * x$	
S d3-MeFOSA	Linear	$y = 0.624386 * x$	
S d9-EFOSE	Linear	$y = 0.801762 * x$	
S d5-EFOSA	Linear	$y = 0.766720 * x$	

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

Initial Calibration Verification

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17060.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17060
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.234	4.7	104.7
13C2-6:2FTS	5.000	5.301	6.0	106.0
13C2-8:2FTS	5.000	4.809	-3.8	96.2
13C2-PFDoDA	1.250	1.183	-5.4	94.6
13C2-PFTeDA	1.250	1.244	-0.4	99.6
13C3-PFBS	2.500	2.504	0.1	100.1
13C3-PFHxS	2.500	2.427	-2.9	97.1
13C4-PFBA	10.000	10.046	0.5	100.5
13C4-PFHpA	2.500	2.558	2.3	102.3
13C5-PFHxA	2.500	2.530	1.2	101.2
13C5-PFPeA	5.000	5.075	1.5	101.5
13C6-PFDA	1.250	1.242	-0.6	99.4
13C7-PFUnDA	1.250	1.170	-6.4	93.6
13C8-FOSA	2.500	2.671	6.9	106.9
13C8-PFOA	2.500	2.446	-2.2	97.8
13C8-PFOS	2.500	2.730	9.2	109.2
13C9-PFNA	1.250	1.182	-5.5	94.5
4:2FTS	9.375	9.308	-0.7	99.3
6:2FTS	9.500	9.660	1.7	101.7
8:2FTS	9.600	10.700	11.5	111.5
d3-MeFOSAA	5.000	5.154	3.1	103.1
EtFOSAA	2.500	2.414	-3.4	96.6
FOSA	2.500	2.487	-0.5	99.5
MeFOSAA	2.500	2.554	2.1	102.1
PFBA	10.000	10.284	2.8	102.8
PFBS	2.218	2.313	4.3	104.3
PFDA	2.500	2.799	12.0	112.0
PFDoDA	2.500	2.618	4.7	104.7
PFDS	2.413	2.277	-5.6	94.4
PFHpA	2.500	2.604	4.2	104.2
PFHpS	2.383	2.331	-2.2	97.8
PFHxA	2.500	2.460	-1.6	98.4
PFHxS	2.285	2.364	3.4	103.4
PFNA	2.500	2.371	-5.1	94.9
PFNS	2.405	2.305	-4.2	95.8
PFOA	2.500	2.418	-3.3	96.7
PFOS	2.320	2.101	-9.5	90.5

Initial Calibration Verification

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17060.D

PFPeA	5.000	5.052	1.0	101.0
PFPeS	2.353	2.508	6.6	106.6
PFTeDA	2.500	2.513	0.5	100.5
PFTTrDA	2.500	2.674	7.0	107.0
PFUnDA	2.500	2.679	7.2	107.2
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	4.865	3.0	103.0
13C3-HFPO-DA	10.000	9.937	-0.6	99.4
9C1-PF3ONS	4.675	4.608	-1.4	98.6
ADONA	4.725	5.002	5.9	105.9
HFPO-DA	5.000	4.983	-0.3	99.7
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.498	0.1	100.1
5:3FTCA	62.400	65.148	4.4	104.4
7:3FTCA	62.400	62.032	-0.6	99.4
d3-MeFOSA	2.500	2.506	0.2	100.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.761	-4.8	95.2
EtFOSE	12.500	12.382	-0.9	99.1
MeFOSA	5.000	5.161	3.2	103.2
MeFOSE	12.500	12.211	-2.3	97.7
PFDoDS	2.425	2.321	-4.3	95.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.349	7.0	107.0
d7-MeFOSE	25.000	26.758	7.0	107.0
d9-EtFOSE	25.000	25.966	3.9	103.9
d5-EtFOSA	2.500	2.685	7.4	107.4
NFDHA	5.000	5.183	3.7	103.7
PFMBA	5.000	5.052	1.0	101.0
PFMPA	5.000	5.075	1.5	101.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.519	1.6	101.6

CC Criteria: +/- 30%

Initial Calibration Verification

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17061.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17061
 Type : QC
 Level : 20

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	4.978	-0.4	99.6
13C2-6:2FTS	5.000	5.087	1.7	101.7
13C2-8:2FTS	5.000	5.498	10.0	110.0
13C2-PFDoDA	1.250	1.324	5.9	105.9
13C2-PFTeDA	1.250	1.283	2.6	102.6
13C3-PFBS	2.500	2.511	0.4	100.4
13C3-PFHxS	2.500	2.501	0.0	100.0
13C4-PFBA	10.000	10.058	0.6	100.6
13C4-PFHpA	2.500	2.401	-4.0	96.0
13C5-PFHxA	2.500	2.424	-3.0	97.0
13C5-PFPeA	5.000	5.018	0.4	100.4
13C6-PFDA	1.250	1.293	3.5	103.5
13C7-PFUnDA	1.250	1.247	-0.3	99.7
13C8-FOSA	2.500	2.609	4.4	104.4
13C8-PFOA	2.500	2.400	-4.0	96.0
13C8-PFOS	2.500	2.644	5.8	105.8
13C9-PFNA	1.250	1.152	-7.8	92.2
4:2FTS	20.000	22.440	12.2	112.2
6:2FTS	20.000	20.540	2.7	102.7
8:2FTS	20.000	18.805	-6.0	94.0
d3-MeFOSAA	5.000	5.415	8.3	108.3
EtFOSAA	20.000	20.650	3.3	103.3
FOSA	20.000	22.297	11.5	111.5
MeFOSAA	20.000	21.114	5.6	105.6
PFBA	20.000	20.356	1.8	101.8
PFBS	20.000	22.108	10.5	110.5
PFDA	20.000	22.578	12.9	112.9
PFDoDA	20.000	16.948	-15.3	84.7
PFDS	20.000	21.172	5.9	105.9
PFHpA	20.000	21.830	9.1	109.1
PFHpS	20.000	20.356	1.8	101.8
PFHxA	20.000	21.281	6.4	106.4
PFHxS	20.000	22.516	12.6	112.6
PFNA	20.000	20.748	3.7	103.7
PFNS	20.000	22.361	11.8	111.8
PFOA	20.000	20.811	4.1	104.1
PFOS	20.000	19.189	-4.1	95.9

Initial Calibration Verification

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-ICV258
 Lab FileID: 6Q17061.D

PFPeA	20.000	22.219	11.1	111.1
PFPeS	20.000	22.436	12.2	112.2
PFTeDA	20.000	21.508	7.5	107.5
PFTTrDA	20.000	18.424	-7.9	92.1
PFUnDA	20.000	21.105	5.5	105.5
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	20.000	20.934	4.7	104.7
13C3-HFPO-DA	10.000	10.271	2.7	102.7
9C1-PF3ONS	20.000	21.243	6.2	106.2
ADONA	20.000	20.743	3.7	103.7
HFPO-DA	20.000	18.852	-5.7	94.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	20.000	20.761	3.8	103.8
5:3FTCA	20.000	24.581	22.9	122.9
7:3FTCA	20.000	22.291	11.5	111.5
d3-MeFOSA	2.500	2.648	5.9	105.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	20.000	20.742	3.7	103.7
EtFOSE	100.000	110.844	10.8	110.8
MeFOSA	20.000	20.657	3.3	103.3
MeFOSE	100.000	112.253	12.3	112.3
PFDODS	20.000	20.303	1.5	101.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.698	14.0	114.0
d7-MeFOSE	25.000	25.753	3.0	103.0
d9-EtFOSE	25.000	25.659	2.6	102.6
d5-EtFOSA	2.500	2.632	5.3	105.3
NFDHA	20.000	22.831	14.2	114.2
PFMBA	20.000	21.829	9.1	109.1
PFMPA	20.000	21.503	7.5	107.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	20.000	19.879	-0.6	99.4

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17062.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17062
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.117	2.3	102.3
13C2-6:2FTS	5.000	5.440	8.8	108.8
13C2-8:2FTS	5.000	4.852	-3.0	97.0
13C2-PFDoDA	1.250	1.216	-2.7	97.3
13C2-PFTeDA	1.250	1.258	0.6	100.6
13C3-PFBS	2.500	2.512	0.5	100.5
13C3-PFHxS	2.500	2.533	1.3	101.3
13C4-PFBA	10.000	10.068	0.7	100.7
13C4-PFHpA	2.500	2.468	-1.3	98.7
13C5-PFHxA	2.500	2.432	-2.7	97.3
13C5-PFPeA	5.000	4.946	-1.1	98.9
13C6-PFDA	1.250	1.230	-1.6	98.4
13C7-PFUnDA	1.250	1.274	1.9	101.9
13C8-FOSA	2.500	2.643	5.7	105.7
13C8-PFOA	2.500	2.604	4.1	104.1
13C8-PFOS	2.500	2.616	4.6	104.6
13C9-PFNA	1.250	1.262	1.0	101.0
4:2FTS	9.375	9.528	1.6	101.6
6:2FTS	9.500	9.026	-5.0	95.0
8:2FTS	9.600	10.083	5.0	105.0
d3-MeFOSAA	5.000	5.612	12.2	112.2
EtFOSAA	2.500	2.377	-4.9	95.1
FOSA	2.500	2.471	-1.2	98.8
MeFOSAA	2.500	2.430	-2.8	97.2
PFBA	10.000	10.213	2.1	102.1
PFBS	2.218	2.251	1.5	101.5
PFDA	2.500	2.532	1.3	101.3
PFDoDA	2.500	2.457	-1.7	98.3
PFDS	2.413	2.594	7.5	107.5
PFHpA	2.500	2.496	-0.1	99.9
PFHpS	2.383	2.402	0.8	100.8
PFHxA	2.500	2.478	-0.9	99.1
PFHxS	2.285	2.240	-2.0	98.0
PFNA	2.500	2.570	2.8	102.8
PFNS	2.405	2.409	0.2	100.2
PFOA	2.500	2.424	-3.0	97.0
PFOS	2.320	2.532	9.2	109.2

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17062.D

PFPeA	5.000	5.020	0.4	100.4
PFPeS	2.353	2.307	-1.9	98.1
PFTeDA	2.500	2.622	4.9	104.9
PFTTrDA	2.500	2.440	-2.4	97.6
PFUnDA	2.500	2.599	4.0	104.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.762	0.8	100.8
13C3-HFPO-DA	10.000	9.627	-3.7	96.3
9C1-PF3ONS	4.675	4.885	4.5	104.5
ADONA	4.725	4.763	0.8	100.8
HFPO-DA	5.000	5.016	0.3	100.3
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.039	-3.5	96.5
5:3FTCA	62.400	66.731	6.9	106.9
7:3FTCA	62.400	62.565	0.3	100.3
d3-MeFOSA	2.500	2.523	0.9	100.9
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.111	2.2	102.2
EtFOSE	12.500	13.178	5.4	105.4
MeFOSA	5.000	5.351	7.0	107.0
MeFOSE	12.500	12.828	2.6	102.6
PFDoDS	2.425	2.532	4.4	104.4
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.712	14.2	114.2
d7-MeFOSE	25.000	26.214	4.9	104.9
d9-EtFOSE	25.000	25.998	4.0	104.0
d5-EtFOSA	2.500	2.657	6.3	106.3
NFDHA	5.000	4.959	-0.8	99.2
PFMBA	5.000	4.948	-1.0	99.0
PFMPA	5.000	4.896	-2.1	97.9
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.664	4.8	104.8

CC Criteria: +/- 30%

6.8.10
6

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17063.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17063
 Type : QC
 Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.216	4.3	104.3
13C2-6:2FTS	5.000	5.074	1.5	101.5
13C2-8:2FTS	5.000	5.844	16.9	116.9
13C2-PFDoDA	1.250	1.296	3.6	103.6
13C2-PFTeDA	1.250	1.161	-7.1	92.9
13C3-PFBS	2.500	2.452	-1.9	98.1
13C3-PFHxS	2.500	2.586	3.4	103.4
13C4-PFBA	10.000	10.014	0.1	100.1
13C4-PFHpA	2.500	2.542	1.7	101.7
13C5-PFHxA	2.500	2.551	2.0	102.0
13C5-PFPeA	5.000	5.026	0.5	100.5
13C6-PFDA	1.250	1.288	3.1	103.1
13C7-PFUnDA	1.250	1.350	8.0	108.0
13C8-FOSA	2.500	2.520	0.8	100.8
13C8-PFOA	2.500	2.496	-0.2	99.8
13C8-PFOS	2.500	2.494	-0.3	99.7
13C9-PFNA	1.250	1.251	0.1	100.1
4:2FTS	0.750	0.615	-18.0	82.0
6:2FTS	0.760	0.616	-18.9	81.1
8:2FTS	0.768	0.572	-25.5	74.5
d3-MeFOSAA	5.000	5.070	1.4	101.4
EtFOSAA	0.200	0.179	-10.7	89.3
FOSA	0.200	0.170	-15.1	84.9
MeFOSAA	0.200	0.151	-24.6	75.4
PFBA	0.800	0.643	-19.6	80.4
PFBS	0.177	0.153	-13.4	86.6
PFDA	0.200	0.196	-2.0	98.0
PFDoDA	0.200	0.166	-17.1	82.9
PFDS	0.193	0.169	-12.3	87.7
PFHpA	0.200	0.148	-25.8	74.2
PFHpS	0.191	0.135	-29.5	70.5
PFHxA	0.200	0.146	-26.9	73.1
PFHxS	0.183	0.153	-16.6	83.4
PFNA	0.200	0.163	-18.3	81.7
PFNS	0.192	0.136	-29.2	70.8
PFOA	0.200	0.174	-13.0	87.0
PFOS	0.186	0.175	-5.9	94.1

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17063.D

PFPeA	0.400	0.339	-15.3	84.7
PFPeS	0.188	0.147	-21.9	78.1
PFTeDA	0.200	0.190	-5.0	95.0
PFTTrDA	0.200	0.161	-19.7	80.3
PFUnDA	0.200	0.164	-17.9	82.1
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	0.330	-12.8	87.2
13C3-HFPO-DA	10.000	9.619	-3.8	96.2
9C1-PF3ONS	0.367	0.374	1.7	101.7
ADONA	0.378	0.318	-15.8	84.2
HFPO-DA	0.400	0.308	-23.0	77.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	0.998	0.800	-19.8	80.2
5:3FTCA	4.992	4.515	-9.5	90.5
7:3FTCA	4.992	3.849	-22.9	77.1
d3-MeFOSA	2.500	2.454	-1.9	98.1
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	0.400	0.346	-13.5	86.5
EtFOSE	1.000	0.831	-16.9	83.1
MeFOSA	0.400	0.341	-14.8	85.2
MeFOSE	1.000	0.886	-11.4	88.6
PFDoDS	0.194	0.157	-19.0	81.0
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.828	-3.4	96.6
d7-MeFOSE	25.000	24.571	-1.7	98.3
d9-EtFOSE	25.000	25.161	0.6	100.6
d5-EtFOSA	2.500	2.422	-3.1	96.9
NFDHA	0.400	0.315	-21.3	78.7
PFMBA	0.400	0.313	-21.8	78.2
PFMPA	0.400	0.323	-19.3	80.7
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	0.356	0.266	-25.2	74.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17070.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17070
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.197	3.9	103.9
13C2-6:2FTS	5.000	5.218	4.4	104.4
13C2-8:2FTS	5.000	5.006	0.1	100.1
13C2-PFDoDA	1.250	1.258	0.6	100.6
13C2-PFTeDA	1.250	1.303	4.3	104.3
13C3-PFBS	2.500	2.496	-0.1	99.9
13C3-PFHxS	2.500	2.433	-2.7	97.3
13C4-PFBA	10.000	9.868	-1.3	98.7
13C4-PFHpA	2.500	2.388	-4.5	95.5
13C5-PFHxA	2.500	2.401	-3.9	96.1
13C5-PFPeA	5.000	4.967	-0.7	99.3
13C6-PFDA	1.250	1.254	0.3	100.3
13C7-PFUnDA	1.250	1.365	9.2	109.2
13C8-FOSA	2.500	2.465	-1.4	98.6
13C8-PFOA	2.500	2.643	5.7	105.7
13C8-PFOS	2.500	2.609	4.3	104.3
13C9-PFNA	1.250	1.289	3.1	103.1
4:2FTS	9.375	9.249	-1.3	98.7
6:2FTS	9.500	9.591	1.0	101.0
8:2FTS	9.600	9.427	-1.8	98.2
d3-MeFOSAA	5.000	4.707	-5.9	94.1
EtFOSAA	2.500	2.515	0.6	100.6
FOSA	2.500	2.438	-2.5	97.5
MeFOSAA	2.500	2.649	6.0	106.0
PFBA	10.000	10.182	1.8	101.8
PFBS	2.218	2.255	1.7	101.7
PFDA	2.500	2.787	11.5	111.5
PFDoDA	2.500	2.473	-1.1	98.9
PFDS	2.413	2.360	-2.2	97.8
PFHpA	2.500	2.659	6.4	106.4
PFHpS	2.383	2.138	-10.3	89.7
PFHxA	2.500	2.565	2.6	102.6
PFHxS	2.285	2.328	1.9	101.9
PFNA	2.500	2.298	-8.1	91.9
PFNS	2.405	2.328	-3.2	96.8
PFOA	2.500	2.522	0.9	100.9
PFOS	2.320	2.093	-9.8	90.2

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17070.D

PFPeA	5.000	5.126	2.5	102.5
PFPeS	2.353	2.519	7.1	107.1
PFTeDA	2.500	2.425	-3.0	97.0
PFTTrDA	2.500	2.702	8.1	108.1
PFUnDA	2.500	2.300	-8.0	92.0
M4-PFBA	---	--ISTD--		
M5-PFPeA	---	--ISTD--		
M5-PFHxA	---	--ISTD--		
M4-PFHpA	---	--ISTD--		
M8-PFOA	---	--ISTD--		
M9-PFNA	---	--ISTD--		
M6-PFDA	---	--ISTD--		
M7-PFUnDA	---	--ISTD--		
M2-PFDoDA	---	--ISTD--		
M2-PFTeDA	---	--ISTD--		
M8-FOSA	---	--ISTD--		
M3-PFBS	---	--ISTD--		
M3-PFHxS	---	--ISTD--		
M8-PFOS	---	--ISTD--		
M2-4:2FTS	---	--ISTD--		
M2-6:2FTS	---	--ISTD--		
M2-8:2FTS	---	--ISTD--		
M3-MeFOSAA	---	--ISTD--		
11C1-PF3OUdS	4.725	4.593	-2.8	97.2
13C3-HFPO-DA	10.000	9.931	-0.7	99.3
9C1-PF3ONS	4.675	4.761	1.8	101.8
ADONA	4.725	4.713	-0.2	99.8
HFPO-DA	5.000	4.705	-5.9	94.1
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.414	-0.5	99.5
5:3FTCA	62.400	66.308	6.3	106.3
7:3FTCA	62.400	66.964	7.3	107.3
d3-MeFOSA	2.500	2.342	-6.3	93.7
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.995	-0.1	99.9
EtFOSE	12.500	12.438	-0.5	99.5
MeFOSA	5.000	5.111	2.2	102.2
MeFOSE	12.500	12.766	2.1	102.1
PFDoDS	2.425	2.346	-3.3	96.7
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	4.910	-1.8	98.2
d7-MeFOSE	25.000	24.249	-3.0	97.0
d9-EtFOSE	25.000	25.030	0.1	100.1
d5-EtFOSA	2.500	2.414	-3.5	96.5
NFDHA	5.000	5.303	6.1	106.1
PFMBA	5.000	5.082	1.6	101.6
PFMPA	5.000	5.100	2.0	102.0
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.785	7.5	107.5

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17082.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17082
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.405	8.1	108.1
13C2-6:2FTS	5.000	5.147	2.9	102.9
13C2-8:2FTS	5.000	5.407	8.1	108.1
13C2-PFDoDA	1.250	1.237	-1.0	99.0
13C2-PFTeDA	1.250	1.221	-2.3	97.7
13C3-PFBS	2.500	2.558	2.3	102.3
13C3-PFHxS	2.500	2.546	1.8	101.8
13C4-PFBA	10.000	9.946	-0.5	99.5
13C4-PFHpA	2.500	2.492	-0.3	99.7
13C5-PFHxA	2.500	2.563	2.5	102.5
13C5-PFPeA	5.000	5.170	3.4	103.4
13C6-PFDA	1.250	1.211	-3.1	96.9
13C7-PFUnDA	1.250	1.144	-8.5	91.5
13C8-FOSA	2.500	2.780	11.2	111.2
13C8-PFOA	2.500	2.548	1.9	101.9
13C8-PFOS	2.500	2.579	3.1	103.1
13C9-PFNA	1.250	1.227	-1.8	98.2
4:2FTS	9.375	9.127	-2.6	97.4
6:2FTS	9.500	9.088	-4.3	95.7
8:2FTS	9.600	9.312	-3.0	97.0
d3-MeFOSAA	5.000	5.919	18.4	118.4
EtFOSAA	2.500	2.621	4.8	104.8
FOSA	2.500	2.431	-2.8	97.2
MeFOSAA	2.500	2.312	-7.5	92.5
PFBA	10.000	10.228	2.3	102.3
PFBS	2.218	2.351	6.0	106.0
PFDA	2.500	2.731	9.2	109.2
PFDoDA	2.500	2.327	-6.9	93.1
PFDS	2.413	2.578	6.8	106.8
PFHpA	2.500	2.551	2.0	102.0
PFHpS	2.383	2.449	2.8	102.8
PFHxA	2.500	2.399	-4.0	96.0
PFHxS	2.285	2.310	1.1	101.1
PFNA	2.500	2.402	-3.9	96.1
PFNS	2.405	2.564	6.6	106.6
PFOA	2.500	2.390	-4.4	95.6
PFOS	2.320	2.448	5.5	105.5

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17082.D

PFPeA	5.000	5.022	0.4	100.4
PFPeS	2.353	2.475	5.2	105.2
PFTeDA	2.500	2.525	1.0	101.0
PFTTrDA	2.500	2.519	0.7	100.7
PFUnDA	2.500	2.957	18.3	118.3
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	5.020	6.2	106.2
13C3-HFPO-DA	10.000	9.626	-3.7	96.3
9C1-PF3ONS	4.675	5.272	12.8	112.8
ADONA	4.725	5.162	9.3	109.3
HFPO-DA	5.000	4.990	-0.2	99.8
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.061	-3.4	96.6
5:3FTCA	62.400	63.964	2.5	102.5
7:3FTCA	62.400	63.816	2.3	102.3
d3-MeFOSA	2.500	2.801	12.0	112.0
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	5.054	1.1	101.1
EtFOSE	12.500	12.694	1.6	101.6
MeFOSA	5.000	4.720	-5.6	94.4
MeFOSE	12.500	12.210	-2.3	97.7
PFDODS	2.425	2.801	15.5	115.5
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.321	6.4	106.4
d7-MeFOSE	25.000	27.528	10.1	110.1
d9-EtFOSE	25.000	27.011	8.0	108.0
d5-EtFOSA	2.500	2.659	6.4	106.4
NFDHA	5.000	5.007	0.1	100.1
PFMBA	5.000	4.995	-0.1	99.9
PFMPA	5.000	4.940	-1.2	98.8
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEESA	4.450	4.409	-0.9	99.1

CC Criteria: +/- 30%

6.8.13

6

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17091.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\042823_1633_S6Q258\s6q258.batch.bin

Level ID: Calibration File

1:D:\MassHunter\Data\042823_1633_S6Q258\6Q17051.d
 2:D:\MassHunter\Data\042823_1633_S6Q258\6Q17052.d
 3:D:\MassHunter\Data\042823_1633_S6Q258\6Q17053.d
 4:D:\MassHunter\Data\042823_1633_S6Q258\6Q17054.d
 5:D:\MassHunter\Data\042823_1633_S6Q258\6Q17055.d
 6:D:\MassHunter\Data\042823_1633_S6Q258\6Q17056.d
 7:D:\MassHunter\Data\042823_1633_S6Q258\6Q17057.d
 8:D:\MassHunter\Data\042823_1633_S6Q258\6Q17058.d

Data File: 6Q17091
 Type : QC
 Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
13C2-4:2FTS	5.000	5.054	1.1	101.1
13C2-6:2FTS	5.000	5.735	14.7	114.7
13C2-8:2FTS	5.000	5.465	9.3	109.3
13C2-PFDoDA	1.250	1.142	-8.7	91.3
13C2-PFTeDA	1.250	1.118	-10.5	89.5
13C3-PFBS	2.500	2.554	2.2	102.2
13C3-PFHxS	2.500	2.496	-0.2	99.8
13C4-PFBA	10.000	9.960	-0.4	99.6
13C4-PFHpA	2.500	2.545	1.8	101.8
13C5-PFHxA	2.500	2.439	-2.5	97.5
13C5-PFPeA	5.000	5.034	0.7	100.7
13C6-PFDA	1.250	1.133	-9.3	90.7
13C7-PFUnDA	1.250	1.102	-11.9	88.1
13C8-FOSA	2.500	2.485	-0.6	99.4
13C8-PFOA	2.500	2.345	-6.2	93.8
13C8-PFOS	2.500	2.588	3.5	103.5
13C9-PFNA	1.250	1.233	-1.3	98.7
4:2FTS	9.375	10.187	8.7	108.7
6:2FTS	9.500	9.225	-2.9	97.1
8:2FTS	9.600	9.489	-1.2	98.8
d3-MeFOSAA	5.000	4.980	-0.4	99.6
EtFOSAA	2.500	2.252	-9.9	90.1
FOSA	2.500	2.600	4.0	104.0
MeFOSAA	2.500	2.689	7.5	107.5
PFBA	10.000	10.222	2.2	102.2
PFBS	2.218	2.385	7.5	107.5
PFDA	2.500	2.461	-1.6	98.4
PFDoDA	2.500	2.479	-0.8	99.2
PFDS	2.413	2.314	-4.1	95.9
PFHpA	2.500	2.423	-3.1	96.9
PFHpS	2.383	2.264	-5.0	95.0
PFHxA	2.500	2.518	0.7	100.7
PFHxS	2.285	2.321	1.6	101.6
PFNA	2.500	2.485	-0.6	99.4
PFNS	2.405	2.312	-3.9	96.1
PFOA	2.500	2.350	-6.0	94.0
PFOS	2.320	2.144	-7.6	92.4

Continuing Calibration Summary

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Sample: S6Q258-CC258
 Lab FileID: 6Q17091.D

PFPeA	5.000	5.040	0.8	100.8
PFPeS	2.353	2.501	6.3	106.3
PFTeDA	2.500	2.469	-1.2	98.8
PFTTrDA	2.500	2.573	2.9	102.9
PFUnDA	2.500	2.608	4.3	104.3
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	5.033	6.5	106.5
13C3-HFPO-DA	10.000	9.510	-4.9	95.1
9C1-PF3ONS	4.675	5.106	9.2	109.2
ADONA	4.725	5.025	6.3	106.3
HFPO-DA	5.000	4.900	-2.0	98.0
M3-HFPO-DA	---	--ISTD--		
3:3FTCA	12.480	12.318	-1.3	98.7
5:3FTCA	62.400	65.017	4.2	104.2
7:3FTCA	62.400	64.873	4.0	104.0
d3-MeFOSA	2.500	2.305	-7.8	92.2
M5-EtFOSAA	---	--ISTD--		
M7-MeFOSE	---	--ISTD--		
M9-EtFOSE	---	--ISTD--		
M5-EtFOSA	---	--ISTD--		
EtFOSA	5.000	4.980	-0.4	99.6
EtFOSE	12.500	13.005	4.0	104.0
MeFOSA	5.000	5.444	8.9	108.9
MeFOSE	12.500	12.305	-1.6	98.4
PFDODS	2.425	2.350	-3.1	96.9
M3-MeFOSA	---	--ISTD--		
d5-EtFOSAA	5.000	5.152	3.0	103.0
d7-MeFOSE	25.000	24.976	-0.1	99.9
d9-EtFOSE	25.000	24.333	-2.7	97.3
d5-EtFOSA	2.500	2.531	1.2	101.2
NFDHA	5.000	5.196	3.9	103.9
PFMBA	5.000	5.097	1.9	101.9
PFMPA	5.000	4.977	-0.5	99.5
13C4-PFOS	---	--ISTD--		
13C3-PFBA	---	--ISTD--		
18O2-PFHxS	---	--ISTD--		
13C4-PFOA	---	--ISTD--		
13C2-PFDA	---	--ISTD--		
13C5-PFNA	---	--ISTD--		
13C2-PFHxA	---	--ISTD--		
PFEEESA	4.450	4.417	-0.7	99.3

CC Criteria: +/- 30%

6.8.14
6

Run Sequence Report

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q634	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q634-RT	4Q43881.D	05/03/23 10:23	n/a	Retention Time Marker
S4Q634-RT	4Q43882.D	05/03/23 10:37	n/a	Retention Time Marker
S4Q634-IC634	4Q43883.D	05/03/23 10:58	n/a	Mass Calibration Verification
S4Q634-IC634	4Q43884.D	05/03/23 11:12	n/a	Initial cal 1
S4Q634-IC634	4Q43885.D	05/03/23 11:26	n/a	Initial cal 2
S4Q634-IC634	4Q43886.D	05/03/23 11:40	n/a	Initial cal 3
S4Q634-ICC634	4Q43887.D	05/03/23 11:54	n/a	Initial cal 4
S4Q634-IC634	4Q43888.D	05/03/23 12:08	n/a	Initial cal 5
S4Q634-IC634	4Q43889.D	05/03/23 12:22	n/a	Initial cal 6
S4Q634-IC634	4Q43890.D	05/03/23 12:36	n/a	Initial cal 7
S4Q634-IC634	4Q43891.D	05/03/23 12:50	n/a	Initial cal 8
S4Q634-IBLK	4Q43892.D	05/03/23 13:04	n/a	Instrument Blank
S4Q634-IBLK	4Q43892.D	05/03/23 13:04	n/a	Instrument Blank
S4Q634-ICV634	4Q43894.D	05/03/23 13:20	n/a	Initial cal verification 20
S4Q634-ICV634	4Q43895.D	05/03/23 13:35	n/a	Initial cal verification 4
S4Q634-CC634	4Q43897.D	05/03/23 13:51	n/a	Continuing cal 1.0LL
OP96662-BS	4Q43898.D	05/03/23 14:05	OP96662	Blank Spike
OP96662-LLBS	4Q43899.D	05/03/23 14:19	OP96662	Blank Spike
OP96662-MB	4Q43900.D	05/03/23 14:33	OP96662	Method Blank
ZZZZZZ	4Q43901.D	05/03/23 14:47	OP96662	(unrelated sample)
ZZZZZZ	4Q43902.D	05/03/23 15:01	OP96662	(unrelated sample)
ZZZZZZ	4Q43903.D	05/03/23 15:15	OP96662	(unrelated sample)
ZZZZZZ	4Q43904.D	05/03/23 15:29	OP96662	(unrelated sample)
FC5685-3	4Q43905.D	05/03/23 15:43	OP96662	(used for QC only; not part of job FC5578)
OP96662-MS	4Q43906.D	05/03/23 15:57	OP96662	Matrix Spike
S4Q634-CC634	4Q43907.D	05/03/23 16:11	n/a	Continuing cal 4
S4Q634-ICCB	4Q43908.D	05/03/23 16:25	n/a	Continuing Calibration Blank
FC5685-4	4Q43909.D	05/03/23 16:39	OP96662	(used for QC only; not part of job FC5578)
OP96662-DUP	4Q43910.D	05/03/23 16:54	OP96662	Duplicate
ZZZZZZ	4Q43911.D	05/03/23 17:08	OP96662	(unrelated sample)
OP96659-BS	4Q43912.D	05/03/23 17:22	OP96659	Blank Spike
OP96659-LLBS	4Q43913.D	05/03/23 17:36	OP96659	Blank Spike
OP96659-MB	4Q43914.D	05/03/23 17:50	OP96659	Method Blank
ZZZZZZ	4Q43916.D	05/03/23 18:18	OP96659	(unrelated sample)
S4Q634-CC634	4Q43917.D	05/03/23 18:32	n/a	Continuing cal 4
S4Q634-ICCB	4Q43918.D	05/03/23 18:46	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43918.D	05/03/23 18:46	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43919.D	05/03/23 19:00	OP96659	(unrelated sample)
ZZZZZZ	4Q43920.D	05/03/23 19:14	OP96659	(unrelated sample)
ZZZZZZ	4Q43921.D	05/03/23 19:28	OP96659	(unrelated sample)
ZZZZZZ	4Q43922.D	05/03/23 19:42	OP96659	(unrelated sample)
OP96657-BS	4Q43923.D	05/03/23 19:56	OP96657	Blank Spike
OP96657-LLBS	4Q43924.D	05/03/23 20:10	OP96657	Blank Spike
OP96657-MB	4Q43925.D	05/03/23 20:24	OP96657	Method Blank
ZZZZZZ	4Q43926.D	05/03/23 20:38	OP96657	(unrelated sample)
S4Q634-CC634	4Q43927.D	05/03/23 20:53	n/a	Continuing cal 4

Run Sequence Report

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q634	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q634-ICCB	4Q43928.D	05/03/23 21:07	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43928.D	05/03/23 21:07	n/a	Continuing Calibration Blank
FC5371-11	4Q43929.D	05/03/23 21:21	OP96657	(used for QC only; not part of job FC5578)
OP96657-MS	4Q43930.D	05/03/23 21:35	OP96657	Matrix Spike
OP96657-MSD	4Q43931.D	05/03/23 21:49	OP96657	Matrix Spike Duplicate
ZZZZZZ	4Q43932.D	05/03/23 22:03	OP96657	(unrelated sample)
ZZZZZZ	4Q43933.D	05/03/23 22:17	OP96657	(unrelated sample)
ZZZZZZ	4Q43935.D	05/03/23 22:45	OP96657	(unrelated sample)
ZZZZZZ	4Q43936.D	05/03/23 22:59	OP96657	(unrelated sample)
ZZZZZZ	4Q43938.D	05/03/23 23:27	OP96657	(unrelated sample)
S4Q634-CC634	4Q43939.D	05/03/23 23:41	n/a	Continuing cal 4
S4Q634-ICCB	4Q43940.D	05/03/23 23:55	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43940.D	05/03/23 23:55	n/a	Continuing Calibration Blank
ZZZZZZ	4Q43941.D	05/04/23 00:09	OP96657	(unrelated sample)
FC5371-20	4Q43942.D	05/04/23 00:23	OP96657	(used for QC only; not part of job FC5578)
OP96657-MS2	4Q43943.D	05/04/23 00:37	OP96657	Matrix Spike
OP96657-MSD2	4Q43944.D	05/04/23 00:51	OP96657	Matrix Spike Duplicate
ZZZZZZ	4Q43945.D	05/04/23 01:05	OP96657	(unrelated sample)
S4Q634-ECC634	4Q43946.D	05/04/23 01:19	n/a	Ending cal 4
S4Q634-ICCB	4Q43947.D	05/04/23 01:34	n/a	Continuing Calibration Blank
S4Q634-ICCB	4Q43947.D	05/04/23 01:34	n/a	Continuing Calibration Blank

6.9.1
6

Run Sequence Report

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S4Q635	Method: EPA DRAFT 1633	Instrument ID: GCMS4Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S4Q635-RT	4Q43950.D	05/04/23 11:51	n/a	Retention Time Marker
S4Q635-RT	4Q43951.D	05/04/23 12:05	n/a	Retention Time Marker
S4Q635-IBLK	4Q43953.D	05/04/23 12:33	n/a	Instrument Blank
S4Q635-IBLK	4Q43953.D	05/04/23 12:33	n/a	Instrument Blank
S4Q635-CC634	4Q43954.D	05/04/23 12:47	n/a	Continuing cal 4
S4Q635-CC634	4Q43955.D	05/04/23 13:02	n/a	Continuing cal 1.0LL
OP96698-BS	4Q43956.D	05/04/23 13:16	OP96698	Blank Spike
OP96698-LLBS	4Q43957.D	05/04/23 13:30	OP96698	Blank Spike
OP96698-MB	4Q43958.D	05/04/23 13:44	OP96698	Method Blank
FC5578-1	4Q43959.D	05/04/23 13:58	OP96698	AF-HDMW225303-WGN01LF-2304W4
ZZZZZZ	4Q43960.D	05/04/23 14:12	OP96698	(unrelated sample)
ZZZZZZ	4Q43961.D	05/04/23 14:28	OP96698	(unrelated sample)
ZZZZZZ	4Q43963.D	05/04/23 14:56	OP96698	(unrelated sample)
ZZZZZZ	4Q43965.D	05/04/23 15:24	OP96698	(unrelated sample)
S4Q635-CC634	4Q43966.D	05/04/23 15:38	n/a	Continuing cal 4
S4Q635-ICCB	4Q43967.D	05/04/23 15:52	n/a	Continuing Calibration Blank
OP96701-BS	4Q43968.D	05/04/23 16:06	OP96701	Blank Spike
OP96701-LLBS	4Q43969.D	05/04/23 16:20	OP96701	Blank Spike
OP96701-MB	4Q43970.D	05/04/23 16:35	OP96701	Method Blank
ZZZZZZ	4Q43971.D	05/04/23 16:49	OP96701	(unrelated sample)
FC5726-2	4Q43972.D	05/04/23 17:03	OP96701	(used for QC only; not part of job FC5578)
OP96701-MS	4Q43973.D	05/04/23 17:17	OP96701	Matrix Spike
FC5726-3	4Q43974.D	05/04/23 17:31	OP96701	(used for QC only; not part of job FC5578)
OP96701-DUP	4Q43975.D	05/04/23 17:45	OP96701	Duplicate
ZZZZZZ	4Q43976.D	05/04/23 17:59	OP96701	(unrelated sample)
ZZZZZZ	4Q43977.D	05/04/23 18:13	OP96701	(unrelated sample)
S4Q635-CC634	4Q43978.D	05/04/23 18:27	n/a	Continuing cal 4
S4Q635-ICCB	4Q43979.D	05/04/23 18:41	n/a	Continuing Calibration Blank
S4Q635-ICCB	4Q43979.D	05/04/23 18:41	n/a	Continuing Calibration Blank
FC5685-4	4Q43980.D	05/04/23 18:55	OP96662	(used for QC only; not part of job FC5578)
OP96657-BS	4Q43982.D	05/04/23 19:23	OP96657	Blank Spike
OP96657-LLBS	4Q43983.D	05/04/23 19:37	OP96657	Blank Spike
ZZZZZZ	4Q43984.D	05/04/23 19:51	OP96657	(unrelated sample)
ZZZZZZ	4Q43985.D	05/04/23 20:05	OP96657	(unrelated sample)
ZZZZZZ	4Q43986.D	05/04/23 20:20	OP96657	(unrelated sample)
ZZZZZZ	4Q43987.D	05/04/23 20:34	OP96657	(unrelated sample)
ZZZZZZ	4Q43988.D	05/04/23 20:48	OP96657	(unrelated sample)
S4Q635-ECC634	4Q43989.D	05/04/23 21:02	n/a	Ending cal 4
S4Q635-ICCB	4Q43990.D	05/04/23 21:16	n/a	Continuing Calibration Blank
S4Q635-ICCB	4Q43990.D	05/04/23 21:16	n/a	Continuing Calibration Blank

Run Sequence Report

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q		
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
S6Q258-RT	6Q17048.D	04/28/23 12:06	n/a	Retention Time Marker
S6Q258-RT	6Q17049.D	04/28/23 12:21	n/a	Retention Time Marker
S6Q258-IC258	6Q17050.D	04/28/23 12:35	n/a	Mass Calibration Verification
S6Q258-IC258	6Q17051.D	04/28/23 12:50	n/a	Initial cal 1
S6Q258-IC258	6Q17052.D	04/28/23 13:04	n/a	Initial cal 2
S6Q258-IC258	6Q17053.D	04/28/23 13:19	n/a	Initial cal 3
S6Q258-ICC258	6Q17054.D	04/28/23 13:33	n/a	Initial cal 4
S6Q258-IC258	6Q17055.D	04/28/23 13:48	n/a	Initial cal 5
S6Q258-IC258	6Q17056.D	04/28/23 14:02	n/a	Initial cal 6
S6Q258-IC258	6Q17057.D	04/28/23 14:17	n/a	Initial cal 7
S6Q258-IC258	6Q17058.D	04/28/23 14:31	n/a	Initial cal 8
S6Q258-IBLK	6Q17059.D	04/28/23 14:46	n/a	Instrument Blank
S6Q258-ICV258	6Q17060.D	04/28/23 15:00	n/a	Initial cal verification 4
S6Q258-ICV258	6Q17061.D	04/28/23 15:15	n/a	Initial cal verification 20
S6Q258-CC258	6Q17062.D	04/28/23 15:29	n/a	Continuing cal 4
S6Q258-CC258	6Q17063.D	04/28/23 15:44	n/a	Continuing cal 1.0LL
OP96604-BS	6Q17064.D	04/28/23 15:58	OP96604	Blank Spike
OP96604-LLBS	6Q17065.D	04/28/23 16:13	OP96604	Blank Spike
OP96604-MB	6Q17066.D	04/28/23 16:27	OP96604	Method Blank
ZZZZZZ	6Q17067.D	04/28/23 16:42	OP96604	(unrelated sample)
ZZZZZZ	6Q17068.D	04/28/23 16:56	OP96604	(unrelated sample)
ZZZZZZ	6Q17069.D	04/28/23 17:11	OP96604	(unrelated sample)
S6Q258-CC258	6Q17070.D	04/28/23 17:25	n/a	Continuing cal 4
S6Q258-ICCB	6Q17071.D	04/28/23 17:40	n/a	Continuing Calibration Blank
OP96603-BS	6Q17072.D	04/28/23 17:54	OP96603	Blank Spike
OP96603-LLBS	6Q17073.D	04/28/23 18:09	OP96603	Blank Spike
OP96603-MB	6Q17074.D	04/28/23 18:23	OP96603	Method Blank
ZZZZZZ	6Q17075.D	04/28/23 18:37	OP96603	(unrelated sample)
ZZZZZZ	6Q17076.D	04/28/23 18:52	OP96603	(unrelated sample)
FC5514-3	6Q17077.D	04/28/23 19:06	OP96603	(used for QC only; not part of job FC5578)
OP96603-MS	6Q17078.D	04/28/23 19:21	OP96603	Matrix Spike
ZZZZZZ	6Q17079.D	04/28/23 19:35	OP96603	(unrelated sample)
OP96603-DUP	6Q17080.D	04/28/23 19:50	OP96603	Duplicate
ZZZZZZ	6Q17081.D	04/28/23 20:04	OP96603	(unrelated sample)
S6Q258-CC258	6Q17082.D	04/28/23 20:19	n/a	Continuing cal 4
S6Q258-ICCB	6Q17083.D	04/28/23 20:33	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17084.D	04/28/23 20:48	OP96603	(unrelated sample)
ZZZZZZ	6Q17085.D	04/28/23 21:02	OP96603	(unrelated sample)
ZZZZZZ	6Q17086.D	04/28/23 21:17	OP96603	(unrelated sample)
FC5522-4	6Q17087.D	04/28/23 21:31	OP96603	(used for QC only; not part of job FC5578)
ZZZZZZ	6Q17088.D	04/28/23 21:46	OP96603	(unrelated sample)
FC5578-1	6Q17089.D	04/28/23 22:00	OP96603	AF-HDMW225303-WGN01LF-2304W4
FC5578-2	6Q17090.D	04/28/23 22:15	OP96603	AF-RHMW10-WGN01LF-2304W4
S6Q258-CC258	6Q17091.D	04/28/23 22:29	n/a	Continuing cal 4
S6Q258-ICCB	6Q17092.D	04/28/23 22:44	n/a	Continuing Calibration Blank
OP96579-BS	6Q17093.D	04/28/23 22:58	OP96579	Blank Spike

Run Sequence Report

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
OP96579-LLBS	6Q17094.D	04/28/23 23:13	OP96579	Blank Spike
OP96579-MB	6Q17095.D	04/28/23 23:27	OP96579	Method Blank
ZZZZZZ	6Q17096.D	04/28/23 23:42	OP96579	(unrelated sample)
ZZZZZZ	6Q17097.D	04/28/23 23:56	OP96579	(unrelated sample)
ZZZZZZ	6Q17099.D	04/29/23 00:25	OP96579	(unrelated sample)
FC5240-5	6Q17100.D	04/29/23 00:40	OP96579	(used for QC only; not part of job FC5578)
S6Q258-CC258	6Q17103.D	04/29/23 01:23	n/a	Continuing cal 4
S6Q258-ICCB	6Q17104.D	04/29/23 01:38	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17105.D	04/29/23 01:52	OP96579	(unrelated sample)
ZZZZZZ	6Q17107.D	04/29/23 02:21	OP96579	(unrelated sample)
ZZZZZZ	6Q17108.D	04/29/23 02:36	OP96579	(unrelated sample)
ZZZZZZ	6Q17109.D	04/29/23 02:50	OP96579	(unrelated sample)
ZZZZZZ	6Q17110.D	04/29/23 03:04	OP96579	(unrelated sample)
ZZZZZZ	6Q17111.D	04/29/23 03:19	OP96579	(unrelated sample)
ZZZZZZ	6Q17112.D	04/29/23 03:33	OP96579	(unrelated sample)
ZZZZZZ	6Q17113.D	04/29/23 03:48	OP96579	(unrelated sample)
ZZZZZZ	6Q17114.D	04/29/23 04:02	OP96579	(unrelated sample)
S6Q258-CC258	6Q17115.D	04/29/23 04:17	n/a	Continuing cal 4
S6Q258-CC258	6Q17116.D	04/29/23 04:31	n/a	Continuing cal 1.0LL
S6Q258-ICCB	6Q17117.D	04/29/23 04:46	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17118.D	04/29/23 05:00	OP96491	(unrelated sample)
OP96566-BS	6Q17119.D	04/29/23 05:15	OP96566	Blank Spike
OP96566-LLBS	6Q17120.D	04/29/23 05:29	OP96566	Blank Spike
OP96566-MB	6Q17121.D	04/29/23 05:44	OP96566	Method Blank
ZZZZZZ	6Q17122.D	04/29/23 05:58	OP96566	(unrelated sample)
FC5200-2	6Q17123.D	04/29/23 06:13	OP96566	(used for QC only; not part of job FC5578)
OP96566-MS	6Q17124.D	04/29/23 06:27	OP96566	Matrix Spike
OP96566-MSD	6Q17125.D	04/29/23 06:42	OP96566	Matrix Spike Duplicate
ZZZZZZ	6Q17126.D	04/29/23 06:56	OP96566	(unrelated sample)
ZZZZZZ	6Q17127.D	04/29/23 07:11	OP96566	(unrelated sample)
S6Q258-CC258	6Q17128.D	04/29/23 07:25	n/a	Continuing cal 4
S6Q258-ICCB	6Q17129.D	04/29/23 07:40	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17130.D	04/29/23 07:54	OP96566	(unrelated sample)
ZZZZZZ	6Q17131.D	04/29/23 08:09	OP96566	(unrelated sample)
ZZZZZZ	6Q17132.D	04/29/23 08:23	OP96566	(unrelated sample)
ZZZZZZ	6Q17133.D	04/29/23 08:38	OP96566	(unrelated sample)
ZZZZZZ	6Q17134.D	04/29/23 08:52	OP96566	(unrelated sample)
ZZZZZZ	6Q17135.D	04/29/23 09:07	OP96566	(unrelated sample)
ZZZZZZ	6Q17136.D	04/29/23 09:21	OP96566	(unrelated sample)
ZZZZZZ	6Q17137.D	04/29/23 09:35	OP96566	(unrelated sample)
ZZZZZZ	6Q17138.D	04/29/23 09:50	OP96566	(unrelated sample)
ZZZZZZ	6Q17139.D	04/29/23 10:04	OP96566	(unrelated sample)
S6Q258-CC258	6Q17140.D	04/29/23 10:19	n/a	Continuing cal 4
S6Q258-ICCB	6Q17141.D	04/29/23 10:33	n/a	Continuing Calibration Blank
ZZZZZZ	6Q17142.D	04/29/23 10:48	OP96566	(unrelated sample)
ZZZZZZ	6Q17143.D	04/29/23 11:02	OP96566	(unrelated sample)

Run Sequence Report

Job Number: FC5578
 Account: AECOMCOD AECOM, INC.
 Project: N6274223F0104 RH Fire Suppression System

Run ID: S6Q258	Method: EPA DRAFT 1633	Instrument ID: GCMS6Q
----------------	------------------------	-----------------------

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	6Q17144.D	04/29/23 11:17	OP96566	(unrelated sample)
ZZZZZZ	6Q17145.D	04/29/23 11:31	OP96566	(unrelated sample)
S6Q258-ECC258	6Q17146.D	04/29/23 11:46	n/a	Ending cal 4
S6Q258-ICCB	6Q17147.D	04/29/23 12:00	n/a	Continuing Calibration Blank

6.9.3
6

MS Semi-volatiles

Raw Data

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43959.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 1:58:15 PM
 Sample Name : fc5578-1
 Vial : P2-A4
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96698,S4Q635,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	133494	10.00 µg/L	0.013
M5-PFPeA	4.375	268.3 -> 223.0	69180	5.00 µg/L	0.012
M5-PFHxA	5.547	318.0 -> 273.0	48211	2.50 µg/L	0.012
M4-PFHpA	6.467	367.1 -> 322.0	28512	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	43813	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20479	1.25 µg/L	0.013
M6-PFDA	8.191	519.1 -> 474.1	16824	1.25 µg/L	0.013
M7-PFUnDA	8.660	570.0 -> 525.1	17948	1.25 µg/L	0.013
M2-PFDoDA	9.118	615.1 -> 570.0	17641	1.25 µg/L	0.012
M2-PFTeDA	9.911	715.2 -> 670.0	12263	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	7052	2.50 µg/L	0.012
M3-PFBS	5.439	302.1 -> 79.9	11829	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	7581	2.50 µg/L	0.000
M8-PFOS	8.341	507.1 -> 79.9	9091	2.50 µg/L	0.012
M2-4:2FTS	5.235	329.1 -> 80.9	1086	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	2242	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	2853	5.00 µg/L	0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	11905	5.00 µg/L	0.012
M3-HFPO-DA	5.902	286.9 -> 168.9	27874	10.00 µg/L	0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	10616	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	28685	25.00 µg/L	0.012
M9-EtFOSE	11.269	639.2 -> 58.9	44706	25.00 µg/L	0.012
M5-EtFOSA	11.360	531.1 -> 219.0	4910	2.50 µg/L	0.012
M3-MeFOSA	11.076	515.0 -> 219.0	4377	2.50 µg/L	0.012
13C4-PFOS	8.342	502.8 -> 79.9	11490	2.50 µg/L	0.012
13C3-PFBA	2.941	216.0 -> 172.0	70050	5.00 µg/L	0.012
18O2-PFHxS	7.228	403.0 -> 83.9	5211	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	54578	2.50 µg/L	0.012
13C2-PFDA	8.191	515.1 -> 470.1	18403	1.25 µg/L	0.013
13C5-PFNA	7.684	468.0 -> 423.0	25269	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	43871	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.235	329.1 -> 80.9	1086	5.13 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.5%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2242	5.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.4%		
13C2-8:2FTS	7.978	529.1 -> 80.9	2853	4.79 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-PFDoDA	9.118	615.1 -> 570.0	17641	0.99 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 79.1%		
13C2-PFTeDA	9.911	715.2 -> 670.0	12263	0.85 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 67.6%		
13C3-PFBS	5.439	302.1 -> 79.9	11829	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFHxS	7.229	402.1 -> 79.9	7581	2.35 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 = 93.9%		
13C4-PFBA	2.936	216.8 -> 171.9	133494	10.13	µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%		
13C4-PFHpA	6.467	367.1 -> 322.0	28512	2.52	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%		
13C5-PFHxA	5.547	318.0 -> 273.0	48211	2.49	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%		
13C5-PFPeA	4.375	268.3 -> 223.0	69180	5.12	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%		
13C6-PFDA	8.191	519.1 -> 474.1	16824	1.07	µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 85.4%		
13C7-PFUnDA	8.660	570.0 -> 525.1	17948	1.09	µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 87.5%		
13C8-FOSA	9.783	506.1 -> 77.8	7052	0.98	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 39.1%		
13C8-PFOA	7.136	421.1 -> 376.0	43813	2.44	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C8-PFOS	8.341	507.1 -> 79.9	9091	2.10	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 84.1%		
13C9-PFNA	7.684	472.1 -> 427.0	20479	1.19	µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.4%		
d3-MeFOSAA	8.249	573.2 -> 419.0	11905	4.10	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.1%		
13C3-HFPO-DA	5.902	286.9 -> 168.9	27874	9.66	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.6%		
d3-MeFOSA	11.076	515.0 -> 219.0	4377	0.97	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 38.9%		
d5-EtFOSAA	8.458	589.2 -> 419.0	10616	4.44	µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 88.9%		
d7-MeFOSE	10.959	623.2 -> 58.9	28685	8.02	µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 32.1%		
d9-EtFOSE	11.269	639.2 -> 58.9	44706	8.83	µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 35.3%		
d5-EtFOSA	11.360	531.1 -> 219.0	4910	1.03	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 41.0%		

Target Compounds

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	8.471	584.2 -> 419.1	0	µg/L	m	1
		584.2 -> 526.0	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.		

7.11
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.881	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	7.671	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	7.137	548.8 -> 98.9				
		413.0 -> 369.0	1364	0.05 µg/L	m	94
PFOS	8.330	413.0 -> 169.0	227			
		498.9 -> 79.9	177	0.04 µg/L	#	45
PFPeA	-	498.9 -> 98.8	20			
		263.0 -> 219.0	-	N.D.		
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	11.644	630.0 -> 58.9	0	µg/L	m	1
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

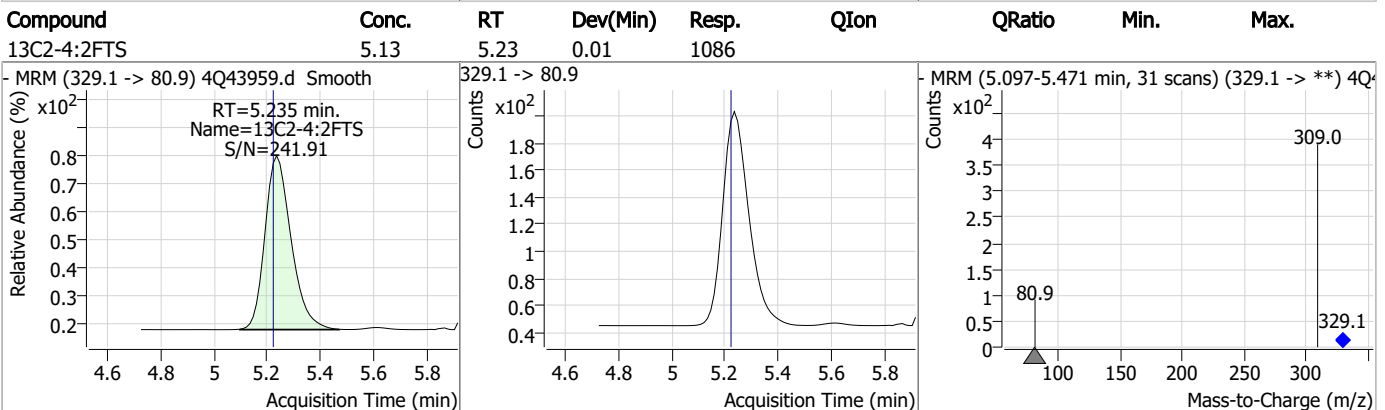
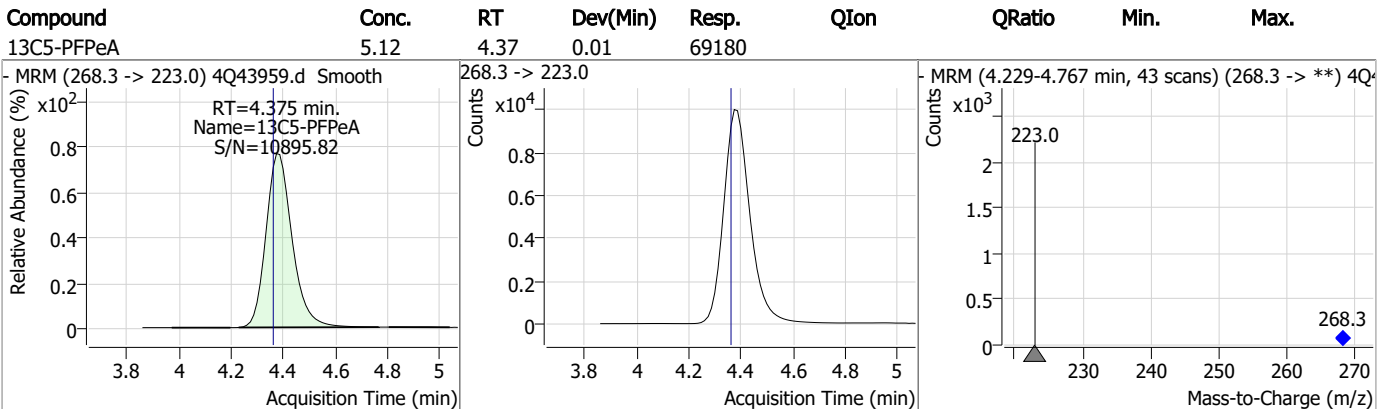
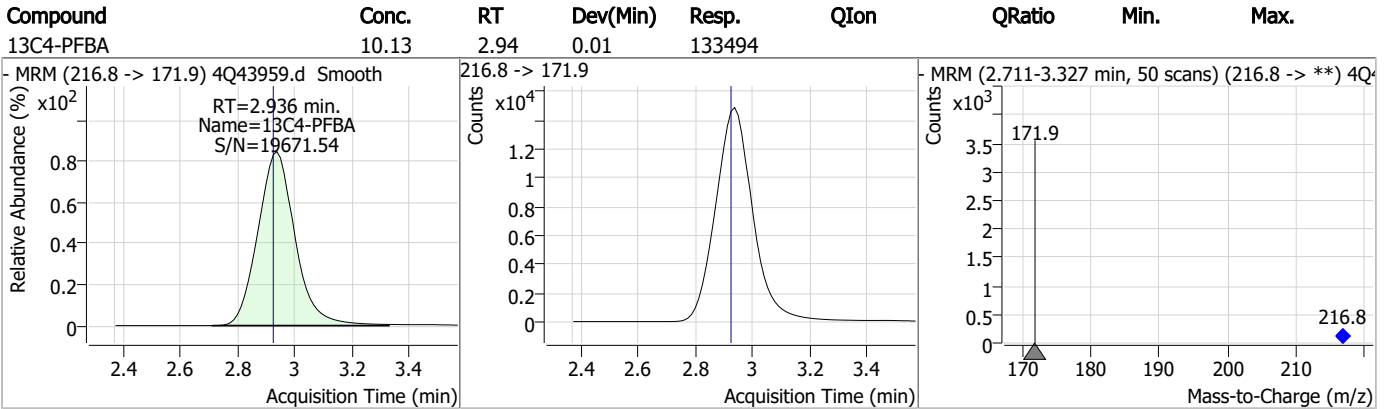
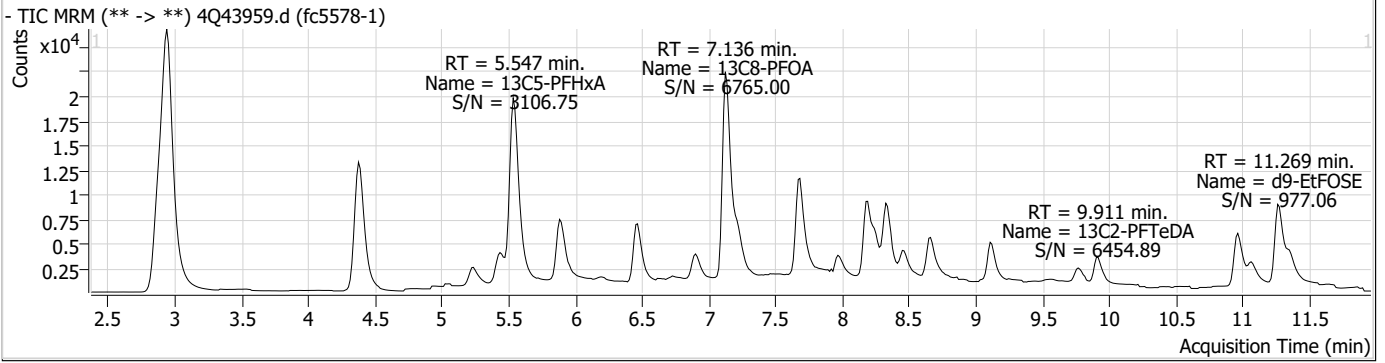
Perfluorinated Compounds by LC/MS/MS

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

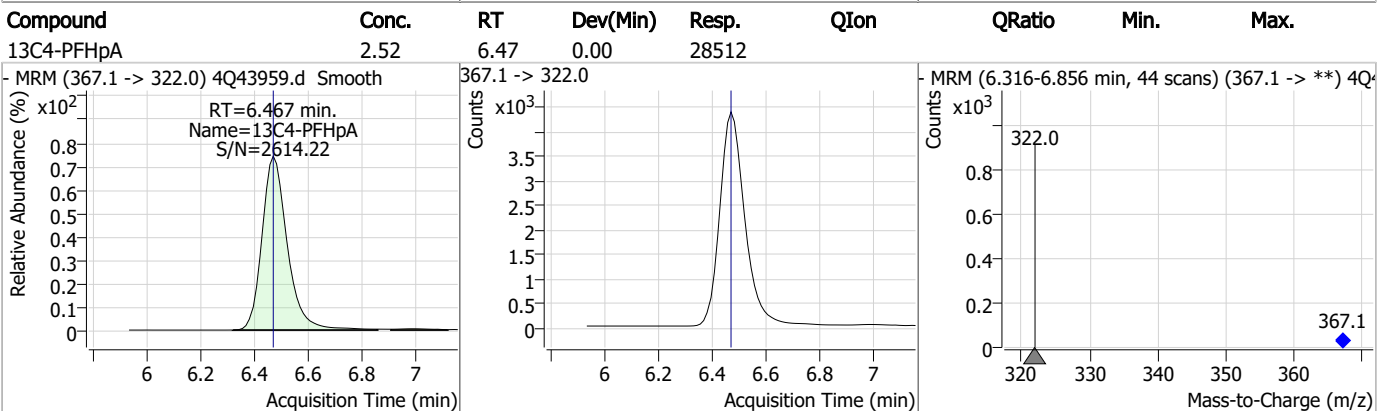
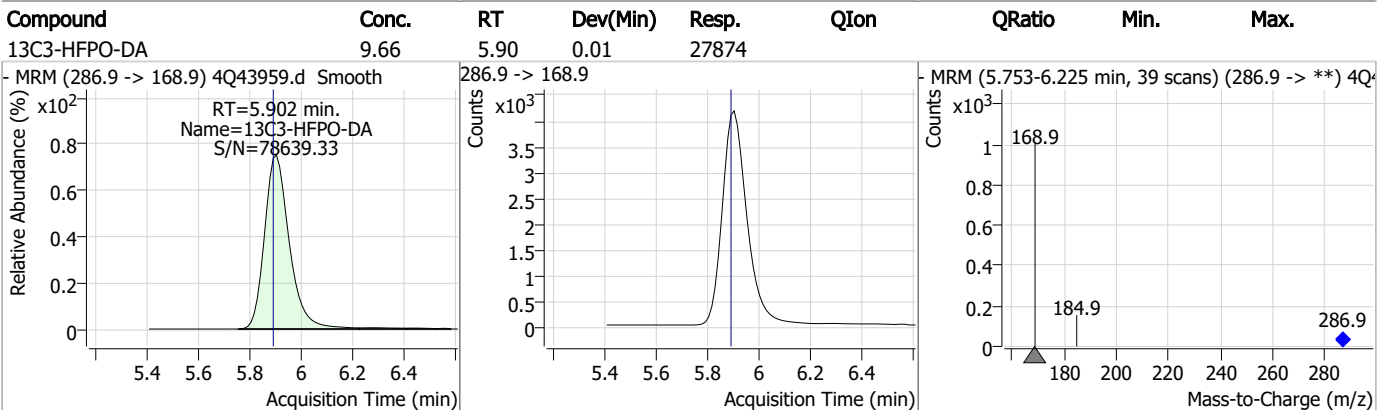
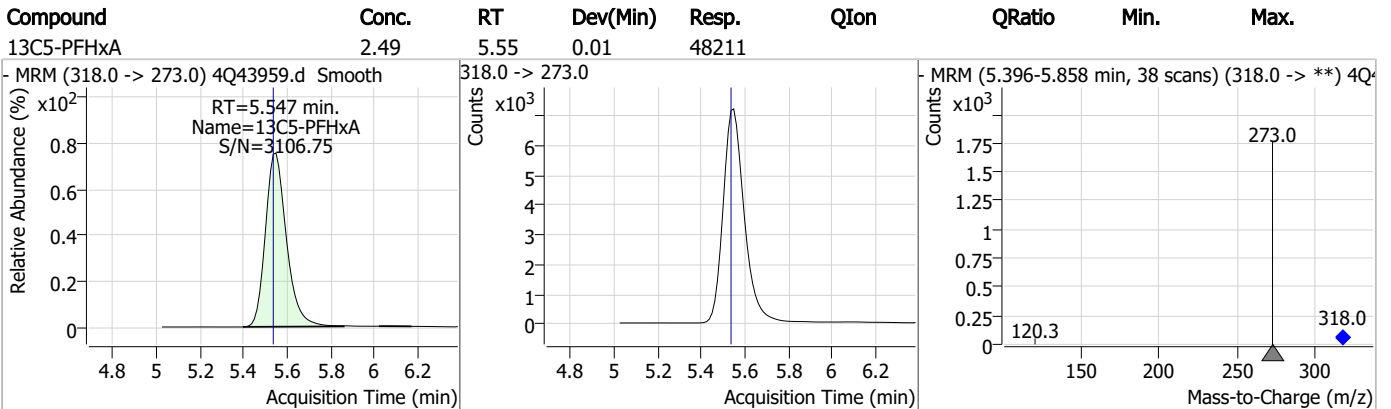
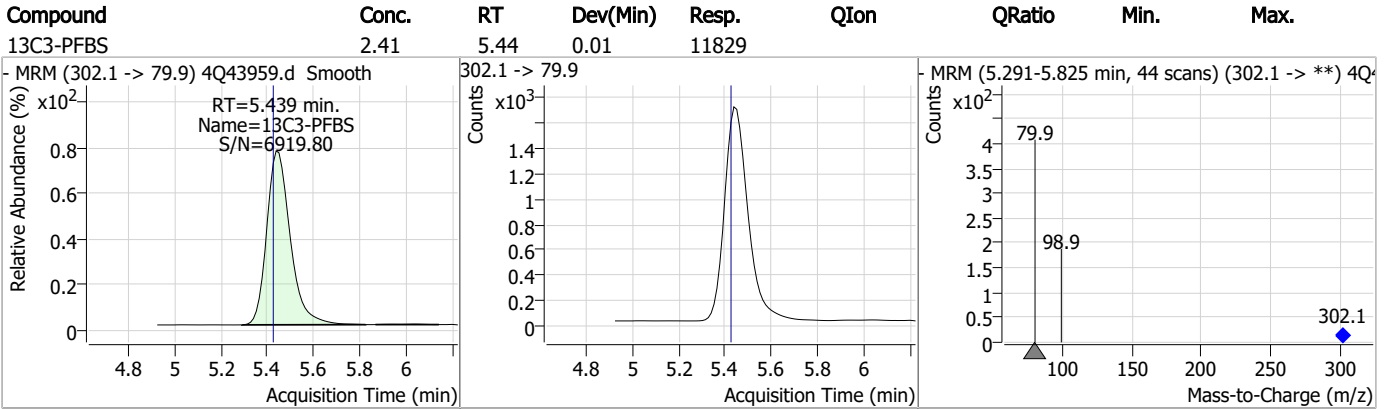
7.1.1
7



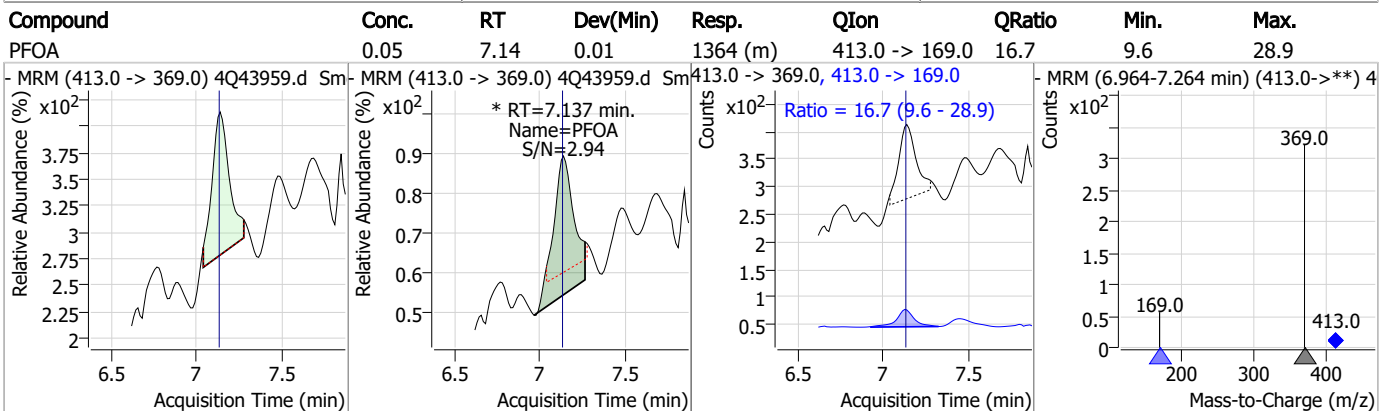
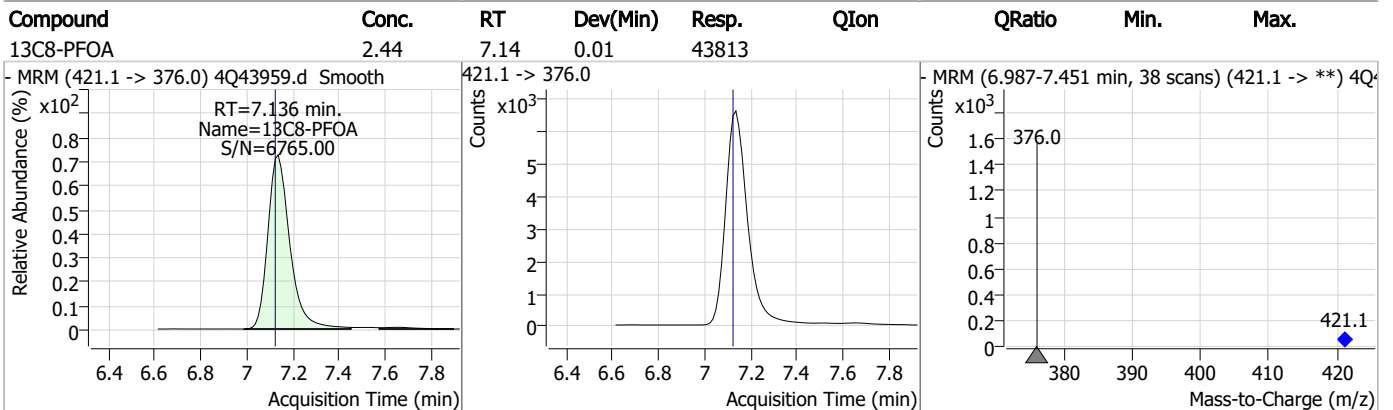
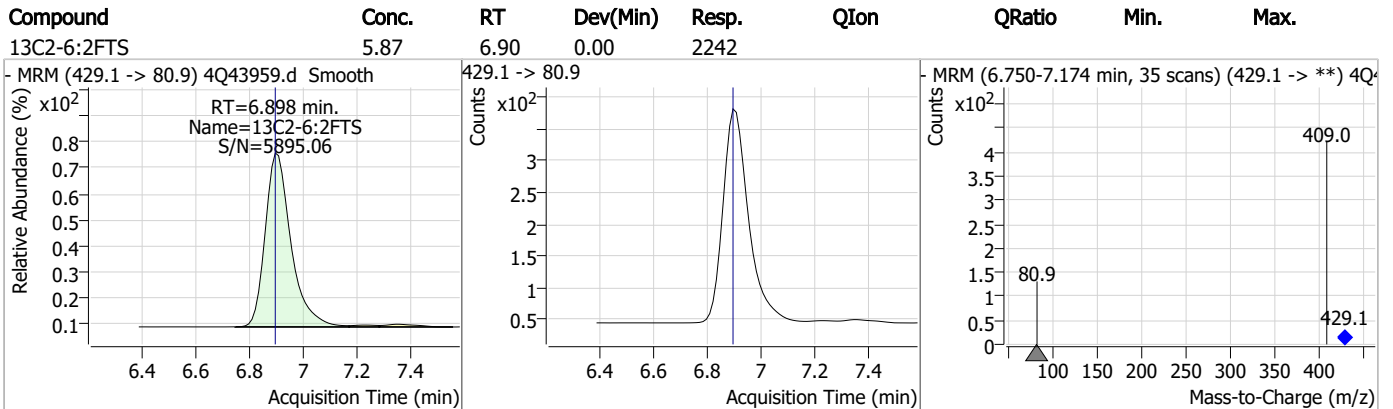
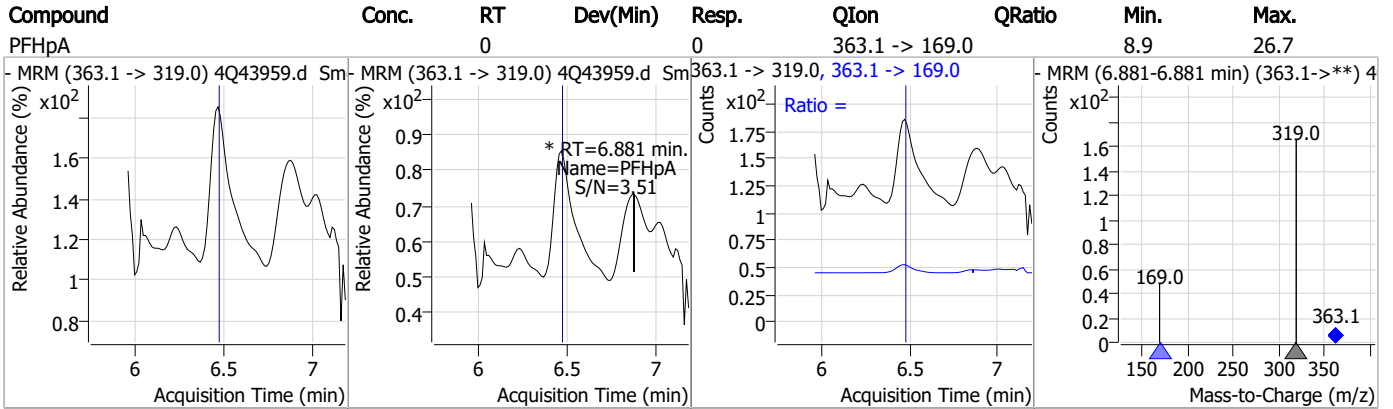
Perfluorinated Compounds by LC/MS/MS



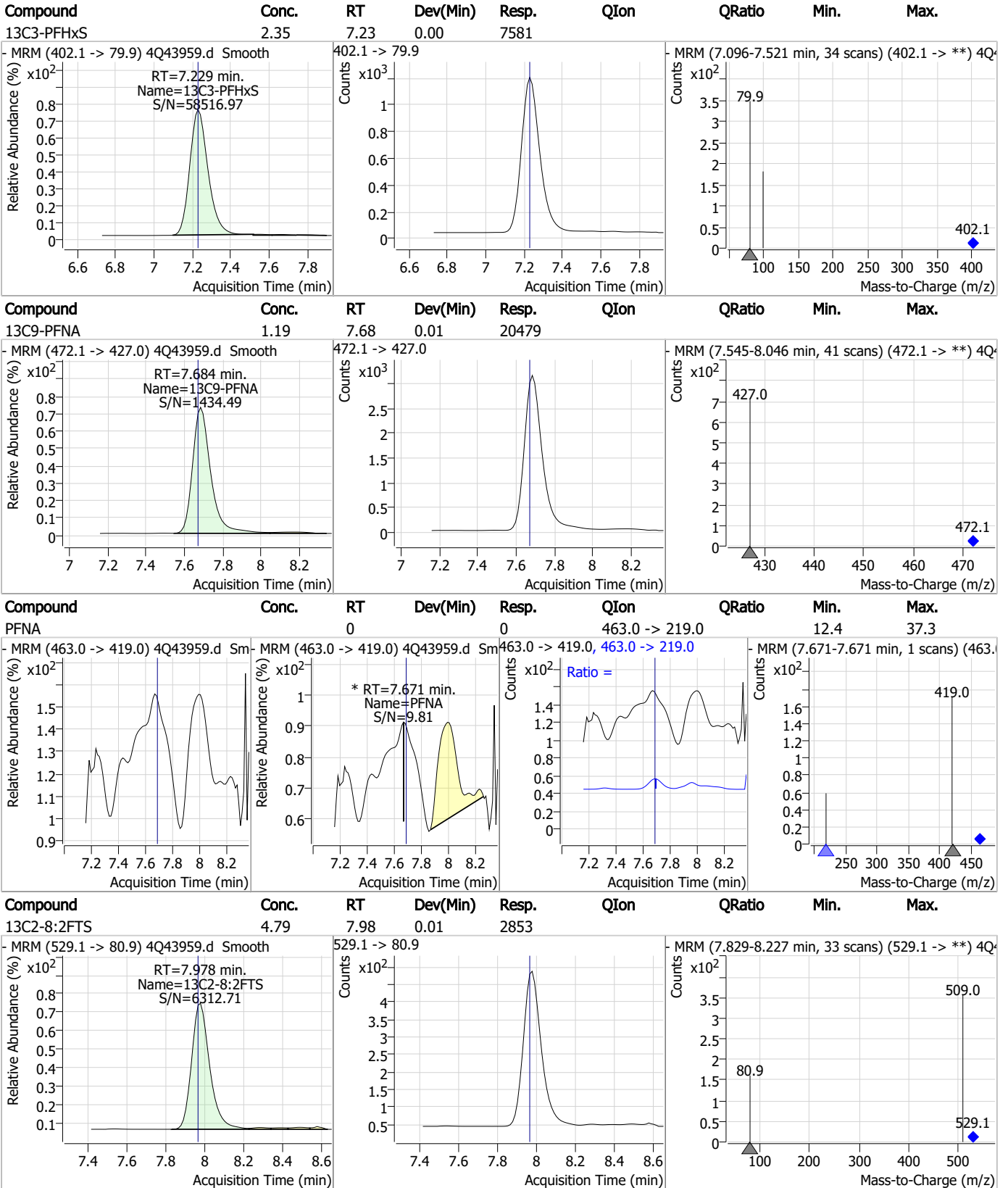
Perfluorinated Compounds by LC/MS/MS



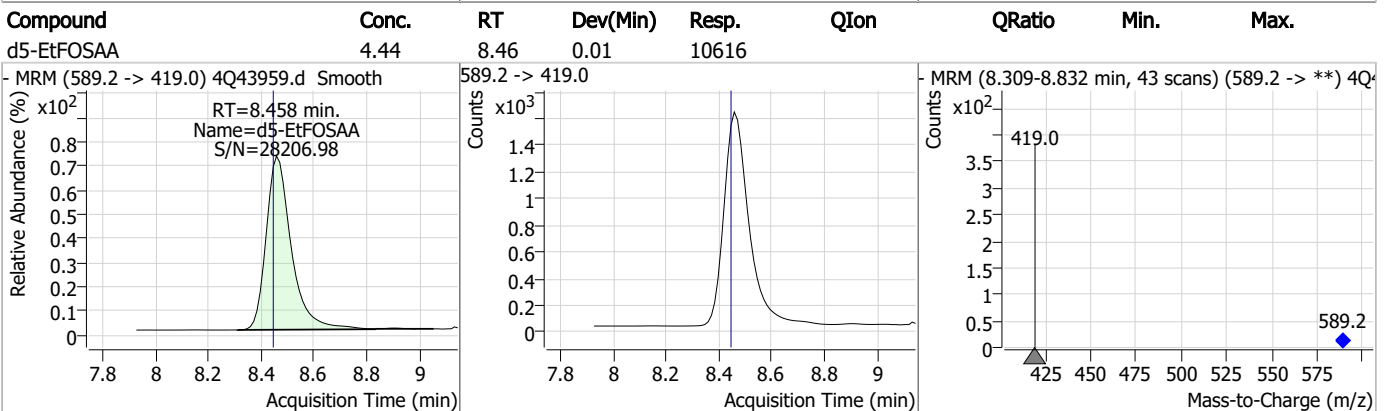
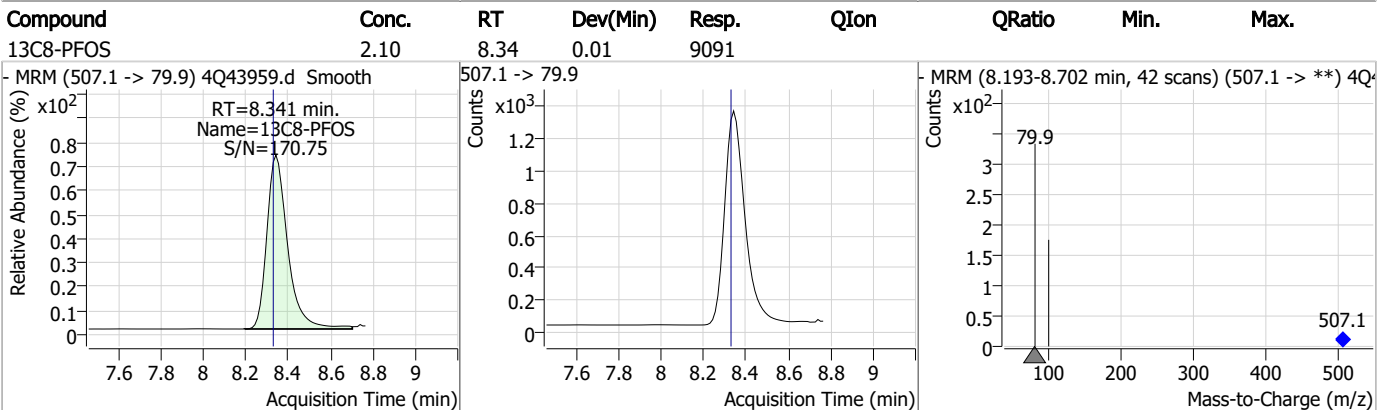
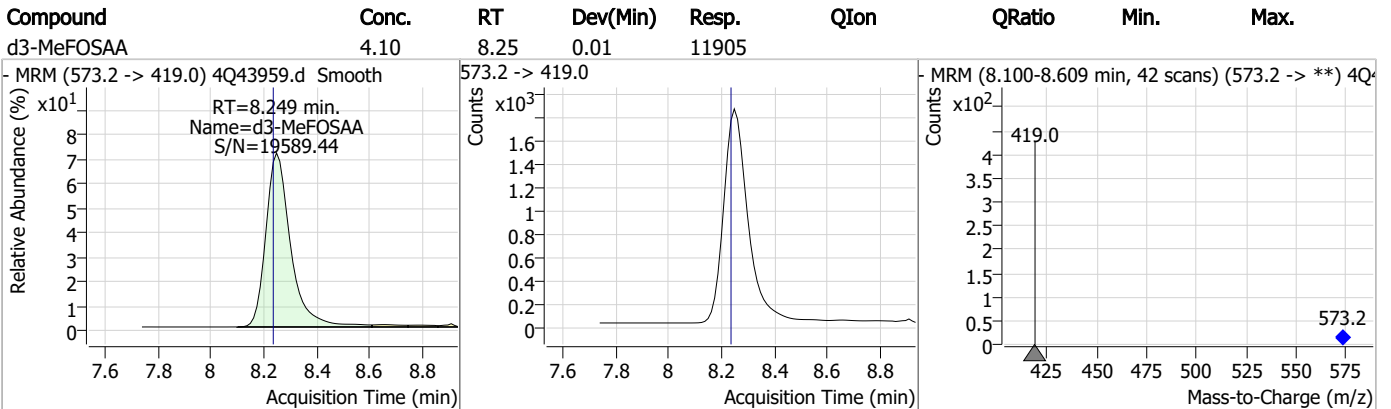
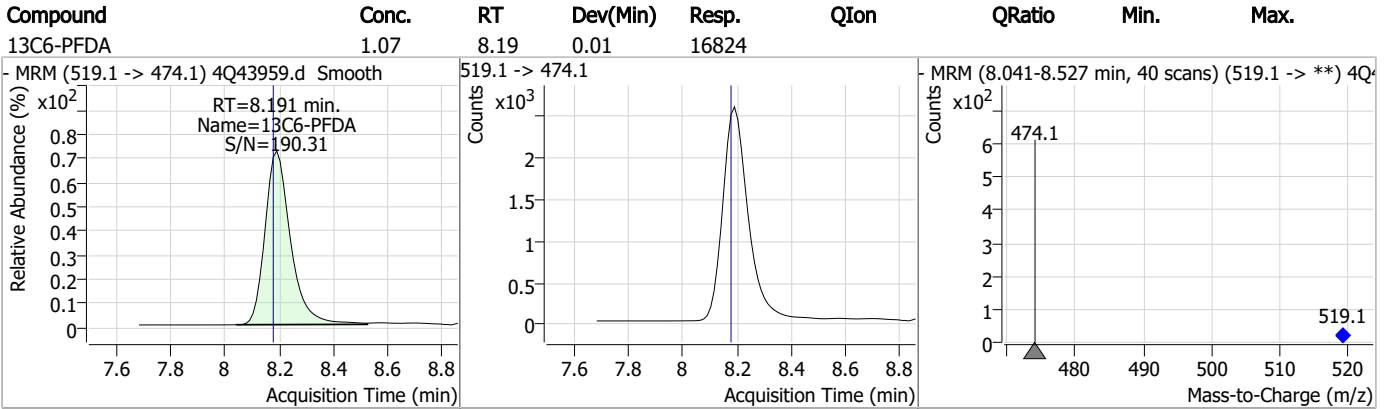
Perfluorinated Compounds by LC/MS/MS



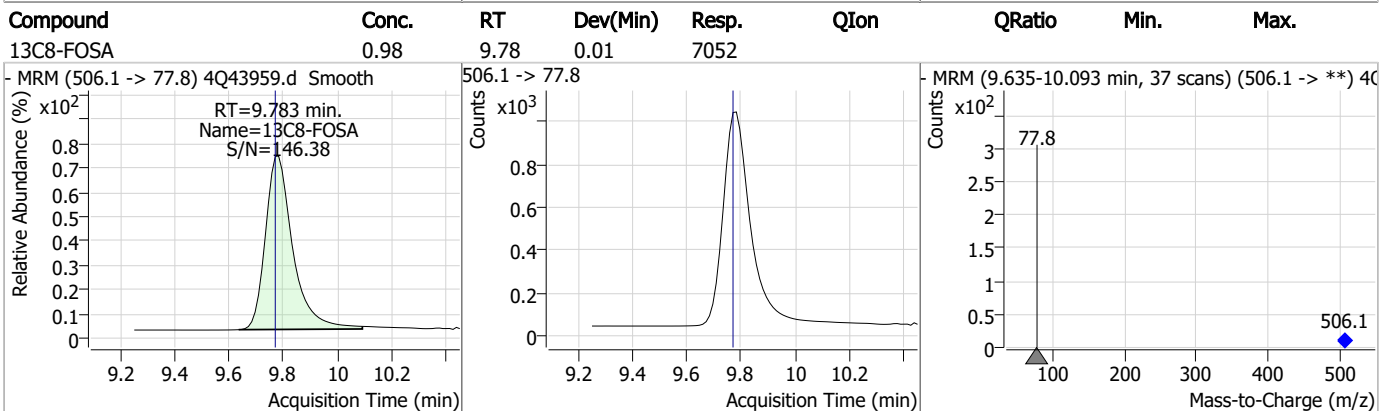
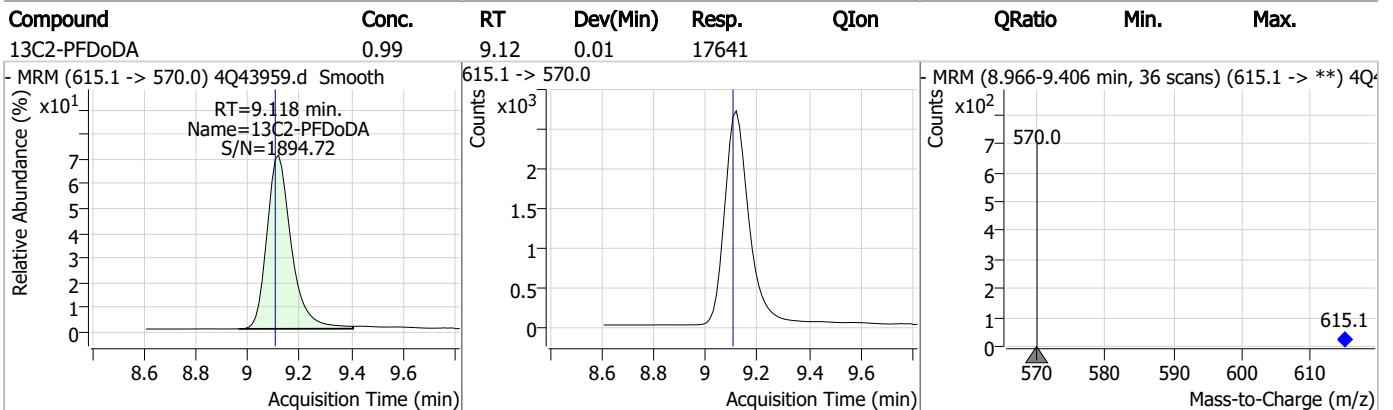
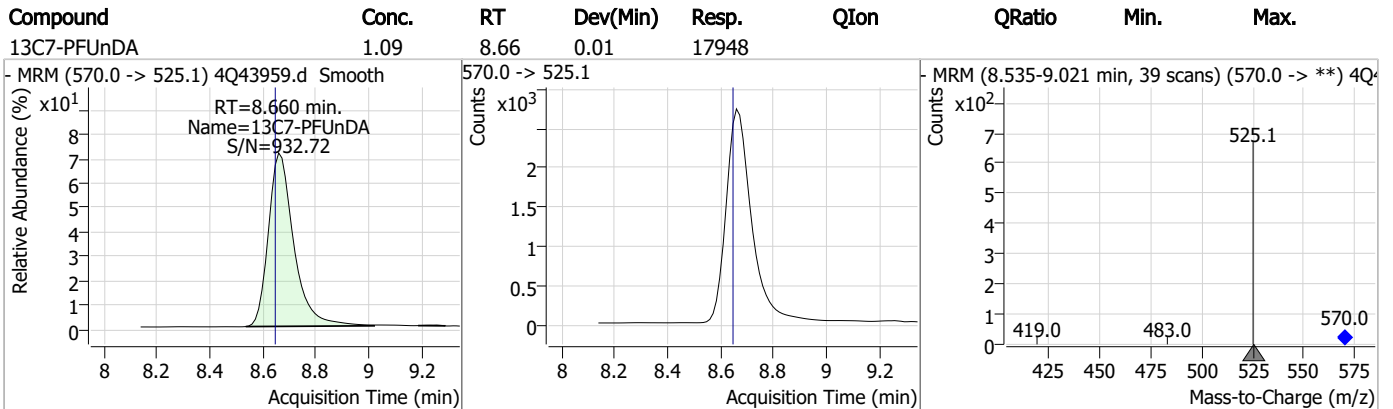
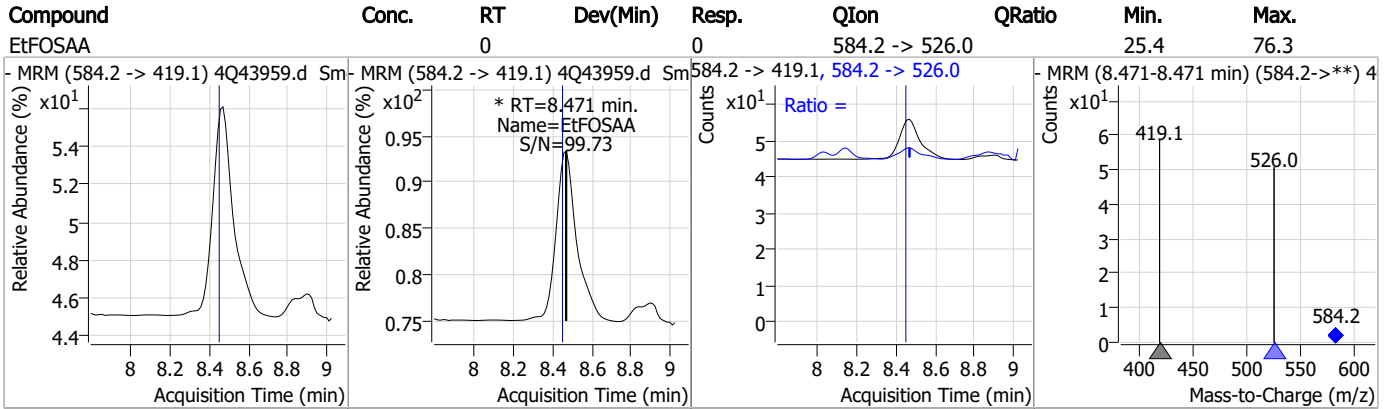
Perfluorinated Compounds by LC/MS/MS



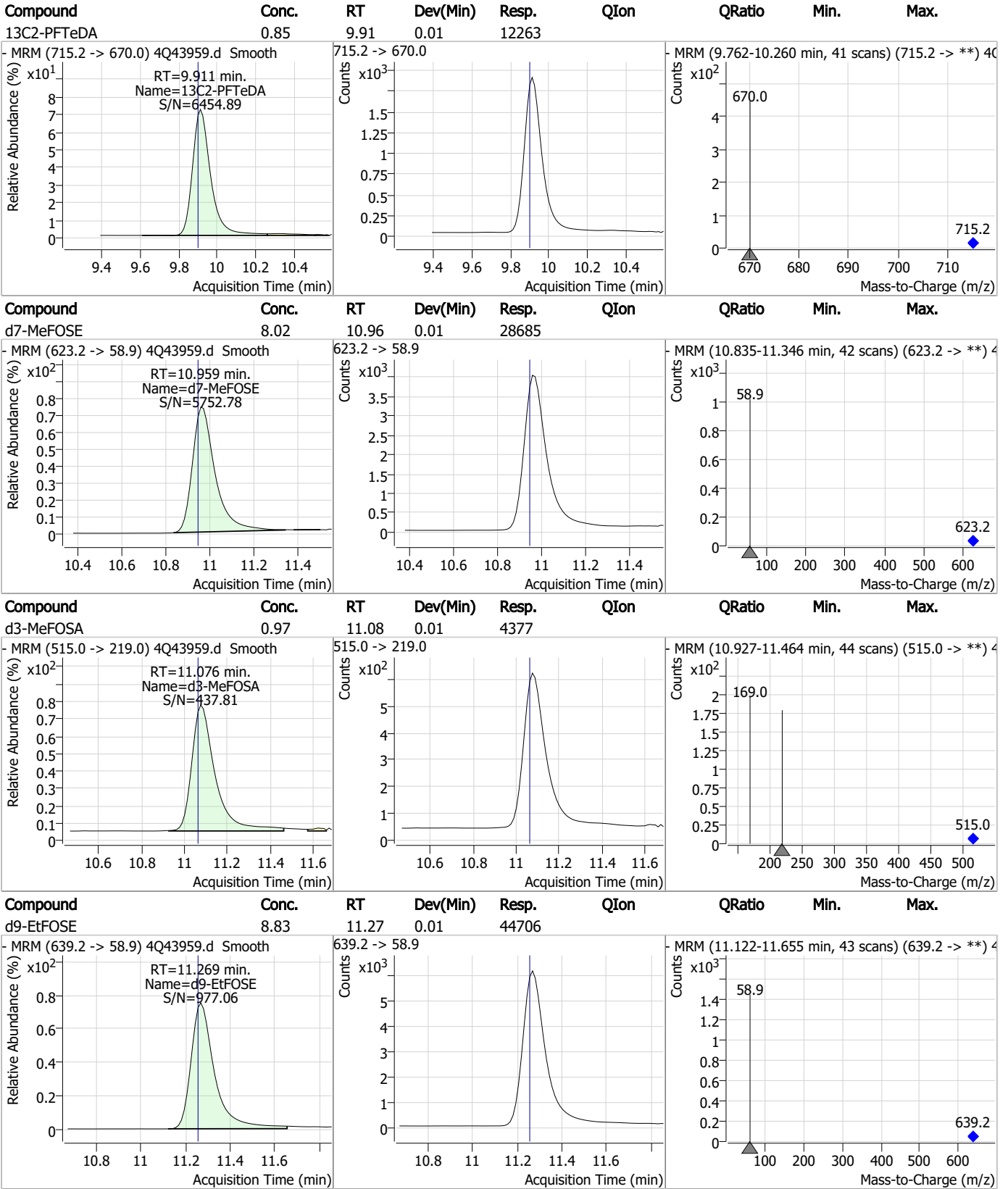
Perfluorinated Compounds by LC/MS/MS



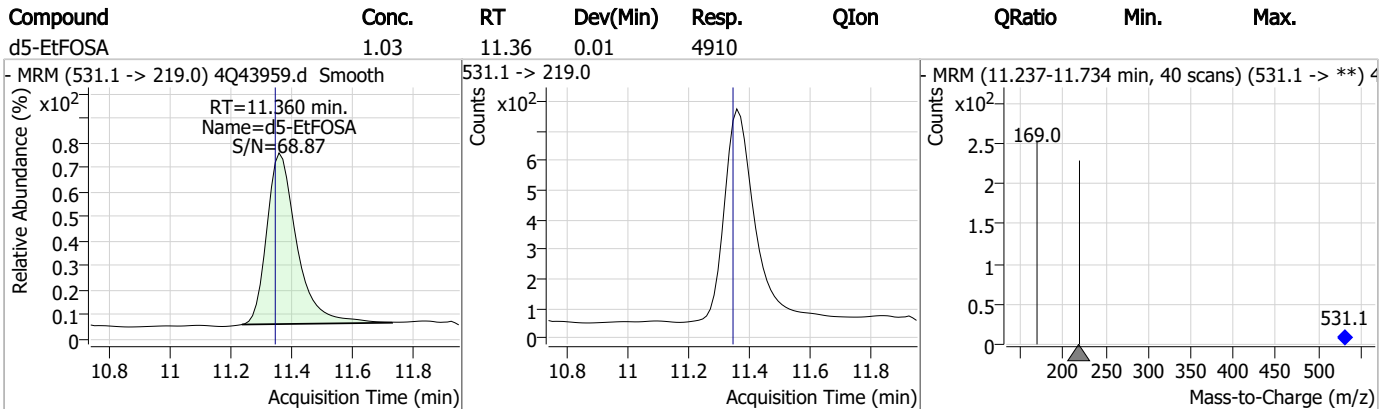
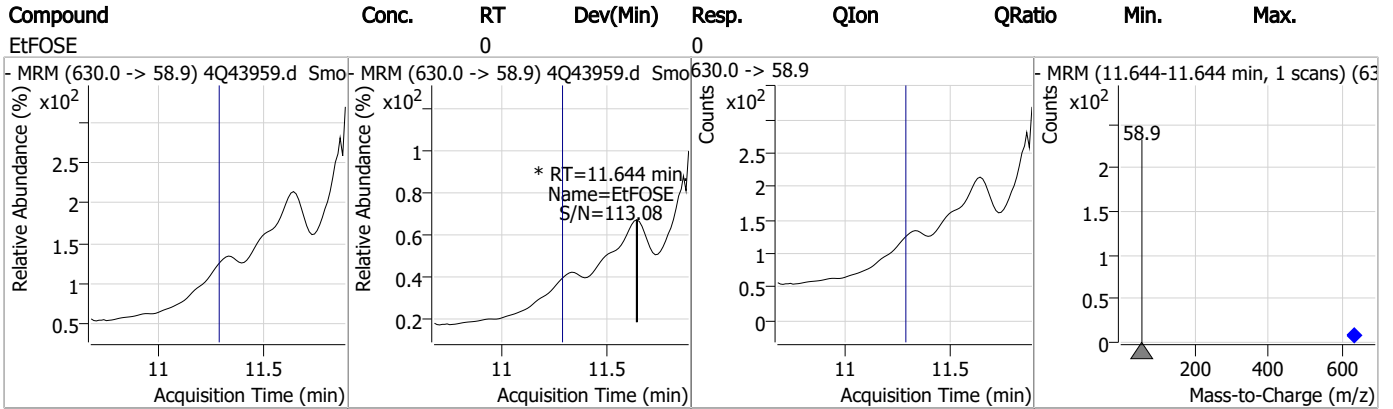
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.1

7

Manual Integration Approval Summary

Sample Number: FC5578-1 Method: EPA DRAFT 1633
Lab FileID: 4Q43959.D Analyst approved: 05/05/23 07:57 Natasha Gumtie
Injection Time: 05/04/23 13:58 Supervisor approved: 05/05/23 16:38 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.14	Split peak

7.1.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17089.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 10:00:47 PM
 Sample Name : FC5578-1
 Vial : P3-B7
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	187832	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67171	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	71474	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	63726	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	82751	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	25803	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18874	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	20748	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	18819	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	11850	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	7463	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23399	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13213	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10362	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2340	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2825	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2805	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	19145	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39875	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	15155	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	18023	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	26077	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	2798	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	2307	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14145	2.50 µg/L	-0.012
13C3-PFBA	2.914	216.0 -> 172.0	76611	5.00 µg/L	0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9213	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	87641	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24126	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28259	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58746	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2340	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.5%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2825	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2805	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-PFDoDA	8.960	615.1 -> 570.0	18819	0.94 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.0%		
13C2-PFTeDA	9.689	715.2 -> 670.0	11850	0.87 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 69.8%		
13C3-PFBS	5.398	302.1 -> 79.9	23399	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 108.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	13213	2.69 µg/L	0.000

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 = 107.8%	
13C4-PFBA	2.910	216.8 -> 171.9	187832	10.61 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C4-PFHpA	6.419	367.1 -> 322.0	63726	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C5-PFHxA	5.480	318.0 -> 273.0	71474	2.52 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.270	268.3 -> 223.0	67171	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C6-PFDA	8.076	519.1 -> 474.1	18874	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C7-PFUnDA	8.530	570.0 -> 525.1	20748	1.02 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 81.5%	
13C8-FOSA	9.623	506.1 -> 77.8	7463	0.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 31.9%	
13C8-PFOA	7.074	421.1 -> 376.0	82751	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C8-PFOS	8.226	507.1 -> 79.9	10362	2.43 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C9-PFNA	7.594	472.1 -> 427.0	25803	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.8%	
d3-MeFOSAA	8.134	573.2 -> 419.0	19145	4.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.8%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39875	9.59 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d3-MeFOSA	10.728	515.0 -> 219.0	2307	0.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 26.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	15155	4.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.5%	
d7-MeFOSE	10.647	623.2 -> 58.9	18023	4.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 19.4%	
d9-EtFOSE	10.894	639.2 -> 58.9	26077	5.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 23.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	2798	0.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 25.8%	

7.12
7

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	8.695	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	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	7.143	599.0 -> 98.8				
		363.1 -> 319.0	0	µg/L	m	1
PFHpS	-	363.1 -> 169.0	0			
		449.0 -> 79.9	-	N.D.		
PFHxA	-	449.0 -> 98.9				
		313.0 -> 269.0	-	N.D.		
PFHxS	-	313.0 -> 118.9				
		398.7 -> 79.9	-	N.D.		
PFNA	8.217	398.7 -> 98.9				
		463.0 -> 419.0	0	µg/L	m	1
PFNS	-	463.0 -> 219.0	0			
		548.8 -> 79.9	-	N.D.		
PFOA	-	548.8 -> 98.9				
		413.0 -> 369.0	-	N.D.		
PFOS	-	413.0 -> 169.0				
		498.9 -> 79.9	-	N.D.		
PFPeA	-	498.9 -> 98.8				
		263.0 -> 219.0	-	N.D.		
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	9.115	563.1 -> 519.0	0	µg/L	m	1
		563.1 -> 269.1	0			
11CI-PF3OUdS	-	630.9 -> 450.9	-	N.D.		
		632.9 -> 452.9				
9CI-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				

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

7.1.2
7

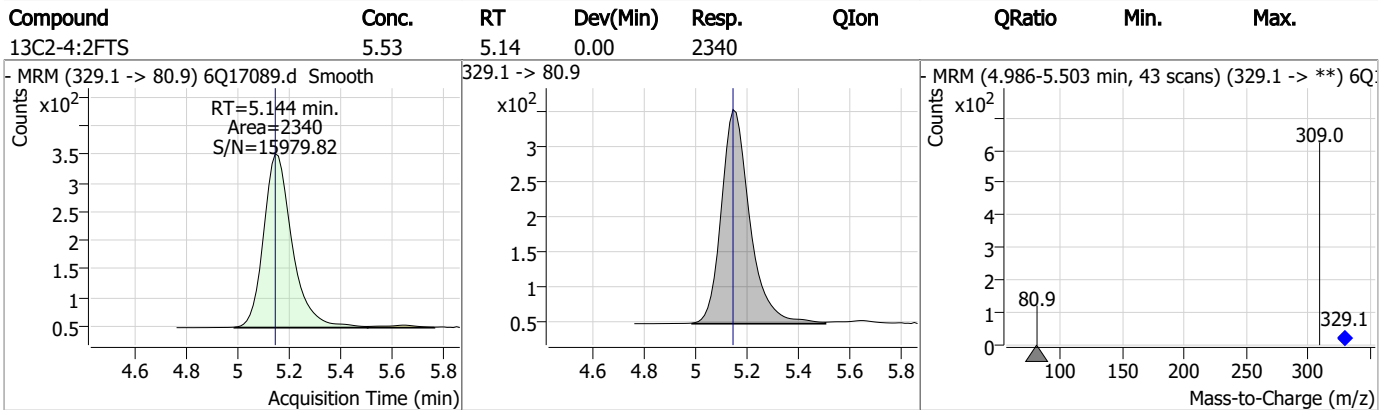
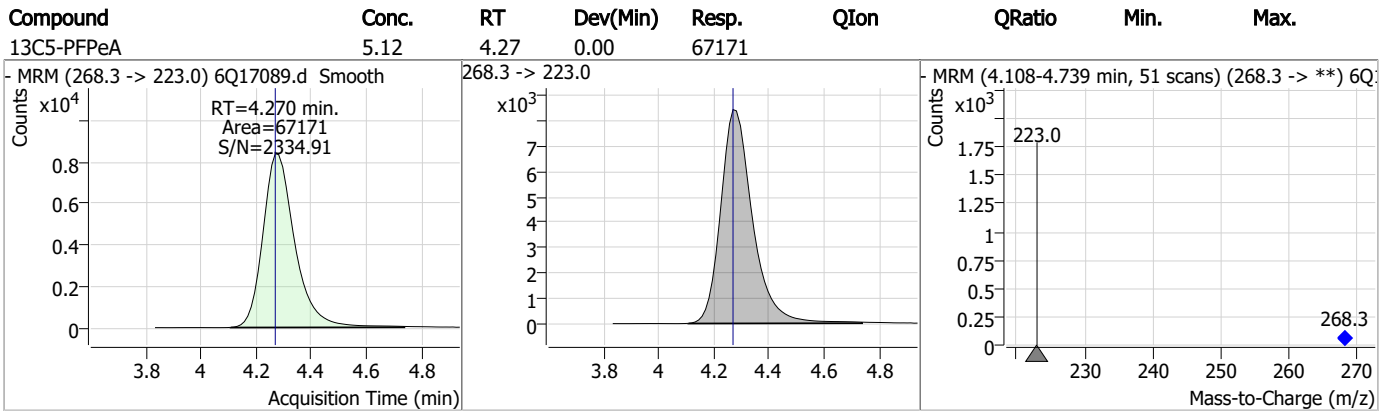
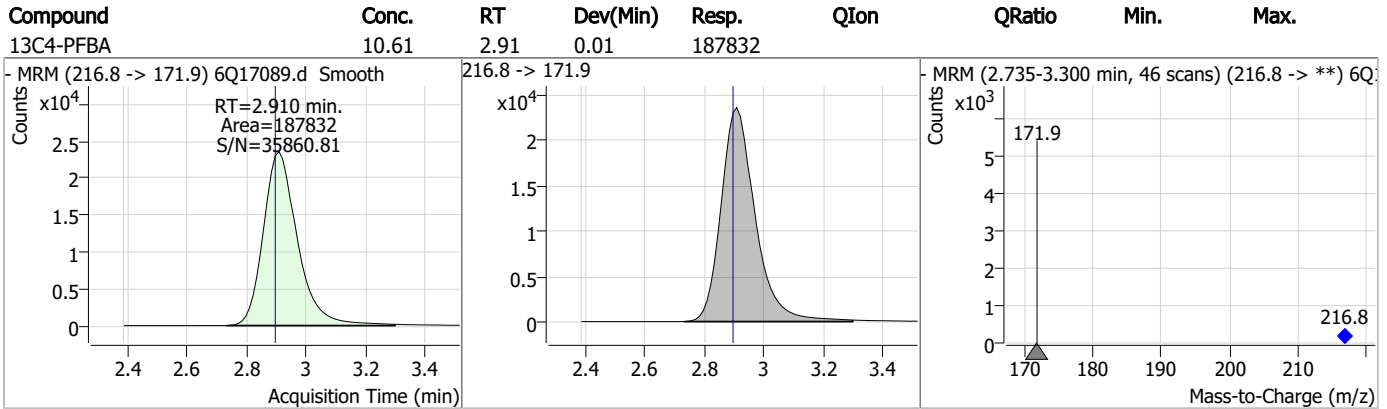
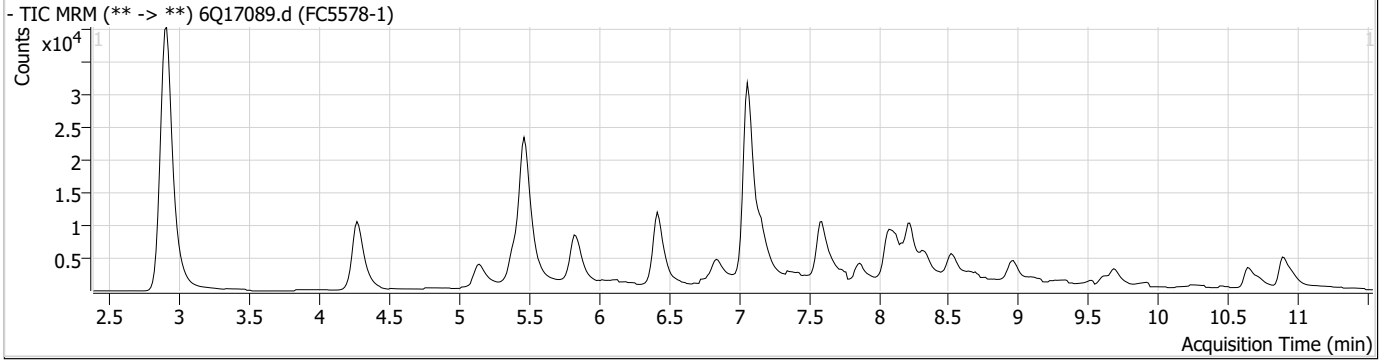
Perfluorinated Compounds by LC/MS/MS

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

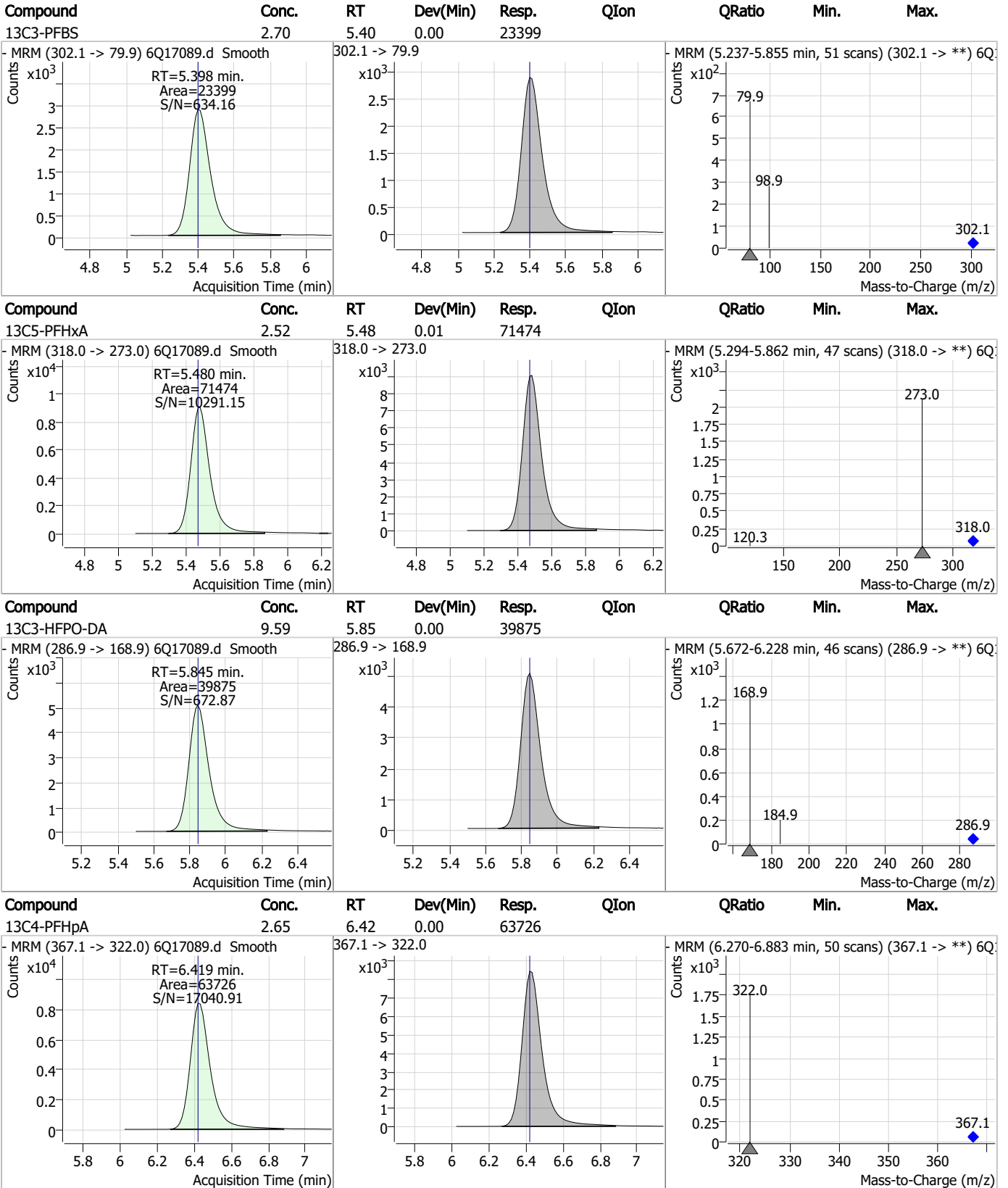
7.1.2

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

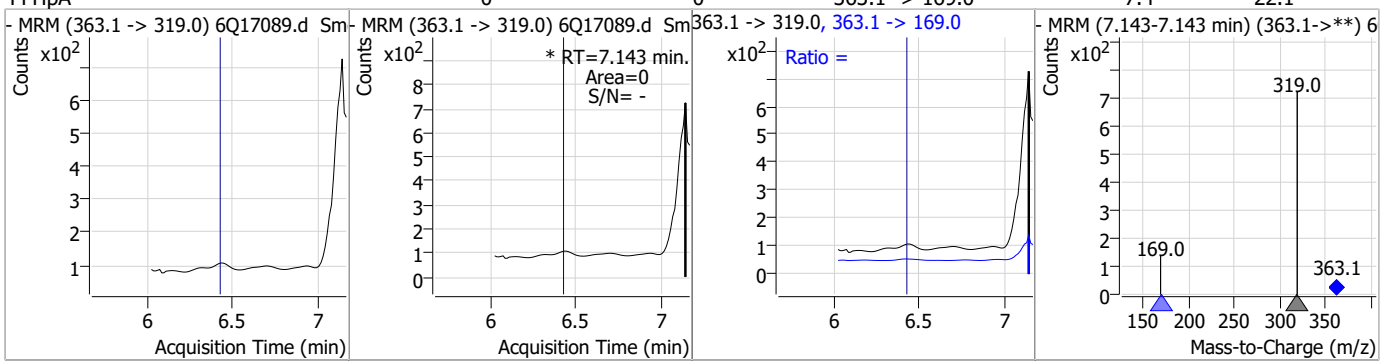


7.1.2

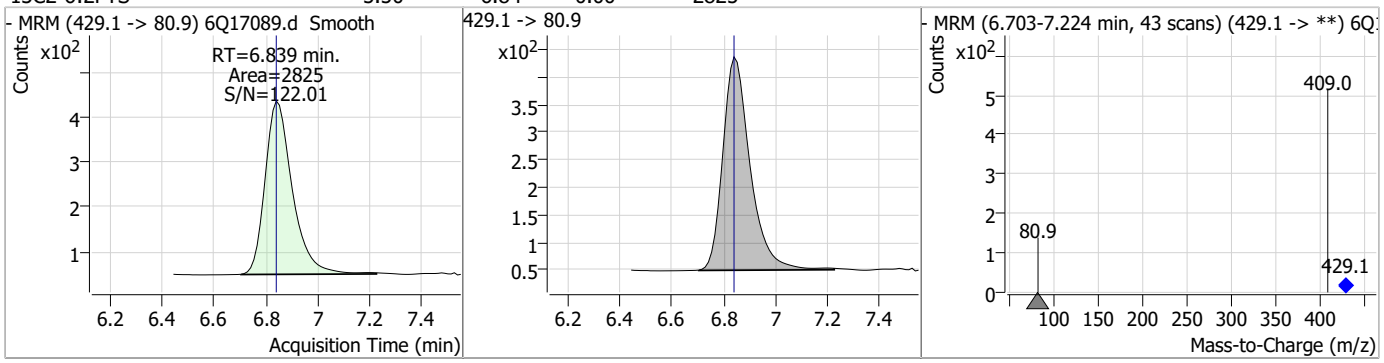
7

Perfluorinated Compounds by LC/MS/MS

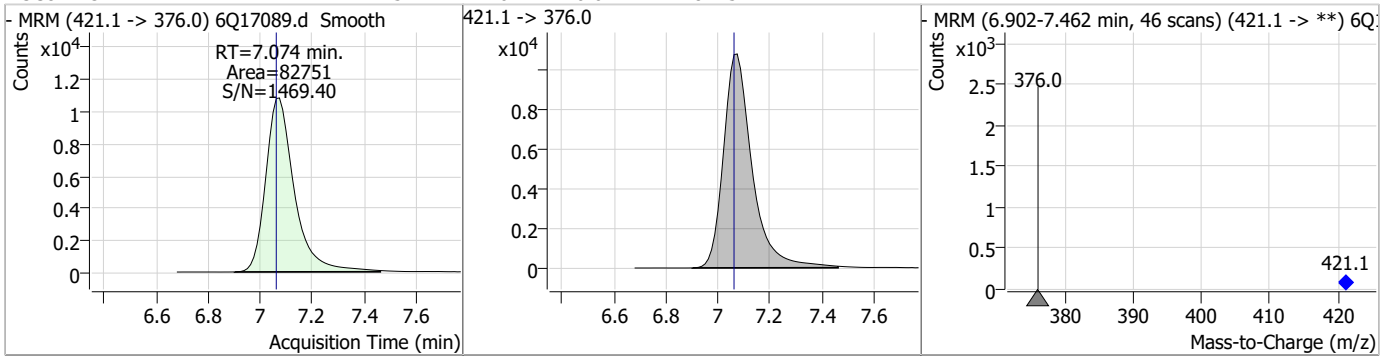
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	0	0		0	363.1 -> 169.0		7.4	22.1



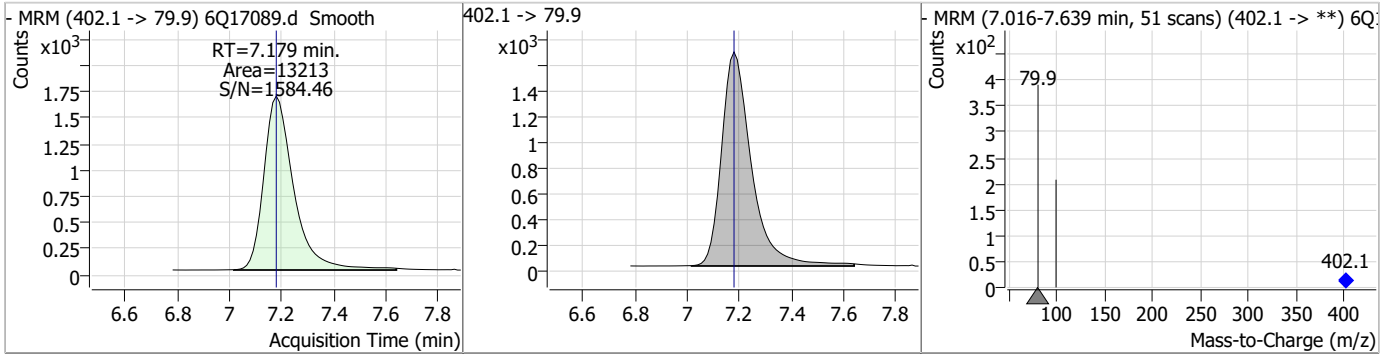
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.50	6.84	0.00	2825				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOA	2.45	7.07	0.01	82751				

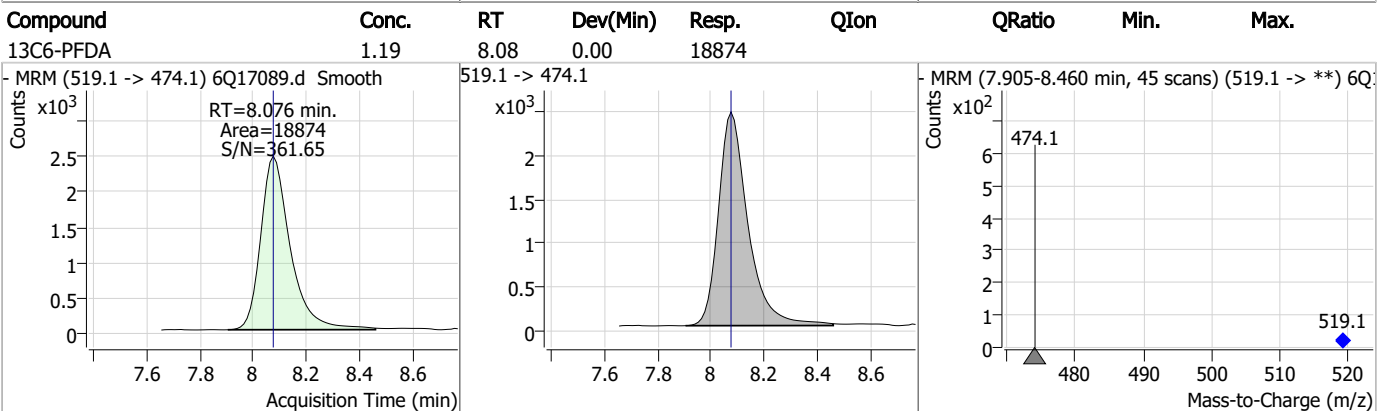
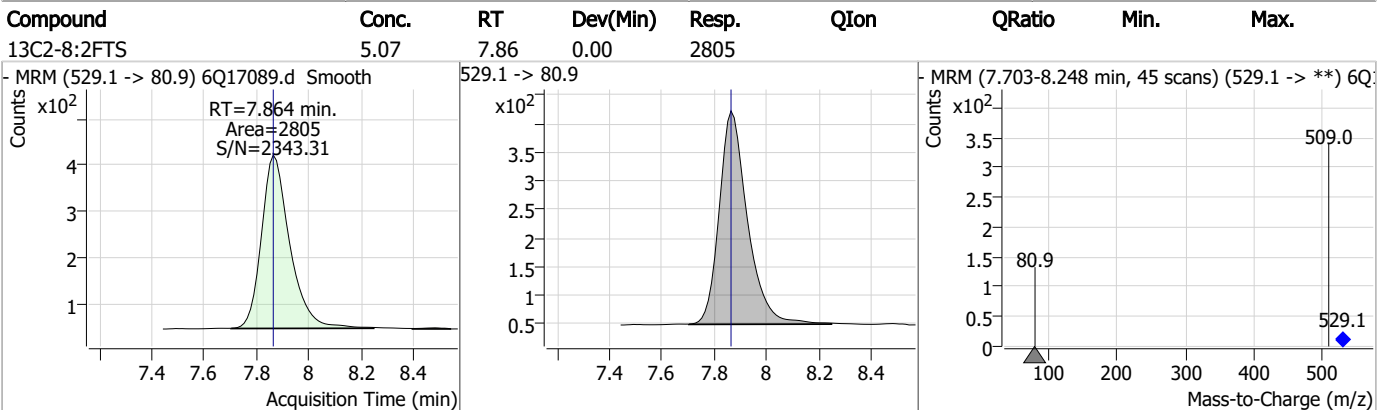
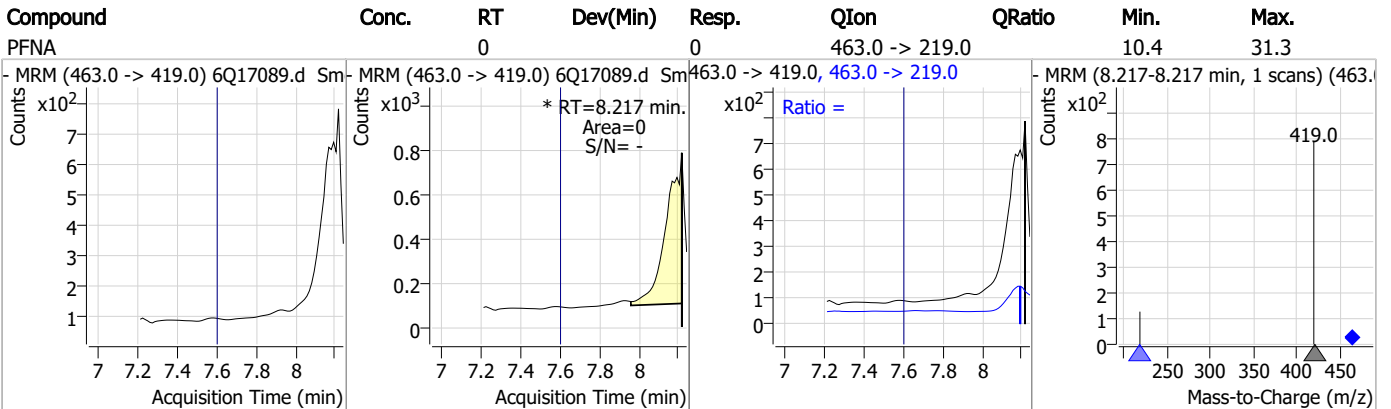
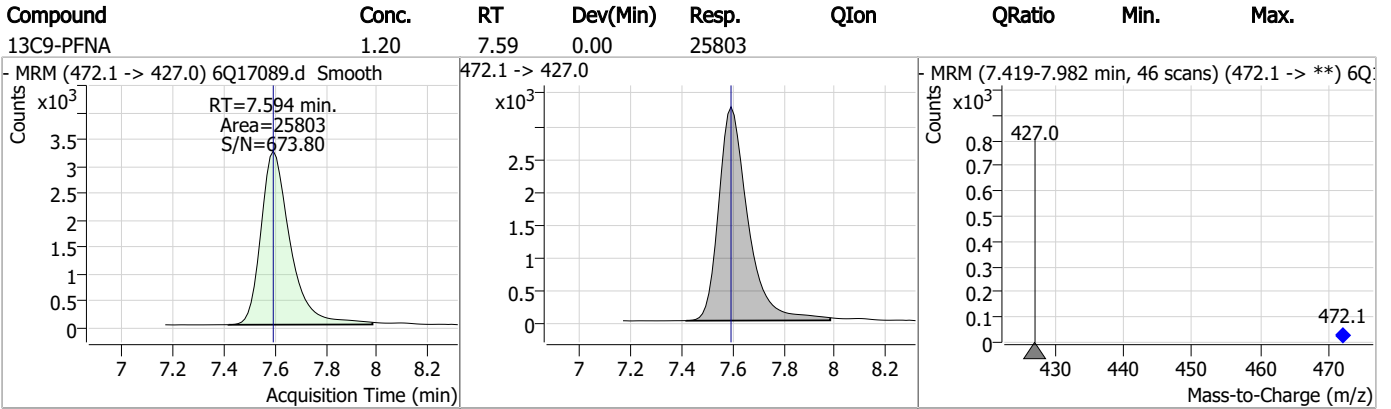


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFHxS	2.69	7.18	0.00	13213				



7.1.2
7

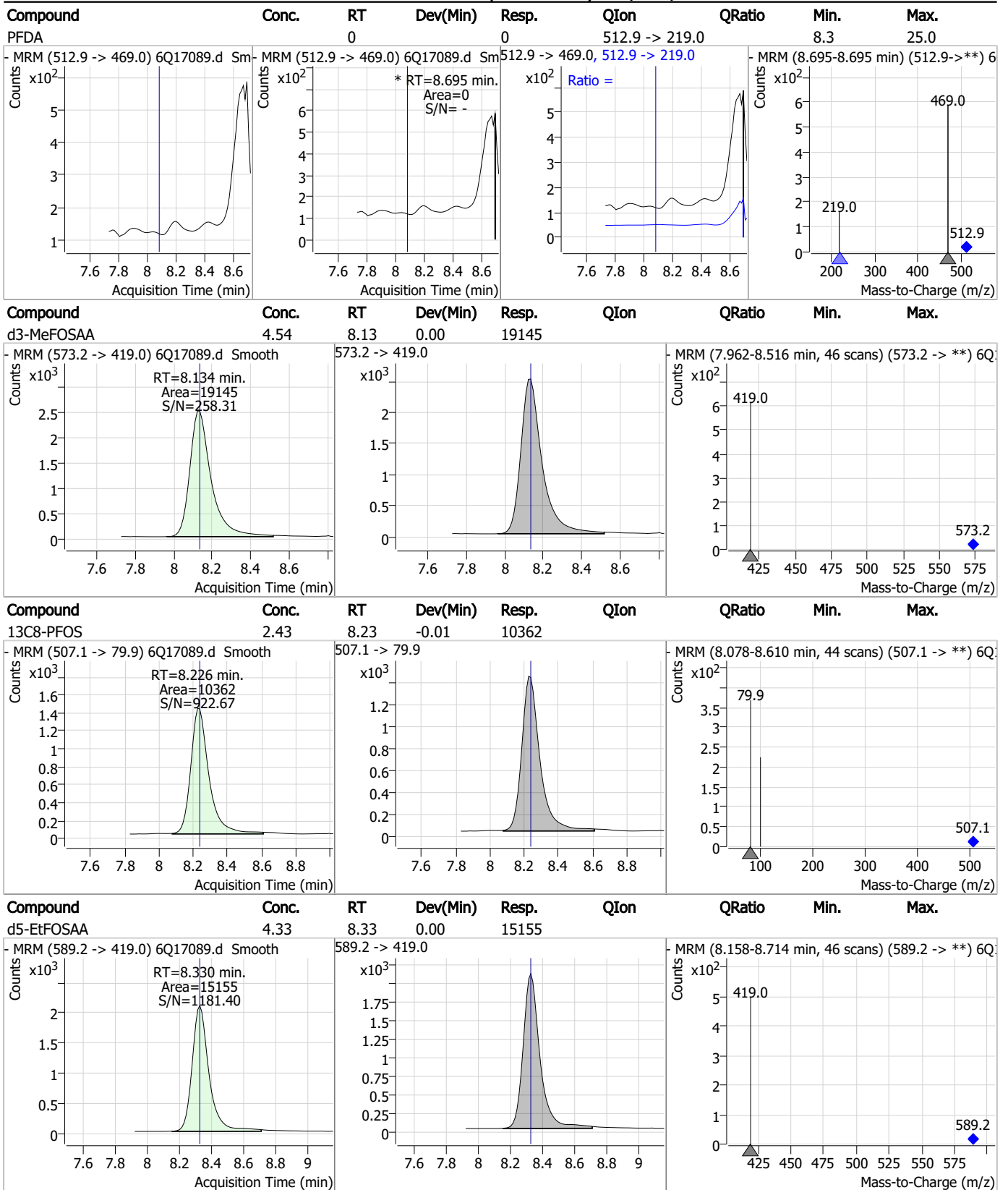
Perfluorinated Compounds by LC/MS/MS



7.1.2

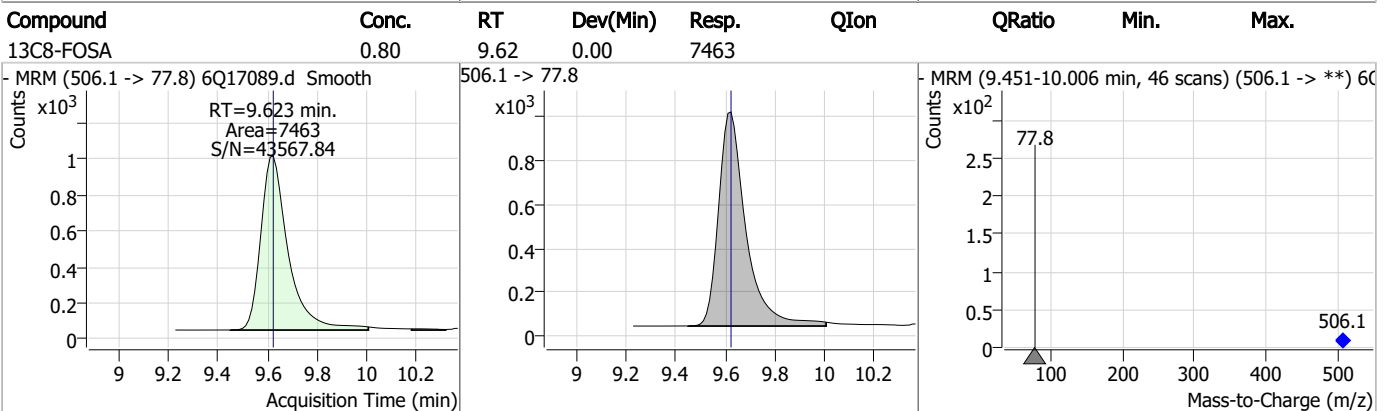
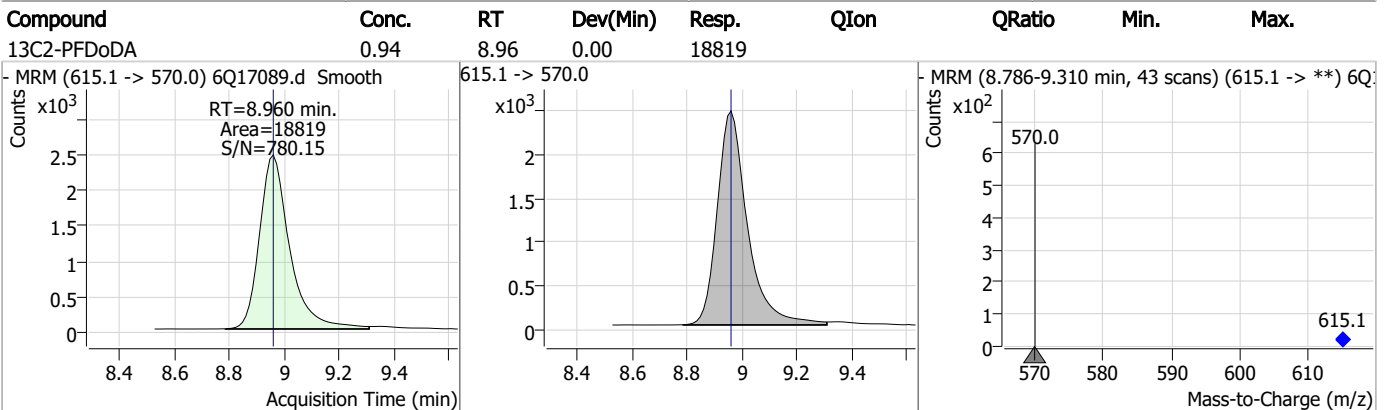
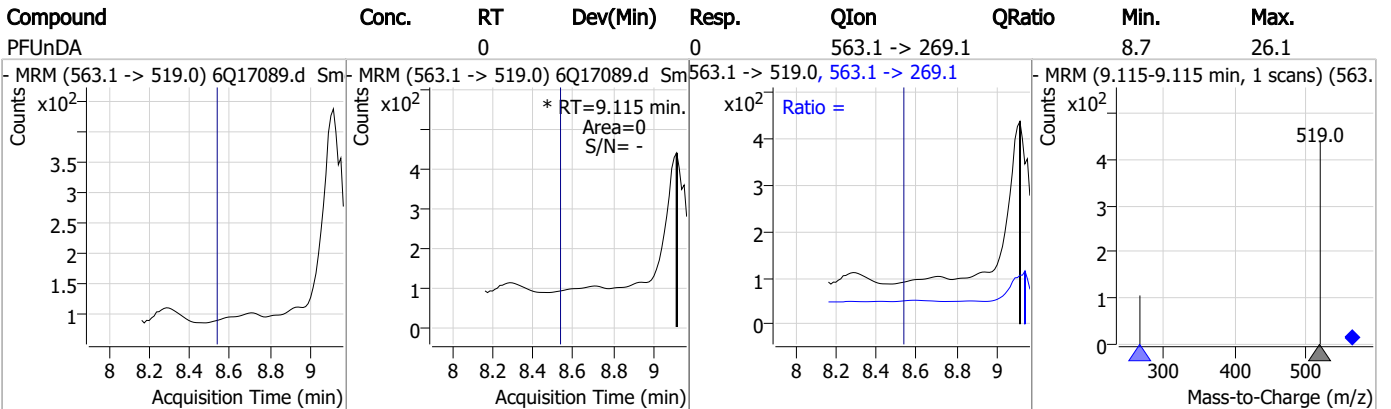
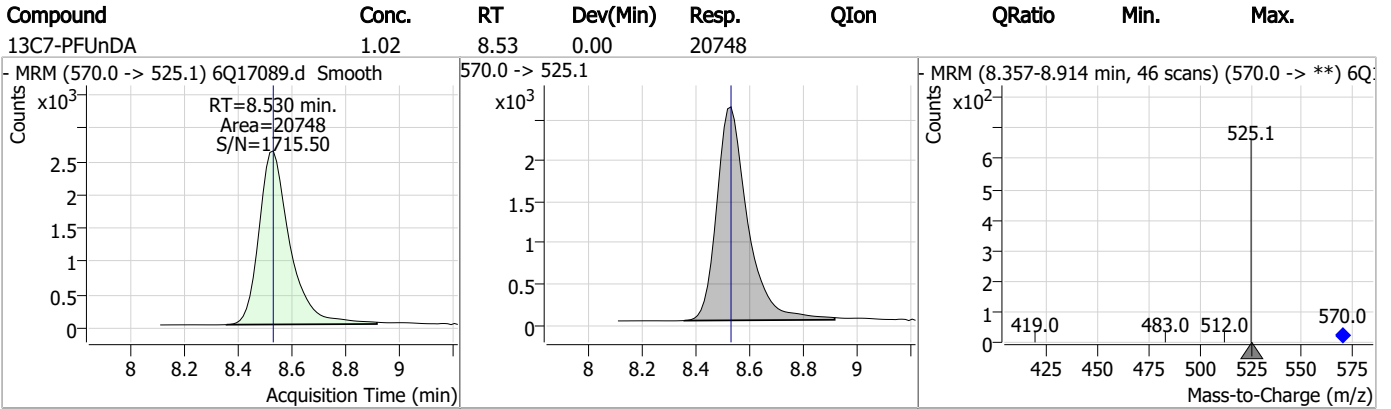
7

Perfluorinated Compounds by LC/MS/MS



7.1.2
7

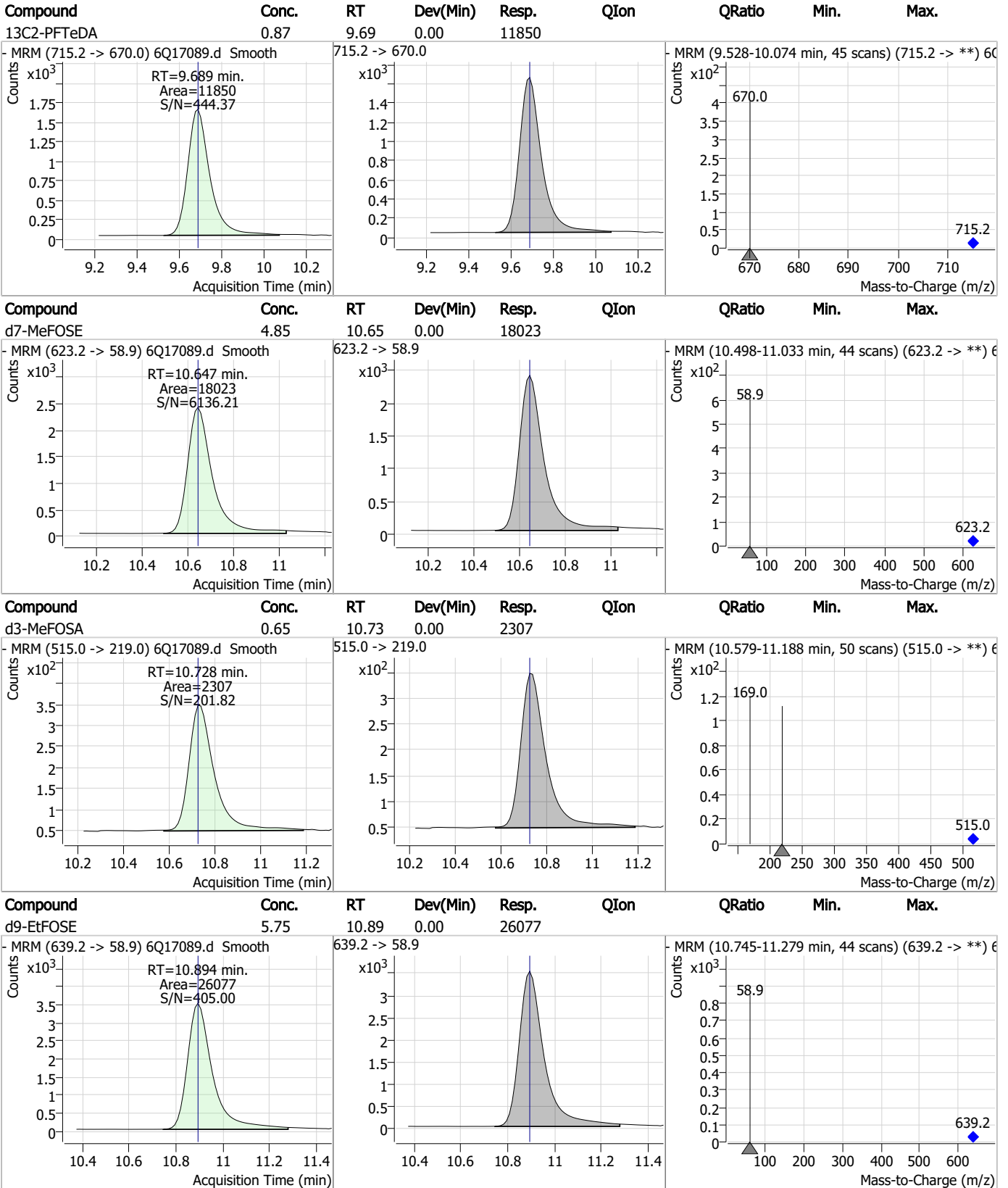
Perfluorinated Compounds by LC/MS/MS



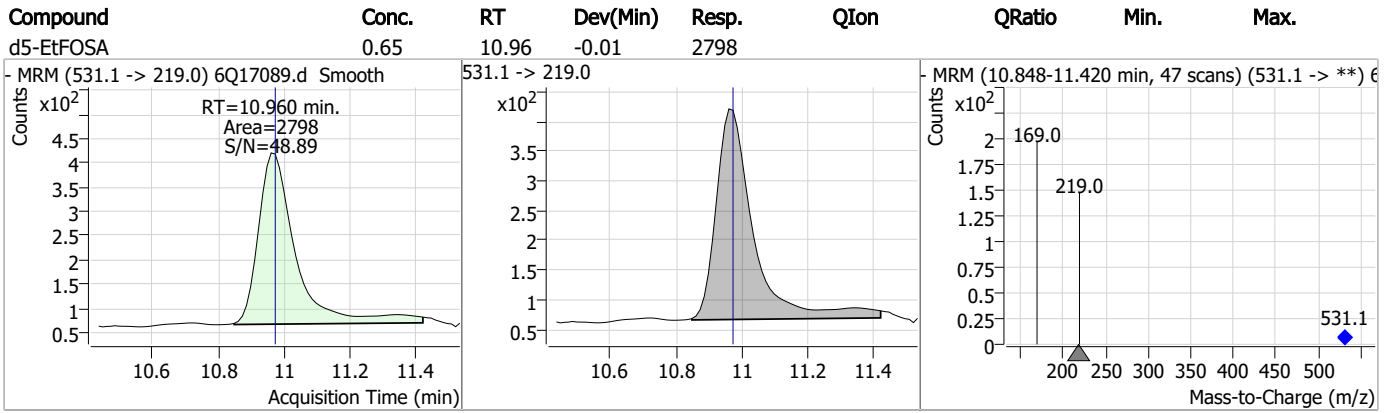
7.1.2

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.1.2
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17090.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 10:15:16 PM
 Sample Name : FC5578-2
 Vial : P3-B8
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,570,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	189686	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	68870	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	74379	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	62222	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	87363	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	29062	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19420	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25707	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	20333	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	13987	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	9818	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23887	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13468	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	12194	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2282	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2923	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2846	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21954	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39587	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	15608	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	18064	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	25131	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	3188	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	2732	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13553	2.50 µg/L	0.000
13C3-PFBA	2.914	216.0 -> 172.0	74713	5.00 µg/L	0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9520	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85937	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	23854	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27792	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	54837	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2282	5.21 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2923	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2846	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-PFDoDA	8.960	615.1 -> 570.0	20333	1.02 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 81.9%		
13C2-PFTeDA	9.689	715.2 -> 670.0	13987	1.04 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 83.3%		
13C3-PFBS	5.398	302.1 -> 79.9	23887	2.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 106.7%		
13C3-PFHxS	7.179	402.1 -> 79.9	13468	2.66 µg/L	0.000

7.1.3
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 = 106.3%	
13C4-PFBA	2.910	216.8 -> 171.9	189686	10.99 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 109.9%	
13C4-PFHpA	6.419	367.1 -> 322.0	62222	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.0%	
13C5-PFHxA	5.468	318.0 -> 273.0	74379	2.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.5%	
13C5-PFPeA	4.270	268.3 -> 223.0	68870	5.62 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.4%	
13C6-PFDA	8.076	519.1 -> 474.1	19420	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25707	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-FOSA	9.611	506.1 -> 77.8	9818	1.10 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 43.8%	
13C8-PFOA	7.062	421.1 -> 376.0	87363	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C8-PFOS	8.226	507.1 -> 79.9	12194	2.99 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 119.5%	
13C9-PFNA	7.594	472.1 -> 427.0	29062	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21954	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39587	10.20 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.0%	
d3-MeFOSA	10.728	515.0 -> 219.0	2732	0.81 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 32.3%	
d5-EtFOSAA	8.330	589.2 -> 419.0	15608	4.65 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.0%	
d7-MeFOSE	10.647	623.2 -> 58.9	18064	5.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 20.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	25131	5.78 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 23.1%	
d5-EtFOSA	10.960	531.1 -> 219.0	3188	0.77 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 30.7%	

7.13
7

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	8.708	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	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	8.217	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	7.699	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	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	9.139	563.1 -> 519.0	0	µg/L	m	1
		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

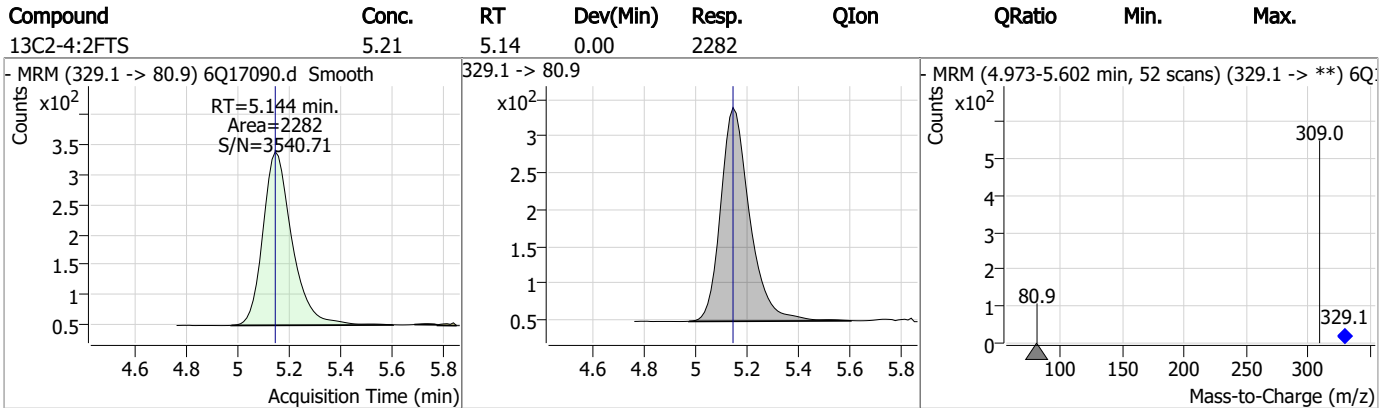
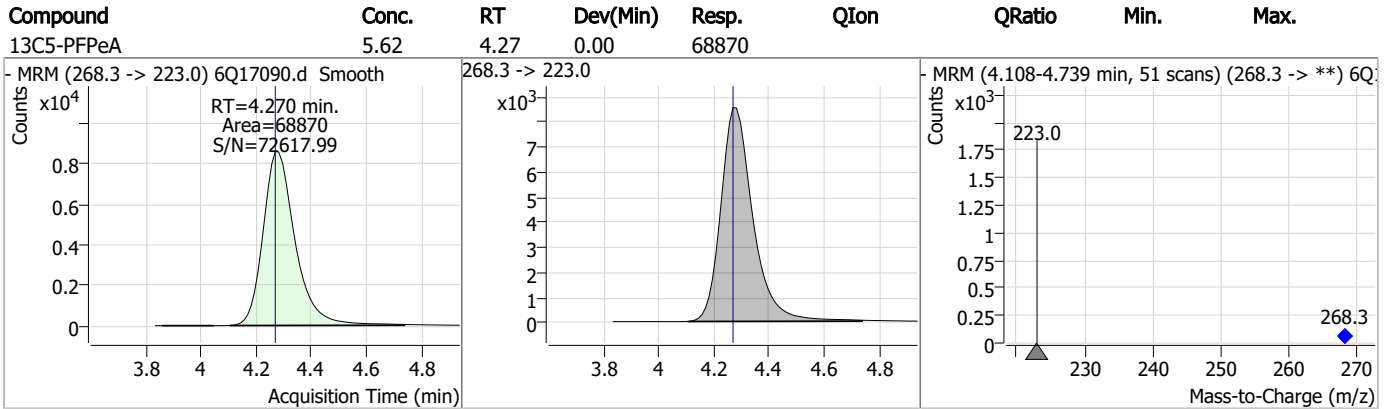
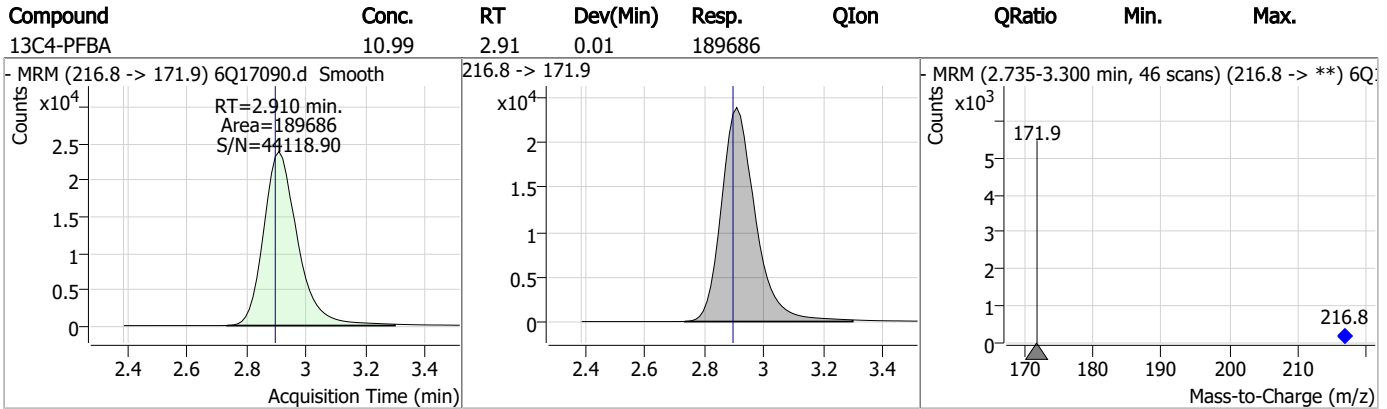
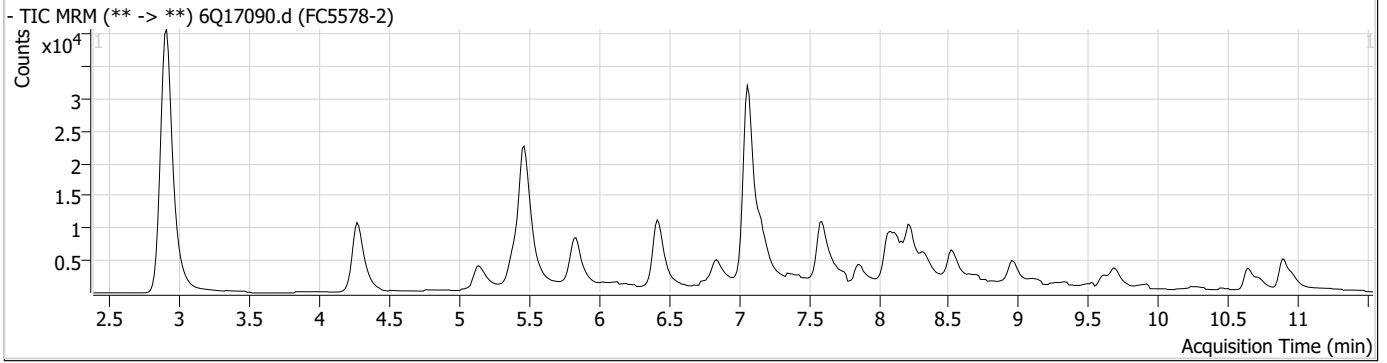
Perfluorinated Compounds by LC/MS/MS

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

7.1.3

7

Perfluorinated Compounds by LC/MS/MS

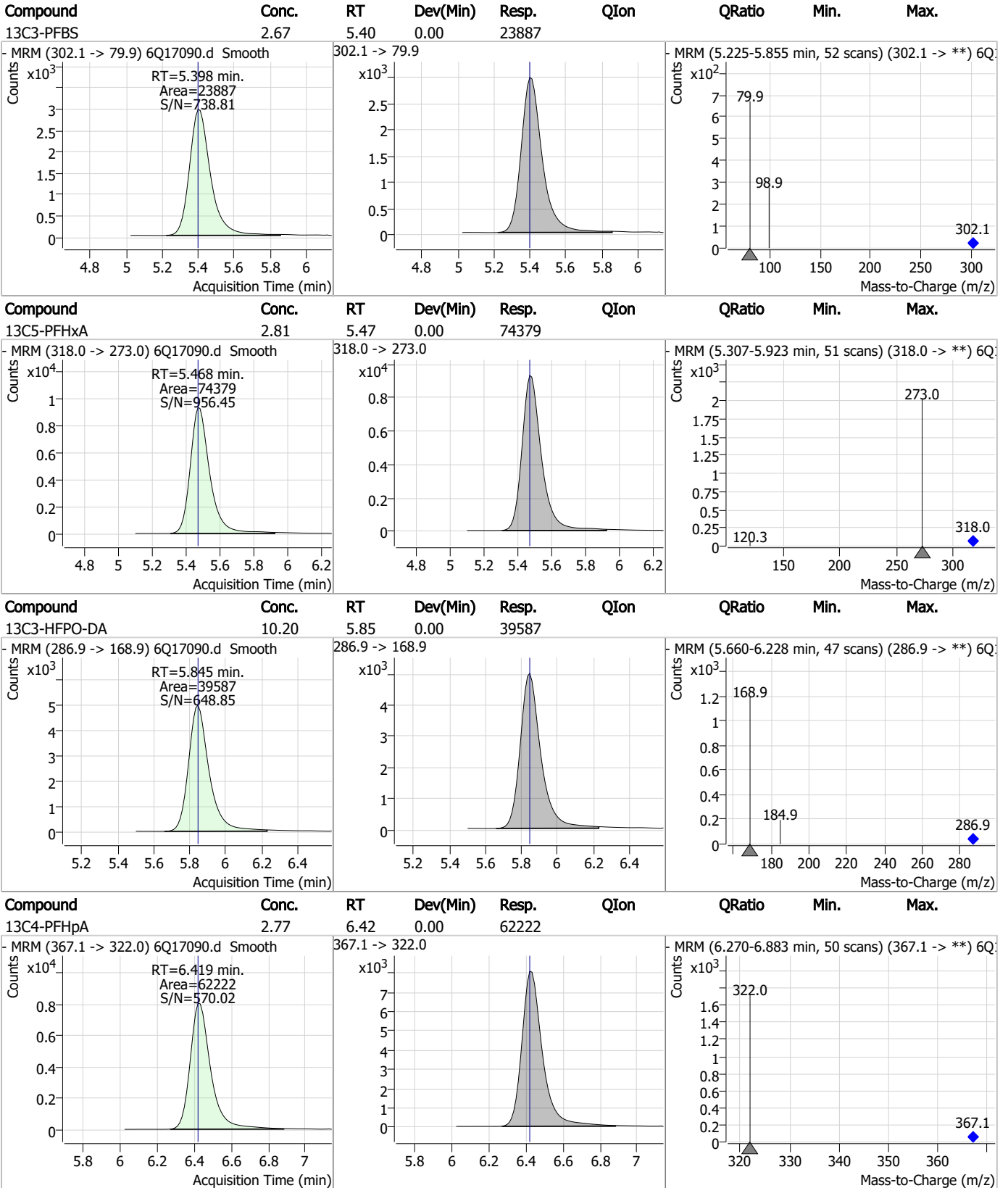


7.1.3

7



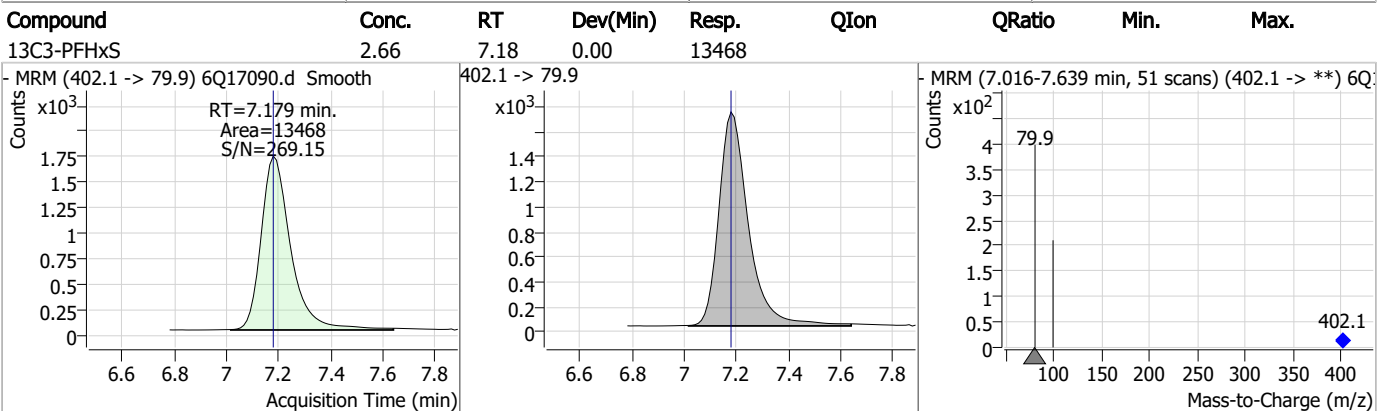
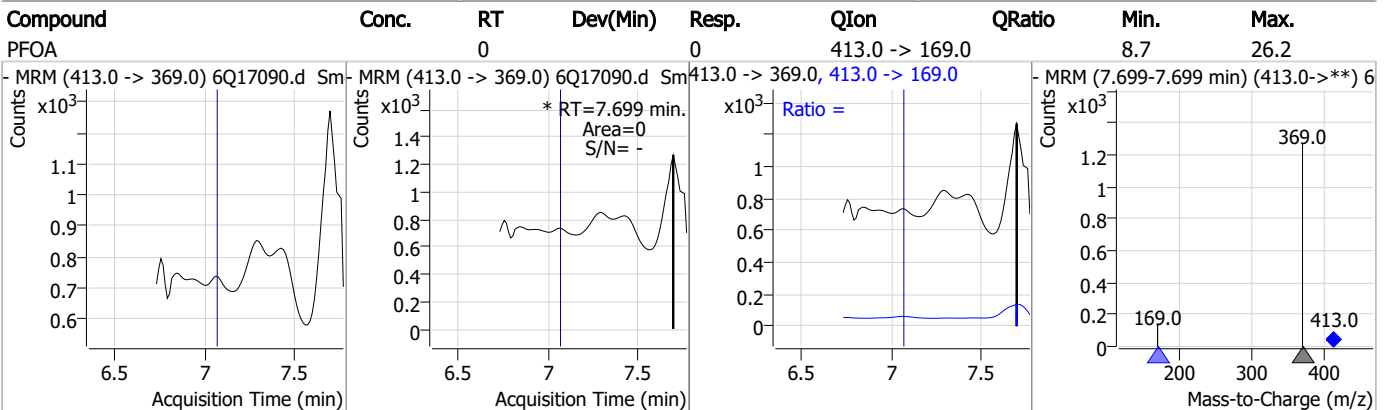
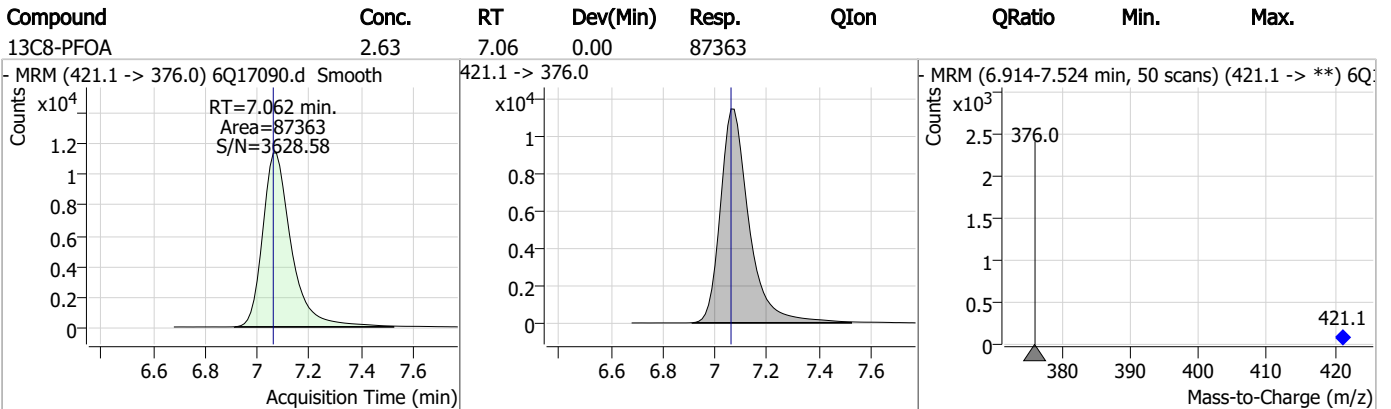
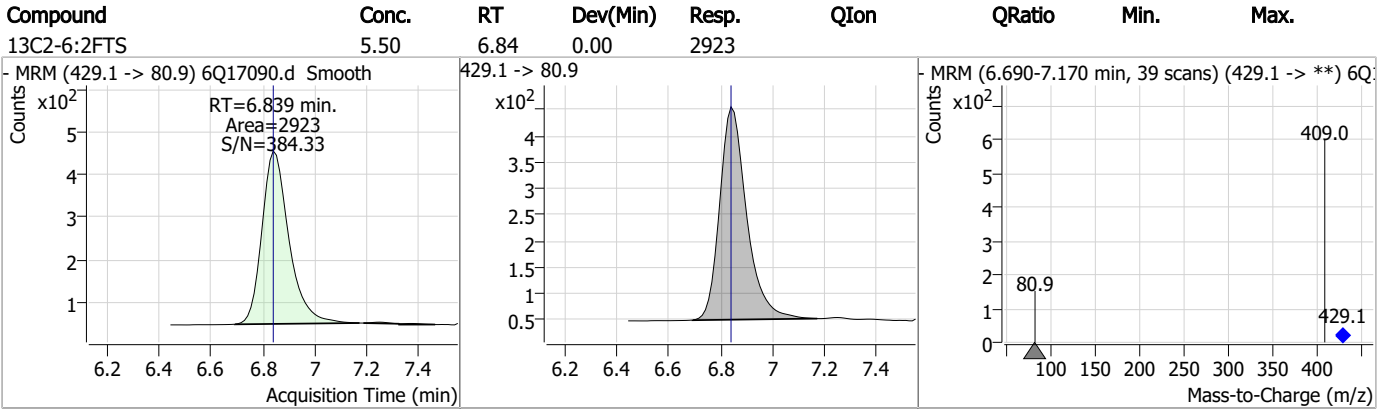
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

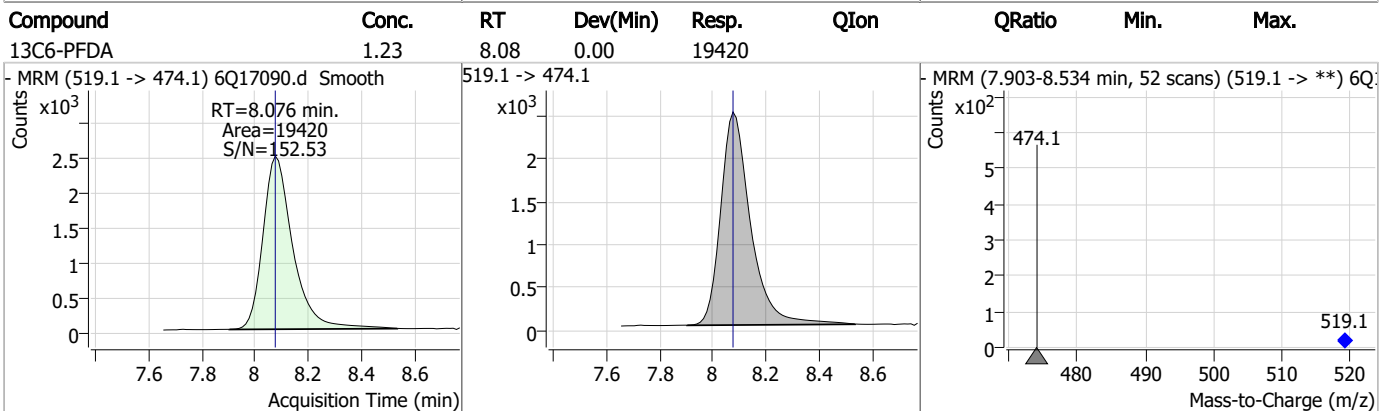
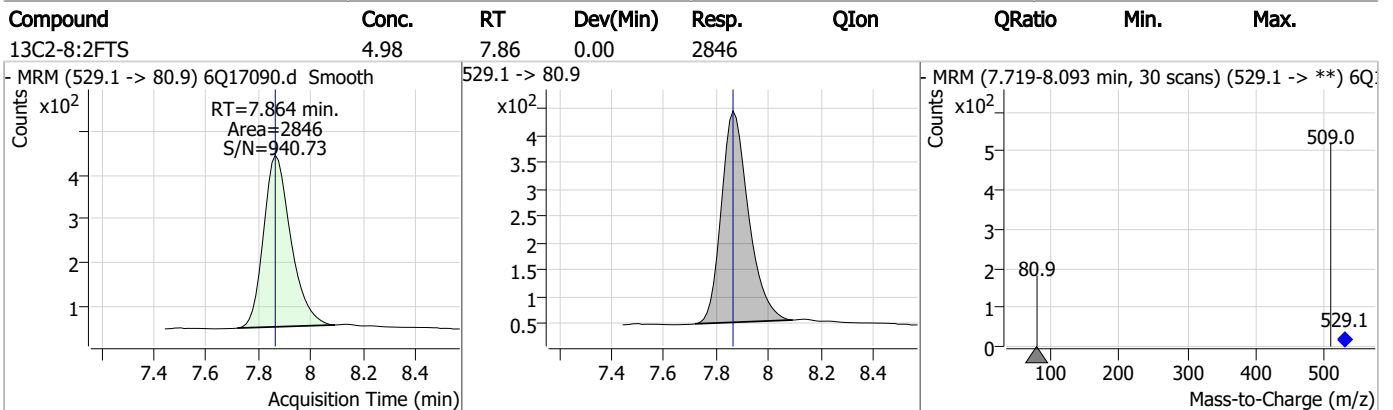
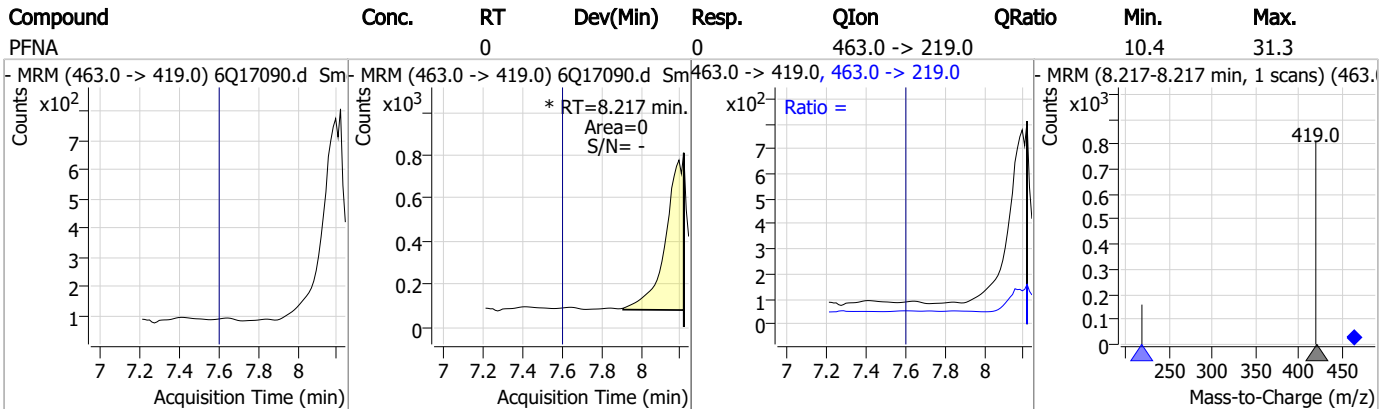
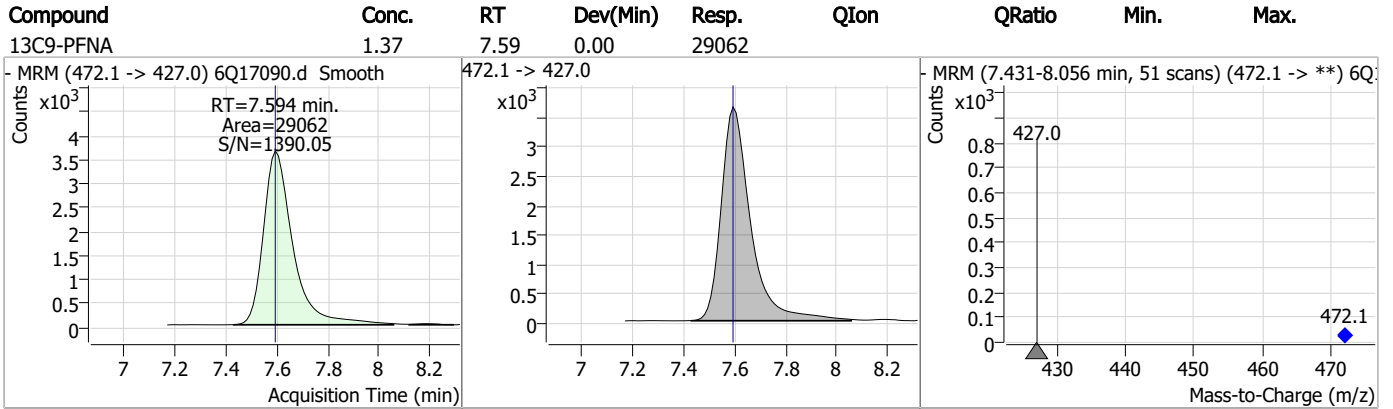


7.1.3

7



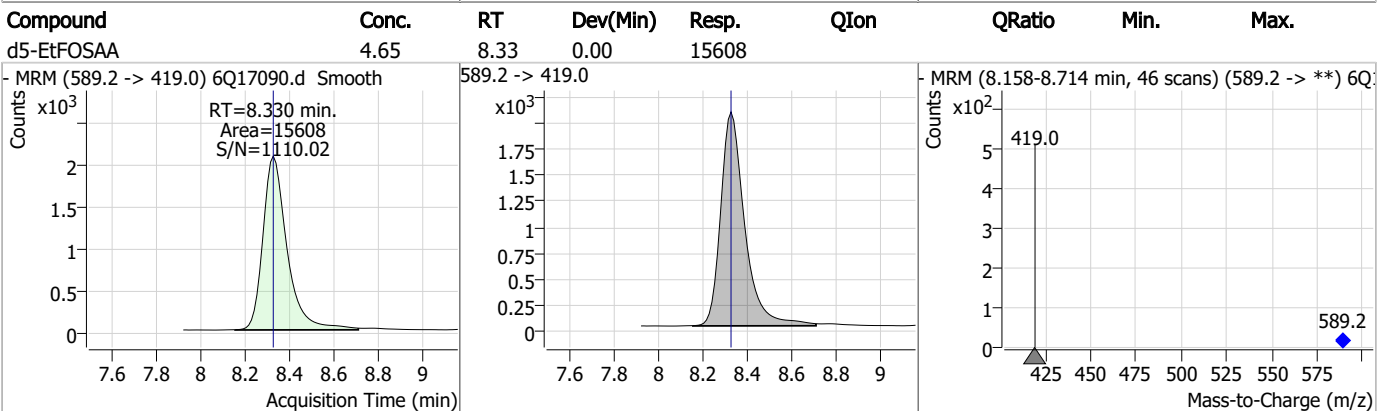
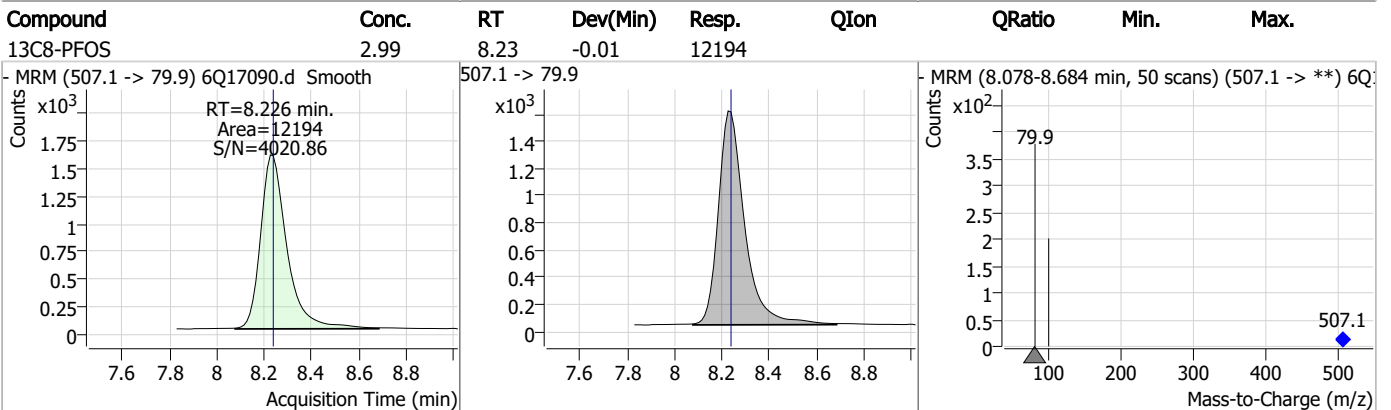
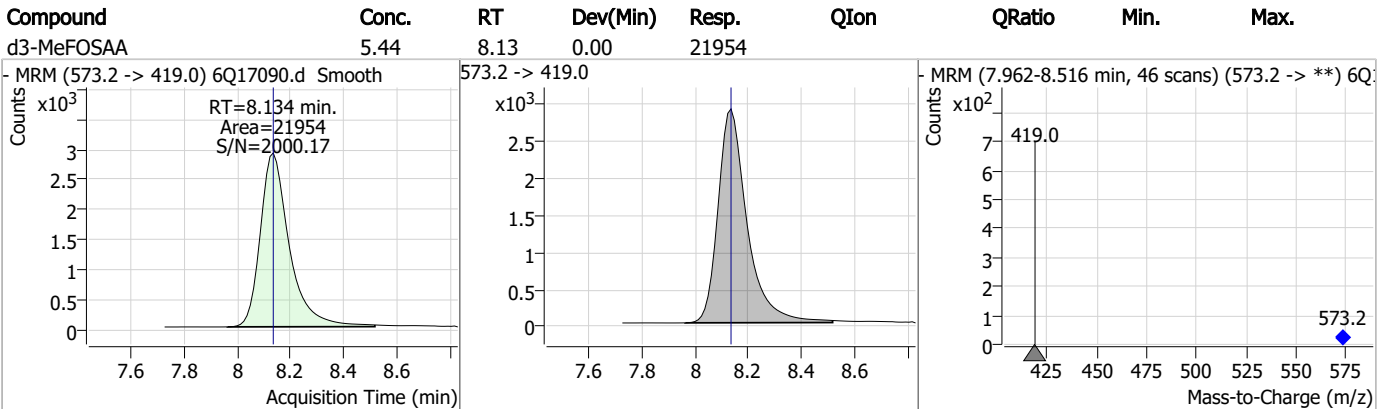
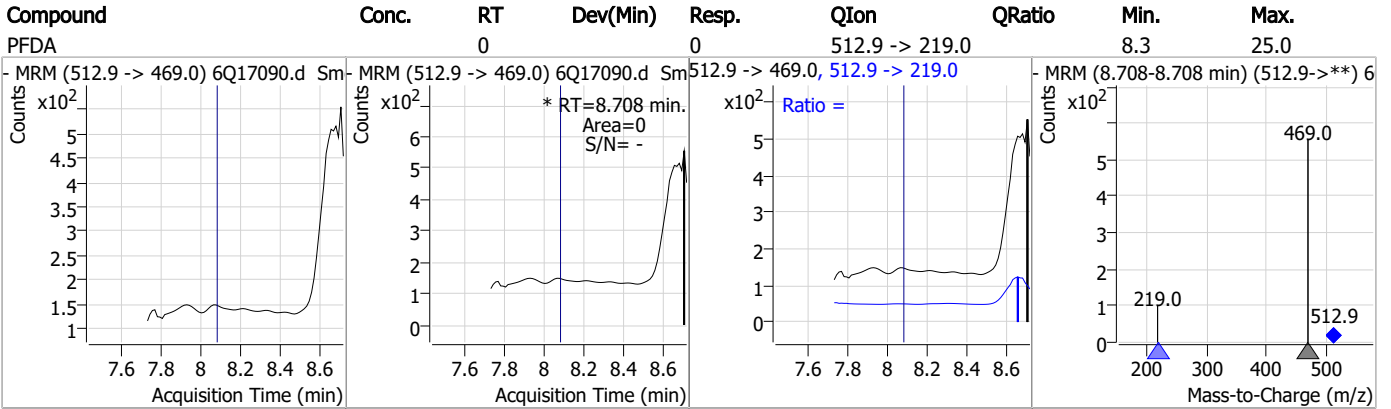
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS

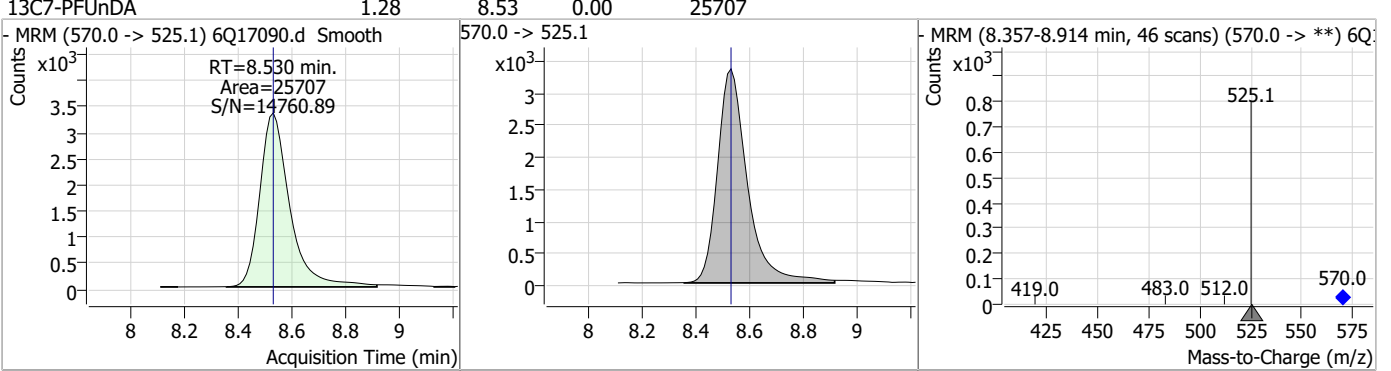


7.1.3

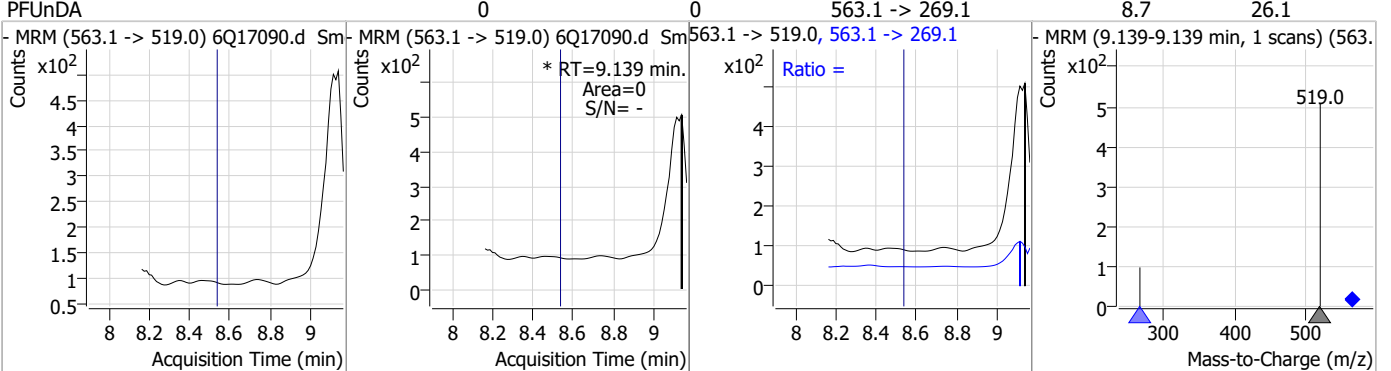
7

Perfluorinated Compounds by LC/MS/MS

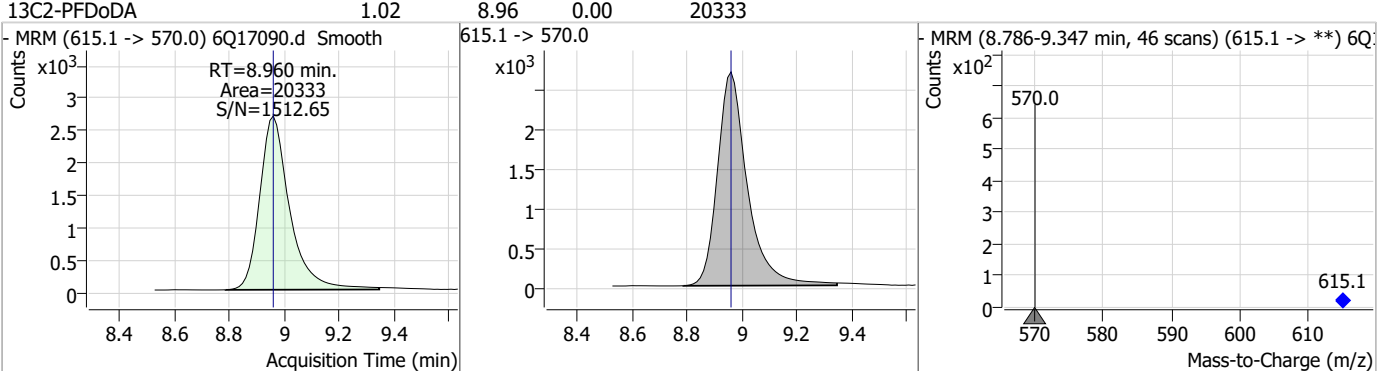
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



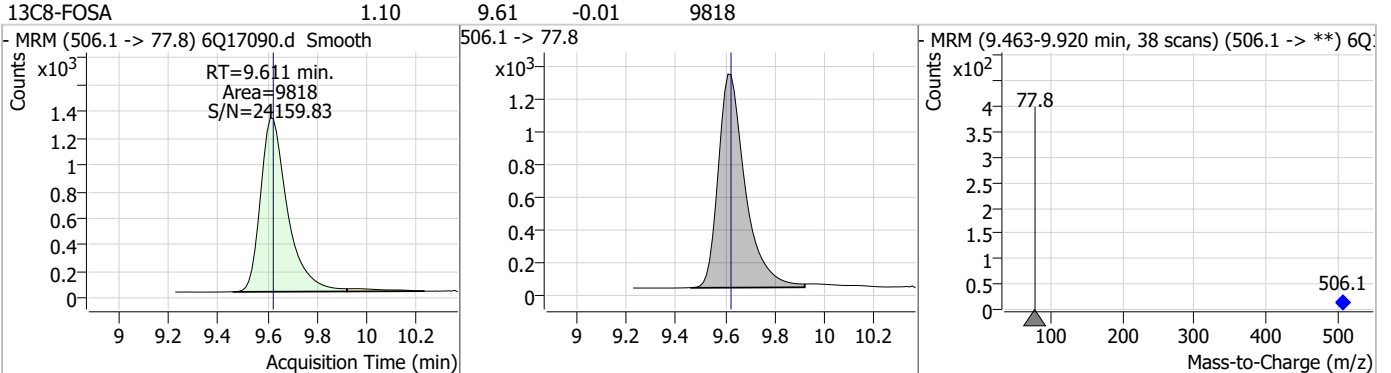
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



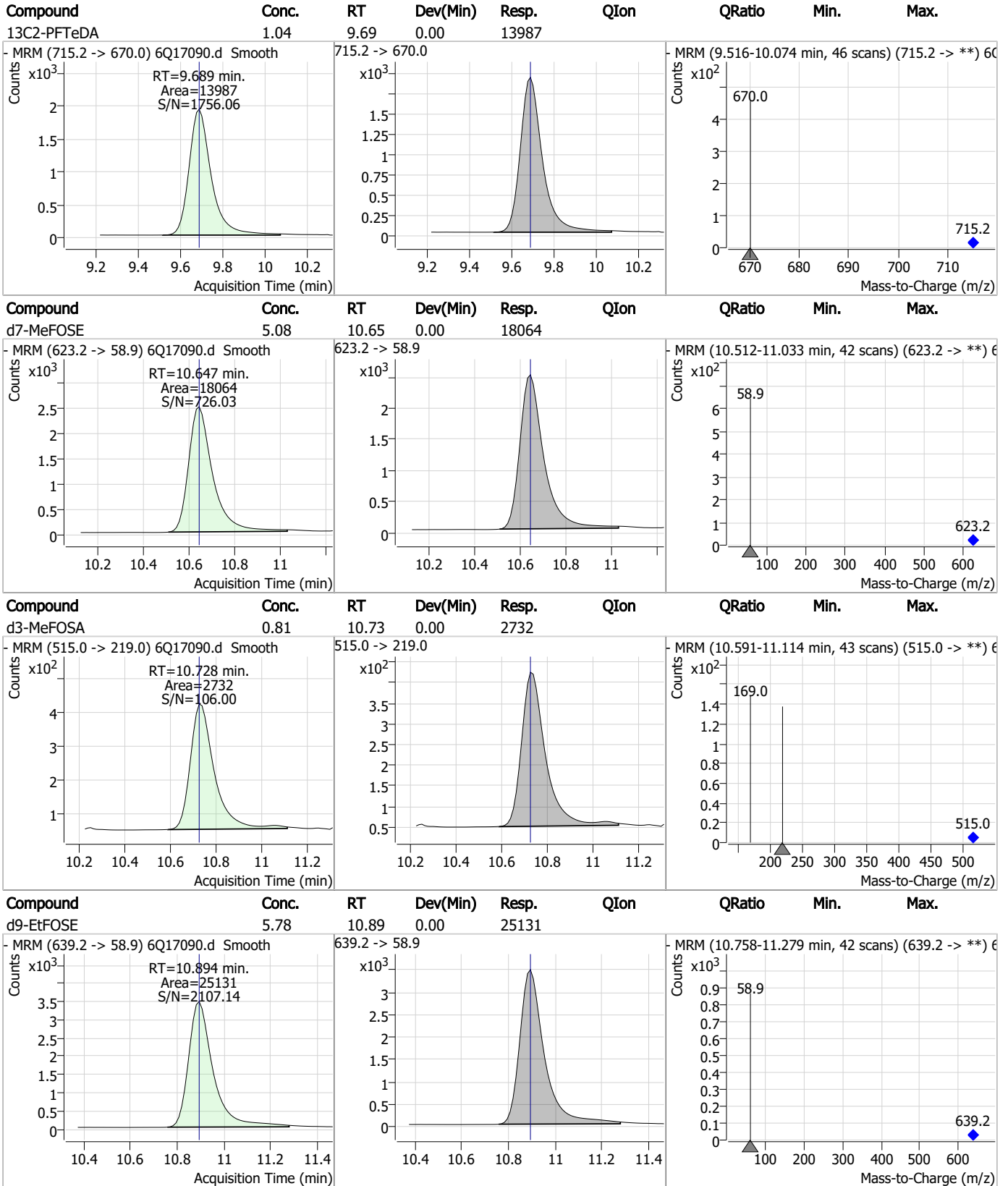
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



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



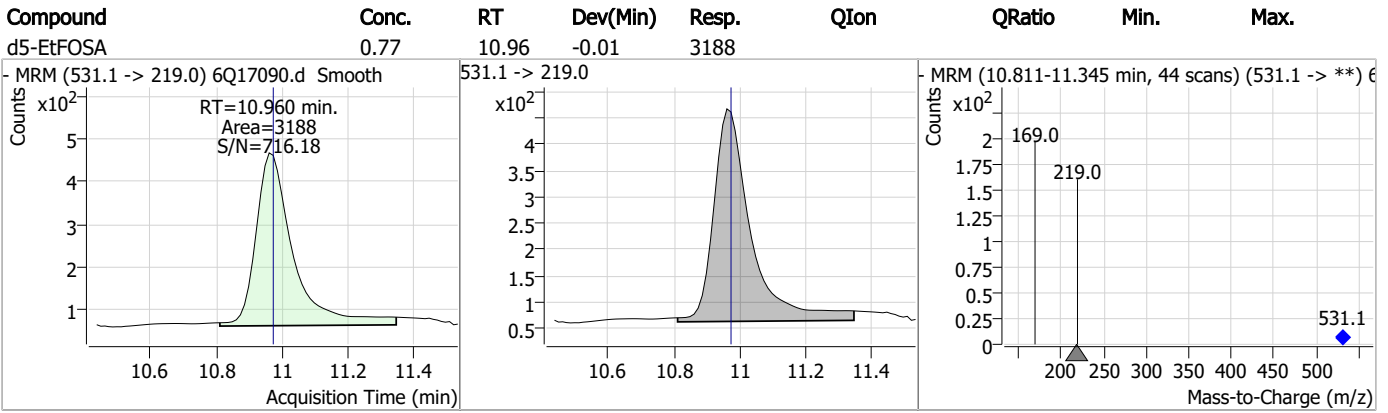
Perfluorinated Compounds by LC/MS/MS



7.1.3

7

Perfluorinated Compounds by LC/MS/MS



7.1.3
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17074.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 6:23:28 PM
 Sample Name : op96603-mb
 Vial : P3-A3
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	188202	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66905	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	71870	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60240	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	87248	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27099	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19469	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24995	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	22091	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	12327	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	9826	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22659	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13349	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11157	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2420	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2884	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3016	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	20409	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40142	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	15952	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	19316	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	26530	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	2829	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	2545	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14379	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	75144	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8956	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	80645	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22692	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28084	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	54512	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2420	5.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.6%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2884	5.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3016	5.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 112.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	22091	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	12327	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.2%		
13C3-PFBS	5.398	302.1 -> 79.9	22659	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 107.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	13349	2.80 µg/L	0.000

7.2.1
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 = 112.0%		
13C4-PFBA	2.910	216.8 -> 171.9	188202	10.84	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.4%		
13C4-PFHpA	6.419	367.1 -> 322.0	60240	2.70	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%		
13C5-PFHxA	5.468	318.0 -> 273.0	71870	2.73	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.3%		
13C5-PFPeA	4.270	268.3 -> 223.0	66905	5.49	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.9%		
13C6-PFDA	8.076	519.1 -> 474.1	19469	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%		
13C7-PFUnDA	8.530	570.0 -> 525.1	24995	1.30	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.4%		
13C8-FOSA	9.623	506.1 -> 77.8	9826	1.03	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 41.3%		
13C8-PFOA	7.062	421.1 -> 376.0	87248	2.80	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%		
13C8-PFOS	8.226	507.1 -> 79.9	11157	2.58	µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.0%		
13C9-PFNA	7.594	472.1 -> 427.0	27099	1.27	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%		
d3-MeFOSAA	8.134	573.2 -> 419.0	20409	4.76	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.3%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	40142	10.40	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%		
d3-MeFOSA	10.728	515.0 -> 219.0	2545	0.71	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 28.3%		
d5-EtFOSAA	8.330	589.2 -> 419.0	15952	4.48	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 89.6%		
d7-MeFOSE	10.647	623.2 -> 58.9	19316	5.12	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 20.5%		
d9-EtFOSE	10.894	639.2 -> 58.9	26530	5.75	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 23.0%		
d5-EtFOSA	10.973	531.1 -> 219.0	2829	0.64	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 25.7%		

7.2.1
7

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	8.695	512.9 -> 469.0	0		µg/L m	1
		512.9 -> 219.0	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	8.180	398.7 -> 98.9	0	µg/L	m	1
		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	9.152	563.1 -> 519.0	0	µg/L	m	1
		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

7.2.1
7

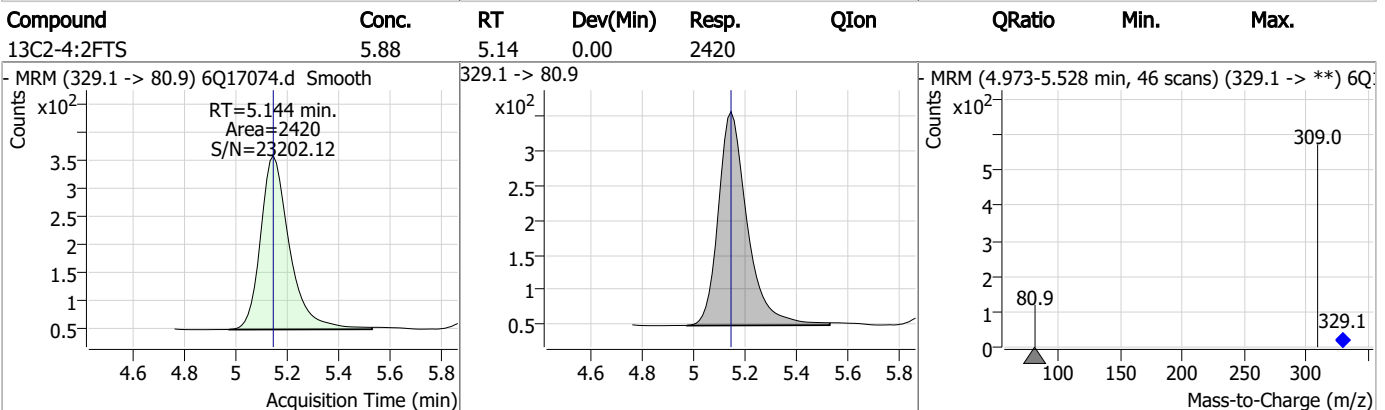
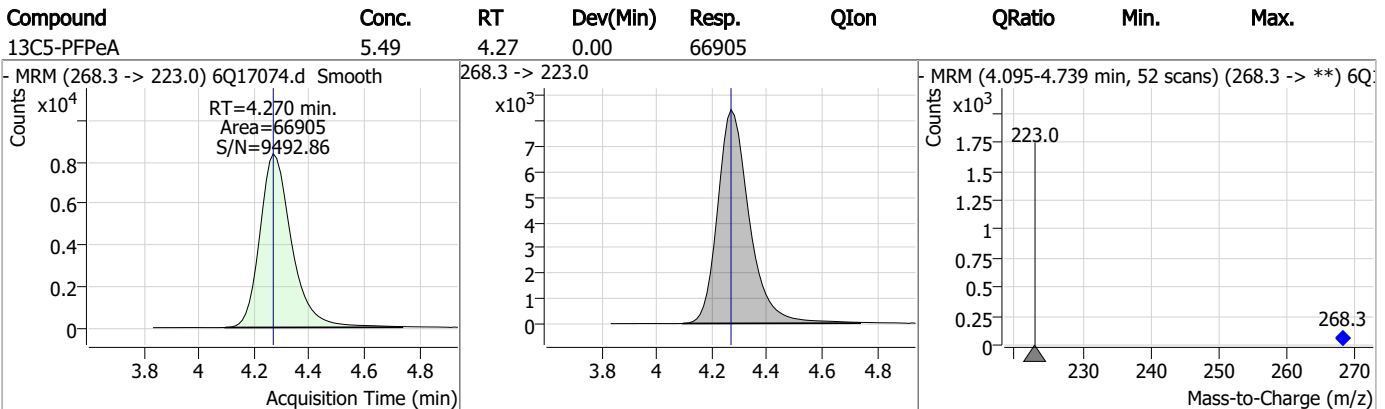
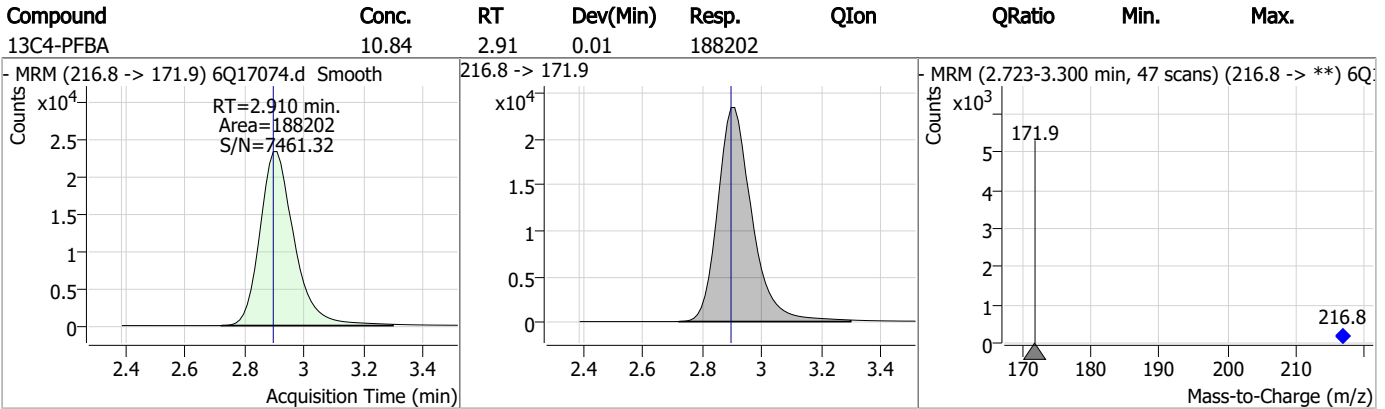
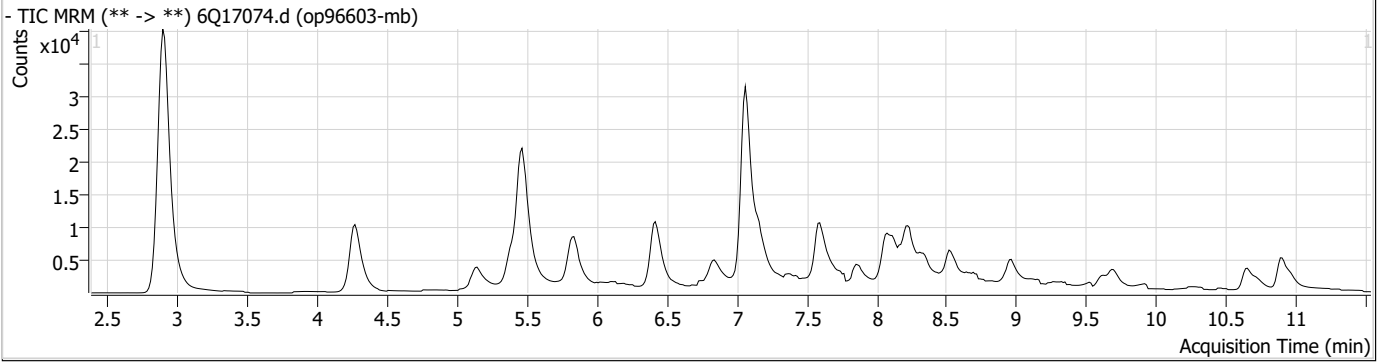
Perfluorinated Compounds by LC/MS/MS

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

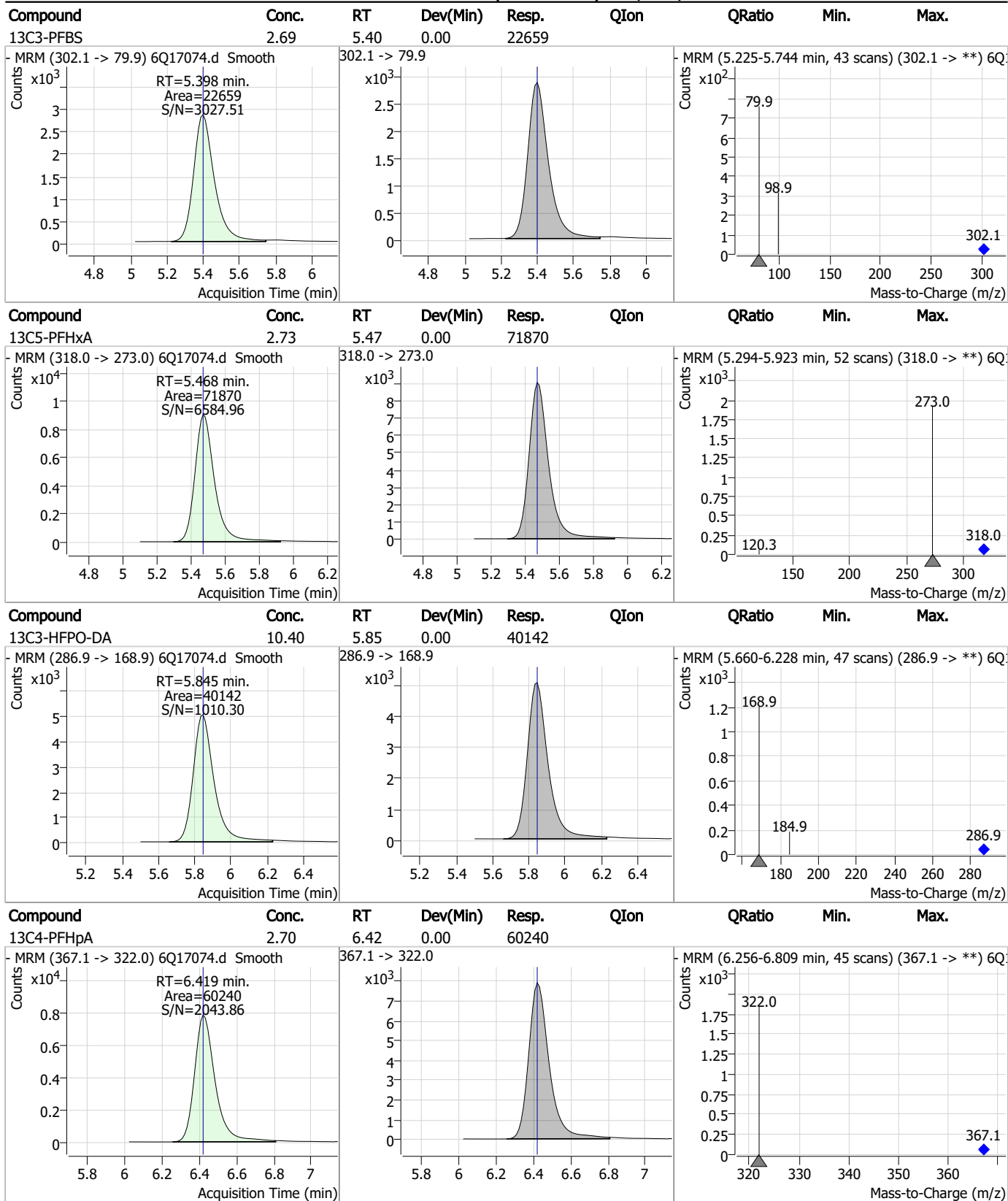
7.2.1

7

Perfluorinated Compounds by LC/MS/MS

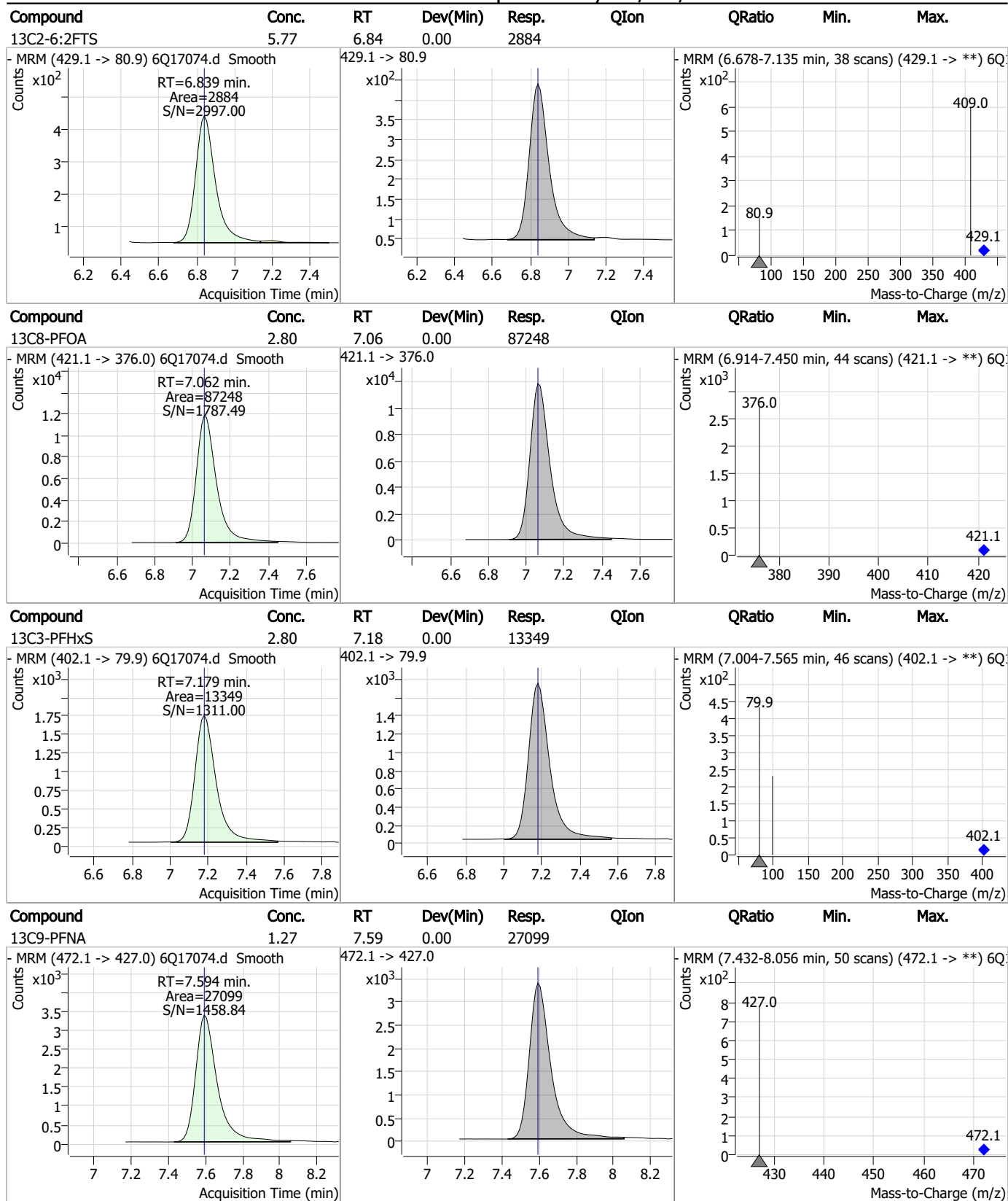


Perfluorinated Compounds by LC/MS/MS



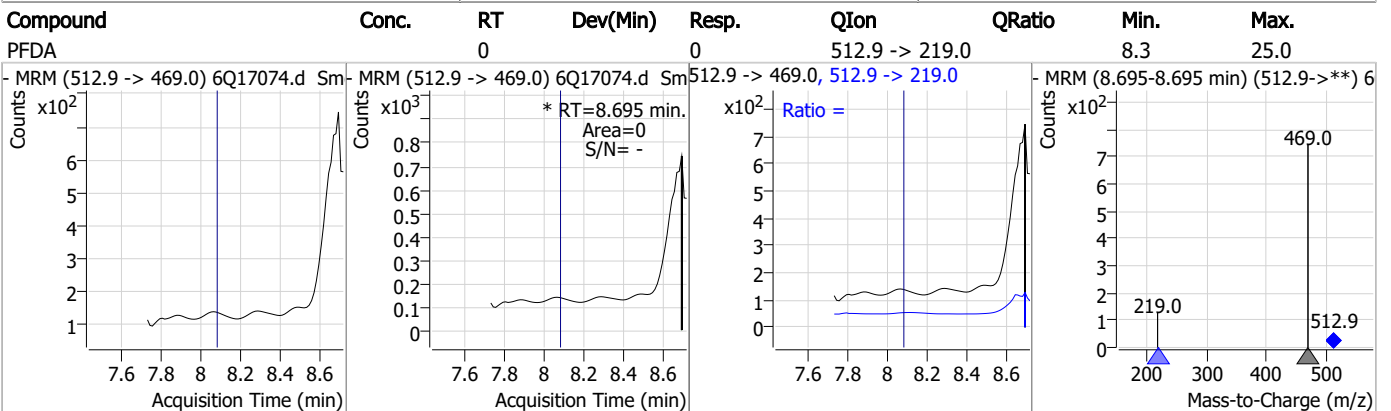
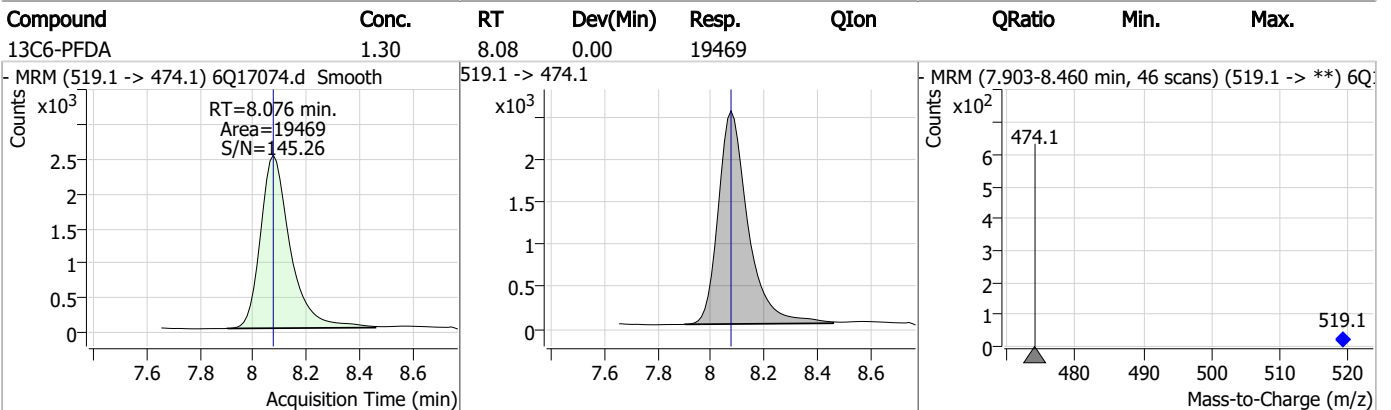
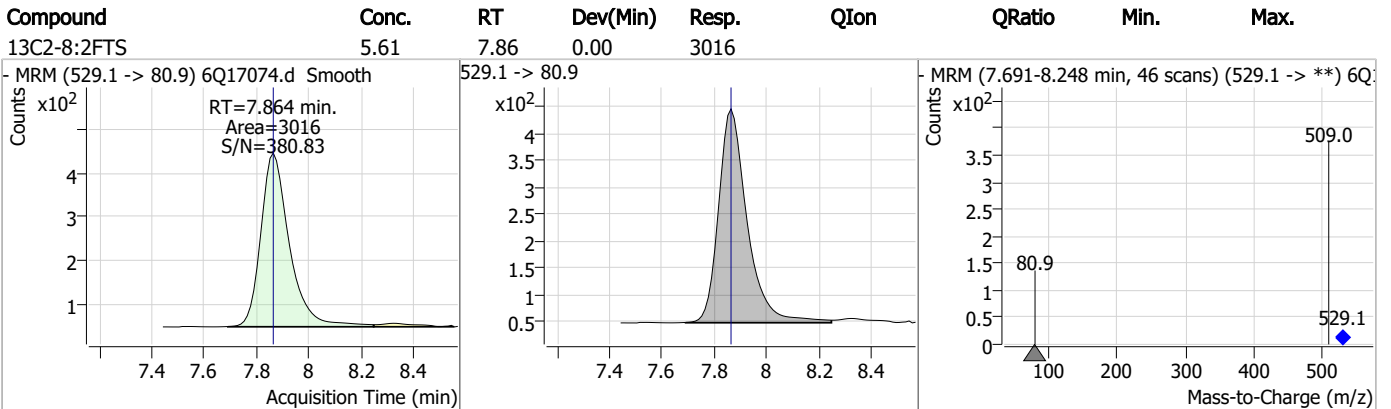
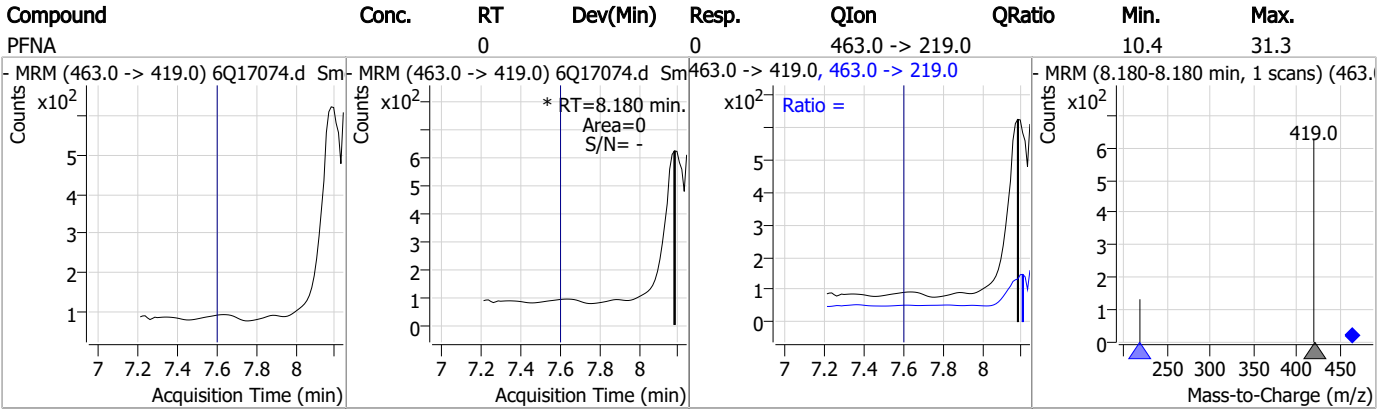
7.2.1
7

Perfluorinated Compounds by LC/MS/MS

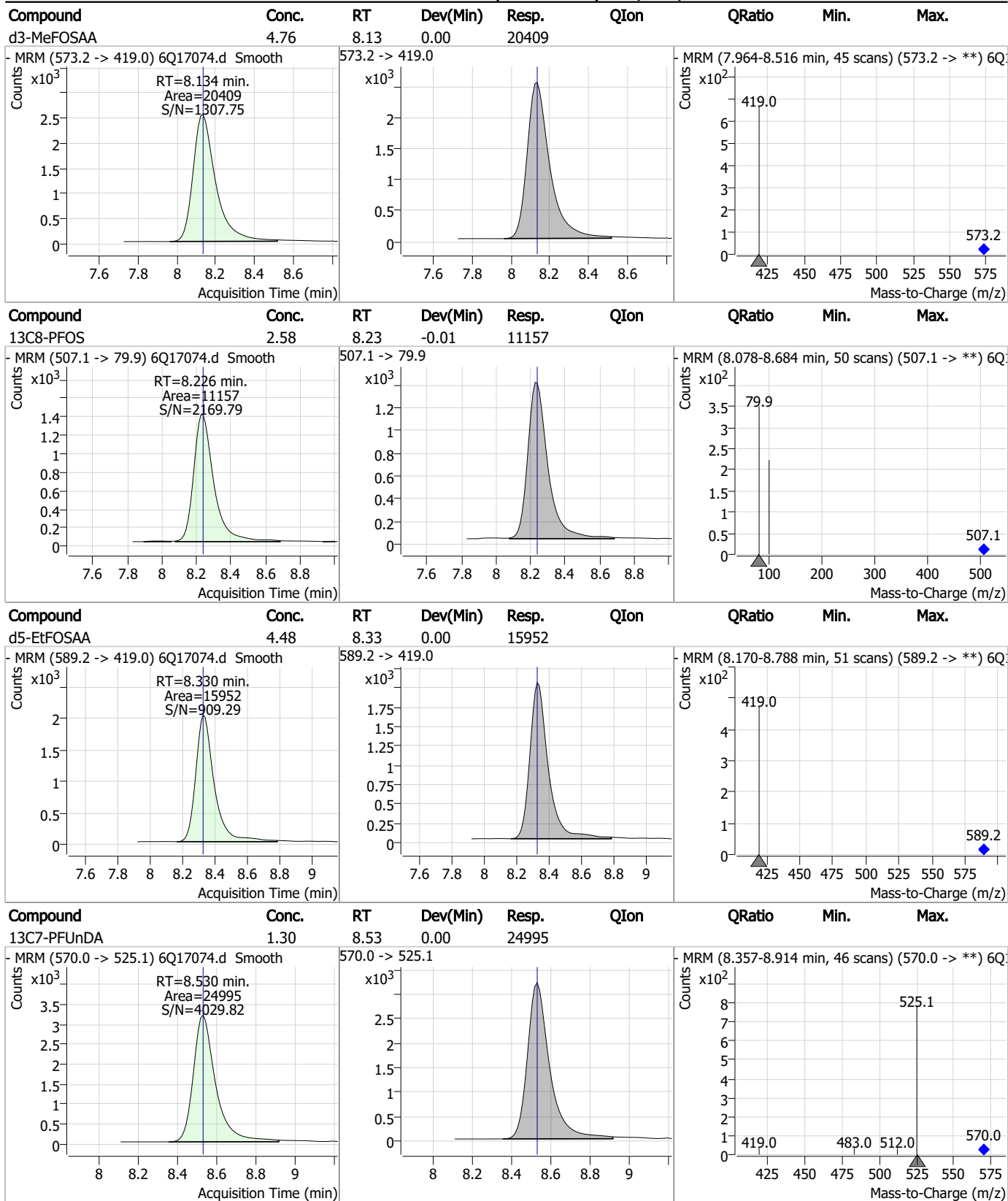


7.2.1
7

Perfluorinated Compounds by LC/MS/MS



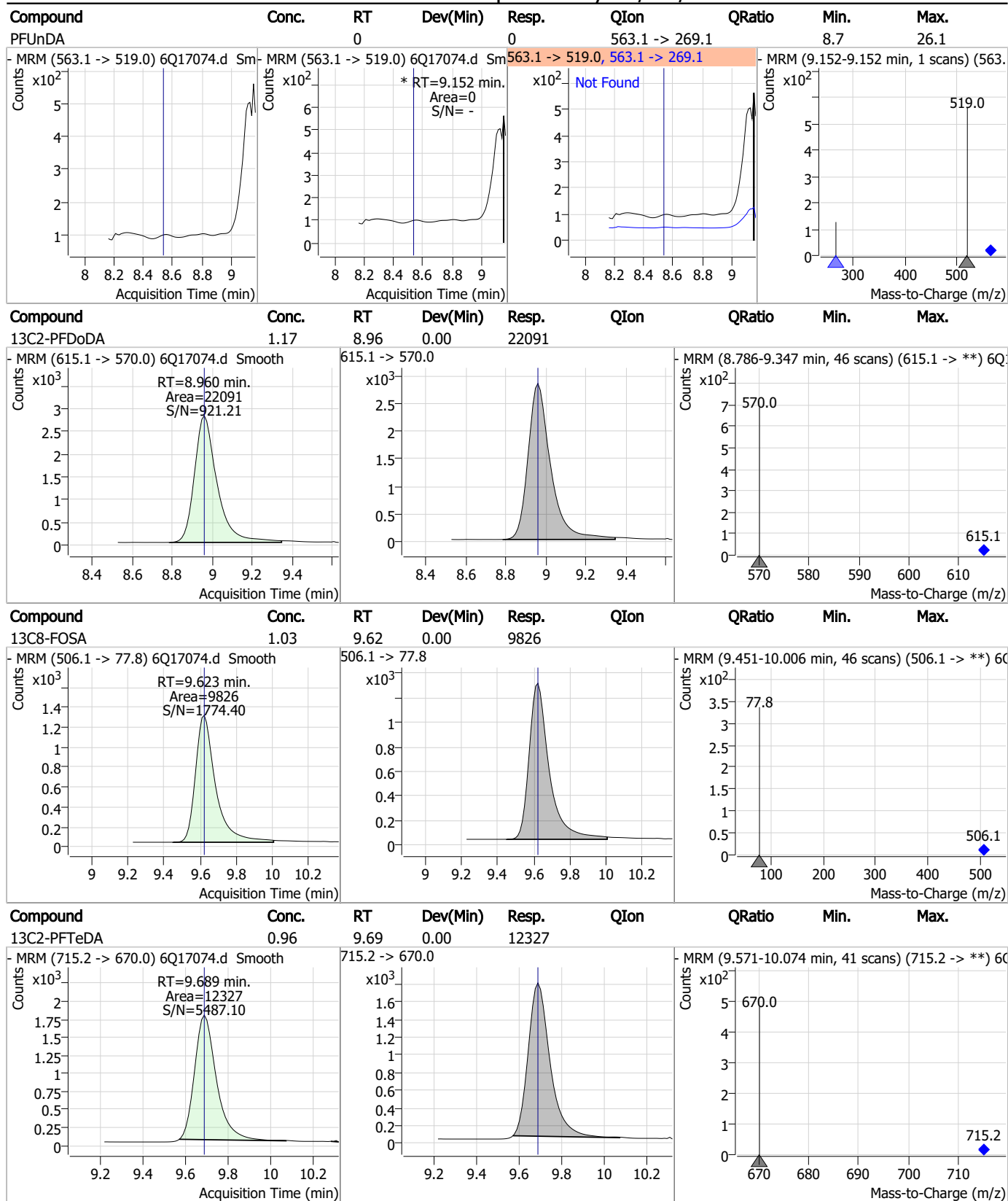
Perfluorinated Compounds by LC/MS/MS



7.2.1

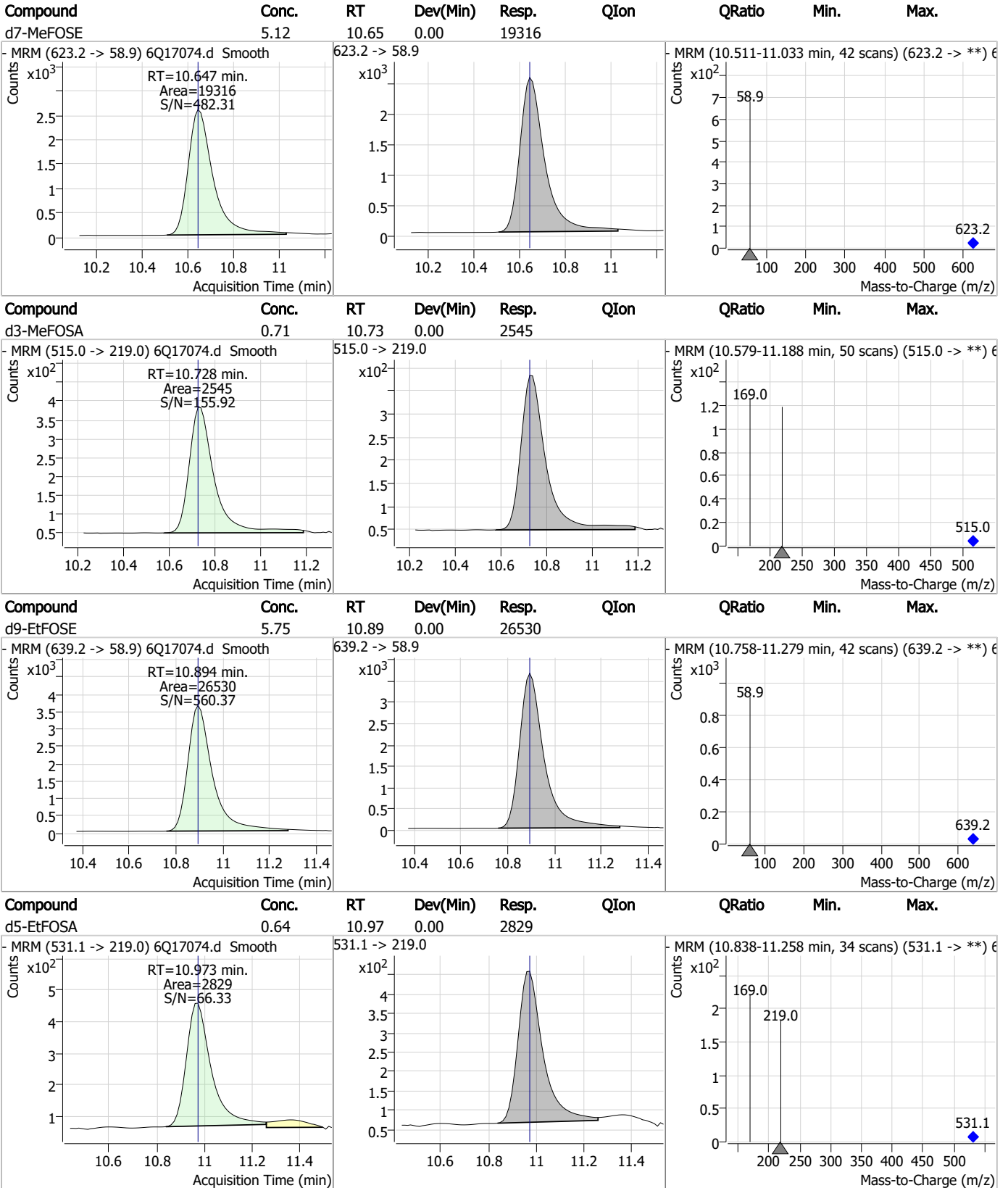
7

Perfluorinated Compounds by LC/MS/MS



7.2.1
7

Perfluorinated Compounds by LC/MS/MS



7.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43958.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 1:44:12 PM
 Sample Name : op96698-mb
 Vial : P2-A3
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96698,S4Q635,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	131928	10.00 µg/L	0.013
M5-PFPeA	4.387	268.3 -> 223.0	67075	5.00 µg/L	0.025
M5-PFHxA	5.535	318.0 -> 273.0	47309	2.50 µg/L	0.000
M4-PFHpA	6.455	367.1 -> 322.0	28599	2.50 µg/L	-0.012
M8-PFOA	7.124	421.1 -> 376.0	43179	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	21848	1.25 µg/L	0.000
M6-PFDA	8.166	519.1 -> 474.1	18874	1.25 µg/L	-0.012
M7-PFUnDA	8.647	570.0 -> 525.1	18999	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	18293	1.25 µg/L	-0.012
M2-PFTeDA	9.886	715.2 -> 670.0	12671	1.25 µg/L	-0.012
M8-FOSA	9.758	506.1 -> 77.8	8282	2.50 µg/L	-0.012
M3-PFBS	5.439	302.1 -> 79.9	11485	2.50 µg/L	0.012
M3-PFHxS	7.217	402.1 -> 79.9	7178	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	10347	2.50 µg/L	-0.013
M2-4:2FTS	5.235	329.1 -> 80.9	1170	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	2217	5.00 µg/L	0.000
M2-8:2FTS	7.953	529.1 -> 80.9	3530	5.00 µg/L	-0.012
M3-MeFOSAA	8.236	573.2 -> 419.0	13916	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	27366	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	10844	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	27004	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	42889	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	4501	2.50 µg/L	0.000
M3-MeFOSA	11.051	515.0 -> 219.0	4369	2.50 µg/L	-0.012
13C4-PFOS	8.317	502.8 -> 79.9	10775	2.50 µg/L	-0.013
13C3-PFBA	2.941	216.0 -> 172.0	69188	5.00 µg/L	0.012
18O2-PFHxS	7.216	403.0 -> 83.9	5002	2.50 µg/L	-0.012
13C4-PFOA	7.124	417.1 -> 372.0	52602	2.50 µg/L	0.000
13C2-PFDA	8.166	515.1 -> 470.1	17724	1.25 µg/L	-0.012
13C5-PFNA	7.671	468.0 -> 423.0	23493	1.25 µg/L	-0.013
13C2-PFHxA	5.536	315.1 -> 270.0	42181	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.235	329.1 -> 80.9	1170	5.76 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2217	6.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 121.0%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3530	6.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 123.4%		
13C2-PFDoDA	9.093	615.1 -> 570.0	18293	1.07 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 85.2%		
13C2-PFTeDA	9.886	715.2 -> 670.0	12671	0.91 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 72.5%		
13C3-PFBS	5.439	302.1 -> 79.9	11485	2.43 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-PFHxS	7.217	402.1 -> 79.9	7178	2.32 µg/L	-0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
13C4-PFBA	2.936	216.8 -> 171.9	131928	10.13 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C4-PFHpA	6.455	367.1 -> 322.0	28599	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C5-PFHxA	5.535	318.0 -> 273.0	47309	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFPeA	4.387	268.3 -> 223.0	67075	5.16 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.3%	
13C6-PFDA	8.166	519.1 -> 474.1	18874	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C7-PFUnDA	8.647	570.0 -> 525.1	18999	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C8-FOSA	9.758	506.1 -> 77.8	8282	1.23 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 49.0%	
13C8-PFOA	7.124	421.1 -> 376.0	43179	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C8-PFOS	8.316	507.1 -> 79.9	10347	2.55 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C9-PFNA	7.670	472.1 -> 427.0	21848	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSAA	8.236	573.2 -> 419.0	13916	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	27366	9.86 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
d3-MeFOSA	11.051	515.0 -> 219.0	4369	1.03 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 41.4%	
d5-EtFOSAA	8.446	589.2 -> 419.0	10844	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.8%	
d7-MeFOSE	10.947	623.2 -> 58.9	27004	8.05 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 32.2%	
d9-EtFOSE	11.256	639.2 -> 58.9	42889	9.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 36.1%	
d5-EtFOSA	11.348	531.1 -> 219.0	4501	1.00 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 40.1%	

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	-	298.7 -> 79.9	-	N.D.	
		298.7 -> 98.8			
PFDA	8.465	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	0		
PFDODA	-	613.1 -> 569.0	-	N.D.	
		613.1 -> 319.0			
PFDS	-	599.0 -> 79.9	-	N.D.	

7.2.2
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	5.538	313.0 -> 269.0	1852	0.10	µg/L	99
		313.0 -> 118.9	63			
PFHxS	-	398.7 -> 79.9	-	N.D.		
		398.7 -> 98.9				
PFNA	7.972	463.0 -> 419.0	0		µg/L m	1
		463.0 -> 219.0	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	-	263.0 -> 219.0	-	N.D.		
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	8.897	563.1 -> 519.0	0		µg/L m	1
		563.1 -> 269.1	0			
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	11.606	630.0 -> 58.9	0		µg/L m	1
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

7.2.2
7

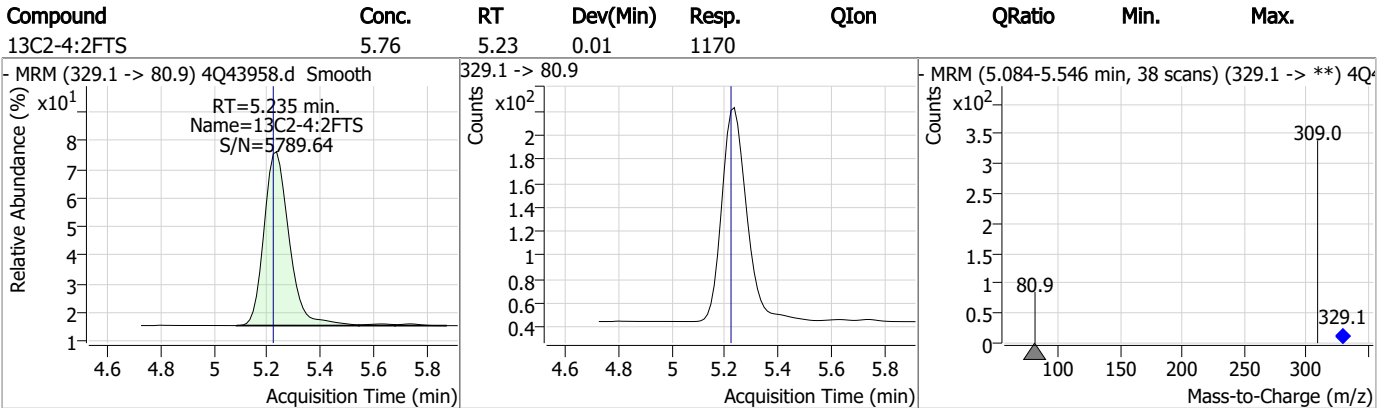
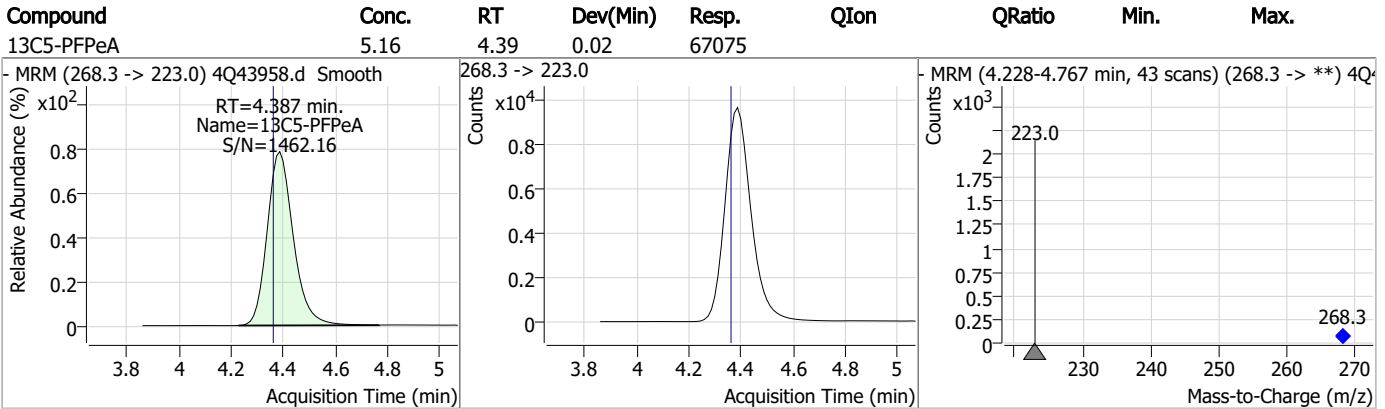
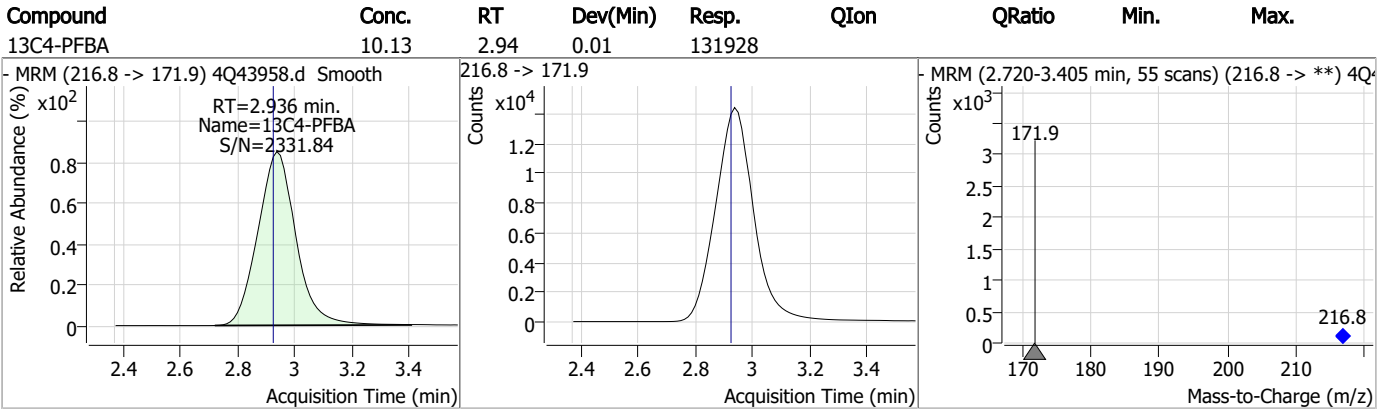
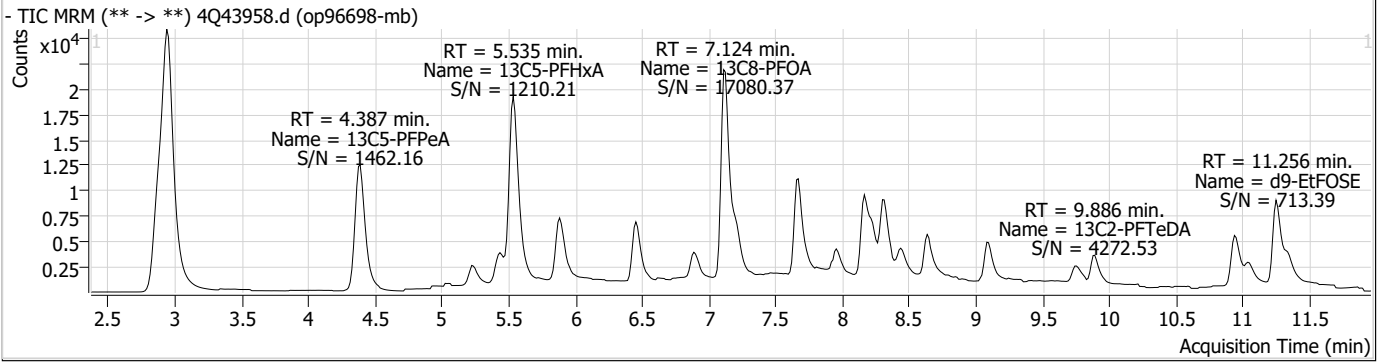
Perfluorinated Compounds by LC/MS/MS

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

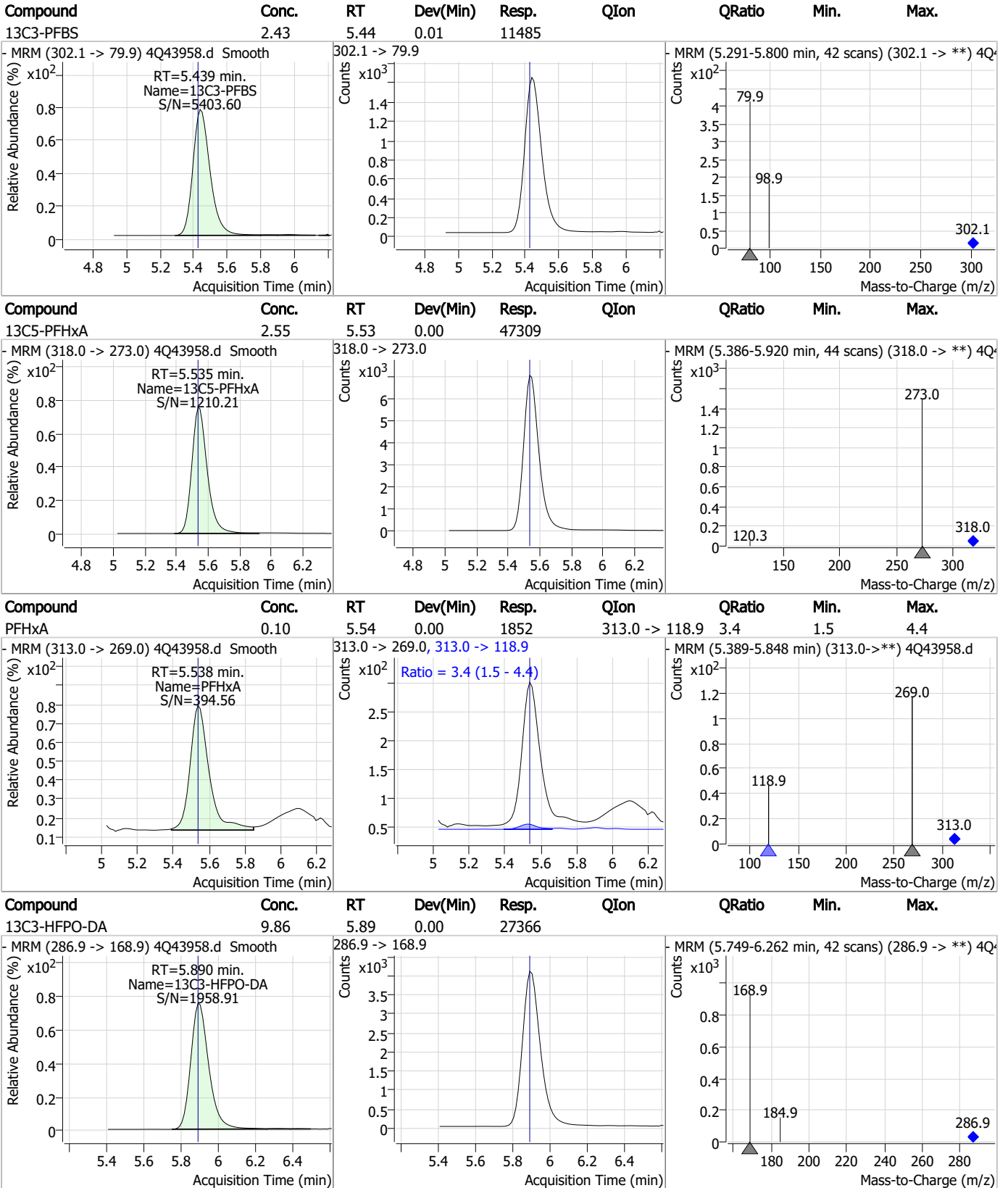
7.2.2

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



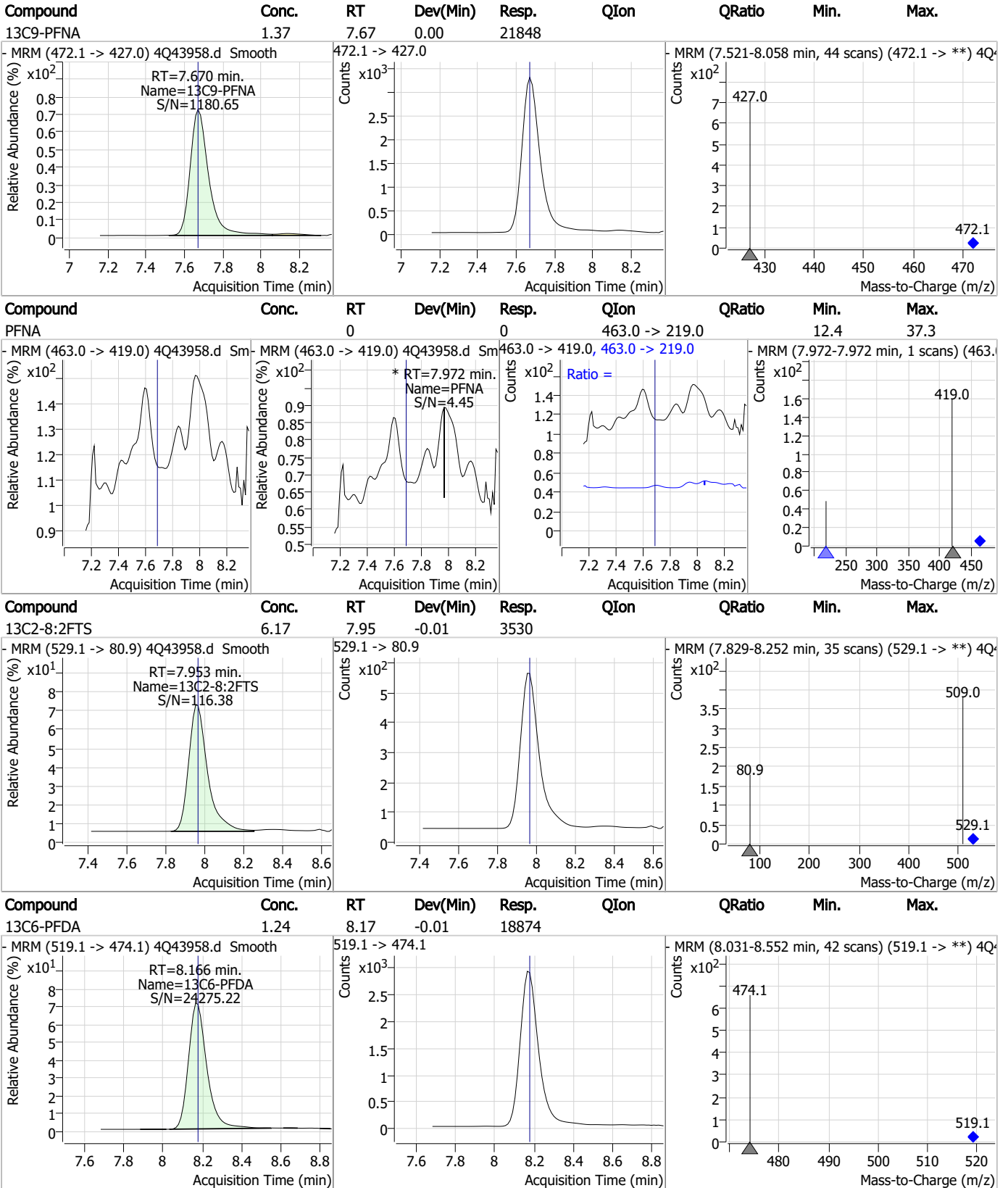
7.2.2

7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.63	6.45	-0.01	28599				
13C2-6:2FTS	6.05	6.90	0.00	2217				
13C8-PFOA	2.50	7.12	0.00	43179				
13C3-PFHxS	2.32	7.22	-0.01	7178				

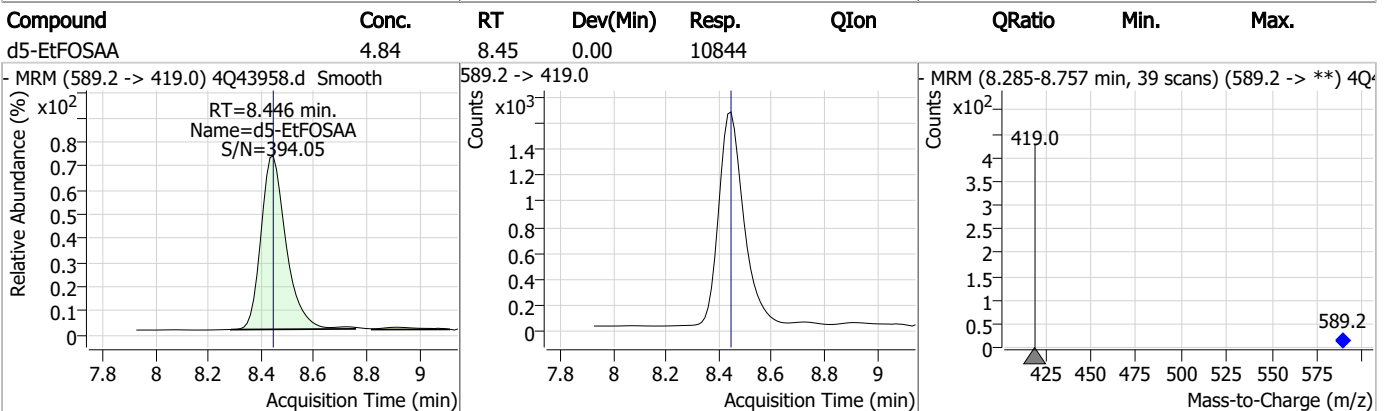
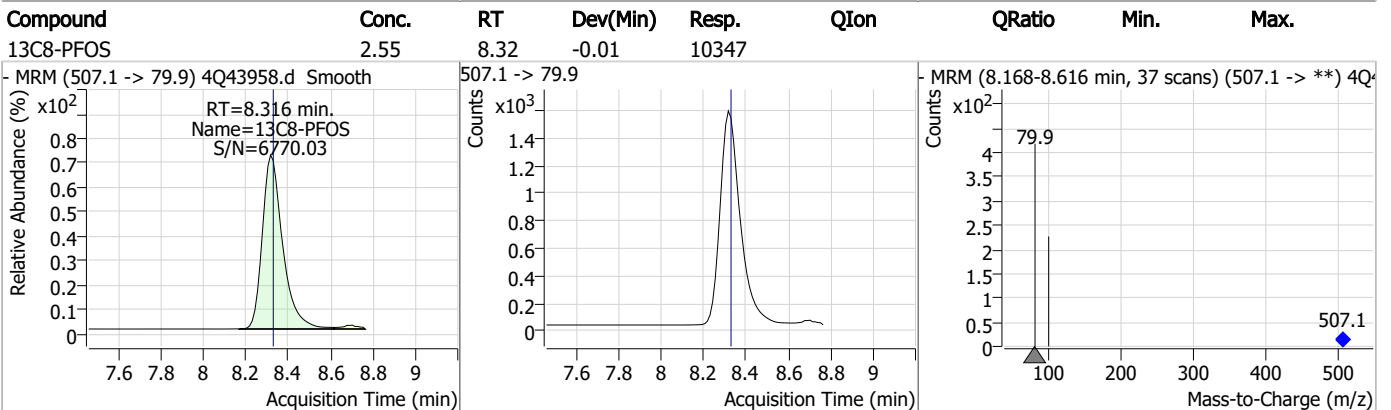
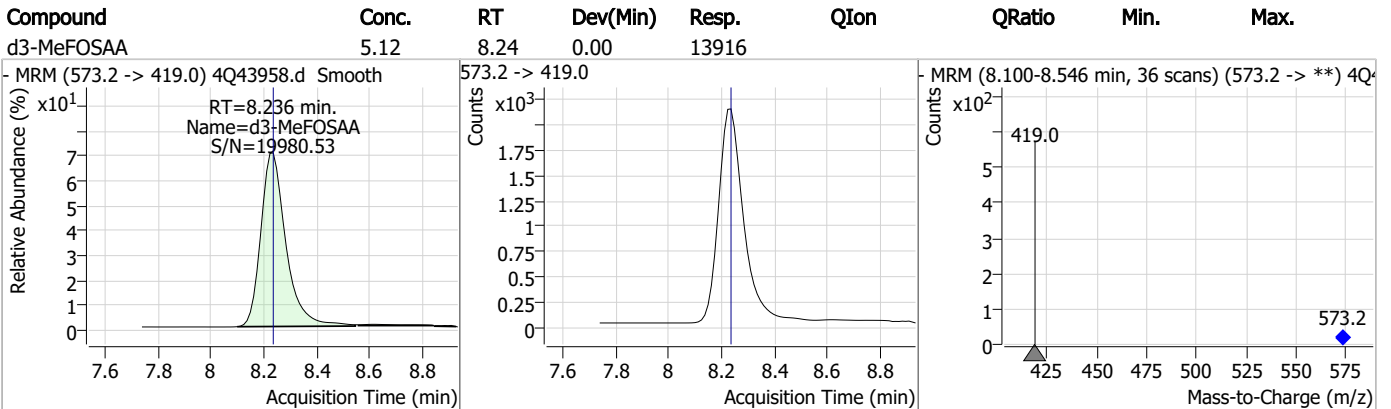
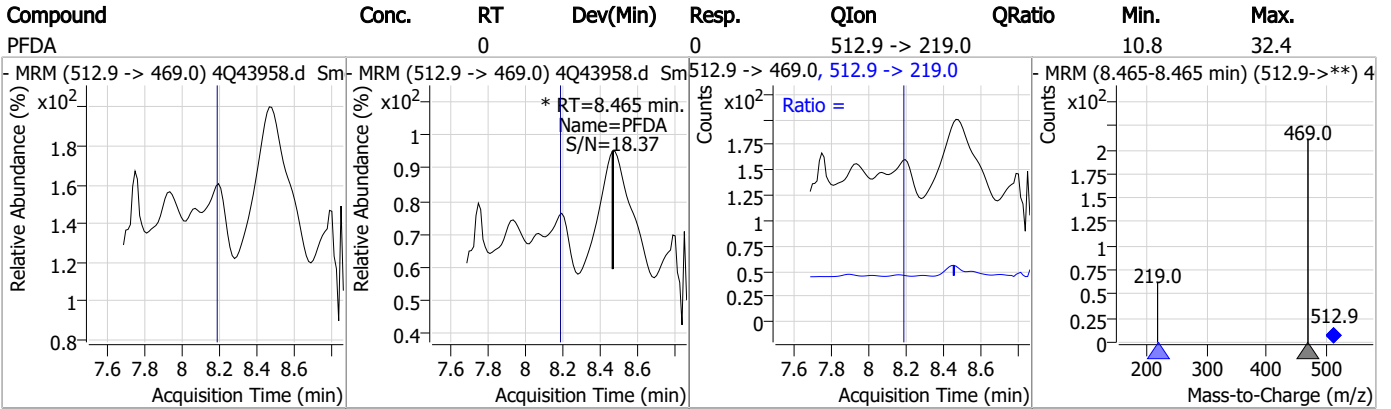
Perfluorinated Compounds by LC/MS/MS



7.2.2

7

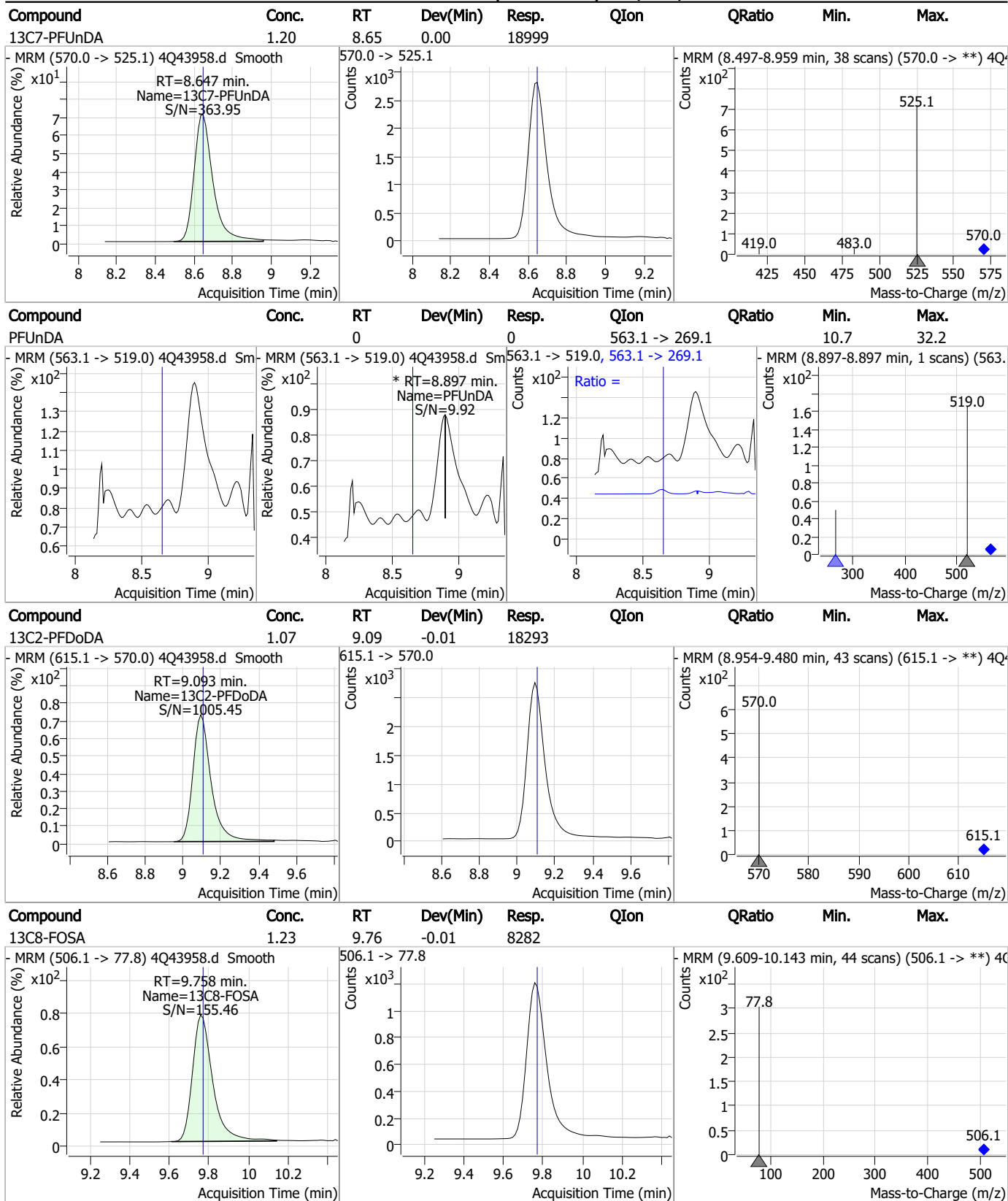
Perfluorinated Compounds by LC/MS/MS



7.2.2

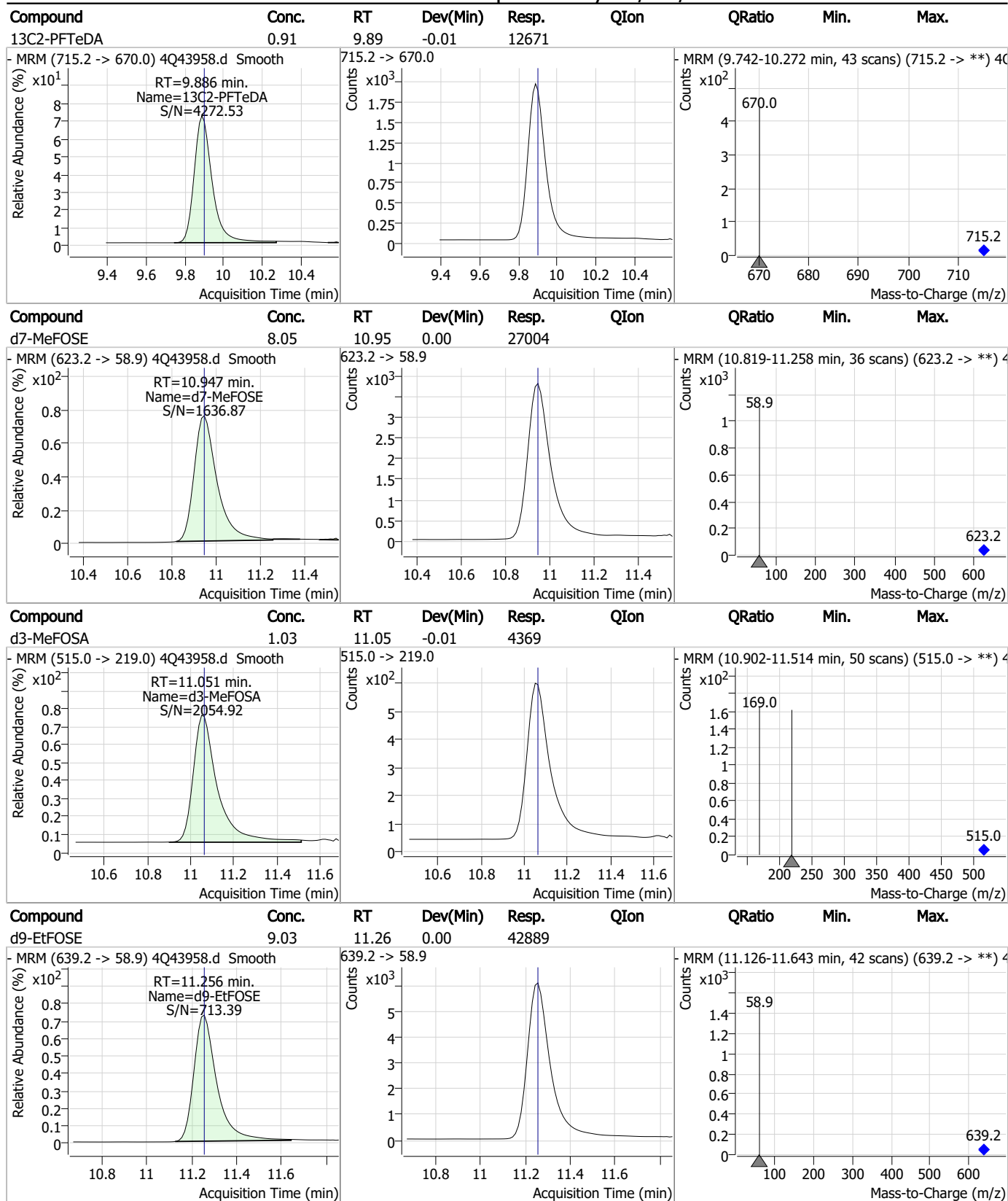
7

Perfluorinated Compounds by LC/MS/MS



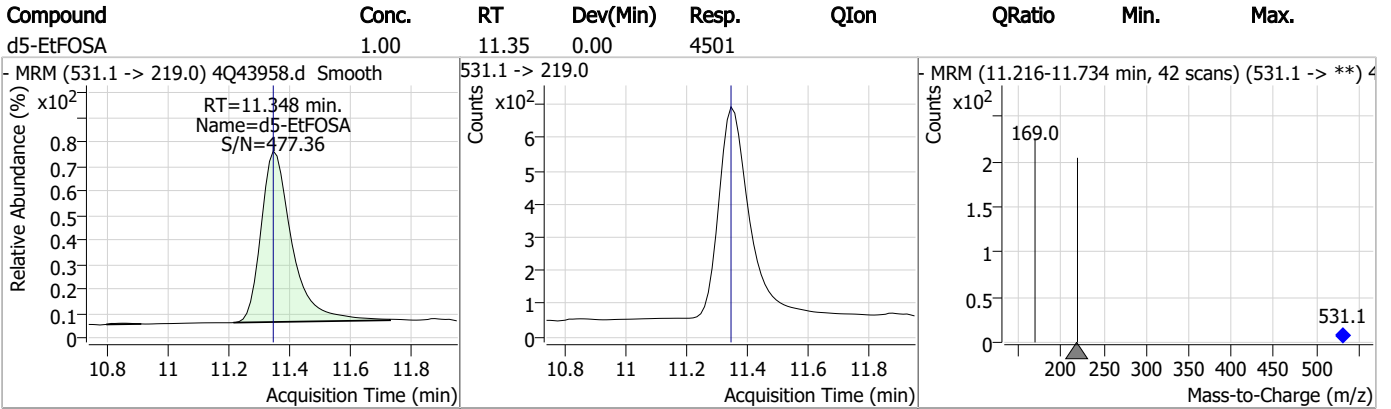
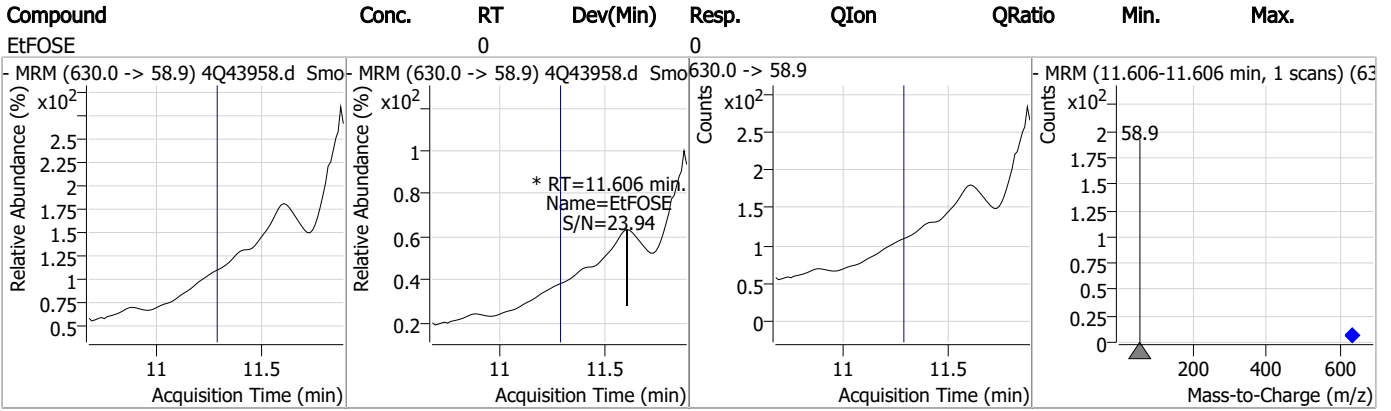
7.2.2
7

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

Data File : 6Q17059.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:46:13 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	184264	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	65966	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	68453	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	61577	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84416	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	26676	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21481	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26217	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25328	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16333	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	25721	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23760	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12982	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11985	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2268	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2945	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3142	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23059	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	43471	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18997	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	93375	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	120838	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11258	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9180	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13878	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	80797	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9664	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	90270	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	23942	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29317	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	60055	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2268	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2945	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3142	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25328	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16333	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.9%		
13C3-PFBS	5.398	302.1 -> 79.9	23760	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12982	2.52 µg/L	0.000

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 = 100.9%	
13C4-PFBA	2.910	216.8 -> 171.9	184264	9.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	61577	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.480	318.0 -> 273.0	68453	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.5%	
13C5-PFPeA	4.283	268.3 -> 223.0	65966	4.92 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C6-PFDA	8.076	519.1 -> 474.1	21481	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26217	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-FOSA	9.611	506.1 -> 77.8	25721	2.80 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.1%	
13C8-PFOA	7.062	421.1 -> 376.0	84416	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C8-PFOS	8.239	507.1 -> 79.9	11985	2.87 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 114.7%	
13C9-PFNA	7.594	472.1 -> 427.0	26676	1.19 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23059	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 111.5%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	43471	10.22 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
d3-MeFOSA	10.728	515.0 -> 219.0	9180	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18997	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
d7-MeFOSE	10.647	623.2 -> 58.9	93375	25.64 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 102.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	120838	27.15 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d5-EtFOSA	10.960	531.1 -> 219.0	11258	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.8%	

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	-	212.8 -> 168.9	-	N.D.		
PFBS	-	298.7 -> 79.9	-	N.D.		
		298.7 -> 98.8				
PFDA	8.658	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	0			
PFDODA	-	613.1 -> 569.0	-	N.D.		
		613.1 -> 319.0				
PFDS	-	599.0 -> 79.9	-	N.D.		

7.2.3
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	8.180	398.7 -> 98.9	0	µg/L	m	1
		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	9.115	563.1 -> 519.0	0	µg/L	m	1
		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	10.907	630.0 -> 58.9	1282	0.25 µg/L	m	100
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

7.2.3
7

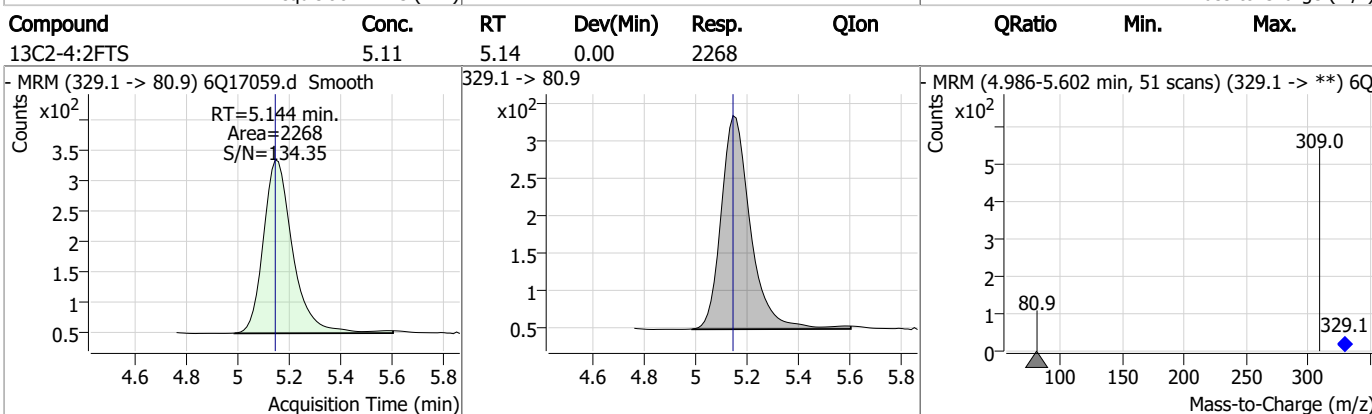
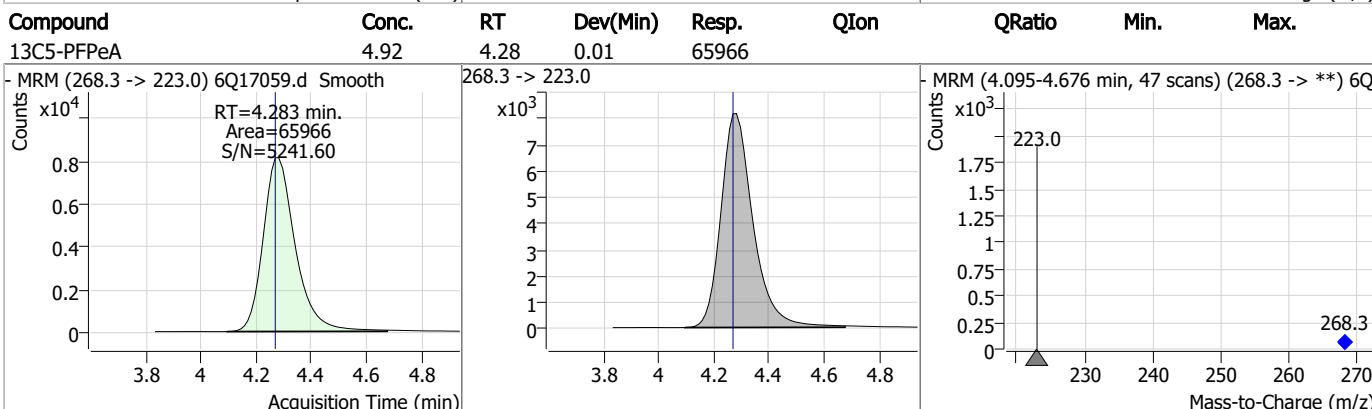
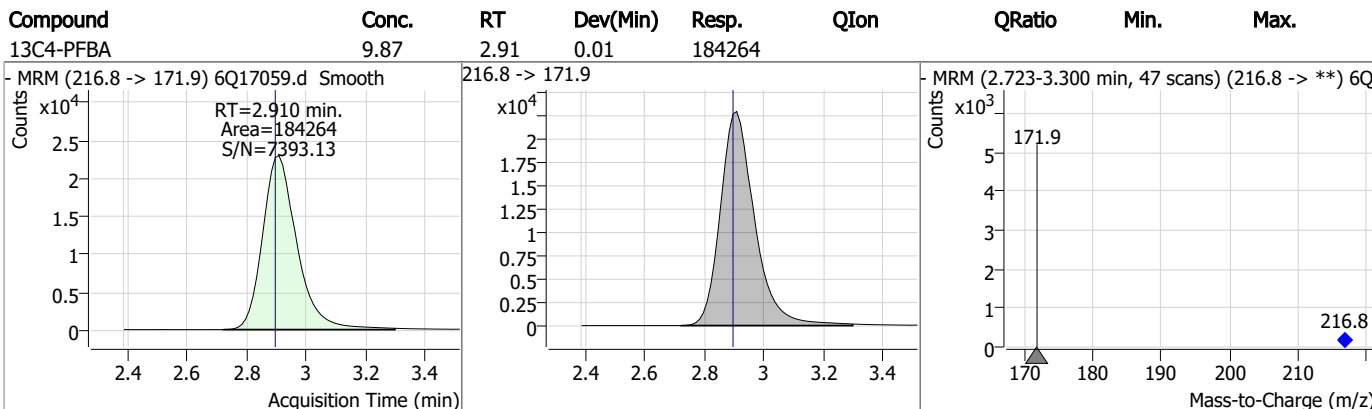
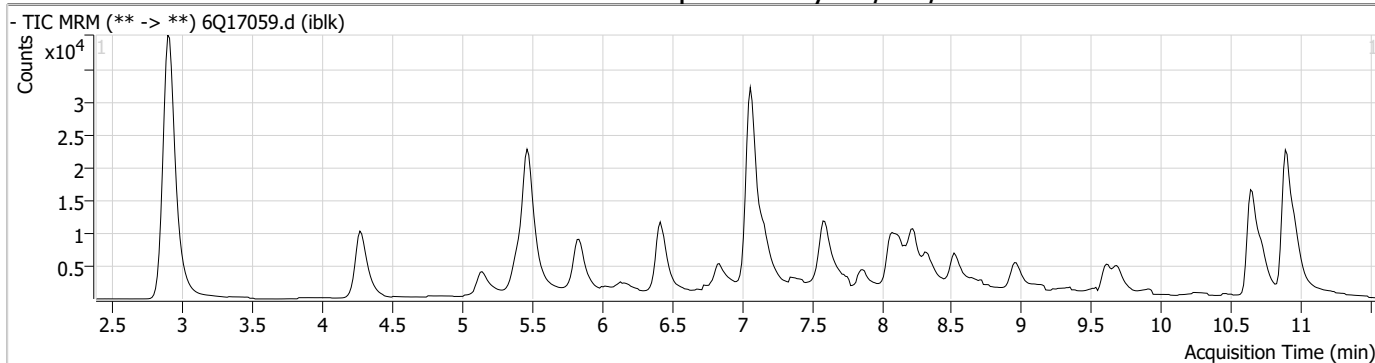
Perfluorinated Compounds by LC/MS/MS

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

7.2.3

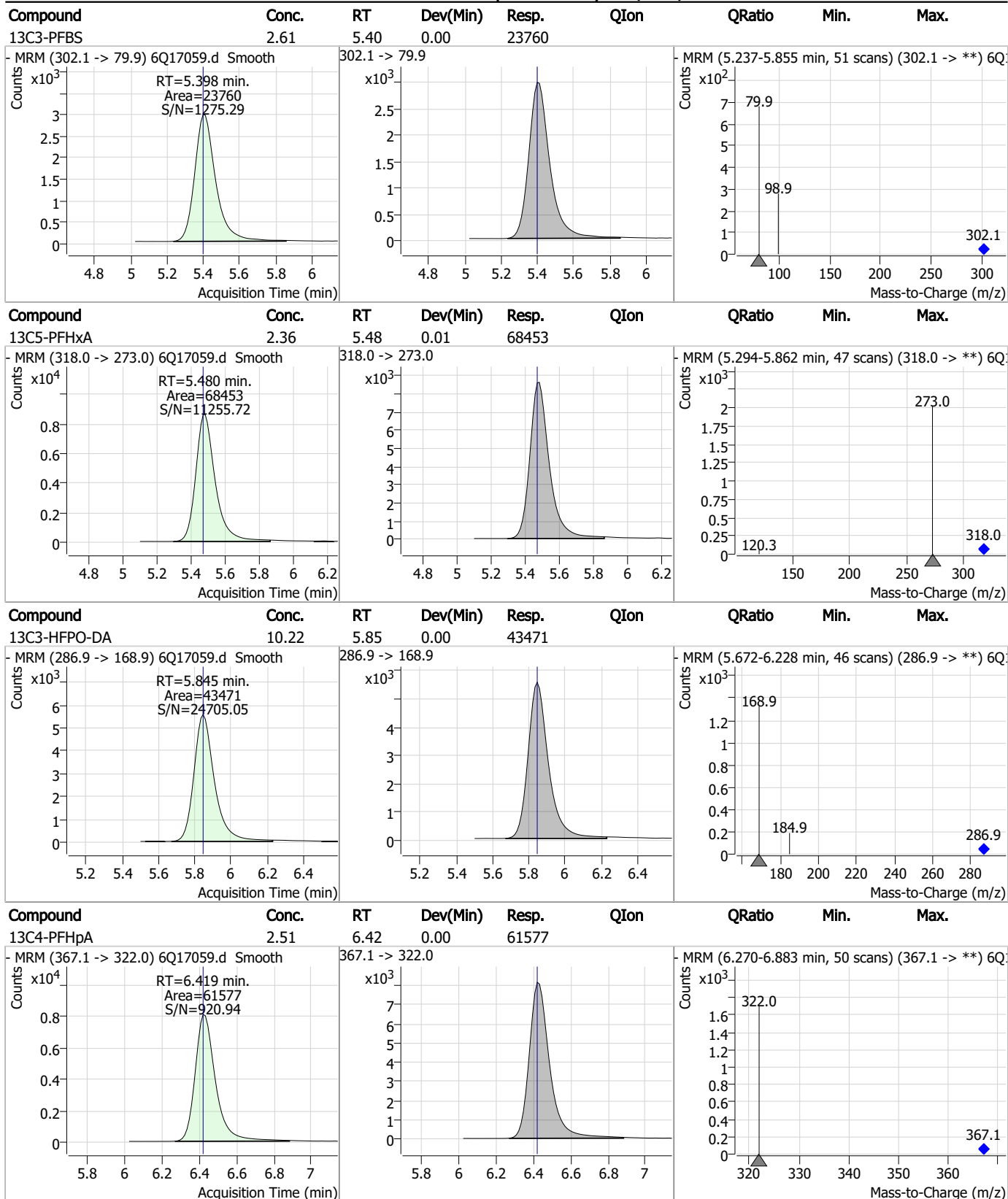
7

Perfluorinated Compounds by LC/MS/MS



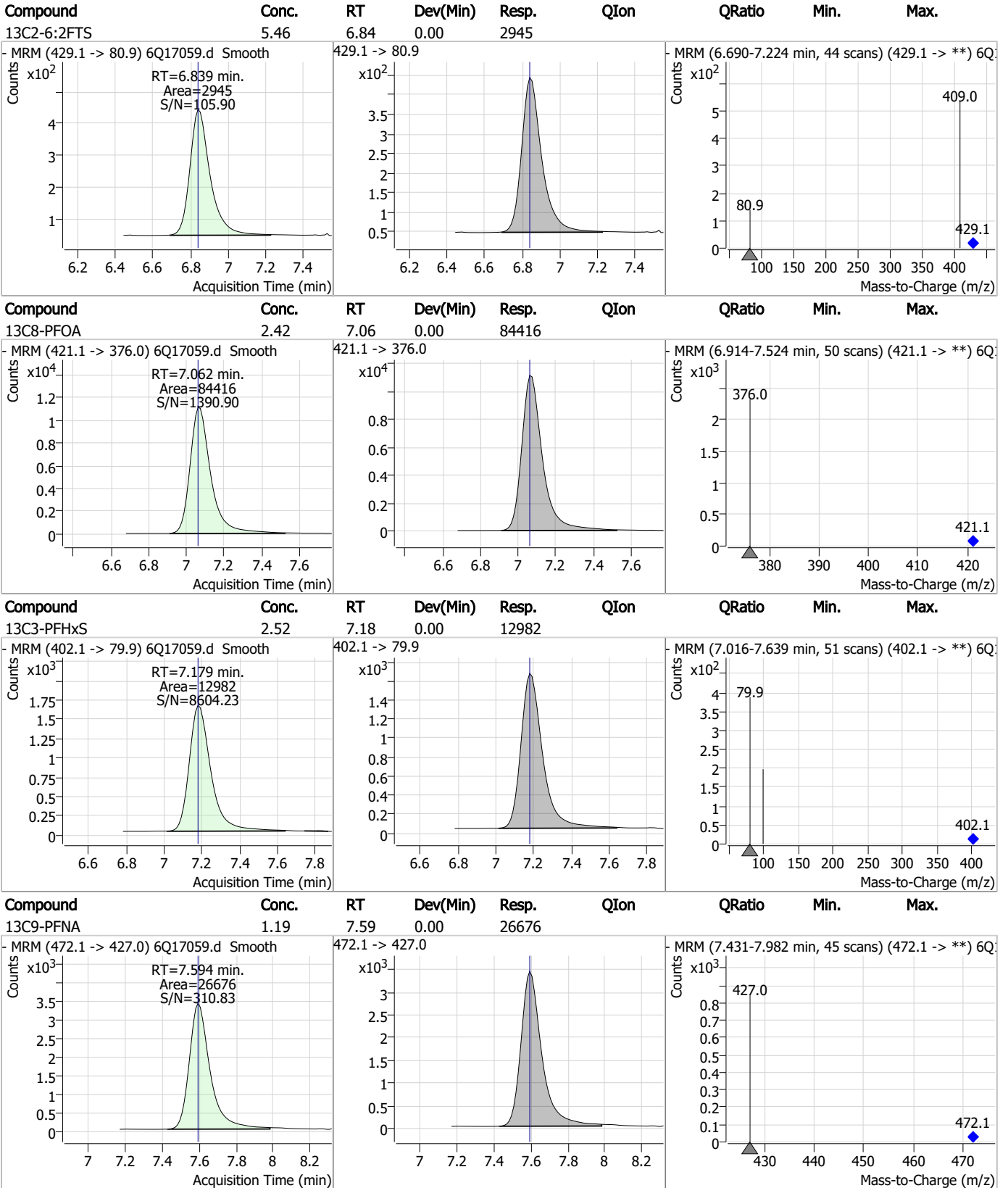
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

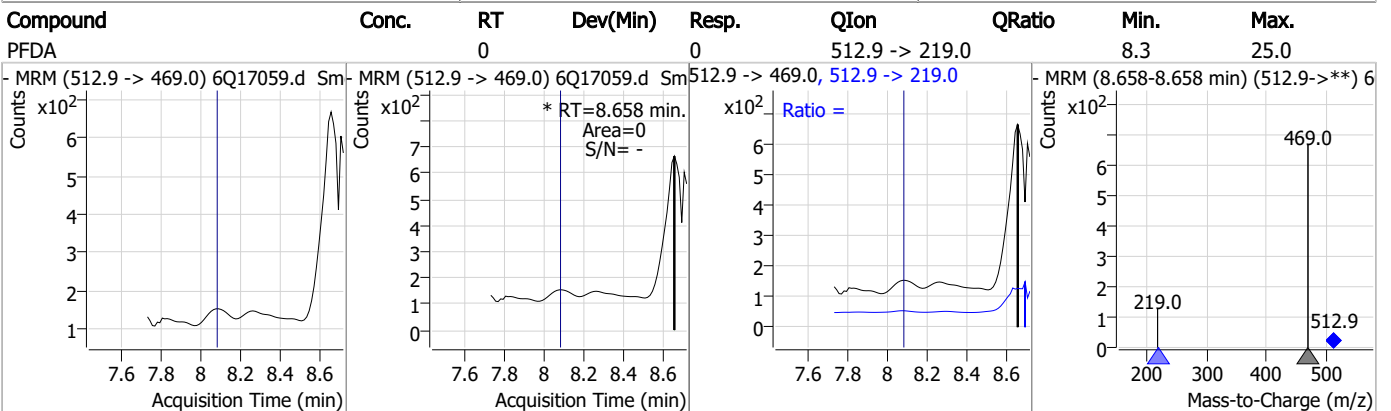
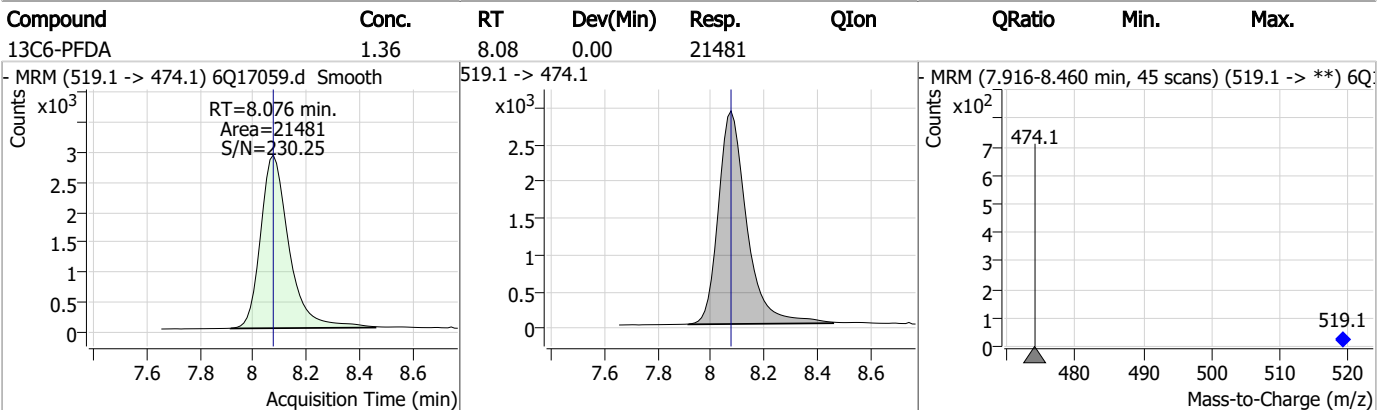
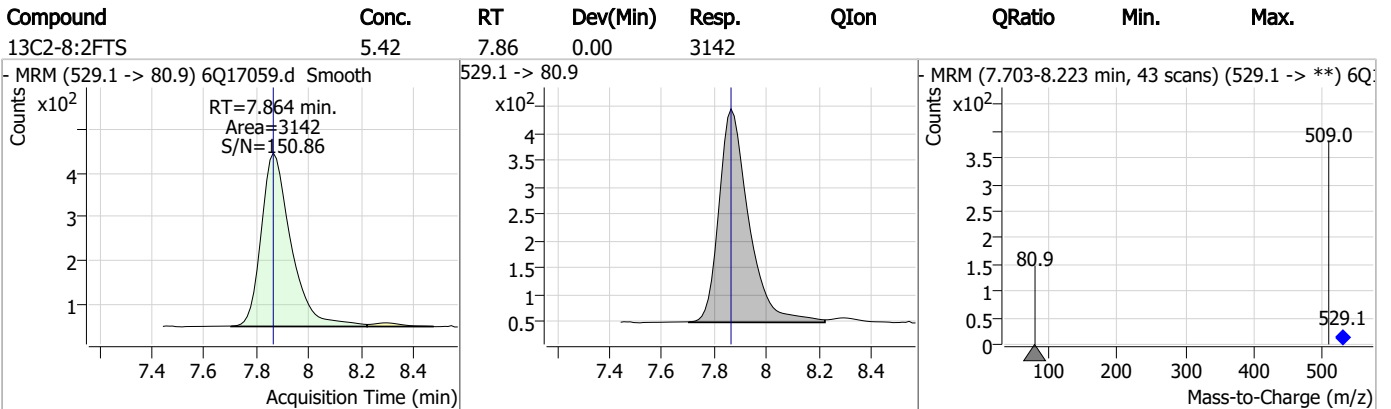
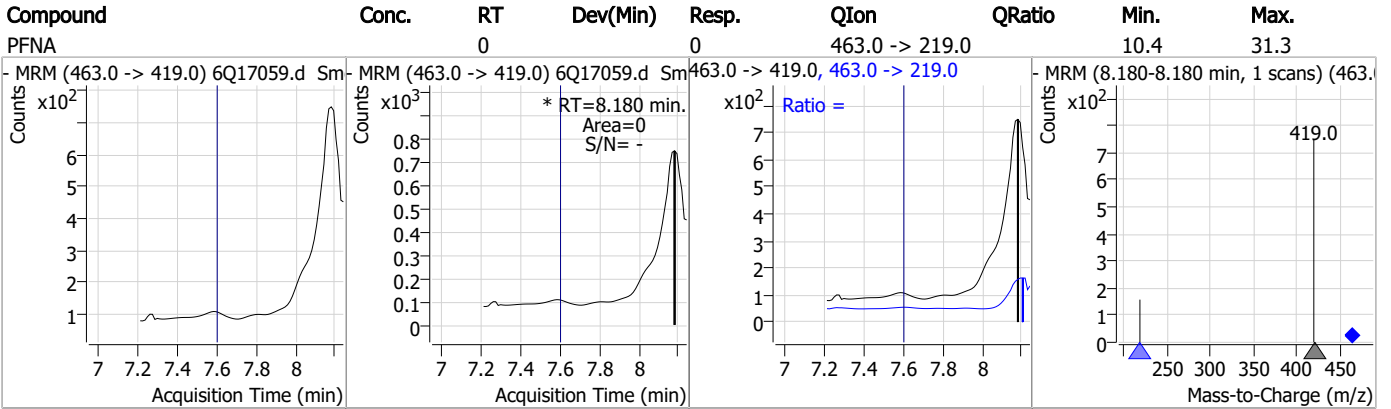
Perfluorinated Compounds by LC/MS/MS



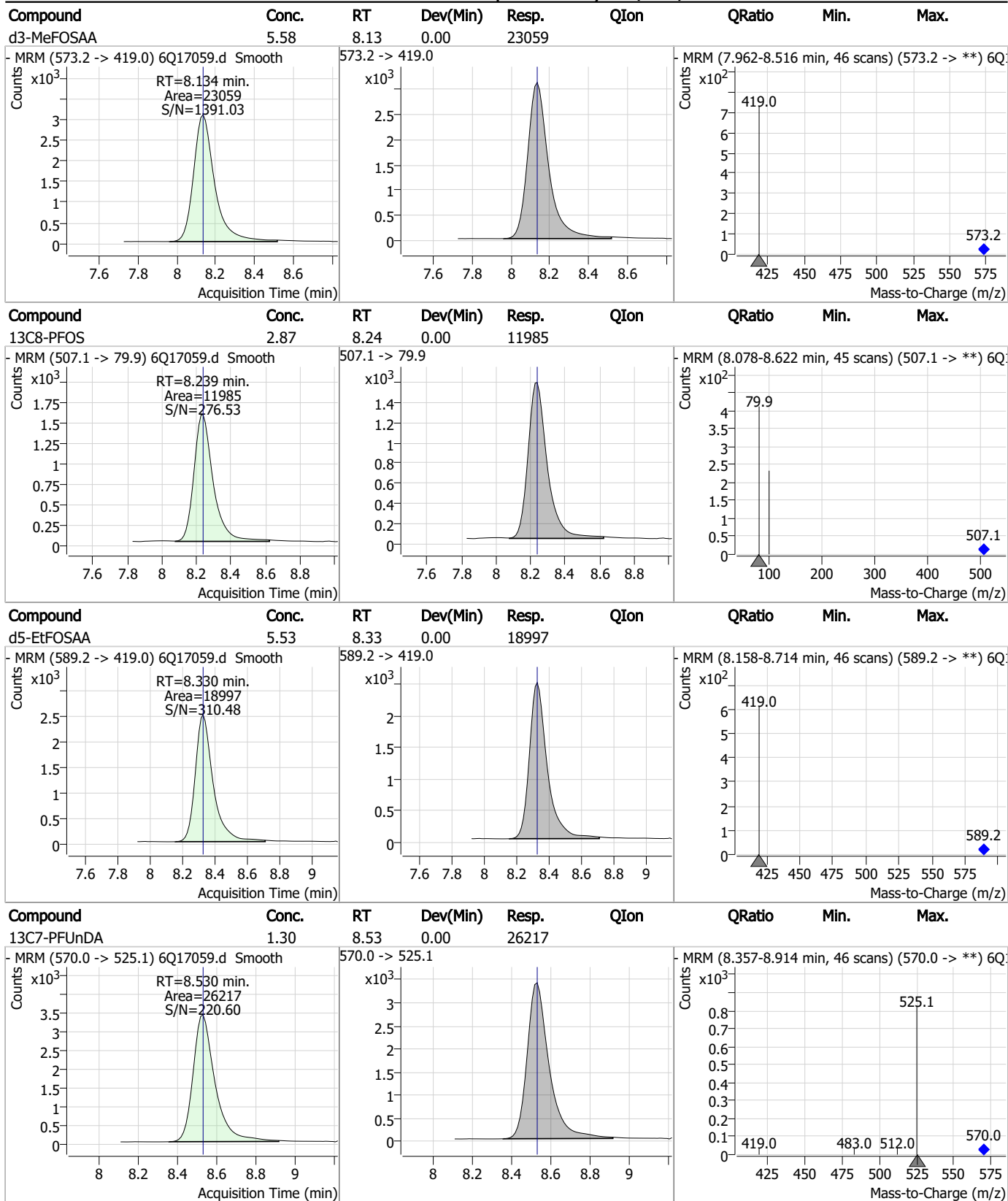
7.2.3

7

Perfluorinated Compounds by LC/MS/MS

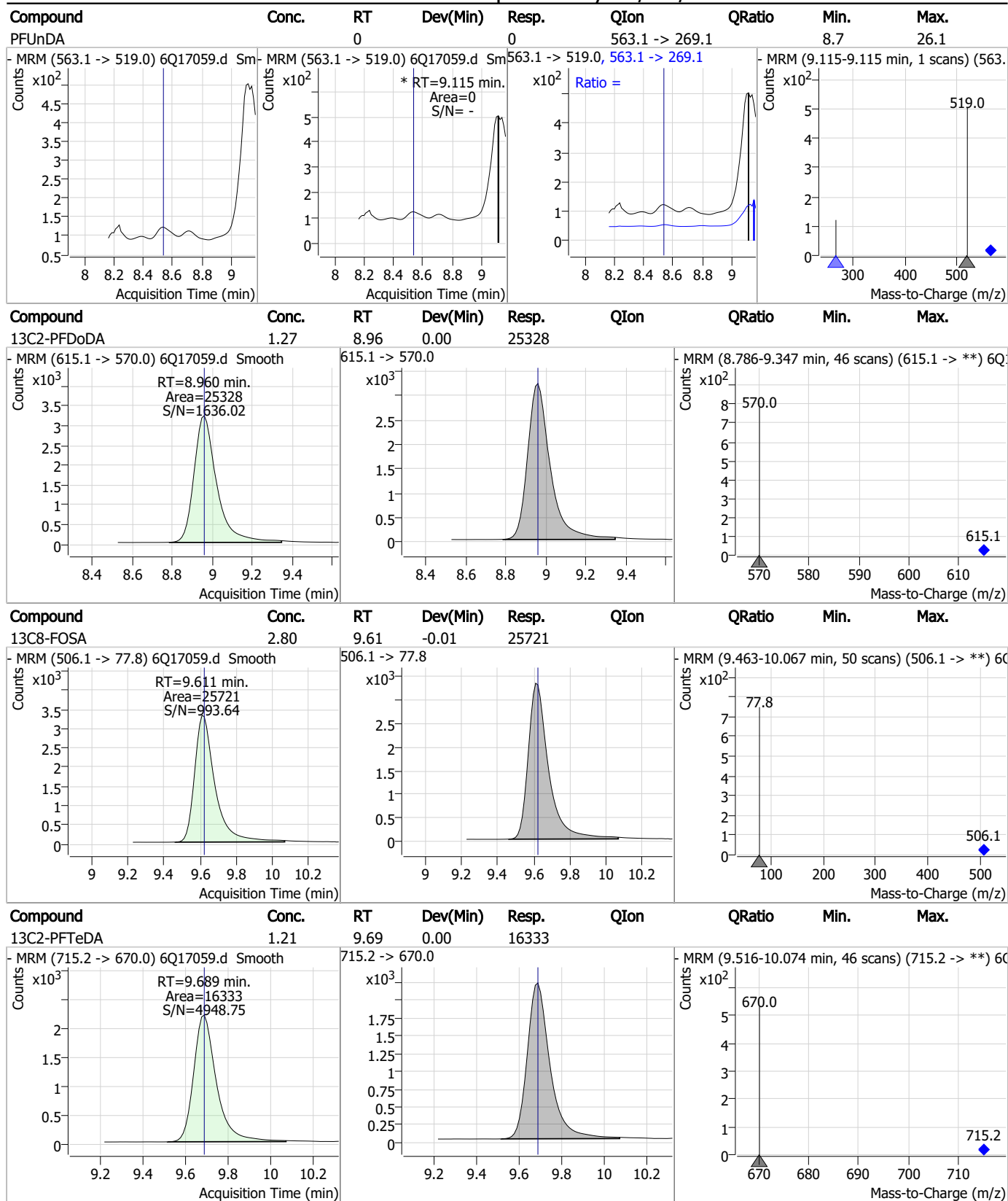


Perfluorinated Compounds by LC/MS/MS



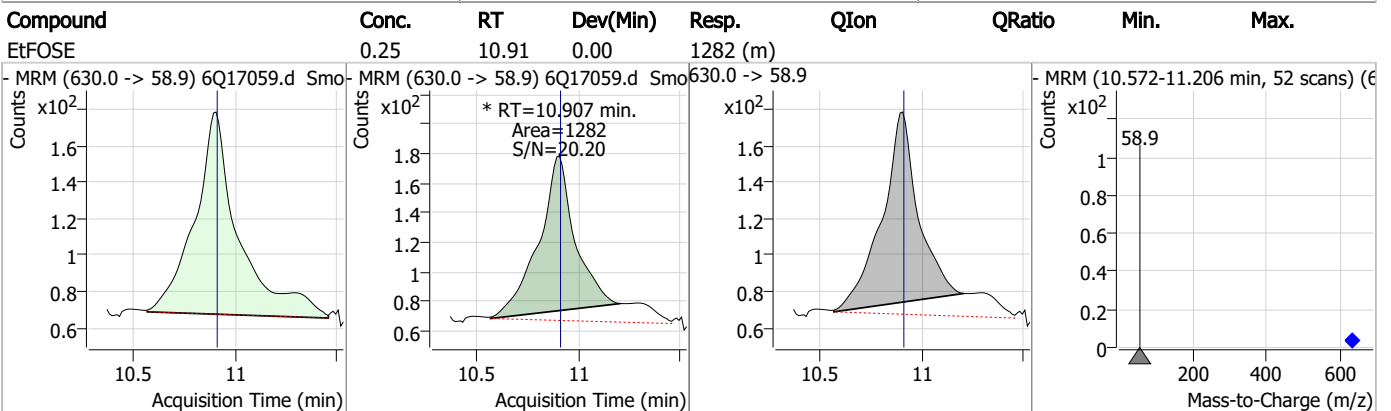
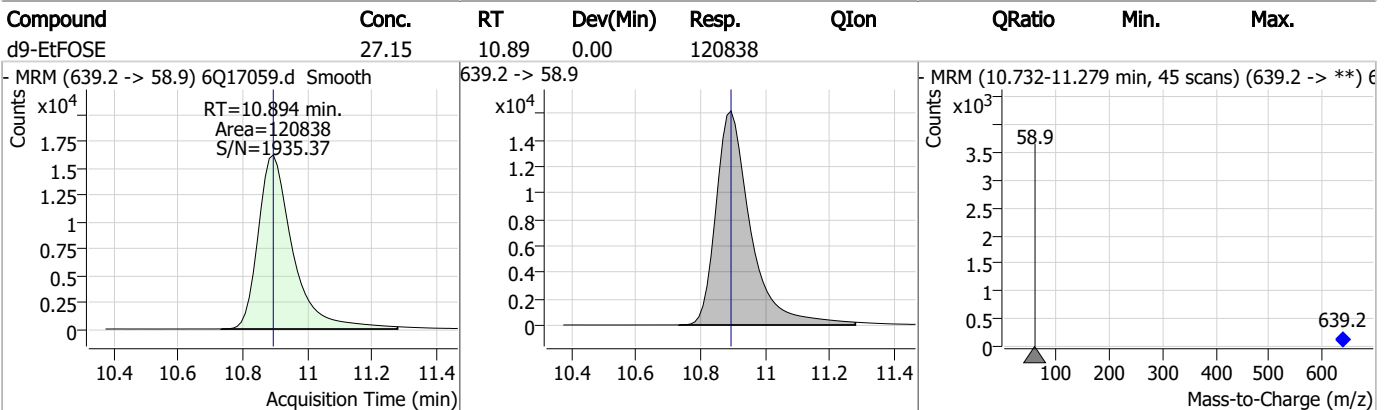
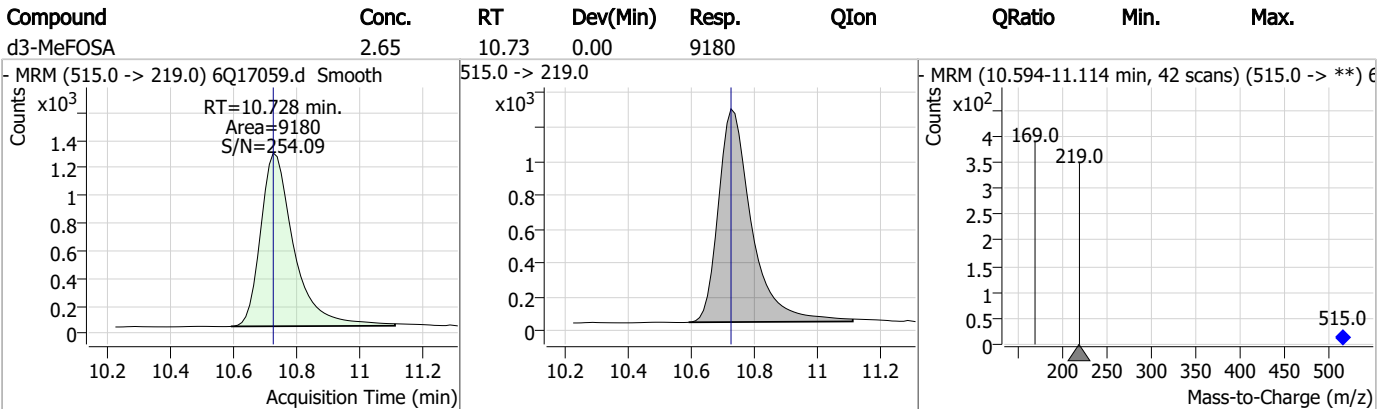
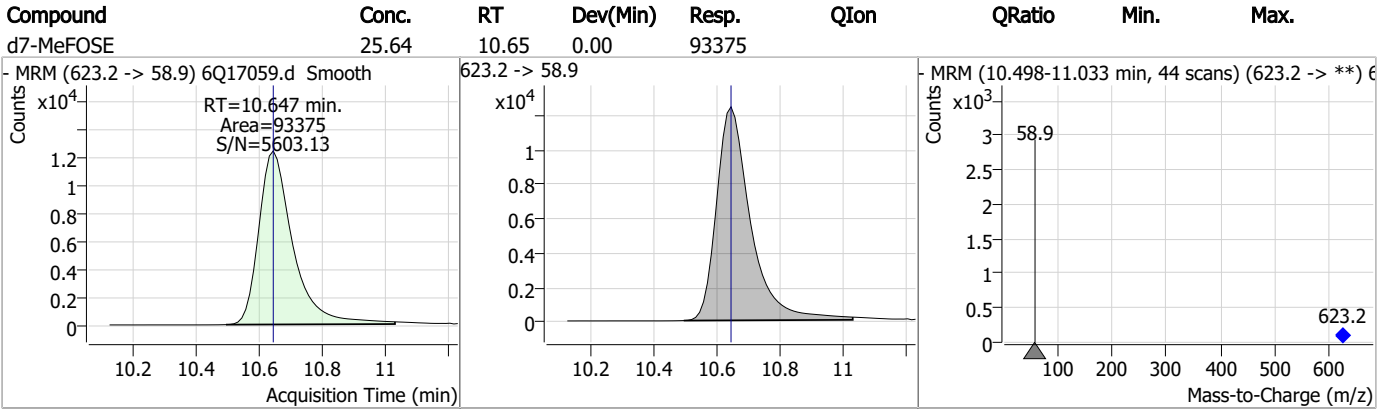
7.2.3
7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

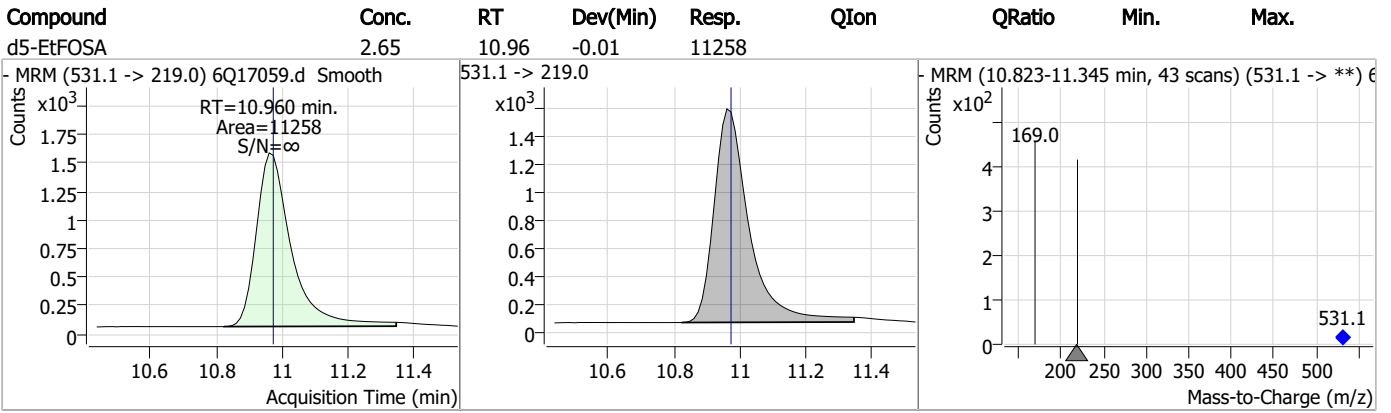
Perfluorinated Compounds by LC/MS/MS



7.2.3

7

Perfluorinated Compounds by LC/MS/MS



7.2.3
7

Manual Integration Approval Summary

Sample Number: S6Q258-IBLK Method: EPA DRAFT 1633
Lab FileID: 6Q17059.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:46 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
EiFOSE	1691-99-2		10.91	Split peak

7.2.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17083.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 8:33:52 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	187310	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67284	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	74894	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	62315	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	85399	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	28035	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20968	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27533	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26492	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17790	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	25712	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23846	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13352	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11628	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2270	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2893	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2896	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23418	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39135	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19816	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	103438	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	118292	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11464	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9026	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14908	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	81720	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9930	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	92317	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24914	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28536	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	62188	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2270	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2893	5.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2896	4.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26492	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17790	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFBS	5.398	302.1 -> 79.9	23846	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13352	2.53 µg/L	0.000

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 = 101.0%	
13C4-PFBA	2.910	216.8 -> 171.9	187310	9.92 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C4-PFHpA	6.419	367.1 -> 322.0	62315	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C5-PFHxA	5.480	318.0 -> 273.0	74894	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C5-PFPeA	4.270	268.3 -> 223.0	67284	4.84 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C6-PFDA	8.076	519.1 -> 474.1	20968	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27533	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C8-FOSA	9.611	506.1 -> 77.8	25712	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.3%	
13C8-PFOA	7.074	421.1 -> 376.0	85399	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
13C8-PFOS	8.239	507.1 -> 79.9	11628	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.594	472.1 -> 427.0	28035	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23418	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39135	8.89 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 88.9%	
d3-MeFOSA	10.728	515.0 -> 219.0	9026	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19816	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.3%	
d7-MeFOSE	10.647	623.2 -> 58.9	103438	26.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
d9-EtFOSE	10.894	639.2 -> 58.9	118292	24.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	11464	2.51 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	

7.24
7

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	8.658	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	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	8.180	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	0	N.D.		
		548.8 -> 79.9				
PFOA	7.749	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	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	9.904	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9				
PFUnDA	9.127	563.1 -> 519.0	0	µg/L	m	1
		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

7.24
7

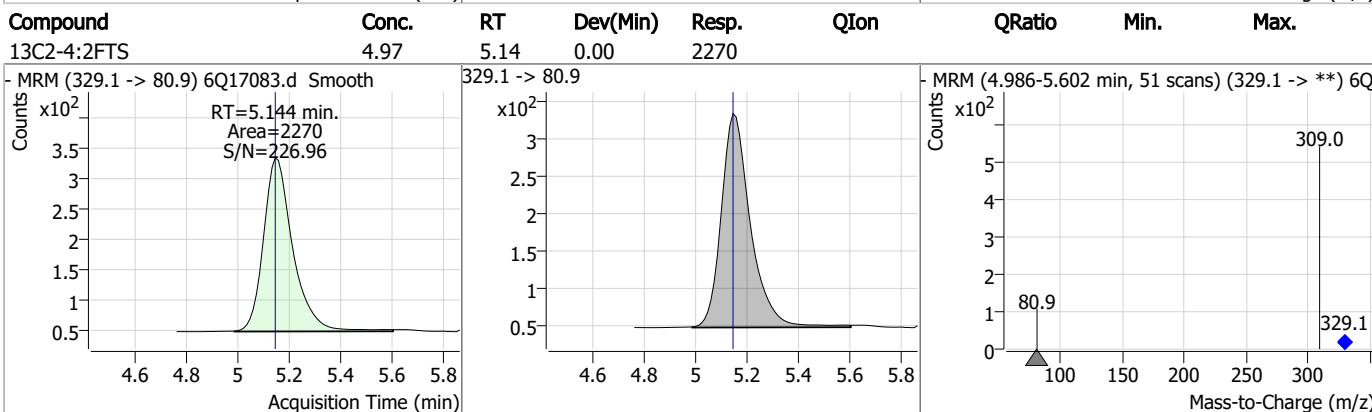
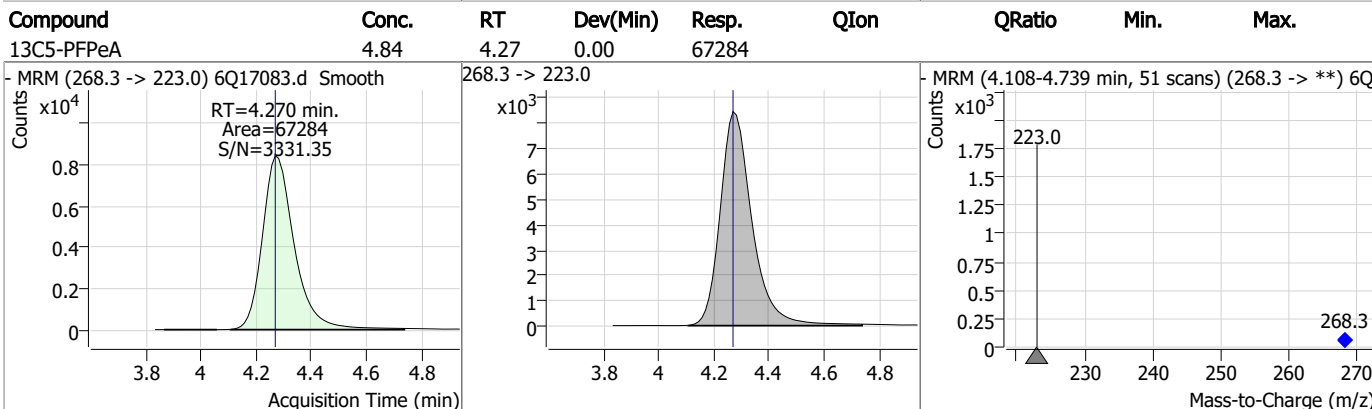
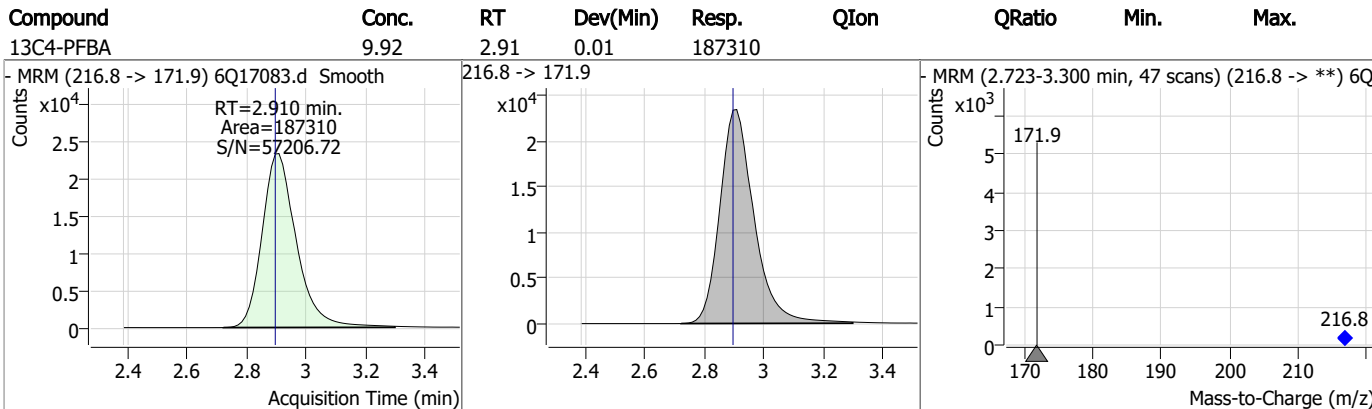
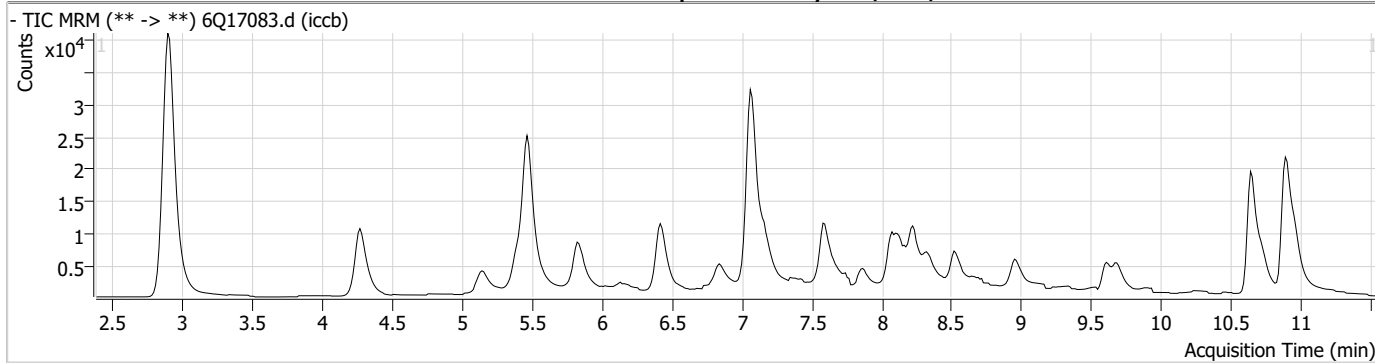
Perfluorinated Compounds by LC/MS/MS

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

7.2.4

7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7

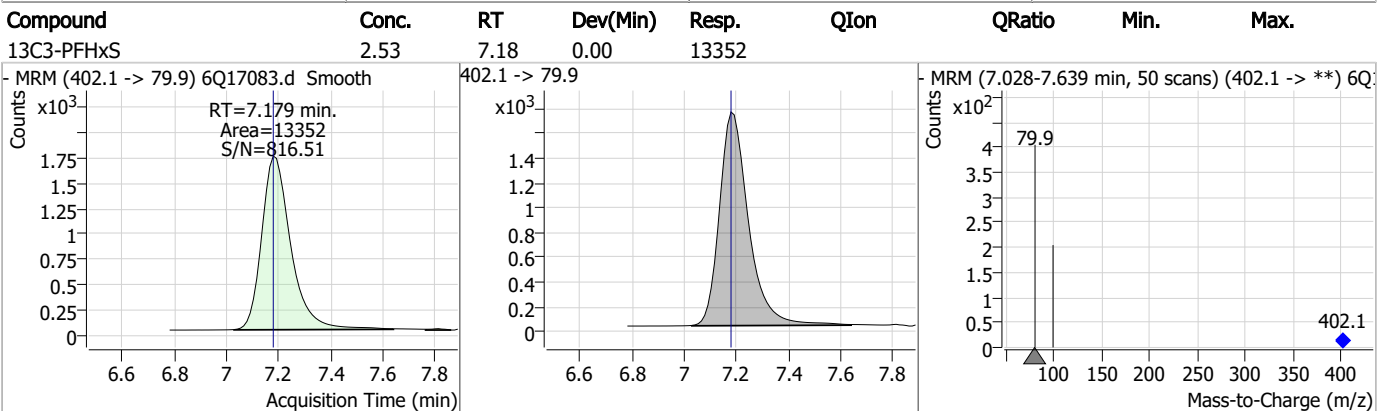
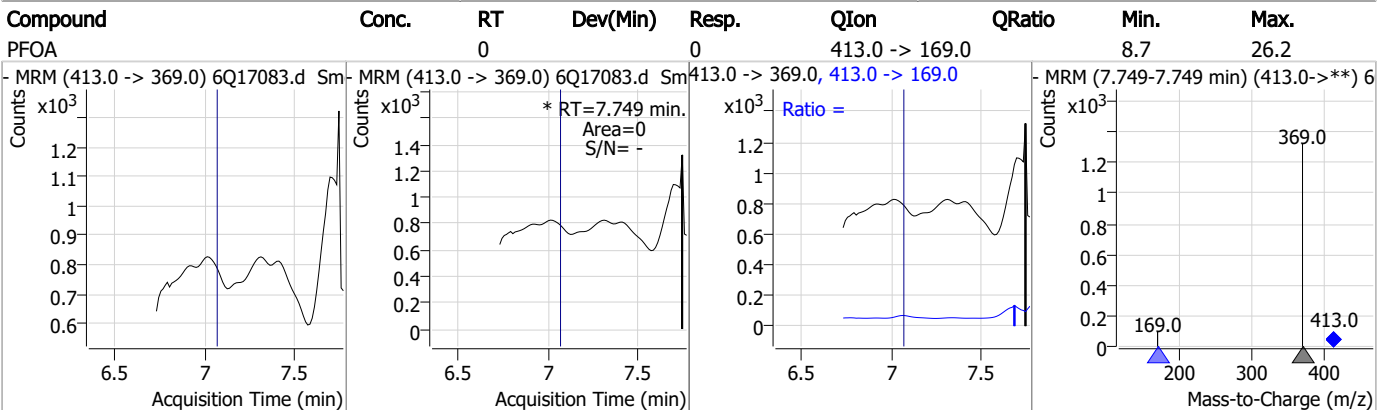
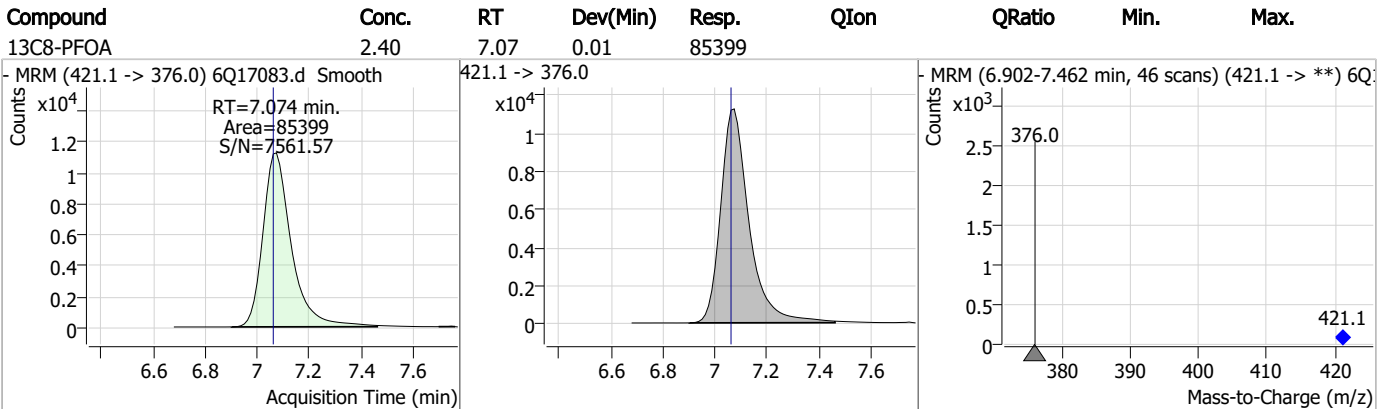
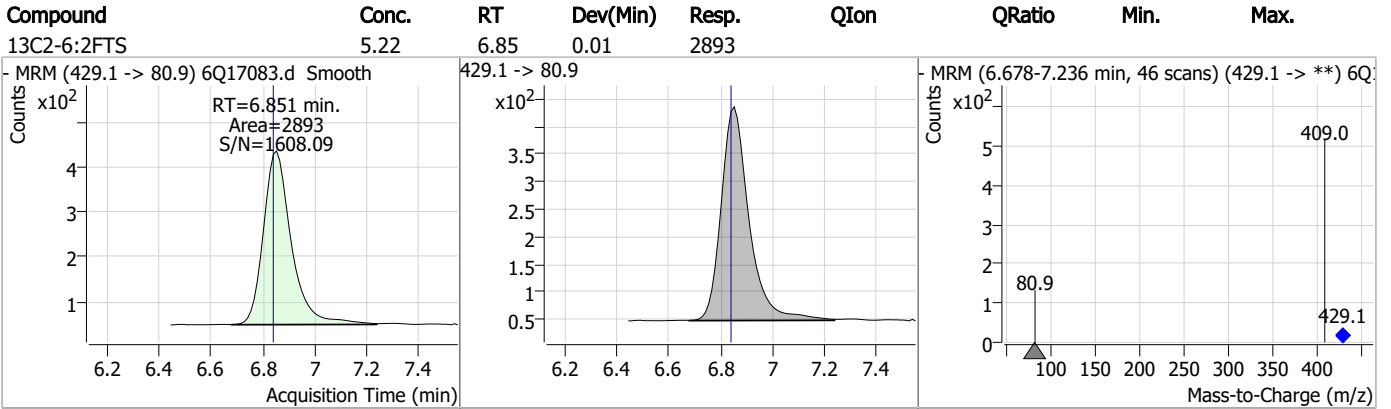
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.55	5.40	0.00	23846				
13C5-PFHxA	2.50	5.48	0.01	74894				
13C3-HFPO-DA	8.89	5.85	0.00	39135				
13C4-PFHpA	2.45	6.42	0.00	62315				

7.2.4
7



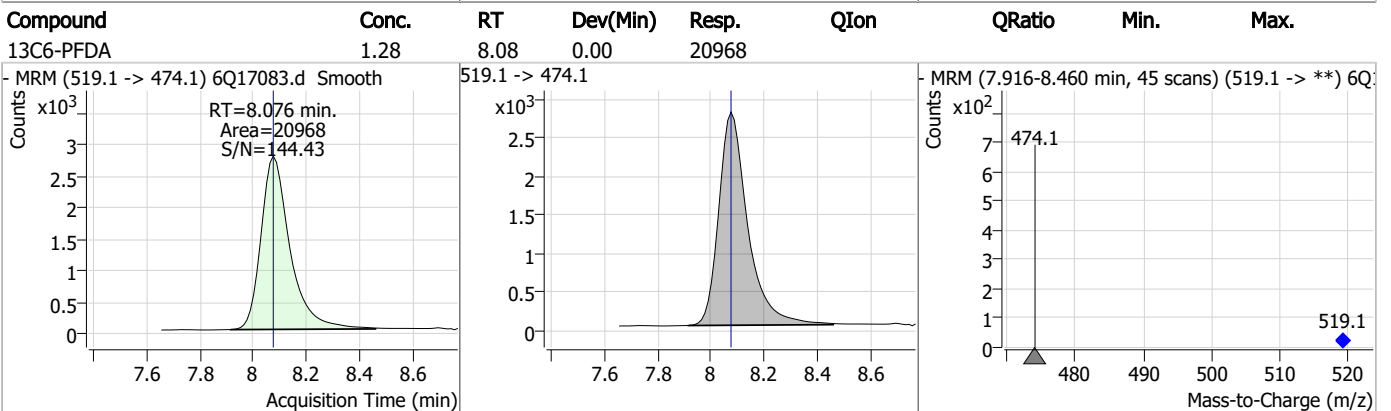
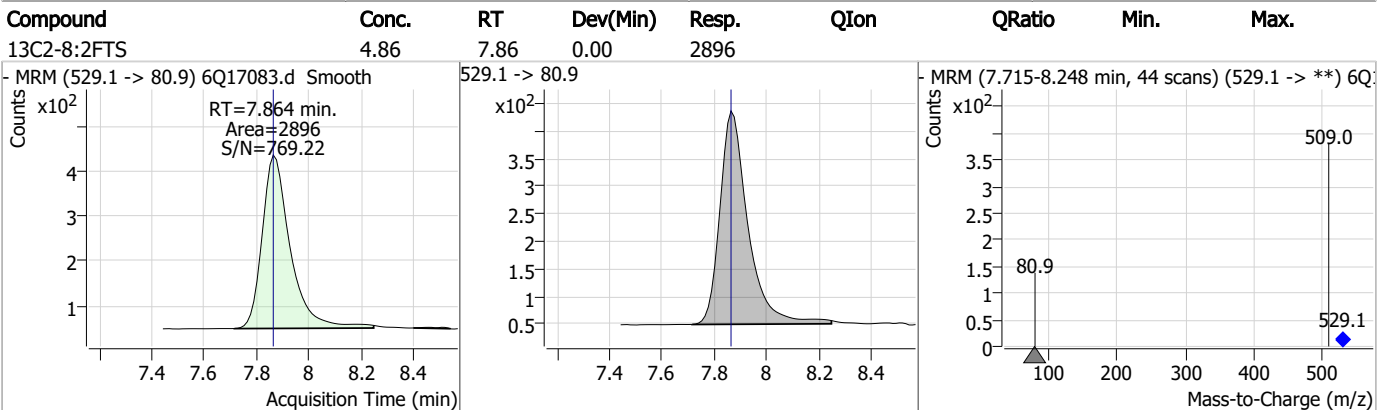
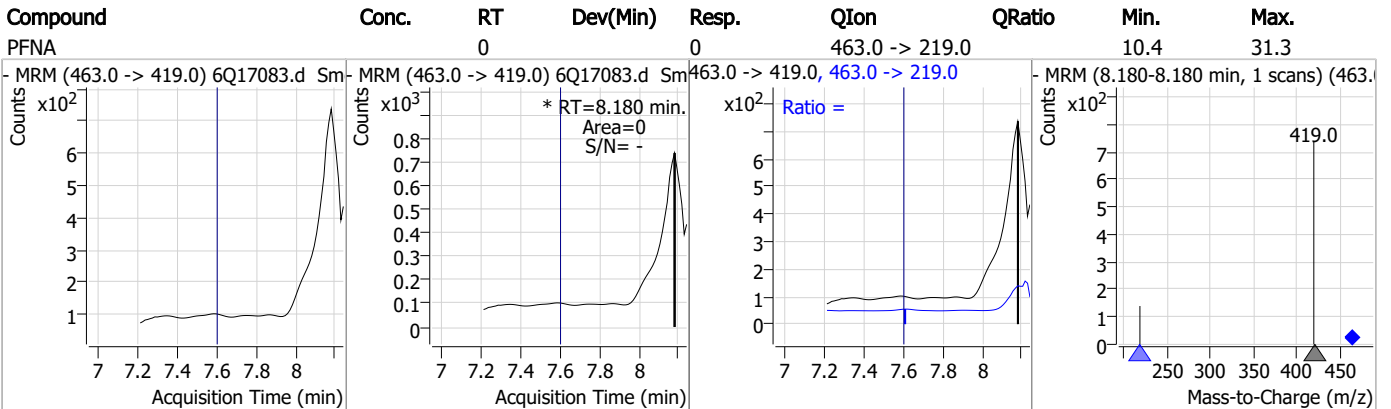
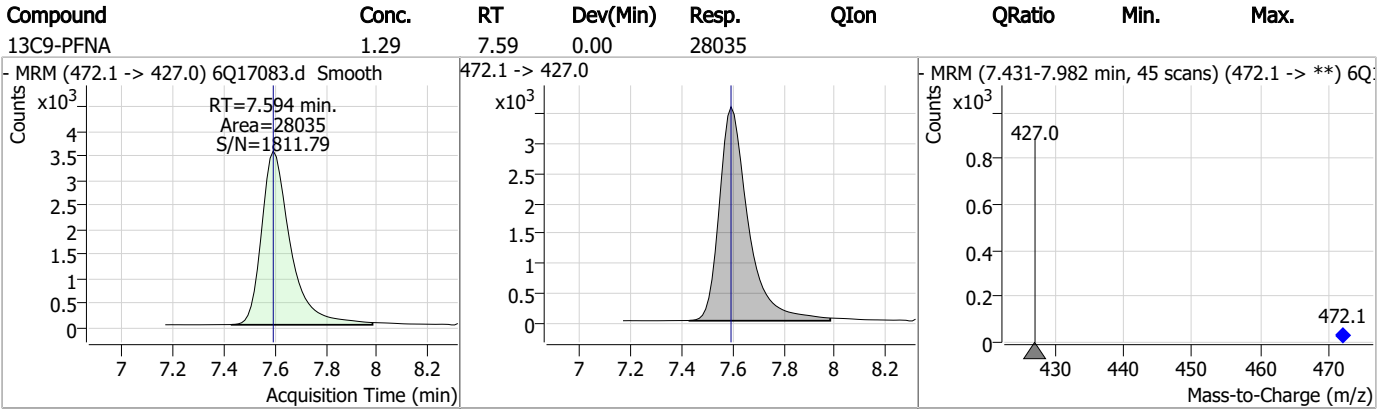
Perfluorinated Compounds by LC/MS/MS



7.2.4

7

Perfluorinated Compounds by LC/MS/MS

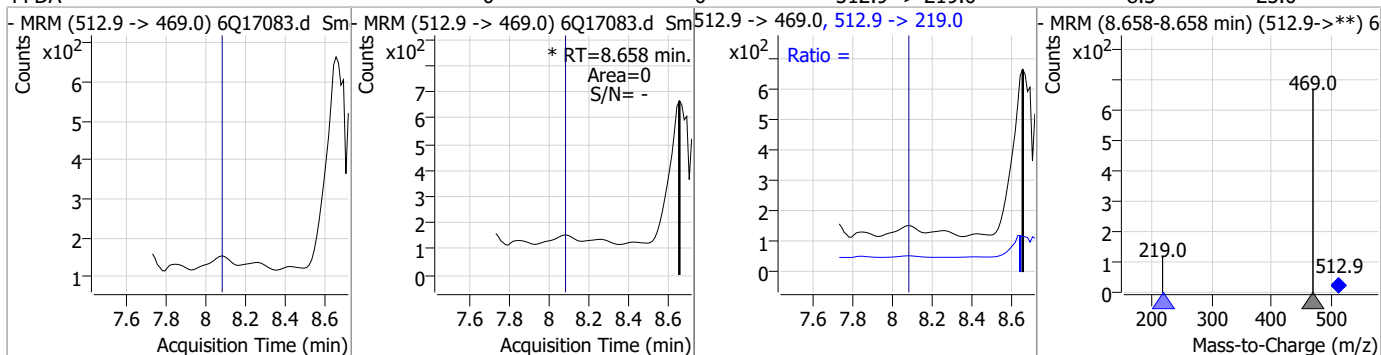


7.2.4

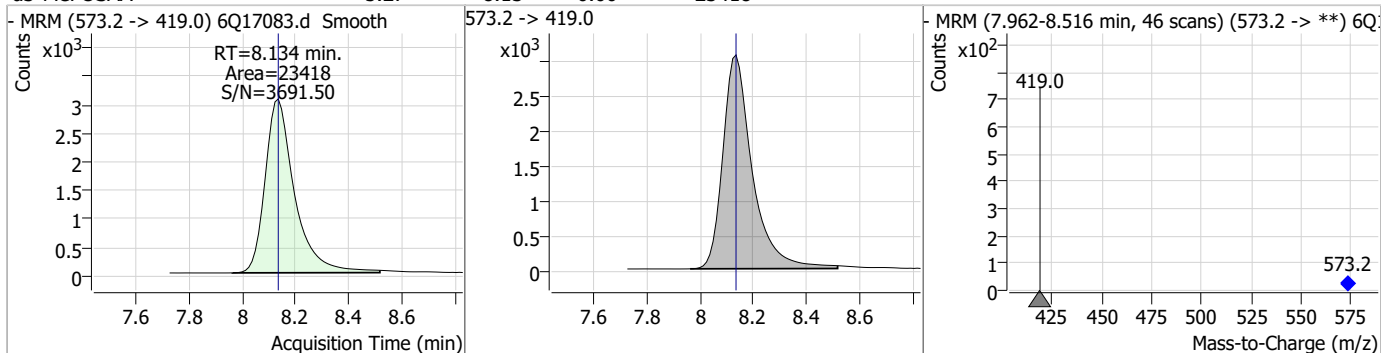
7

Perfluorinated Compounds by LC/MS/MS

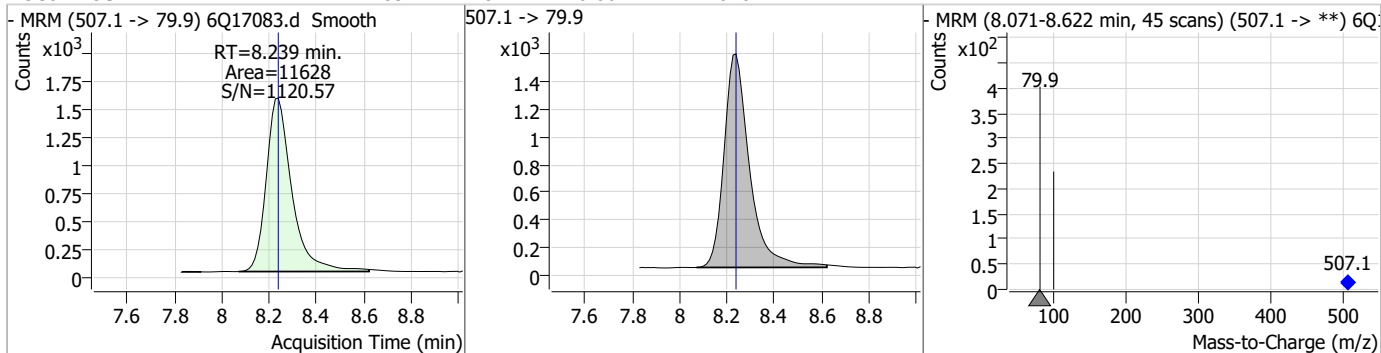
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0	0		0	512.9 -> 219.0		8.3	25.0



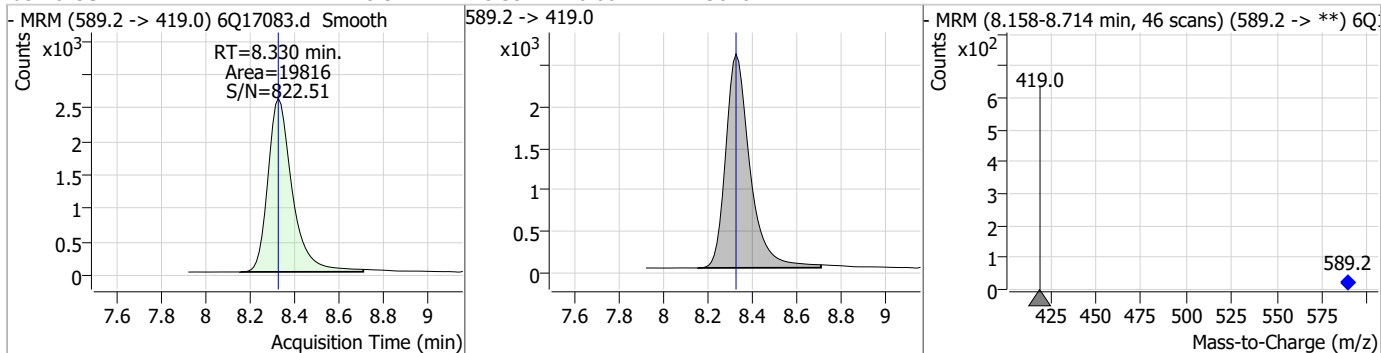
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.27	8.13	0.00	23418				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.59	8.24	0.00	11628				

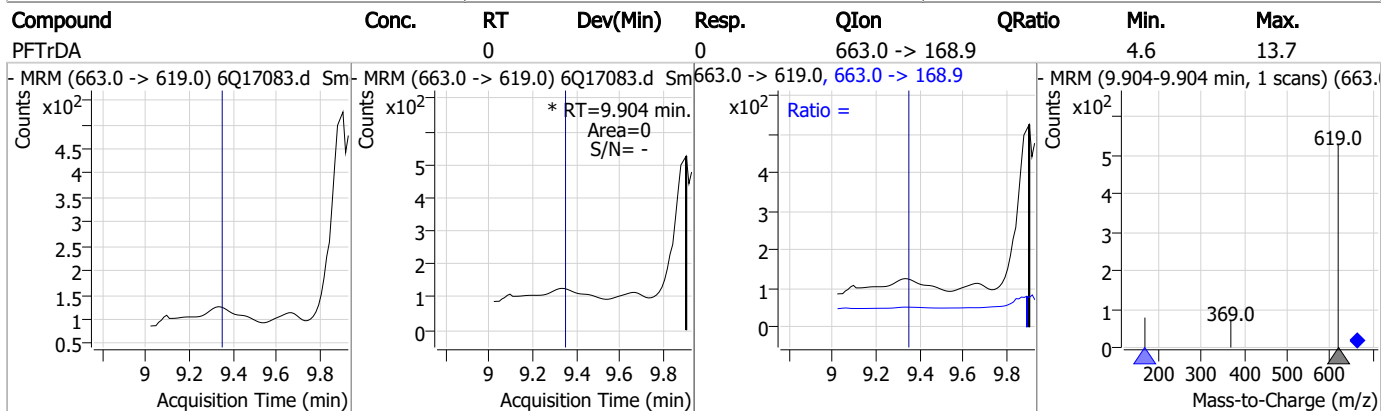
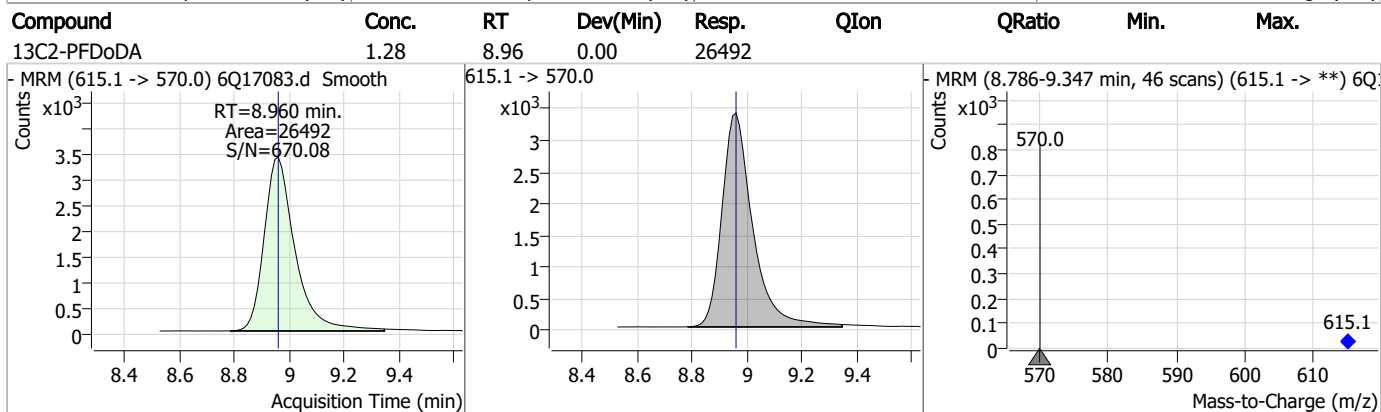
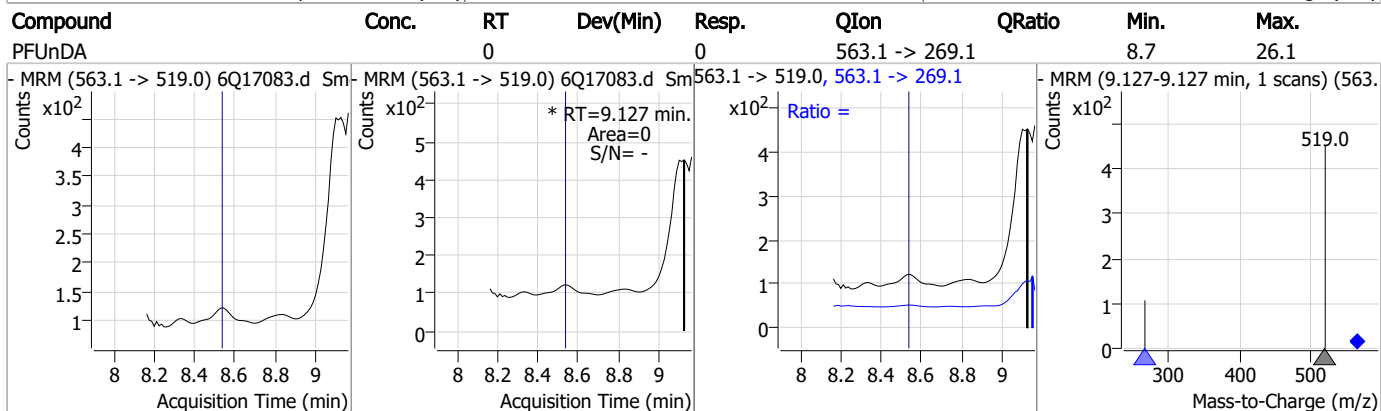
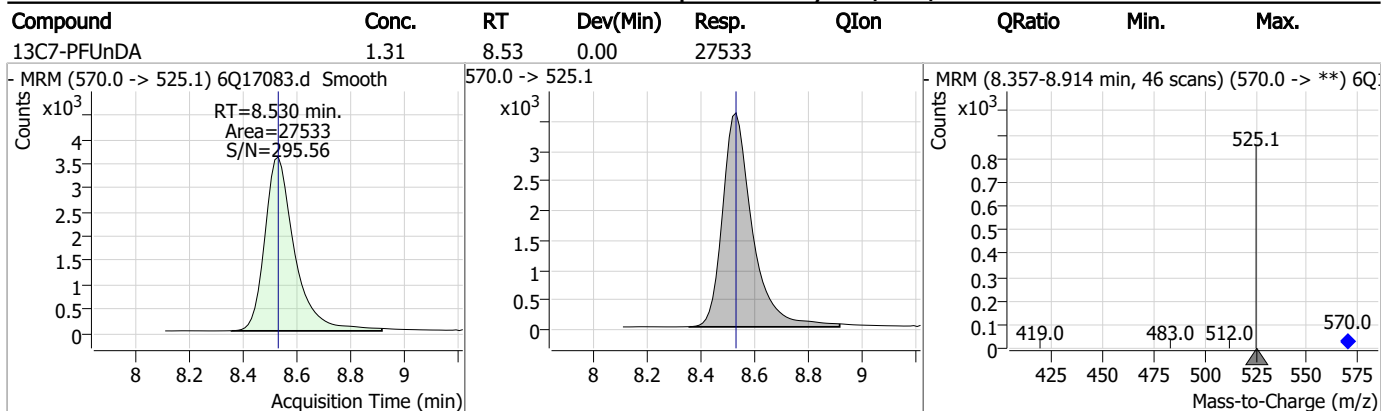


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.37	8.33	0.00	19816				



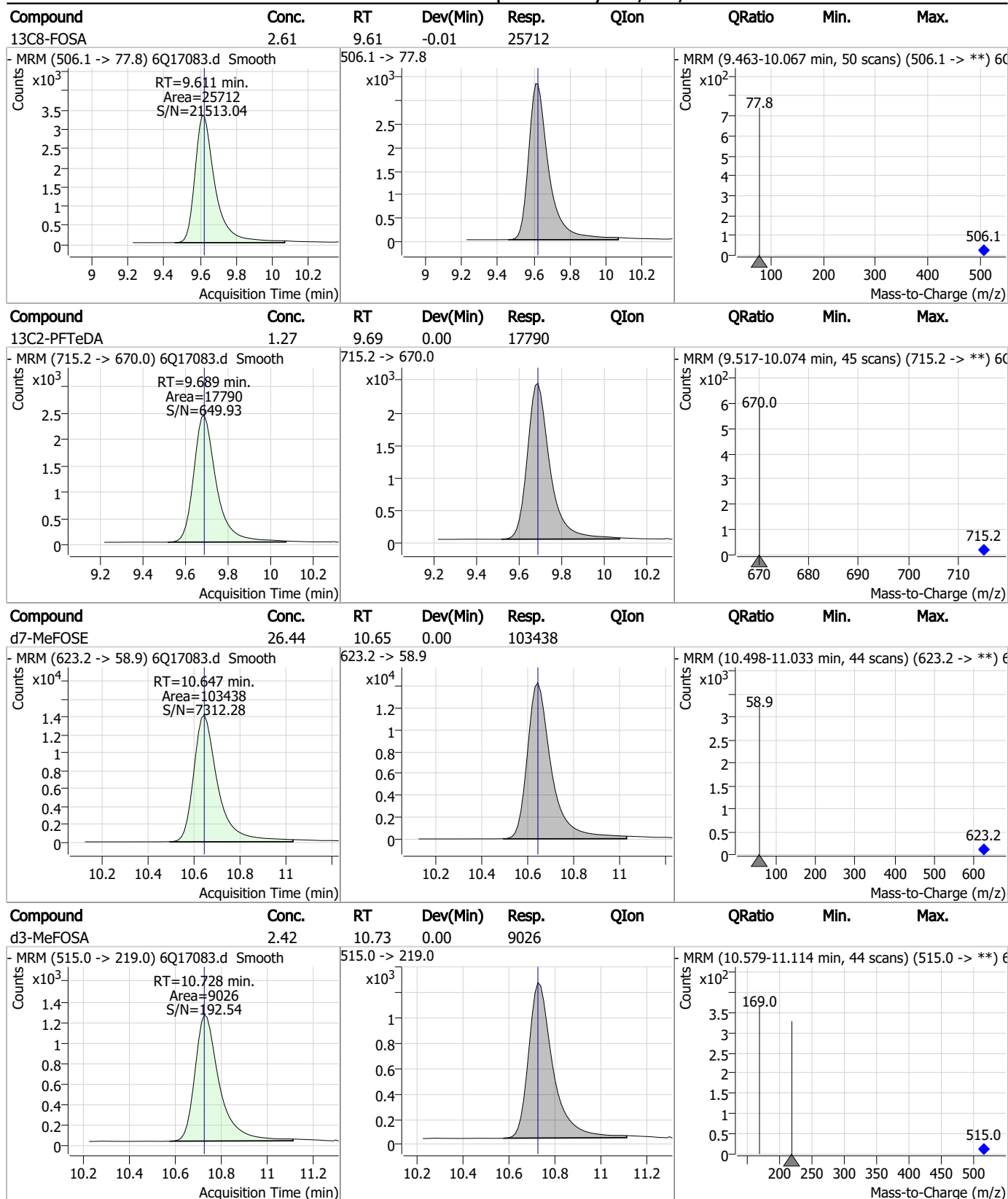
7.2.4
7

Perfluorinated Compounds by LC/MS/MS



7.2.4
7

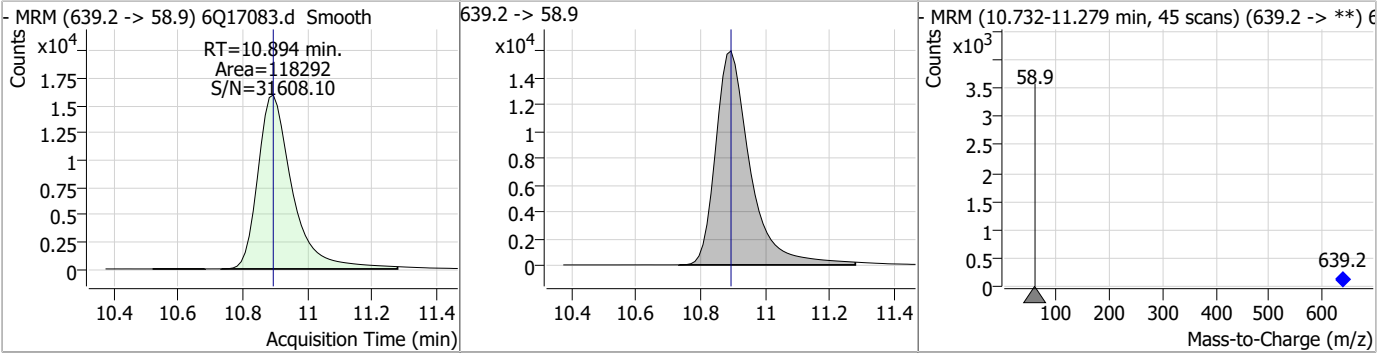
Perfluorinated Compounds by LC/MS/MS



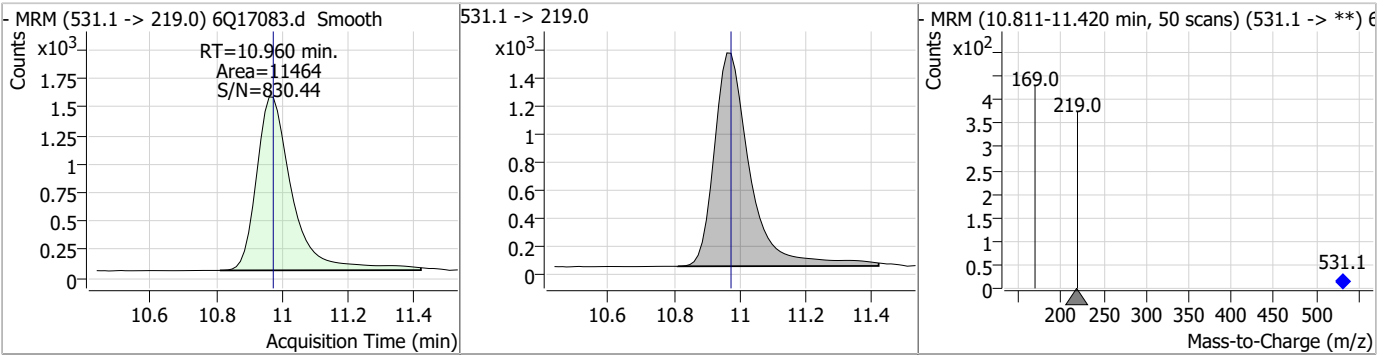
7.2.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.74	10.89	0.00	118292				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.51	10.96	-0.01	11464				



7.2.4

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43953.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 12:33:55 PM
 Sample Name : iblk
 Vial : P1-A1
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96548,S4Q635,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	127527	10.00 µg/L	0.013
M5-PFPeA	4.375	268.3 -> 223.0	68156	5.00 µg/L	0.012
M5-PFHxA	5.522	318.0 -> 273.0	47063	2.50 µg/L	-0.012
M4-PFHpA	6.455	367.1 -> 322.0	27381	2.50 µg/L	-0.012
M8-PFOA	7.111	421.1 -> 376.0	42584	2.50 µg/L	-0.012
M9-PFNA	7.658	472.1 -> 427.0	20496	1.25 µg/L	-0.012
M6-PFDA	8.166	519.1 -> 474.1	18925	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	19609	1.25 µg/L	-0.012
M2-PFDoDA	9.081	615.1 -> 570.0	20487	1.25 µg/L	-0.025
M2-PFTeDA	9.874	715.2 -> 670.0	16028	1.25 µg/L	-0.025
M8-FOSA	9.746	506.1 -> 77.8	16224	2.50 µg/L	-0.025
M3-PFBS	5.427	302.1 -> 79.9	11356	2.50 µg/L	0.000
M3-PFHxS	7.217	402.1 -> 79.9	6926	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	10594	2.50 µg/L	-0.013
M2-4:2FTS	5.222	329.1 -> 80.9	1158	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2127	5.00 µg/L	-0.012
M2-8:2FTS	7.953	529.1 -> 80.9	3524	5.00 µg/L	-0.012
M3-MeFOSAA	8.224	573.2 -> 419.0	14349	5.00 µg/L	-0.012
M3-HFPO-DA	5.877	286.9 -> 168.9	27846	10.00 µg/L	-0.012
M5-EtFOSAA	8.433	589.2 -> 419.0	11549	5.00 µg/L	-0.012
M7-MeFOSE	10.934	623.2 -> 58.9	70863	25.00 µg/L	-0.012
M9-EtFOSE	11.244	639.2 -> 58.9	98354	25.00 µg/L	-0.012
M5-EtFOSA	11.348	531.1 -> 219.0	11090	2.50 µg/L	0.000
M3-MeFOSA	11.051	515.0 -> 219.0	10257	2.50 µg/L	-0.012
13C4-PFOS	8.305	502.8 -> 79.9	11078	2.50 µg/L	-0.025
13C3-PFBA	2.941	216.0 -> 172.0	67911	5.00 µg/L	0.012
18O2-PFHxS	7.216	403.0 -> 83.9	4863	2.50 µg/L	-0.012
13C4-PFOA	7.112	417.1 -> 372.0	51248	2.50 µg/L	-0.012
13C2-PFDA	8.166	515.1 -> 470.1	17518	1.25 µg/L	-0.012
13C5-PFNA	7.658	468.0 -> 423.0	25033	1.25 µg/L	-0.026
13C2-PFHxA	5.523	315.1 -> 270.0	41866	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1158	5.86 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.2%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2127	5.97 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 119.4%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3524	6.34 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 126.7%		
13C2-PFDoDA	9.081	615.1 -> 570.0	20487	1.21 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C2-PFTeDA	9.874	715.2 -> 670.0	16028	1.16 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C3-PFBS	5.427	302.1 -> 79.9	11356	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C3-PFHxS	7.217	402.1 -> 79.9	6926	2.30 µg/L	-0.012

7.2.5
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 = 91.9%	
13C4-PFBA	2.936	216.8 -> 171.9	127527	9.98 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.455	367.1 -> 322.0	27381	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C5-PFHxA	5.522	318.0 -> 273.0	47063	2.55 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.375	268.3 -> 223.0	68156	5.29 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C6-PFDA	8.166	519.1 -> 474.1	18925	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C7-PFUnDA	8.635	570.0 -> 525.1	19609	1.26 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C8-FOSA	9.746	506.1 -> 77.8	16224	2.34 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
13C8-PFOA	7.111	421.1 -> 376.0	42584	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.316	507.1 -> 79.9	10594	2.54 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
13C9-PFNA	7.658	472.1 -> 427.0	20496	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.4%	
d3-MeFOSAA	8.224	573.2 -> 419.0	14349	5.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	27846	10.11 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d3-MeFOSA	11.051	515.0 -> 219.0	10257	2.36 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
d5-EtFOSAA	8.433	589.2 -> 419.0	11549	5.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d7-MeFOSE	10.934	623.2 -> 58.9	70863	20.56 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.2%	
d9-EtFOSE	11.244	639.2 -> 58.9	98354	20.15 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.6%	
d5-EtFOSA	11.348	531.1 -> 219.0	11090	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.1%	

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	-	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

7.2.5
7

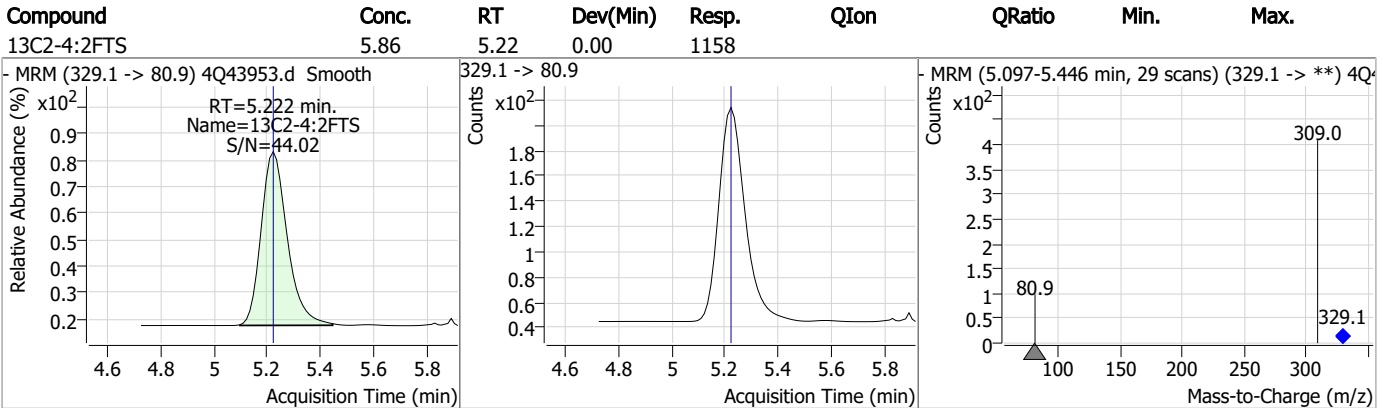
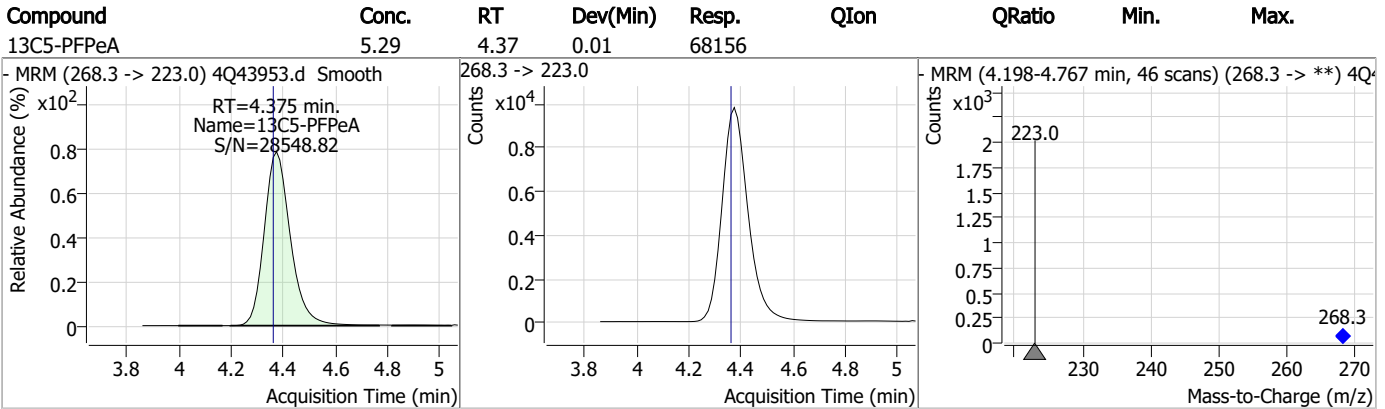
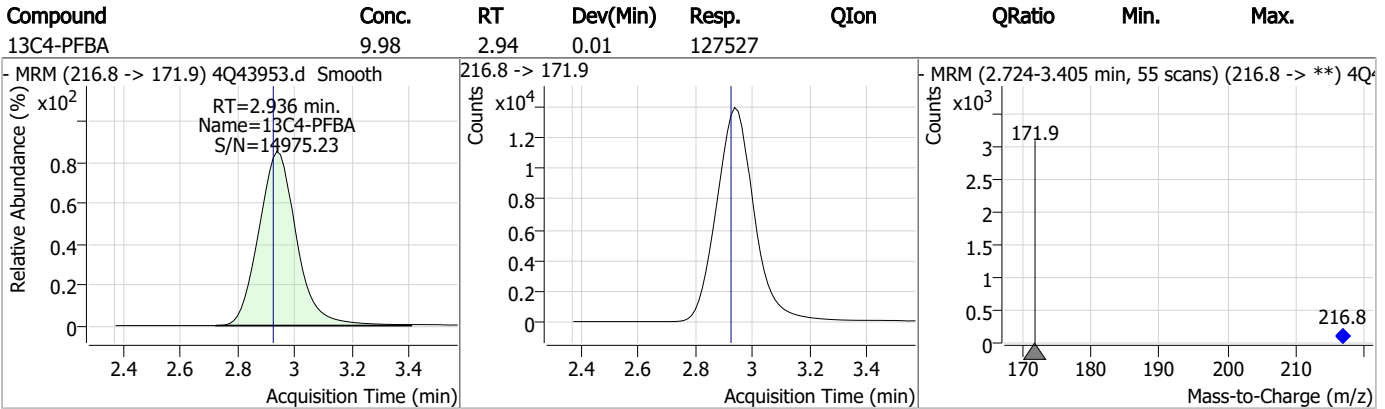
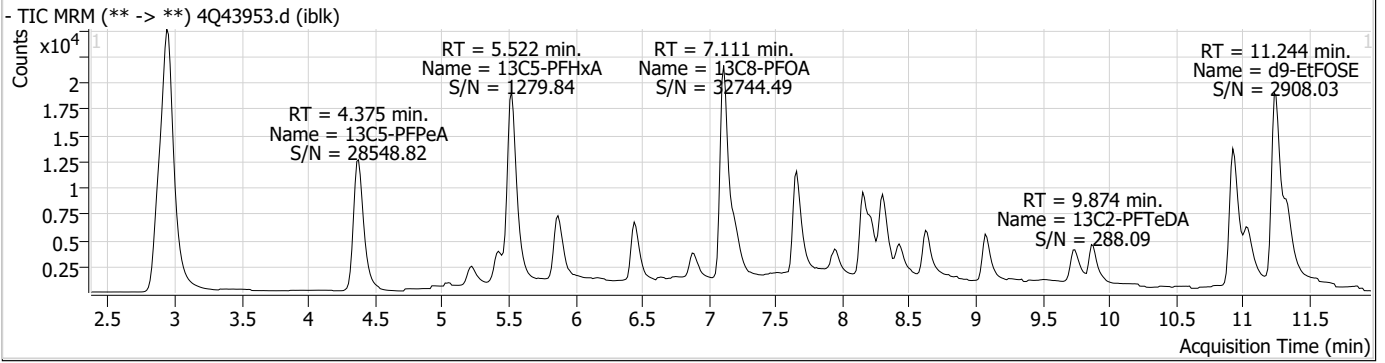
Perfluorinated Compounds by LC/MS/MS

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

7.2.5

7

Perfluorinated Compounds by LC/MS/MS



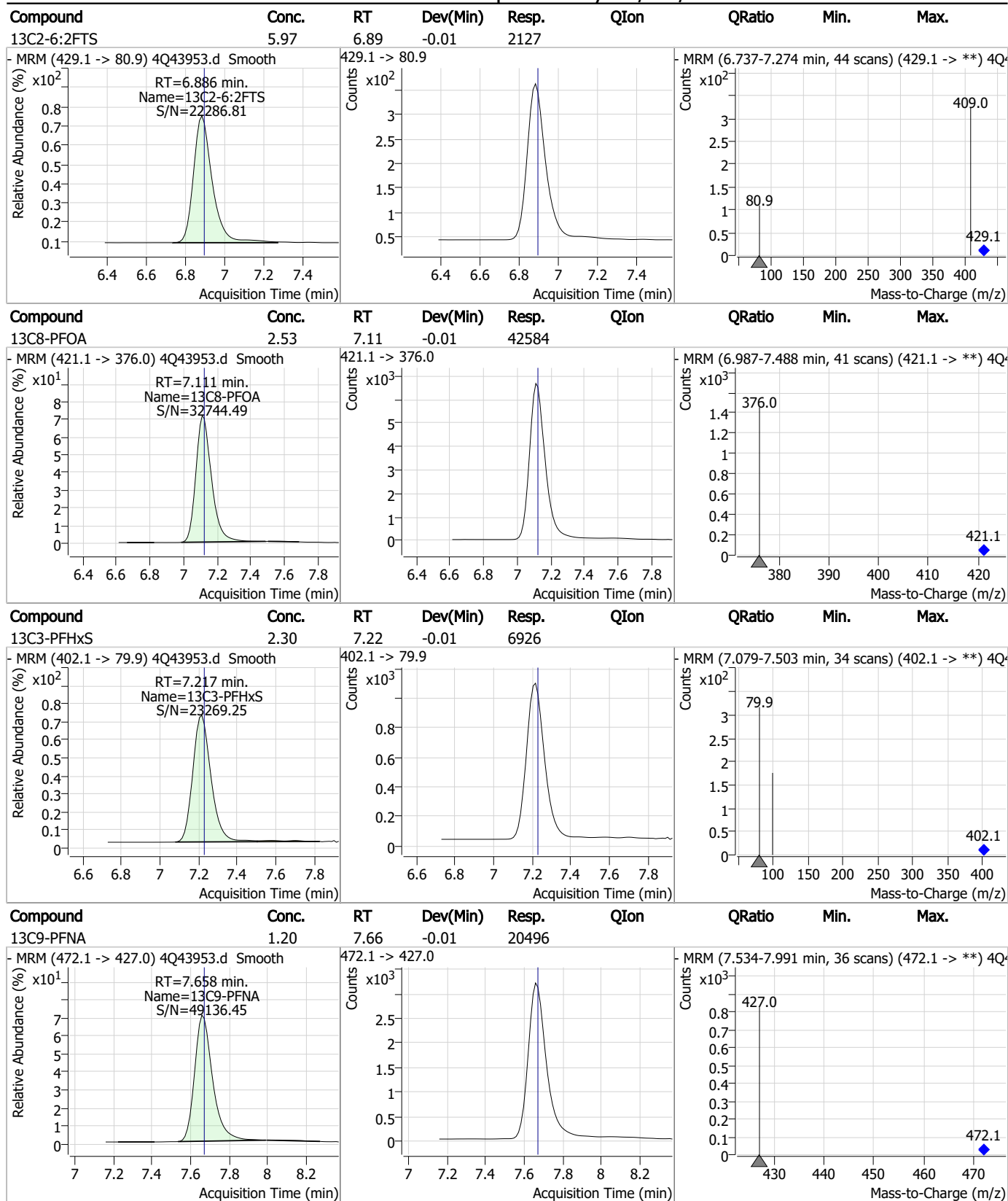
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-PFBS	2.48	5.43	0.00	11356				
<p>MRM (302.1 -> 79.9) 4Q43953.d Smooth RT=5.427 min. Name=13C3-PFBS S/N=112140.48</p>			<p>302.1 -> 79.9</p>			<p>MRM (5.279-5.812 min, 44 scans) (302.1 -> **) 4Q</p>		
13C5-PFHxA	2.55	5.52	-0.01	47063				
<p>MRM (318.0 -> 273.0) 4Q43953.d Smooth RT=5.522 min. Name=13C5-PFHxA S/N=1279.84</p>			<p>318.0 -> 273.0</p>			<p>MRM (5.374-5.908 min, 44 scans) (318.0 -> **) 4Q</p>		
13C3-HFPO-DA	10.11	5.88	-0.01	27846				
<p>MRM (286.9 -> 168.9) 4Q43953.d Smooth RT=5.877 min. Name=13C3-HFPO-DA S/N=754692.63</p>			<p>286.9 -> 168.9</p>			<p>MRM (5.743-6.262 min, 42 scans) (286.9 -> **) 4Q</p>		
13C4-PFHpA	2.54	6.45	-0.01	27381				
<p>MRM (367.1 -> 322.0) 4Q43953.d Smooth RT=6.455 min. Name=13C4-PFHpA S/N=725.06</p>			<p>367.1 -> 322.0</p>			<p>MRM (6.303-6.769 min, 37 scans) (367.1 -> **) 4Q</p>		

7.25
7

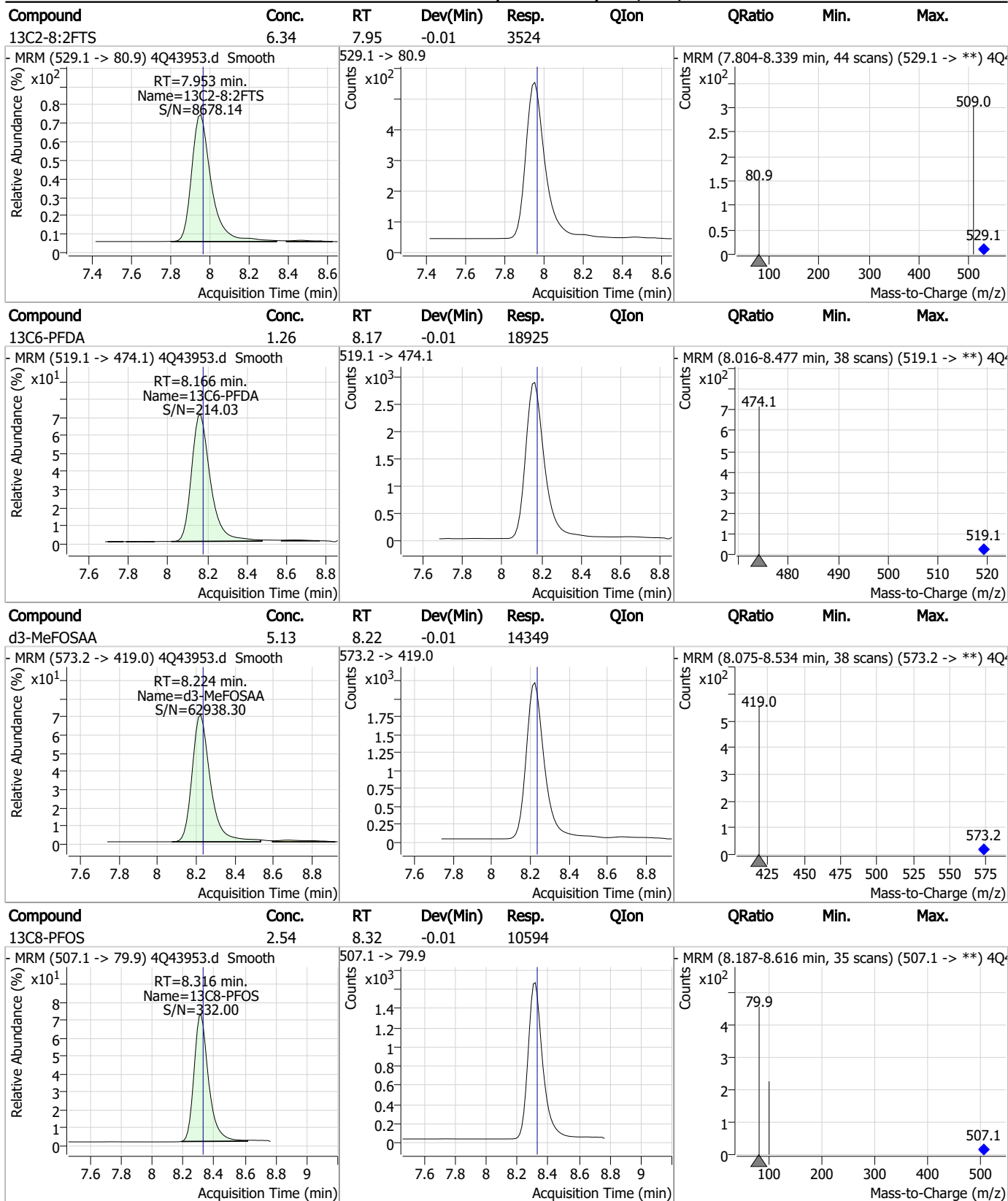


Perfluorinated Compounds by LC/MS/MS



7.25
7

Perfluorinated Compounds by LC/MS/MS



7.25
7

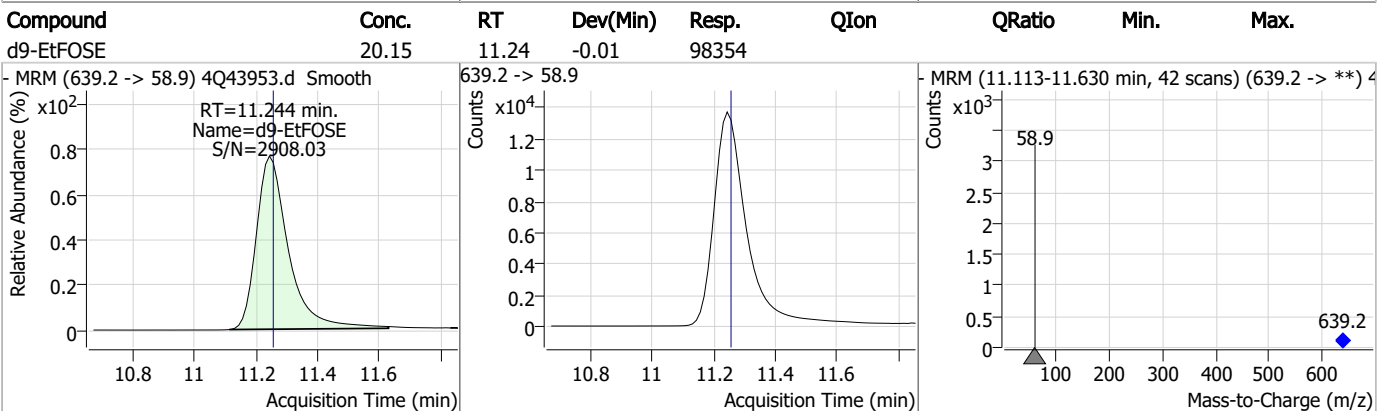
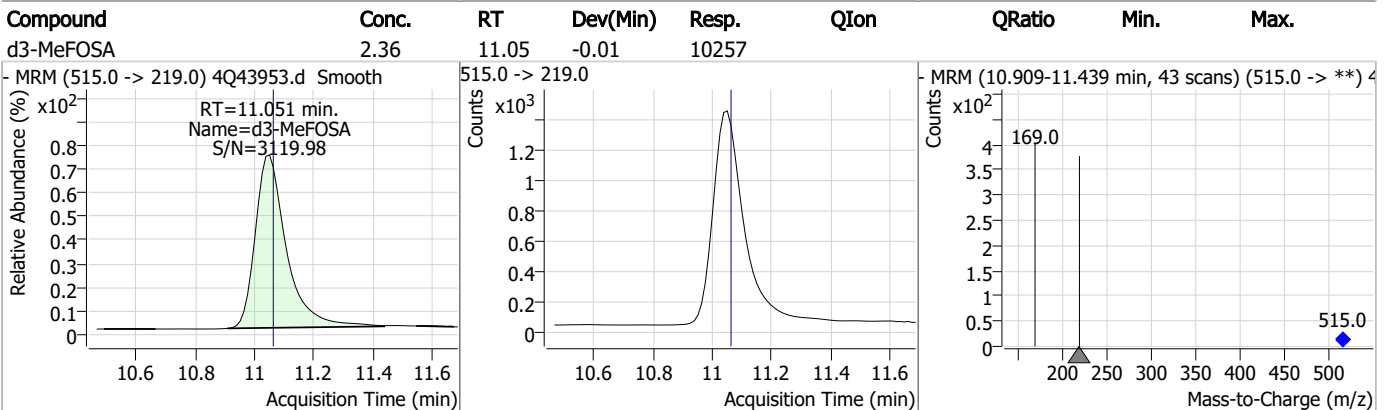
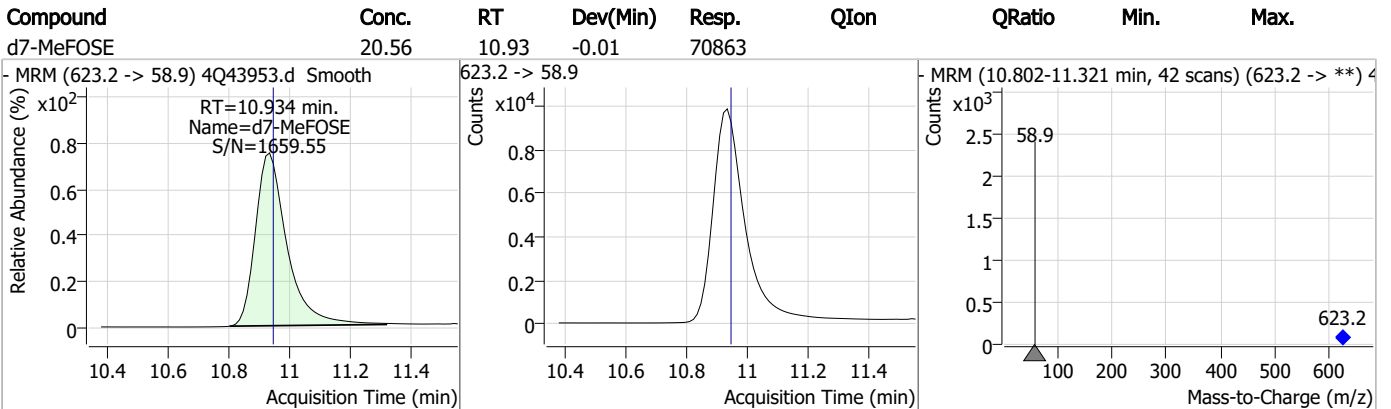
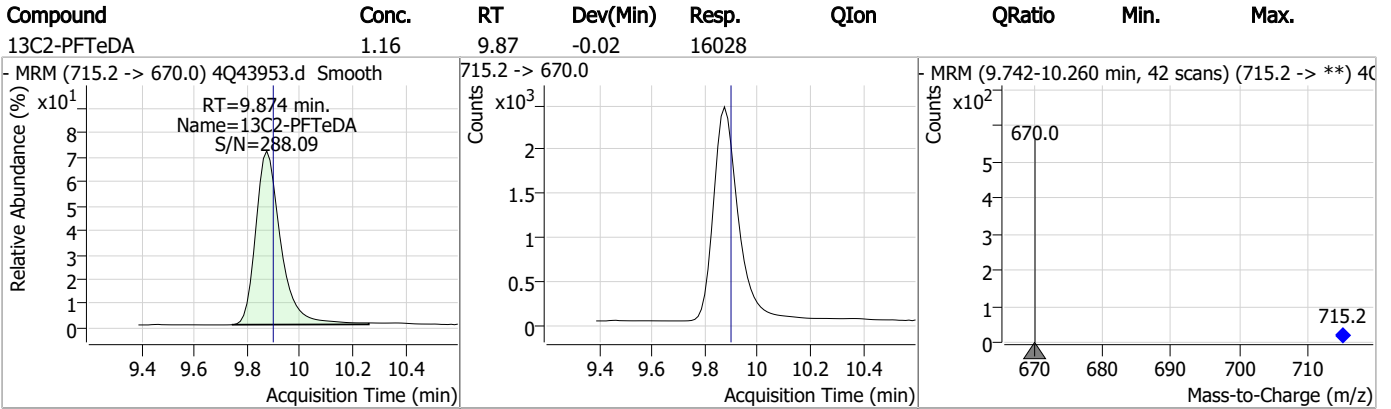
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.02	8.43	-0.01	11549				
<p>MRM (589.2 -> 419.0) 4Q43953.d Smooth RT=8.433 min. Name=d5-EtFOSAA S/N=2239.34</p>			<p>589.2 -> 419.0</p>			<p>MRM (8.304-8.744 min, 36 scans) (589.2 -> **) 4Q</p>		
13C7-PFUnDA	1.26	8.63	-0.01	19609				
<p>MRM (570.0 -> 525.1) 4Q43953.d Smooth RT=8.635 min. Name=13C7-PFUnDA S/N=5114.61</p>			<p>570.0 -> 525.1</p>			<p>MRM (8.489-8.946 min, 37 scans) (570.0 -> **) 4Q</p>		
13C2-PFDoDA	1.21	9.08	-0.02	20487				
<p>MRM (615.1 -> 570.0) 4Q43953.d Smooth RT=9.081 min. Name=13C2-PFDoDA S/N=1713.28</p>			<p>615.1 -> 570.0</p>			<p>MRM (8.933-9.394 min, 37 scans) (615.1 -> **) 4Q</p>		
13C8-FOSA	2.34	9.75	-0.02	16224				
<p>MRM (506.1 -> 77.8) 4Q43953.d Smooth RT=9.746 min. Name=13C8-FOSA S/N=56902.61</p>			<p>506.1 -> 77.8</p>			<p>MRM (9.611-10.130 min, 42 scans) (506.1 -> **) 4Q</p>		

7.25

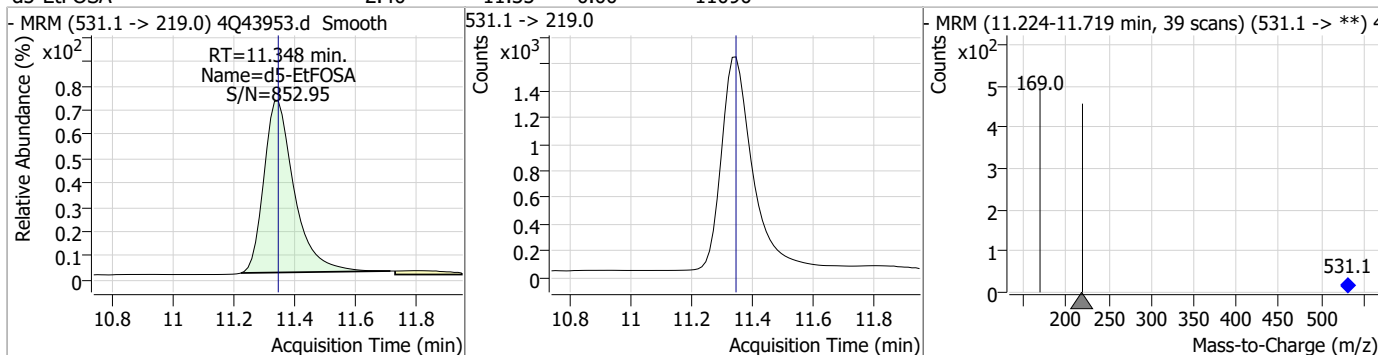
7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOA	2.40	11.35	0.00	11090				



7.2.5
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17071.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 5:40:02 PM
 Sample Name : iccb
 Vial : P1-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	187889	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66414	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	70678	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	59132	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	84140	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	28775	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20653	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26760	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25194	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16882	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25200	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22719	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12954	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11745	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2534	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2779	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2924	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23291	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39056	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	20266	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	97100	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122433	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11690	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9209	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	15222	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	81442	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9156	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	95786	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25988	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27938	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59103	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2534	6.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 120.4%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2779	5.44 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2924	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25194	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.2%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16882	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.3%		
13C3-PFBS	5.398	302.1 -> 79.9	22719	2.64 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12954	2.66 µg/L	0.000

7.2.6
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 = 106.3%	
13C4-PFBA	2.910	216.8 -> 171.9	187889	9.98 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.431	367.1 -> 322.0	59132	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C5-PFHxA	5.480	318.0 -> 273.0	70678	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	66414	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C6-PFDA	8.076	519.1 -> 474.1	20653	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26760	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C8-FOSA	9.623	506.1 -> 77.8	25200	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-PFOA	7.074	421.1 -> 376.0	84140	2.28 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 91.0%	
13C8-PFOS	8.226	507.1 -> 79.9	11745	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C9-PFNA	7.594	472.1 -> 427.0	28775	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23291	5.13 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39056	9.33 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	9209	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	20266	5.37 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
d7-MeFOSE	10.647	623.2 -> 58.9	97100	24.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d9-EtFOSE	10.894	639.2 -> 58.9	122433	25.08 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d5-EtFOSA	10.960	531.1 -> 219.0	11690	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	

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	8.683	512.9 -> 469.0	0	µg/L m	1
		512.9 -> 219.0	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	8.180	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	-	N.D.		
		548.8 -> 79.9				
PFOA	7.352	548.8 -> 98.9	0	µg/L	m	1
		413.0 -> 369.0				
PFOS	-	413.0 -> 169.0	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	9.904	663.0 -> 619.0	0	µg/L	m	1
		663.0 -> 168.9				
PFUnDA	9.115	563.1 -> 519.0	0	µg/L	m	1
		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

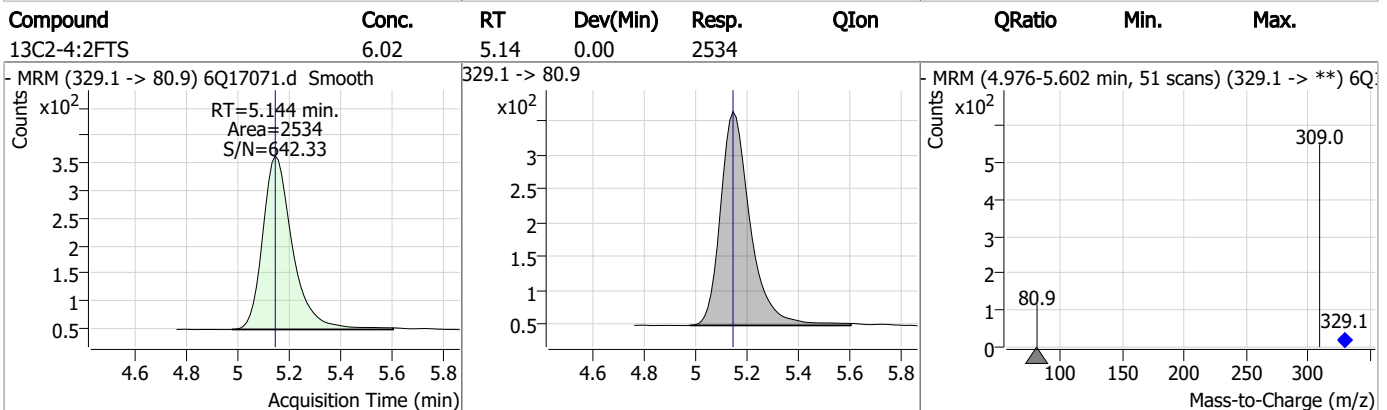
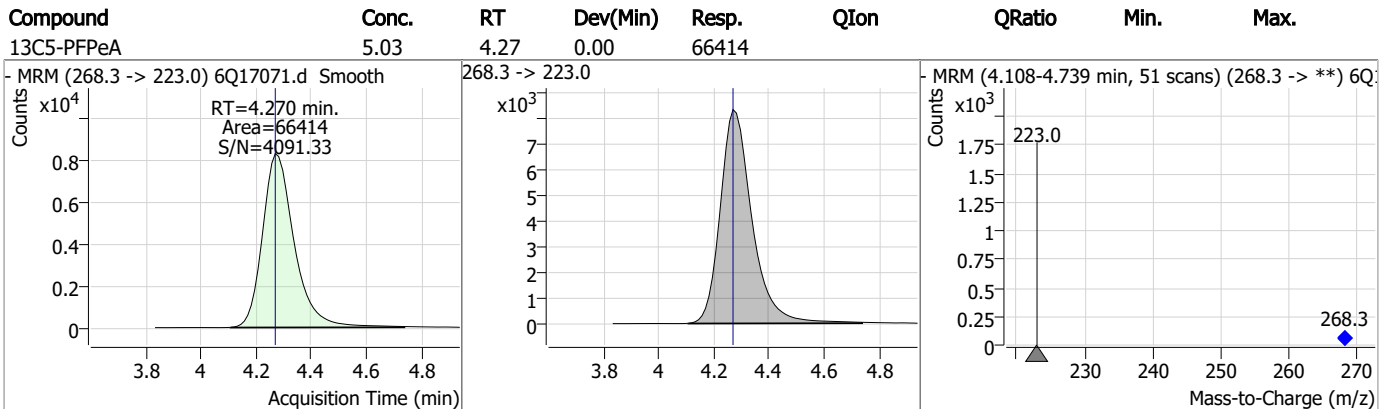
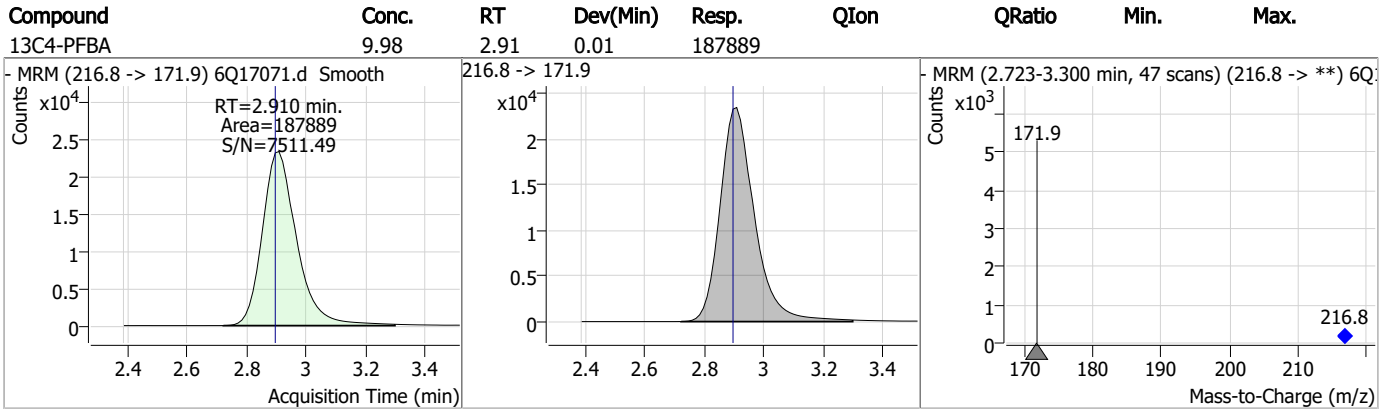
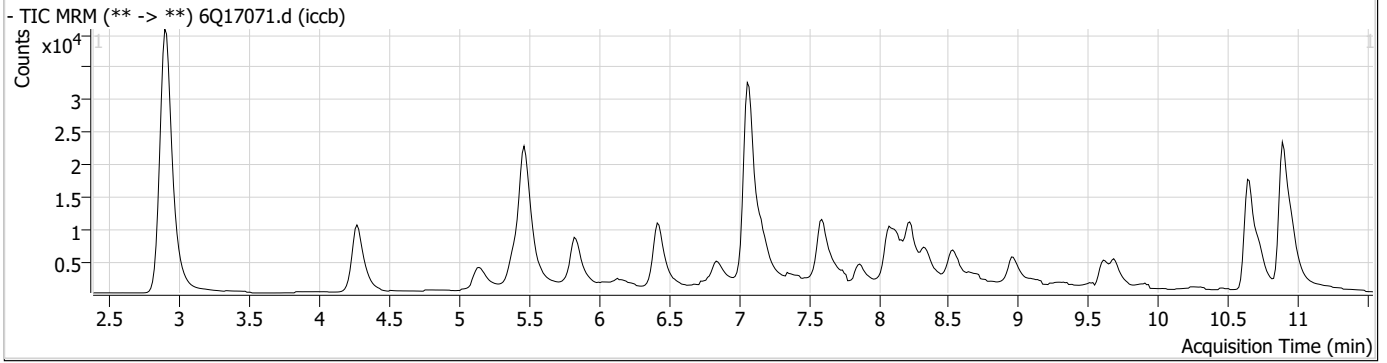
Perfluorinated Compounds by LC/MS/MS

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

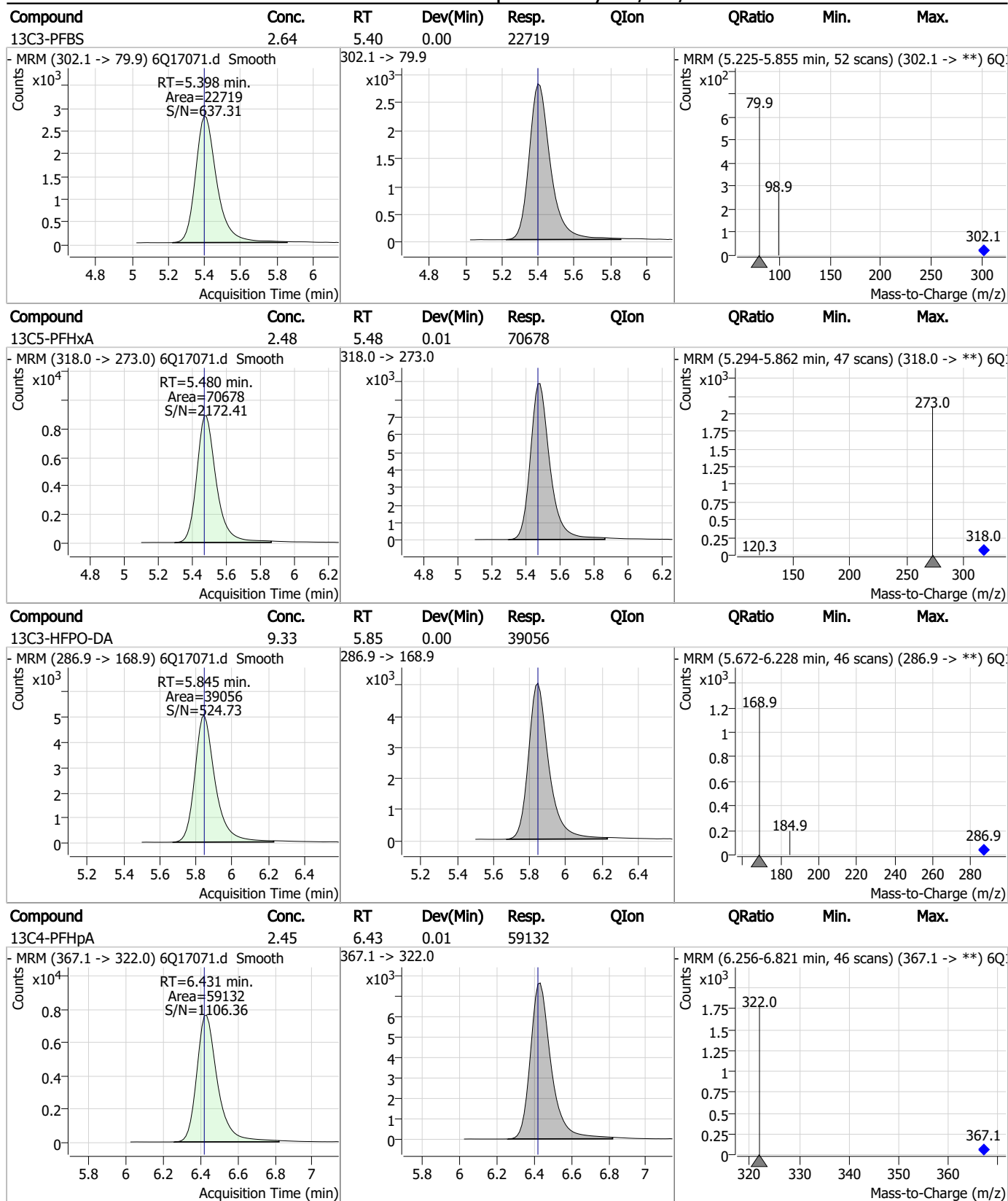
7.2.6

7

Perfluorinated Compounds by LC/MS/MS

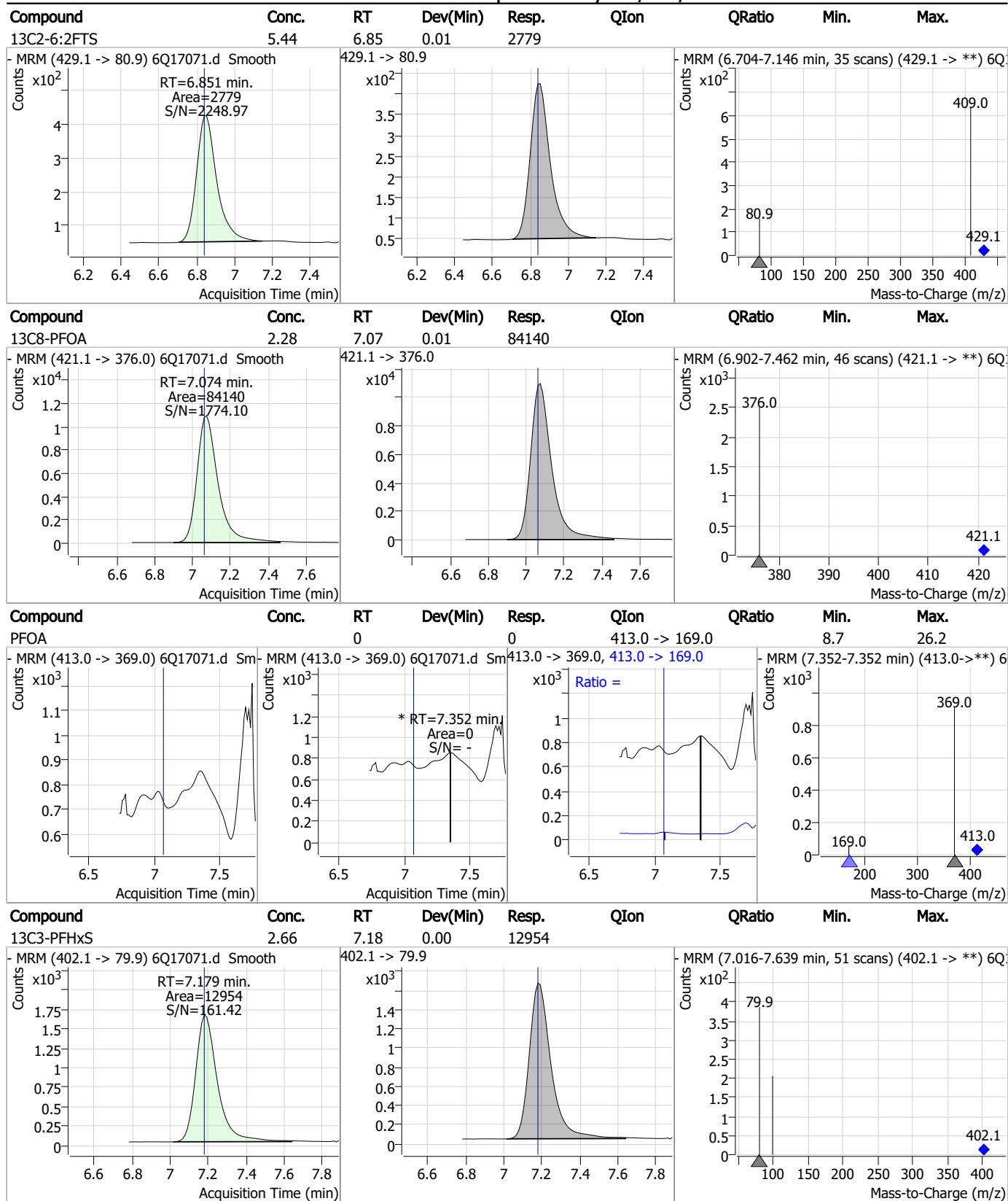


Perfluorinated Compounds by LC/MS/MS



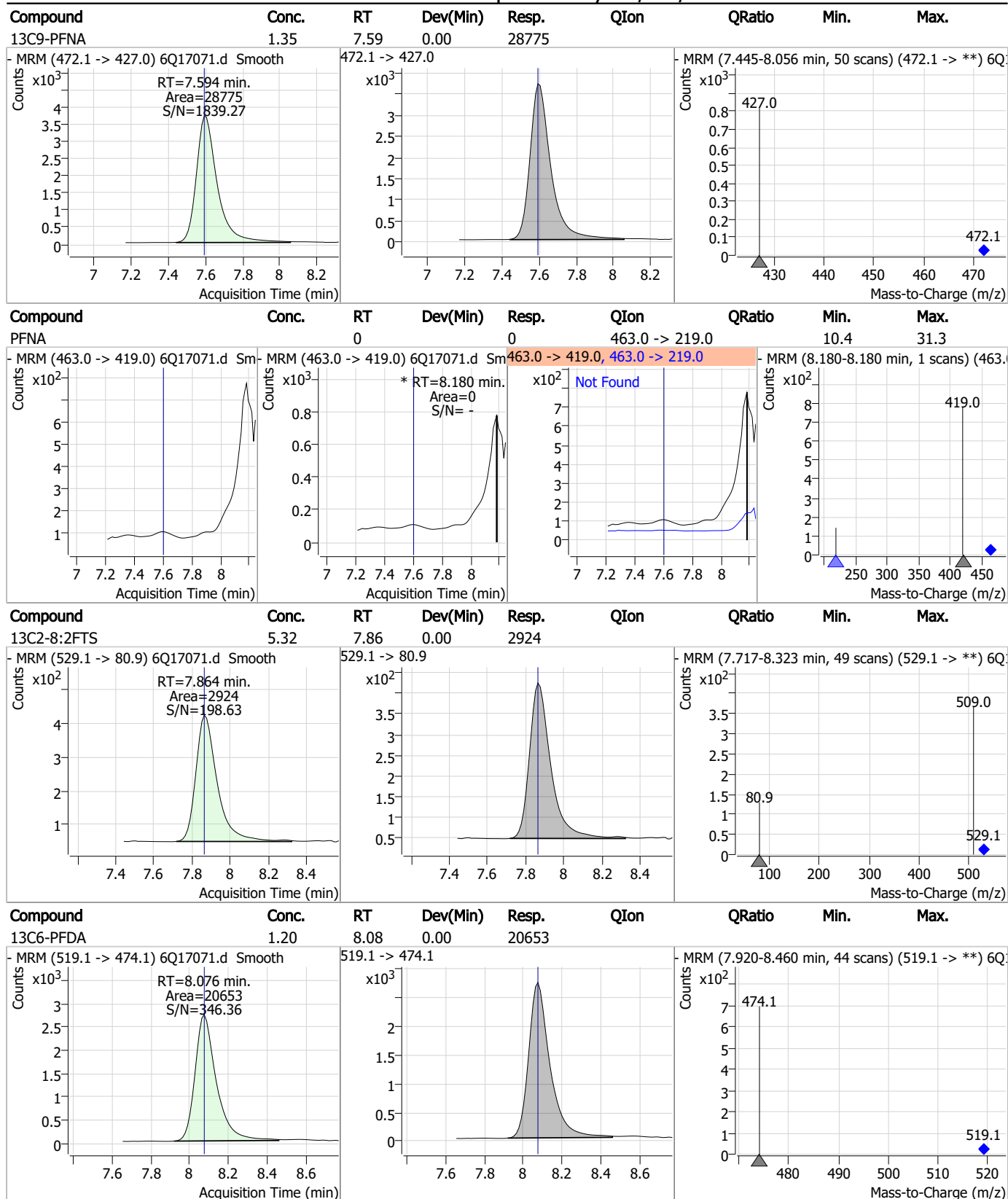
7.2.6
7

Perfluorinated Compounds by LC/MS/MS



7.2.6
7

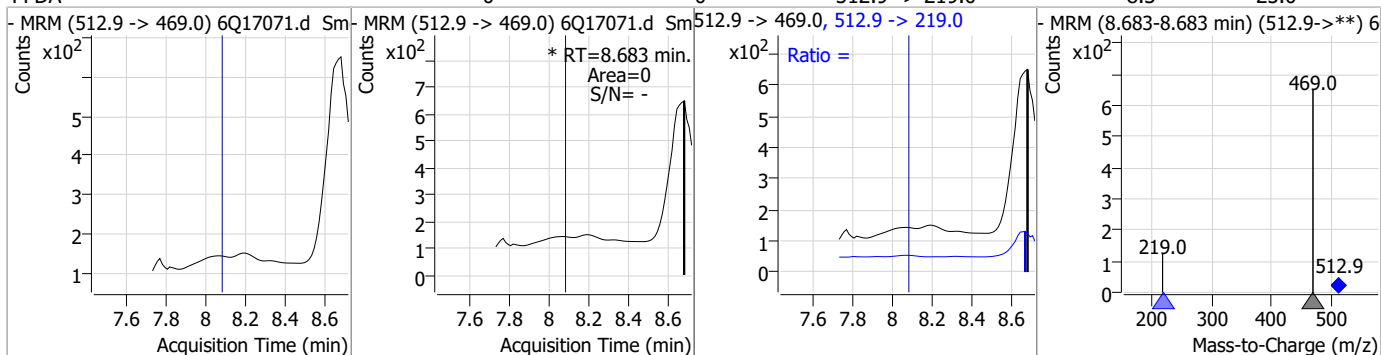
Perfluorinated Compounds by LC/MS/MS



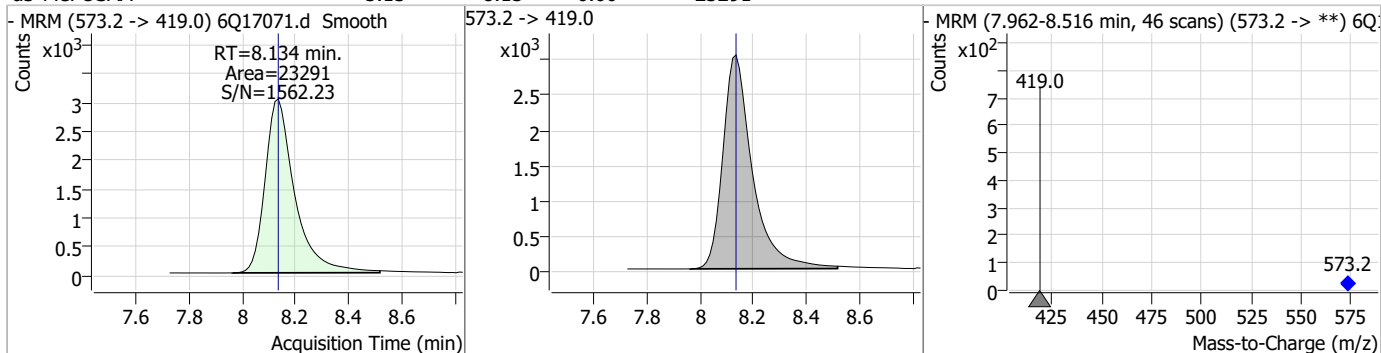
7.2.6
7

Perfluorinated Compounds by LC/MS/MS

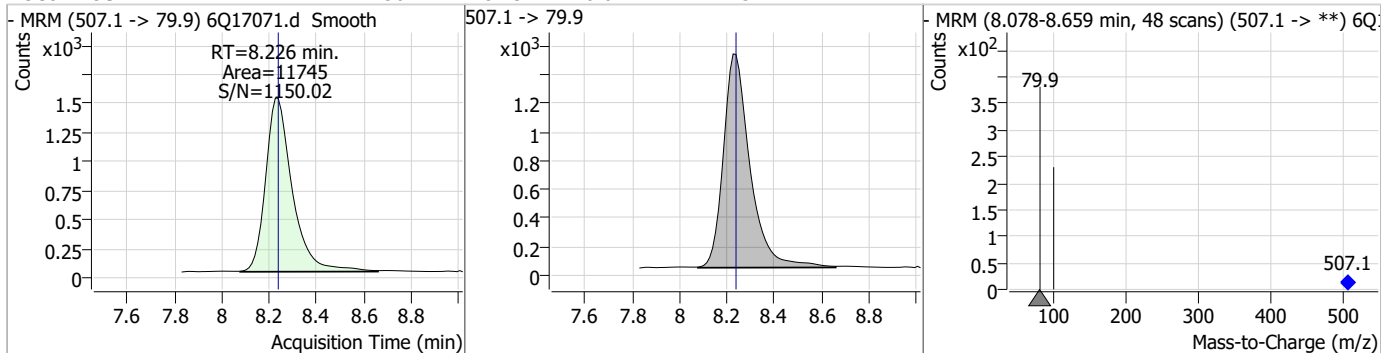
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0	0		0	512.9 -> 219.0		8.3	25.0



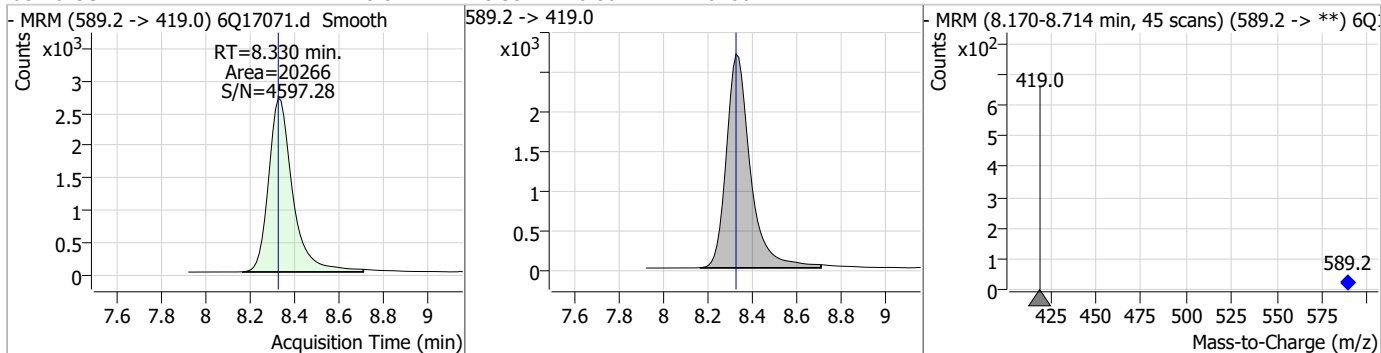
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.13	8.13	0.00	23291				



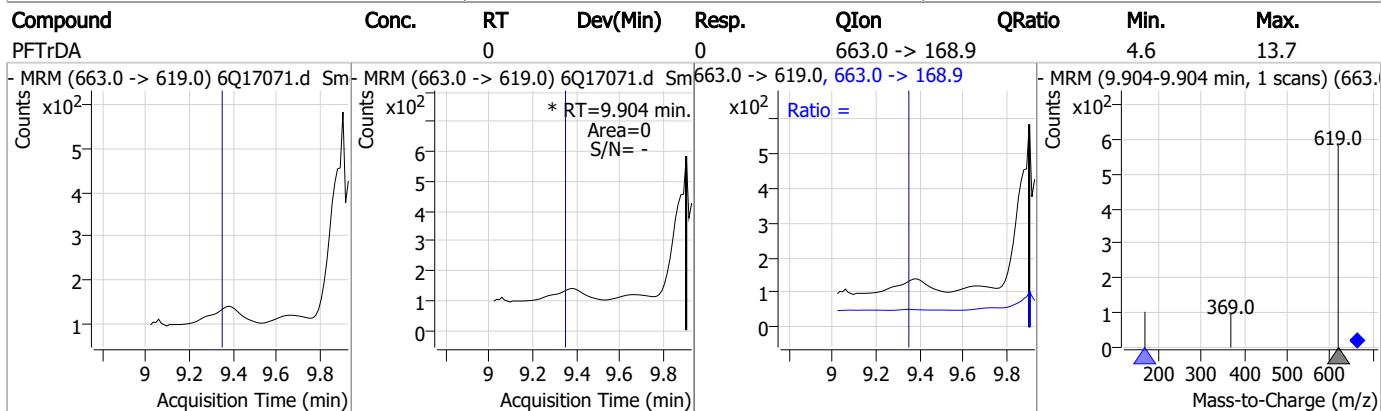
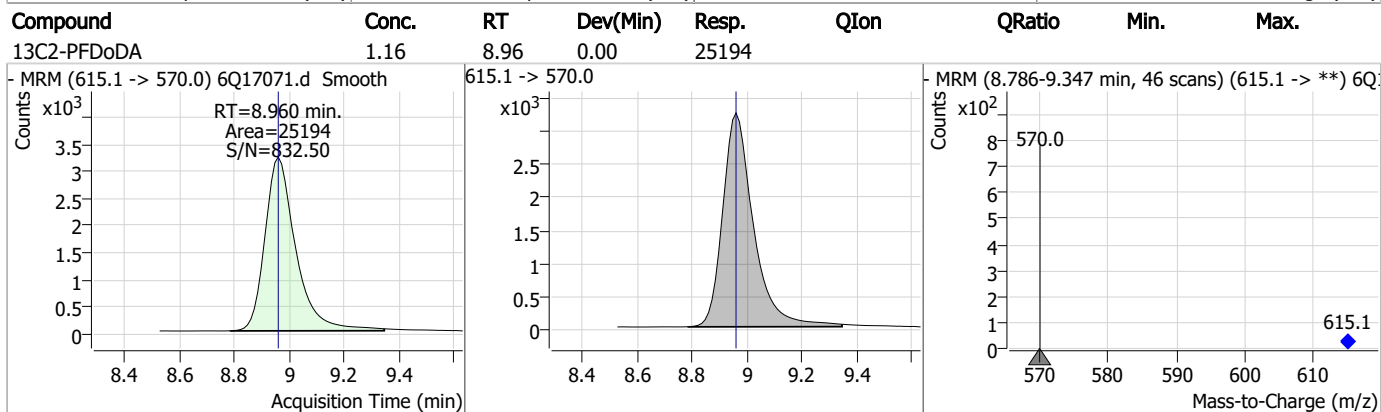
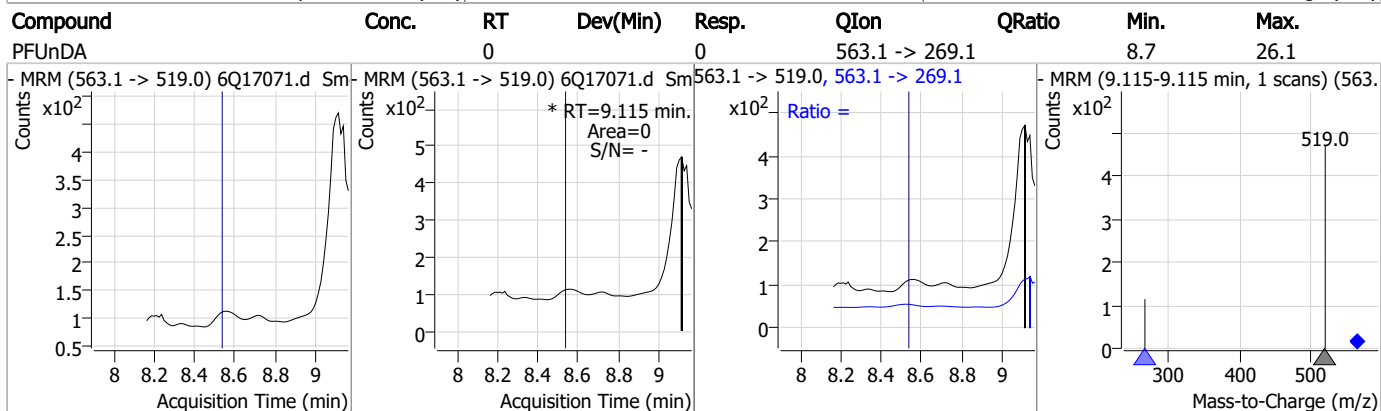
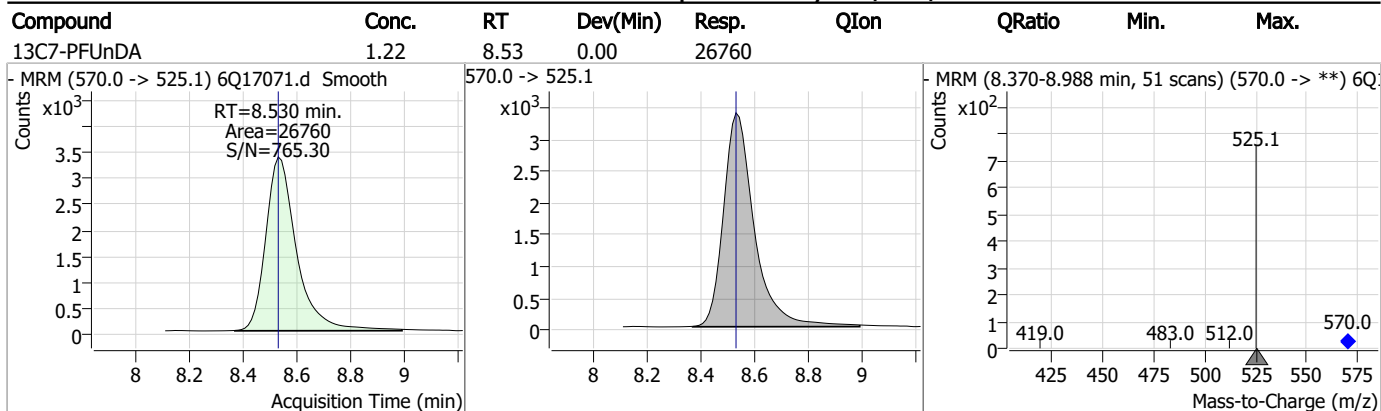
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.56	8.23	-0.01	11745				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.37	8.33	0.00	20266				



Perfluorinated Compounds by LC/MS/MS



7.2.6
7

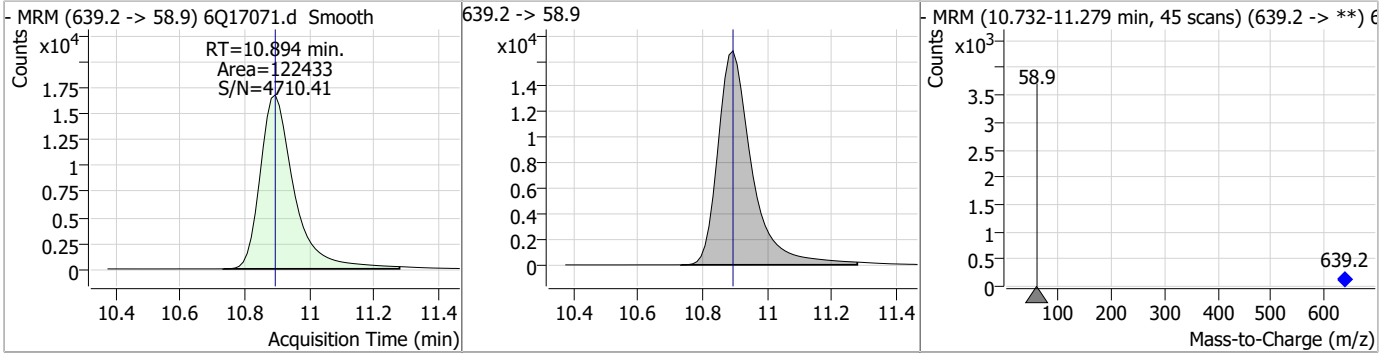
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.50	9.62	0.00	25200				
13C2-PFTeDA	1.15	9.69	0.00	16882				
d7-MeFOSE	24.30	10.65	0.00	97100				
d3-MeFOSA	2.42	10.73	0.00	9209				

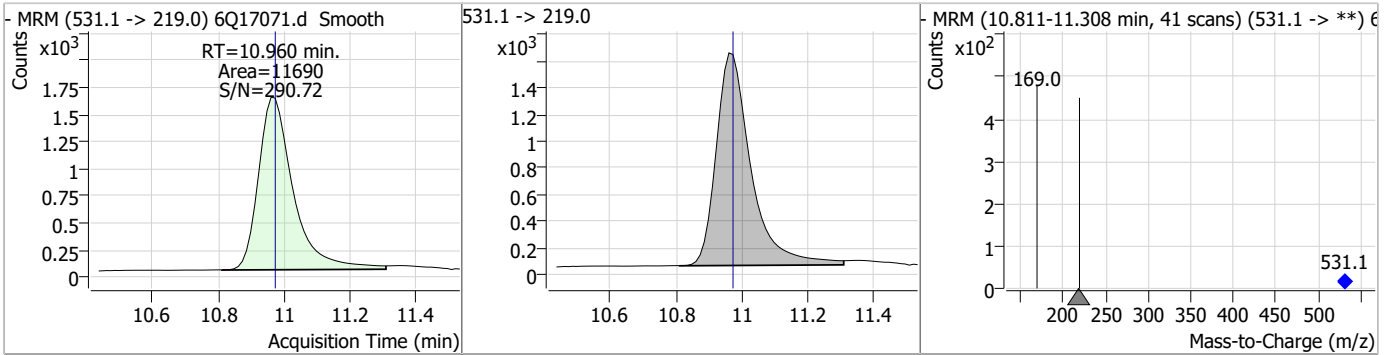
7.2.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.08	10.89	0.00	122433				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOFA	2.50	10.96	-0.01	11690				



7.2.6

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17072.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 5:54:31 PM
 Sample Name : op96603-bs
 Vial : P3-A1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	182931	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	64876	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70285	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	58366	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	79967	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27355	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21329	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25049	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	23621	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	14231	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	10403	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23191	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12909	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10569	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2073	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2852	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2700	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22085	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38924	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18372	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	12722	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	16864	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	4150	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	3552	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	12959	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	73687	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8892	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	77551	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23140	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26399	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	55956	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2073	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2852	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2700	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	23621	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.689	715.2 -> 670.0	14231	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 87.4%		
13C3-PFBS	5.398	302.1 -> 79.9	23191	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12909	2.73 µg/L	0.000

7.31
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 = 109.1%	
13C4-PFBA	2.910	216.8 -> 171.9	182931	10.74 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 107.4%	
13C4-PFHpA	6.419	367.1 -> 322.0	58366	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFHxA	5.468	318.0 -> 273.0	70285	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	64876	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C6-PFDA	8.076	519.1 -> 474.1	21329	1.40 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.8%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25049	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-FOSA	9.623	506.1 -> 77.8	10403	1.21 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 48.6%	
13C8-PFOA	7.074	421.1 -> 376.0	79967	2.67 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-PFOS	8.239	507.1 -> 79.9	10569	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.3%	
13C9-PFNA	7.594	472.1 -> 427.0	27355	1.36 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22085	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38924	9.83 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	3552	1.10 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 43.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18372	5.72 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.5%	
d7-MeFOSE	10.647	623.2 -> 58.9	12722	3.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 15.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	16864	4.06 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 16.2%	
d5-EtFOSA	10.960	531.1 -> 219.0	4150	1.04 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 41.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	33101	10.55 µg/L	98
		327.1 -> 80.9	11940		
6:2FTS	6.839	427.1 -> 407.0	26951	8.59 µg/L	95
		427.1 -> 80.9	8906		
8:2FTS	7.865	527.1 -> 507.0	16060	10.00 µg/L	92
		527.1 -> 80.8	7381		
EtFOSAA	8.343	584.2 -> 419.1	7263	2.33 µg/L	100
		584.2 -> 526.0	3783		
FOSA	9.614	498.1 -> 77.9	10720	2.88 µg/L	100
		498.1 -> 478.0	313		
MeFOSAA	8.136	570.1 -> 419.0	10630	2.56 µg/L	94
		570.1 -> 483.0	1831		
PFBA	2.906	212.8 -> 168.9	61560	10.03 µg/L	100
PFBS	5.400	298.7 -> 79.9	22496	2.16 µg/L	98
		298.7 -> 98.8	8983		
PFDA	8.077	512.9 -> 469.0	59470	2.57 µg/L	97
		512.9 -> 219.0	9165		
PFDODA	8.961	613.1 -> 569.0	48752	2.63 µg/L	97
		613.1 -> 319.0	6433		
PFDS	9.125	599.0 -> 79.9	8609	2.56 µg/L	98

7.3.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	4177	2.55	µg/L	97
		363.1 -> 319.0	73481			
PFHpS	7.734	363.1 -> 169.0	11825	2.53	µg/L	92
		449.0 -> 79.9	14491			
PFHxA	5.470	449.0 -> 98.9	6579	2.36	µg/L	100
		313.0 -> 269.0	65609			
PFHxS	7.180	313.0 -> 118.9	3116	2.16	µg/L	m
		398.7 -> 79.9	15224			
PFNA	7.595	398.7 -> 98.9	7681	2.48	µg/L	98
		463.0 -> 419.0	46870			
PFNS	8.694	463.0 -> 219.0	10259	2.56	µg/L	96
		548.8 -> 79.9	13057			
PFOA	7.076	548.8 -> 98.9	6846	2.47	µg/L	97
		413.0 -> 369.0	92624			
PFOS	8.228	413.0 -> 169.0	17362	2.59	µg/L	m
		498.9 -> 79.9	13212			
PFPeA	4.273	498.9 -> 98.8	6558	5.05	µg/L	100
		263.0 -> 219.0	89205			
PFPeS	6.484	349.1 -> 79.9	17112	2.33	µg/L	97
		349.1 -> 98.9	7983			
PFTeDA	9.690	713.1 -> 669.0	34129	2.37	µg/L	98
		713.1 -> 168.9	2814			
PFTrDA	9.345	663.0 -> 619.0	50710	2.47	µg/L	99
		663.0 -> 168.9	4513			
PFUnDA	8.531	563.1 -> 519.0	40660	2.34	µg/L	99
		563.1 -> 269.1	6828			
11CI-PF3OUdS	9.398	630.9 -> 450.9	63995	4.79	µg/L	97
		632.9 -> 452.9	19517			
9CI-PF3ONS	8.569	530.8 -> 351.0	106654	5.05	µg/L	98
		532.8 -> 353.0	32808			
ADONA	6.681	376.9 -> 250.9	280272	4.77	µg/L	97
		376.9 -> 84.8	76363			
HFPO-DA	5.846	284.9 -> 168.9	18745	5.08	µg/L	95
		284.9 -> 184.9	2234			
3:3FTCA	3.784	241.0 -> 177.0	10885	9.85	µg/L	98
		241.0 -> 117.0	1382			
5:3FTCA	6.160	341.0 -> 237.1	235635	52.40	µg/L	94
		341.0 -> 217.0	168830			
7:3FTCA	7.573	441.0 -> 316.9	96723	47.34	µg/L	96
		441.0 -> 336.9	202912			
EtFOSA	10.962	526.0 -> 219.0	8571	5.02	µg/L	98
		526.0 -> 169.0	10596			
EtFOSE	10.907	630.0 -> 58.9	8501	12.10	µg/L	100
		511.9 -> 219.0	8277			
MeFOSA	10.730	511.9 -> 169.0	11486	5.18	µg/L	m
		616.1 -> 58.9	7368			
MeFOSE	10.661	699.1 -> 79.9	3858	12.99	µg/L	100
		699.1 -> 98.8	2016			
PFDoDS	9.817	295.0 -> 201.0	15226	2.21	µg/L	93
		295.0 -> 84.9	3881			
NFDHA	5.350	279.0 -> 85.1	59005	5.06	µg/L	97
		229.0 -> 84.9	43362			
PFMBA	4.687	314.8 -> 134.9	153132	4.98	µg/L	100
		314.8 -> 82.9	5404			
PFMPA	3.438			4.90	µg/L	100
PFEESA	5.949			4.37	µg/L	99

7.3.1
7

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



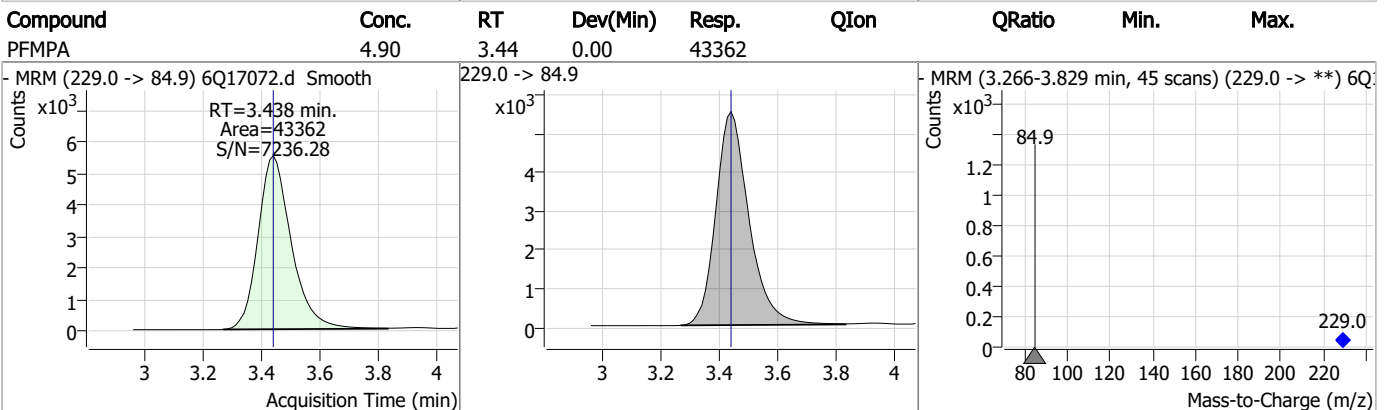
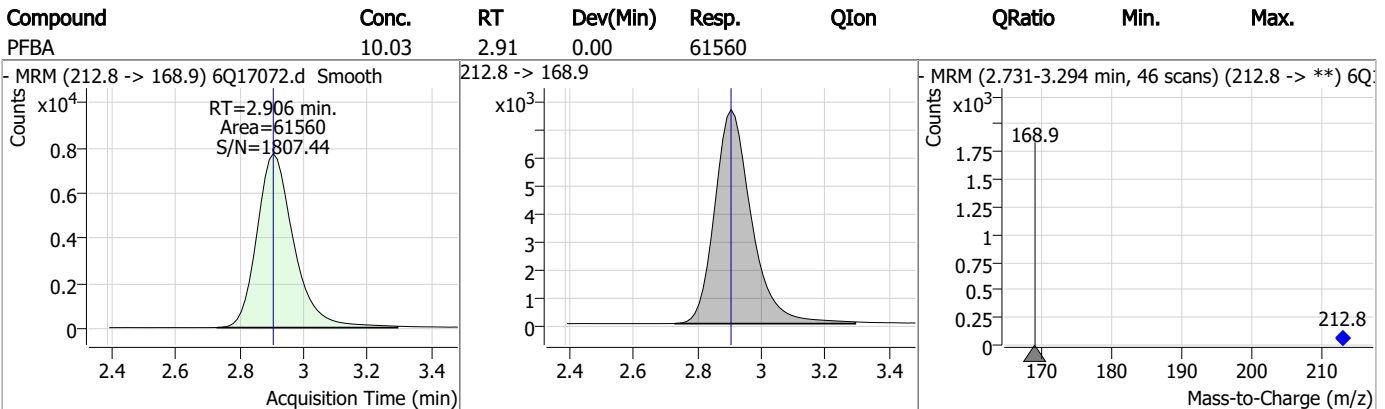
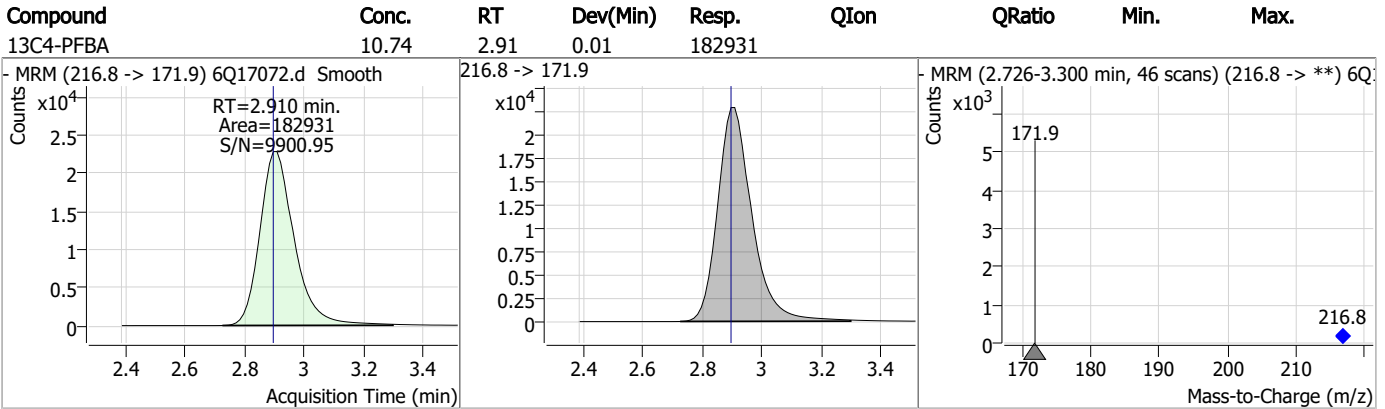
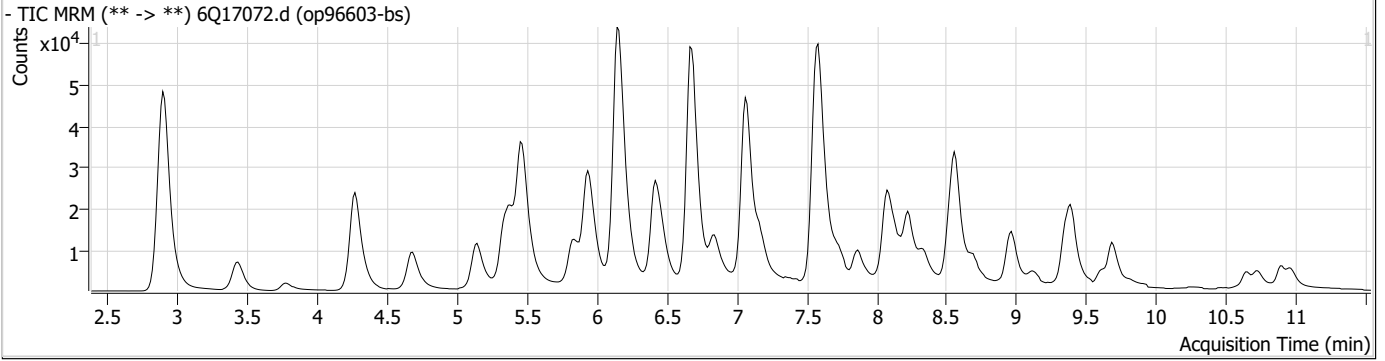
Perfluorinated Compounds by LC/MS/MS

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

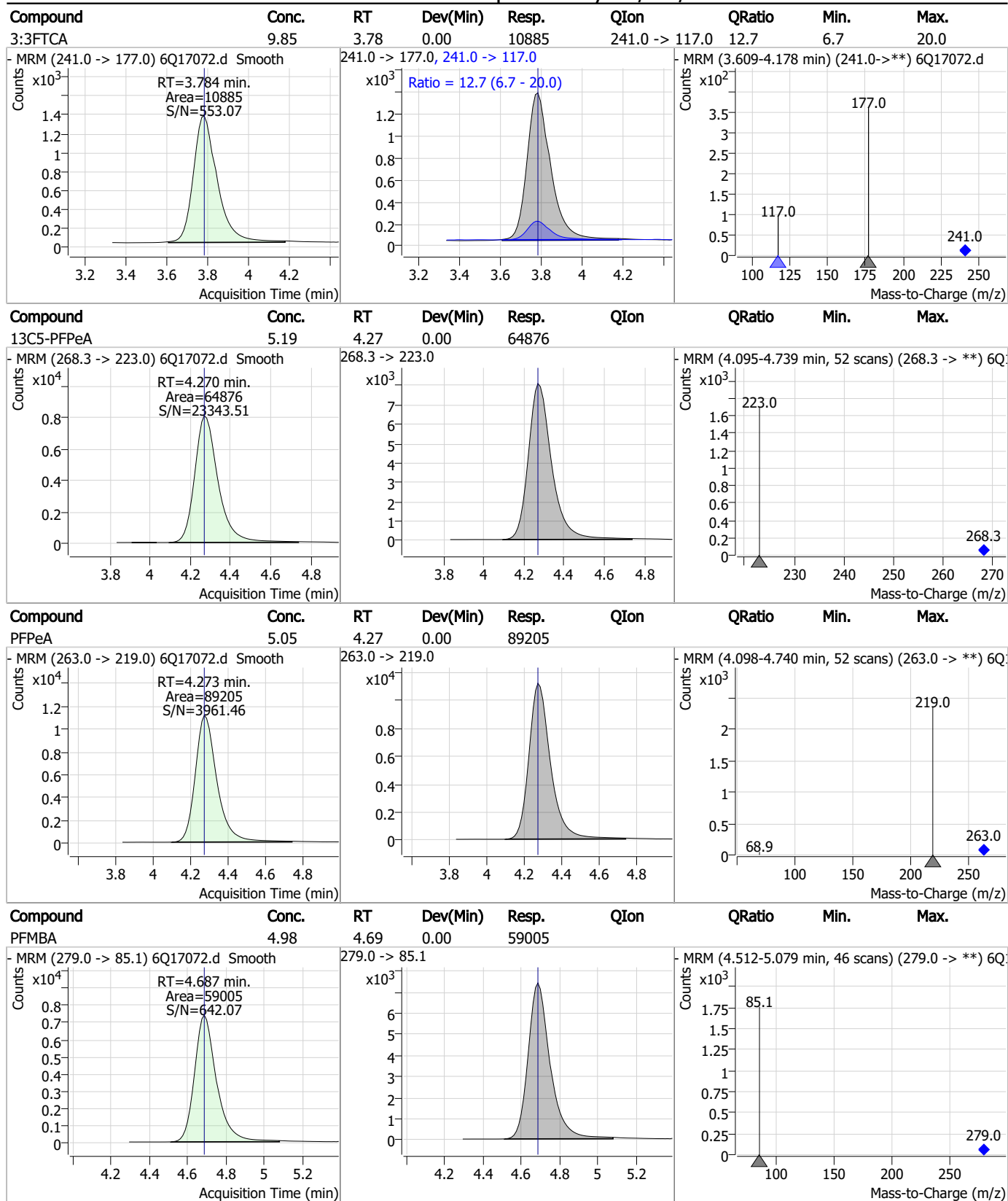
7.3.1

7

Perfluorinated Compounds by LC/MS/MS

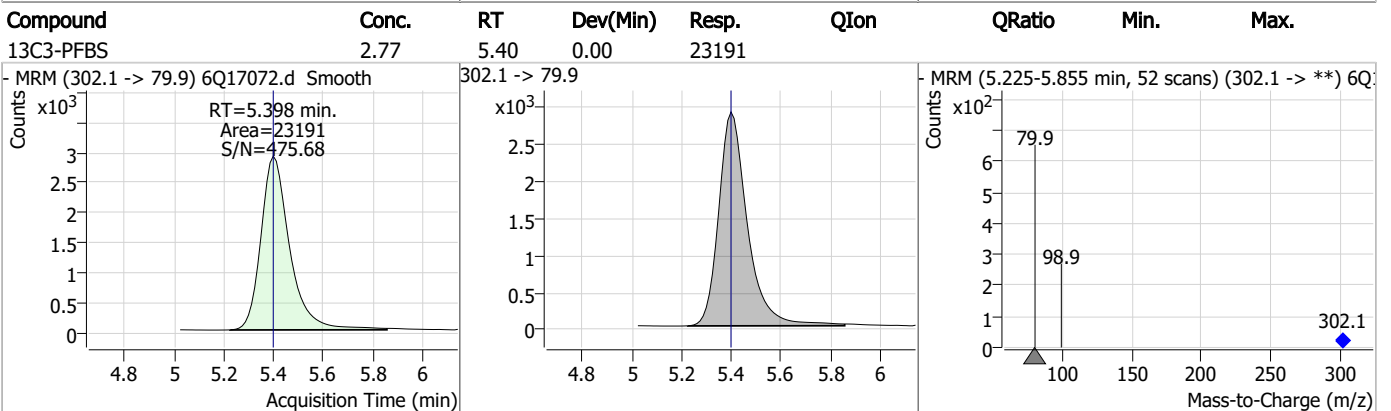
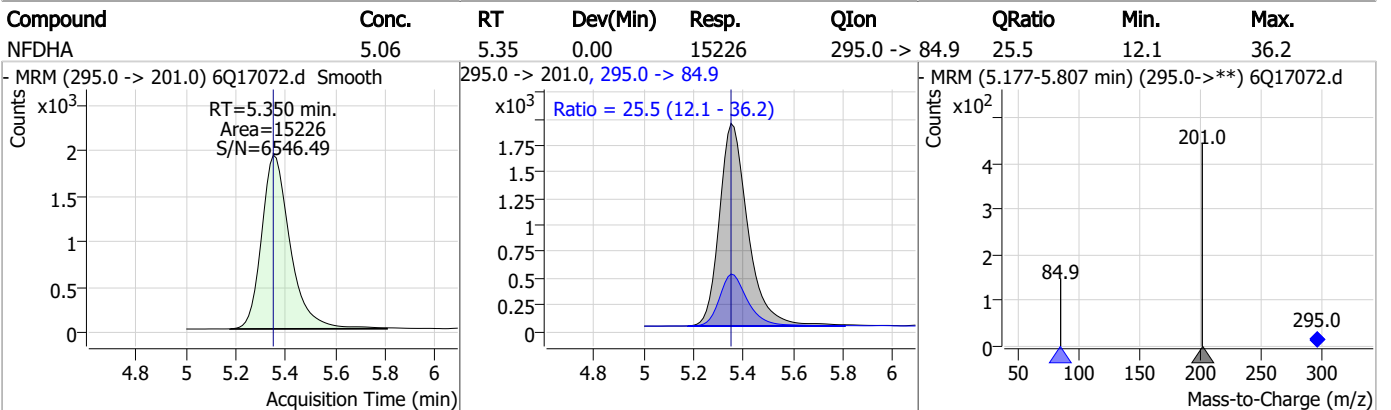
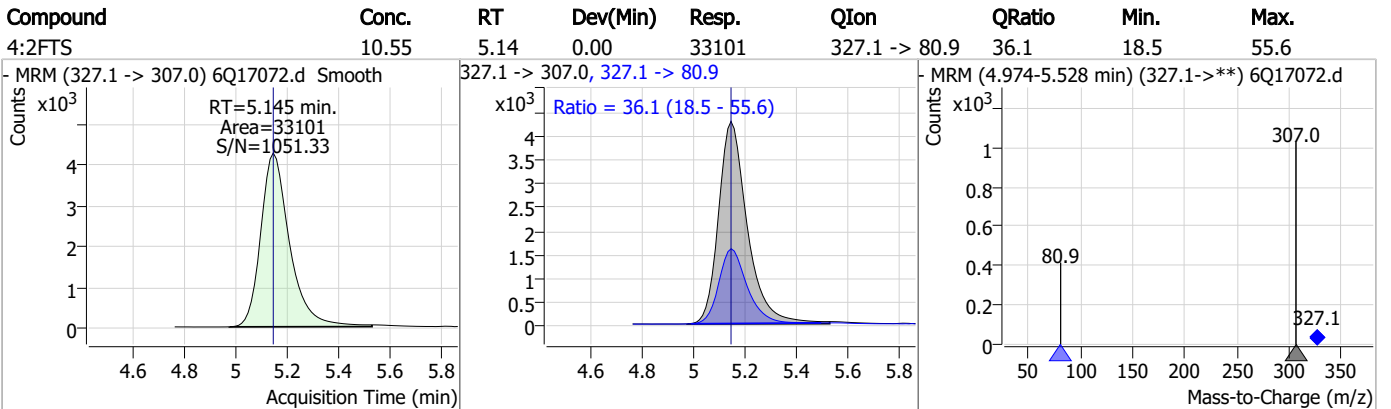
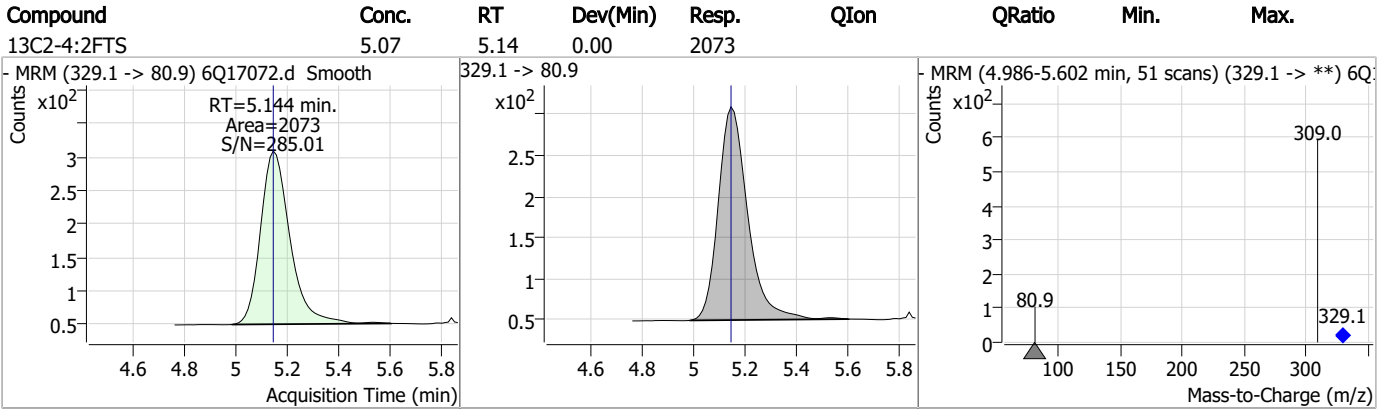


Perfluorinated Compounds by LC/MS/MS

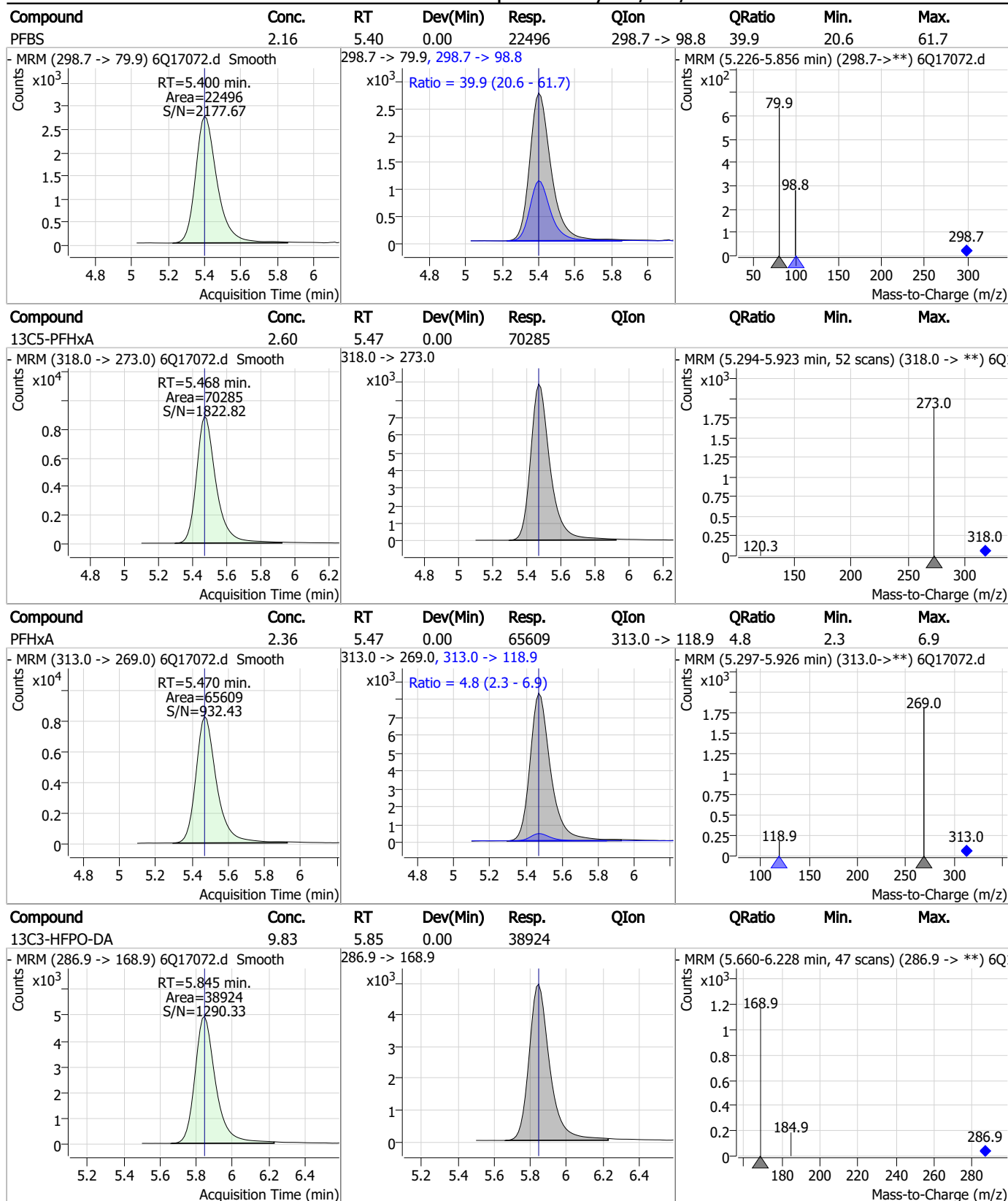


7.3.1
7

Perfluorinated Compounds by LC/MS/MS

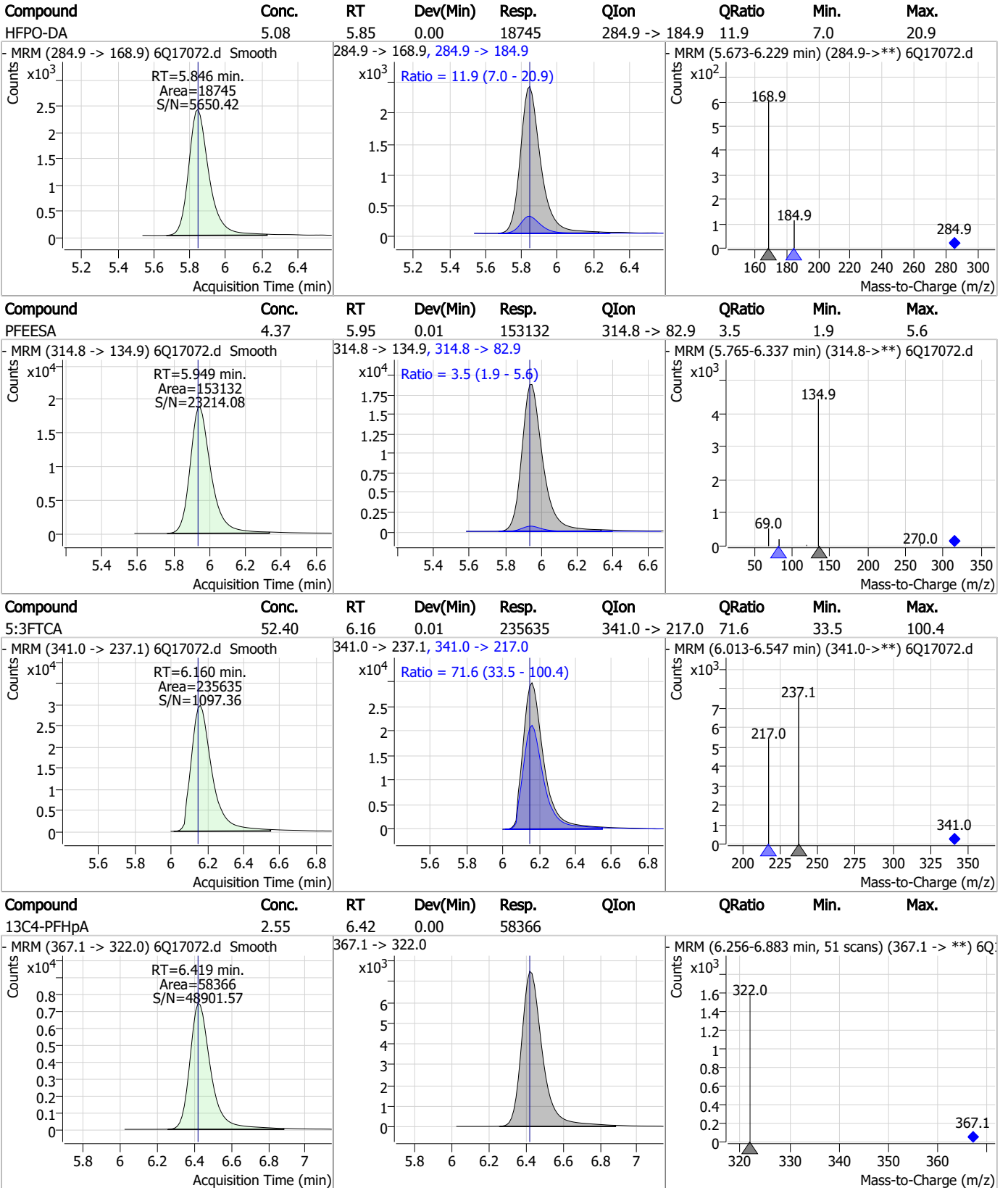


Perfluorinated Compounds by LC/MS/MS



7.3.1
7

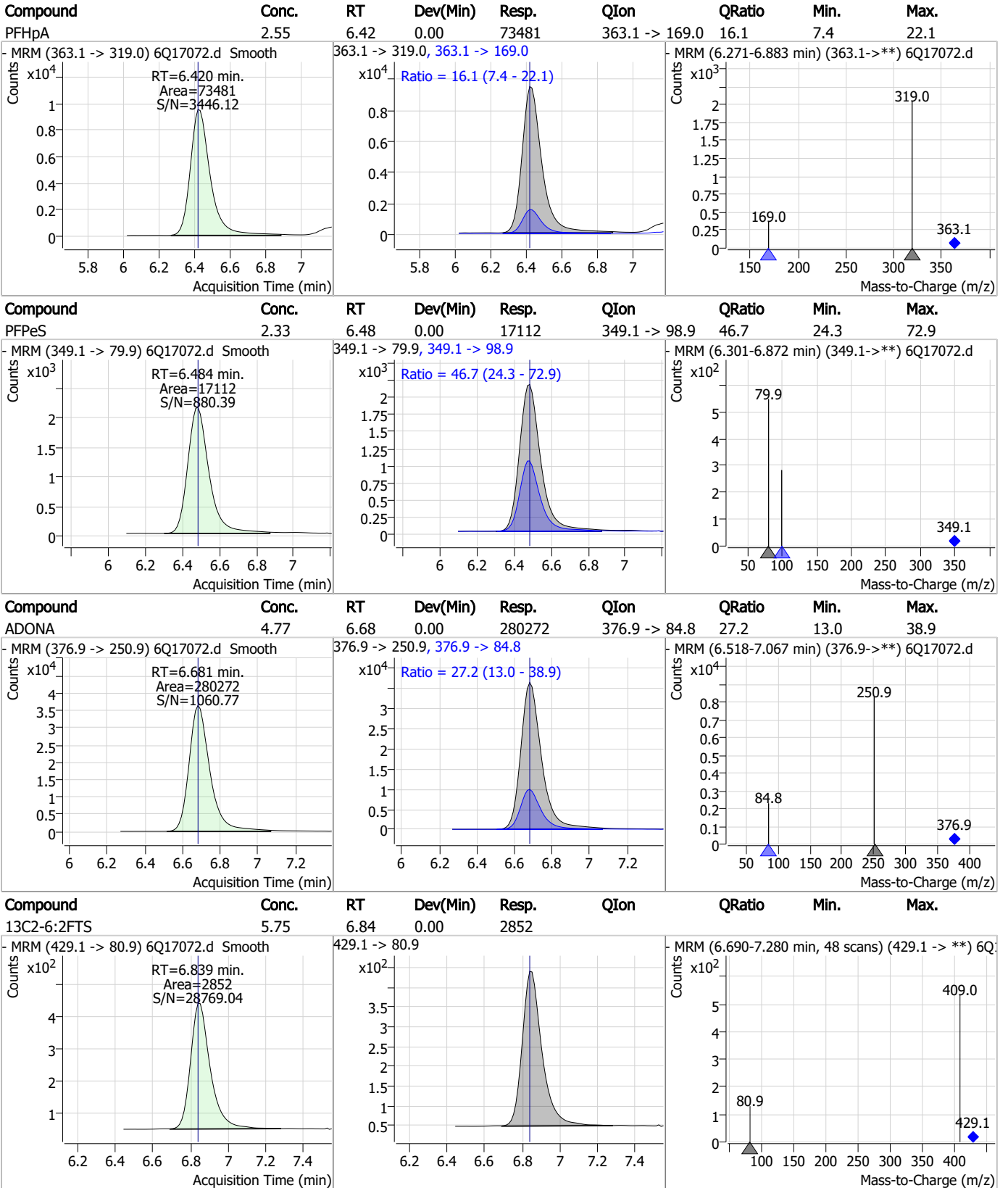
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Perfluorinated Compounds by LC/MS/MS

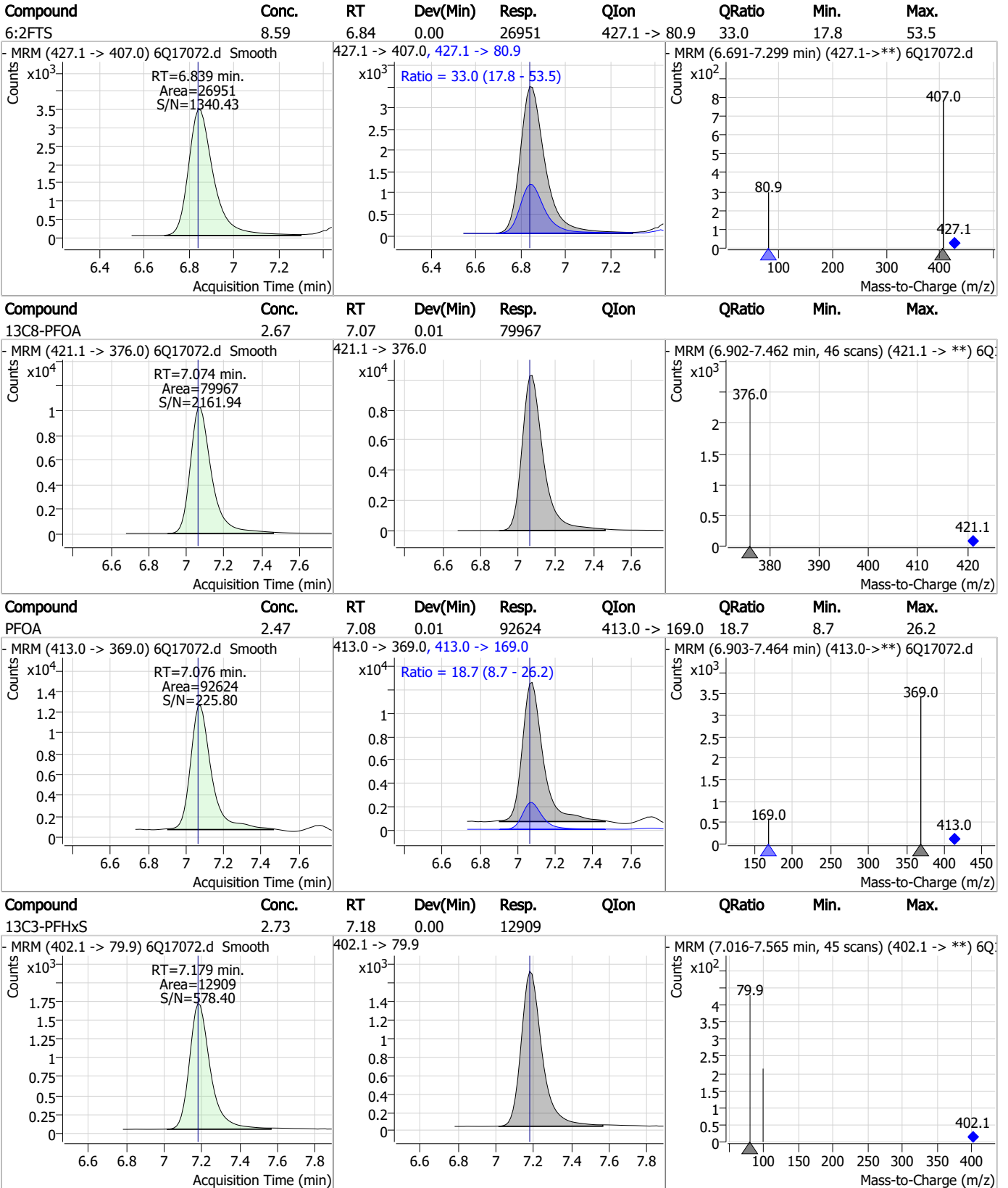


7.3.1

7



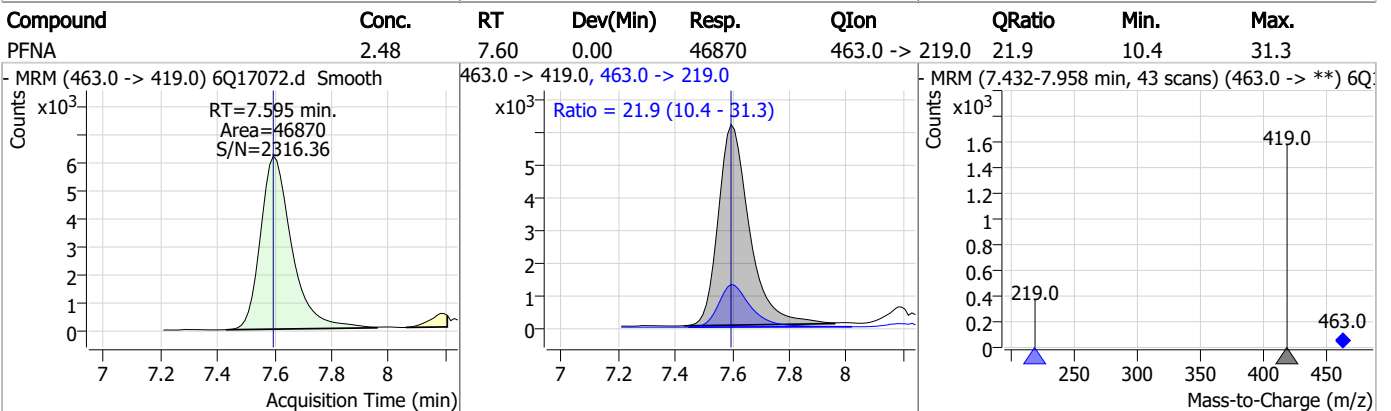
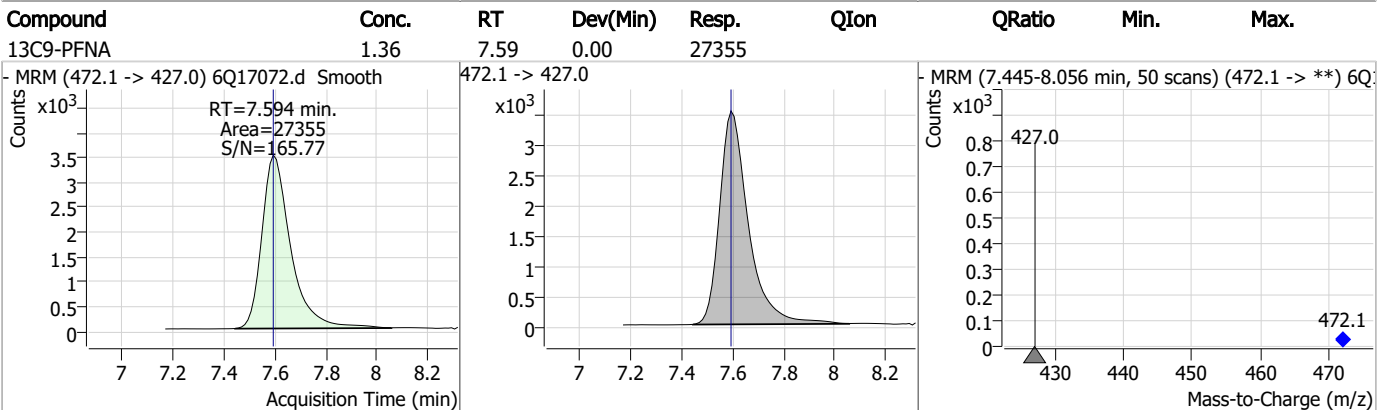
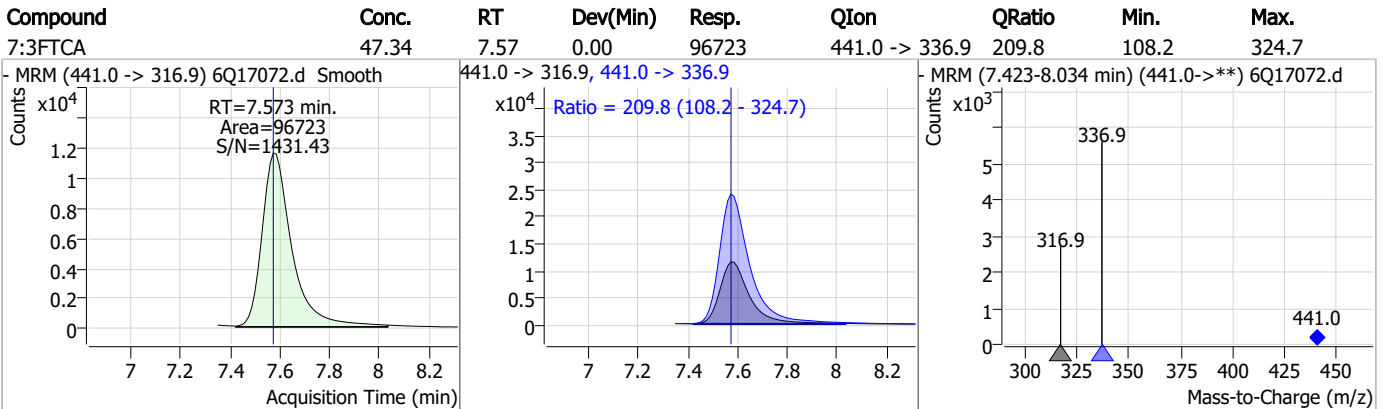
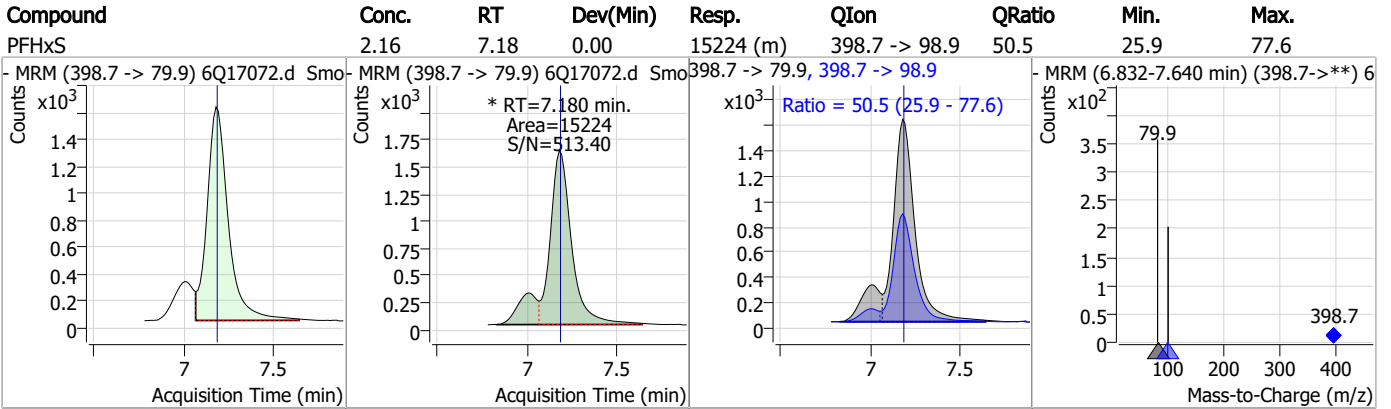
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

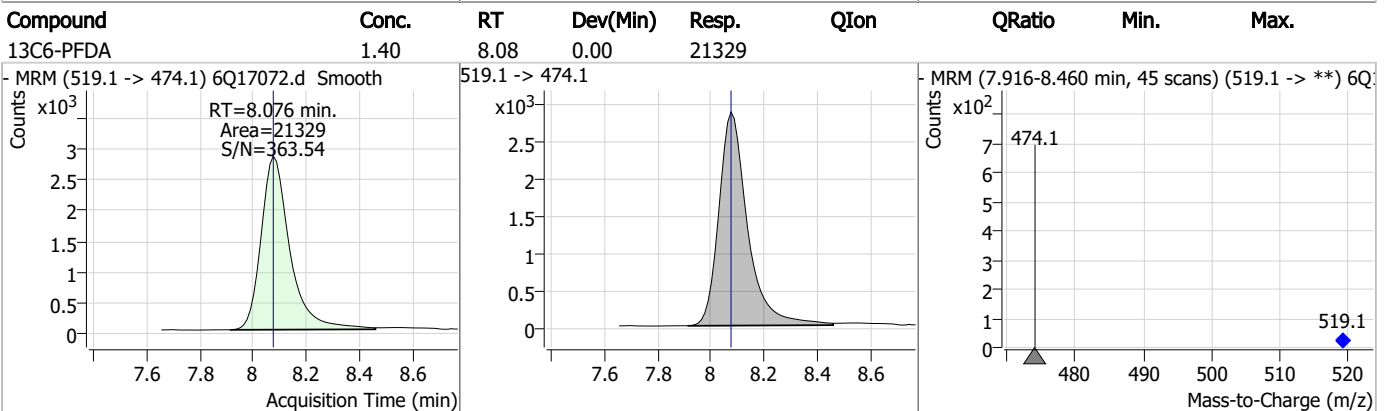
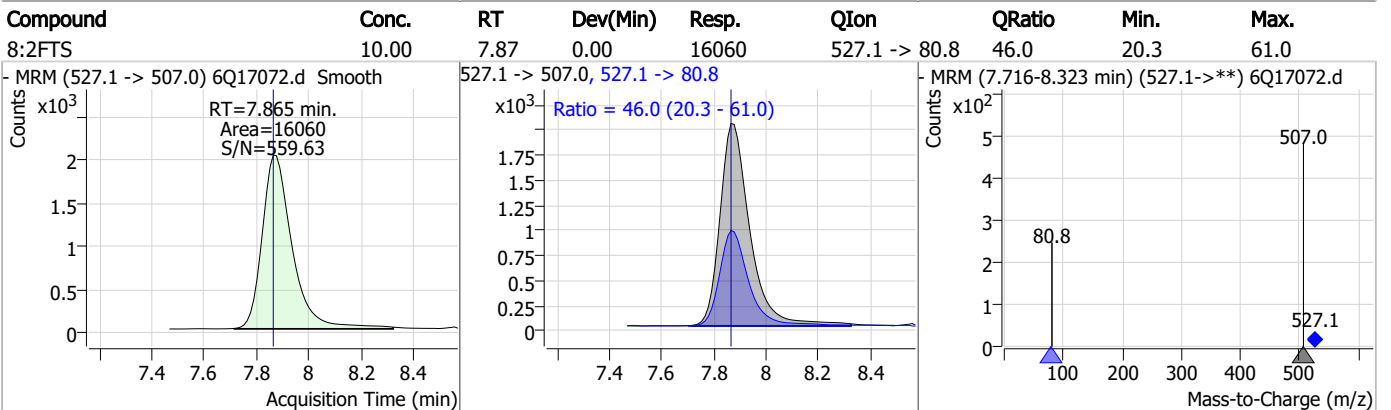
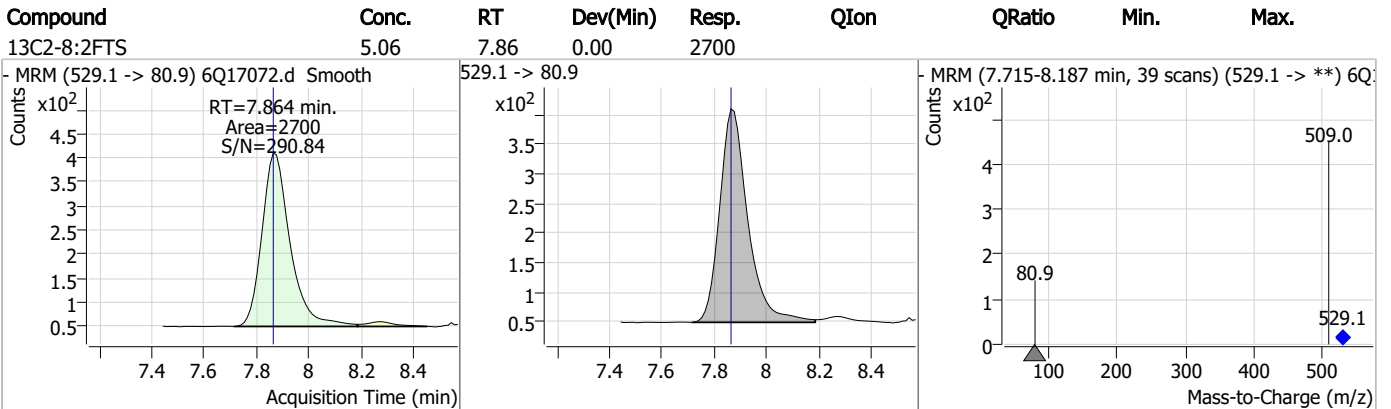
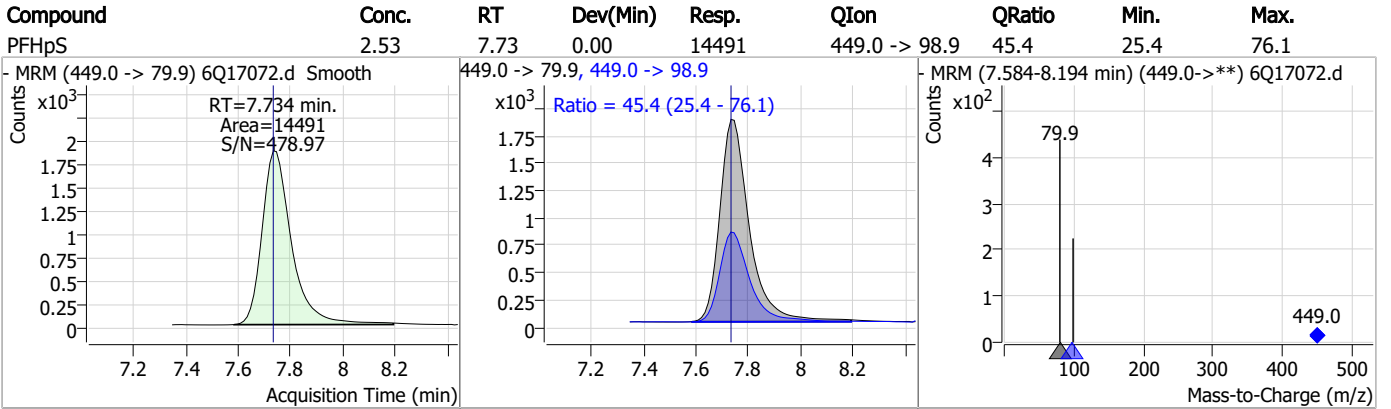
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

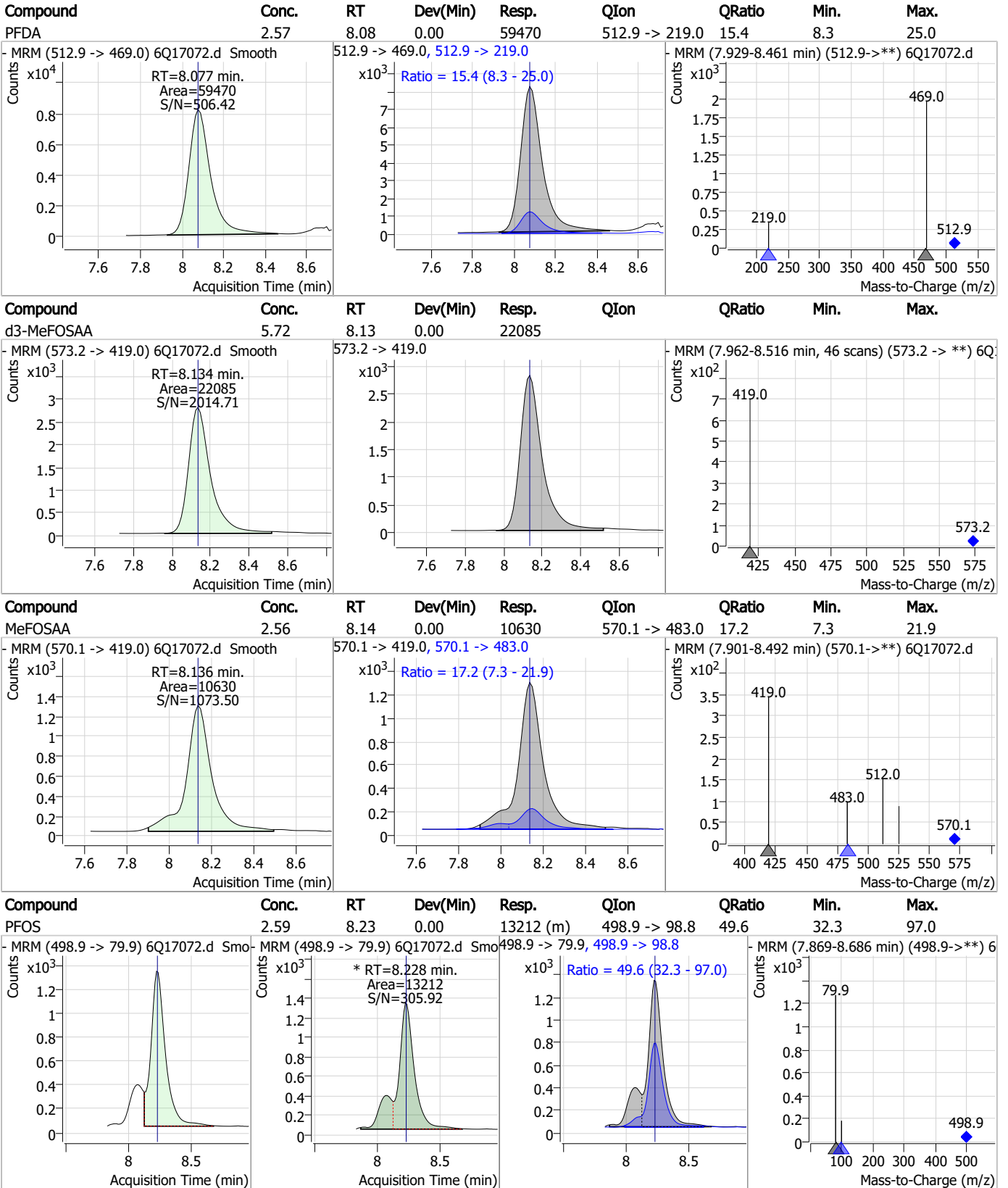
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

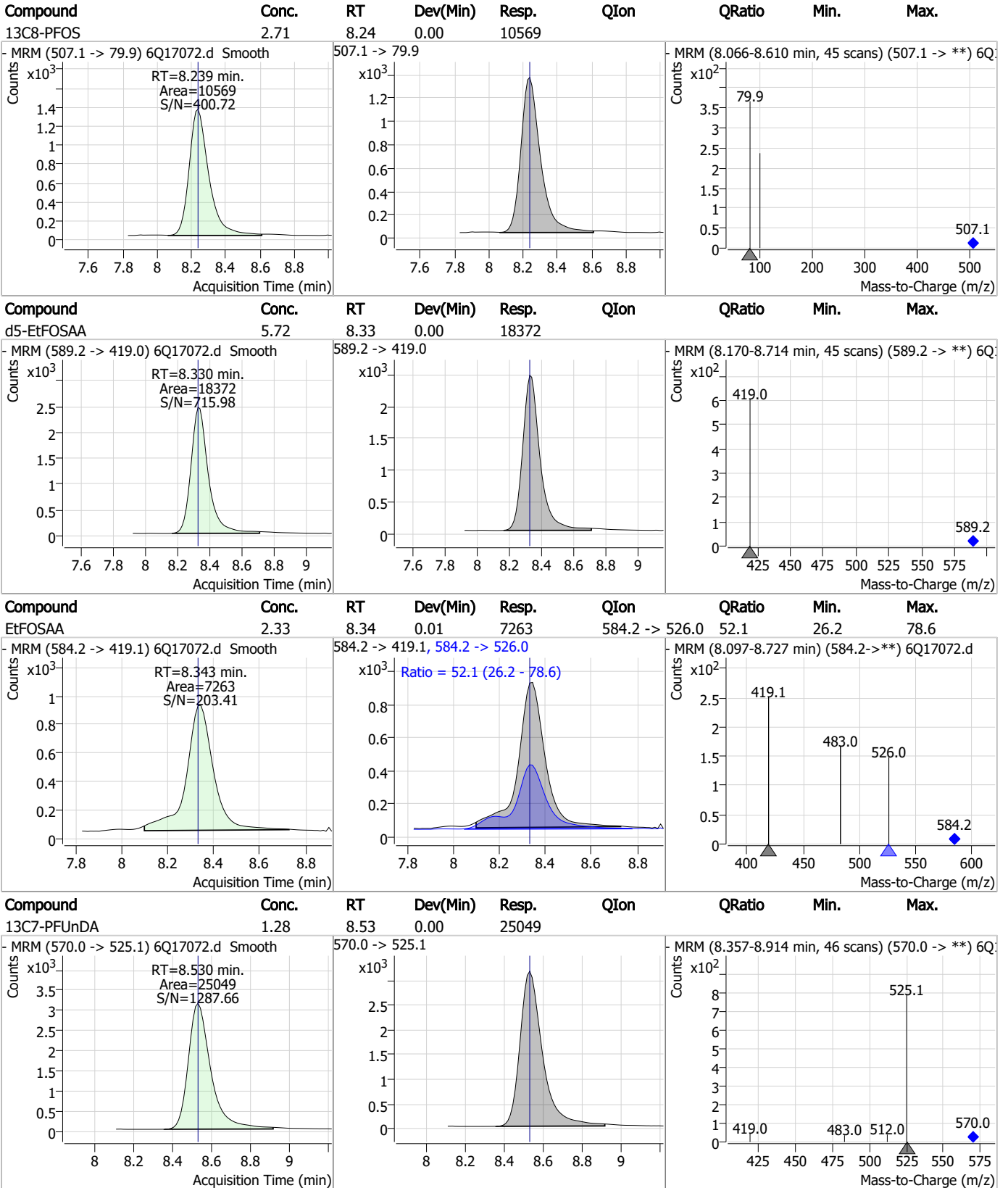
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

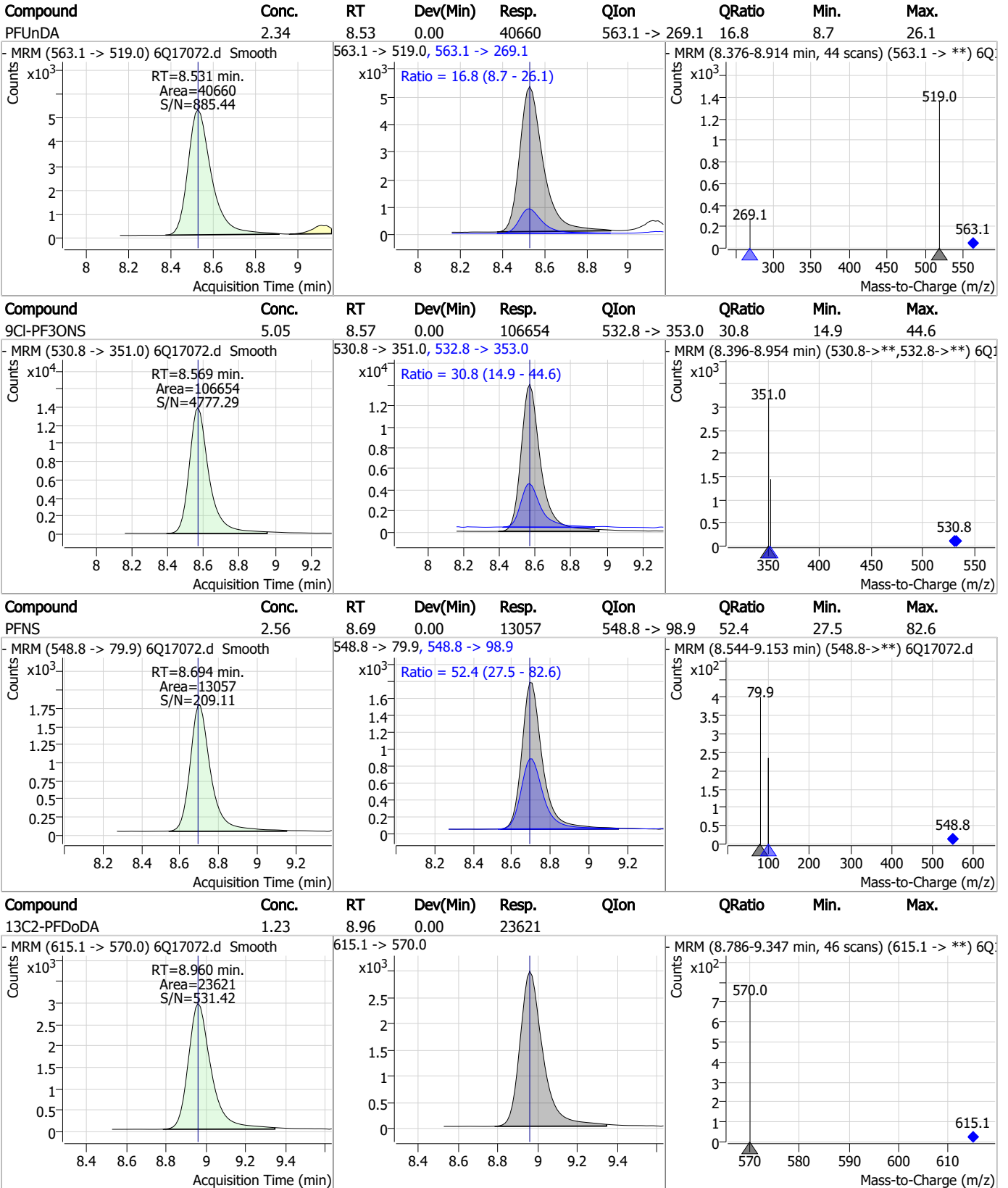
Perfluorinated Compounds by LC/MS/MS



7.3.1

7

Perfluorinated Compounds by LC/MS/MS

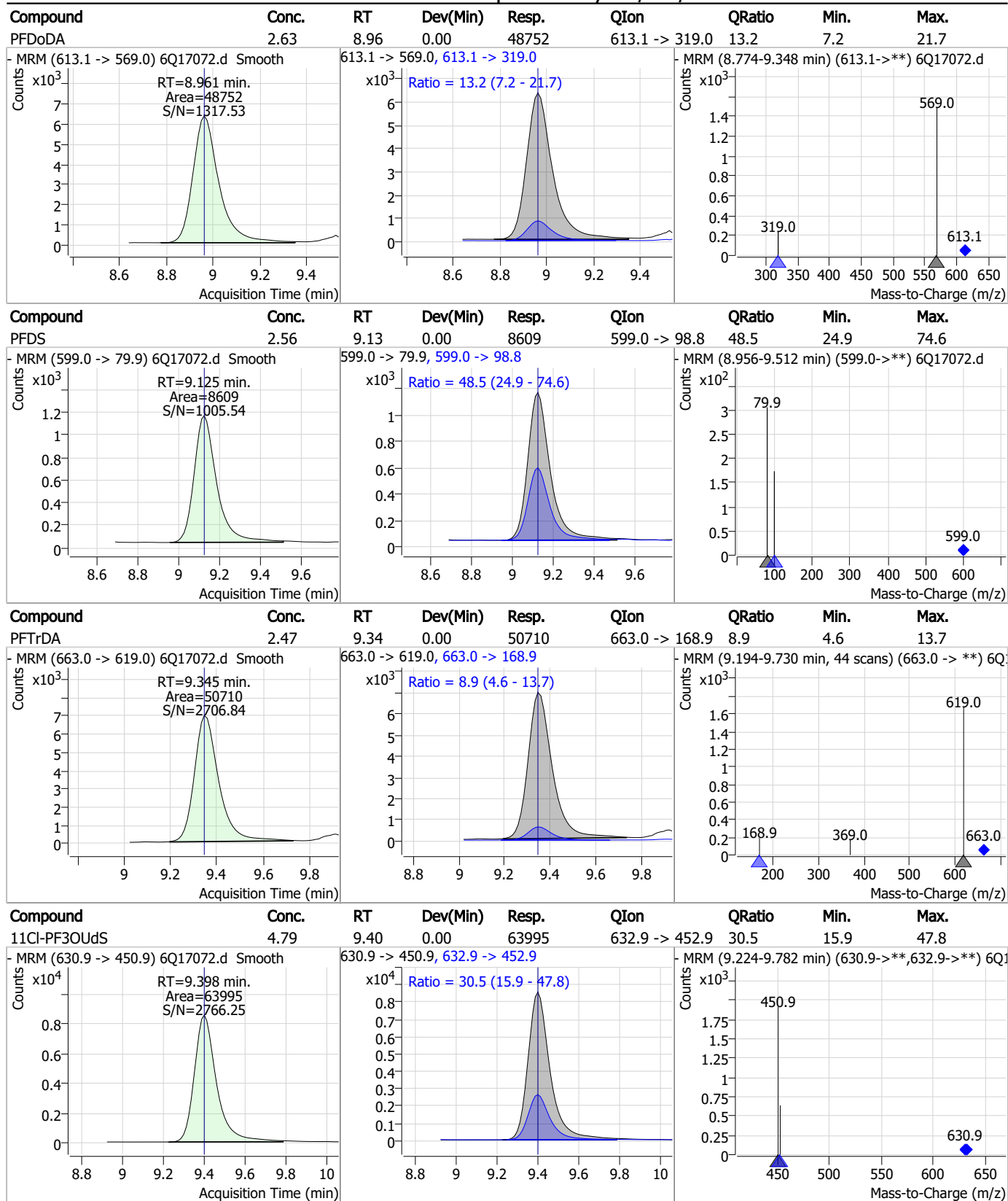


7.3.1

7



Perfluorinated Compounds by LC/MS/MS

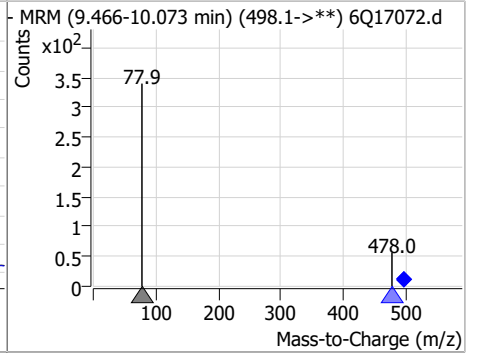
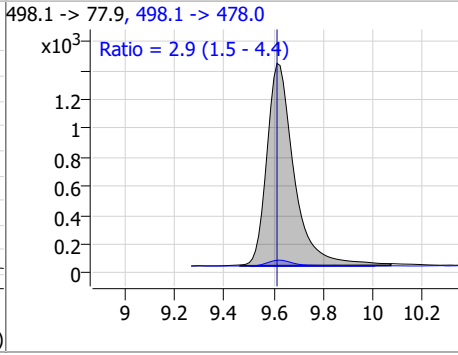
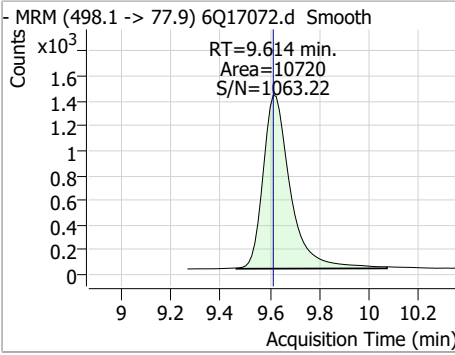


7.3.1
7

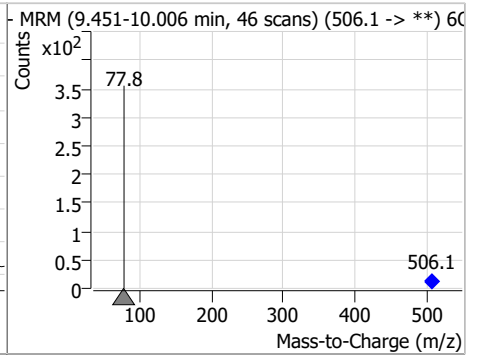
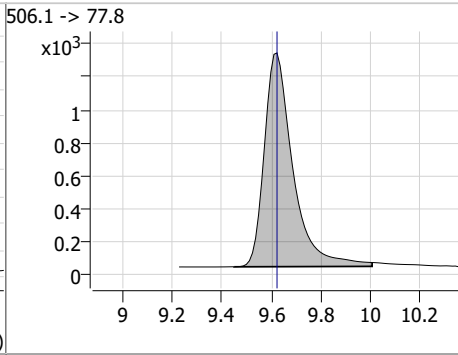
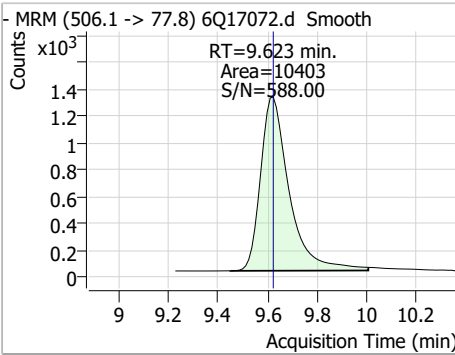


Perfluorinated Compounds by LC/MS/MS

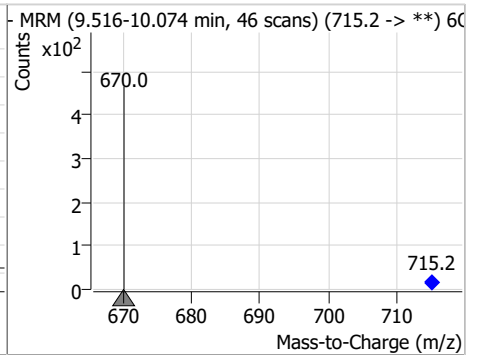
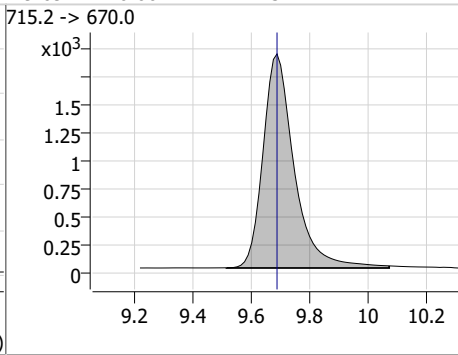
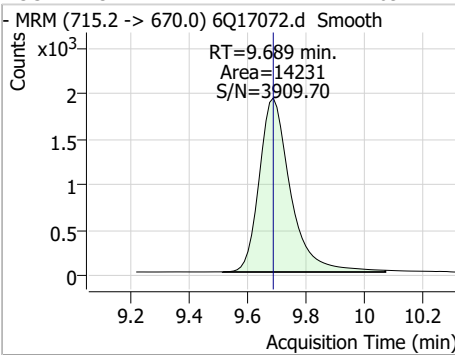
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.88	9.61	0.00	10720	498.1 -> 478.0	2.9	1.5	4.4



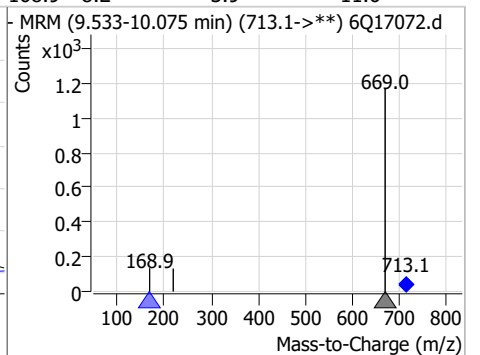
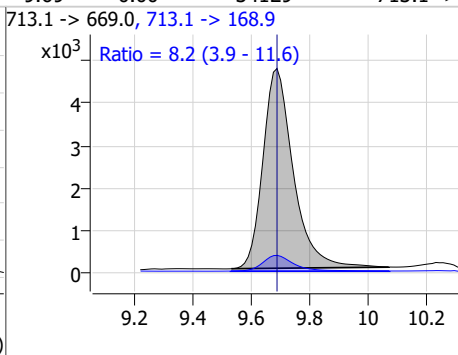
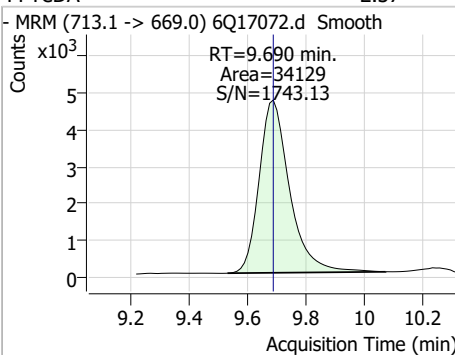
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	1.21	9.62	0.00	10403				



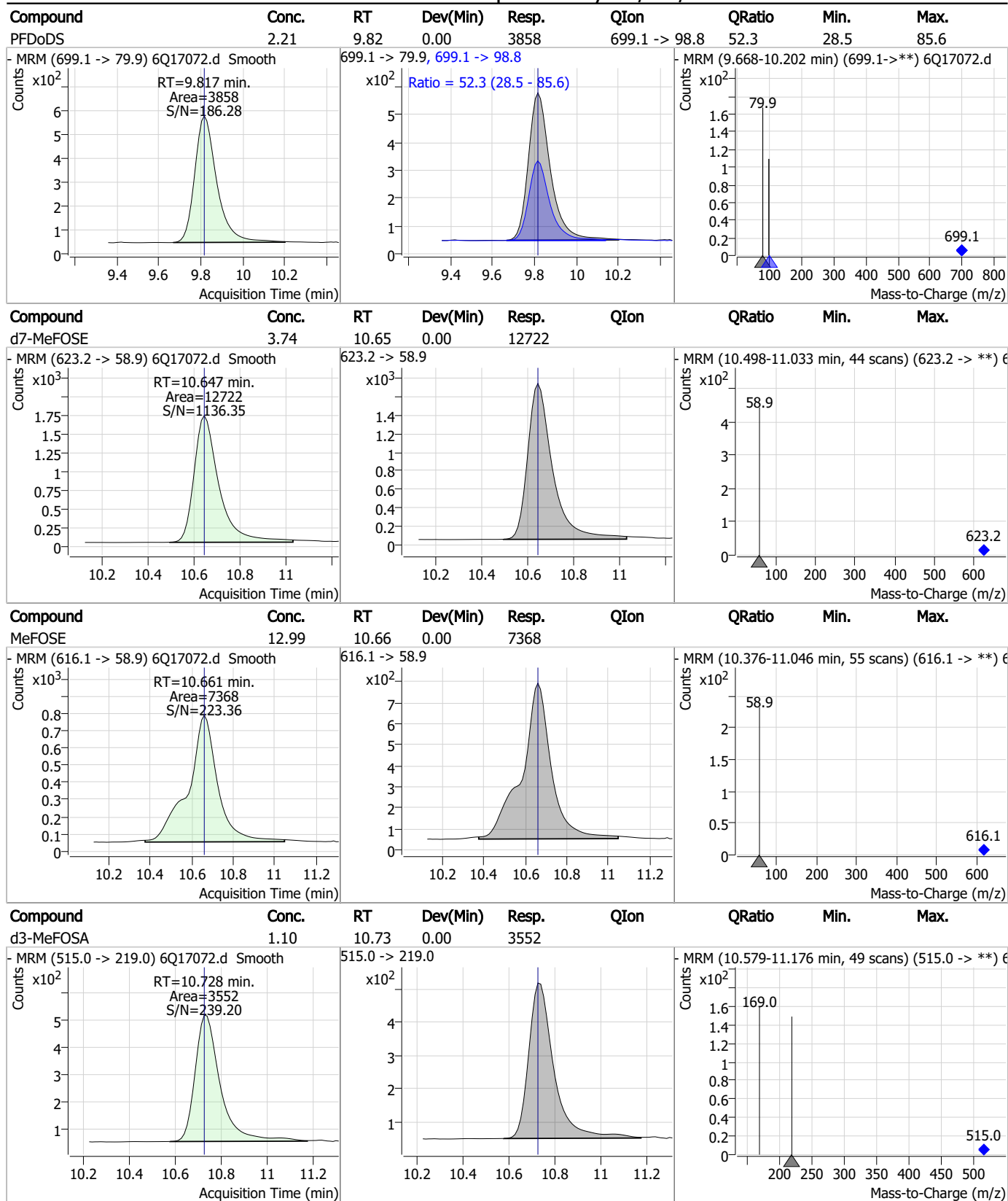
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.09	9.69	0.00	14231				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.37	9.69	0.00	34129	713.1 -> 168.9	8.2	3.9	11.6



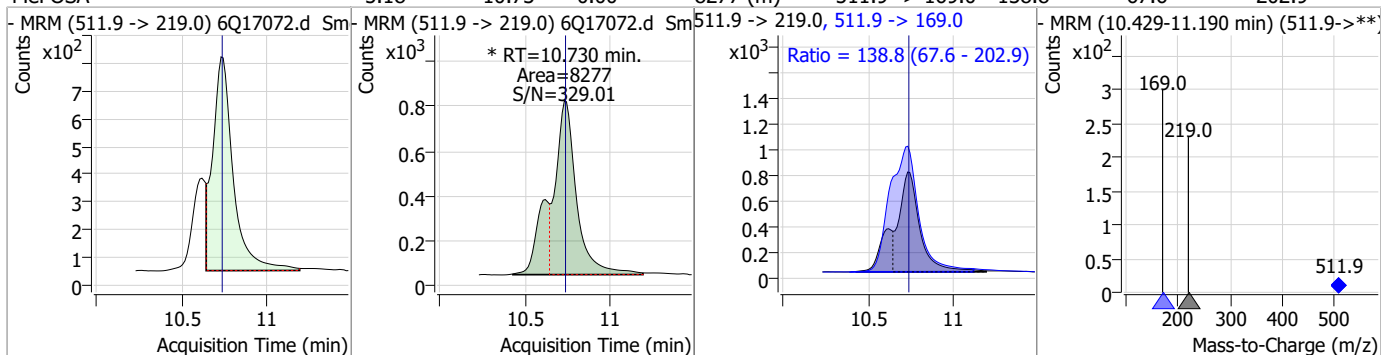
Perfluorinated Compounds by LC/MS/MS



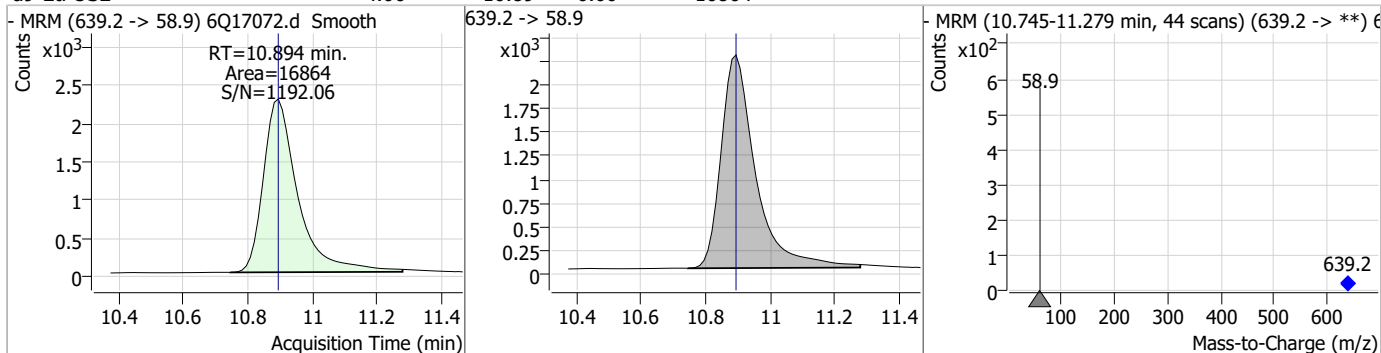
7.3.1
7

Perfluorinated Compounds by LC/MS/MS

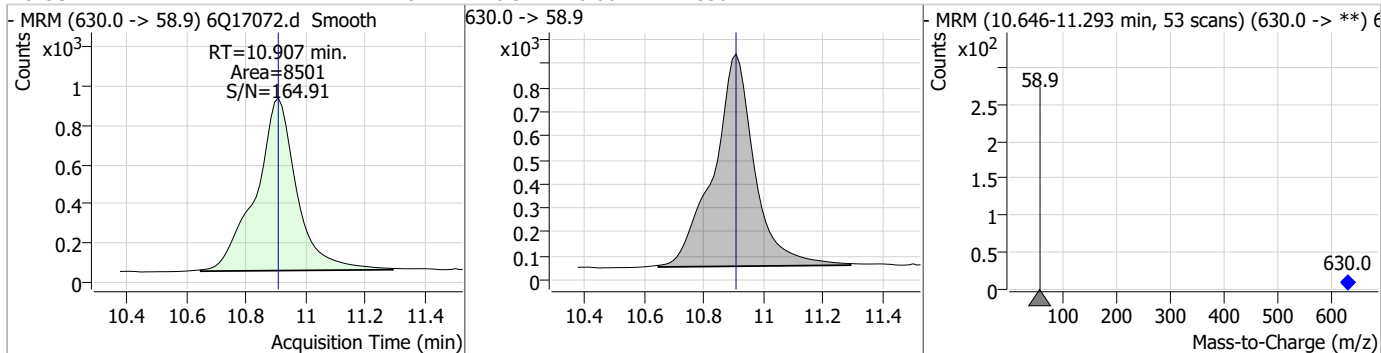
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	5.18	10.73	0.00	8277 (m)	511.9 -> 169.0	138.8	67.6	202.9



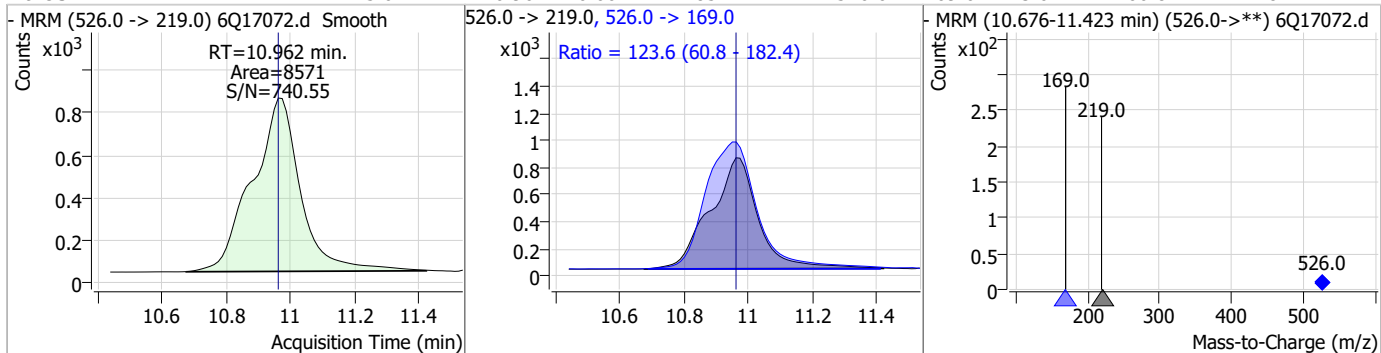
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	4.06	10.89	0.00	16864				



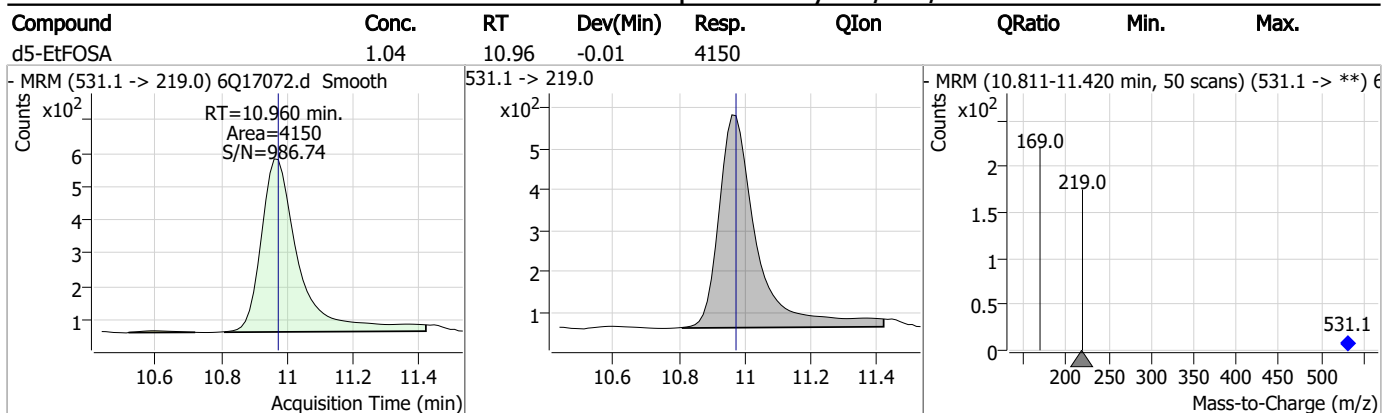
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.10	10.91	0.00	8501				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	5.02	10.96	0.00	8571	526.0 -> 169.0	123.6	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.3.1
7

Manual Integration Approval Summary

Sample Number: OP96603-BS Method: EPA DRAFT 1633
Lab FileID: 6Q17072.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 17:54 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.3.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17073.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 6:09:00 PM
 Sample Name : op96603-llbs:3
 Vial : P3-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	186309	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66521	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70347	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60194	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	78872	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27407	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20879	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25540	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	23173	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	13010	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	9711	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22903	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12373	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11136	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2283	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2776	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2876	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22620	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39623	10.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	18560	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	14861	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	20736	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	2532	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	2599	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13900	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	74197	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8896	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	85328	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	21299	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27822	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56547	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2283	5.58 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2776	5.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2876	5.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.7%		
13C2-PFDoDA	8.960	615.1 -> 570.0	23173	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	13010	1.09 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 86.8%		
13C3-PFBS	5.398	302.1 -> 79.9	22903	2.74 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 109.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12373	2.61 µg/L	0.000

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 = 104.5%	
13C4-PFBA	2.910	216.8 -> 171.9	186309	10.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	60194	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFHxA	5.468	318.0 -> 273.0	70347	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	66521	5.27 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.3%	
13C6-PFDA	8.076	519.1 -> 474.1	20879	1.49 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 118.9%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25540	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.6%	
13C8-FOSA	9.623	506.1 -> 77.8	9711	1.06 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 42.3%	
13C8-PFOA	7.074	421.1 -> 376.0	78872	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOS	8.239	507.1 -> 79.9	11136	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
13C9-PFNA	7.594	472.1 -> 427.0	27407	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22620	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39623	9.90 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	10.728	515.0 -> 219.0	2599	0.75 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 30.0%	
d5-EtFOSAA	8.342	589.2 -> 419.0	18560	5.39 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	14861	4.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 16.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	20736	4.65 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 18.6%	
d5-EtFOSA	10.960	531.1 -> 219.0	2532	0.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 23.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	9891	2.86 µg/L	99
		327.1 -> 80.9	3596		
6:2FTS	6.839	427.1 -> 407.0	8466	2.77 µg/L	99
		427.1 -> 80.9	2975		
8:2FTS	7.865	527.1 -> 507.0	5219	3.05 µg/L	99
		527.1 -> 80.8	2144		
EtFOSAA	8.343	584.2 -> 419.1	2150	0.68 µg/L	83
		584.2 -> 526.0	1392		
FOSA	9.614	498.1 -> 77.9	2884	0.83 µg/L	100
		498.1 -> 478.0	87		
MeFOSAA	8.136	570.1 -> 419.0	3260	0.77 µg/L	92
		570.1 -> 483.0	578		
PFBA	2.906	212.8 -> 168.9	18960	3.03 µg/L	100
PFBS	5.400	298.7 -> 79.9	6977	0.68 µg/L	98
		298.7 -> 98.8	2777		
PFDA	8.077	512.9 -> 469.0	17354	0.76 µg/L	93
		512.9 -> 219.0	2379		
PFDODA	8.961	613.1 -> 569.0	13324	0.73 µg/L	97
		613.1 -> 319.0	2121		
PFDS	9.125	599.0 -> 79.9	2592	0.73 µg/L	97

7.3.2
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	1231	0.77	µg/L	95
		363.1 -> 319.0	22835			
PFHpS	7.734	363.1 -> 169.0	3808	0.72	µg/L	96
		449.0 -> 79.9	4327			
PFHxA	5.470	449.0 -> 98.9	2081	0.72	µg/L	99
		313.0 -> 269.0	20077			
PFHxS	7.180	313.0 -> 118.9	859	0.74	µg/L	95
		398.7 -> 79.9	4964			
PFNA	7.595	398.7 -> 98.9	2401	0.76	µg/L	93
		463.0 -> 419.0	14374			
PFNS	8.694	463.0 -> 219.0	2555	0.72	µg/L	99
		548.8 -> 79.9	3881			
PFOA	7.076	548.8 -> 98.9	2100	0.89	µg/L	99
		413.0 -> 369.0	31347			
PFOS	8.240	413.0 -> 169.0	5281	0.63	µg/L	99
		498.9 -> 79.9	3363			
PFPeA	4.273	498.9 -> 98.8	2153	1.49	µg/L	100
		263.0 -> 219.0	27081			
PFPeS	6.484	349.1 -> 79.9	5274	0.75	µg/L	95
		349.1 -> 98.9	2385			
PFTeDA	9.690	713.1 -> 669.0	10796	0.82	µg/L	99
		713.1 -> 168.9	863			
PFTrDA	9.345	663.0 -> 619.0	14870	0.74	µg/L	99
		663.0 -> 168.9	1338			
PFUnDA	8.531	563.1 -> 519.0	13133	0.74	µg/L	91
		563.1 -> 269.1	1785			
11CI-PF3OUdS	9.398	630.9 -> 450.9	18860	1.39	µg/L	96
		632.9 -> 452.9	5637			
9CI-PF3ONS	8.569	530.8 -> 351.0	31811	1.48	µg/L	96
		532.8 -> 353.0	10064			
ADONA	6.681	376.9 -> 250.9	88054	1.47	µg/L	96
		376.9 -> 84.8	24452			
HFPO-DA	5.846	284.9 -> 168.9	5492	1.46	µg/L	97
		284.9 -> 184.9	703			
3:3FTCA	3.784	241.0 -> 177.0	3551	3.13	µg/L	98
		241.0 -> 117.0	444			
5:3FTCA	6.160	341.0 -> 237.1	72180	16.04	µg/L	99
		341.0 -> 217.0	47789			
7:3FTCA	7.573	441.0 -> 316.9	31788	15.55	µg/L	90
		441.0 -> 336.9	63579			
EtFOSA	10.975	526.0 -> 219.0	1655	1.59	µg/L	96
		526.0 -> 169.0	2088			
EtFOSE	10.907	630.0 -> 58.9	2954	3.42	µg/L	100
		511.9 -> 219.0	1721			
MeFOSA	10.730	511.9 -> 169.0	2392	1.47	µg/L	97
		616.1 -> 58.9	2637			
MeFOSE	10.661	699.1 -> 79.9	1089	3.98	µg/L	100
		699.1 -> 98.8	611			
PFDoDS	9.817	295.0 -> 201.0	4362	0.59	µg/L	99
		295.0 -> 84.9	1060			
NFDHA	5.350	279.0 -> 85.1	18244	1.45	µg/L	100
		229.0 -> 84.9	13254			
PFMBA	4.687	314.8 -> 134.9	46292	1.46	µg/L	100
		314.8 -> 82.9	1621			
PFMPA	3.438			1.32	µg/L	99
PFEESA	5.937					

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

7.3.2
7

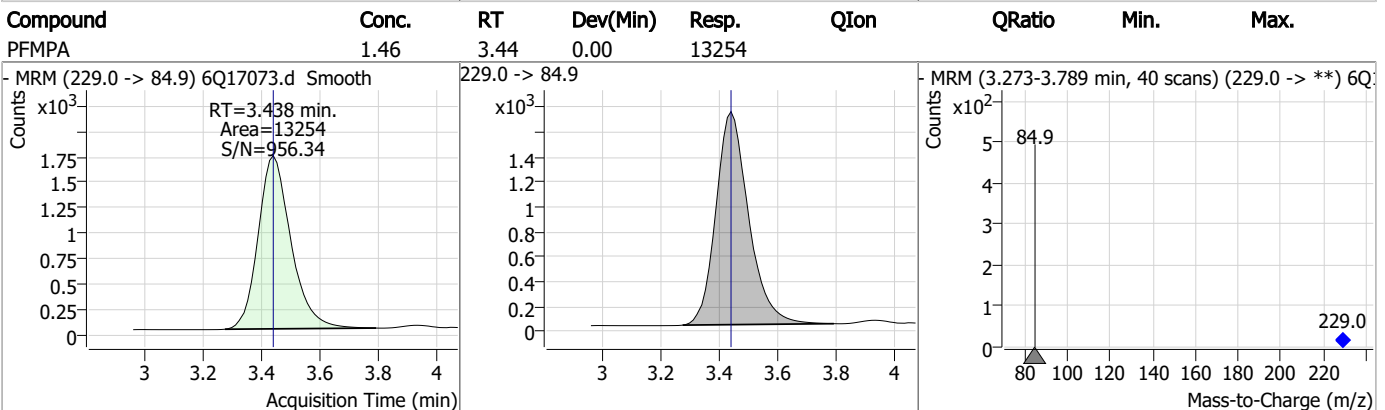
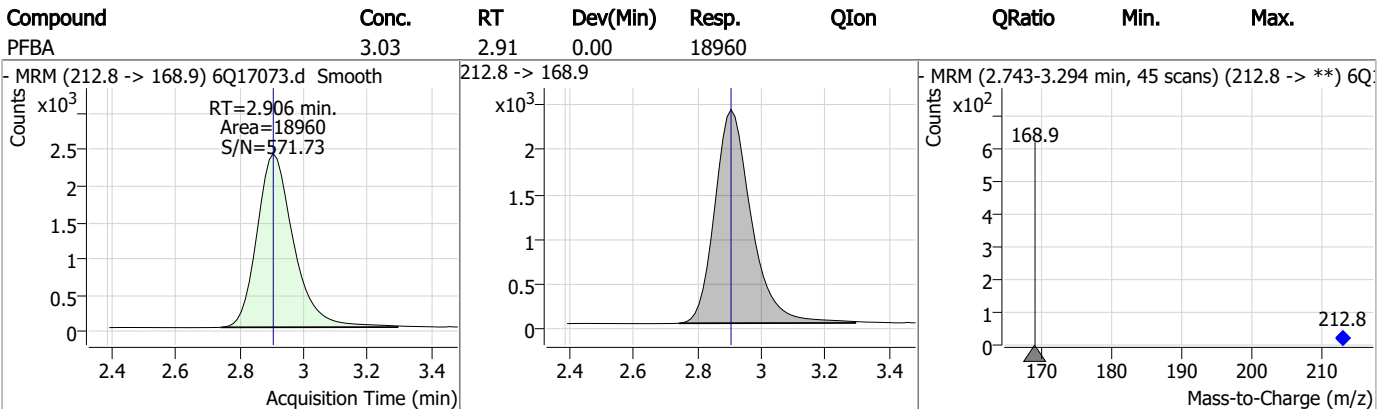
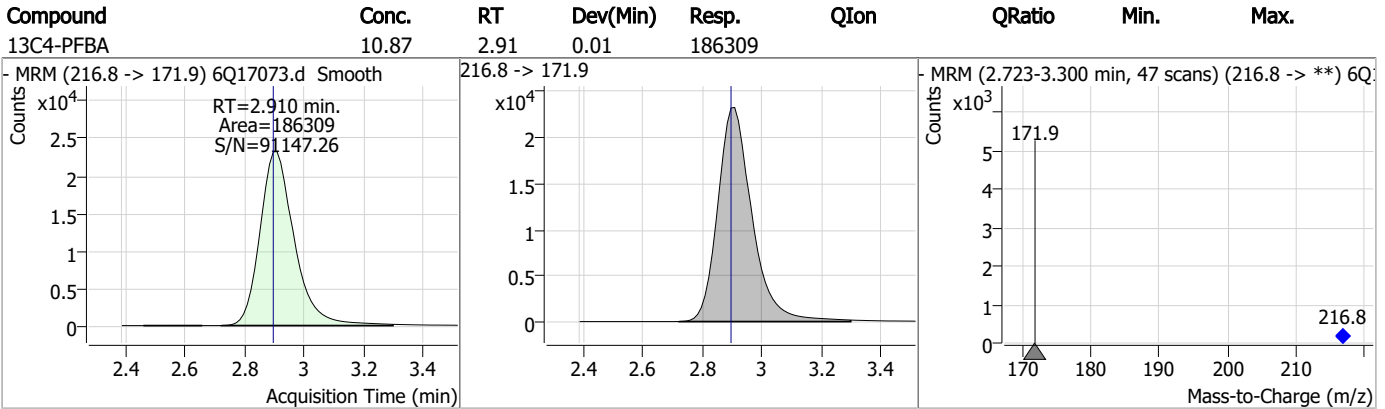
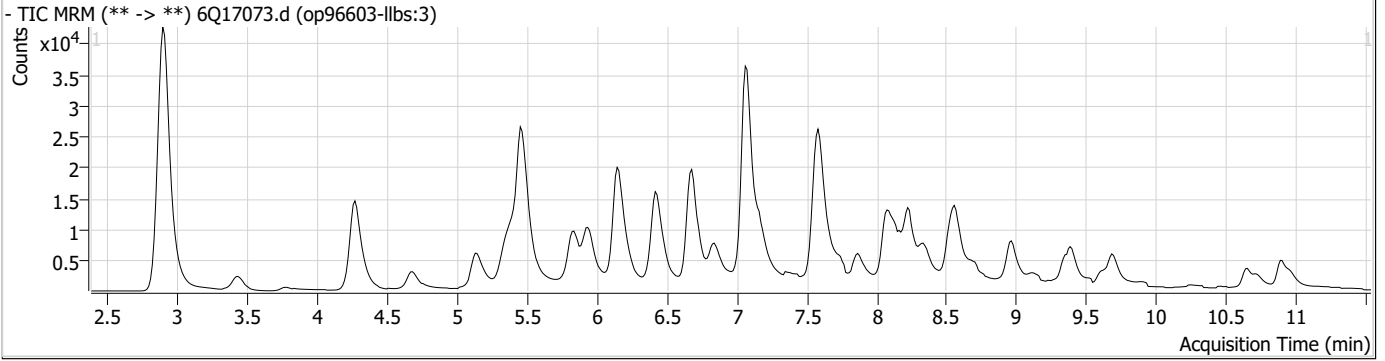
Perfluorinated Compounds by LC/MS/MS

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

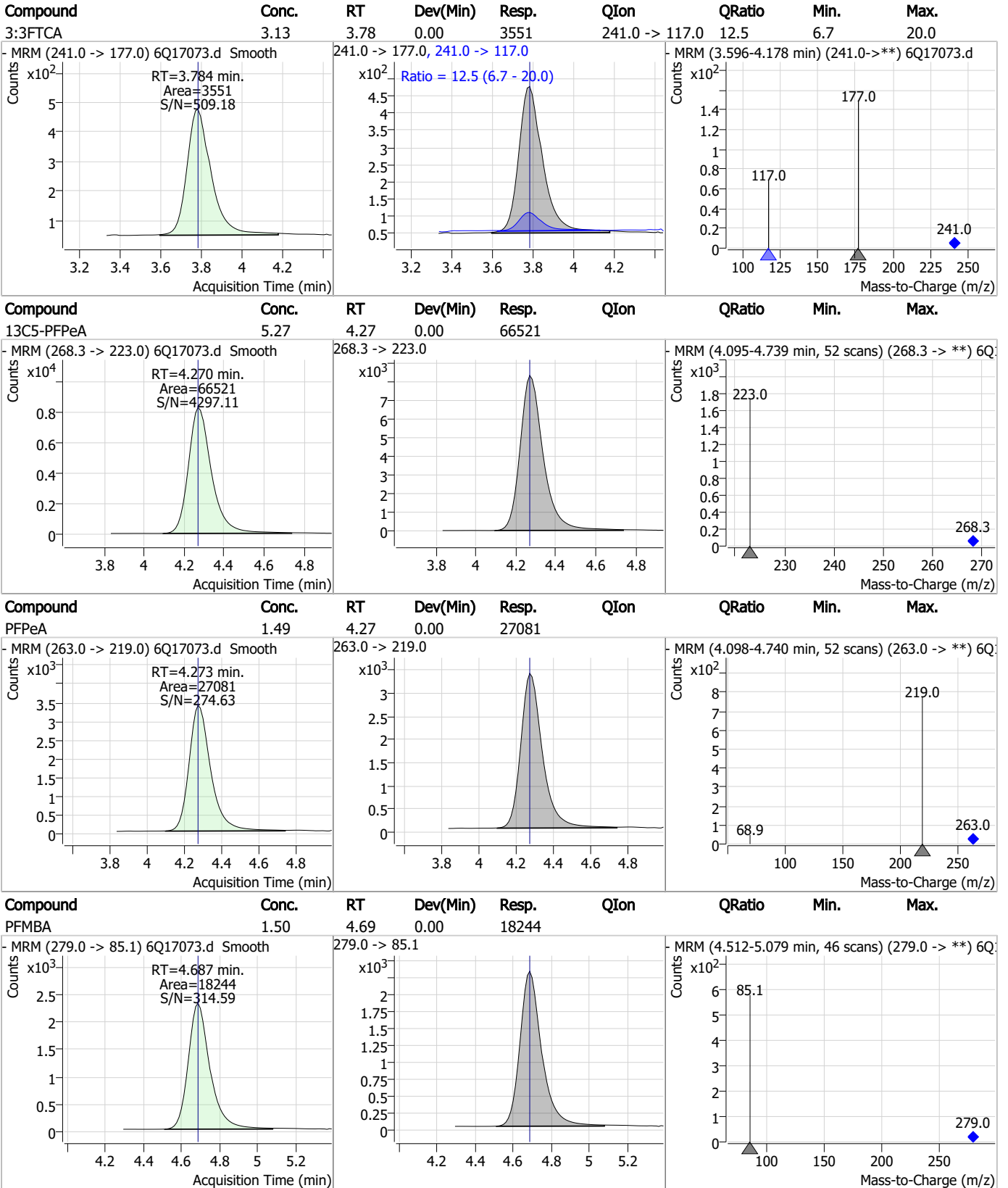
7.3.2

7

Perfluorinated Compounds by LC/MS/MS

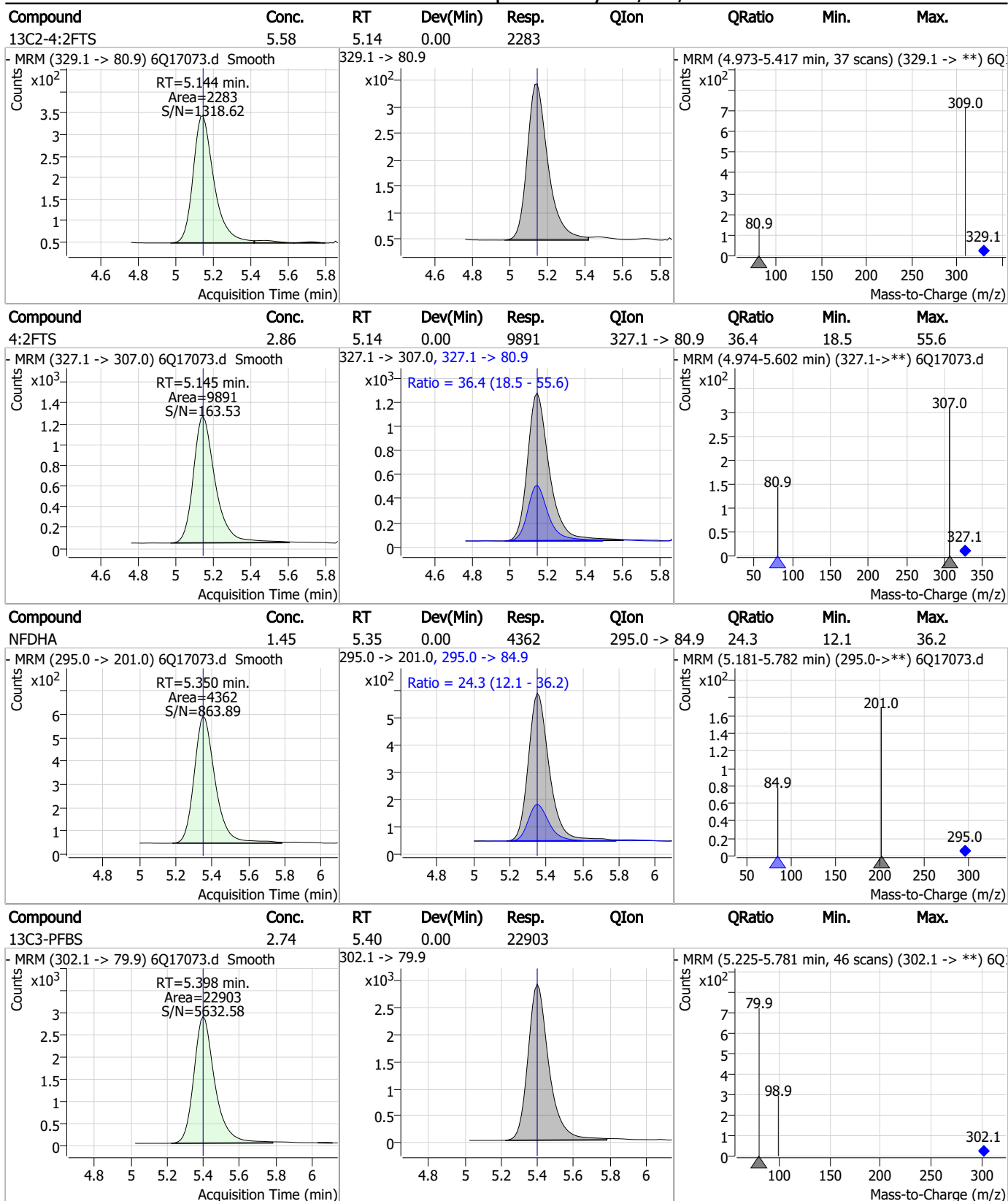


Perfluorinated Compounds by LC/MS/MS



7.3.2
7

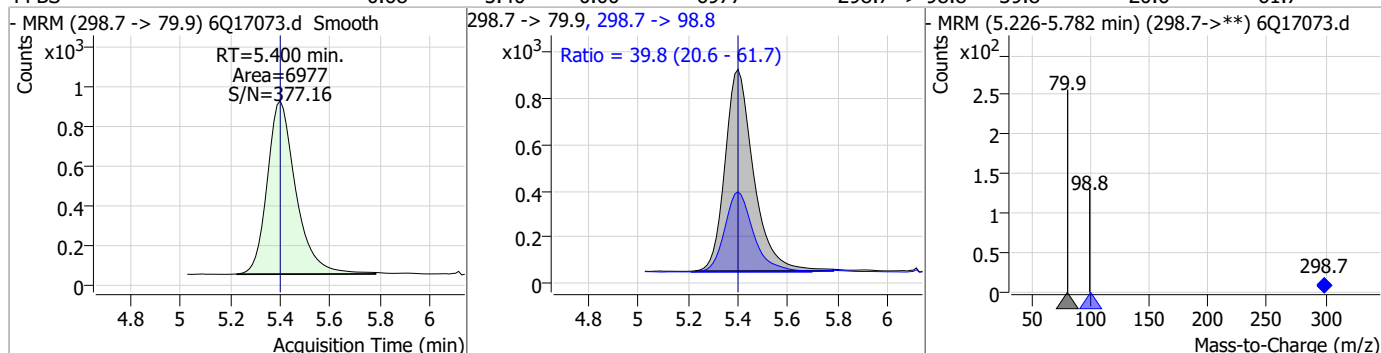
Perfluorinated Compounds by LC/MS/MS



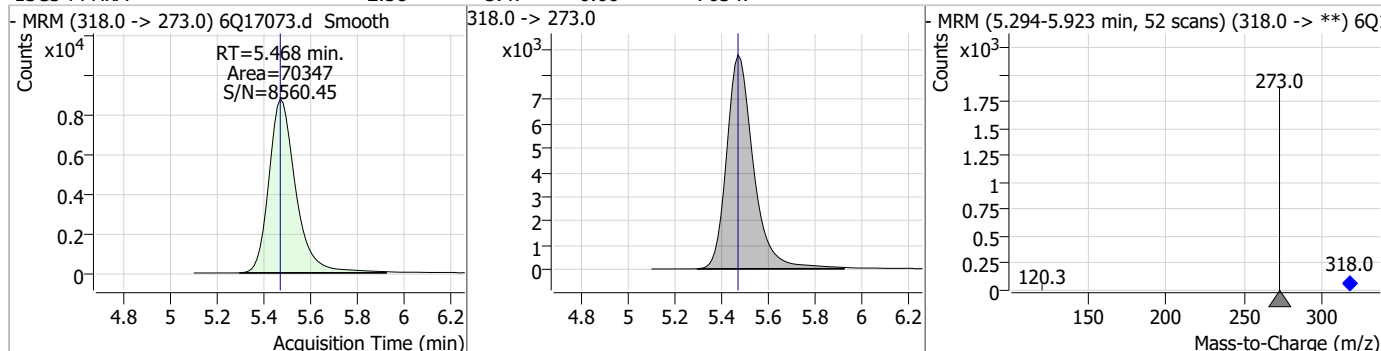
7.3.2
7

Perfluorinated Compounds by LC/MS/MS

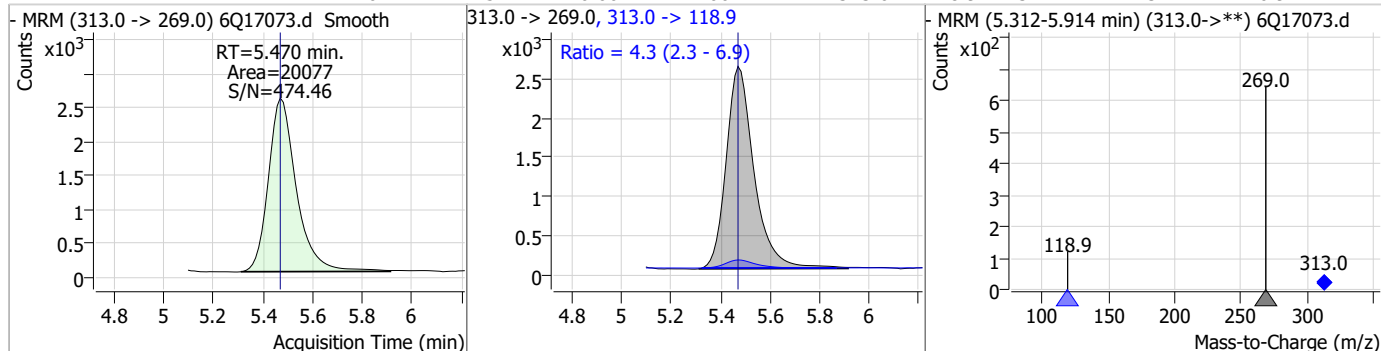
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.68	5.40	0.00	6977	298.7 -> 98.8	39.8	20.6	61.7



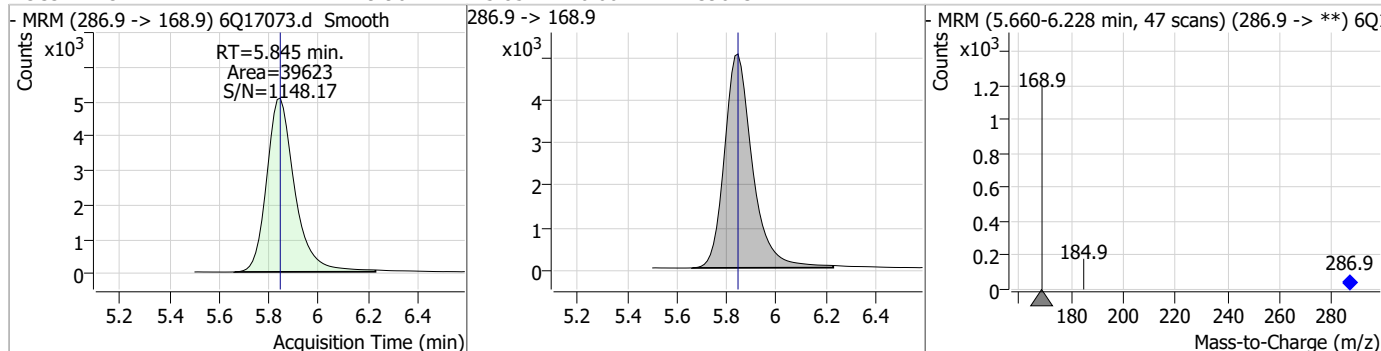
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.58	5.47	0.00	70347				



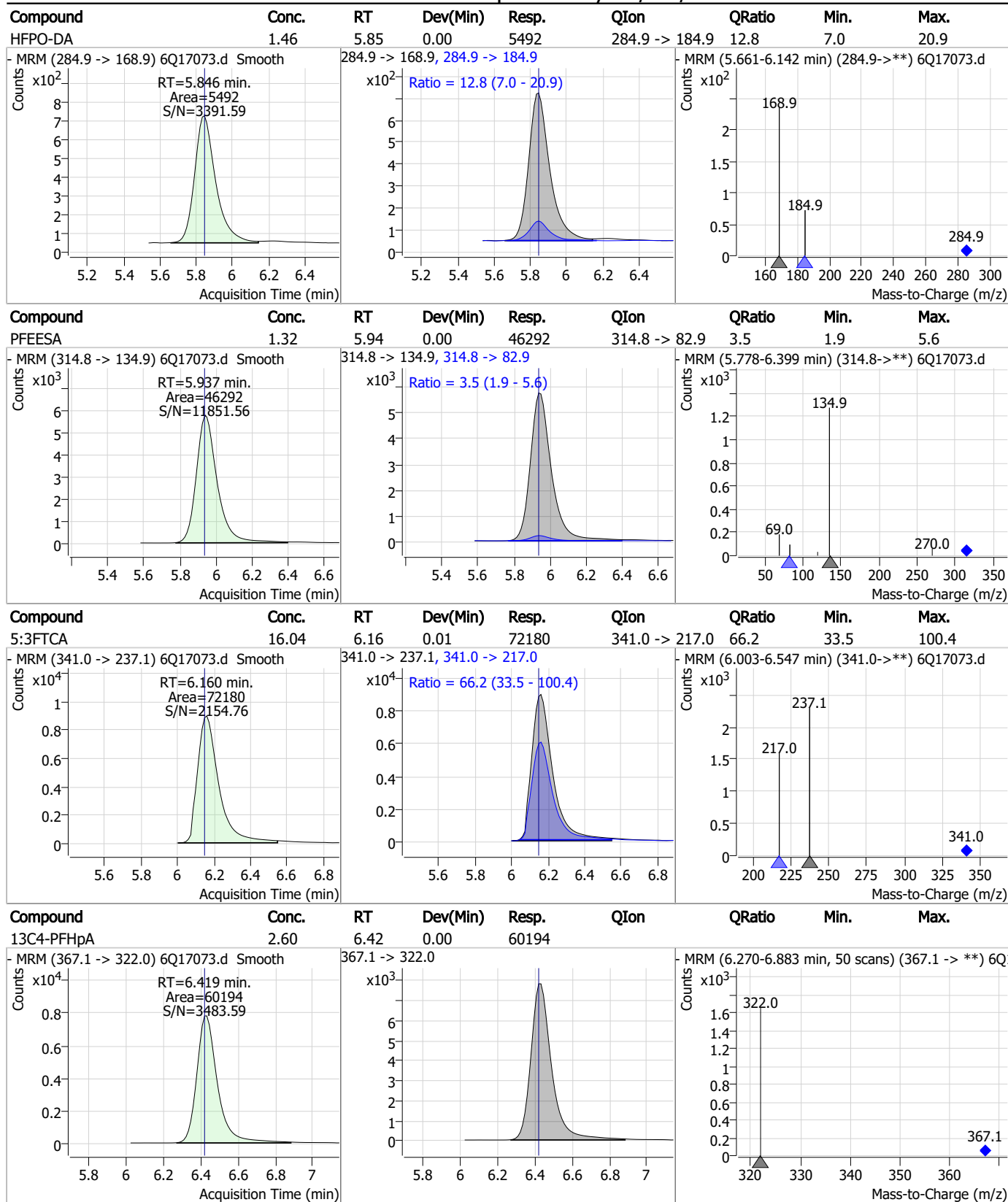
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.72	5.47	0.00	20077	313.0 -> 118.9	4.3	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.90	5.85	0.00	39623				

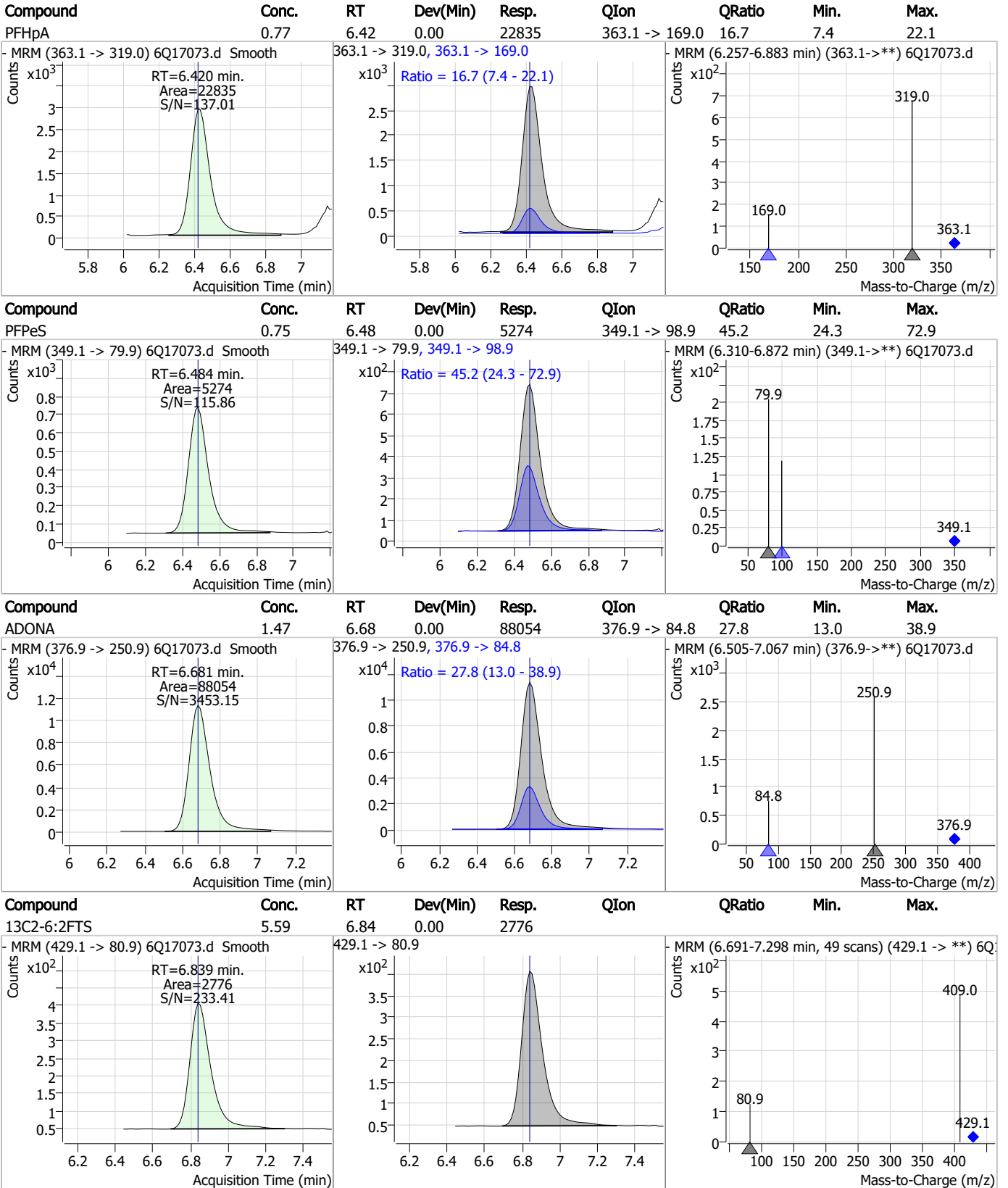


Perfluorinated Compounds by LC/MS/MS



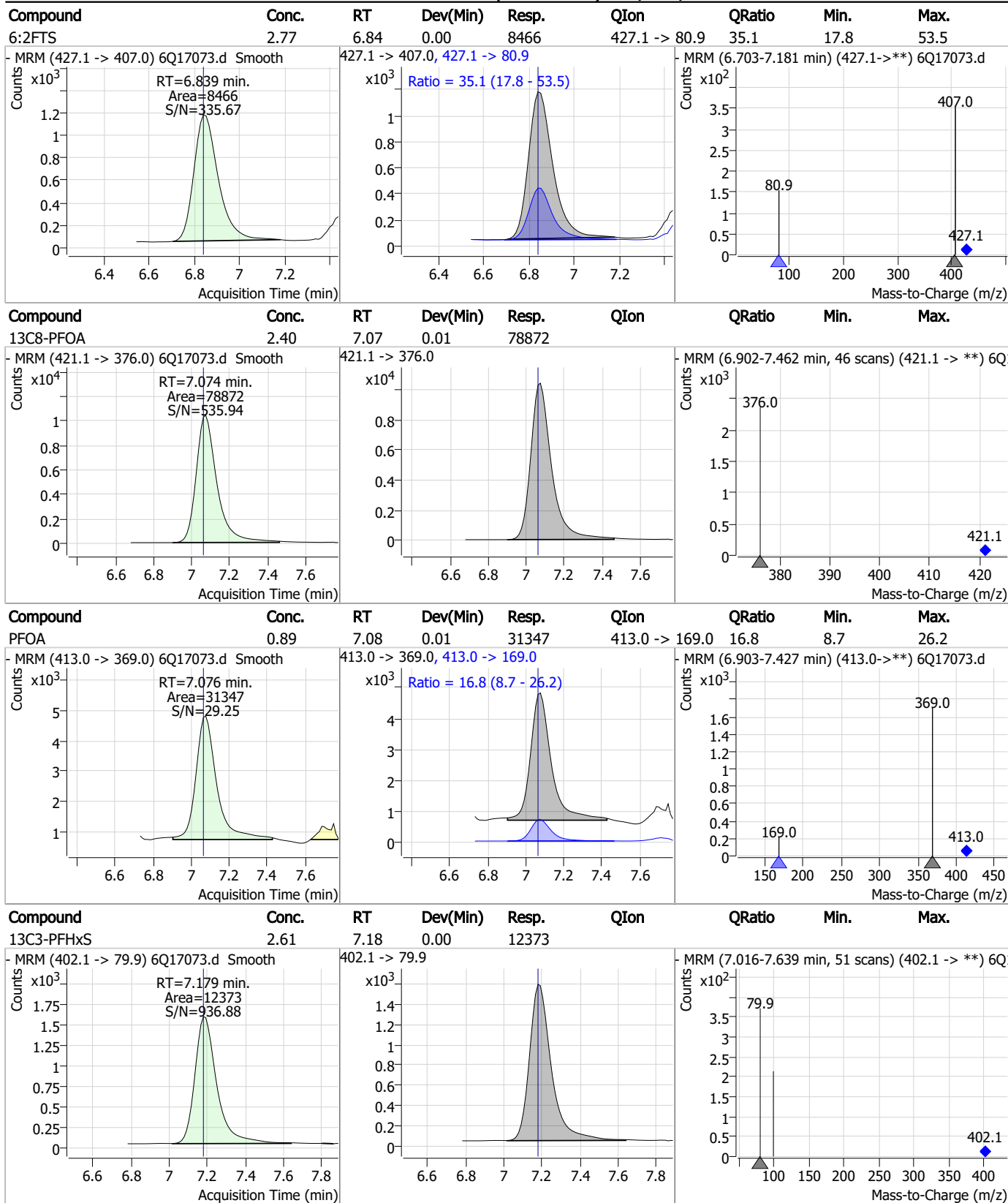
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



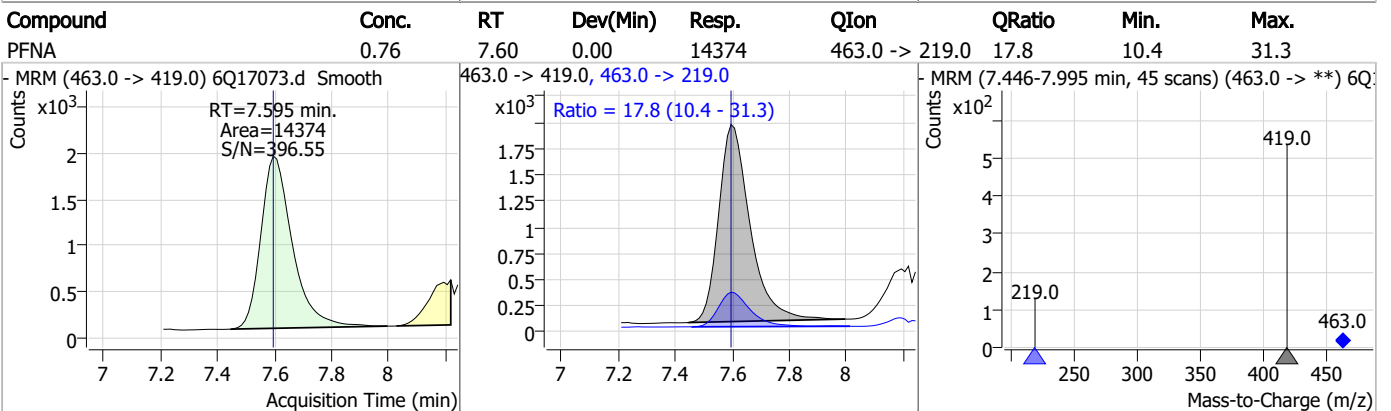
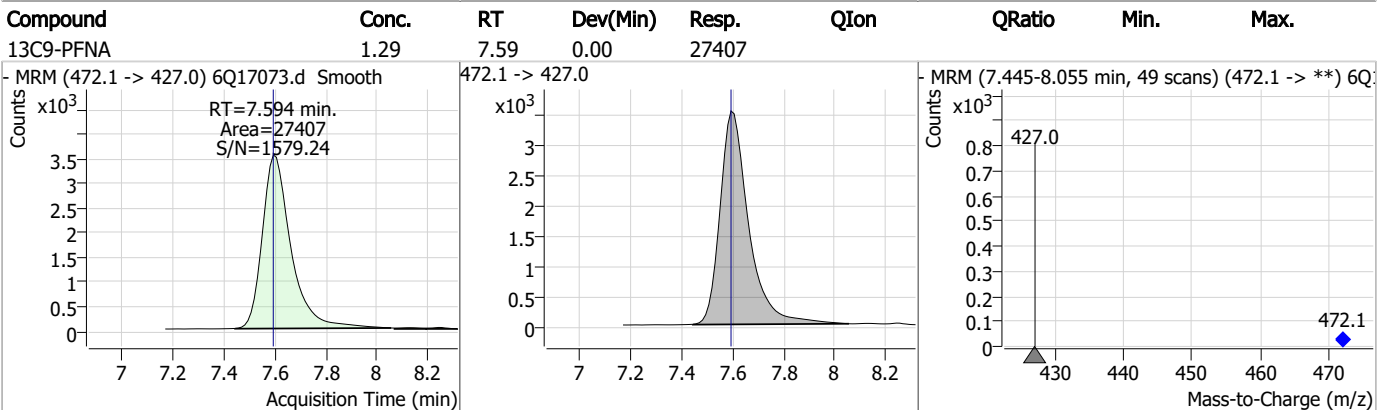
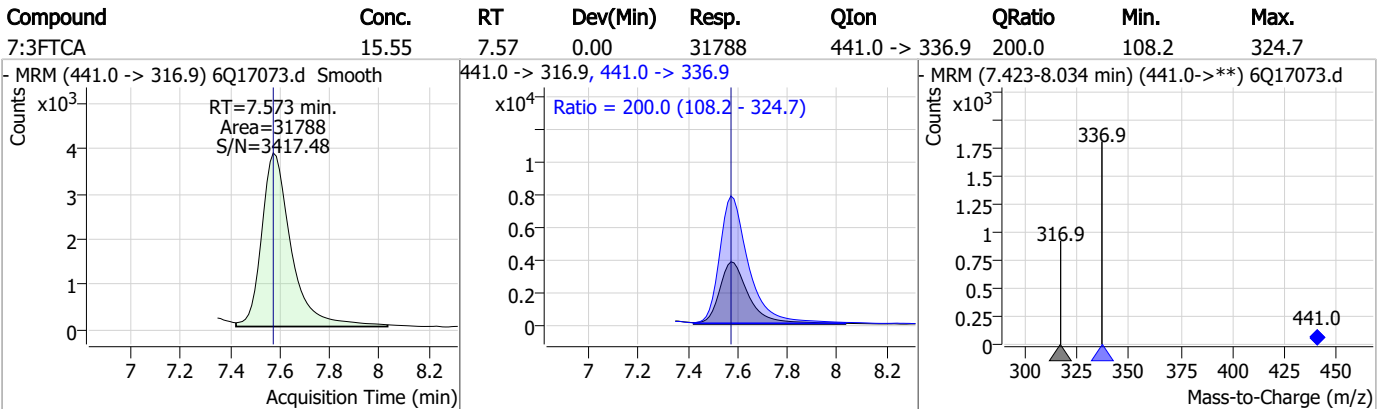
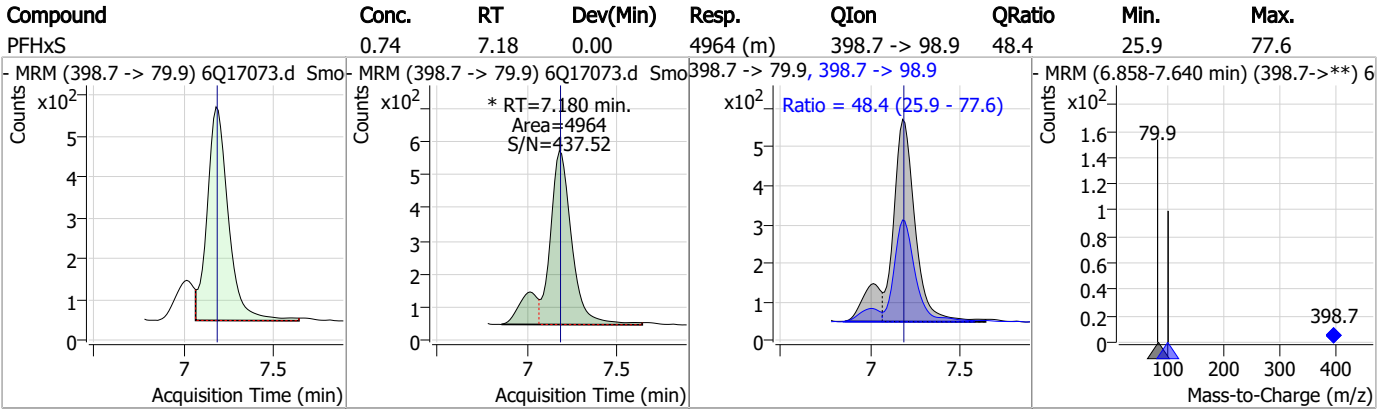
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

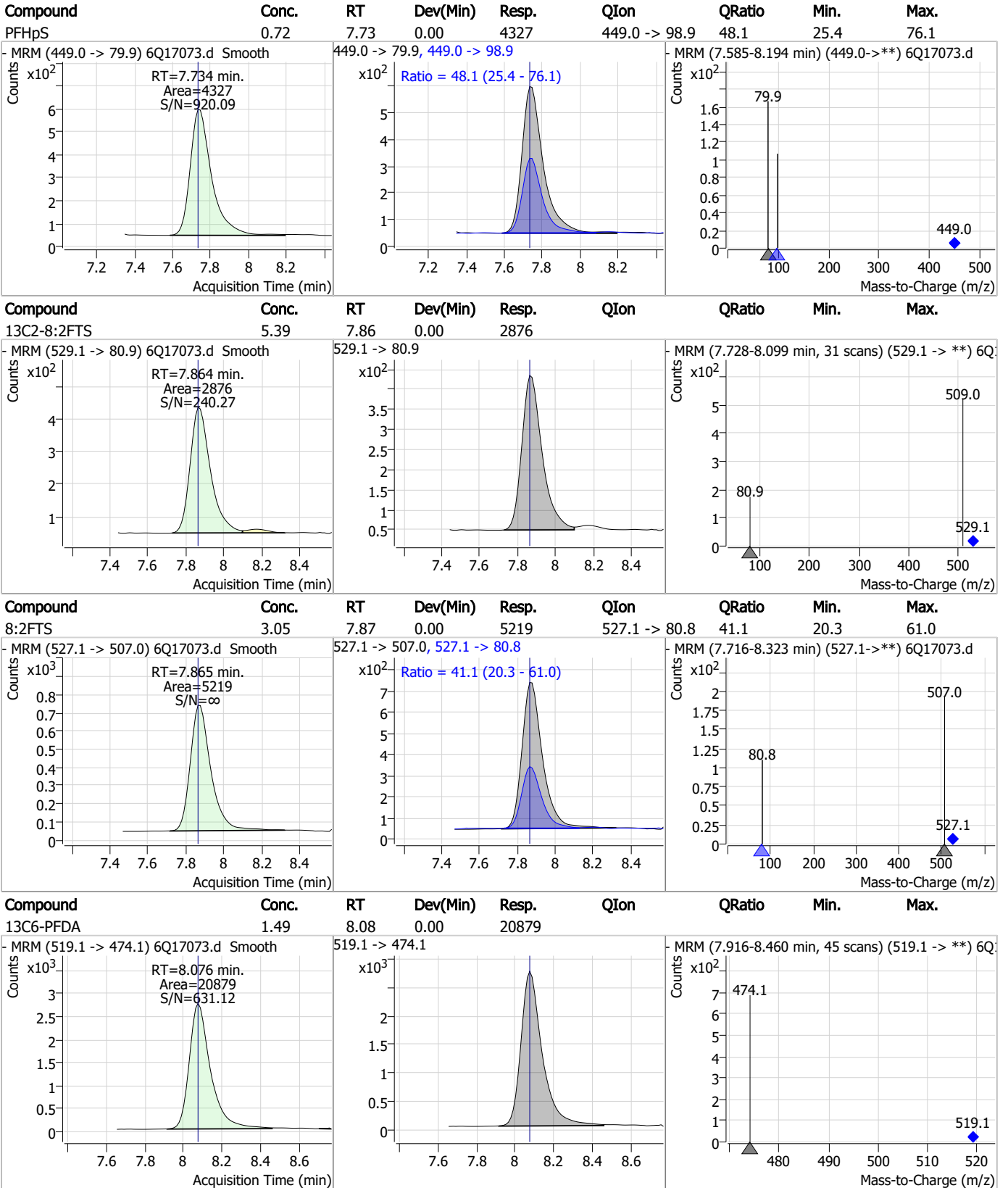
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

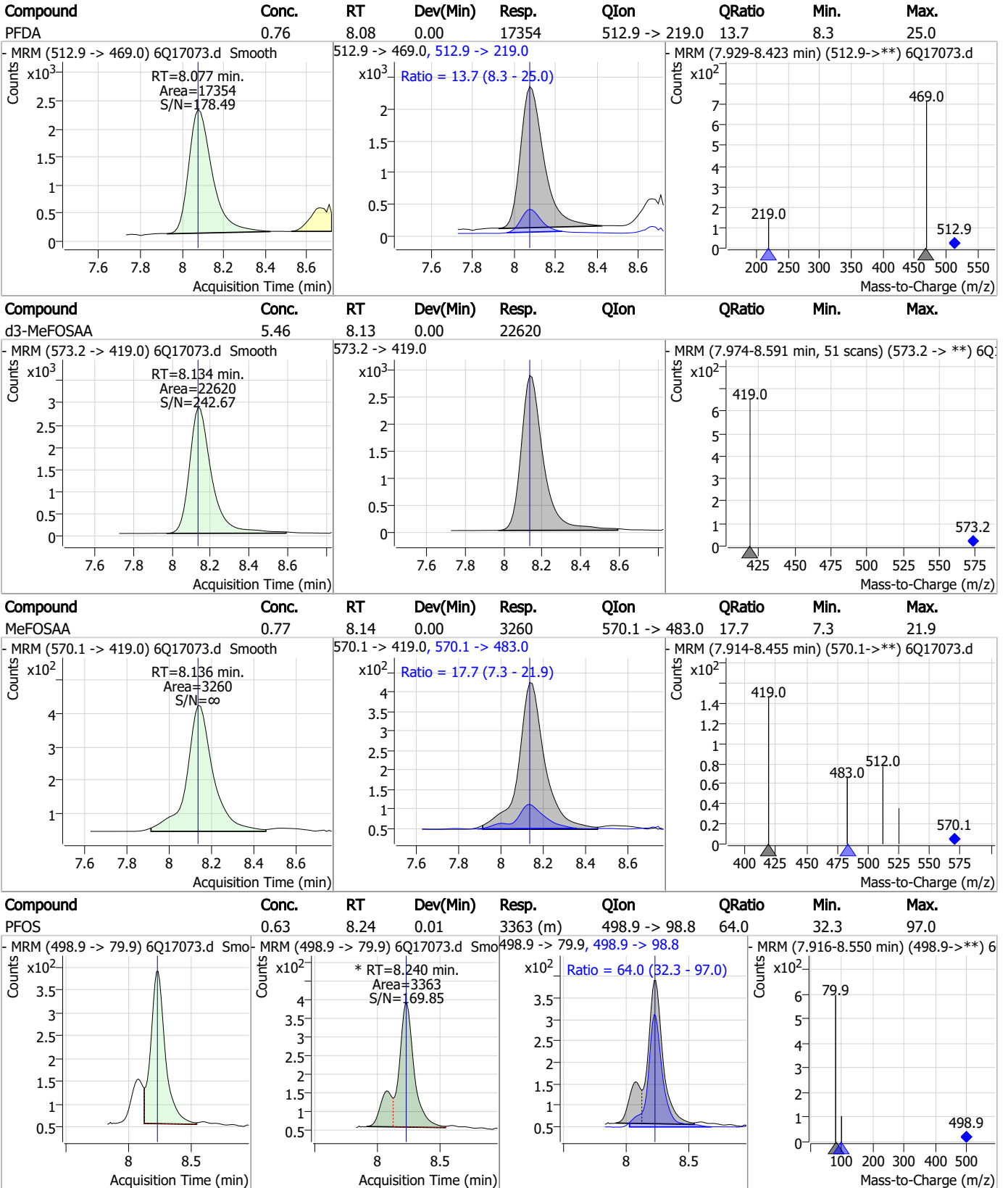
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

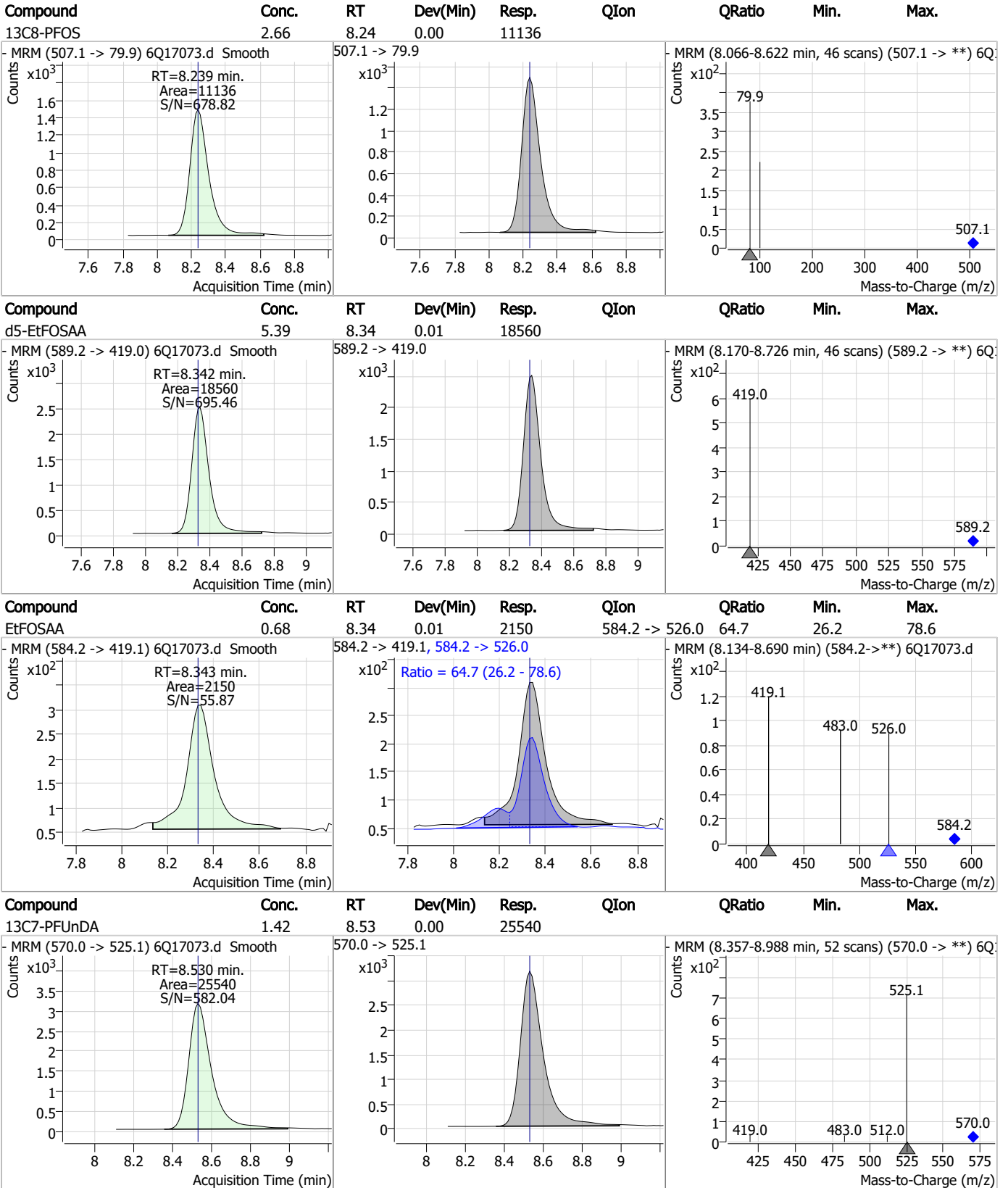
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

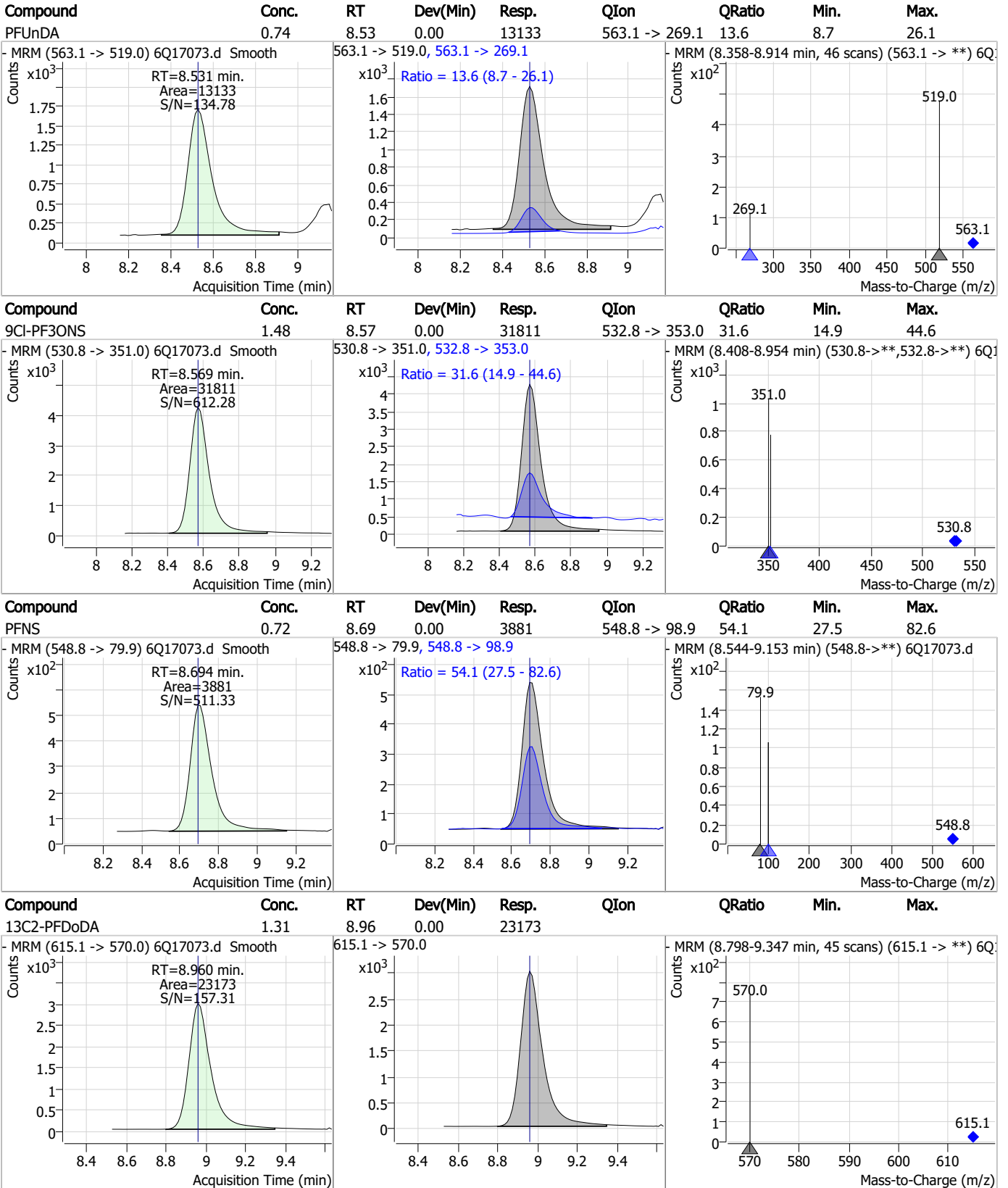
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Perfluorinated Compounds by LC/MS/MS

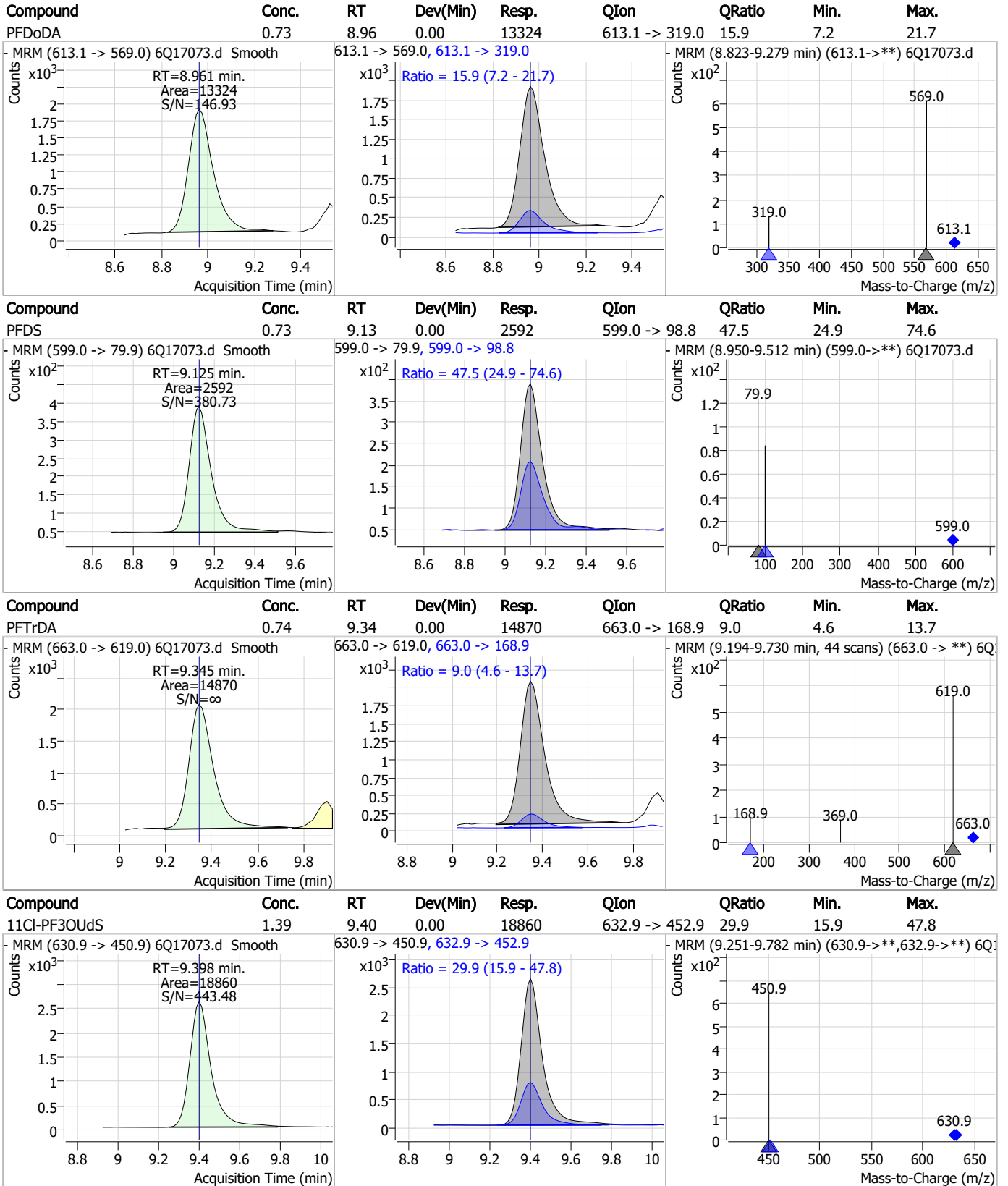


7.3.2

7

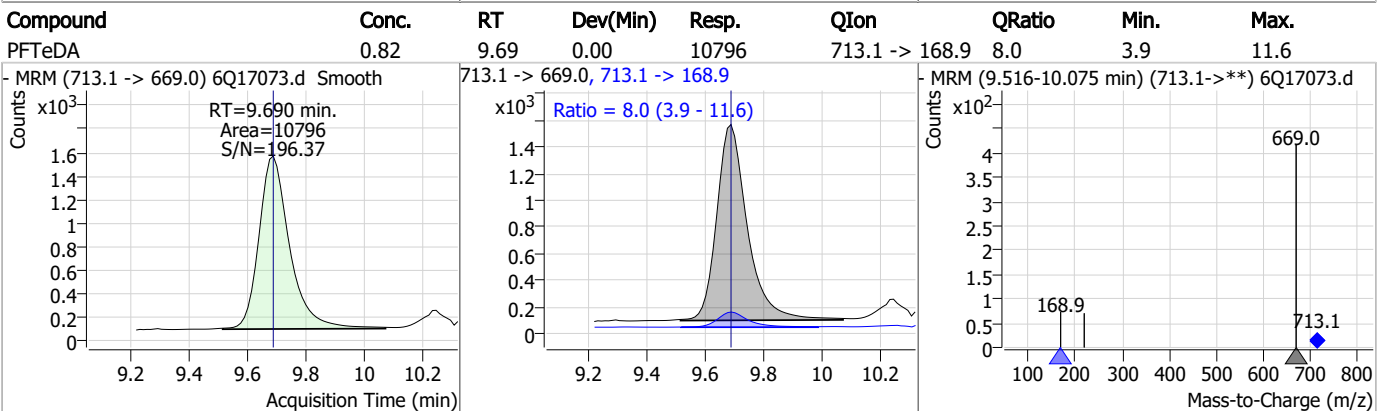
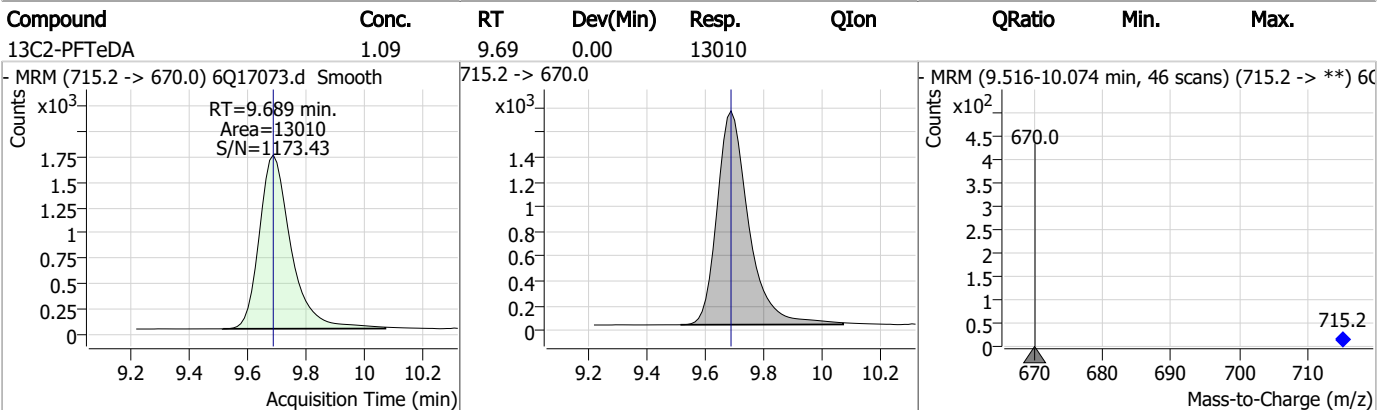
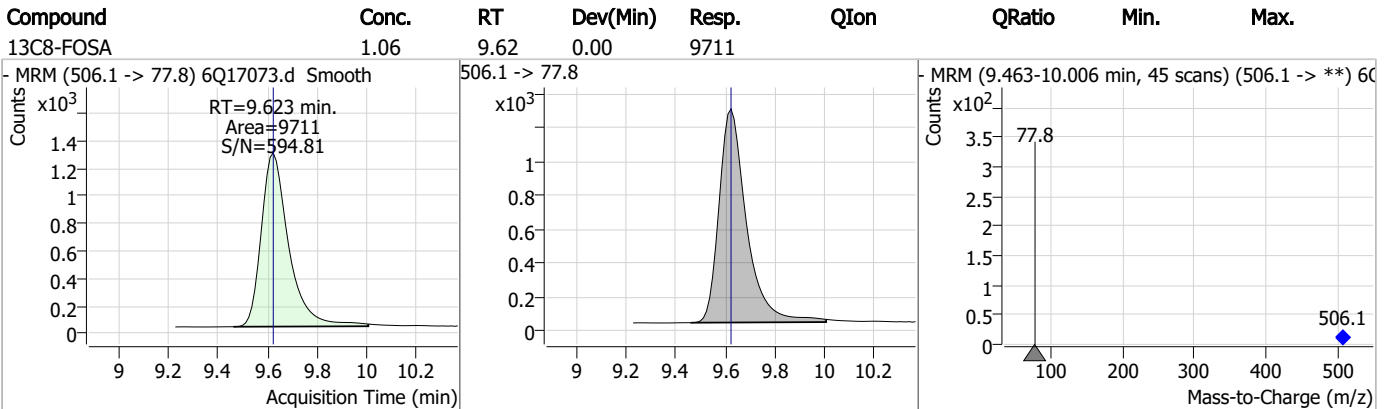
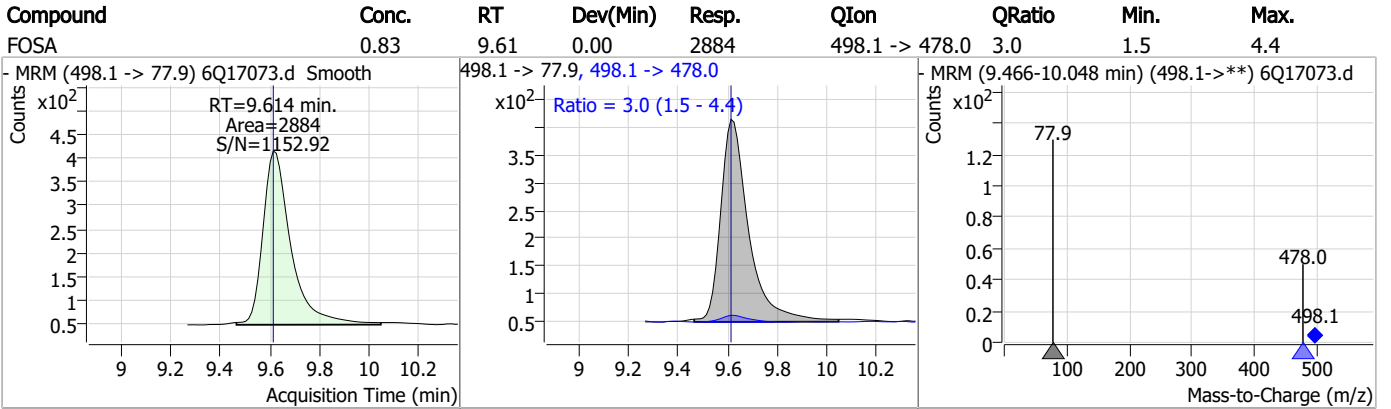


Perfluorinated Compounds by LC/MS/MS



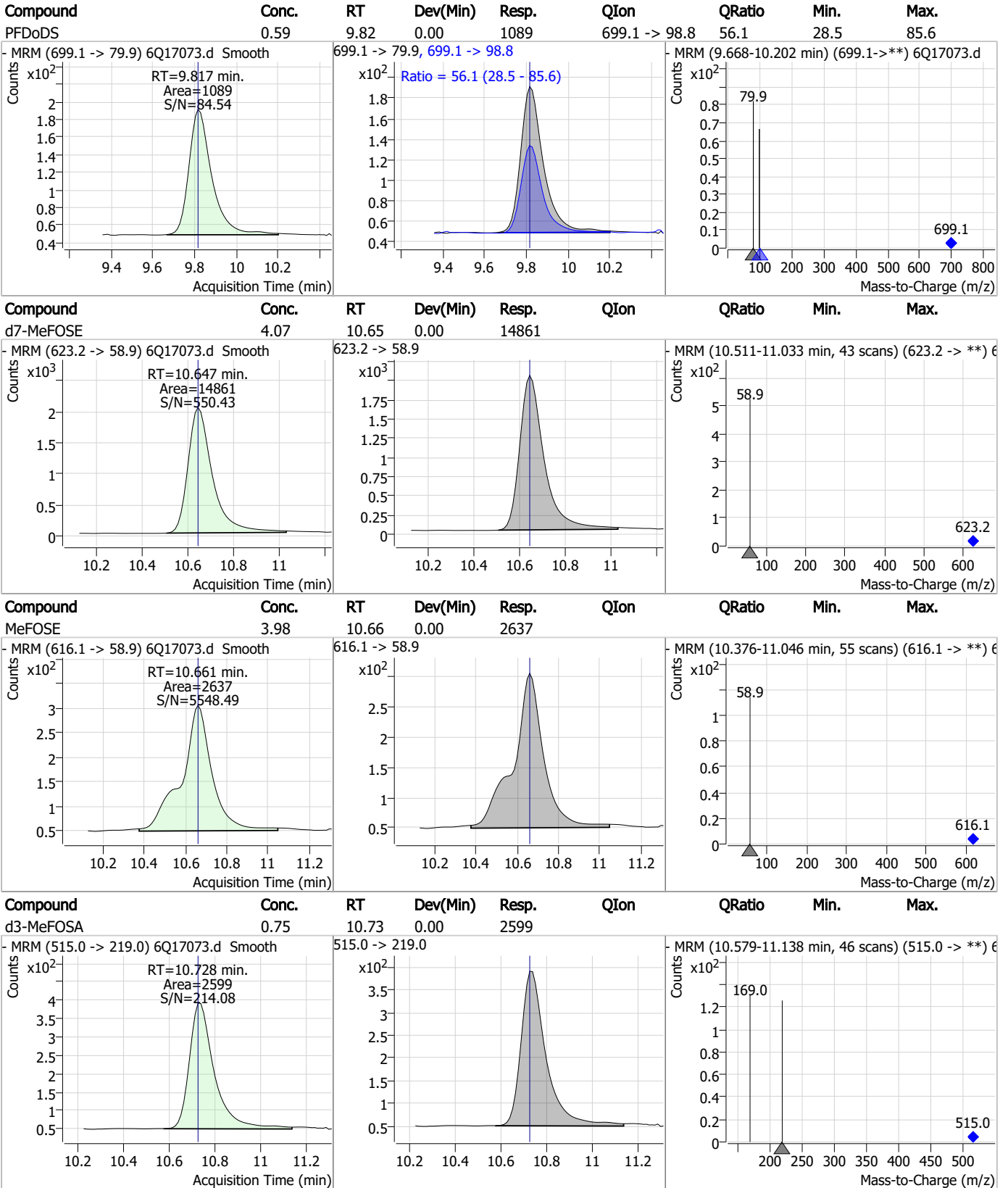
7.3.2
7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

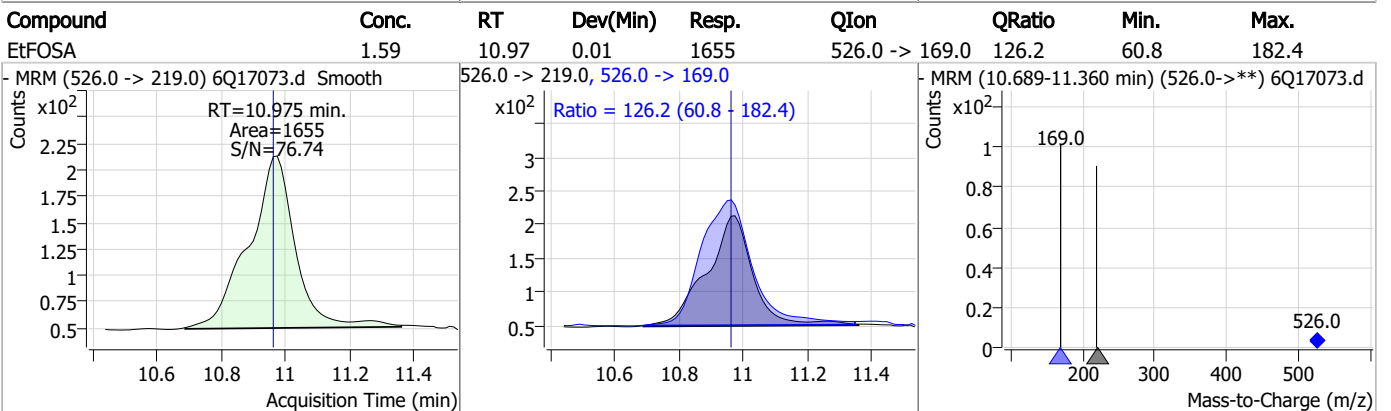
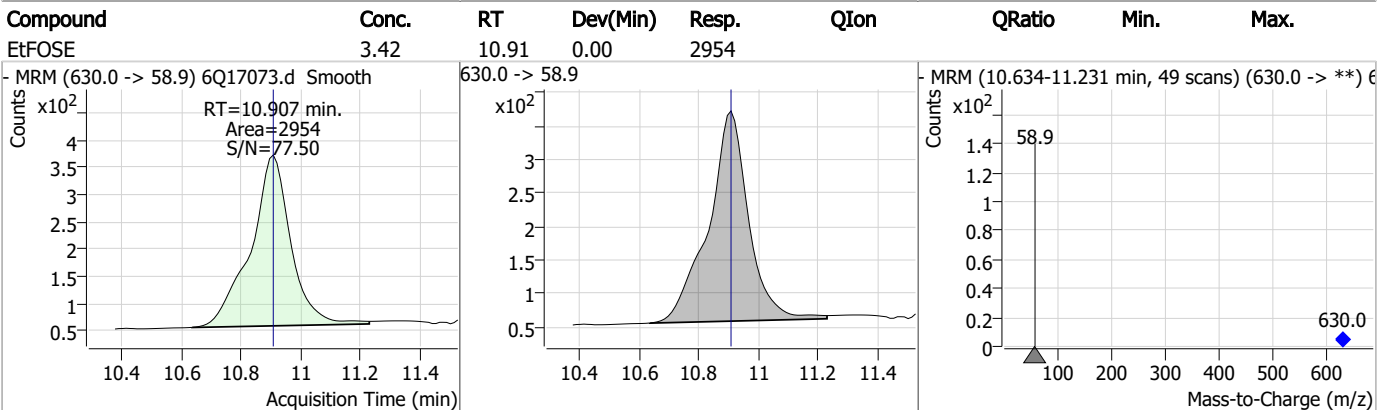
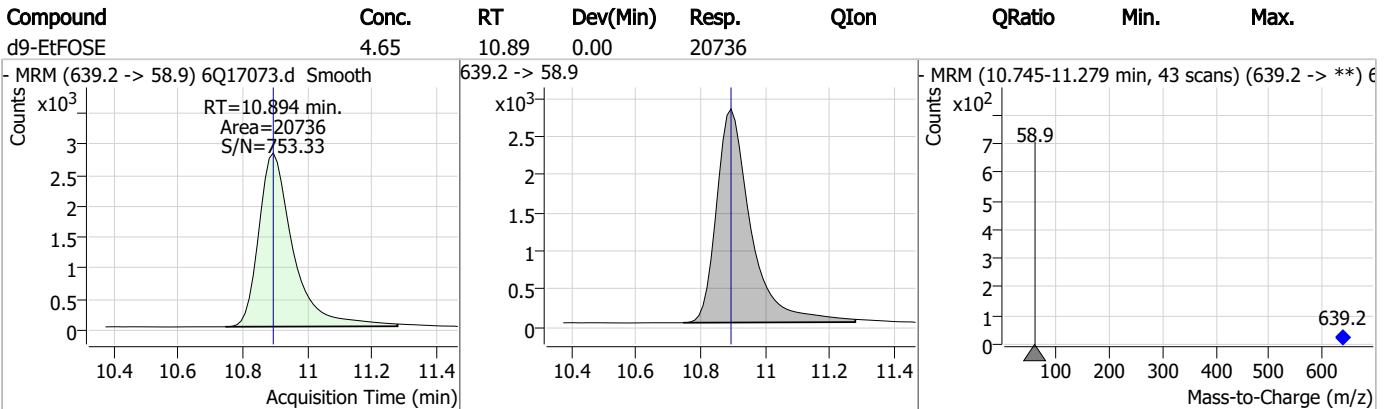
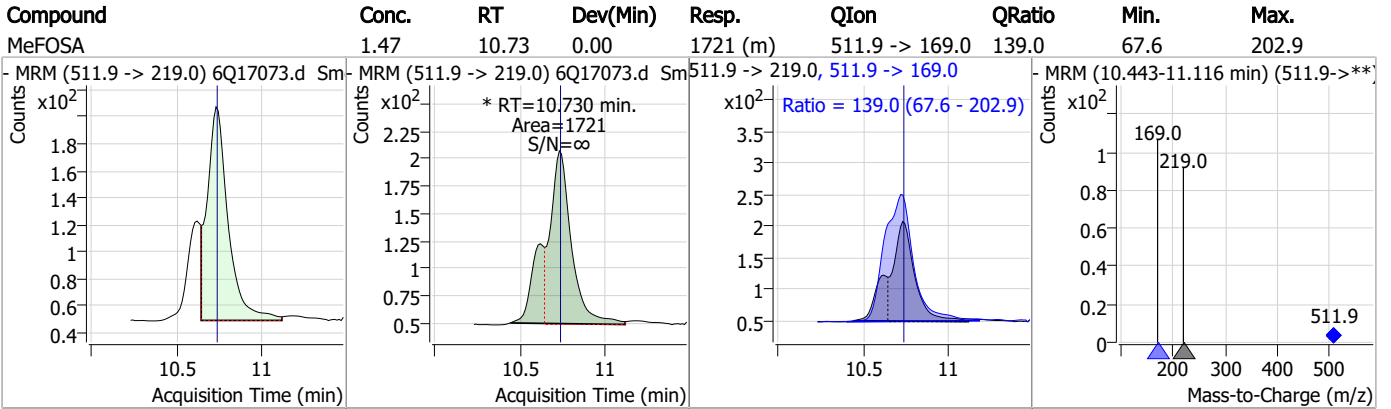
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

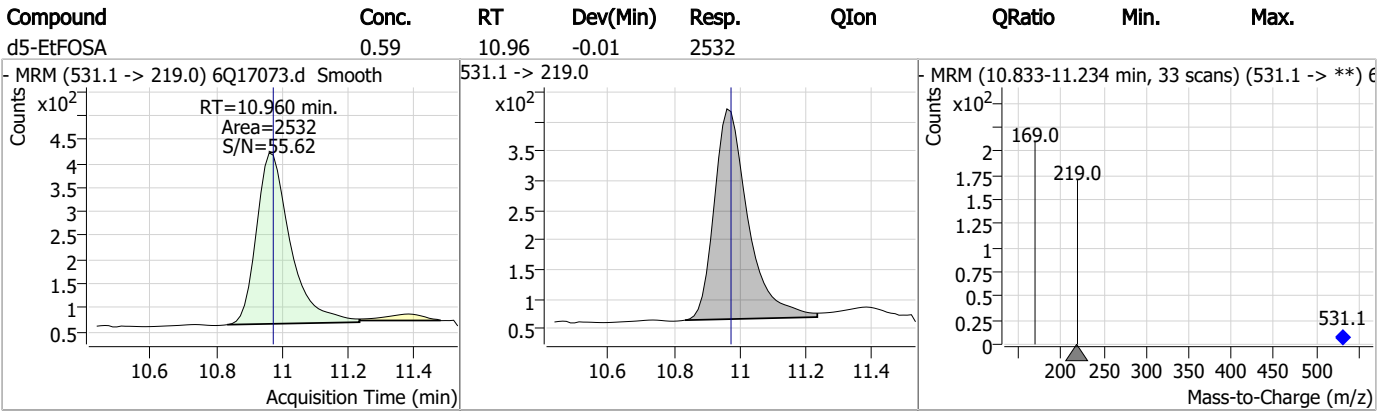
Perfluorinated Compounds by LC/MS/MS



7.3.2

7

Perfluorinated Compounds by LC/MS/MS



7.3.2
7

Manual Integration Approval Summary

Sample Number: OP96603-LLBS Method: EPA DRAFT 1633
Lab FileID: 6Q17073.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 18:09 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.3.2.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43956.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 1:16:05 PM
 Sample Name : op96698-bs
 Vial : P2-A1
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96698,S4Q635,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	136190	10.00 µg/L	0.000
M5-PFPeA	4.375	268.3 -> 223.0	71300	5.00 µg/L	0.012
M5-PFHxA	5.547	318.0 -> 273.0	47740	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	28742	2.50 µg/L	0.012
M8-PFOA	7.136	421.1 -> 376.0	45512	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	21885	1.25 µg/L	0.013
M6-PFDA	8.191	519.1 -> 474.1	19179	1.25 µg/L	0.013
M7-PFUnDA	8.660	570.0 -> 525.1	19707	1.25 µg/L	0.013
M2-PFDoDA	9.106	615.1 -> 570.0	19872	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	13858	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	8456	2.50 µg/L	0.000
M3-PFBS	5.452	302.1 -> 79.9	11977	2.50 µg/L	0.025
M3-PFHxS	7.229	402.1 -> 79.9	7633	2.50 µg/L	0.000
M8-PFOS	8.341	507.1 -> 79.9	10814	2.50 µg/L	0.012
M2-4:2FTS	5.235	329.1 -> 80.9	1103	5.00 µg/L	0.012
M2-6:2FTS	6.911	429.1 -> 80.9	2052	5.00 µg/L	0.012
M2-8:2FTS	7.978	529.1 -> 80.9	3420	5.00 µg/L	0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	15307	5.00 µg/L	0.012
M3-HFPO-DA	5.902	286.9 -> 168.9	28987	10.00 µg/L	0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	12389	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	27259	25.00 µg/L	0.012
M9-EtFOSE	11.269	639.2 -> 58.9	41481	25.00 µg/L	0.012
M5-EtFOSA	11.360	531.1 -> 219.0	4377	2.50 µg/L	0.012
M3-MeFOSA	11.076	515.0 -> 219.0	3911	2.50 µg/L	0.012
13C4-PFOS	8.342	502.8 -> 79.9	10978	2.50 µg/L	0.012
13C3-PFBA	2.928	216.0 -> 172.0	68442	5.00 µg/L	0.000
18O2-PFHxS	7.241	403.0 -> 83.9	4867	2.50 µg/L	0.012
13C4-PFOA	7.136	417.1 -> 372.0	53060	2.50 µg/L	0.012
13C2-PFDA	8.191	515.1 -> 470.1	17870	1.25 µg/L	0.013
13C5-PFNA	7.684	468.0 -> 423.0	23541	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	42469	2.50 µg/L	0.012

System Monitoring Compounds

13C2-4:2FTS	5.235	329.1 -> 80.9	1103	5.57 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 111.5%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2052	5.75 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.1%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3420	6.14 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 122.9%		
13C2-PFDoDA	9.106	615.1 -> 570.0	19872	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.8%		
13C2-PFTeDA	9.899	715.2 -> 670.0	13858	0.98 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 78.7%		
13C3-PFBS	5.452	302.1 -> 79.9	11977	2.61 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C3-PFHxS	7.229	402.1 -> 79.9	7633	2.53 µg/L	0.000

7.3.3
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 = 101.2%	
13C4-PFBA	2.924	216.8 -> 171.9	136190	10.57 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C4-PFHpA	6.479	367.1 -> 322.0	28742	2.63 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C5-PFHxA	5.547	318.0 -> 273.0	47740	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.375	268.3 -> 223.0	71300	5.45 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
13C6-PFDA	8.191	519.1 -> 474.1	19179	1.25 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C7-PFUnDA	8.660	570.0 -> 525.1	19707	1.24 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-FOSA	9.771	506.1 -> 77.8	8456	1.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 49.1%	
13C8-PFOA	7.136	421.1 -> 376.0	45512	2.61 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
13C8-PFOS	8.341	507.1 -> 79.9	10814	2.62 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.7%	
13C9-PFNA	7.684	472.1 -> 427.0	21885	1.37 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 109.4%	
d3-MeFOSAA	8.249	573.2 -> 419.0	15307	5.52 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.5%	
13C3-HFPO-DA	5.902	286.9 -> 168.9	28987	10.38 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.8%	
d3-MeFOSA	11.076	515.0 -> 219.0	3911	0.91 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 36.3%	
d5-EtFOSAA	8.458	589.2 -> 419.0	12389	5.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.6%	
d7-MeFOSE	10.959	623.2 -> 58.9	27259	7.98 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 31.9%	
d9-EtFOSE	11.269	639.2 -> 58.9	41481	8.58 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 34.3%	
d5-EtFOSA	11.360	531.1 -> 219.0	4377	0.96 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 38.3%	
Target Compounds					QValue
4:2FTS	5.236	327.1 -> 307.0 327.1 -> 80.9	15745 6773	8.87 µg/L	94
6:2FTS	6.911	427.1 -> 407.0 427.1 -> 80.9	18970 7951	9.57 µg/L	100
8:2FTS	7.978	527.1 -> 507.0 527.1 -> 80.8	16988 6988	8.91 µg/L	98
EtFOSAA	8.459	584.2 -> 419.1 584.2 -> 526.0	5107 2448	2.15 µg/L	m 96
FOSA	9.774	498.1 -> 77.9 498.1 -> 478.0	8135 257	2.30 µg/L	100
MeFOSAA	8.249	570.1 -> 419.0 570.1 -> 483.0	5738 1253	2.15 µg/L	m 96
PFBA	2.932	212.8 -> 168.9	33560	9.20 µg/L	100
PFBS	5.453	298.7 -> 79.9 298.7 -> 98.8	10162 3617	2.07 µg/L	92
PFDA	8.192	512.9 -> 469.0 512.9 -> 219.0	34477 6752	2.37 µg/L	96
PFDoDA	9.106	613.1 -> 569.0 613.1 -> 319.0	38336 5560	2.40 µg/L	100
PFDS	9.269	599.0 -> 79.9	5139	1.92 µg/L	91

7.3.3
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.480	599.0 -> 98.8	2671	2.30	µg/L	99
		363.1 -> 319.0	41739			
PFHpS	7.823	363.1 -> 169.0	7594	2.13	µg/L	98
		449.0 -> 79.9	8288			
PFHxA	5.550	449.0 -> 98.9	4285	2.41	µg/L	100
		313.0 -> 269.0	45156			
PFHxS	7.230	313.0 -> 118.9	1333	2.21	µg/L	93
		398.7 -> 79.9	6924			
PFNA	7.685	398.7 -> 98.9	3817	2.18	µg/L	98
		463.0 -> 419.0	35394			
PFNS	8.823	463.0 -> 219.0	8519	2.15	µg/L	91
		548.8 -> 79.9	5067			
PFOA	7.137	548.8 -> 98.9	2340	2.28	µg/L	100
		413.0 -> 369.0	59743			
PFOS	8.330	413.0 -> 169.0	11536	2.09	µg/L	97
		498.9 -> 79.9	11049			
PFPeA	4.377	498.9 -> 98.8	5620	4.53	µg/L	100
		263.0 -> 219.0	77704			
PFPeS	6.507	349.1 -> 79.9	5909	2.20	µg/L	100
		349.1 -> 98.9	2734			
PFTeDA	9.900	713.1 -> 669.0	32523	2.40	µg/L	99
		713.1 -> 168.9	2681			
PFTrDA	9.529	663.0 -> 619.0	45168	2.12	µg/L	99
		663.0 -> 168.9	4664			
PFUnDA	8.660	563.1 -> 519.0	32072	2.40	µg/L	96
		563.1 -> 269.1	6274			
11CI-PF3OUdS	9.568	630.9 -> 450.9	41488	3.98	µg/L	98
		632.9 -> 452.9	12415			
9CI-PF3ONS	8.687	530.8 -> 351.0	57724	4.35	µg/L	100
		532.8 -> 353.0	17469			
ADONA	6.731	376.9 -> 250.9	132650	4.55	µg/L	100
		376.9 -> 84.8	34899			
HFPO-DA	5.903	284.9 -> 168.9	12875	4.65	µg/L	100
		284.9 -> 184.9	1485			
3:3FTCA	3.848	241.0 -> 177.0	7523	9.97	µg/L	92
		241.0 -> 117.0	852			
5:3FTCA	6.205	341.0 -> 237.1	129527	51.03	µg/L	99
		341.0 -> 217.0	87887			
7:3FTCA	7.661	441.0 -> 316.9	65189	49.43	µg/L	97
		441.0 -> 336.9	158975			
EtFOSA	11.362	526.0 -> 219.0	8834	4.82	µg/L	92
		526.0 -> 169.0	11388			
EtFOSE	11.282	630.0 -> 58.9	19942	12.42	µg/L	100
		511.9 -> 219.0	7604			
MeFOSA	11.078	511.9 -> 169.0	11050	5.16	µg/L	98
		616.1 -> 58.9	13382			
MeFOSE	10.973	699.1 -> 79.9	4307	11.95	µg/L	100
		699.1 -> 98.8	2559			
PFDoDS	10.039	295.0 -> 201.0	6360	1.80	µg/L	92
		295.0 -> 84.9	1692			
NFDHA	5.428	279.0 -> 85.1	43055	4.76	µg/L	98
		229.0 -> 84.9	41642			
PFMBA	4.778	314.8 -> 134.9	60647	4.64	µg/L	100
		314.8 -> 82.9	2256			
PFMPA	3.528			4.28	µg/L	100
PFEESA	5.971			4.28	µg/L	100

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

7.3.3
7

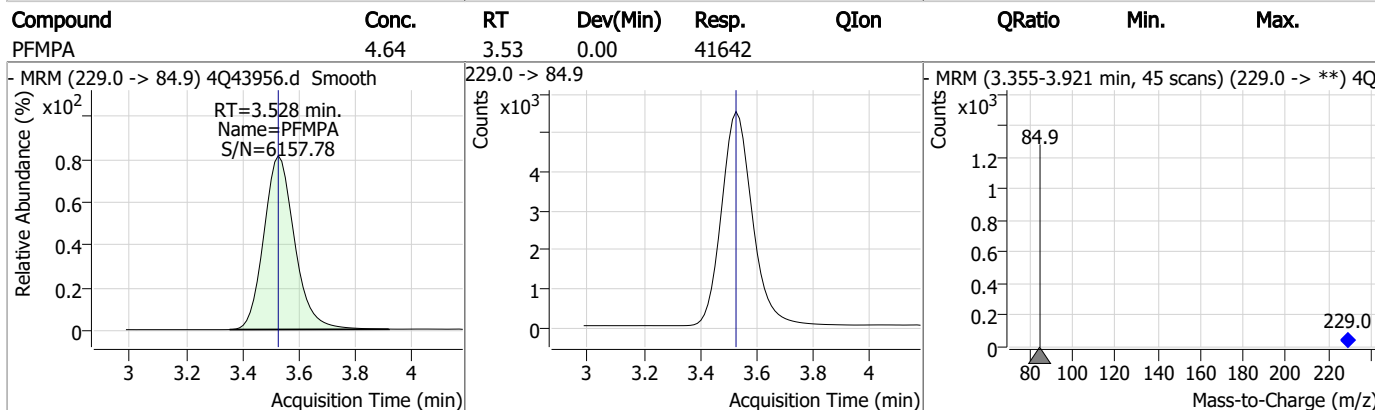
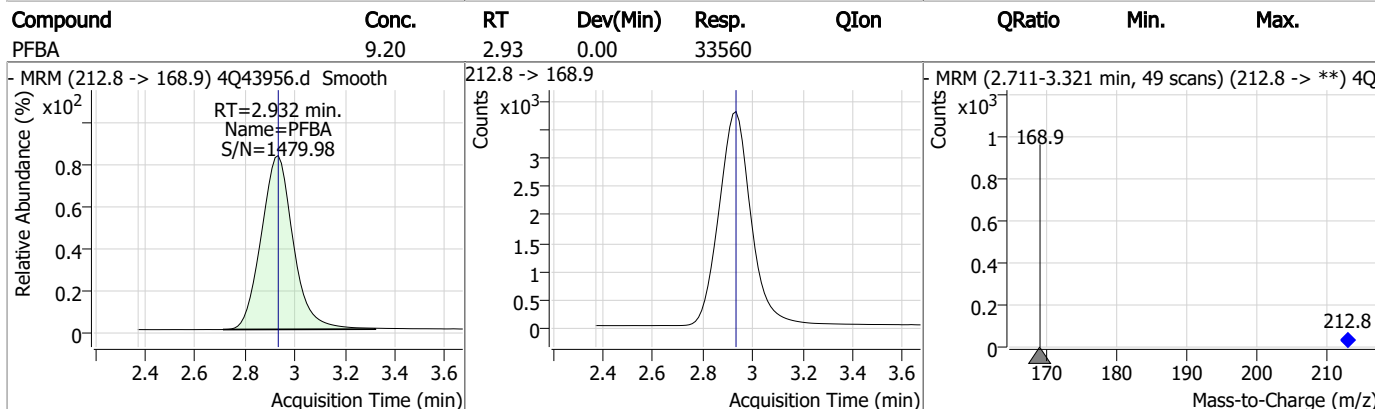
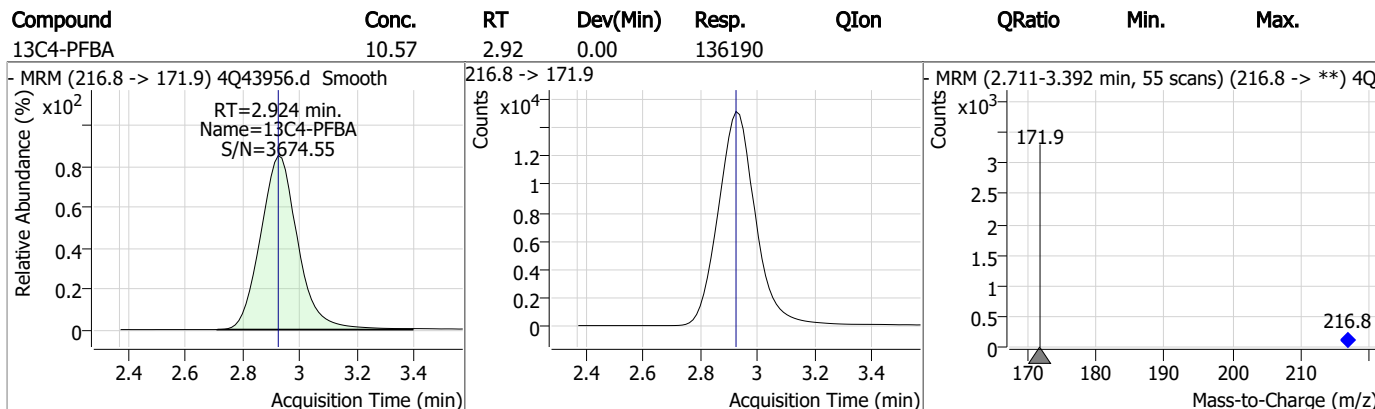
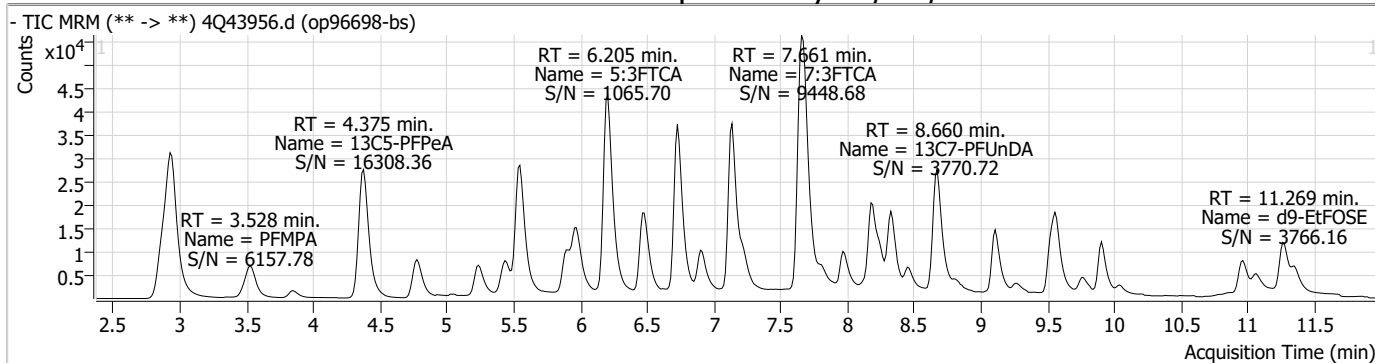
Perfluorinated Compounds by LC/MS/MS

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

7.3.3

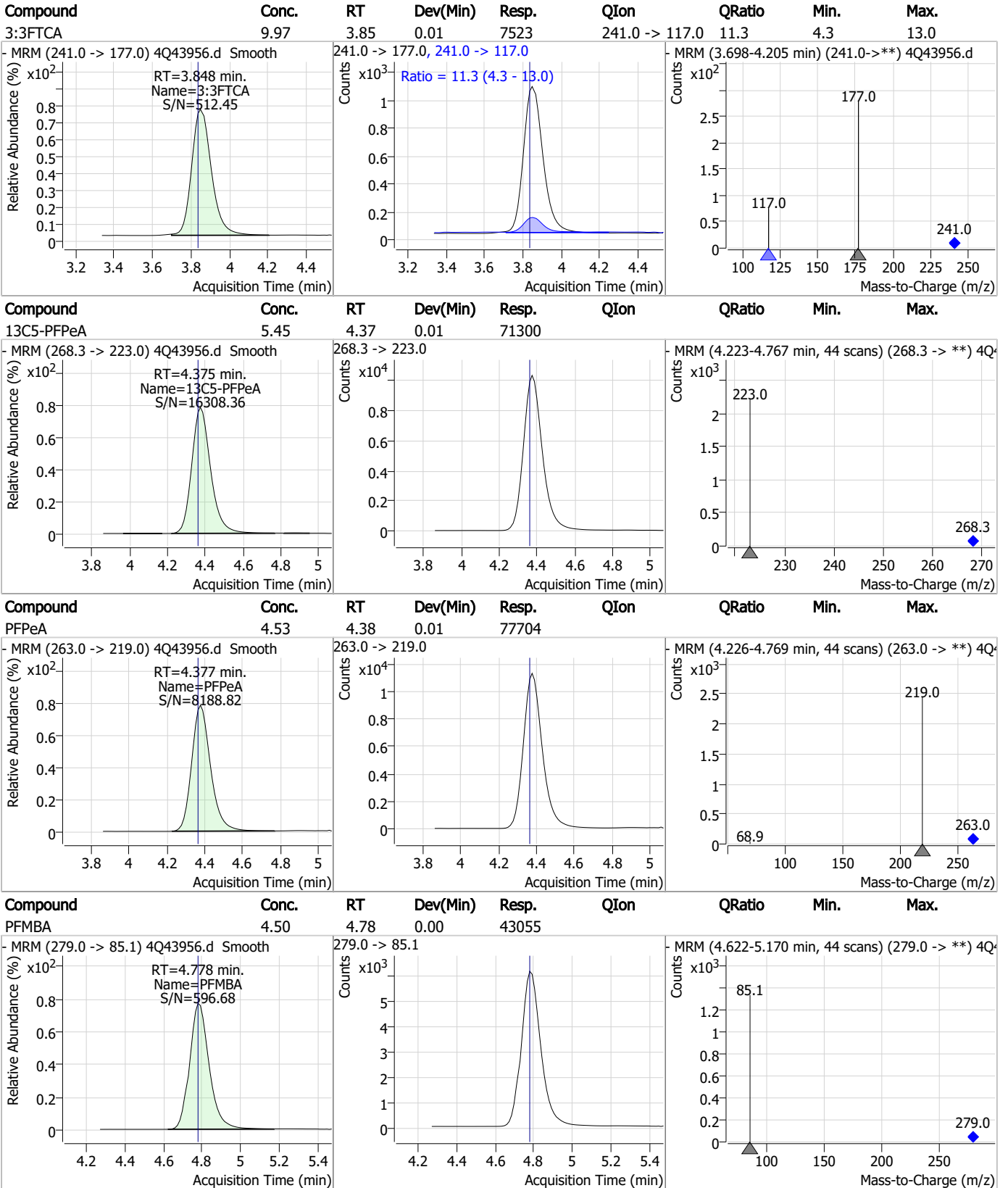
7

Perfluorinated Compounds by LC/MS/MS



7.3.3
7

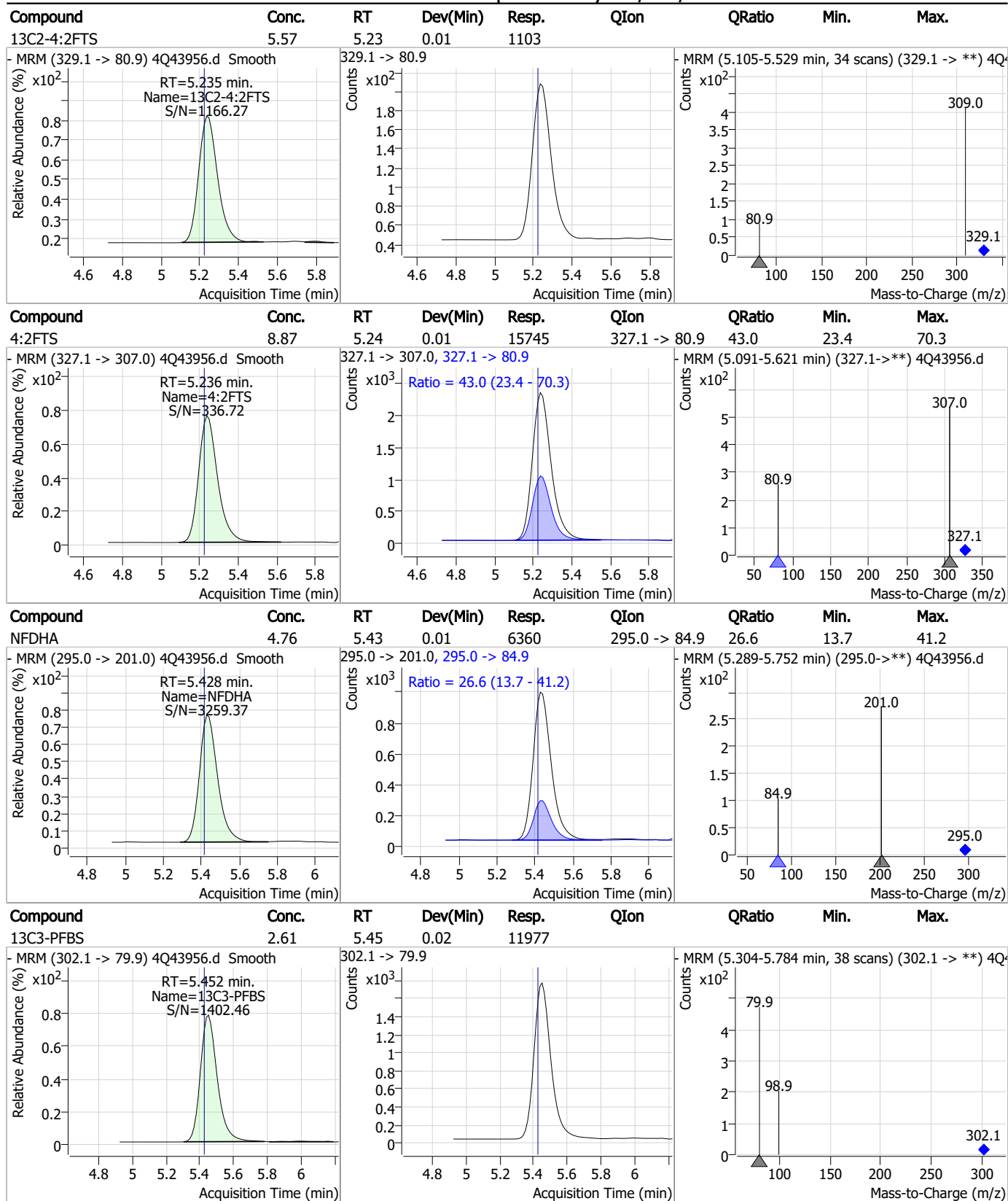
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

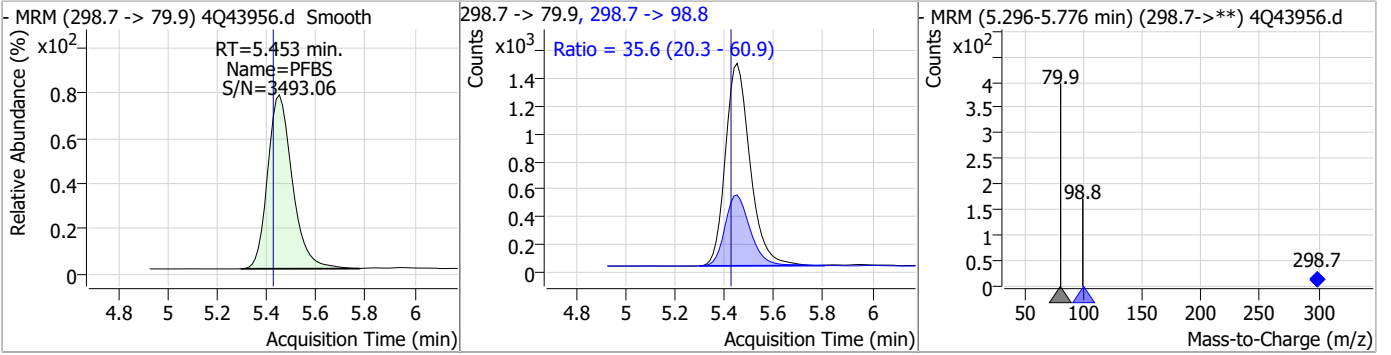
Perfluorinated Compounds by LC/MS/MS



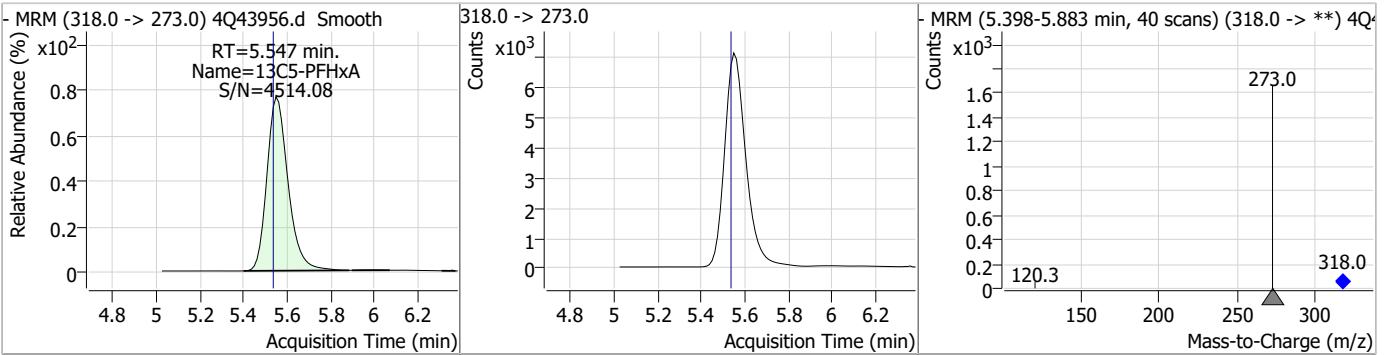
7.3.3
7

Perfluorinated Compounds by LC/MS/MS

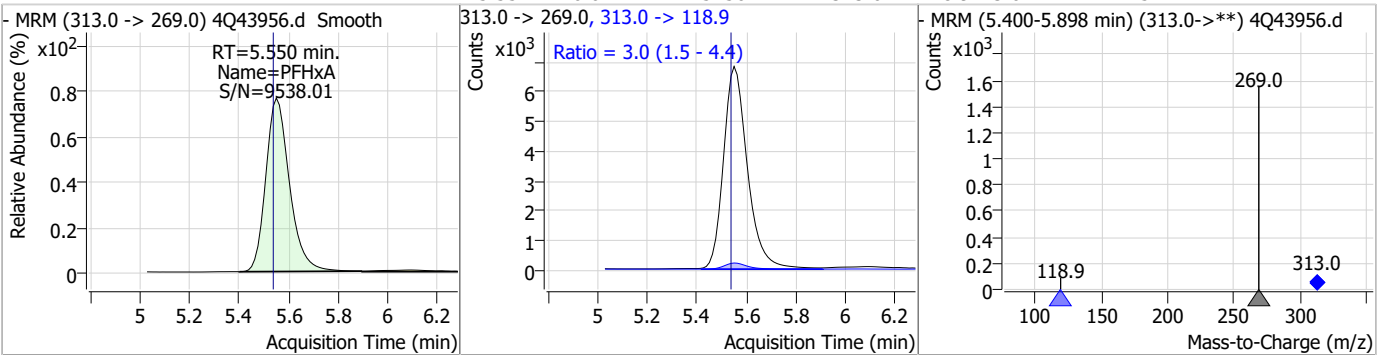
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.07	5.45	0.02	10162	298.7 -> 98.8	35.6	20.3	60.9



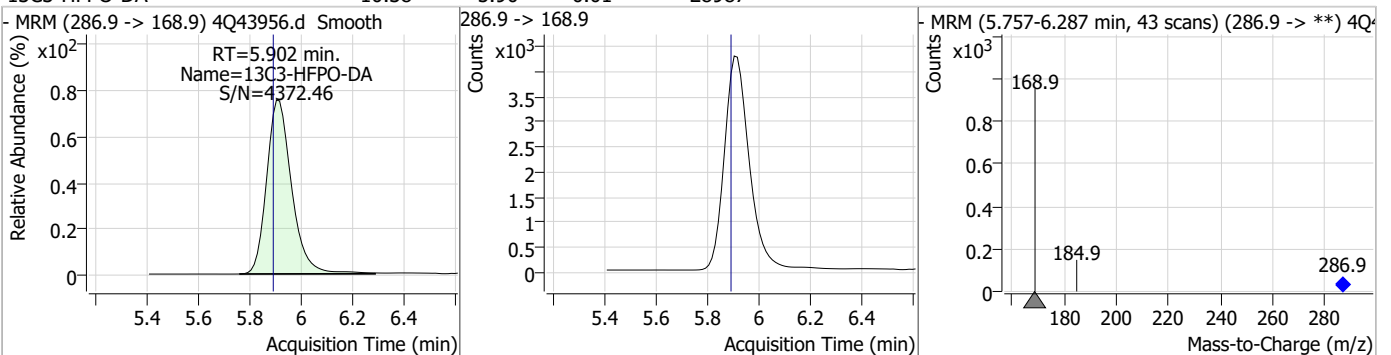
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.55	0.01	47740	318.0 -> 273.0	3.0	1.5	4.4



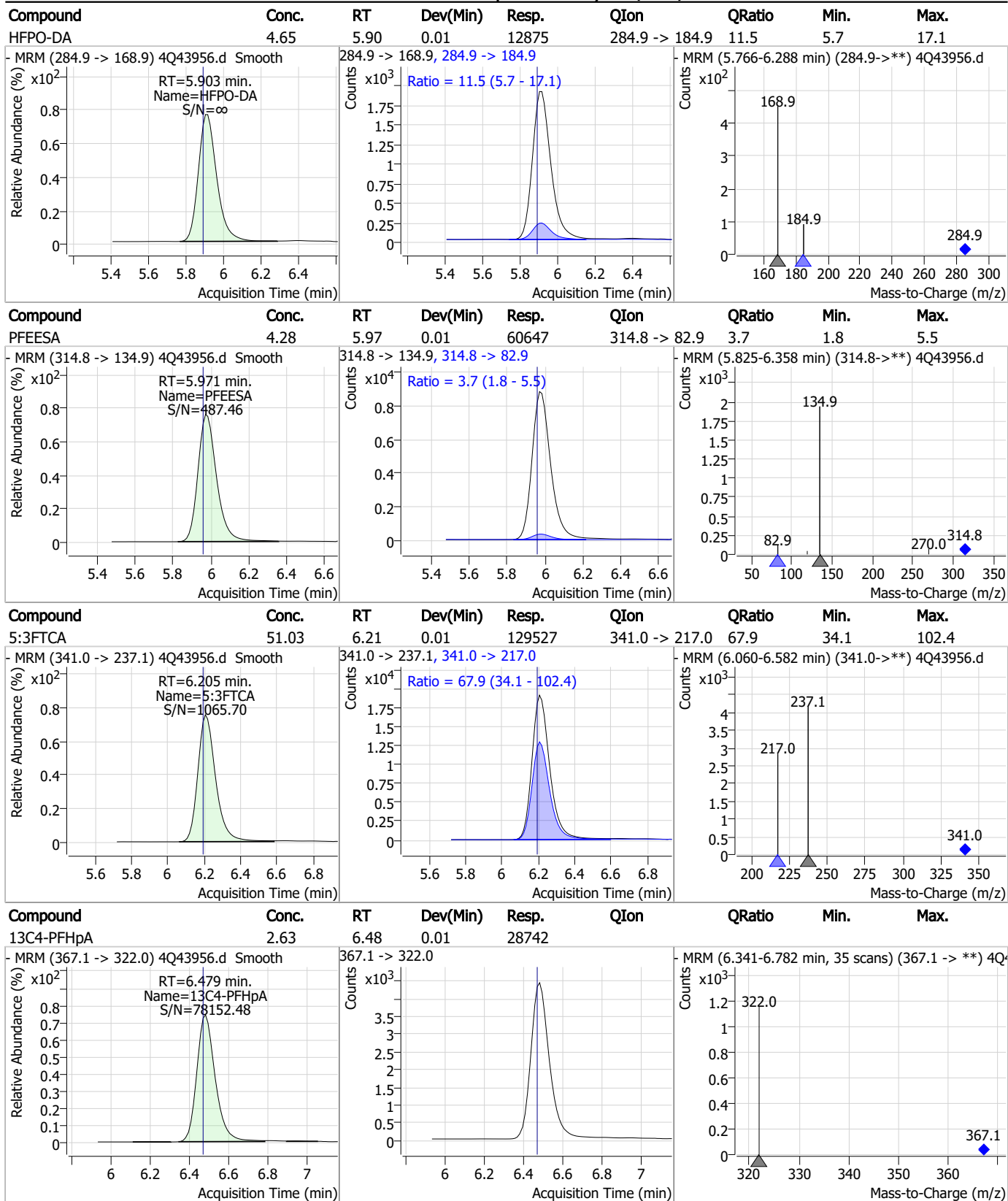
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.41	5.55	0.01	45156	313.0 -> 118.9	3.0	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.38	5.90	0.01	28987	286.9 -> 168.9	3.0	1.5	4.4

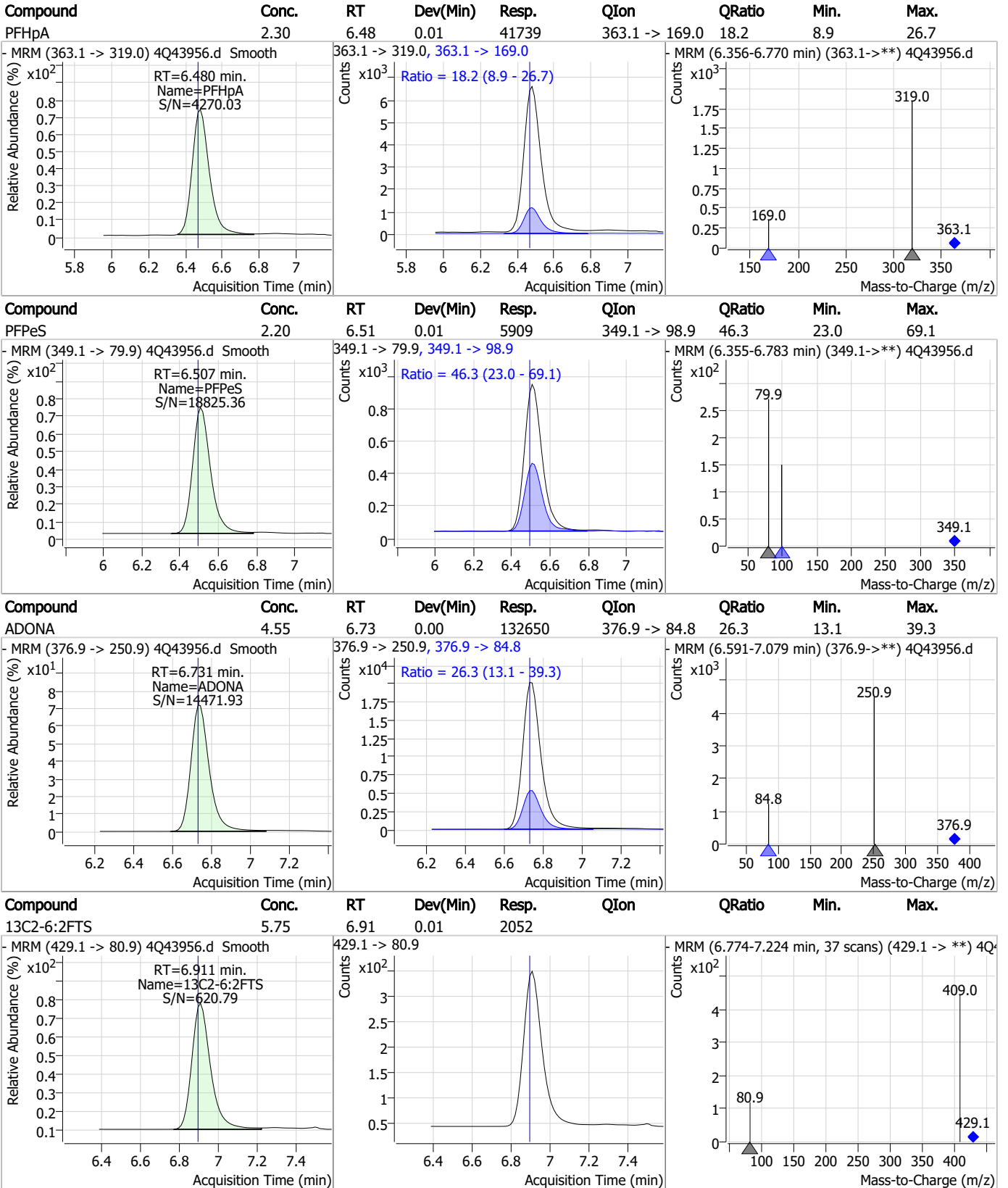


Perfluorinated Compounds by LC/MS/MS



7.3.3
7

Perfluorinated Compounds by LC/MS/MS

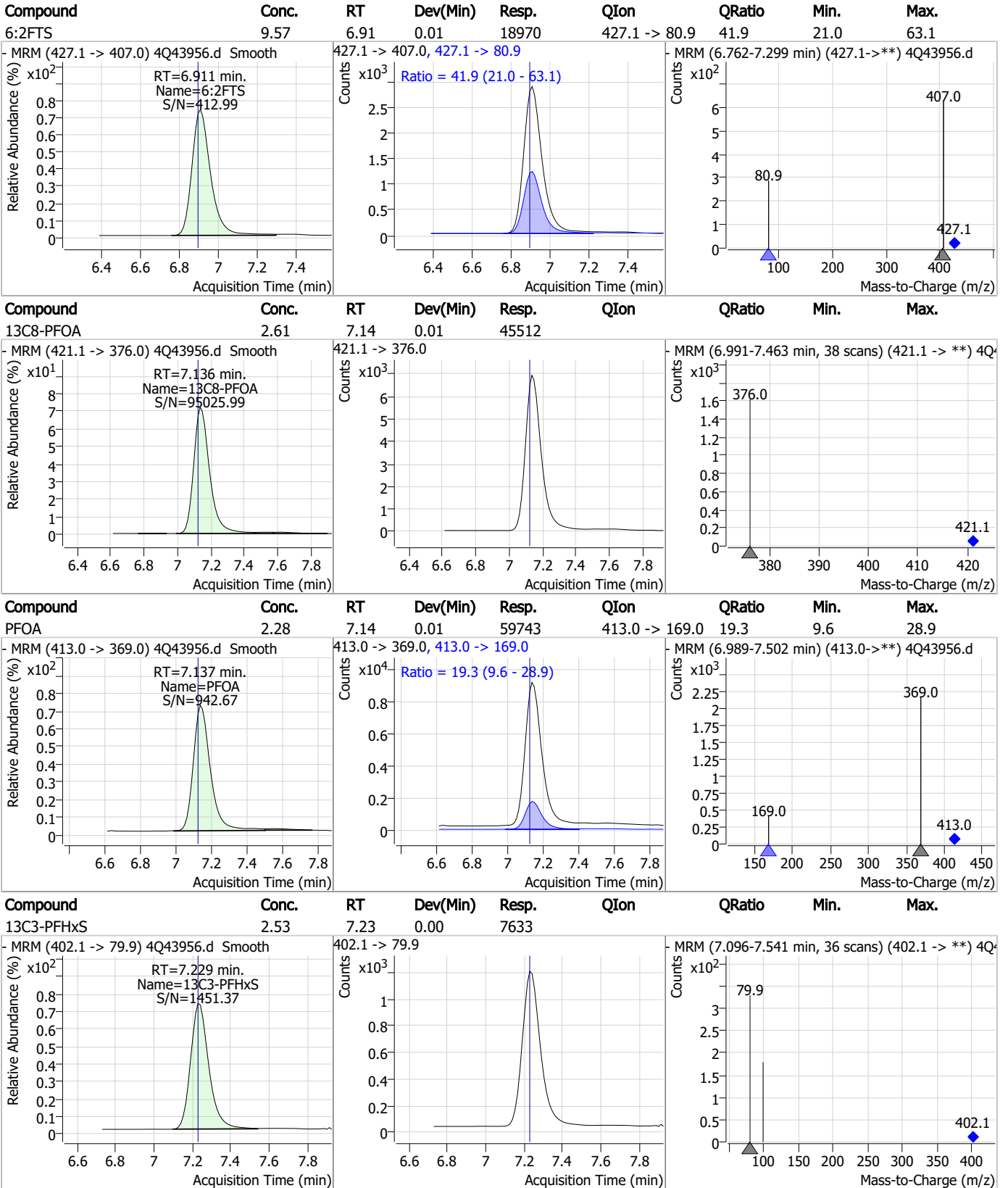


7.3.3

7



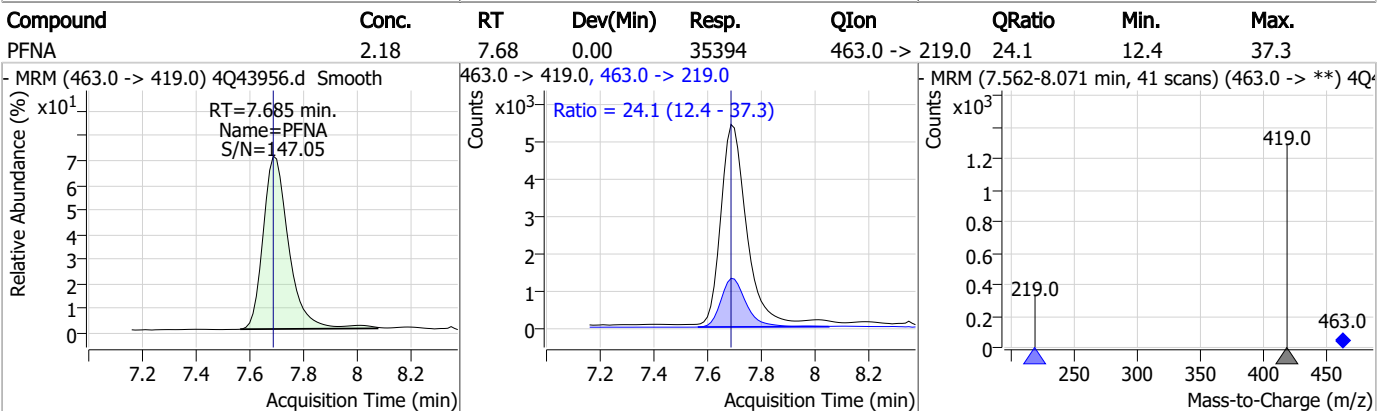
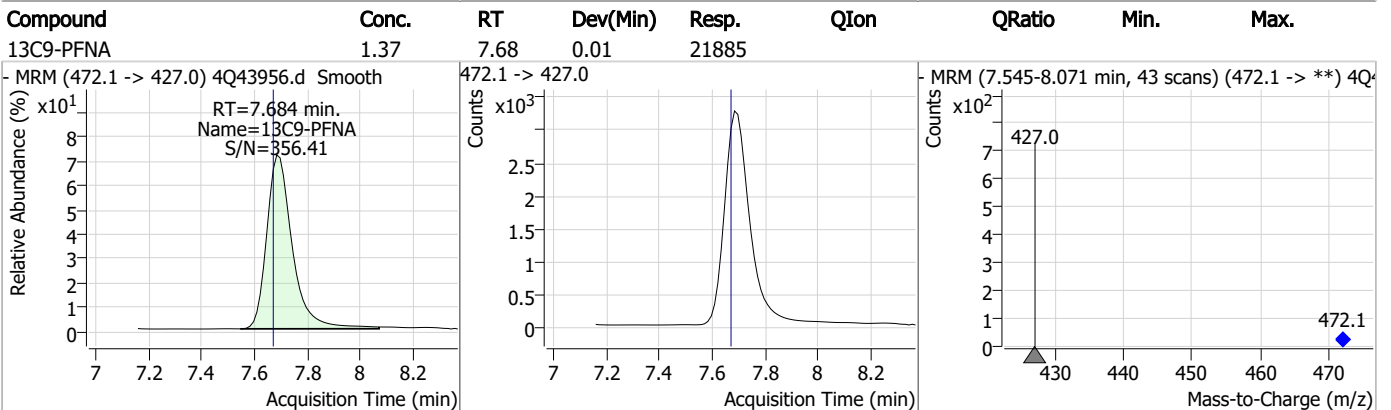
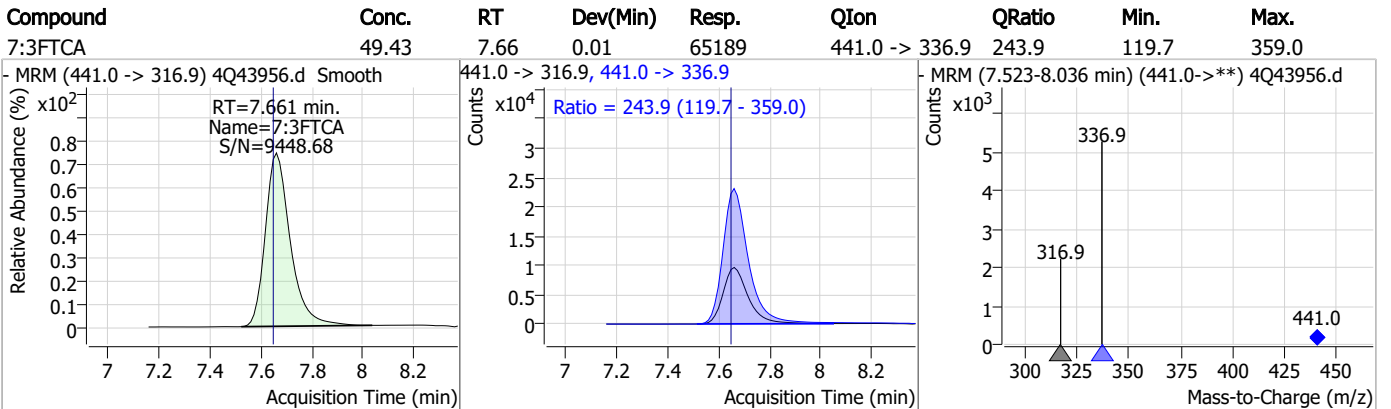
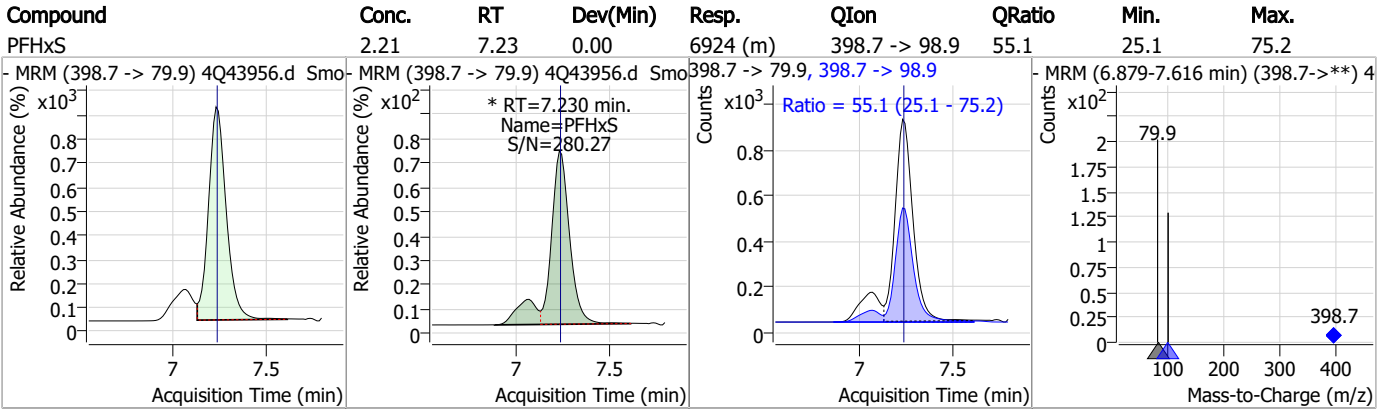
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

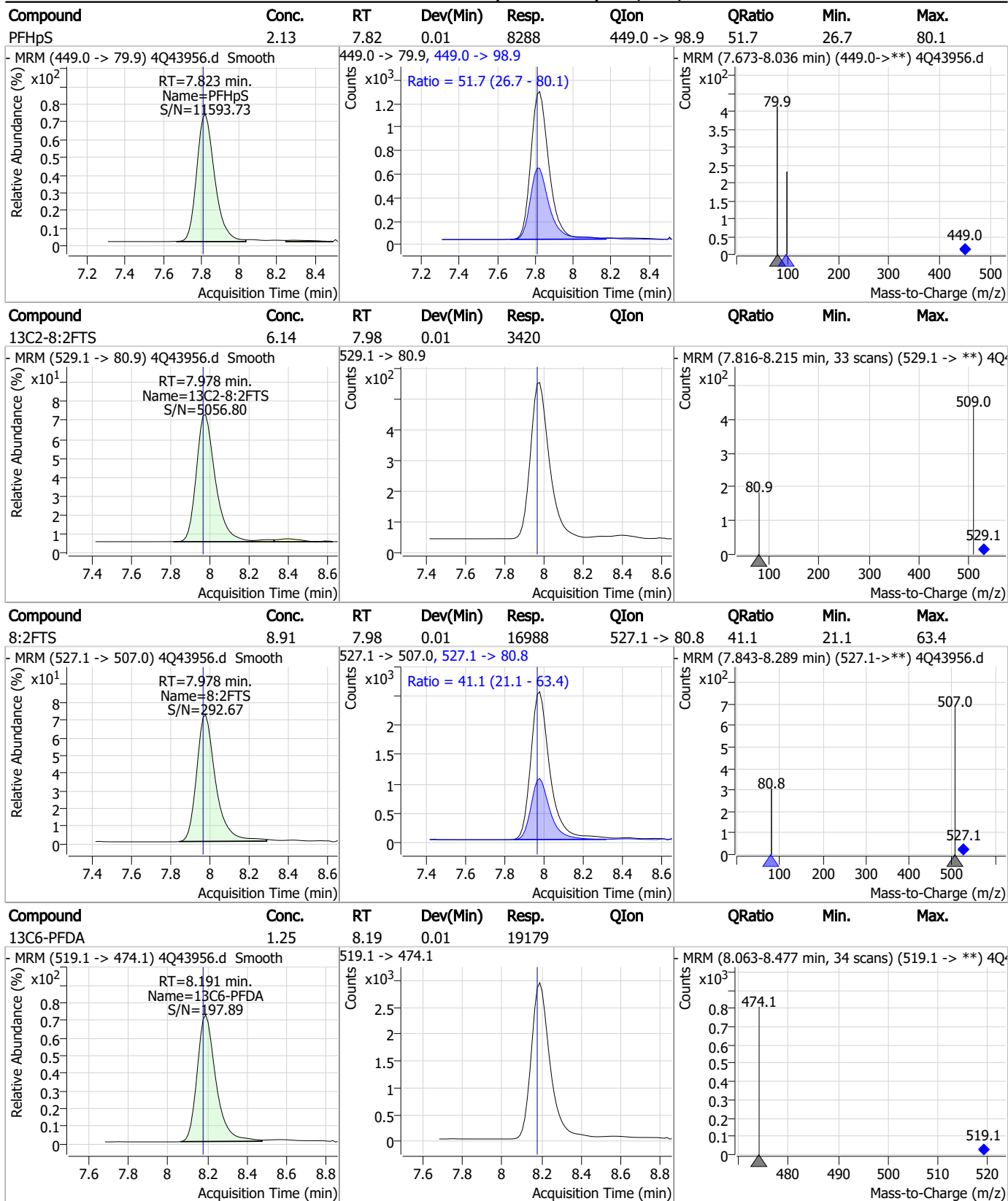
Perfluorinated Compounds by LC/MS/MS



7.3.3

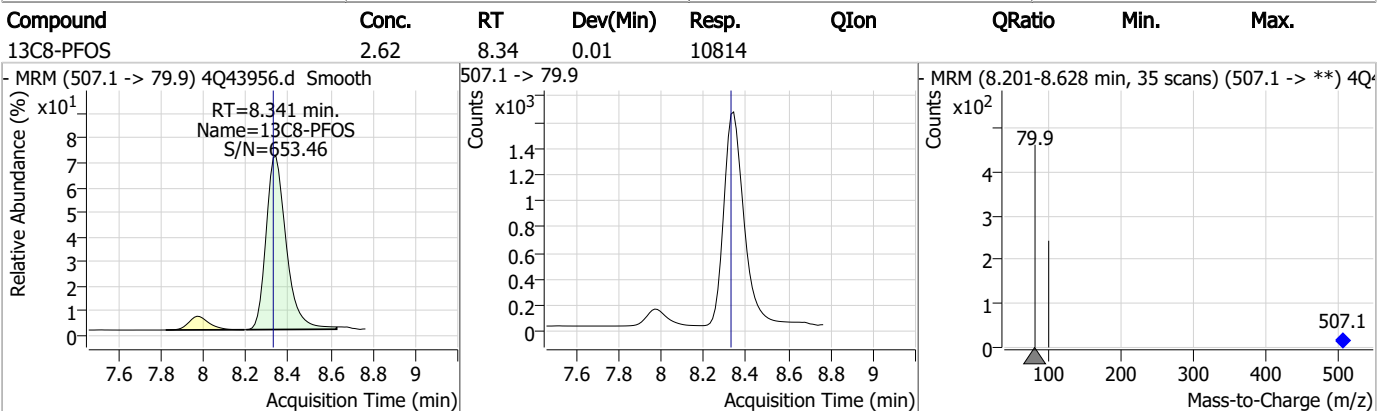
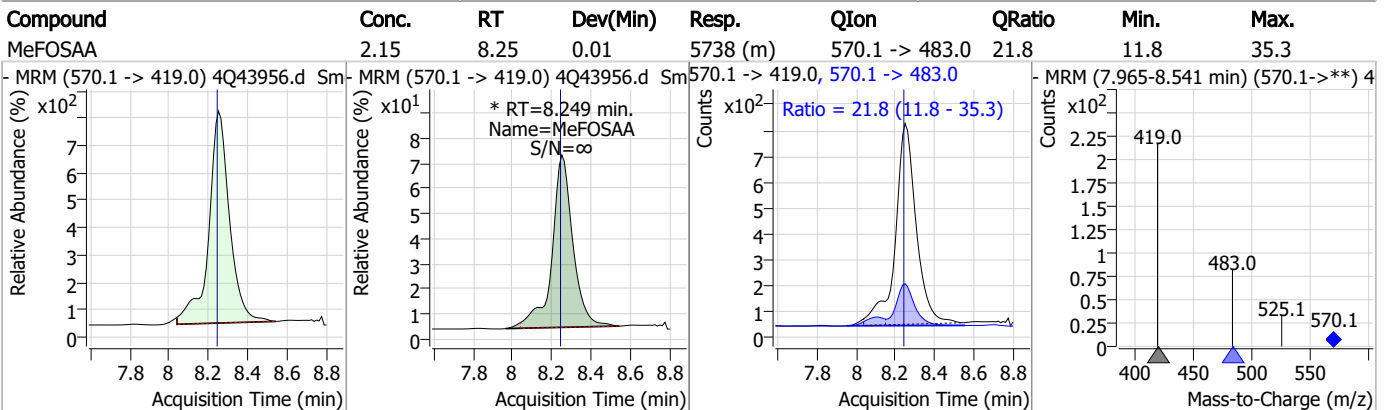
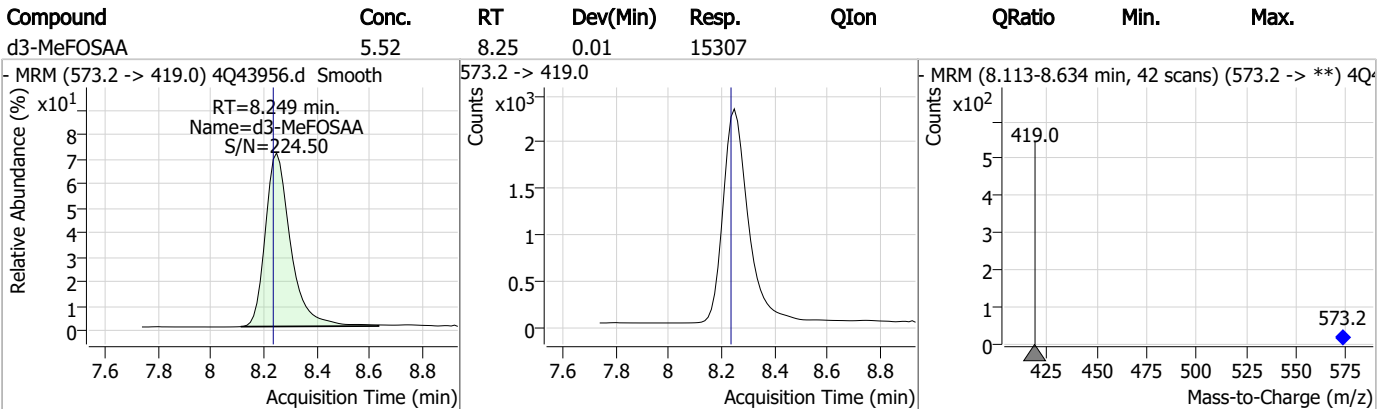
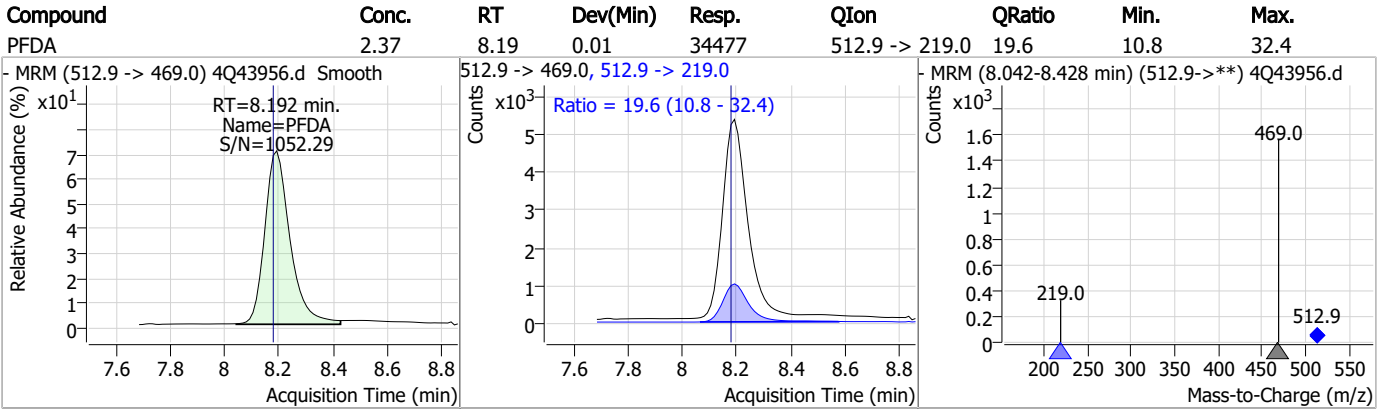
7

Perfluorinated Compounds by LC/MS/MS



7.3.3
7

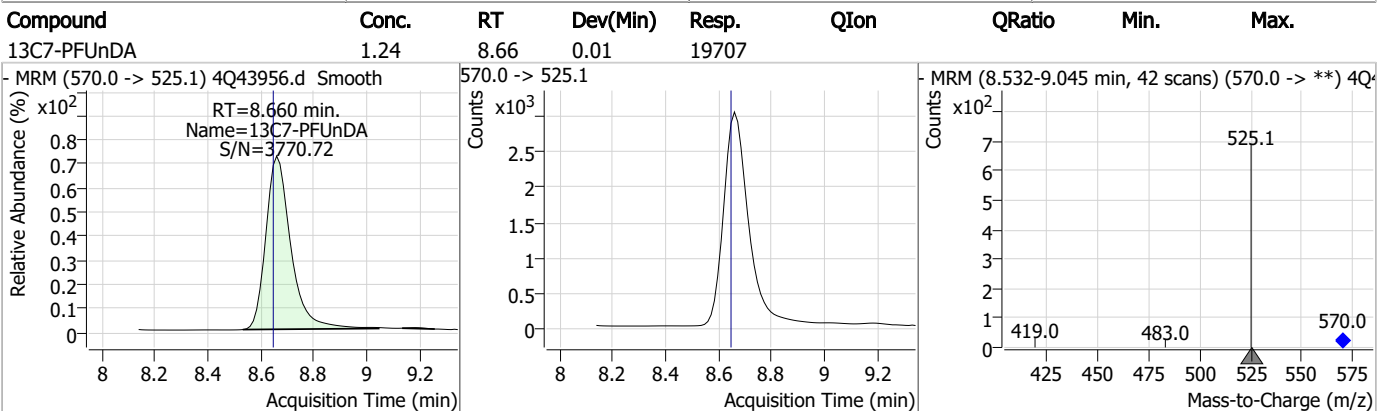
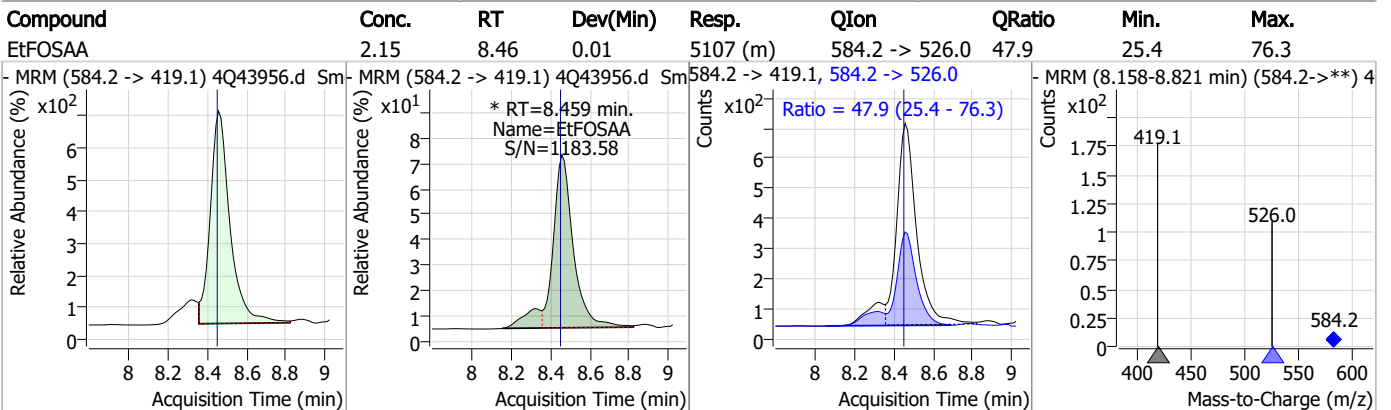
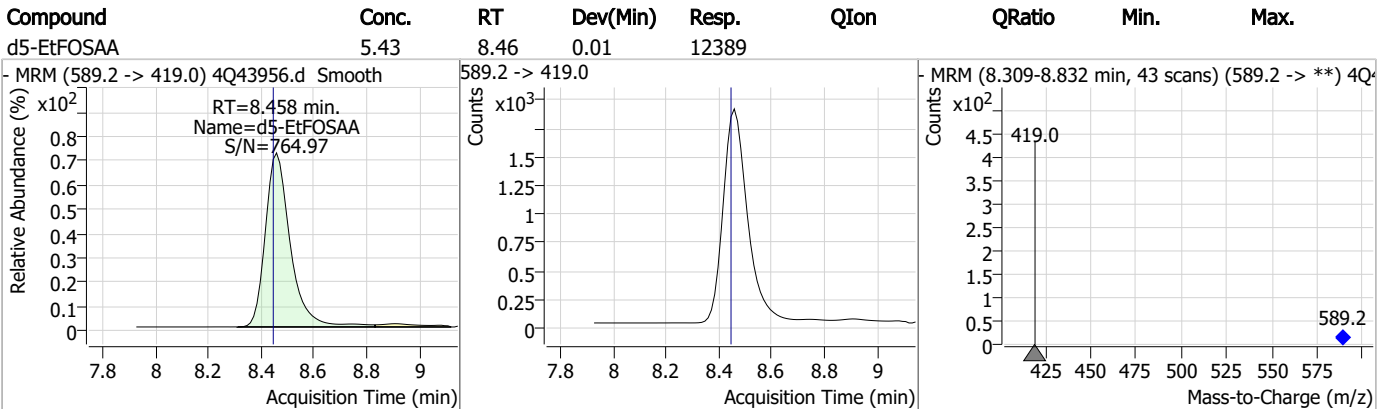
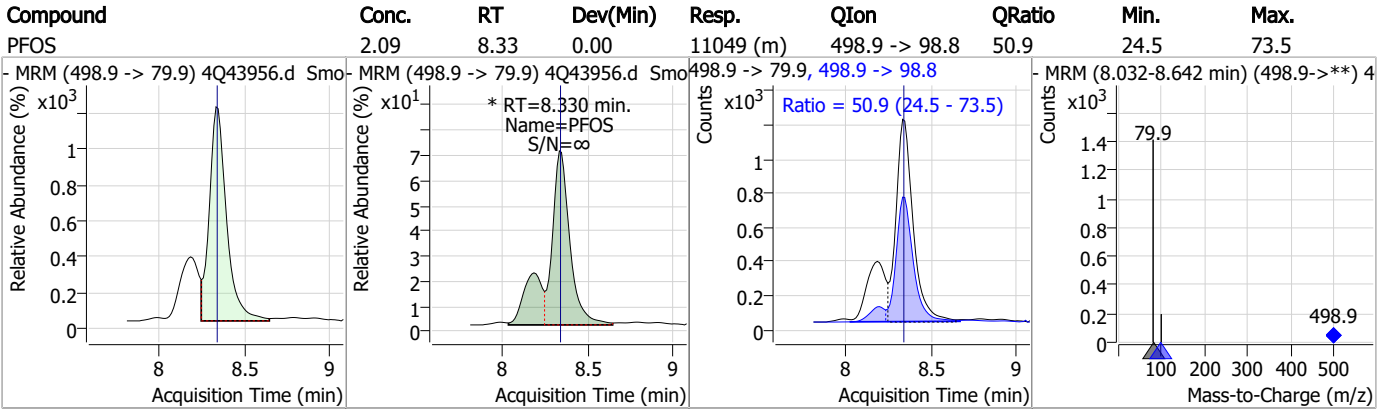
Perfluorinated Compounds by LC/MS/MS



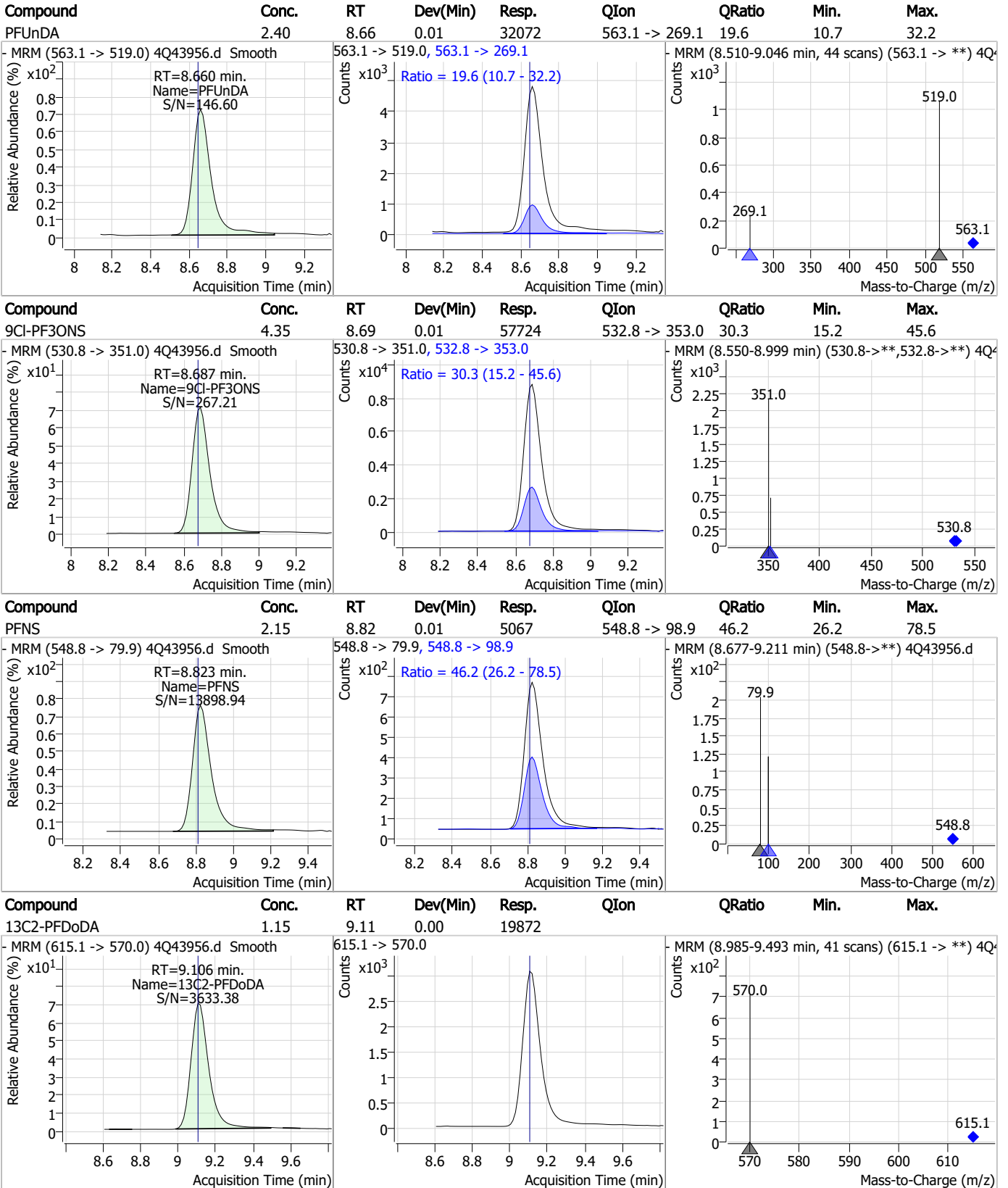
7.3.3

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

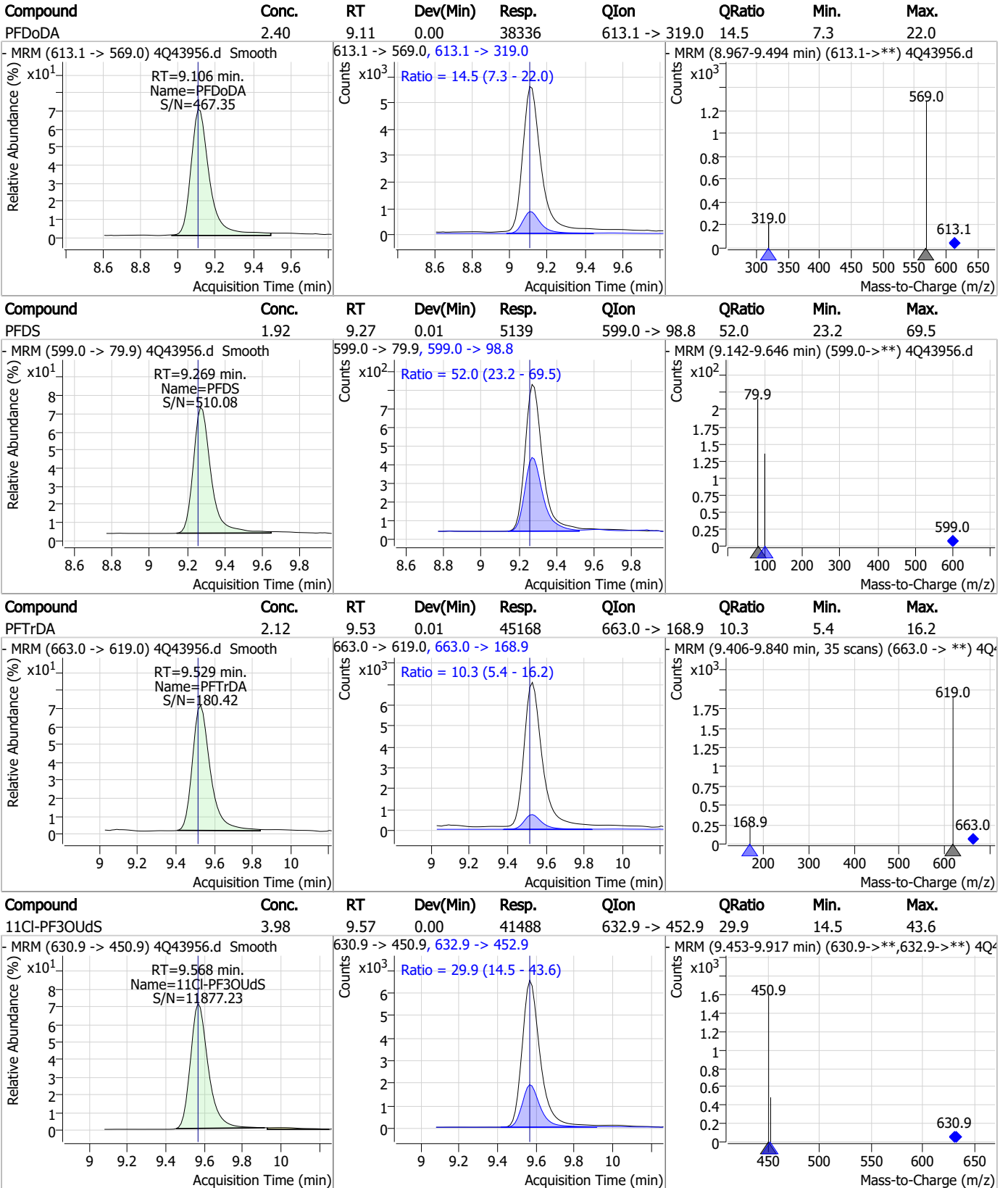


7.3.3

7



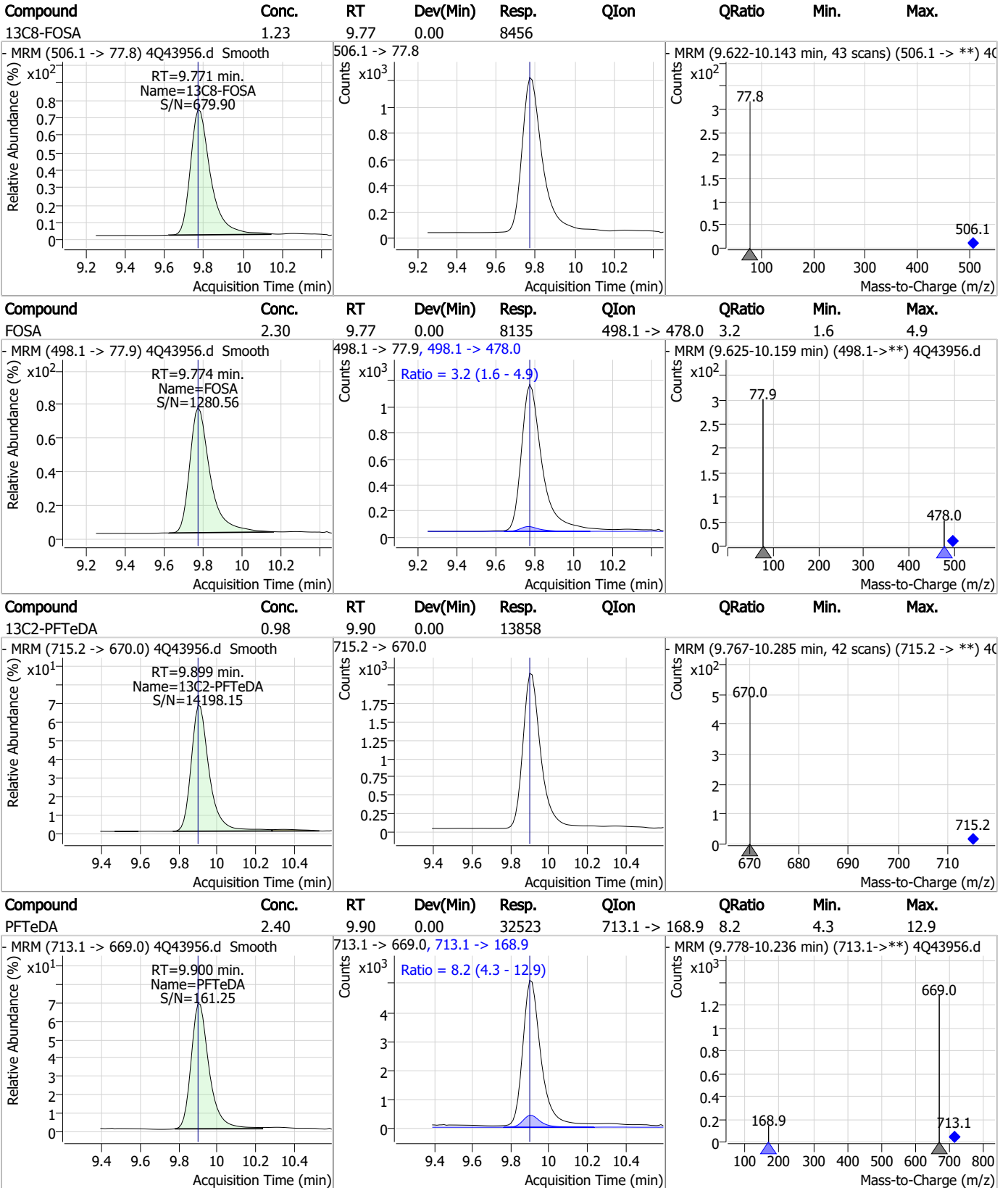
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

Perfluorinated Compounds by LC/MS/MS

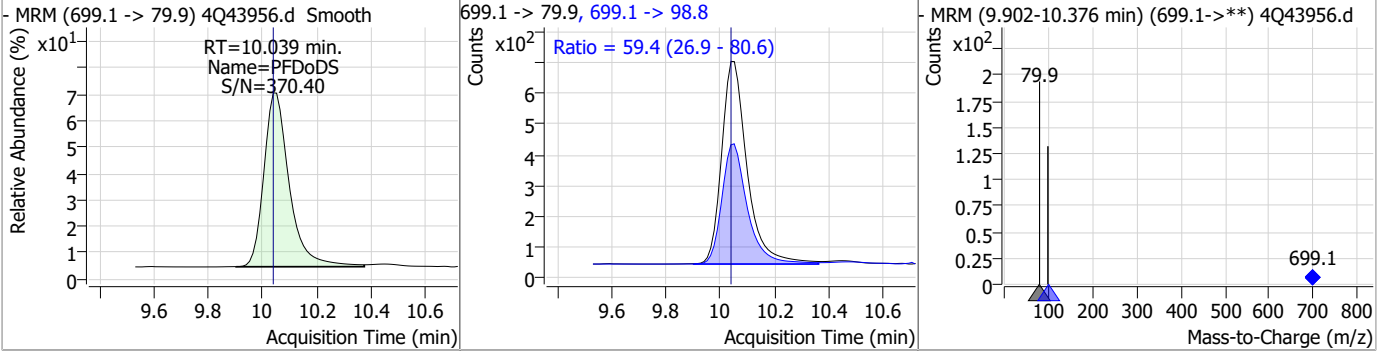


7.3.3

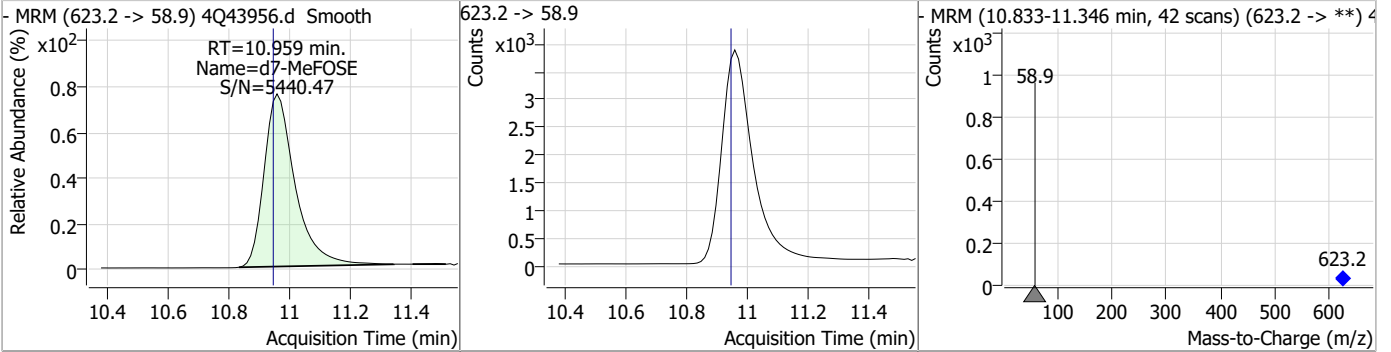
7

Perfluorinated Compounds by LC/MS/MS

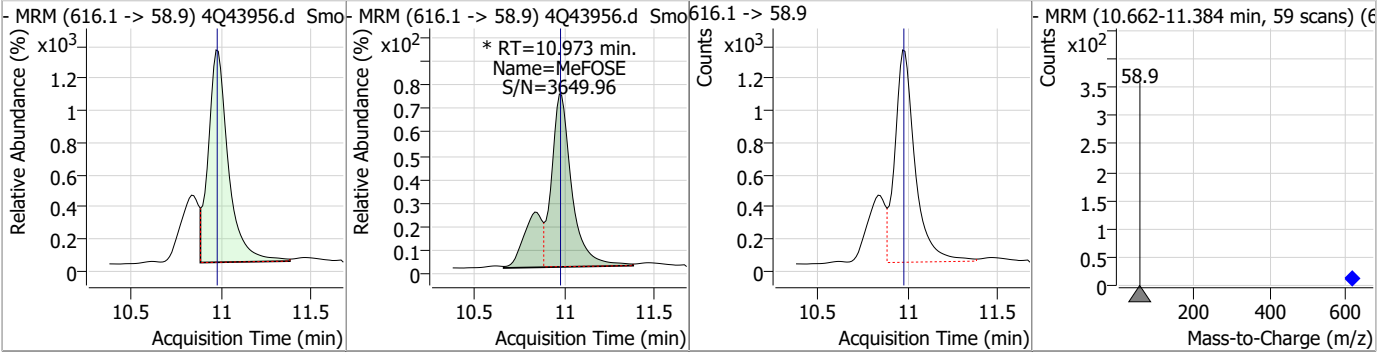
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	1.80	10.04	0.00	4307	699.1 -> 98.8	59.4	26.9	80.6



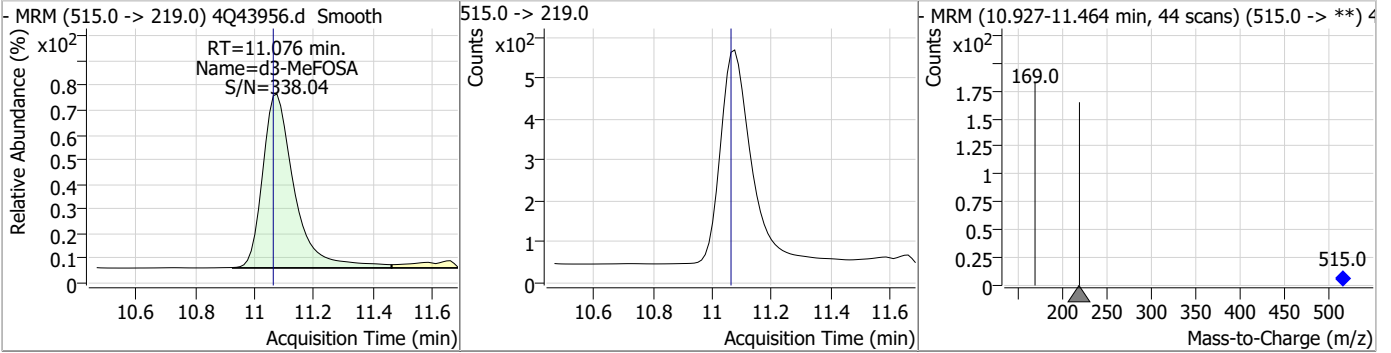
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	7.98	10.96	0.01	27259				



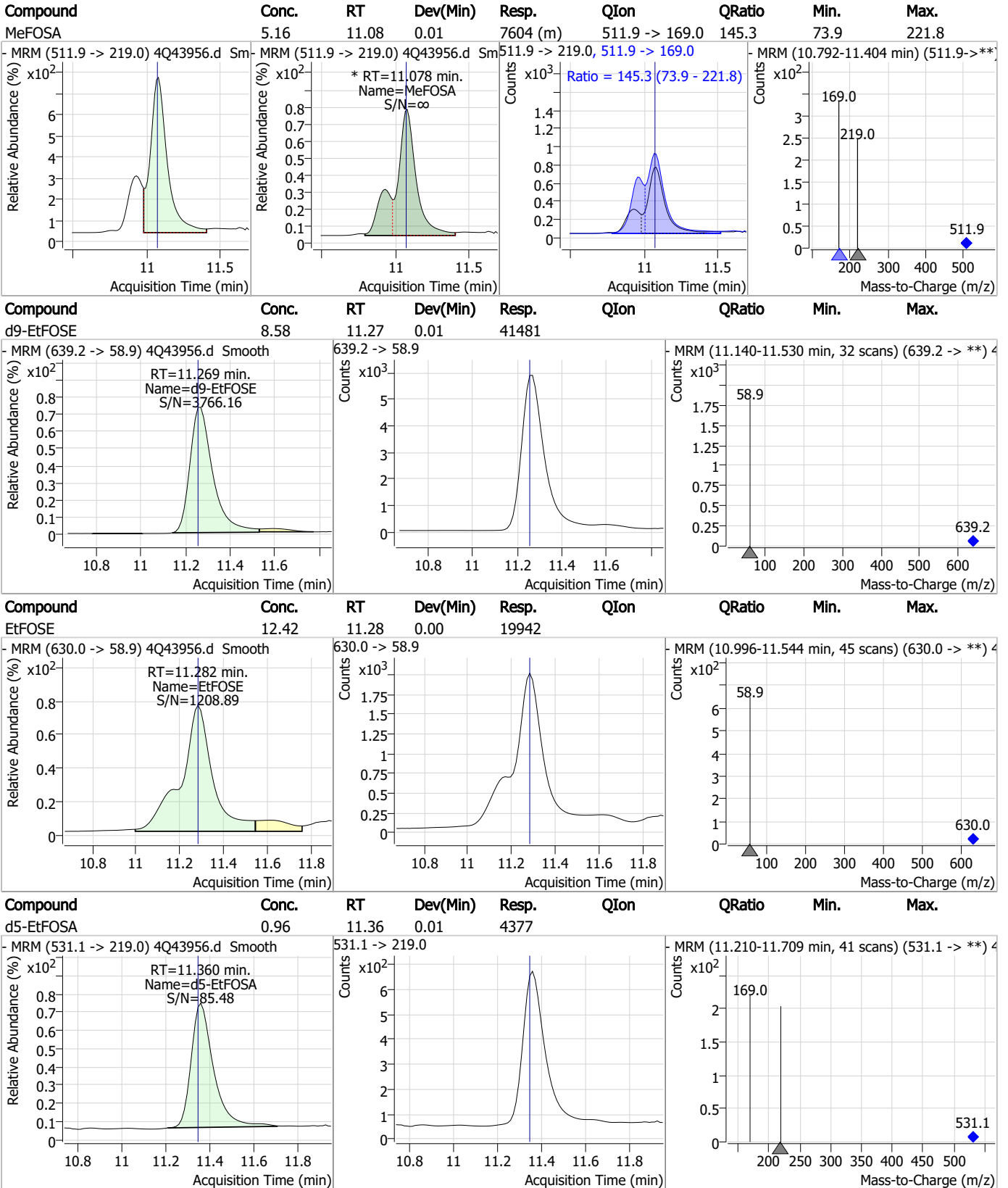
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.95	10.97	0.00	13382 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	0.91	11.08	0.01	3911				



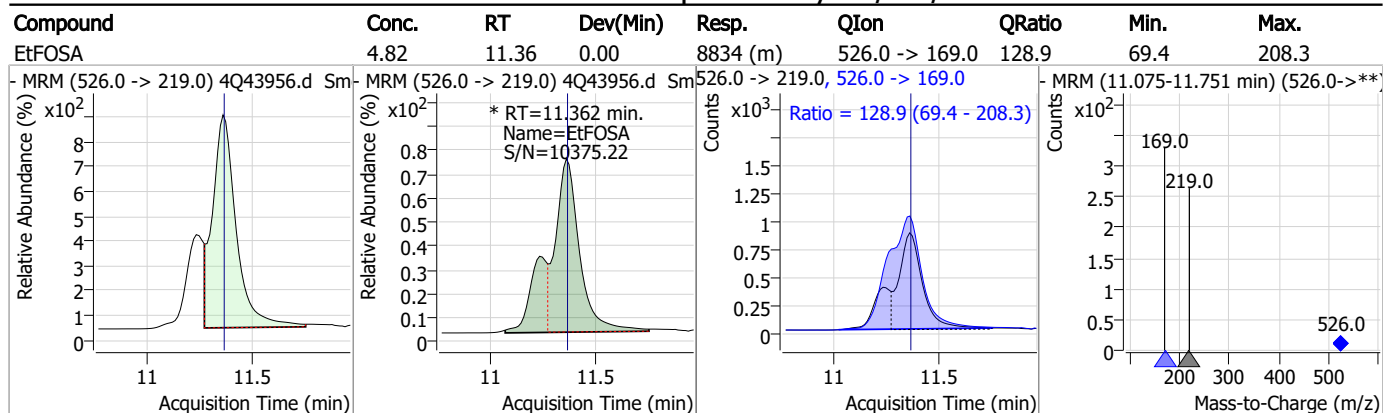
Perfluorinated Compounds by LC/MS/MS



7.3.3

7

Perfluorinated Compounds by LC/MS/MS



7.3.3
7

Manual Integration Approval Summary

Sample Number: OP96698-BS Method: EPA DRAFT 1633
Lab FileID: 4Q43956.D Analyst approved: 05/05/23 07:50 Natasha Gumtie
Injection Time: 05/04/23 13:16 Supervisor approved: 05/05/23 16:38 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.3.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43957.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 1:30:09 PM
 Sample Name : op96698-llbs:3
 Vial : P2-A2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96698,S4Q635,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	101931	10.00 µg/L	0.000
M5-PFPeA	4.375	268.3 -> 223.0	51629	5.00 µg/L	0.012
M5-PFHxA	5.547	318.0 -> 273.0	35204	2.50 µg/L	0.012
M4-PFHpA	6.479	367.1 -> 322.0	21098	2.50 µg/L	0.012
M8-PFOA	7.136	421.1 -> 376.0	32688	2.50 µg/L	0.012
M9-PFNA	7.670	472.1 -> 427.0	14917	1.25 µg/L	0.000
M6-PFDA	8.178	519.1 -> 474.1	13512	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	14296	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	14147	1.25 µg/L	-0.012
M2-PFTeDA	9.886	715.2 -> 670.0	9937	1.25 µg/L	-0.012
M8-FOSA	9.758	506.1 -> 77.8	4512	2.50 µg/L	-0.012
M3-PFBS	5.452	302.1 -> 79.9	9600	2.50 µg/L	0.025
M3-PFHxS	7.229	402.1 -> 79.9	6188	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	8715	2.50 µg/L	0.000
M2-4:2FTS	5.235	329.1 -> 80.9	820	5.00 µg/L	0.012
M2-6:2FTS	6.911	429.1 -> 80.9	1388	5.00 µg/L	0.012
M2-8:2FTS	7.966	529.1 -> 80.9	2586	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	9901	5.00 µg/L	0.000
M3-HFPO-DA	5.902	286.9 -> 168.9	20267	10.00 µg/L	0.012
M5-EtFOSAA	8.446	589.2 -> 419.0	8178	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	14588	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	23463	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	2588	2.50 µg/L	0.000
M3-MeFOSA	11.051	515.0 -> 219.0	2126	2.50 µg/L	-0.012
13C4-PFOS	8.330	502.8 -> 79.9	11246	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	68720	5.00 µg/L	-0.013
18O2-PFHxS	7.228	403.0 -> 83.9	4786	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	51879	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	18374	1.25 µg/L	0.000
13C5-PFNA	7.671	468.0 -> 423.0	24102	1.25 µg/L	-0.013
13C2-PFHxA	5.548	315.1 -> 270.0	43151	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.235	329.1 -> 80.9	820	4.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 84.3%		
13C2-6:2FTS	6.911	429.1 -> 80.9	1388	3.96 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 79.2%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2586	4.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.5%		
13C2-PFDoDA	9.093	615.1 -> 570.0	14147	0.79 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 63.6%		
13C2-PFTeDA	9.886	715.2 -> 670.0	9937	0.69 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 54.9%		
13C3-PFBS	5.452	302.1 -> 79.9	9600	2.13 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.1%		
13C3-PFHxS	7.229	402.1 -> 79.9	6188	2.09 µg/L	0.000

7.34
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 = 83.4%	
13C4-PFBA	2.924	216.8 -> 171.9	101931	7.88 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 78.8%	
13C4-PFHpA	6.479	367.1 -> 322.0	21098	1.90 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.0%	
13C5-PFHxA	5.547	318.0 -> 273.0	35204	1.85 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 74.1%	
13C5-PFPeA	4.375	268.3 -> 223.0	51629	3.88 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 77.7%	
13C6-PFDA	8.178	519.1 -> 474.1	13512	0.86 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 68.7%	
13C7-PFUnDA	8.647	570.0 -> 525.1	14296	0.87 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 69.8%	
13C8-FOSA	9.758	506.1 -> 77.8	4512	0.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 25.6%	
13C8-PFOA	7.136	421.1 -> 376.0	32688	1.92 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 76.8%	
13C8-PFOS	8.329	507.1 -> 79.9	8715	2.06 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 82.3%	
13C9-PFNA	7.670	472.1 -> 427.0	14917	0.91 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 72.8%	
d3-MeFOSAA	8.236	573.2 -> 419.0	9901	3.49 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 69.8%	
13C3-HFPO-DA	5.902	286.9 -> 168.9	20267	7.14 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 71.4%	
d3-MeFOSA	11.051	515.0 -> 219.0	2126	0.48 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 19.3%	
d5-EtFOSAA	8.446	589.2 -> 419.0	8178	3.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 70.0%	
d7-MeFOSE	10.947	623.2 -> 58.9	14588	4.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 16.7%	
d9-EtFOSE	11.256	639.2 -> 58.9	23463	4.74 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 18.9%	
d5-EtFOSA	11.348	531.1 -> 219.0	2588	0.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 22.1%	
Target Compounds					QValue
4:2FTS	5.236	327.1 -> 307.0 327.1 -> 80.9	3216 1441	2.44 µg/L	97
6:2FTS	6.911	427.1 -> 407.0 427.1 -> 80.9	3993 1647	2.98 µg/L	99
8:2FTS	7.966	527.1 -> 507.0 527.1 -> 80.8	4027 1674	2.79 µg/L	99
EtFOSAA	8.446	584.2 -> 419.1 584.2 -> 526.0	1087 579	0.69 µg/L	m 97
FOSA	9.761	498.1 -> 77.9 498.1 -> 478.0	1447 43	0.77 µg/L	99
MeFOSAA	8.237	570.1 -> 419.0 570.1 -> 483.0	1211 145	0.70 µg/L	m 76
PFBA	2.920	212.8 -> 168.9	7203	2.64 µg/L	100
PFBS	5.453	298.7 -> 79.9 298.7 -> 98.8	2418 879	0.61 µg/L	93
PFDA	8.179	512.9 -> 469.0 512.9 -> 219.0	6330 1127	0.62 µg/L	92
PFDODA	9.094	613.1 -> 569.0 613.1 -> 319.0	7446 1084	0.66 µg/L	100
PFDS	9.257	599.0 -> 79.9	1102	0.51 µg/L	89

7.3.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	593			
PFHpA	6.480	363.1 -> 319.0	8706	0.65	µg/L	99
		363.1 -> 169.0	1583			
PFHpS	7.811	449.0 -> 79.9	2217	0.71	µg/L	87
		449.0 -> 98.9	972			
PFHxA	5.550	313.0 -> 269.0	9501	0.69	µg/L	98
		313.0 -> 118.9	327			
PFHxS	7.230	398.7 -> 79.9	1531	0.60	µg/L	m 93
		398.7 -> 98.9	837			
PFNA	7.671	463.0 -> 419.0	7061	0.64	µg/L	97
		463.0 -> 219.0	1649			
PFNS	8.811	548.8 -> 79.9	1022	0.54	µg/L	82
		548.8 -> 98.9	661			
PFOA	7.137	413.0 -> 369.0	12888	0.68	µg/L	98
		413.0 -> 169.0	2590			
PFOS	8.330	498.9 -> 79.9	2675	0.63	µg/L	m 97
		498.9 -> 98.8	1248			
PFPeA	4.377	263.0 -> 219.0	16551	1.33	µg/L	100
PFPeS	6.507	349.1 -> 79.9	1420	0.65	µg/L	97
		349.1 -> 98.9	681			
PFTeDA	9.887	713.1 -> 669.0	6478	0.67	µg/L	97
		713.1 -> 168.9	635			
PFTrDA	9.515	663.0 -> 619.0	9077	0.60	µg/L	98
		663.0 -> 168.9	912			
PFUnDA	8.648	563.1 -> 519.0	6237	0.64	µg/L	93
		563.1 -> 269.1	1147			
11CI-PF3OUdS	9.556	630.9 -> 450.9	9010	1.24	µg/L	91
		632.9 -> 452.9	3072			
9CI-PF3ONS	8.675	530.8 -> 351.0	12639	1.36	µg/L	97
		532.8 -> 353.0	3628			
ADONA	6.731	376.9 -> 250.9	25943	1.27	µg/L	98
		376.9 -> 84.8	7017			
HFPO-DA	5.903	284.9 -> 168.9	2484	1.28	µg/L	94
		284.9 -> 184.9	341			
3:3FTCA	3.836	241.0 -> 177.0	1564	2.86	µg/L	95
		241.0 -> 117.0	161			
5:3FTCA	6.205	341.0 -> 237.1	24590	13.14	µg/L	99
		341.0 -> 217.0	16570			
7:3FTCA	7.649	441.0 -> 316.9	11865	12.20	µg/L	98
		441.0 -> 336.9	28888			
EtFOSA	11.362	526.0 -> 219.0	1474	1.36	µg/L	m 97
		526.0 -> 169.0	2092			
EtFOSE	11.270	630.0 -> 58.9	3206	3.53	µg/L	m 100
MeFOSA	11.065	511.9 -> 219.0	1146	1.43	µg/L	m 95
		511.9 -> 169.0	1767			
MeFOSE	10.960	616.1 -> 58.9	2005	3.35	µg/L	m 100
PFDoDS	10.027	699.1 -> 79.9	988	0.51	µg/L	85
		699.1 -> 98.8	633			
NFDHA	5.441	295.0 -> 201.0	1235	1.25	µg/L	100
		295.0 -> 84.9	342			
PFMBA	4.791	279.0 -> 85.1	9304	1.34	µg/L	100
PFMPA	3.528	229.0 -> 84.9	8746	1.35	µg/L	100
PFEESA	5.971	314.8 -> 134.9	13517	1.29	µg/L	97
		314.8 -> 82.9	387			

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

7.3.4
7

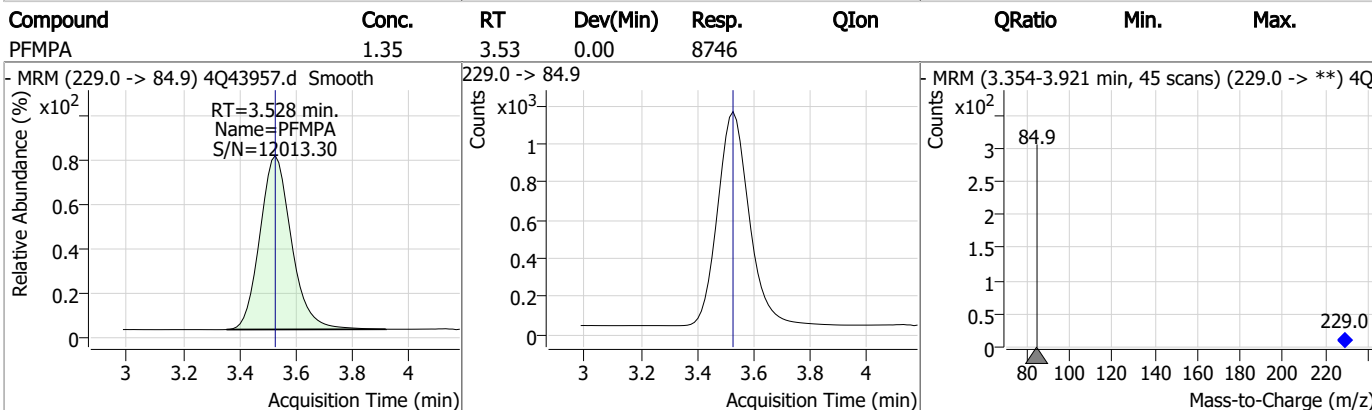
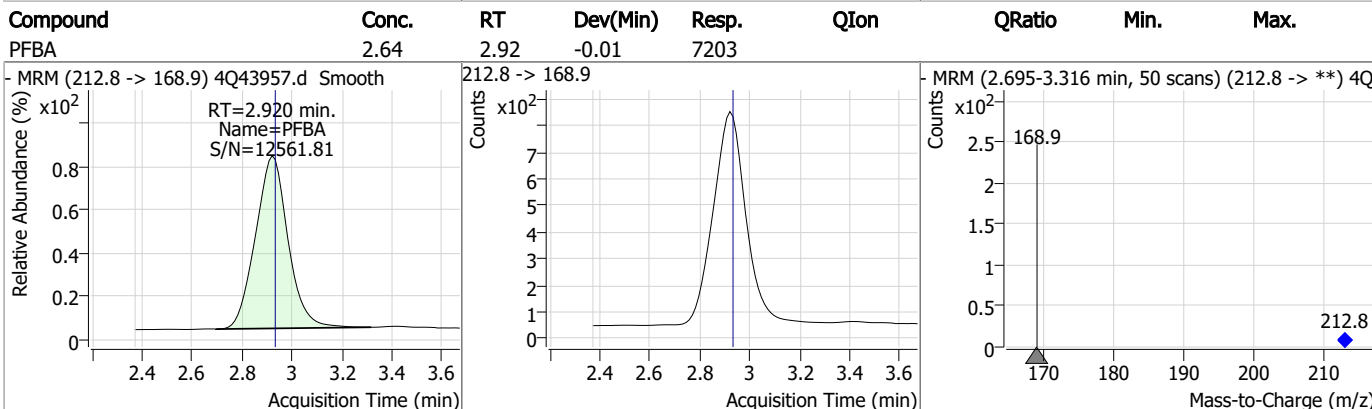
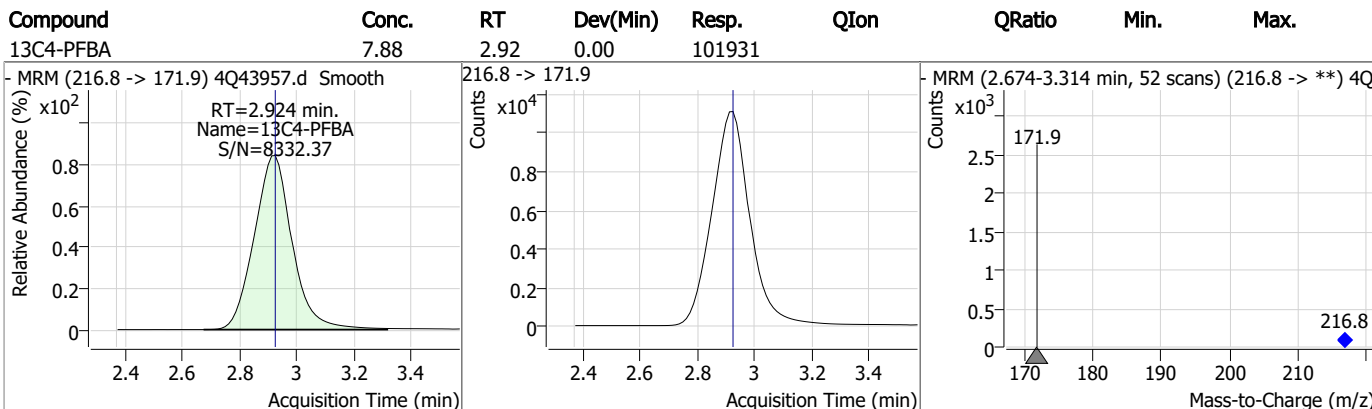
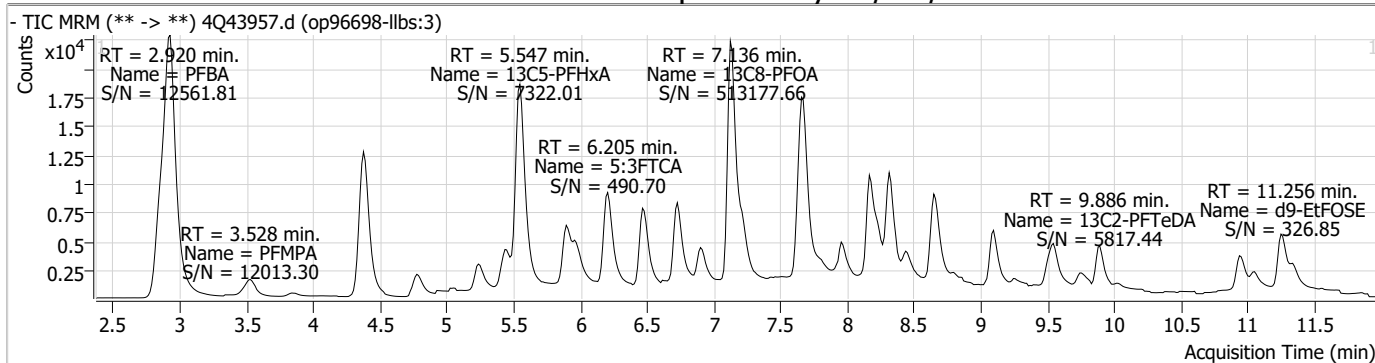
Perfluorinated Compounds by LC/MS/MS

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

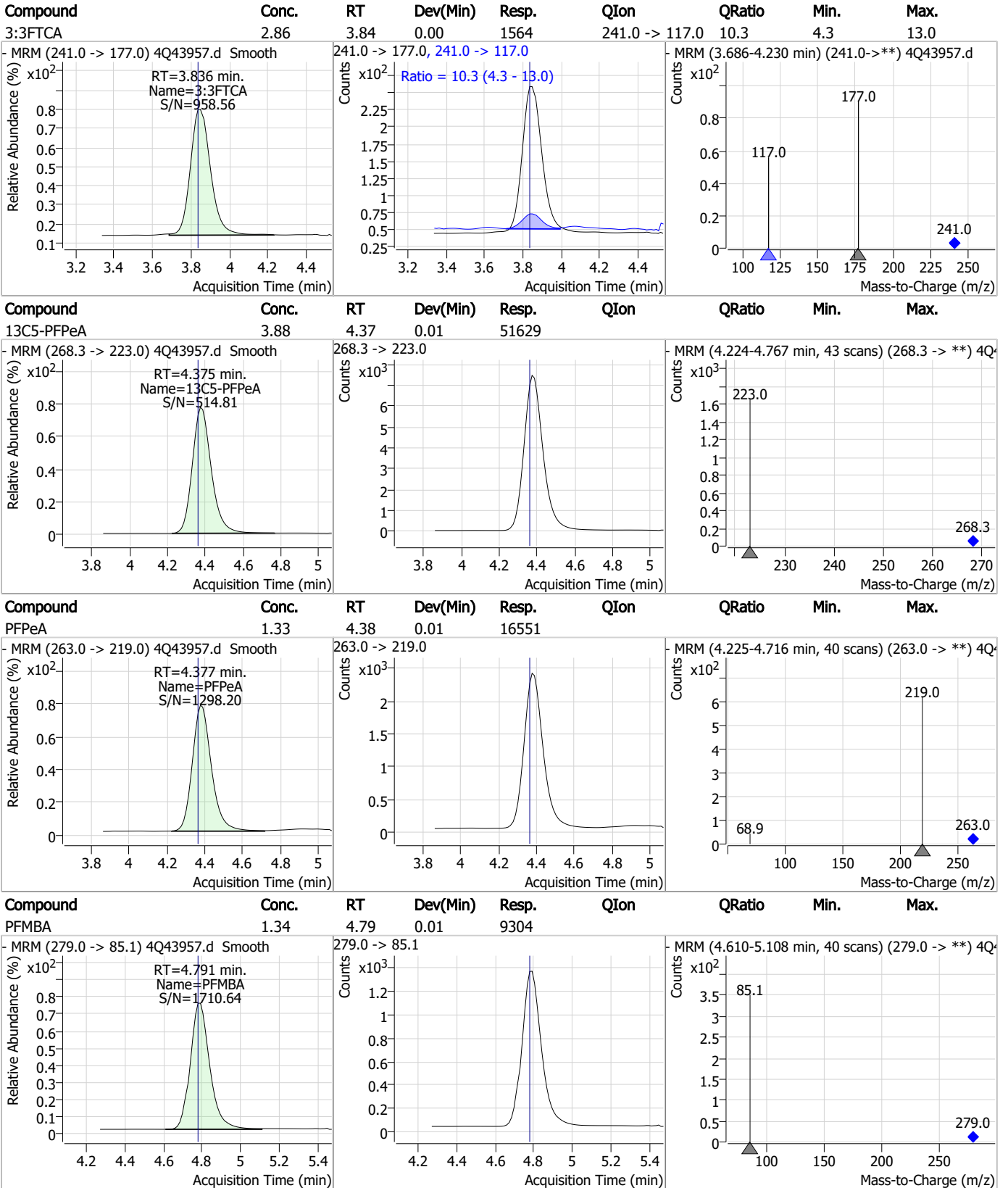
7.3.4

7

Perfluorinated Compounds by LC/MS/MS



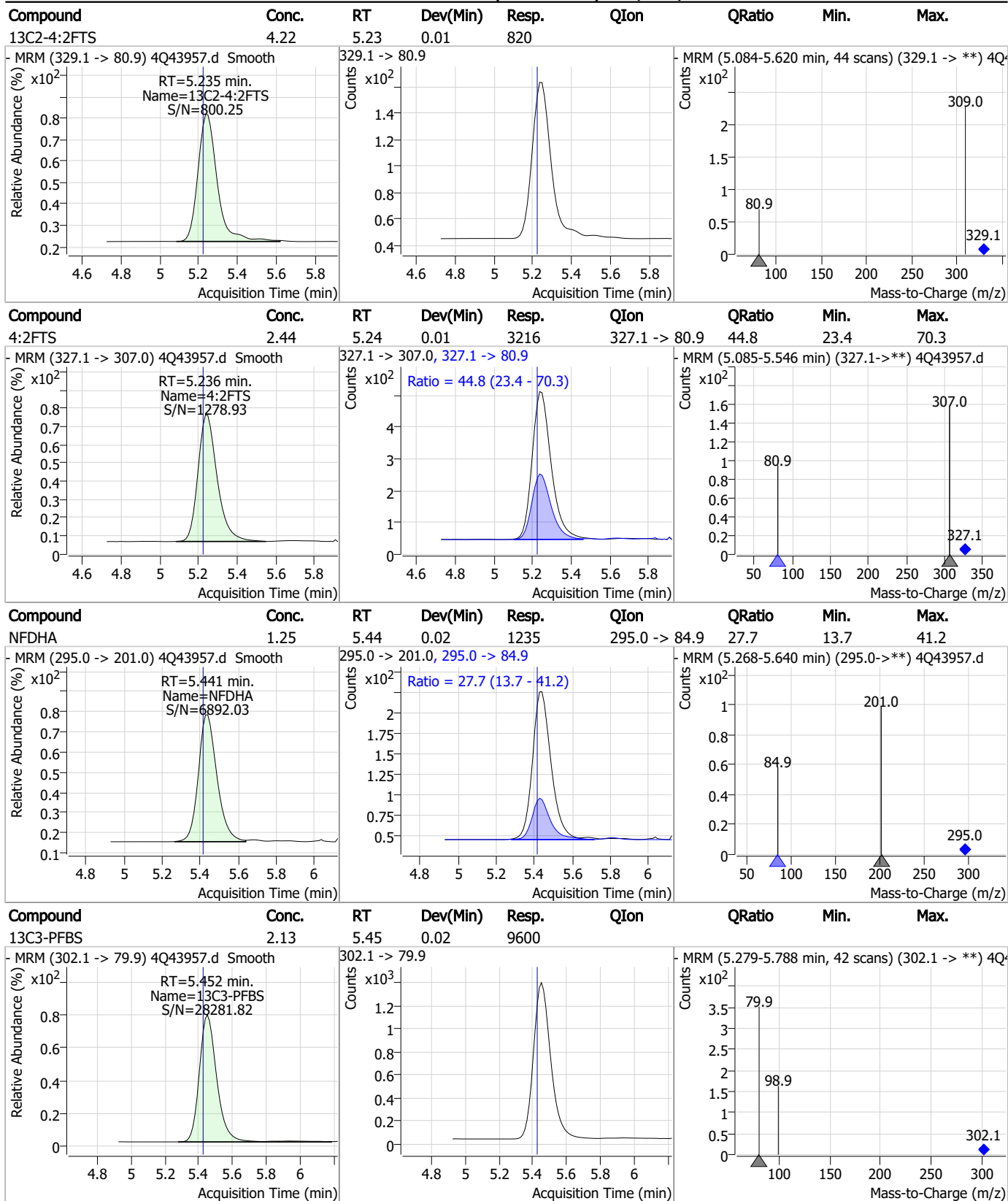
Perfluorinated Compounds by LC/MS/MS



7.3.4

7

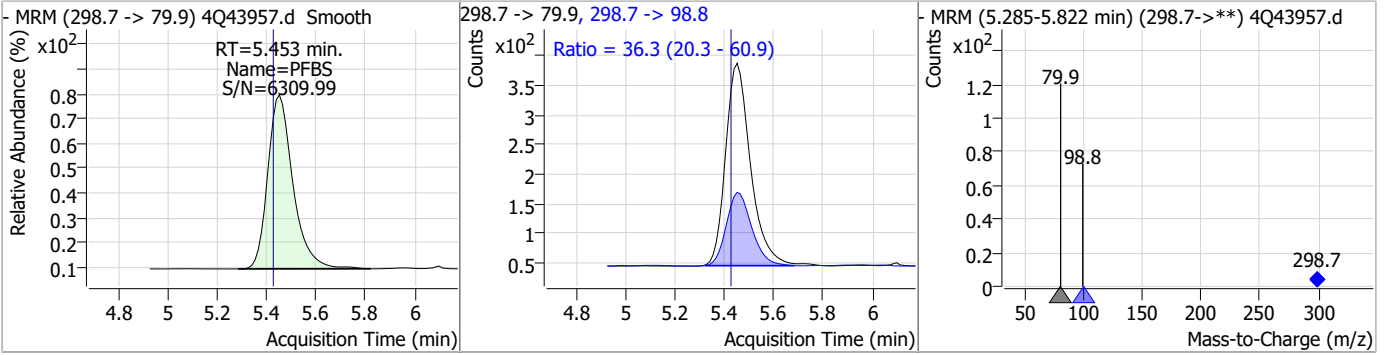
Perfluorinated Compounds by LC/MS/MS



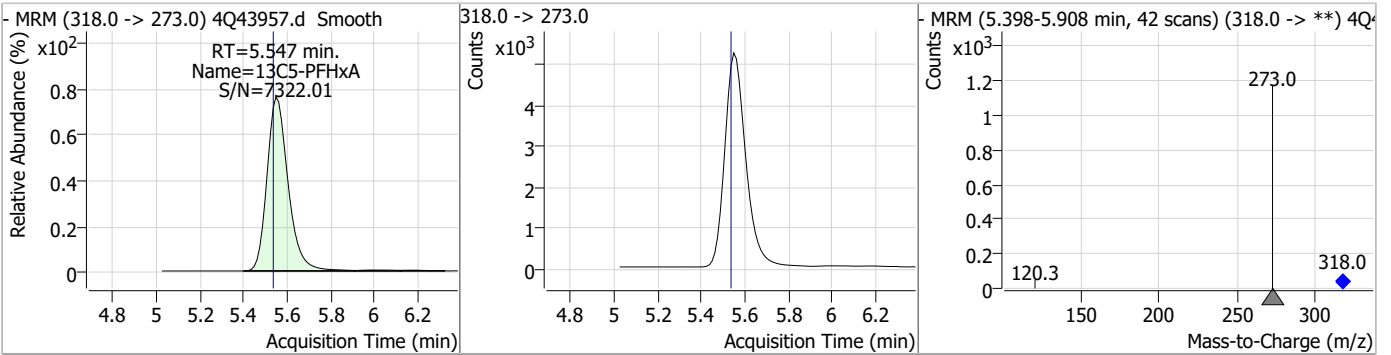
7.3.4
7

Perfluorinated Compounds by LC/MS/MS

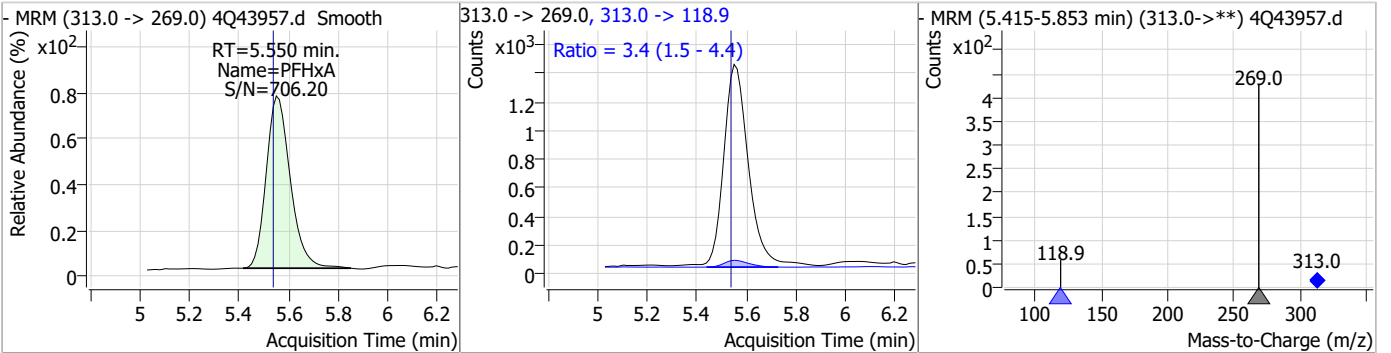
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.61	5.45	0.02	2418	298.7 -> 98.8	36.3	20.3	60.9



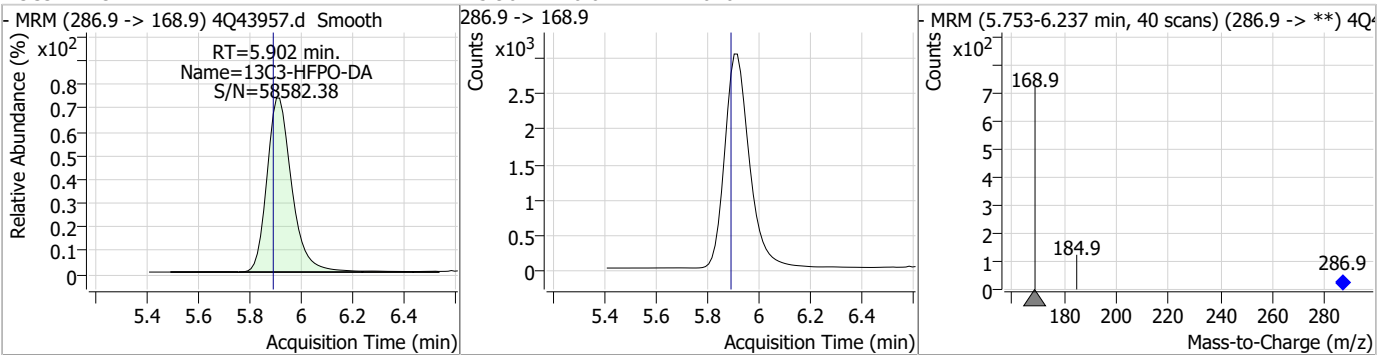
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	1.85	5.55	0.01	35204				



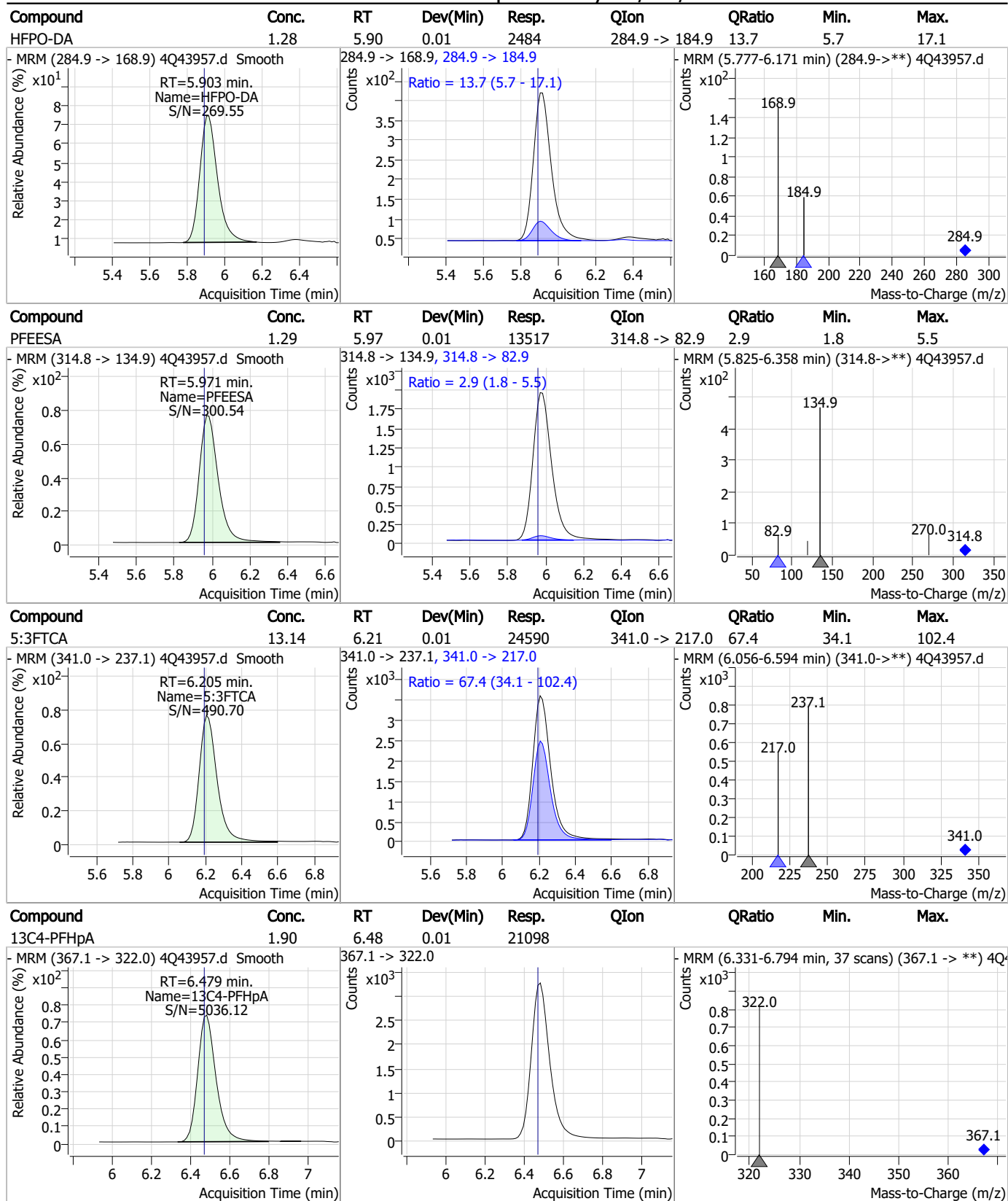
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.69	5.55	0.01	9501	313.0 -> 118.9	3.4	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	7.14	5.90	0.01	20267				

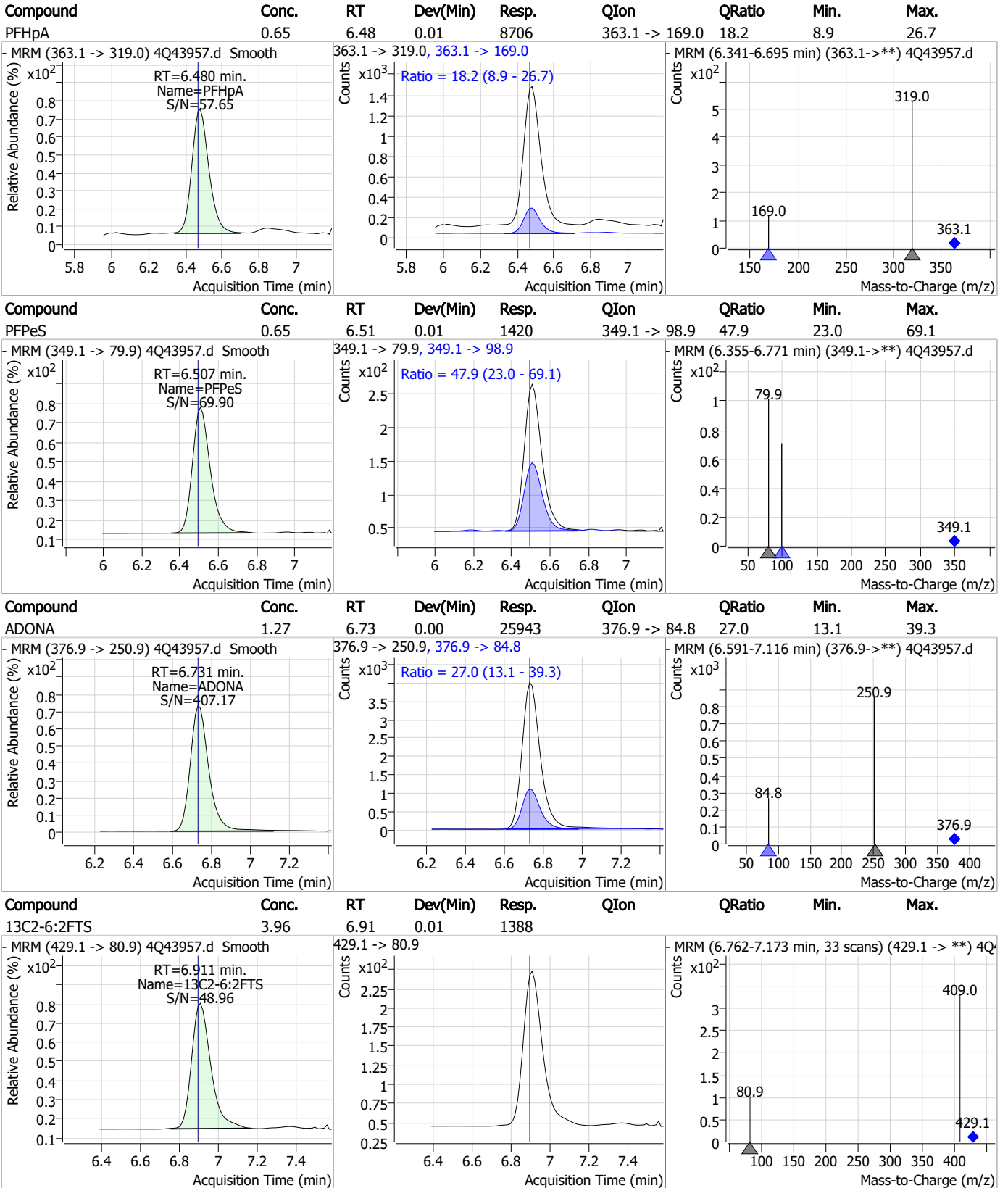


Perfluorinated Compounds by LC/MS/MS



7.3.4
7

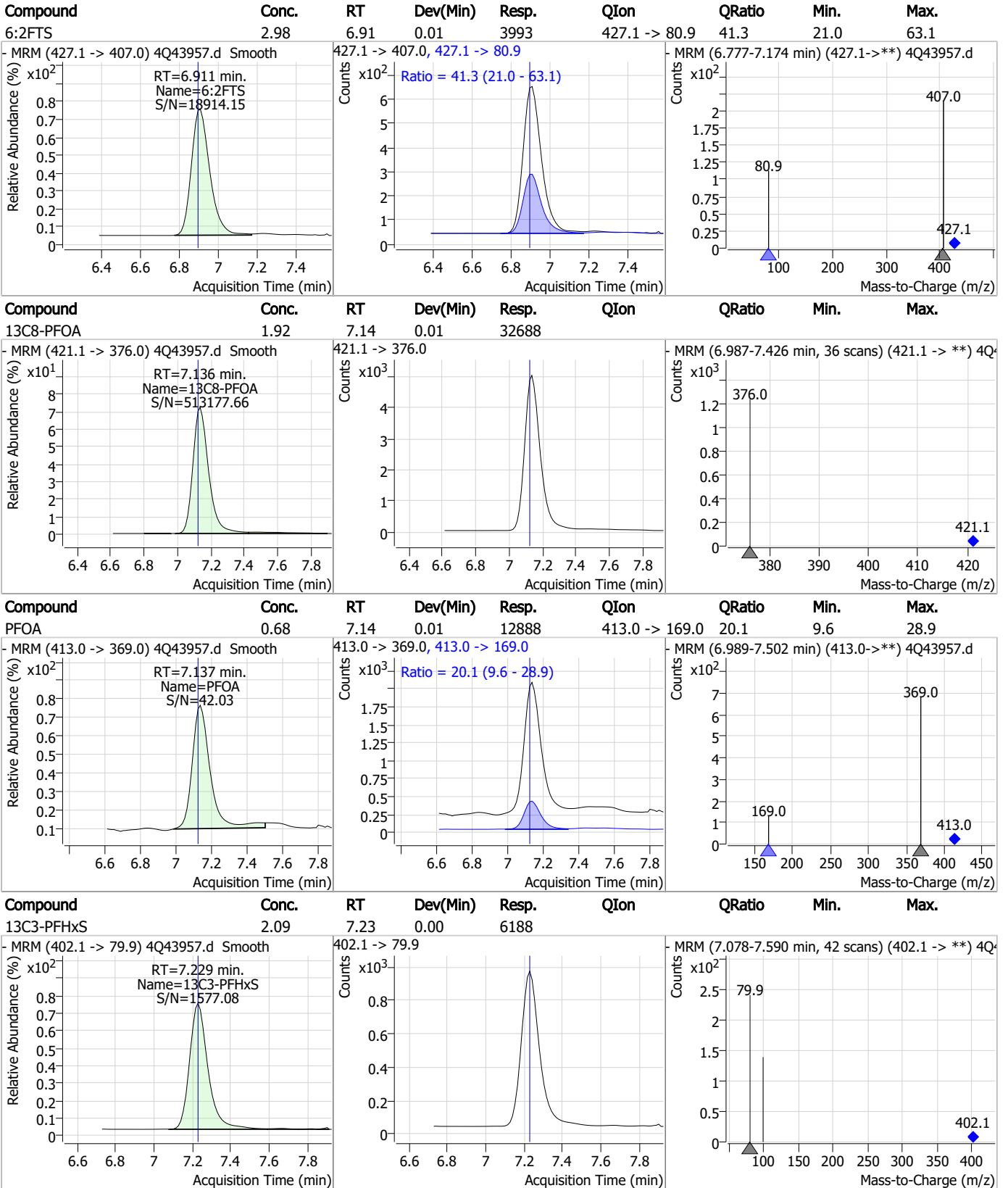
Perfluorinated Compounds by LC/MS/MS



7.3.4

7

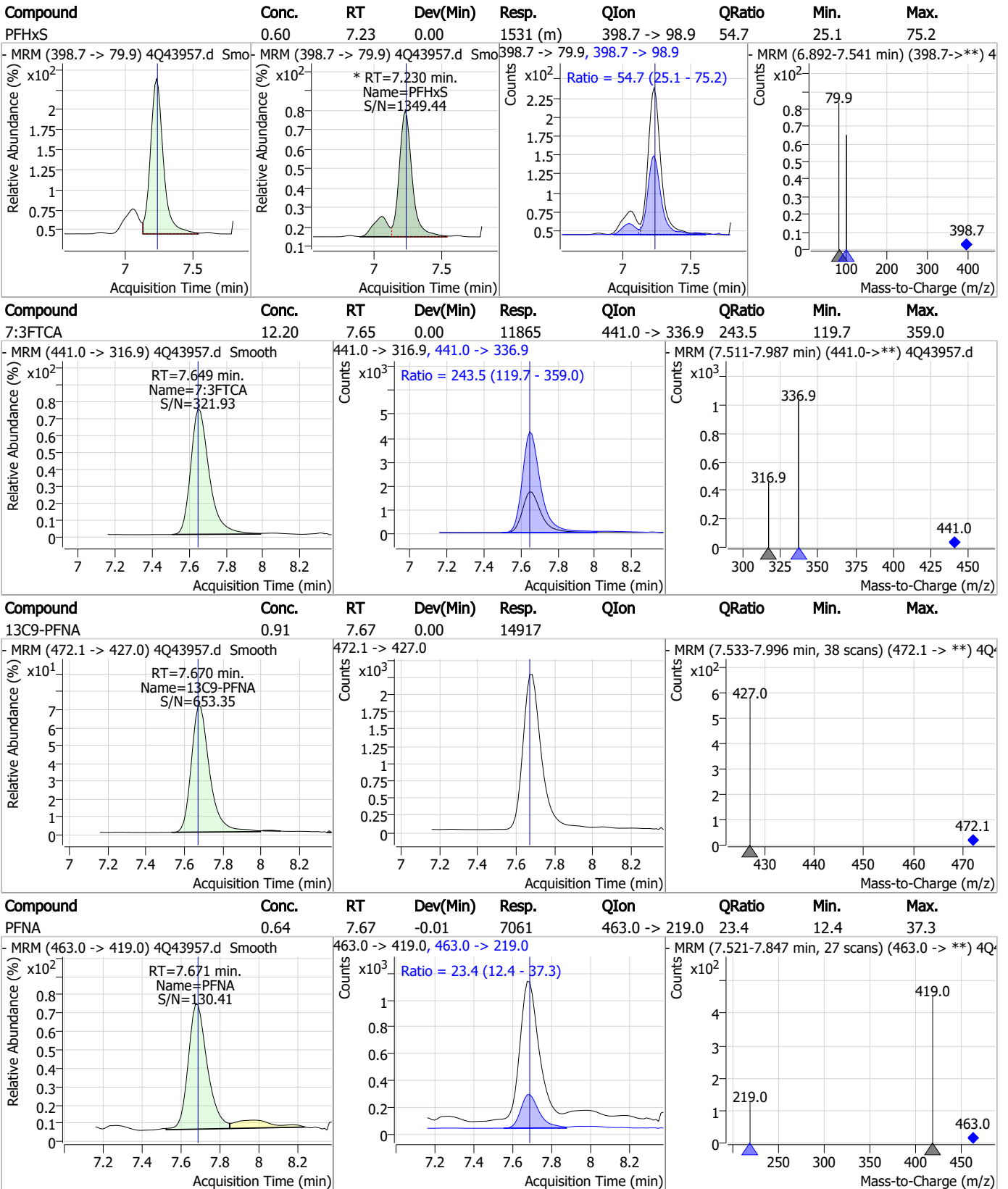
Perfluorinated Compounds by LC/MS/MS



7.3.4

7

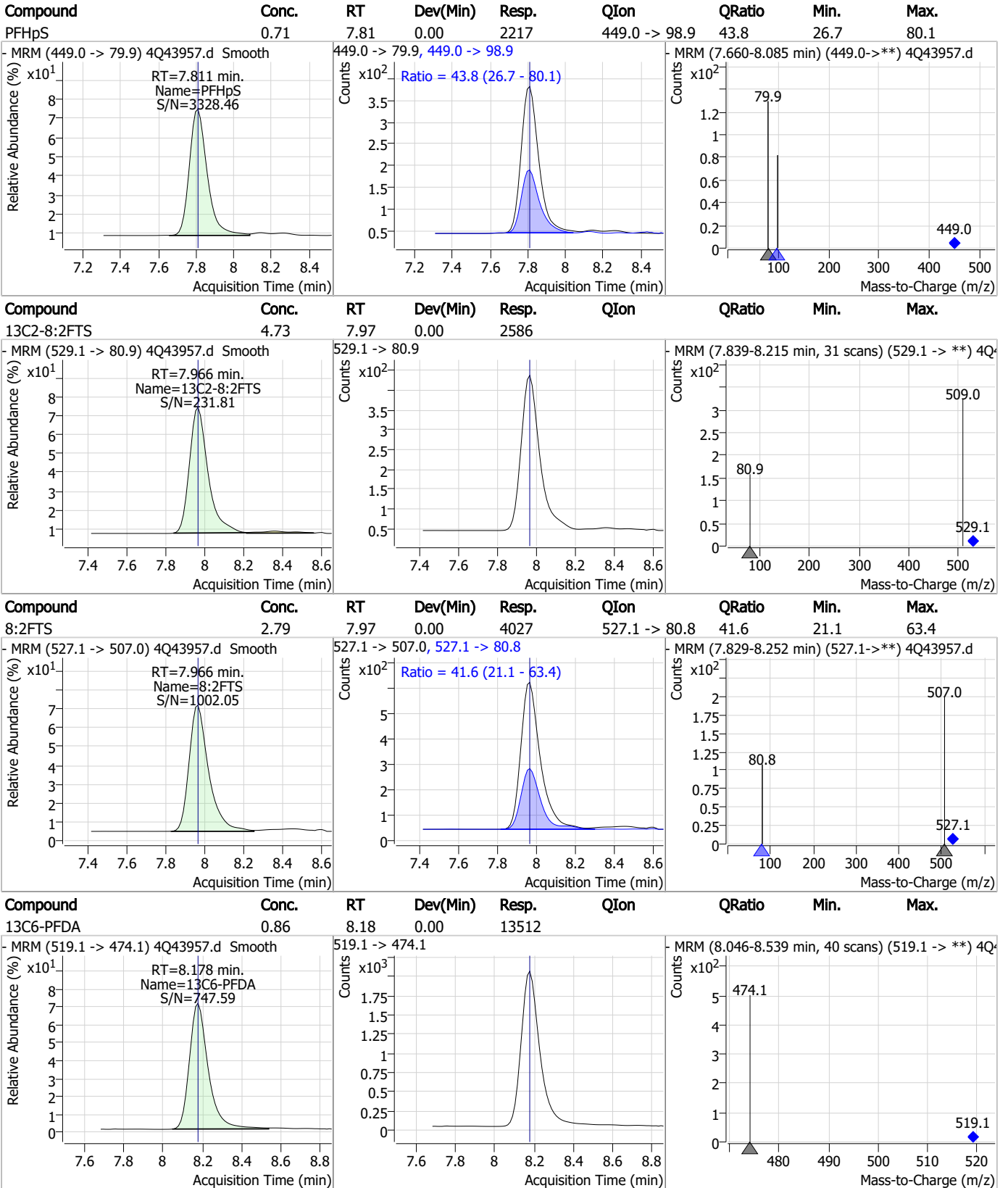
Perfluorinated Compounds by LC/MS/MS



7.3.4

7

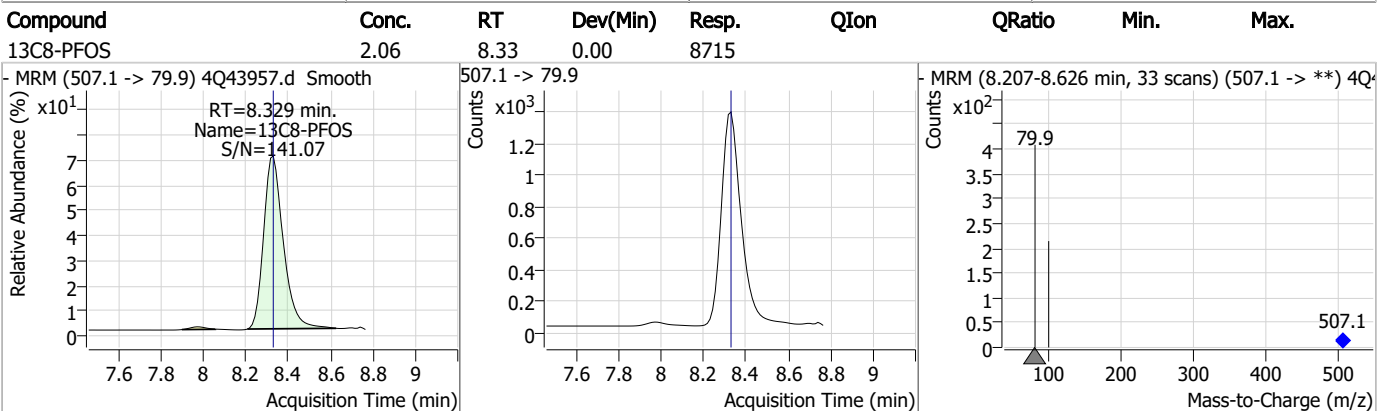
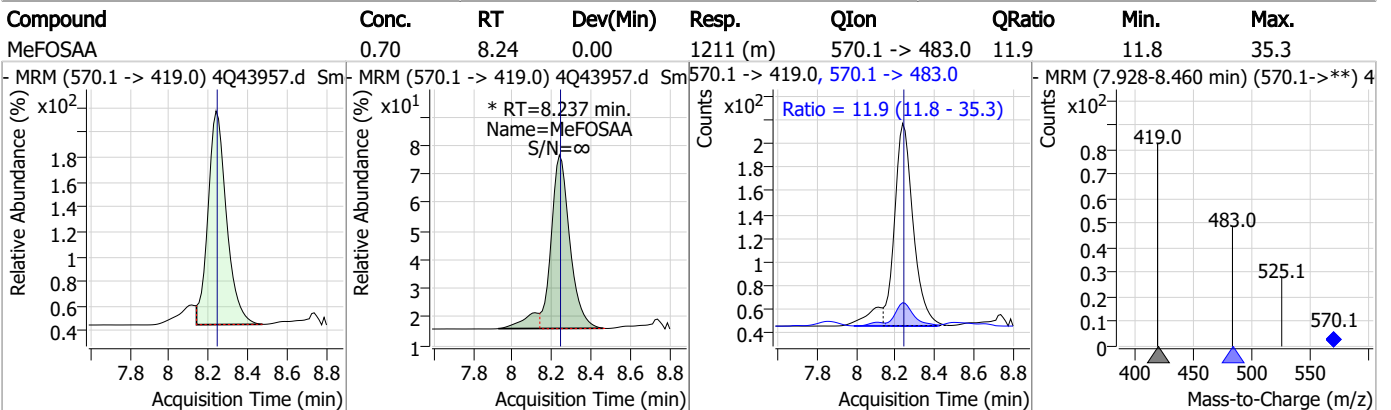
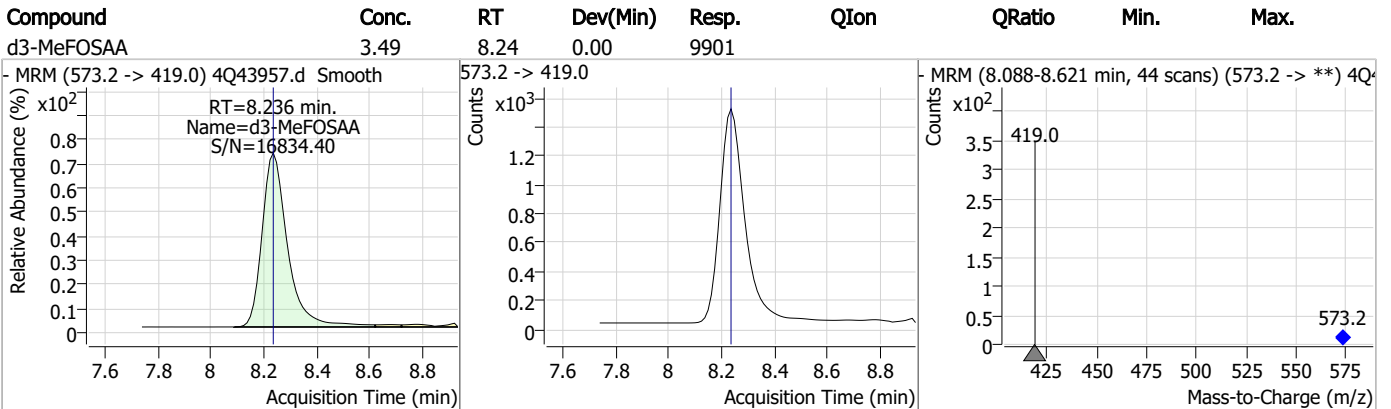
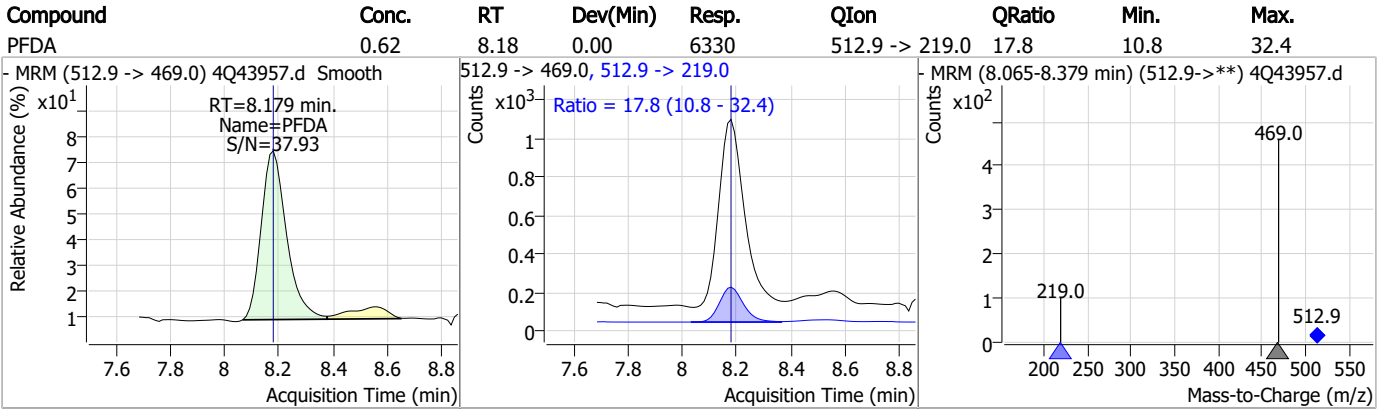
Perfluorinated Compounds by LC/MS/MS



7.3.4

7

Perfluorinated Compounds by LC/MS/MS

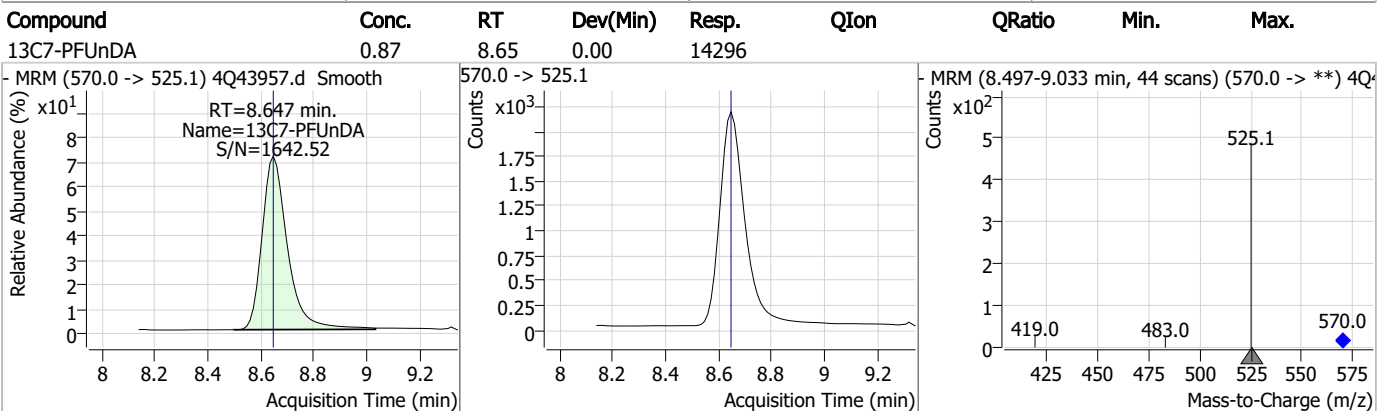
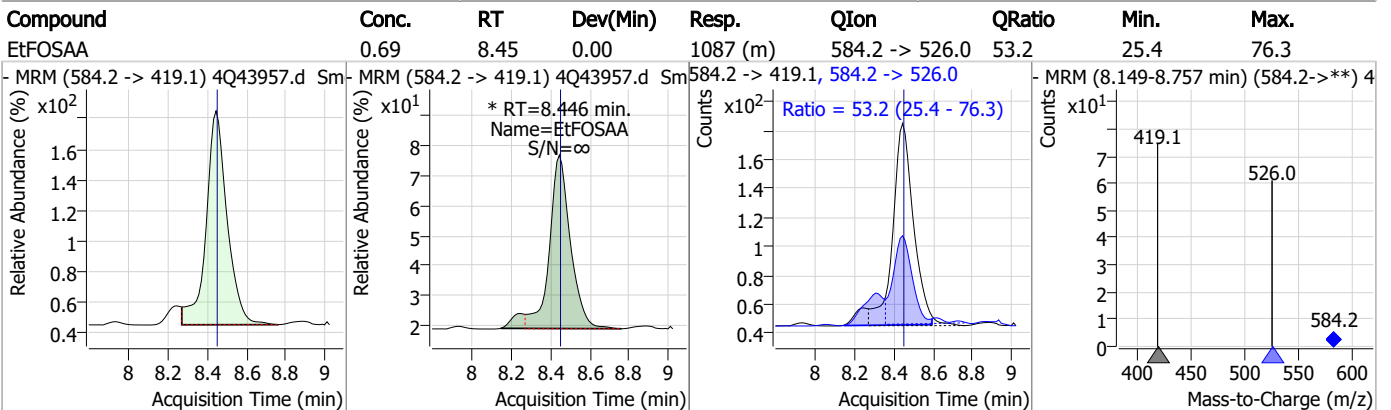
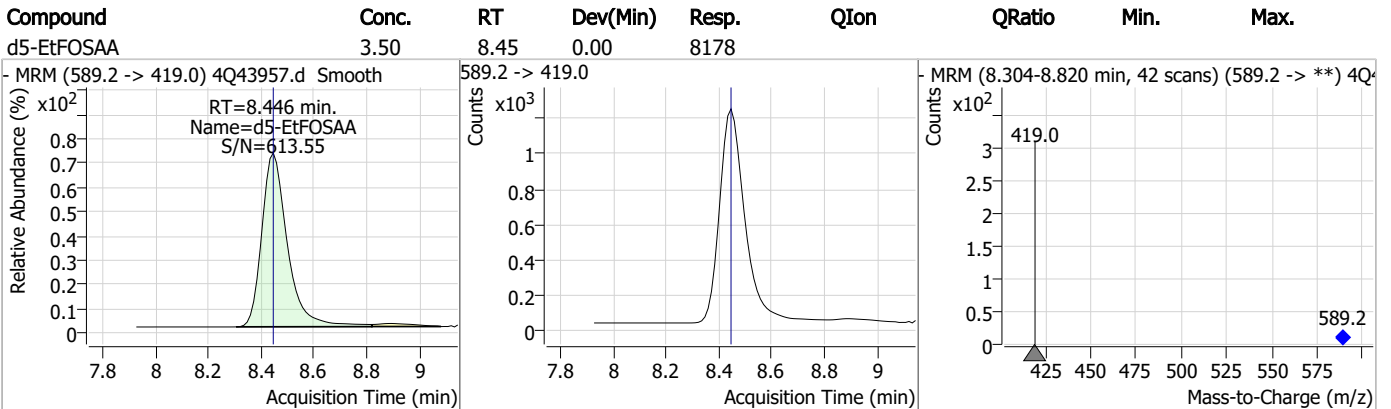
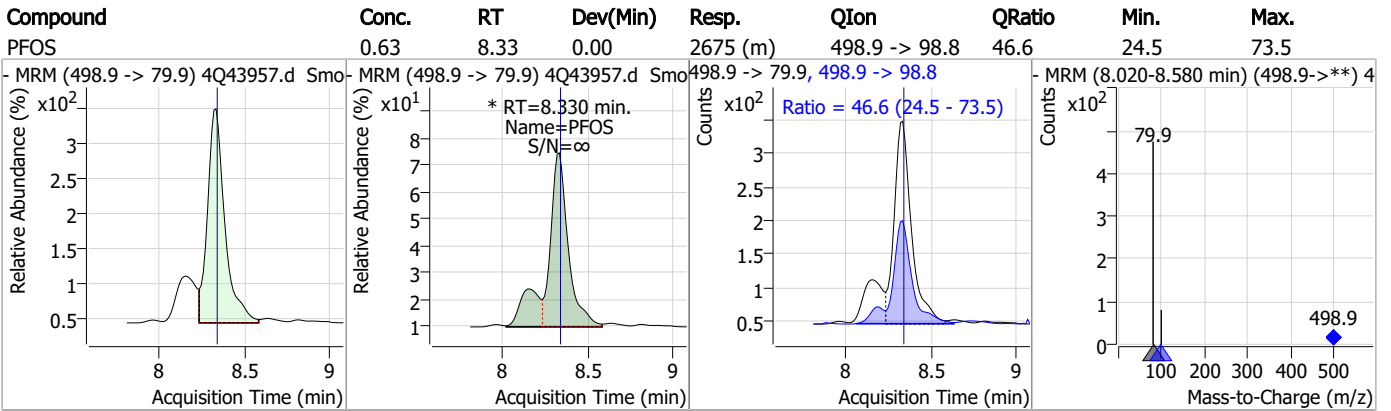


7.3.4

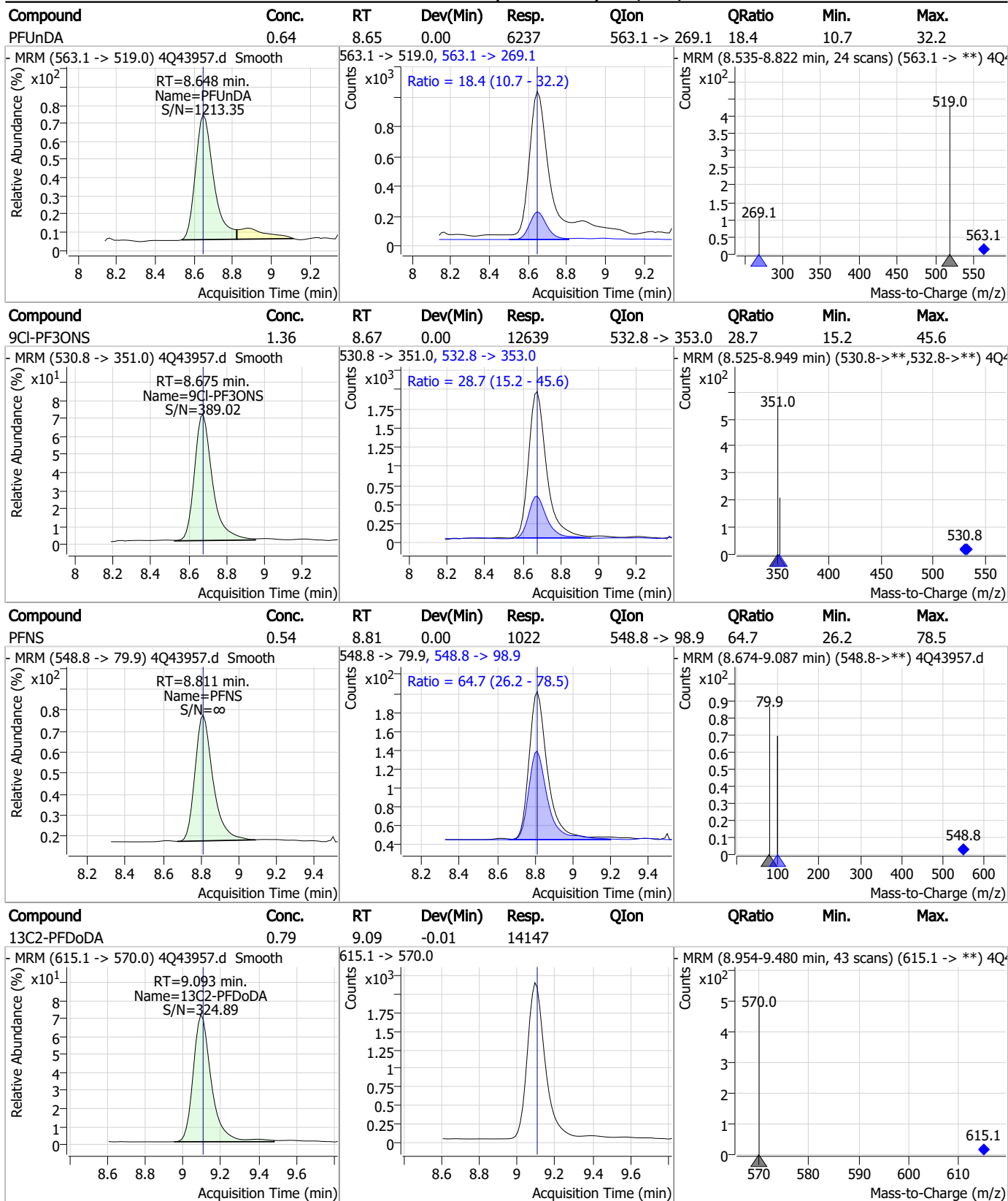
7



Perfluorinated Compounds by LC/MS/MS

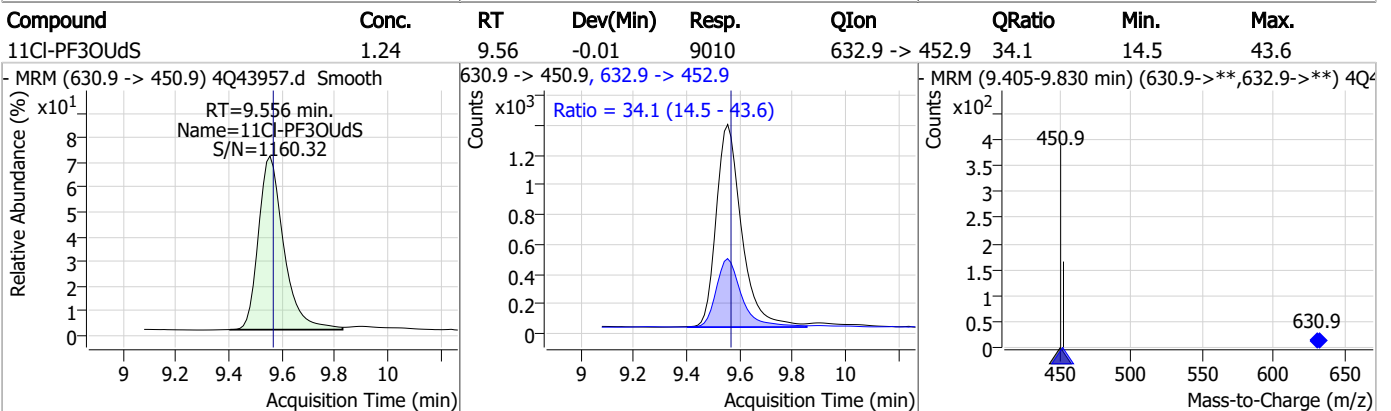
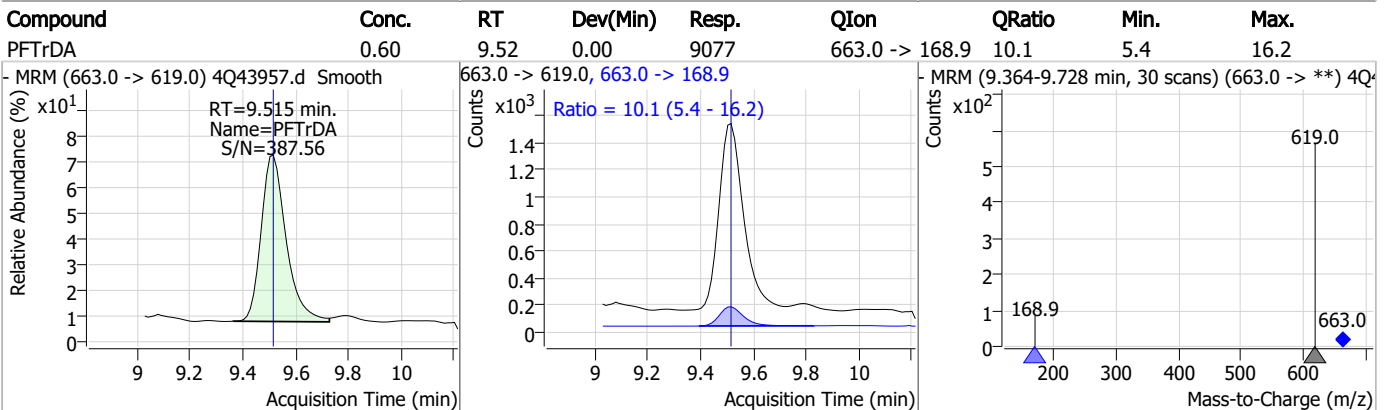
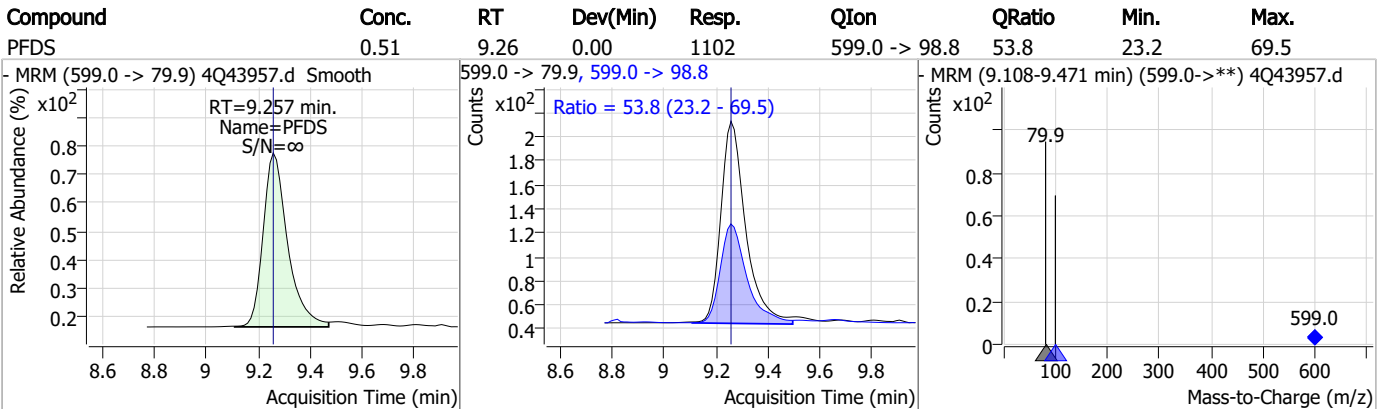
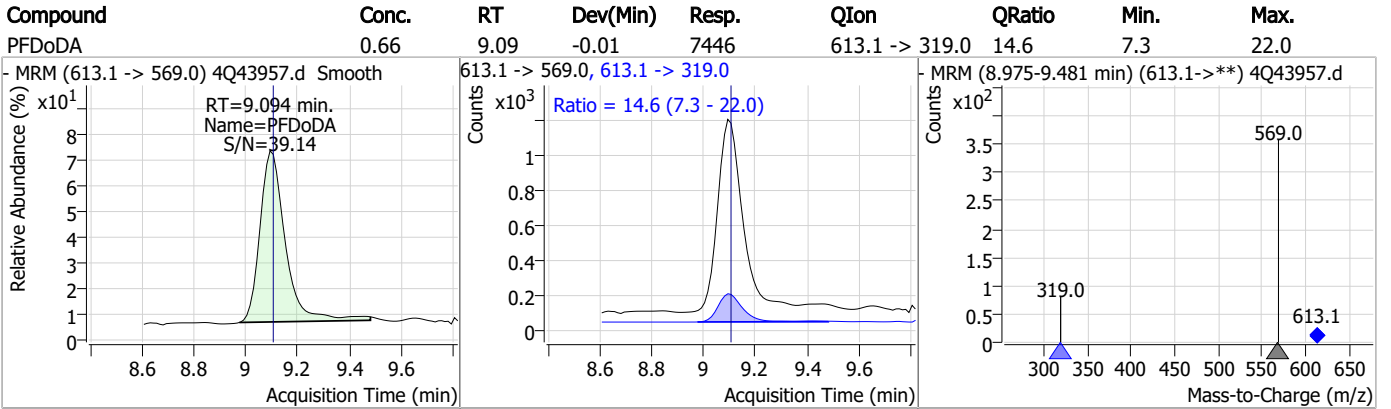


Perfluorinated Compounds by LC/MS/MS



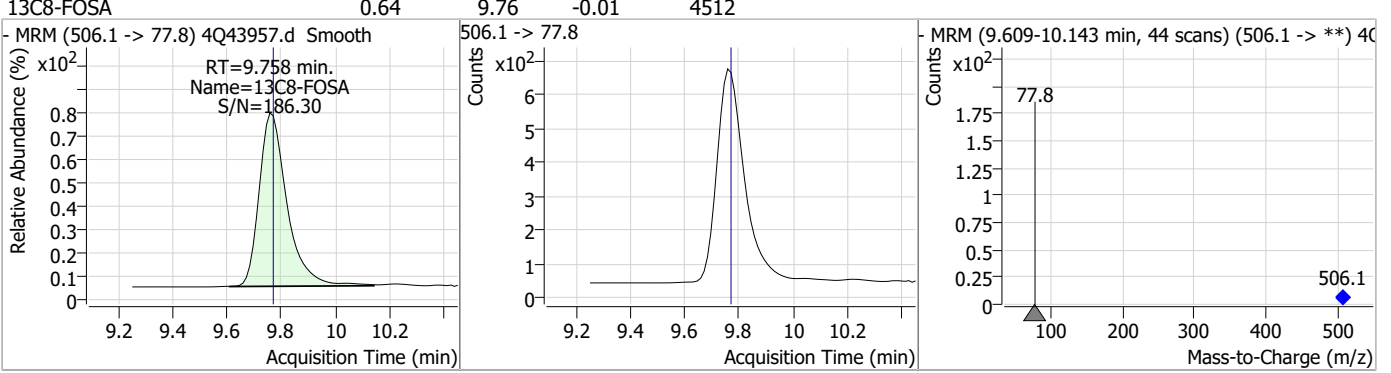
7.3.4
7

Perfluorinated Compounds by LC/MS/MS

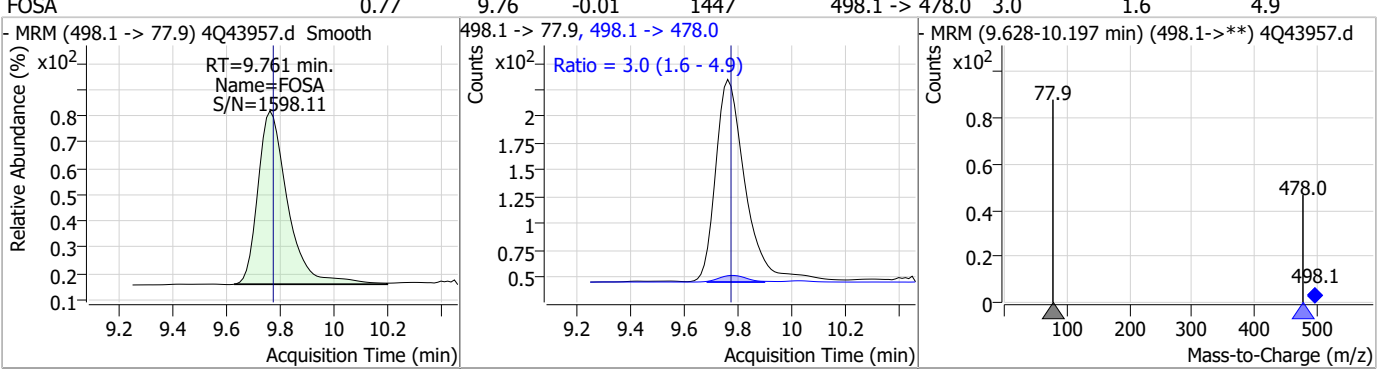


Perfluorinated Compounds by LC/MS/MS

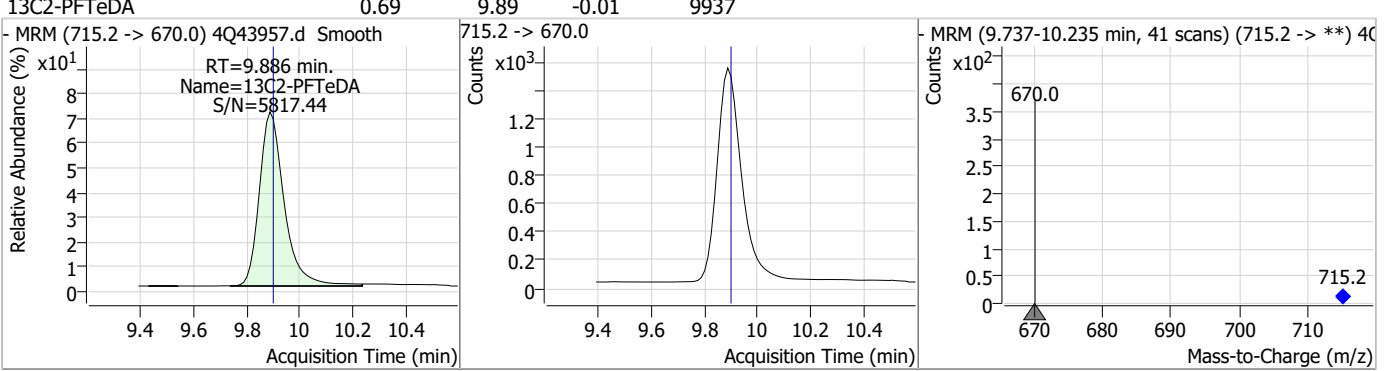
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



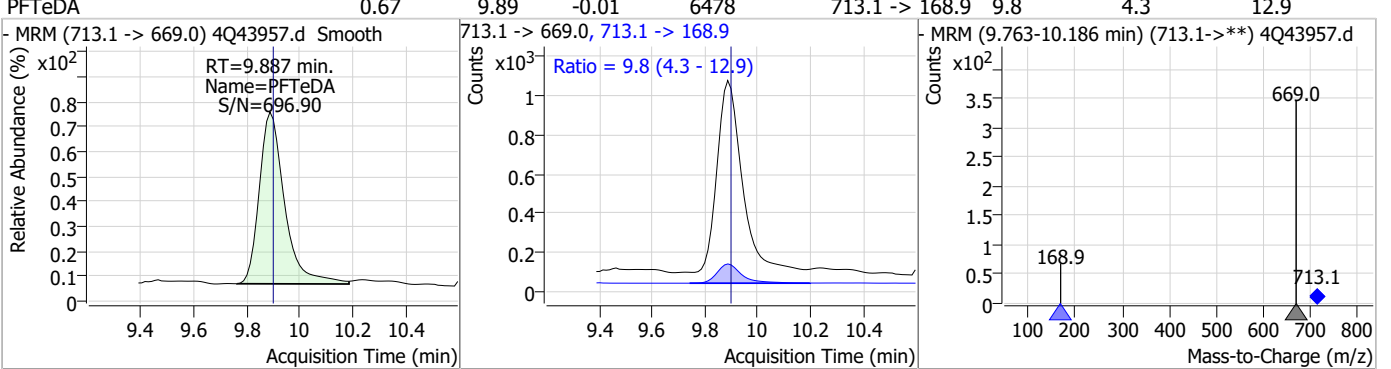
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------



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

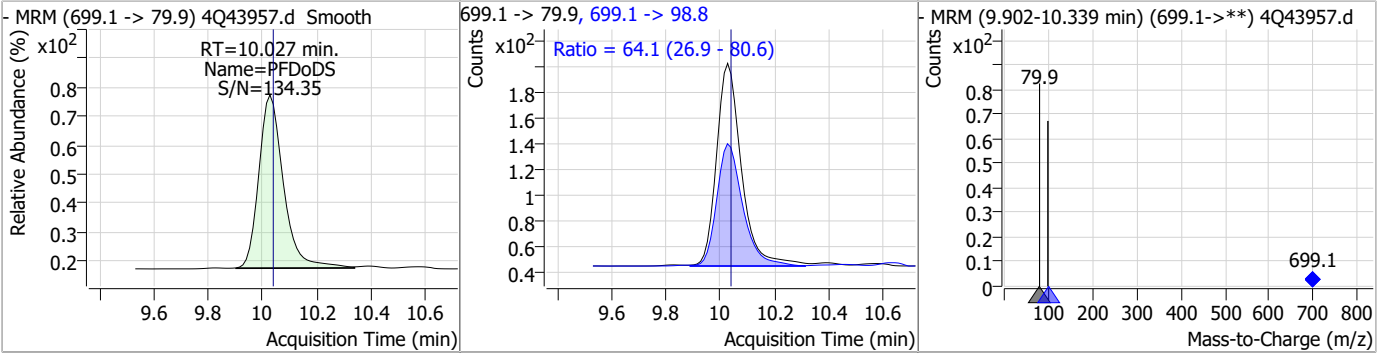


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
----------	-------	----	----------	-------	------	--------	------	------

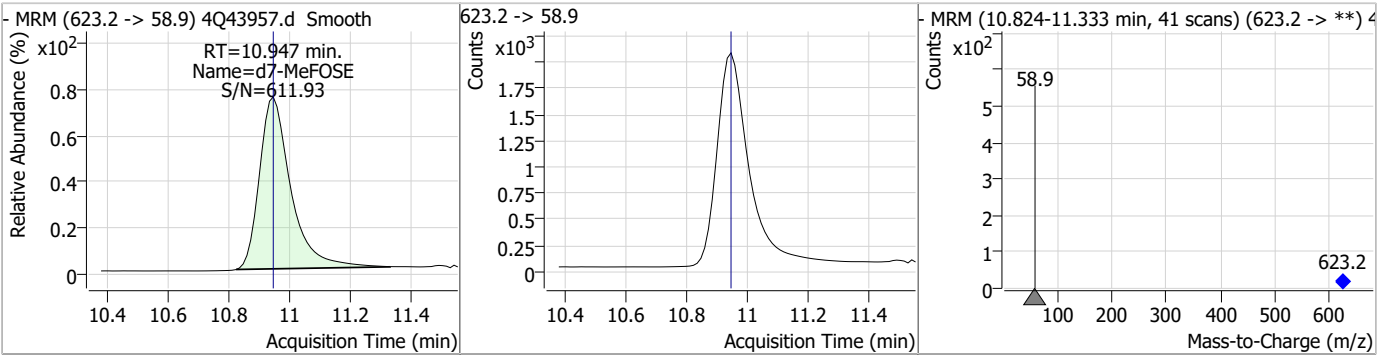


Perfluorinated Compounds by LC/MS/MS

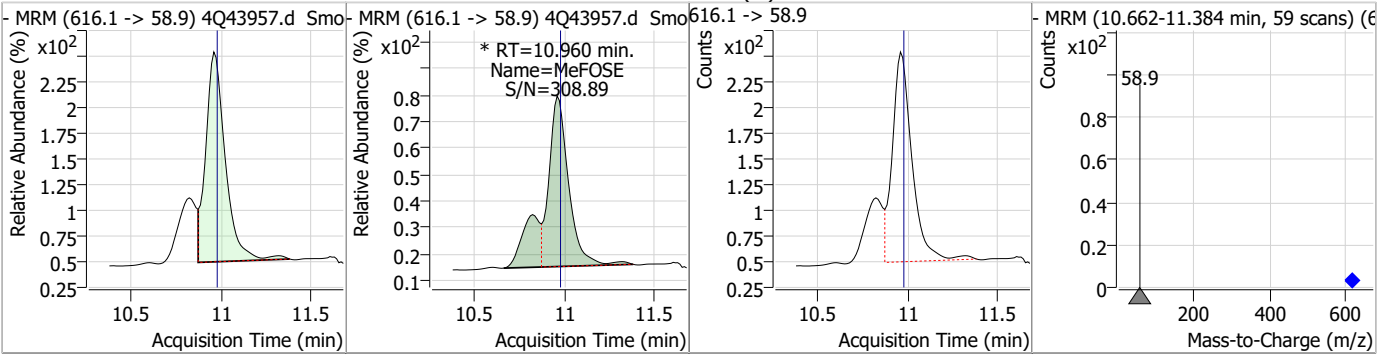
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.51	10.03	-0.01	988	699.1 -> 98.8	64.1	26.9	80.6



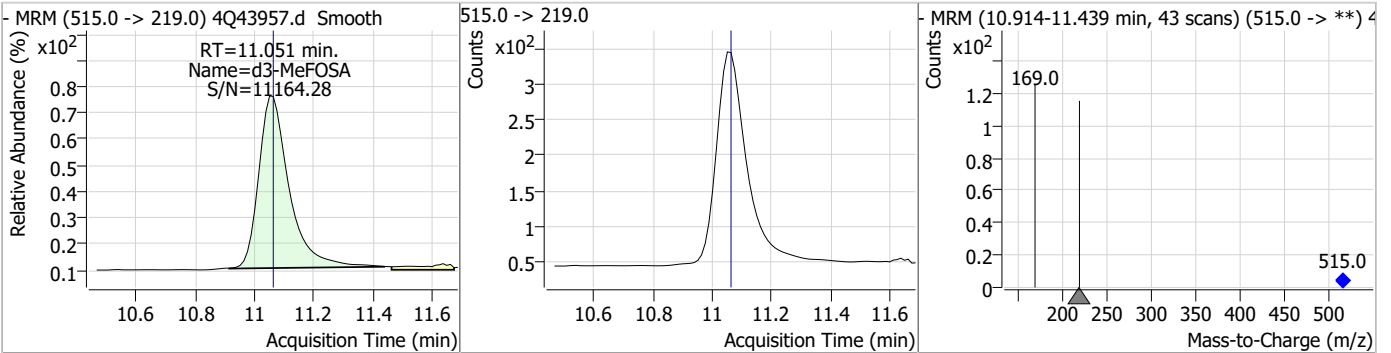
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	4.17	10.95	0.00	14588				



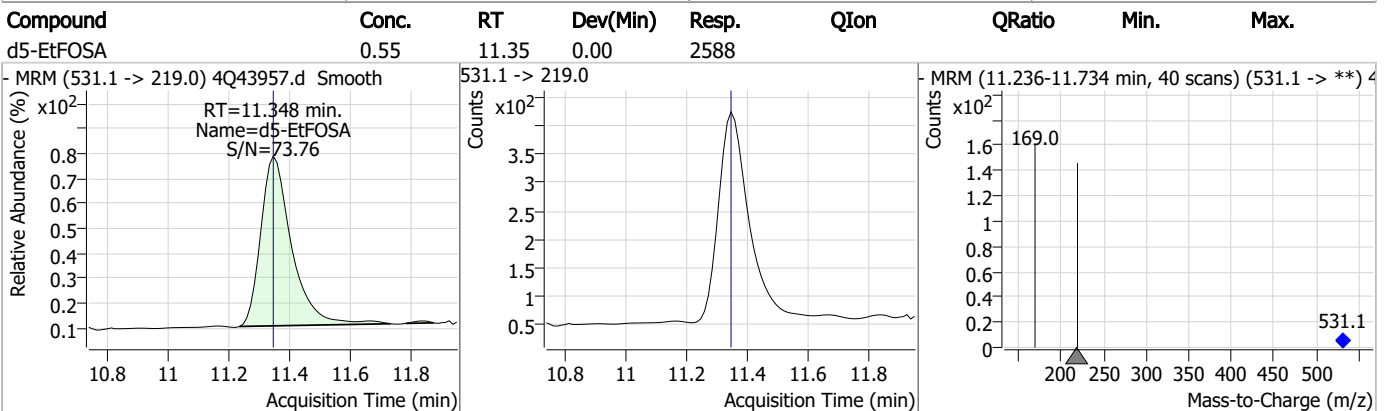
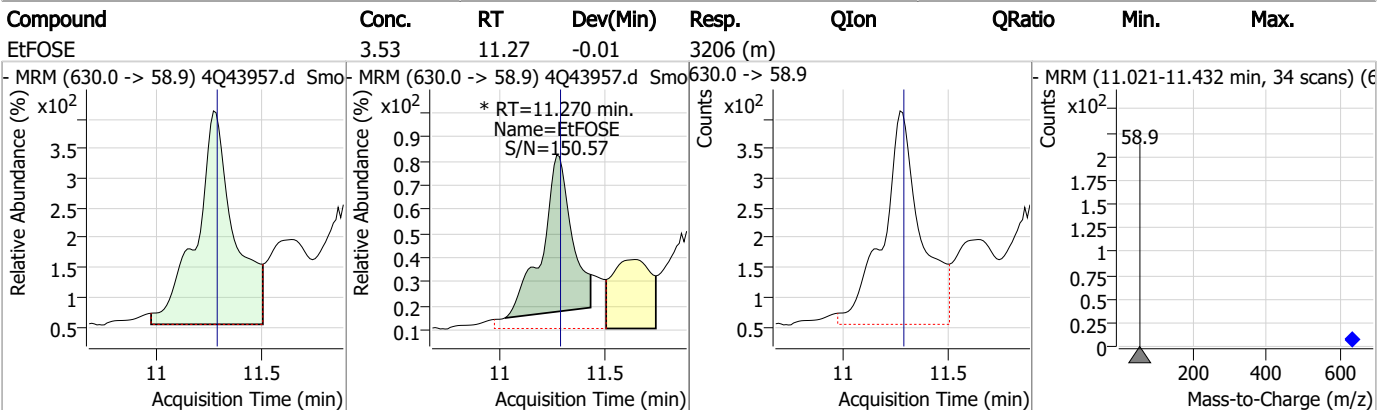
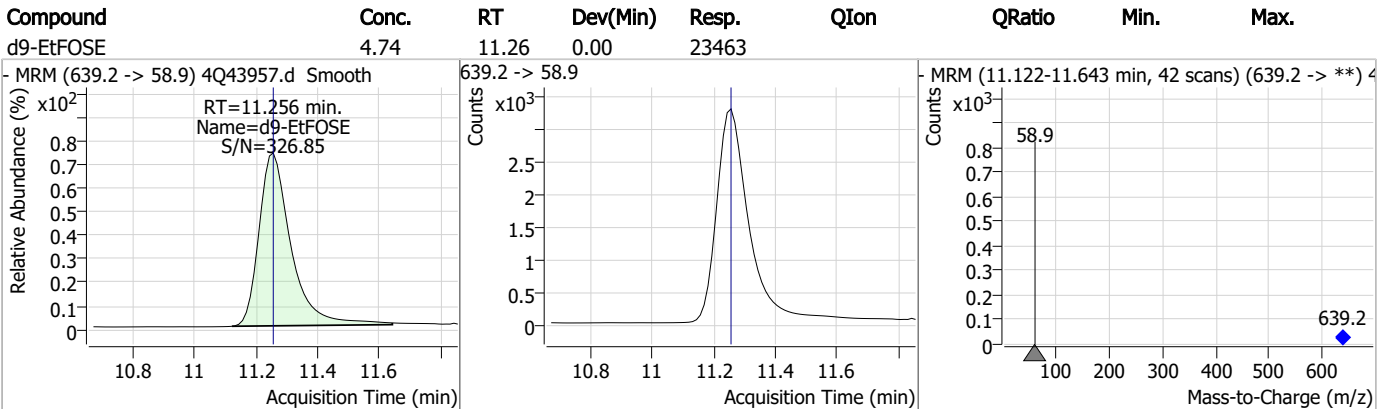
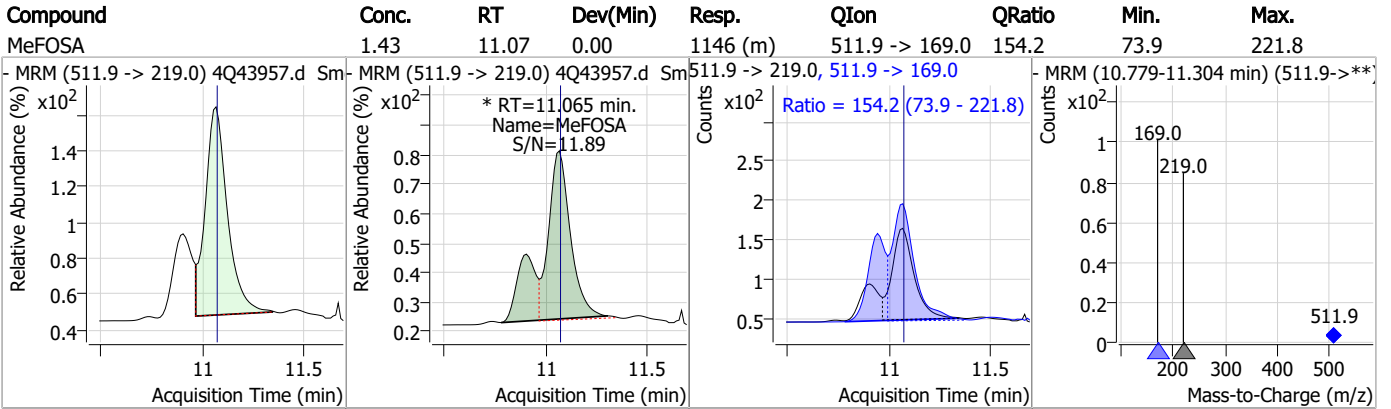
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	3.35	10.96	-0.01	2005 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	0.48	11.05	-0.01	2126				



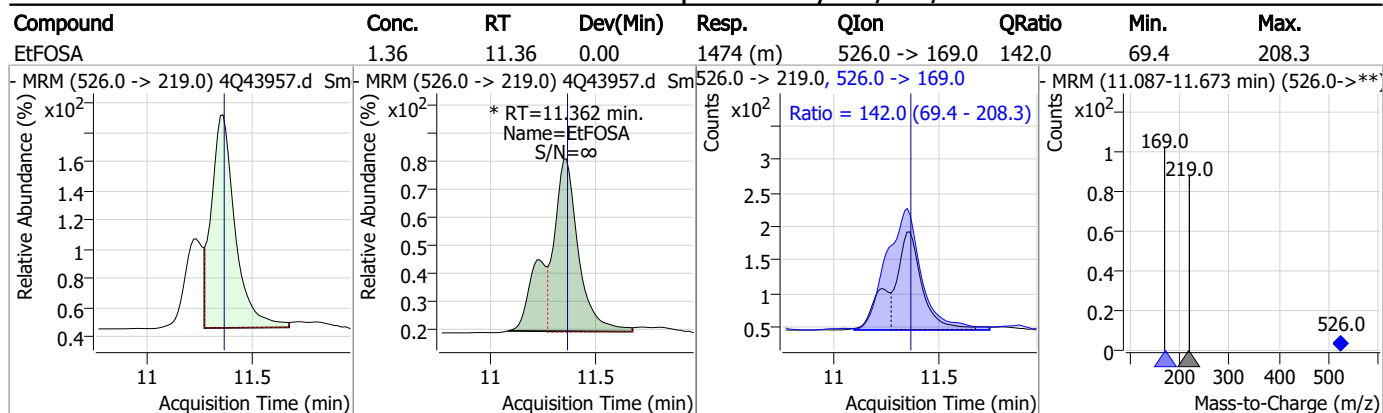
Perfluorinated Compounds by LC/MS/MS



7.3.4

7

Perfluorinated Compounds by LC/MS/MS



7.3.4

7

Manual Integration Approval Summary

Sample Number: OP96698-LLBS Method: EPA DRAFT 1633
Lab FileID: 4Q43957.D Analyst approved: 05/05/23 07:50 Natasha Gumtie
Injection Time: 05/04/23 13:30 Supervisor approved: 05/05/23 16:38 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
MeFOSE	24448-09-7		10.96	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSE	1691-99-2		11.27	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.3.4.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17078.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 7:21:28 PM
 Sample Name : op96603-ms
 Vial : P3-A7
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,540,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	164293	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	64746	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70713	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	57501	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	77906	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	24045	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	16238	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	18973	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	17798	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	11556	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	8541	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22731	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11576	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	8863	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2092	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2403	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2449	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	16331	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38424	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	12780	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	18953	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	25502	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	3340	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	2412	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13340	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	73897	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	8691	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	81287	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22236	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	25907	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	54269	2.50 µg/L	0.000

System Monitoring Compounds

13C2-4:2FTS	5.144	329.1 -> 80.9	2092	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2403	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2449	4.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.9%		
13C2-PFDoDA	8.960	615.1 -> 570.0	17798	0.96 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 77.0%		
13C2-PFTeDA	9.689	715.2 -> 670.0	11556	0.92 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 73.9%		
13C3-PFBS	5.398	302.1 -> 79.9	22731	2.78 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	11576	2.50 µg/L	0.000

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 = 100.1%	
13C4-PFBA	2.897	216.8 -> 171.9	164293	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
13C4-PFHpA	6.419	367.1 -> 322.0	57501	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	70713	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.1%	
13C5-PFPeA	4.270	268.3 -> 223.0	64746	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
13C6-PFDA	8.076	519.1 -> 474.1	16238	1.11 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 88.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	18973	1.01 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 80.8%	
13C8-FOSA	9.623	506.1 -> 77.8	8541	0.97 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 38.7%	
13C8-PFOA	7.062	421.1 -> 376.0	77906	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.226	507.1 -> 79.9	8863	2.21 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.2%	
13C9-PFNA	7.594	472.1 -> 427.0	24045	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.4%	
d3-MeFOSAA	8.134	573.2 -> 419.0	16331	4.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 82.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38424	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d3-MeFOSA	10.728	515.0 -> 219.0	2412	0.72 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 29.0%	
d5-EtFOSAA	8.330	589.2 -> 419.0	12780	3.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 77.4%	
d7-MeFOSE	10.647	623.2 -> 58.9	18953	5.41 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 21.7%	
d9-EtFOSE	10.894	639.2 -> 58.9	25502	5.96 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 23.8%	
d5-EtFOSA	10.960	531.1 -> 219.0	3340	0.82 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 32.7%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	31760	10.03 µg/L	96
		327.1 -> 80.9	12536		
6:2FTS	6.839	427.1 -> 407.0	29891	11.31 µg/L	91
		427.1 -> 80.9	9157		
8:2FTS	7.865	527.1 -> 507.0	14752	10.12 µg/L	96
		527.1 -> 80.8	5620		
EtFOSAA	8.343	584.2 -> 419.1	5509	2.54 µg/L	98
		584.2 -> 526.0	2962		
FOSA	9.614	498.1 -> 77.9	8175	2.67 µg/L	100
		498.1 -> 478.0	237		
MeFOSAA	8.136	570.1 -> 419.0	8360	2.73 µg/L	89
		570.1 -> 483.0	1609		
PFBA	2.906	212.8 -> 168.9	56820	10.31 µg/L	100
PFBS	5.400	298.7 -> 79.9	23550	2.31 µg/L	93
		298.7 -> 98.8	8683		
PFDA	8.077	512.9 -> 469.0	51647	2.93 µg/L	96
		512.9 -> 219.0	7710		
PFDODA	8.961	613.1 -> 569.0	34364	2.46 µg/L	97
		613.1 -> 319.0	4617		
PFDS	9.125	599.0 -> 79.9	6464	2.29 µg/L	99

7.4.1
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	3152	2.71	µg/L	99
		363.1 -> 319.0	76984			
PFHpS	7.734	363.1 -> 169.0	11139	2.86	µg/L	97
		449.0 -> 79.9	13746			
PFHxA	5.470	449.0 -> 98.9	6696	2.36	µg/L	99
		313.0 -> 269.0	65959			
PFHxS	7.180	313.0 -> 118.9	3224	2.47	µg/L	m
		398.7 -> 79.9	15596			
PFNA	7.595	398.7 -> 98.9	7737	2.61	µg/L	100
		463.0 -> 419.0	43380			
PFNS	8.694	463.0 -> 219.0	9050	2.28	µg/L	99
		548.8 -> 79.9	9745			
PFOA	7.063	548.8 -> 98.9	5316	2.69	µg/L	98
		413.0 -> 369.0	98659			
PFOS	8.228	413.0 -> 169.0	16338	2.30	µg/L	m
		498.9 -> 79.9	9853			
PFPeA	4.273	498.9 -> 98.8	5672	5.05	µg/L	100
		263.0 -> 219.0	88981			
PFPeS	6.472	349.1 -> 79.9	17484	2.65	µg/L	94
		349.1 -> 98.9	7797			
PFTeDA	9.690	713.1 -> 669.0	33581	2.88	µg/L	100
		713.1 -> 168.9	2601			
PFTrDA	9.345	663.0 -> 619.0	39438	2.55	µg/L	99
		663.0 -> 168.9	3551			
PFUnDA	8.531	563.1 -> 519.0	35442	2.69	µg/L	95
		563.1 -> 269.1	5371			
11CI-PF3OUdS	9.398	630.9 -> 450.9	48033	3.64	µg/L	97
		632.9 -> 452.9	14652			
9CI-PF3ONS	8.569	530.8 -> 351.0	87961	4.22	µg/L	97
		532.8 -> 353.0	24536			
ADONA	6.681	376.9 -> 250.9	286613	4.94	µg/L	97
		376.9 -> 84.8	78202			
HFPO-DA	5.846	284.9 -> 168.9	17976	4.94	µg/L	99
		284.9 -> 184.9	2587			
3:3FTCA	3.784	241.0 -> 177.0	10410	9.44	µg/L	97
		241.0 -> 117.0	1260			
5:3FTCA	6.160	341.0 -> 237.1	219838	48.59	µg/L	95
		341.0 -> 217.0	156014			
7:3FTCA	7.573	441.0 -> 316.9	89559	43.57	µg/L	96
		441.0 -> 336.9	188719			
EtFOSA	10.962	526.0 -> 219.0	6338	4.62	µg/L	94
		526.0 -> 169.0	8100			
EtFOSE	10.907	630.0 -> 58.9	13872	13.06	µg/L	100
		511.9 -> 219.0	6004			
MeFOSA	10.730	511.9 -> 169.0	8149	5.53	µg/L	m
		616.1 -> 58.9	10873			
MeFOSE	10.661	699.1 -> 79.9	3411	12.86	µg/L	100
		699.1 -> 98.8	1901			
PFDoDS	9.817	295.0 -> 201.0	14941	2.34	µg/L	98
		295.0 -> 84.9	3834			
NFDHA	5.350	279.0 -> 85.1	60584	4.93	µg/L	97
		229.0 -> 84.9	43747			
PFMBA	4.687	314.8 -> 134.9	158627	5.12	µg/L	100
		314.8 -> 82.9	5584			
PFMPA	3.438			4.96	µg/L	100
PFEESA	5.937			4.50	µg/L	99

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

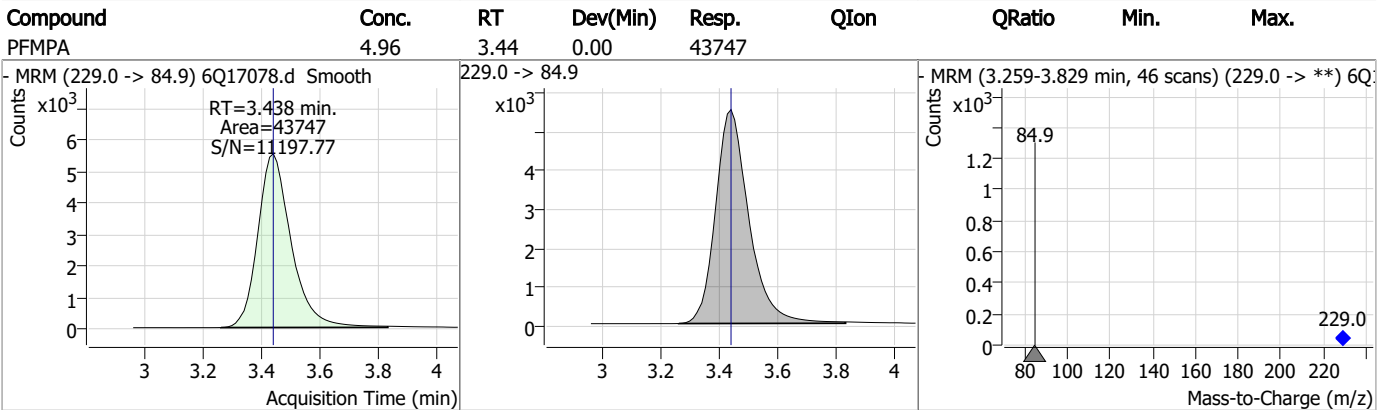
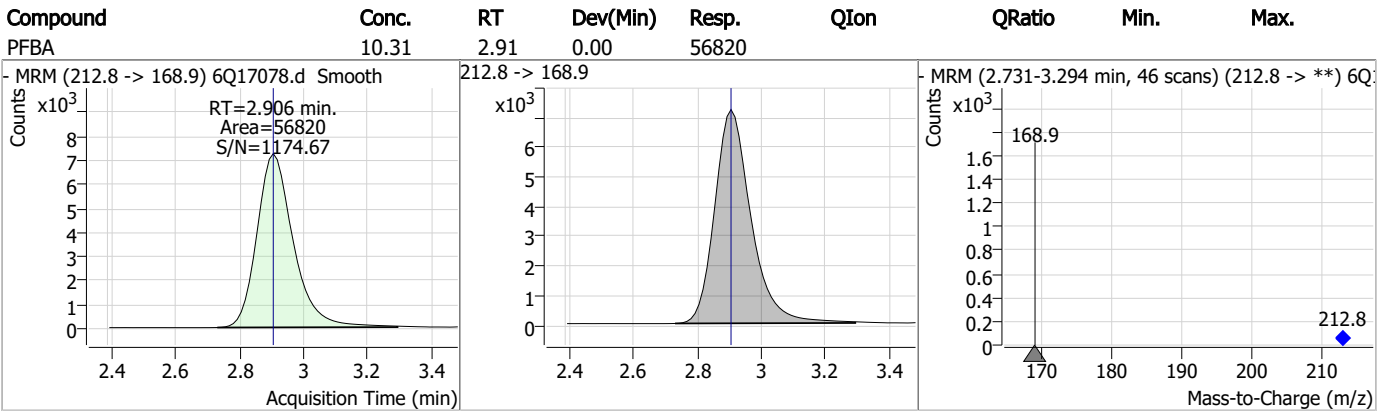
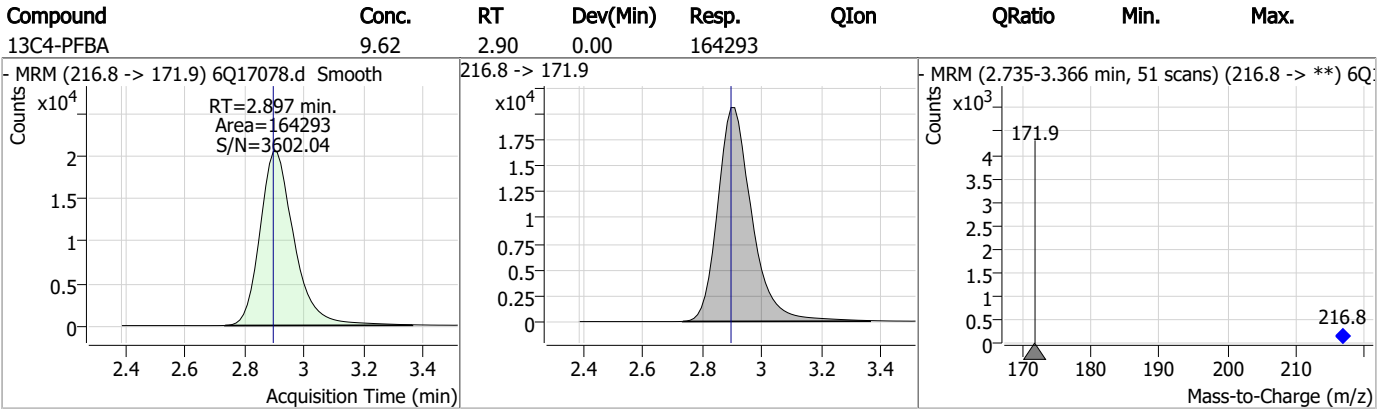
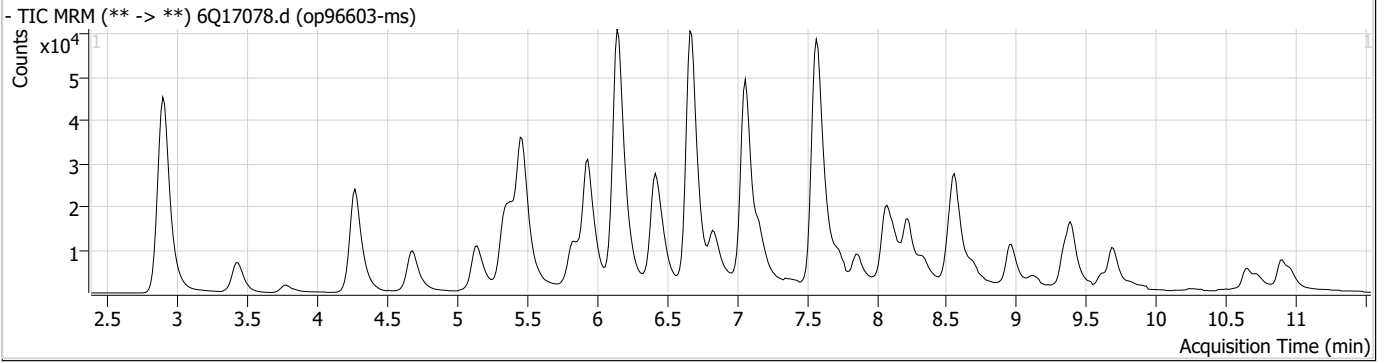
Perfluorinated Compounds by LC/MS/MS

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

7.4.1

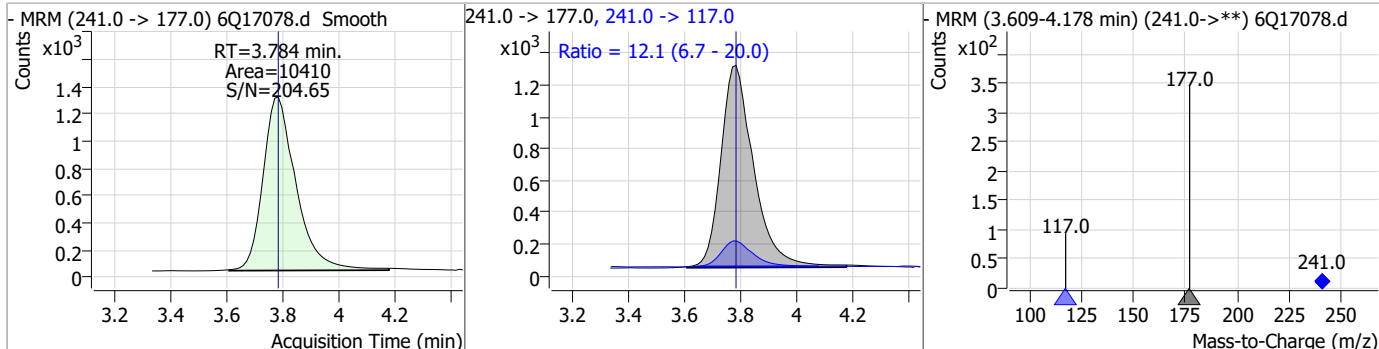
7

Perfluorinated Compounds by LC/MS/MS

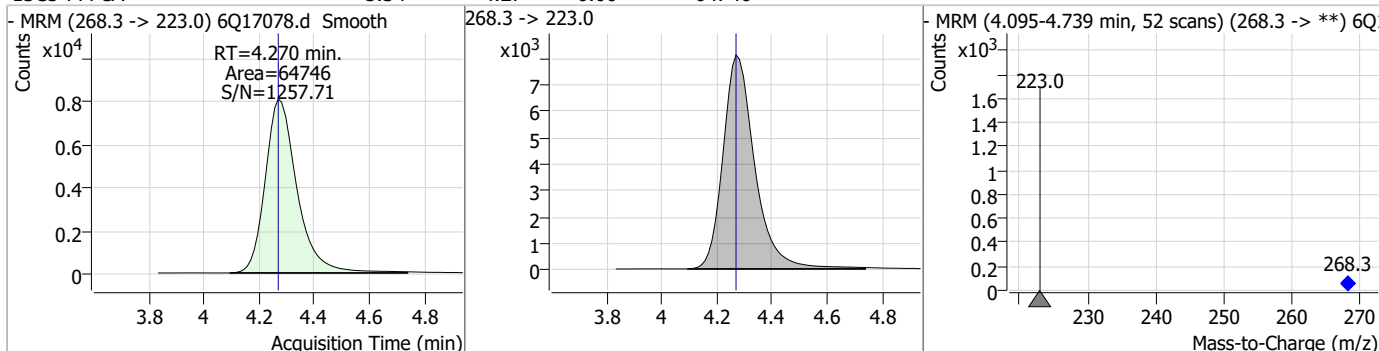


Perfluorinated Compounds by LC/MS/MS

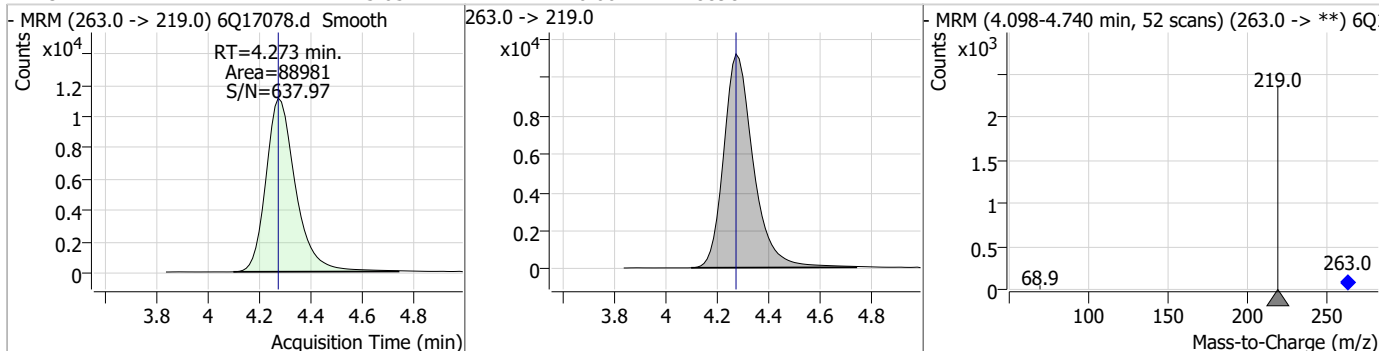
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	9.44	3.78	0.00	10410	241.0 -> 117.0	12.1	6.7	20.0



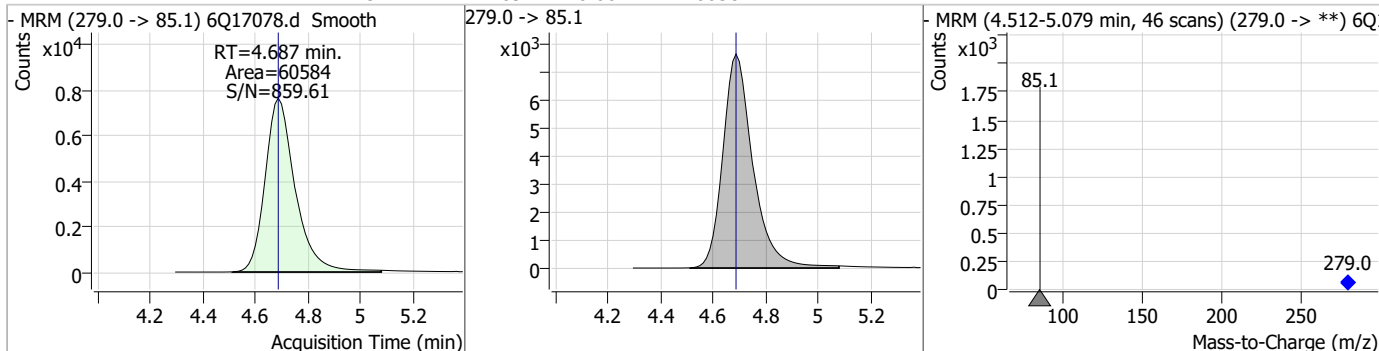
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.34	4.27	0.00	64746				



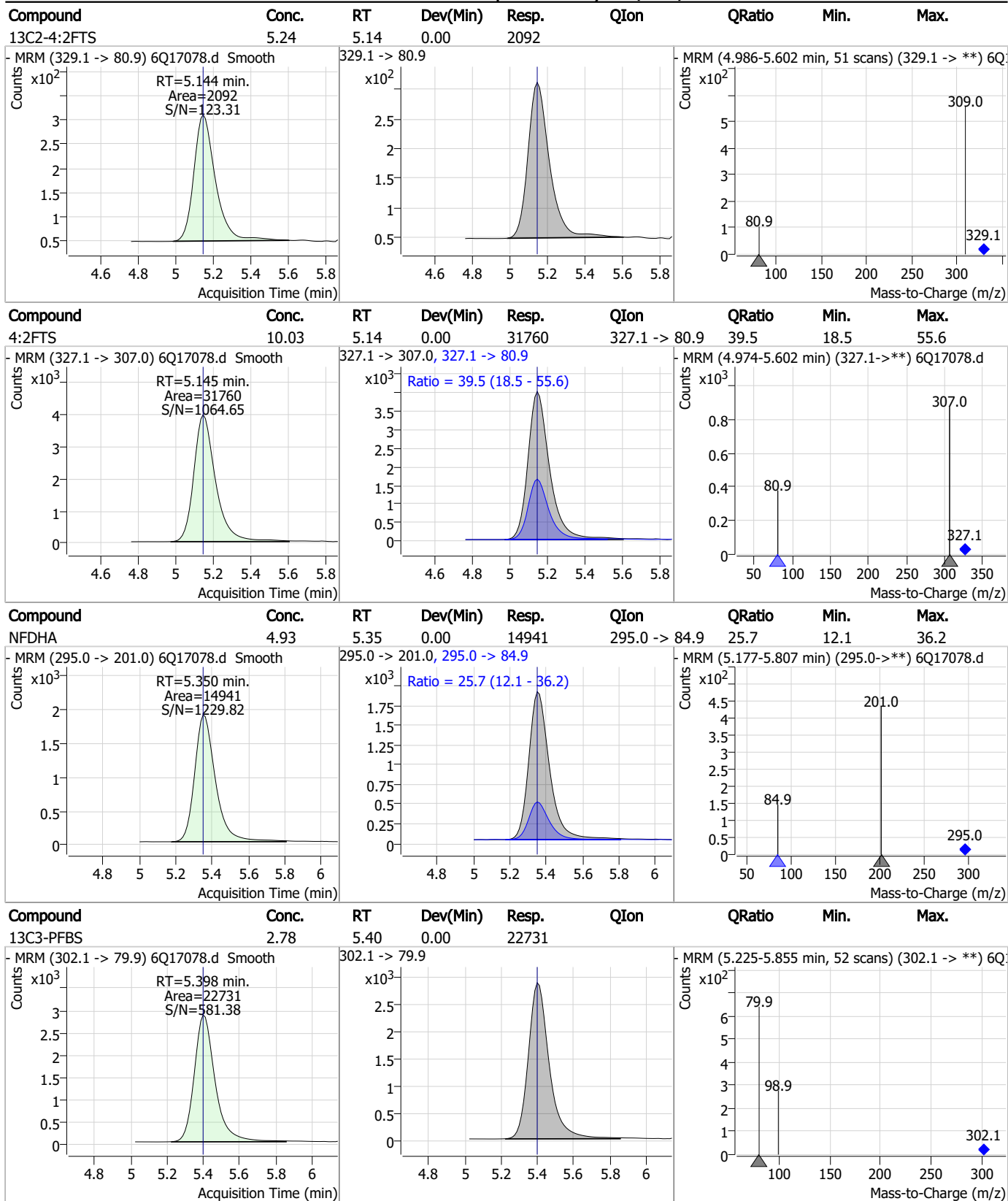
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	5.05	4.27	0.00	88981				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	5.12	4.69	0.00	60584				

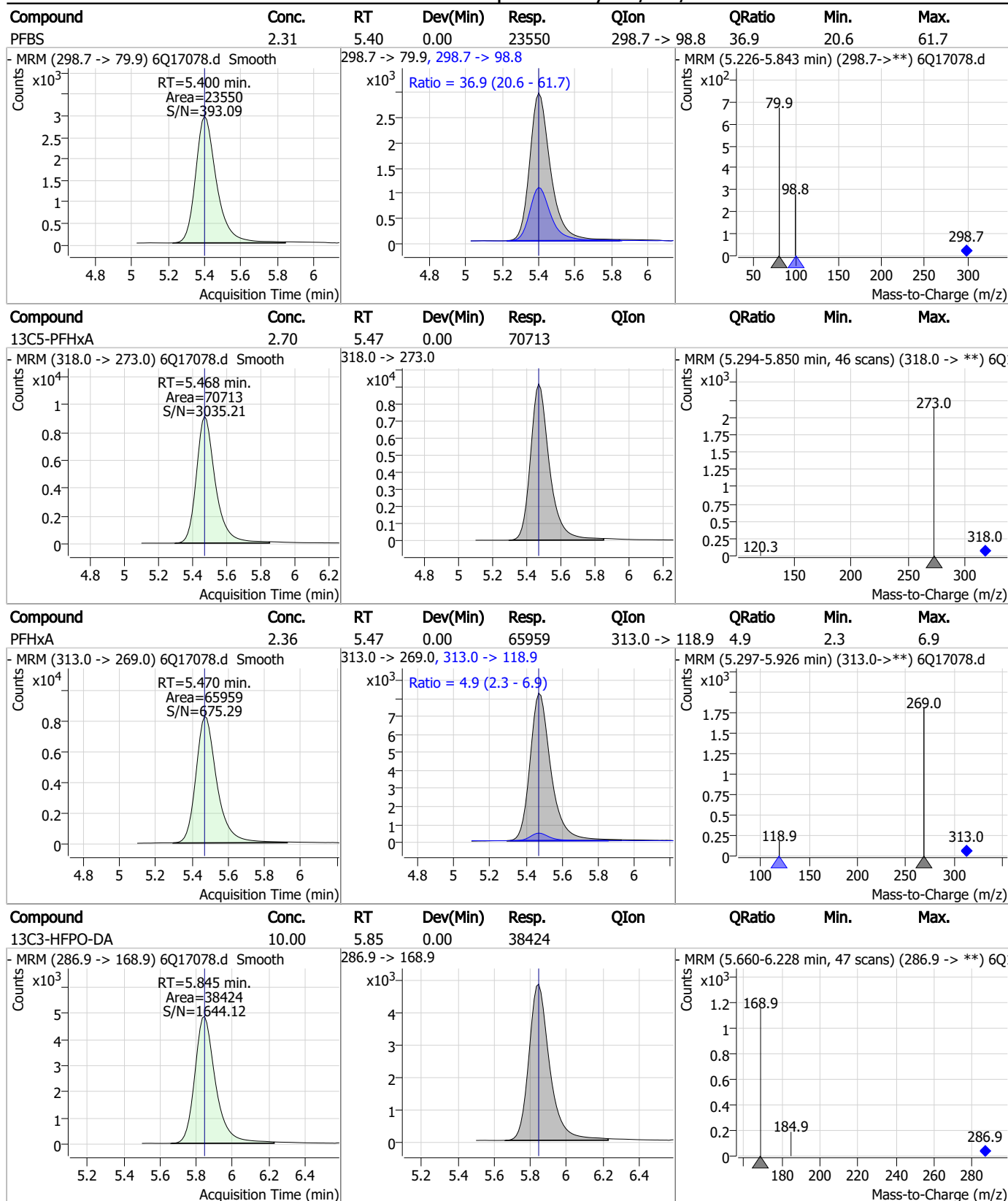


Perfluorinated Compounds by LC/MS/MS



7.4.1
7

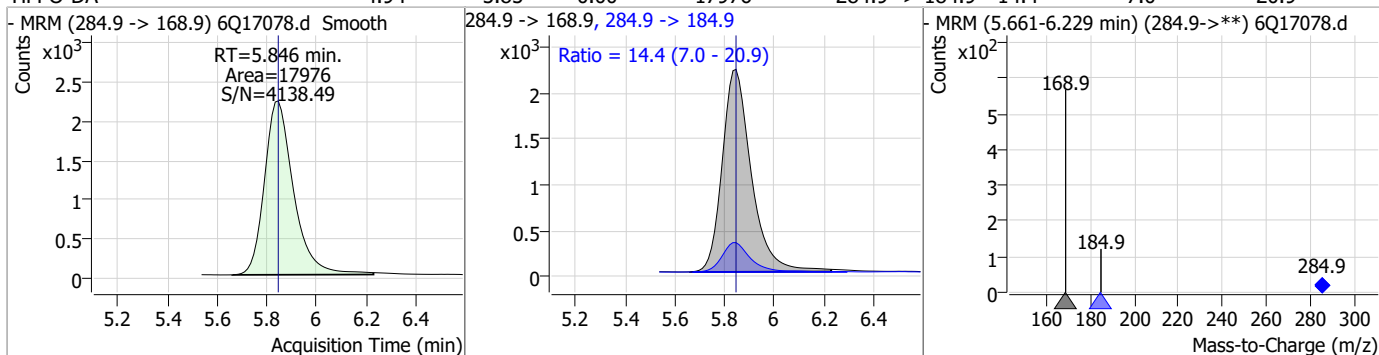
Perfluorinated Compounds by LC/MS/MS



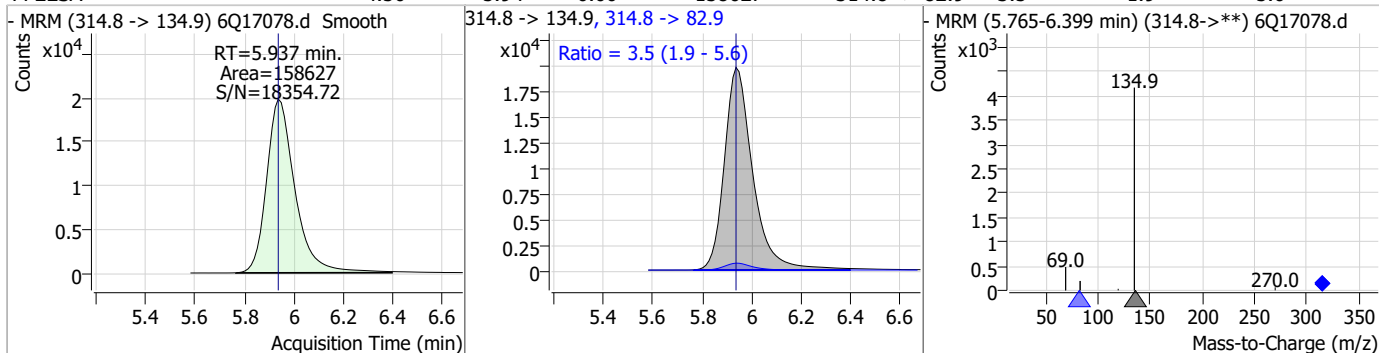
7.4.1
7

Perfluorinated Compounds by LC/MS/MS

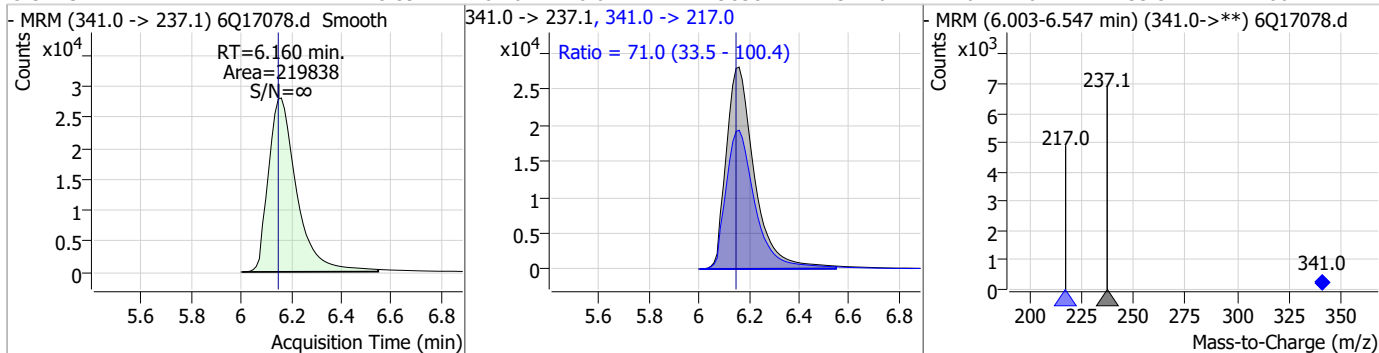
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.94	5.85	0.00	17976	284.9 -> 184.9	14.4	7.0	20.9



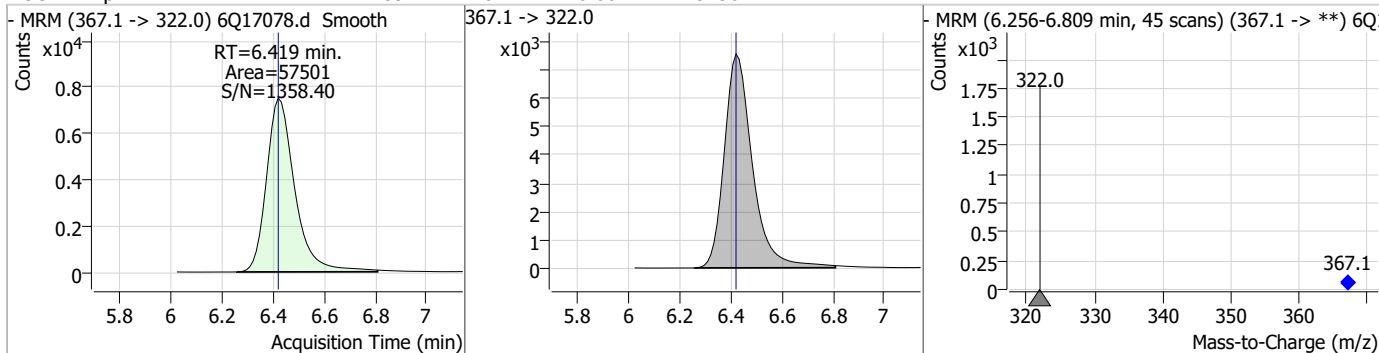
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.50	5.94	0.00	158627	314.8 -> 82.9	3.5	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	48.59	6.16	0.01	219838	341.0 -> 217.0	71.0	33.5	100.4



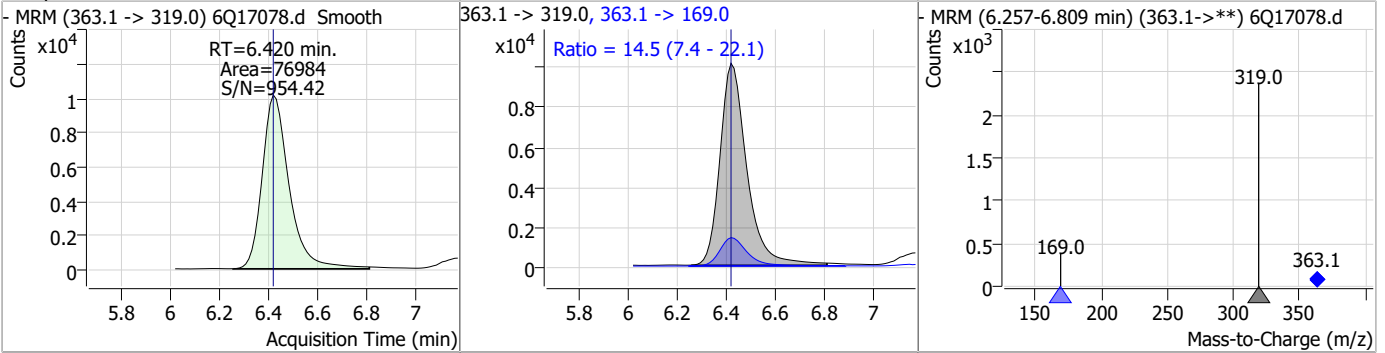
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.59	6.42	0.00	57501	367.1 -> 322.0			



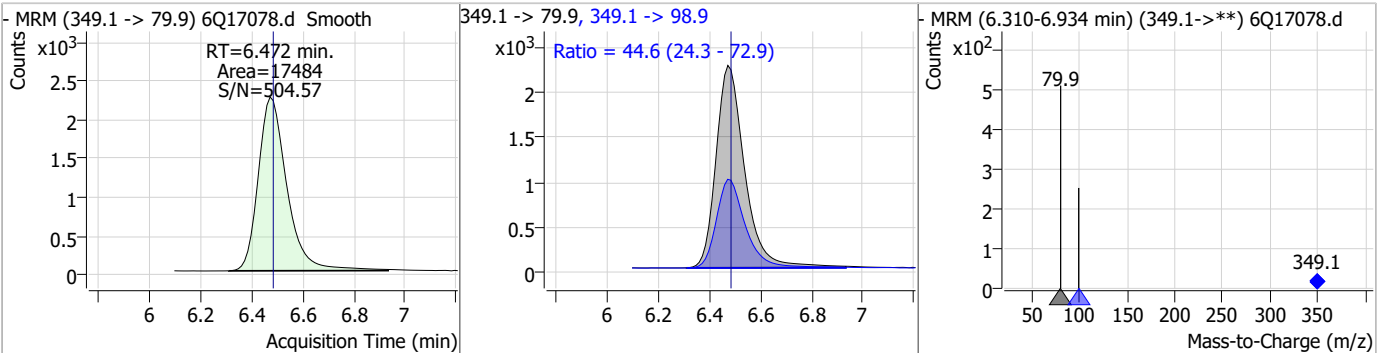
7.4.1
7

Perfluorinated Compounds by LC/MS/MS

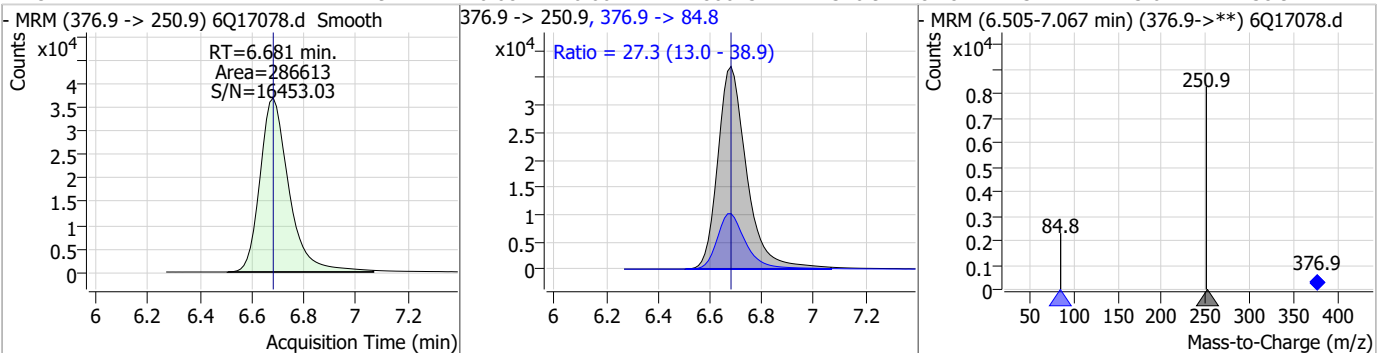
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	2.71	6.42	0.00	76984	363.1 -> 169.0	14.5	7.4	22.1



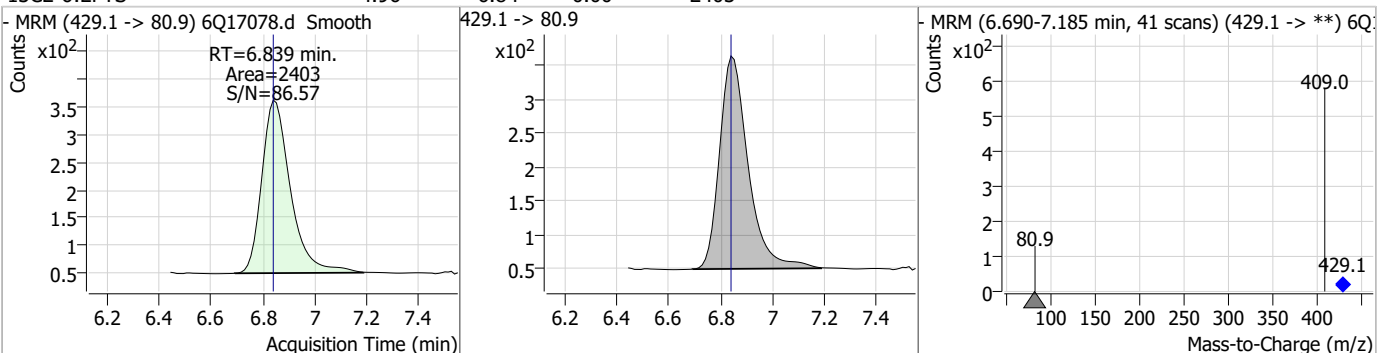
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	2.65	6.47	-0.01	17484	349.1 -> 98.9	44.6	24.3	72.9



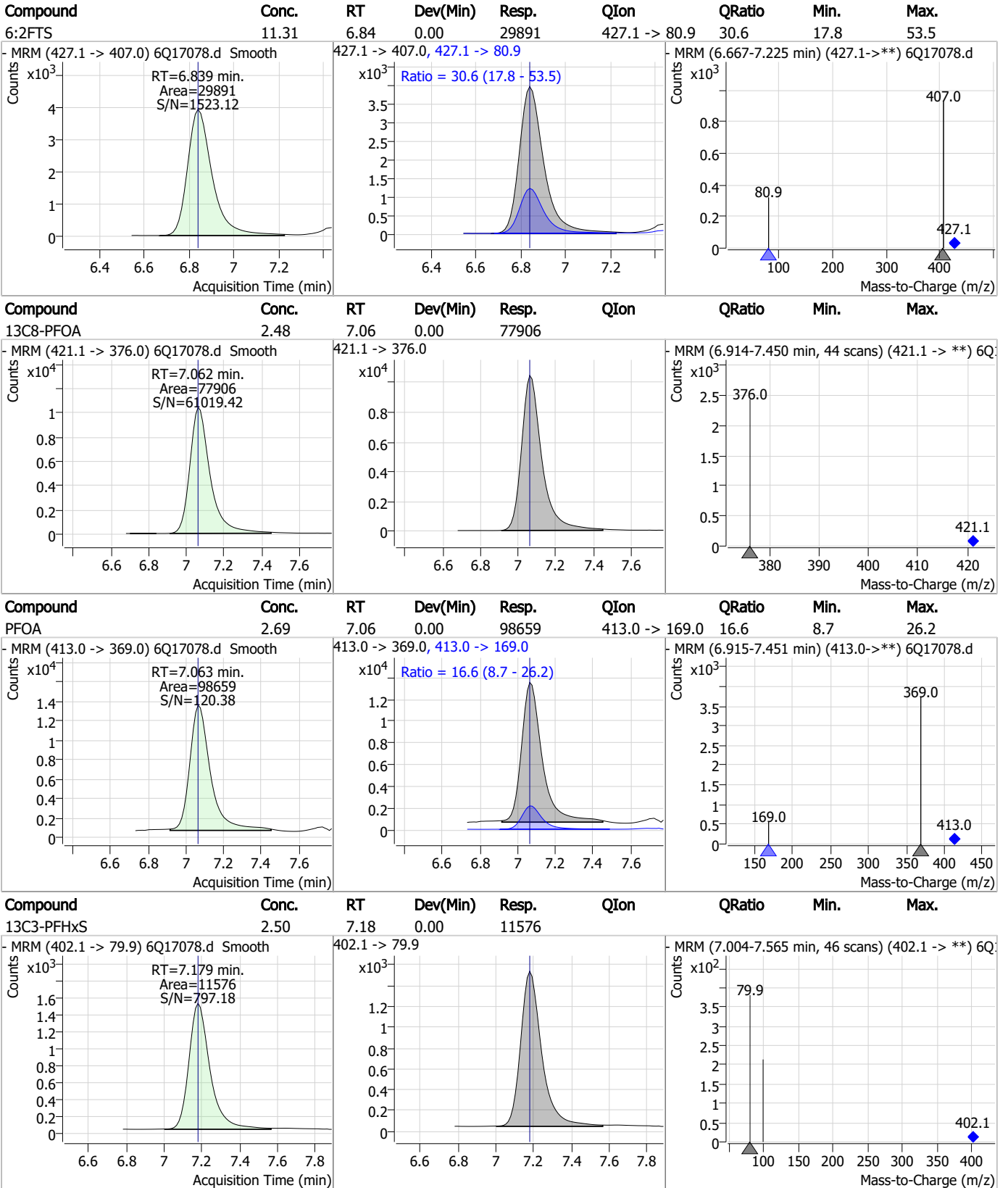
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	4.94	6.68	0.00	286613	376.9 -> 84.8	27.3	13.0	38.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	4.96	6.84	0.00	2403	429.1 -> 80.9			



Perfluorinated Compounds by LC/MS/MS

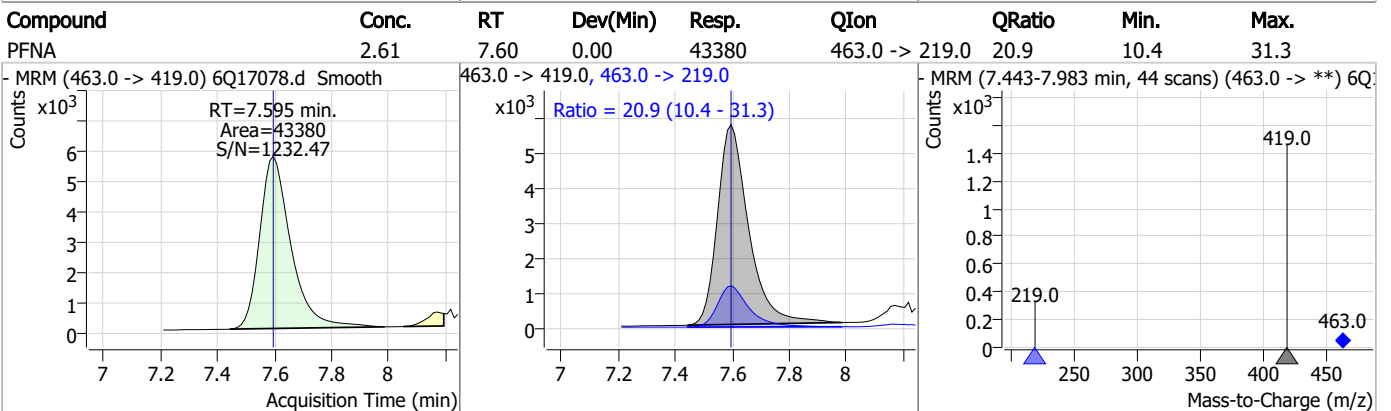
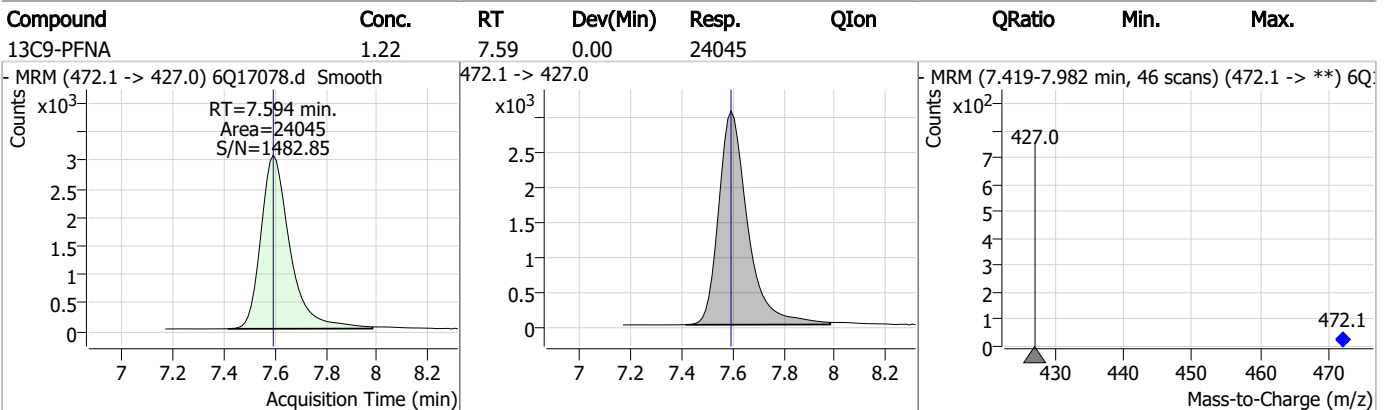
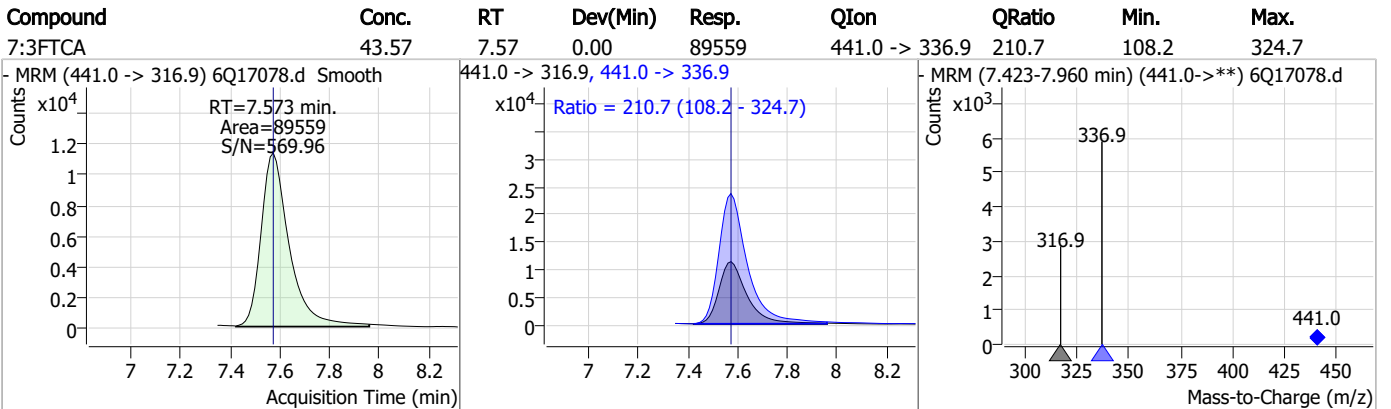
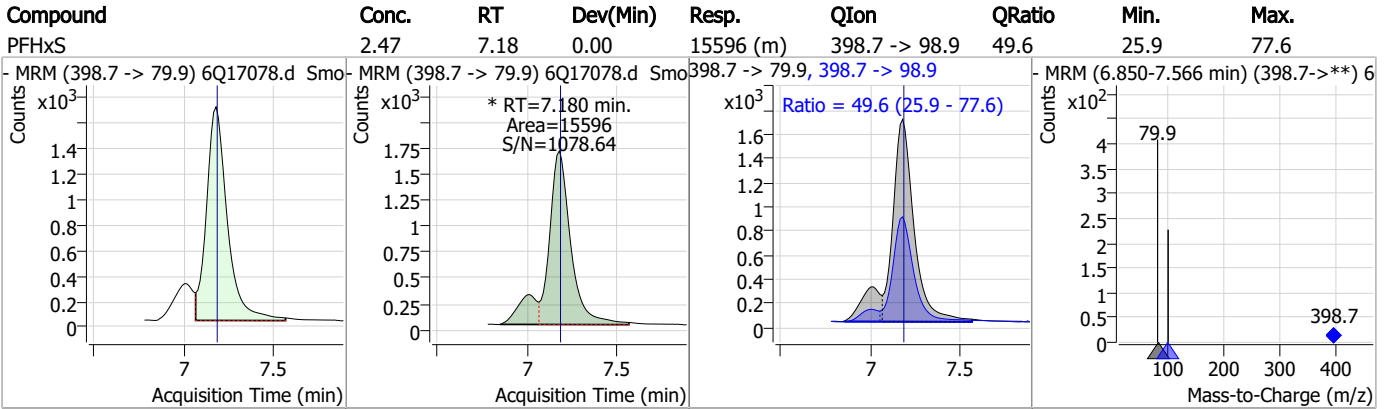


7.4.1

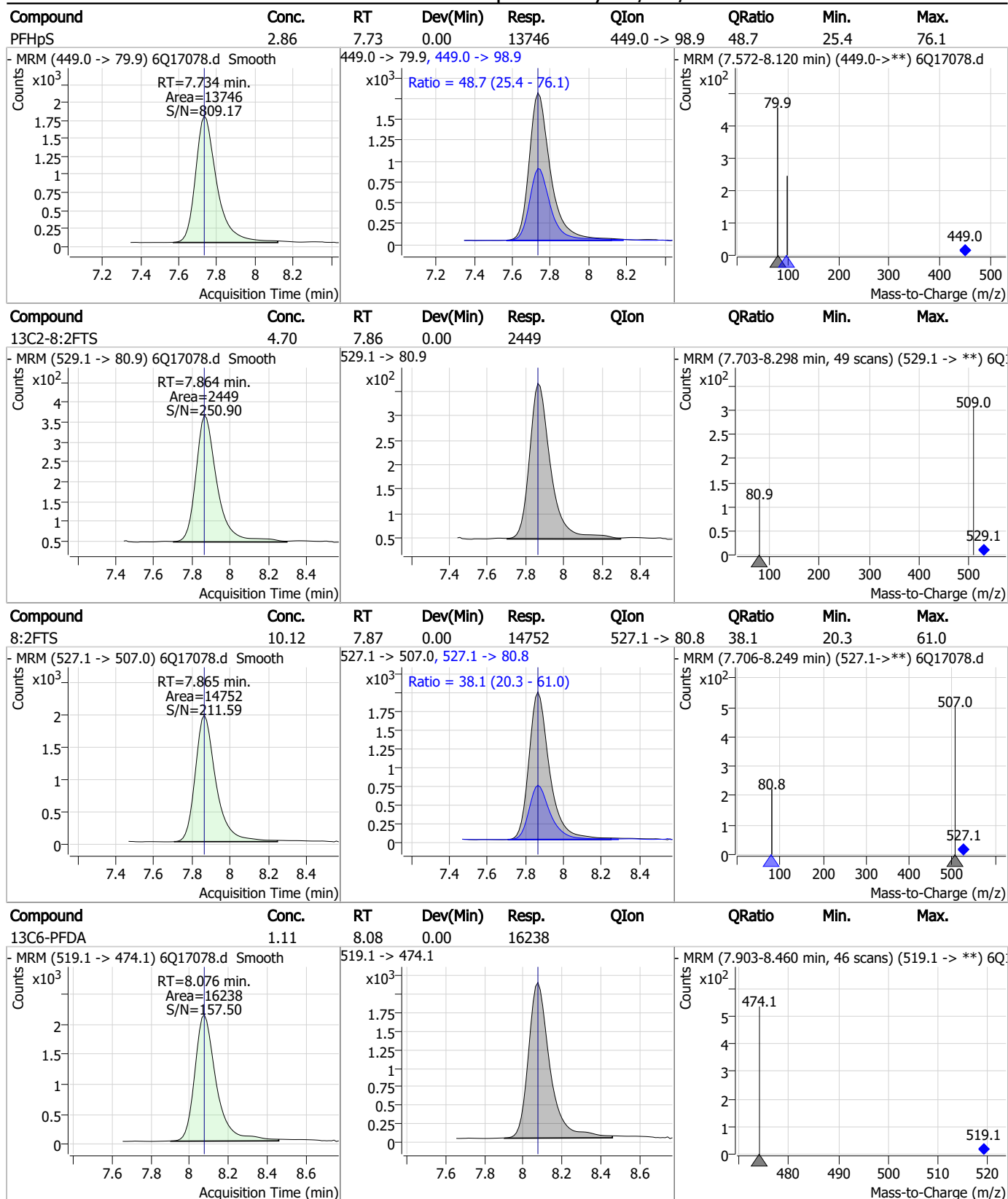
7



Perfluorinated Compounds by LC/MS/MS



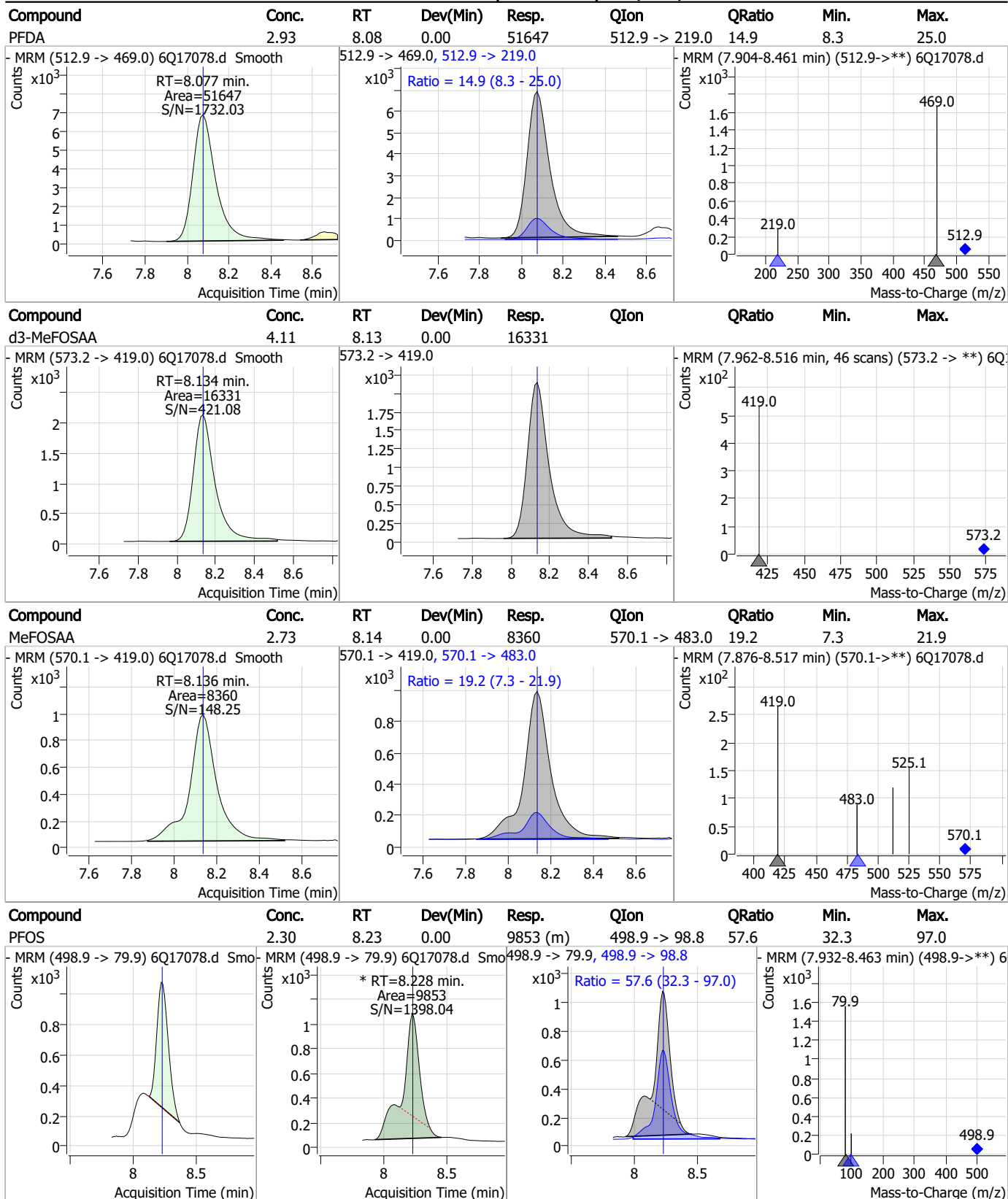
Perfluorinated Compounds by LC/MS/MS



7.4.1

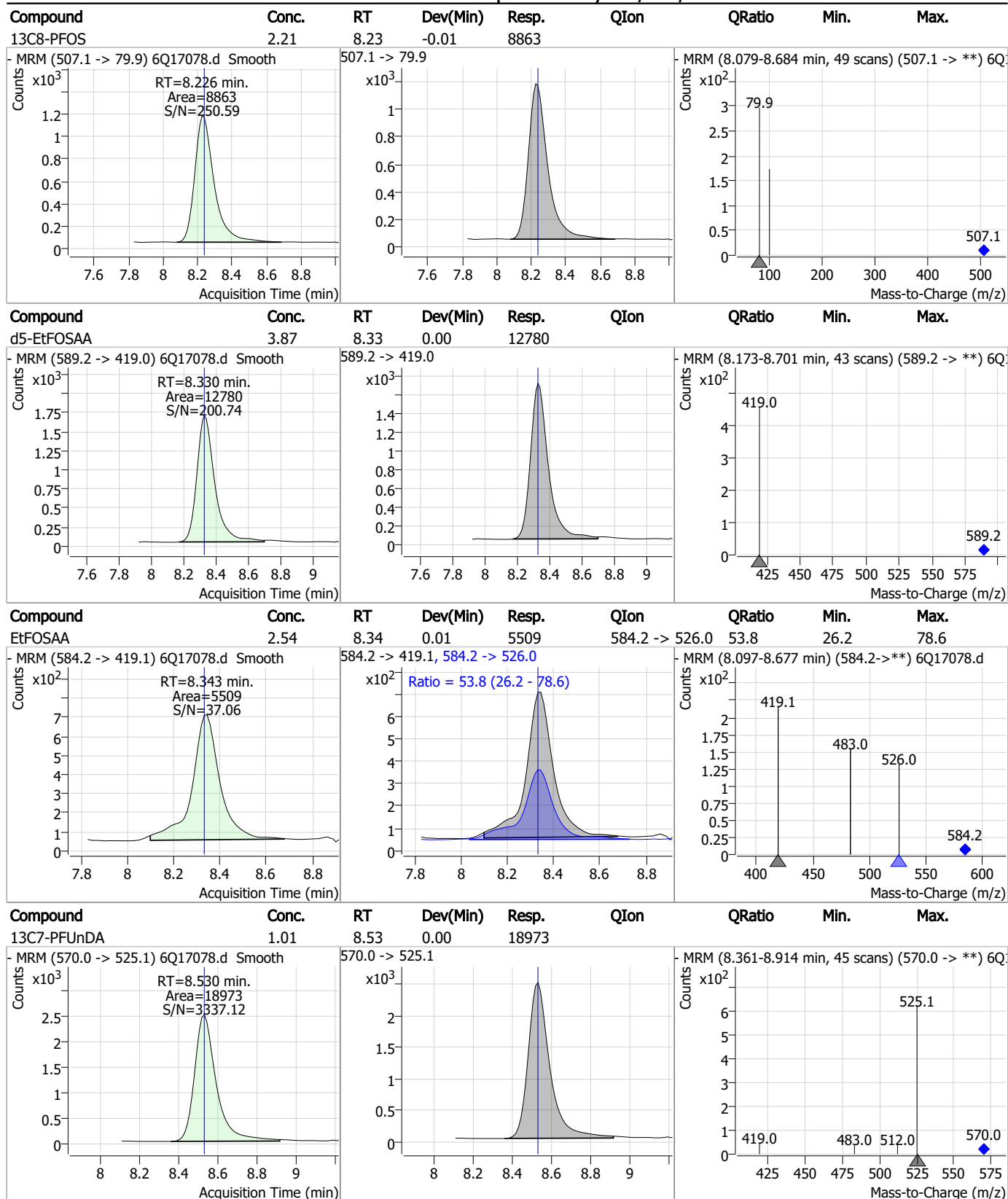
7

Perfluorinated Compounds by LC/MS/MS



7.4.1
7

Perfluorinated Compounds by LC/MS/MS

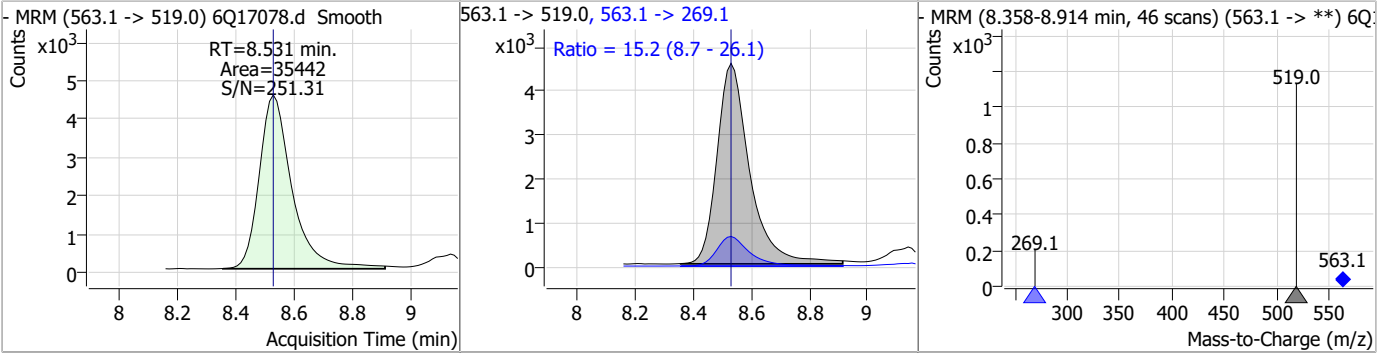


7.4.1

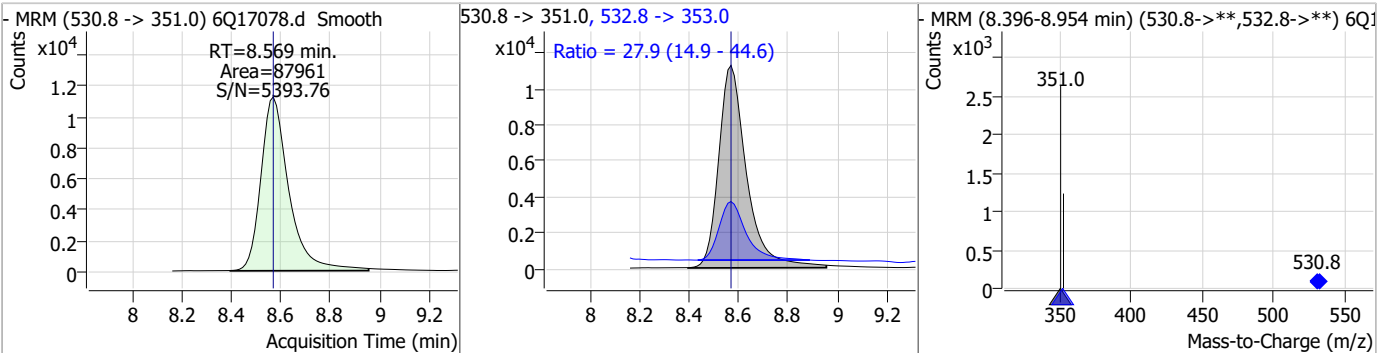
7

Perfluorinated Compounds by LC/MS/MS

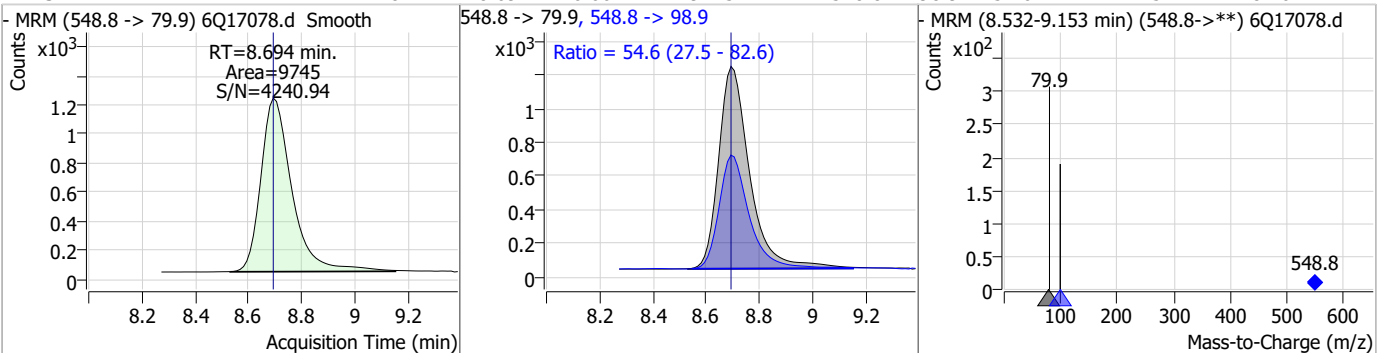
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.69	8.53	0.00	35442	563.1 -> 269.1	15.2	8.7	26.1



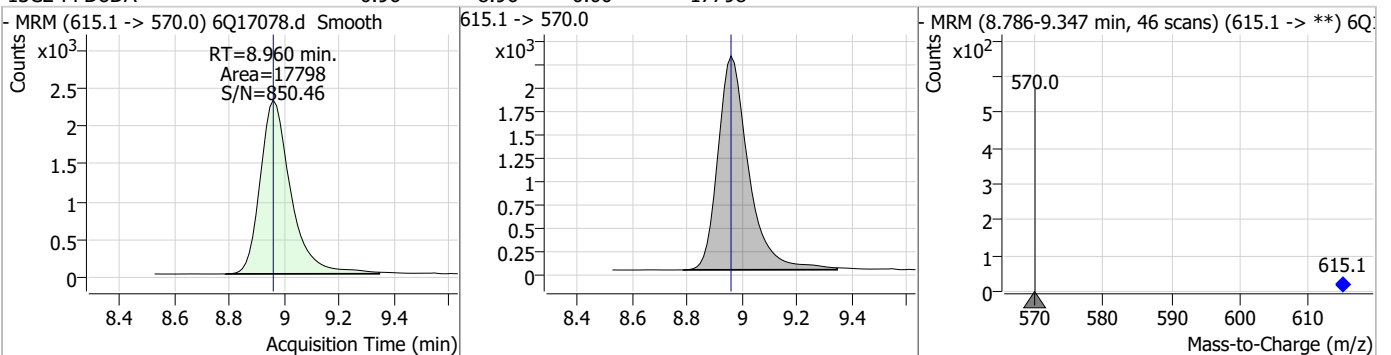
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.22	8.57	0.00	87961	532.8 -> 353.0	27.9	14.9	44.6



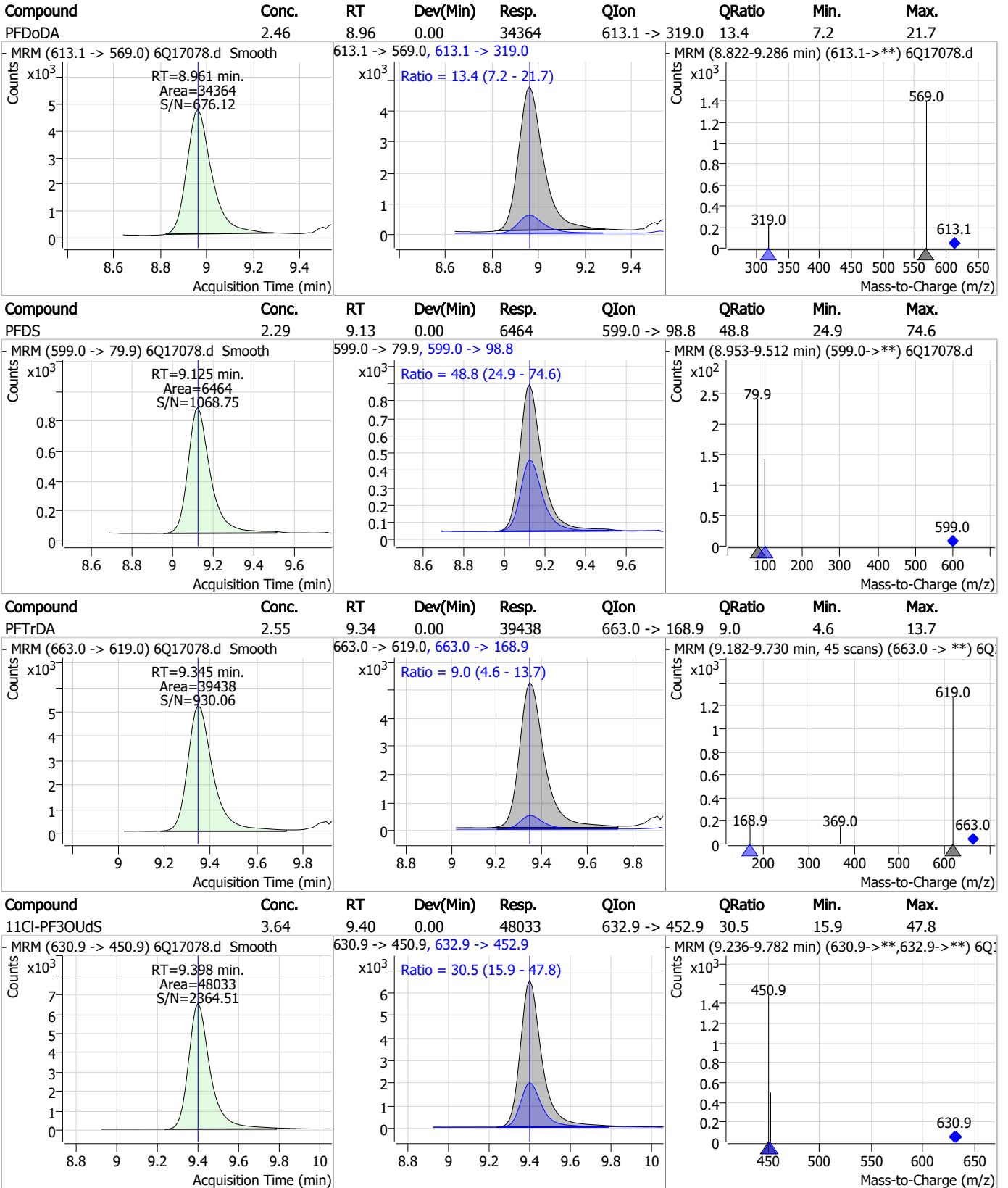
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.28	8.69	0.00	9745	548.8 -> 98.9	54.6	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.96	8.96	0.00	17798	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

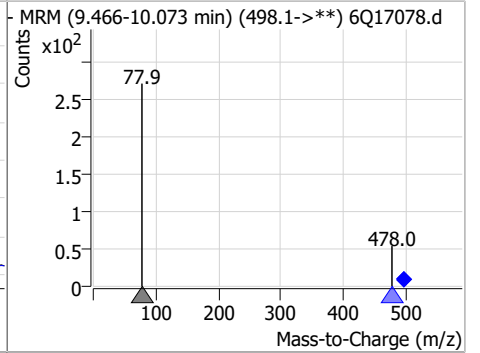
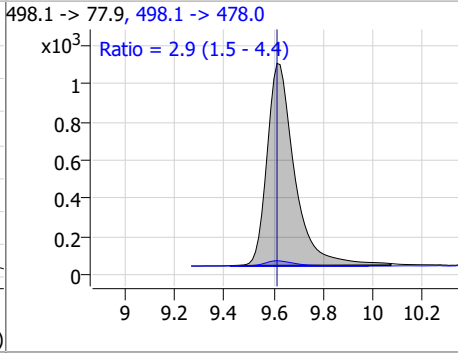
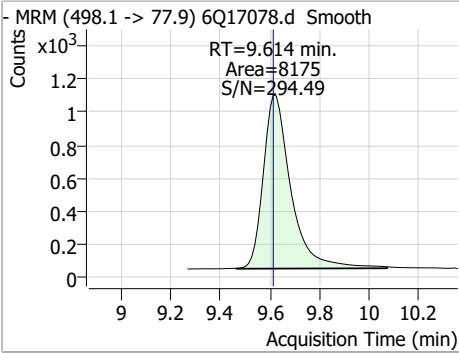


7.4.1

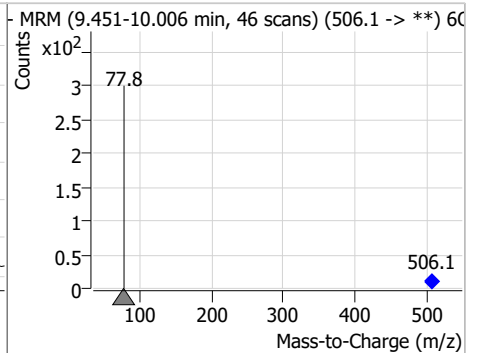
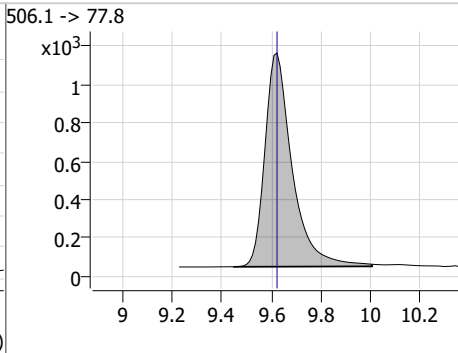
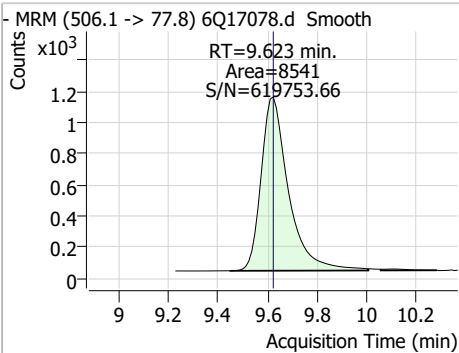
7

Perfluorinated Compounds by LC/MS/MS

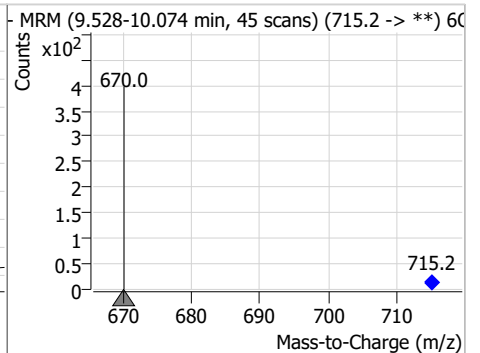
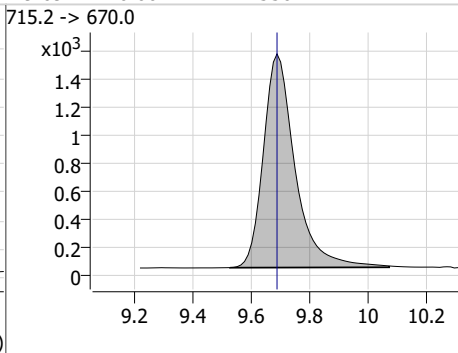
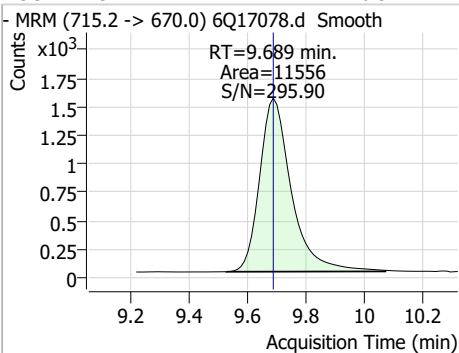
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.67	9.61	0.00	8175	498.1 -> 478.0	2.9	1.5	4.4



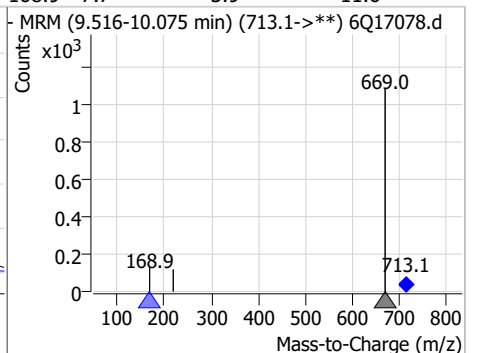
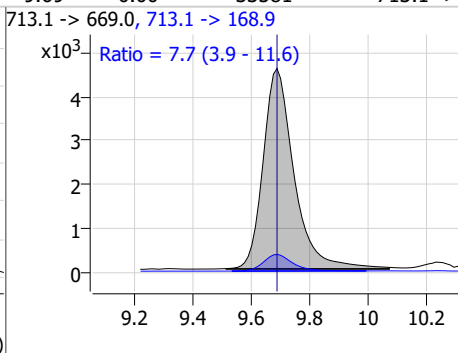
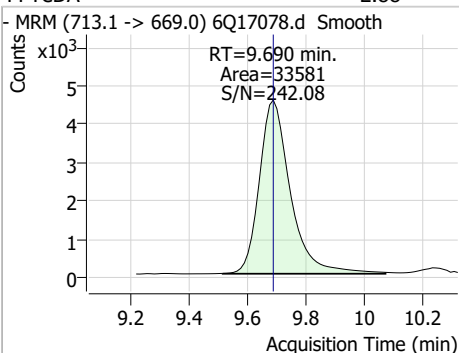
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	0.97	9.62	0.00	8541				



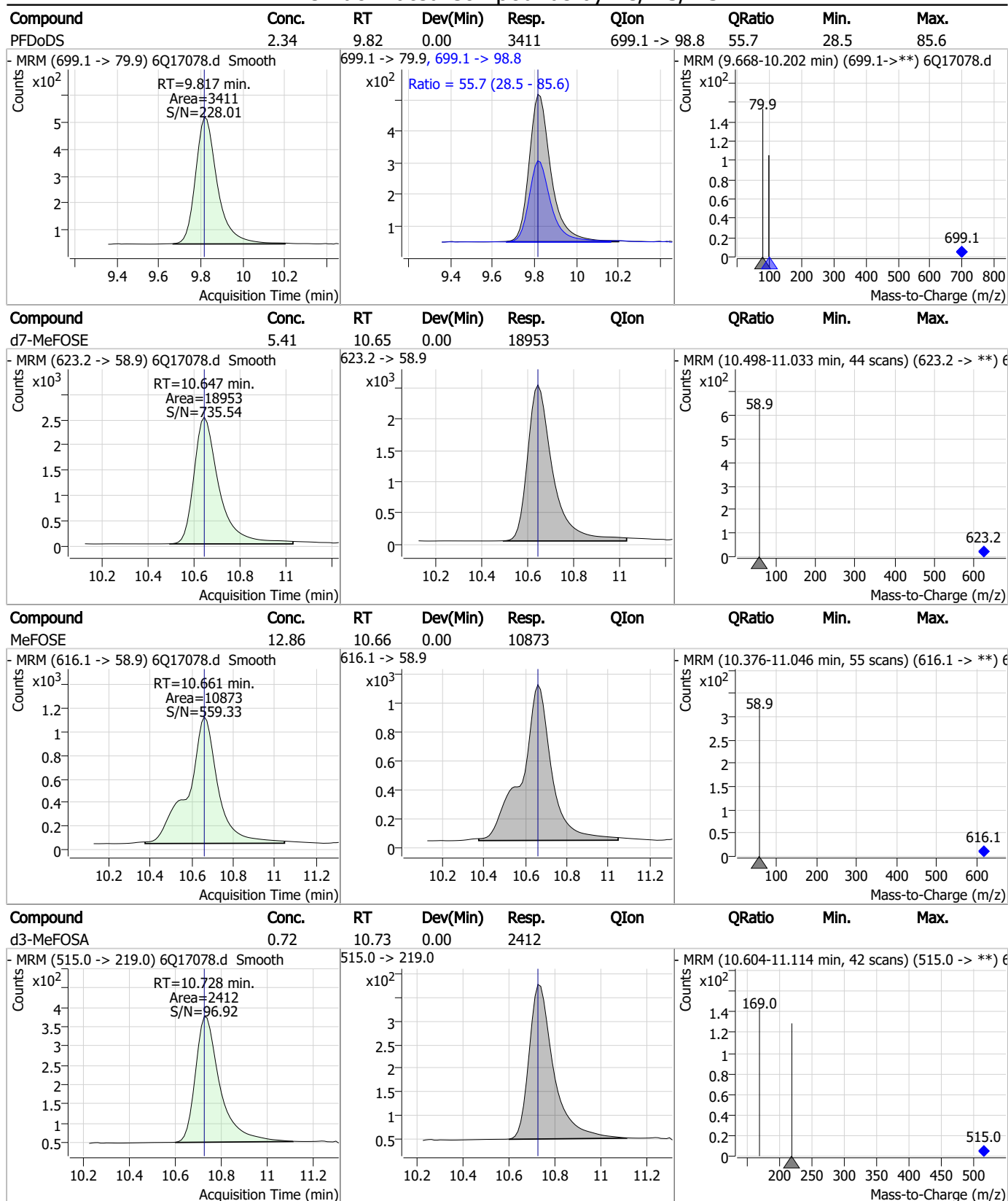
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.92	9.69	0.00	11556				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.88	9.69	0.00	33581	713.1 -> 168.9	7.7	3.9	11.6



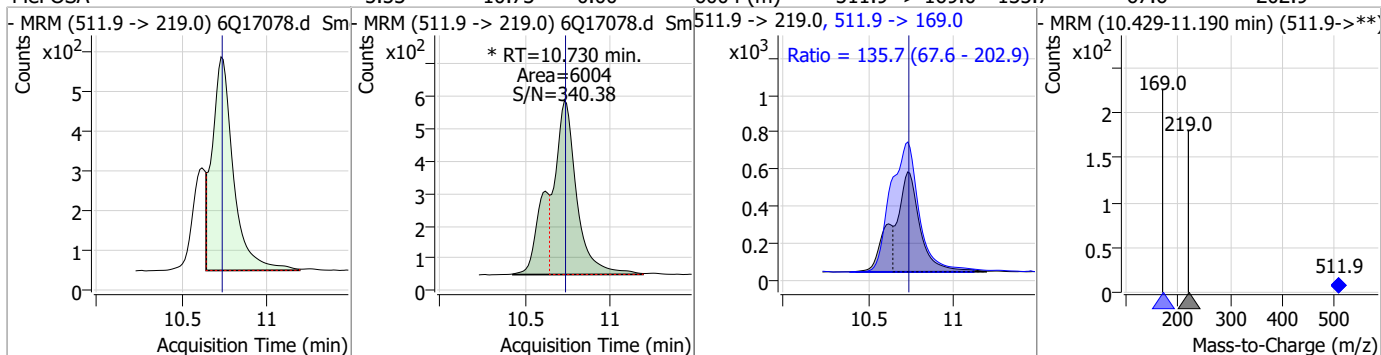
Perfluorinated Compounds by LC/MS/MS



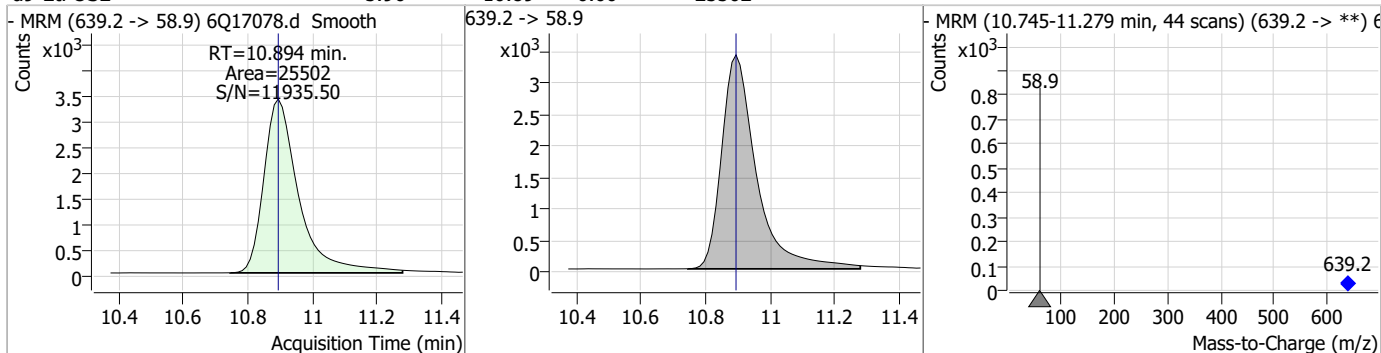
7.4.1
7

Perfluorinated Compounds by LC/MS/MS

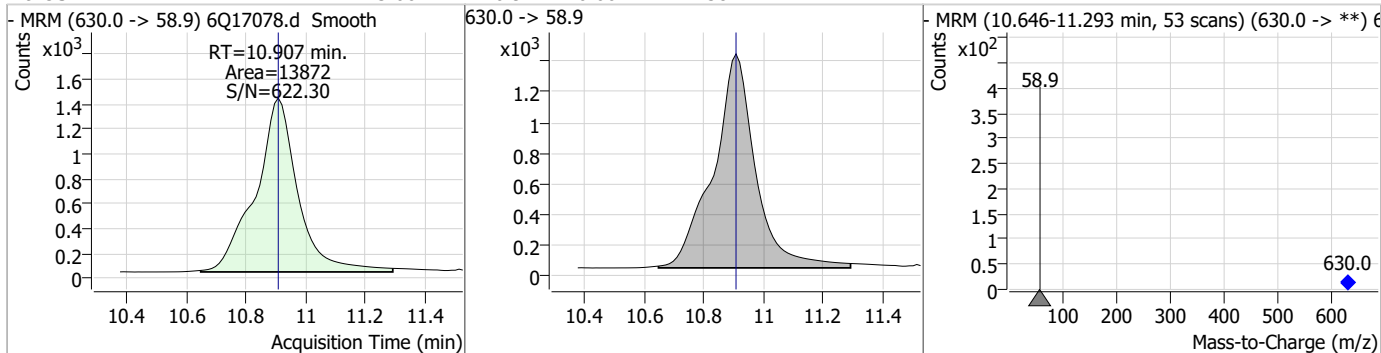
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.53	10.73	0.00	6004 (m)	511.9 -> 169.0	135.7	67.6	202.9



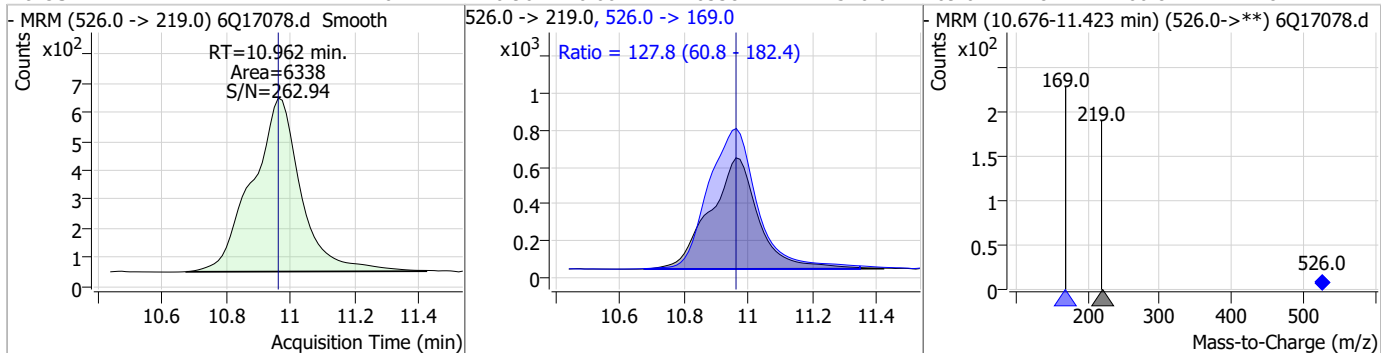
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	5.96	10.89	0.00	25502				



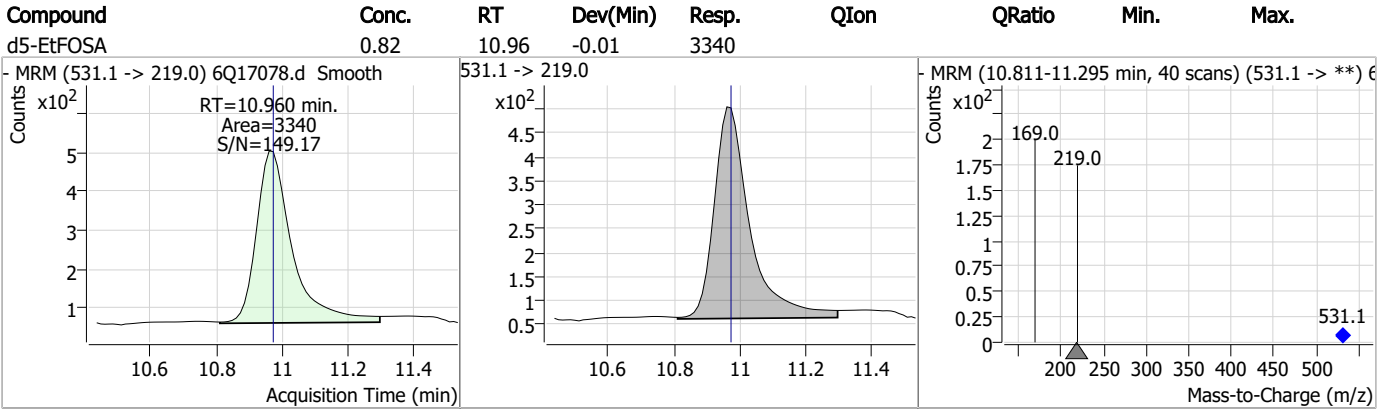
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.06	10.91	0.00	13872				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.62	10.96	0.00	6338	526.0 -> 169.0	127.8	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.4.1

7

Manual Integration Approval Summary

Sample Number: OP96603-MS Method: EPA DRAFT 1633
Lab FileID: 6Q17078.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 19:21 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.4.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17080.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 7:50:25 PM
 Sample Name : op96603-dup
 Vial : P3-A9
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96603,S6Q258,530,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	167434	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	64680	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70788	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	56864	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84900	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27729	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18586	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	19742	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	18390	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	11207	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	8144	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23747	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12359	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	8982	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2176	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2687	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2685	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	16425	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	37851	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	14236	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	17542	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	25649	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	2821	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	2257	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	13578	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	74053	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9033	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	82238	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23395	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27498	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	54666	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2176	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2687	5.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.6%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2685	4.95 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	18390	0.94 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 75.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	11207	0.85 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 68.1%		
13C3-PFBS	5.398	302.1 -> 79.9	23747	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.8%		
13C3-PFHxS	7.179	402.1 -> 79.9	12359	2.57 µg/L	0.000

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 = 102.8%		
13C4-PFBA	2.910	216.8 -> 171.9	167434	9.78	µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
13C4-PFHpA	6.419	367.1 -> 322.0	56864	2.54	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%		
13C5-PFHxA	5.468	318.0 -> 273.0	70788	2.68	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%		
13C5-PFPeA	4.270	268.3 -> 223.0	64680	5.30	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%		
13C6-PFDA	8.076	519.1 -> 474.1	18586	1.20	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.4%		
13C7-PFUnDA	8.530	570.0 -> 525.1	19742	1.00	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 79.9%		
13C8-FOSA	9.623	506.1 -> 77.8	8144	0.91	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 36.3%		
13C8-PFOA	7.062	421.1 -> 376.0	84900	2.67	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.0%		
13C8-PFOS	8.239	507.1 -> 79.9	8982	2.20	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 87.8%		
13C9-PFNA	7.594	472.1 -> 427.0	27729	1.32	µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.8%		
d3-MeFOSAA	8.134	573.2 -> 419.0	16425	4.06	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 81.2%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	37851	9.78	µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%		
d3-MeFOSA	10.741	515.0 -> 219.0	2257	0.67	µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 26.6%		
d5-EtFOSAA	8.330	589.2 -> 419.0	14236	4.23	µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 84.7%		
d7-MeFOSE	10.647	623.2 -> 58.9	17542	4.92	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 19.7%		
d9-EtFOSE	10.894	639.2 -> 58.9	25649	5.89	µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 23.6%		
d5-EtFOSA	10.973	531.1 -> 219.0	2821	0.68	µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 27.1%		

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	8.695	512.9 -> 469.0	0	µg/L	m	1
		512.9 -> 219.0	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	8.193	398.7 -> 98.9	0	µg/L	m	1
		463.0 -> 419.0				
PFNS	-	463.0 -> 219.0	552			
		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	9.139	563.1 -> 519.0	0	µg/L	m	1
		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

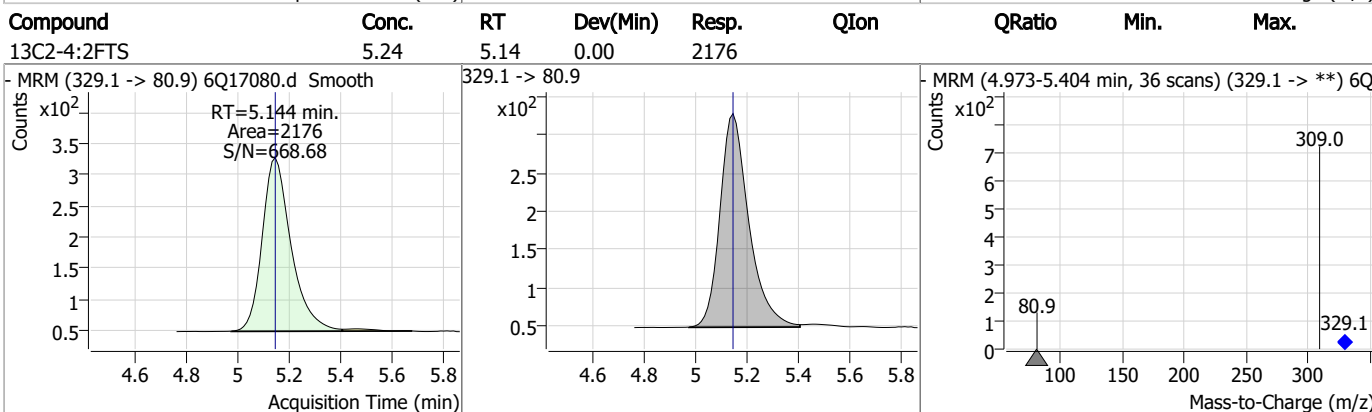
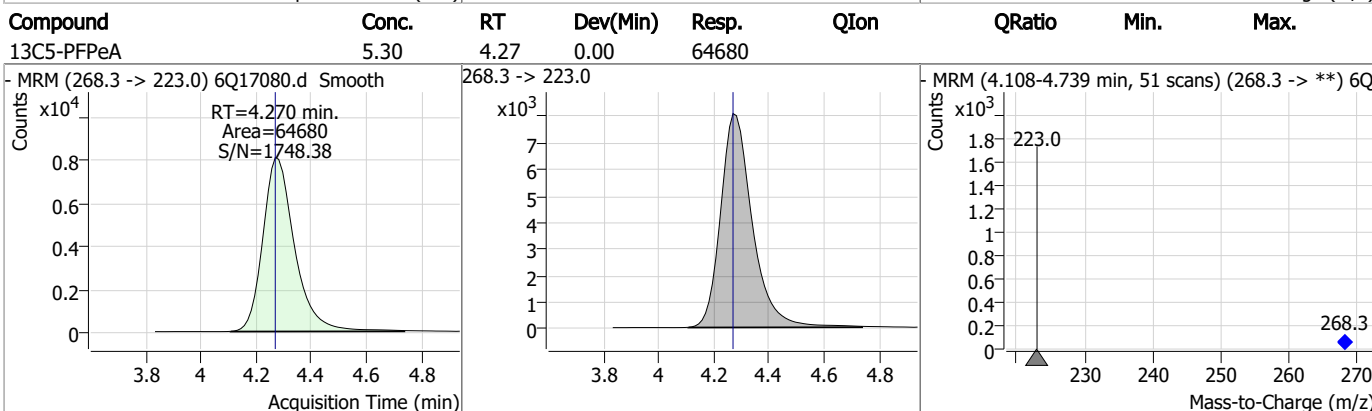
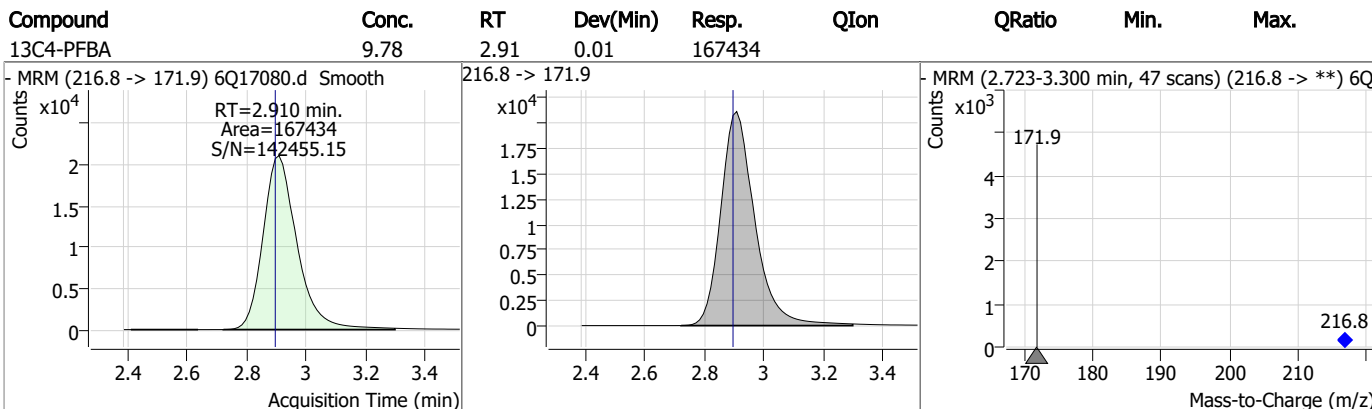
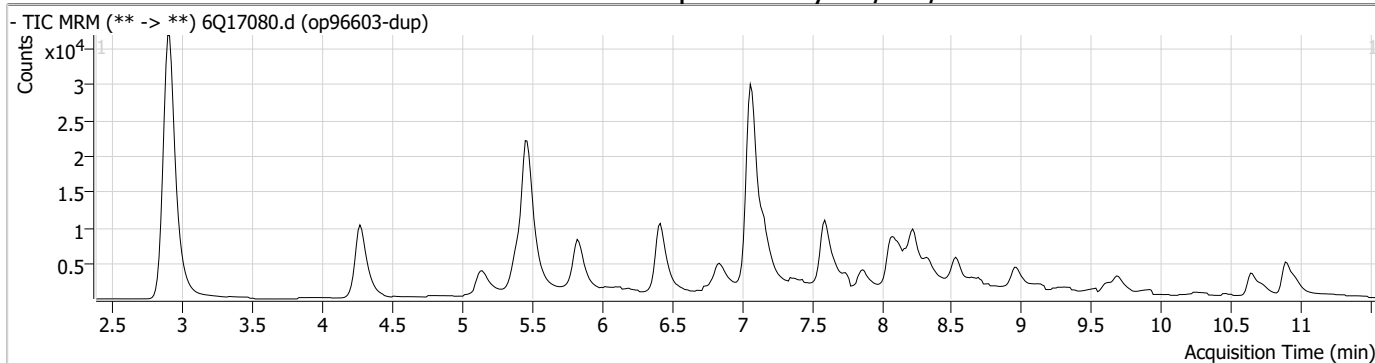
Perfluorinated Compounds by LC/MS/MS

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

7.5.1

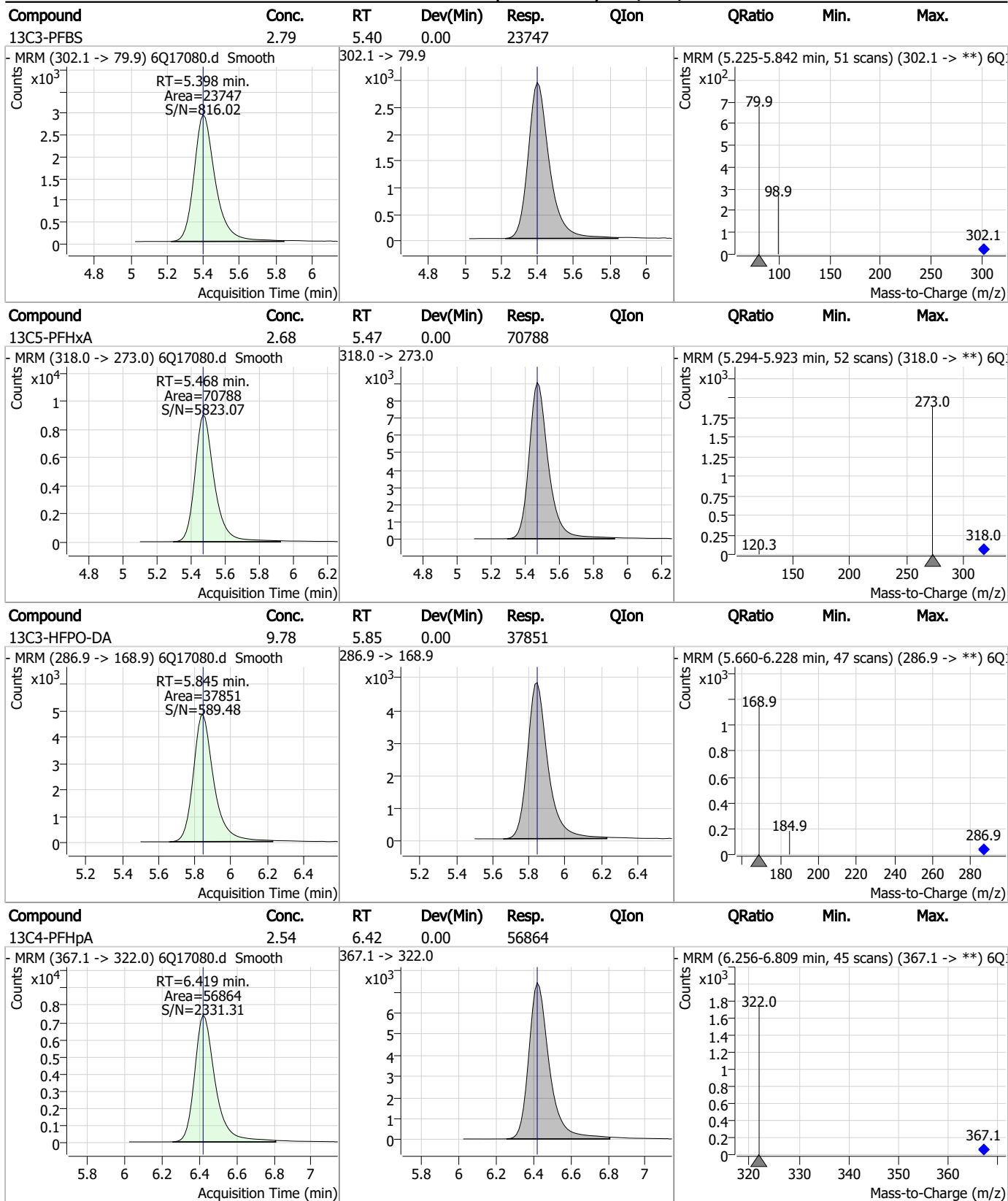
7

Perfluorinated Compounds by LC/MS/MS



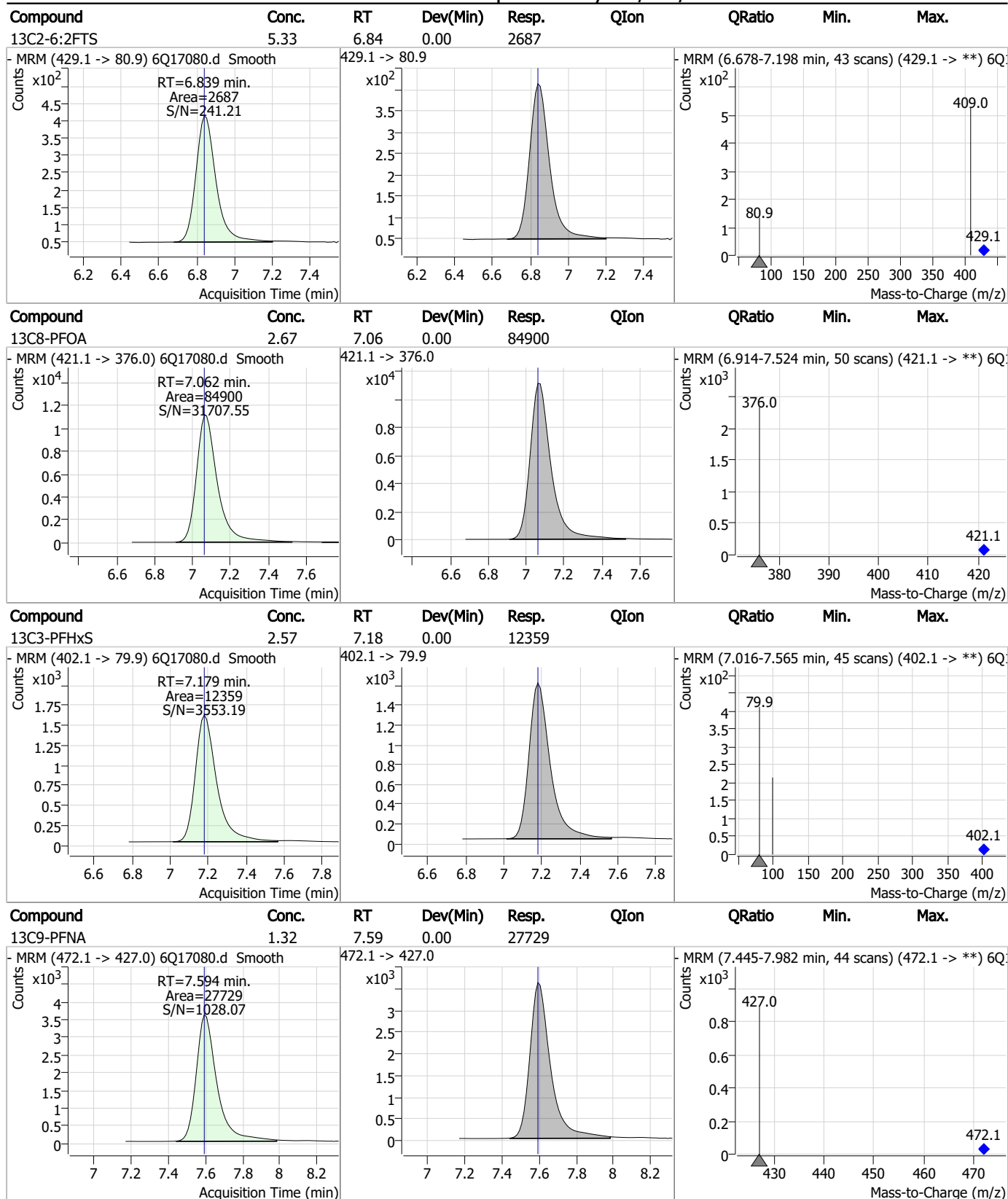
7.5.1
7

Perfluorinated Compounds by LC/MS/MS



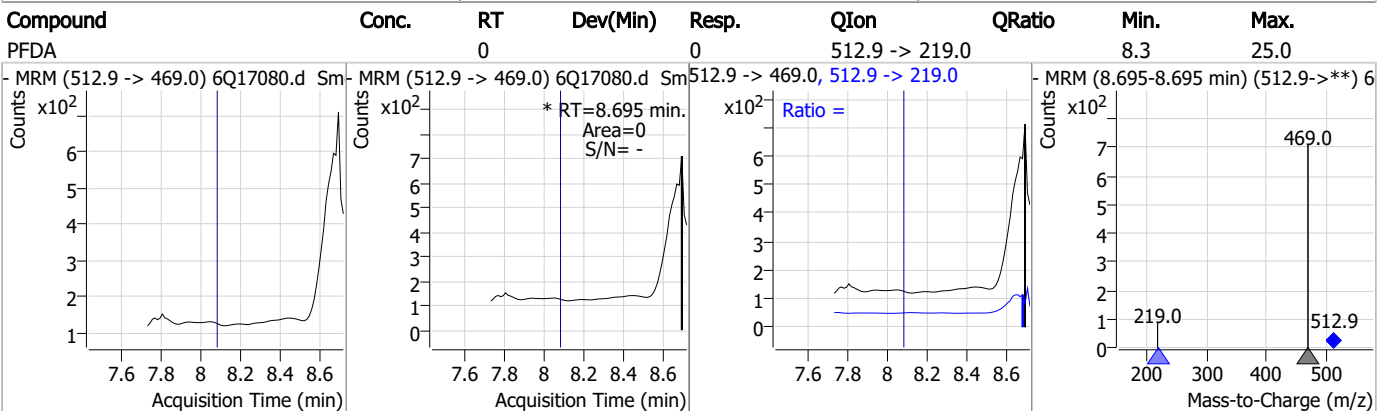
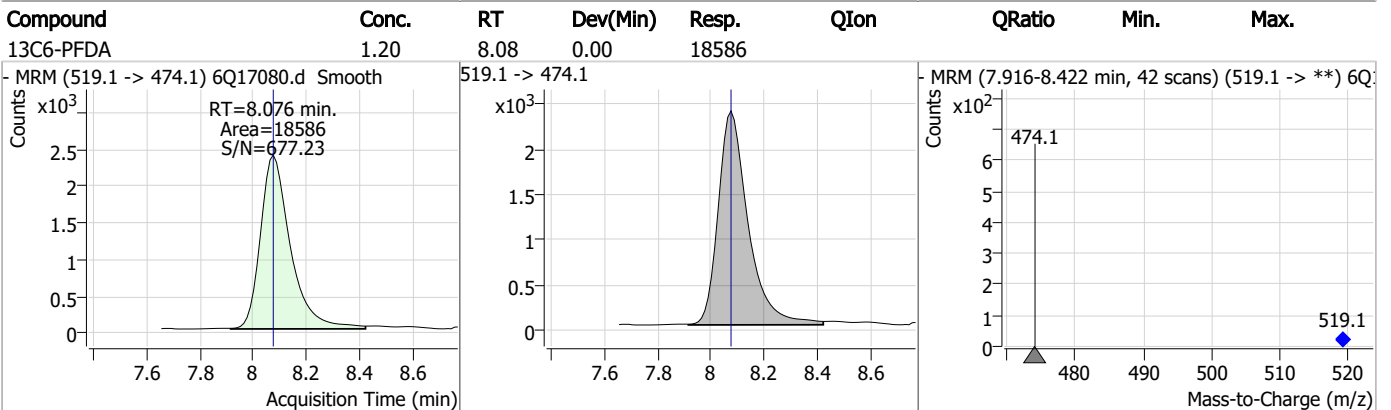
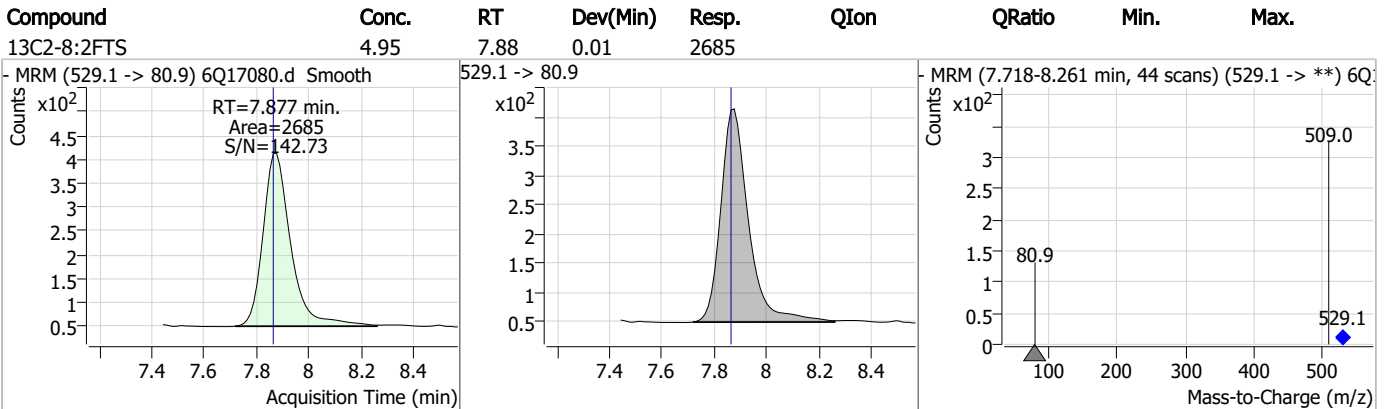
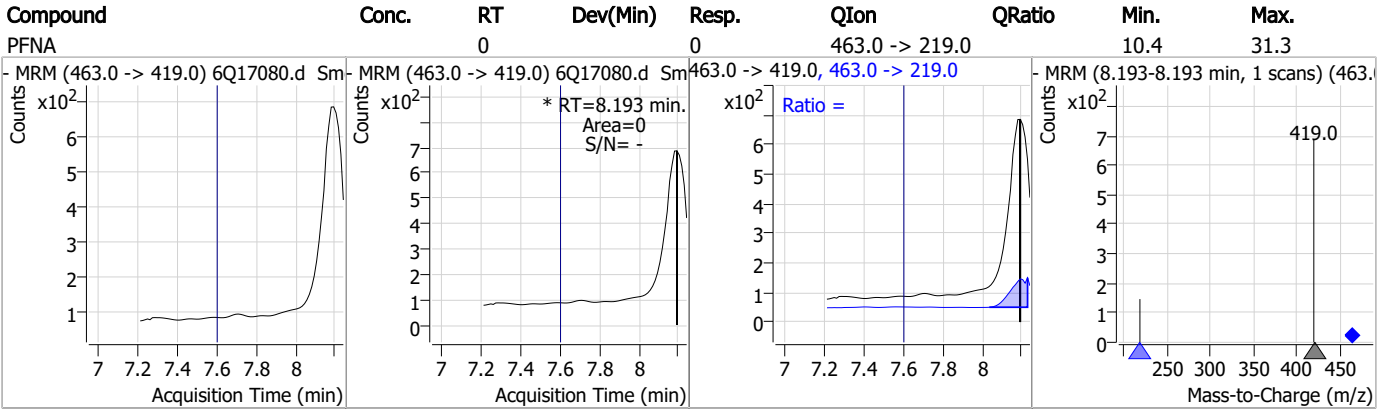
7.5.1
7

Perfluorinated Compounds by LC/MS/MS

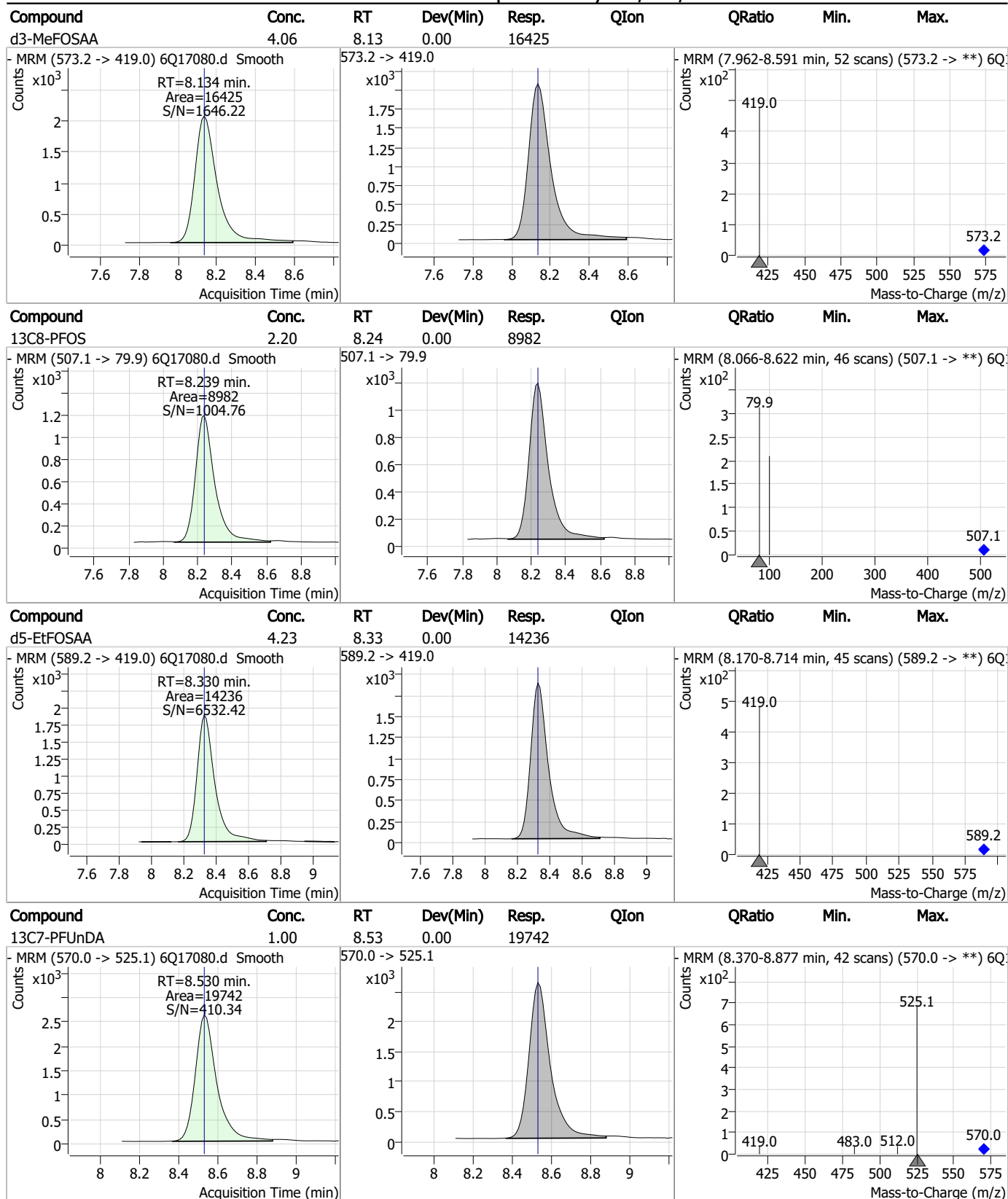


7.5.1
7

Perfluorinated Compounds by LC/MS/MS



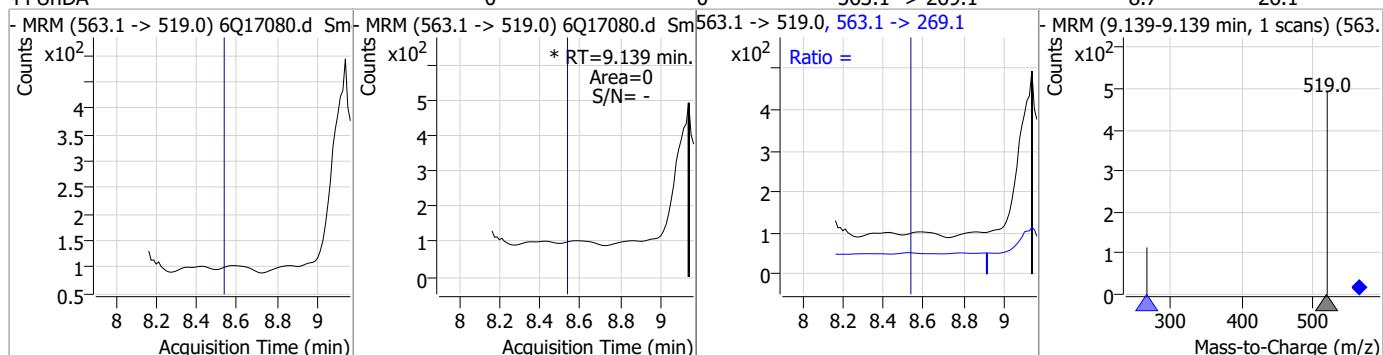
Perfluorinated Compounds by LC/MS/MS



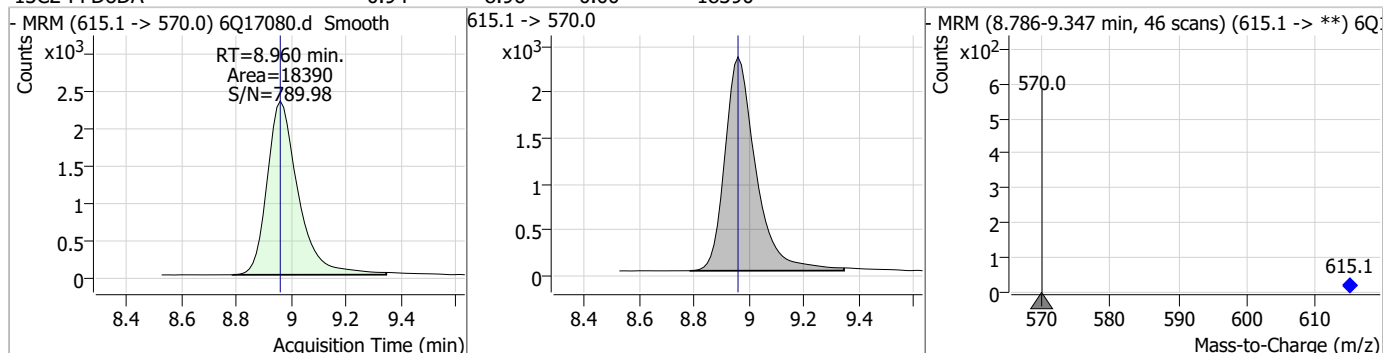
7.5.1
7

Perfluorinated Compounds by LC/MS/MS

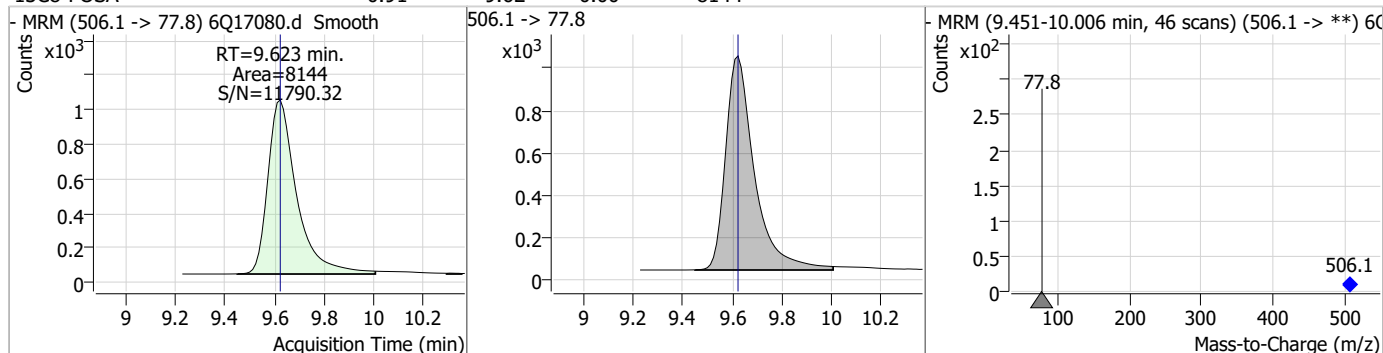
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	0	0		0	563.1 -> 269.1		8.7	26.1



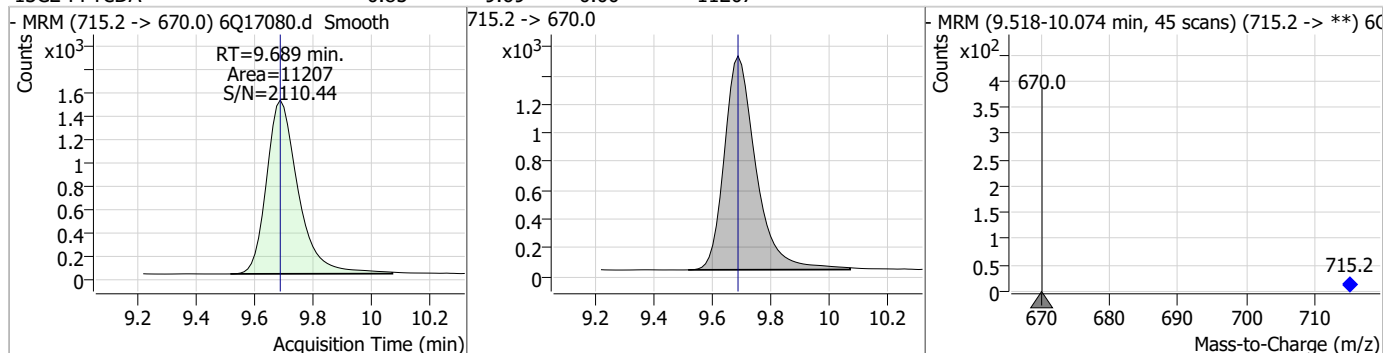
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	0.94	8.96	0.00	18390				



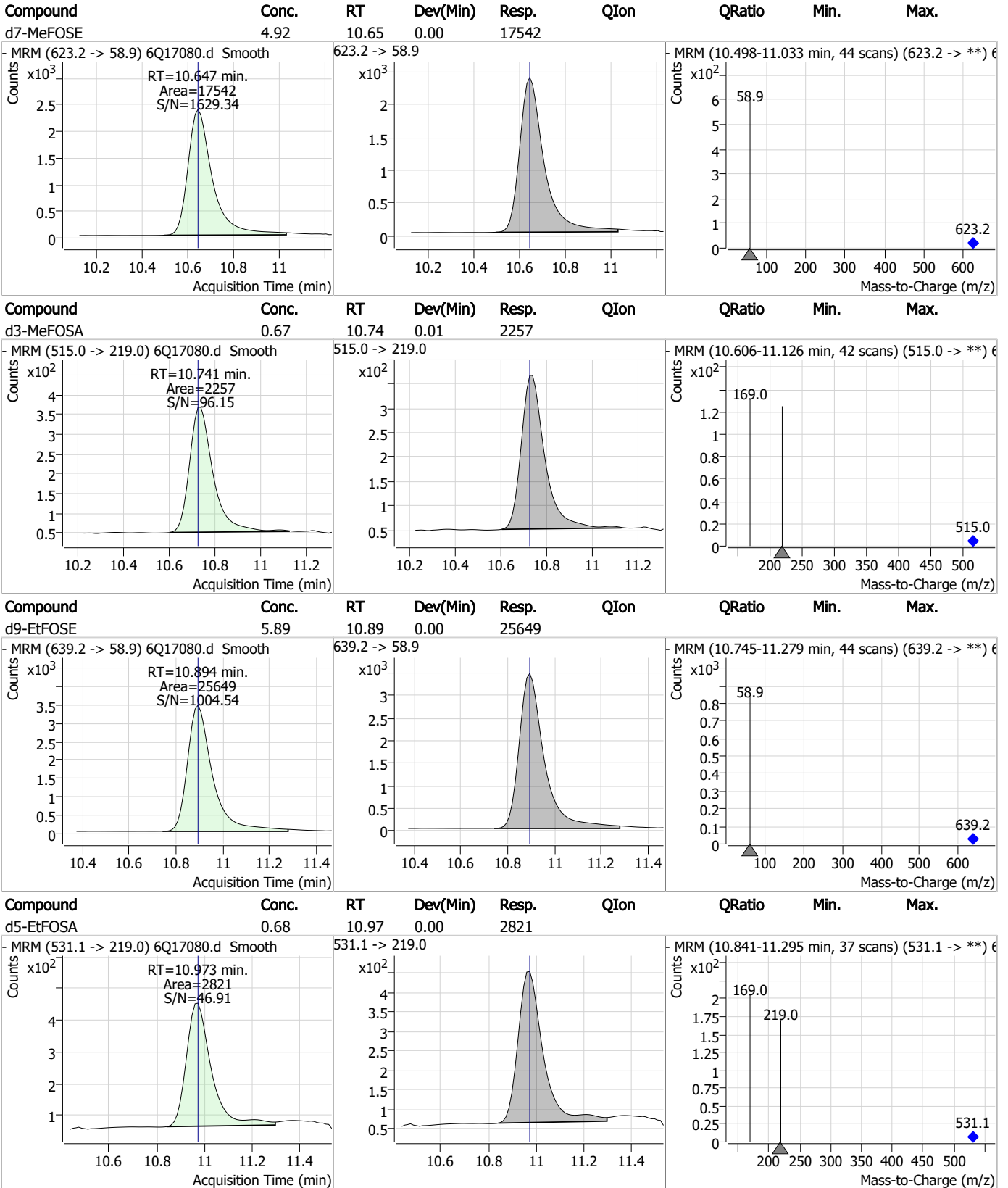
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	0.91	9.62	0.00	8144				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	0.85	9.69	0.00	11207				



Perfluorinated Compounds by LC/MS/MS



7.5.1

7



Perfluorinated Compounds by LC/MS/MS

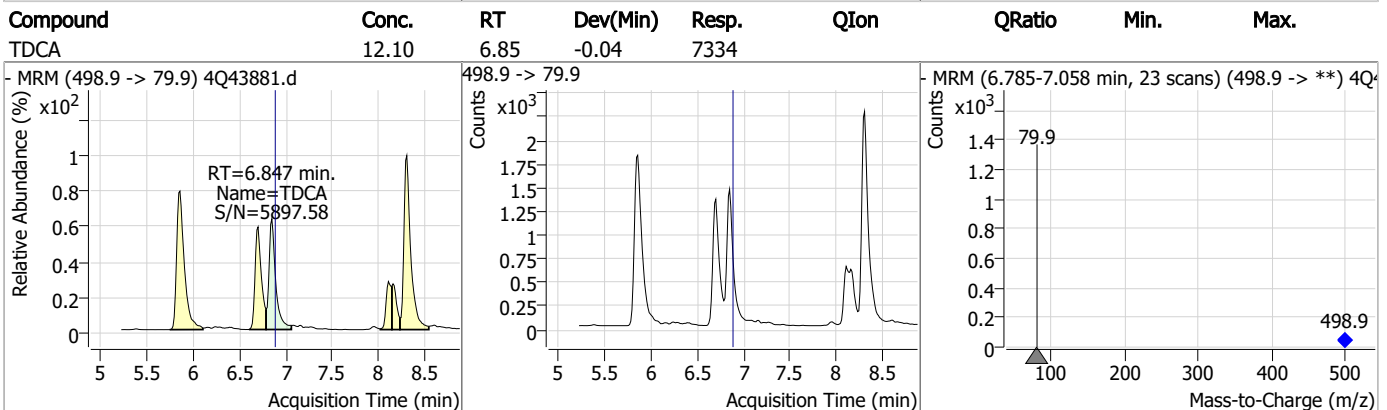
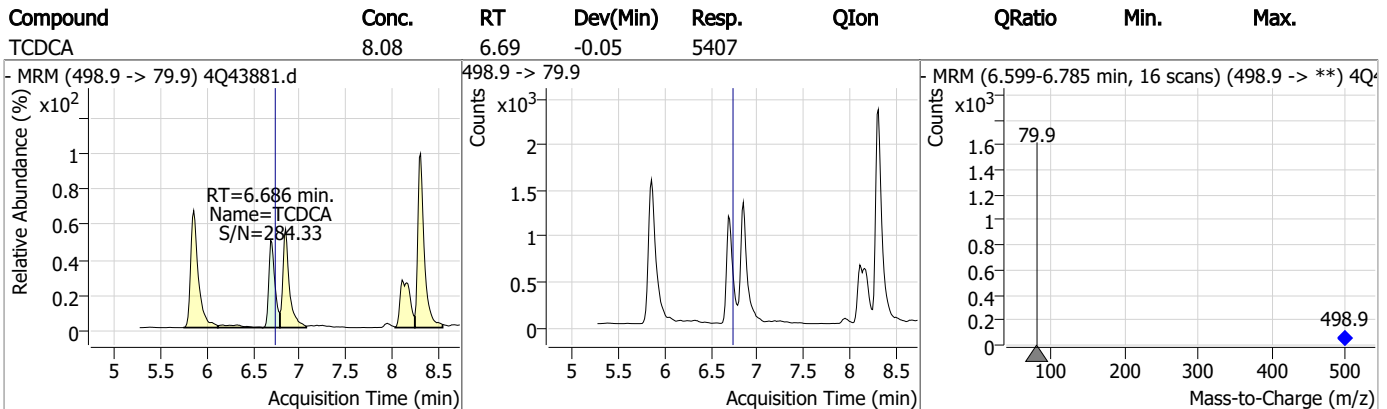
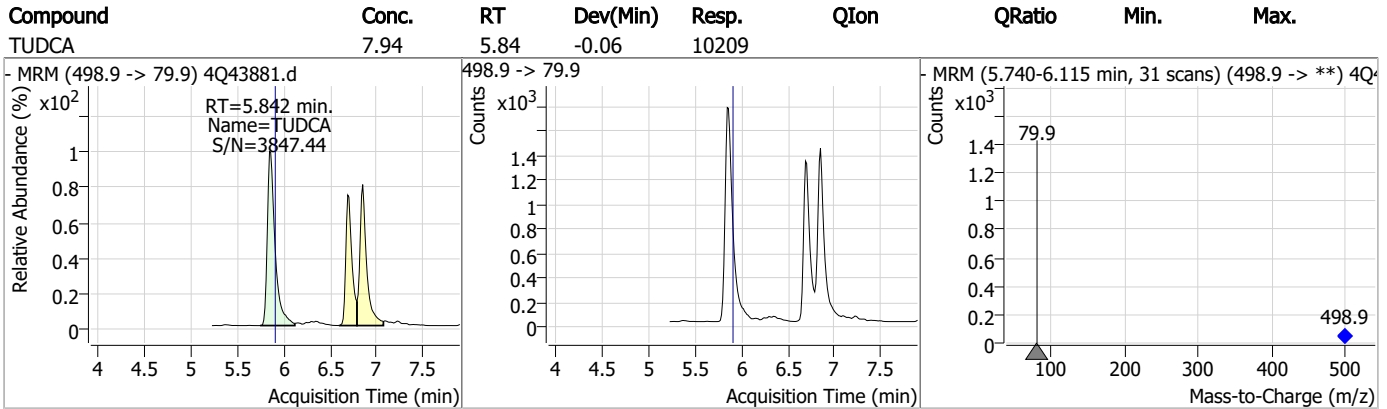
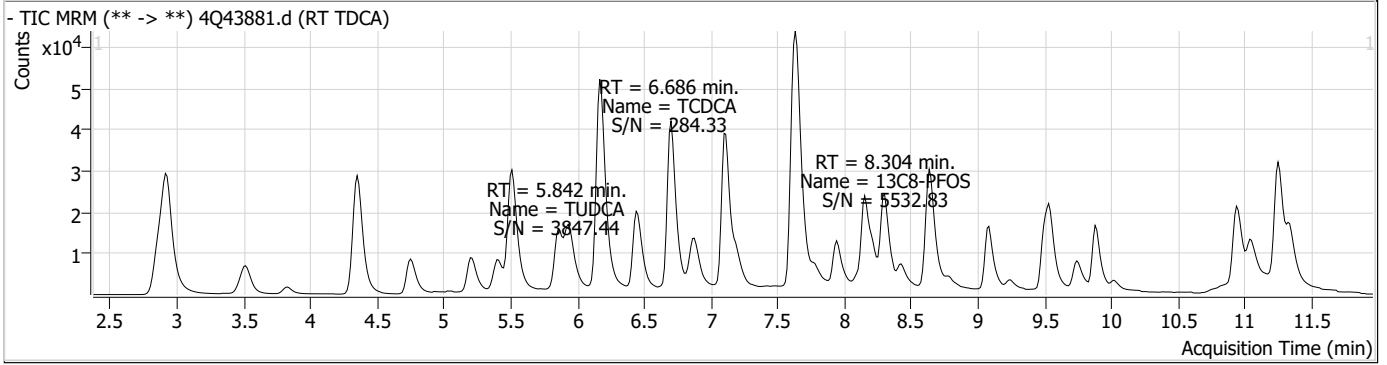
Data File : 4Q43881.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 10:23:06 AM
 Sample Name : RT TDCA
 Vial : P1-B1
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q634_TDCA.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.304	507.1 -> 79.9	14500	2.50	µg/L	-0.062	
13C4-PFOS	8.305	502.8 -> 79.9	17051	2.50	µg/L	-0.062	
System Monitoring Compounds							
13C8-PFOS	8.304	507.1 -> 79.9	14500	2.16	µg/L	-0.062	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 86.3%				
Target Compounds							
PFOS	8.305	498.9 -> 79.9	15511	3.13	µg/L	m	96
		498.9 -> 98.8	7886				
TCDCa	6.686	498.9 -> 79.9	5407	8.08	ng/ml		100
TDCA	6.847	498.9 -> 79.9	7334	12.10	ng/ml		100
TUDCA	5.842	498.9 -> 79.9	10209	7.94	ng/ml		100

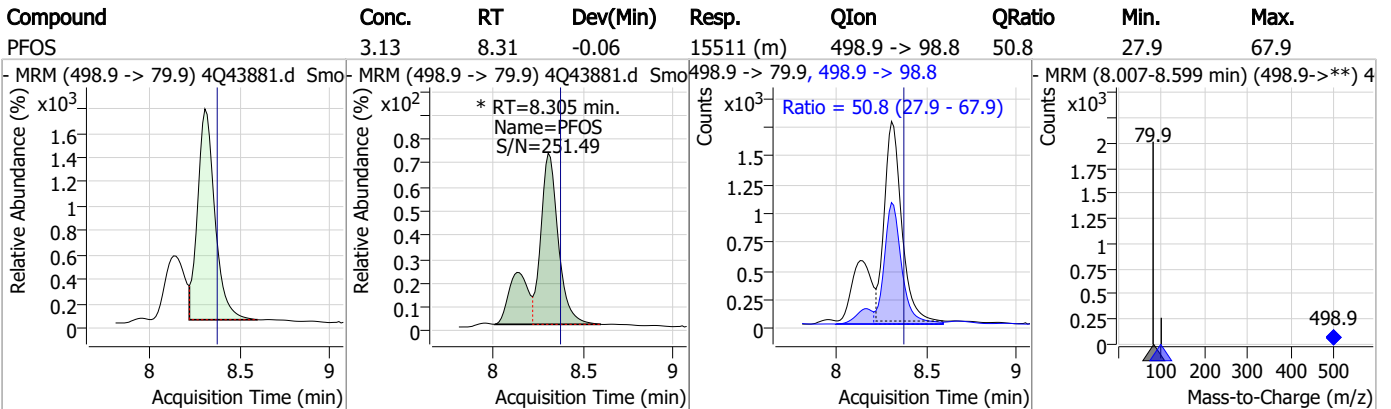
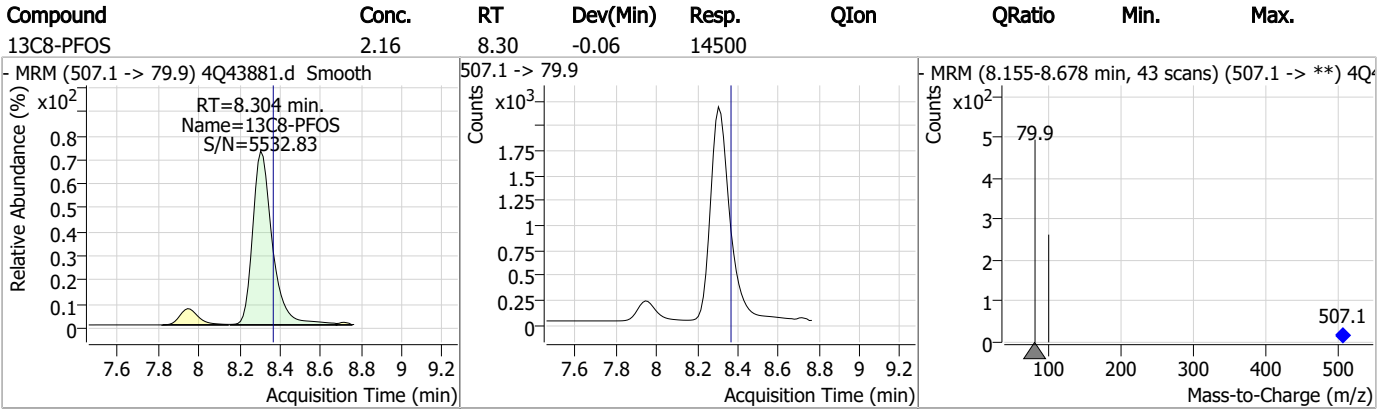
= Qualifier out of range, m = manually integrated, + = Area summed

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: S4Q634-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43881.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 10:23 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak

7.6.1.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43882.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 10:37:09 AM
 Sample Name : RT br/lr
 Vial : P1-B2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	119654	10.00 µg/L	-0.012
M5-PFPeA	4.350	268.3 -> 223.0	67757	5.00 µg/L	-0.012
M5-PFHxA	5.510	318.0 -> 273.0	49354	2.50 µg/L	-0.025
M4-PFHpA	6.455	367.1 -> 322.0	29875	2.50 µg/L	-0.012
M8-PFOA	7.111	421.1 -> 376.0	43497	2.50 µg/L	-0.012
M9-PFNA	7.658	472.1 -> 427.0	20317	1.25 µg/L	-0.012
M6-PFDA	8.166	519.1 -> 474.1	20346	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	21156	1.25 µg/L	-0.012
M2-PFDoDA	9.081	615.1 -> 570.0	22468	1.25 µg/L	-0.025
M2-PFTeDA	9.886	715.2 -> 670.0	18596	1.25 µg/L	-0.012
M8-FOSA	9.758	506.1 -> 77.8	16919	2.50 µg/L	-0.012
M3-PFBS	5.414	302.1 -> 79.9	11687	2.50 µg/L	-0.012
M3-PFHxS	7.217	402.1 -> 79.9	7599	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	10335	2.50 µg/L	-0.013
M2-4:2FTS	5.209	329.1 -> 80.9	1135	5.00 µg/L	-0.014
M2-6:2FTS	6.886	429.1 -> 80.9	1876	5.00 µg/L	-0.012
M2-8:2FTS	7.953	529.1 -> 80.9	3057	5.00 µg/L	-0.012
M3-MeFOSAA	8.224	573.2 -> 419.0	15580	5.00 µg/L	-0.012
M3-HFPO-DA	5.877	286.9 -> 168.9	30253	10.00 µg/L	-0.012
M5-EtFOSAA	8.433	589.2 -> 419.0	12098	5.00 µg/L	-0.012
M7-MeFOSE	10.947	623.2 -> 58.9	80643	25.00 µg/L	0.000
M9-EtFOSE	11.244	639.2 -> 58.9	119872	25.00 µg/L	-0.012
M5-EtFOSA	11.348	531.1 -> 219.0	11379	2.50 µg/L	0.000
M3-MeFOSA	11.051	515.0 -> 219.0	10964	2.50 µg/L	-0.012
13C4-PFOS	8.317	502.8 -> 79.9	10254	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	63918	5.00 µg/L	-0.013
18O2-PFHxS	7.216	403.0 -> 83.9	5128	2.50 µg/L	-0.012
13C4-PFOA	7.112	417.1 -> 372.0	52496	2.50 µg/L	-0.012
13C2-PFDA	8.166	515.1 -> 470.1	18252	1.25 µg/L	-0.012
13C5-PFNA	7.658	468.0 -> 423.0	24666	1.25 µg/L	-0.026
13C2-PFHxA	5.511	315.1 -> 270.0	43755	2.50 µg/L	-0.025
System Monitoring Compounds					
13C2-4:2FTS	5.209	329.1 -> 80.9	1135	5.44 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.9%		
13C2-6:2FTS	6.886	429.1 -> 80.9	1876	4.99 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3057	5.21 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-PFDoDA	9.081	615.1 -> 570.0	22468	1.27 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFTeDA	9.886	715.2 -> 670.0	18596	1.29 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C3-PFBS	5.414	302.1 -> 79.9	11687	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C3-PFHxS	7.217	402.1 -> 79.9	7599	2.39 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 = 95.6%	
13C4-PFBA	2.911	216.8 -> 171.9	119654	9.95 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.455	367.1 -> 322.0	29875	2.65 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C5-PFHxA	5.510	318.0 -> 273.0	49354	2.56 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFPeA	4.350	268.3 -> 223.0	67757	5.03 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.166	519.1 -> 474.1	20346	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C7-PFUnDA	8.635	570.0 -> 525.1	21156	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-FOSA	9.758	506.1 -> 77.8	16919	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
13C8-PFOA	7.111	421.1 -> 376.0	43497	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C8-PFOS	8.316	507.1 -> 79.9	10335	2.68 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C9-PFNA	7.658	472.1 -> 427.0	20317	1.21 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
d3-MeFOSAA	8.224	573.2 -> 419.0	15580	6.02 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 120.4%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	30253	10.51 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.1%	
d3-MeFOSA	11.051	515.0 -> 219.0	10964	2.73 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.1%	
d5-EtFOSAA	8.433	589.2 -> 419.0	12098	5.68 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 113.5%	
d7-MeFOSE	10.947	623.2 -> 58.9	80643	25.28 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d9-EtFOSE	11.244	639.2 -> 58.9	119872	26.54 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
d5-EtFOSA	11.348	531.1 -> 219.0	11379	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
Target Compounds					QValue
4:2FTS	5.210	327.1 -> 307.0	91008	49.85 µg/L	93
		327.1 -> 80.9	38405		
6:2FTS	6.886	427.1 -> 407.0	96692	53.36 µg/L	97
		427.1 -> 80.9	39102		
8:2FTS	7.954	527.1 -> 507.0	91390	53.63 µg/L	95
		527.1 -> 80.8	35708		
EtFOSAA	8.434	584.2 -> 419.1	29724	12.79 µg/L	m 97
		584.2 -> 526.0	14584		
FOSA	9.761	498.1 -> 77.9	215824	30.44 µg/L	m 99
		498.1 -> 478.0	6518		
MeFOSAA	8.225	570.1 -> 419.0	32953	12.14 µg/L	m 94
		570.1 -> 483.0	6799		
PFBA	2.907	212.8 -> 168.9	172708	53.90 µg/L	100
PFBS	5.415	298.7 -> 79.9	57018	11.89 µg/L	97
		298.7 -> 98.8	22261		
PFDA	8.166	512.9 -> 469.0	205207	13.29 µg/L	97
		512.9 -> 219.0	41256		
PFDoDA	9.094	613.1 -> 569.0	229603	12.74 µg/L	100
		613.1 -> 319.0	33205		
PFDS	9.244	599.0 -> 79.9	32797	12.81 µg/L	93

7.6.2
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16772			
PFHpA	6.455	363.1 -> 319.0	251318	13.31	µg/L	98
		363.1 -> 169.0	43064			
PFHpS	7.797	449.0 -> 79.9	47137	12.66	µg/L	99
		449.0 -> 98.9	24887			
PFHxA	5.513	313.0 -> 269.0	252397	13.05	µg/L	99
		313.0 -> 118.9	7767			
PFHxS	7.218	398.7 -> 79.9	37325	11.98	µg/L	m 97
		398.7 -> 98.9	19559			
PFNA	7.659	463.0 -> 419.0	399781	26.55	µg/L	m 96
		463.0 -> 219.0	107916			
PFNS	8.799	548.8 -> 79.9	29412	13.04	µg/L	98
		548.8 -> 98.9	14968			
PFOA	7.113	413.0 -> 369.0	661230	26.35	µg/L	m 93
		413.0 -> 169.0	150084			
PFOS	8.318	498.9 -> 79.9	60984	12.06	µg/L	m 93
		498.9 -> 98.8	32611			
PFPeA	4.352	263.0 -> 219.0	435219	26.70	µg/L	100
PFPeS	6.482	349.1 -> 79.9	34058	12.75	µg/L	96
		349.1 -> 98.9	14905			
PFTeDA	9.887	713.1 -> 669.0	247298	13.59	µg/L	100
		713.1 -> 168.9	20837			
PFTrDA	9.503	663.0 -> 619.0	322406	13.38	µg/L	97
		663.0 -> 168.9	31668			
PFUnDA	8.635	563.1 -> 519.0	186826	13.00	µg/L	96
		563.1 -> 269.1	36943			
11CI-PF3OUdS	9.556	630.9 -> 450.9	263768	24.24	µg/L	96
		632.9 -> 452.9	82123			
9CI-PF3ONS	8.663	530.8 -> 351.0	338021	24.40	µg/L	99
		532.8 -> 353.0	101547			
ADONA	6.718	376.9 -> 250.9	728297	23.94	µg/L	99
		376.9 -> 84.8	194611			
HFPO-DA	5.878	284.9 -> 168.9	76483	26.46	µg/L	99
		284.9 -> 184.9	9054			
3:3FTCA	3.823	241.0 -> 177.0	45775	63.82	µg/L	99
		241.0 -> 117.0	4083			
5:3FTCA	6.180	341.0 -> 237.1	841708	320.79	µg/L	100
		341.0 -> 217.0	575949			
7:3FTCA	7.636	441.0 -> 316.9	430006	315.39	µg/L	96
		441.0 -> 336.9	997461			
EtFOSA	11.350	526.0 -> 219.0	225204	47.24	µg/L	m 99
		526.0 -> 169.0	309822			
EtFOSE	11.270	630.0 -> 58.9	402929	86.83	µg/L	100
MeFOSA	11.053	511.9 -> 219.0	191225	46.30	µg/L	m 98
		511.9 -> 169.0	278854			
MeFOSE	10.960	616.1 -> 58.9	287291	86.73	µg/L	m 100
PFDoDS	10.027	699.1 -> 79.9	29285	12.82	µg/L	98
		699.1 -> 98.8	16233			
NFDHA	5.403	295.0 -> 201.0	37035	26.82	µg/L	95
		295.0 -> 84.9	9242			
PFMBA	4.753	279.0 -> 85.1	239209	26.29	µg/L	100
PFMPA	3.515	229.0 -> 84.9	222443	26.10	µg/L	100
PFEESA	5.946	314.8 -> 134.9	340737	23.28	µg/L	100
		314.8 -> 82.9	12053			

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

7.6.2
7

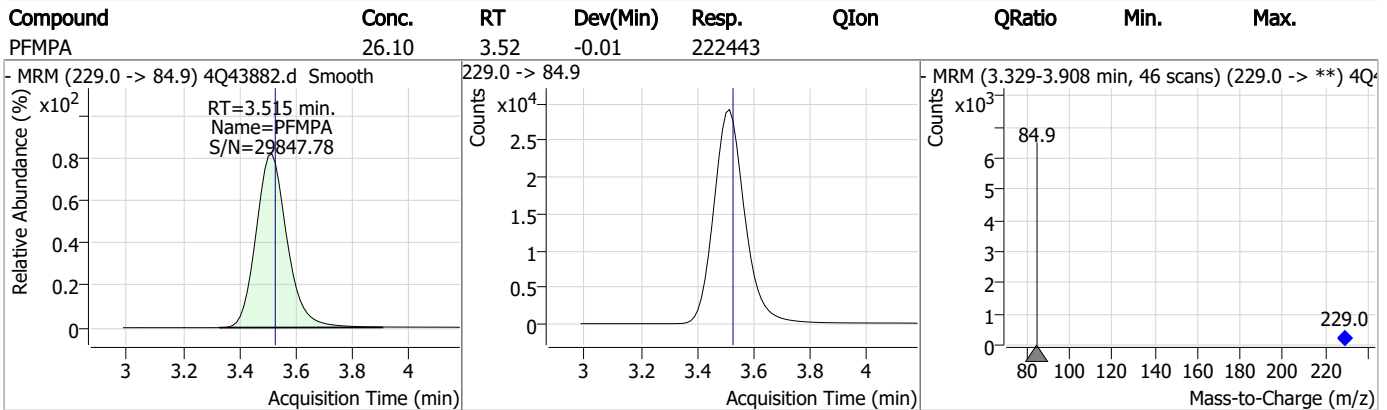
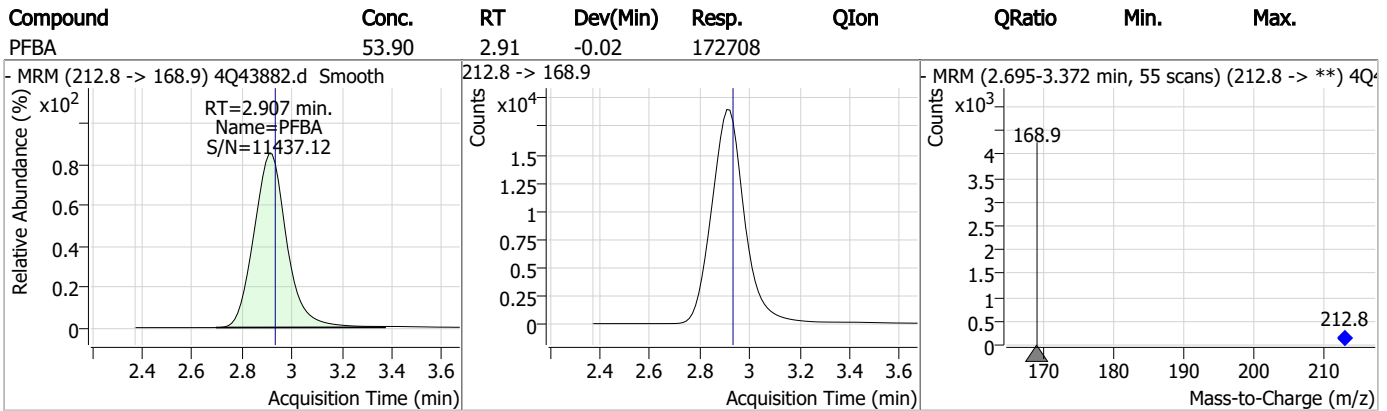
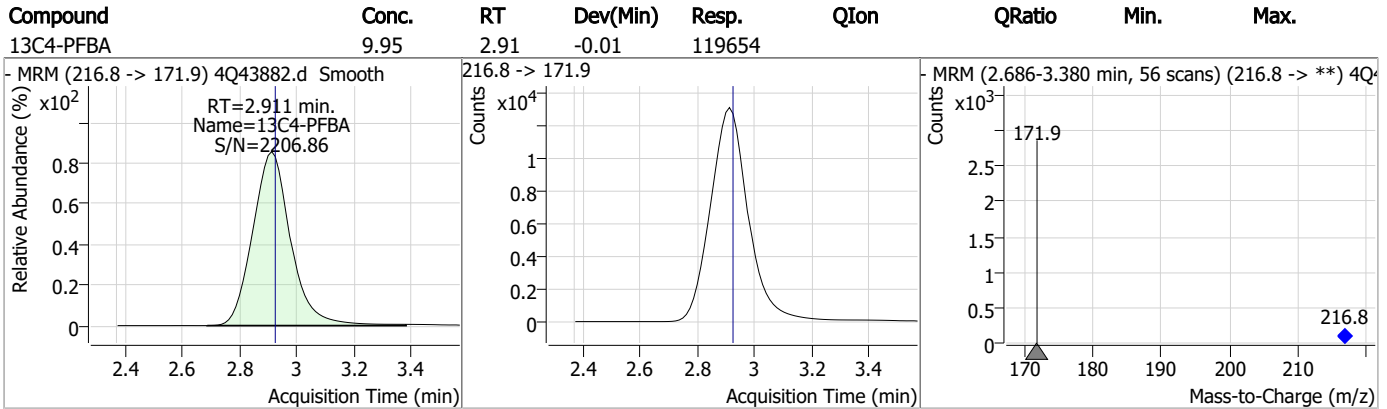
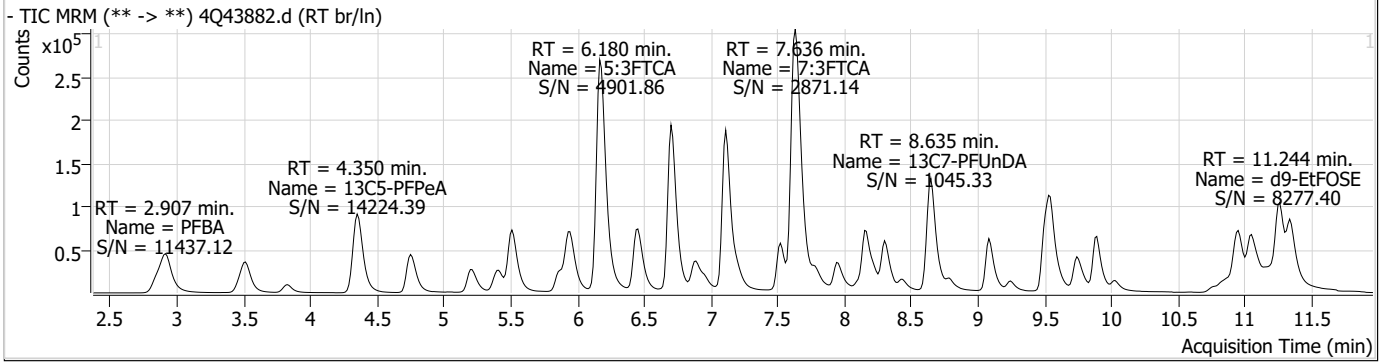
Perfluorinated Compounds by LC/MS/MS

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

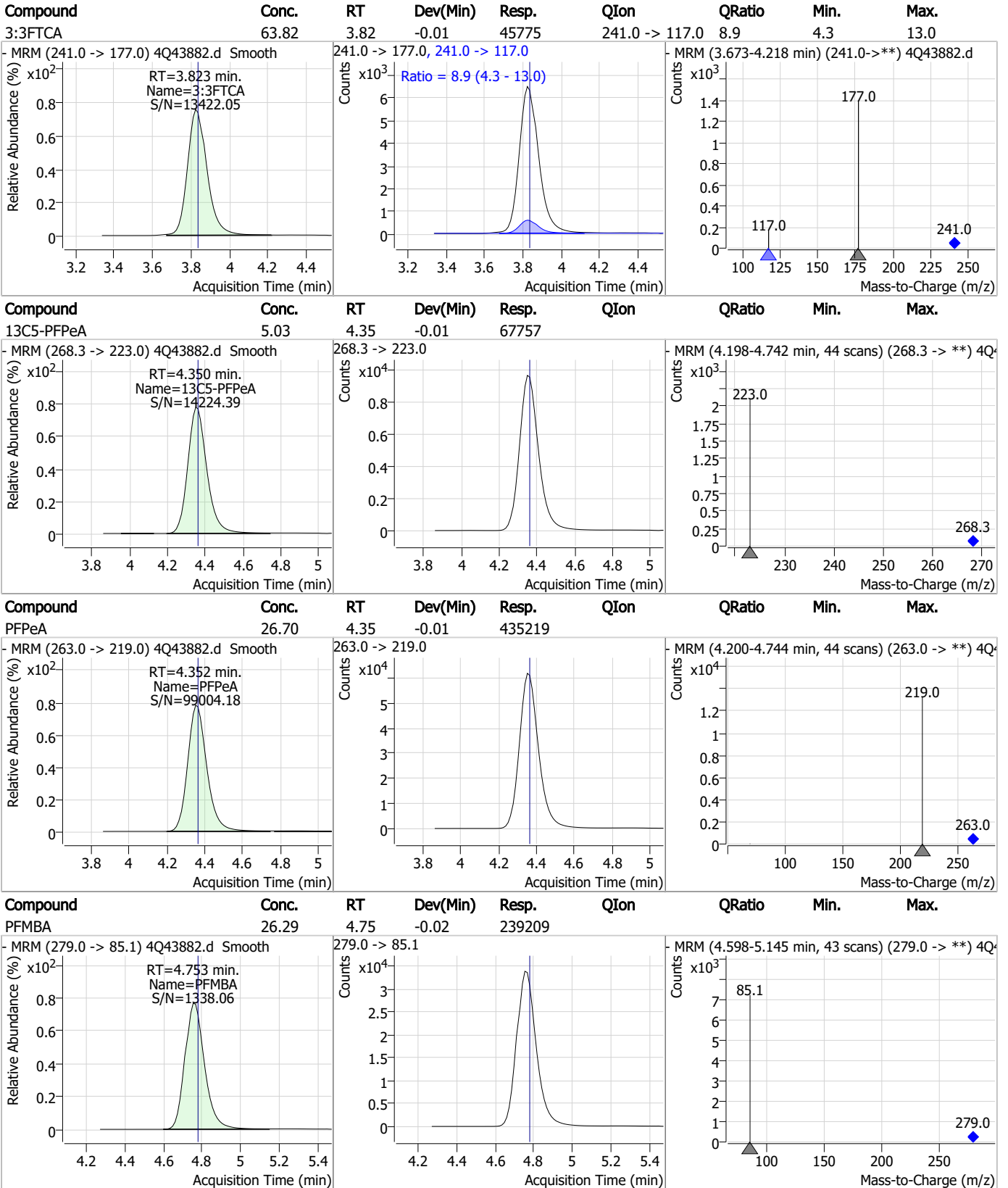
7.6.2

7

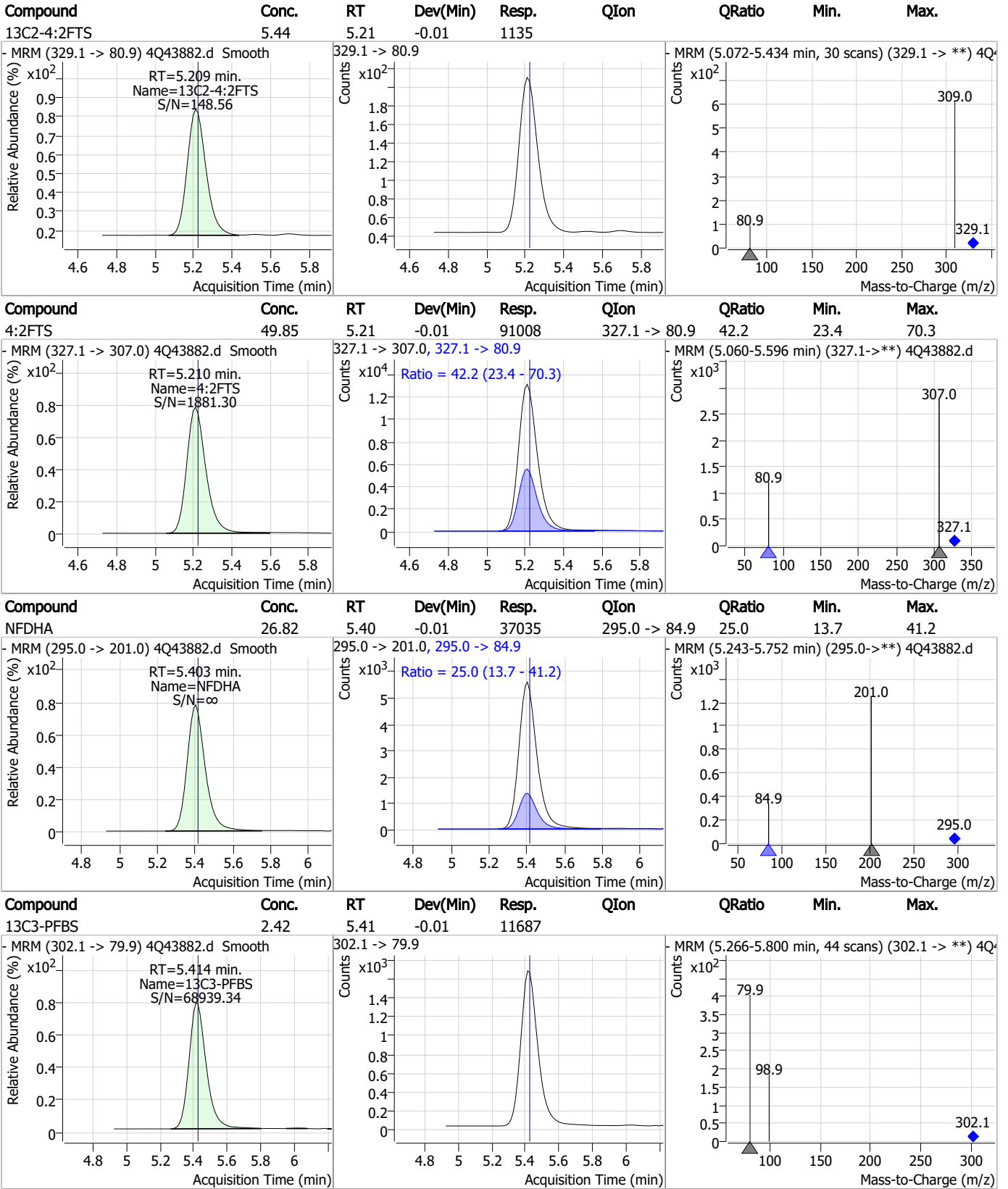
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

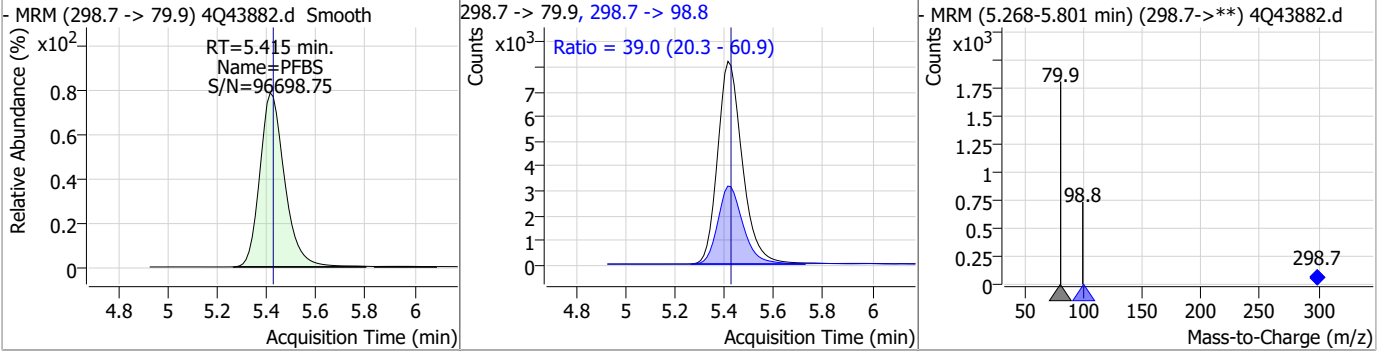


Perfluorinated Compounds by LC/MS/MS

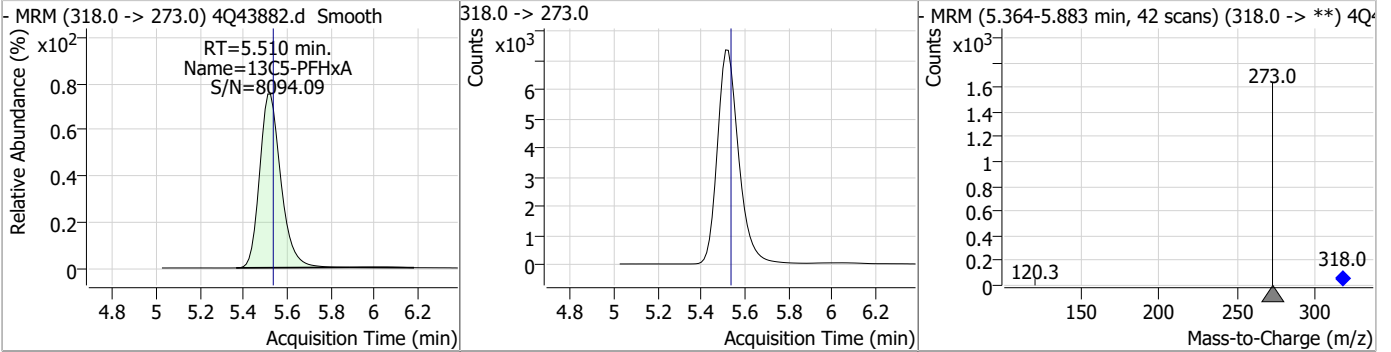


Perfluorinated Compounds by LC/MS/MS

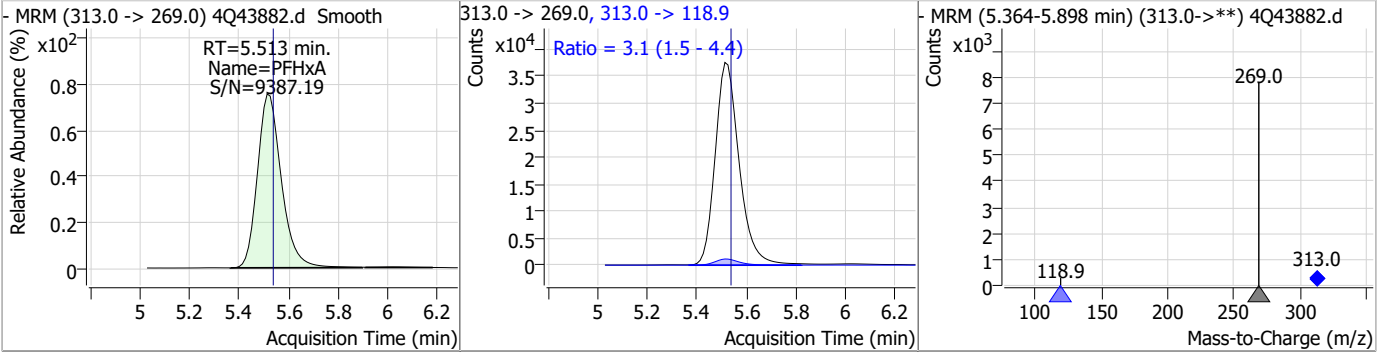
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.89	5.42	-0.01	57018	298.7 -> 98.8	39.0	20.3	60.9



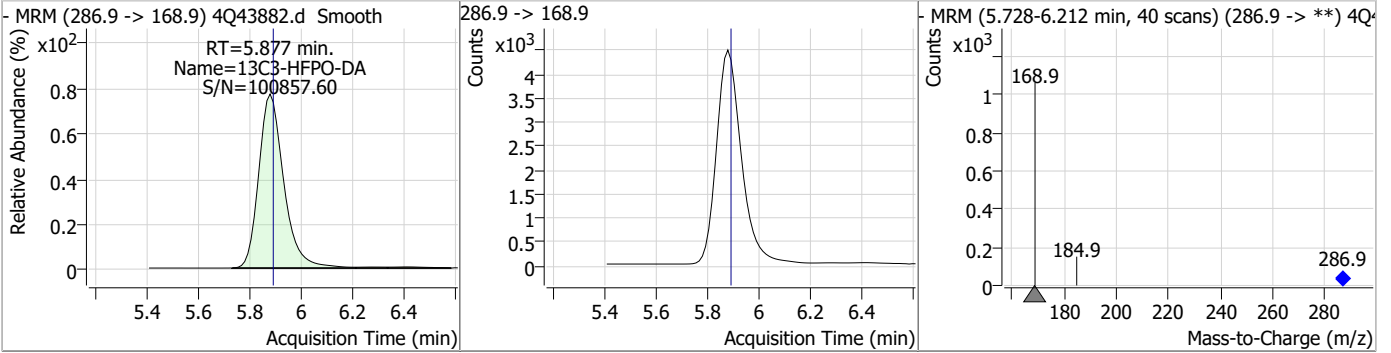
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.51	-0.02	49354				



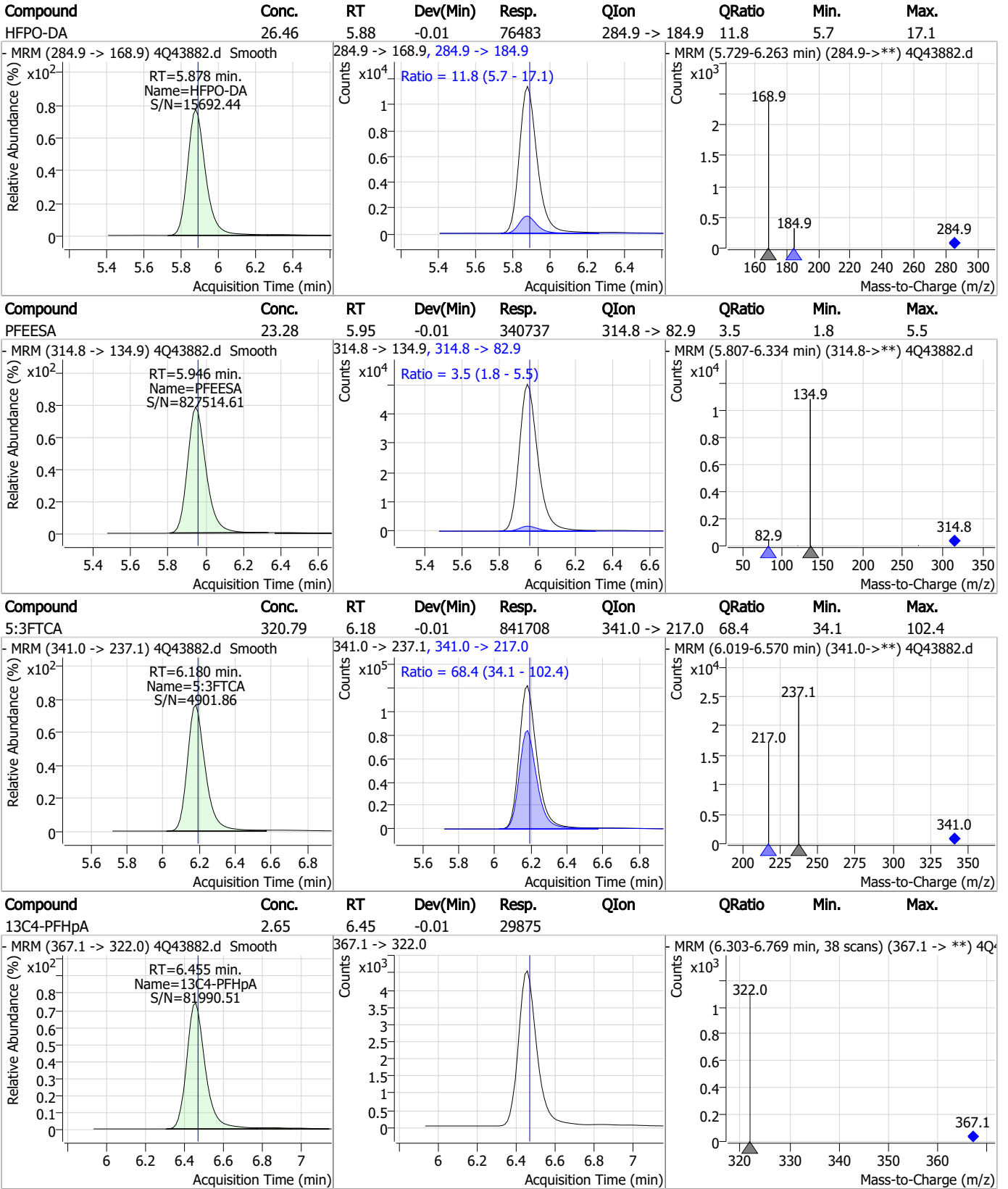
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.05	5.51	-0.02	252397	313.0 -> 118.9	3.1	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.51	5.88	-0.01	30253				



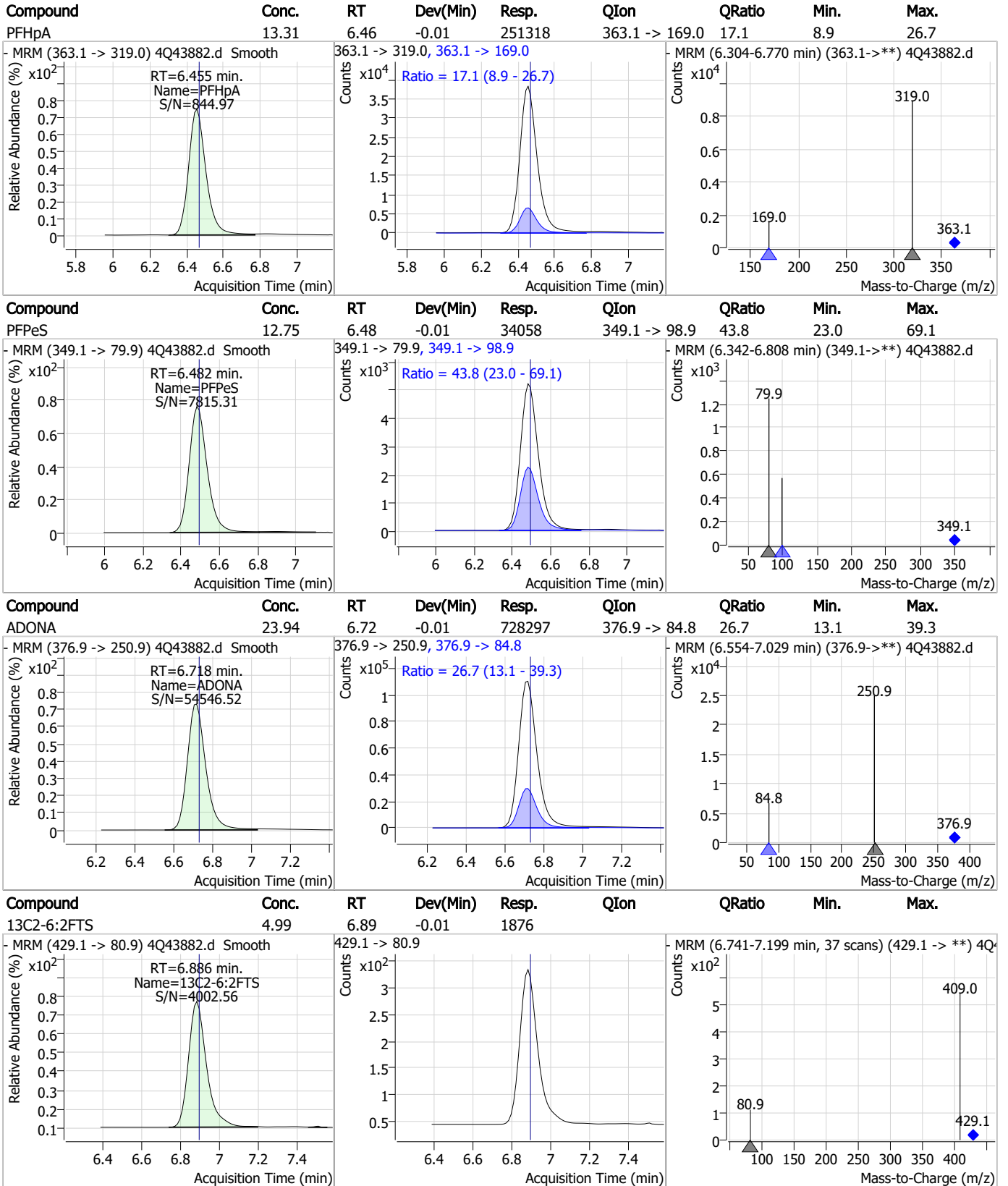
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Perfluorinated Compounds by LC/MS/MS

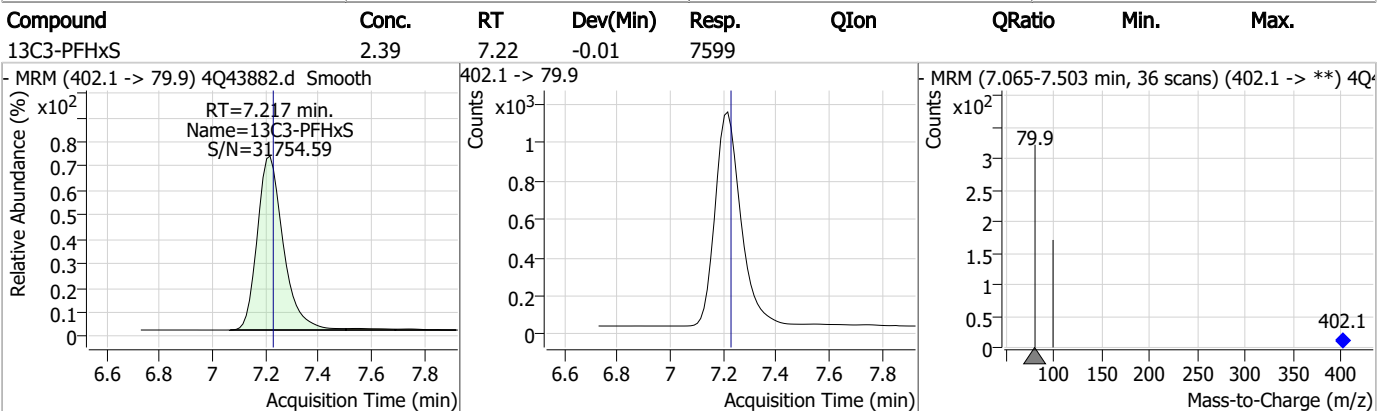
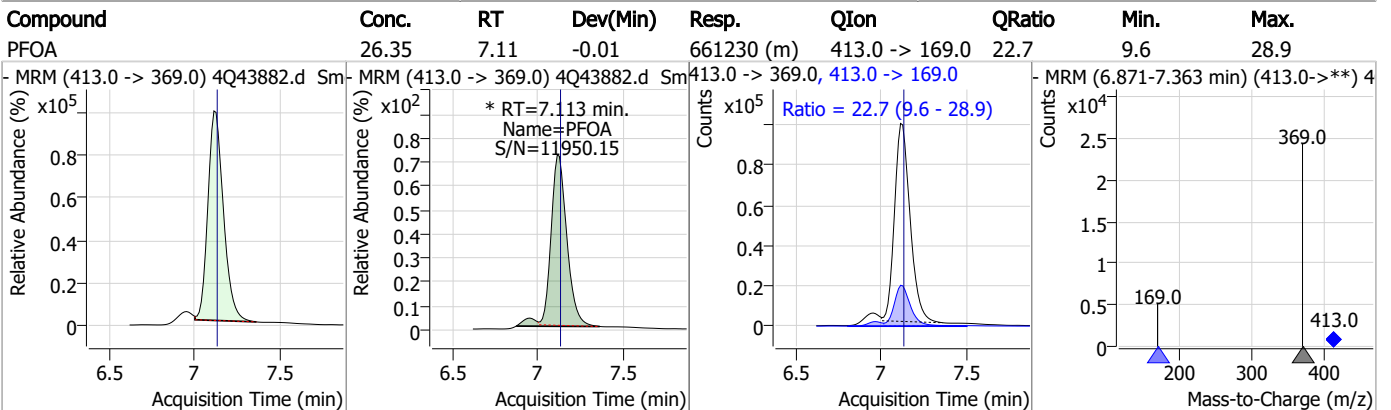
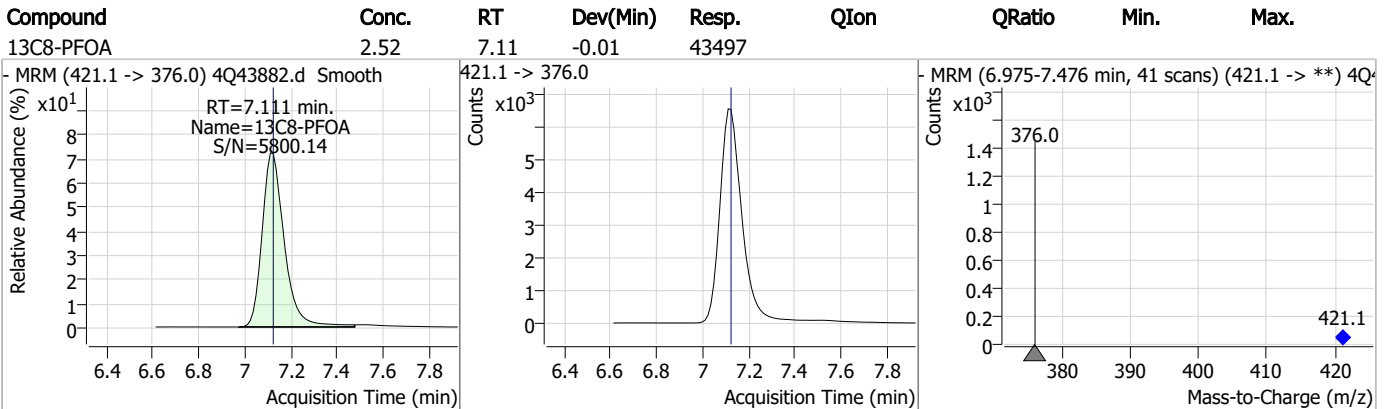
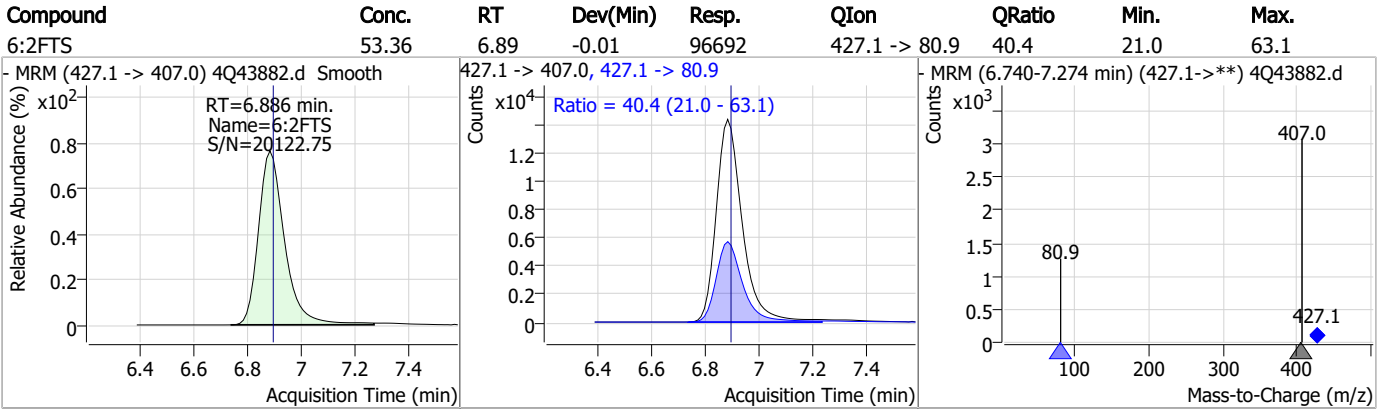


7.6.2

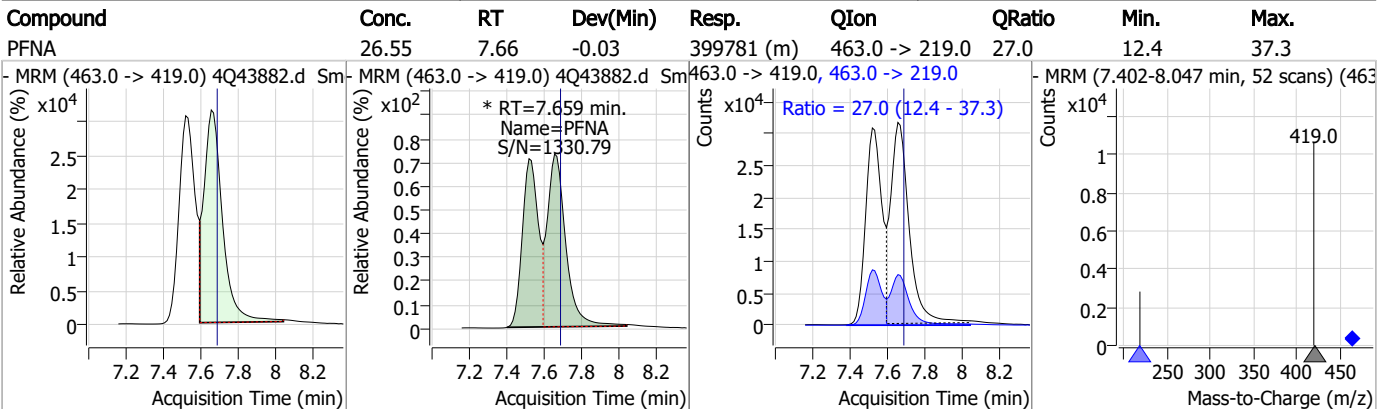
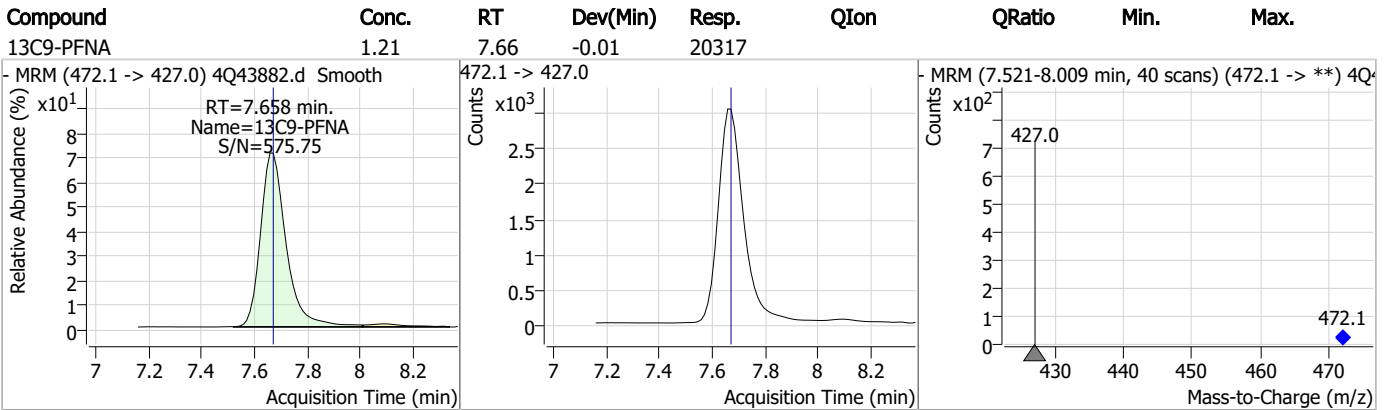
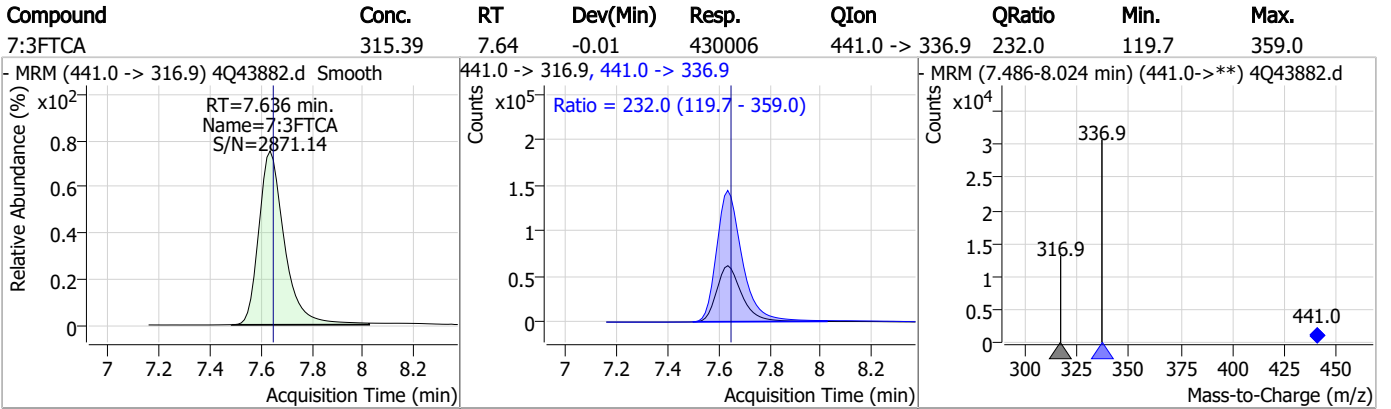
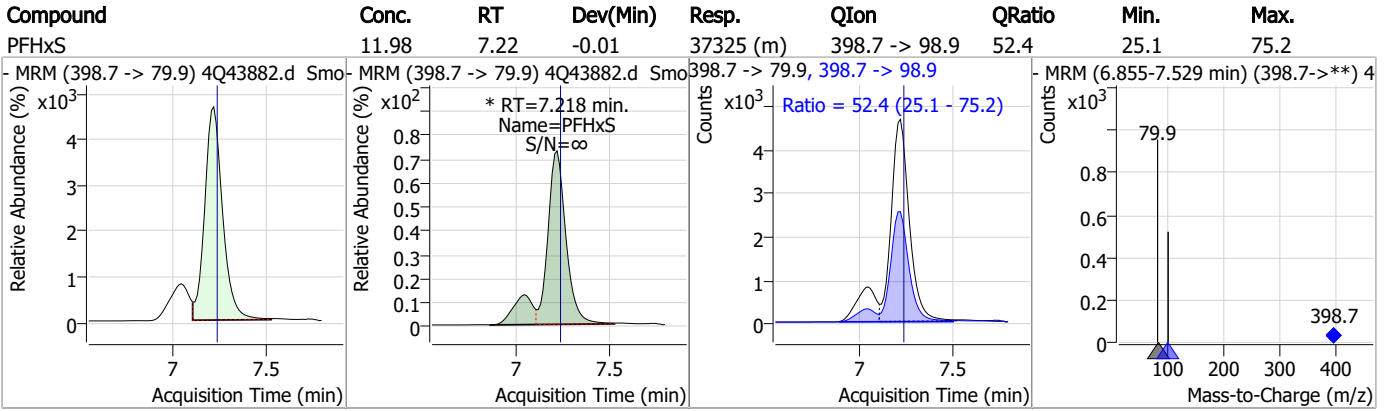
7



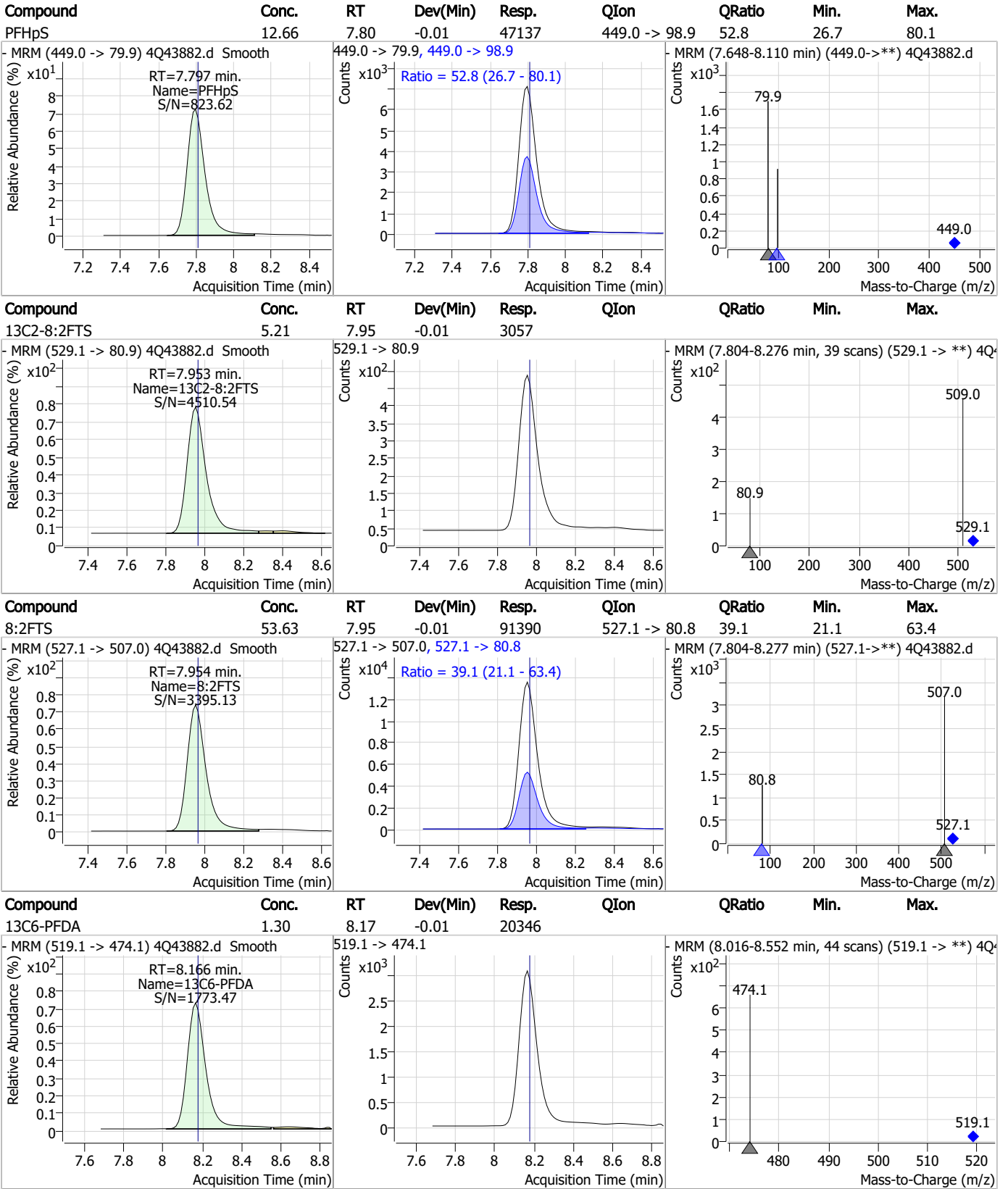
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

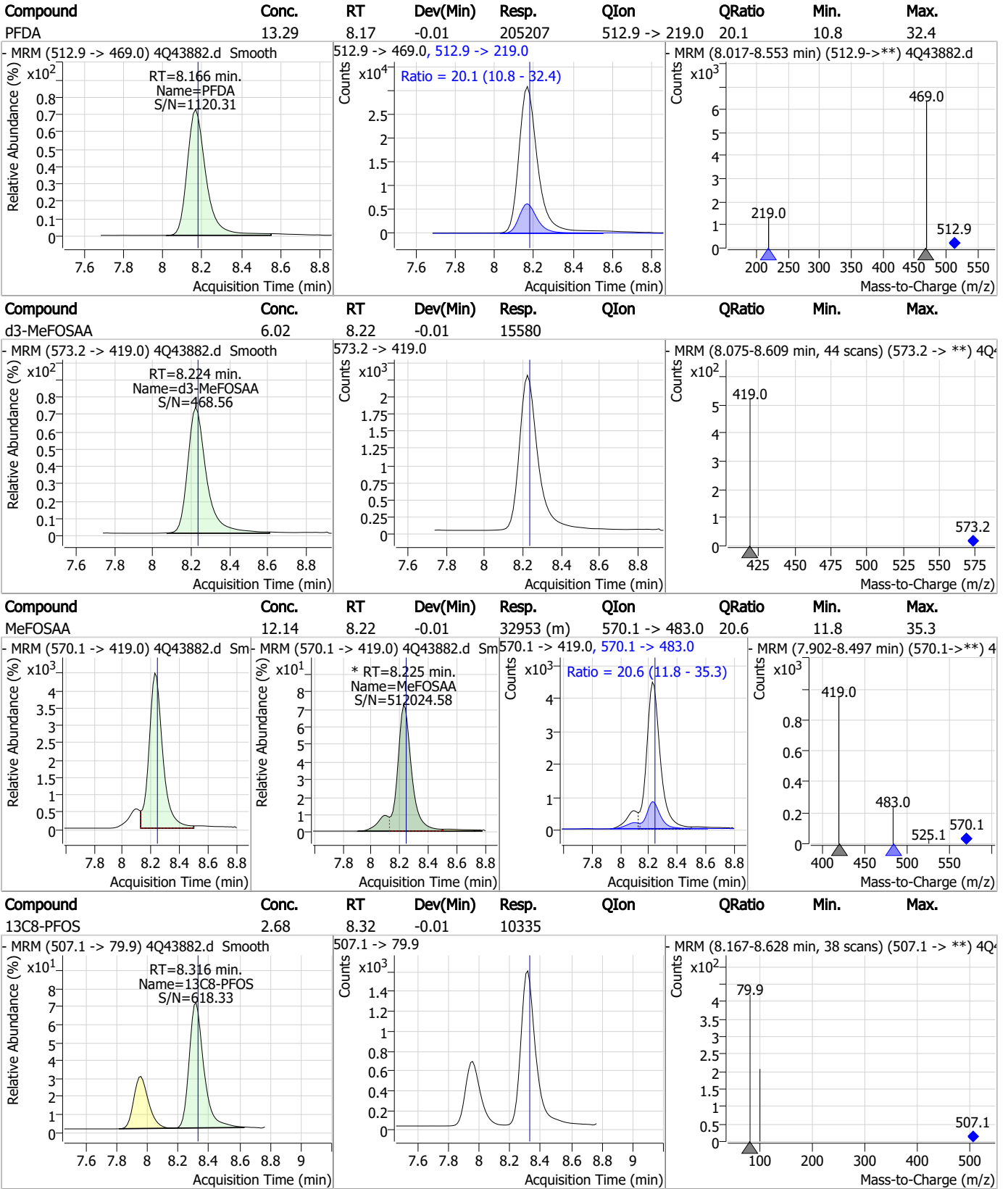


7.6.2

7



Perfluorinated Compounds by LC/MS/MS

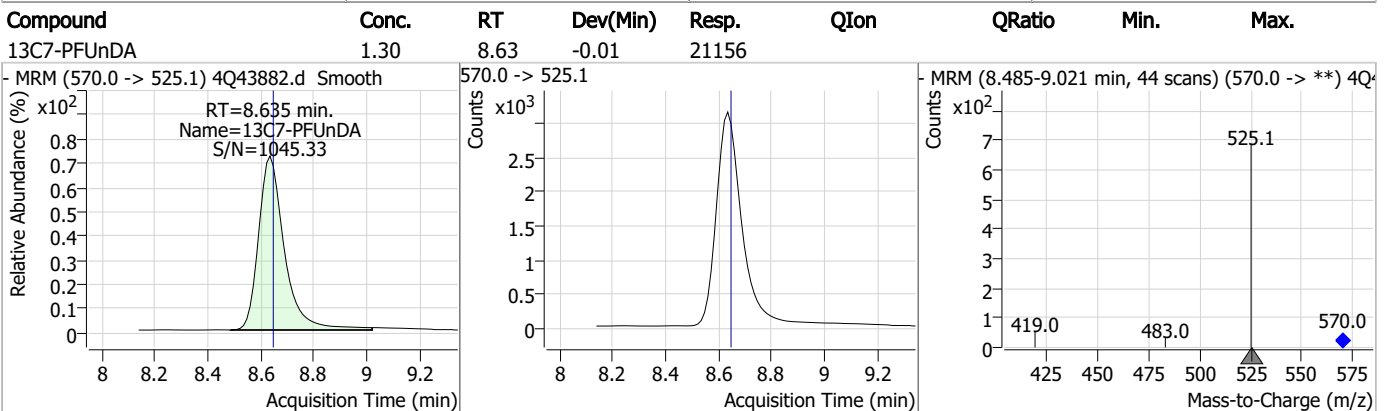
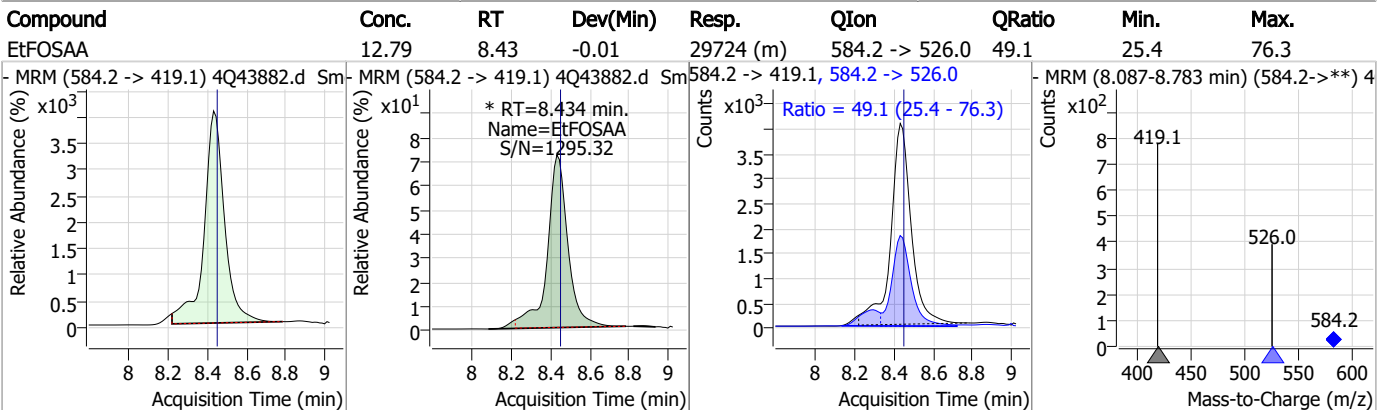
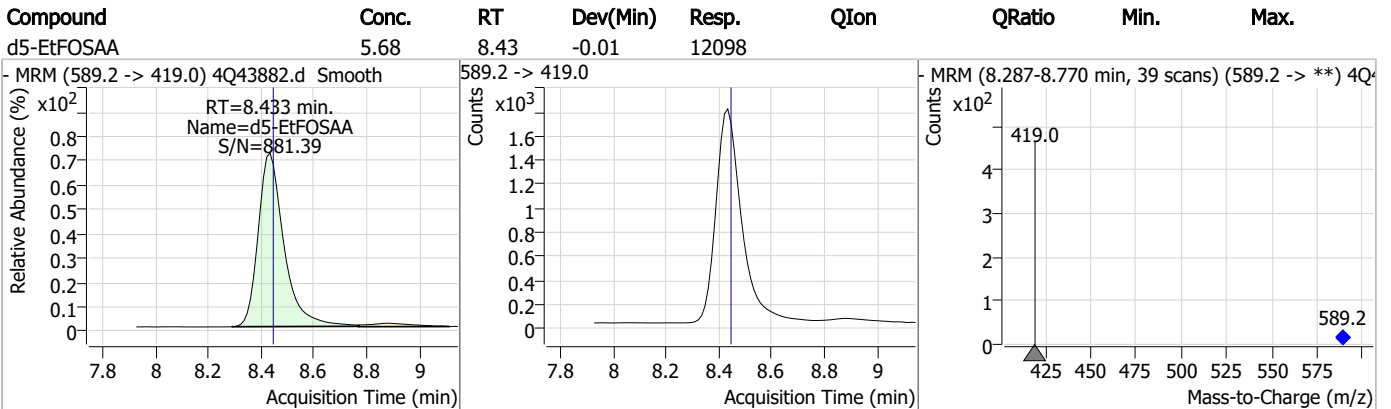
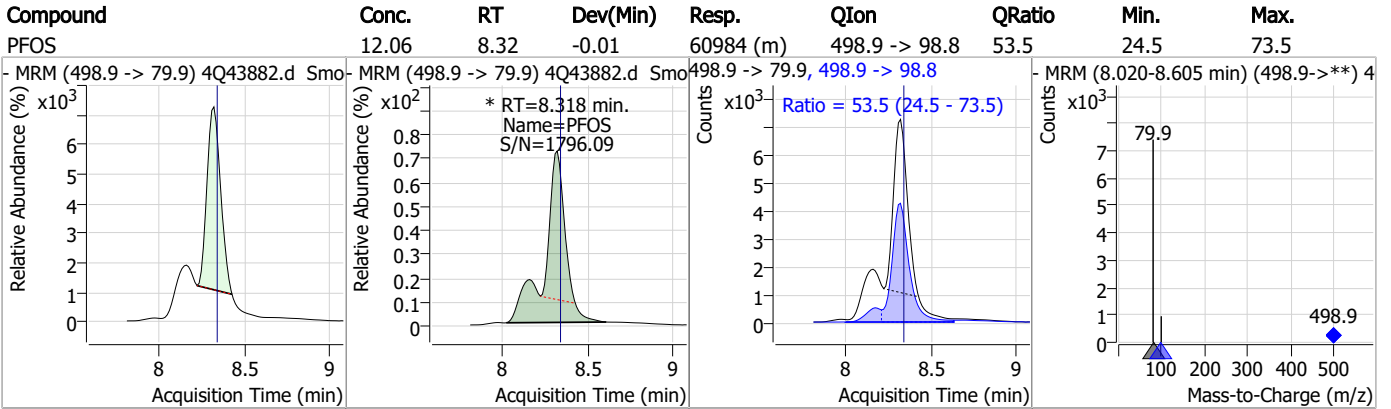


7.6.2

7

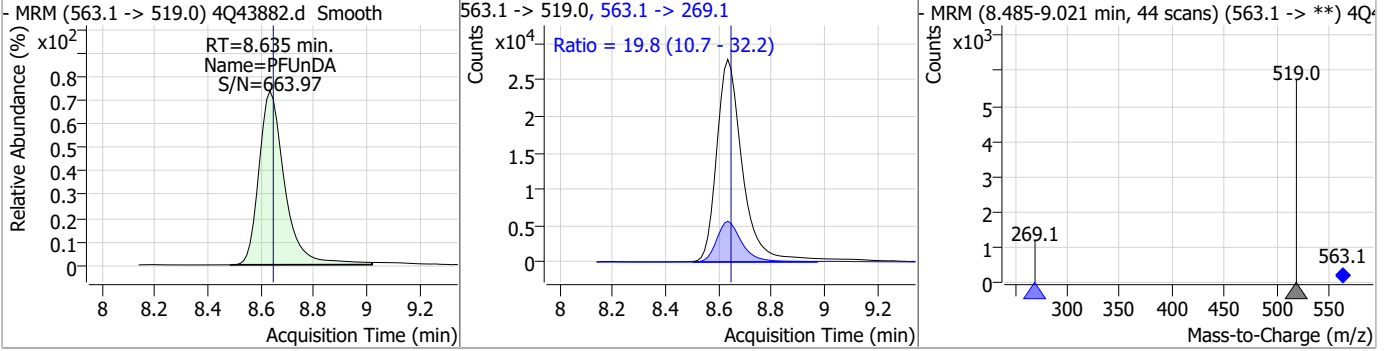


Perfluorinated Compounds by LC/MS/MS

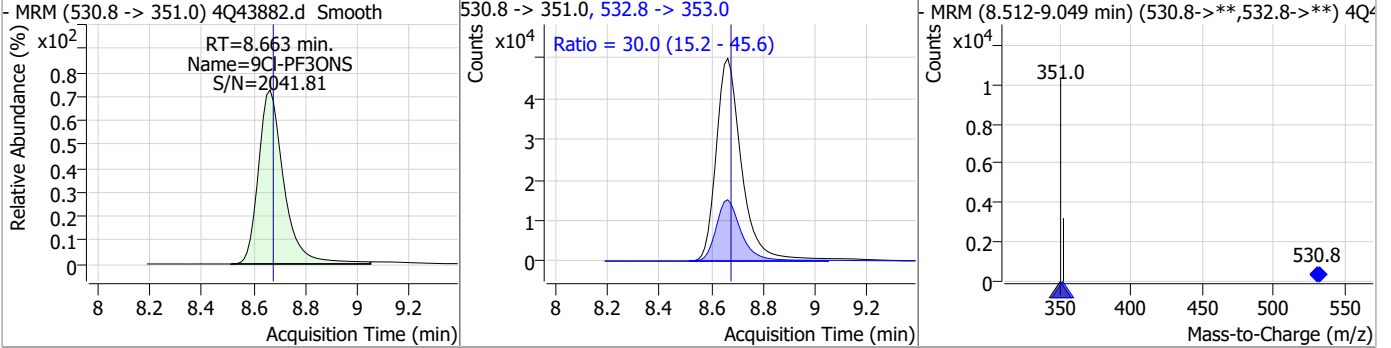


Perfluorinated Compounds by LC/MS/MS

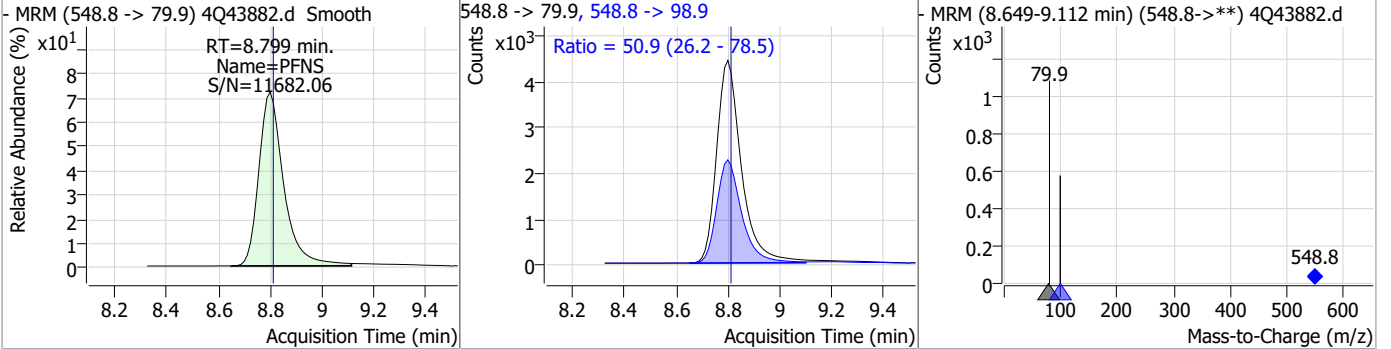
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	13.00	8.64	-0.01	186826	563.1 -> 269.1	19.8	10.7	32.2



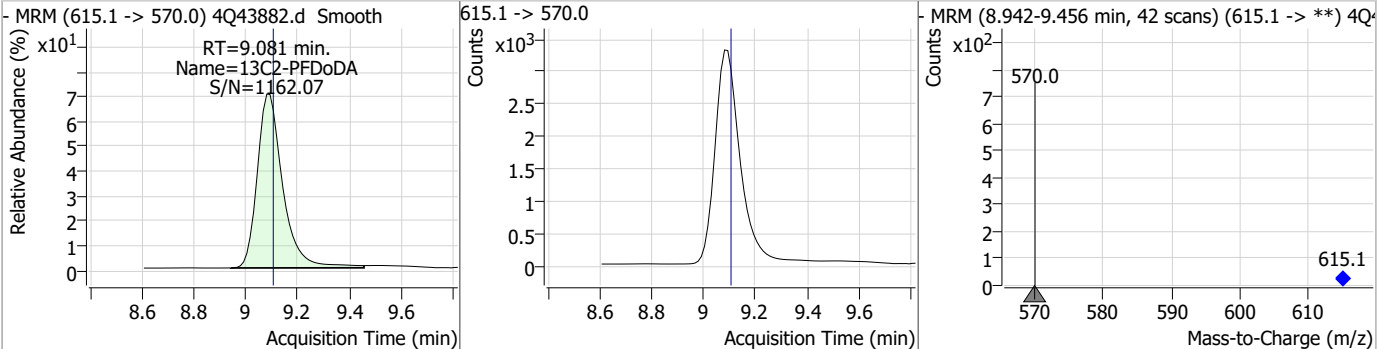
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	24.40	8.66	-0.01	338021	532.8 -> 353.0	30.0	15.2	45.6



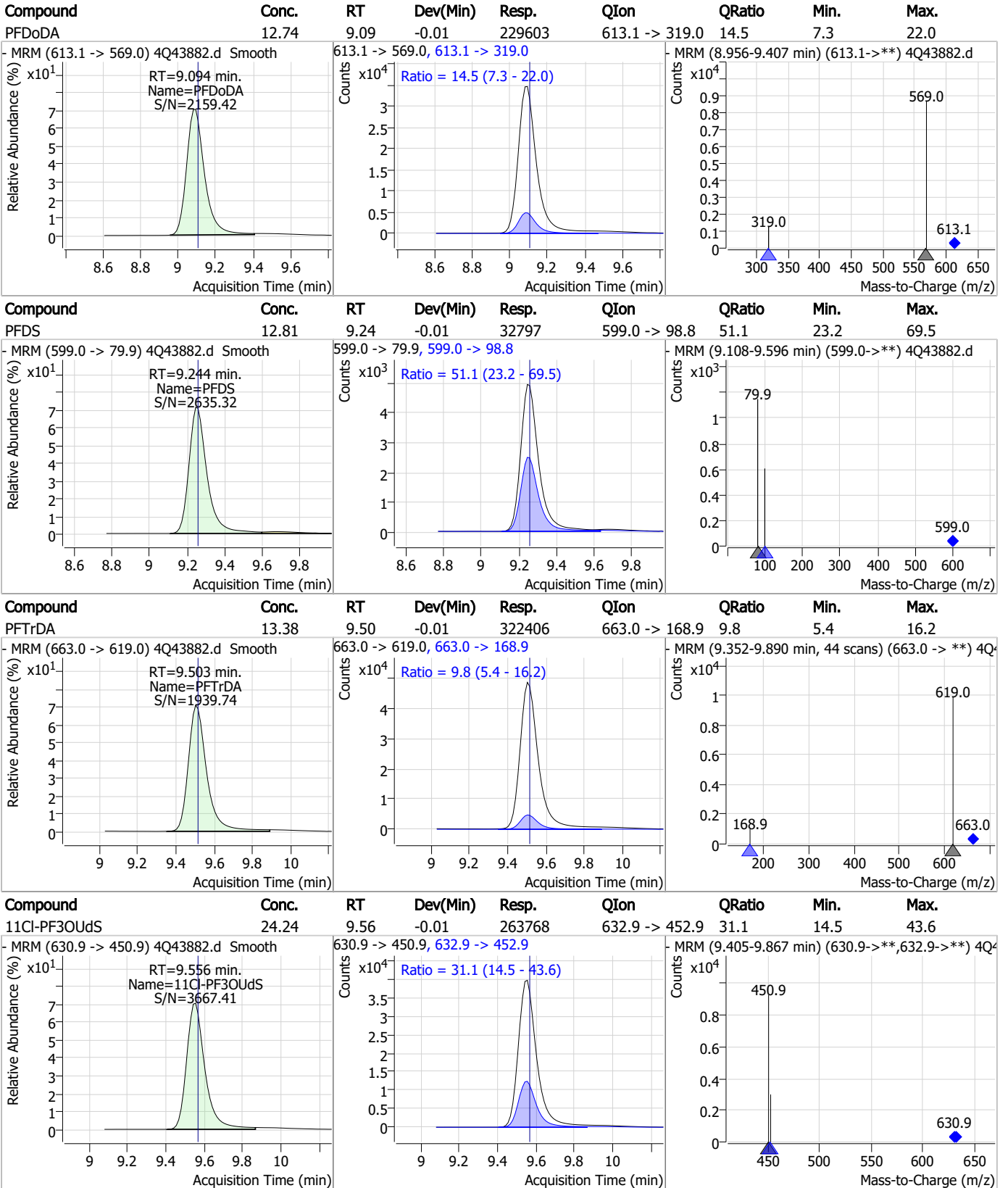
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	13.04	8.80	-0.01	29412	548.8 -> 98.9	50.9	26.2	78.5



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.27	9.08	-0.02	22468	615.1 -> 570.0			



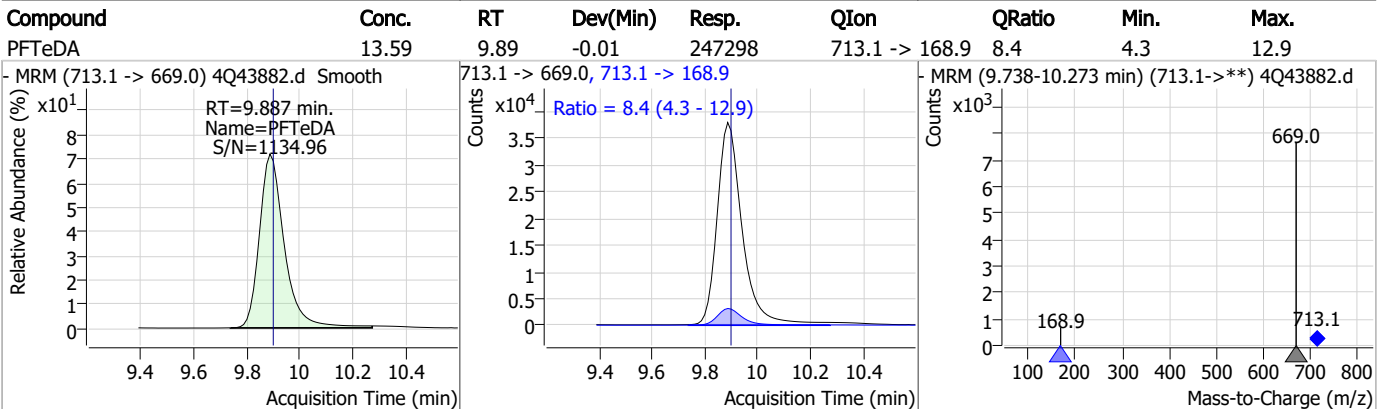
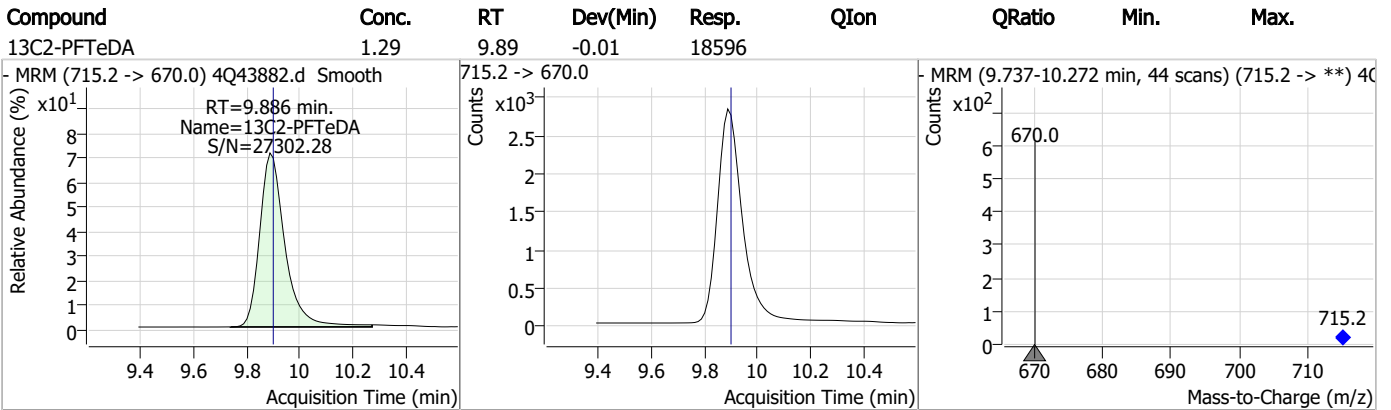
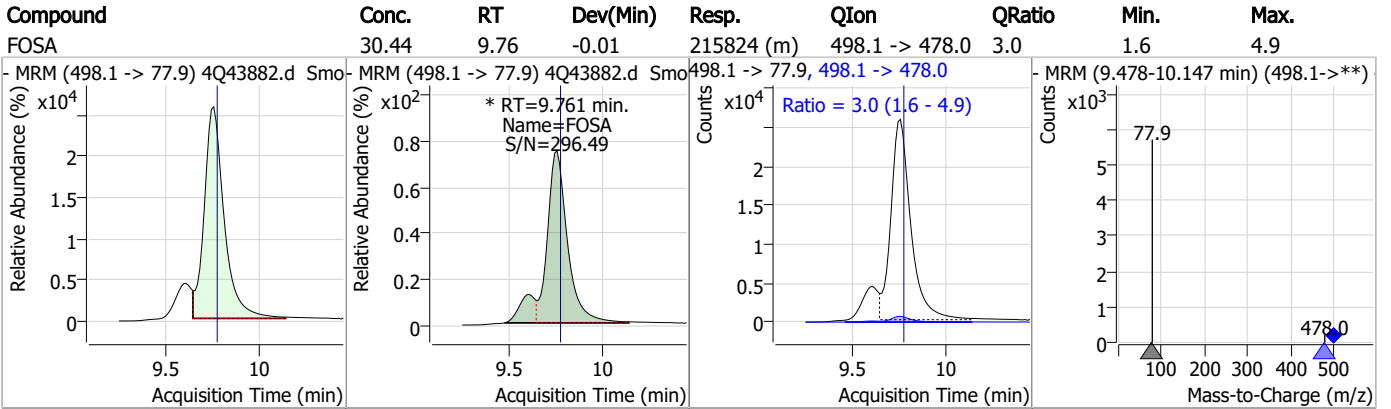
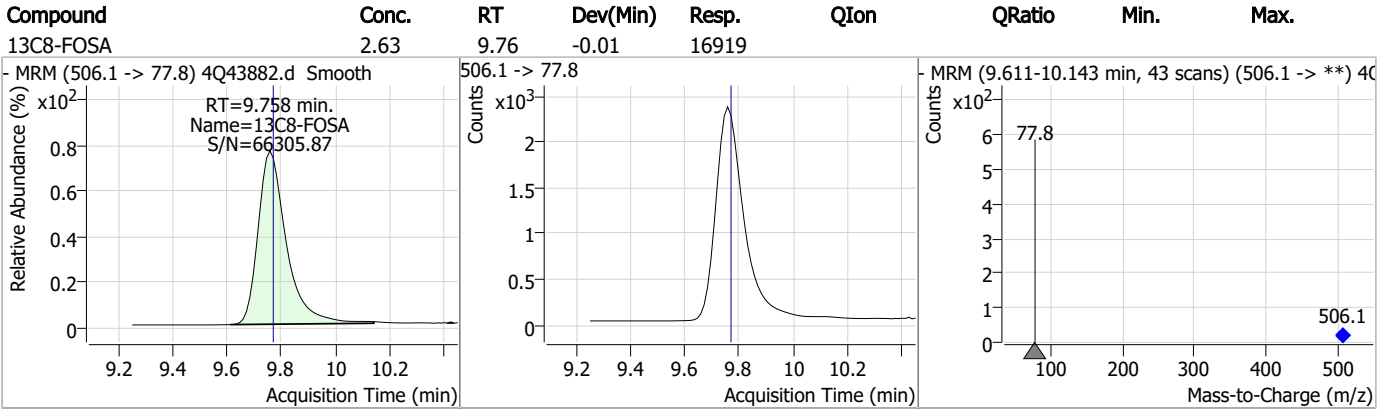
Perfluorinated Compounds by LC/MS/MS



7.6.2

7

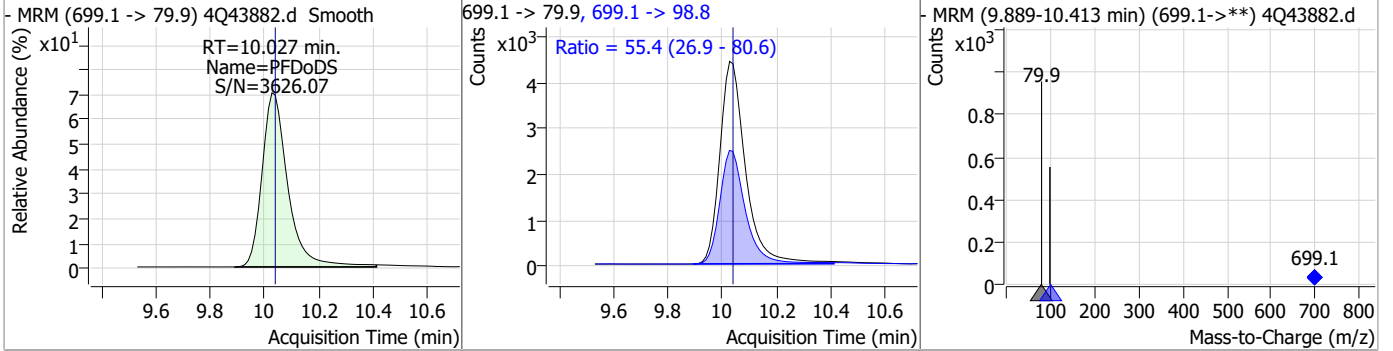
Perfluorinated Compounds by LC/MS/MS



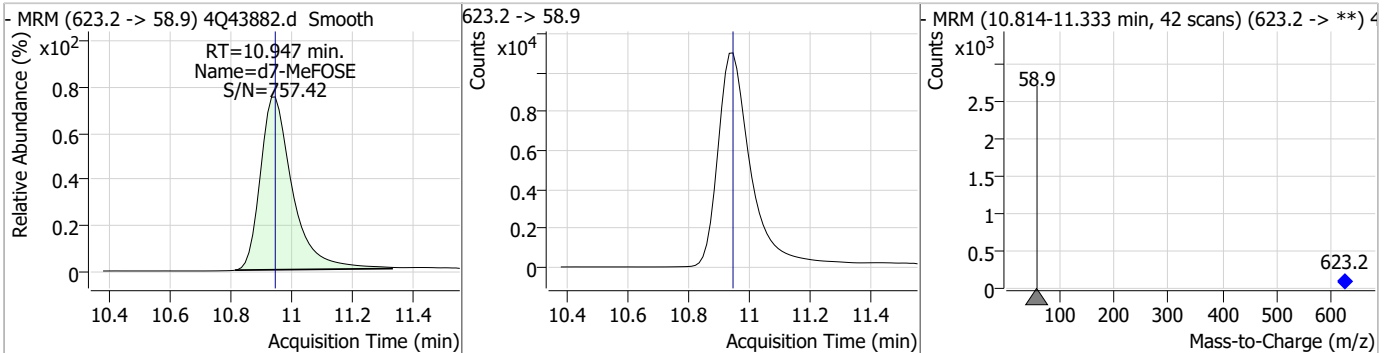
7.6.2
7

Perfluorinated Compounds by LC/MS/MS

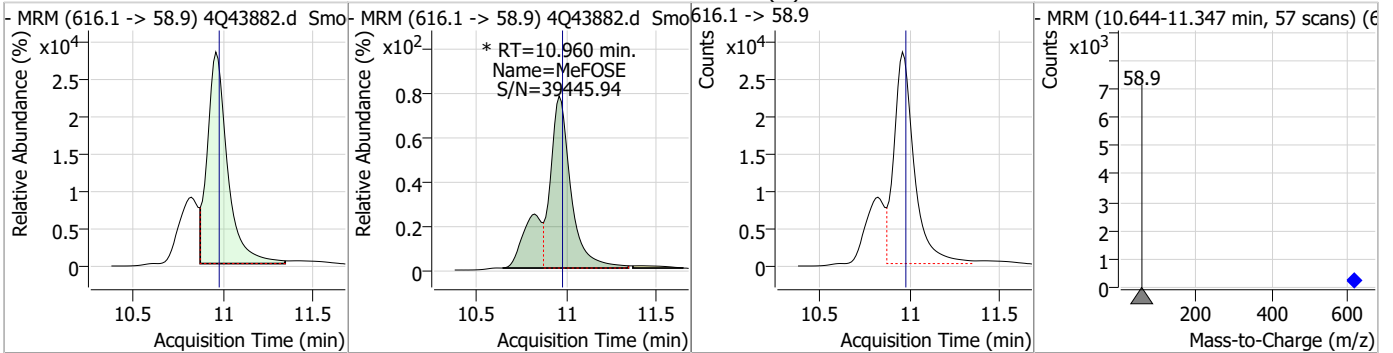
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	12.82	10.03	-0.01	29285	699.1 -> 98.8	55.4	26.9	80.6



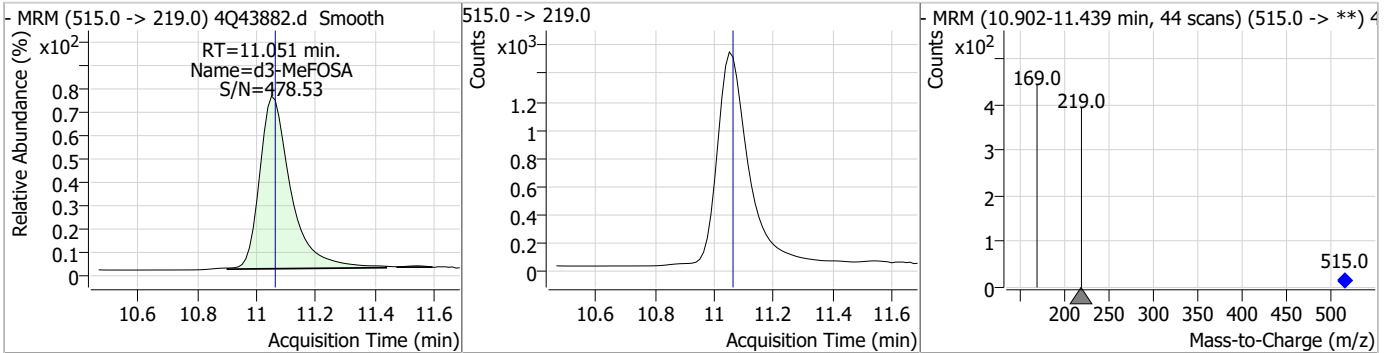
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.28	10.95	0.00	80643				



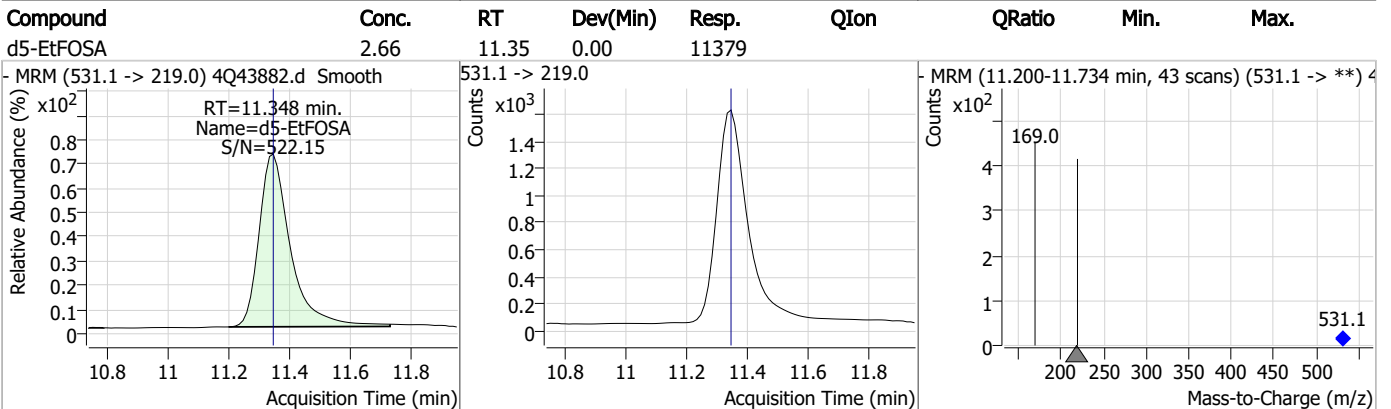
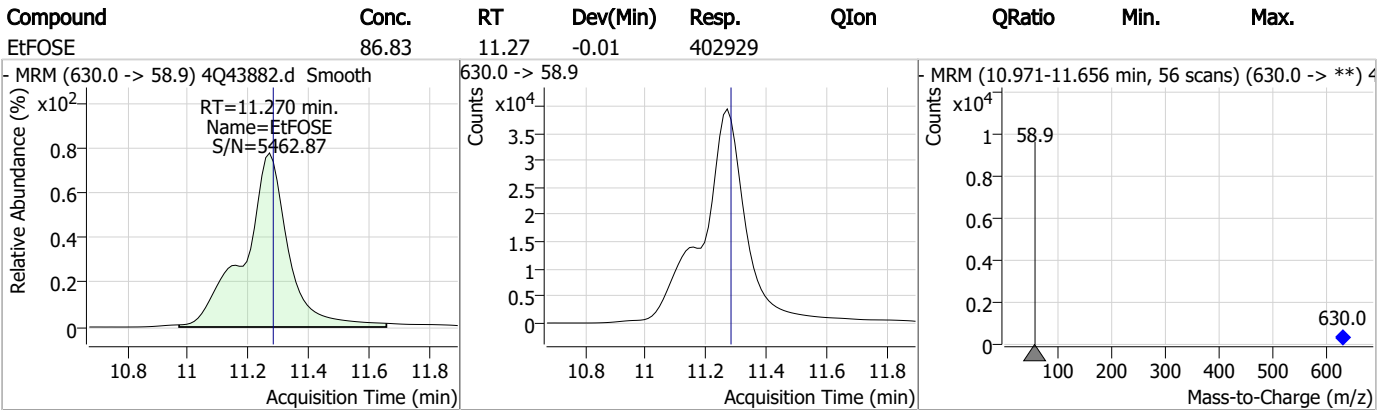
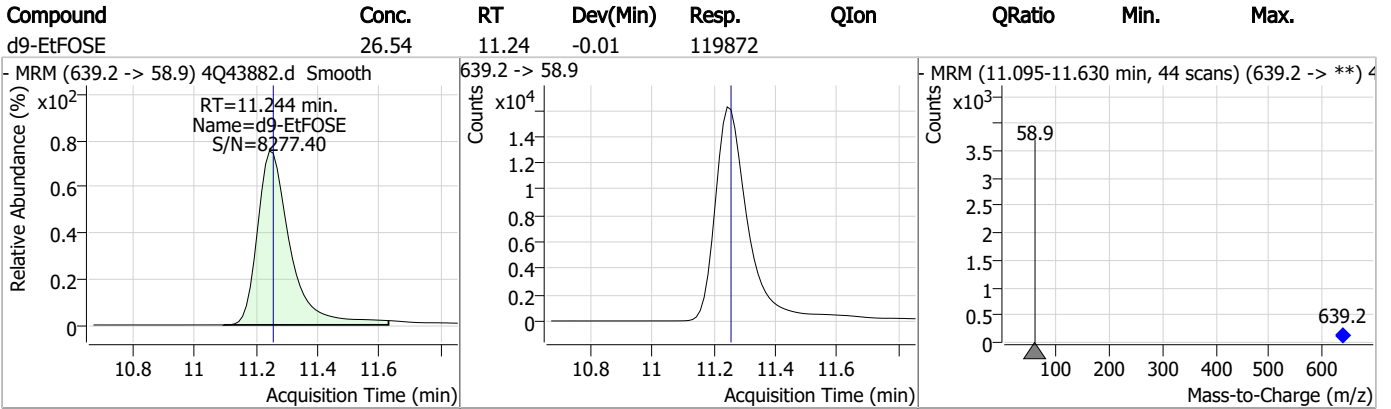
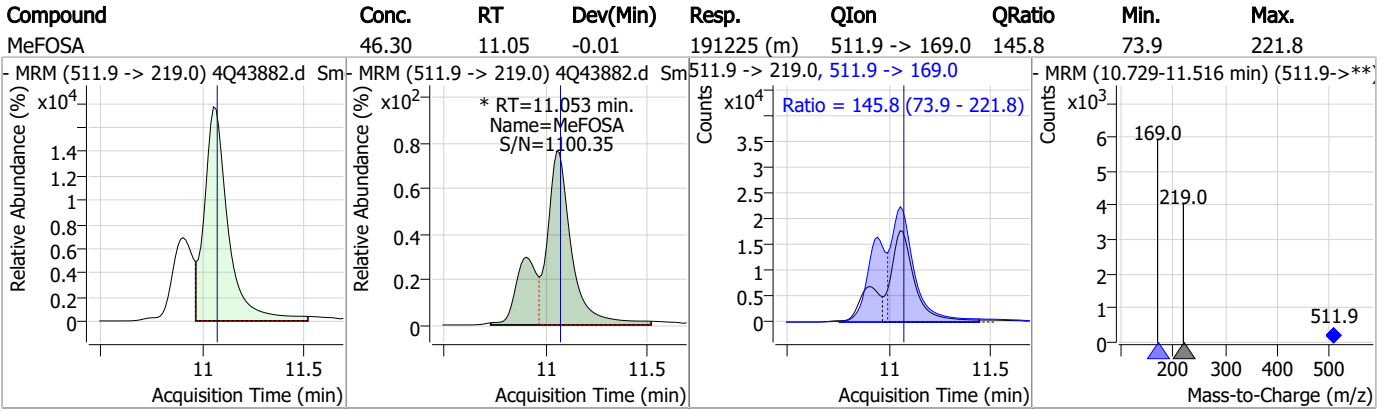
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	86.73	10.96	-0.01	287291 (m)				



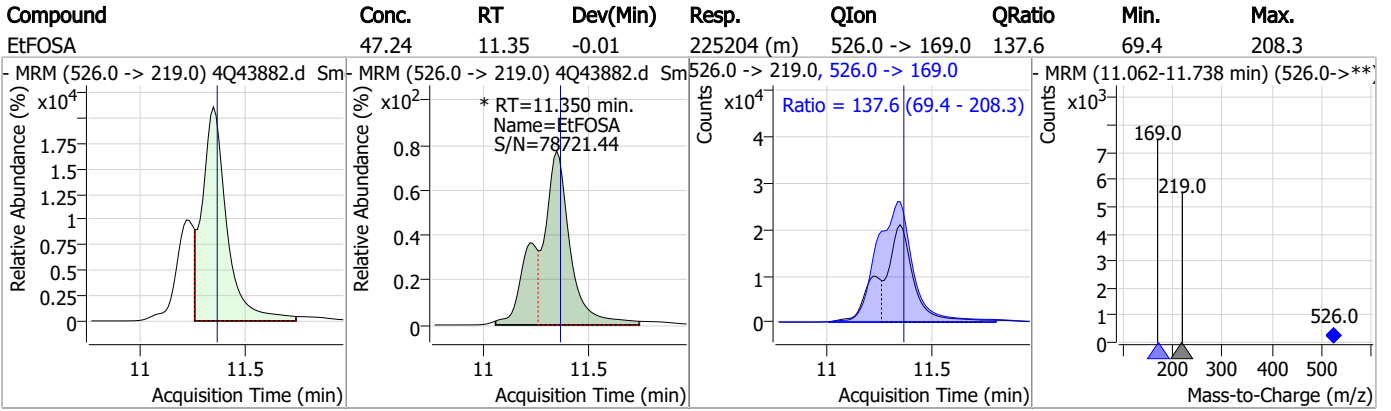
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.73	11.05	-0.01	10964				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.2

7

Manual Integration Approval Summary

Sample Number: S4Q634-RT
Lab FileID: 4Q43882.D
Injection Time: 05/03/23 10:37

Method: EPA DRAFT 1633
Analyst approved: 05/04/23 11:23 Natasha Gumtie
Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.11	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorononanoic acid	375-95-1		7.66	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.43	Split peak
PFOSA	754-91-6		9.76	Split peak
MeFOSE	24448-09-7		10.96	Split peak
MeFOSA	31506-32-8		11.05	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.6.2.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Mike Eger
 05/05/23 16:38

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43950.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 11:51:45 AM
 Sample Name : RT TDCA
 Vial : P1-B1
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s4q635_TDCA.batch.bin
 Sample Information : OP96548,S4Q635,500,,,5.0,1,water

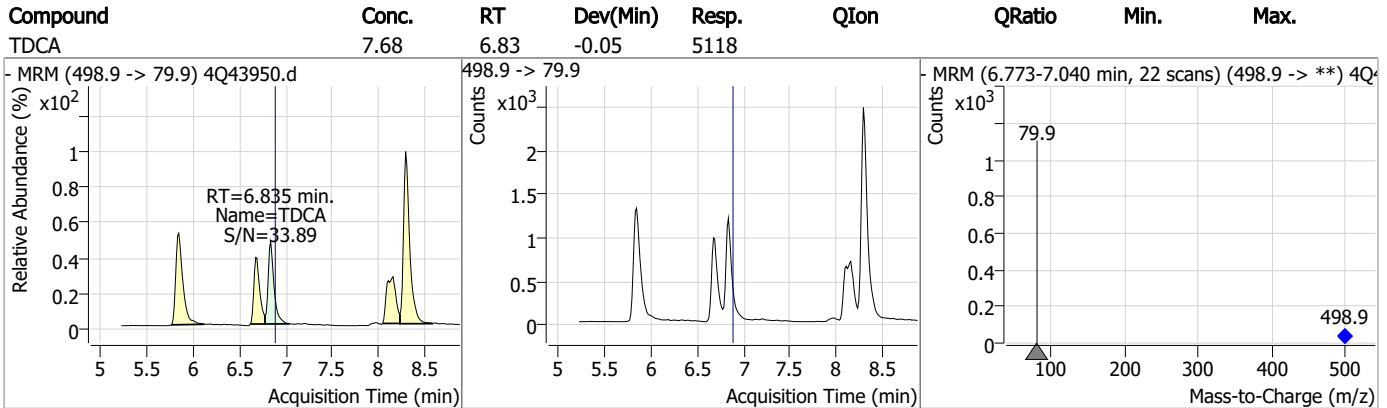
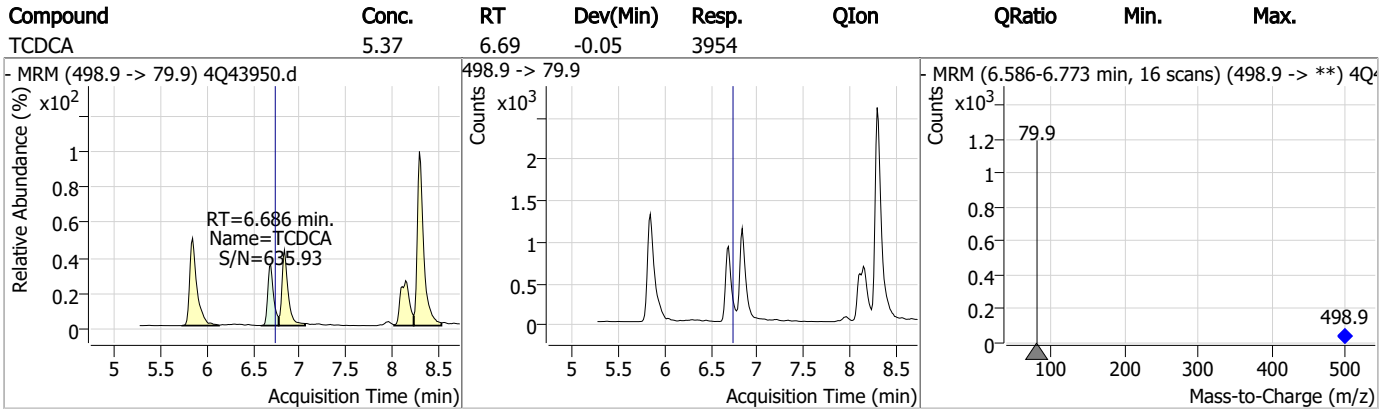
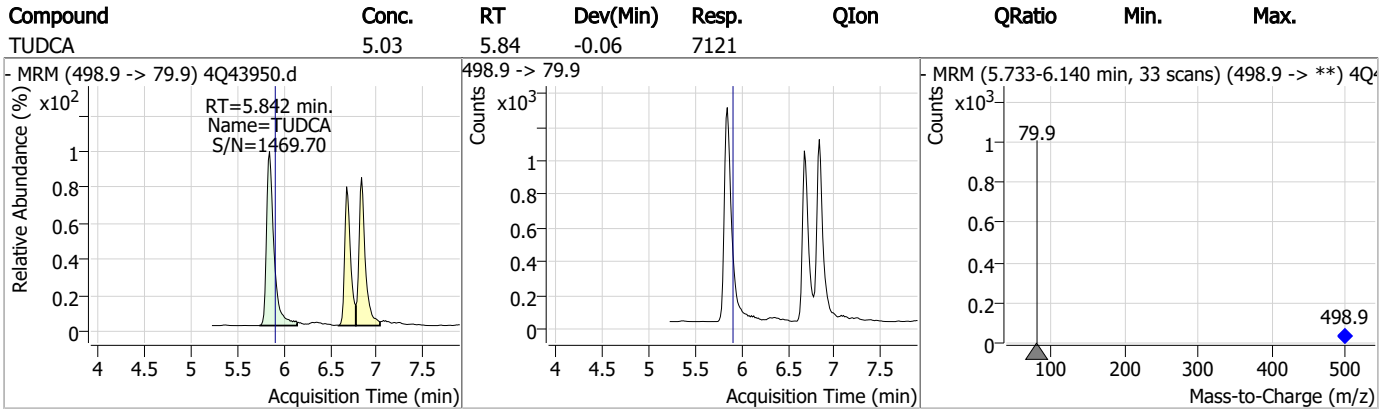
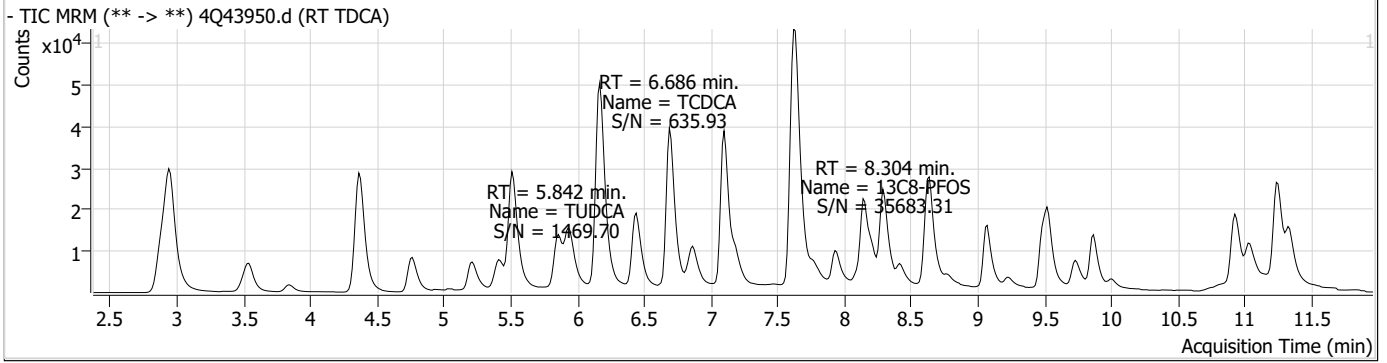
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.304	507.1 -> 79.9	15956	2.50	µg/L	-0.062	
13C4-PFOS	8.305	502.8 -> 79.9	15779	2.50	µg/L	-0.062	
System Monitoring Compounds							
13C8-PFOS	8.304	507.1 -> 79.9	15956	2.56	µg/L	-0.062	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.6%				
Target Compounds							
PFOS	8.305	498.9 -> 79.9 498.9 -> 98.8	16446 7995	3.02	µg/L	m	99
TCDCa	6.686	498.9 -> 79.9	3954	5.37	ng/ml		100
TDCA	6.835	498.9 -> 79.9	5118	7.68	ng/ml		100
TUDCA	5.842	498.9 -> 79.9	7121	5.03	ng/ml		100

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

7.6.3

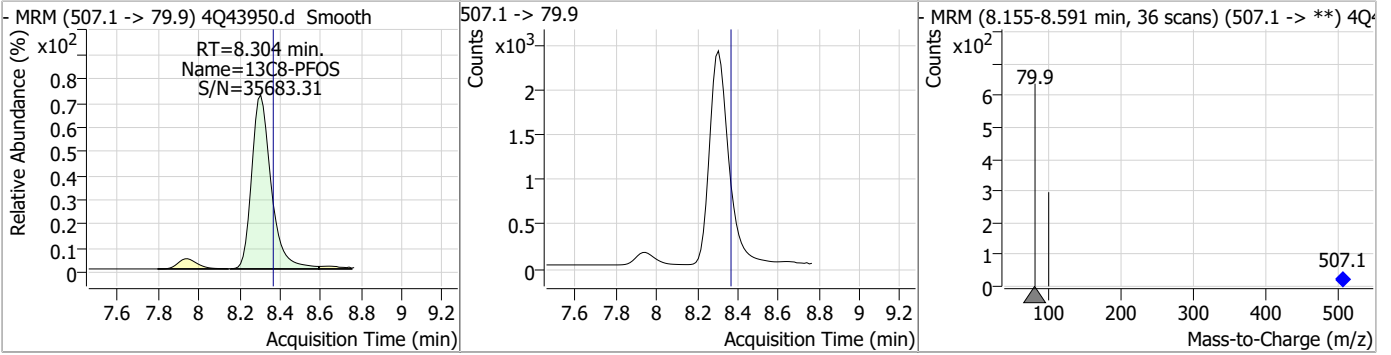
7

Perfluorinated Compounds by LC/MS/MS

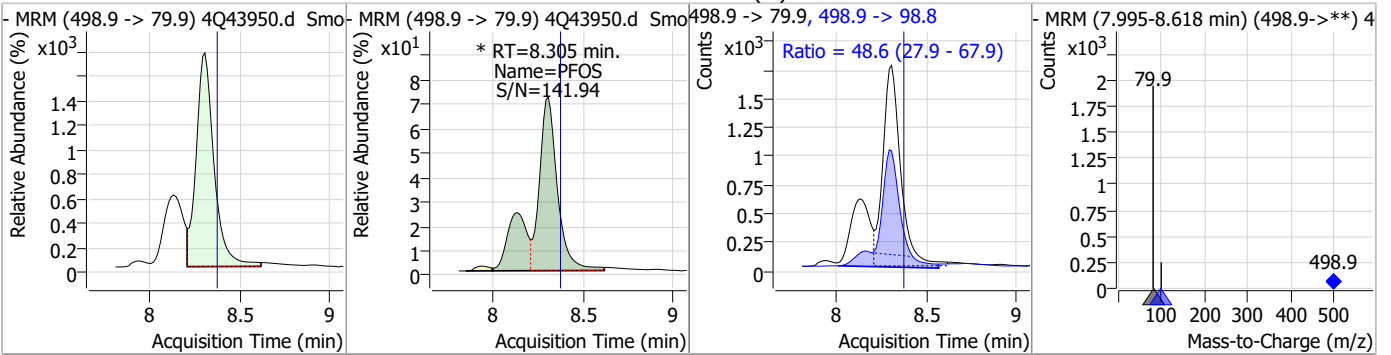


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.56	8.30	-0.06	15956				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	3.02	8.31	-0.06	16446 (m)	498.9 -> 98.8	48.6	27.9	67.9



7.6.3

7



Manual Integration Approval Summary

Sample Number: S4Q635-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43950.D Analyst approved: 05/05/23 07:50 Natasha Gumtie
Injection Time: 05/04/23 11:51 Supervisor approved: 05/05/23 16:38 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak

7.6.3.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43951.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 12:05:49 PM
 Sample Name : RT br/lr
 Vial : P1-B2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96548,S4Q635,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	117758	10.00 µg/L	0.013
M5-PFPeA	4.375	268.3 -> 223.0	66008	5.00 µg/L	0.012
M5-PFHxA	5.522	318.0 -> 273.0	44849	2.50 µg/L	-0.012
M4-PFHpA	6.442	367.1 -> 322.0	26833	2.50 µg/L	-0.025
M8-PFOA	7.111	421.1 -> 376.0	41933	2.50 µg/L	-0.012
M9-PFNA	7.658	472.1 -> 427.0	20550	1.25 µg/L	-0.012
M6-PFDA	8.153	519.1 -> 474.1	19320	1.25 µg/L	-0.025
M7-PFUnDA	8.622	570.0 -> 525.1	19667	1.25 µg/L	-0.025
M2-PFDoDA	9.067	615.1 -> 570.0	21502	1.25 µg/L	-0.039
M2-PFTeDA	9.862	715.2 -> 670.0	15407	1.25 µg/L	-0.037
M8-FOSA	9.746	506.1 -> 77.8	16520	2.50 µg/L	-0.025
M3-PFBS	5.427	302.1 -> 79.9	10876	2.50 µg/L	0.000
M3-PFHxS	7.204	402.1 -> 79.9	6904	2.50 µg/L	-0.025
M8-PFOS	8.304	507.1 -> 79.9	10141	2.50 µg/L	-0.025
M2-4:2FTS	5.209	329.1 -> 80.9	872	5.00 µg/L	-0.014
M2-6:2FTS	6.886	429.1 -> 80.9	1715	5.00 µg/L	-0.012
M2-8:2FTS	7.941	529.1 -> 80.9	2876	5.00 µg/L	-0.025
M3-MeFOSAA	8.211	573.2 -> 419.0	13431	5.00 µg/L	-0.025
M3-HFPO-DA	5.877	286.9 -> 168.9	28105	10.00 µg/L	-0.012
M5-EtFOSAA	8.421	589.2 -> 419.0	11789	5.00 µg/L	-0.025
M7-MeFOSE	10.922	623.2 -> 58.9	68936	25.00 µg/L	-0.025
M9-EtFOSE	11.244	639.2 -> 58.9	93065	25.00 µg/L	-0.012
M5-EtFOSA	11.335	531.1 -> 219.0	10931	2.50 µg/L	-0.012
M3-MeFOSA	11.039	515.0 -> 219.0	9746	2.50 µg/L	-0.025
13C4-PFOS	8.305	502.8 -> 79.9	10706	2.50 µg/L	-0.025
13C3-PFBA	2.941	216.0 -> 172.0	64106	5.00 µg/L	0.012
18O2-PFHxS	7.203	403.0 -> 83.9	4774	2.50 µg/L	-0.025
13C4-PFOA	7.112	417.1 -> 372.0	49952	2.50 µg/L	-0.012
13C2-PFDA	8.154	515.1 -> 470.1	17333	1.25 µg/L	-0.025
13C5-PFNA	7.658	468.0 -> 423.0	21732	1.25 µg/L	-0.026
13C2-PFHxA	5.523	315.1 -> 270.0	40456	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.209	329.1 -> 80.9	872	4.50 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 89.9%		
13C2-6:2FTS	6.886	429.1 -> 80.9	1715	4.90 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-8:2FTS	7.941	529.1 -> 80.9	2876	5.27 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C2-PFDoDA	9.067	615.1 -> 570.0	21502	1.28 µg/L	-0.039
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.4%		
13C2-PFTeDA	9.862	715.2 -> 670.0	15407	1.13 µg/L	-0.037
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C3-PFBS	5.427	302.1 -> 79.9	10876	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.6%		
13C3-PFHxS	7.204	402.1 -> 79.9	6904	2.33 µg/L	-0.025

7.6.4
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 = 93.3%	
13C4-PFBA	2.936	216.8 -> 171.9	117758	9.76 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C4-PFHpA	6.442	367.1 -> 322.0	26833	2.58 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C5-PFHxA	5.522	318.0 -> 273.0	44849	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	4.375	268.3 -> 223.0	66008	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.9%	
13C6-PFDA	8.153	519.1 -> 474.1	19320	1.30 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C7-PFUnDA	8.622	570.0 -> 525.1	19667	1.27 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.746	506.1 -> 77.8	16520	2.46 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C8-PFOA	7.111	421.1 -> 376.0	41933	2.56 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C8-PFOS	8.304	507.1 -> 79.9	10141	2.52 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C9-PFNA	7.658	472.1 -> 427.0	20550	1.39 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.3%	
d3-MeFOSAA	8.211	573.2 -> 419.0	13431	4.97 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	28105	10.56 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 105.6%	
d3-MeFOSA	11.039	515.0 -> 219.0	9746	2.32 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.9%	
d5-EtFOSAA	8.421	589.2 -> 419.0	11789	5.30 µg/L	-0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.0%	
d7-MeFOSE	10.922	623.2 -> 58.9	68936	20.70 µg/L	-0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.8%	
d9-EtFOSE	11.244	639.2 -> 58.9	93065	19.73 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 78.9%	
d5-EtFOSA	11.335	531.1 -> 219.0	10931	2.45 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	75937	54.12 µg/L	95
		327.1 -> 80.9	33303		
6:2FTS	6.874	427.1 -> 407.0	87112	52.58 µg/L	98
		427.1 -> 80.9	35686		
8:2FTS	7.941	527.1 -> 507.0	80219	50.04 µg/L	96
		527.1 -> 80.8	31974		
EtFOSAA	8.422	584.2 -> 419.1	29275	12.93 µg/L	m 97
		584.2 -> 526.0	14207		
FOSA	9.737	498.1 -> 77.9	200922	29.02 µg/L	m 99
		498.1 -> 478.0	5978		
MeFOSAA	8.212	570.1 -> 419.0	31950	13.65 µg/L	m 97
		570.1 -> 483.0	7047		
PFBA	2.945	212.8 -> 168.9	169857	53.87 µg/L	100
PFBS	5.428	298.7 -> 79.9	51648	11.58 µg/L	95
		298.7 -> 98.8	19438		
PFDA	8.154	512.9 -> 469.0	187201	12.77 µg/L	96
		512.9 -> 219.0	37318		
PFDoDA	9.067	613.1 -> 569.0	221654	12.85 µg/L	99
		613.1 -> 319.0	31841		
PFDS	9.233	599.0 -> 79.9	31392	12.50 µg/L	97

7.6.4
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.443	599.0 -> 98.8	15125	13.37	µg/L	100
		363.1 -> 319.0	226785			
PFHpS	7.785	363.1 -> 169.0	40628	12.42	µg/L	98
		449.0 -> 79.9	45382			
PFHxA	5.525	449.0 -> 98.9	23522	13.30	µg/L	100
		313.0 -> 269.0	233749			
PFHxS	7.205	313.0 -> 118.9	6960	12.08	µg/L	m
		398.7 -> 79.9	34191			
PFNA	7.646	398.7 -> 98.9	18159	25.21	µg/L	m
		463.0 -> 419.0	383961			
PFNS	8.787	463.0 -> 219.0	100859	11.19	µg/L	98
		548.8 -> 79.9	24763			
PFOA	7.113	548.8 -> 98.9	13285	27.66	µg/L	m
		413.0 -> 369.0	669180			
PFOS	8.305	413.0 -> 169.0	141112	12.00	µg/L	m
		498.9 -> 79.9	59566			
PFPeA	4.377	498.9 -> 98.8	29921	25.89	µg/L	100
		263.0 -> 219.0	411244			
PFPeS	6.482	349.1 -> 79.9	30597	12.60	µg/L	99
		349.1 -> 98.9	13823			
PFTeDA	9.862	713.1 -> 669.0	213450	14.15	µg/L	100
		713.1 -> 168.9	18259			
PFTrDA	9.490	663.0 -> 619.0	287860	12.48	µg/L	98
		663.0 -> 168.9	29121			
PFUnDA	8.623	563.1 -> 519.0	175568	13.14	µg/L	98
		563.1 -> 269.1	35812			
11CI-PF3OUdS	9.531	630.9 -> 450.9	248148	24.55	µg/L	97
		632.9 -> 452.9	75818			
9CI-PF3ONS	8.649	530.8 -> 351.0	306863	23.84	µg/L	99
		532.8 -> 353.0	91520			
ADONA	6.706	376.9 -> 250.9	672705	23.80	µg/L	98
		376.9 -> 84.8	181513			
HFPO-DA	5.878	284.9 -> 168.9	70636	26.30	µg/L	98
		284.9 -> 184.9	8586			
3:3FTCA	3.848	241.0 -> 177.0	44640	63.89	µg/L	98
		241.0 -> 117.0	4113			
5:3FTCA	6.180	341.0 -> 237.1	784556	329.04	µg/L	98
		341.0 -> 217.0	545564			
7:3FTCA	7.624	441.0 -> 316.9	425593	343.51	µg/L	97
		441.0 -> 336.9	994133			
EtFOSA	11.337	526.0 -> 219.0	214448	46.83	µg/L	m
		526.0 -> 169.0	291487			
EtFOSE	11.257	630.0 -> 58.9	299294	83.07	µg/L	100
		511.9 -> 219.0	174729			
MeFOSA	11.041	511.9 -> 169.0	252477	47.59	µg/L	m
		616.1 -> 58.9	214237			
MeFOSE	10.948	699.1 -> 79.9	28248	75.66	µg/L	m
		699.1 -> 98.8	15235			
PFDoDS	10.014	295.0 -> 201.0	32783	12.60	µg/L	100
		295.0 -> 84.9	8450			
NFDHA	5.403	279.0 -> 85.1	224523	26.13	µg/L	97
		229.0 -> 84.9	214357			
PFMBA	4.766	314.8 -> 134.9	318914	25.33	µg/L	100
		314.8 -> 82.9	10477			
PFMPA	3.540			25.82	µg/L	100
PFEESA	5.946			23.98	µg/L	99

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

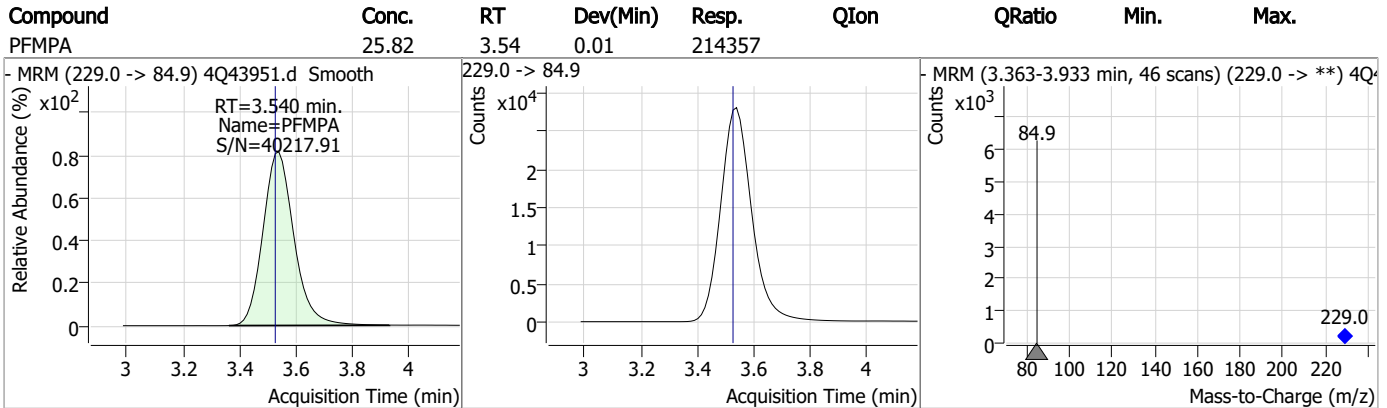
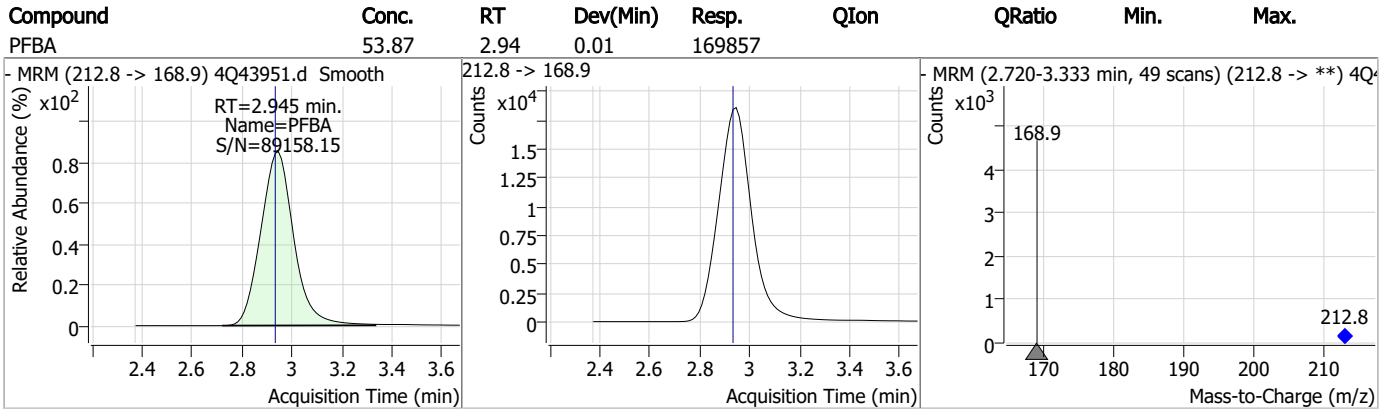
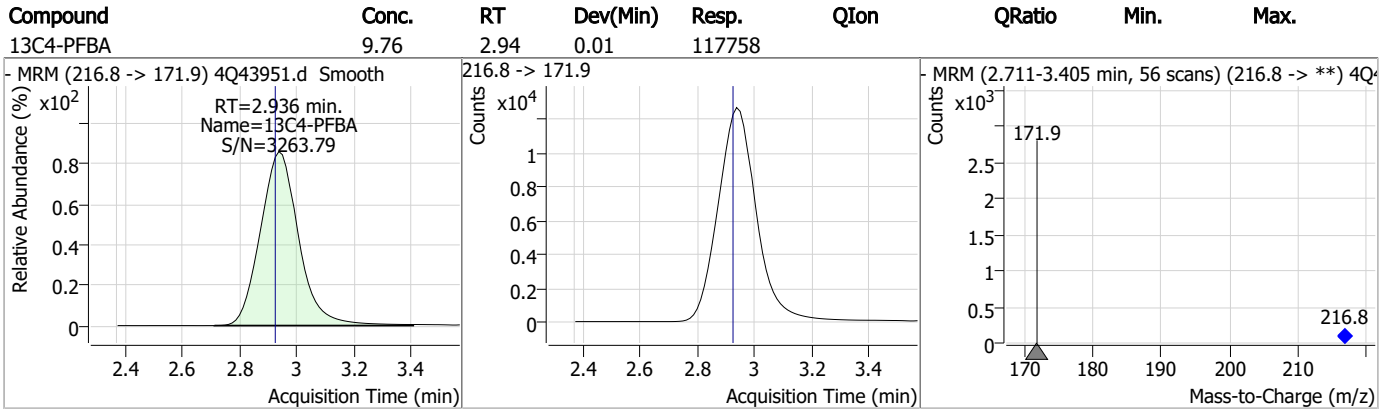
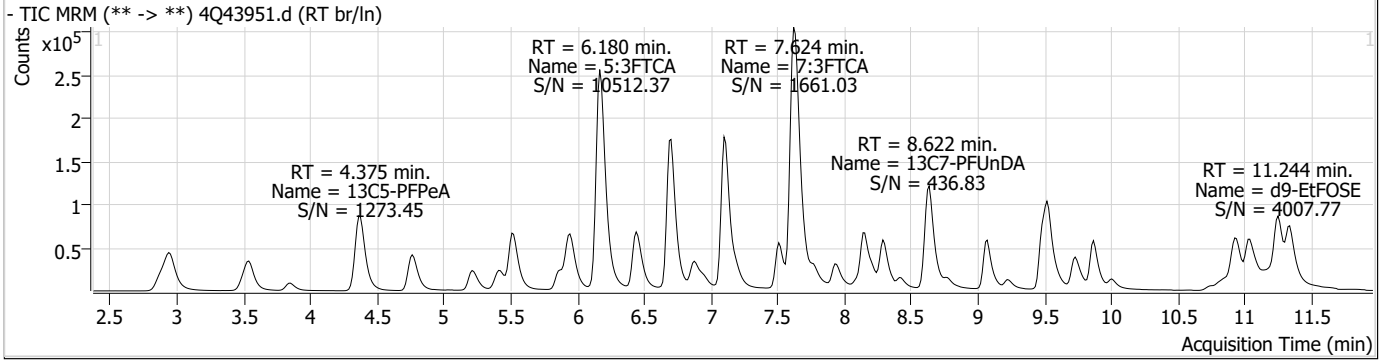
Perfluorinated Compounds by LC/MS/MS

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

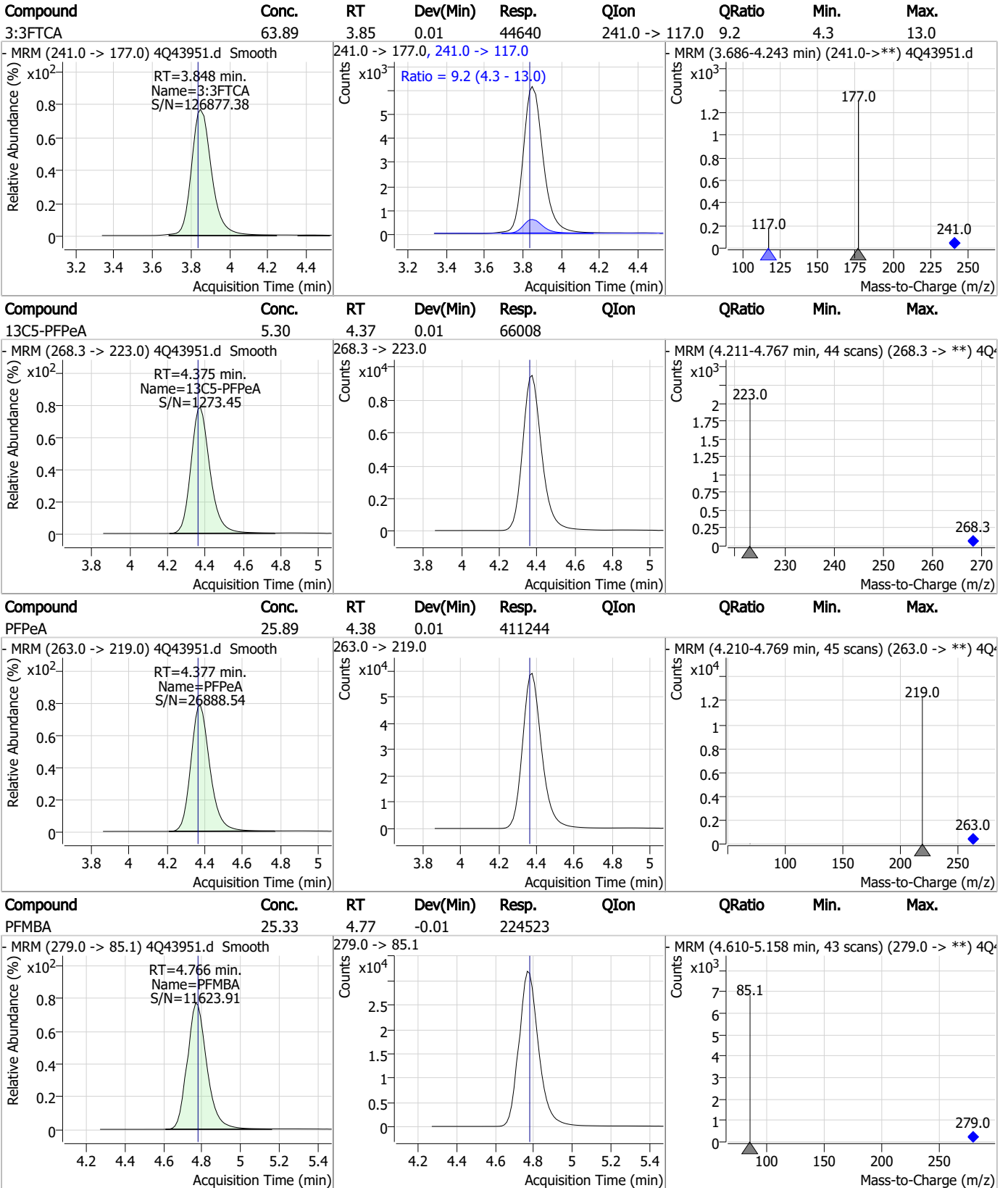
7.6.4

7

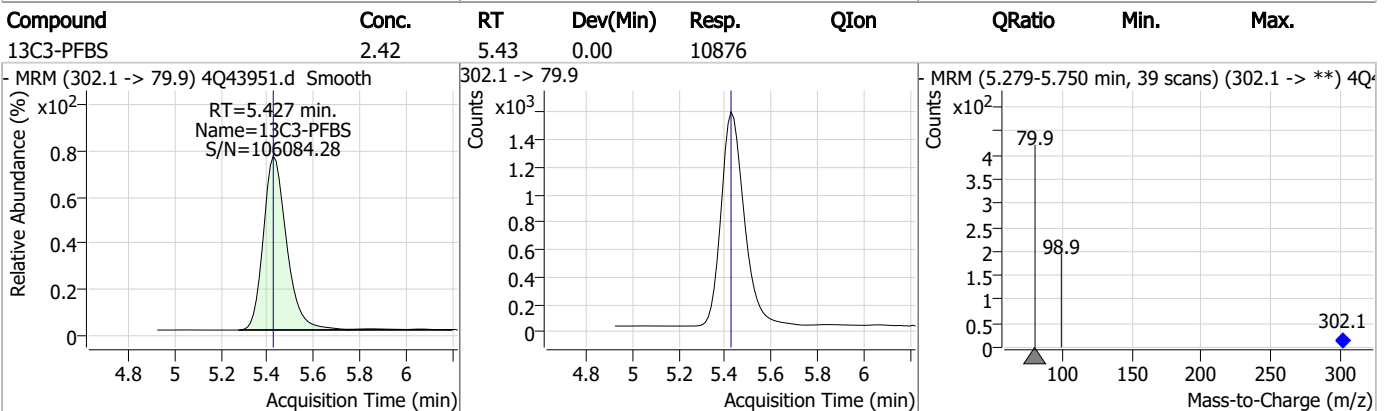
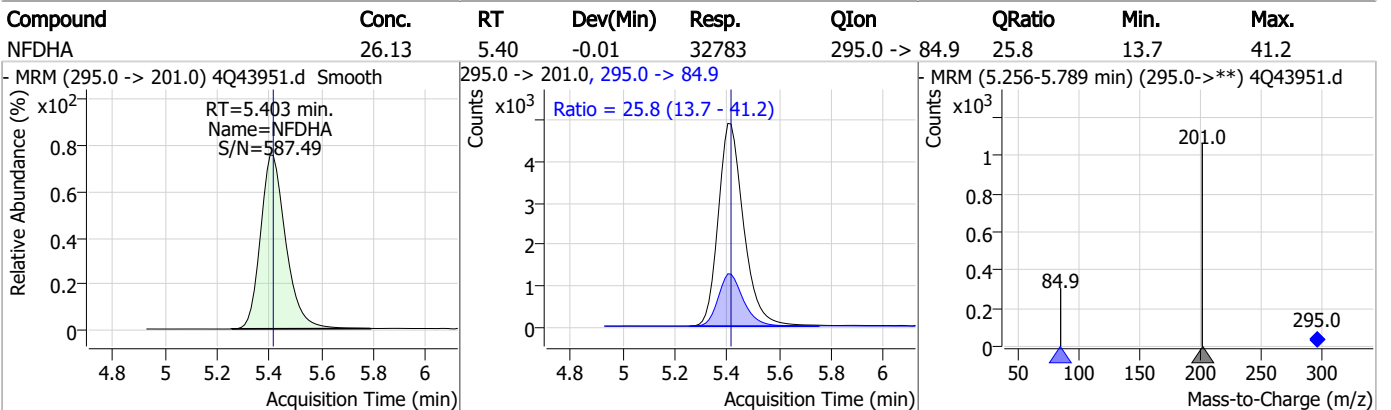
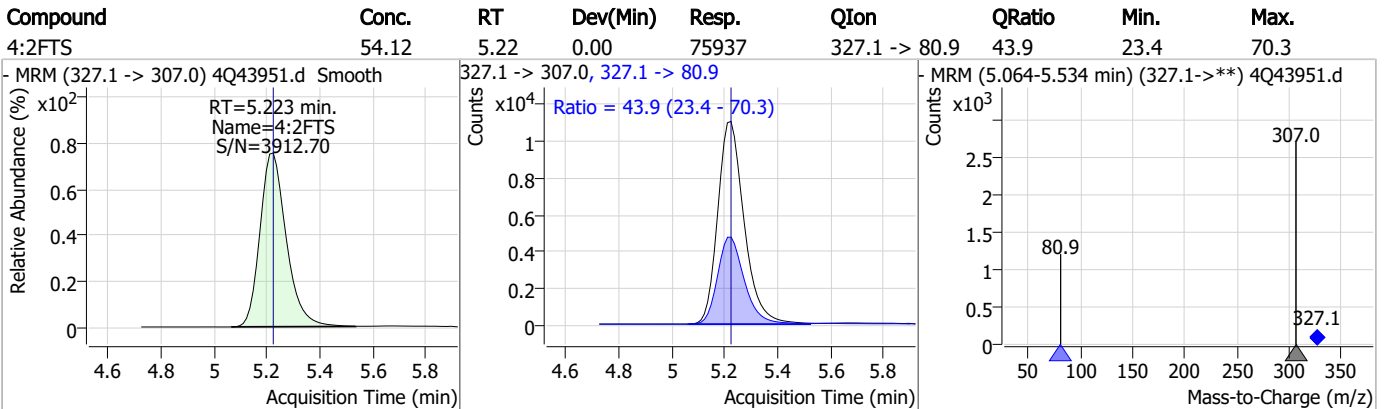
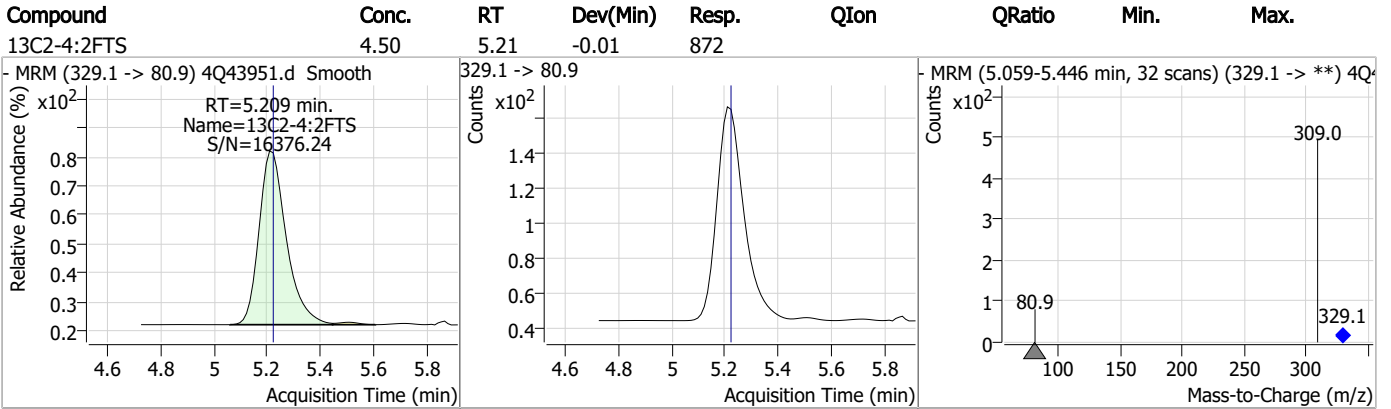
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

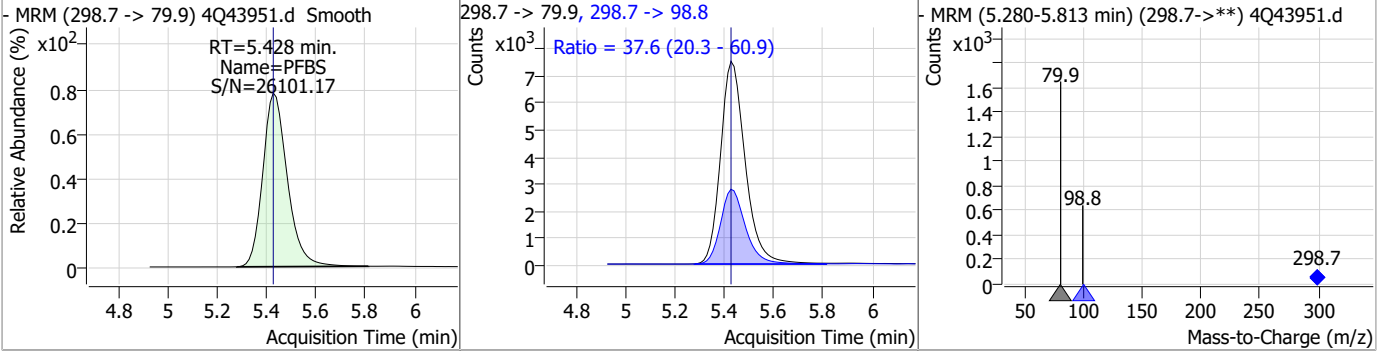


Perfluorinated Compounds by LC/MS/MS

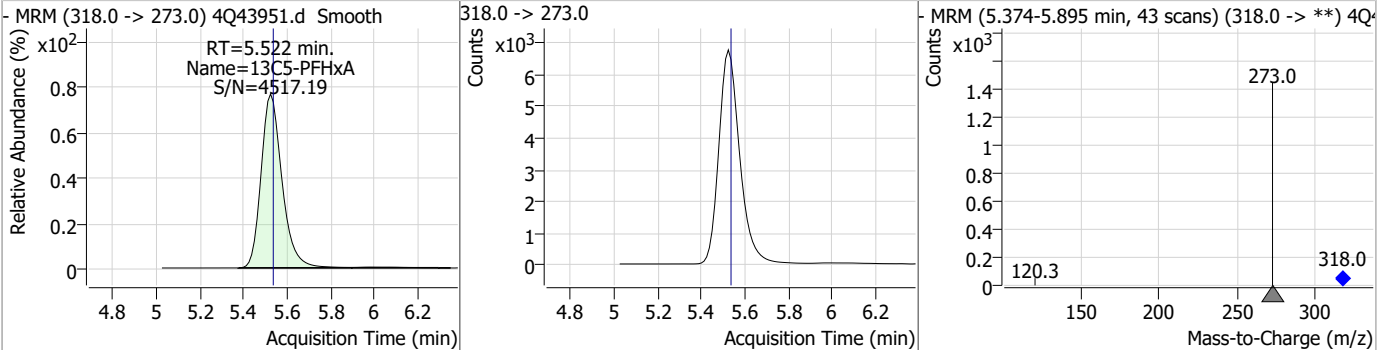


Perfluorinated Compounds by LC/MS/MS

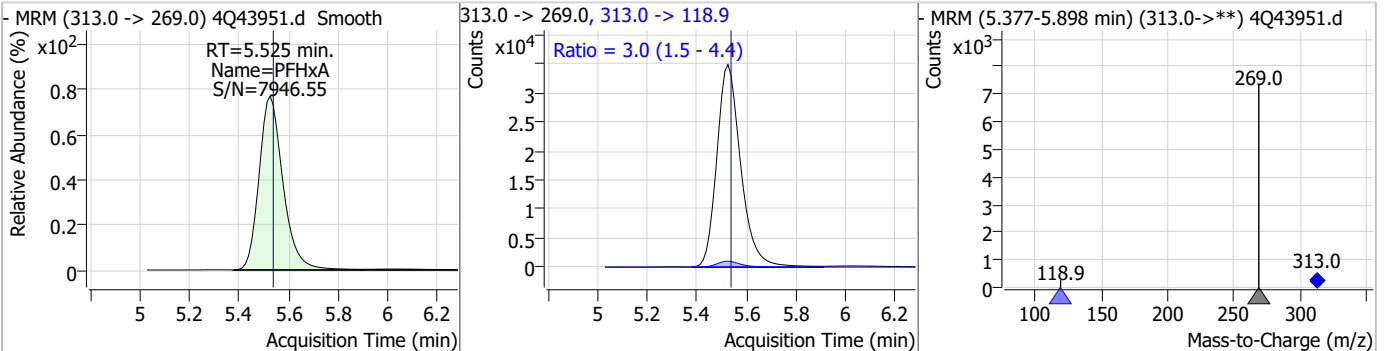
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.58	5.43	0.00	51648	298.7 -> 98.8	37.6	20.3	60.9



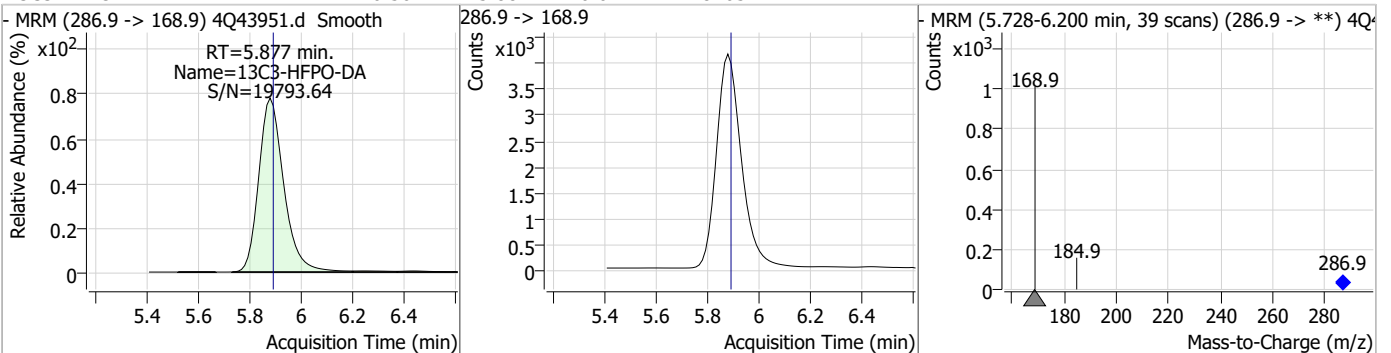
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.52	5.52	-0.01	44849				



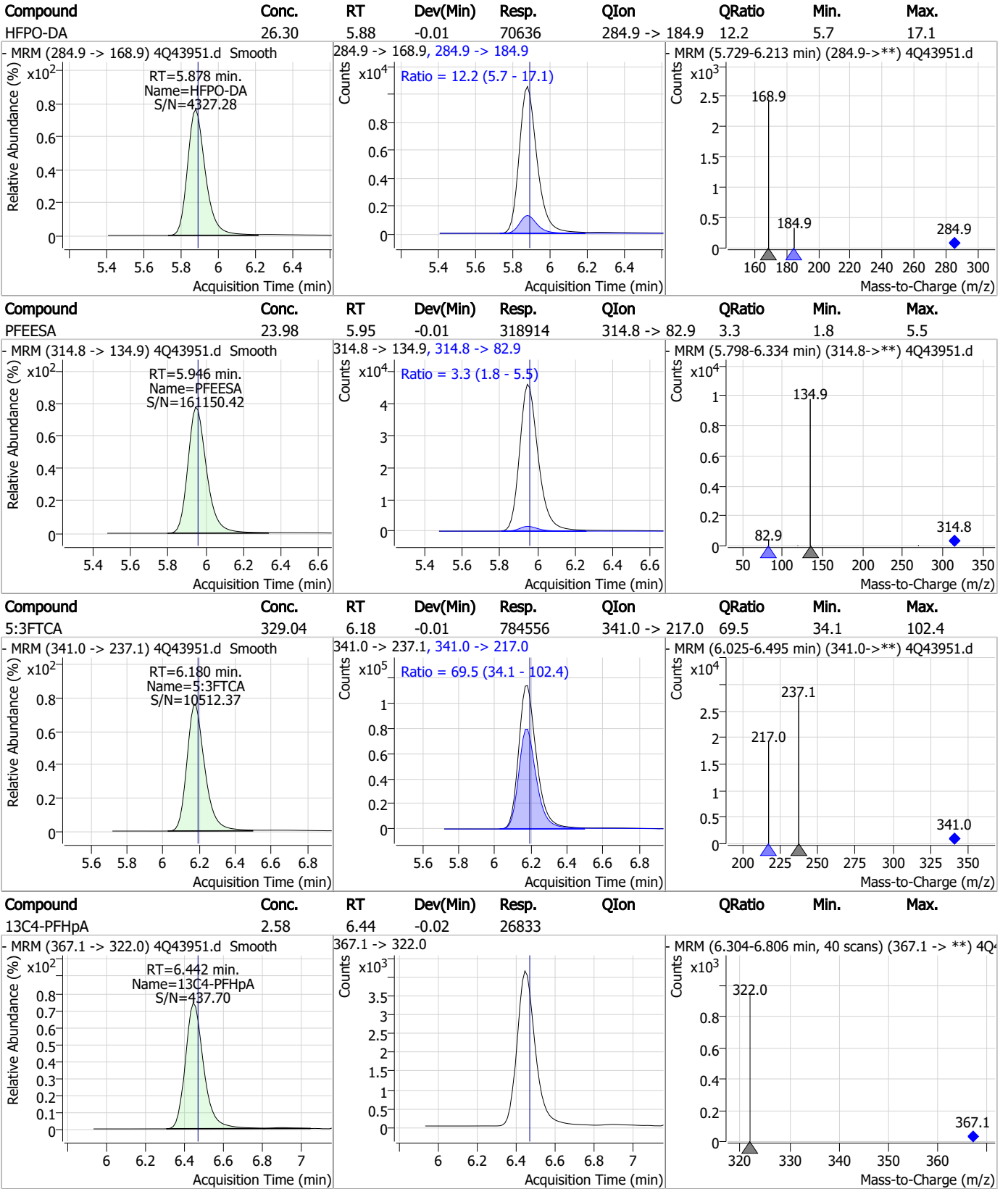
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	13.30	5.53	-0.01	233749	313.0 -> 118.9	3.0	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.56	5.88	-0.01	28105				



Perfluorinated Compounds by LC/MS/MS

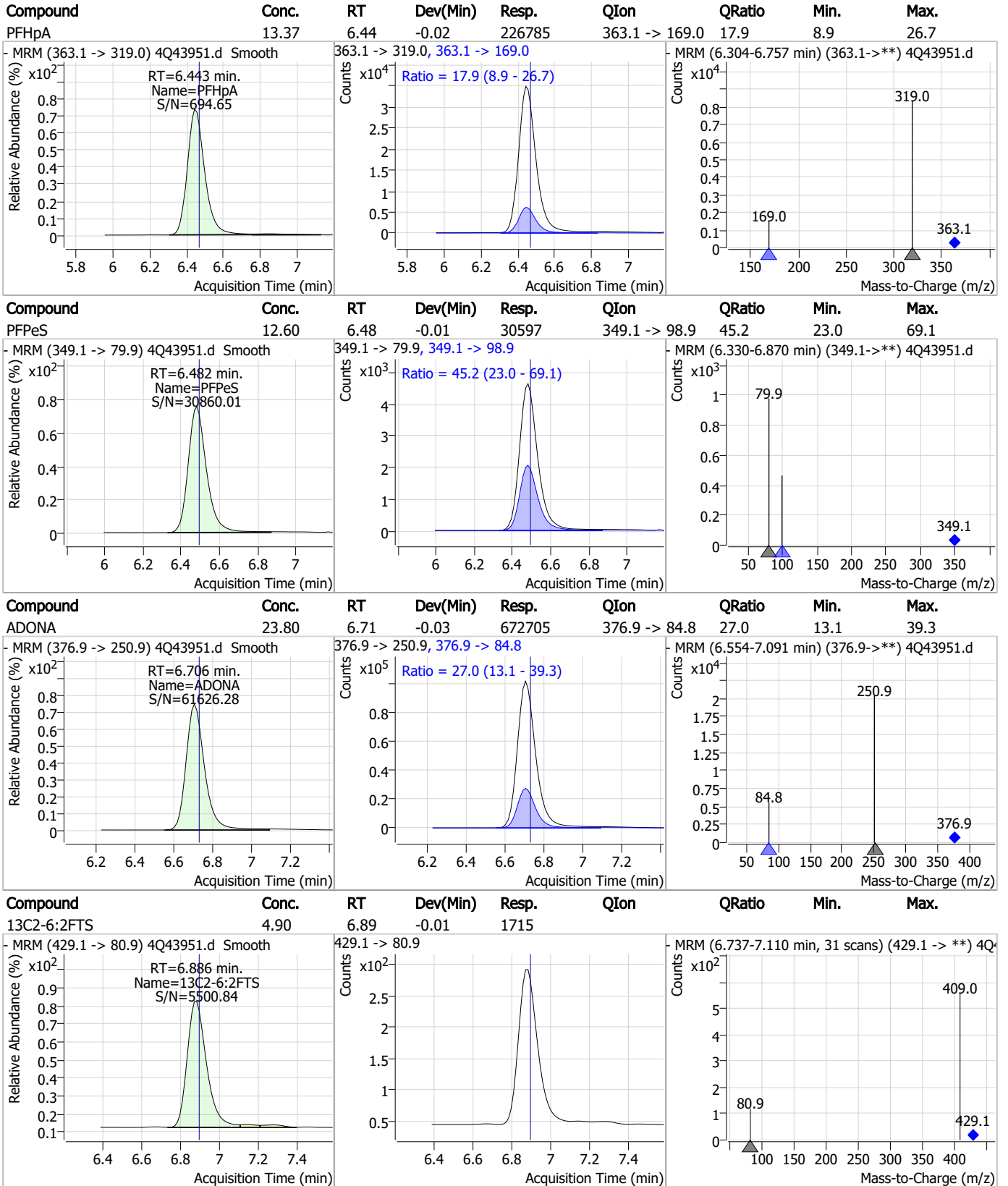


7.6.4

7



Perfluorinated Compounds by LC/MS/MS

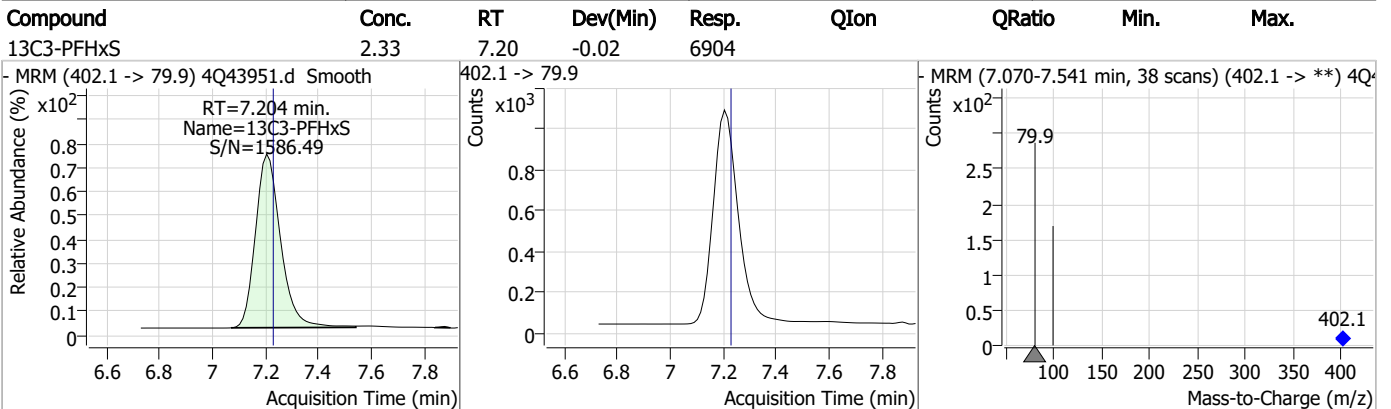
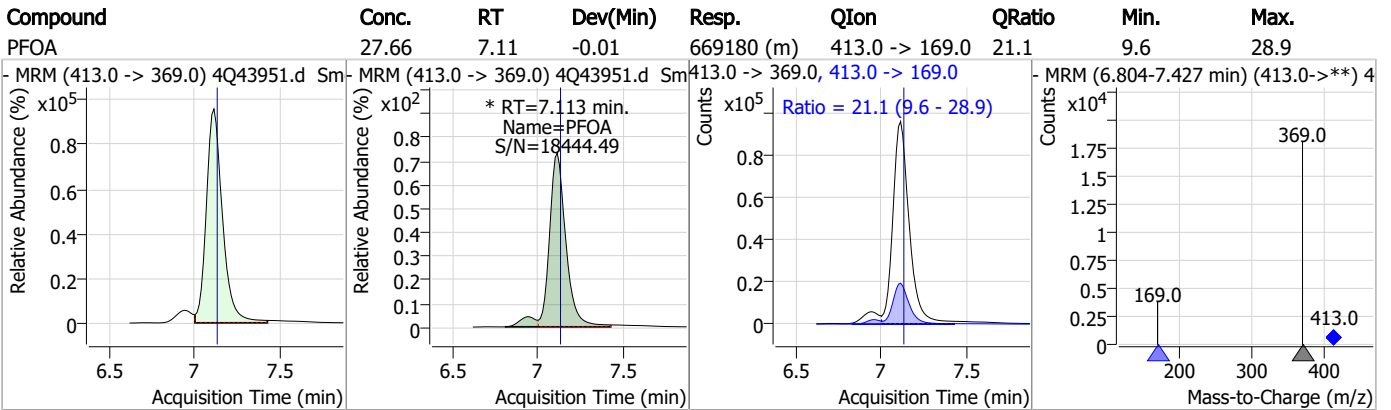
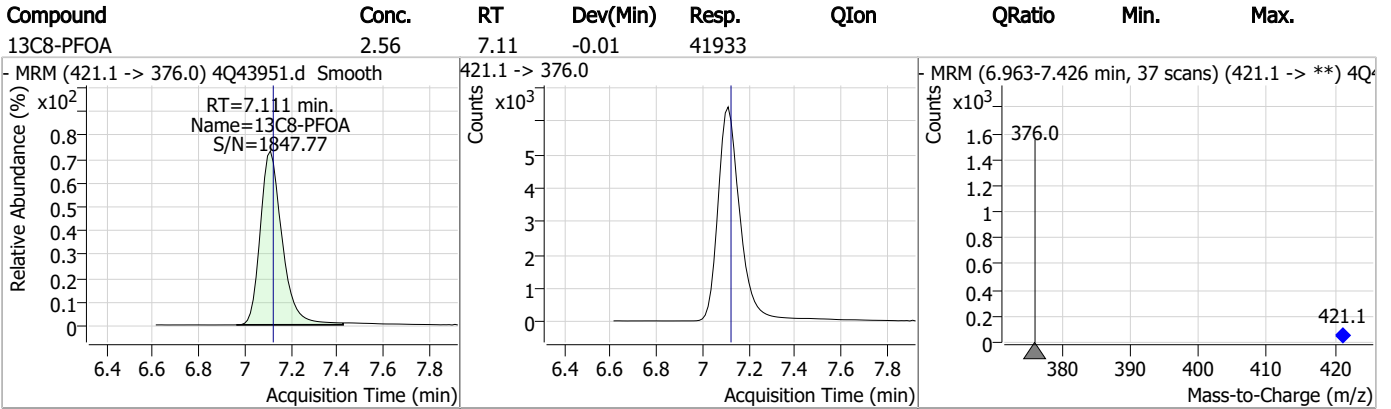
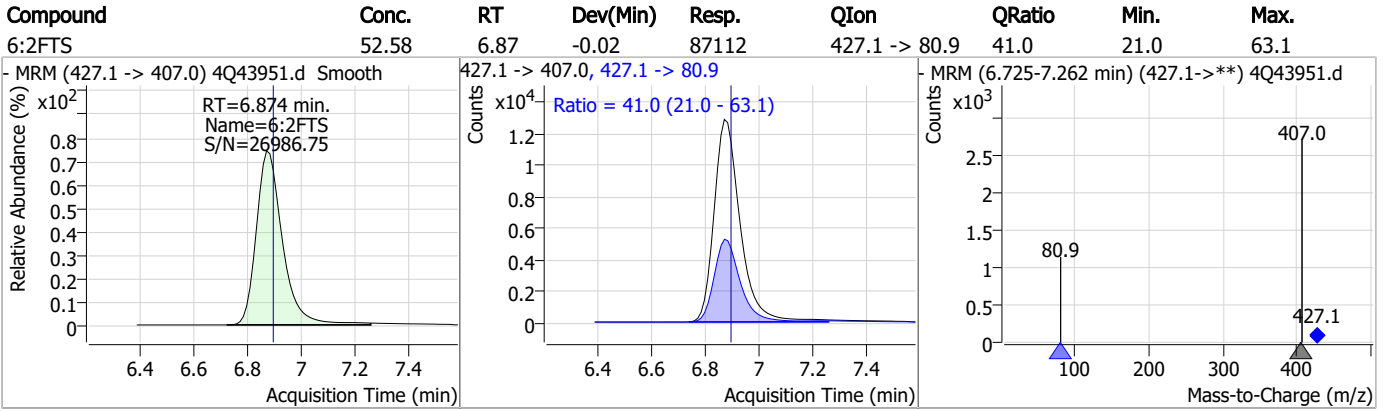


7.6.4

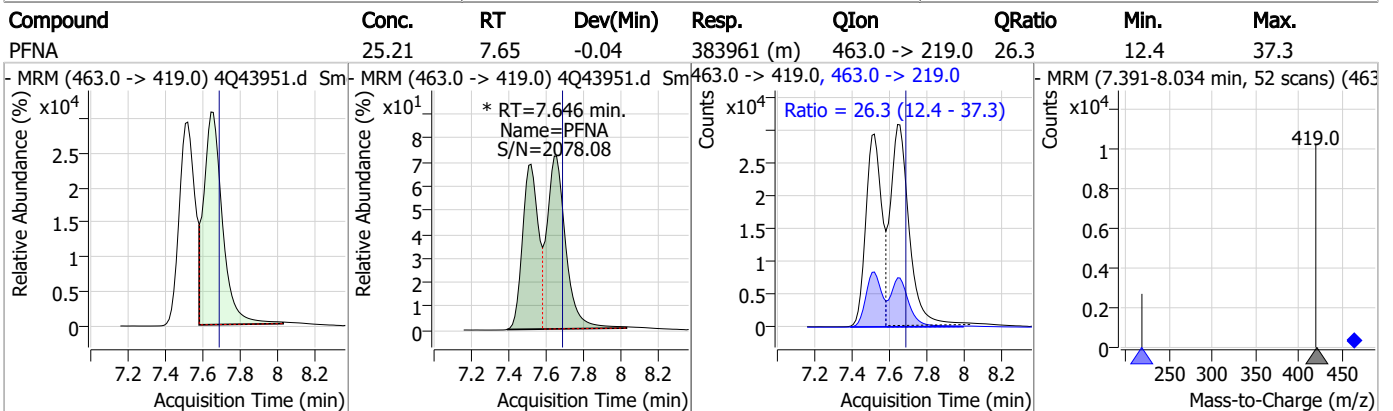
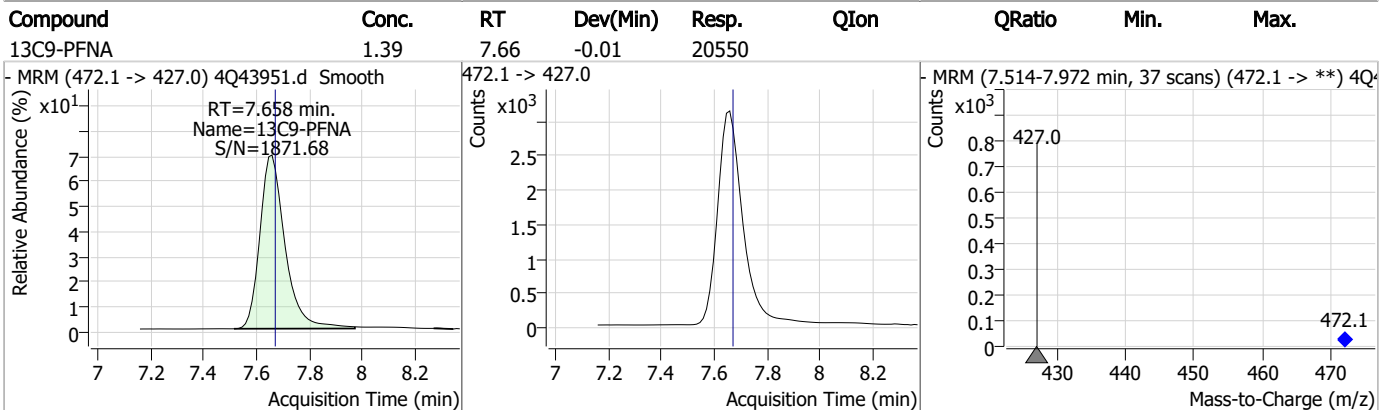
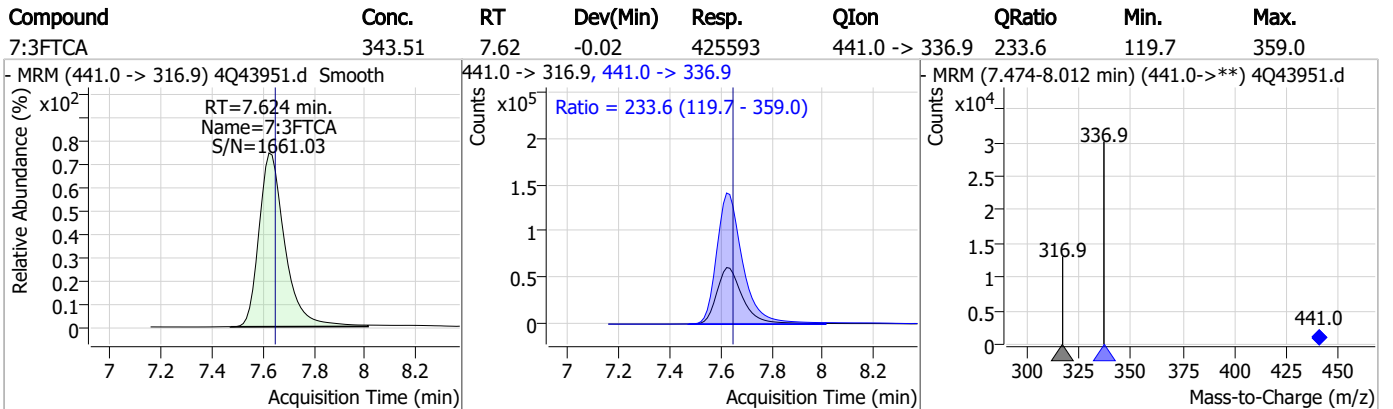
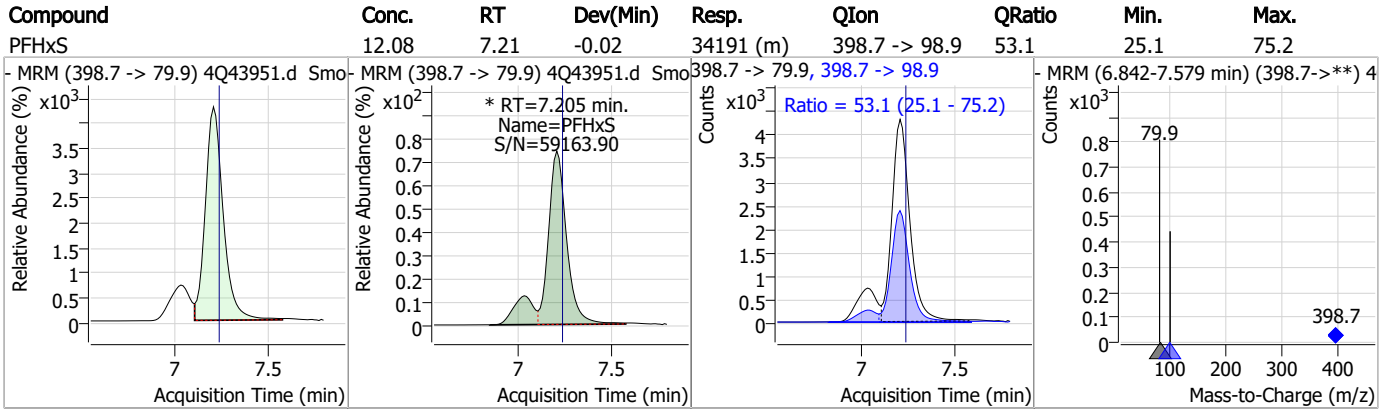
7



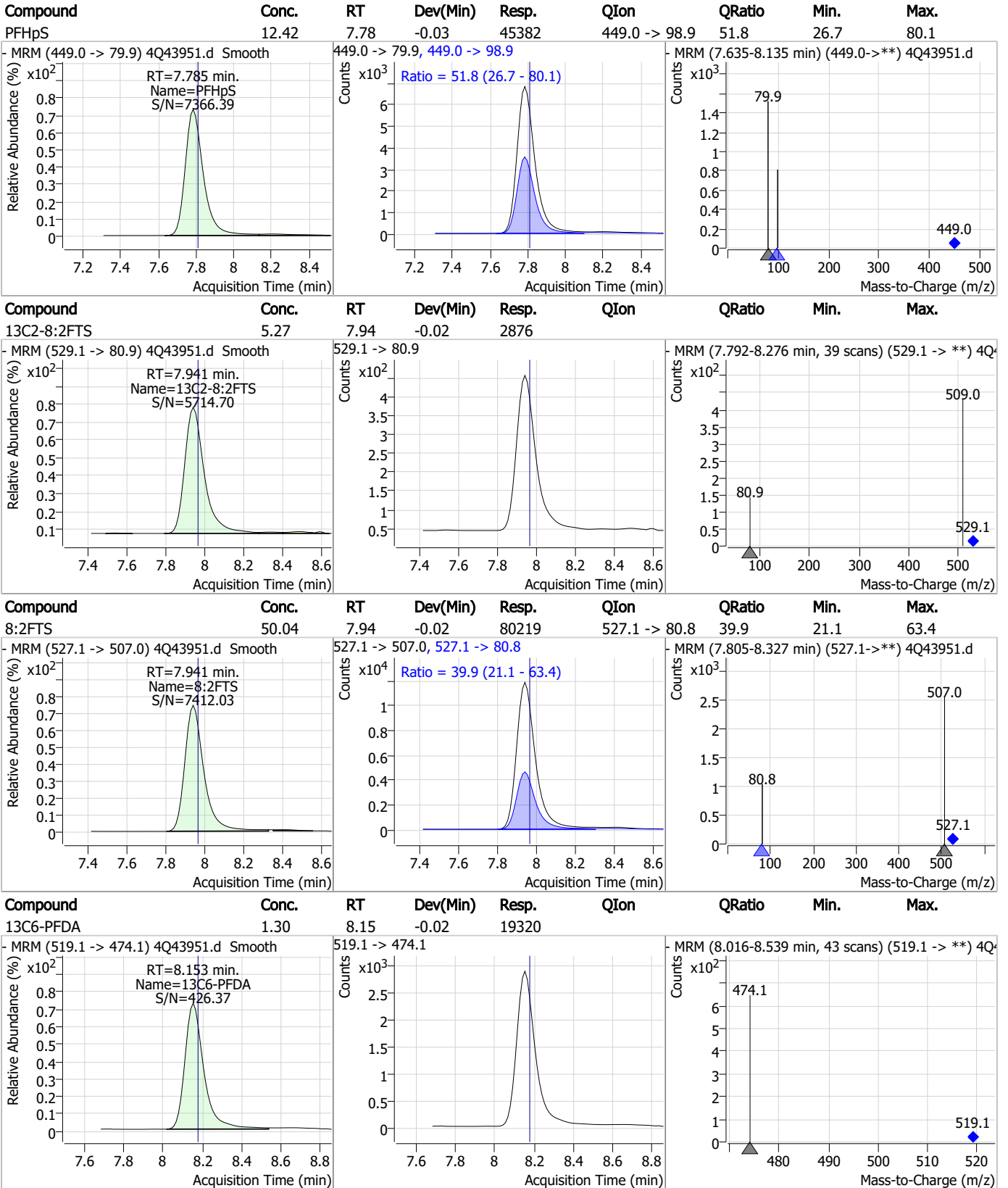
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

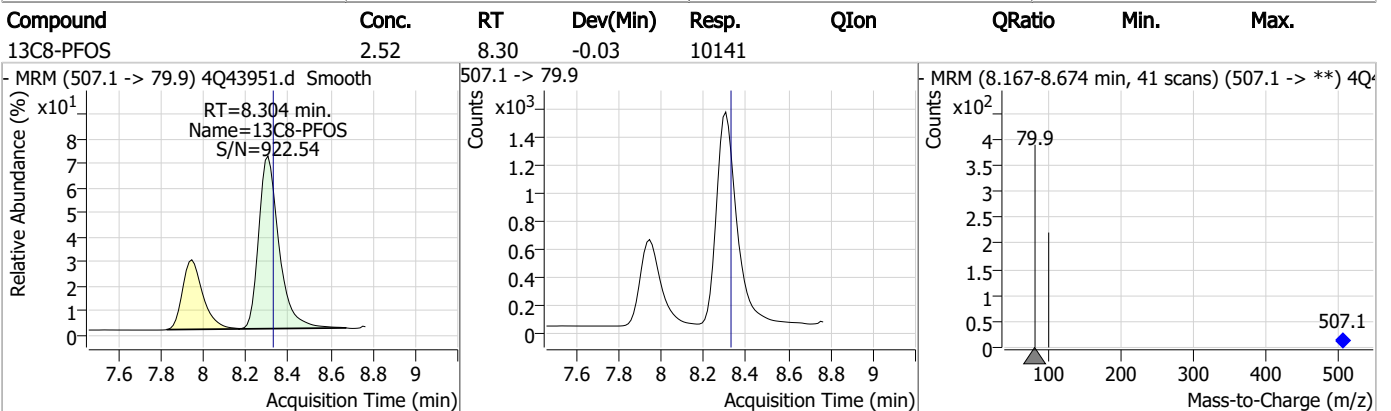
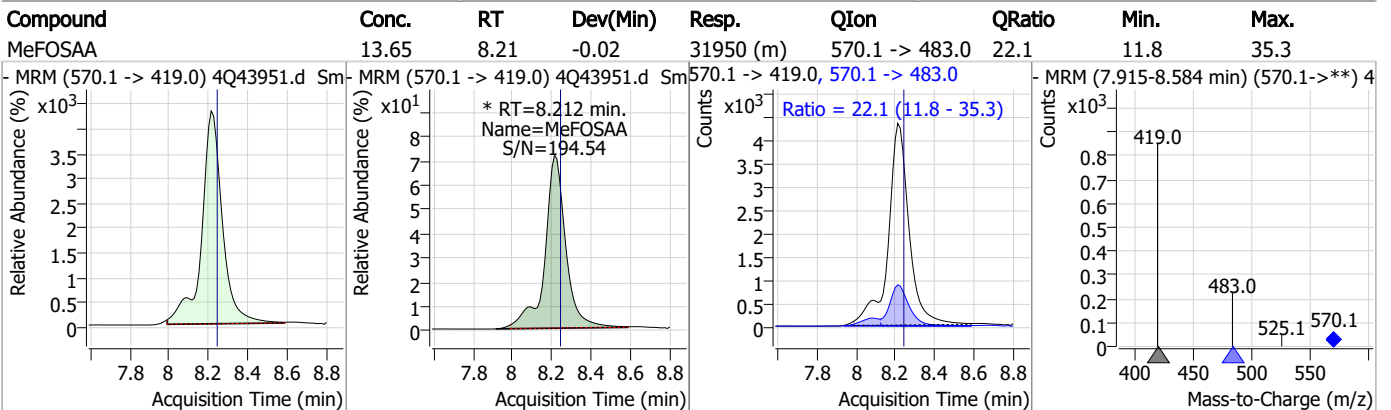
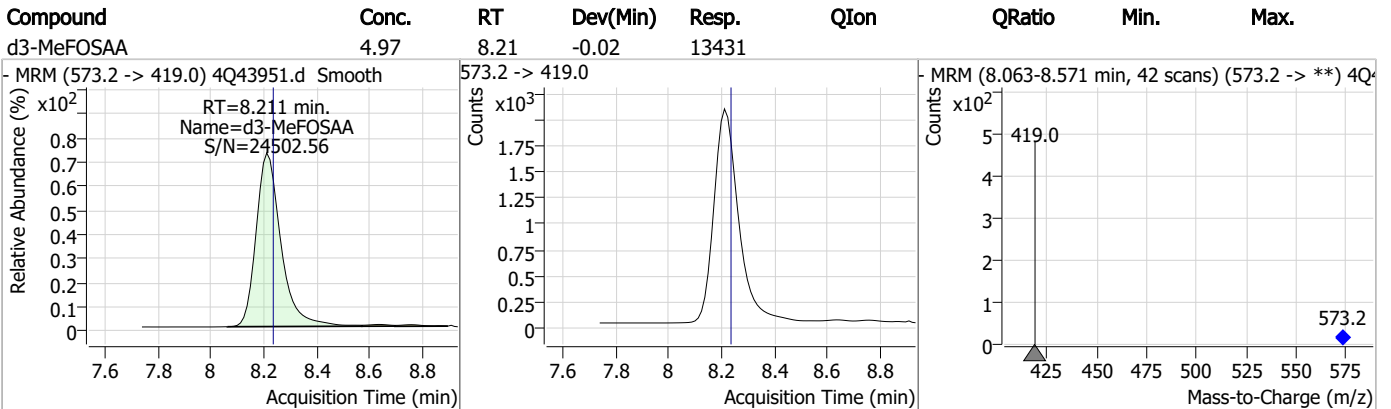
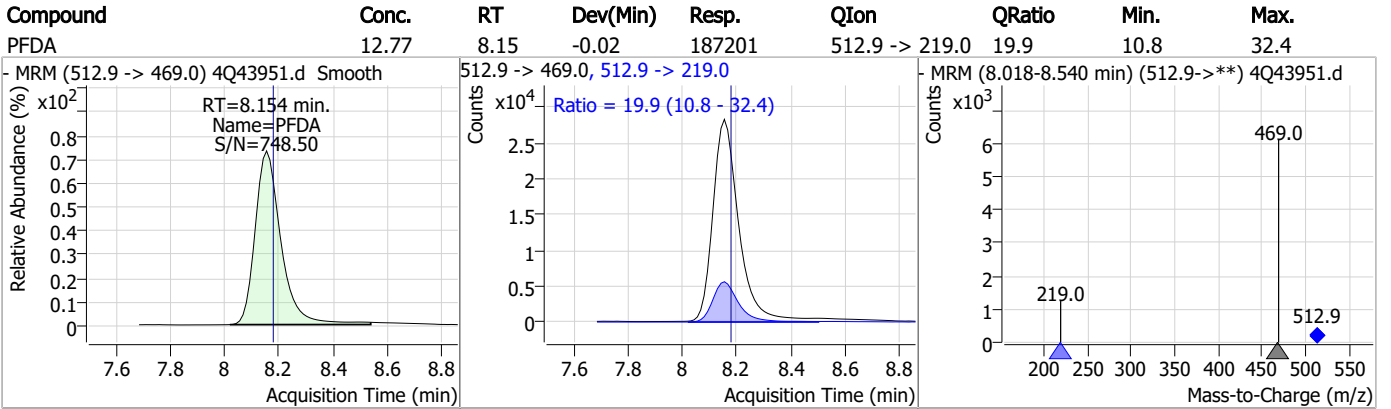


7.6.4

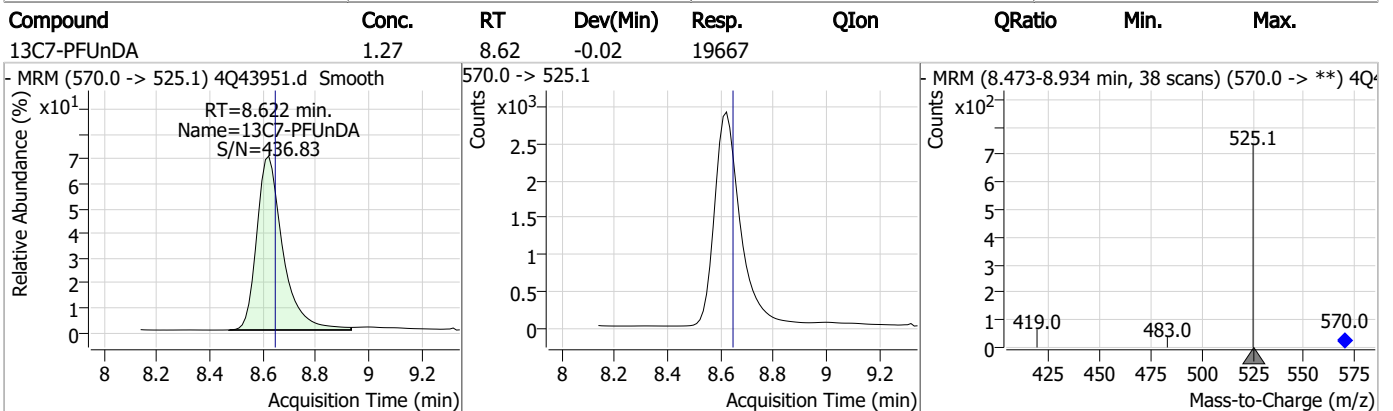
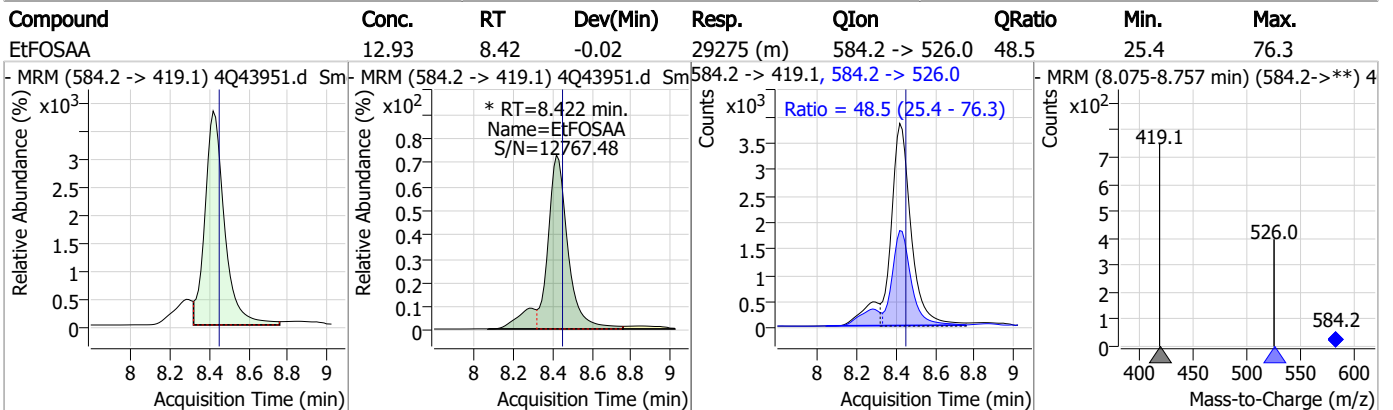
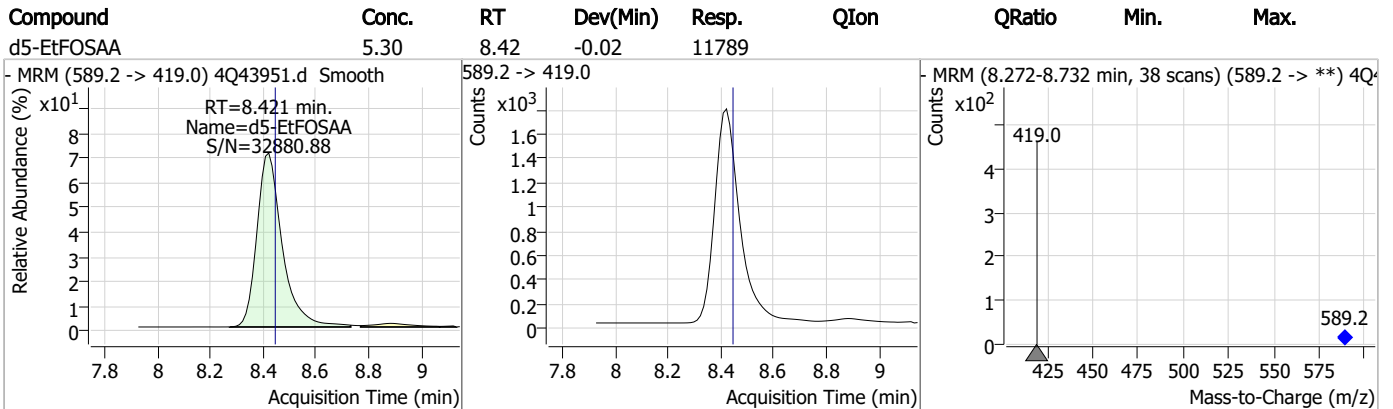
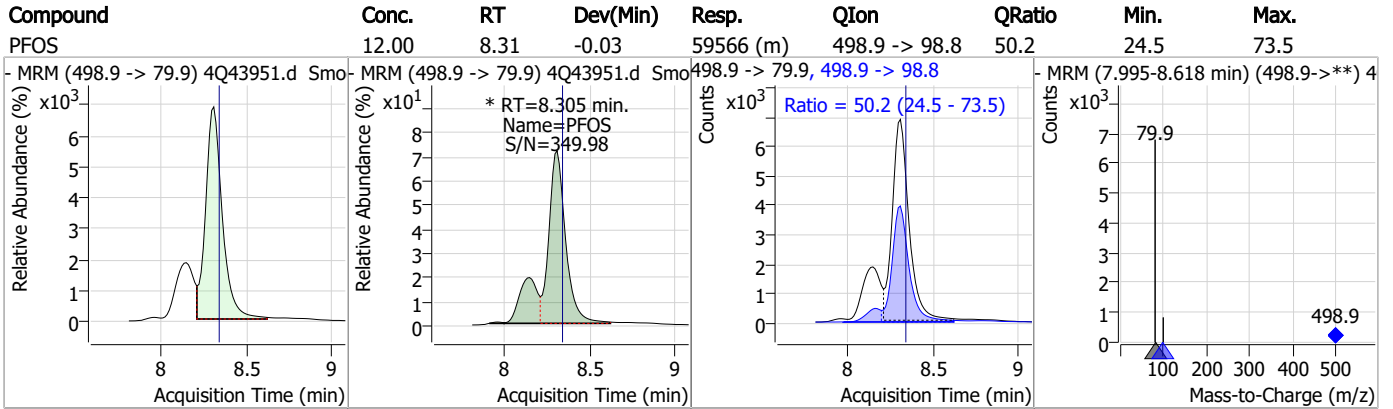
7



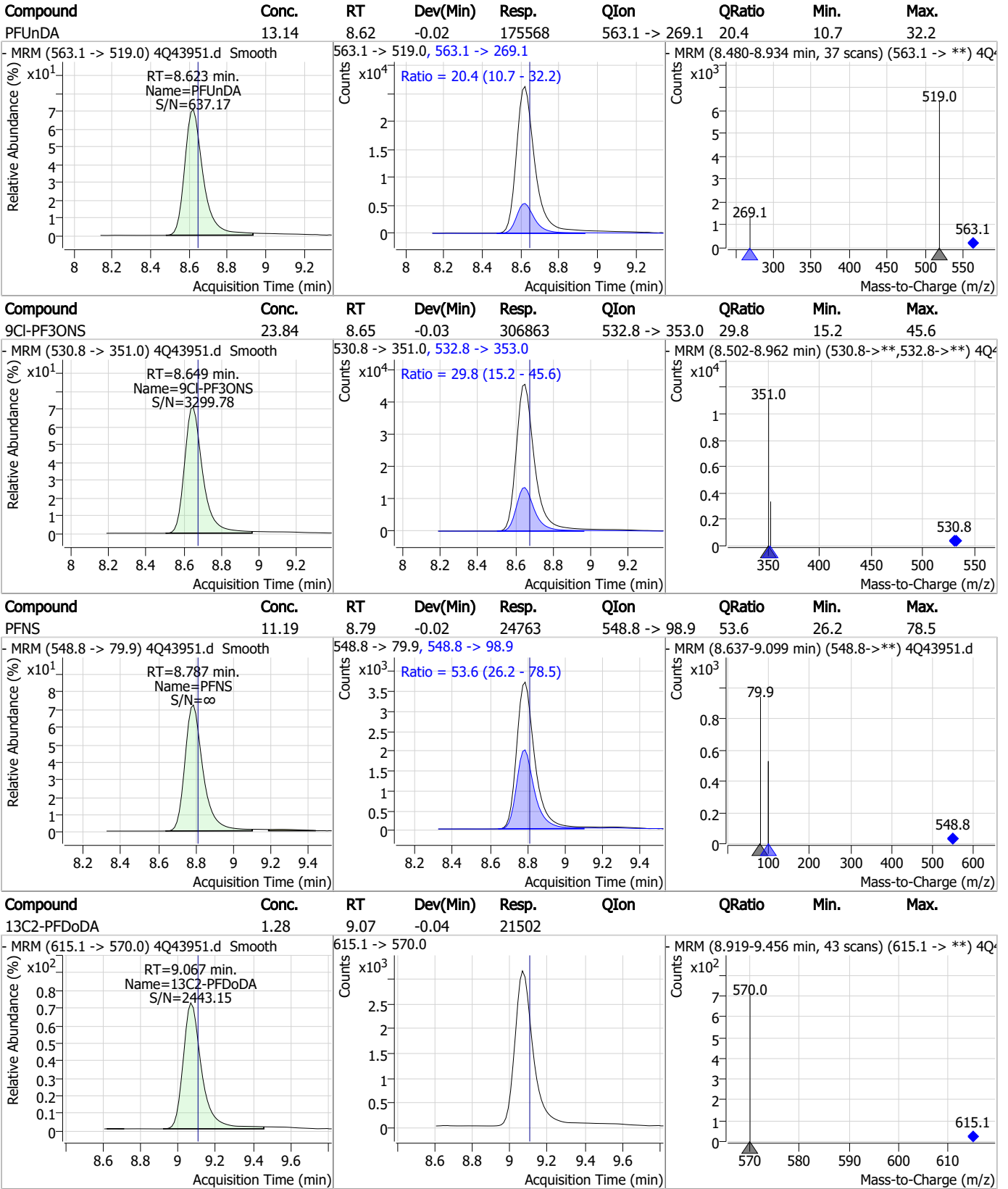
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.4

7



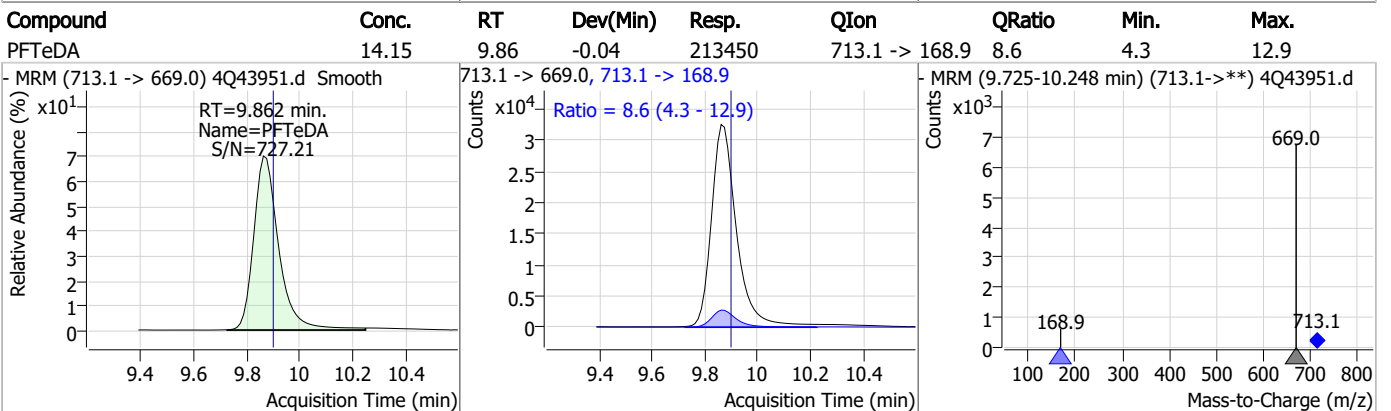
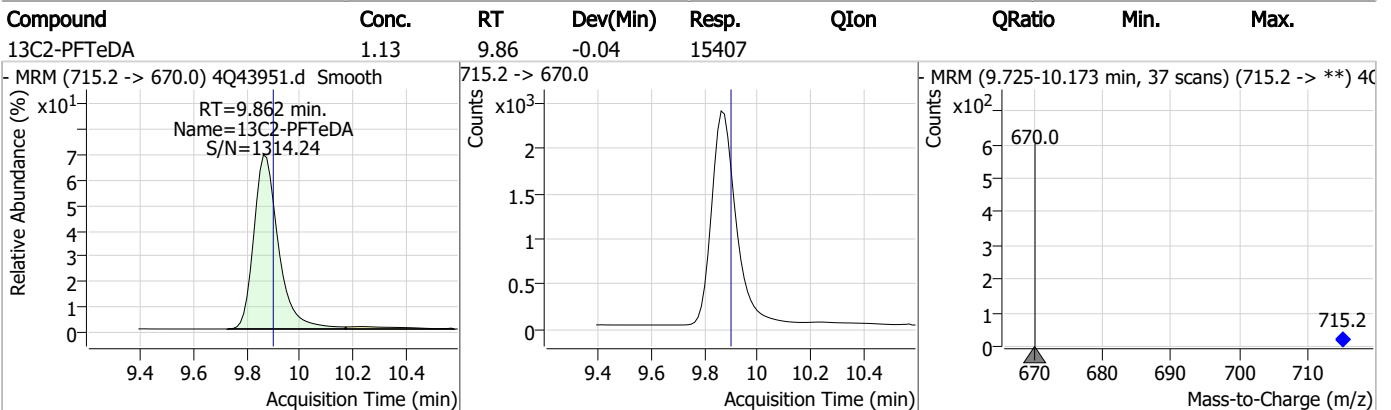
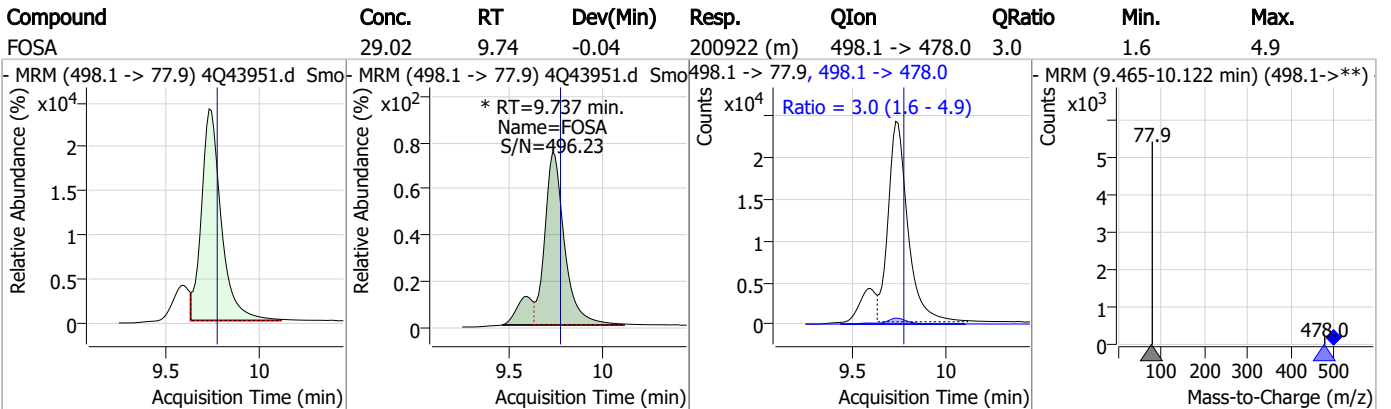
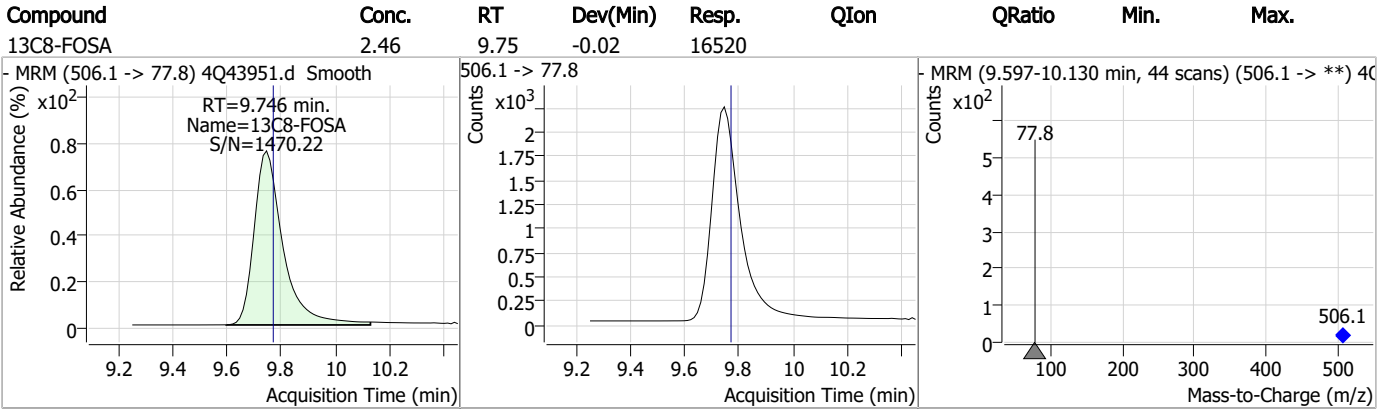
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	12.85	9.07	-0.04	221654	613.1 -> 319.0	14.4	7.3	22.0
PFDS	12.50	9.23	-0.02	31392	599.0 -> 98.8	48.2	23.2	69.5
PFTrDA	12.48	9.49	-0.02	287860	663.0 -> 168.9	10.1	5.4	16.2
11Cl-PF3OUdS	24.55	9.53	-0.04	248148	632.9 -> 452.9	30.6	14.5	43.6

7.6.4

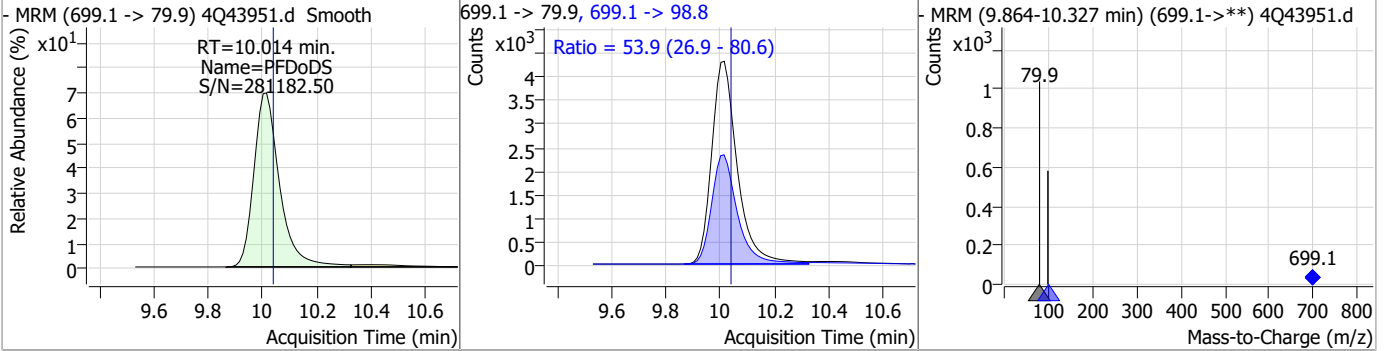
7

Perfluorinated Compounds by LC/MS/MS

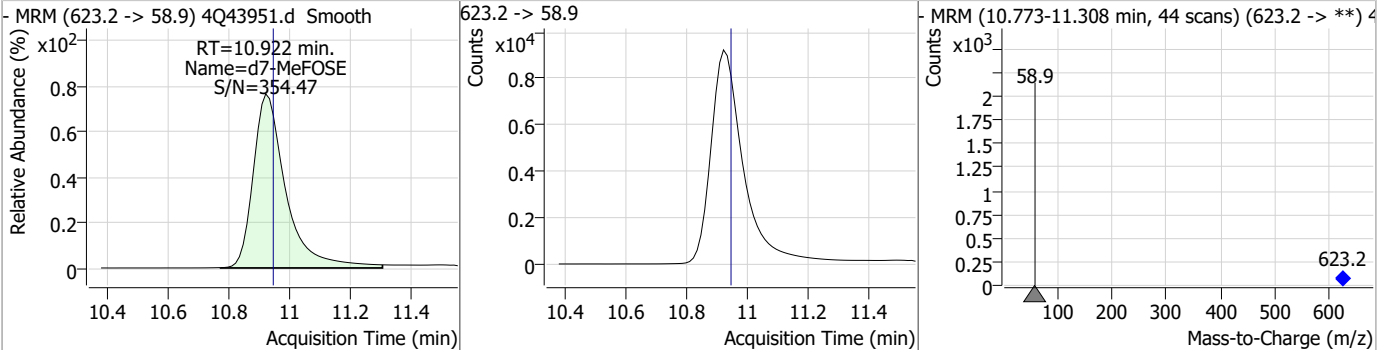


Perfluorinated Compounds by LC/MS/MS

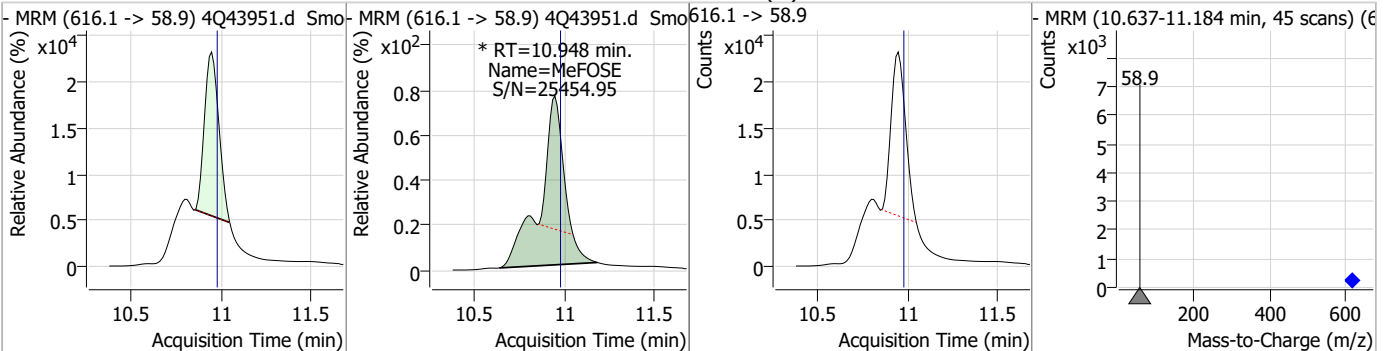
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	12.60	10.01	-0.02	28248	699.1 -> 98.8	53.9	26.9	80.6



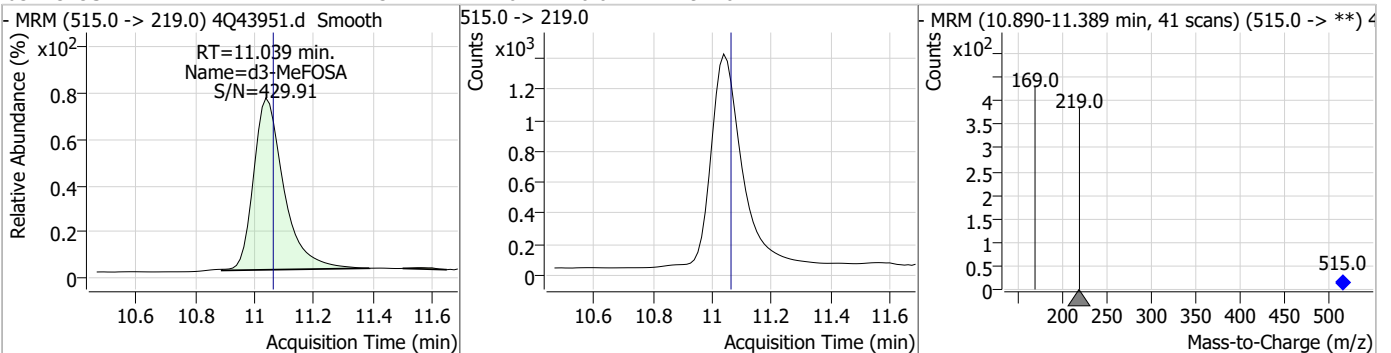
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.70	10.92	-0.02	68936				



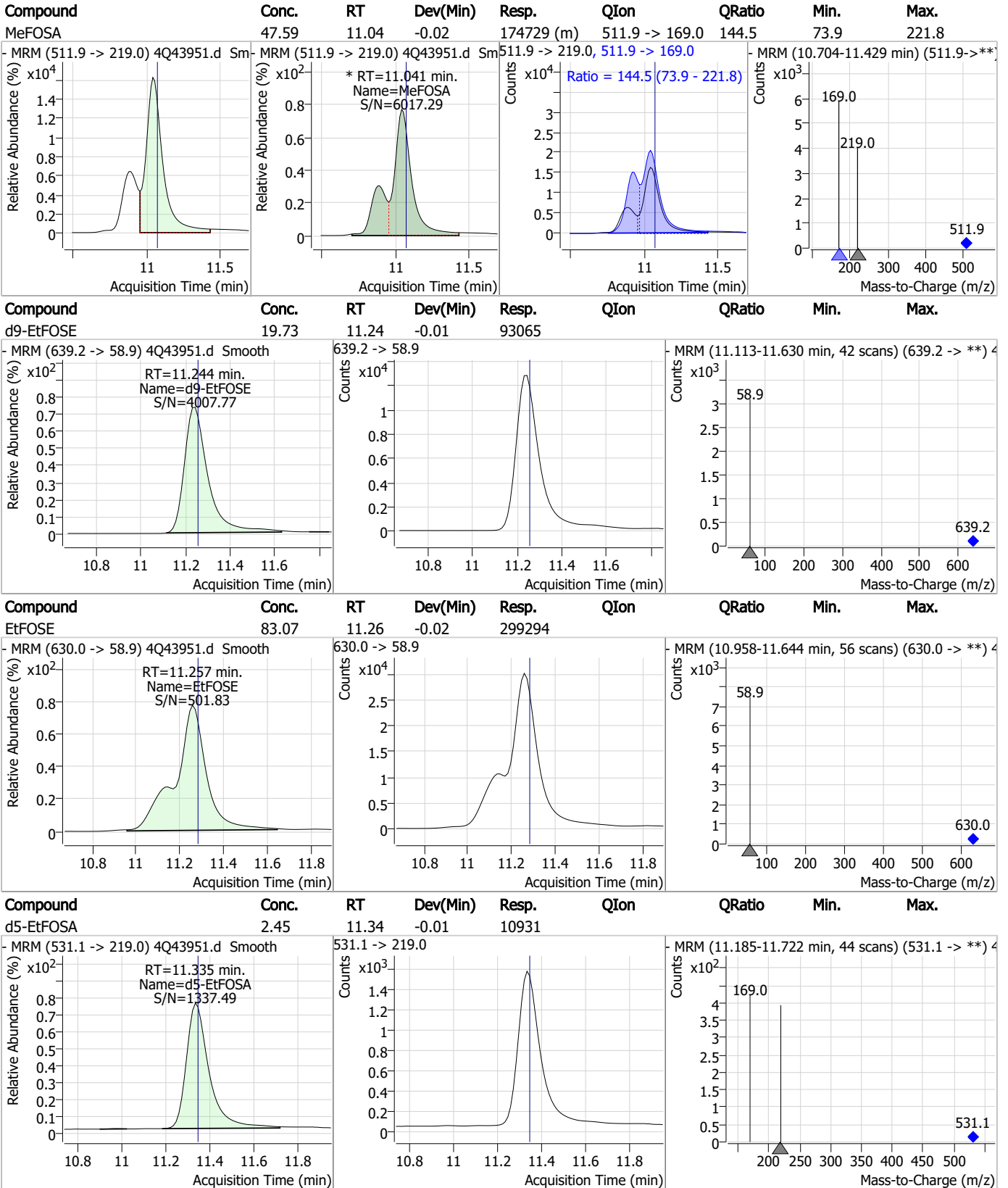
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	75.66	10.95	-0.02	214237 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.32	11.04	-0.02	9746				



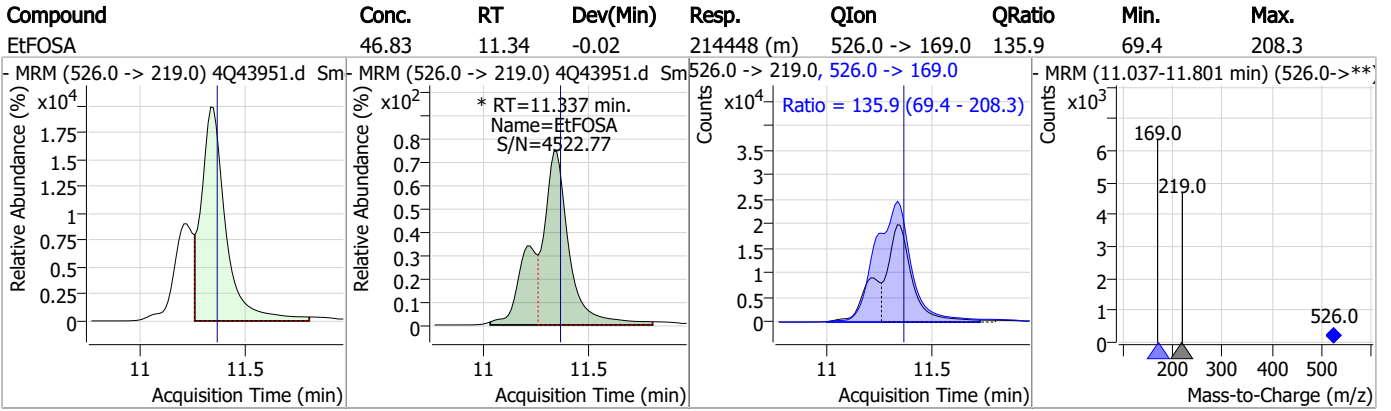
Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Perfluorinated Compounds by LC/MS/MS



7.6.4

7

Manual Integration Approval Summary

Sample Number: S4Q635-RT Method: EPA DRAFT 1633
Lab FileID: 4Q43951.D Analyst approved: 05/05/23 07:50 Natasha Gumtie
Injection Time: 05/04/23 12:05 Supervisor approved: 05/05/23 16:38 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.11	Split peak
Perfluorohexanesulfonic acid	355-46-4		7.21	Split peak
Perfluorononanoic acid	375-95-1		7.65	Split peak
MeFOSAA	2355-31-9		8.21	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.42	Split peak
PFOSA	754-91-6		9.74	Split peak
MeFOSE	24448-09-7		10.95	Split peak
MeFOSA	31506-32-8		11.04	Split peak
EtFOSA	4151-50-2		11.34	Split peak

7.6.4.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 04/30/23 23:39

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17048.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:06:49 PM
 Sample Name : RT TDCA
 Vial : P1-B3
 DA Method File : TDCA.quantmethod.xml
 Batch Name : s6q258 TDCA.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

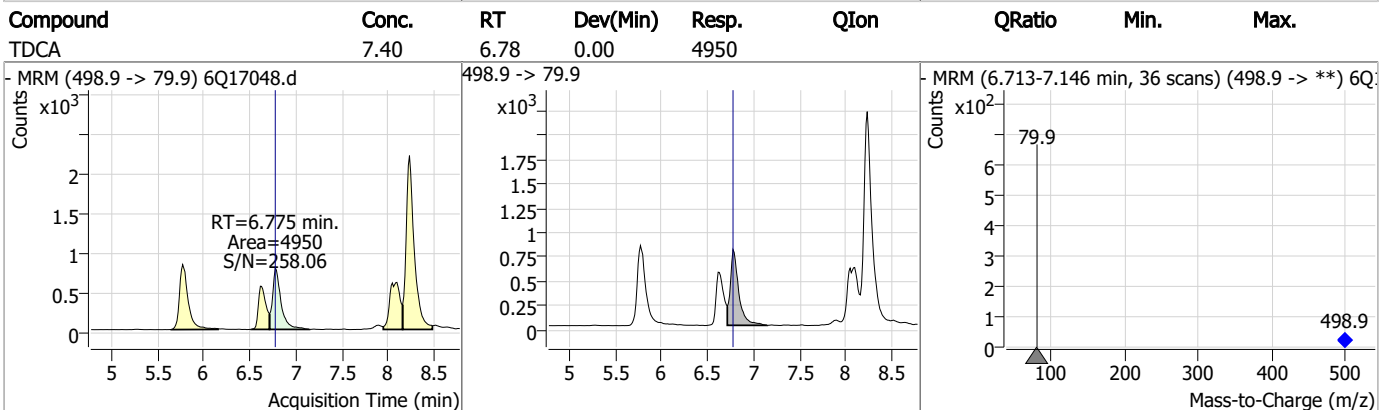
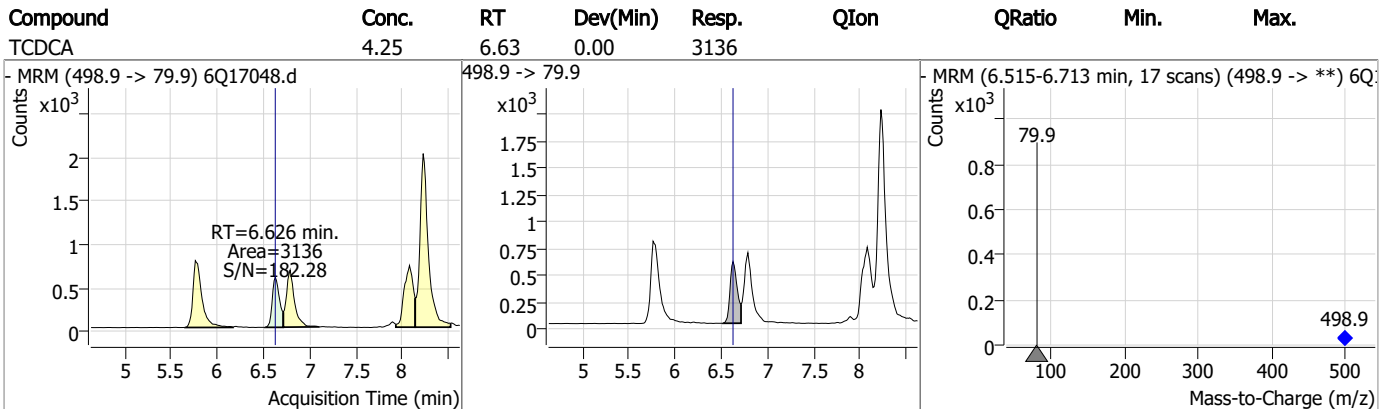
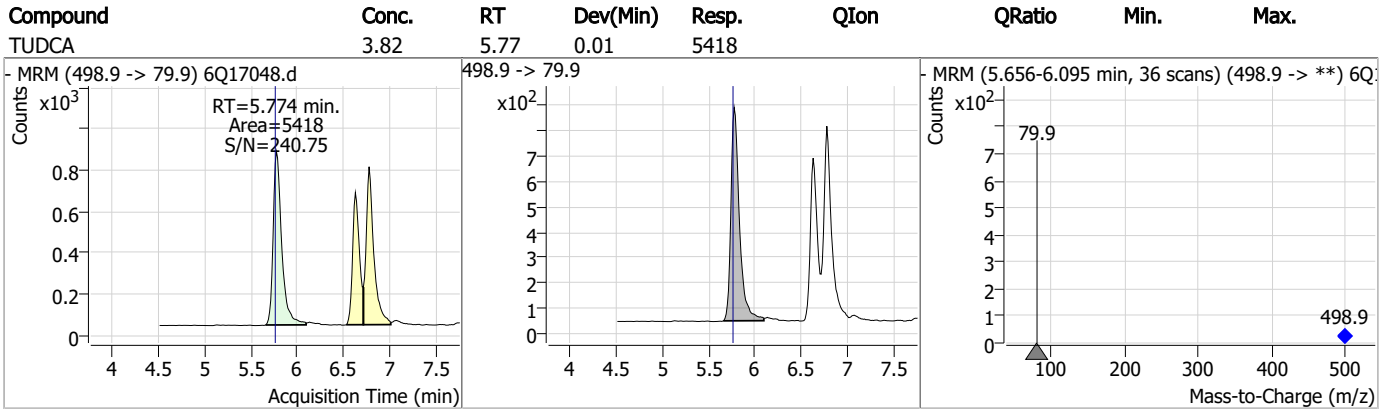
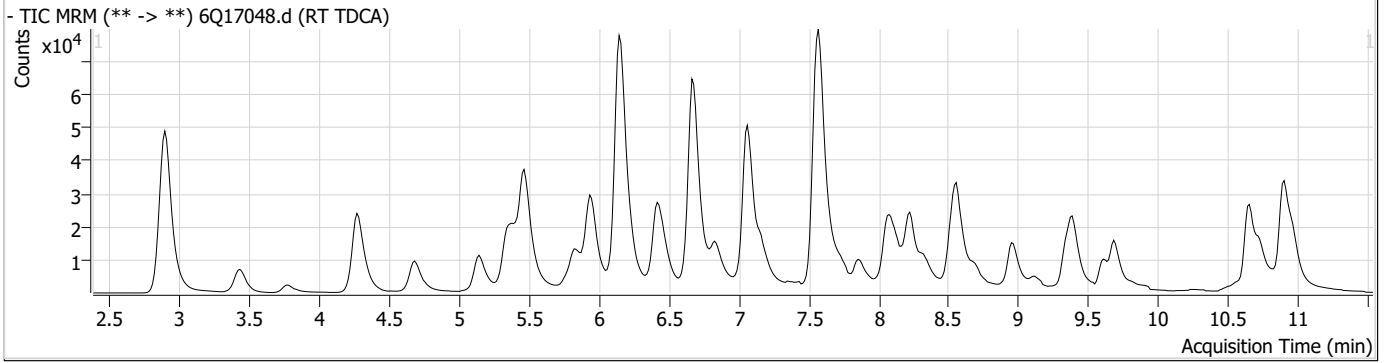
Compound	RT	Transition	Response	Conc.	Units	Dev(Min)	QValue
Internal Standards							
M8-PFOS	8.226	507.1 -> 79.9	16002	2.50	µg/L	-0.012	
13C4-PFOS	8.227	502.8 -> 79.9	20090	2.50	µg/L	-0.012	
System Monitoring Compounds							
13C8-PFOS	8.226	507.1 -> 79.9	16002	2.02	µg/L	-0.012	
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 80.8%				
Target Compounds							
PFOS	8.228	498.9 -> 79.9 498.9 -> 98.8	16996 8673	3.11	µg/L	m	82
TCDCa	6.626	498.9 -> 79.9	3136	4.25	ng/ml		100
TDCA	6.775	498.9 -> 79.9	4950	7.40	ng/ml		100
TUDCA	5.774	498.9 -> 79.9	5418	3.82	ng/ml		100

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

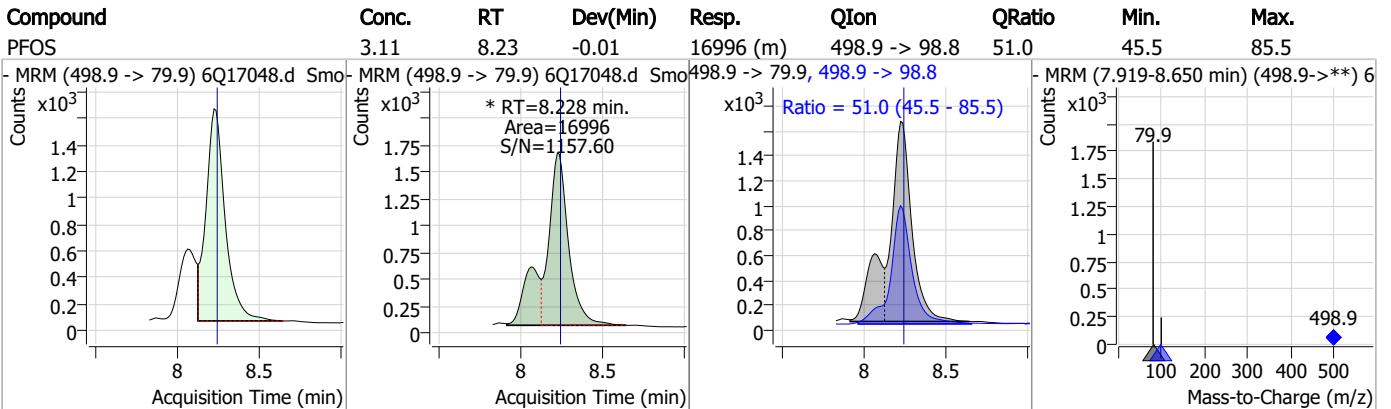
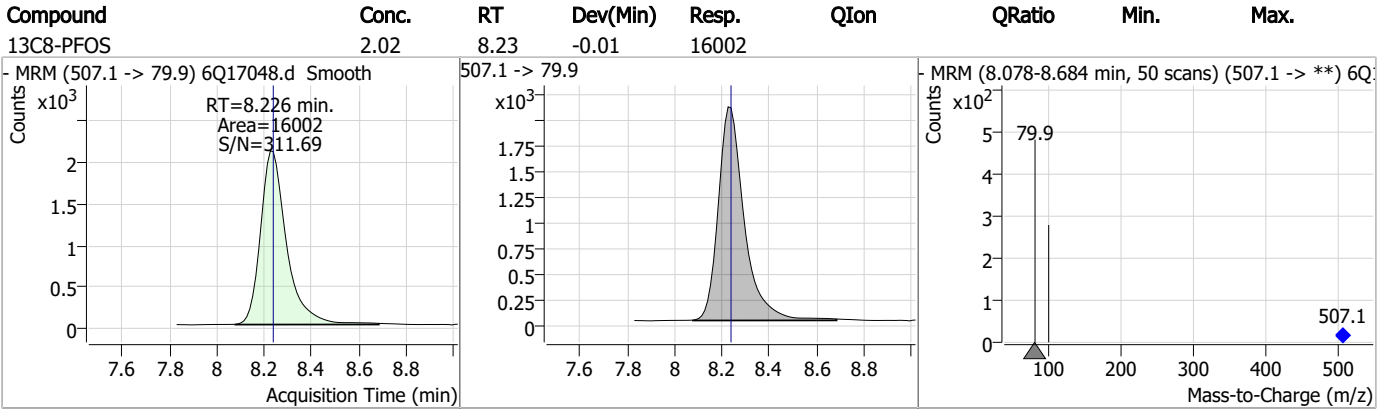
7.6.5

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.5

7

Manual Integration Approval Summary

Sample Number: S6Q258-RT Method: EPA DRAFT 1633
Lab FileID: 6Q17048.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 12:06 Supervisor approved: 04/30/23 23:39 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.6.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17049.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:21:19 PM
 Sample Name : RT BR-LN
 Vial : P1-B4
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	171083	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	62201	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	64326	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	57751	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	79741	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	25663	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20362	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26150	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25196	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17054	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24114	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22749	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	11896	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10763	2.50 µg/L	0.000
M2-4:2FTS	5.157	329.1 -> 80.9	2117	5.00 µg/L	0.012
M2-6:2FTS	6.839	429.1 -> 80.9	2602	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2983	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	19657	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	39060	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18274	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	89275	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	110708	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	10680	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9461	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14092	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	75322	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9185	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	83641	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	22953	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26302	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	55131	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.157	329.1 -> 80.9	2117	5.01 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2602	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2983	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25196	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17054	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22749	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	11896	2.43 µg/L	0.000

7.6.6
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 = 97.3%	
13C4-PFBA	2.910	216.8 -> 171.9	171083	9.83 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C4-PFHpA	6.419	367.1 -> 322.0	57751	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C5-PFHxA	5.468	318.0 -> 273.0	64326	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
13C5-PFPeA	4.270	268.3 -> 223.0	62201	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C6-PFDA	8.076	519.1 -> 474.1	20362	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26150	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.9%	
13C8-FOSA	9.623	506.1 -> 77.8	24114	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.5%	
13C8-PFOA	7.074	421.1 -> 376.0	79741	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10763	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C9-PFNA	7.594	472.1 -> 427.0	25663	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.4%	
d3-MeFOSAA	8.134	573.2 -> 419.0	19657	4.68 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	39060	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	9461	2.69 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18274	5.24 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d7-MeFOSE	10.647	623.2 -> 58.9	89275	24.14 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d9-EtFOSE	10.894	639.2 -> 58.9	110708	24.50 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	10680	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	161089	50.29 µg/L	100
		327.1 -> 80.9	59753		
6:2FTS	6.839	427.1 -> 407.0	144708	50.55 µg/L	95
		427.1 -> 80.9	47633		
8:2FTS	7.865	527.1 -> 507.0	85122	47.96 µg/L	99
		527.1 -> 80.8	35097		
EtFOSAA	8.331	584.2 -> 419.1	41169	13.26 µg/L	99
		584.2 -> 526.0	21718		
FOSA	9.614	498.1 -> 77.9	277513	32.12 µg/L	99
		498.1 -> 478.0	7576		
MeFOSAA	8.136	570.1 -> 419.0	54891	14.87 µg/L	89
		570.1 -> 483.0	10430		
PFBA	2.906	212.8 -> 168.9	313891	54.71 µg/L	100
PFBS	5.400	298.7 -> 79.9	115522	11.32 µg/L	96
		298.7 -> 98.8	44913		
PFDA	8.077	512.9 -> 469.0	309357	13.98 µg/L	100
		512.9 -> 219.0	51661		
PFDoDA	8.961	613.1 -> 569.0	267403	13.54 µg/L	99
		613.1 -> 319.0	37690		
PFDS	9.125	599.0 -> 79.9	45824	13.36 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
		599.0 -> 98.8	23398		
PFHpA	6.420	363.1 -> 319.0	379066	13.30 µg/L	98
		363.1 -> 169.0	58738		
PFHpS	7.734	449.0 -> 79.9	76363	13.09 µg/L	95
		449.0 -> 98.9	36076		
PFHxA	5.470	313.0 -> 269.0	364382	14.33 µg/L	99
		313.0 -> 118.9	16079		
PFHxS	7.180	398.7 -> 79.9	69625	10.74 µg/L	98
		398.7 -> 98.9	34896		
PFNA	7.583	463.0 -> 419.0	272781	15.37 µg/L	100
		463.0 -> 219.0	56502		
PFNS	8.694	548.8 -> 79.9	69480	13.37 µg/L	100
		548.8 -> 98.9	38403		
PFOA	7.063	413.0 -> 369.0	1020780	26.58 µg/L	99
		413.0 -> 169.0	172403		
PFOS	8.240	498.9 -> 79.9	54204	10.43 µg/L	98
		498.9 -> 98.8	34321		
PFPeA	4.273	263.0 -> 219.0	457335	26.99 µg/L	100
PFPeS	6.484	349.1 -> 79.9	84715	12.51 µg/L	98
		349.1 -> 98.9	40297		
PFTeDA	9.690	713.1 -> 669.0	236649	13.73 µg/L	99
		713.1 -> 168.9	17343		
PFTrDA	9.345	663.0 -> 619.0	304546	13.93 µg/L	99
		663.0 -> 168.9	26425		
PFUnDA	8.531	563.1 -> 519.0	226163	12.47 µg/L	99
		563.1 -> 269.1	40725		
11Cl-PF3OUdS	9.398	630.9 -> 450.9	349446	26.07 µg/L	98
		632.9 -> 452.9	107433		
9Cl-PF3ONS	8.569	530.8 -> 351.0	553273	26.10 µg/L	98
		532.8 -> 353.0	171603		
ADONA	6.681	376.9 -> 250.9	1485563	25.18 µg/L	98
		376.9 -> 84.8	397204		
HFPO-DA	5.846	284.9 -> 168.9	96123	25.98 µg/L	98
		284.9 -> 184.9	12798		
3:3FTCA	3.784	241.0 -> 177.0	70658	66.70 µg/L	97
		241.0 -> 117.0	8689		
5:3FTCA	6.160	341.0 -> 237.1	1422375	345.57 µg/L	97
		341.0 -> 217.0	991188		
7:3FTCA	7.573	441.0 -> 316.9	673865	360.39 µg/L	95
		441.0 -> 336.9	1403411		
EtFOSA	10.962	526.0 -> 219.0	208567	47.51 µg/L	91
		526.0 -> 169.0	275120		
EtFOSE	10.907	630.0 -> 58.9	410058	88.94 µg/L	100
MeFOSA	10.730	511.9 -> 219.0	184326	43.29 µg/L	99
		511.9 -> 169.0	251723		
MeFOSE	10.661	616.1 -> 58.9	369093	92.70 µg/L	100
PFDoDS	9.817	699.1 -> 79.9	23237	13.10 µg/L	97
		699.1 -> 98.8	12700		
NFDHA	5.350	295.0 -> 201.0	74421	27.00 µg/L	96
		295.0 -> 84.9	19459		
PFMBA	4.687	279.0 -> 85.1	309902	27.27 µg/L	100
PFMPA	3.438	229.0 -> 84.9	228374	26.93 µg/L	100
PFEESA	5.937	314.8 -> 134.9	813277	25.34 µg/L	99
		314.8 -> 82.9	26166		

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

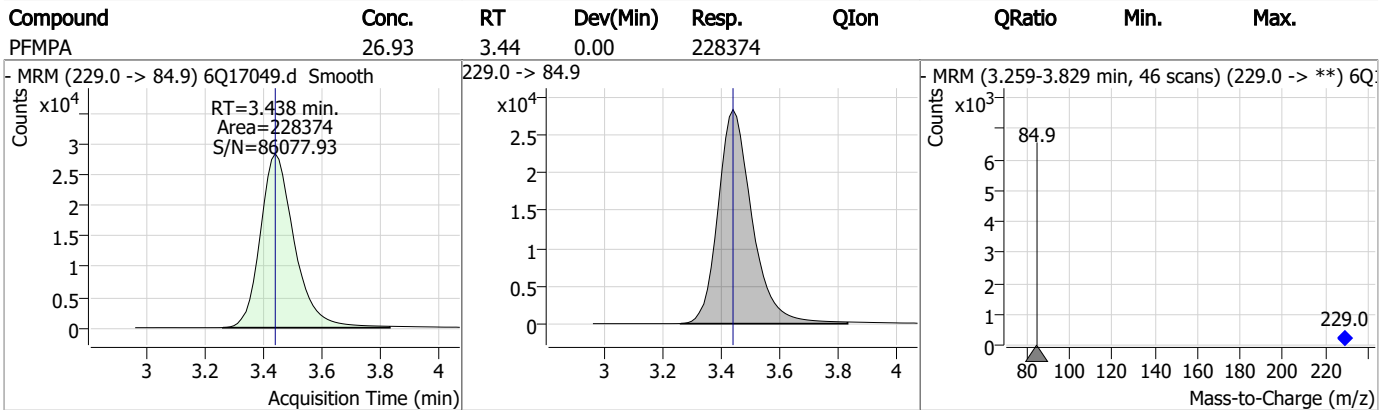
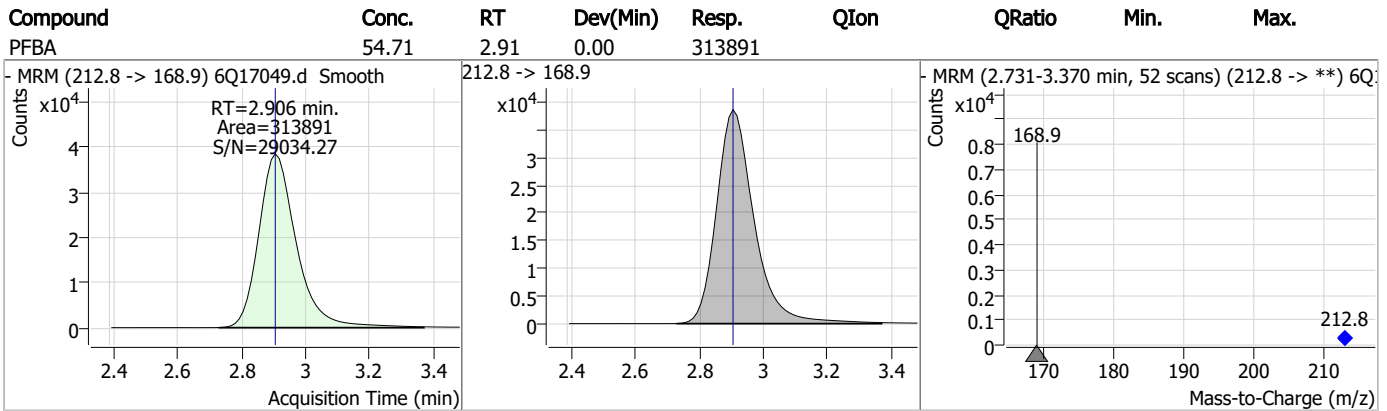
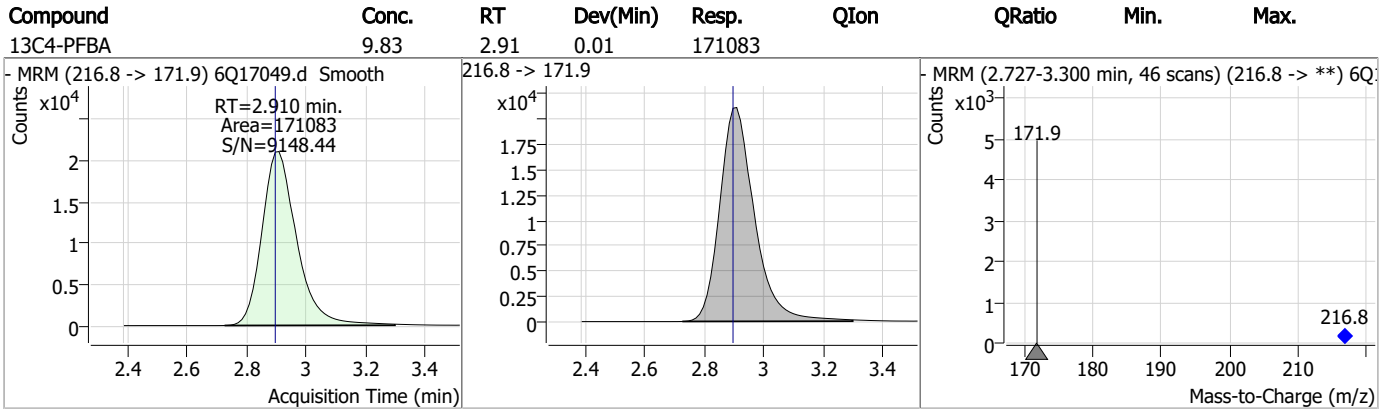
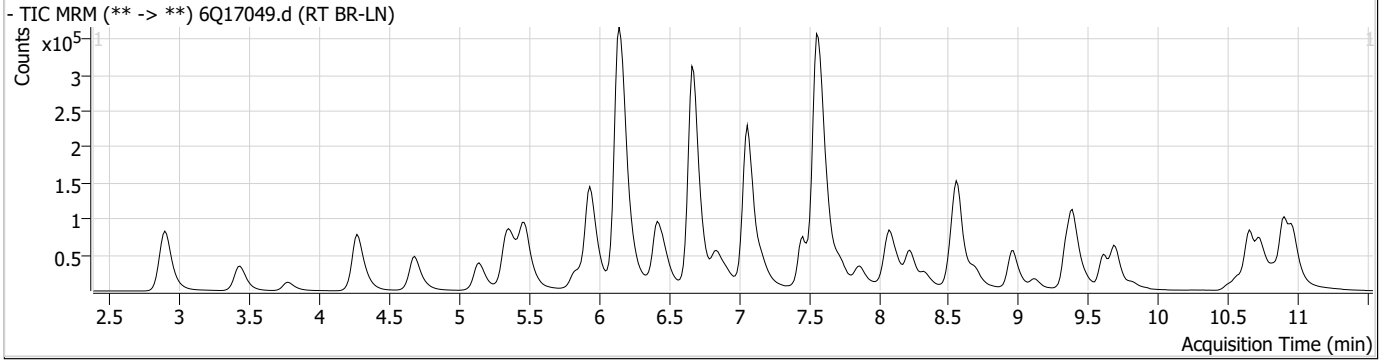
Perfluorinated Compounds by LC/MS/MS

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

7.6.6

7

Perfluorinated Compounds by LC/MS/MS



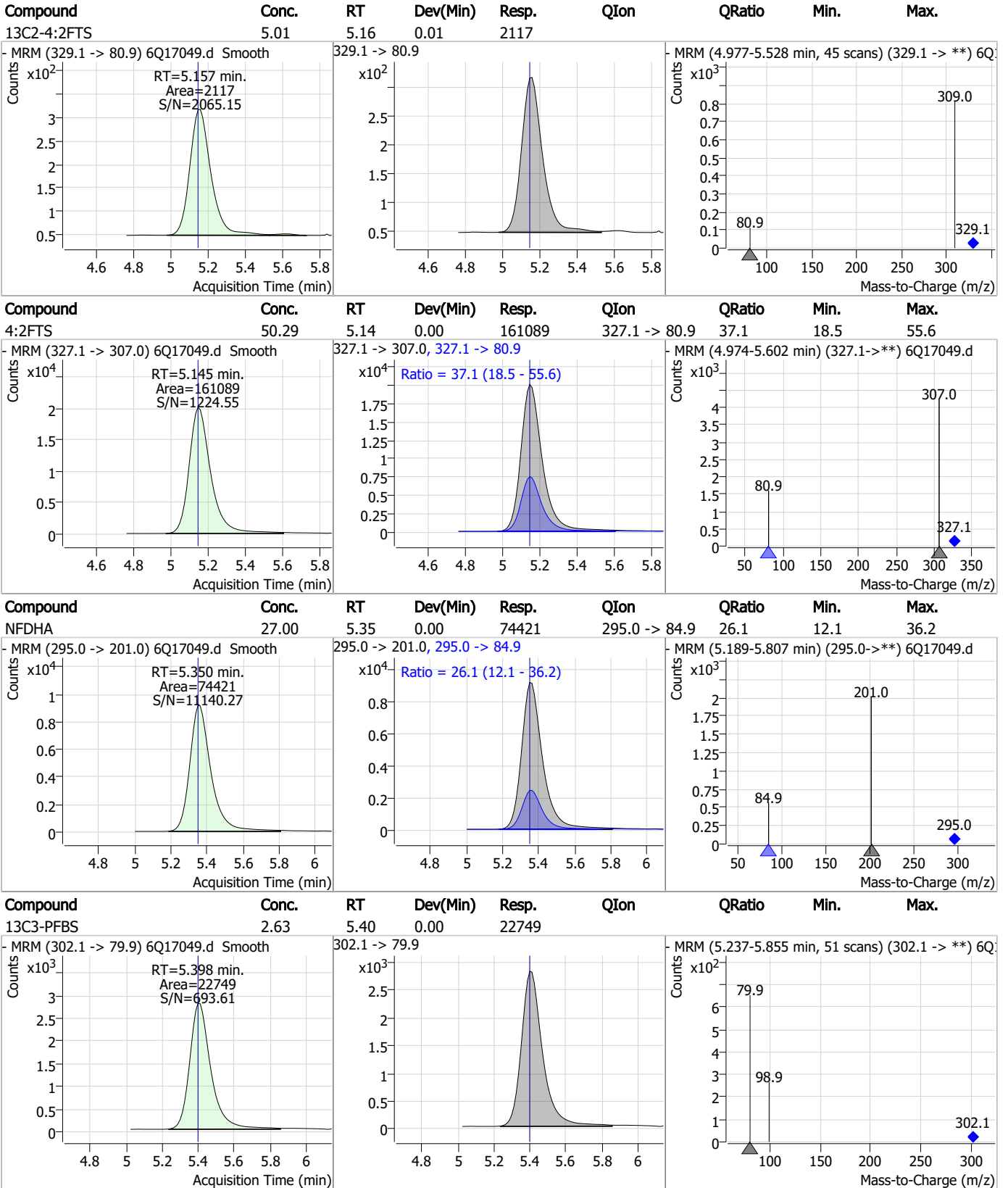
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	66.70	3.78	0.00	70658	241.0 -> 117.0	12.3	6.7	20.0
13C5-PFPeA	5.05	4.27	0.00	62201				
PFPeA	26.99	4.27	0.00	457335				
PFMBA	27.27	4.69	0.00	309902				

7.6.6

7

Perfluorinated Compounds by LC/MS/MS

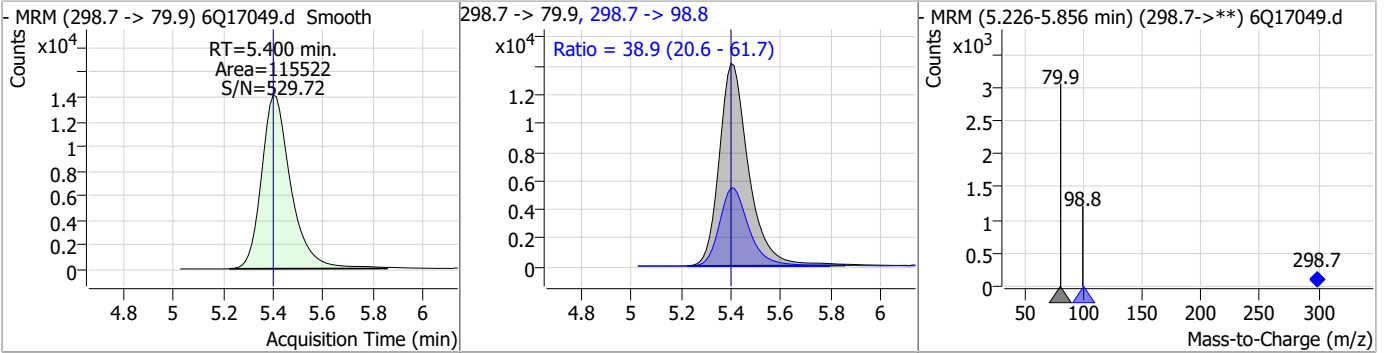


7.6.6

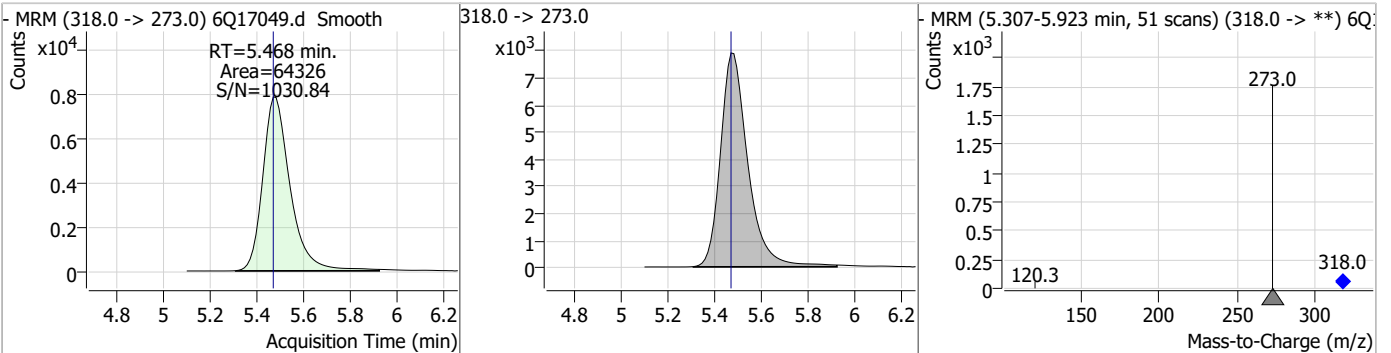
7

Perfluorinated Compounds by LC/MS/MS

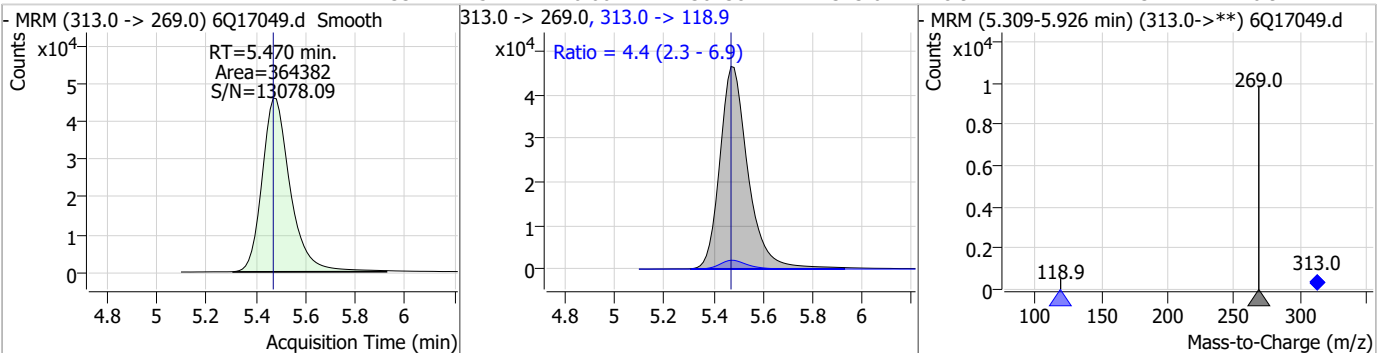
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.32	5.40	0.00	115522	298.7 -> 98.8	38.9	20.6	61.7



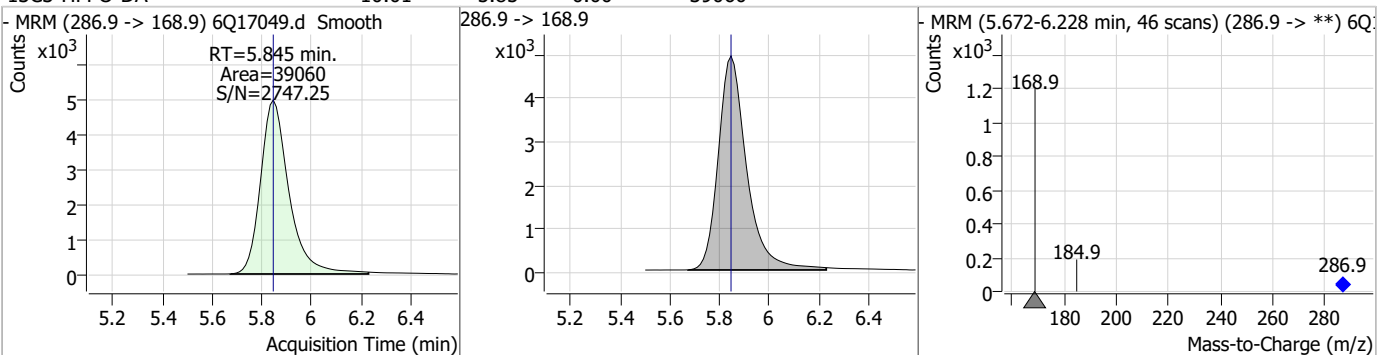
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.47	0.00	64326	318.0 -> 273.0	4.4	2.3	6.9



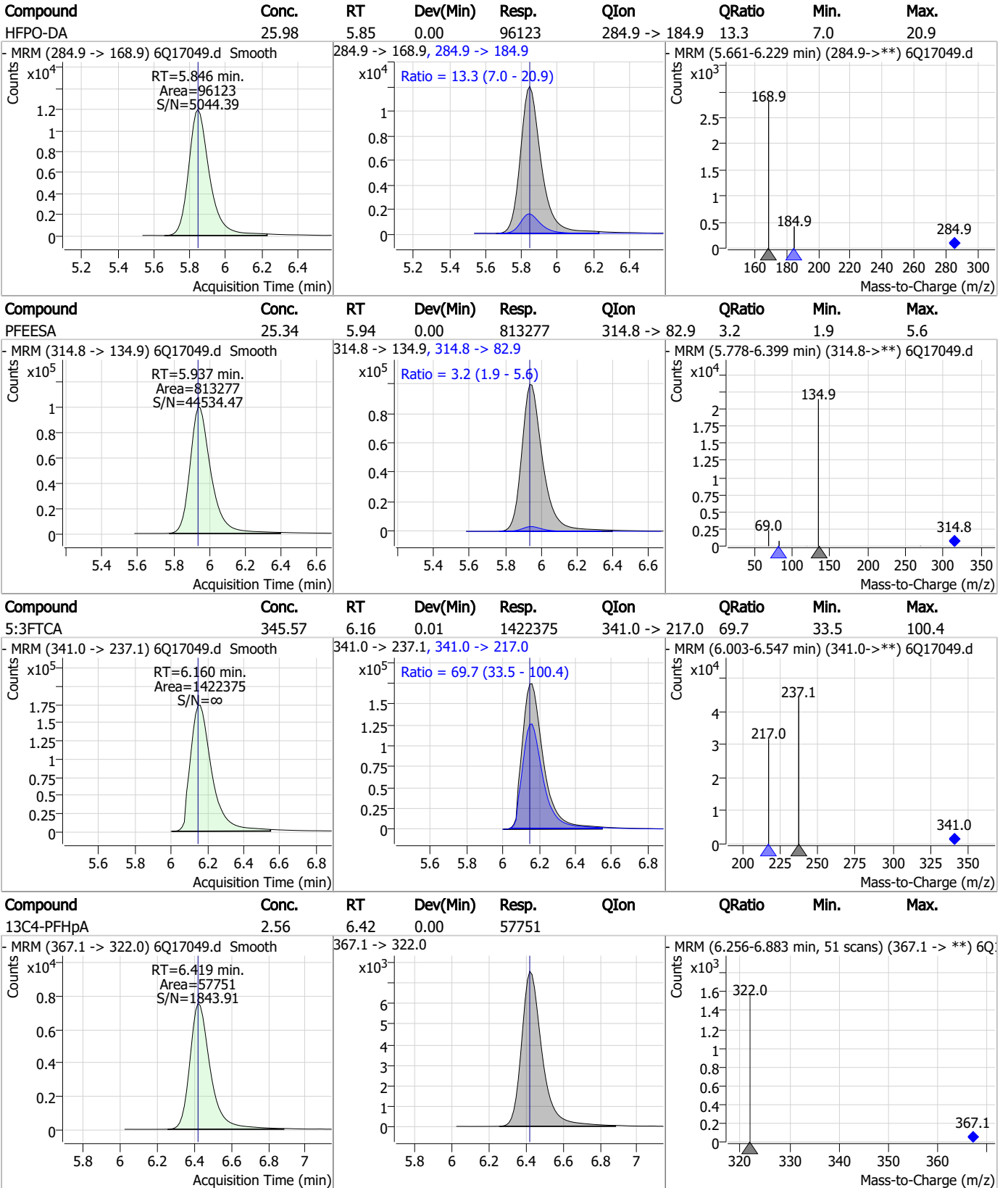
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	14.33	5.47	0.00	364382	313.0 -> 118.9	4.4	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.01	5.85	0.00	39060	286.9 -> 168.9	4.4	2.3	6.9



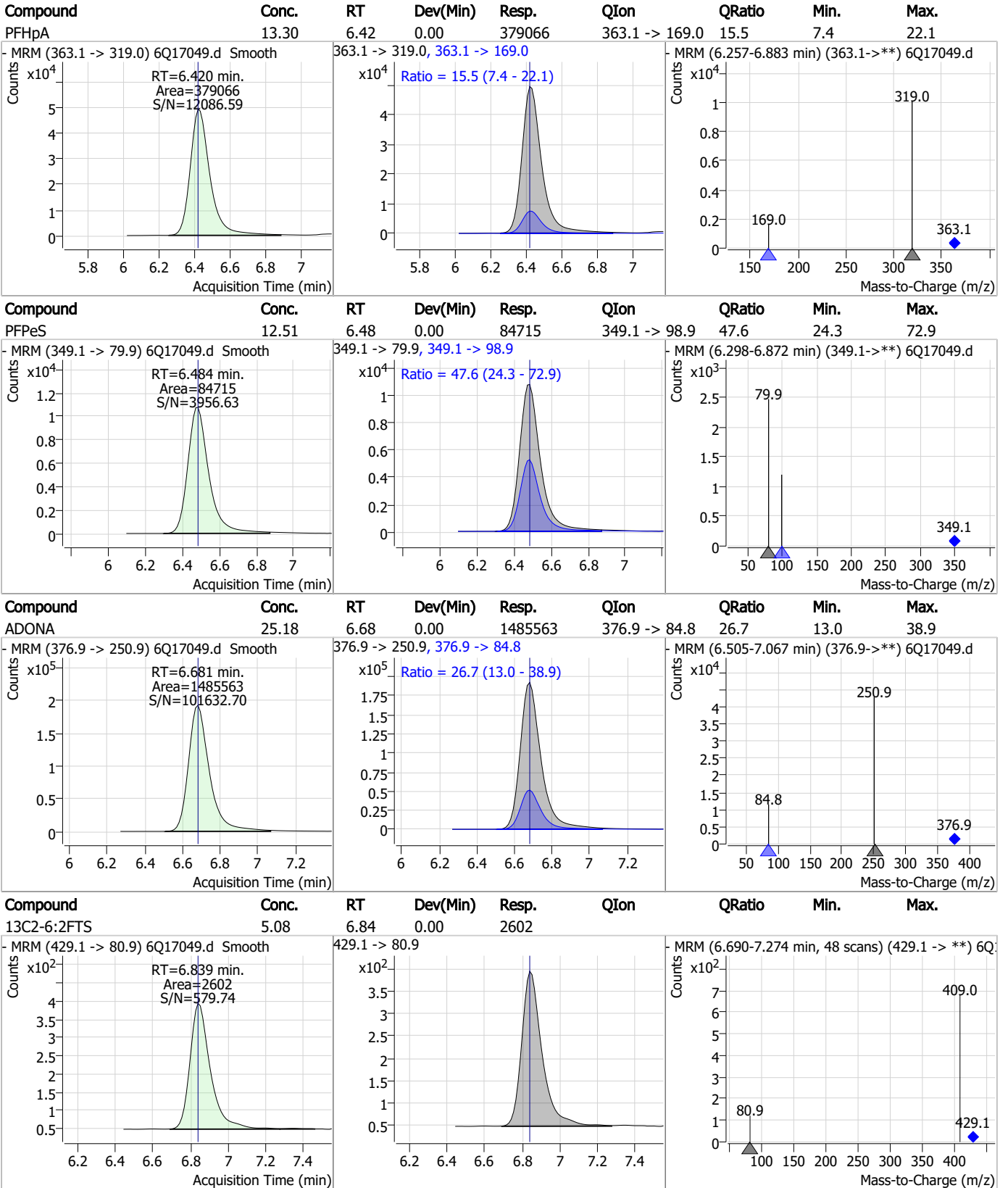
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

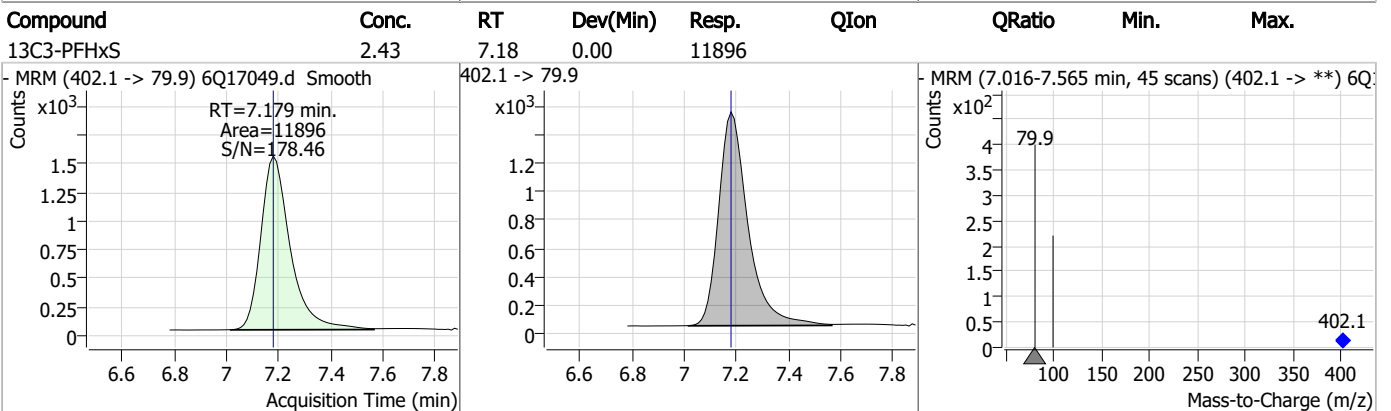
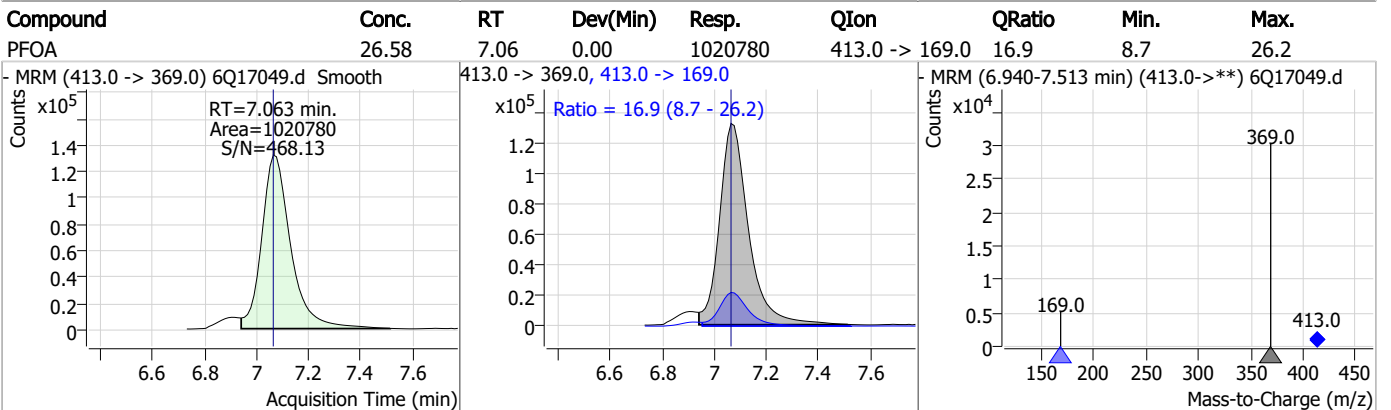
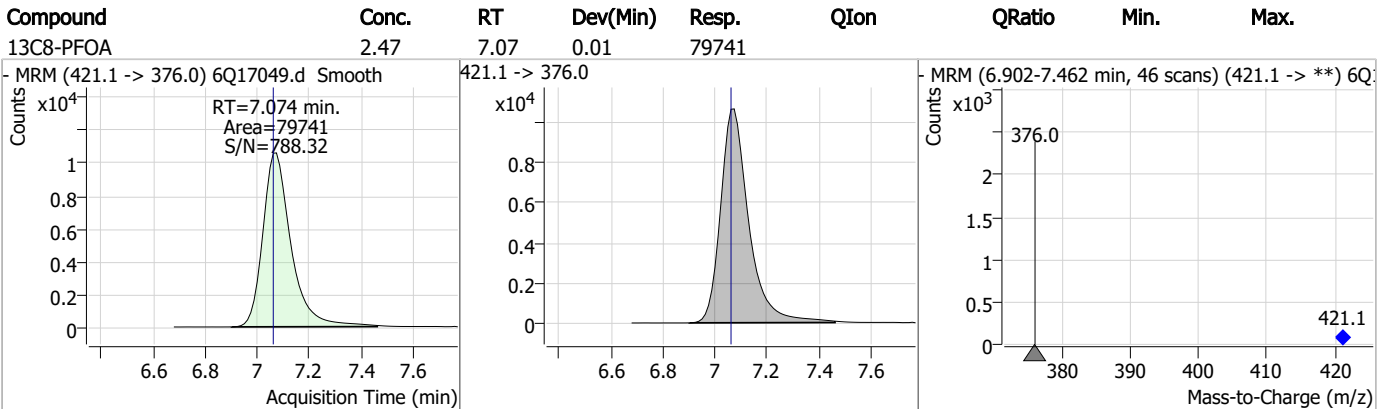
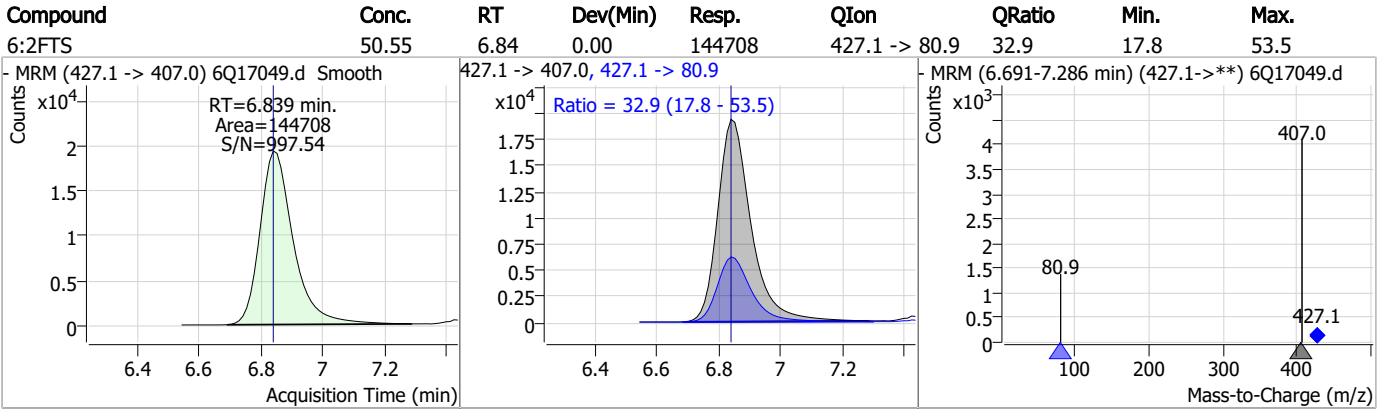
Perfluorinated Compounds by LC/MS/MS



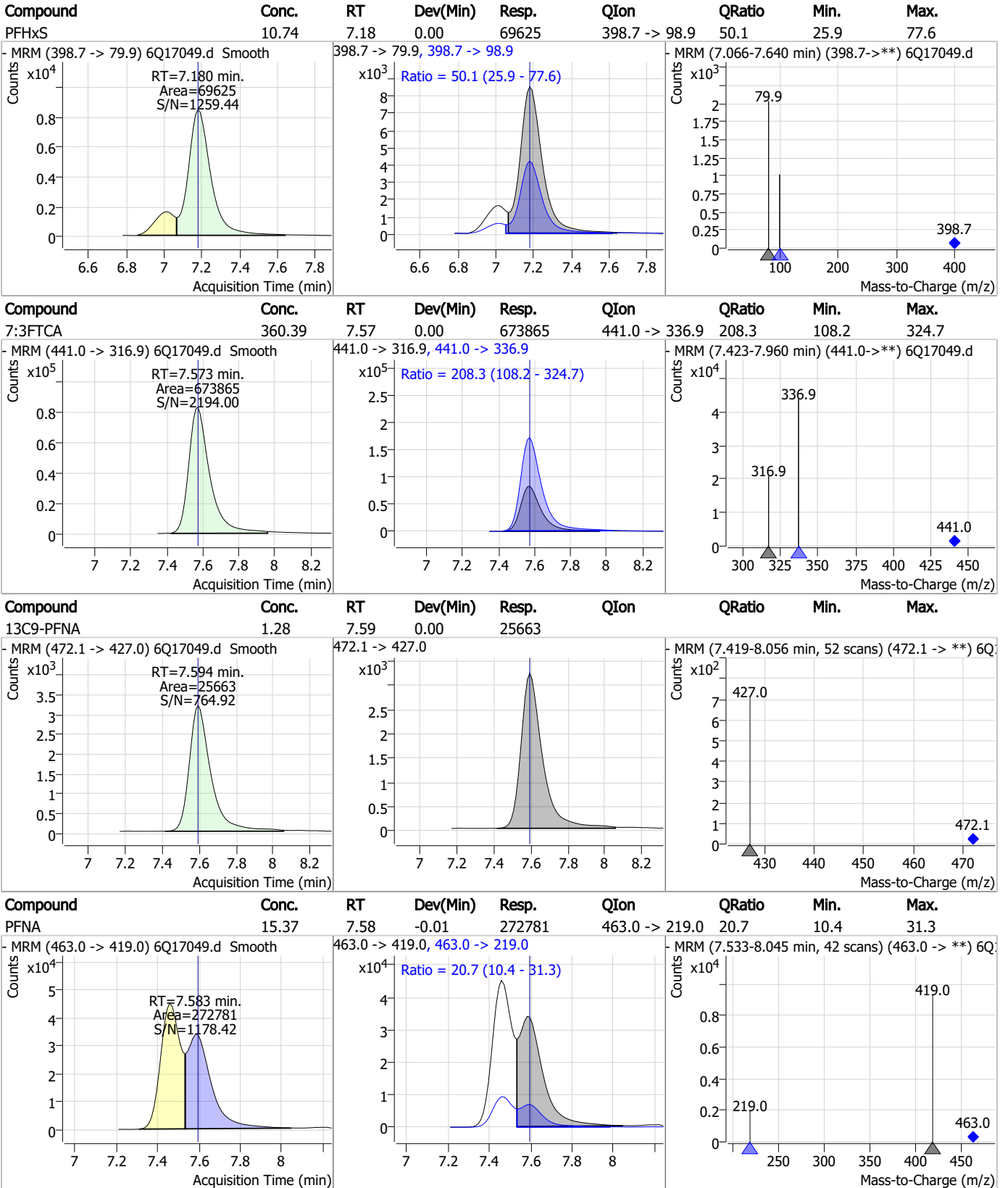
7.6.6

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.6.6

7

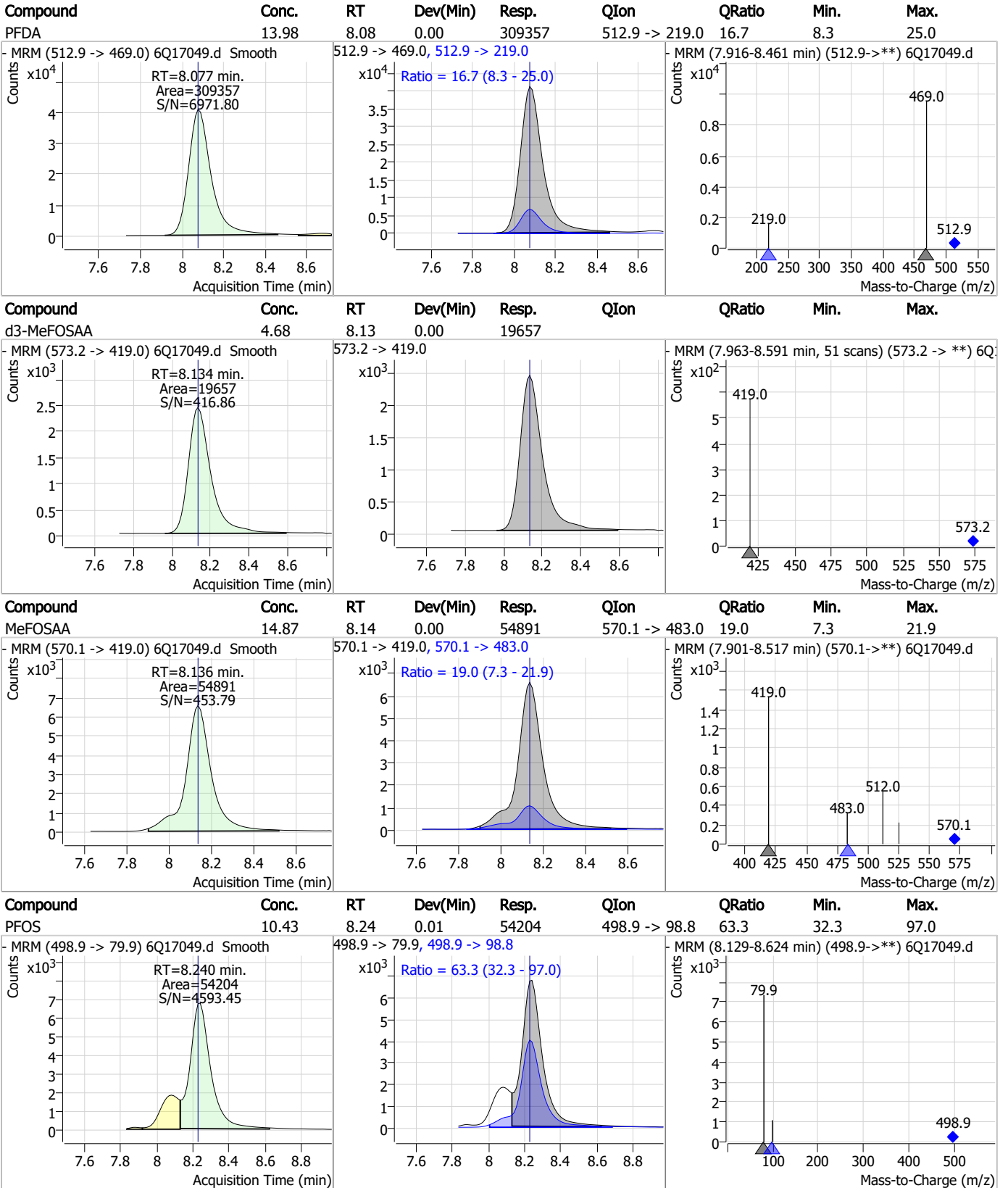
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	13.09	7.73	0.00	76363	449.0 -> 98.9	47.2	25.4	76.1
13C2-8:2FTS	5.41	7.86	0.00	2983	529.1 -> 80.9			
8:2FTS	47.96	7.87	0.00	85122	527.1 -> 80.8	41.2	20.3	61.0
13C6-PFDA	1.34	8.08	0.00	20362	519.1 -> 474.1			

7.6.6

7

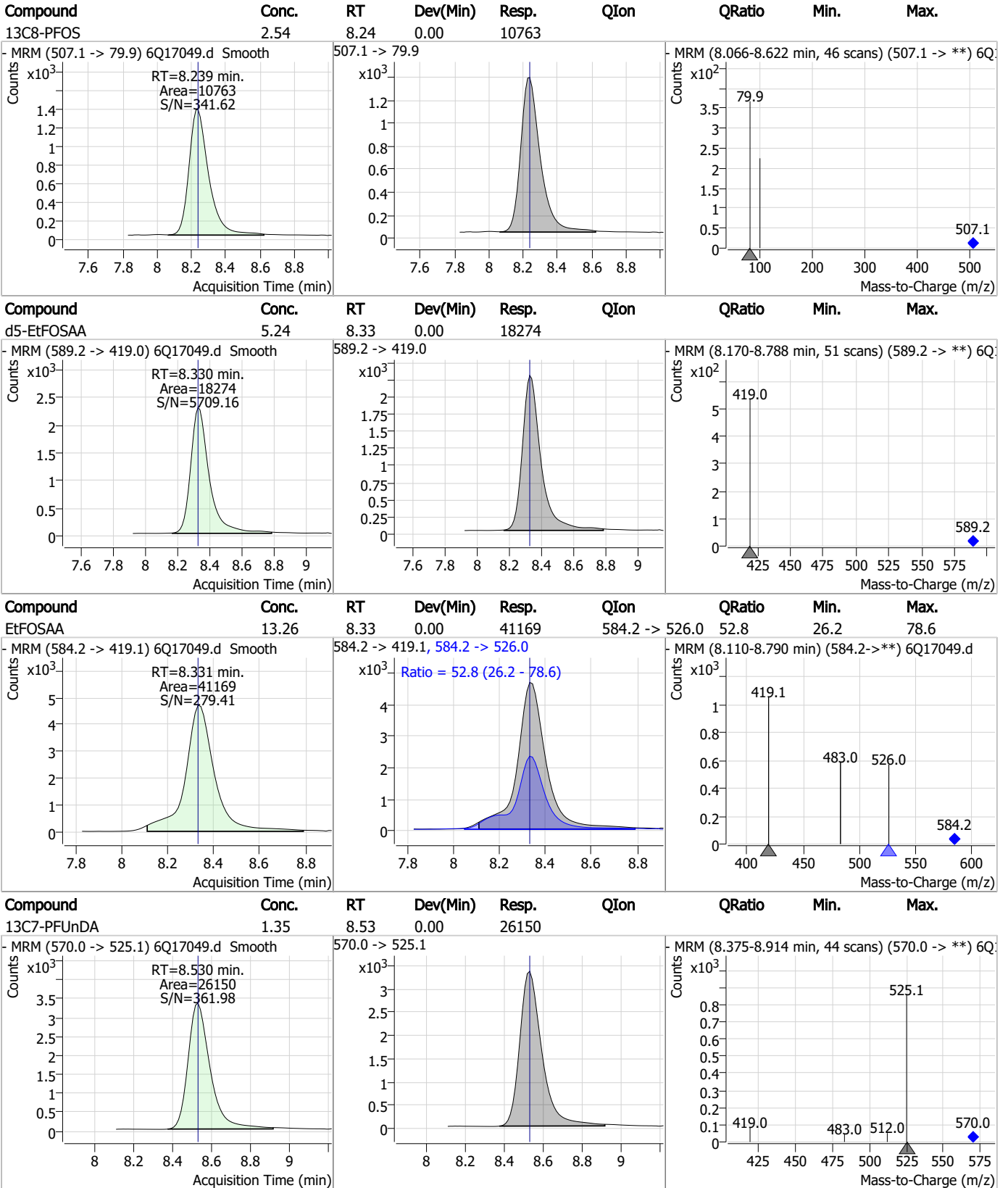
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

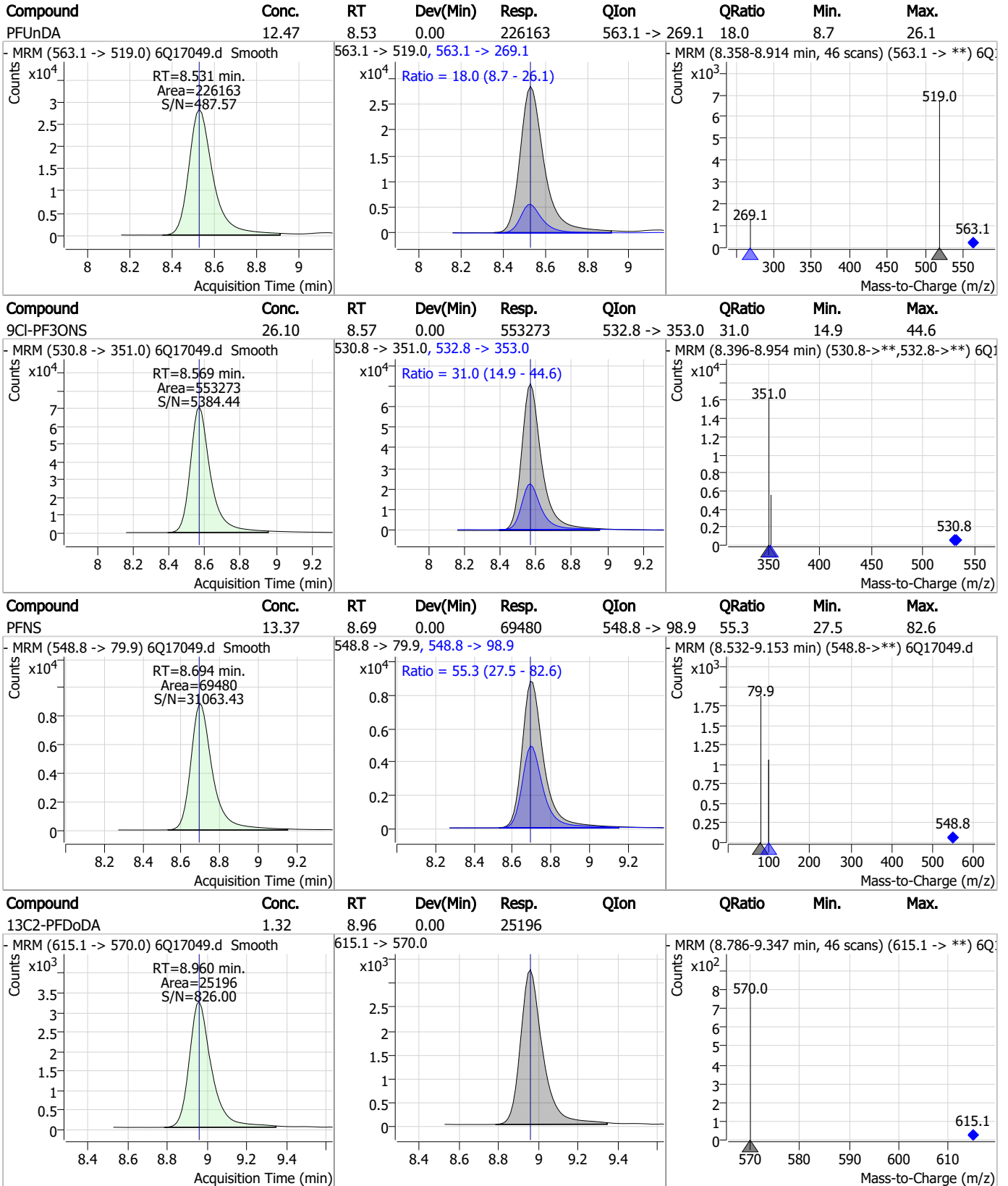
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Perfluorinated Compounds by LC/MS/MS

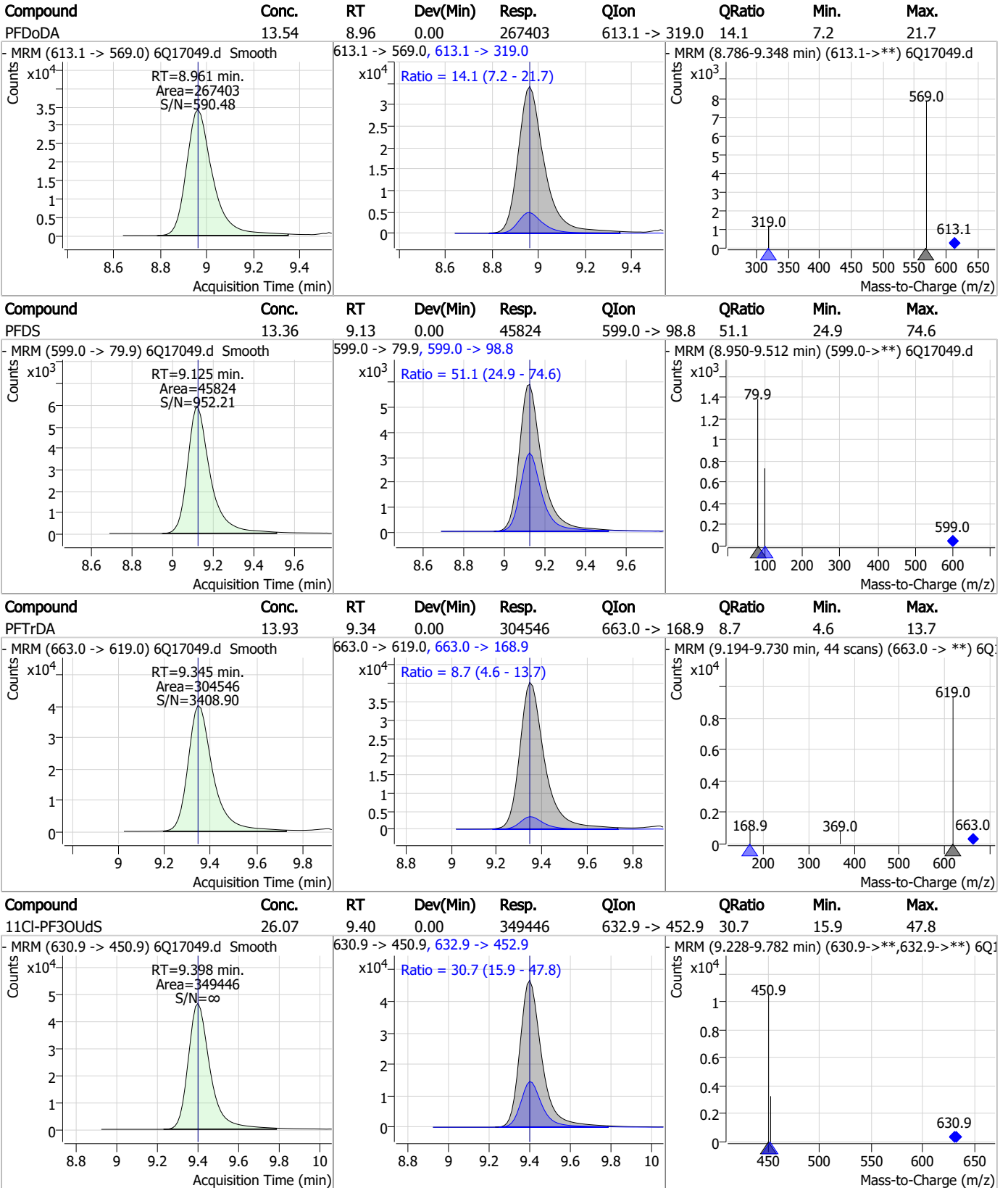


7.6.6

7



Perfluorinated Compounds by LC/MS/MS

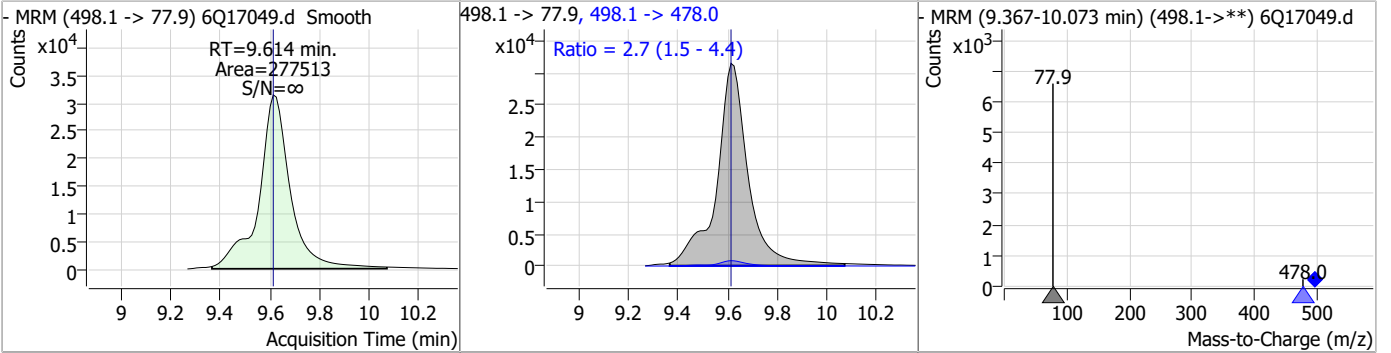


7.6.6

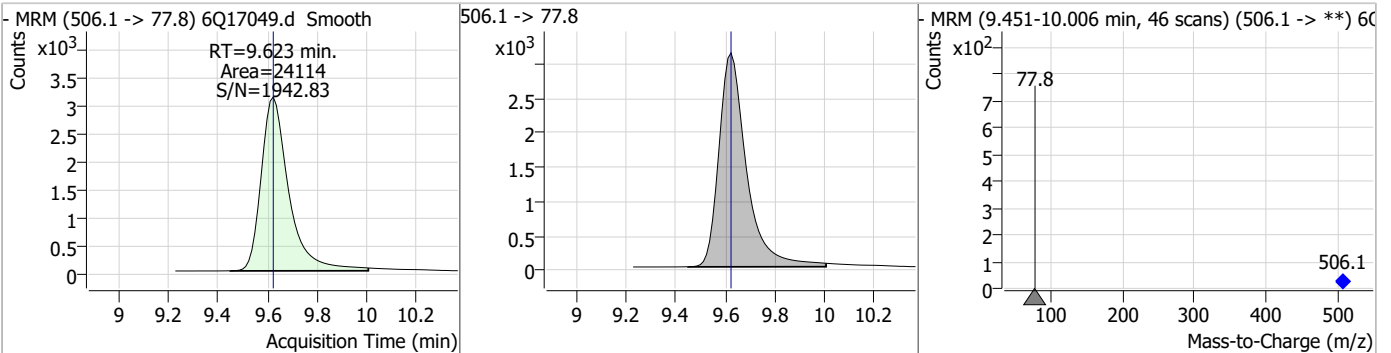
7

Perfluorinated Compounds by LC/MS/MS

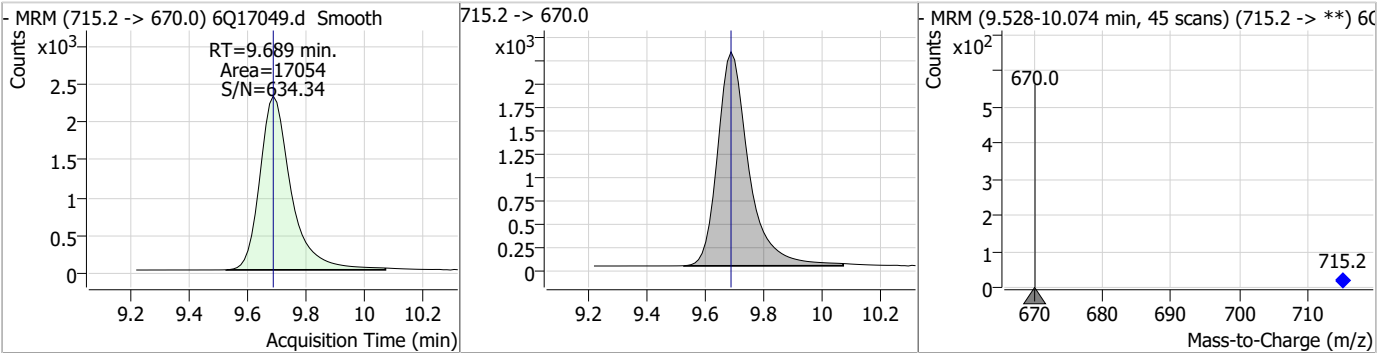
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	32.12	9.61	0.00	277513	498.1 -> 478.0	2.7	1.5	4.4



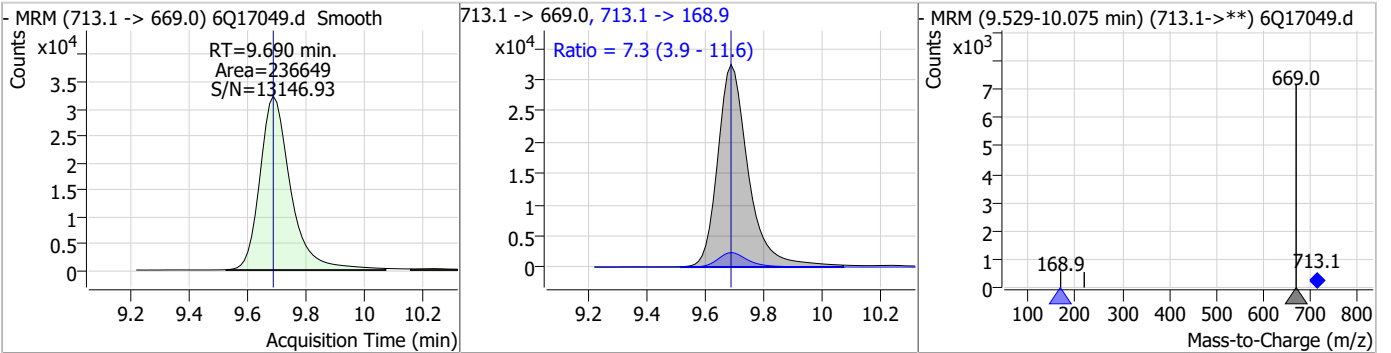
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.59	9.62	0.00	24114				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.32	9.69	0.00	17054				

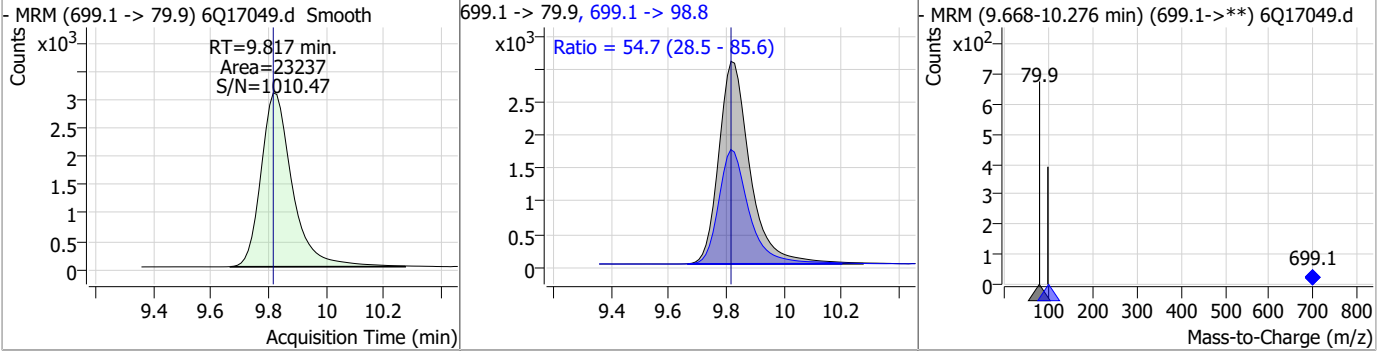


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	13.73	9.69	0.00	236649	713.1 -> 168.9	7.3	3.9	11.6

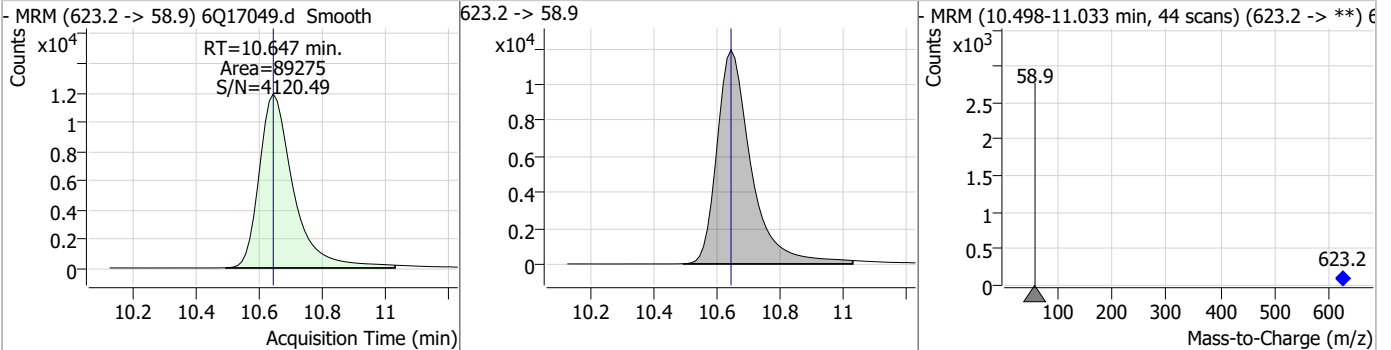


Perfluorinated Compounds by LC/MS/MS

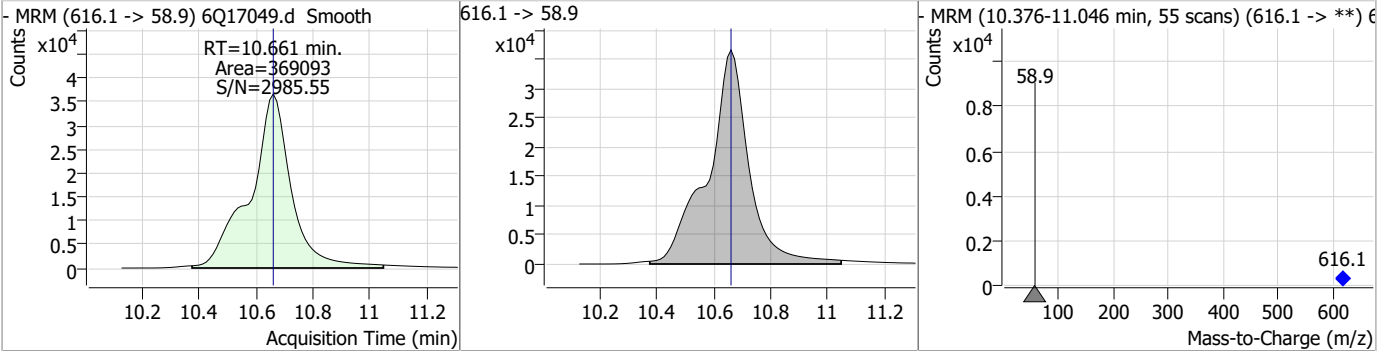
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	13.10	9.82	0.00	23237	699.1 -> 98.8	54.7	28.5	85.6



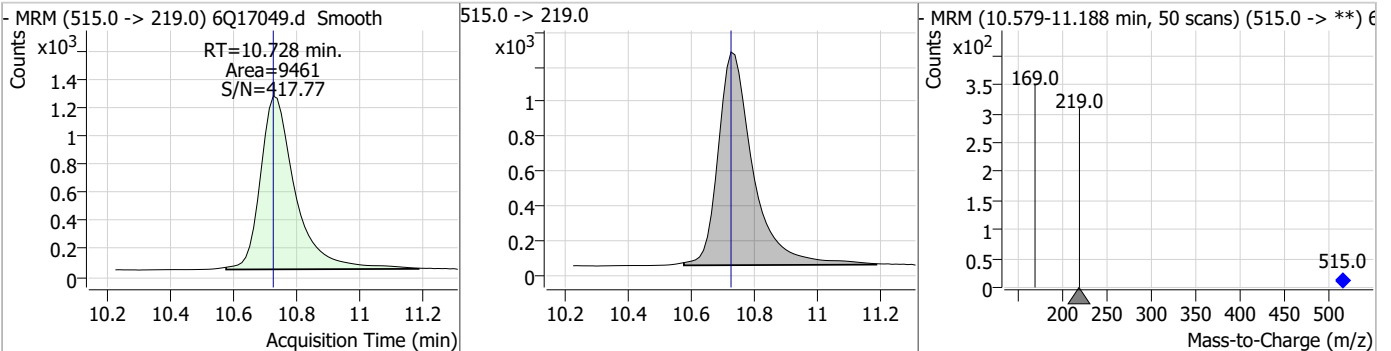
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.14	10.65	0.00	89275				



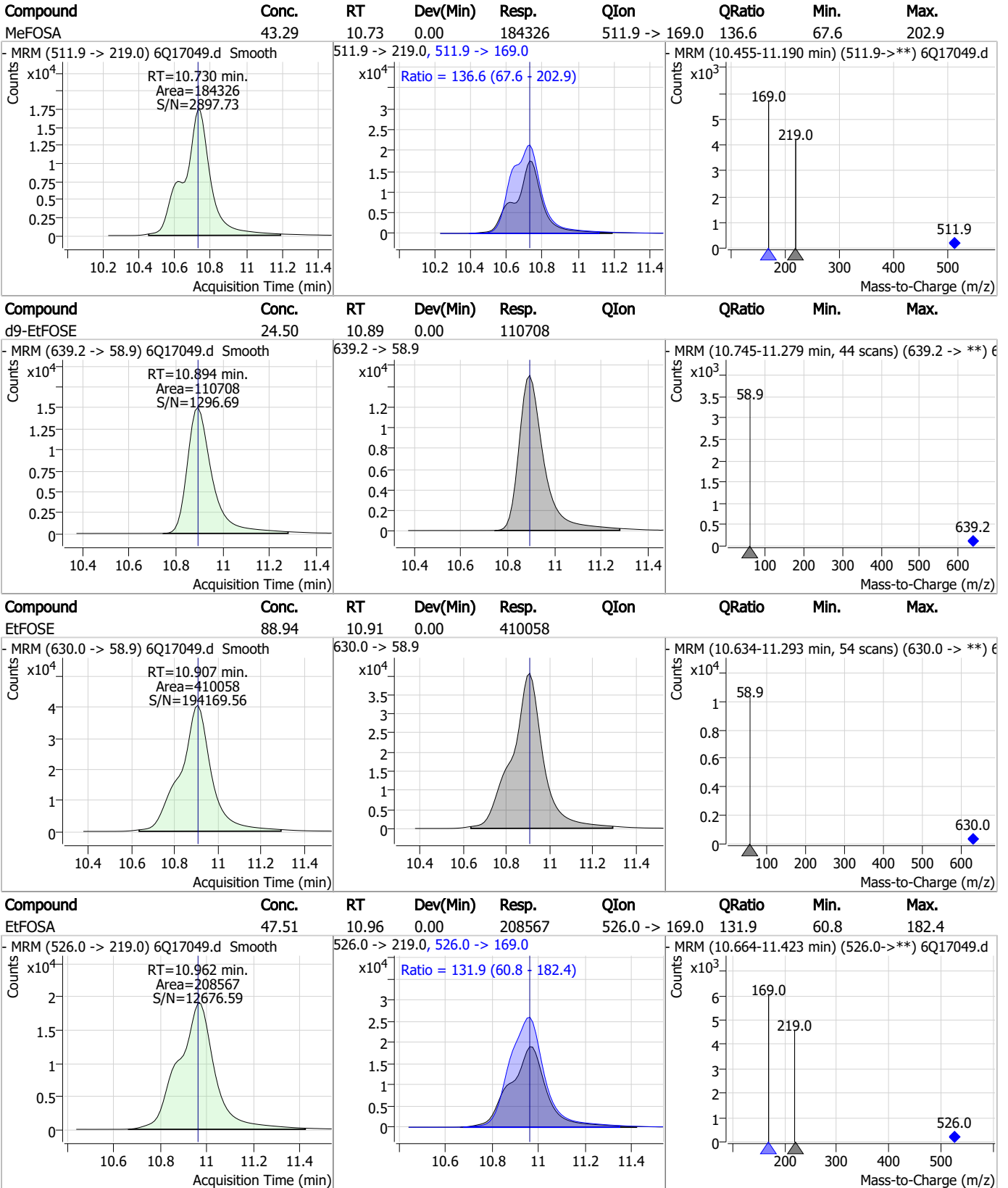
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	92.70	10.66	0.00	369093				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.69	10.73	0.00	9461				



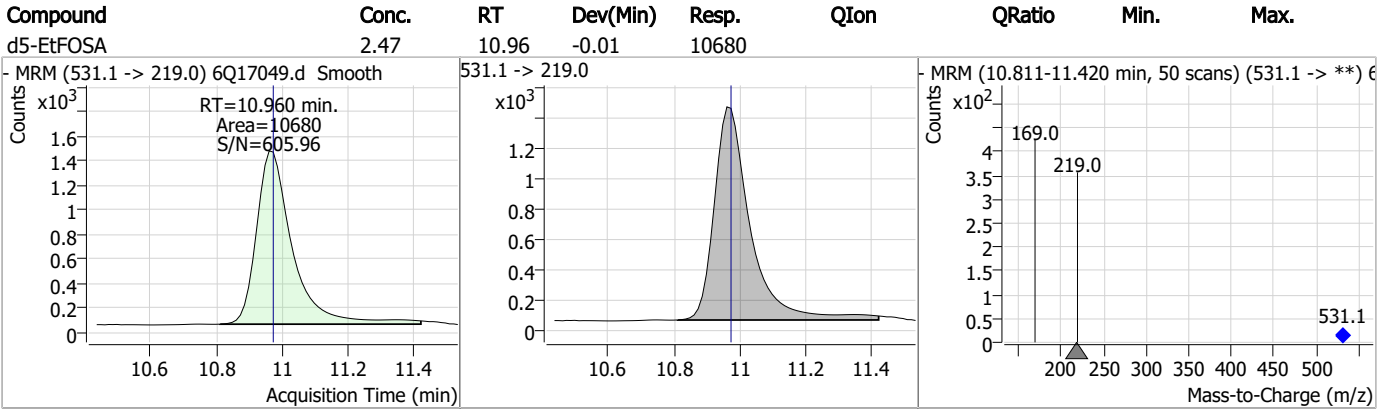
Perfluorinated Compounds by LC/MS/MS



7.6.6

7

Perfluorinated Compounds by LC/MS/MS



7.6.6

7

QQQ Check Tune Report



Instrument Name LCMS4-Q
MS Model G6470A
MS Instrument Serial SG2004G105
Software_Firmware Version 10.0.142, FW: A.00.08.100
Tune Date & Time 30 April 2023 11:24:53
Data Path D:\MassHunter\Tune\QQQ\G6470A\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.76E+0 [R] (Torr); 3.64E-5 [H] (Torr)

Source Parameters

Parameter	Negative
Gas Temp (°C)	300
Gas Flow (l/min)	8
Nebulizer (psi)	15
Capillary (V)	4000
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	112.98	-0.01	Pass	0.70	0.66	-0.04	Pass	201034
302.00	302.01	0.01	Pass	0.70	0.67	-0.03	Pass	310264
601.98	602.01	0.03	Pass	0.70	0.69	-0.01	Pass	444462
1033.99	1034.02	0.03	Pass	0.70	0.70	0.00	Pass	616104
1633.95	1633.95	0.00	Pass	0.70	0.68	-0.02	Pass	1304259
2233.91	2233.90	-0.01	Pass	0.70	0.72	0.02	Pass	724412

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	0.70	0.60	-0.10	Pass	43506
112.99	112.98	-0.01	Pass	0.70	0.71	0.01	Pass	146601
302.00	301.99	-0.01	Pass	0.70	0.66	-0.04	Pass	234306
601.98	601.92	-0.06	Pass	0.70	0.70	0.00	Pass	233181
1033.99	1033.85	-0.14	Pass	0.70	0.74	0.04	Pass	144228
1633.95	1633.70	-0.25	Adjust	0.70	0.78	0.08	Pass	201645
2233.91	2233.63	-0.28	Pass	0.70	0.79	0.09	Pass	82948

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.01	0.02	Pass	1.20	1.21	0.01	Pass	272389
302.00	301.98	-0.02	Pass	1.20	1.41	0.21	Pass	420909
601.98	601.99	0.01	Pass	1.20	1.44	0.24	Pass	763120
1033.99	1034.01	0.02	Pass	1.20	1.49	0.29	Pass	1327450
1633.95	1633.95	0.00	Pass	1.20	1.36	0.16	Pass	3403405
2233.91	2233.87	-0.04	Pass	1.20	1.20	0.00	Pass	1664147

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.08	0.08	Pass	1.20	1.10	-0.10	Pass	59945
112.99	112.96	-0.03	Pass	1.20	1.22	0.02	Pass	213730
302.00	302.00	0.00	Pass	1.20	1.45	0.25	Pass	349114
601.98	601.95	-0.03	Pass	1.20	1.53	0.33	Pass	449128
1033.99	1033.84	-0.15	Pass	1.20	1.59	0.39	Pass	302100
1633.95	1633.61	-0.34	Pass	1.20	1.55	0.35	Pass	580971
2233.91	2233.60	-0.31	Pass	1.20	1.47	0.27	Pass	324311

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.91	-0.08	Pass	2.50	2.53	0.03	Pass	390598
302.00	302.01	0.01	Pass	2.50	2.70	0.20	Pass	510334
601.98	602.05	0.07	Pass	2.50	2.73	0.23	Pass	1033779
1033.99	1034.01	0.02	Pass	2.50	2.75	0.25	Pass	2141360
1633.95	1633.92	-0.03	Pass	2.50	2.63	0.13	Pass	6705580
2233.91	2233.79	-0.12	Pass	2.50	2.42	-0.08	Pass	4259918

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	2.37	-0.13	Pass	76909
112.99	112.97	-0.02	Pass	2.50	2.50	0.00	Pass	286009
302.00	301.99	-0.01	Pass	2.50	2.68	0.18	Pass	456032
601.98	601.95	-0.03	Pass	2.50	2.79	0.29	Pass	609214
1033.99	1033.83	-0.16	Pass	2.50	2.85	0.35	Pass	451181
1633.95	1633.68	-0.27	Pass	2.50	2.72	0.22	Pass	1021433
2233.91	2233.59	-0.32	Pass	2.50	2.47	-0.03	Pass	789629

7.7.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43884.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 11:12:11 AM
 Sample Name : ic634-1
 Vial : P1-A2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	133324	10.00 µg/L	-0.012
M5-PFPeA	4.362	268.3 -> 223.0	70436	5.00 µg/L	0.000
M5-PFHxA	5.522	318.0 -> 273.0	51396	2.50 µg/L	-0.012
M4-PFHpA	6.455	367.1 -> 322.0	30242	2.50 µg/L	-0.012
M8-PFOA	7.124	421.1 -> 376.0	42914	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	20504	1.25 µg/L	0.000
M6-PFDA	8.166	519.1 -> 474.1	20136	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	21422	1.25 µg/L	-0.012
M2-PFDoDA	9.093	615.1 -> 570.0	21281	1.25 µg/L	-0.012
M2-PFTeDA	9.886	715.2 -> 670.0	18387	1.25 µg/L	-0.012
M8-FOSA	9.758	506.1 -> 77.8	17575	2.50 µg/L	-0.012
M3-PFBS	5.427	302.1 -> 79.9	12829	2.50 µg/L	0.000
M3-PFHxS	7.217	402.1 -> 79.9	8172	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	10530	2.50 µg/L	-0.013
M2-4:2FTS	5.209	329.1 -> 80.9	1189	5.00 µg/L	-0.014
M2-6:2FTS	6.886	429.1 -> 80.9	2090	5.00 µg/L	-0.012
M2-8:2FTS	7.953	529.1 -> 80.9	3107	5.00 µg/L	-0.012
M3-MeFOSAA	8.224	573.2 -> 419.0	14225	5.00 µg/L	-0.012
M3-HFPO-DA	5.877	286.9 -> 168.9	29384	10.00 µg/L	-0.012
M5-EtFOSAA	8.433	589.2 -> 419.0	10858	5.00 µg/L	-0.012
M7-MeFOSE	10.947	623.2 -> 58.9	84284	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	127257	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12371	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11108	2.50 µg/L	0.000
13C4-PFOS	8.317	502.8 -> 79.9	12141	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	70772	5.00 µg/L	-0.013
18O2-PFHxS	7.216	403.0 -> 83.9	5179	2.50 µg/L	-0.012
13C4-PFOA	7.124	417.1 -> 372.0	53320	2.50 µg/L	0.000
13C2-PFDA	8.166	515.1 -> 470.1	18742	1.25 µg/L	-0.012
13C5-PFNA	7.671	468.0 -> 423.0	24868	1.25 µg/L	-0.013
13C2-PFHxA	5.523	315.1 -> 270.0	45134	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.209	329.1 -> 80.9	1189	5.65 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 113.0%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2090	5.51 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.2%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3107	5.25 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.9%		
13C2-PFDoDA	9.093	615.1 -> 570.0	21281	1.17 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C2-PFTeDA	9.886	715.2 -> 670.0	18387	1.24 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.5%		
13C3-PFBS	5.427	302.1 -> 79.9	12829	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.1%		
13C3-PFHxS	7.217	402.1 -> 79.9	8172	2.55 µg/L	-0.012

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 = 101.8%	
13C4-PFBA	2.911	216.8 -> 171.9	133324	10.01 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.455	367.1 -> 322.0	30242	2.60 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C5-PFHxA	5.522	318.0 -> 273.0	51396	2.59 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C5-PFPeA	4.362	268.3 -> 223.0	70436	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.166	519.1 -> 474.1	20136	1.25 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C7-PFUnDA	8.635	570.0 -> 525.1	21422	1.28 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C8-FOSA	9.758	506.1 -> 77.8	17575	2.31 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.3%	
13C8-PFOA	7.124	421.1 -> 376.0	42914	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.0%	
13C8-PFOS	8.316	507.1 -> 79.9	10530	2.30 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.1%	
13C9-PFNA	7.670	472.1 -> 427.0	20504	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
d3-MeFOSAA	8.224	573.2 -> 419.0	14225	4.64 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 92.8%	
13C3-HFPO-DA	5.877	286.9 -> 168.9	29384	9.90 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d3-MeFOSA	11.064	515.0 -> 219.0	11108	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.3%	
d5-EtFOSAA	8.433	589.2 -> 419.0	10858	4.30 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 86.1%	
d7-MeFOSE	10.947	623.2 -> 58.9	84284	22.31 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d9-EtFOSE	11.256	639.2 -> 58.9	127257	23.79 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 95.2%	
d5-EtFOSA	11.348	531.1 -> 219.0	12371	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
Target Compounds					QValue
4:2FTS	5.209	327.1 -> 307.0	1373	0.72 µg/L	99
		327.1 -> 80.9	654		
6:2FTS	6.886	427.1 -> 407.0	1456	0.72 µg/L	78
		427.1 -> 80.9	820		
8:2FTS	7.954	527.1 -> 507.0	1265	0.73 µg/L	99
		527.1 -> 80.8	529		
EtFOSAA	8.446	584.2 -> 419.1	415	0.20 µg/L	m 91
		584.2 -> 526.0	236		
FOSA	9.761	498.1 -> 77.9	1434	0.19 µg/L	99
		498.1 -> 478.0	51		
MeFOSAA	8.237	570.1 -> 419.0	578	0.23 µg/L	m 93
		570.1 -> 483.0	157		
PFBA	2.920	212.8 -> 168.9	2671	0.75 µg/L	100
PFBS	5.415	298.7 -> 79.9	887	0.17 µg/L	94
		298.7 -> 98.8	396		
PFDA	8.166	512.9 -> 469.0	2822	0.18 µg/L	96
		512.9 -> 219.0	561		
PFDODA	9.094	613.1 -> 569.0	3581	0.21 µg/L	m 93
		613.1 -> 319.0	631		
PFDS	9.257	599.0 -> 79.9	464	0.18 µg/L	93

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	235			
PFHpA	6.455	363.1 -> 319.0	3266	0.17	µg/L	m
		363.1 -> 169.0	704			
PFHpS	7.797	449.0 -> 79.9	730	0.19	µg/L	88
		449.0 -> 98.9	450			
PFHxA	5.525	313.0 -> 269.0	3920	0.19	µg/L	98
		313.0 -> 118.9	88			
PFHxS	7.218	398.7 -> 79.9	568	0.17	µg/L	m
		398.7 -> 98.9	277			
PFNA	7.671	463.0 -> 419.0	3263	0.21	µg/L	96
		463.0 -> 219.0	753			
PFNS	8.799	548.8 -> 79.9	435	0.19	µg/L	99
		548.8 -> 98.9	230			
PFOA	7.125	413.0 -> 369.0	4788	0.19	µg/L	87
		413.0 -> 169.0	1204			
PFOS	8.305	498.9 -> 79.9	1025	0.20	µg/L	m
		498.9 -> 98.8	575			
PFPeA	4.364	263.0 -> 219.0	6141	0.36	µg/L	100
PFPeS	6.494	349.1 -> 79.9	506	0.18	µg/L	98
		349.1 -> 98.9	227			
PFTeDA	9.887	713.1 -> 669.0	3199	0.18	µg/L	99
		713.1 -> 168.9	282			
PFTrDA	9.515	663.0 -> 619.0	5149	0.23	µg/L	96
		663.0 -> 168.9	485			
PFUnDA	8.648	563.1 -> 519.0	2712	0.19	µg/L	99
		563.1 -> 269.1	564			
11Cl-PF3OUdS	9.556	630.9 -> 450.9	3635	0.34	µg/L	89
		632.9 -> 452.9	1273			
9Cl-PF3ONS	8.663	530.8 -> 351.0	4687	0.35	µg/L	95
		532.8 -> 353.0	1553			
ADONA	6.718	376.9 -> 250.9	11026	0.37	µg/L	99
		376.9 -> 84.8	2854			
HFPO-DA	5.891	284.9 -> 168.9	1087	0.39	µg/L	92
		284.9 -> 184.9	91			
3:3FTCA	3.823	241.0 -> 177.0	672	0.90	µg/L	100
		241.0 -> 117.0	57			
5:3FTCA	6.180	341.0 -> 237.1	12380	4.53	µg/L	96
		341.0 -> 217.0	8858			
7:3FTCA	7.636	441.0 -> 316.9	6366	4.48	µg/L	99
		441.0 -> 336.9	15098			
EtFOSA	11.350	526.0 -> 219.0	1635	0.32	µg/L	m
		526.0 -> 169.0	2557			
EtFOSE	11.270	630.0 -> 58.9	4617	0.94	µg/L	m
MeFOSA	11.066	511.9 -> 219.0	1473	0.35	µg/L	m
		511.9 -> 169.0	2671			
MeFOSE	10.960	616.1 -> 58.9	3786	1.09	µg/L	m
PFDoDS	10.039	699.1 -> 79.9	469	0.20	µg/L	87
		699.1 -> 98.8	207			
NFDHA	5.403	295.0 -> 201.0	554	0.39	µg/L	80
		295.0 -> 84.9	96			
PFMBA	4.766	279.0 -> 85.1	3672	0.39	µg/L	100
PFMPA	3.515	229.0 -> 84.9	3240	0.37	µg/L	100
PFEESA	5.959	314.8 -> 134.9	5092	0.33	µg/L	95
		314.8 -> 82.9	107			

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

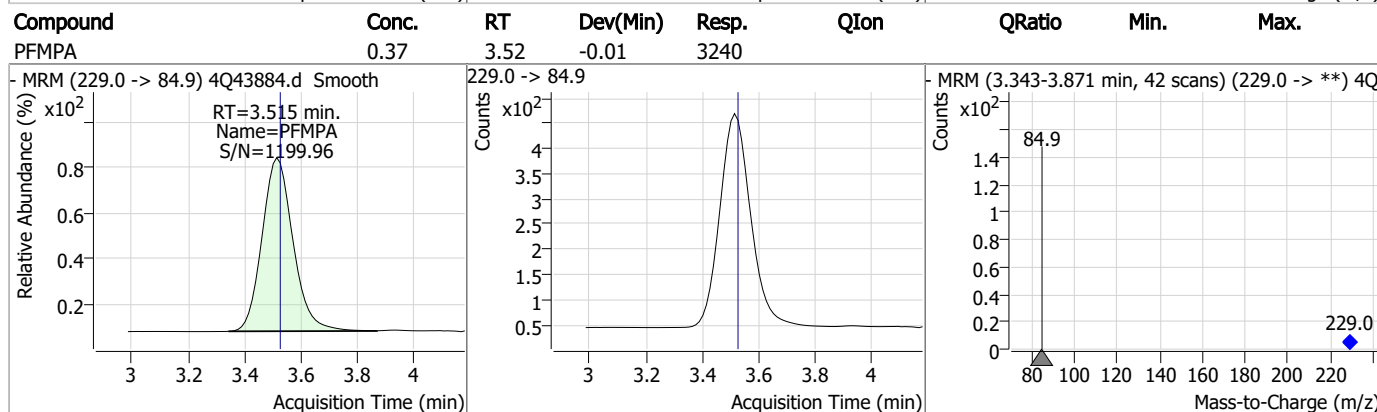
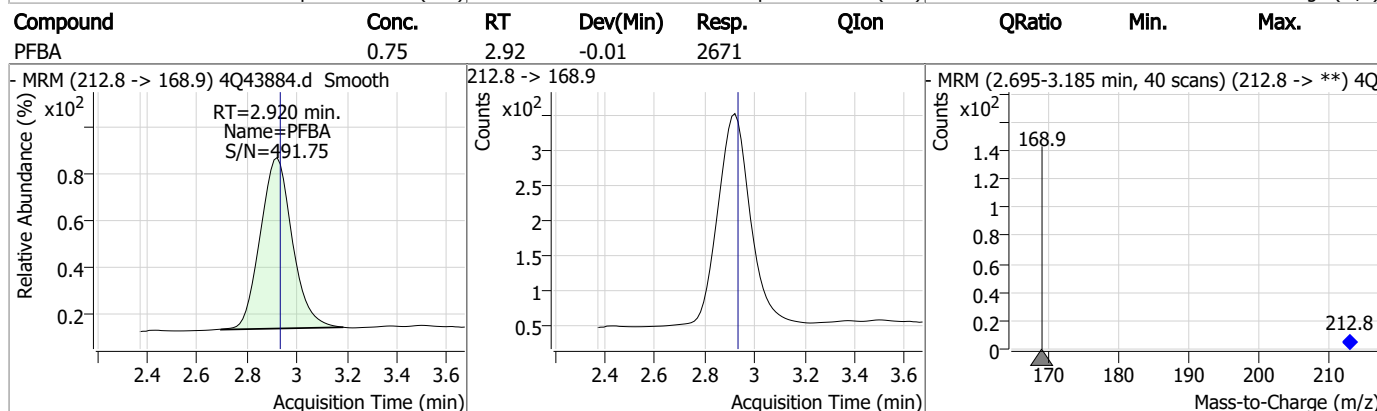
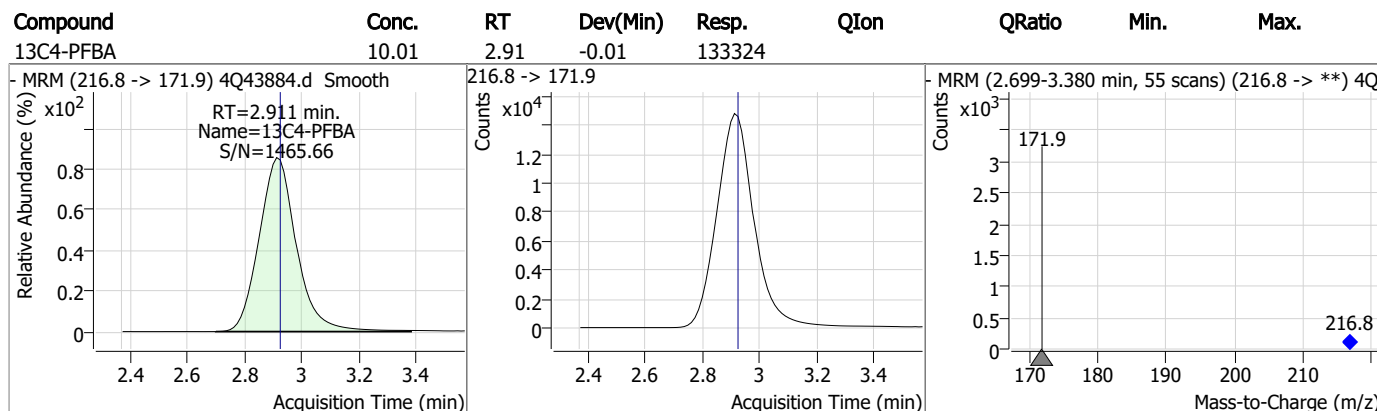
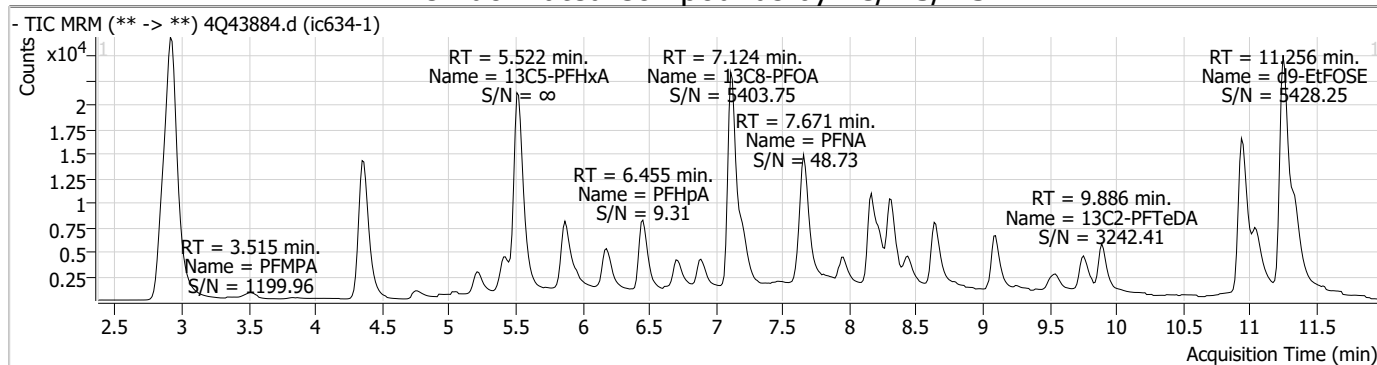
Perfluorinated Compounds by LC/MS/MS

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

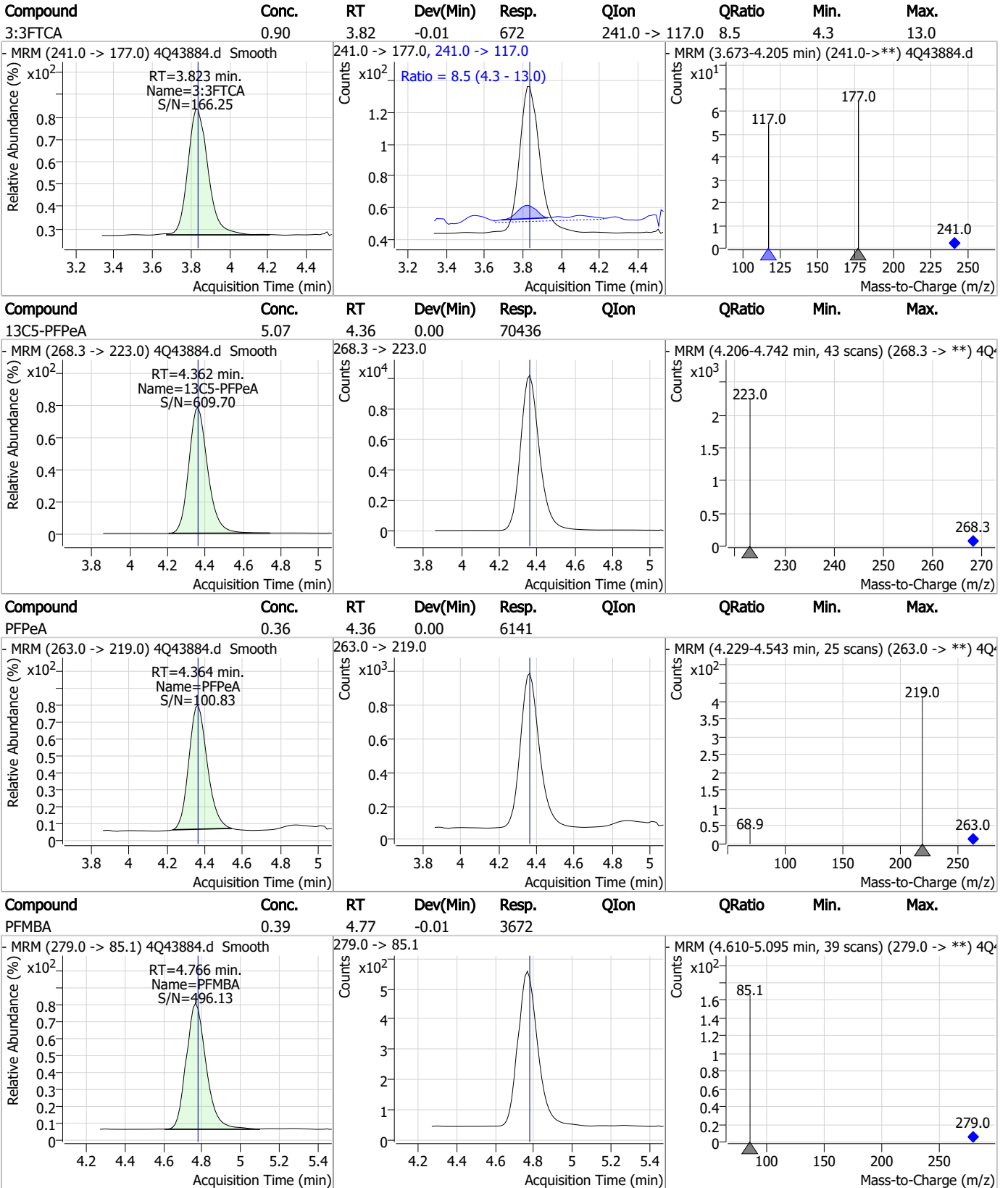
7.7.2
7



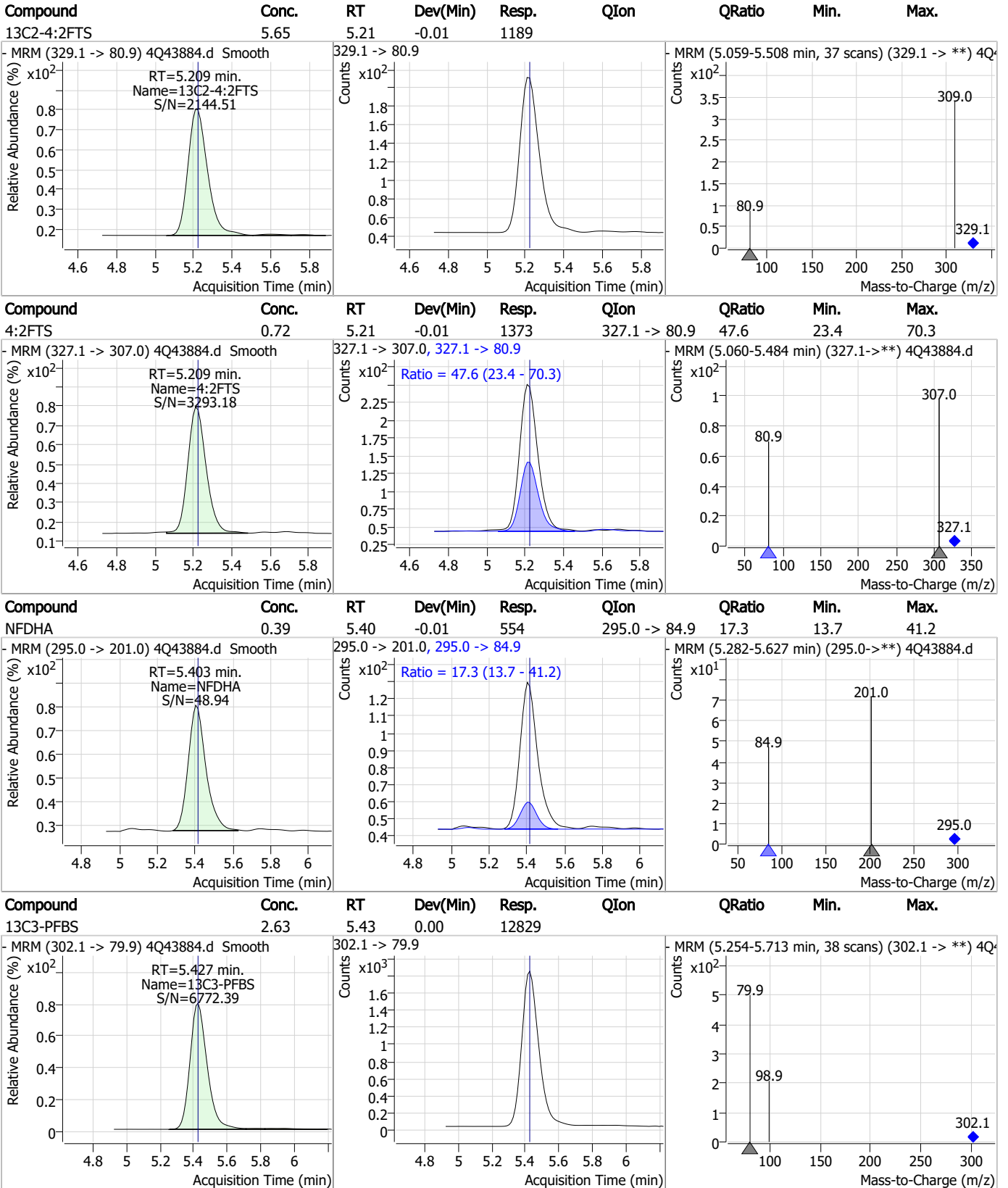
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



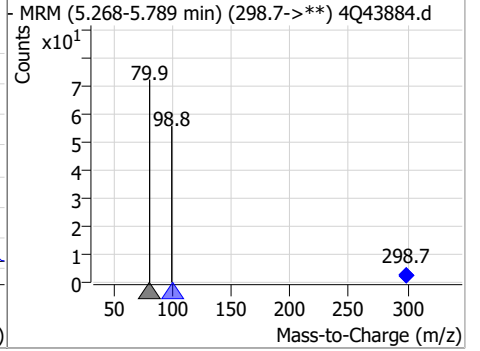
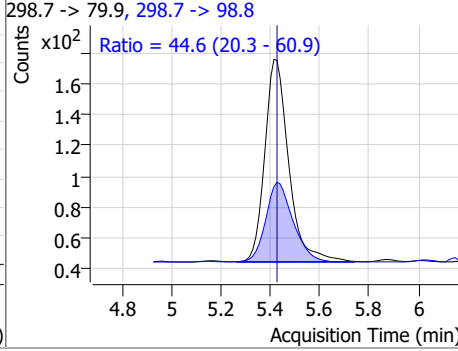
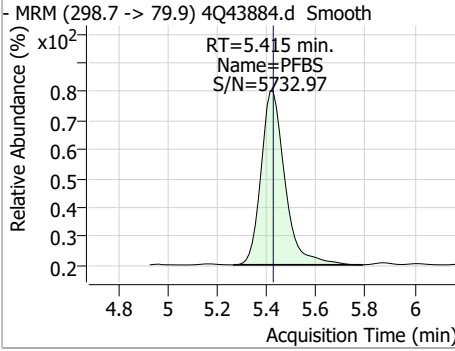
7.7.2

7

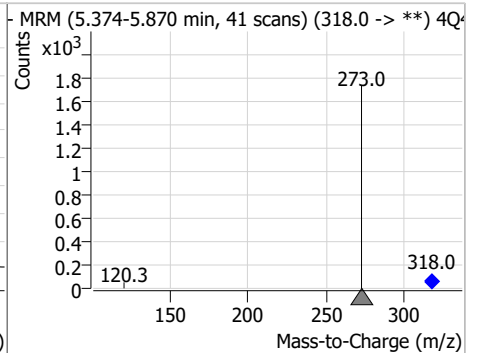
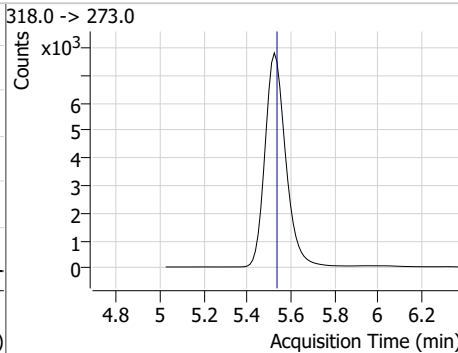
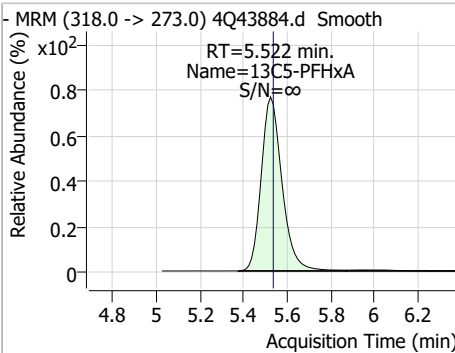


Perfluorinated Compounds by LC/MS/MS

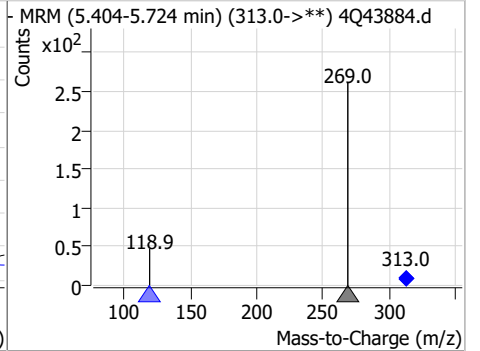
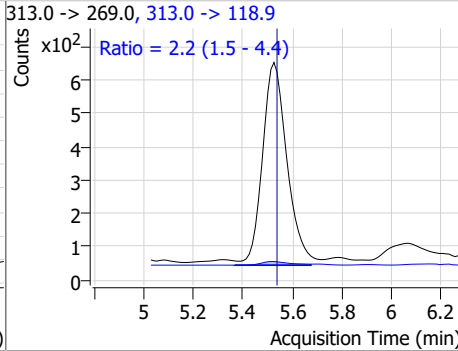
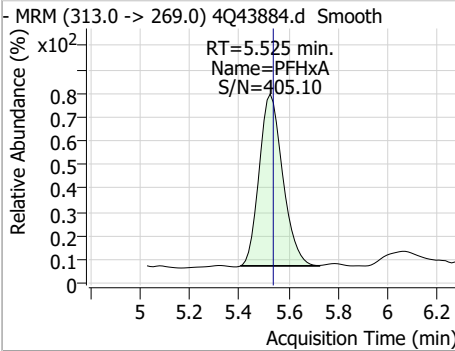
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.17	5.42	-0.01	887	298.7 -> 98.8	44.6	20.3	60.9



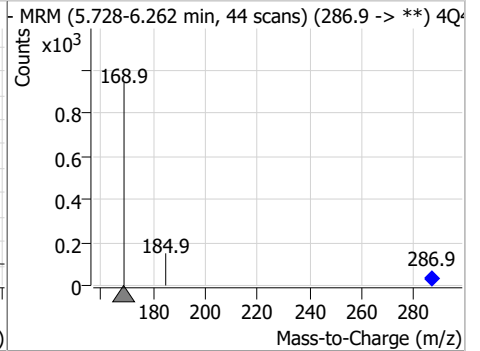
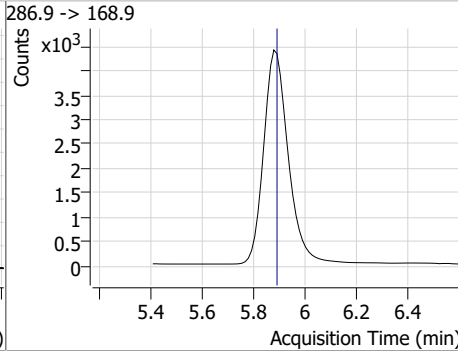
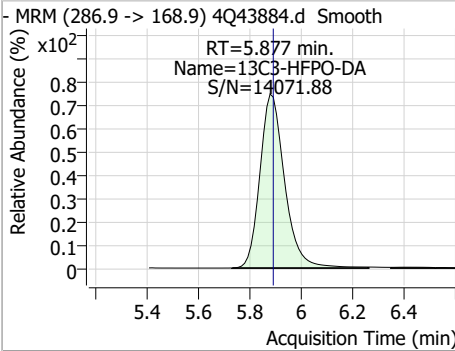
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.59	5.52	-0.01	51396				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.53	-0.01	3920	313.0 -> 118.9	2.2	1.5	4.4

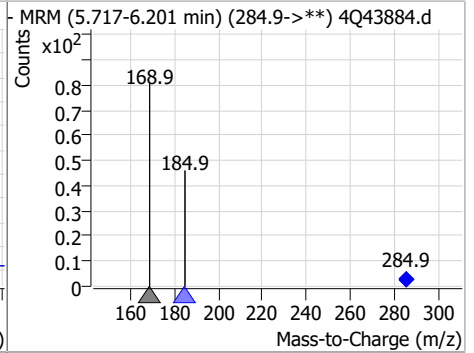
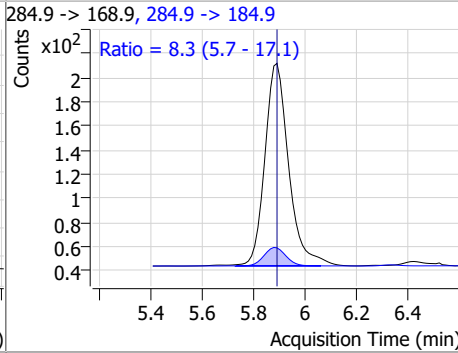
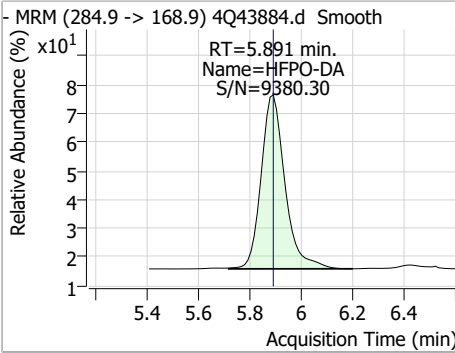


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.90	5.88	-0.01	29384				

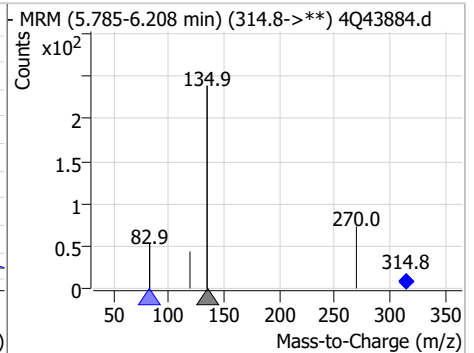
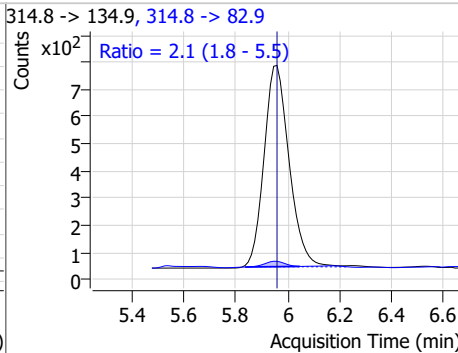
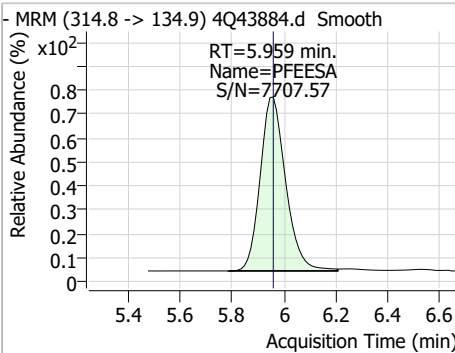


Perfluorinated Compounds by LC/MS/MS

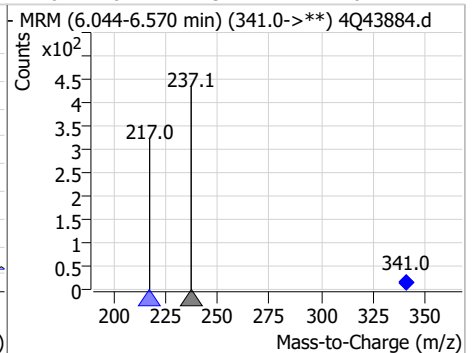
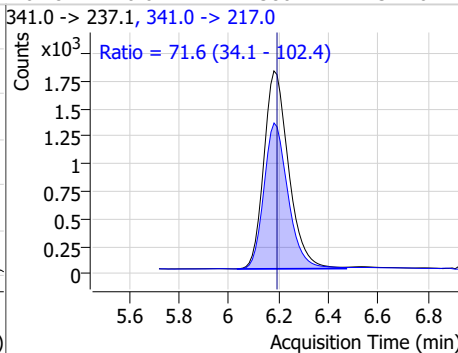
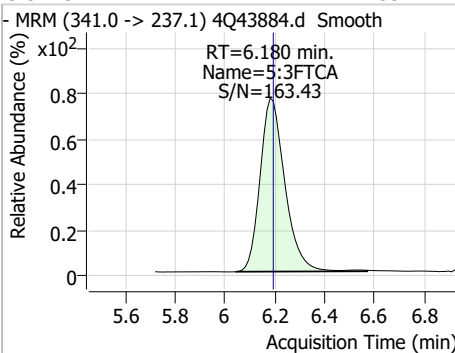
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.39	5.89	0.00	1087	284.9 -> 184.9	8.3	5.7	17.1



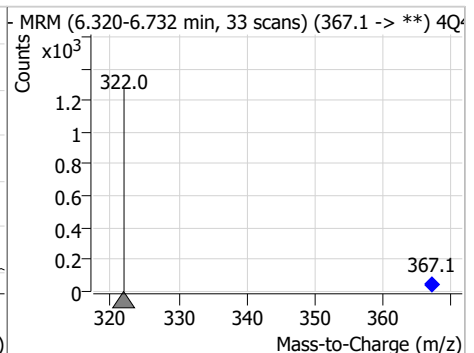
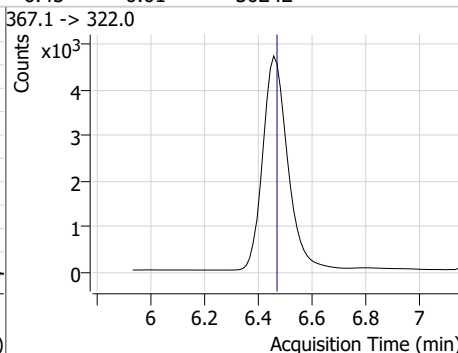
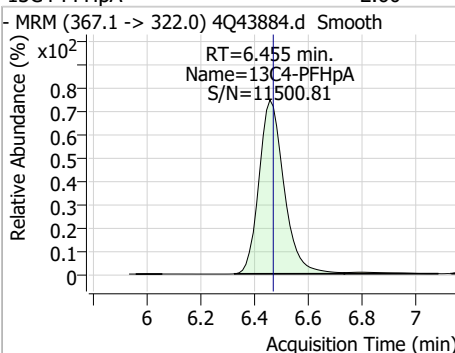
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.33	5.96	0.00	5092	314.8 -> 82.9	2.1	1.8	5.5



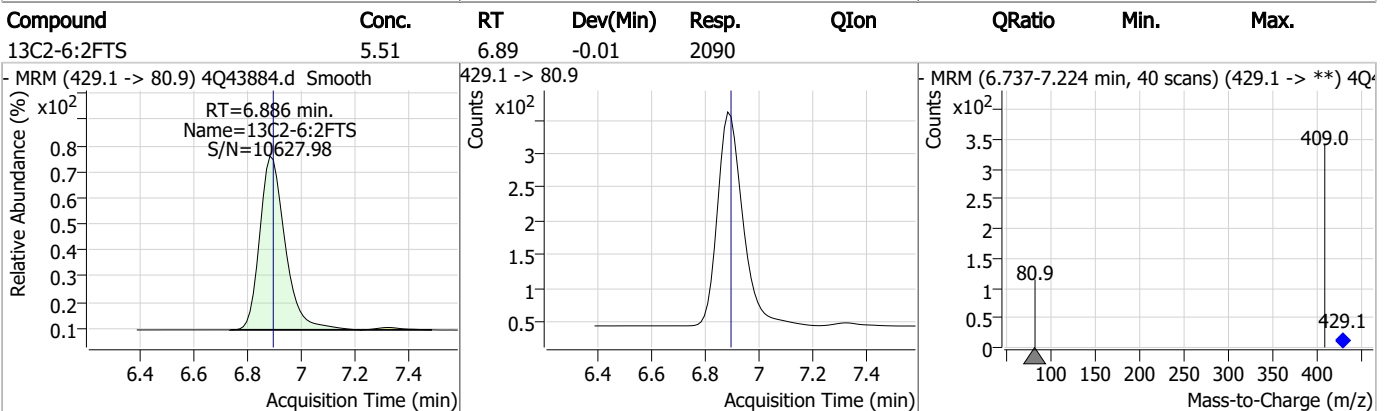
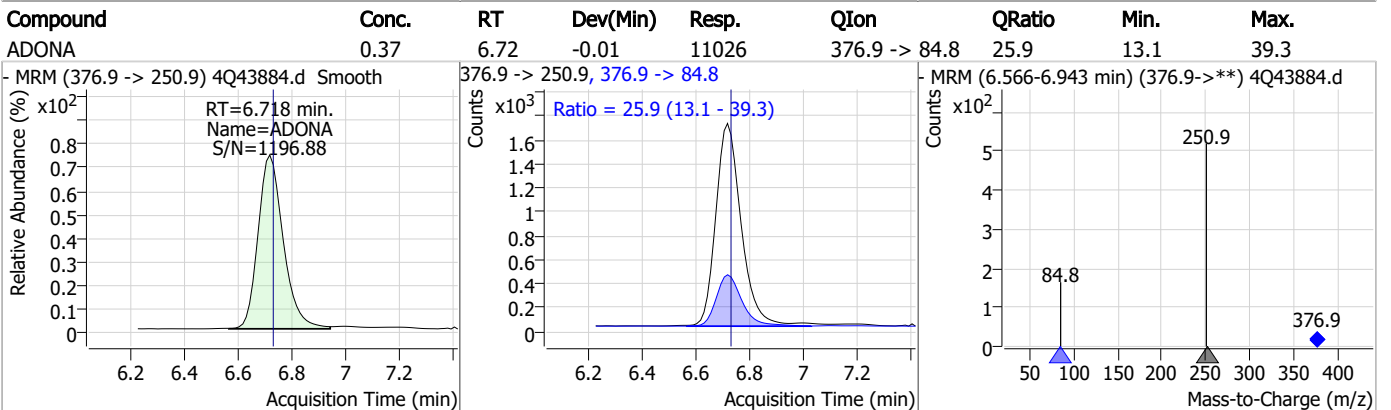
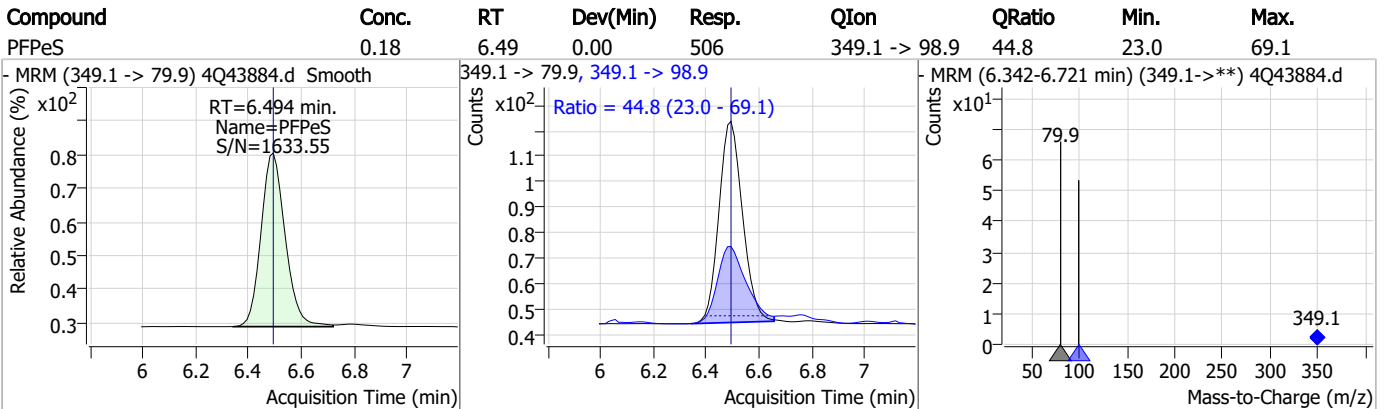
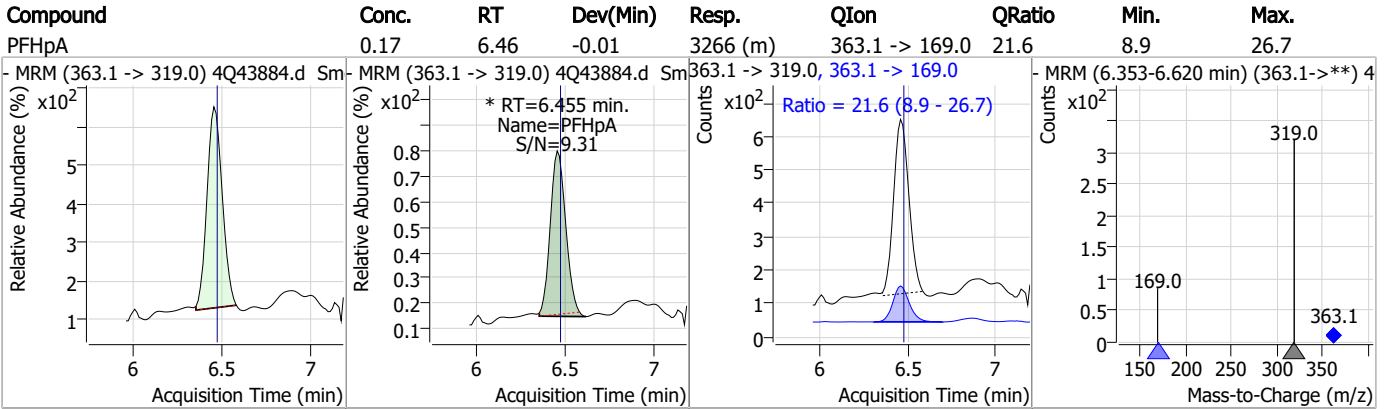
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.53	6.18	-0.01	12380	341.0 -> 217.0	71.6	34.1	102.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.60	6.45	-0.01	30242	367.1 -> 322.0			



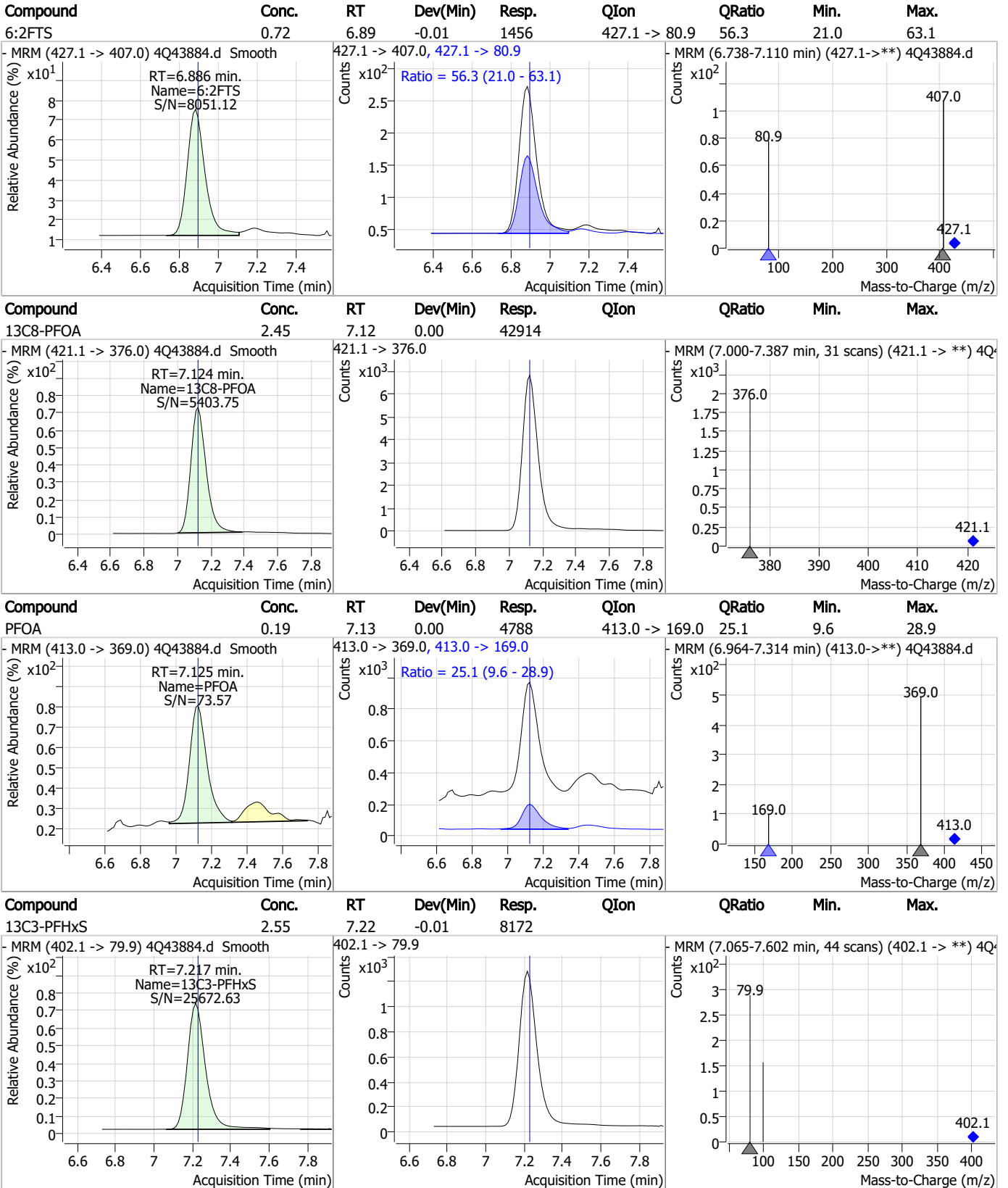
Perfluorinated Compounds by LC/MS/MS



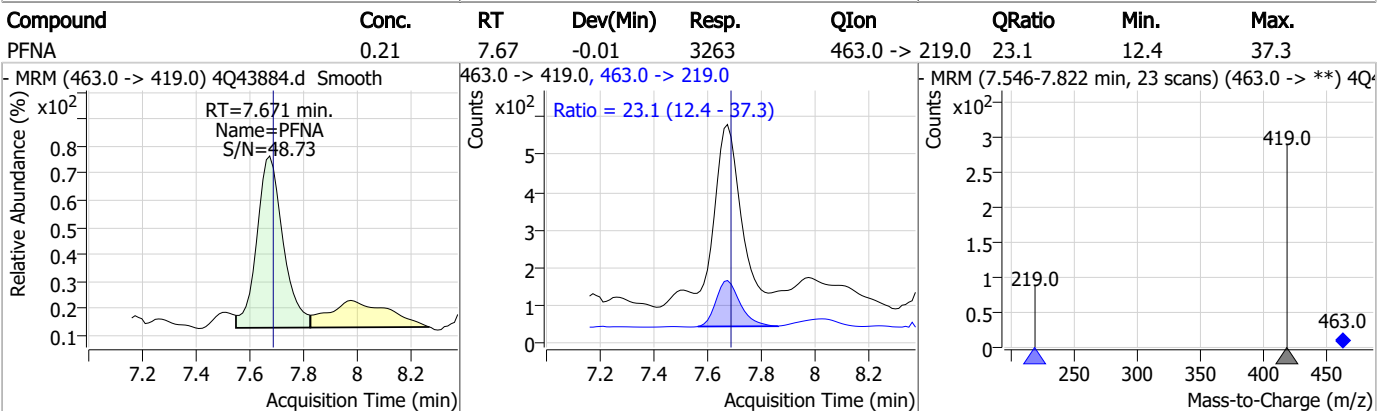
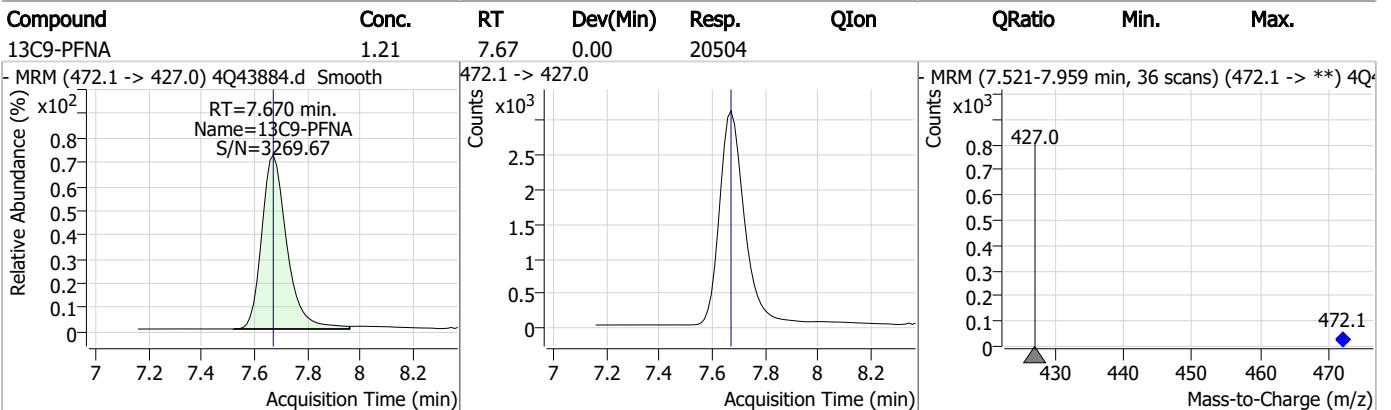
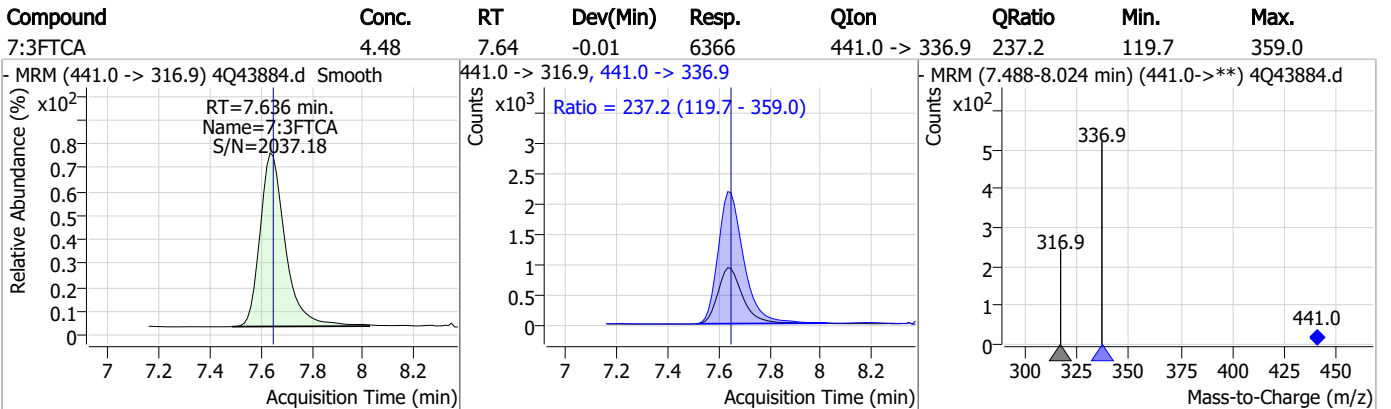
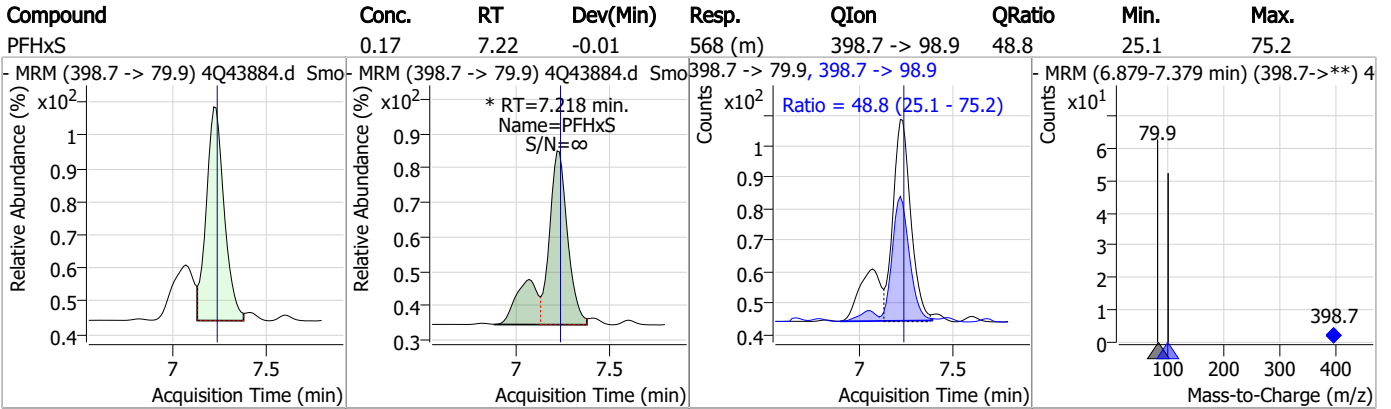
7.7.2

7

Perfluorinated Compounds by LC/MS/MS



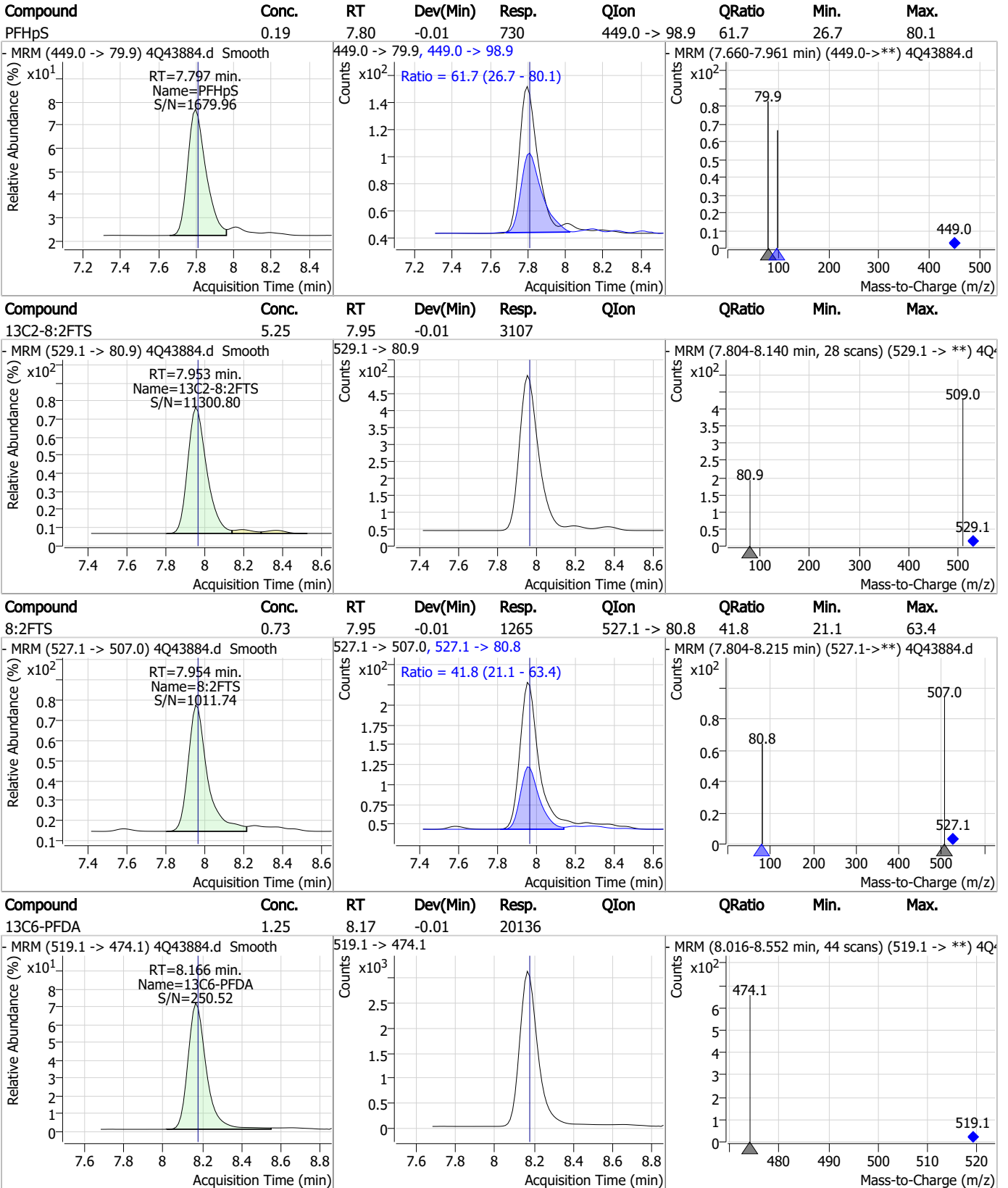
Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Perfluorinated Compounds by LC/MS/MS

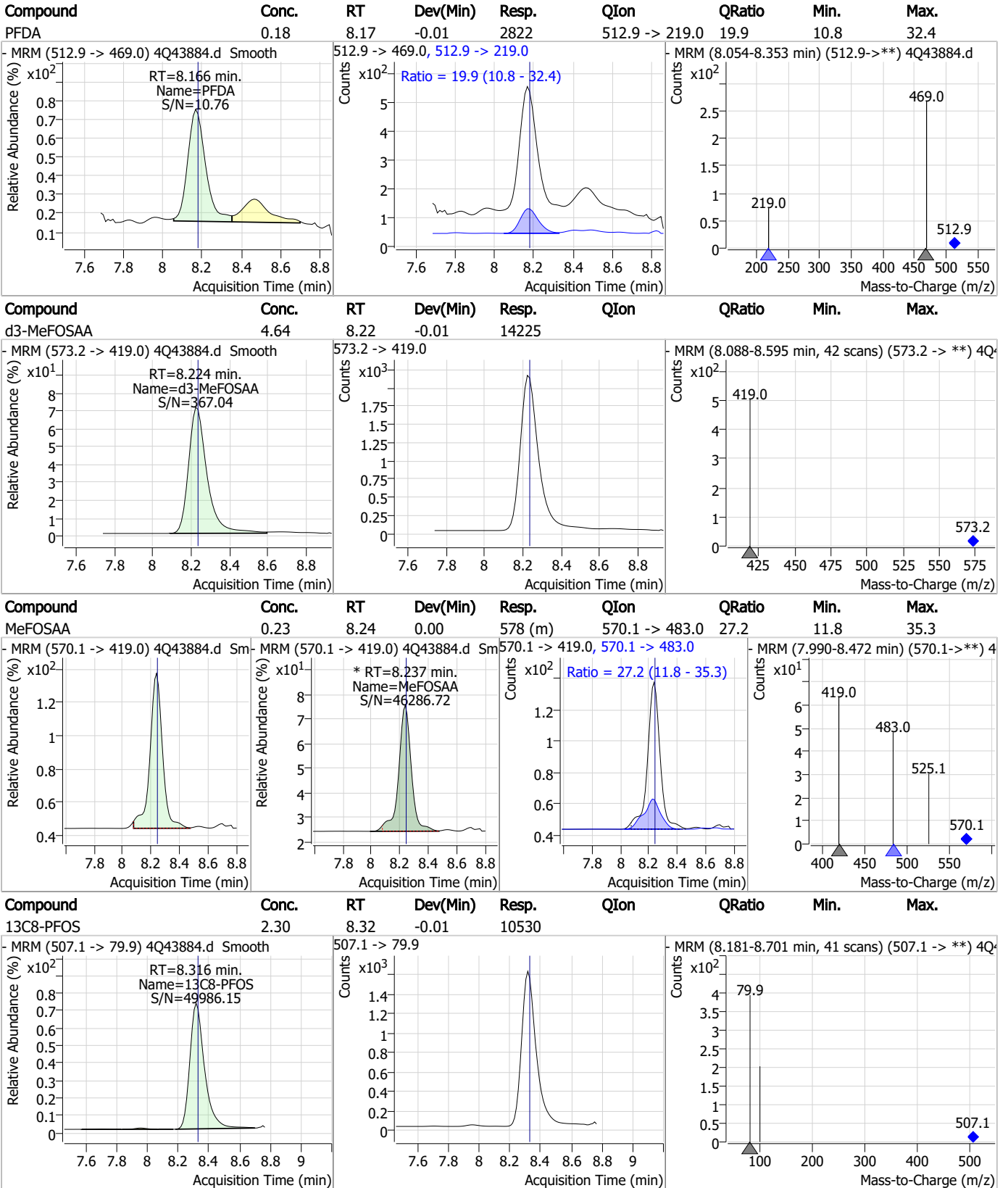


7.7.2

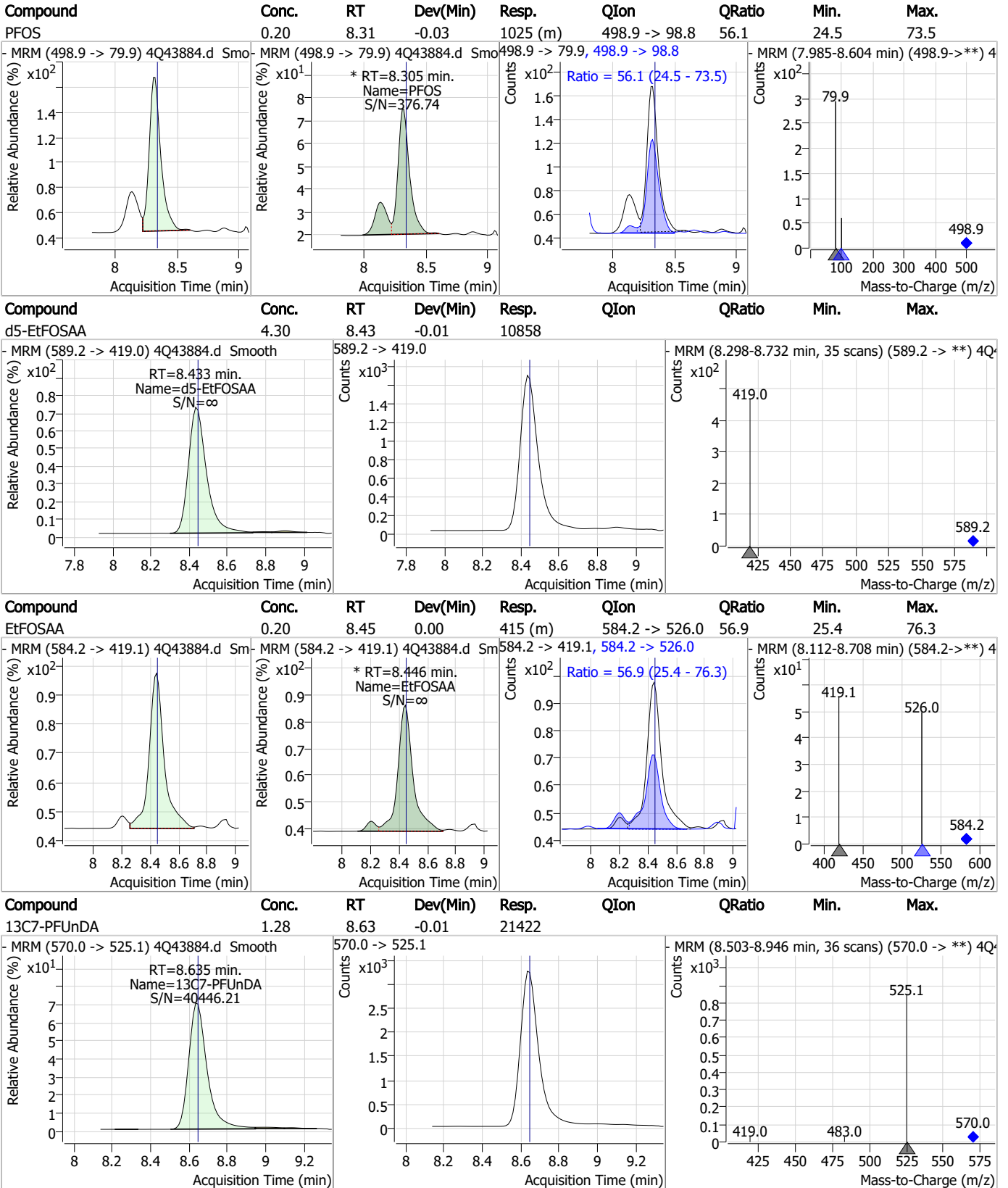
7



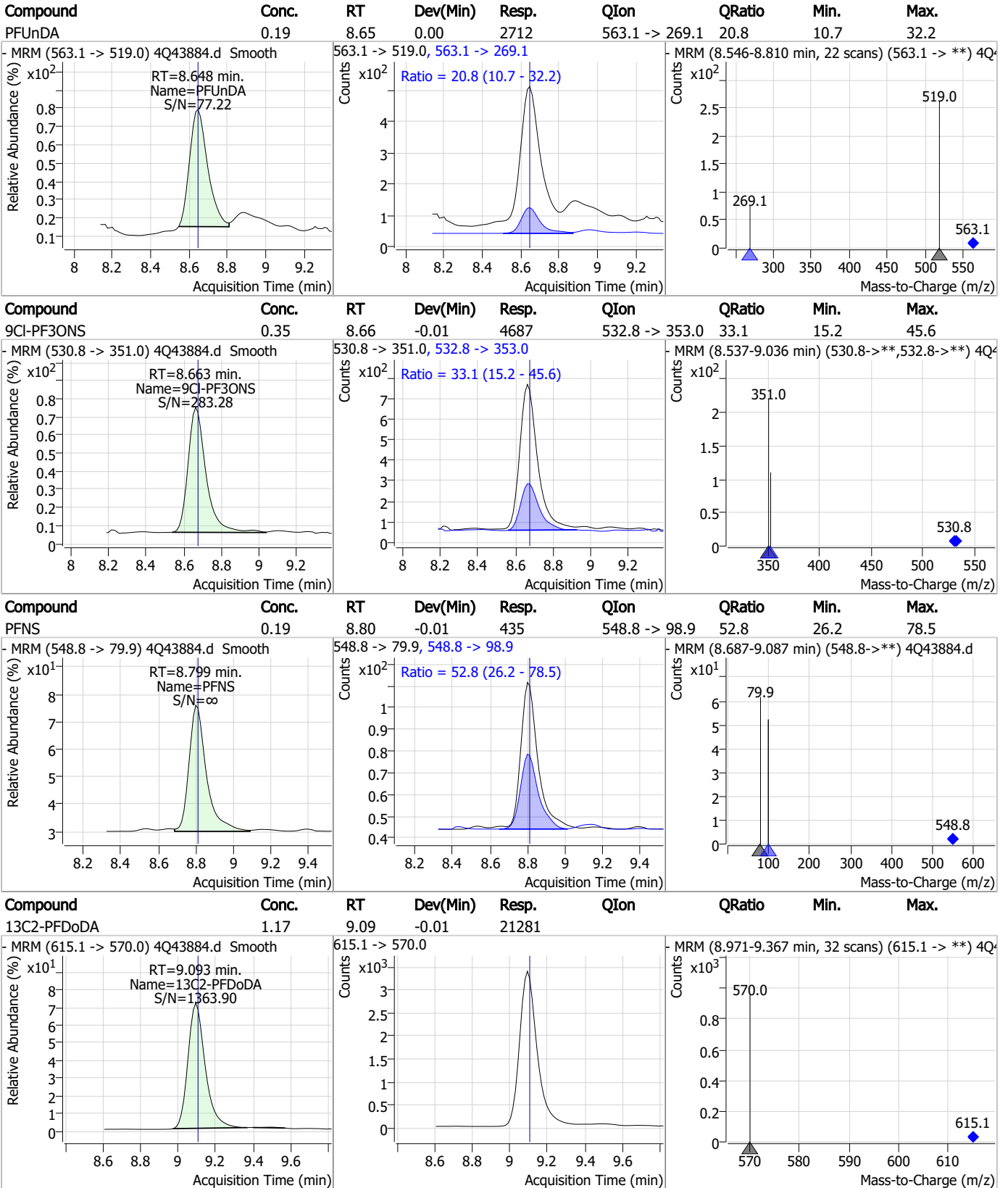
Perfluorinated Compounds by LC/MS/MS



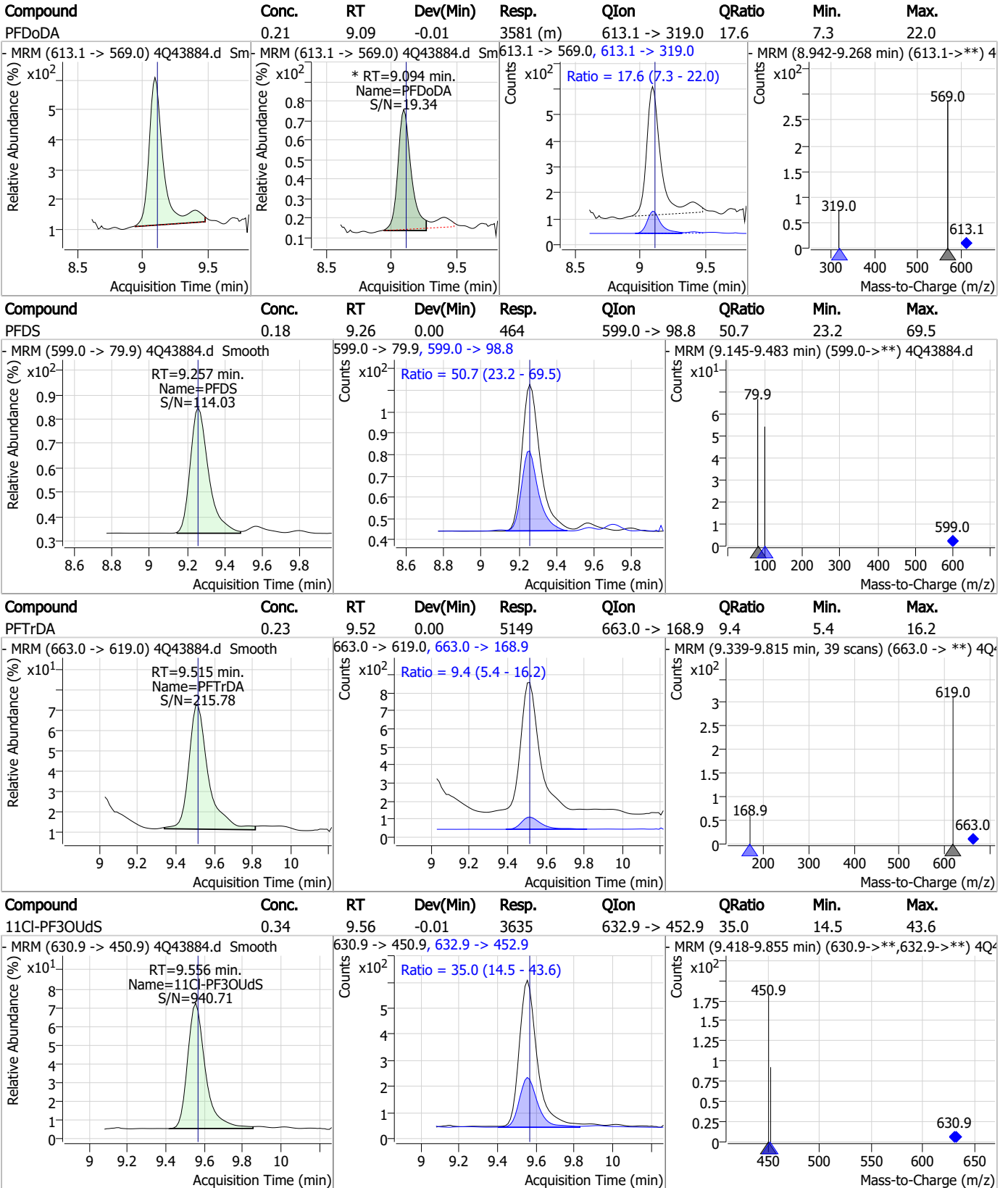
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



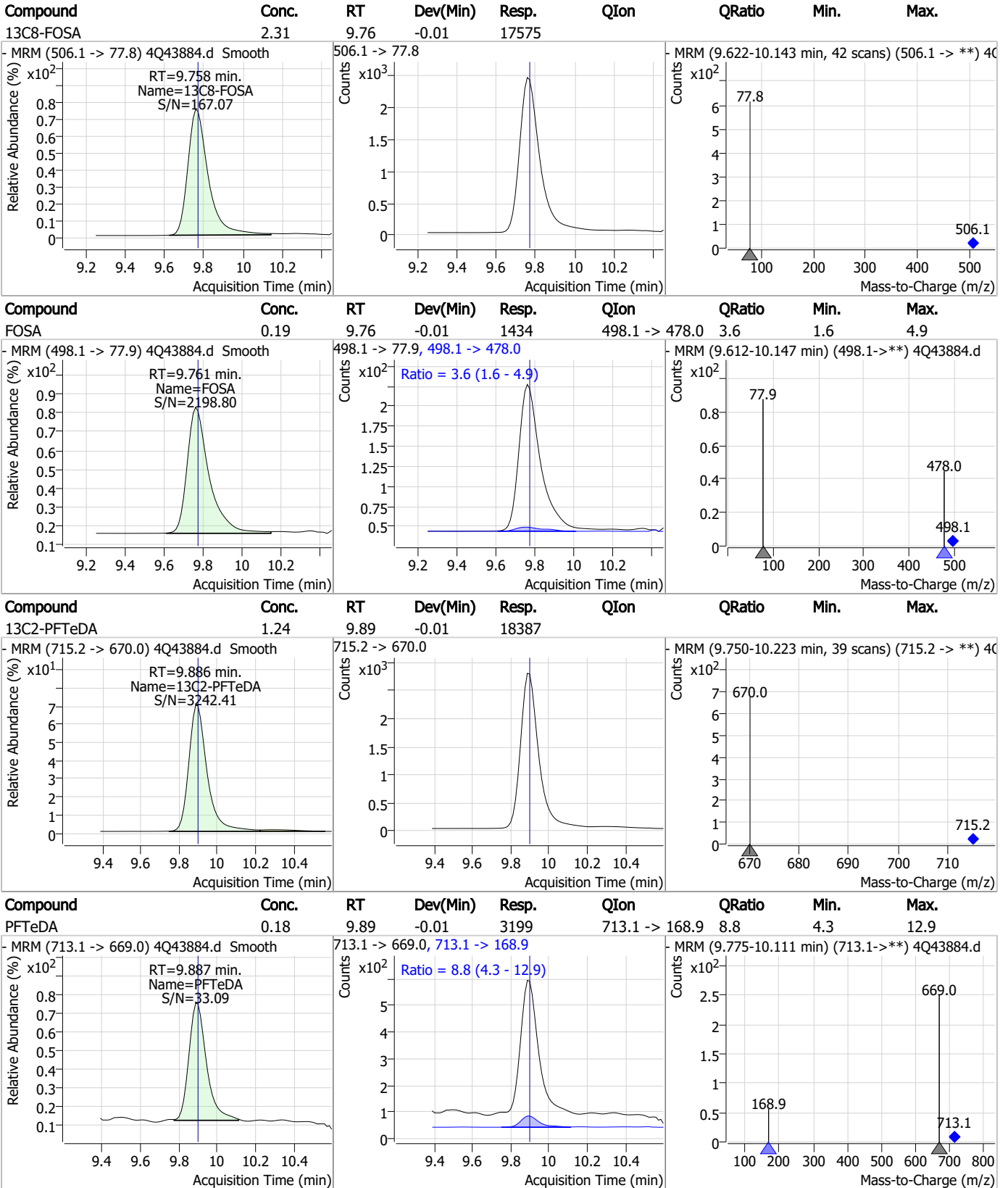
Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Perfluorinated Compounds by LC/MS/MS

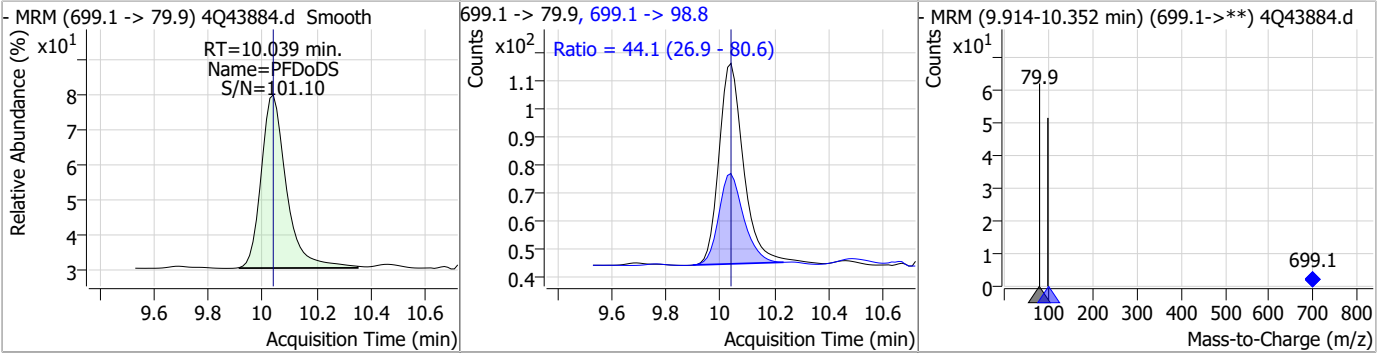


7.7.2

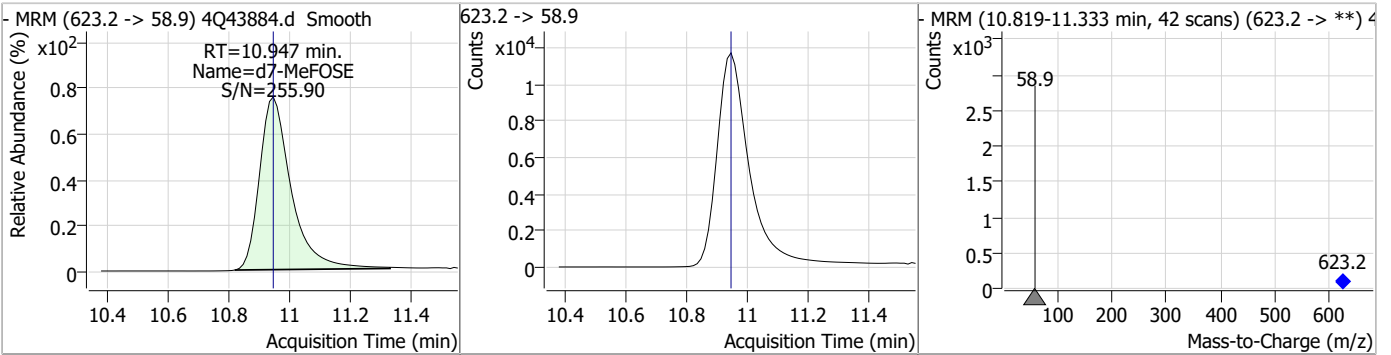
7

Perfluorinated Compounds by LC/MS/MS

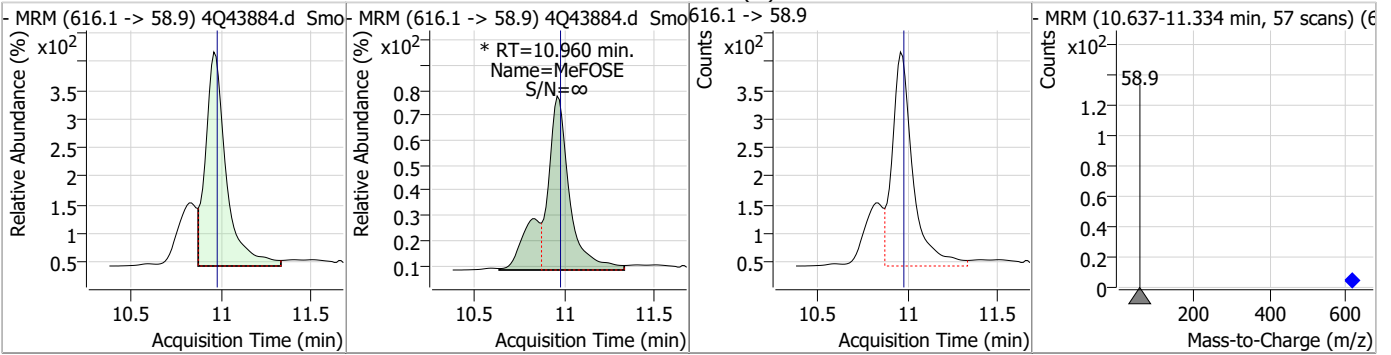
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	0.20	10.04	0.00	469	699.1 -> 98.8	44.1	26.9	80.6



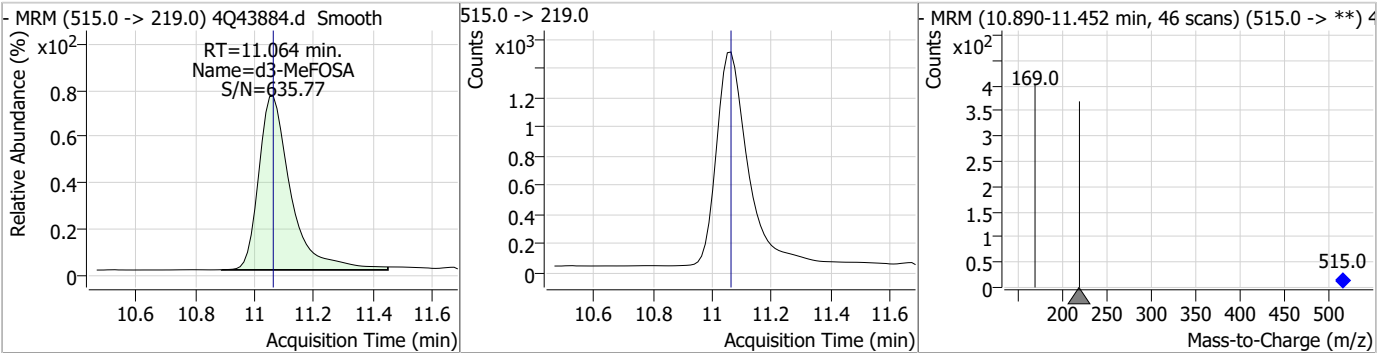
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.31	10.95	0.00	84284				



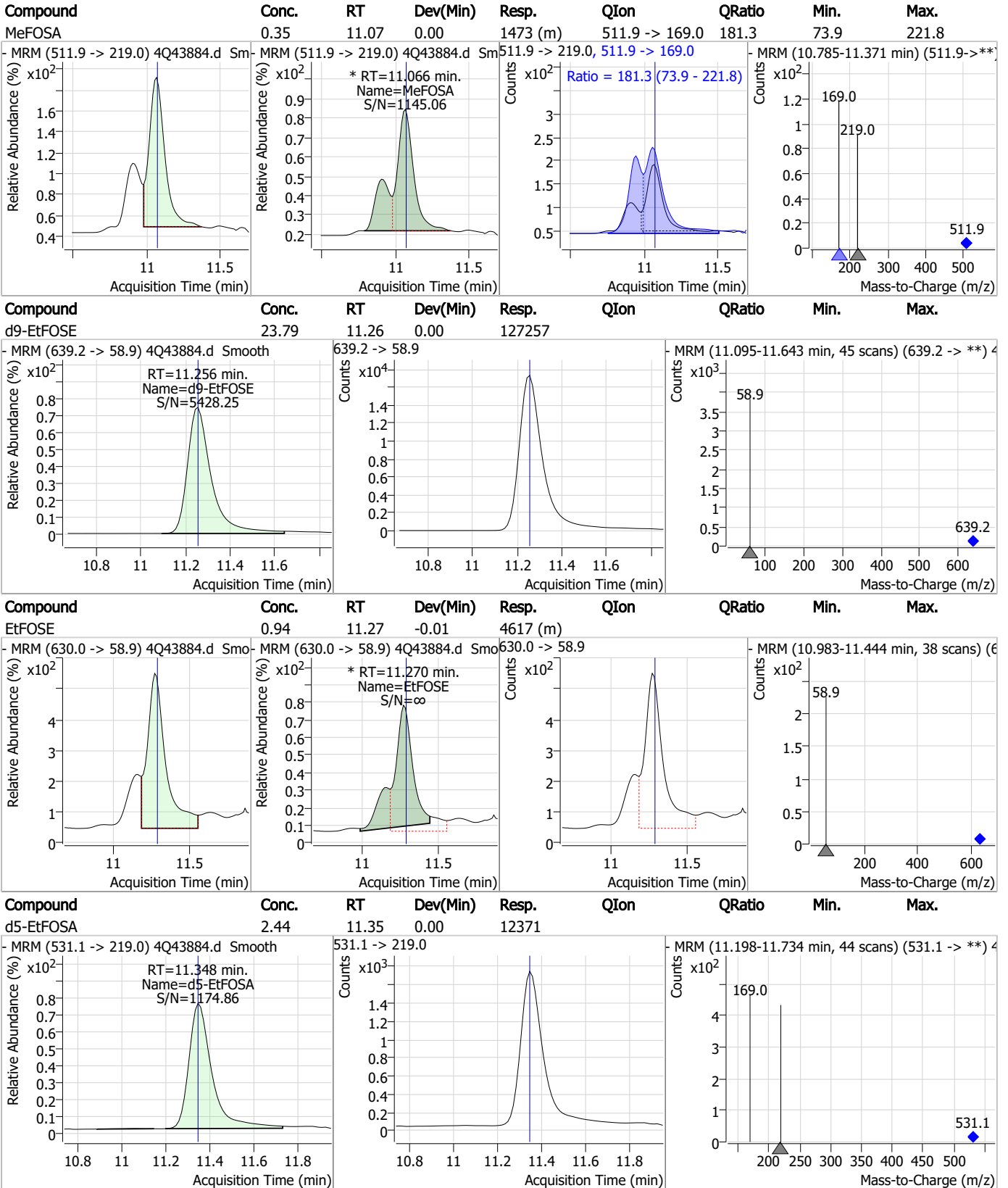
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	1.09	10.96	-0.01	3786 (m)				



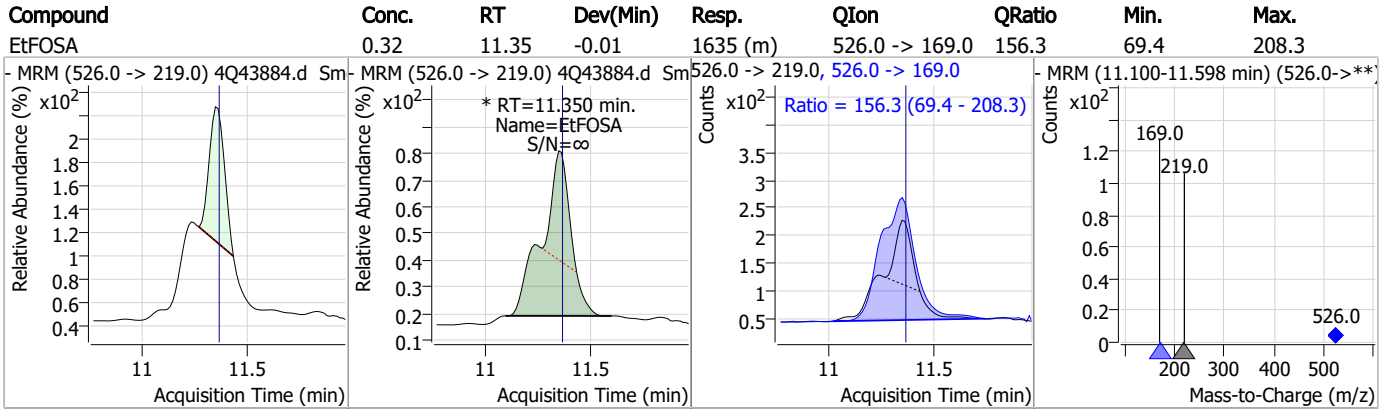
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	11.06	0.00	11108				



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.2

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 **Method:** EPA DRAFT 1633
Lab FileID: 4Q43884.D **Analyst approved:** 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 11:12 **Supervisor approved:** 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluoroheptanoic acid	375-85-9		6.46	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.30	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
Perfluorododecanoic acid	307-55-1		9.09	Poor instrument integration
MeFOSE	24448-09-7		10.96	Split peak
MeFOSA	31506-32-8		11.07	Split peak
EtFOSE	1691-99-2		11.27	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.7.2.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43885.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 11:26:14 AM
 Sample Name : ic634-2
 Vial : P1-A3
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	137179	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	72419	5.00 µg/L	0.000
M5-PFHxA	5.522	318.0 -> 273.0	52123	2.50 µg/L	-0.012
M4-PFHpA	6.455	367.1 -> 322.0	29993	2.50 µg/L	-0.012
M8-PFOA	7.124	421.1 -> 376.0	46706	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	22151	1.25 µg/L	0.000
M6-PFDA	8.166	519.1 -> 474.1	20112	1.25 µg/L	-0.012
M7-PFUnDA	8.647	570.0 -> 525.1	20563	1.25 µg/L	0.000
M2-PFDoDA	9.093	615.1 -> 570.0	22014	1.25 µg/L	-0.012
M2-PFTeDA	9.899	715.2 -> 670.0	18668	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	18230	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12687	2.50 µg/L	0.000
M3-PFHxS	7.217	402.1 -> 79.9	8282	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	11826	2.50 µg/L	-0.013
M2-4:2FTS	5.209	329.1 -> 80.9	1103	5.00 µg/L	-0.014
M2-6:2FTS	6.898	429.1 -> 80.9	2015	5.00 µg/L	0.000
M2-8:2FTS	7.953	529.1 -> 80.9	3205	5.00 µg/L	-0.012
M3-MeFOSAA	8.236	573.2 -> 419.0	14463	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30118	10.00 µg/L	0.000
M5-EtFOSAA	8.433	589.2 -> 419.0	11942	5.00 µg/L	-0.012
M7-MeFOSE	10.947	623.2 -> 58.9	94353	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	137343	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12459	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11960	2.50 µg/L	0.000
13C4-PFOS	8.317	502.8 -> 79.9	11988	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	72783	5.00 µg/L	-0.013
18O2-PFHxS	7.216	403.0 -> 83.9	5458	2.50 µg/L	-0.012
13C4-PFOA	7.124	417.1 -> 372.0	55739	2.50 µg/L	0.000
13C2-PFDA	8.166	515.1 -> 470.1	19514	1.25 µg/L	-0.012
13C5-PFNA	7.671	468.0 -> 423.0	25301	1.25 µg/L	-0.013
13C2-PFHxA	5.523	315.1 -> 270.0	47423	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.209	329.1 -> 80.9	1103	4.97 µg/L	-0.014
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2015	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3205	5.13 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
13C2-PFDoDA	9.093	615.1 -> 570.0	22014	1.16 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 93.1%		
13C2-PFTeDA	9.899	715.2 -> 670.0	18668	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C3-PFBS	5.427	302.1 -> 79.9	12687	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFHxS	7.217	402.1 -> 79.9	8282	2.45 µg/L	-0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C4-PFBA	2.924	216.8 -> 171.9	137179	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.455	367.1 -> 322.0	29993	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C5-PFHxA	5.522	318.0 -> 273.0	52123	2.50 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.362	268.3 -> 223.0	72419	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C6-PFDA	8.166	519.1 -> 474.1	20112	1.20 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C7-PFUnDA	8.647	570.0 -> 525.1	20563	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-FOSA	9.771	506.1 -> 77.8	18230	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-PFOA	7.124	421.1 -> 376.0	46706	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C8-PFOS	8.316	507.1 -> 79.9	11826	2.62 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C9-PFNA	7.670	472.1 -> 427.0	22151	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.0%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14463	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	30118	9.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
d3-MeFOSA	11.064	515.0 -> 219.0	11960	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
d5-EtFOSAA	8.433	589.2 -> 419.0	11942	4.79 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.9%	
d7-MeFOSE	10.947	623.2 -> 58.9	94353	25.30 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.2%	
d9-EtFOSE	11.256	639.2 -> 58.9	137343	26.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	11.348	531.1 -> 219.0	12459	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	2662	1.50 µg/L	99
		327.1 -> 80.9	1226		
6:2FTS	6.886	427.1 -> 407.0	2993	1.54 µg/L	98
		427.1 -> 80.9	1289		
8:2FTS	7.966	527.1 -> 507.0	2323	1.30 µg/L	94
		527.1 -> 80.8	1062		
EtFOSAA	8.446	584.2 -> 419.1	911	0.40 µg/L	m 95
		584.2 -> 526.0	435		
FOSA	9.761	498.1 -> 77.9	3015	0.39 µg/L	95
		498.1 -> 478.0	54		
MeFOSAA	8.237	570.1 -> 419.0	963	0.38 µg/L	m 91
		570.1 -> 483.0	272		
PFBA	2.920	212.8 -> 168.9	5570	1.52 µg/L	100
PFBS	5.428	298.7 -> 79.9	1783	0.34 µg/L	97
		298.7 -> 98.8	691		
PFDA	8.166	512.9 -> 469.0	5587	0.37 µg/L	m 97
		512.9 -> 219.0	1133		
PFDODA	9.094	613.1 -> 569.0	6564	0.37 µg/L	96
		613.1 -> 319.0	1053		
PFDS	9.257	599.0 -> 79.9	1121	0.38 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	519			
PFHpA	6.455	363.1 -> 319.0	7251	0.38	µg/L	97
		363.1 -> 169.0	1400			
PFHpS	7.797	449.0 -> 79.9	1402	0.33	µg/L	87
		449.0 -> 98.9	877			
PFHxA	5.525	313.0 -> 269.0	7573	0.37	µg/L	98
		313.0 -> 118.9	281			
PFHxS	7.218	398.7 -> 79.9	1152	0.34	µg/L	m 95
		398.7 -> 98.9	535			
PFNA	7.671	463.0 -> 419.0	6420	0.39	µg/L	99
		463.0 -> 219.0	1559			
PFNS	8.811	548.8 -> 79.9	929	0.36	µg/L	97
		548.8 -> 98.9	504			
PFOA	7.125	413.0 -> 369.0	10173	0.38	µg/L	94
		413.0 -> 169.0	2260			
PFOS	8.318	498.9 -> 79.9	1796	0.31	µg/L	m 87
		498.9 -> 98.8	1033			
PFPeA	4.364	263.0 -> 219.0	13543	0.78	µg/L	100
PFPeS	6.494	349.1 -> 79.9	1143	0.39	µg/L	96
		349.1 -> 98.9	500			
PFTeDA	9.900	713.1 -> 669.0	7026	0.38	µg/L	99
		713.1 -> 168.9	586			
PFTrDA	9.515	663.0 -> 619.0	8586	0.36	µg/L	99
		663.0 -> 168.9	911			
PFUnDA	8.648	563.1 -> 519.0	4936	0.35	µg/L	96
		563.1 -> 269.1	1166			
11CI-PF3OUdS	9.556	630.9 -> 450.9	7934	0.73	µg/L	97
		632.9 -> 452.9	2438			
9CI-PF3ONS	8.675	530.8 -> 351.0	10198	0.74	µg/L	97
		532.8 -> 353.0	2949			
ADONA	6.718	376.9 -> 250.9	22650	0.75	µg/L	98
		376.9 -> 84.8	6196			
HFPO-DA	5.891	284.9 -> 168.9	2169	0.75	µg/L	93
		284.9 -> 184.9	307			
3:3FTCA	3.836	241.0 -> 177.0	1496	1.95	µg/L	99
		241.0 -> 117.0	124			
5:3FTCA	6.193	341.0 -> 237.1	25482	9.20	µg/L	100
		341.0 -> 217.0	17465			
7:3FTCA	7.649	441.0 -> 316.9	13175	9.15	µg/L	97
		441.0 -> 336.9	32090			
EtFOSA	11.350	526.0 -> 219.0	4009	0.77	µg/L	m 100
		526.0 -> 169.0	5563			
EtFOSE	11.270	630.0 -> 58.9	10380	1.95	µg/L	100
MeFOSA	11.066	511.9 -> 219.0	3333	0.74	µg/L	m 99
		511.9 -> 169.0	4985			
MeFOSE	10.973	616.1 -> 58.9	7862	2.03	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	881	0.34	µg/L	92
		699.1 -> 98.8	524			
NFDHA	5.403	295.0 -> 201.0	1245	0.85	µg/L	87
		295.0 -> 84.9	256			
PFMBA	4.766	279.0 -> 85.1	7663	0.79	µg/L	100
PFMPA	3.515	229.0 -> 84.9	7085	0.78	µg/L	100
PFEESA	5.959	314.8 -> 134.9	10499	0.68	µg/L	100
		314.8 -> 82.9	377			

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

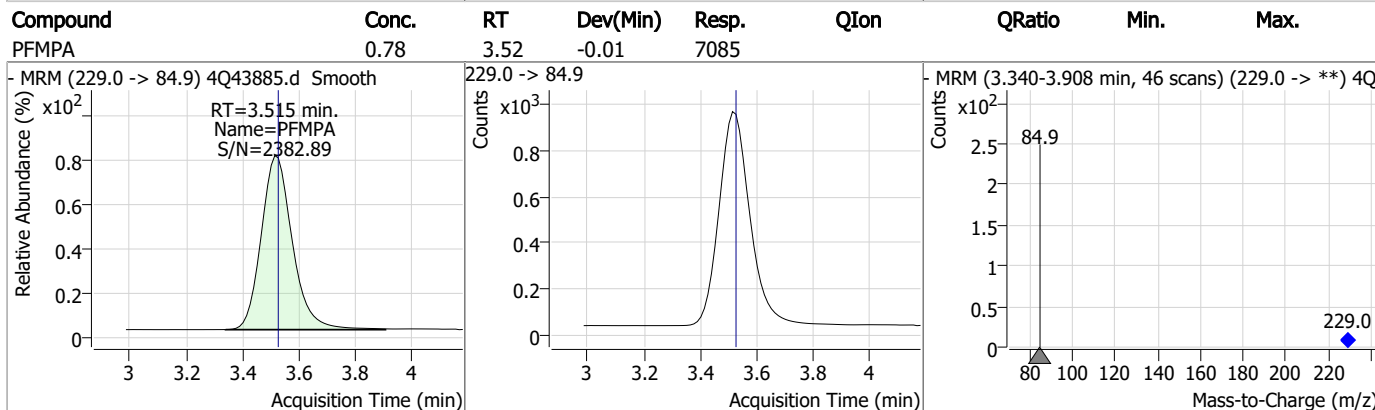
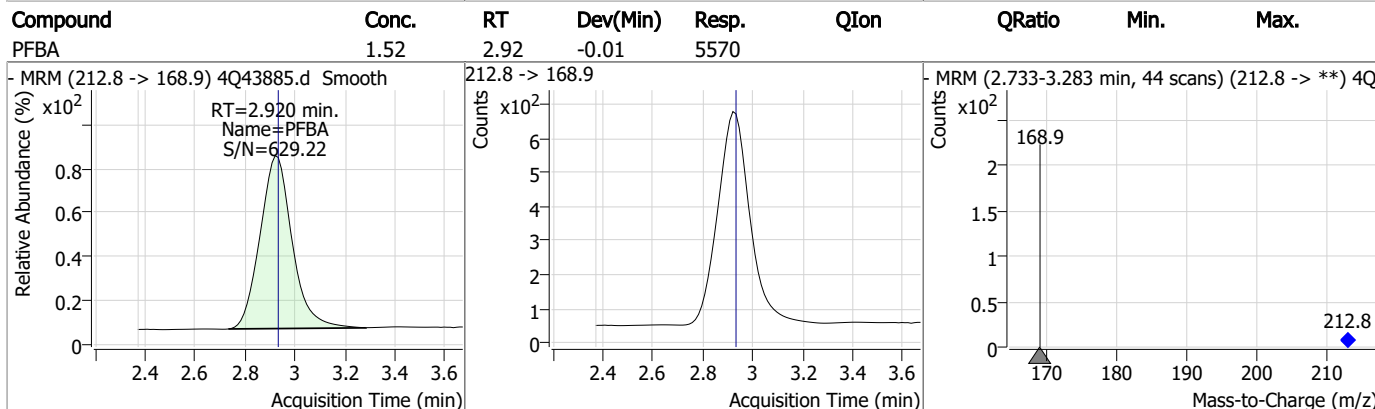
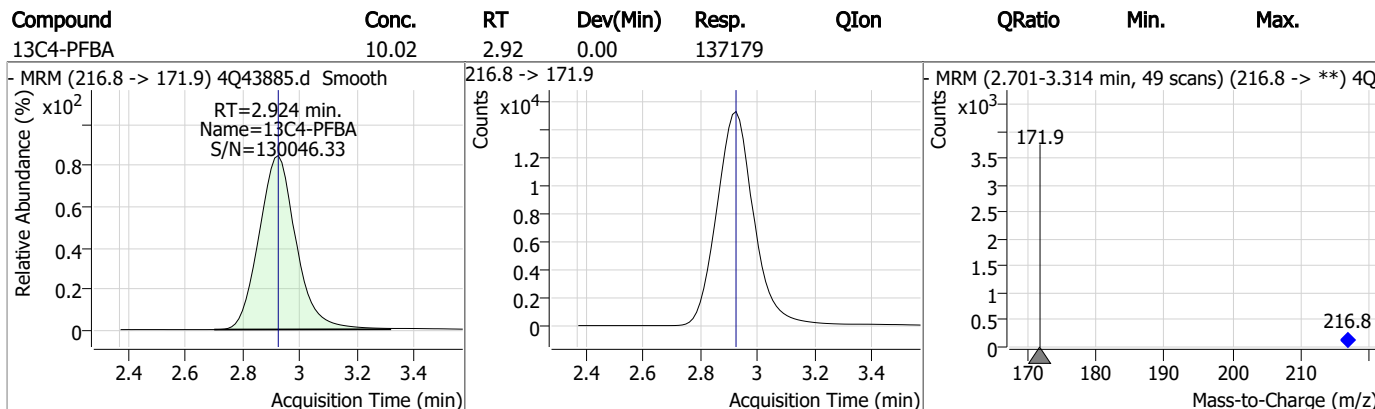
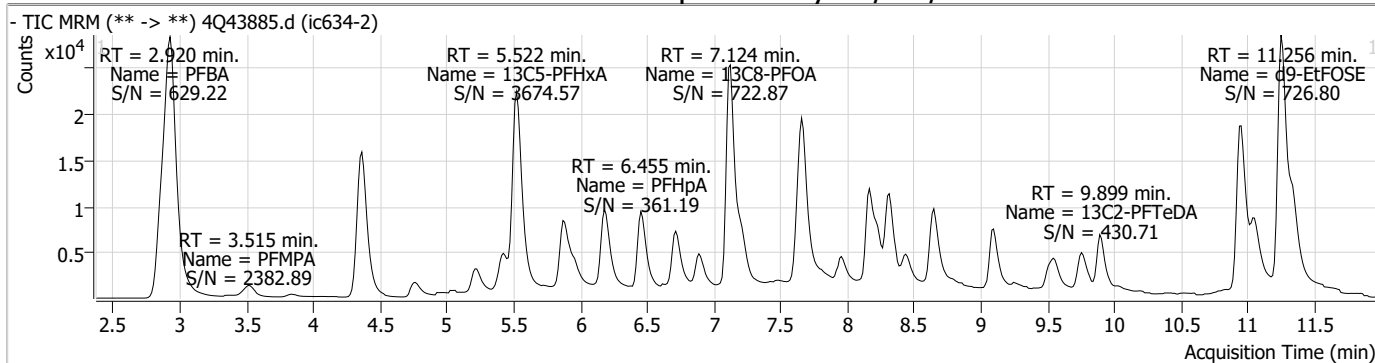
Perfluorinated Compounds by LC/MS/MS

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

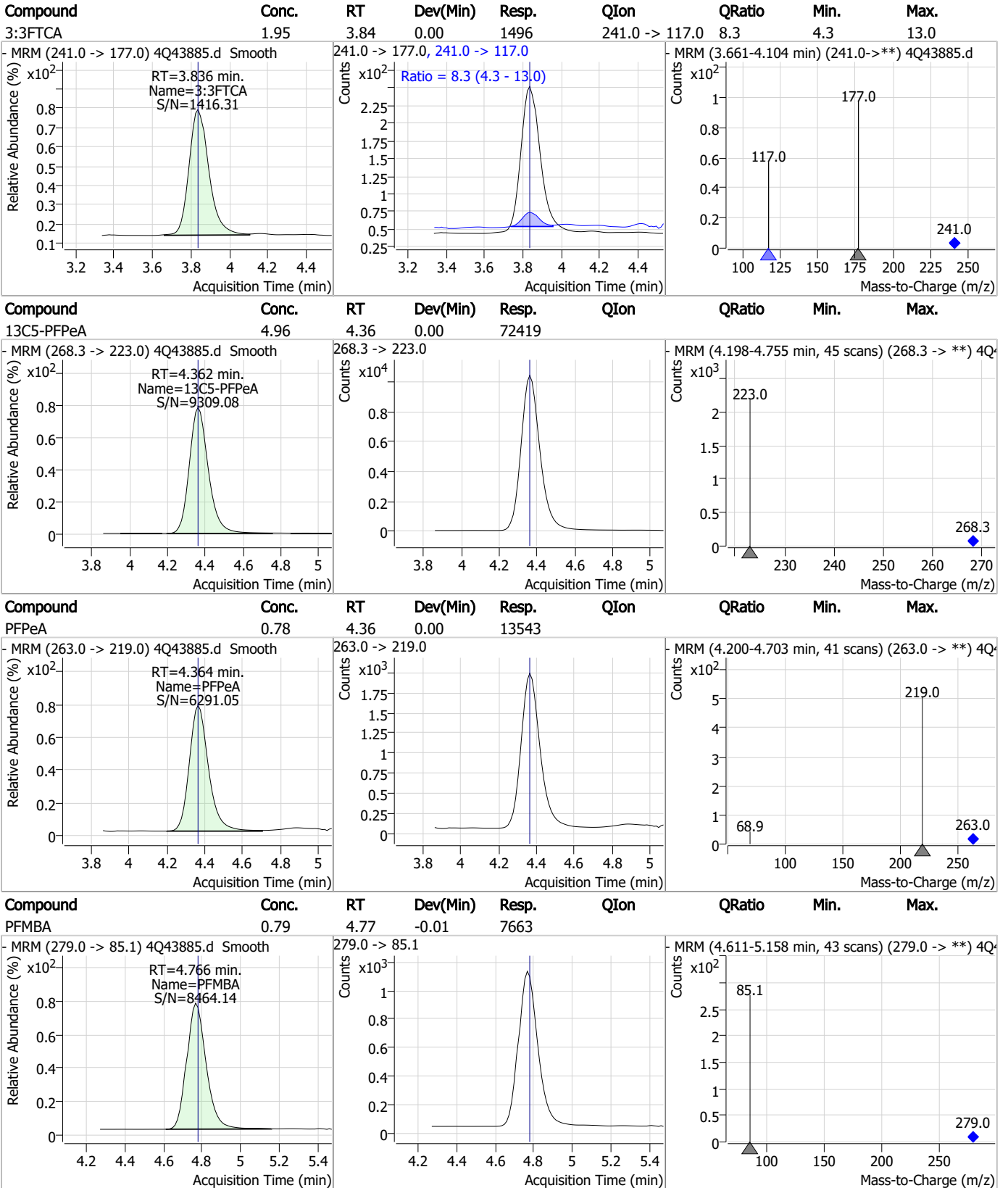
7.7.3

7

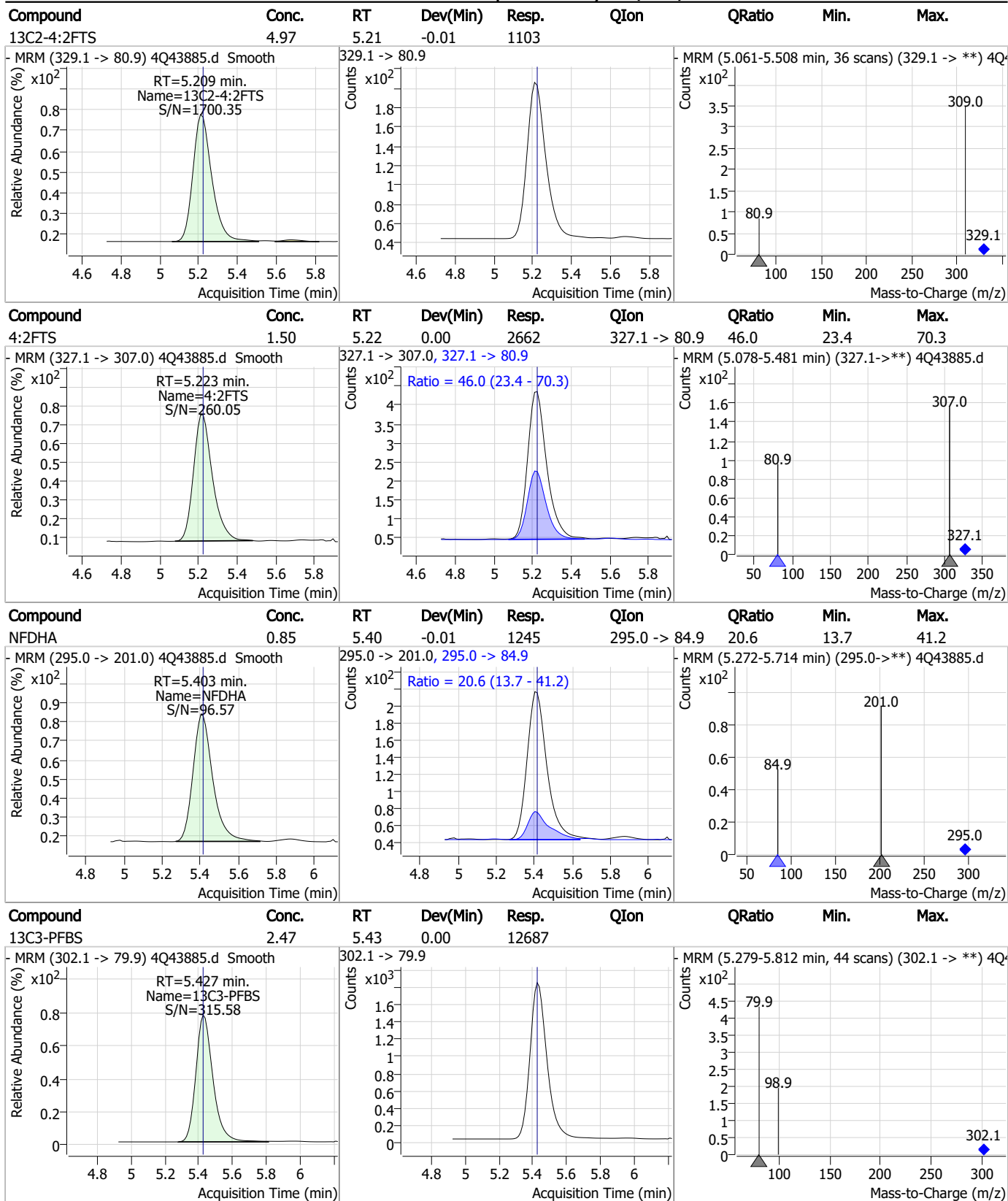
Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

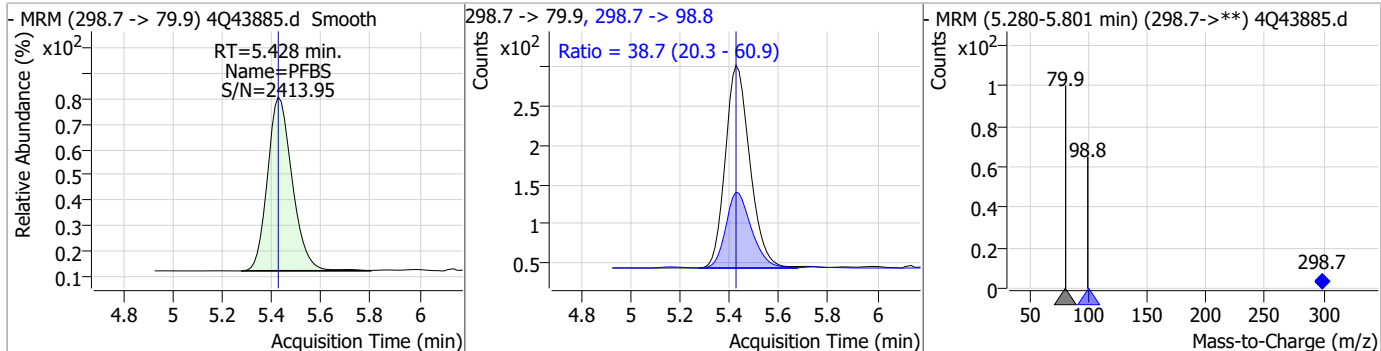


7.7.3

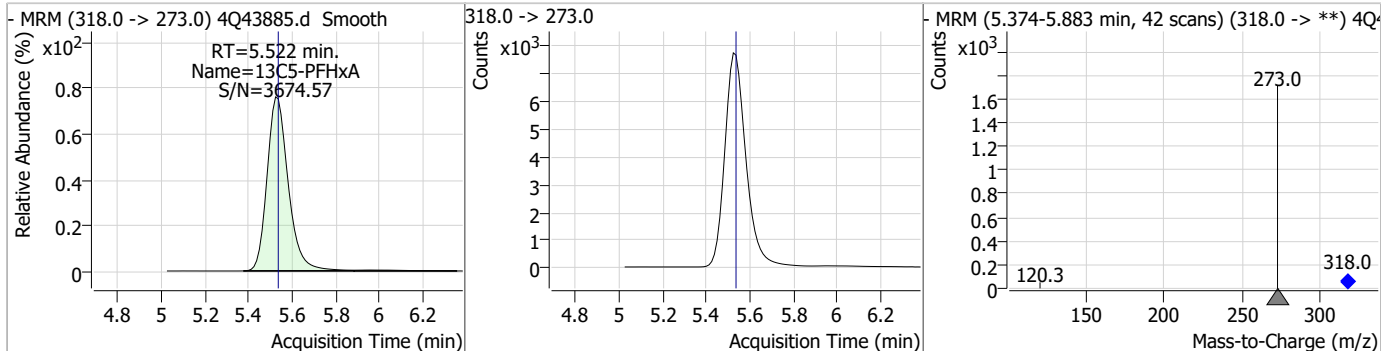
7

Perfluorinated Compounds by LC/MS/MS

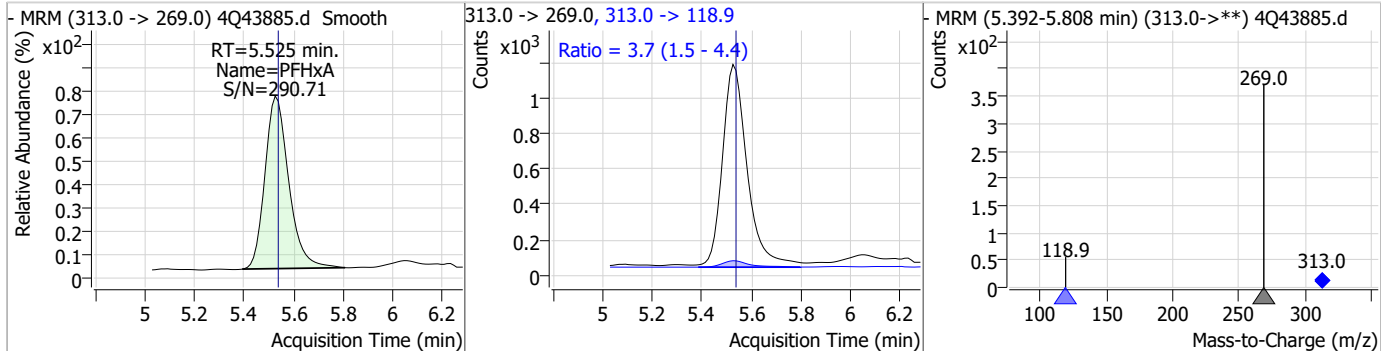
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.34	5.43	0.00	1783	298.7 -> 98.8	38.7	20.3	60.9



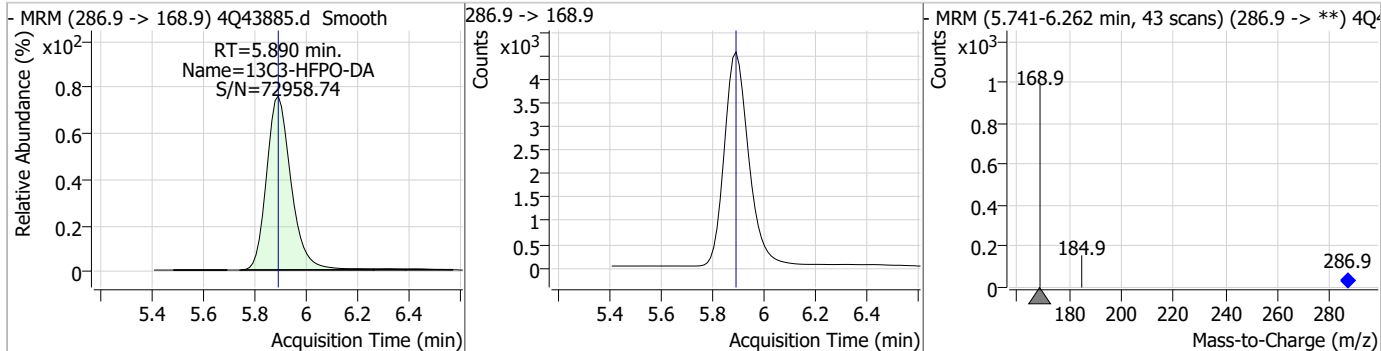
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.50	5.52	-0.01	52123				



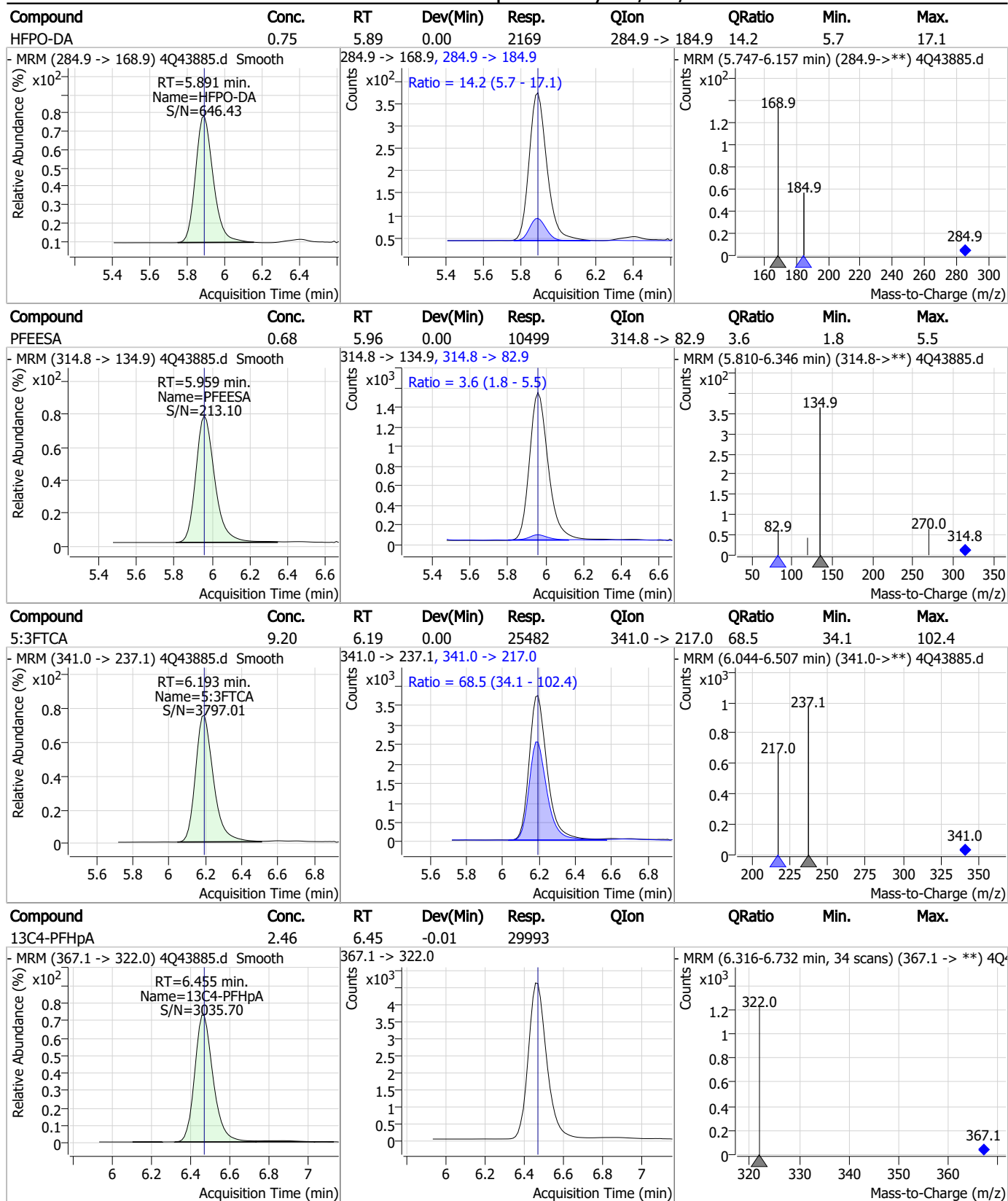
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.37	5.53	-0.01	7573	313.0 -> 118.9	3.7	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.65	5.89	0.00	30118				



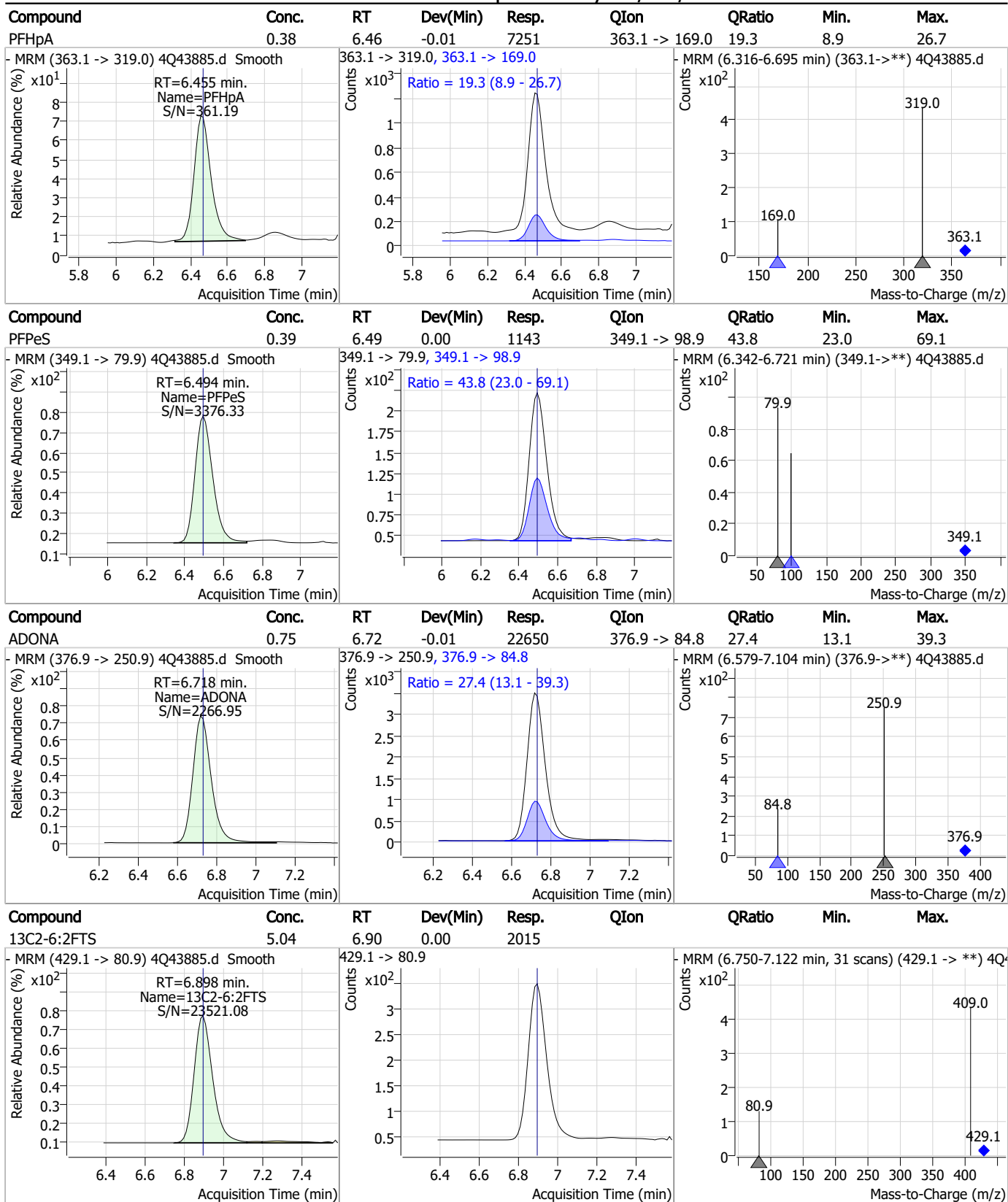
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

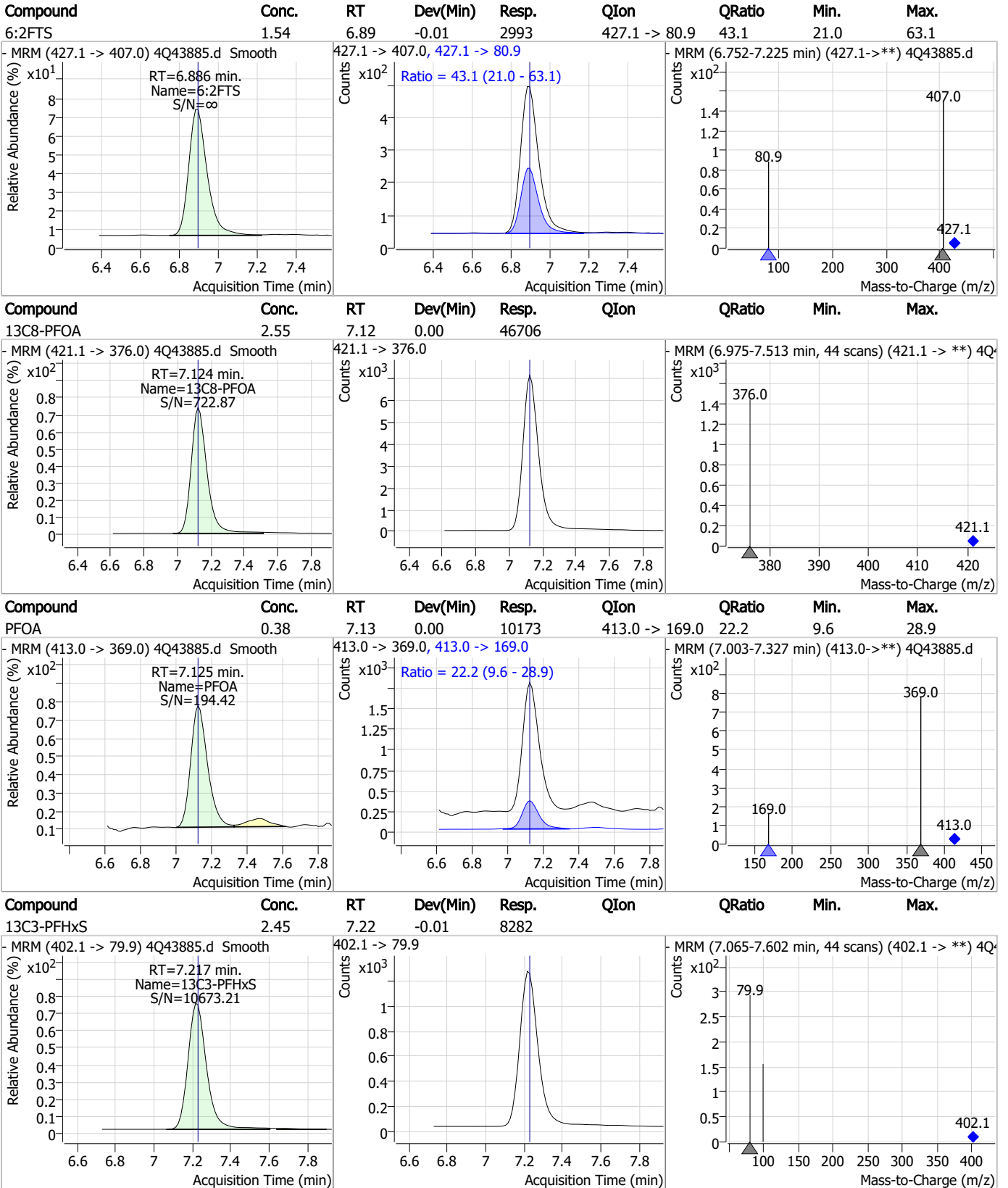
Perfluorinated Compounds by LC/MS/MS



7.7.3
7



Perfluorinated Compounds by LC/MS/MS

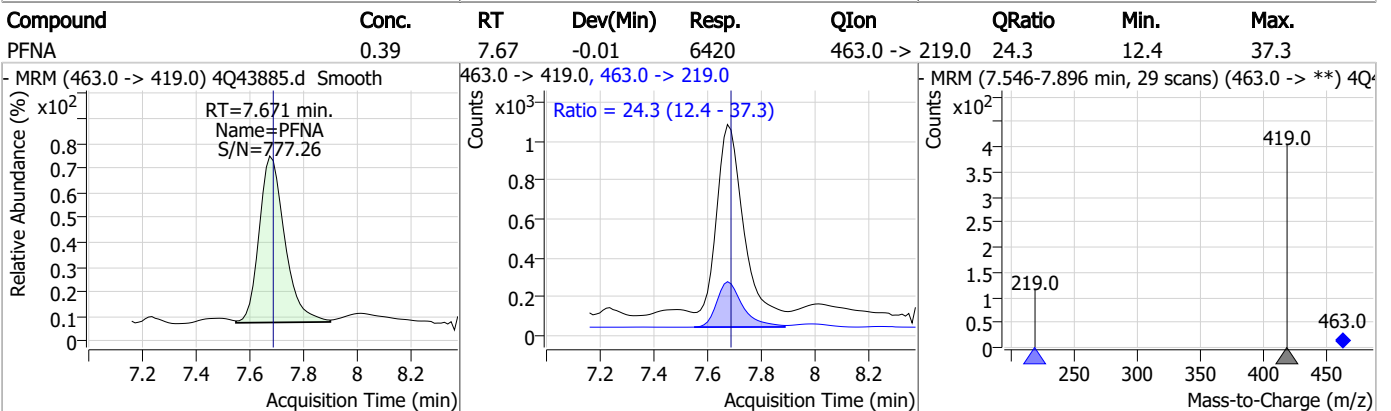
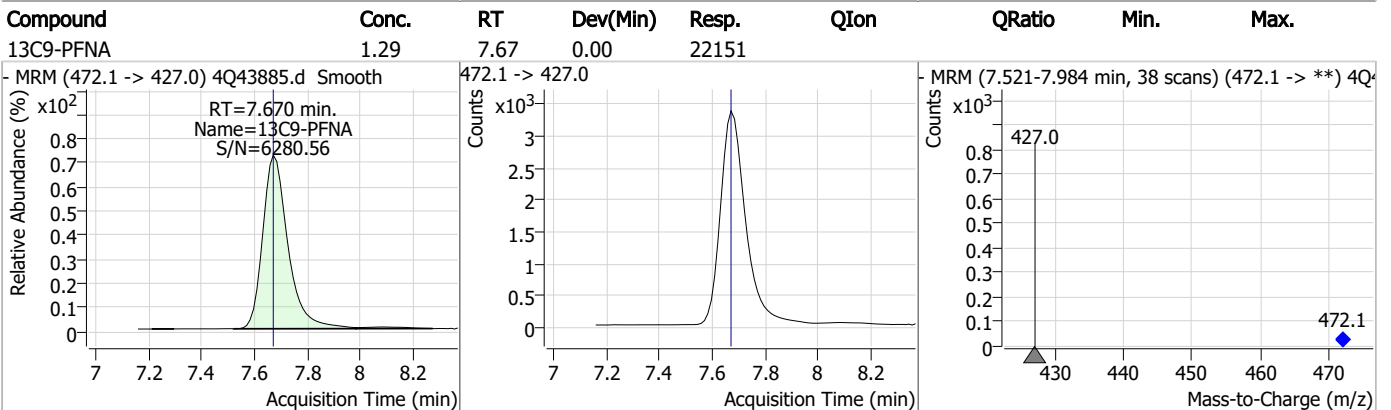
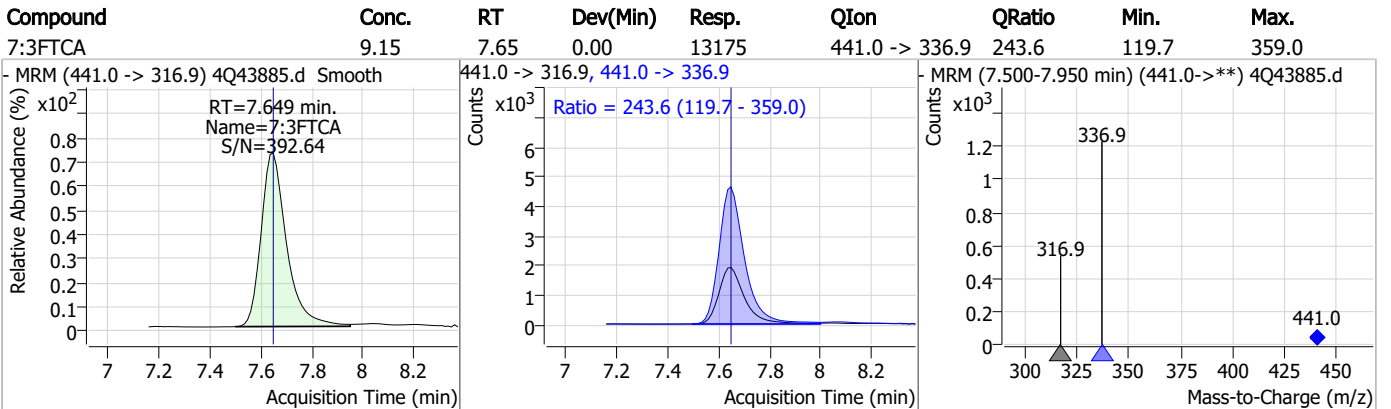
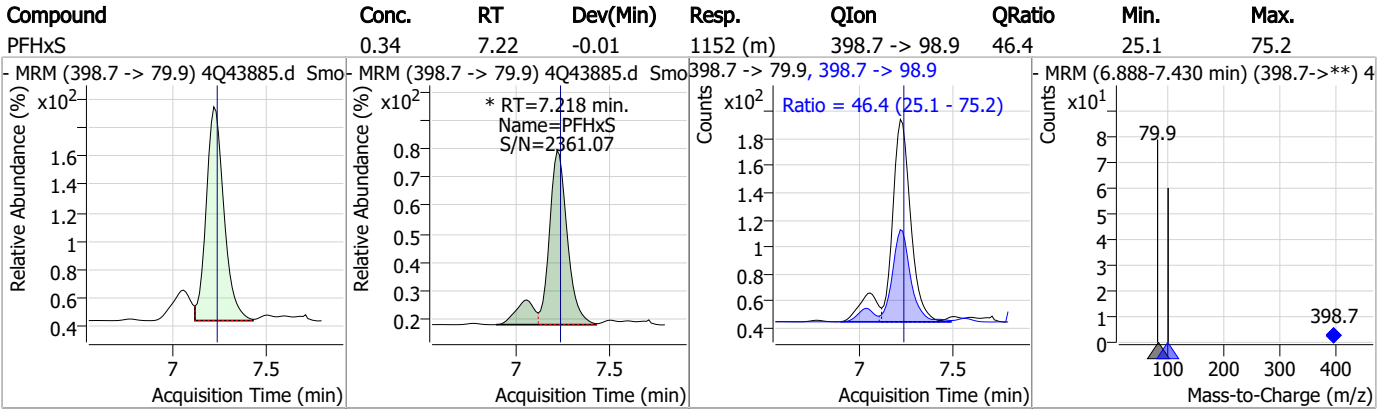


7.7.3

7



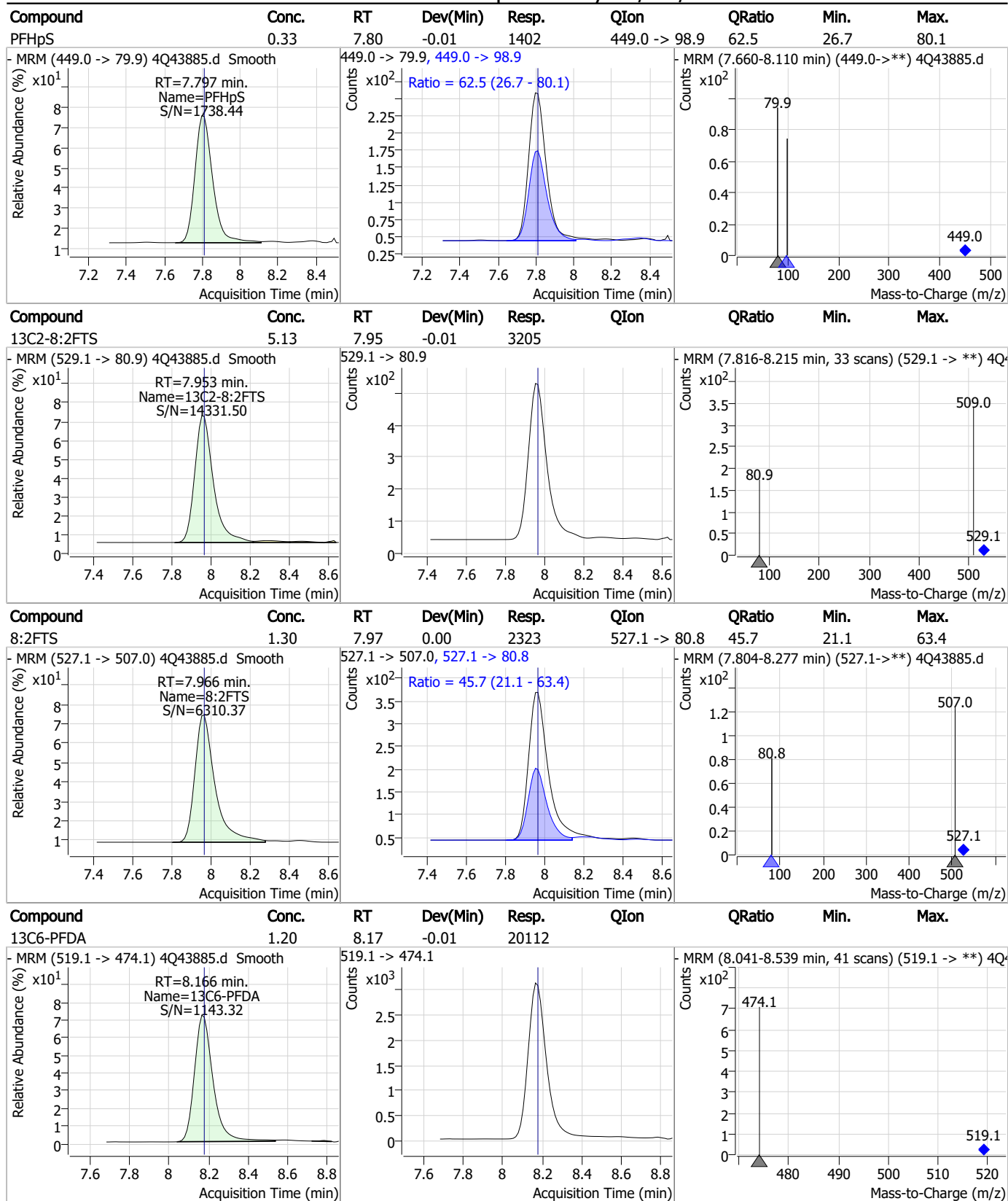
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

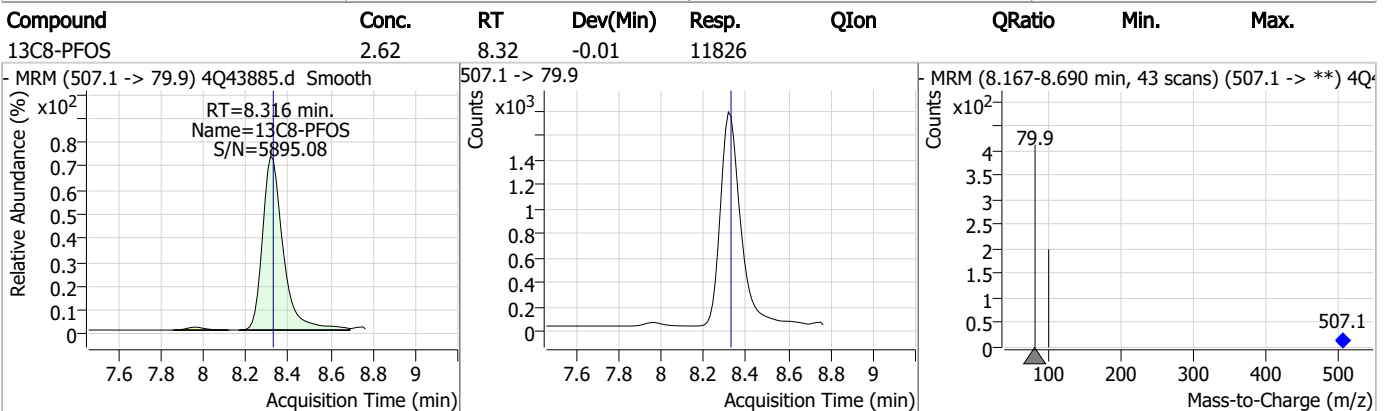
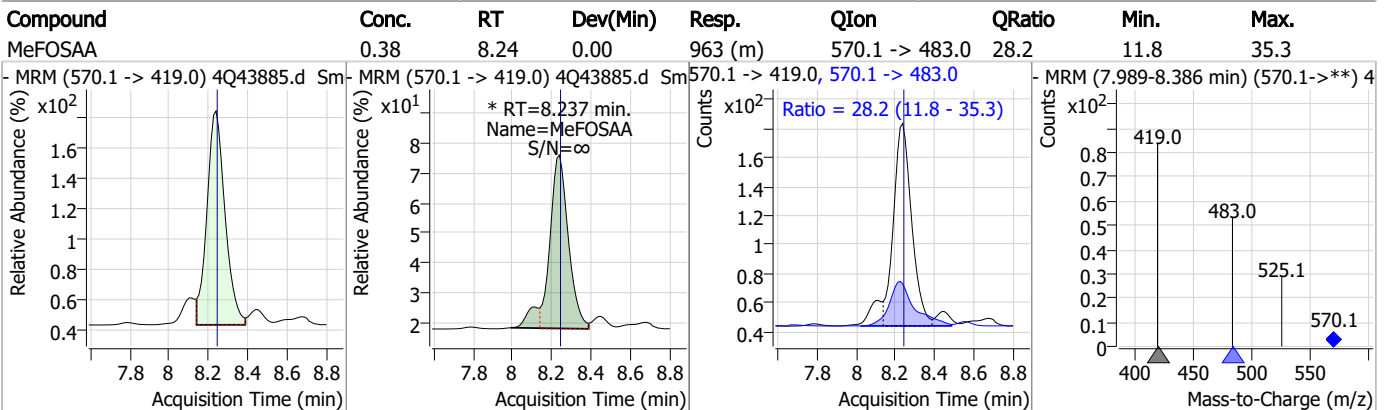
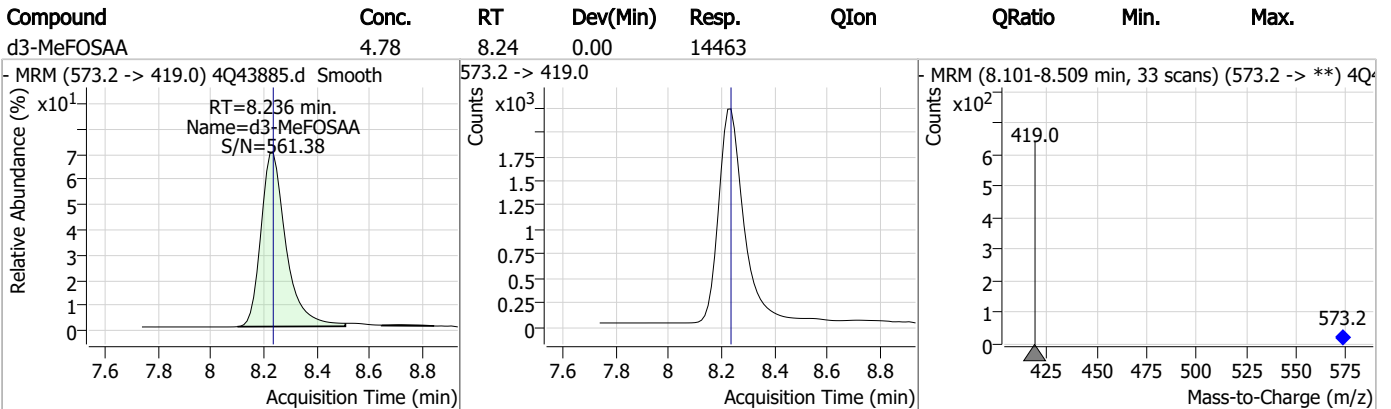
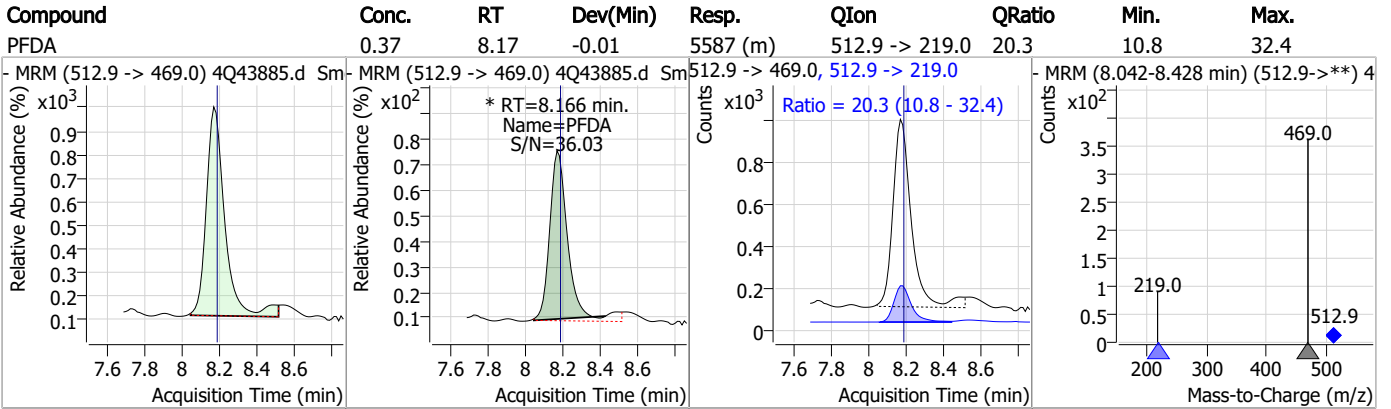
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

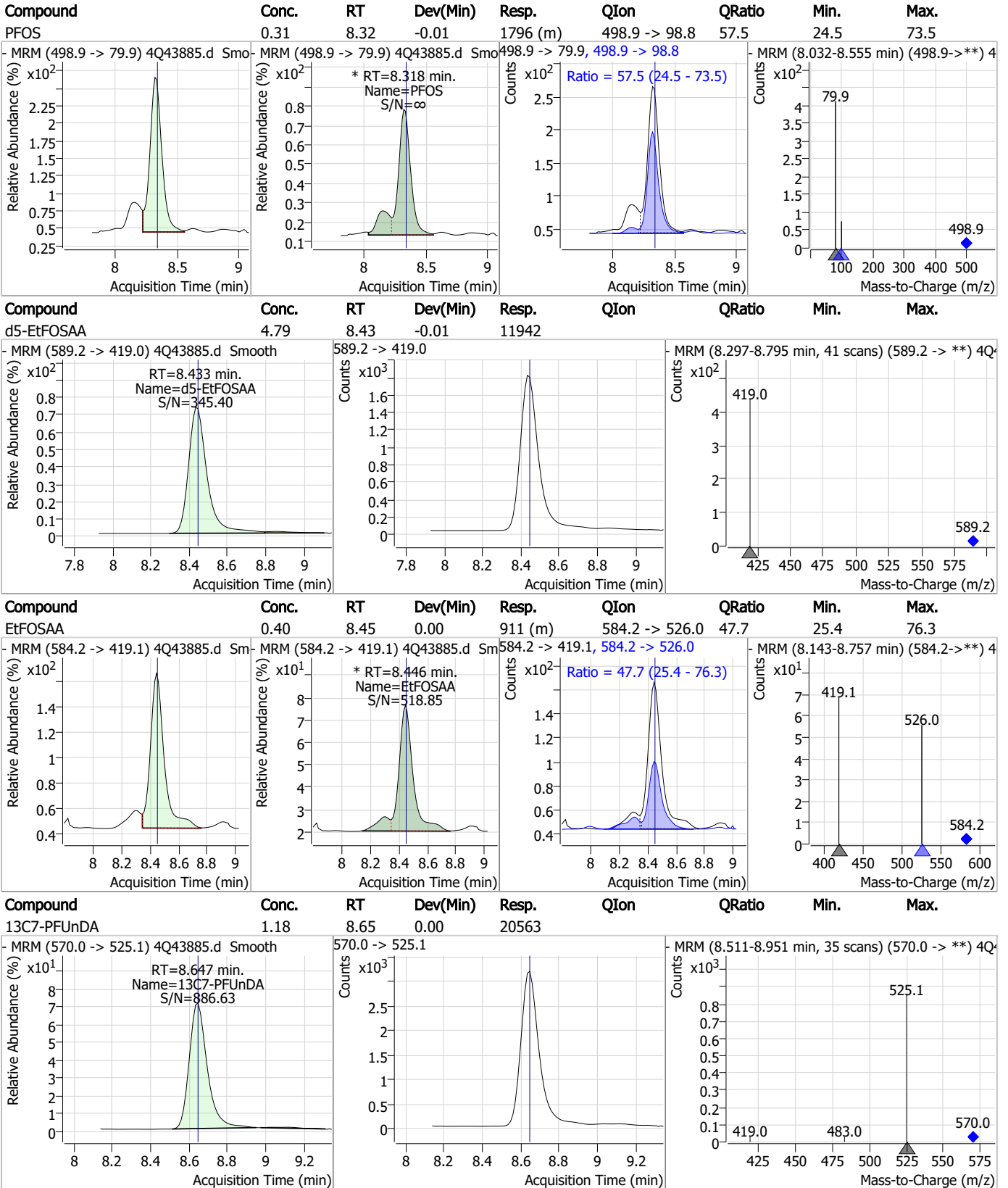
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

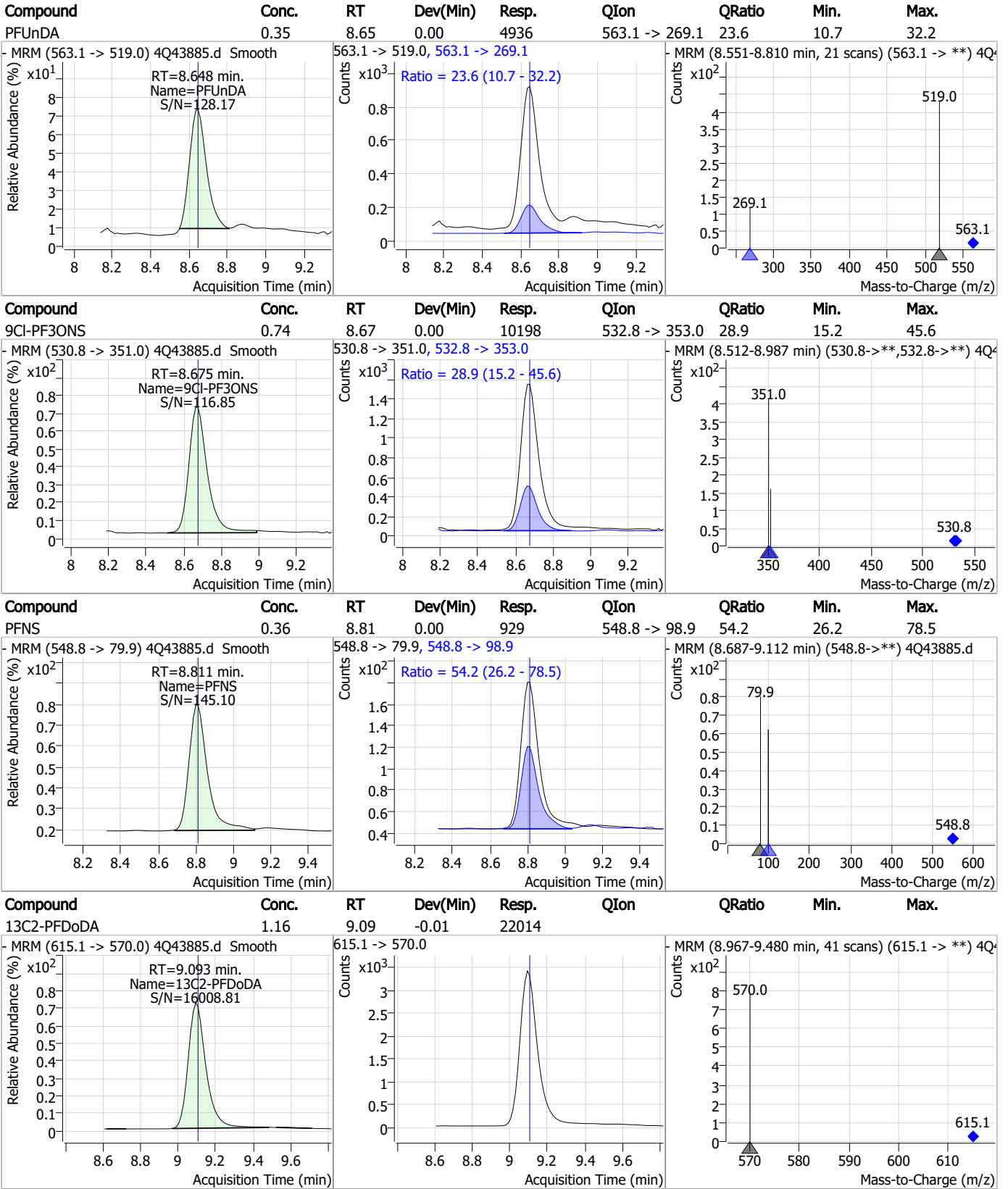
Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Perfluorinated Compounds by LC/MS/MS

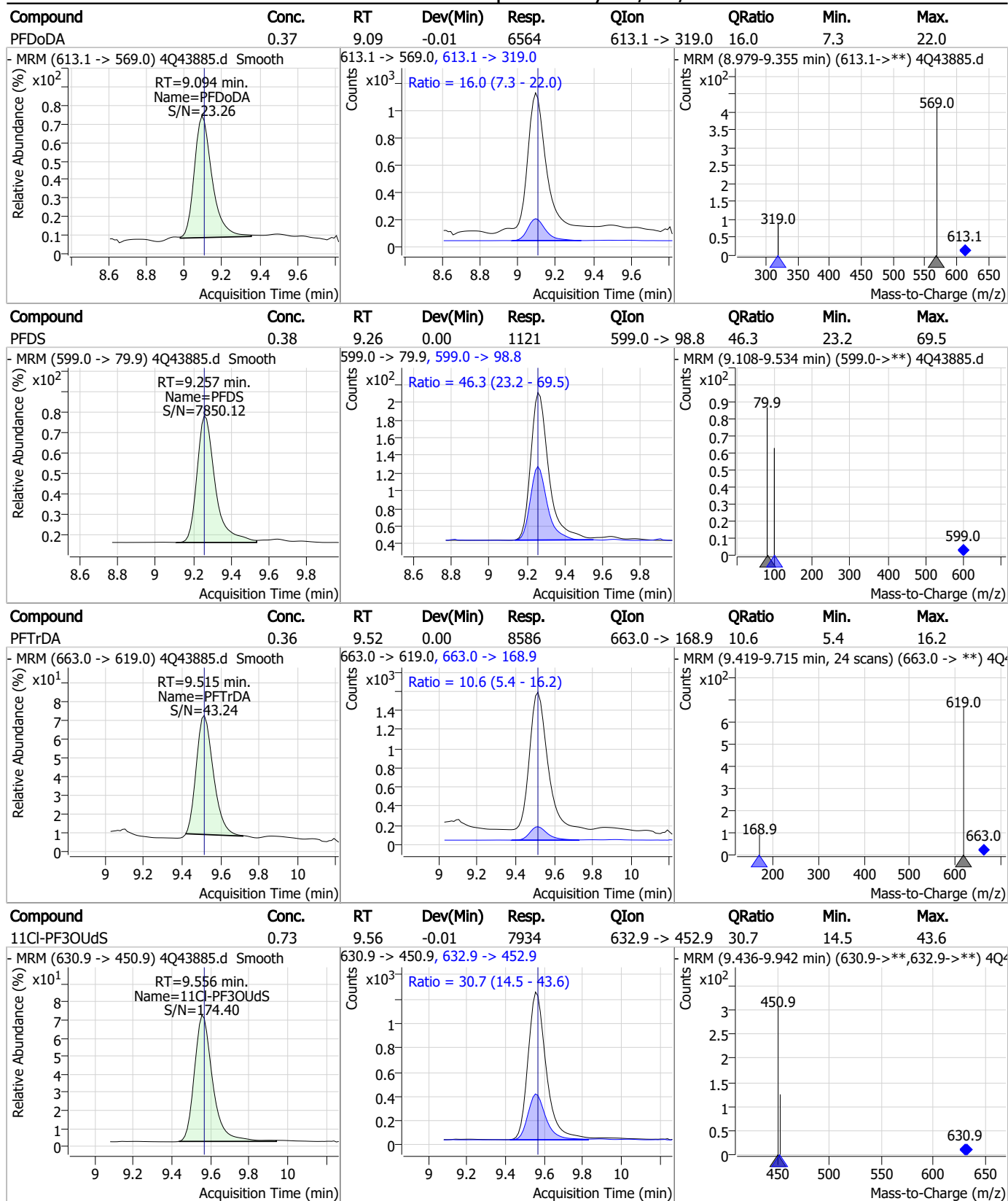


7.7.3

7

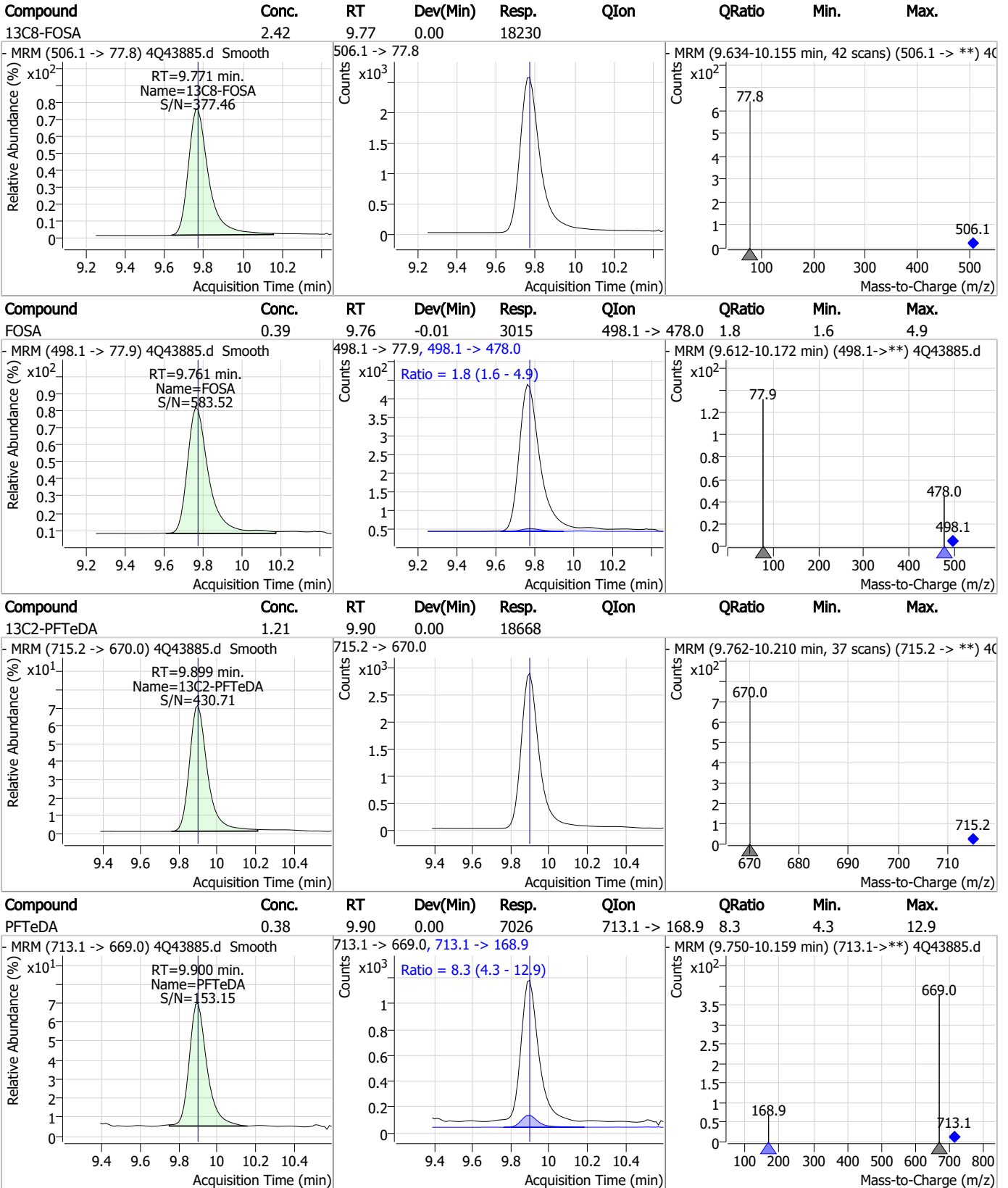


Perfluorinated Compounds by LC/MS/MS



7.7.3
7

Perfluorinated Compounds by LC/MS/MS

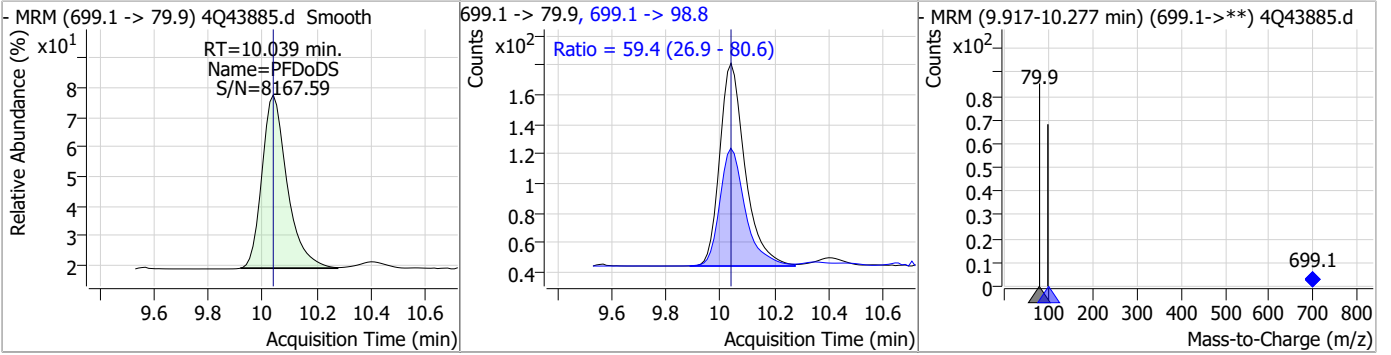


7.7.3

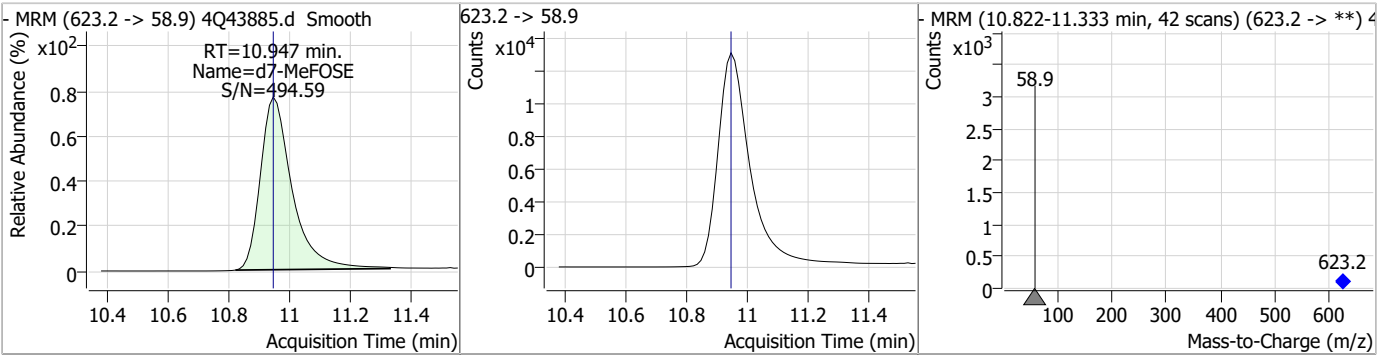
7

Perfluorinated Compounds by LC/MS/MS

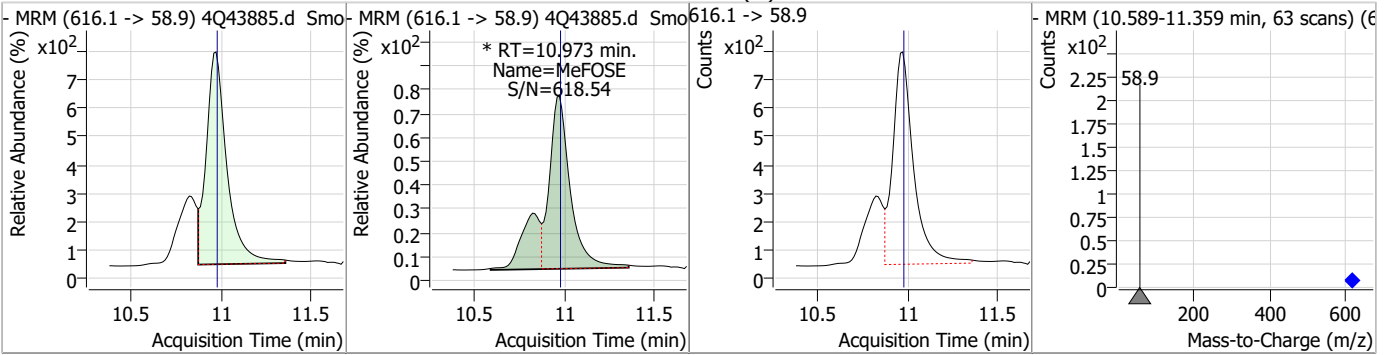
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	0.34	10.04	0.00	881	699.1 -> 98.8	59.4	26.9	80.6



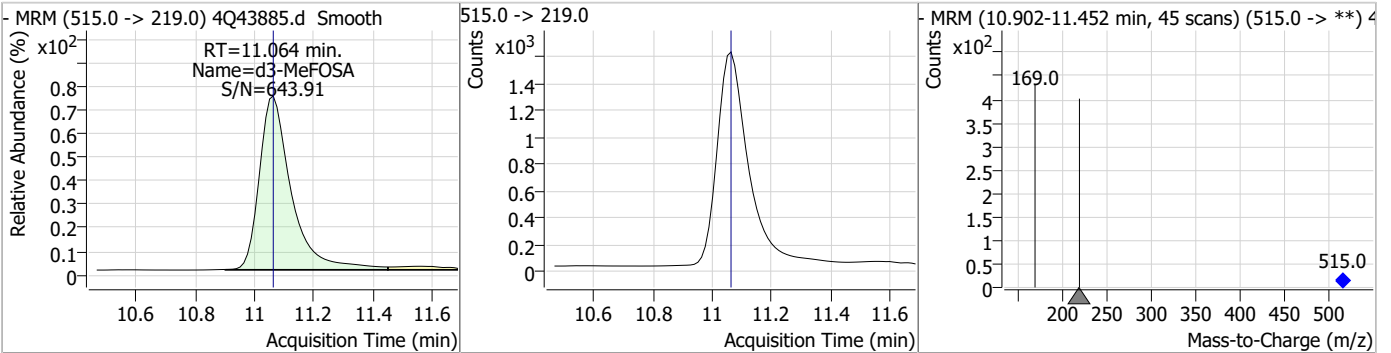
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.30	10.95	0.00	94353				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	2.03	10.97	0.00	7862 (m)				

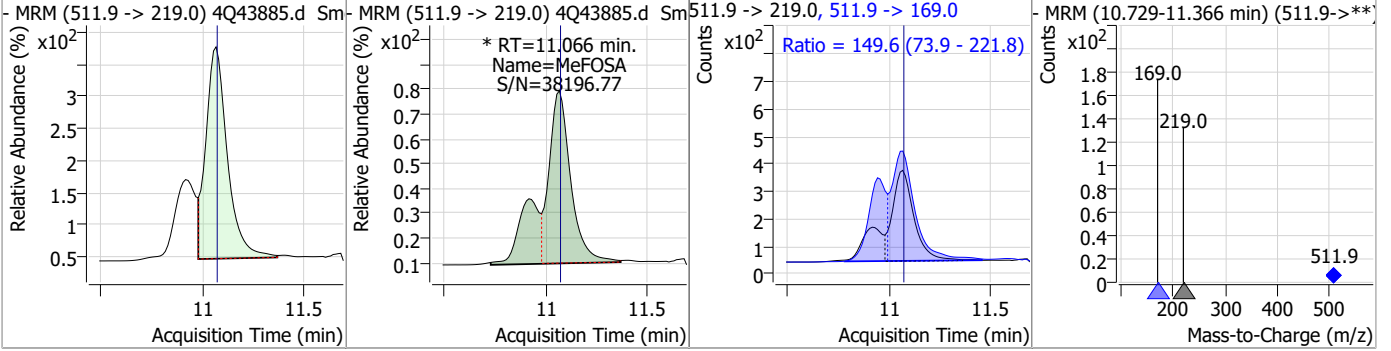


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.54	11.06	0.00	11960				

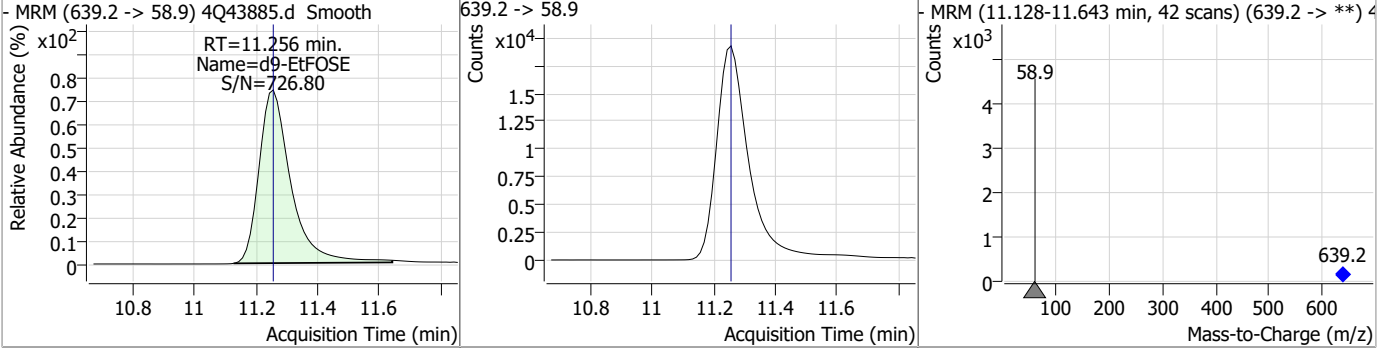


Perfluorinated Compounds by LC/MS/MS

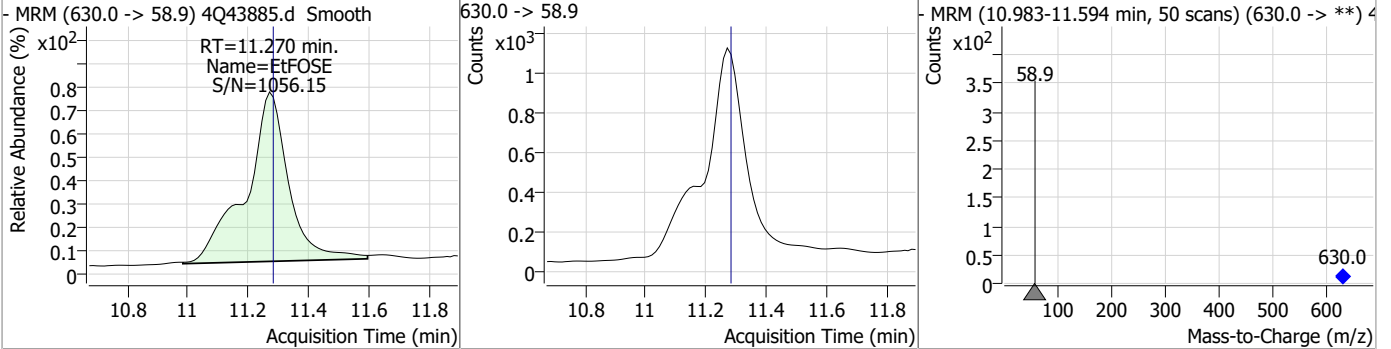
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.74	11.07	0.00	3333 (m)	511.9 -> 169.0	149.6	73.9	221.8



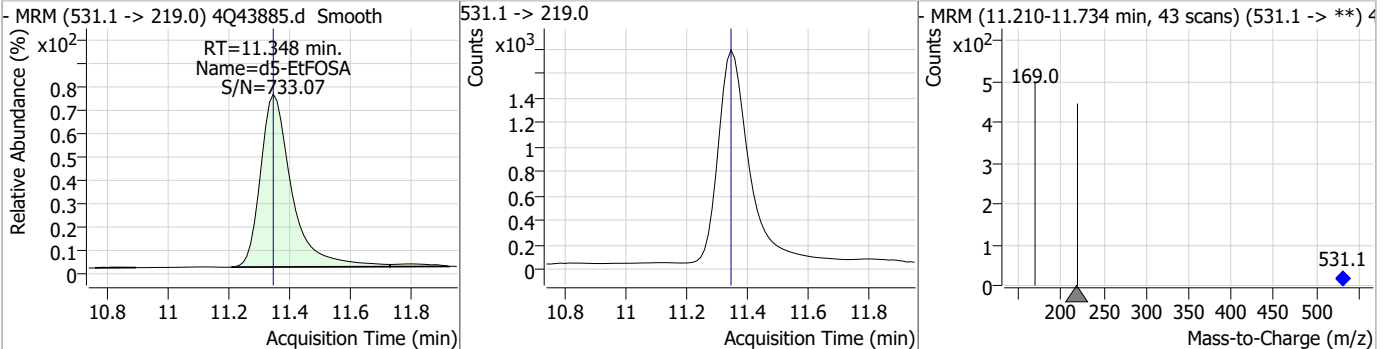
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.01	11.26	0.00	137343				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	1.95	11.27	-0.01	10380				



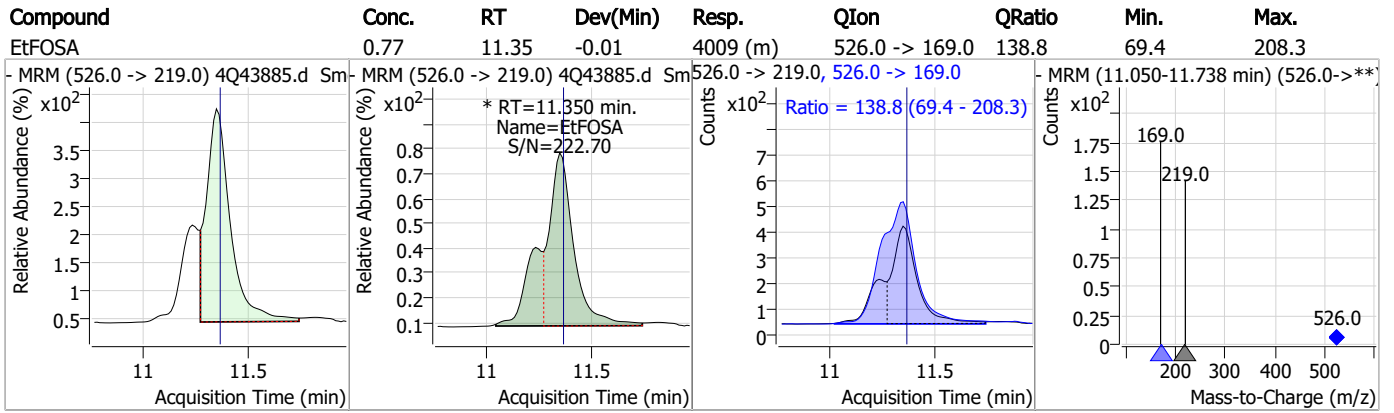
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.35	0.00	12459				



7.7.3
7



Perfluorinated Compounds by LC/MS/MS



7.7.3

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43885.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 11:26 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
Perfluorodecanoic acid	335-76-2		8.17	Poor instrument integration
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.07	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.7.3.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43886.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 11:40:17 AM
 Sample Name : ic634-3
 Vial : P1-A4
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	137252	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	71771	5.00 µg/L	0.000
M5-PFHxA	5.522	318.0 -> 273.0	51796	2.50 µg/L	-0.012
M4-PFHpA	6.467	367.1 -> 322.0	29720	2.50 µg/L	0.000
M8-PFOA	7.124	421.1 -> 376.0	46449	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	21605	1.25 µg/L	0.000
M6-PFDA	8.178	519.1 -> 474.1	20369	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	21956	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	22886	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	19592	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	18365	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12905	2.50 µg/L	0.000
M3-PFHxS	7.217	402.1 -> 79.9	8347	2.50 µg/L	-0.012
M8-PFOS	8.329	507.1 -> 79.9	10370	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1084	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1938	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	2893	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14943	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30209	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11666	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	103075	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	147452	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12410	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11872	2.50 µg/L	0.000
13C4-PFOS	8.317	502.8 -> 79.9	12408	2.50 µg/L	-0.013
13C3-PFBA	2.916	216.0 -> 172.0	72692	5.00 µg/L	-0.013
18O2-PFHxS	7.228	403.0 -> 83.9	4947	2.50 µg/L	0.000
13C4-PFOA	7.124	417.1 -> 372.0	55898	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	18809	1.25 µg/L	0.000
13C5-PFNA	7.671	468.0 -> 423.0	25955	1.25 µg/L	-0.013
13C2-PFHxA	5.523	315.1 -> 270.0	47256	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1084	5.39 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.8%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1938	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.0%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2893	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-PFDoDA	9.106	615.1 -> 570.0	22886	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.899	715.2 -> 670.0	19592	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C3-PFBS	5.427	302.1 -> 79.9	12905	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 110.7%		
13C3-PFHxS	7.217	402.1 -> 79.9	8347	2.72 µg/L	-0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.9%	
13C4-PFBA	2.924	216.8 -> 171.9	137252	10.03 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C4-PFHpA	6.467	367.1 -> 322.0	29720	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.7%	
13C5-PFHxA	5.522	318.0 -> 273.0	51796	2.49 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.362	268.3 -> 223.0	71771	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C6-PFDA	8.178	519.1 -> 474.1	20369	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C7-PFUnDA	8.647	570.0 -> 525.1	21956	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.8%	
13C8-FOSA	9.771	506.1 -> 77.8	18365	2.36 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C8-PFOA	7.124	421.1 -> 376.0	46449	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.329	507.1 -> 79.9	10370	2.22 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 88.8%	
13C9-PFNA	7.670	472.1 -> 427.0	21605	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14943	4.77 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 95.4%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	30209	9.72 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.2%	
d3-MeFOSA	11.064	515.0 -> 219.0	11872	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.6%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11666	4.52 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 90.5%	
d7-MeFOSE	10.947	623.2 -> 58.9	103075	26.70 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 106.8%	
d9-EtFOSE	11.256	639.2 -> 58.9	147452	26.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.9%	
d5-EtFOSA	11.348	531.1 -> 219.0	12410	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	8153	4.68 µg/L	93
		327.1 -> 80.9	3436		
6:2FTS	6.899	427.1 -> 407.0	8839	4.72 µg/L	95
		427.1 -> 80.9	4012		
8:2FTS	7.966	527.1 -> 507.0	8150	5.05 µg/L	98
		527.1 -> 80.8	3536		
EtFOSAA	8.446	584.2 -> 419.1	2876	1.28 µg/L	m 96
		584.2 -> 526.0	1387		
FOSA	9.761	498.1 -> 77.9	9549	1.24 µg/L	98
		498.1 -> 478.0	238		
MeFOSAA	8.237	570.1 -> 419.0	2967	1.14 µg/L	m 100
		570.1 -> 483.0	697		
PFBA	2.920	212.8 -> 168.9	17412	4.74 µg/L	100
PFBS	5.428	298.7 -> 79.9	5301	1.00 µg/L	97
		298.7 -> 98.8	2251		
PFDA	8.179	512.9 -> 469.0	19257	1.25 µg/L	97
		512.9 -> 219.0	3926		
PFDODA	9.094	613.1 -> 569.0	22231	1.21 µg/L	97
		613.1 -> 319.0	3534		
PFDS	9.257	599.0 -> 79.9	3372	1.31 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	1658			
PFHpA	6.468	363.1 -> 319.0	22972	1.22	µg/L	99
		363.1 -> 169.0	4191			
PFHpS	7.811	449.0 -> 79.9	4739	1.27	µg/L	95
		449.0 -> 98.9	2366			
PFHxA	5.525	313.0 -> 269.0	24548	1.21	µg/L	99
		313.0 -> 118.9	755			
PFHxS	7.218	398.7 -> 79.9	3628	1.06	µg/L	m 90
		398.7 -> 98.9	2056			
PFNA	7.671	463.0 -> 419.0	19018	1.19	µg/L	95
		463.0 -> 219.0	5179			
PFNS	8.811	548.8 -> 79.9	3057	1.35	µg/L	93
		548.8 -> 98.9	1450			
PFOA	7.125	413.0 -> 369.0	31811	1.19	µg/L	99
		413.0 -> 169.0	6346			
PFOS	8.330	498.9 -> 79.9	6025	1.19	µg/L	m 93
		498.9 -> 98.8	3234			
PFPeA	4.364	263.0 -> 219.0	41238	2.39	µg/L	100
PFPeS	6.494	349.1 -> 79.9	3208	1.09	µg/L	98
		349.1 -> 98.9	1440			
PFTeDA	9.900	713.1 -> 669.0	23005	1.20	µg/L	98
		713.1 -> 168.9	1851			
PFTrDA	9.515	663.0 -> 619.0	30932	1.26	µg/L	98
		663.0 -> 168.9	3083			
PFUnDA	8.648	563.1 -> 519.0	17992	1.21	µg/L	95
		563.1 -> 269.1	3457			
11Cl-PF3OUdS	9.556	630.9 -> 450.9	24933	2.30	µg/L	94
		632.9 -> 452.9	8060			
9Cl-PF3ONS	8.675	530.8 -> 351.0	32766	2.37	µg/L	94
		532.8 -> 353.0	8890			
ADONA	6.718	376.9 -> 250.9	70589	2.32	µg/L	99
		376.9 -> 84.8	18818			
HFPO-DA	5.891	284.9 -> 168.9	6999	2.42	µg/L	95
		284.9 -> 184.9	919			
3:3FTCA	3.836	241.0 -> 177.0	4501	5.92	µg/L	95
		241.0 -> 117.0	469			
5:3FTCA	6.193	341.0 -> 237.1	84055	30.52	µg/L	98
		341.0 -> 217.0	56171			
7:3FTCA	7.649	441.0 -> 316.9	43011	30.06	µg/L	96
		441.0 -> 336.9	100210			
EtFOSA	11.350	526.0 -> 219.0	12547	2.41	µg/L	m 97
		526.0 -> 169.0	17949			
EtFOSE	11.270	630.0 -> 58.9	34039	5.96	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	10932	2.44	µg/L	m 99
		511.9 -> 169.0	16340			
MeFOSE	10.973	616.1 -> 58.9	23509	5.55	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	2960	1.29	µg/L	97
		699.1 -> 98.8	1646			
NFDHA	5.416	295.0 -> 201.0	3731	2.57	µg/L	96
		295.0 -> 84.9	945			
PFMBA	4.766	279.0 -> 85.1	23367	2.42	µg/L	100
PFMPA	3.515	229.0 -> 84.9	21818	2.42	µg/L	100
PFEESA	5.959	314.8 -> 134.9	32841	2.14	µg/L	99
		314.8 -> 82.9	1144			

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

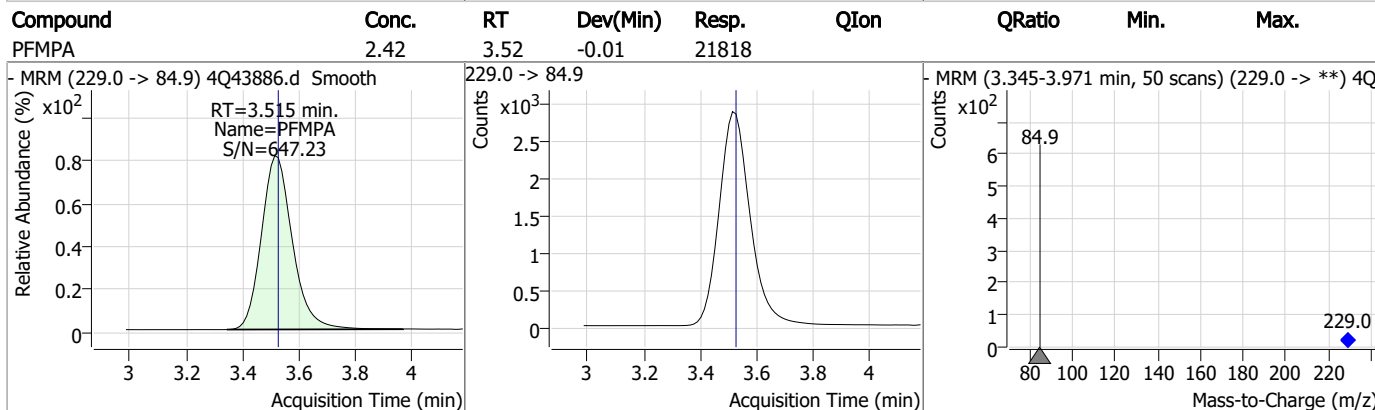
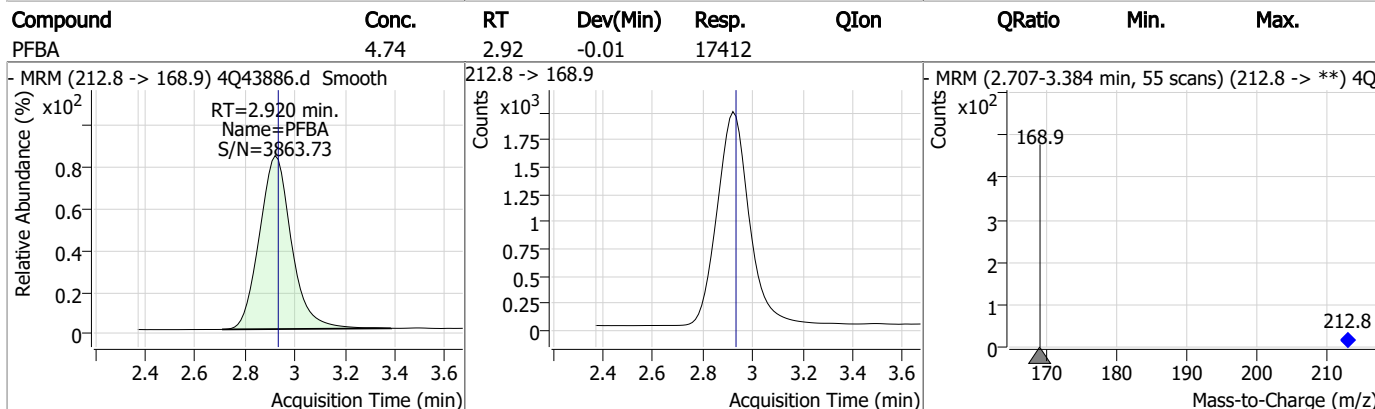
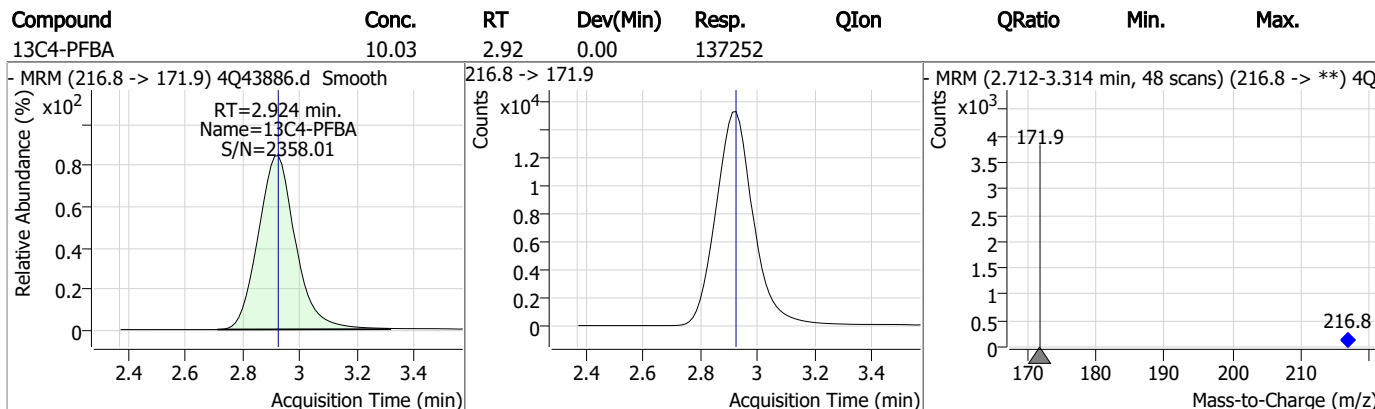
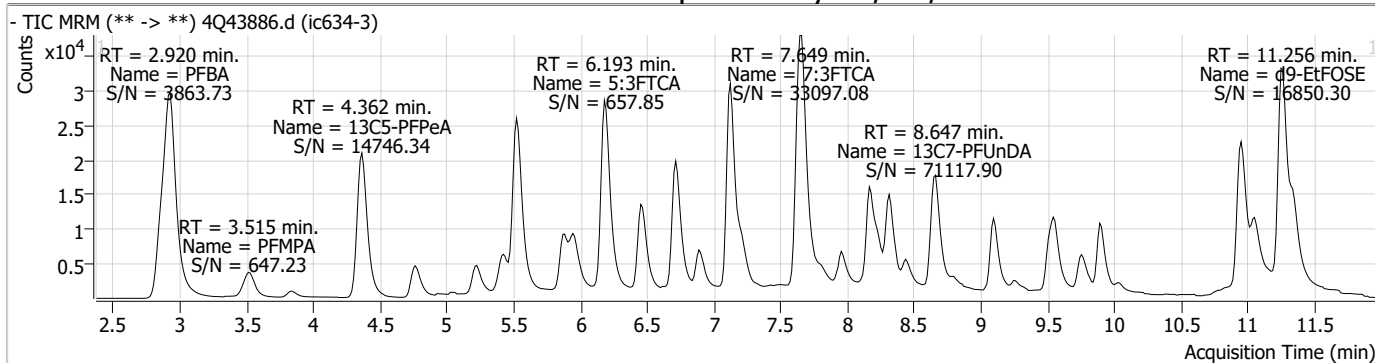
Perfluorinated Compounds by LC/MS/MS

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

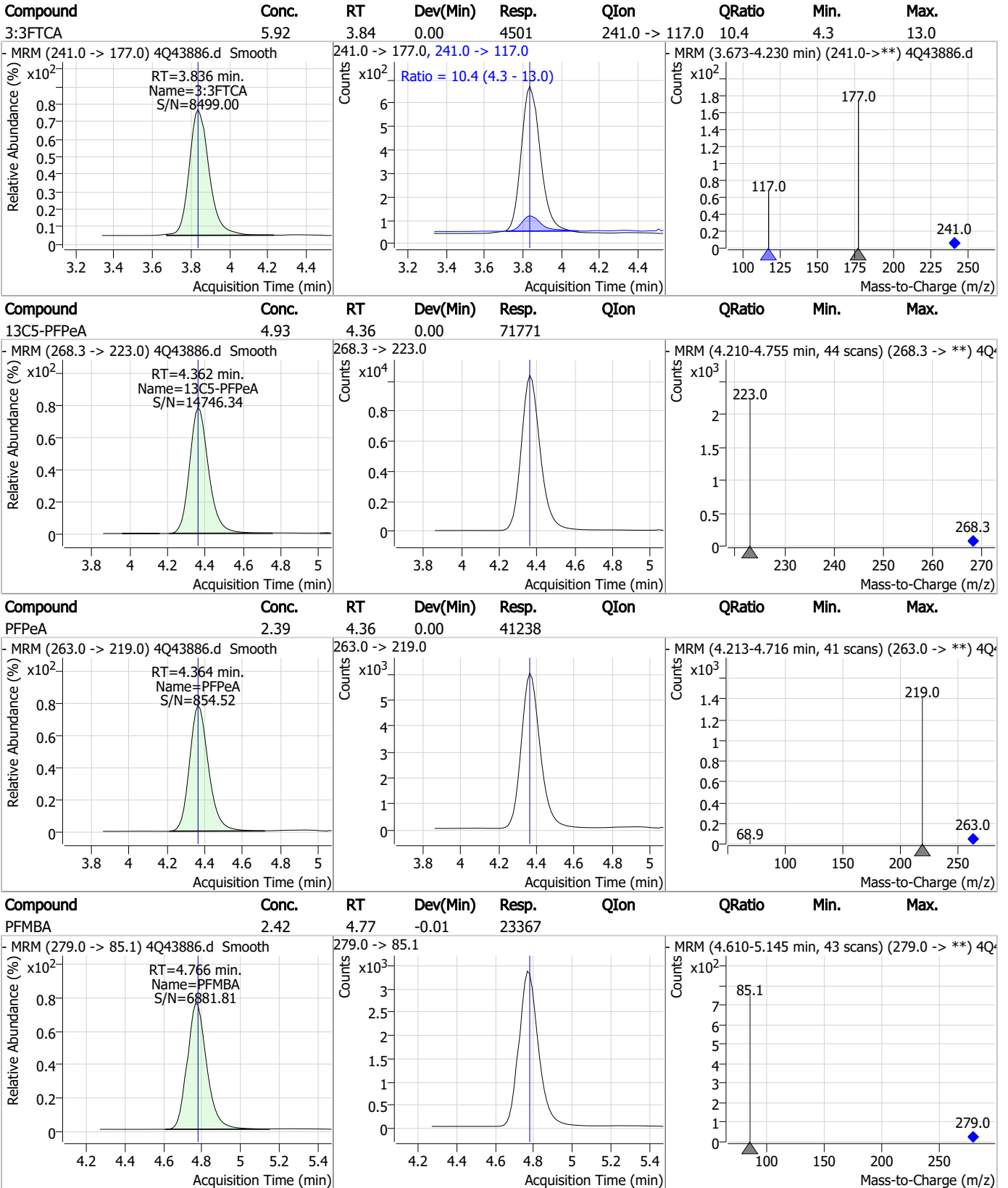
7.7.4

7

Perfluorinated Compounds by LC/MS/MS



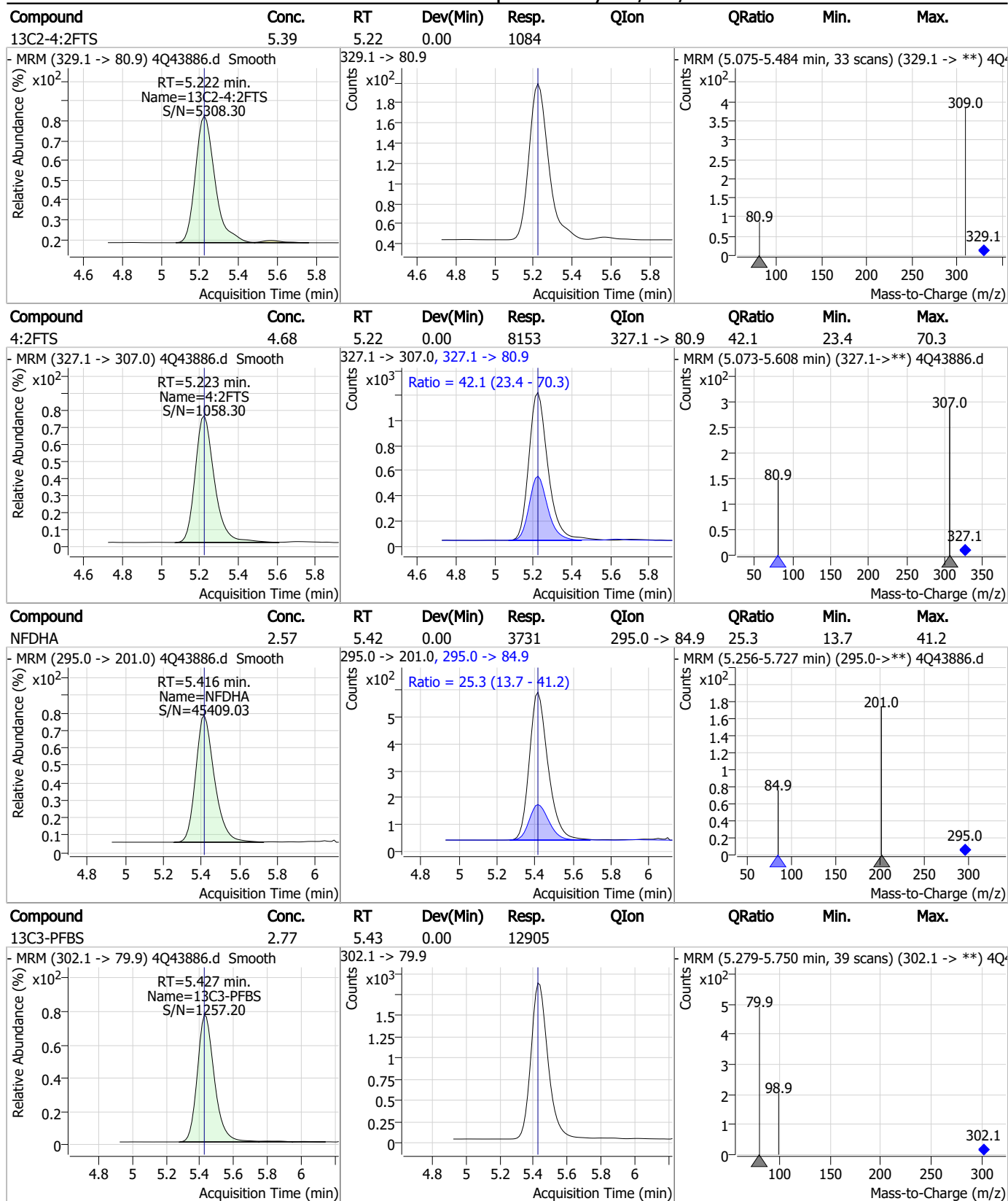
Perfluorinated Compounds by LC/MS/MS



7.7.4

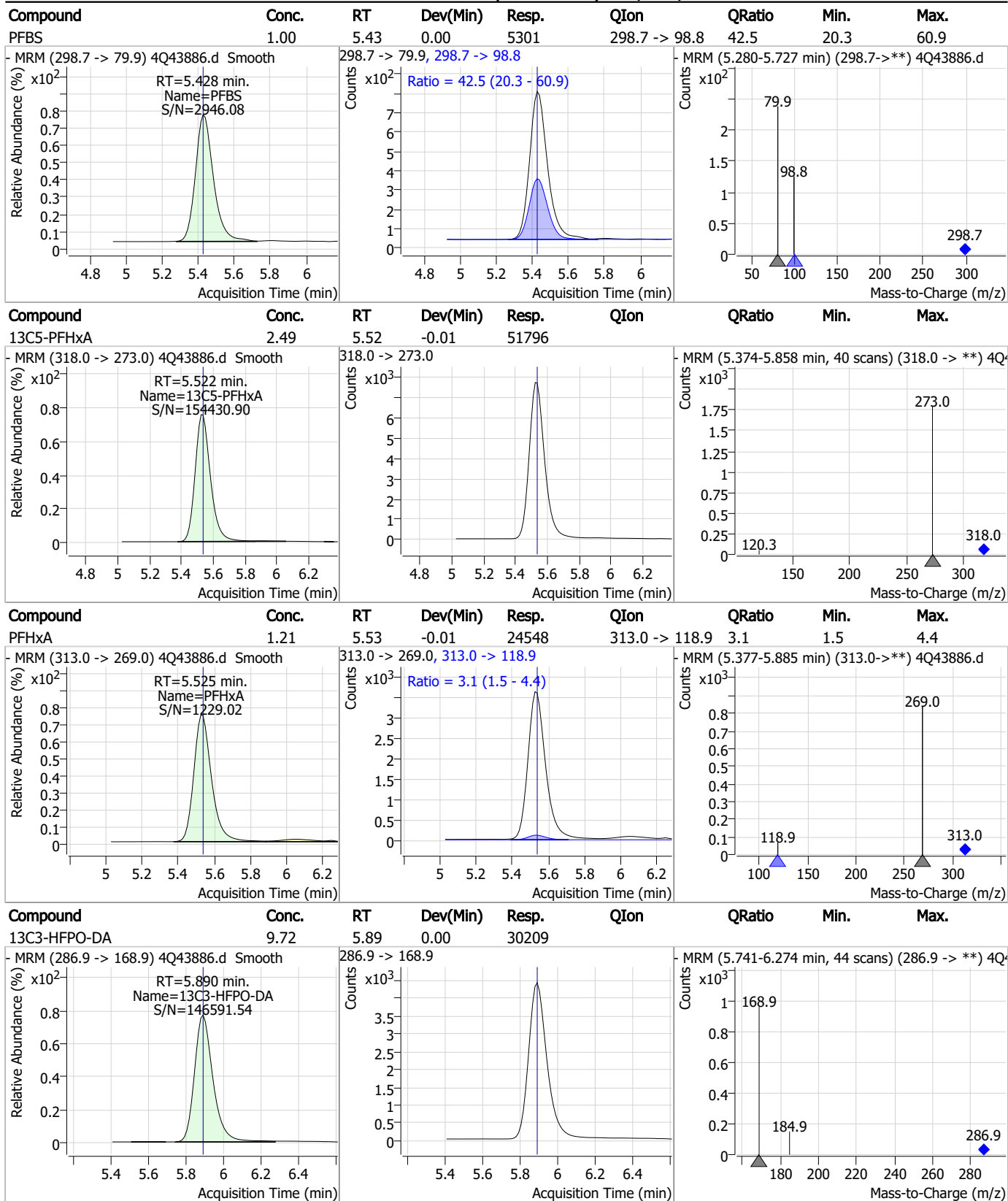
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

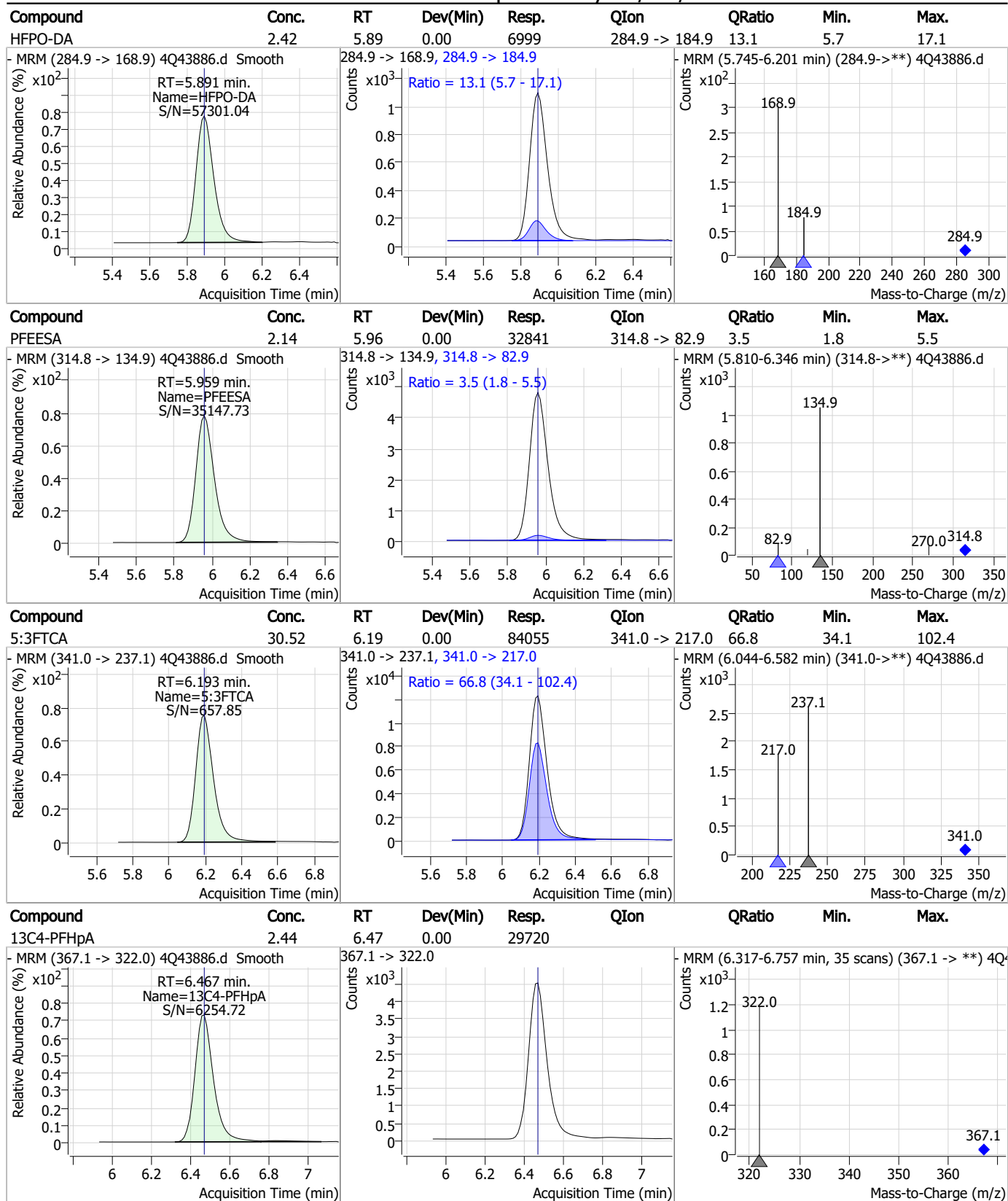
Perfluorinated Compounds by LC/MS/MS



7.7.4
7

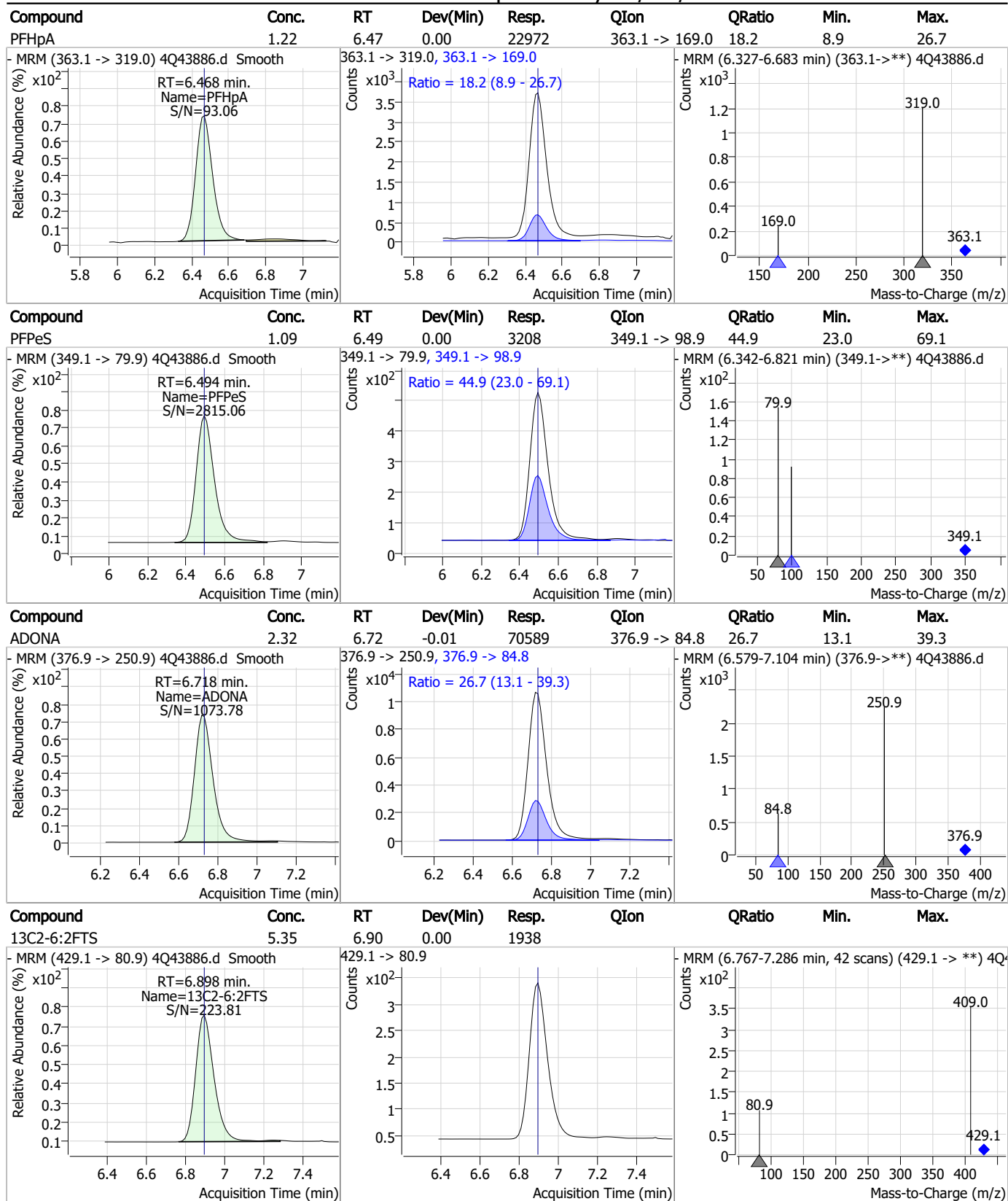


Perfluorinated Compounds by LC/MS/MS



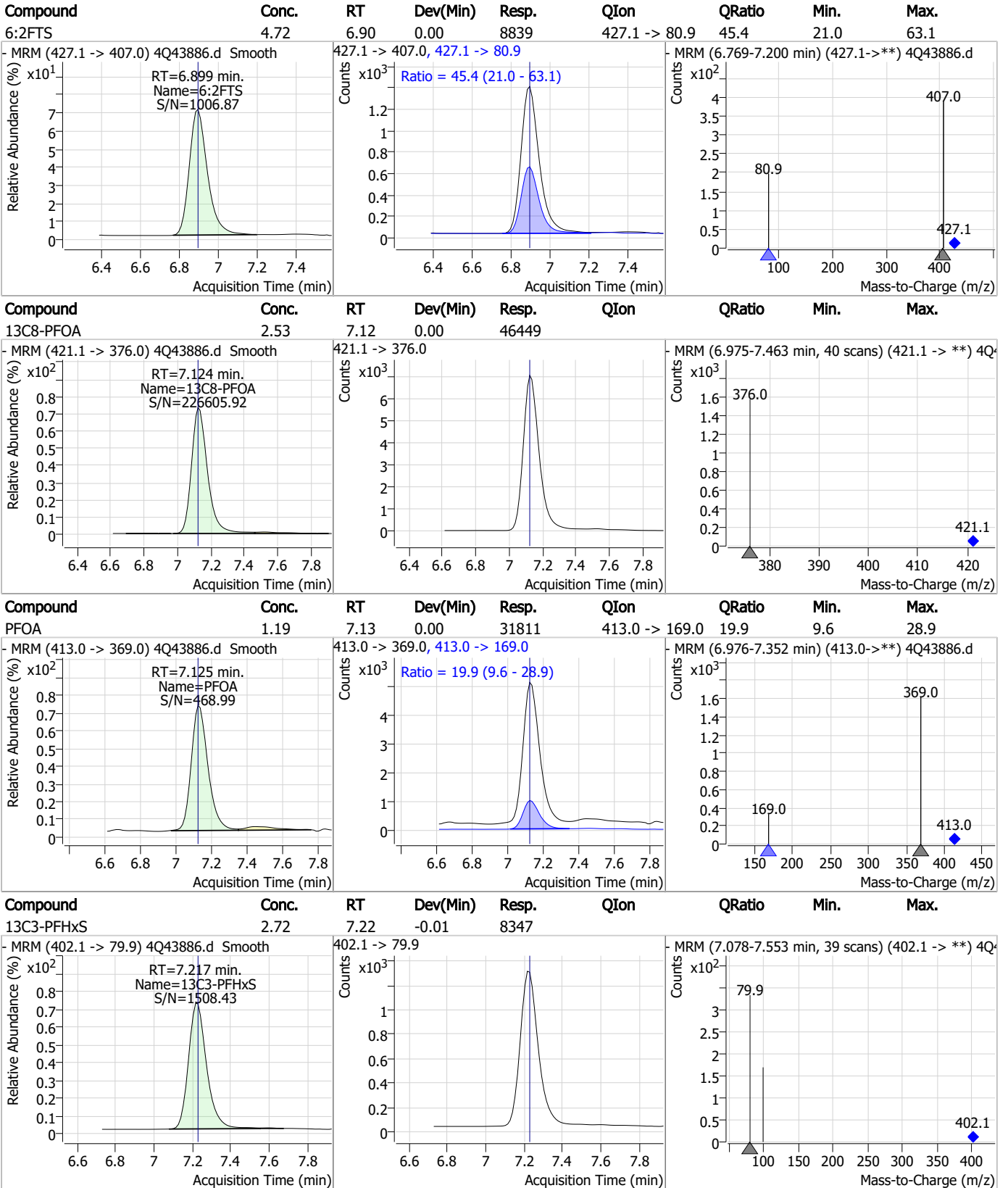
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

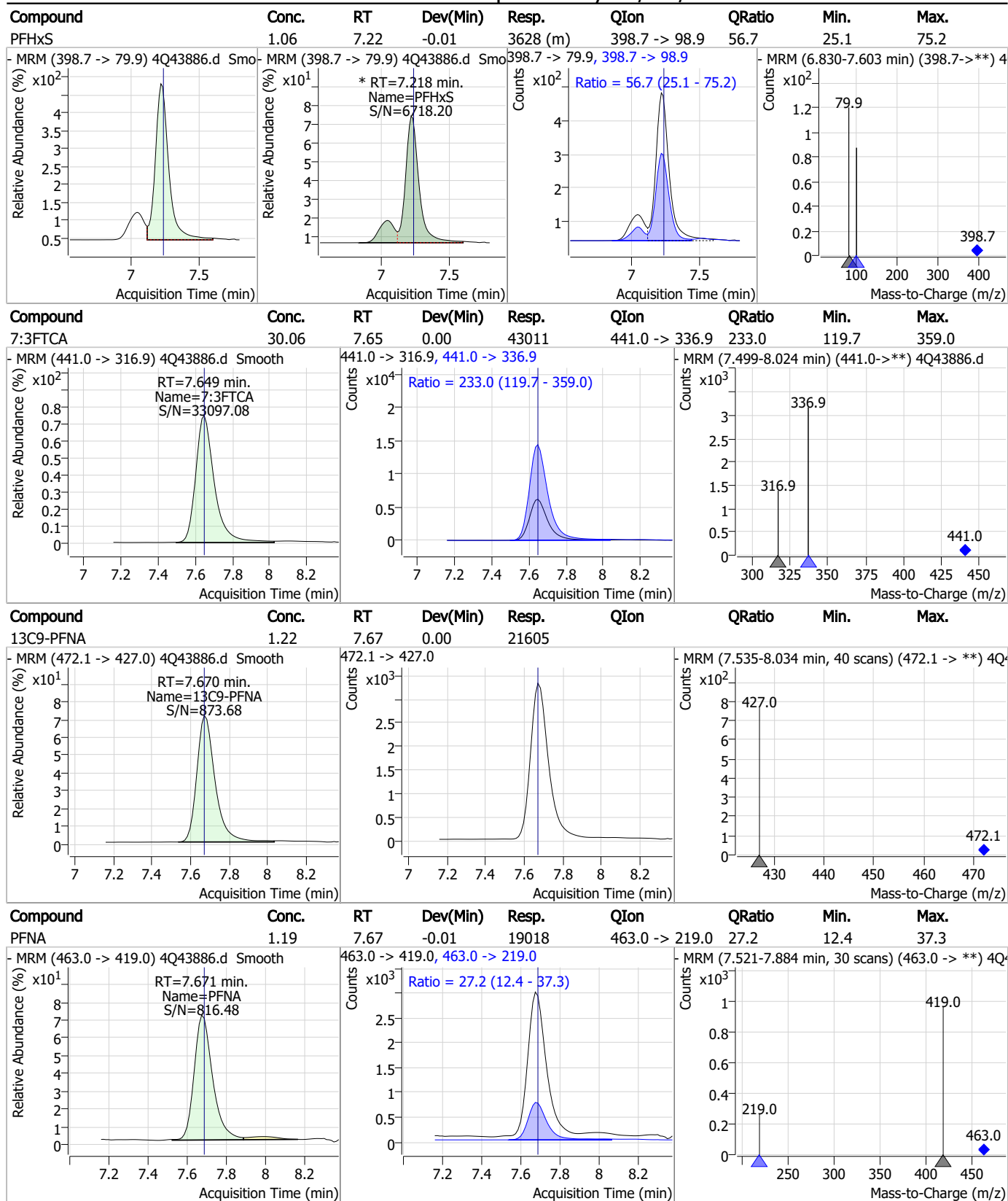
Perfluorinated Compounds by LC/MS/MS



7.7.4

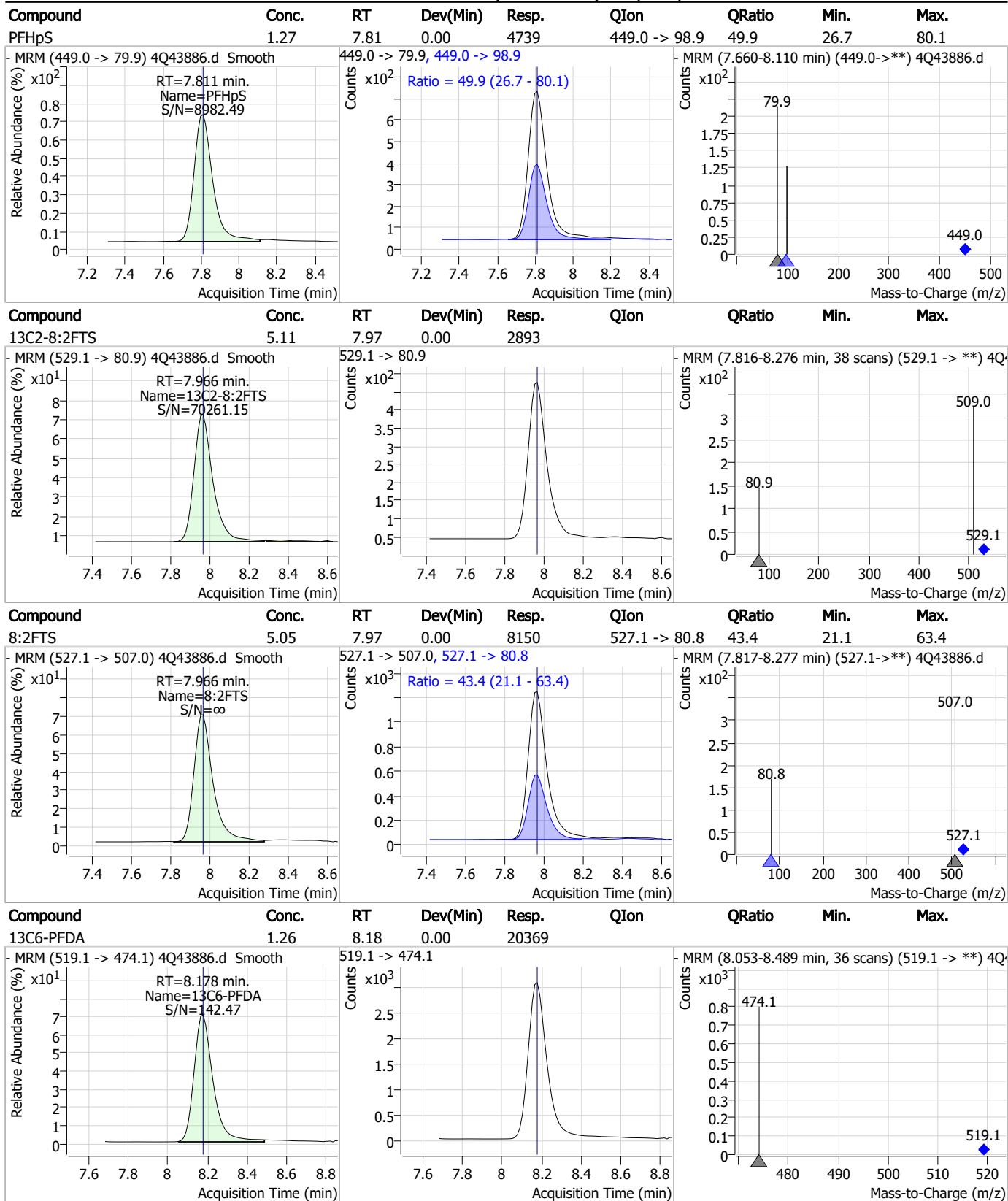
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

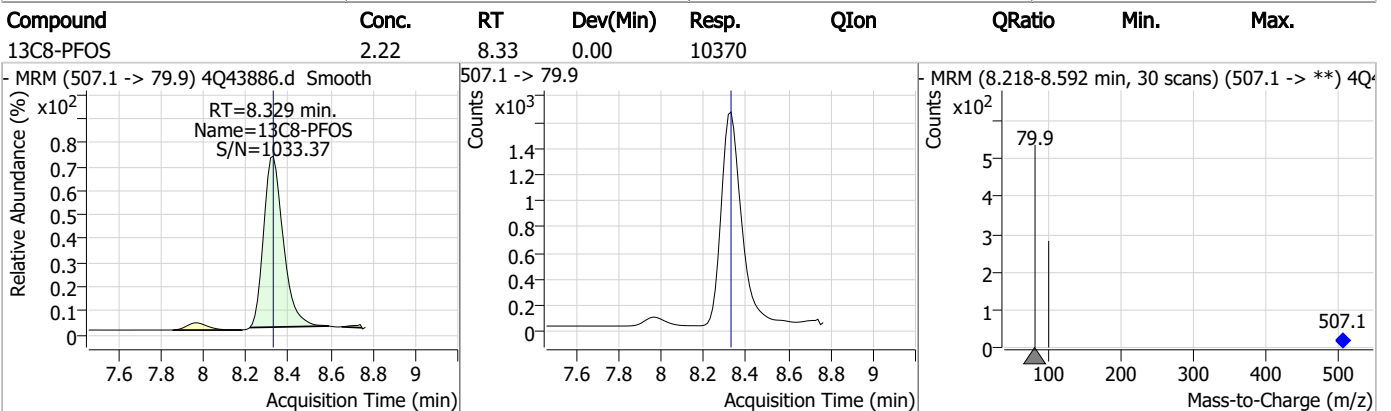
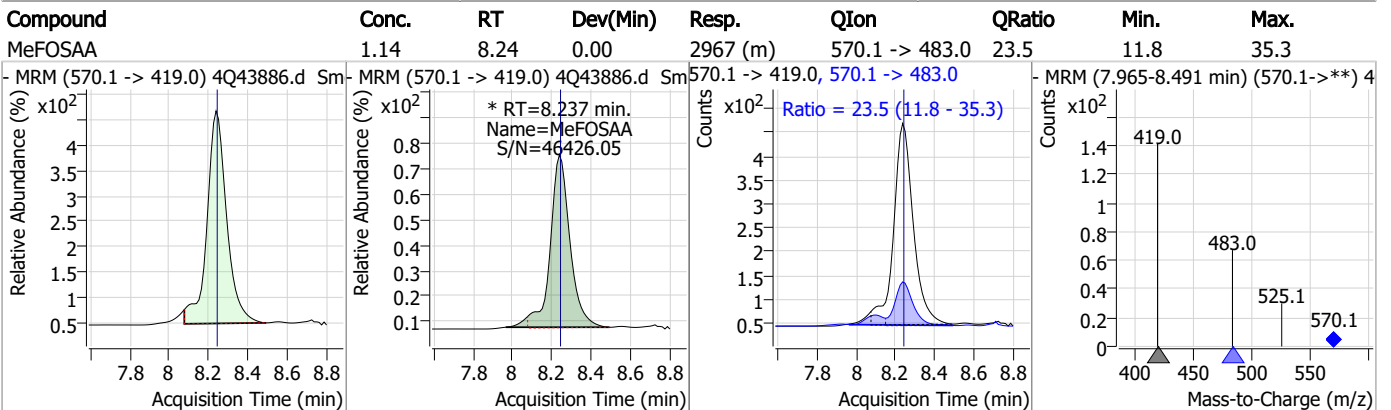
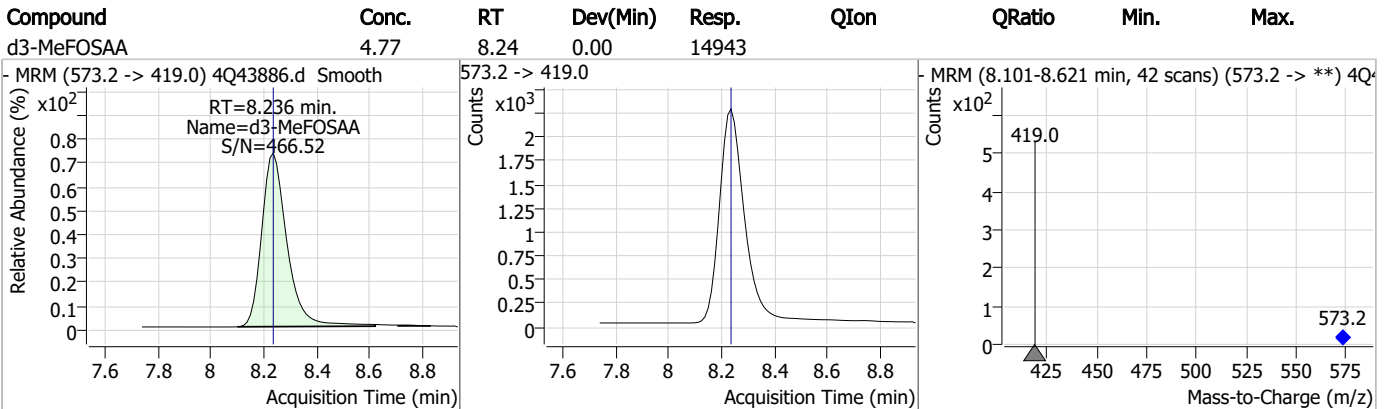
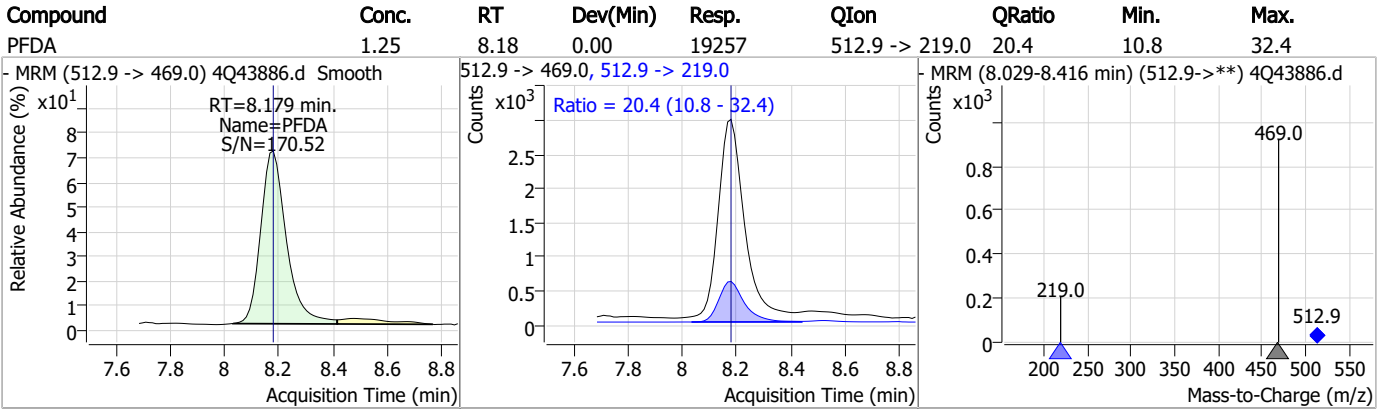
Perfluorinated Compounds by LC/MS/MS



7.7.4

7

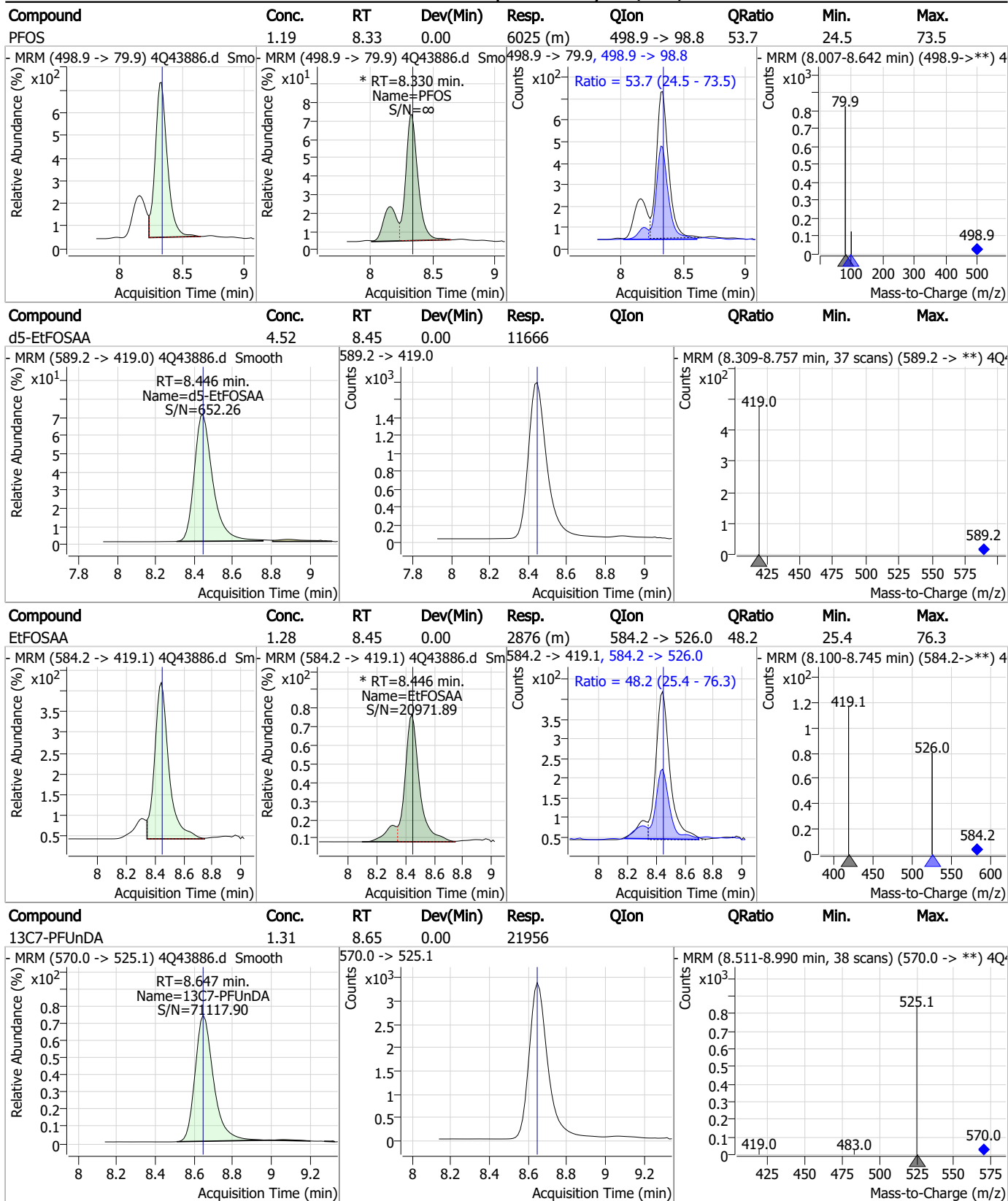
Perfluorinated Compounds by LC/MS/MS



7.7.4

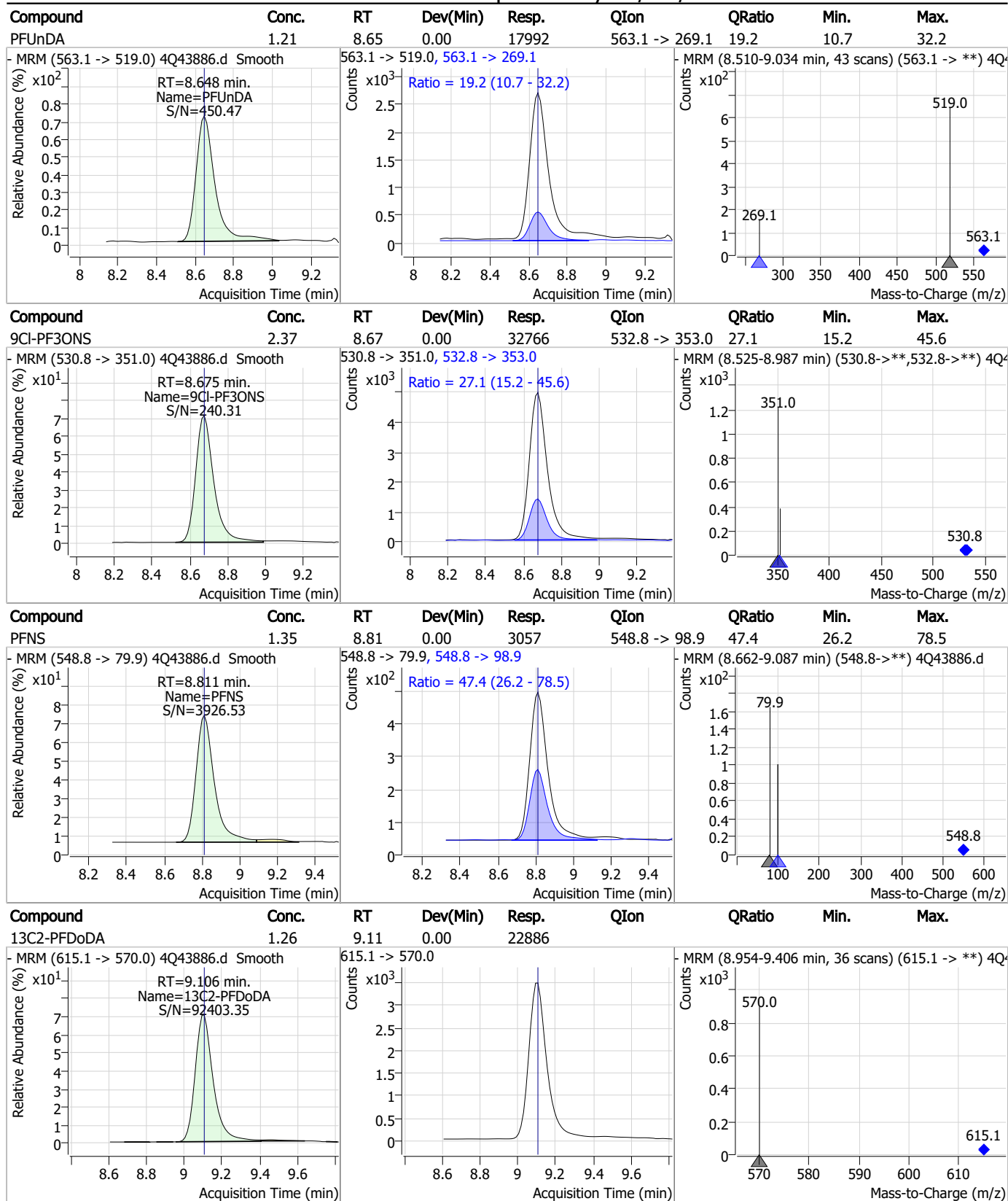
7

Perfluorinated Compounds by LC/MS/MS



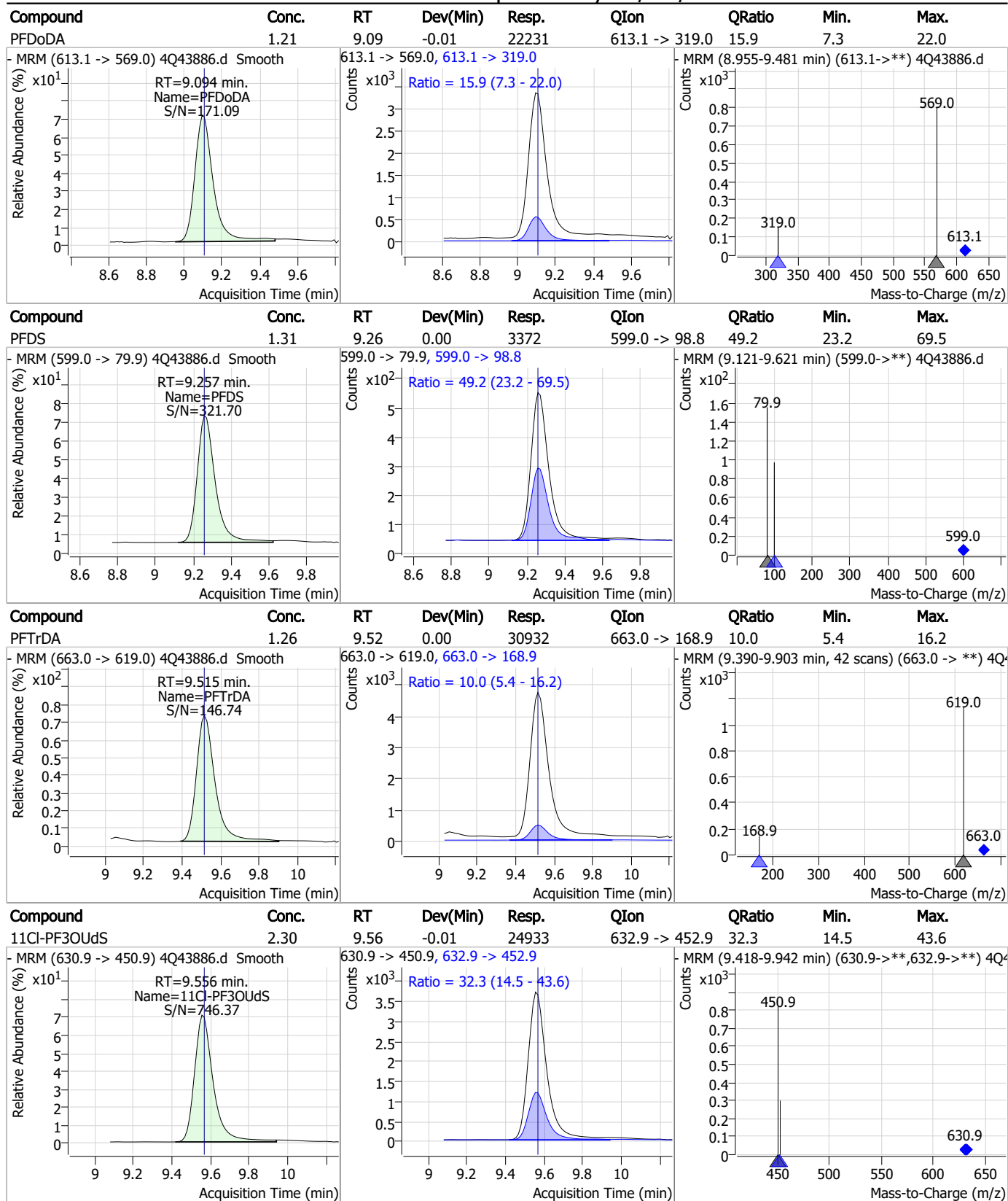
7.7.4
7

Perfluorinated Compounds by LC/MS/MS



7.7.4
7

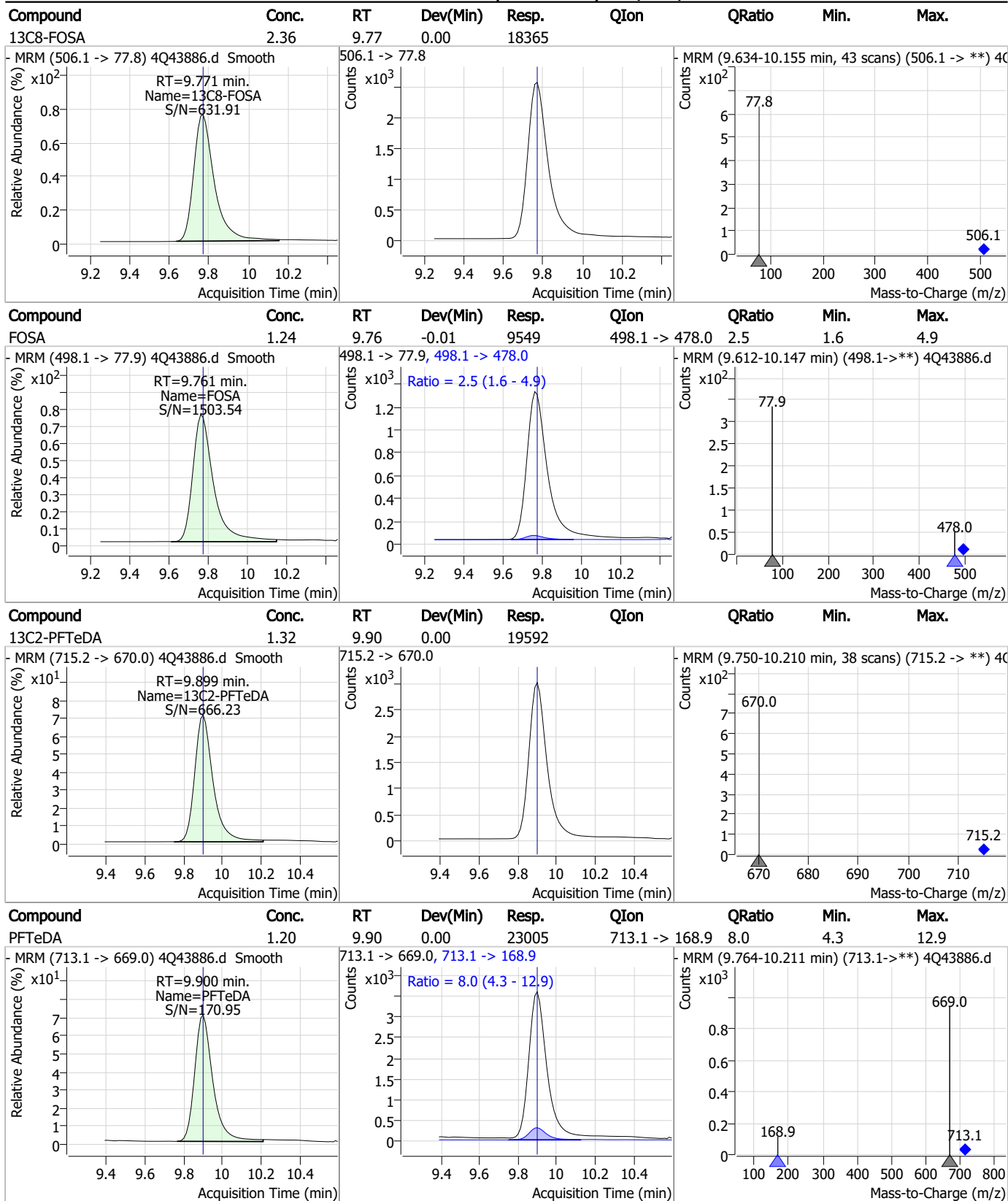
Perfluorinated Compounds by LC/MS/MS



7.7.4
7



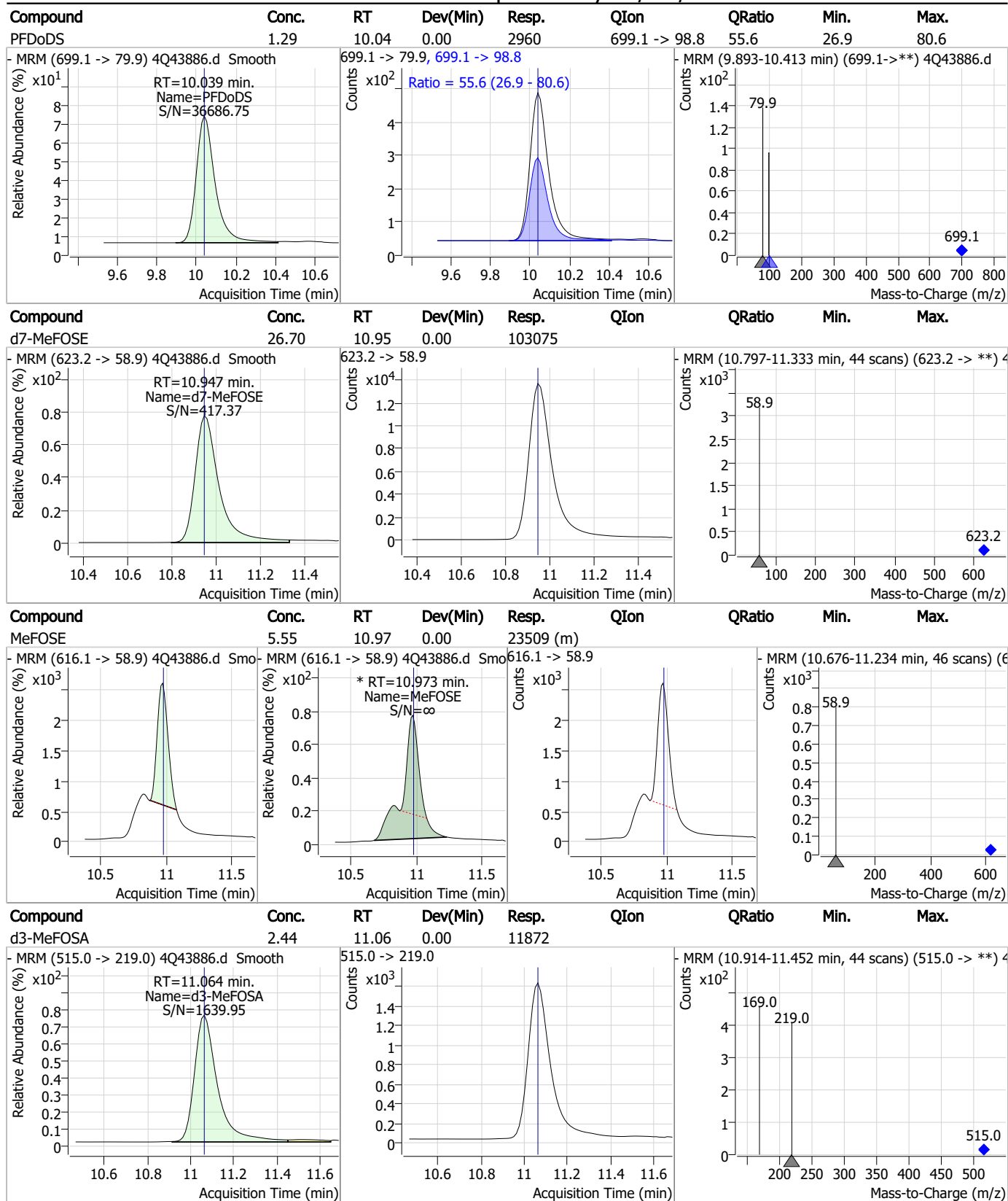
Perfluorinated Compounds by LC/MS/MS



7.7.4

7

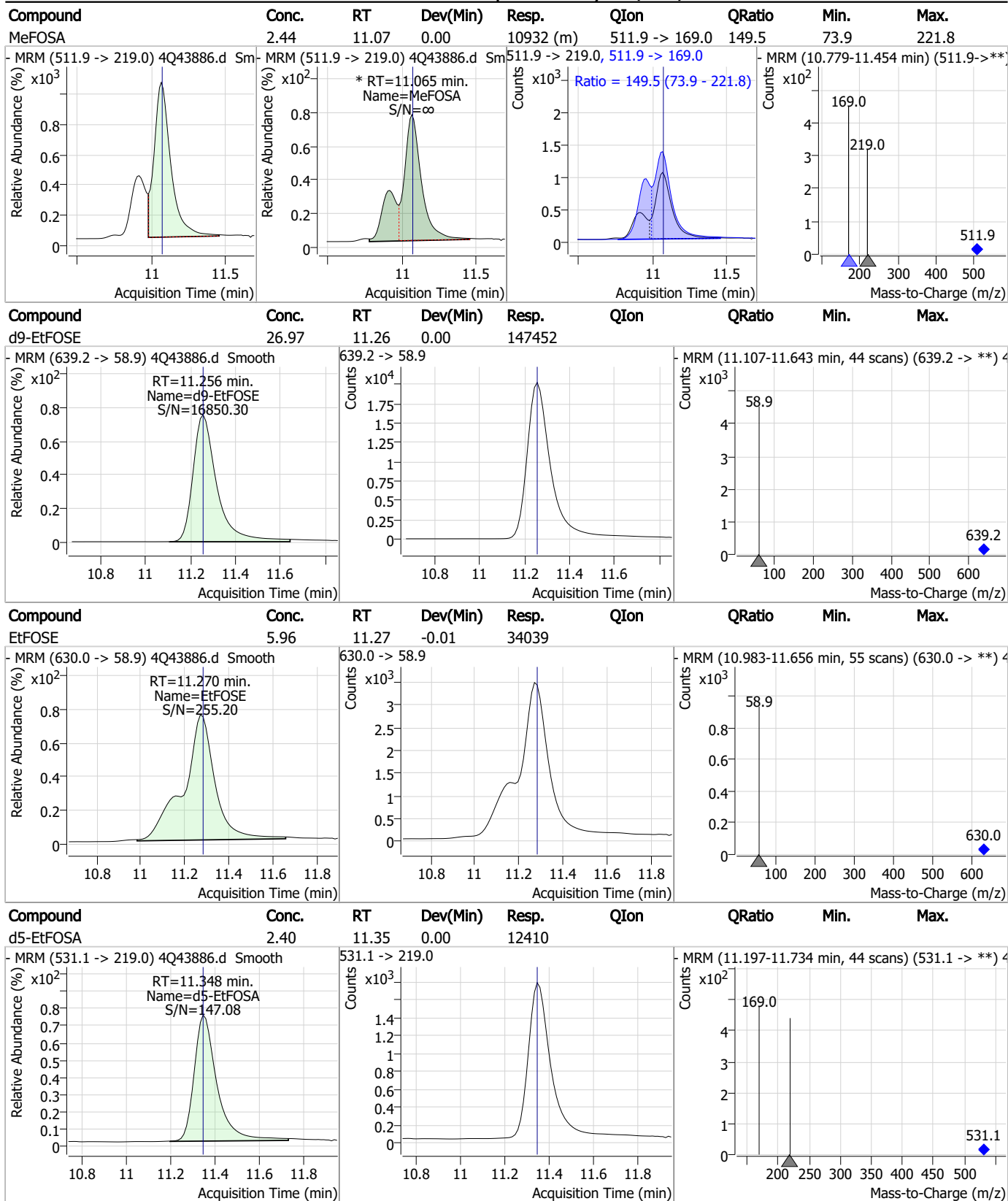
Perfluorinated Compounds by LC/MS/MS



7.7.4

7

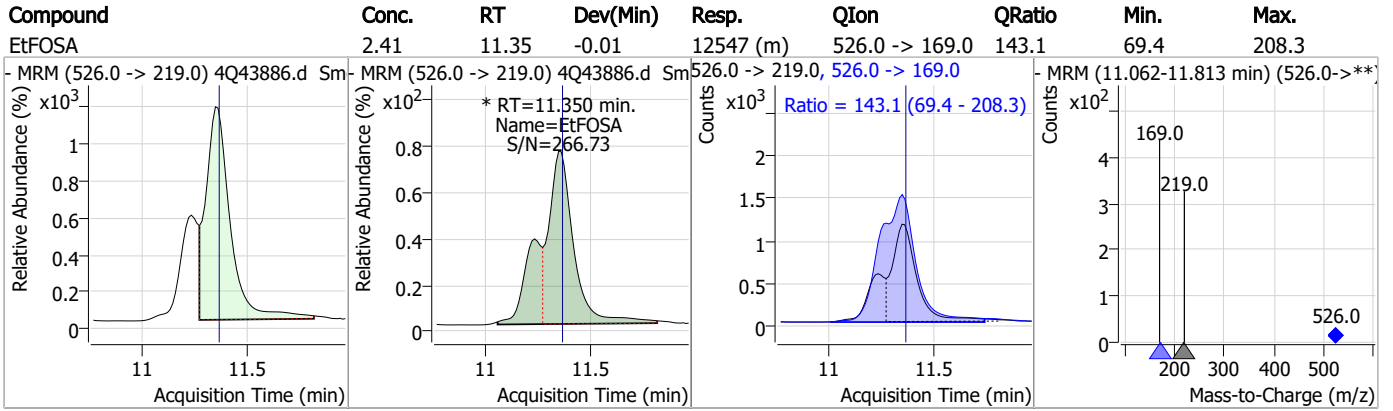
Perfluorinated Compounds by LC/MS/MS



7.7.4
7



Perfluorinated Compounds by LC/MS/MS



7.7.4

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43886.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 11:40 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.7.4.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43887.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 11:54:24 AM
 Sample Name : icc634-4
 Vial : P1-A5
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	136945	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	71702	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	49910	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	29610	2.50 µg/L	0.000
M8-PFOA	7.124	421.1 -> 376.0	44424	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	21310	1.25 µg/L	0.000
M6-PFDA	8.178	519.1 -> 474.1	20739	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	21721	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	24668	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	20258	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	19470	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12093	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	7948	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	11069	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1045	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1865	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	2930	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14878	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30150	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	12886	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	110308	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	150711	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11717	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	12050	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	11376	2.50 µg/L	0.000
13C3-PFBA	2.928	216.0 -> 172.0	72159	5.00 µg/L	0.000
18O2-PFHxS	7.228	403.0 -> 83.9	5353	2.50 µg/L	0.000
13C4-PFOA	7.124	417.1 -> 372.0	54891	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	19442	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	25730	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	46191	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1045	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1865	4.76 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2930	4.79 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.7%		
13C2-PFDoDA	9.106	615.1 -> 570.0	24668	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.8%		
13C2-PFTeDA	9.899	715.2 -> 670.0	20258	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C3-PFBS	5.427	302.1 -> 79.9	12093	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.8%		
13C3-PFHxS	7.229	402.1 -> 79.9	7948	2.40 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 = 95.8%	
13C4-PFBA	2.924	216.8 -> 171.9	136945	10.09 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C4-PFHpA	6.467	367.1 -> 322.0	29610	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C5-PFHxA	5.535	318.0 -> 273.0	49910	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
13C5-PFPeA	4.362	268.3 -> 223.0	71702	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C6-PFDA	8.178	519.1 -> 474.1	20739	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C7-PFUnDA	8.647	570.0 -> 525.1	21721	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C8-FOSA	9.771	506.1 -> 77.8	19470	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C8-PFOA	7.124	421.1 -> 376.0	44424	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C8-PFOS	8.329	507.1 -> 79.9	11069	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C9-PFNA	7.670	472.1 -> 427.0	21310	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.5%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14878	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	30150	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSA	11.064	515.0 -> 219.0	12050	2.70 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.0%	
d5-EtFOSAA	8.446	589.2 -> 419.0	12886	5.45 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.0%	
d7-MeFOSE	10.947	623.2 -> 58.9	110308	31.17 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 124.7%	
d9-EtFOSE	11.256	639.2 -> 58.9	150711	30.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 120.3%	
d5-EtFOSA	11.348	531.1 -> 219.0	11717	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.8%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	16368	9.73 µg/L	100
		327.1 -> 80.9	7675		
6:2FTS	6.899	427.1 -> 407.0	19037	10.57 µg/L	100
		427.1 -> 80.9	8009		
8:2FTS	7.966	527.1 -> 507.0	16898	10.35 µg/L	100
		527.1 -> 80.8	7139		
EtFOSAA	8.446	584.2 -> 419.1	5251	2.12 µg/L	m 100
		584.2 -> 526.0	2672		
FOSA	9.774	498.1 -> 77.9	19654	2.41 µg/L	100
		498.1 -> 478.0	646		
MeFOSAA	8.237	570.1 -> 419.0	5917	2.28 µg/L	m 100
		570.1 -> 483.0	1394		
PFBA	2.932	212.8 -> 168.9	35630	9.72 µg/L	100
PFBS	5.428	298.7 -> 79.9	11011	2.22 µg/L	100
		298.7 -> 98.8	4473		
PFDA	8.179	512.9 -> 469.0	37828	2.40 µg/L	100
		512.9 -> 219.0	8158		
PFDODA	9.106	613.1 -> 569.0	46925	2.37 µg/L	100
		613.1 -> 319.0	6874		
PFDS	9.257	599.0 -> 79.9	6593	2.40 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.468	599.0 -> 98.8	3053	2.44	µg/L	100
		363.1 -> 319.0	45754			
PFHpS	7.811	363.1 -> 169.0	8131	2.24	µg/L	100
		449.0 -> 79.9	8932			
PFHxA	5.538	449.0 -> 98.9	4767	2.47	µg/L	100
		313.0 -> 269.0	48280			
PFHxS	7.230	313.0 -> 118.9	1419	2.36	µg/L	100
		398.7 -> 79.9	7700			
PFNA	7.685	398.7 -> 98.9	3861	2.41	µg/L	100
		463.0 -> 419.0	38083			
PFNS	8.811	463.0 -> 219.0	9466	2.29	µg/L	100
		548.8 -> 79.9	5533			
PFOA	7.125	548.8 -> 98.9	2894	2.61	µg/L	100
		413.0 -> 369.0	66788			
PFOS	8.330	413.0 -> 169.0	12884	2.34	µg/L	100
		498.9 -> 79.9	12700			
PFPeA	4.364	498.9 -> 98.8	6227	4.98	µg/L	100
		263.0 -> 219.0	85901			
PFPeS	6.494	349.1 -> 79.9	6690	2.39	µg/L	100
		349.1 -> 98.9	3083			
PFTeDA	9.900	713.1 -> 669.0	48732	2.46	µg/L	100
		713.1 -> 168.9	4176			
PFTrDA	9.515	663.0 -> 619.0	64267	2.43	µg/L	100
		663.0 -> 168.9	6945			
PFUnDA	8.648	563.1 -> 519.0	37222	2.52	µg/L	100
		563.1 -> 269.1	7998			
11CI-PF3OUdS	9.568	630.9 -> 450.9	52167	4.81	µg/L	100
		632.9 -> 452.9	15156			
9CI-PF3ONS	8.675	530.8 -> 351.0	64137	4.64	µg/L	100
		532.8 -> 353.0	19505			
ADONA	6.731	376.9 -> 250.9	142578	4.70	µg/L	100
		376.9 -> 84.8	37314			
HFPO-DA	5.891	284.9 -> 168.9	14161	4.92	µg/L	100
		284.9 -> 184.9	1610			
3:3FTCA	3.836	241.0 -> 177.0	9126	12.02	µg/L	100
		241.0 -> 117.0	789			
5:3FTCA	6.193	341.0 -> 237.1	168151	63.37	µg/L	100
		341.0 -> 217.0	114841			
7:3FTCA	7.649	441.0 -> 316.9	87477	63.45	µg/L	100
		441.0 -> 336.9	209338			
EtFOSA	11.362	526.0 -> 219.0	25279	5.15	µg/L	100
		526.0 -> 169.0	35104			
EtFOSE	11.282	630.0 -> 58.9	71271	12.22	µg/L	100
		511.9 -> 219.0	21827			
MeFOSA	11.065	511.9 -> 169.0	32269	4.81	µg/L	100
		616.1 -> 58.9	56025			
MeFOSE	10.973	699.1 -> 79.9	5823	12.37	µg/L	100
		699.1 -> 98.8	3130			
PFDoDS	10.039	295.0 -> 201.0	7223	2.38	µg/L	100
		295.0 -> 84.9	1983			
NFDHA	5.416	279.0 -> 85.1	46882	5.17	µg/L	100
		229.0 -> 84.9	44190			
PFMBA	4.778	314.8 -> 134.9	65159	4.90	µg/L	100
		314.8 -> 82.9	2381			
PFMPA	3.528			4.40	µg/L	100
PFEESA	5.959			4.40	µg/L	100

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

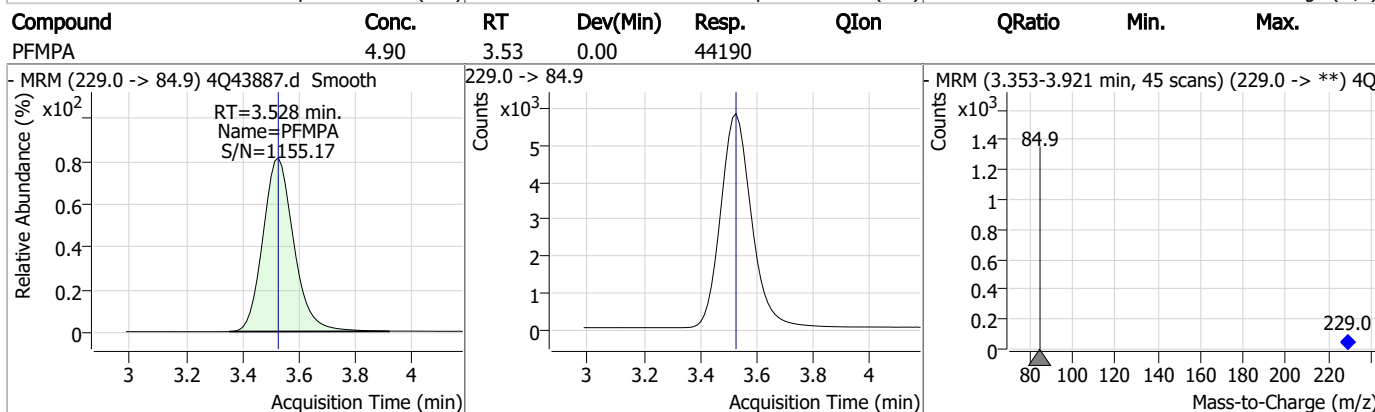
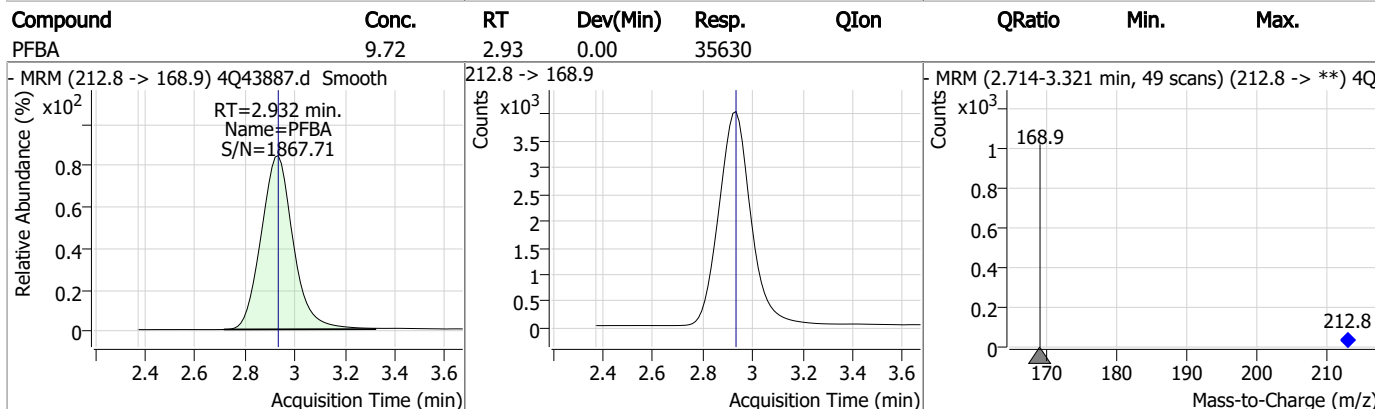
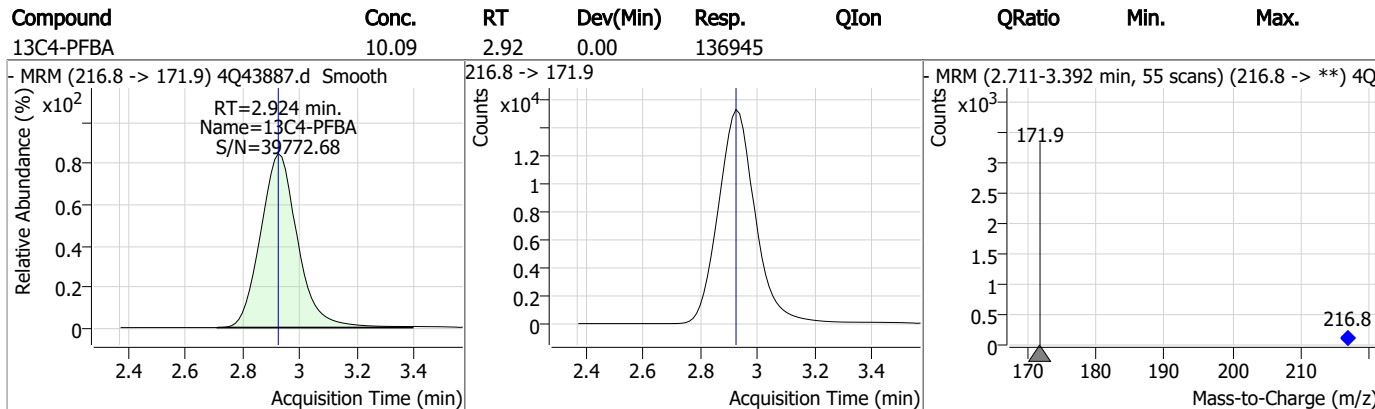
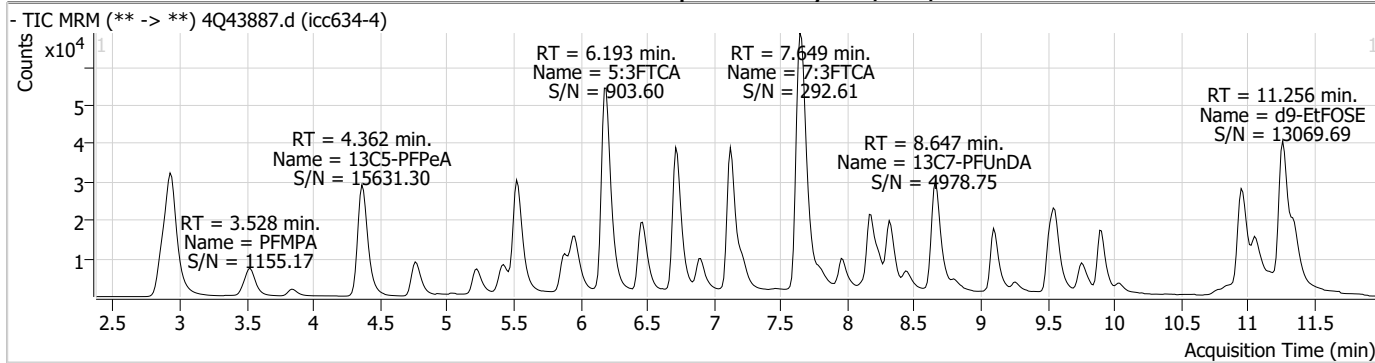
Perfluorinated Compounds by LC/MS/MS

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

7.7.5

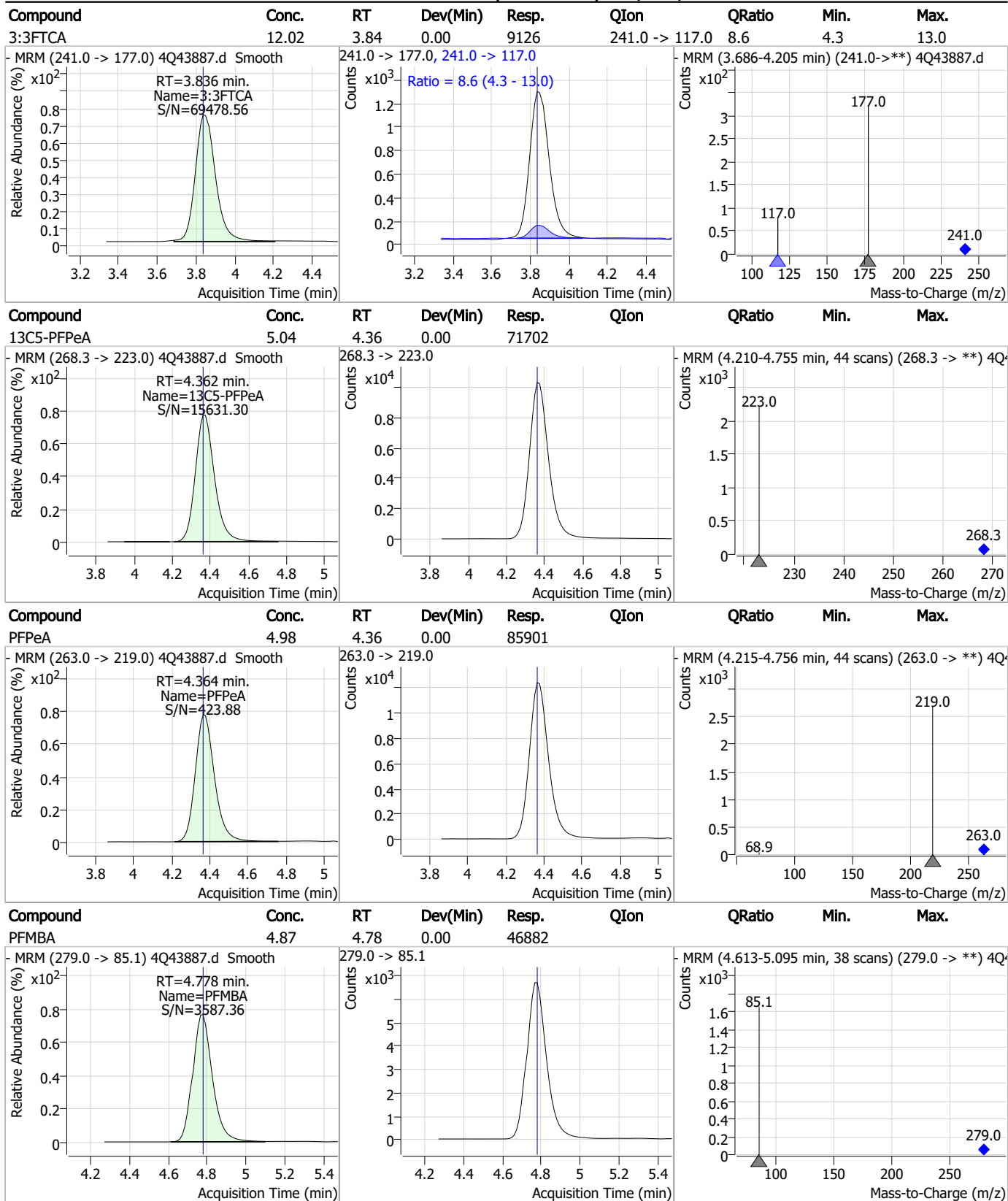
7

Perfluorinated Compounds by LC/MS/MS



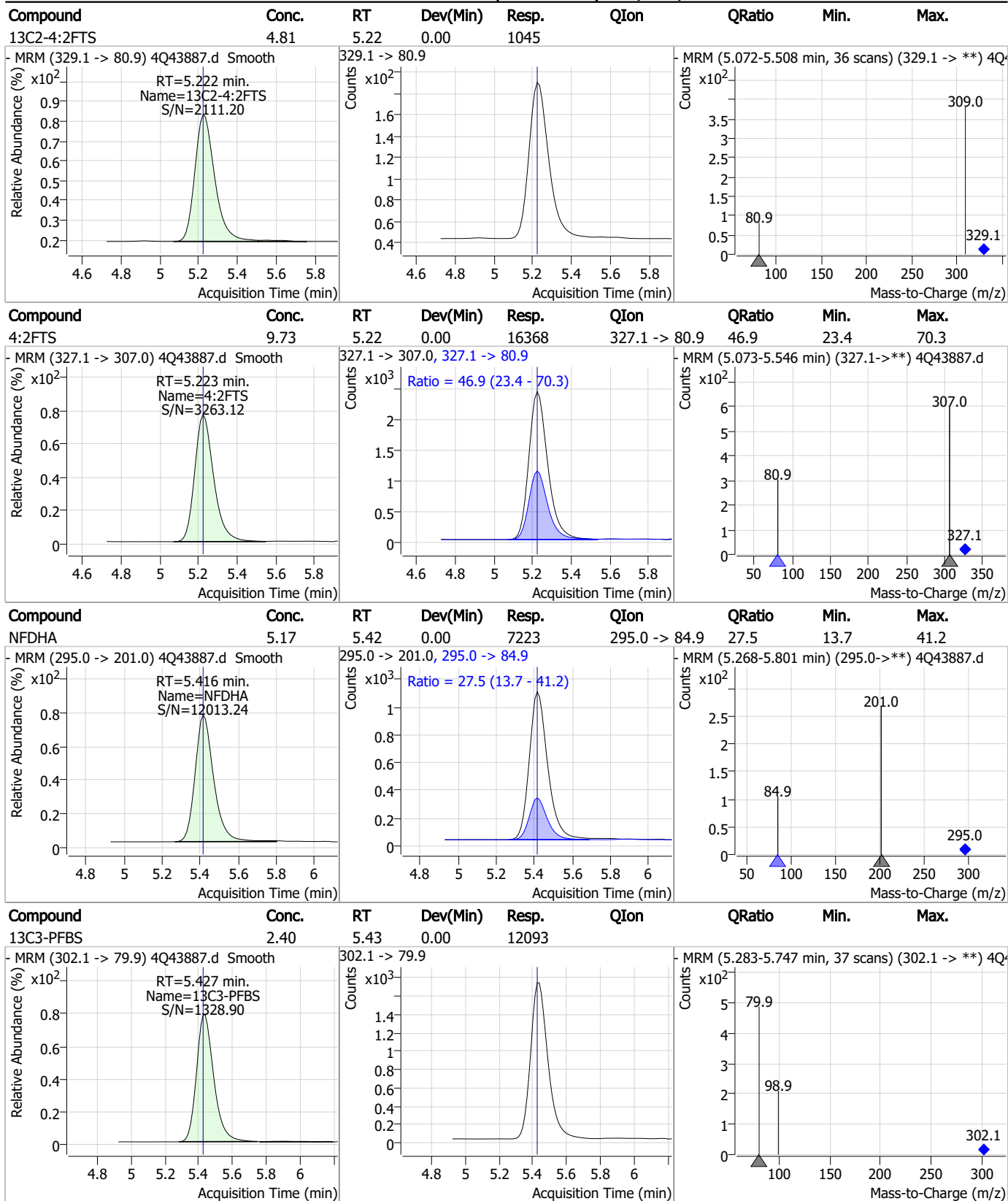
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



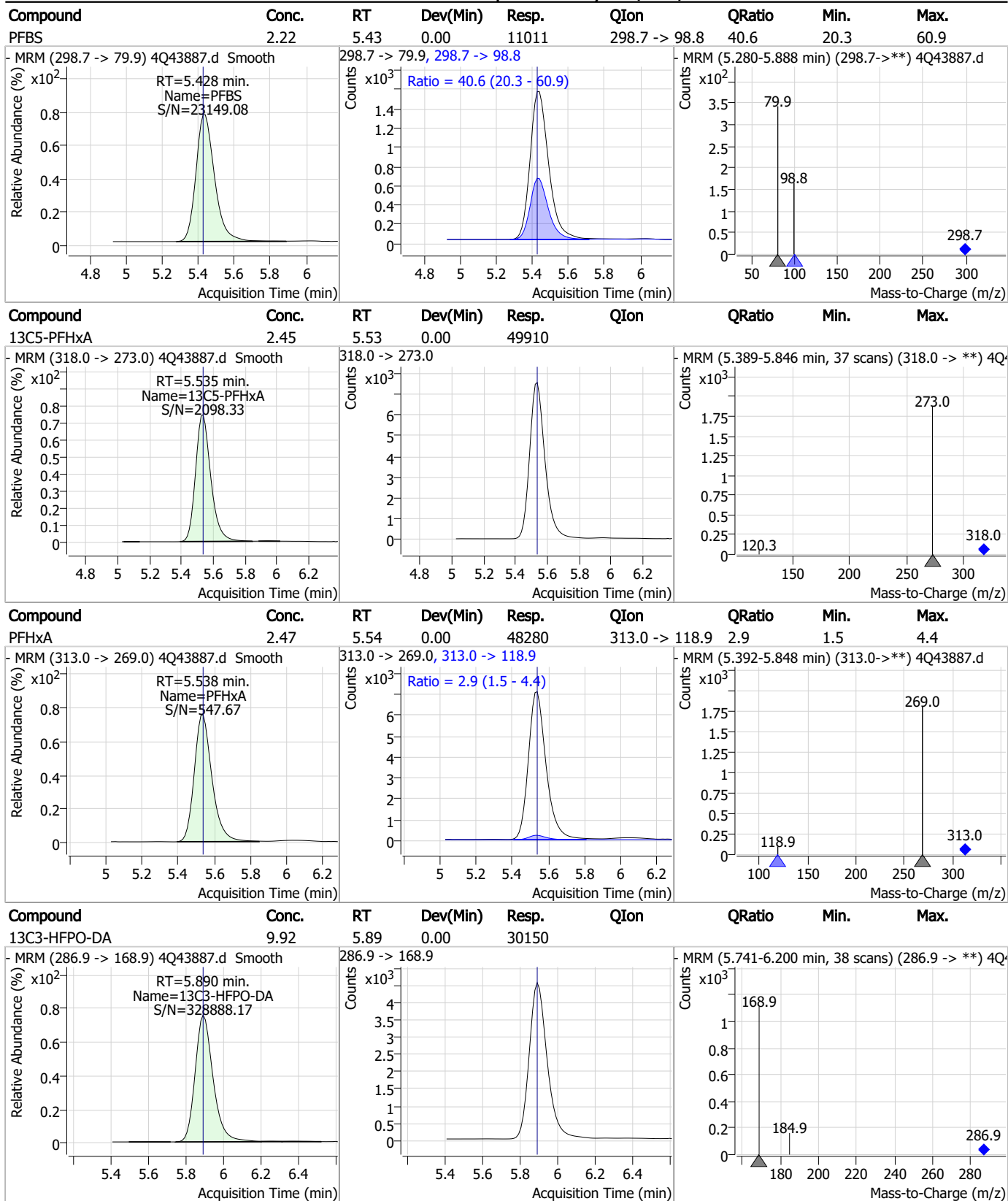
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



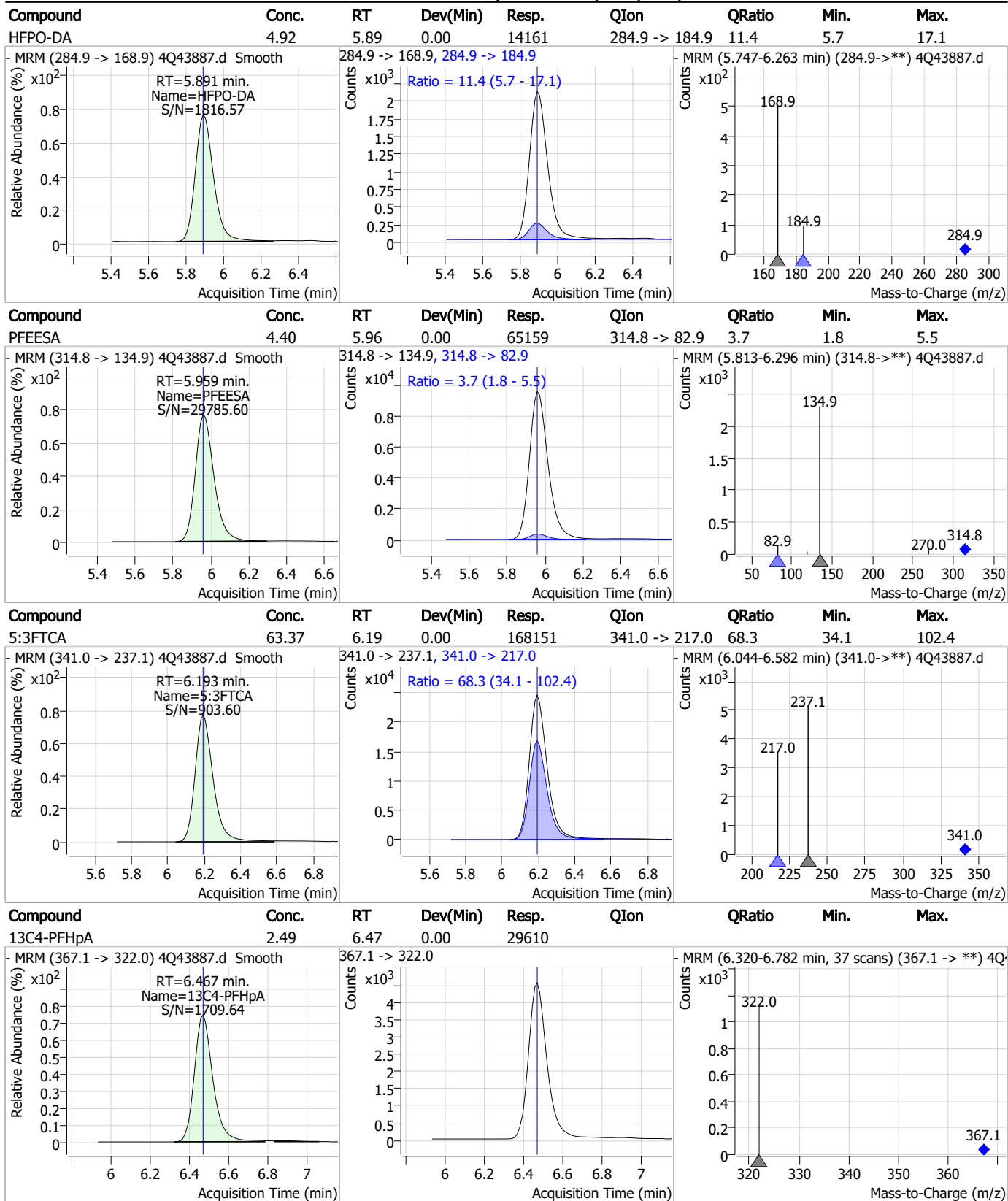
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



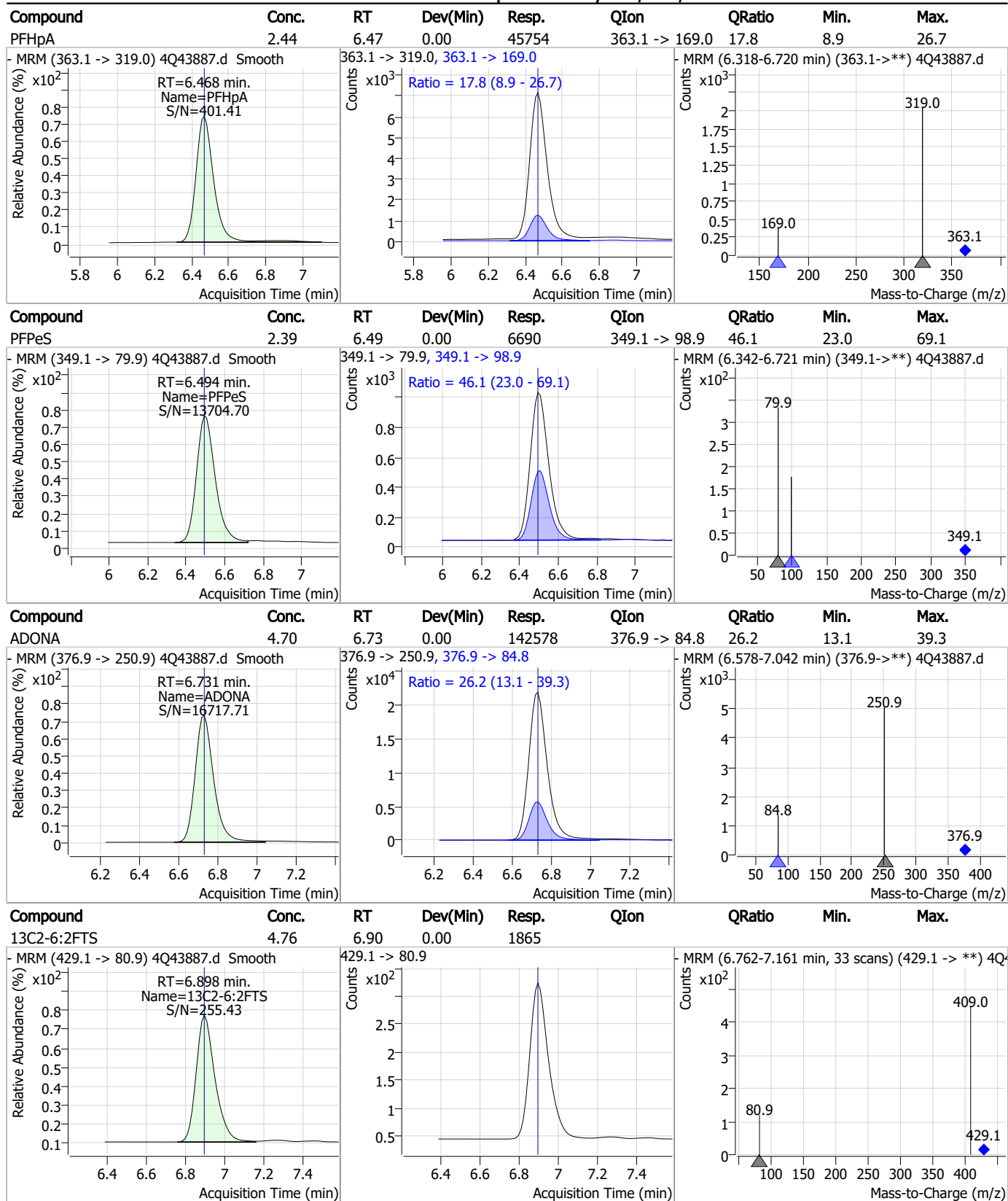
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



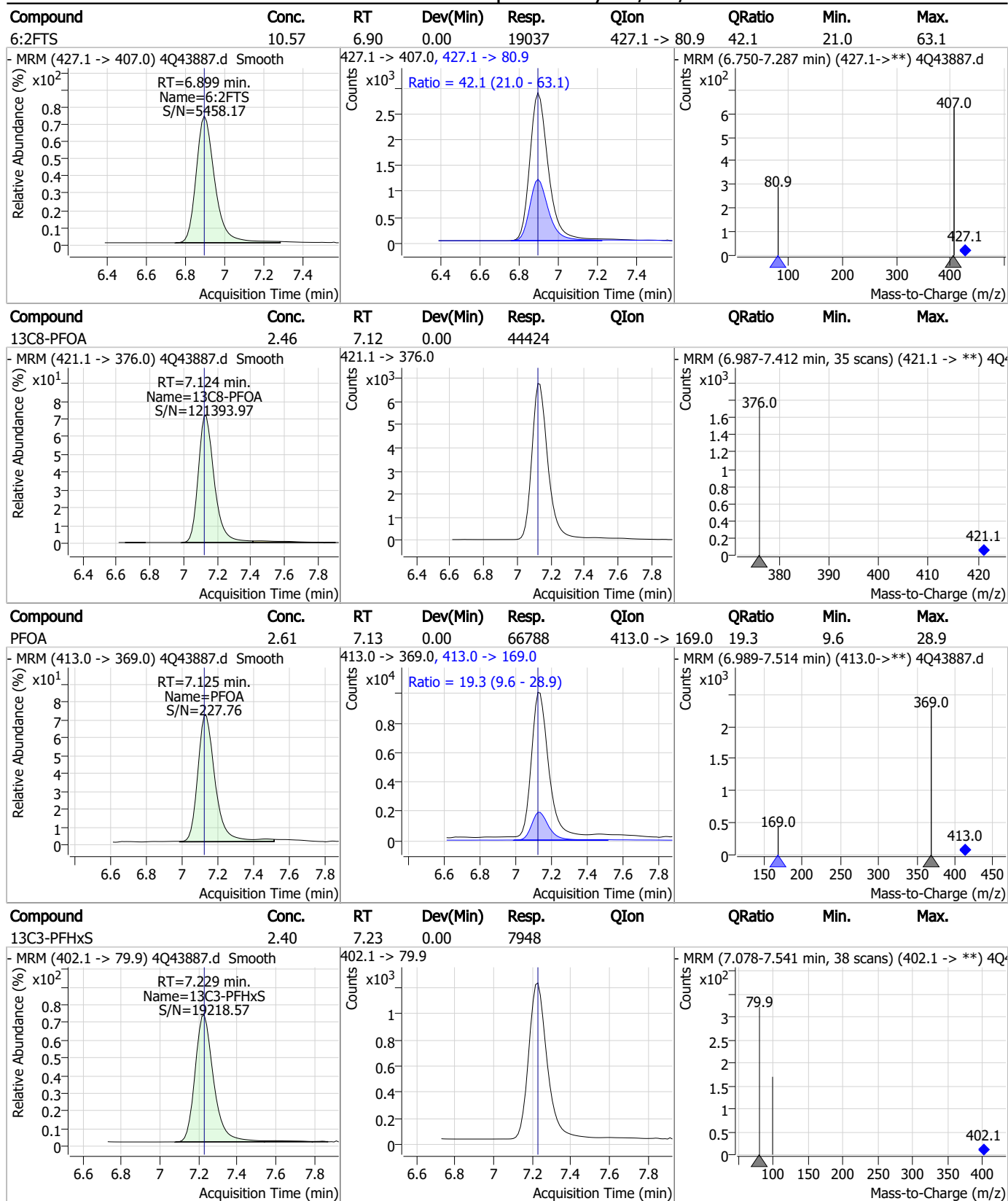
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

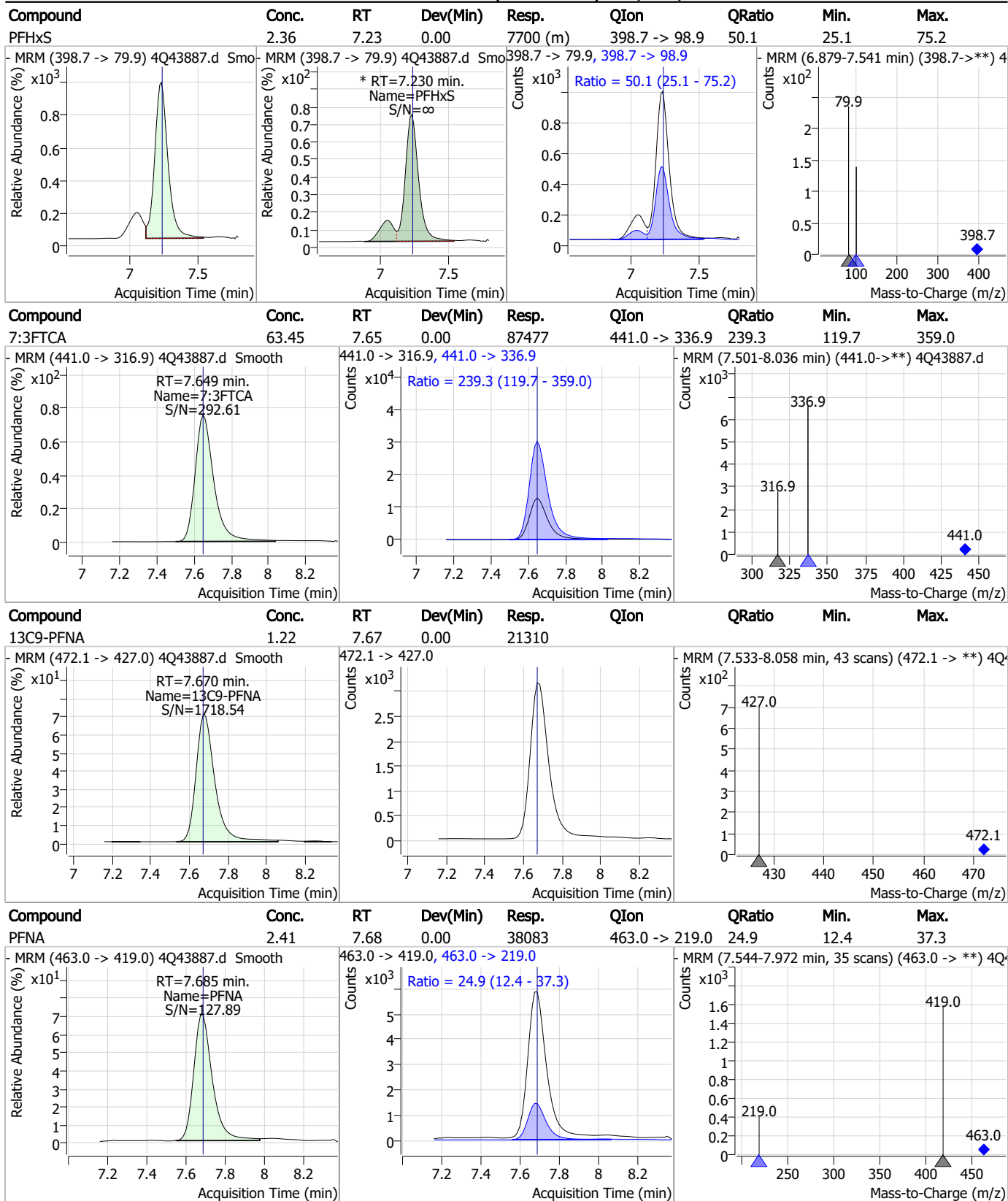
Perfluorinated Compounds by LC/MS/MS



7.7.5

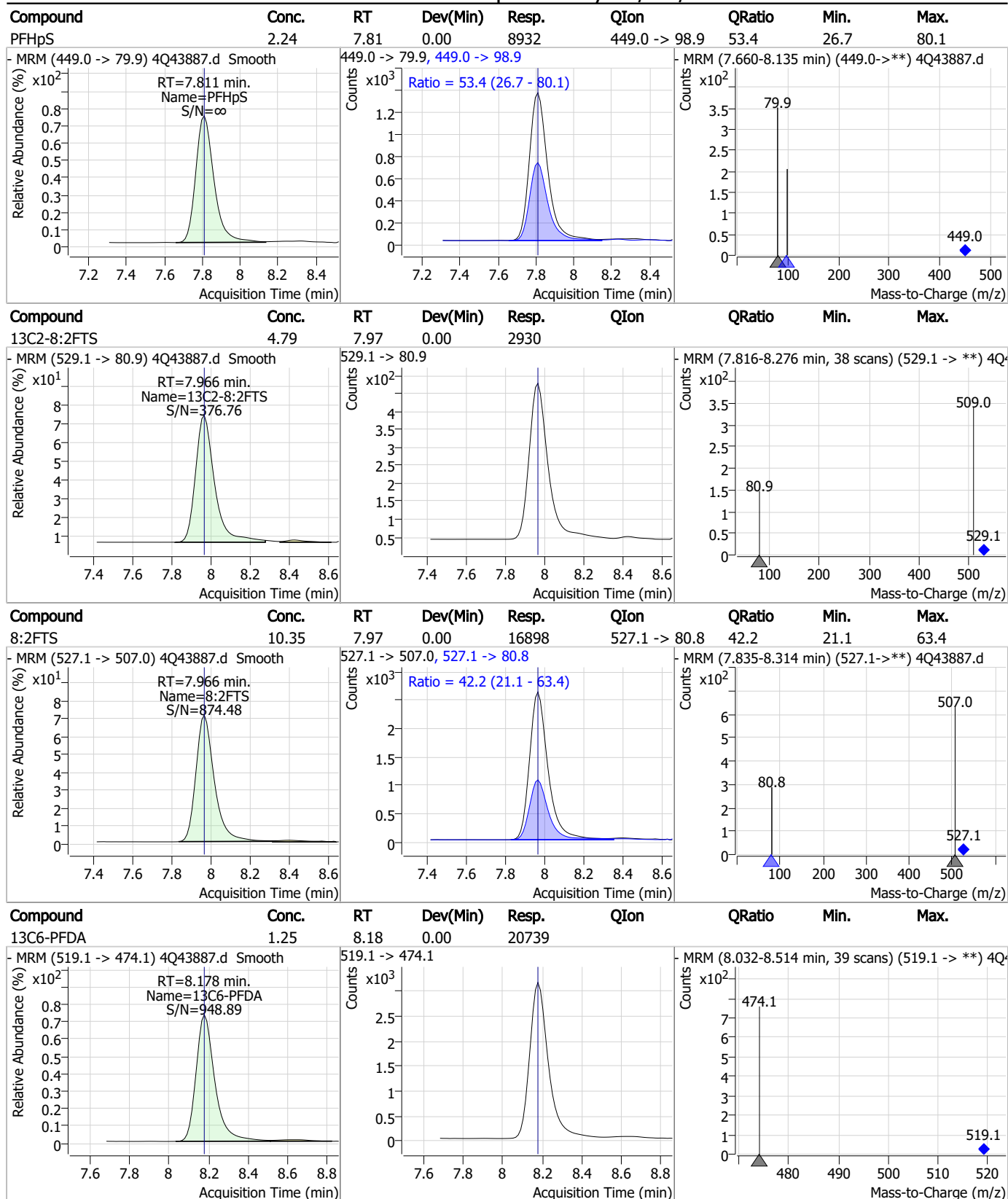
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

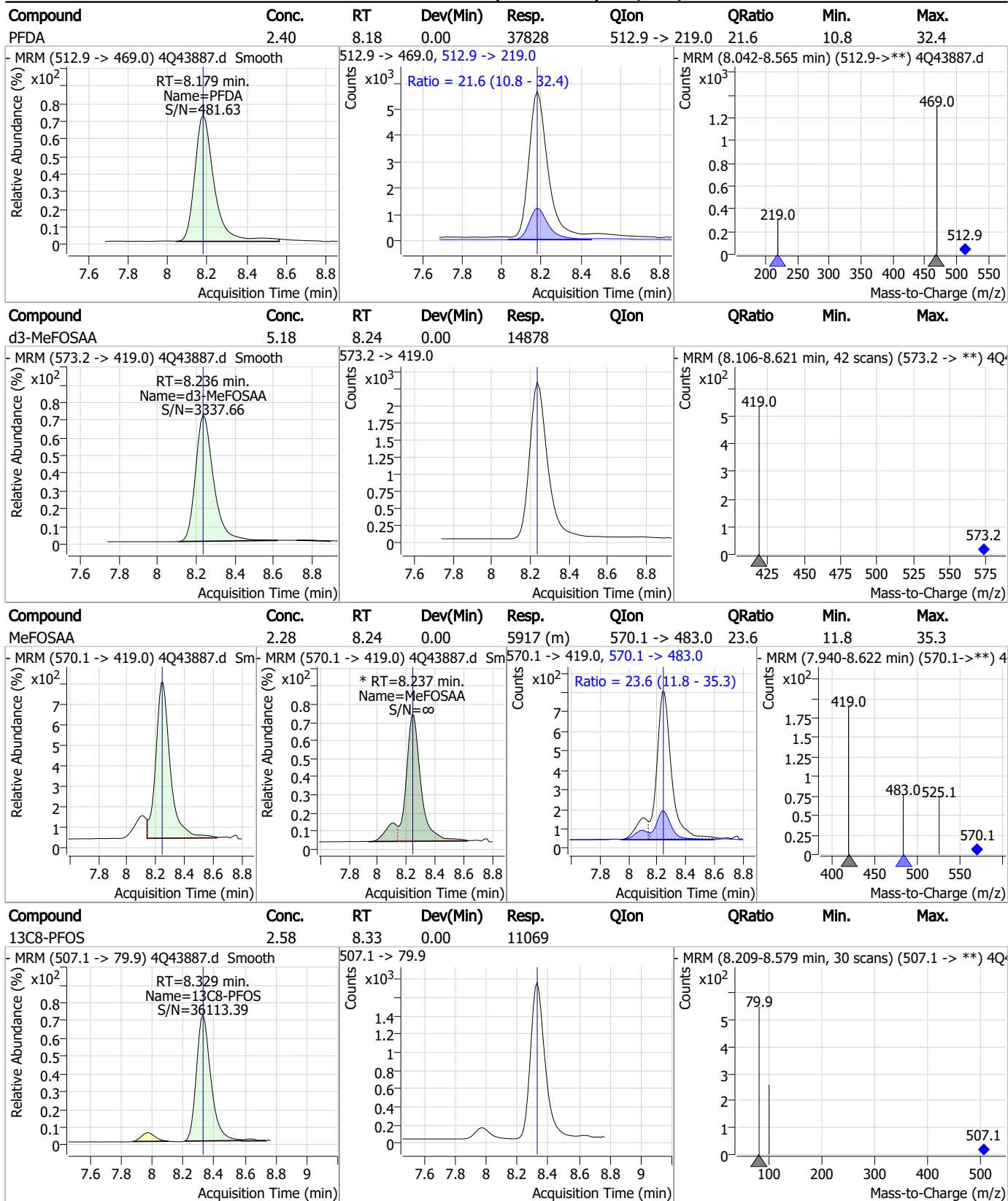
Perfluorinated Compounds by LC/MS/MS



7.7.5

7

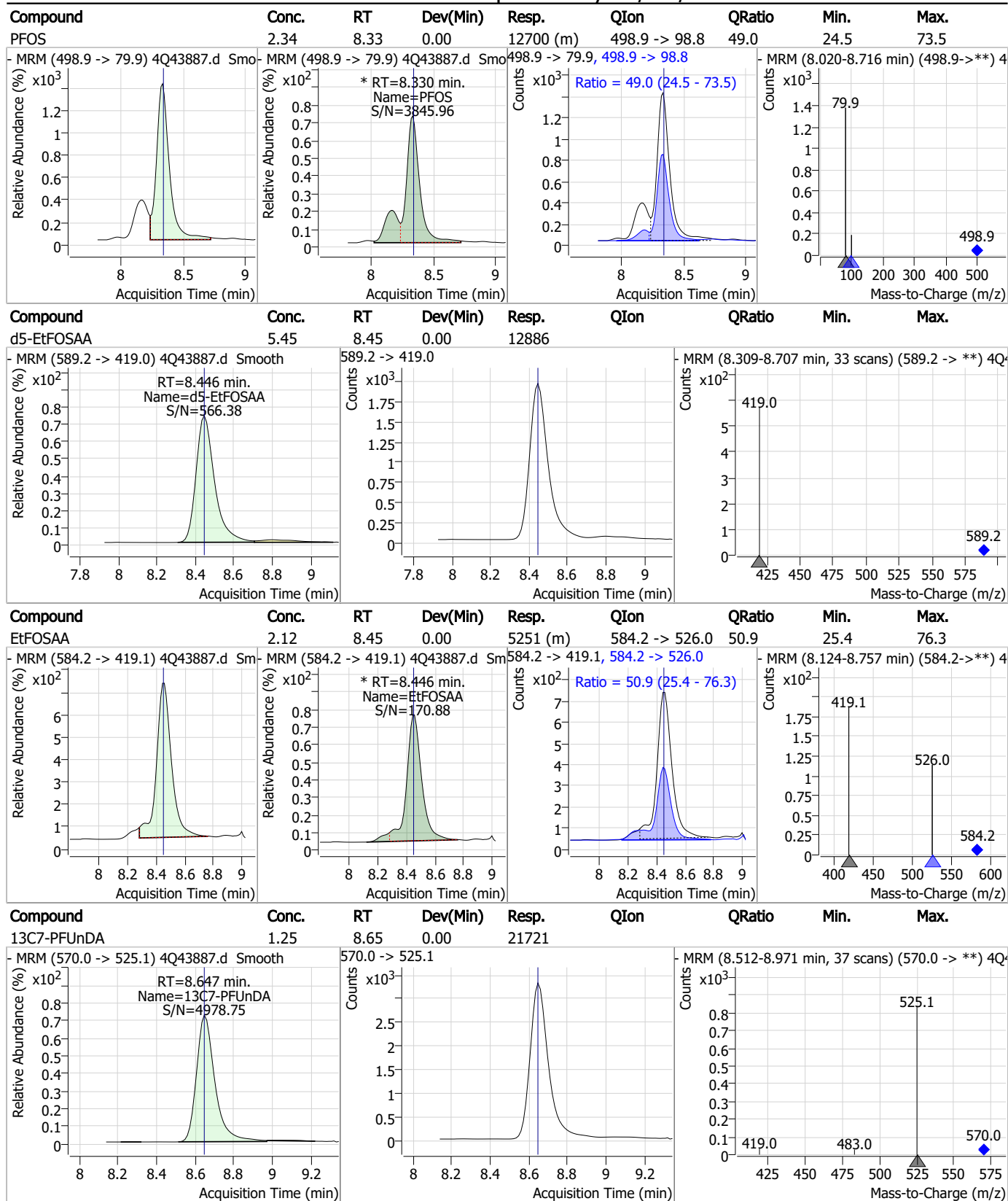
Perfluorinated Compounds by LC/MS/MS



7.7.5

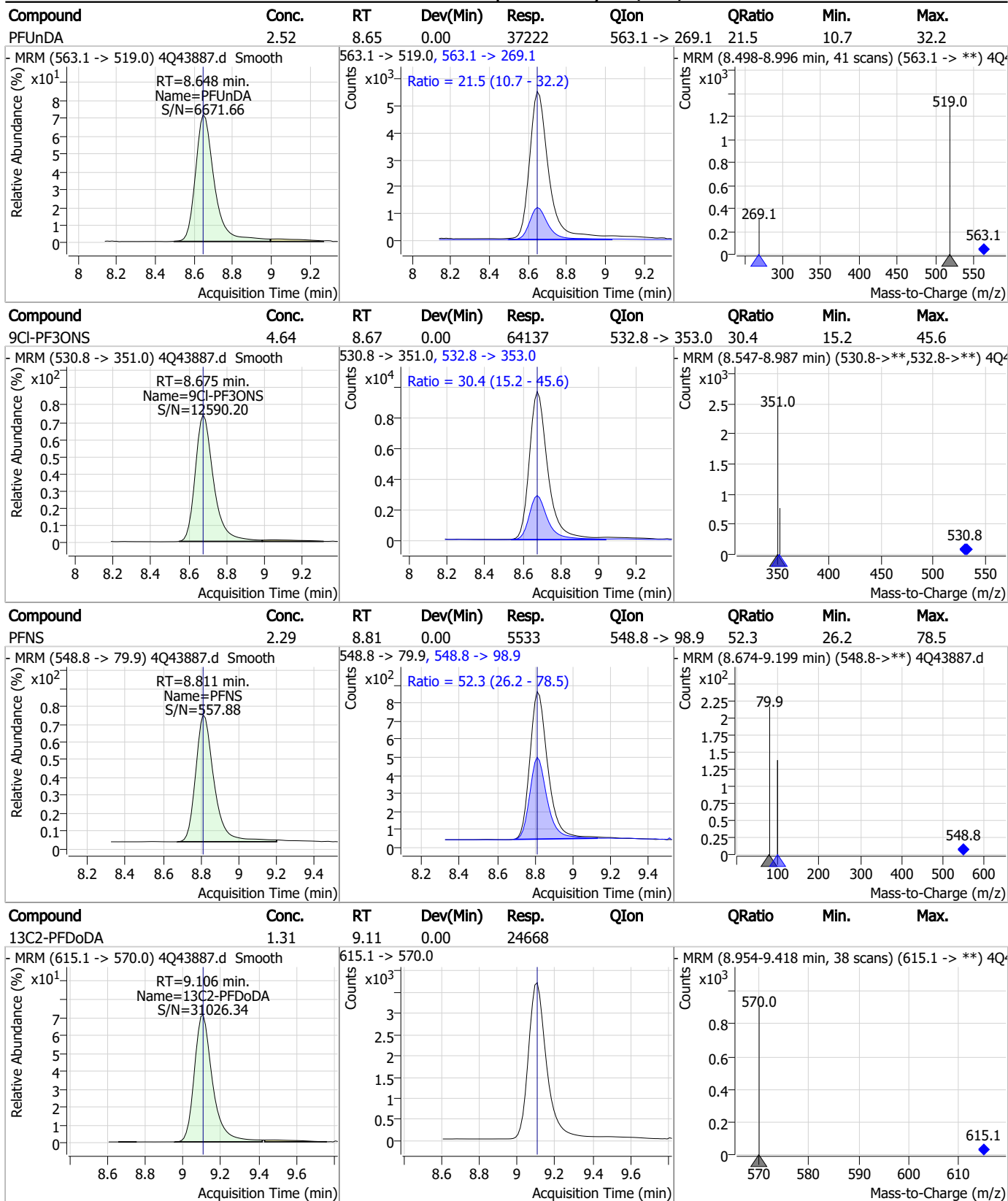
7

Perfluorinated Compounds by LC/MS/MS



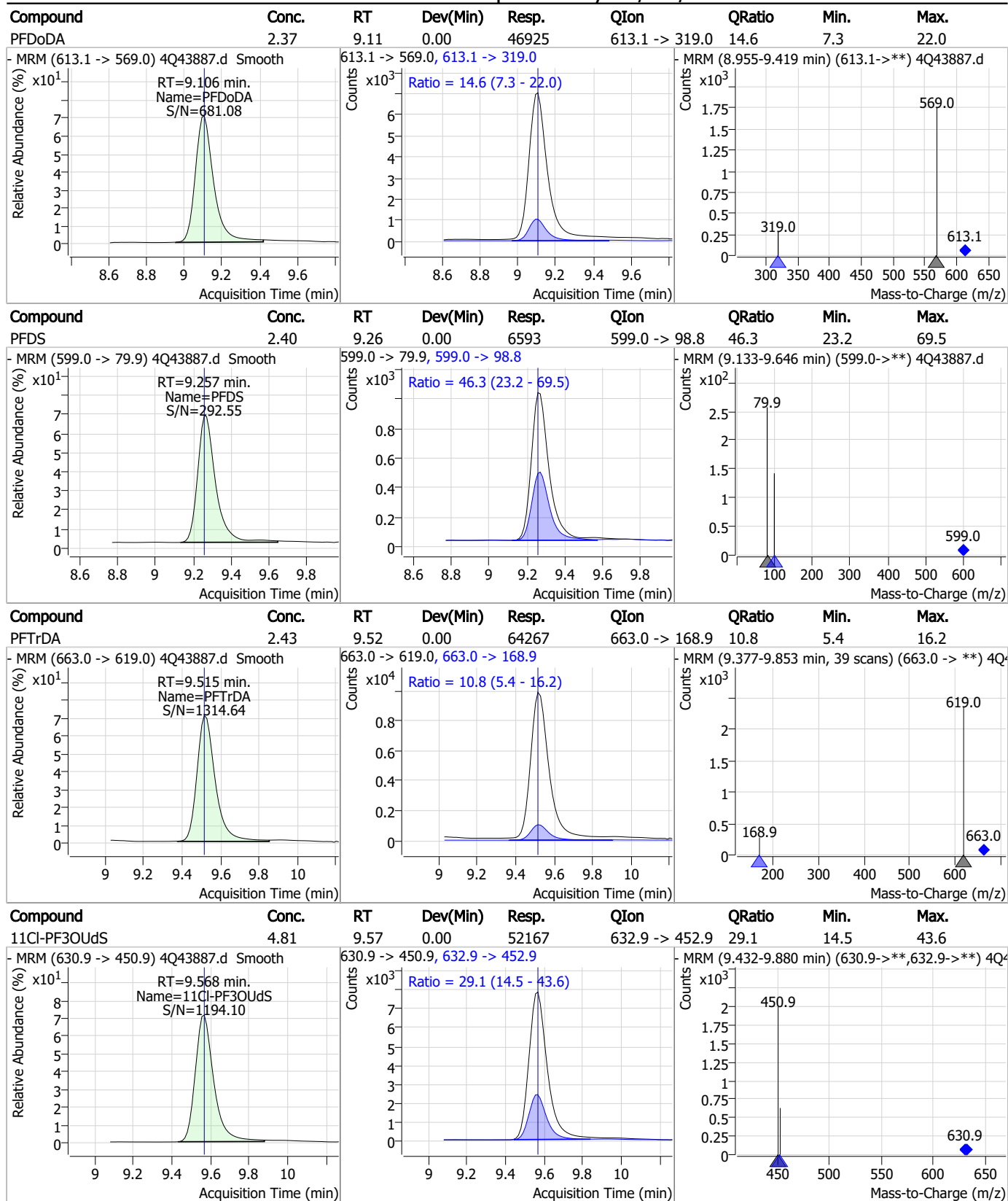
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

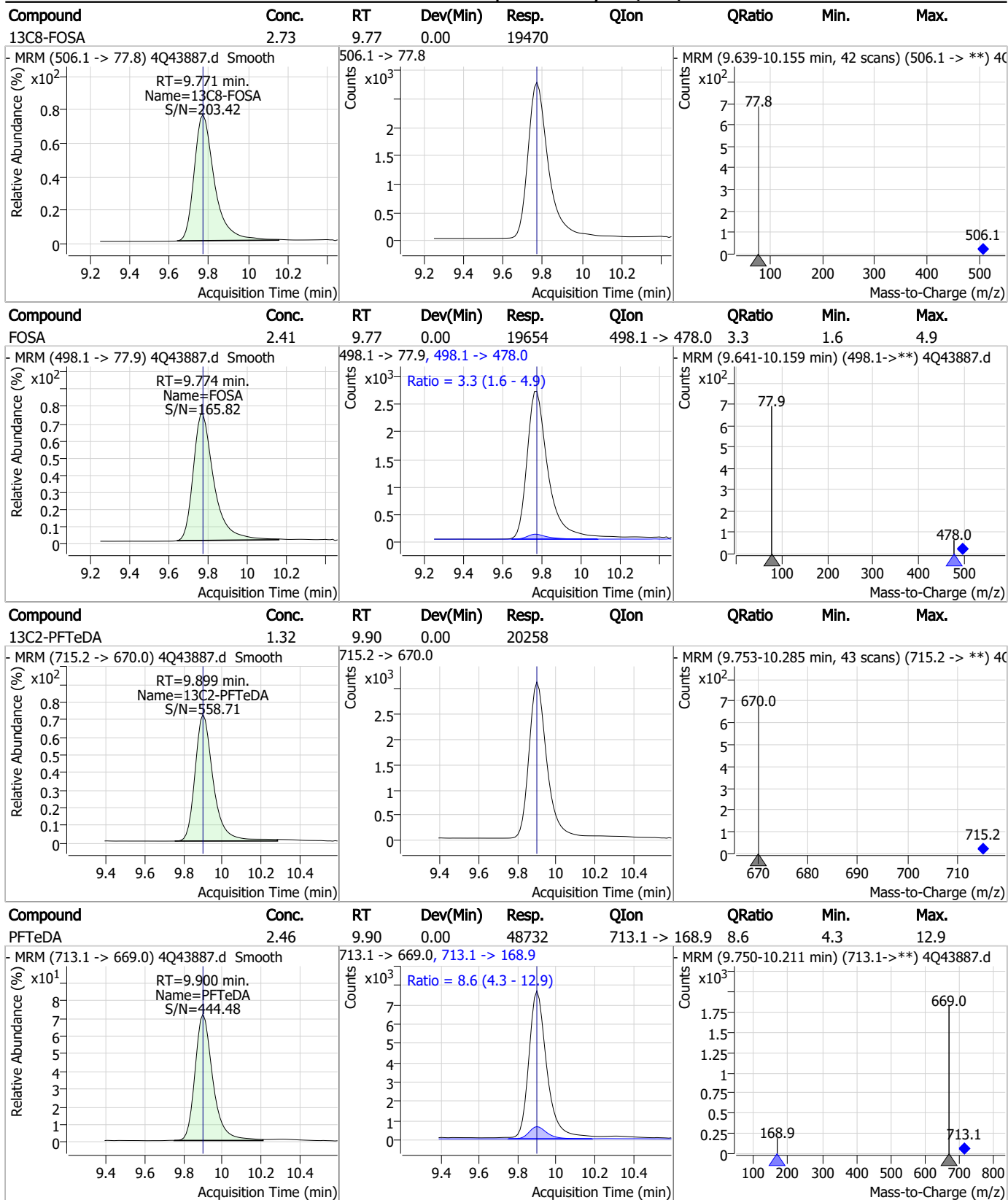
Perfluorinated Compounds by LC/MS/MS



7.7.5

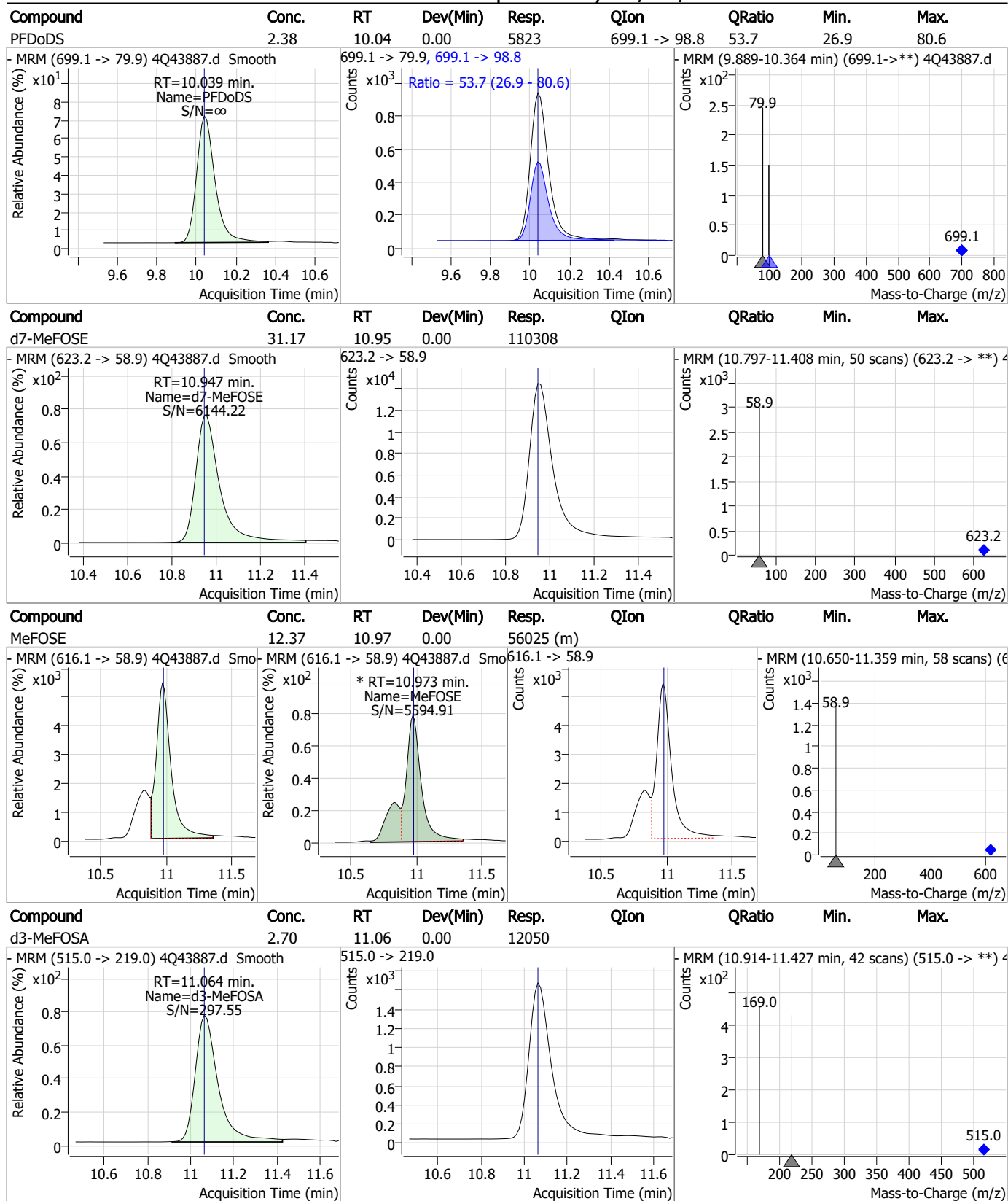
7

Perfluorinated Compounds by LC/MS/MS



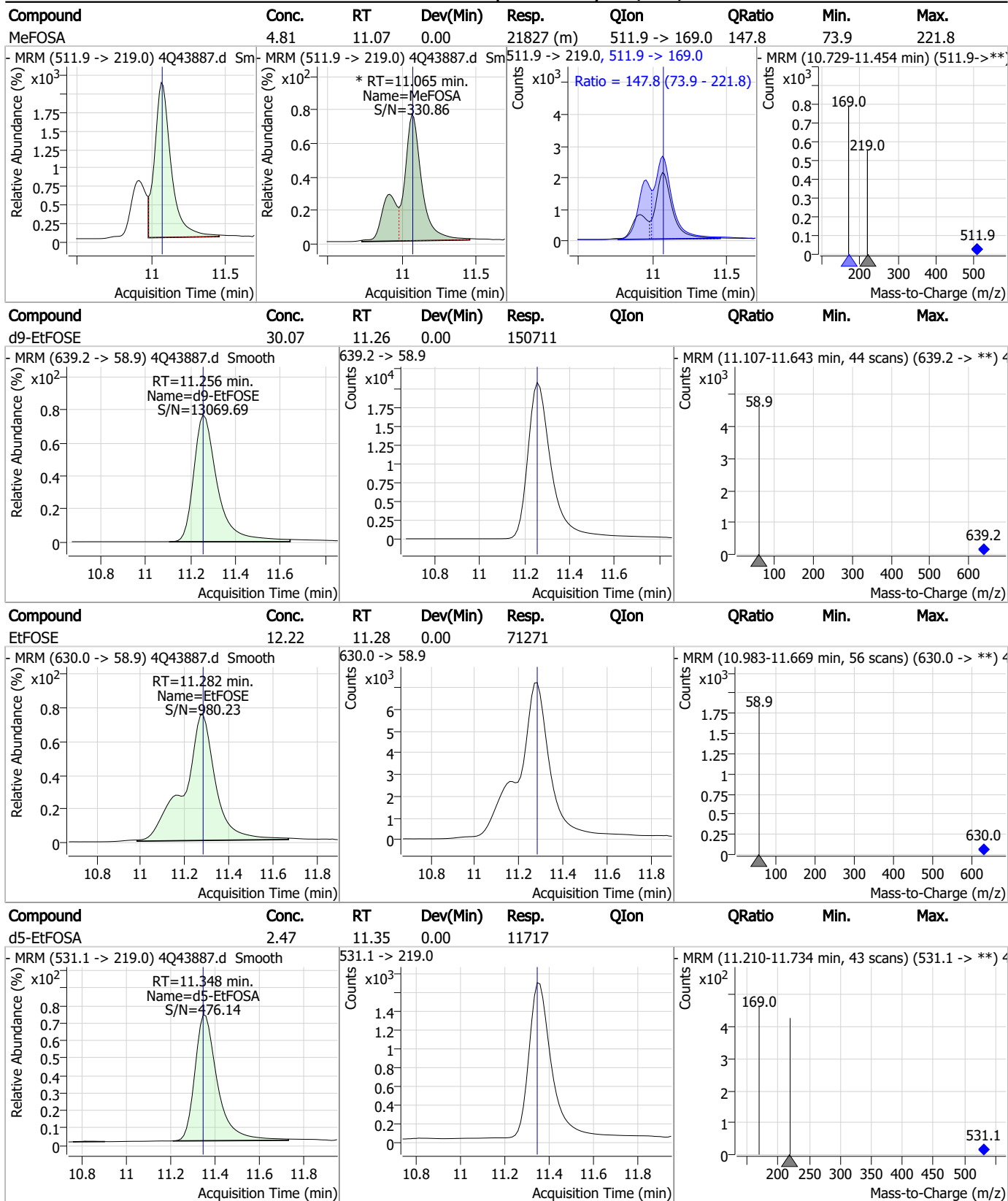
7.7.5
7

Perfluorinated Compounds by LC/MS/MS



7.7.5
7

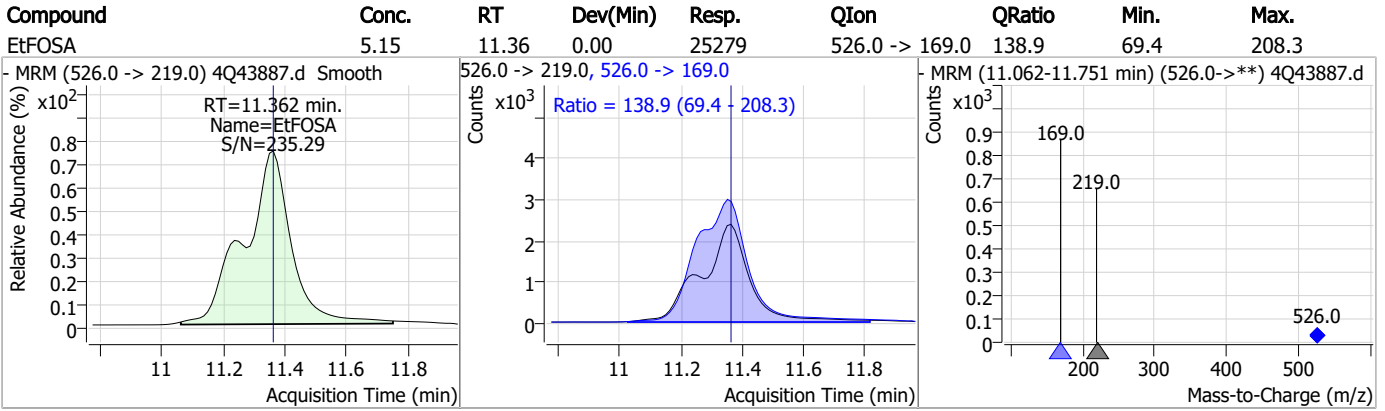
Perfluorinated Compounds by LC/MS/MS



7.7.5
7



Perfluorinated Compounds by LC/MS/MS



7.7.5

7

Manual Integration Approval Summary

Sample Number: S4Q634-ICC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43887.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 11:54 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.24	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak

7.7.5.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43888.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 12:08:27 PM
 Sample Name : ic634-5
 Vial : P1-A6
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	134804	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	72823	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	52258	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	29578	2.50 µg/L	0.000
M8-PFOA	7.124	421.1 -> 376.0	47154	2.50 µg/L	0.000
M9-PFNA	7.684	472.1 -> 427.0	21268	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	20452	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	22750	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	24715	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	20759	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	21043	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	12398	2.50 µg/L	0.000
M3-PFHxS	7.229	402.1 -> 79.9	8084	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10984	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1077	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	2039	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	3000	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14764	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	30622	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	12616	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	113735	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	153598	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	12423	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	11501	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	12014	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	71515	5.00 µg/L	-0.012
18O2-PFHxS	7.228	403.0 -> 83.9	5214	2.50 µg/L	0.000
13C4-PFOA	7.124	417.1 -> 372.0	57051	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	19211	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	25924	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	46558	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1077	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2039	5.34 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C2-8:2FTS	7.966	529.1 -> 80.9	3000	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFDoDA	9.106	615.1 -> 570.0	24715	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-PFTeDA	9.899	715.2 -> 670.0	20759	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.6%		
13C3-PFBS	5.427	302.1 -> 79.9	12398	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C3-PFHxS	7.229	402.1 -> 79.9	8084	2.50 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 = 100.0%		
13C4-PFBA	2.924	216.8 -> 171.9	134804	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C4-PFHpA	6.467	367.1 -> 322.0	29578	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C5-PFHxA	5.535	318.0 -> 273.0	52258	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C5-PFPeA	4.362	268.3 -> 223.0	72823	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C6-PFDA	8.178	519.1 -> 474.1	20452	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C7-PFUnDA	8.647	570.0 -> 525.1	22750	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C8-FOSA	9.771	506.1 -> 77.8	21043	2.79 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 111.7%		
13C8-PFOA	7.124	421.1 -> 376.0	47154	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C8-PFOS	8.329	507.1 -> 79.9	10984	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.1%		
13C9-PFNA	7.684	472.1 -> 427.0	21268	1.21 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.6%		
d3-MeFOSAA	8.236	573.2 -> 419.0	14764	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C3-HFPO-DA	5.890	286.9 -> 168.9	30622	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.0%		
d3-MeFOSA	11.064	515.0 -> 219.0	11501	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.6%		
d5-EtFOSAA	8.446	589.2 -> 419.0	12616	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.0%		
d7-MeFOSE	10.947	623.2 -> 58.9	113735	30.43 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 121.7%		
d9-EtFOSE	11.256	639.2 -> 58.9	153598	29.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 116.1%		
d5-EtFOSA	11.348	531.1 -> 219.0	12423	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.2%		
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	31539	18.21 µg/L	93
		327.1 -> 80.9	13355		
6:2FTS	6.899	427.1 -> 407.0	34855	17.69 µg/L	97
		427.1 -> 80.9	15248		
8:2FTS	7.966	527.1 -> 507.0	33969	20.32 µg/L	96
		527.1 -> 80.8	13558		
EtFOSAA	8.459	584.2 -> 419.1	11889	4.91 µg/L	m 86
		584.2 -> 526.0	4874		
FOSA	9.774	498.1 -> 77.9	40395	4.58 µg/L	100
		498.1 -> 478.0	1299		
MeFOSAA	8.249	570.1 -> 419.0	12287	4.77 µg/L	m 94
		570.1 -> 483.0	2551		
PFBA	2.920	212.8 -> 168.9	69778	19.33 µg/L	100
PFBS	5.428	298.7 -> 79.9	21965	4.32 µg/L	95
		298.7 -> 98.8	8210		
PFDA	8.179	512.9 -> 469.0	76434	4.93 µg/L	96
		512.9 -> 219.0	15009		
PFDODA	9.106	613.1 -> 569.0	96603	4.87 µg/L	98
		613.1 -> 319.0	13468		
PFDS	9.269	599.0 -> 79.9	12625	4.64 µg/L	96

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	6186			
PFHpA	6.468	363.1 -> 319.0	93191	4.98	µg/L	97
		363.1 -> 169.0	15263			
PFHpS	7.811	449.0 -> 79.9	18307	4.63	µg/L	98
		449.0 -> 98.9	9503			
PFHxA	5.538	313.0 -> 269.0	95984	4.69	µg/L	99
		313.0 -> 118.9	3021			
PFHxS	7.230	398.7 -> 79.9	15189	4.58	µg/L	m 100
		398.7 -> 98.9	7586			
PFNA	7.685	463.0 -> 419.0	76679	4.86	µg/L	98
		463.0 -> 219.0	18428			
PFNS	8.811	548.8 -> 79.9	10967	4.57	µg/L	99
		548.8 -> 98.9	5623			
PFOA	7.125	413.0 -> 369.0	127443	4.68	µg/L	98
		413.0 -> 169.0	25603			
PFOS	8.330	498.9 -> 79.9	22688	4.22	µg/L	m 92
		498.9 -> 98.8	12327			
PFPeA	4.364	263.0 -> 219.0	170747	9.75	µg/L	100
PFPeS	6.494	349.1 -> 79.9	12591	4.43	µg/L	97
		349.1 -> 98.9	5579			
PFTeDA	9.900	713.1 -> 669.0	100204	4.93	µg/L	100
		713.1 -> 168.9	8586			
PFTrDA	9.515	663.0 -> 619.0	132030	4.98	µg/L	98
		663.0 -> 168.9	13100			
PFUnDA	8.648	563.1 -> 519.0	73373	4.75	µg/L	97
		563.1 -> 269.1	14796			
11Cl-PF3OUdS	9.568	630.9 -> 450.9	104514	9.49	µg/L	99
		632.9 -> 452.9	31228			
9Cl-PF3ONS	8.675	530.8 -> 351.0	127175	9.07	µg/L	99
		532.8 -> 353.0	37776			
ADONA	6.731	376.9 -> 250.9	282729	9.18	µg/L	99
		376.9 -> 84.8	74836			
HFPO-DA	5.891	284.9 -> 168.9	27831	9.51	µg/L	99
		284.9 -> 184.9	3310			
3:3FTCA	3.836	241.0 -> 177.0	18002	23.35	µg/L	98
		241.0 -> 117.0	1663			
5:3FTCA	6.193	341.0 -> 237.1	330806	119.07	µg/L	99
		341.0 -> 217.0	227780			
7:3FTCA	7.649	441.0 -> 316.9	174758	121.06	µg/L	98
		441.0 -> 336.9	410856			
EtFOSA	11.362	526.0 -> 219.0	49660	9.54	µg/L	99
		526.0 -> 169.0	68360			
EtFOSE	11.282	630.0 -> 58.9	143421	24.12	µg/L	100
MeFOSA	11.066	511.9 -> 219.0	42597	9.83	µg/L	m 96
		511.9 -> 169.0	65145			
MeFOSE	10.973	616.1 -> 58.9	100255	21.46	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	11673	4.81	µg/L	95
		699.1 -> 98.8	6646			
NFDHA	5.416	295.0 -> 201.0	13821	9.45	µg/L	95
		295.0 -> 84.9	3465			
PFMBA	4.778	279.0 -> 85.1	92755	9.49	µg/L	100
PFMPA	3.528	229.0 -> 84.9	87763	9.58	µg/L	100
PFEESA	5.959	314.8 -> 134.9	128861	8.31	µg/L	99
		314.8 -> 82.9	4504			

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

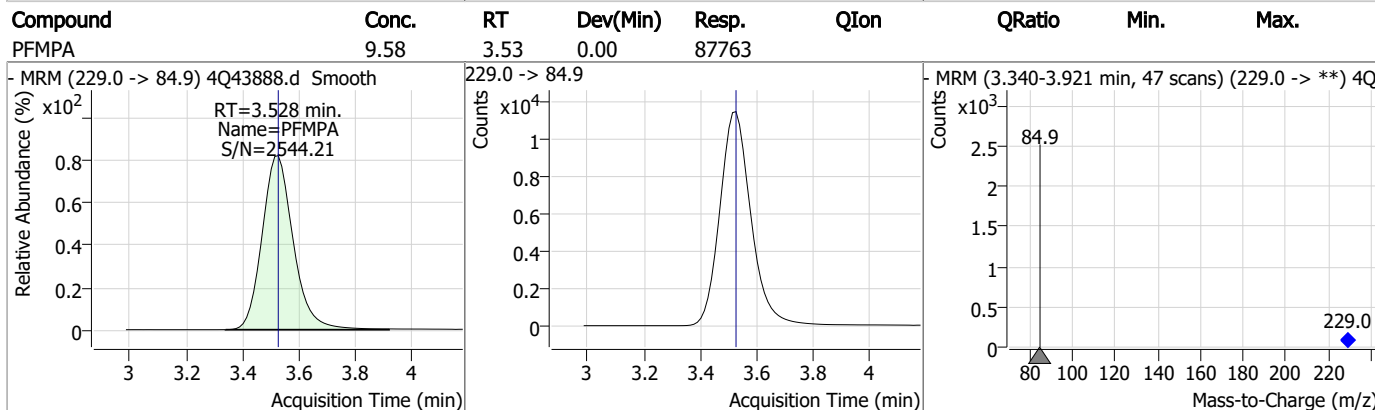
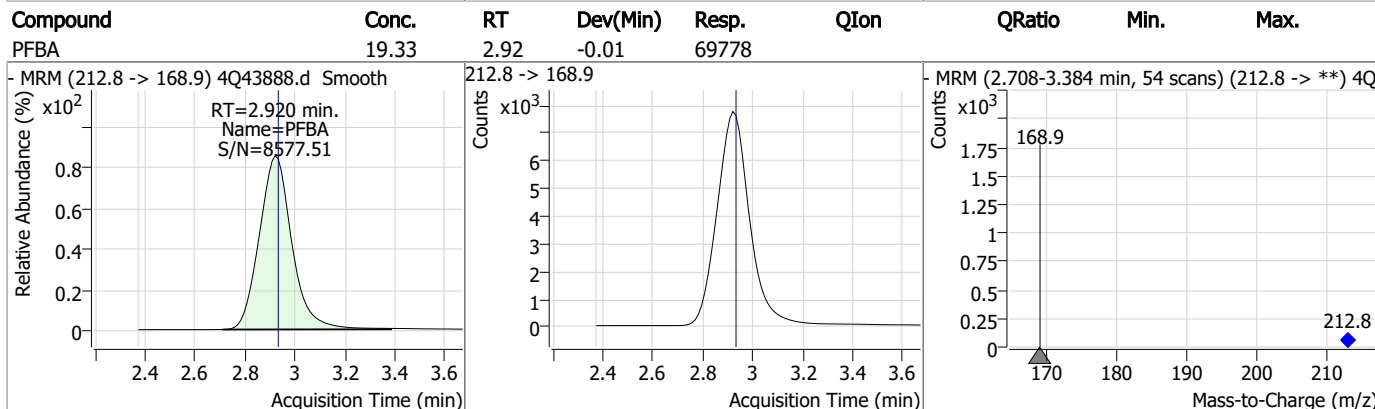
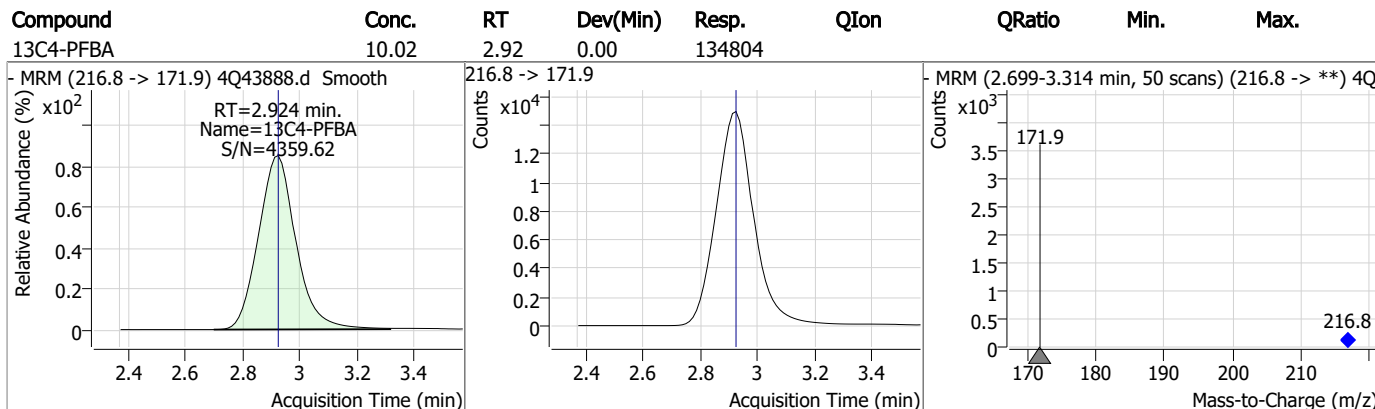
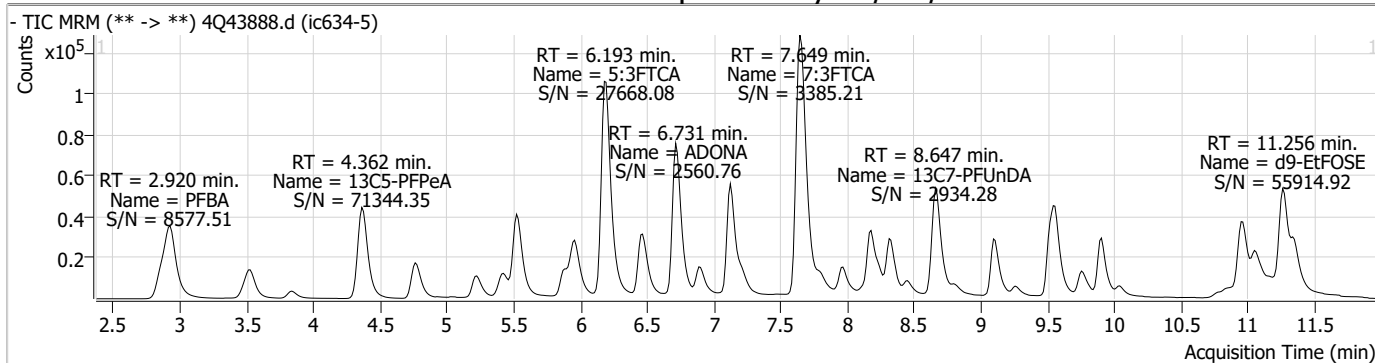
Perfluorinated Compounds by LC/MS/MS

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

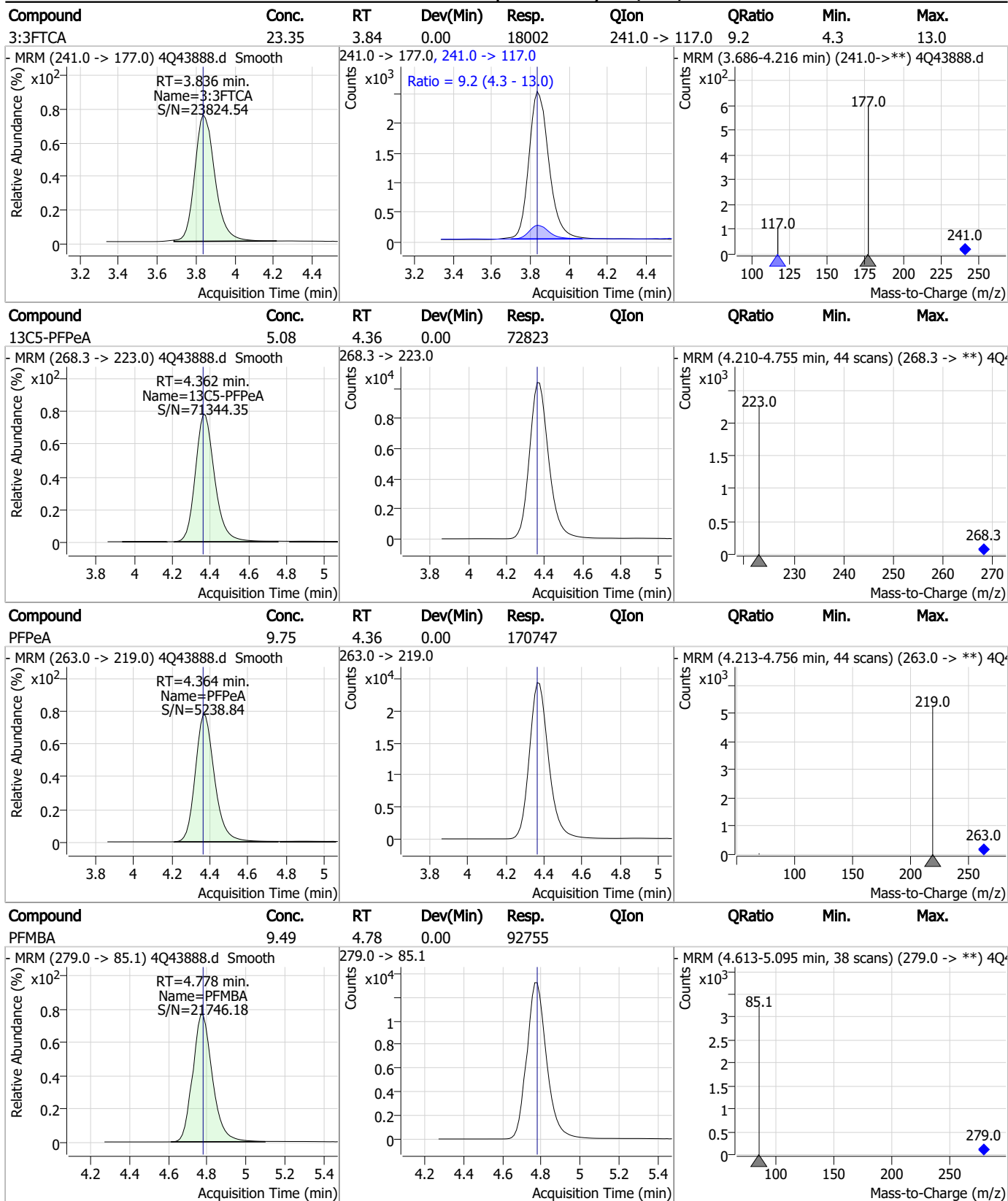
7.7.6

7

Perfluorinated Compounds by LC/MS/MS

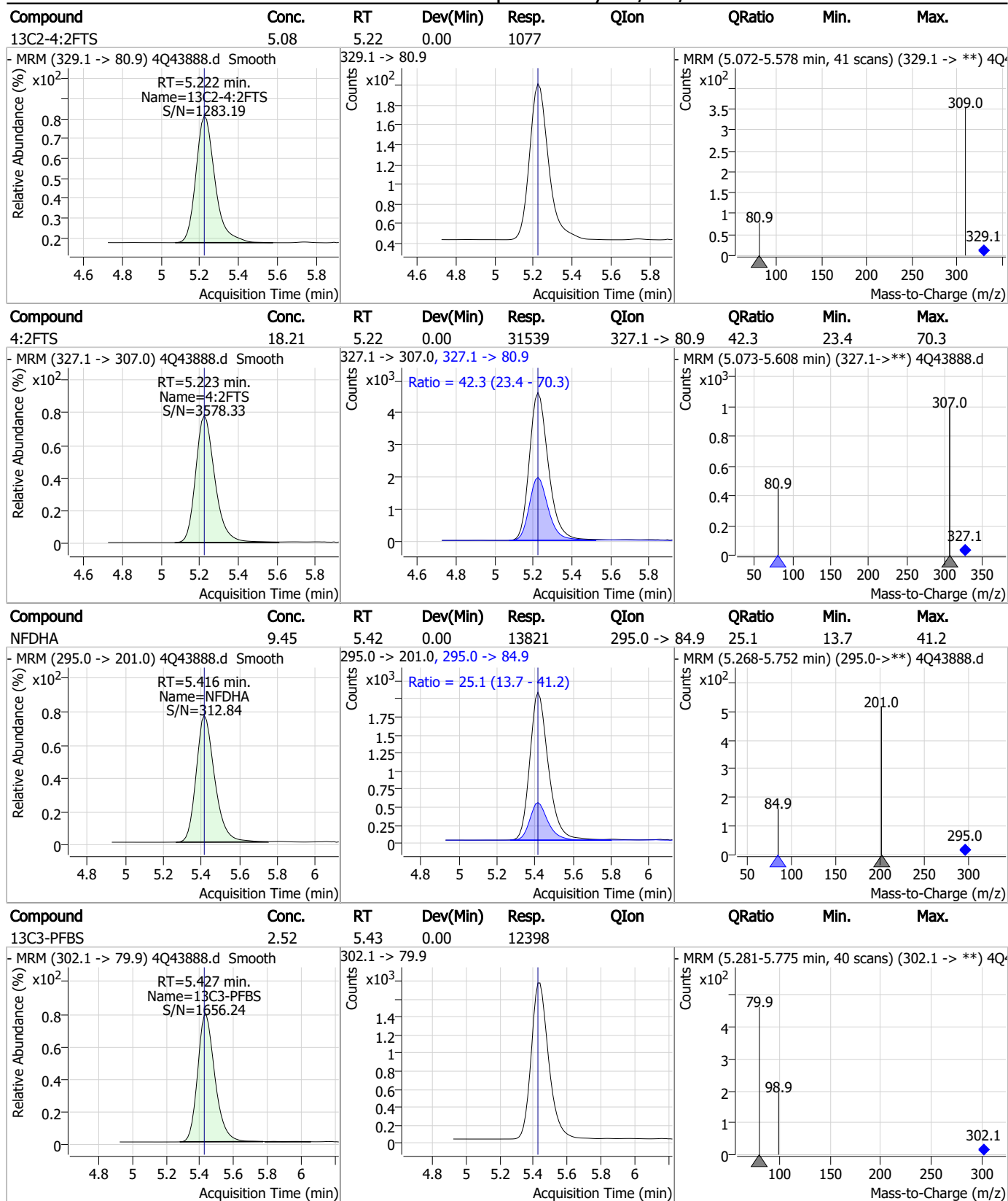


Perfluorinated Compounds by LC/MS/MS



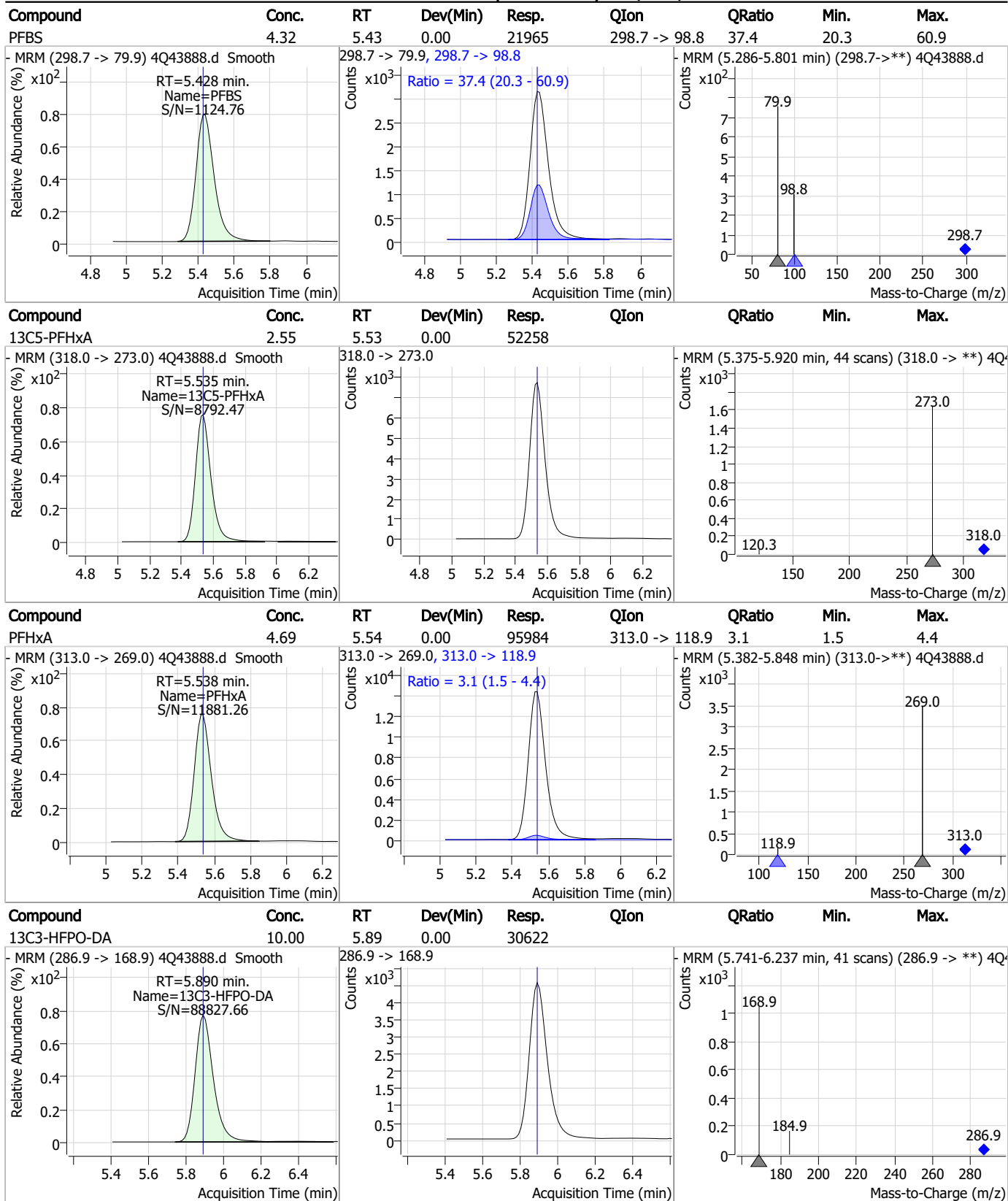
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



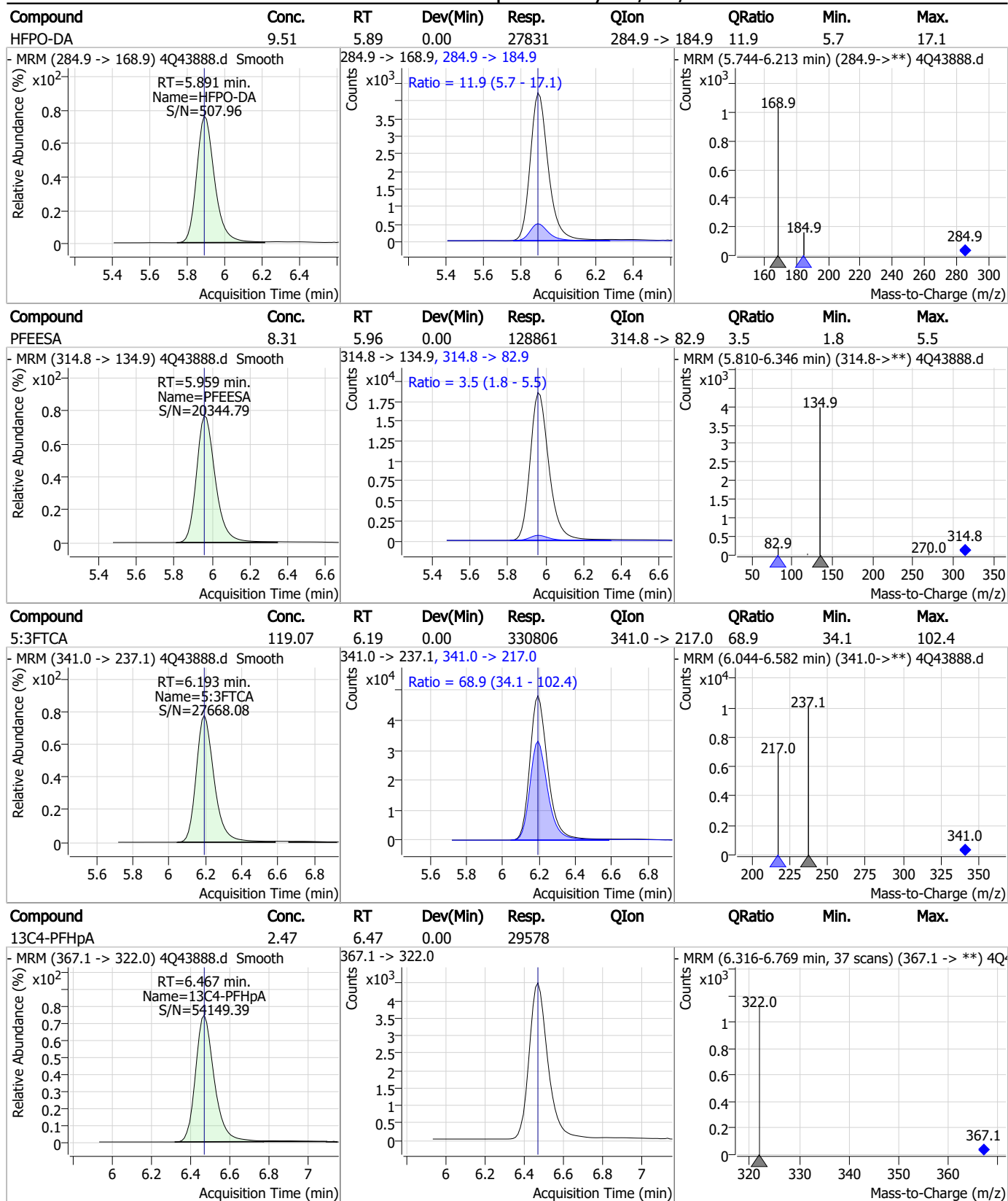
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6
7

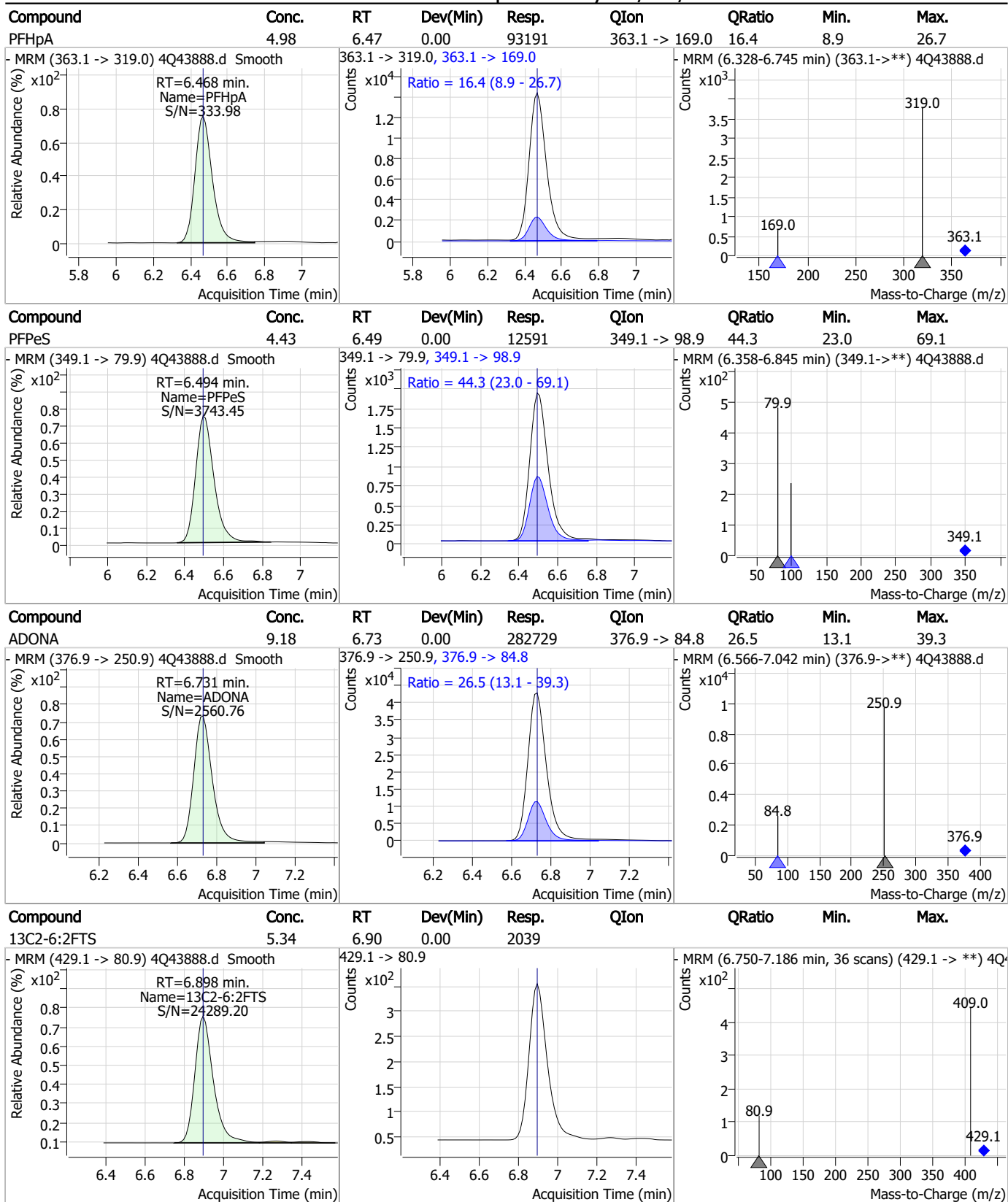
Perfluorinated Compounds by LC/MS/MS



7.7.6
7

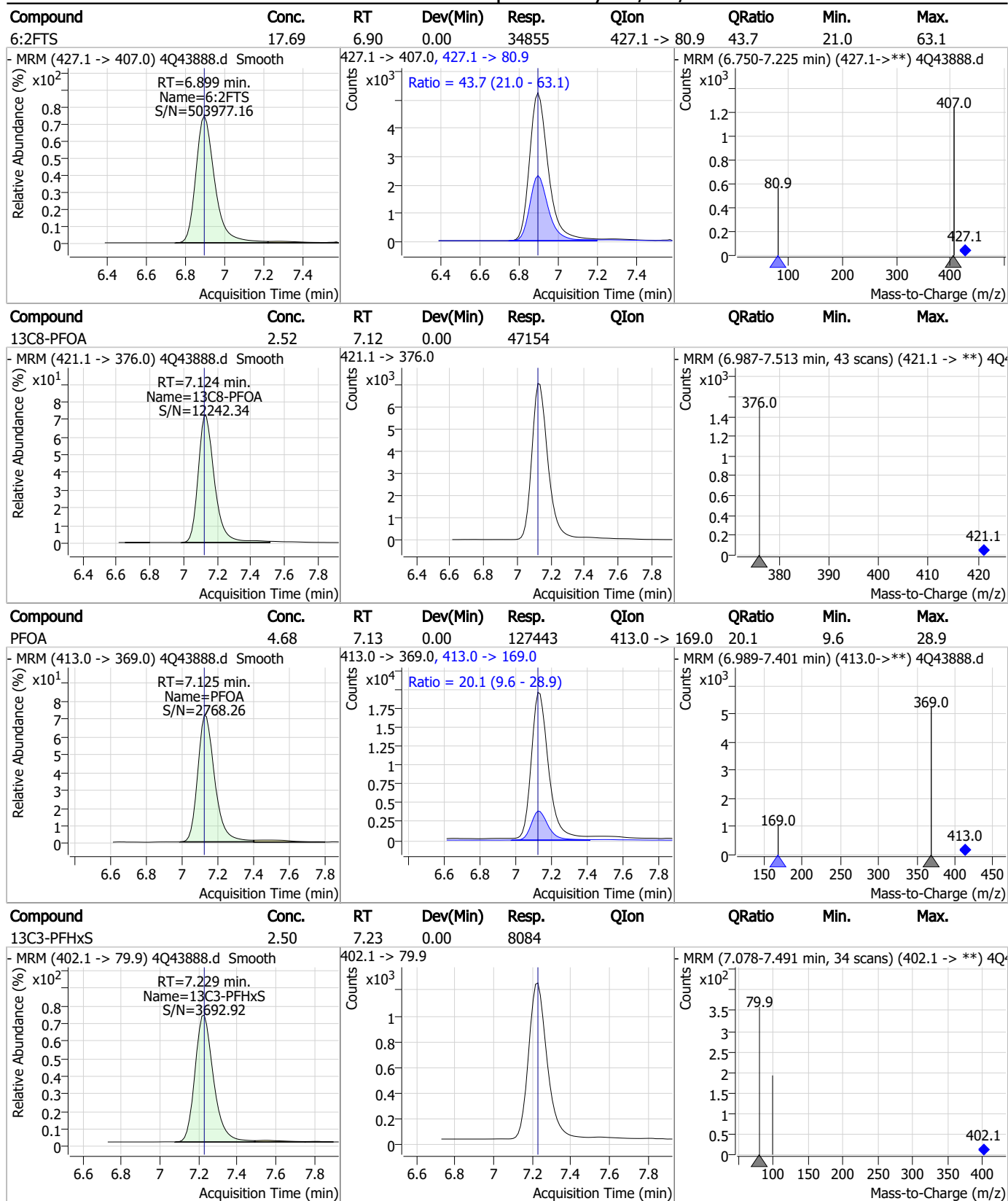


Perfluorinated Compounds by LC/MS/MS



7.7.6
7

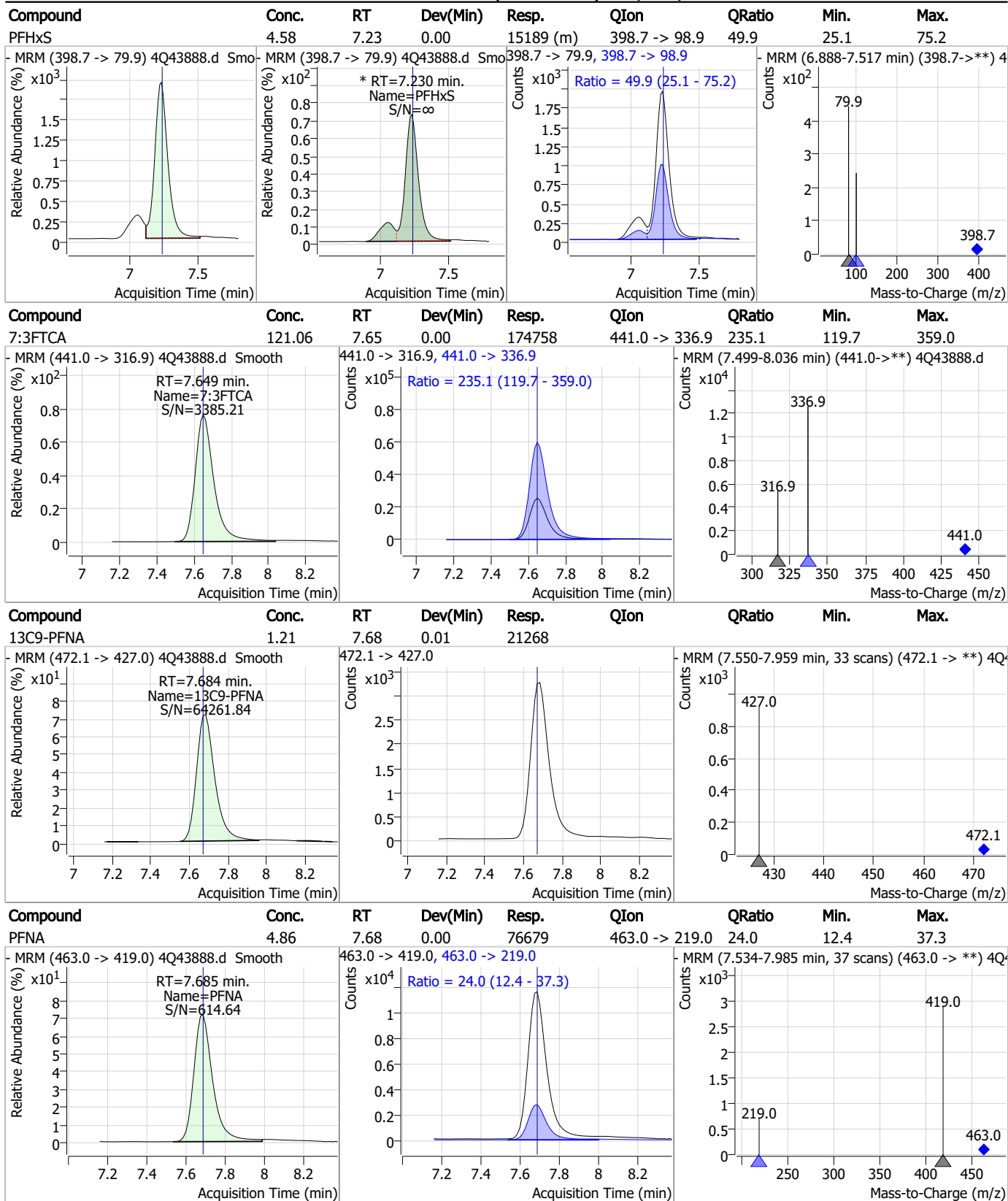
Perfluorinated Compounds by LC/MS/MS



7.7.6

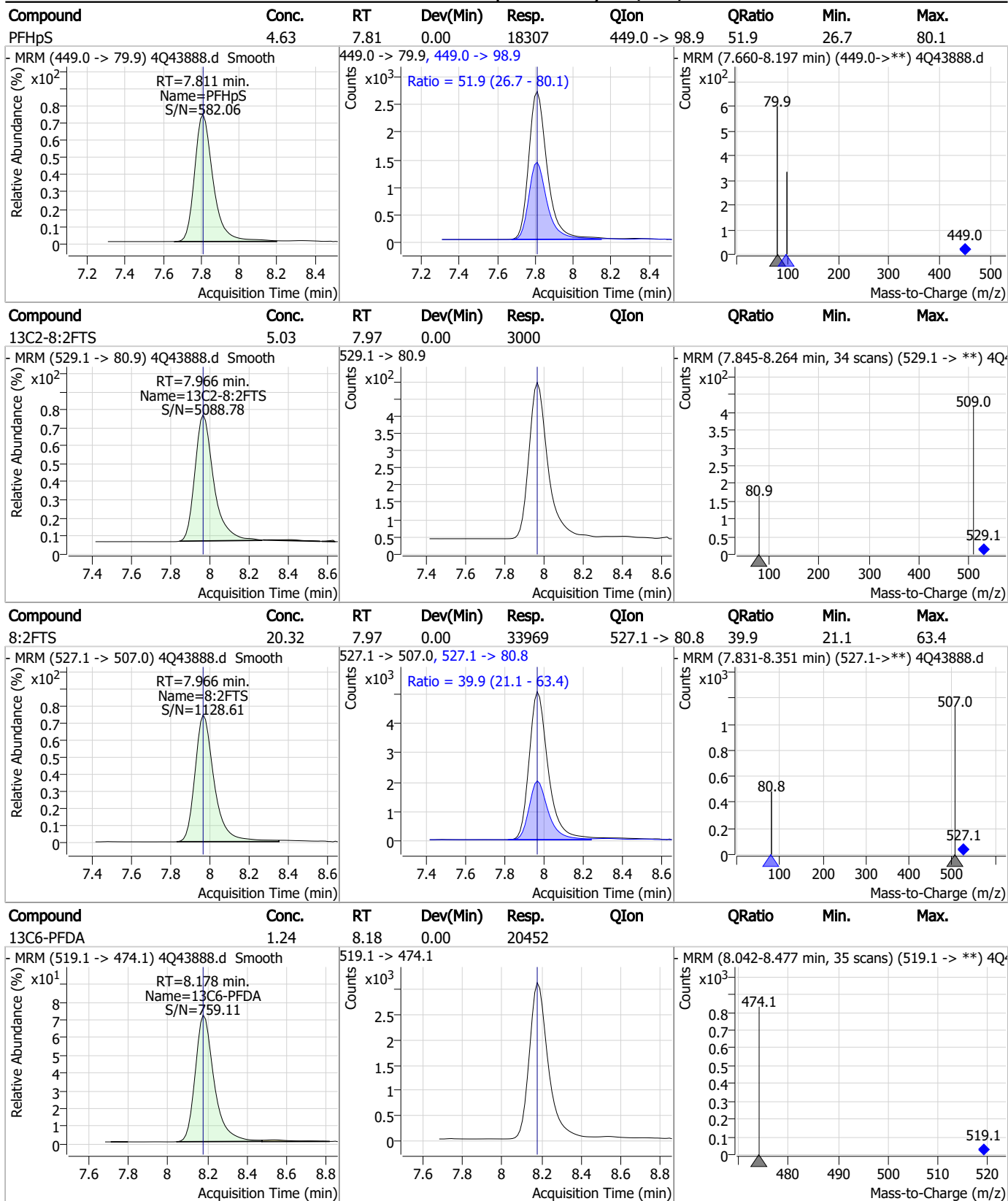
7

Perfluorinated Compounds by LC/MS/MS



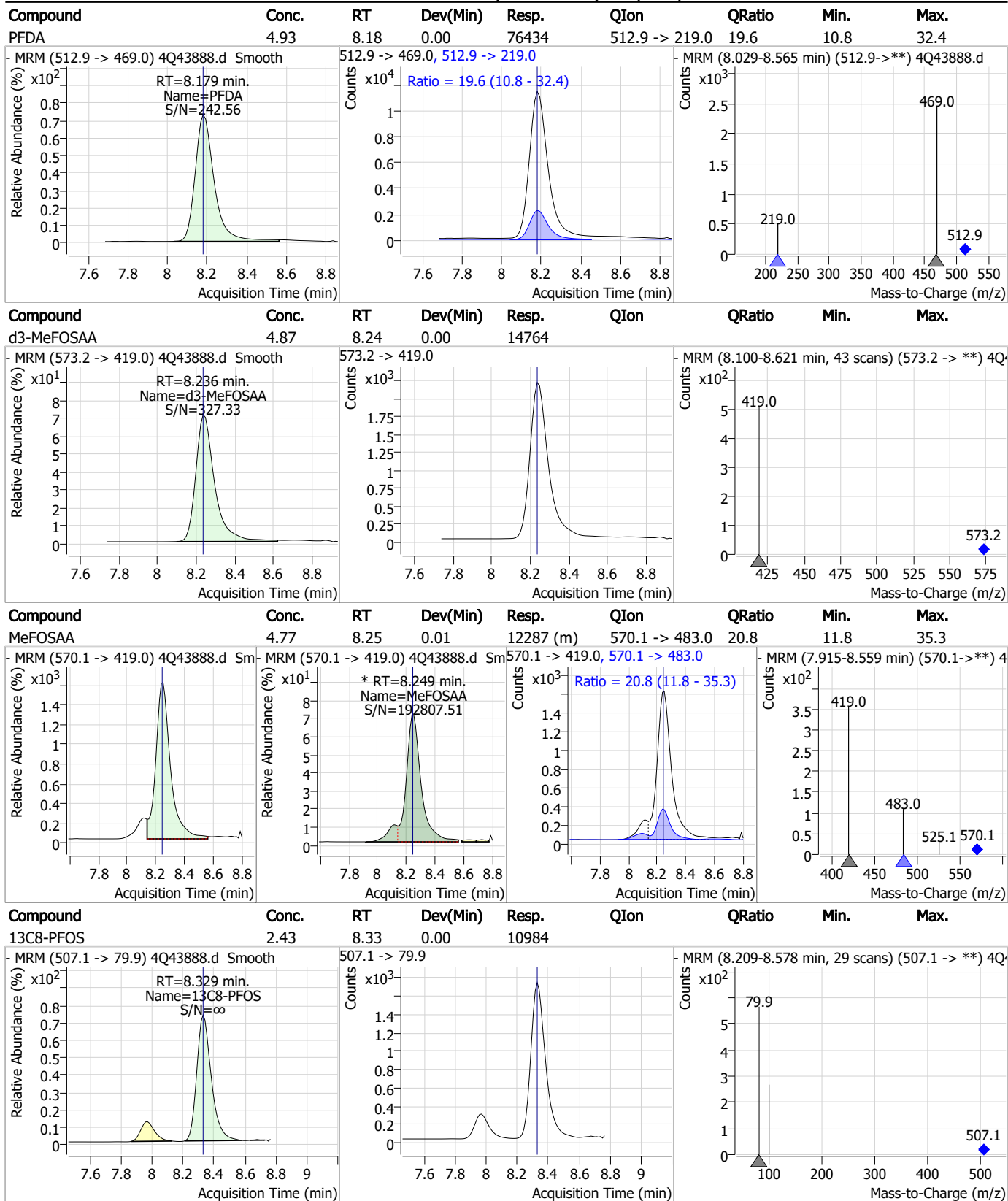
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



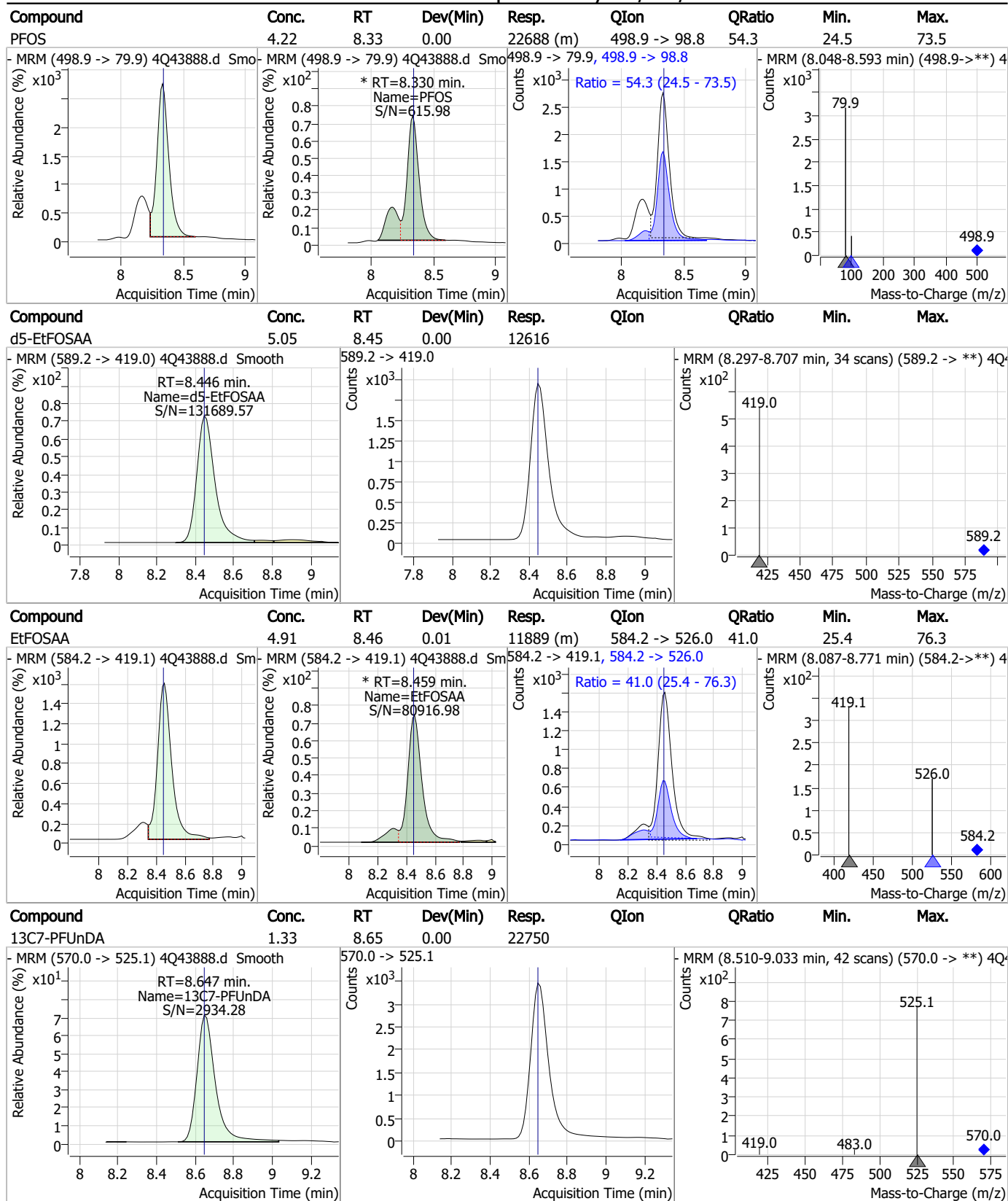
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6
7

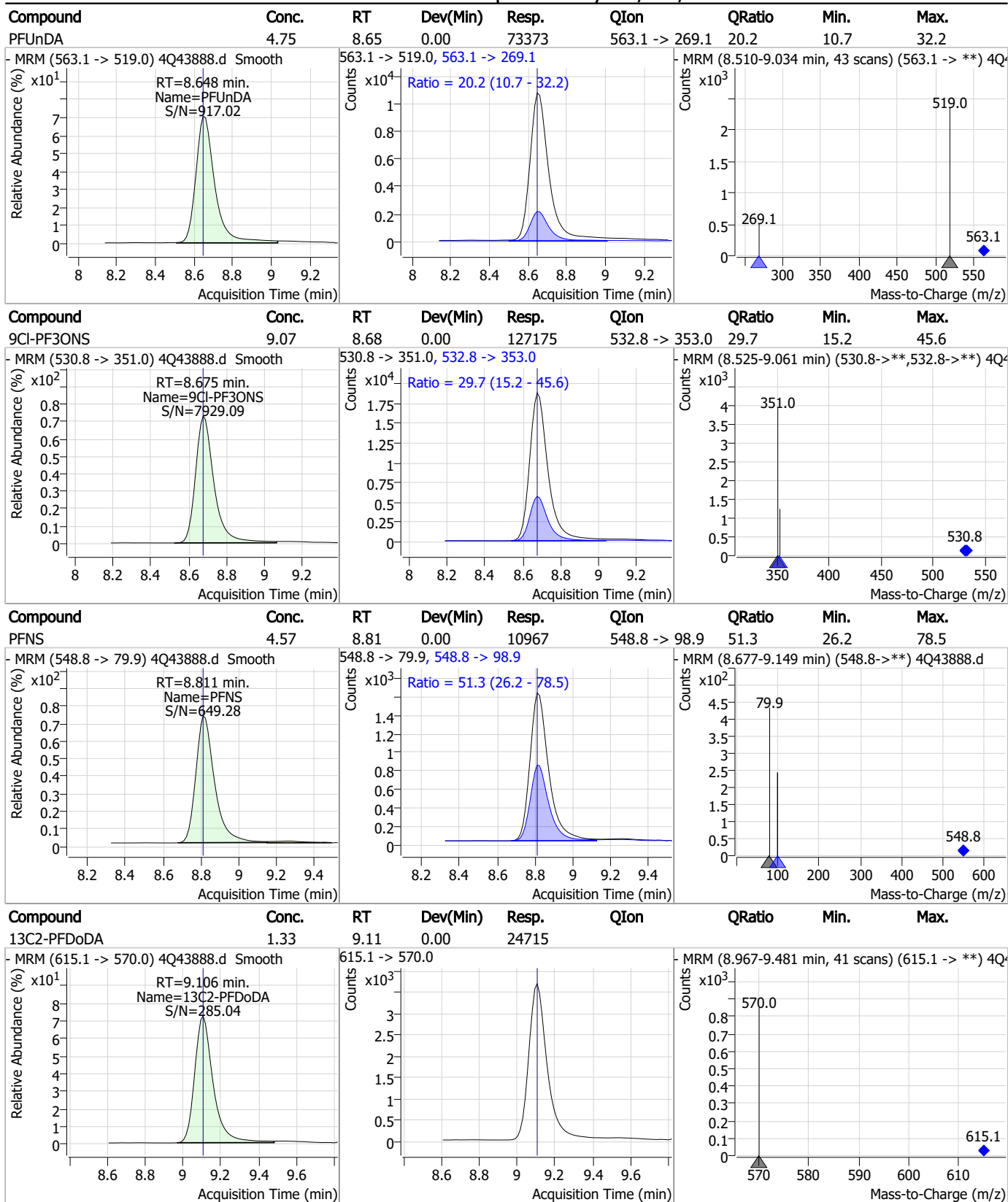
Perfluorinated Compounds by LC/MS/MS



7.7.6

7

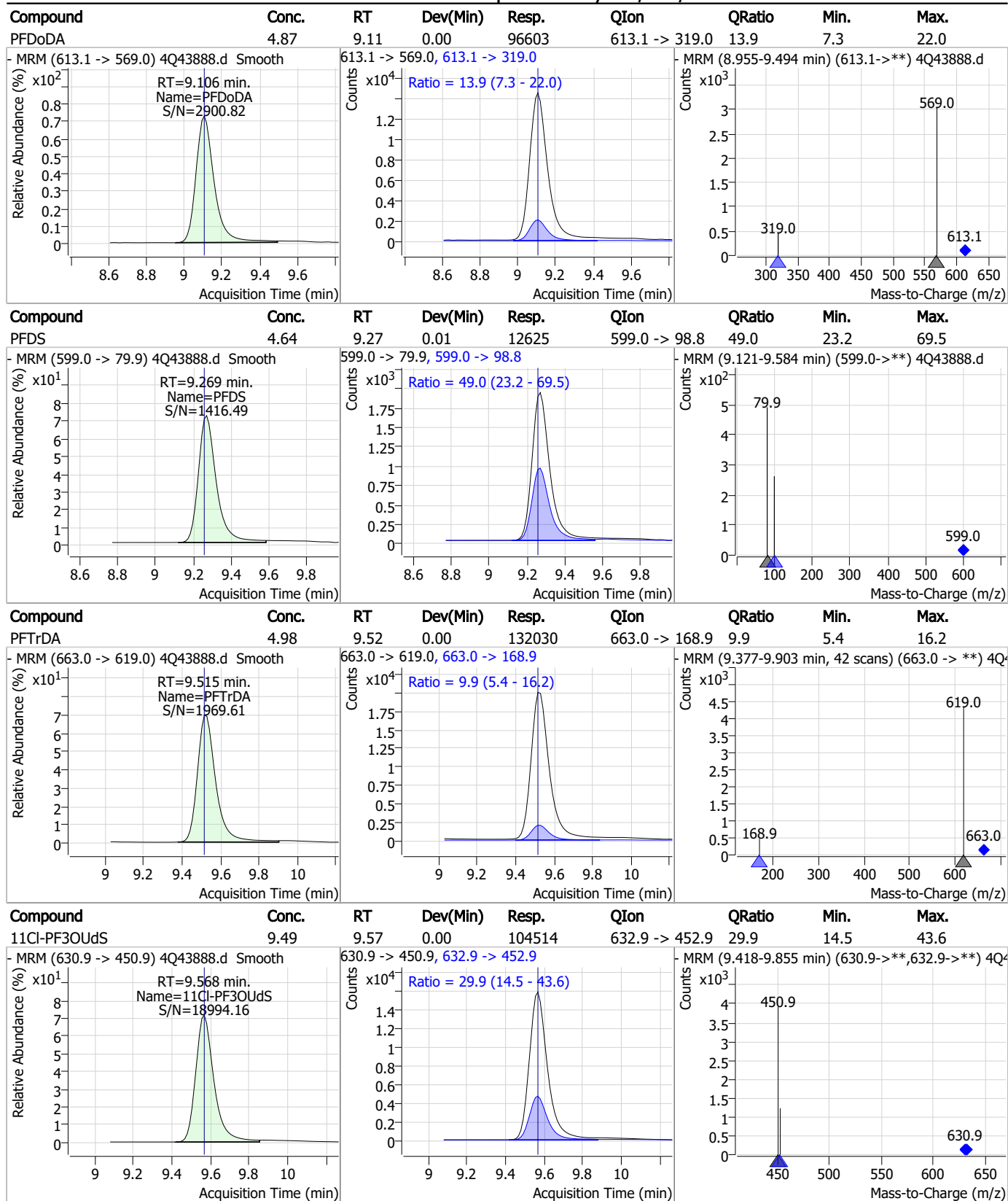
Perfluorinated Compounds by LC/MS/MS



7.7.6

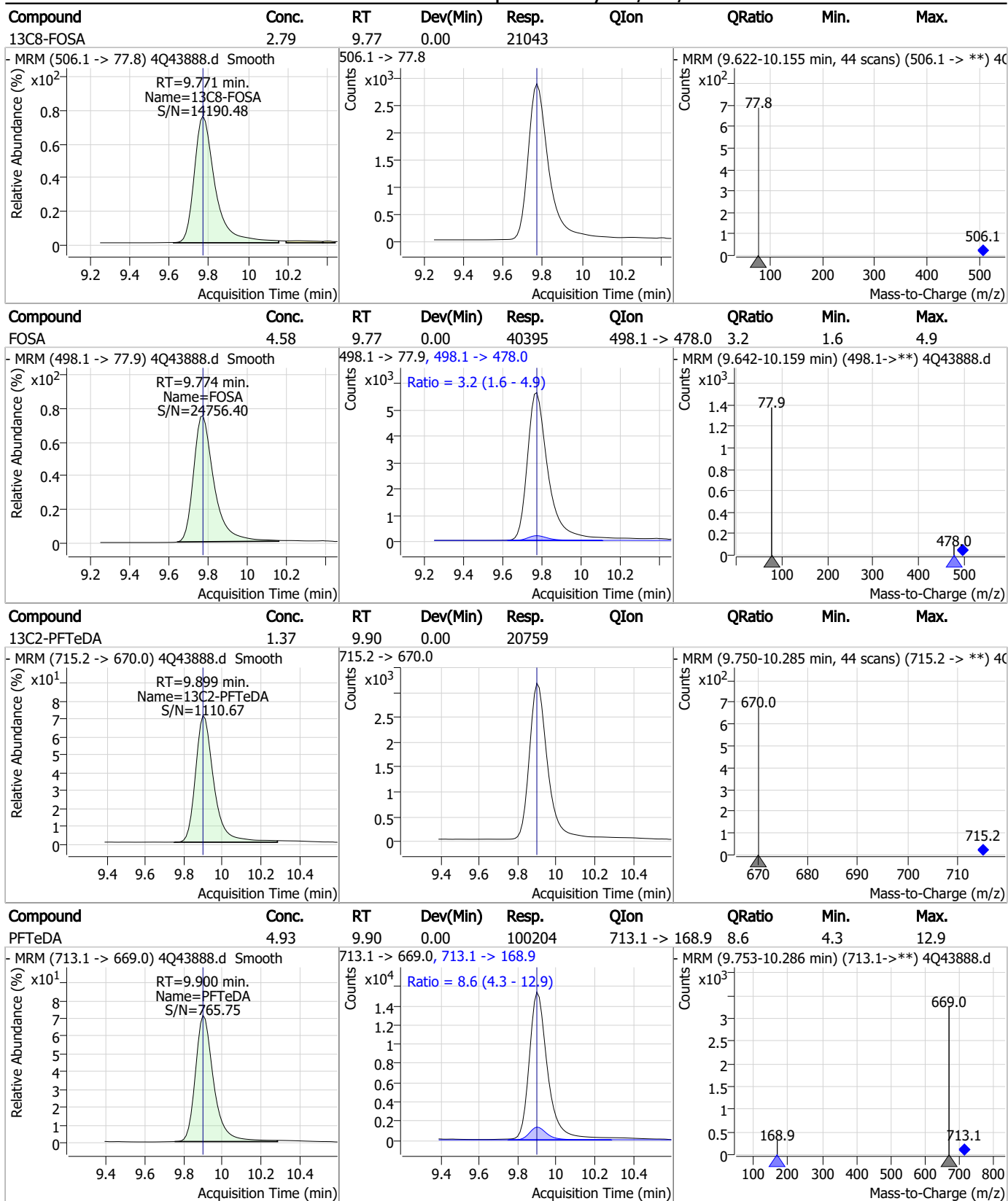
7

Perfluorinated Compounds by LC/MS/MS



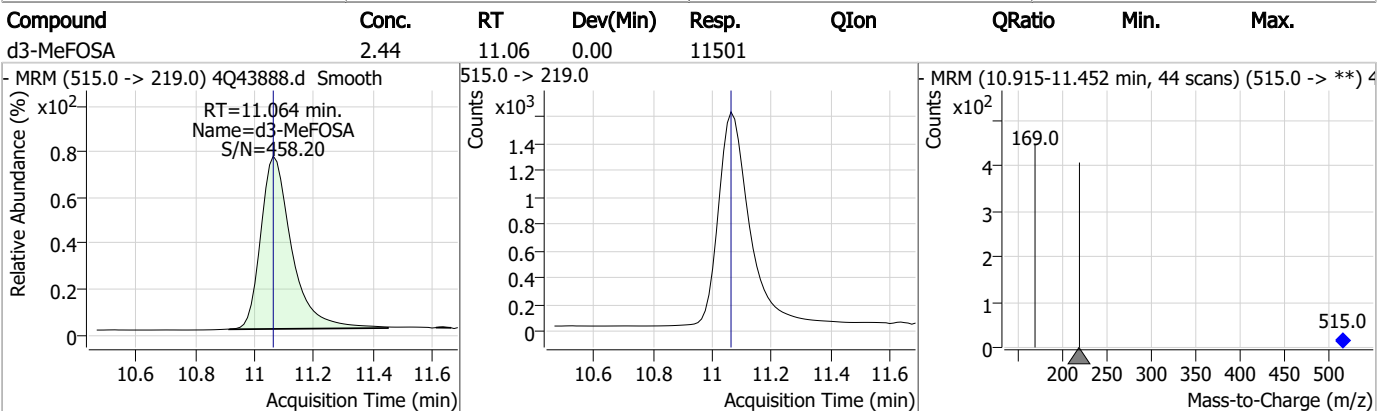
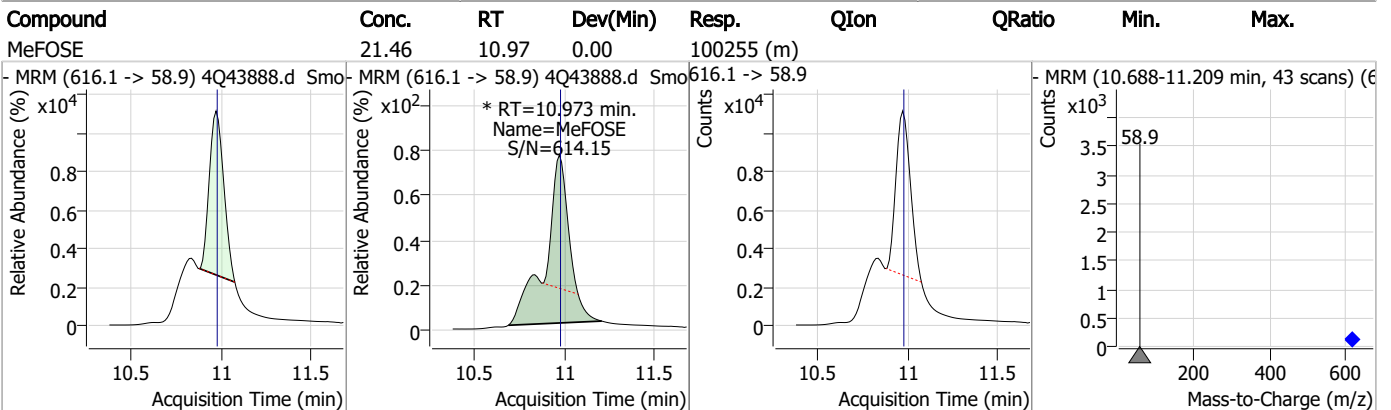
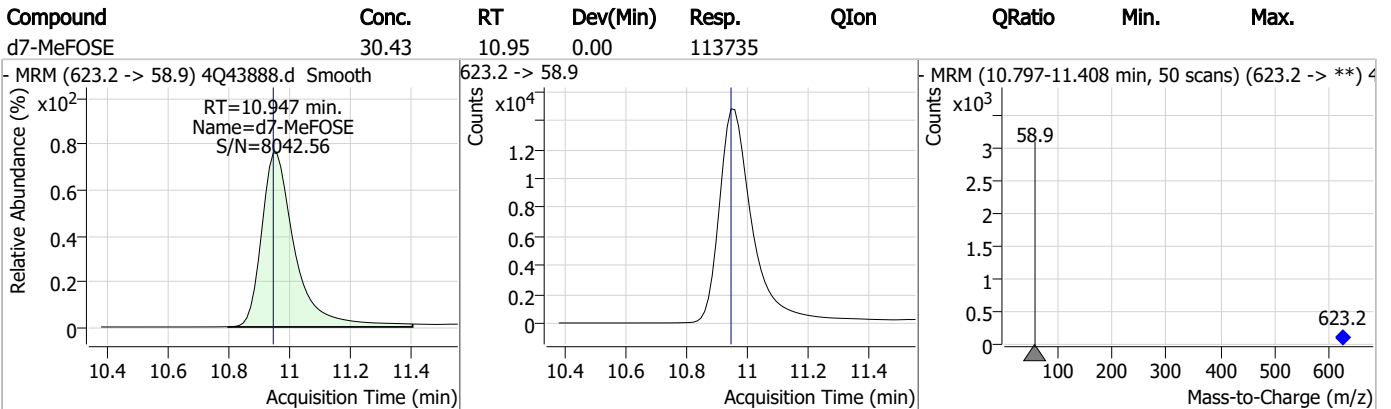
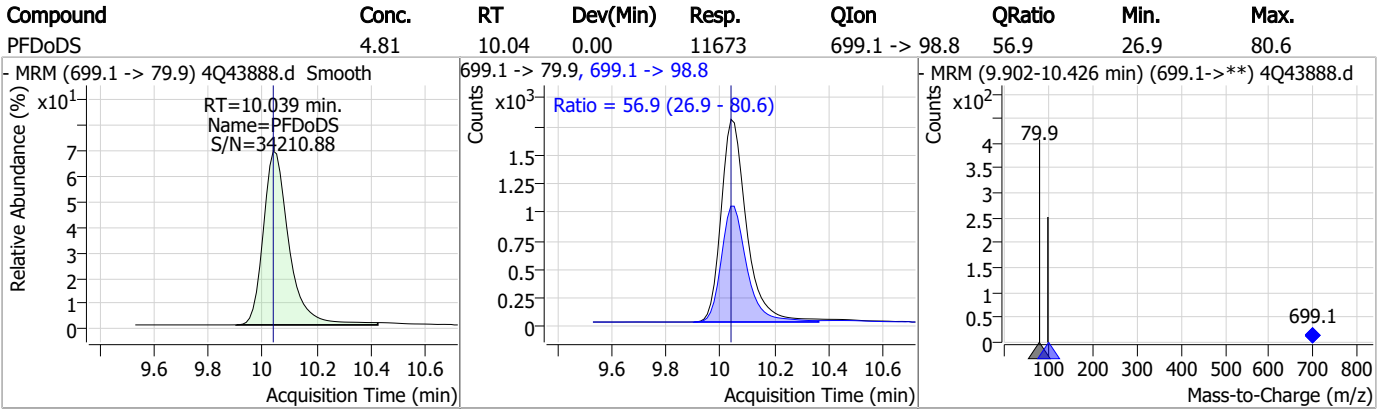
7.7.6
7

Perfluorinated Compounds by LC/MS/MS



7.7.6
7

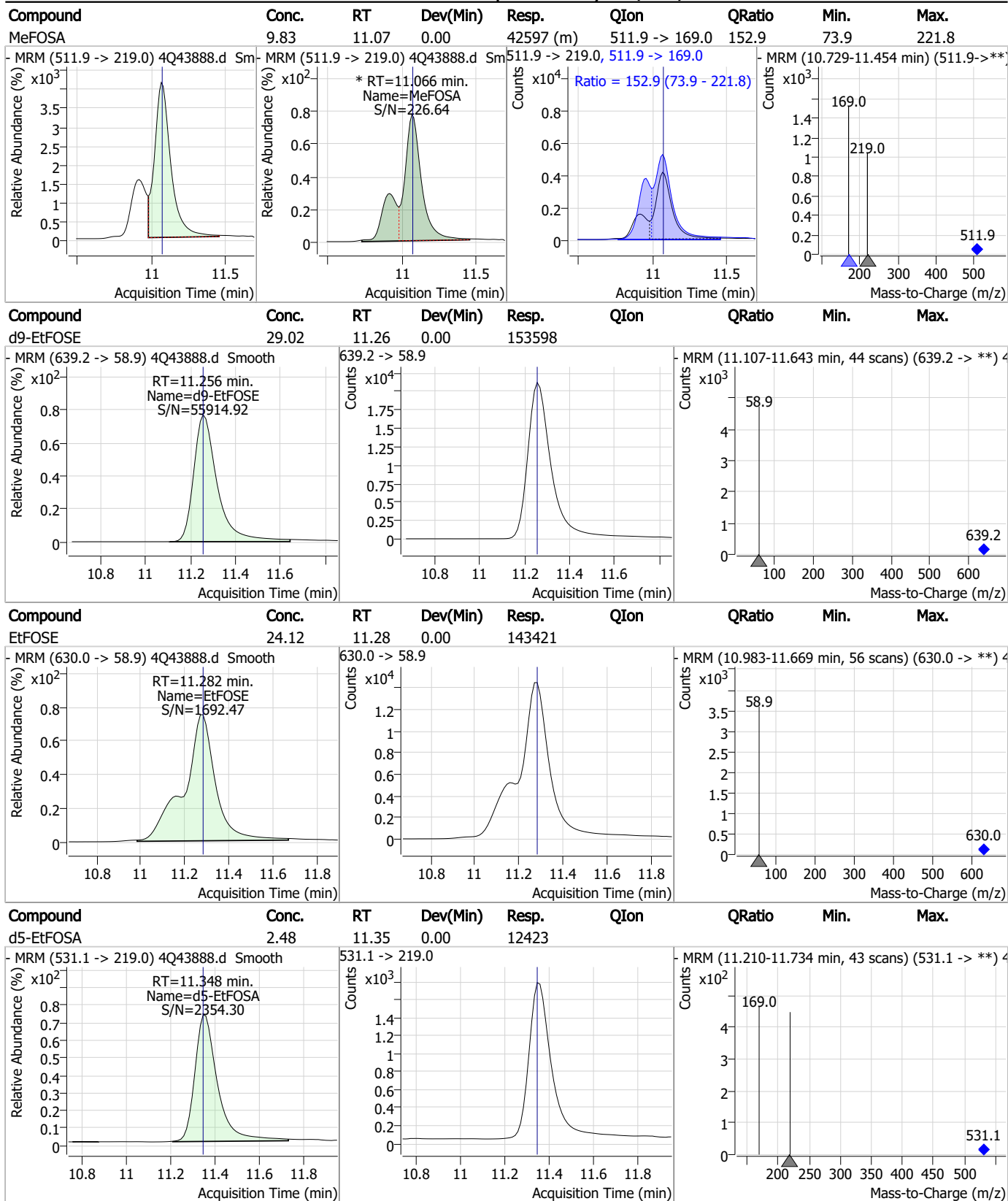
Perfluorinated Compounds by LC/MS/MS



7.7.6

7

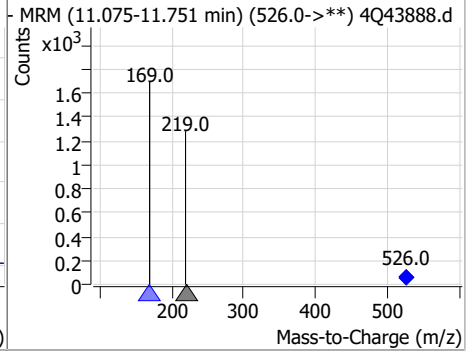
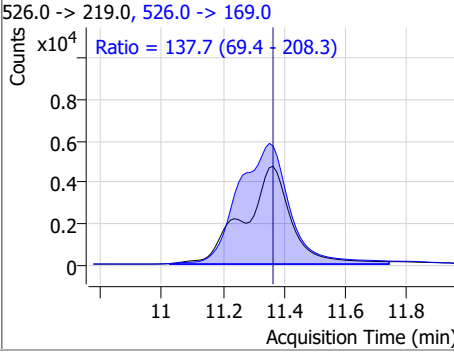
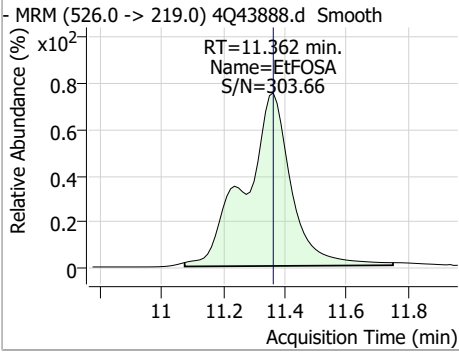
Perfluorinated Compounds by LC/MS/MS



7.7.6
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	9.54	11.36	0.00	49660	526.0 -> 169.0	137.7	69.4	208.3



7.7.6

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634
Lab FileID: 4Q43888.D
Injection Time: 05/03/23 12:08

Method: EPA DRAFT 1633
Analyst approved: 05/04/23 11:23 Natasha Gumtie
Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.07	Split peak

7.7.6.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43889.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 12:22:30 PM
 Sample Name : ic634-6
 Vial : P1-A7
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	128713	10.00 µg/L	0.000
M5-PFPeA	4.362	268.3 -> 223.0	69264	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	49069	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	28355	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	44315	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20413	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	19410	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	20436	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	21733	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	17340	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	17130	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	11741	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	8064	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10590	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1101	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1916	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	3050	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	13872	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	29381	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11848	5.00 µg/L	0.000
M7-MeFOSE	10.947	623.2 -> 58.9	78988	25.00 µg/L	0.000
M9-EtFOSE	11.256	639.2 -> 58.9	112230	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11917	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10730	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	11410	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	68345	5.00 µg/L	-0.013
18O2-PFHxS	7.228	403.0 -> 83.9	5135	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	53915	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	17904	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	24617	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	44383	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1101	5.28 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.5%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1916	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-8:2FTS	7.966	529.1 -> 80.9	3050	5.19 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.8%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21733	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.2%		
13C2-PFTeDA	9.899	715.2 -> 670.0	17340	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.3%		
13C3-PFBS	5.439	302.1 -> 79.9	11741	2.42 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFHxS	7.229	402.1 -> 79.9	8064	2.53 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 = 101.3%	
13C4-PFBA	2.924	216.8 -> 171.9	128713	10.01 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.467	367.1 -> 322.0	28355	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C5-PFHxA	5.535	318.0 -> 273.0	49069	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.362	268.3 -> 223.0	69264	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C6-PFDA	8.178	519.1 -> 474.1	19410	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.3%	
13C7-PFUnDA	8.647	570.0 -> 525.1	20436	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C8-FOSA	9.771	506.1 -> 77.8	17130	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOA	7.136	421.1 -> 376.0	44315	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOS	8.329	507.1 -> 79.9	10590	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C9-PFNA	7.684	472.1 -> 427.0	20413	1.22 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.6%	
d3-MeFOSAA	8.236	573.2 -> 419.0	13872	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	29381	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d3-MeFOSA	11.064	515.0 -> 219.0	10730	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11848	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
d7-MeFOSE	10.947	623.2 -> 58.9	78988	22.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.0%	
d9-EtFOSE	11.256	639.2 -> 58.9	112230	22.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 89.3%	
d5-EtFOSA	11.348	531.1 -> 219.0	11917	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0 327.1 -> 80.9	76961 32830	43.44 µg/L	94
6:2FTS	6.899	427.1 -> 407.0 427.1 -> 80.9	86158 35567	46.55 µg/L	99
8:2FTS	7.966	527.1 -> 507.0 527.1 -> 80.8	81135 32973	47.73 µg/L	98
EtFOSAA	8.459	584.2 -> 419.1 584.2 -> 526.0	29503 14022	12.96 µg/L	m 95
FOSA	9.774	498.1 -> 77.9 498.1 -> 478.0	93693 2566	13.05 µg/L	98
MeFOSAA	8.249	570.1 -> 419.0 570.1 -> 483.0	31400 6893	12.99 µg/L	m 97
PFBA	2.920	212.8 -> 168.9	180069	52.24 µg/L	100
PFBS	5.440	298.7 -> 79.9 298.7 -> 98.8	56713 20771	11.78 µg/L	94
PFDA	8.179	512.9 -> 469.0 512.9 -> 219.0	197729 38436	13.43 µg/L	95
PFDoDA	9.106	613.1 -> 569.0 613.1 -> 319.0	230624 32458	13.22 µg/L	99
PFDS	9.269	599.0 -> 79.9	32741	12.48 µg/L	95

7.7.7
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	16222			
PFHpA	6.468	363.1 -> 319.0	242238	13.52	µg/L	98
		363.1 -> 169.0	41387			
PFHpS	7.811	449.0 -> 79.9	48544	12.72	µg/L	95
		449.0 -> 98.9	24110			
PFHxA	5.538	313.0 -> 269.0	248936	12.95	µg/L	100
		313.0 -> 118.9	7161			
PFHxS	7.230	398.7 -> 79.9	37785	11.43	µg/L	m 98
		398.7 -> 98.9	19513			
PFNA	7.685	463.0 -> 419.0	197700	13.07	µg/L	98
		463.0 -> 219.0	47530			
PFNS	8.811	548.8 -> 79.9	28263	12.22	µg/L	98
		548.8 -> 98.9	14381			
PFOA	7.137	413.0 -> 369.0	332675	13.01	µg/L	100
		413.0 -> 169.0	64573			
PFOS	8.330	498.9 -> 79.9	64846	12.51	µg/L	m 98
		498.9 -> 98.8	30733			
PFPeA	4.364	263.0 -> 219.0	439404	26.37	µg/L	100
PFPeS	6.494	349.1 -> 79.9	33156	11.69	µg/L	96
		349.1 -> 98.9	14416			
PFTeDA	9.900	713.1 -> 669.0	222966	13.14	µg/L	99
		713.1 -> 168.9	18397			
PFTrDA	9.515	663.0 -> 619.0	301738	12.95	µg/L	98
		663.0 -> 168.9	30099			
PFUnDA	8.648	563.1 -> 519.0	184252	13.27	µg/L	97
		563.1 -> 269.1	36980			
11CI-PF3OUdS	9.568	630.9 -> 450.9	265861	25.16	µg/L	98
		632.9 -> 452.9	80306			
9CI-PF3ONS	8.675	530.8 -> 351.0	332327	24.70	µg/L	100
		532.8 -> 353.0	100643			
ADONA	6.731	376.9 -> 250.9	726148	24.58	µg/L	99
		376.9 -> 84.8	193928			
HFPO-DA	5.891	284.9 -> 168.9	75140	26.76	µg/L	100
		284.9 -> 184.9	8692			
3:3FTCA	3.836	241.0 -> 177.0	46712	63.71	µg/L	99
		241.0 -> 117.0	4223			
5:3FTCA	6.193	341.0 -> 237.1	852354	326.73	µg/L	99
		341.0 -> 217.0	591774			
7:3FTCA	7.649	441.0 -> 316.9	442038	326.10	µg/L	99
		441.0 -> 336.9	1050456			
EtFOSA	11.362	526.0 -> 219.0	134876	27.02	µg/L	m 99
		526.0 -> 169.0	185812			
EtFOSE	11.282	630.0 -> 58.9	279923	64.43	µg/L	100
MeFOSA	11.065	511.9 -> 219.0	110174	27.26	µg/L	m 98
		511.9 -> 169.0	159475			
MeFOSE	10.973	616.1 -> 58.9	201716	62.18	µg/L	m 100
PFDoDS	10.039	699.1 -> 79.9	29923	12.78	µg/L	97
		699.1 -> 98.8	15349			
NFDHA	5.416	295.0 -> 201.0	35115	25.58	µg/L	94
		295.0 -> 84.9	8578			
PFMBA	4.778	279.0 -> 85.1	240040	25.81	µg/L	100
PFMPA	3.528	229.0 -> 84.9	226056	25.95	µg/L	100
PFEESA	5.959	314.8 -> 134.9	345119	23.72	µg/L	99
		314.8 -> 82.9	11323			

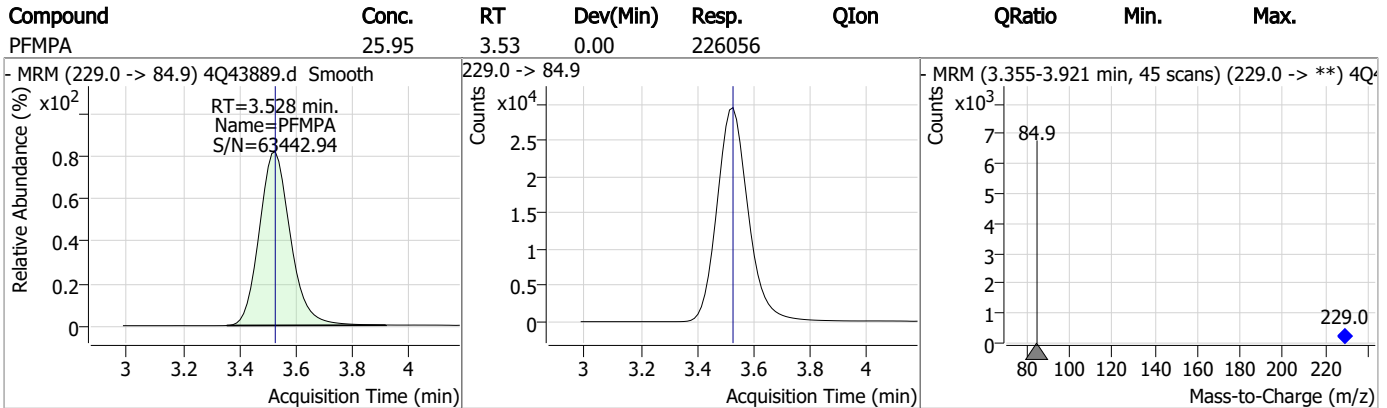
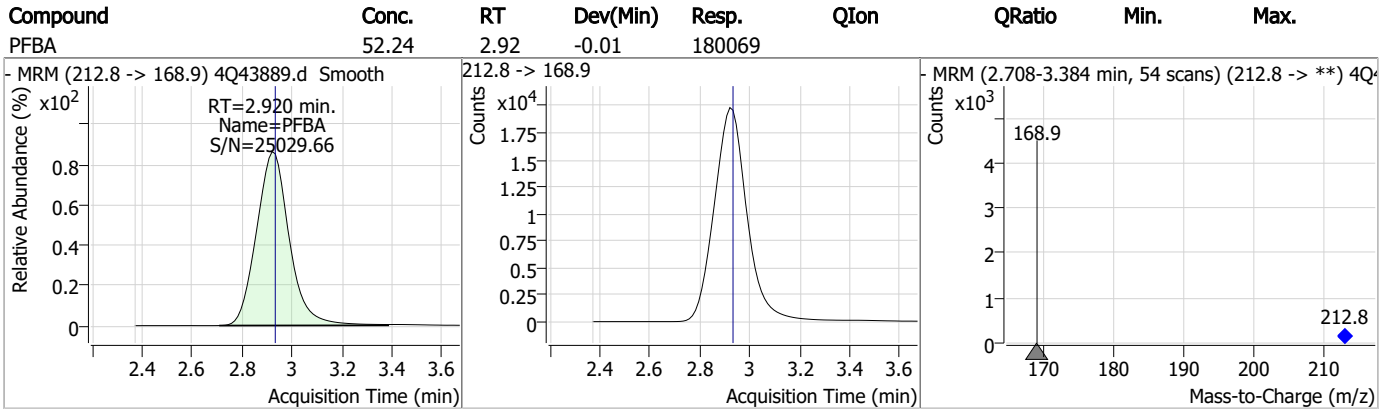
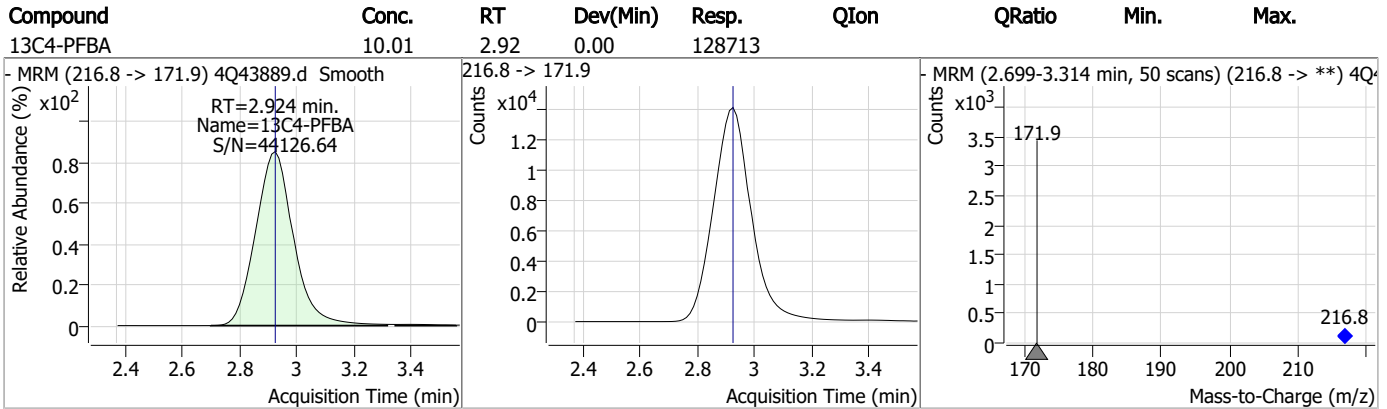
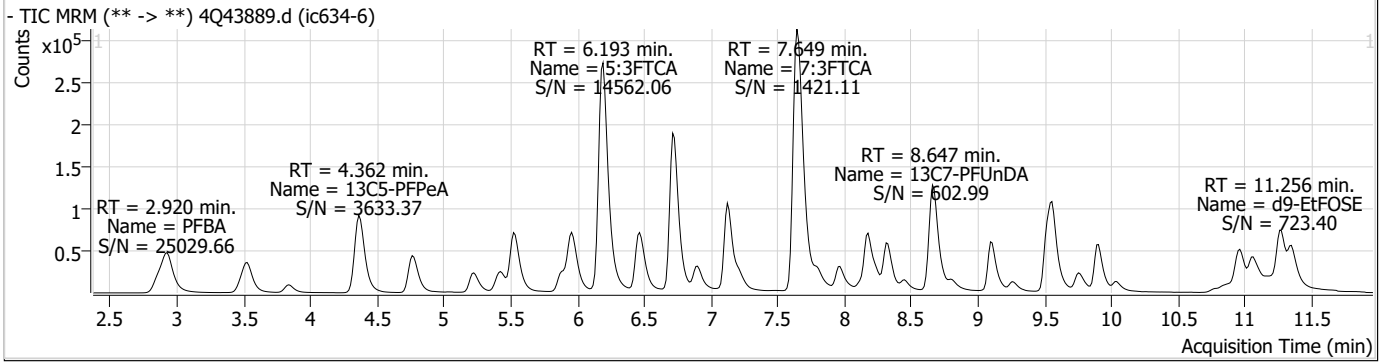
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

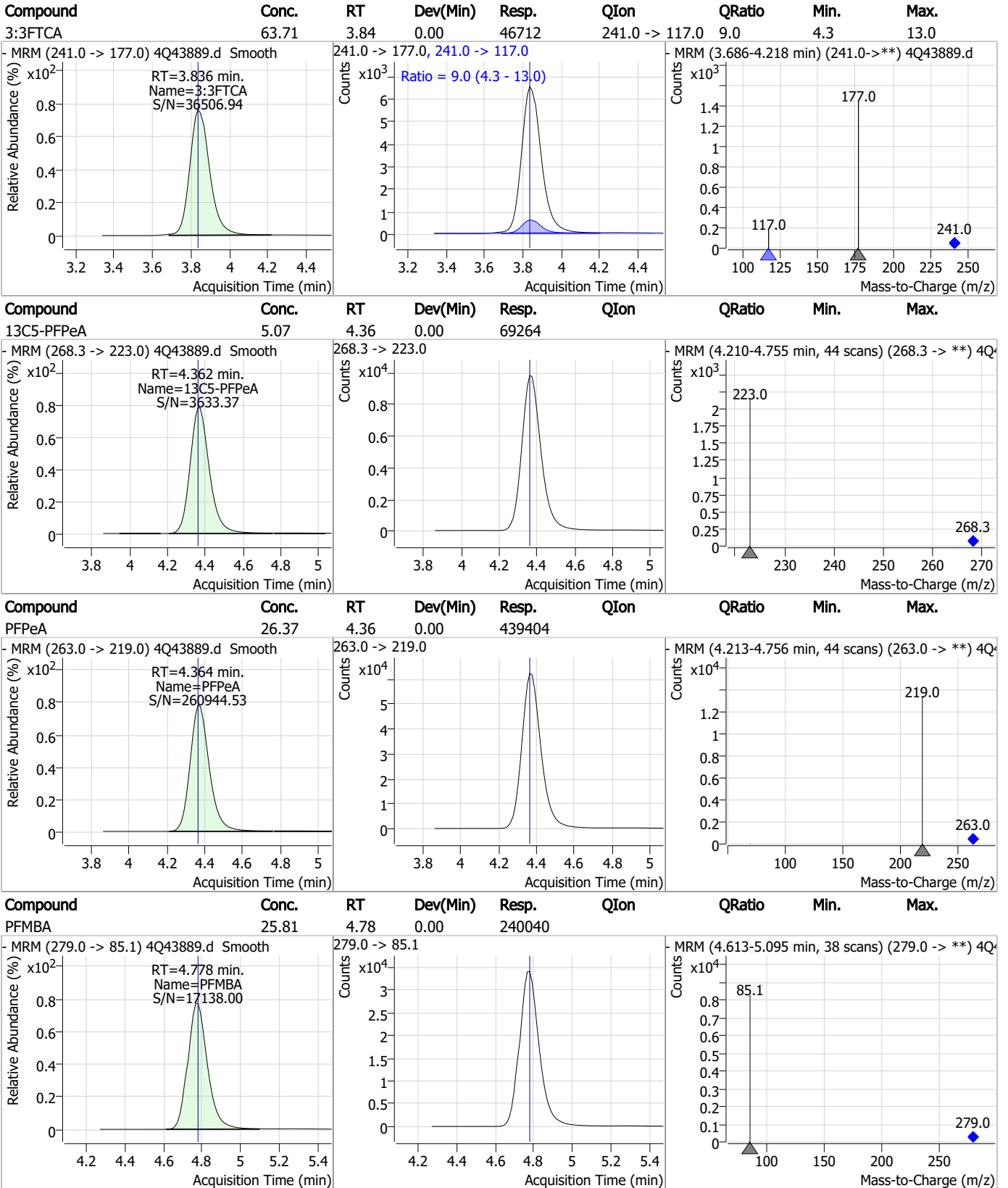
Compound	RT	Transition	Response	Conc. Units	Dev(Min)
----------	----	------------	----------	-------------	----------

7.7.7
7

Perfluorinated Compounds by LC/MS/MS



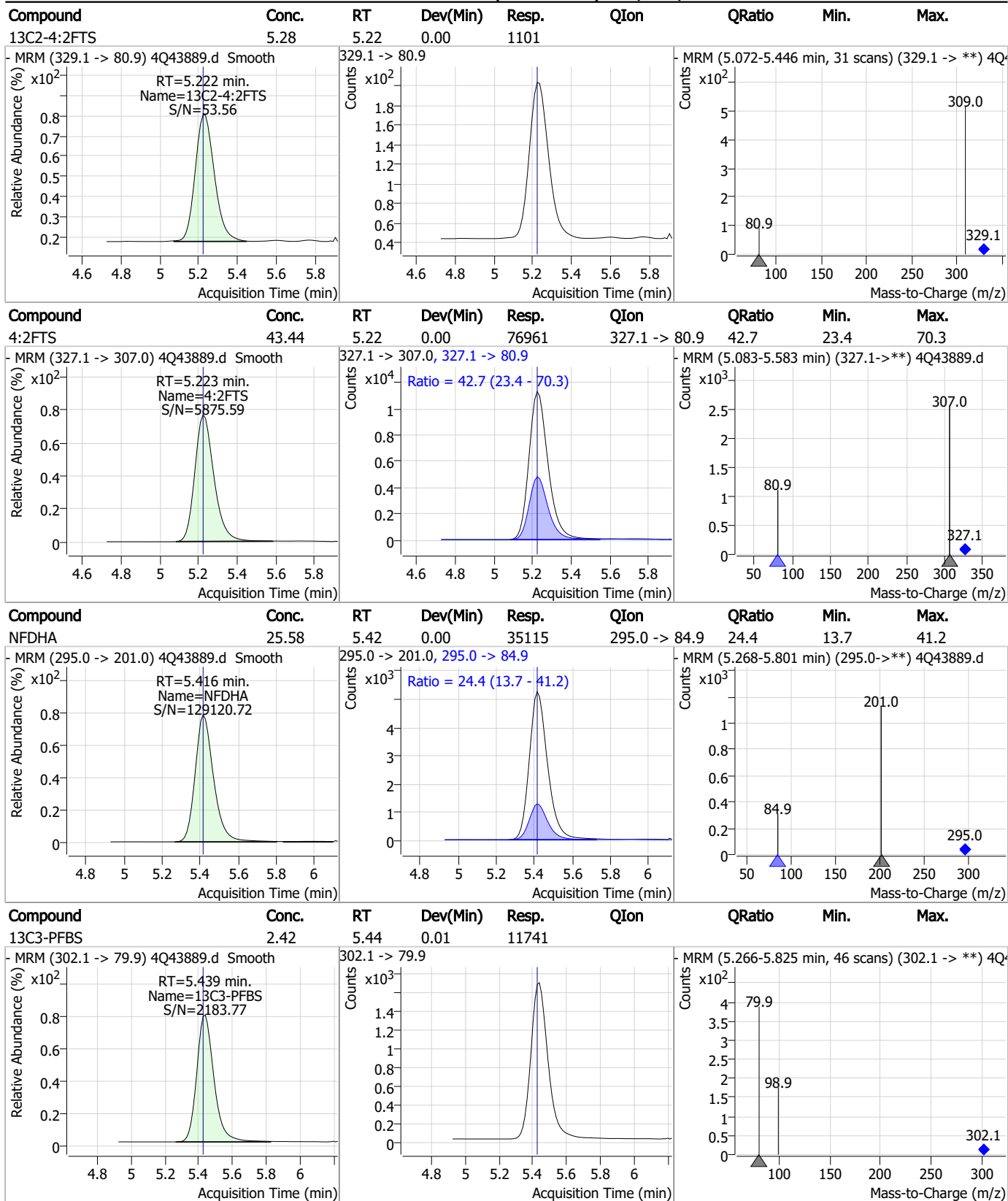
Perfluorinated Compounds by LC/MS/MS



7.7.7

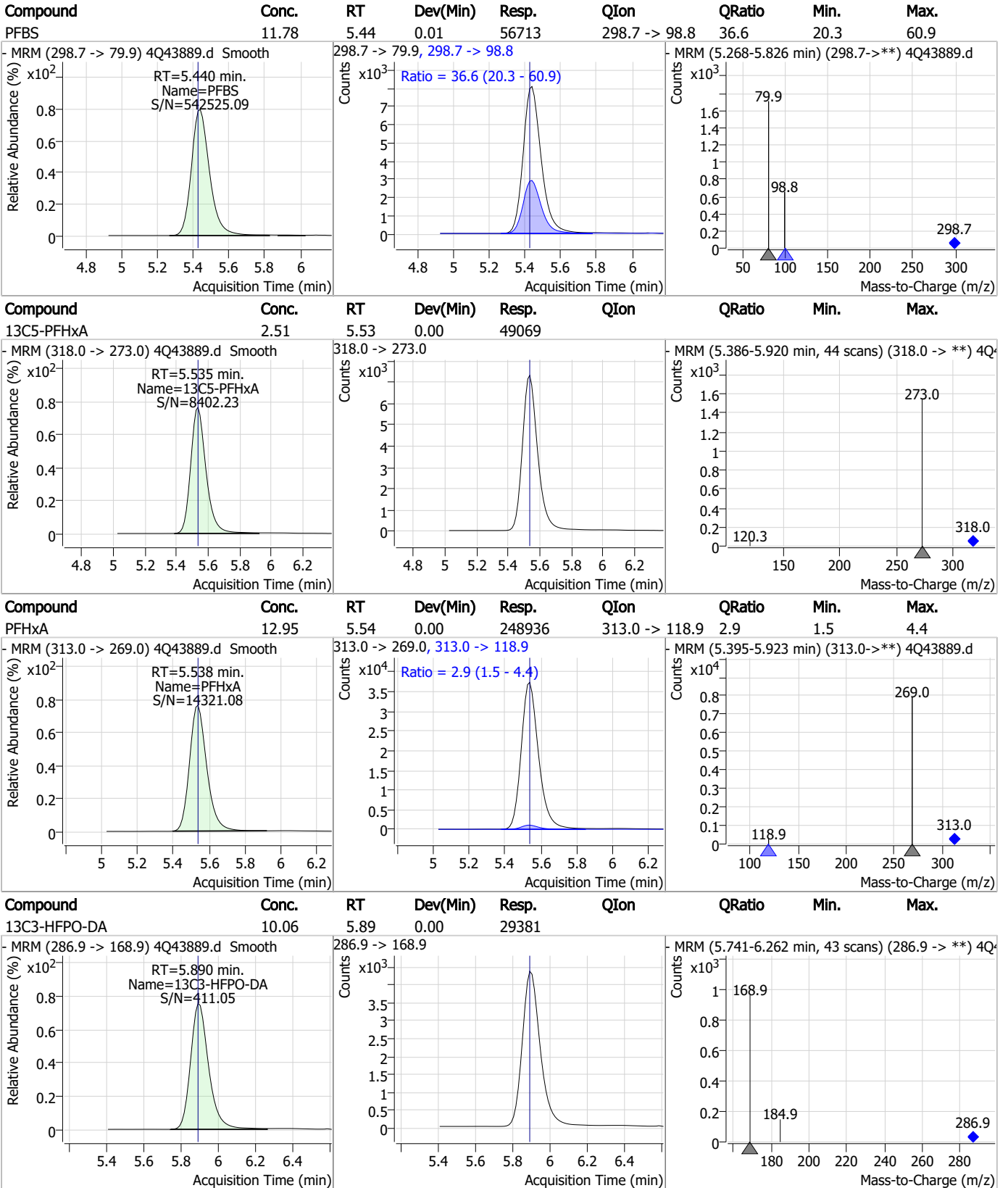
7

Perfluorinated Compounds by LC/MS/MS



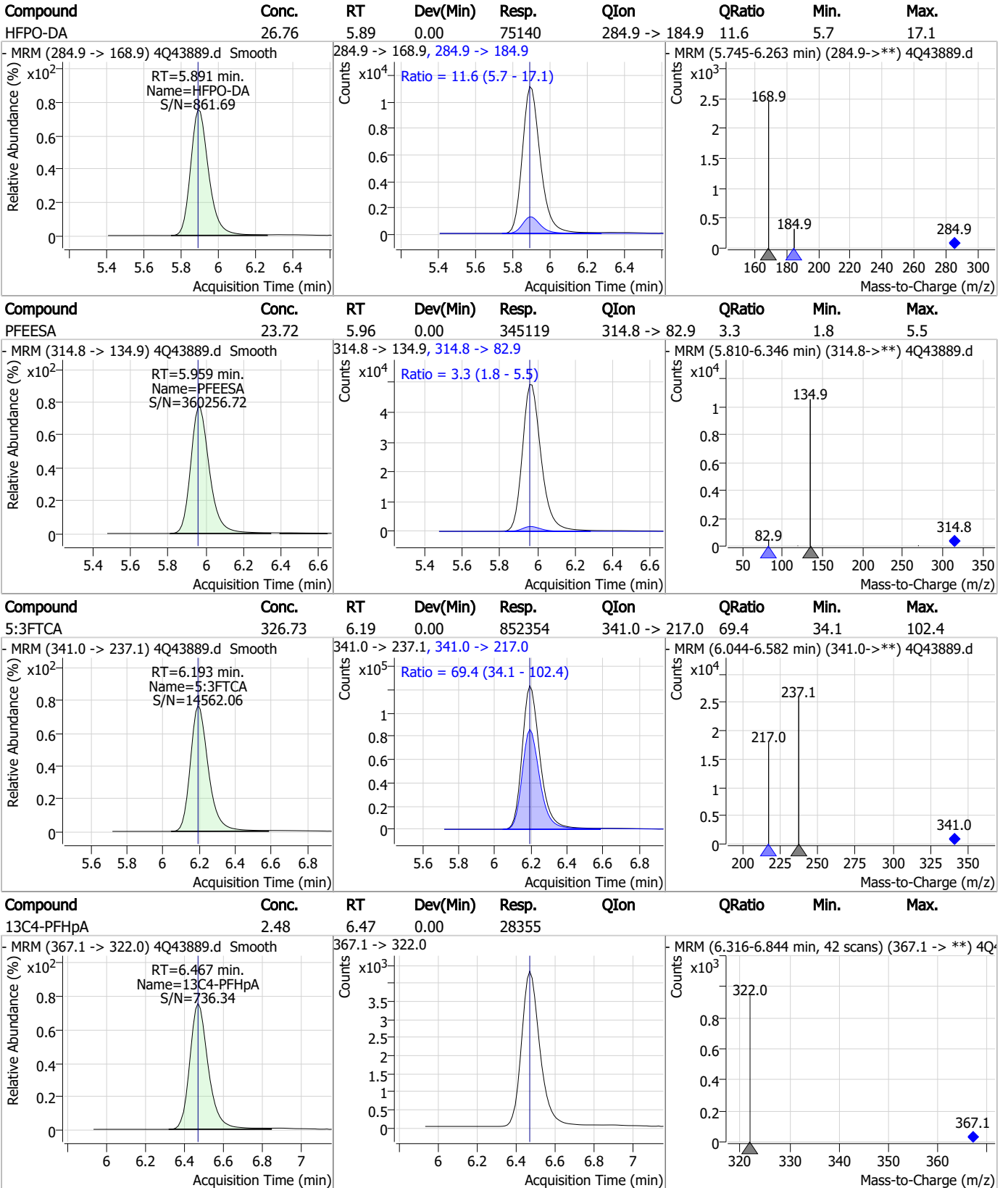
7.7.7
7

Perfluorinated Compounds by LC/MS/MS



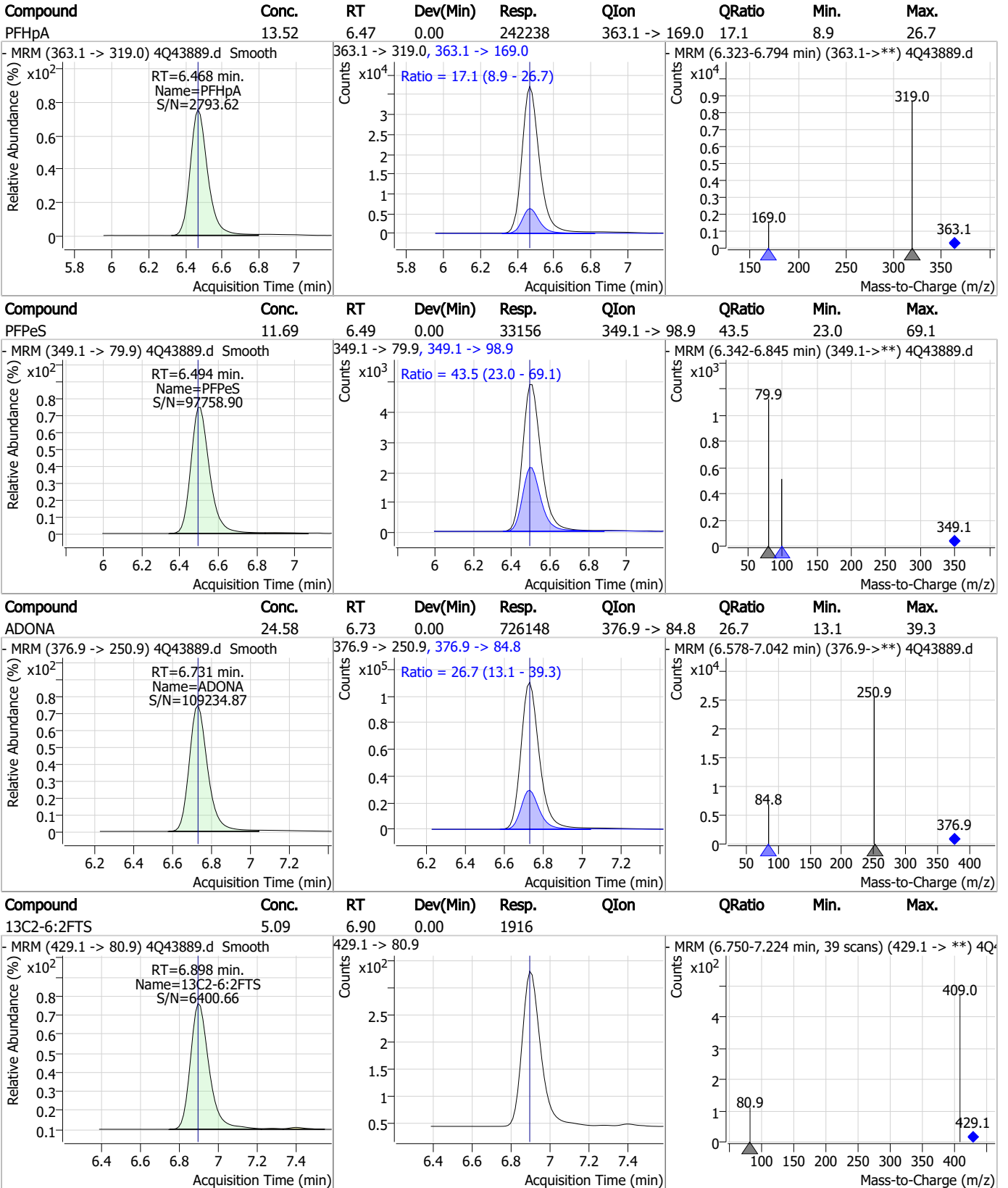
7.7.7
7

Perfluorinated Compounds by LC/MS/MS



7.7.7
7

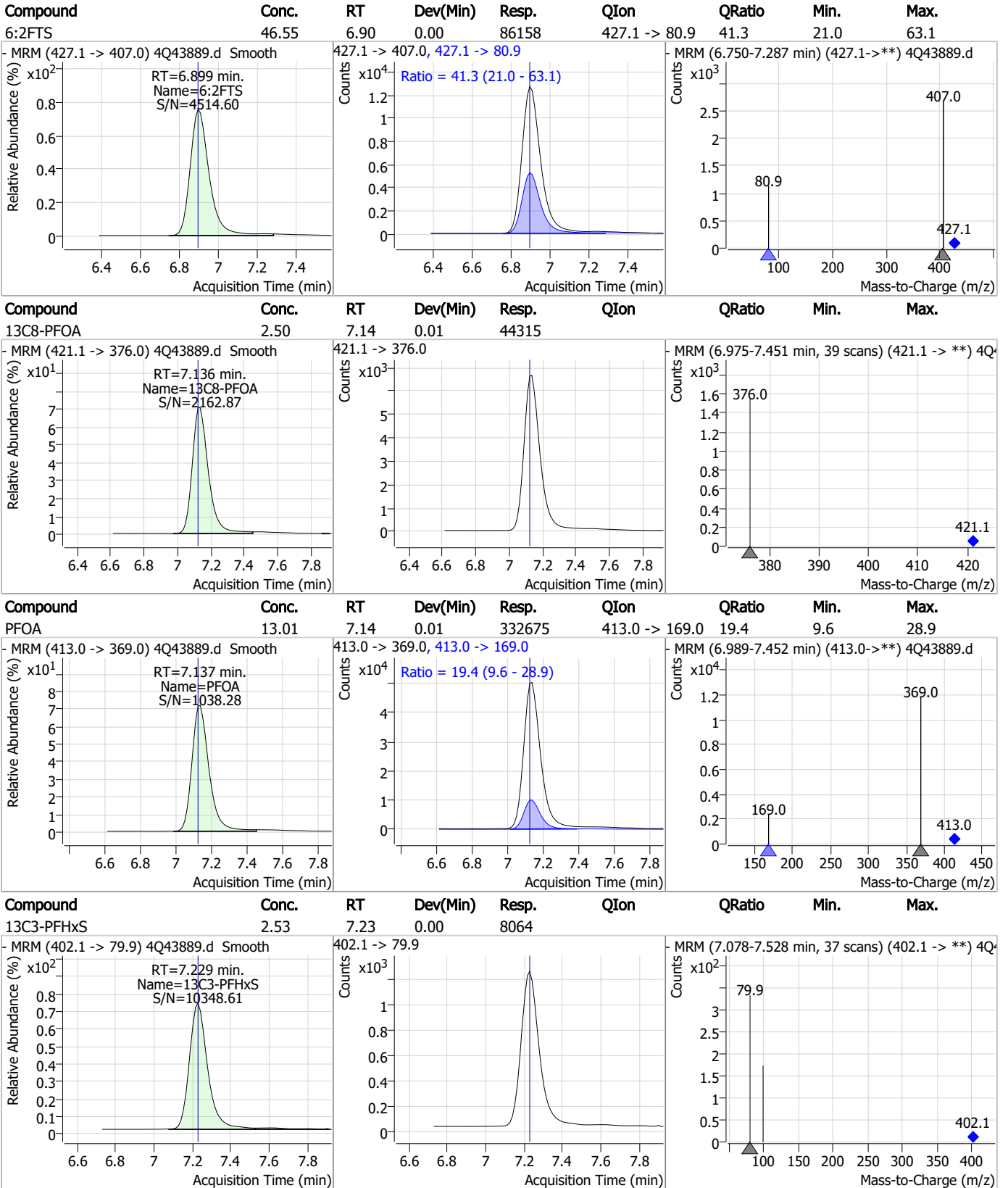
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

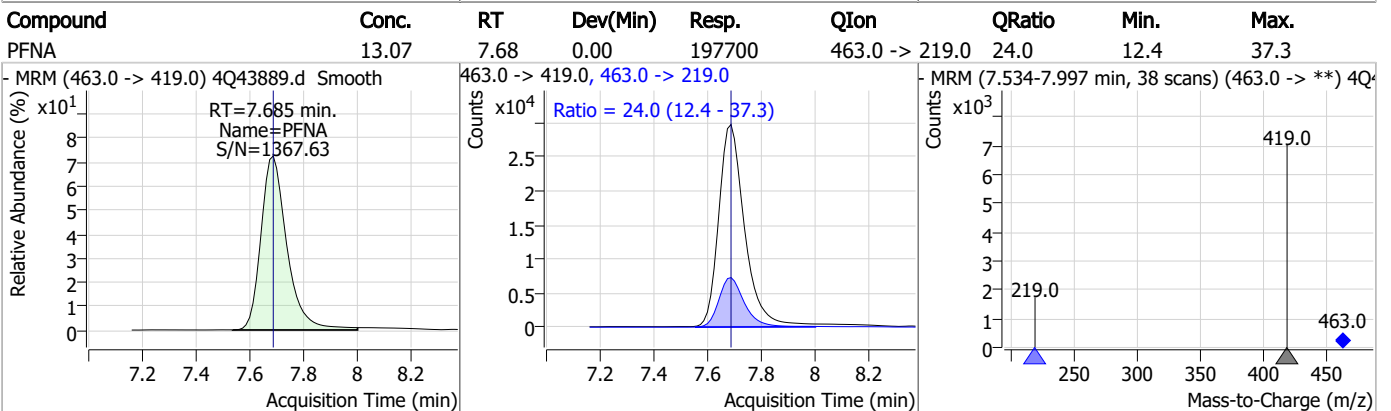
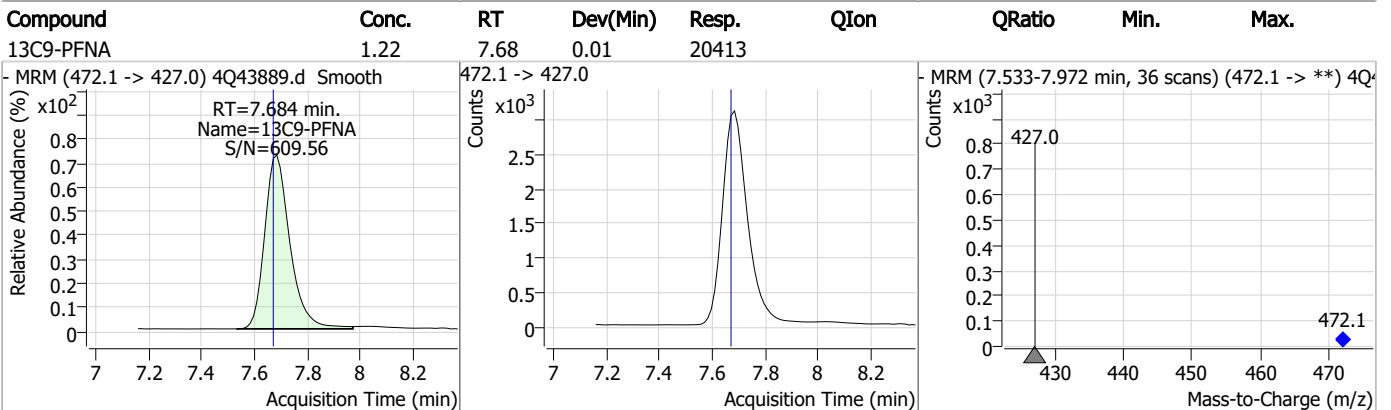
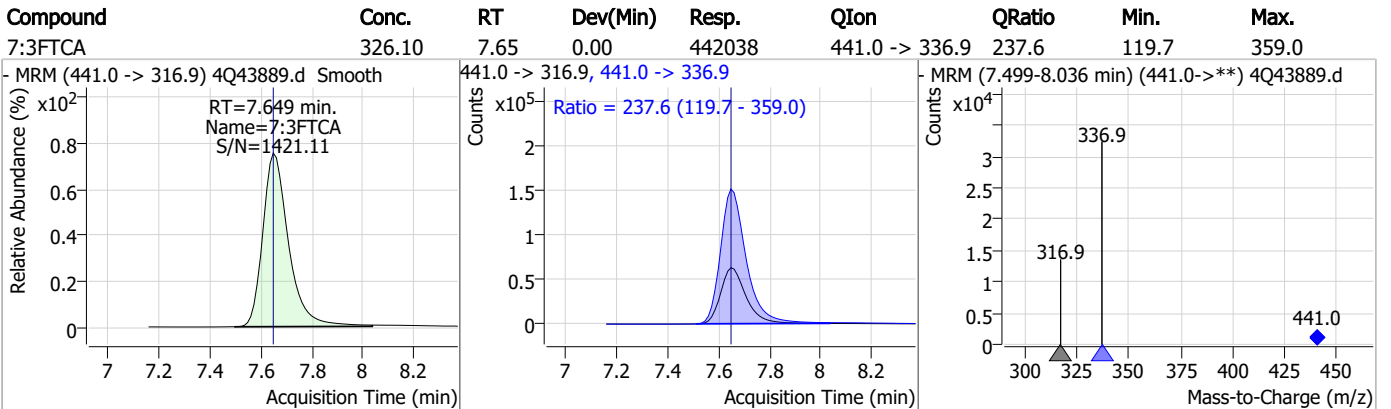
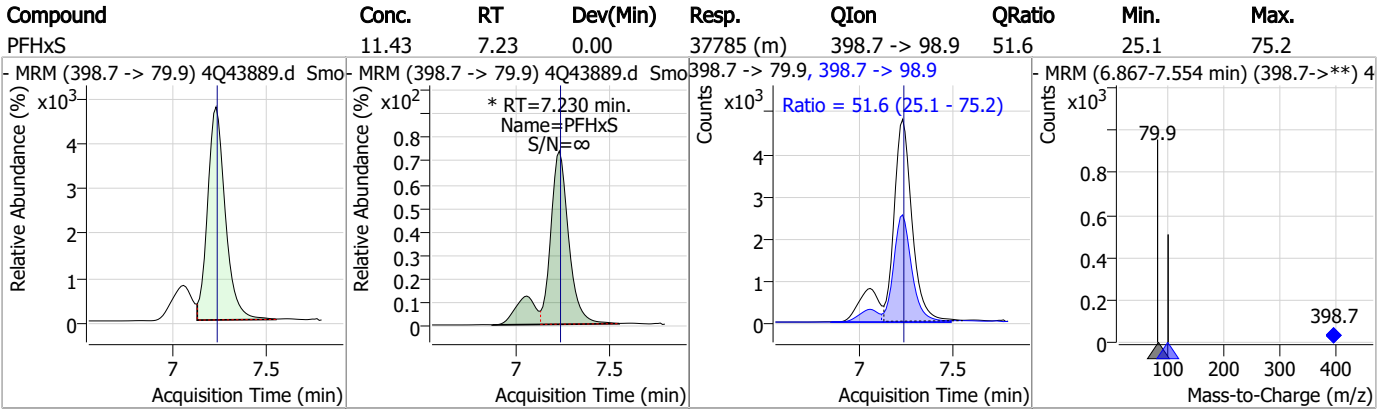
Perfluorinated Compounds by LC/MS/MS



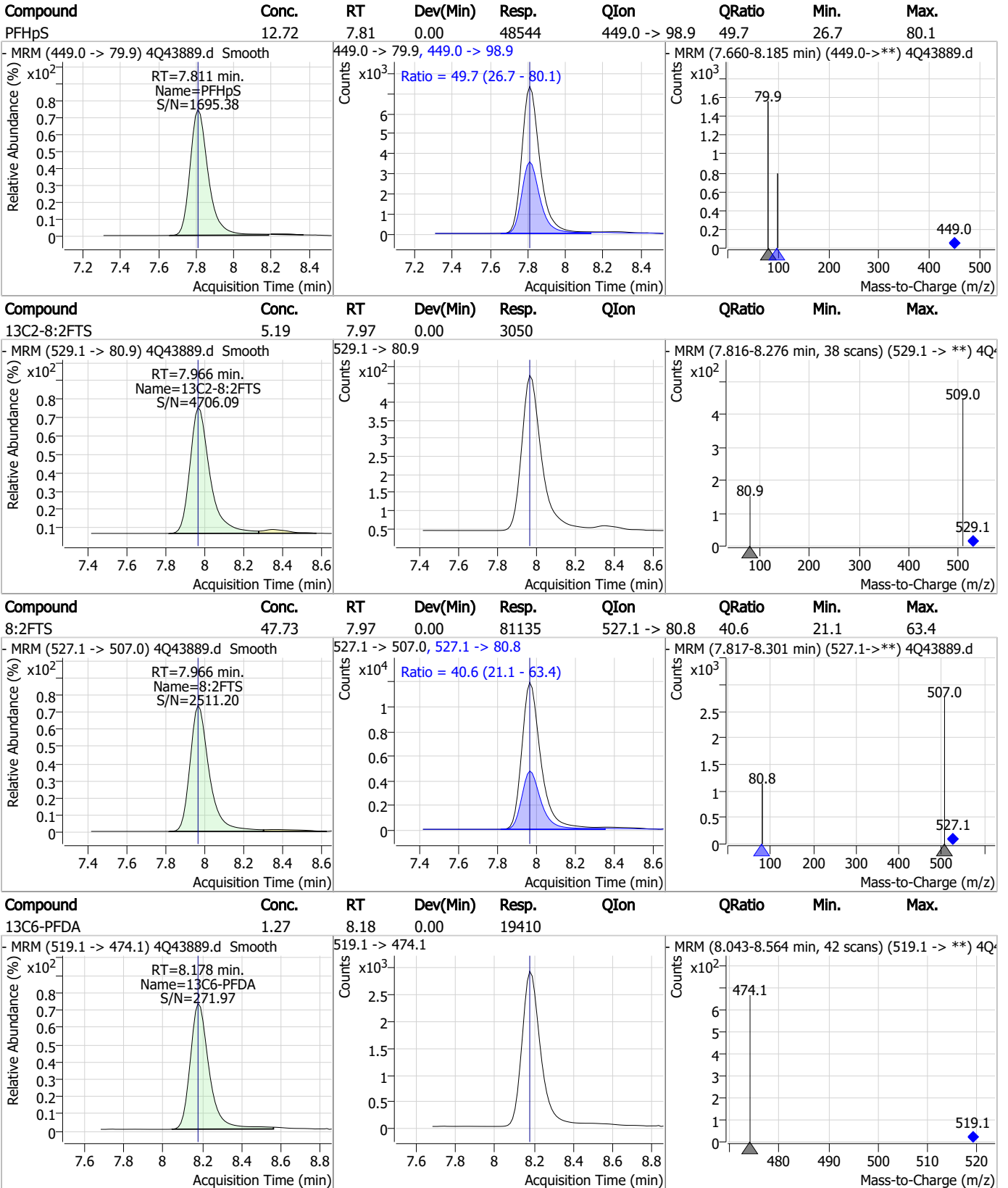
7.7.7

7

Perfluorinated Compounds by LC/MS/MS



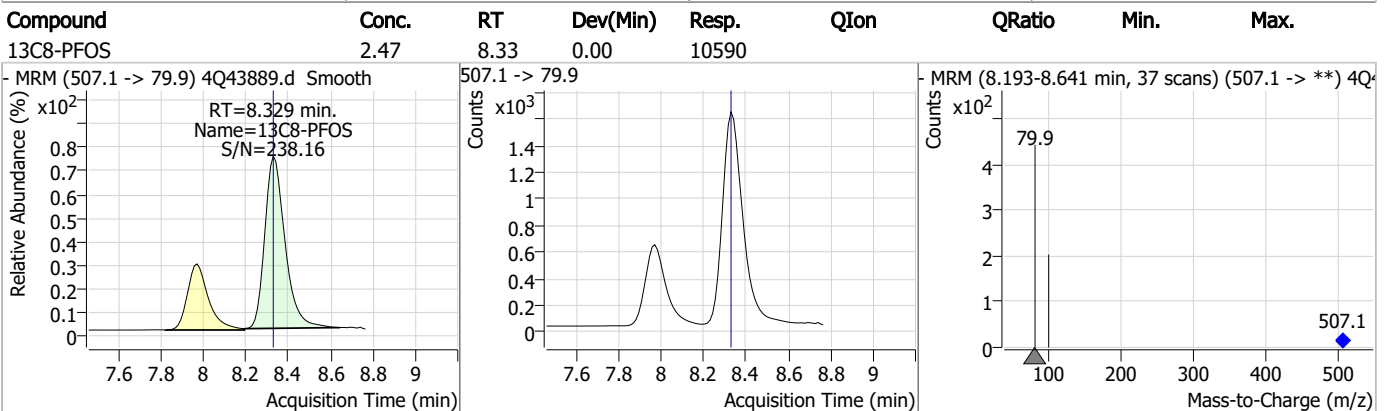
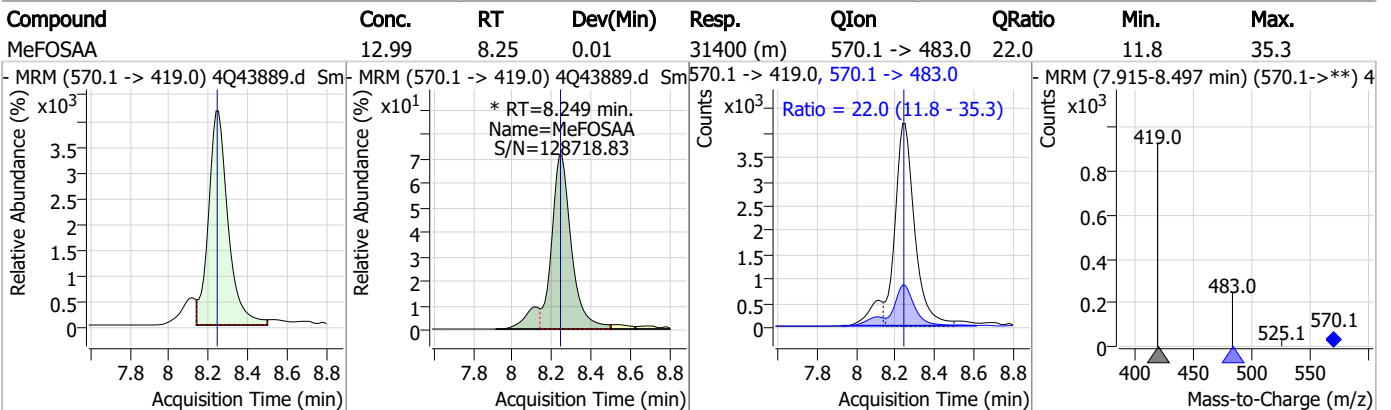
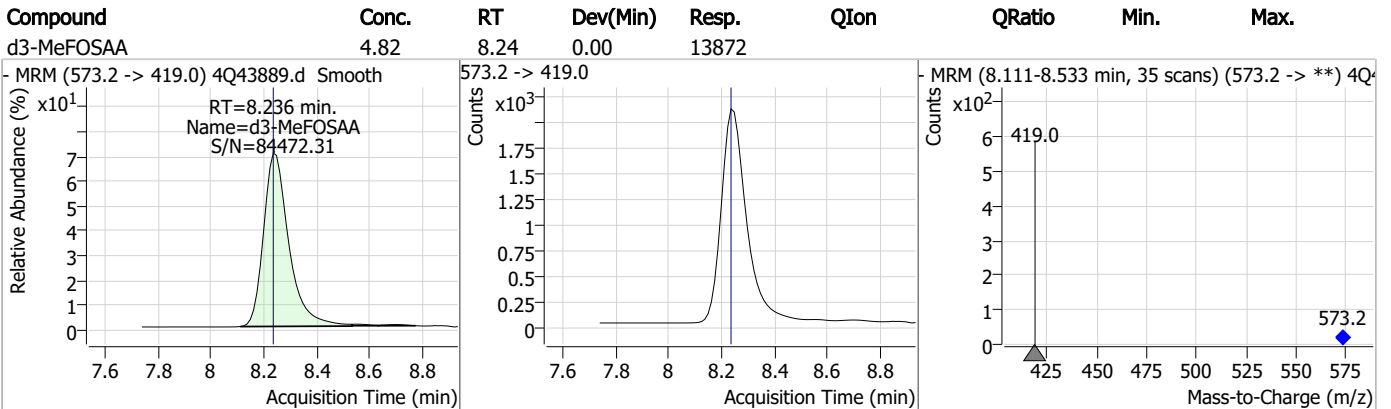
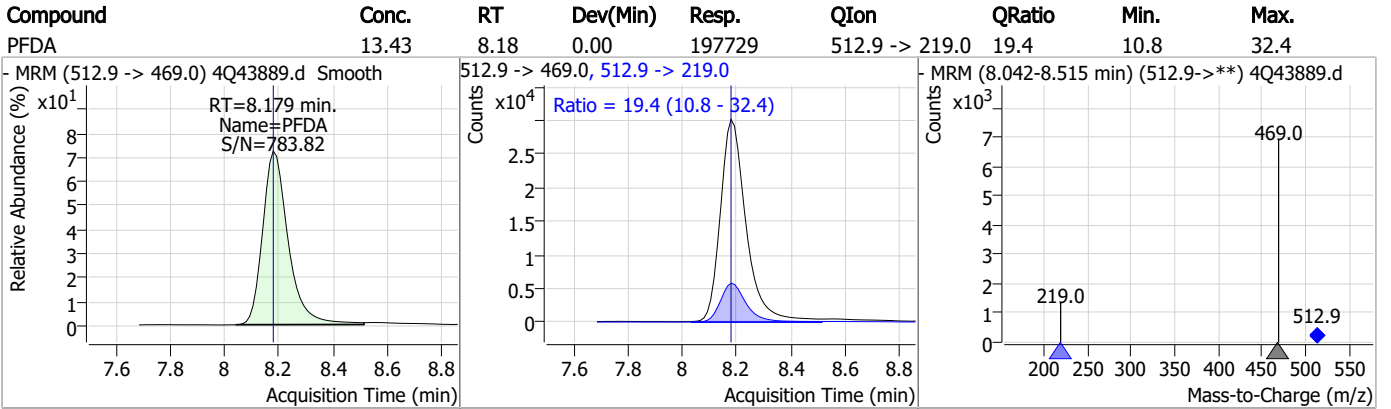
Perfluorinated Compounds by LC/MS/MS



7.7.7

7

Perfluorinated Compounds by LC/MS/MS

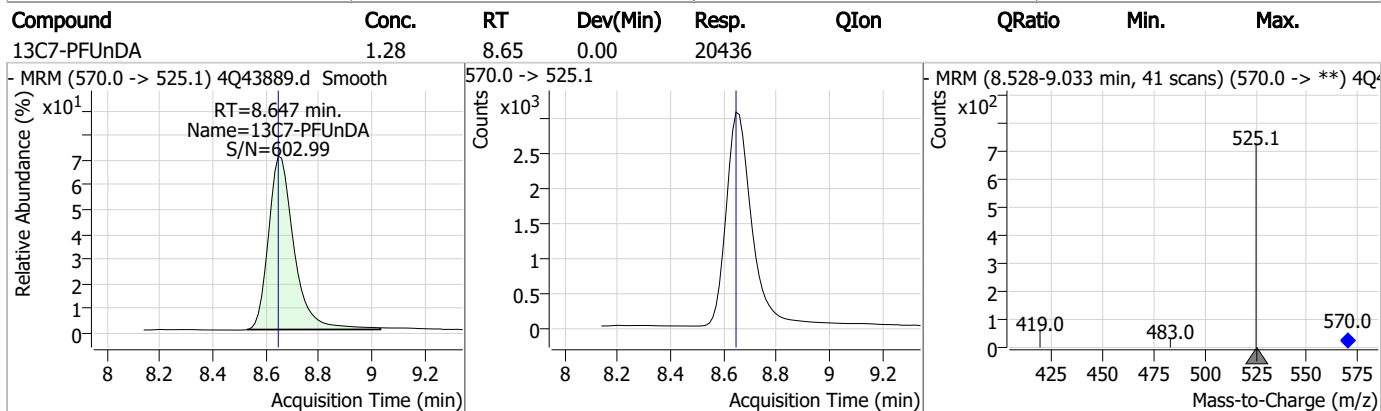
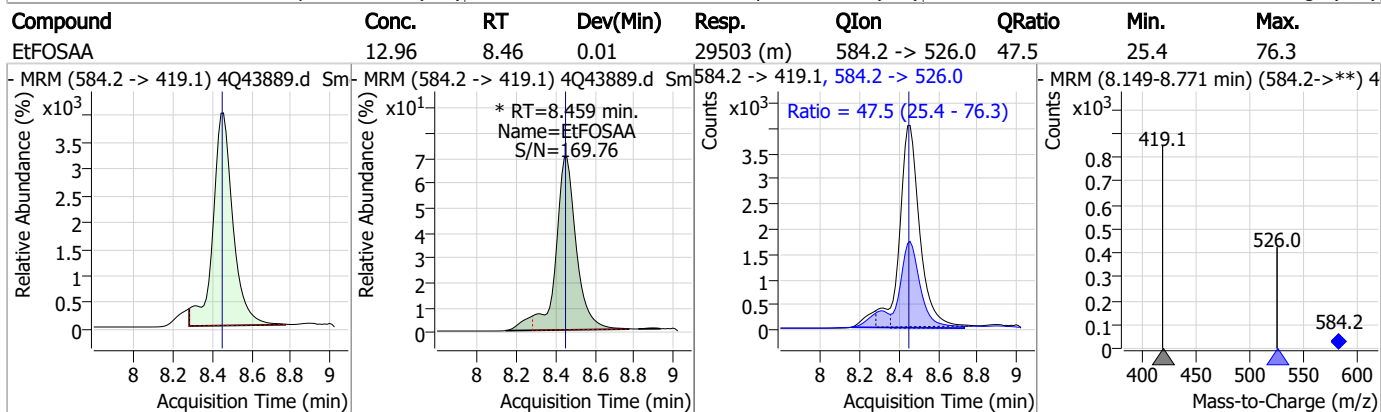
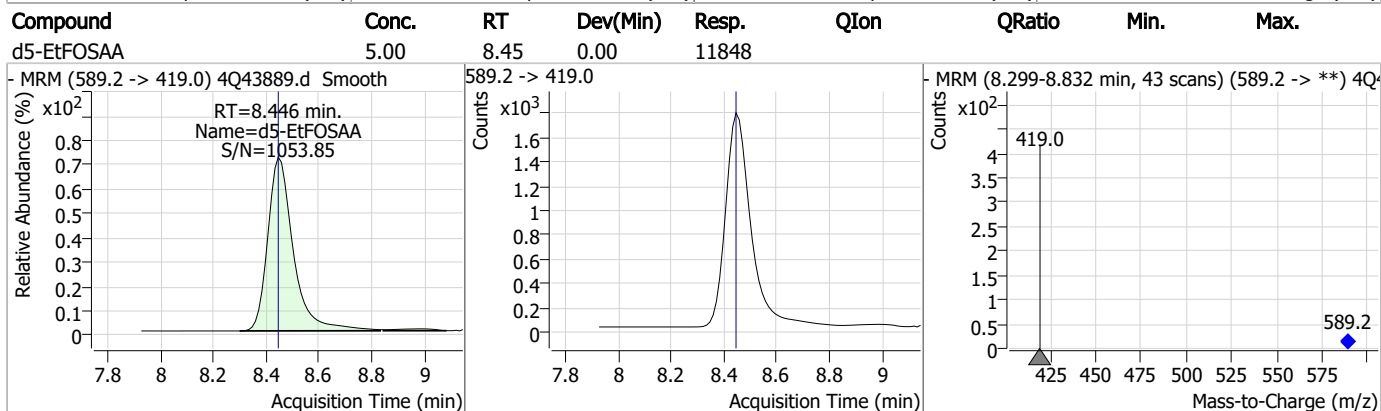
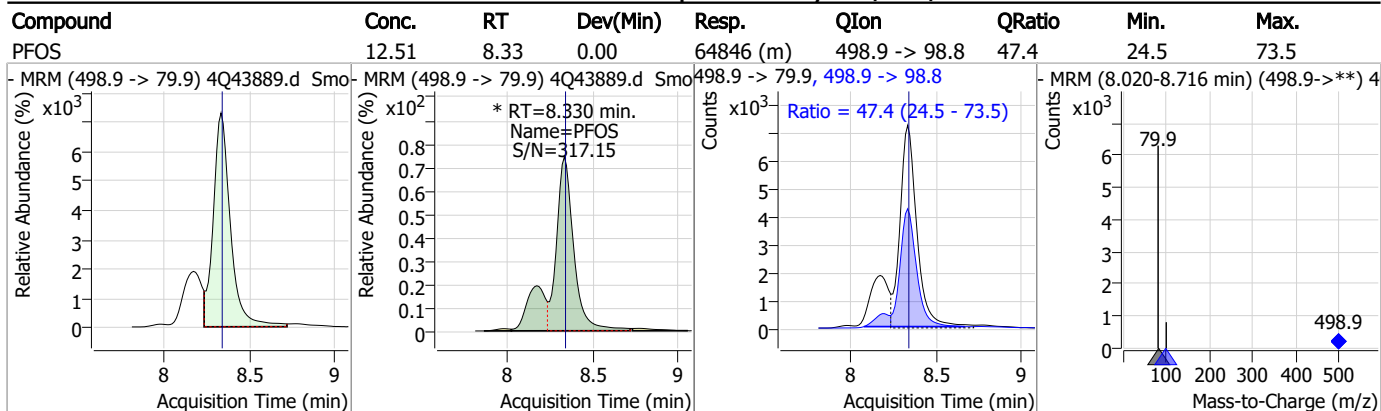


7.7.7

7

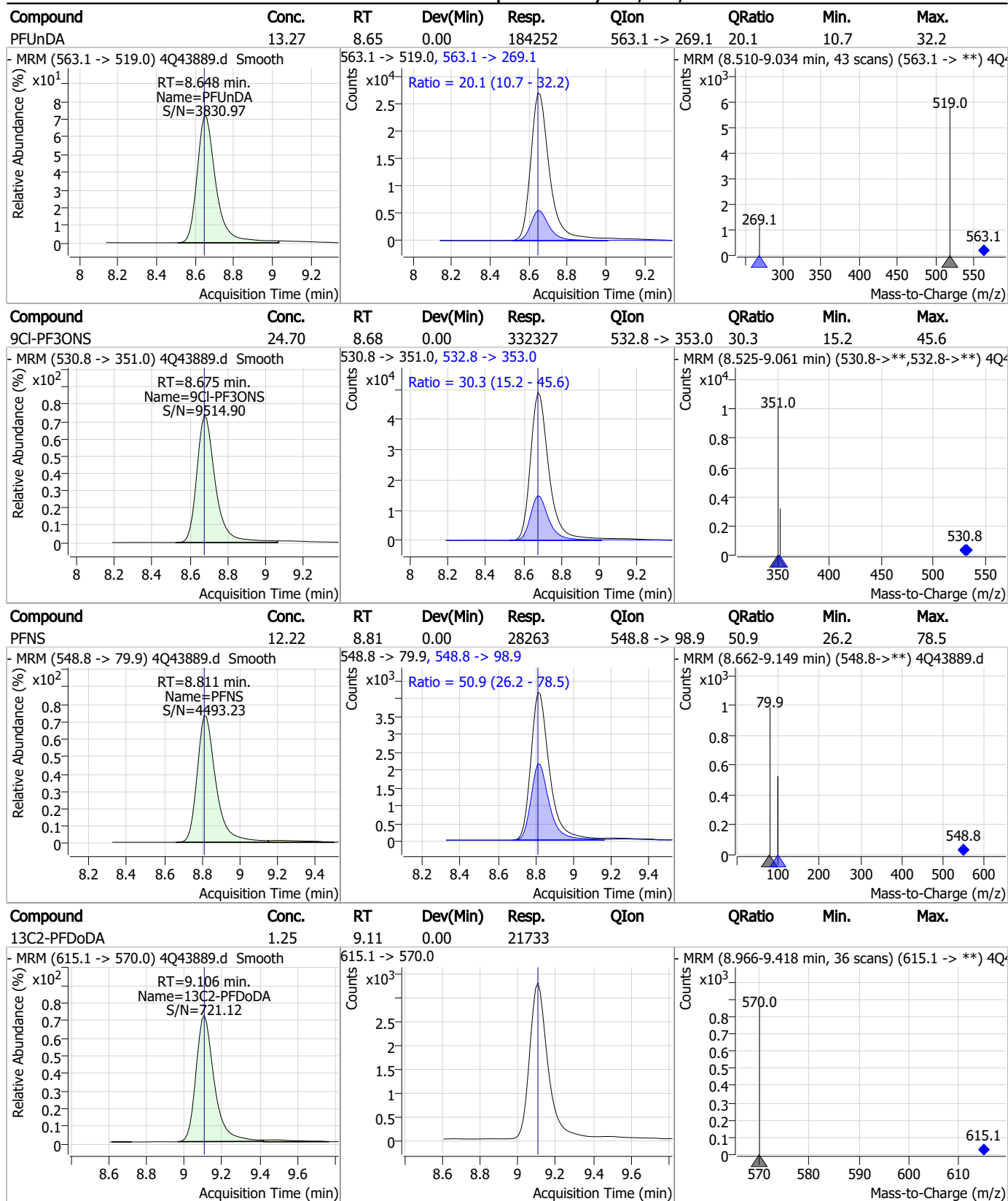


Perfluorinated Compounds by LC/MS/MS



7.7.7
7

Perfluorinated Compounds by LC/MS/MS



7.7.7
7

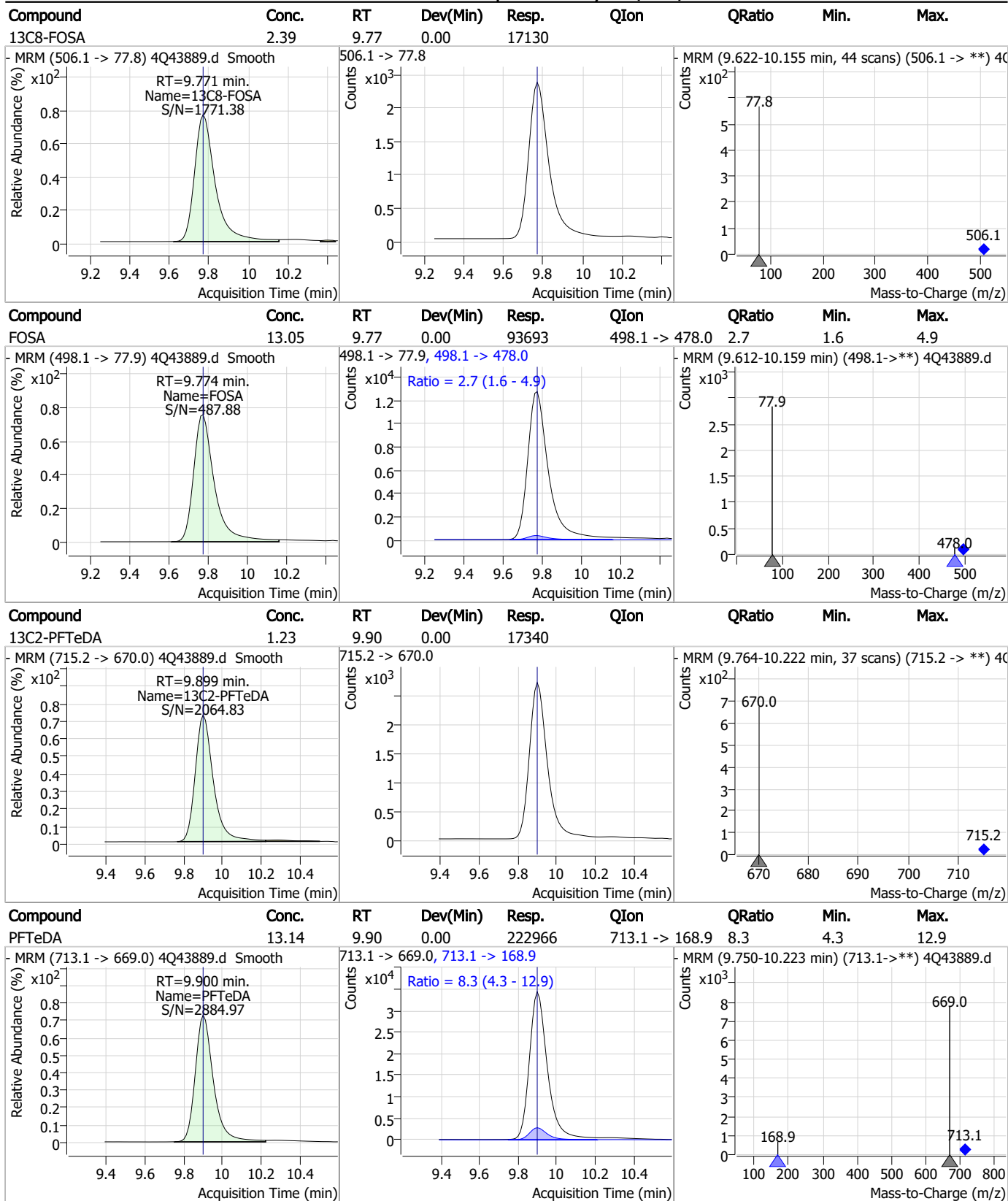
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDODA	13.22	9.11	0.00	230624	613.1 -> 319.0	14.1	7.3	22.0
PFDS	12.48	9.27	0.01	32741	599.0 -> 98.8	49.5	23.2	69.5
PFTrDA	12.95	9.52	0.00	301738	663.0 -> 168.9	10.0	5.4	16.2
11Cl-PF3OUds	25.16	9.57	0.00	265861	632.9 -> 452.9	30.2	14.5	43.6

7.7.7

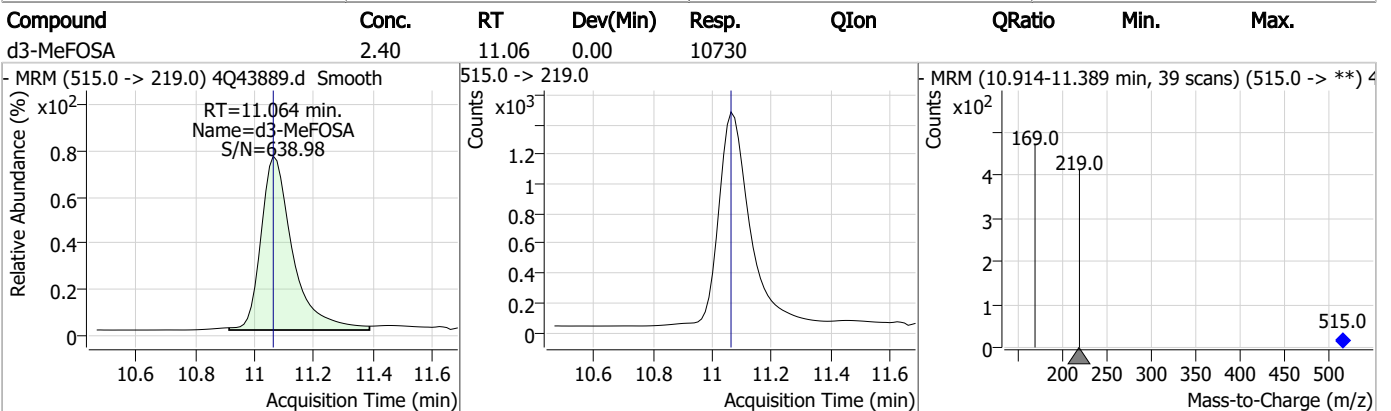
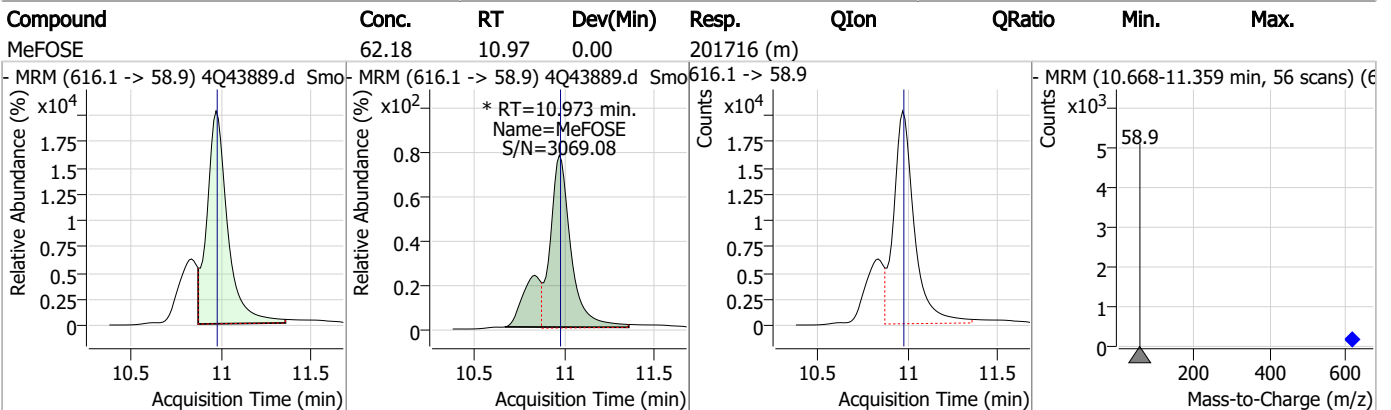
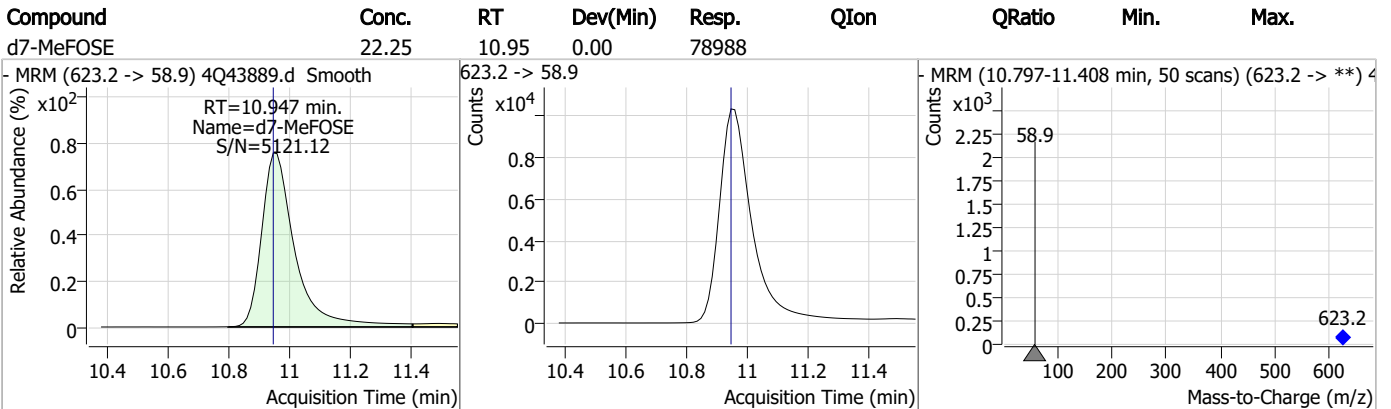
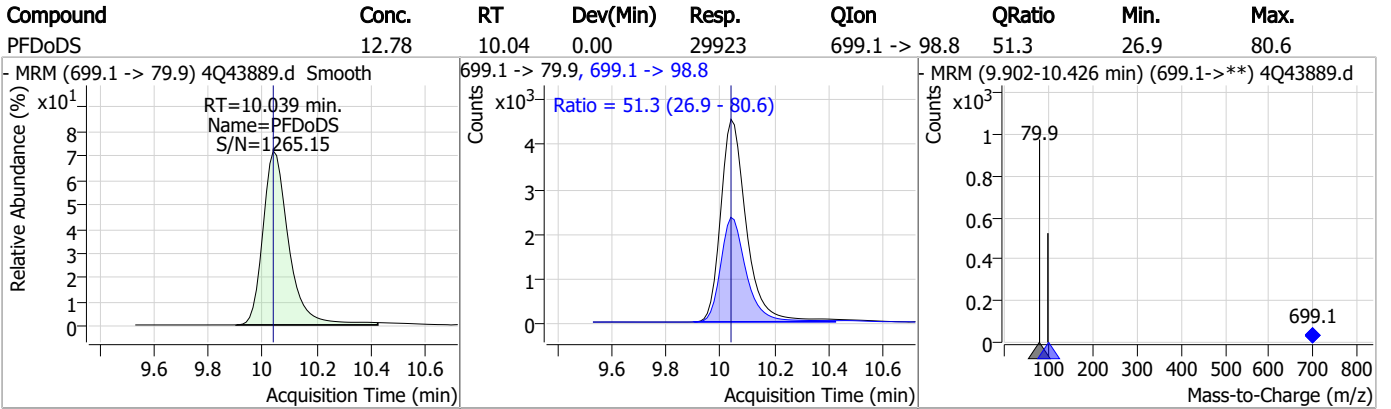
7

Perfluorinated Compounds by LC/MS/MS



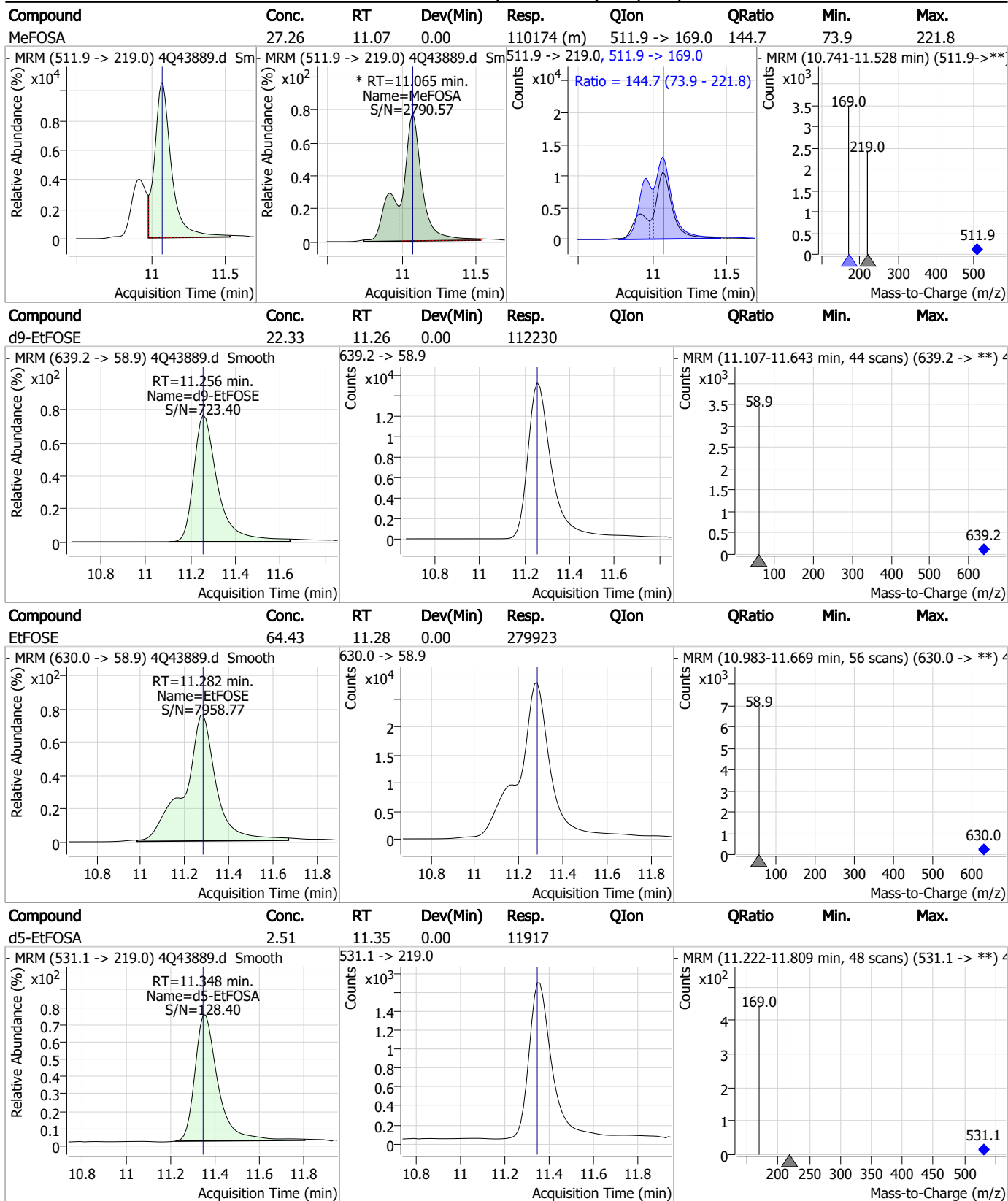
7.7.7

Perfluorinated Compounds by LC/MS/MS



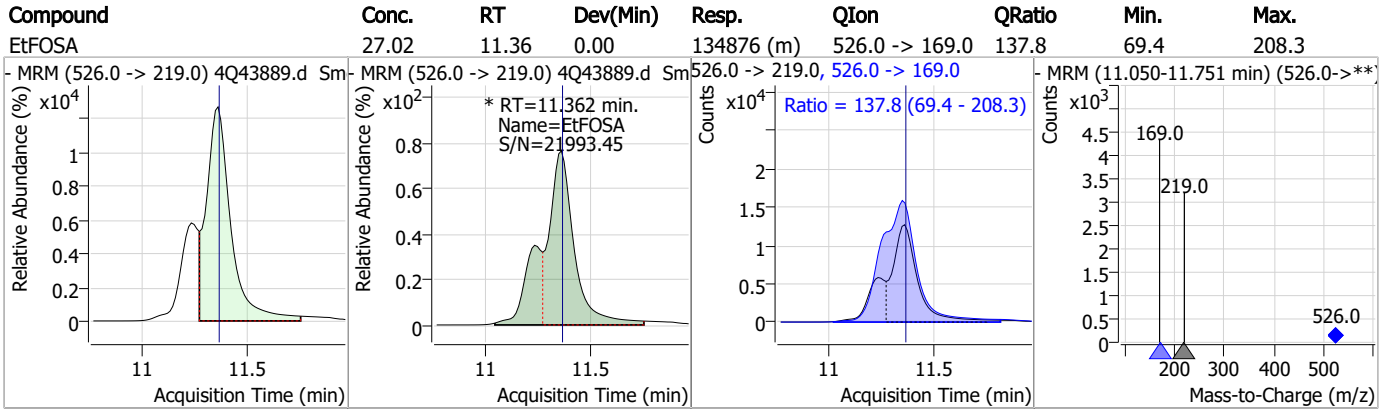
7.7.7
7

Perfluorinated Compounds by LC/MS/MS



7.7.7

Perfluorinated Compounds by LC/MS/MS



7.7.7

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43889.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 12:22 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.06	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.7.1
7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
 05/04/23 17:44

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43890.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 12:36:33 PM
 Sample Name : ic634-7
 Vial : P1-A8
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	120121	10.00 µg/L	-0.012
M5-PFPeA	4.362	268.3 -> 223.0	66273	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	46821	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	28586	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	41636	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20543	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	19612	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	18650	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	21188	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	15643	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	16278	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	11395	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	7525	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	10878	2.50 µg/L	0.000
M2-4:2FTS	5.235	329.1 -> 80.9	872	5.00 µg/L	0.012
M2-6:2FTS	6.898	429.1 -> 80.9	1599	5.00 µg/L	0.000
M2-8:2FTS	7.978	529.1 -> 80.9	2515	5.00 µg/L	0.012
M3-MeFOSAA	8.236	573.2 -> 419.0	14413	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	29456	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11475	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	70051	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	98044	25.00 µg/L	0.000
M5-EtFOSA	11.348	531.1 -> 219.0	11250	2.50 µg/L	0.000
M3-MeFOSA	11.064	515.0 -> 219.0	10176	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	10322	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	63898	5.00 µg/L	-0.012
18O2-PFHxS	7.228	403.0 -> 83.9	4756	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	51637	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	17262	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	23219	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	43283	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.235	329.1 -> 80.9	872	4.51 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 90.2%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1599	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 91.8%		
13C2-8:2FTS	7.978	529.1 -> 80.9	2515	4.62 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 92.5%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21188	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.3%		
13C2-PFTeDA	9.899	715.2 -> 670.0	15643	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C3-PFBS	5.439	302.1 -> 79.9	11395	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C3-PFHxS	7.229	402.1 -> 79.9	7525	2.55 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 = 102.1%	
13C4-PFBA	2.911	216.8 -> 171.9	120121	9.99 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.467	367.1 -> 322.0	28586	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C5-PFHxA	5.535	318.0 -> 273.0	46821	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C5-PFPeA	4.362	268.3 -> 223.0	66273	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.178	519.1 -> 474.1	19612	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C7-PFUnDA	8.647	570.0 -> 525.1	18650	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-FOSA	9.771	506.1 -> 77.8	16278	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C8-PFOA	7.136	421.1 -> 376.0	41636	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.2%	
13C8-PFOS	8.329	507.1 -> 79.9	10878	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
13C9-PFNA	7.684	472.1 -> 427.0	20543	1.30 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.1%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14413	5.53 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	29456	10.34 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
d3-MeFOSA	11.064	515.0 -> 219.0	10176	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11475	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d7-MeFOSE	10.959	623.2 -> 58.9	70051	21.81 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.2%	
d9-EtFOSE	11.256	639.2 -> 58.9	98044	21.56 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.2%	
d5-EtFOSA	11.348	531.1 -> 219.0	11250	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	146301	104.28 µg/L	92
		327.1 -> 80.9	60380		
6:2FTS	6.899	427.1 -> 407.0	156292	101.17 µg/L	98
		427.1 -> 80.9	64052		
8:2FTS	7.966	527.1 -> 507.0	149695	106.75 µg/L	95
		527.1 -> 80.8	58775		
EtFOSAA	8.459	584.2 -> 419.1	57787	26.21 µg/L	m 94
		584.2 -> 526.0	26926		
FOSA	9.774	498.1 -> 77.9	174421	25.57 µg/L	99
		498.1 -> 478.0	4957		
MeFOSAA	8.249	570.1 -> 419.0	61802	24.60 µg/L	m 99
		570.1 -> 483.0	14322		
PFBA	2.920	212.8 -> 168.9	346581	107.75 µg/L	100
PFBS	5.440	298.7 -> 79.9	109963	23.53 µg/L	95
		298.7 -> 98.8	41302		
PFDA	8.179	512.9 -> 469.0	385953	25.94 µg/L	97
		512.9 -> 219.0	77211		
PFDoDA	9.106	613.1 -> 569.0	447161	26.30 µg/L	100
		613.1 -> 319.0	64881		
PFDS	9.269	599.0 -> 79.9	61928	22.98 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	30537			
PFHpA	6.468	363.1 -> 319.0	476095	26.35	µg/L	99
		363.1 -> 169.0	82464			
PFHpS	7.811	449.0 -> 79.9	93082	23.75	µg/L	98
		449.0 -> 98.9	48374			
PFHxA	5.538	313.0 -> 269.0	491297	26.78	µg/L	100
		313.0 -> 118.9	14658			
PFHxS	7.230	398.7 -> 79.9	74205	24.06	µg/L	m 98
		398.7 -> 98.9	38246			
PFNA	7.685	463.0 -> 419.0	388441	25.51	µg/L	99
		463.0 -> 219.0	95620			
PFNS	8.811	548.8 -> 79.9	55484	23.36	µg/L	97
		548.8 -> 98.9	28020			
PFOA	7.137	413.0 -> 369.0	642884	26.76	µg/L	97
		413.0 -> 169.0	131407			
PFOS	8.330	498.9 -> 79.9	132624	24.91	µg/L	m 98
		498.9 -> 98.8	62946			
PFPeA	4.364	263.0 -> 219.0	849369	53.27	µg/L	100
PFPeS	6.507	349.1 -> 79.9	65126	24.61	µg/L	96
		349.1 -> 98.9	28467			
PFTeDA	9.900	713.1 -> 669.0	424000	27.69	µg/L	99
		713.1 -> 168.9	34965			
PFTrDA	9.529	663.0 -> 619.0	564435	24.84	µg/L	98
		663.0 -> 168.9	56187			
PFUnDA	8.648	563.1 -> 519.0	350086	27.64	µg/L	97
		563.1 -> 269.1	70679			
11CI-PF3OUdS	9.568	630.9 -> 450.9	519008	49.00	µg/L	97
		632.9 -> 452.9	159065			
9CI-PF3ONS	8.675	530.8 -> 351.0	641153	47.53	µg/L	99
		532.8 -> 353.0	197012			
ADONA	6.731	376.9 -> 250.9	1425503	48.12	µg/L	100
		376.9 -> 84.8	372213			
HFPO-DA	5.891	284.9 -> 168.9	147577	52.43	µg/L	100
		284.9 -> 184.9	16918			
3:3FTCA	3.836	241.0 -> 177.0	93481	133.25	µg/L	99
		241.0 -> 117.0	8317			
5:3FTCA	6.193	341.0 -> 237.1	1676151	673.37	µg/L	100
		341.0 -> 217.0	1146237			
7:3FTCA	7.649	441.0 -> 316.9	878718	679.38	µg/L	97
		441.0 -> 336.9	2052834			
EtFOSA	11.362	526.0 -> 219.0	262384	55.67	µg/L	m 98
		526.0 -> 169.0	357124			
EtFOSE	11.282	630.0 -> 58.9	509704	134.29	µg/L	100
MeFOSA	11.066	511.9 -> 219.0	210295	54.86	µg/L	m 98
		511.9 -> 169.0	316383			
MeFOSE	10.973	616.1 -> 58.9	369686	128.49	µg/L	m 100
PFDoDS	10.052	699.1 -> 79.9	56691	23.57	µg/L	99
		699.1 -> 98.8	31005			
NFDHA	5.416	295.0 -> 201.0	66188	50.53	µg/L	95
		295.0 -> 84.9	16643			
PFMBA	4.778	279.0 -> 85.1	466141	52.38	µg/L	100
PFMPA	3.515	229.0 -> 84.9	445482	53.45	µg/L	100
PFEESA	5.971	314.8 -> 134.9	665147	47.90	µg/L	99
		314.8 -> 82.9	22108			

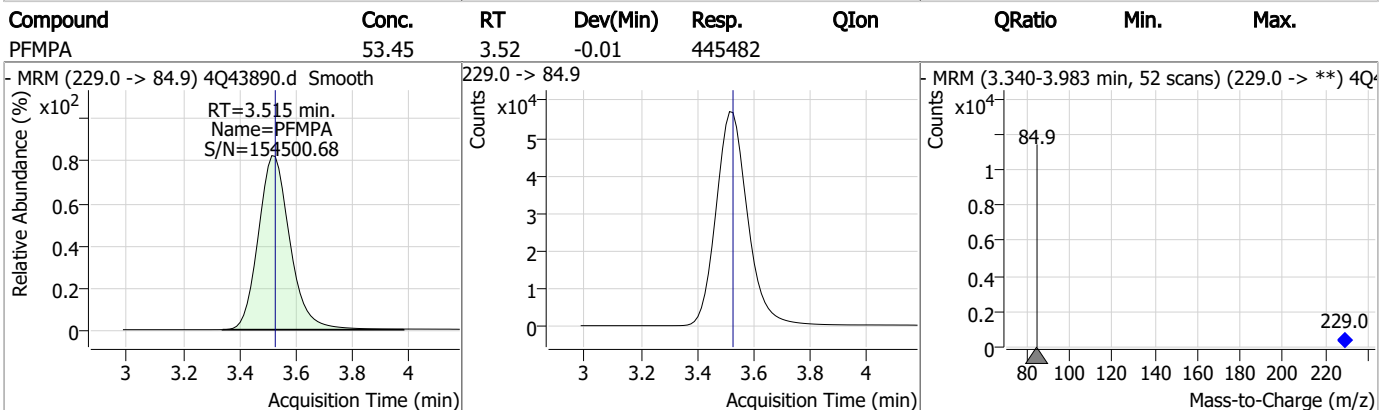
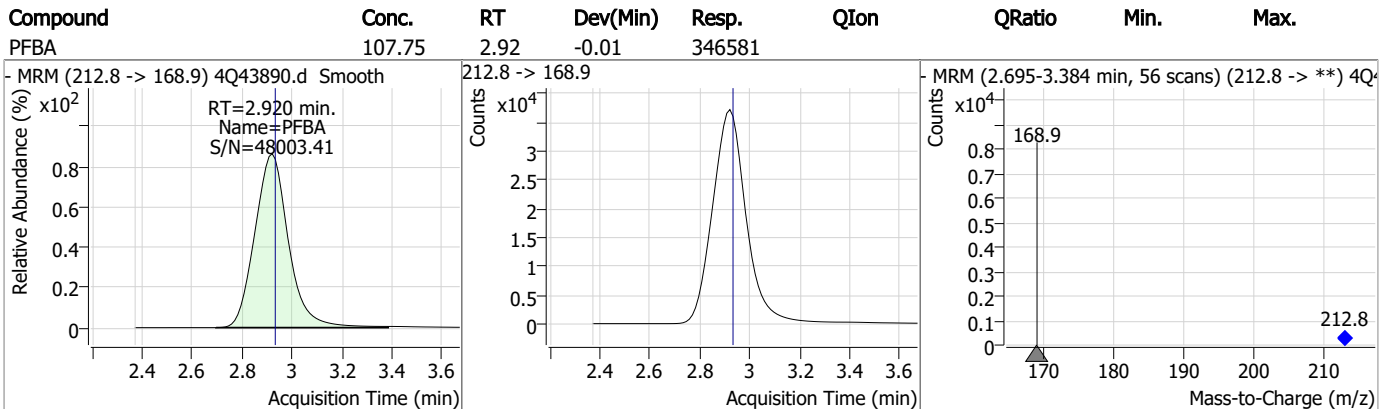
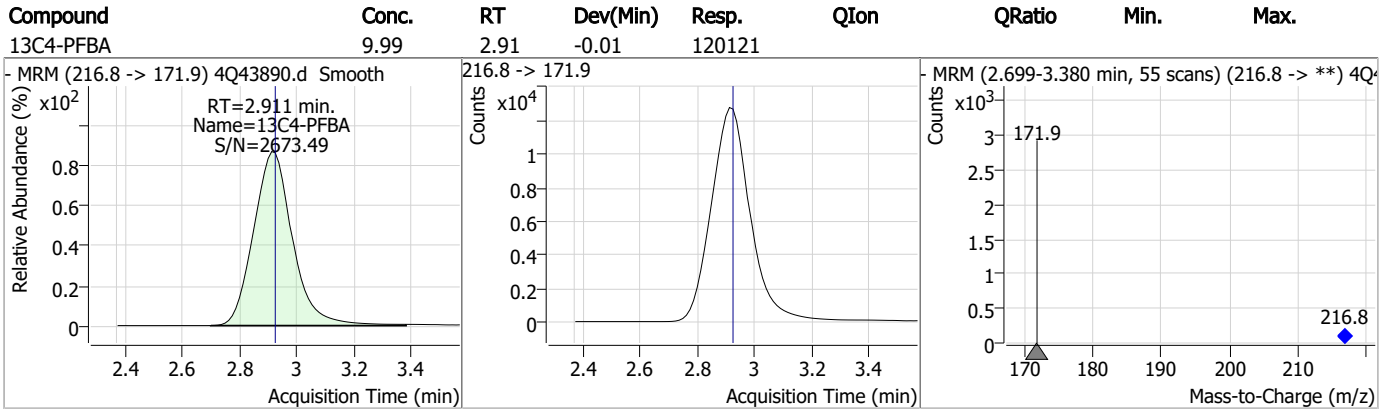
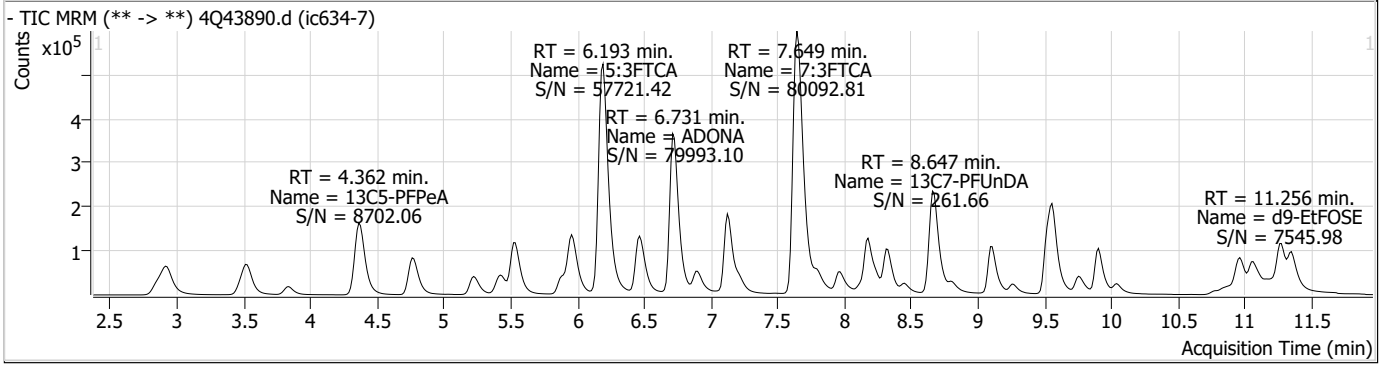
= Qualifier out of range, m = manually integrated, + = Area summed

Perfluorinated Compounds by LC/MS/MS

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

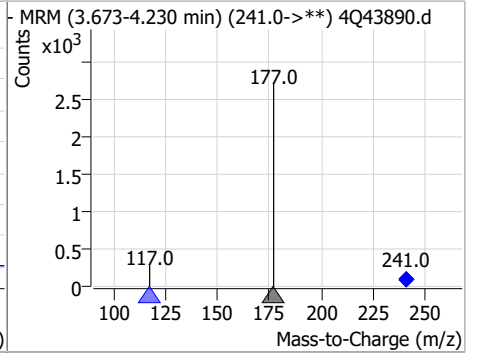
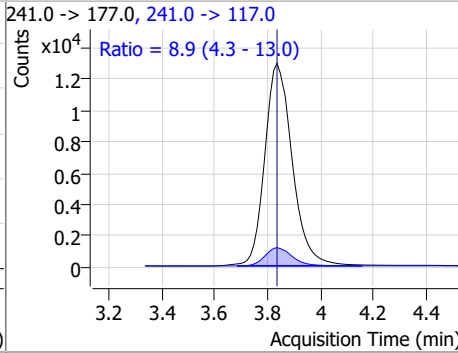
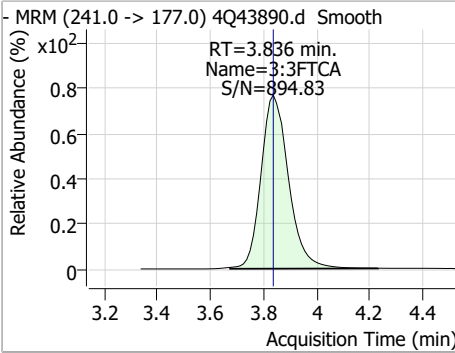
7.7.8
7

Perfluorinated Compounds by LC/MS/MS

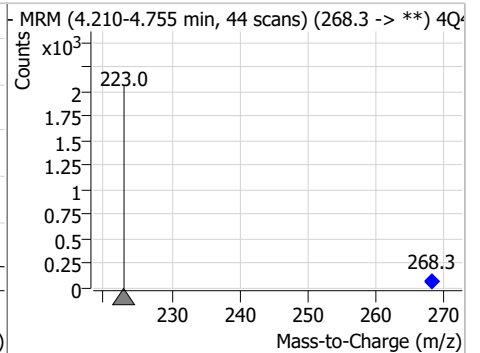
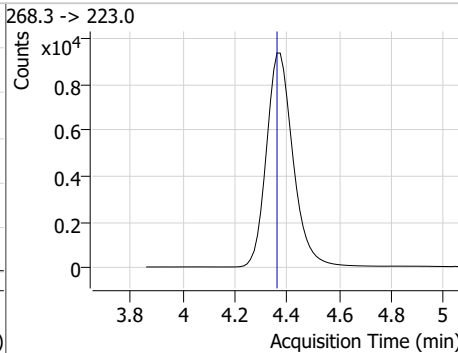
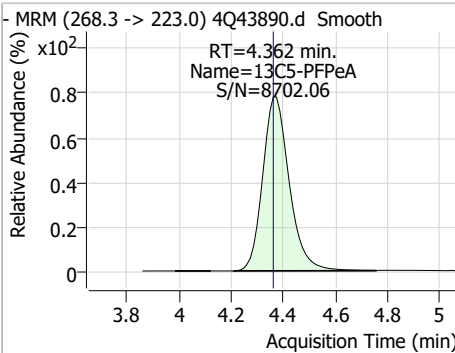


Perfluorinated Compounds by LC/MS/MS

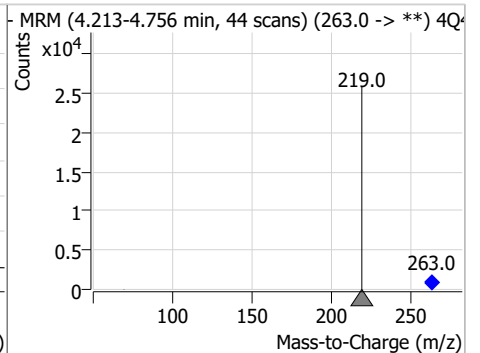
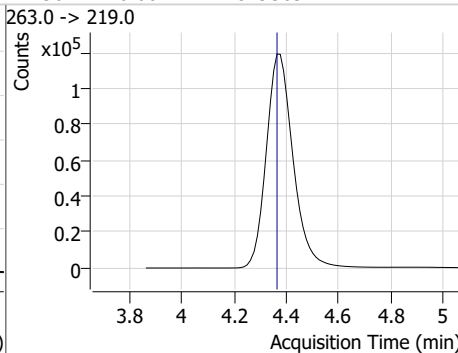
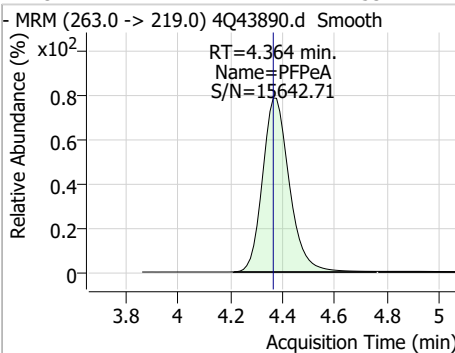
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	133.25	3.84	0.00	93481	241.0 -> 117.0	8.9	4.3	13.0



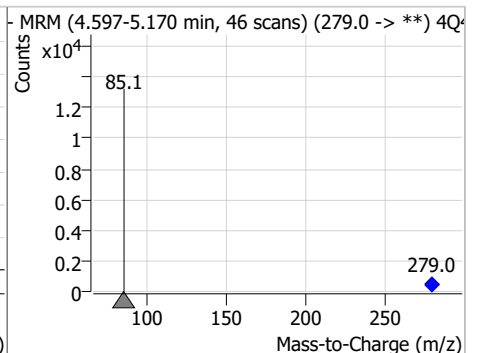
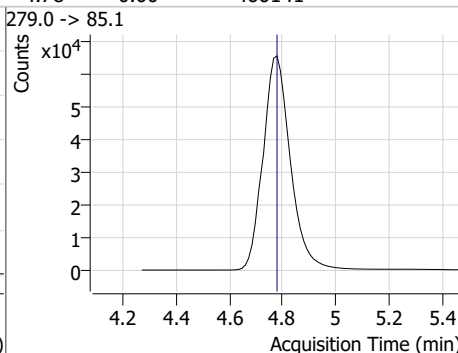
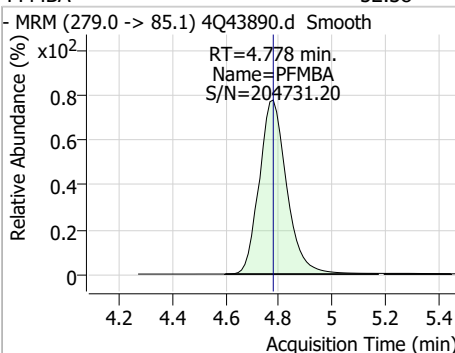
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.97	4.36	0.00	66273				



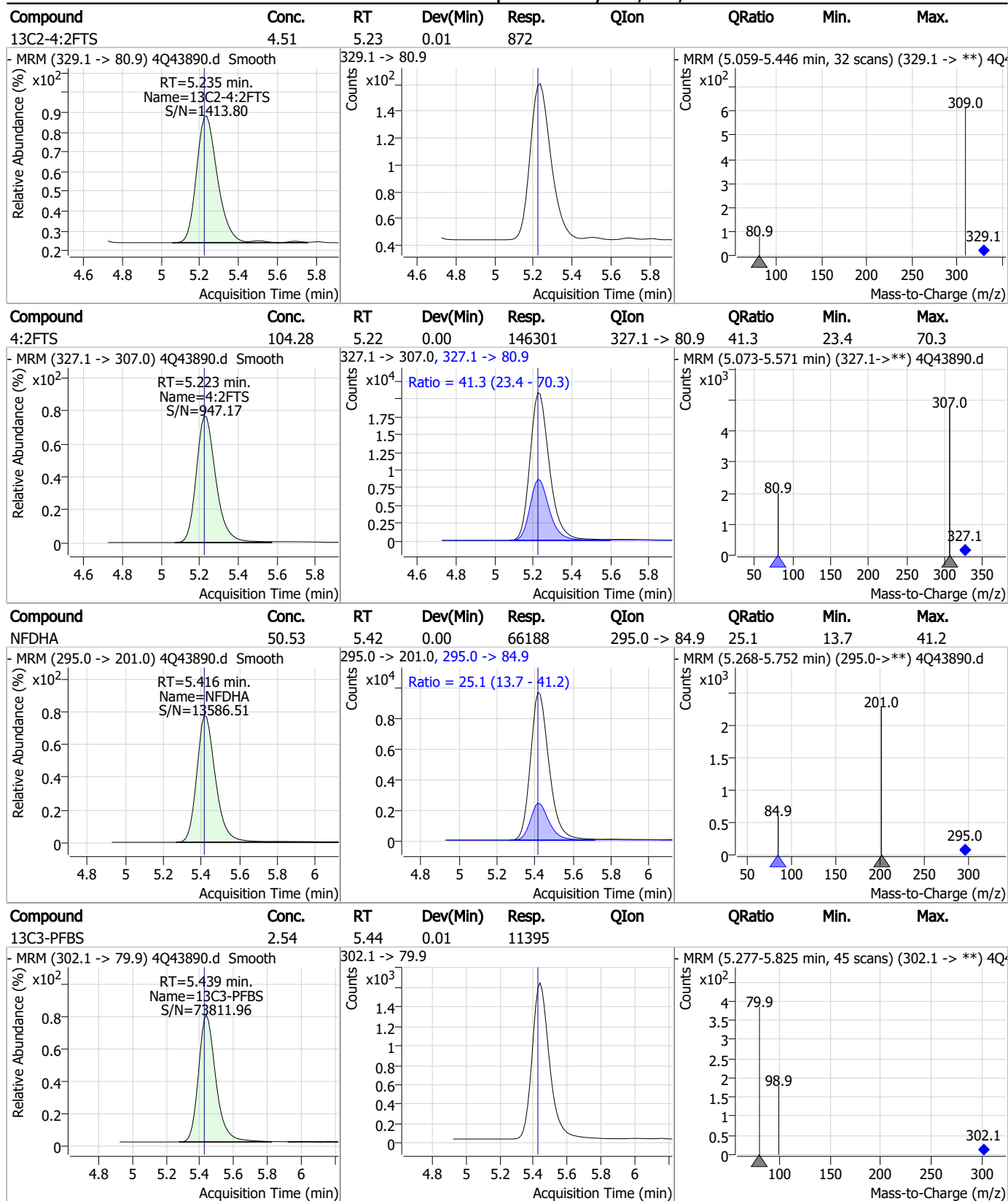
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	53.27	4.36	0.00	849369				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	52.38	4.78	0.00	466141				



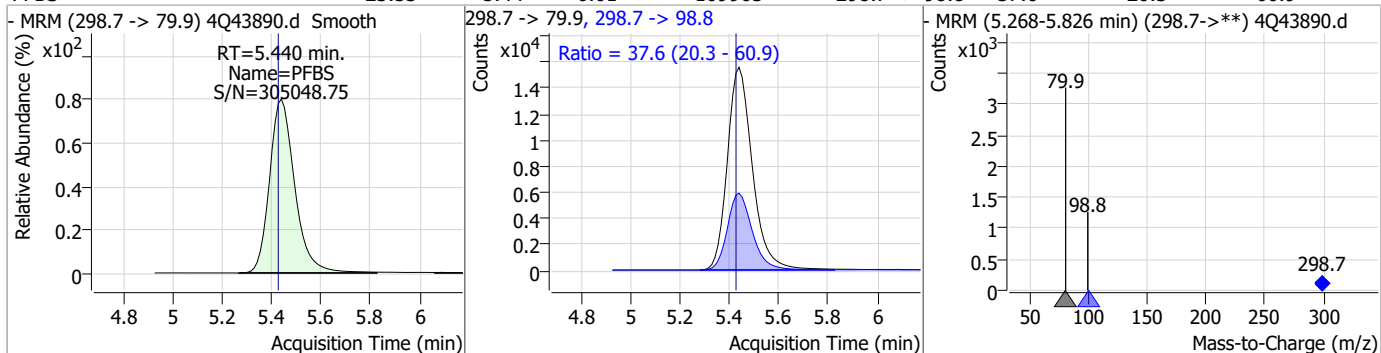
Perfluorinated Compounds by LC/MS/MS



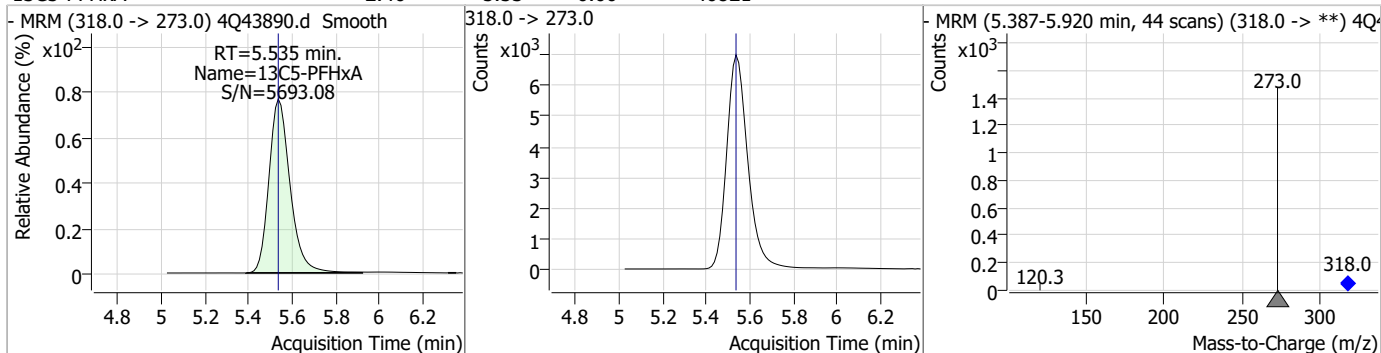
7.7.8
7

Perfluorinated Compounds by LC/MS/MS

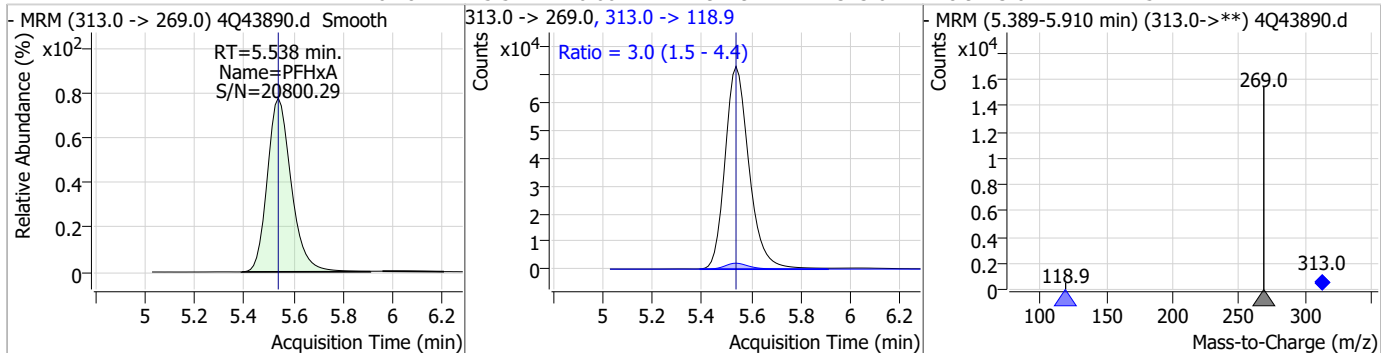
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.53	5.44	0.01	109963	298.7 -> 98.8	37.6	20.3	60.9



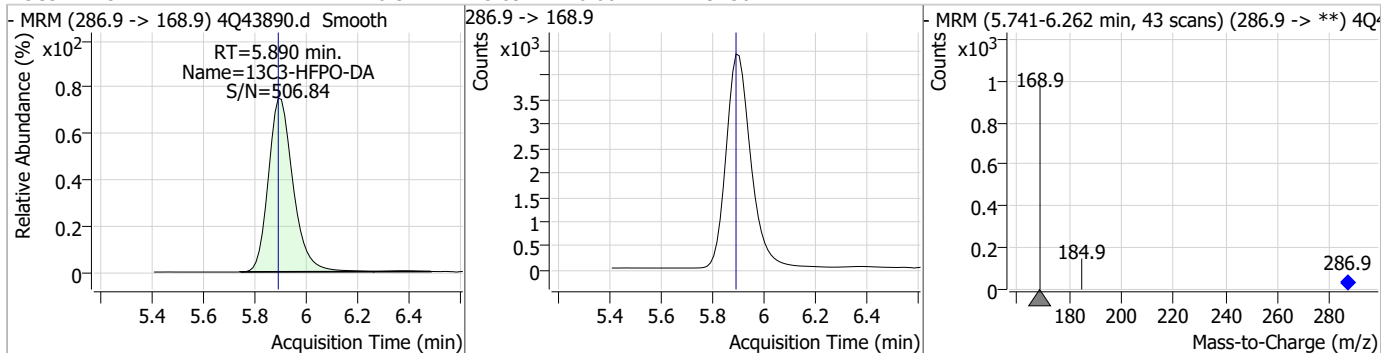
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.53	0.00	46821				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	26.78	5.54	0.00	491297	313.0 -> 118.9	3.0	1.5	4.4



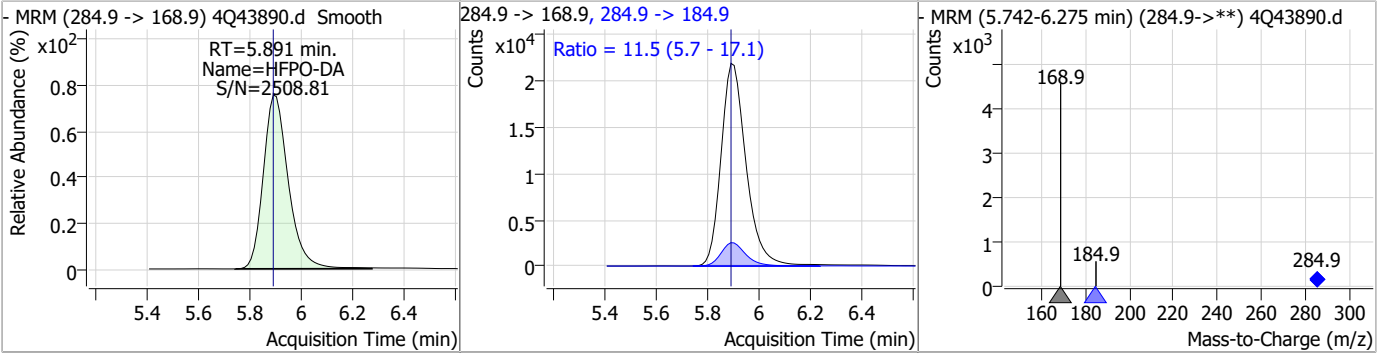
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.34	5.89	0.00	29456				



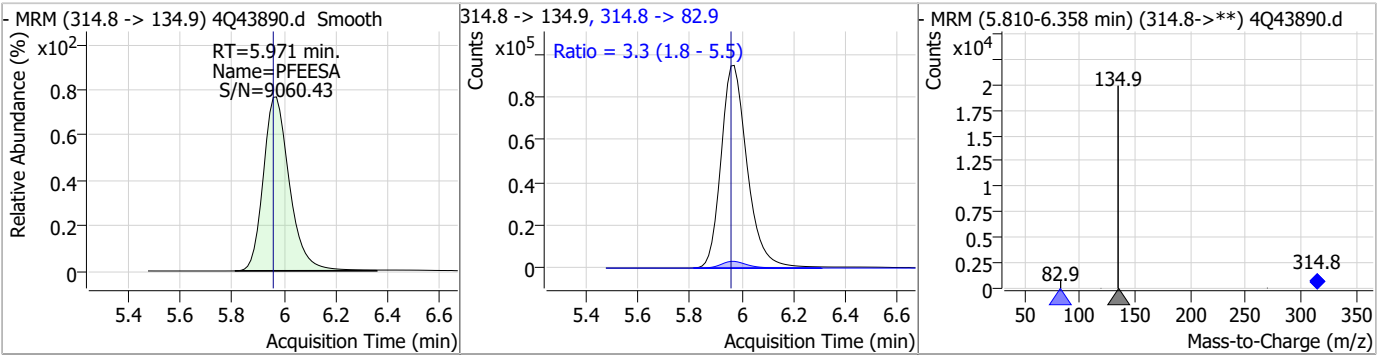
7.7.8
7

Perfluorinated Compounds by LC/MS/MS

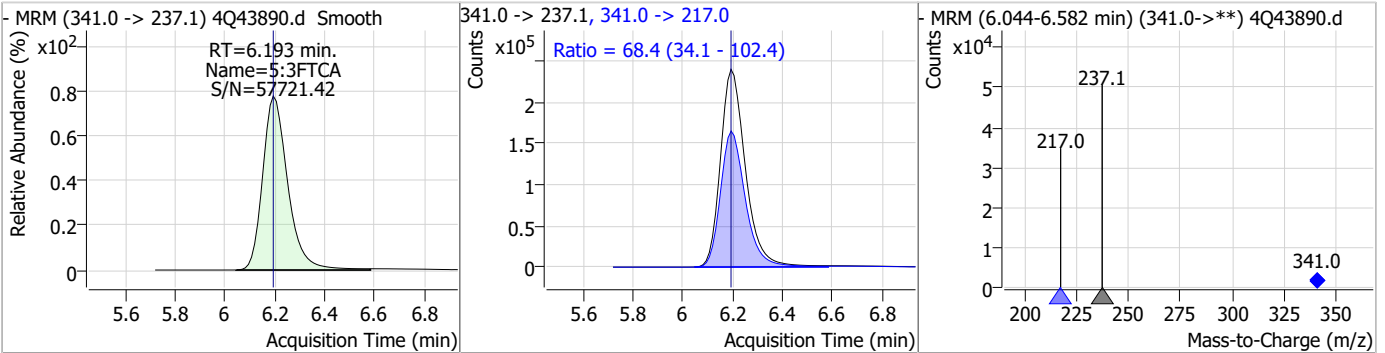
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	52.43	5.89	0.00	147577	284.9 -> 184.9	11.5	5.7	17.1



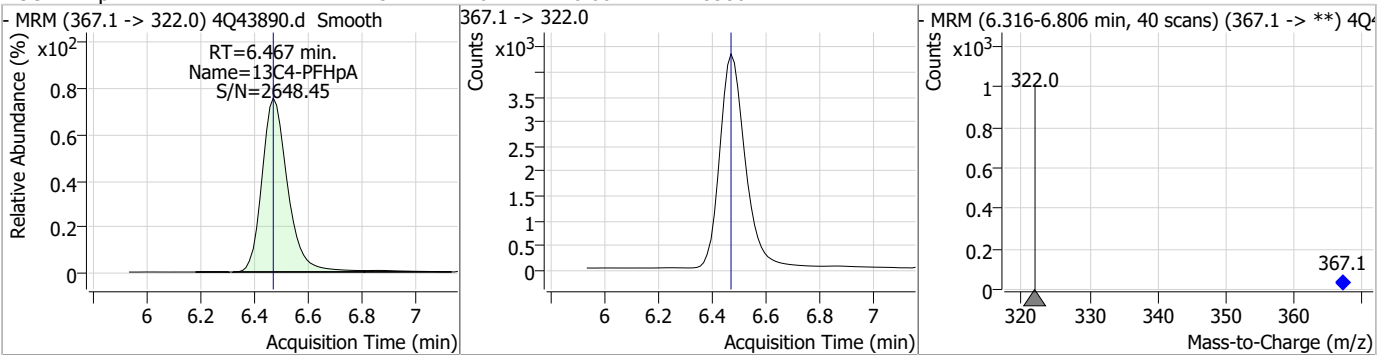
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	47.90	5.97	0.01	665147	314.8 -> 82.9	3.3	1.8	5.5



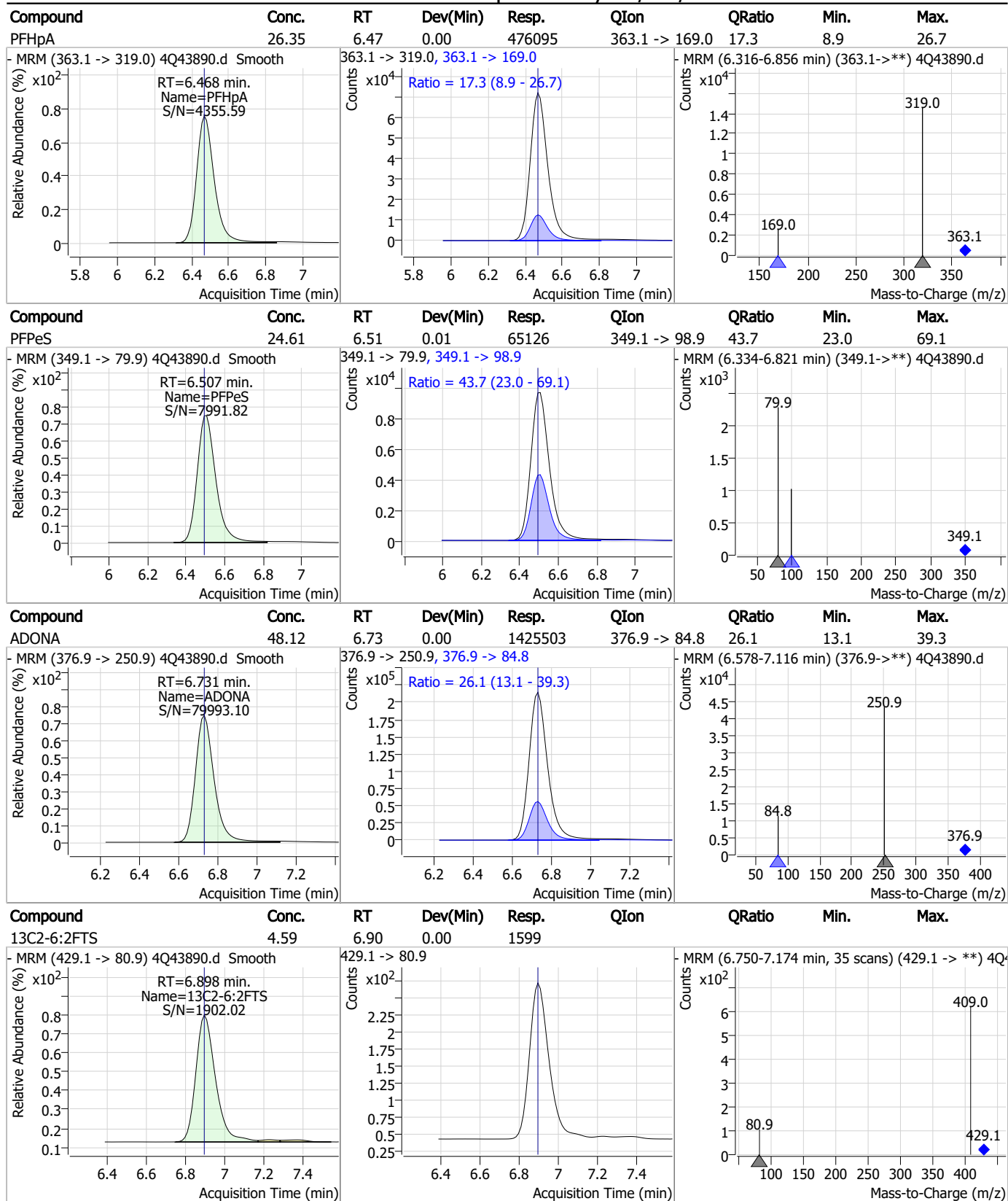
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	673.37	6.19	0.00	1676151	341.0 -> 217.0	68.4	34.1	102.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.57	6.47	0.00	28586				

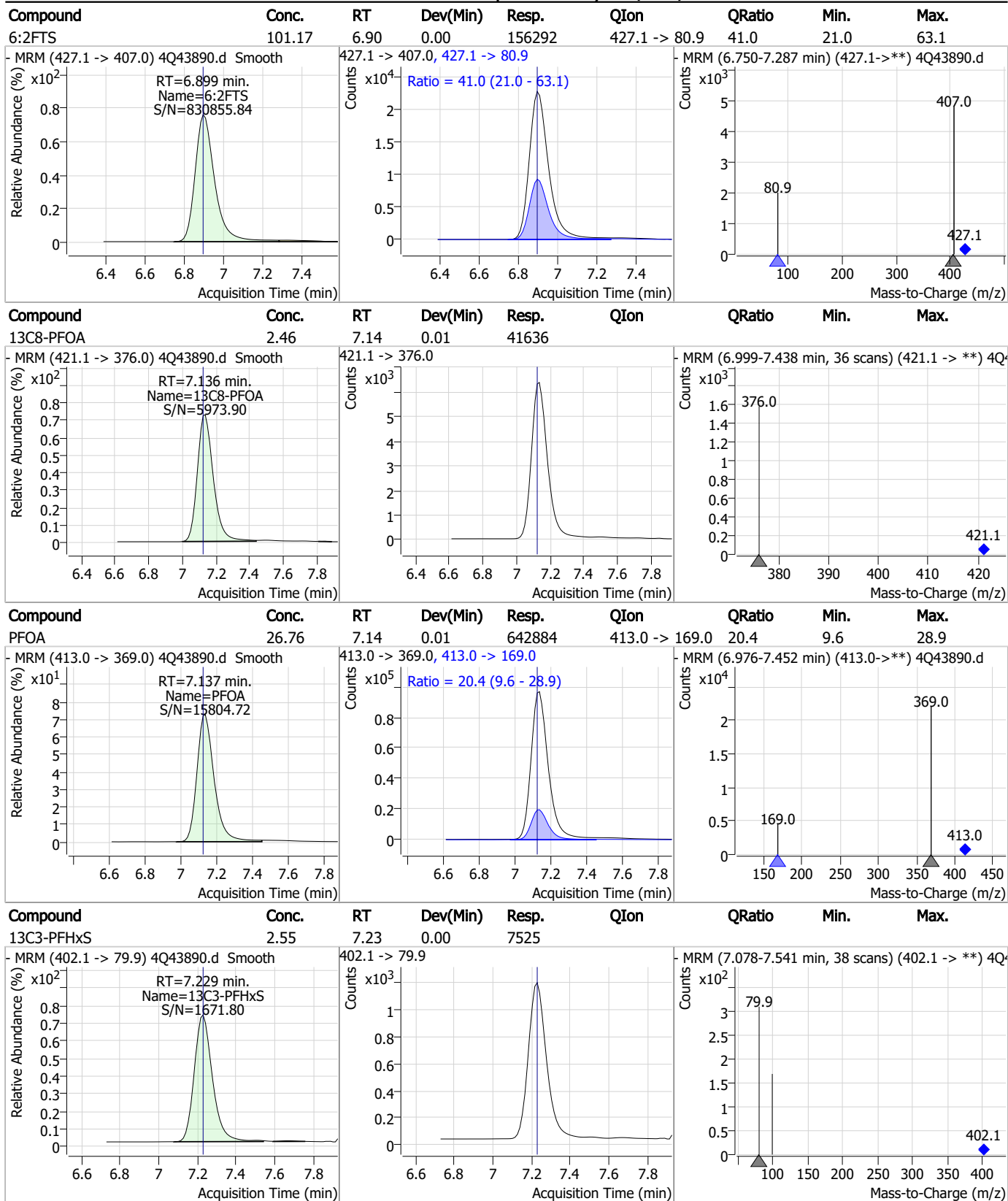


Perfluorinated Compounds by LC/MS/MS



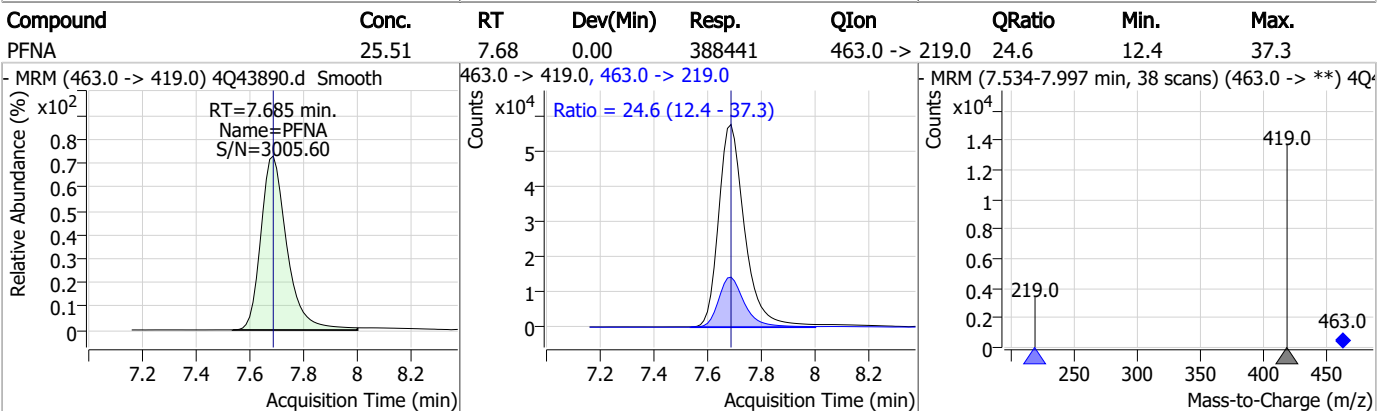
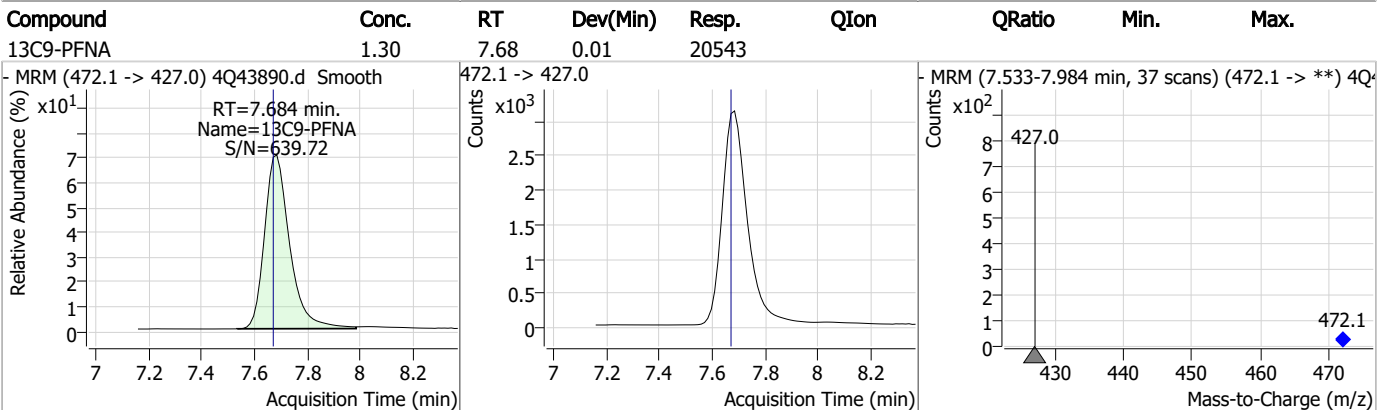
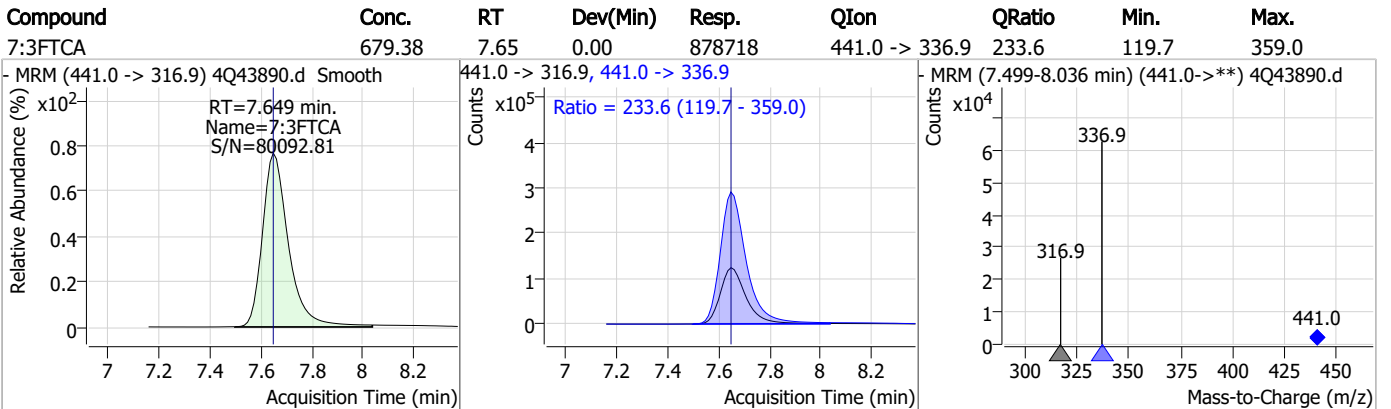
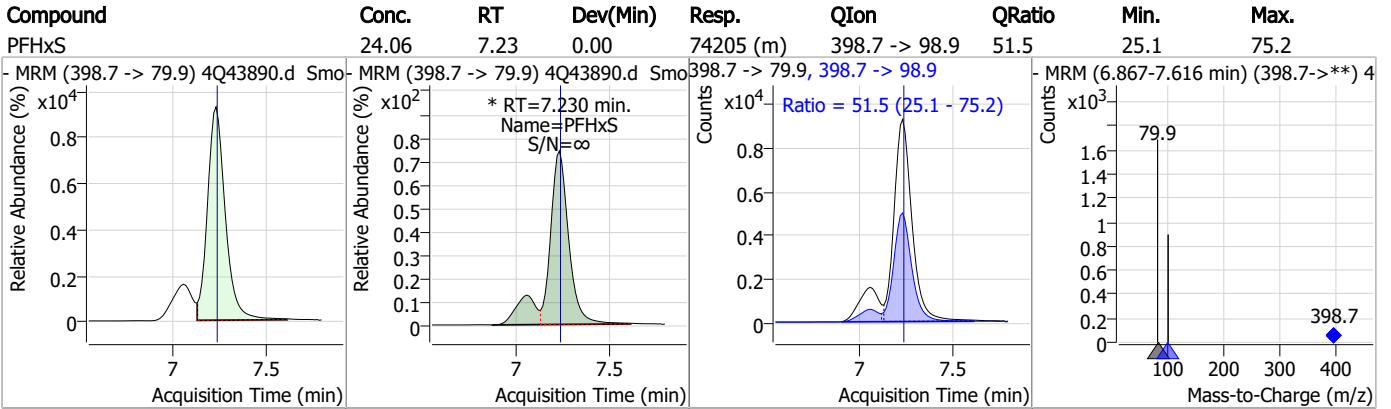
7.7.8
7

Perfluorinated Compounds by LC/MS/MS



7.7.8

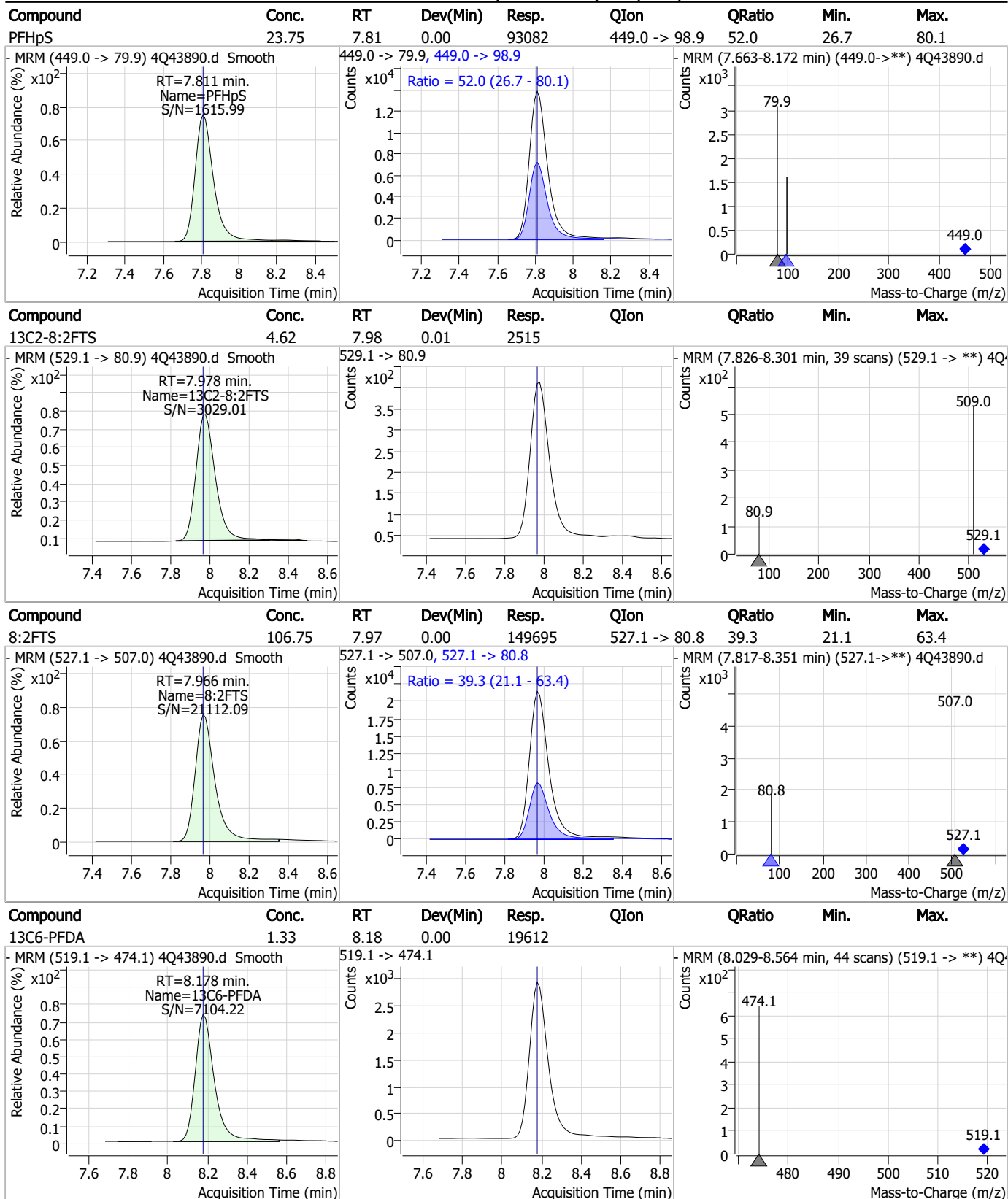
Perfluorinated Compounds by LC/MS/MS



7.7.8

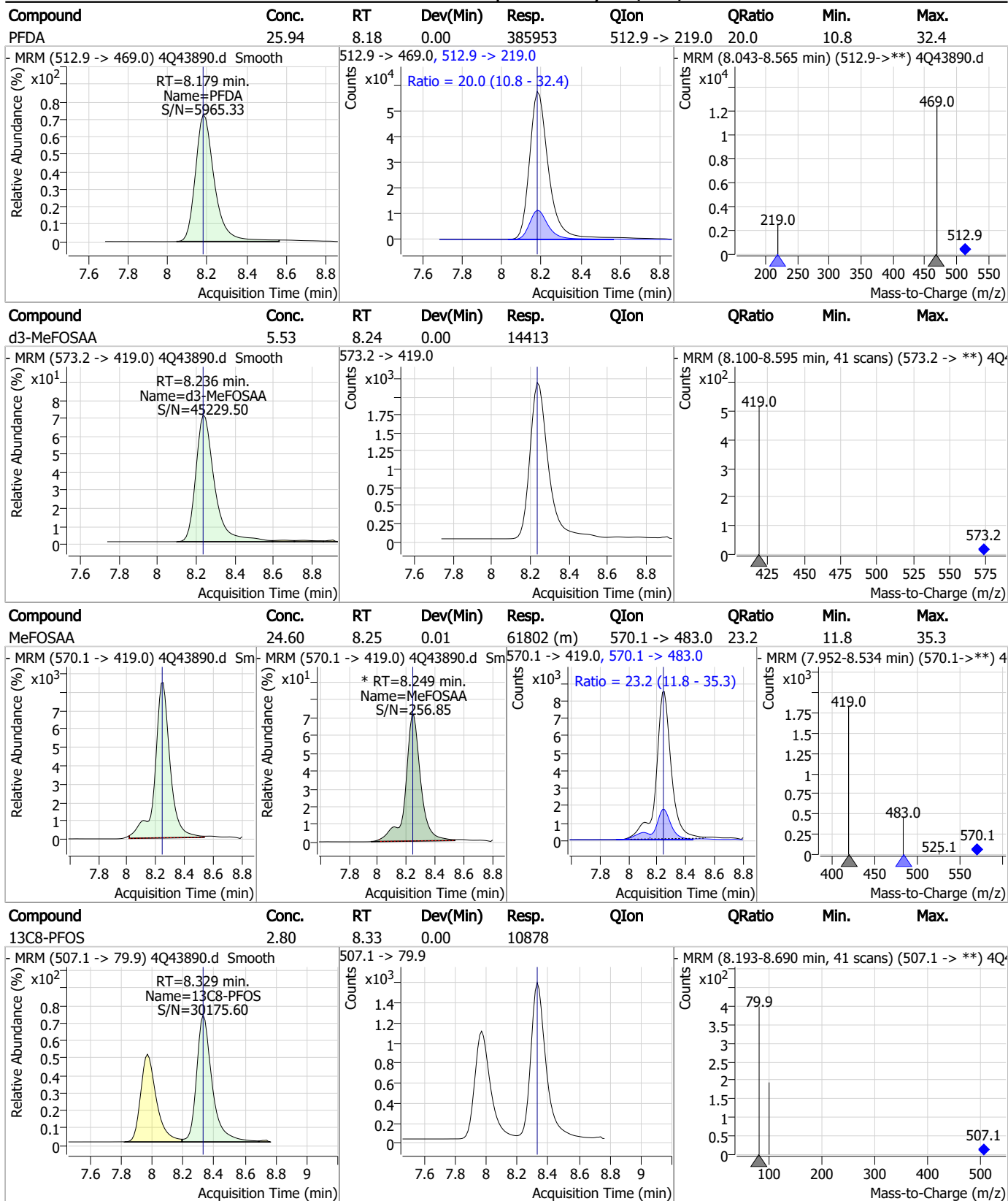
7

Perfluorinated Compounds by LC/MS/MS



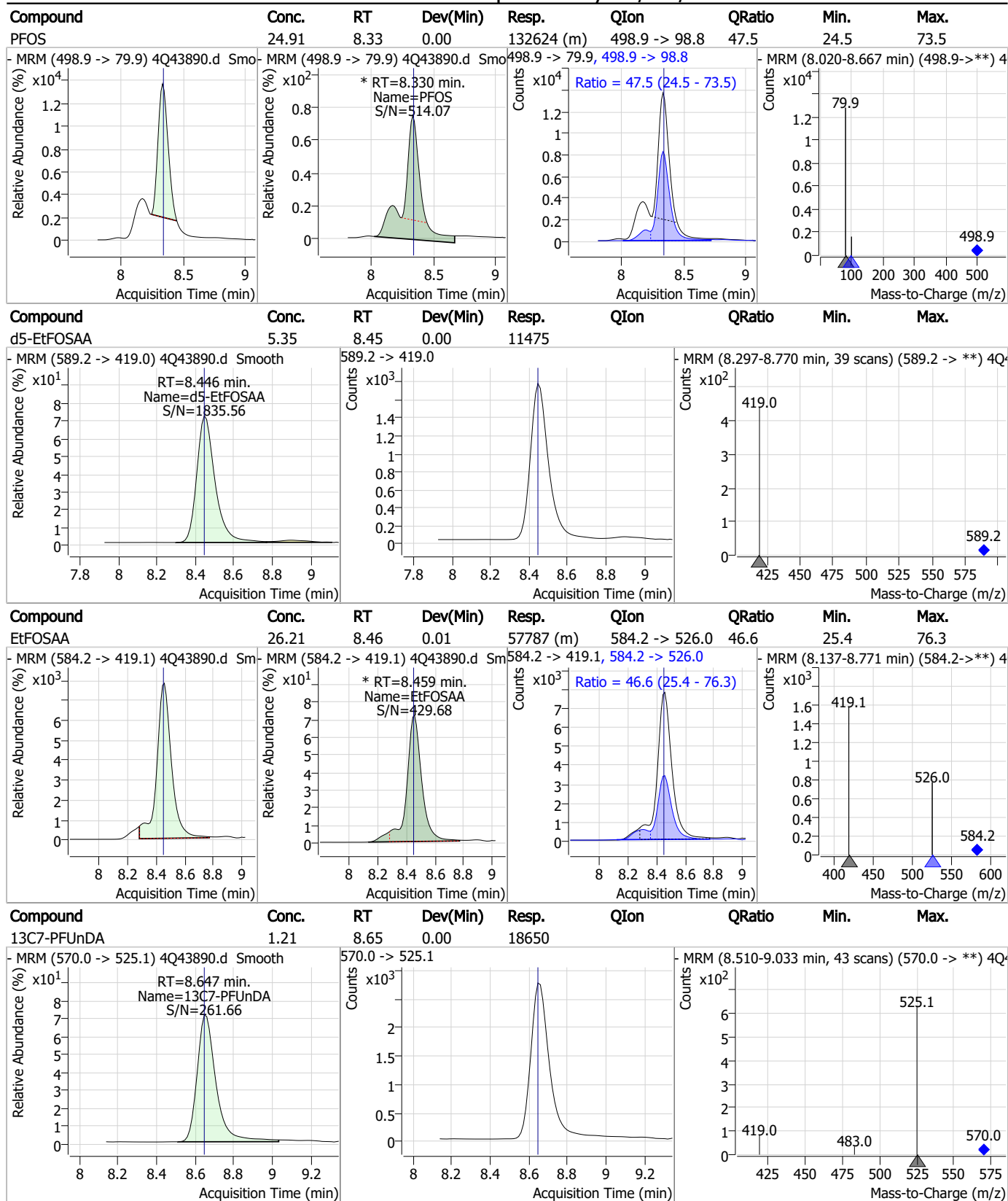
7.7.8
7

Perfluorinated Compounds by LC/MS/MS



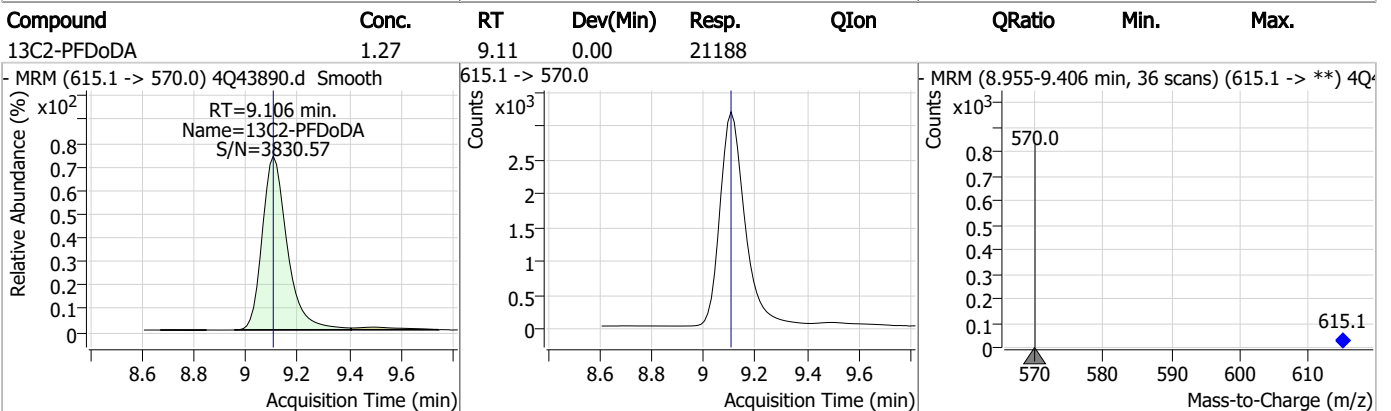
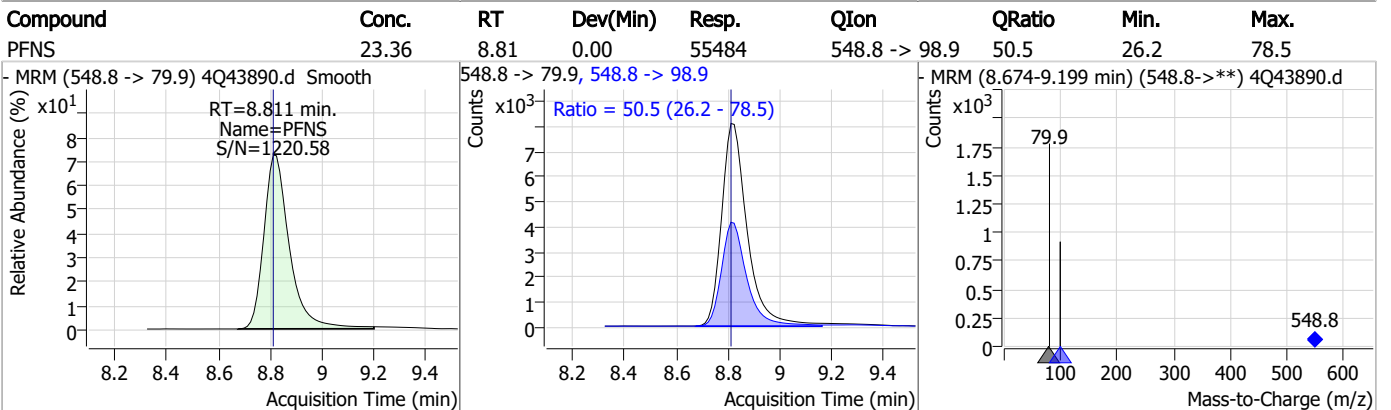
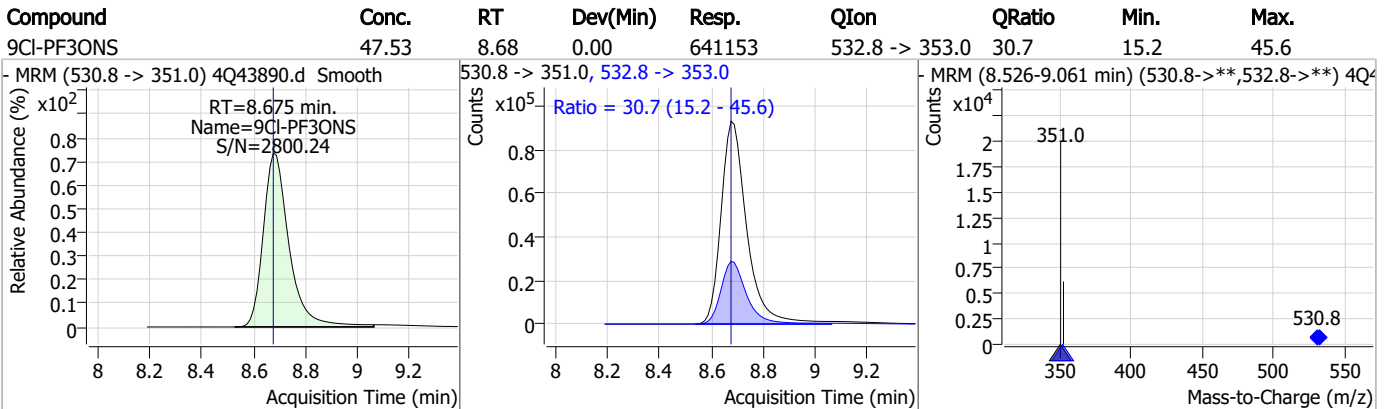
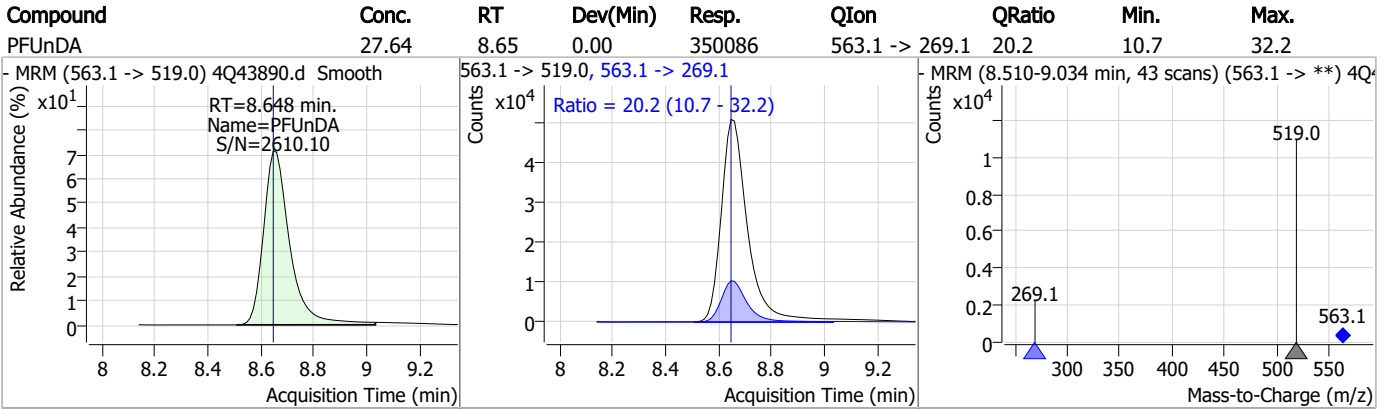
7.7.8
7

Perfluorinated Compounds by LC/MS/MS

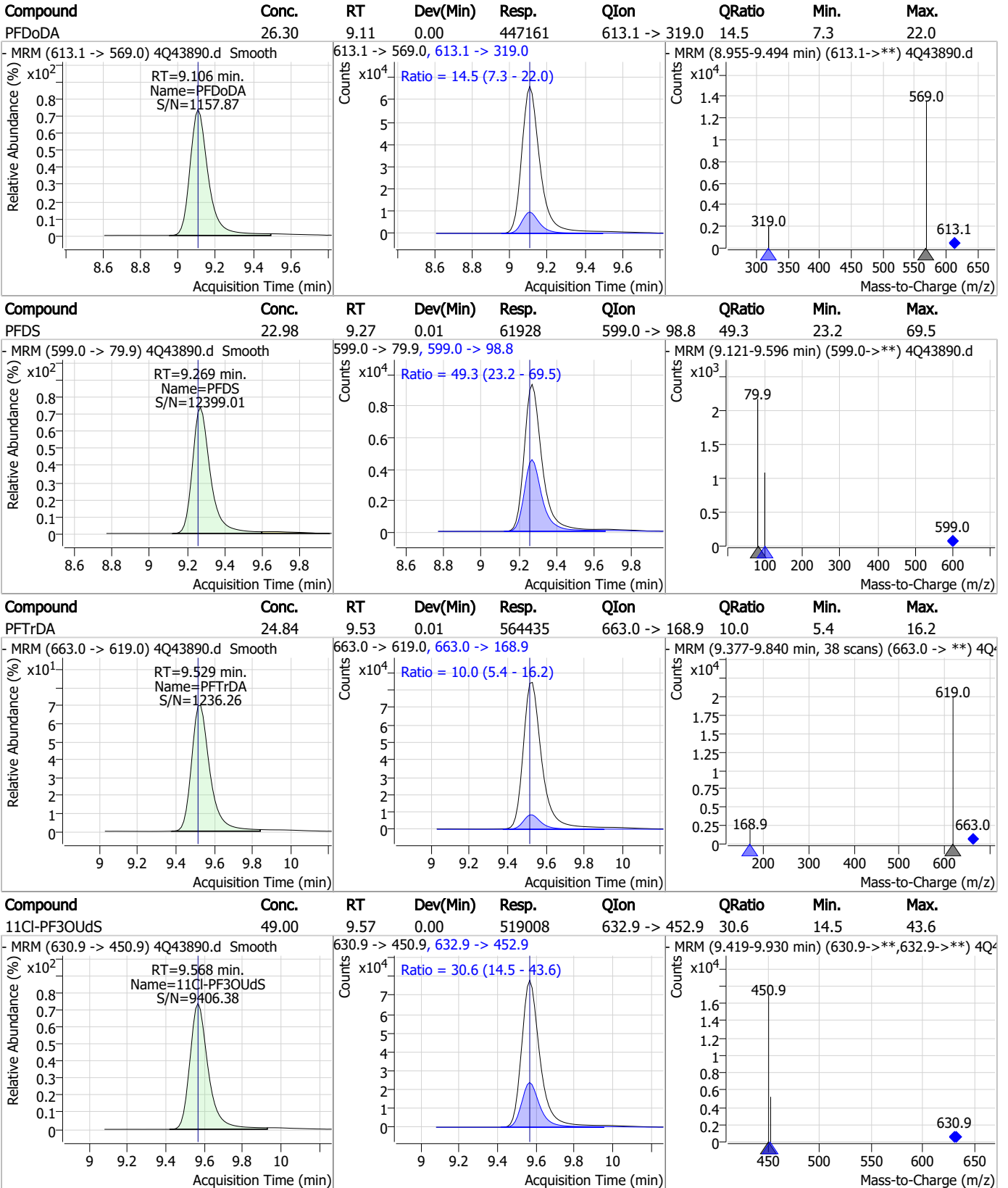


7.7.8
7

Perfluorinated Compounds by LC/MS/MS

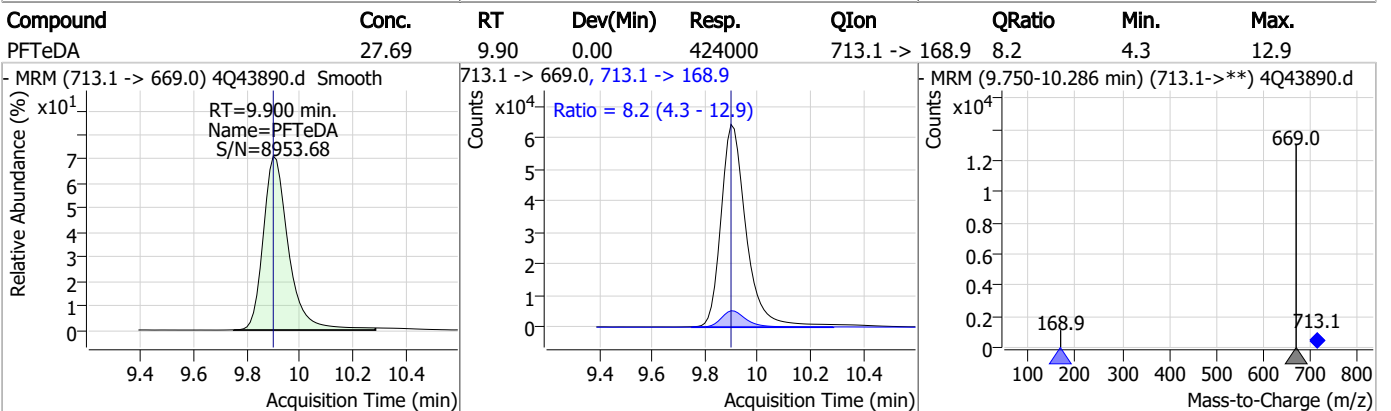
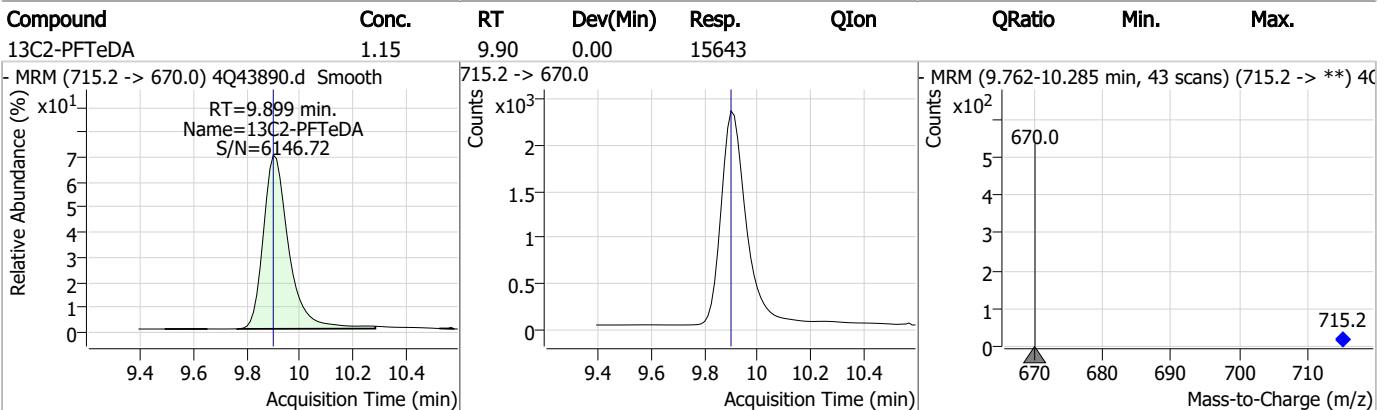
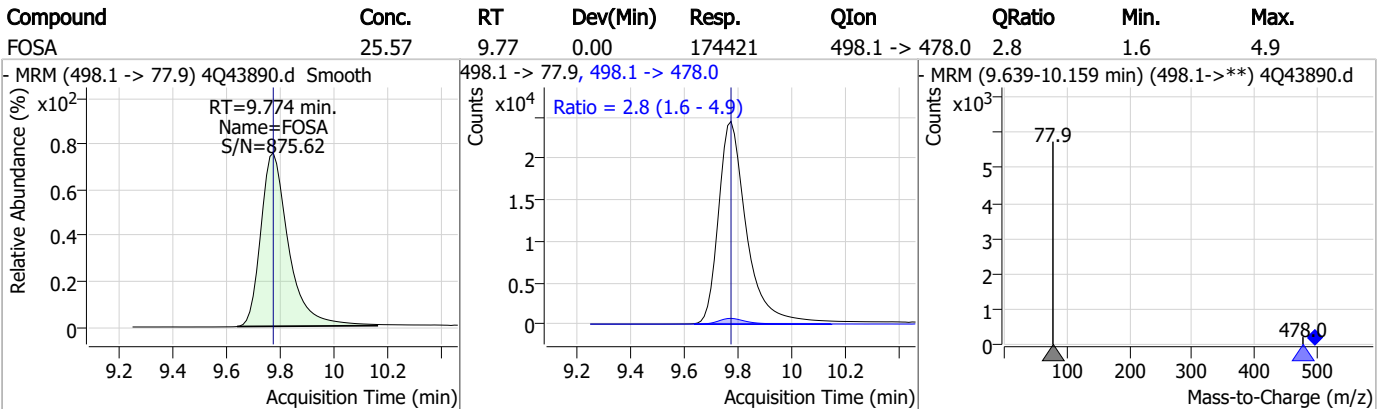
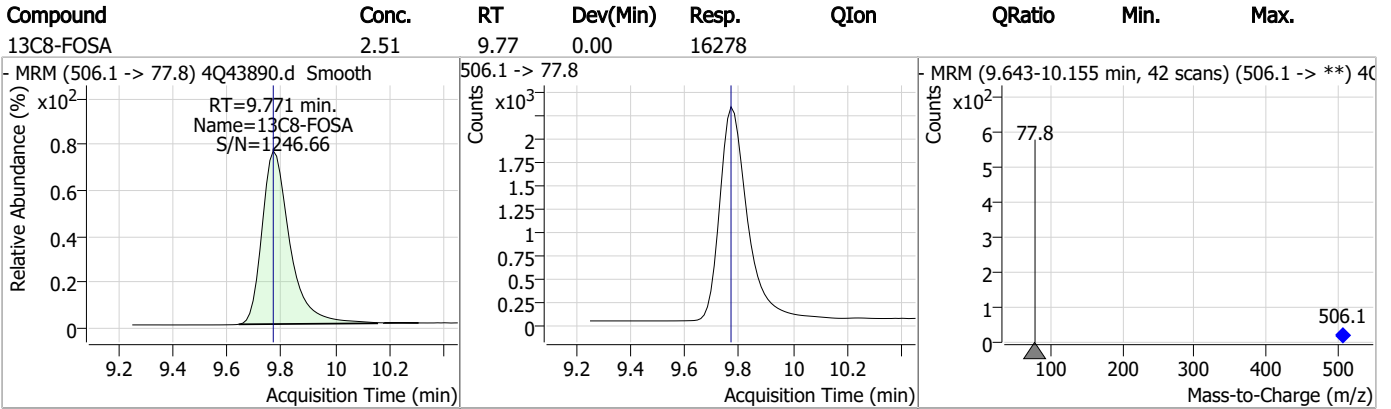


Perfluorinated Compounds by LC/MS/MS



7.7.8
7

Perfluorinated Compounds by LC/MS/MS

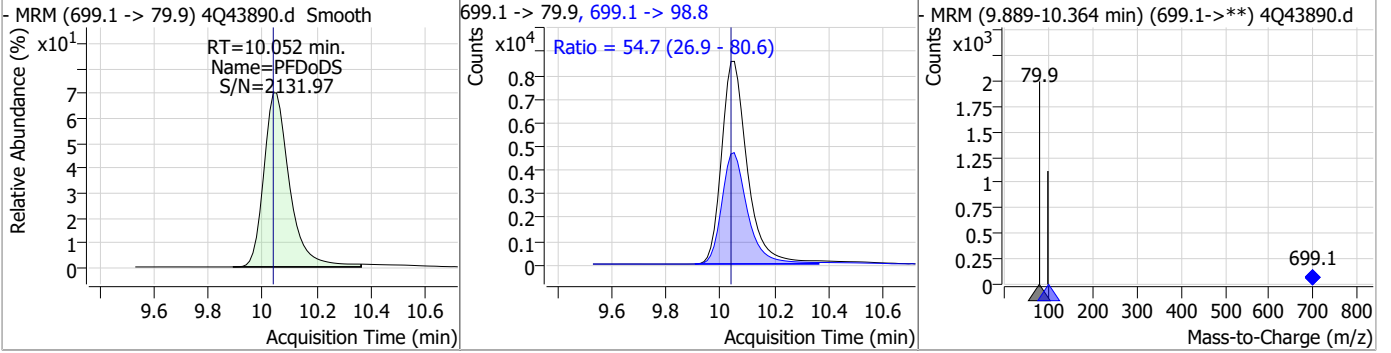


7.7.8

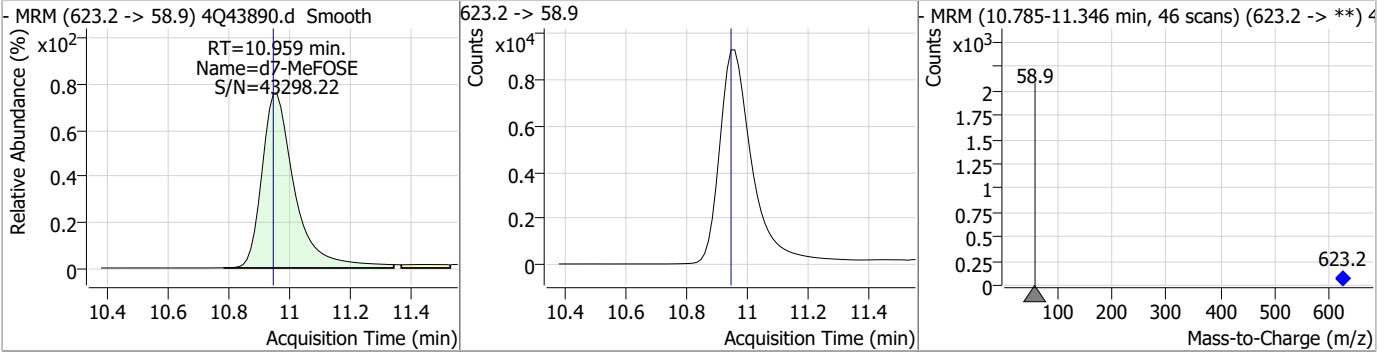
7

Perfluorinated Compounds by LC/MS/MS

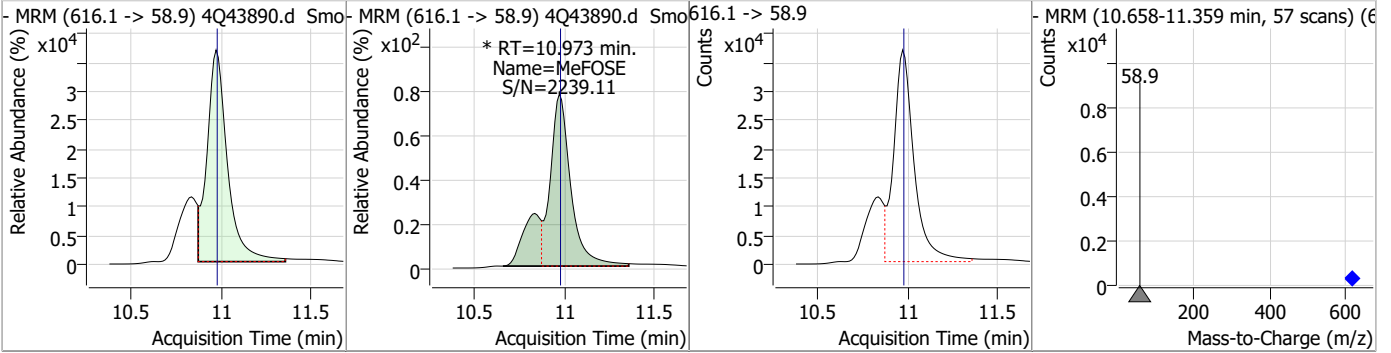
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDS	23.57	10.05	0.01	56691	699.1 -> 98.8	54.7	26.9	80.6



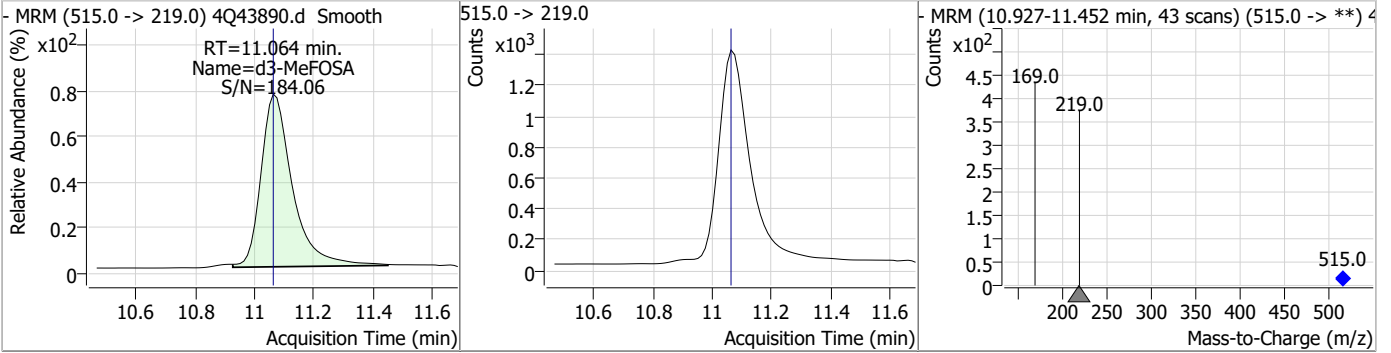
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	21.81	10.96	0.01	70051				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	128.49	10.97	0.00	369686 (m)				

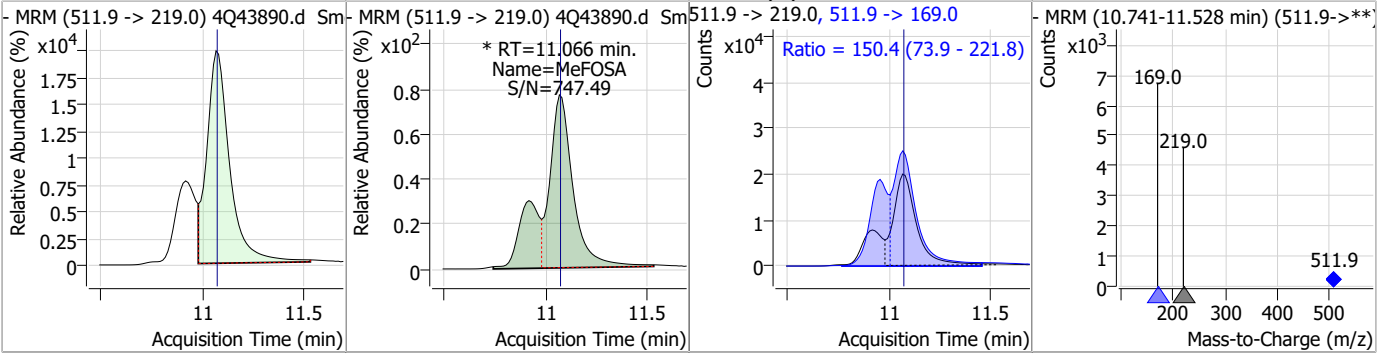


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	11.06	0.00	10176				

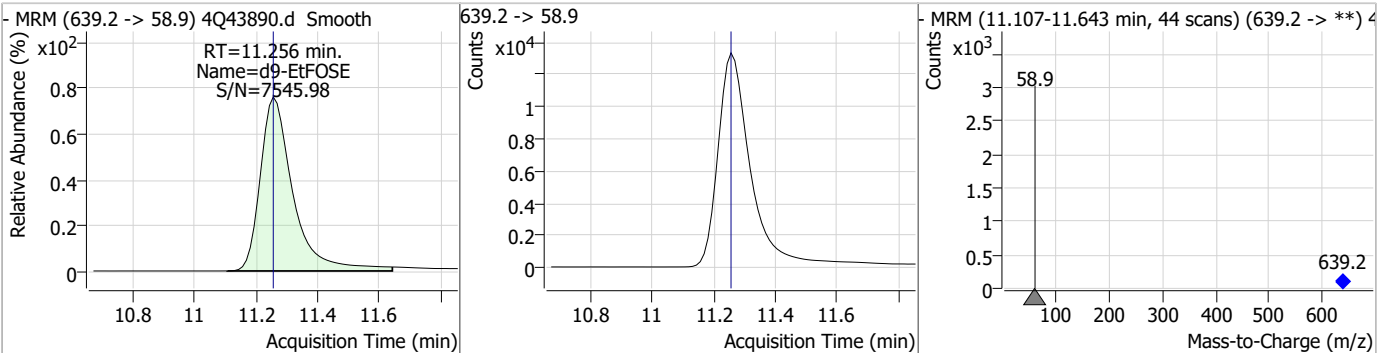


Perfluorinated Compounds by LC/MS/MS

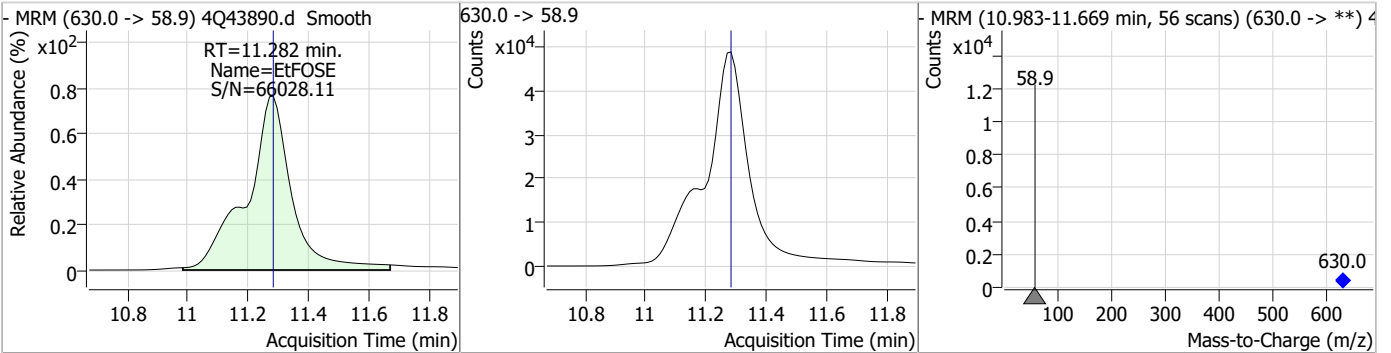
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	54.86	11.07	0.00	210295 (m)	511.9 -> 169.0	150.4	73.9	221.8



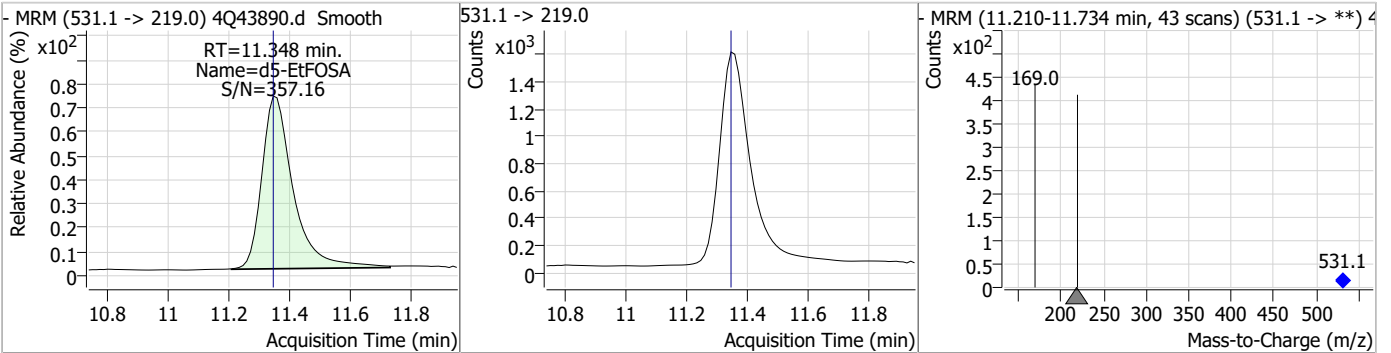
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	21.56	11.26	0.00	98044				



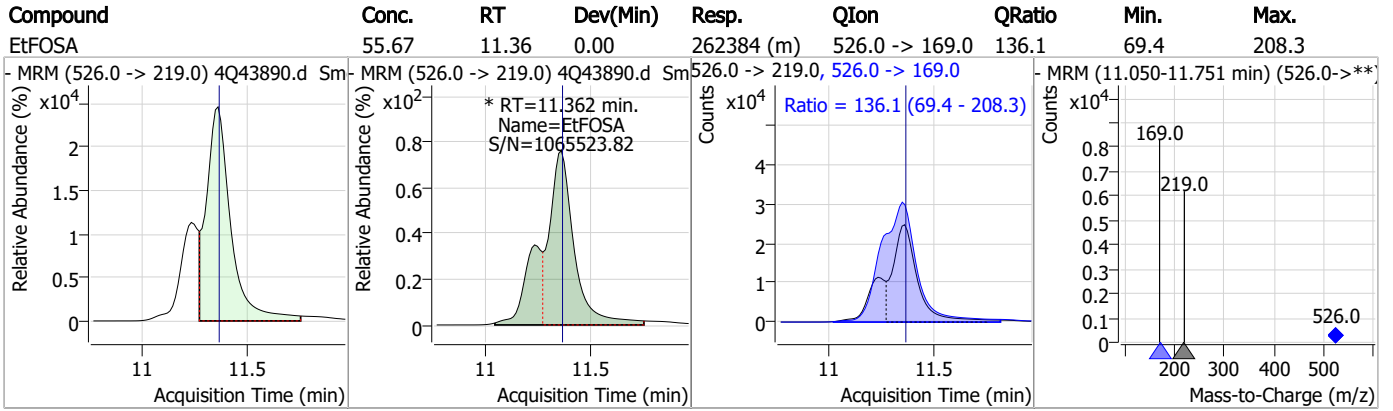
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	134.29	11.28	0.00	509704				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.61	11.35	0.00	11250				



Perfluorinated Compounds by LC/MS/MS



7.7.8

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43890.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 12:36 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.07	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.8.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43891.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 12:50:36 PM
 Sample Name : ic634-8
 Vial : P1-A9
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.911	216.8 -> 171.9	105134	10.00 µg/L	-0.012
M5-PFPeA	4.362	268.3 -> 223.0	60246	5.00 µg/L	0.000
M5-PFHxA	5.535	318.0 -> 273.0	43396	2.50 µg/L	0.000
M4-PFHpA	6.467	367.1 -> 322.0	25658	2.50 µg/L	0.000
M8-PFOA	7.136	421.1 -> 376.0	39570	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	19681	1.25 µg/L	0.013
M6-PFDA	8.178	519.1 -> 474.1	17478	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	17471	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	20670	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	15473	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	15213	2.50 µg/L	0.000
M3-PFBS	5.439	302.1 -> 79.9	10217	2.50 µg/L	0.012
M3-PFHxS	7.229	402.1 -> 79.9	6843	2.50 µg/L	0.000
M8-PFOS	8.329	507.1 -> 79.9	9515	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	842	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	1521	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	2674	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	13382	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	27378	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	11277	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	61091	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	87409	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	10591	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	10104	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	9799	2.50 µg/L	0.000
13C3-PFBA	2.916	216.0 -> 172.0	56782	5.00 µg/L	-0.013
18O2-PFHxS	7.228	403.0 -> 83.9	4797	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	47709	2.50 µg/L	0.012
13C2-PFDA	8.178	515.1 -> 470.1	17050	1.25 µg/L	0.000
13C5-PFNA	7.684	468.0 -> 423.0	21809	1.25 µg/L	0.000
13C2-PFHxA	5.536	315.1 -> 270.0	39998	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	842	4.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.4%		
13C2-6:2FTS	6.898	429.1 -> 80.9	1521	4.33 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 86.5%		
13C2-8:2FTS	7.966	529.1 -> 80.9	2674	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C2-PFDoDA	9.106	615.1 -> 570.0	20670	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFTeDA	9.899	715.2 -> 670.0	15473	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.1%		
13C3-PFBS	5.439	302.1 -> 79.9	10217	2.26 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 90.3%		
13C3-PFHxS	7.229	402.1 -> 79.9	6843	2.30 µg/L	0.000

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 = 92.0%	
13C4-PFBA	2.911	216.8 -> 171.9	105134	9.84 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C4-PFHpA	6.467	367.1 -> 322.0	25658	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.535	318.0 -> 273.0	43396	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFPeA	4.362	268.3 -> 223.0	60246	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C6-PFDA	8.178	519.1 -> 474.1	17478	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C7-PFUnDA	8.647	570.0 -> 525.1	17471	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.0%	
13C8-FOSA	9.771	506.1 -> 77.8	15213	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C8-PFOA	7.136	421.1 -> 376.0	39570	2.53 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-PFOS	8.329	507.1 -> 79.9	9515	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C9-PFNA	7.684	472.1 -> 427.0	19681	1.33 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.2%	
d3-MeFOSAA	8.236	573.2 -> 419.0	13382	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.2%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	27378	10.40 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d3-MeFOSA	11.064	515.0 -> 219.0	10104	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.2%	
d5-EtFOSAA	8.446	589.2 -> 419.0	11277	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.7%	
d7-MeFOSE	10.959	623.2 -> 58.9	61091	20.04 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.1%	
d9-EtFOSE	11.256	639.2 -> 58.9	87409	20.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 81.0%	
d5-EtFOSA	11.360	531.1 -> 219.0	10591	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	316462	233.64 µg/L	93
		327.1 -> 80.9	134287		
6:2FTS	6.899	427.1 -> 407.0	333858	227.27 µg/L	97
		427.1 -> 80.9	133307		
8:2FTS	7.966	527.1 -> 507.0	324709	217.87 µg/L	93
		527.1 -> 80.8	121732		
EtFOSAA	8.459	584.2 -> 419.1	145113	66.98 µg/L	m 92
		584.2 -> 526.0	66283		
FOSA	9.774	498.1 -> 77.9	438428	68.77 µg/L	98
		498.1 -> 478.0	11984		
MeFOSAA	8.249	570.1 -> 419.0	157123	67.37 µg/L	m 97
		570.1 -> 483.0	34451		
PFBA	2.920	212.8 -> 168.9	780608	277.27 µg/L	100
PFBS	5.440	298.7 -> 79.9	251571	60.03 µg/L	95
		298.7 -> 98.8	94993		
PFDA	8.179	512.9 -> 469.0	916605	69.12 µg/L	96
		512.9 -> 219.0	178851		
PFDoDA	9.106	613.1 -> 569.0	1058949	63.85 µg/L	100
		613.1 -> 319.0	155967		
PFDS	9.269	599.0 -> 79.9	149623	63.48 µg/L	95

7.7.9
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	74022			
PFHpA	6.468	363.1 -> 319.0	1115770	68.80	µg/L	99
		363.1 -> 169.0	195581			
PFHpS	7.811	449.0 -> 79.9	222028	64.78	µg/L	97
		449.0 -> 98.9	113217			
PFHxA	5.538	313.0 -> 269.0	1169490	68.78	µg/L	100
		313.0 -> 118.9	34560			
PFHxS	7.230	398.7 -> 79.9	180803	64.46	µg/L	m 98
		398.7 -> 98.9	92773			
PFNA	7.685	463.0 -> 419.0	907289	62.20	µg/L	99
		463.0 -> 219.0	222637			
PFNS	8.823	548.8 -> 79.9	133198	64.12	µg/L	99
		548.8 -> 98.9	68994			
PFOA	7.138	413.0 -> 369.0	1496248	65.54	µg/L	98
		413.0 -> 169.0	302844			
PFOS	8.330	498.9 -> 79.9	269483	57.87	µg/L	m 93
		498.9 -> 98.8	144658			
PFPeA	4.364	263.0 -> 219.0	1951040	134.60	µg/L	100
PFPeS	6.507	349.1 -> 79.9	154398	64.17	µg/L	96
		349.1 -> 98.9	66746			
PFTeDA	9.900	713.1 -> 669.0	1006100	66.43	µg/L	99
		713.1 -> 168.9	83501			
PFTrDA	9.515	663.0 -> 619.0	1325238	59.79	µg/L	98
		663.0 -> 168.9	134887			
PFUnDA	8.648	563.1 -> 519.0	810524	68.30	µg/L	97
		563.1 -> 269.1	163751			
11Cl-PF3OUdS	9.568	630.9 -> 450.9	1192020	121.07	µg/L	97
		632.9 -> 452.9	368570			
9Cl-PF3ONS	8.675	530.8 -> 351.0	1485788	118.50	µg/L	99
		532.8 -> 353.0	458667			
ADONA	6.731	376.9 -> 250.9	3300217	119.87	µg/L	99
		376.9 -> 84.8	880949			
HFPO-DA	5.891	284.9 -> 168.9	348903	133.36	µg/L	99
		284.9 -> 184.9	40667			
3:3FTCA	3.836	241.0 -> 177.0	235825	369.78	µg/L	99
		241.0 -> 117.0	20747			
5:3FTCA	6.193	341.0 -> 237.1	3927001	1702.10	µg/L	99
		341.0 -> 217.0	2700284			
7:3FTCA	7.649	441.0 -> 316.9	2048322	1708.63	µg/L	94
		441.0 -> 336.9	4708575			
EtFOSA	11.362	526.0 -> 219.0	614296	138.45	µg/L	m 98
		526.0 -> 169.0	840549			
EtFOSE	11.282	630.0 -> 58.9	1147731	339.18	µg/L	m 100
MeFOSA	11.066	511.9 -> 219.0	516182	135.61	µg/L	m 96
		511.9 -> 169.0	735589			
MeFOSE	10.973	616.1 -> 58.9	888597	354.13	µg/L	m 100
PFDoDS	10.052	699.1 -> 79.9	131199	62.37	µg/L	97
		699.1 -> 98.8	73404			
NFDHA	5.416	295.0 -> 201.0	140318	115.59	µg/L	95
		295.0 -> 84.9	35181			
PFMBA	4.766	279.0 -> 85.1	1083924	133.99	µg/L	100
PFMPA	3.515	229.0 -> 84.9	1042459	137.59	µg/L	100
PFEESA	5.971	314.8 -> 134.9	1547810	120.26	µg/L	99
		314.8 -> 82.9	53143			

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

7.7.9
7

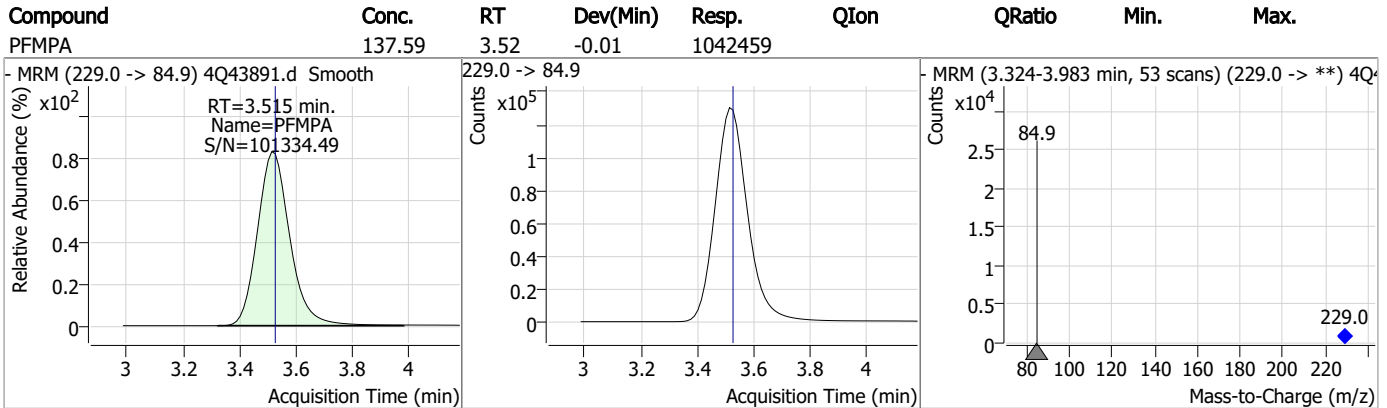
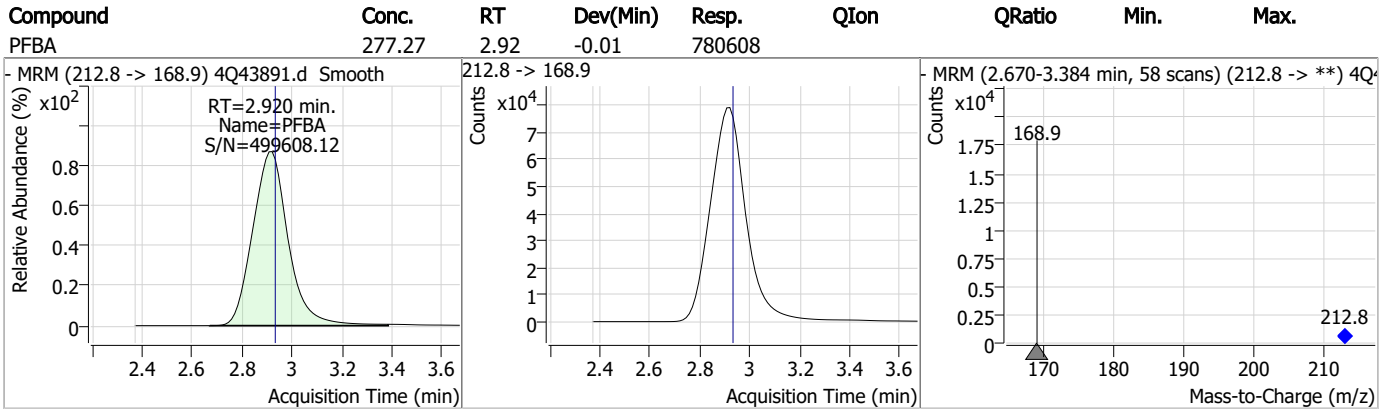
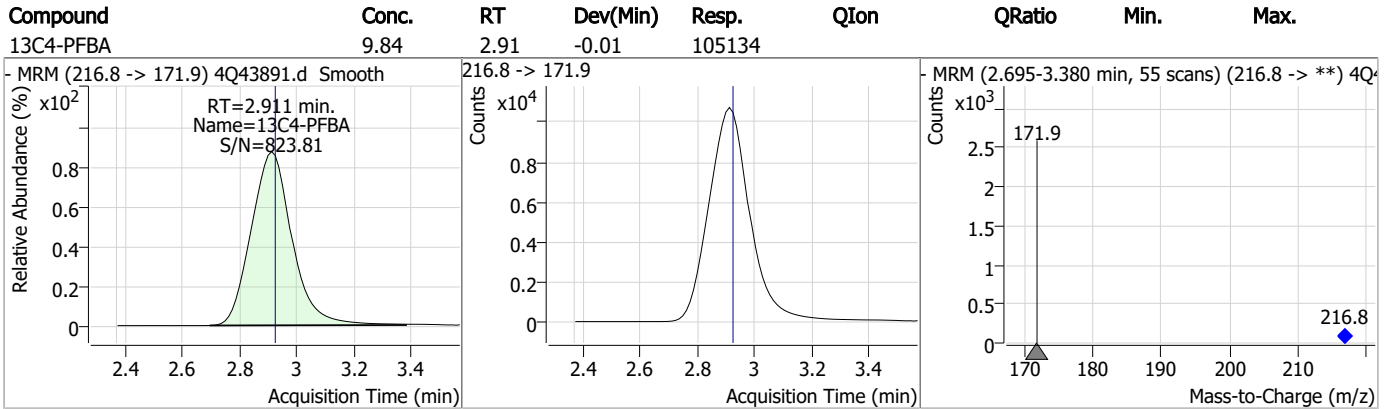
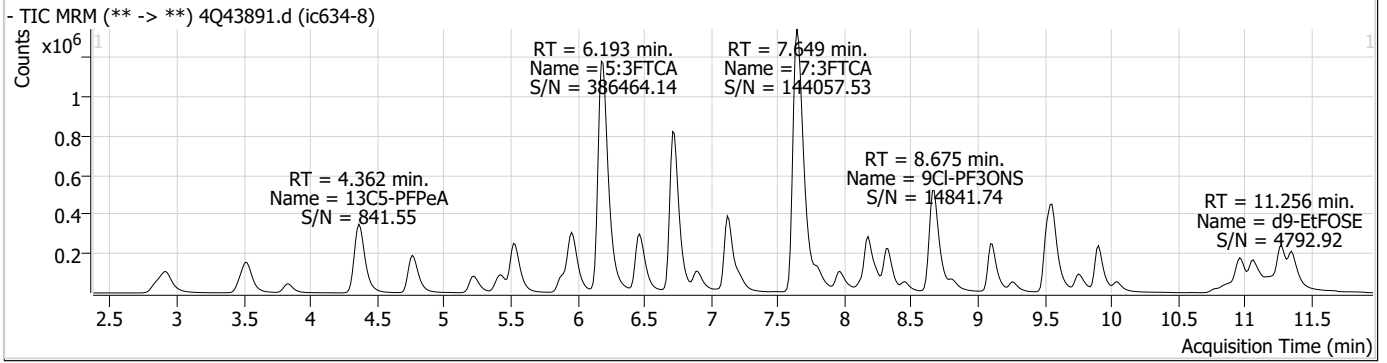
Perfluorinated Compounds by LC/MS/MS

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

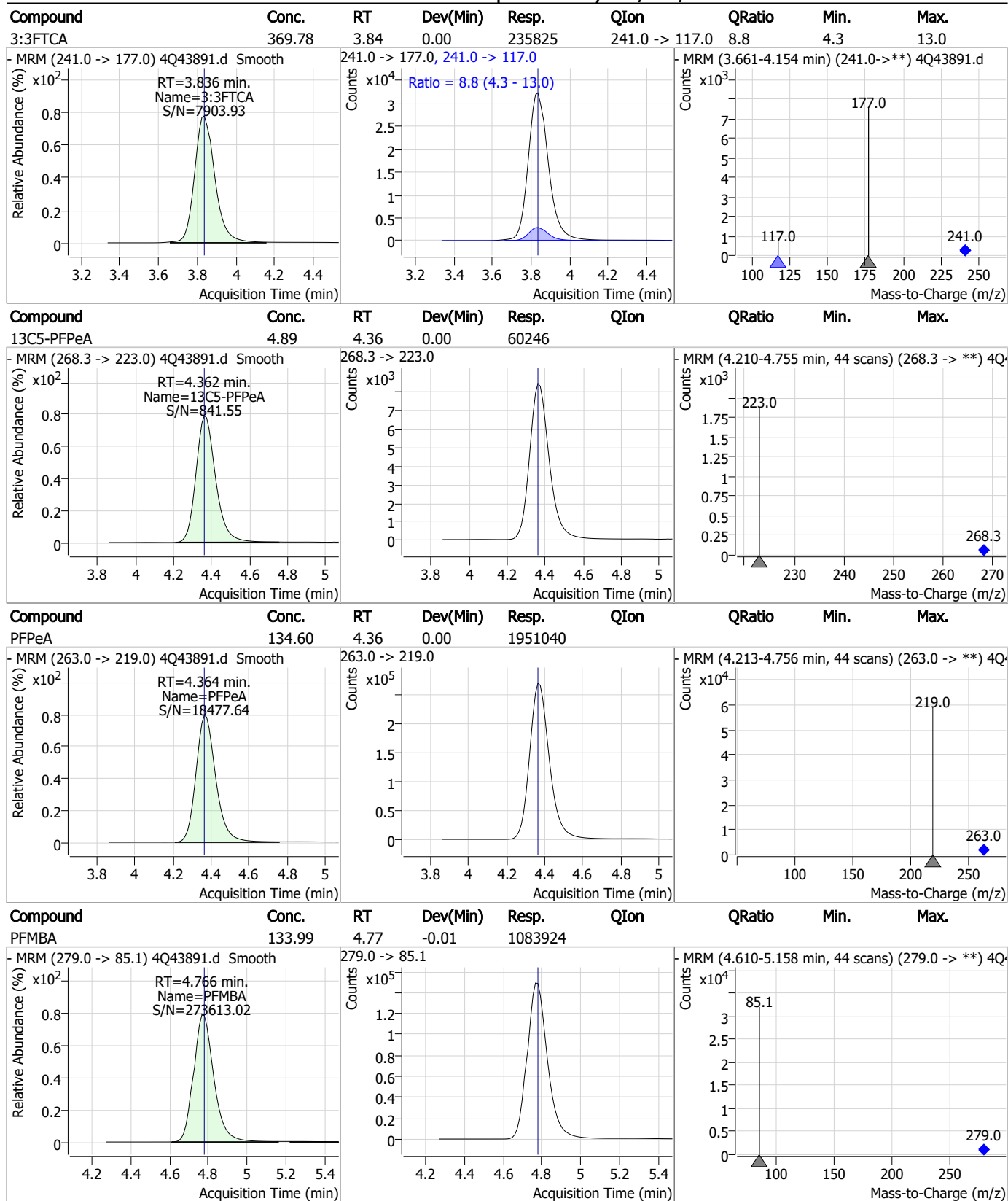
7.7.9

7

Perfluorinated Compounds by LC/MS/MS



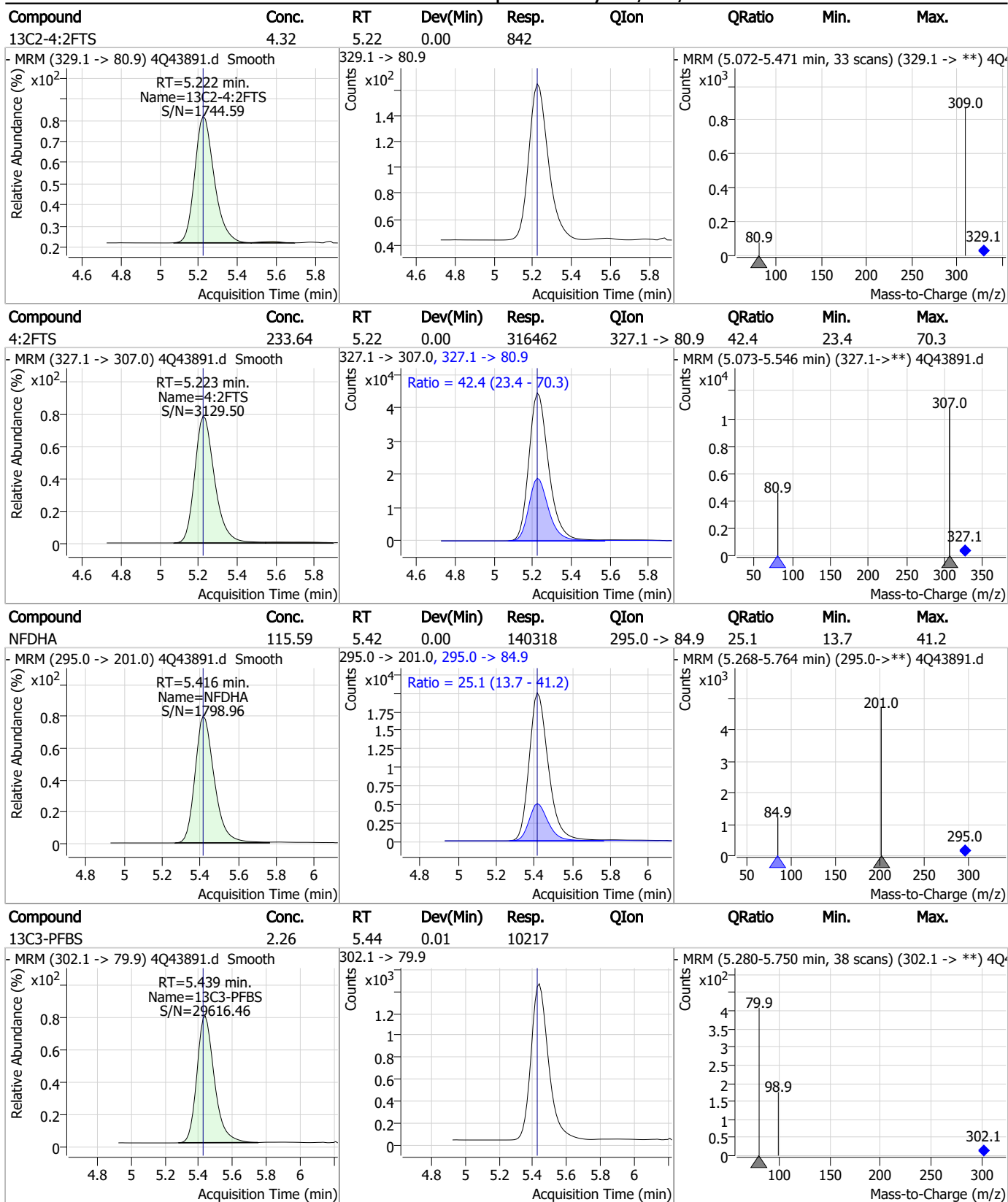
Perfluorinated Compounds by LC/MS/MS



7.7.9
7



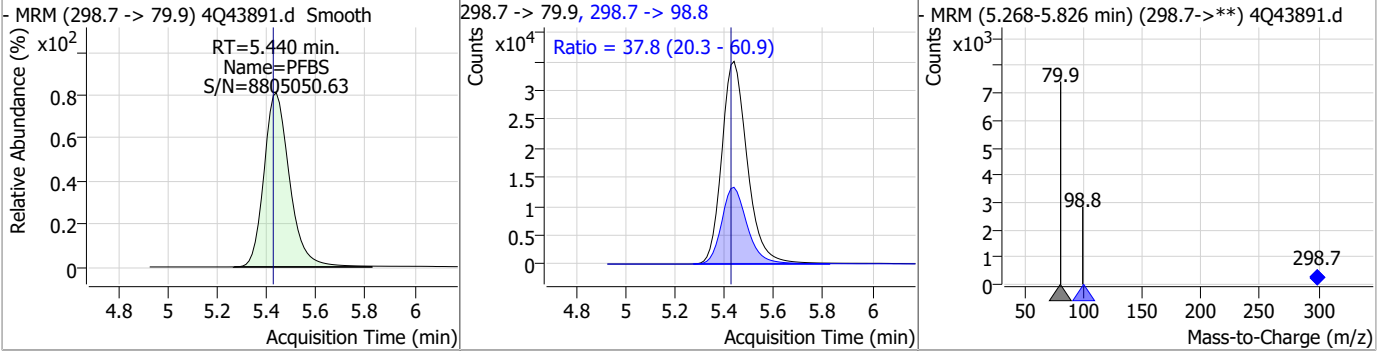
Perfluorinated Compounds by LC/MS/MS



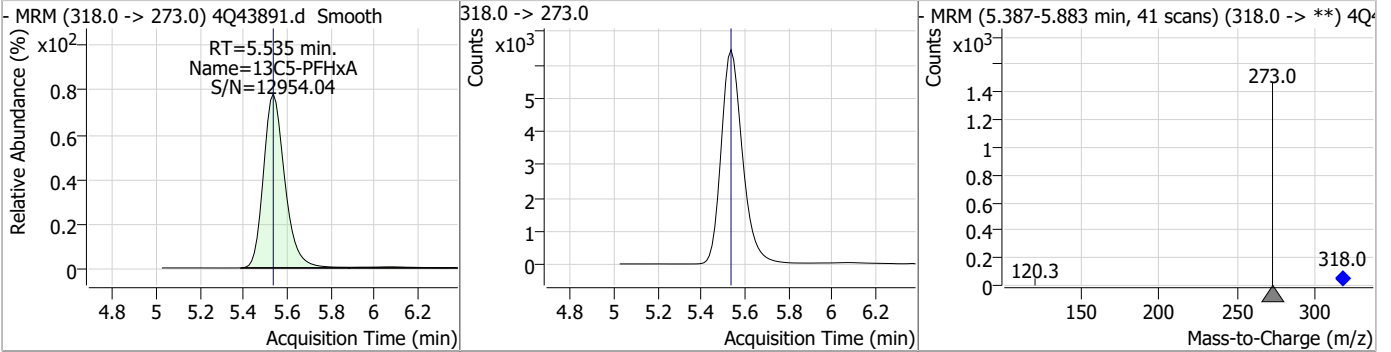
7.7.9
7

Perfluorinated Compounds by LC/MS/MS

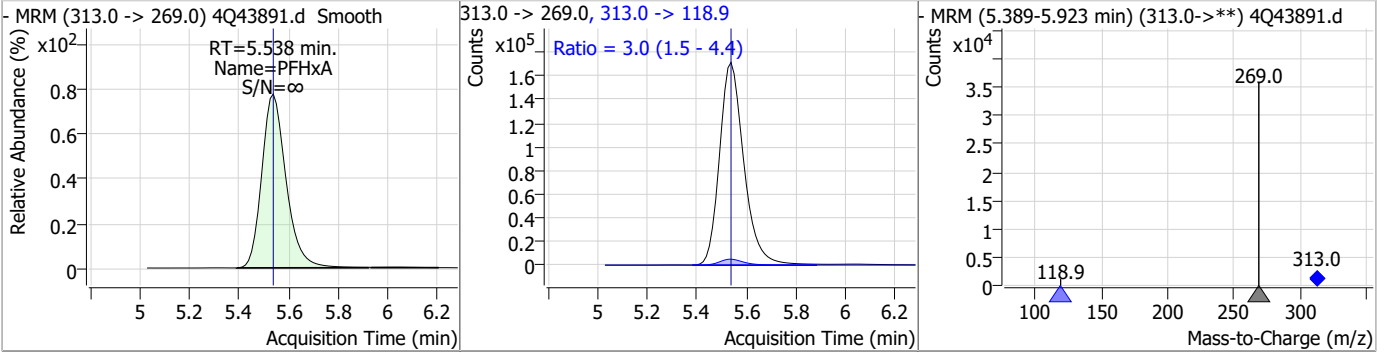
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	60.03	5.44	0.01	251571	298.7 -> 98.8	37.8	20.3	60.9



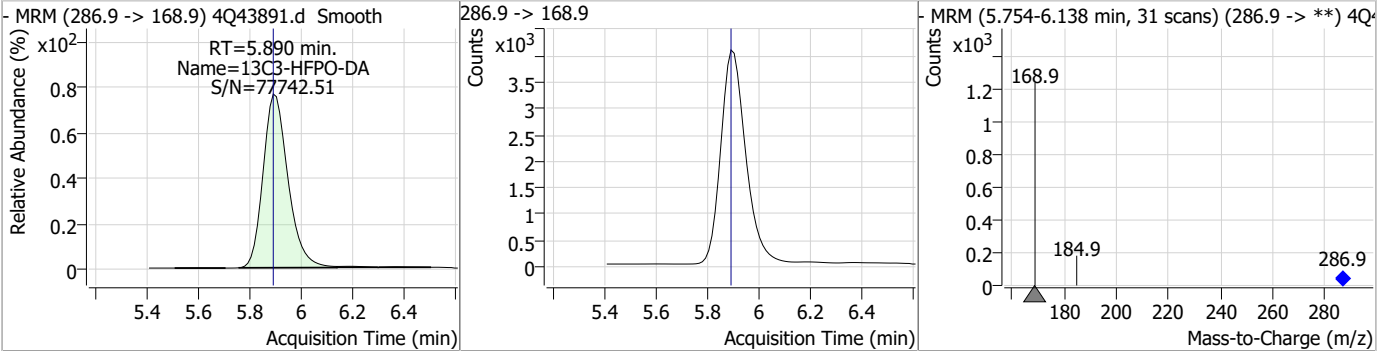
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.53	0.00	43396				



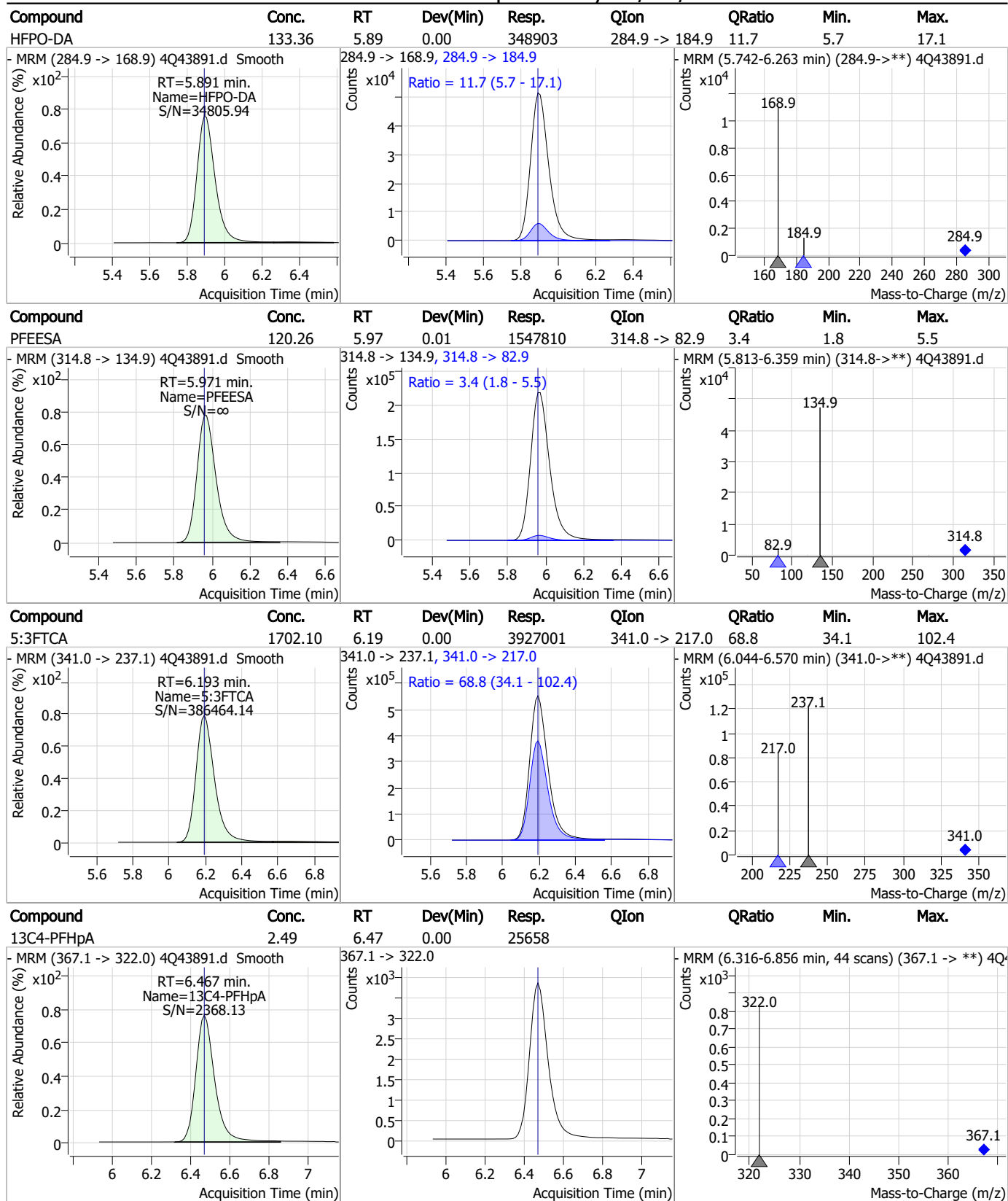
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	68.78	5.54	0.00	1169490	313.0 -> 118.9	3.0	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.40	5.89	0.00	27378				



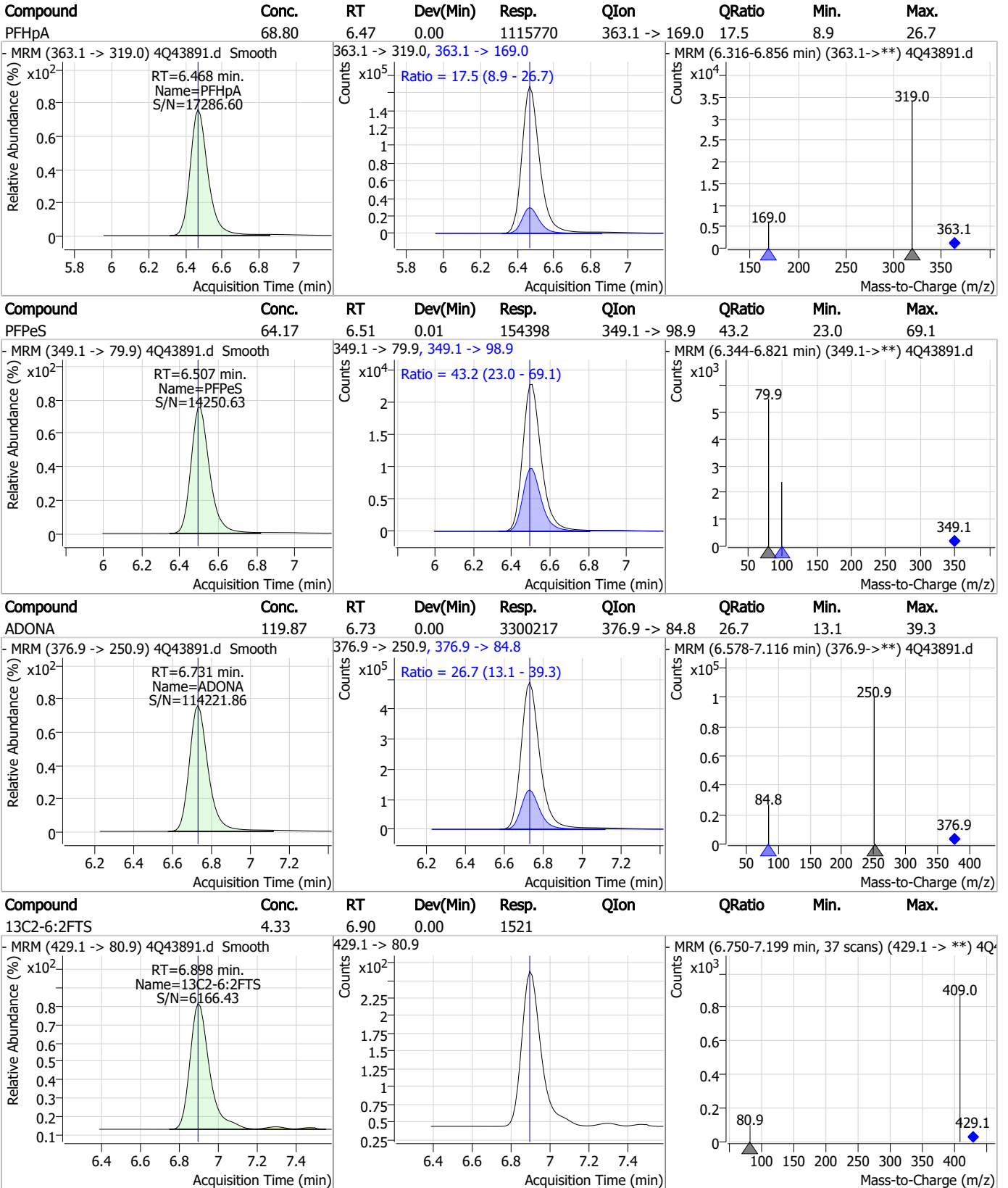
Perfluorinated Compounds by LC/MS/MS



7.7.9
7



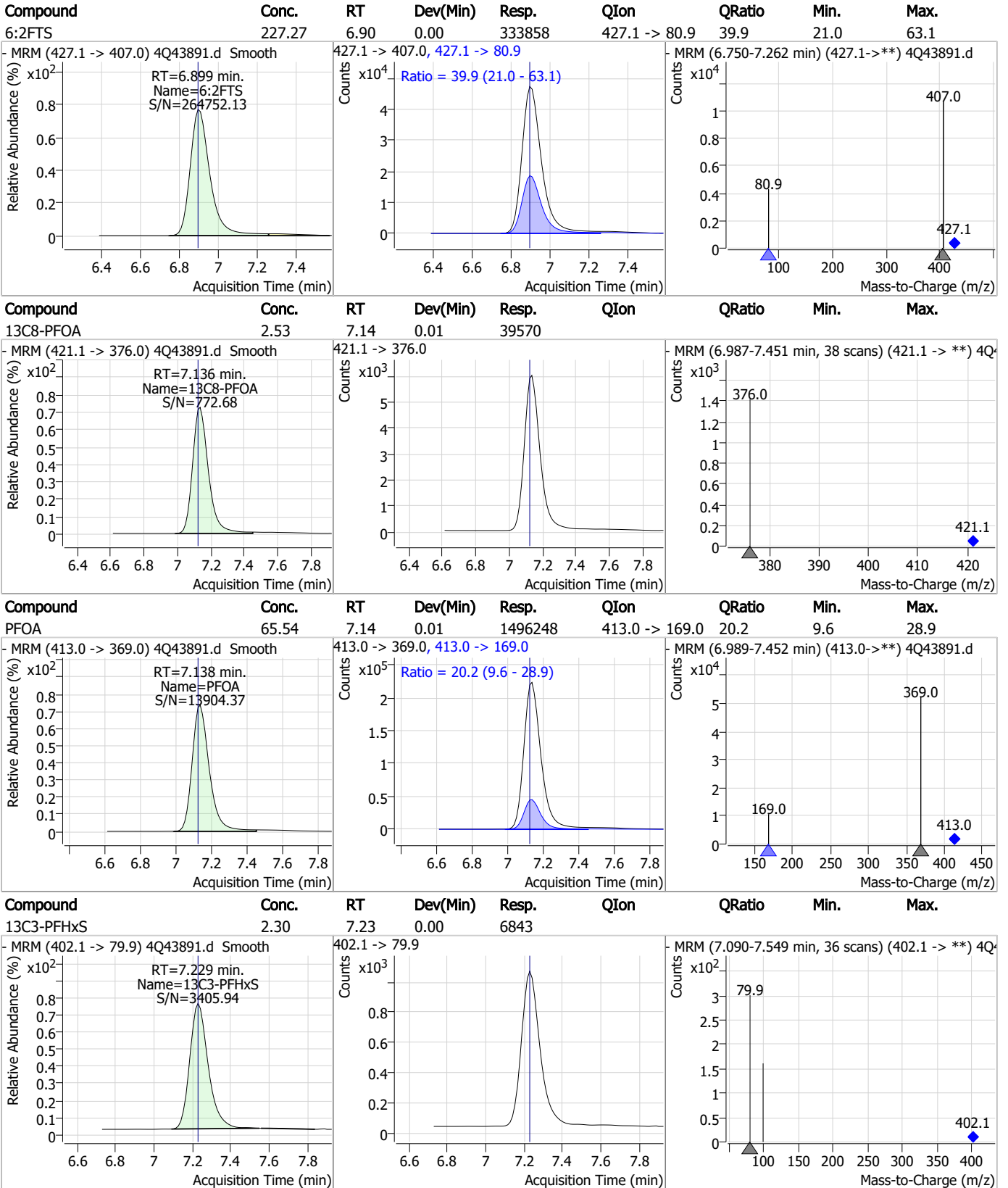
Perfluorinated Compounds by LC/MS/MS



7.7.9

7

Perfluorinated Compounds by LC/MS/MS

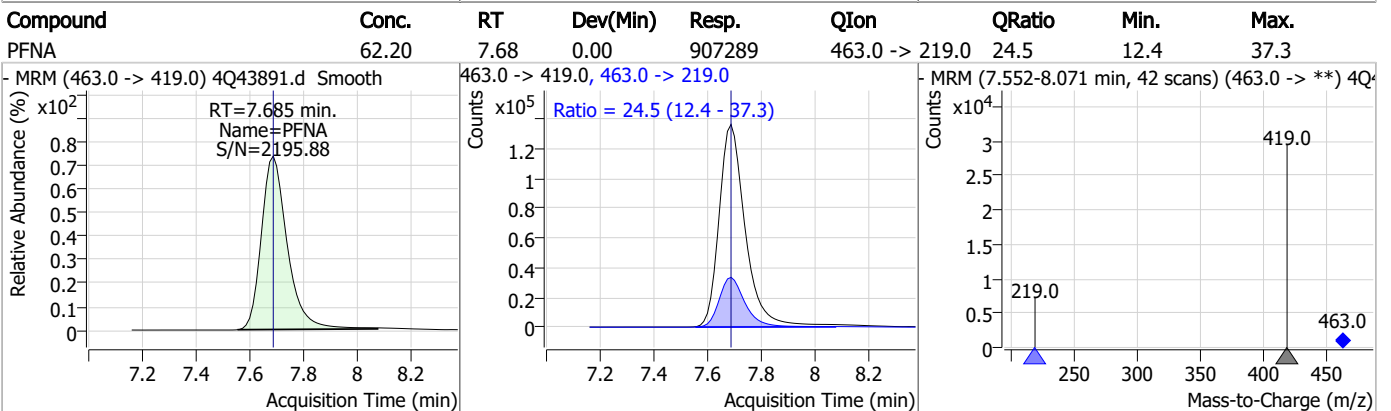
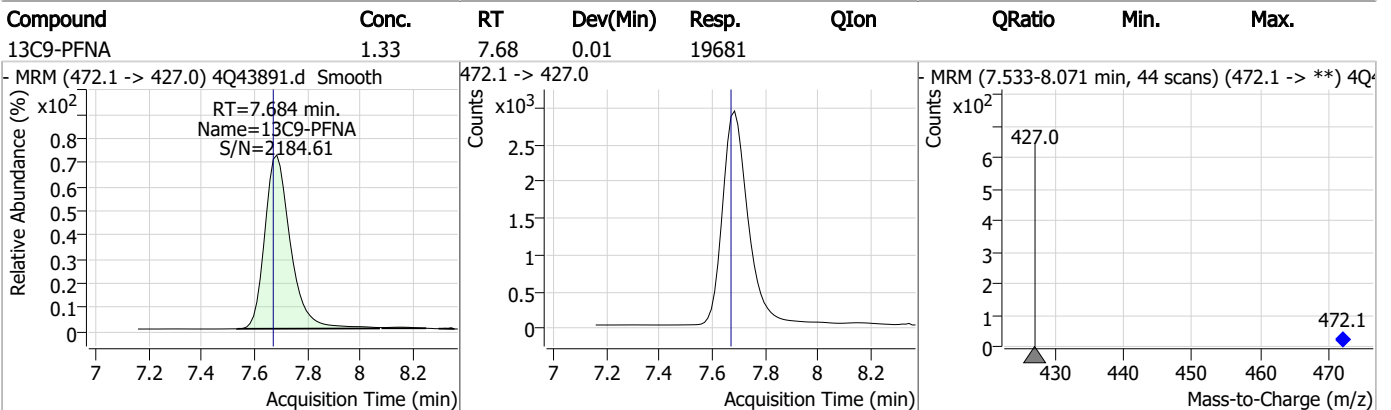
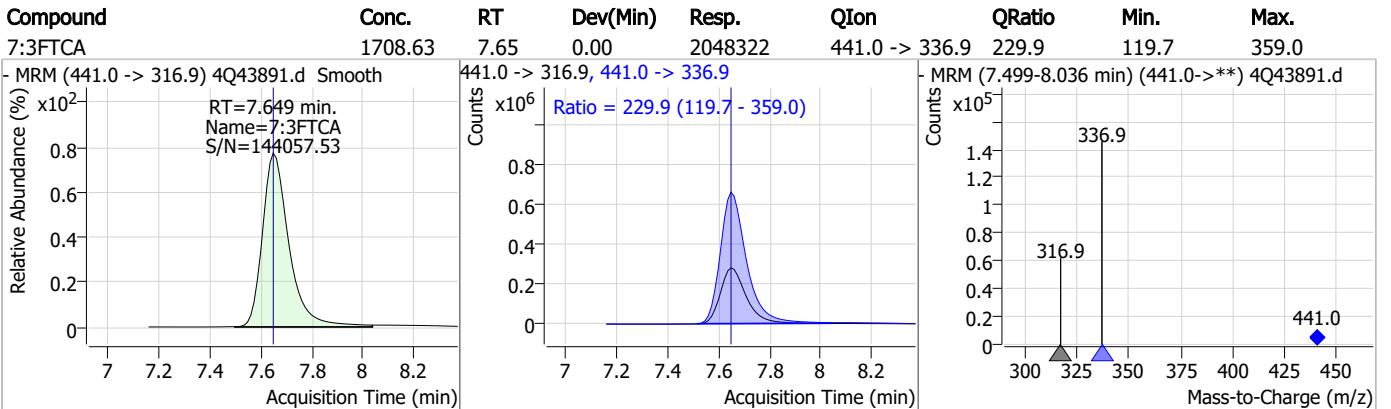
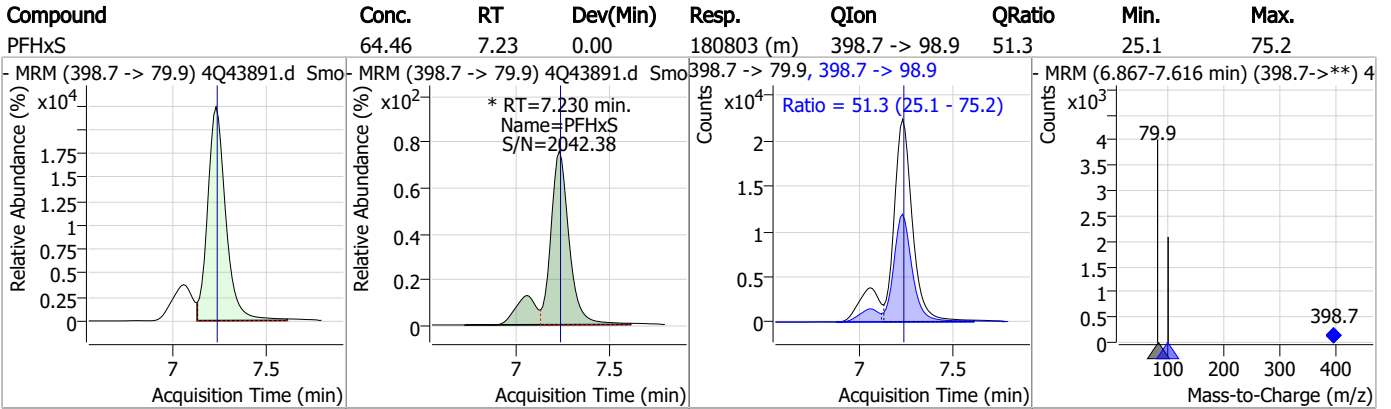


7.7.9

7



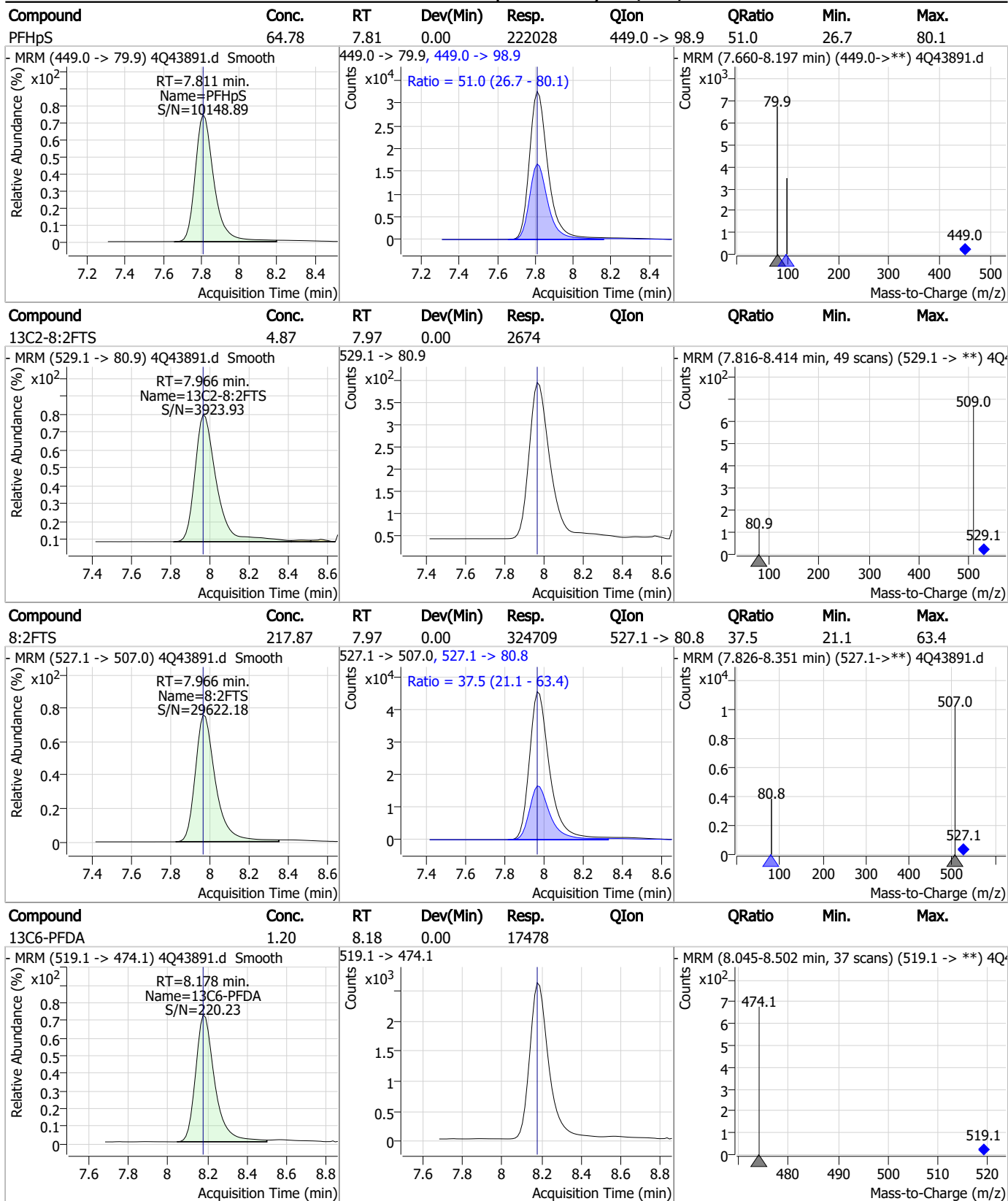
Perfluorinated Compounds by LC/MS/MS



7.7.9

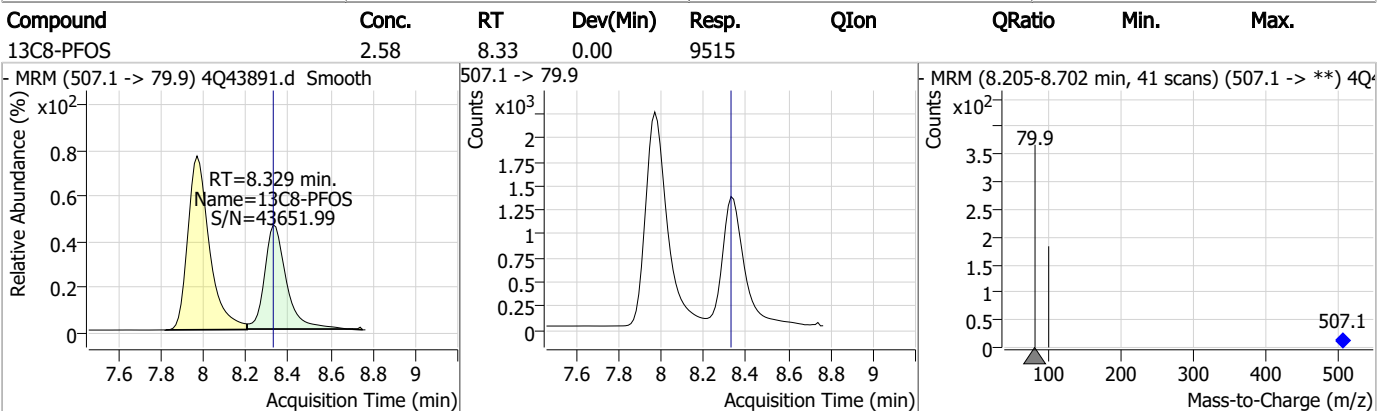
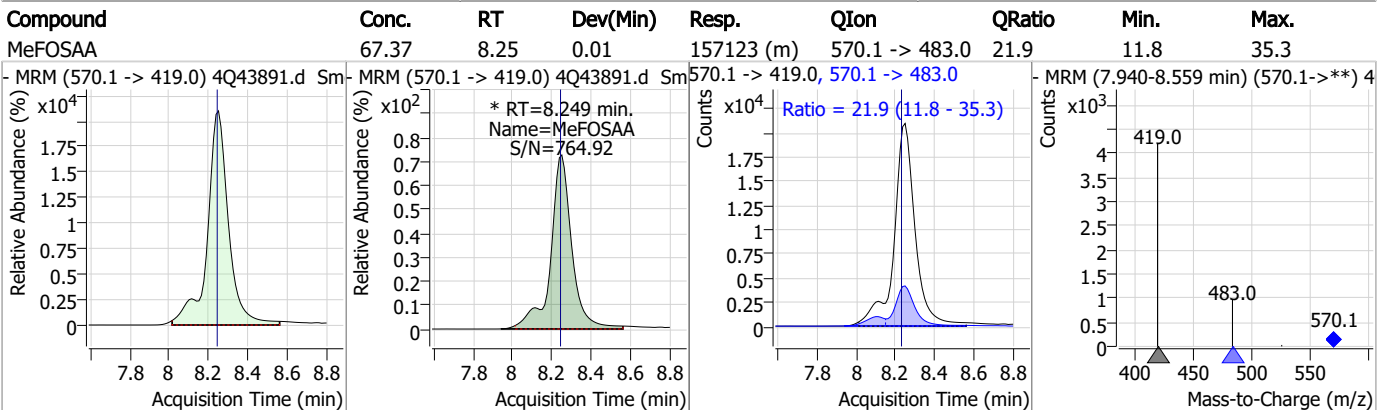
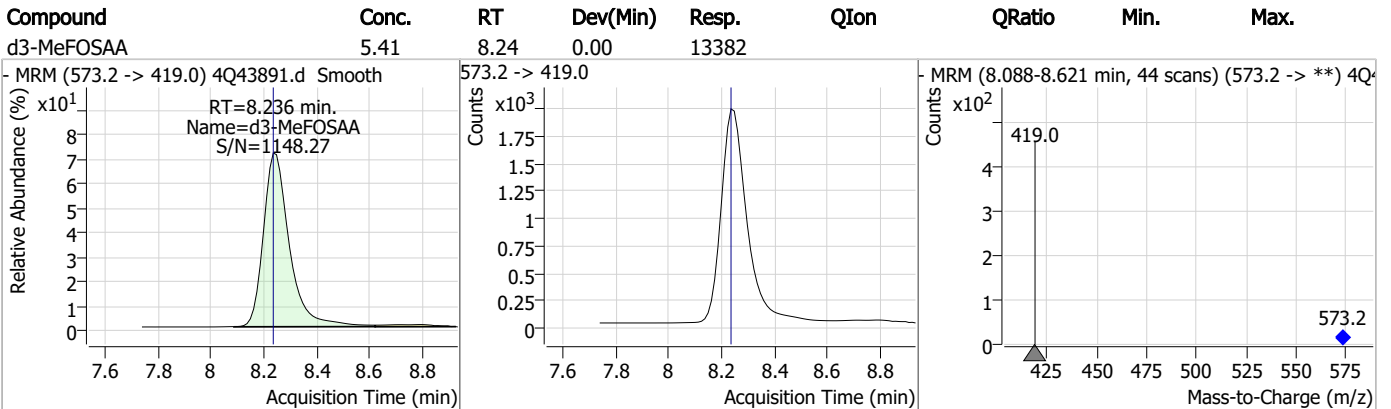
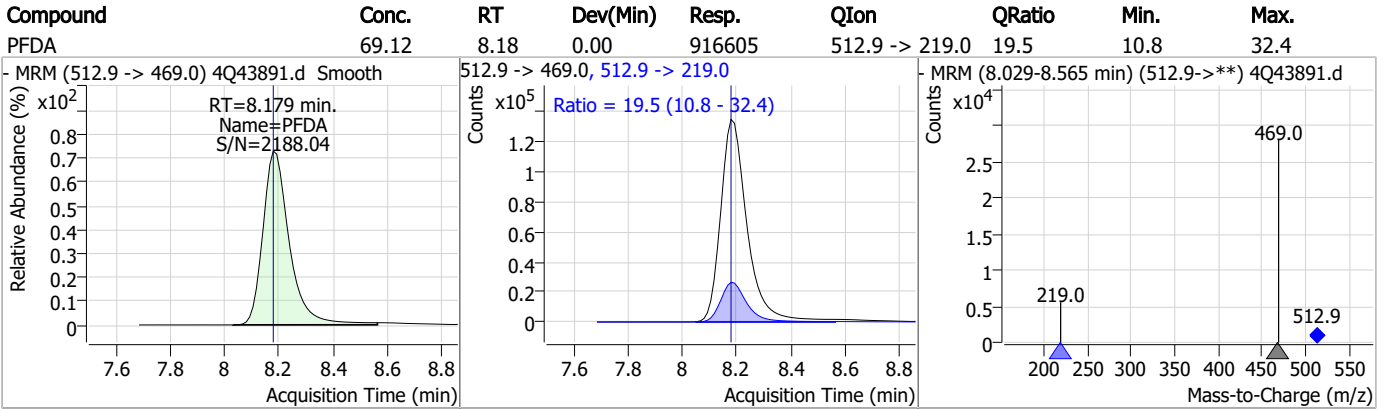
7

Perfluorinated Compounds by LC/MS/MS



7.7.9
7

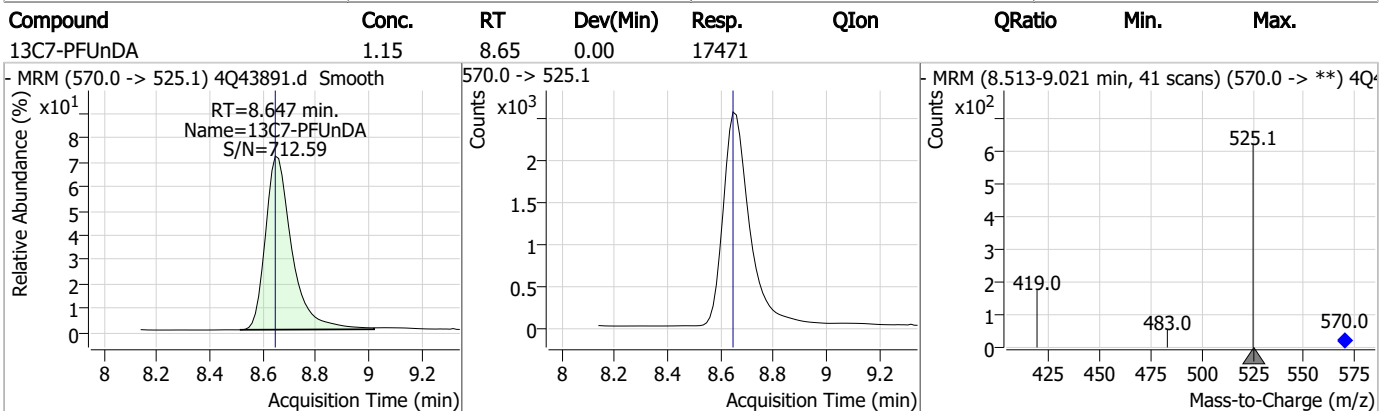
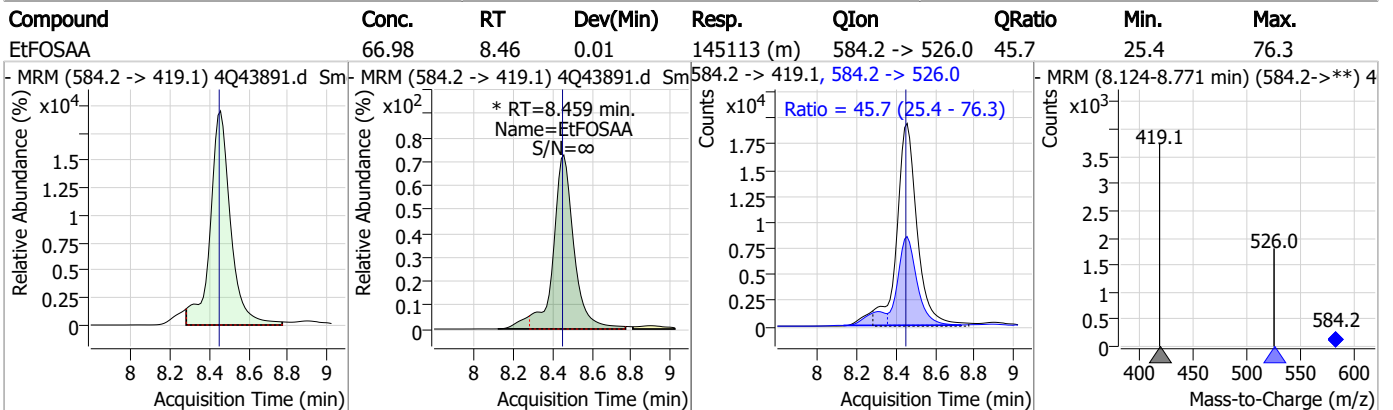
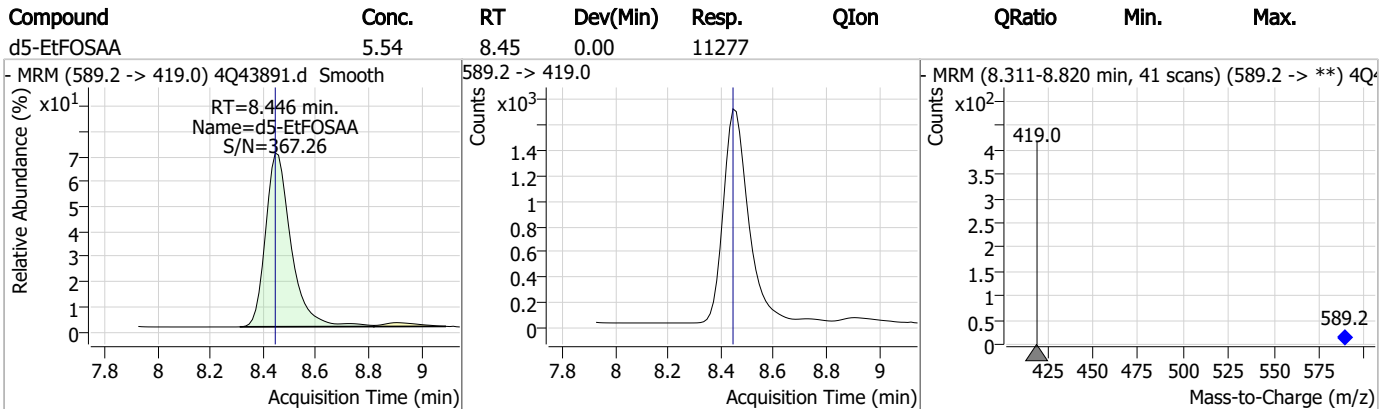
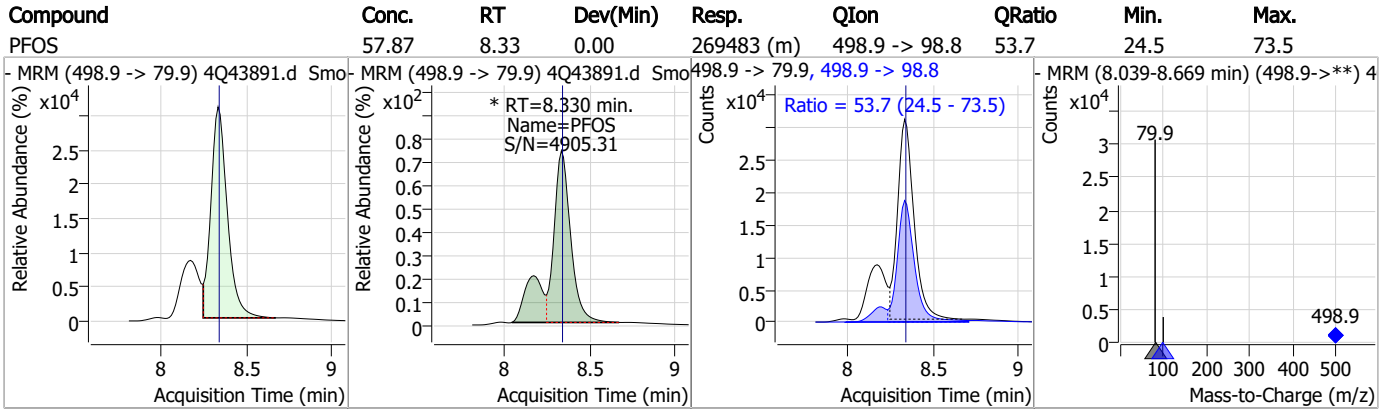
Perfluorinated Compounds by LC/MS/MS



7.7.9

7

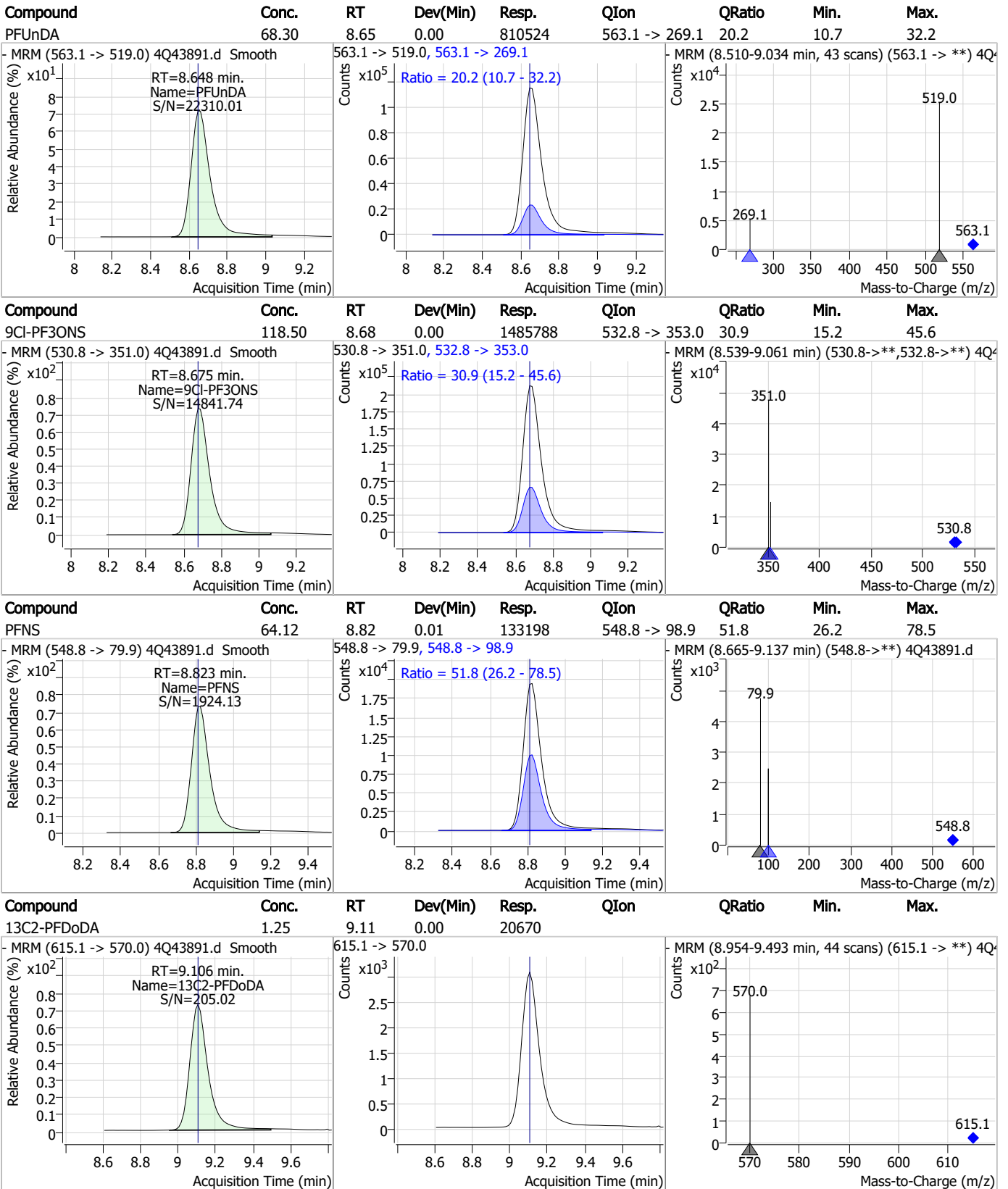
Perfluorinated Compounds by LC/MS/MS



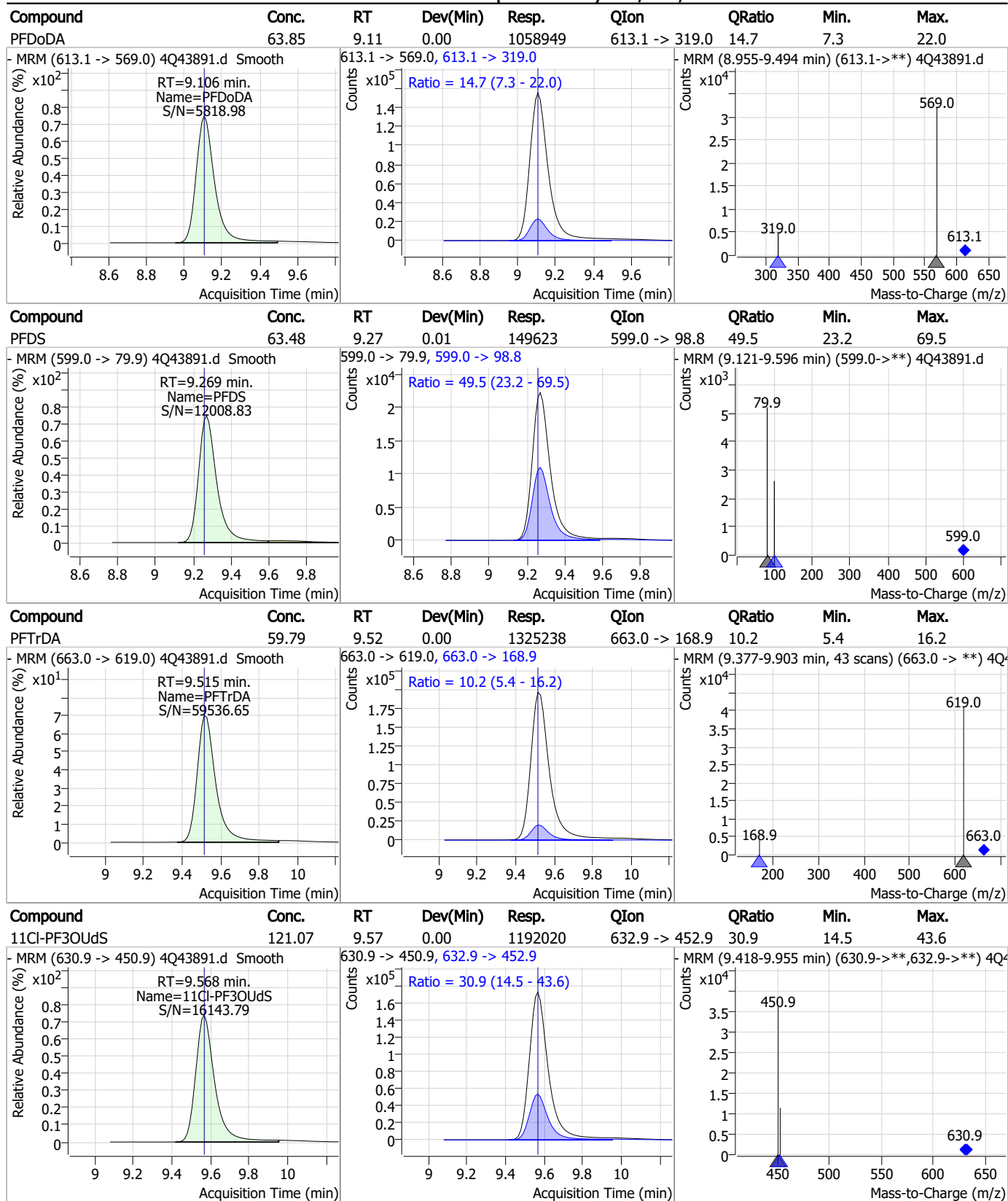
7.7.9

7

Perfluorinated Compounds by LC/MS/MS

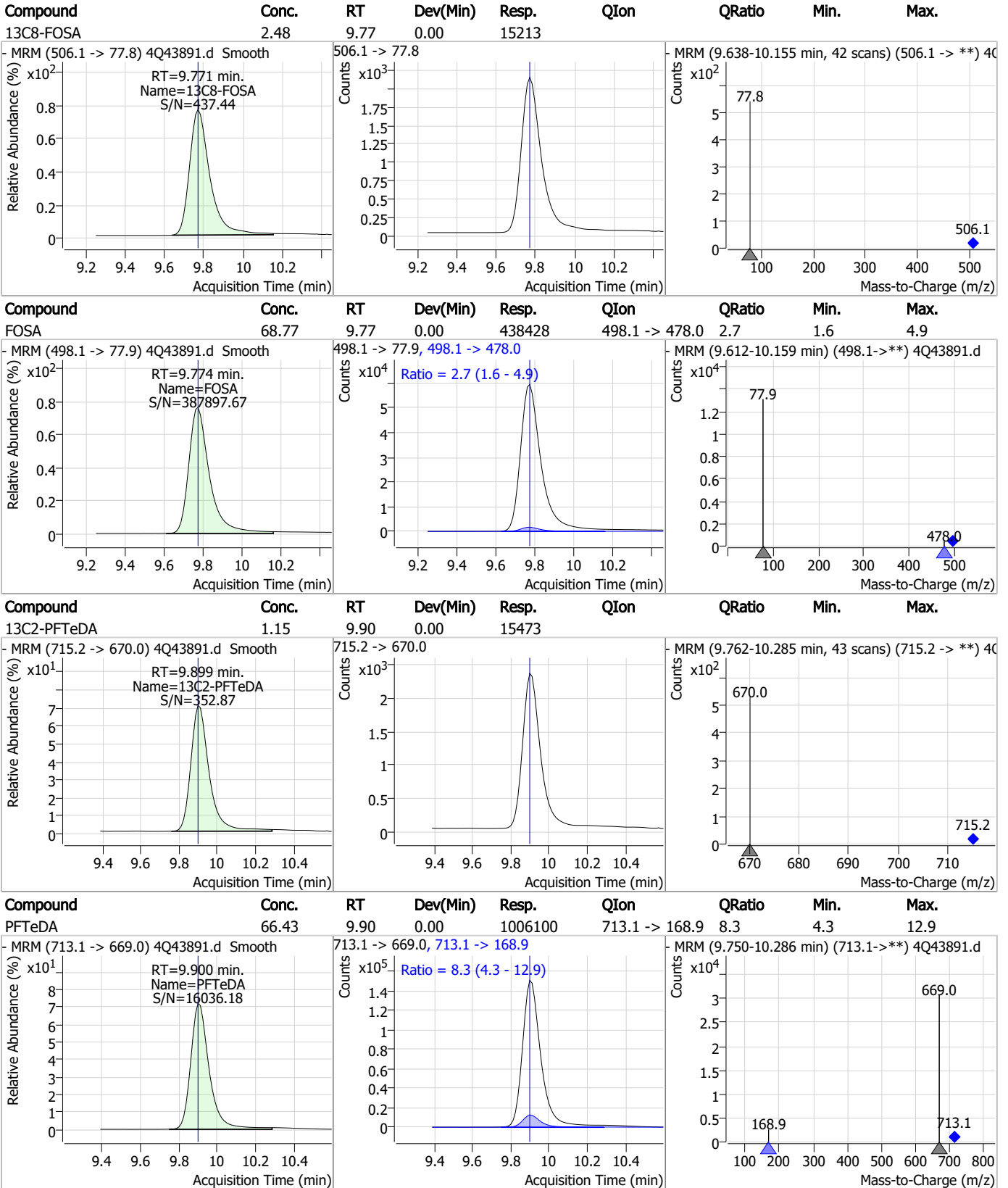


Perfluorinated Compounds by LC/MS/MS



7.7.9
7

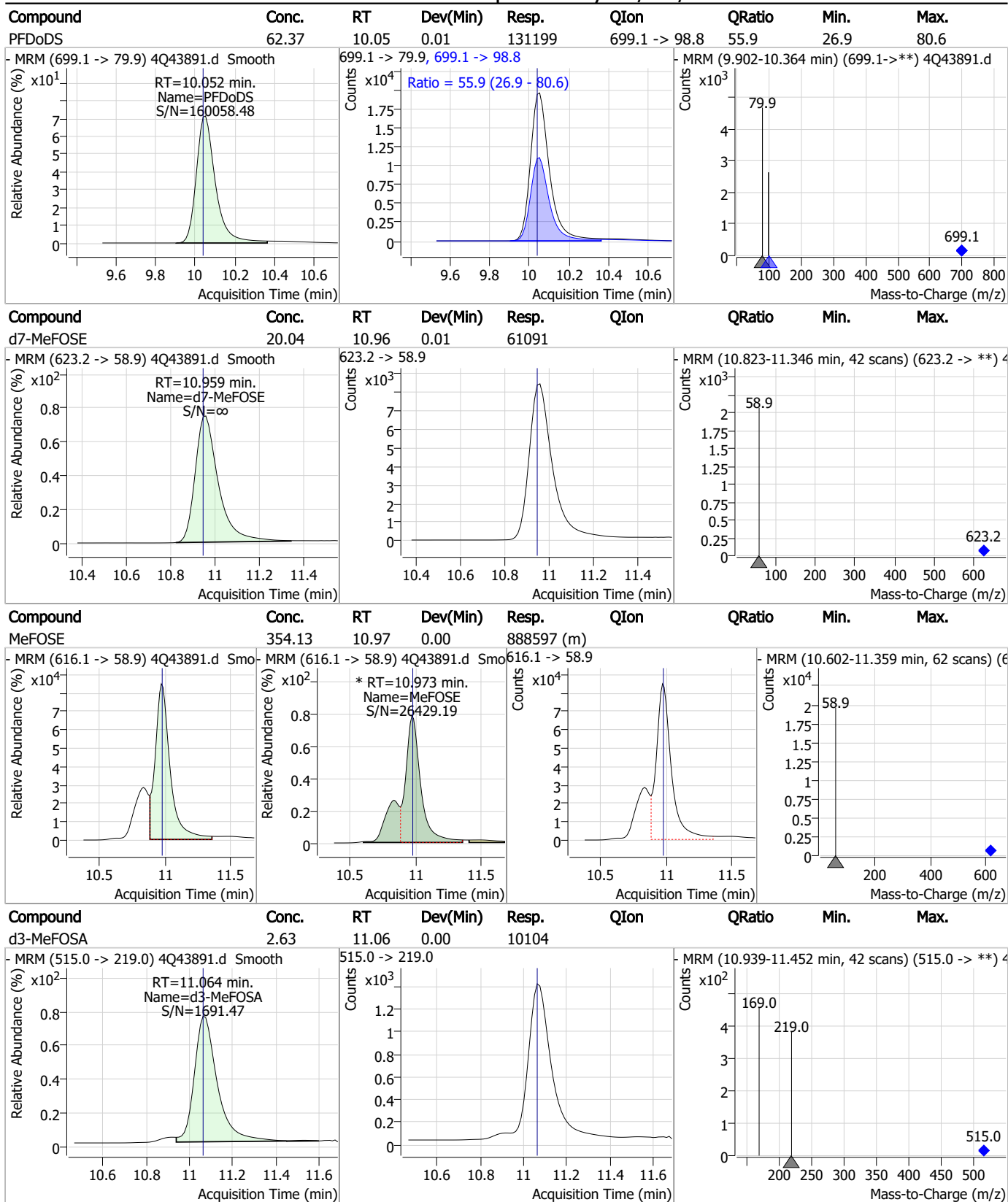
Perfluorinated Compounds by LC/MS/MS



7.7.9

7

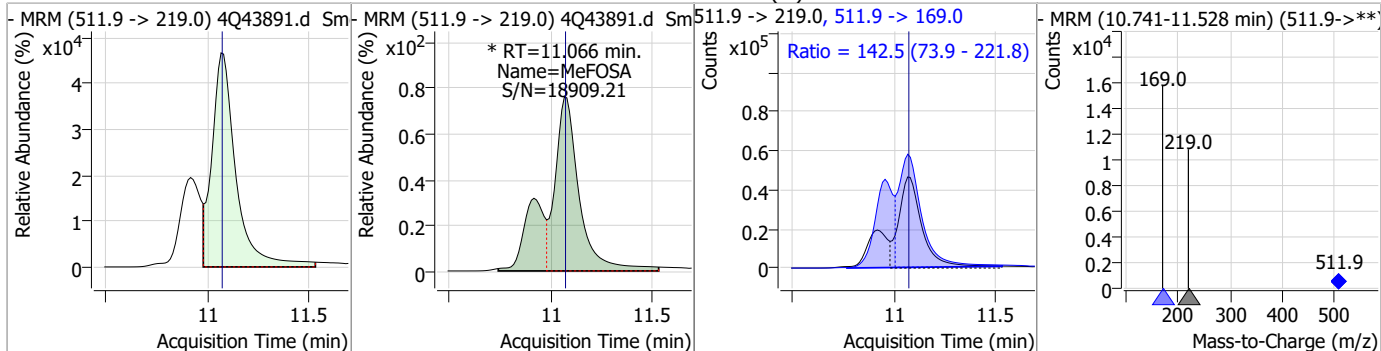
Perfluorinated Compounds by LC/MS/MS



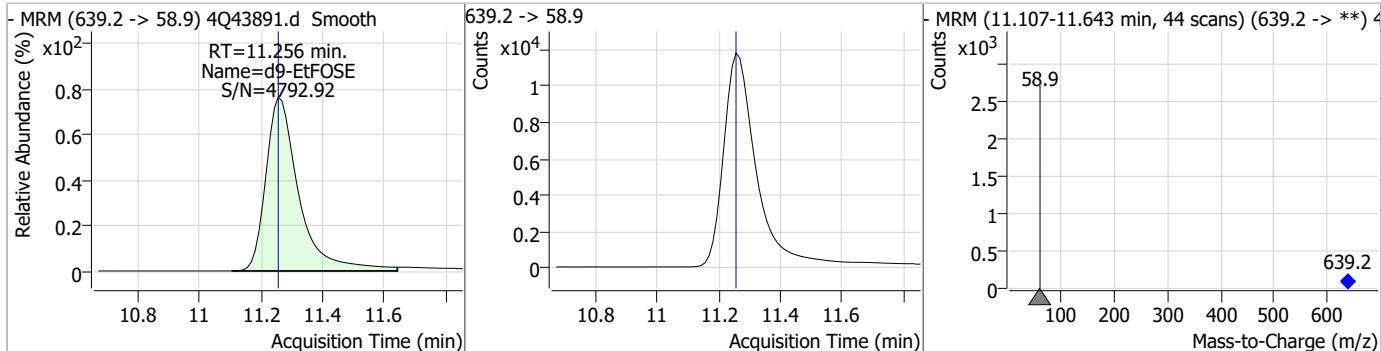
7.7.9
7

Perfluorinated Compounds by LC/MS/MS

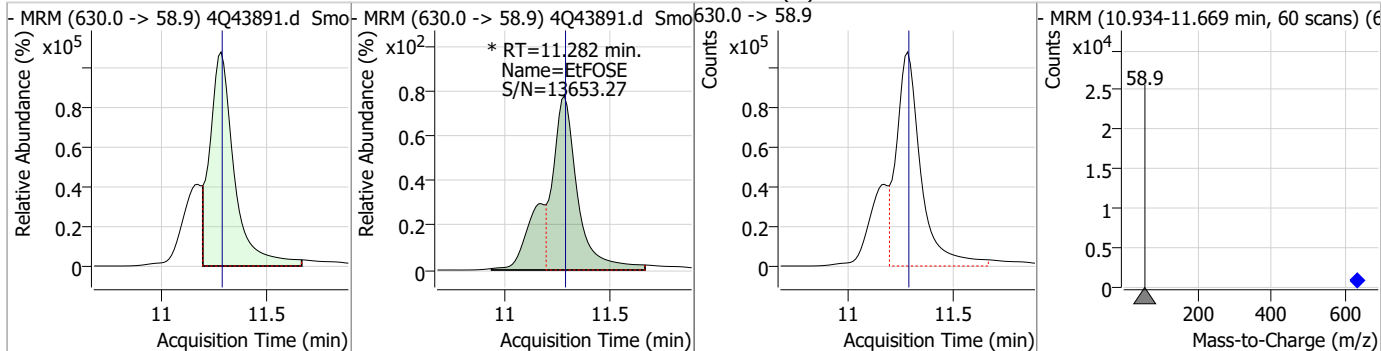
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	135.61	11.07	0.00	516182 (m)	511.9 -> 169.0	142.5	73.9	221.8



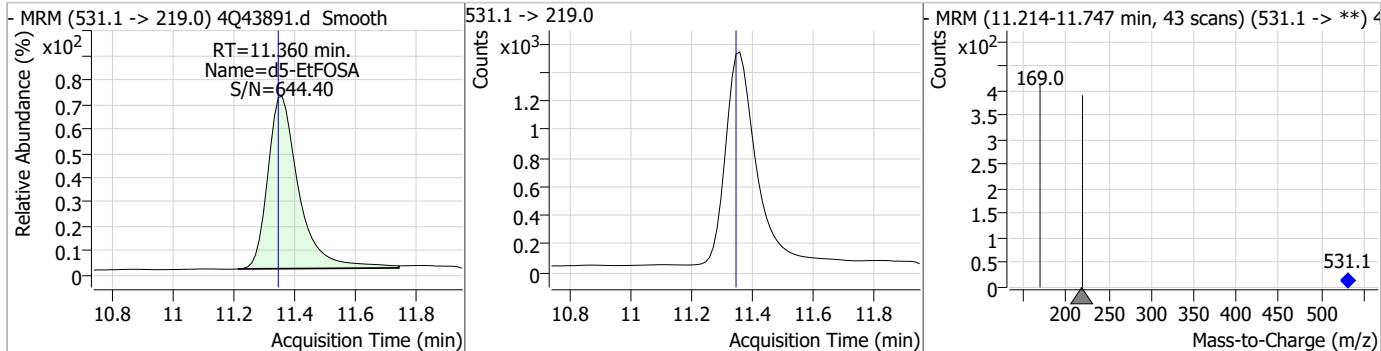
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.25	11.26	0.00	87409				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	339.18	11.28	0.00	1147731 (m)				

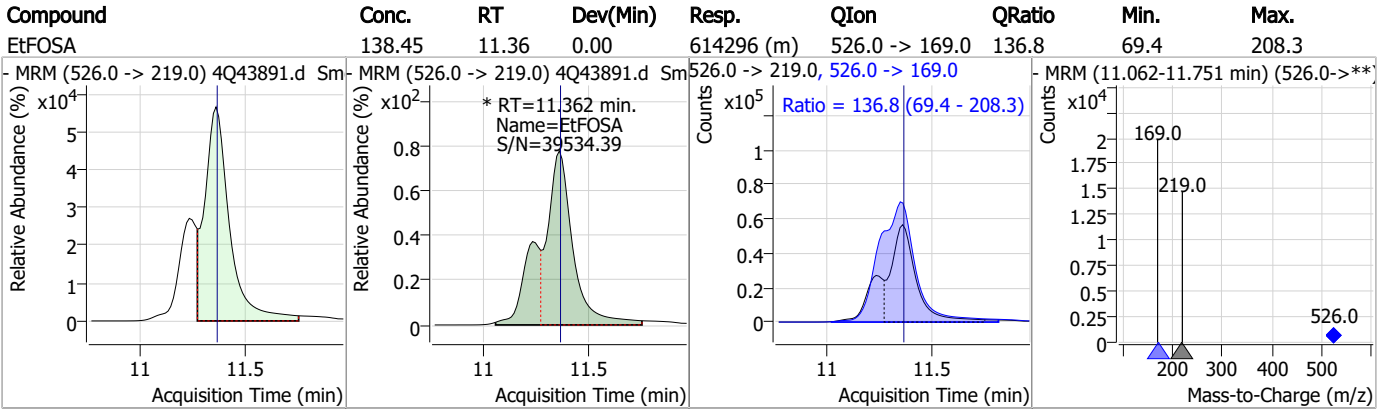


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.59	11.36	0.01	10591				



7.7.9
7

Perfluorinated Compounds by LC/MS/MS



7.7.9

7

Manual Integration Approval Summary

Sample Number: S4Q634-IC634
Lab FileID: 4Q43891.D
Injection Time: 05/03/23 12:50

Method: EPA DRAFT 1633
Analyst approved: 05/04/23 11:23 Natasha Gumtie
Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.07	Split peak
EtFOSE	1691-99-2		11.28	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.9.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43894.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 1:20:27 PM
 Sample Name : icv634-20
 Vial : P1-B4
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.961	216.8 -> 171.9	130791	10.00 µg/L	0.037
M5-PFPeA	4.387	268.3 -> 223.0	66851	5.00 µg/L	0.025
M5-PFHxA	5.547	318.0 -> 273.0	46251	2.50 µg/L	0.012
M4-PFHpA	6.480	367.1 -> 322.0	27970	2.50 µg/L	0.012
M8-PFOA	7.136	421.1 -> 376.0	42684	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	20224	1.25 µg/L	0.013
M6-PFDA	8.191	519.1 -> 474.1	18744	1.25 µg/L	0.013
M7-PFUnDA	8.660	570.0 -> 525.1	18716	1.25 µg/L	0.013
M2-PFDoDA	9.106	615.1 -> 570.0	21397	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	15850	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	15950	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11303	2.50 µg/L	0.025
M3-PFHxS	7.242	402.1 -> 79.9	7645	2.50 µg/L	0.012
M8-PFOS	8.341	507.1 -> 79.9	10355	2.50 µg/L	0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1075	5.00 µg/L	0.025
M2-6:2FTS	6.911	429.1 -> 80.9	1967	5.00 µg/L	0.012
M2-8:2FTS	7.978	529.1 -> 80.9	3100	5.00 µg/L	0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	13820	5.00 µg/L	0.012
M3-HFPO-DA	5.902	286.9 -> 168.9	28905	10.00 µg/L	0.012
M5-EtFOSAA	8.458	589.2 -> 419.0	11868	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	64121	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	90962	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11004	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	9720	2.50 µg/L	0.000
13C4-PFOS	8.342	502.8 -> 79.9	10619	2.50 µg/L	0.012
13C3-PFBA	2.966	216.0 -> 172.0	68812	5.00 µg/L	0.037
18O2-PFHxS	7.228	403.0 -> 83.9	5057	2.50 µg/L	0.000
13C4-PFOA	7.136	417.1 -> 372.0	50127	2.50 µg/L	0.012
13C2-PFDA	8.191	515.1 -> 470.1	16617	1.25 µg/L	0.013
13C5-PFNA	7.684	468.0 -> 423.0	23190	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	42103	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1075	5.23 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.6%		
13C2-6:2FTS	6.911	429.1 -> 80.9	1967	5.31 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.2%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3100	5.36 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 107.2%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21397	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.3%		
13C2-PFTeDA	9.911	715.2 -> 670.0	15850	1.21 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.8%		
13C3-PFBS	5.452	302.1 -> 79.9	11303	2.37 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 94.8%		
13C3-PFHxS	7.242	402.1 -> 79.9	7645	2.44 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 = 97.6%	
13C4-PFBA	2.961	216.8 -> 171.9	130791	10.10 µg/L	0.037
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C4-PFHpA	6.480	367.1 -> 322.0	27970	2.58 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.2%	
13C5-PFHxA	5.547	318.0 -> 273.0	46251	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C5-PFPeA	4.387	268.3 -> 223.0	66851	5.15 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C6-PFDA	8.191	519.1 -> 474.1	18744	1.32 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.660	570.0 -> 525.1	18716	1.26 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.1%	
13C8-FOSA	9.783	506.1 -> 77.8	15950	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C8-PFOA	7.136	421.1 -> 376.0	42684	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.7%	
13C8-PFOS	8.341	507.1 -> 79.9	10355	2.59 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C9-PFNA	7.684	472.1 -> 427.0	20224	1.28 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 102.6%	
d3-MeFOSAA	8.249	573.2 -> 419.0	13820	5.16 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C3-HFPO-DA	5.902	286.9 -> 168.9	28905	10.44 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
d3-MeFOSA	11.064	515.0 -> 219.0	9720	2.33 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.4%	
d5-EtFOSAA	8.458	589.2 -> 419.0	11868	5.38 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.5%	
d7-MeFOSE	10.959	623.2 -> 58.9	64121	19.41 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.6%	
d9-EtFOSE	11.256	639.2 -> 58.9	90962	19.44 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.8%	
d5-EtFOSA	11.360	531.1 -> 219.0	11004	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
Target Compounds					QValue
4:2FTS	5.236	327.1 -> 307.0	36343	21.01 µg/L	93
		327.1 -> 80.9	15405		
6:2FTS	6.911	427.1 -> 407.0	37596	19.78 µg/L	98
		427.1 -> 80.9	15426		
8:2FTS	7.978	527.1 -> 507.0	34017	19.68 µg/L	99
		527.1 -> 80.8	14554		
EtFOSAA	8.459	584.2 -> 419.1	44738	19.62 µg/L	m 97
		584.2 -> 526.0	21689		
FOSA	9.774	498.1 -> 77.9	141624	21.19 µg/L	98
		498.1 -> 478.0	3779		
MeFOSAA	8.249	570.1 -> 419.0	51036	21.19 µg/L	m 95
		570.1 -> 483.0	10701		
PFBA	2.957	212.8 -> 168.9	67542	19.28 µg/L	100
PFBS	5.453	298.7 -> 79.9	100483	21.67 µg/L	95
		298.7 -> 98.8	37786		
PFDA	8.192	512.9 -> 469.0	305610	21.49 µg/L	96
		512.9 -> 219.0	60753		
PFDoDA	9.106	613.1 -> 569.0	317329	18.48 µg/L	96
		613.1 -> 319.0	41610		
PFDS	9.269	599.0 -> 79.9	52213	20.36 µg/L	96

7.7.10
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.480	599.0 -> 98.8	25568	20.57	µg/L	99
		363.1 -> 319.0	363659			
PFHpS	7.823	363.1 -> 169.0	63506	20.45	µg/L	96
		449.0 -> 79.9	76288			
PFHxA	5.550	449.0 -> 98.9	38819	21.78	µg/L	100
		313.0 -> 269.0	394737			
PFHxS	7.230	313.0 -> 118.9	11460	21.63	µg/L	m
		398.7 -> 79.9	67769			
PFNA	7.685	398.7 -> 98.9	33658	21.77	µg/L	99
		463.0 -> 419.0	326243			
PFNS	8.823	463.0 -> 219.0	79570	19.68	µg/L	100
		548.8 -> 79.9	44477			
PFOA	7.138	548.8 -> 98.9	23137	20.68	µg/L	99
		413.0 -> 369.0	509126			
PFOS	8.343	413.0 -> 169.0	101566	17.96	µg/L	m
		498.9 -> 79.9	91001			
PFPeA	4.389	498.9 -> 98.8	42607	22.21	µg/L	100
		263.0 -> 219.0	357175			
PFPeS	6.507	349.1 -> 79.9	56780	21.12	µg/L	97
		349.1 -> 98.9	25166			
PFTeDA	9.912	713.1 -> 669.0	344427	22.20	µg/L	99
		713.1 -> 168.9	28576			
PFTrDA	9.529	663.0 -> 619.0	403759	17.60	µg/L	98
		663.0 -> 168.9	40559			
PFUnDA	8.660	563.1 -> 519.0	269334	21.19	µg/L	96
		563.1 -> 269.1	53065			
11CI-PF3OUdS	9.568	630.9 -> 450.9	217826	20.96	µg/L	97
		632.9 -> 452.9	67365			
9CI-PF3ONS	8.687	530.8 -> 351.0	264806	20.00	µg/L	100
		532.8 -> 353.0	80138			
ADONA	6.731	376.9 -> 250.9	583198	20.06	µg/L	99
		376.9 -> 84.8	155449			
HFPO-DA	5.903	284.9 -> 168.9	53279	19.29	µg/L	97
		284.9 -> 184.9	6640			
3:3FTCA	3.879	241.0 -> 177.0	14608	20.64	µg/L	98
		241.0 -> 117.0	1379			
5:3FTCA	6.217	341.0 -> 237.1	52878	21.50	µg/L	100
		341.0 -> 217.0	36203			
7:3FTCA	7.661	441.0 -> 316.9	25510	19.97	µg/L	94
		441.0 -> 336.9	63644			
EtFOSA	11.362	526.0 -> 219.0	101818	22.09	µg/L	78
		526.0 -> 169.0	114269			
EtFOSE	11.282	630.0 -> 58.9	413915	117.54	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	79178	21.62	µg/L	76
		511.9 -> 169.0	93425			
MeFOSE	10.973	616.1 -> 58.9	304054	115.45	µg/L	100
PFDoDS	10.052	699.1 -> 79.9	43287	18.91	µg/L	99
		699.1 -> 98.8	23566			
NFDHA	5.428	295.0 -> 201.0	28746	22.22	µg/L	94
		295.0 -> 84.9	6982			
PFMBA	4.791	279.0 -> 85.1	189220	21.08	µg/L	100
PFMPA	3.553	229.0 -> 84.9	178659	21.25	µg/L	100
PFEESA	5.984	314.8 -> 134.9	262758	19.16	µg/L	98
		314.8 -> 82.9	8347			

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

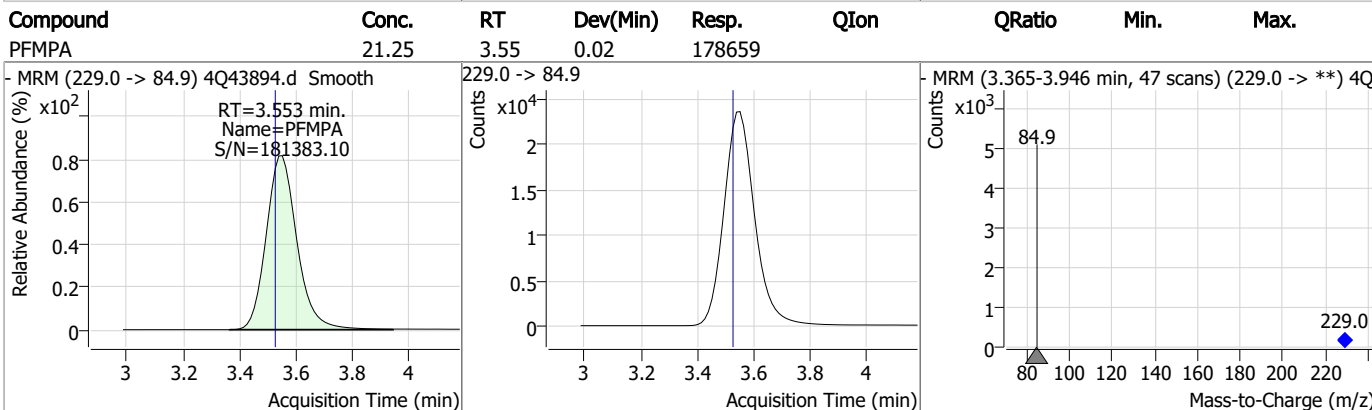
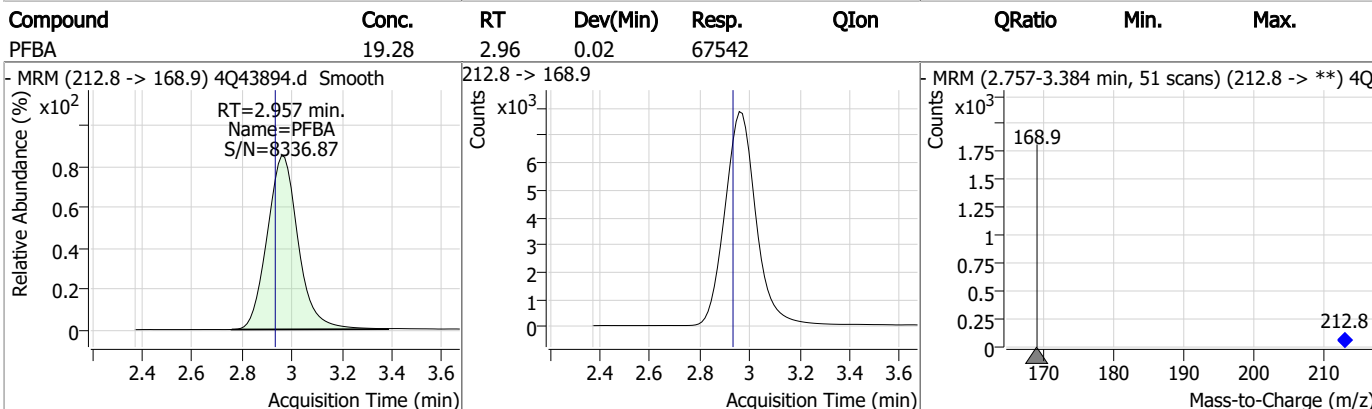
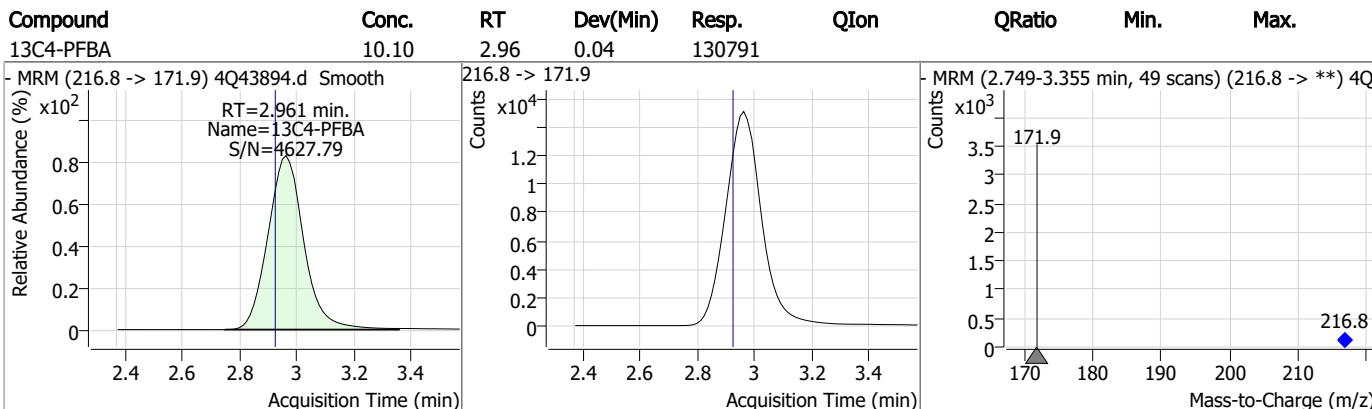
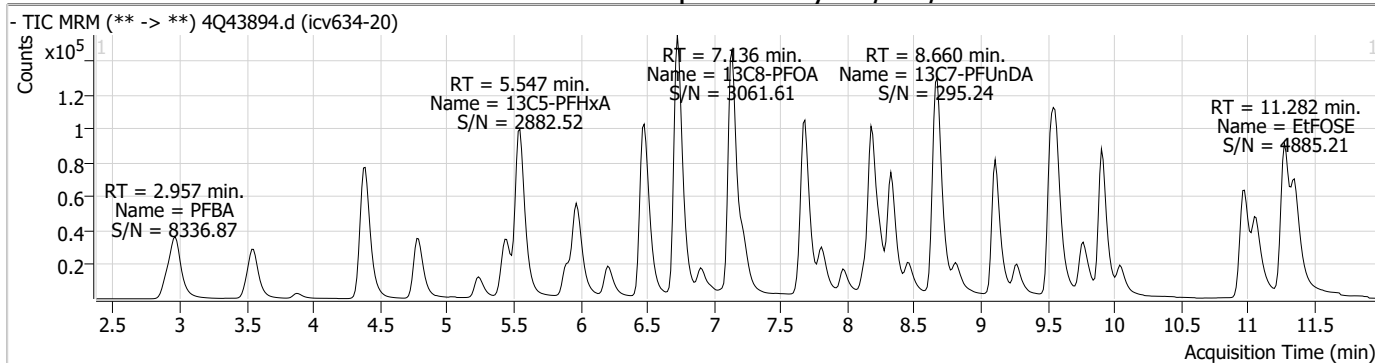
Perfluorinated Compounds by LC/MS/MS

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

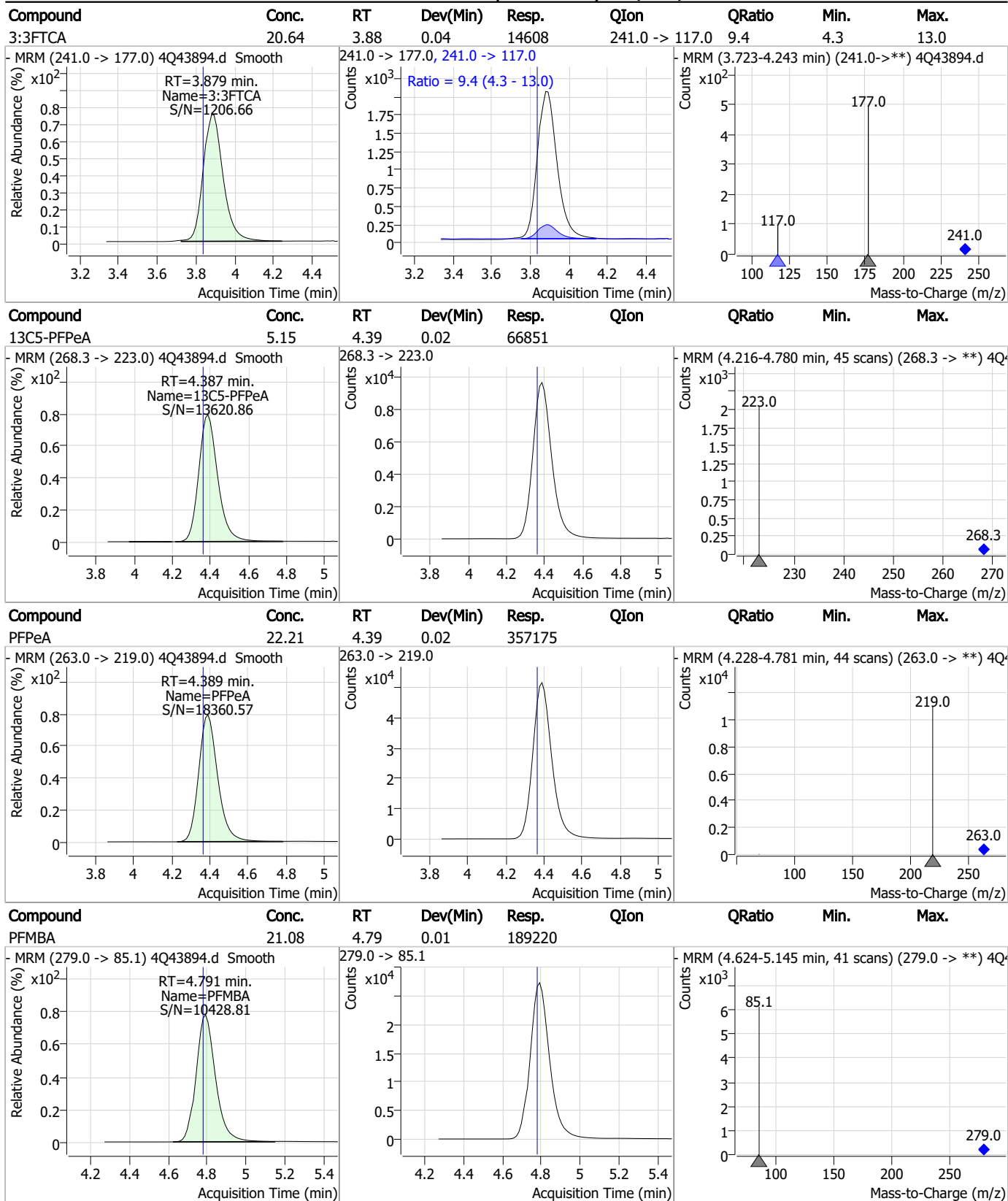
7.7.10

7

Perfluorinated Compounds by LC/MS/MS

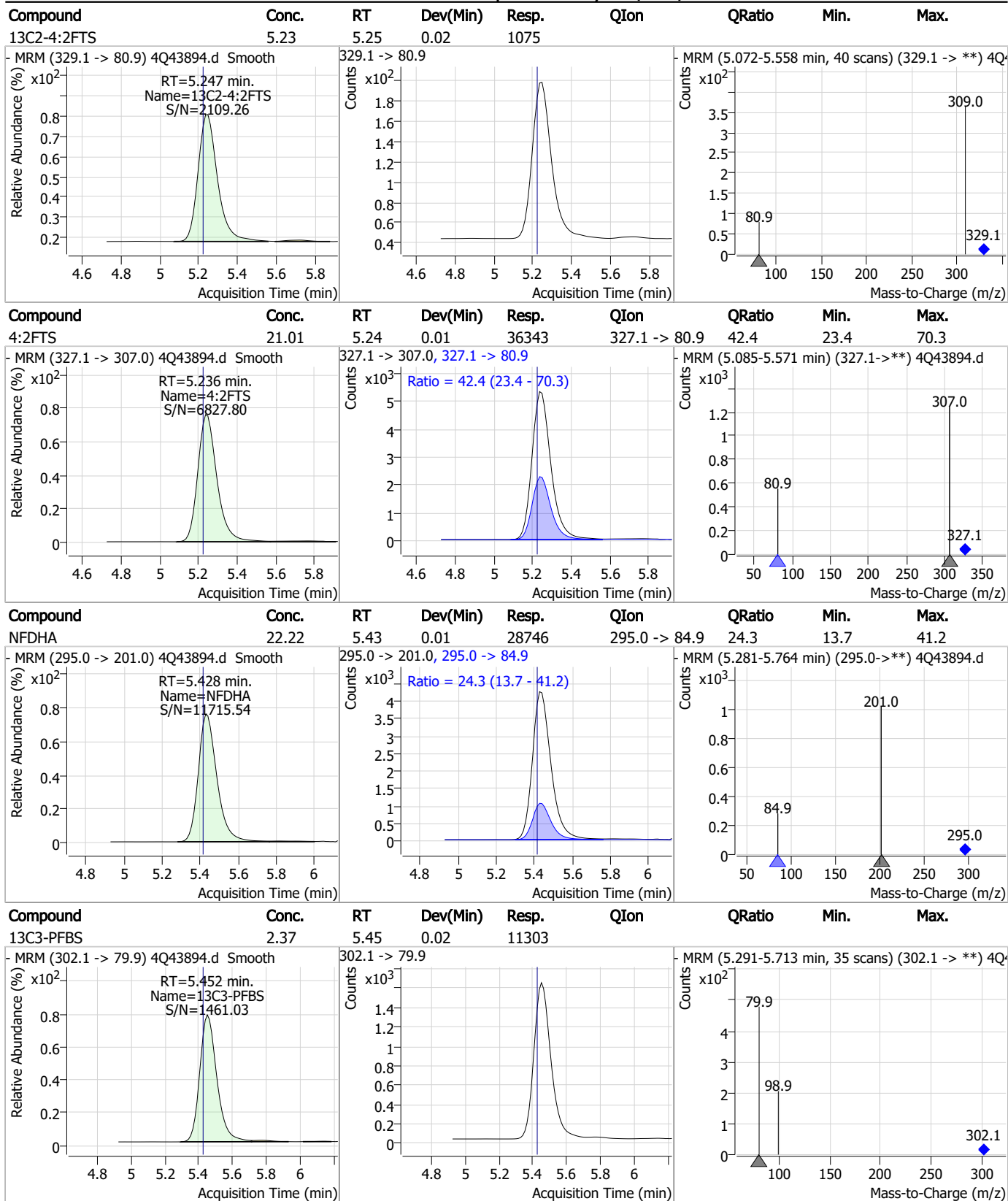


Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS

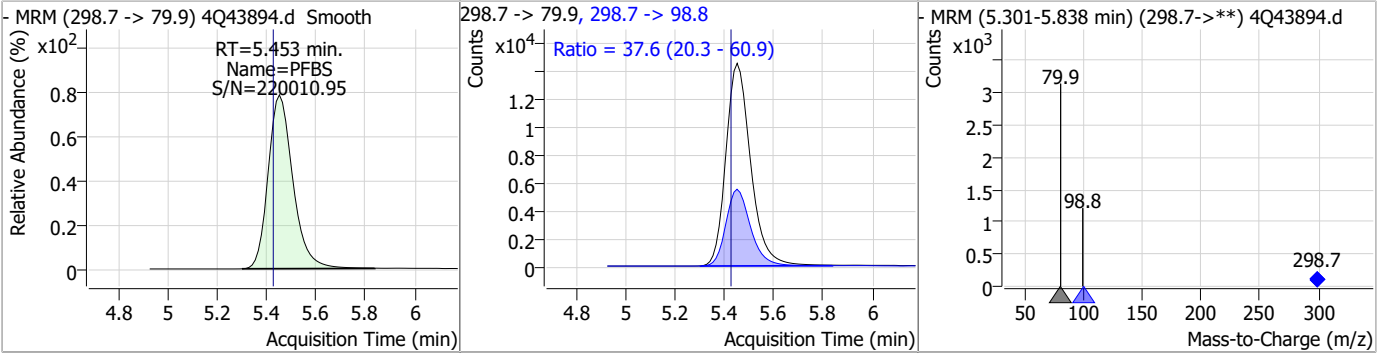


7.7.10 7

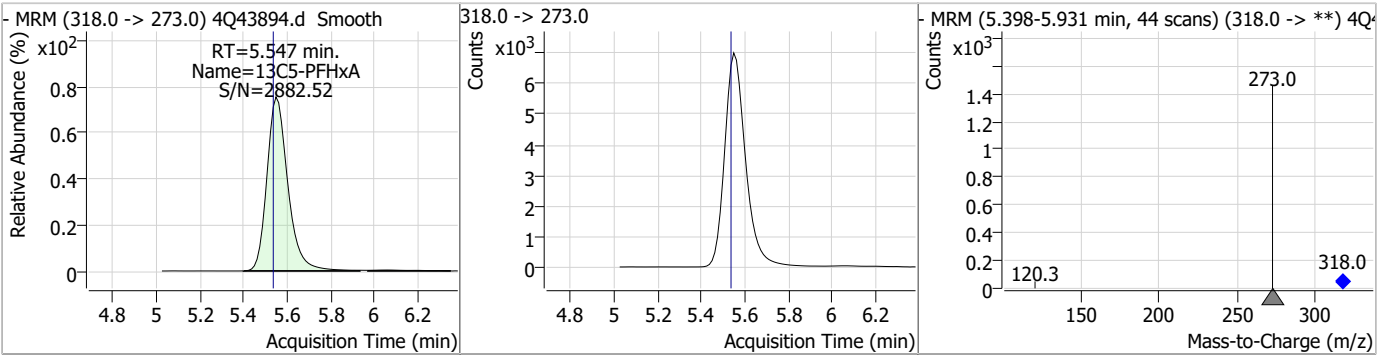


Perfluorinated Compounds by LC/MS/MS

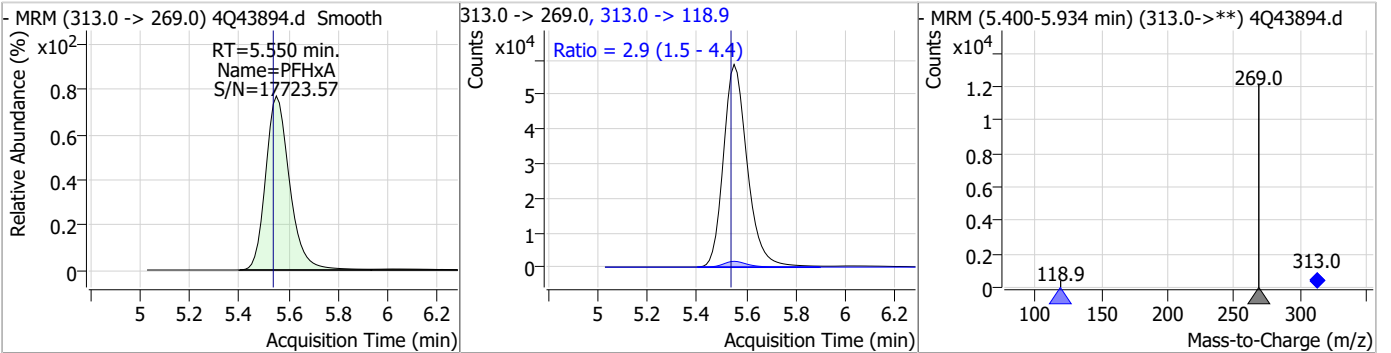
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	21.67	5.45	0.02	100483	298.7 -> 98.8	37.6	20.3	60.9



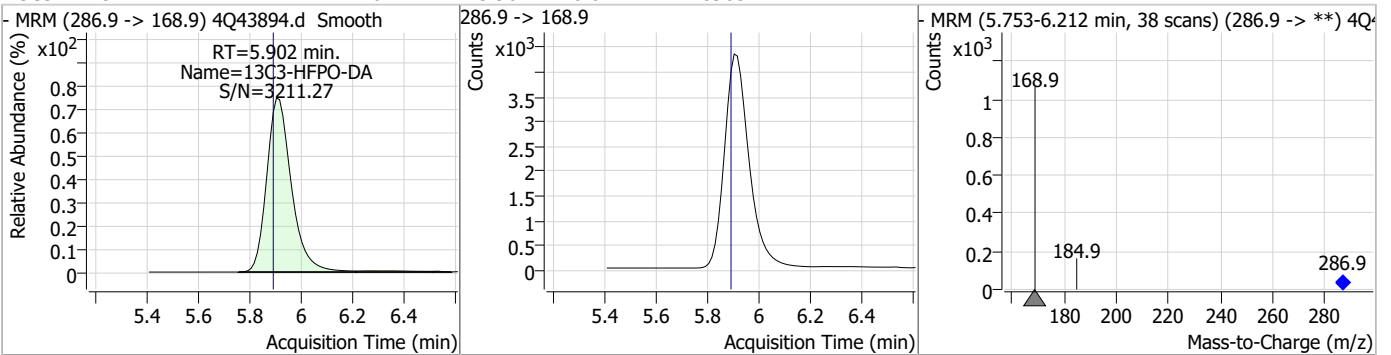
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.49	5.55	0.01	46251				



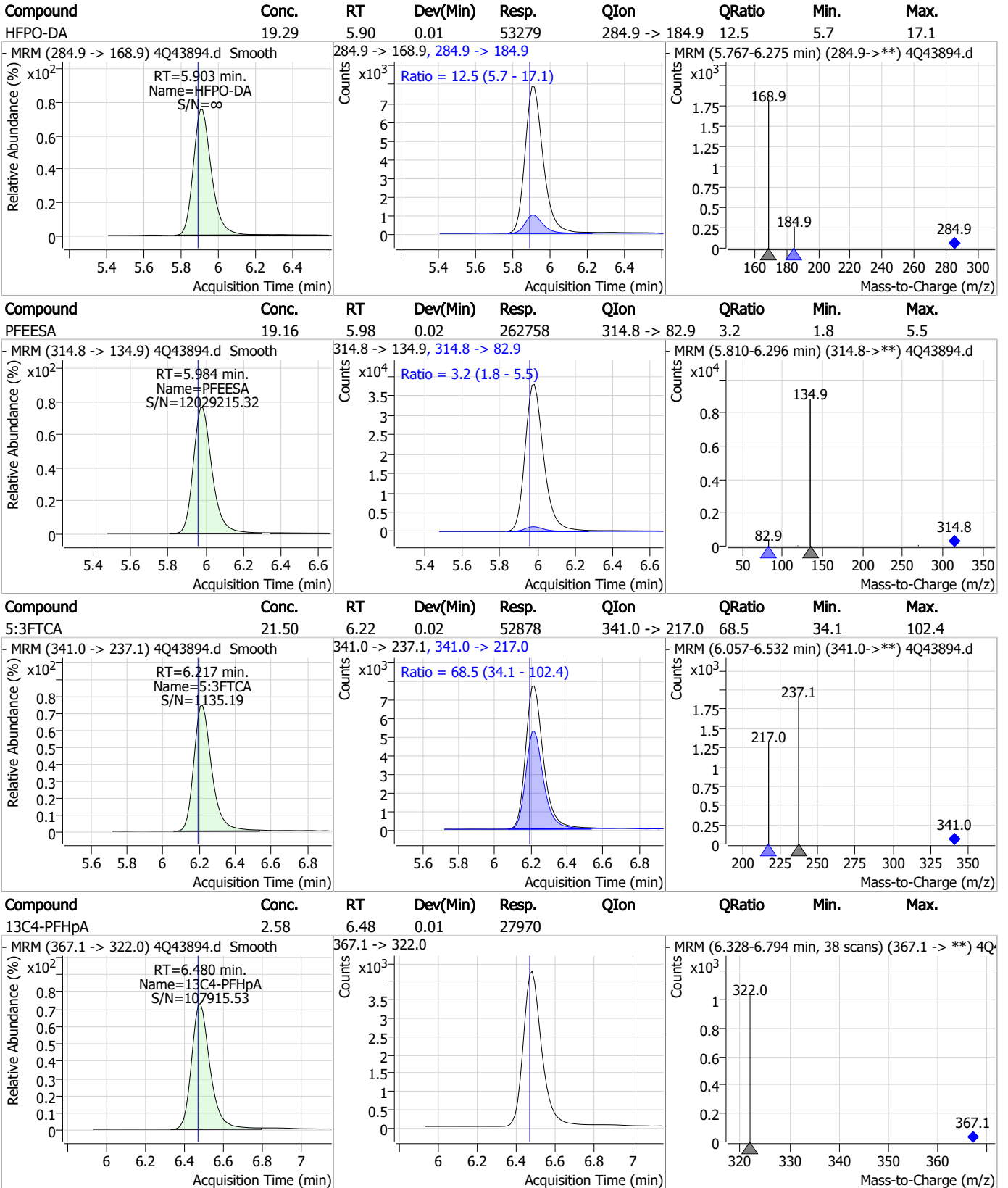
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	21.78	5.55	0.01	394737	313.0 -> 118.9	2.9	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.44	5.90	0.01	28905				



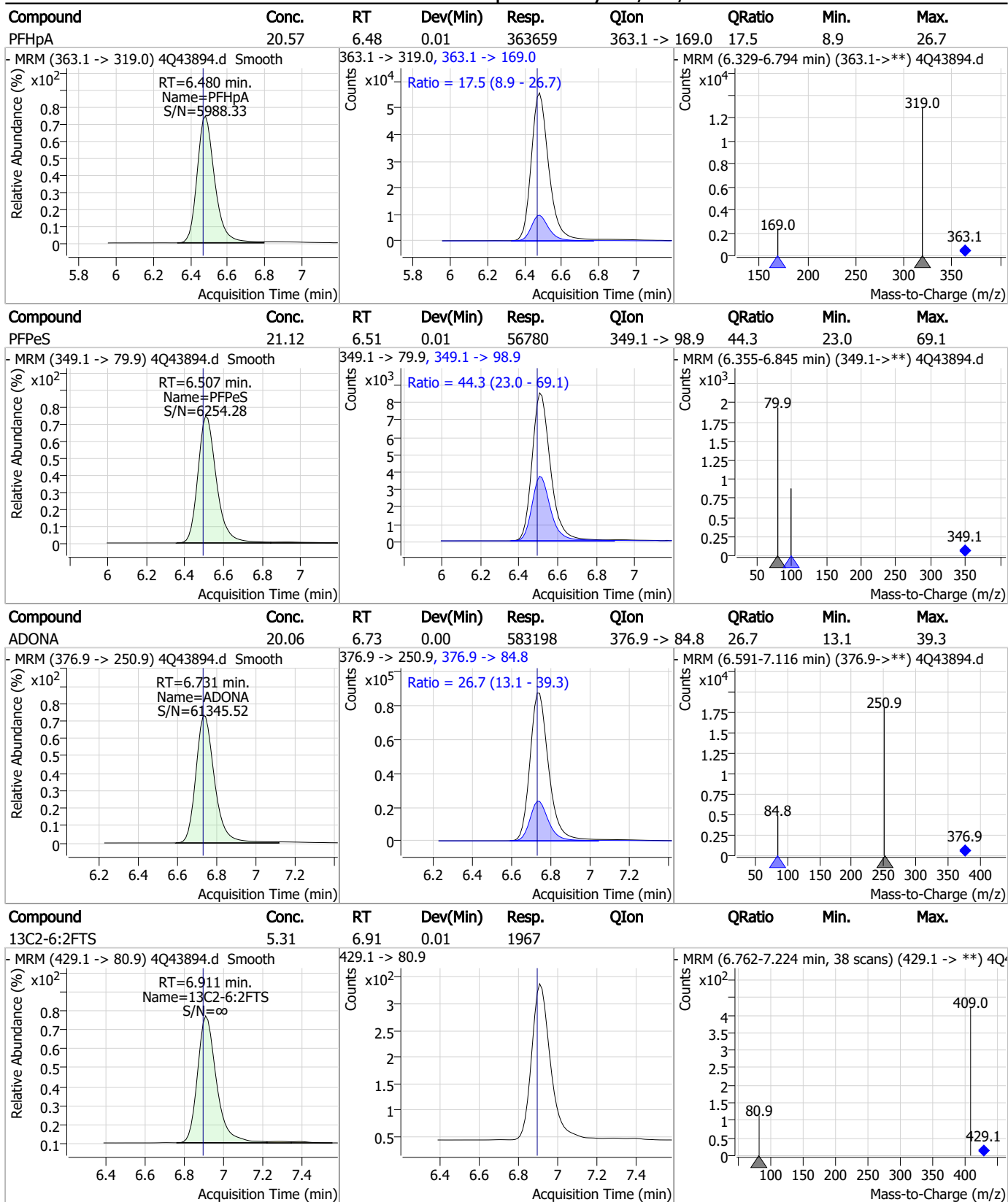
Perfluorinated Compounds by LC/MS/MS



7.7.10 7

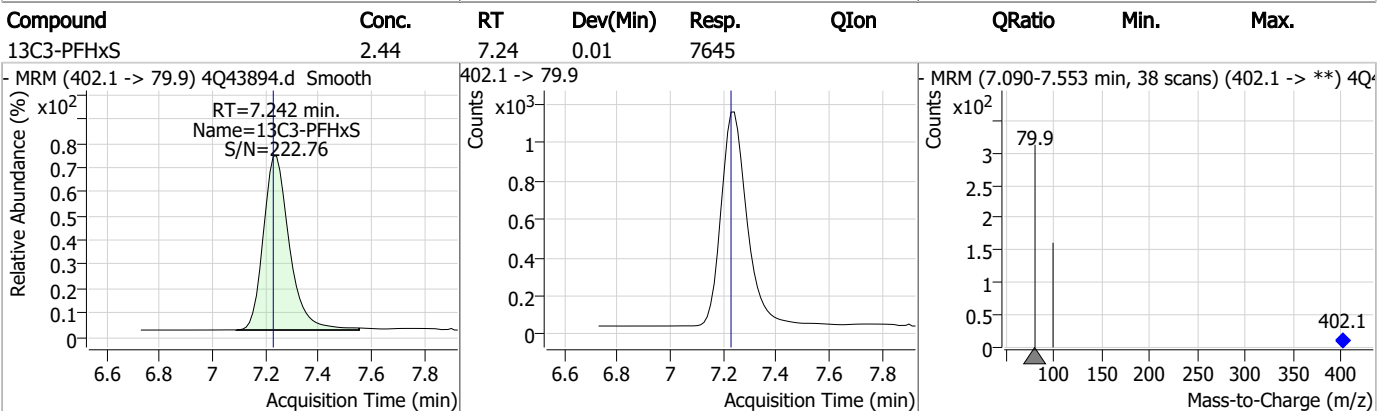
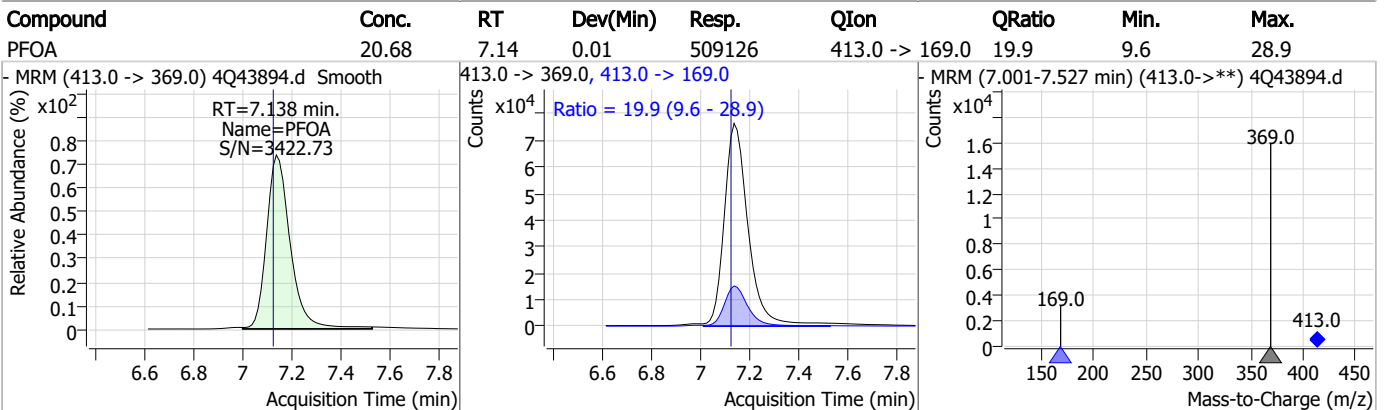
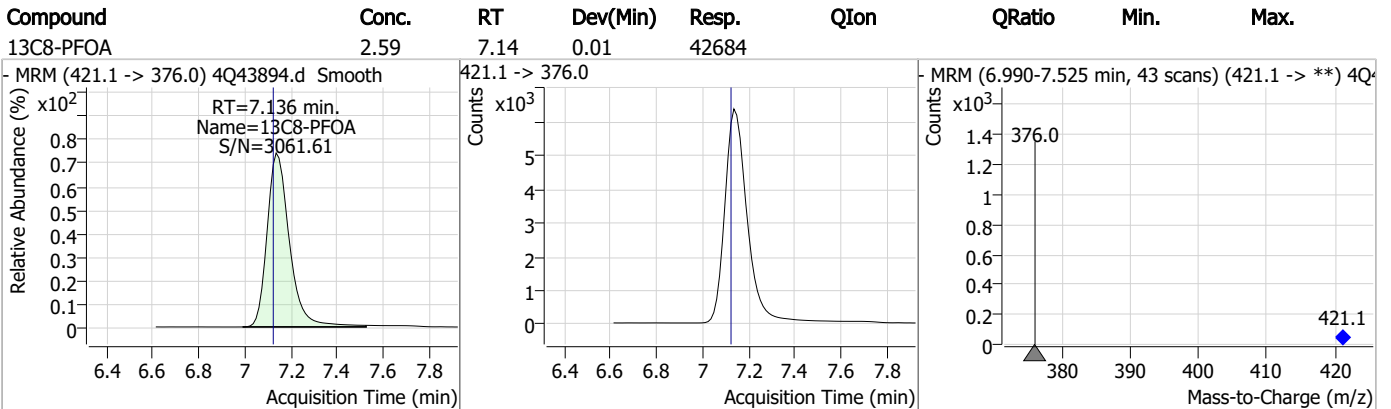
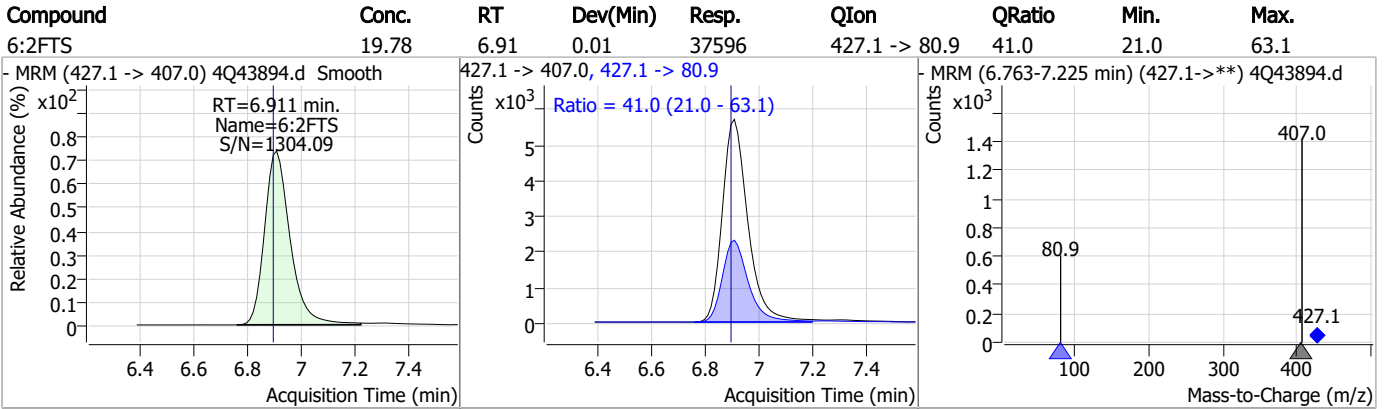


Perfluorinated Compounds by LC/MS/MS



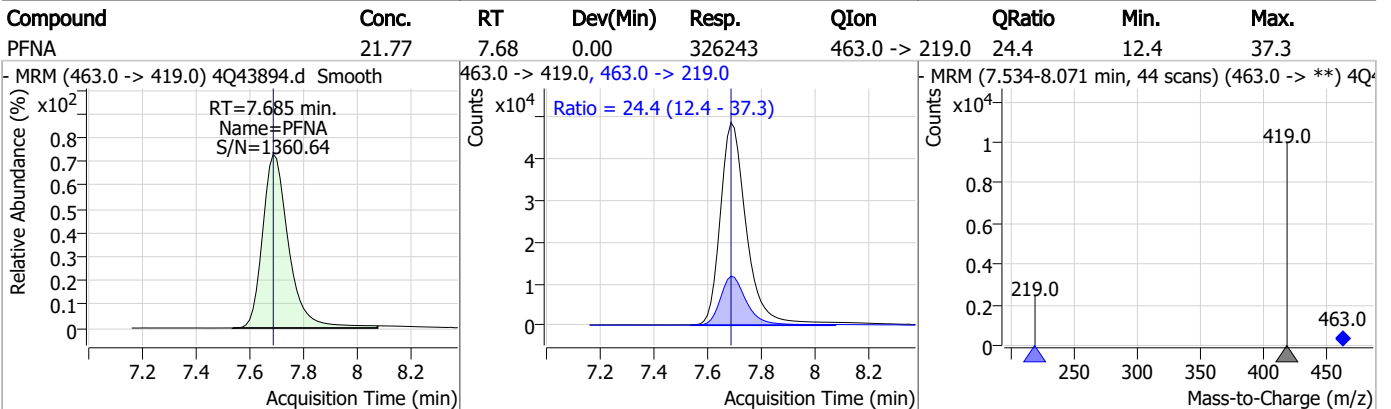
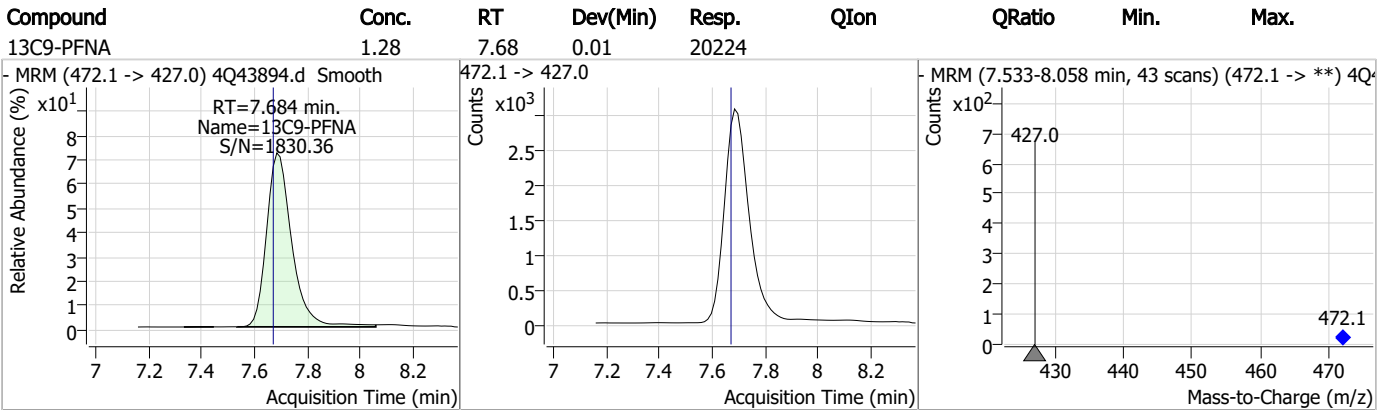
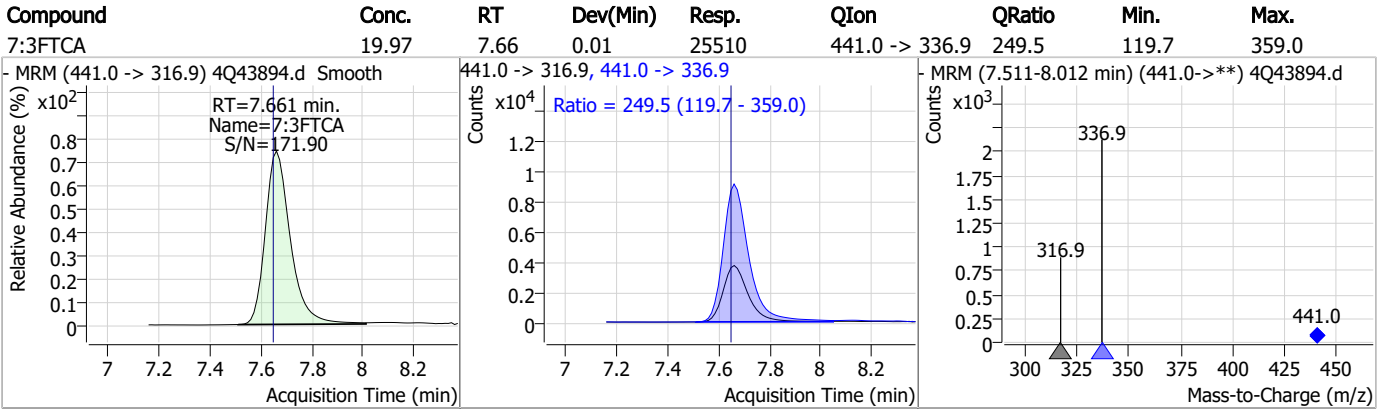
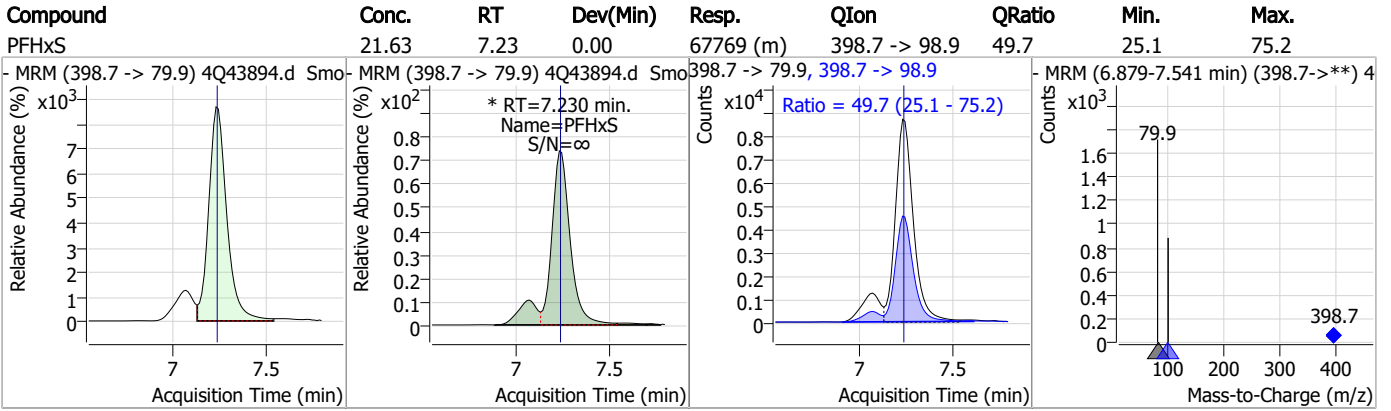
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



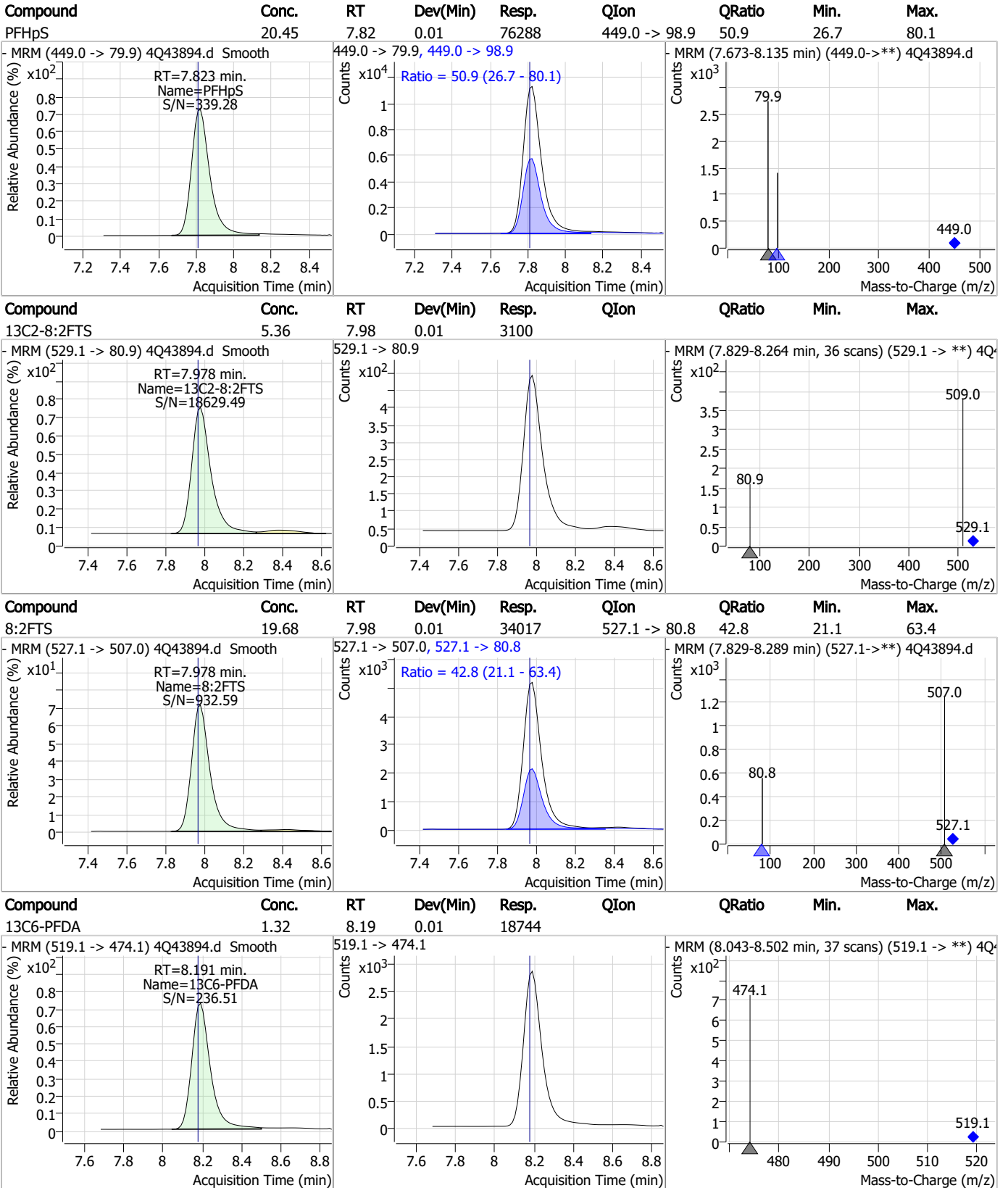
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



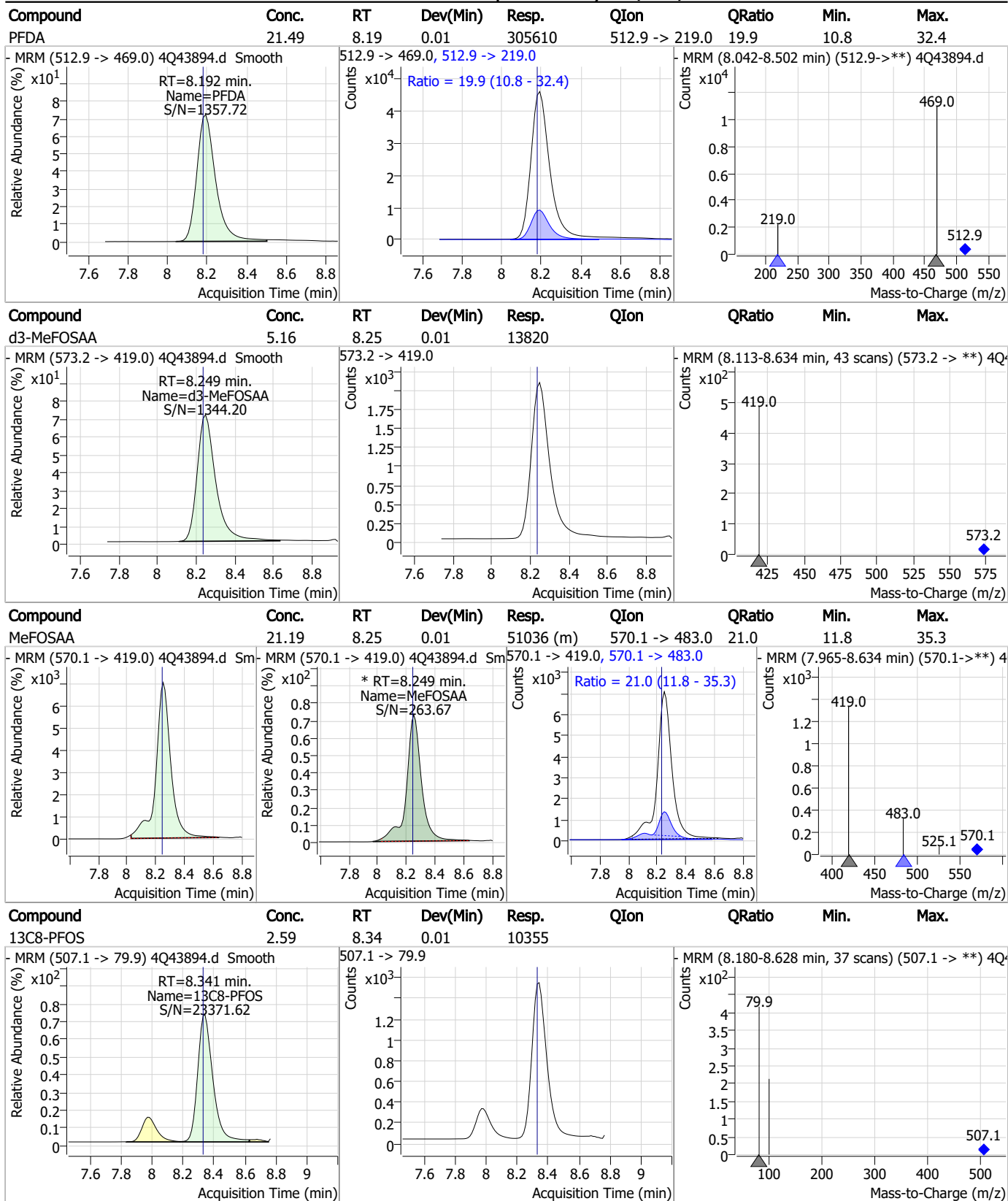
7.7.10
7

Perfluorinated Compounds by LC/MS/MS



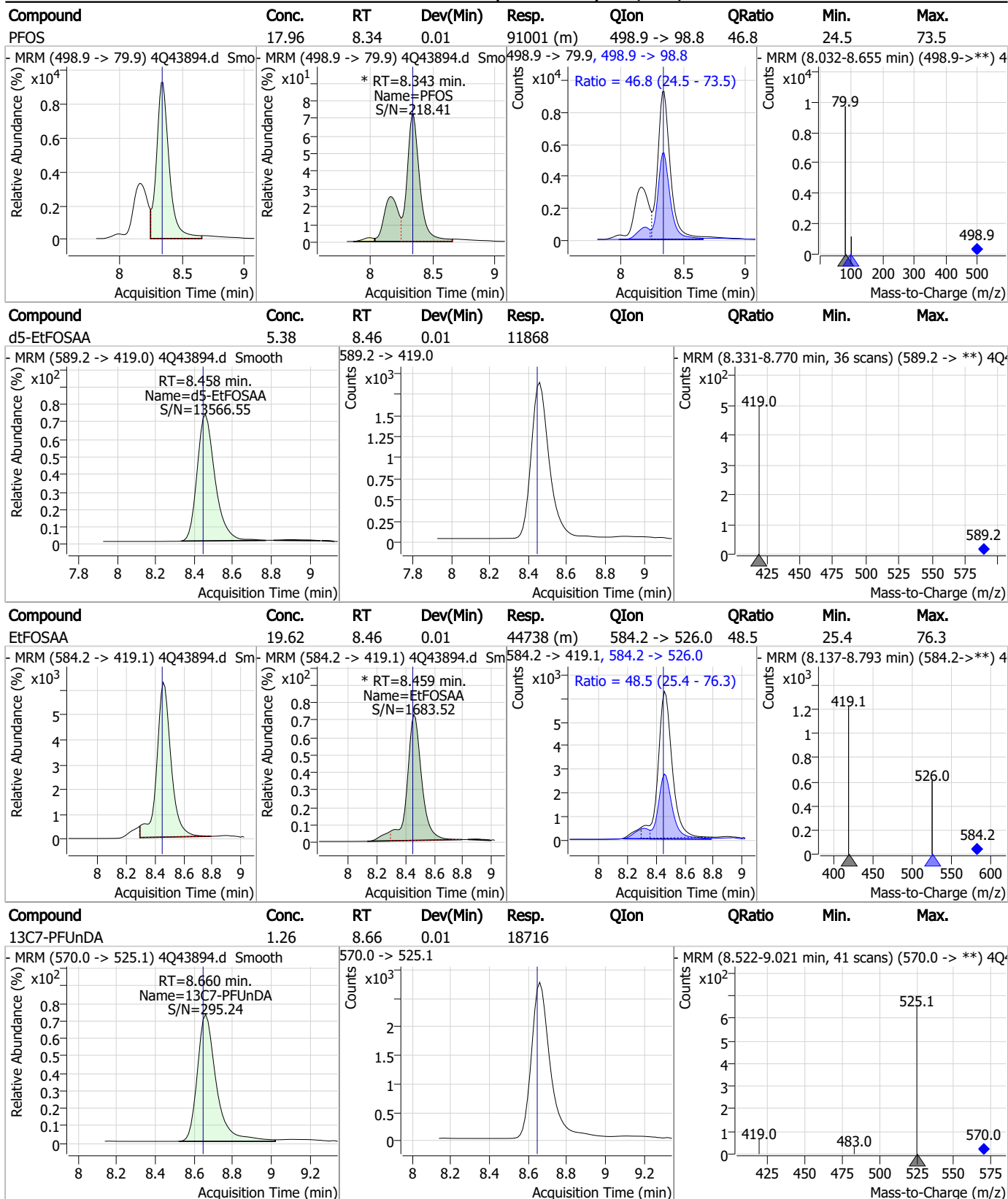
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



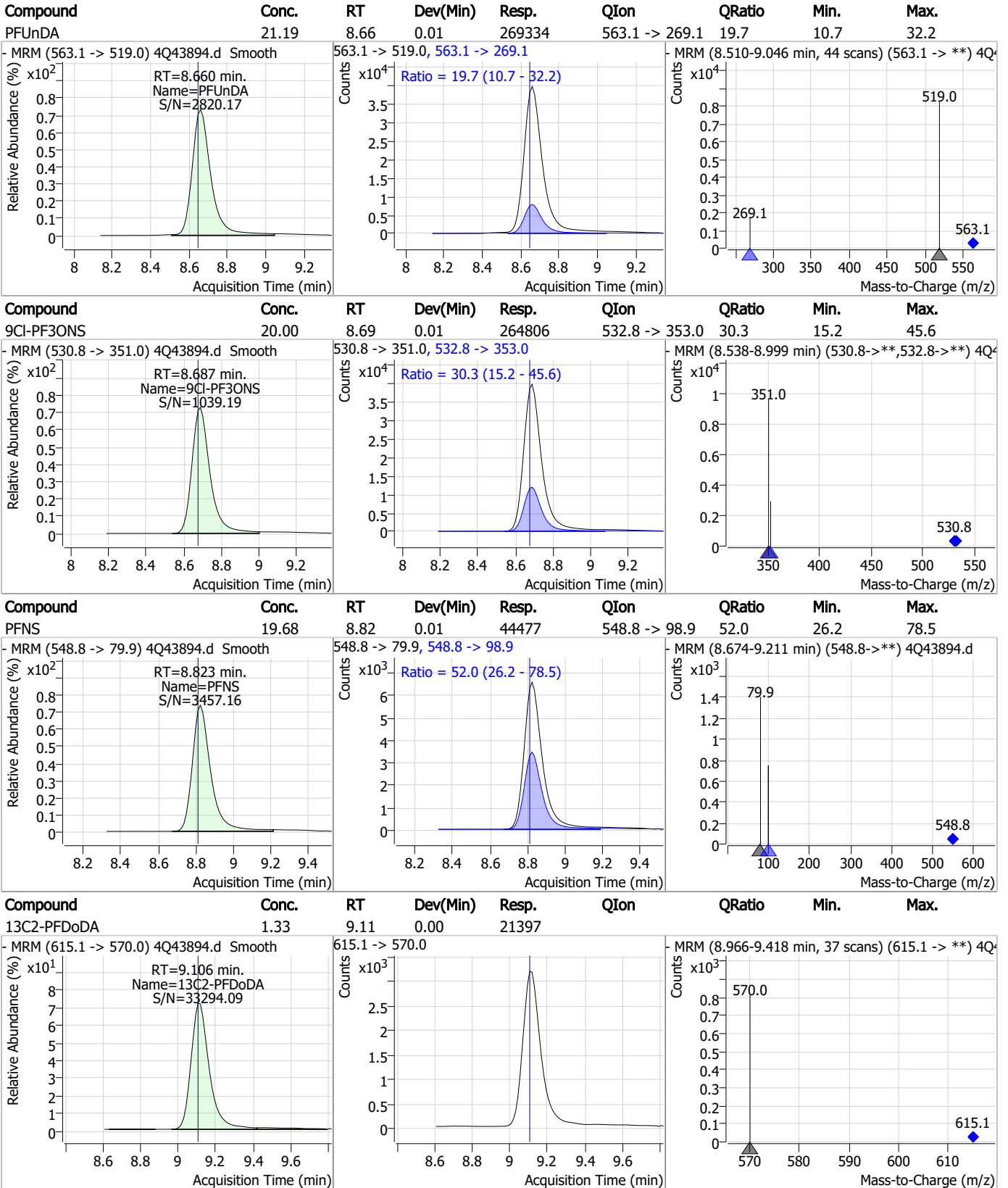
7.7.10
7

Perfluorinated Compounds by LC/MS/MS



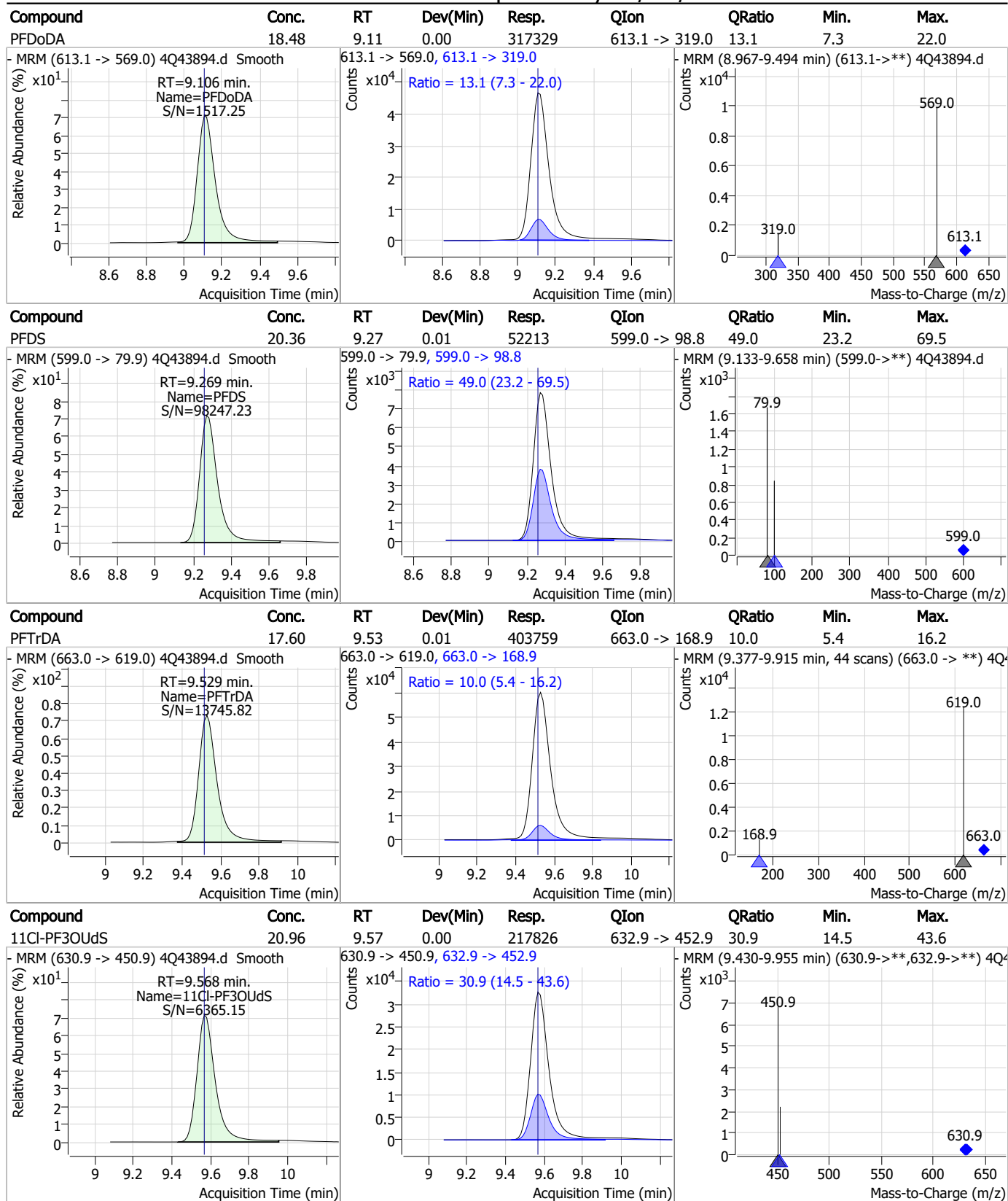
7.7.10
7

Perfluorinated Compounds by LC/MS/MS



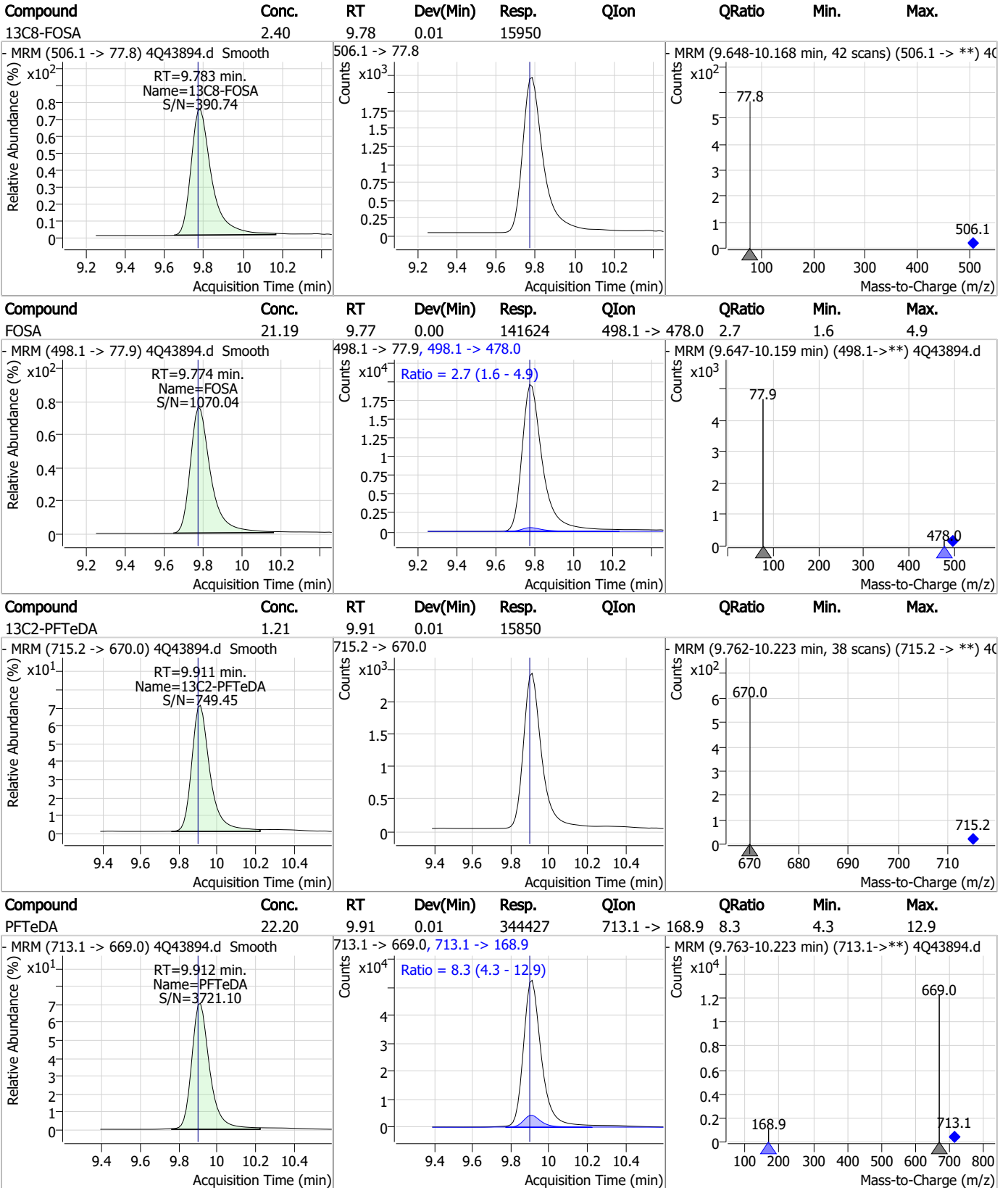
7.7.10 7

Perfluorinated Compounds by LC/MS/MS



7.7.10 7

Perfluorinated Compounds by LC/MS/MS

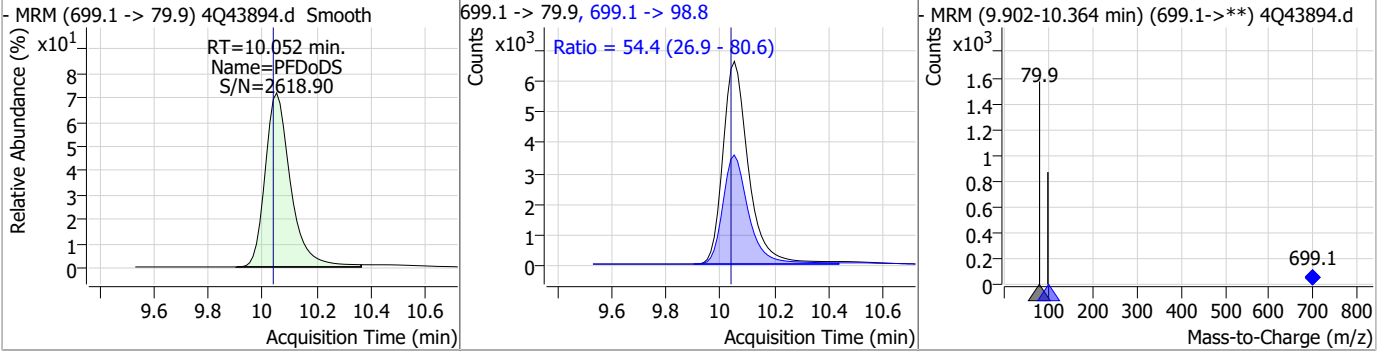


7.7.10 7

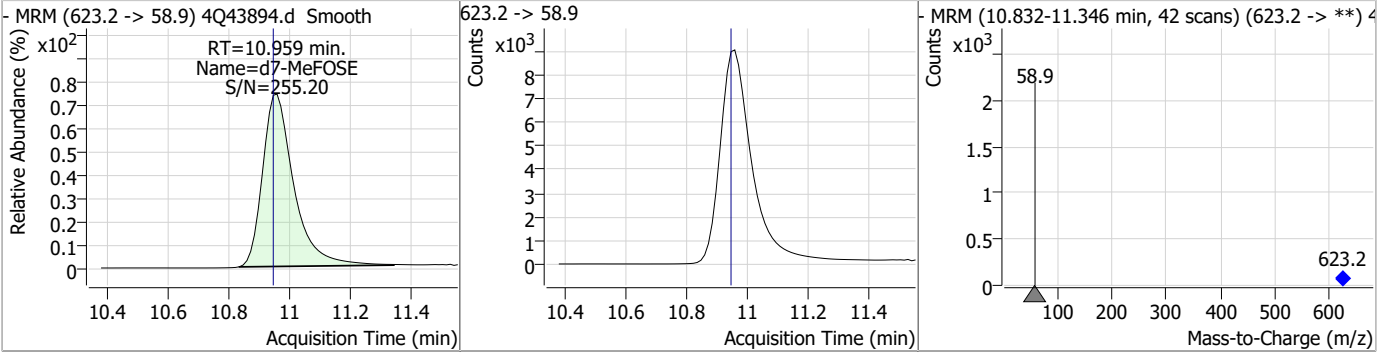


Perfluorinated Compounds by LC/MS/MS

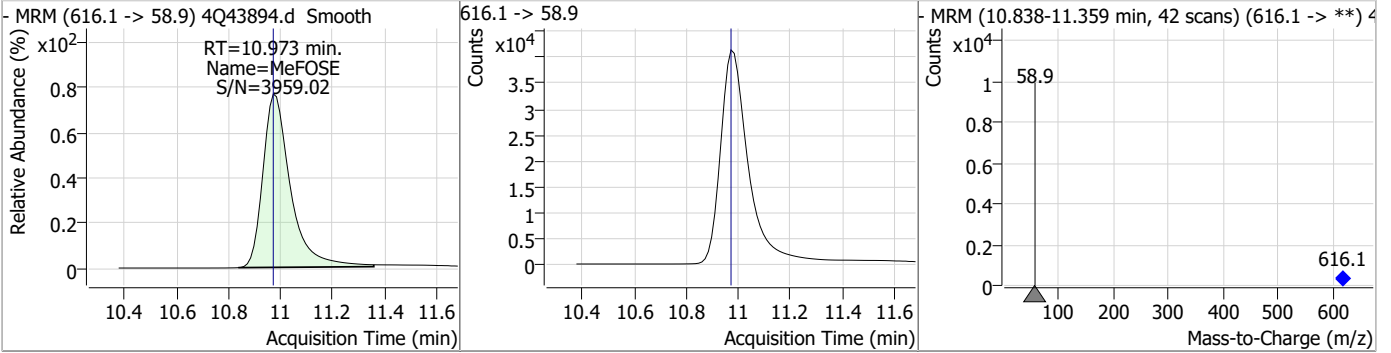
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	18.91	10.05	0.01	43287	699.1 -> 98.8	54.4	26.9	80.6



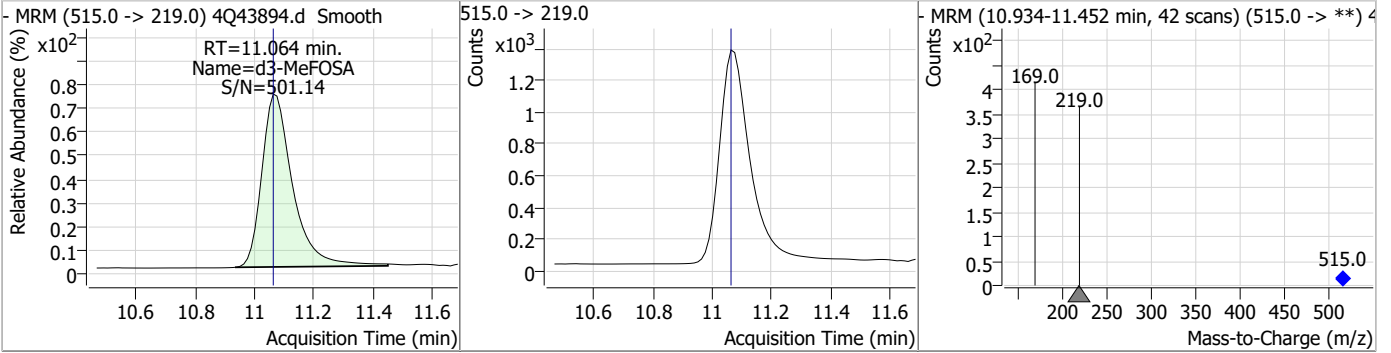
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	19.41	10.96	0.01	64121				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	115.45	10.97	0.00	304054				



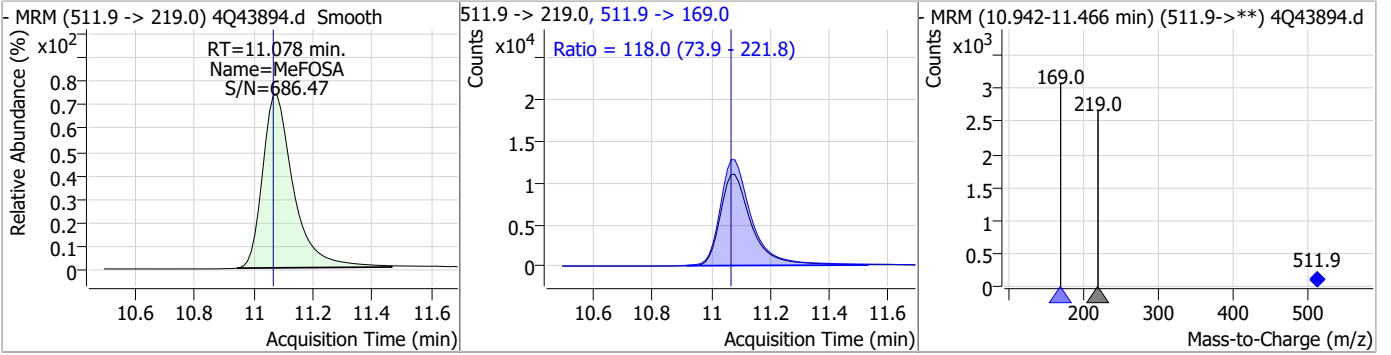
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.33	11.06	0.00	9720				



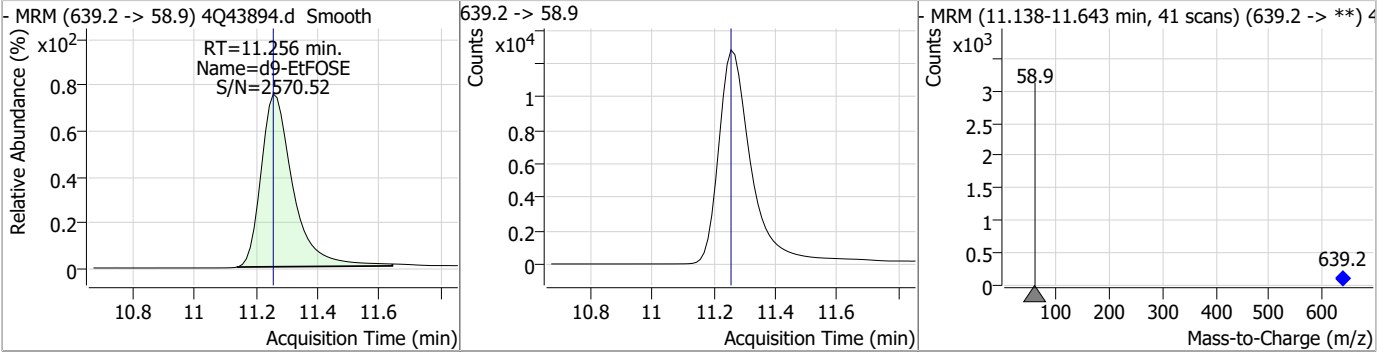
7.7.10 7

Perfluorinated Compounds by LC/MS/MS

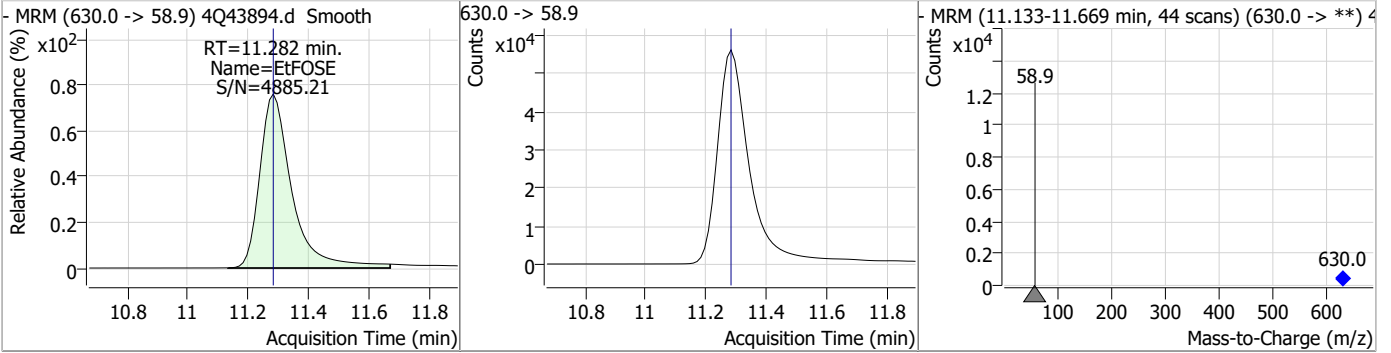
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	21.62	11.08	0.01	79178	511.9 -> 169.0	118.0	73.9	221.8



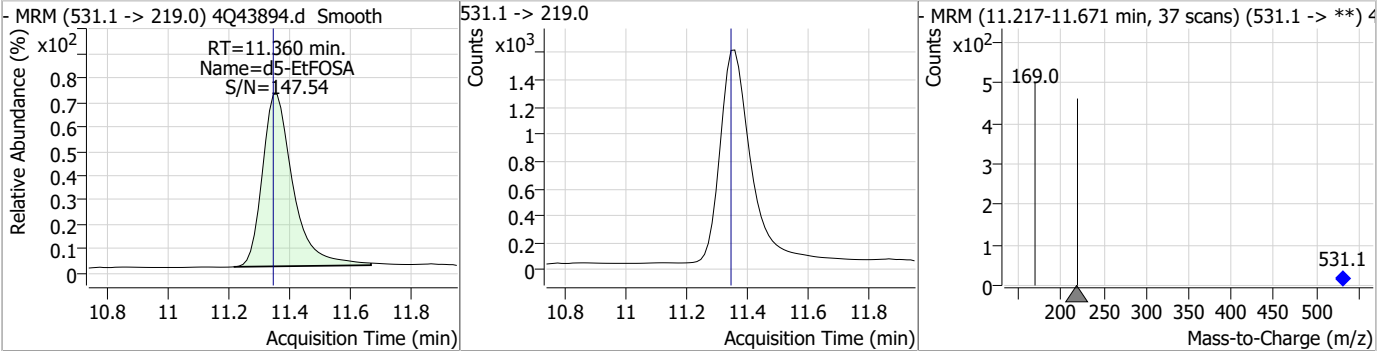
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.44	11.26	0.00	90962	639.2 -> 58.9			



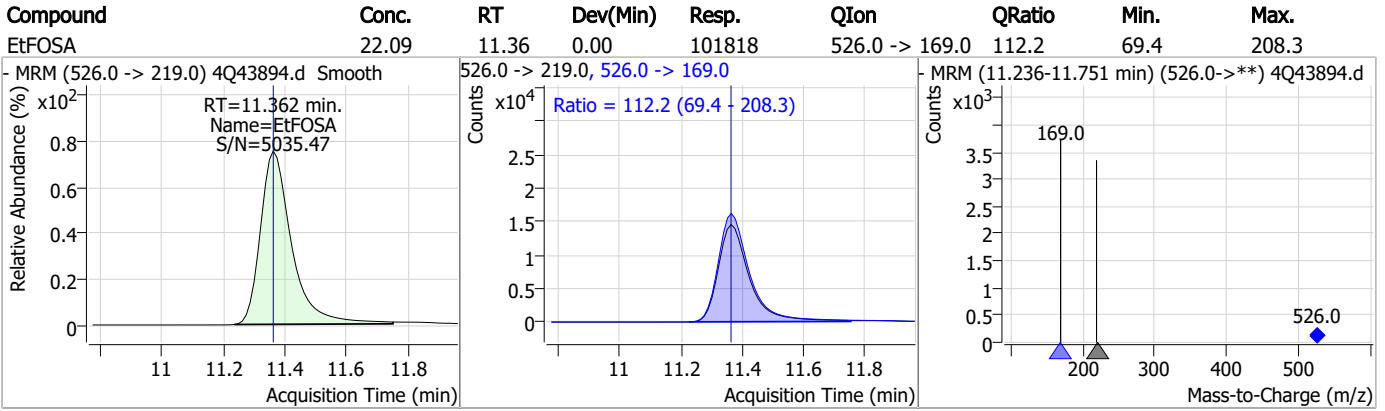
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	117.54	11.28	0.00	413915	630.0 -> 58.9			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.49	11.36	0.01	11004	531.1 -> 219.0			



Perfluorinated Compounds by LC/MS/MS



7.7.10
7



Manual Integration Approval Summary

Sample Number: S4Q634-ICV634 Method: EPA DRAFT 1633
Lab FileID: 4Q43894.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 13:20 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.23	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.46	Split peak

7.7.10.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43895.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/3/2023 1:35:25 PM
 Sample Name : icv634-4
 Vial : P1-B3
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q634.batch.bin
 Sample Information : OP96548,S4Q634,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.990	216.8 -> 171.9	136957	10.00 µg/L	0.066
M5-PFPeA	4.400	268.3 -> 223.0	70717	5.00 µg/L	0.037
M5-PFHxA	5.547	318.0 -> 273.0	48764	2.50 µg/L	0.012
M4-PFHpA	6.480	367.1 -> 322.0	29013	2.50 µg/L	0.012
M8-PFOA	7.136	421.1 -> 376.0	46078	2.50 µg/L	0.012
M9-PFNA	7.684	472.1 -> 427.0	21117	1.25 µg/L	0.013
M6-PFDA	8.191	519.1 -> 474.1	20281	1.25 µg/L	0.013
M7-PFUnDA	8.660	570.0 -> 525.1	20063	1.25 µg/L	0.013
M2-PFDoDA	9.106	615.1 -> 570.0	22329	1.25 µg/L	0.000
M2-PFTeDA	9.911	715.2 -> 670.0	15785	1.25 µg/L	0.012
M8-FOSA	9.783	506.1 -> 77.8	17104	2.50 µg/L	0.012
M3-PFBS	5.452	302.1 -> 79.9	11932	2.50 µg/L	0.025
M3-PFHxS	7.242	402.1 -> 79.9	8020	2.50 µg/L	0.012
M8-PFOS	8.341	507.1 -> 79.9	11596	2.50 µg/L	0.012
M2-4:2FTS	5.247	329.1 -> 80.9	1099	5.00 µg/L	0.025
M2-6:2FTS	6.911	429.1 -> 80.9	2057	5.00 µg/L	0.012
M2-8:2FTS	7.978	529.1 -> 80.9	3256	5.00 µg/L	0.012
M3-MeFOSAA	8.249	573.2 -> 419.0	14953	5.00 µg/L	0.012
M3-HFPO-DA	5.914	286.9 -> 168.9	28932	10.00 µg/L	0.025
M5-EtFOSAA	8.458	589.2 -> 419.0	12315	5.00 µg/L	0.012
M7-MeFOSE	10.959	623.2 -> 58.9	71810	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	98159	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11972	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	10103	2.50 µg/L	0.000
13C4-PFOS	8.342	502.8 -> 79.9	11566	2.50 µg/L	0.012
13C3-PFBA	2.993	216.0 -> 172.0	73121	5.00 µg/L	0.065
18O2-PFHxS	7.241	403.0 -> 83.9	5173	2.50 µg/L	0.012
13C4-PFOA	7.136	417.1 -> 372.0	54623	2.50 µg/L	0.012
13C2-PFDA	8.191	515.1 -> 470.1	17040	1.25 µg/L	0.013
13C5-PFNA	7.684	468.0 -> 423.0	24797	1.25 µg/L	0.000
13C2-PFHxA	5.548	315.1 -> 270.0	44958	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.247	329.1 -> 80.9	1099	5.23 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.5%		
13C2-6:2FTS	6.911	429.1 -> 80.9	2057	5.43 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.5%		
13C2-8:2FTS	7.978	529.1 -> 80.9	3256	5.50 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.1%		
13C2-PFDoDA	9.106	615.1 -> 570.0	22329	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 108.2%		
13C2-PFTeDA	9.911	715.2 -> 670.0	15785	1.17 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.0%		
13C3-PFBS	5.452	302.1 -> 79.9	11932	2.45 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFHxS	7.242	402.1 -> 79.9	8020	2.50 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 = 100.0%	
13C4-PFBA	2.990	216.8 -> 171.9	136957	9.95 µg/L	0.066
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.480	367.1 -> 322.0	29013	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.3%	
13C5-PFHxA	5.547	318.0 -> 273.0	48764	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
13C5-PFPeA	4.400	268.3 -> 223.0	70717	5.11 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C6-PFDA	8.191	519.1 -> 474.1	20281	1.39 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C7-PFUnDA	8.660	570.0 -> 525.1	20063	1.32 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-FOSA	9.783	506.1 -> 77.8	17104	2.36 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-PFOA	7.136	421.1 -> 376.0	46078	2.57 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.8%	
13C8-PFOS	8.341	507.1 -> 79.9	11596	2.66 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C9-PFNA	7.684	472.1 -> 427.0	21117	1.25 µg/L	0.013
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
d3-MeFOSAA	8.249	573.2 -> 419.0	14953	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	28932	9.78 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.8%	
d3-MeFOSA	11.064	515.0 -> 219.0	10103	2.23 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.1%	
d5-EtFOSAA	8.458	589.2 -> 419.0	12315	5.12 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.4%	
d7-MeFOSE	10.959	623.2 -> 58.9	71810	19.96 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.8%	
d9-EtFOSE	11.256	639.2 -> 58.9	98159	19.26 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 77.1%	
d5-EtFOSA	11.360	531.1 -> 219.0	11972	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
Target Compounds					QValue
4:2FTS	5.248	327.1 -> 307.0	17022	9.63 µg/L	92
		327.1 -> 80.9	7103		
6:2FTS	6.911	427.1 -> 407.0	19013	9.57 µg/L	100
		427.1 -> 80.9	7983		
8:2FTS	7.978	527.1 -> 507.0	16889	9.30 µg/L	93
		527.1 -> 80.8	7840		
EtFOSAA	8.459	584.2 -> 419.1	5858	2.48 µg/L	m 90
		584.2 -> 526.0	2583		
FOSA	9.774	498.1 -> 77.9	17018	2.37 µg/L	99
		498.1 -> 478.0	486		
MeFOSAA	8.249	570.1 -> 419.0	6285	2.41 µg/L	m 90
		570.1 -> 483.0	1173		
PFBA	2.996	212.8 -> 168.9	35422	9.66 µg/L	100
PFBS	5.453	298.7 -> 79.9	10405	2.13 µg/L	98
		298.7 -> 98.8	4122		
PFDA	8.192	512.9 -> 469.0	36831	2.39 µg/L	97
		512.9 -> 219.0	7422		
PFDODA	9.106	613.1 -> 569.0	43500	2.43 µg/L	99
		613.1 -> 319.0	6222		
PFDS	9.269	599.0 -> 79.9	6110	2.13 µg/L	97

7.7.11
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2952			
PFHpA	6.480	363.1 -> 319.0	45710	2.49	µg/L	100
		363.1 -> 169.0	8223			
PFHpS	7.823	449.0 -> 79.9	9547	2.29	µg/L	98
		449.0 -> 98.9	4967			
PFHxA	5.550	313.0 -> 269.0	46362	2.43	µg/L	99
		313.0 -> 118.9	1480			
PFHxS	7.243	398.7 -> 79.9	7386	2.25	µg/L	m 97
		398.7 -> 98.9	3843			
PFNA	7.685	463.0 -> 419.0	37870	2.42	µg/L	100
		463.0 -> 219.0	9515			
PFNS	8.823	548.8 -> 79.9	5473	2.16	µg/L	99
		548.8 -> 98.9	2902			
PFOA	7.137	413.0 -> 369.0	64985	2.44	µg/L	99
		413.0 -> 169.0	12350			
PFOS	8.343	498.9 -> 79.9	12171	2.14	µg/L	m 97
		498.9 -> 98.8	6199			
PFPeA	4.402	263.0 -> 219.0	82728	4.86	µg/L	100
PFPeS	6.519	349.1 -> 79.9	6083	2.16	µg/L	99
		349.1 -> 98.9	2767			
PFTeDA	9.912	713.1 -> 669.0	39752	2.57	µg/L	98
		713.1 -> 168.9	3141			
PFTrDA	9.529	663.0 -> 619.0	55701	2.33	µg/L	99
		663.0 -> 168.9	5752			
PFUnDA	8.660	563.1 -> 519.0	34545	2.54	µg/L	95
		563.1 -> 269.1	6627			
11CI-PF3OUdS	9.568	630.9 -> 450.9	48981	4.71	µg/L	97
		632.9 -> 452.9	14928			
9CI-PF3ONS	8.687	530.8 -> 351.0	61516	4.64	µg/L	98
		532.8 -> 353.0	18165			
ADONA	6.743	376.9 -> 250.9	136907	4.71	µg/L	99
		376.9 -> 84.8	36276			
HFPO-DA	5.915	284.9 -> 168.9	14361	5.19	µg/L	98
		284.9 -> 184.9	1759			
3:3FTCA	3.892	241.0 -> 177.0	9341	12.48	µg/L	98
		241.0 -> 117.0	863			
5:3FTCA	6.217	341.0 -> 237.1	158885	61.29	µg/L	99
		341.0 -> 217.0	109735			
7:3FTCA	7.661	441.0 -> 316.9	85269	63.30	µg/L	99
		441.0 -> 336.9	203049			
EtFOSA	11.362	526.0 -> 219.0	24230	4.83	µg/L	m 98
		526.0 -> 169.0	33119			
EtFOSE	11.282	630.0 -> 58.9	46860	12.33	µg/L	100
MeFOSA	11.078	511.9 -> 219.0	20921	5.50	µg/L	m 95
		511.9 -> 169.0	29592			
MeFOSE	10.973	616.1 -> 58.9	35294	11.97	µg/L	m 100
PFDoDS	10.052	699.1 -> 79.9	5598	2.18	µg/L	97
		699.1 -> 98.8	3120			
NFDHA	5.441	295.0 -> 201.0	6718	4.92	µg/L	99
		295.0 -> 84.9	1820			
PFMBA	4.791	279.0 -> 85.1	45480	4.79	µg/L	100
PFMPA	3.565	229.0 -> 84.9	42809	4.81	µg/L	100
PFEESA	5.984	314.8 -> 134.9	63619	4.40	µg/L	100
		314.8 -> 82.9	2308			

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

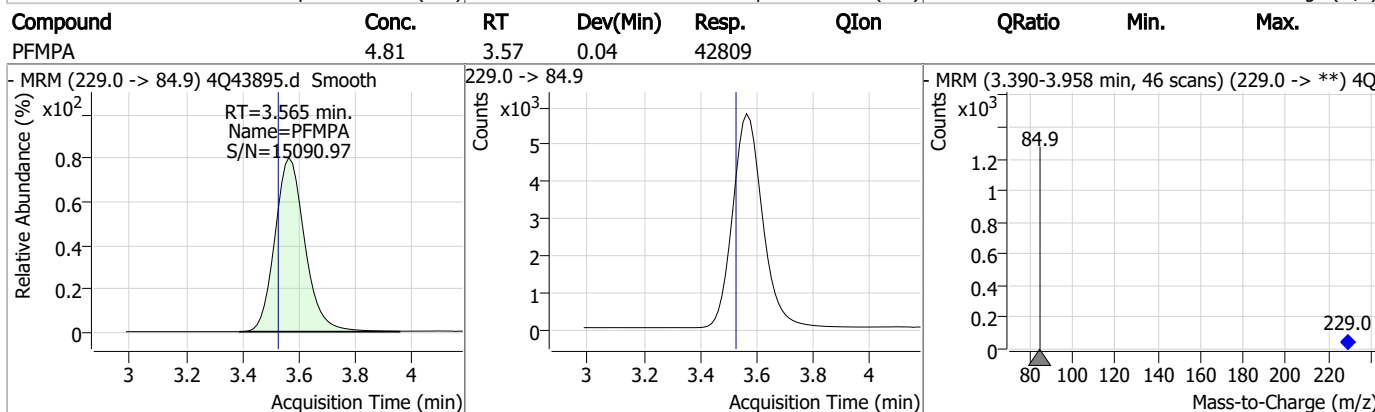
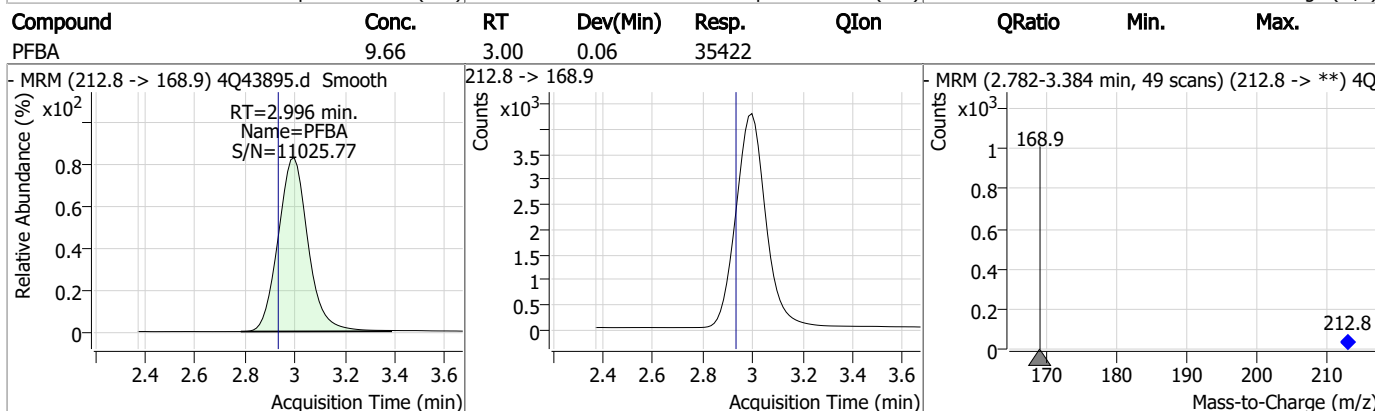
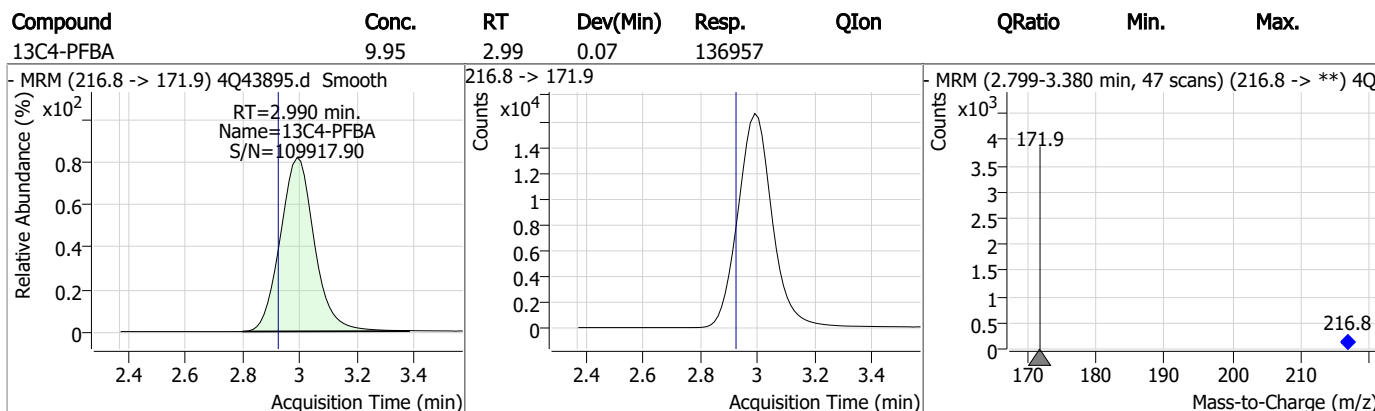
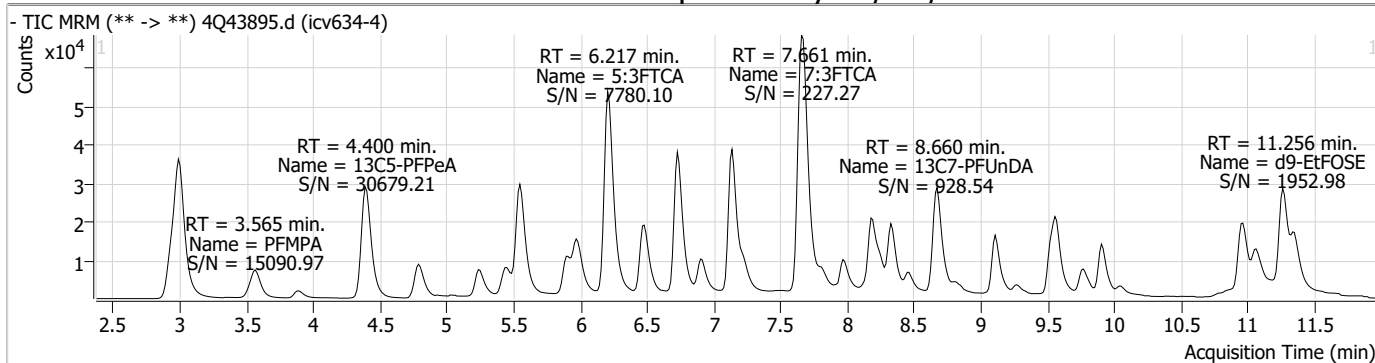
Perfluorinated Compounds by LC/MS/MS

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

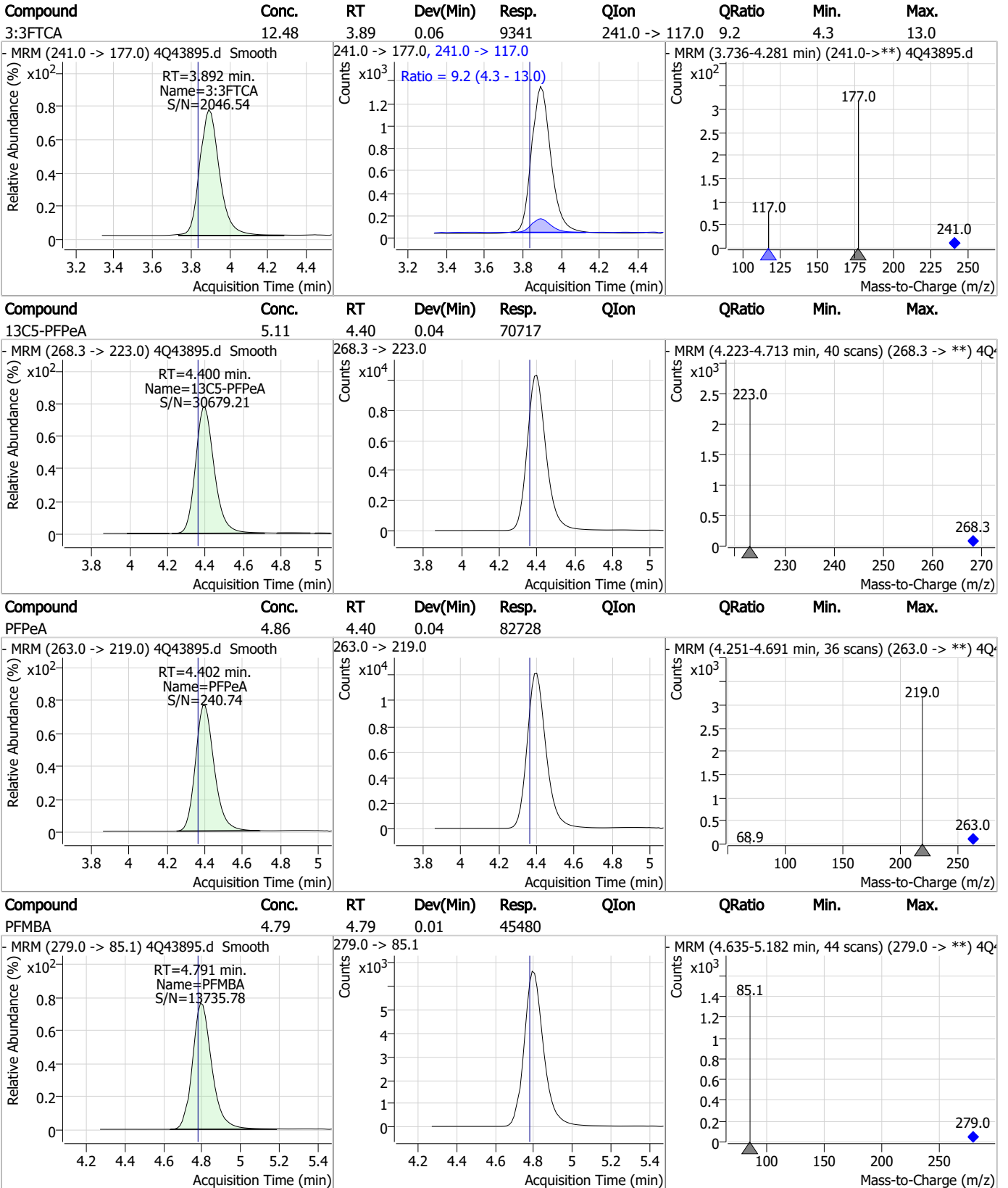
7.7.11

7

Perfluorinated Compounds by LC/MS/MS



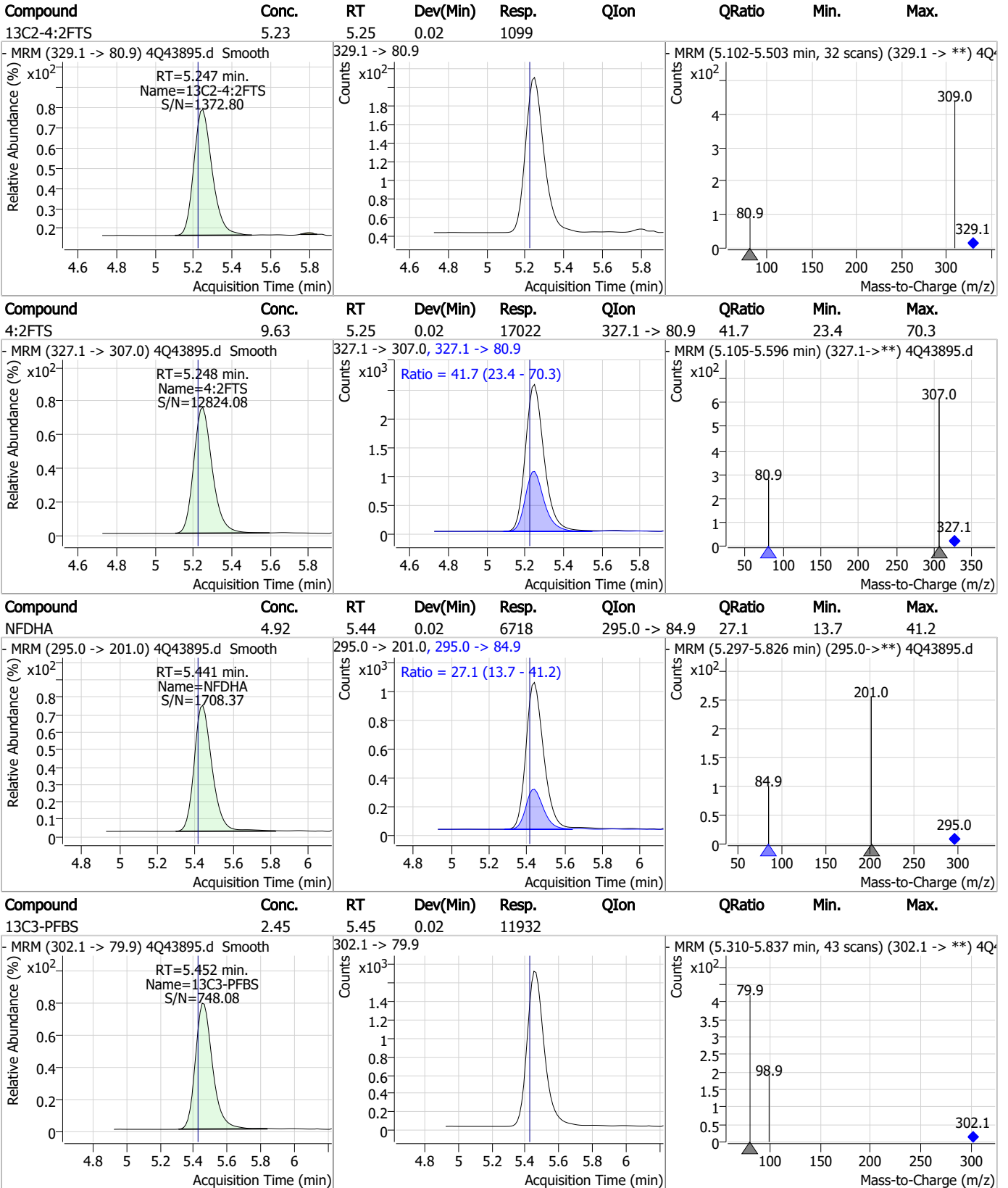
Perfluorinated Compounds by LC/MS/MS



7.7.11

7

Perfluorinated Compounds by LC/MS/MS

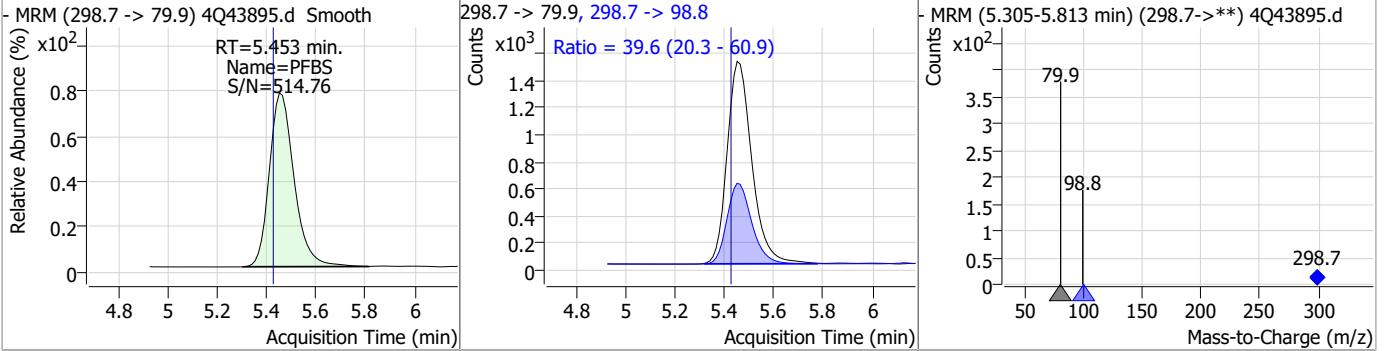


7.7.11

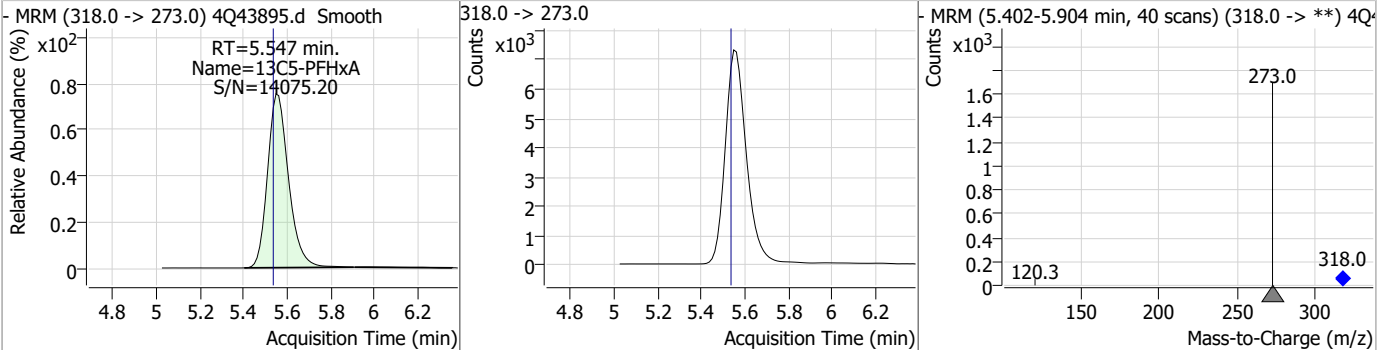
7

Perfluorinated Compounds by LC/MS/MS

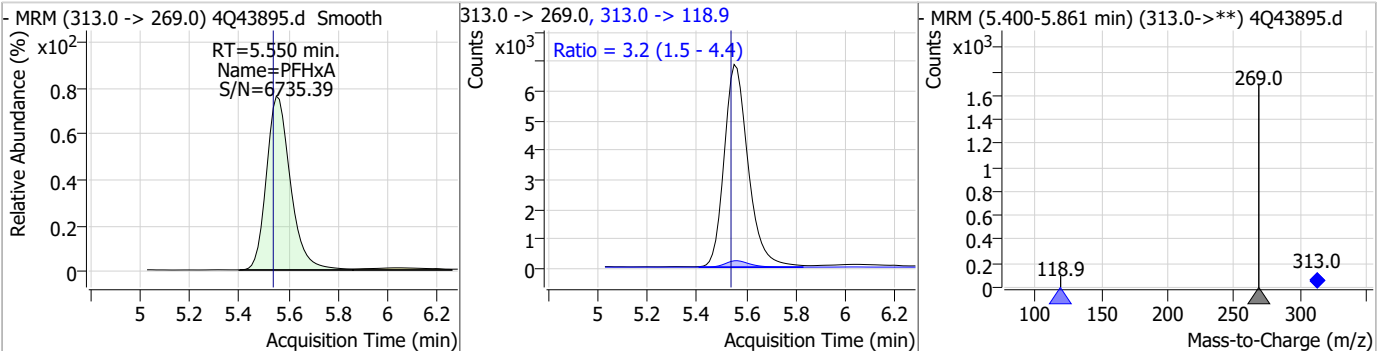
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.13	5.45	0.02	10405	298.7 -> 98.8	39.6	20.3	60.9



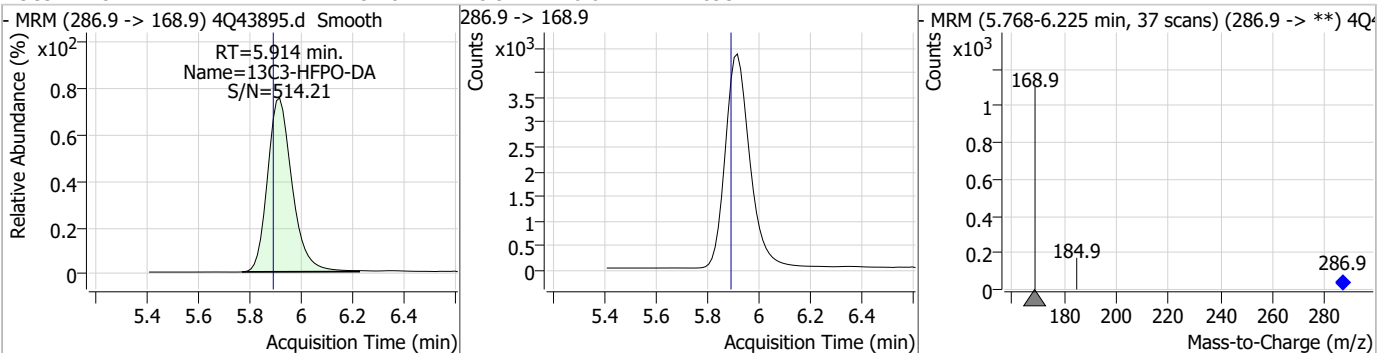
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.55	0.01	48764				



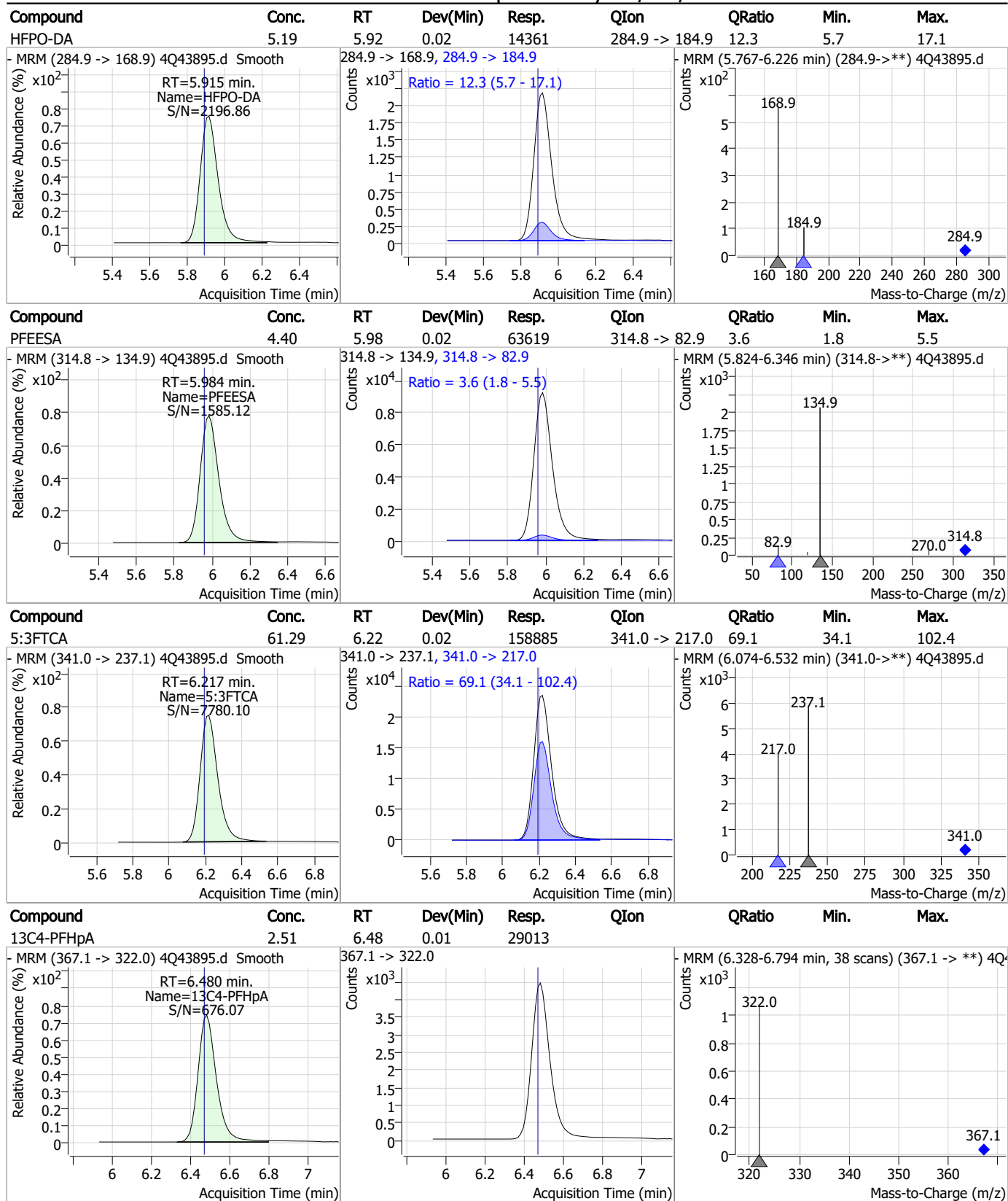
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.43	5.55	0.01	46362	313.0 -> 118.9	3.2	1.5	4.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.78	5.91	0.02	28932				

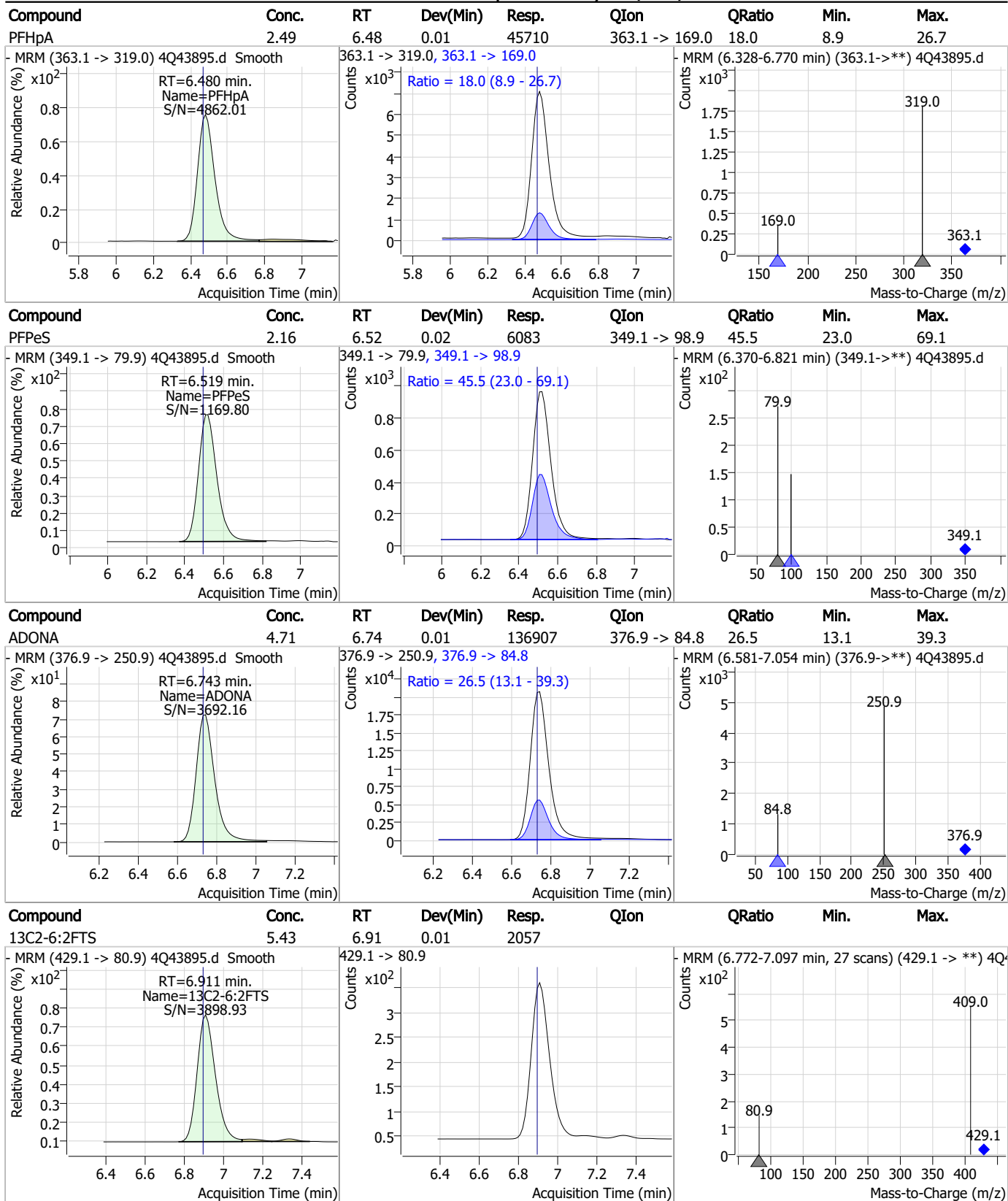


Perfluorinated Compounds by LC/MS/MS



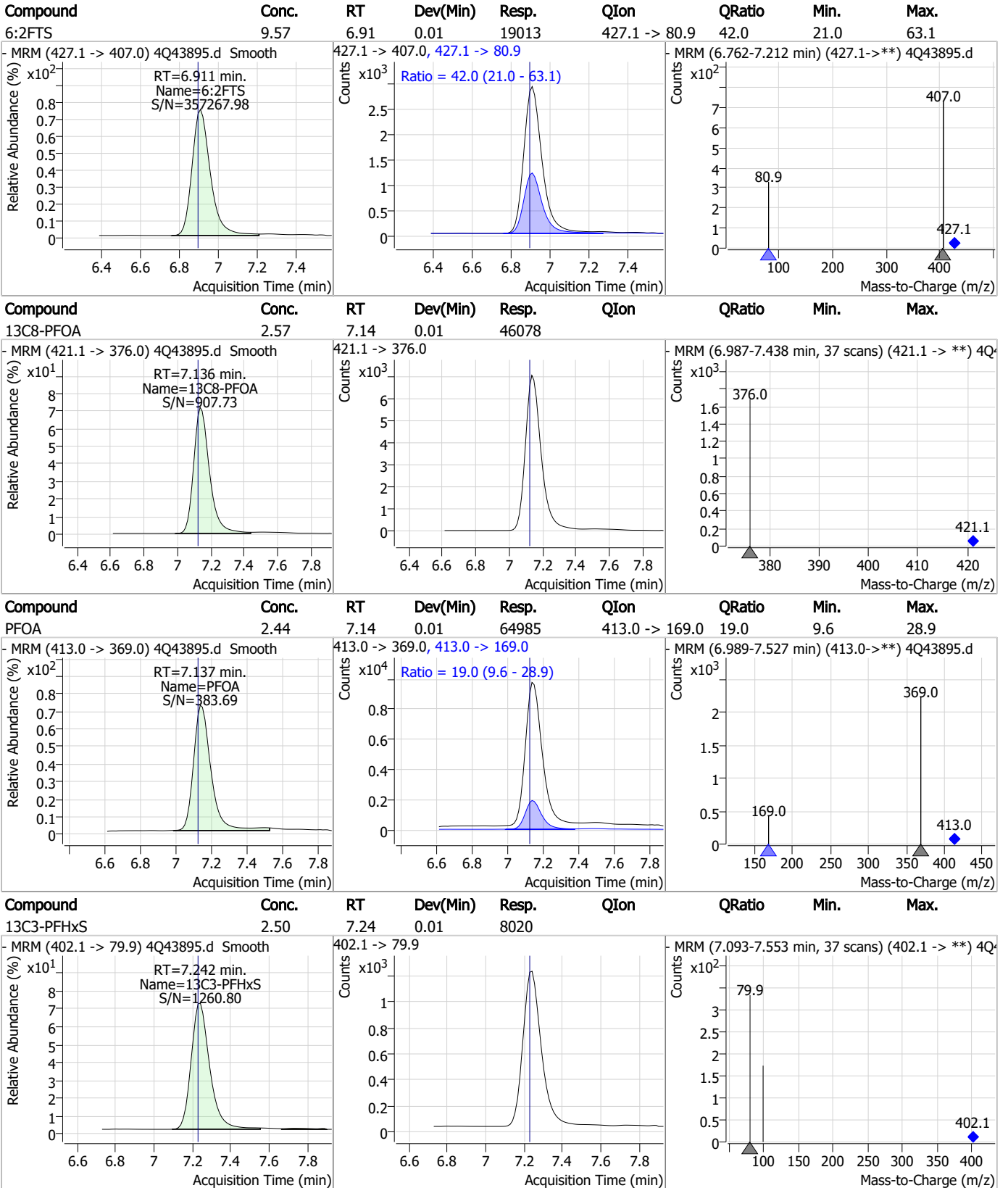
7.7.11
7

Perfluorinated Compounds by LC/MS/MS



7.7.11
7

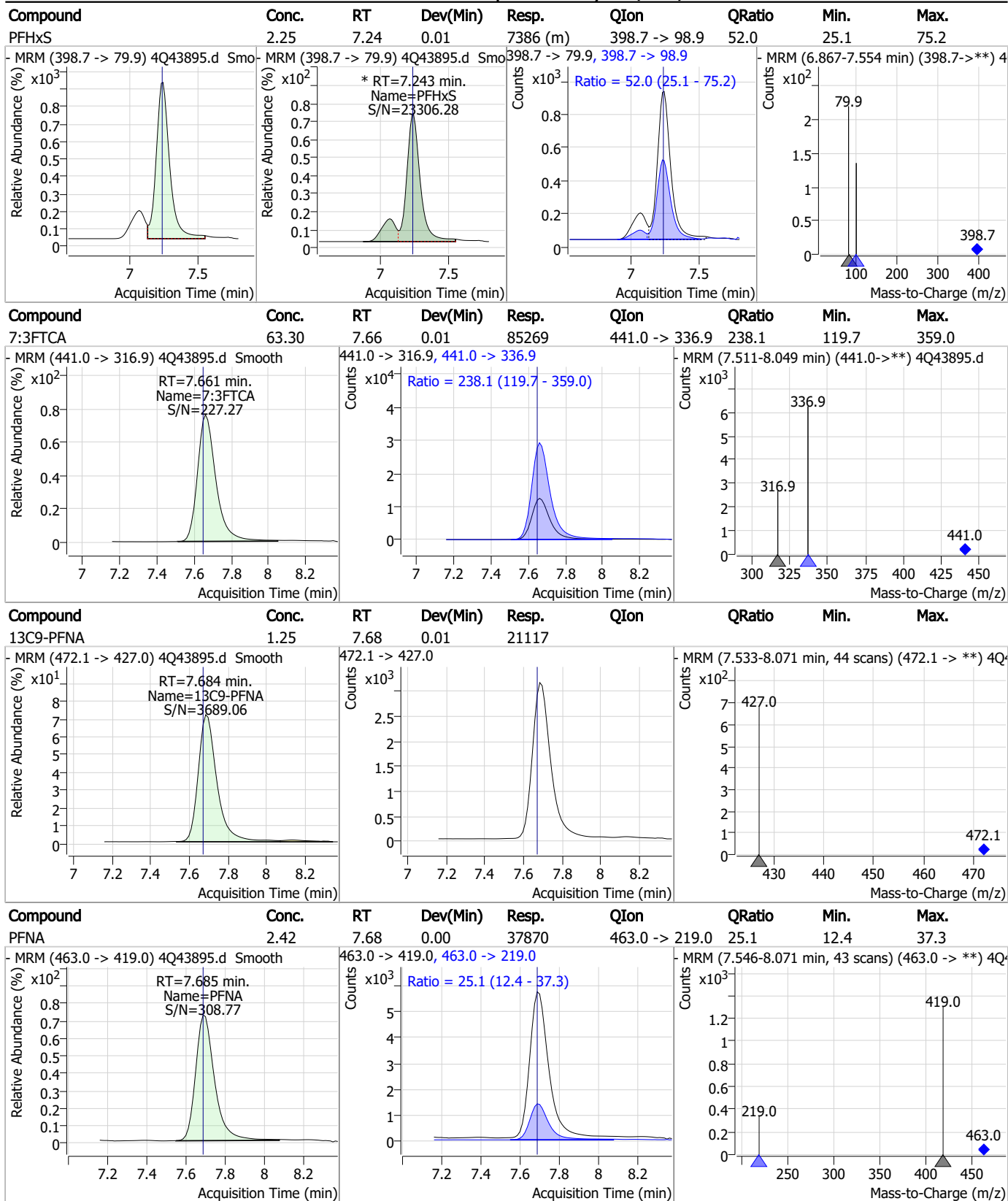
Perfluorinated Compounds by LC/MS/MS



7.7.11

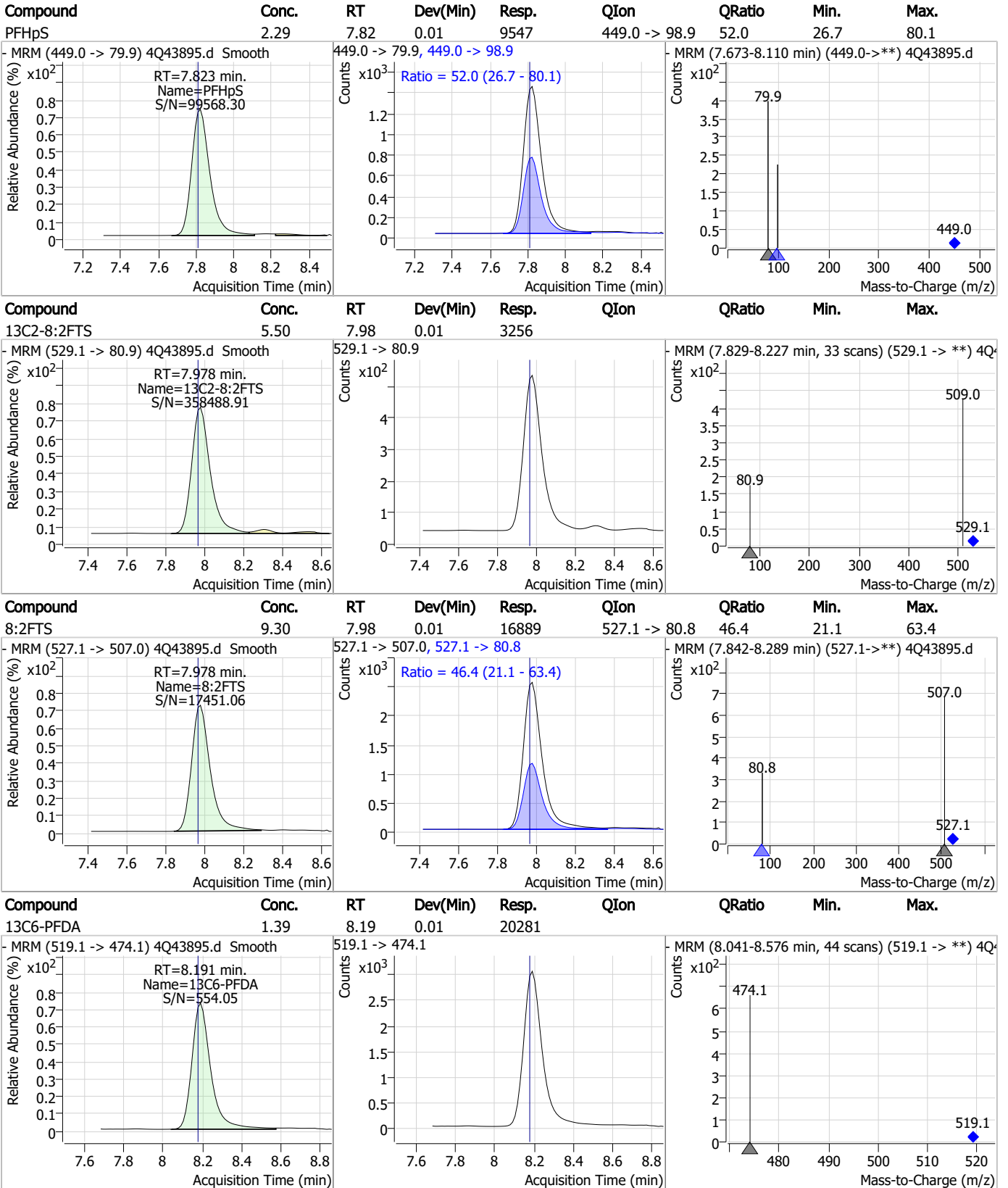
7

Perfluorinated Compounds by LC/MS/MS



7.7.11
7

Perfluorinated Compounds by LC/MS/MS

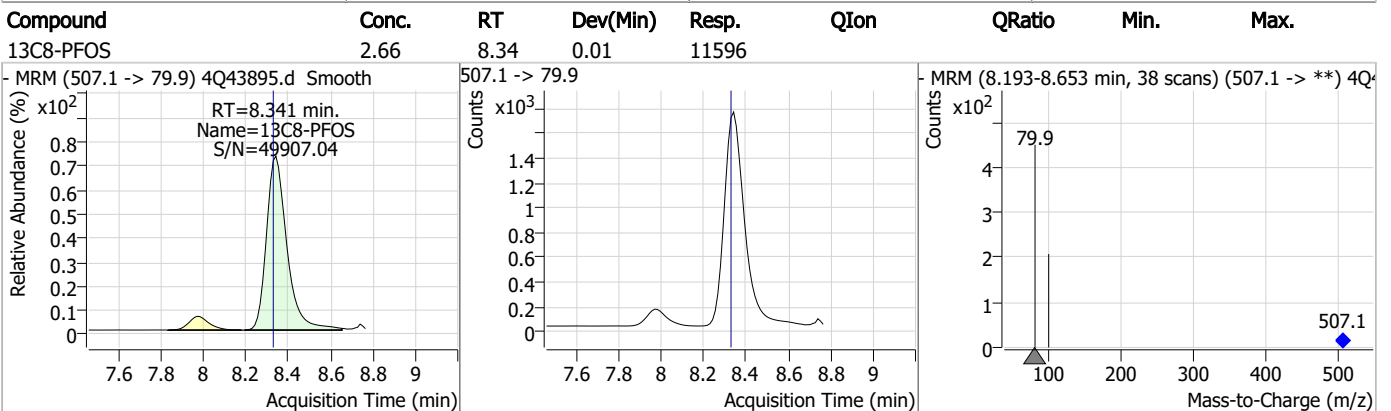
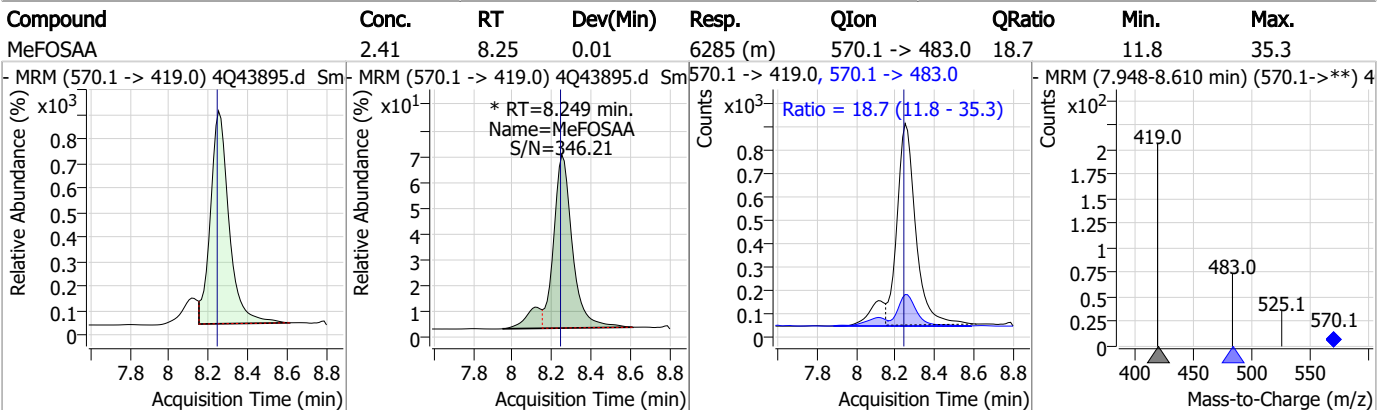
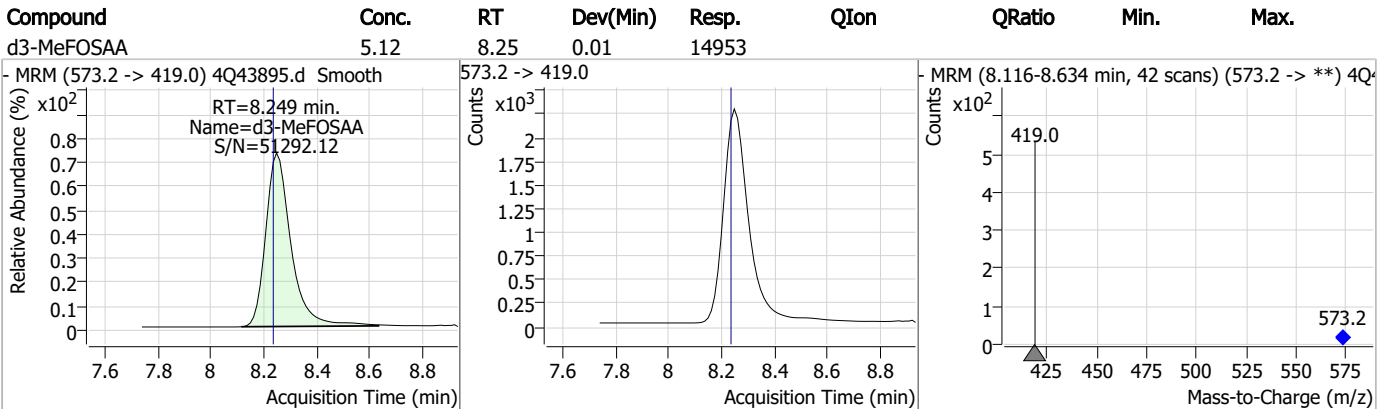
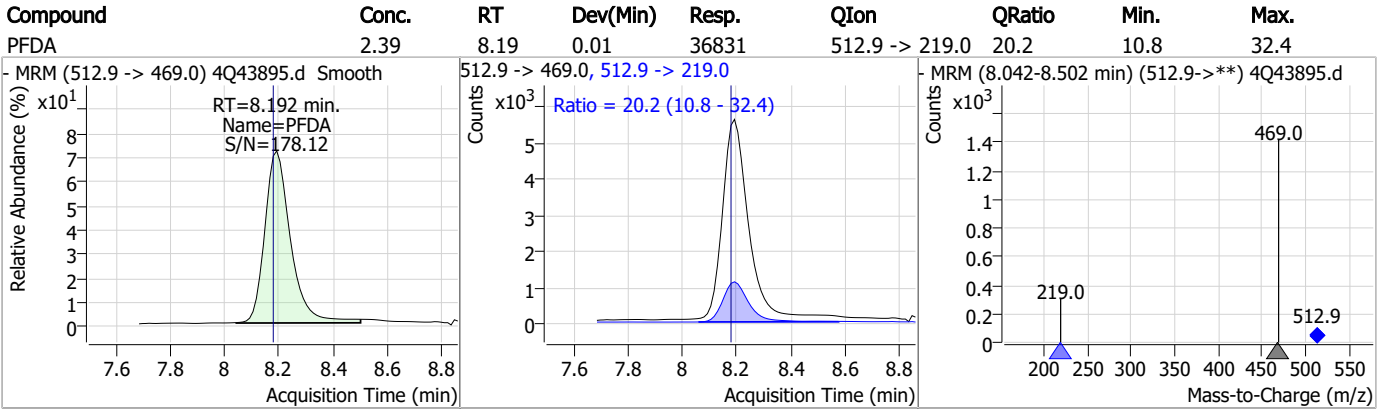


7.7.11

7



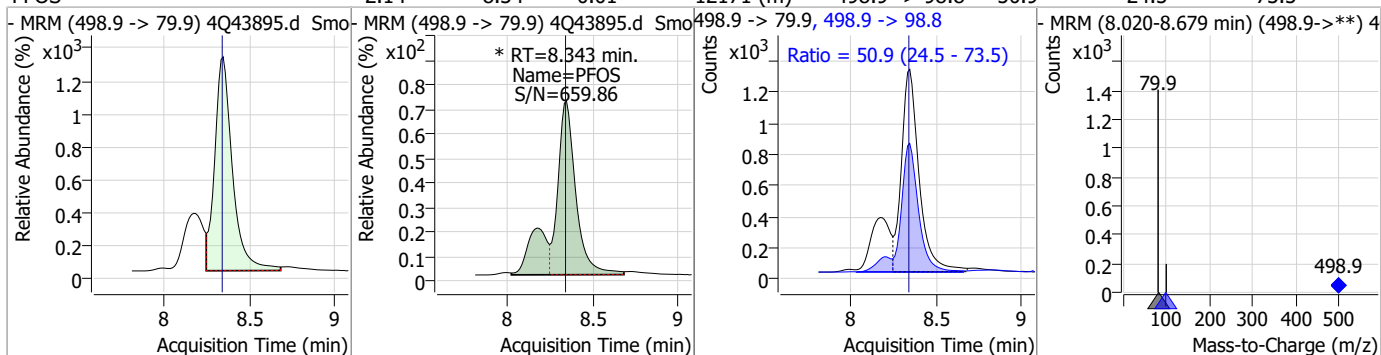
Perfluorinated Compounds by LC/MS/MS



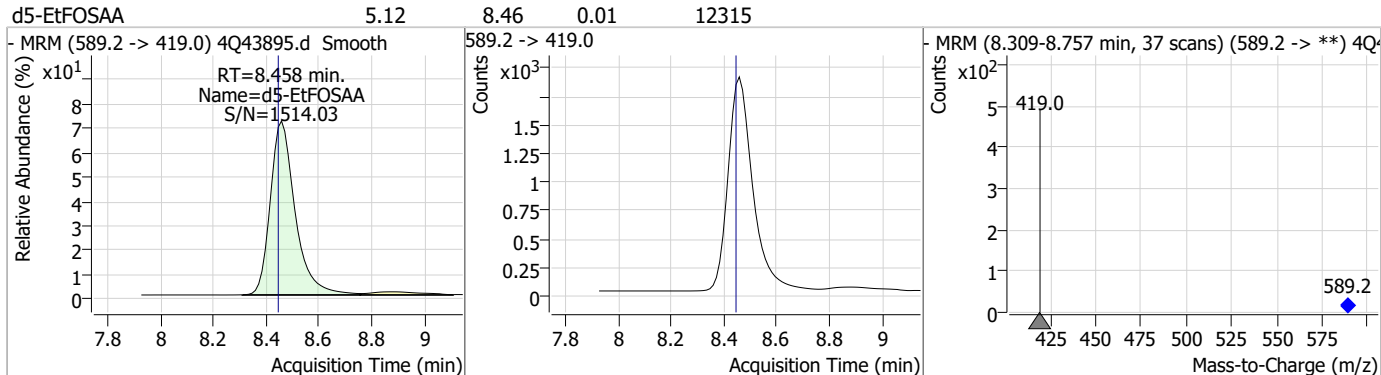
7.7.11
7

Perfluorinated Compounds by LC/MS/MS

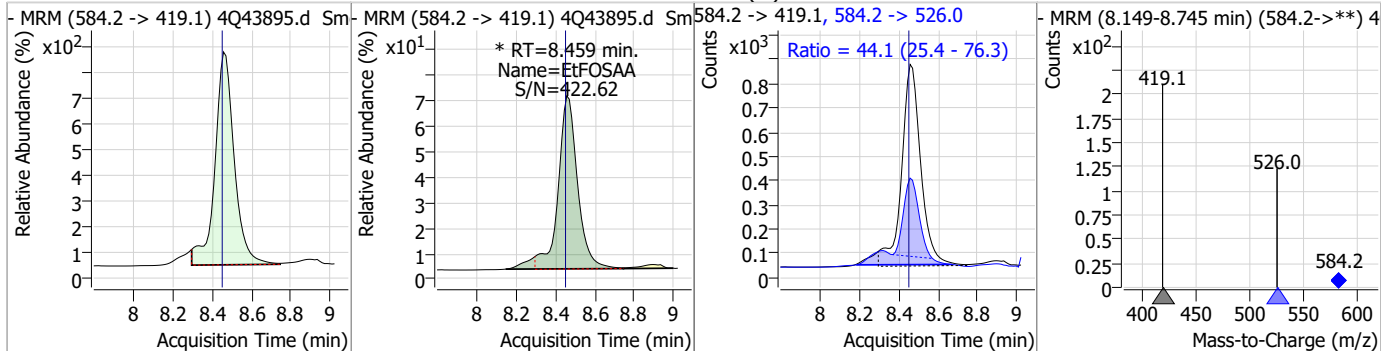
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.14	8.34	0.01	12171 (m)	498.9 -> 98.8	50.9	24.5	73.5



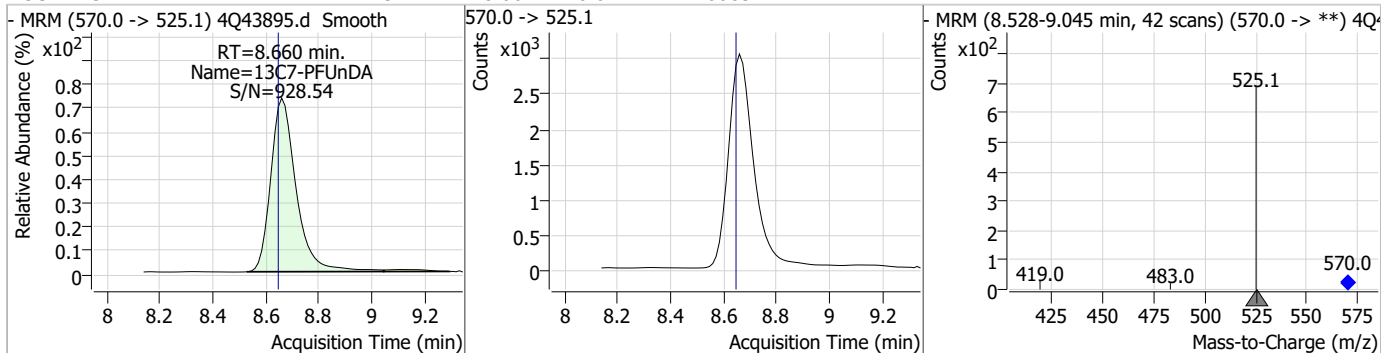
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.12	8.46	0.01	12315				



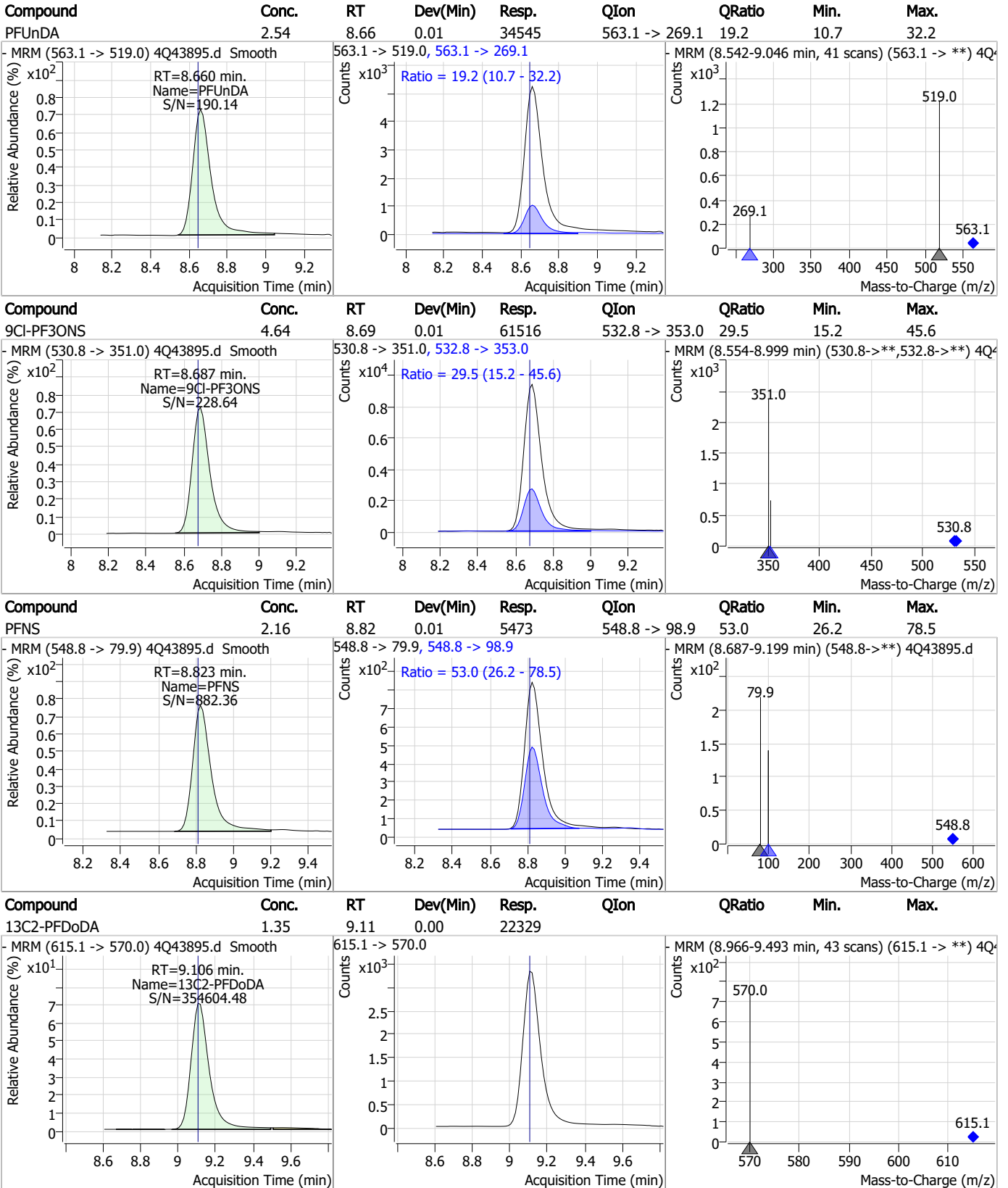
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	2.48	8.46	0.01	5858 (m)	584.2 -> 526.0	44.1	25.4	76.3



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.32	8.66	0.01	20063				

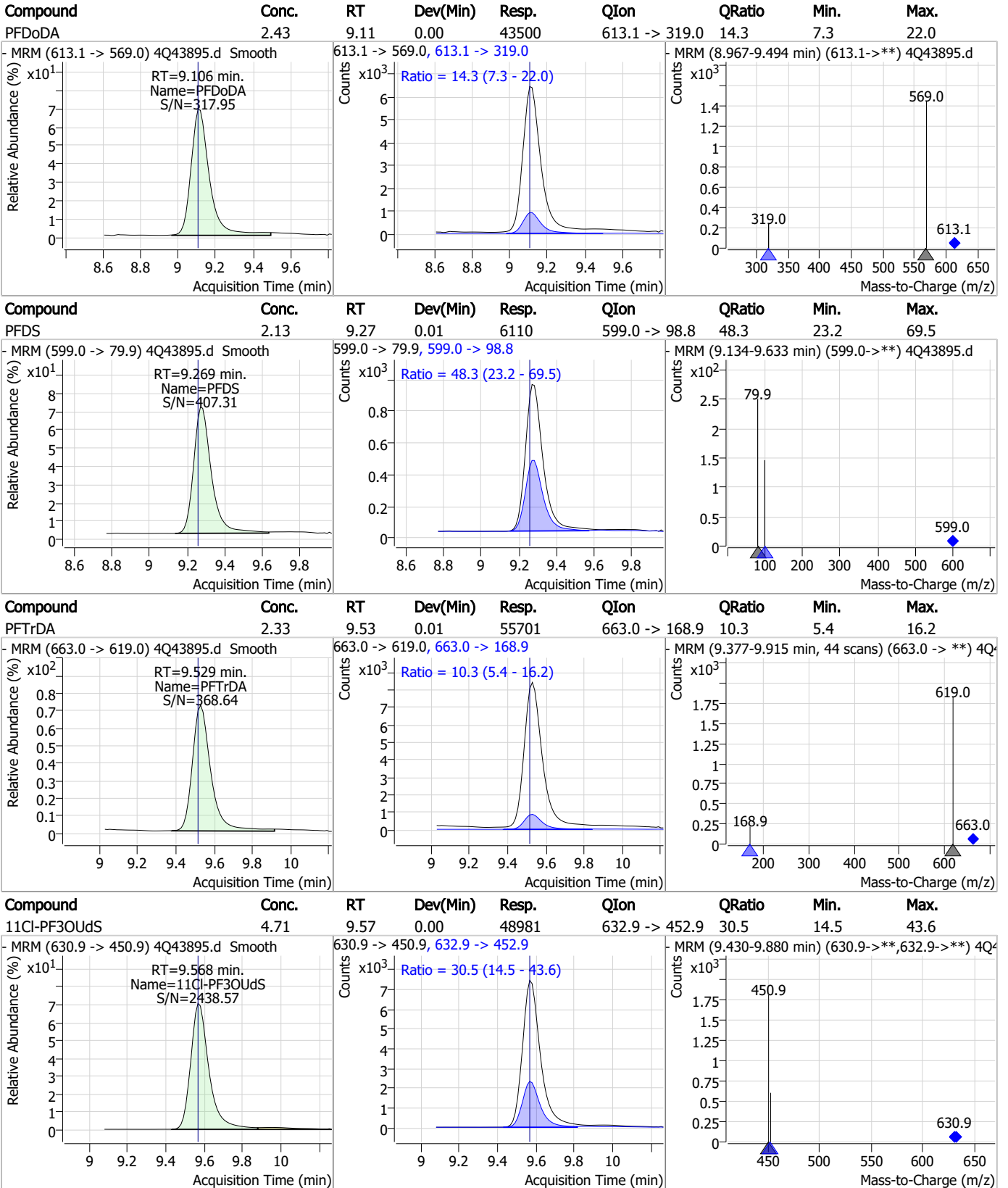


Perfluorinated Compounds by LC/MS/MS



7.7.11
7

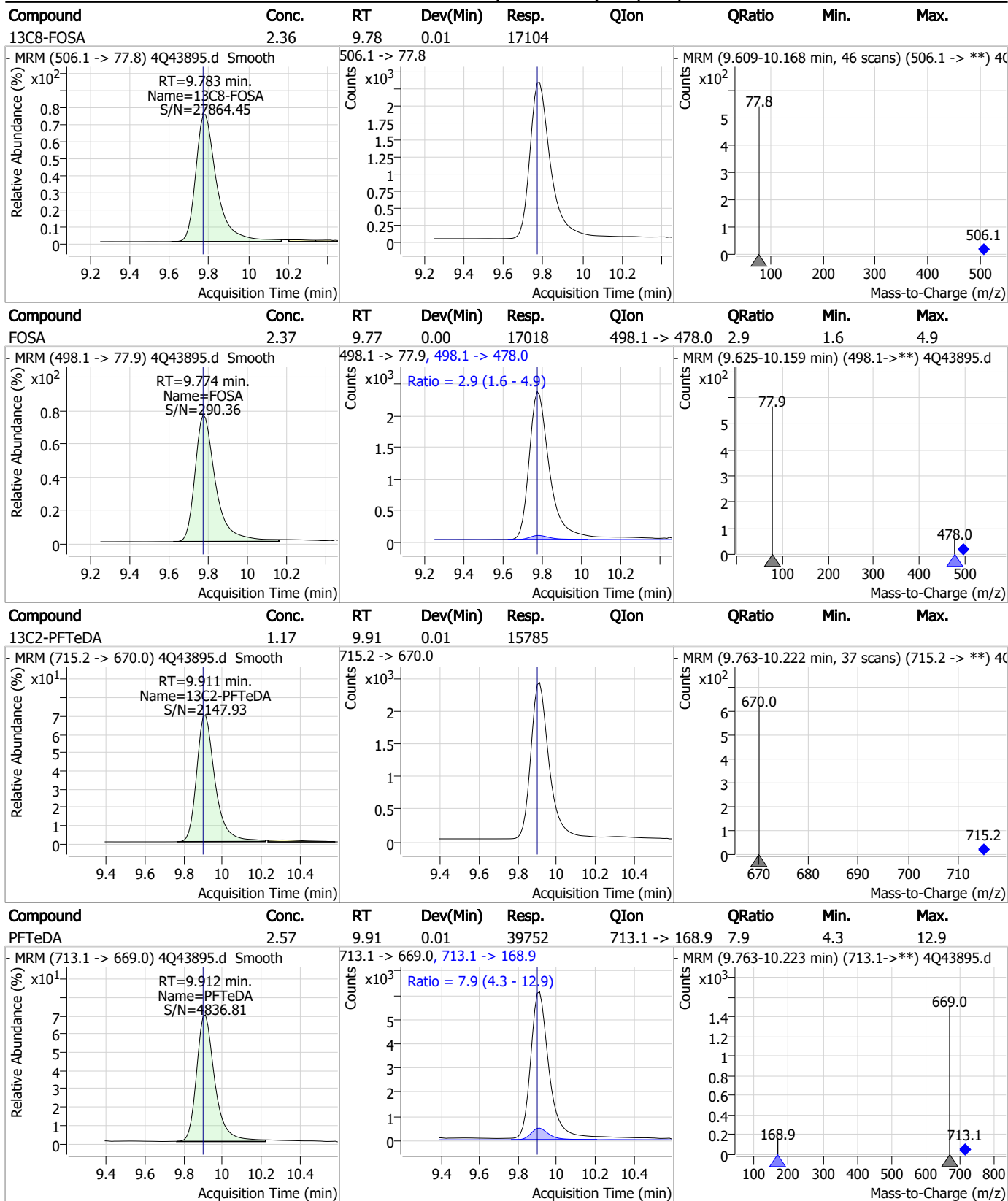
Perfluorinated Compounds by LC/MS/MS



7.7.11

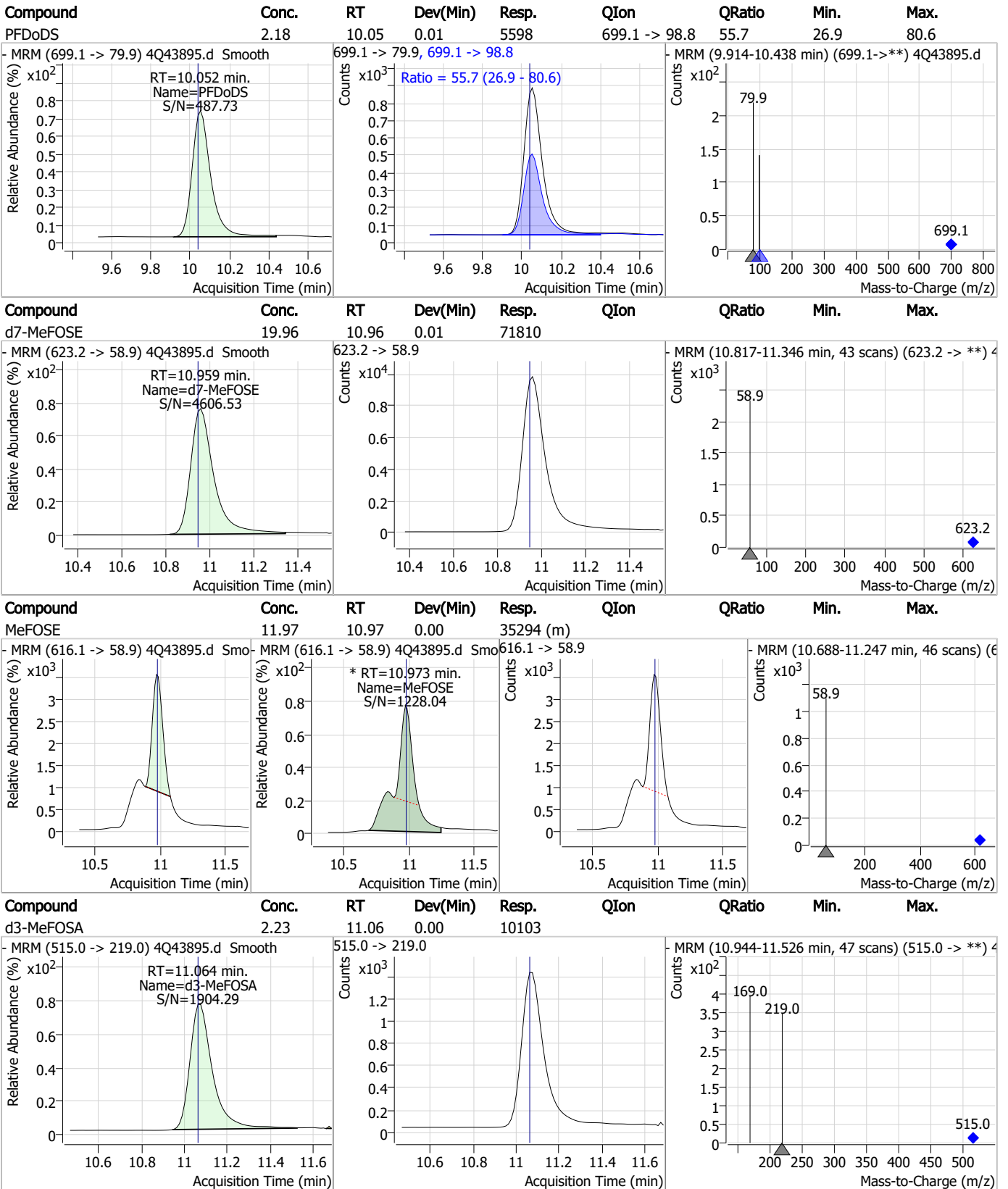
7

Perfluorinated Compounds by LC/MS/MS



7.7.11
7

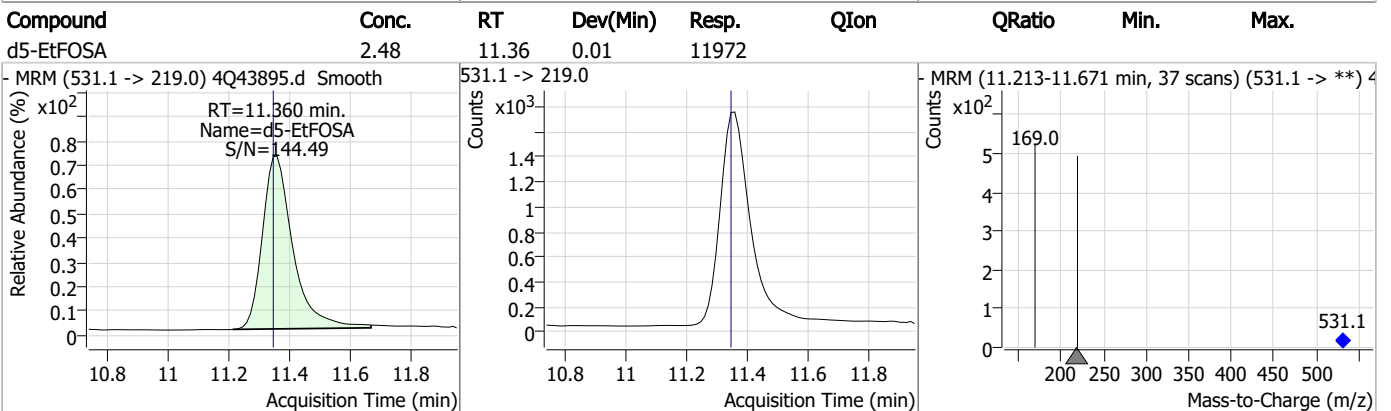
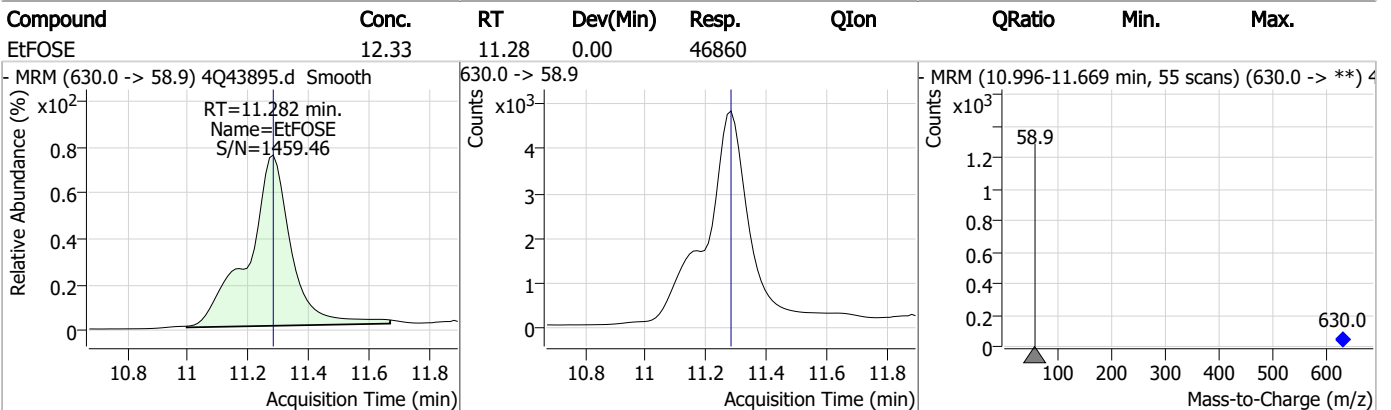
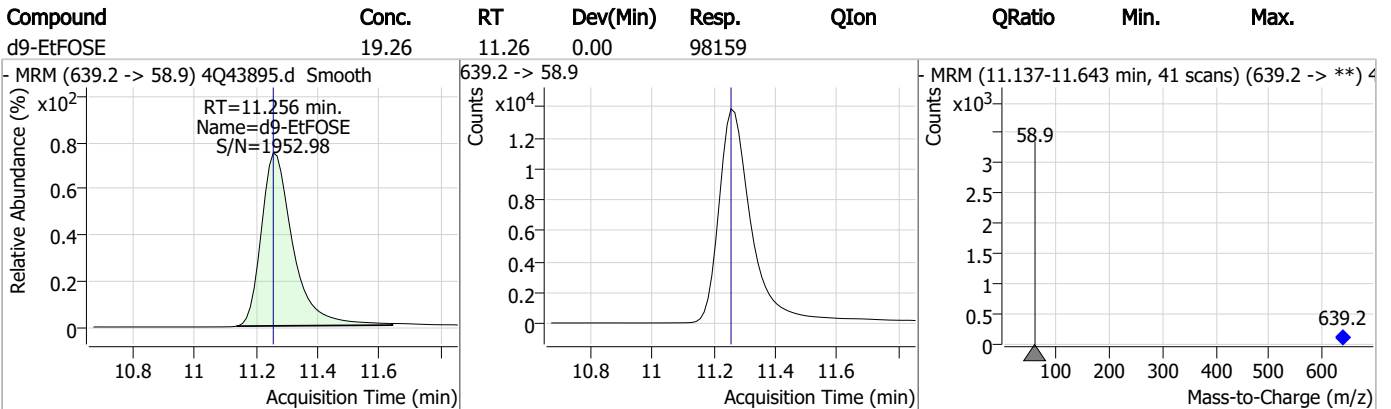
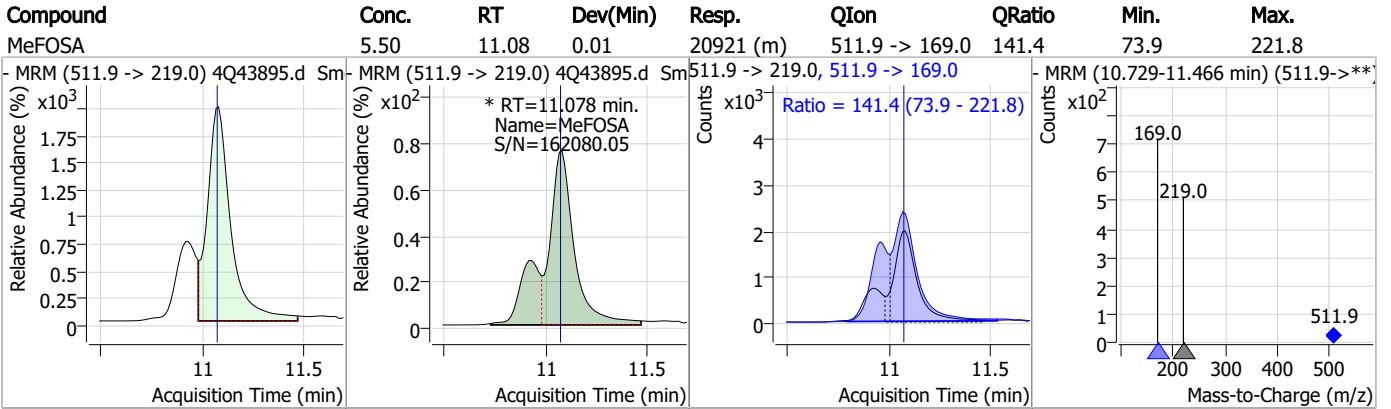
Perfluorinated Compounds by LC/MS/MS



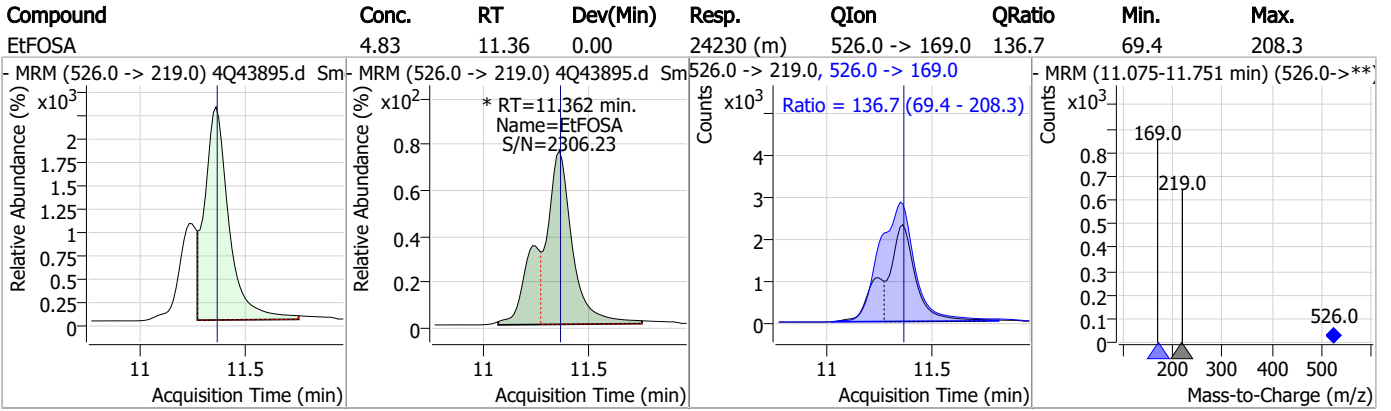
7.7.11
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS



7.7.11

7

Manual Integration Approval Summary

Sample Number: S4Q634-ICV634 Method: EPA DRAFT 1633
Lab FileID: 4Q43895.D Analyst approved: 05/04/23 11:23 Natasha Gumtie
Injection Time: 05/03/23 13:35 Supervisor approved: 05/04/23 17:44 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.24	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.34	Split peak
EtFOSAA	2991-50-6		8.46	Split peak
MeFOSE	24448-09-7		10.97	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.11.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43954.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 12:47:57 PM
 Sample Name : cc634-4
 Vial : P1-A5
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96548,S4Q635,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	132871	10.00 µg/L	0.013
M5-PFPeA	4.375	268.3 -> 223.0	69525	5.00 µg/L	0.012
M5-PFHxA	5.535	318.0 -> 273.0	48989	2.50 µg/L	0.000
M4-PFHpA	6.455	367.1 -> 322.0	28994	2.50 µg/L	-0.012
M8-PFOA	7.124	421.1 -> 376.0	45124	2.50 µg/L	0.000
M9-PFNA	7.658	472.1 -> 427.0	22569	1.25 µg/L	-0.012
M6-PFDA	8.166	519.1 -> 474.1	20032	1.25 µg/L	-0.012
M7-PFUnDA	8.635	570.0 -> 525.1	21097	1.25 µg/L	-0.012
M2-PFDoDA	9.081	615.1 -> 570.0	21163	1.25 µg/L	-0.025
M2-PFTeDA	9.874	715.2 -> 670.0	16946	1.25 µg/L	-0.025
M8-FOSA	9.746	506.1 -> 77.8	17652	2.50 µg/L	-0.025
M3-PFBS	5.439	302.1 -> 79.9	11683	2.50 µg/L	0.012
M3-PFHxS	7.217	402.1 -> 79.9	7952	2.50 µg/L	-0.012
M8-PFOS	8.316	507.1 -> 79.9	10322	2.50 µg/L	-0.013
M2-4:2FTS	5.222	329.1 -> 80.9	1108	5.00 µg/L	0.000
M2-6:2FTS	6.886	429.1 -> 80.9	2030	5.00 µg/L	-0.012
M2-8:2FTS	7.953	529.1 -> 80.9	3182	5.00 µg/L	-0.012
M3-MeFOSAA	8.224	573.2 -> 419.0	15532	5.00 µg/L	-0.012
M3-HFPO-DA	5.890	286.9 -> 168.9	28456	10.00 µg/L	0.000
M5-EtFOSAA	8.433	589.2 -> 419.0	12613	5.00 µg/L	-0.012
M7-MeFOSE	10.934	623.2 -> 58.9	77772	25.00 µg/L	-0.012
M9-EtFOSE	11.244	639.2 -> 58.9	107389	25.00 µg/L	-0.012
M5-EtFOSA	11.348	531.1 -> 219.0	12150	2.50 µg/L	0.000
M3-MeFOSA	11.051	515.0 -> 219.0	10931	2.50 µg/L	-0.012
13C4-PFOS	8.317	502.8 -> 79.9	11307	2.50 µg/L	-0.013
13C3-PFBA	2.941	216.0 -> 172.0	70749	5.00 µg/L	0.012
18O2-PFHxS	7.216	403.0 -> 83.9	5384	2.50 µg/L	-0.012
13C4-PFOA	7.124	417.1 -> 372.0	54303	2.50 µg/L	0.000
13C2-PFDA	8.166	515.1 -> 470.1	17827	1.25 µg/L	-0.012
13C5-PFNA	7.658	468.0 -> 423.0	25559	1.25 µg/L	-0.026
13C2-PFHxA	5.536	315.1 -> 270.0	44734	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1108	5.06 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.2%		
13C2-6:2FTS	6.886	429.1 -> 80.9	2030	5.15 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-8:2FTS	7.953	529.1 -> 80.9	3182	5.17 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.4%		
13C2-PFDoDA	9.081	615.1 -> 570.0	21163	1.23 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C2-PFTeDA	9.874	715.2 -> 670.0	16946	1.21 µg/L	-0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.5%		
13C3-PFBS	5.439	302.1 -> 79.9	11683	2.30 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.0%		
13C3-PFHxS	7.217	402.1 -> 79.9	7952	2.38 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 = 95.3%	
13C4-PFBA	2.936	216.8 -> 171.9	132871	9.98 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C4-PFHpA	6.455	367.1 -> 322.0	28994	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFHxA	5.535	318.0 -> 273.0	48989	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C5-PFPeA	4.375	268.3 -> 223.0	69525	5.05 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.166	519.1 -> 474.1	20032	1.31 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C7-PFUnDA	8.635	570.0 -> 525.1	21097	1.33 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 106.2%	
13C8-FOSA	9.746	506.1 -> 77.8	17652	2.49 µg/L	-0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOA	7.124	421.1 -> 376.0	45124	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.316	507.1 -> 79.9	10322	2.42 µg/L	-0.013
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C9-PFNA	7.658	472.1 -> 427.0	22569	1.30 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSAA	8.224	573.2 -> 419.0	15532	5.44 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 108.8%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	28456	9.67 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.7%	
d3-MeFOSA	11.051	515.0 -> 219.0	10931	2.47 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
d5-EtFOSAA	8.433	589.2 -> 419.0	12613	5.37 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.3%	
d7-MeFOSE	10.934	623.2 -> 58.9	77772	22.11 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 88.4%	
d9-EtFOSE	11.244	639.2 -> 58.9	107389	21.56 µg/L	-0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 86.2%	
d5-EtFOSA	11.348	531.1 -> 219.0	12150	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	16606	9.32 µg/L	93
		327.1 -> 80.9	7065		
6:2FTS	6.886	427.1 -> 407.0	18775	9.58 µg/L	99
		427.1 -> 80.9	8041		
8:2FTS	7.954	527.1 -> 507.0	17806	10.04 µg/L	100
		527.1 -> 80.8	7547		
EtFOSAA	8.434	584.2 -> 419.1	6191	2.55 µg/L	m 92
		584.2 -> 526.0	2795		
FOSA	9.749	498.1 -> 77.9	17581	2.38 µg/L	99
		498.1 -> 478.0	501		
MeFOSAA	8.225	570.1 -> 419.0	6238	2.30 µg/L	m 97
		570.1 -> 483.0	1384		
PFBA	2.945	212.8 -> 168.9	34588	9.72 µg/L	100
PFBS	5.440	298.7 -> 79.9	10481	2.19 µg/L	96
		298.7 -> 98.8	3988		
PFDA	8.166	512.9 -> 469.0	35742	2.35 µg/L	95
		512.9 -> 219.0	6930		
PFDODA	9.081	613.1 -> 569.0	42448	2.50 µg/L	99
		613.1 -> 319.0	6091		
PFDS	9.244	599.0 -> 79.9	6407	2.51 µg/L	95

7.7.12
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	3193			
PFHpA	6.455	363.1 -> 319.0	44651	2.44	µg/L	99
		363.1 -> 169.0	7827			
PFHpS	7.797	449.0 -> 79.9	9220	2.48	µg/L	93
		449.0 -> 98.9	5367			
PFHxA	5.525	313.0 -> 269.0	45873	2.39	µg/L	99
		313.0 -> 118.9	1486			
PFHxS	7.218	398.7 -> 79.9	6782	2.08	µg/L	m 92
		398.7 -> 98.9	3793			
PFNA	7.659	463.0 -> 419.0	38246	2.29	µg/L	100
		463.0 -> 219.0	9457			
PFNS	8.787	548.8 -> 79.9	5401	2.40	µg/L	95
		548.8 -> 98.9	2630			
PFOA	7.125	413.0 -> 369.0	59277	2.28	µg/L	96
		413.0 -> 169.0	12459			
PFOS	8.318	498.9 -> 79.9	12316	2.44	µg/L	m 99
		498.9 -> 98.8	6086			
PFPeA	4.377	263.0 -> 219.0	81326	4.86	µg/L	100
PFPeS	6.494	349.1 -> 79.9	6263	2.24	µg/L	99
		349.1 -> 98.9	2918			
PFTeDA	9.875	713.1 -> 669.0	41362	2.49	µg/L	99
		713.1 -> 168.9	3464			
PFTrDA	9.490	663.0 -> 619.0	57031	2.51	µg/L	99
		663.0 -> 168.9	6031			
PFUnDA	8.635	563.1 -> 519.0	34910	2.44	µg/L	99
		563.1 -> 269.1	7340			
11CI-PF3OUdS	9.543	630.9 -> 450.9	48901	4.78	µg/L	98
		632.9 -> 452.9	14659			
9CI-PF3ONS	8.649	530.8 -> 351.0	60992	4.68	µg/L	98
		532.8 -> 353.0	18000			
ADONA	6.718	376.9 -> 250.9	134918	4.71	µg/L	98
		376.9 -> 84.8	36755			
HFPO-DA	5.891	284.9 -> 168.9	13385	4.92	µg/L	95
		284.9 -> 184.9	1758			
3:3FTCA	3.848	241.0 -> 177.0	8905	12.10	µg/L	98
		241.0 -> 117.0	836			
5:3FTCA	6.180	341.0 -> 237.1	160387	61.58	µg/L	99
		341.0 -> 217.0	110497			
7:3FTCA	7.636	441.0 -> 316.9	86921	64.23	µg/L	100
		441.0 -> 336.9	208346			
EtFOSA	11.350	526.0 -> 219.0	24514	4.82	µg/L	m 99
		526.0 -> 169.0	33792			
EtFOSE	11.270	630.0 -> 58.9	53491	12.87	µg/L	100
MeFOSA	11.053	511.9 -> 219.0	20229	4.91	µg/L	m 98
		511.9 -> 169.0	30328			
MeFOSE	10.960	616.1 -> 58.9	38100	11.93	µg/L	m 100
PFDoDS	10.014	699.1 -> 79.9	5182	2.27	µg/L	91
		699.1 -> 98.8	3115			
NFDHA	5.416	295.0 -> 201.0	6830	4.98	µg/L	95
		295.0 -> 84.9	1688			
PFMBA	4.778	279.0 -> 85.1	45338	4.86	µg/L	100
PFMPA	3.540	229.0 -> 84.9	42607	4.87	µg/L	100
PFEESA	5.959	314.8 -> 134.9	62448	4.30	µg/L	98
		314.8 -> 82.9	2002			

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

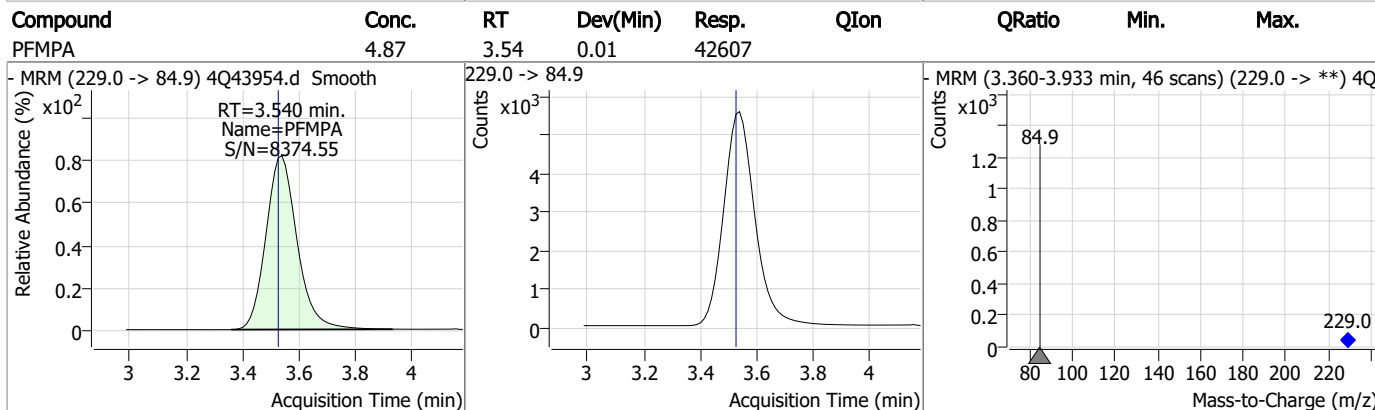
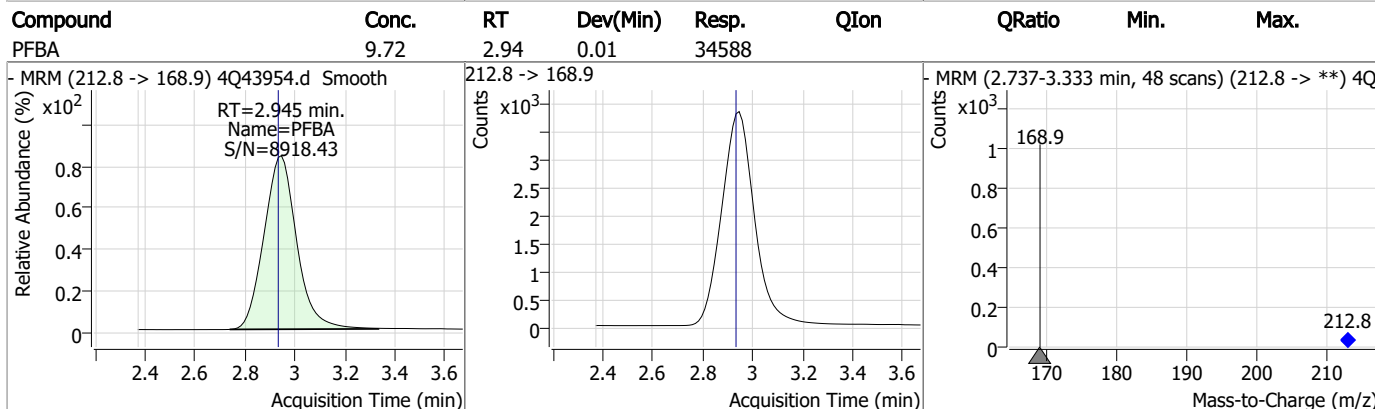
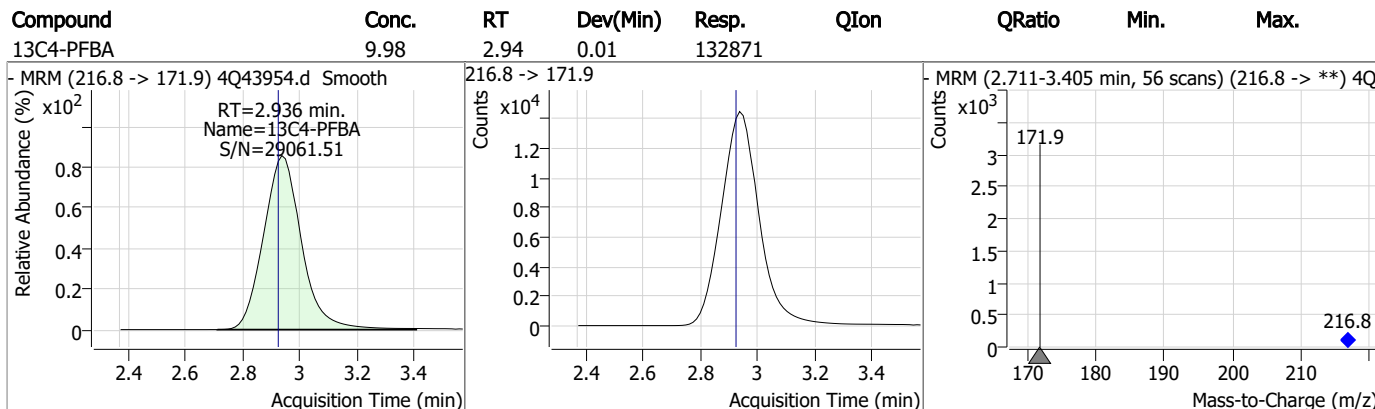
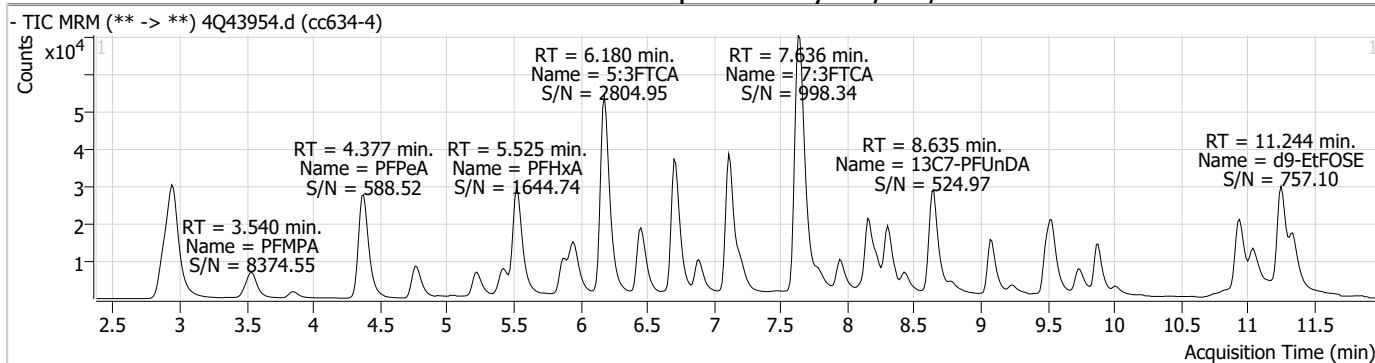
Perfluorinated Compounds by LC/MS/MS

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

7.7.12

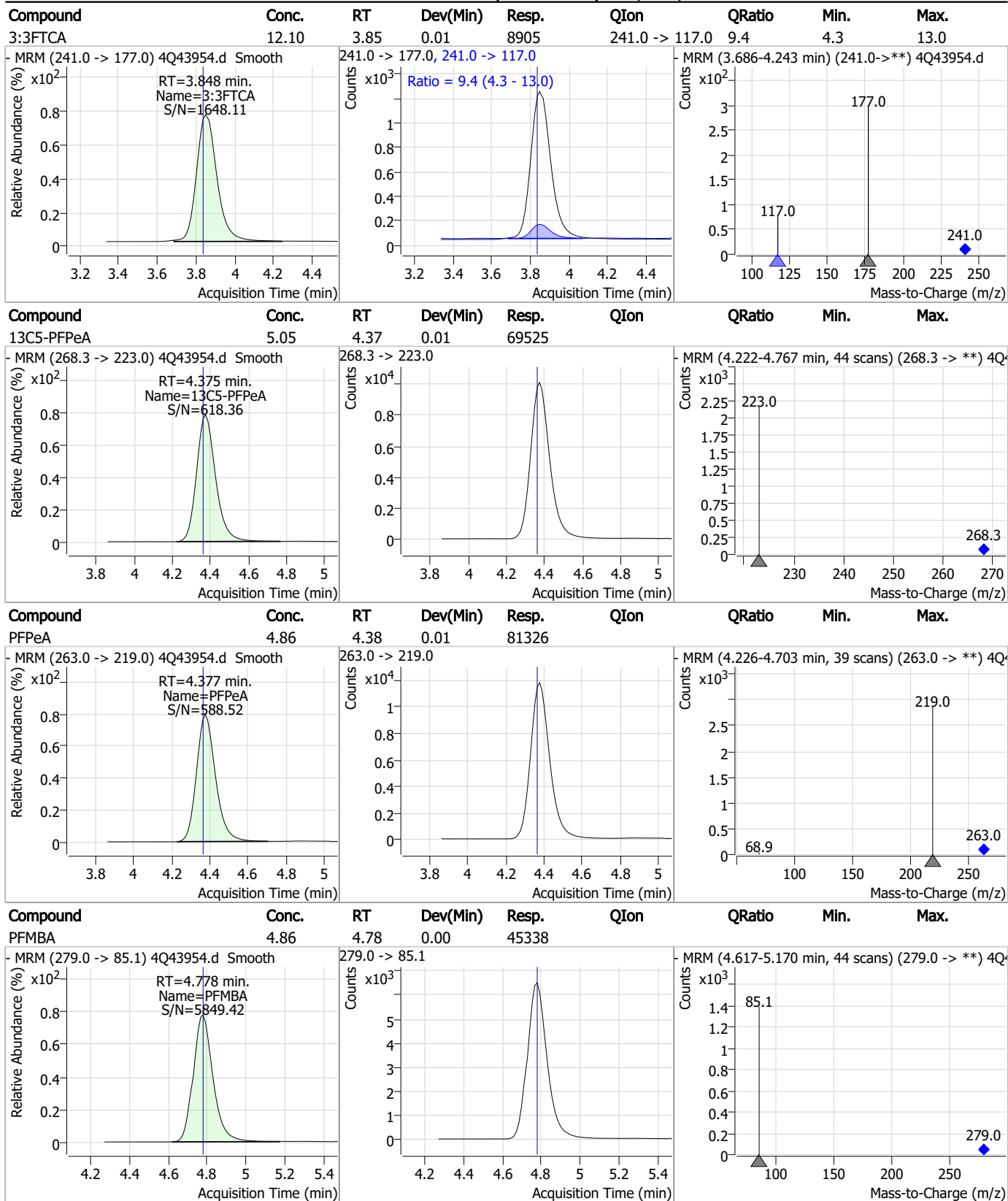
7

Perfluorinated Compounds by LC/MS/MS



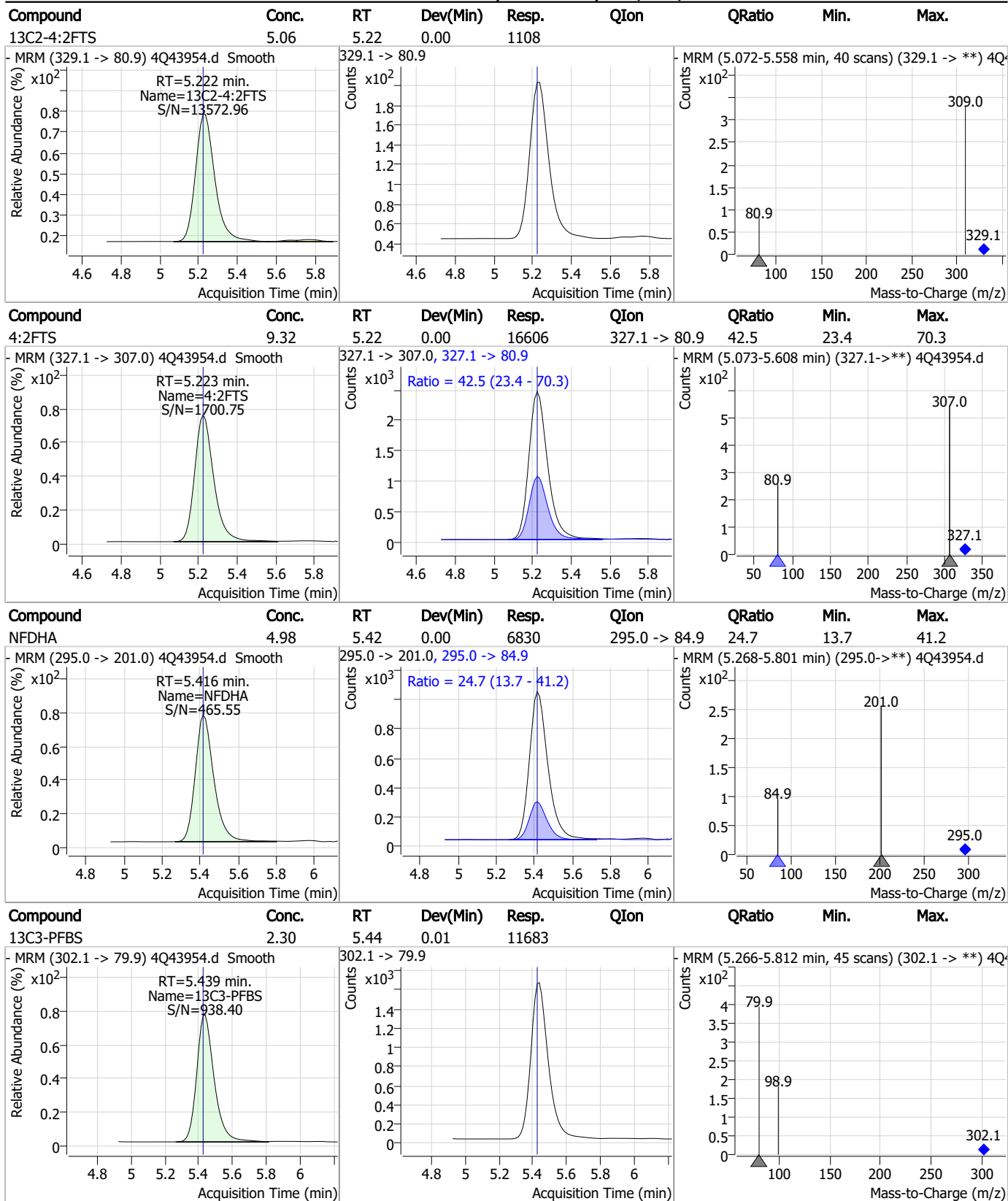
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



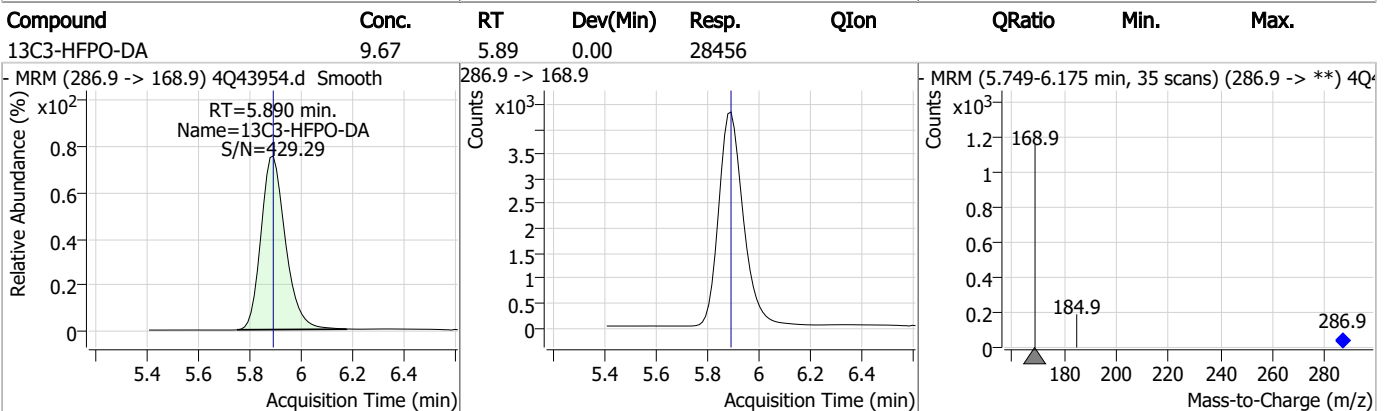
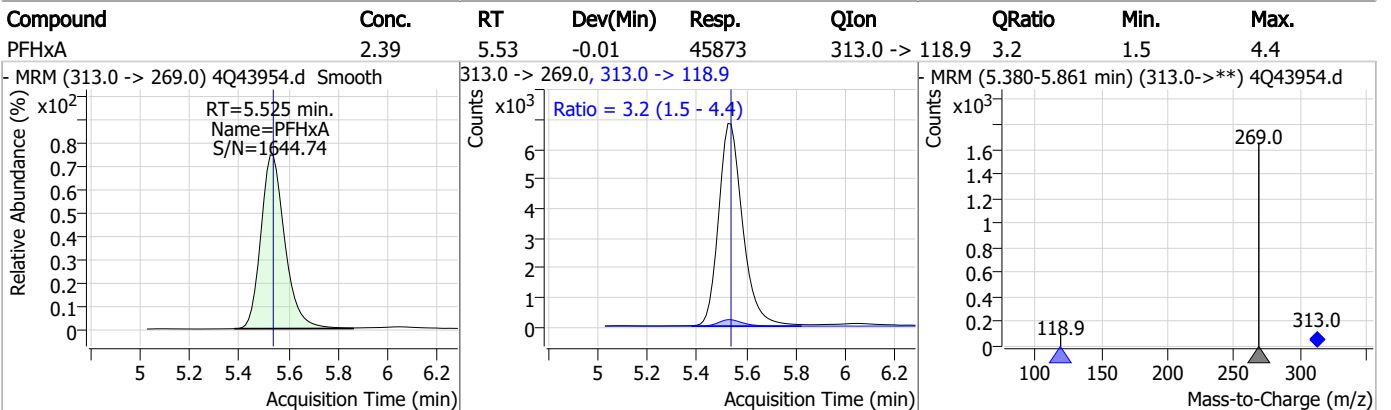
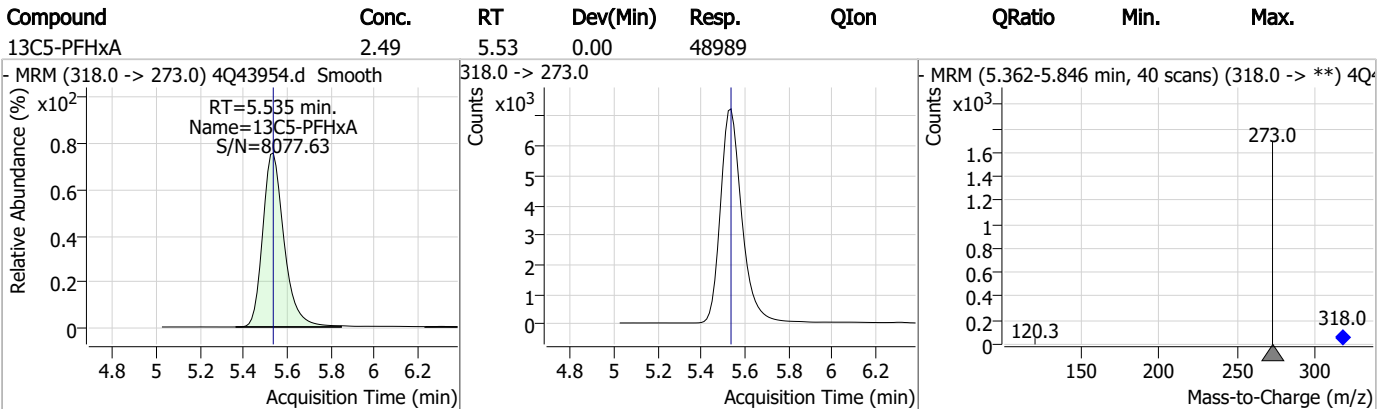
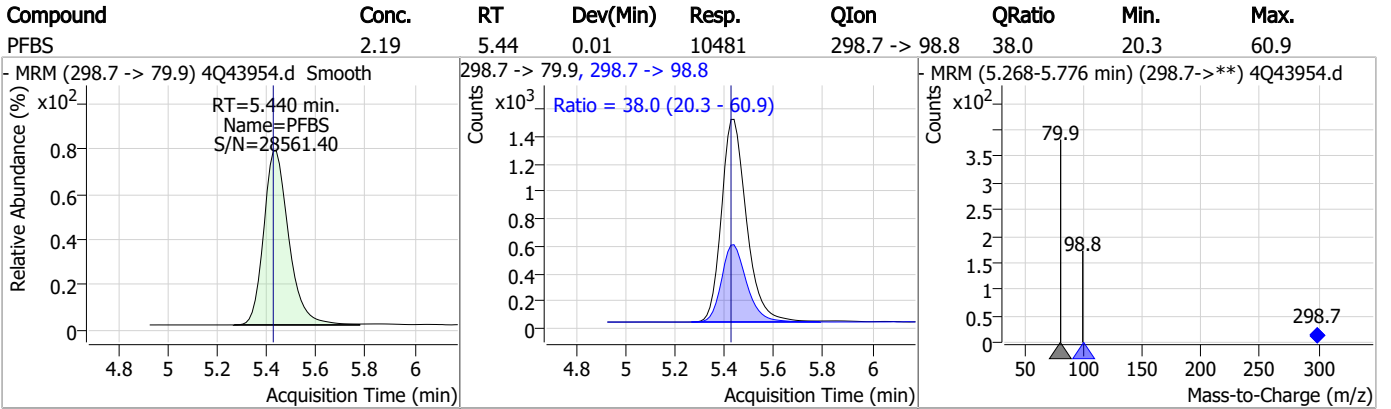
7.7.12
7

Perfluorinated Compounds by LC/MS/MS

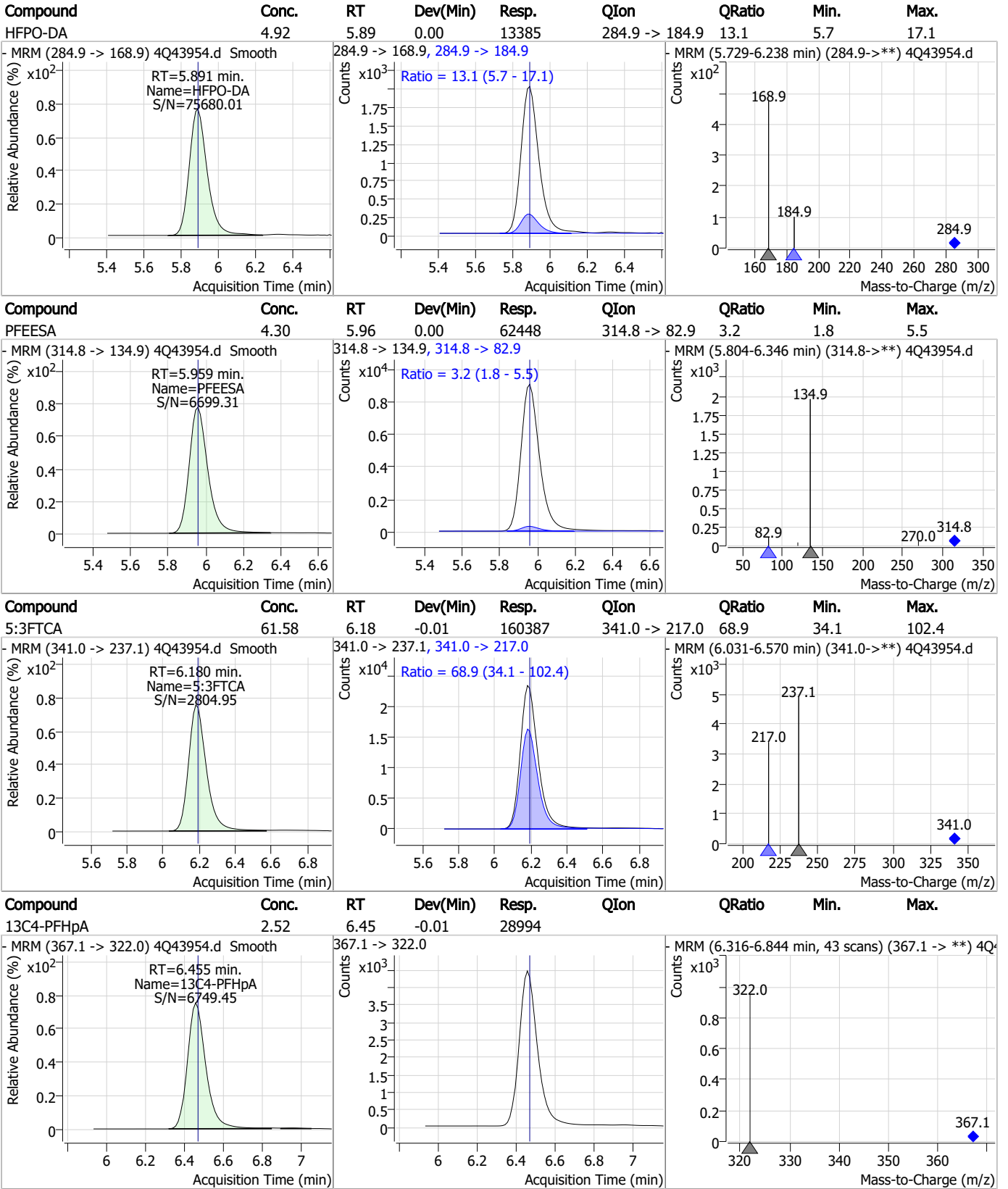


7.7.12
7

Perfluorinated Compounds by LC/MS/MS



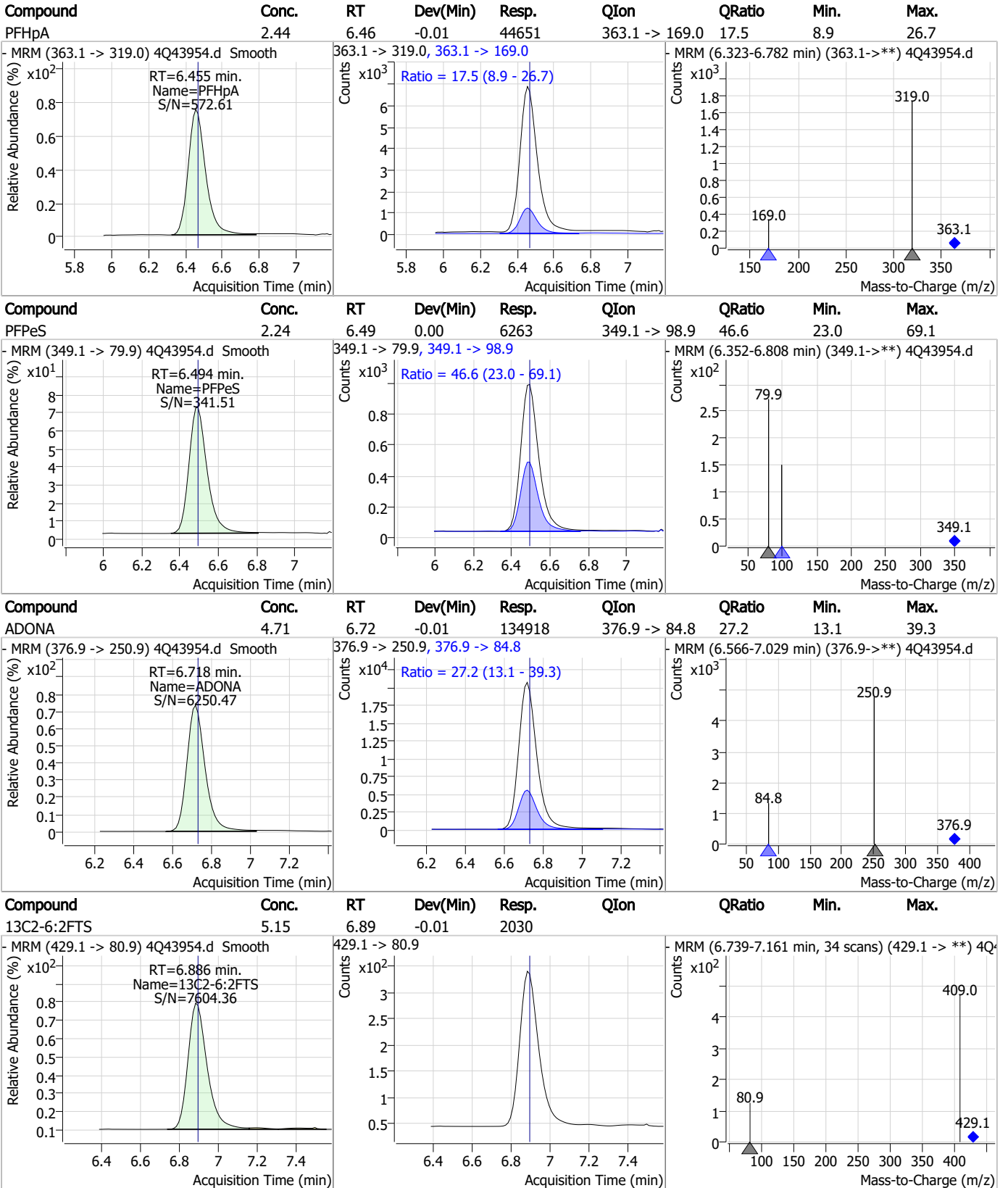
Perfluorinated Compounds by LC/MS/MS



7.7.12 7

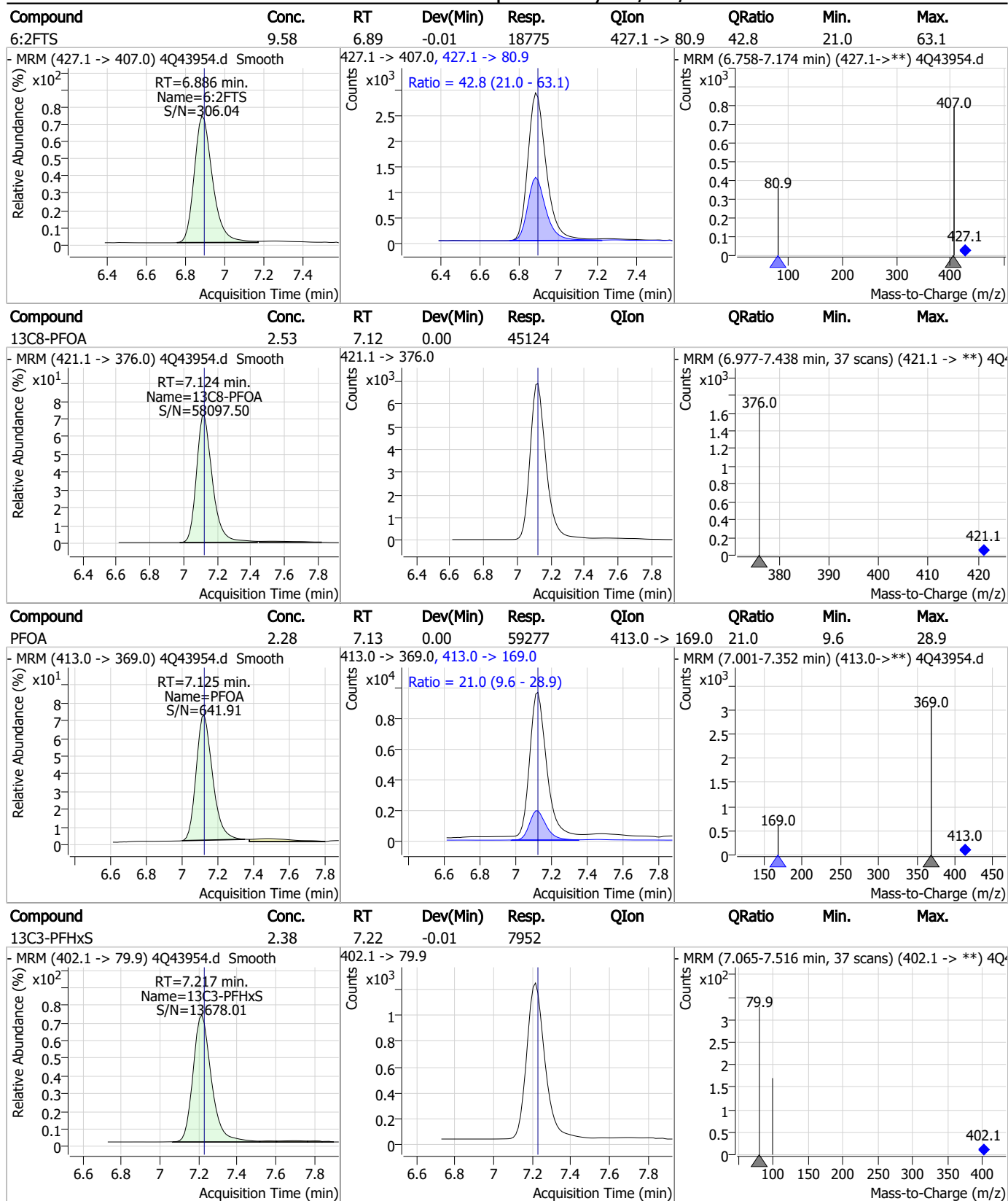


Perfluorinated Compounds by LC/MS/MS



7.7.12 7

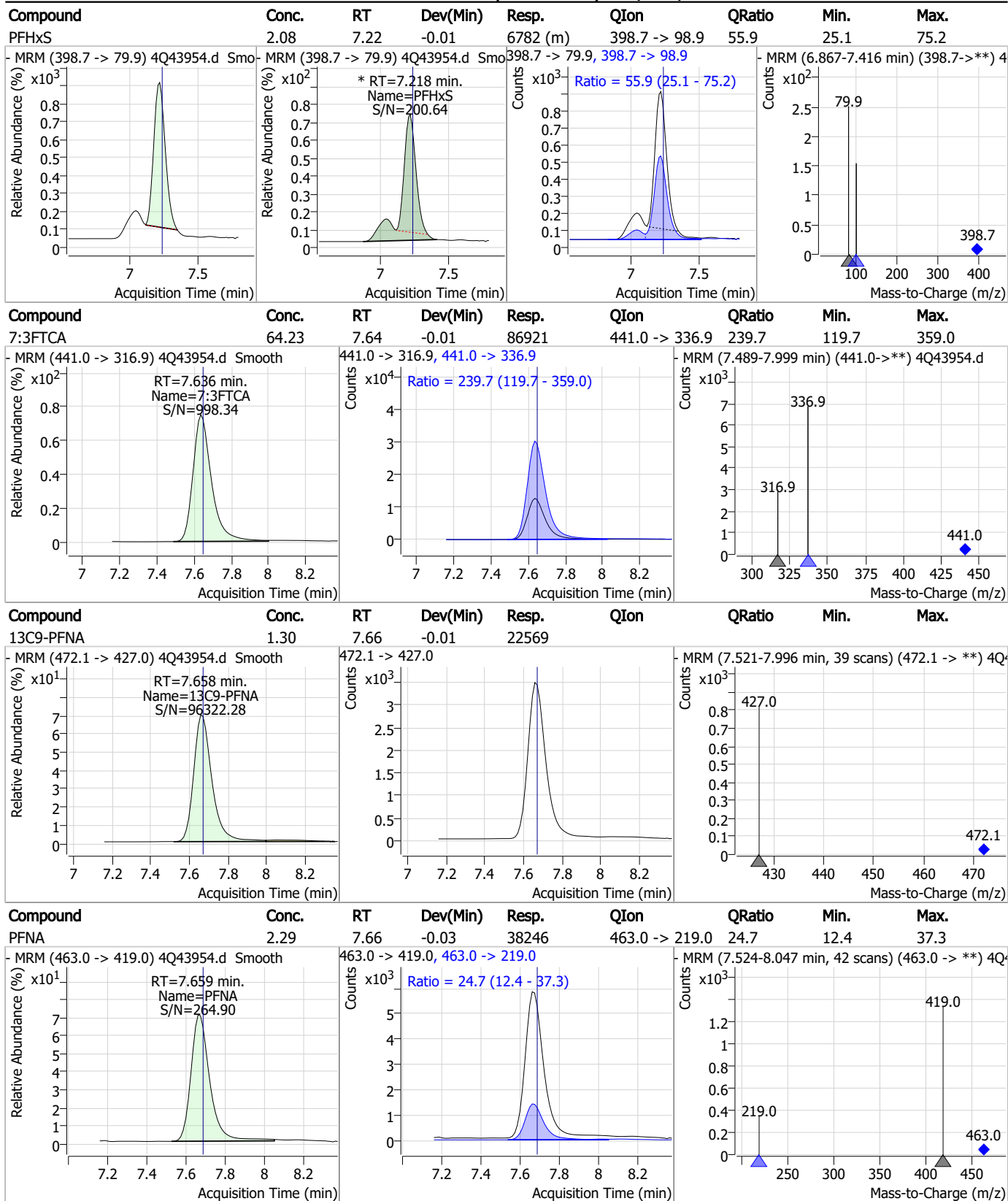
Perfluorinated Compounds by LC/MS/MS



7.7.12
7

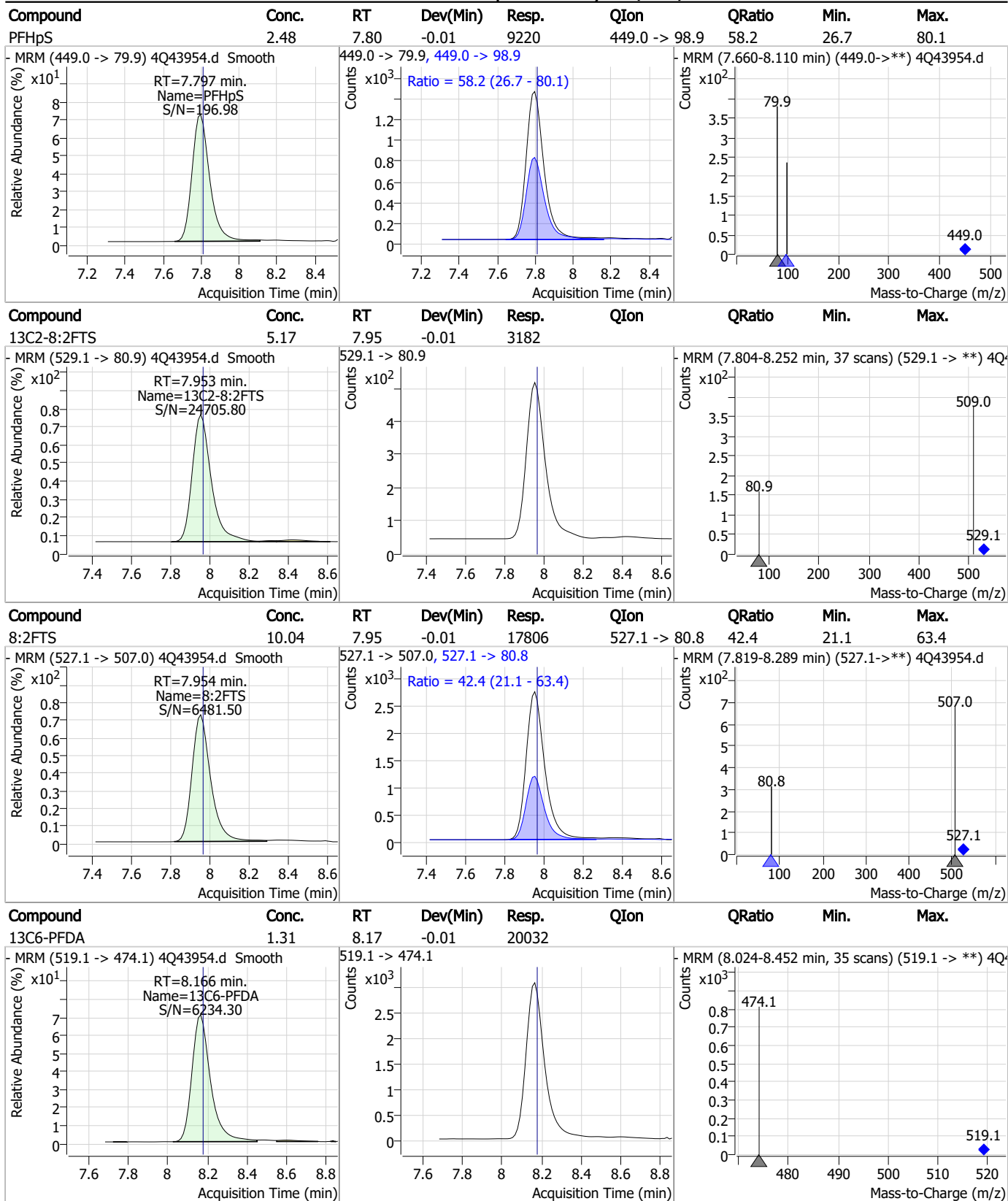


Perfluorinated Compounds by LC/MS/MS



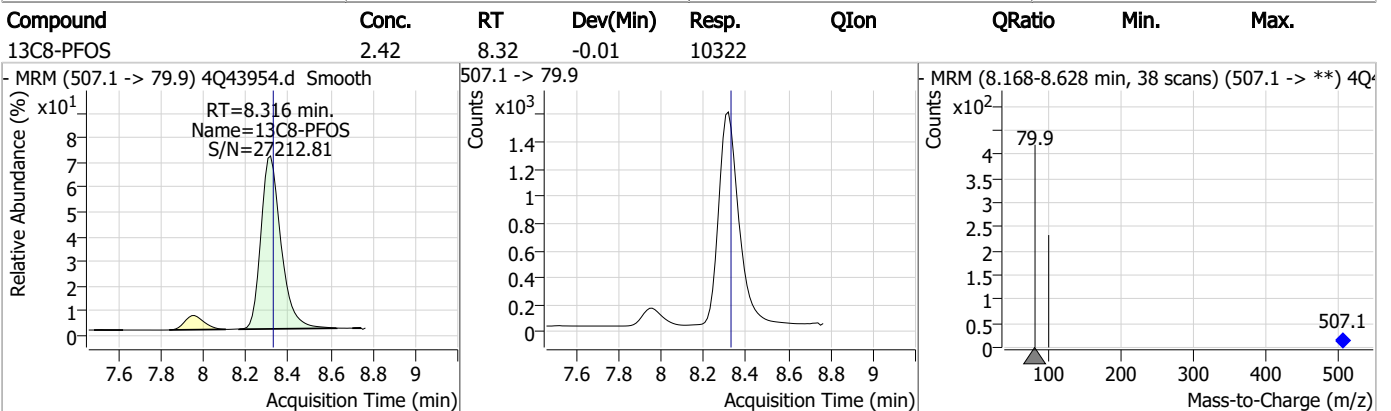
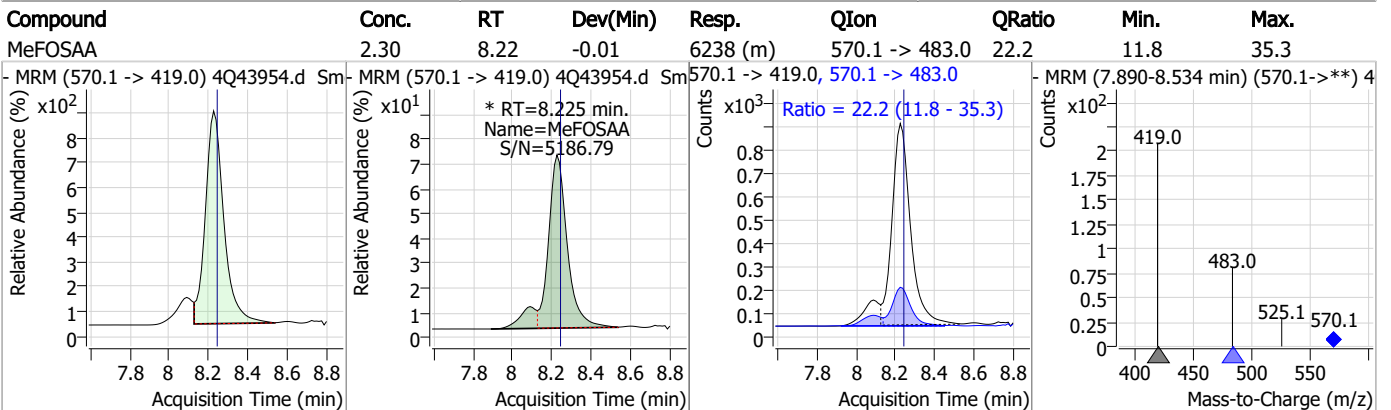
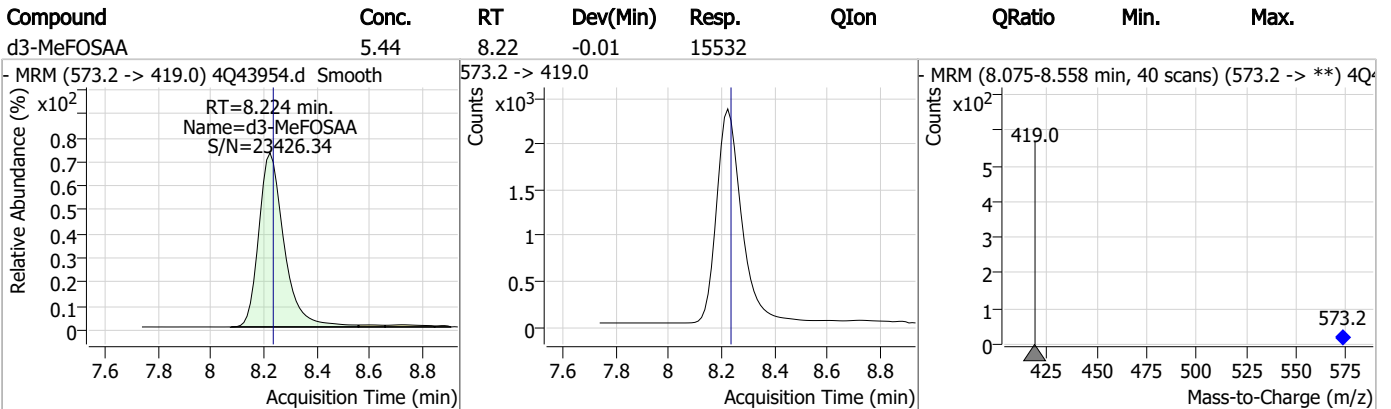
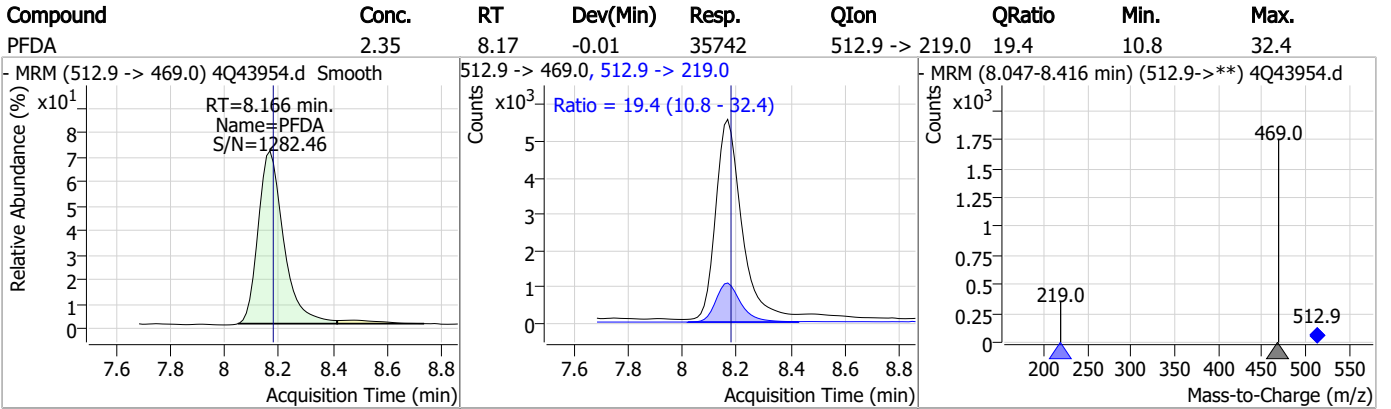
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



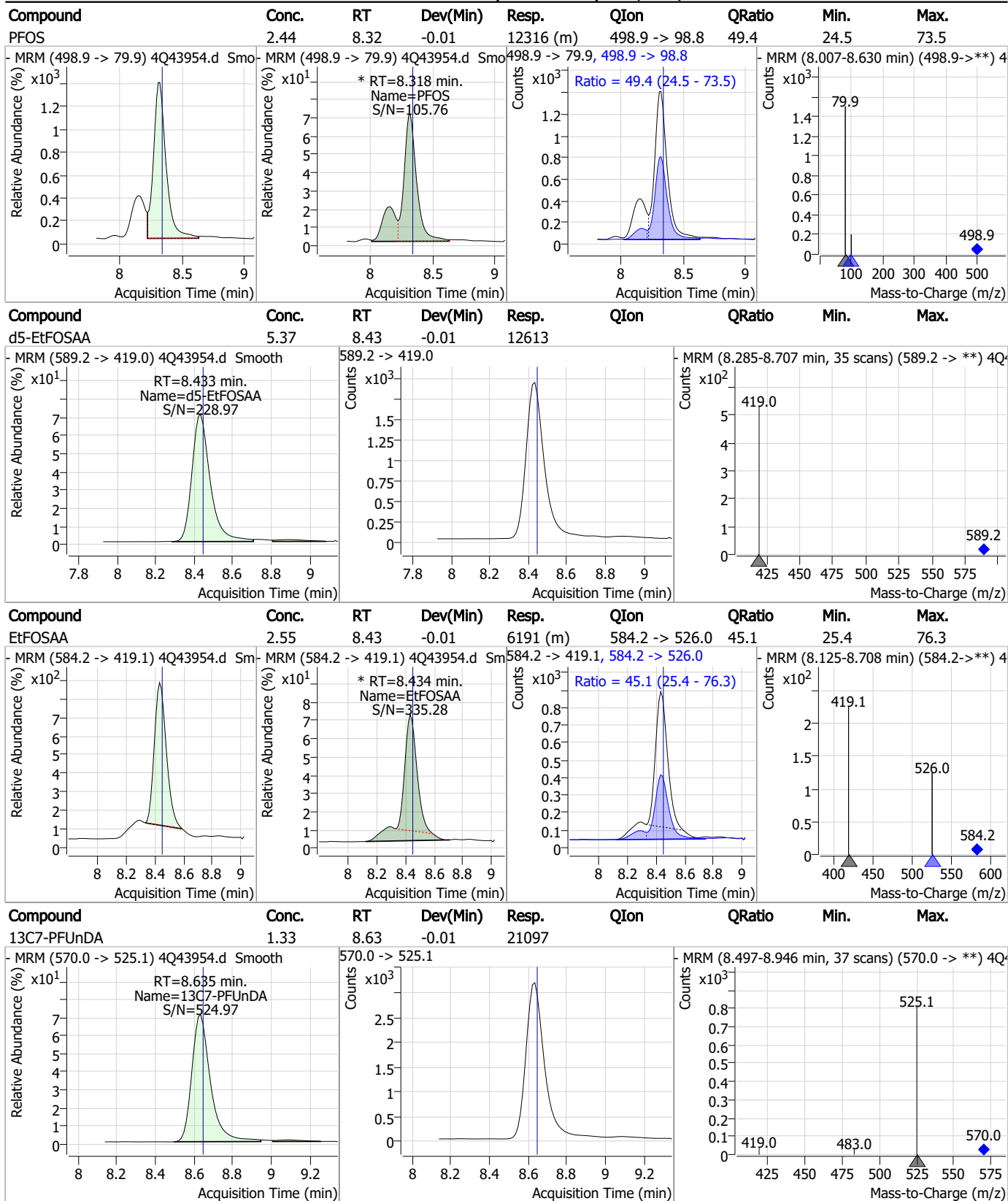
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



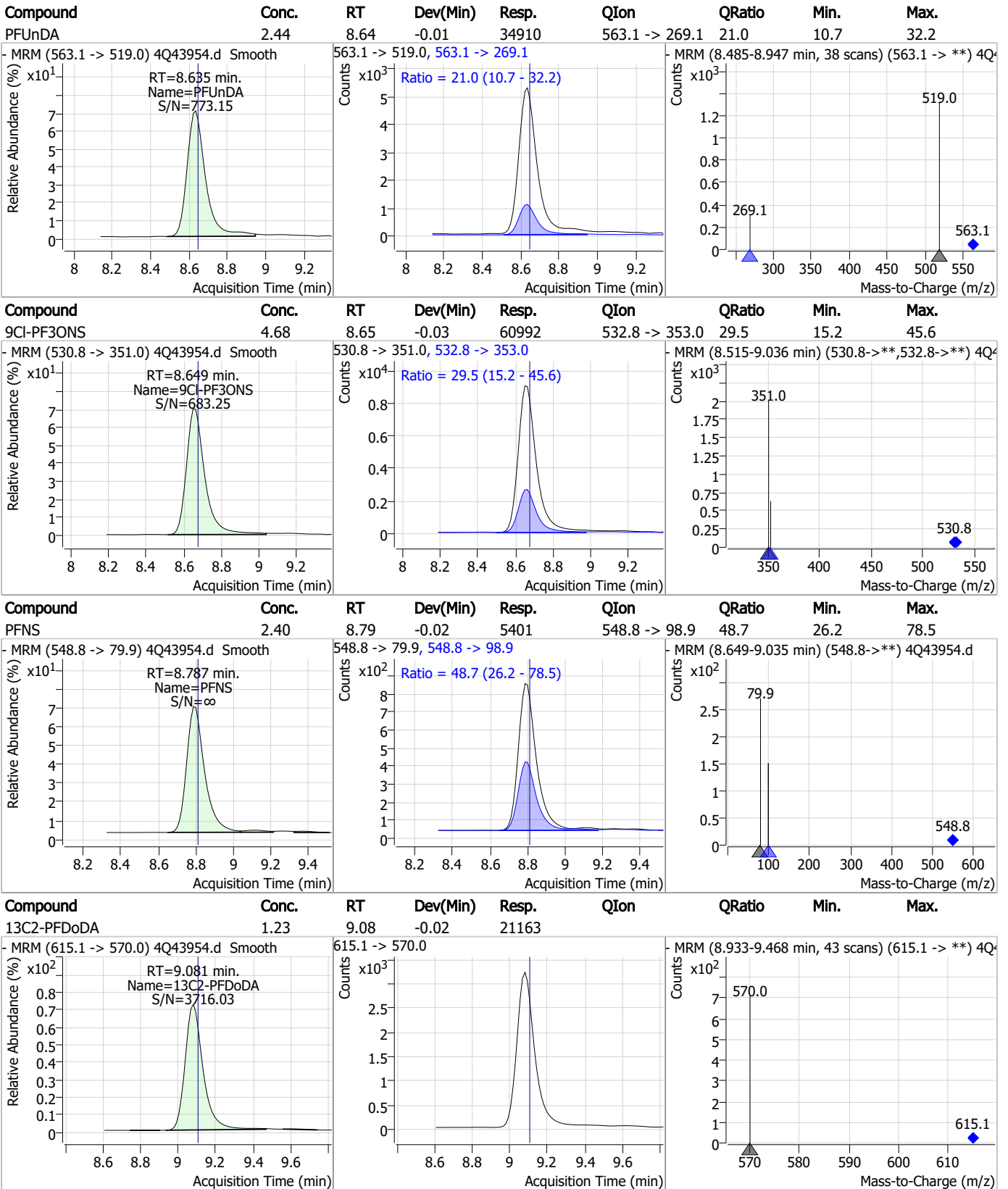
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



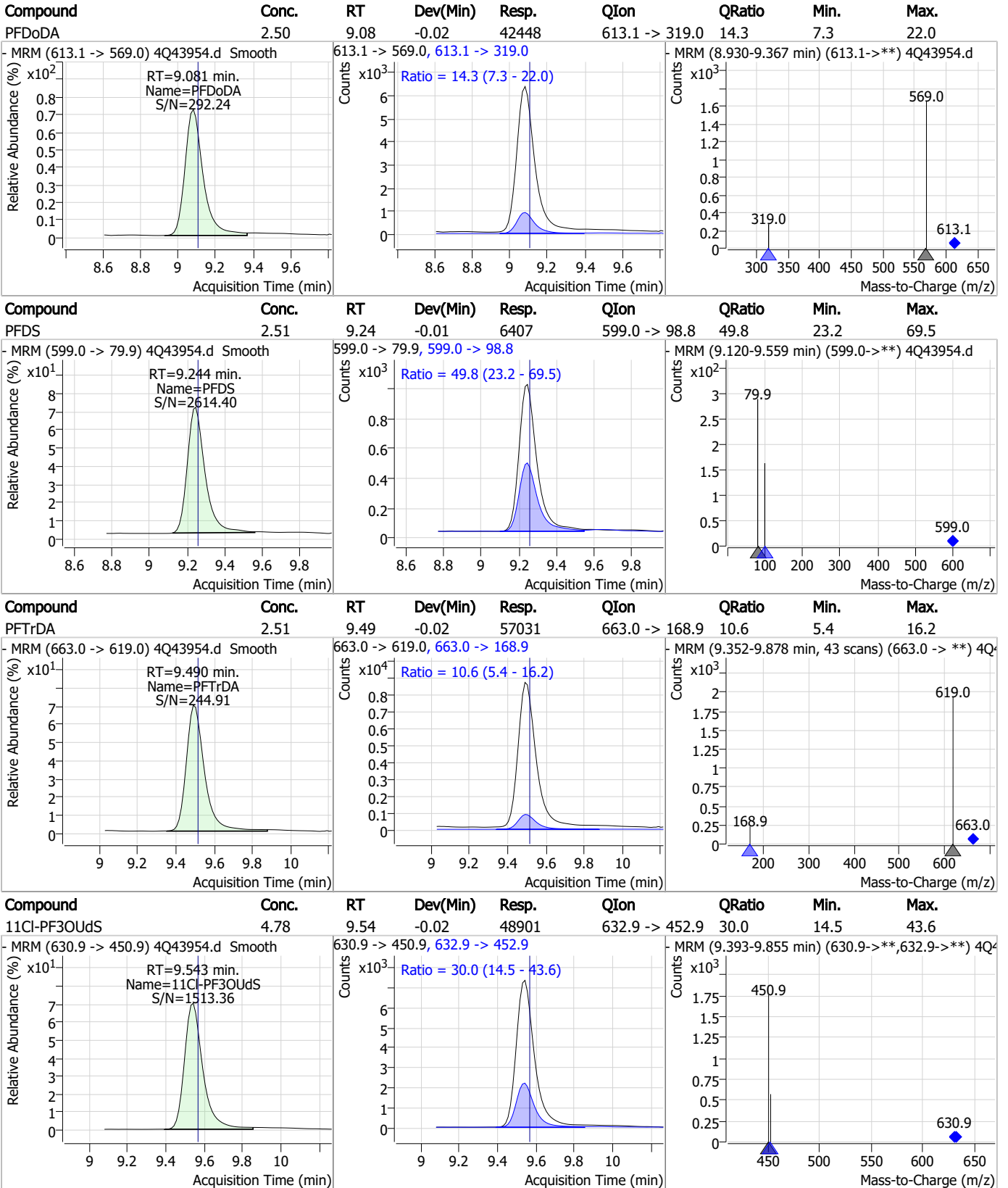
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



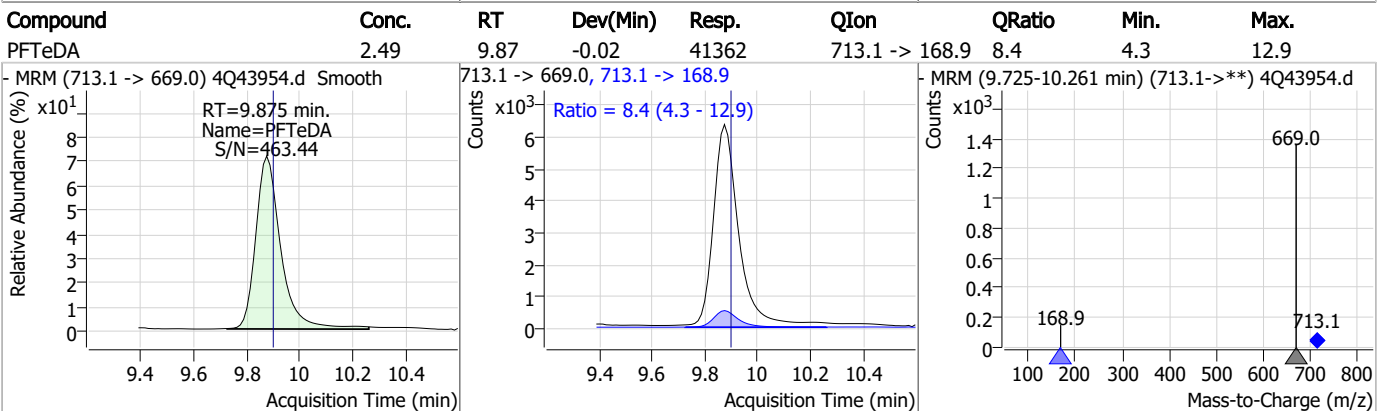
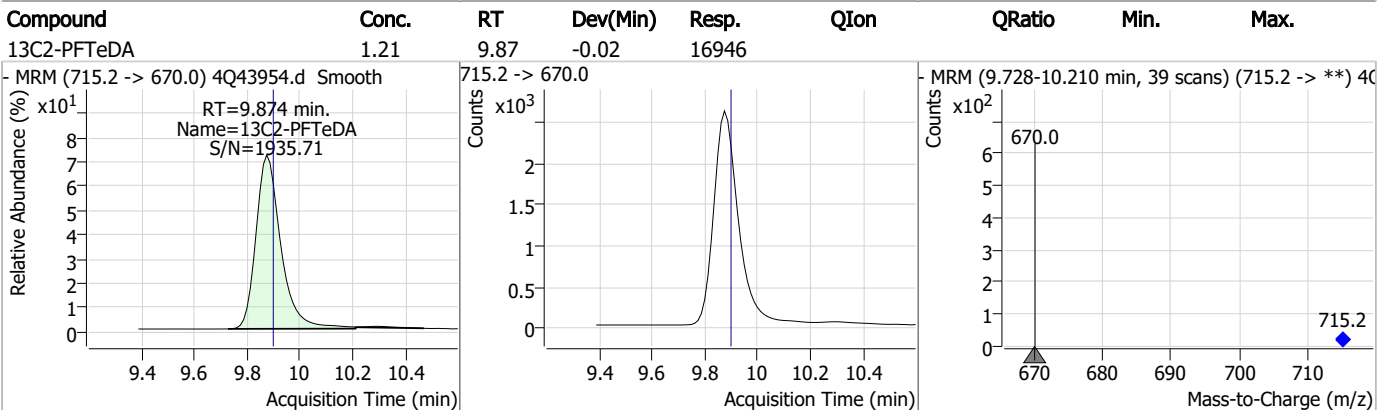
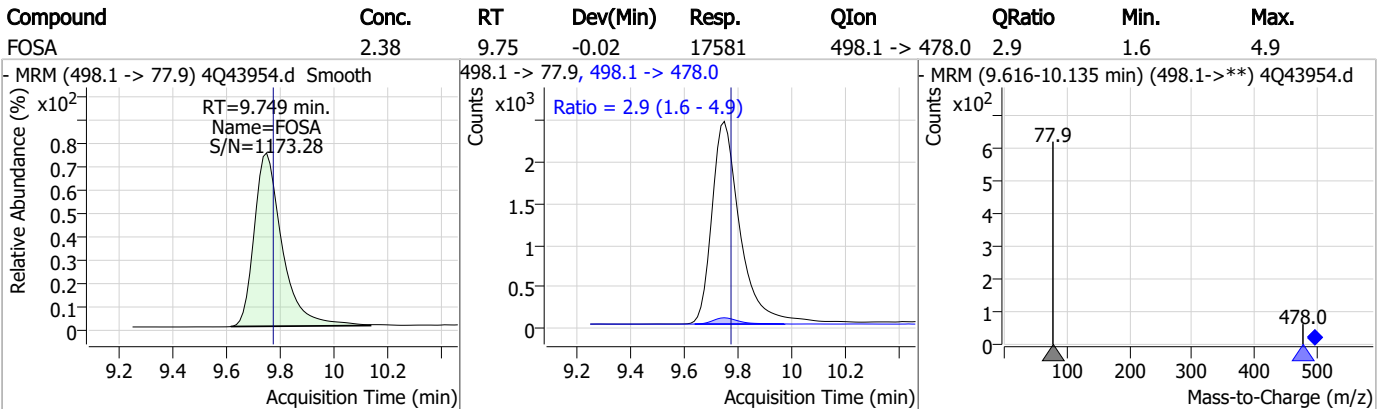
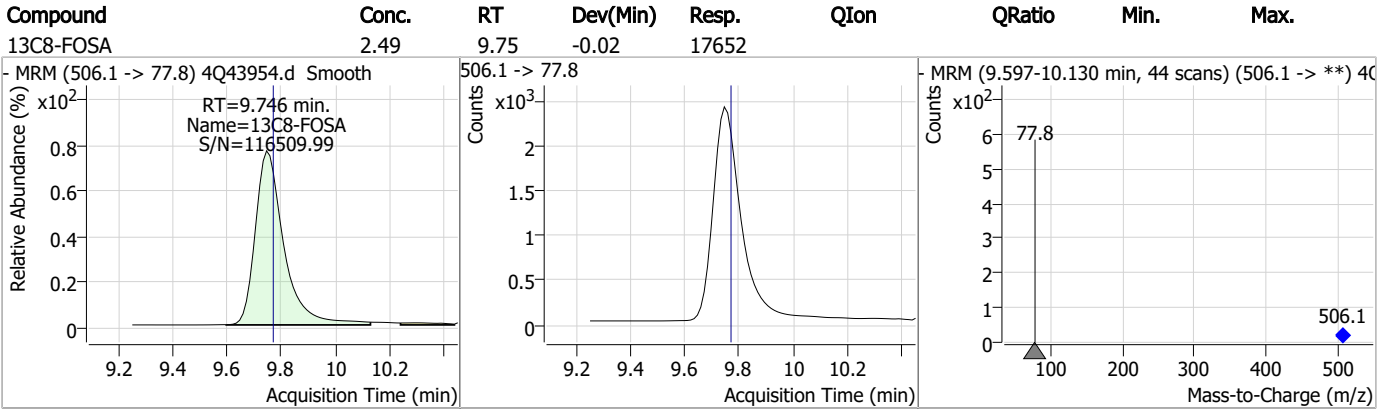
7.7.12
7

Perfluorinated Compounds by LC/MS/MS



7.7.12 7

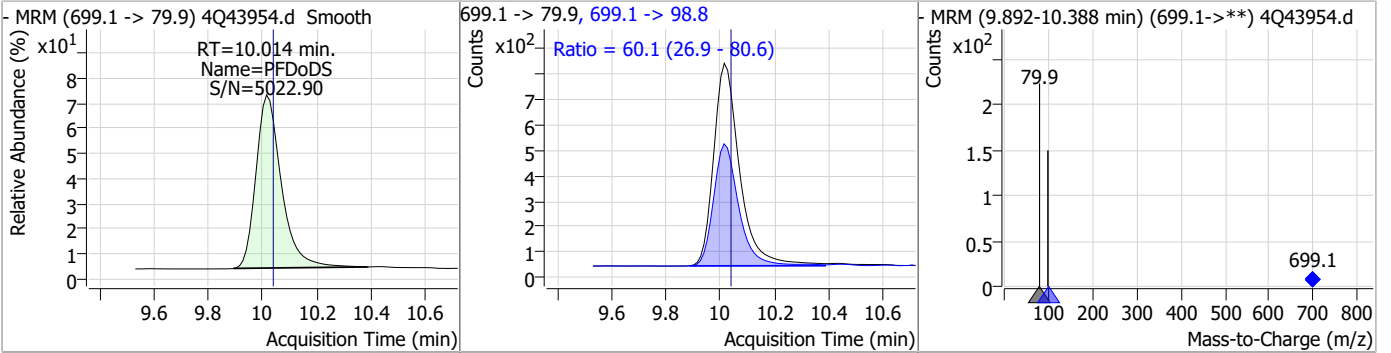
Perfluorinated Compounds by LC/MS/MS



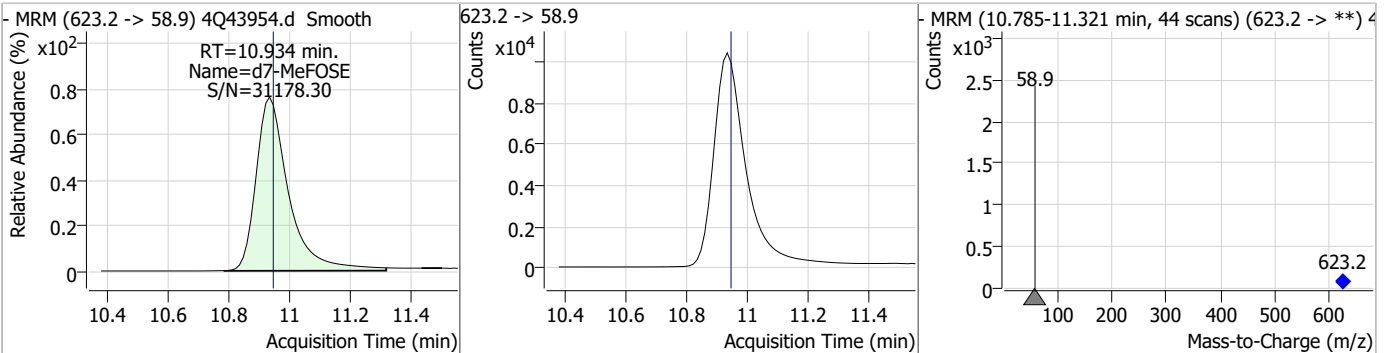
7.7.12
7

Perfluorinated Compounds by LC/MS/MS

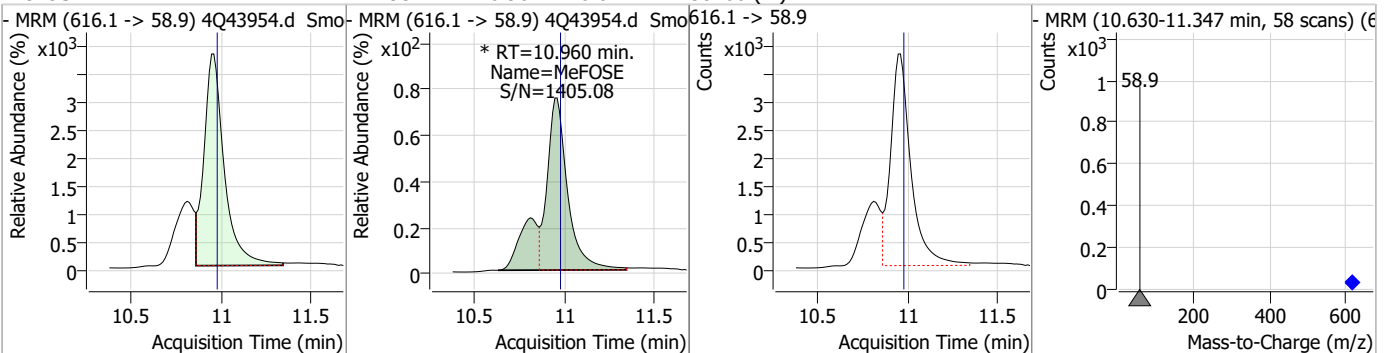
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.27	10.01	-0.02	5182	699.1 -> 98.8	60.1	26.9	80.6



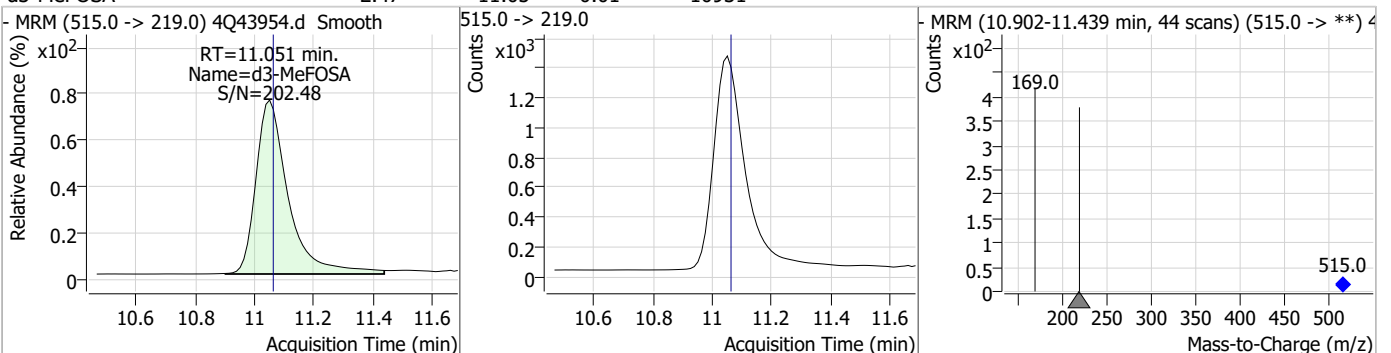
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	22.11	10.93	-0.01	77772				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	11.93	10.96	-0.01	38100 (m)				

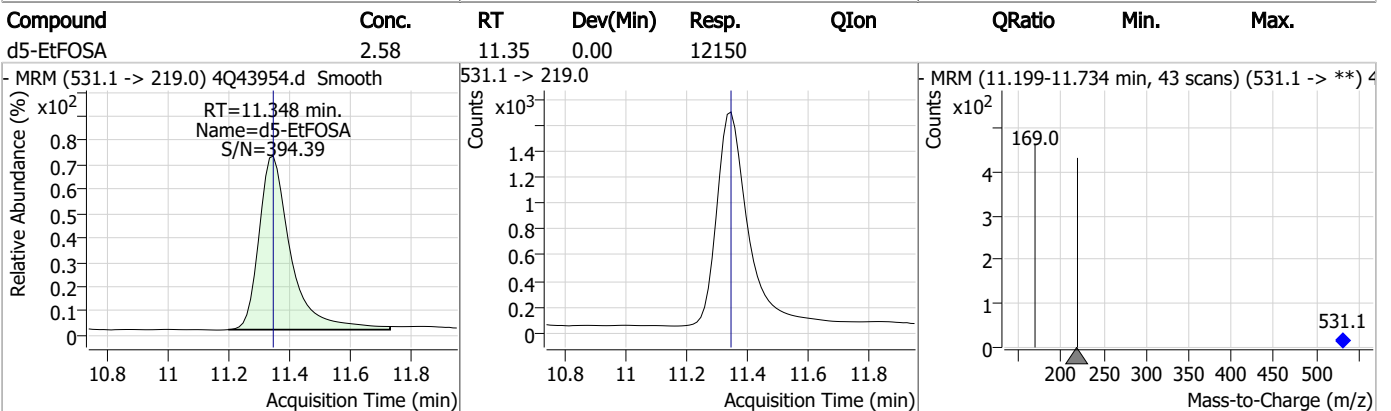
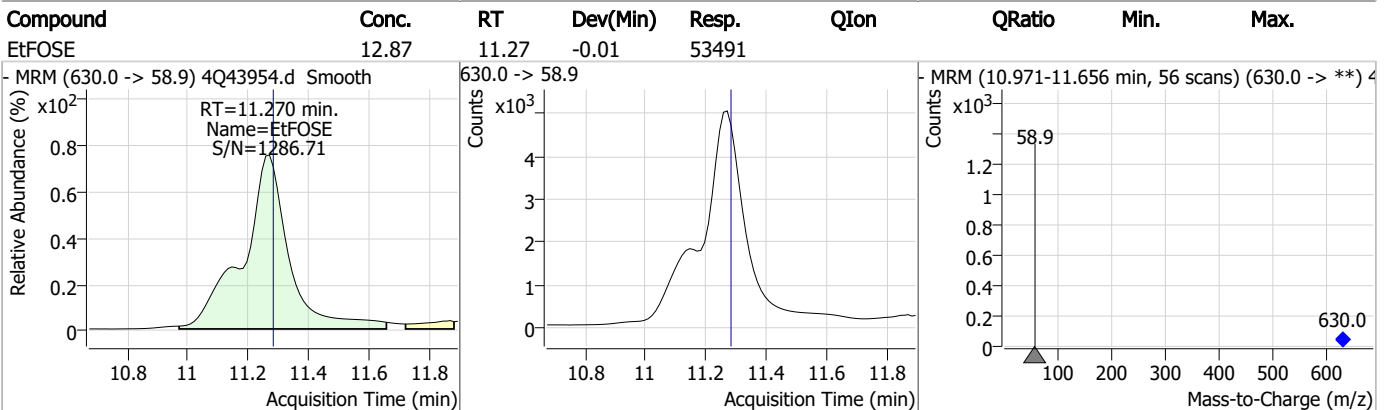
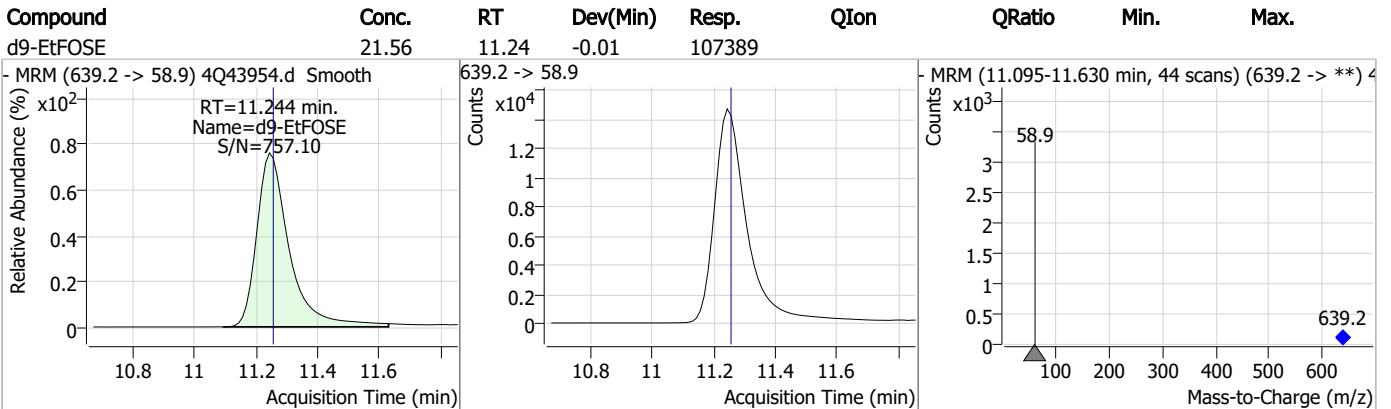
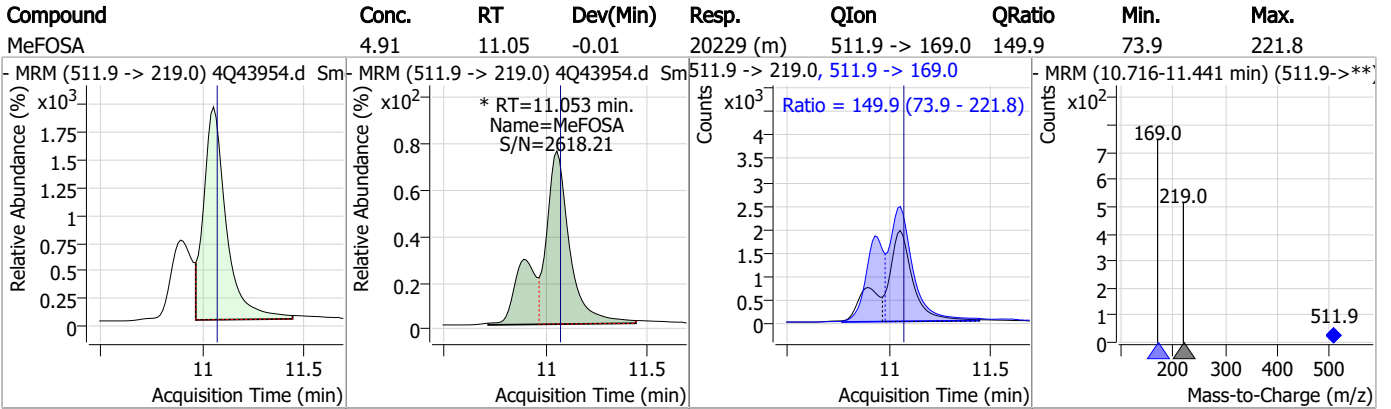


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.47	11.05	-0.01	10931				



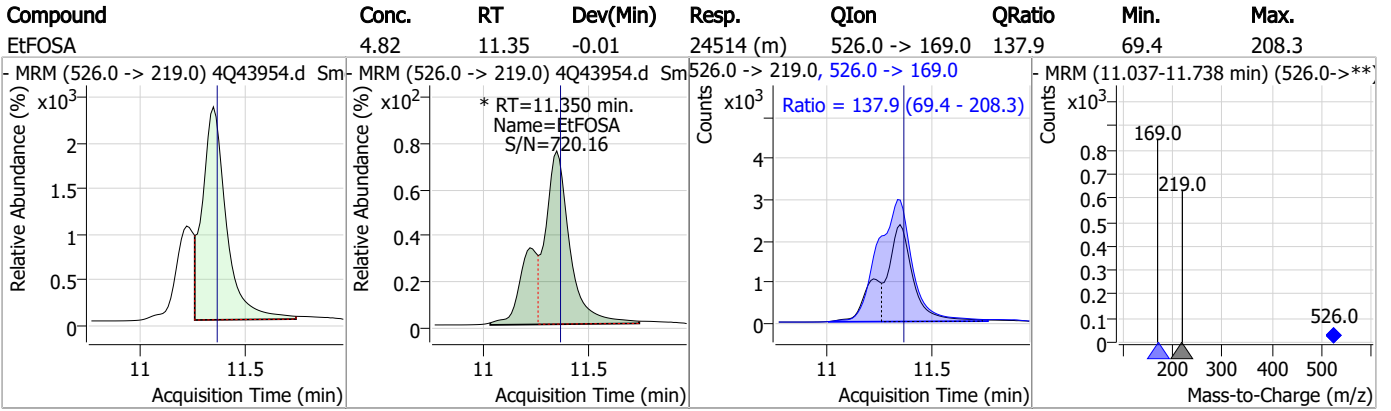
7.7.12 7

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: S4Q635-CC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43954.D Analyst approved: 05/05/23 07:50 Natasha Gumtie
Injection Time: 05/04/23 12:47 Supervisor approved: 05/05/23 16:38 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.22	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.32	Split peak
EtFOSAA	2991-50-6		8.43	Split peak
MeFOSE	24448-09-7		10.96	Split peak
MeFOSA	31506-32-8		11.05	Split peak
EtFOSA	4151-50-2		11.35	Split peak

7.7.12.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43955.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 1:02:00 PM
 Sample Name : cc634-1.0LL
 Vial : P1-A2
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96548,S4Q635,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.936	216.8 -> 171.9	130446	10.00 µg/L	0.013
M5-PFPeA	4.375	268.3 -> 223.0	69171	5.00 µg/L	0.012
M5-PFHxA	5.522	318.0 -> 273.0	46614	2.50 µg/L	-0.012
M4-PFHpA	6.455	367.1 -> 322.0	28931	2.50 µg/L	-0.012
M8-PFOA	7.124	421.1 -> 376.0	44965	2.50 µg/L	0.000
M9-PFNA	7.670	472.1 -> 427.0	21172	1.25 µg/L	0.000
M6-PFDA	8.178	519.1 -> 474.1	19590	1.25 µg/L	0.000
M7-PFUnDA	8.647	570.0 -> 525.1	19681	1.25 µg/L	0.000
M2-PFDoDA	9.106	615.1 -> 570.0	21210	1.25 µg/L	0.000
M2-PFTeDA	9.899	715.2 -> 670.0	15711	1.25 µg/L	0.000
M8-FOSA	9.771	506.1 -> 77.8	16175	2.50 µg/L	0.000
M3-PFBS	5.427	302.1 -> 79.9	11453	2.50 µg/L	0.000
M3-PFHxS	7.217	402.1 -> 79.9	7534	2.50 µg/L	-0.012
M8-PFOS	8.329	507.1 -> 79.9	10010	2.50 µg/L	0.000
M2-4:2FTS	5.222	329.1 -> 80.9	1194	5.00 µg/L	0.000
M2-6:2FTS	6.898	429.1 -> 80.9	2206	5.00 µg/L	0.000
M2-8:2FTS	7.966	529.1 -> 80.9	3336	5.00 µg/L	0.000
M3-MeFOSAA	8.236	573.2 -> 419.0	14574	5.00 µg/L	0.000
M3-HFPO-DA	5.890	286.9 -> 168.9	27391	10.00 µg/L	0.000
M5-EtFOSAA	8.446	589.2 -> 419.0	12714	5.00 µg/L	0.000
M7-MeFOSE	10.959	623.2 -> 58.9	65758	25.00 µg/L	0.012
M9-EtFOSE	11.256	639.2 -> 58.9	97434	25.00 µg/L	0.000
M5-EtFOSA	11.360	531.1 -> 219.0	11714	2.50 µg/L	0.012
M3-MeFOSA	11.064	515.0 -> 219.0	9709	2.50 µg/L	0.000
13C4-PFOS	8.330	502.8 -> 79.9	11037	2.50 µg/L	0.000
13C3-PFBA	2.941	216.0 -> 172.0	69196	5.00 µg/L	0.012
18O2-PFHxS	7.216	403.0 -> 83.9	5108	2.50 µg/L	-0.012
13C4-PFOA	7.124	417.1 -> 372.0	53115	2.50 µg/L	0.000
13C2-PFDA	8.178	515.1 -> 470.1	17629	1.25 µg/L	0.000
13C5-PFNA	7.671	468.0 -> 423.0	24537	1.25 µg/L	-0.013
13C2-PFHxA	5.523	315.1 -> 270.0	41966	2.50 µg/L	-0.012
System Monitoring Compounds					
13C2-4:2FTS	5.222	329.1 -> 80.9	1194	5.75 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 115.0%		
13C2-6:2FTS	6.898	429.1 -> 80.9	2206	5.90 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 117.9%		
13C2-8:2FTS	7.966	529.1 -> 80.9	3336	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.2%		
13C2-PFDoDA	9.106	615.1 -> 570.0	21210	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C2-PFTeDA	9.899	715.2 -> 670.0	15711	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.4%		
13C3-PFBS	5.427	302.1 -> 79.9	11453	2.38 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.1%		
13C3-PFHxS	7.217	402.1 -> 79.9	7534	2.38 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 = 95.2%	
13C4-PFBA	2.936	216.8 -> 171.9	130446	10.02 µg/L	0.013
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.455	367.1 -> 322.0	28931	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.1%	
13C5-PFHxA	5.522	318.0 -> 273.0	46614	2.52 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C5-PFPeA	4.375	268.3 -> 223.0	69171	5.35 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
13C6-PFDA	8.178	519.1 -> 474.1	19590	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.8%	
13C7-PFUnDA	8.647	570.0 -> 525.1	19681	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C8-FOSA	9.771	506.1 -> 77.8	16175	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 93.5%	
13C8-PFOA	7.124	421.1 -> 376.0	44965	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-PFOS	8.329	507.1 -> 79.9	10010	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C9-PFNA	7.670	472.1 -> 427.0	21172	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.6%	
d3-MeFOSAA	8.236	573.2 -> 419.0	14574	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C3-HFPO-DA	5.890	286.9 -> 168.9	27391	9.92 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d3-MeFOSA	11.064	515.0 -> 219.0	9709	2.24 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 89.7%	
d5-EtFOSAA	8.446	589.2 -> 419.0	12714	5.54 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
d7-MeFOSE	10.959	623.2 -> 58.9	65758	19.15 µg/L	0.012
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 76.6%	
d9-EtFOSE	11.256	639.2 -> 58.9	97434	20.04 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 80.2%	
d5-EtFOSA	11.360	531.1 -> 219.0	11714	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.8%	
Target Compounds					QValue
4:2FTS	5.223	327.1 -> 307.0	1280	0.67 µg/L	97
		327.1 -> 80.9	624		
6:2FTS	6.899	427.1 -> 407.0	1579	0.74 µg/L	98
		427.1 -> 80.9	643		
8:2FTS	7.966	527.1 -> 507.0	1287	0.69 µg/L	77
		527.1 -> 80.8	732		
EtFOSAA	8.446	584.2 -> 419.1	354	0.15 µg/L	m 72
		584.2 -> 526.0	250		
FOSA	9.761	498.1 -> 77.9	1482	0.22 µg/L	# 93
		498.1 -> 478.0	13		
MeFOSAA	8.249	570.1 -> 419.0	444	0.17 µg/L	m 90
		570.1 -> 483.0	82		
PFBA	2.945	212.8 -> 168.9	2691	0.77 µg/L	100
PFBS	5.428	298.7 -> 79.9	806	0.17 µg/L	85
		298.7 -> 98.8	250		
PFDA	8.179	512.9 -> 469.0	2371	0.16 µg/L	92
		512.9 -> 219.0	602		
PFDODA	9.106	613.1 -> 569.0	3189	0.19 µg/L	96
		613.1 -> 319.0	519		
PFDS	9.257	599.0 -> 79.9	475	0.19 µg/L	90

7.7.13
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	252			
PFHpA	6.455	363.1 -> 319.0	3456	0.19	µg/L	96
		363.1 -> 169.0	555			
PFHpS	7.811	449.0 -> 79.9	614	0.17	µg/L	100
		449.0 -> 98.9	327			
PFHxA	5.525	313.0 -> 269.0	3333	0.18	µg/L	# 95
		313.0 -> 118.9	151			
PFHxS	7.218	398.7 -> 79.9	476	0.15	µg/L	m 72
		398.7 -> 98.9	331			
PFNA	7.671	463.0 -> 419.0	2805	0.18	µg/L	92
		463.0 -> 219.0	590			
PFNS	8.811	548.8 -> 79.9	493	0.23	µg/L	95
		548.8 -> 98.9	240			
PFOA	7.125	413.0 -> 369.0	4425	0.17	µg/L	87
		413.0 -> 169.0	1116			
PFOS	8.330	498.9 -> 79.9	963	0.20	µg/L	m 95
		498.9 -> 98.8	503			
PFPeA	4.377	263.0 -> 219.0	6199	0.37	µg/L	100
PFPeS	6.494	349.1 -> 79.9	537	0.20	µg/L	90
		349.1 -> 98.9	211			
PFTeDA	9.900	713.1 -> 669.0	3013	0.20	µg/L	98
		713.1 -> 168.9	277			
PFTrDA	9.515	663.0 -> 619.0	4485	0.20	µg/L	97
		663.0 -> 168.9	425			
PFUnDA	8.648	563.1 -> 519.0	2858	0.21	µg/L	93
		563.1 -> 269.1	526			
11CI-PF3OUdS	9.556	630.9 -> 450.9	3465	0.35	µg/L	96
		632.9 -> 452.9	1074			
9CI-PF3ONS	8.675	530.8 -> 351.0	4557	0.36	µg/L	98
		532.8 -> 353.0	1327			
ADONA	6.718	376.9 -> 250.9	9891	0.36	µg/L	98
		376.9 -> 84.8	2479			
HFPO-DA	5.891	284.9 -> 168.9	1097	0.42	µg/L	99
		284.9 -> 184.9	129			
3:3FTCA	3.848	241.0 -> 177.0	675	0.92	µg/L	# 84
		241.0 -> 117.0	96			
5:3FTCA	6.180	341.0 -> 237.1	11568	4.67	µg/L	99
		341.0 -> 217.0	7799			
7:3FTCA	7.649	441.0 -> 316.9	6576	5.11	µg/L	88
		441.0 -> 336.9	14448			
EtFOSA	11.362	526.0 -> 219.0	1744	0.36	µg/L	m 94
		526.0 -> 169.0	2559			
EtFOSE	11.282	630.0 -> 58.9	3138	0.83	µg/L	m 100
MeFOSA	11.078	511.9 -> 219.0	1561	0.43	µg/L	m 91
		511.9 -> 169.0	2131			
MeFOSE	10.973	616.1 -> 58.9	2810	1.04	µg/L	100
PFDoDS	10.039	699.1 -> 79.9	456	0.21	µg/L	95
		699.1 -> 98.8	229			
NFDHA	5.416	295.0 -> 201.0	493	0.38	µg/L	95
		295.0 -> 84.9	148			
PFMBA	4.778	279.0 -> 85.1	3393	0.37	µg/L	100
PFMPA	3.540	229.0 -> 84.9	3207	0.37	µg/L	100
PFEESA	5.959	314.8 -> 134.9	4481	0.32	µg/L	96
		314.8 -> 82.9	227			

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

7.7.13
7

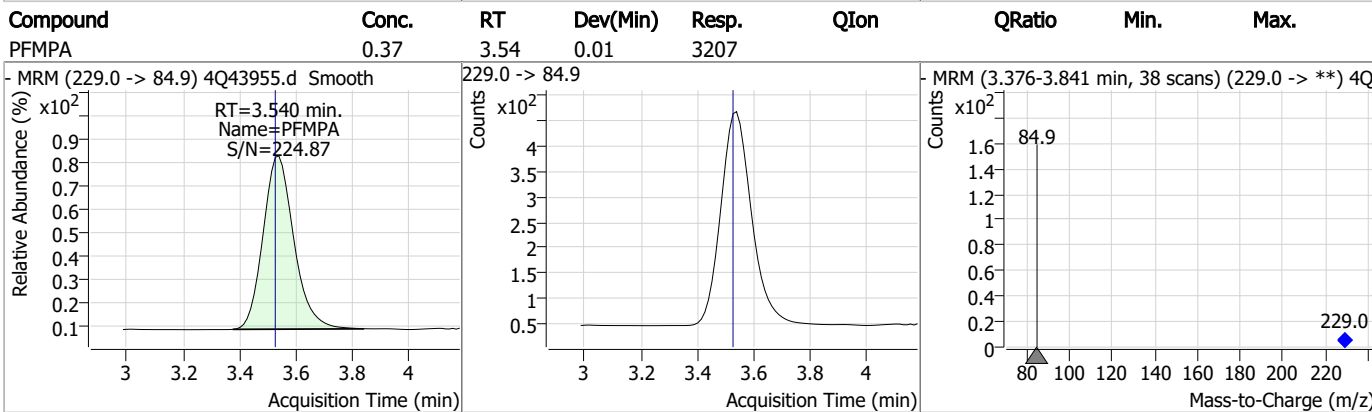
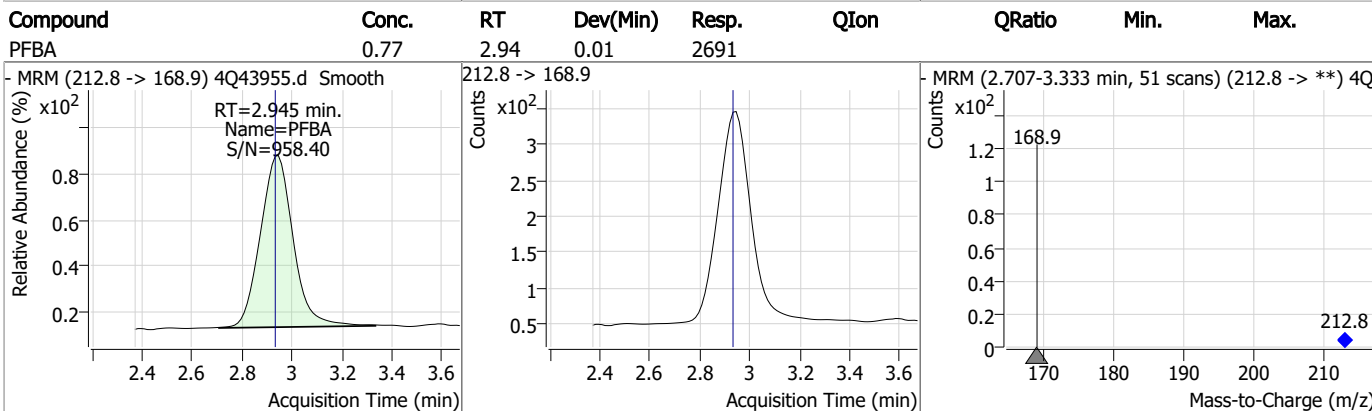
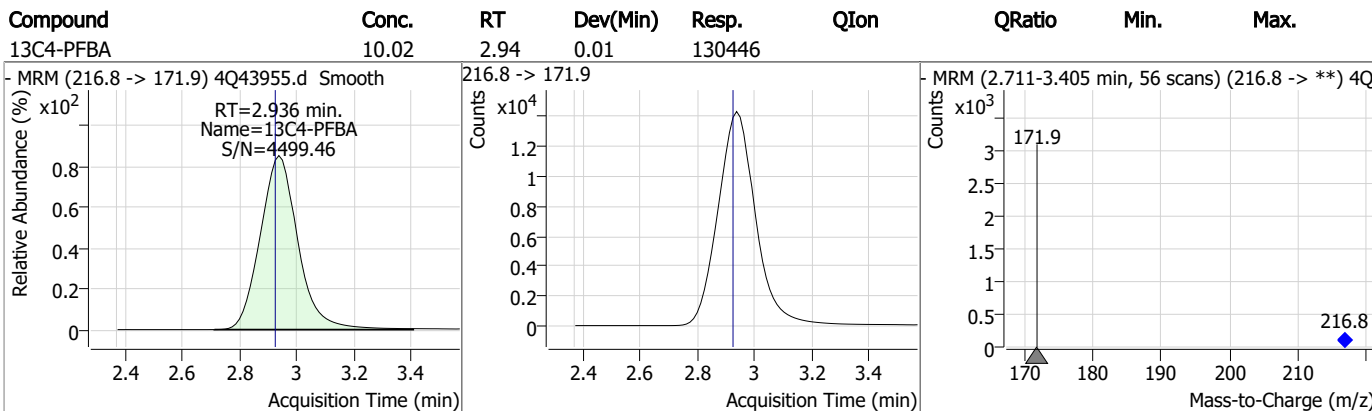
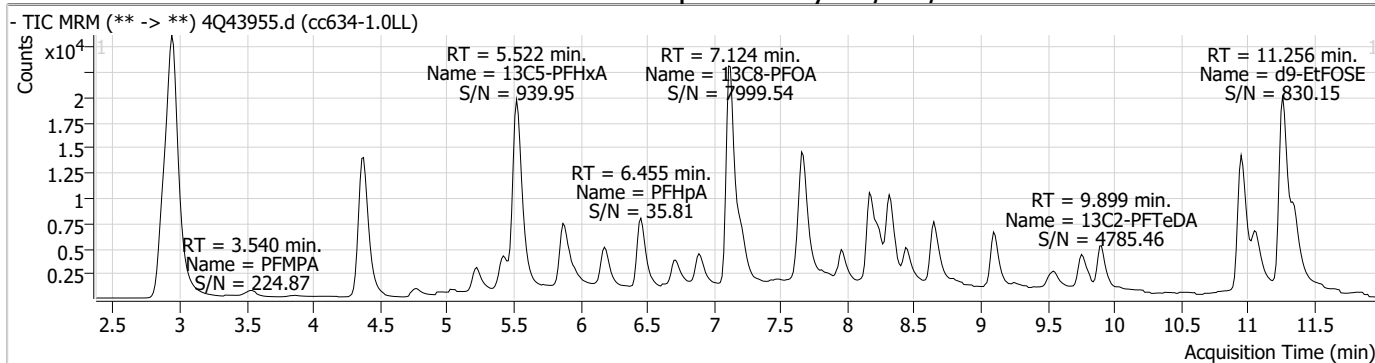
Perfluorinated Compounds by LC/MS/MS

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

7.7.13

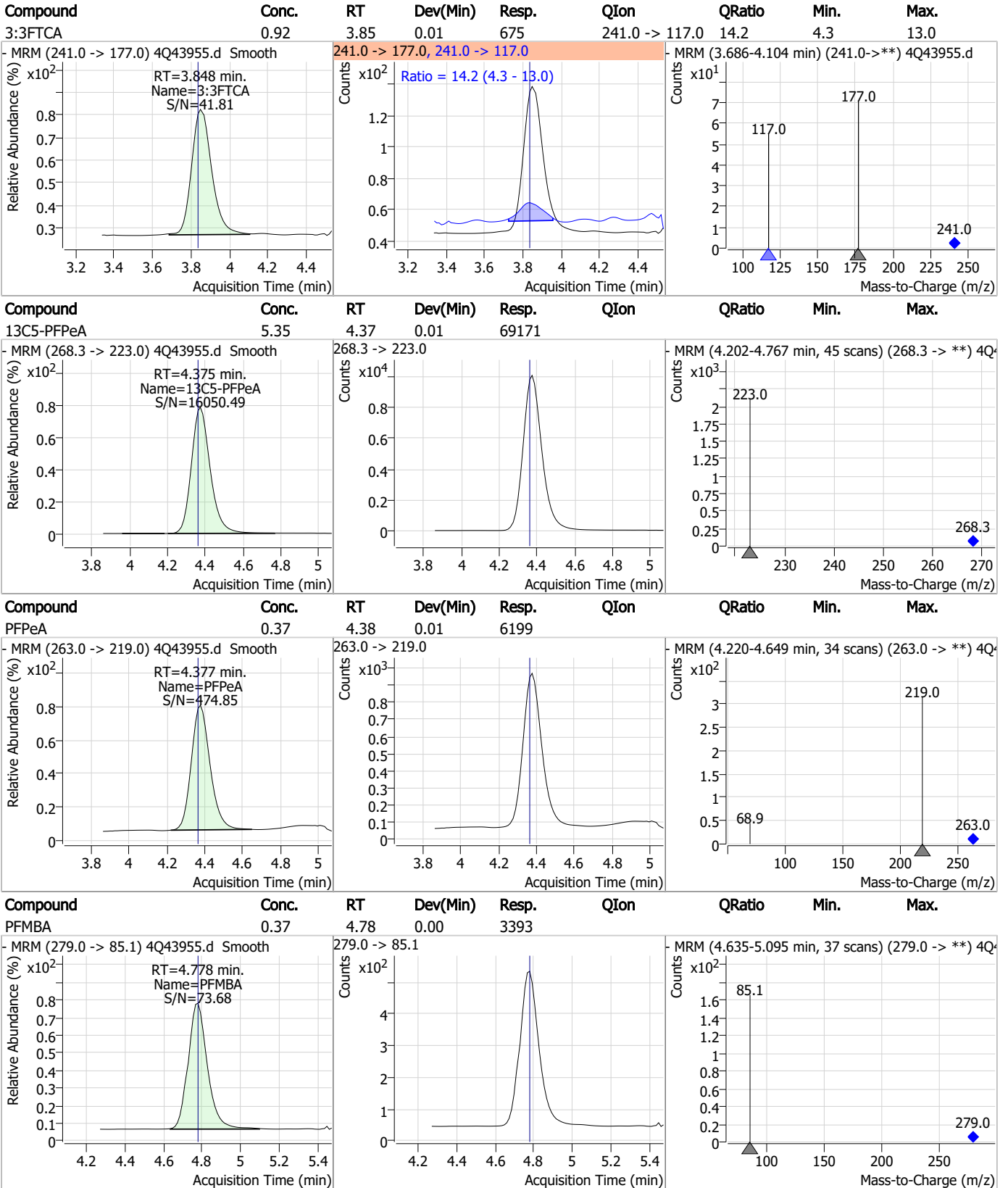
7

Perfluorinated Compounds by LC/MS/MS



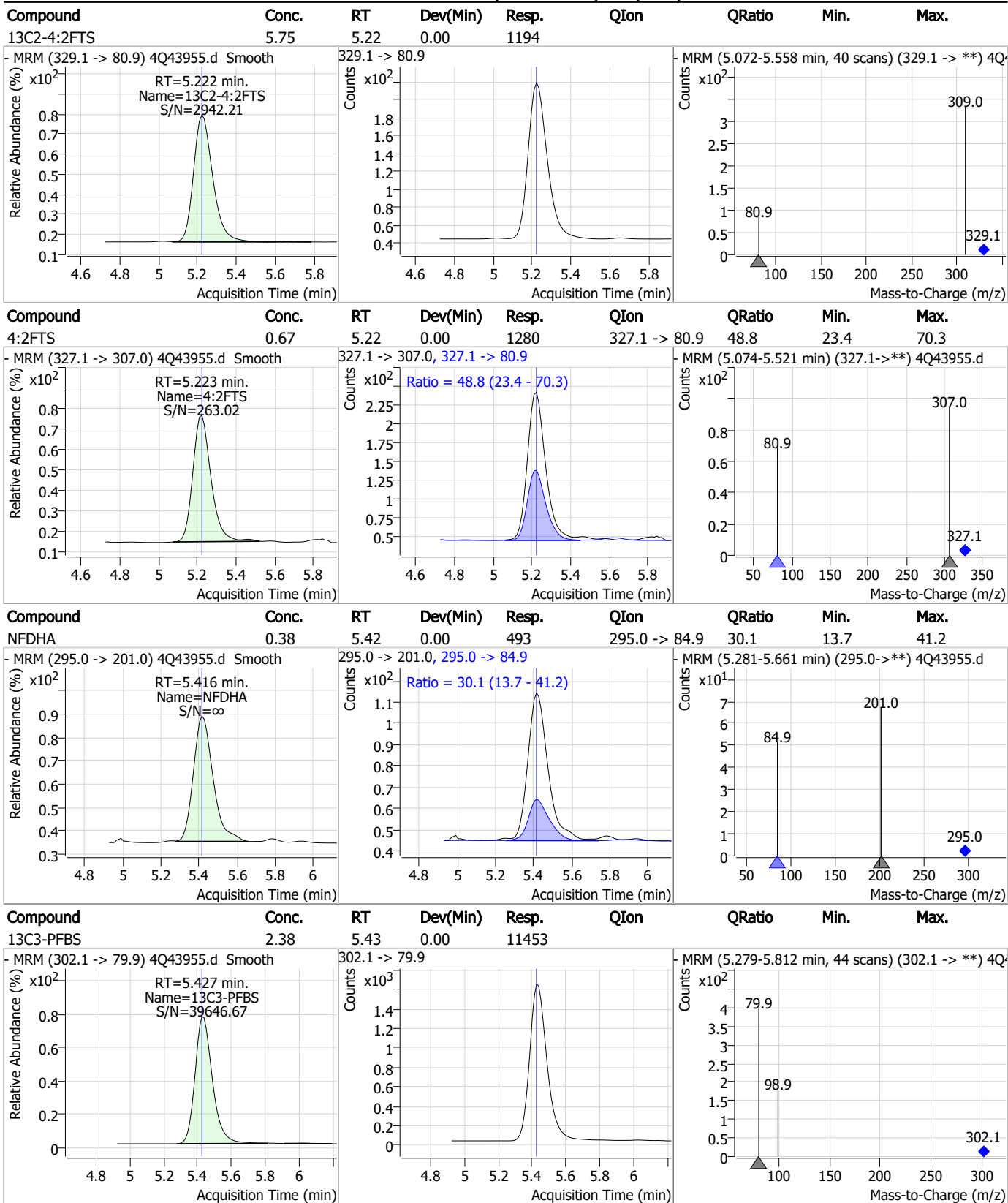
7.7.13
7

Perfluorinated Compounds by LC/MS/MS



7.7.13
7

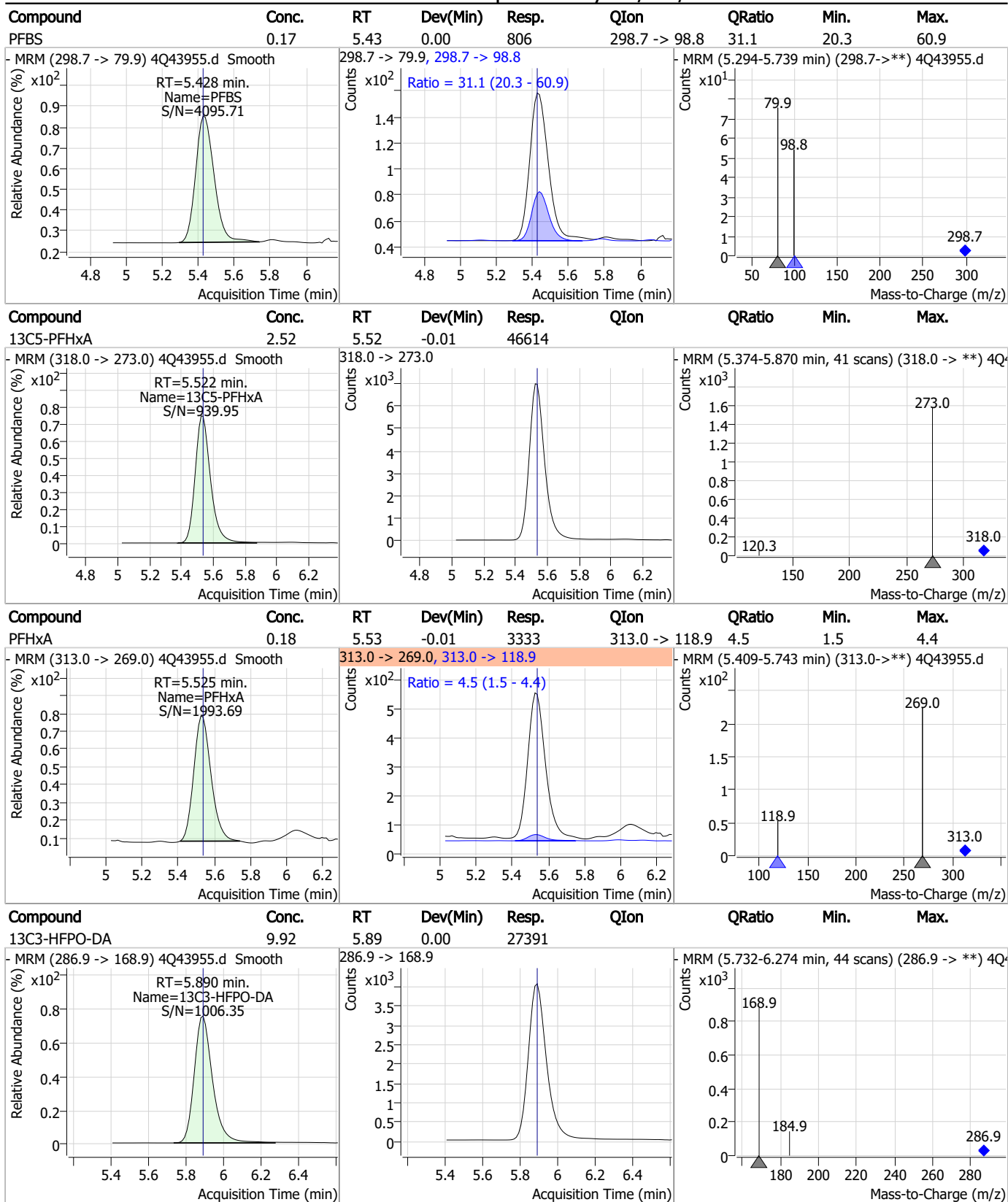
Perfluorinated Compounds by LC/MS/MS



7.7.13

7

Perfluorinated Compounds by LC/MS/MS

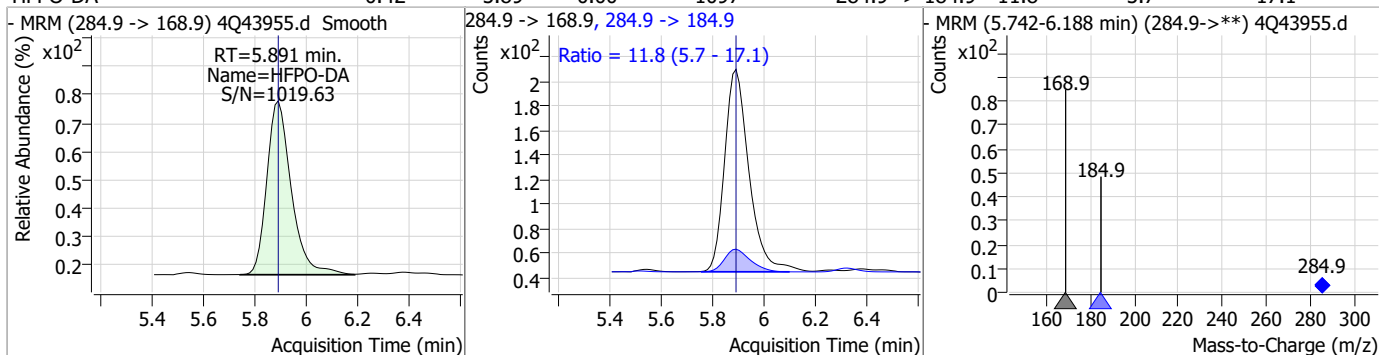


7.7.13
7

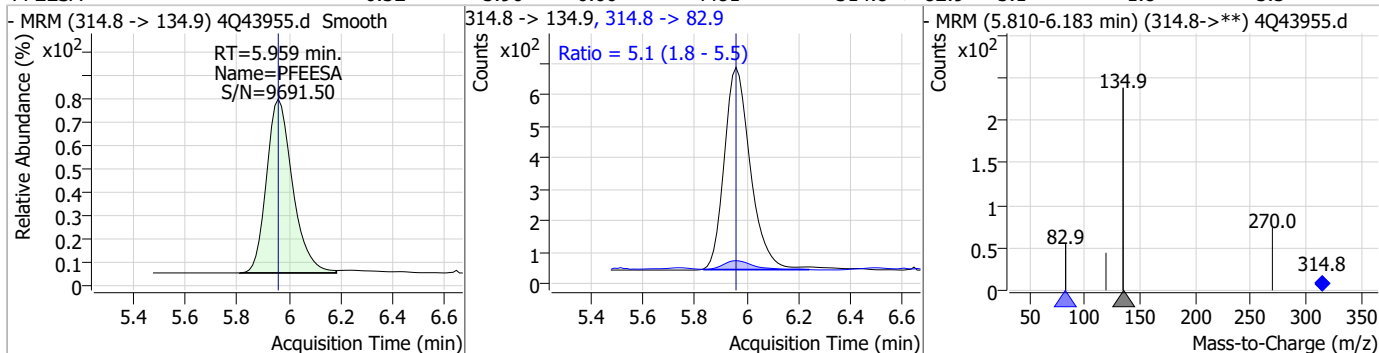


Perfluorinated Compounds by LC/MS/MS

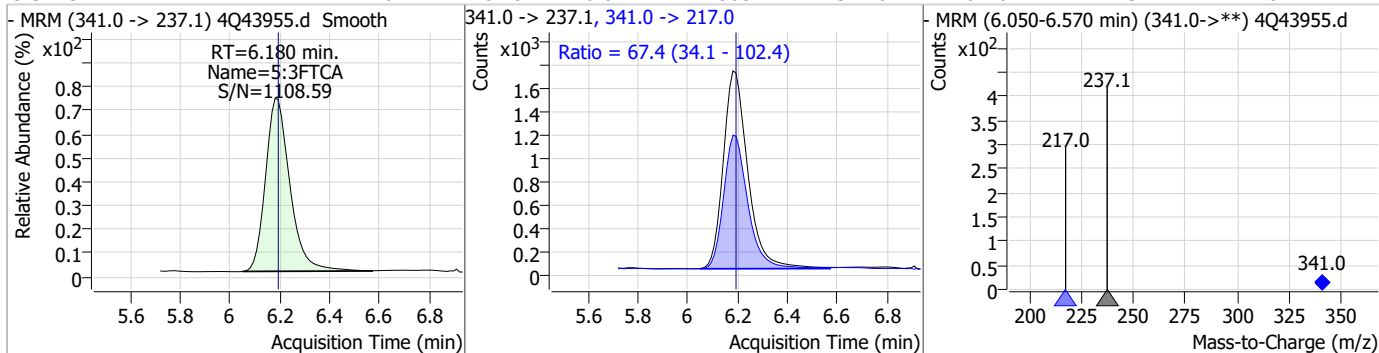
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.42	5.89	0.00	1097	284.9 -> 184.9	11.8	5.7	17.1



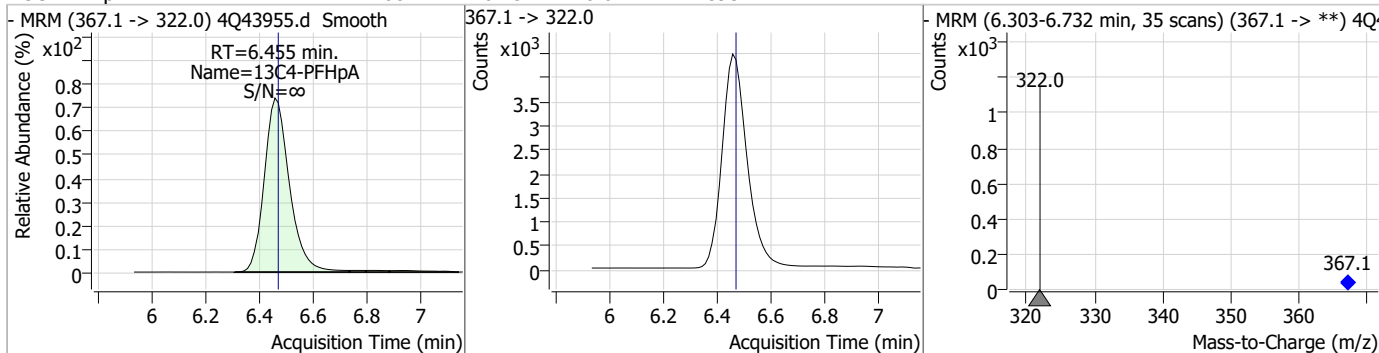
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.32	5.96	0.00	4481	314.8 -> 82.9	5.1	1.8	5.5



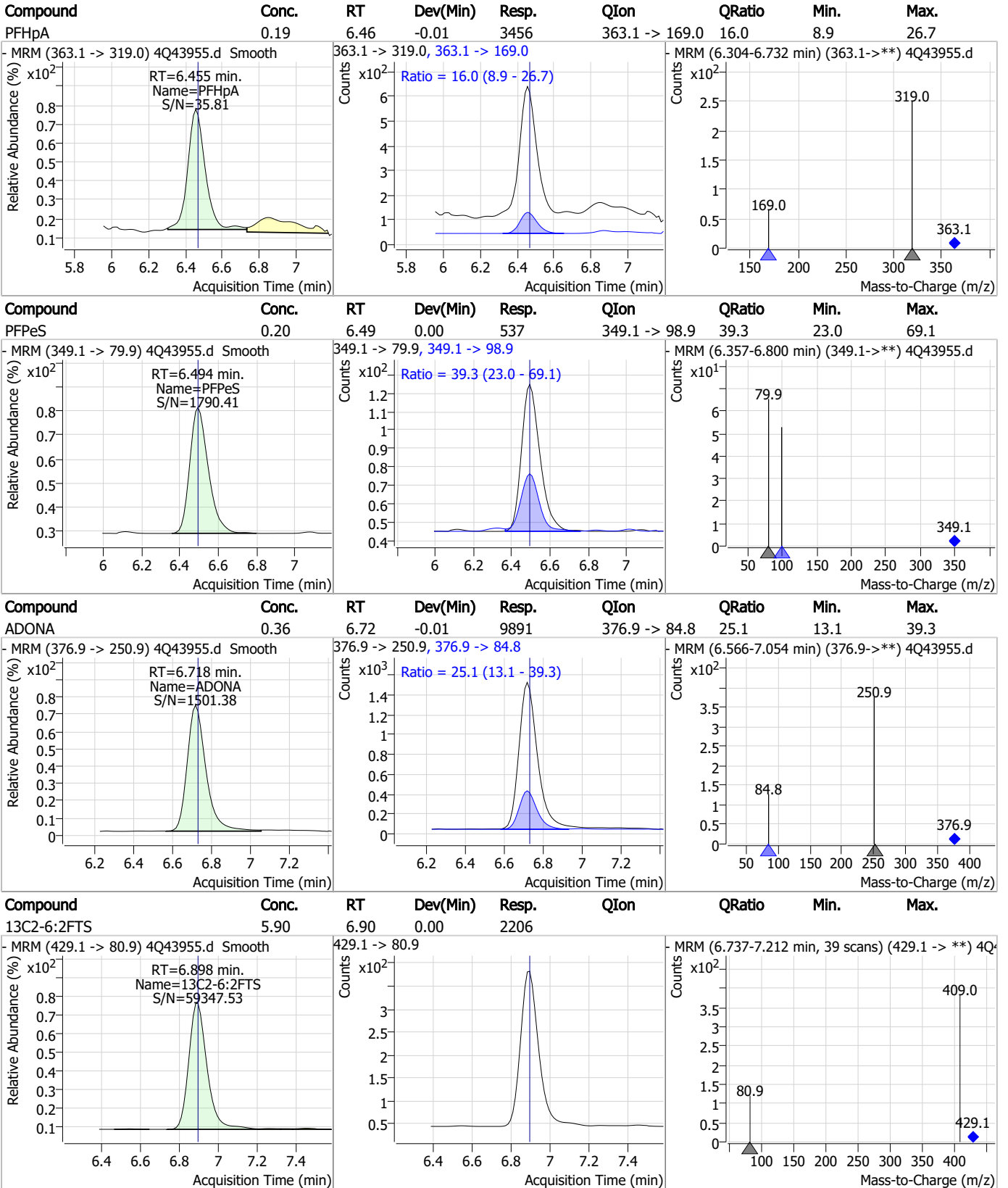
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.67	6.18	-0.01	11568	341.0 -> 217.0	67.4	34.1	102.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.68	6.45	-0.01	28931	367.1 -> 322.0			

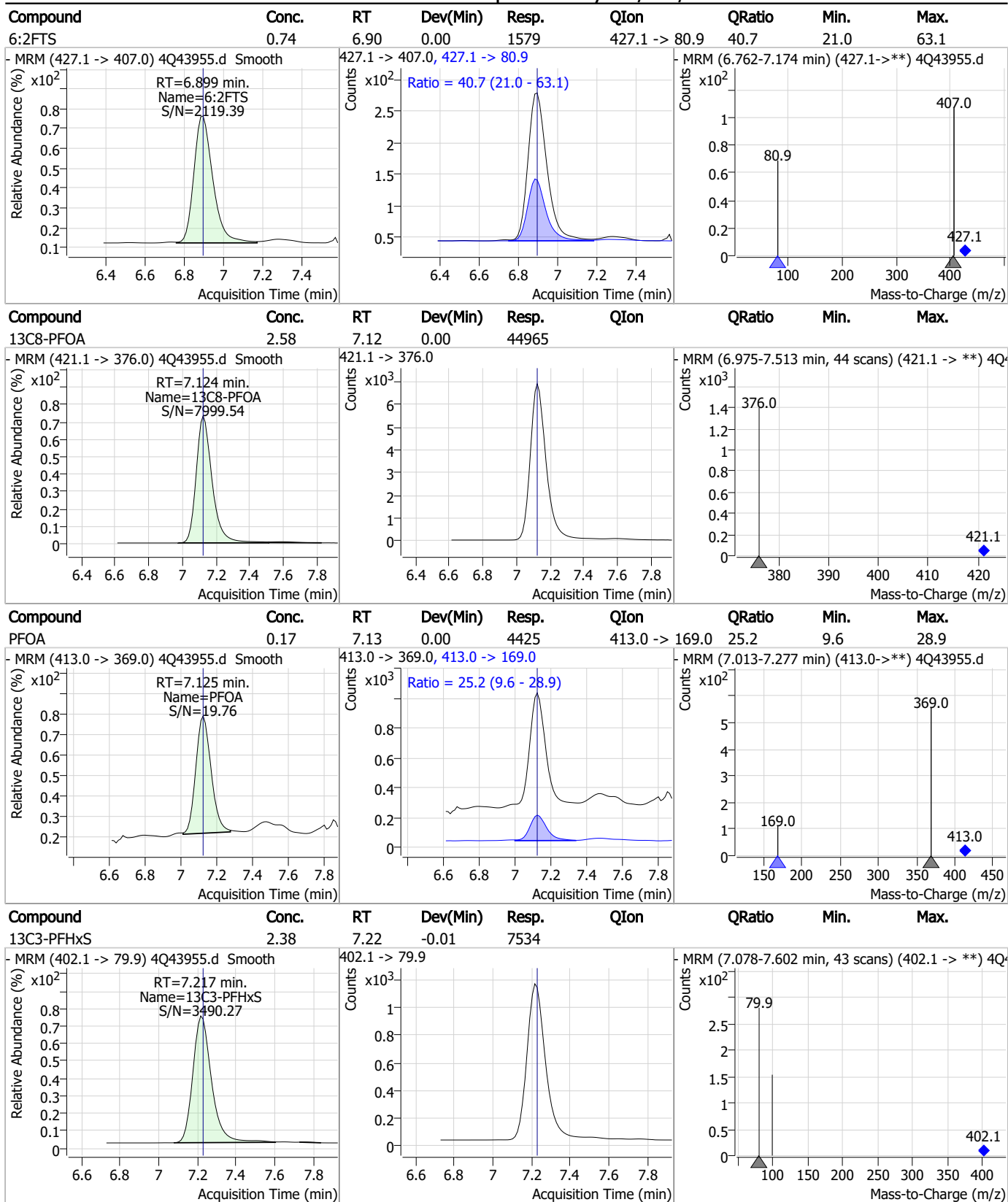


Perfluorinated Compounds by LC/MS/MS



7.7.13
7

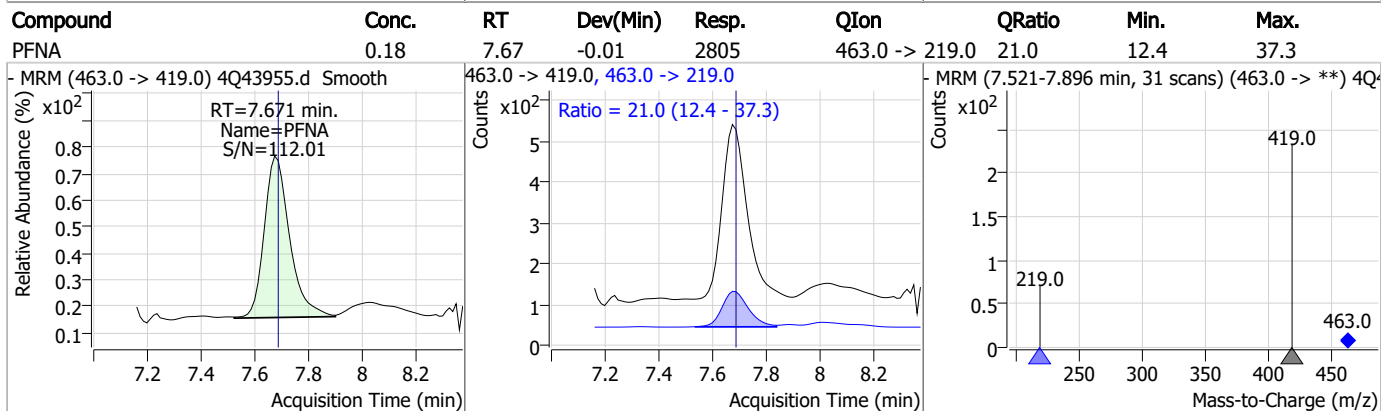
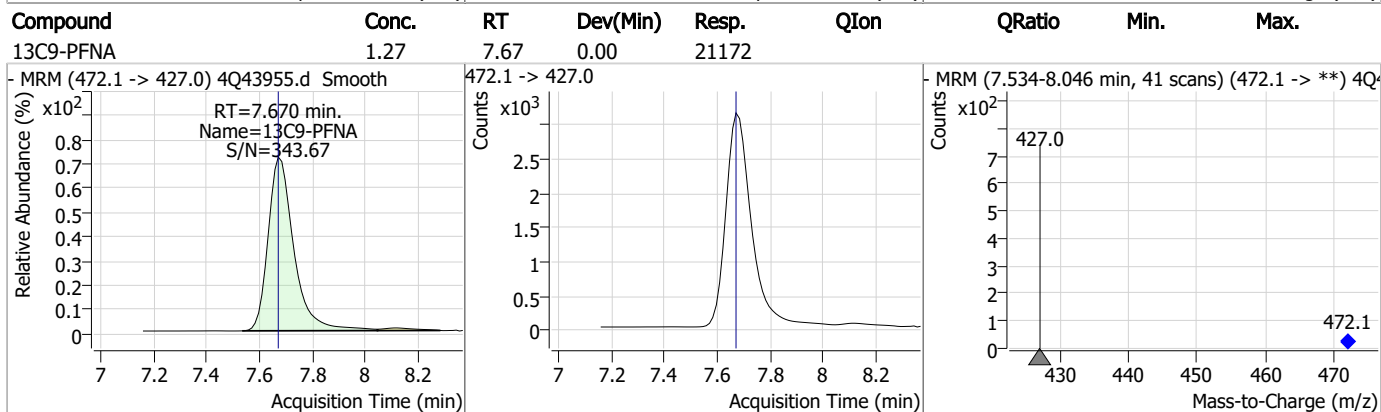
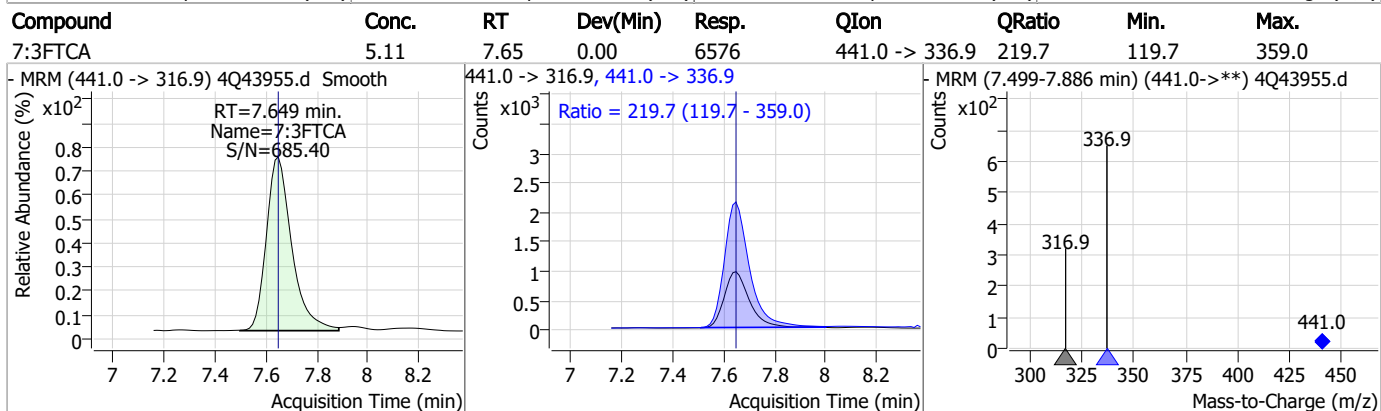
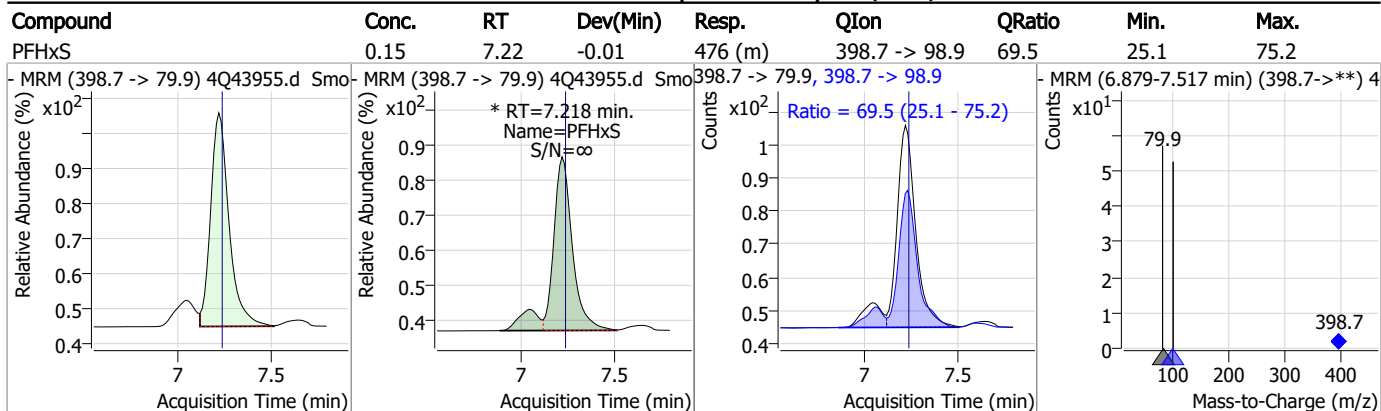
Perfluorinated Compounds by LC/MS/MS



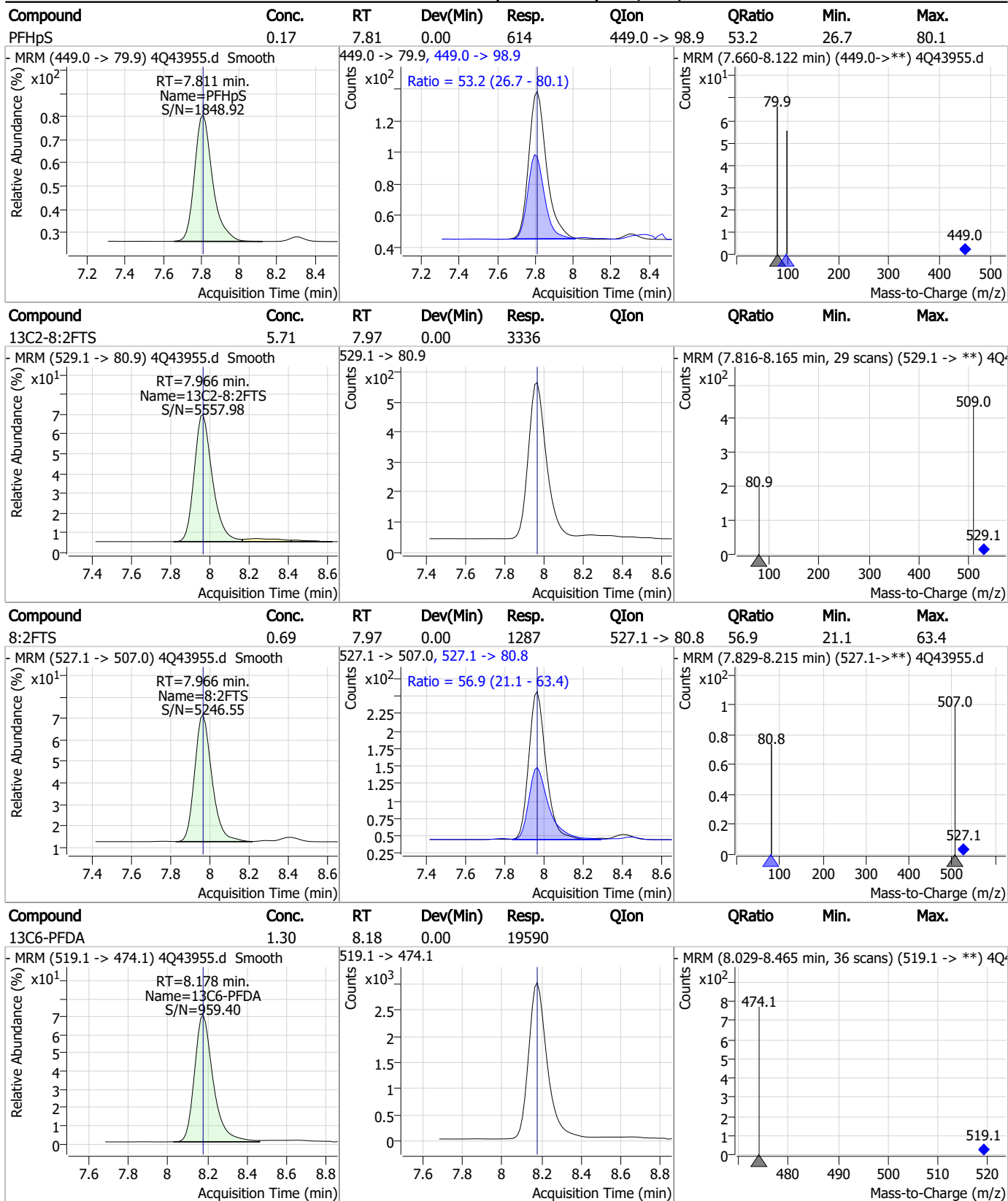
7.7.13

7

Perfluorinated Compounds by LC/MS/MS

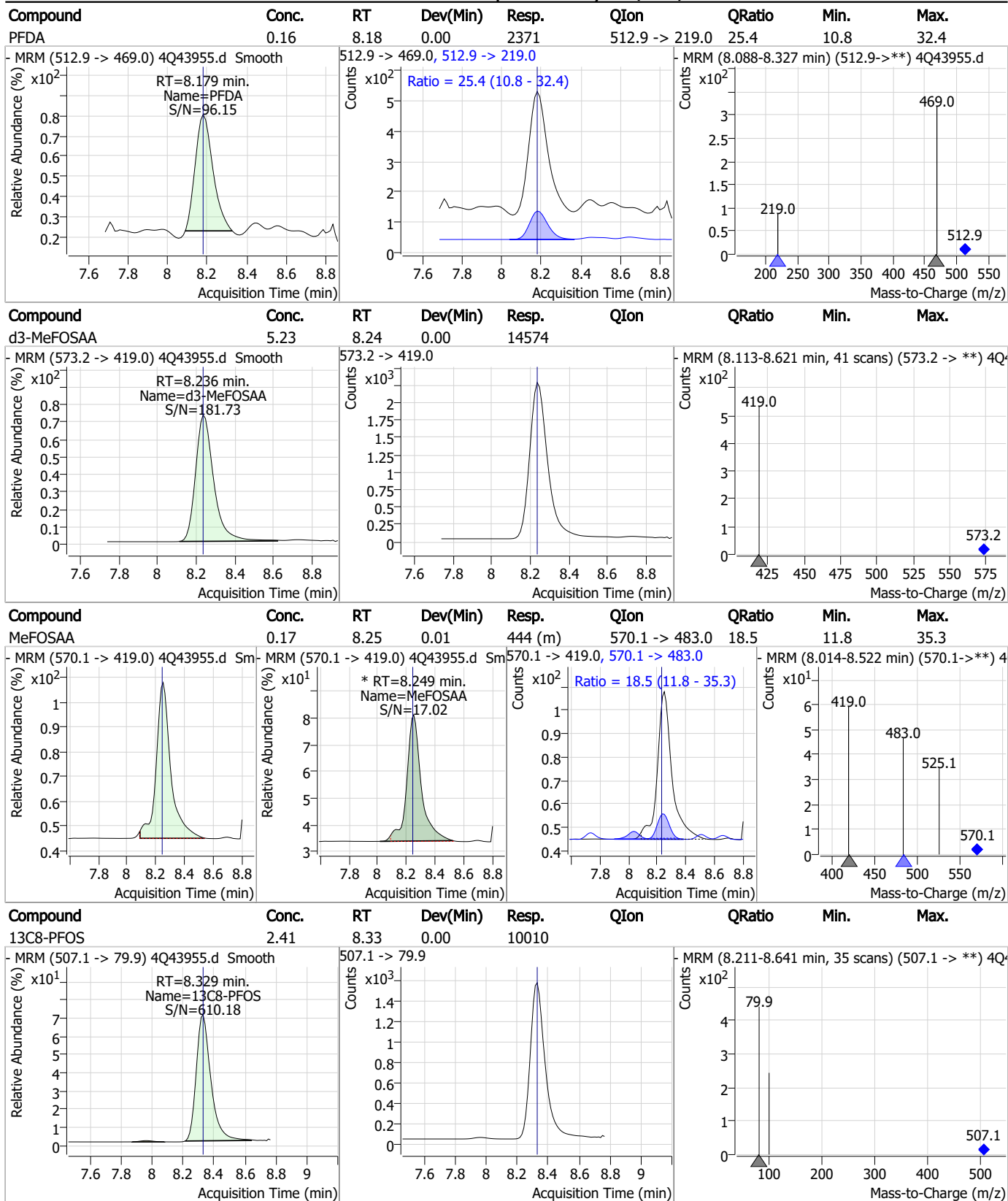


Perfluorinated Compounds by LC/MS/MS



7.7.13
7

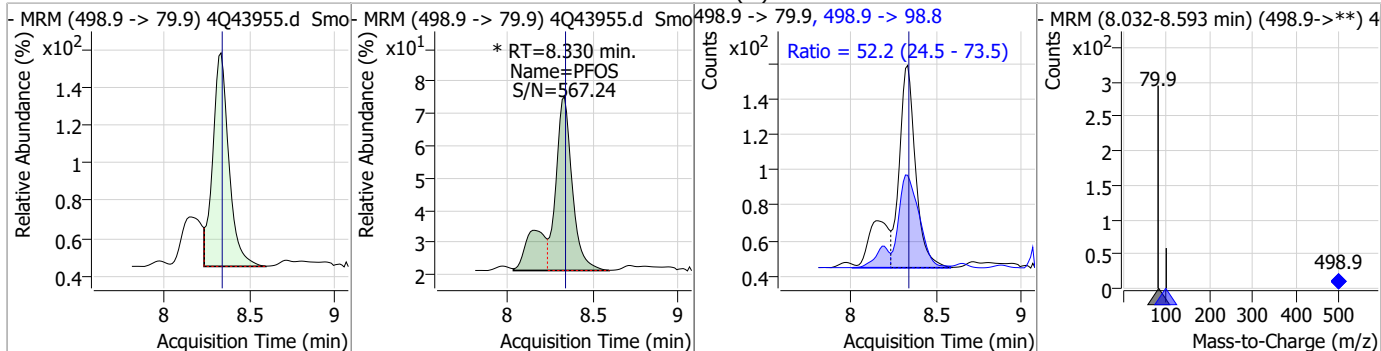
Perfluorinated Compounds by LC/MS/MS



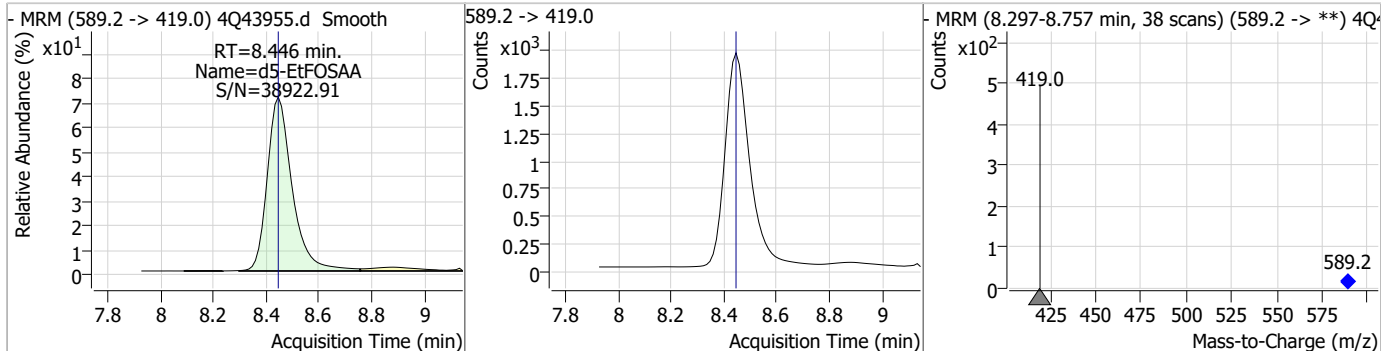
7.7.13
7

Perfluorinated Compounds by LC/MS/MS

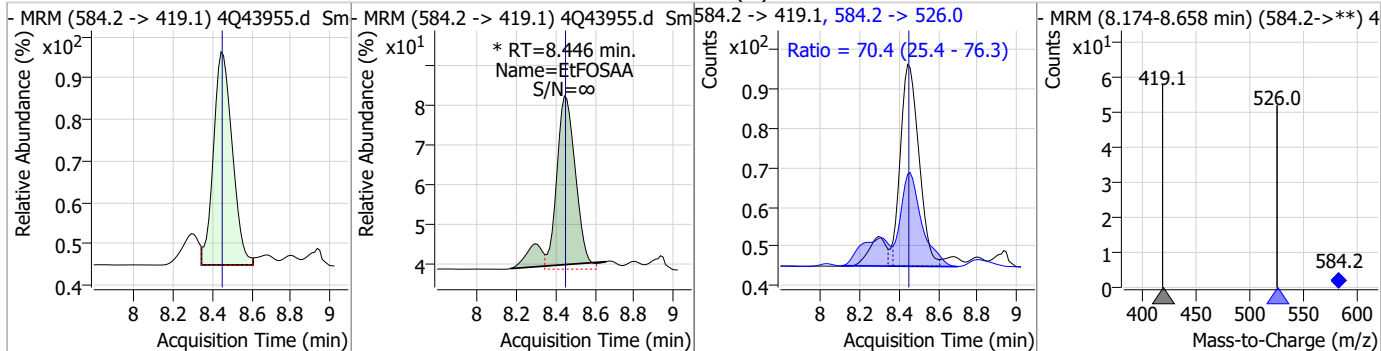
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.20	8.33	0.00	963 (m)	498.9 -> 98.8	52.2	24.5	73.5



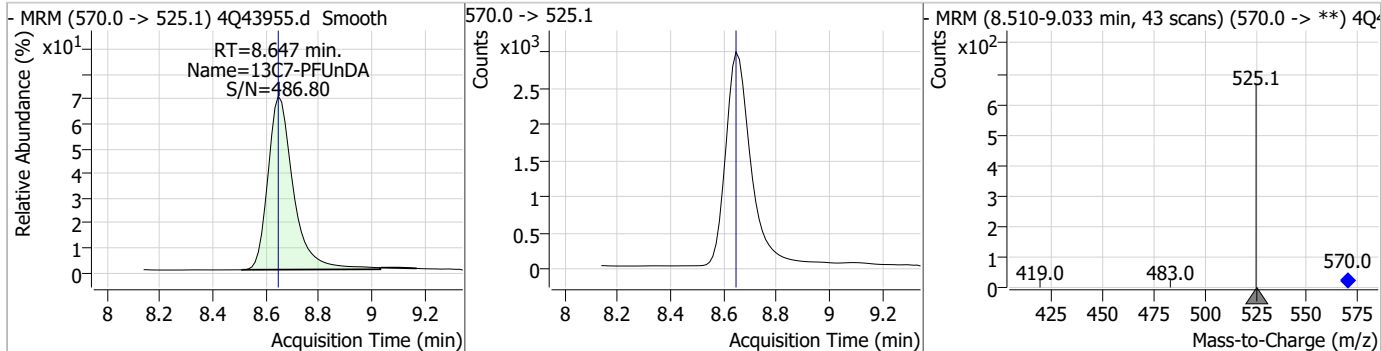
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSAA	5.54	8.45	0.00	12714				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSAA	0.15	8.45	0.00	354 (m)	584.2 -> 526.0	70.4	25.4	76.3

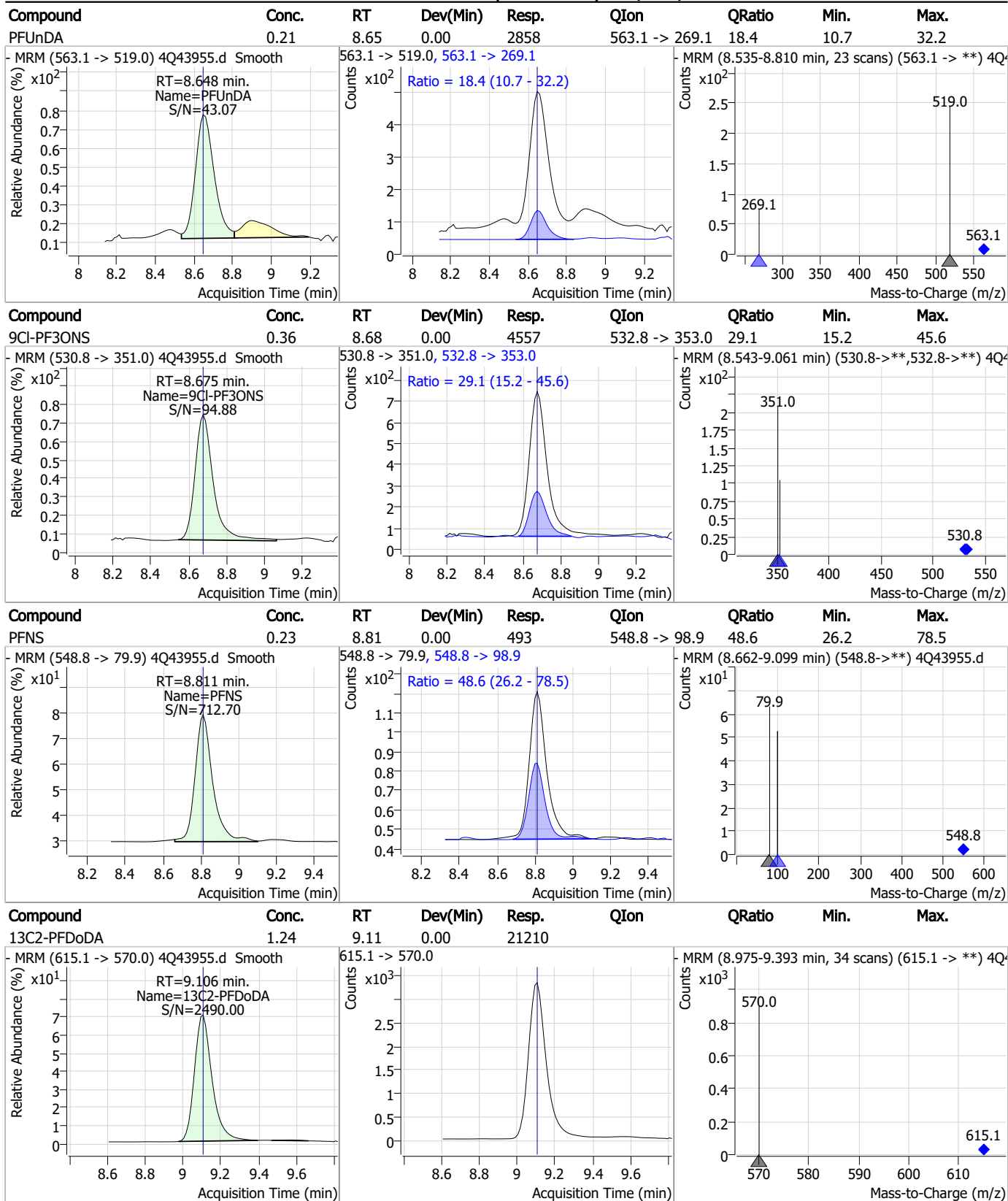


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C7-PFUnDA	1.25	8.65	0.00	19681				



7.7.13
7

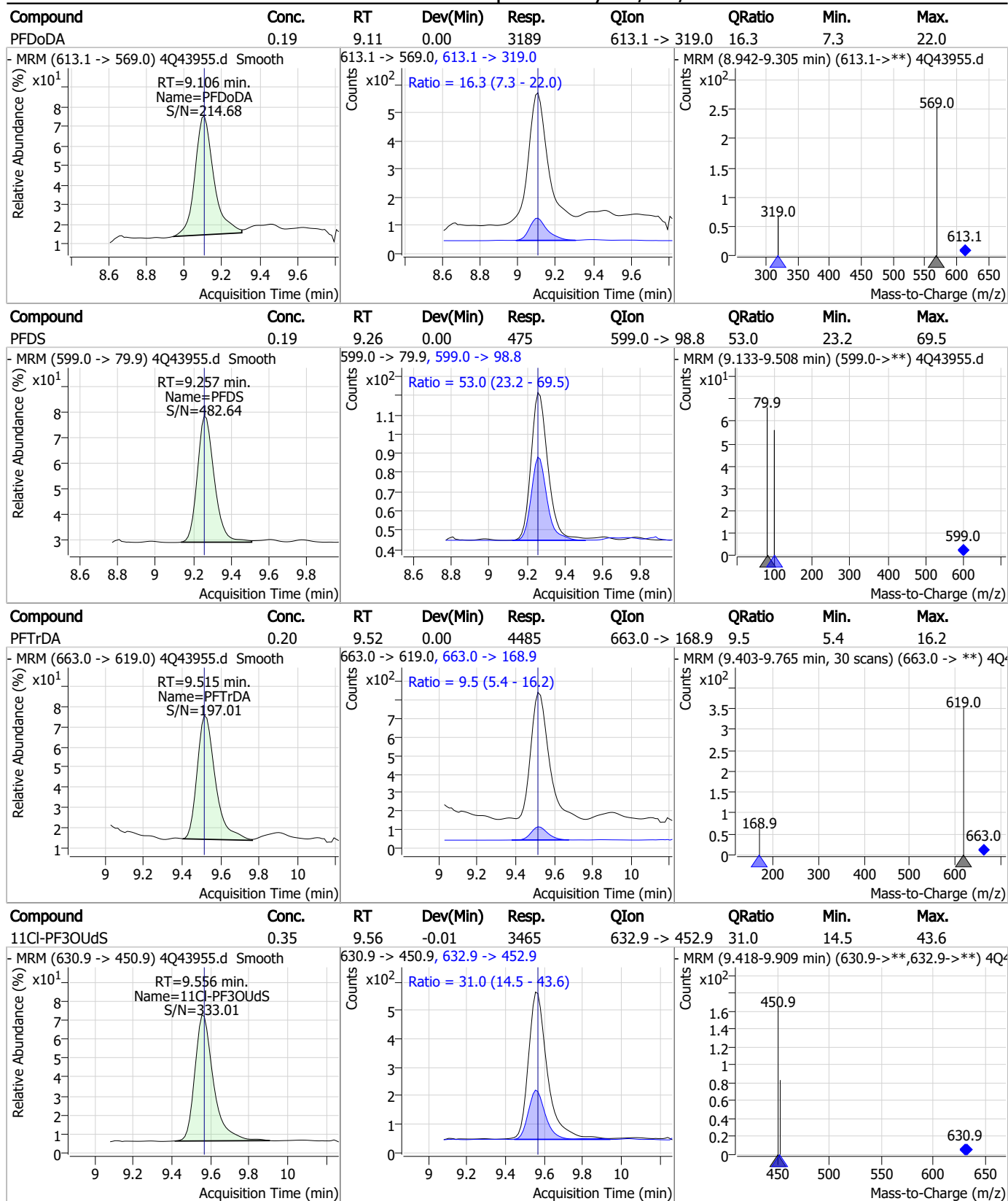
Perfluorinated Compounds by LC/MS/MS



7.7.13

7

Perfluorinated Compounds by LC/MS/MS

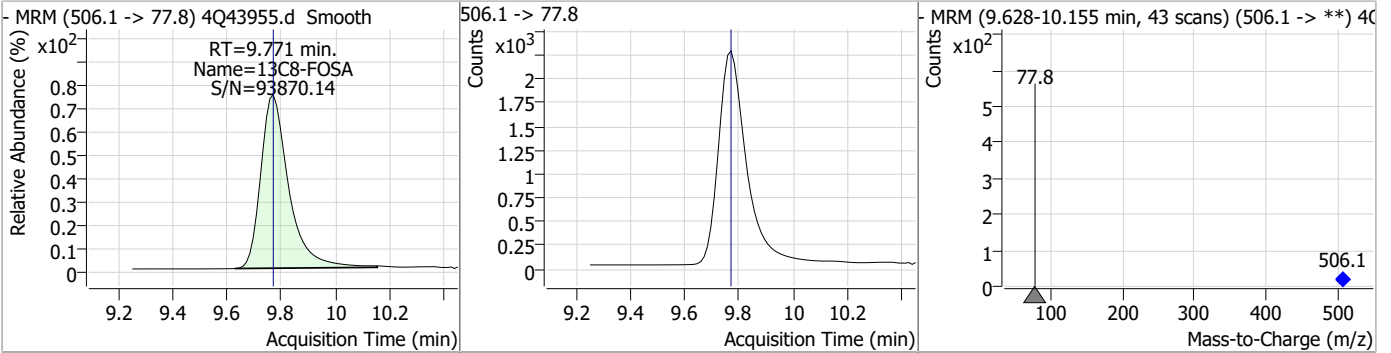


7.7.13

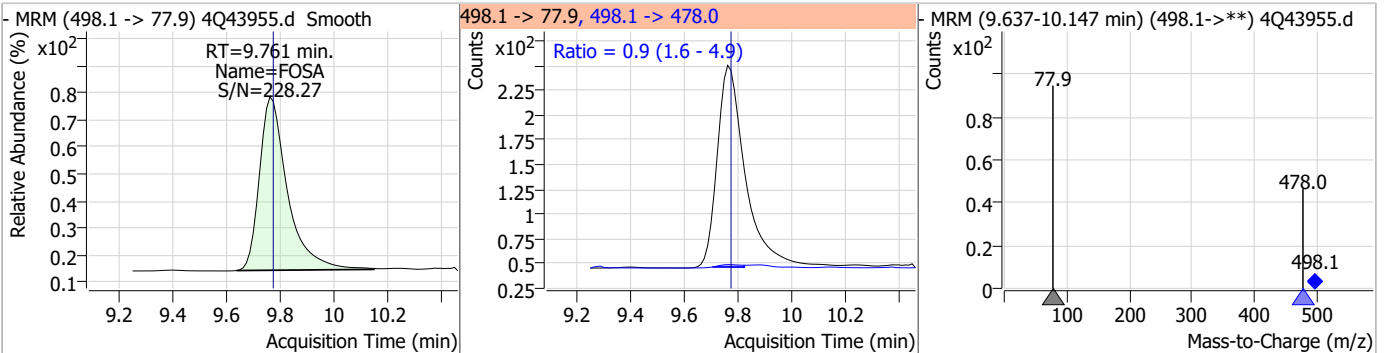
7

Perfluorinated Compounds by LC/MS/MS

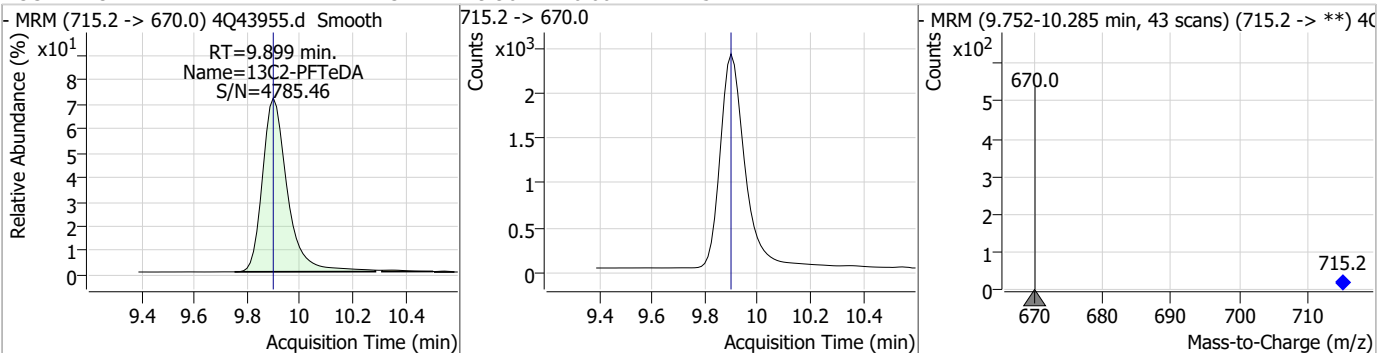
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.34	9.77	0.00	16175				



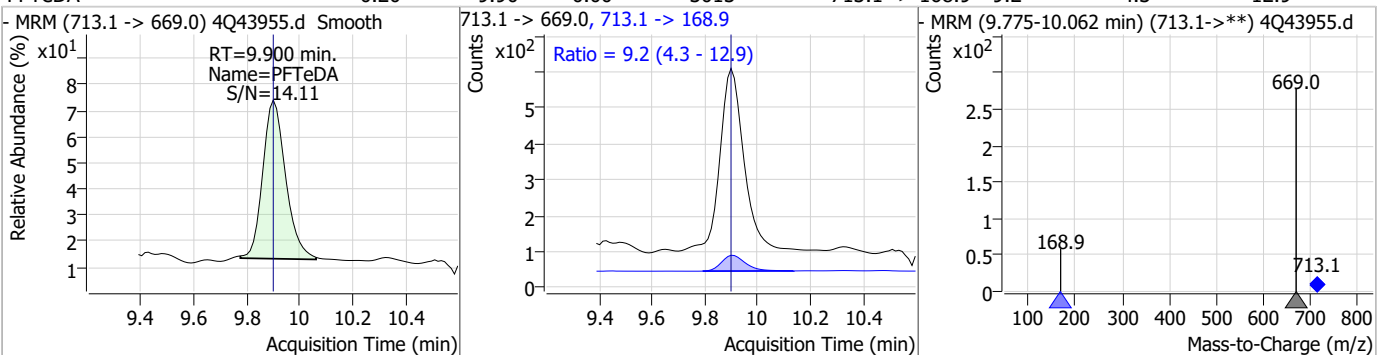
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.22	9.76	-0.01	1482	498.1 -> 478.0	0.9	1.6	4.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.13	9.90	0.00	15711				

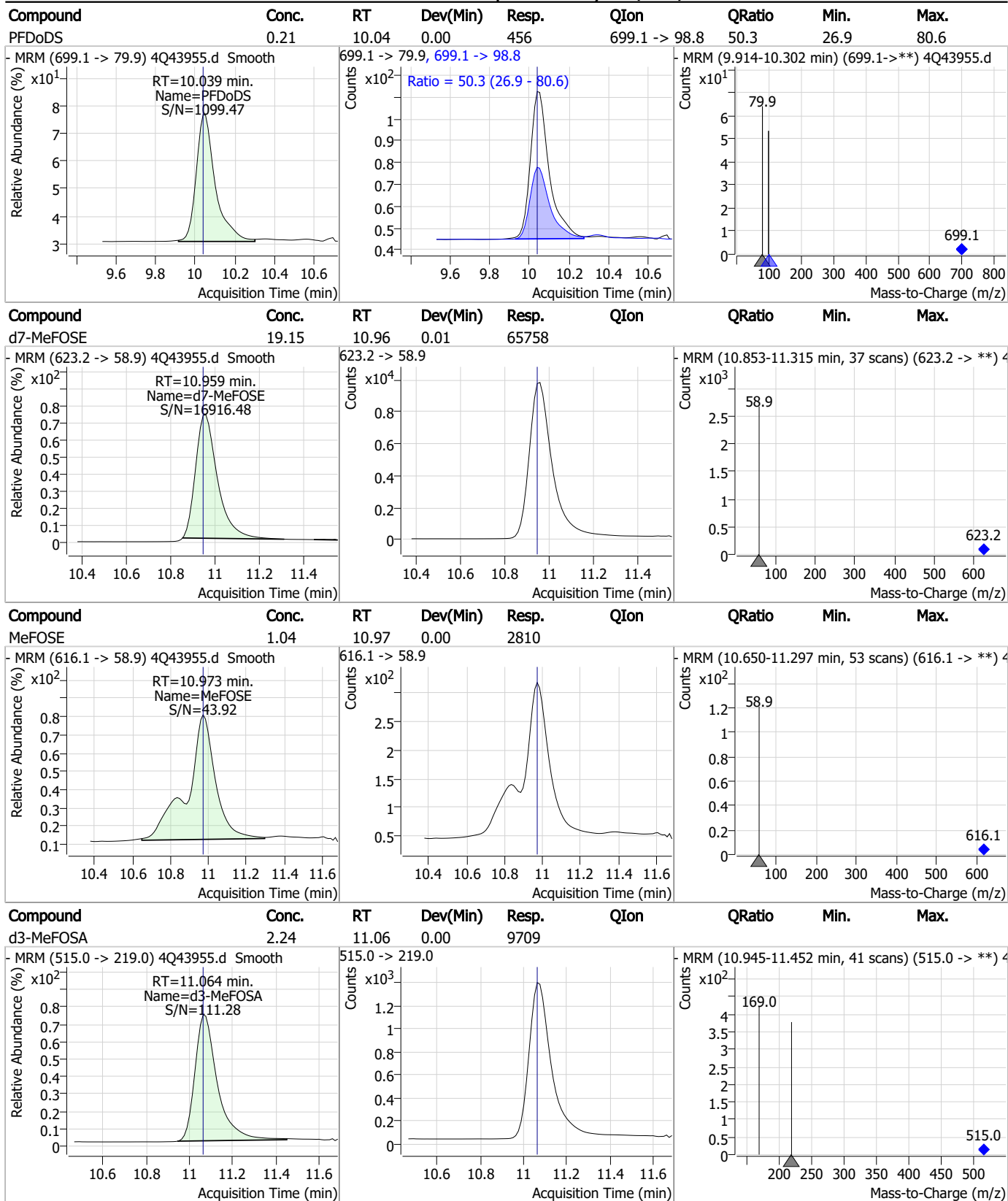


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.20	9.90	0.00	3013	713.1 -> 168.9	9.2	4.3	12.9



7.7.13 7

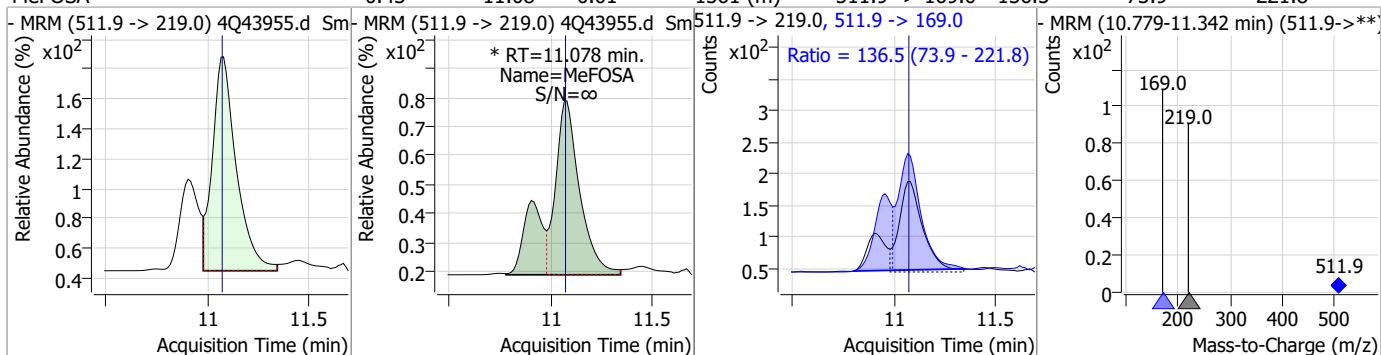
Perfluorinated Compounds by LC/MS/MS



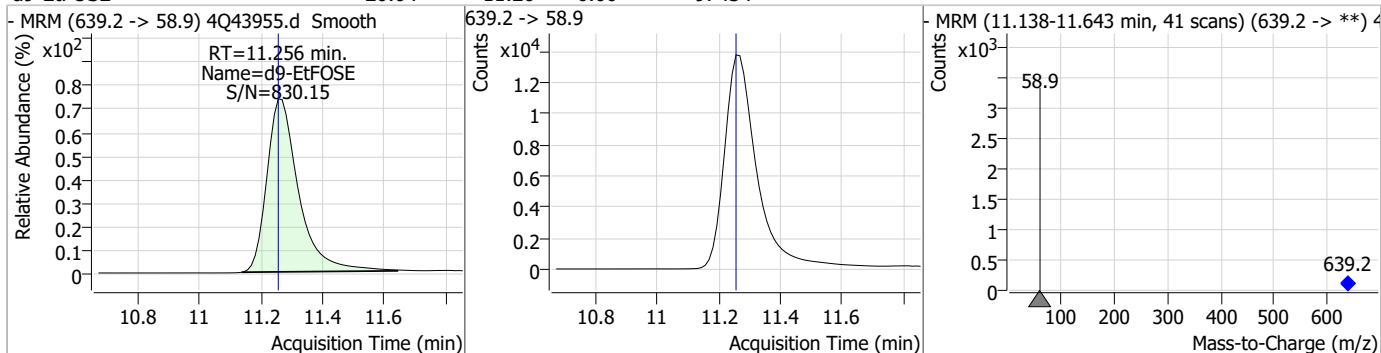
7.7.13
7

Perfluorinated Compounds by LC/MS/MS

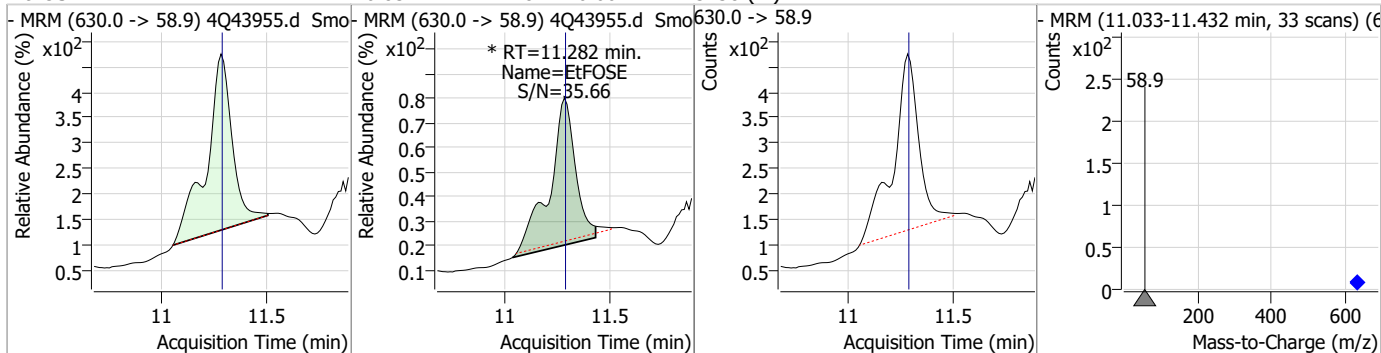
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	0.43	11.08	0.01	1561 (m)	511.9 -> 169.0	136.5	73.9	221.8



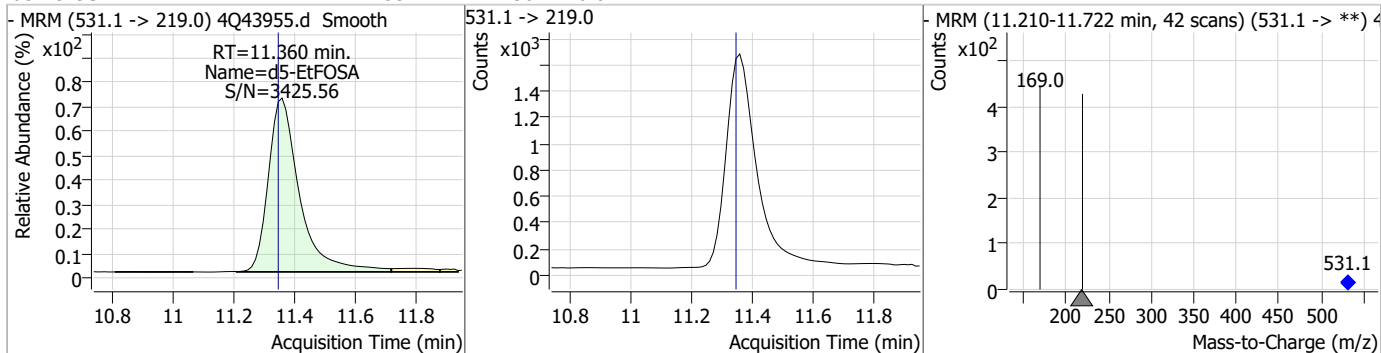
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	20.04	11.26	0.00	97434				



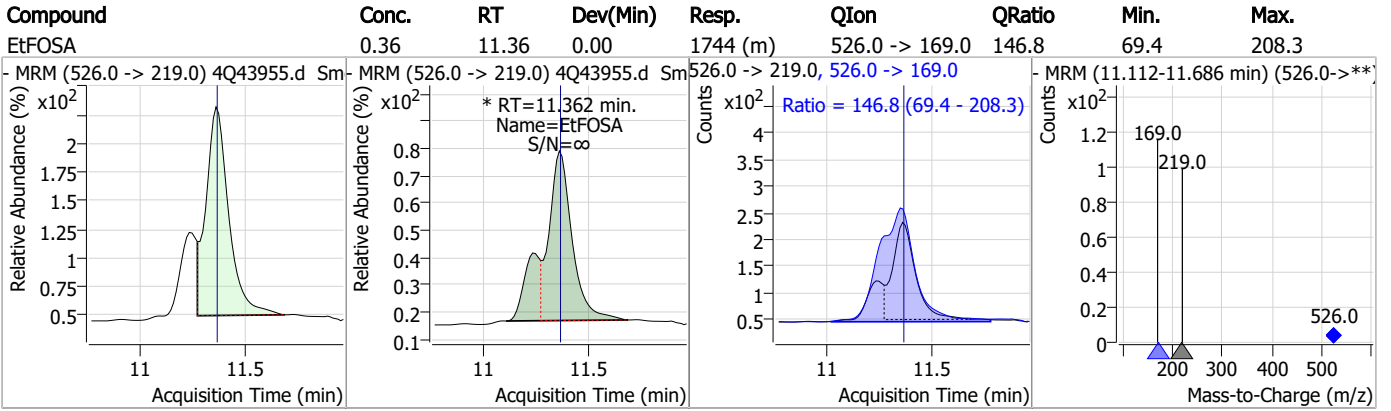
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	0.83	11.28	0.00	3138 (m)				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.55	11.36	0.01	11714				



Perfluorinated Compounds by LC/MS/MS



7.7.13

7

Manual Integration Approval Summary

Sample Number: S4Q635-CC634 Method: EPA DRAFT 1633
Lab FileID: 4Q43955.D Analyst approved: 05/05/23 07:50 Natasha Gumtie
Injection Time: 05/04/23 13:02 Supervisor approved: 05/05/23 16:38 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.22	Split peak
MeFOSAA	2355-31-9		8.25	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.33	Split peak
EtFOSAA	2991-50-6		8.45	Split peak
MeFOSA	31506-32-8		11.08	Split peak
EtFOSE	1691-99-2		11.28	Split peak
EtFOSA	4151-50-2		11.36	Split peak

7.7.13.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 4Q43966.d
 Operator : natashag
 Acq. Method : 1633full_4Q.m
 Acq. Date-Time : 5/4/2023 3:38:49 PM
 Sample Name : cc634-4
 Vial : P1-A5
 DA Method File : 1633_050323_S4Q634.quantmethod.xml
 Batch Name : s4q635.batch.bin
 Sample Information : OP96548,S4Q635,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.924	216.8 -> 171.9	136305	10.00 µg/L	0.000
M5-PFPeA	4.387	268.3 -> 223.0	69960	5.00 µg/L	0.025
M5-PFHxA	5.559	318.0 -> 273.0	49718	2.50 µg/L	0.025
M4-PFHpA	6.492	367.1 -> 322.0	29359	2.50 µg/L	0.025
M8-PFOA	7.148	421.1 -> 376.0	44708	2.50 µg/L	0.025
M9-PFNA	7.709	472.1 -> 427.0	21438	1.25 µg/L	0.038
M6-PFDA	8.216	519.1 -> 474.1	19775	1.25 µg/L	0.038
M7-PFUnDA	8.685	570.0 -> 525.1	21560	1.25 µg/L	0.038
M2-PFDoDA	9.130	615.1 -> 570.0	23153	1.25 µg/L	0.025
M2-PFTeDA	9.924	715.2 -> 670.0	16923	1.25 µg/L	0.025
M8-FOSA	9.796	506.1 -> 77.8	16822	2.50 µg/L	0.025
M3-PFBS	5.452	302.1 -> 79.9	11149	2.50 µg/L	0.025
M3-PFHxS	7.254	402.1 -> 79.9	7576	2.50 µg/L	0.025
M8-PFOS	8.354	507.1 -> 79.9	10865	2.50 µg/L	0.025
M2-4:2FTS	5.235	329.1 -> 80.9	1167	5.00 µg/L	0.012
M2-6:2FTS	6.923	429.1 -> 80.9	2142	5.00 µg/L	0.025
M2-8:2FTS	7.990	529.1 -> 80.9	3338	5.00 µg/L	0.025
M3-MeFOSAA	8.273	573.2 -> 419.0	15896	5.00 µg/L	0.037
M3-HFPO-DA	5.914	286.9 -> 168.9	27472	10.00 µg/L	0.025
M5-EtFOSAA	8.483	589.2 -> 419.0	12454	5.00 µg/L	0.037
M7-MeFOSE	10.972	623.2 -> 58.9	75867	25.00 µg/L	0.025
M9-EtFOSE	11.281	639.2 -> 58.9	103090	25.00 µg/L	0.025
M5-EtFOSA	11.373	531.1 -> 219.0	11875	2.50 µg/L	0.025
M3-MeFOSA	11.089	515.0 -> 219.0	10755	2.50 µg/L	0.025
13C4-PFOS	8.354	502.8 -> 79.9	11850	2.50 µg/L	0.025
13C3-PFBA	2.928	216.0 -> 172.0	72273	5.00 µg/L	0.000
18O2-PFHxS	7.253	403.0 -> 83.9	5509	2.50 µg/L	0.025
13C4-PFOA	7.163	417.1 -> 372.0	54405	2.50 µg/L	0.039
13C2-PFDA	8.216	515.1 -> 470.1	18499	1.25 µg/L	0.038
13C5-PFNA	7.709	468.0 -> 423.0	26533	1.25 µg/L	0.025
13C2-PFHxA	5.560	315.1 -> 270.0	43263	2.50 µg/L	0.025
System Monitoring Compounds					
13C2-4:2FTS	5.235	329.1 -> 80.9	1167	5.21 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.2%		
13C2-6:2FTS	6.923	429.1 -> 80.9	2142	5.31 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.1%		
13C2-8:2FTS	7.990	529.1 -> 80.9	3338	5.30 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-PFDoDA	9.130	615.1 -> 570.0	23153	1.29 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.3%		
13C2-PFTeDA	9.924	715.2 -> 670.0	16923	1.16 µg/L	0.025
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.8%		
13C3-PFBS	5.452	302.1 -> 79.9	11149	2.15 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 85.8%		
13C3-PFHxS	7.254	402.1 -> 79.9	7576	2.22 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 = 88.7%	
13C4-PFBA	2.924	216.8 -> 171.9	136305	10.02 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C4-PFHpA	6.492	367.1 -> 322.0	29359	2.64 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C5-PFHxA	5.559	318.0 -> 273.0	49718	2.61 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C5-PFPeA	4.387	268.3 -> 223.0	69960	5.25 µg/L	0.025
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C6-PFDA	8.216	519.1 -> 474.1	19775	1.25 µg/L	0.038
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C7-PFUnDA	8.685	570.0 -> 525.1	21560	1.31 µg/L	0.038
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C8-FOSA	9.796	506.1 -> 77.8	16822	2.26 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.5%	
13C8-PFOA	7.148	421.1 -> 376.0	44708	2.50 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C8-PFOS	8.354	507.1 -> 79.9	10865	2.44 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.4%	
13C9-PFNA	7.709	472.1 -> 427.0	21438	1.19 µg/L	0.038
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 95.1%	
d3-MeFOSAA	8.273	573.2 -> 419.0	15896	5.31 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.3%	
13C3-HFPO-DA	5.914	286.9 -> 168.9	27472	9.65 µg/L	0.025
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
d3-MeFOSA	11.089	515.0 -> 219.0	10755	2.31 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 92.6%	
d5-EtFOSAA	8.483	589.2 -> 419.0	12454	5.06 µg/L	0.037
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d7-MeFOSE	10.972	623.2 -> 58.9	75867	20.58 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 82.3%	
d9-EtFOSE	11.281	639.2 -> 58.9	103090	19.75 µg/L	0.025
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 79.0%	
d5-EtFOSA	11.373	531.1 -> 219.0	11875	2.40 µg/L	0.025
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.2%	
Target Compounds					QValue
4:2FTS	5.236	327.1 -> 307.0	17520	9.33 µg/L	95
		327.1 -> 80.9	7670		
6:2FTS	6.924	427.1 -> 407.0	20701	10.01 µg/L	100
		427.1 -> 80.9	8712		
8:2FTS	7.991	527.1 -> 507.0	20345	10.93 µg/L	94
		527.1 -> 80.8	7783		
EtFOSAA	8.483	584.2 -> 419.1	6296	2.63 µg/L	m 94
		584.2 -> 526.0	2922		
FOSA	9.786	498.1 -> 77.9	18294	2.60 µg/L	97
		498.1 -> 478.0	434		
MeFOSAA	8.274	570.1 -> 419.0	6847	2.47 µg/L	m 94
		570.1 -> 483.0	1415		
PFBA	2.932	212.8 -> 168.9	35812	9.81 µg/L	100
PFBS	5.453	298.7 -> 79.9	10701	2.34 µg/L	94
		298.7 -> 98.8	3964		
PFDA	8.216	512.9 -> 469.0	37335	2.49 µg/L	94
		512.9 -> 219.0	6948		
PFDoDA	9.131	613.1 -> 569.0	44474	2.39 µg/L	98
		613.1 -> 319.0	6095		
PFDS	9.294	599.0 -> 79.9	6100	2.27 µg/L	92

7.7.14
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.492	599.0 -> 98.8	3159	2.44	µg/L	98
		363.1 -> 319.0	45233			
PFHpS	7.836	363.1 -> 169.0	7723	2.26	µg/L	91
		449.0 -> 79.9	8830			
PFHxA	5.550	449.0 -> 98.9	5257	2.34	µg/L	99
		313.0 -> 269.0	45544			
PFHxS	7.255	313.0 -> 118.9	1438	2.37	µg/L	96
		398.7 -> 79.9	7370			
PFNA	7.709	398.7 -> 98.9	3890	2.50	µg/L	100
		463.0 -> 419.0	39676			
PFNS	8.848	463.0 -> 219.0	9780	2.41	µg/L	94
		548.8 -> 79.9	5707			
PFOA	7.164	548.8 -> 98.9	2747	2.39	µg/L	98
		413.0 -> 369.0	61764			
PFOS	8.355	413.0 -> 169.0	12430	2.42	µg/L	99
		498.9 -> 79.9	12862			
PFPeA	4.389	498.9 -> 98.8	6366	4.94	µg/L	100
		263.0 -> 219.0	83119			
PFPeS	6.519	349.1 -> 79.9	6137	2.30	µg/L	99
		349.1 -> 98.9	2870			
PFTeDA	9.924	713.1 -> 669.0	39569	2.39	µg/L	98
		713.1 -> 168.9	3620			
PFTrDA	9.541	663.0 -> 619.0	59965	2.42	µg/L	94
		663.0 -> 168.9	5181			
PFUnDA	8.685	563.1 -> 519.0	36049	2.46	µg/L	97
		563.1 -> 269.1	7208			
11CI-PF3OUdS	9.593	630.9 -> 450.9	49735	5.03	µg/L	97
		632.9 -> 452.9	15269			
9CI-PF3ONS	8.712	530.8 -> 351.0	62070	4.93	µg/L	99
		532.8 -> 353.0	18468			
ADONA	6.756	376.9 -> 250.9	138020	5.00	µg/L	100
		376.9 -> 84.8	36169			
HFPO-DA	5.915	284.9 -> 168.9	13725	5.23	µg/L	100
		284.9 -> 184.9	1588			
3:3FTCA	3.867	241.0 -> 177.0	9152	12.36	µg/L	96
		241.0 -> 117.0	929			
5:3FTCA	6.217	341.0 -> 237.1	164950	62.40	µg/L	99
		341.0 -> 217.0	113482			
7:3FTCA	7.673	441.0 -> 316.9	89136	64.90	µg/L	100
		441.0 -> 336.9	212774			
EtFOSA	11.375	526.0 -> 219.0	25222	5.07	µg/L	99
		526.0 -> 169.0	34788			
EtFOSE	11.295	630.0 -> 58.9	47991	12.02	µg/L	100
		511.9 -> 219.0	20479			
MeFOSA	11.090	511.9 -> 169.0	29960	5.05	µg/L	99
		616.1 -> 58.9	33231			
MeFOSE	10.997	699.1 -> 79.9	5370	10.66	µg/L	100
		699.1 -> 98.8	3099			
PFDoDS	10.064	295.0 -> 201.0	6246	2.24	µg/L	94
		295.0 -> 84.9	1587			
NFDHA	5.441	279.0 -> 85.1	44975	4.49	µg/L	96
		229.0 -> 84.9	43138			
PFMBA	4.778	314.8 -> 134.9	61562	4.79	µg/L	100
		314.8 -> 82.9	2123			
PFMPA	3.540			4.90	µg/L	100
PFEESA	5.984			4.18	µg/L	99

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

7.7.14
7

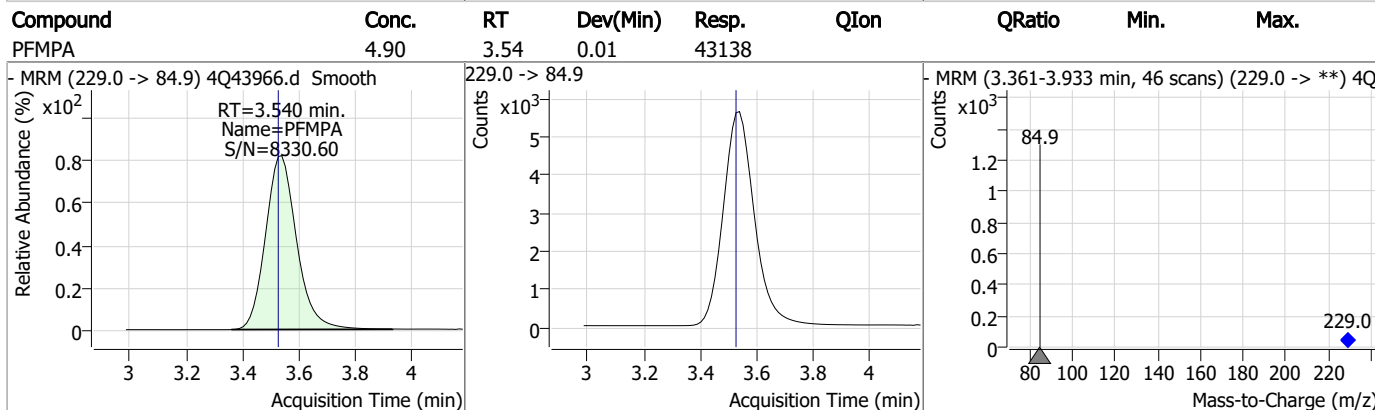
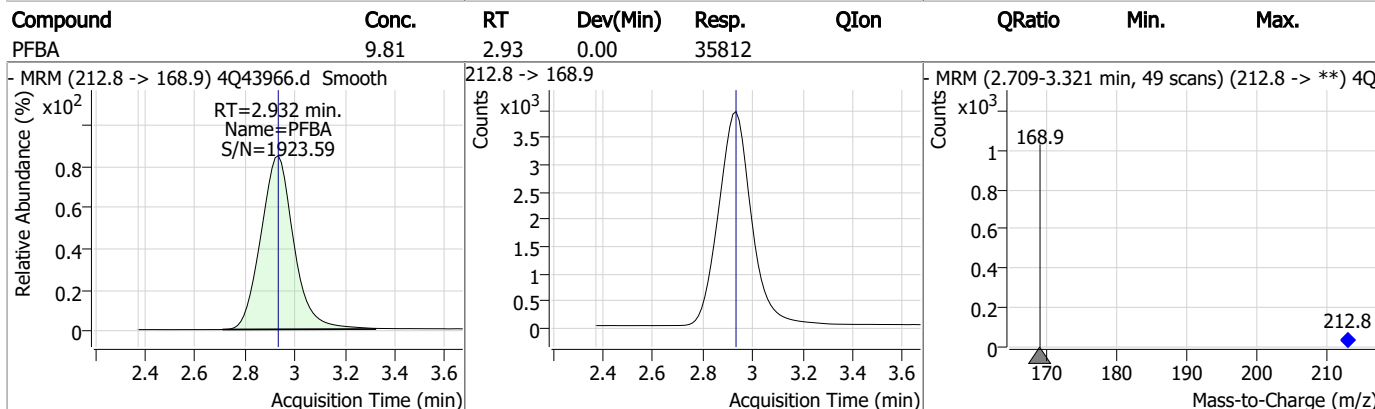
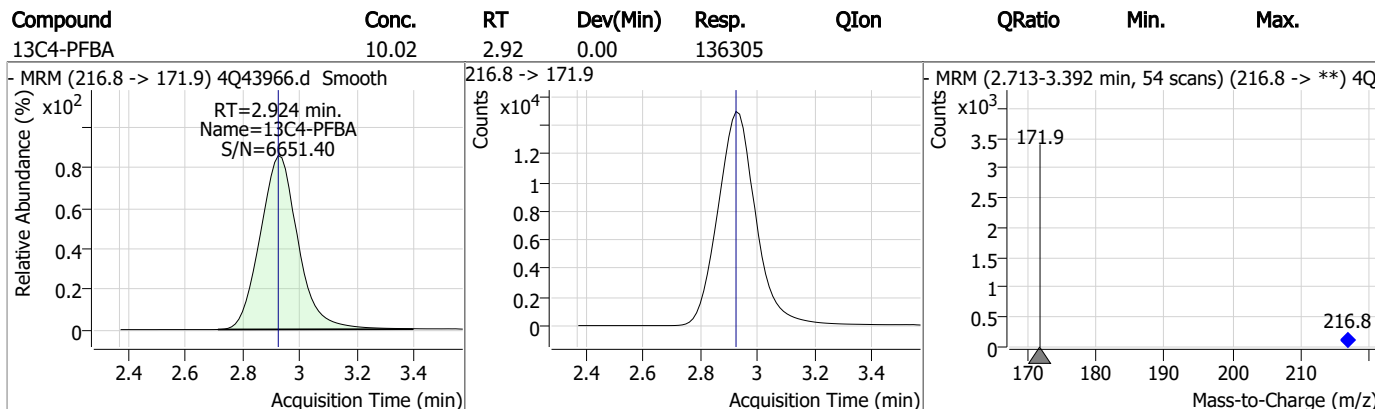
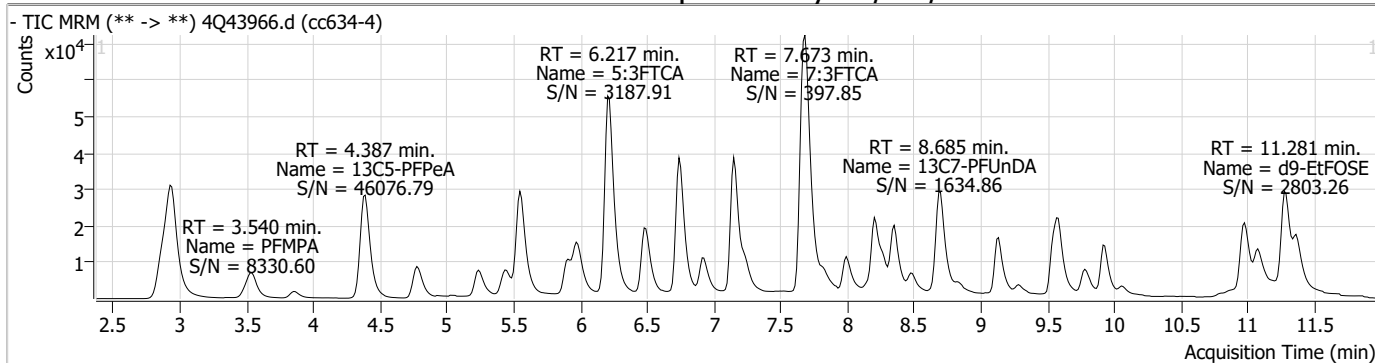
Perfluorinated Compounds by LC/MS/MS

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

7.7.14

7

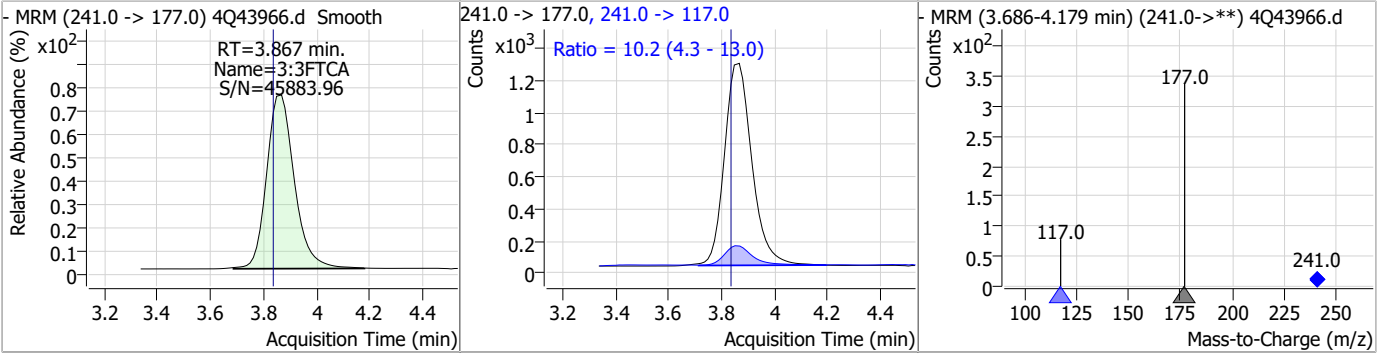
Perfluorinated Compounds by LC/MS/MS



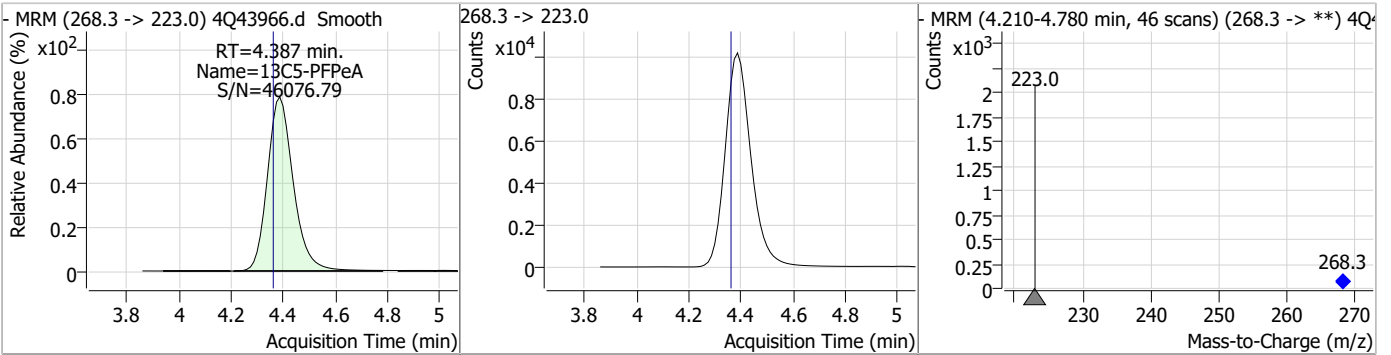
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

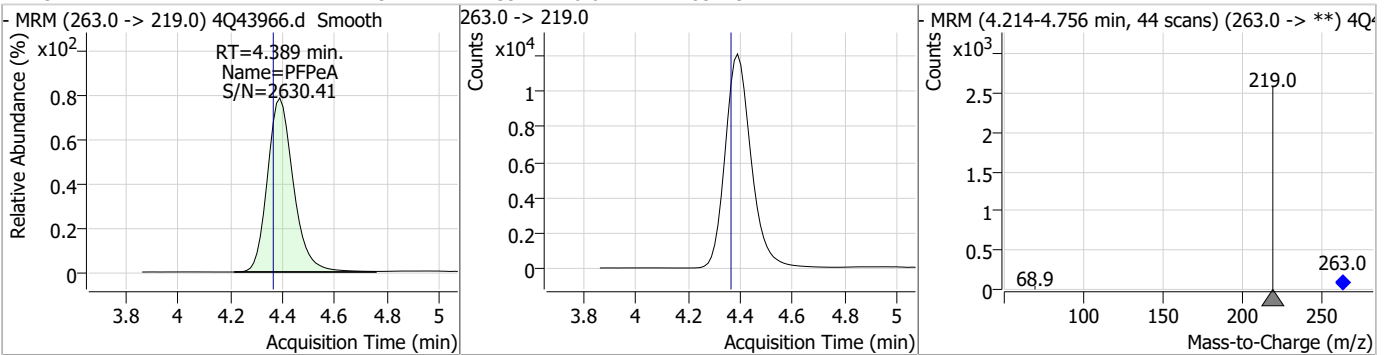
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.36	3.87	0.03	9152	241.0 -> 117.0	10.2	4.3	13.0



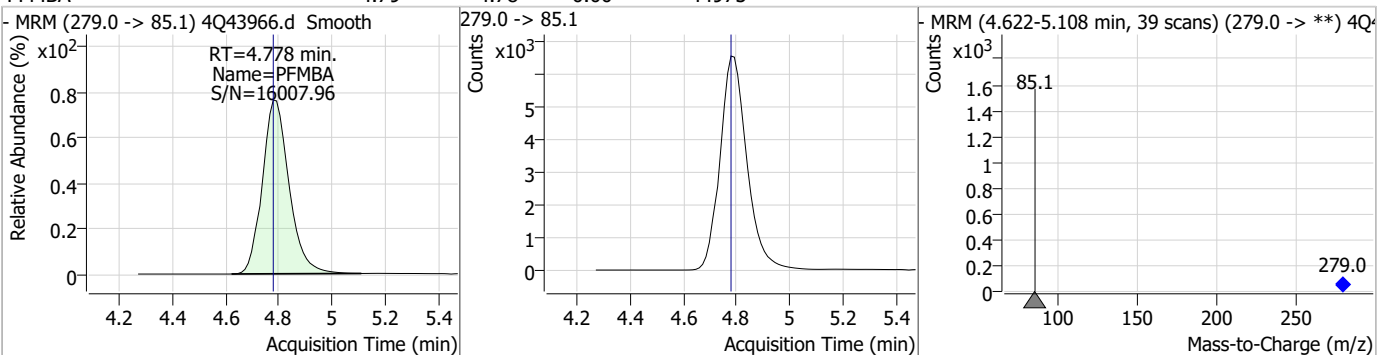
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	5.25	4.39	0.02	69960				



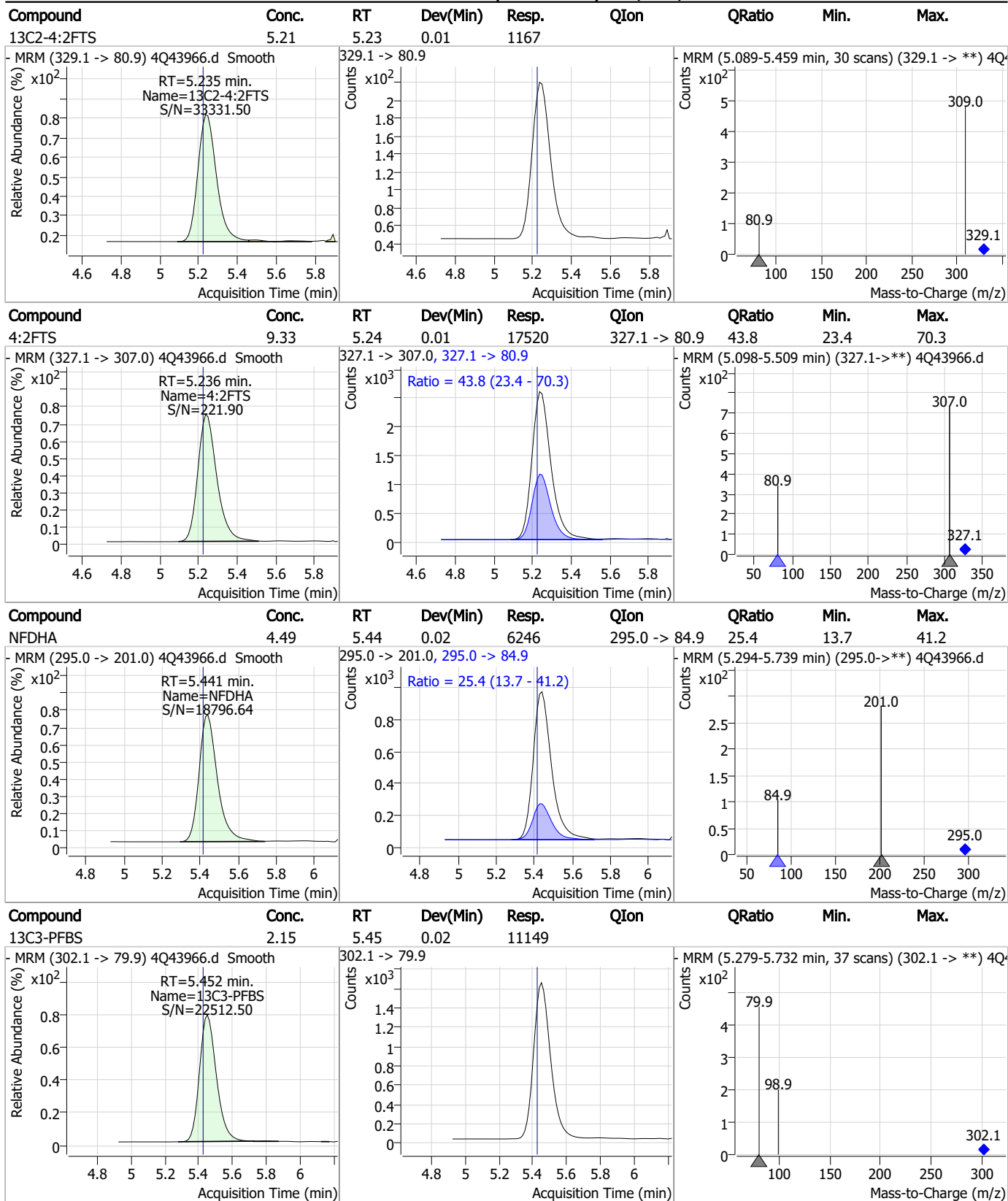
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	4.94	4.39	0.02	83119				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	4.79	4.78	0.00	44975				



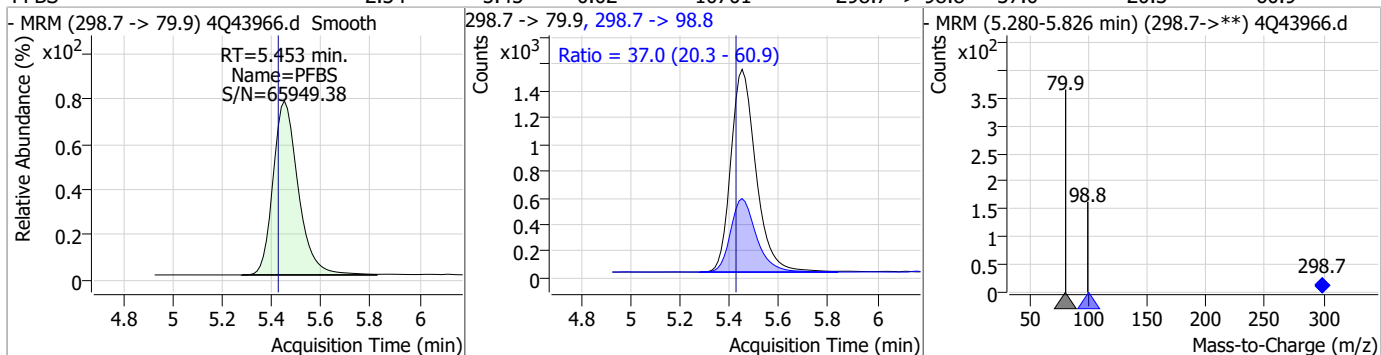
Perfluorinated Compounds by LC/MS/MS



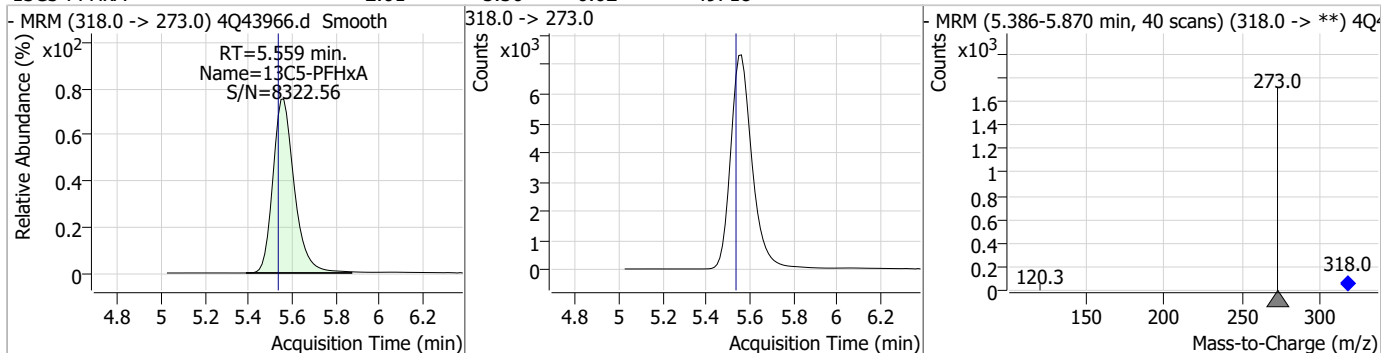
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

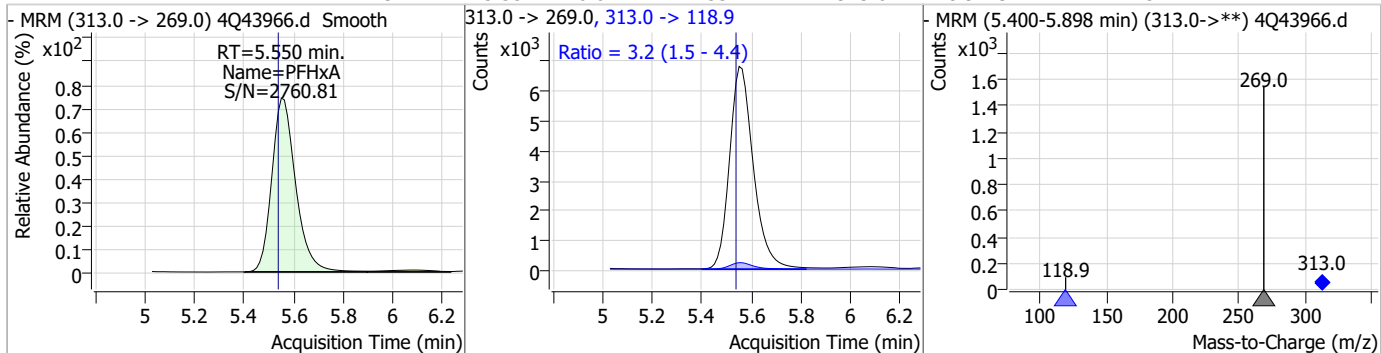
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.34	5.45	0.02	10701	298.7 -> 98.8	37.0	20.3	60.9



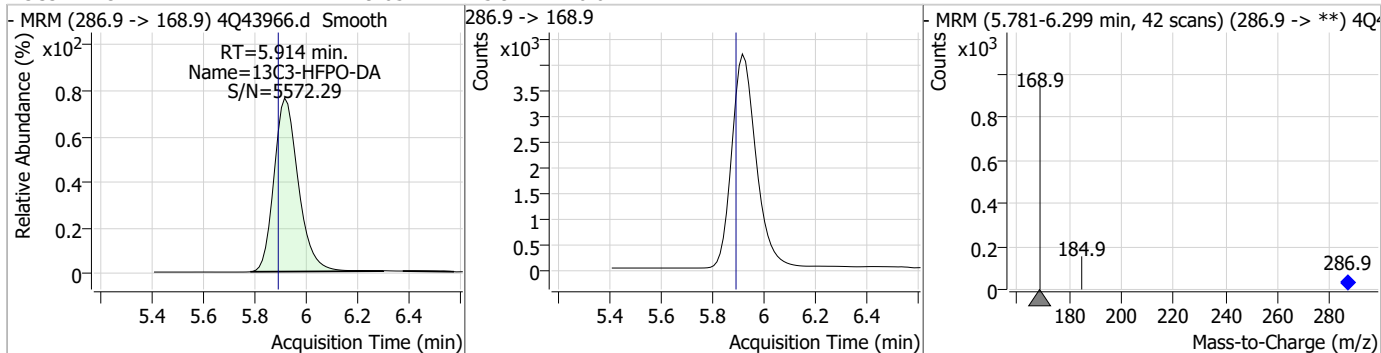
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.61	5.56	0.02	49718				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.34	5.55	0.01	45544	313.0 -> 118.9	3.2	1.5	4.4

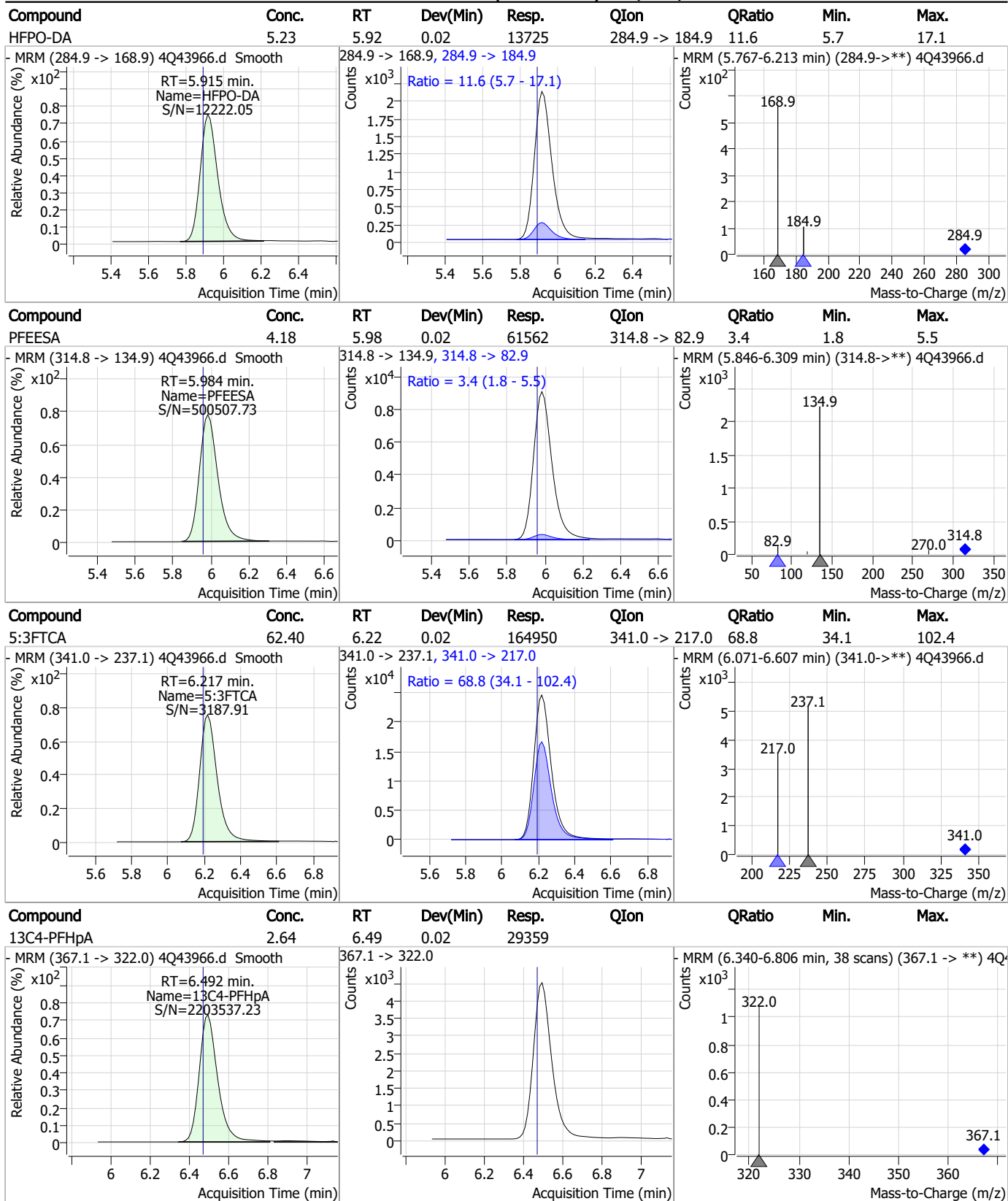


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.65	5.91	0.02	27472				



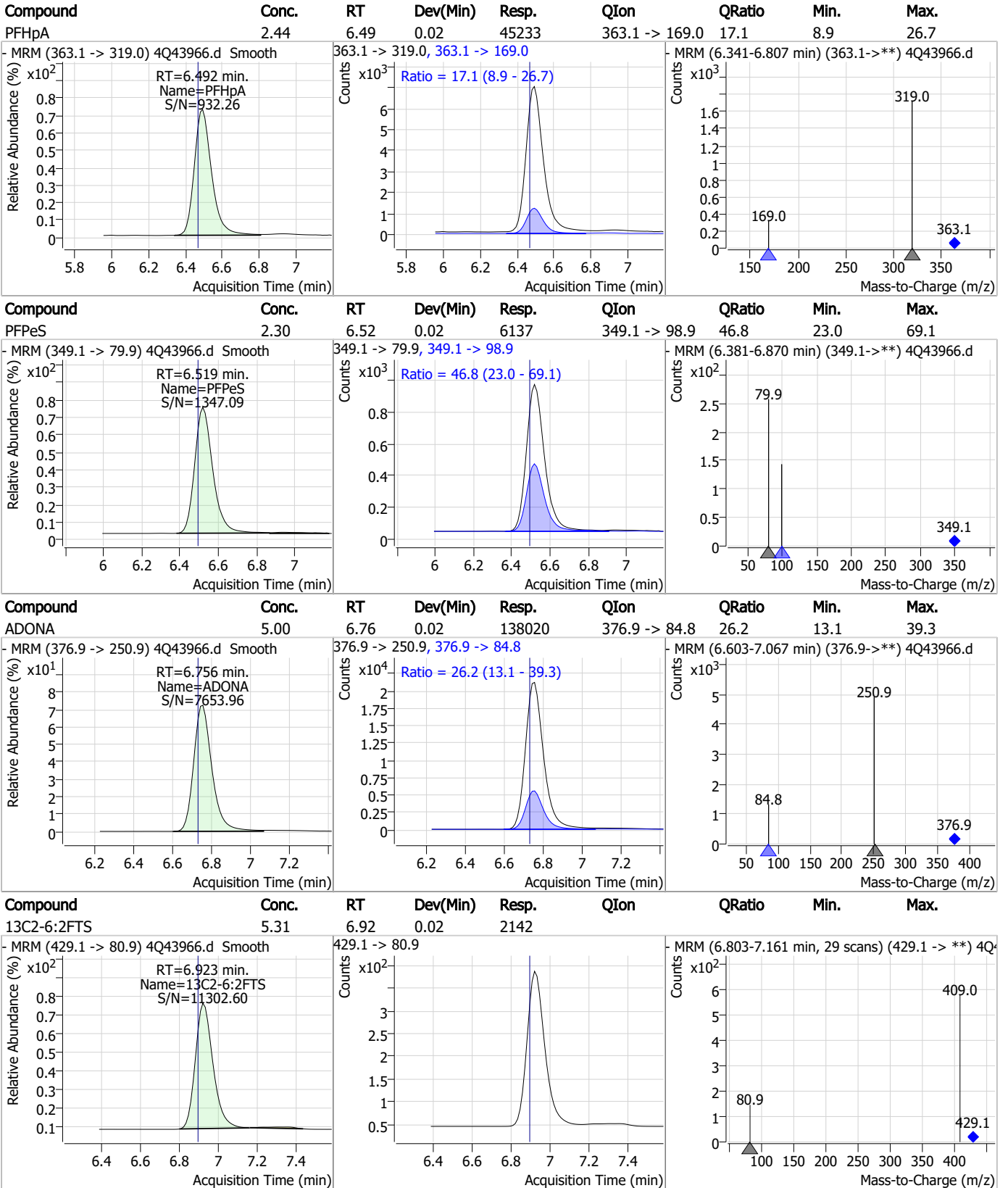
7.7.14
7

Perfluorinated Compounds by LC/MS/MS



7.7.14
7

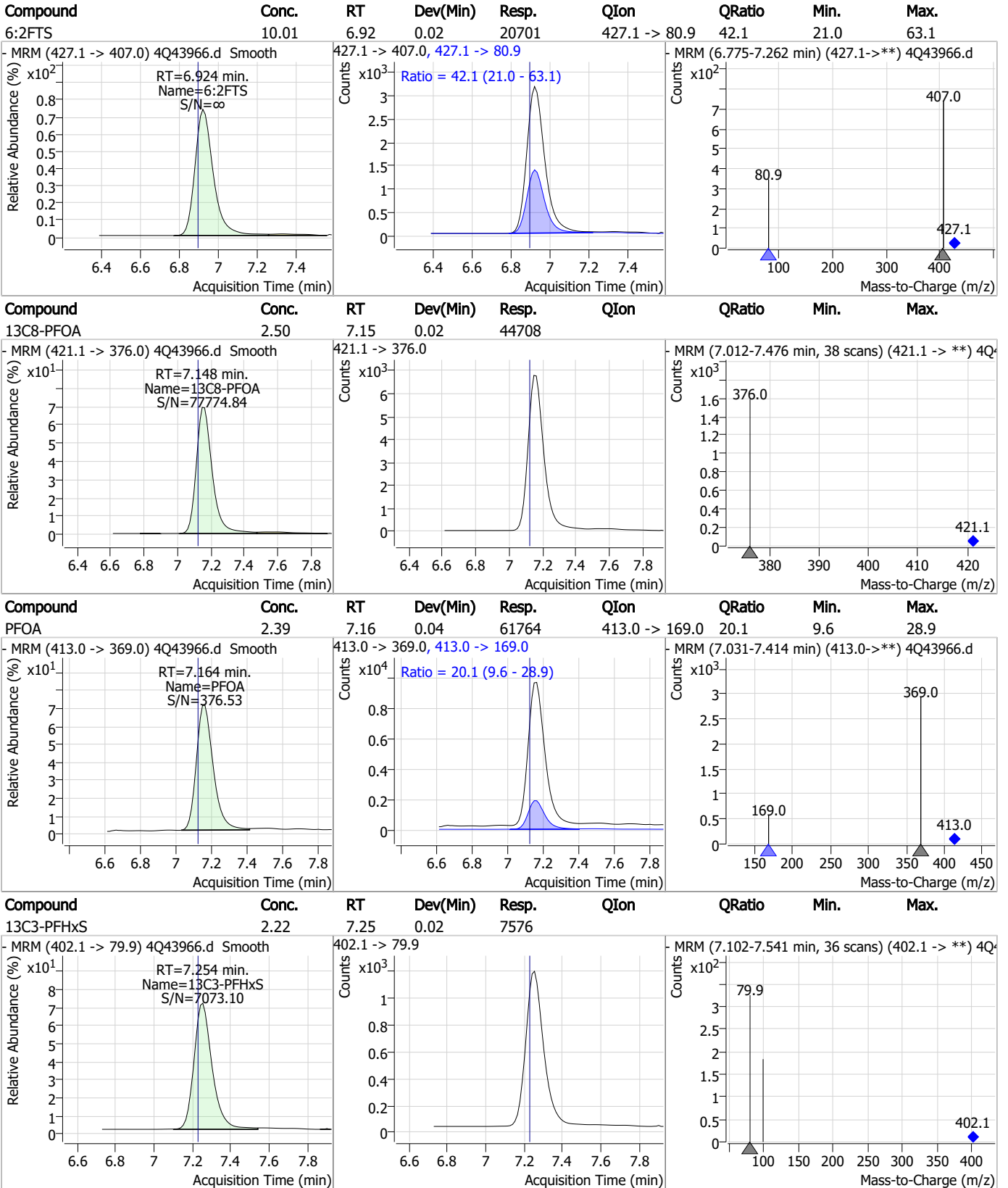
Perfluorinated Compounds by LC/MS/MS



7.7.14

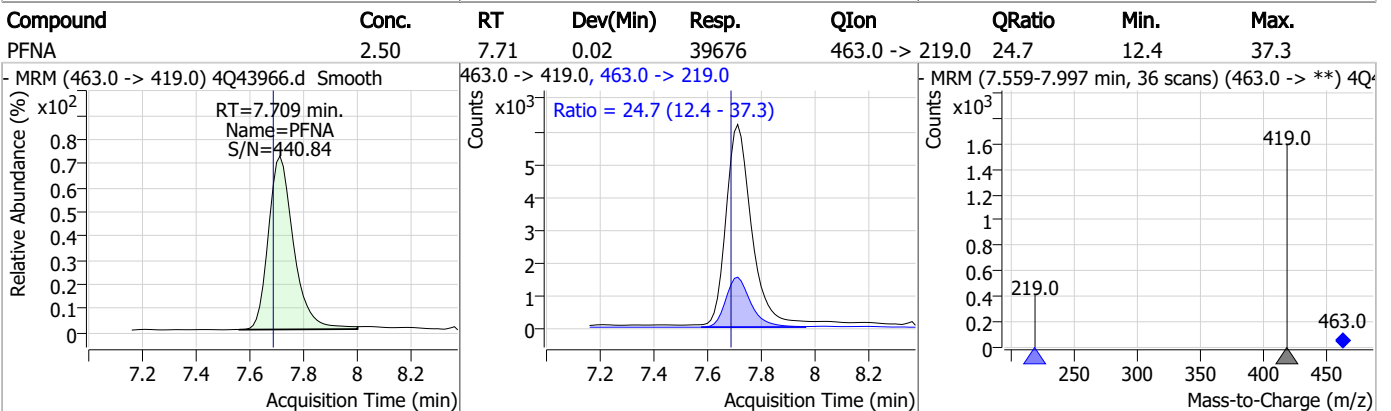
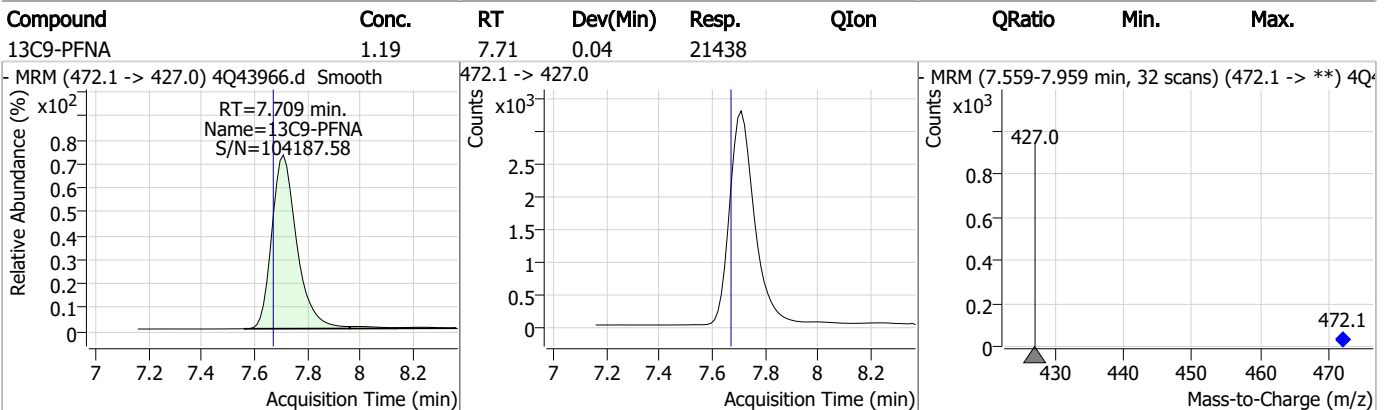
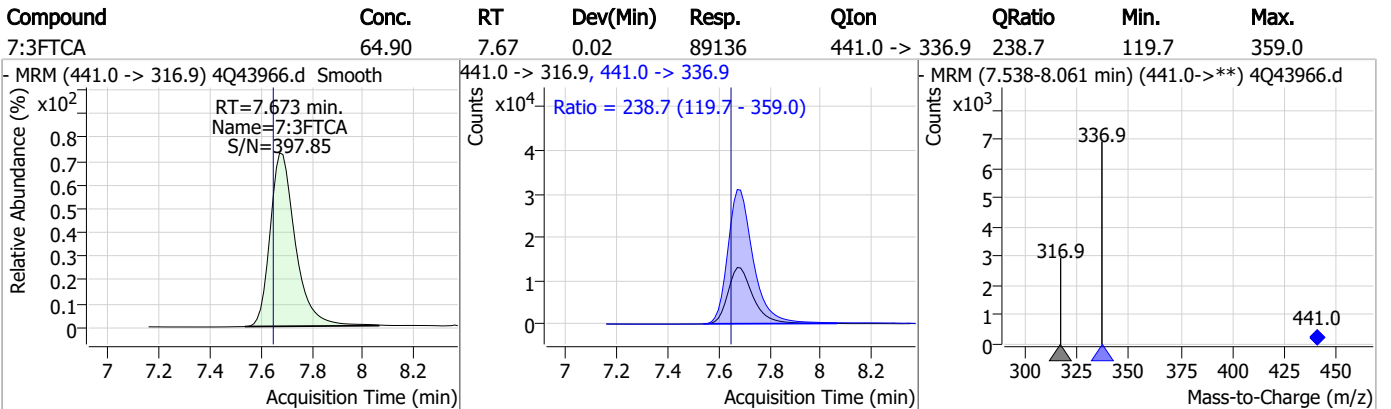
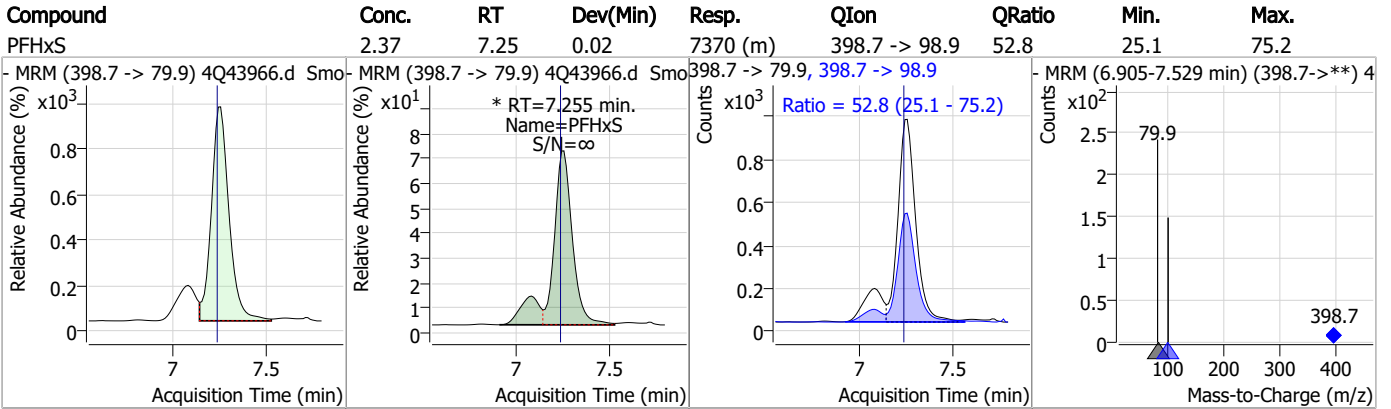
7

Perfluorinated Compounds by LC/MS/MS

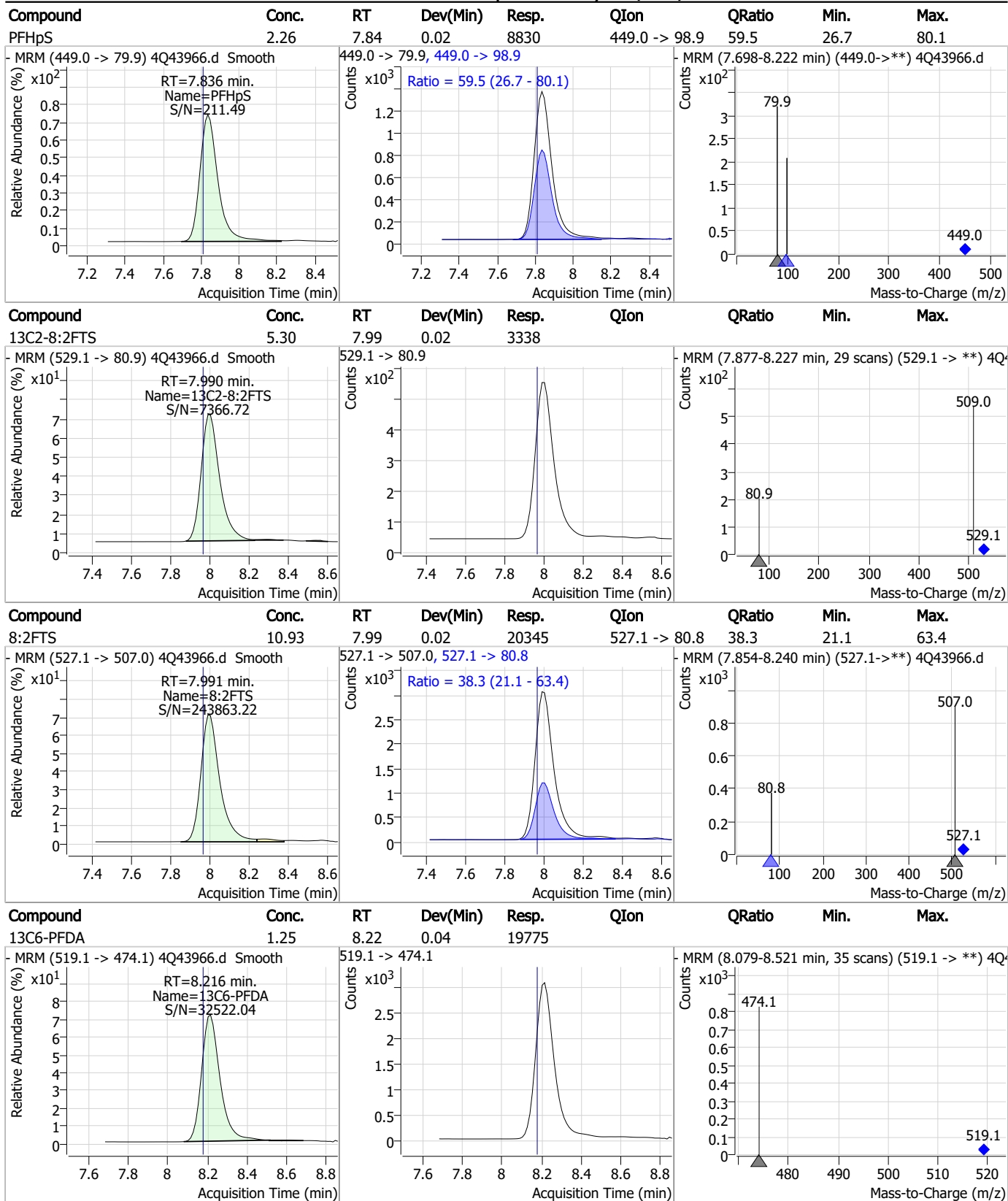


7.7.14

Perfluorinated Compounds by LC/MS/MS



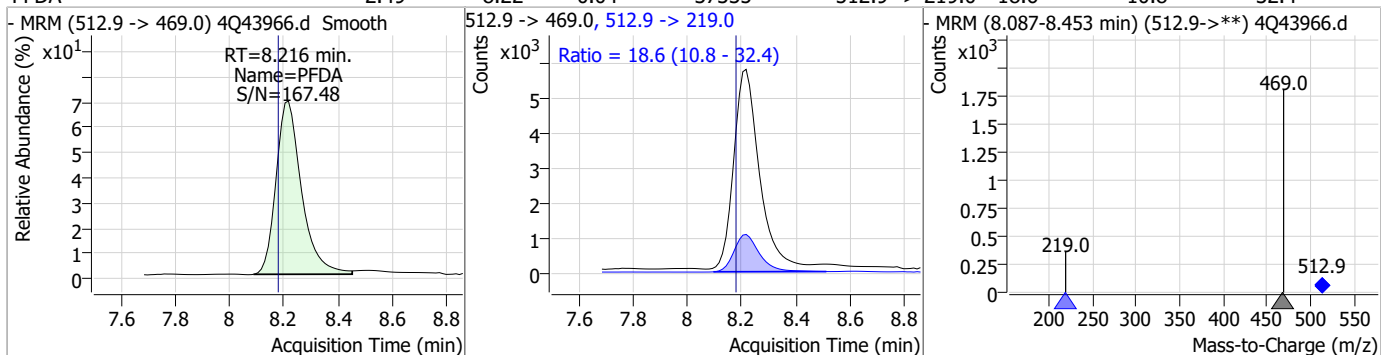
Perfluorinated Compounds by LC/MS/MS



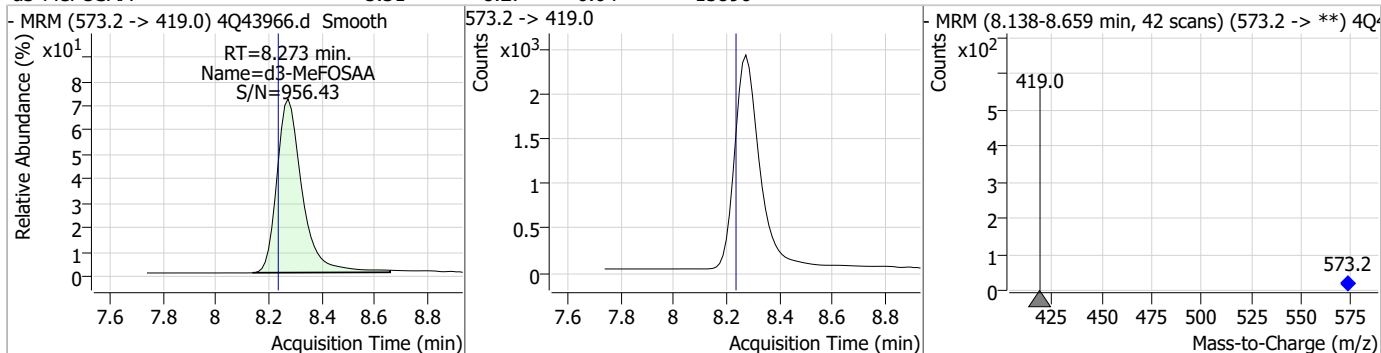
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

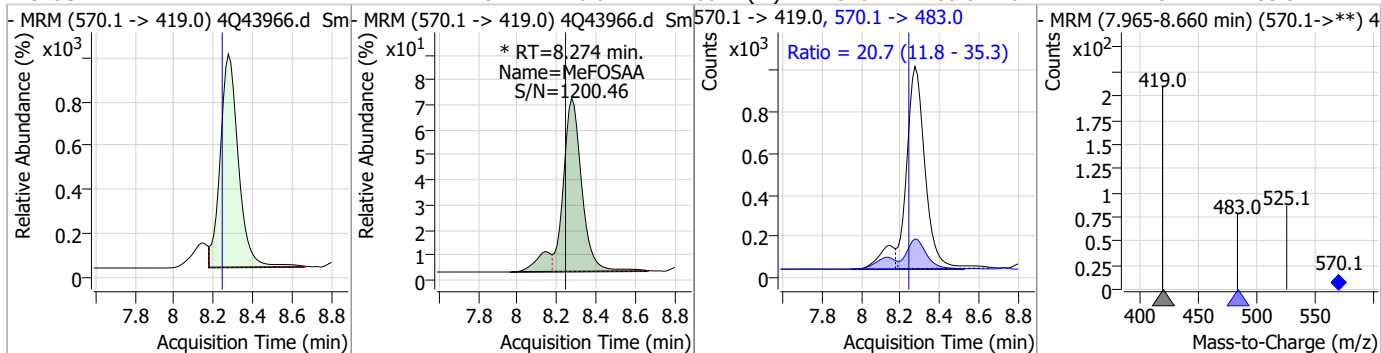
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.49	8.22	0.04	37335	512.9 -> 219.0	18.6	10.8	32.4



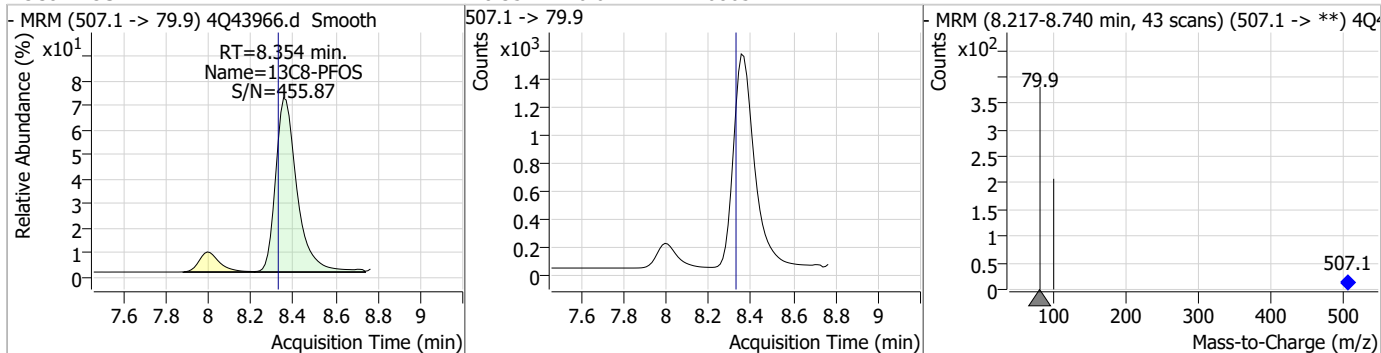
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.31	8.27	0.04	15896				



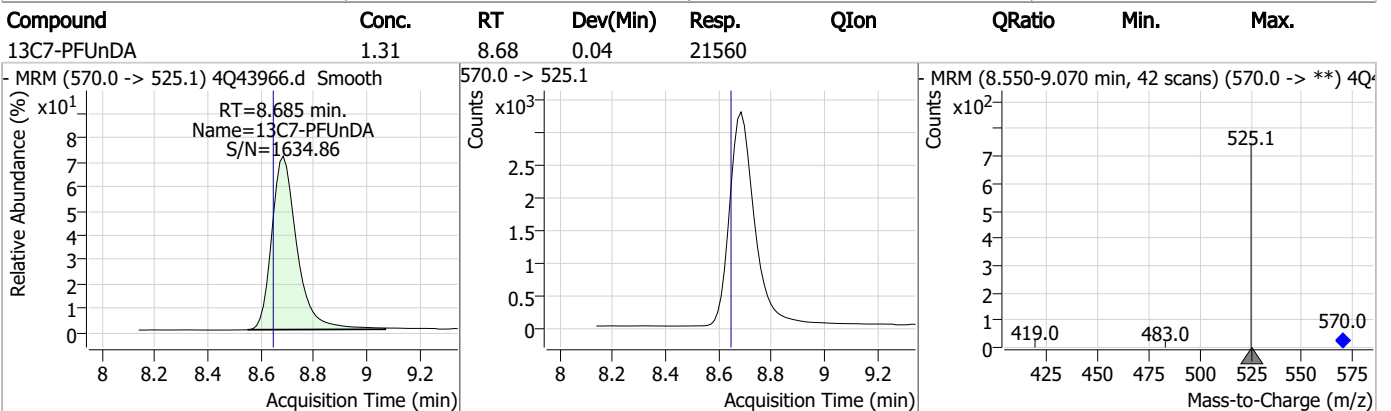
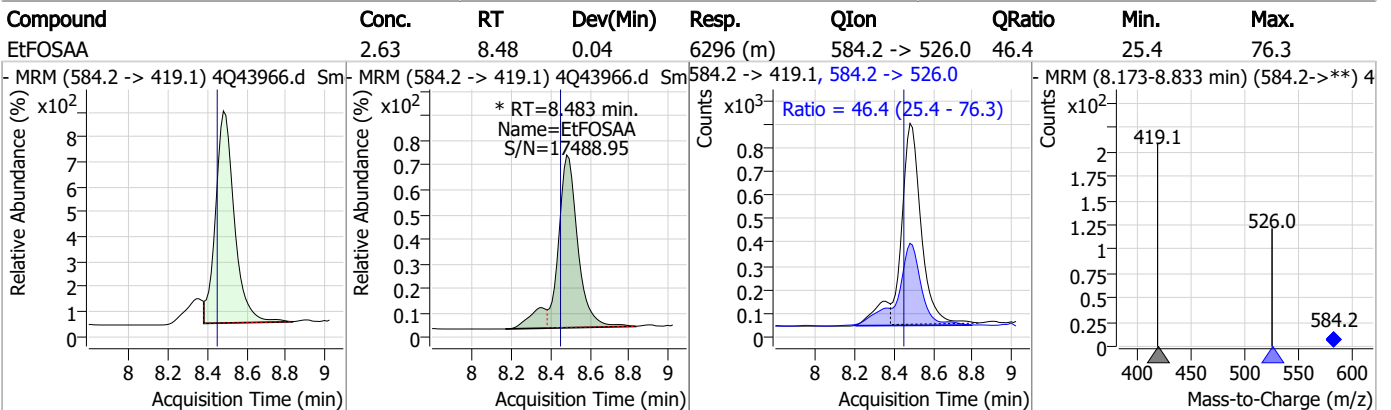
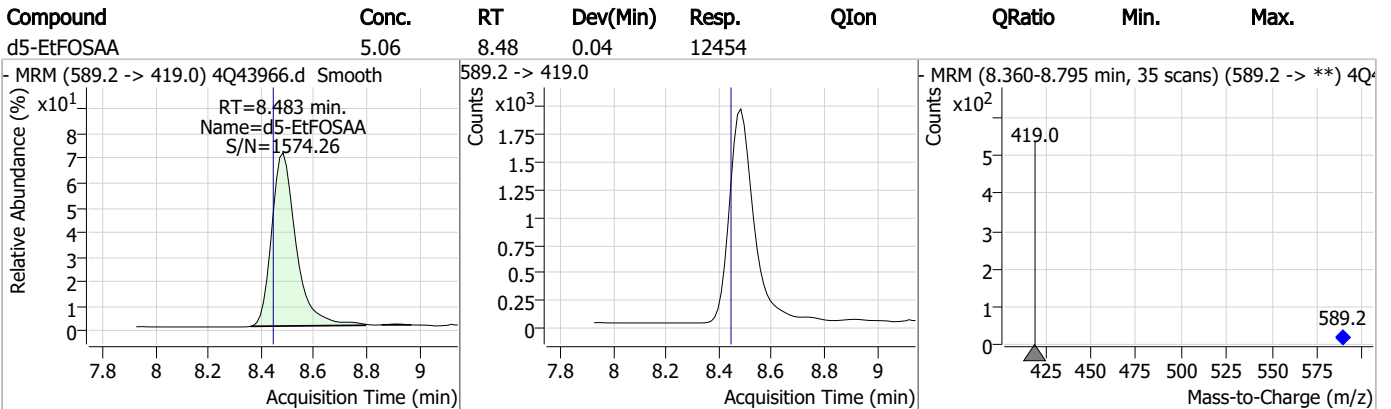
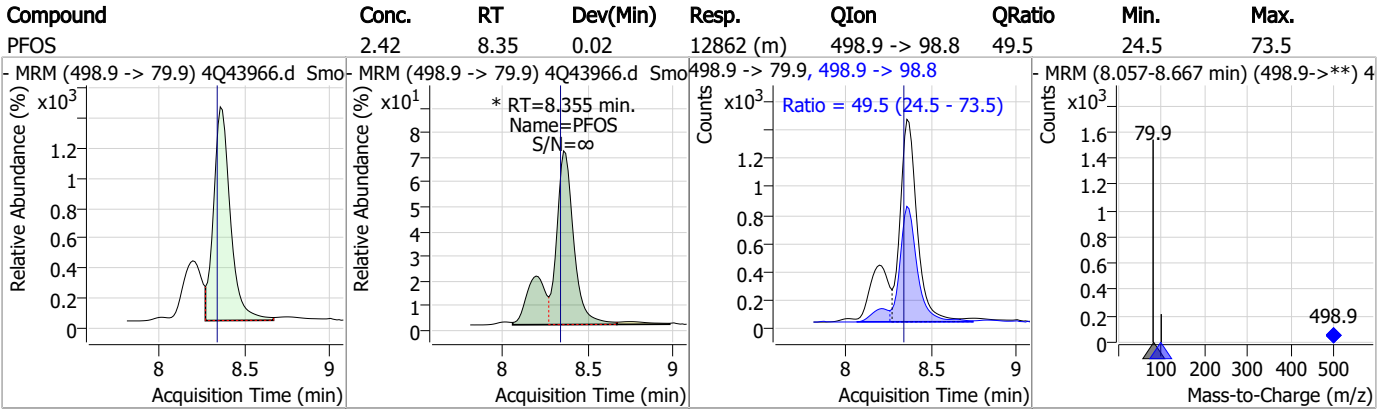
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.47	8.27	0.04	6847 (m)	570.1 -> 483.0	20.7	11.8	35.3



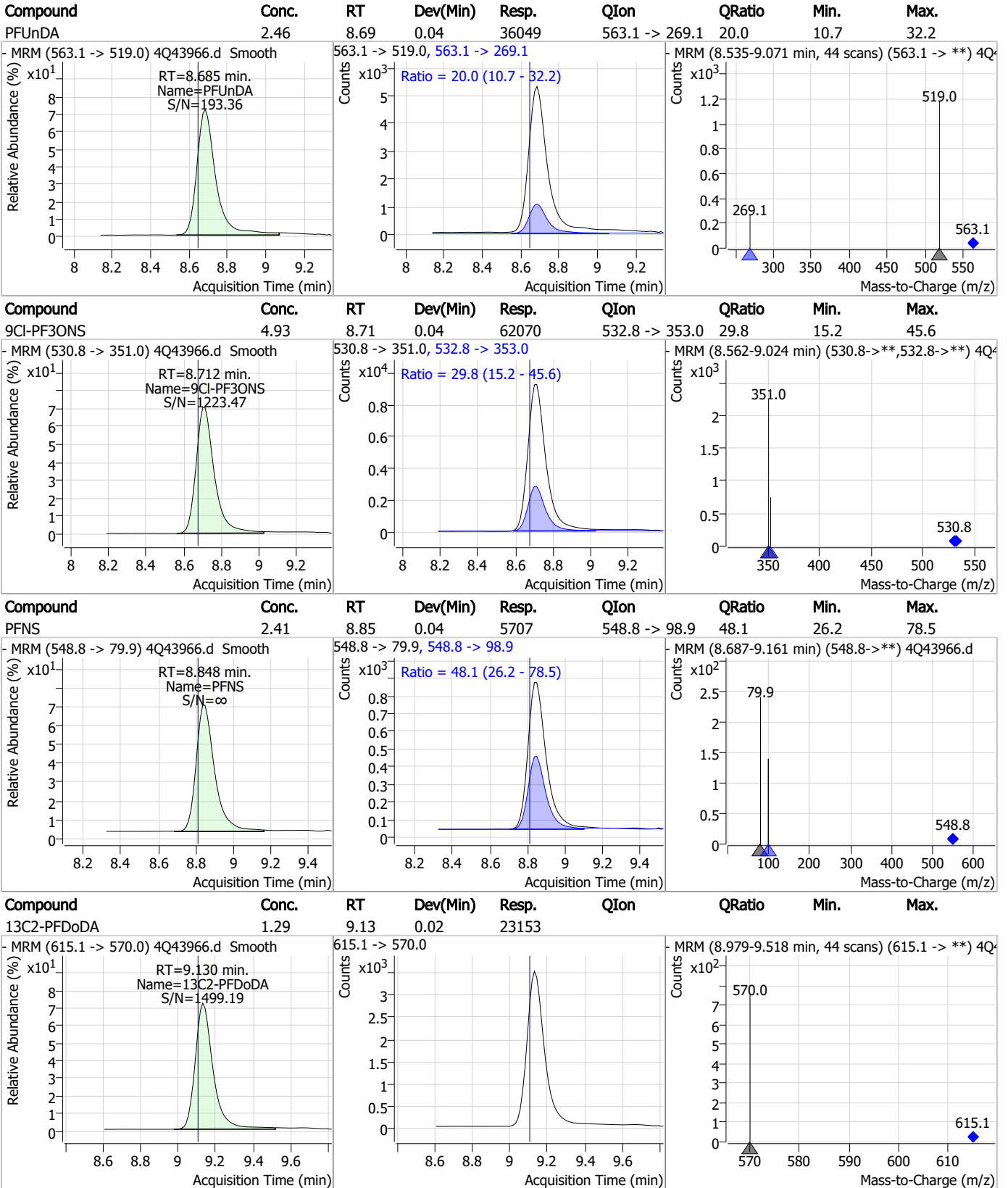
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.44	8.35	0.02	10865				



Perfluorinated Compounds by LC/MS/MS



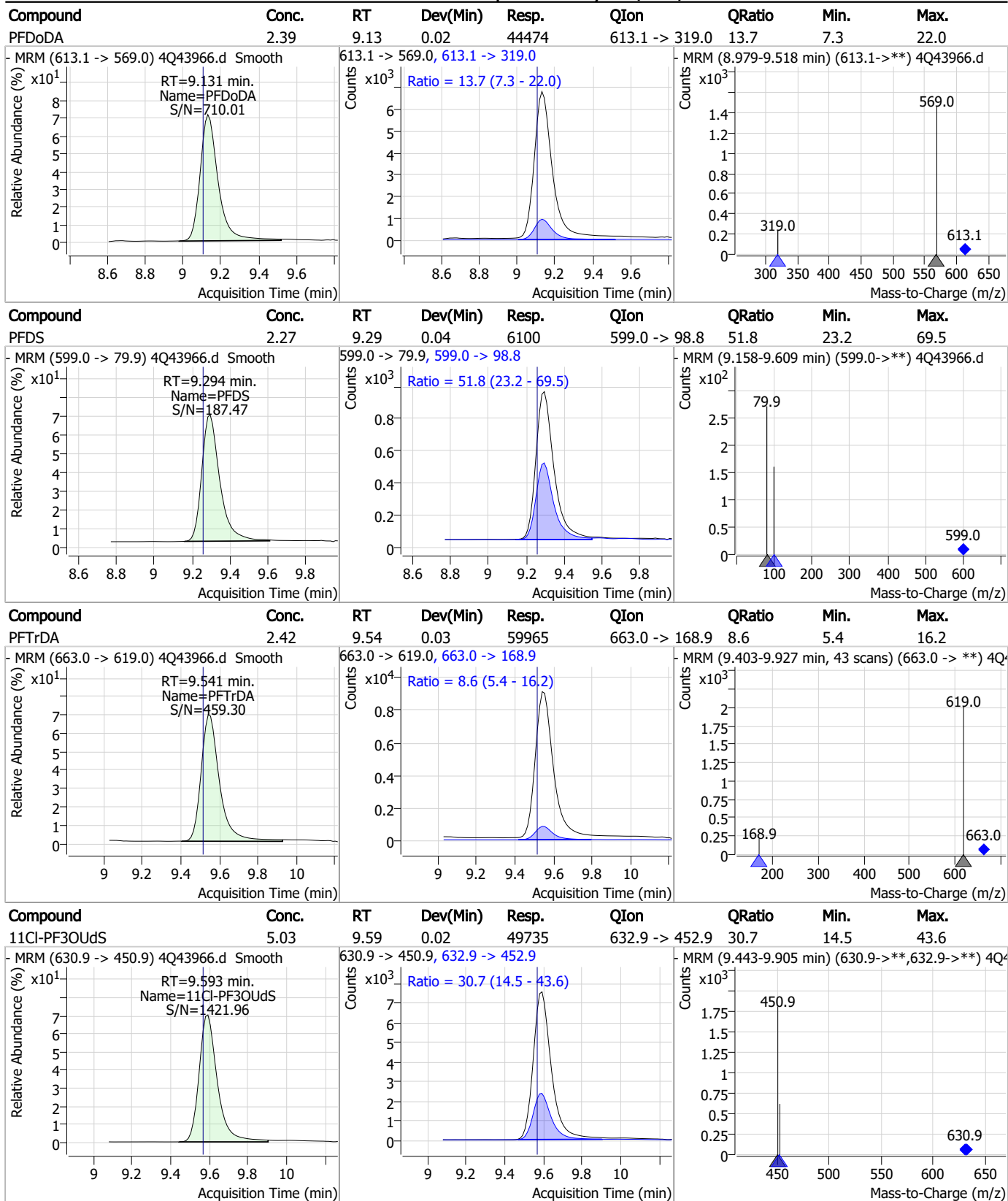
Perfluorinated Compounds by LC/MS/MS



7.7.14

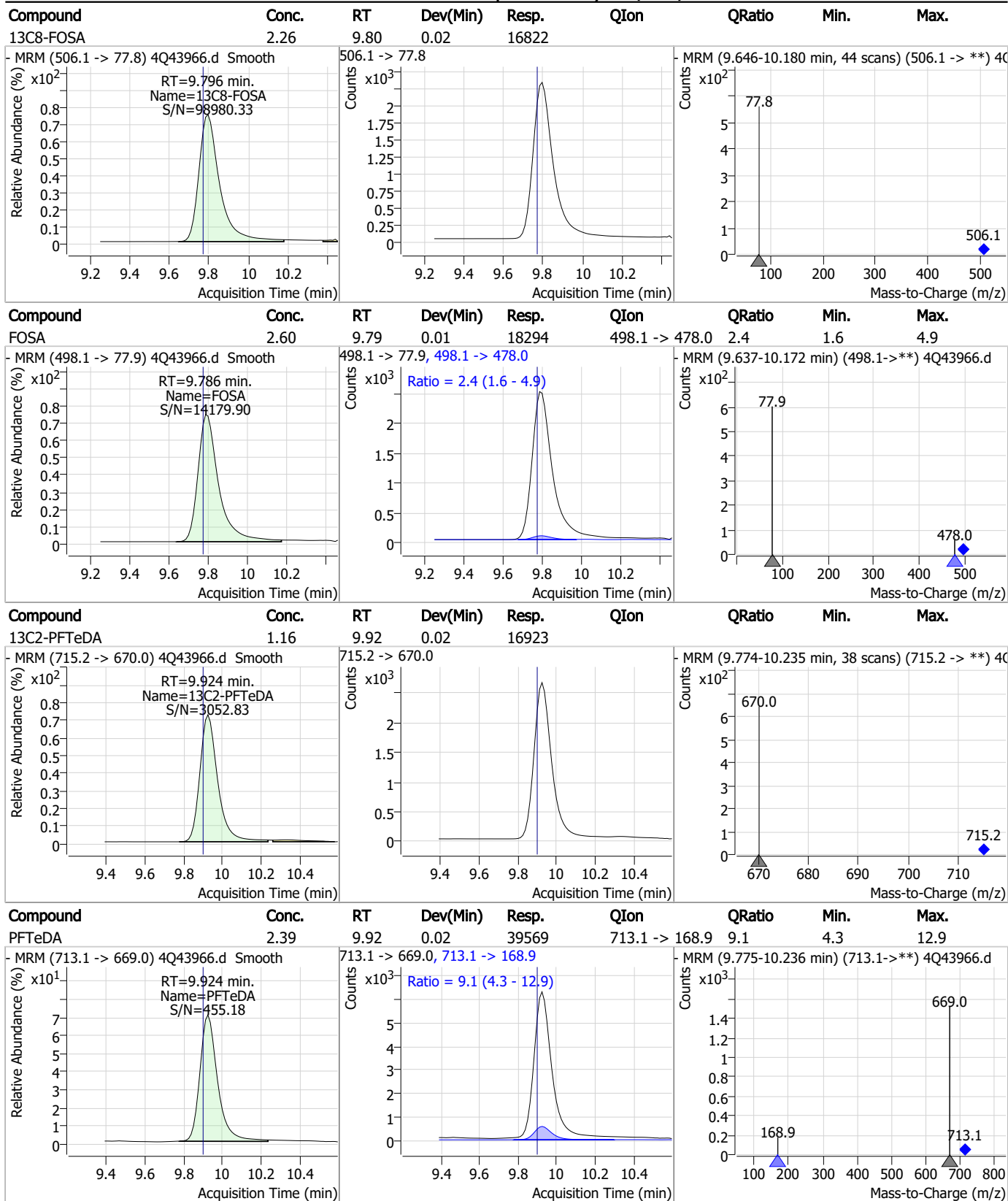


Perfluorinated Compounds by LC/MS/MS



7.7.14
7

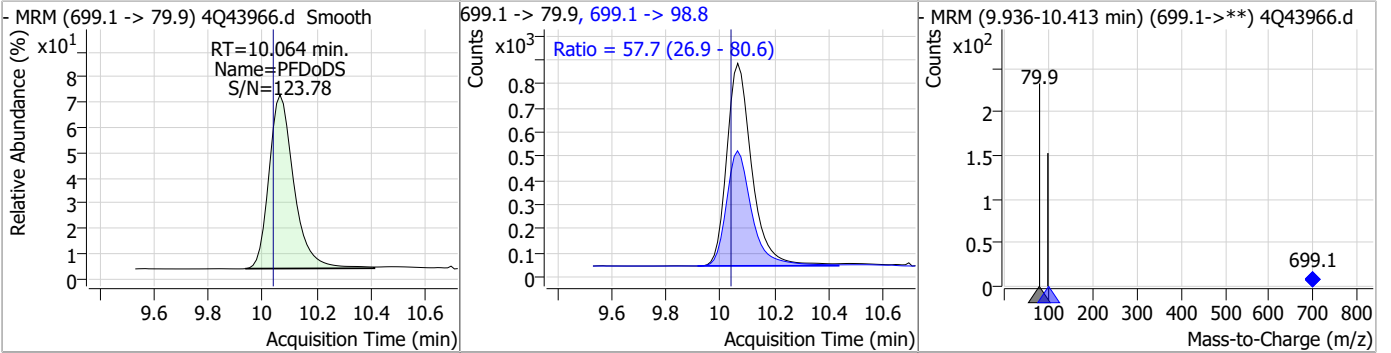
Perfluorinated Compounds by LC/MS/MS



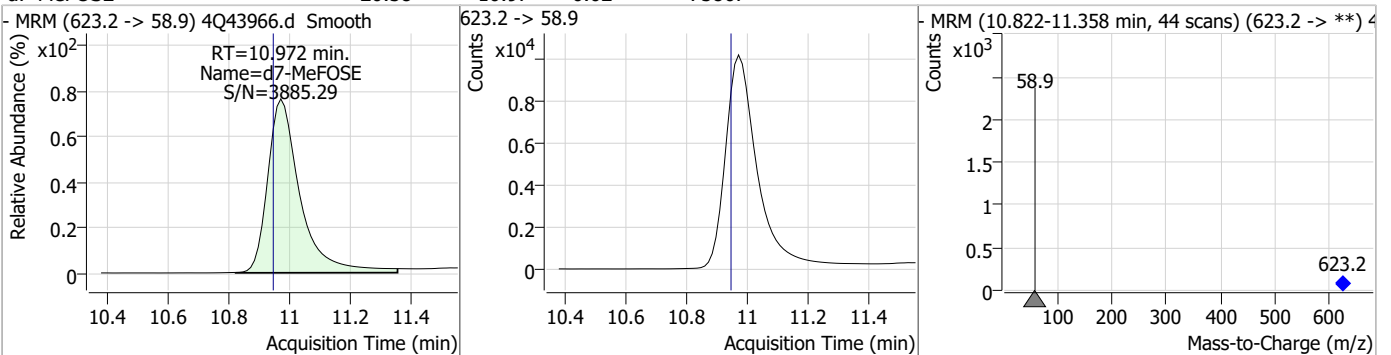
7.7.14
7

Perfluorinated Compounds by LC/MS/MS

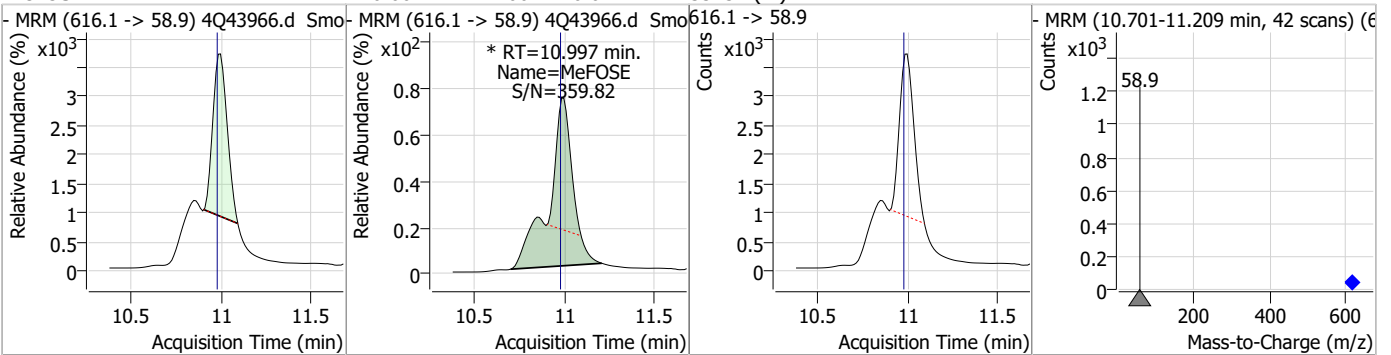
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.24	10.06	0.02	5370	699.1 -> 98.8	57.7	26.9	80.6



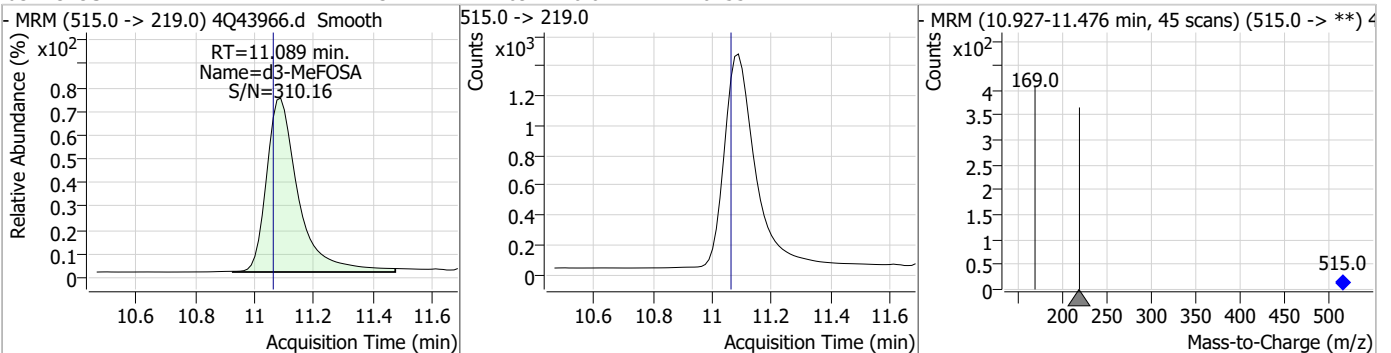
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	20.58	10.97	0.02	75867				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	10.66	11.00	0.02	33231 (m)				



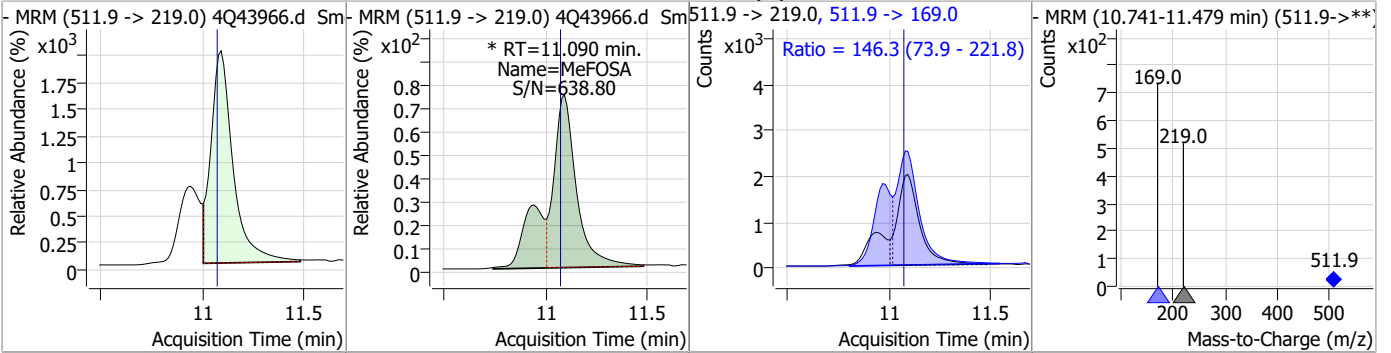
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.31	11.09	0.02	10755				



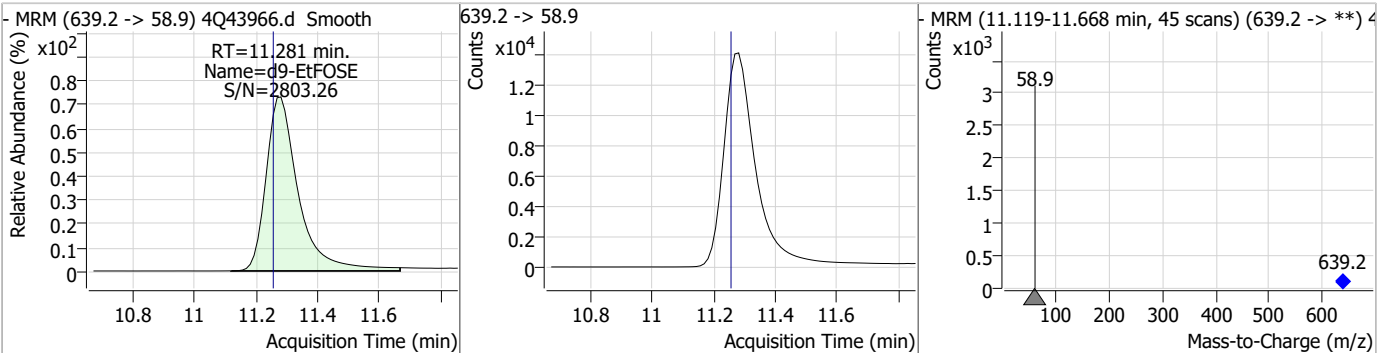
7.7.14

Perfluorinated Compounds by LC/MS/MS

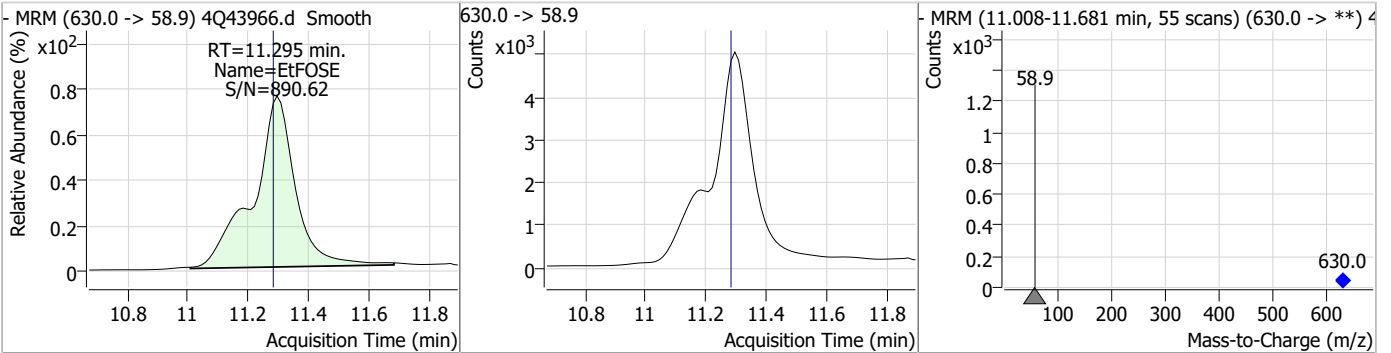
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.05	11.09	0.02	20479 (m)	511.9 -> 169.0	146.3	73.9	221.8



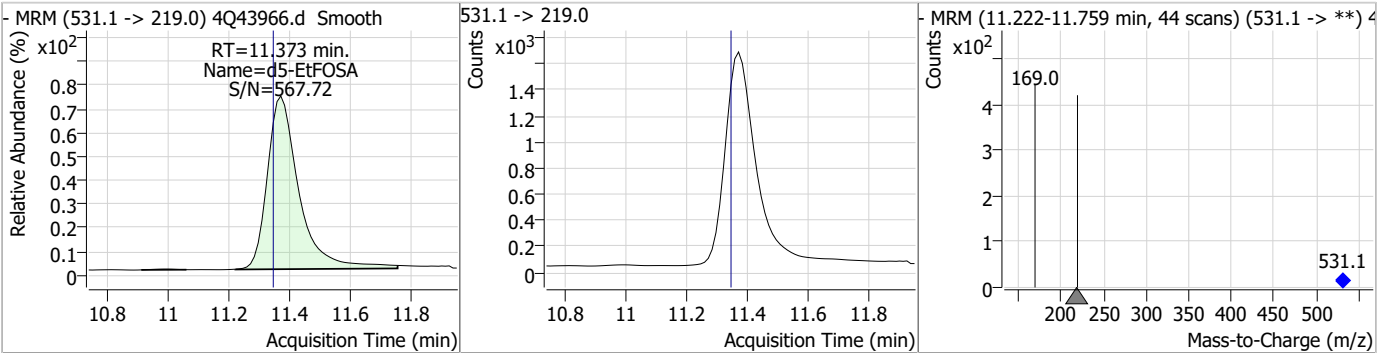
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	19.75	11.28	0.02	103090				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.02	11.29	0.01	47991				

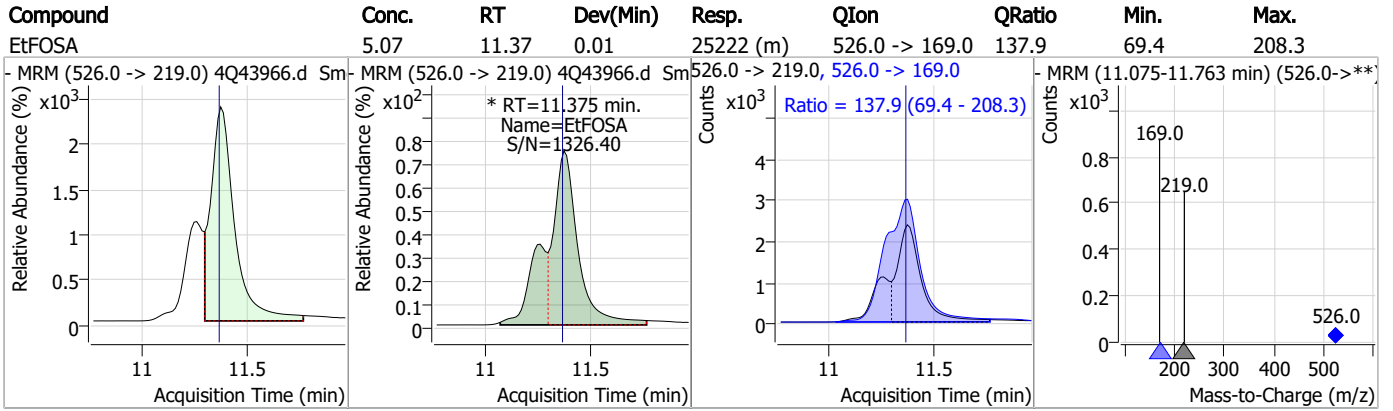


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d5-EtFOSA	2.40	11.37	0.02	11875				



7.7.14
7

Perfluorinated Compounds by LC/MS/MS



7.7.14

7

Manual Integration Approval Summary

Sample Number: S4Q635-CC634
Lab FileID: 4Q43966.D
Injection Time: 05/04/23 15:38

Method: EPA DRAFT 1633
Analyst approved: 05/05/23 07:50 Natasha Gumtie
Supervisor approved: 05/05/23 16:38 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.25	Split peak
MeFOSAA	2355-31-9		8.27	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.36	Split peak
EtFOSAA	2991-50-6		8.48	Split peak
MeFOSE	24448-09-7		11.00	Split peak
MeFOSA	31506-32-8		11.09	Split peak
EtFOSA	4151-50-2		11.38	Split peak

7.7.14.1

7

QQQ Check Tune Report



Instrument Name LCMS Q6
MS Model G6495B
MS Instrument Serial SG1752D103
Software_Firmware Version 10.1.67, FW: A.00.08.112
Tune Date & Time 21 April 2023 16:42:07
File Path D:\MassHunter\Tune\QQQ\G6495B\atunes.TUNE.XML
Ion Source AJS ESI
Ionization Mode AJS ESI
Tuned Resolution All
Vacuum Pressure 1.73E+0 [R] (Torr); 3.15E-5 [H] (Torr)

Source Parameters

Parameter	Positive	Negative
Gas Temp (°C)	220	220
Gas Flow (l/min)	14	14
Nebulizer (psi)	20	20
Capillary (V)	3000	3000
Nozzle Voltage (V)	1500	1500
Sheath Gas Temp (°C)	250	250
Sheath Gas Flow (l/min)	11	11

Positive Results

Analyzer: MS1 Polarity: Positive Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	118.11	0.02	Pass	0.70	0.68	-0.02	Pass	1712349
322.05	322.09	0.04	Pass	0.70	0.69	-0.01	Pass	1367900
622.03	621.91	-0.12	Pass	0.70	0.70	0.00	Pass	1874880
922.01	921.91	-0.10	Pass	0.70	0.70	0.00	Pass	1041451
1521.97	1521.86	-0.11	Pass	0.70	0.66	-0.04	Pass	158214
2121.93	2121.78	-0.15	Pass	0.70	0.70	0.00	Pass	43141

Analyzer: MS2 Polarity: Positive Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	58.14	0.07	Pass	0.70	0.57	-0.13	Pass	556605
118.09	118.06	-0.03	Pass	0.70	0.63	-0.07	Pass	1970997
322.05	322.01	-0.04	Pass	0.70	0.71	0.01	Pass	1666060
622.03	621.98	-0.05	Pass	0.70	0.71	0.01	Pass	1905375
922.01	921.91	-0.10	Pass	0.70	0.75	0.05	Pass	819505
1521.97	1521.90	-0.07	Pass	0.70	0.72	0.02	Pass	190618
2121.93	2121.83	-0.10	Pass	0.70	0.71	0.01	Pass	48061

Analyzer: MS1 Polarity: Positive Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	118.13	0.04	Pass	1.20	1.40	0.20	Pass	3602917
322.05	322.00	-0.05	Pass	1.20	1.52	0.32	Pass	2388617
622.03	622.00	-0.03	Pass	1.20	1.53	0.33	Pass	3421723
922.01	921.93	-0.08	Pass	1.20	1.40	0.20	Pass	2494574
1521.97	1521.88	-0.09	Pass	1.20	1.29	0.09	Pass	531796
2121.93	2121.82	-0.11	Pass	1.20	1.11	-0.09	Pass	207195

Analyzer: MS2 Polarity: Positive Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	58.11	0.04	Pass	1.20	1.16	-0.04	Pass	909874
118.09	118.03	-0.06	Pass	1.20	1.26	0.06	Pass	2956146
322.05	322.09	0.04	Pass	1.20	1.43	0.23	Pass	2346697
622.03	621.90	-0.13	Pass	1.20	1.24	0.04	Pass	3186612
922.01	922.01	0.00	Pass	1.20	1.34	0.14	Pass	1549696
1521.97	1521.92	-0.05	Pass	1.20	1.29	0.09	Pass	390217
2121.93	2121.75	-0.18	Pass	1.20	1.23	0.03	Pass	134355

Analyzer: MS1 Polarity: Positive Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
118.09	117.89	-0.20	Pass	2.50	2.50	0.00	Pass	5097401
322.05	321.99	-0.06	Pass	2.50	3.17	0.67	Pass	3138893
622.03	621.96	-0.07	Pass	2.50	3.03	0.53	Pass	4167132
922.01	921.90	-0.11	Pass	2.50	3.00	0.50	Pass	3418628
1521.97	1521.84	-0.13	Pass	2.50	2.71	0.21	Pass	1054324
2121.93	2121.60	-0.33	Pass	2.50	2.73	0.23	Pass	577744

7.7.15
7

QQQ Check Tune Report



Analyzer: MS2 Polarity: Positive Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
58.07	57.92	-0.15	Pass	2.50	2.59	0.09	Pass	1318333
118.09	118.00	-0.09	Pass	2.50	2.63	0.13	Pass	5069616
322.05	322.23	0.18	Pass	2.50	2.82	0.32	Pass	3102879
622.03	621.99	-0.04	Pass	2.50	2.72	0.22	Pass	4250991
922.01	922.01	0.00	Pass	2.50	2.73	0.23	Pass	2895443
1521.97	1521.89	-0.08	Pass	2.50	2.84	0.34	Pass	1085946
2121.93	2121.74	-0.19	Pass	2.50	2.84	0.34	Pass	675885

7.7.15

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	112.97	-0.02	Pass	0.70	0.70	0.00	Pass	280663
302.00	301.94	-0.06	Pass	0.70	0.77	0.07	Pass	1174361
601.98	601.95	-0.03	Pass	0.70	0.74	0.04	Pass	3314113
1033.99	1033.95	-0.04	Pass	0.70	0.66	-0.04	Pass	1111513
1633.95	1633.89	-0.06	Pass	0.70	0.68	-0.02	Pass	1041900
2233.91	2233.76	-0.15	Pass	0.70	0.72	0.02	Pass	475314

Analyzer: MS2 Polarity: Negative Width: Unit

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.02	0.02	Pass	0.70	0.74	0.04	Pass	79084
112.99	112.97	-0.02	Pass	0.70	0.75	0.05	Pass	336048
302.00	301.94	-0.06	Pass	0.70	0.63	-0.07	Pass	1854456
601.98	601.99	0.01	Pass	0.70	0.66	-0.04	Pass	3616583
1033.99	1033.85	-0.14	Pass	0.70	0.78	0.08	Pass	1197307
1633.95	1633.76	-0.19	Pass	0.70	0.80	0.10	Pass	1551614
2233.91	2233.69	-0.22	Pass	0.70	0.80	0.10	Pass	879381

Analyzer: MS1 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	112.88	-0.11	Pass	1.20	1.14	-0.06	Pass	371210
302.00	301.96	-0.04	Pass	1.20	1.54	0.34	Pass	1841827
601.98	601.93	-0.05	Pass	1.20	1.72	0.52	Pass	4338111
1033.99	1033.98	-0.01	Pass	1.20	1.63	0.43	Pass	1752240
1633.95	1633.73	-0.22	Pass	1.20	1.51	0.31	Pass	2128895
2233.91	2233.90	-0.01	Pass	1.20	1.47	0.27	Pass	1236282

Analyzer: MS2 Polarity: Negative Width: Wide

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	69.09	0.09	Pass	1.20	1.13	-0.07	Pass	132092
112.99	113.04	0.05	Pass	1.20	1.21	0.01	Pass	432295
302.00	301.95	-0.05	Pass	1.20	1.22	0.02	Pass	2083166
601.98	602.00	0.02	Pass	1.20	1.30	0.10	Pass	4539558
1033.99	1034.01	0.02	Pass	1.20	1.23	0.03	Pass	1859414
1633.95	1633.89	-0.06	Pass	1.20	1.17	-0.03	Pass	2404725
2233.91	2233.80	-0.11	Pass	1.20	1.06	-0.14	Pass	1445876

Analyzer: MS1 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
112.99	113.11	0.12	Pass	2.50	2.40	-0.10	Pass	332508
302.00	301.99	-0.01	Pass	2.50	2.53	0.03	Pass	1674144
601.98	601.94	-0.04	Pass	2.50	2.57	0.07	Pass	5262626
1033.99	1034.04	0.05	Pass	2.50	2.37	-0.13	Pass	2286888
1633.95	1633.92	-0.03	Pass	2.50	2.69	0.19	Pass	2589242
2233.91	2233.71	-0.20	Pass	2.50	2.72	0.22	Pass	1428495

Analyzer: MS2 Polarity: Negative Width: Widest

m/z Expected	m/z Measured	Delta	Result	FWHM Expected	FWHM Measured	Delta	Result	Abundance
69.00	68.99	-0.01	Pass	2.50	2.65	0.15	Pass	168726
112.99	112.91	-0.08	Pass	2.50	2.48	-0.02	Pass	829124
302.00	301.92	-0.08	Pass	2.50	2.58	0.08	Pass	2833231
601.98	601.93	-0.05	Pass	2.50	2.82	0.32	Pass	6188038
1033.99	1033.90	-0.09	Pass	2.50	2.35	-0.15	Pass	3393113
1633.95	1633.83	-0.12	Pass	2.50	2.27	-0.23	Pass	5263089
2233.91	2233.57	-0.34	Pass	2.50	2.27	-0.23	Pass	3433253

7.7.15
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17051.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 12:50:16 PM
 Sample Name : ic258-1
 Vial : P1-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	186819	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66641	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69077	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	60355	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84734	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27394	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	18971	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26035	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25781	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17287	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	26073	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22557	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13242	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10610	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2247	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2798	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2856	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	23497	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	41439	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18738	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	102084	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	128810	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11979	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9281	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	14866	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80751	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9952	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	88403	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24365	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29325	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59809	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2247	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2798	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2856	4.78 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 95.6%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25781	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17287	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.8%		
13C3-PFBS	5.398	302.1 -> 79.9	22557	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	13242	2.50 µg/L	0.000

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 = 100.0%	
13C4-PFBA	2.910	216.8 -> 171.9	186819	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.419	367.1 -> 322.0	60355	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69077	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.8%	
13C5-PFPeA	4.270	268.3 -> 223.0	66641	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C6-PFDA	8.076	519.1 -> 474.1	18971	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26035	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-FOSA	9.623	506.1 -> 77.8	26073	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C8-PFOA	7.062	421.1 -> 376.0	84734	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.3%	
13C8-PFOS	8.226	507.1 -> 79.9	10610	2.37 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.8%	
13C9-PFNA	7.594	472.1 -> 427.0	27394	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23497	5.30 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	41439	9.79 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
d3-MeFOSA	10.741	515.0 -> 219.0	9281	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18738	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	102084	26.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.7%	
d9-EtFOSE	10.894	639.2 -> 58.9	128810	27.02 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.1%	
d5-EtFOSA	10.973	531.1 -> 219.0	11979	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.1%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	2219	0.65 µg/L	95
		327.1 -> 80.9	754		
6:2FTS	6.839	427.1 -> 407.0	1782	0.58 µg/L	93
		427.1 -> 80.9	710		
8:2FTS	7.865	527.1 -> 507.0	1265	0.74 µg/L	93
		527.1 -> 80.8	457		
EtFOSAA	8.331	584.2 -> 419.1	611	0.19 µg/L	96
		584.2 -> 526.0	337		
FOSA	9.614	498.1 -> 77.9	1510	0.16 µg/L	98
		498.1 -> 478.0	54		
MeFOSAA	8.136	570.1 -> 419.0	704	0.16 µg/L	100
		570.1 -> 483.0	103		
PFBA	2.906	212.8 -> 168.9	4004	0.64 µg/L	100
PFBS	5.400	298.7 -> 79.9	1581	0.16 µg/L	100
		298.7 -> 98.8	651		
PFDA	8.077	512.9 -> 469.0	3202	0.16 µg/L	84
		512.9 -> 219.0	751		
PFDODA	8.961	613.1 -> 569.0	3505	0.17 µg/L	92
		613.1 -> 319.0	395		
PFDS	9.125	599.0 -> 79.9	536	0.16 µg/L	91

7.7.16
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	233			
PFHpA	6.420	363.1 -> 319.0	4833	0.16	µg/L	99
		363.1 -> 169.0	705			
PFHpS	7.734	449.0 -> 79.9	1005	0.17	µg/L	84
		449.0 -> 98.9	402			
PFHxA	5.470	313.0 -> 269.0	5160	0.19	µg/L	99
		313.0 -> 118.9	224			
PFHxS	7.180	398.7 -> 79.9	1096	0.15	µg/L	m 98
		398.7 -> 98.9	553			
PFNA	7.595	463.0 -> 419.0	2858	0.15	µg/L	99
		463.0 -> 219.0	590			
PFNS	8.694	548.8 -> 79.9	875	0.17	µg/L	82
		548.8 -> 98.9	370			
PFOA	7.063	413.0 -> 369.0	5042	0.19	µg/L	m 90
		413.0 -> 169.0	1111			
PFOS	8.253	498.9 -> 79.9	854	0.17	µg/L	m 87
		498.9 -> 98.8	463			
PFPeA	4.273	263.0 -> 219.0	5806	0.32	µg/L	100
PFPeS	6.472	349.1 -> 79.9	1110	0.15	µg/L	100
		349.1 -> 98.9	536			
PFTeDA	9.690	713.1 -> 669.0	3401	0.19	µg/L	99
		713.1 -> 168.9	251			
PFTrDA	9.358	663.0 -> 619.0	3630	0.16	µg/L	97
		663.0 -> 168.9	293			
PFUnDA	8.531	563.1 -> 519.0	3096	0.17	µg/L	93
		563.1 -> 269.1	444			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	4598	0.32	µg/L	93
		632.9 -> 452.9	1288			
9Cl-PF3ONS	8.569	530.8 -> 351.0	6928	0.31	µg/L	79
		532.8 -> 353.0	2844			
ADONA	6.681	376.9 -> 250.9	19563	0.31	µg/L	99
		376.9 -> 84.8	4948			
HFPO-DA	5.846	284.9 -> 168.9	1269	0.32	µg/L	100
		284.9 -> 184.9	176			
3:3FTCA	3.784	241.0 -> 177.0	938	0.83	µg/L	95
		241.0 -> 117.0	144			
5:3FTCA	6.160	341.0 -> 237.1	19892	4.50	µg/L	92
		341.0 -> 217.0	14528			
7:3FTCA	7.573	441.0 -> 316.9	8675	4.32	µg/L	99
		441.0 -> 336.9	18680			
EtFOSA	10.975	526.0 -> 219.0	1611	0.33	µg/L	94
		526.0 -> 169.0	1849			
EtFOSE	10.907	630.0 -> 58.9	4208	0.78	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	1397	0.33	µg/L	100
		511.9 -> 169.0	1895			
MeFOSE	10.661	616.1 -> 58.9	3713	0.82	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	299	0.17	µg/L	92
		699.1 -> 98.8	189			
NFDHA	5.350	295.0 -> 201.0	1022	0.35	µg/L	85
		295.0 -> 84.9	324			
PFMBA	4.687	279.0 -> 85.1	3886	0.32	µg/L	100
PFMPA	3.438	229.0 -> 84.9	2950	0.32	µg/L	100
PFEESA	5.937	314.8 -> 134.9	10269	0.30	µg/L	98
		314.8 -> 82.9	433			

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

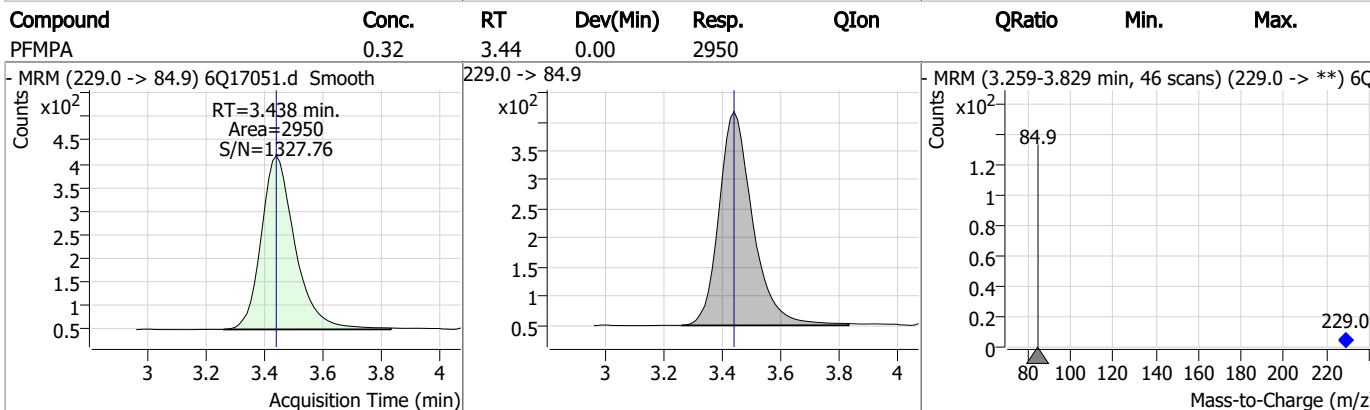
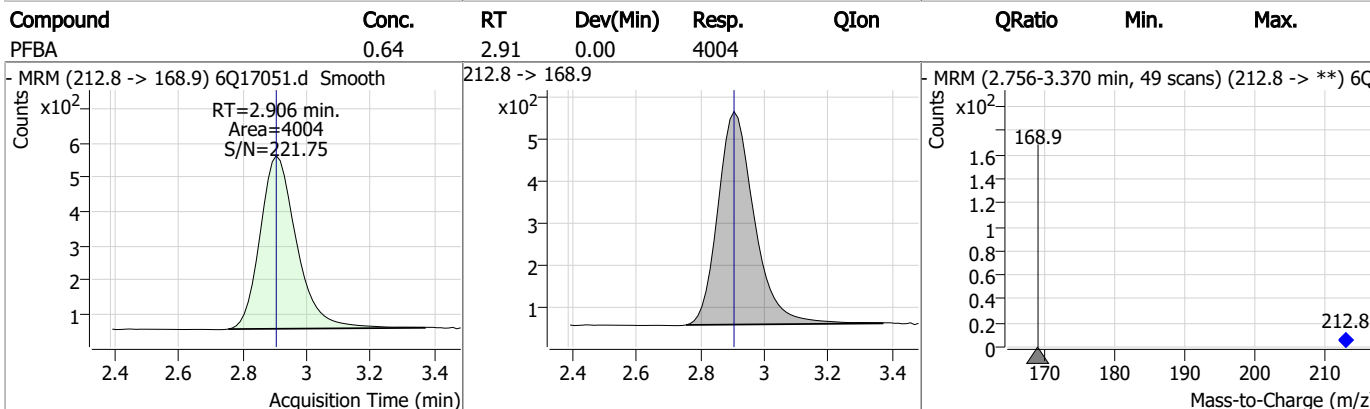
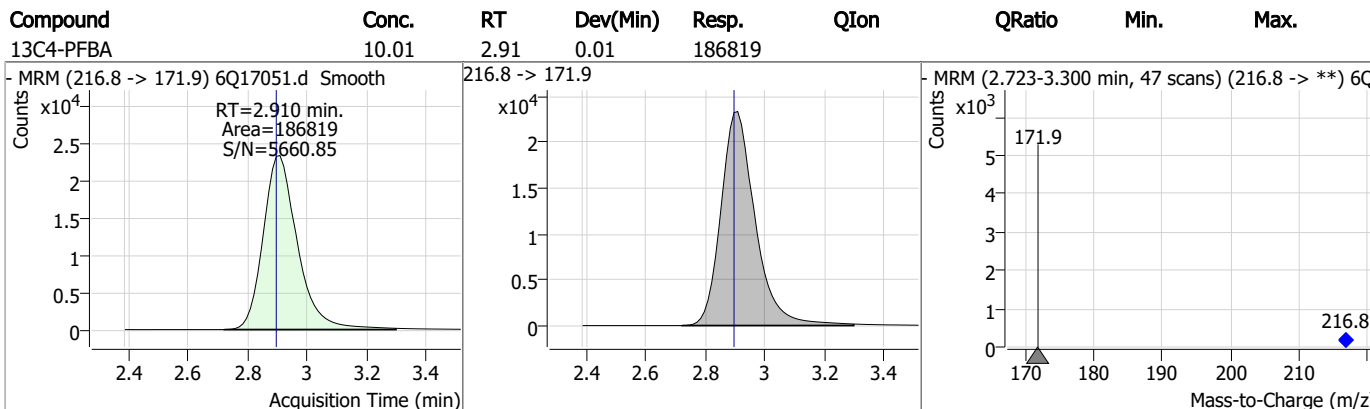
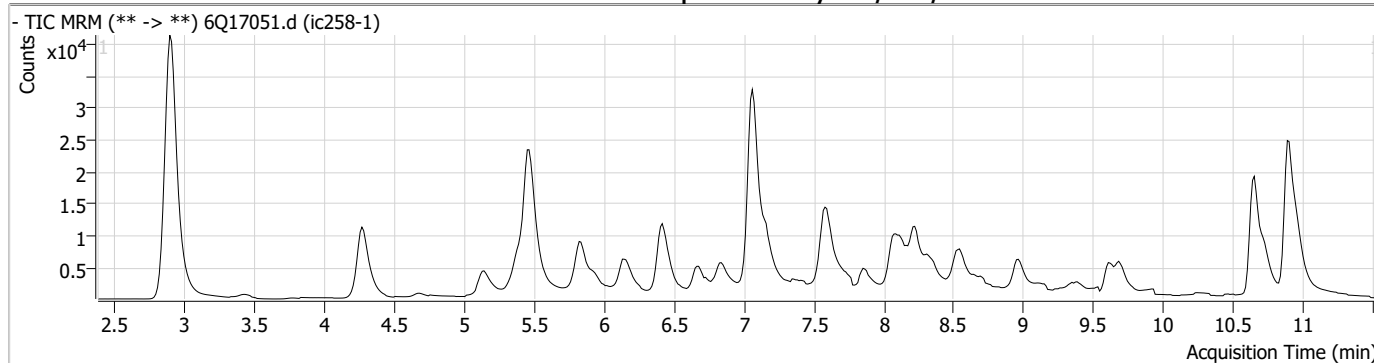
Perfluorinated Compounds by LC/MS/MS

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

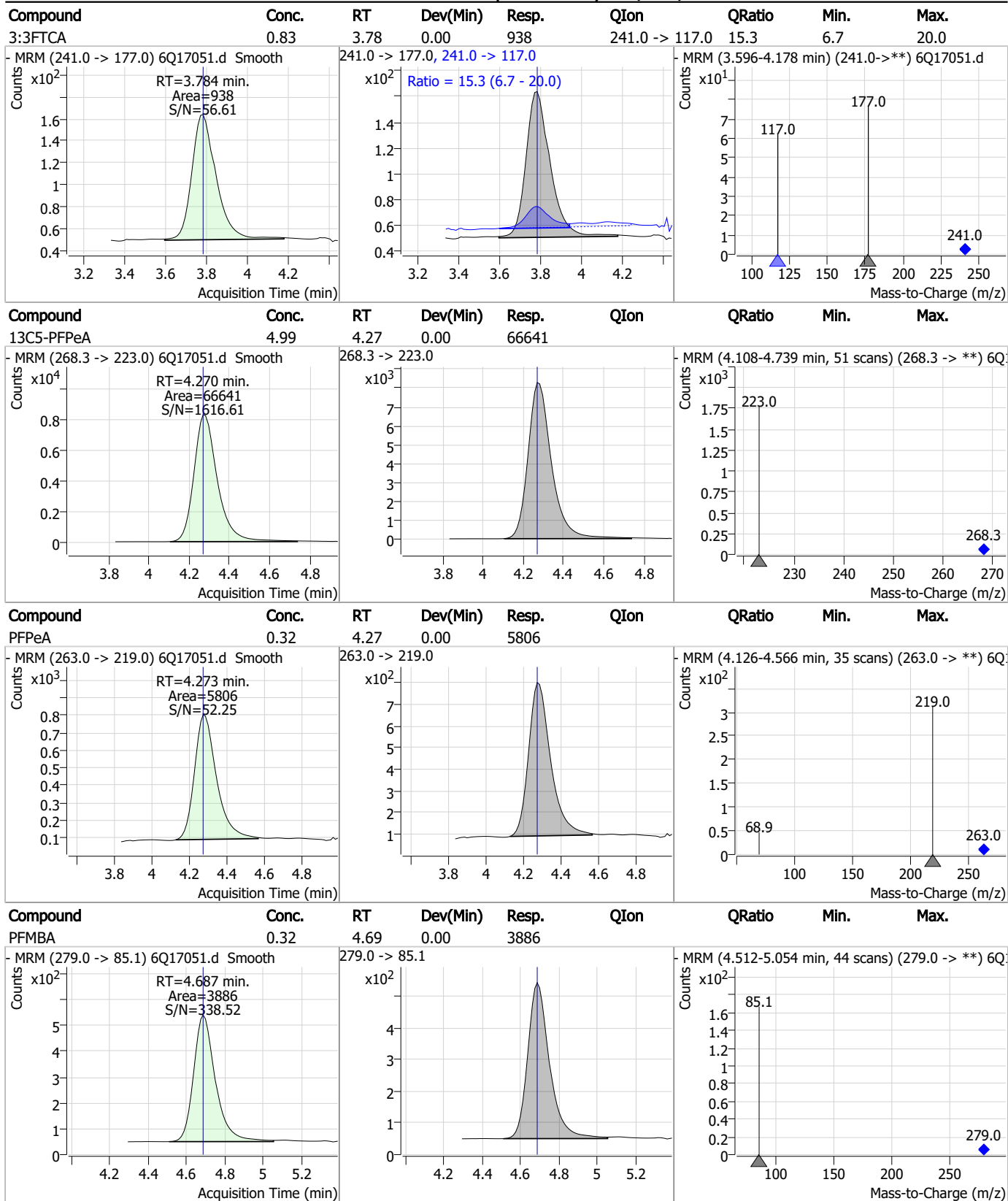
7.7.16
7



Perfluorinated Compounds by LC/MS/MS

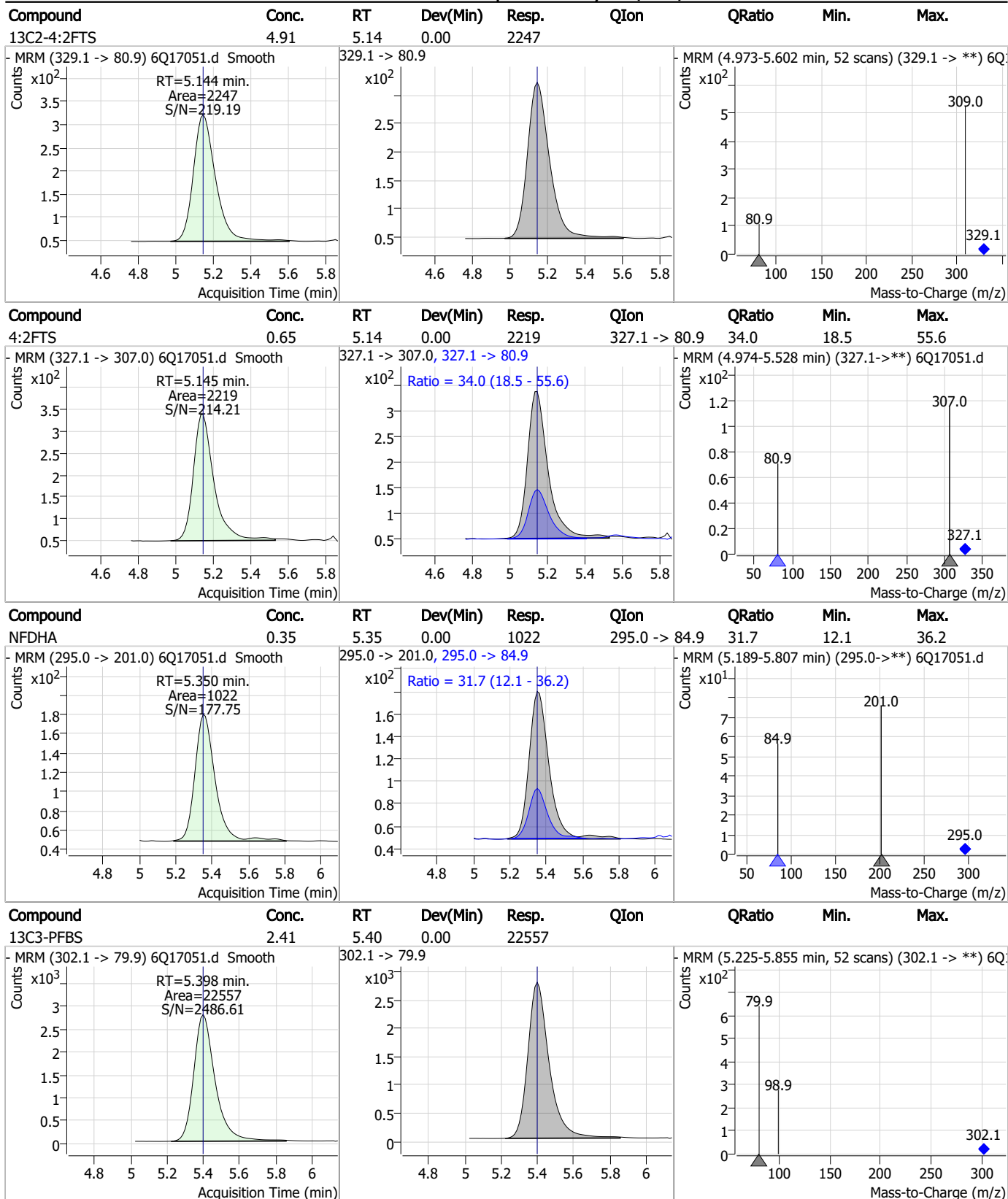


Perfluorinated Compounds by LC/MS/MS



7.7.16
7

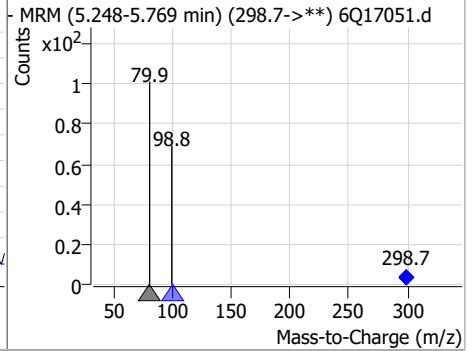
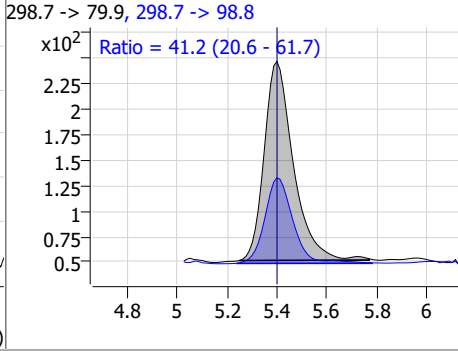
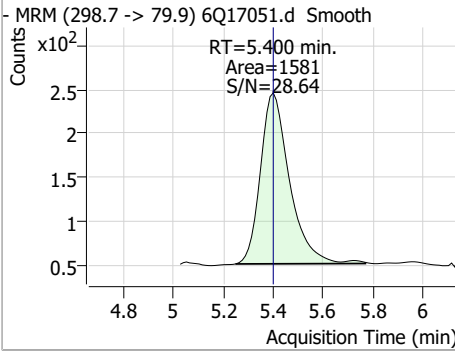
Perfluorinated Compounds by LC/MS/MS



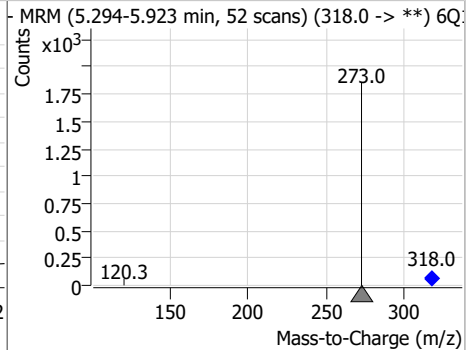
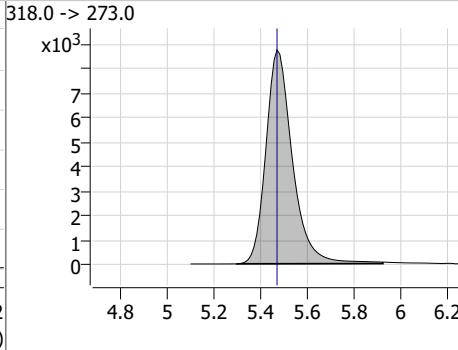
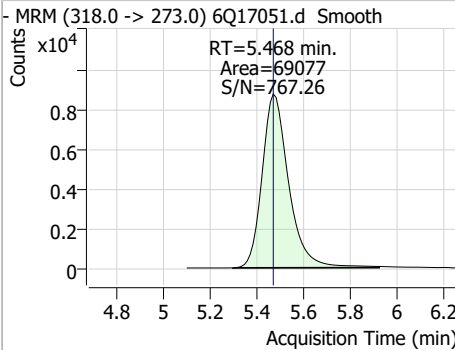
7.7.16
7

Perfluorinated Compounds by LC/MS/MS

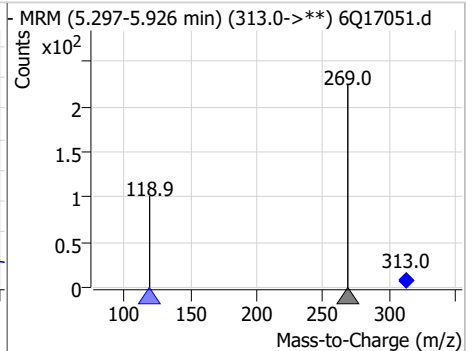
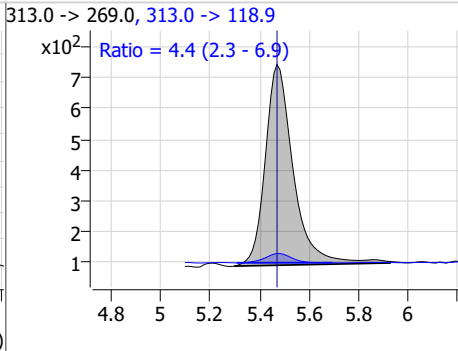
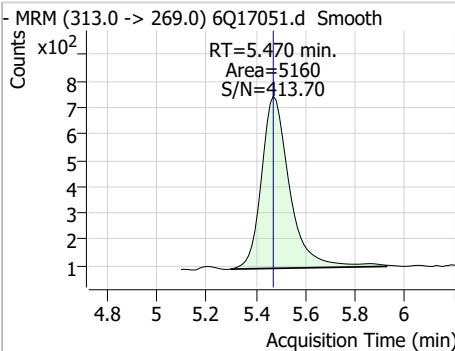
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.16	5.40	0.00	1581	298.7 -> 98.8	41.2	20.6	61.7



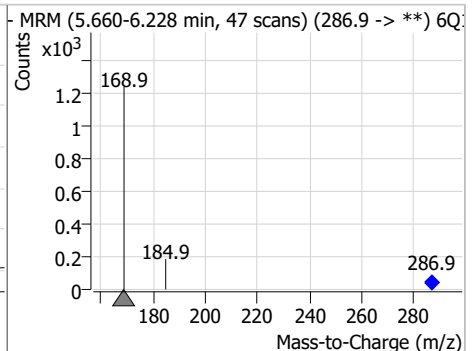
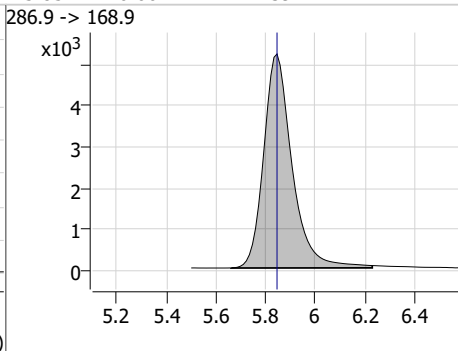
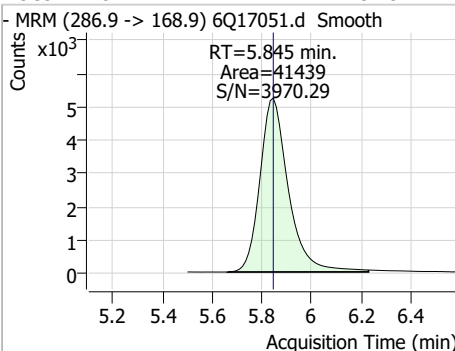
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.39	5.47	0.00	69077				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.19	5.47	0.00	5160	313.0 -> 118.9	4.4	2.3	6.9

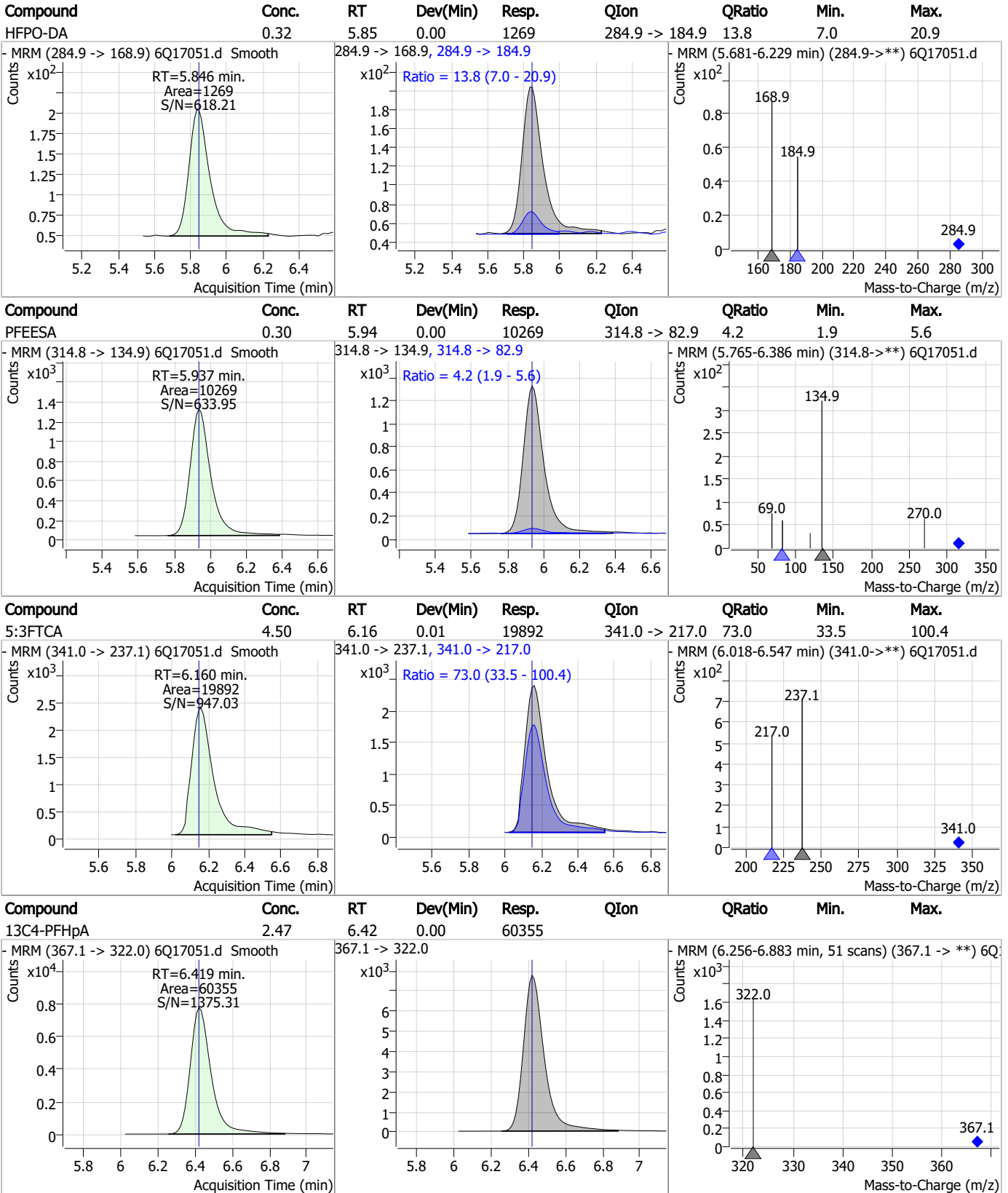


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.79	5.85	0.00	41439				



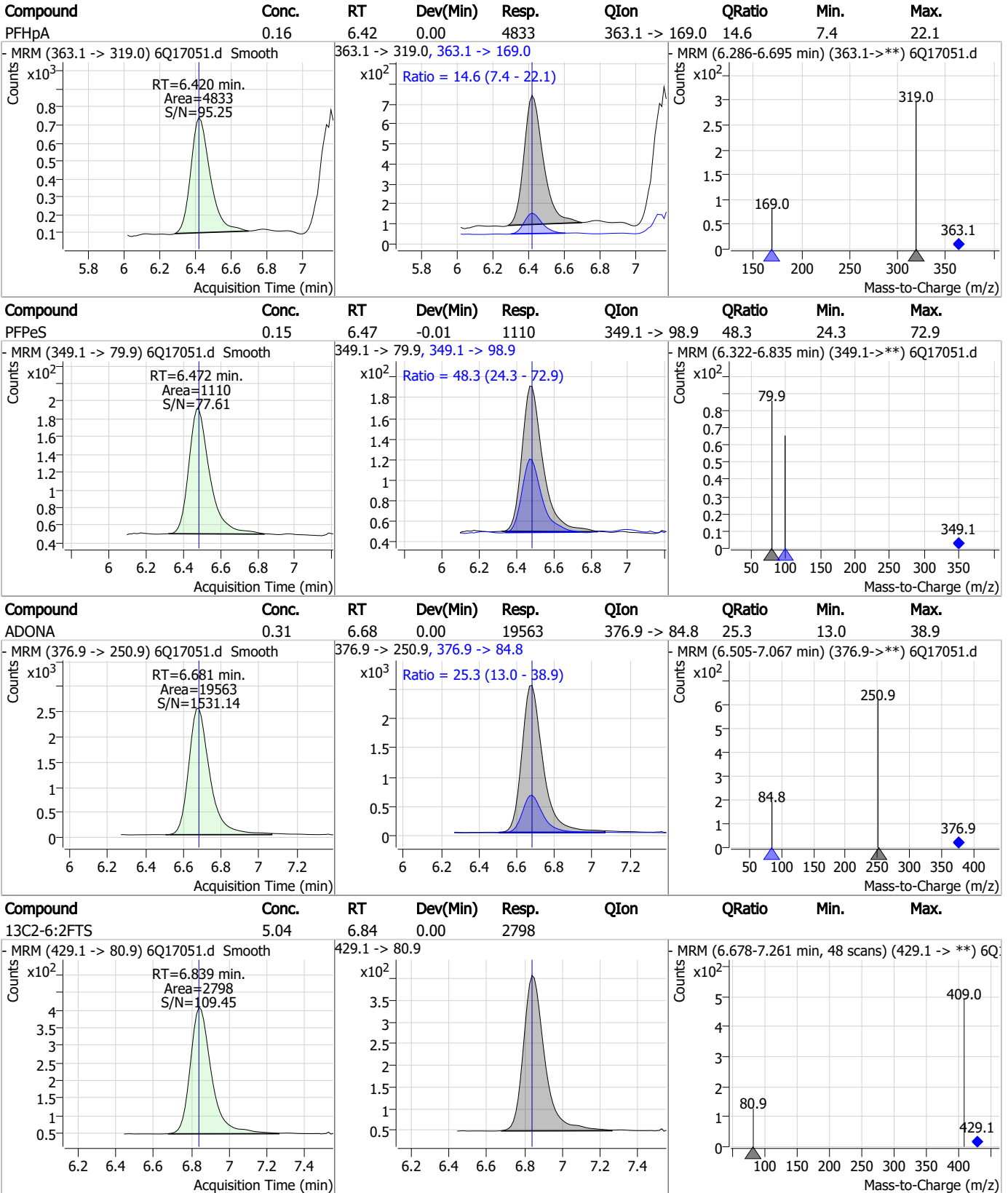
7.7.16
7

Perfluorinated Compounds by LC/MS/MS



7.7.16 7

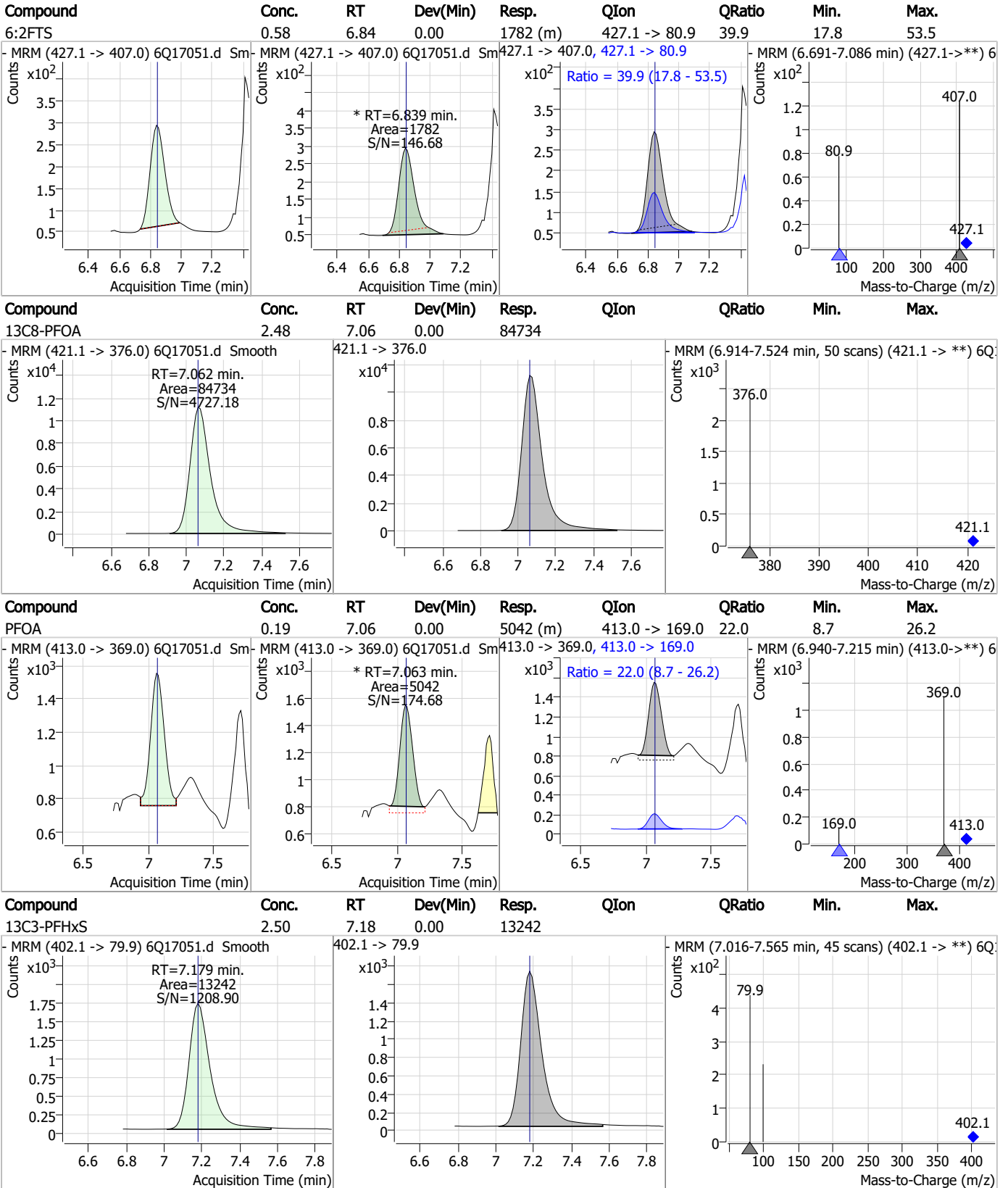
Perfluorinated Compounds by LC/MS/MS



7.7.16 7

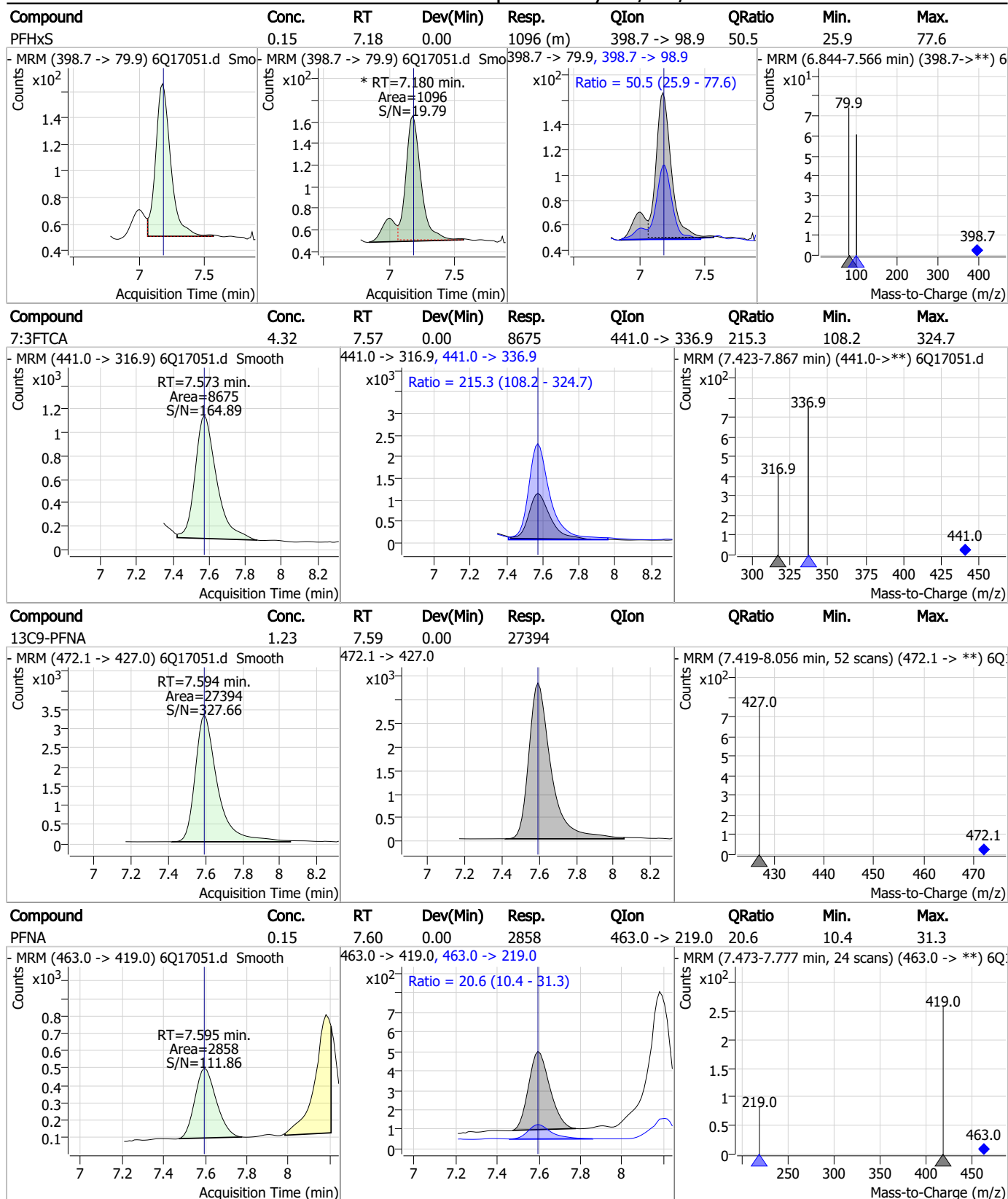


Perfluorinated Compounds by LC/MS/MS



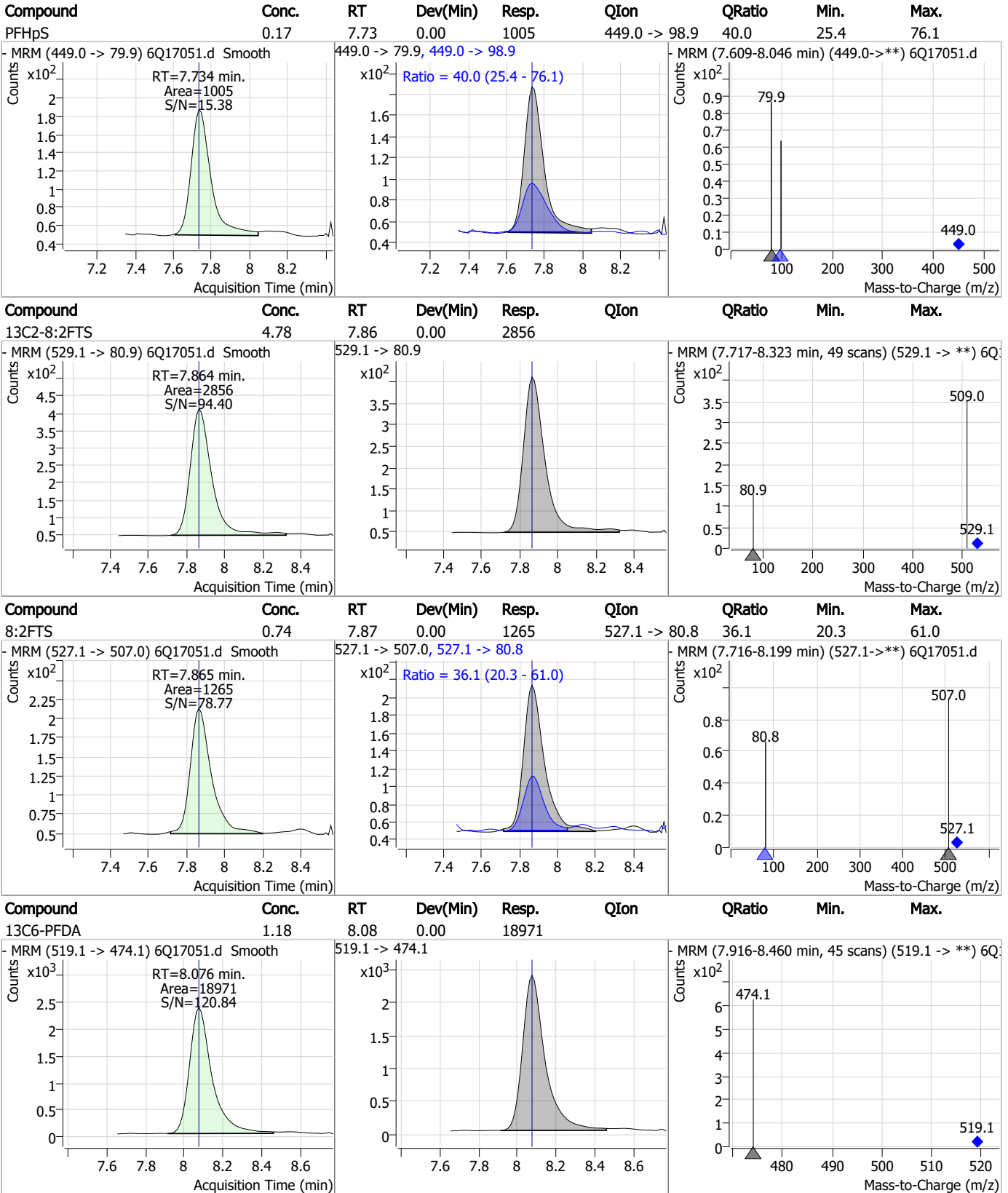
7.7.16 7

Perfluorinated Compounds by LC/MS/MS



7.7.16
7

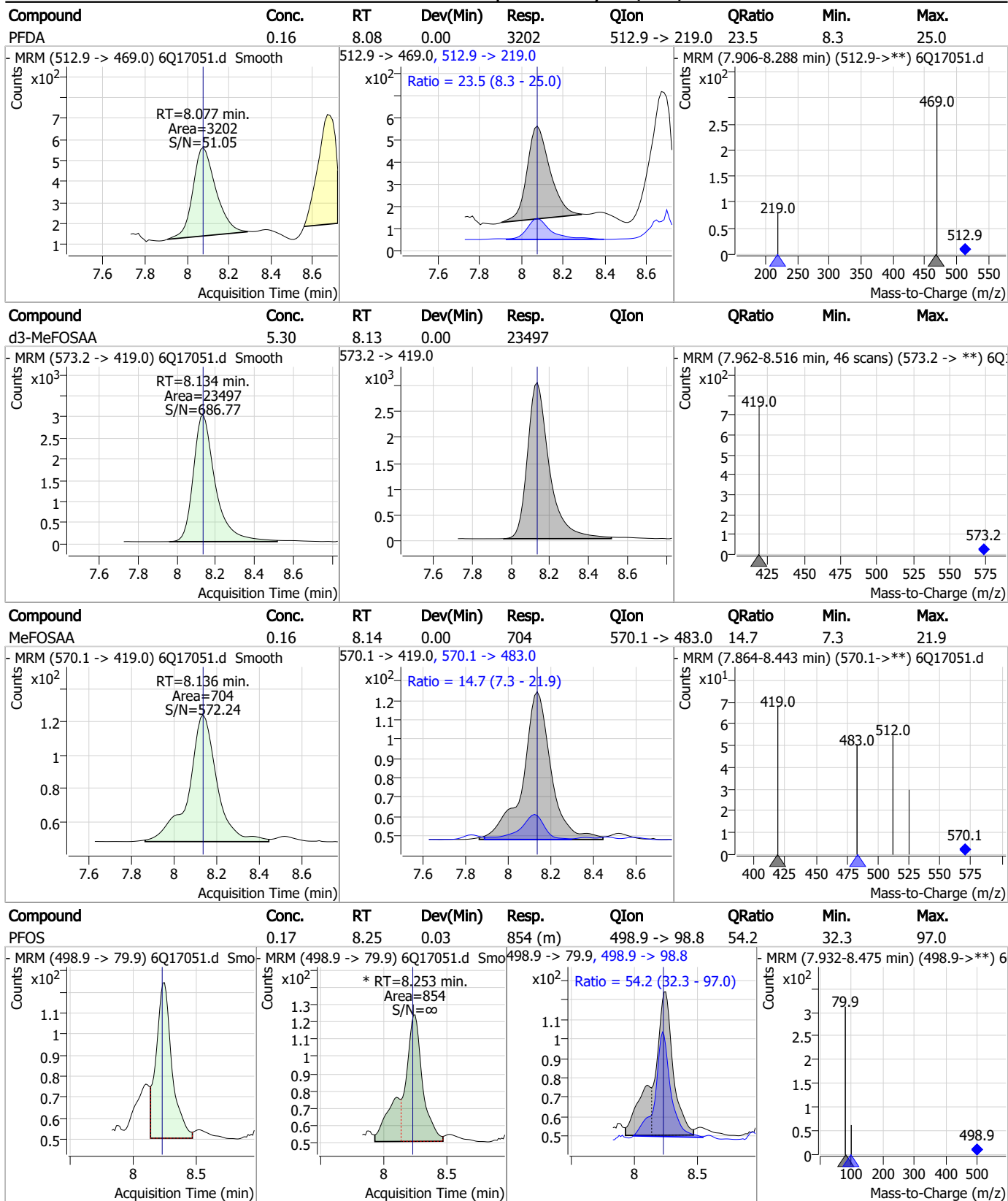
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



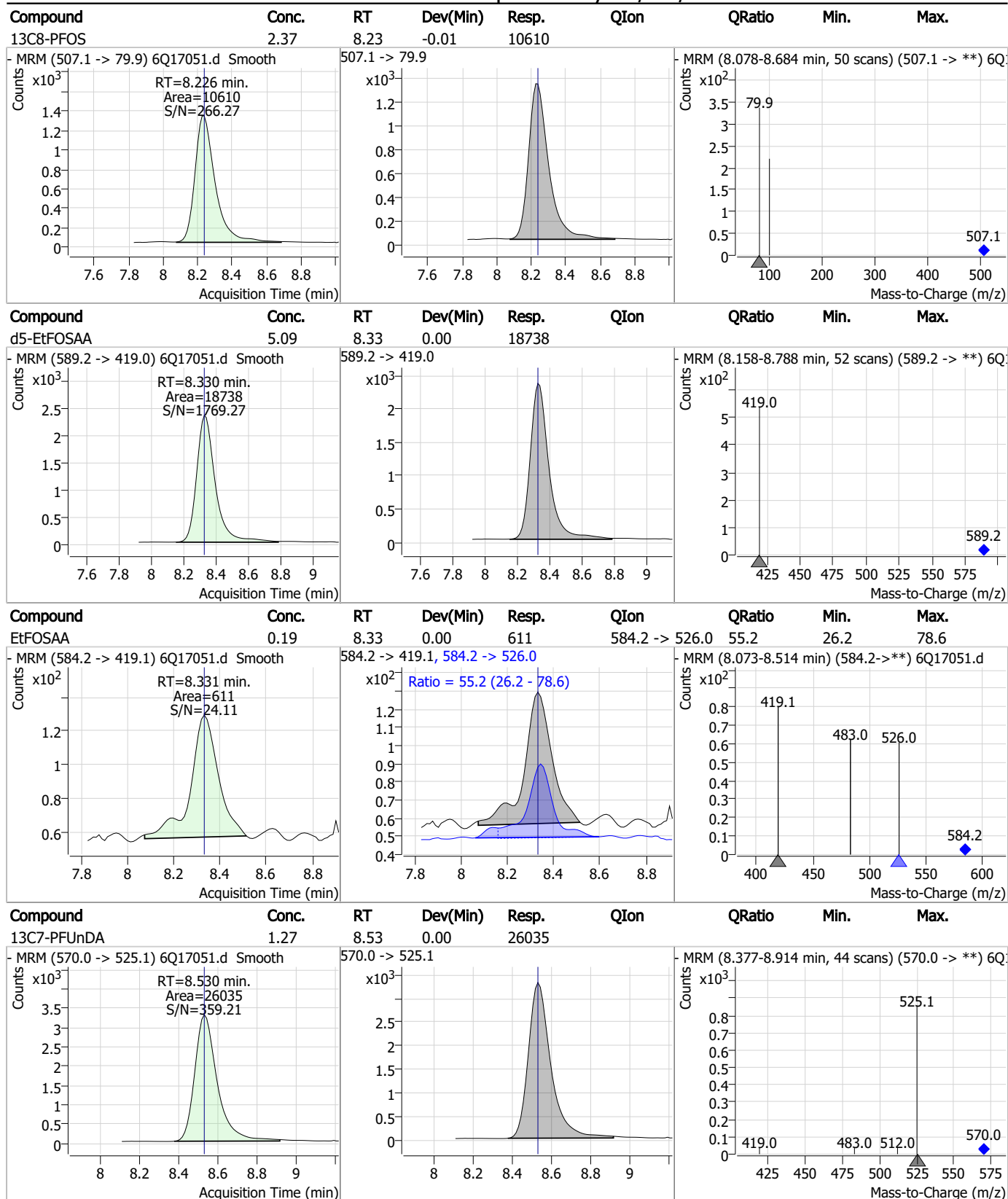
Perfluorinated Compounds by LC/MS/MS



7.7.16

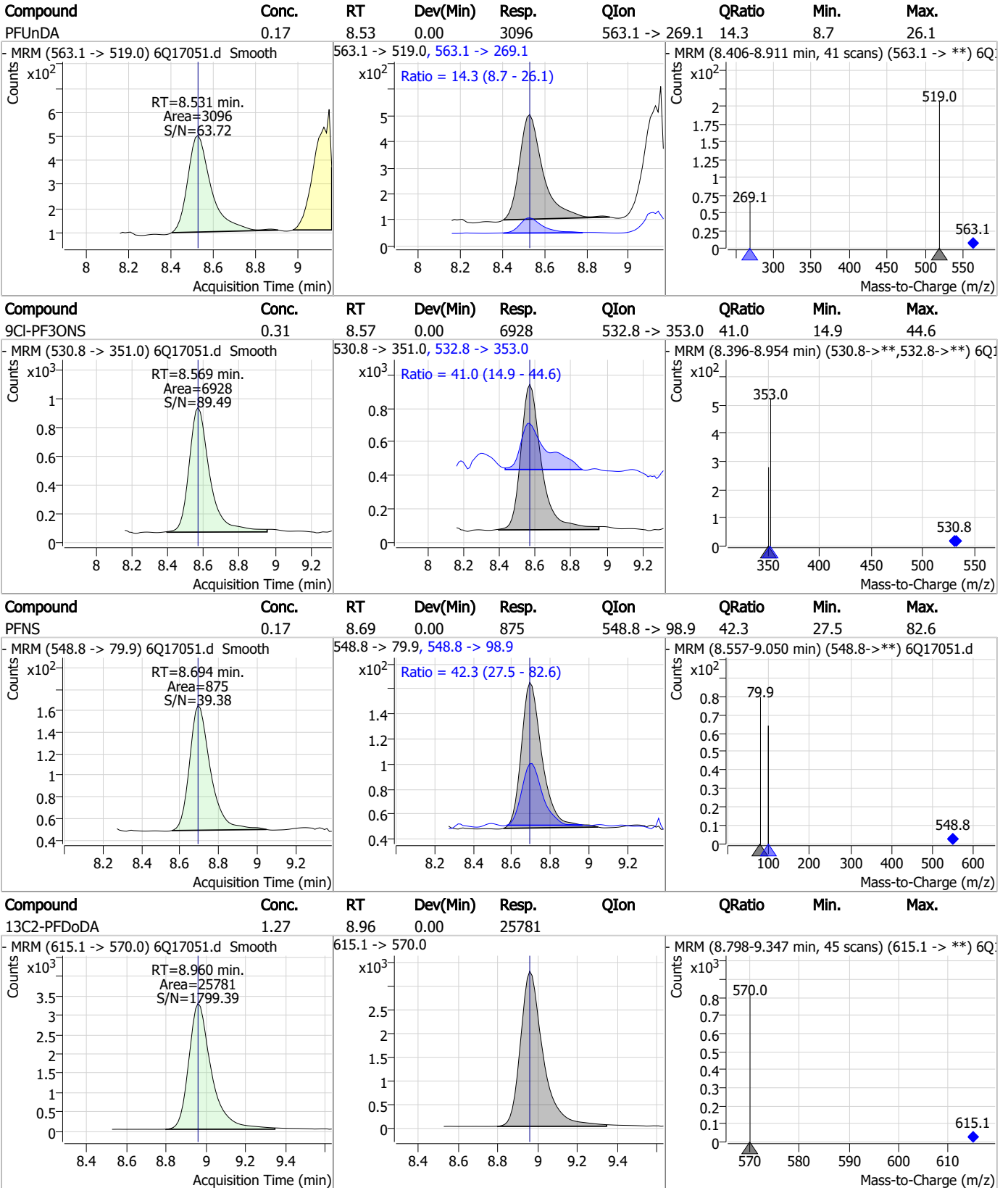
7

Perfluorinated Compounds by LC/MS/MS



7.7.16
7

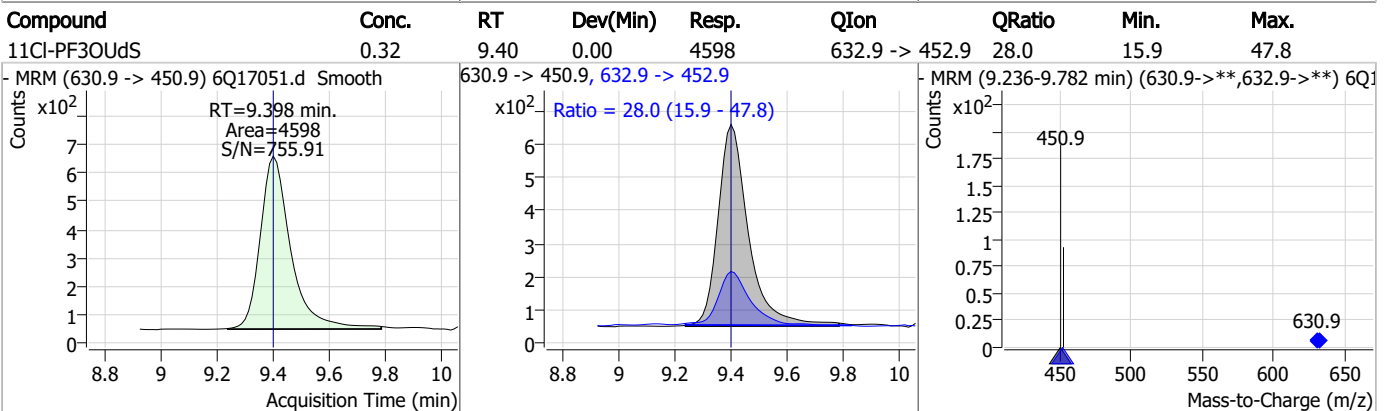
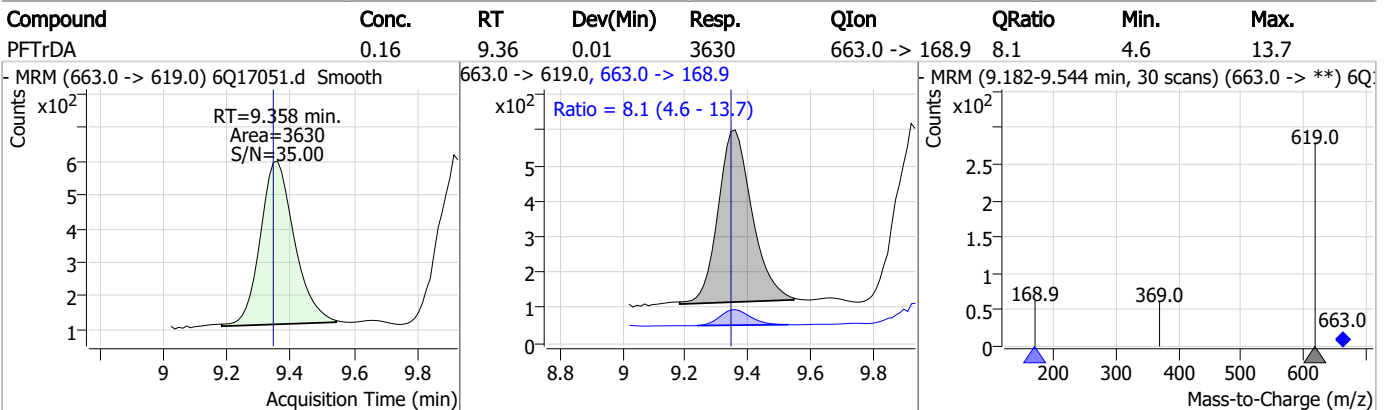
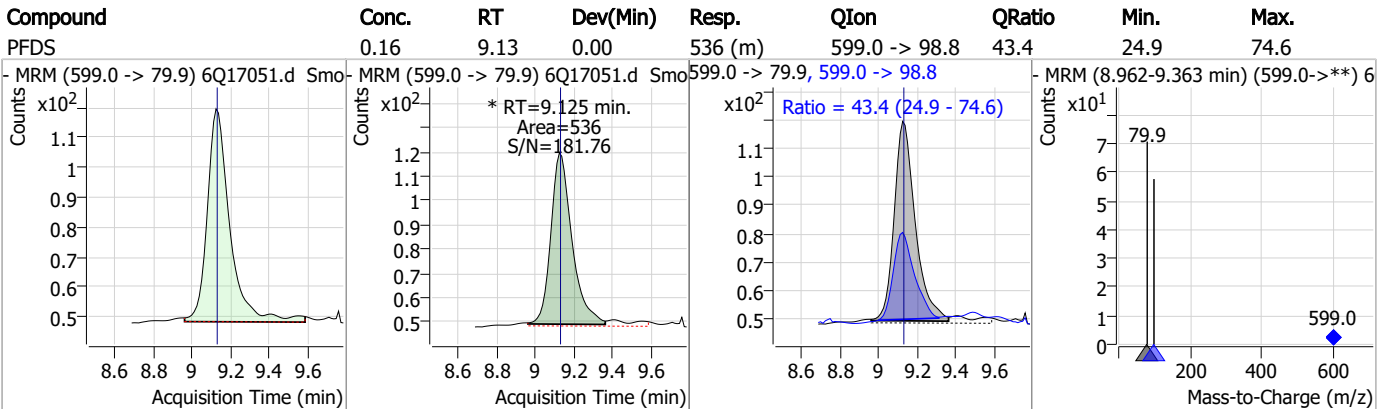
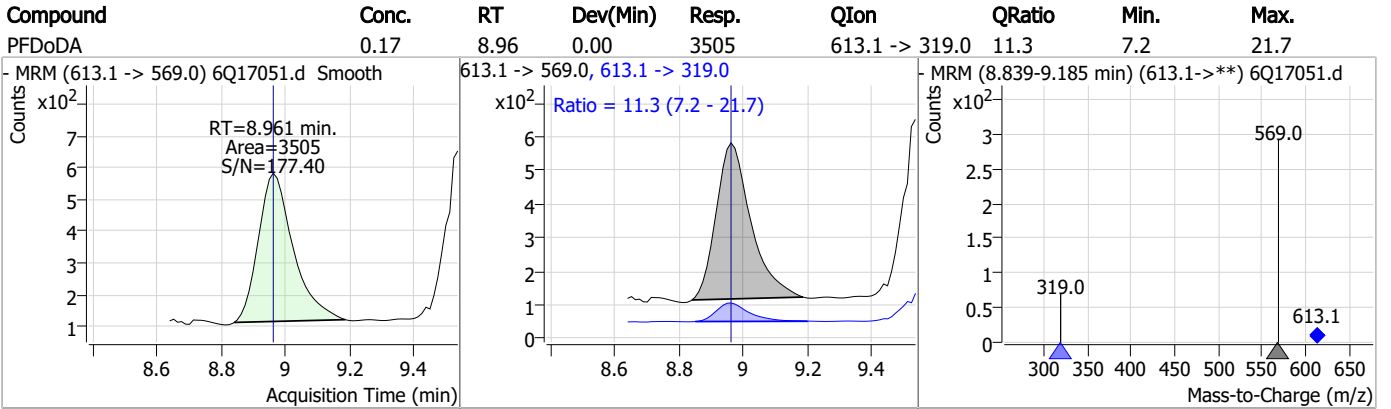
Perfluorinated Compounds by LC/MS/MS



7.7.16 7



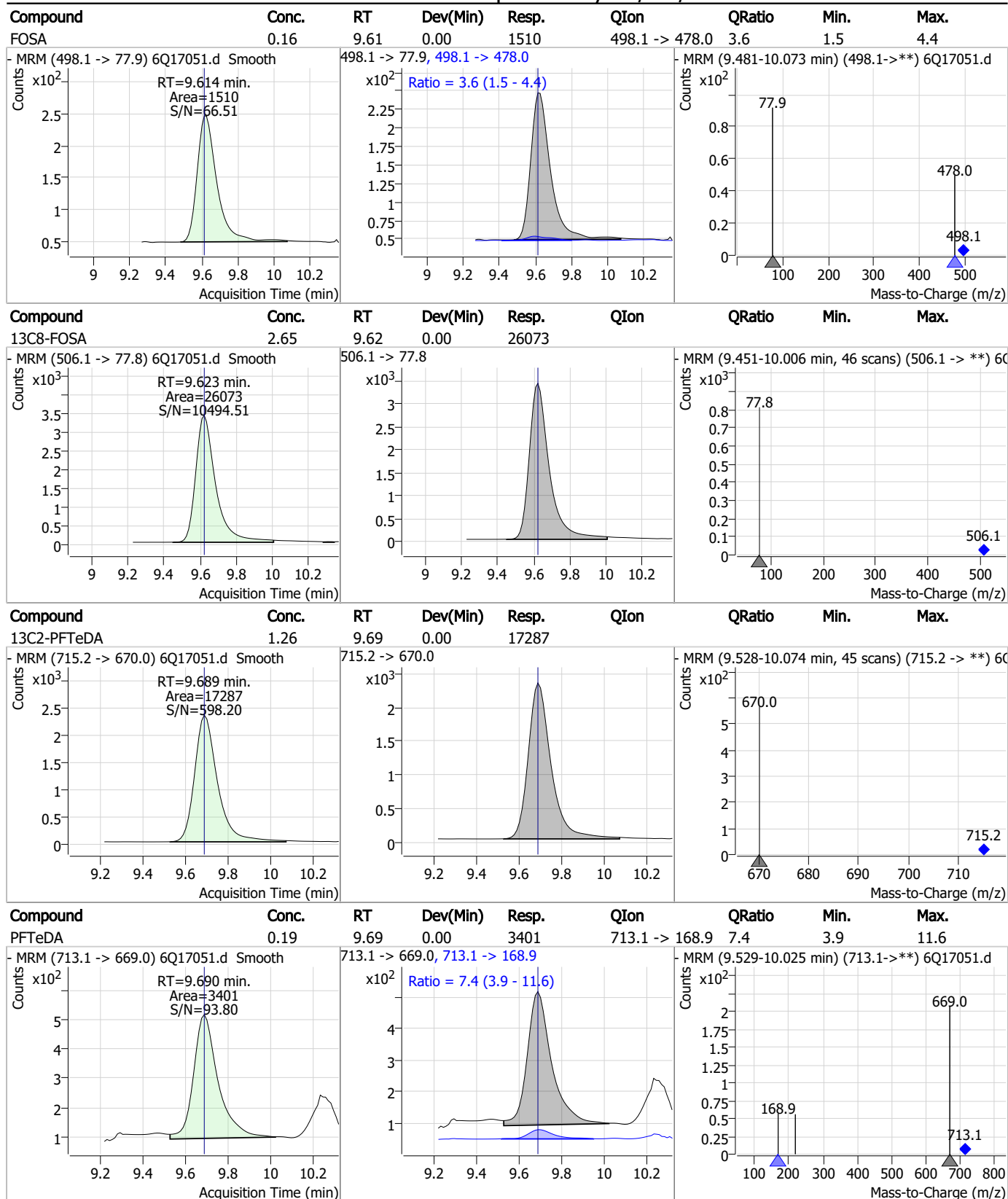
Perfluorinated Compounds by LC/MS/MS



7.7.16
7

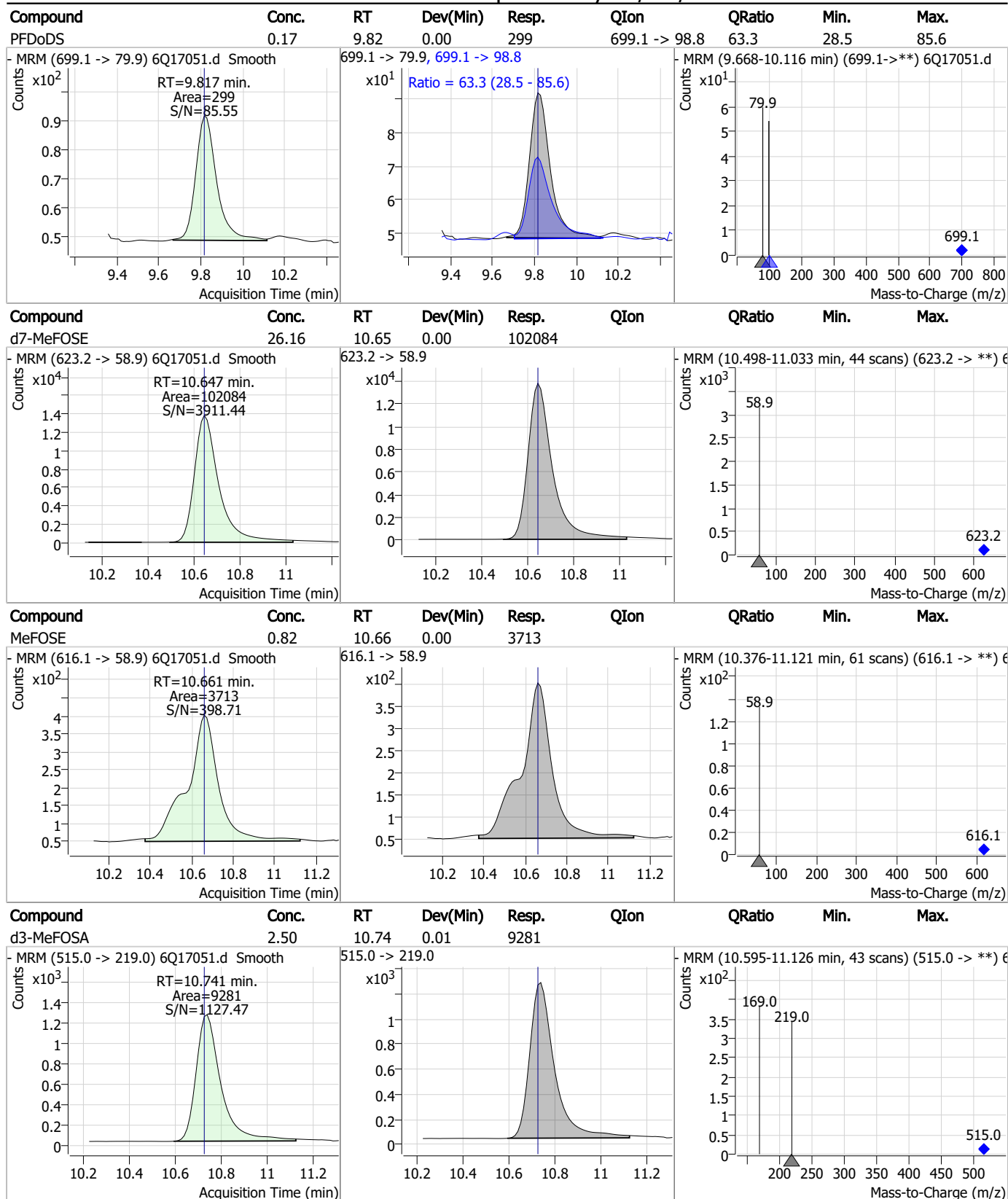


Perfluorinated Compounds by LC/MS/MS



7.7.16
7

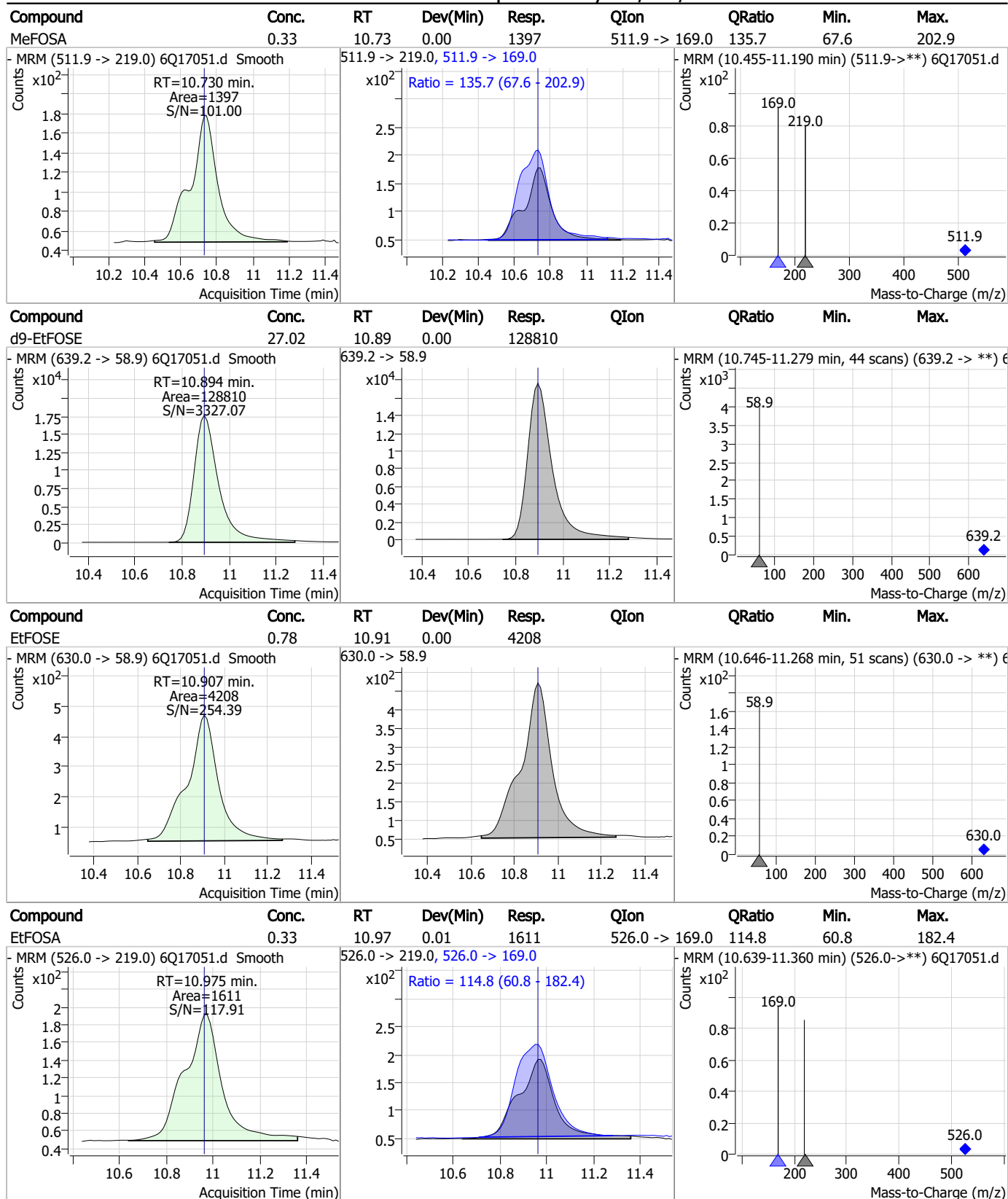
Perfluorinated Compounds by LC/MS/MS



7.7.16

7

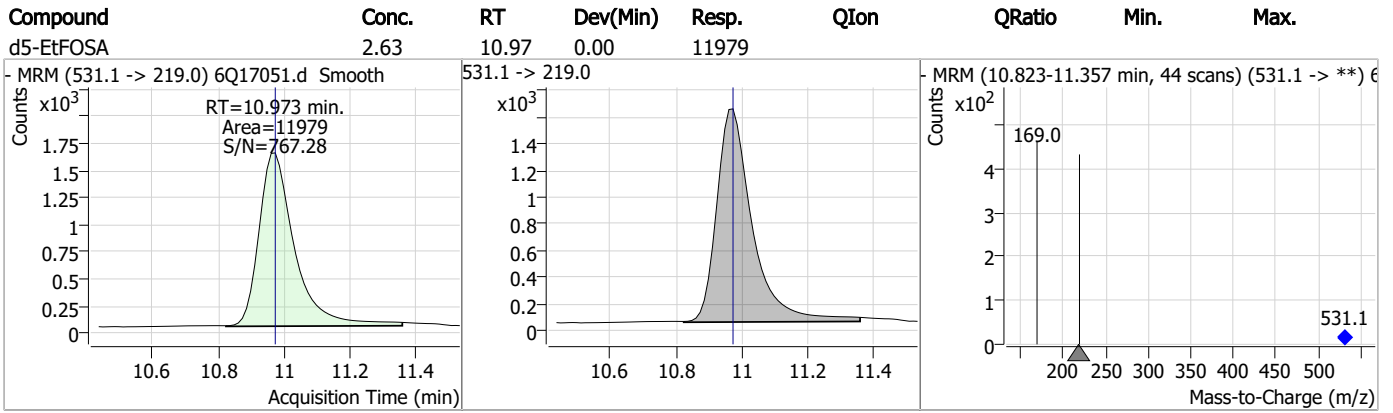
Perfluorinated Compounds by LC/MS/MS



7.7.16

7

Perfluorinated Compounds by LC/MS/MS



7.7.16
7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17051.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 12:50 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
6:2 Fluorotelomer sulfonate	27619-97-2		6.84	Poor instrument integration
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.25	Split peak
Perfluorodecanesulfonic acid	335-77-3		9.12	Poor instrument integration

7.7.16.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17052.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:04:45 PM
 Sample Name : ic258-2
 Vial : P1-A3
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	191249	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	68489	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	73356	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	60888	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	87189	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27968	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	22037	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25442	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26702	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	19305	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	25553	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	23778	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13696	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	12098	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2380	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2699	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	3016	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	25263	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42056	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19497	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	104174	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	133008	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11903	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9604	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	16032	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	82834	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	10320	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	90721	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25548	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29483	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	61704	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2380	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2699	4.69 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 93.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3016	4.87 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.4%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26702	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	19305	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 107.4%		
13C3-PFBS	5.398	302.1 -> 79.9	23778	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.0%		
13C3-PFHxS	7.179	402.1 -> 79.9	13696	2.49 µg/L	0.000

7.7.17
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 = 99.7%	
13C4-PFBA	2.910	216.8 -> 171.9	191249	9.99 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.9%	
13C4-PFHpA	6.431	367.1 -> 322.0	60888	2.41 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C5-PFHxA	5.480	318.0 -> 273.0	73356	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.6%	
13C5-PFPeA	4.270	268.3 -> 223.0	68489	4.97 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C6-PFDA	8.076	519.1 -> 474.1	22037	1.31 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25442	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.611	506.1 -> 77.8	25553	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.4%	
13C8-PFOA	7.074	421.1 -> 376.0	87189	2.49 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.6%	
13C8-PFOS	8.239	507.1 -> 79.9	12098	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
13C9-PFNA	7.594	472.1 -> 427.0	27968	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	25263	5.29 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 105.8%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42056	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	9604	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19497	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	104174	24.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	133008	25.87 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.5%	
d5-EtFOSA	10.960	531.1 -> 219.0	11903	2.42 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.8%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	5443	1.51 µg/L	93
		327.1 -> 80.9	2238		
6:2FTS	6.839	427.1 -> 407.0	5215	1.76 µg/L	93
		427.1 -> 80.9	1642		
8:2FTS	7.865	527.1 -> 507.0	2967	1.65 µg/L	92
		527.1 -> 80.8	1064		
EtFOSAA	8.343	584.2 -> 419.1	1293	0.39 µg/L	92
		584.2 -> 526.0	747		
FOSA	9.614	498.1 -> 77.9	3607	0.39 µg/L	97
		498.1 -> 478.0	67		
MeFOSAA	8.136	570.1 -> 419.0	1634	0.34 µg/L	83
		570.1 -> 483.0	351		
PFBA	2.906	212.8 -> 168.9	10438	1.63 µg/L	100
PFBS	5.412	298.7 -> 79.9	3580	0.34 µg/L	99
		298.7 -> 98.8	1498		
PFDA	8.077	512.9 -> 469.0	7589	0.32 µg/L	96
		512.9 -> 219.0	1386		
PFDODA	8.961	613.1 -> 569.0	8628	0.41 µg/L	96
		613.1 -> 319.0	1115		
PFDS	9.125	599.0 -> 79.9	1485	0.39 µg/L	95

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	689			
PFHpA	6.432	363.1 -> 319.0	11942	0.40	µg/L	93
		363.1 -> 169.0	2110			
PFHpS	7.746	449.0 -> 79.9	2561	0.39	µg/L	91
		449.0 -> 98.9	1149			
PFHxA	5.483	313.0 -> 269.0	11443	0.39	µg/L	98
		313.0 -> 118.9	596			
PFHxS	7.180	398.7 -> 79.9	2724	0.36	µg/L	m 87
		398.7 -> 98.9	1152			
PFNA	7.595	463.0 -> 419.0	7817	0.40	µg/L	96
		463.0 -> 219.0	1768			
PFNS	8.694	548.8 -> 79.9	2457	0.42	µg/L	89
		548.8 -> 98.9	1167			
PFOA	7.063	413.0 -> 369.0	15132	0.43	µg/L	m 97
		413.0 -> 169.0	2836			
PFOS	8.228	498.9 -> 79.9	2331	0.40	µg/L	m 84
		498.9 -> 98.8	1216			
PFPeA	4.273	263.0 -> 219.0	15471	0.83	µg/L	100
PFPeS	6.484	349.1 -> 79.9	2796	0.36	µg/L	100
		349.1 -> 98.9	1356			
PFTeDA	9.690	713.1 -> 669.0	7199	0.37	µg/L	100
		713.1 -> 168.9	555			
PFTrDA	9.345	663.0 -> 619.0	9228	0.40	µg/L	98
		663.0 -> 168.9	779			
PFUnDA	8.531	563.1 -> 519.0	7041	0.40	µg/L	99
		563.1 -> 269.1	1250			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	11378	0.79	µg/L	95
		632.9 -> 452.9	3287			
9Cl-PF3ONS	8.569	530.8 -> 351.0	17108	0.75	µg/L	88
		532.8 -> 353.0	3995			
ADONA	6.681	376.9 -> 250.9	50774	0.80	µg/L	99
		376.9 -> 84.8	12974			
HFPO-DA	5.846	284.9 -> 168.9	3221	0.81	µg/L	99
		284.9 -> 184.9	468			
3:3FTCA	3.784	241.0 -> 177.0	2332	2.00	µg/L	96
		241.0 -> 117.0	269			
5:3FTCA	6.160	341.0 -> 237.1	48920	10.42	µg/L	88
		341.0 -> 217.0	37403			
7:3FTCA	7.573	441.0 -> 316.9	21351	10.01	µg/L	89
		441.0 -> 336.9	42303			
EtFOSA	10.962	526.0 -> 219.0	4105	0.84	µg/L	97
		526.0 -> 169.0	5149			
EtFOSE	10.907	630.0 -> 58.9	10551	1.90	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	3748	0.87	µg/L	95
		511.9 -> 169.0	4864			
MeFOSE	10.661	616.1 -> 58.9	9404	2.02	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	771	0.39	µg/L	94
		699.1 -> 98.8	473			
NFDHA	5.350	295.0 -> 201.0	2486	0.79	µg/L	98
		295.0 -> 84.9	632			
PFMBA	4.687	279.0 -> 85.1	10270	0.82	µg/L	100
PFMPA	3.438	229.0 -> 84.9	7625	0.82	µg/L	100
PFEESA	5.949	314.8 -> 134.9	26589	0.73	µg/L	100
		314.8 -> 82.9	1021			

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

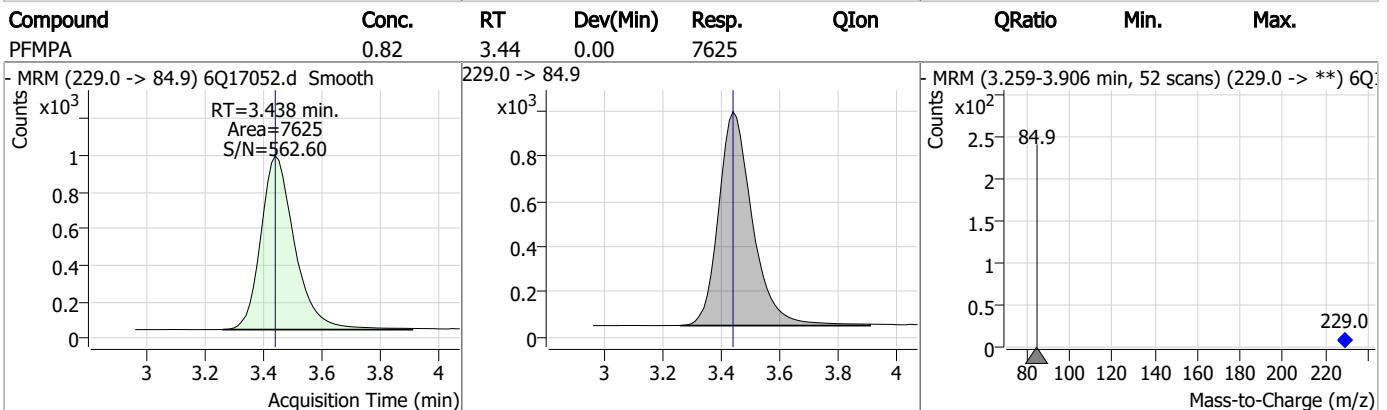
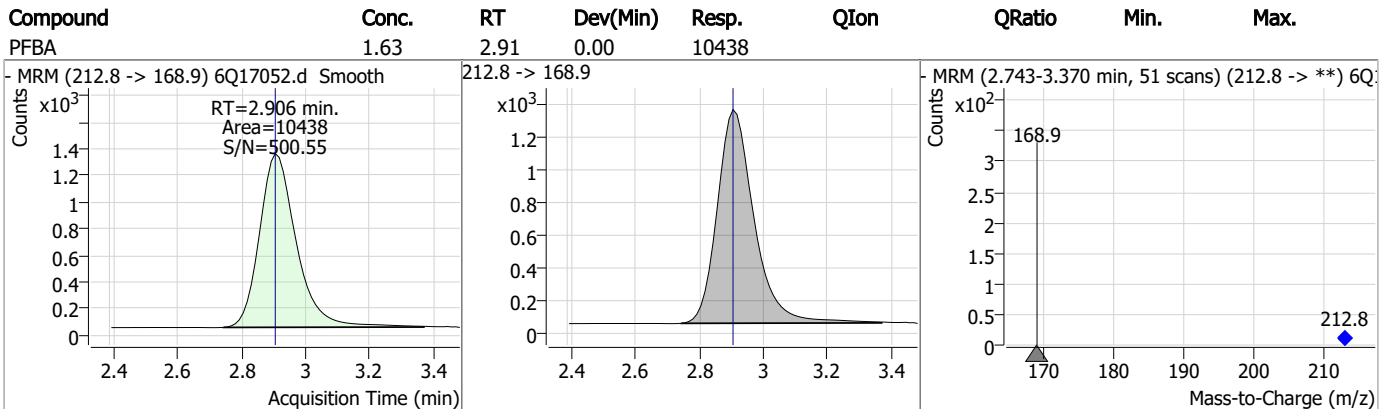
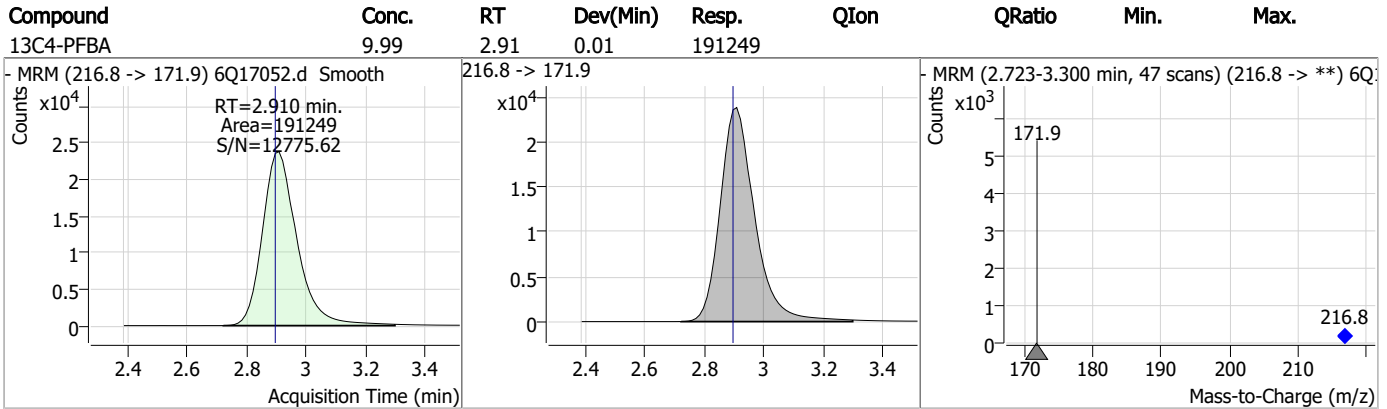
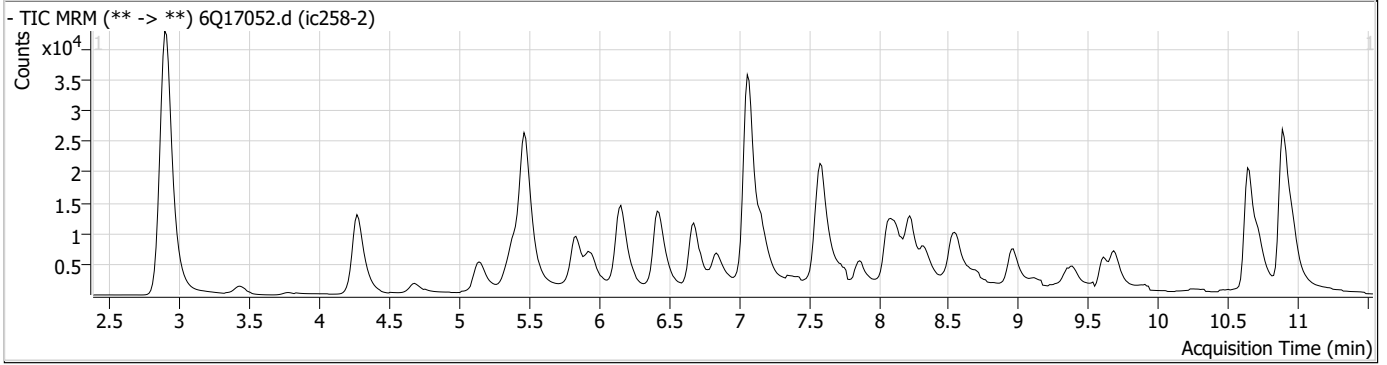
Perfluorinated Compounds by LC/MS/MS

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

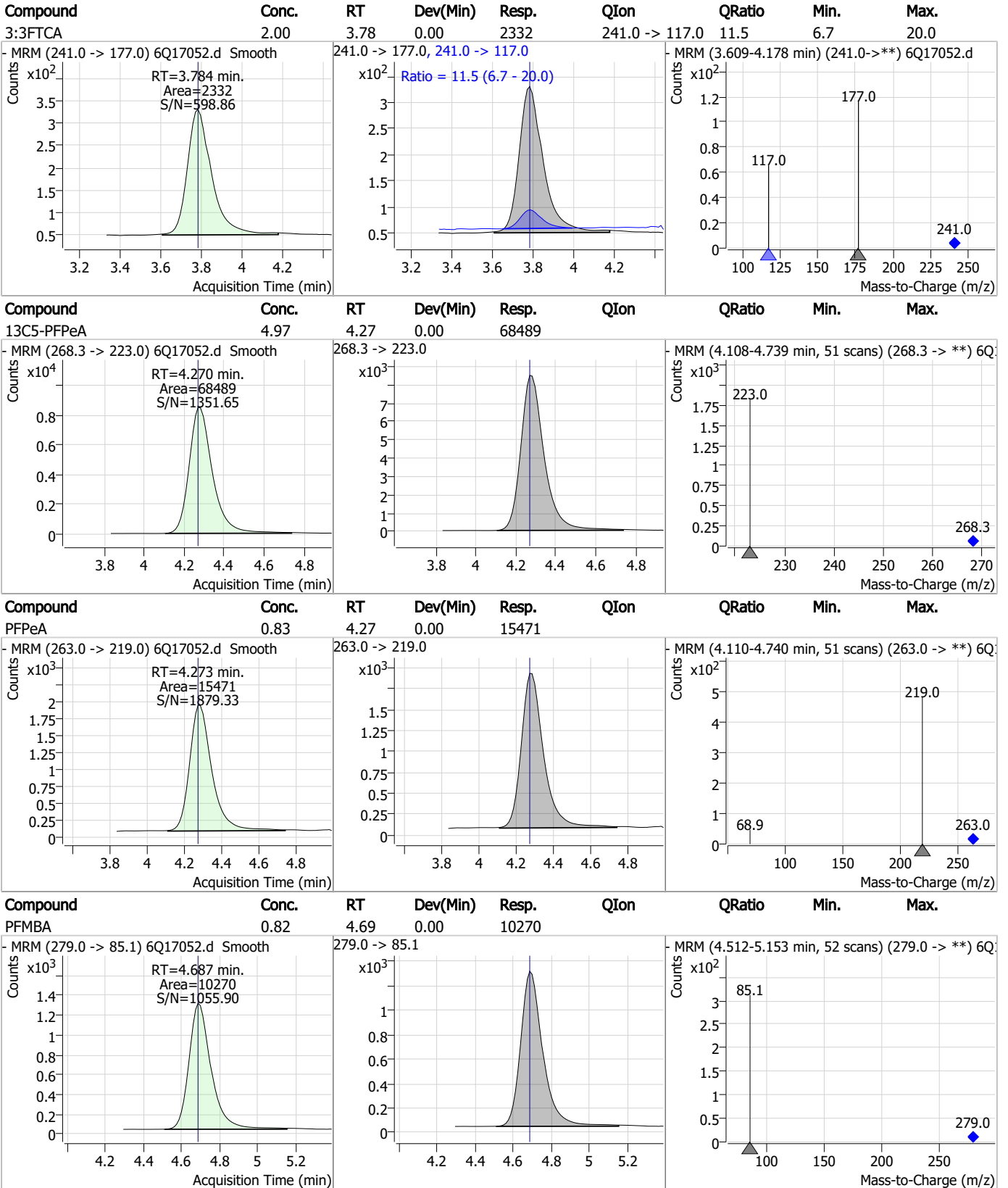
7.7.17

7

Perfluorinated Compounds by LC/MS/MS

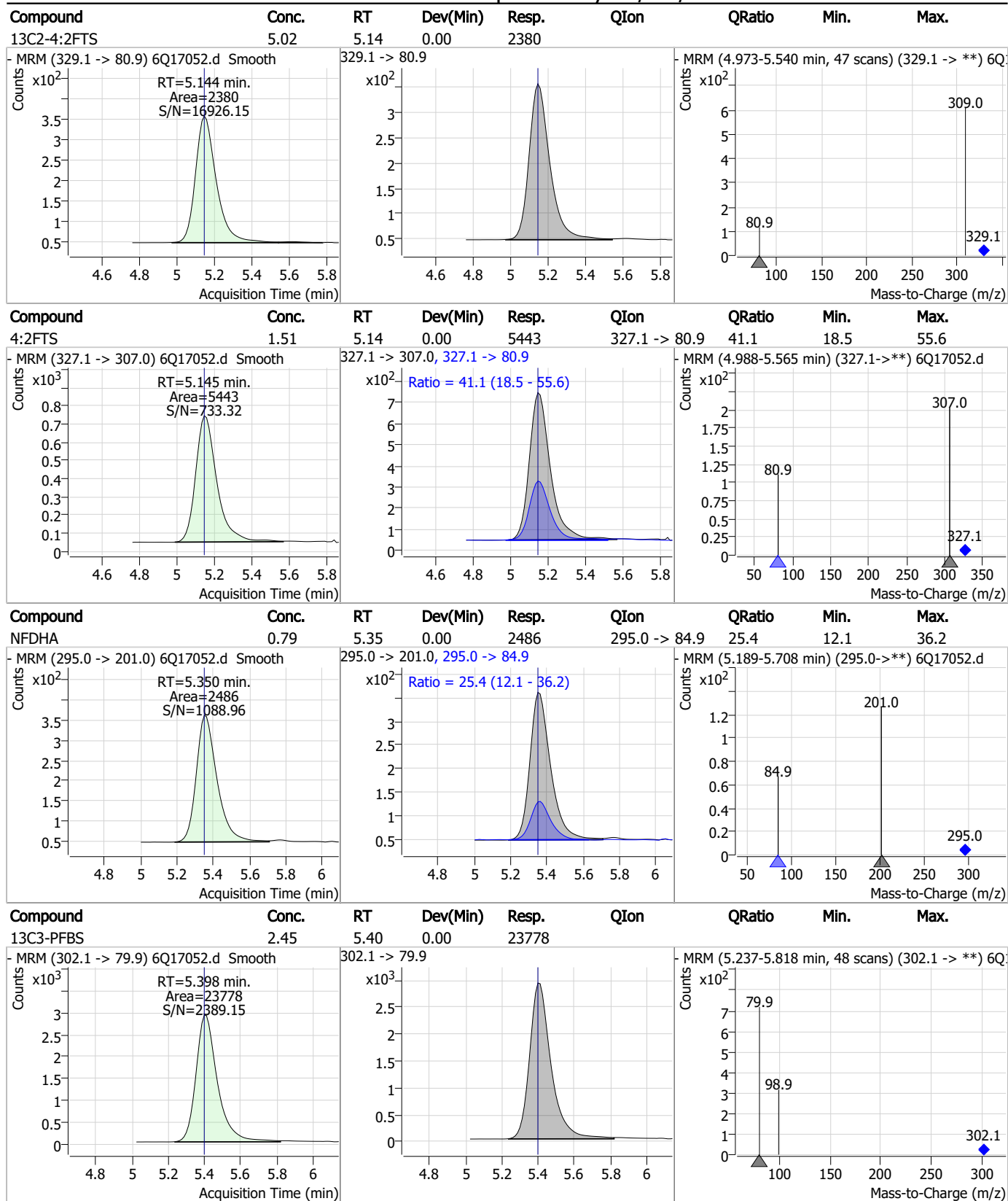


Perfluorinated Compounds by LC/MS/MS



7.7.17

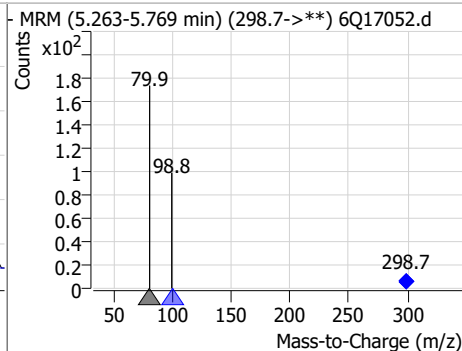
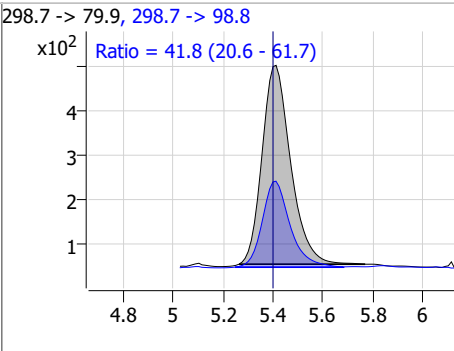
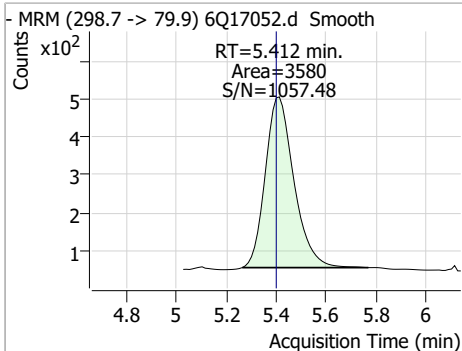
Perfluorinated Compounds by LC/MS/MS



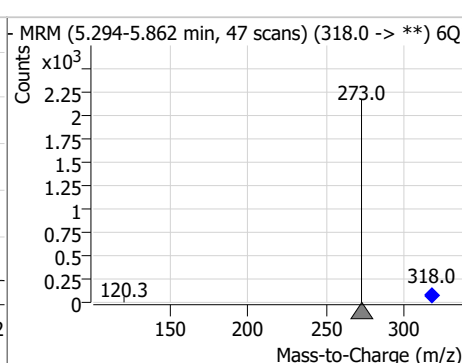
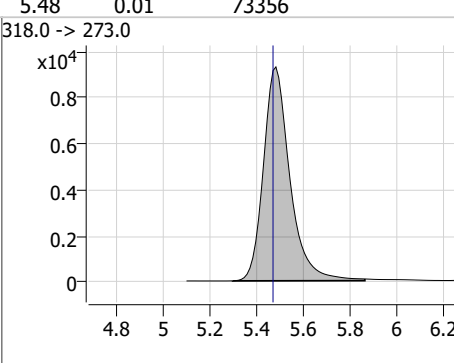
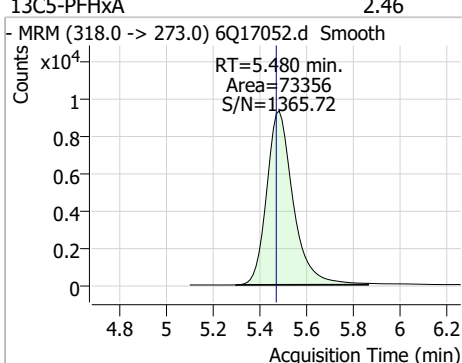
7.7.17

Perfluorinated Compounds by LC/MS/MS

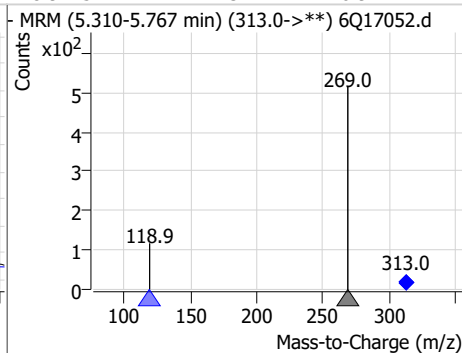
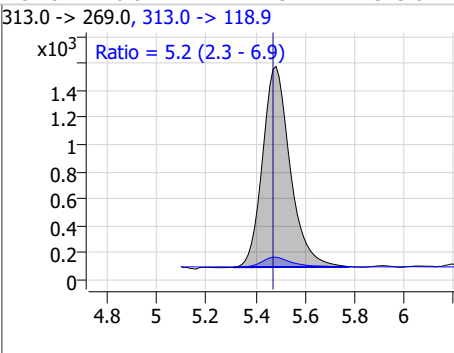
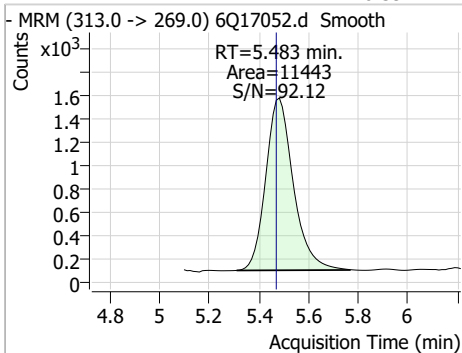
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.34	5.41	0.01	3580	298.7 -> 98.8	41.8	20.6	61.7



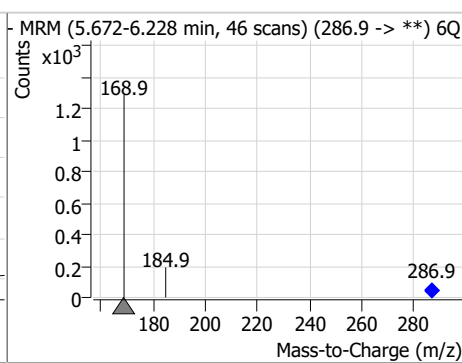
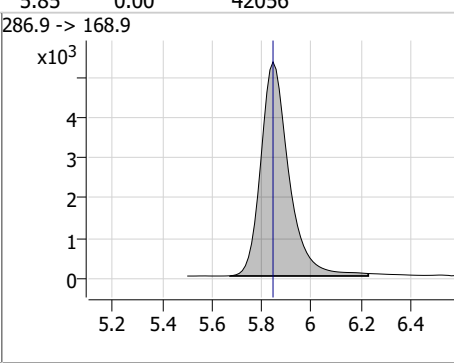
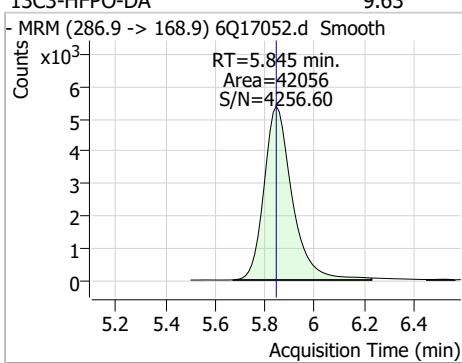
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.46	5.48	0.01	73356	318.0 -> 273.0	5.2	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.39	5.48	0.01	11443	313.0 -> 118.9	5.2	2.3	6.9

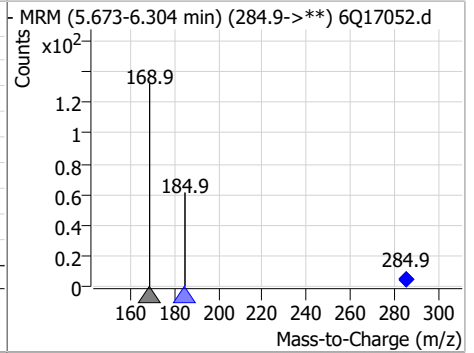
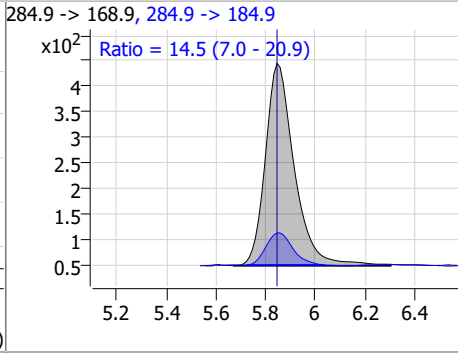
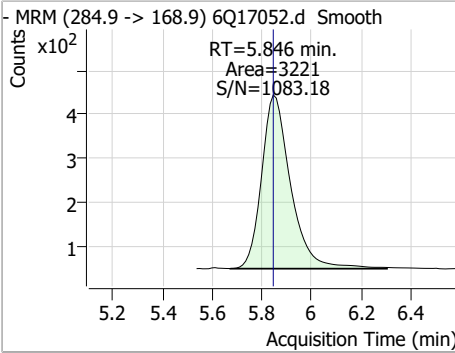


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	5.85	0.00	42056	286.9 -> 168.9	5.2	2.3	6.9

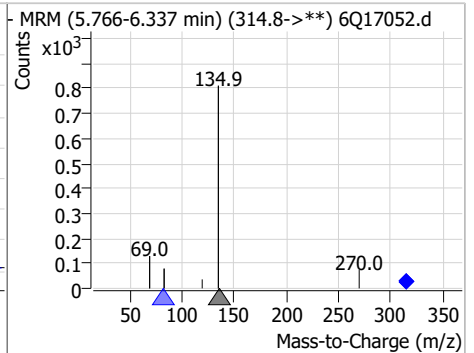
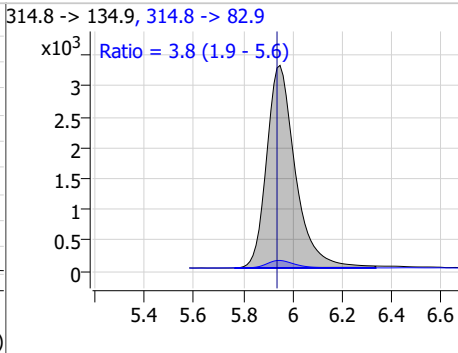
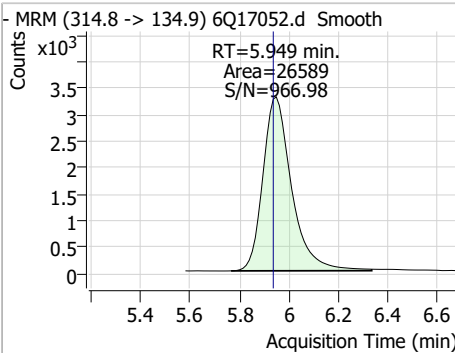


Perfluorinated Compounds by LC/MS/MS

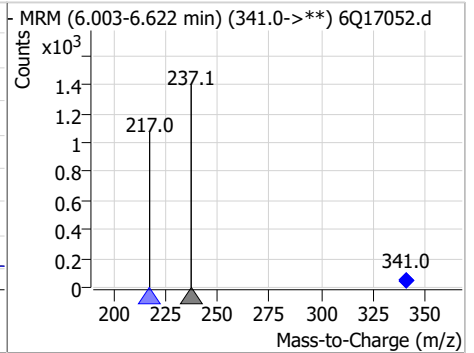
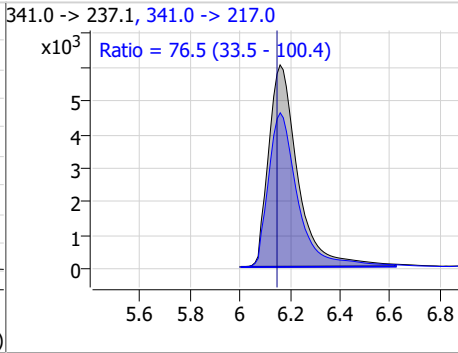
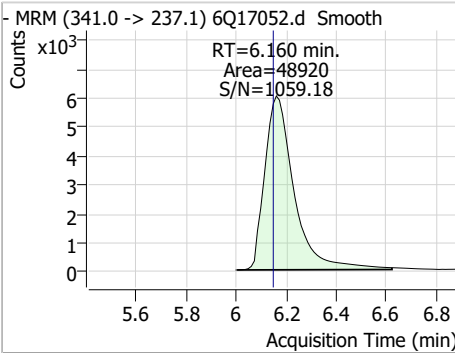
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.81	5.85	0.00	3221	284.9 -> 184.9	14.5	7.0	20.9



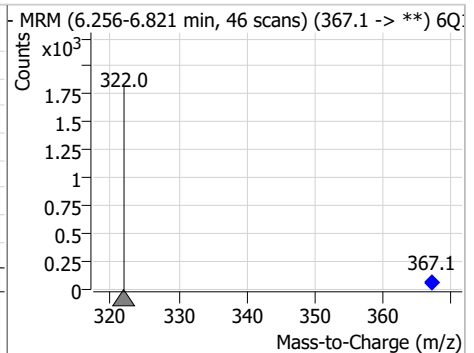
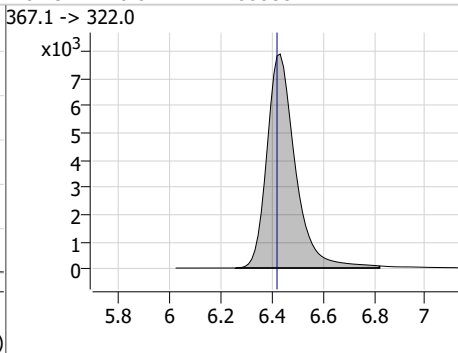
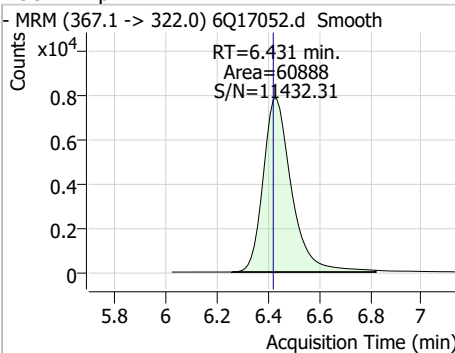
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.73	5.95	0.01	26589	314.8 -> 82.9	3.8	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	10.42	6.16	0.01	48920	341.0 -> 217.0	76.5	33.5	100.4

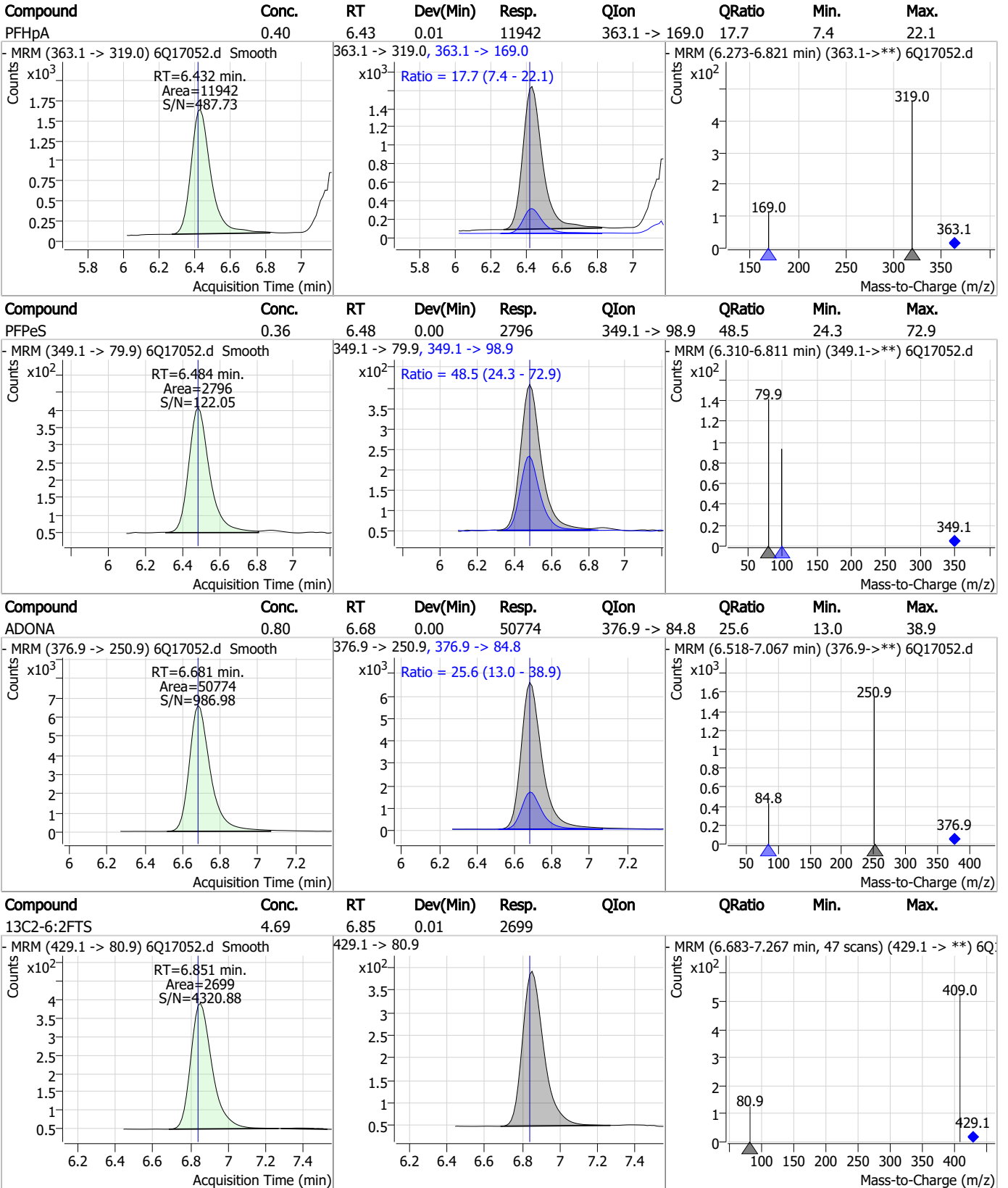


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.43	0.01	60888	367.1 -> 322.0			



7.7.17

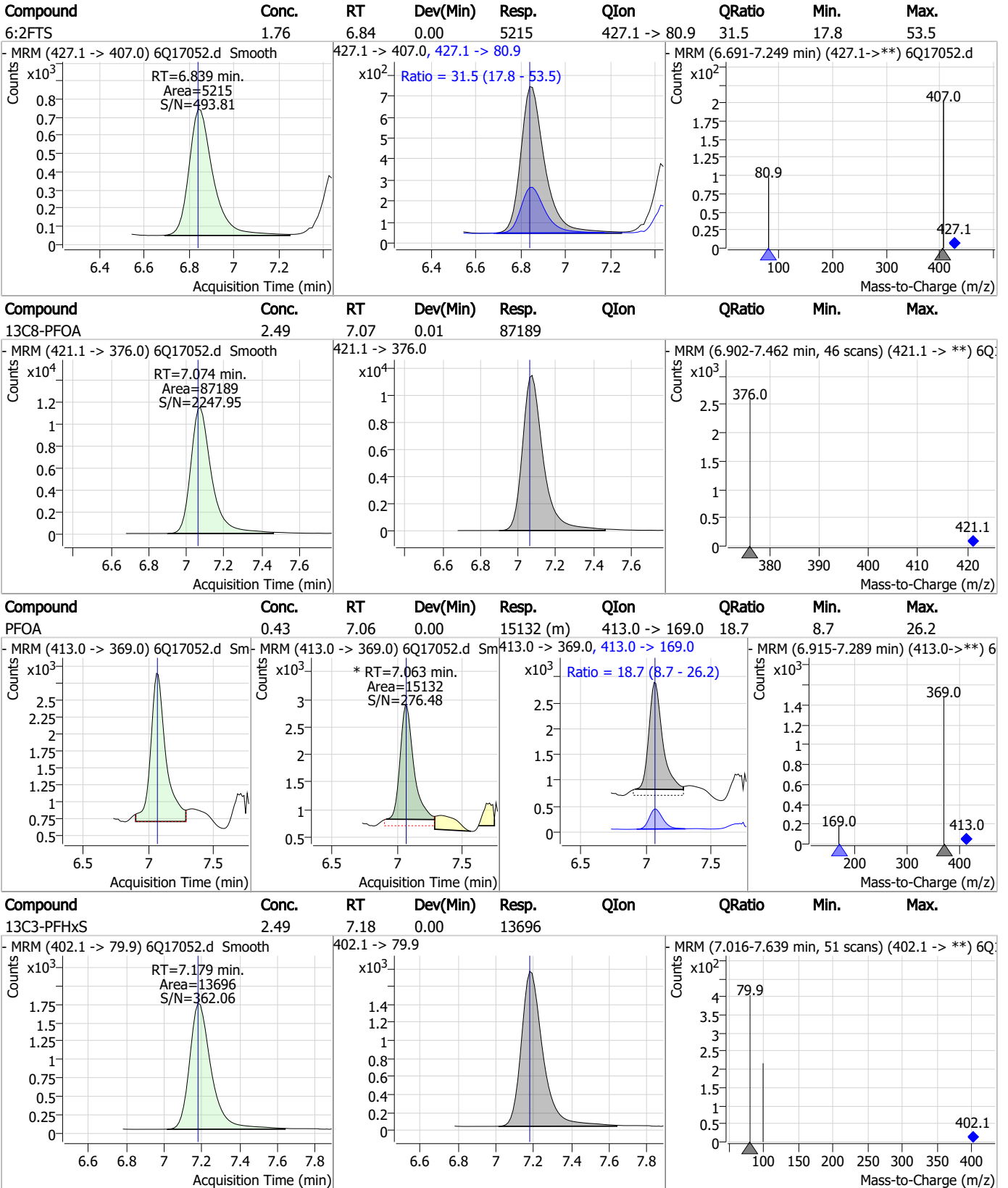
Perfluorinated Compounds by LC/MS/MS



7.7.17



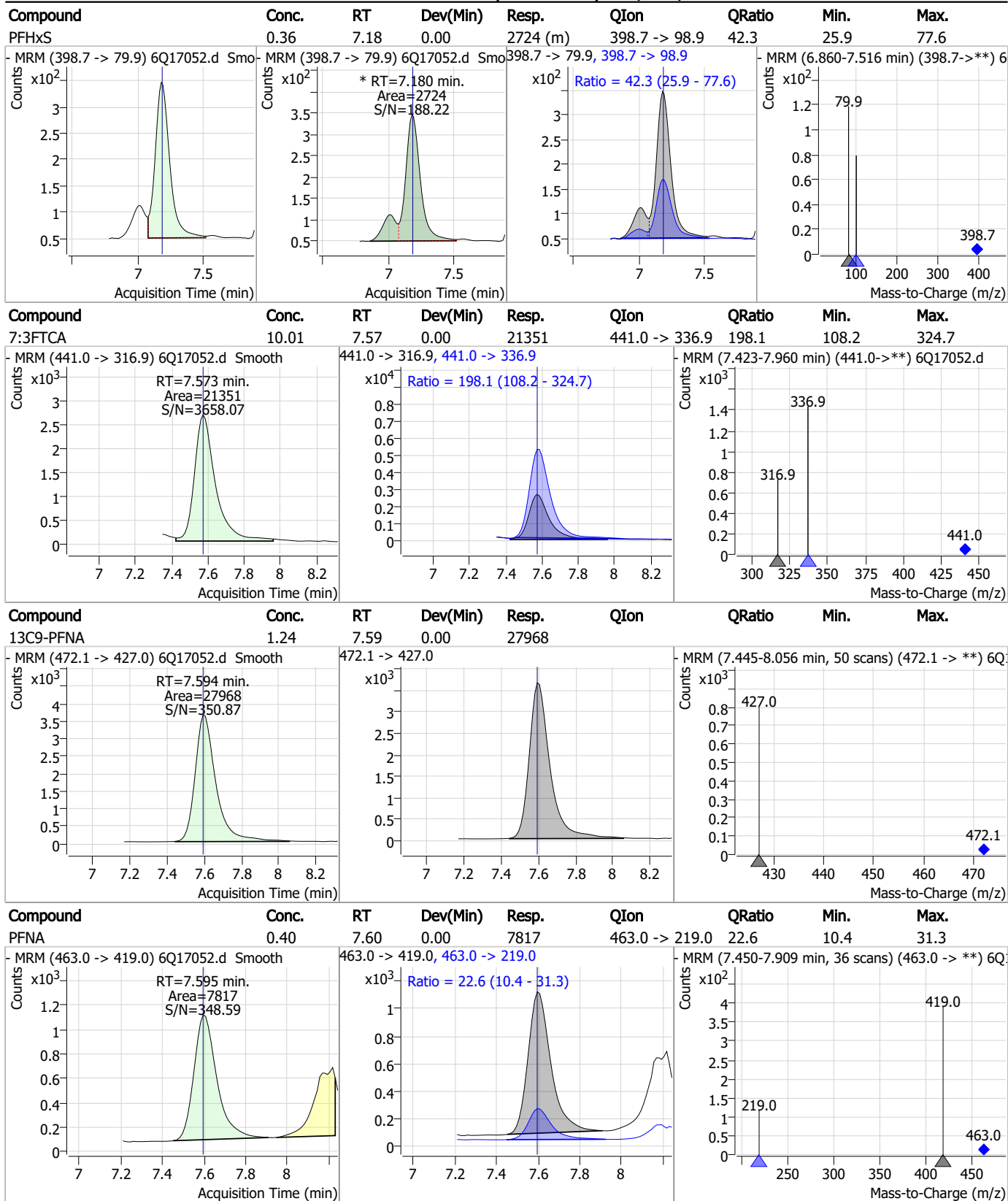
Perfluorinated Compounds by LC/MS/MS



7.7.17

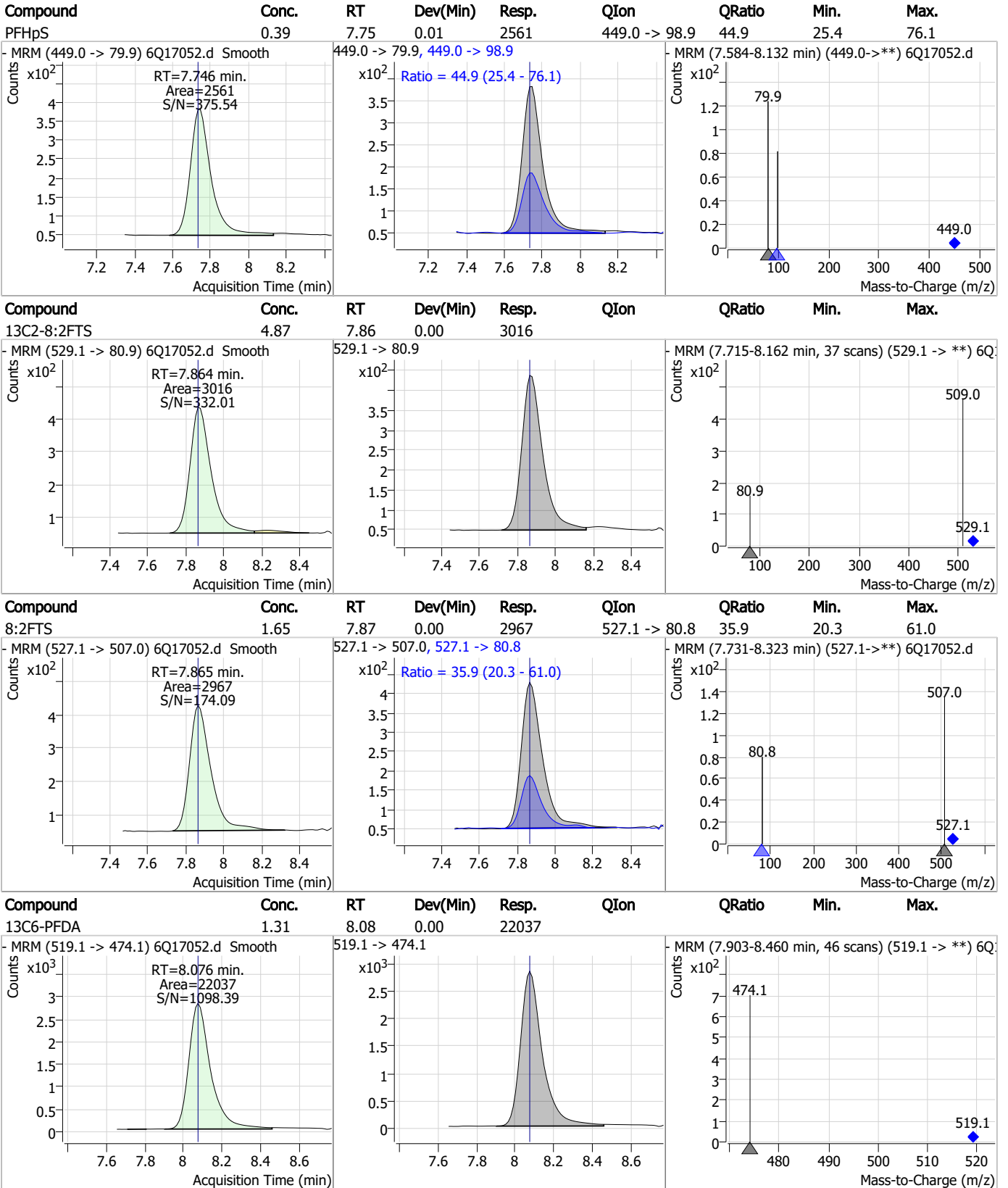


Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS

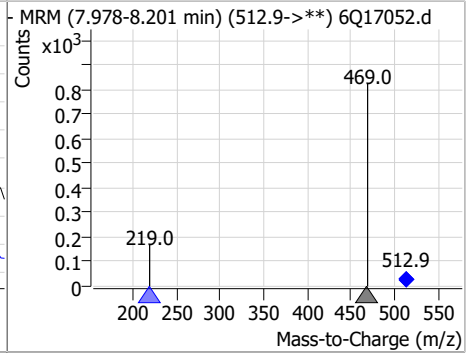
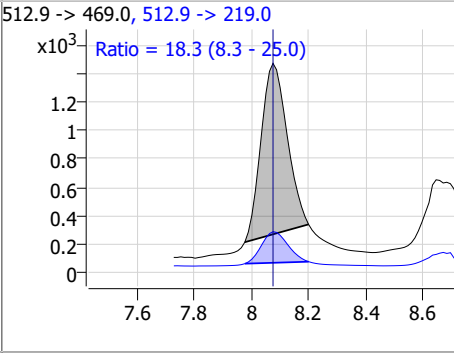
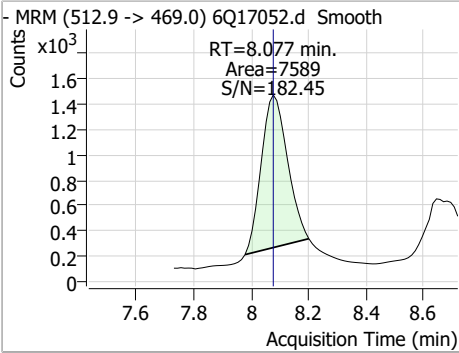


7.7.17

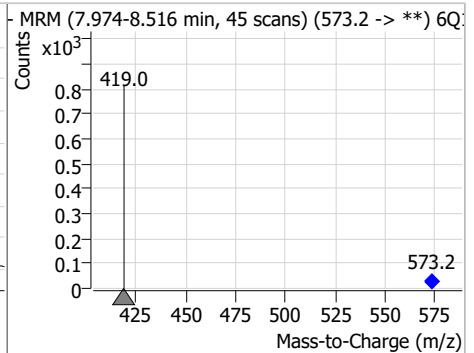
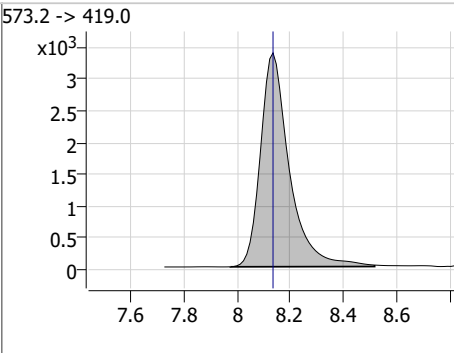
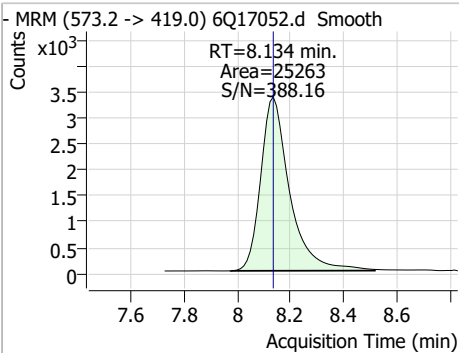


Perfluorinated Compounds by LC/MS/MS

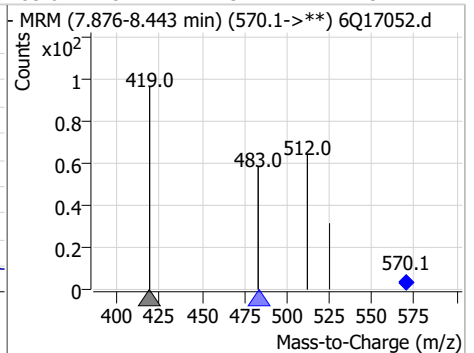
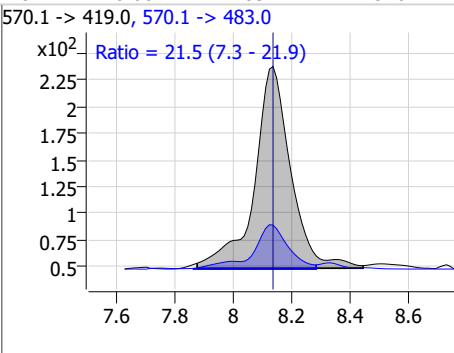
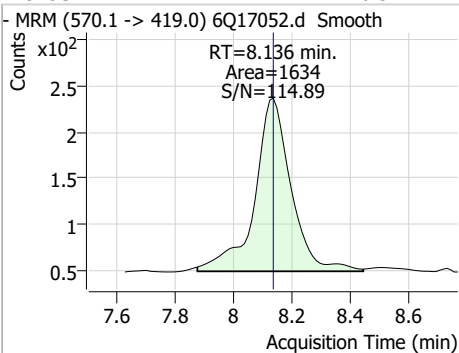
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.32	8.08	0.00	7589	512.9 -> 219.0	18.3	8.3	25.0



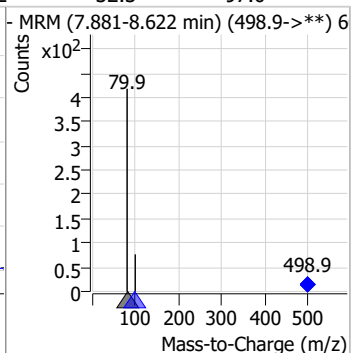
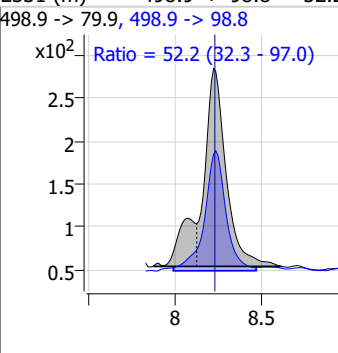
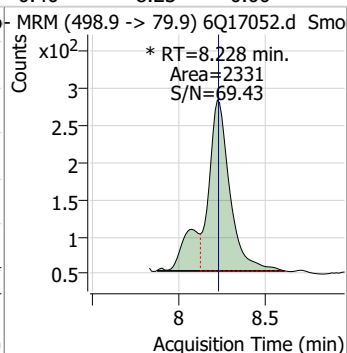
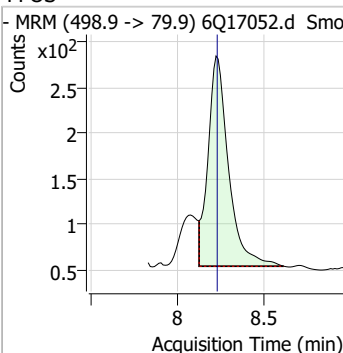
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.29	8.13	0.00	25263				



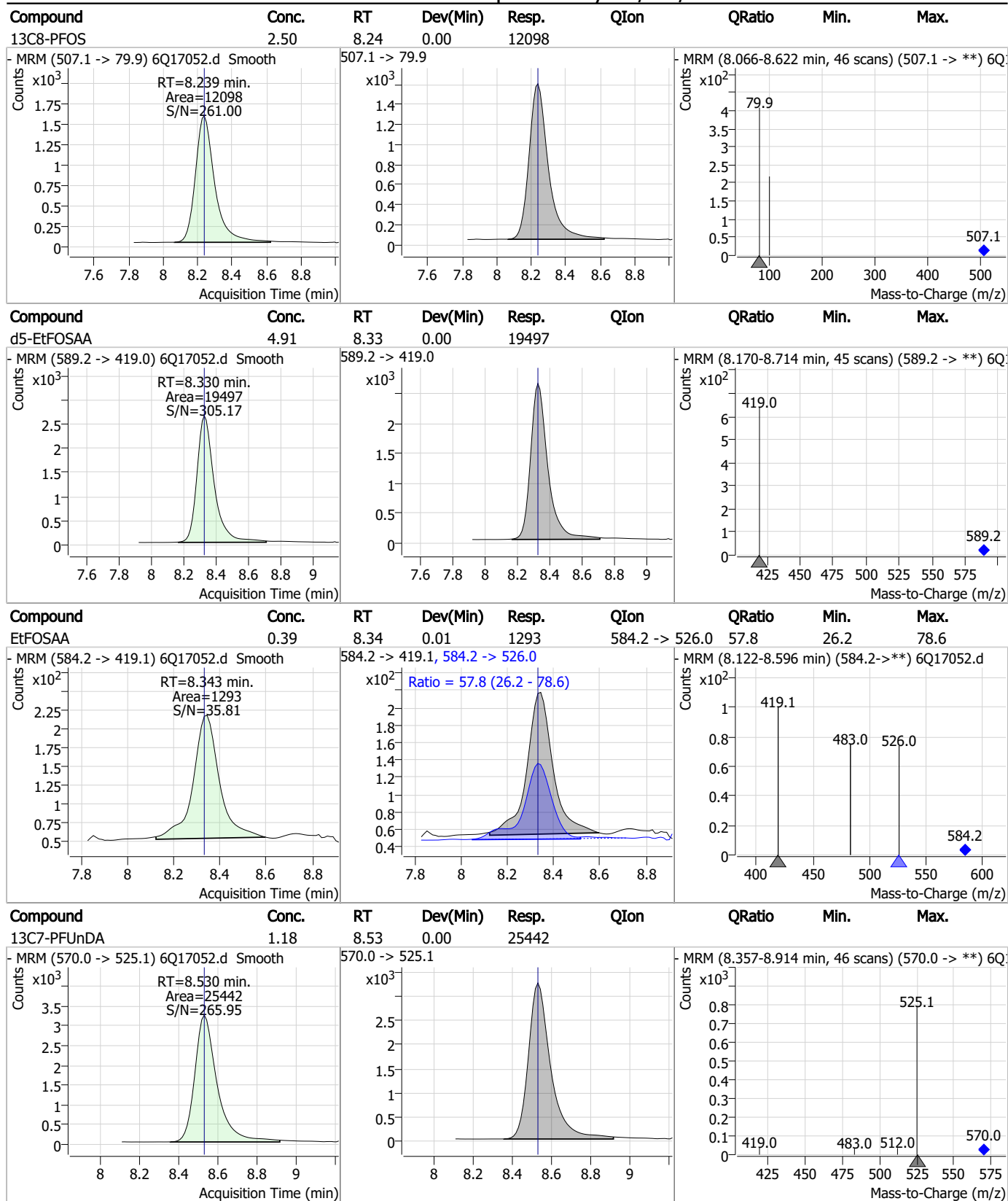
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.34	8.14	0.00	1634	570.1 -> 483.0	21.5	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.40	8.23	0.00	2331 (m)	498.9 -> 98.8	52.2	32.3	97.0

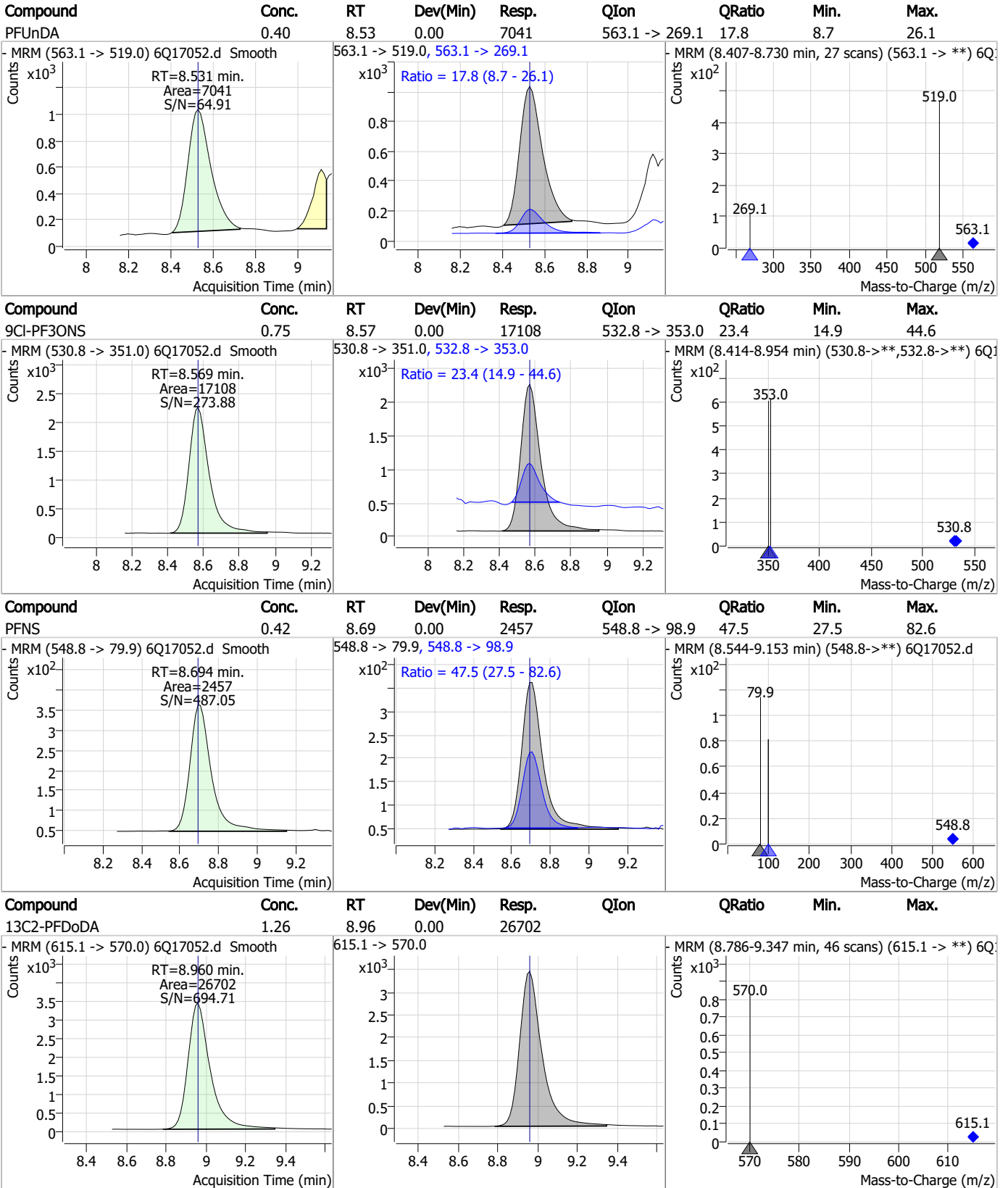


Perfluorinated Compounds by LC/MS/MS



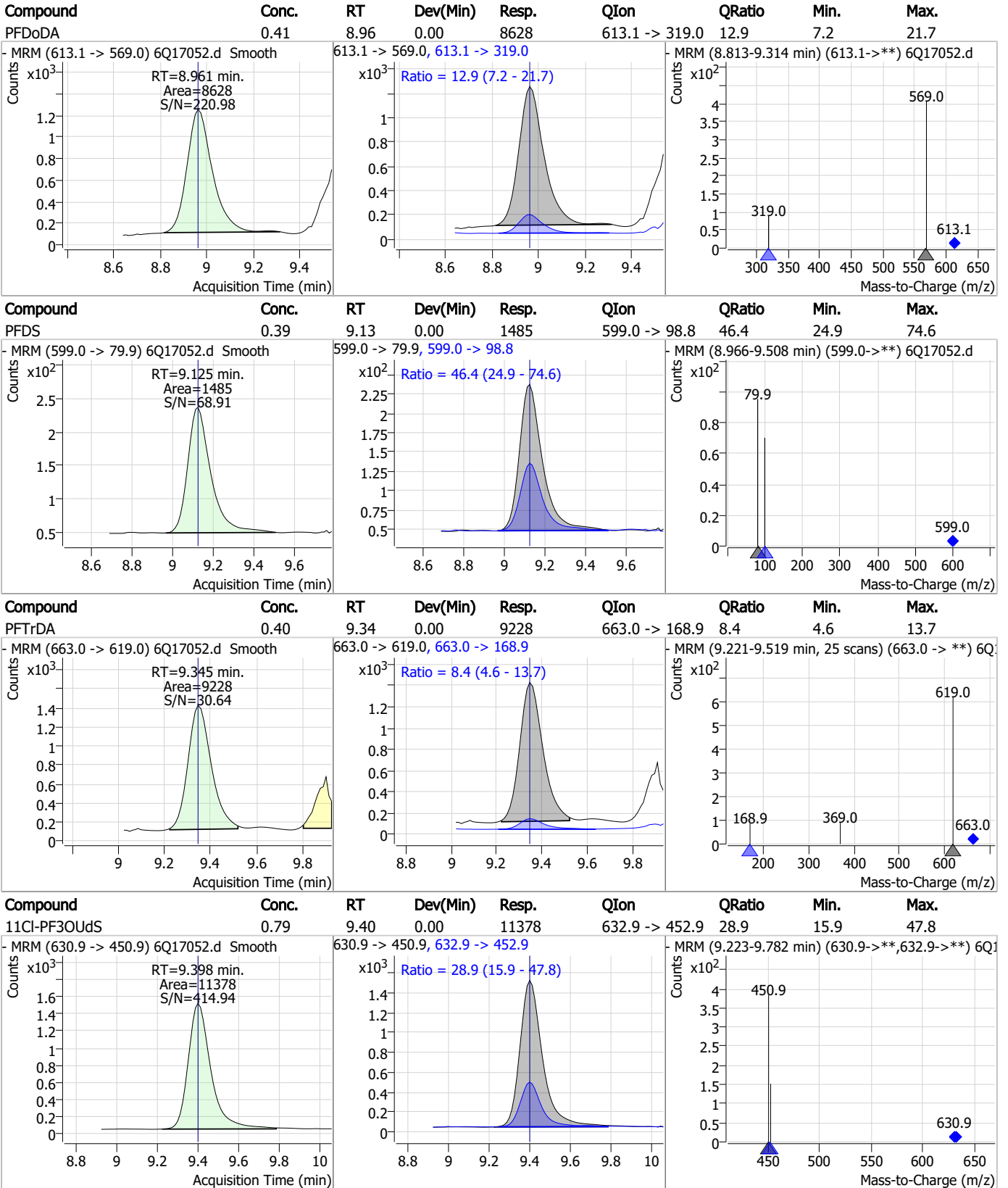
7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17

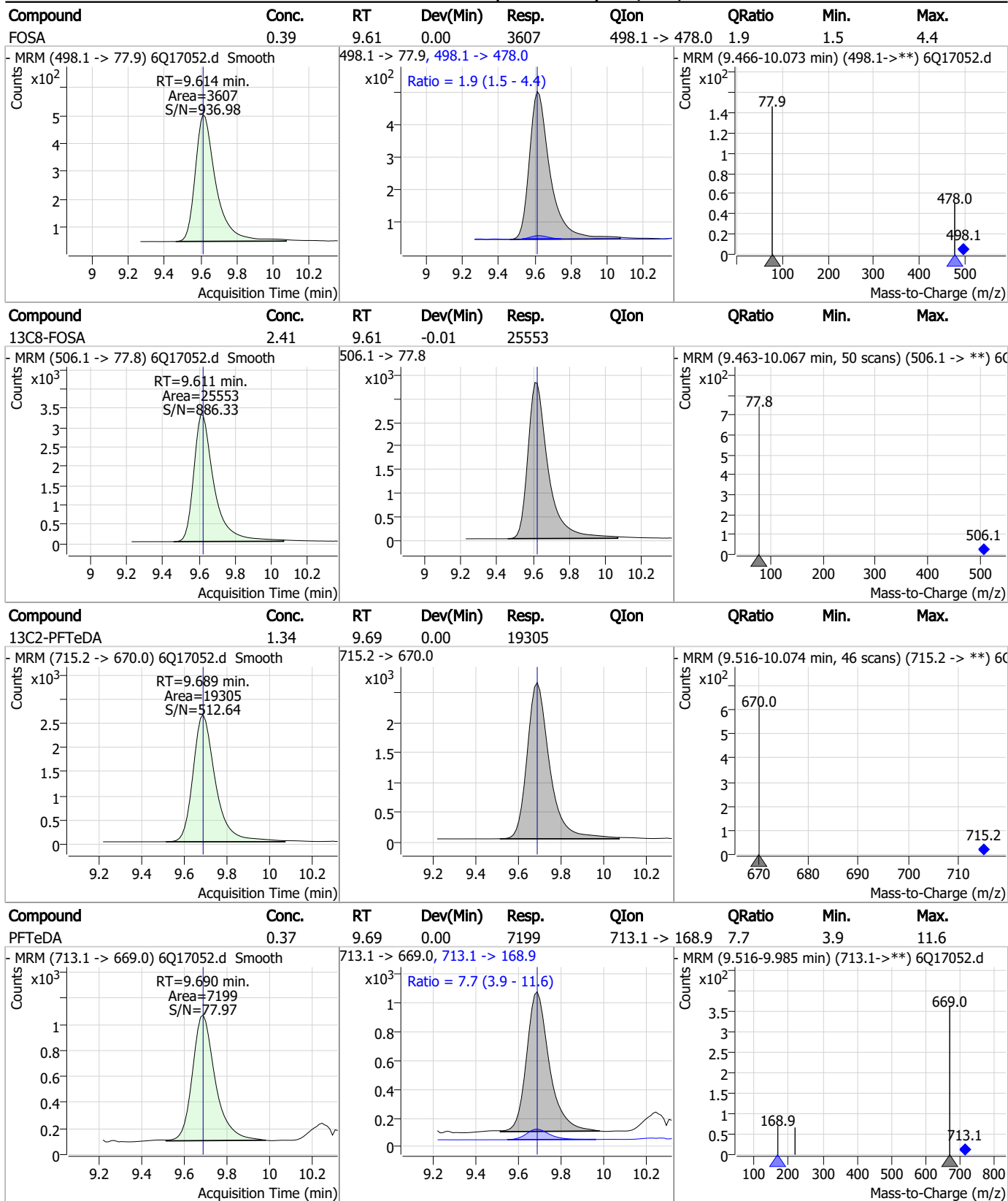
Perfluorinated Compounds by LC/MS/MS



7.7.17

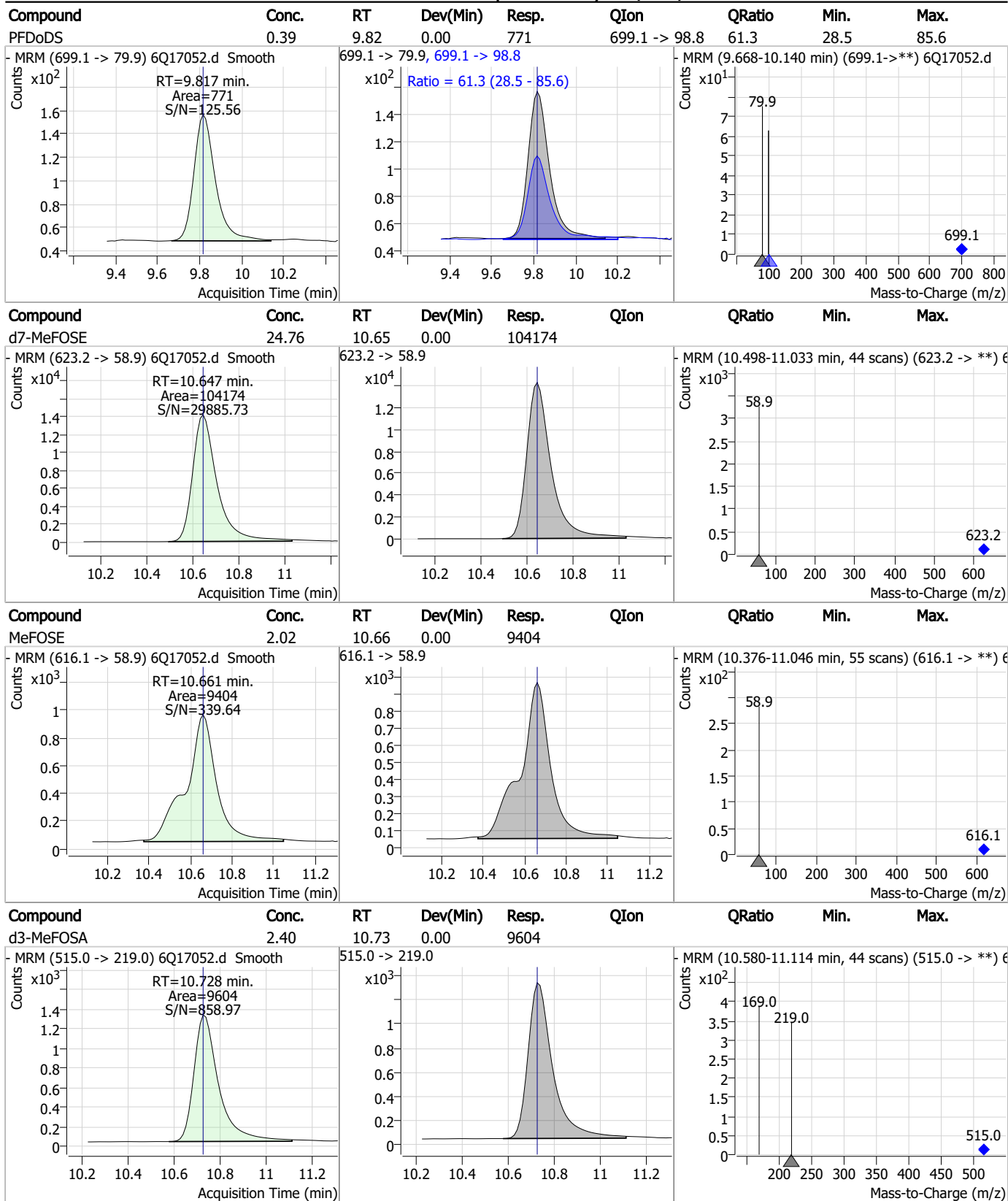
7

Perfluorinated Compounds by LC/MS/MS



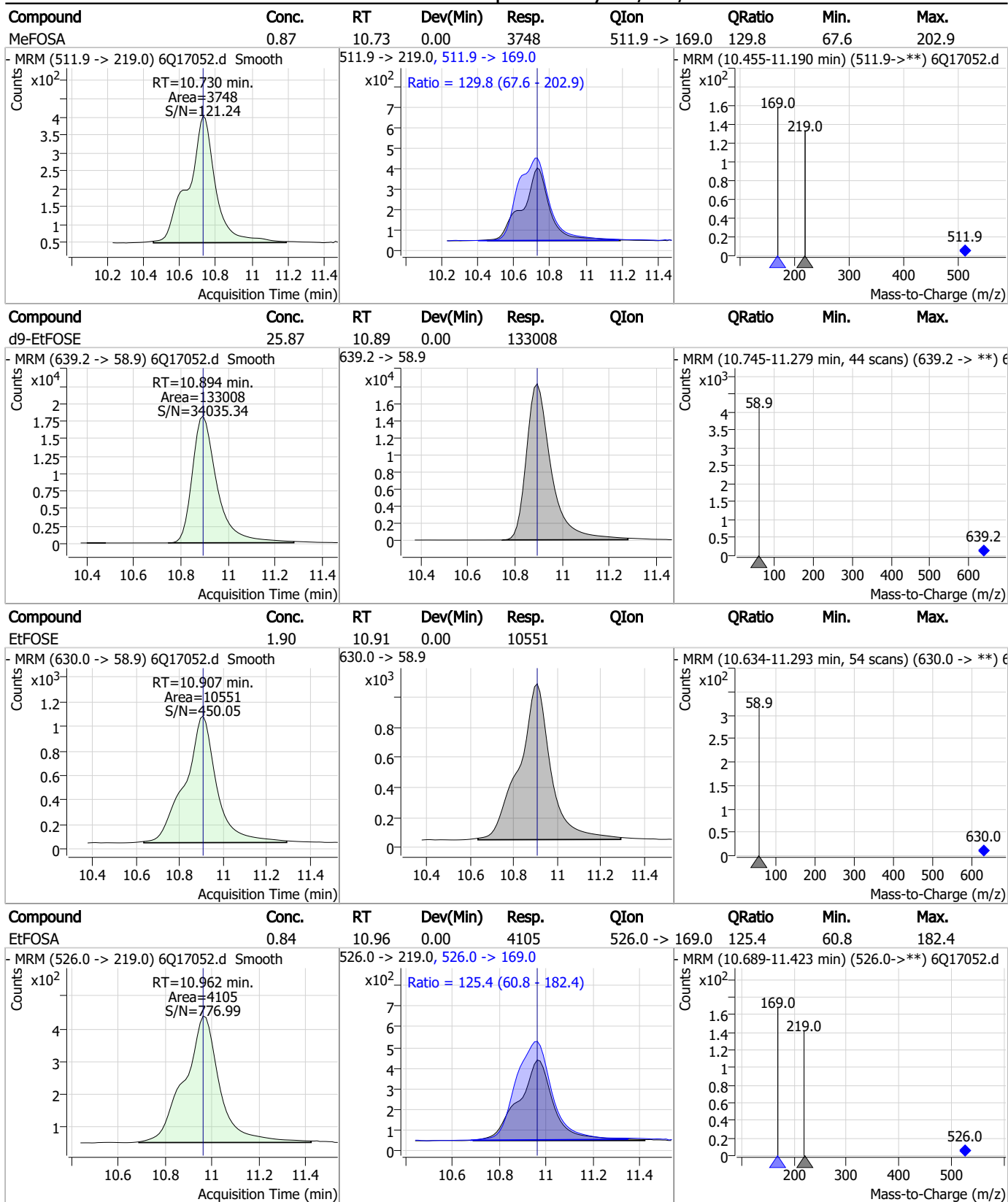
7.7.17

Perfluorinated Compounds by LC/MS/MS



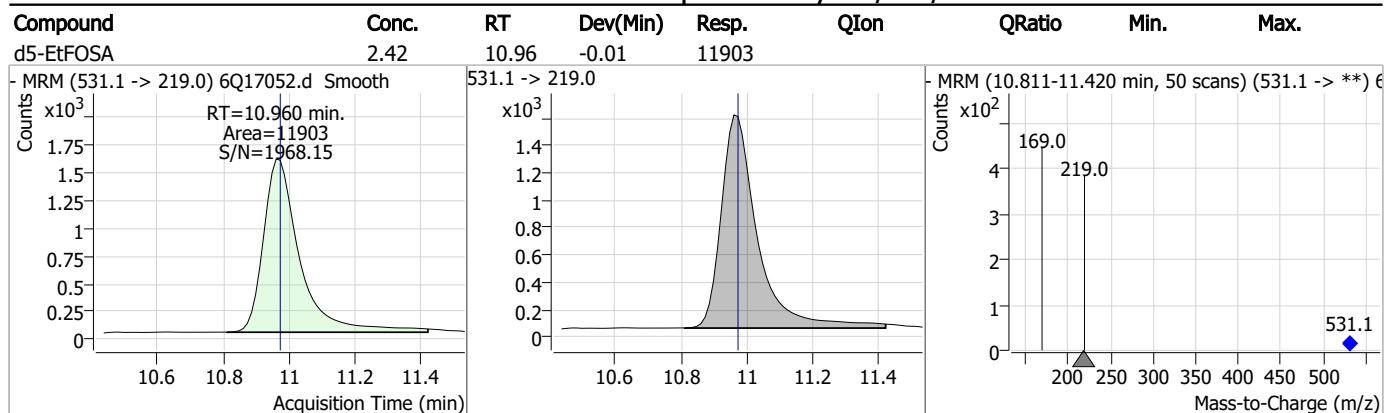
7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17

Perfluorinated Compounds by LC/MS/MS



7.7.17
7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17052.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:04 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.17.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17053.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:19:14 PM
 Sample Name : ic258-3
 Vial : P1-A4
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	191572	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67974	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	74853	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	64801	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	85689	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	28510	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	21004	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	28444	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24718	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17772	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	26081	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23225	2.50 µg/L	0.000
M3-PFHxS	7.191	402.1 -> 79.9	13656	2.50 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	11956	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2305	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2886	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2845	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21974	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42854	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18672	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	107605	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	134292	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	12109	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9352	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15112	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	82831	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9850	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	90328	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23654	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29469	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58289	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2305	5.09 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2886	5.25 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 105.0%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2845	4.81 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24718	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17772	1.33 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 106.8%		
13C3-PFBS	5.398	302.1 -> 79.9	23225	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C3-PFHxS	7.191	402.1 -> 79.9	13656	2.60 µg/L	0.012

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.2%	
13C4-PFBA	2.910	216.8 -> 171.9	191572	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.431	367.1 -> 322.0	64801	2.72 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	74853	2.66 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.5%	
13C5-PFPeA	4.270	268.3 -> 223.0	67974	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C6-PFDA	8.076	519.1 -> 474.1	21004	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	28444	1.42 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 113.9%	
13C8-FOSA	9.623	506.1 -> 77.8	26081	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.4%	
13C8-PFOA	7.074	421.1 -> 376.0	85689	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-PFOS	8.239	507.1 -> 79.9	11956	2.63 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.0%	
13C9-PFNA	7.594	472.1 -> 427.0	28510	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21974	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42854	10.39 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d3-MeFOSA	10.728	515.0 -> 219.0	9352	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18672	4.99 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	107605	27.13 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.5%	
d9-EtFOSE	10.894	639.2 -> 58.9	134292	27.71 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.8%	
d5-EtFOSA	10.960	531.1 -> 219.0	12109	2.61 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.5%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	16860	4.84 µg/L	98
		327.1 -> 80.9	6076		
6:2FTS	6.851	427.1 -> 407.0	14989	4.72 µg/L	99
		427.1 -> 80.9	5421		
8:2FTS	7.865	527.1 -> 507.0	9570	5.65 µg/L	94
		527.1 -> 80.8	3539		
EtFOSAA	8.343	584.2 -> 419.1	3961	1.25 µg/L	92
		584.2 -> 526.0	2303		
FOSA	9.614	498.1 -> 77.9	12049	1.29 µg/L	99
		498.1 -> 478.0	383		
MeFOSAA	8.136	570.1 -> 419.0	5431	1.32 µg/L	87
		570.1 -> 483.0	1089		
PFBA	2.906	212.8 -> 168.9	32090	4.99 µg/L	100
PFBS	5.400	298.7 -> 79.9	12402	1.19 µg/L	97
		298.7 -> 98.8	4874		
PFDA	8.077	512.9 -> 469.0	27773	1.22 µg/L	94
		512.9 -> 219.0	5281		
PFDODA	8.961	613.1 -> 569.0	25585	1.32 µg/L	98
		613.1 -> 319.0	3480		
PFDS	9.125	599.0 -> 79.9	4310	1.13 µg/L	100

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	2140			
PFHpA	6.432	363.1 -> 319.0	37275	1.17	µg/L	95
		363.1 -> 169.0	6278			
PFHpS	7.746	449.0 -> 79.9	7638	1.18	µg/L	97
		449.0 -> 98.9	4032			
PFHxA	5.470	313.0 -> 269.0	36373	1.23	µg/L	100
		313.0 -> 118.9	1707			
PFHxS	7.192	398.7 -> 79.9	8263	1.11	µg/L	m 99
		398.7 -> 98.9	4186			
PFNA	7.595	463.0 -> 419.0	23263	1.18	µg/L	100
		463.0 -> 219.0	4812			
PFNS	8.706	548.8 -> 79.9	6549	1.13	µg/L	98
		548.8 -> 98.9	3506			
PFOA	7.076	413.0 -> 369.0	47697	1.22	µg/L	97
		413.0 -> 169.0	8907			
PFOS	8.240	498.9 -> 79.9	6668	1.15	µg/L	m 84
		498.9 -> 98.8	3482			
PFPeA	4.273	263.0 -> 219.0	45980	2.48	µg/L	100
PFPeS	6.484	349.1 -> 79.9	8912	1.15	µg/L	99
		349.1 -> 98.9	4281			
PFTeDA	9.690	713.1 -> 669.0	22648	1.26	µg/L	99
		713.1 -> 168.9	1703			
PFTrDA	9.358	663.0 -> 619.0	30131	1.40	µg/L	96
		663.0 -> 168.9	2293			
PFUnDA	8.531	563.1 -> 519.0	23133	1.17	µg/L	98
		563.1 -> 269.1	3831			
11CI-PF3OUdS	9.398	630.9 -> 450.9	34449	2.34	µg/L	96
		632.9 -> 452.9	11770			
9CI-PF3ONS	8.569	530.8 -> 351.0	56487	2.43	µg/L	99
		532.8 -> 353.0	16982			
ADONA	6.681	376.9 -> 250.9	155433	2.40	µg/L	97
		376.9 -> 84.8	42362			
HFPO-DA	5.846	284.9 -> 168.9	10320	2.54	µg/L	94
		284.9 -> 184.9	1174			
3:3FTCA	3.784	241.0 -> 177.0	7118	6.15	µg/L	99
		241.0 -> 117.0	920			
5:3FTCA	6.160	341.0 -> 237.1	150845	31.49	µg/L	92
		341.0 -> 217.0	111042			
7:3FTCA	7.573	441.0 -> 316.9	68001	31.25	µg/L	99
		441.0 -> 336.9	146321			
EtFOSA	10.962	526.0 -> 219.0	12429	2.50	µg/L	93
		526.0 -> 169.0	16155			
EtFOSE	10.907	630.0 -> 58.9	34082	6.09	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	11103	2.64	µg/L	100
		511.9 -> 169.0	15014			
MeFOSE	10.661	616.1 -> 58.9	29147	6.07	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	2475	1.26	µg/L	94
		699.1 -> 98.8	1298			
NFDHA	5.350	295.0 -> 201.0	8125	2.53	µg/L	99
		295.0 -> 84.9	1939			
PFMBA	4.687	279.0 -> 85.1	31615	2.55	µg/L	100
PFMPA	3.438	229.0 -> 84.9	22901	2.47	µg/L	100
PFEESA	5.949	314.8 -> 134.9	82814	2.22	µg/L	99
		314.8 -> 82.9	2883			

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

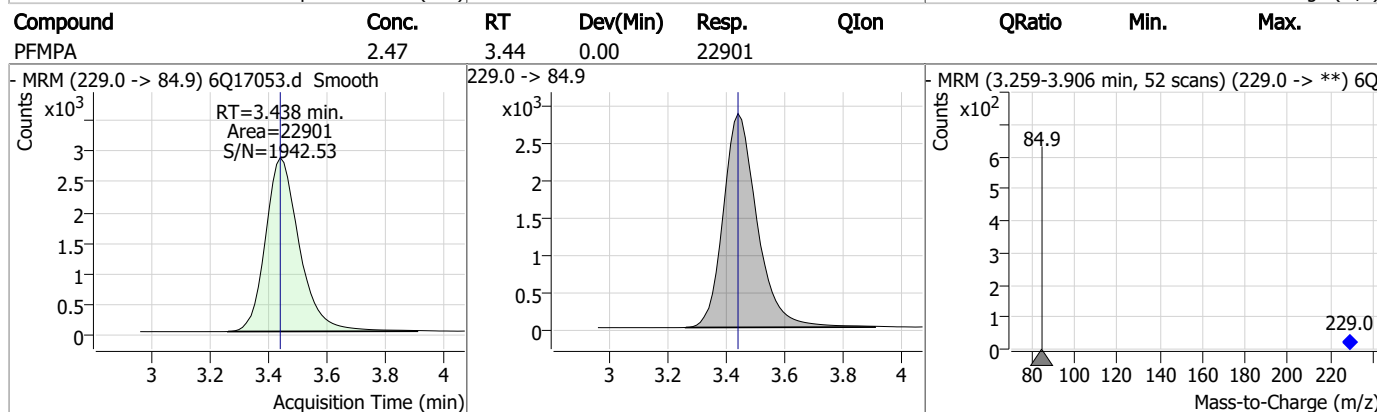
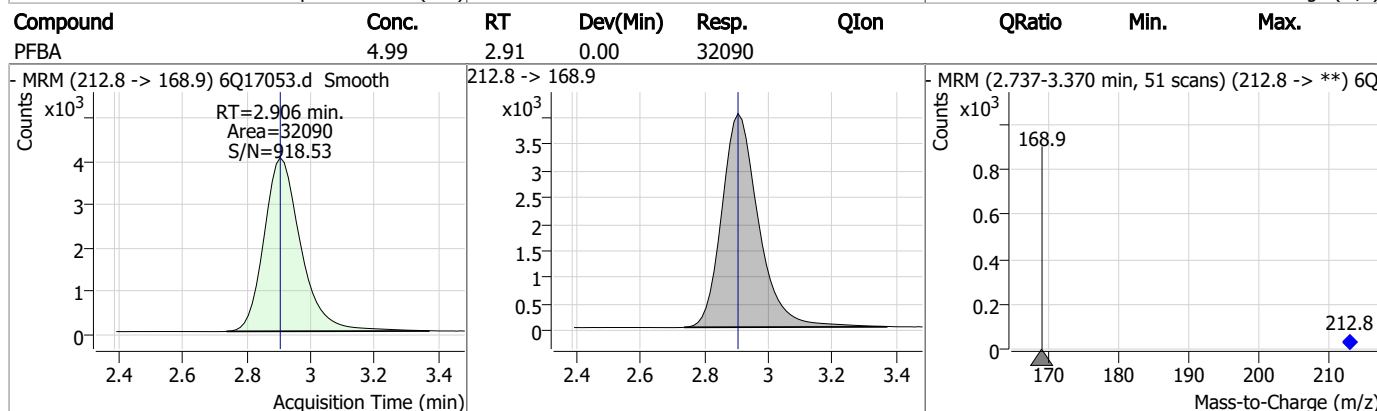
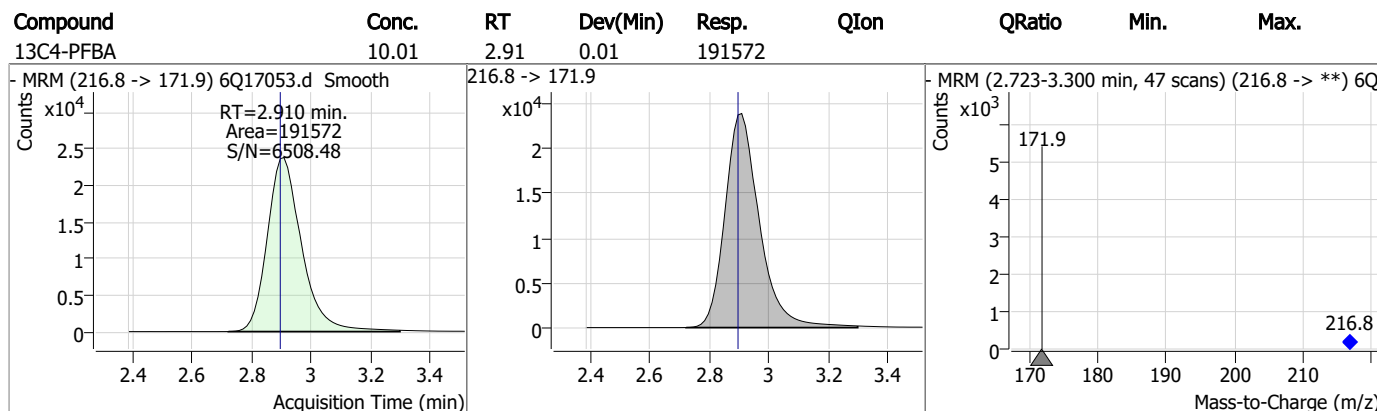
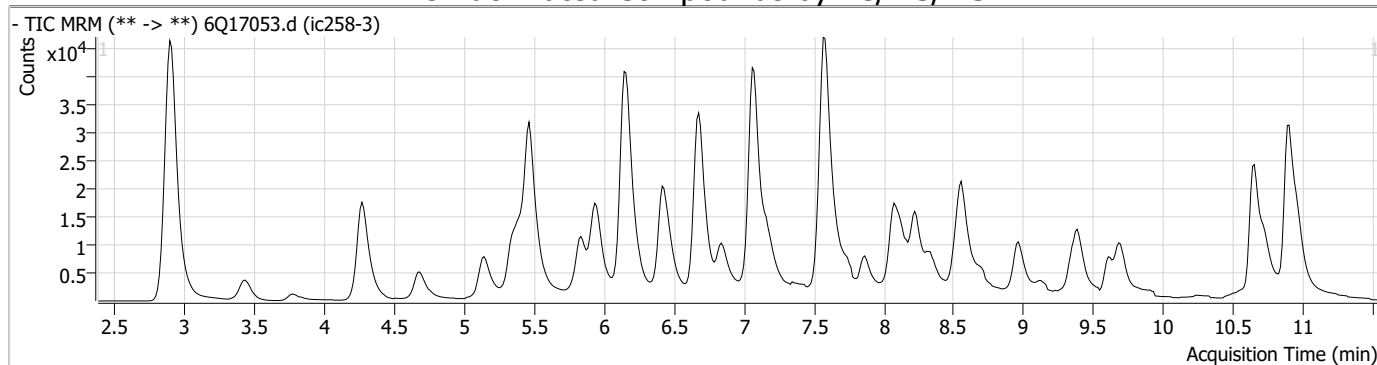
Perfluorinated Compounds by LC/MS/MS

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

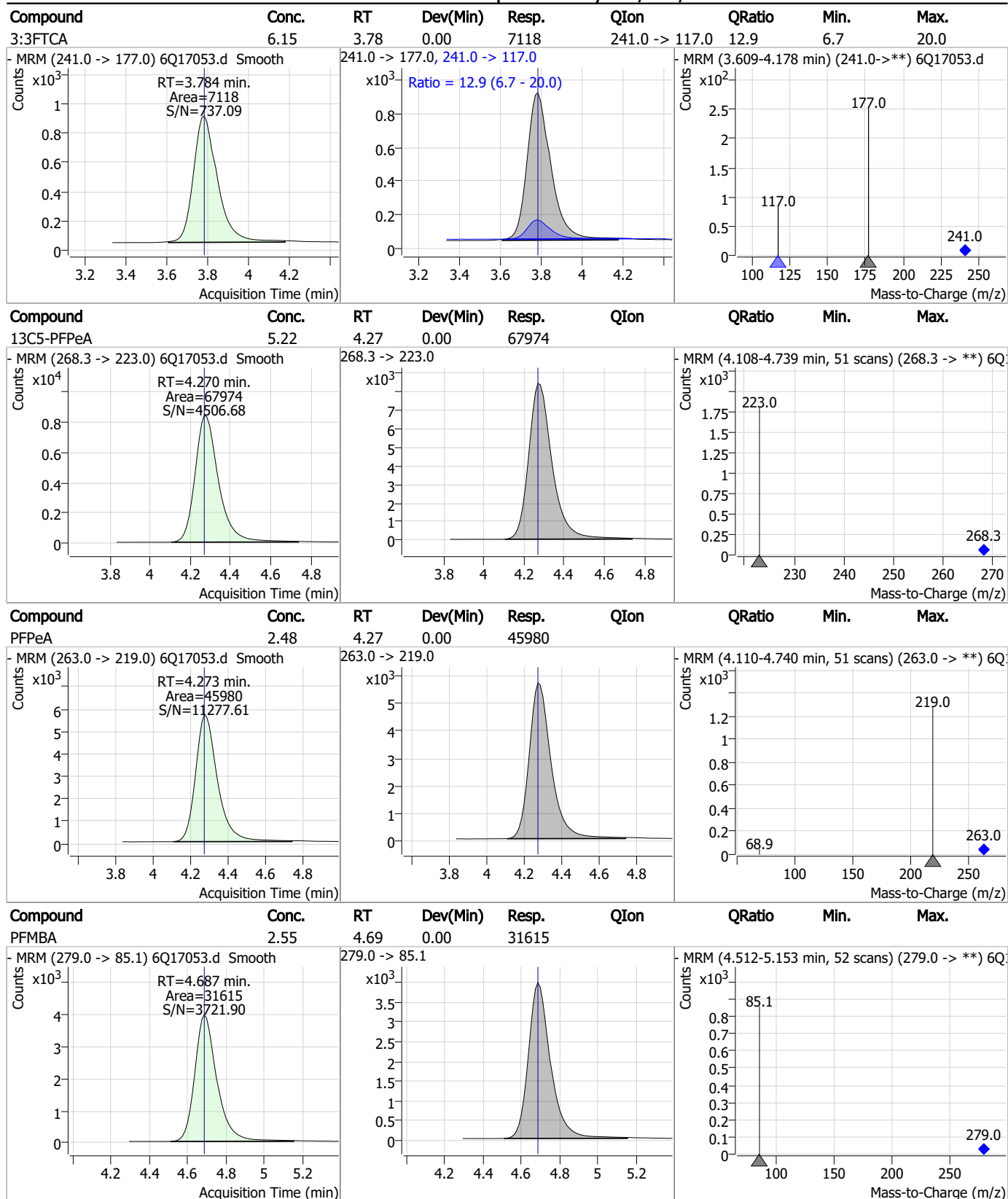
7.7.18

7

Perfluorinated Compounds by LC/MS/MS



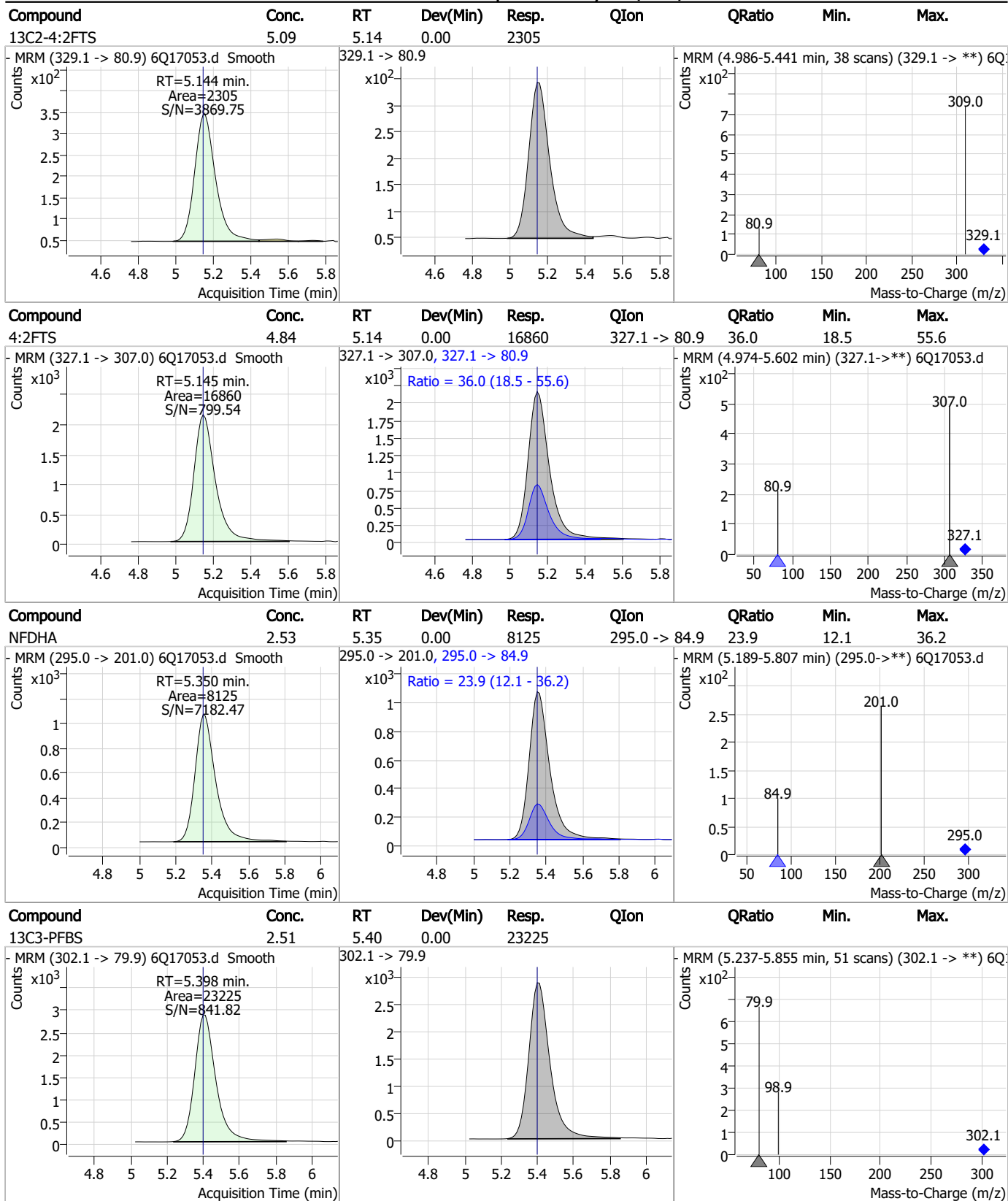
Perfluorinated Compounds by LC/MS/MS



7.7.18

7

Perfluorinated Compounds by LC/MS/MS

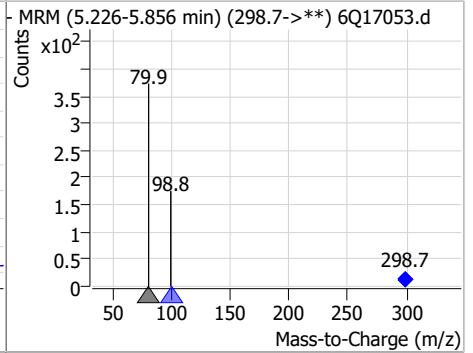
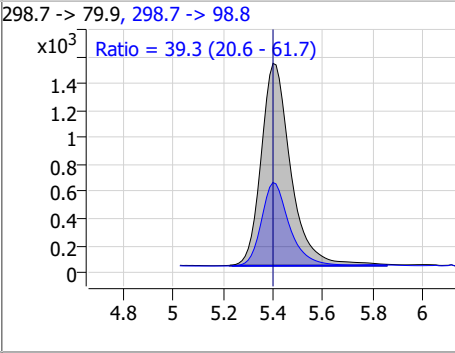
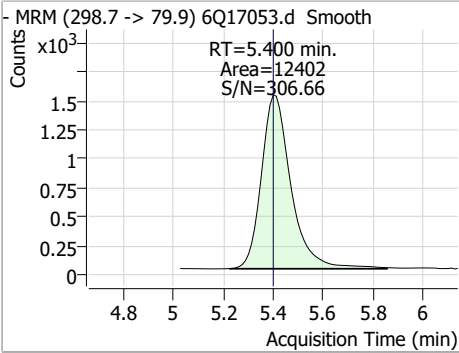


7.7.18

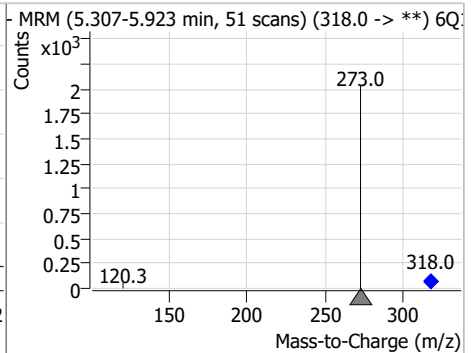
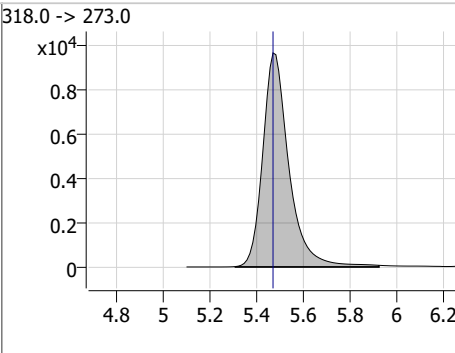
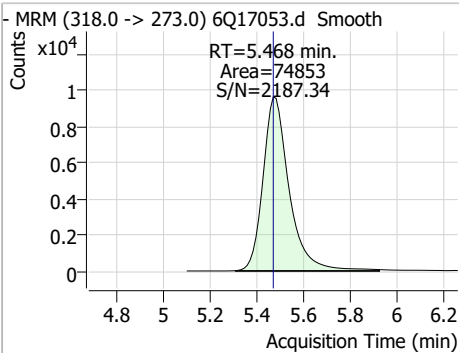
7

Perfluorinated Compounds by LC/MS/MS

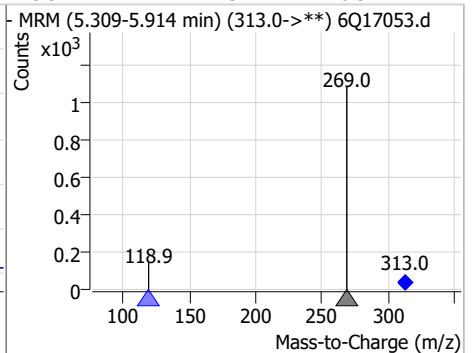
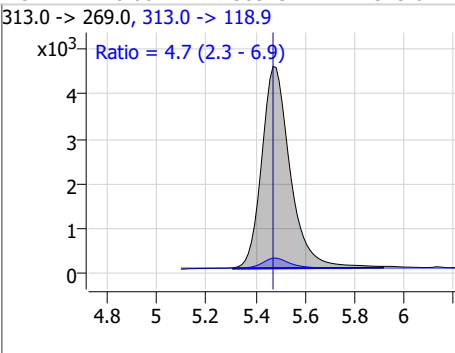
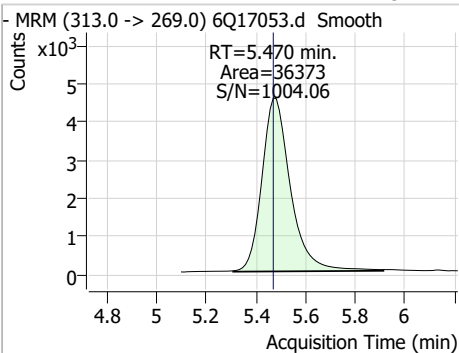
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	1.19	5.40	0.00	12402	298.7 -> 98.8	39.3	20.6	61.7



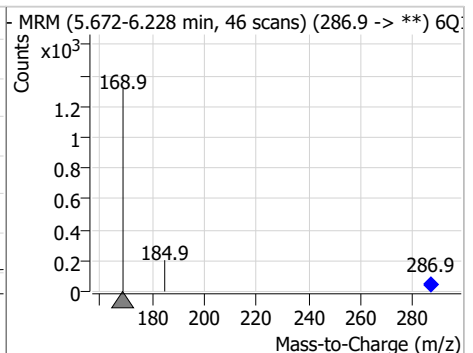
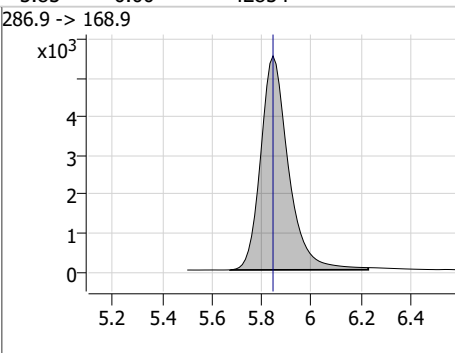
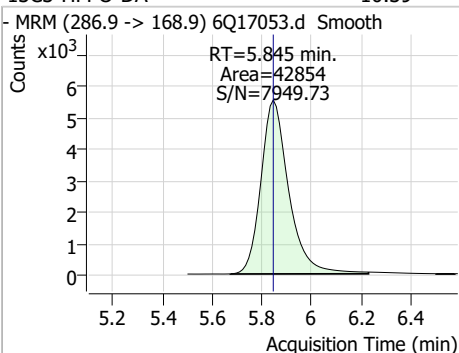
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.66	5.47	0.00	74853	318.0 -> 273.0	4.7	2.3	6.9



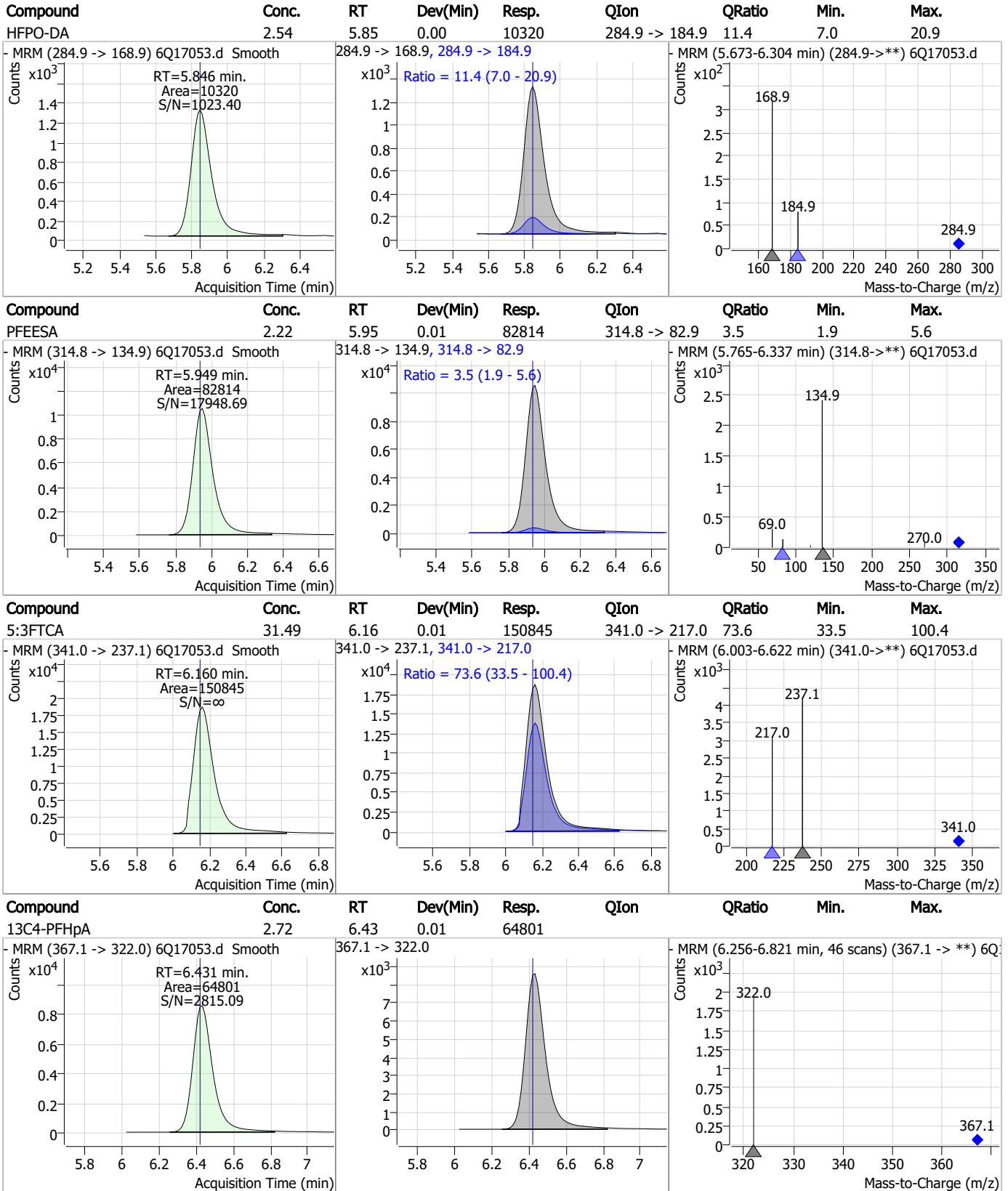
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	1.23	5.47	0.00	36373	313.0 -> 118.9	4.7	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.39	5.85	0.00	42854	286.9 -> 168.9	4.7	2.3	6.9



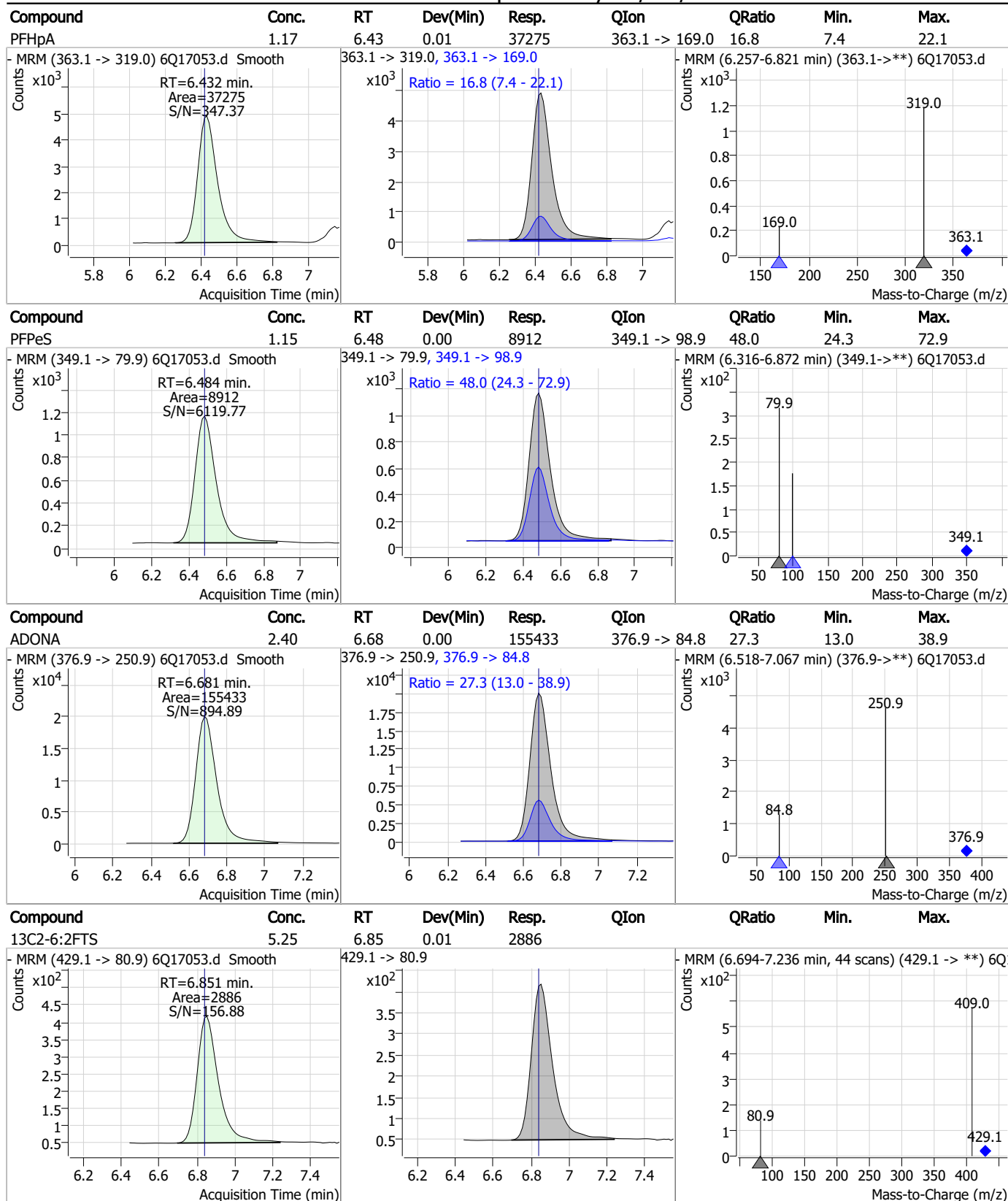
Perfluorinated Compounds by LC/MS/MS



7.7.18
7

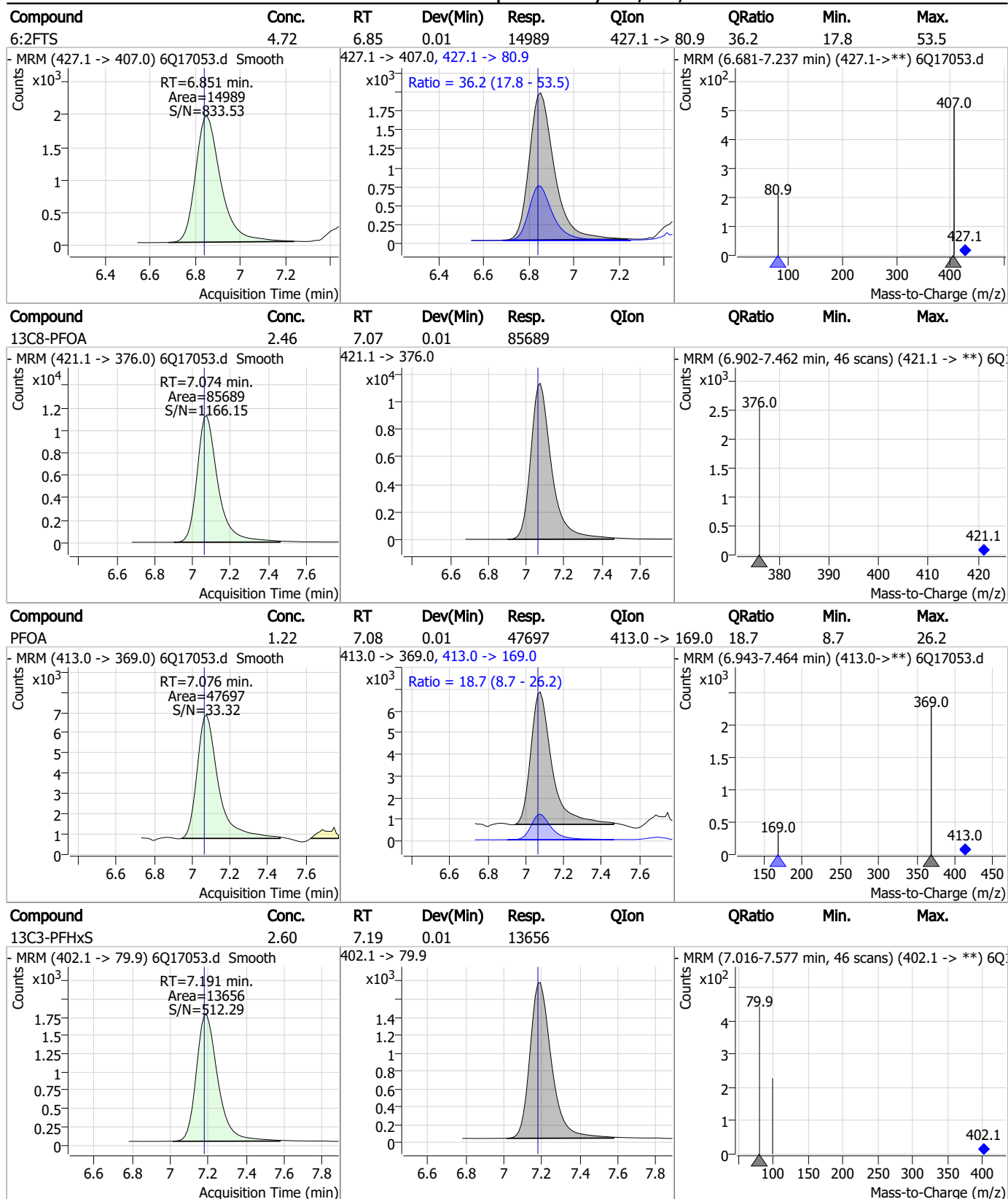


Perfluorinated Compounds by LC/MS/MS



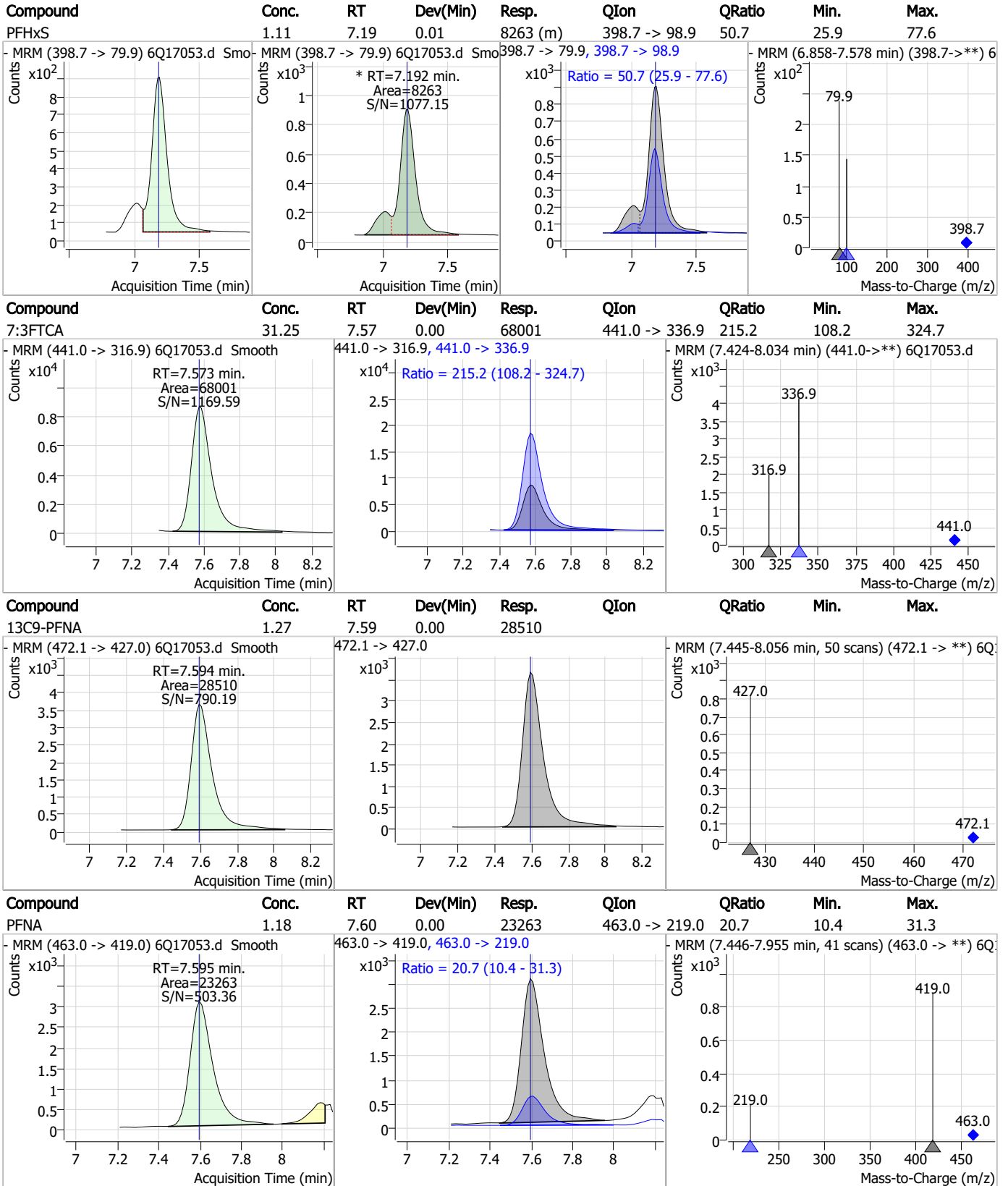
7.7.18

Perfluorinated Compounds by LC/MS/MS



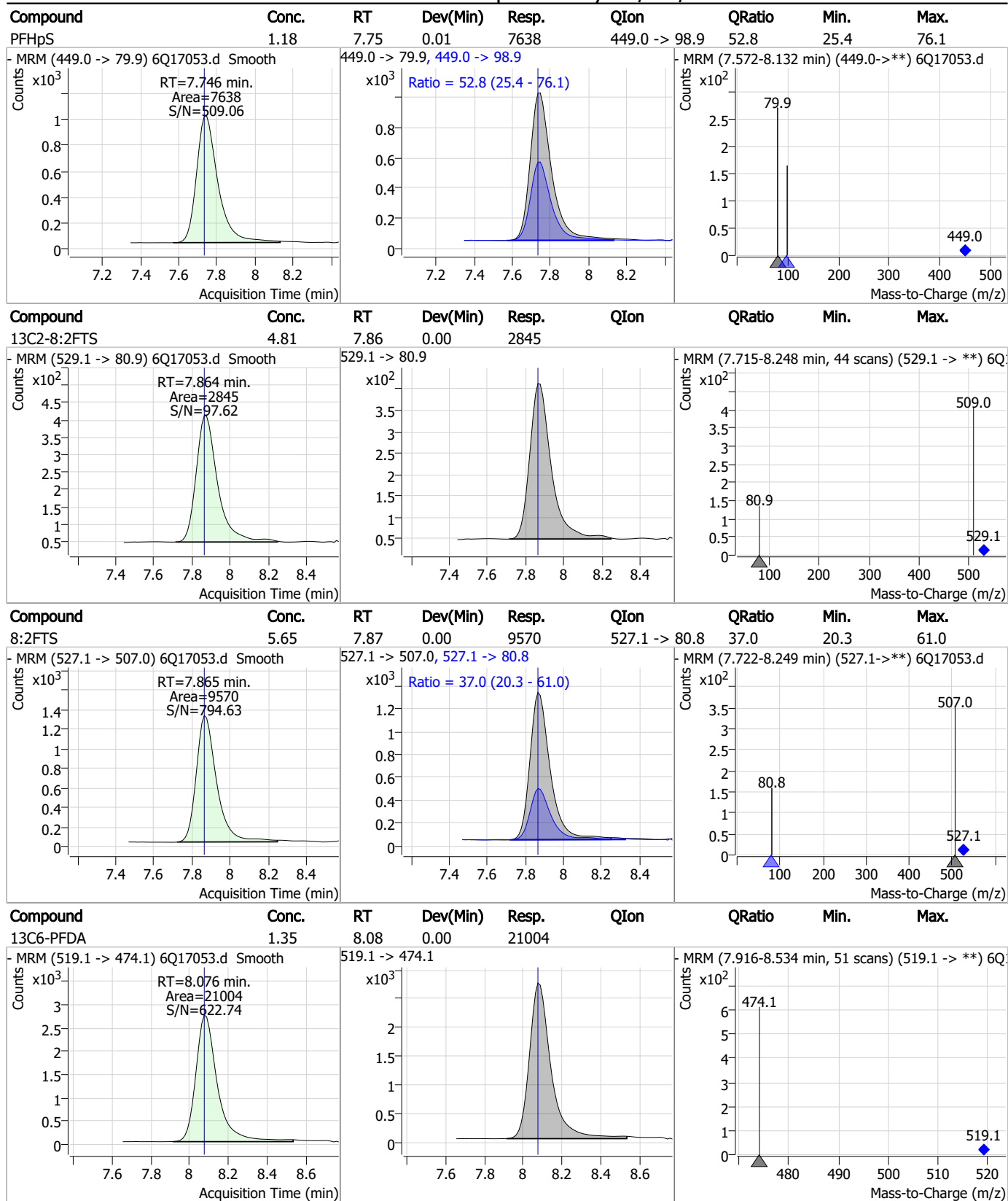
7.7.18

Perfluorinated Compounds by LC/MS/MS



7.7.18 7

Perfluorinated Compounds by LC/MS/MS



7.7.18

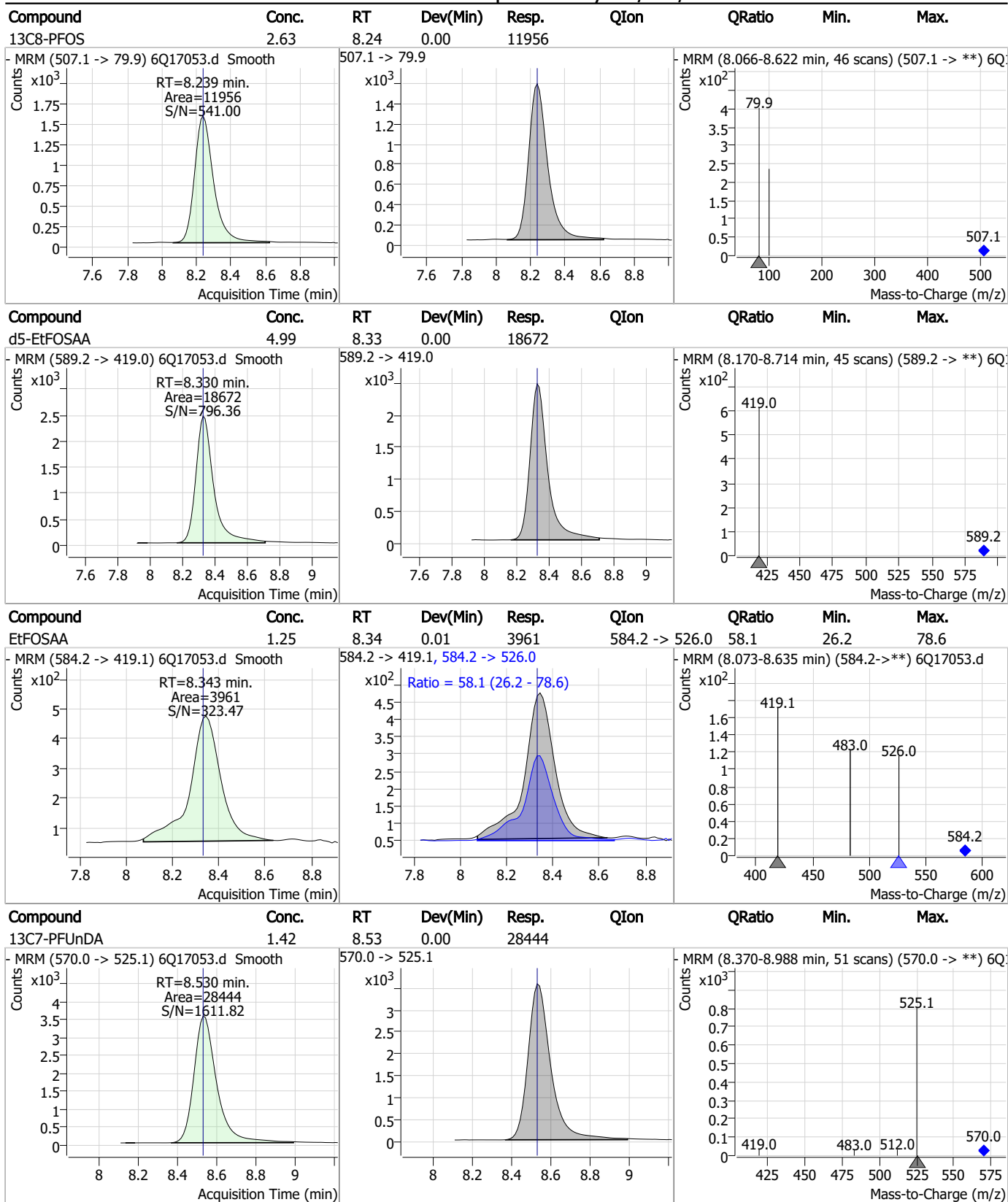
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	1.22	8.08	0.00	27773	512.9 -> 219.0	19.0	8.3	25.0
d3-MeFOSAA	4.88	8.13	0.00	21974				
MeFOSAA	1.32	8.14	0.00	5431	570.1 -> 483.0	20.1	7.3	21.9
PFOS	1.15	8.24	0.01	6668 (m)	498.9 -> 98.8	52.2	32.3	97.0

7.7.18 7

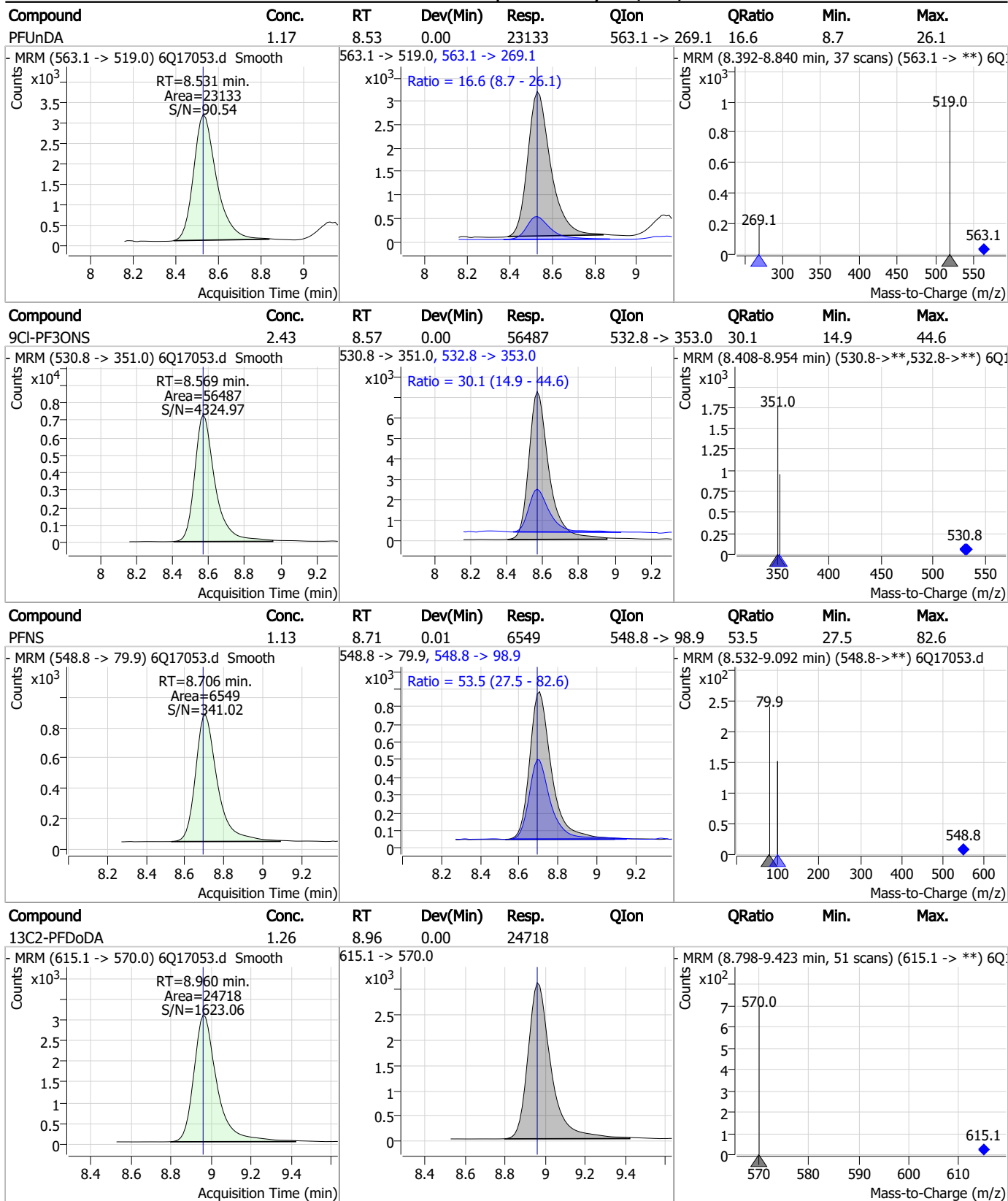
Perfluorinated Compounds by LC/MS/MS



7.7.18

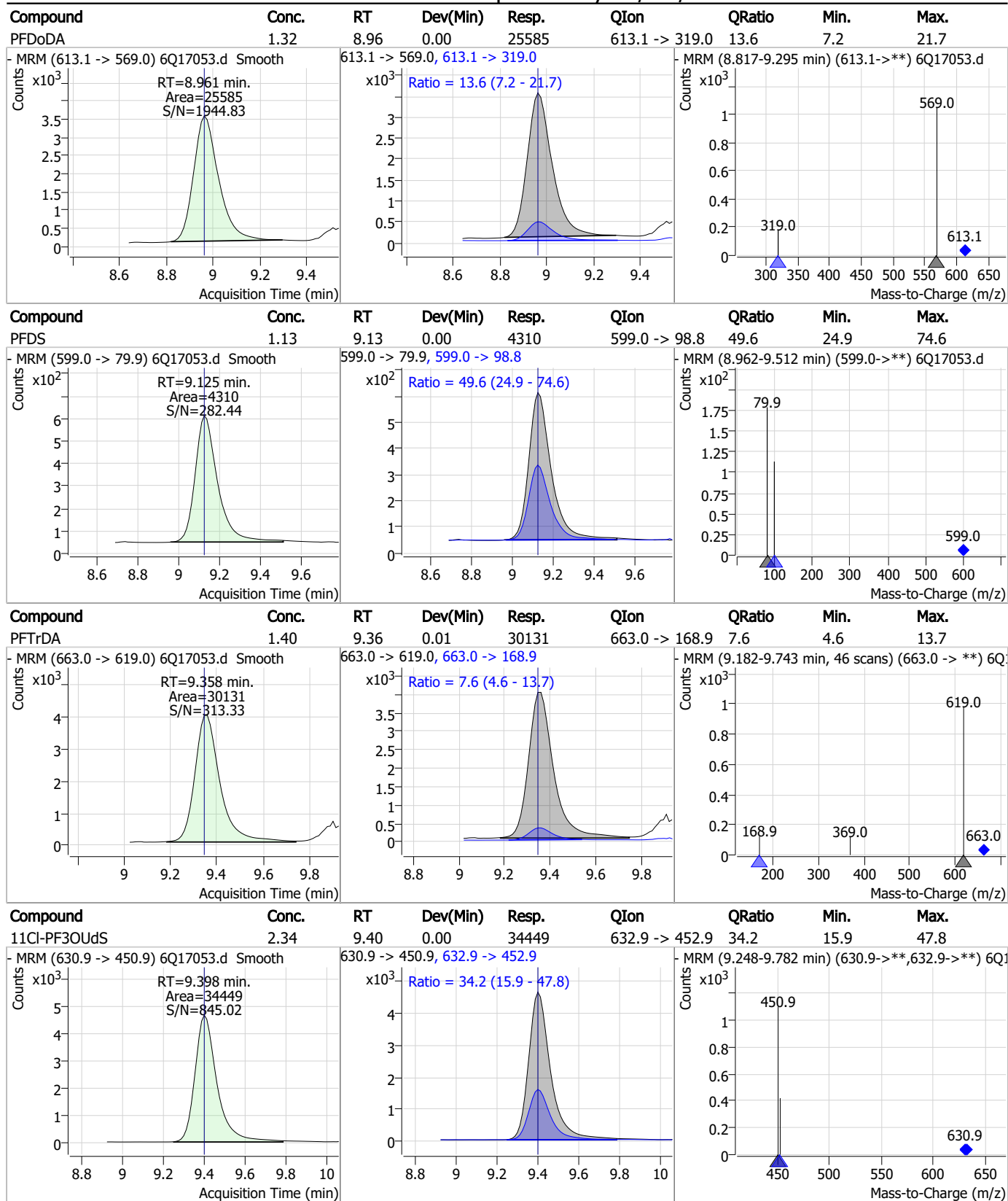
7

Perfluorinated Compounds by LC/MS/MS



7.7.18
7

Perfluorinated Compounds by LC/MS/MS

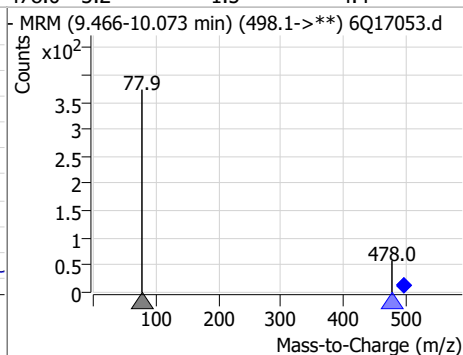
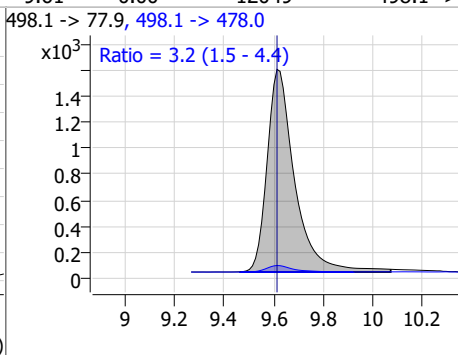
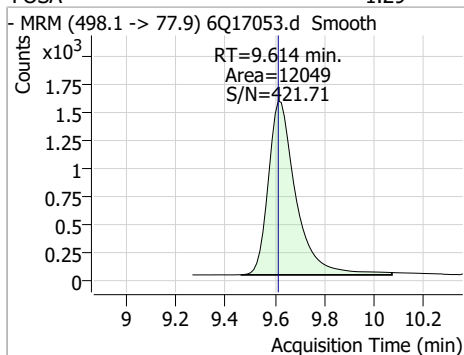


7.7.18

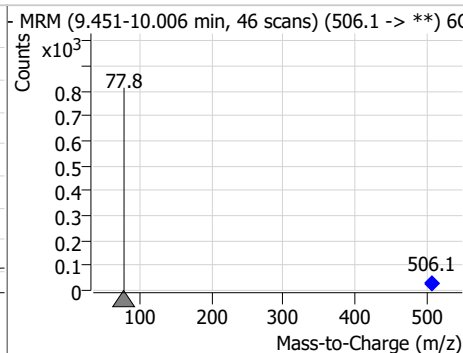
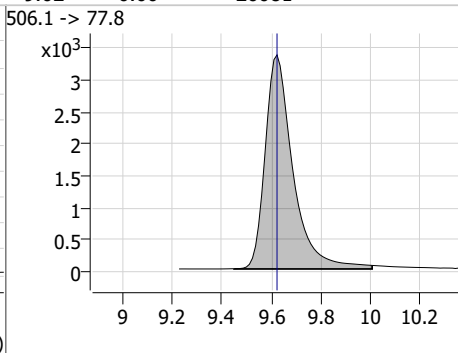
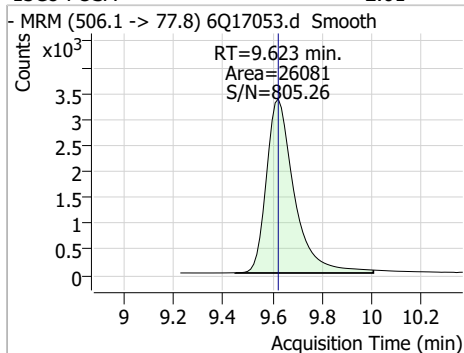
7

Perfluorinated Compounds by LC/MS/MS

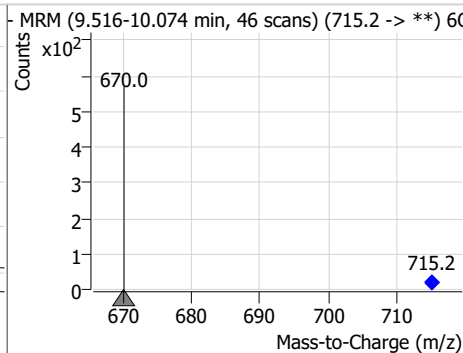
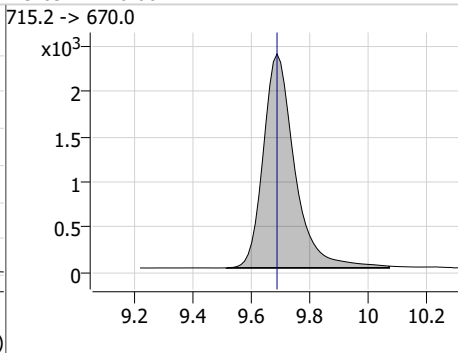
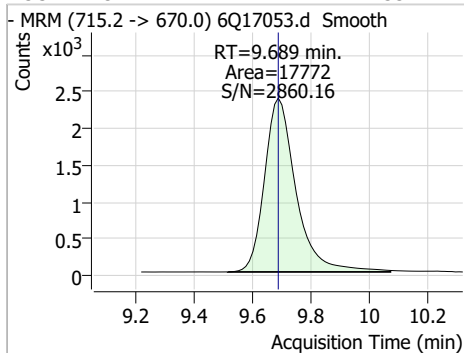
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	1.29	9.61	0.00	12049	498.1 -> 478.0	3.2	1.5	4.4



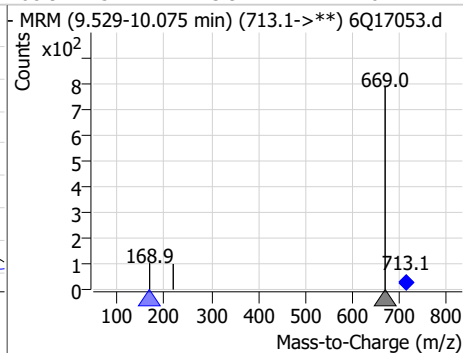
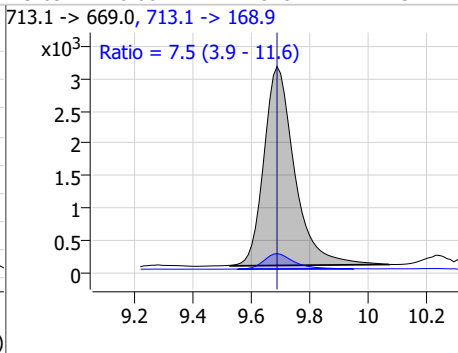
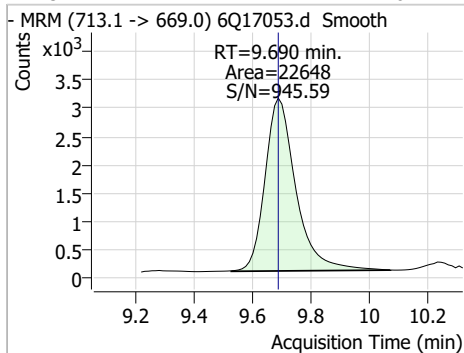
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.61	9.62	0.00	26081				



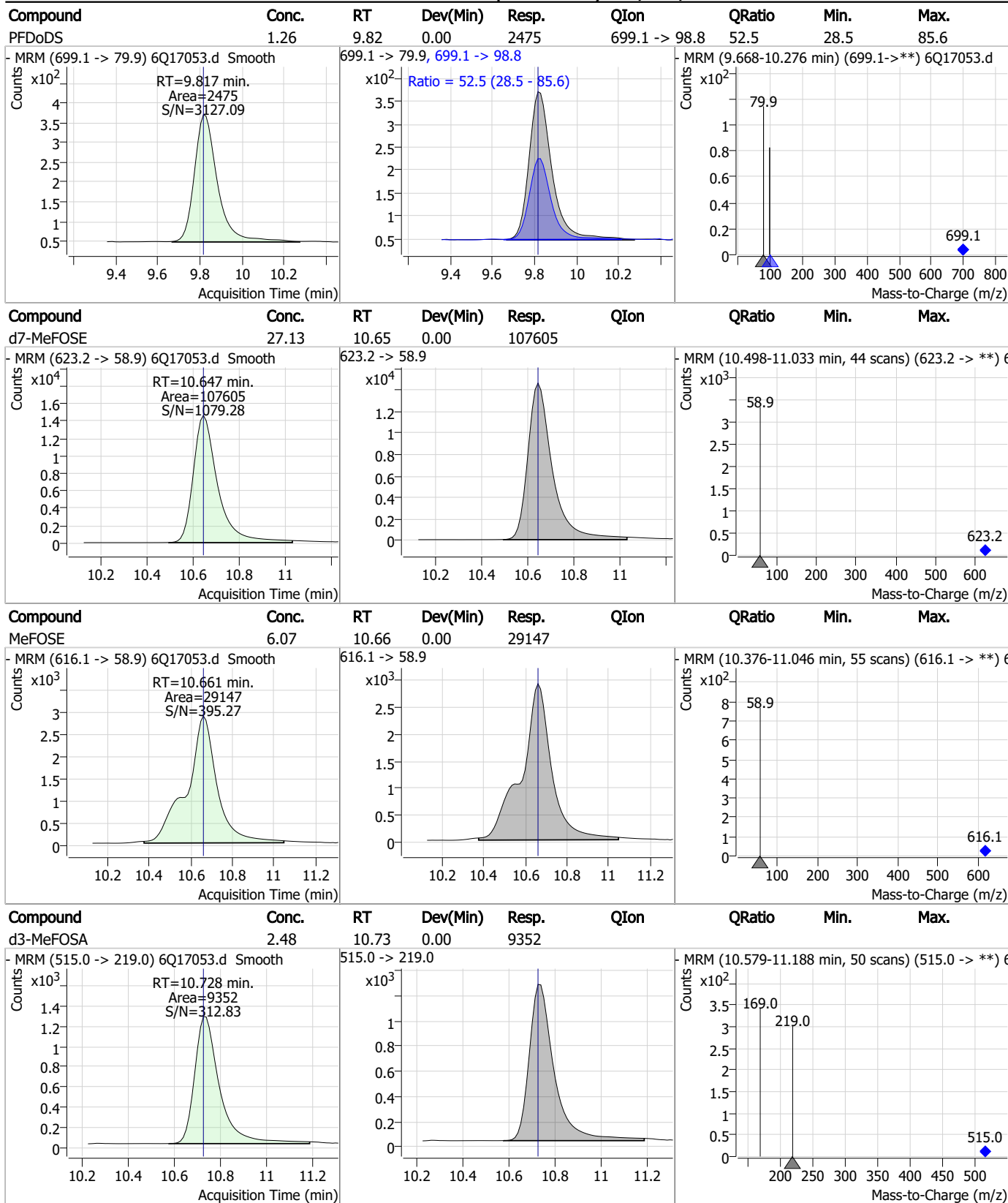
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.33	9.69	0.00	17772				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	1.26	9.69	0.00	22648	713.1 -> 168.9	7.5	3.9	11.6



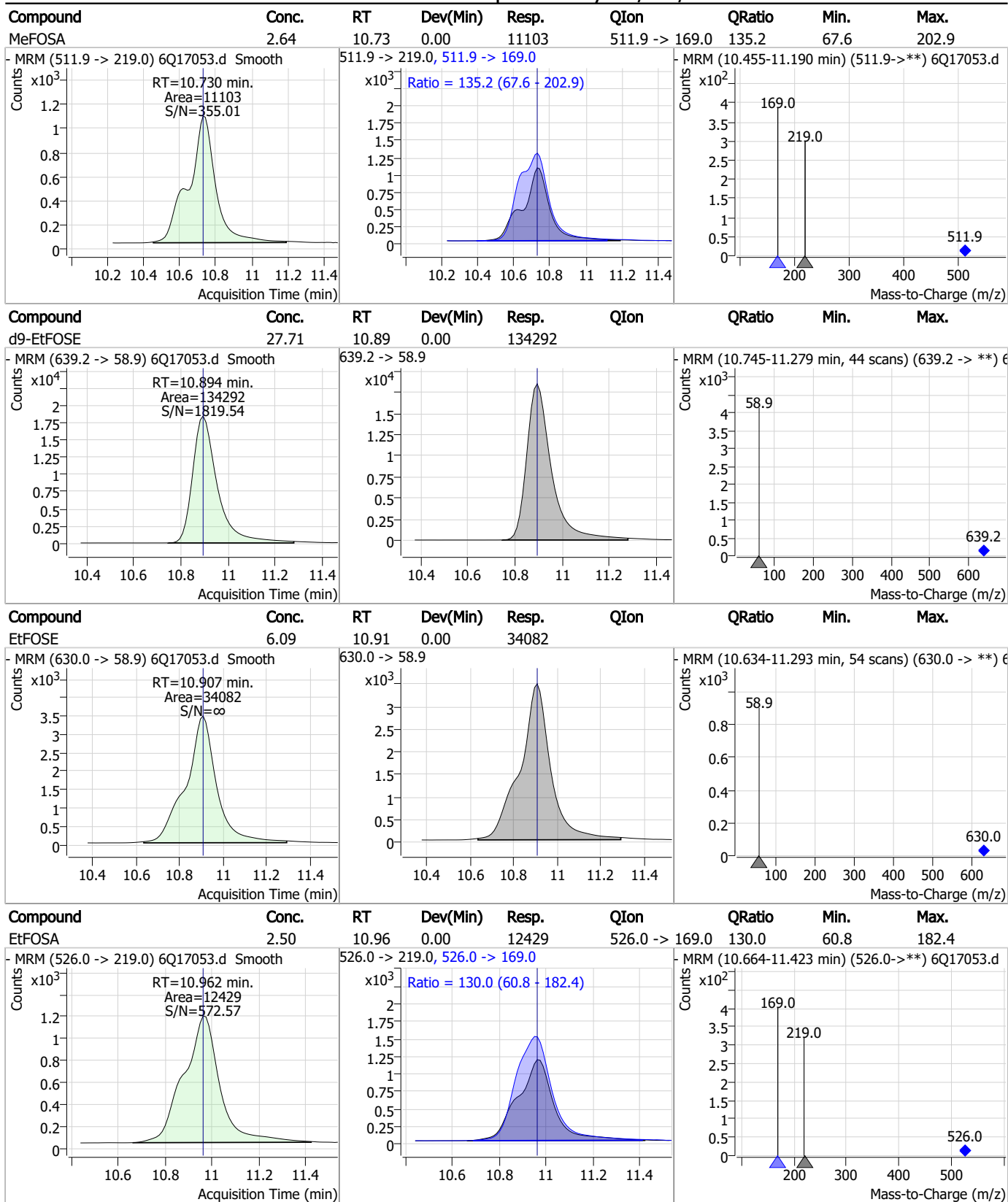
Perfluorinated Compounds by LC/MS/MS



7.7.18

7

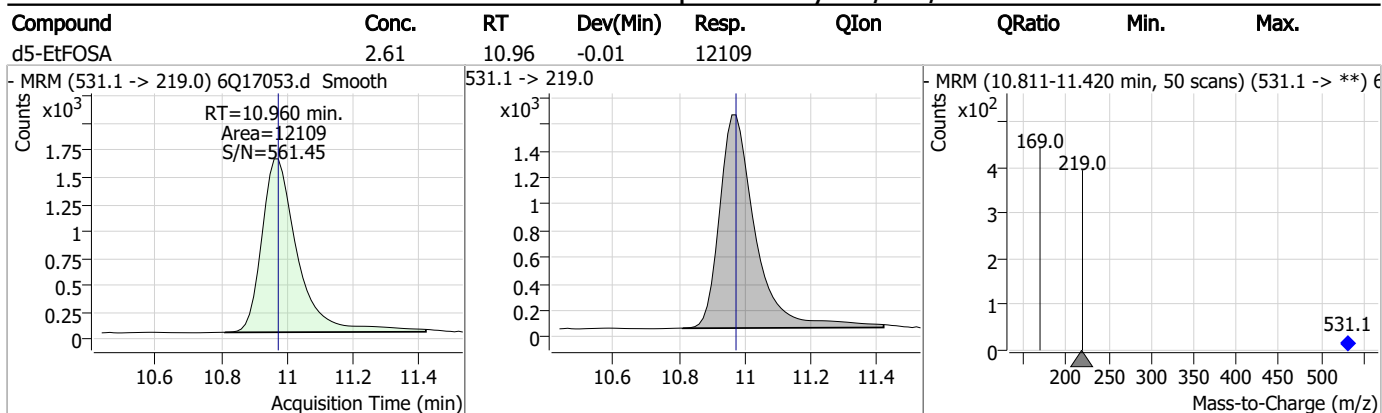
Perfluorinated Compounds by LC/MS/MS



7.7.18

7

Perfluorinated Compounds by LC/MS/MS



7.7.18

7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17053.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:19 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.19	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

7.7.18.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17054.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:33:42 PM
 Sample Name : icc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	184703	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	64257	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	68171	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	59630	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	86144	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27345	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20912	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25662	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24665	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16522	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24136	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22860	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12221	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10632	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2112	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2758	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2915	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22010	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	42432	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18224	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	96650	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116881	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11419	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	9200	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14764	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	79420	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9502	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85814	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24059	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27794	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56303	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2112	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2758	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.1%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2915	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24665	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16522	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22860	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12221	2.42 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 = 96.6%	
13C4-PFBA	2.897	216.8 -> 171.9	184703	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	59630	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	68171	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.4%	
13C5-PFPeA	4.270	268.3 -> 223.0	64257	5.11 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.2%	
13C6-PFDA	8.076	519.1 -> 474.1	20912	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 105.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25662	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
13C8-FOSA	9.623	506.1 -> 77.8	24136	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOA	7.062	421.1 -> 376.0	86144	2.60 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.0%	
13C8-PFOS	8.239	507.1 -> 79.9	10632	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.6%	
13C9-PFNA	7.594	472.1 -> 427.0	27345	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.2%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22010	5.00 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	42432	10.65 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 106.5%	
d3-MeFOSA	10.728	515.0 -> 219.0	9200	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18224	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
d7-MeFOSE	10.647	623.2 -> 58.9	96650	24.94 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.8%	
d9-EtFOSE	10.894	639.2 -> 58.9	116881	24.69 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.7%	
d5-EtFOSA	10.973	531.1 -> 219.0	11419	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	31634	9.90 µg/L	99
		327.1 -> 80.9	11565		
6:2FTS	6.839	427.1 -> 407.0	29224	9.63 µg/L	96
		427.1 -> 80.9	9755		
8:2FTS	7.865	527.1 -> 507.0	15642	9.02 µg/L	97
		527.1 -> 80.8	6632		
EtFOSAA	8.331	584.2 -> 419.1	7450	2.41 µg/L	99
		584.2 -> 526.0	3971		
FOSA	9.614	498.1 -> 77.9	22474	2.60 µg/L	100
		498.1 -> 478.0	660		
MeFOSAA	8.136	570.1 -> 419.0	10904	2.64 µg/L	93
		570.1 -> 483.0	1913		
PFBA	2.906	212.8 -> 168.9	61789	9.97 µg/L	100
PFBS	5.400	298.7 -> 79.9	22126	2.16 µg/L	97
		298.7 -> 98.8	8757		
PFDA	8.077	512.9 -> 469.0	56192	2.47 µg/L	99
		512.9 -> 219.0	9652		
PFDODA	8.961	613.1 -> 569.0	48944	2.53 µg/L	98
		613.1 -> 319.0	6726		
PFDS	9.125	599.0 -> 79.9	9122	2.69 µg/L	99

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	4569			
PFHpA	6.420	363.1 -> 319.0	74210	2.52	µg/L	97
		363.1 -> 169.0	11979			
PFHpS	7.734	449.0 -> 79.9	14210	2.47	µg/L	97
		449.0 -> 98.9	6874			
PFHxA	5.470	313.0 -> 269.0	69863	2.59	µg/L	100
		313.0 -> 118.9	3277			
PFHxS	7.180	398.7 -> 79.9	15681	2.35	µg/L	m 98
		398.7 -> 98.9	7867			
PFNA	7.595	463.0 -> 419.0	48450	2.56	µg/L	98
		463.0 -> 219.0	9629			
PFNS	8.694	548.8 -> 79.9	13122	2.56	µg/L	96
		548.8 -> 98.9	6808			
PFOA	7.063	413.0 -> 369.0	92206	2.28	µg/L	m 99
		413.0 -> 169.0	16505			
PFOS	8.228	498.9 -> 79.9	12592	2.45	µg/L	m 82
		498.9 -> 98.8	6356			
PFPeA	4.273	263.0 -> 219.0	89627	5.12	µg/L	100
PFPeS	6.484	349.1 -> 79.9	17271	2.48	µg/L	95
		349.1 -> 98.9	7790			
PFTeDA	9.690	713.1 -> 669.0	44428	2.66	µg/L	100
		713.1 -> 168.9	3381			
PFTrDA	9.345	663.0 -> 619.0	56915	2.66	µg/L	99
		663.0 -> 168.9	4995			
PFUnDA	8.531	563.1 -> 519.0	45629	2.56	µg/L	98
		563.1 -> 269.1	7616			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	62380	4.28	µg/L	96
		632.9 -> 452.9	21239			
9Cl-PF3ONS	8.569	530.8 -> 351.0	99628	4.33	µg/L	92
		532.8 -> 353.0	34108			
ADONA	6.681	376.9 -> 250.9	300603	4.69	µg/L	98
		376.9 -> 84.8	80229			
HFPO-DA	5.846	284.9 -> 168.9	19987	4.97	µg/L	94
		284.9 -> 184.9	2276			
3:3FTCA	3.784	241.0 -> 177.0	13690	12.51	µg/L	100
		241.0 -> 117.0	1805			
5:3FTCA	6.147	341.0 -> 237.1	275832	63.24	µg/L	90
		341.0 -> 217.0	207449			
7:3FTCA	7.573	441.0 -> 316.9	127781	64.48	µg/L	98
		441.0 -> 336.9	271844			
EtFOSA	10.962	526.0 -> 219.0	23501	5.01	µg/L	96
		526.0 -> 169.0	27543			
EtFOSE	10.907	630.0 -> 58.9	63011	12.95	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	20684	5.00	µg/L	98
		511.9 -> 169.0	27591			
MeFOSE	10.661	616.1 -> 58.9	55974	12.99	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	4426	2.53	µg/L	98
		699.1 -> 98.8	2609			
NFDHA	5.350	295.0 -> 201.0	15515	5.31	µg/L	96
		295.0 -> 84.9	4053			
PFMBA	4.687	279.0 -> 85.1	58229	4.96	µg/L	100
PFMPA	3.438	229.0 -> 84.9	44504	5.08	µg/L	100
PFEESA	5.937	314.8 -> 134.9	154629	4.55	µg/L	99
		314.8 -> 82.9	5261			

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

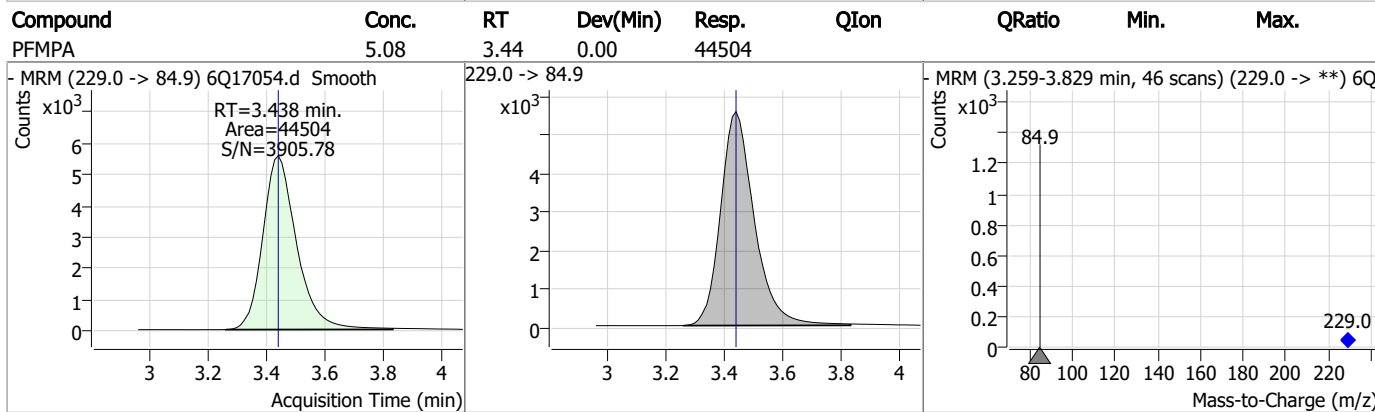
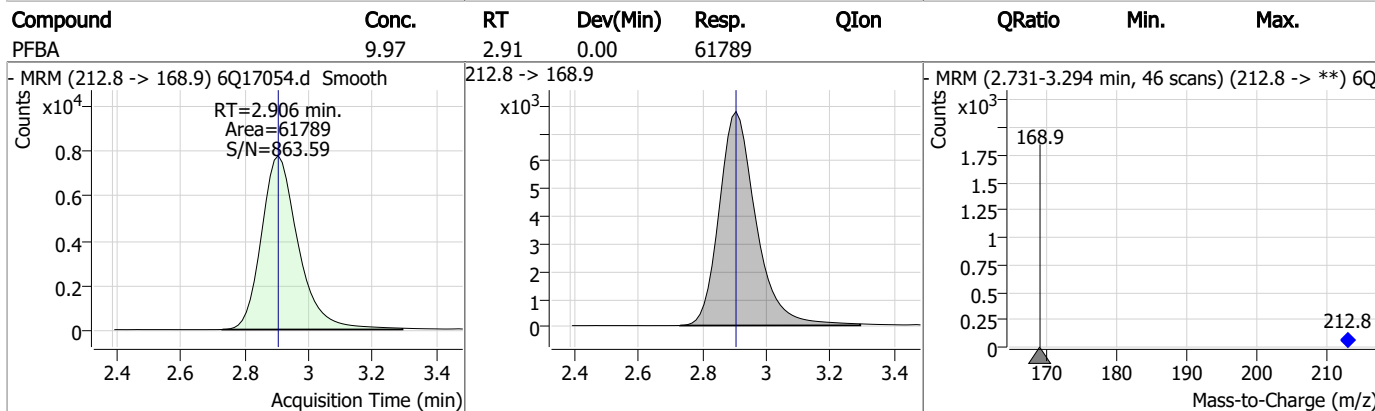
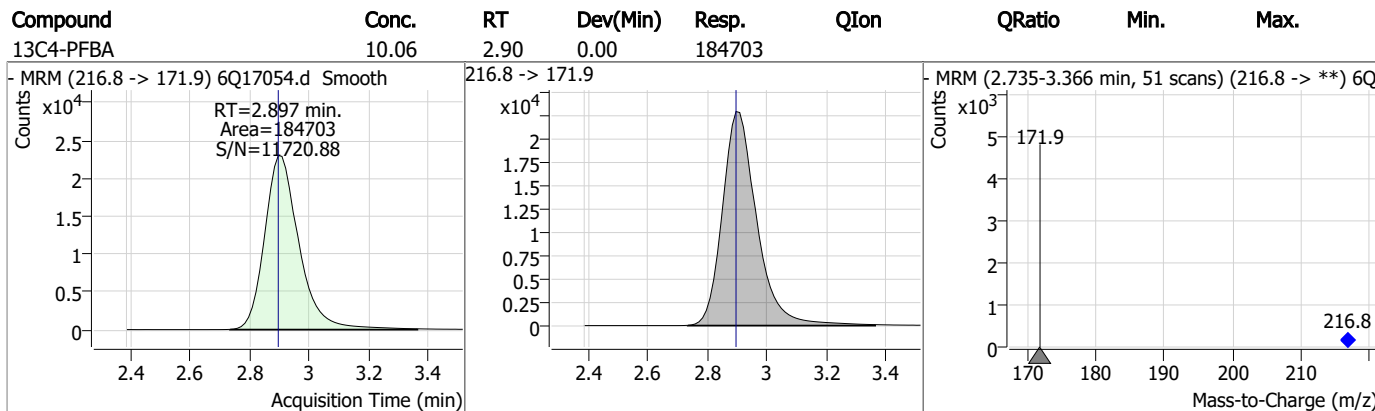
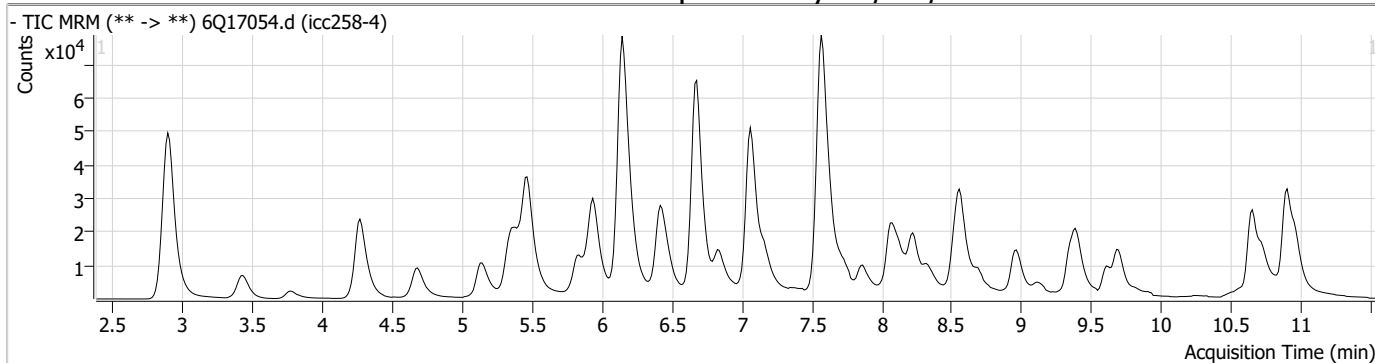
Perfluorinated Compounds by LC/MS/MS

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

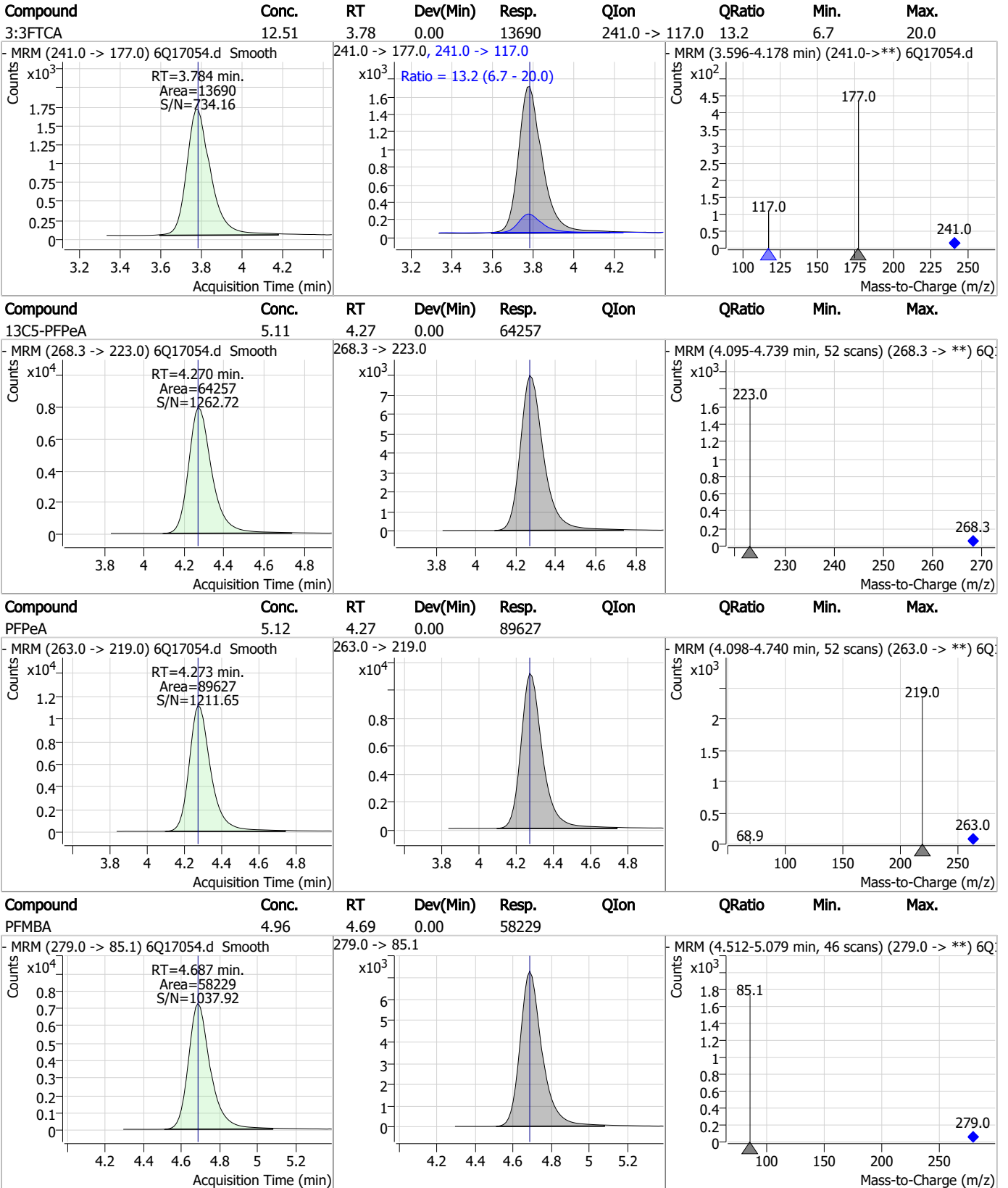
7.7.19
7



Perfluorinated Compounds by LC/MS/MS



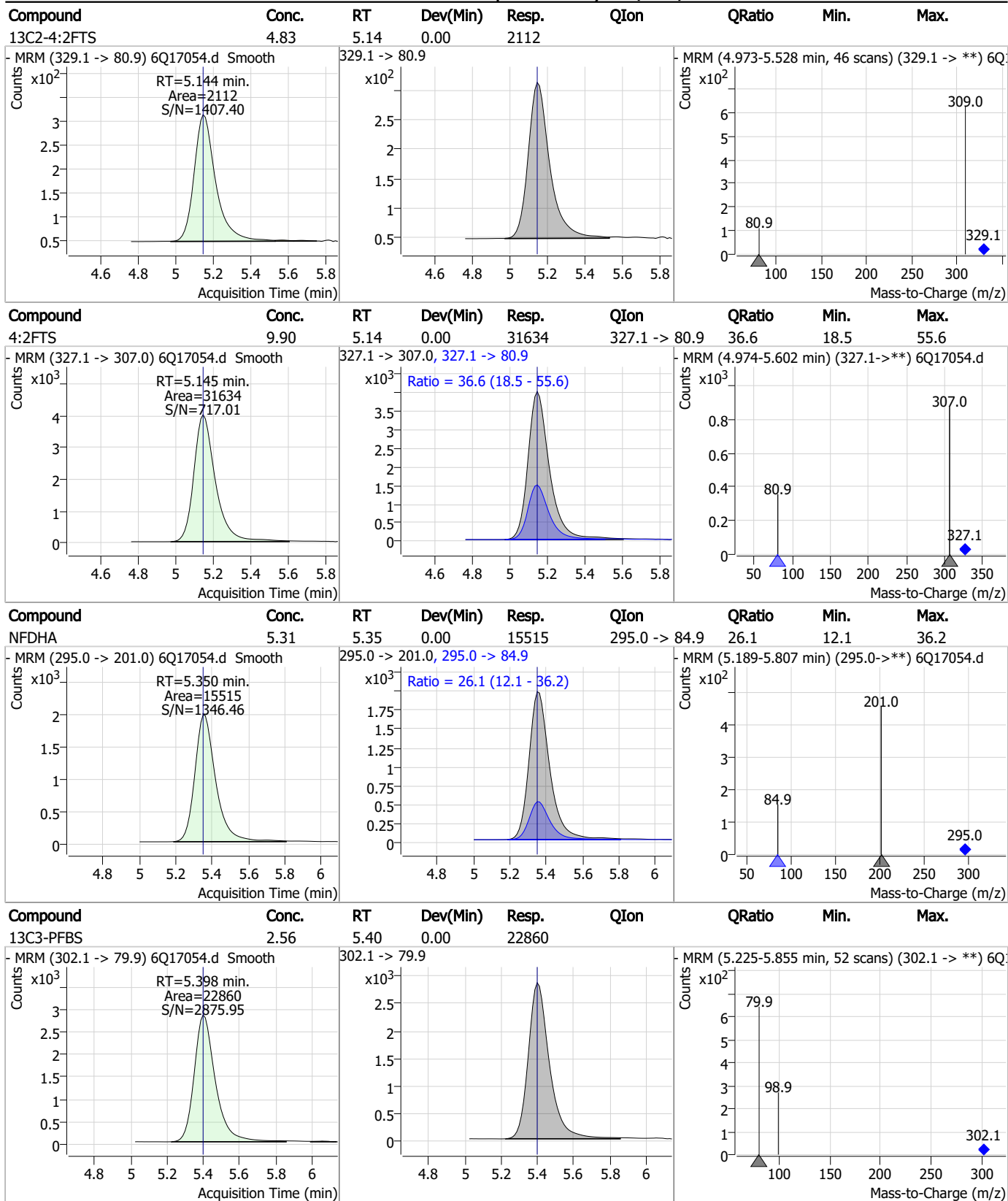
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

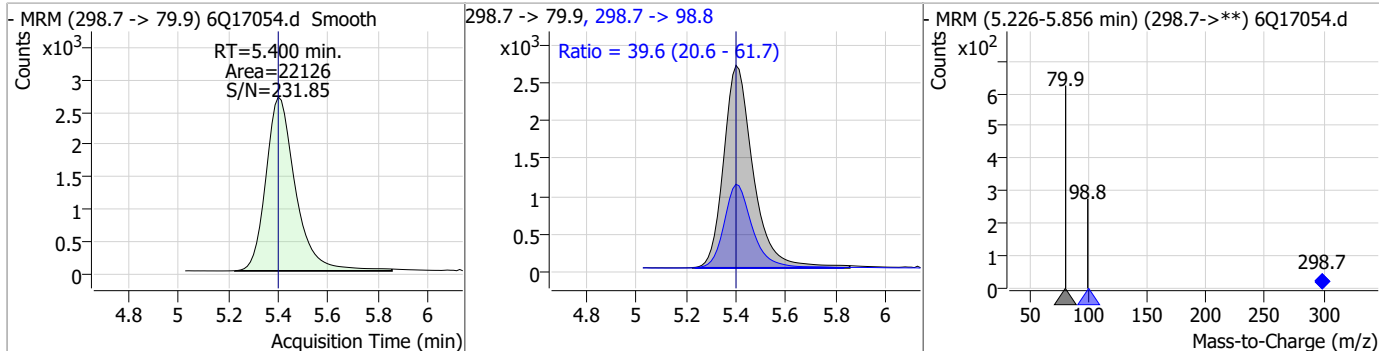
Perfluorinated Compounds by LC/MS/MS



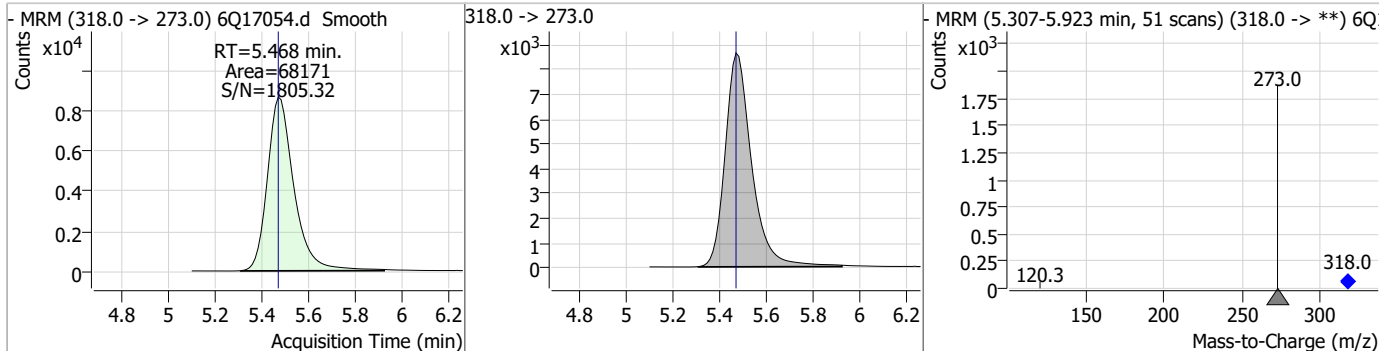
7.7.19
7

Perfluorinated Compounds by LC/MS/MS

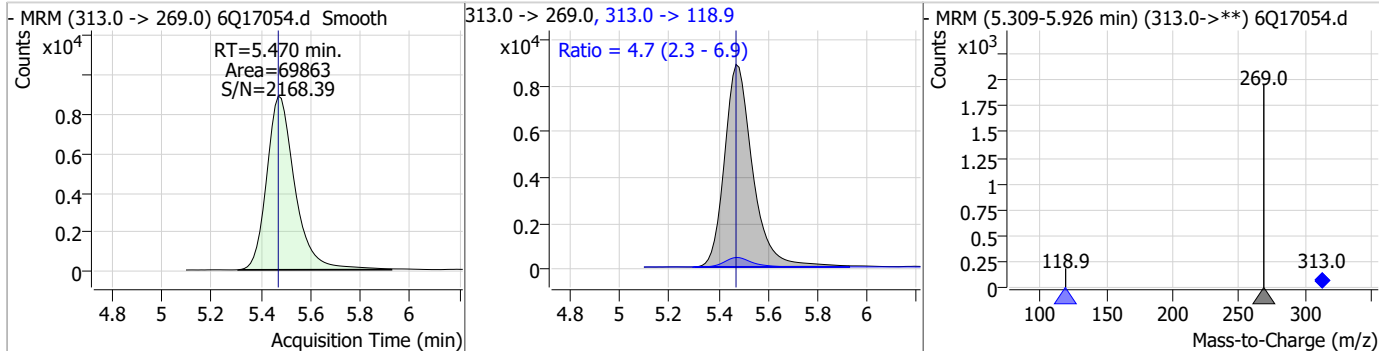
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.16	5.40	0.00	22126	298.7 -> 98.8	39.6	20.6	61.7



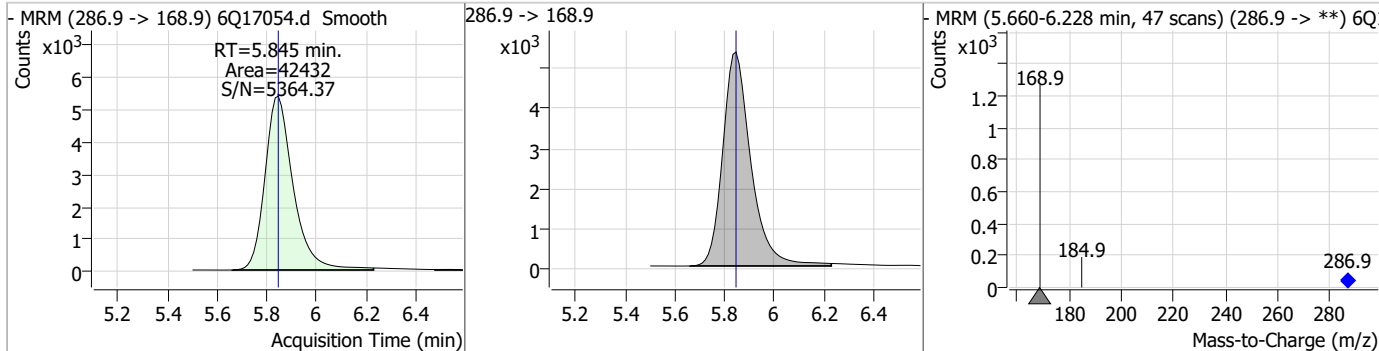
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.51	5.47	0.00	68171				



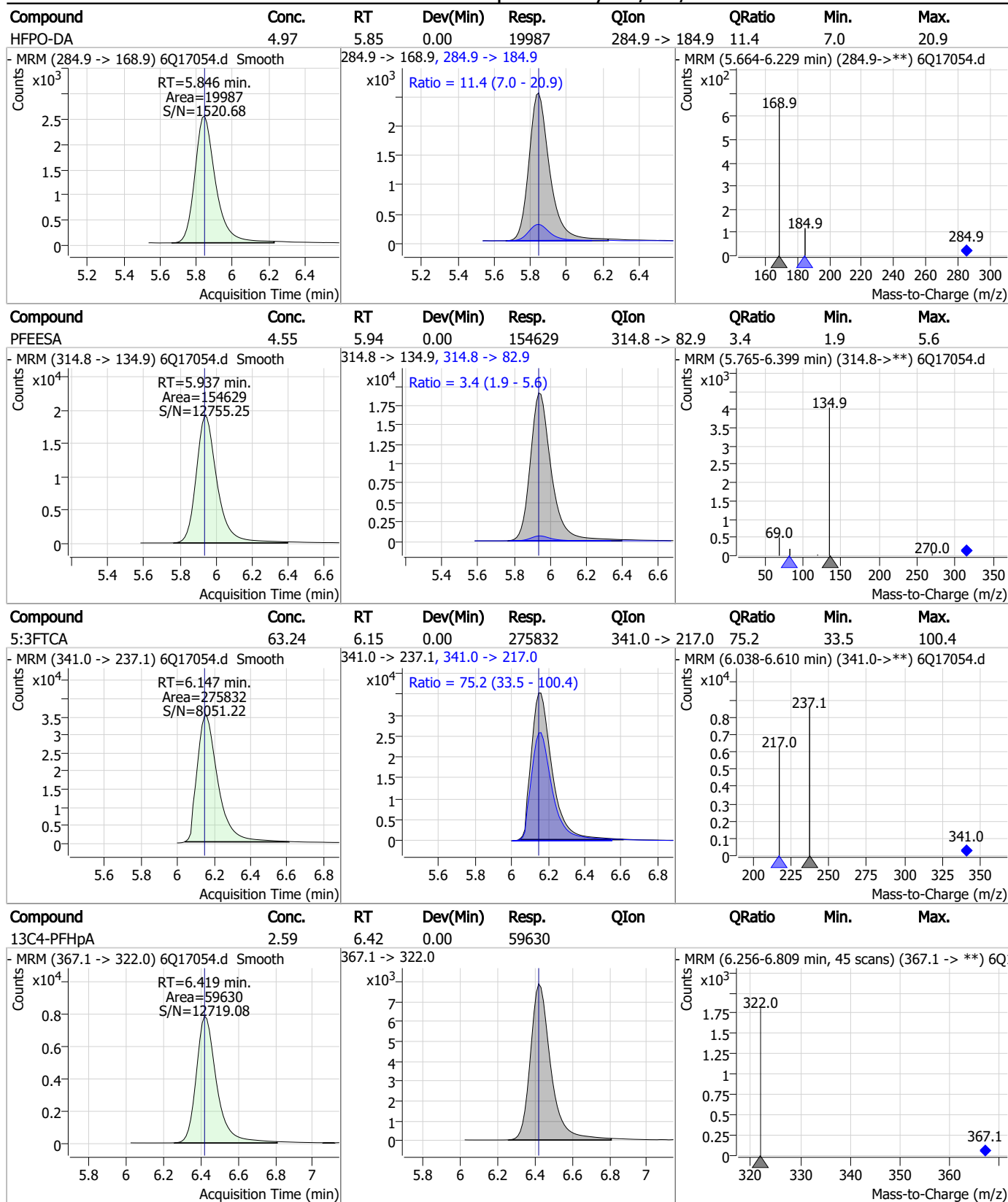
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.59	5.47	0.00	69863	313.0 -> 118.9	4.7	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	10.65	5.85	0.00	42432				



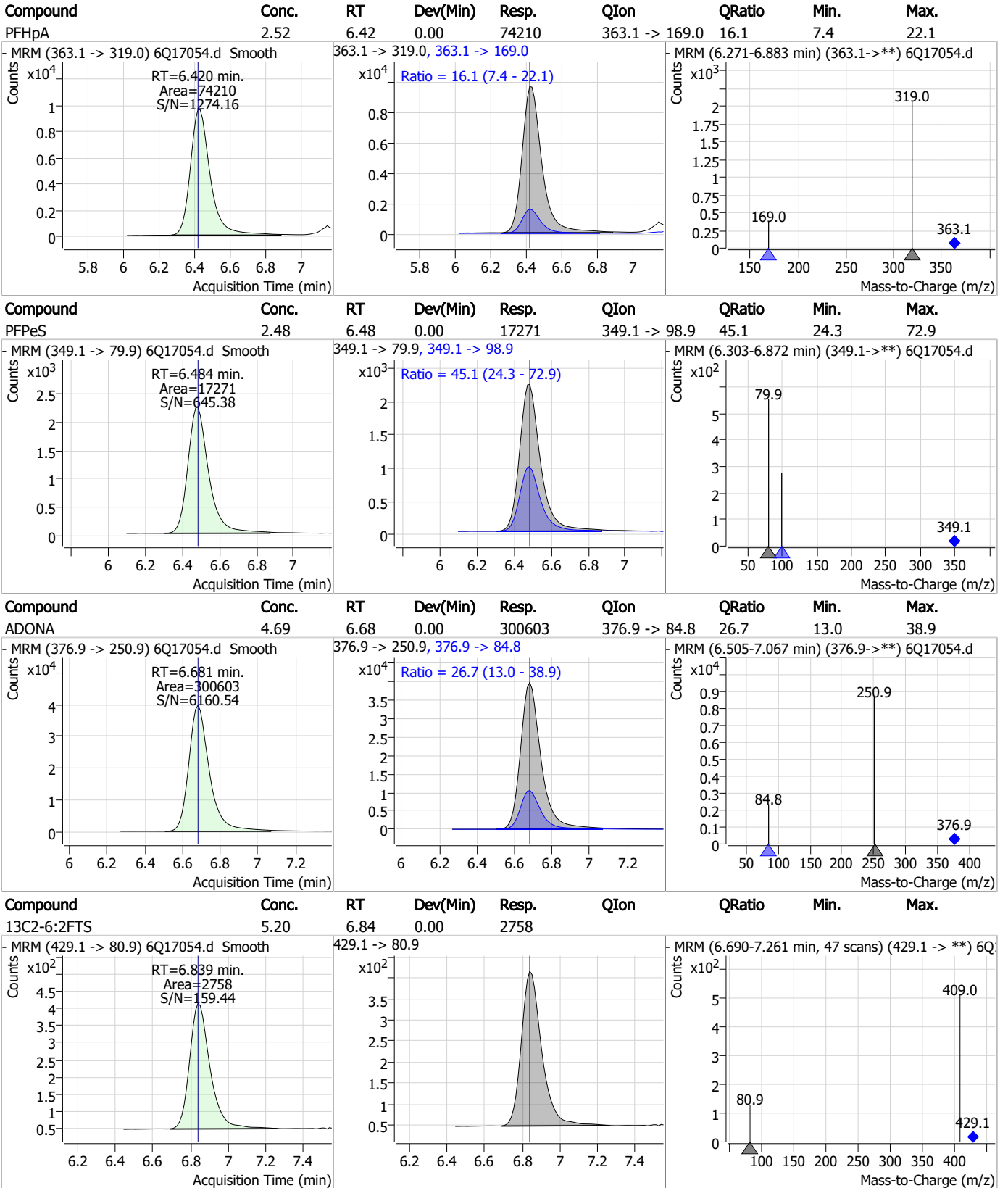
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

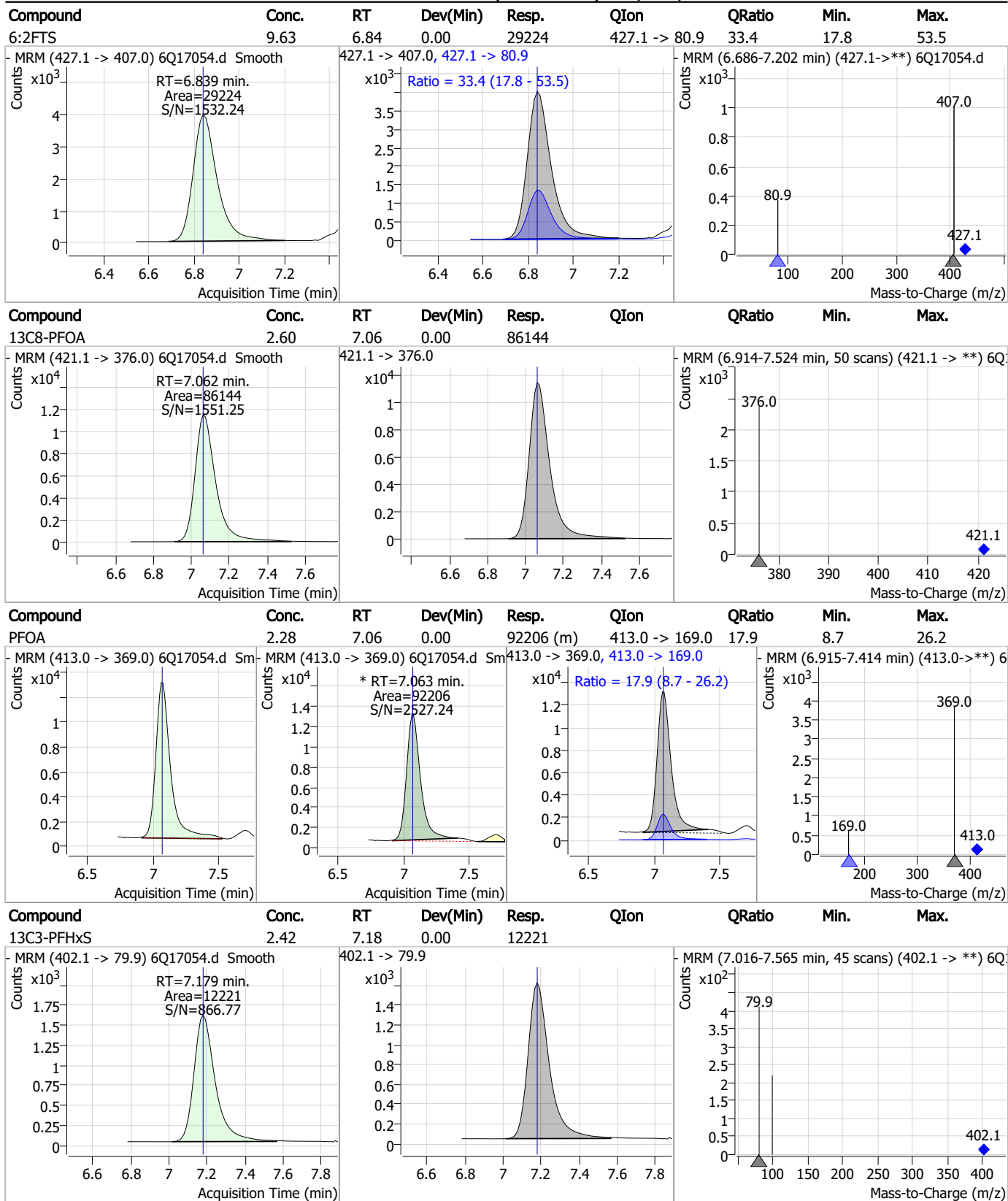
Perfluorinated Compounds by LC/MS/MS



7.7.19

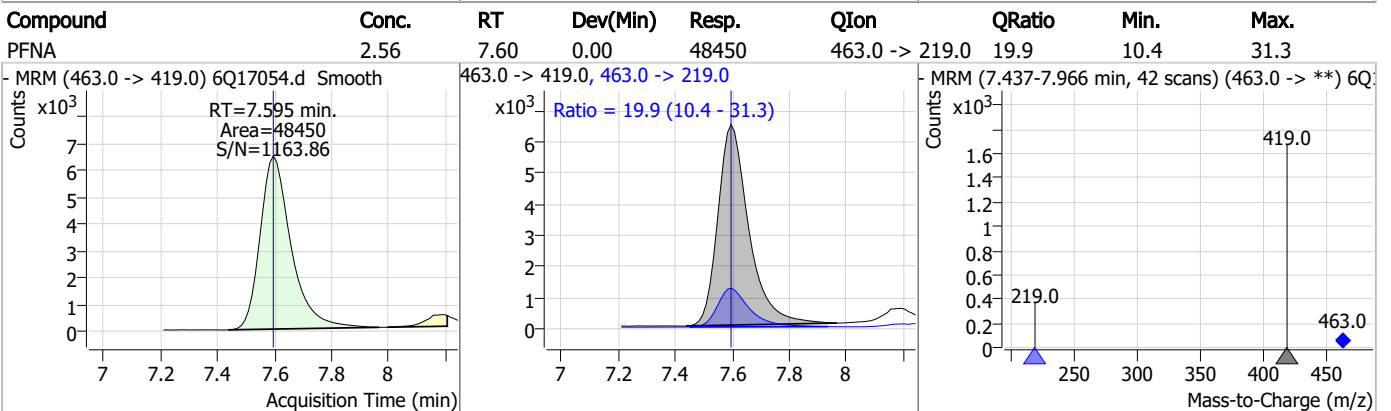
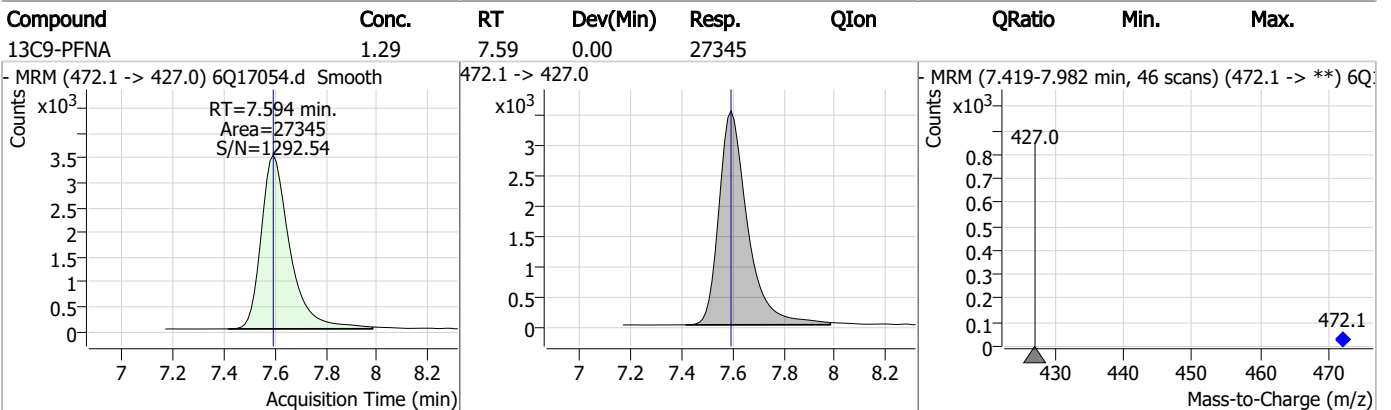
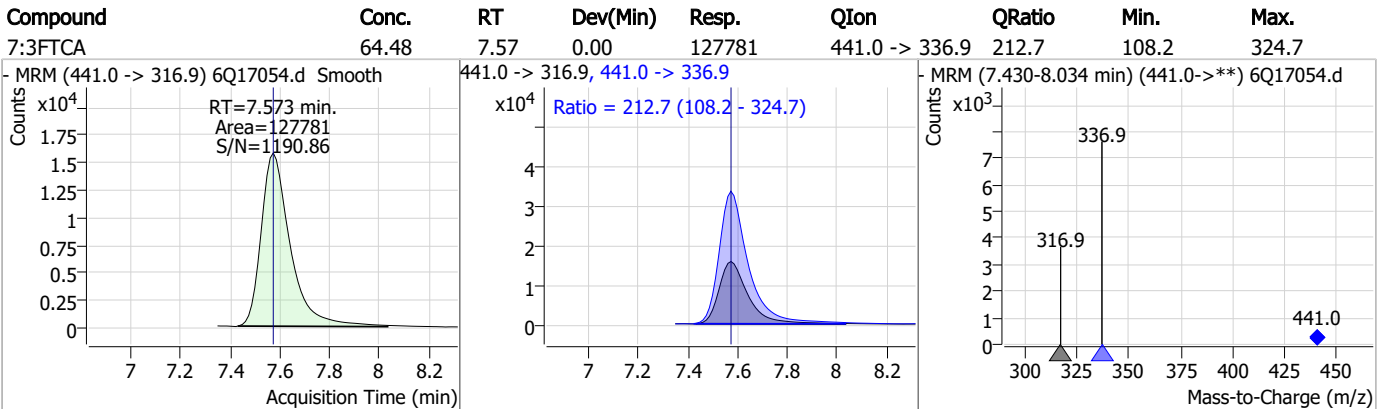
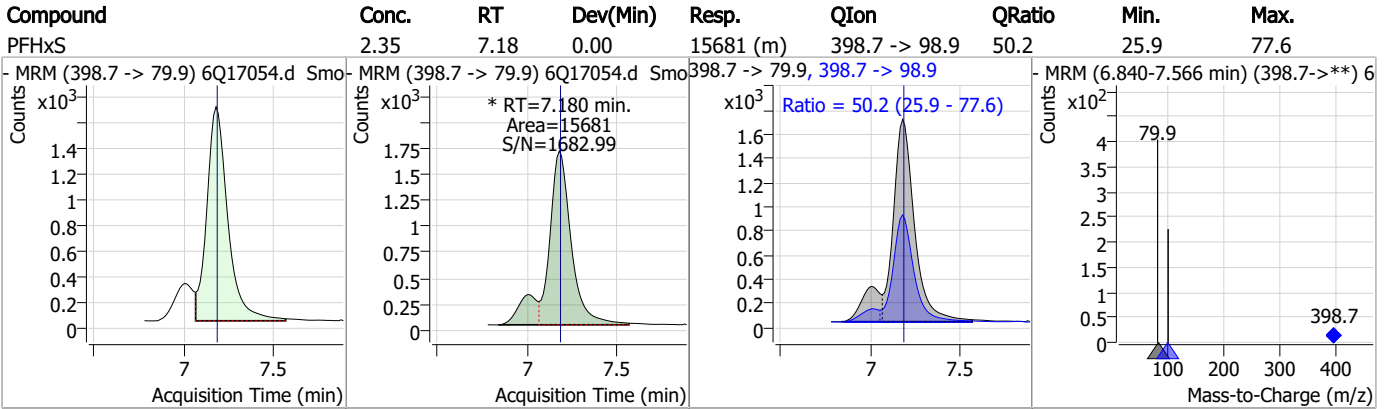
7

Perfluorinated Compounds by LC/MS/MS



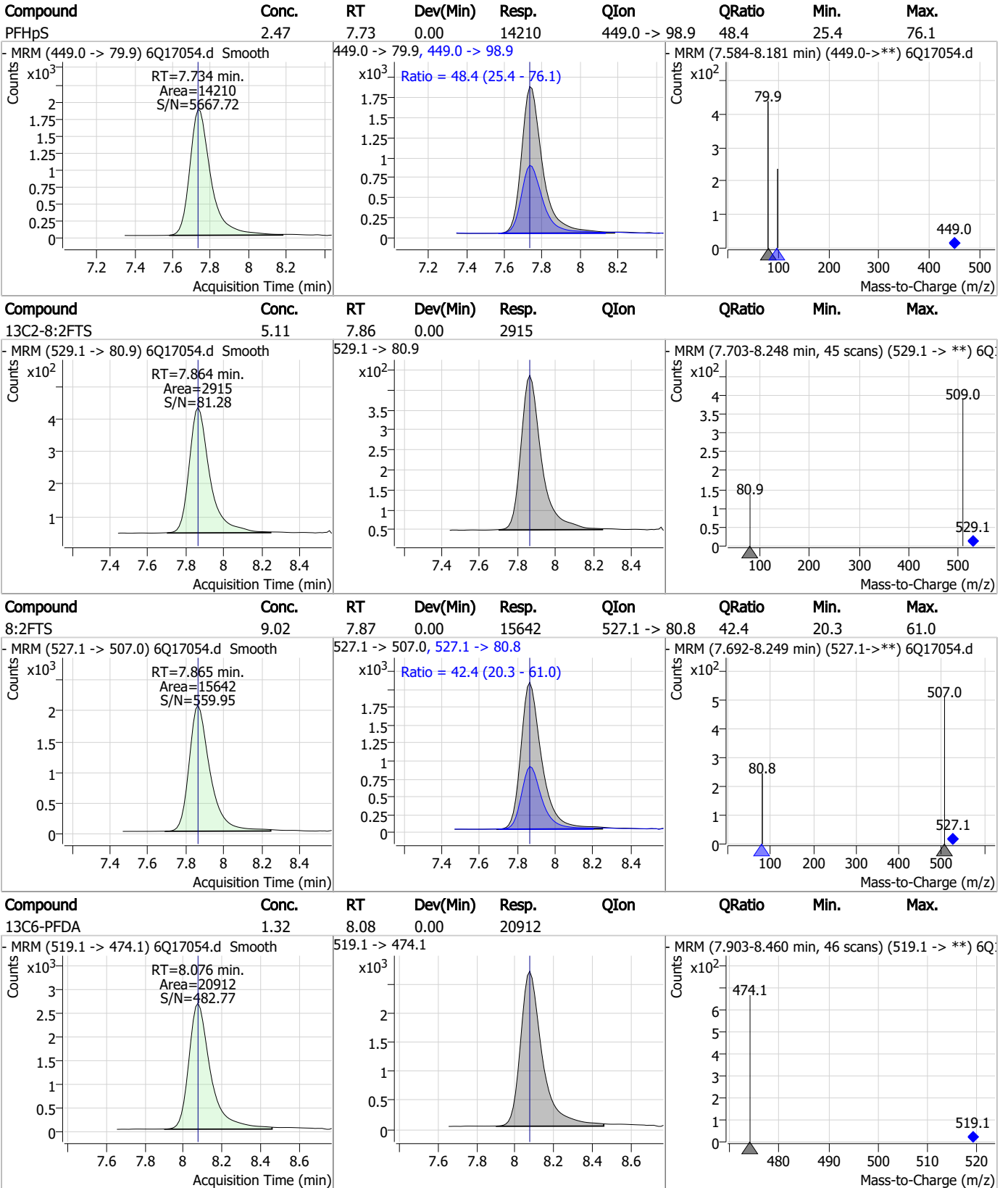
7.7.19
7

Perfluorinated Compounds by LC/MS/MS



7.7.19 7

Perfluorinated Compounds by LC/MS/MS

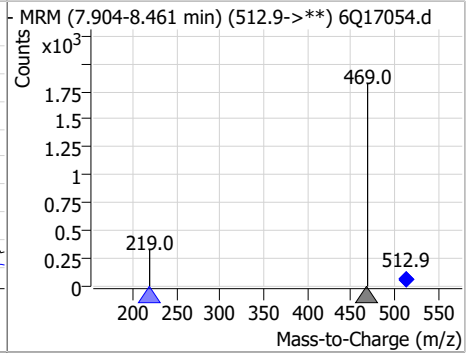
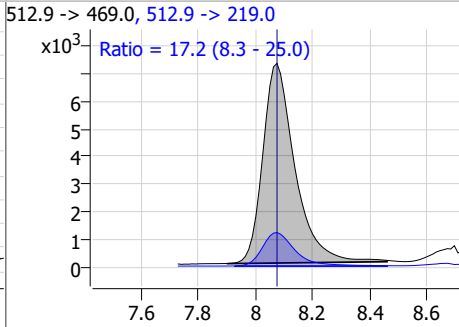
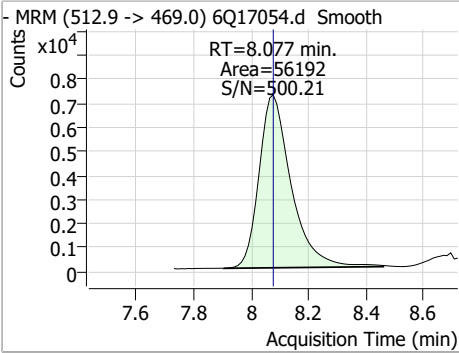


7.7.19

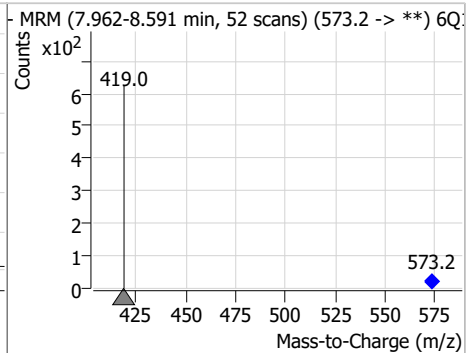
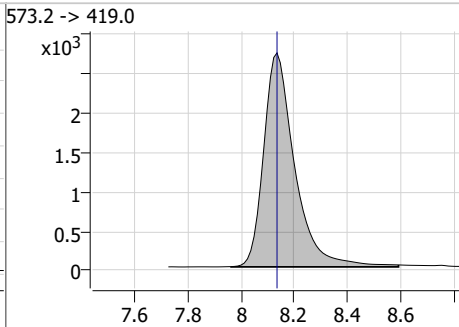
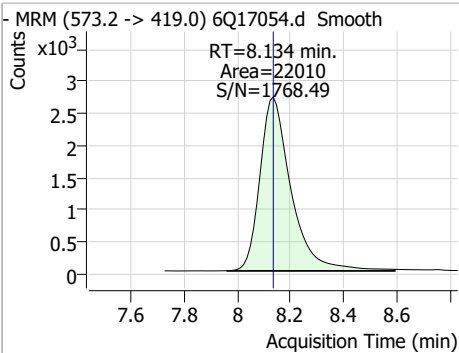
7

Perfluorinated Compounds by LC/MS/MS

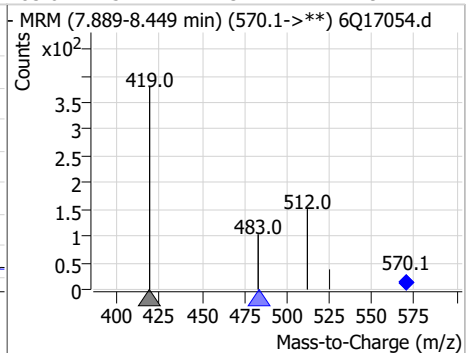
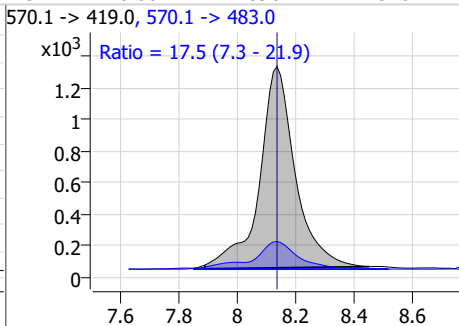
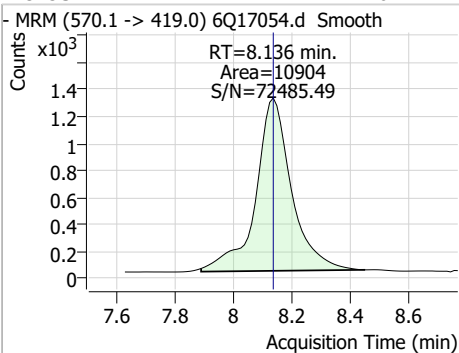
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.47	8.08	0.00	56192	512.9 -> 219.0	17.2	8.3	25.0



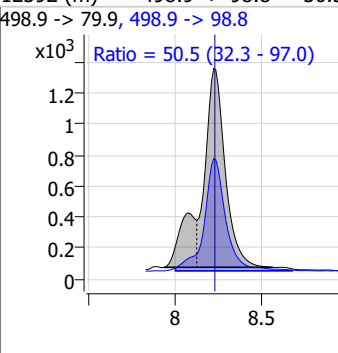
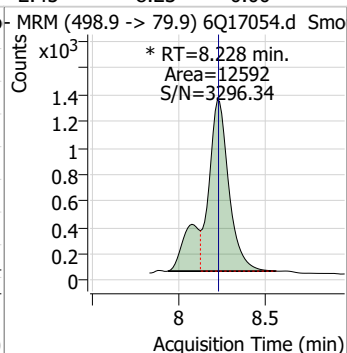
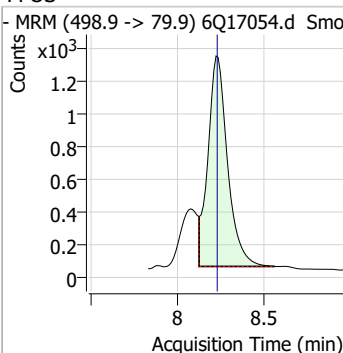
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.00	8.13	0.00	22010	573.2 -> 419.0			



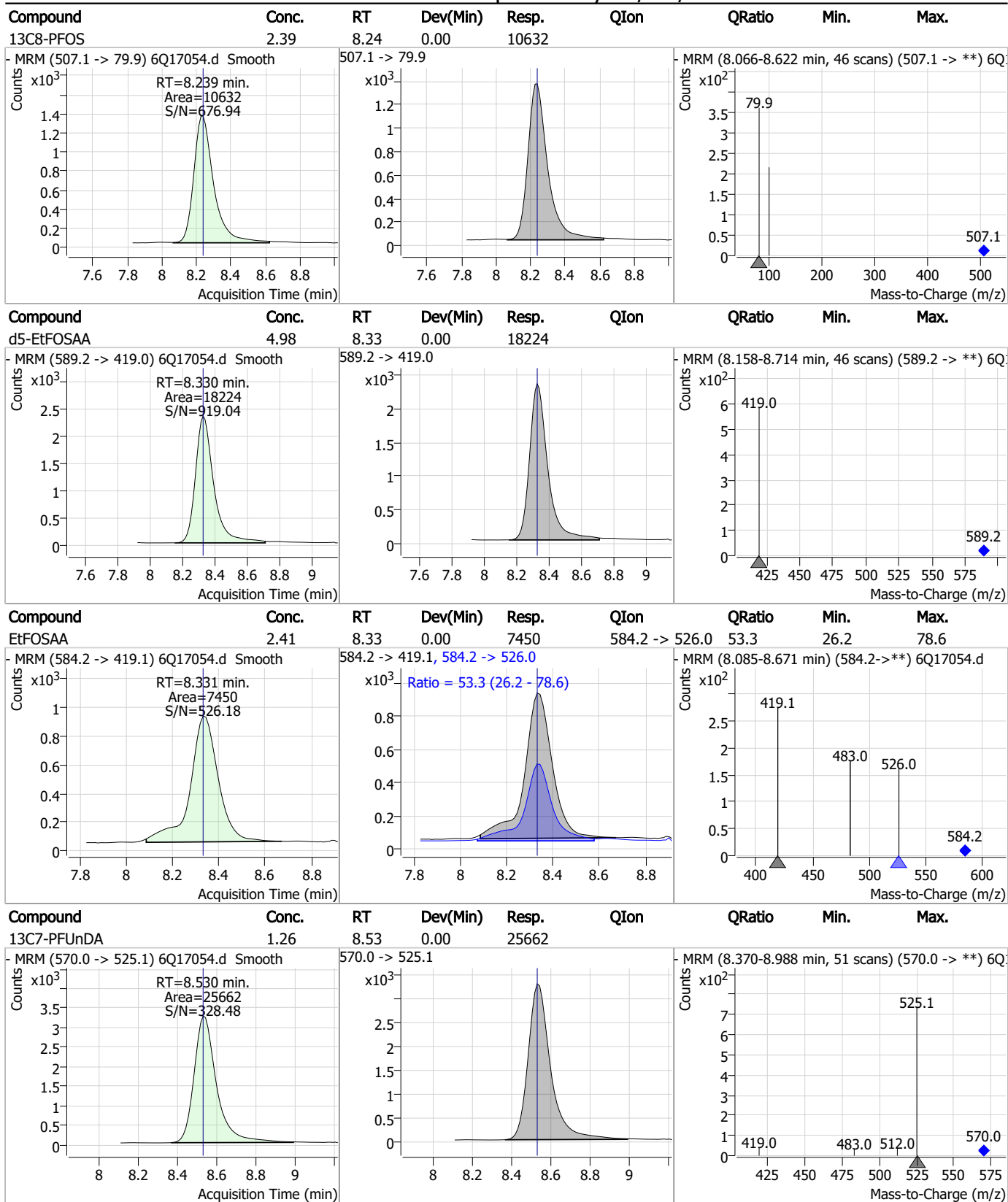
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.64	8.14	0.00	10904	570.1 -> 483.0	17.5	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.45	8.23	0.00	12592 (m)	498.9 -> 98.8	50.5	32.3	97.0



Perfluorinated Compounds by LC/MS/MS

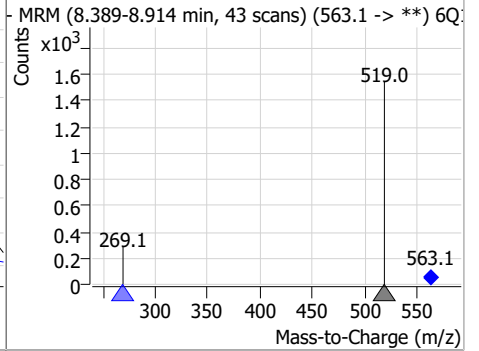
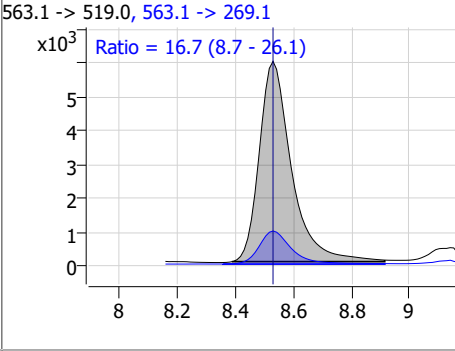
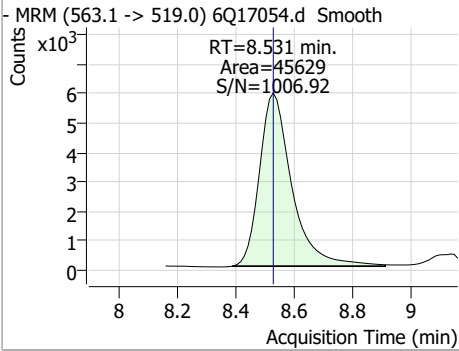


7.7.19

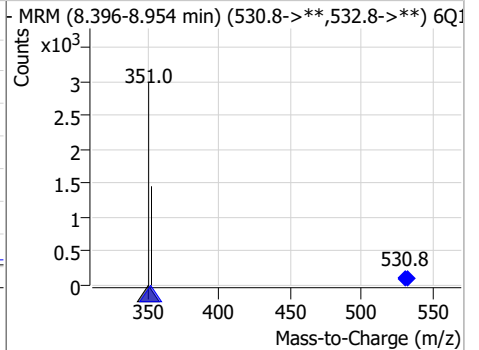
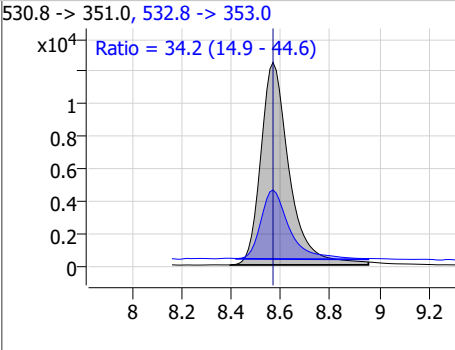
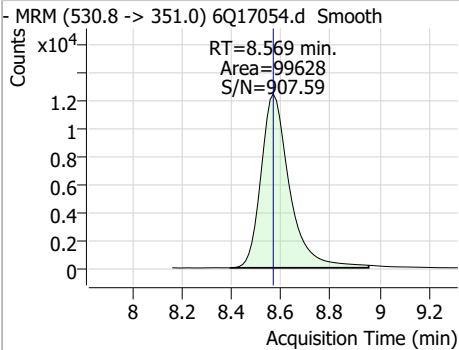
7

Perfluorinated Compounds by LC/MS/MS

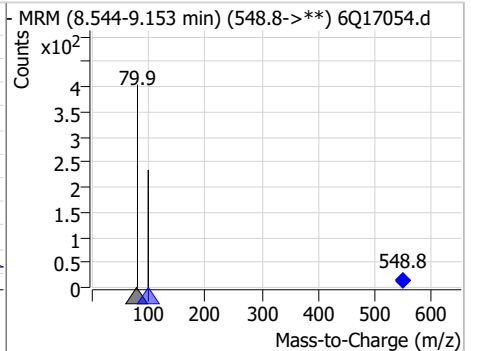
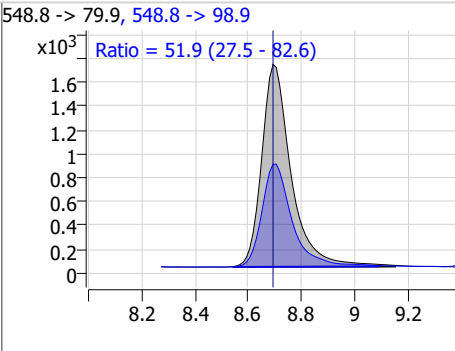
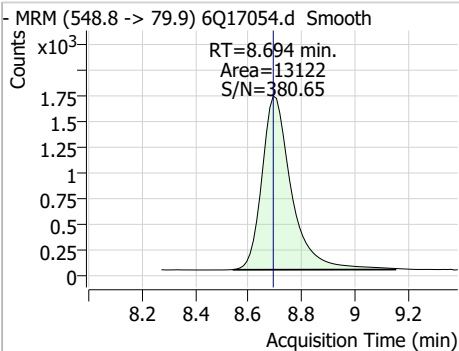
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.56	8.53	0.00	45629	563.1 -> 269.1	16.7	8.7	26.1



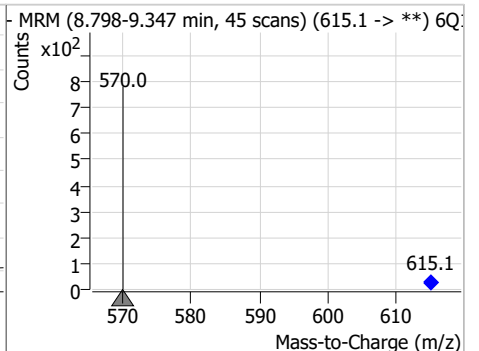
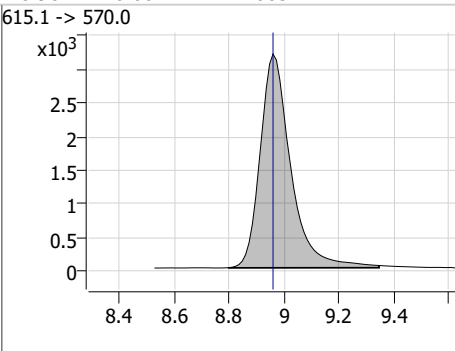
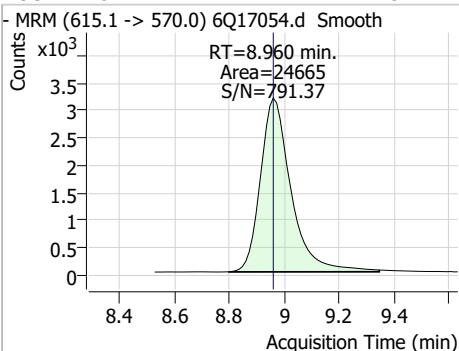
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.33	8.57	0.00	99628	532.8 -> 353.0	34.2	14.9	44.6



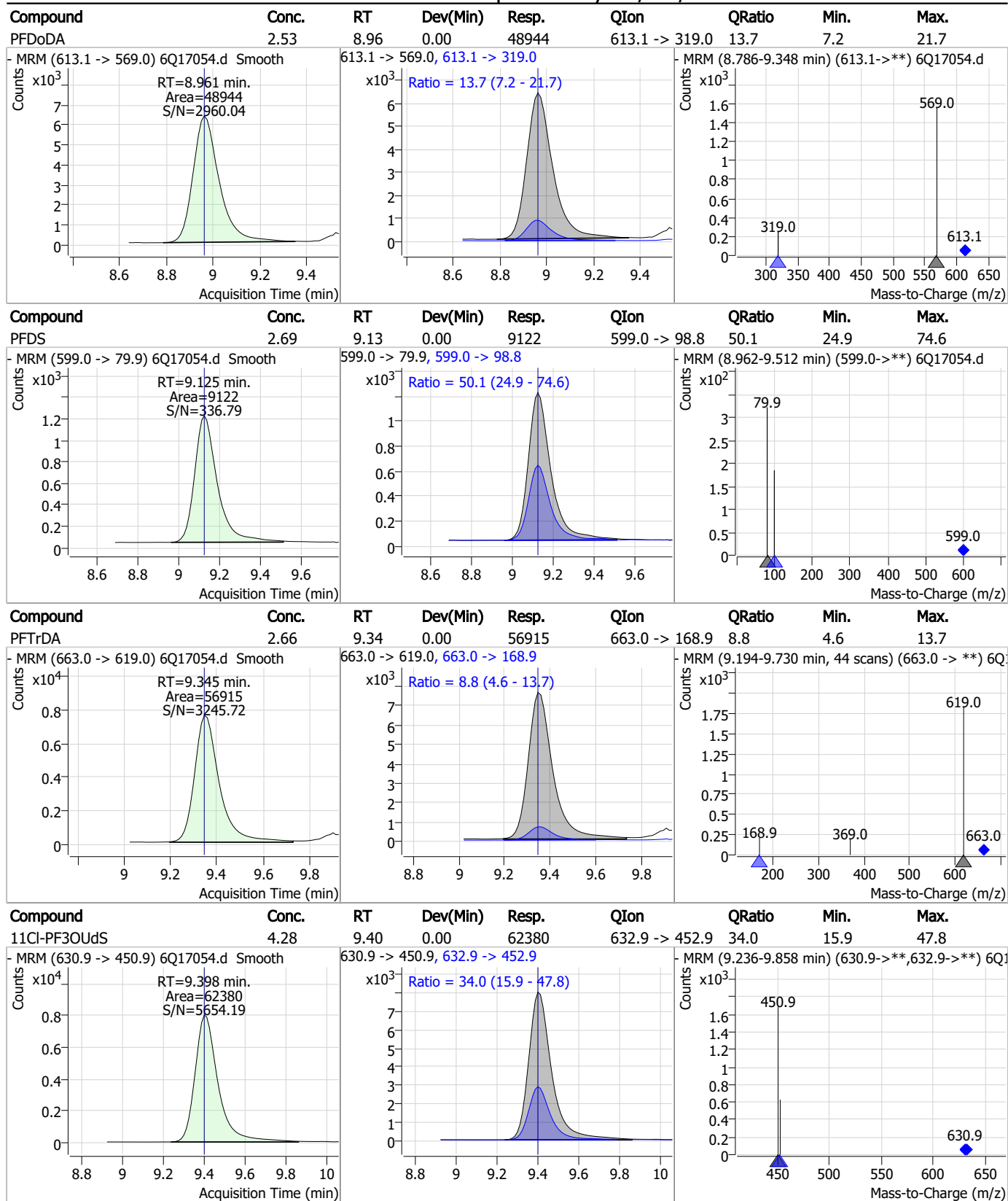
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.56	8.69	0.00	13122	548.8 -> 98.9	51.9	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.23	8.96	0.00	24665	615.1 -> 570.0			



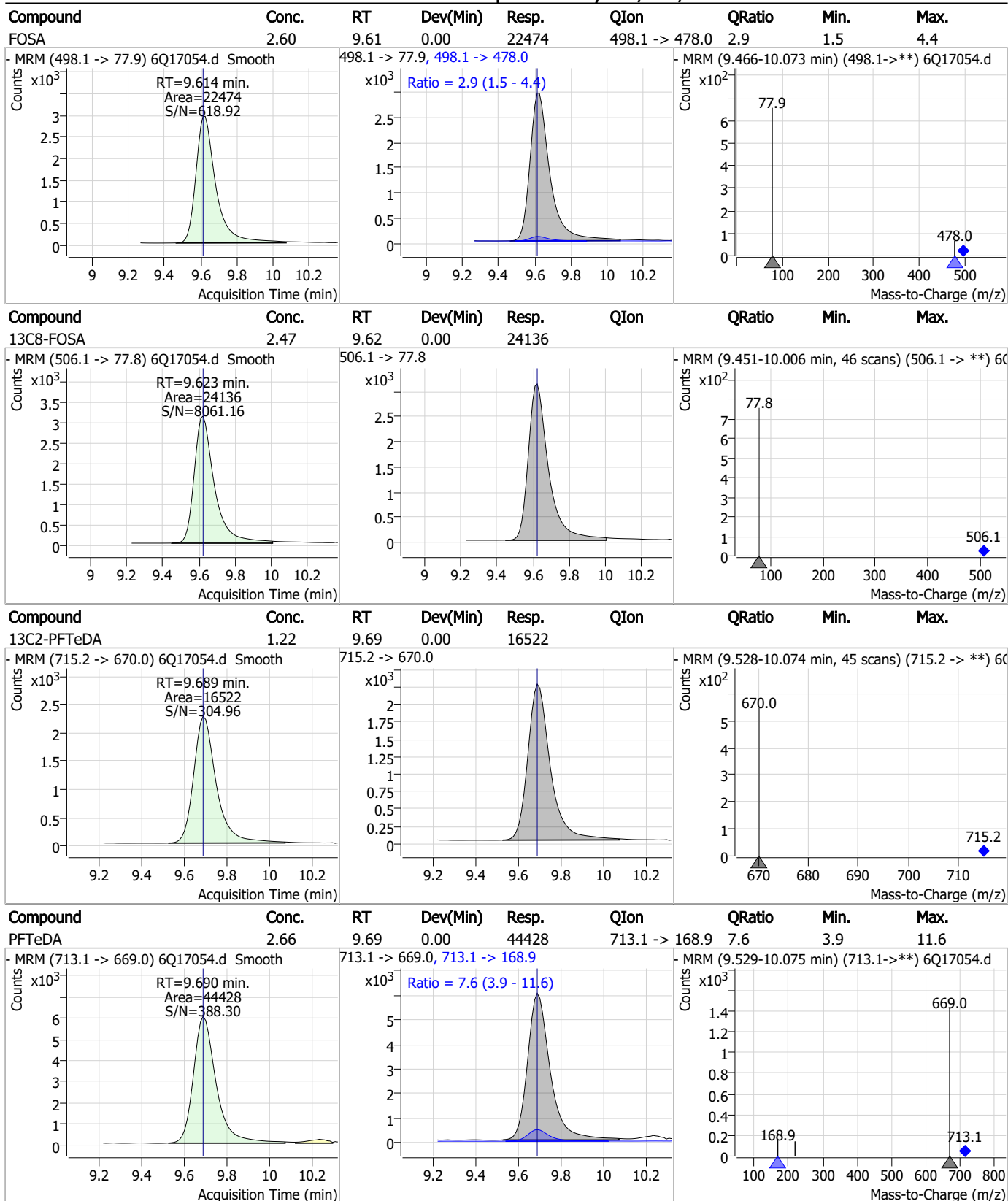
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

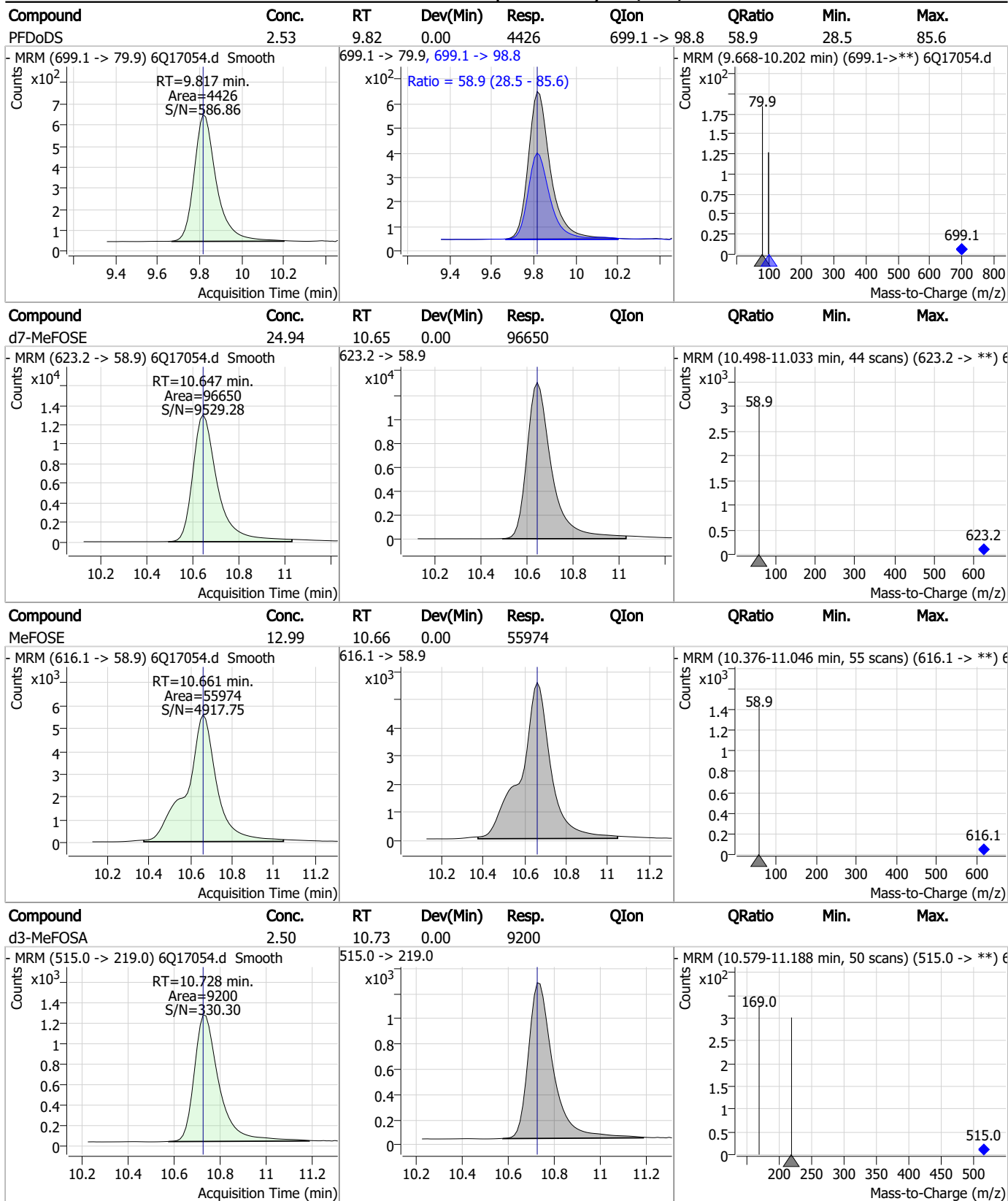
Perfluorinated Compounds by LC/MS/MS



7.7.19

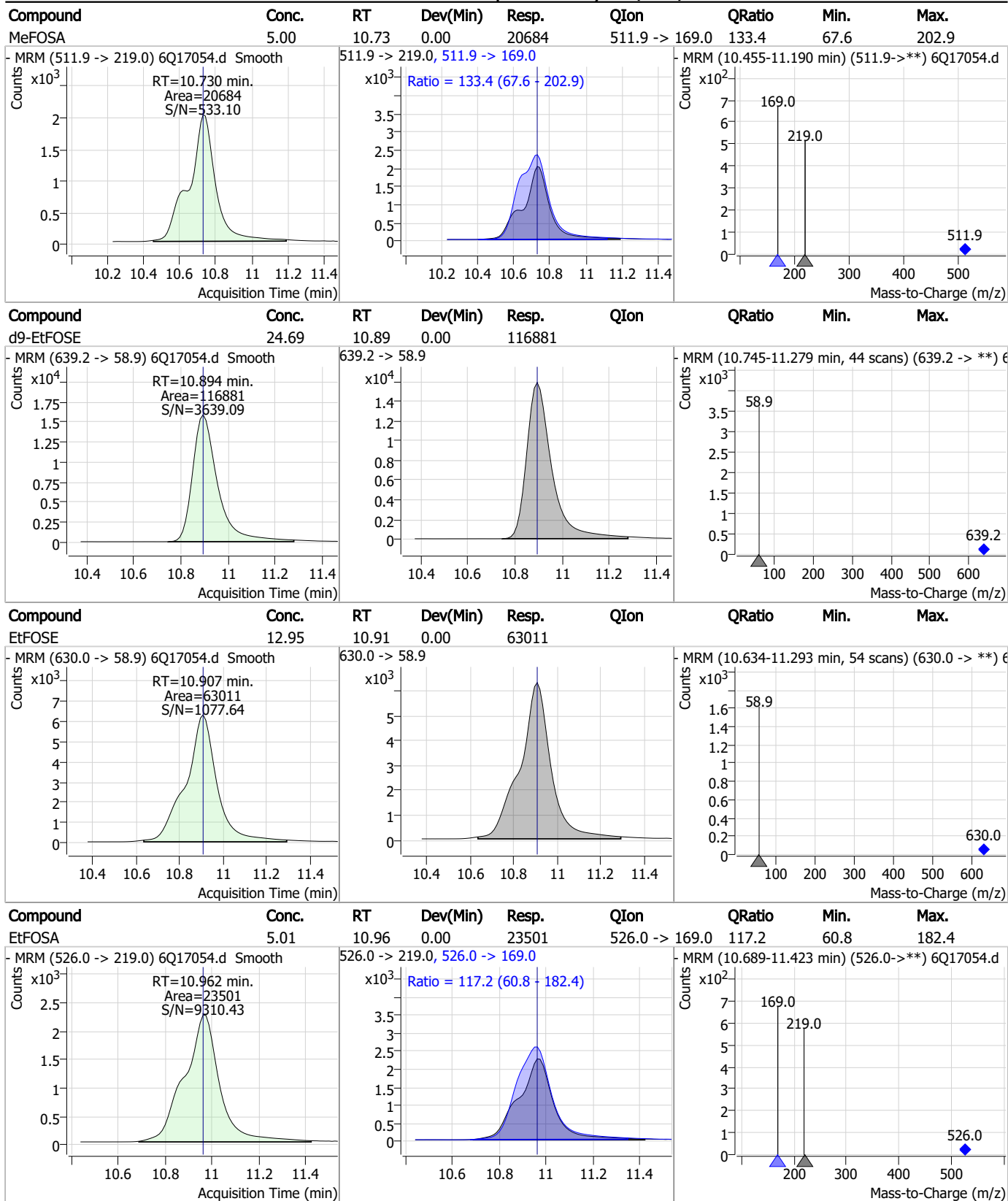


Perfluorinated Compounds by LC/MS/MS



7.7.19

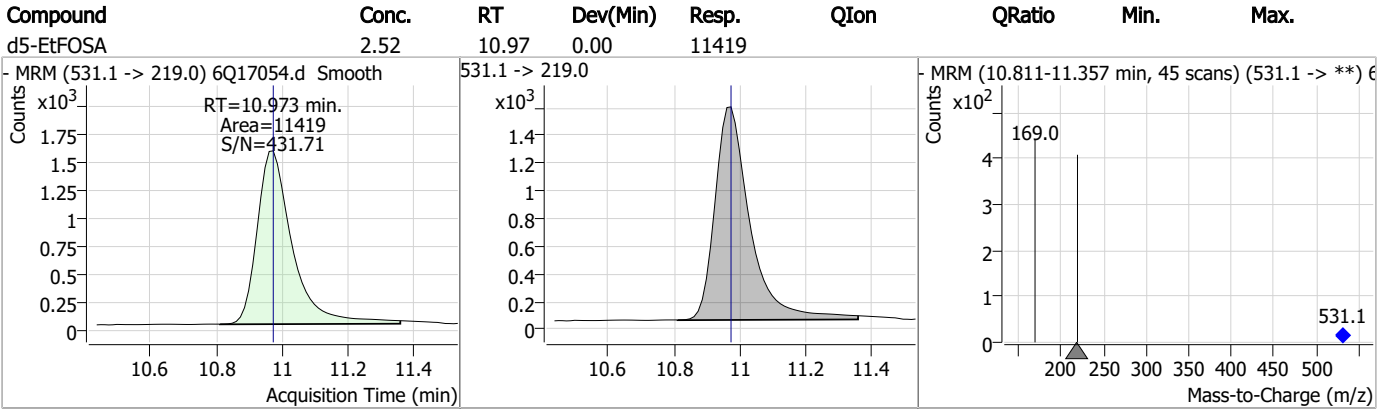
Perfluorinated Compounds by LC/MS/MS



7.7.19

7

Perfluorinated Compounds by LC/MS/MS



7.7.19

7

Manual Integration Approval Summary

Sample Number: S6Q258-ICC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17054.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:33 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorooctanoic acid	335-67-1		7.06	Poor instrument integration
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.19.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17055.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 1:48:12 PM
 Sample Name : ic258-5
 Vial : P1-A6
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	187834	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	67131	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	72319	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	62097	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	87518	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	29148	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20839	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27037	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	27295	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17658	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25318	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23288	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12418	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11986	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2278	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2696	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2934	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22528	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	41999	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19246	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	103618	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	124290	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11811	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9531	2.50 µg/L	0.012
13C4-PFOS	8.227	502.8 -> 79.9	15496	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	82123	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9625	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	89654	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	26055	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28436	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59569	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2278	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2696	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2934	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.6%		
13C2-PFDoDA	8.960	615.1 -> 570.0	27295	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17658	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.398	302.1 -> 79.9	23288	2.57 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12418	2.42 µg/L	0.000

7.7.20
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 = 96.9%	
13C4-PFBA	2.910	216.8 -> 171.9	187834	9.90 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.0%	
13C4-PFHpA	6.419	367.1 -> 322.0	62097	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C5-PFHxA	5.468	318.0 -> 273.0	72319	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	67131	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.9%	
13C6-PFDA	8.076	519.1 -> 474.1	20839	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	27037	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
13C8-FOSA	9.623	506.1 -> 77.8	25318	2.47 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C8-PFOA	7.062	421.1 -> 376.0	87518	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOS	8.226	507.1 -> 79.9	11986	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C9-PFNA	7.594	472.1 -> 427.0	29148	1.34 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 107.6%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22528	4.88 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.6%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	41999	9.96 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.6%	
d3-MeFOSA	10.741	515.0 -> 219.0	9531	2.46 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.5%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19246	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.3%	
d7-MeFOSE	10.647	623.2 -> 58.9	103618	25.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	124290	25.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
d5-EtFOSA	10.973	531.1 -> 219.0	11811	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	62523	18.14 µg/L	98
		327.1 -> 80.9	24036		
6:2FTS	6.839	427.1 -> 407.0	59295	19.99 µg/L	94
		427.1 -> 80.9	19117		
8:2FTS	7.865	527.1 -> 507.0	32560	18.65 µg/L	100
		527.1 -> 80.8	13155		
EtFOSAA	8.331	584.2 -> 419.1	15971	4.88 µg/L	98
		584.2 -> 526.0	8649		
FOSA	9.614	498.1 -> 77.9	44148	4.87 µg/L	99
		498.1 -> 478.0	1356		
MeFOSAA	8.136	570.1 -> 419.0	21727	5.14 µg/L	93
		570.1 -> 483.0	3790		
PFBA	2.906	212.8 -> 168.9	125595	19.94 µg/L	100
PFBS	5.400	298.7 -> 79.9	47488	4.54 µg/L	94
		298.7 -> 98.8	17896		
PFDA	8.077	512.9 -> 469.0	126808	5.60 µg/L	98
		512.9 -> 219.0	20008		
PFDoDA	8.961	613.1 -> 569.0	105006	4.91 µg/L	98
		613.1 -> 319.0	14169		
PFDS	9.125	599.0 -> 79.9	17788	4.66 µg/L	98

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	8603			
PFHpA	6.420	363.1 -> 319.0	149038	4.86	µg/L	96
		363.1 -> 169.0	24368			
PFHpS	7.734	449.0 -> 79.9	28974	4.46	µg/L	94
		449.0 -> 98.9	13472			
PFHxA	5.470	313.0 -> 269.0	135832	4.75	µg/L	100
		313.0 -> 118.9	6251			
PFHxS	7.180	398.7 -> 79.9	33010	4.88	µg/L	m 94
		398.7 -> 98.9	15590			
PFNA	7.595	463.0 -> 419.0	98776	4.90	µg/L	95
		463.0 -> 219.0	18524			
PFNS	8.694	548.8 -> 79.9	25522	4.41	µg/L	98
		548.8 -> 98.9	13722			
PFOA	7.063	413.0 -> 369.0	199591	4.79	µg/L	97
		413.0 -> 169.0	32419			
PFOS	8.228	498.9 -> 79.9	23540	4.07	µg/L	m 91
		498.9 -> 98.8	13635			
PFPeA	4.273	263.0 -> 219.0	181387	9.92	µg/L	100
PFPeS	6.472	349.1 -> 79.9	35261	4.99	µg/L	96
		349.1 -> 98.9	16209			
PFTeDA	9.690	713.1 -> 669.0	88197	4.94	µg/L	99
		713.1 -> 168.9	6619			
PFTrDA	9.345	663.0 -> 619.0	112010	4.73	µg/L	99
		663.0 -> 168.9	10737			
PFUnDA	8.531	563.1 -> 519.0	95301	5.08	µg/L	95
		563.1 -> 269.1	14657			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	131944	9.15	µg/L	100
		632.9 -> 452.9	41738			
9Cl-PF3ONS	8.569	530.8 -> 351.0	205740	9.03	µg/L	94
		532.8 -> 353.0	67919			
ADONA	6.681	376.9 -> 250.9	565822	8.92	µg/L	94
		376.9 -> 84.8	164194			
HFPO-DA	5.846	284.9 -> 168.9	40734	10.24	µg/L	97
		284.9 -> 184.9	5195			
3:3FTCA	3.784	241.0 -> 177.0	27887	24.39	µg/L	98
		241.0 -> 117.0	3443			
5:3FTCA	6.160	341.0 -> 237.1	553365	119.58	µg/L	87
		341.0 -> 217.0	428689			
7:3FTCA	7.573	441.0 -> 316.9	263175	125.19	µg/L	99
		441.0 -> 336.9	564965			
EtFOSA	10.975	526.0 -> 219.0	48759	10.04	µg/L	98
		526.0 -> 169.0	60417			
EtFOSE	10.907	630.0 -> 58.9	126711	24.48	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	41390	9.65	µg/L	96
		511.9 -> 169.0	58201			
MeFOSE	10.661	616.1 -> 58.9	110770	23.97	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	9024	4.57	µg/L	98
		699.1 -> 98.8	5006			
NFDHA	5.350	295.0 -> 201.0	30939	9.98	µg/L	98
		295.0 -> 84.9	7843			
PFMBA	4.687	279.0 -> 85.1	120834	9.85	µg/L	100
PFMPA	3.438	229.0 -> 84.9	90216	9.86	µg/L	100
PFEESA	5.937	314.8 -> 134.9	310054	8.59	µg/L	100
		314.8 -> 82.9	11310			

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

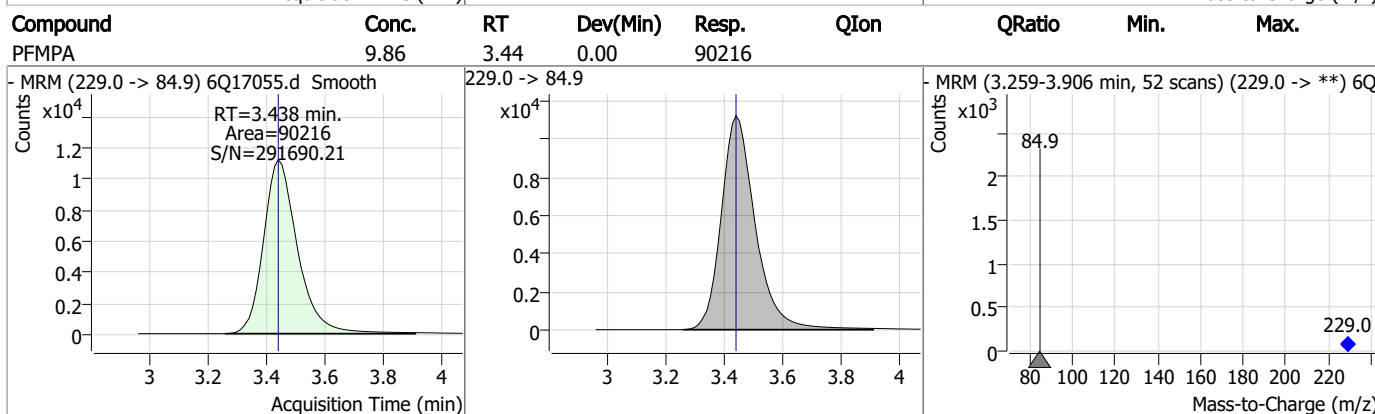
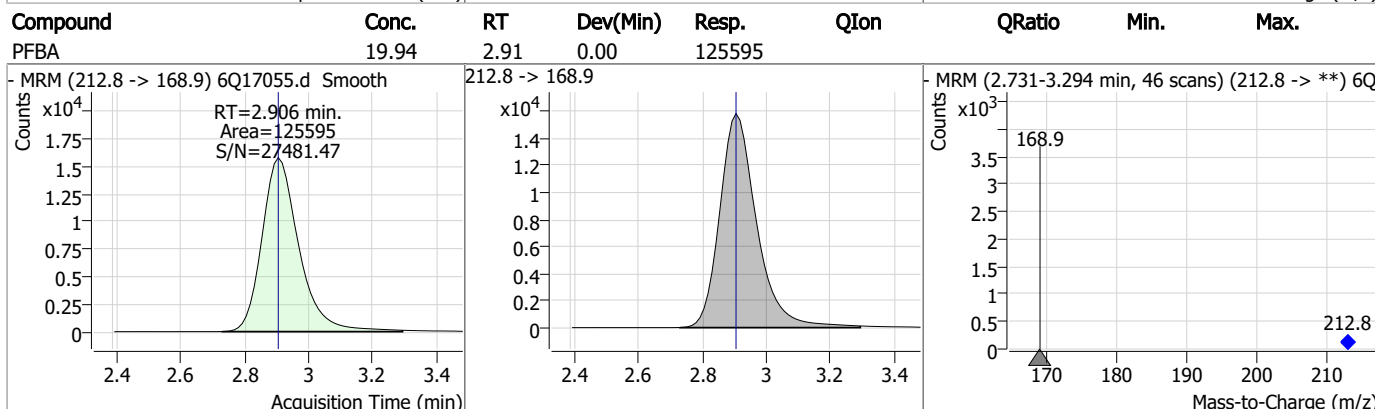
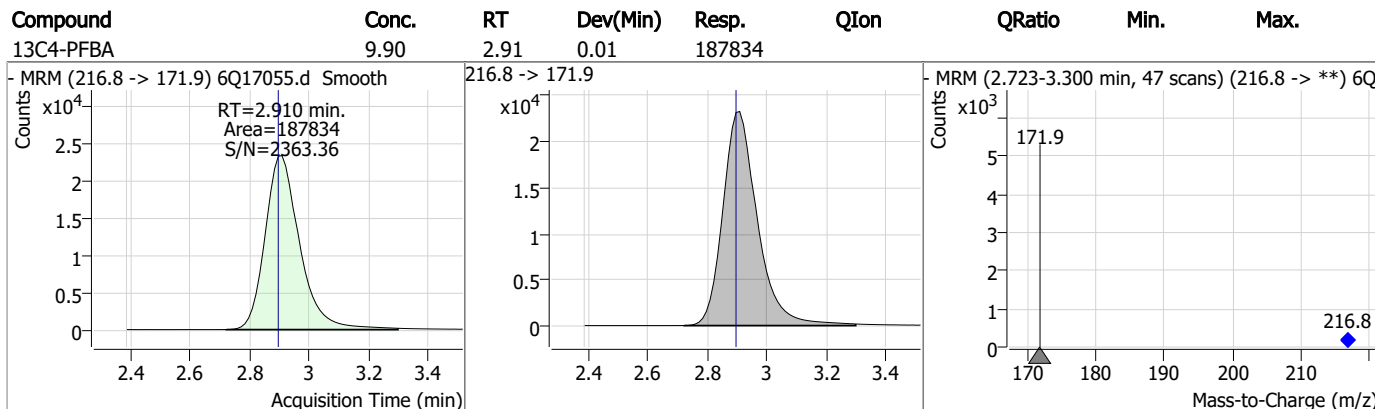
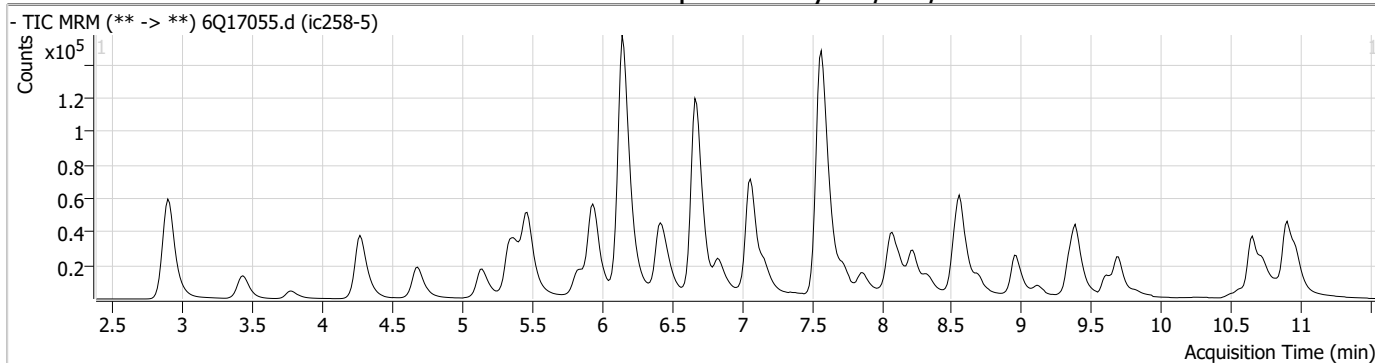
Perfluorinated Compounds by LC/MS/MS

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

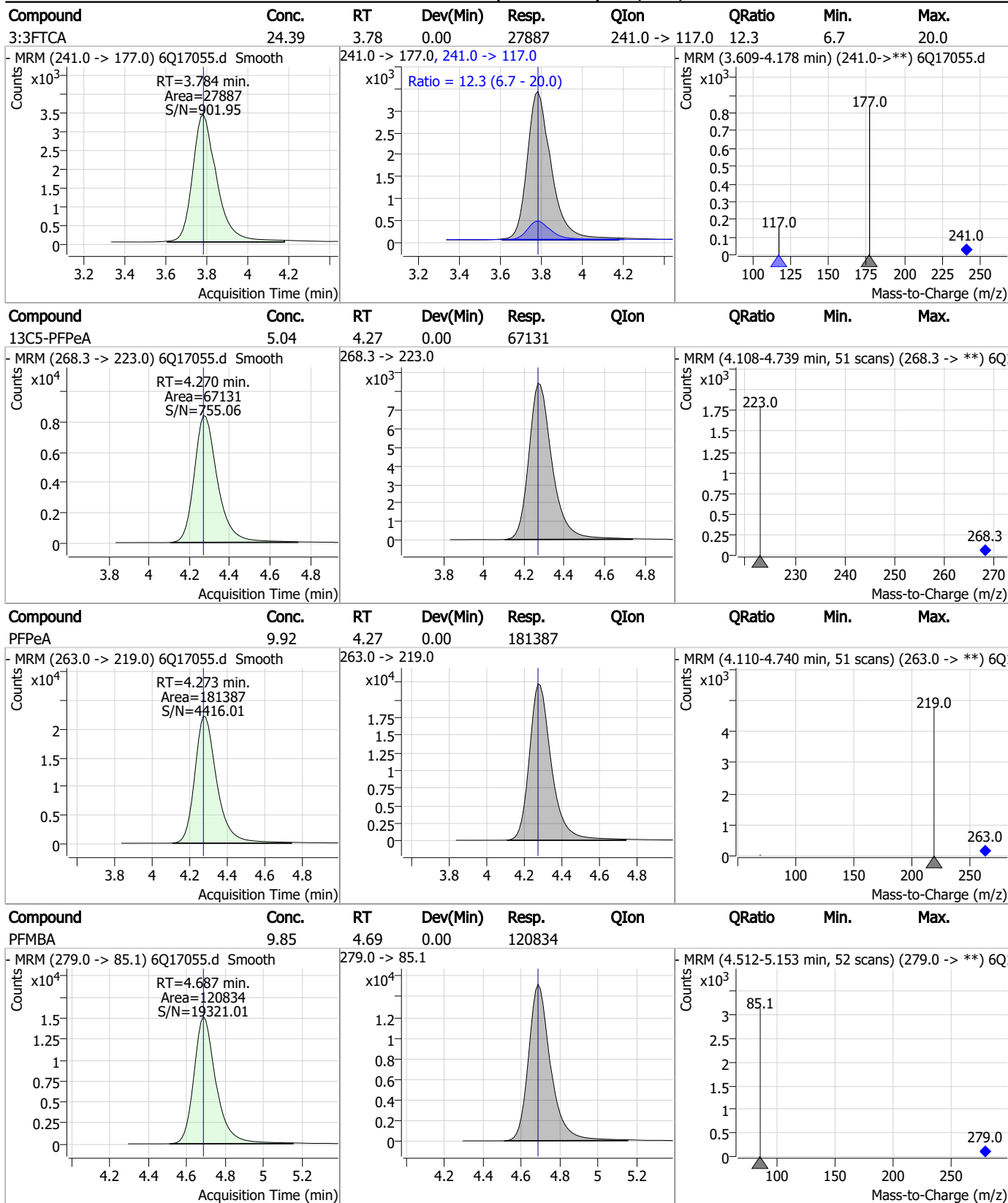
7.7.20

7

Perfluorinated Compounds by LC/MS/MS

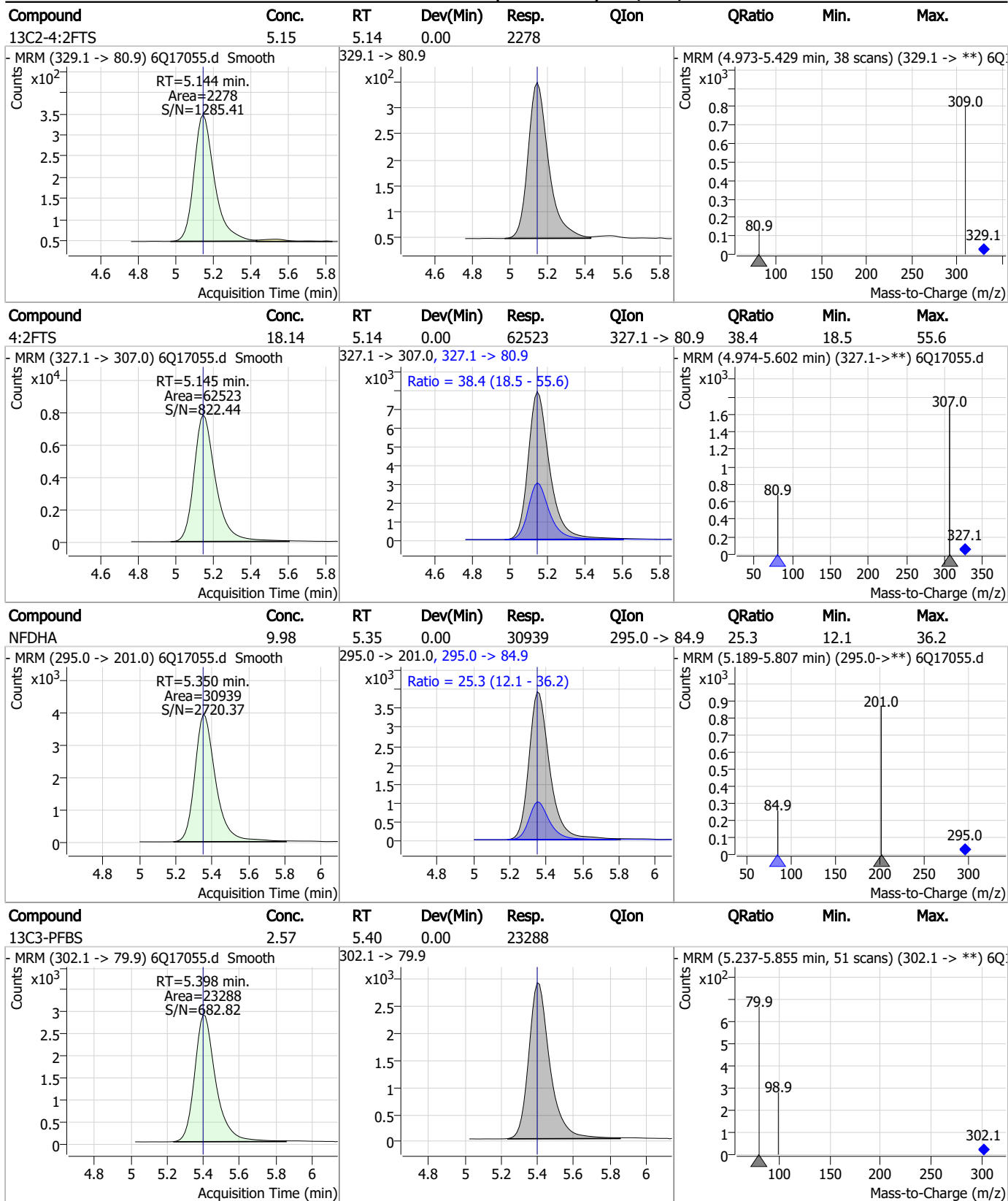


Perfluorinated Compounds by LC/MS/MS



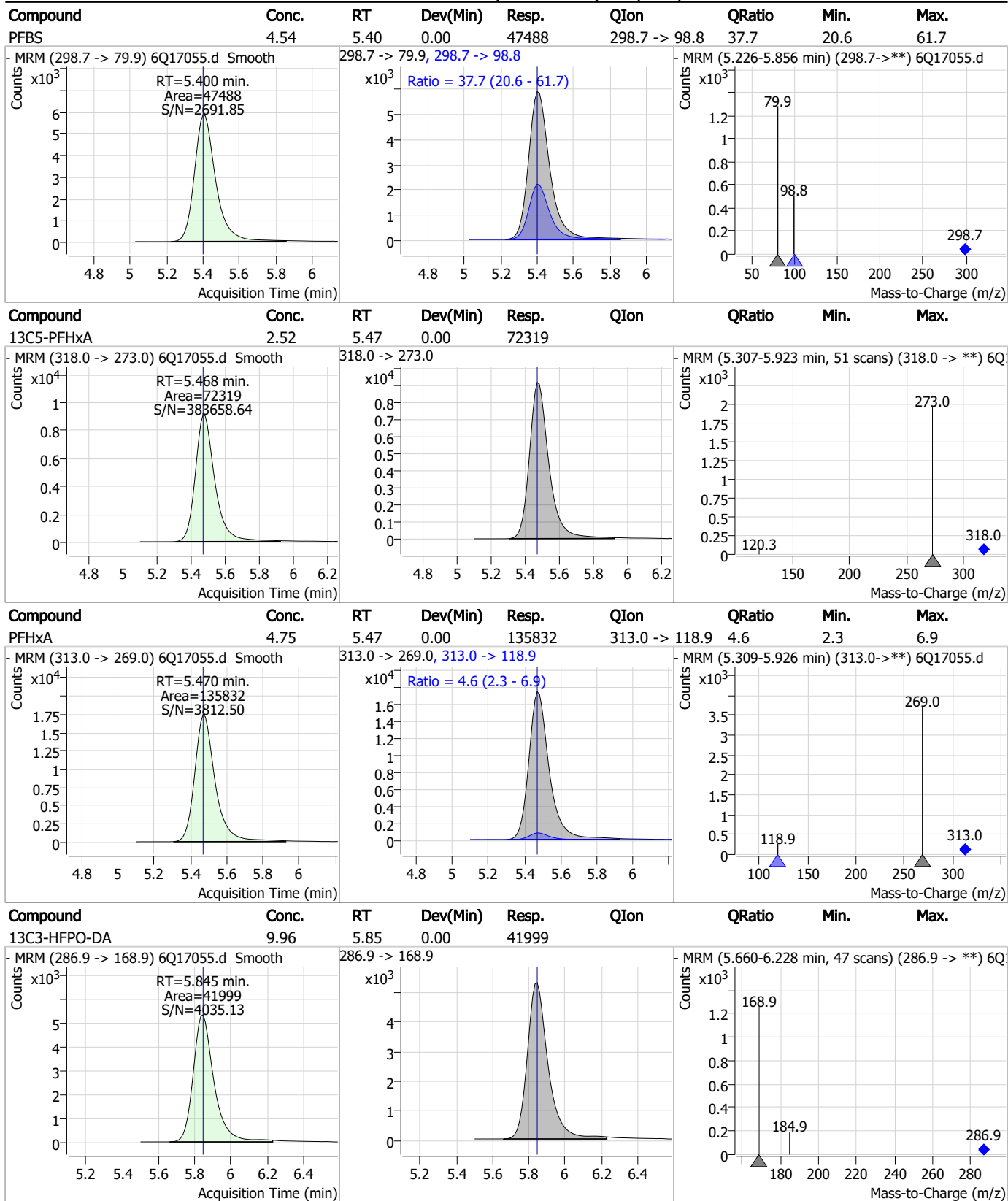
7.7.20
7

Perfluorinated Compounds by LC/MS/MS



7.7.20
7

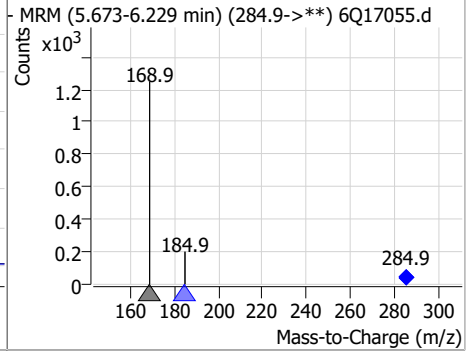
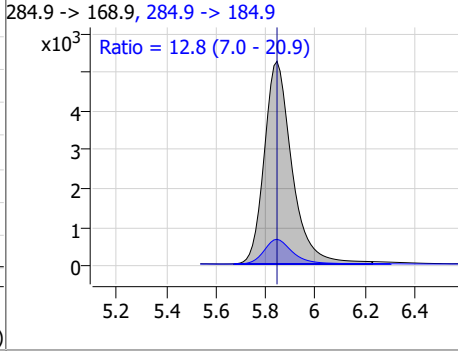
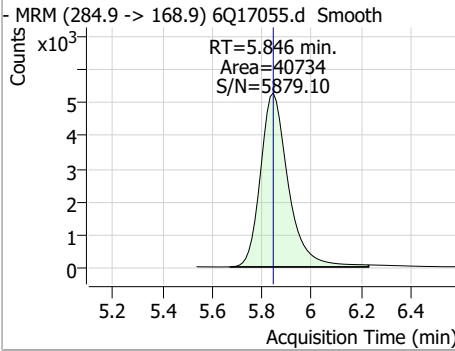
Perfluorinated Compounds by LC/MS/MS



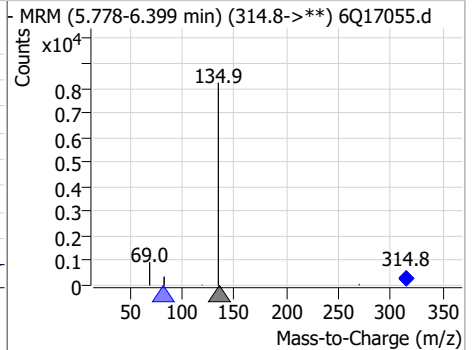
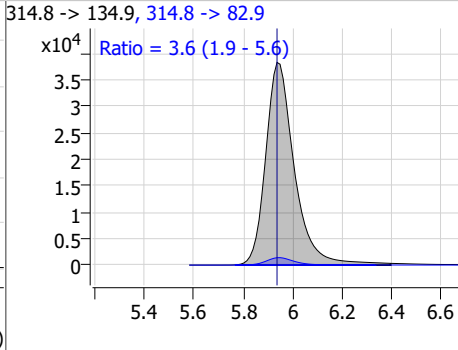
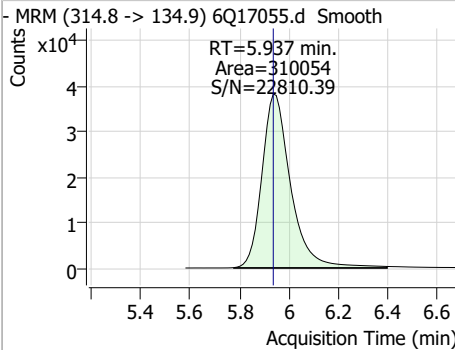
7.7.20
7

Perfluorinated Compounds by LC/MS/MS

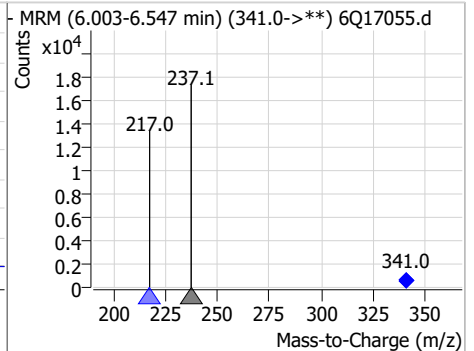
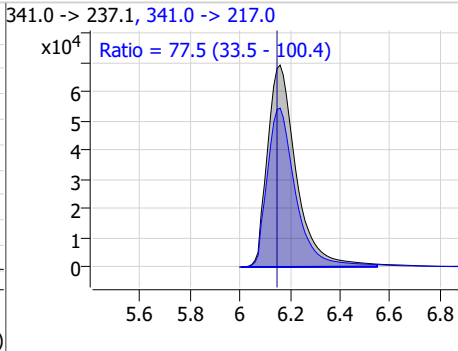
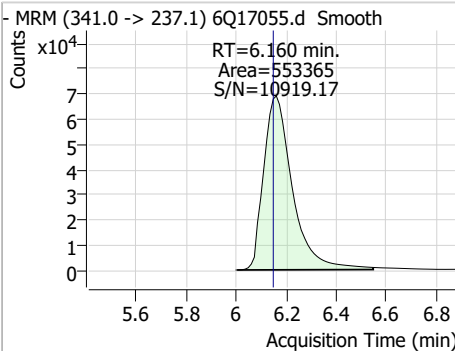
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	10.24	5.85	0.00	40734	284.9 -> 184.9	12.8	7.0	20.9



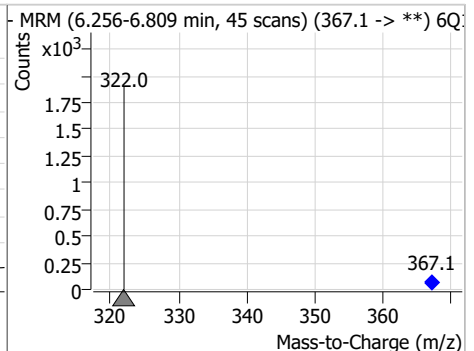
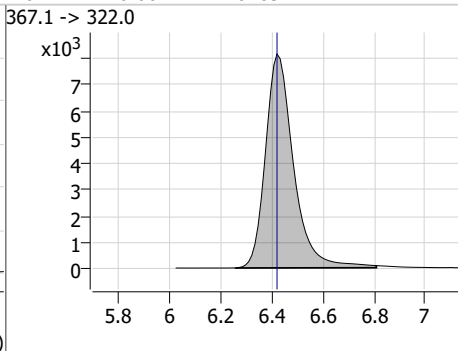
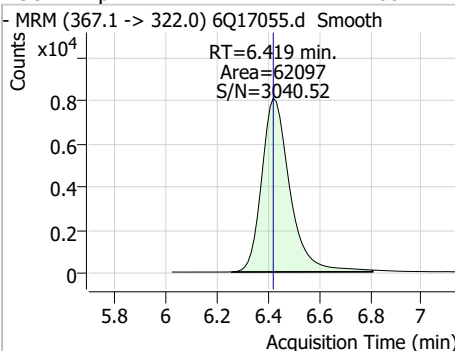
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	8.59	5.94	0.00	310054	314.8 -> 82.9	3.6	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	119.58	6.16	0.01	553365	341.0 -> 217.0	77.5	33.5	100.4

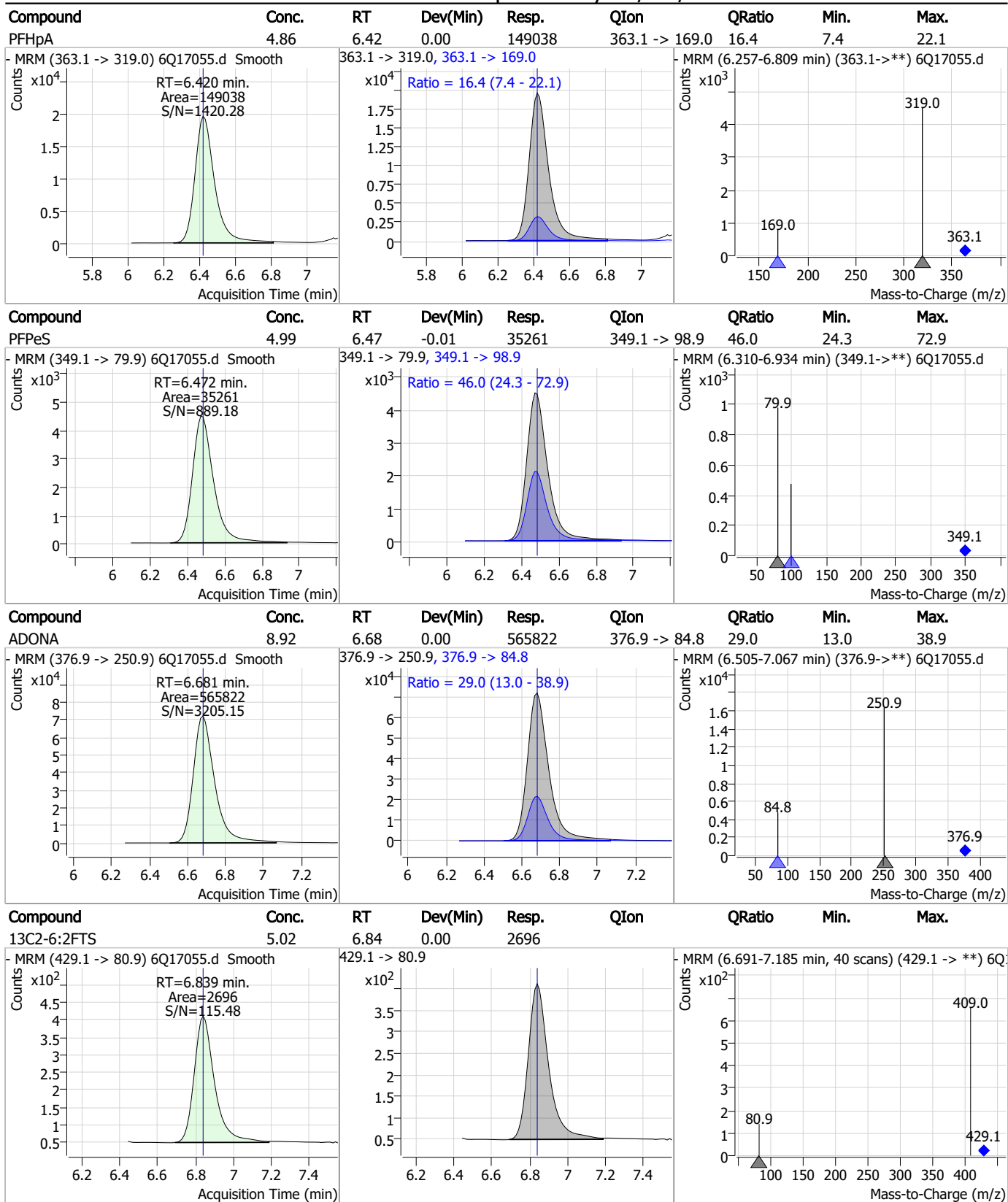


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.55	6.42	0.00	62097	367.1 -> 322.0			



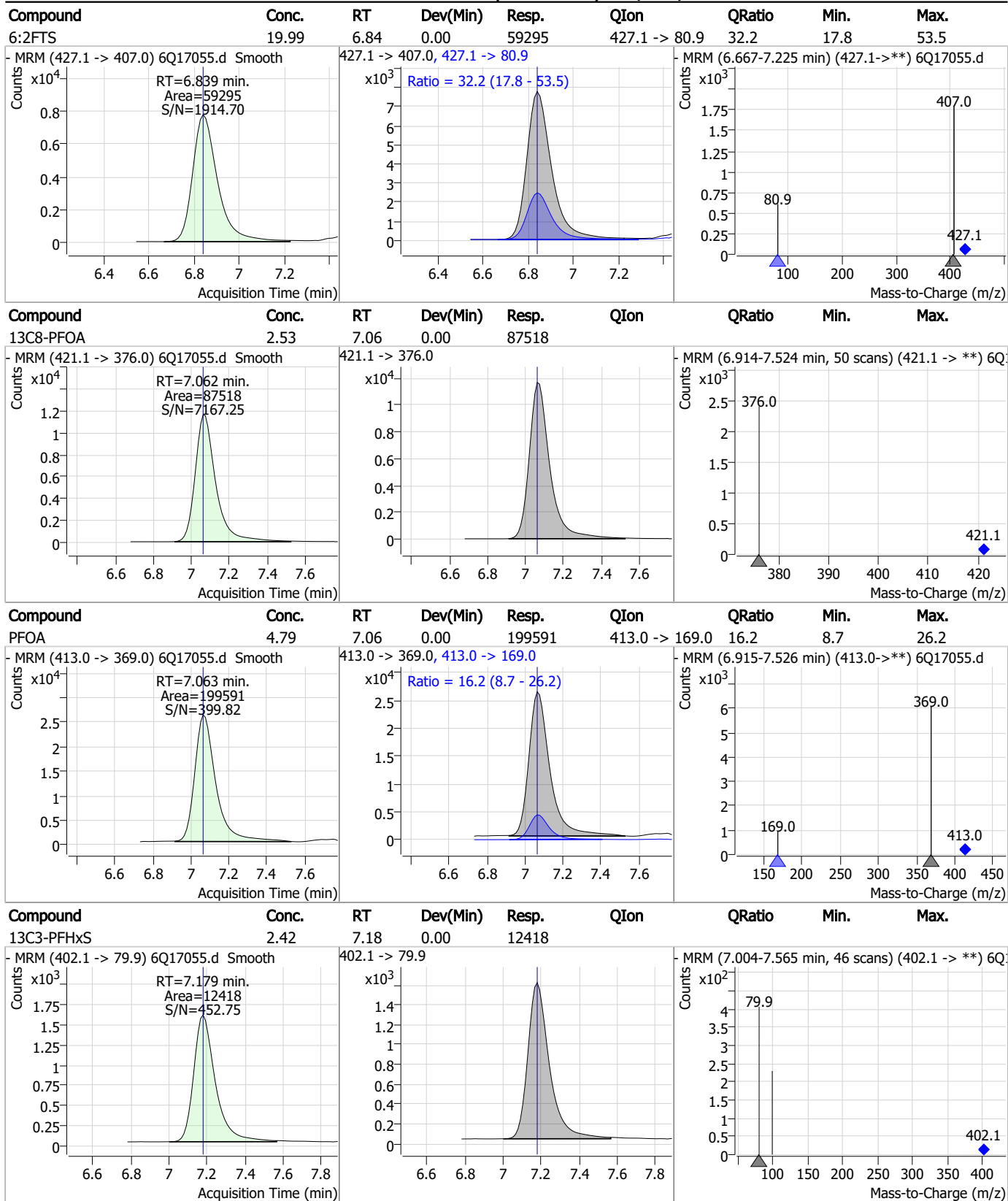
7.7.20 7

Perfluorinated Compounds by LC/MS/MS



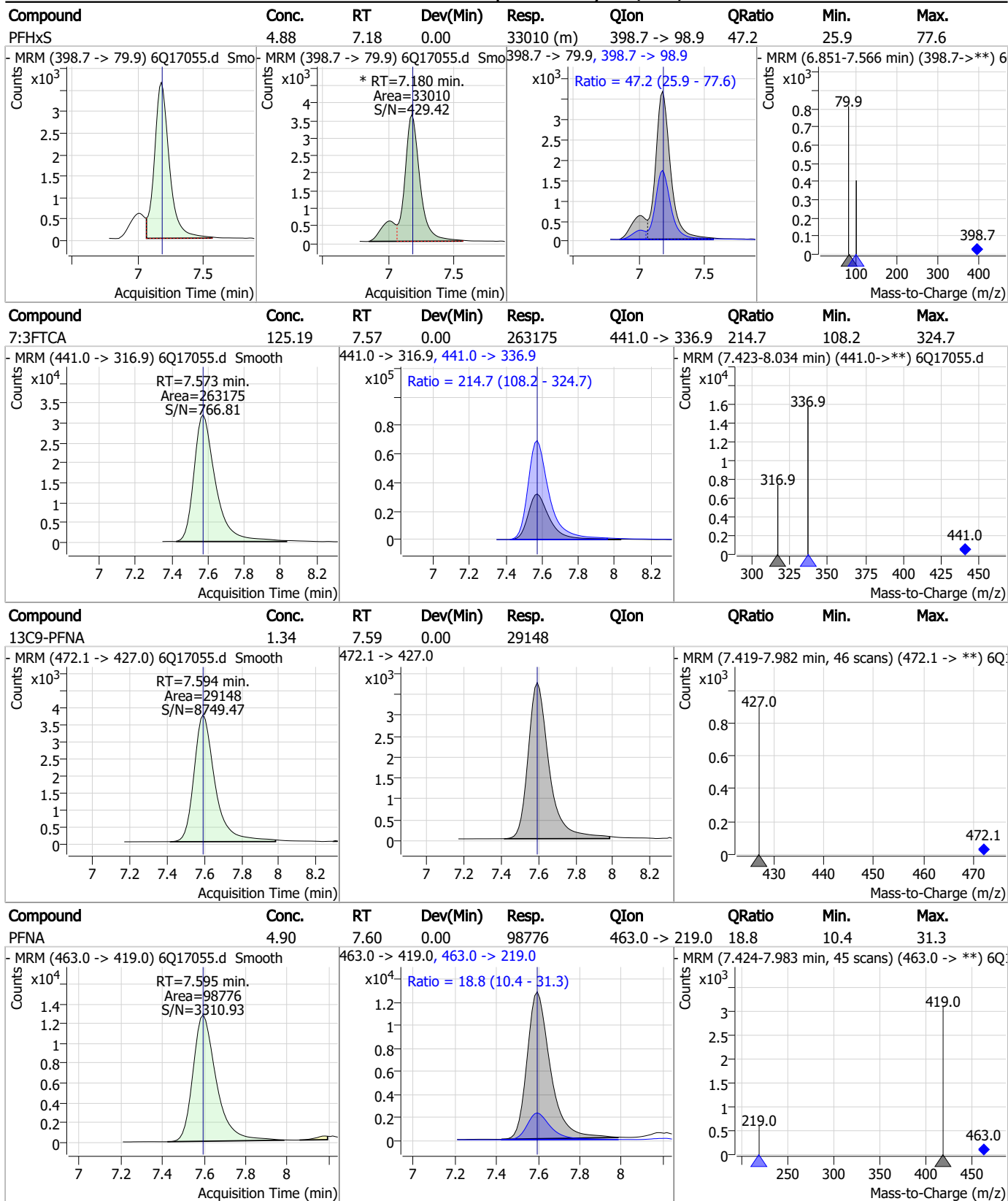
7.7.20 7

Perfluorinated Compounds by LC/MS/MS



7.7.20
7

Perfluorinated Compounds by LC/MS/MS



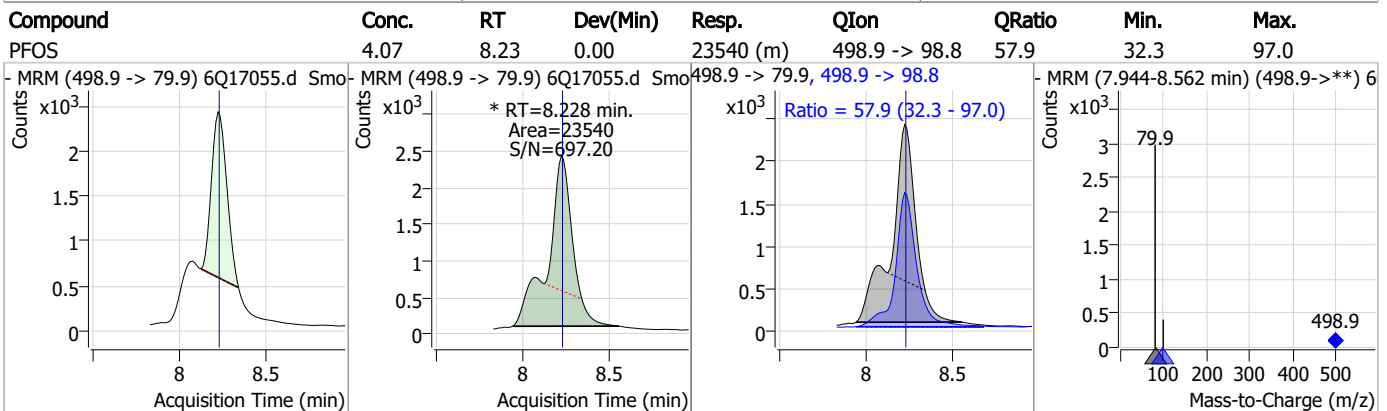
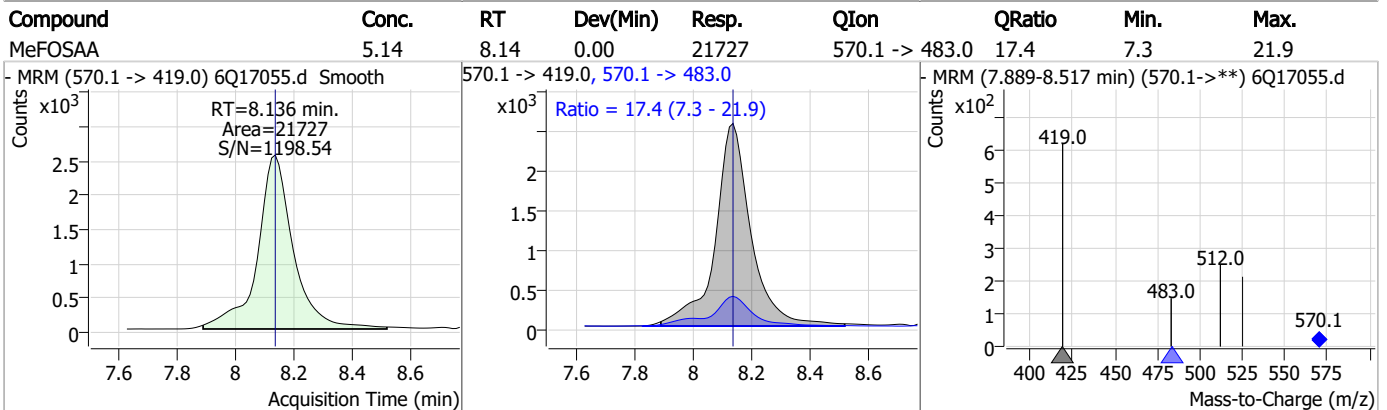
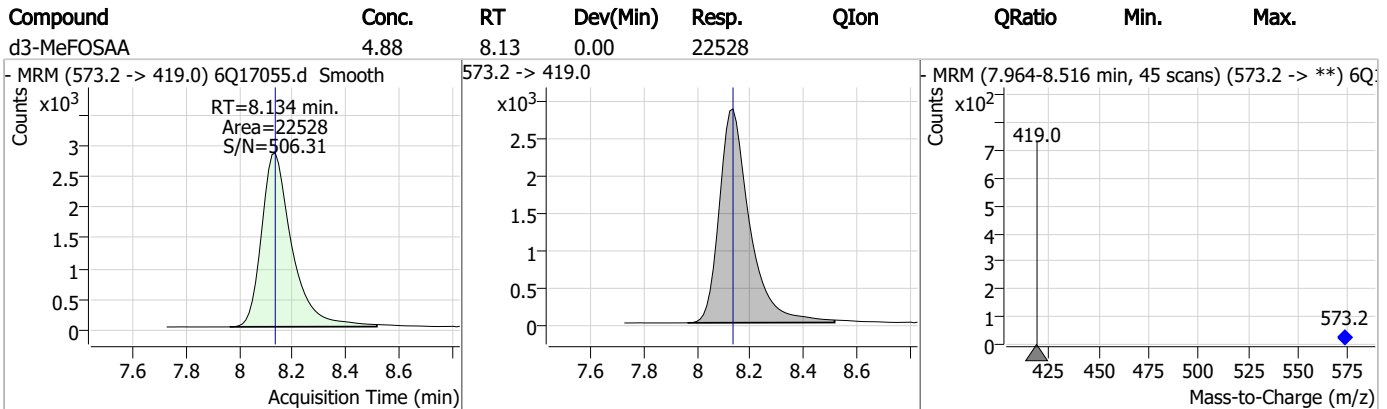
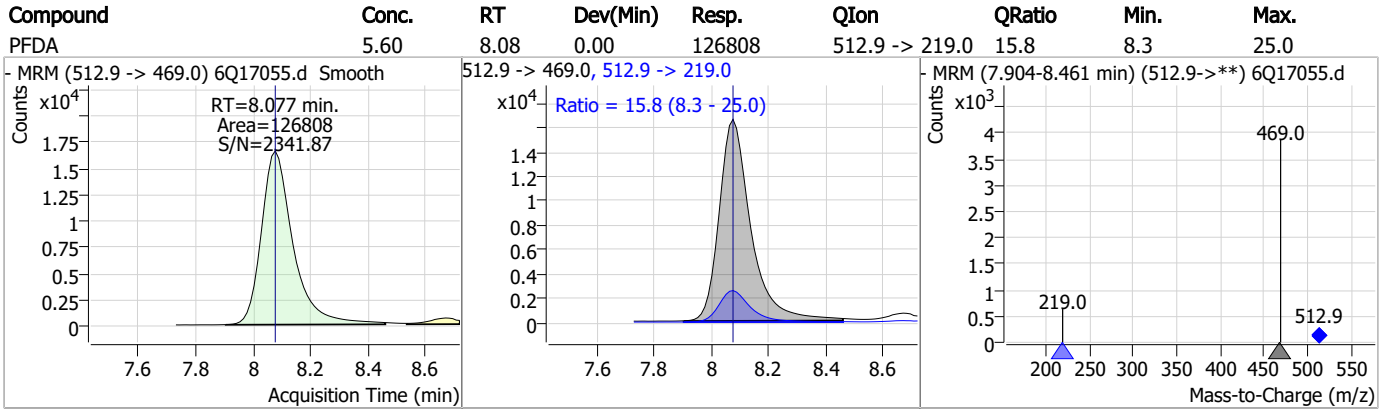
7.7.20
7

Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	4.46	7.73	0.00	28974	449.0 -> 98.9	46.5	25.4	76.1
13C2-8:2FTS	5.08	7.86	0.00	2934	529.1 -> 80.9			
8:2FTS	18.65	7.87	0.00	32560	527.1 -> 80.8	40.4	20.3	61.0
13C6-PFDA	1.21	8.08	0.00	20839	519.1 -> 474.1			

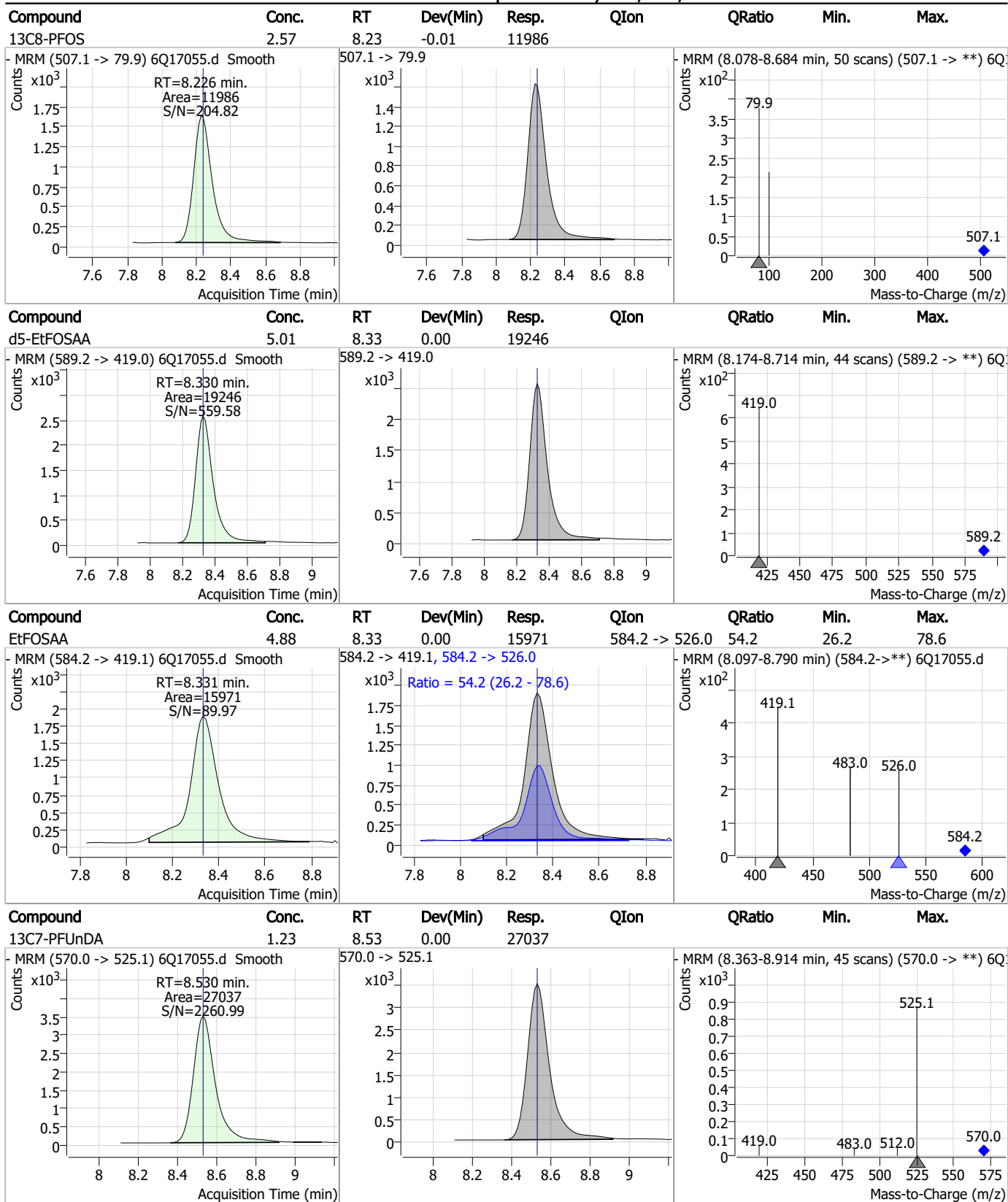
7.7.20 7

Perfluorinated Compounds by LC/MS/MS



7.7.20 7

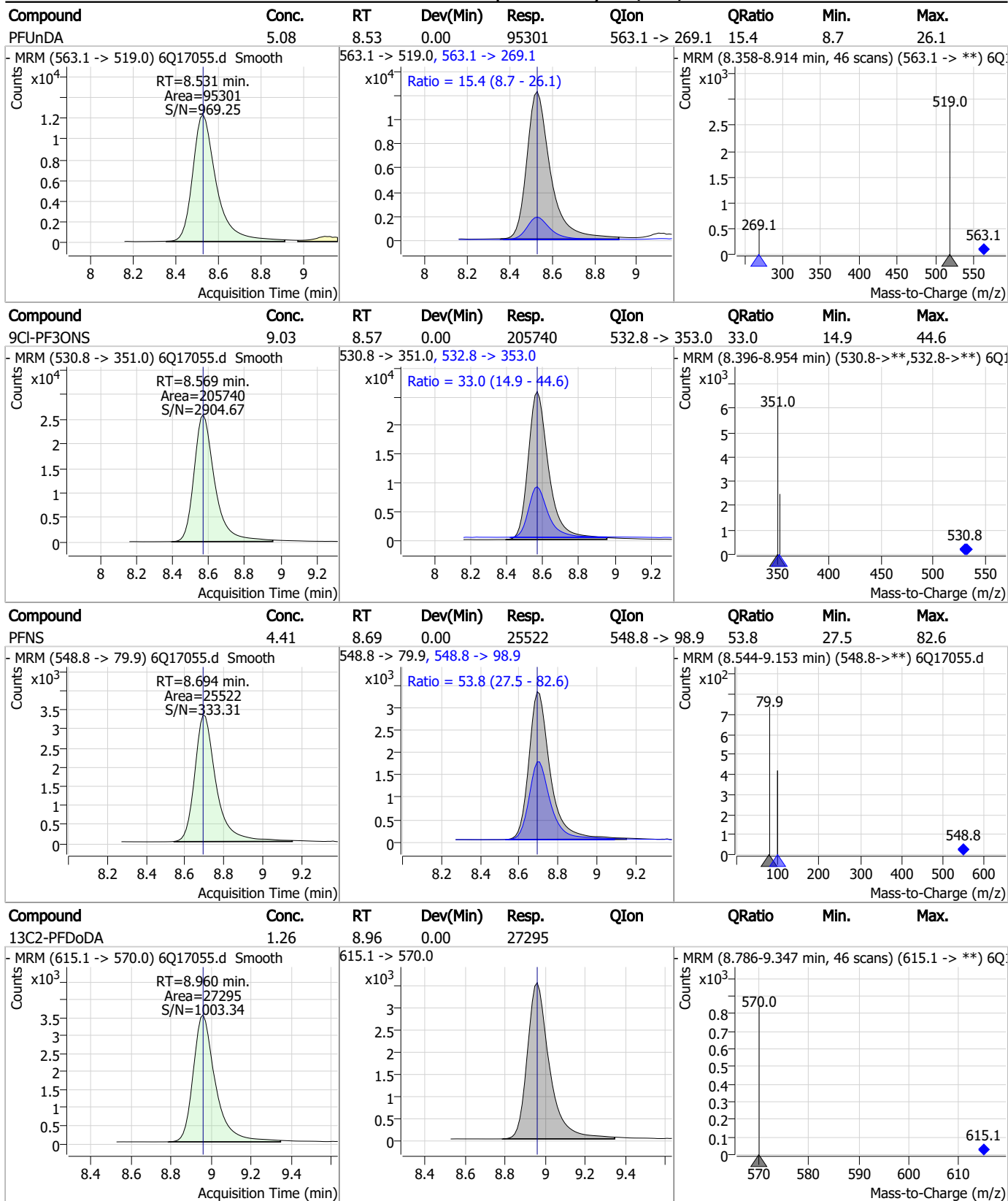
Perfluorinated Compounds by LC/MS/MS



7.7.20

7

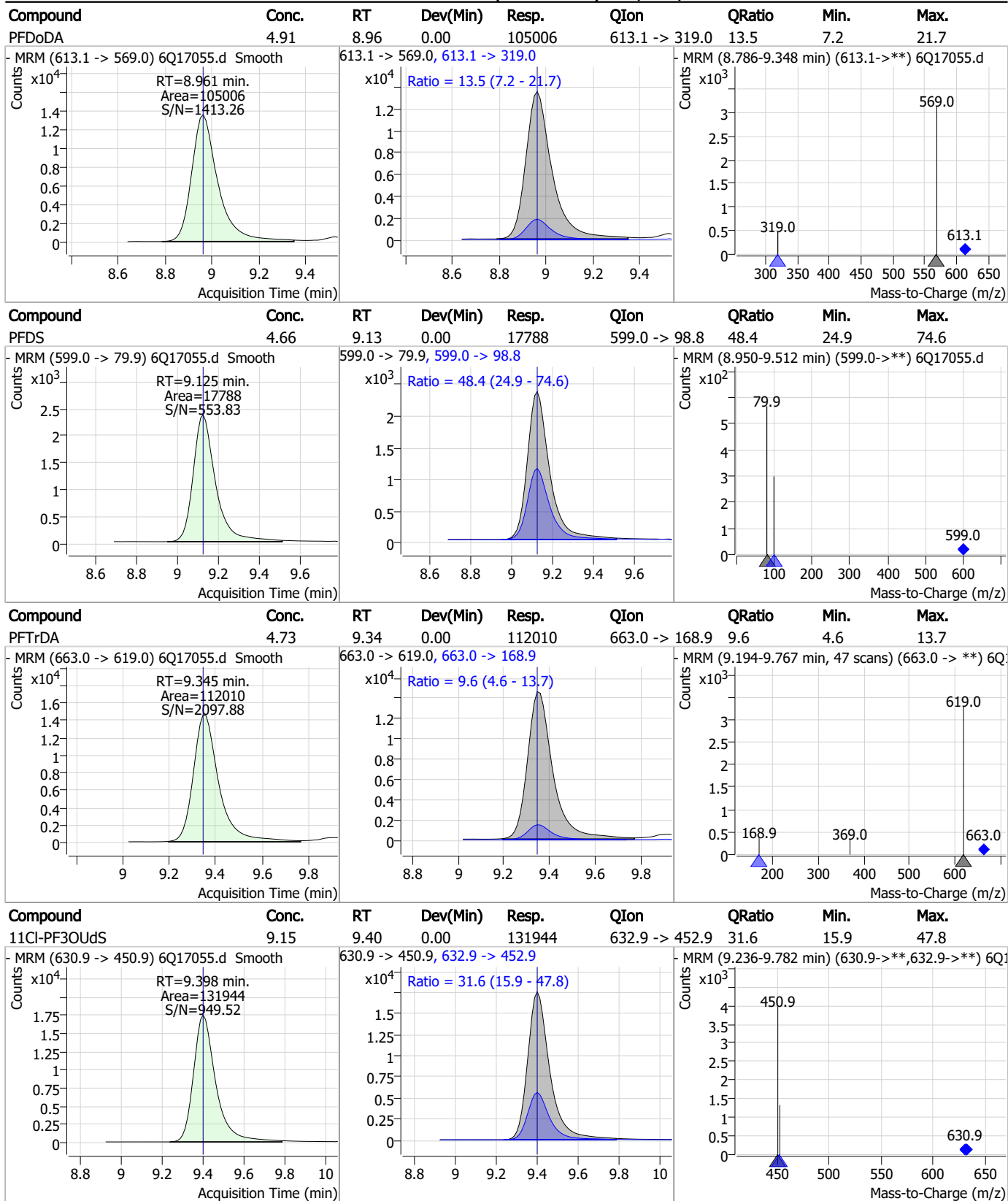
Perfluorinated Compounds by LC/MS/MS



7.7.20

7

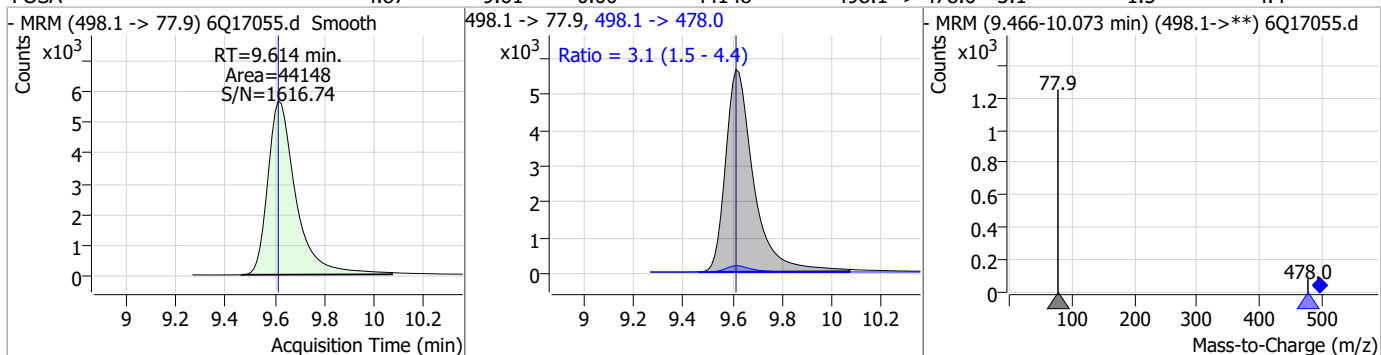
Perfluorinated Compounds by LC/MS/MS



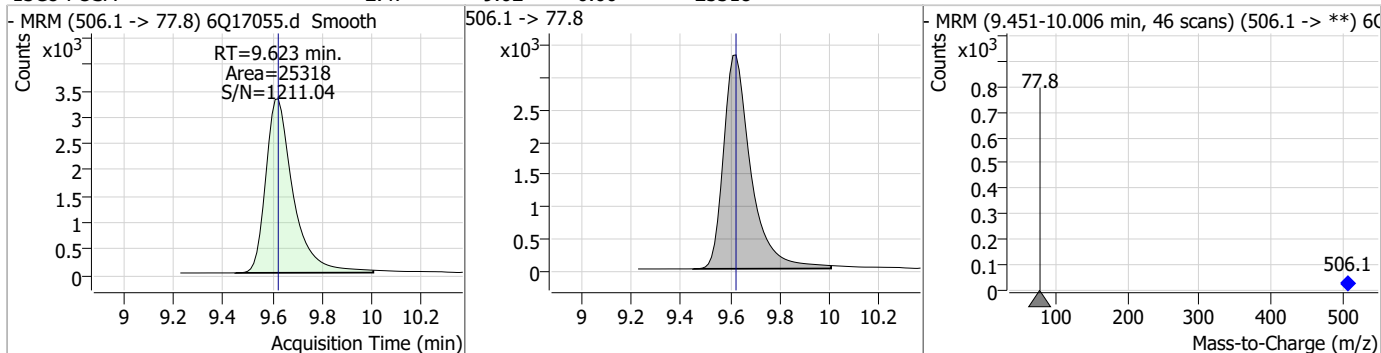
7.7.20
7

Perfluorinated Compounds by LC/MS/MS

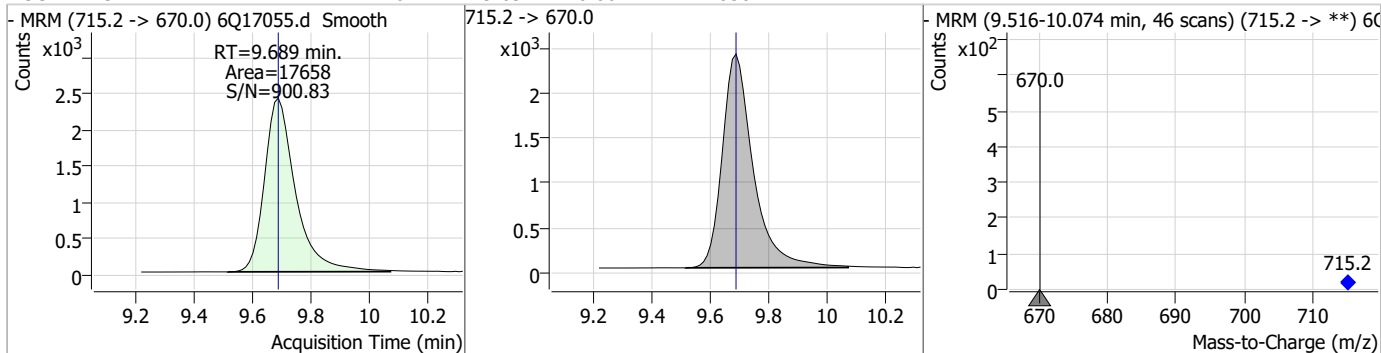
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	4.87	9.61	0.00	44148	498.1 -> 478.0	3.1	1.5	4.4



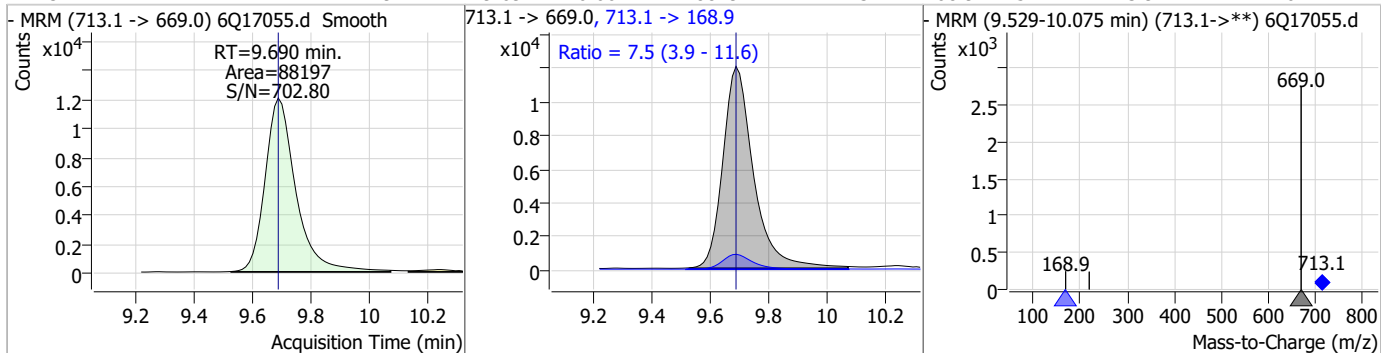
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.47	9.62	0.00	25318	506.1 -> 77.8			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.69	0.00	17658	715.2 -> 670.0			

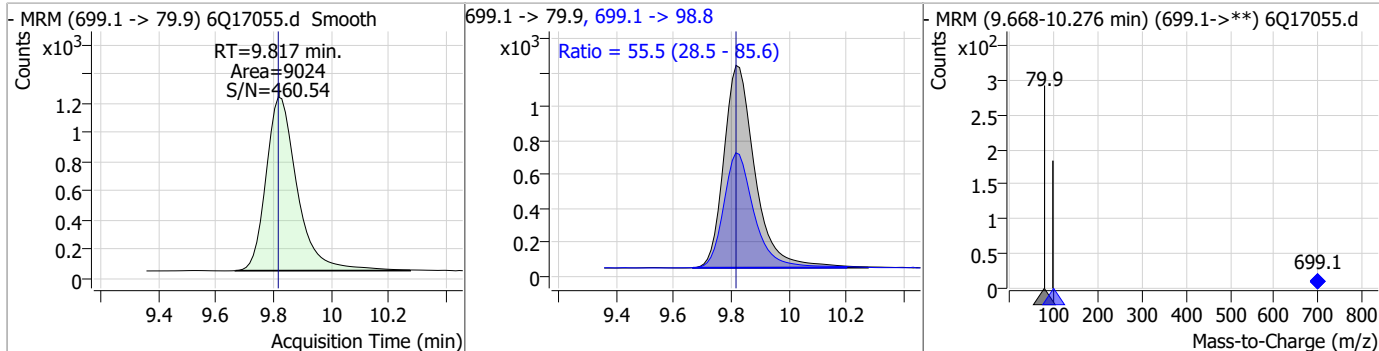


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	4.94	9.69	0.00	88197	713.1 -> 168.9	7.5	3.9	11.6

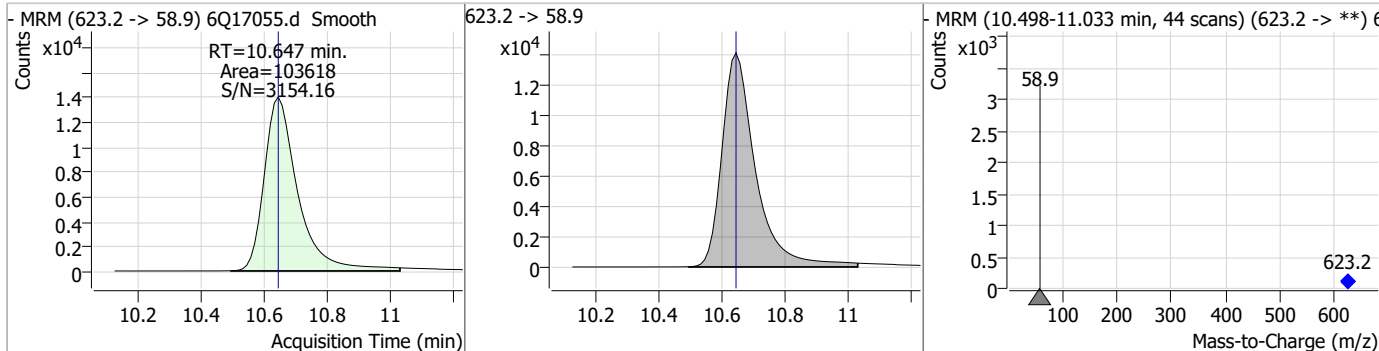


Perfluorinated Compounds by LC/MS/MS

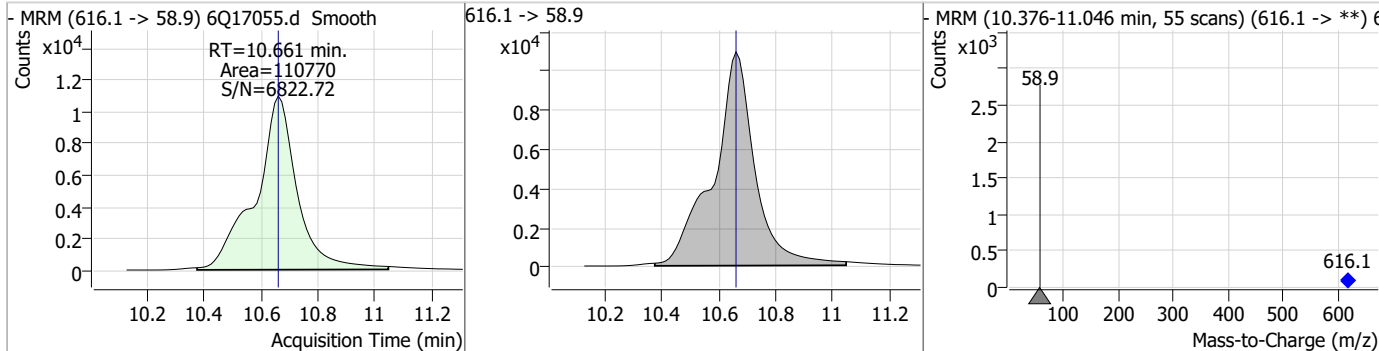
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	4.57	9.82	0.00	9024	699.1 -> 98.8	55.5	28.5	85.6



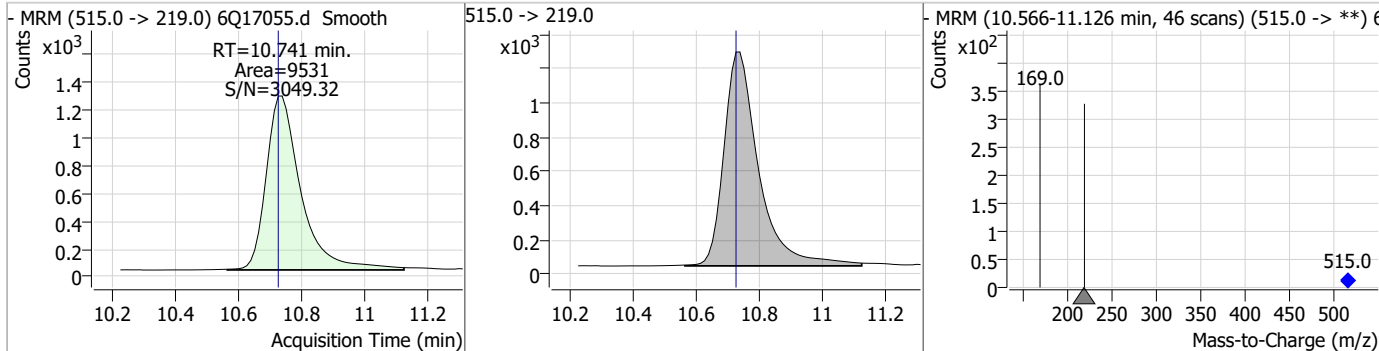
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	25.48	10.65	0.00	103618				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	23.97	10.66	0.00	110770				

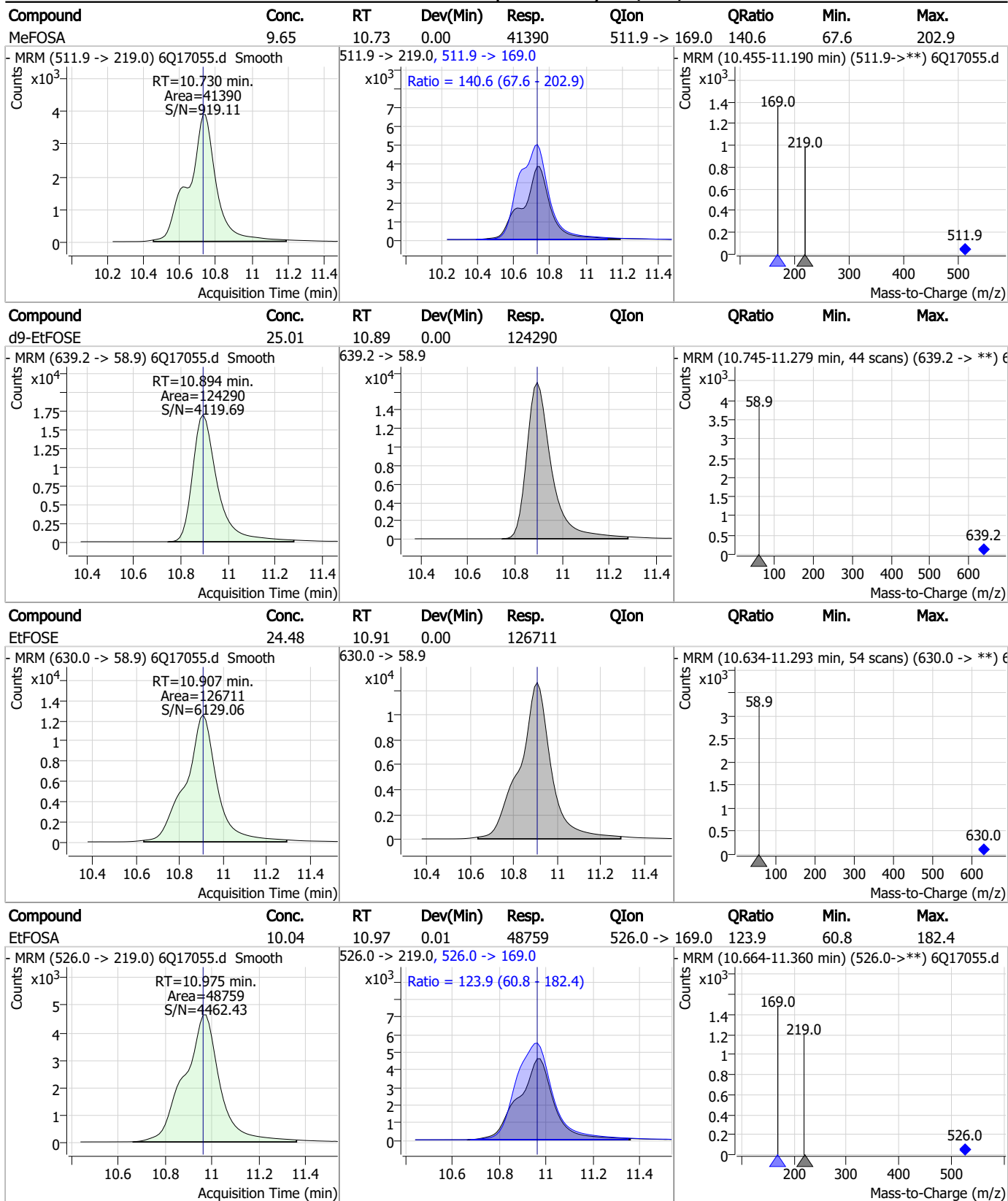


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.46	10.74	0.01	9531				



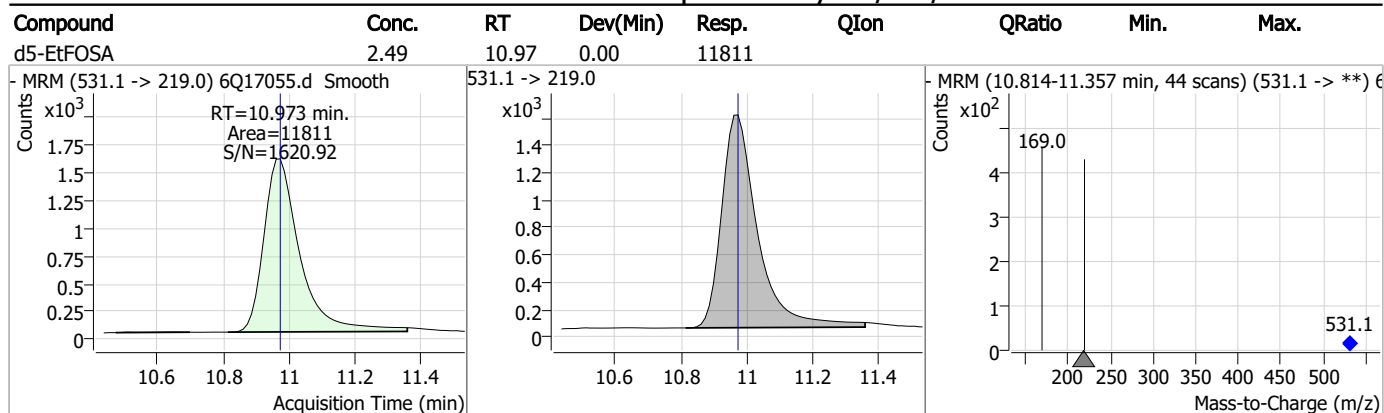
7.7.20 7

Perfluorinated Compounds by LC/MS/MS



7.7.20
7

Perfluorinated Compounds by LC/MS/MS



7.7.20
7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17055.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 13:48 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.20.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)

Norman Farmer
04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17056.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:02:44 PM
 Sample Name : ic258-6
 Vial : P1-A7
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	182918	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	65165	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	71261	2.50 µg/L	0.012
M4-PFHpA	6.419	367.1 -> 322.0	59927	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	81944	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26504	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20674	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	26640	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26473	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17149	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24452	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	23615	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13137	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11944	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2357	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2735	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	3025	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	21028	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40365	10.00 µg/L	0.000
M5-EtFOSAA	8.342	589.2 -> 419.0	19800	5.00 µg/L	0.012
M7-MeFOSE	10.647	623.2 -> 58.9	97809	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116301	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11391	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9081	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	14625	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	78714	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9890	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	89757	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25299	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28282	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	59565	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2357	5.18 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2735	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.1%		
13C2-8:2FTS	7.877	529.1 -> 80.9	3025	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.9%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26473	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17149	1.20 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 96.3%		
13C3-PFBS	5.398	302.1 -> 79.9	23615	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	13137	2.50 µg/L	0.000

7.7.21
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 = 99.8%	
13C4-PFBA	2.910	216.8 -> 171.9	182918	10.06 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
13C4-PFHpA	6.419	367.1 -> 322.0	59927	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C5-PFHxA	5.480	318.0 -> 273.0	71261	2.48 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C5-PFPeA	4.283	268.3 -> 223.0	65165	4.90 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 97.9%	
13C6-PFDA	8.076	519.1 -> 474.1	20674	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	26640	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-FOSA	9.623	506.1 -> 77.8	24452	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C8-PFOA	7.074	421.1 -> 376.0	81944	2.37 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.6%	
13C8-PFOS	8.239	507.1 -> 79.9	11944	2.71 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 108.4%	
13C9-PFNA	7.594	472.1 -> 427.0	26504	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.3%	
d3-MeFOSAA	8.134	573.2 -> 419.0	21028	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.5%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40365	9.57 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 95.7%	
d3-MeFOSA	10.728	515.0 -> 219.0	9081	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.4%	
d5-EtFOSAA	8.342	589.2 -> 419.0	19800	5.47 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 109.3%	
d7-MeFOSE	10.647	623.2 -> 58.9	97809	25.48 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 101.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	116301	24.80 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d5-EtFOSA	10.960	531.1 -> 219.0	11391	2.54 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.6%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	164201	46.05 µg/L	99
		327.1 -> 80.9	61547		
6:2FTS	6.839	427.1 -> 407.0	150100	49.89 µg/L	95
		427.1 -> 80.9	48901		
8:2FTS	7.865	527.1 -> 507.0	90493	50.28 µg/L	97
		527.1 -> 80.8	35190		
EtFOSAA	8.343	584.2 -> 419.1	41294	12.27 µg/L	96
		584.2 -> 526.0	20564		
FOSA	9.614	498.1 -> 77.9	116518	13.30 µg/L	100
		498.1 -> 478.0	3568		
MeFOSAA	8.136	570.1 -> 419.0	56008	14.18 µg/L	92
		570.1 -> 483.0	10033		
PFBA	2.906	212.8 -> 168.9	325626	53.08 µg/L	100
PFBS	5.412	298.7 -> 79.9	123146	11.62 µg/L	94
		298.7 -> 98.8	45951		
PFDA	8.077	512.9 -> 469.0	310432	13.82 µg/L	99
		512.9 -> 219.0	49983		
PFDoDA	8.961	613.1 -> 569.0	262334	12.64 µg/L	99
		613.1 -> 319.0	36448		
PFDS	9.125	599.0 -> 79.9	47477	12.47 µg/L	99

7.7.21
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	23285			
PFHpA	6.432	363.1 -> 319.0	383701	12.97	µg/L	96
		363.1 -> 169.0	63514			
PFHpS	7.734	449.0 -> 79.9	77309	11.94	µg/L	96
		449.0 -> 98.9	37059			
PFHxA	5.483	313.0 -> 269.0	351148	12.46	µg/L	99
		313.0 -> 118.9	16863			
PFHxS	7.180	398.7 -> 79.9	83675	11.69	µg/L	m 93
		398.7 -> 98.9	39063			
PFNA	7.595	463.0 -> 419.0	245308	13.38	µg/L	97
		463.0 -> 219.0	48340			
PFNS	8.694	548.8 -> 79.9	73363	12.73	µg/L	91
		548.8 -> 98.9	35503			
PFOA	7.076	413.0 -> 369.0	521413	13.24	µg/L	99
		413.0 -> 169.0	88911			
PFOS	8.240	498.9 -> 79.9	64796	11.23	µg/L	m 89
		498.9 -> 98.8	36229			
PFPeA	4.273	263.0 -> 219.0	467679	26.35	µg/L	100
PFPeS	6.484	349.1 -> 79.9	93454	12.50	µg/L	92
		349.1 -> 98.9	40304			
PFTeDA	9.690	713.1 -> 669.0	218682	12.62	µg/L	100
		713.1 -> 168.9	16819			
PFTrDA	9.345	663.0 -> 619.0	293383	12.77	µg/L	100
		663.0 -> 168.9	27108			
PFUnDA	8.531	563.1 -> 519.0	227104	12.29	µg/L	98
		563.1 -> 269.1	37957			
11CI-PF3OUdS	9.398	630.9 -> 450.9	362990	26.20	µg/L	97
		632.9 -> 452.9	109902			
9CI-PF3ONS	8.569	530.8 -> 351.0	570836	26.06	µg/L	100
		532.8 -> 353.0	169030			
ADONA	6.681	376.9 -> 250.9	1545088	25.34	µg/L	99
		376.9 -> 84.8	408733			
HFPO-DA	5.846	284.9 -> 168.9	101426	26.53	µg/L	95
		284.9 -> 184.9	12065			
3:3FTCA	3.784	241.0 -> 177.0	72254	65.10	µg/L	97
		241.0 -> 117.0	8741			
5:3FTCA	6.160	341.0 -> 237.1	1457959	319.75	µg/L	93
		341.0 -> 217.0	1062147			
7:3FTCA	7.573	441.0 -> 316.9	627064	302.73	µg/L	91
		441.0 -> 336.9	1451519			
EtFOSA	10.962	526.0 -> 219.0	119231	25.47	µg/L	92
		526.0 -> 169.0	155669			
EtFOSE	10.907	630.0 -> 58.9	329424	68.02	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	111843	27.37	µg/L	m 100
		511.9 -> 169.0	151496			
MeFOSE	10.661	616.1 -> 58.9	285034	65.35	µg/L	100
PFDoDS	9.817	699.1 -> 79.9	23827	12.10	µg/L	96
		699.1 -> 98.8	12919			
NFDHA	5.363	295.0 -> 201.0	78262	25.63	µg/L	100
		295.0 -> 84.9	19079			
PFMBA	4.687	279.0 -> 85.1	317585	26.67	µg/L	100
PFMPA	3.438	229.0 -> 84.9	234079	26.35	µg/L	100
PFEESA	5.949	314.8 -> 134.9	821610	23.11	µg/L	99
		314.8 -> 82.9	28517			

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

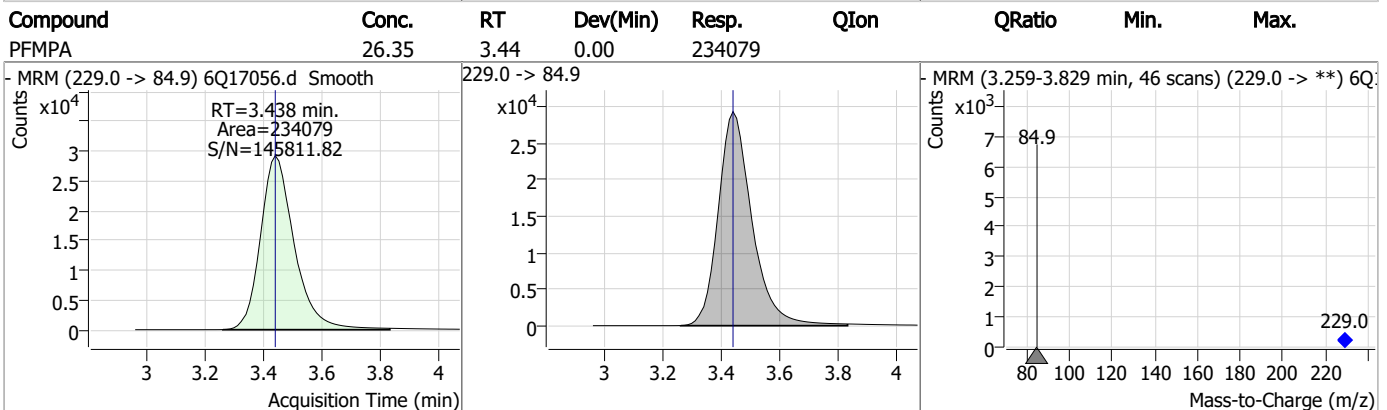
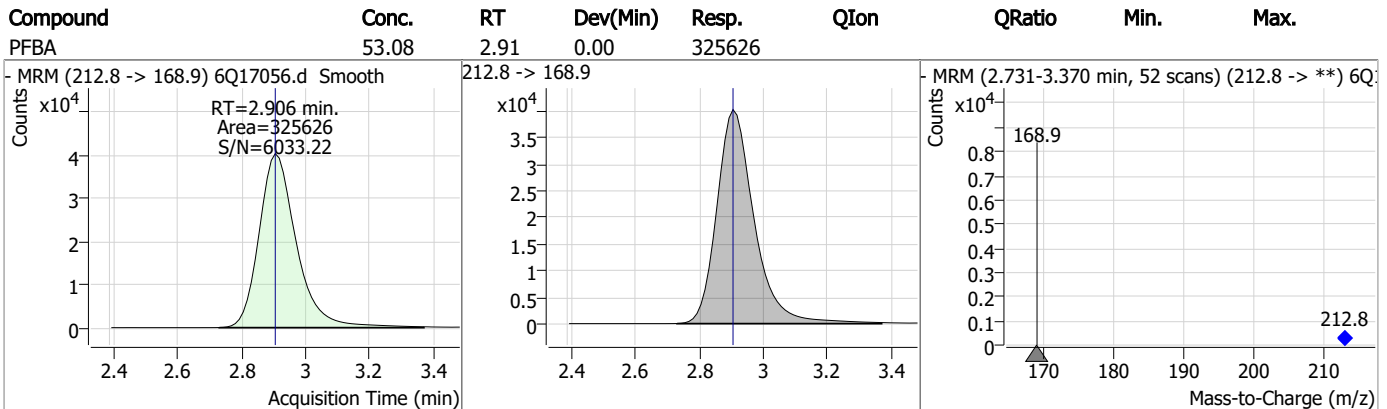
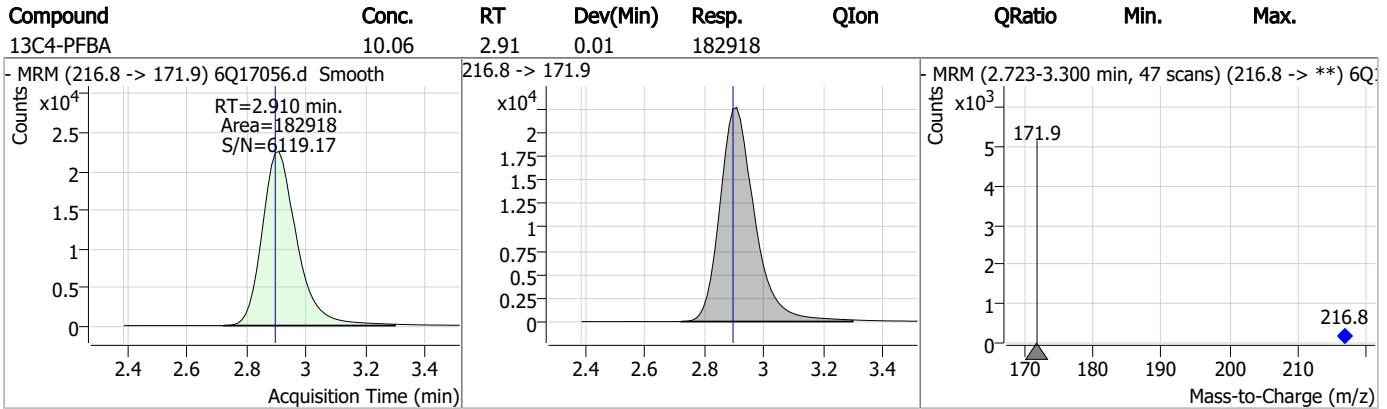
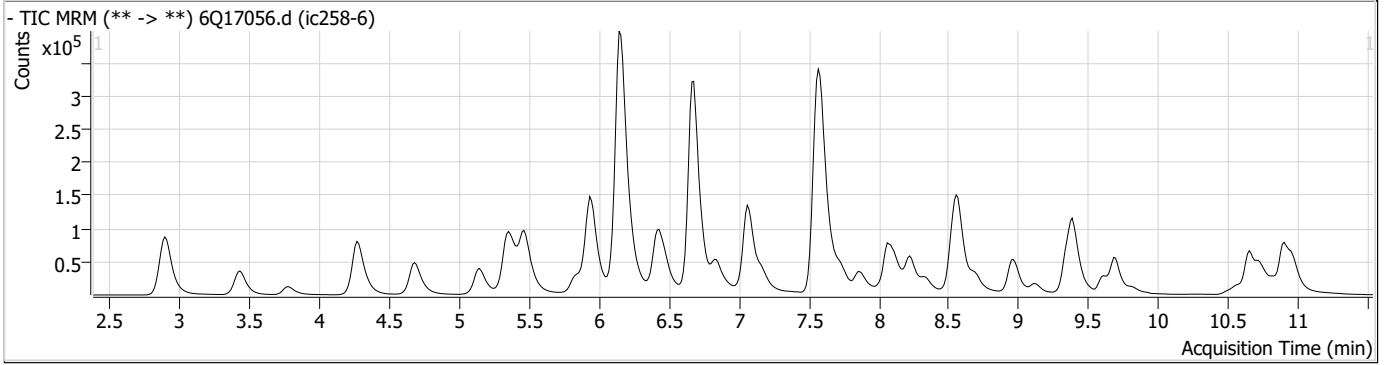
Perfluorinated Compounds by LC/MS/MS

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

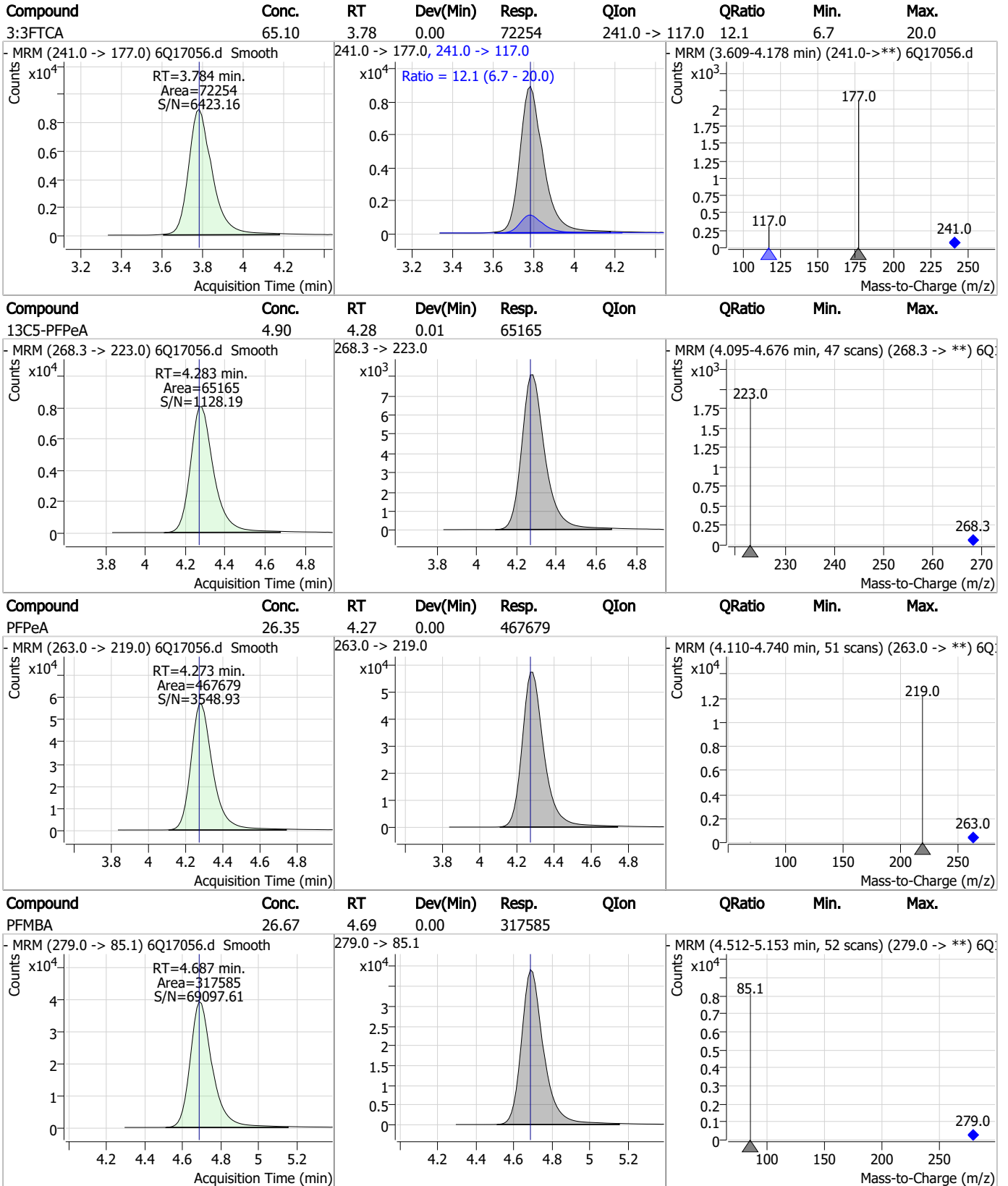
7.7.21

7

Perfluorinated Compounds by LC/MS/MS

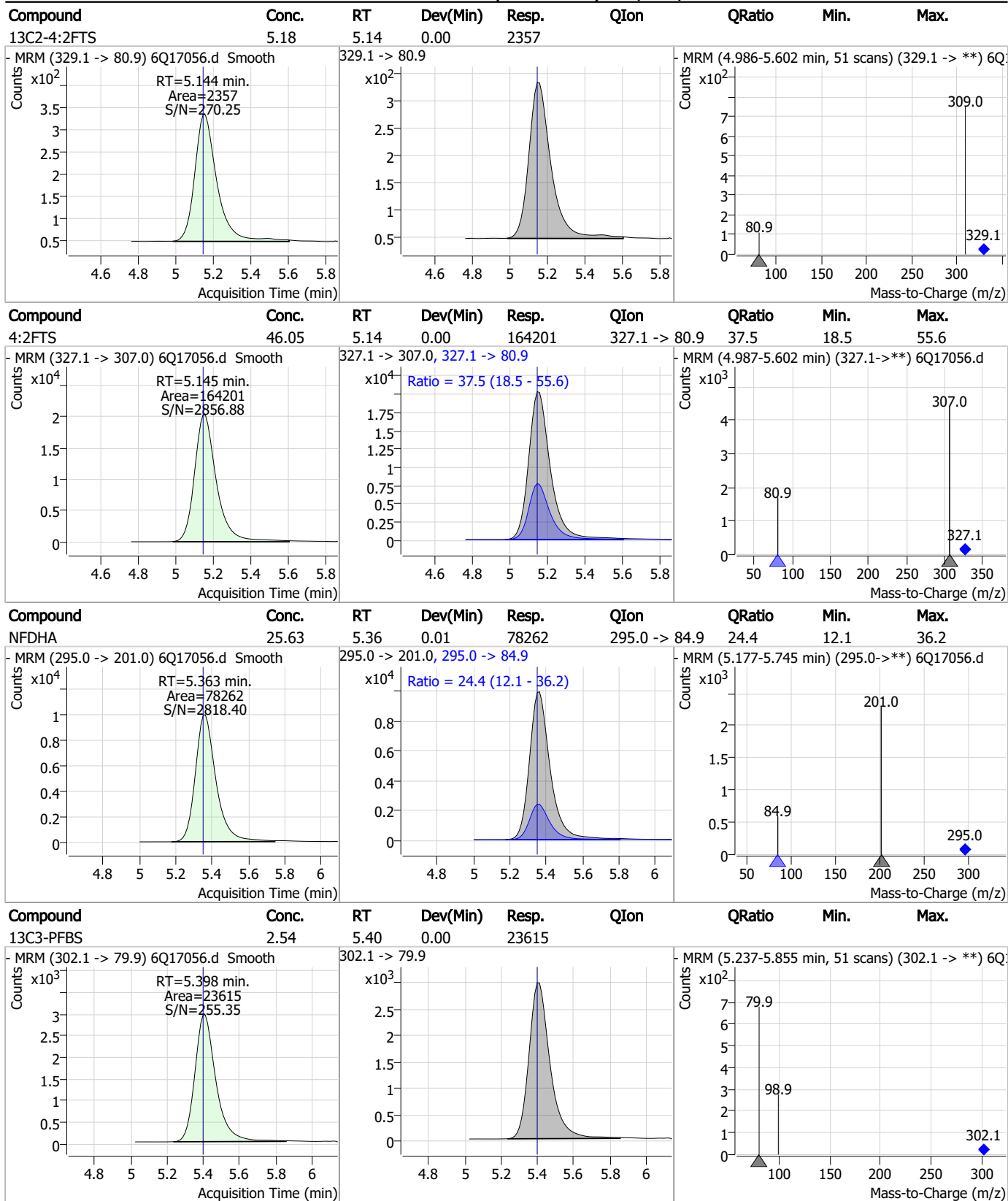


Perfluorinated Compounds by LC/MS/MS



7.7.21
7

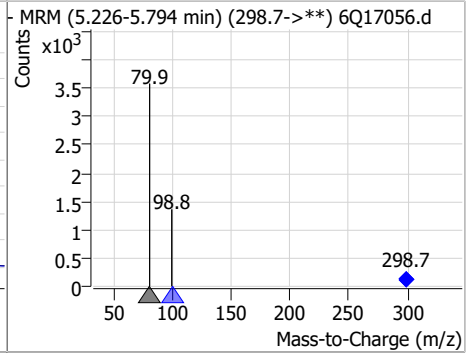
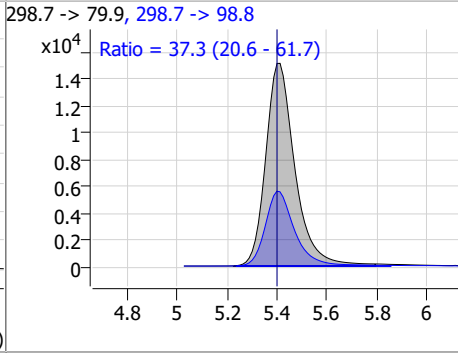
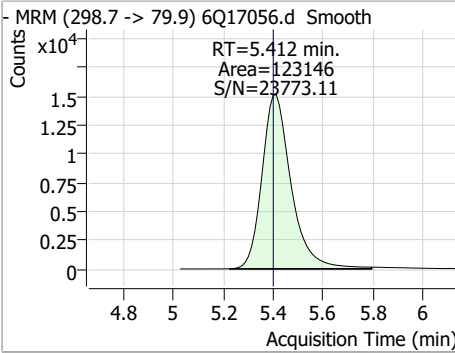
Perfluorinated Compounds by LC/MS/MS



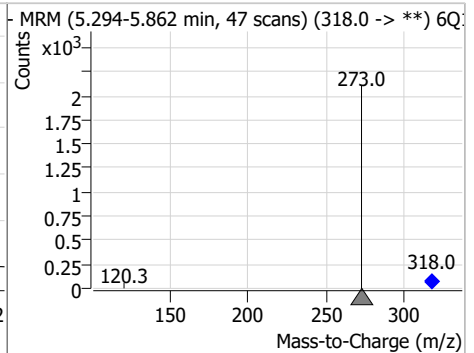
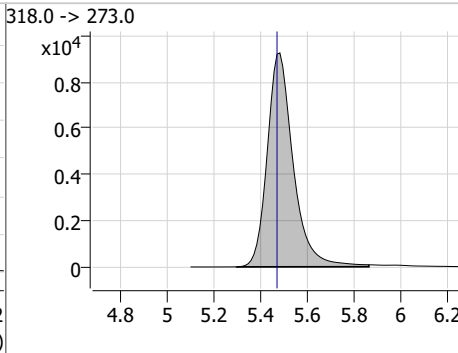
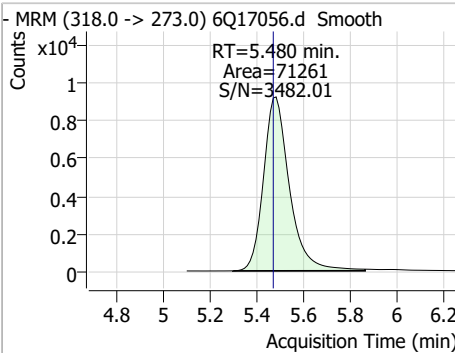
7.7.21

Perfluorinated Compounds by LC/MS/MS

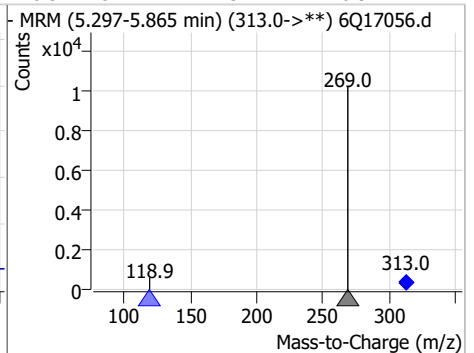
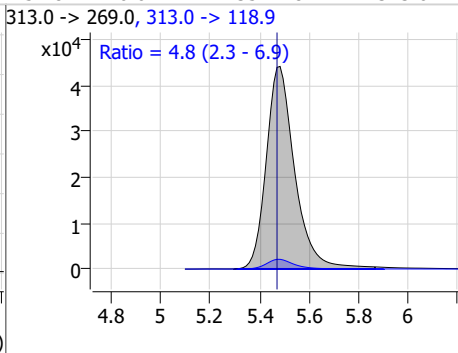
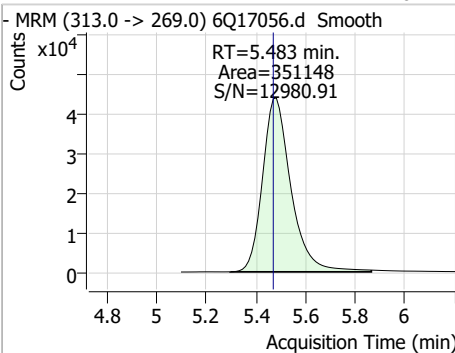
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	11.62	5.41	0.01	123146	298.7 -> 98.8	37.3	20.6	61.7



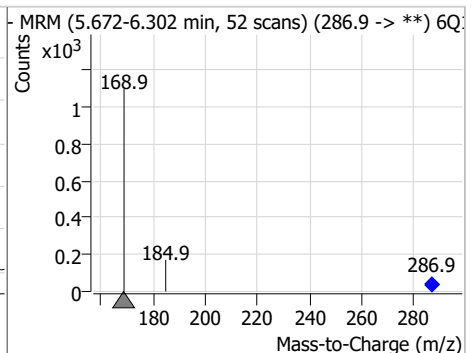
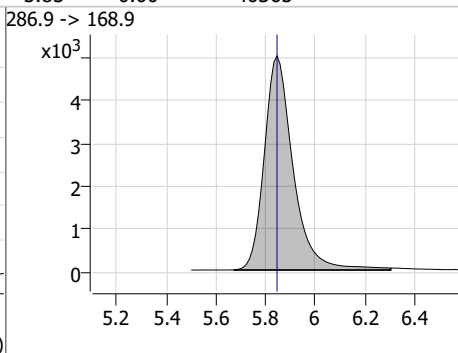
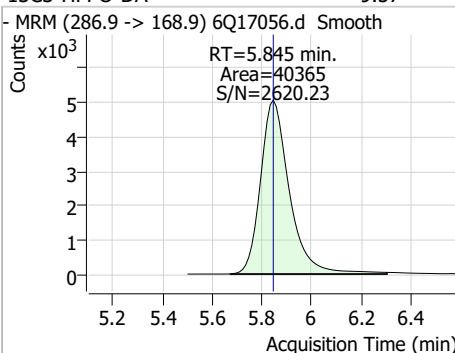
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.48	5.48	0.01	71261				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	12.46	5.48	0.01	351148	313.0 -> 118.9	4.8	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.57	5.85	0.00	40365				

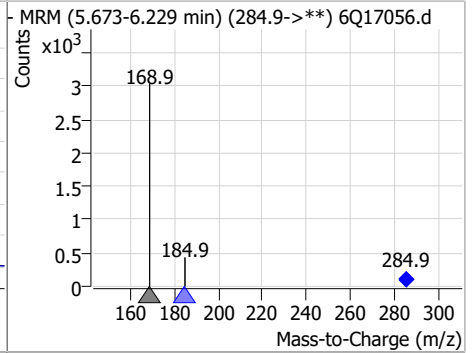
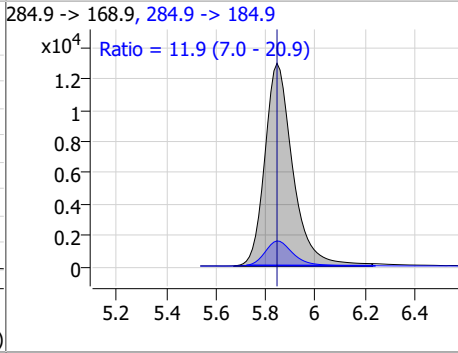
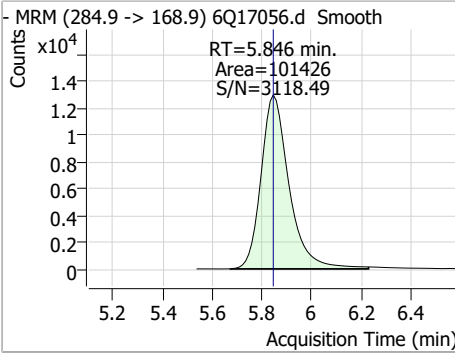


7.7.21

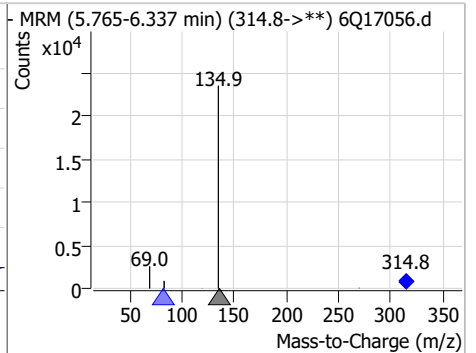
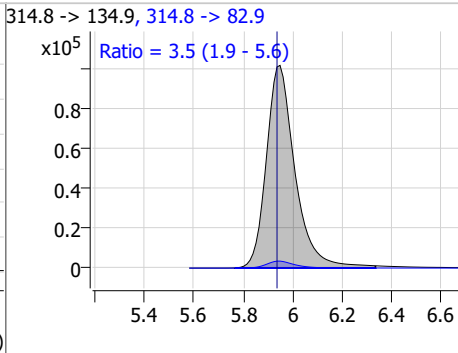
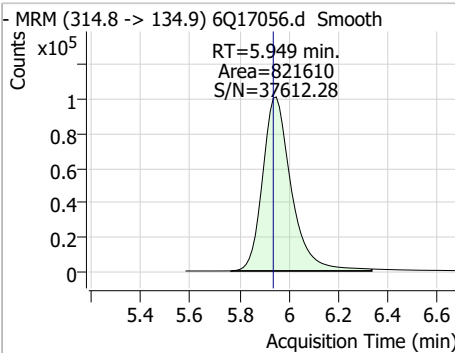
7

Perfluorinated Compounds by LC/MS/MS

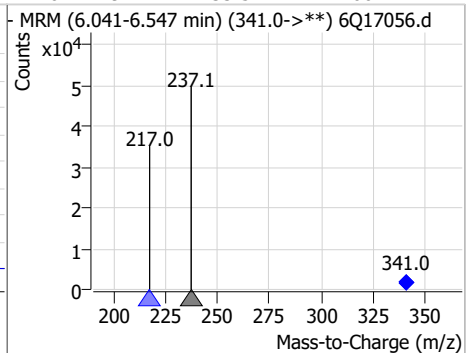
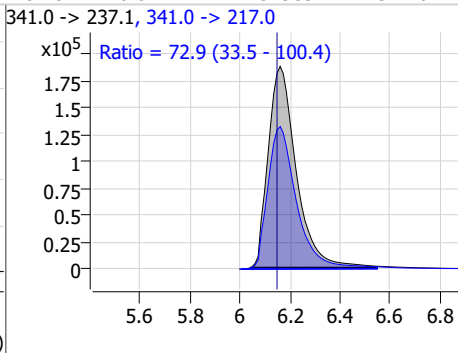
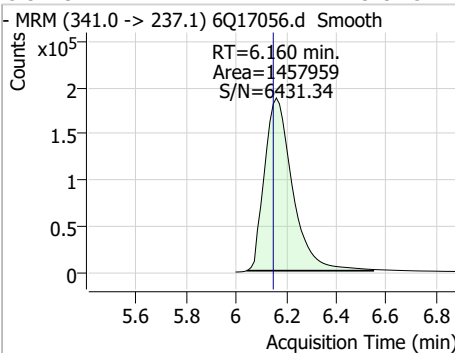
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	26.53	5.85	0.00	101426	284.9 -> 184.9	11.9	7.0	20.9



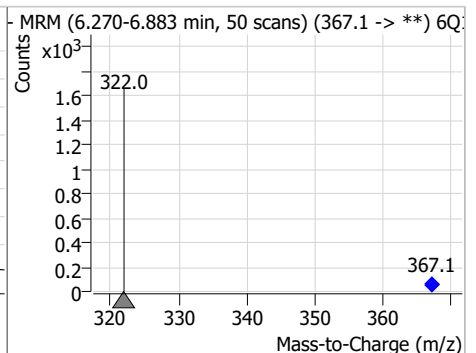
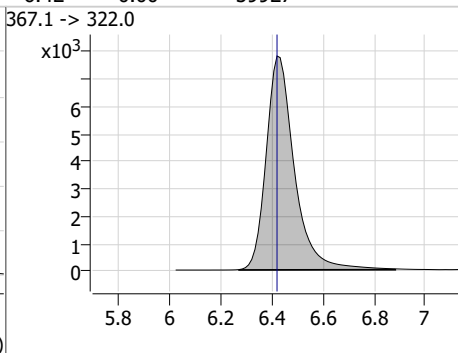
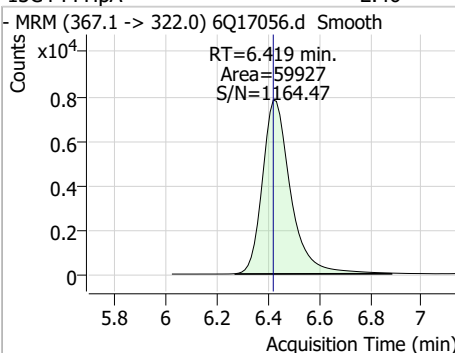
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	23.11	5.95	0.01	821610	314.8 -> 82.9	3.5	1.9	5.6



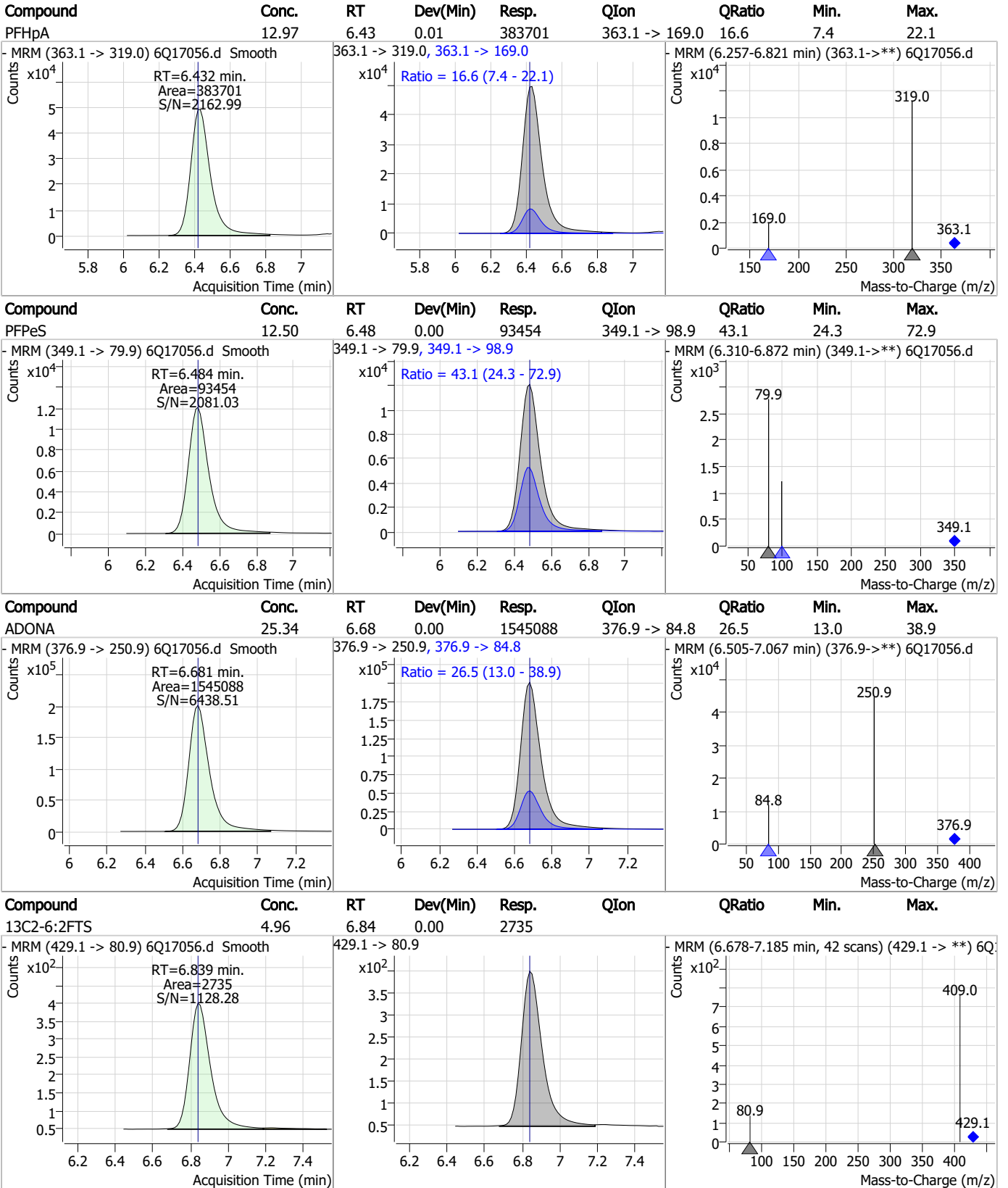
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	319.75	6.16	0.01	1457959	341.0 -> 217.0	72.9	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.46	6.42	0.00	59927	367.1 -> 322.0			



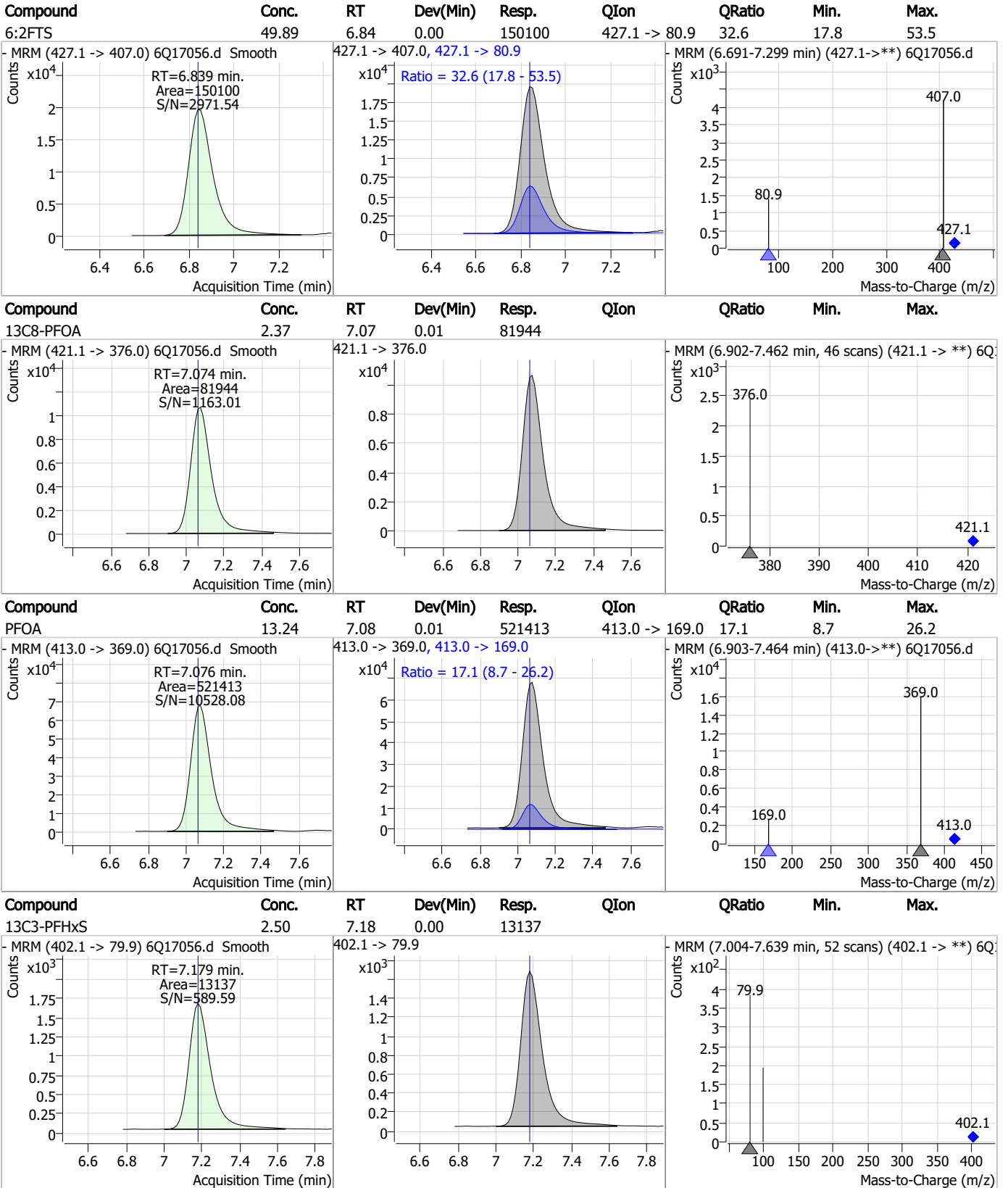
Perfluorinated Compounds by LC/MS/MS



7.7.21
7



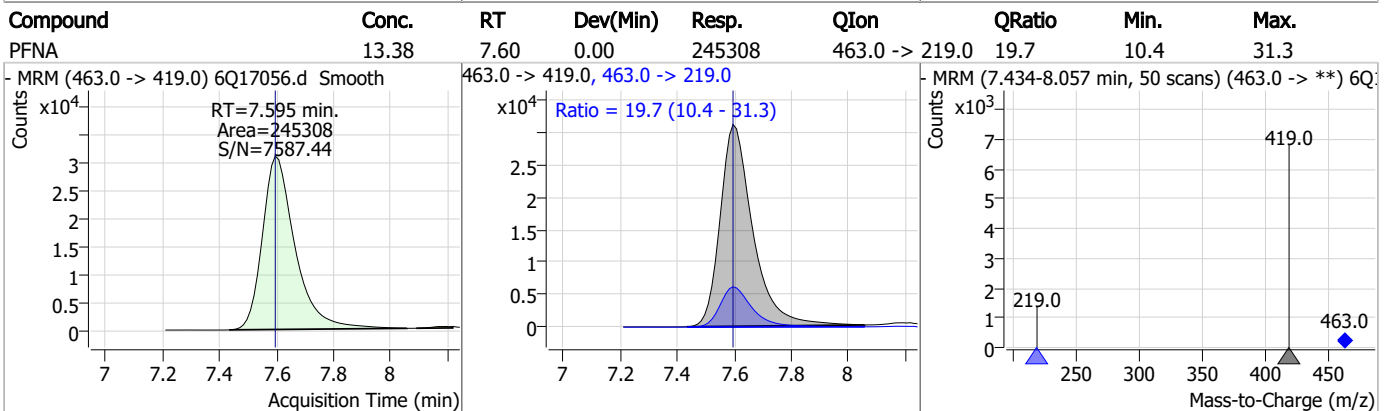
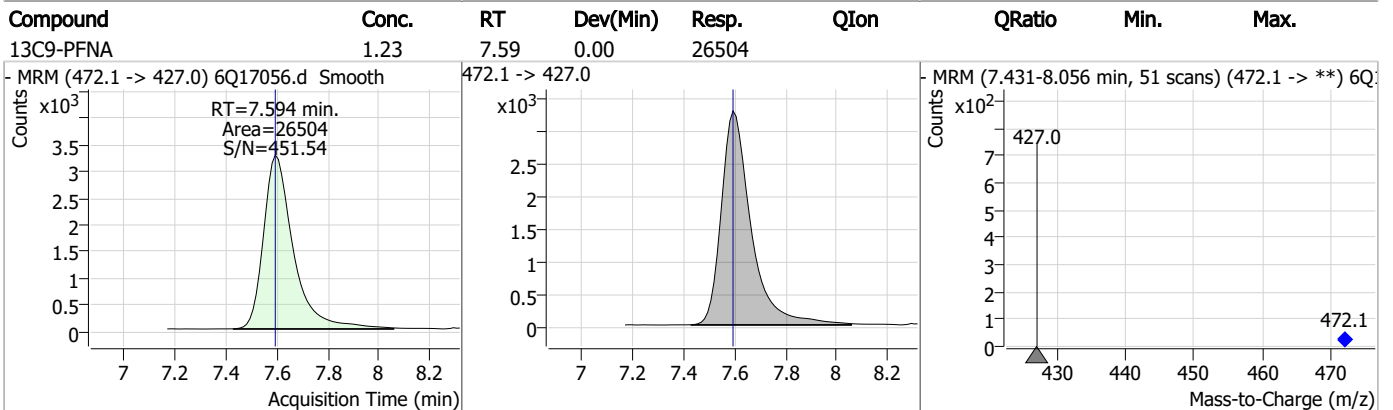
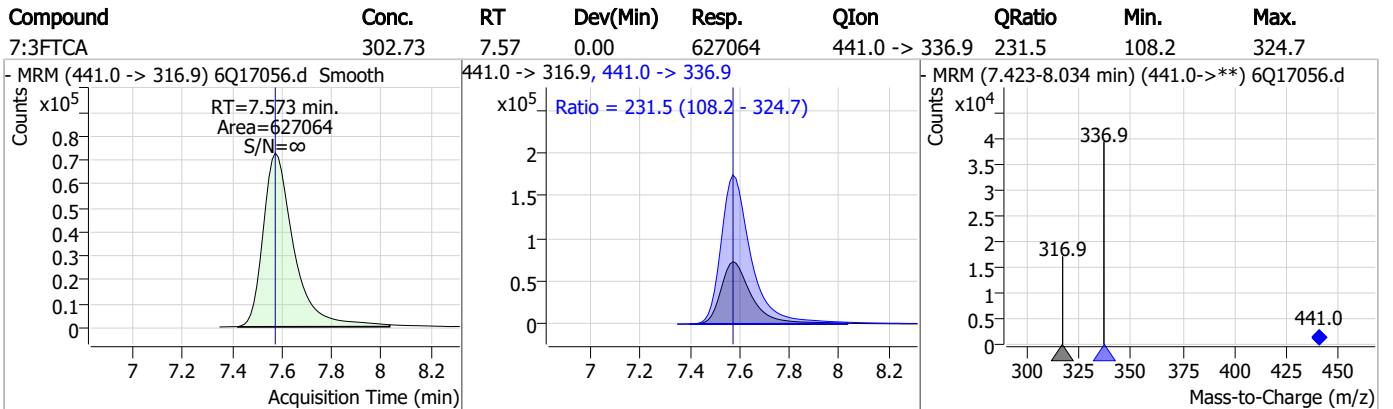
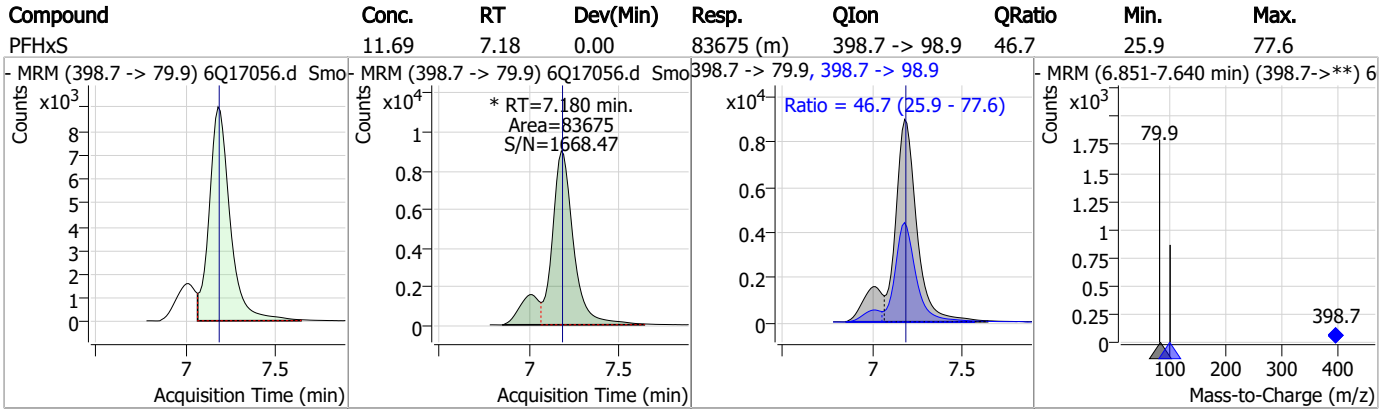
Perfluorinated Compounds by LC/MS/MS



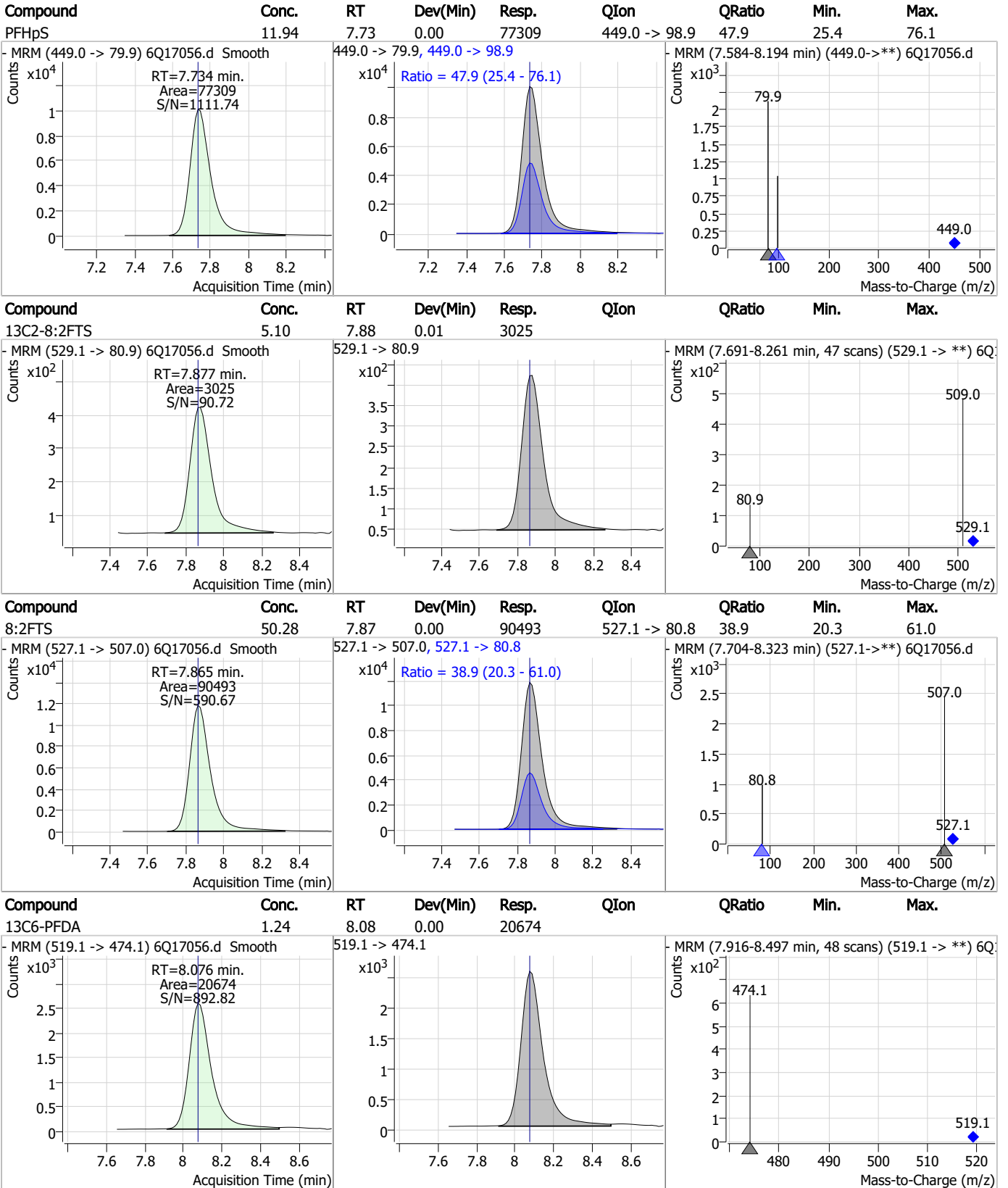
7.7.21

7

Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

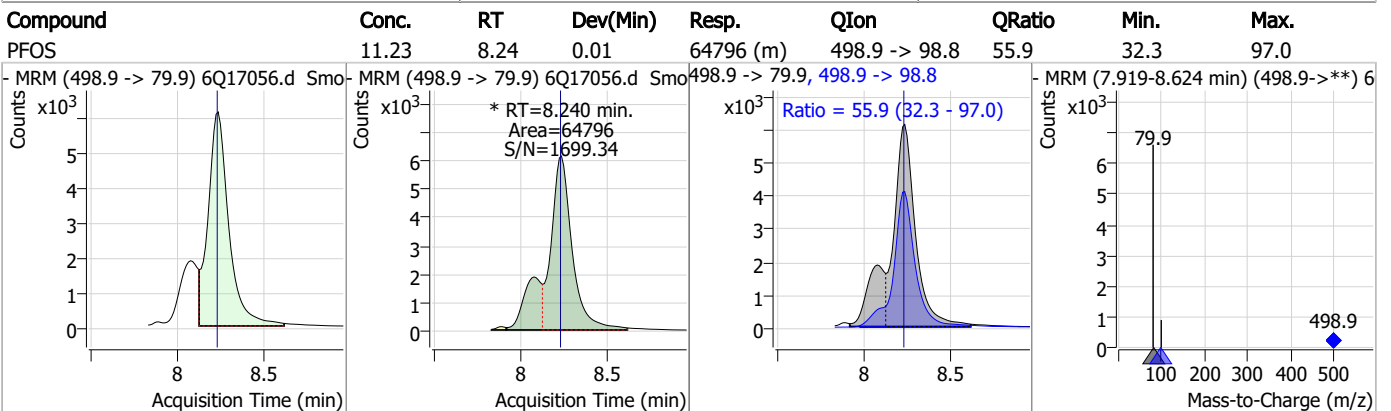
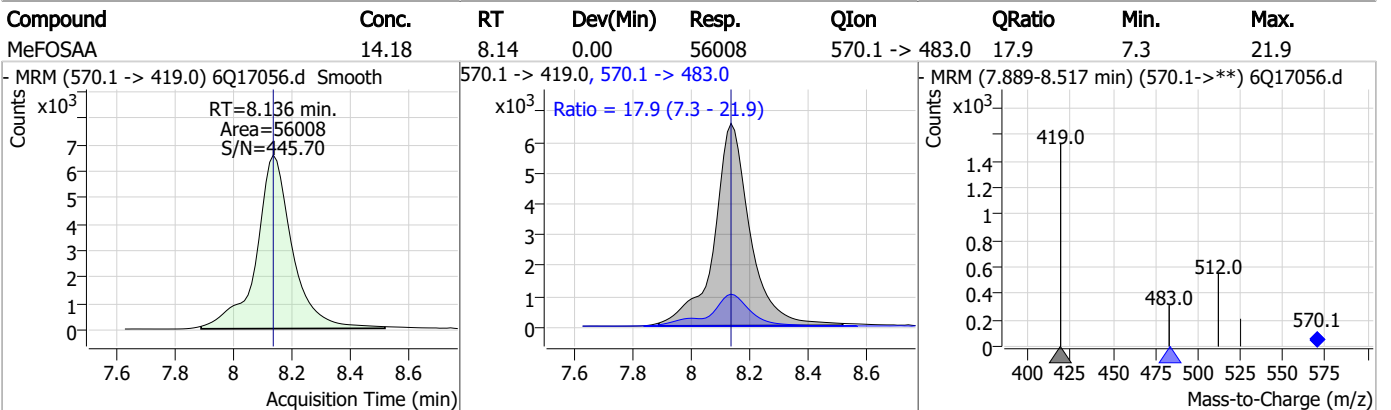
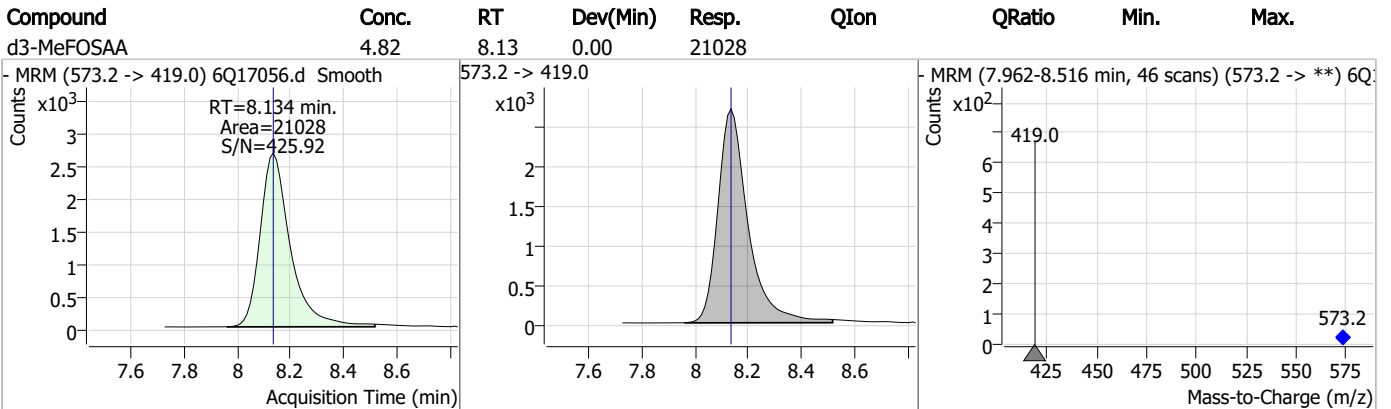
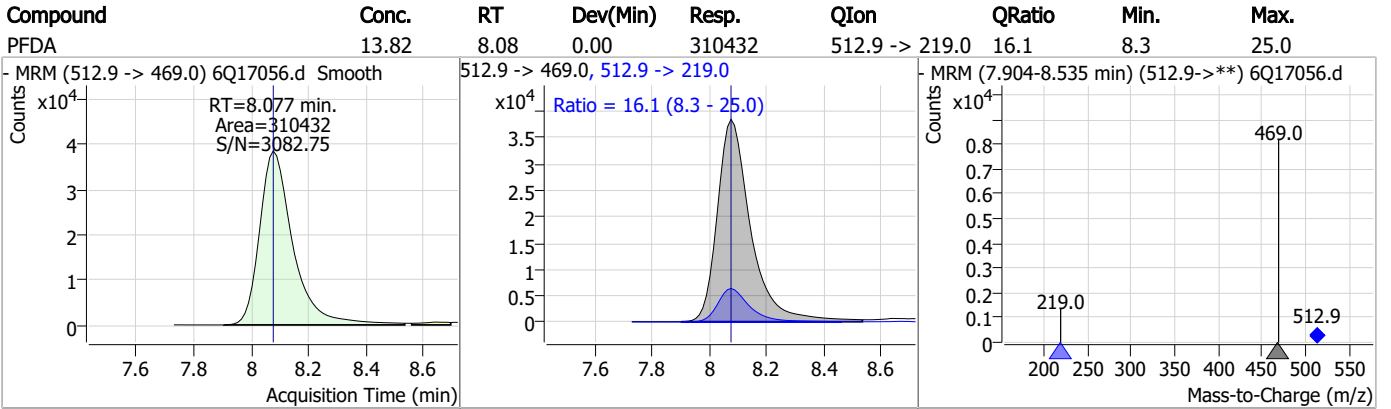


7.7.21

7



Perfluorinated Compounds by LC/MS/MS

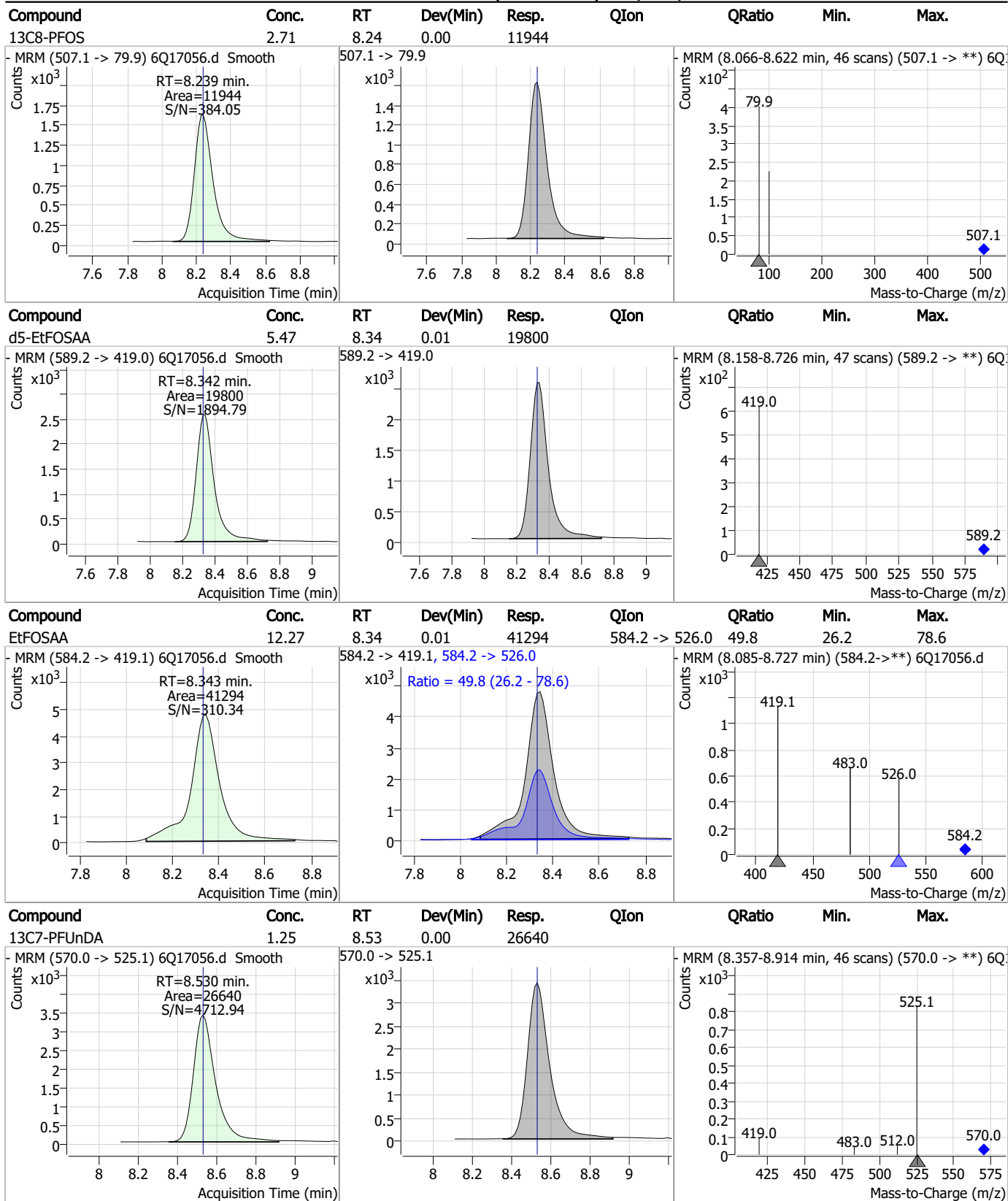


7.7.21

7



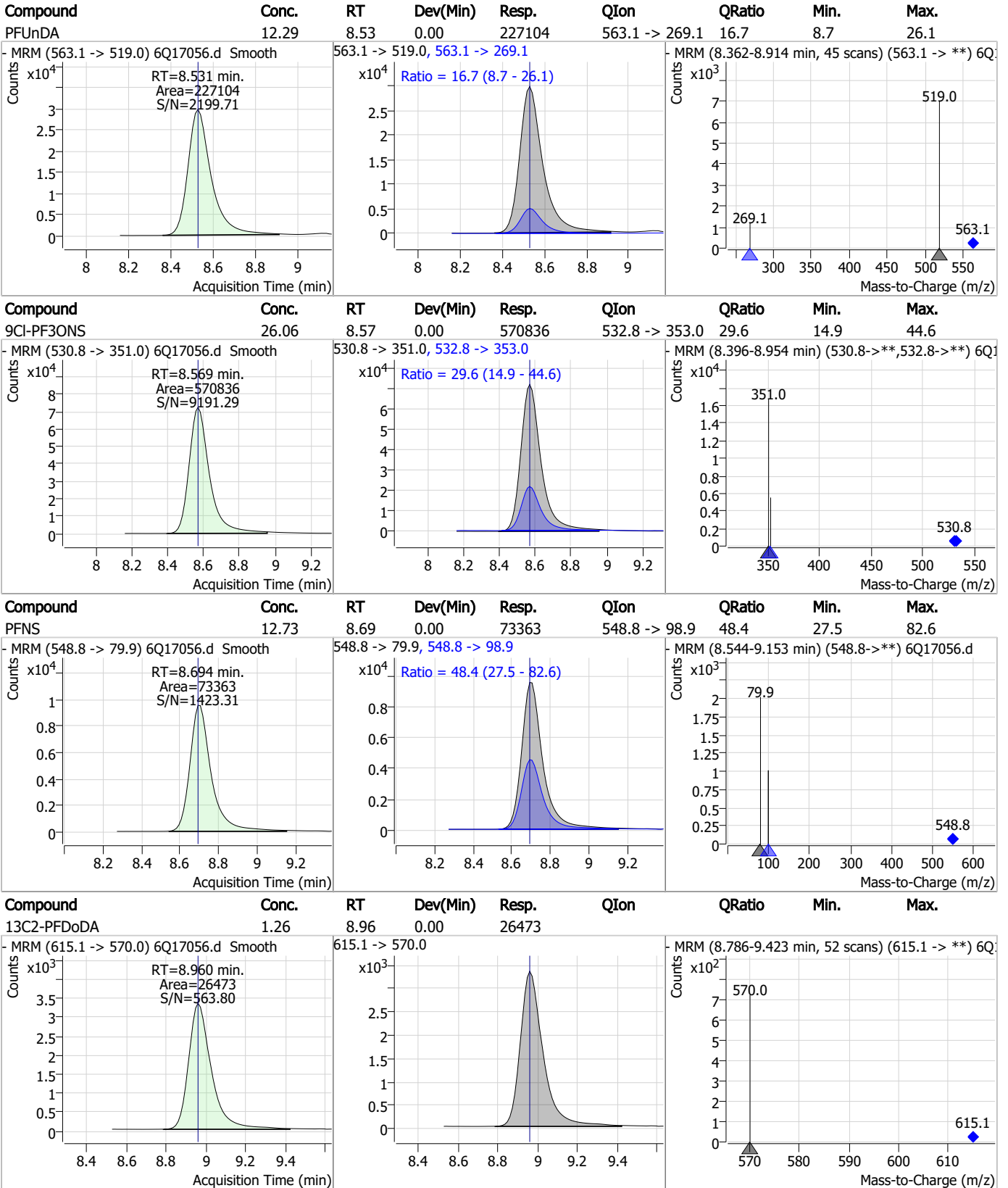
Perfluorinated Compounds by LC/MS/MS



7.7.21

7

Perfluorinated Compounds by LC/MS/MS

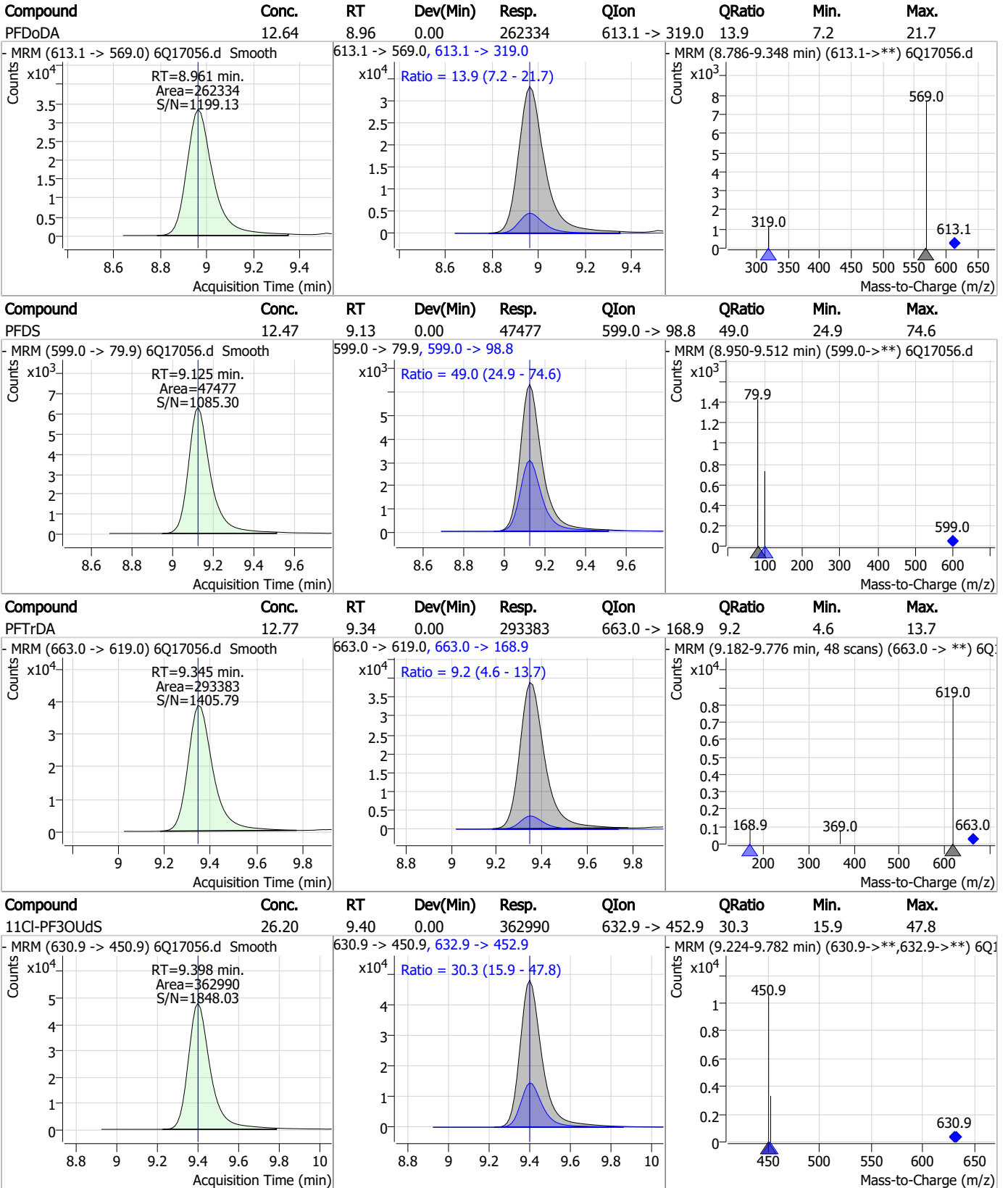


7.7.21

7



Perfluorinated Compounds by LC/MS/MS

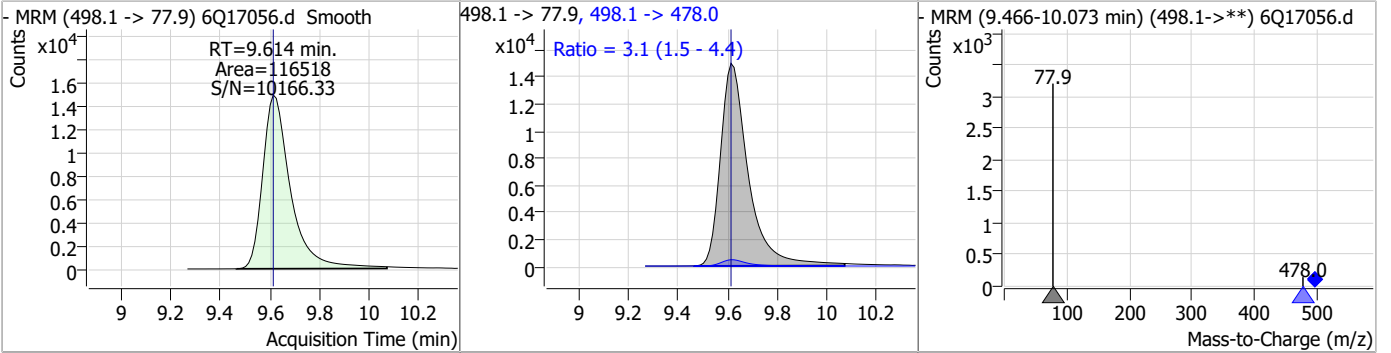


7.7.21

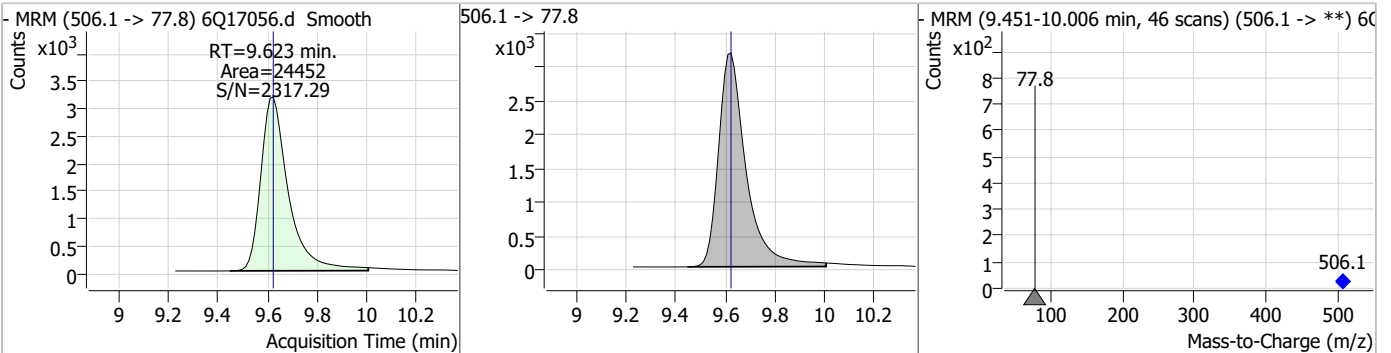
7

Perfluorinated Compounds by LC/MS/MS

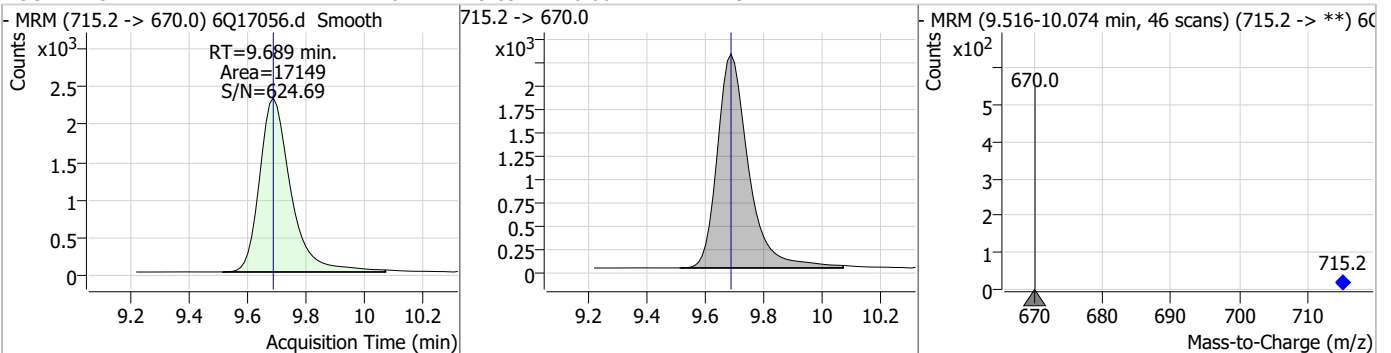
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	13.30	9.61	0.00	116518	498.1 -> 478.0	3.1	1.5	4.4



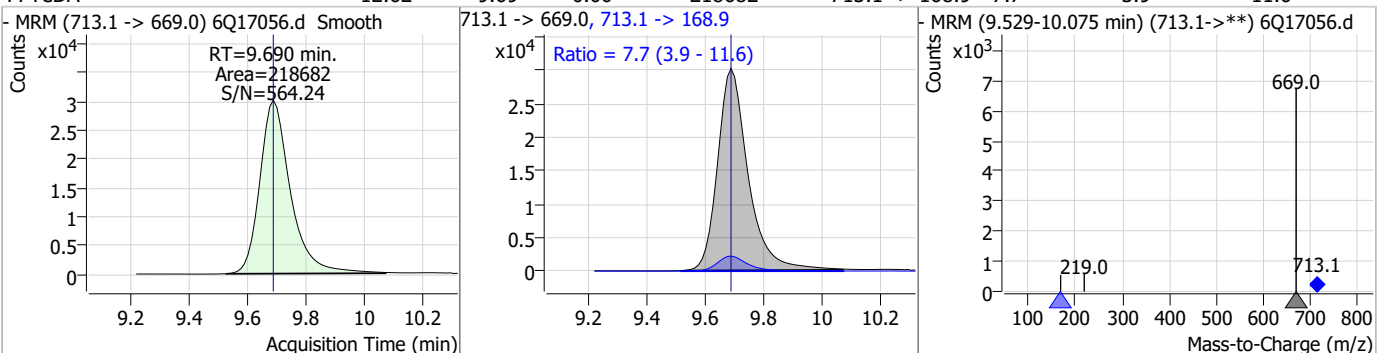
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.53	9.62	0.00	24452				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.20	9.69	0.00	17149				

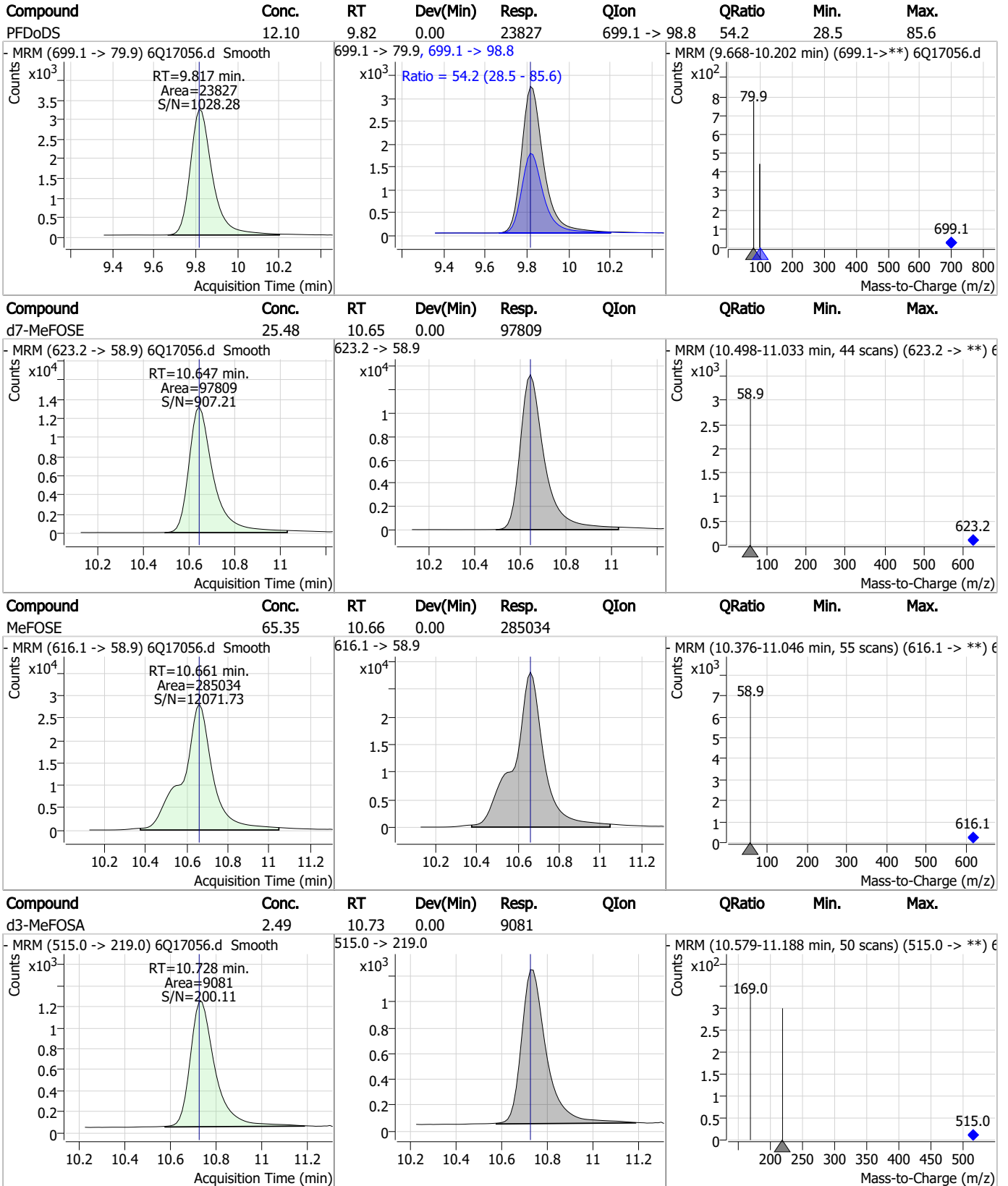


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	12.62	9.69	0.00	218682	713.1 -> 168.9	7.7	3.9	11.6



7.7.21
7

Perfluorinated Compounds by LC/MS/MS



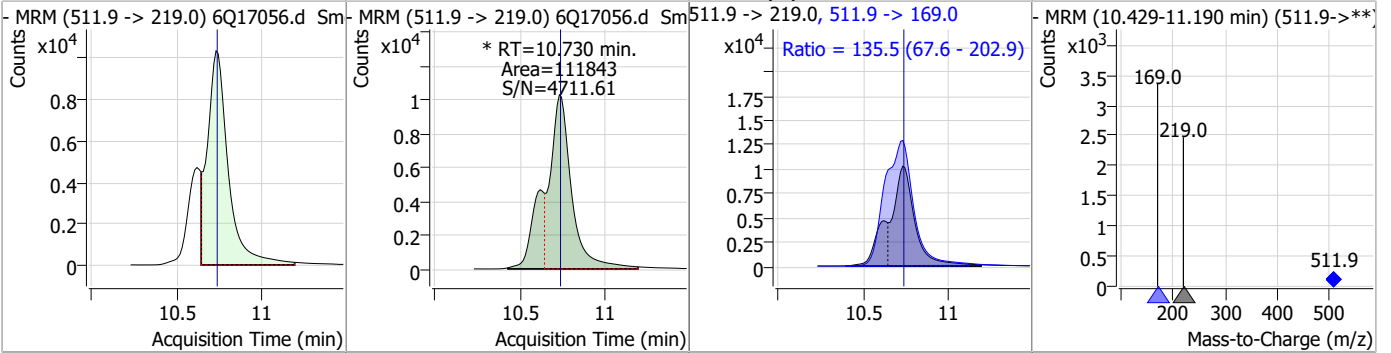
7.7.21

7

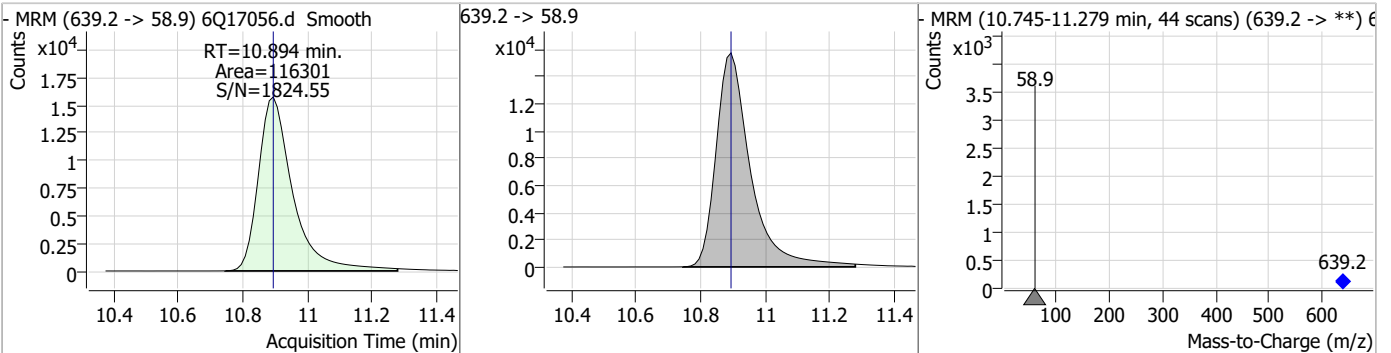


Perfluorinated Compounds by LC/MS/MS

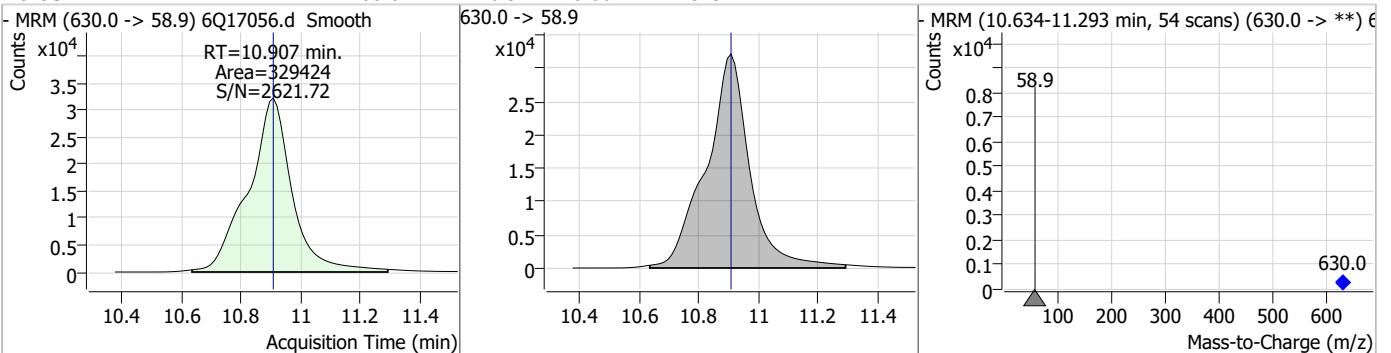
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	27.37	10.73	0.00	111843 (m)	511.9 -> 169.0	135.5	67.6	202.9



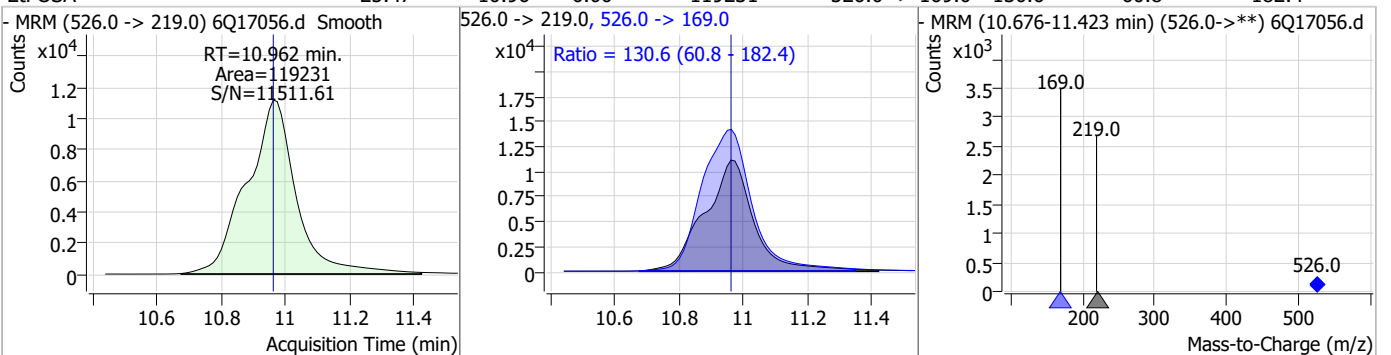
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.80	10.89	0.00	116301				



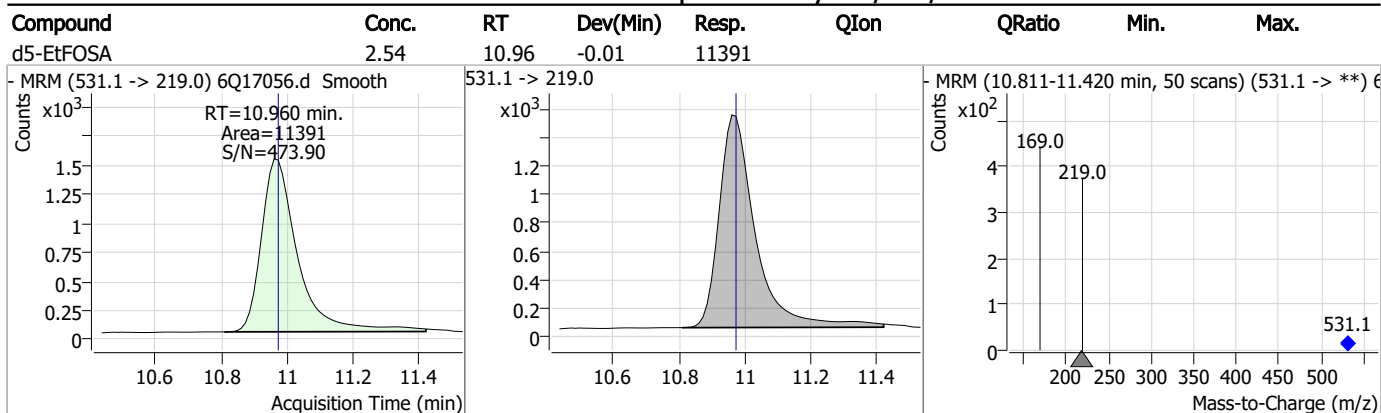
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	68.02	10.91	0.00	329424				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	25.47	10.96	0.00	119231	526.0 -> 169.0	130.6	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.21

7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17056.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:02 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.7.21.1

7

Manual Integrations
APPROVED
(compounds with "m" flag)

Norman Farmer
04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17057.d
Operator : marthav
Acq. Method : 1633full.m
Acq. Date-Time : 4/28/2023 2:17:14 PM
Sample Name : ic258-7
Vial : P1-A8
DA Method File : 1633_042823_S6Q258.quantmethod.xml
Batch Name : s6q258.batch.bin
Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	171617	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	62728	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69796	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	55432	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	81941	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	24894	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19505	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25578	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25469	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17051	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24360	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22160	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13073	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10608	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2115	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2521	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2882	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	23772	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40565	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17664	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	92654	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	108844	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11433	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	9339	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15534	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	74277	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9415	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	85076	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24971	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28190	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56669	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2115	4.89 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2521	4.80 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2882	5.10 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25469	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17051	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C3-PFBS	5.398	302.1 -> 79.9	22160	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13073	2.61 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 = 104.3%	
13C4-PFBA	2.897	216.8 -> 171.9	171617	10.00 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.0%	
13C4-PFHpA	6.431	367.1 -> 322.0	55432	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69796	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.1%	
13C5-PFPeA	4.270	268.3 -> 223.0	62728	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
13C6-PFDA	8.076	519.1 -> 474.1	19505	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.7%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25578	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C8-FOSA	9.623	506.1 -> 77.8	24360	2.37 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 94.9%	
13C8-PFOA	7.074	421.1 -> 376.0	81941	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.239	507.1 -> 79.9	10608	2.27 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 90.7%	
13C9-PFNA	7.594	472.1 -> 427.0	24894	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 92.7%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23772	5.14 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 102.7%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40565	10.11 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 101.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	9339	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.3%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17664	4.59 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 91.8%	
d7-MeFOSE	10.647	623.2 -> 58.9	92654	22.73 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 90.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	108844	21.85 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 87.4%	
d5-EtFOSA	10.973	531.1 -> 219.0	11433	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.0%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	342753	107.12 µg/L	96
		327.1 -> 80.9	117970		
6:2FTS	6.839	427.1 -> 407.0	276504	99.72 µg/L	93
		427.1 -> 80.9	88161		
8:2FTS	7.865	527.1 -> 507.0	158285	92.31 µg/L	97
		527.1 -> 80.8	67442		
EtFOSAA	8.331	584.2 -> 419.1	78711	26.22 µg/L	m 97
		584.2 -> 526.0	42695		
FOSA	9.614	498.1 -> 77.9	227449	26.06 µg/L	100
		498.1 -> 478.0	6609		
MeFOSAA	8.136	570.1 -> 419.0	105513	23.64 µg/L	88
		570.1 -> 483.0	20730		
PFBA	2.906	212.8 -> 168.9	610169	106.01 µg/L	100
PFBS	5.400	298.7 -> 79.9	228961	23.03 µg/L	98
		298.7 -> 98.8	91659		
PFDA	8.077	512.9 -> 469.0	595413	28.09 µg/L	100
		512.9 -> 219.0	97927		
PFDoDA	8.961	613.1 -> 569.0	509639	25.52 µg/L	99
		613.1 -> 319.0	72360		
PFDS	9.125	599.0 -> 79.9	90601	26.80 µg/L	97

7.7.22
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	43202			
PFHpA	6.420	363.1 -> 319.0	772571	28.24	µg/L	97
		363.1 -> 169.0	123104			
PFHpS	7.746	449.0 -> 79.9	148414	25.82	µg/L	94
		449.0 -> 98.9	69407			
PFHxA	5.470	313.0 -> 269.0	707757	25.65	µg/L	100
		313.0 -> 118.9	31996			
PFHxS	7.180	398.7 -> 79.9	160575	22.54	µg/L	m 92
		398.7 -> 98.9	74028			
PFNA	7.595	463.0 -> 419.0	489652	28.43	µg/L	96
		463.0 -> 219.0	92096			
PFNS	8.706	548.8 -> 79.9	130947	25.58	µg/L	94
		548.8 -> 98.9	66596			
PFOA	7.063	413.0 -> 369.0	974708	24.70	µg/L	100
		413.0 -> 169.0	169979			
PFOS	8.228	498.9 -> 79.9	135647	26.48	µg/L	m 82
		498.9 -> 98.8	68222			
PFPeA	4.273	263.0 -> 219.0	902840	52.84	µg/L	100
PFPeS	6.484	349.1 -> 79.9	179655	24.15	µg/L	93
		349.1 -> 98.9	78892			
PFTeDA	9.690	713.1 -> 669.0	440013	25.53	µg/L	100
		713.1 -> 168.9	33368			
PFTrDA	9.345	663.0 -> 619.0	562349	25.45	µg/L	97
		663.0 -> 168.9	57053			
PFUnDA	8.531	563.1 -> 519.0	484125	27.29	µg/L	96
		563.1 -> 269.1	74884			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	700187	50.30	µg/L	99
		632.9 -> 452.9	217767			
9Cl-PF3ONS	8.569	530.8 -> 351.0	1067589	48.50	µg/L	93
		532.8 -> 353.0	360258			
ADONA	6.681	376.9 -> 250.9	3057274	49.89	µg/L	99
		376.9 -> 84.8	771305			
HFPO-DA	5.834	284.9 -> 168.9	192769	50.17	µg/L	98
		284.9 -> 184.9	25121			
3:3FTCA	3.771	241.0 -> 177.0	143801	134.60	µg/L	97
		241.0 -> 117.0	17541			
5:3FTCA	6.160	341.0 -> 237.1	2859211	640.22	µg/L	94
		341.0 -> 217.0	2041333			
7:3FTCA	7.573	441.0 -> 316.9	1310450	645.92	µg/L	95
		441.0 -> 336.9	2731216			
EtFOSA	10.962	526.0 -> 219.0	245641	52.27	µg/L	99
		526.0 -> 169.0	302019			
EtFOSE	10.907	630.0 -> 58.9	636552	140.43	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	217141	51.66	µg/L	m 98
		511.9 -> 169.0	289808			
MeFOSE	10.661	616.1 -> 58.9	569571	137.84	µg/L	100
PFDoS	9.817	699.1 -> 79.9	47201	27.00	µg/L	94
		699.1 -> 98.8	24753			
NFDHA	5.350	295.0 -> 201.0	151737	50.73	µg/L	99
		295.0 -> 84.9	37223			
PFMBA	4.687	279.0 -> 85.1	609667	53.19	µg/L	100
PFMPA	3.438	229.0 -> 84.9	459603	53.75	µg/L	100
PFEESA	5.937	314.8 -> 134.9	1587215	45.58	µg/L	99
		314.8 -> 82.9	53428			

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

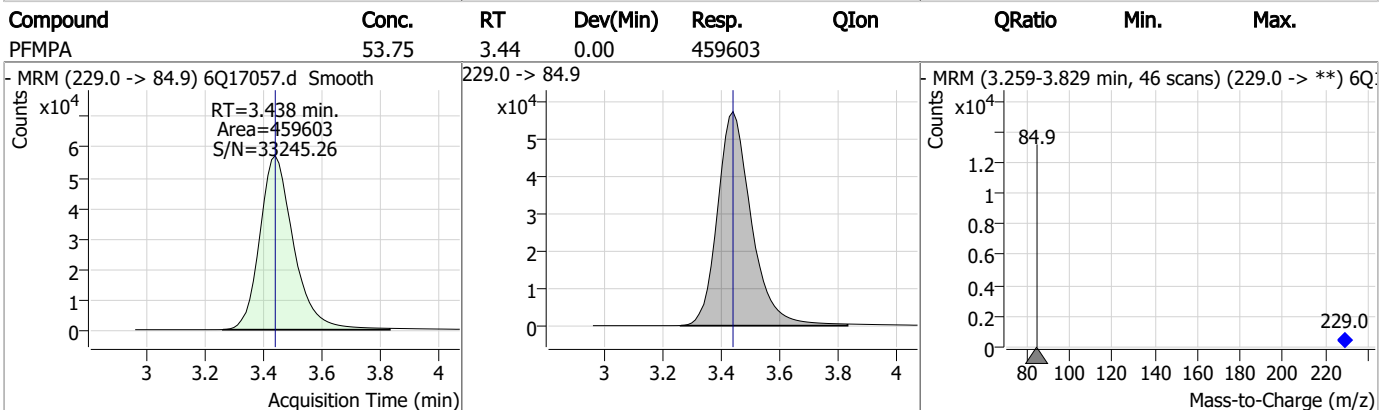
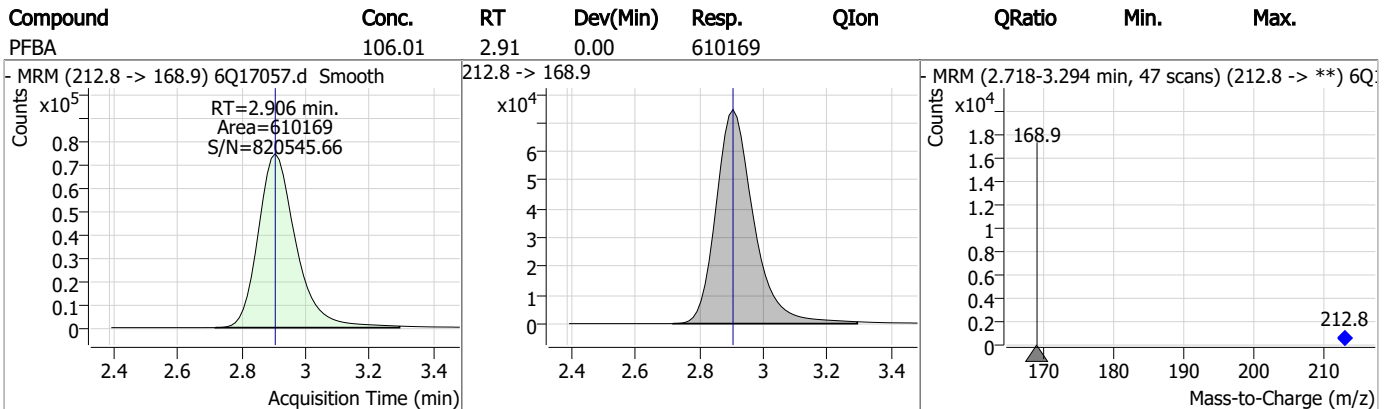
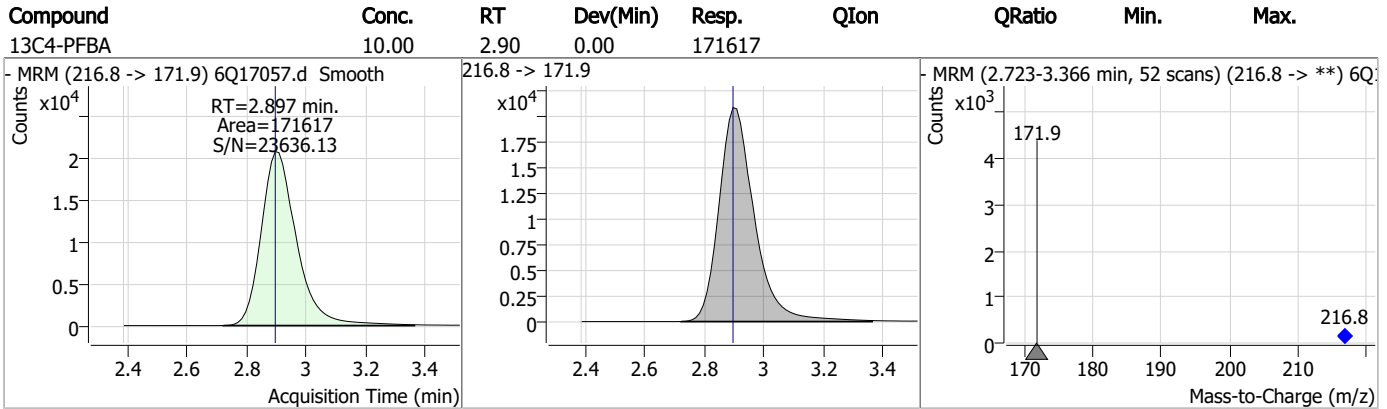
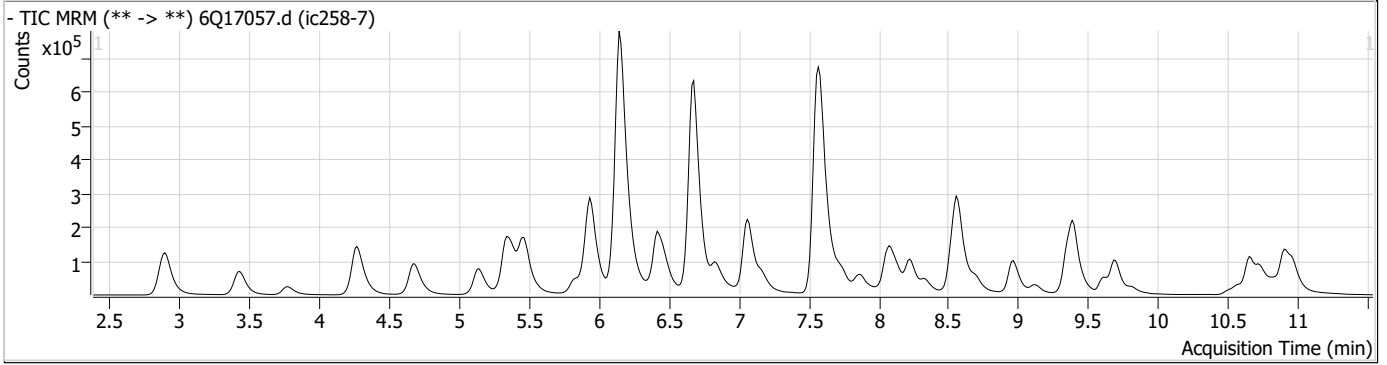
Perfluorinated Compounds by LC/MS/MS

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

7.7.22
7



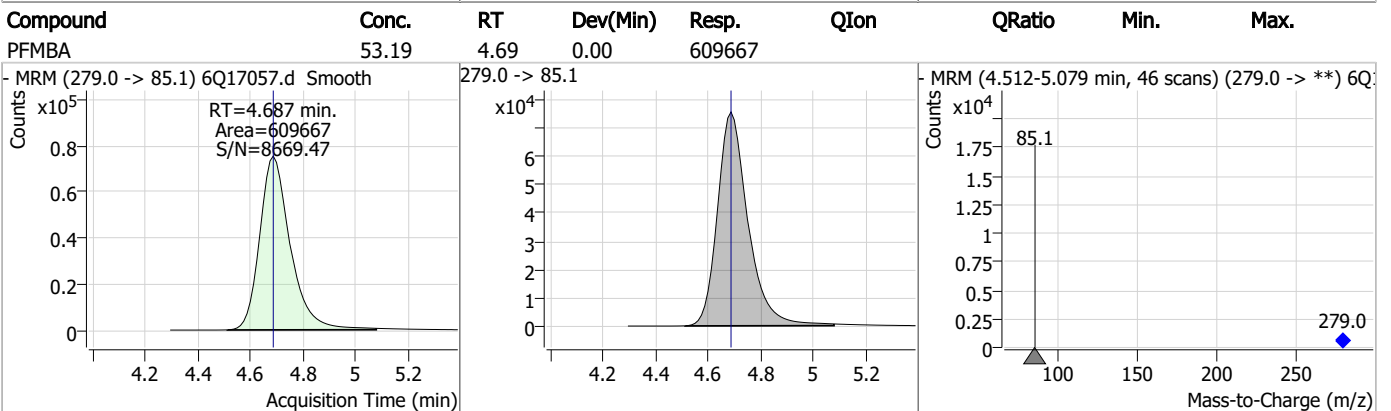
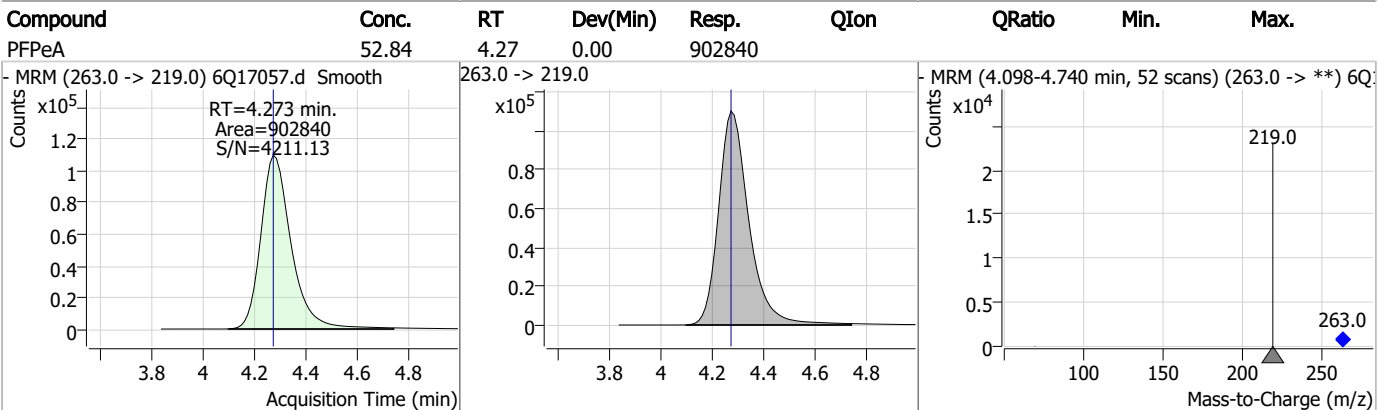
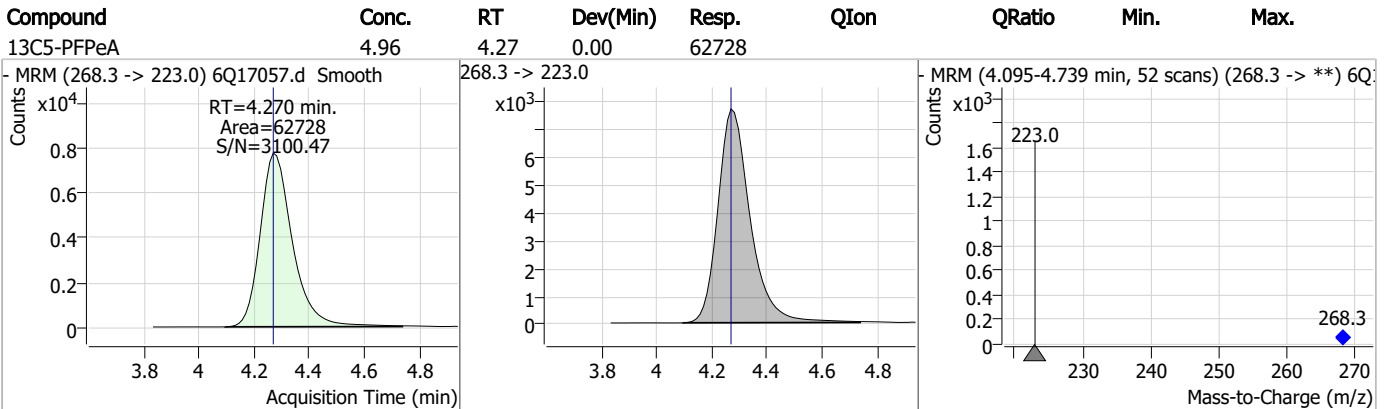
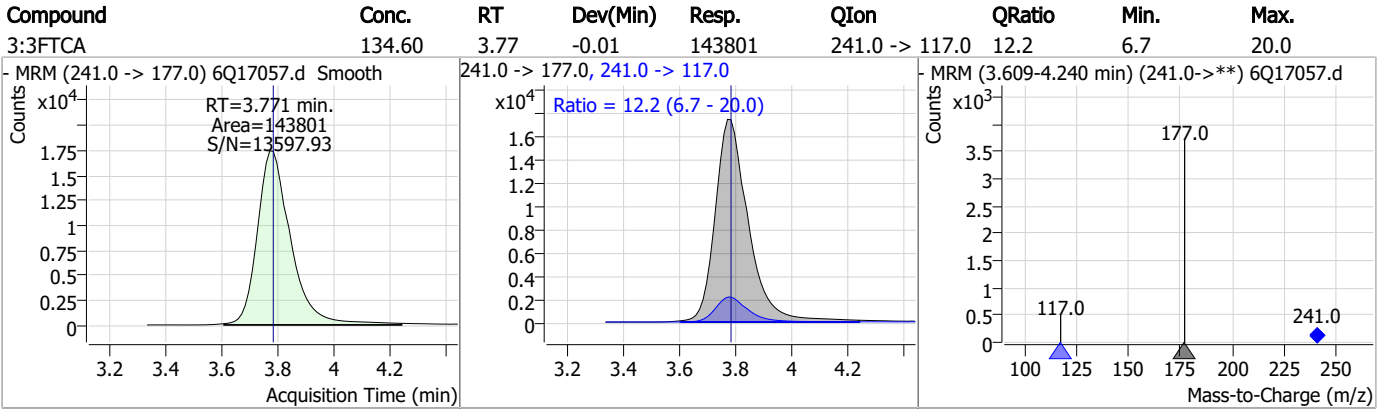
Perfluorinated Compounds by LC/MS/MS



7.7.22

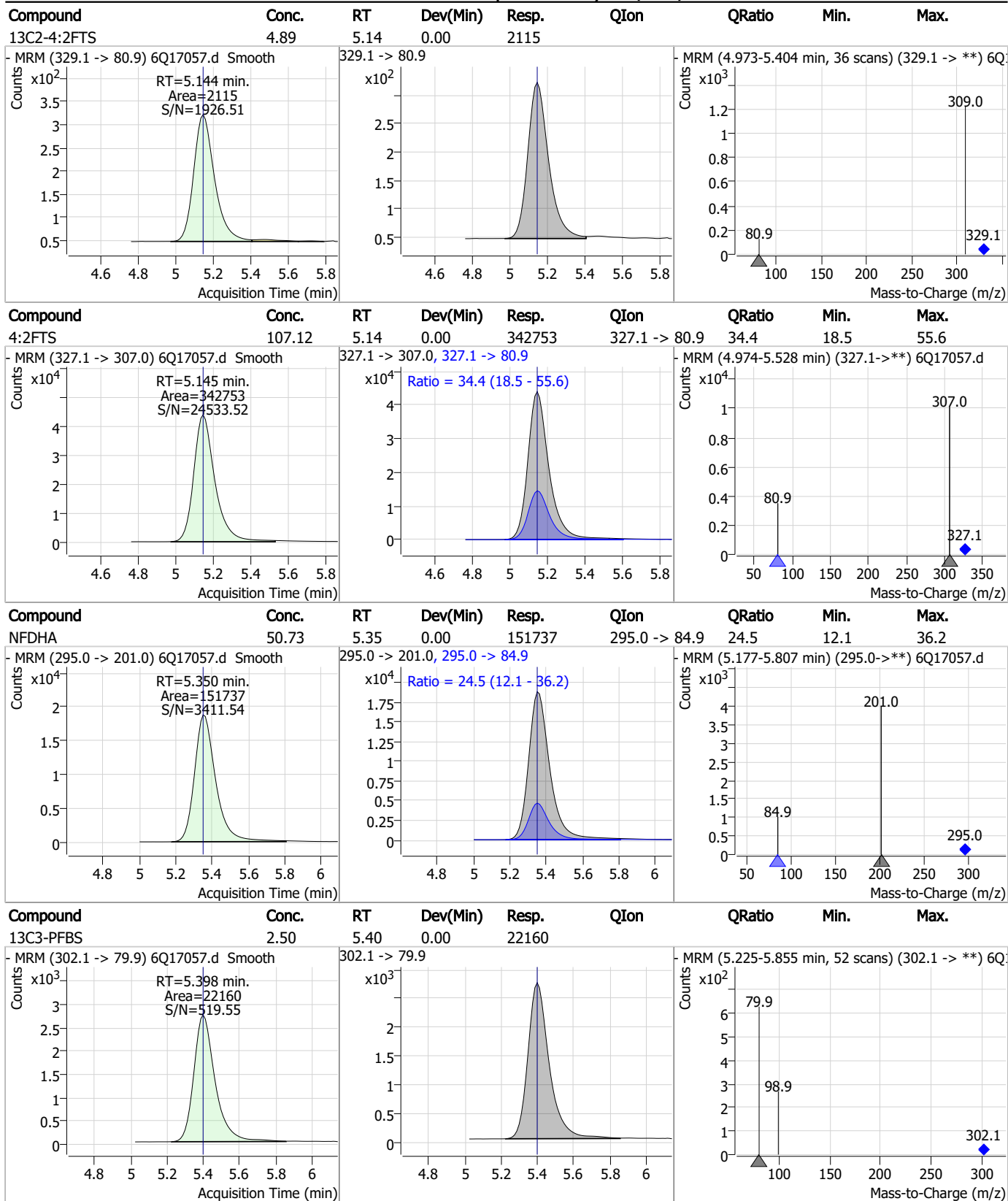
7

Perfluorinated Compounds by LC/MS/MS



7.7.22 7

Perfluorinated Compounds by LC/MS/MS



7.7.22 7

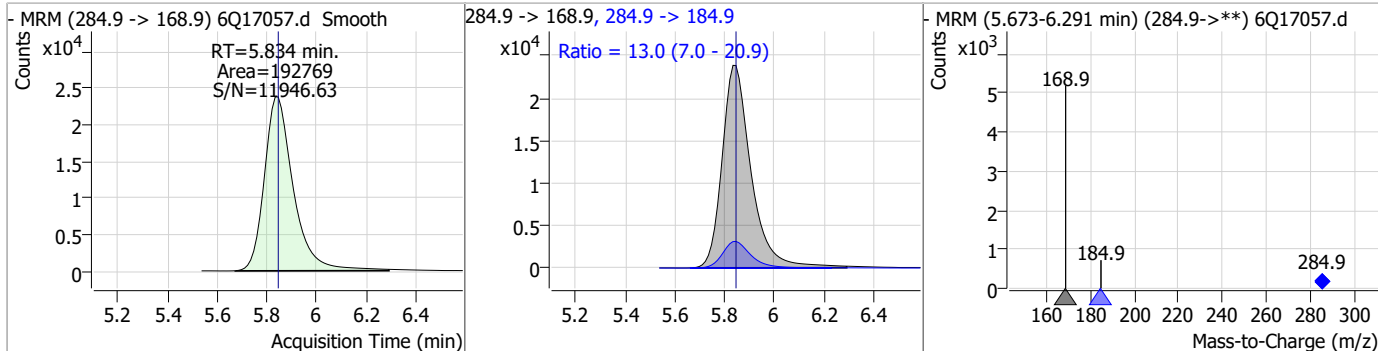
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	23.03	5.40	0.00	228961	298.7 -> 98.8	40.0	20.6	61.7
13C5-PFHxA	2.55	5.47	0.00	69796				
PFHxA	25.65	5.47	0.00	707757	313.0 -> 118.9	4.5	2.3	6.9
13C3-HFPO-DA	10.11	5.85	0.00	40565				

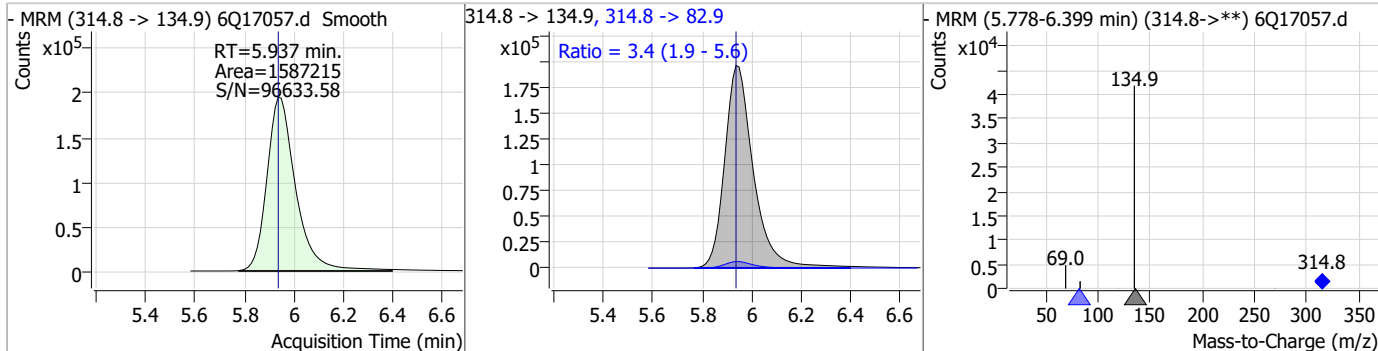
7.7.22

Perfluorinated Compounds by LC/MS/MS

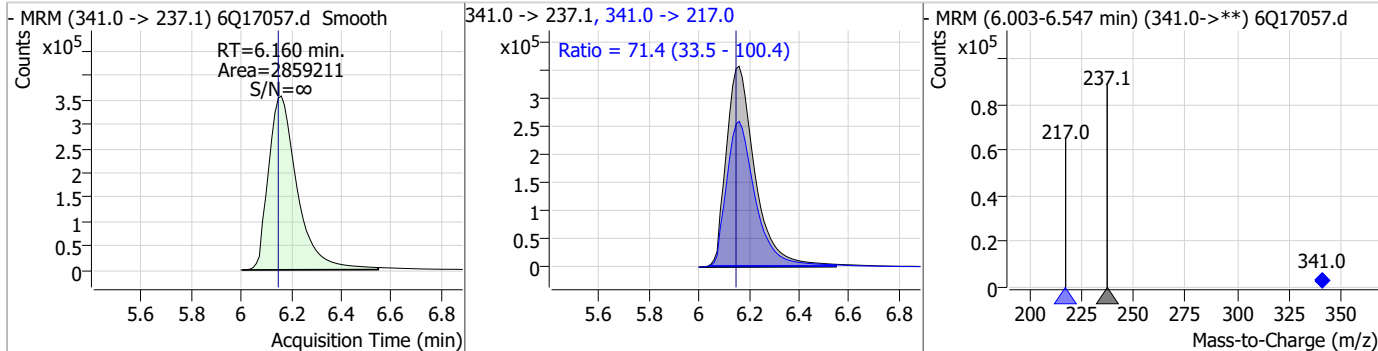
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	50.17	5.83	-0.01	192769	284.9 -> 184.9	13.0	7.0	20.9



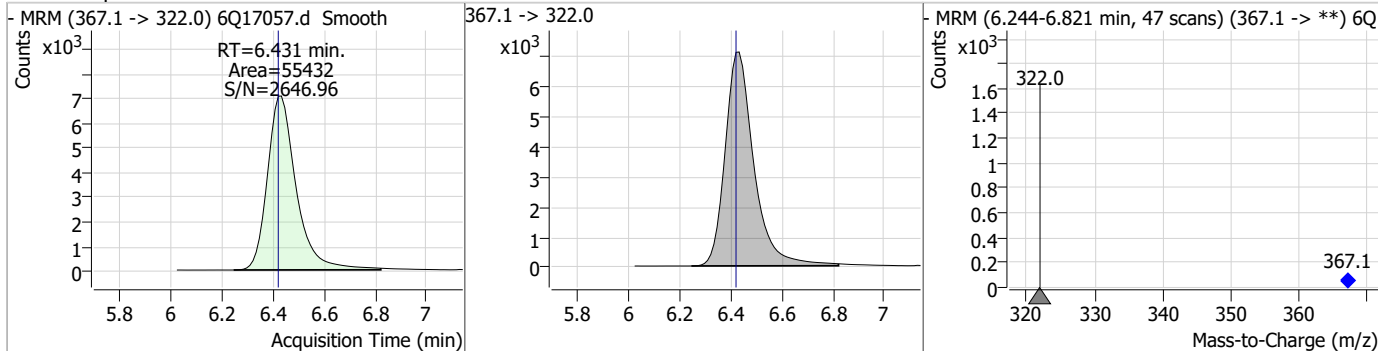
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	45.58	5.94	0.00	1587215	314.8 -> 82.9	3.4	1.9	5.6



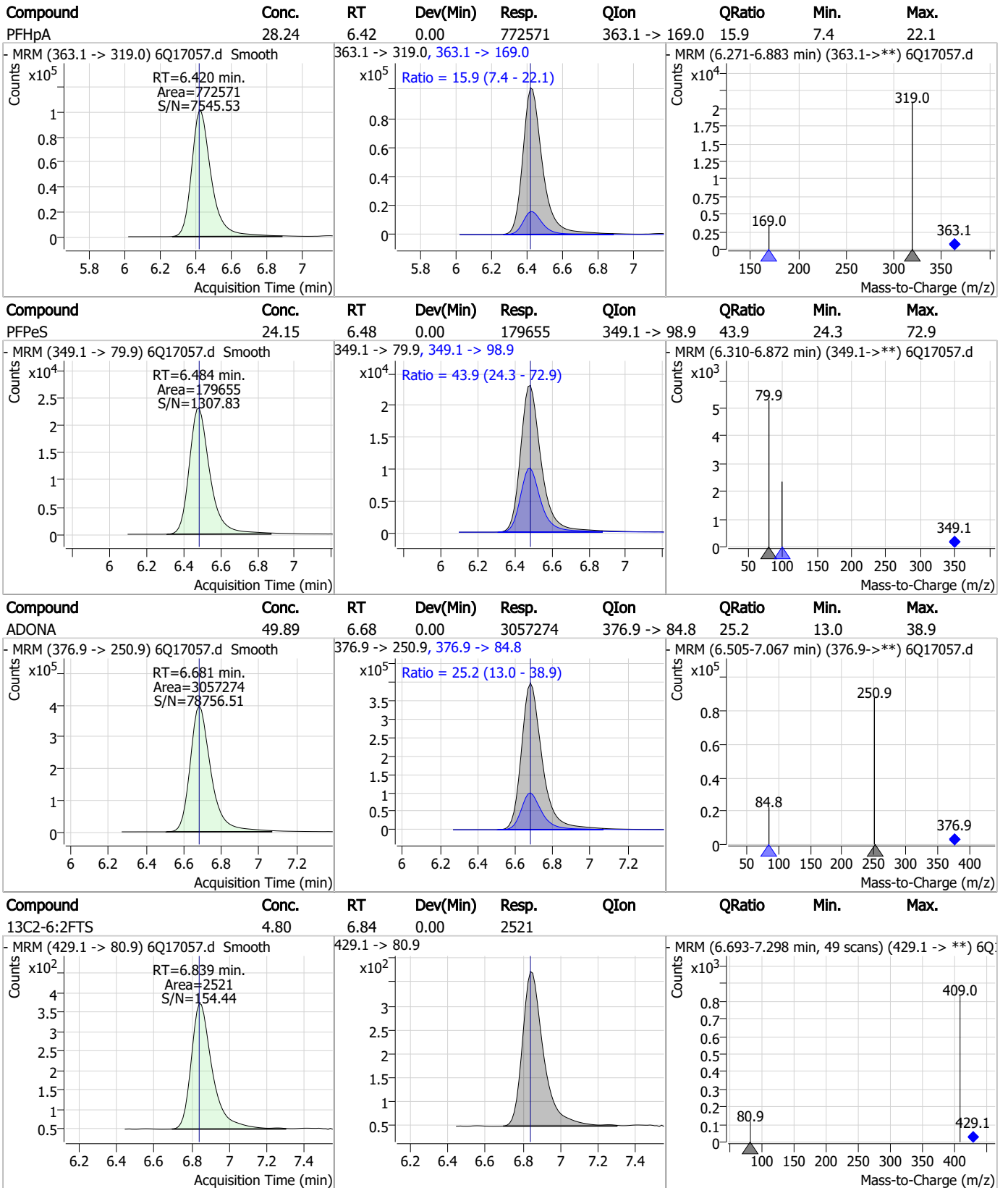
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	640.22	6.16	0.01	2859211	341.0 -> 217.0	71.4	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.39	6.43	0.01	55432	367.1 -> 322.0			



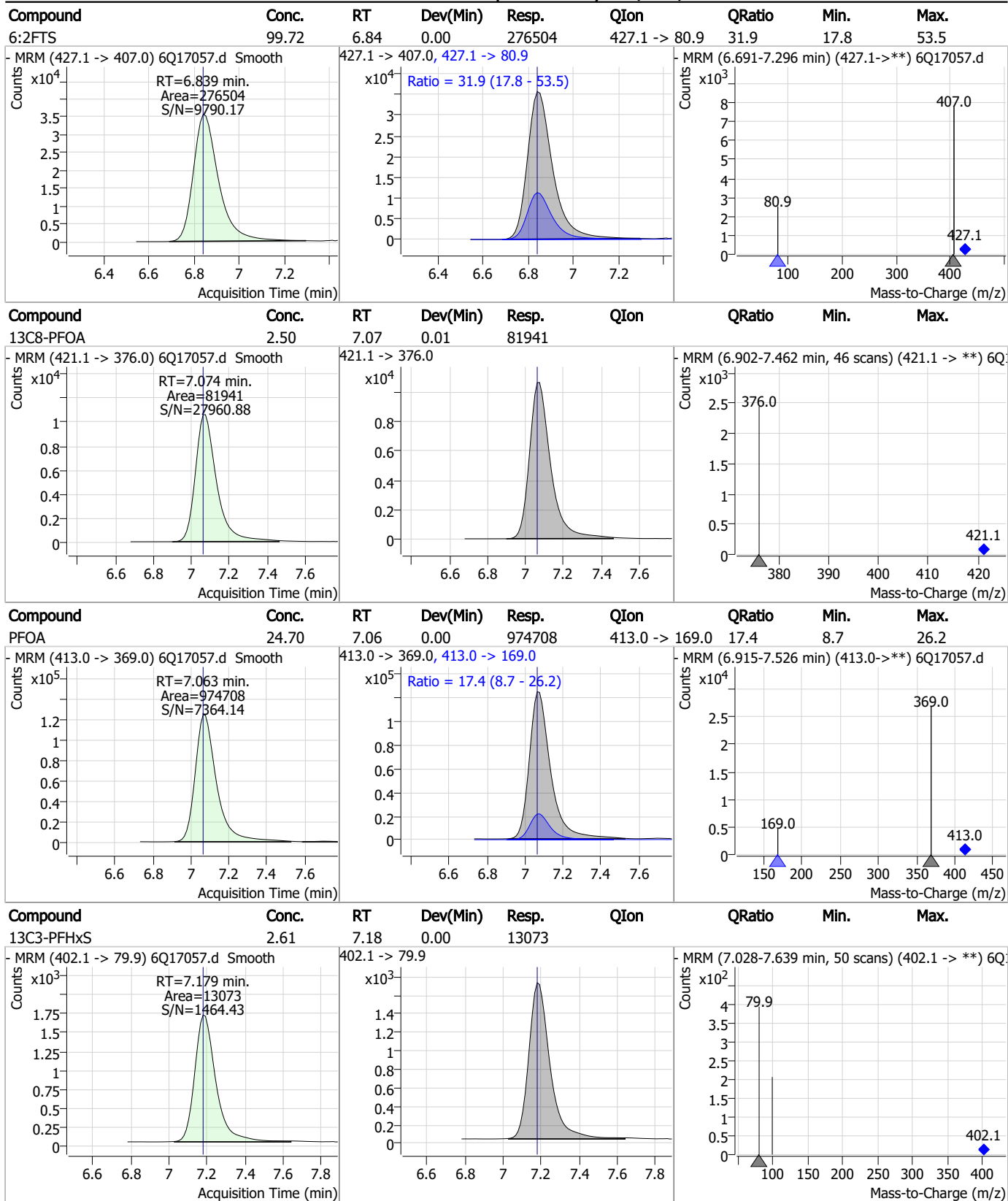
Perfluorinated Compounds by LC/MS/MS



7.7.22 7

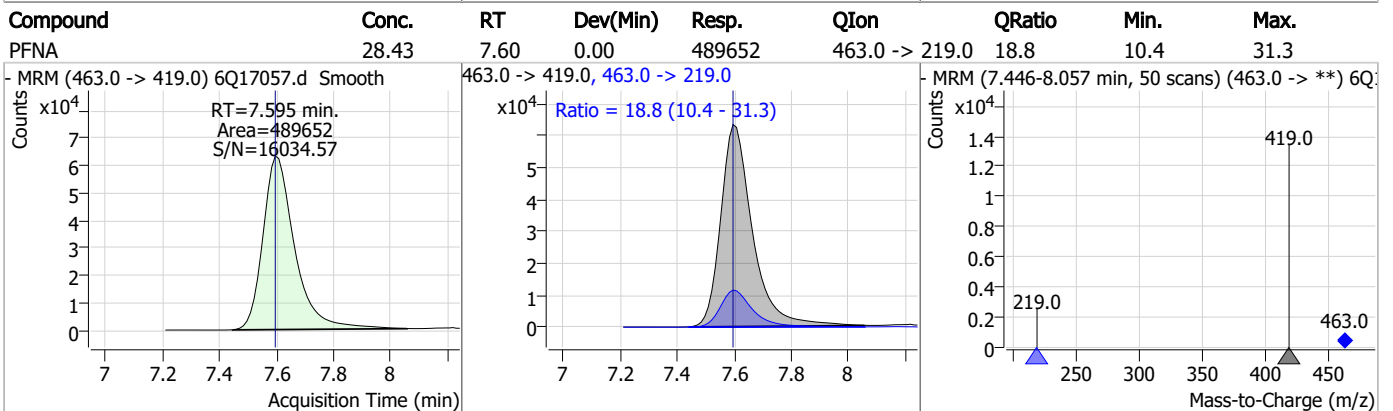
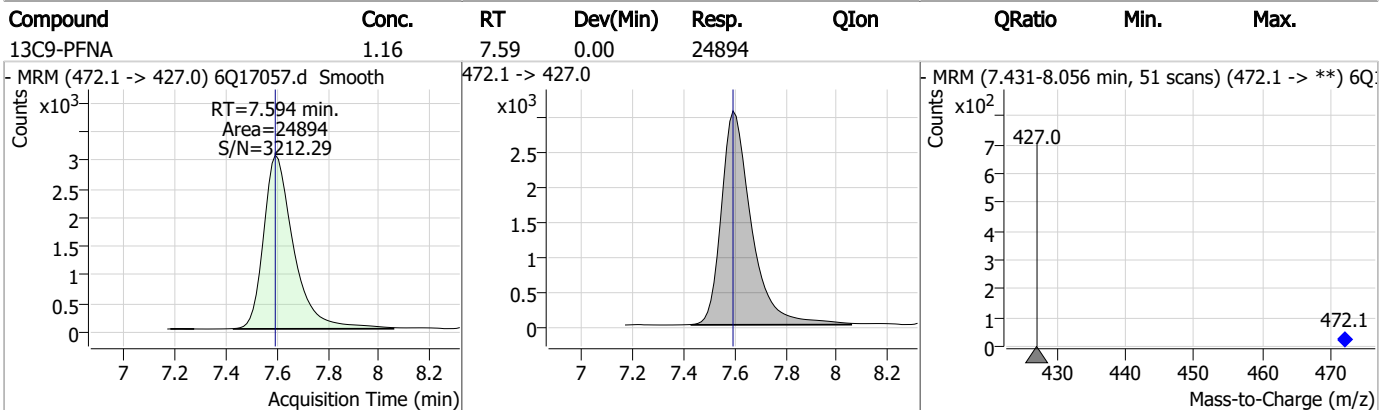
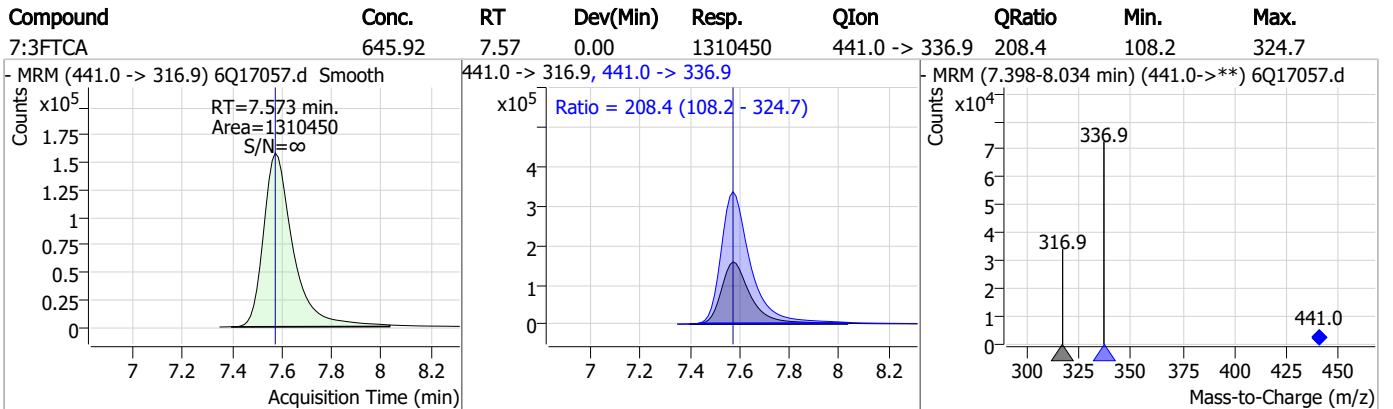
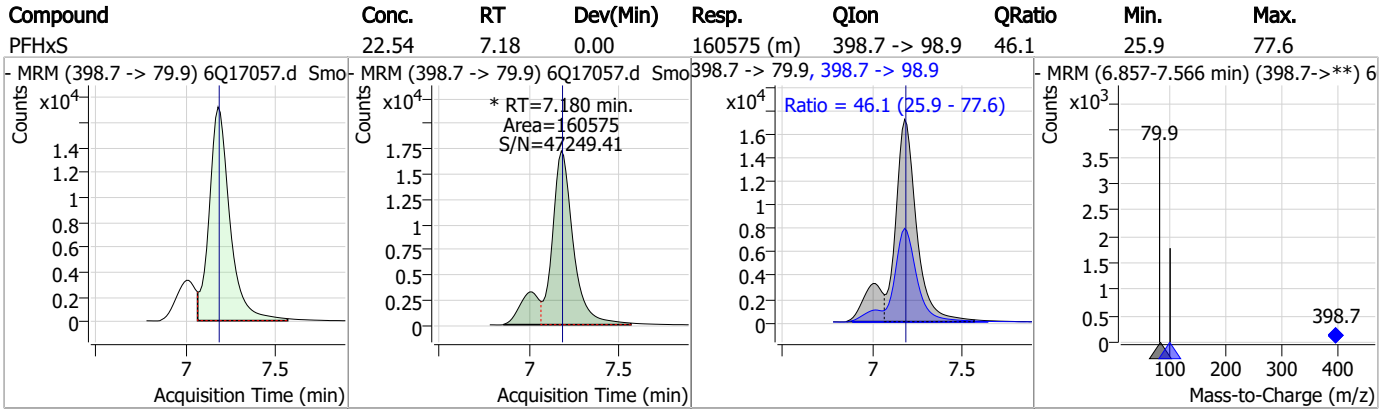


Perfluorinated Compounds by LC/MS/MS



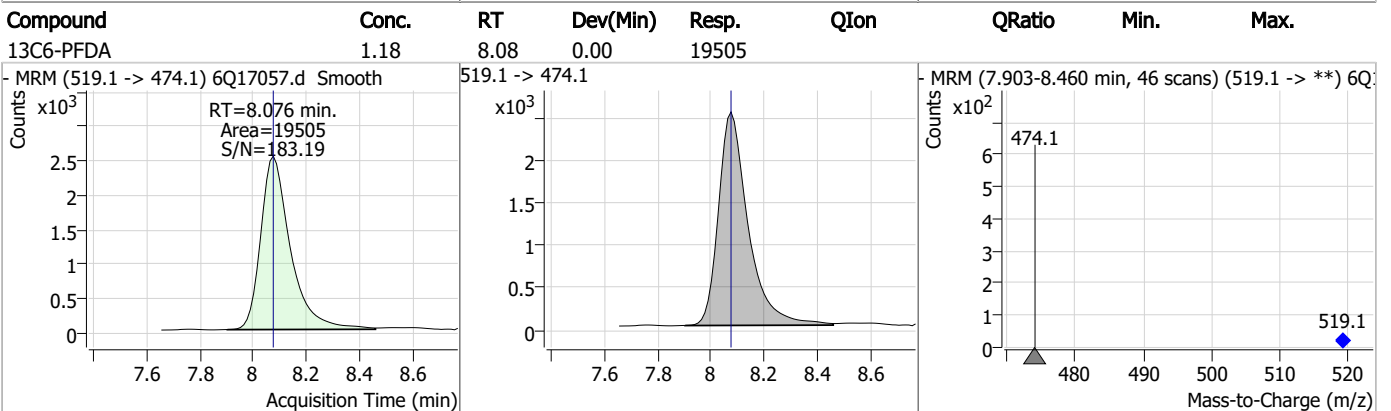
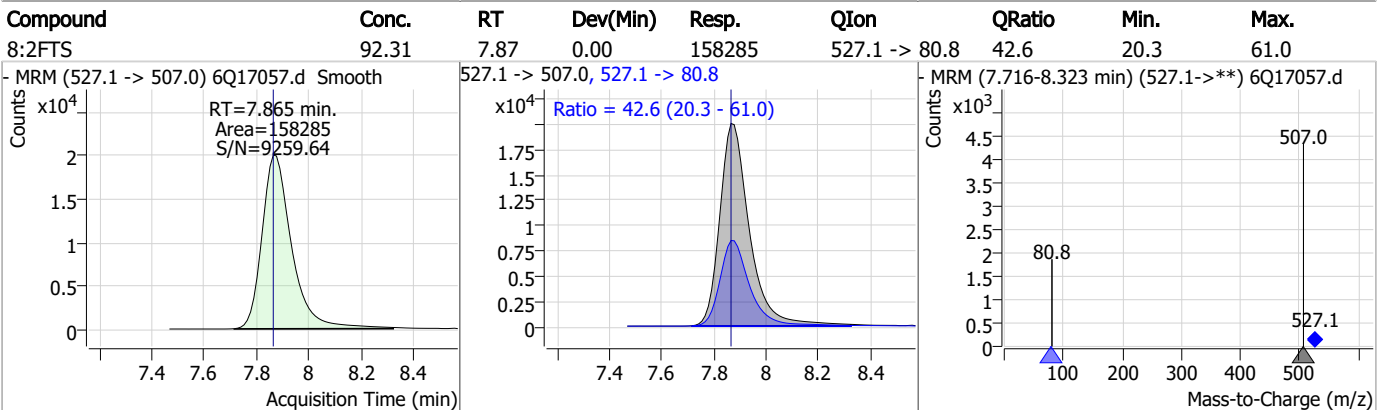
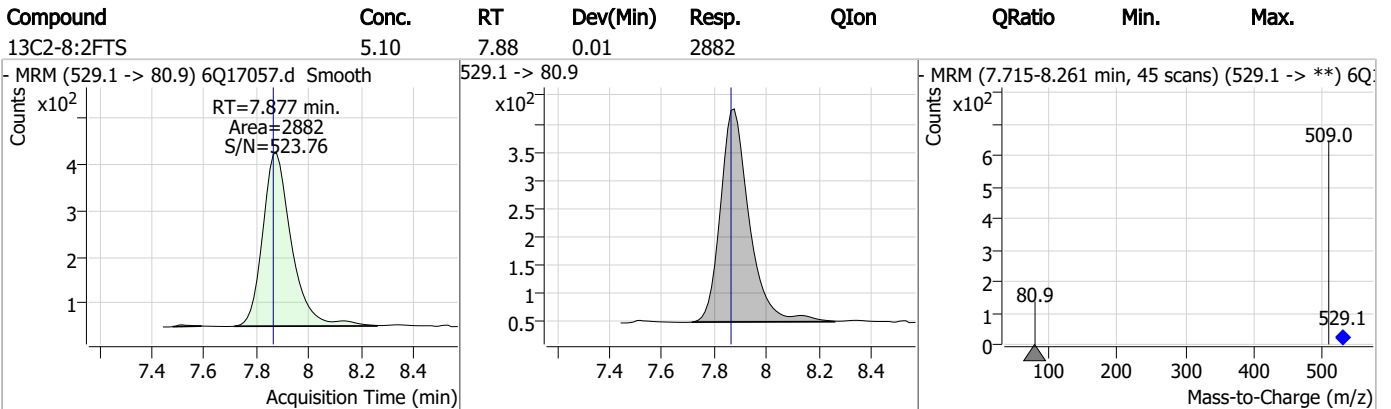
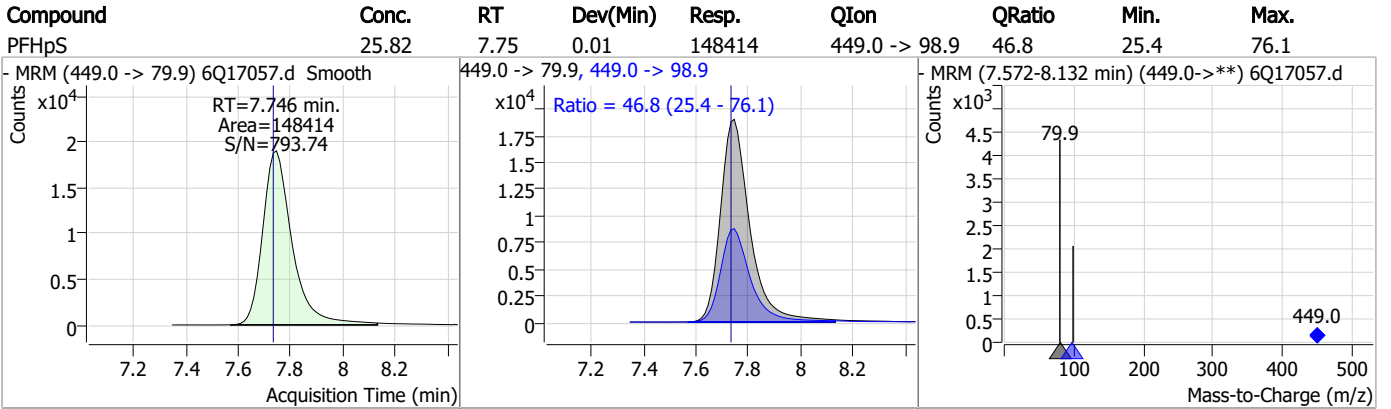
7.7.22 7

Perfluorinated Compounds by LC/MS/MS



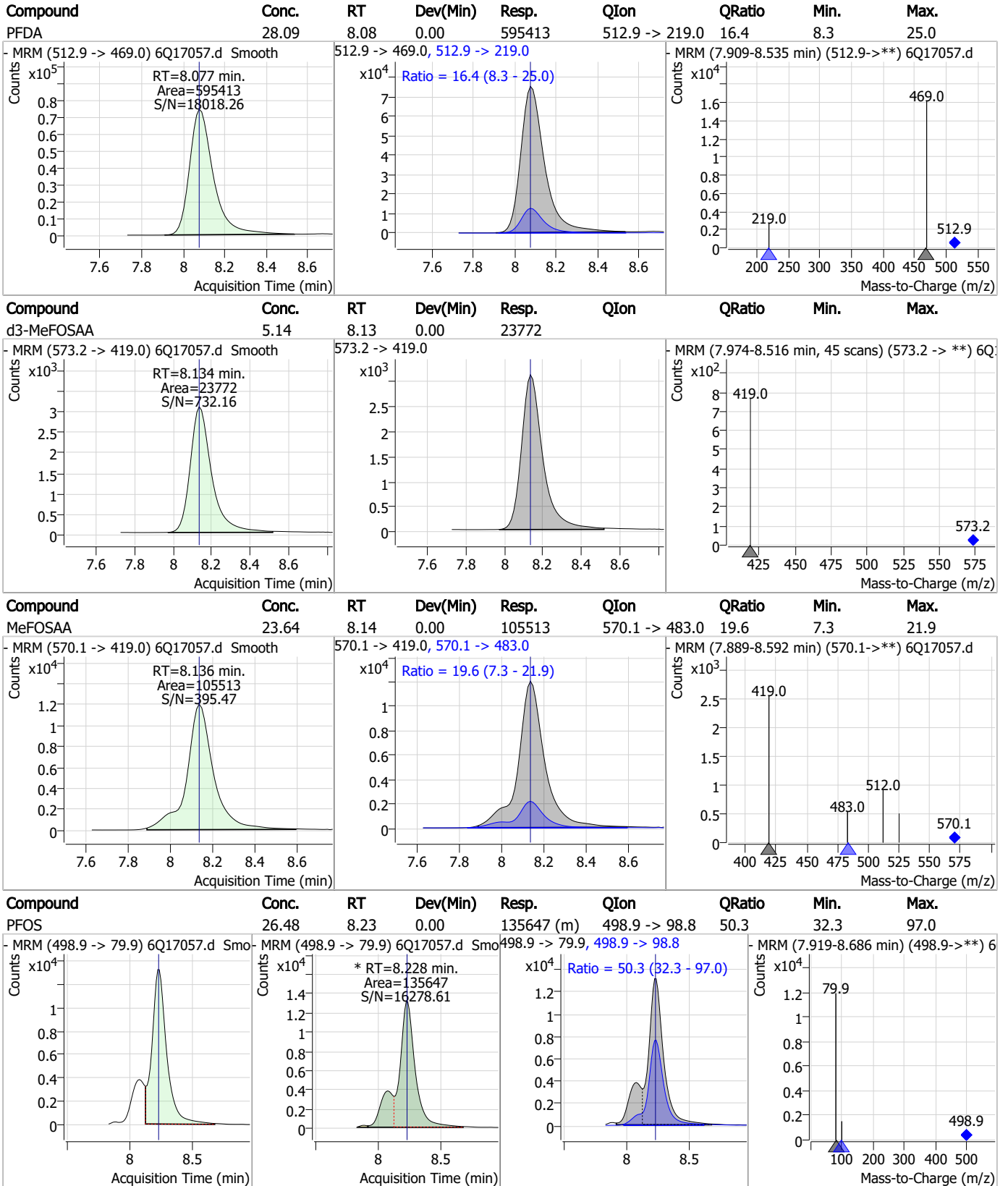
7.7.22
7

Perfluorinated Compounds by LC/MS/MS



7.7.22 7

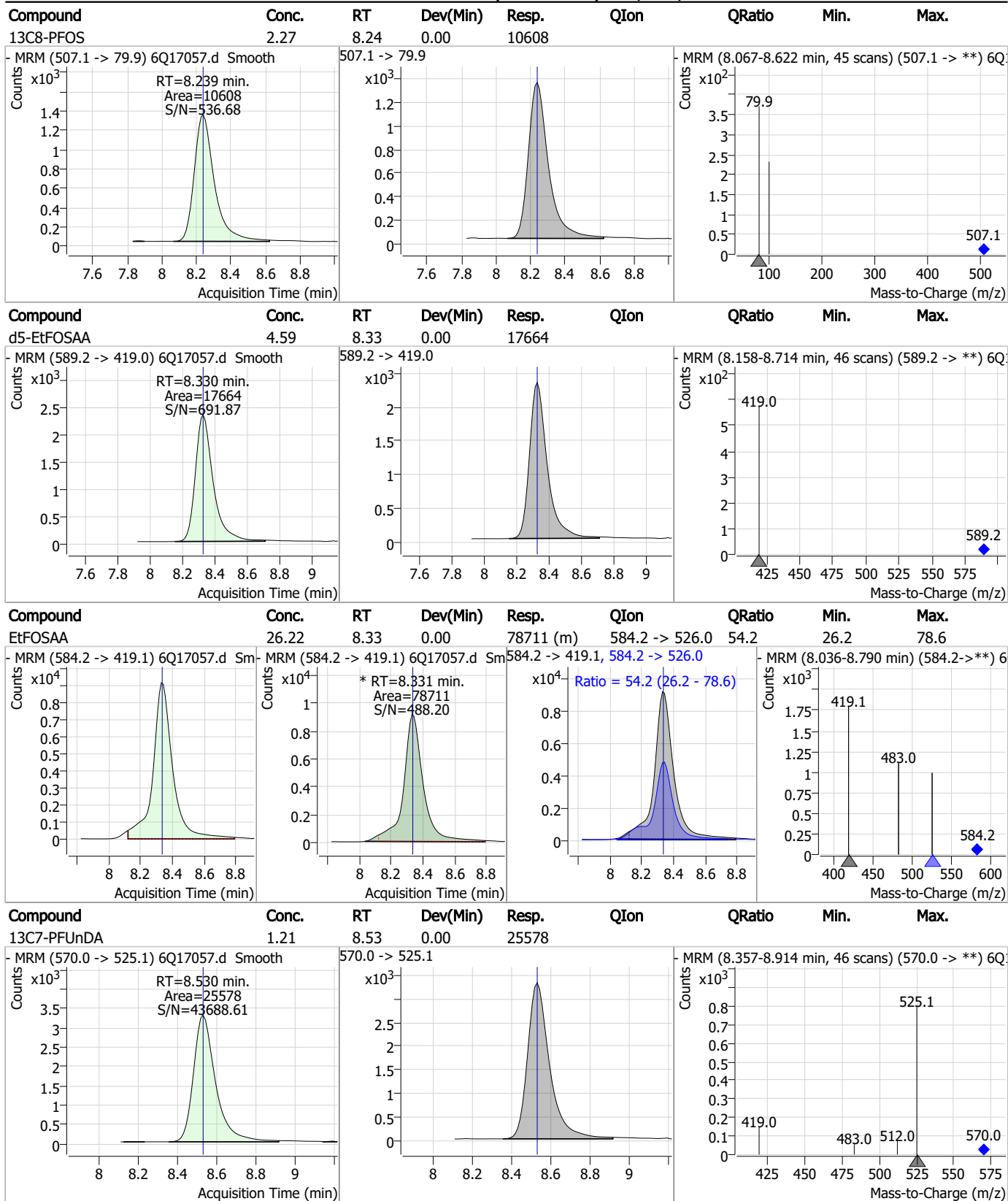
Perfluorinated Compounds by LC/MS/MS



7.7.22 7



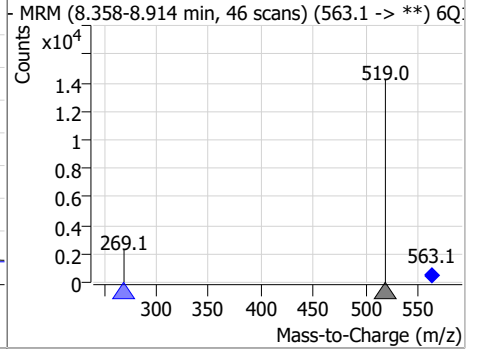
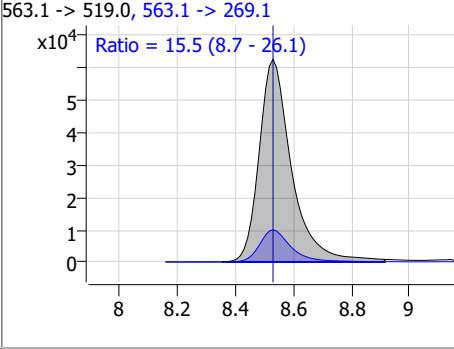
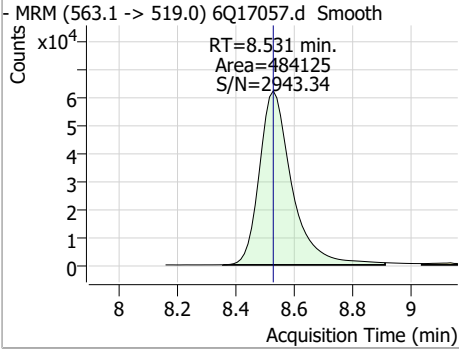
Perfluorinated Compounds by LC/MS/MS



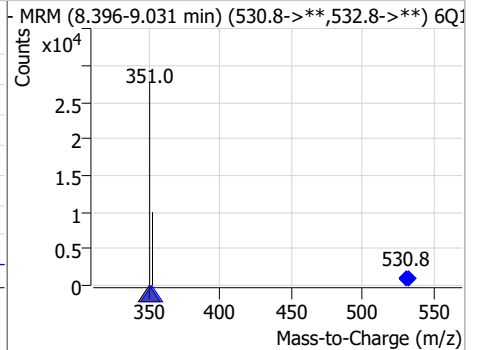
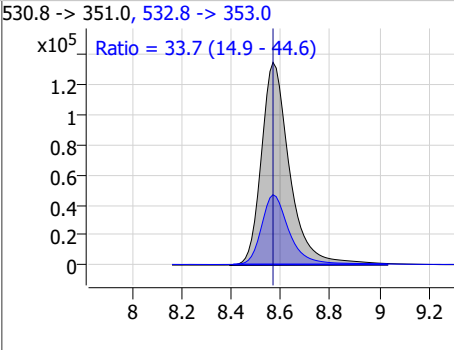
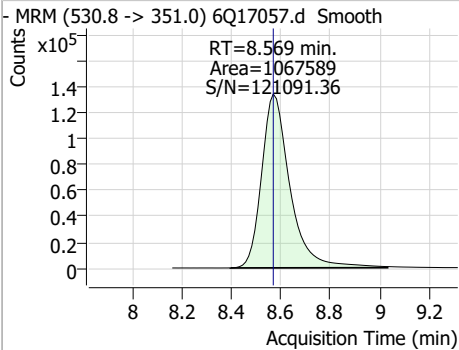
7.7.22 7

Perfluorinated Compounds by LC/MS/MS

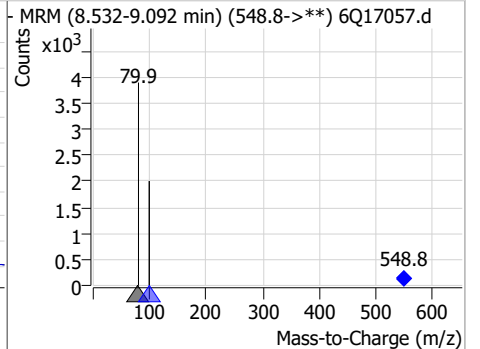
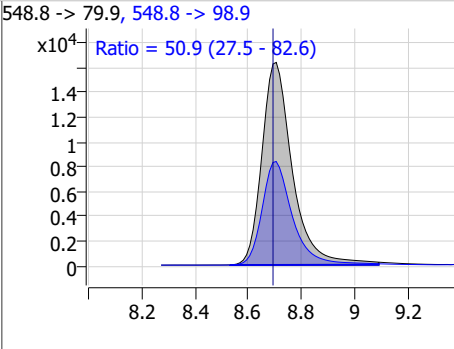
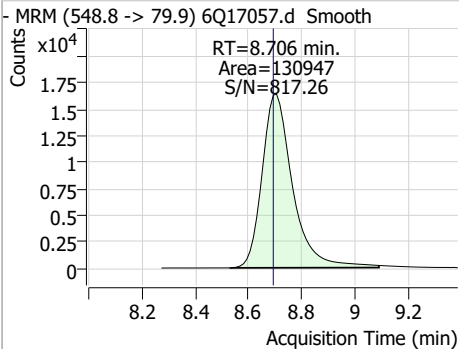
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	27.29	8.53	0.00	484125	563.1 -> 269.1	15.5	8.7	26.1



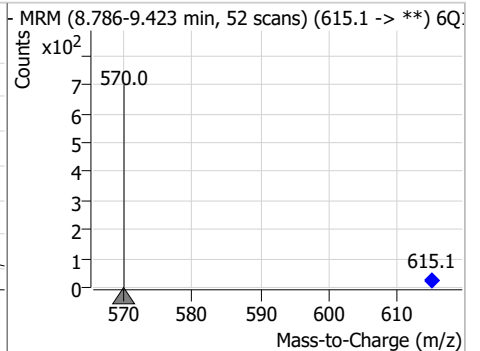
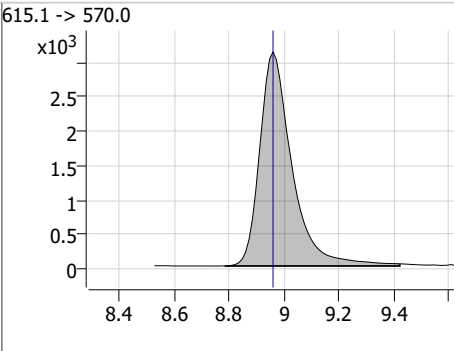
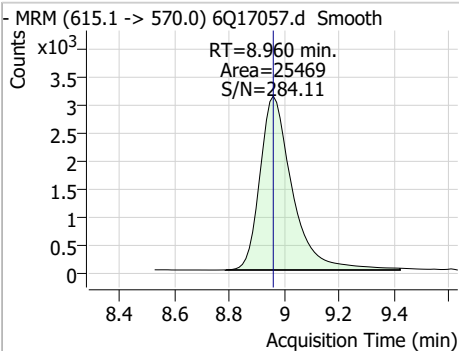
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	48.50	8.57	0.00	1067589	532.8 -> 353.0	33.7	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	25.58	8.71	0.01	130947	548.8 -> 98.9	50.9	27.5	82.6

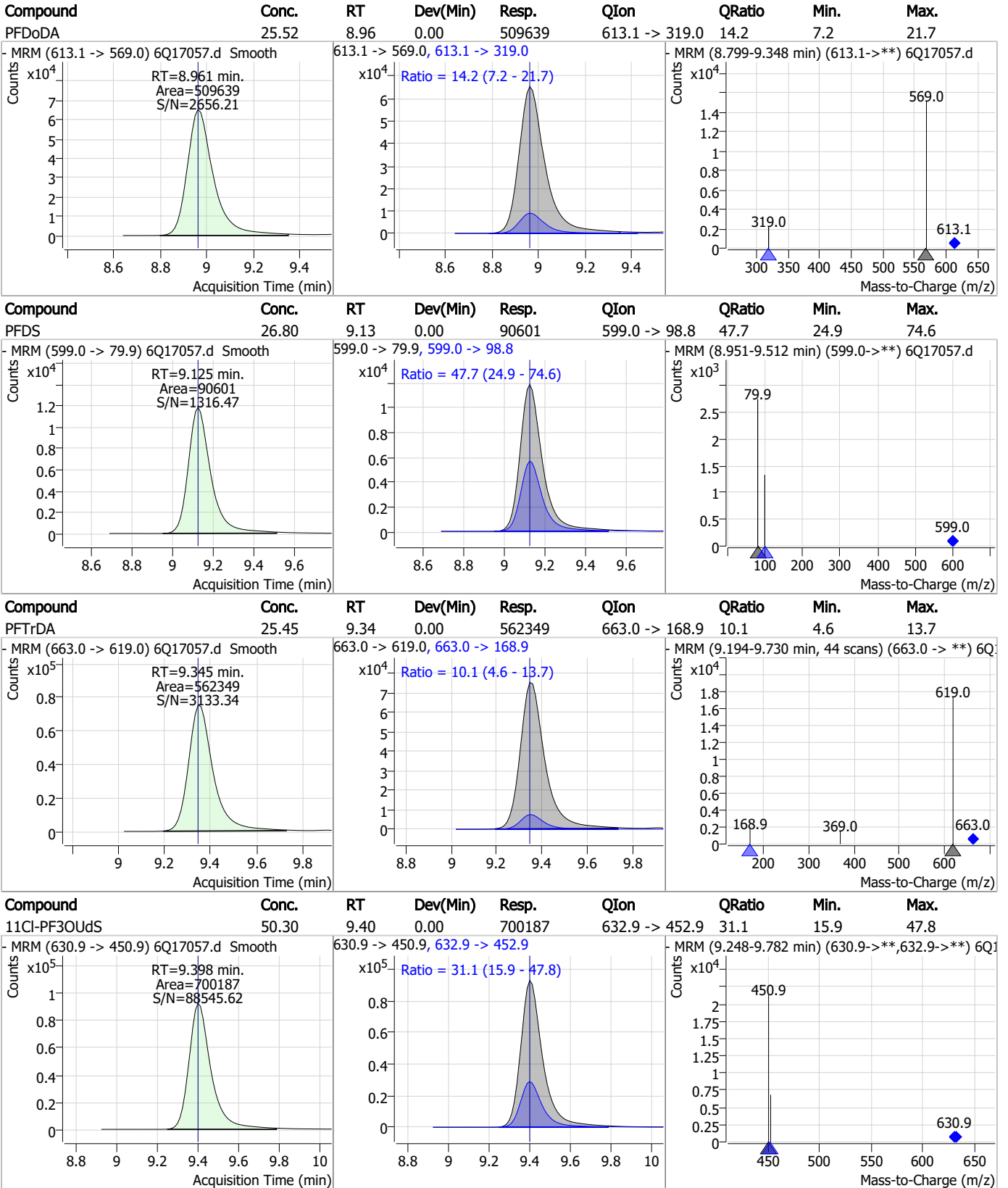


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.23	8.96	0.00	25469	615.1 -> 570.0			



7.7.22 7

Perfluorinated Compounds by LC/MS/MS

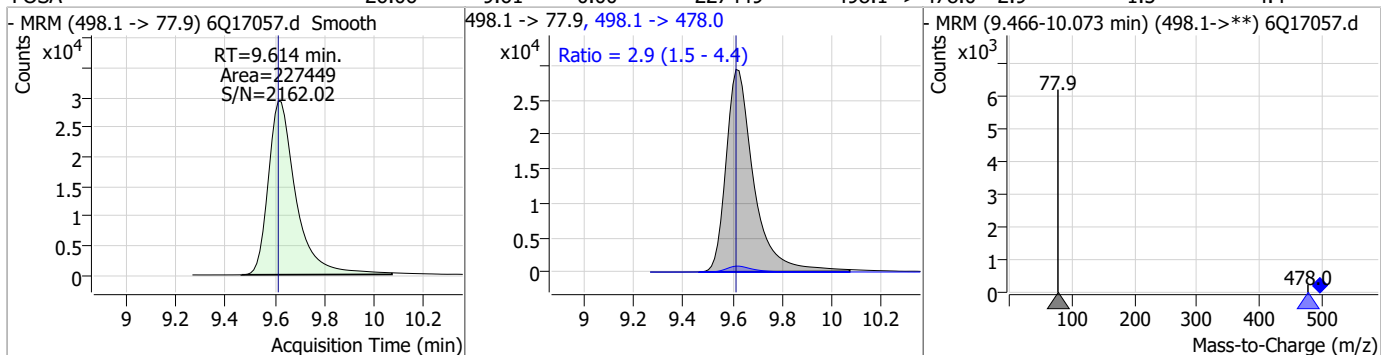


7.7.22 7

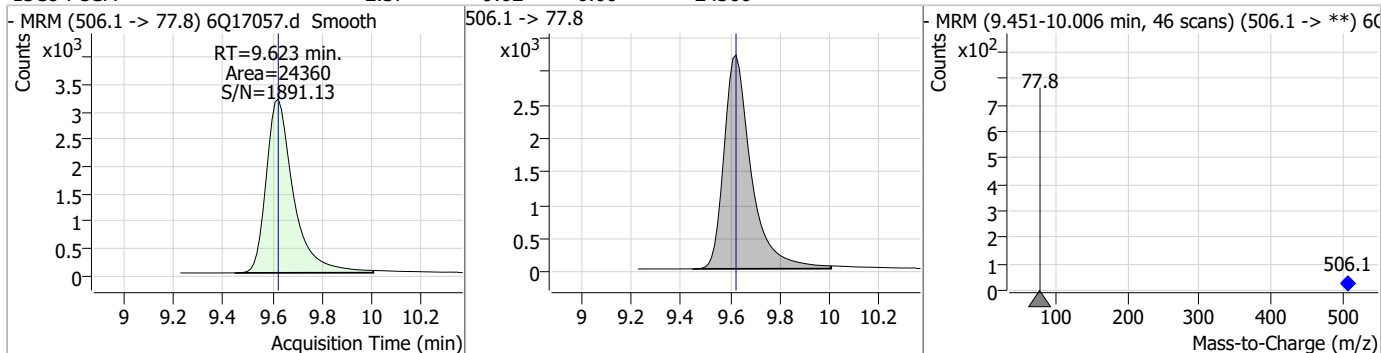


Perfluorinated Compounds by LC/MS/MS

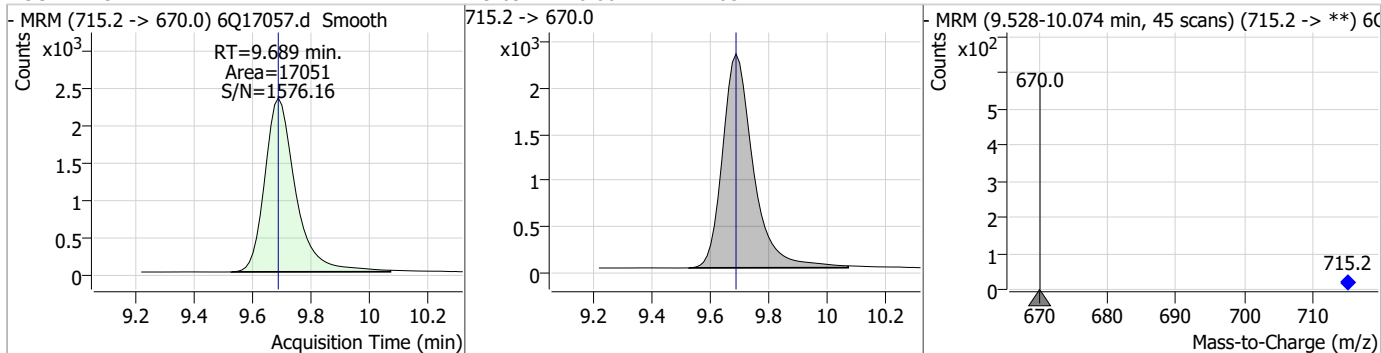
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	26.06	9.61	0.00	227449	498.1 -> 478.0	2.9	1.5	4.4



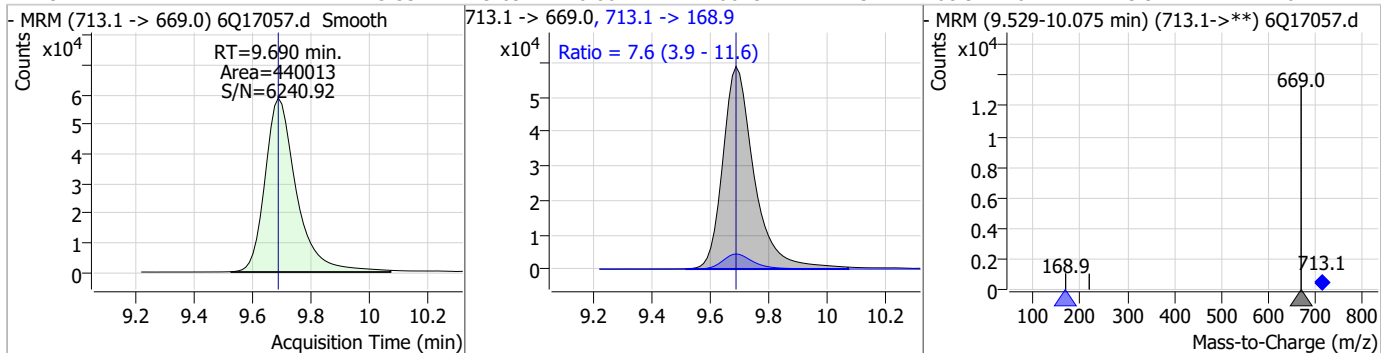
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.37	9.62	0.00	24360				



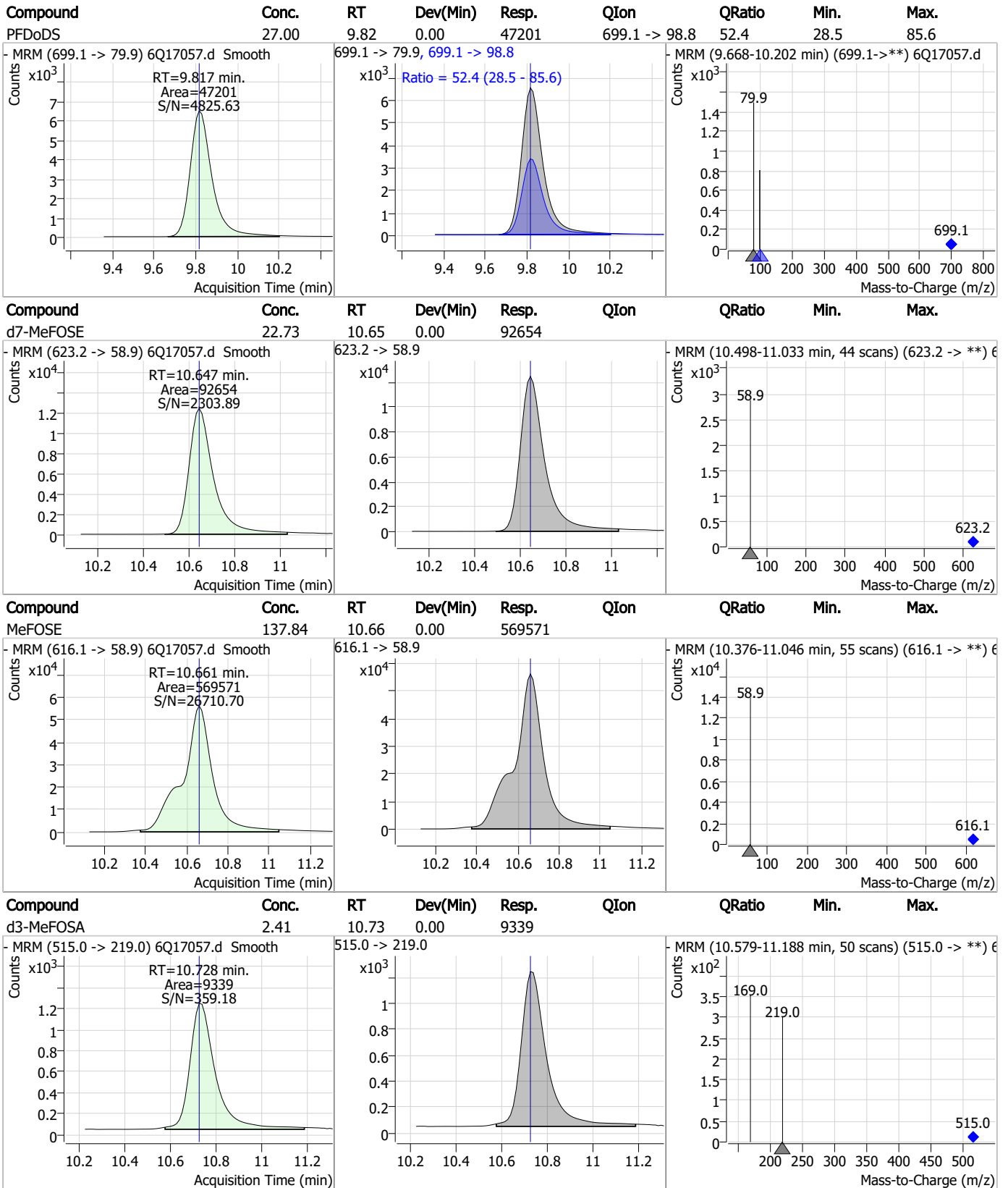
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.21	9.69	0.00	17051				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	25.53	9.69	0.00	440013	713.1 -> 168.9	7.6	3.9	11.6

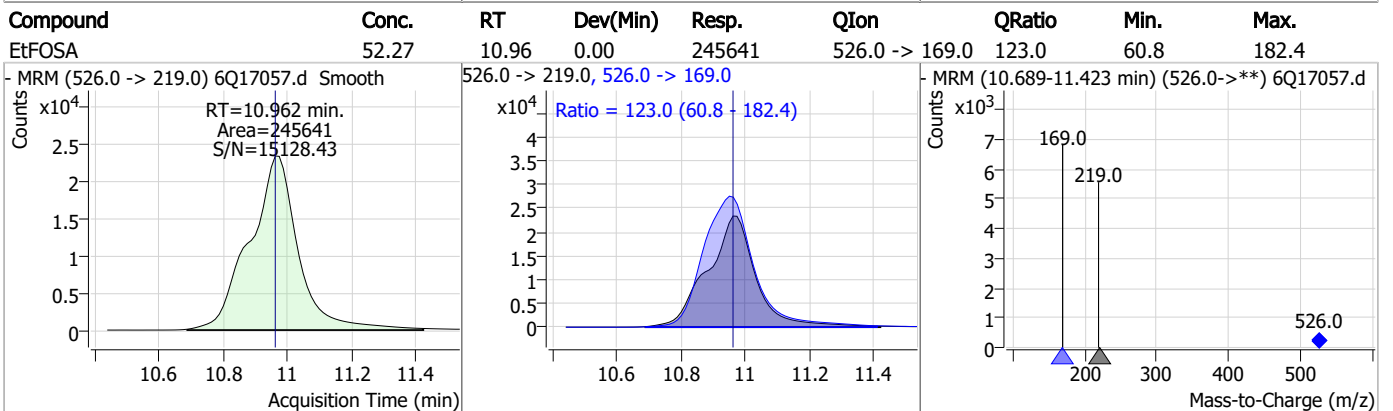
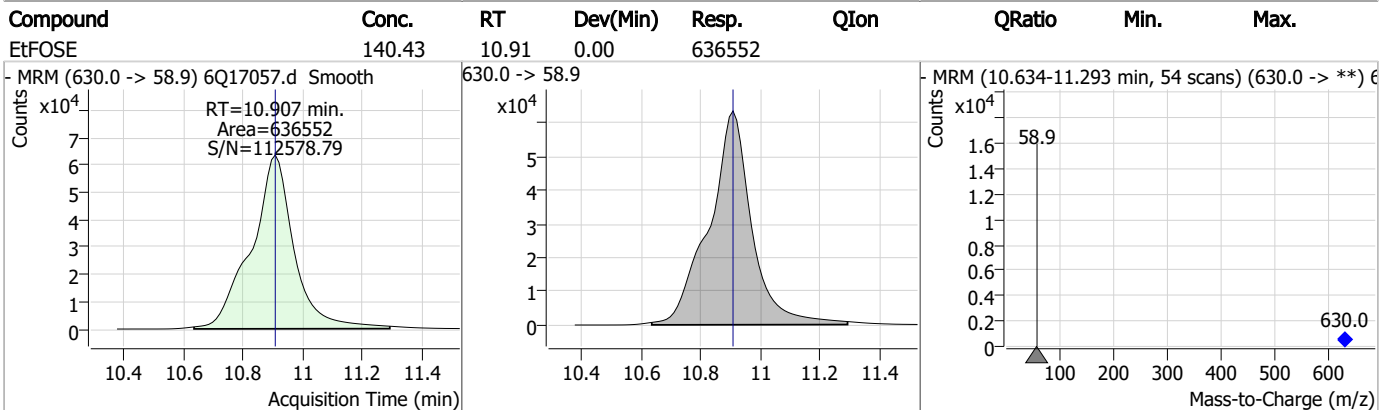
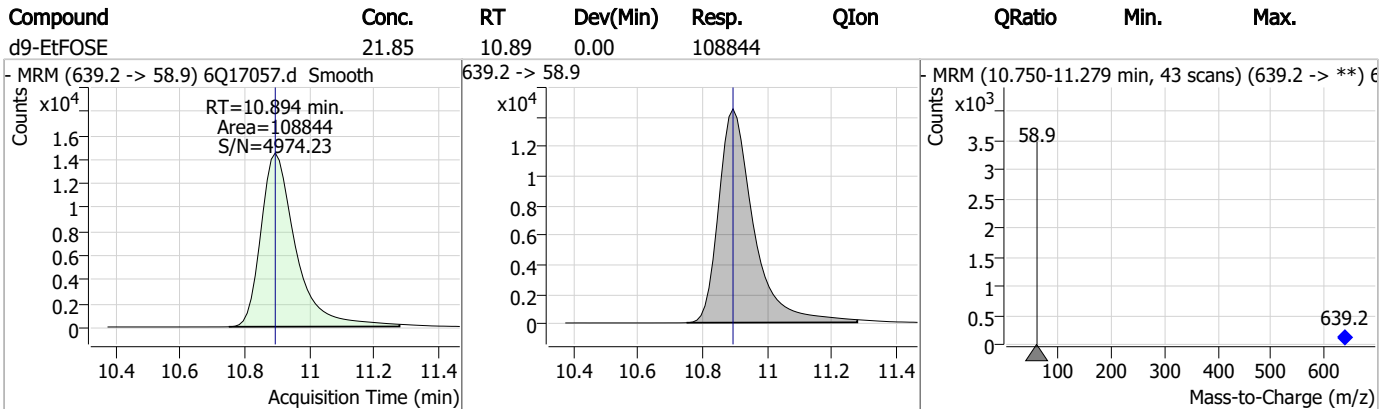
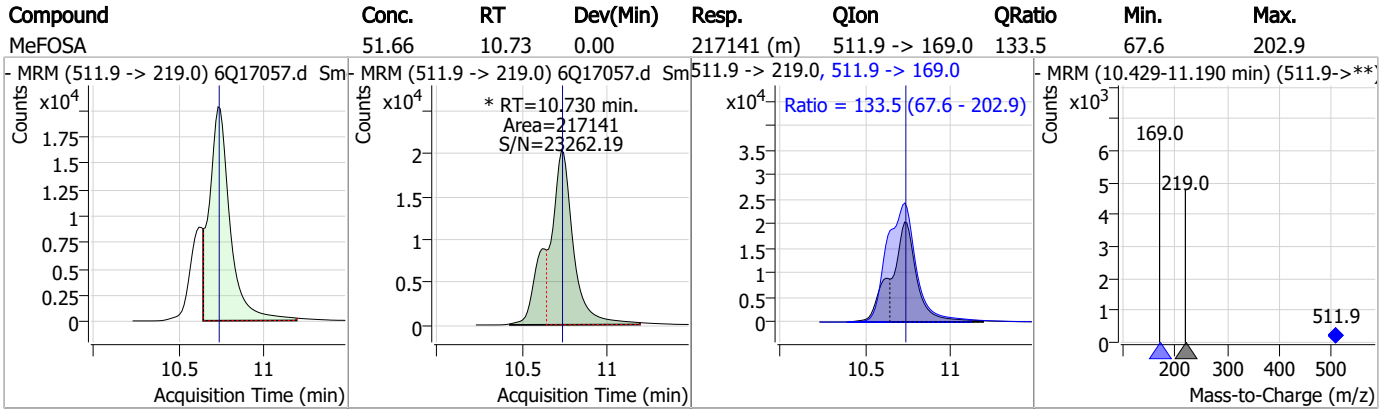


Perfluorinated Compounds by LC/MS/MS



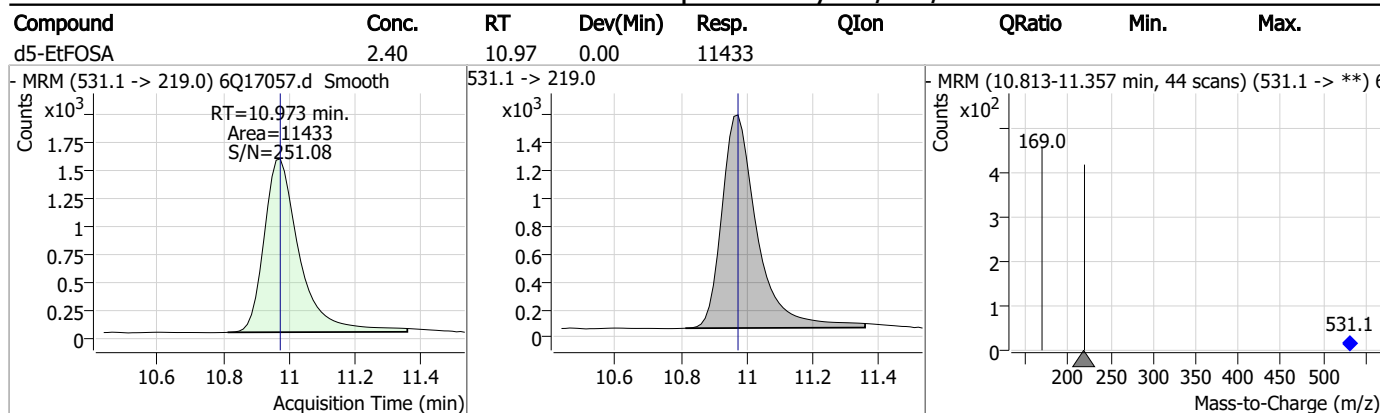
7.7.22 7

Perfluorinated Compounds by LC/MS/MS



7.7.22 7

Perfluorinated Compounds by LC/MS/MS



7.7.22
7

Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17057.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:17 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
EtFOSAA	2991-50-6		8.33	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.7.22.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17058.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 2:31:43 PM
 Sample Name : ic258-8
 Vial : P1-A9
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	151130	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	59245	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	64171	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	54383	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	81933	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	24955	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19248	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	23977	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24900	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16568	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	23871	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	21371	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12072	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	11247	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2089	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2596	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	2849	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	20331	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	38629	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17875	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	89075	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	107649	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	10678	2.50 µg/L	0.000
M3-MeFOSA	10.728	515.0 -> 219.0	10079	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	14553	2.50 µg/L	-0.012
13C3-PFBA	2.889	216.0 -> 172.0	65582	5.00 µg/L	-0.012
18O2-PFHxS	7.177	403.0 -> 83.9	9221	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	82388	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	24077	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	26423	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	55057	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2089	4.93 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.5%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2596	5.04 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2849	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24900	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16568	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.8%		
13C3-PFBS	5.398	302.1 -> 79.9	21371	2.46 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C3-PFHxS	7.179	402.1 -> 79.9	12072	2.46 µg/L	0.000

7.7.23
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 = 98.4%	
13C4-PFBA	2.897	216.8 -> 171.9	151130	9.97 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C4-PFHpA	6.419	367.1 -> 322.0	54383	2.41 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.6%	
13C5-PFHxA	5.468	318.0 -> 273.0	64171	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.7%	
13C5-PFPeA	4.270	268.3 -> 223.0	59245	4.82 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
13C6-PFDA	8.076	519.1 -> 474.1	19248	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 97.0%	
13C7-PFUnDA	8.530	570.0 -> 525.1	23977	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.3%	
13C8-FOSA	9.623	506.1 -> 77.8	23871	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.2%	
13C8-PFOA	7.062	421.1 -> 376.0	81933	2.58 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C8-PFOS	8.226	507.1 -> 79.9	11247	2.57 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.6%	
13C9-PFNA	7.594	472.1 -> 427.0	24955	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	20331	4.69 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 93.8%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38629	9.91 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.1%	
d3-MeFOSA	10.728	515.0 -> 219.0	10079	2.77 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 110.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17875	4.96 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 99.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	89075	23.32 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 93.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	107649	23.07 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 92.3%	
d5-EtFOSA	10.973	531.1 -> 219.0	10678	2.39 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 95.7%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	697434	220.71 µg/L	99
		327.1 -> 80.9	262914		
6:2FTS	6.839	427.1 -> 407.0	625666	219.13 µg/L	97
		427.1 -> 80.9	214122		
8:2FTS	7.865	527.1 -> 507.0	348850	205.80 µg/L	99
		527.1 -> 80.8	143241		
EtFOSAA	8.331	584.2 -> 419.1	208550	68.65 µg/L	100
		584.2 -> 526.0	109068		
FOSA	9.614	498.1 -> 77.9	564526	66.00 µg/L	100
		498.1 -> 478.0	16955		
MeFOSAA	8.136	570.1 -> 419.0	268599	70.36 µg/L	90
		570.1 -> 483.0	50249		
PFBA	2.893	212.8 -> 168.9	1355052	267.34 µg/L	100
PFBS	5.400	298.7 -> 79.9	539834	56.29 µg/L	99
		298.7 -> 98.8	219827		
PFDA	8.077	512.9 -> 469.0	1462362	69.92 µg/L	98
		512.9 -> 219.0	230825		
PFDoDA	8.961	613.1 -> 569.0	1244394	63.75 µg/L	99
		613.1 -> 319.0	183825		
PFDS	9.125	599.0 -> 79.9	220016	61.38 µg/L	96

7.7.23
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	104007	69.58	µg/L	99
		363.1 -> 319.0	1867275			
PFHpS	7.734	363.1 -> 169.0	282777	60.34	µg/L	100
		449.0 -> 79.9	367816			
PFHxA	5.470	449.0 -> 98.9	185825	67.28	µg/L	99
		313.0 -> 269.0	1707020			
PFHxS	7.180	313.0 -> 118.9	75498	62.51	µg/L	91
		398.7 -> 79.9	411201			
PFNA	7.595	398.7 -> 98.9	186310	67.51	µg/L	96
		463.0 -> 419.0	1165424			
PFNS	8.694	463.0 -> 219.0	221443	58.41	µg/L	99
		548.8 -> 79.9	317111			
PFOA	7.063	548.8 -> 98.9	176024	62.50	µg/L	97
		413.0 -> 369.0	2469950			
PFOS	8.240	413.0 -> 169.0	403014	57.36	µg/L	83
		498.9 -> 79.9	311549			
PFPeA	4.273	498.9 -> 98.8	160890	130.45	µg/L	100
		263.0 -> 219.0	2105084			
PFPeS	6.472	349.1 -> 79.9	437428	63.67	µg/L	93
		349.1 -> 98.9	193273			
PFTeDA	9.690	713.1 -> 669.0	1058689	63.23	µg/L	100
		713.1 -> 168.9	80979			
PFTrDA	9.345	663.0 -> 619.0	1376902	63.73	µg/L	99
		663.0 -> 168.9	124045			
PFUnDA	8.531	563.1 -> 519.0	1133142	68.14	µg/L	95
		563.1 -> 269.1	173575			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	1661712	125.35	µg/L	98
		632.9 -> 452.9	509572			
9Cl-PF3ONS	8.569	530.8 -> 351.0	2636168	125.77	µg/L	95
		532.8 -> 353.0	857971			
ADONA	6.681	376.9 -> 250.9	7135823	122.28	µg/L	99
		376.9 -> 84.8	1798541			
HFPO-DA	5.834	284.9 -> 168.9	494197	135.07	µg/L	95
		284.9 -> 184.9	59457			
3:3FTCA	3.771	241.0 -> 177.0	341837	338.77	µg/L	97
		241.0 -> 117.0	41885			
5:3FTCA	6.147	341.0 -> 237.1	6507641	1584.88	µg/L	91
		341.0 -> 217.0	4838059			
7:3FTCA	7.573	441.0 -> 316.9	3147148	1687.19	µg/L	93
		441.0 -> 336.9	6469023			
EtFOSA	10.962	526.0 -> 219.0	583690	133.01	µg/L	92
		526.0 -> 169.0	761555			
EtFOSE	10.907	630.0 -> 58.9	1487025	331.70	µg/L	100
		511.9 -> 219.0	528578			
MeFOSA	10.743	511.9 -> 169.0	719548	116.53	µg/L	99
		616.1 -> 58.9	1309183			
MeFOSE	10.661	699.1 -> 79.9	111401	329.56	µg/L	100
		699.1 -> 98.8	65507			
PFDoDS	9.817	295.0 -> 201.0	355695	60.10	µg/L	98
		295.0 -> 84.9	85285			
NFDHA	5.350	279.0 -> 85.1	1422124	129.35	µg/L	100
		229.0 -> 84.9	1058106			
PFMBA	4.687	314.8 -> 134.9	3905822	131.01	µg/L	100
		314.8 -> 82.9	132583			
PFMPA	3.426			121.99	µg/L	99
PFEESA	5.937					

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

7.7.23
7

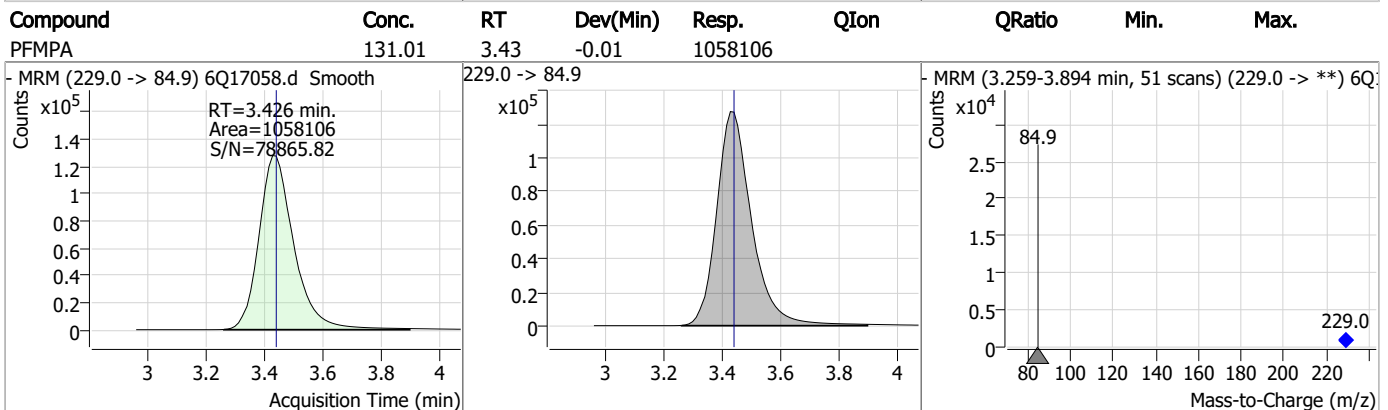
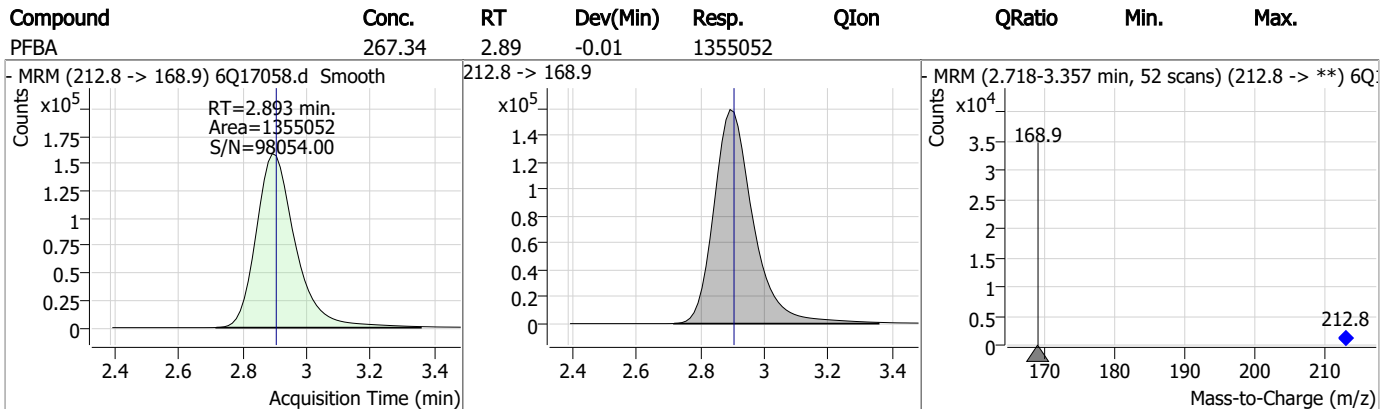
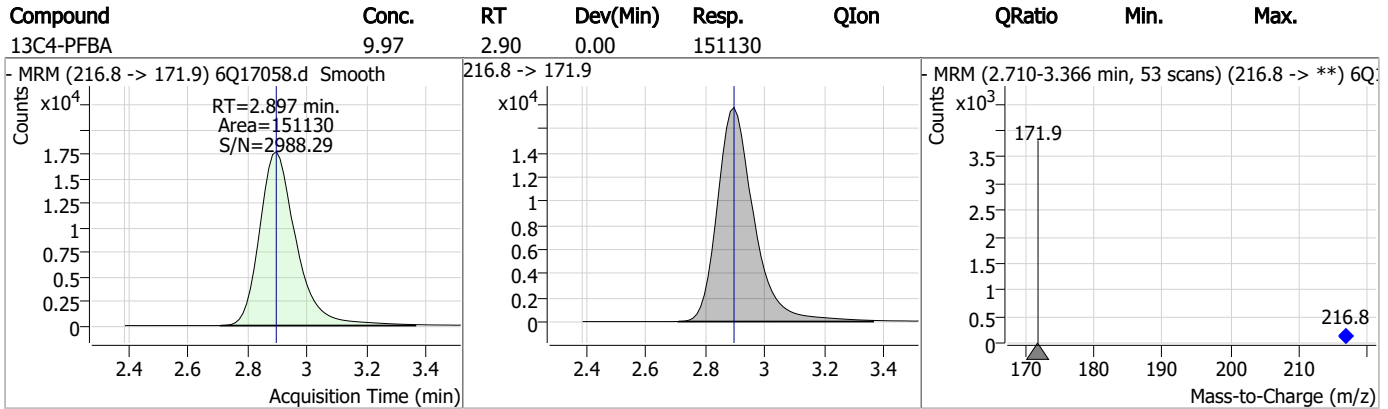
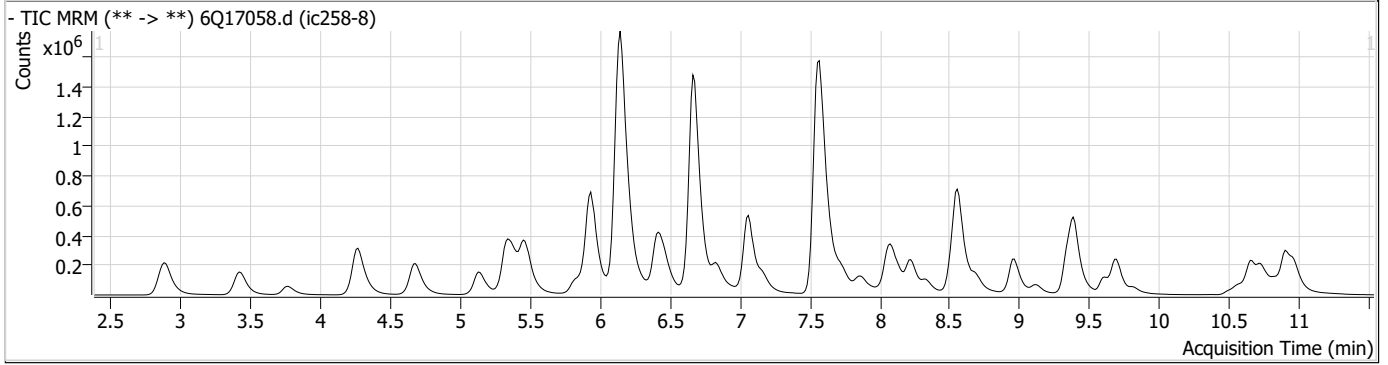
Perfluorinated Compounds by LC/MS/MS

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

7.7.23

7

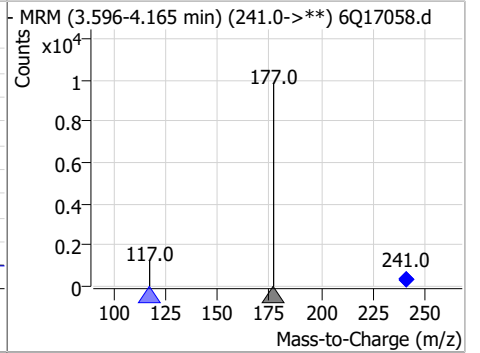
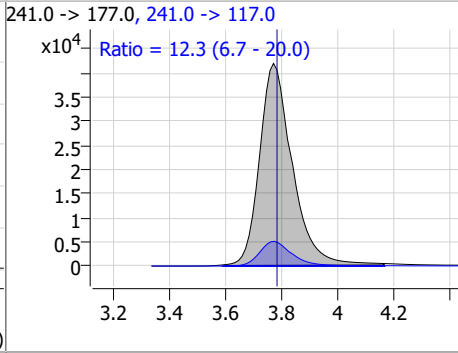
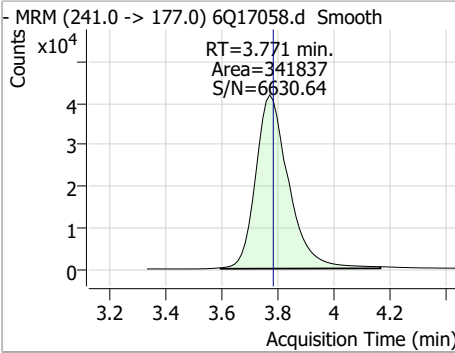
Perfluorinated Compounds by LC/MS/MS



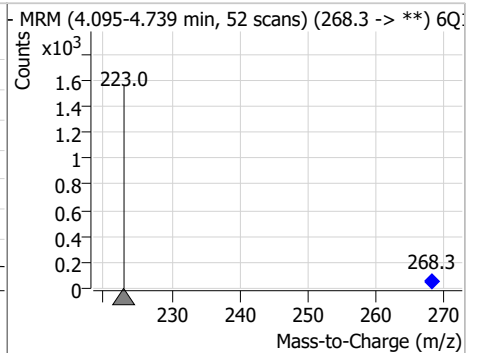
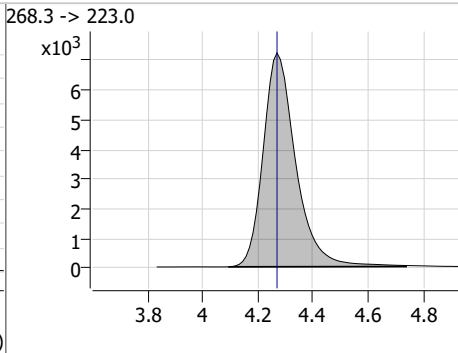
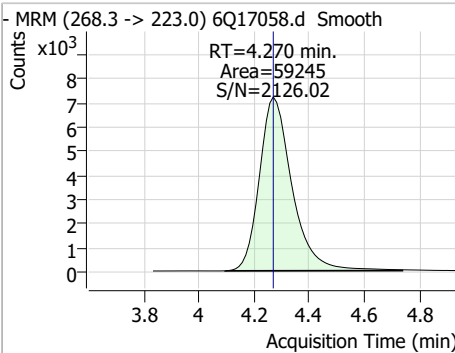
7.7.23 7

Perfluorinated Compounds by LC/MS/MS

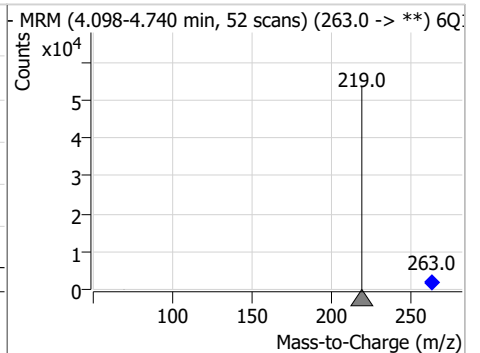
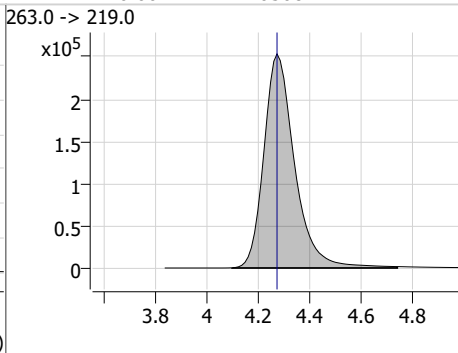
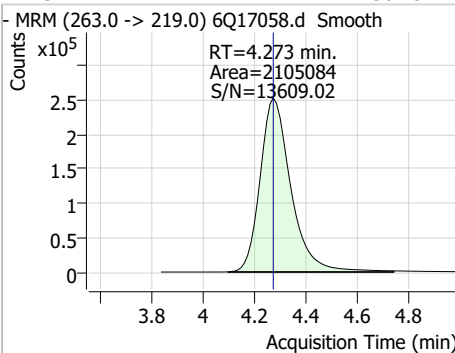
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	338.77	3.77	-0.01	341837	241.0 -> 117.0	12.3	6.7	20.0



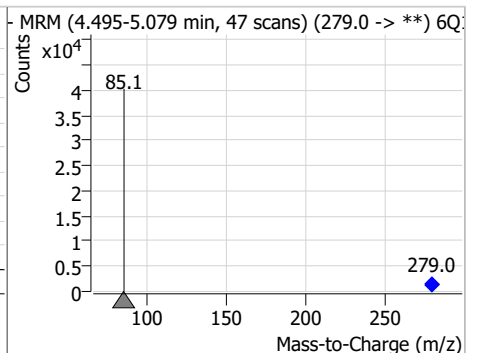
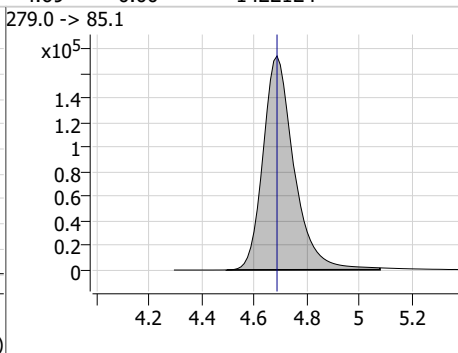
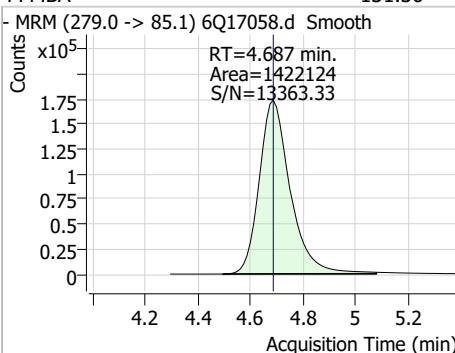
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFPeA	4.82	4.27	0.00	59245				



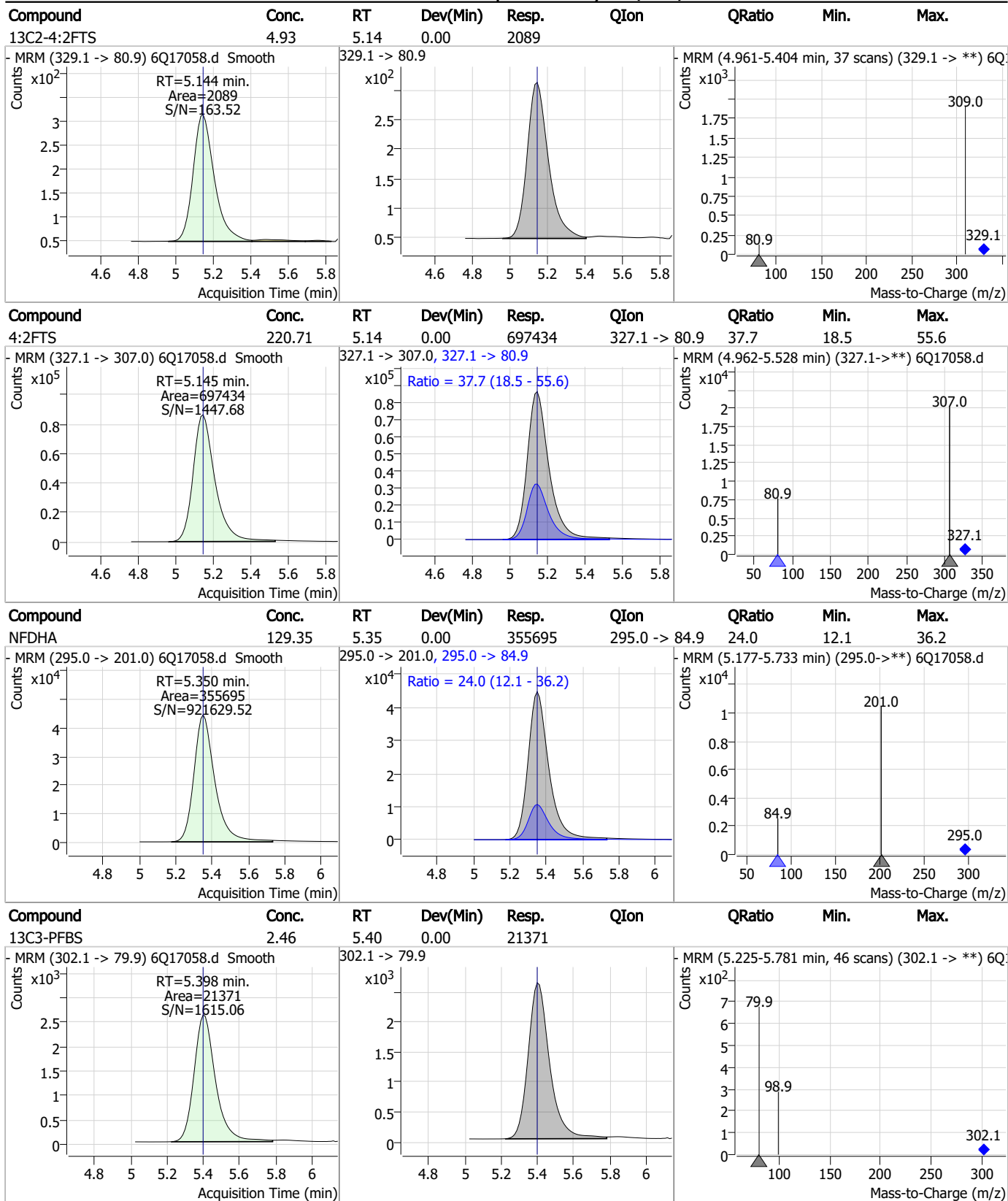
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeA	130.45	4.27	0.00	2105084				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFMBA	131.36	4.69	0.00	1422124				



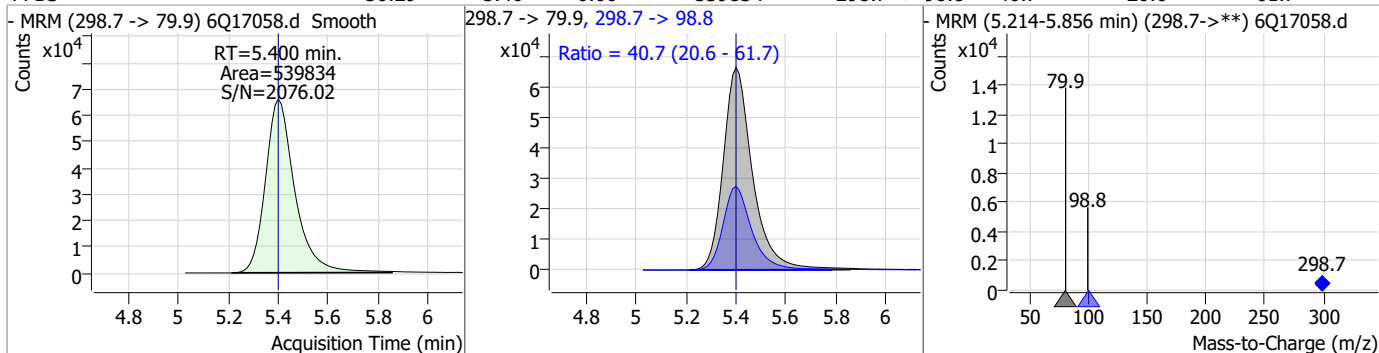
Perfluorinated Compounds by LC/MS/MS



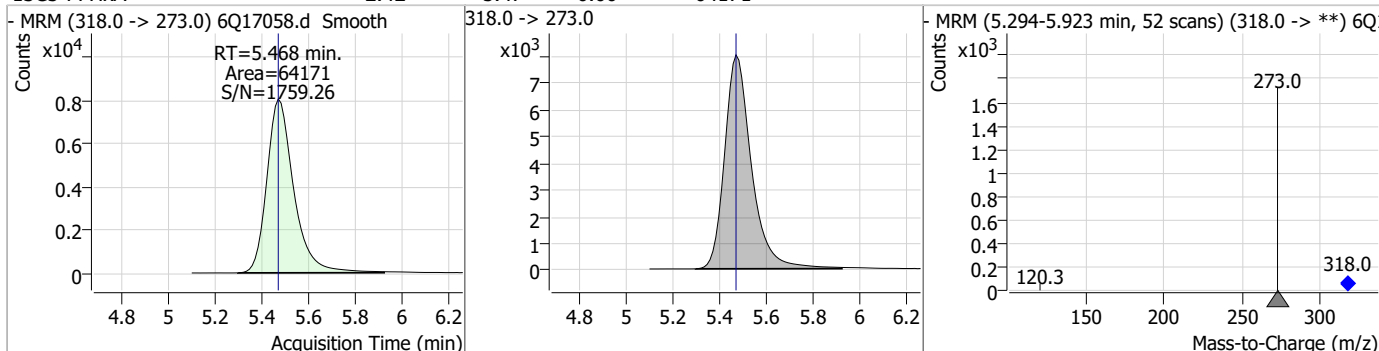
7.7.23 7

Perfluorinated Compounds by LC/MS/MS

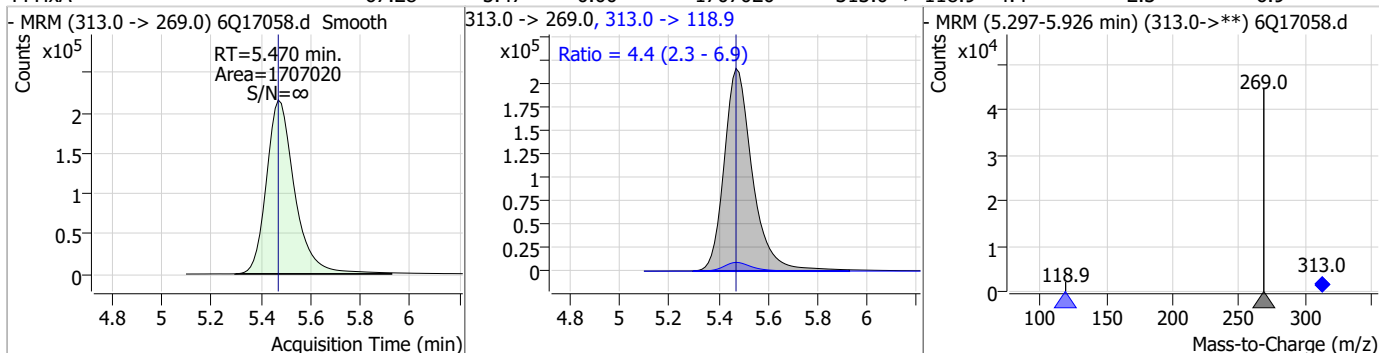
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	56.29	5.40	0.00	539834	298.7 -> 98.8	40.7	20.6	61.7



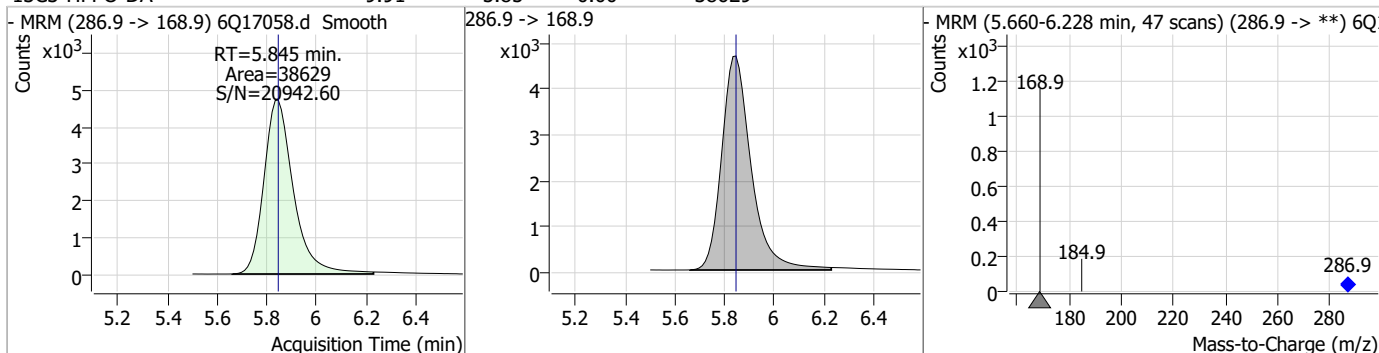
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.42	5.47	0.00	64171				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	67.28	5.47	0.00	1707020	313.0 -> 118.9	4.4	2.3	6.9

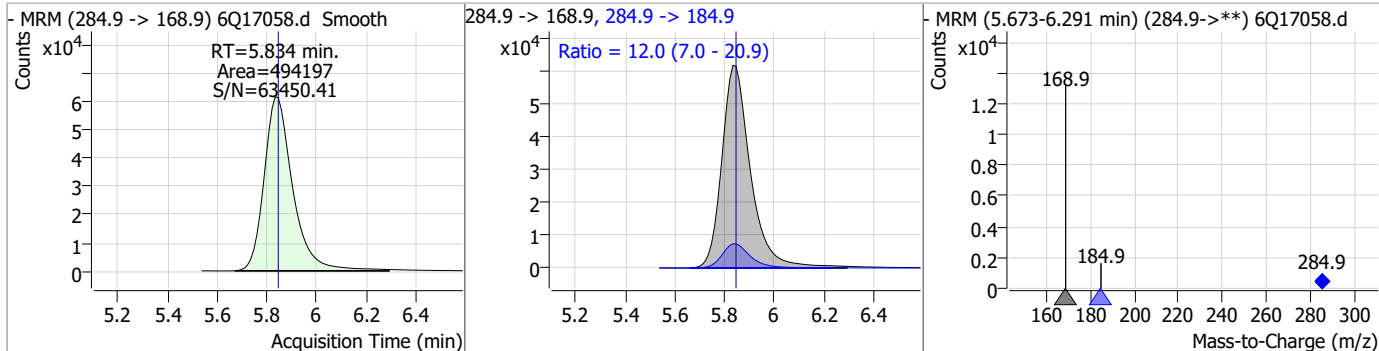


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.91	5.85	0.00	38629				

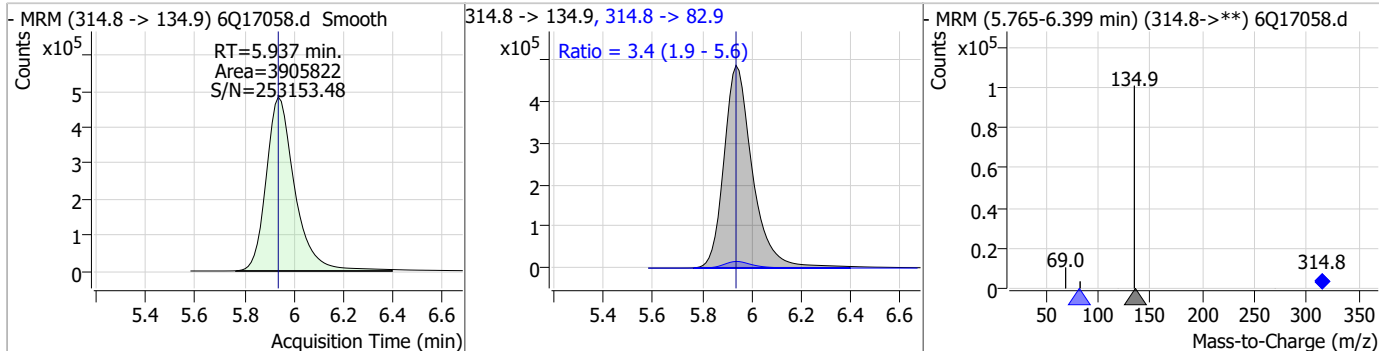


Perfluorinated Compounds by LC/MS/MS

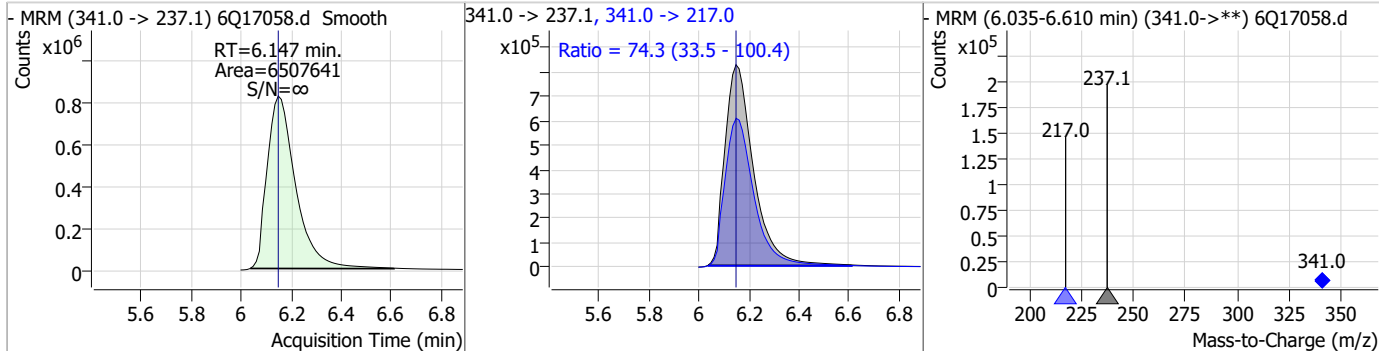
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	135.07	5.83	-0.01	494197	284.9 -> 184.9	12.0	7.0	20.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	121.99	5.94	0.00	3905822	314.8 -> 82.9	3.4	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	1584.88	6.15	0.00	6507641	341.0 -> 217.0	74.3	33.5	100.4

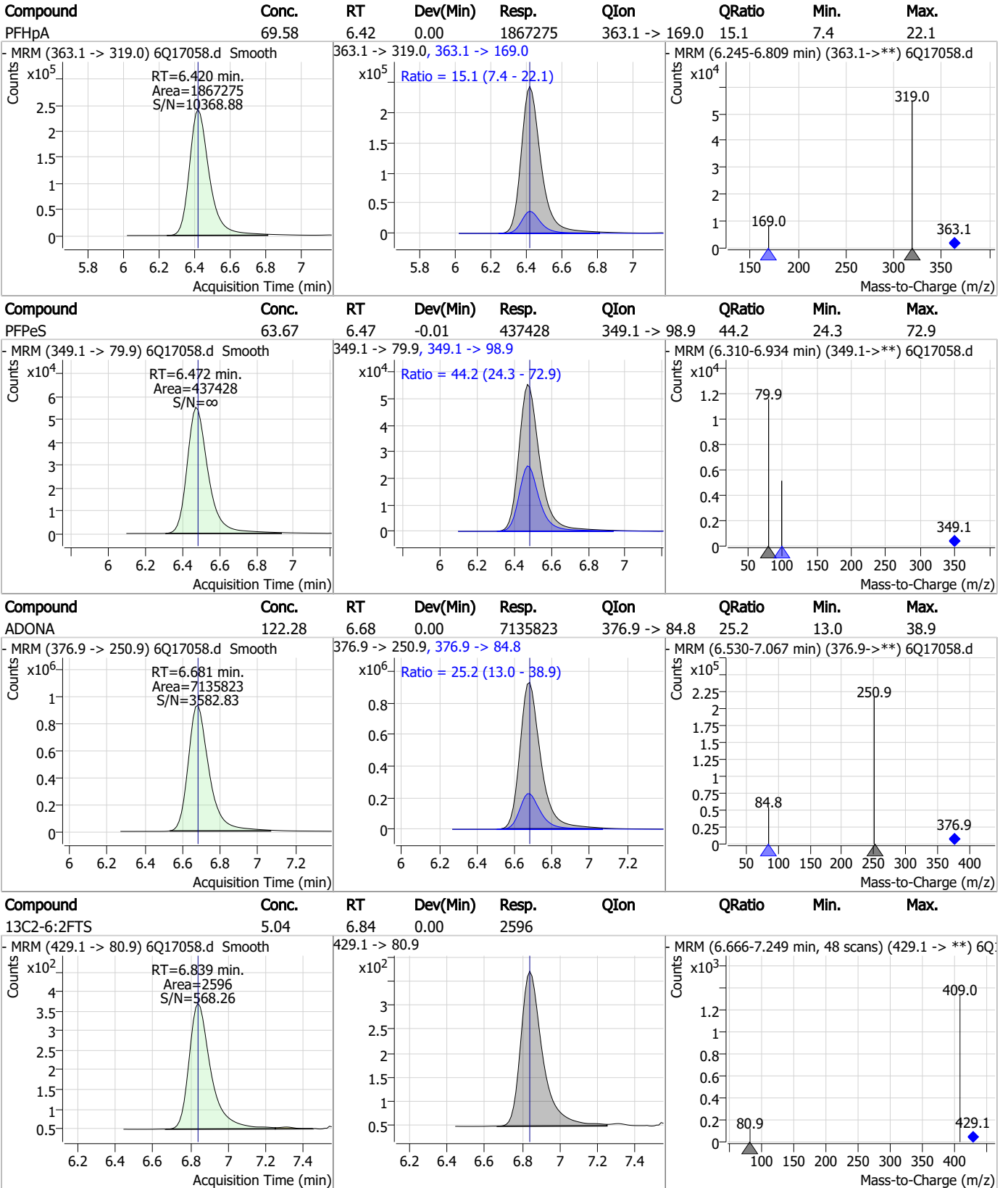


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.41	6.42	0.00	54383	367.1 -> 322.0			



7.7.23 7

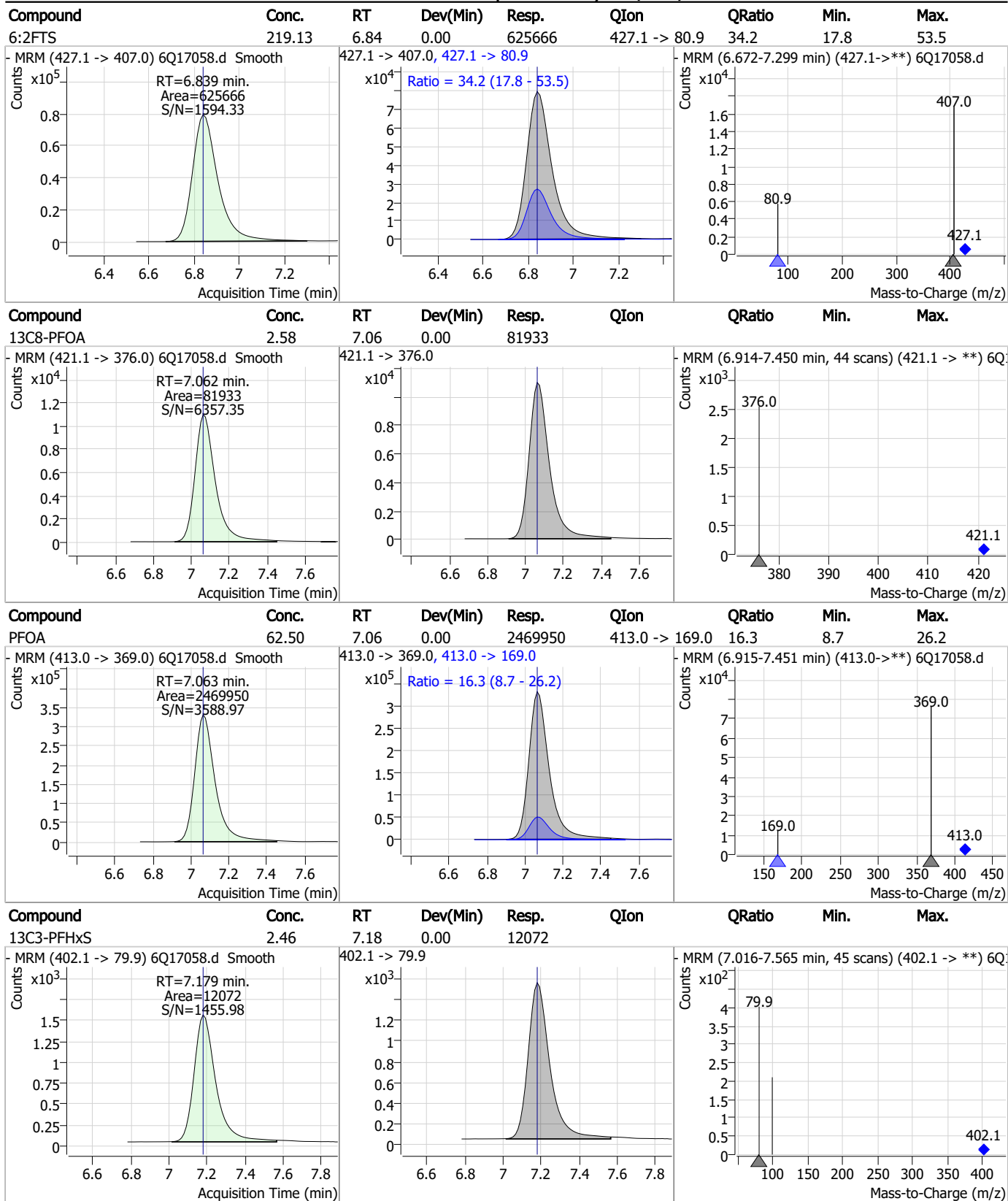
Perfluorinated Compounds by LC/MS/MS



7.7.23 7



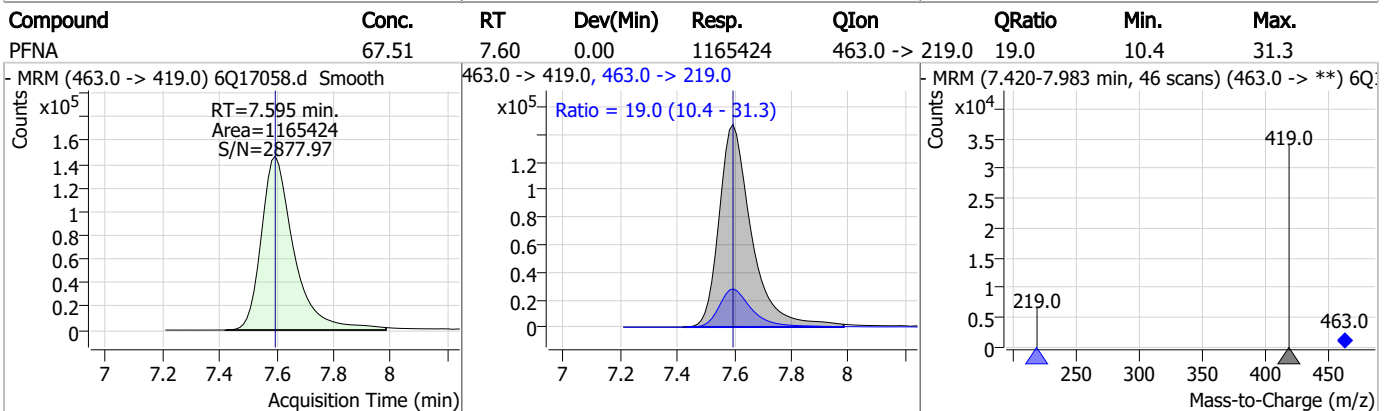
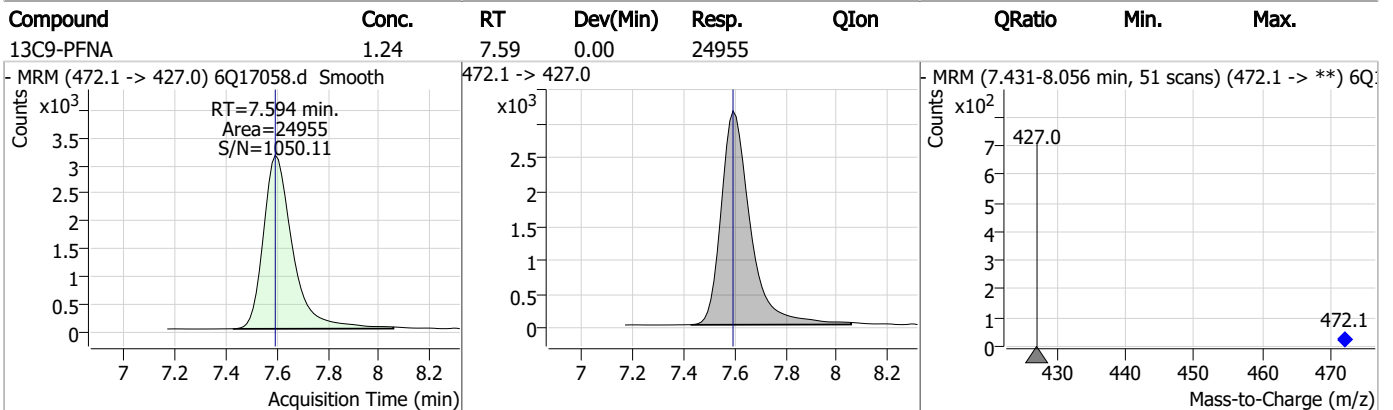
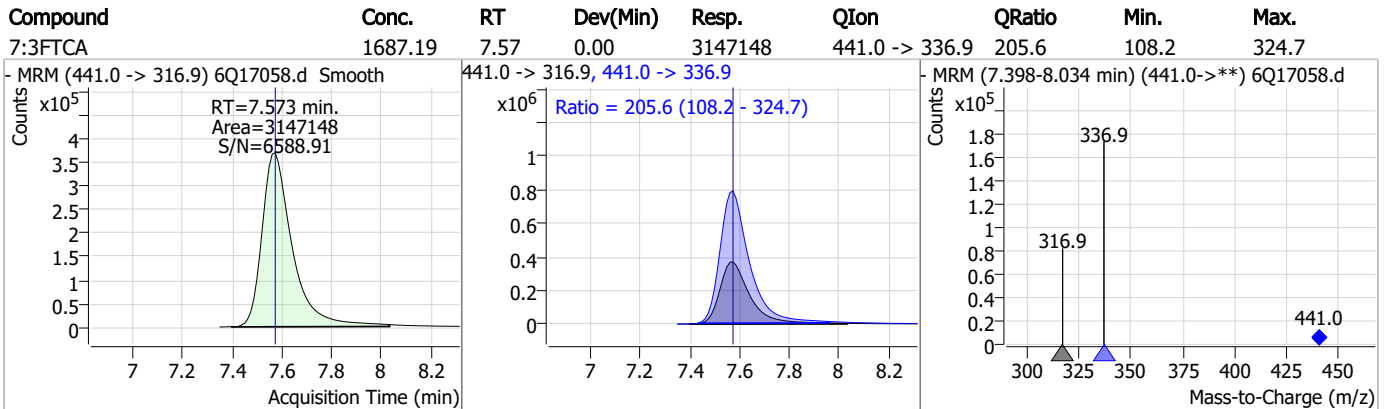
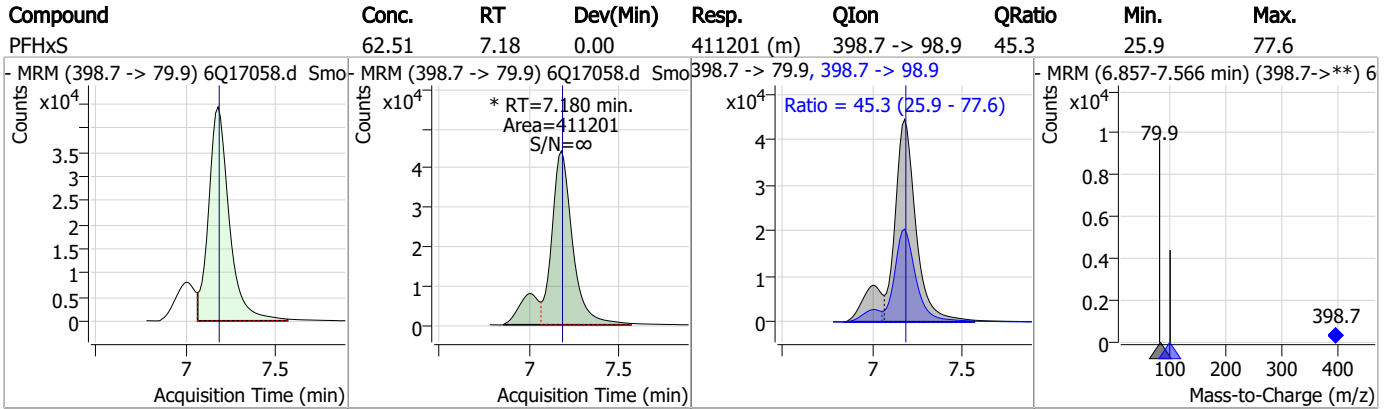
Perfluorinated Compounds by LC/MS/MS



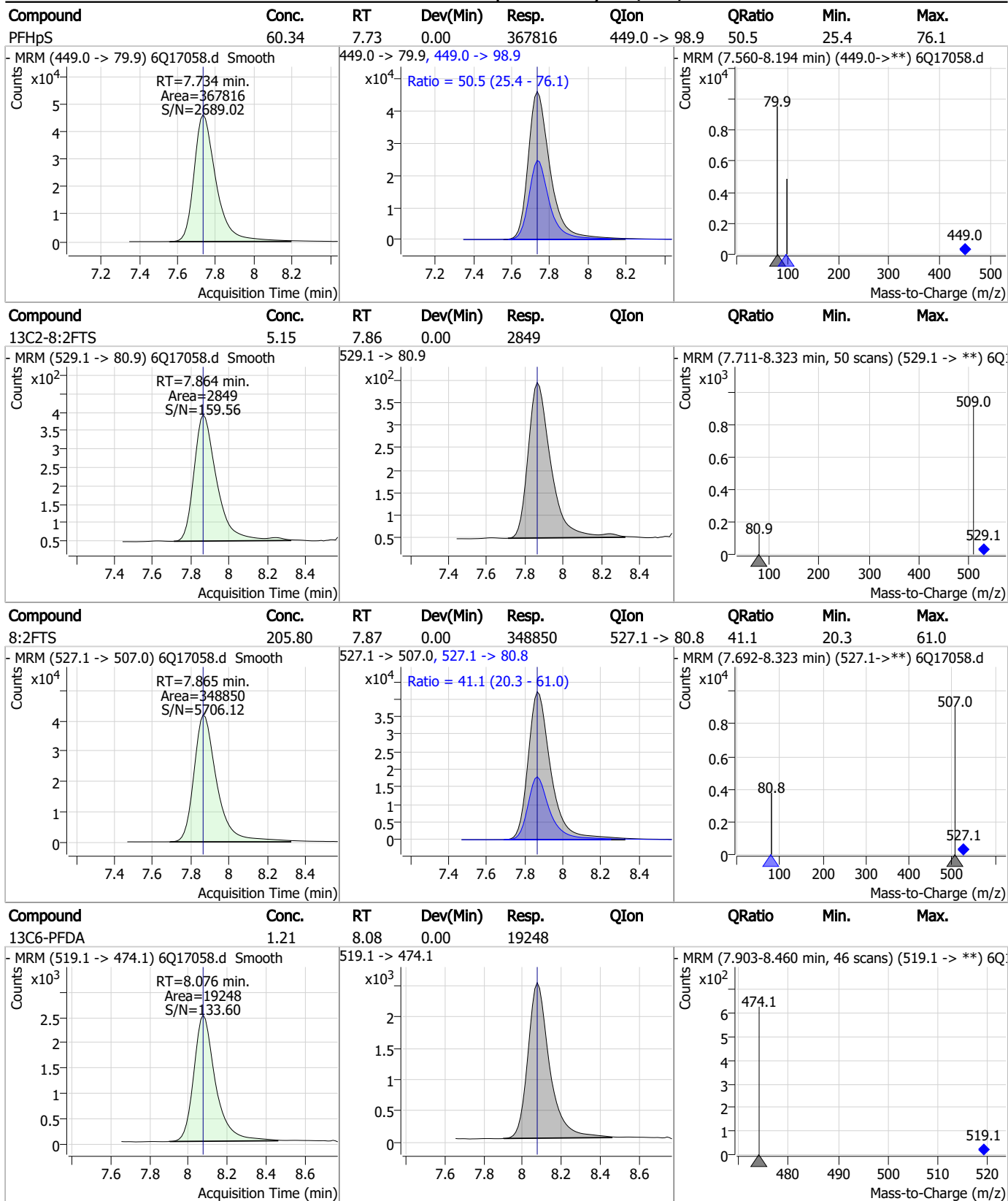
7.7.23

7

Perfluorinated Compounds by LC/MS/MS

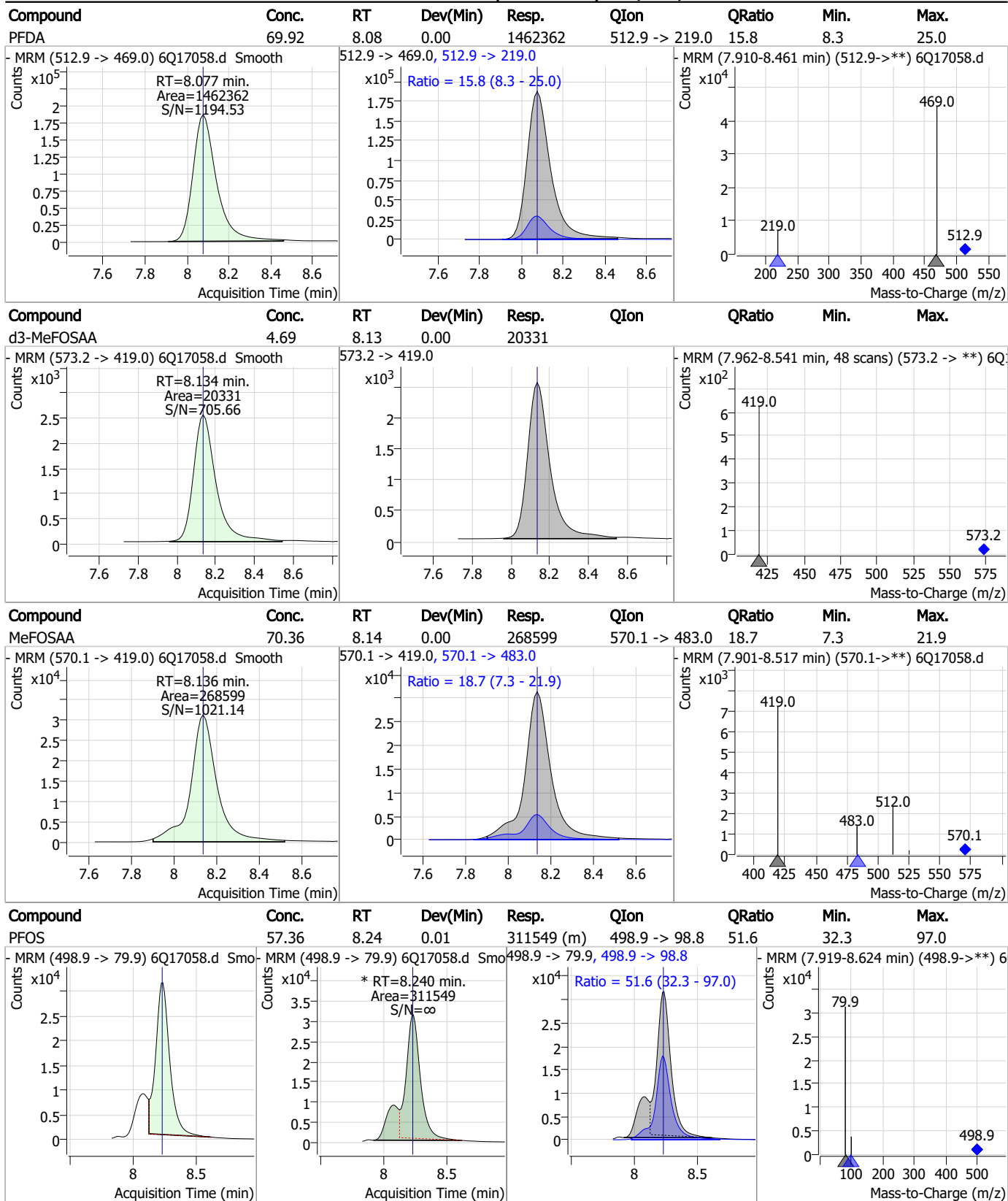


Perfluorinated Compounds by LC/MS/MS



7.7.23
7

Perfluorinated Compounds by LC/MS/MS



7.7.23
7

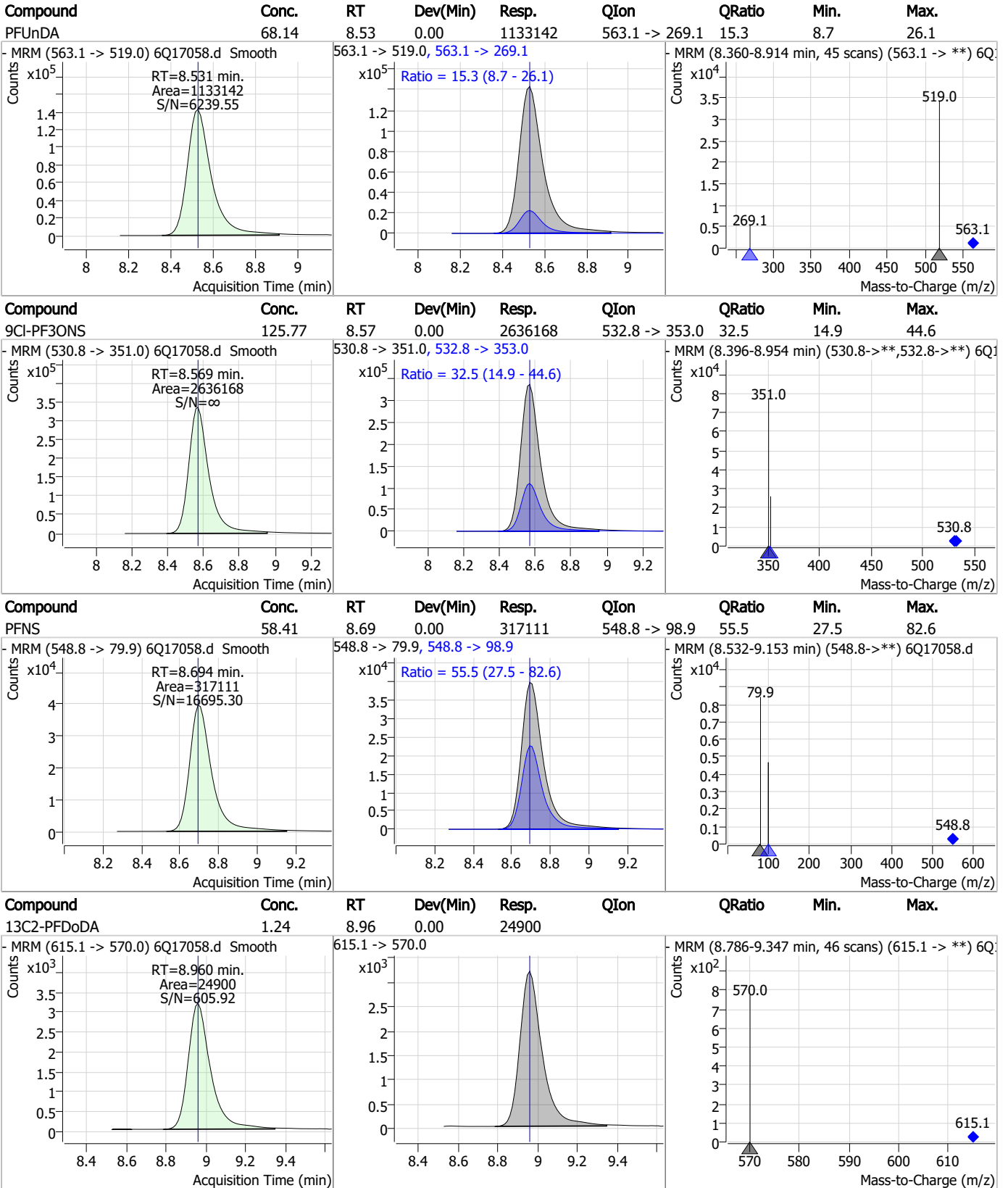
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-PFOS	2.57	8.23	-0.01	11247				
- MRM (507.1 -> 79.9) 6Q17058.d Smooth			507.1 -> 79.9		- MRM (8.066-8.684 min, 51 scans) (507.1 -> **) 6Q17058.d			
d5-EtFOSAA	4.96	8.33	0.00	17875				
- MRM (589.2 -> 419.0) 6Q17058.d Smooth			589.2 -> 419.0		- MRM (8.158-8.714 min, 46 scans) (589.2 -> **) 6Q17058.d			
EtFOSAA	68.65	8.33	0.00	208550	584.2 -> 526.0	52.3	26.2	78.6
- MRM (584.2 -> 419.1) 6Q17058.d Smooth			584.2 -> 419.1, 584.2 -> 526.0		- MRM (8.110-8.790 min) (584.2->**) 6Q17058.d			
13C7-PFUnDA	1.18	8.53	0.00	23977				
- MRM (570.0 -> 525.1) 6Q17058.d Smooth			570.0 -> 525.1		- MRM (8.357-8.914 min, 46 scans) (570.0 -> **) 6Q17058.d			

7.7.23

7

Perfluorinated Compounds by LC/MS/MS



7.7.23 7

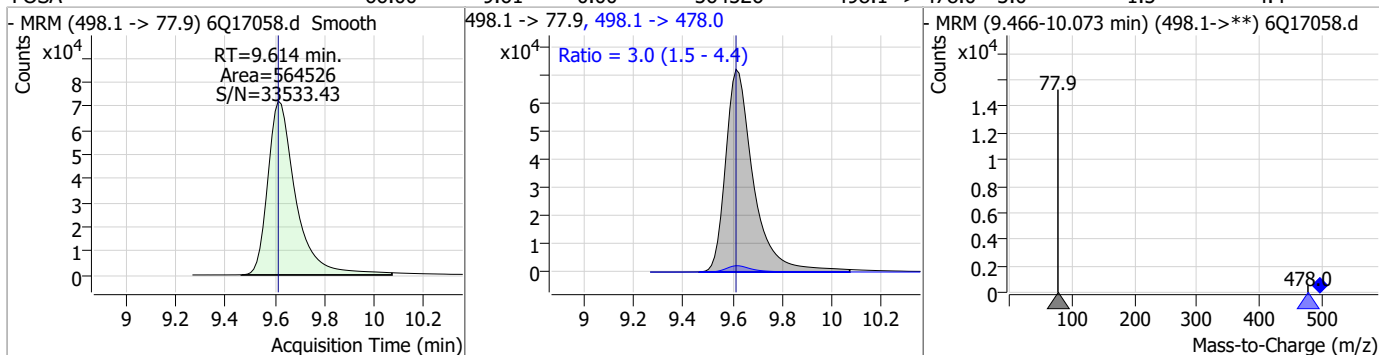
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoDA	63.75	8.96	0.00	1244394	613.1 -> 319.0	14.8	7.2	21.7
PFDS	61.38	9.13	0.00	220016	599.0 -> 98.8	47.3	24.9	74.6
PFTrDA	63.73	9.34	0.00	1376902	663.0 -> 168.9	9.0	4.6	13.7
11CI-PF3OUdS	125.35	9.40	0.00	1661712	632.9 -> 452.9	30.7	15.9	47.8

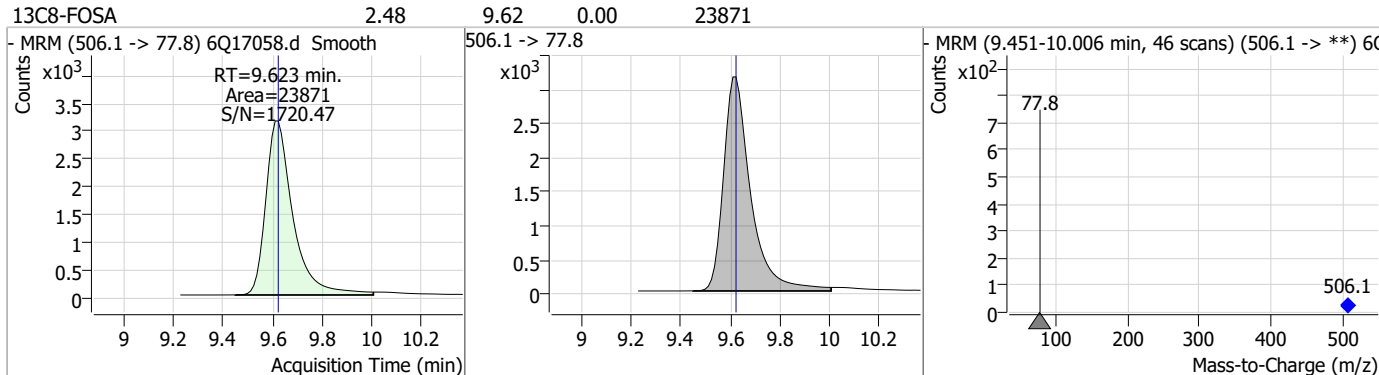
7.7.23 7

Perfluorinated Compounds by LC/MS/MS

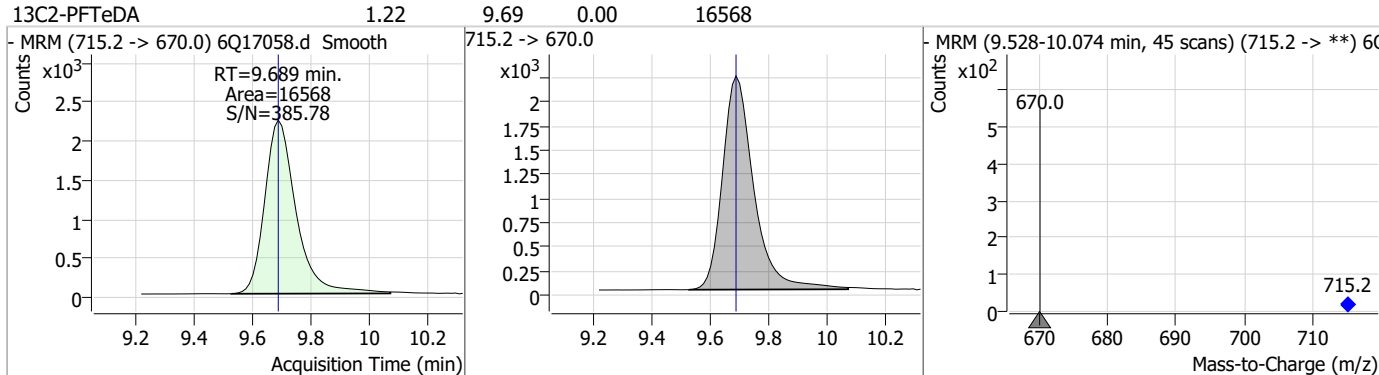
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	66.00	9.61	0.00	564526	498.1 -> 478.0	3.0	1.5	4.4



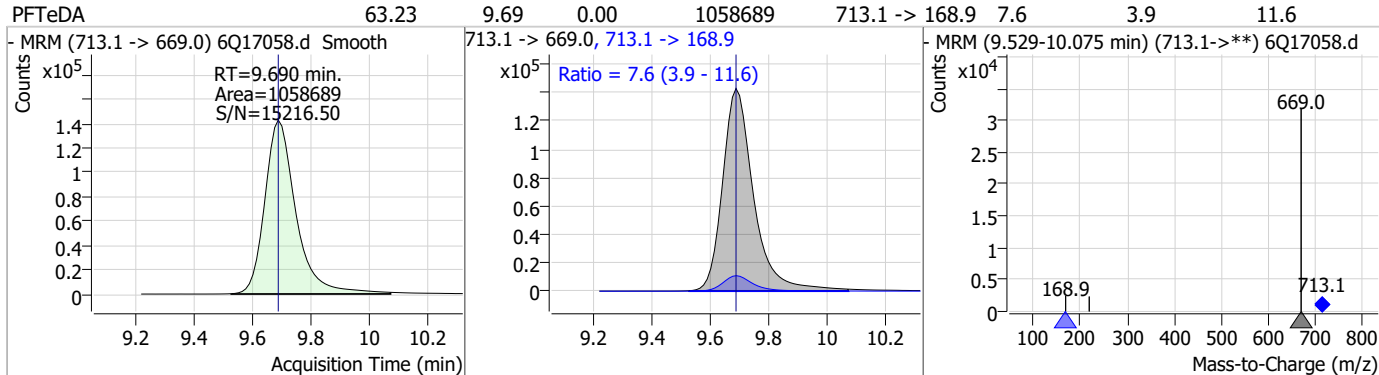
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.62	0.00	23871				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.69	0.00	16568				

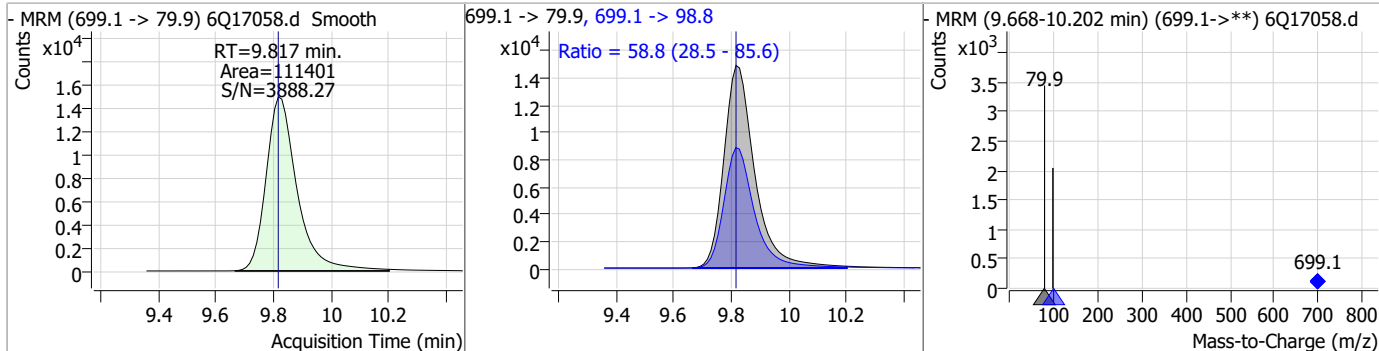


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	63.23	9.69	0.00	1058689	713.1 -> 168.9	7.6	3.9	11.6

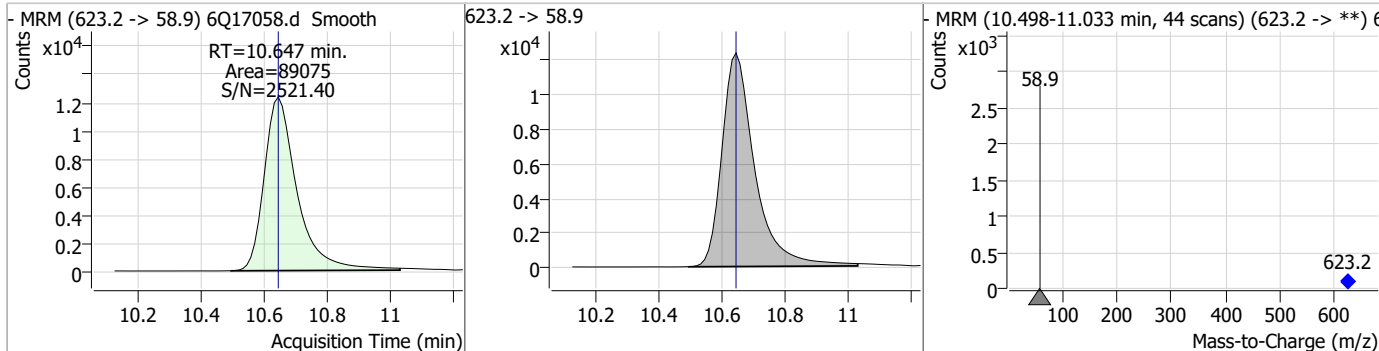


Perfluorinated Compounds by LC/MS/MS

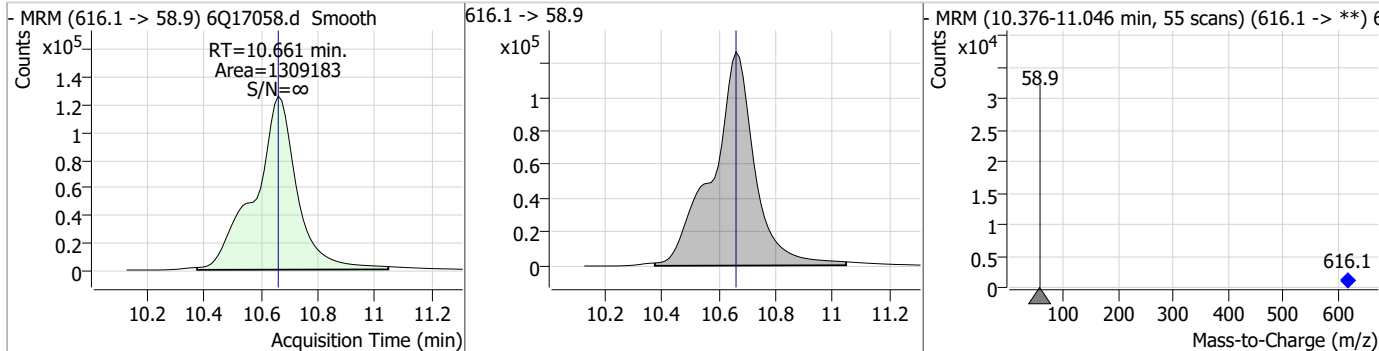
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	60.10	9.82	0.00	111401	699.1 -> 98.8	58.8	28.5	85.6



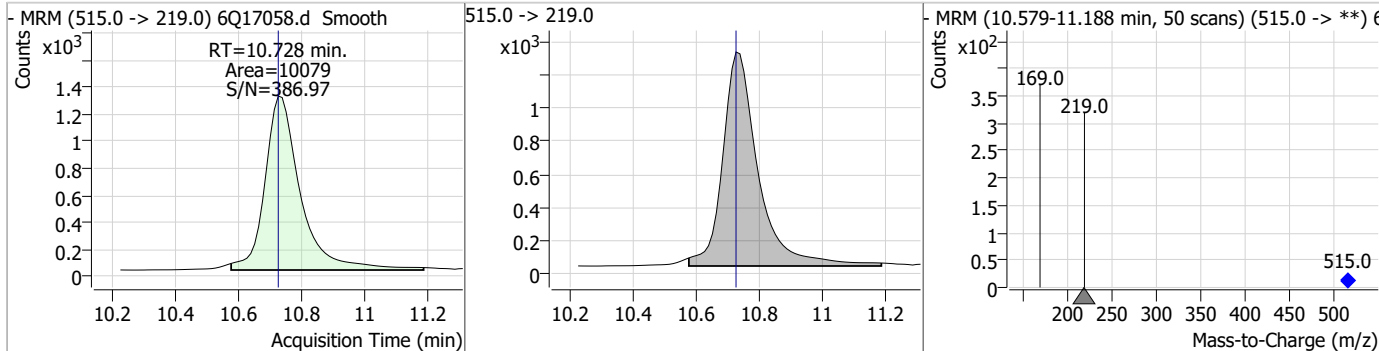
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	23.32	10.65	0.00	89075				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	329.56	10.66	0.00	1309183				



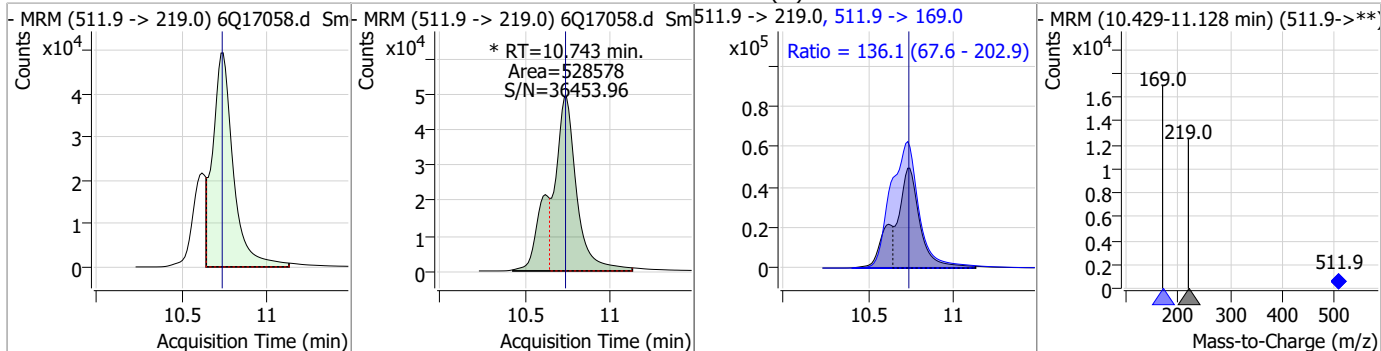
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.77	10.73	0.00	10079				



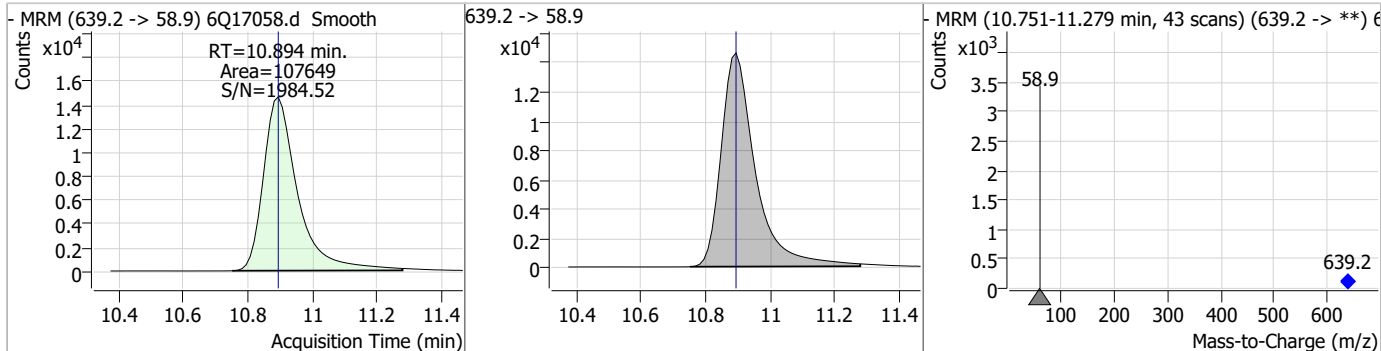
7.7.23
7

Perfluorinated Compounds by LC/MS/MS

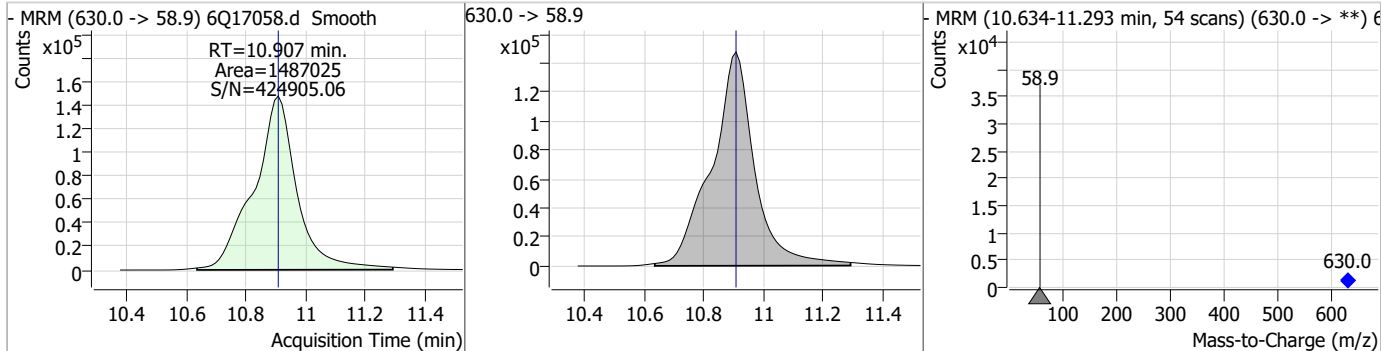
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	116.53	10.74	0.01	528578 (m)	511.9 -> 169.0	136.1	67.6	202.9



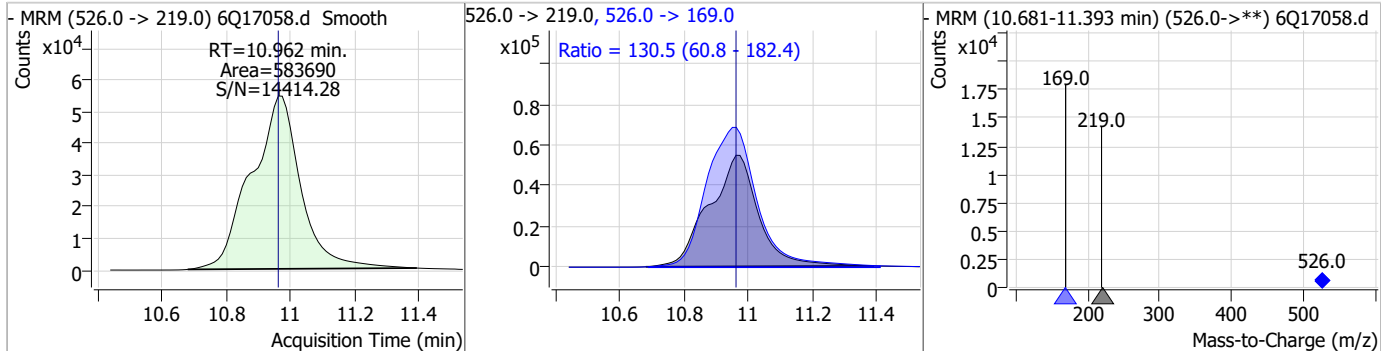
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	23.07	10.89	0.00	107649				



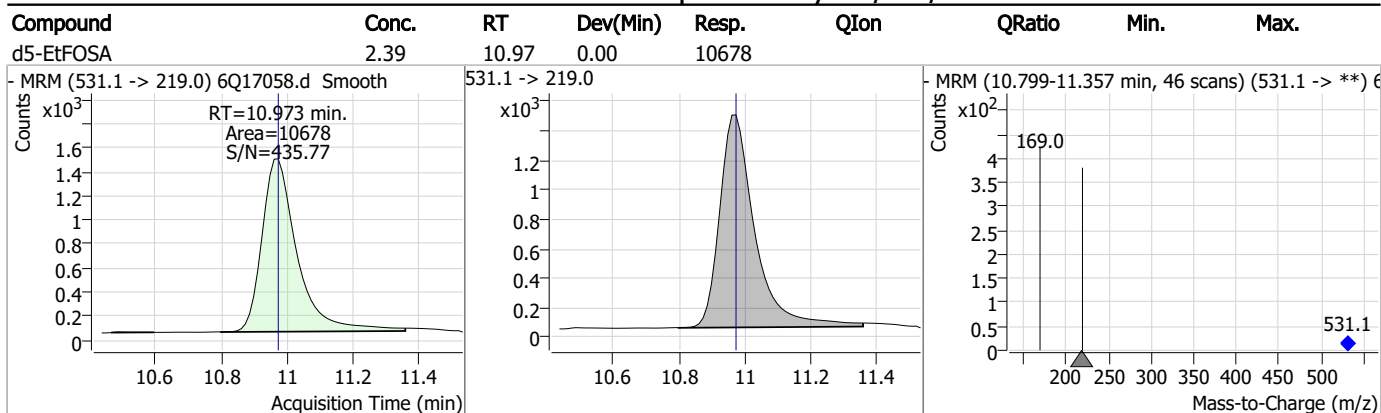
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	331.70	10.91	0.00	1487025				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	133.01	10.96	0.00	583690	526.0 -> 169.0	130.5	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.23
7



Manual Integration Approval Summary

Sample Number: S6Q258-IC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17058.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 14:31 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak
MeFOSA	31506-32-8		10.74	Split peak

7.7.23.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17060.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:00:42 PM
 Sample Name : icv258-4
 Vial : P1-B1
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	185758	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65671	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	70680	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	60610	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	87628	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27751	1.25 µg/L	0.000
M6-PFDA	8.088	519.1 -> 474.1	20874	1.25 µg/L	0.012
M7-PFUnDA	8.530	570.0 -> 525.1	25183	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25086	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17852	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25922	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22801	2.50 µg/L	0.000
M3-PFHxS	7.191	402.1 -> 79.9	12509	2.50 µg/L	0.012
M8-PFOS	8.239	507.1 -> 79.9	12071	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2329	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2864	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	2794	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	22545	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40747	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19446	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	103078	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122225	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	12086	2.50 µg/L	-0.012
M3-MeFOSA	10.741	515.0 -> 219.0	9186	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	14678	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80020	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9681	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	92837	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	25483	1.25 µg/L	0.000
13C5-PFNA	7.607	468.0 -> 423.0	30806	1.25 µg/L	0.012
13C2-PFHxA	5.469	315.1 -> 270.0	57923	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2329	5.23 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.7%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2864	5.30 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 106.0%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2794	4.81 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 96.2%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25086	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 94.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17852	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22801	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C3-PFHxS	7.191	402.1 -> 79.9	12509	2.43 µg/L	0.012

7.7.24
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 = 97.1%	
13C4-PFBA	2.910	216.8 -> 171.9	185758	10.05 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C4-PFHpA	6.431	367.1 -> 322.0	60610	2.56 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.3%	
13C5-PFHxA	5.468	318.0 -> 273.0	70680	2.53 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.2%	
13C5-PFPeA	4.270	268.3 -> 223.0	65671	5.08 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.5%	
13C6-PFDA	8.088	519.1 -> 474.1	20874	1.24 µg/L	0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 99.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25183	1.17 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 93.6%	
13C8-FOSA	9.623	506.1 -> 77.8	25922	9.67 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.9%	
13C8-PFOA	7.074	421.1 -> 376.0	87628	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.8%	
13C8-PFOS	8.239	507.1 -> 79.9	12071	2.73 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 109.2%	
13C9-PFNA	7.594	472.1 -> 427.0	27751	1.18 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 94.5%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22545	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40747	9.94 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.4%	
d3-MeFOSA	10.741	515.0 -> 219.0	9186	2.51 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.2%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19446	5.35 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d7-MeFOSE	10.647	623.2 -> 58.9	103078	26.76 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 107.0%	
d9-EtFOSE	10.894	639.2 -> 58.9	122225	25.97 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 103.9%	
d5-EtFOSA	10.960	531.1 -> 219.0	12086	2.68 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 107.4%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32806	9.31 µg/L	100
		327.1 -> 80.9	12117		
6:2FTS	6.851	427.1 -> 407.0	30428	9.66 µg/L	98
		427.1 -> 80.9	10418		
8:2FTS	7.877	527.1 -> 507.0	17789	10.70 µg/L	99
		527.1 -> 80.8	7105		
EtFOSAA	8.343	584.2 -> 419.1	7978	2.41 µg/L	94
		584.2 -> 526.0	4505		
FOSA	9.614	498.1 -> 77.9	23095	2.49 µg/L	100
		498.1 -> 478.0	650		
MeFOSAA	8.136	570.1 -> 419.0	10811	2.55 µg/L	87
		570.1 -> 483.0	2177		
PFBA	2.906	212.8 -> 168.9	64067	10.28 µg/L	100
PFBS	5.400	298.7 -> 79.9	23660	2.31 µg/L	96
		298.7 -> 98.8	9163		
PFDA	8.077	512.9 -> 469.0	63479	2.80 µg/L	96
		512.9 -> 219.0	9425		
PFDODA	8.961	613.1 -> 569.0	51488	2.62 µg/L	98
		613.1 -> 319.0	6984		
PFDS	9.125	599.0 -> 79.9	8759	2.28 µg/L	100

7.7.24
7

Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4379	2.60	µg/L	99
		363.1 -> 319.0	77884			
PFHpS	7.746	363.1 -> 169.0	11811	2.33	µg/L	96
		449.0 -> 79.9	15247			
PFHxA	5.470	449.0 -> 98.9	7345	2.46	µg/L	100
		313.0 -> 269.0	68747			
PFHxS	7.180	313.0 -> 118.9	3148	2.36	µg/L	m
		398.7 -> 79.9	16112			
PFNA	7.595	398.7 -> 98.9	8157	2.37	µg/L	100
		463.0 -> 419.0	45525			
PFNS	8.706	463.0 -> 219.0	9535	2.30	µg/L	97
		548.8 -> 79.9	13429			
PFOA	7.076	548.8 -> 98.9	7078	2.42	µg/L	100
		413.0 -> 369.0	99490			
PFOS	8.228	413.0 -> 169.0	17432	2.10	µg/L	m
		498.9 -> 79.9	12245			
PFPeA	4.273	498.9 -> 98.8	6935	5.05	µg/L	100
		263.0 -> 219.0	90362			
PFPeS	6.484	349.1 -> 79.9	17853	2.51	µg/L	96
		349.1 -> 98.9	8187			
PFTeDA	9.690	713.1 -> 669.0	45331	2.51	µg/L	99
		713.1 -> 168.9	3408			
PFTrDA	9.345	663.0 -> 619.0	58210	2.67	µg/L	98
		663.0 -> 168.9	4950			
PFUnDA	8.531	563.1 -> 519.0	46797	2.68	µg/L	99
		563.1 -> 269.1	8019			
11CI-PF3OUdS	9.398	630.9 -> 450.9	68021	4.86	µg/L	100
		632.9 -> 452.9	21705			
9CI-PF3ONS	8.569	530.8 -> 351.0	101879	4.61	µg/L	91
		532.8 -> 353.0	35127			
ADONA	6.681	376.9 -> 250.9	307875	5.00	µg/L	100
		376.9 -> 84.8	79137			
HFPO-DA	5.846	284.9 -> 168.9	19230	4.98	µg/L	98
		284.9 -> 184.9	2564			
3:3FTCA	3.784	241.0 -> 177.0	13980	12.50	µg/L	96
		241.0 -> 117.0	1660			
5:3FTCA	6.160	341.0 -> 237.1	294632	65.15	µg/L	95
		341.0 -> 217.0	207989			
7:3FTCA	7.585	441.0 -> 316.9	127445	62.03	µg/L	91
		441.0 -> 336.9	294921			
EtFOSA	10.962	526.0 -> 219.0	23650	4.76	µg/L	93
		526.0 -> 169.0	30651			
EtFOSE	10.907	630.0 -> 58.9	63023	12.38	µg/L	100
		511.9 -> 219.0	21336			
MeFOSA	10.730	511.9 -> 169.0	29281	5.16	µg/L	m
		616.1 -> 58.9	56132			
MeFOSE	10.661	699.1 -> 79.9	4617	12.21	µg/L	100
		699.1 -> 98.8	2700			
PFDoDS	9.817	295.0 -> 201.0	15697	2.32	µg/L	98
		295.0 -> 84.9	3899			
NFDHA	5.350	279.0 -> 85.1	60631	5.18	µg/L	99
		229.0 -> 84.9	45433			
PFMBA	4.687	314.8 -> 134.9	159368	5.07	µg/L	100
		314.8 -> 82.9	5535			
PFMPA	3.438			4.52	µg/L	99
PFEESA	5.949					

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

7.7.24
7

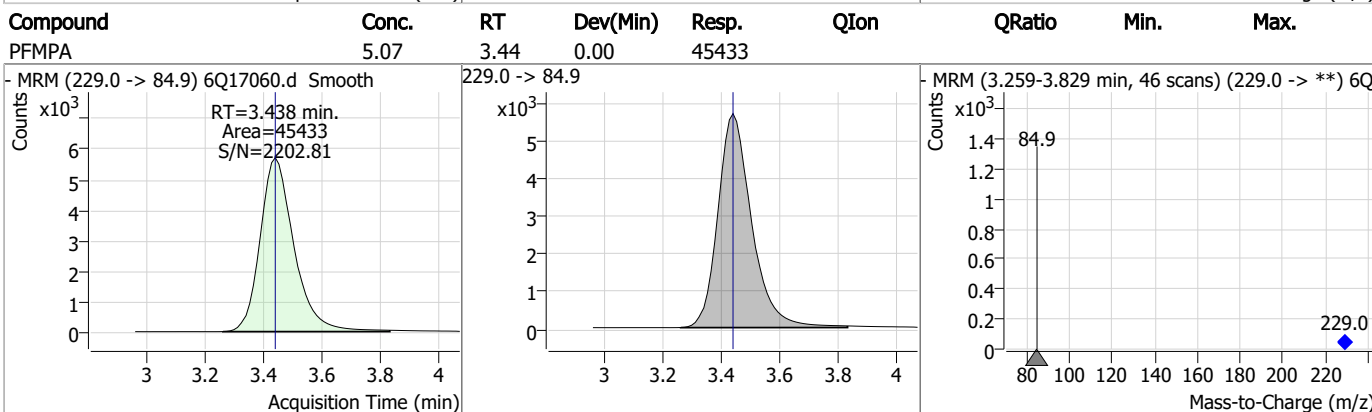
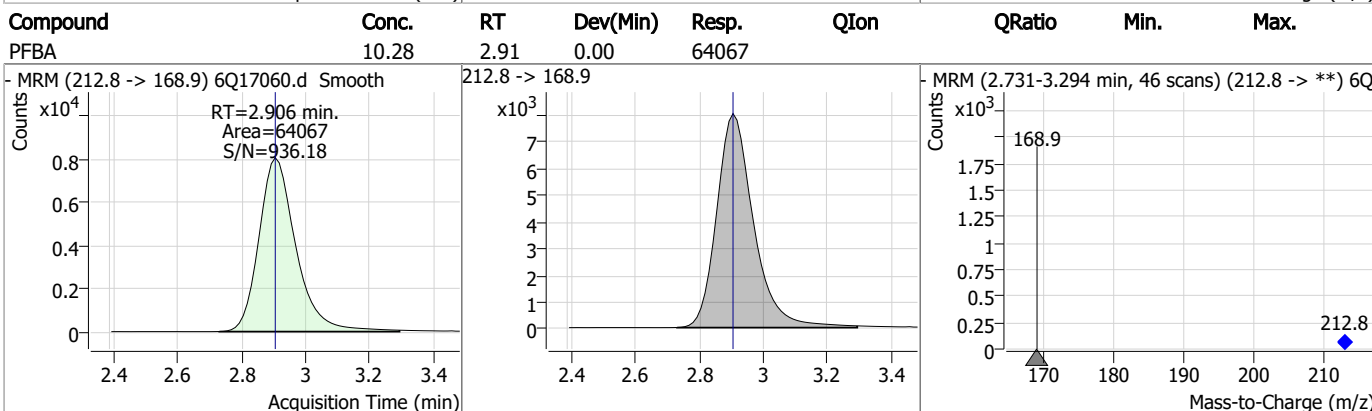
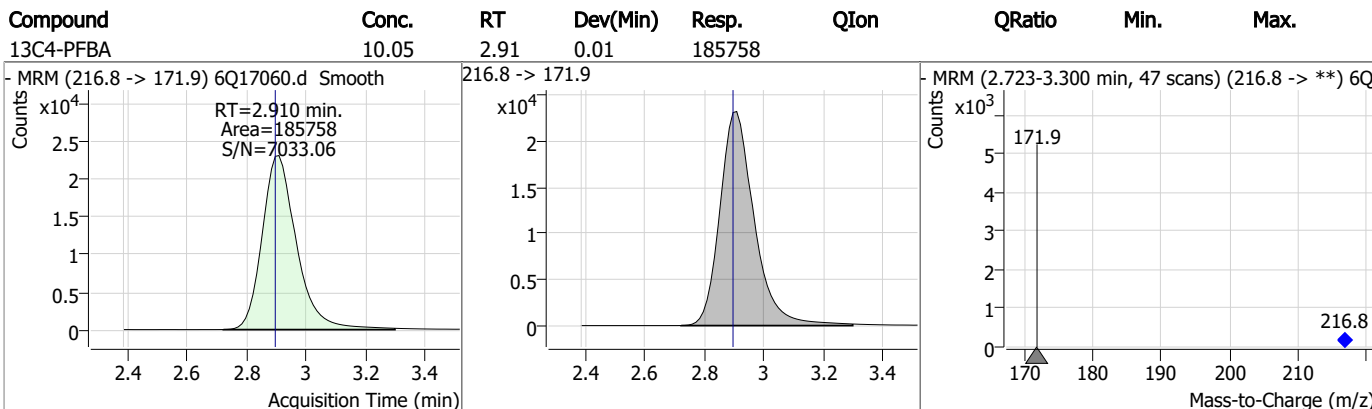
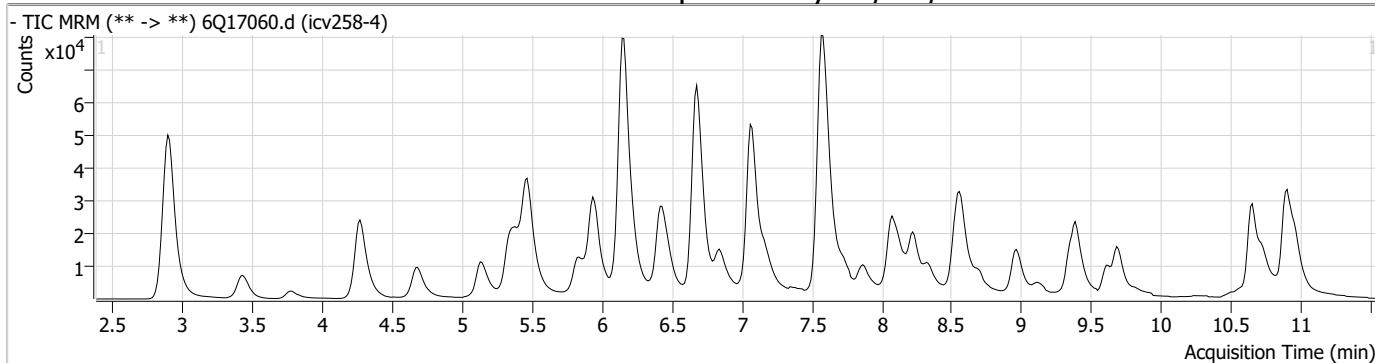
Perfluorinated Compounds by LC/MS/MS

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

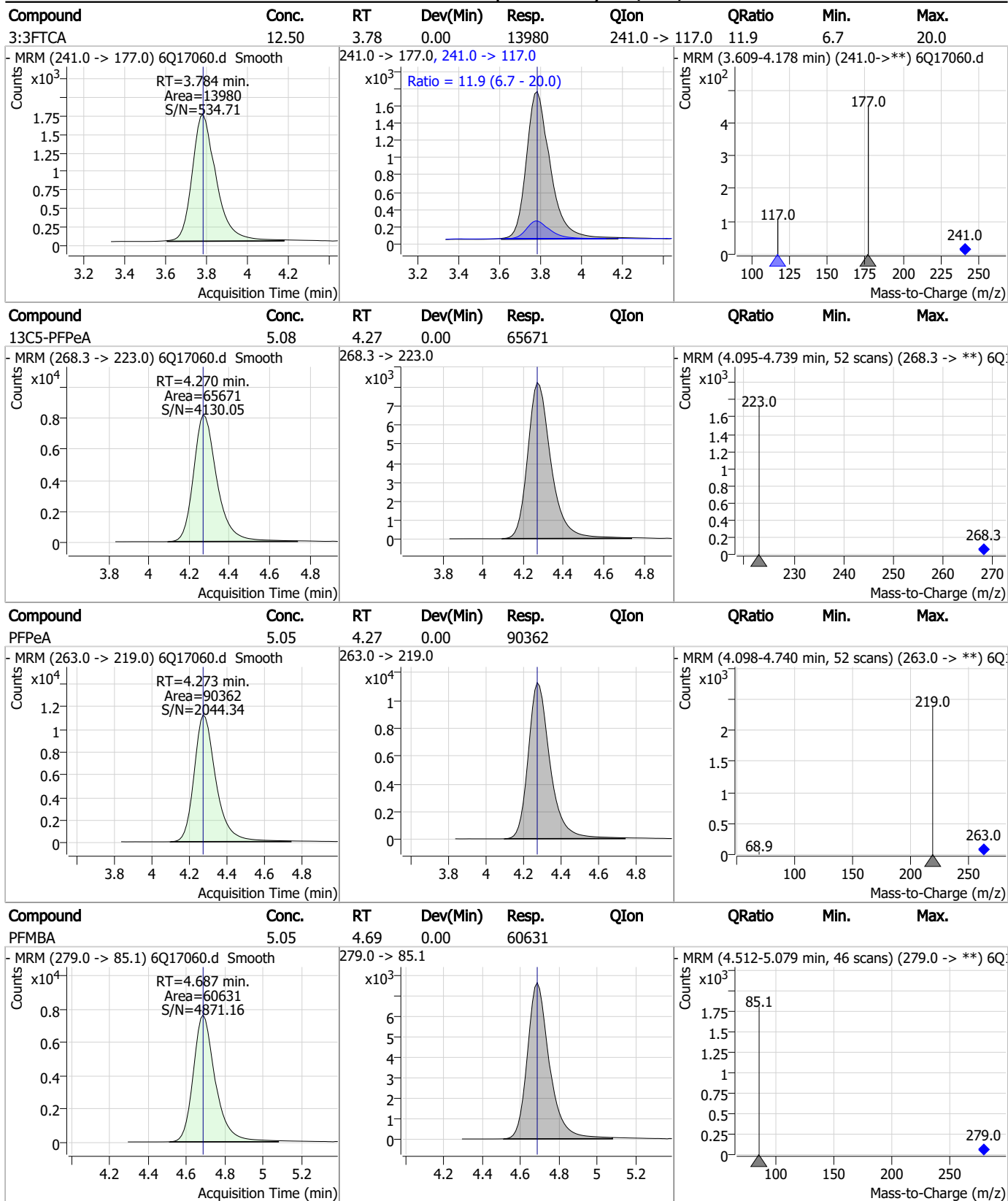
7.7.24

7

Perfluorinated Compounds by LC/MS/MS



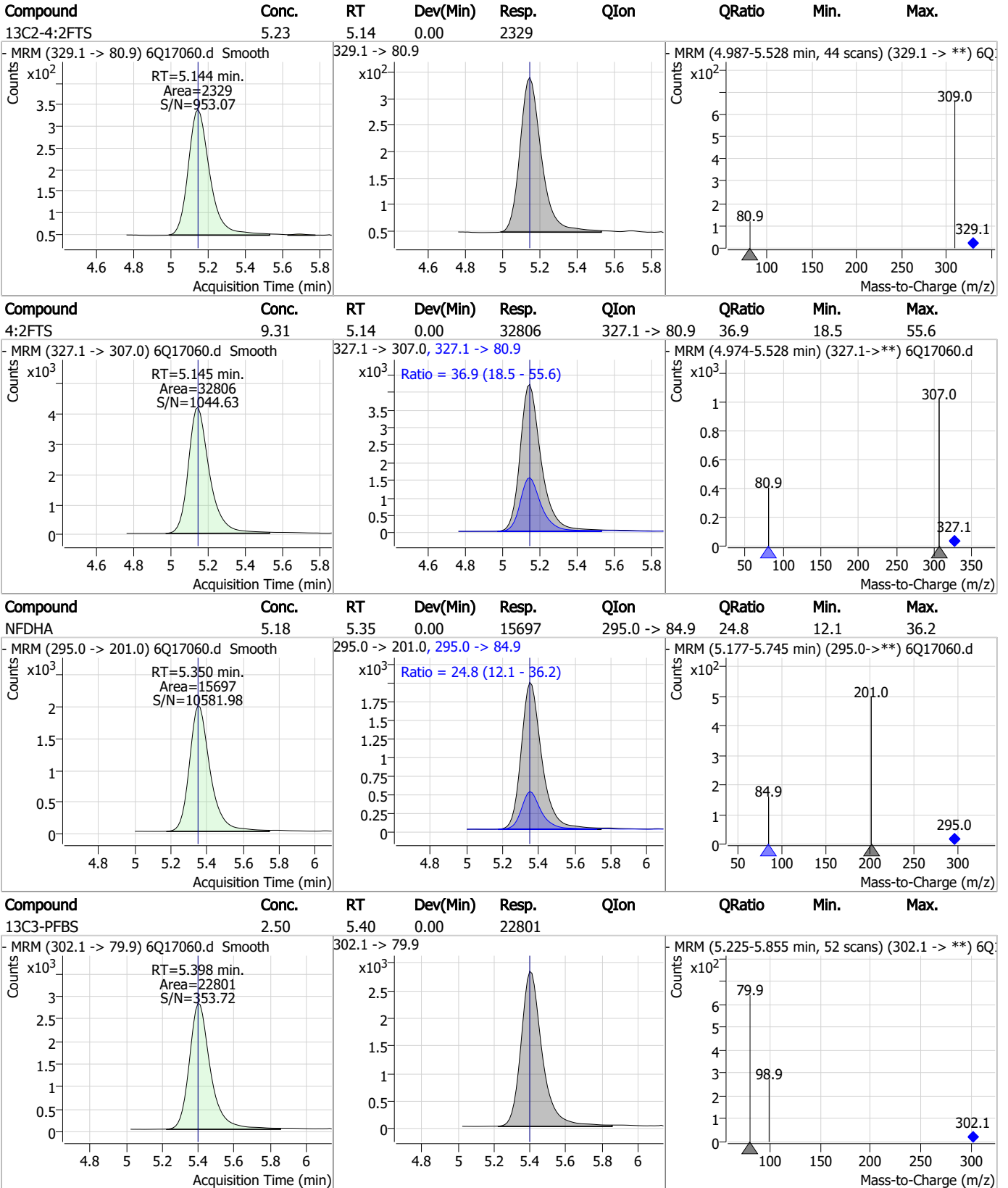
Perfluorinated Compounds by LC/MS/MS



7.7.24

7

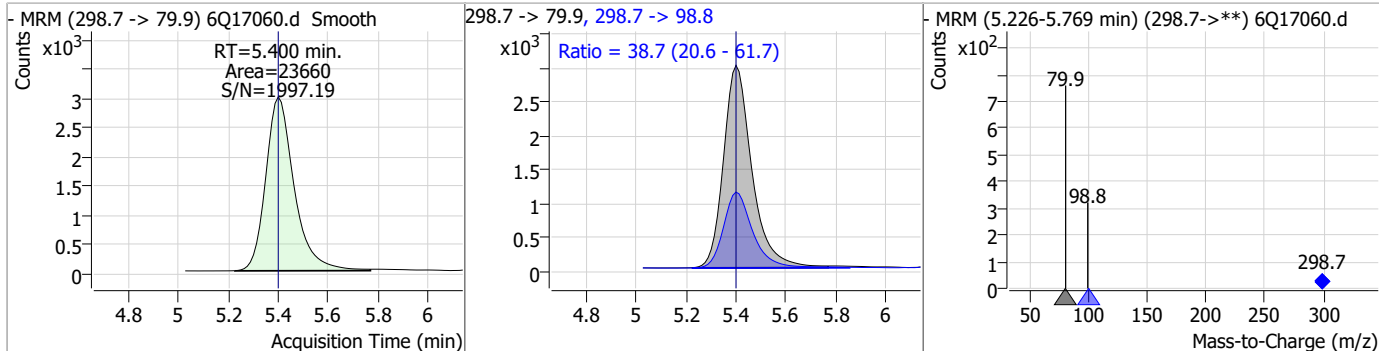
Perfluorinated Compounds by LC/MS/MS



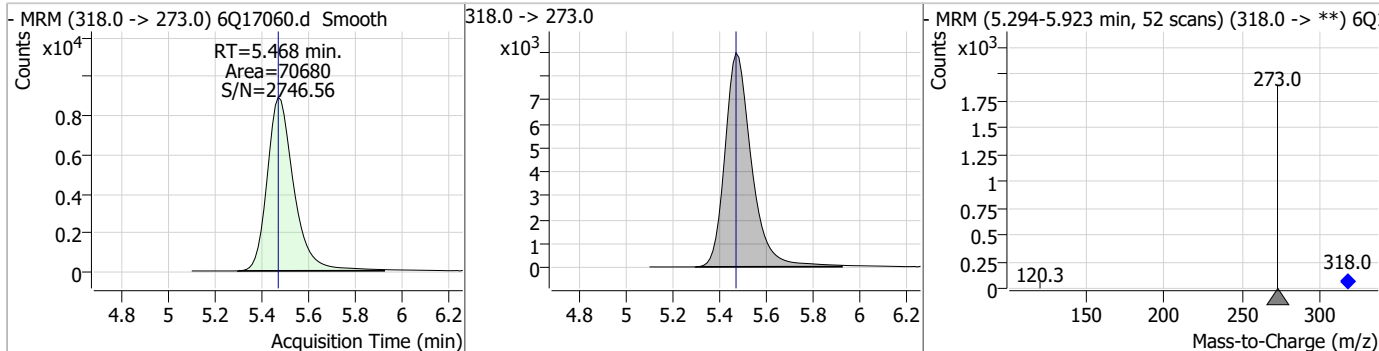
7.7.24 7

Perfluorinated Compounds by LC/MS/MS

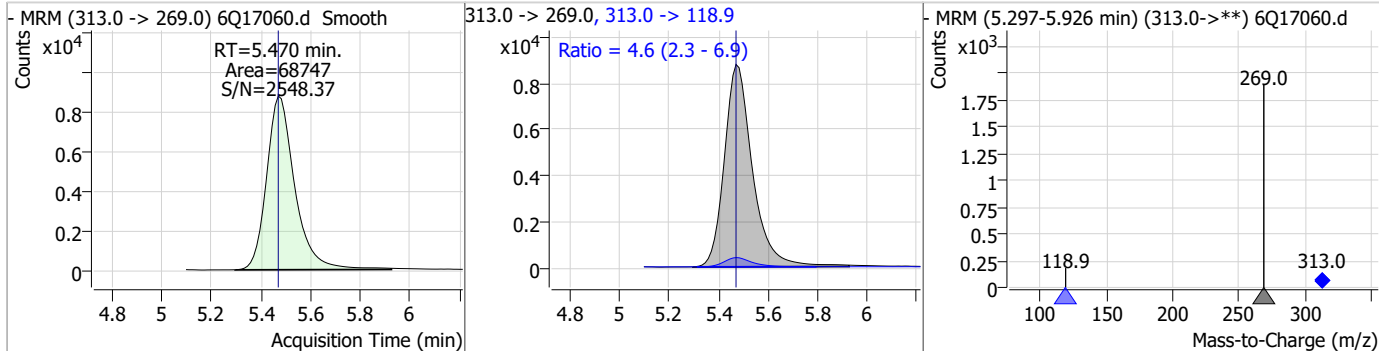
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.31	5.40	0.00	23660	298.7 -> 98.8	38.7	20.6	61.7



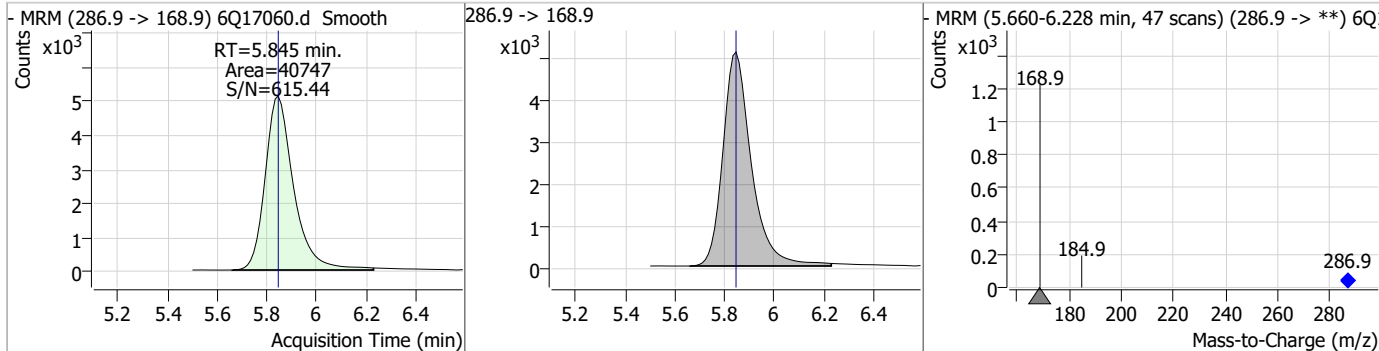
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.53	5.47	0.00	70680				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.46	5.47	0.00	68747	313.0 -> 118.9	4.6	2.3	6.9



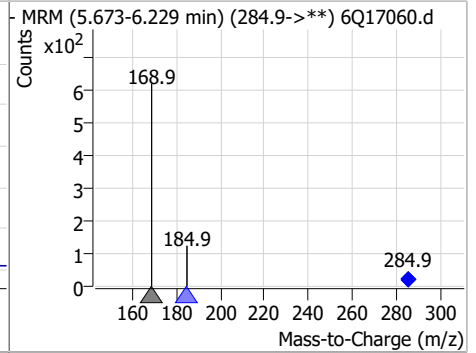
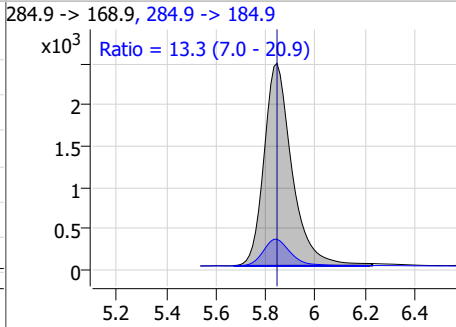
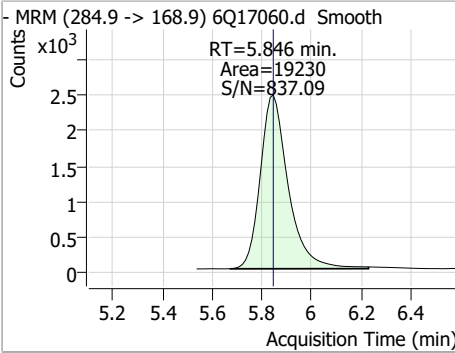
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.94	5.85	0.00	40747				



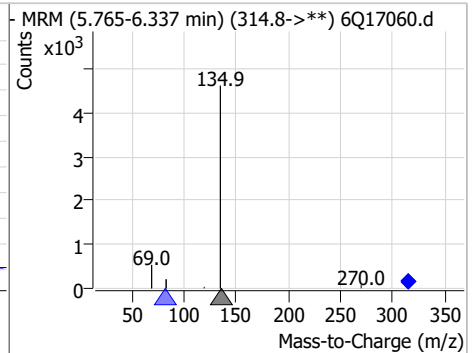
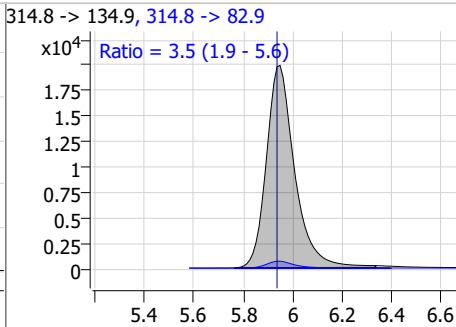
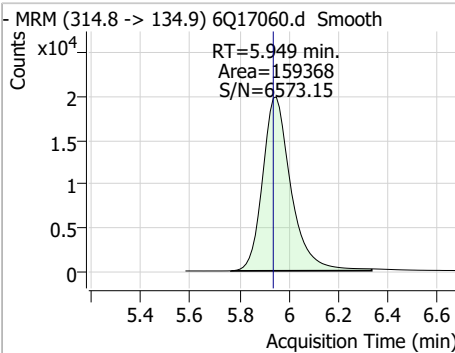
7.7.24 7

Perfluorinated Compounds by LC/MS/MS

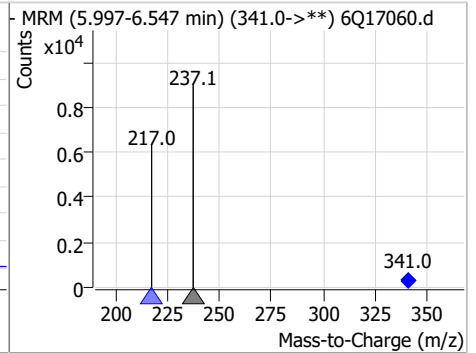
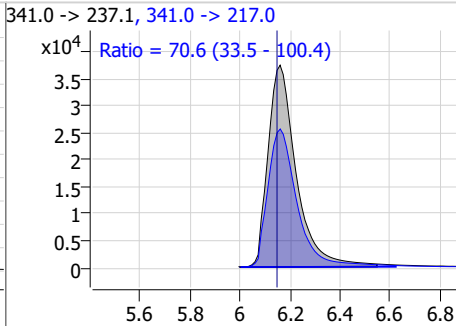
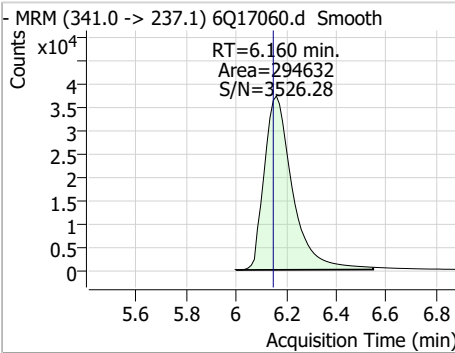
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.98	5.85	0.00	19230	284.9 -> 184.9	13.3	7.0	20.9



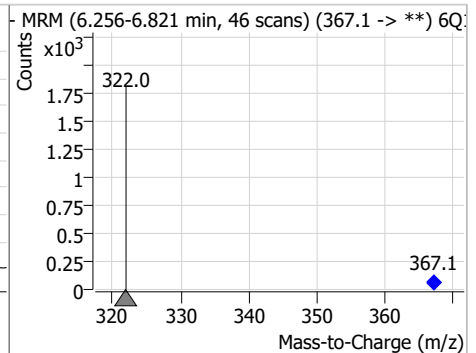
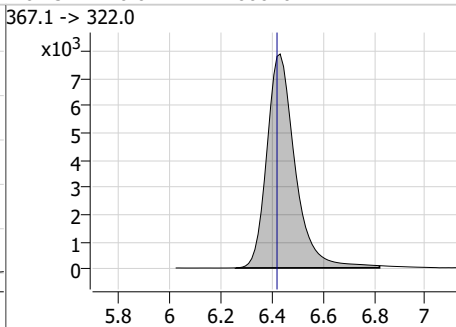
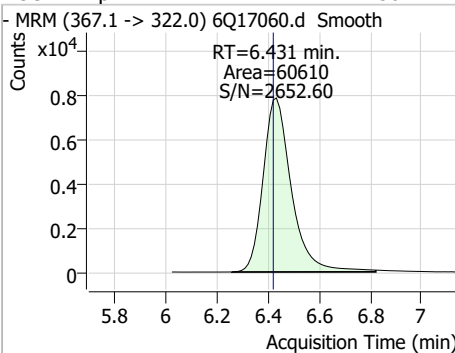
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.52	5.95	0.01	159368	314.8 -> 82.9	3.5	1.9	5.6



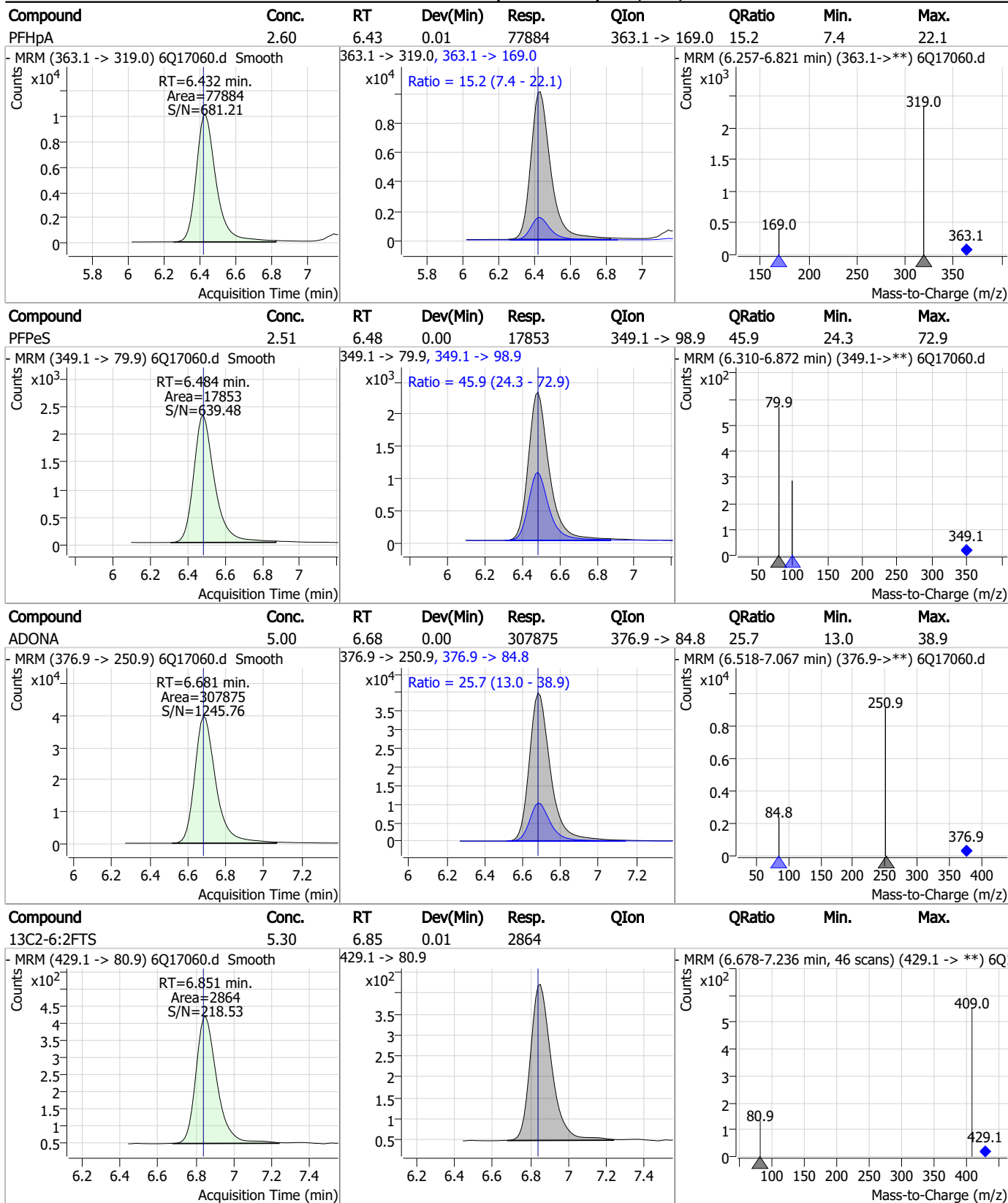
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.15	6.16	0.01	294632	341.0 -> 217.0	70.6	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.56	6.43	0.01	60610	367.1 -> 322.0			

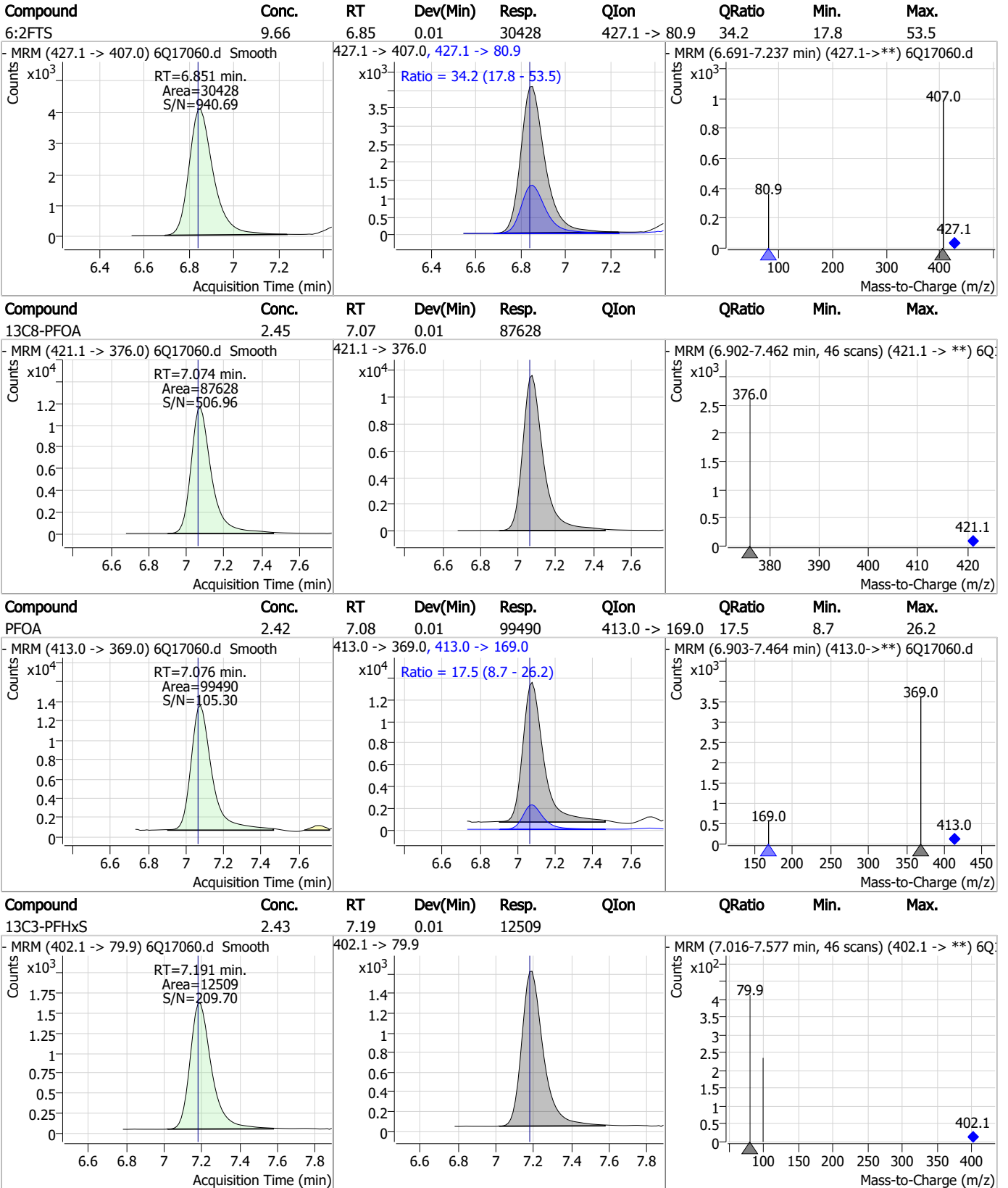


Perfluorinated Compounds by LC/MS/MS



7.7.24
7

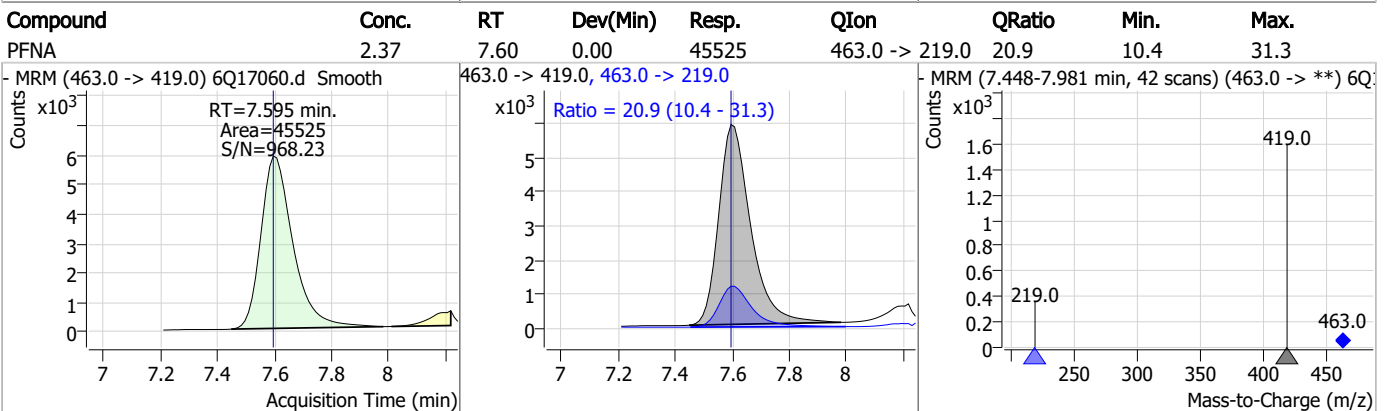
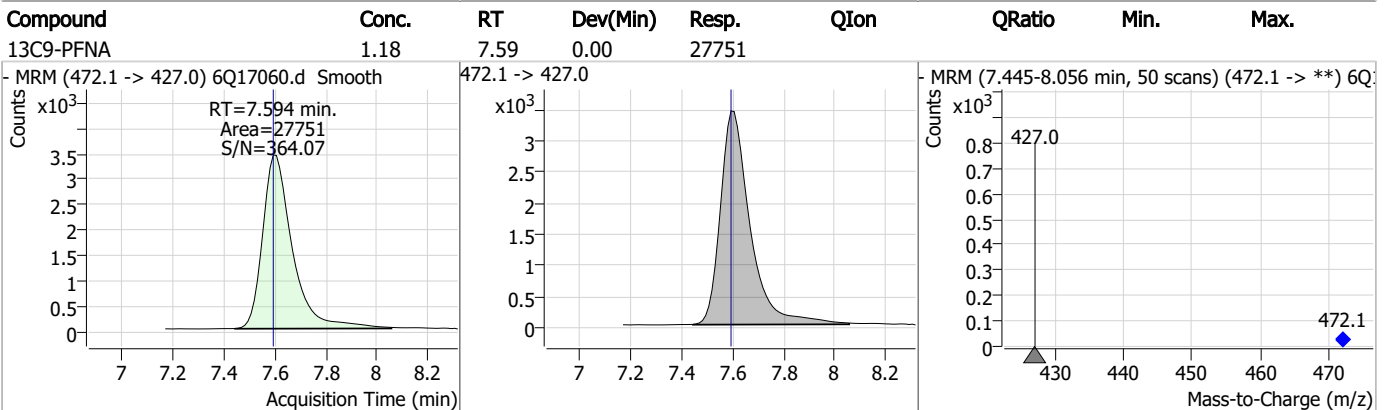
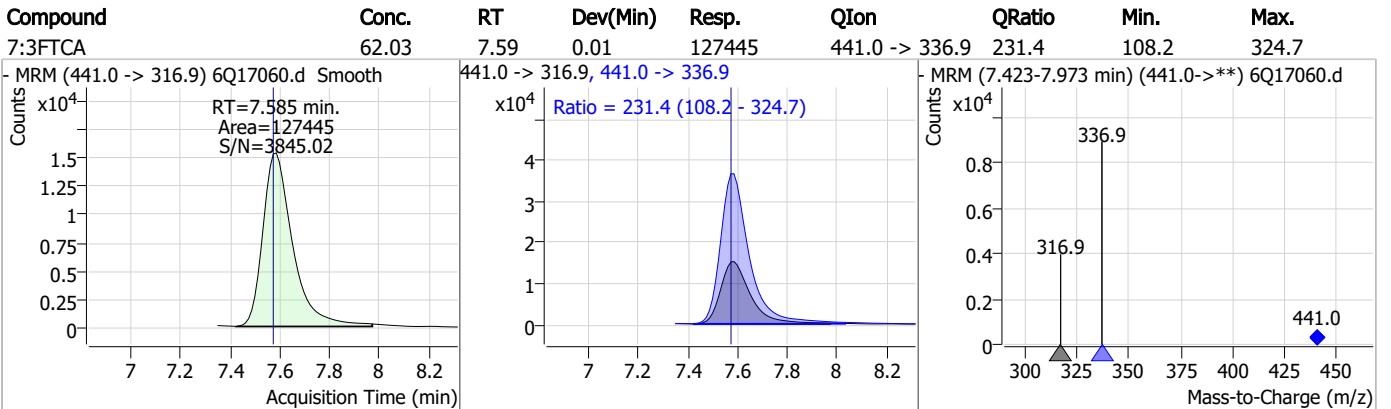
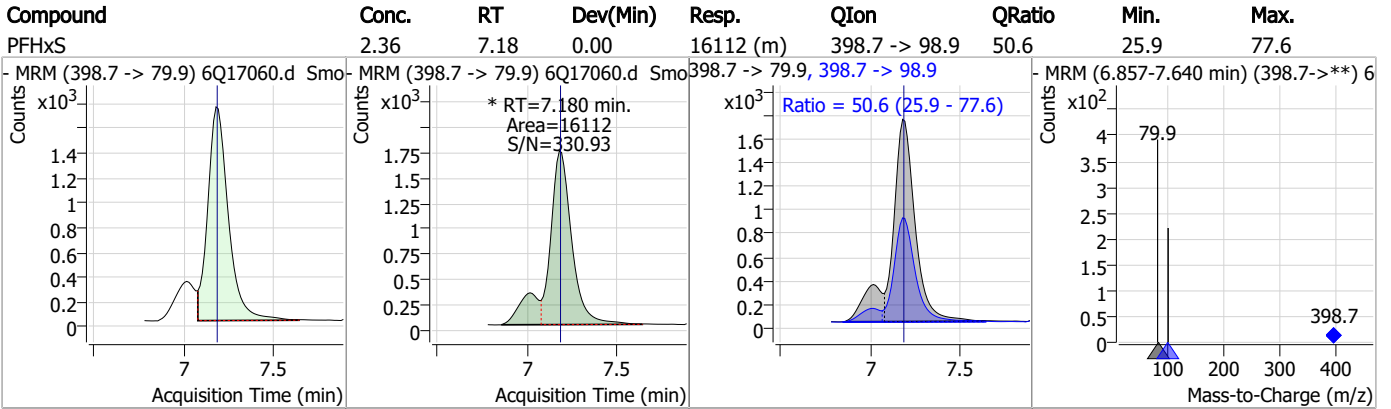
Perfluorinated Compounds by LC/MS/MS



7.7.24

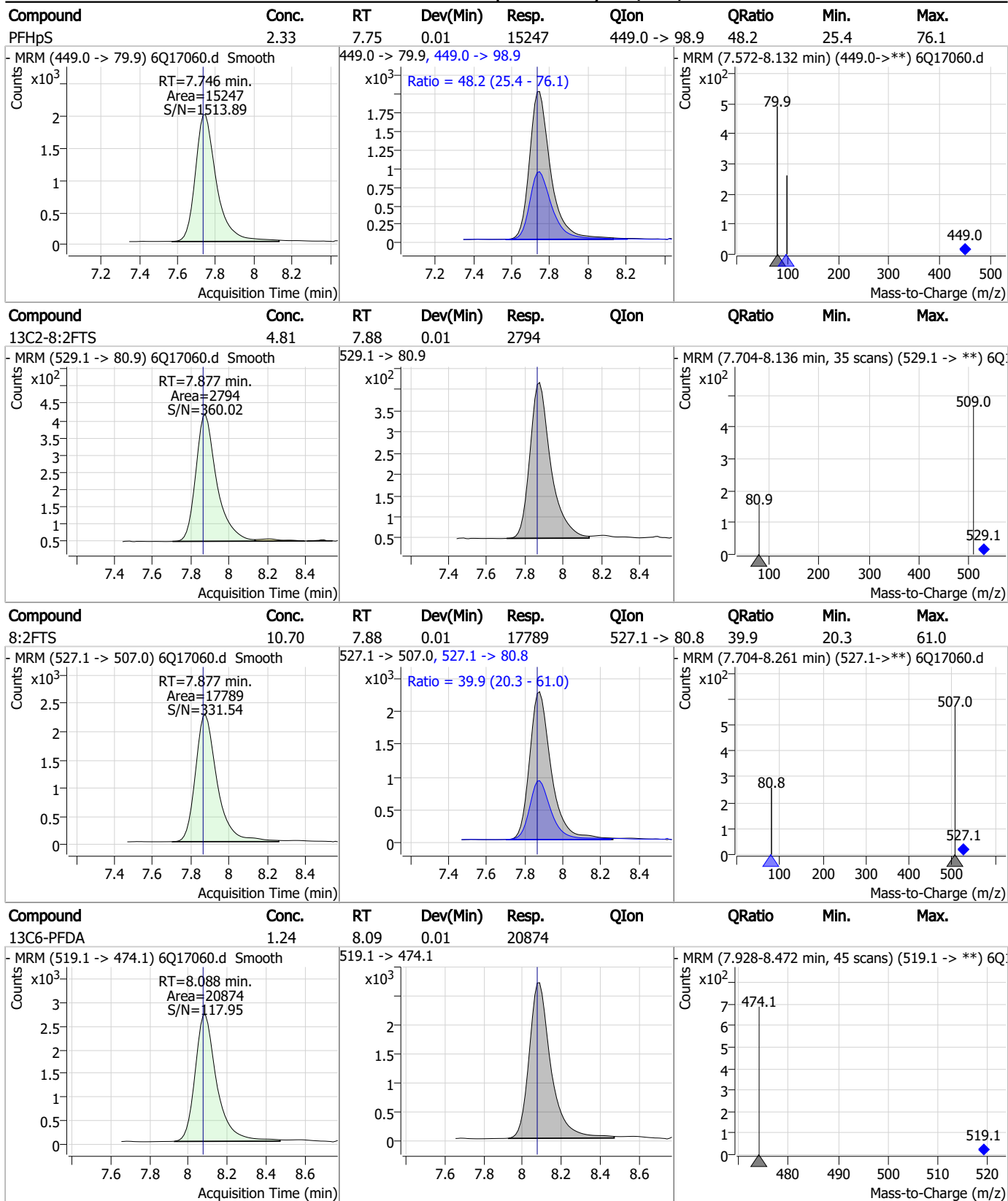
7

Perfluorinated Compounds by LC/MS/MS



7.7.24 7

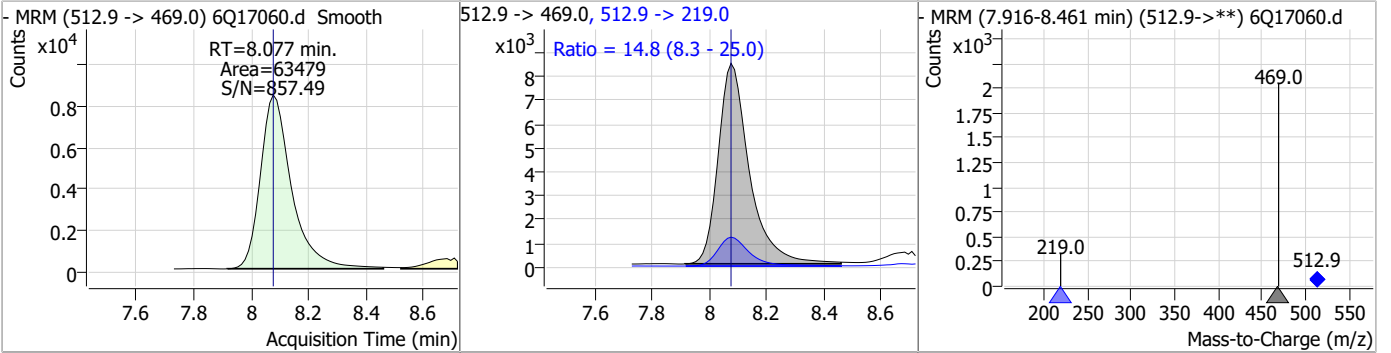
Perfluorinated Compounds by LC/MS/MS



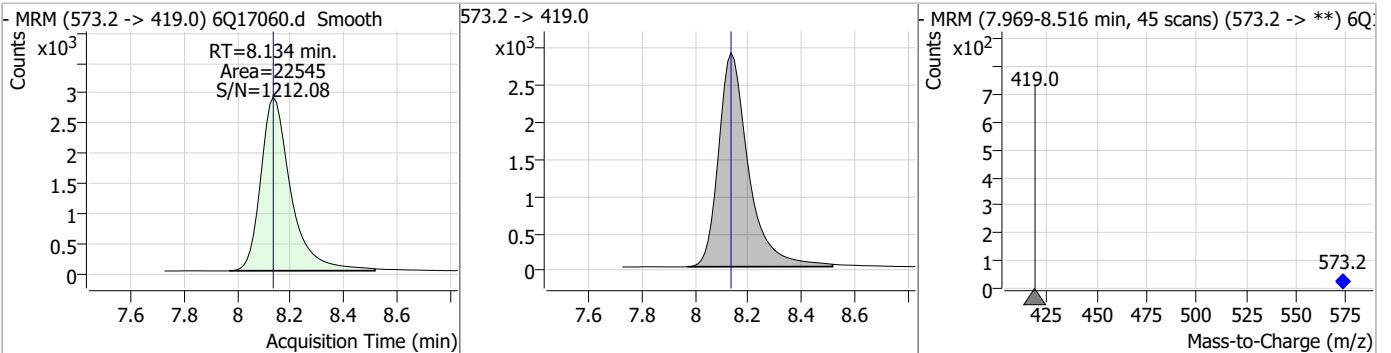
7.7.24
7

Perfluorinated Compounds by LC/MS/MS

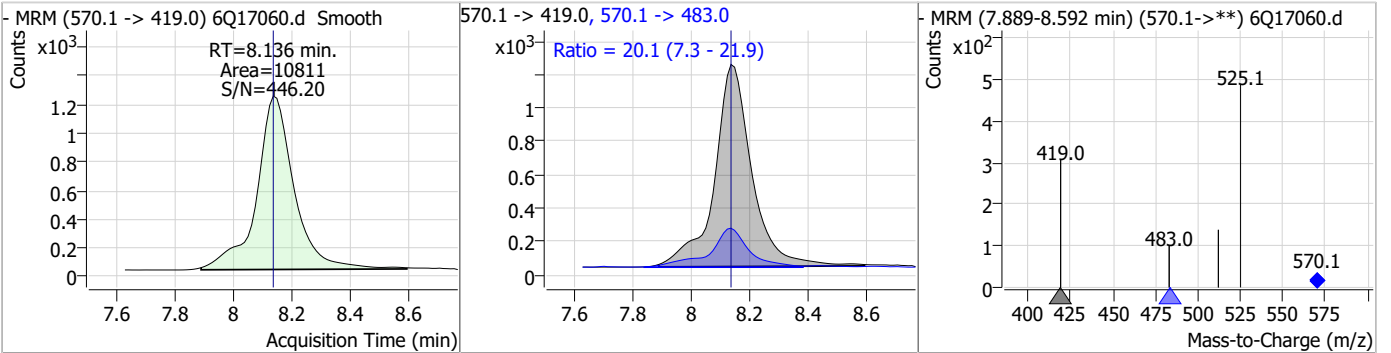
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	2.80	8.08	0.00	63479	512.9 -> 219.0	14.8	8.3	25.0



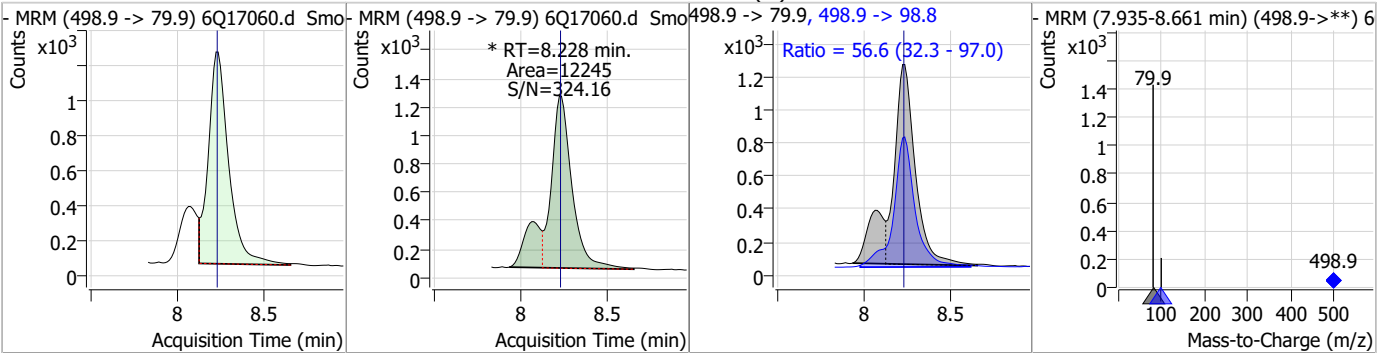
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.15	8.13	0.00	22545				



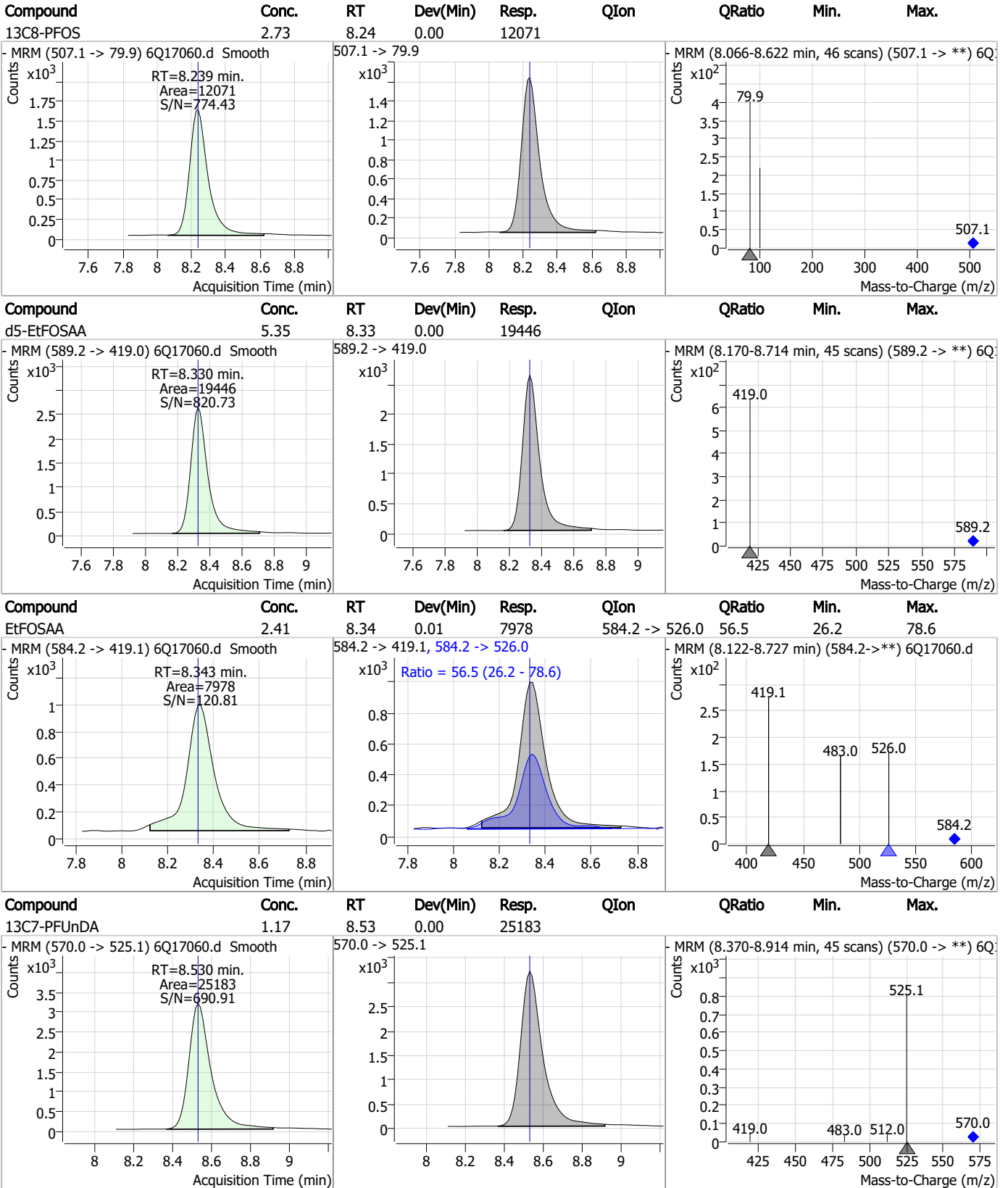
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	2.55	8.14	0.00	10811	570.1 -> 483.0	20.1	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	2.10	8.23	0.00	12245 (m)	498.9 -> 98.8	56.6	32.3	97.0



Perfluorinated Compounds by LC/MS/MS



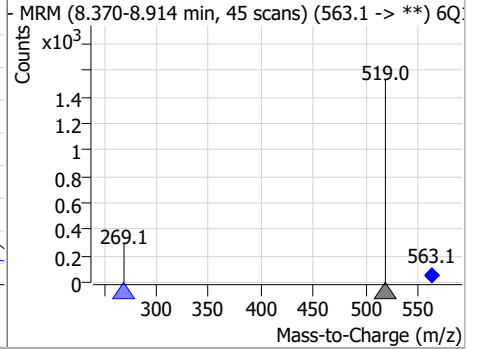
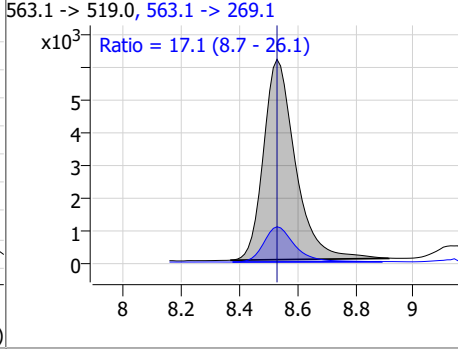
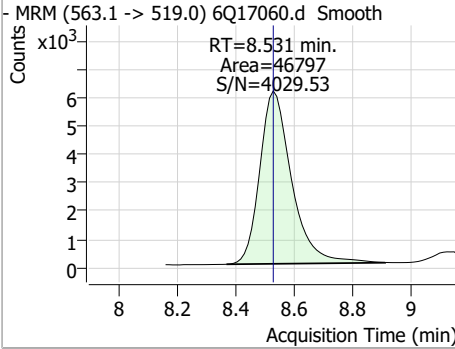
7.7.24

7

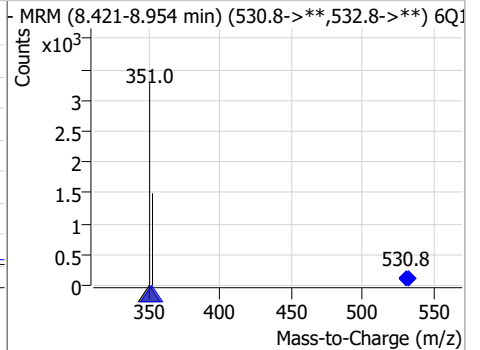
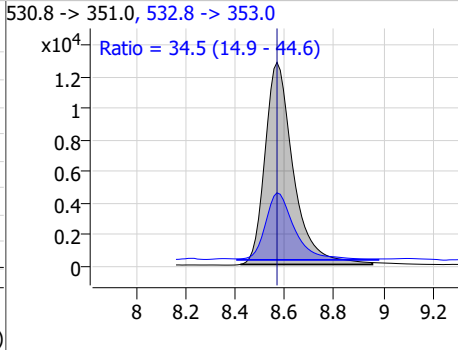
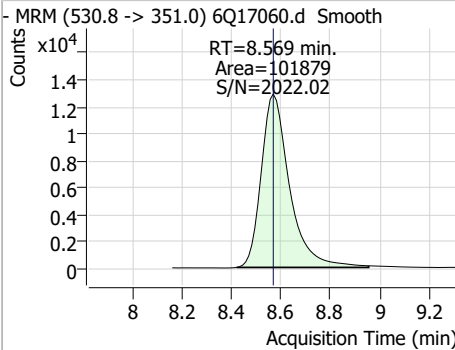


Perfluorinated Compounds by LC/MS/MS

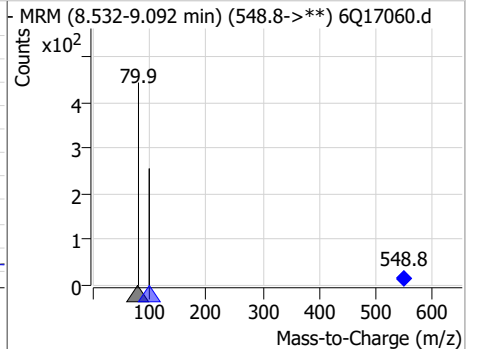
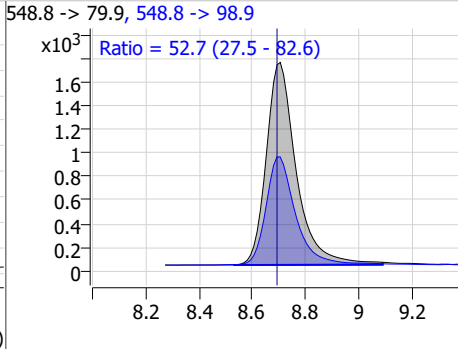
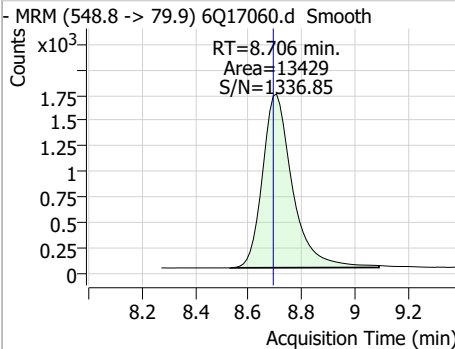
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.68	8.53	0.00	46797	563.1 -> 269.1	17.1	8.7	26.1



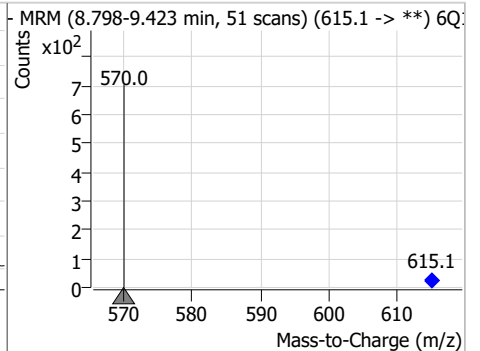
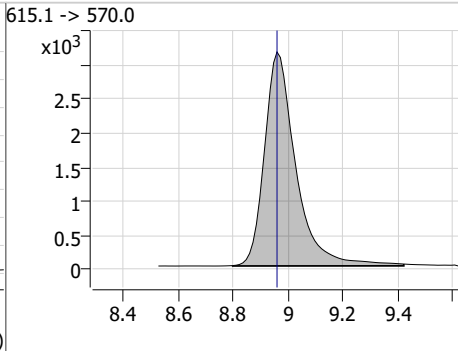
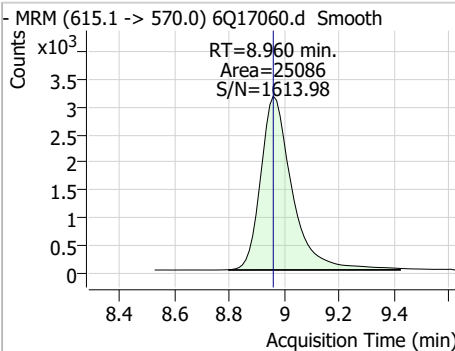
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	4.61	8.57	0.00	101879	532.8 -> 353.0	34.5	14.9	44.6



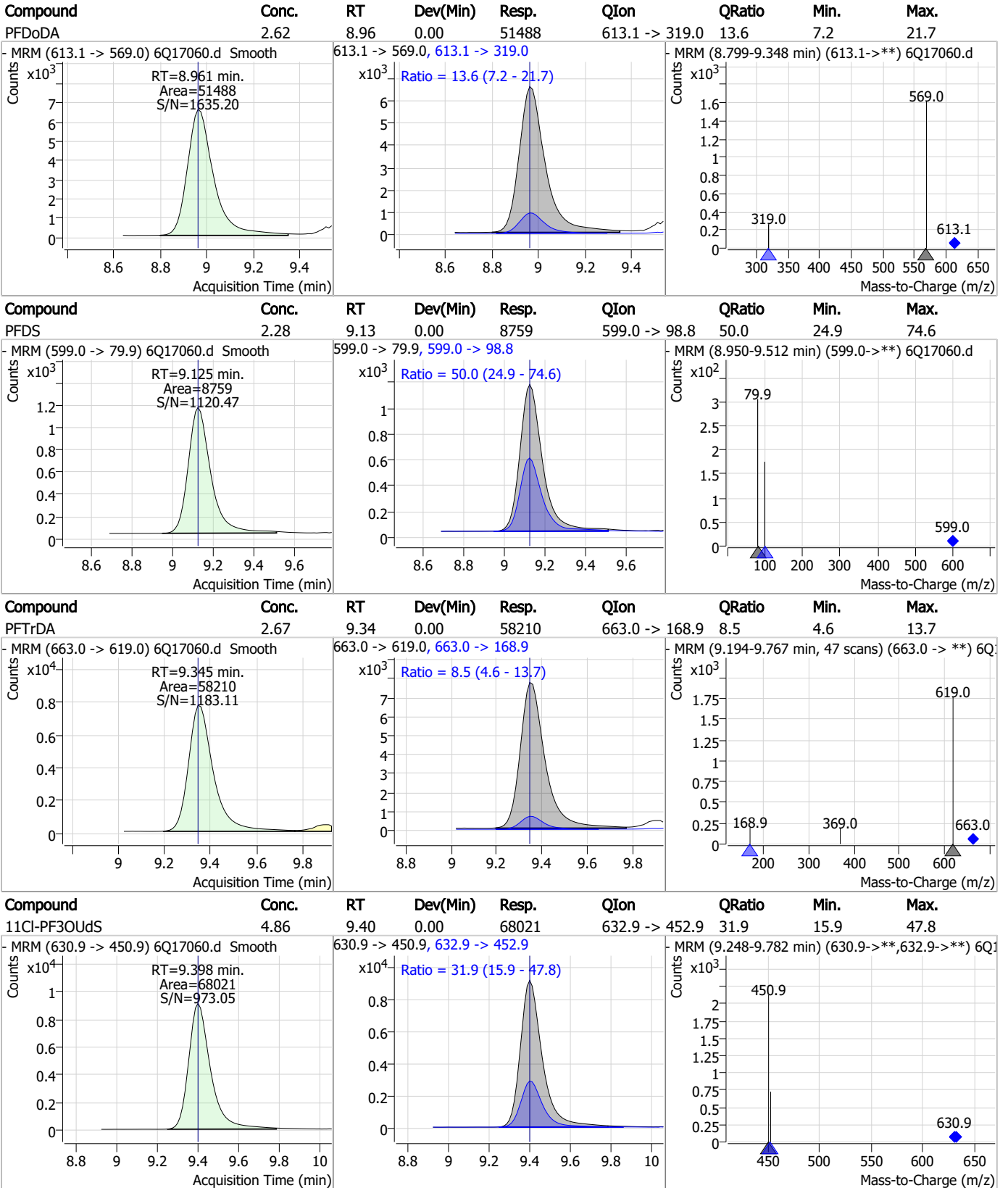
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.30	8.71	0.01	13429	548.8 -> 98.9	52.7	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.18	8.96	0.00	25086	615.1 -> 570.0			



Perfluorinated Compounds by LC/MS/MS

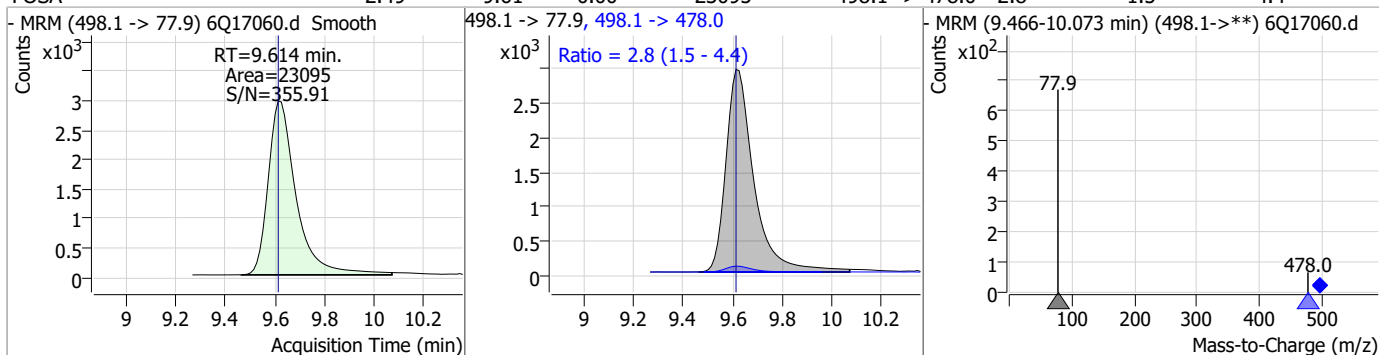


7.7.24

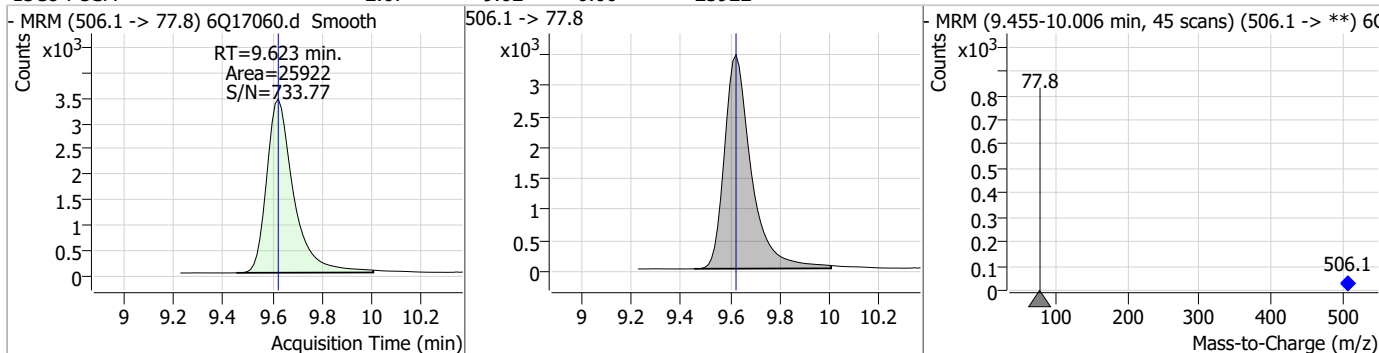
7

Perfluorinated Compounds by LC/MS/MS

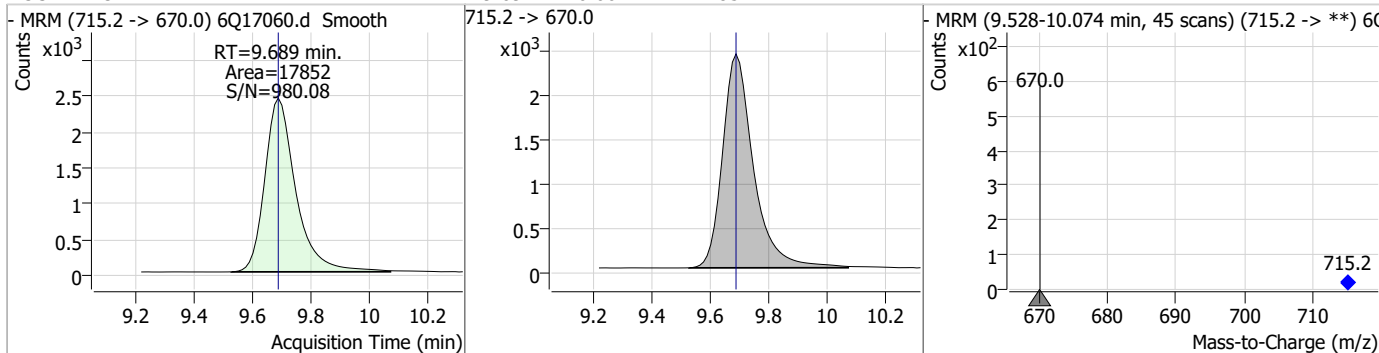
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.49	9.61	0.00	23095	498.1 -> 478.0	2.8	1.5	4.4



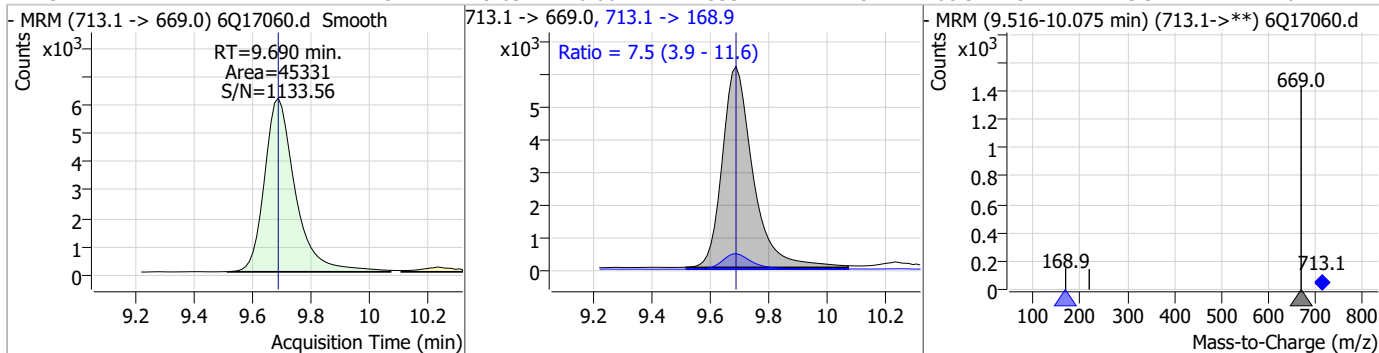
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.67	9.62	0.00	25922				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.24	9.69	0.00	17852				



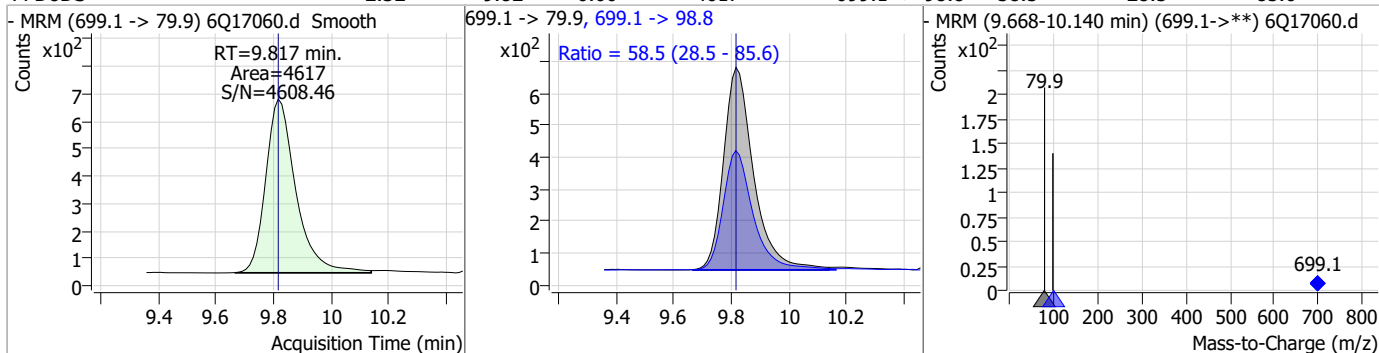
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.51	9.69	0.00	45331	713.1 -> 168.9	7.5	3.9	11.6



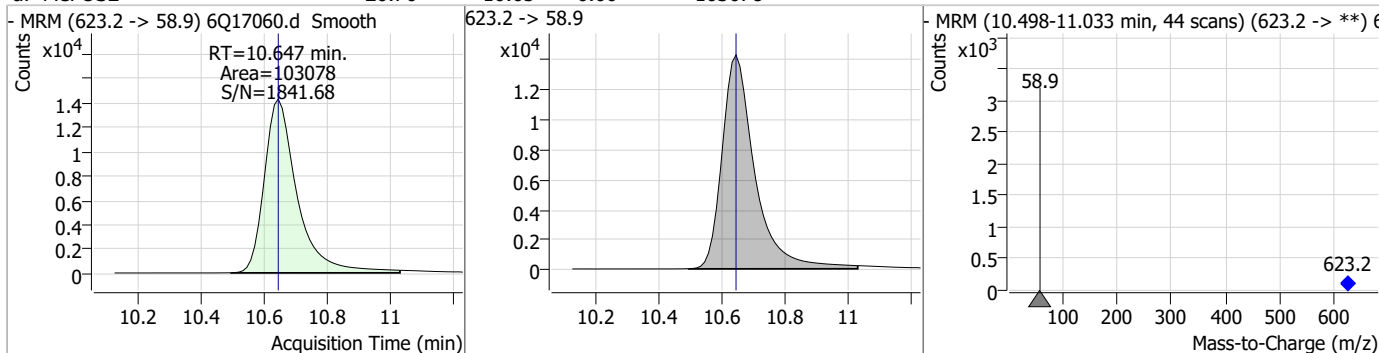
7.7.24
7

Perfluorinated Compounds by LC/MS/MS

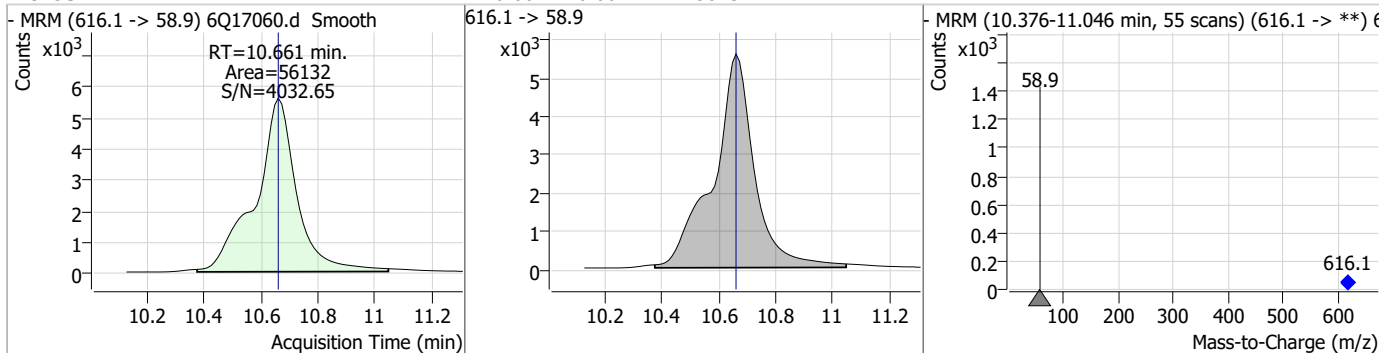
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.32	9.82	0.00	4617	699.1 -> 98.8	58.5	28.5	85.6



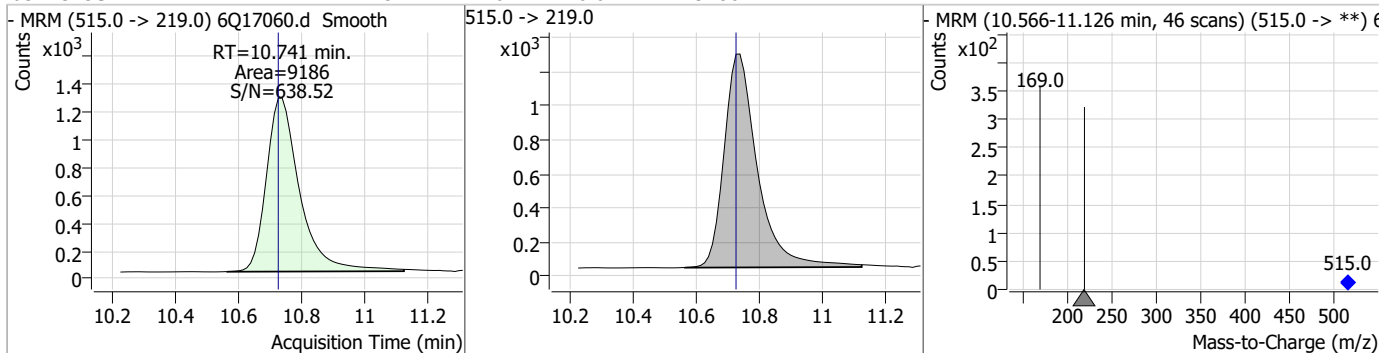
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.76	10.65	0.00	103078				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.21	10.66	0.00	56132				

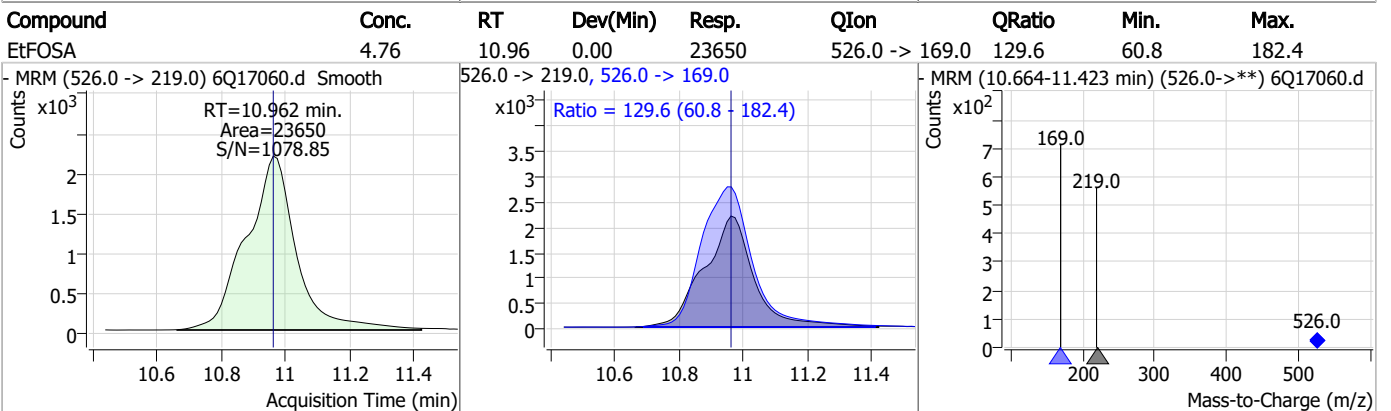
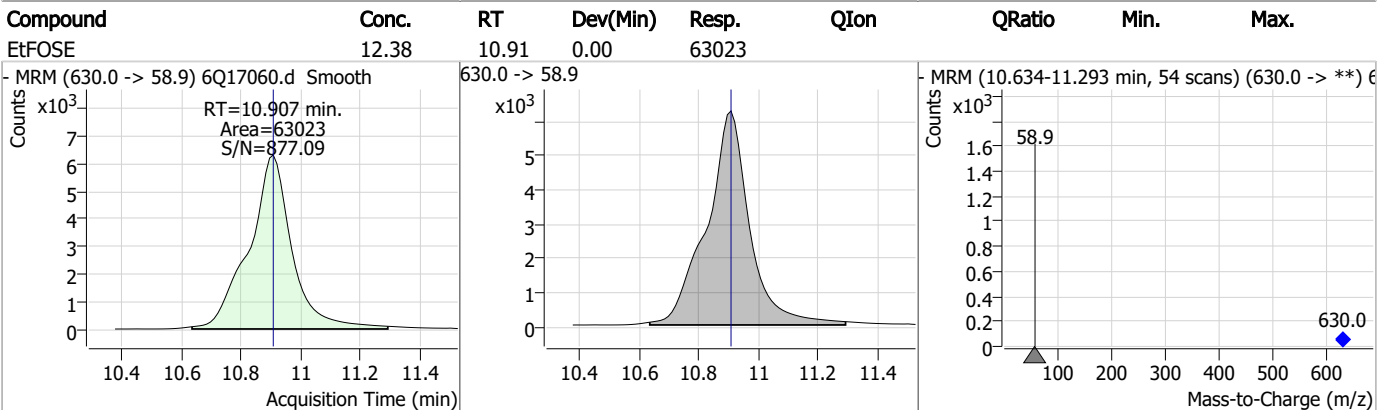
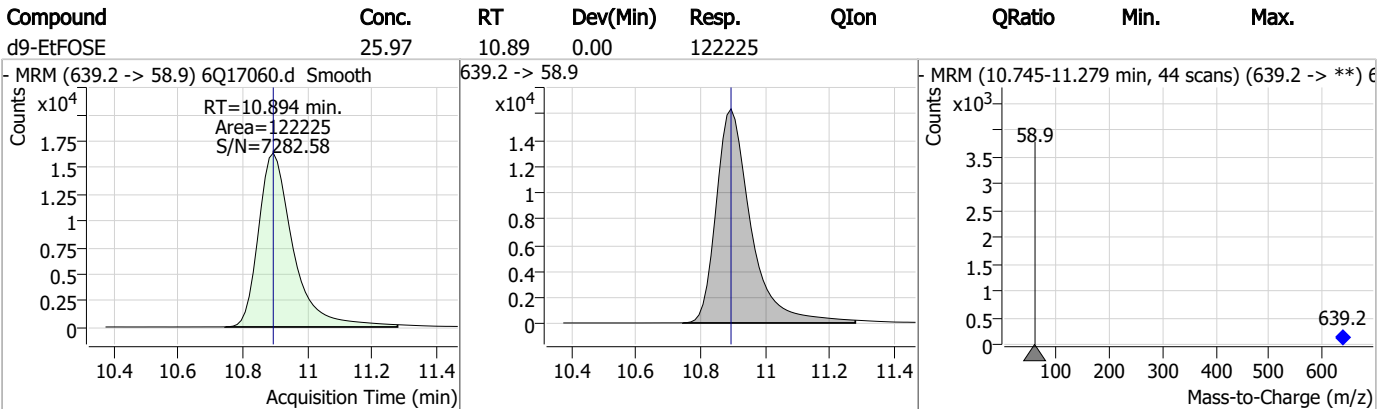
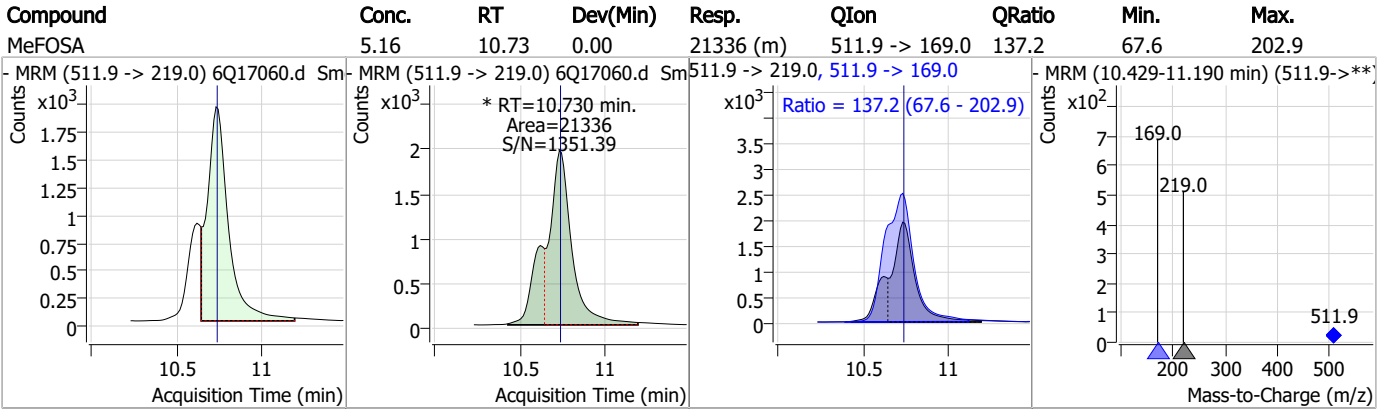


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.51	10.74	0.01	9186				



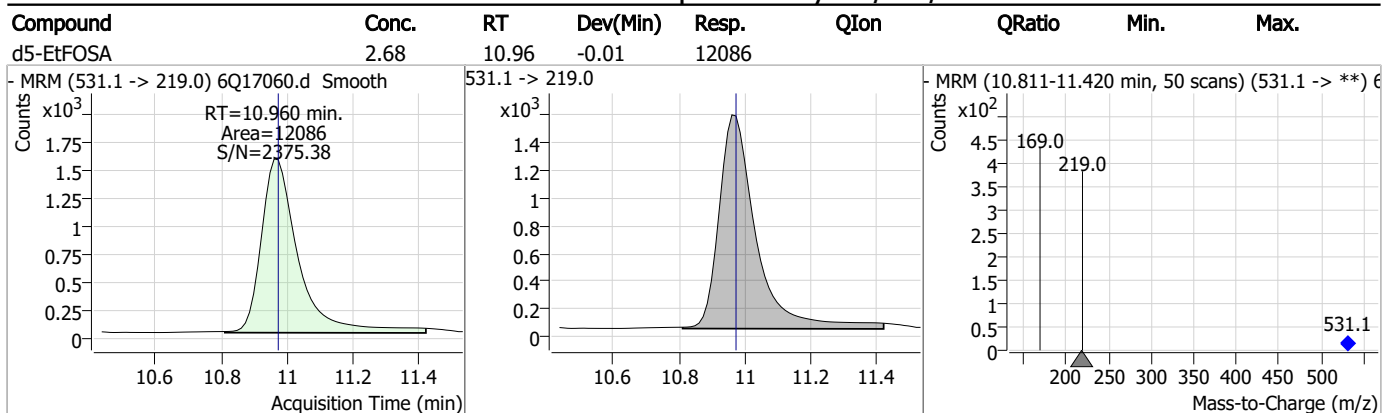
7.7.24
7

Perfluorinated Compounds by LC/MS/MS



7.7.24 7

Perfluorinated Compounds by LC/MS/MS



7.7.24

7

Manual Integration Approval Summary

Sample Number: S6Q258-ICV258 Method: EPA DRAFT 1633
Lab FileID: 6Q17060.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:00 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.7.24.1

7

Manual Integrations
APPROVED
 (compounds with "m" flag)
 Norman Farmer
 04/30/23 23:52

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17061.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:15:11 PM
 Sample Name : icv258-20
 Vial : P1-B2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.897	216.8 -> 171.9	181883	10.00 µg/L	0.000
M5-PFPeA	4.270	268.3 -> 223.0	63114	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	65831	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	55304	2.50 µg/L	0.000
M8-PFOA	7.074	421.1 -> 376.0	78747	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26122	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20235	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24976	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26141	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17129	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	23209	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	21977	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12387	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10720	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2129	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2641	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	3070	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21714	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40942	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18992	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	90949	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	110731	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	10862	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8899	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13456	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	78256	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9305	2.50 µg/L	0.000
13C4-PFOA	7.075	417.1 -> 372.0	84999	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23724	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29731	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56306	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2129	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2641	5.09 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3070	5.50 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 110.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26141	1.32 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 105.9%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17129	1.28 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 102.6%		
13C3-PFBS	5.398	302.1 -> 79.9	21977	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C3-PFHxS	7.179	402.1 -> 79.9	12387	2.50 µg/L	0.000

7.7.25
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	2.897	216.8 -> 171.9	181883	10.06 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C4-PFHpA	6.419	367.1 -> 322.0	55304	2.40 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C5-PFHxA	5.468	318.0 -> 273.0	65831	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C5-PFPeA	4.270	268.3 -> 223.0	63114	5.02 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.4%		
13C6-PFDA	8.076	519.1 -> 474.1	20235	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C7-PFUnDA	8.530	570.0 -> 525.1	24976	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.7%		
13C8-FOSA	9.623	506.1 -> 77.8	23209	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C8-PFOA	7.074	421.1 -> 376.0	78747	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.0%		
13C8-PFOS	8.226	507.1 -> 79.9	10720	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.8%		
13C9-PFNA	7.594	472.1 -> 427.0	26122	1.15 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.2%		
d3-MeFOSAA	8.134	573.2 -> 419.0	21714	5.42 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.3%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	40942	10.27 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 102.7%		
d3-MeFOSA	10.728	515.0 -> 219.0	8899	2.65 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.9%		
d5-EtFOSAA	8.330	589.2 -> 419.0	18992	5.70 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.0%		
d7-MeFOSE	10.647	623.2 -> 58.9	90949	25.75 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
d9-EtFOSE	10.894	639.2 -> 58.9	110731	25.66 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 102.6%		
d5-EtFOSA	10.960	531.1 -> 219.0	10862	2.63 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.3%		
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	72285	22.44 µg/L	98
		327.1 -> 80.9	26001		
6:2FTS	6.839	427.1 -> 407.0	59670	20.54 µg/L	94
		427.1 -> 80.9	19116		
8:2FTS	7.865	527.1 -> 507.0	34354	18.81 µg/L	95
		527.1 -> 80.8	15078		
EtFOSAA	8.331	584.2 -> 419.1	66660	20.65 µg/L	98
		584.2 -> 526.0	36033		
FOSA	9.614	498.1 -> 77.9	185412	22.30 µg/L	100
		498.1 -> 478.0	5114		
MeFOSAA	8.136	570.1 -> 419.0	86089	21.11 µg/L	85
		570.1 -> 483.0	17791		
PFBA	2.906	212.8 -> 168.9	124172	20.36 µg/L	100
PFBS	5.400	298.7 -> 79.9	218020	22.11 µg/L	97
		298.7 -> 98.8	85881		
PFDA	8.077	512.9 -> 469.0	496401	22.58 µg/L	99
		512.9 -> 219.0	81120		
PFDoDA	8.961	613.1 -> 569.0	347308	16.95 µg/L	98
		613.1 -> 319.0	48030		
PFDS	9.125	599.0 -> 79.9	72333	21.17 µg/L	99

7.7.25
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	36481	21.83	µg/L	97
		363.1 -> 319.0	595758			
PFHpS	7.746	363.1 -> 169.0	96770	20.36	µg/L	93
		449.0 -> 79.9	118260			
PFHxA	5.470	449.0 -> 98.9	65794	21.28	µg/L	100
		313.0 -> 269.0	553947			
PFHxS	7.180	313.0 -> 118.9	25719	22.52	µg/L	90
		398.7 -> 79.9	151988			
PFNA	7.595	398.7 -> 98.9	68078	20.75	µg/L	95
		463.0 -> 419.0	374916			
PFNS	8.706	463.0 -> 219.0	86517	22.36	µg/L	95
		548.8 -> 79.9	115696			
PFOA	7.063	548.8 -> 98.9	59755	20.81	µg/L	100
		413.0 -> 369.0	788785			
PFOS	8.228	413.0 -> 169.0	136616	19.19	µg/L	79
		498.9 -> 79.9	99333			
PFPeA	4.273	498.9 -> 98.8	47997	22.22	µg/L	100
		263.0 -> 219.0	381974			
PFPeS	6.472	349.1 -> 79.9	158163	22.44	µg/L	92
		349.1 -> 98.9	68379			
PFTeDA	9.690	713.1 -> 669.0	372337	21.51	µg/L	100
		713.1 -> 168.9	28247			
PFTrDA	9.345	663.0 -> 619.0	417890	18.42	µg/L	98
		663.0 -> 168.9	35597			
PFUnDA	8.531	563.1 -> 519.0	365576	21.10	µg/L	95
		563.1 -> 269.1	55110			
11CI-PF3OUdS	9.398	630.9 -> 450.9	294122	20.93	µg/L	98
		632.9 -> 452.9	90566			
9CI-PF3ONS	8.569	530.8 -> 351.0	471916	21.24	µg/L	99
		532.8 -> 353.0	142935			
ADONA	6.681	376.9 -> 250.9	1282918	20.74	µg/L	97
		376.9 -> 84.8	315913			
HFPO-DA	5.846	284.9 -> 168.9	73104	18.85	µg/L	99
		284.9 -> 184.9	9797			
3:3FTCA	3.784	241.0 -> 177.0	22317	20.76	µg/L	98
		241.0 -> 117.0	2776			
5:3FTCA	6.160	341.0 -> 237.1	103543	24.58	µg/L	99
		341.0 -> 217.0	70006			
7:3FTCA	7.573	441.0 -> 316.9	42656	22.29	µg/L	92
		441.0 -> 336.9	86728			
EtFOSA	10.975	526.0 -> 219.0	92596	20.74	µg/L	86
		526.0 -> 169.0	98148			
EtFOSE	10.907	630.0 -> 58.9	511139	110.84	µg/L	100
		511.9 -> 219.0	82720			
MeFOSA	10.743	511.9 -> 169.0	91971	20.66	µg/L	80
		616.1 -> 58.9	455307			
MeFOSE	10.661	699.1 -> 79.9	35872	112.25	µg/L	100
		699.1 -> 98.8	21072			
PFDoDS	9.817	295.0 -> 201.0	64405	20.30	µg/L	98
		295.0 -> 84.9	15279			
NFDHA	5.350	279.0 -> 85.1	251755	22.83	µg/L	99
		229.0 -> 84.9	185020			
PFMBA	4.687	314.8 -> 134.9	652973	21.83	µg/L	100
		314.8 -> 82.9	21677			
PFMPA	3.438			21.50	µg/L	100
PFEESA	5.937			19.88	µg/L	99

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

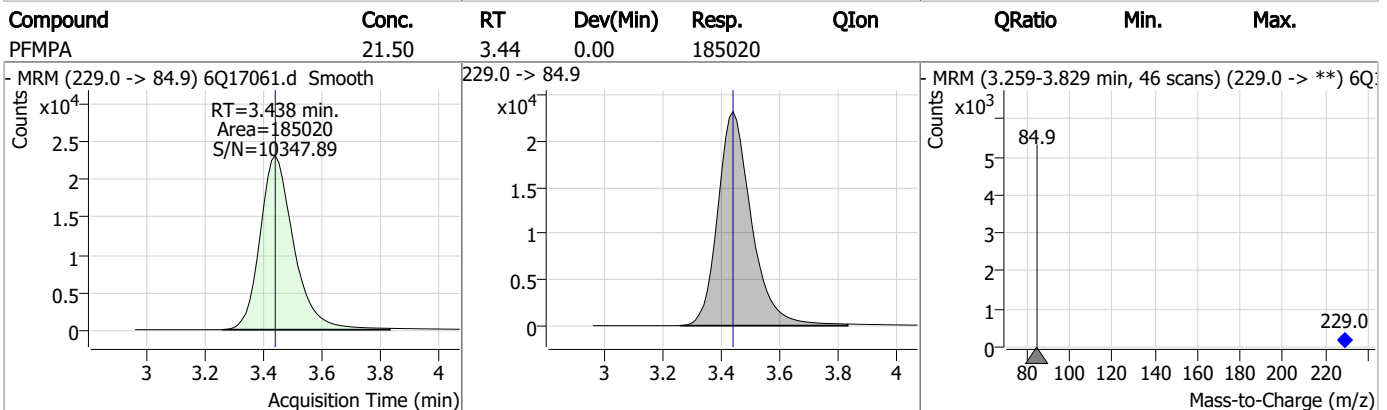
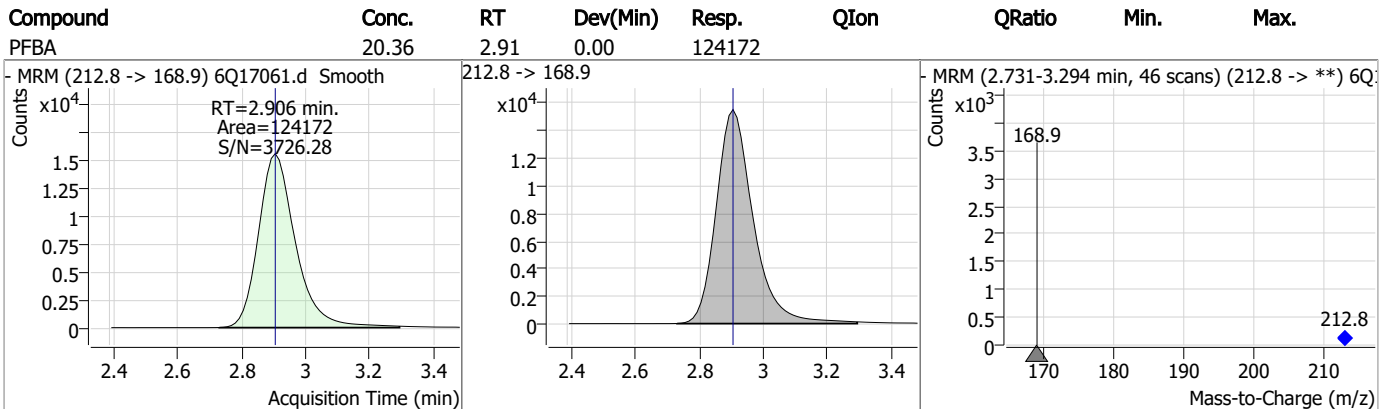
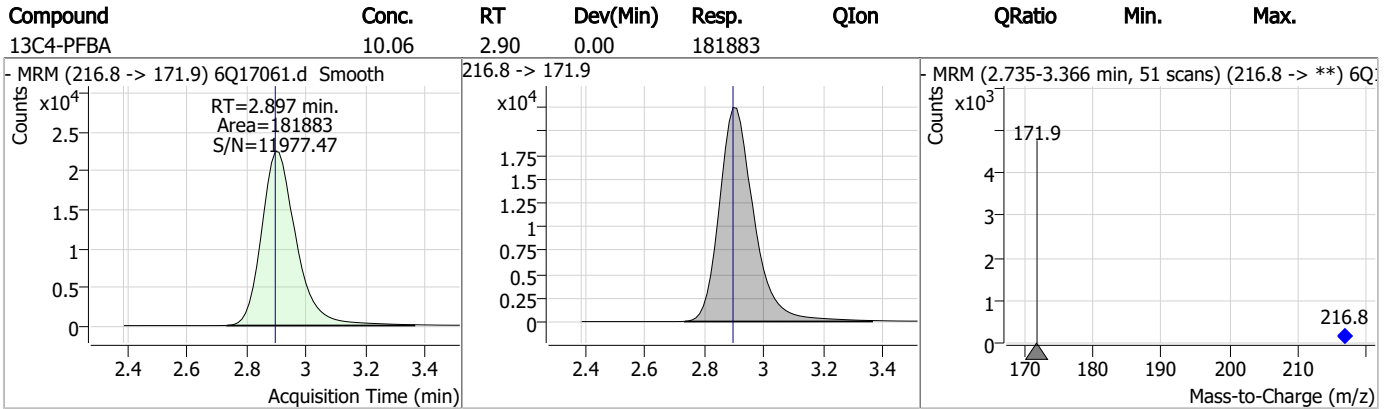
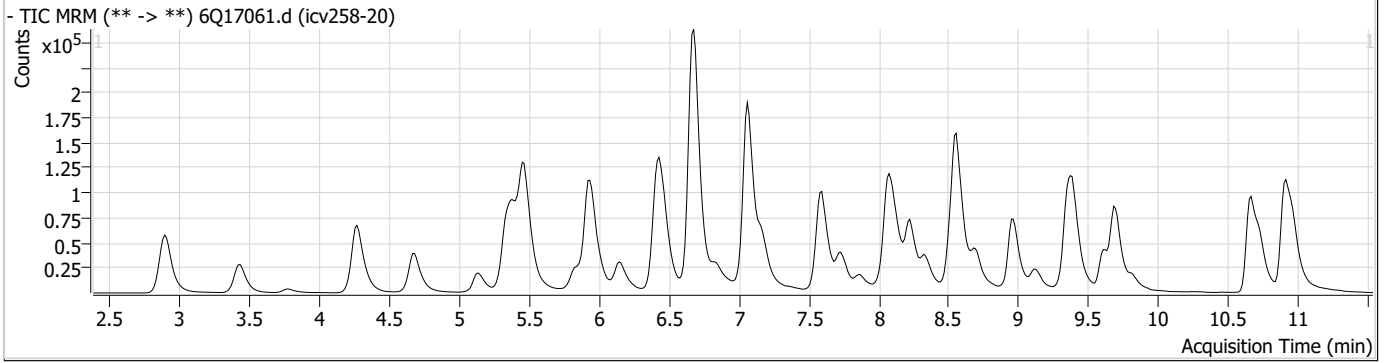
Perfluorinated Compounds by LC/MS/MS

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

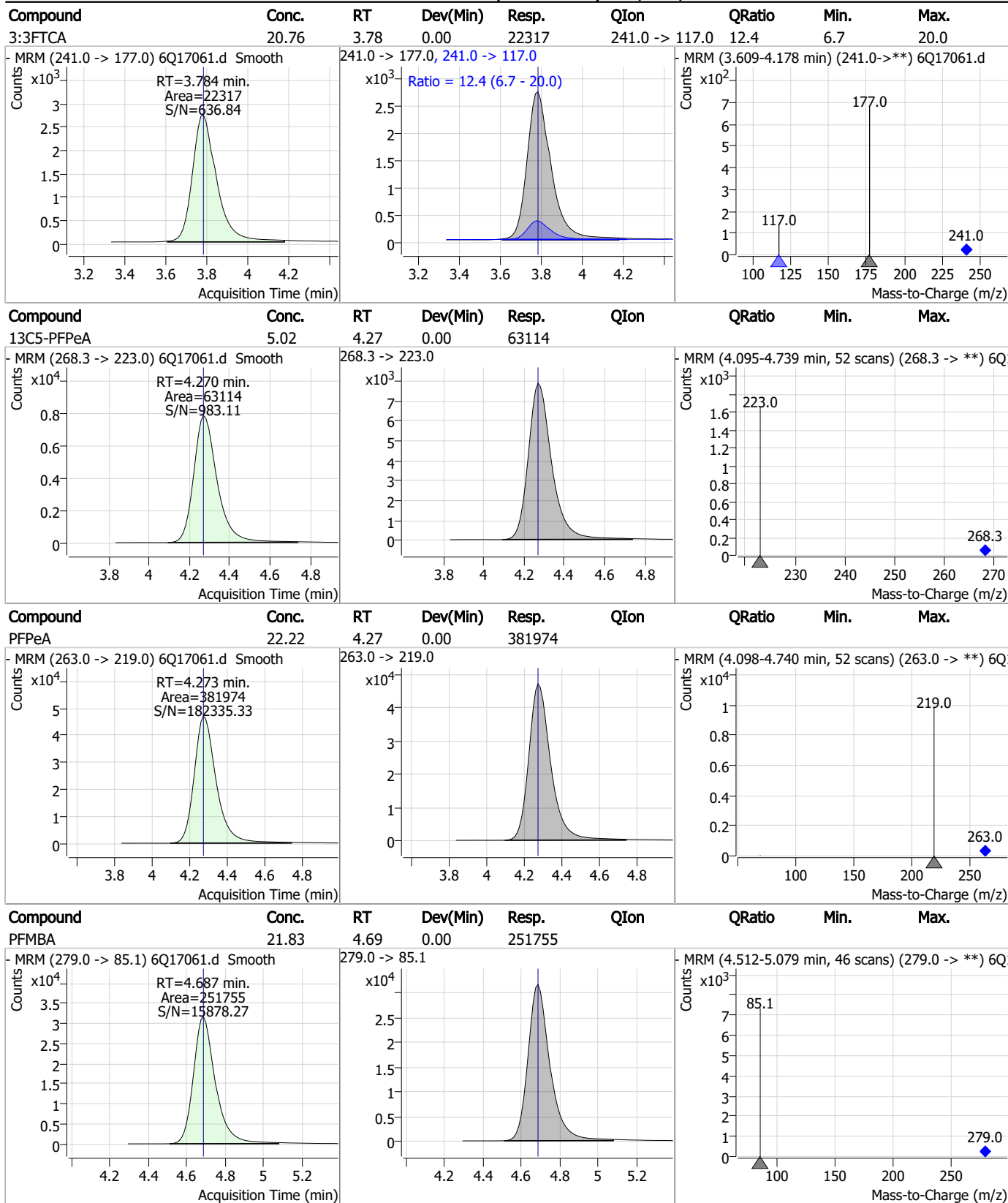
7.7.25

7

Perfluorinated Compounds by LC/MS/MS



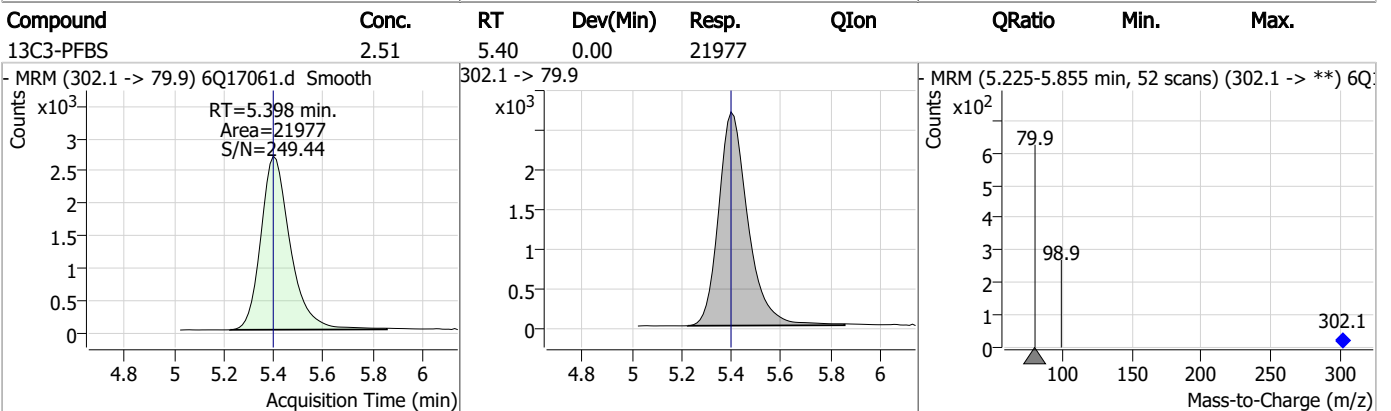
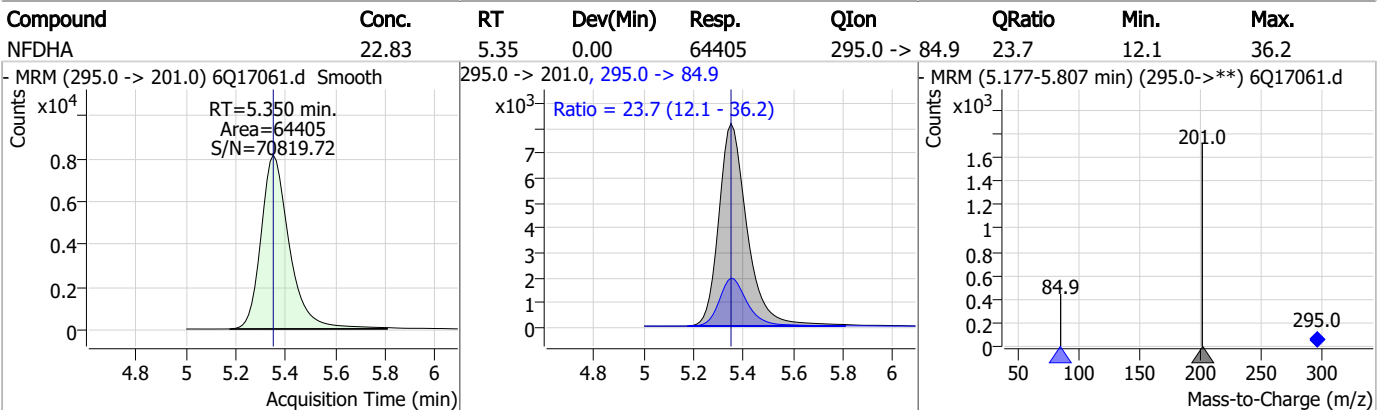
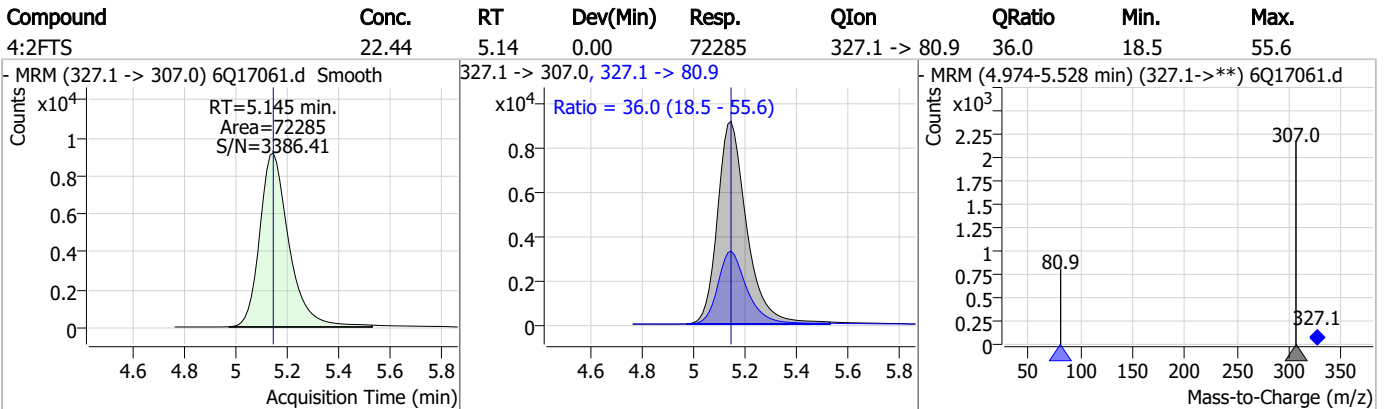
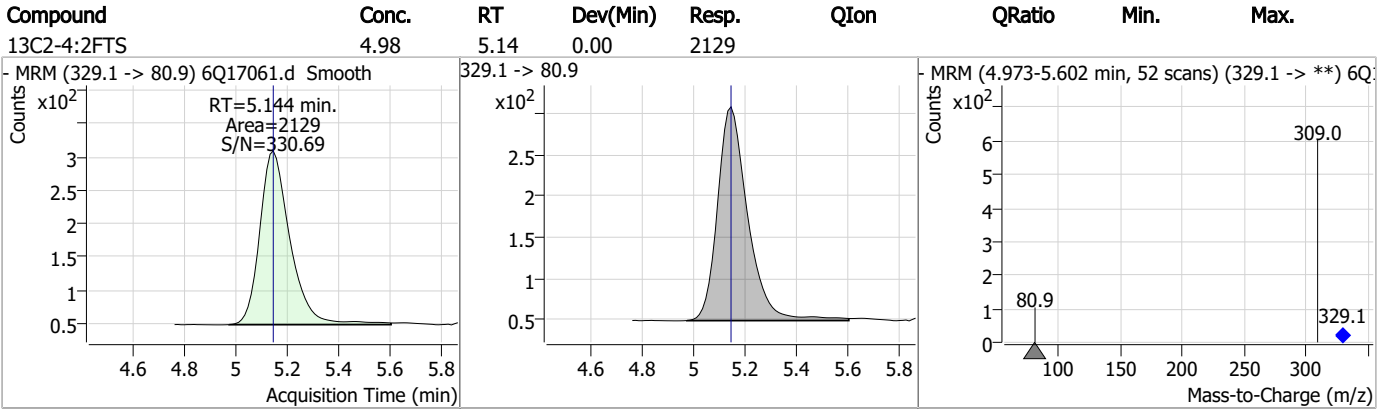
Perfluorinated Compounds by LC/MS/MS



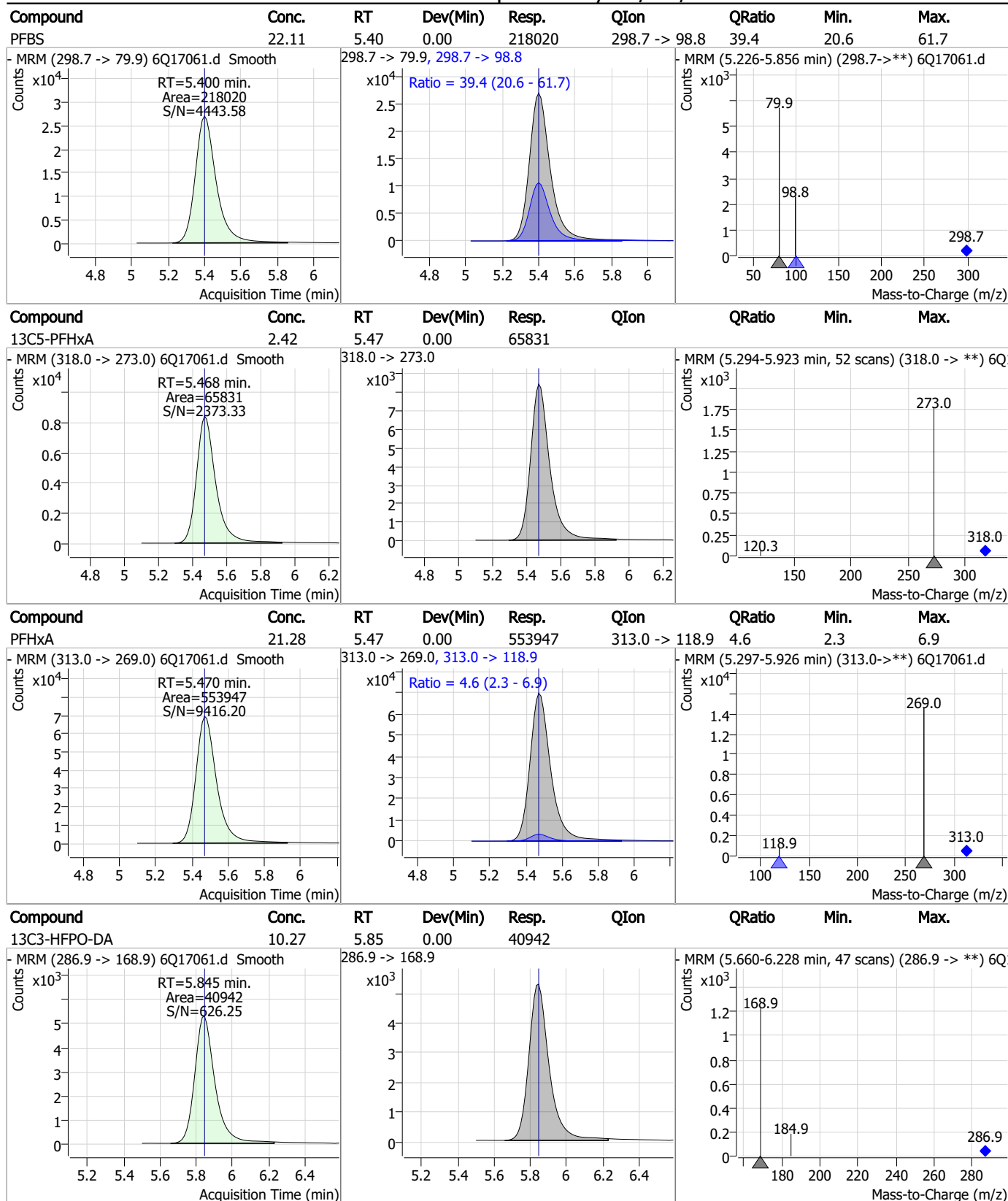
7.7.25
7



Perfluorinated Compounds by LC/MS/MS



Perfluorinated Compounds by LC/MS/MS

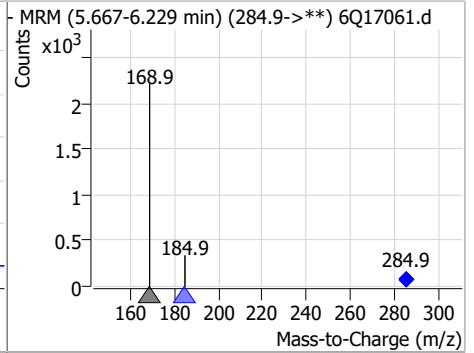
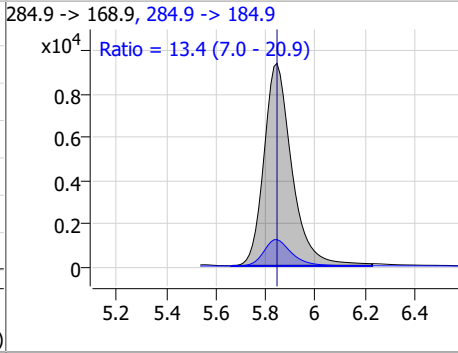
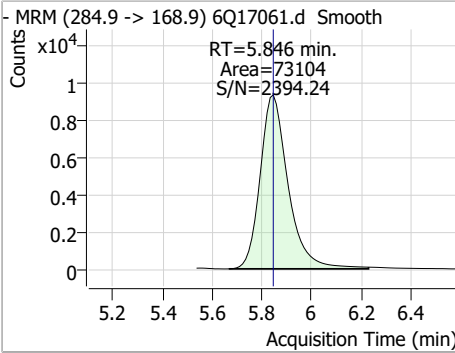


7.7.25

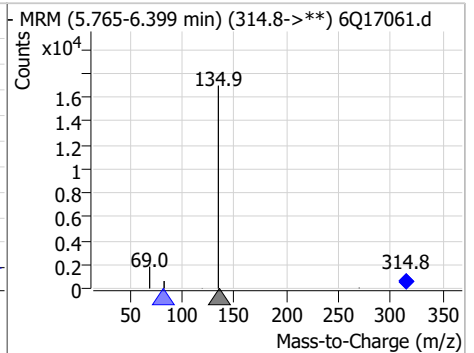
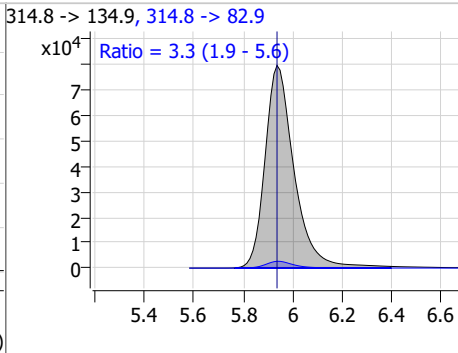
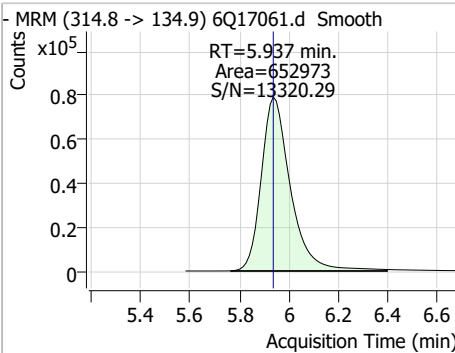
7

Perfluorinated Compounds by LC/MS/MS

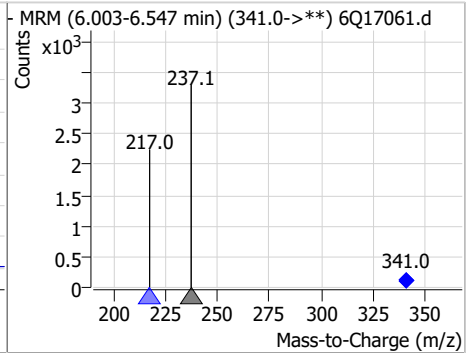
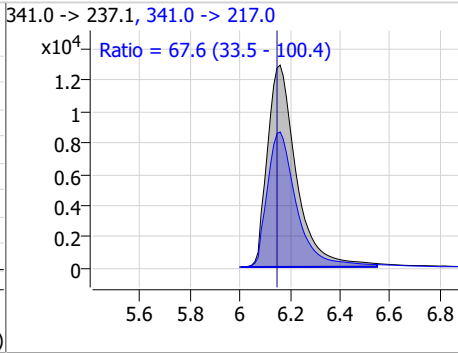
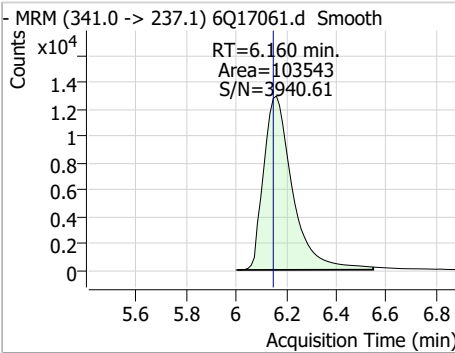
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	18.85	5.85	0.00	73104	284.9 -> 184.9	13.4	7.0	20.9



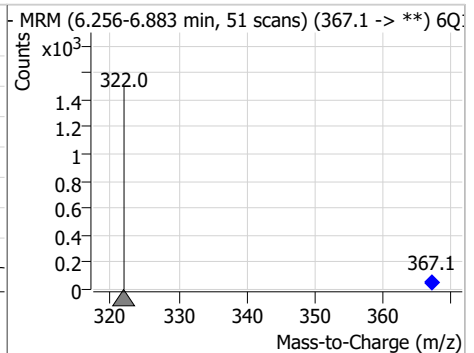
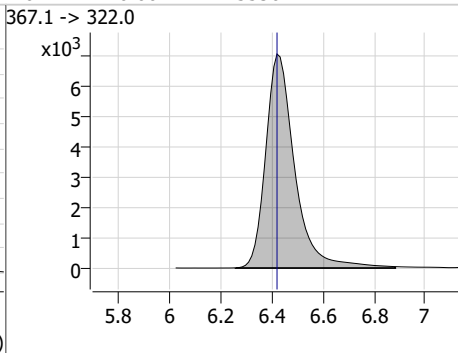
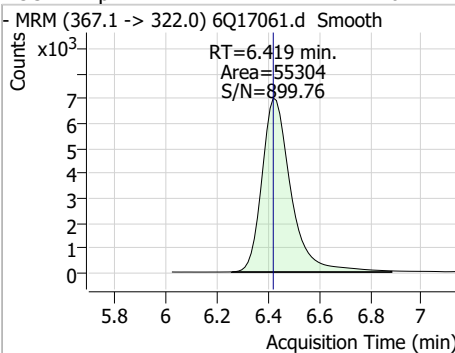
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	19.88	5.94	0.00	652973	314.8 -> 82.9	3.3	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	24.58	6.16	0.01	103543	341.0 -> 217.0	67.6	33.5	100.4



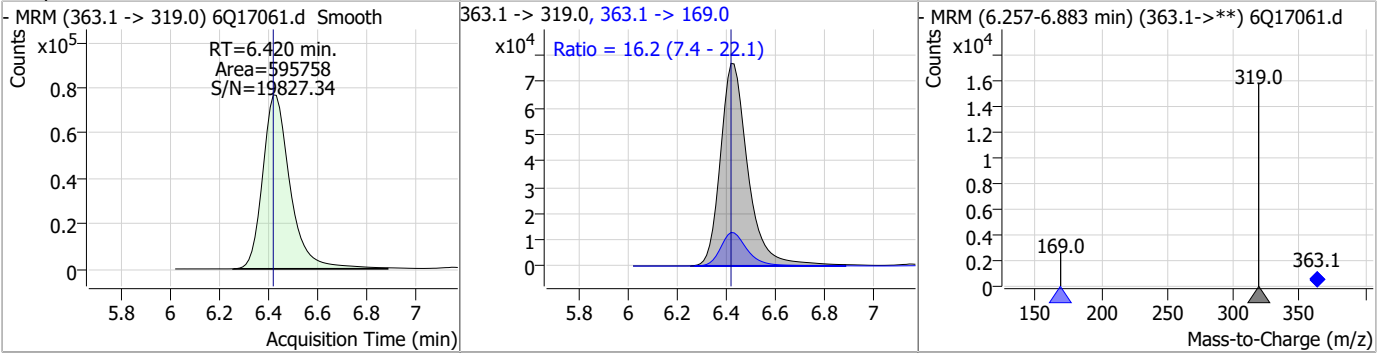
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.40	6.42	0.00	55304	367.1 -> 322.0			



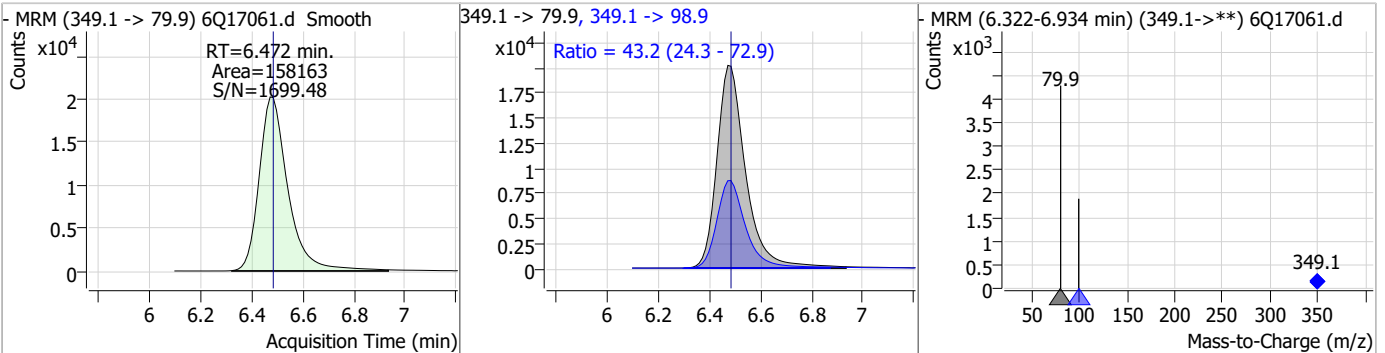
7.7.25 7

Perfluorinated Compounds by LC/MS/MS

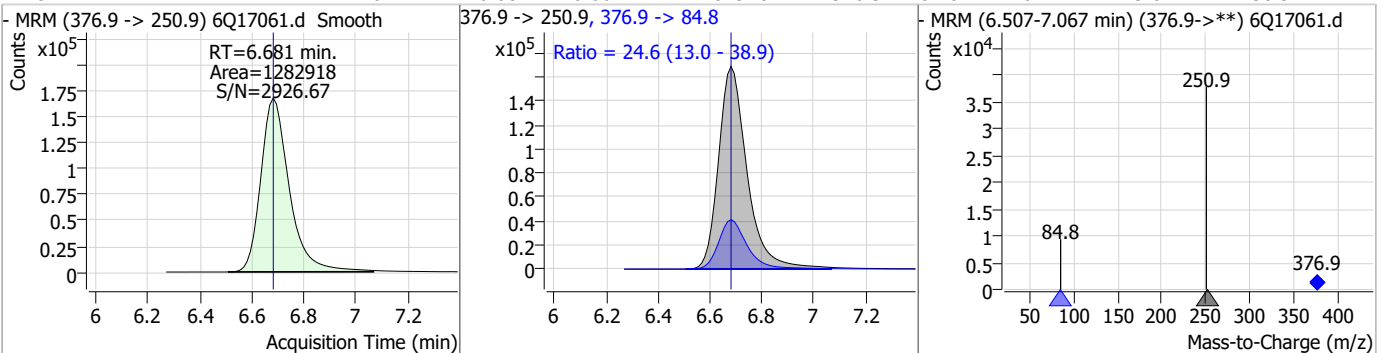
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpA	21.83	6.42	0.00	595758	363.1 -> 169.0	16.2	7.4	22.1



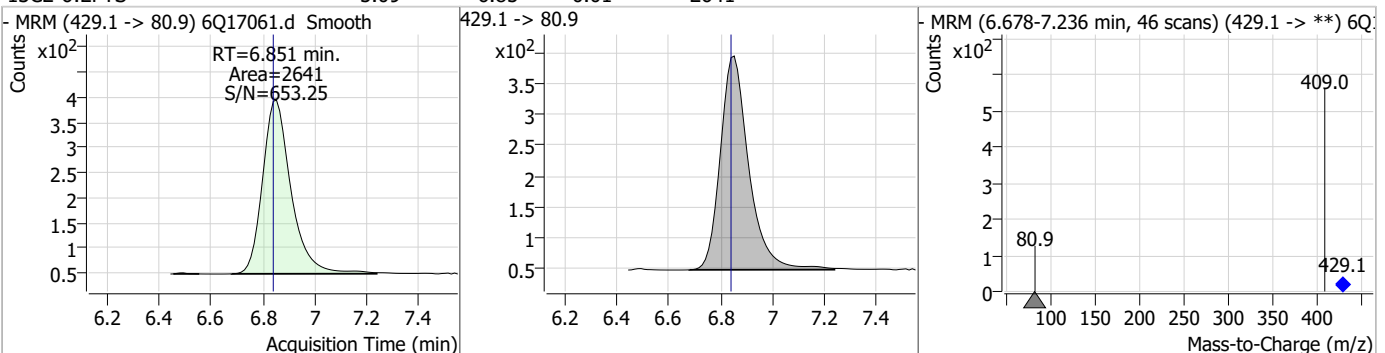
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFPeS	22.44	6.47	-0.01	158163	349.1 -> 98.9	43.2	24.3	72.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
ADONA	20.74	6.68	0.00	1282918	376.9 -> 84.8	24.6	13.0	38.9

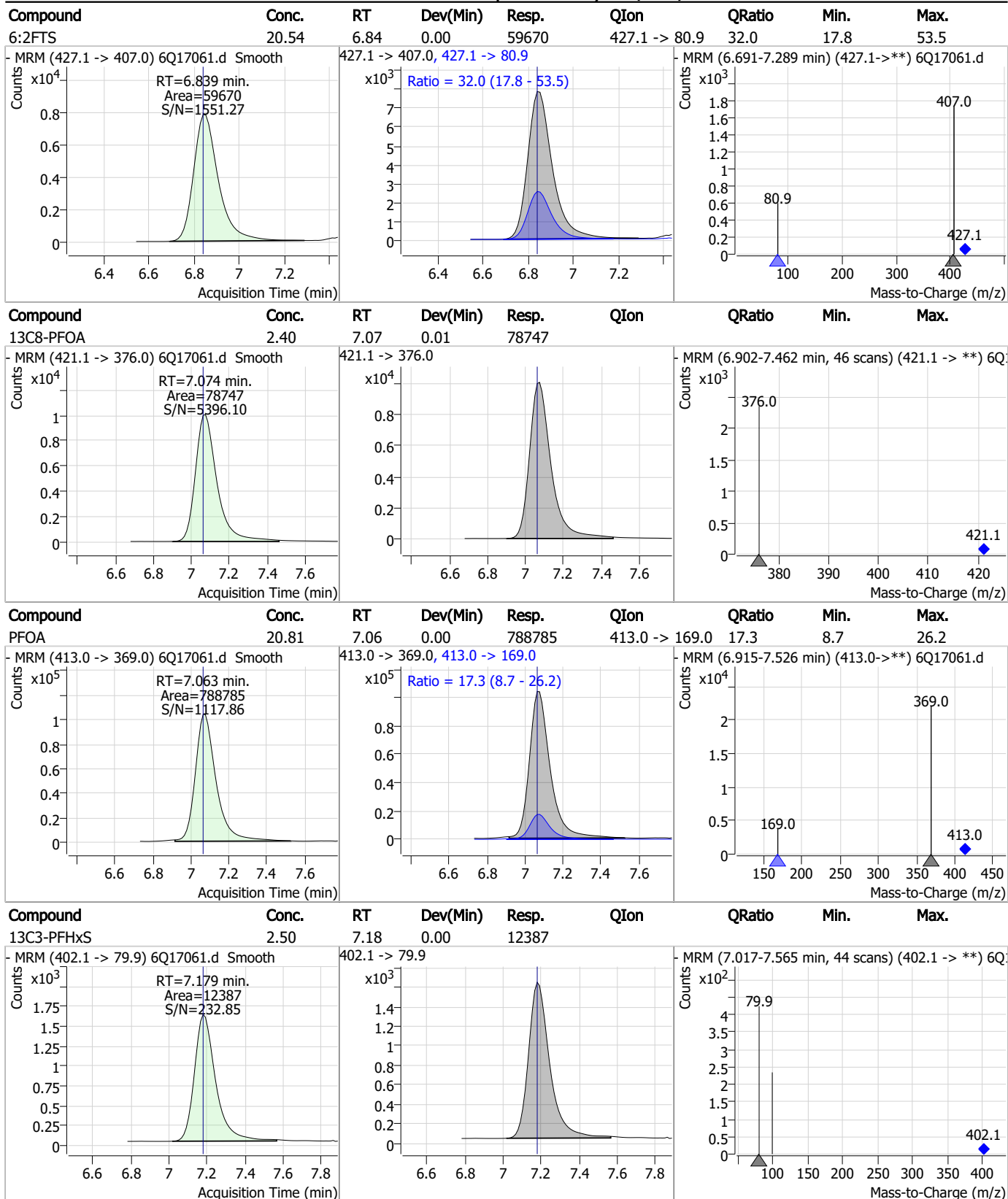


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-6:2FTS	5.09	6.85	0.01	2641	429.1 -> 80.9			



7.7.25 7

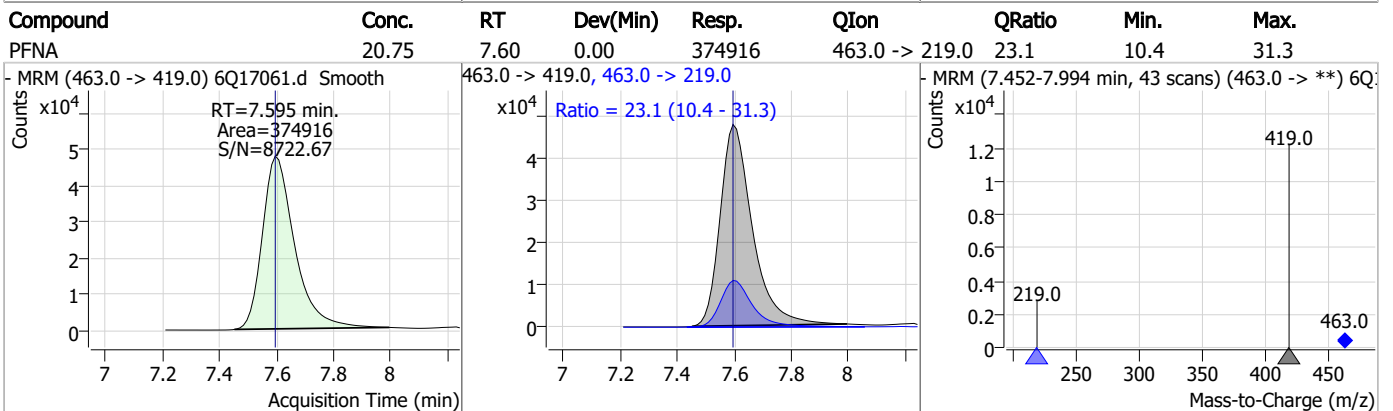
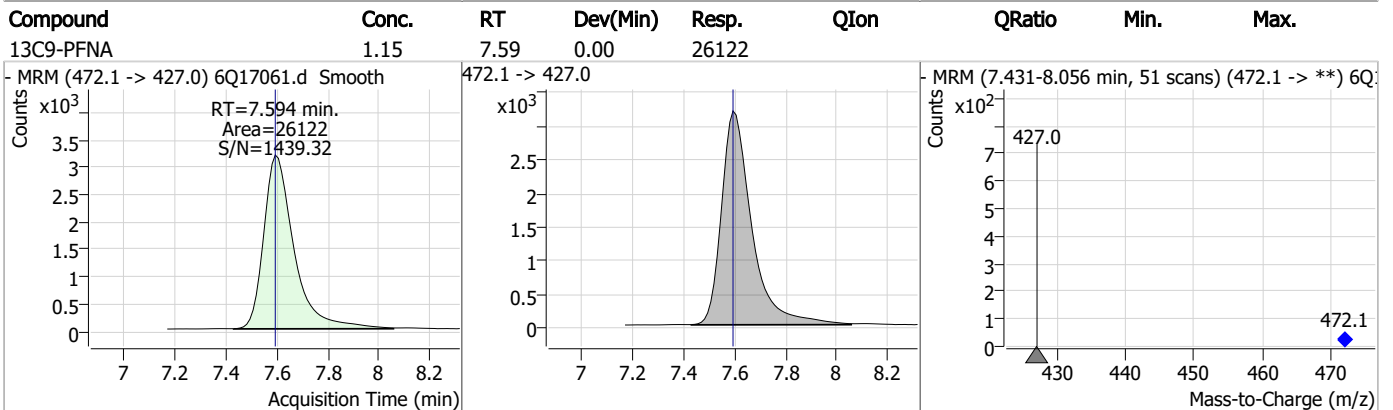
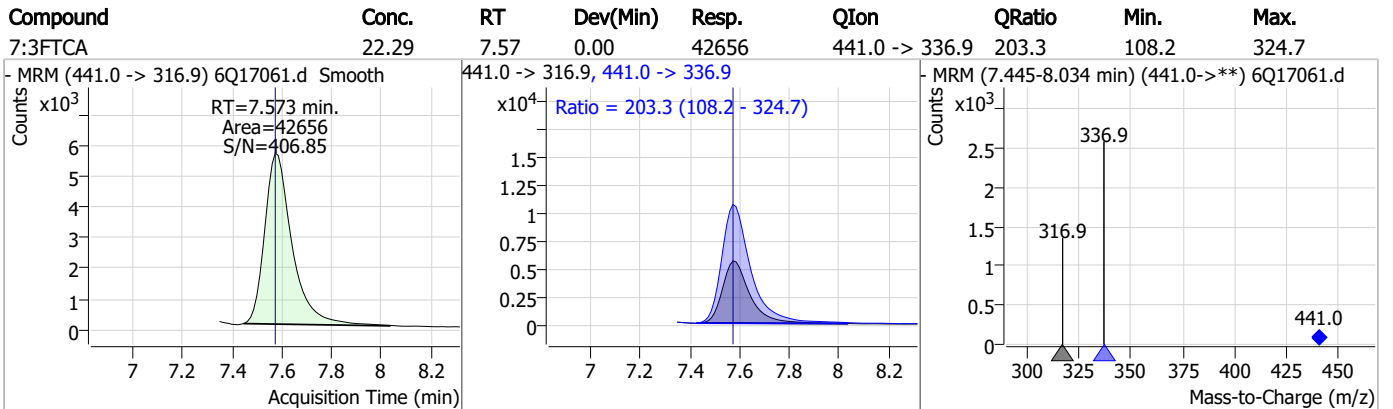
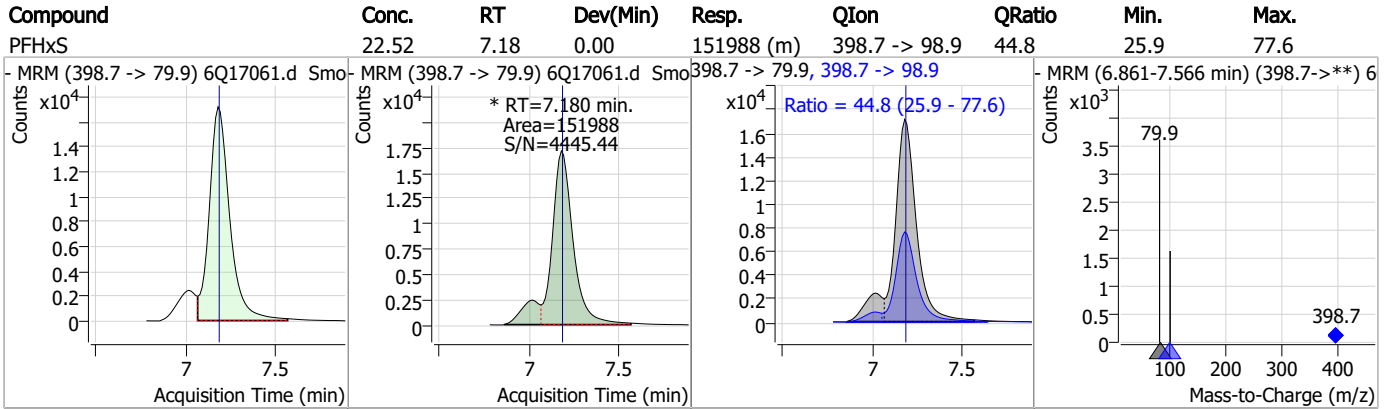
Perfluorinated Compounds by LC/MS/MS



7.7.25

7

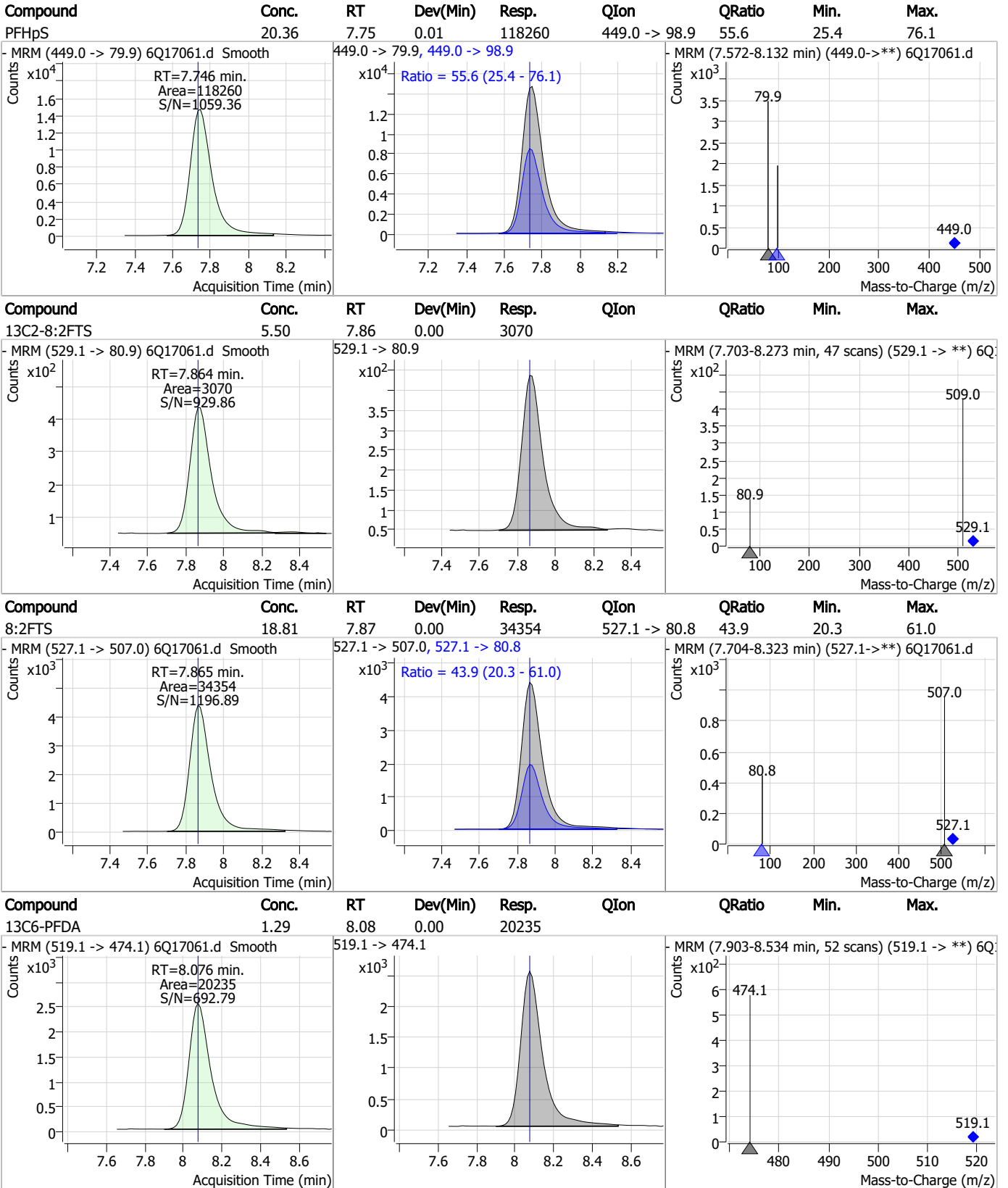
Perfluorinated Compounds by LC/MS/MS



7.7.25
7



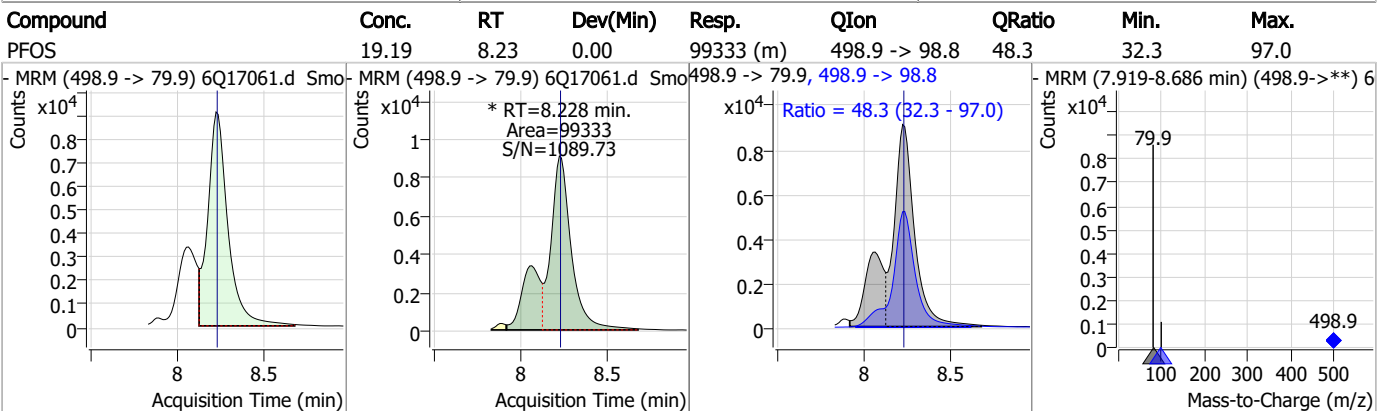
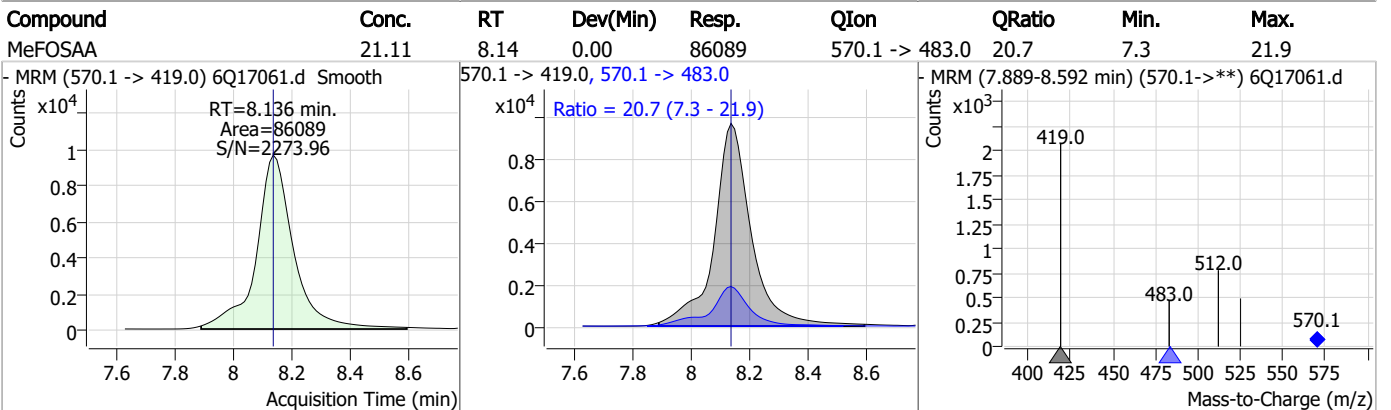
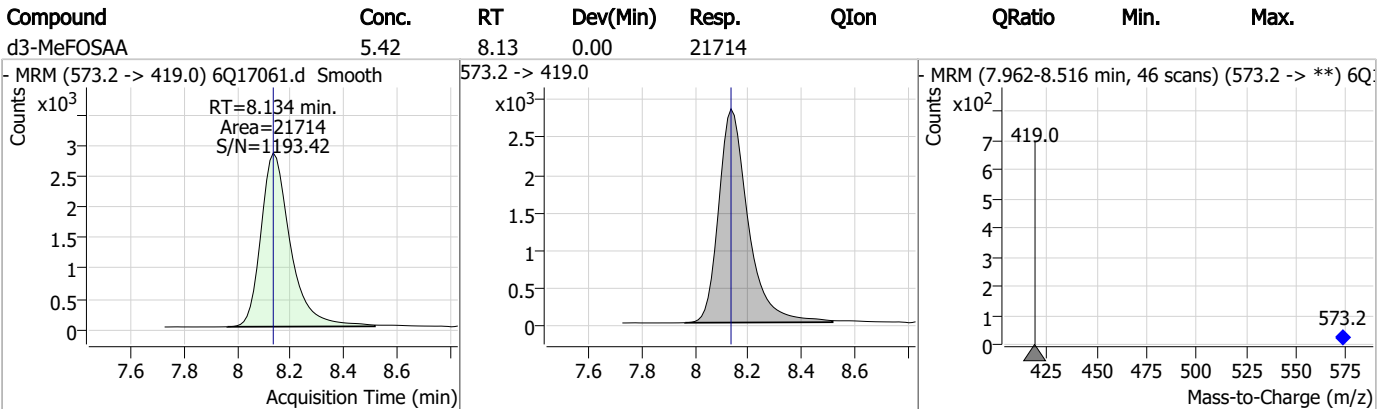
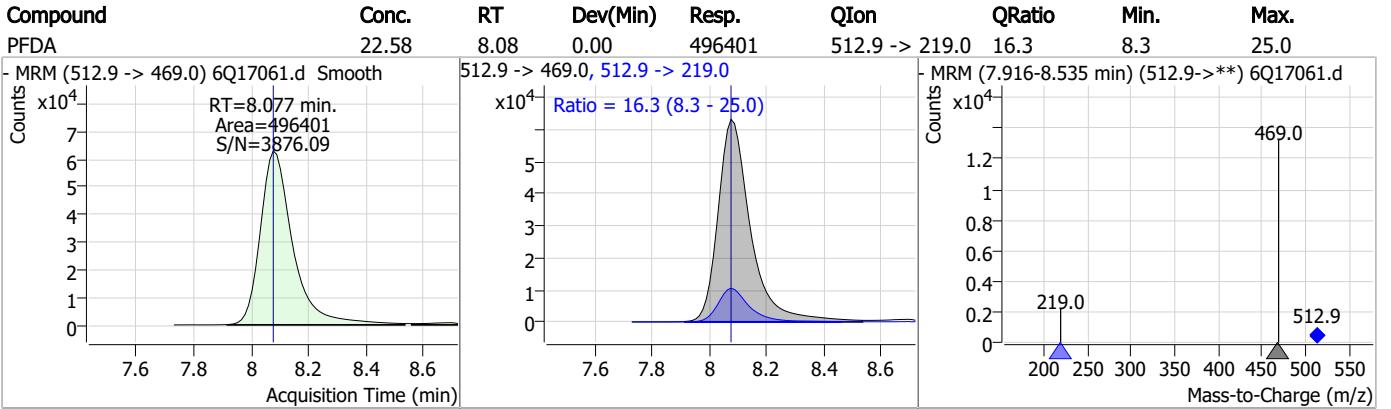
Perfluorinated Compounds by LC/MS/MS



7.7.25

7

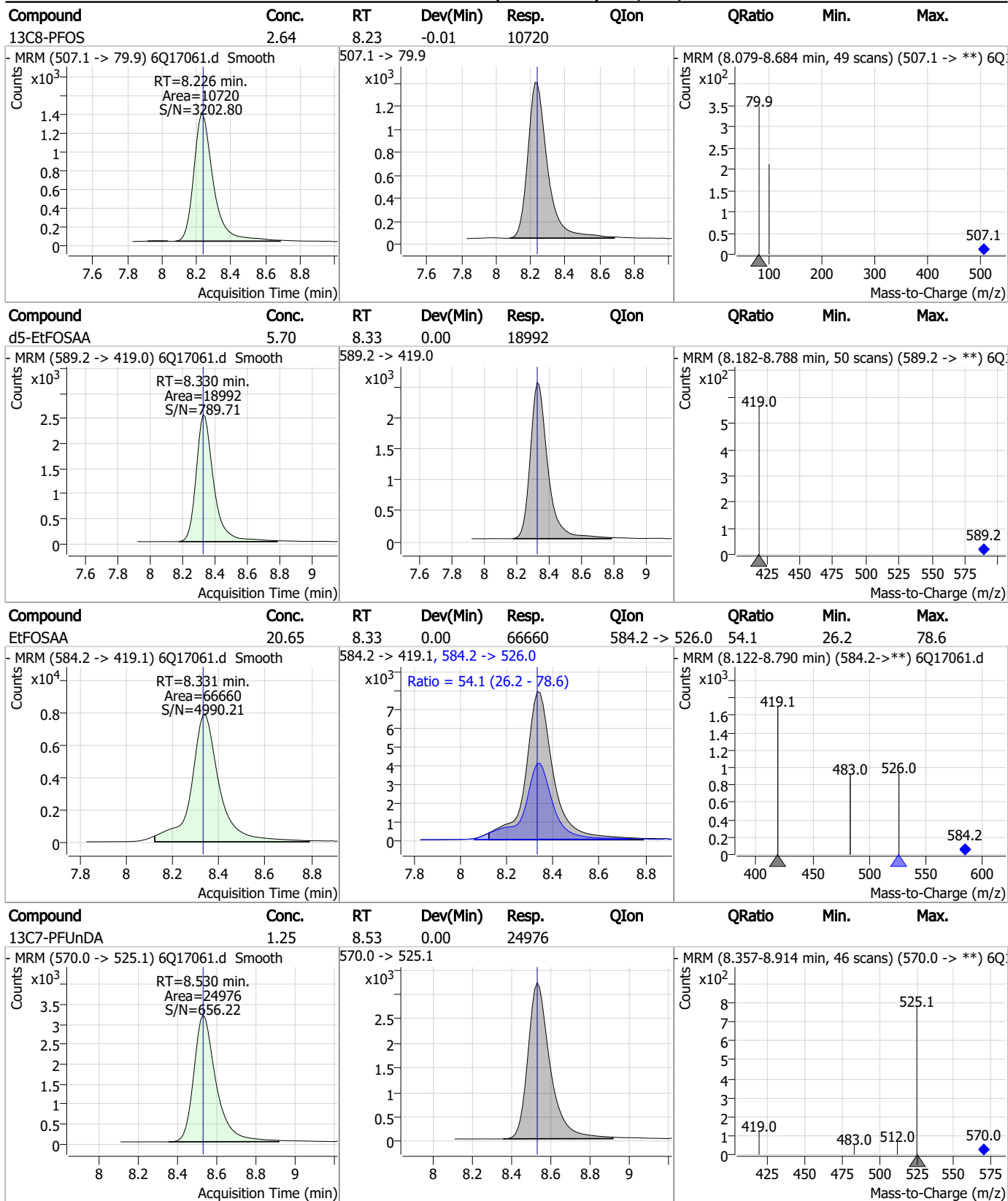
Perfluorinated Compounds by LC/MS/MS



7.7.25
7



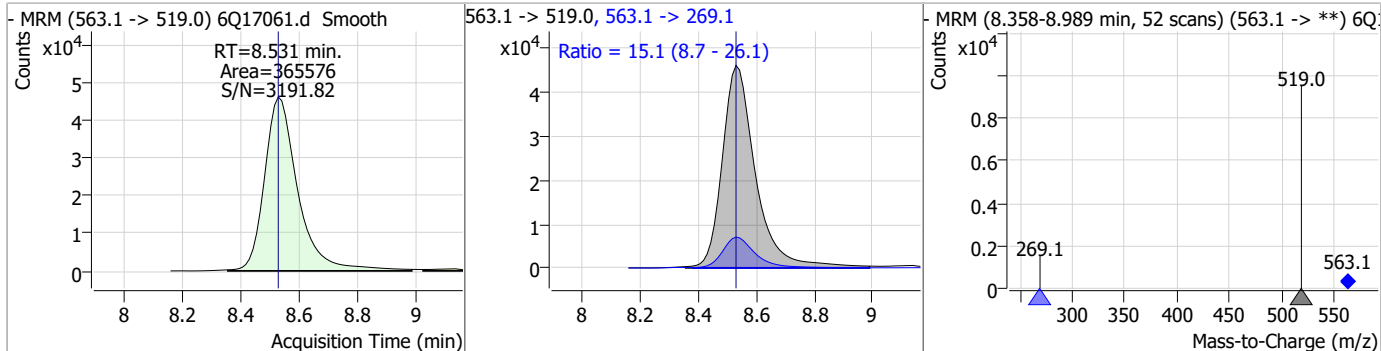
Perfluorinated Compounds by LC/MS/MS



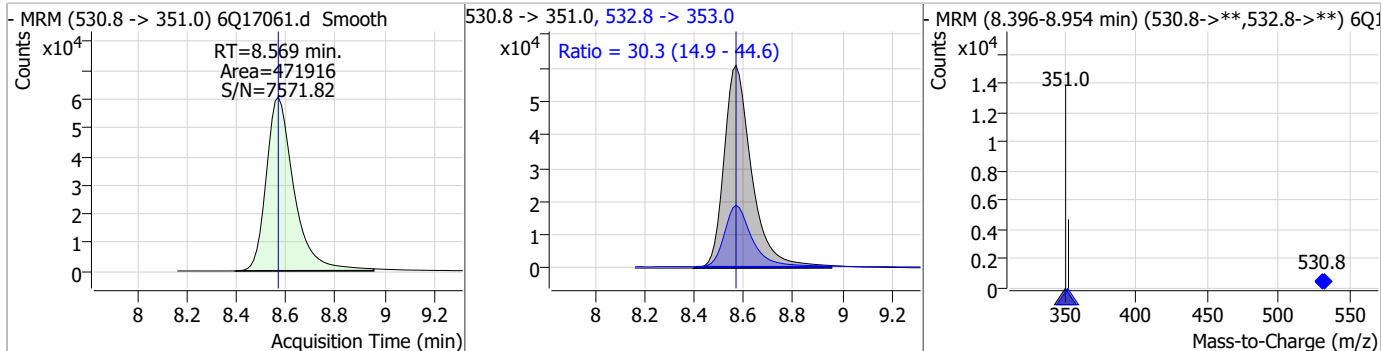
7.7.25
7

Perfluorinated Compounds by LC/MS/MS

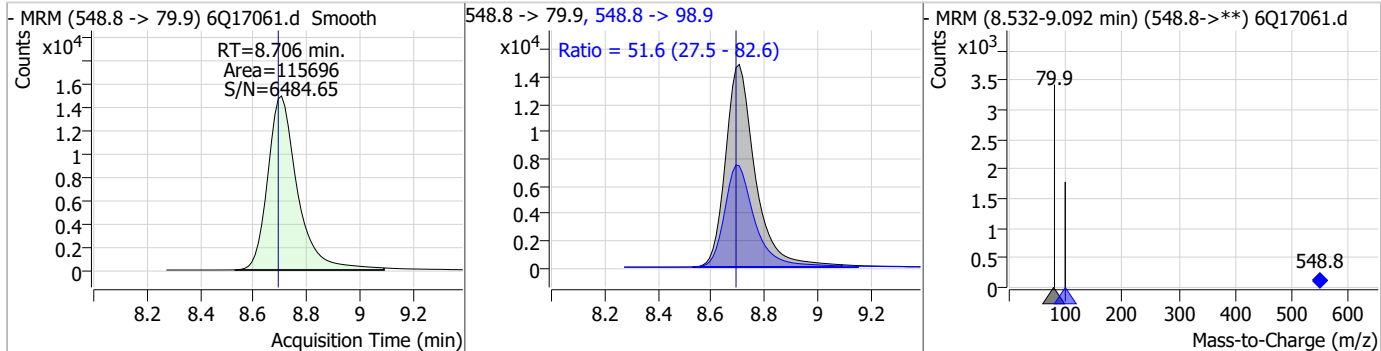
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	21.10	8.53	0.00	365576	563.1 -> 269.1	15.1	8.7	26.1



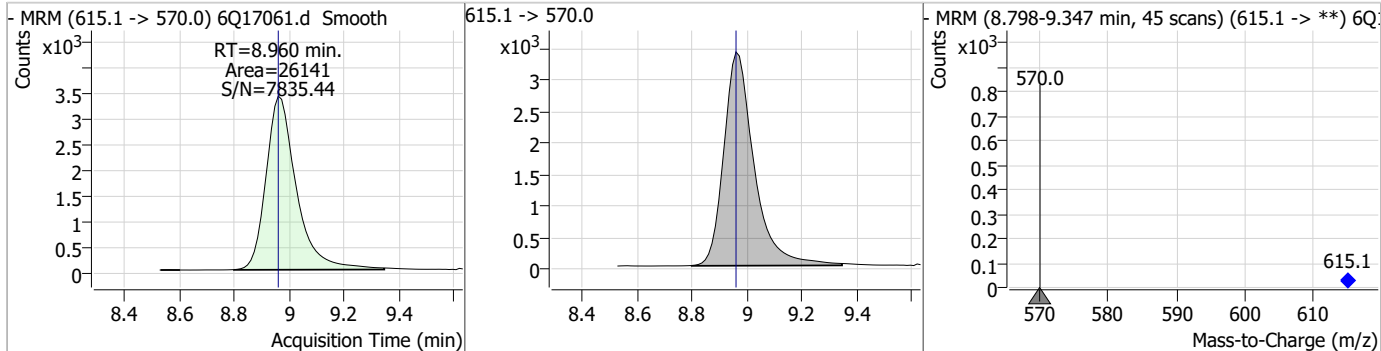
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9CI-PF3ONS	21.24	8.57	0.00	471916	532.8 -> 353.0	30.3	14.9	44.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	22.36	8.71	0.01	115696	548.8 -> 98.9	51.6	27.5	82.6

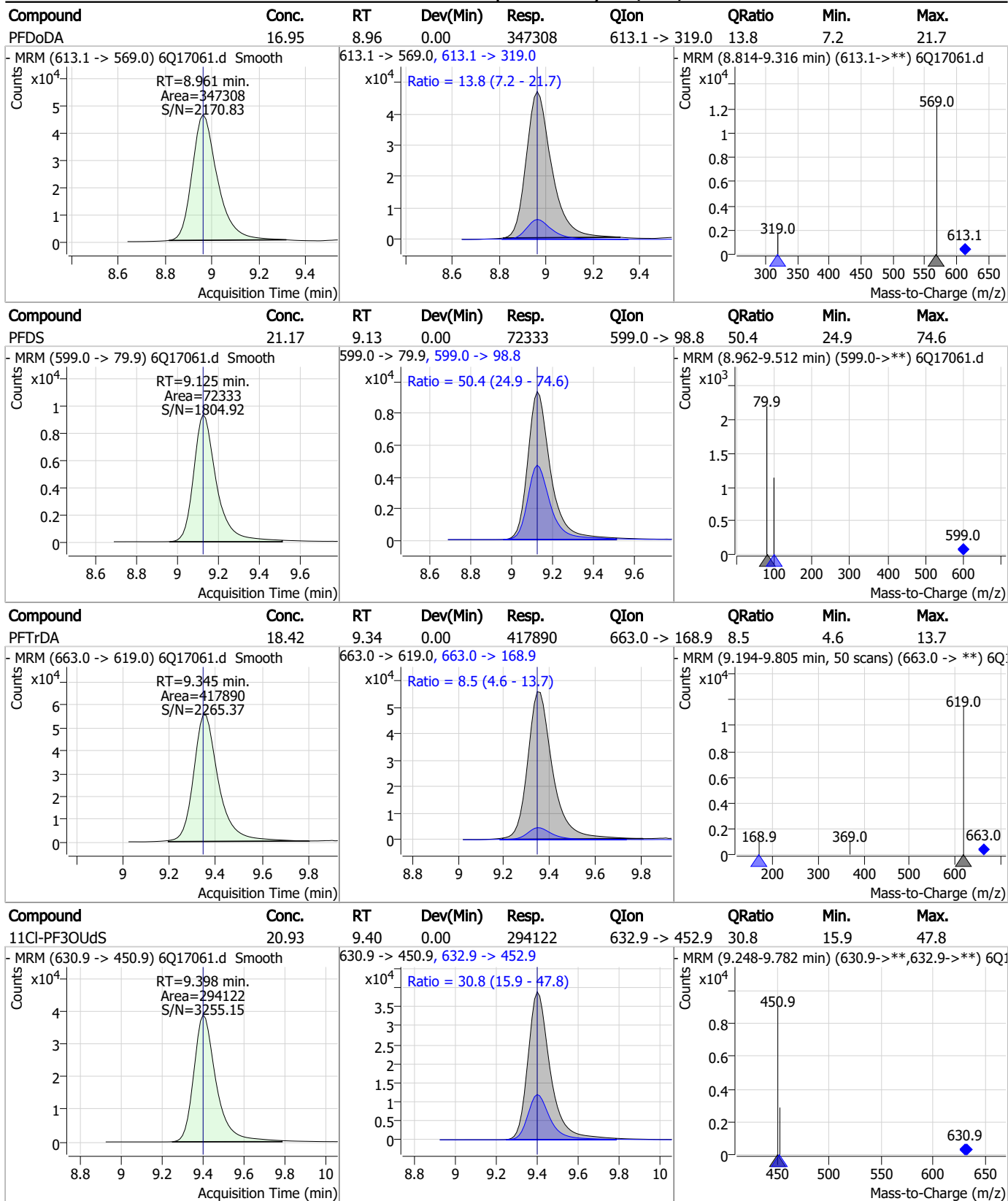


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.32	8.96	0.00	26141	615.1 -> 570.0			



7.7.25
7

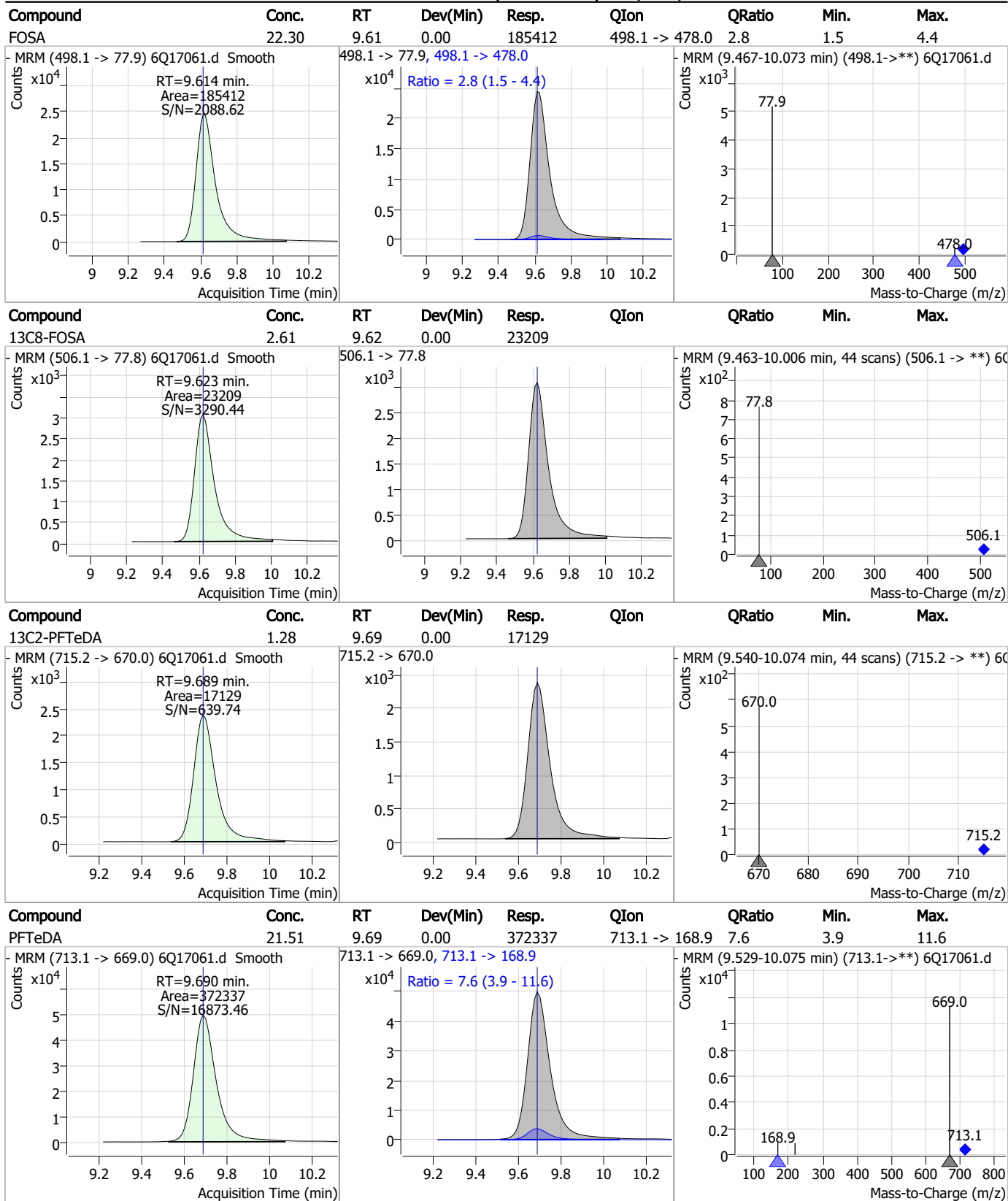
Perfluorinated Compounds by LC/MS/MS



7.7.25
7



Perfluorinated Compounds by LC/MS/MS

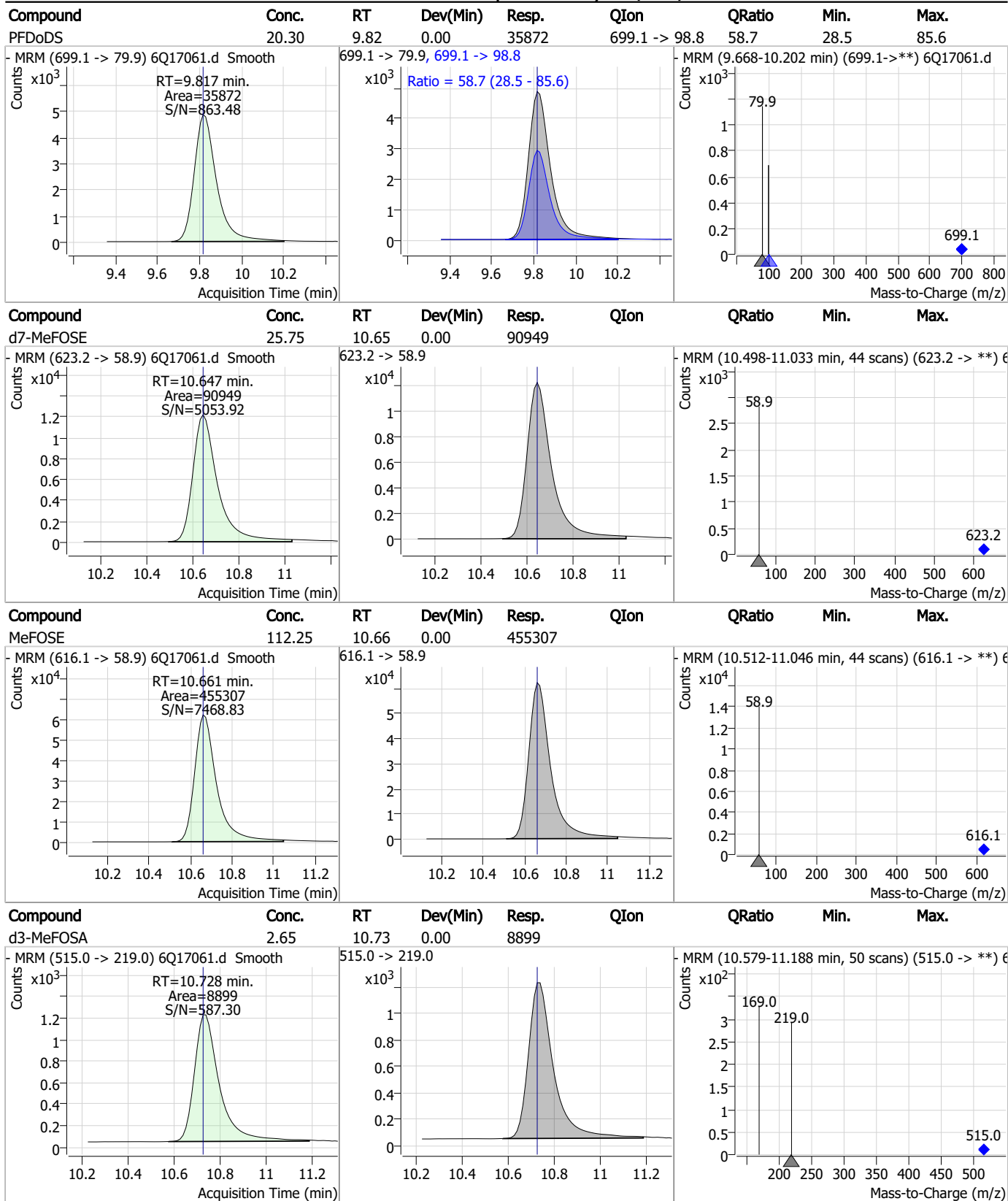


7.7.25

7



Perfluorinated Compounds by LC/MS/MS

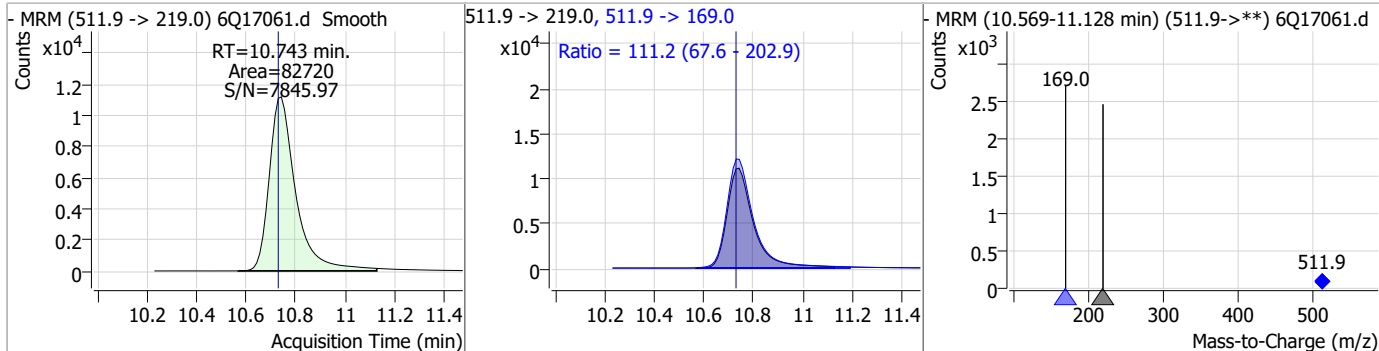


7.7.25

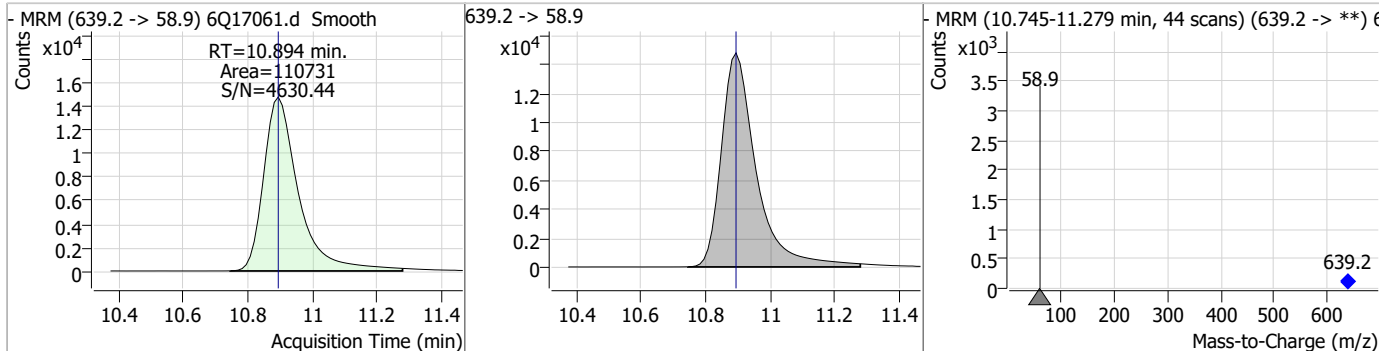
7

Perfluorinated Compounds by LC/MS/MS

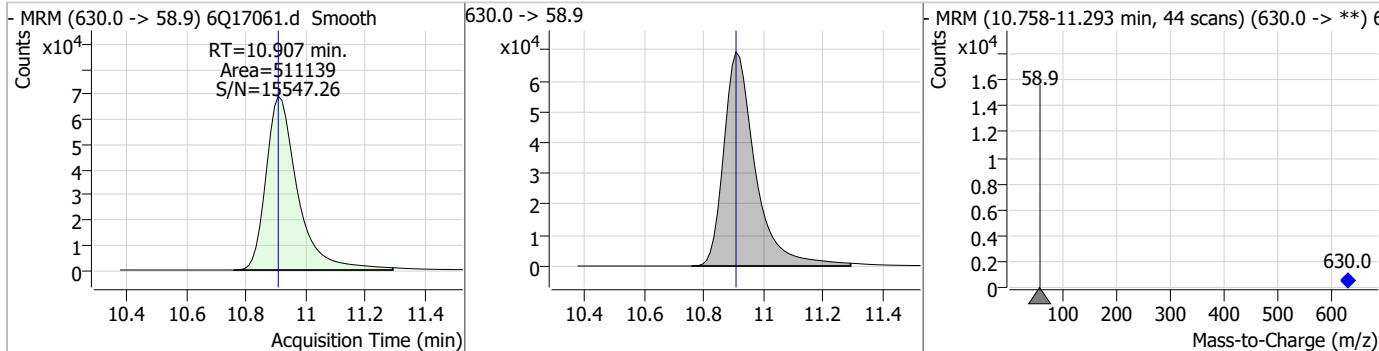
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	20.66	10.74	0.01	82720	511.9 -> 169.0	111.2	67.6	202.9



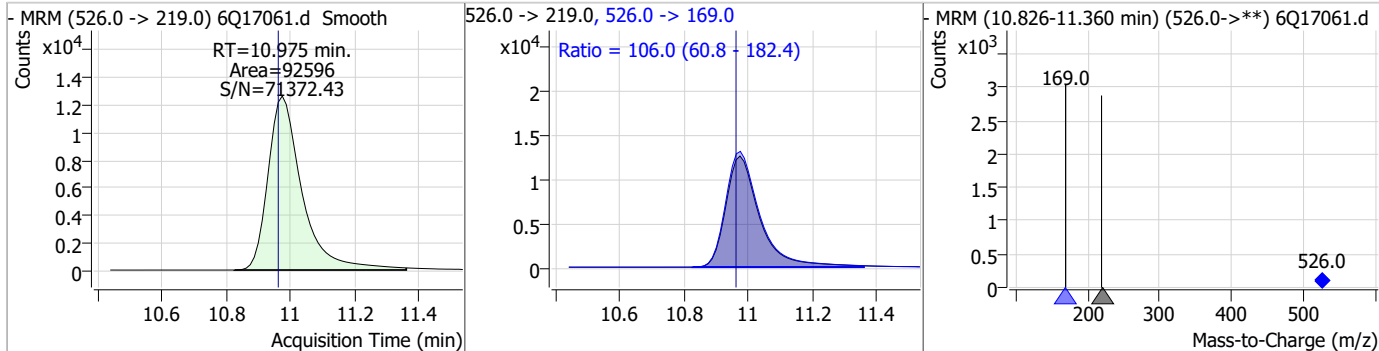
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.66	10.89	0.00	110731				



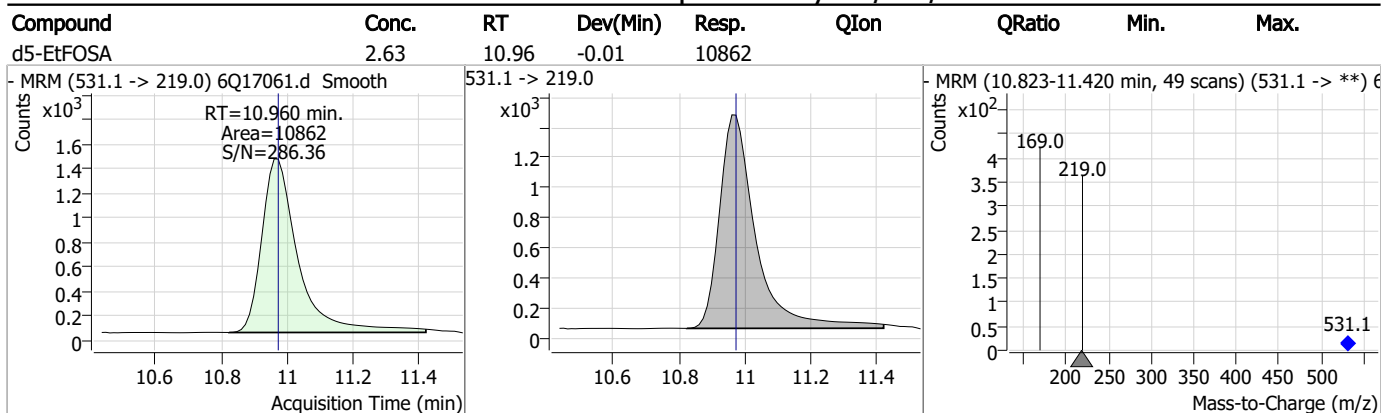
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	110.84	10.91	0.00	511139				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	20.74	10.97	0.01	92596	526.0 -> 169.0	106.0	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.25
7



Manual Integration Approval Summary

Sample Number: S6Q258-ICV258 Method: EPA DRAFT 1633
Lab FileID: 6Q17061.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:15 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.25.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17062.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:29:40 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	181420	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65106	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69105	2.50 µg/L	0.000
M4-PFHpA	6.431	367.1 -> 322.0	59484	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	84575	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	26774	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19499	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25842	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	24317	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17014	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24345	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	22622	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12907	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	10978	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2252	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2906	5.00 µg/L	0.000
M2-8:2FTS	7.877	529.1 -> 80.9	2788	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	23297	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40159	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	19710	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	95842	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	116150	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11352	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8779	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	13931	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	77978	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9573	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	84169	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24027	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	27824	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58925	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2252	5.12 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2906	5.44 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.8%		
13C2-8:2FTS	7.877	529.1 -> 80.9	2788	4.85 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
13C2-PFDoDA	8.960	615.1 -> 570.0	24317	1.22 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.3%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17014	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C3-PFBS	5.398	302.1 -> 79.9	22622	2.51 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 100.5%		
13C3-PFHxS	7.179	402.1 -> 79.9	12907	2.53 µg/L	0.000

7.7.26
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 = 101.3%	
13C4-PFBA	2.910	216.8 -> 171.9	181420	10.07 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.7%	
13C4-PFHpA	6.431	367.1 -> 322.0	59484	2.47 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69105	2.43 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 97.3%	
13C5-PFPeA	4.270	268.3 -> 223.0	65106	4.95 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 98.9%	
13C6-PFDA	8.076	519.1 -> 474.1	19499	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.4%	
13C7-PFUnDA	8.530	570.0 -> 525.1	25842	1.27 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-FOSA	9.611	506.1 -> 77.8	24345	2.64 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 105.7%	
13C8-PFOA	7.074	421.1 -> 376.0	84575	2.60 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.1%	
13C8-PFOS	8.239	507.1 -> 79.9	10978	2.62 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 104.6%	
13C9-PFNA	7.594	472.1 -> 427.0	26774	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 101.0%	
d3-MeFOSAA	8.134	573.2 -> 419.0	23297	5.61 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 112.2%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40159	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	8779	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.9%	
d5-EtFOSAA	8.330	589.2 -> 419.0	19710	5.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 114.2%	
d7-MeFOSE	10.647	623.2 -> 58.9	95842	26.21 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.9%	
d9-EtFOSE	10.894	639.2 -> 58.9	116150	26.00 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 104.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	11352	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.3%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32458	9.53 µg/L	98
		327.1 -> 80.9	12424		
6:2FTS	6.839	427.1 -> 407.0	28850	9.03 µg/L	97
		427.1 -> 80.9	9807		
8:2FTS	7.865	527.1 -> 507.0	16724	10.08 µg/L	99
		527.1 -> 80.8	6661		
EtFOSAA	8.343	584.2 -> 419.1	7962	2.38 µg/L	98
		584.2 -> 526.0	4308		
FOSA	9.614	498.1 -> 77.9	21556	2.47 µg/L	99
		498.1 -> 478.0	687		
MeFOSAA	8.136	570.1 -> 419.0	10629	2.43 µg/L	88
		570.1 -> 483.0	2095		
PFBA	2.906	212.8 -> 168.9	62139	10.21 µg/L	100
PFBS	5.400	298.7 -> 79.9	22846	2.25 µg/L	96
		298.7 -> 98.8	8811		
PFDA	8.077	512.9 -> 469.0	53642	2.53 µg/L	95
		512.9 -> 219.0	10089		
PFDODA	8.961	613.1 -> 569.0	46832	2.46 µg/L	100
		613.1 -> 319.0	6785		
PFDS	9.125	599.0 -> 79.9	9074	2.59 µg/L	95

7.7.26

7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4209	2.50	µg/L	96
		363.1 -> 319.0	73275			
PFHpS	7.734	363.1 -> 169.0	11962	2.40	µg/L	96
		449.0 -> 79.9	14293			
PFHxA	5.470	449.0 -> 98.9	7685	2.48	µg/L	100
		313.0 -> 269.0	67714			
PFHxS	7.180	313.0 -> 118.9	3166	2.24	µg/L	m
		398.7 -> 79.9	15756			
PFNA	7.595	398.7 -> 98.9	7540	2.57	µg/L	97
		463.0 -> 419.0	47606			
PFNS	8.706	463.0 -> 219.0	9281	2.41	µg/L	95
		548.8 -> 79.9	12765			
PFOA	7.076	548.8 -> 98.9	6603	2.42	µg/L	98
		413.0 -> 369.0	96282			
PFOS	8.228	413.0 -> 169.0	17850	2.53	µg/L	m
		498.9 -> 79.9	13425			
PFPeA	4.273	498.9 -> 98.8	6549	5.02	µg/L	100
		263.0 -> 219.0	89027			
PFPeS	6.484	349.1 -> 79.9	16950	2.31	µg/L	95
		349.1 -> 98.9	7655			
PFTeDA	9.690	713.1 -> 669.0	45092	2.62	µg/L	99
		713.1 -> 168.9	3275			
PFTrDA	9.345	663.0 -> 619.0	51482	2.44	µg/L	99
		663.0 -> 168.9	4930			
PFUnDA	8.531	563.1 -> 519.0	46591	2.60	µg/L	99
		563.1 -> 269.1	7949			
11CI-PF3OUdS	9.398	630.9 -> 450.9	65621	4.76	µg/L	99
		632.9 -> 452.9	20651			
9CI-PF3ONS	8.569	530.8 -> 351.0	106444	4.88	µg/L	96
		532.8 -> 353.0	33733			
ADONA	6.681	376.9 -> 250.9	288930	4.76	µg/L	98
		376.9 -> 84.8	77598			
HFPO-DA	5.846	284.9 -> 168.9	19080	5.02	µg/L	97
		284.9 -> 184.9	2448			
3:3FTCA	3.784	241.0 -> 177.0	13350	12.04	µg/L	99
		241.0 -> 117.0	1728			
5:3FTCA	6.160	341.0 -> 237.1	295070	66.73	µg/L	97
		341.0 -> 217.0	203720			
7:3FTCA	7.573	441.0 -> 316.9	125676	62.56	µg/L	94
		441.0 -> 336.9	283882			
EtFOSA	10.962	526.0 -> 219.0	23848	5.11	µg/L	99
		526.0 -> 169.0	29306			
EtFOSE	10.907	630.0 -> 58.9	63742	13.18	µg/L	100
		511.9 -> 219.0	21142			
MeFOSA	10.730	511.9 -> 169.0	28476	5.35	µg/L	m
		616.1 -> 58.9	54831			
MeFOSE	10.661	699.1 -> 79.9	4581	12.83	µg/L	100
		699.1 -> 98.8	2728			
PFDoDS	9.817	295.0 -> 201.0	14684	2.53	µg/L	97
		295.0 -> 84.9	3681			
NFDHA	5.350	279.0 -> 85.1	58866	4.95	µg/L	100
		229.0 -> 84.9	43455			
PFMBA	3.438	314.8 -> 134.9	160806	4.90	µg/L	100
		314.8 -> 82.9	5301			
PFEESA	5.949			4.66	µg/L	99

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

7.7.26
7

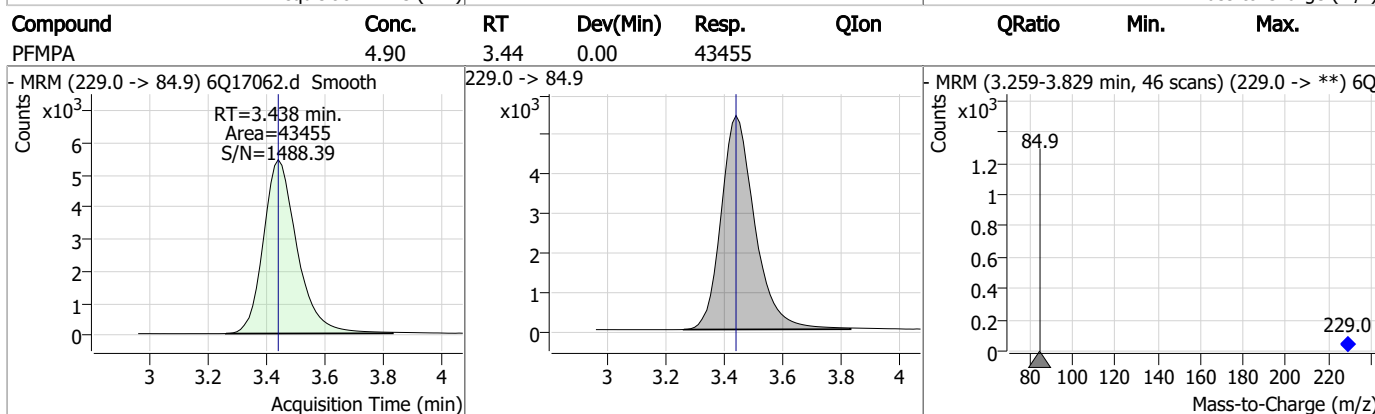
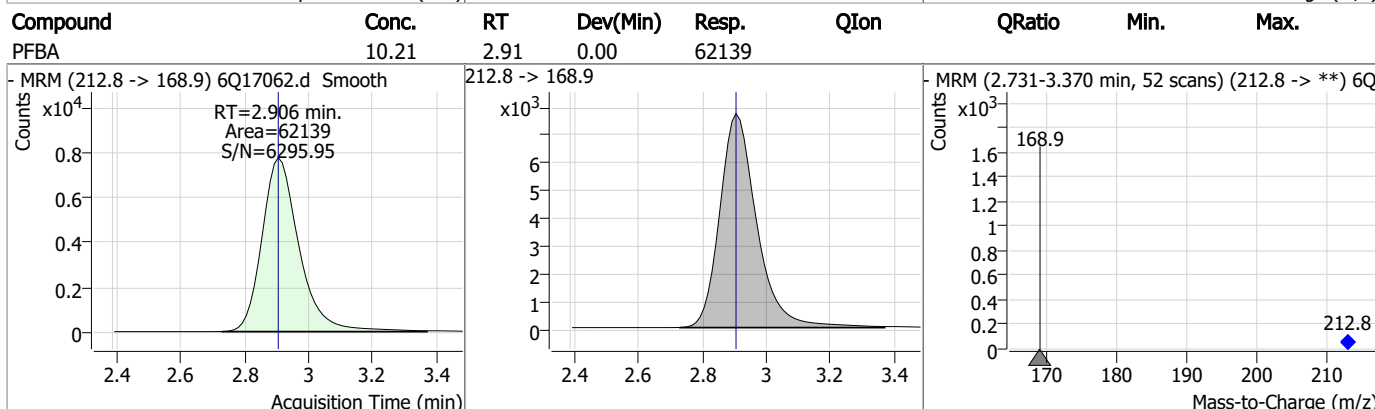
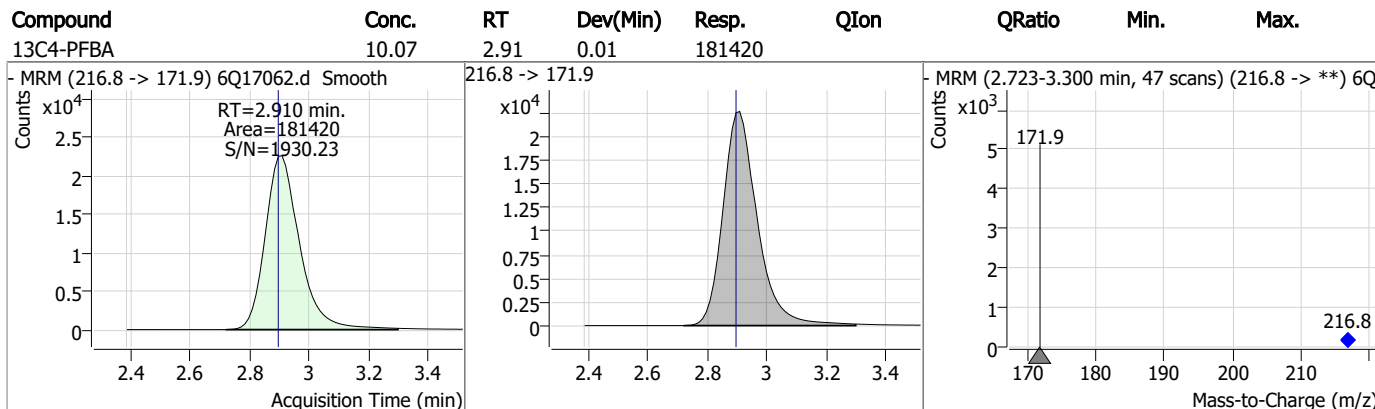
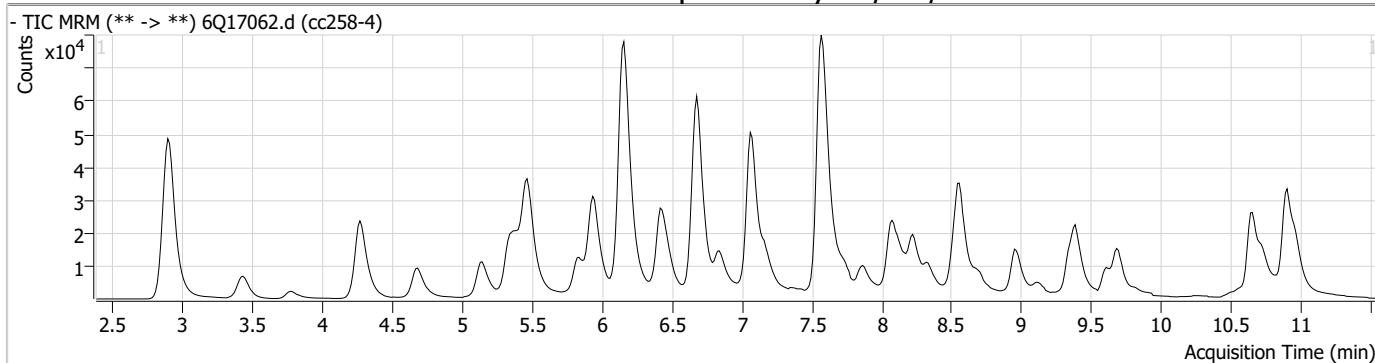
Perfluorinated Compounds by LC/MS/MS

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

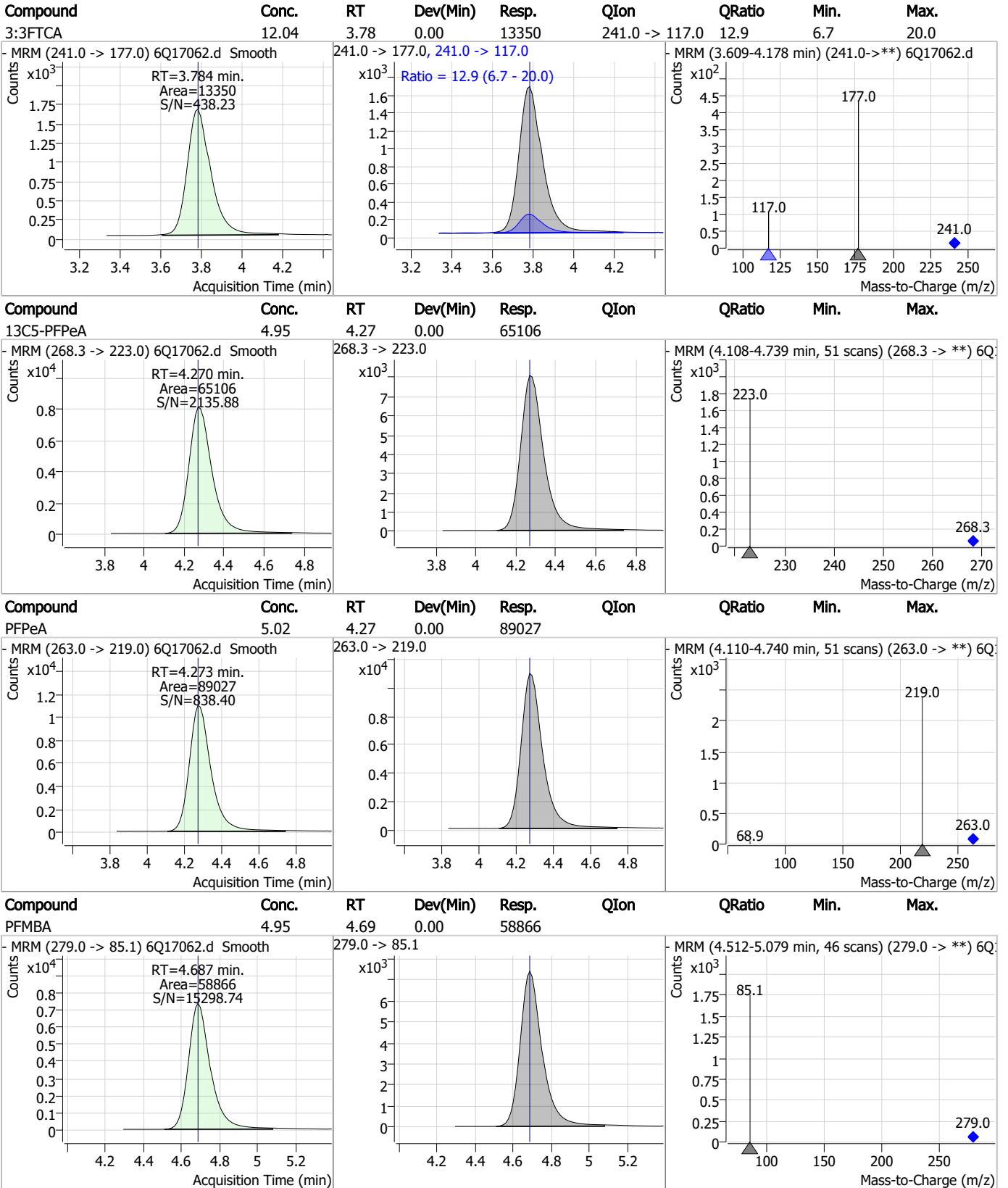
7.7.26

7

Perfluorinated Compounds by LC/MS/MS



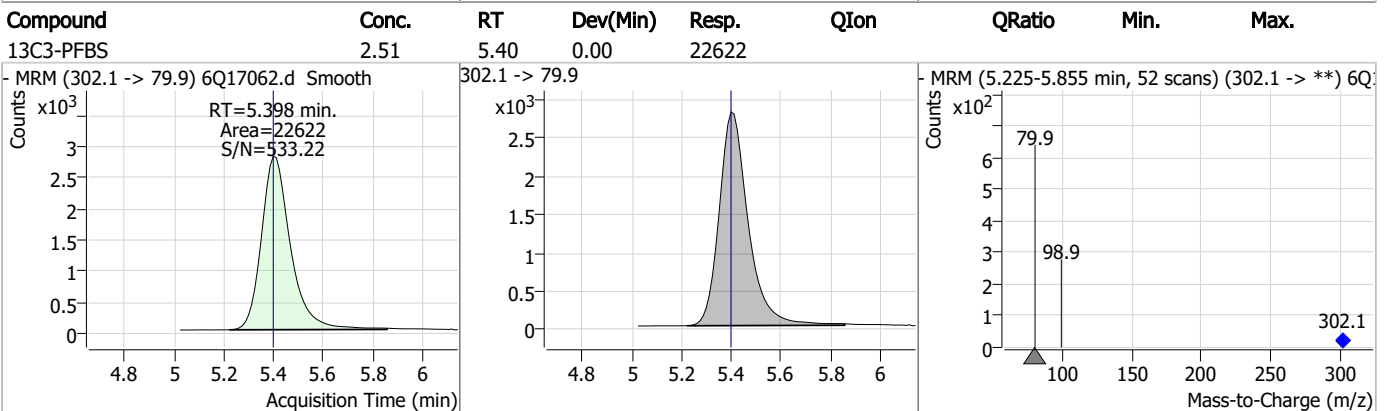
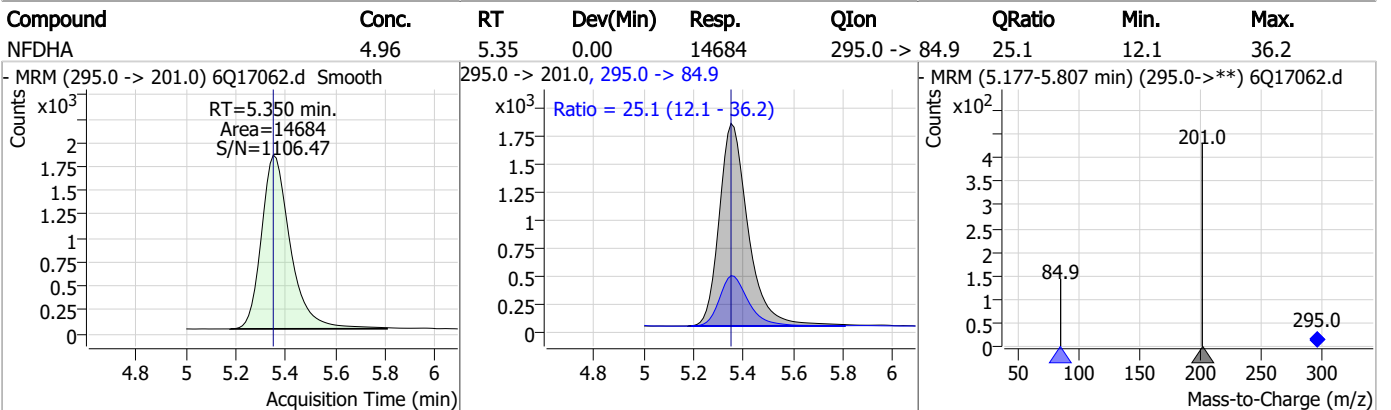
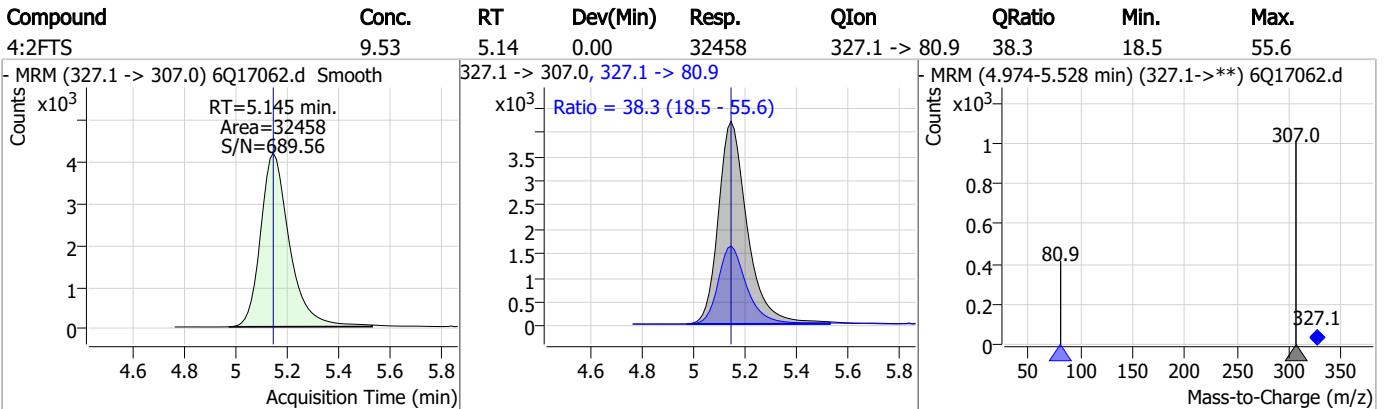
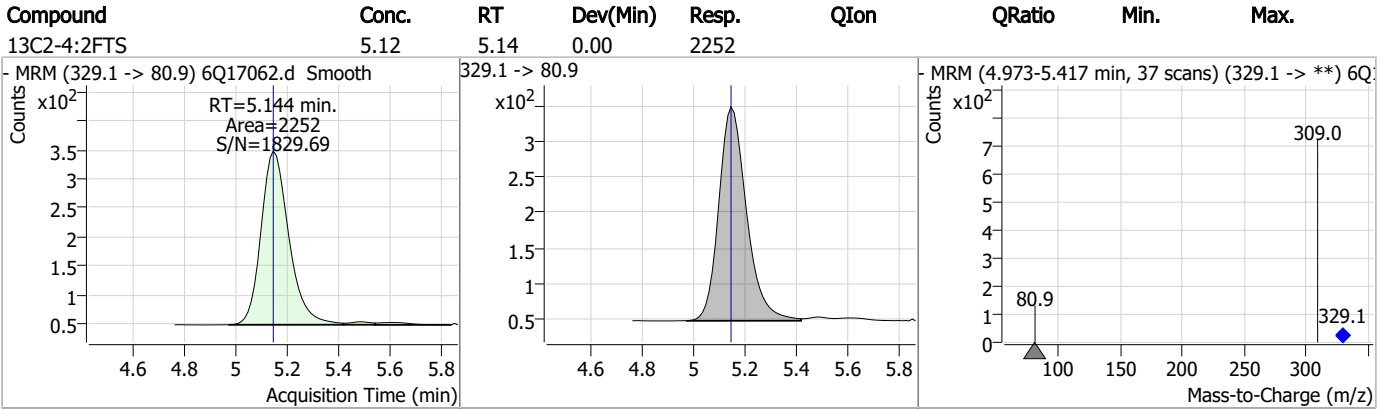
Perfluorinated Compounds by LC/MS/MS



7.7.26

7

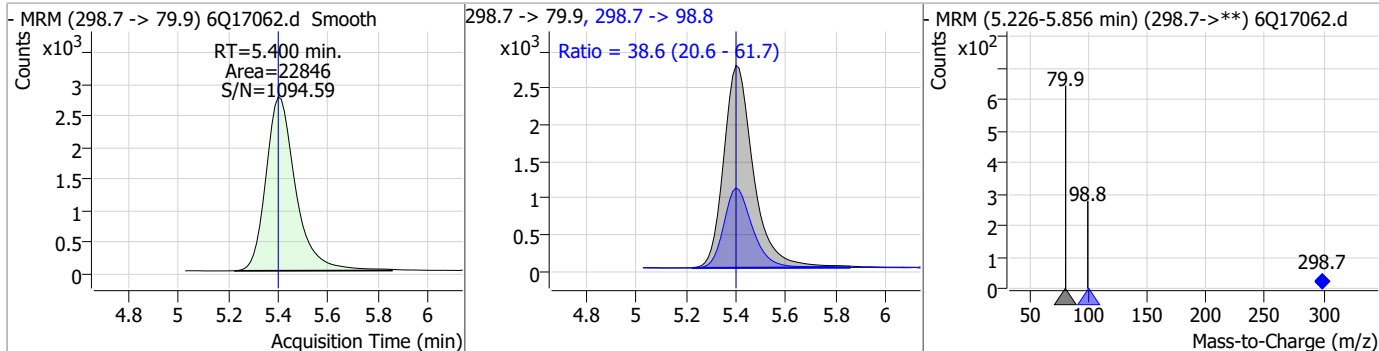
Perfluorinated Compounds by LC/MS/MS



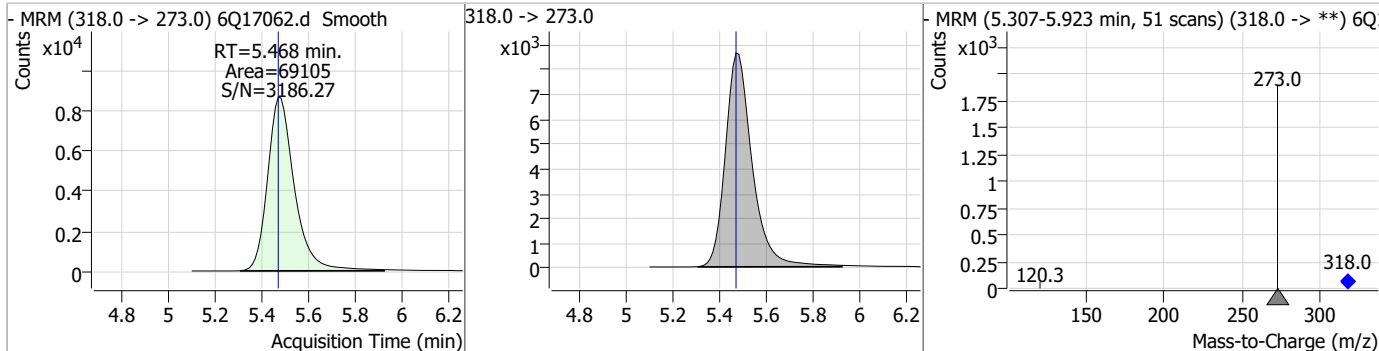
7.7.26
7

Perfluorinated Compounds by LC/MS/MS

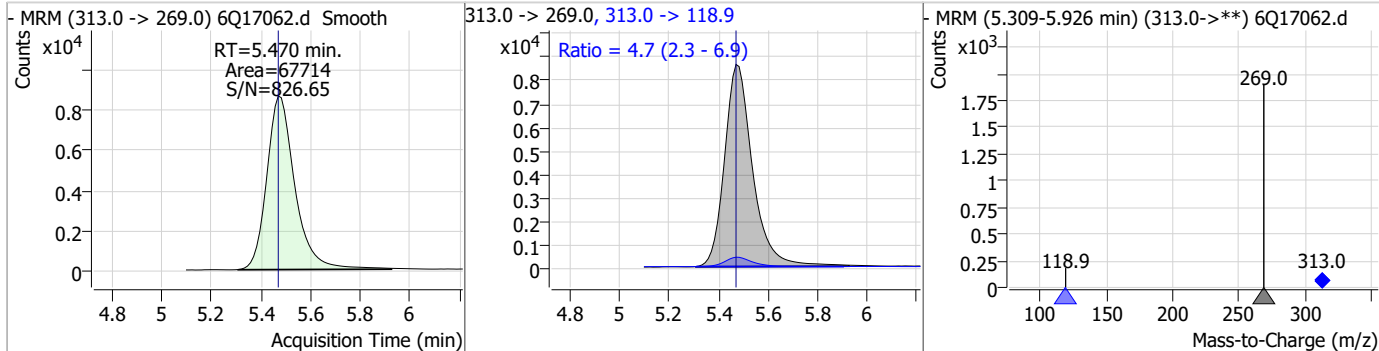
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.25	5.40	0.00	22846	298.7 -> 98.8	38.6	20.6	61.7



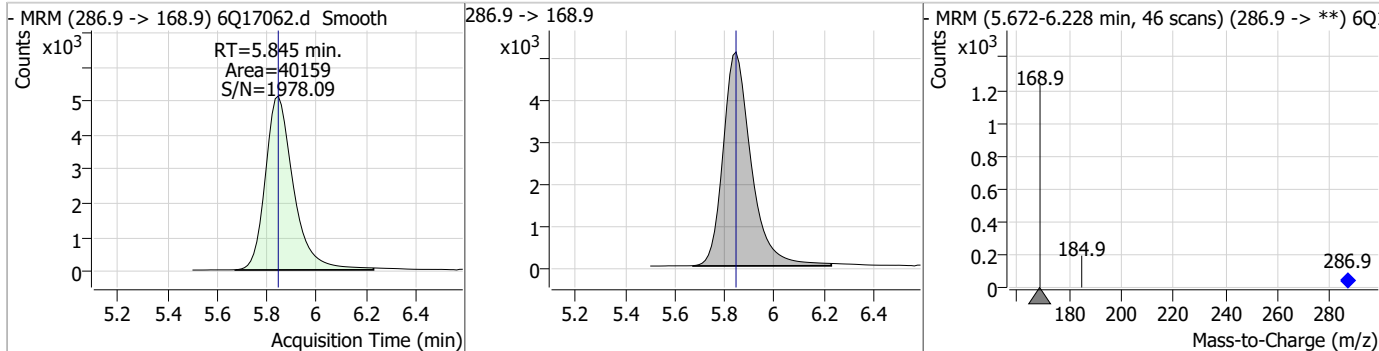
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.43	5.47	0.00	69105	318.0 -> 273.0	4.7	2.3	6.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.48	5.47	0.00	67714	313.0 -> 118.9	4.7	2.3	6.9



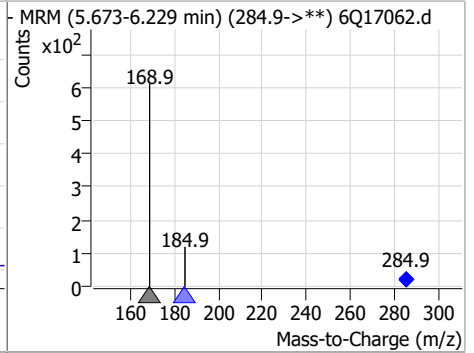
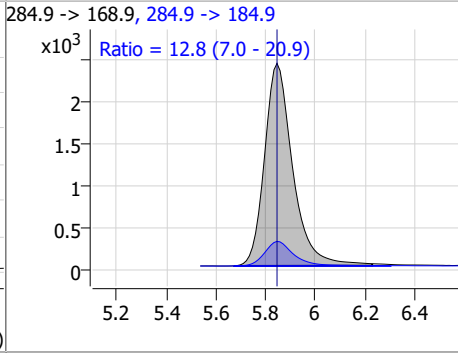
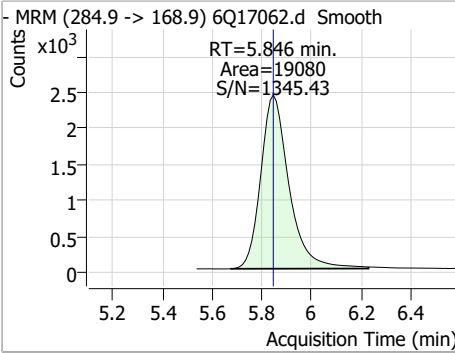
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	5.85	0.00	40159	286.9 -> 168.9	4.7	2.3	6.9



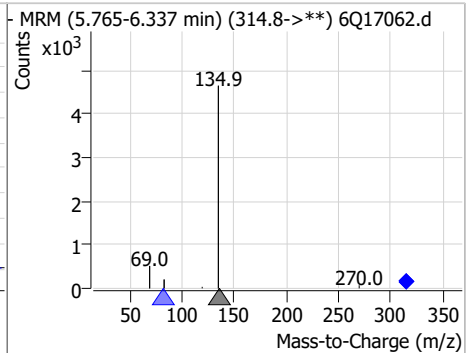
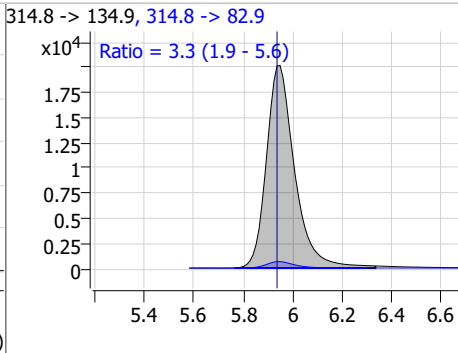
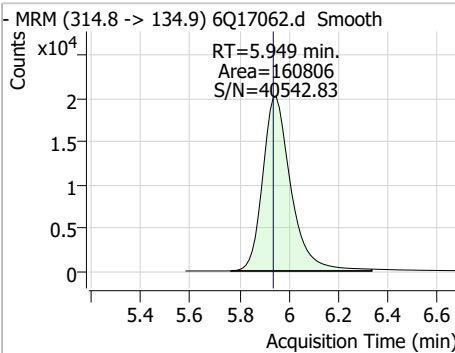
7.7.26
7

Perfluorinated Compounds by LC/MS/MS

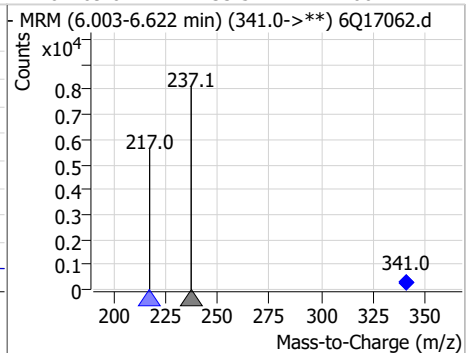
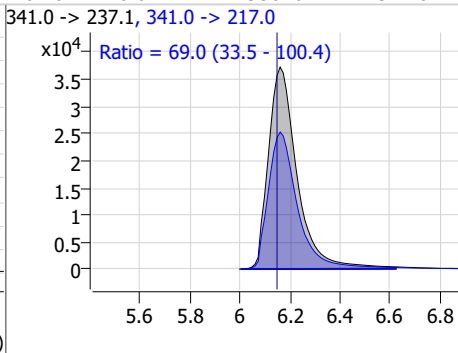
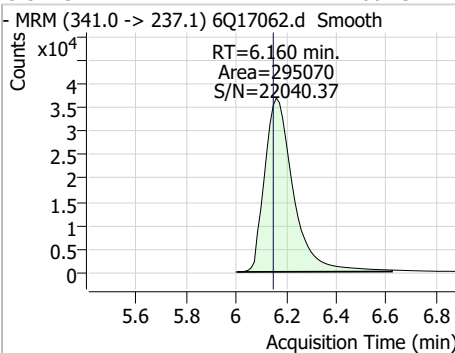
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	5.02	5.85	0.00	19080	284.9 -> 184.9	12.8	7.0	20.9



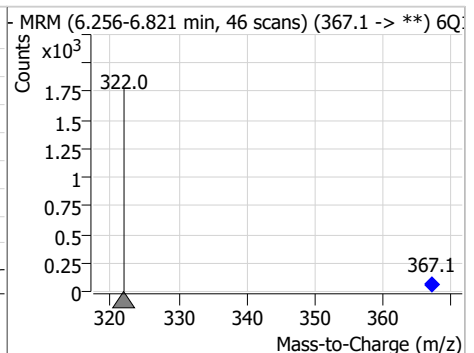
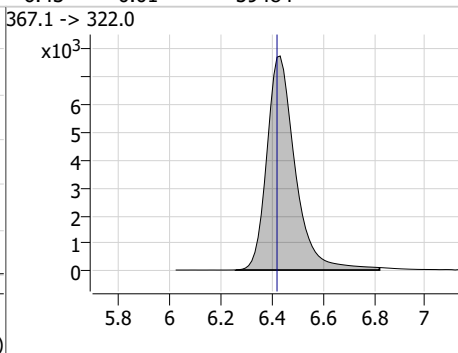
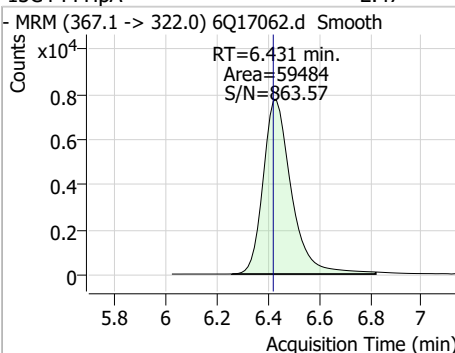
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.66	5.95	0.01	160806	314.8 -> 82.9	3.3	1.9	5.6



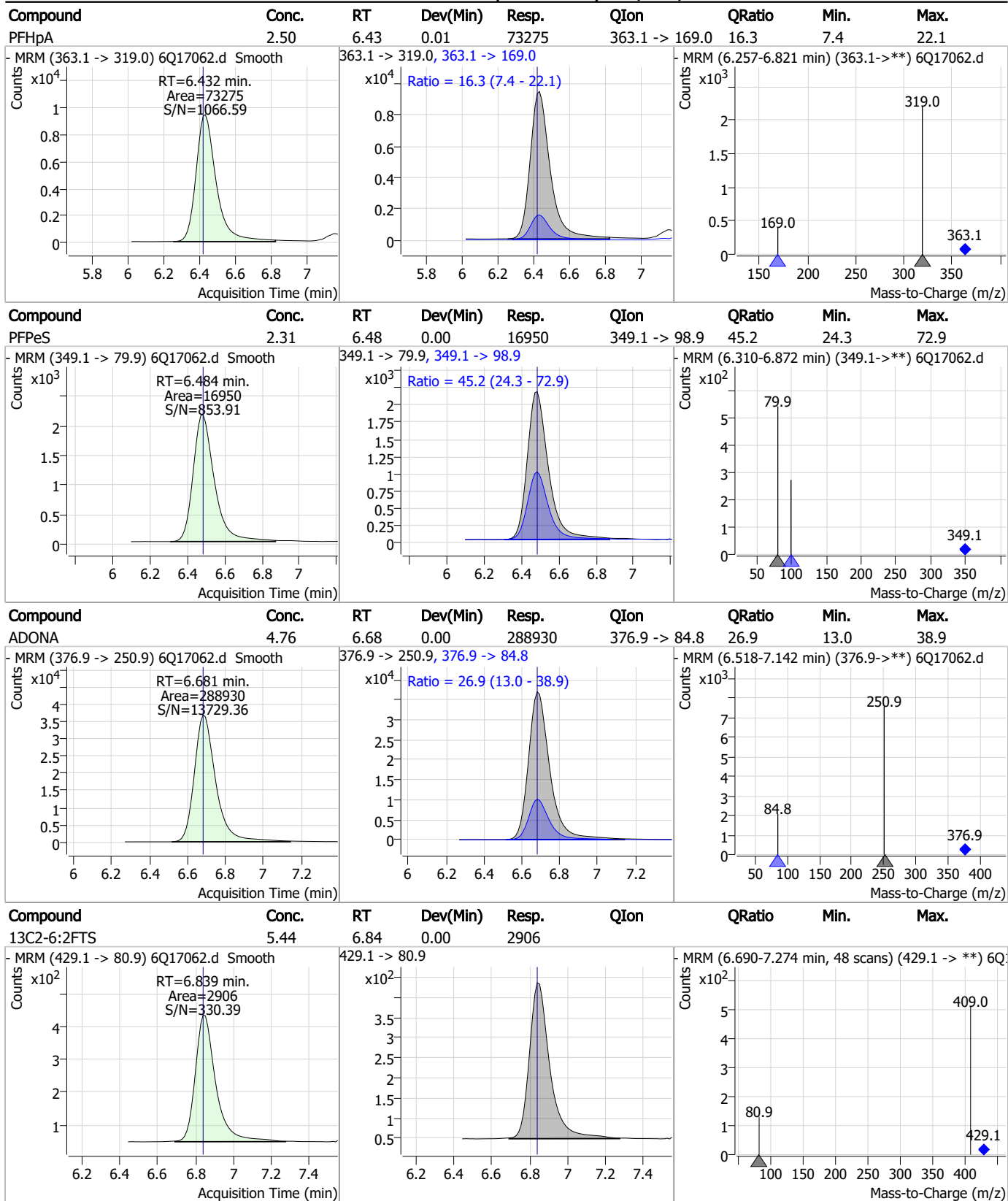
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	66.73	6.16	0.01	295070	341.0 -> 217.0	69.0	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.47	6.43	0.01	59484	367.1 -> 322.0			

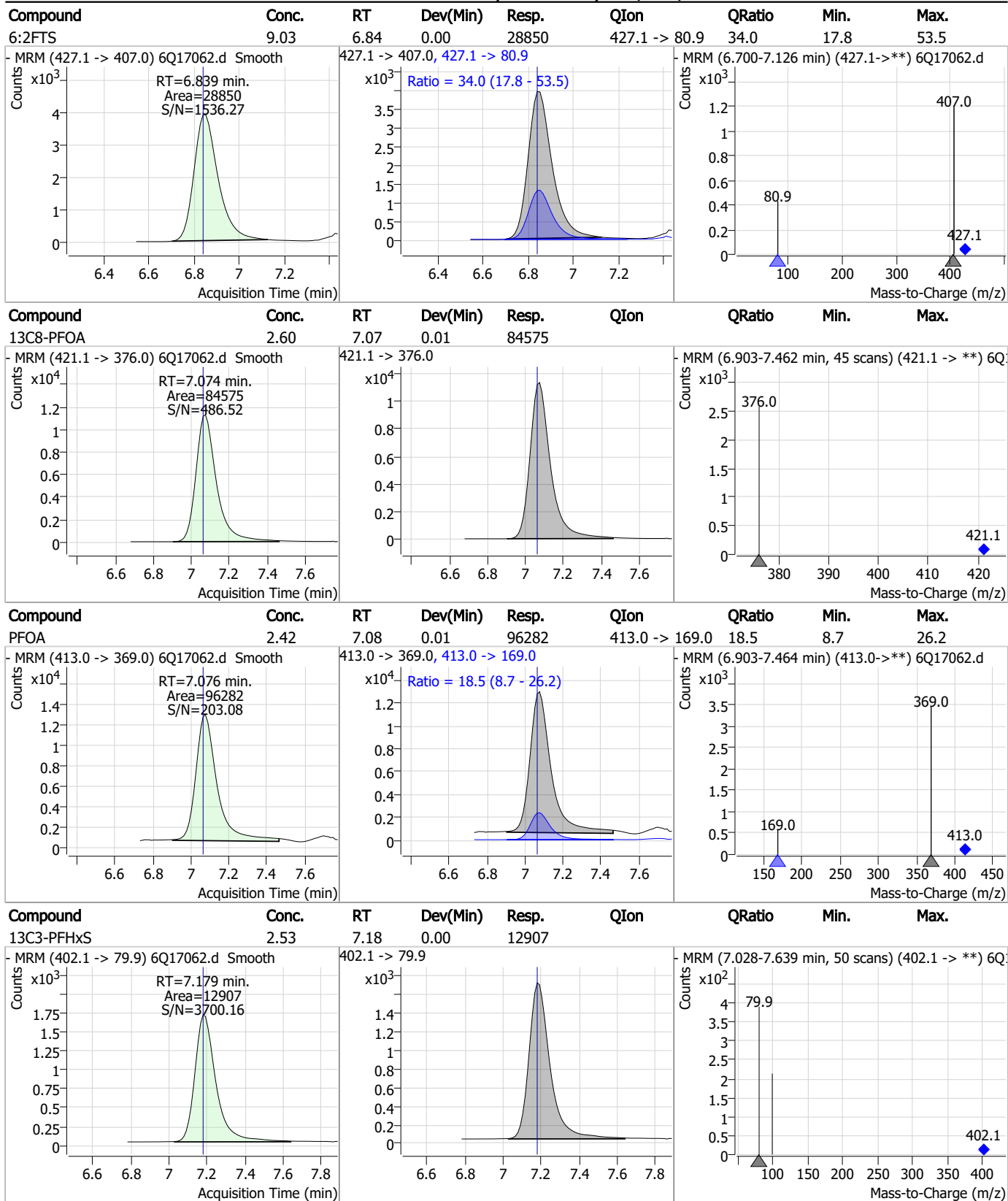


Perfluorinated Compounds by LC/MS/MS



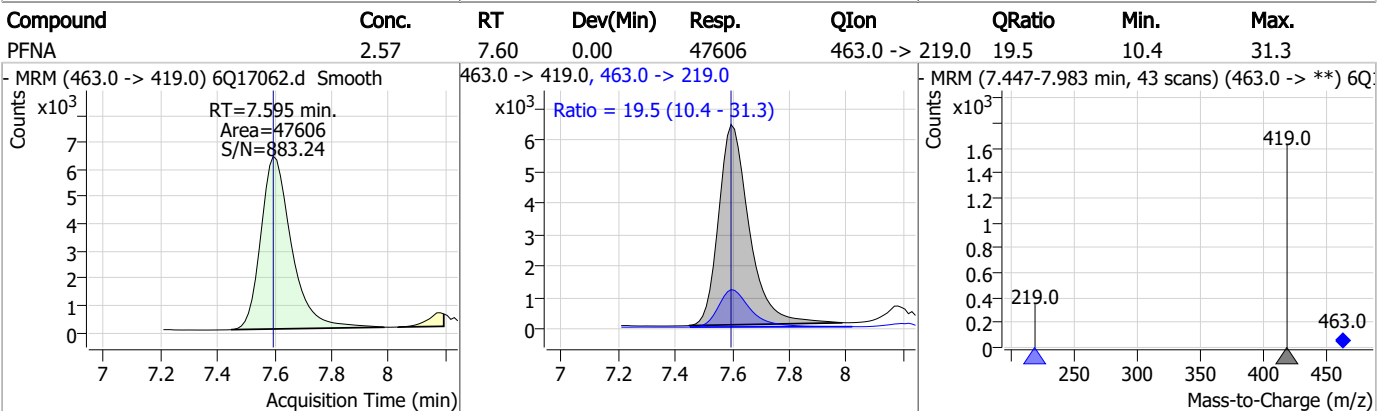
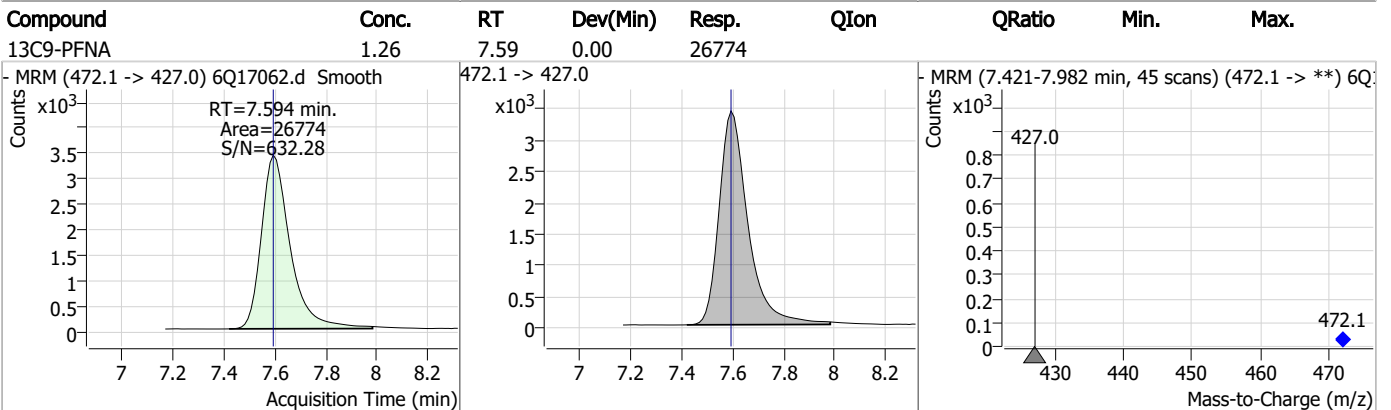
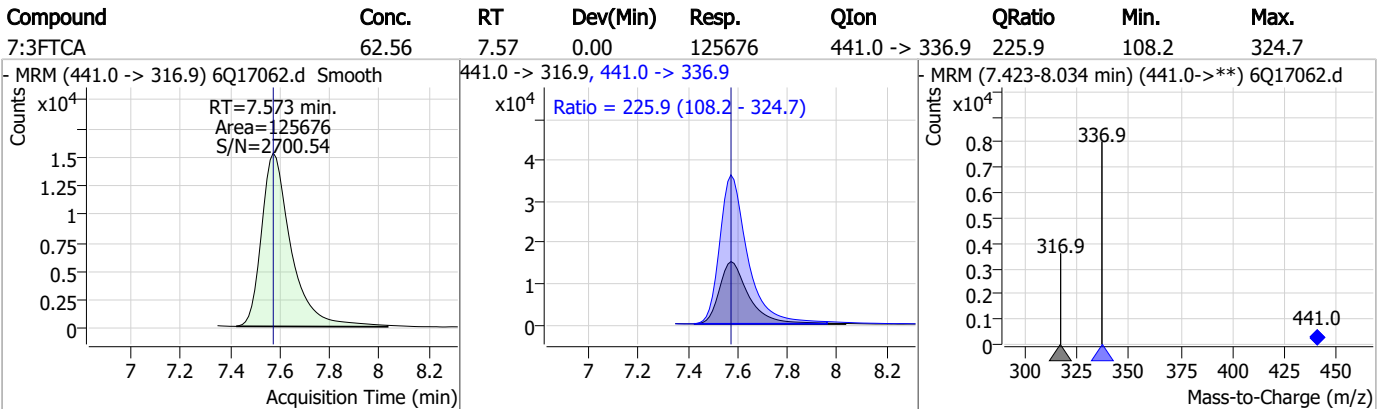
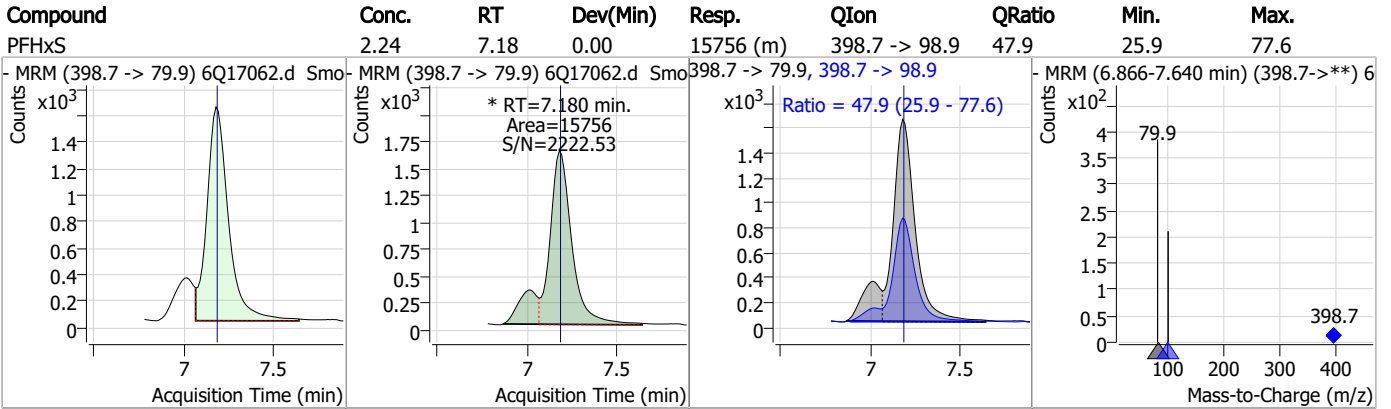
7.7.26
7

Perfluorinated Compounds by LC/MS/MS



7.7.26
7

Perfluorinated Compounds by LC/MS/MS



7.7.26
7

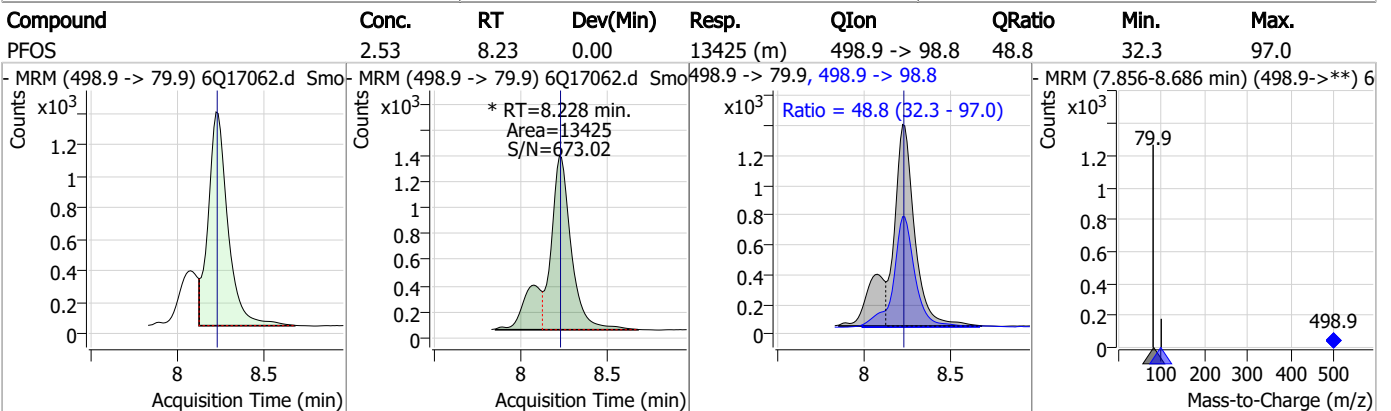
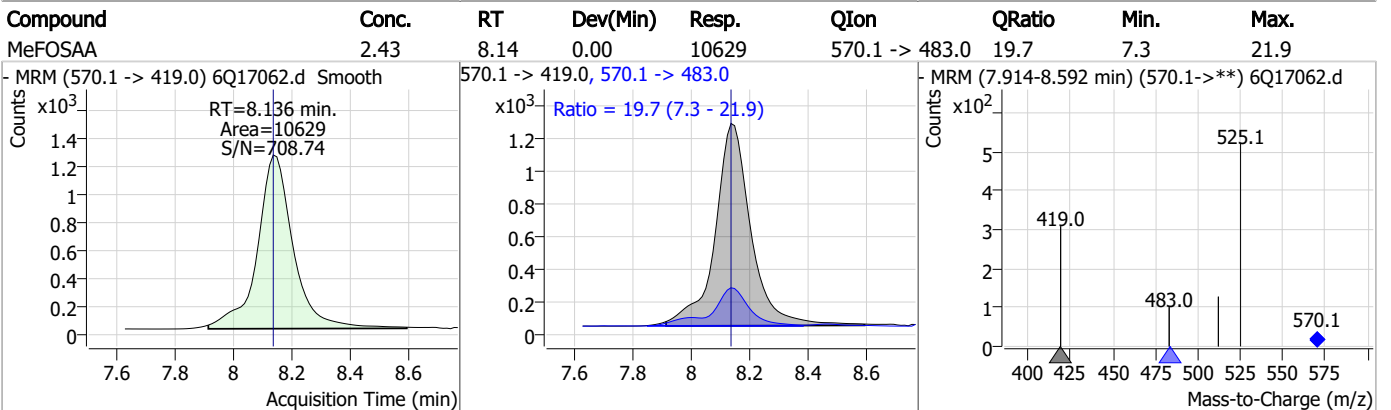
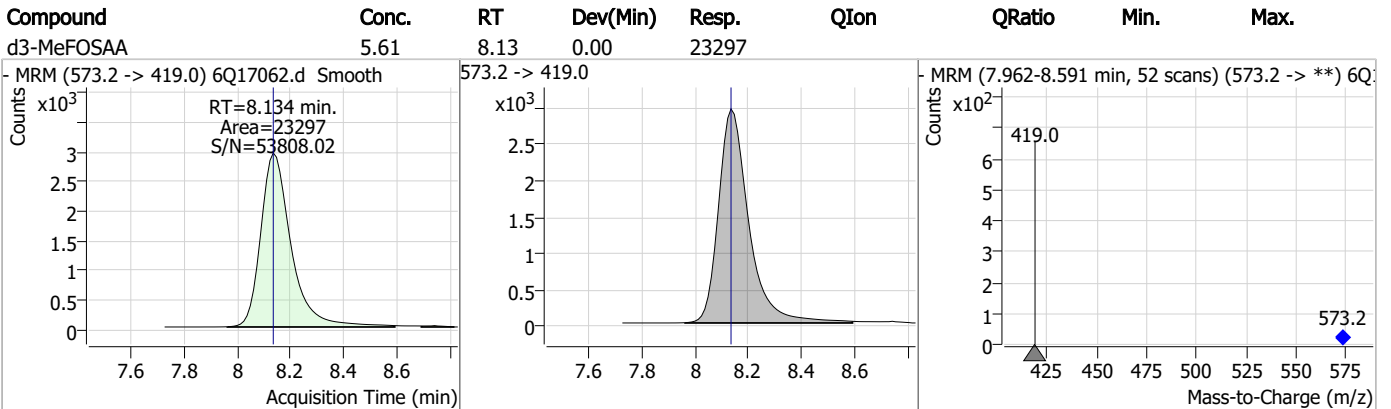
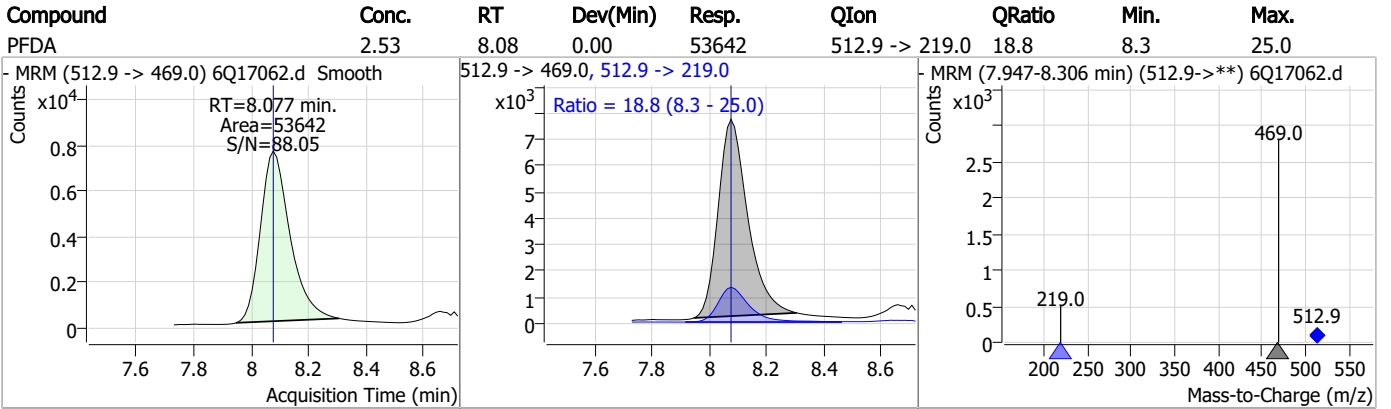


Perfluorinated Compounds by LC/MS/MS

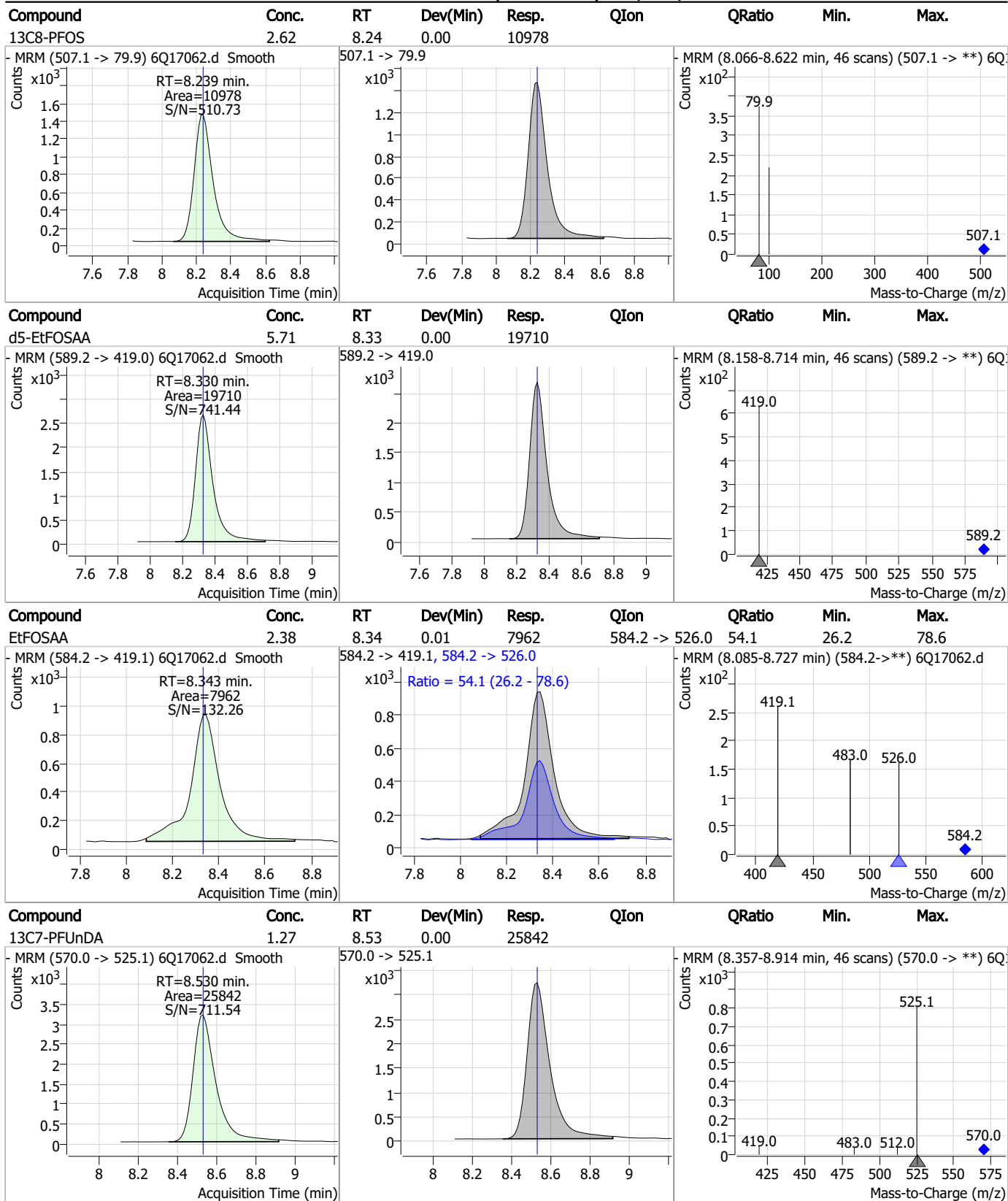
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHpS	2.40	7.73	0.00	14293	449.0 -> 98.9	53.8	25.4	76.1
13C2-8:2FTS	4.85	7.88	0.01	2788	529.1 -> 80.9	39.8	20.3	61.0
8:2FTS	10.08	7.87	0.00	16724	527.1 -> 80.8	39.8	20.3	61.0
13C6-PFDA	1.23	8.08	0.00	19499	519.1 -> 474.1	53.8	25.4	76.1

7.7.26
7

Perfluorinated Compounds by LC/MS/MS



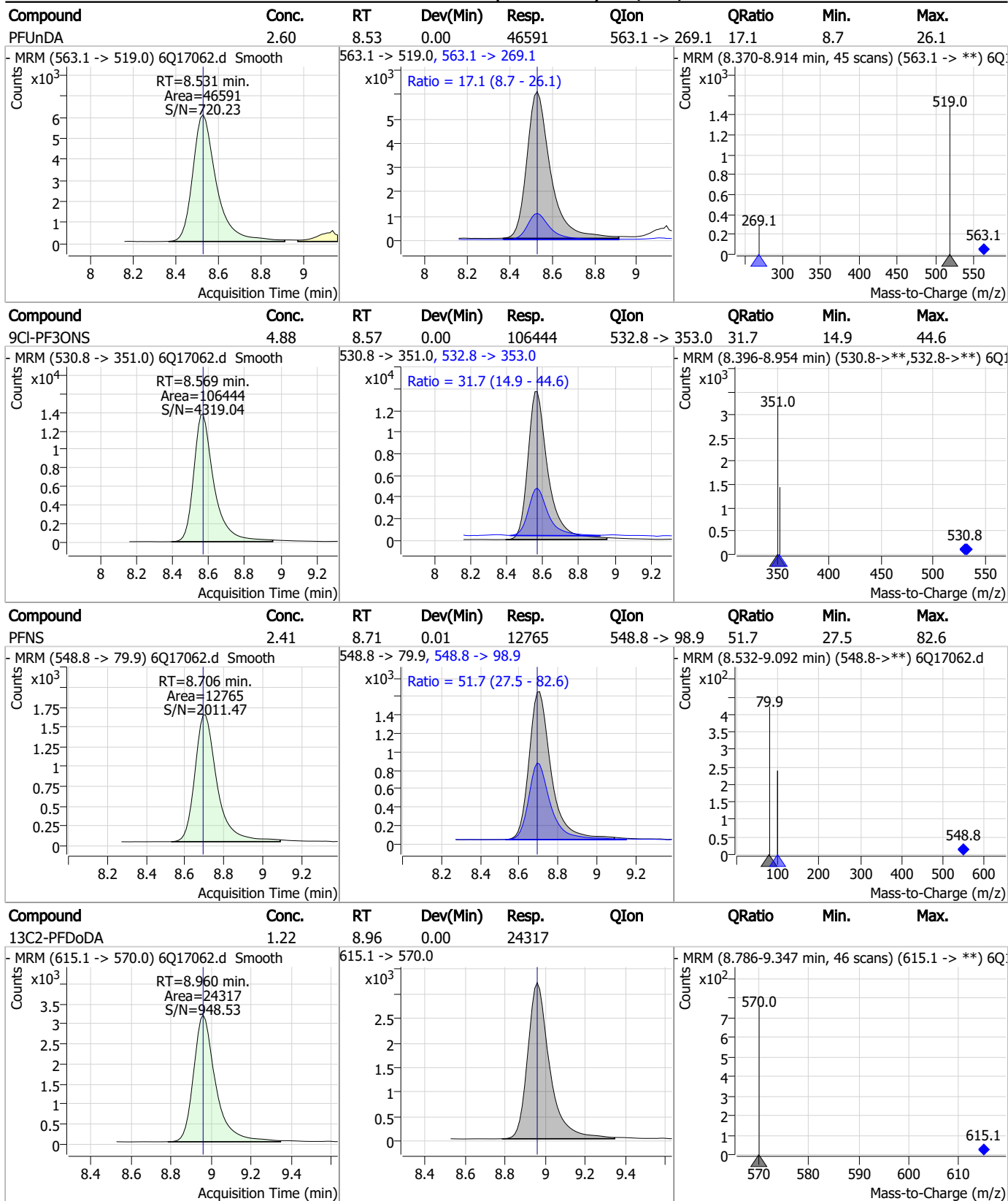
Perfluorinated Compounds by LC/MS/MS



7.7.26

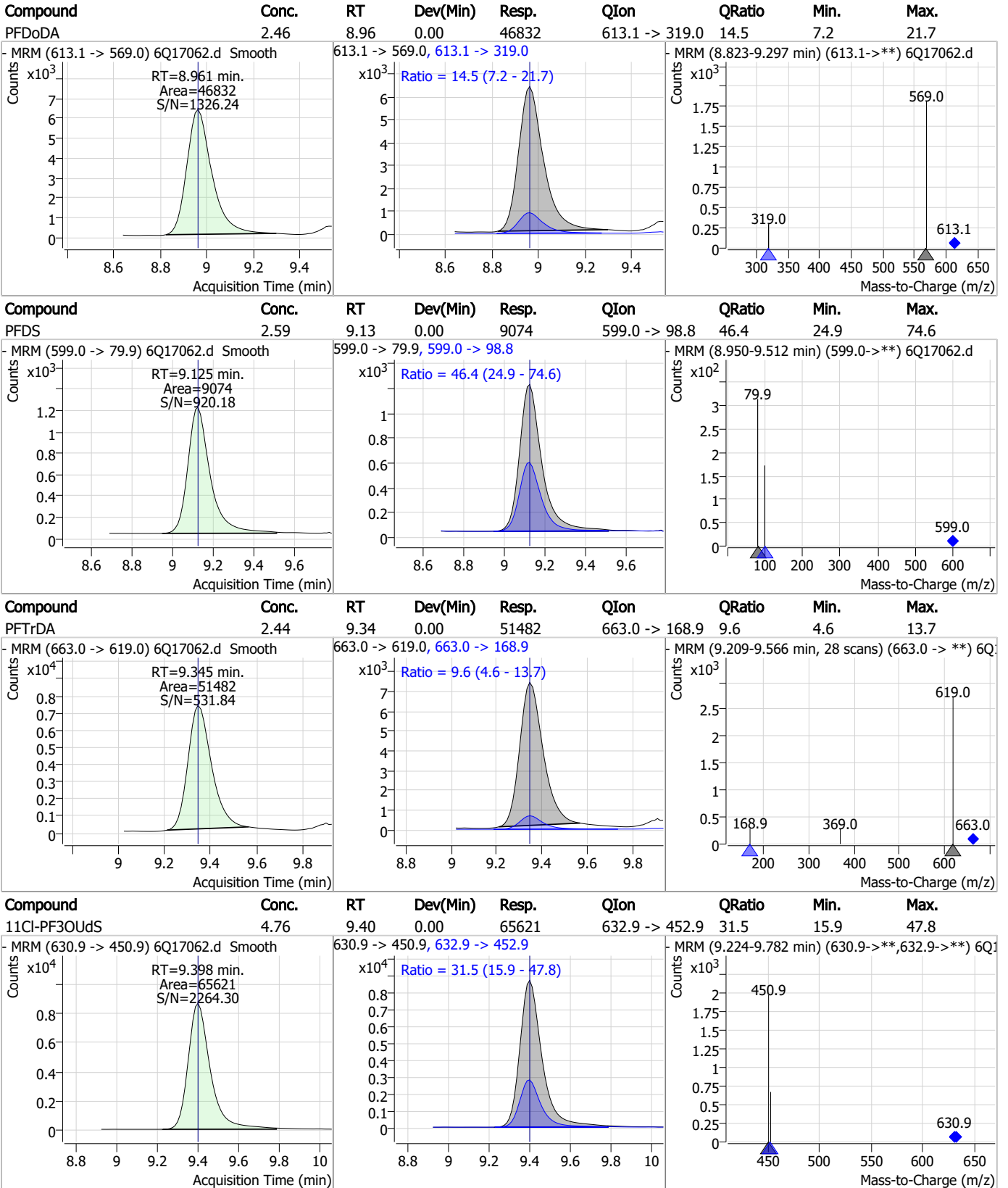
7

Perfluorinated Compounds by LC/MS/MS



7.7.26
7

Perfluorinated Compounds by LC/MS/MS

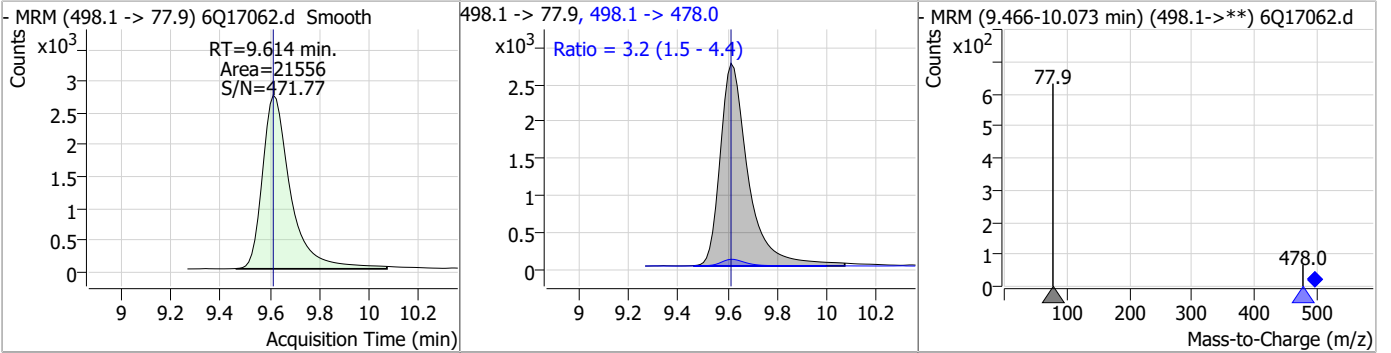


7.7.26
7

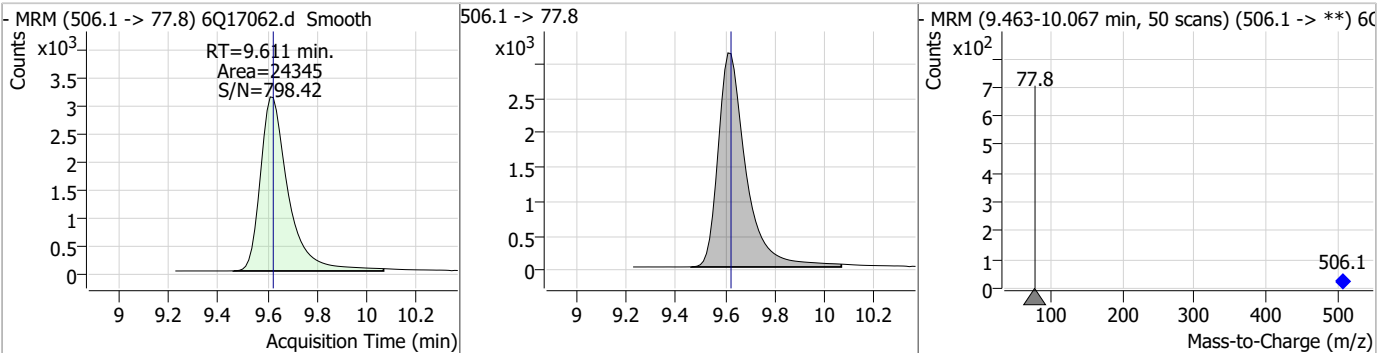


Perfluorinated Compounds by LC/MS/MS

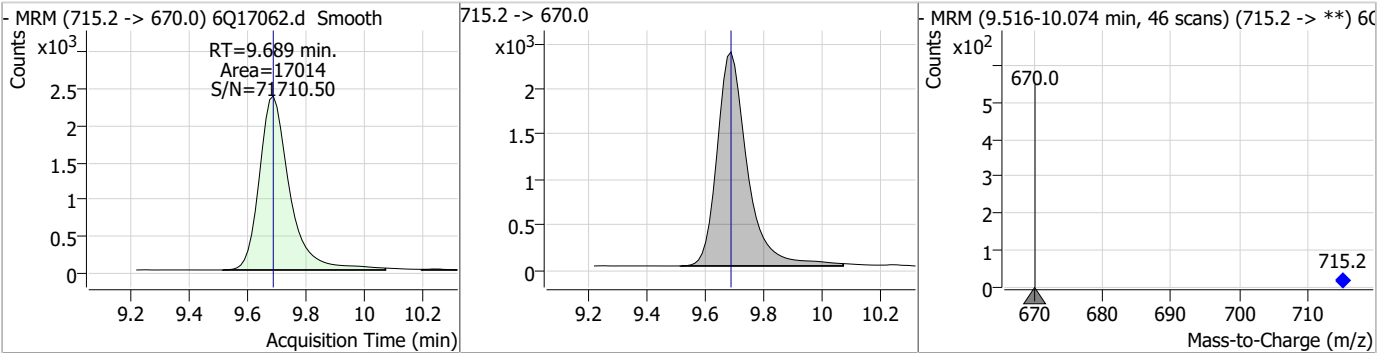
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.47	9.61	0.00	21556	498.1 -> 478.0	3.2	1.5	4.4



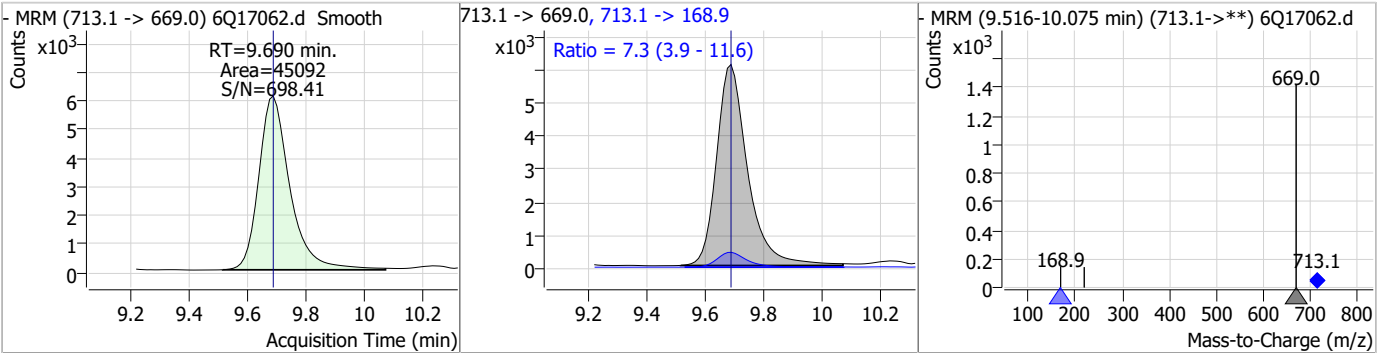
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.64	9.61	-0.01	24345				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.26	9.69	0.00	17014				



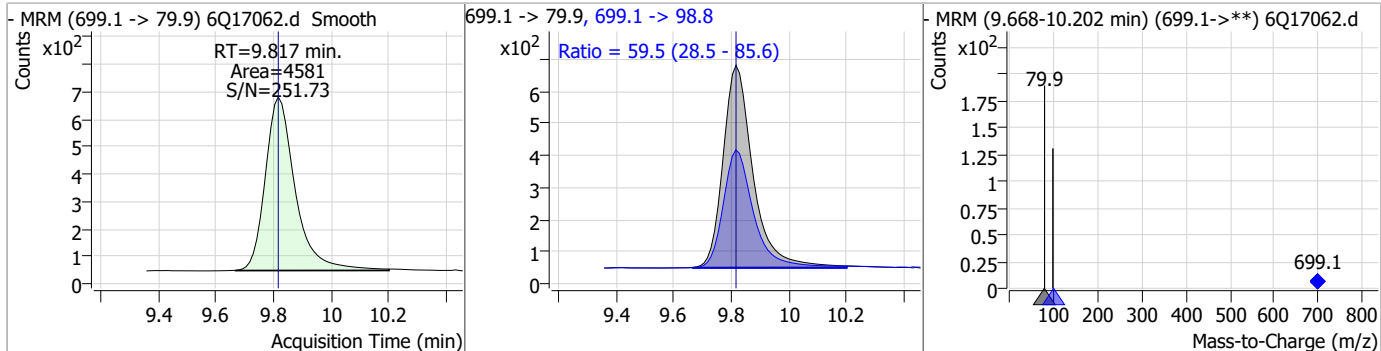
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.62	9.69	0.00	45092	713.1 -> 168.9	7.3	3.9	11.6



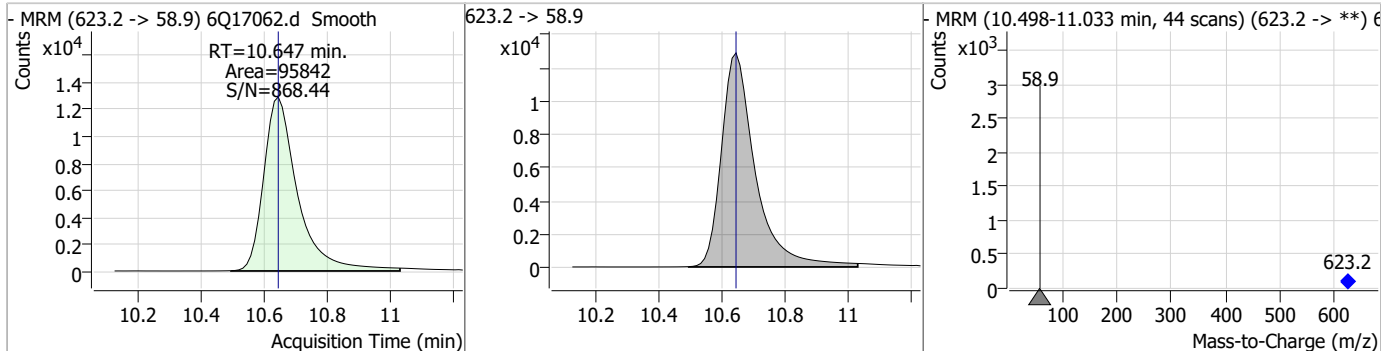
7.7.26
7

Perfluorinated Compounds by LC/MS/MS

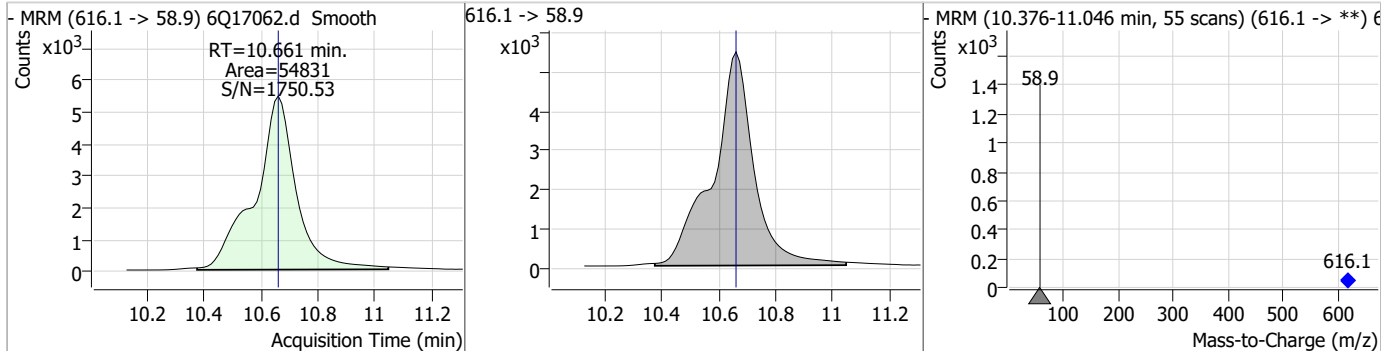
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.53	9.82	0.00	4581	699.1 -> 98.8	59.5	28.5	85.6



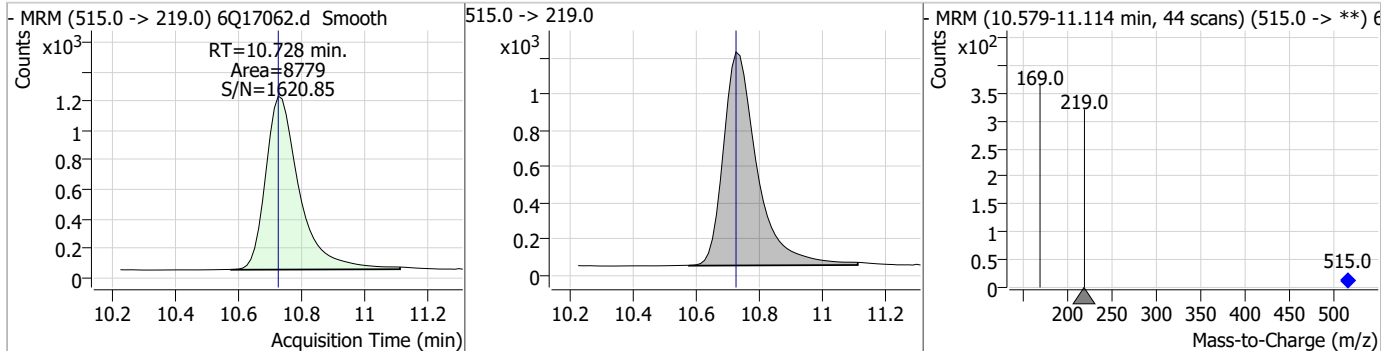
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	26.21	10.65	0.00	95842				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.83	10.66	0.00	54831				



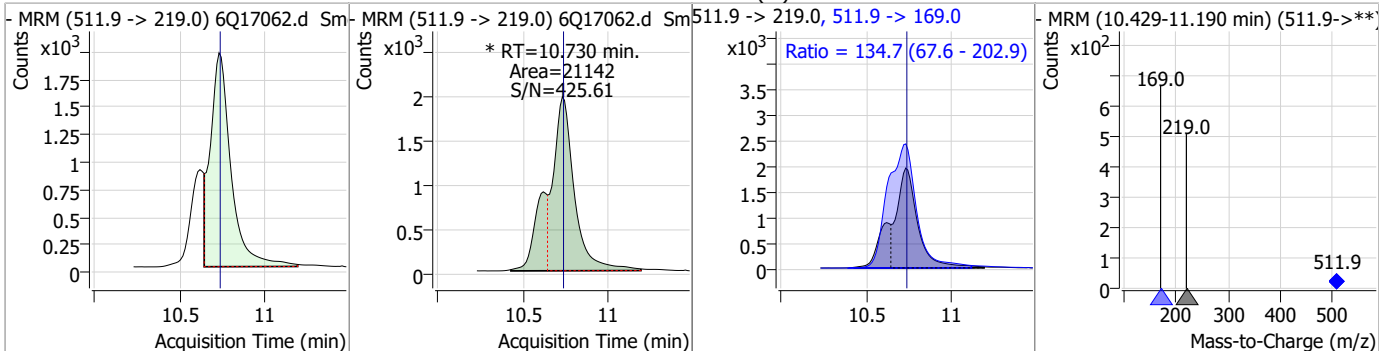
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.52	10.73	0.00	8779				



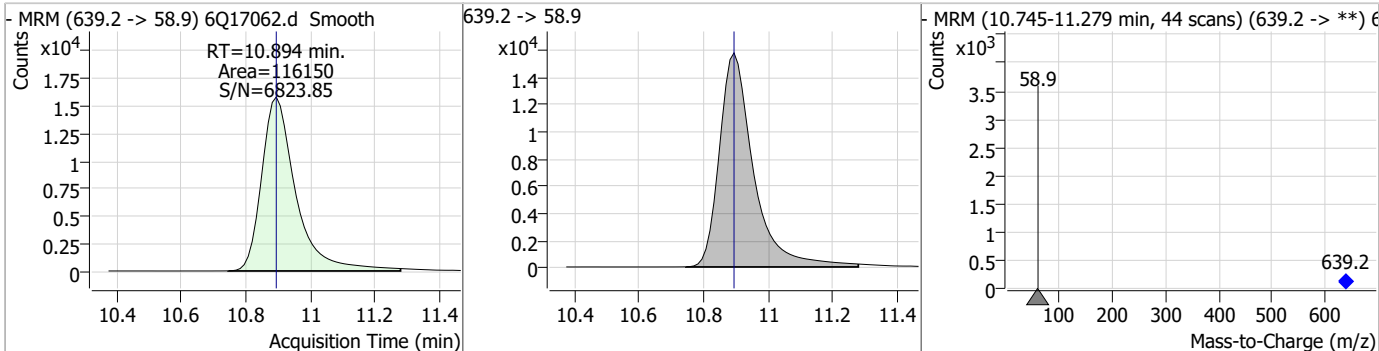
7.7.26
7

Perfluorinated Compounds by LC/MS/MS

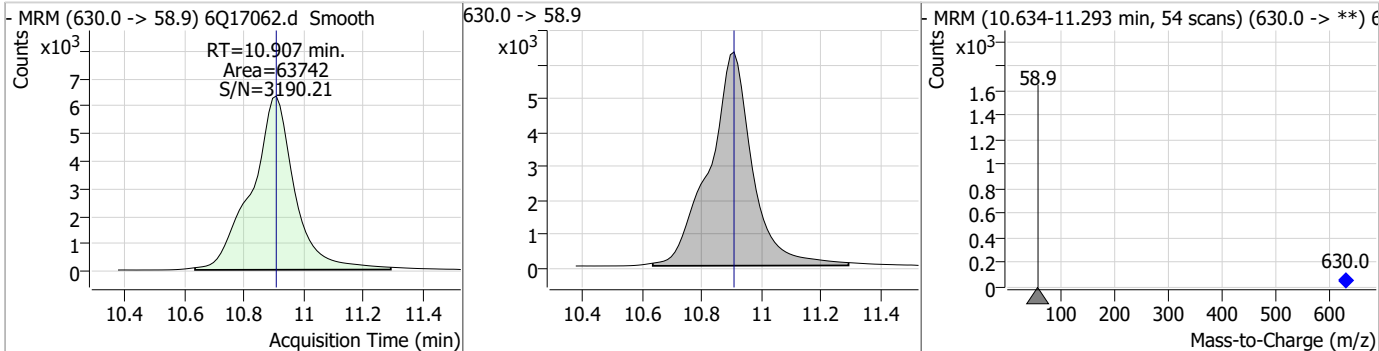
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	5.35	10.73	0.00	21142 (m)	511.9 -> 169.0	134.7	67.6	202.9



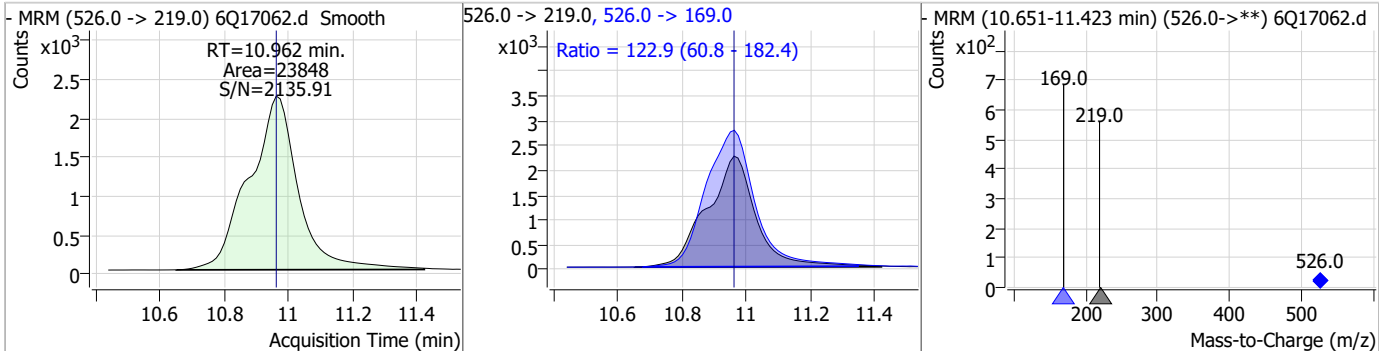
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	26.00	10.89	0.00	116150				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.18	10.91	0.00	63742				

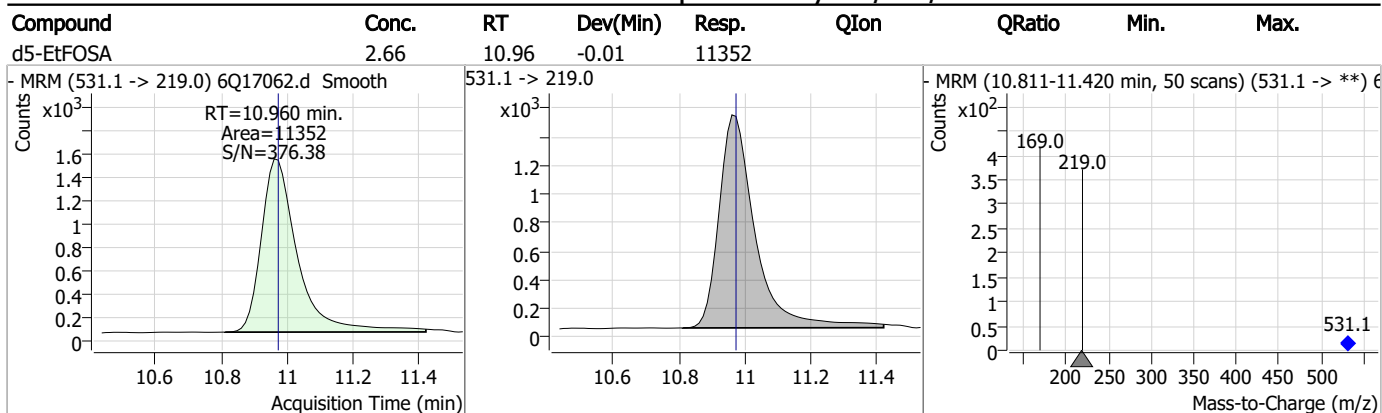


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	5.11	10.96	0.00	23848	526.0 -> 169.0	122.9	60.8	182.4



7.7.26
7

Perfluorinated Compounds by LC/MS/MS



7.7.26

7

Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17062.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:29 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.7.26.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17063.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 3:44:09 PM
 Sample Name : cc258-1.0LL
 Vial : P1-A2
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	186729	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	66379	5.00 µg/L	0.000
M5-PFHxA	5.480	318.0 -> 273.0	72736	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	61465	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	86437	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27990	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20983	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	28156	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	26626	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	16140	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	25340	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22540	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	13453	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11428	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2343	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2767	5.00 µg/L	0.012
M2-8:2FTS	7.877	529.1 -> 80.9	3428	5.00 µg/L	0.012
M3-MeFOSAA	8.134	573.2 -> 419.0	22983	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40255	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18190	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	98093	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122740	25.00 µg/L	0.000
M5-EtFOSA	10.973	531.1 -> 219.0	11298	2.50 µg/L	0.000
M3-MeFOSA	10.741	515.0 -> 219.0	9322	2.50 µg/L	0.012
13C4-PFOS	8.239	502.8 -> 79.9	15211	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80689	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9774	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	89738	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	24697	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29354	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	59118	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2343	5.22 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2767	5.07 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.5%		
13C2-8:2FTS	7.877	529.1 -> 80.9	3428	5.84 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 116.9%		
13C2-PFDoDA	8.960	615.1 -> 570.0	26626	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	16140	1.16 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 92.9%		
13C3-PFBS	5.398	302.1 -> 79.9	22540	2.45 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.1%		
13C3-PFHxS	7.179	402.1 -> 79.9	13453	2.59 µg/L	0.000

7.7.27
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 = 103.4%	
13C4-PFBA	2.910	216.8 -> 171.9	186729	10.01 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 100.1%	
13C4-PFHpA	6.431	367.1 -> 322.0	61465	2.54 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.7%	
13C5-PFHxA	5.480	318.0 -> 273.0	72736	2.55 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.0%	
13C5-PFPeA	4.270	268.3 -> 223.0	66379	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 100.5%	
13C6-PFDA	8.076	519.1 -> 474.1	20983	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C7-PFUnDA	8.530	570.0 -> 525.1	28156	1.35 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 108.0%	
13C8-FOSA	9.623	506.1 -> 77.8	25340	2.52 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 100.8%	
13C8-PFOA	7.074	421.1 -> 376.0	86437	2.50 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.8%	
13C8-PFOS	8.239	507.1 -> 79.9	11428	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C9-PFNA	7.594	472.1 -> 427.0	27990	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 100.1%	
d3-MeFOSAA	8.134	573.2 -> 419.0	22983	5.07 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 101.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	40255	9.62 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.2%	
d3-MeFOSA	10.741	515.0 -> 219.0	9322	2.45 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 98.1%	
d5-EtFOSAA	8.330	589.2 -> 419.0	18190	4.83 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 96.6%	
d7-MeFOSE	10.647	623.2 -> 58.9	98093	24.57 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 98.3%	
d9-EtFOSE	10.894	639.2 -> 58.9	122740	25.16 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 100.6%	
d5-EtFOSA	10.973	531.1 -> 219.0	11298	2.42 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 96.9%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	2181	0.62 µg/L	94
		327.1 -> 80.9	891		
6:2FTS	6.851	427.1 -> 407.0	1876	0.62 µg/L	92
		427.1 -> 80.9	578		
8:2FTS	7.865	527.1 -> 507.0	1168	0.57 µg/L	99
		527.1 -> 80.8	485		
EtFOSAA	8.331	584.2 -> 419.1	552	0.18 µg/L	94
		584.2 -> 526.0	268		
FOSA	9.614	498.1 -> 77.9	1542	0.17 µg/L	97
		498.1 -> 478.0	27		
MeFOSAA	8.136	570.1 -> 419.0	651	0.15 µg/L	85
		570.1 -> 483.0	135		
PFBA	2.906	212.8 -> 168.9	4027	0.64 µg/L	100
PFBS	5.412	298.7 -> 79.9	1550	0.15 µg/L	93
		298.7 -> 98.8	571		
PFDA	8.077	512.9 -> 469.0	4467	0.20 µg/L	91
		512.9 -> 219.0	577		
PFDODA	8.961	613.1 -> 569.0	3461	0.17 µg/L	97
		613.1 -> 319.0	464		
PFDS	9.125	599.0 -> 79.9	617	0.17 µg/L	92

7.7.27
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
		599.0 -> 98.8	274			
PFHpA	6.432	363.1 -> 319.0	4501	0.15	µg/L	100
		363.1 -> 169.0	661			
PFHpS	7.746	449.0 -> 79.9	834	0.13	µg/L m	78
		449.0 -> 98.9	548			
PFHxA	5.470	313.0 -> 269.0	4204	0.15	µg/L	96
		313.0 -> 118.9	248			
PFHxS	7.180	398.7 -> 79.9	1118	0.15	µg/L m	96
		398.7 -> 98.9	545			
PFNA	7.607	463.0 -> 419.0	3166	0.16	µg/L	98
		463.0 -> 219.0	632			
PFNS	8.706	548.8 -> 79.9	750	0.14	µg/L	96
		548.8 -> 98.9	434			
PFOA	7.063	413.0 -> 369.0	4478	0.17	µg/L #	77
		413.0 -> 169.0	1239			
PFOS	8.240	498.9 -> 79.9	966	0.18	µg/L m	78
		498.9 -> 98.8	455			
PFPeA	4.273	263.0 -> 219.0	6126	0.34	µg/L	100
PFPeS	6.484	349.1 -> 79.9	1125	0.15	µg/L	98
		349.1 -> 98.9	533			
PFTeDA	9.690	713.1 -> 669.0	3098	0.19	µg/L	97
		713.1 -> 168.9	202			
PFTrDA	9.345	663.0 -> 619.0	3712	0.16	µg/L	99
		663.0 -> 168.9	355			
PFUnDA	8.531	563.1 -> 519.0	3205	0.16	µg/L	90
		563.1 -> 269.1	416			
11Cl-PF3OUdS	9.398	630.9 -> 450.9	4552	0.33	µg/L	98
		632.9 -> 452.9	1400			
9Cl-PF3ONS	8.569	530.8 -> 351.0	8159	0.37	µg/L	77
		532.8 -> 353.0	1420			
ADONA	6.681	376.9 -> 250.9	19356	0.32	µg/L	99
		376.9 -> 84.8	4907			
HFPO-DA	5.846	284.9 -> 168.9	1174	0.31	µg/L	88
		284.9 -> 184.9	106			
3:3FTCA	3.784	241.0 -> 177.0	905	0.80	µg/L	99
		241.0 -> 117.0	115			
5:3FTCA	6.160	341.0 -> 237.1	21016	4.52	µg/L	90
		341.0 -> 217.0	15707			
7:3FTCA	7.573	441.0 -> 316.9	8138	3.85	µg/L	90
		441.0 -> 336.9	18860			
EtFOSA	10.962	526.0 -> 219.0	1607	0.35	µg/L	97
		526.0 -> 169.0	2008			
EtFOSE	10.907	630.0 -> 58.9	4246	0.83	µg/L	100
MeFOSA	10.730	511.9 -> 219.0	1429	0.34	µg/L	100
		511.9 -> 169.0	1930			
MeFOSE	10.661	616.1 -> 58.9	3878	0.89	µg/L	100
PFDoDS	9.829	699.1 -> 79.9	296	0.16	µg/L	87
		699.1 -> 98.8	140			
NFDHA	5.363	295.0 -> 201.0	981	0.31	µg/L	95
		295.0 -> 84.9	215			
PFMBA	4.687	279.0 -> 85.1	3792	0.31	µg/L	100
PFMPA	3.438	229.0 -> 84.9	2923	0.32	µg/L	100
PFEESA	5.949	314.8 -> 134.9	9668	0.27	µg/L	100
		314.8 -> 82.9	343			

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

7.7.27
7

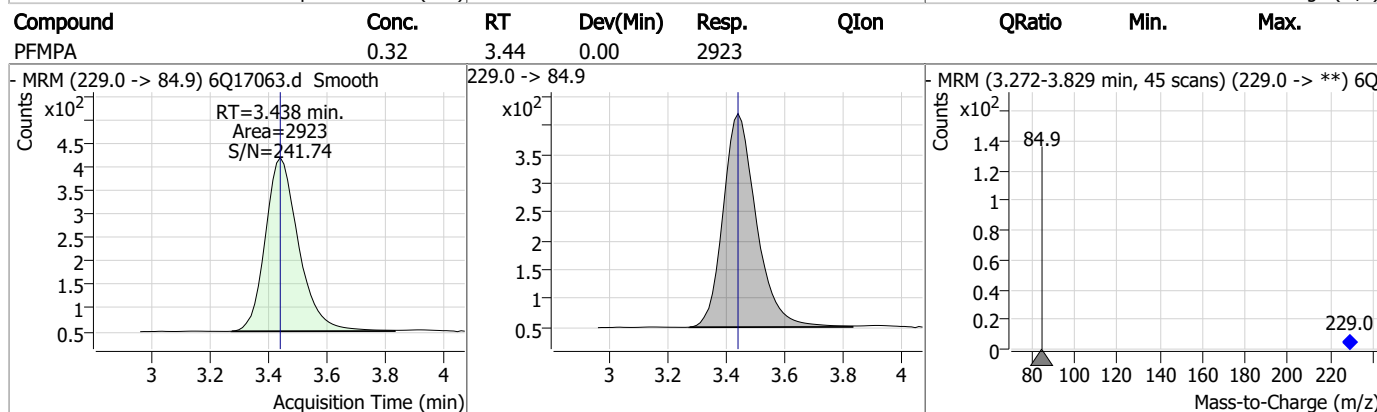
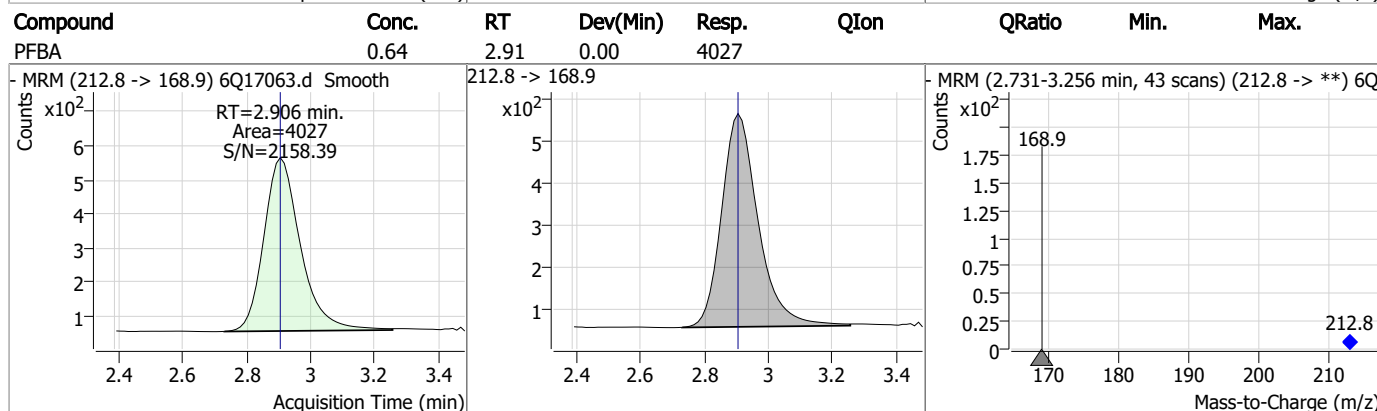
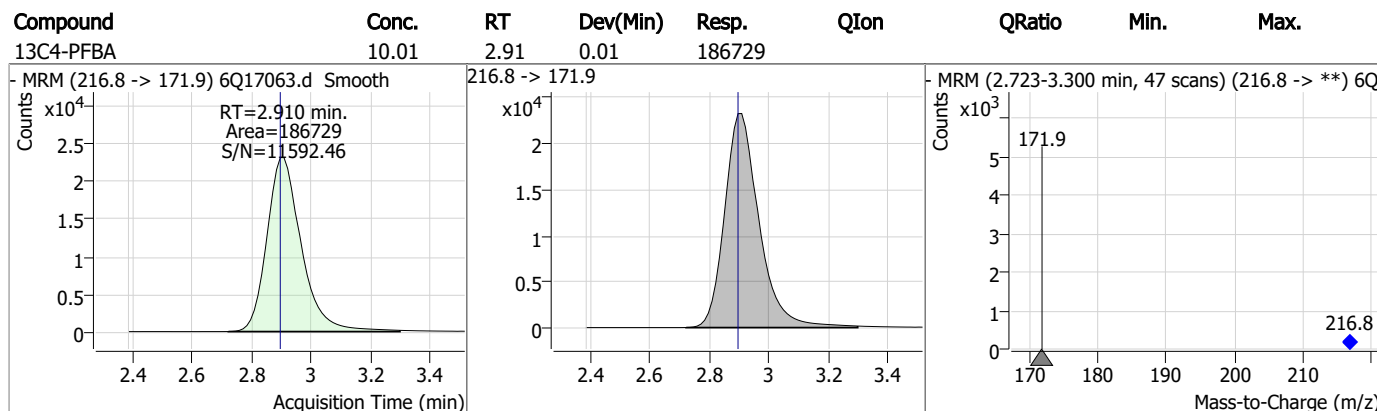
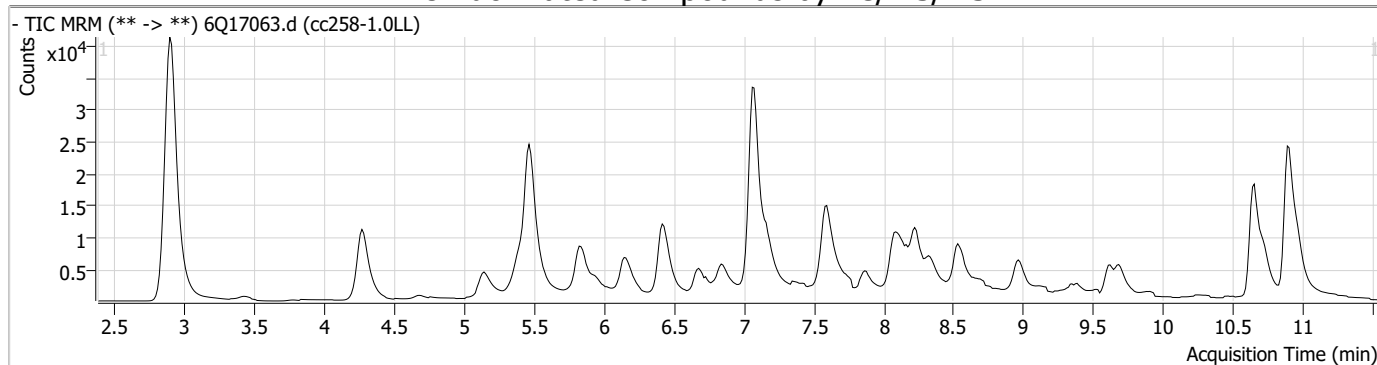
Perfluorinated Compounds by LC/MS/MS

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

7.7.27

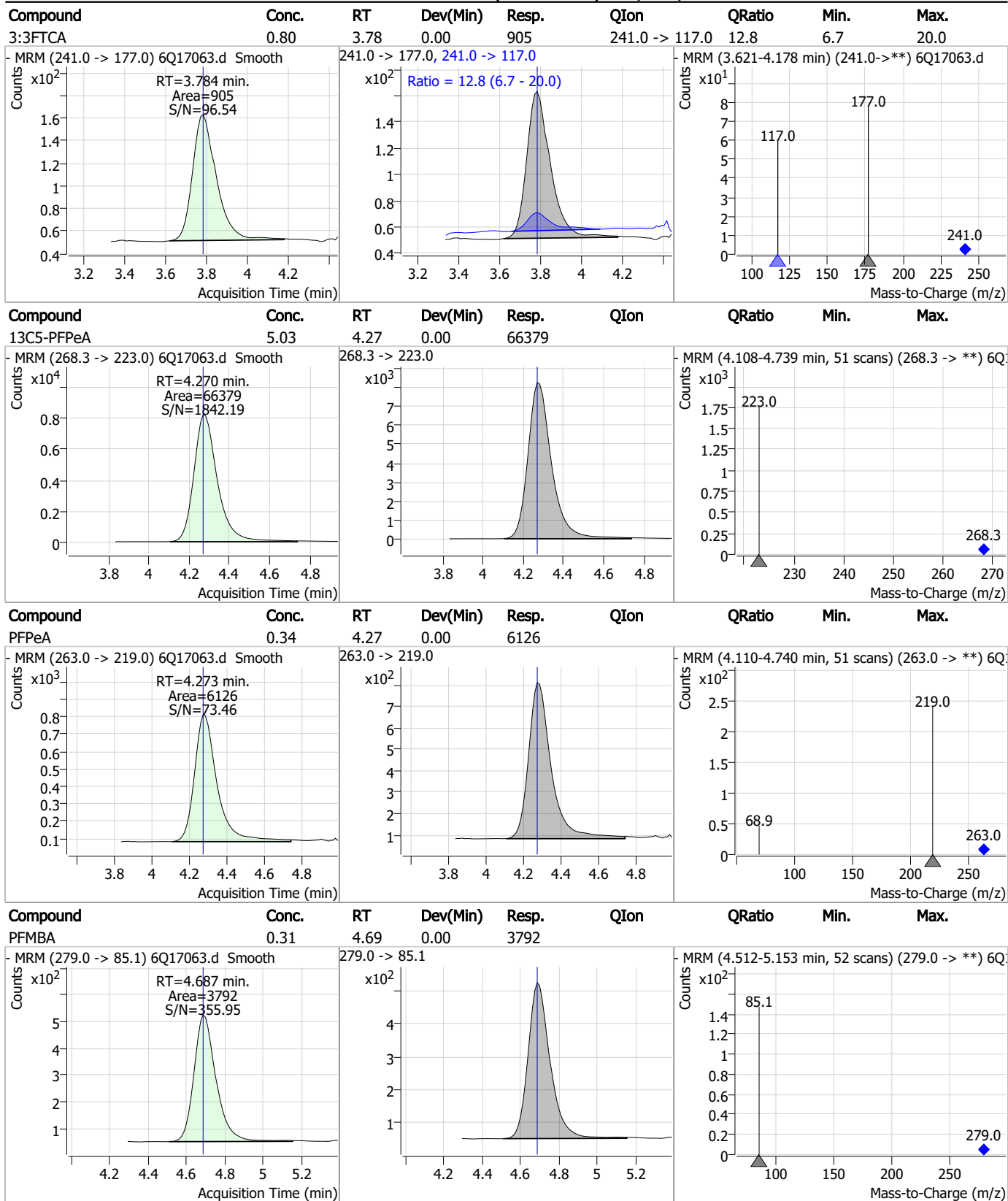
7

Perfluorinated Compounds by LC/MS/MS



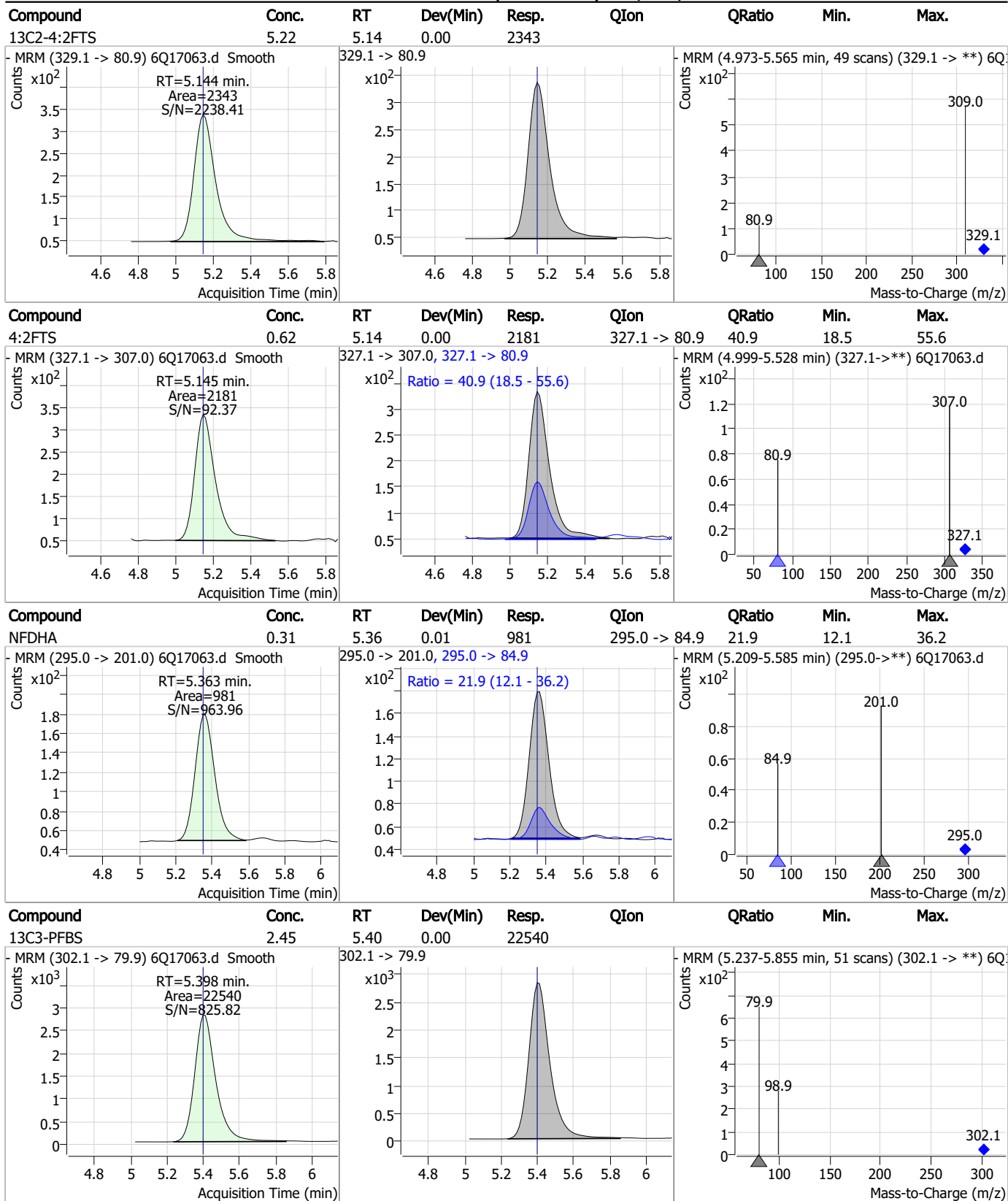
7.7.27
7

Perfluorinated Compounds by LC/MS/MS



7.7.27
7

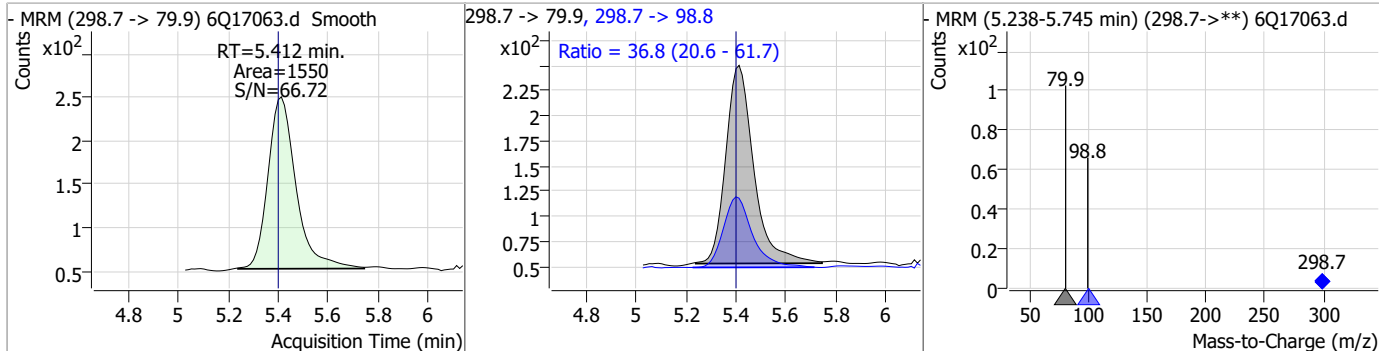
Perfluorinated Compounds by LC/MS/MS



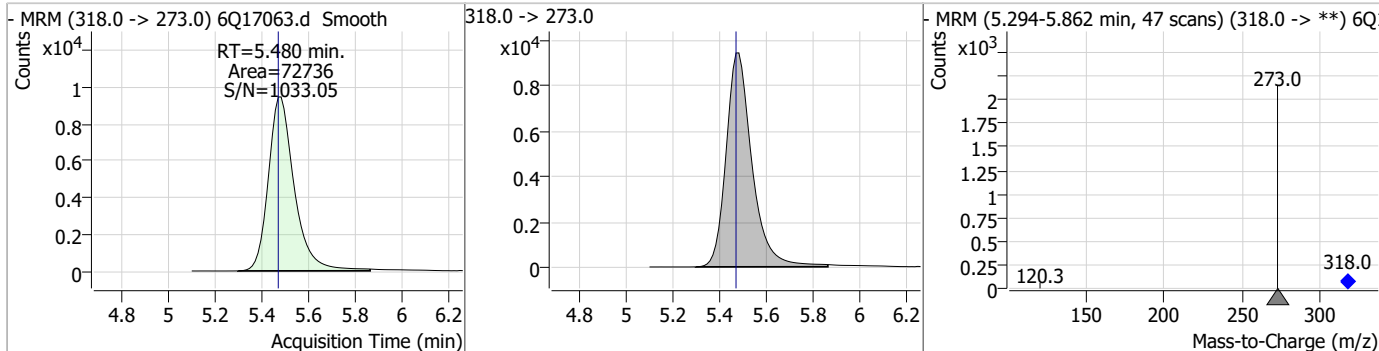
7.7.27
7

Perfluorinated Compounds by LC/MS/MS

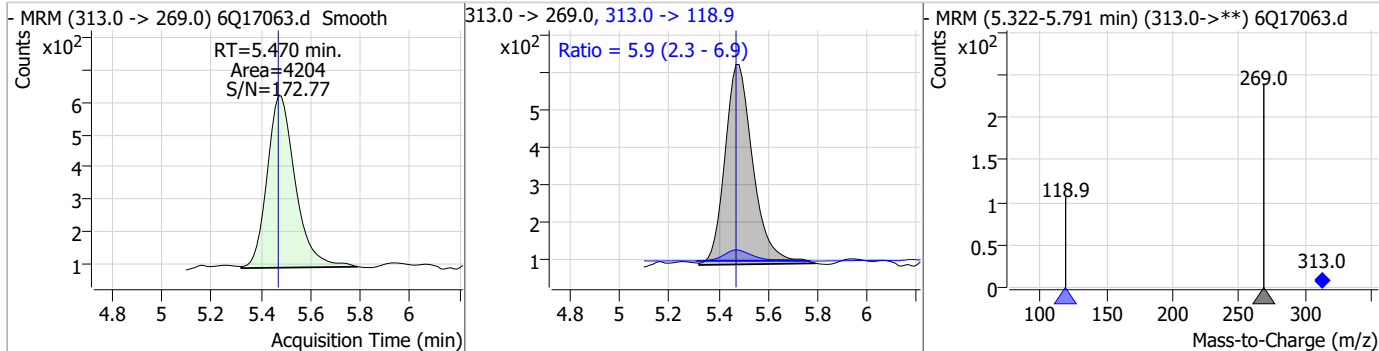
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	0.15	5.41	0.01	1550	298.7 -> 98.8	36.8	20.6	61.7



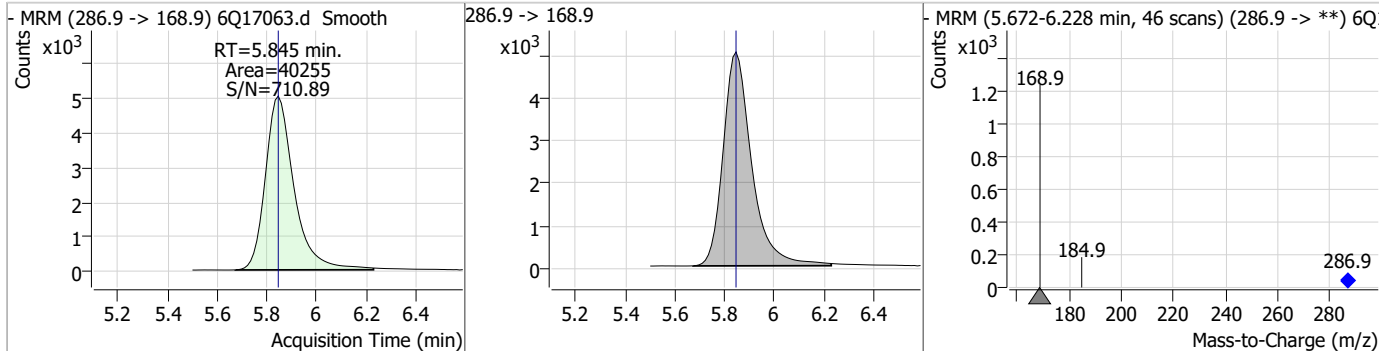
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.55	5.48	0.01	72736				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	0.15	5.47	0.00	4204	313.0 -> 118.9	5.9	2.3	6.9



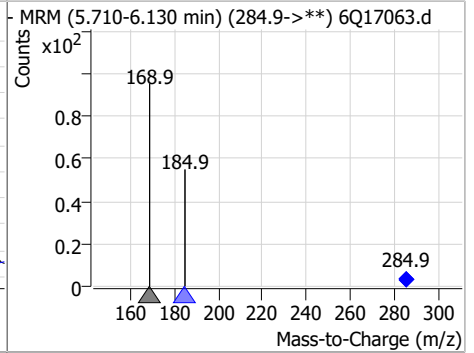
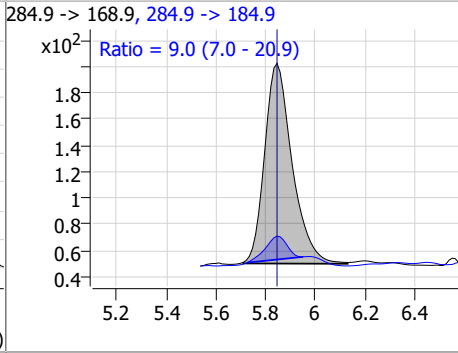
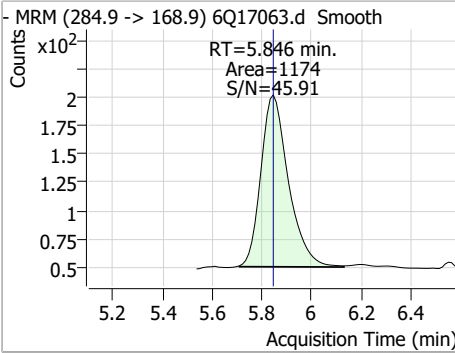
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.62	5.85	0.00	40255				



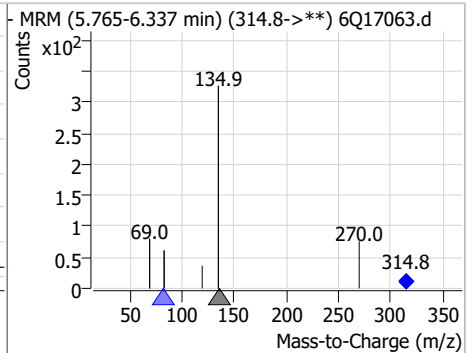
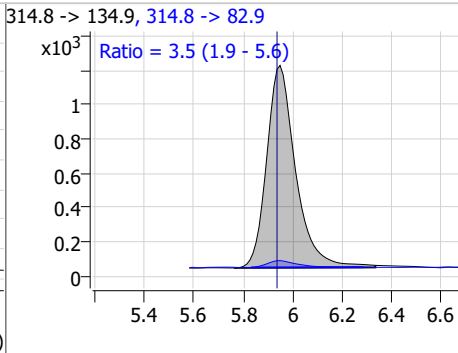
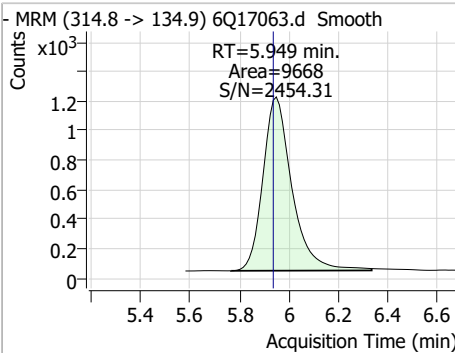
7.7.27
7

Perfluorinated Compounds by LC/MS/MS

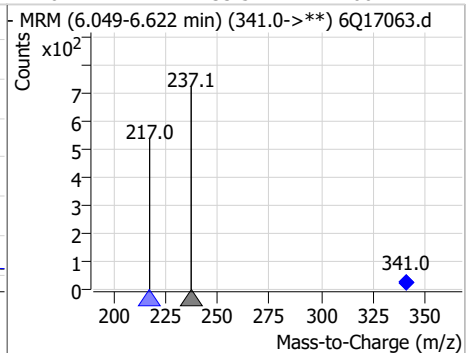
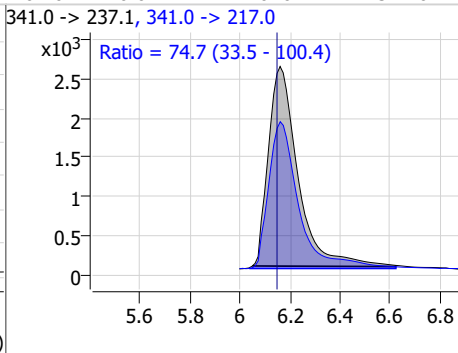
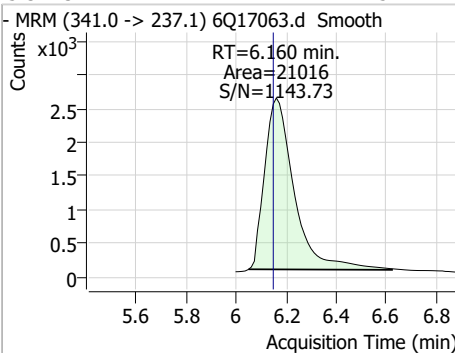
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	0.31	5.85	0.00	1174	284.9 -> 184.9	9.0	7.0	20.9



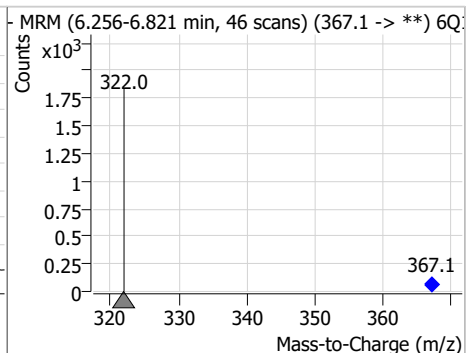
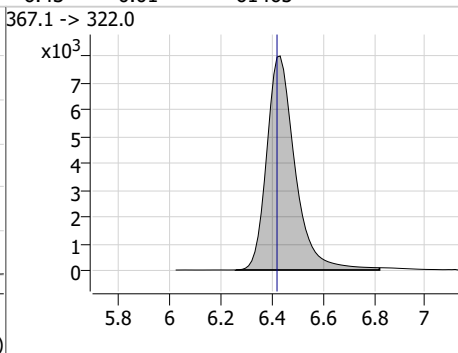
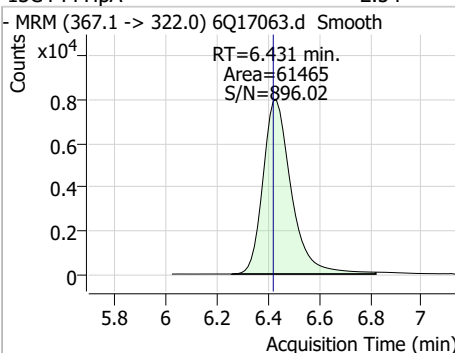
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	0.27	5.95	0.01	9668	314.8 -> 82.9	3.5	1.9	5.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	4.52	6.16	0.01	21016	341.0 -> 217.0	74.7	33.5	100.4

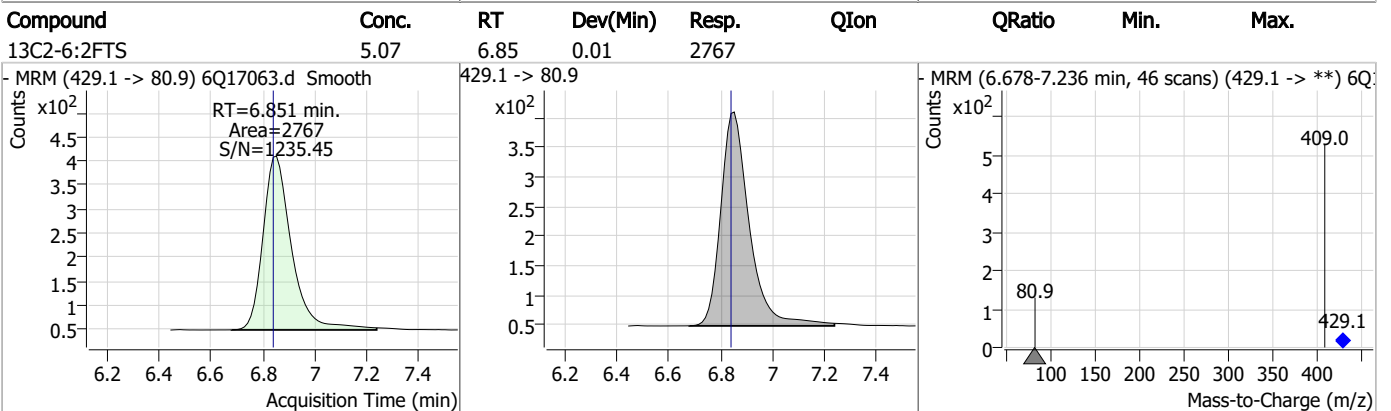
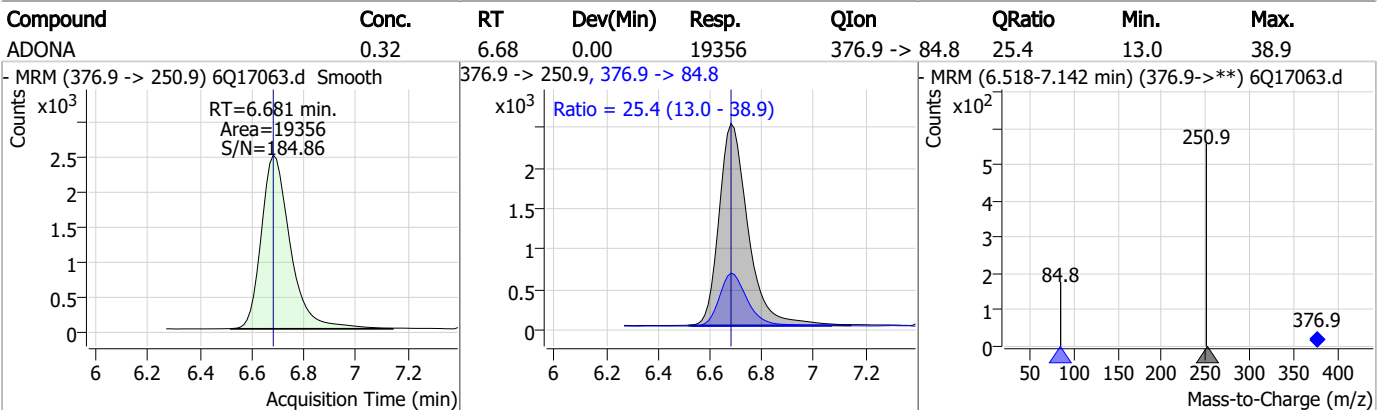
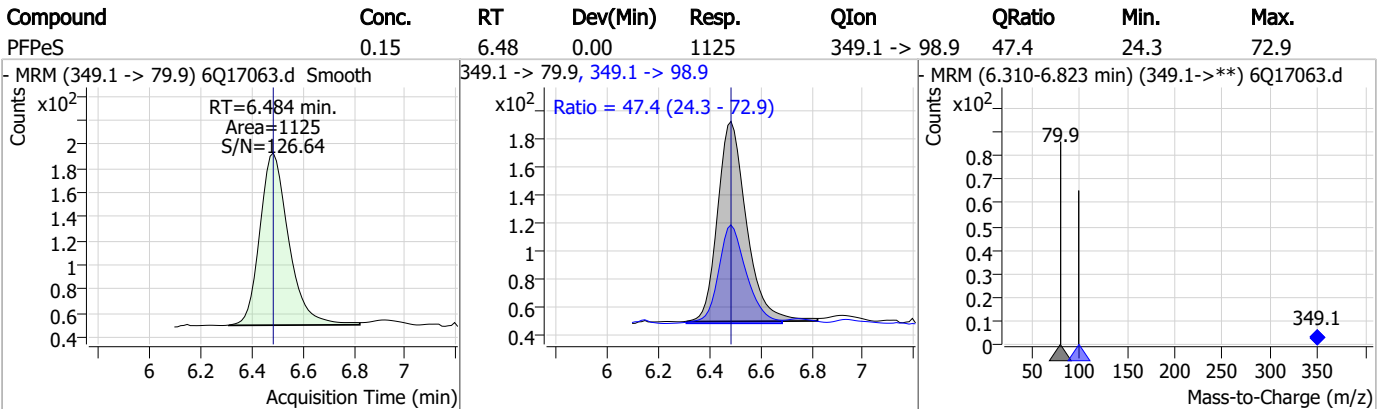
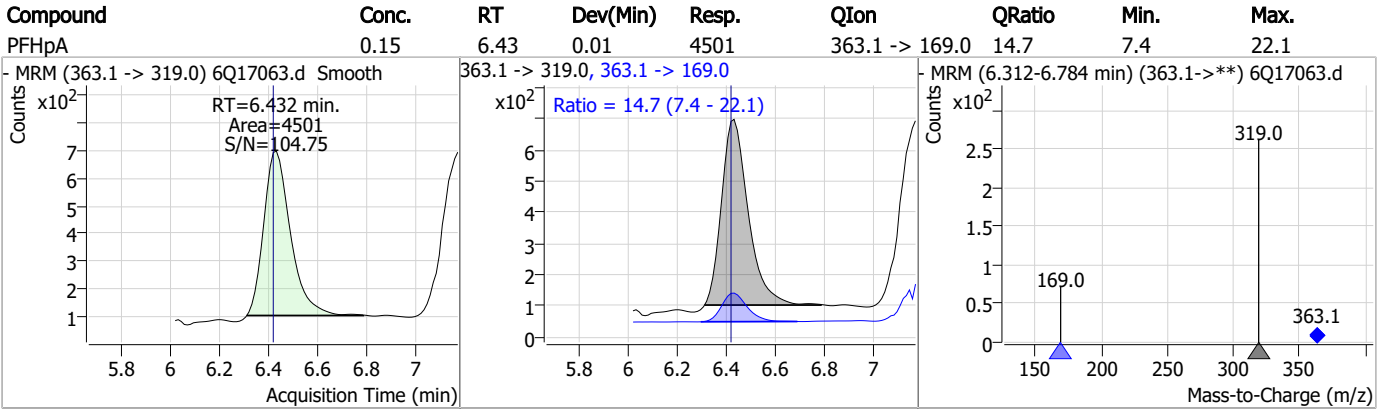


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.54	6.43	0.01	61465	367.1 -> 322.0			



7.7.27
7

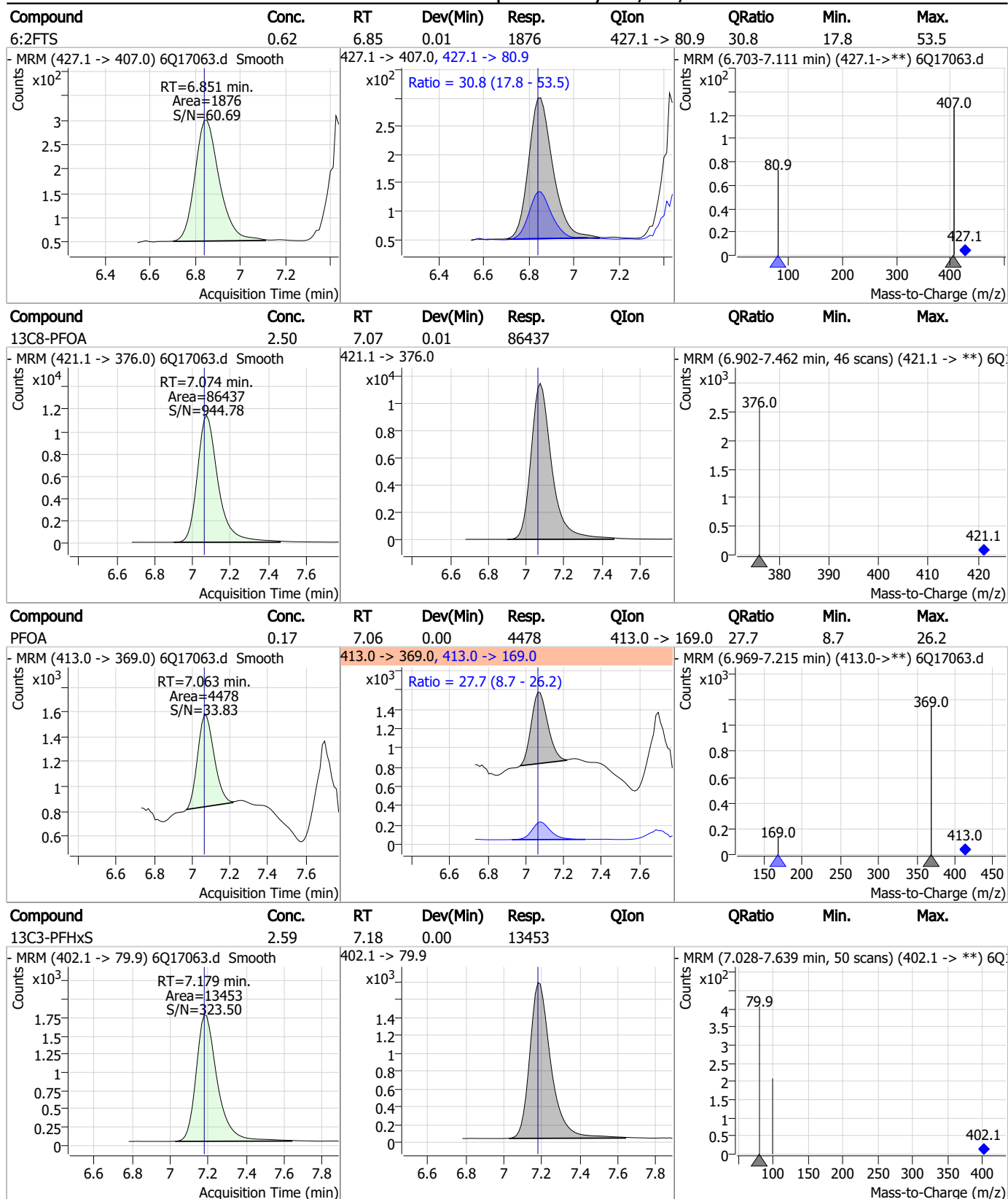
Perfluorinated Compounds by LC/MS/MS



7.7.27

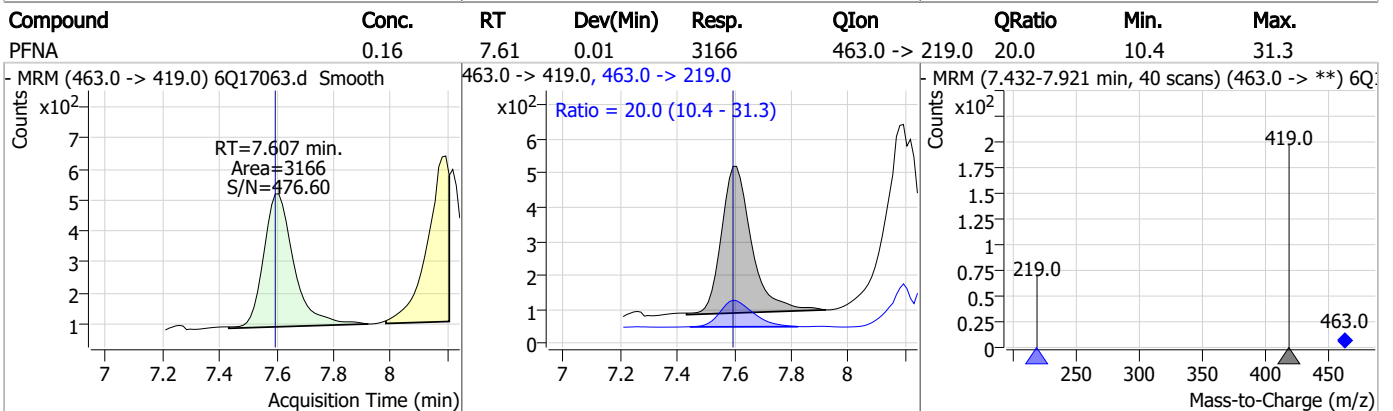
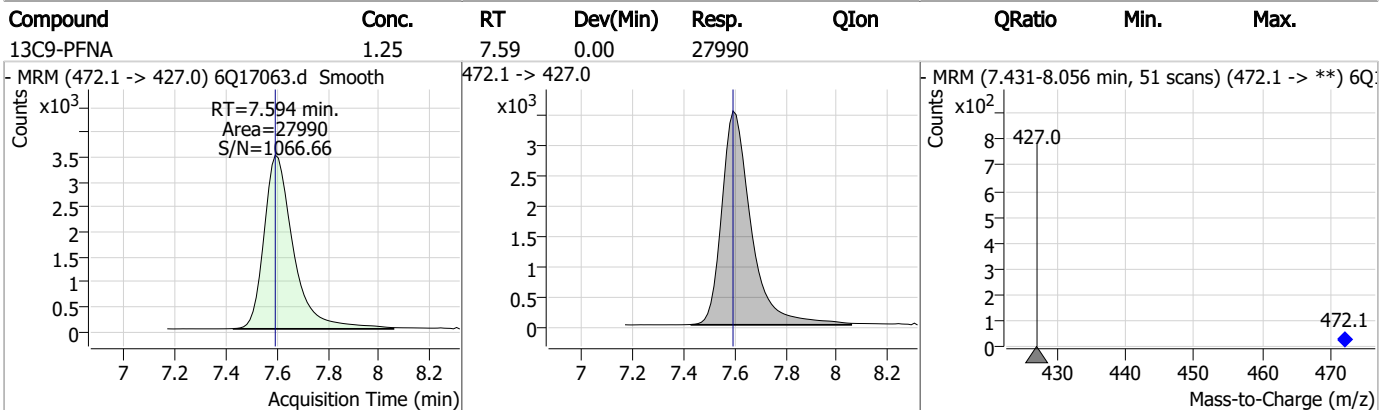
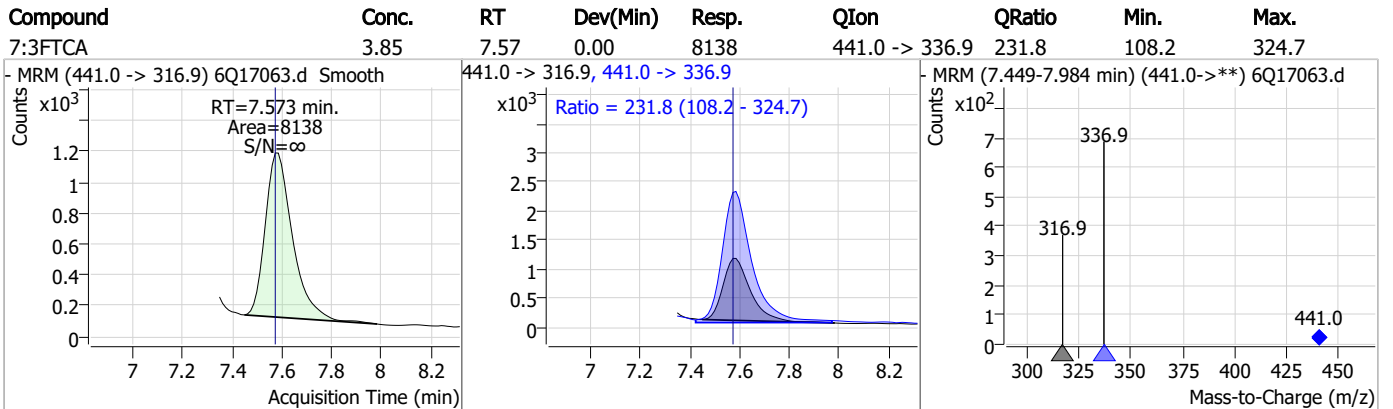
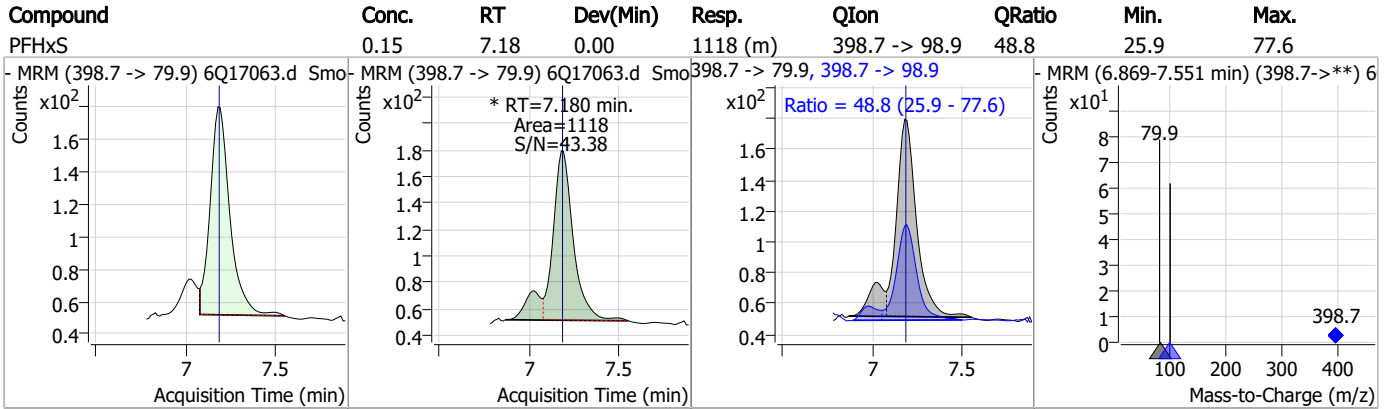


Perfluorinated Compounds by LC/MS/MS

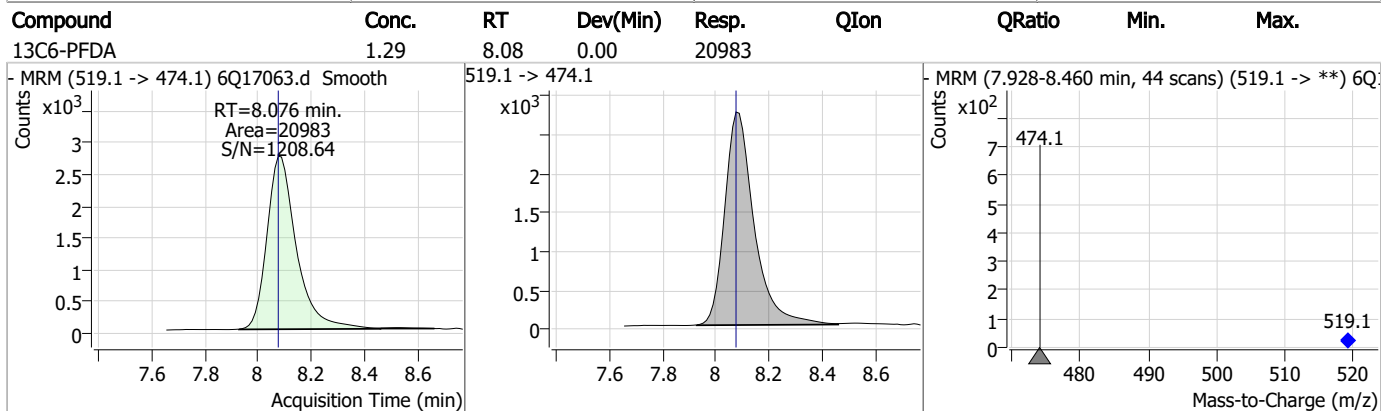
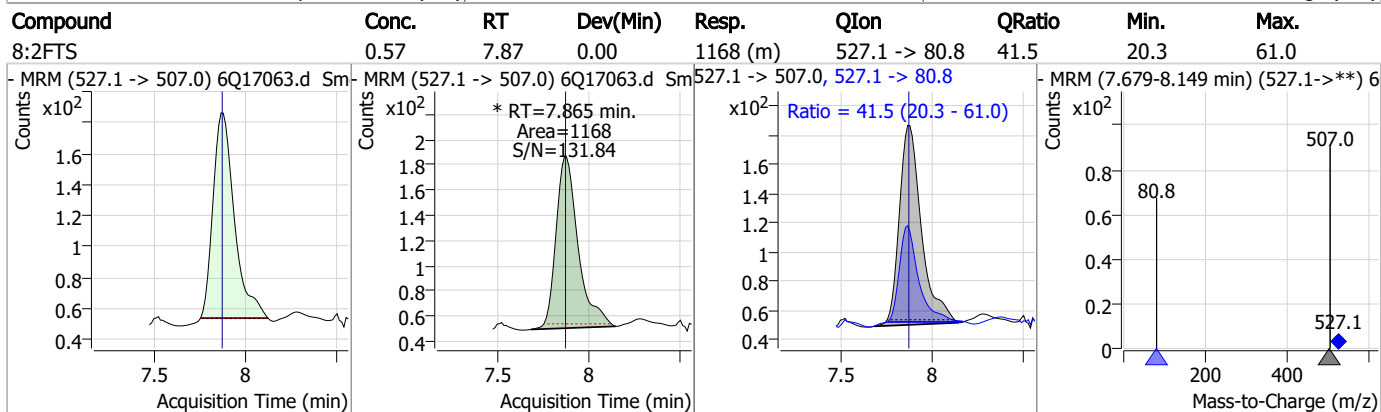
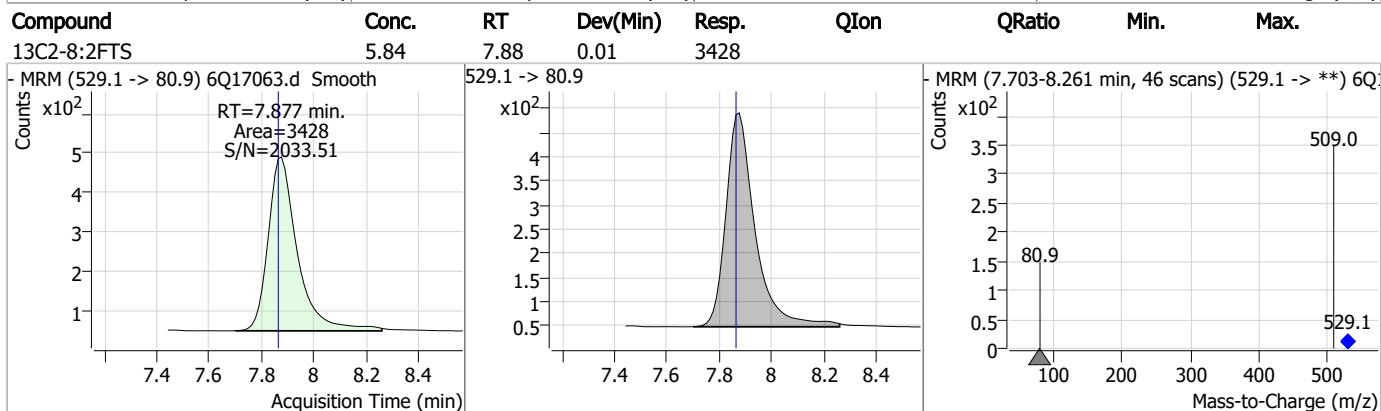
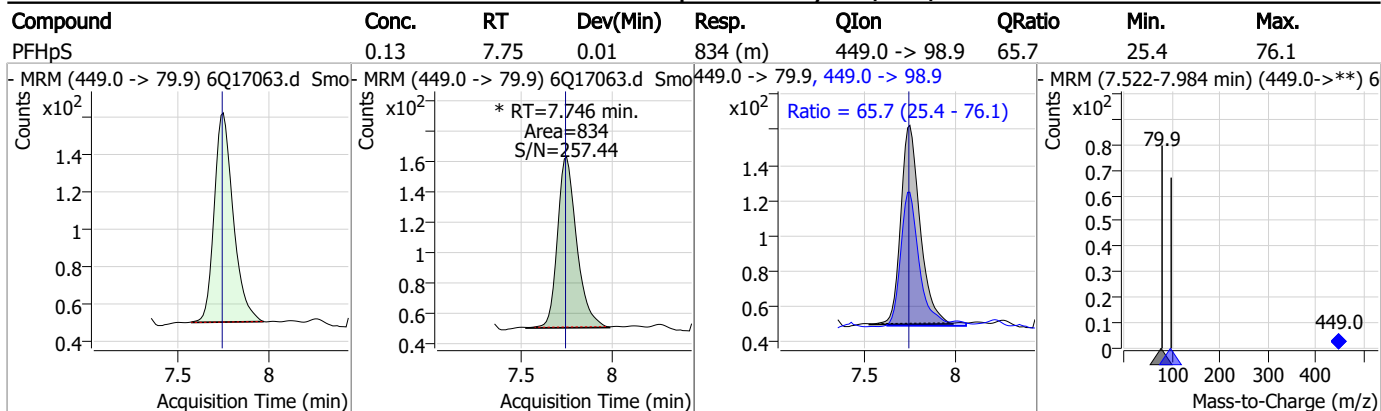


7.7.27
7

Perfluorinated Compounds by LC/MS/MS



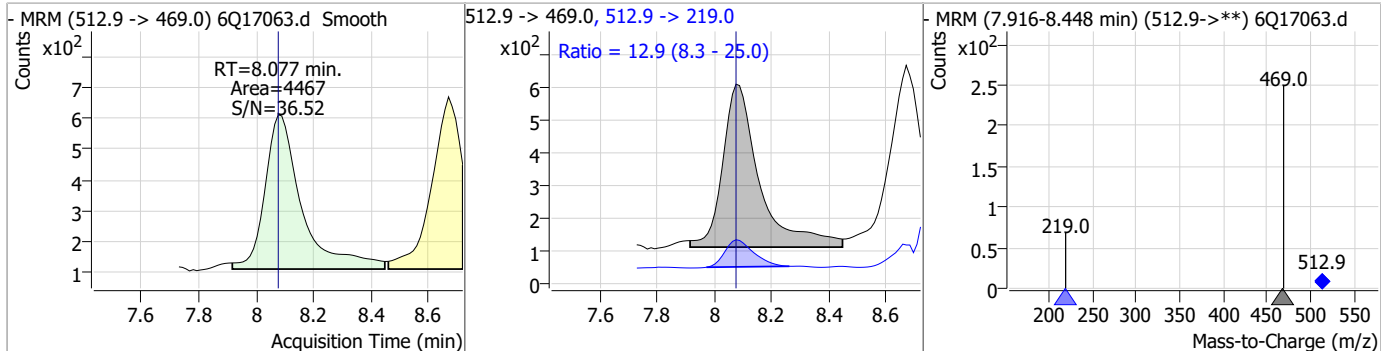
Perfluorinated Compounds by LC/MS/MS



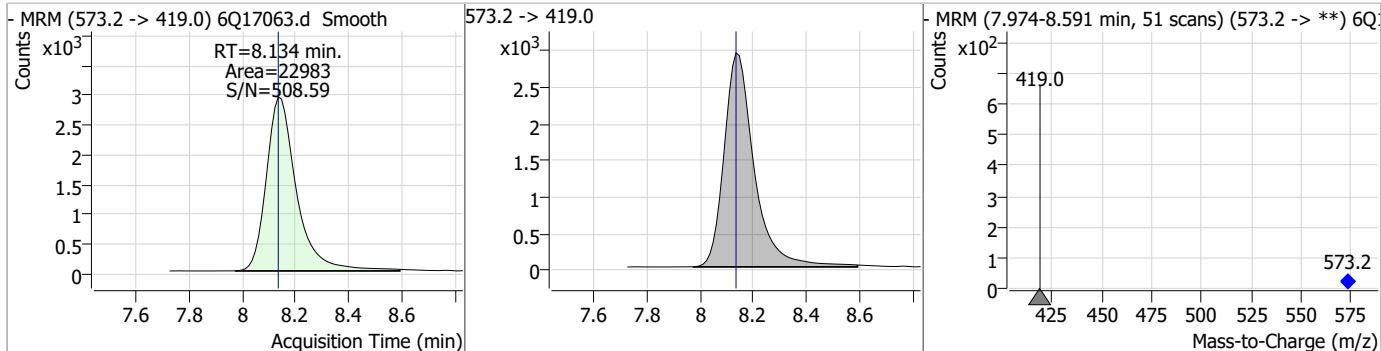
7.7.27
7

Perfluorinated Compounds by LC/MS/MS

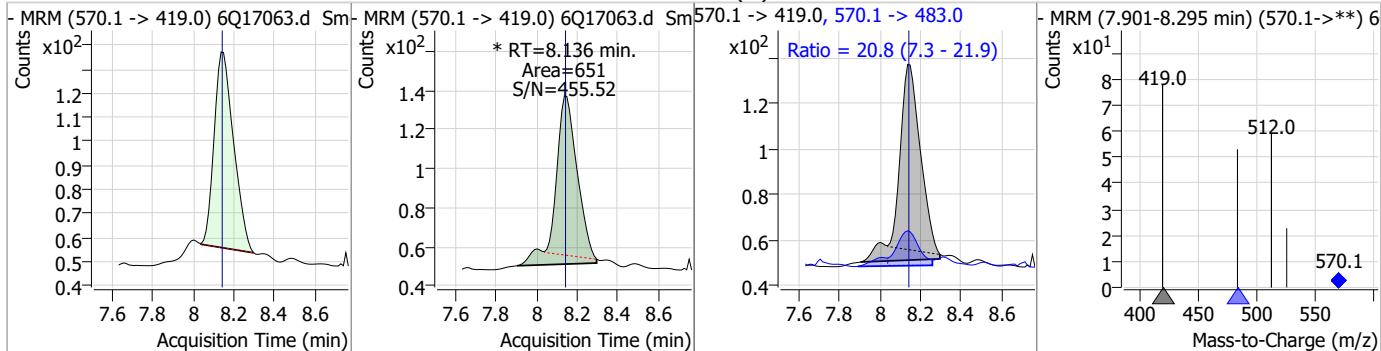
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDA	0.20	8.08	0.00	4467	512.9 -> 219.0	12.9	8.3	25.0



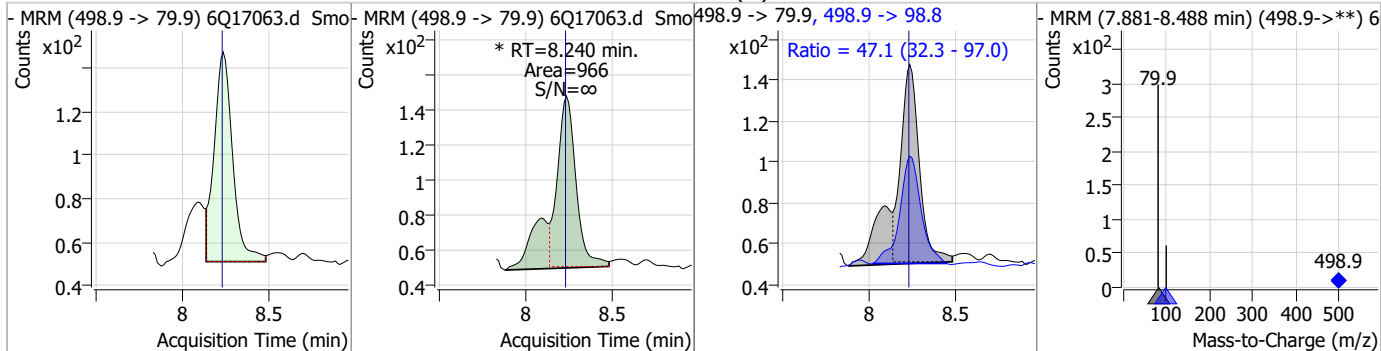
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSAA	5.07	8.13	0.00	22983				



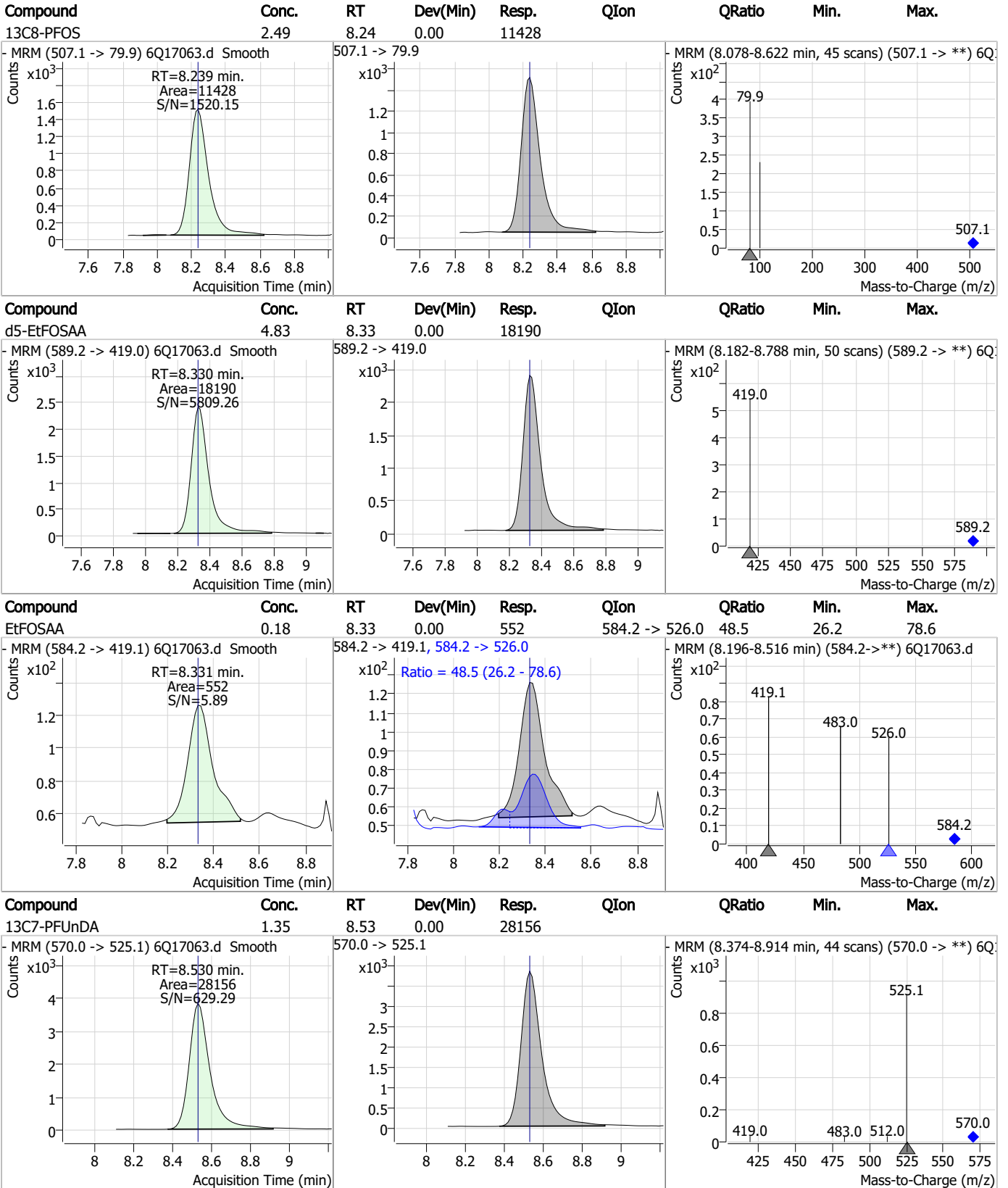
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSAA	0.15	8.14	0.00	651 (m)	570.1 -> 483.0	20.8	7.3	21.9



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFOS	0.18	8.24	0.01	966 (m)	498.9 -> 98.8	47.1	32.3	97.0



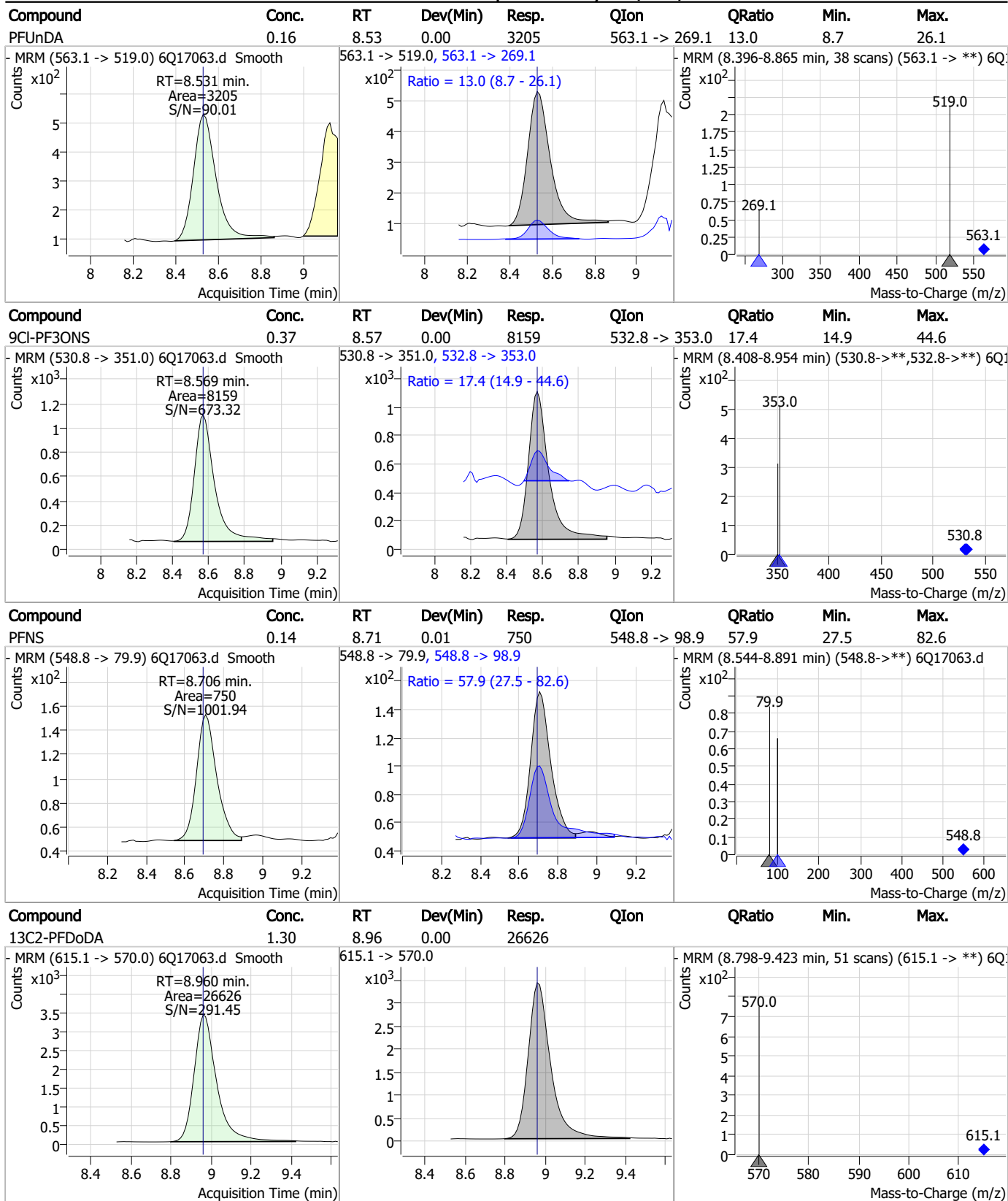
Perfluorinated Compounds by LC/MS/MS



7.7.27

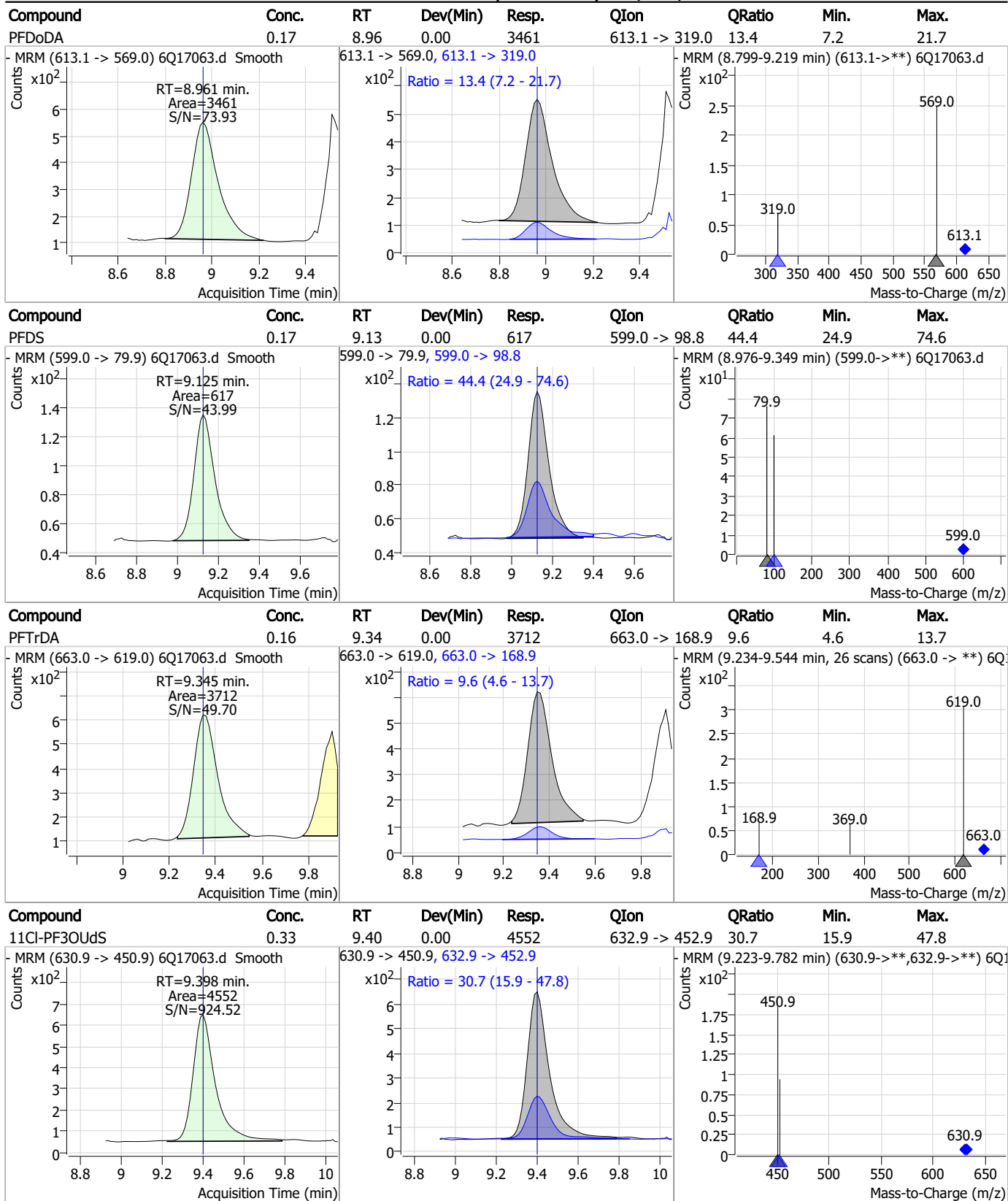


Perfluorinated Compounds by LC/MS/MS



7.7.27
7

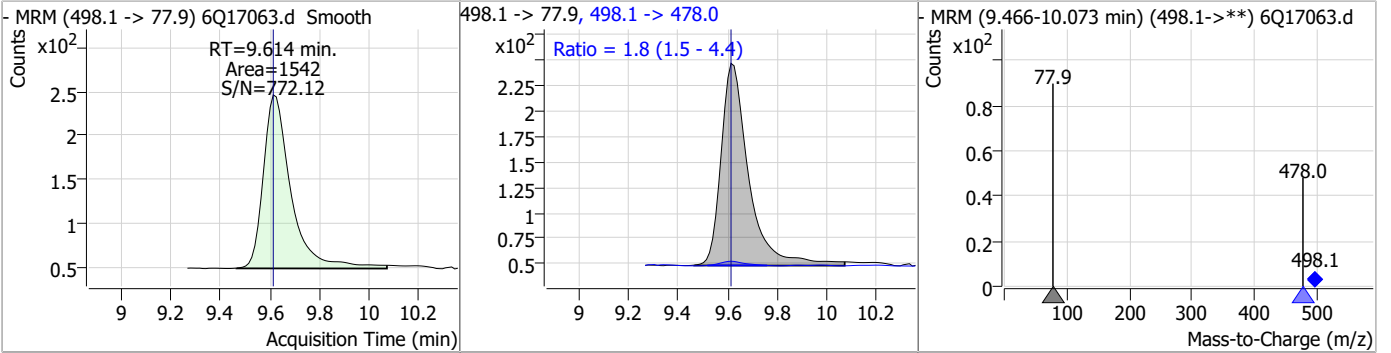
Perfluorinated Compounds by LC/MS/MS



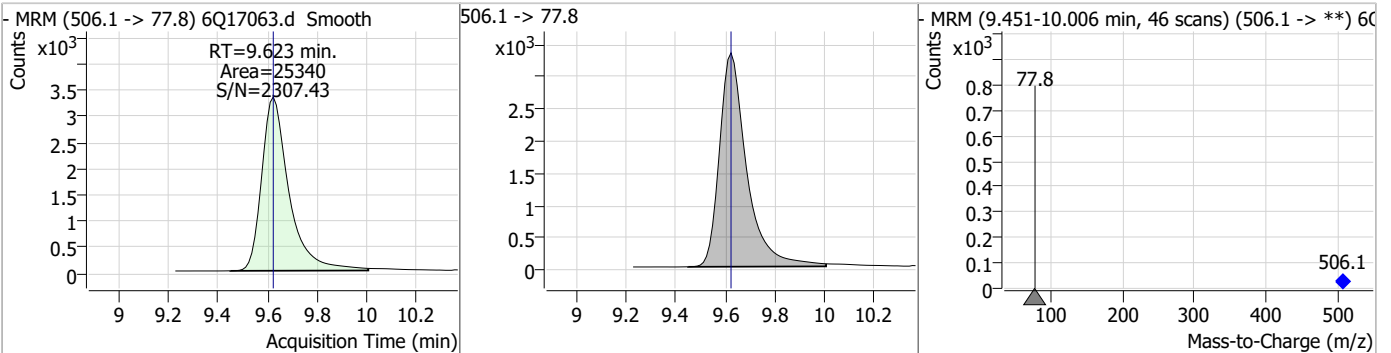
7.7.27
7

Perfluorinated Compounds by LC/MS/MS

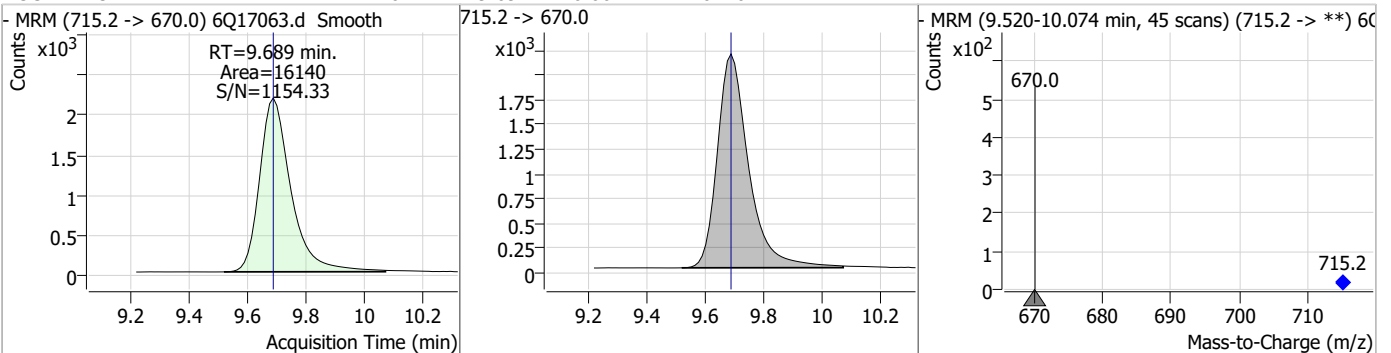
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	0.17	9.61	0.00	1542	498.1 -> 478.0	1.8	1.5	4.4



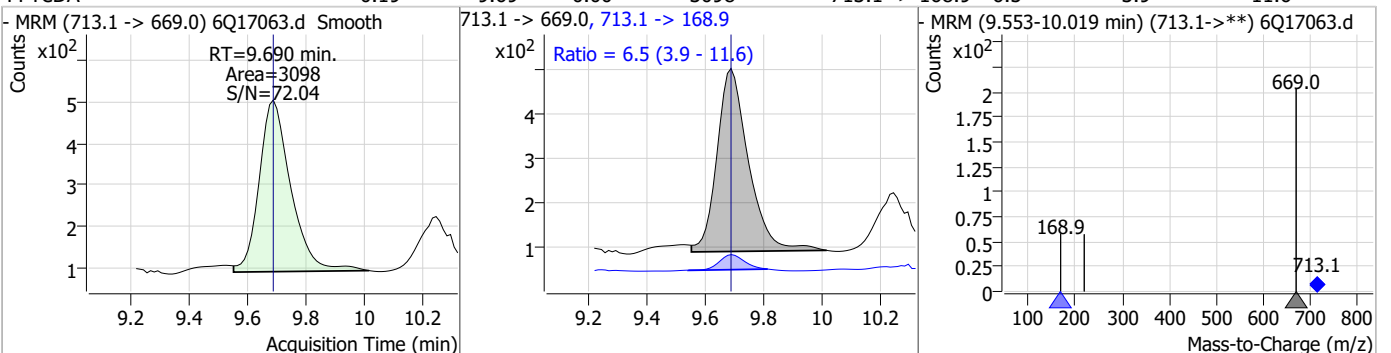
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.52	9.62	0.00	25340				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.16	9.69	0.00	16140				

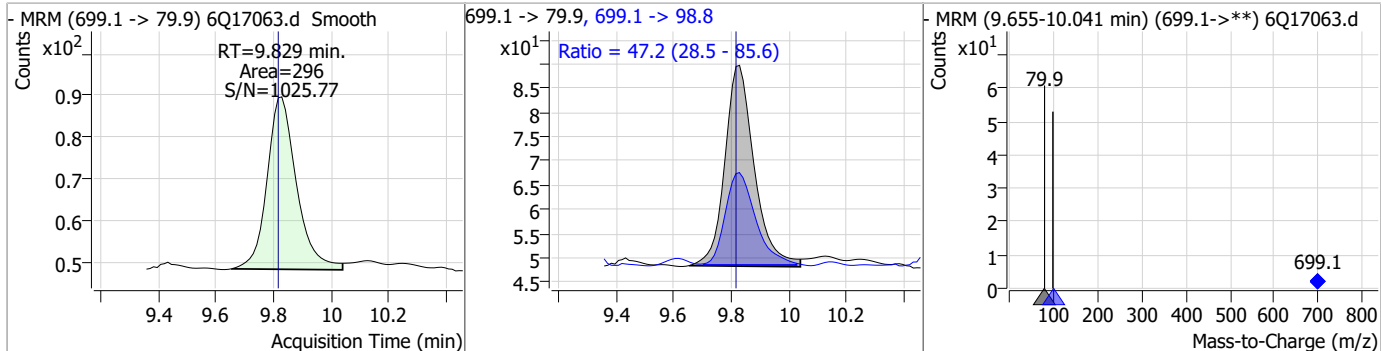


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	0.19	9.69	0.00	3098	713.1 -> 168.9	6.5	3.9	11.6

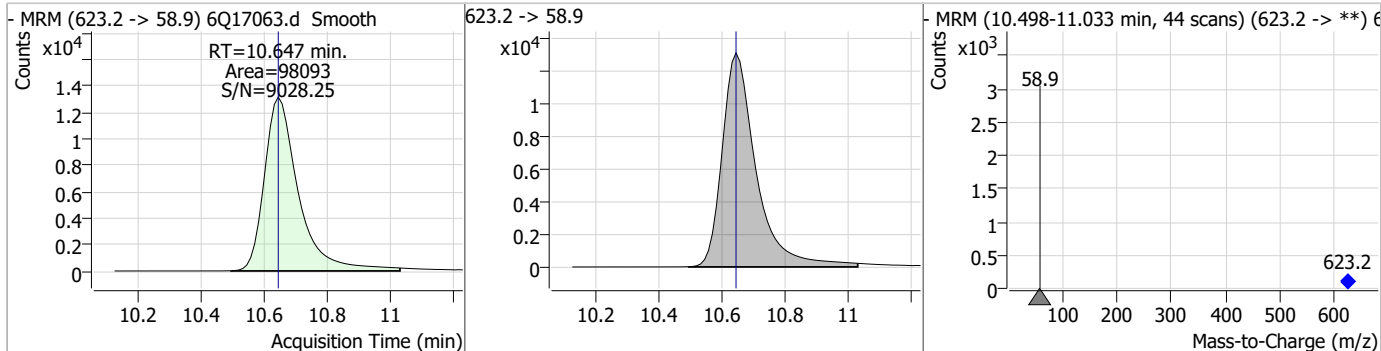


Perfluorinated Compounds by LC/MS/MS

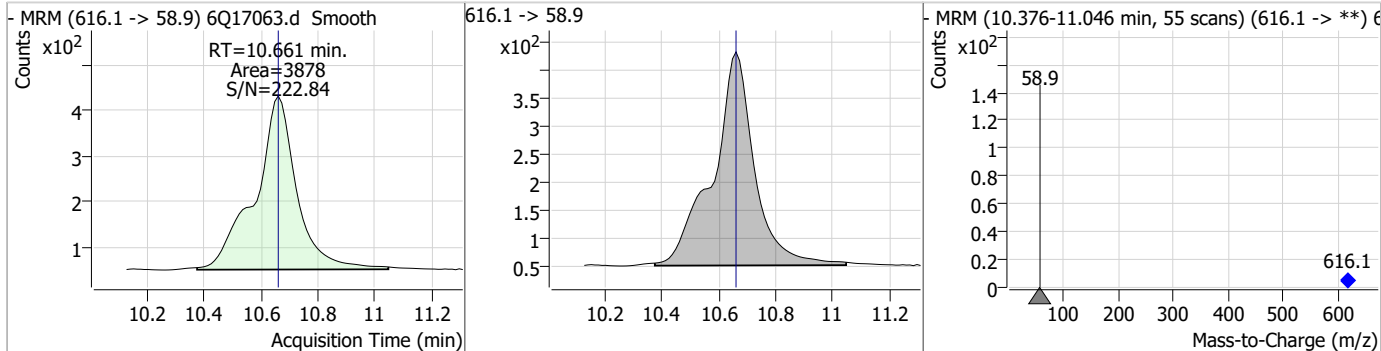
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFD _o DS	0.16	9.83	0.01	296	699.1 -> 98.8	47.2	28.5	85.6



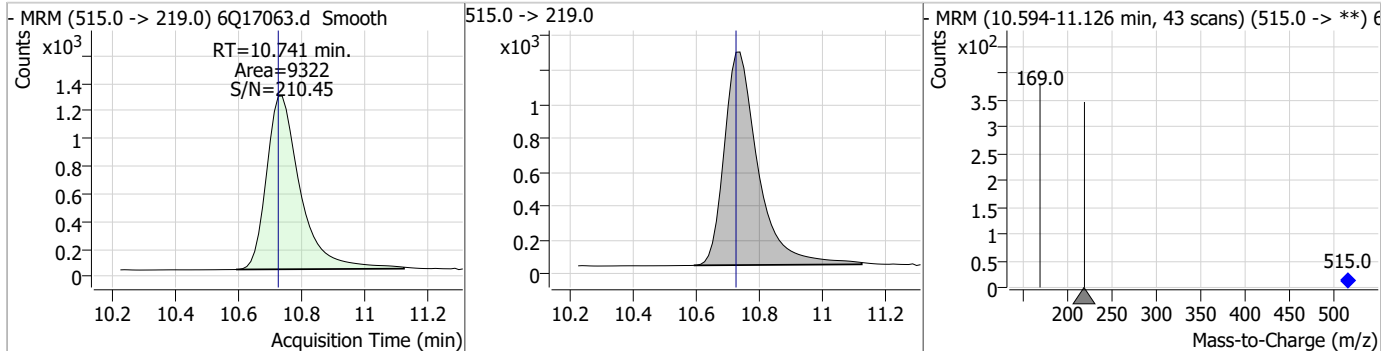
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.57	10.65	0.00	98093				



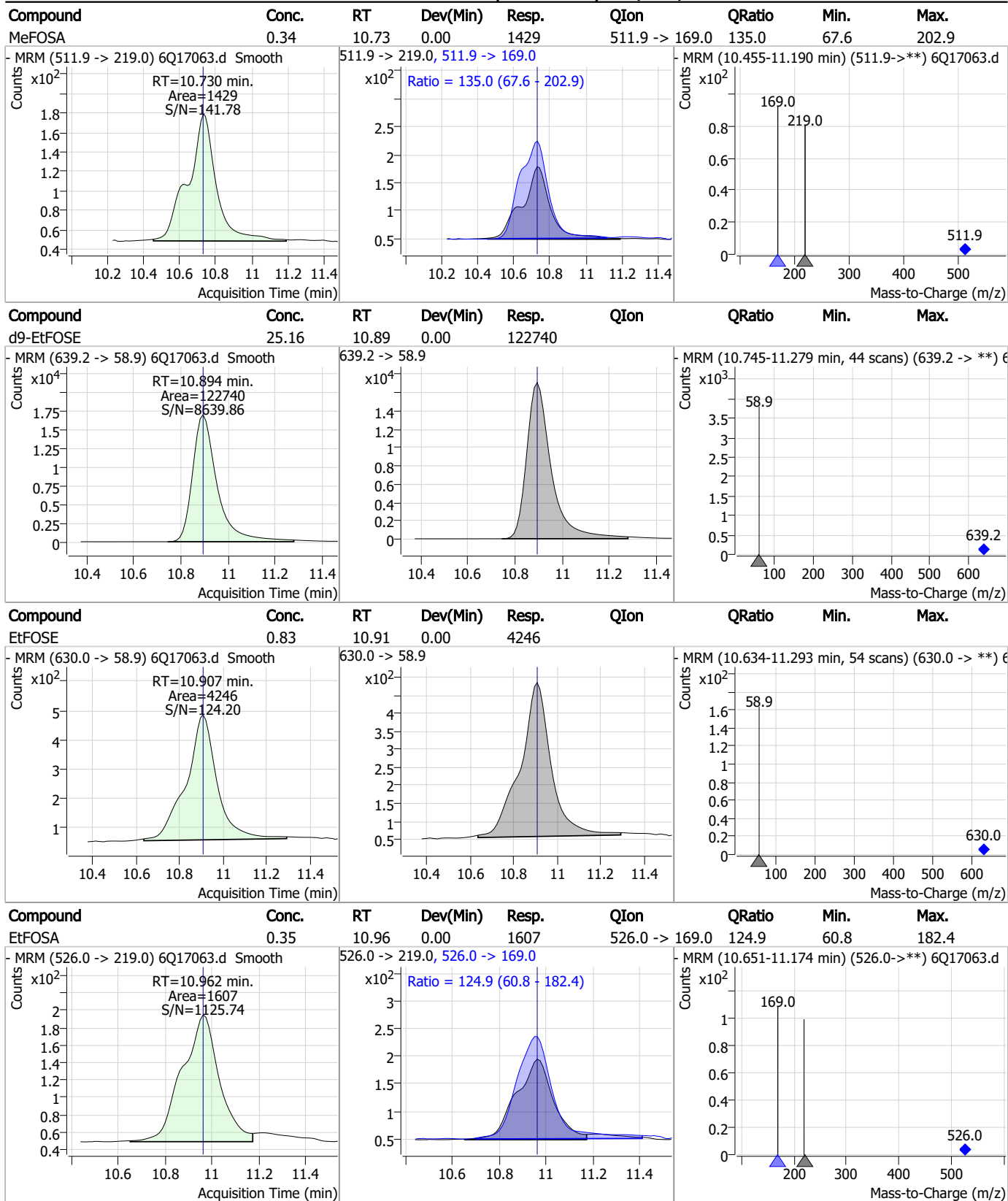
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	0.89	10.66	0.00	3878				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.45	10.74	0.01	9322				

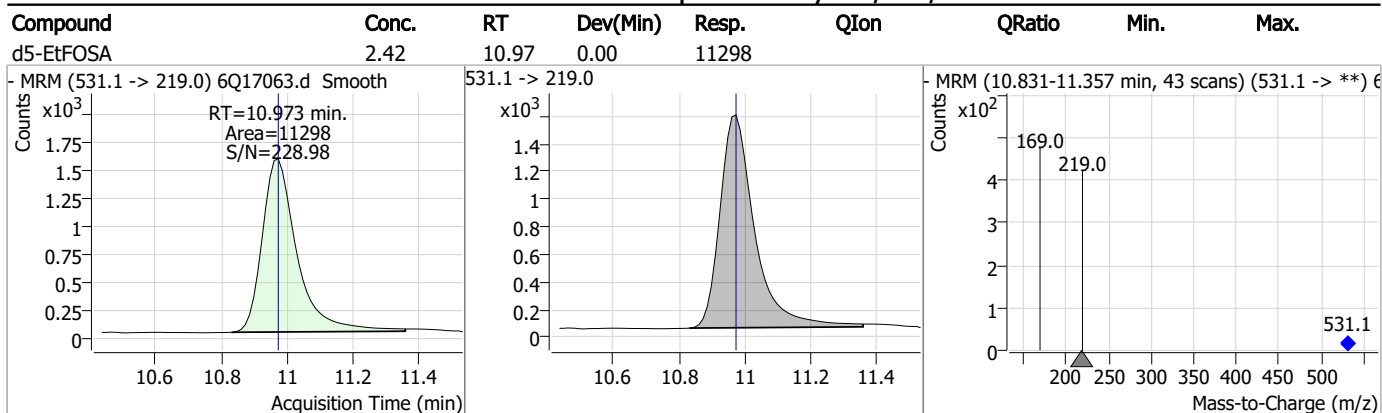


Perfluorinated Compounds by LC/MS/MS



7.7.27
7

Perfluorinated Compounds by LC/MS/MS



7.7.27
7



Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17063.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 15:44 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluoroheptanesulfonic acid	375-92-8		7.75	Split peak
8:2 Fluorotelomer sulfonate	39108-34-4		7.87	Split peak
MeFOSAA	2355-31-9		8.14	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.24	Split peak

7.7.27.1
7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17070.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 5:25:33 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	183594	10.00 µg/L	0.012
M5-PFPeA	4.283	268.3 -> 223.0	64502	5.00 µg/L	0.012
M5-PFHxA	5.480	318.0 -> 273.0	67327	2.50 µg/L	0.012
M4-PFHpA	6.431	367.1 -> 322.0	56790	2.50 µg/L	0.012
M8-PFOA	7.074	421.1 -> 376.0	84161	2.50 µg/L	0.012
M9-PFNA	7.594	472.1 -> 427.0	27889	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19826	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	27631	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25085	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17587	1.25 µg/L	0.000
M8-FOSA	9.611	506.1 -> 77.8	24900	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	22532	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12430	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	12009	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2292	5.00 µg/L	0.000
M2-6:2FTS	6.851	429.1 -> 80.9	2794	5.00 µg/L	0.012
M2-8:2FTS	7.864	529.1 -> 80.9	2883	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	21433	5.00 µg/L	0.000
M3-HFPO-DA	5.845	286.9 -> 168.9	40864	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	18583	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	97247	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	122658	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11311	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8938	2.50 µg/L	0.000
13C4-PFOS	8.239	502.8 -> 79.9	15280	2.50 µg/L	0.000
13C3-PFBA	2.902	216.0 -> 172.0	80508	5.00 µg/L	0.000
18O2-PFHxS	7.190	403.0 -> 83.9	9596	2.50 µg/L	0.012
13C4-PFOA	7.075	417.1 -> 372.0	82517	2.50 µg/L	0.012
13C2-PFDA	8.076	515.1 -> 470.1	23971	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	28386	1.25 µg/L	0.000
13C2-PFHxA	5.482	315.1 -> 270.0	58127	2.50 µg/L	0.012
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2292	5.20 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.9%		
13C2-6:2FTS	6.851	429.1 -> 80.9	2794	5.22 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 104.4%		
13C2-8:2FTS	7.864	529.1 -> 80.9	2883	5.01 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25085	1.26 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.6%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17587	1.30 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C3-PFBS	5.398	302.1 -> 79.9	22532	2.50 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.9%		
13C3-PFHxS	7.179	402.1 -> 79.9	12430	2.43 µg/L	0.000

7.7.28
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 = 97.3%		
13C4-PFBA	2.910	216.8 -> 171.9	183594	9.87 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 98.7%		
13C4-PFHpA	6.431	367.1 -> 322.0	56790	2.39 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 95.5%		
13C5-PFHxA	5.480	318.0 -> 273.0	67327	2.40 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.1%		
13C5-PFPeA	4.283	268.3 -> 223.0	64502	4.97 µg/L	0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
13C6-PFDA	8.076	519.1 -> 474.1	19826	1.25 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 100.3%		
13C7-PFUnDA	8.530	570.0 -> 525.1	27631	1.37 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 109.2%		
13C8-FOSA	9.611	506.1 -> 77.8	24900	2.46 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 98.6%		
13C8-PFOA	7.074	421.1 -> 376.0	84161	2.64 µg/L	0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 105.7%		
13C8-PFOS	8.239	507.1 -> 79.9	12009	2.61 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 104.3%		
13C9-PFNA	7.594	472.1 -> 427.0	27889	1.29 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 103.1%		
d3-MeFOSAA	8.134	573.2 -> 419.0	21433	4.71 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 94.1%		
13C3-HFPO-DA	5.845	286.9 -> 168.9	40864	9.93 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.3%		
d3-MeFOSA	10.728	515.0 -> 219.0	8938	2.34 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.7%		
d5-EtFOSAA	8.330	589.2 -> 419.0	18583	4.91 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 98.2%		
d7-MeFOSE	10.647	623.2 -> 58.9	97247	24.25 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.0%		
d9-EtFOSE	10.894	639.2 -> 58.9	122658	25.03 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 100.1%		
d5-EtFOSA	10.960	531.1 -> 219.0	11311	2.41 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 96.5%		
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32074	9.25 µg/L	98
		327.1 -> 80.9	12296		
6:2FTS	6.839	427.1 -> 407.0	29477	9.59 µg/L	95
		427.1 -> 80.9	9625		
8:2FTS	7.865	527.1 -> 507.0	16172	9.43 µg/L	99
		527.1 -> 80.8	6733		
EtFOSAA	8.331	584.2 -> 419.1	7944	2.52 µg/L	97
		584.2 -> 526.0	3983		
FOSA	9.614	498.1 -> 77.9	21747	2.44 µg/L	99
		498.1 -> 478.0	675		
MeFOSAA	8.136	570.1 -> 419.0	10663	2.65 µg/L	91
		570.1 -> 483.0	1963		
PFBA	2.906	212.8 -> 168.9	62697	10.18 µg/L	100
PFBS	5.412	298.7 -> 79.9	22804	2.26 µg/L	97
		298.7 -> 98.8	8918		
PFDA	8.077	512.9 -> 469.0	60032	2.79 µg/L	97
		512.9 -> 219.0	9263		
PFDODA	8.961	613.1 -> 569.0	48625	2.47 µg/L	100
		613.1 -> 319.0	7127		
PFDS	9.125	599.0 -> 79.9	9034	2.36 µg/L	95

7.7.28
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.432	599.0 -> 98.8	4194	2.66	µg/L	99
		363.1 -> 319.0	74528			
PFHpS	7.734	363.1 -> 169.0	11293	2.14	µg/L	99
		449.0 -> 79.9	13915			
PFHxA	5.470	449.0 -> 98.9	7164	2.57	µg/L	100
		313.0 -> 269.0	68290			
PFHxS	7.180	313.0 -> 118.9	3113	2.33	µg/L	98
		398.7 -> 79.9	15767			
PFNA	7.595	398.7 -> 98.9	7931	2.30	µg/L	98
		463.0 -> 419.0	44326			
PFNS	8.694	463.0 -> 219.0	9713	2.33	µg/L	96
		548.8 -> 79.9	13493			
PFOA	7.076	548.8 -> 98.9	7014	2.52	µg/L	100
		413.0 -> 369.0	99765			
PFOS	8.228	413.0 -> 169.0	17407	2.09	µg/L	92
		498.9 -> 79.9	12140			
PFPeA	4.285	498.9 -> 98.8	7074	5.13	µg/L	100
		263.0 -> 219.0	90062			
PFPeS	6.484	349.1 -> 79.9	17820	2.52	µg/L	92
		349.1 -> 98.9	7650			
PFTeDA	9.690	713.1 -> 669.0	43102	2.43	µg/L	100
		713.1 -> 168.9	3263			
PFTrDA	9.345	663.0 -> 619.0	58819	2.70	µg/L	99
		663.0 -> 168.9	5241			
PFUnDA	8.531	563.1 -> 519.0	44081	2.30	µg/L	100
		563.1 -> 269.1	7659			
11CI-PF3OUdS	9.398	630.9 -> 450.9	64413	4.59	µg/L	95
		632.9 -> 452.9	22389			
9CI-PF3ONS	8.569	530.8 -> 351.0	105572	4.76	µg/L	91
		532.8 -> 353.0	36411			
ADONA	6.681	376.9 -> 250.9	290971	4.71	µg/L	98
		376.9 -> 84.8	78593			
HFPO-DA	5.846	284.9 -> 168.9	18212	4.71	µg/L	98
		284.9 -> 184.9	2431			
3:3FTCA	3.784	241.0 -> 177.0	13638	12.41	µg/L	97
		241.0 -> 117.0	1659			
5:3FTCA	6.160	341.0 -> 237.1	285653	66.31	µg/L	93
		341.0 -> 217.0	206283			
7:3FTCA	7.573	441.0 -> 316.9	131051	66.96	µg/L	100
		441.0 -> 336.9	283213			
EtFOSA	10.962	526.0 -> 219.0	23222	5.00	µg/L	96
		526.0 -> 169.0	29241			
EtFOSE	10.907	630.0 -> 58.9	63532	12.44	µg/L	100
		511.9 -> 219.0	20560			
MeFOSA	10.730	511.9 -> 169.0	28429	5.11	µg/L	98
		616.1 -> 58.9	55365			
MeFOSE	10.661	699.1 -> 79.9	4644	12.77	µg/L	100
		699.1 -> 98.8	2527			
PFDoDS	9.817	295.0 -> 201.0	15299	2.35	µg/L	96
		295.0 -> 84.9	3723			
NFDHA	5.350	279.0 -> 85.1	59905	5.30	µg/L	100
		229.0 -> 84.9	44849			
PFMBA	4.687	314.8 -> 134.9	160751	5.08	µg/L	100
		314.8 -> 82.9	5462			
PFMPA	3.438			5.10	µg/L	100
PFEESA	5.937			4.79	µg/L	99

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

7.7.28
7

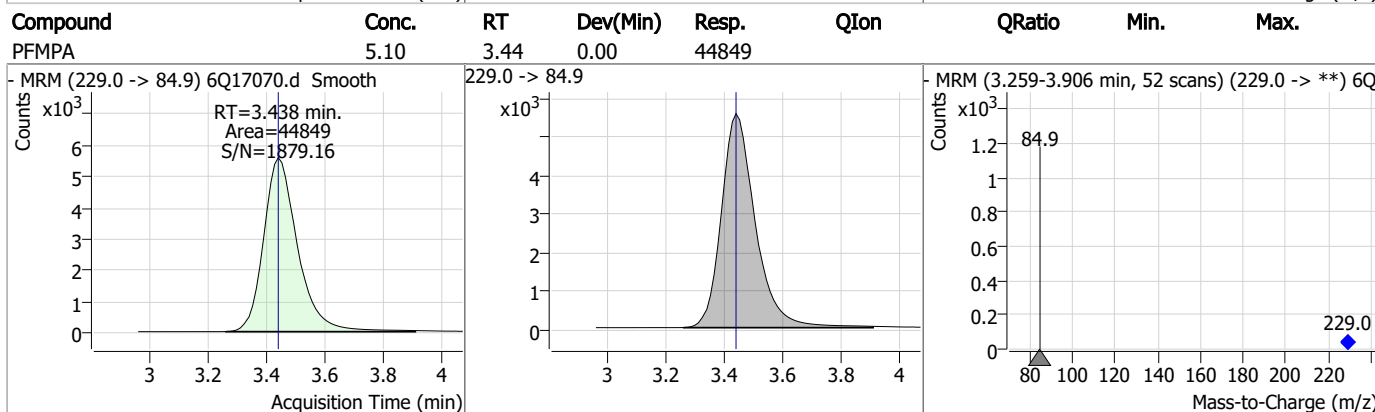
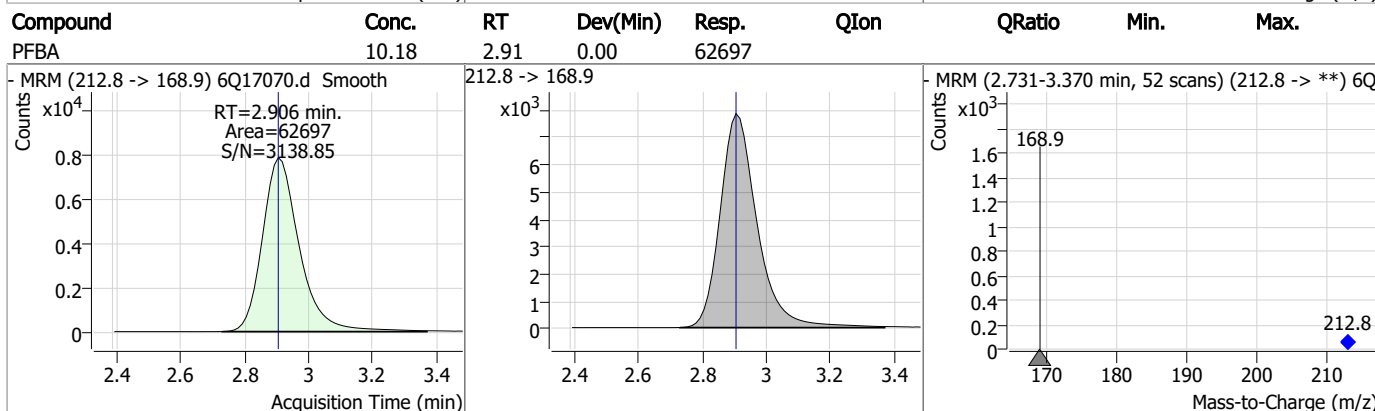
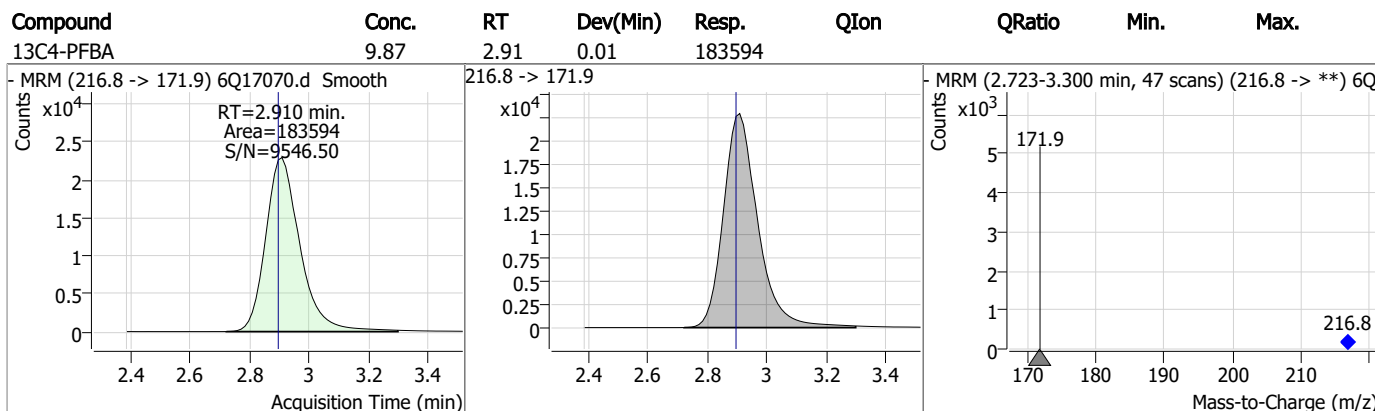
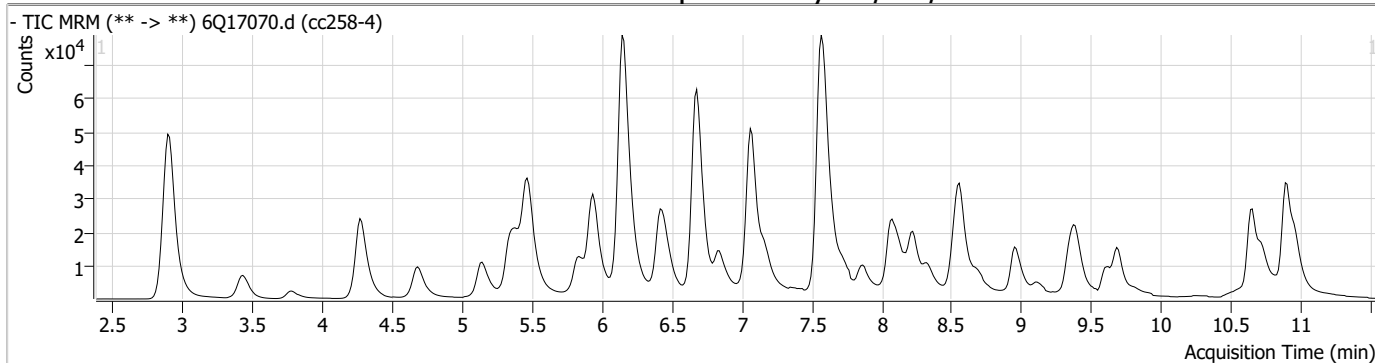
Perfluorinated Compounds by LC/MS/MS

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

7.7.28

7

Perfluorinated Compounds by LC/MS/MS

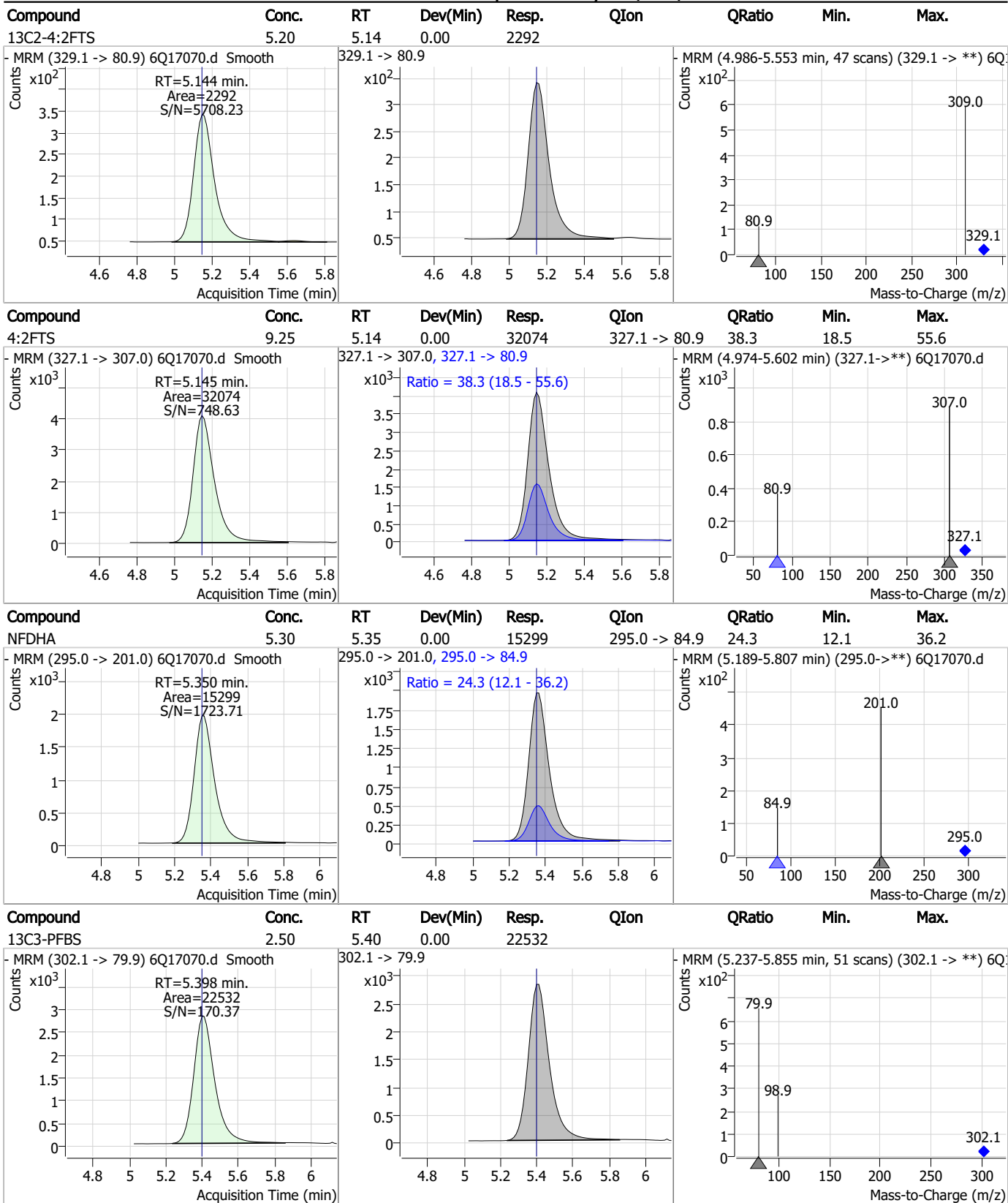


Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.41	3.78	0.00	13638	241.0 -> 117.0	12.2	6.7	20.0
13C5-PFPeA	4.97	4.28	0.01	64502	268.3 -> 223.0			
PFPeA	5.13	4.29	0.01	90062	263.0 -> 219.0			
PFMBA	5.08	4.69	0.00	59905	279.0 -> 85.1			

7.7.28
7

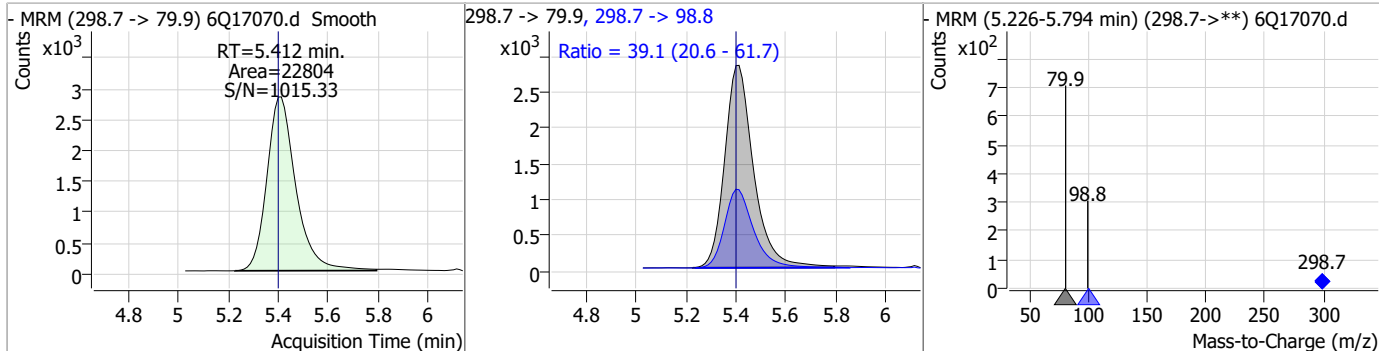
Perfluorinated Compounds by LC/MS/MS



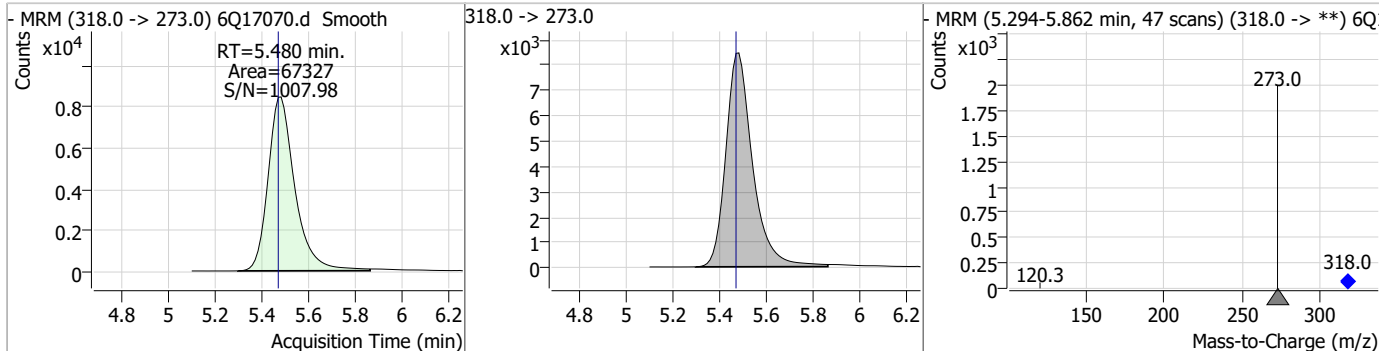
7.7.28
7

Perfluorinated Compounds by LC/MS/MS

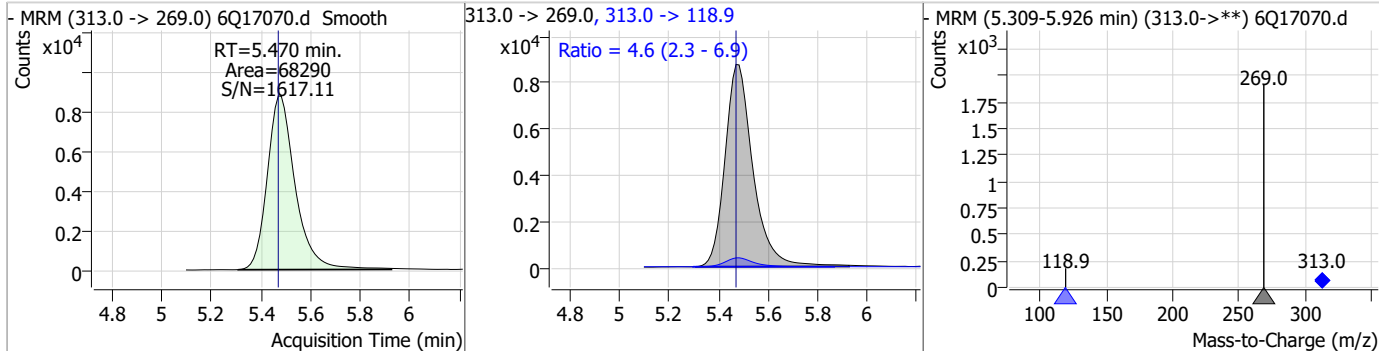
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.26	5.41	0.01	22804	298.7 -> 98.8	39.1	20.6	61.7



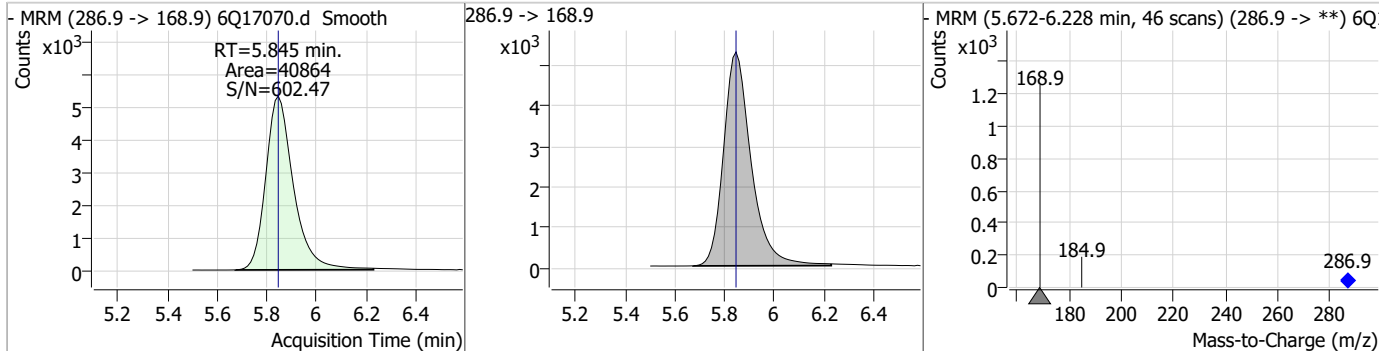
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.40	5.48	0.01	67327	318.0 -> 273.0			



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.57	5.47	0.00	68290	313.0 -> 118.9	4.6	2.3	6.9

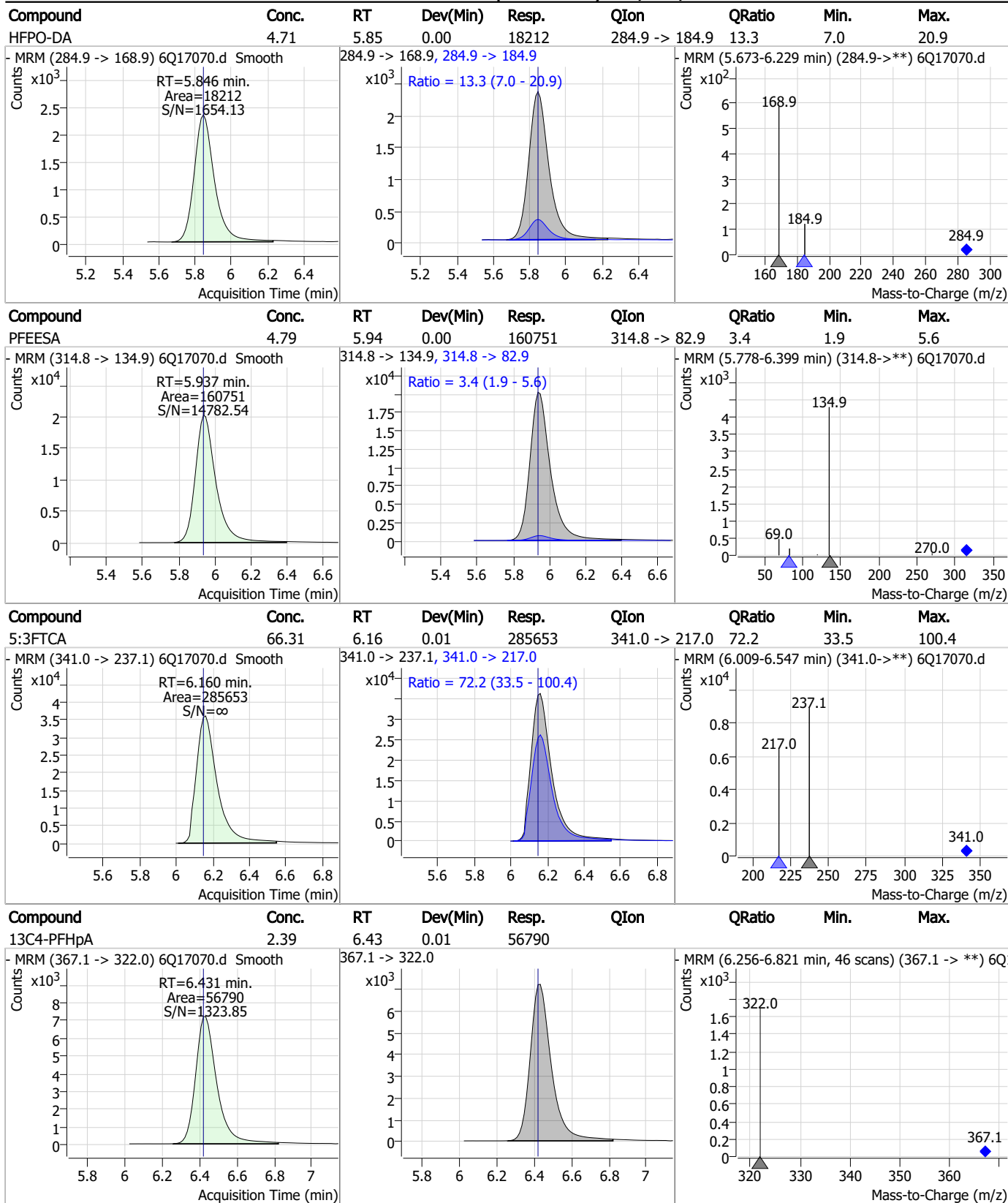


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.93	5.85	0.00	40864	286.9 -> 168.9			



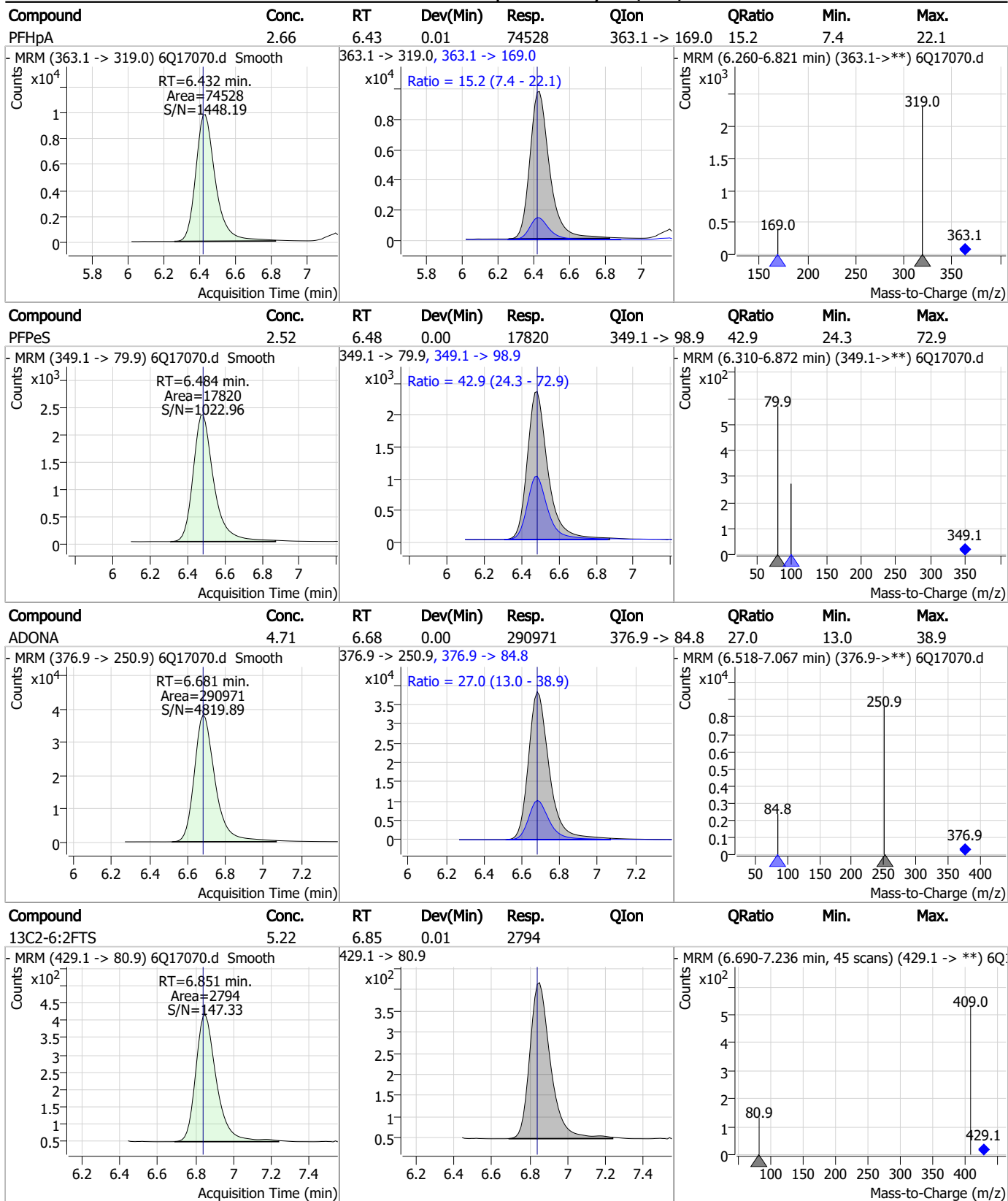
7.7.28
7

Perfluorinated Compounds by LC/MS/MS



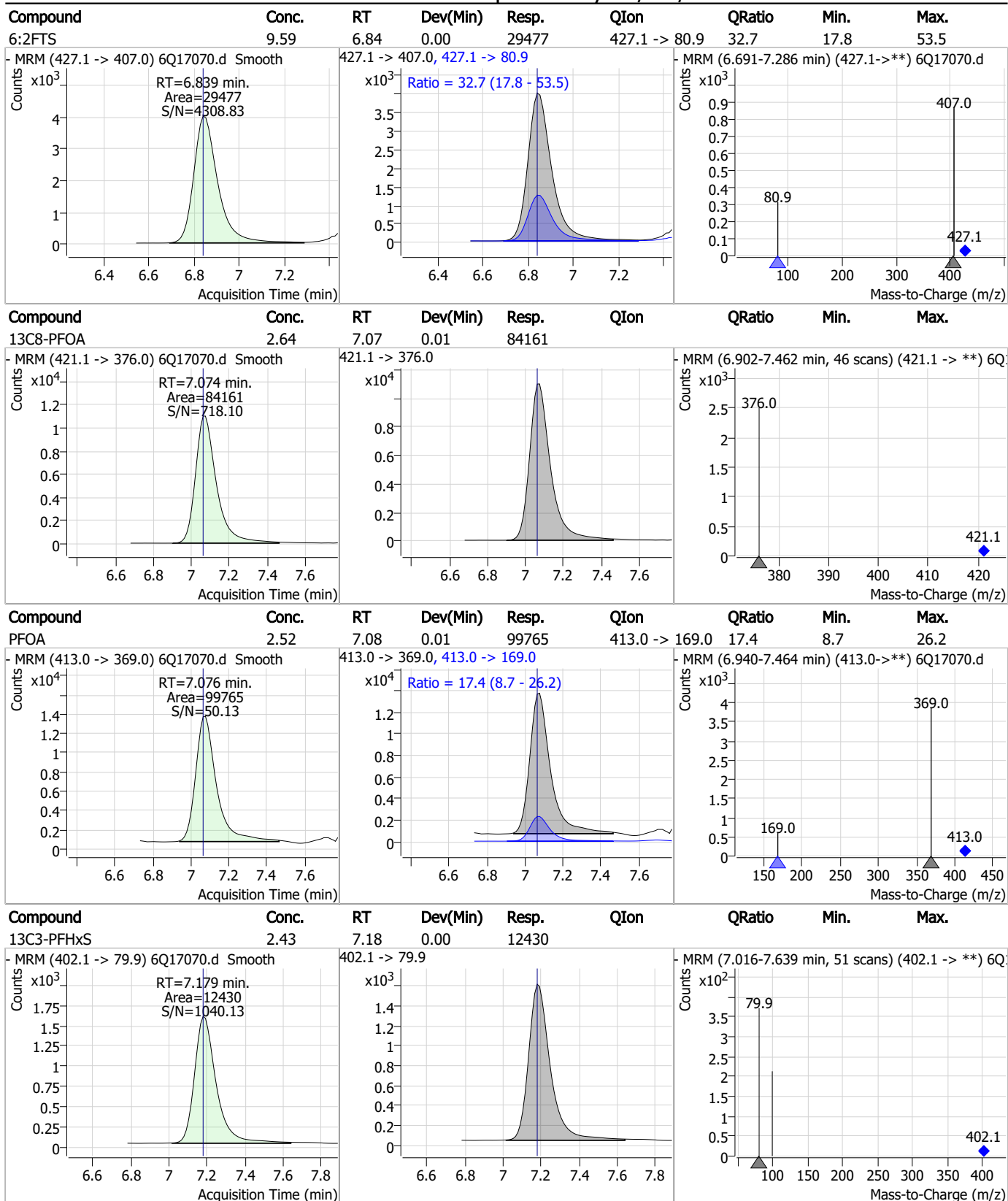
7.7.28
7

Perfluorinated Compounds by LC/MS/MS



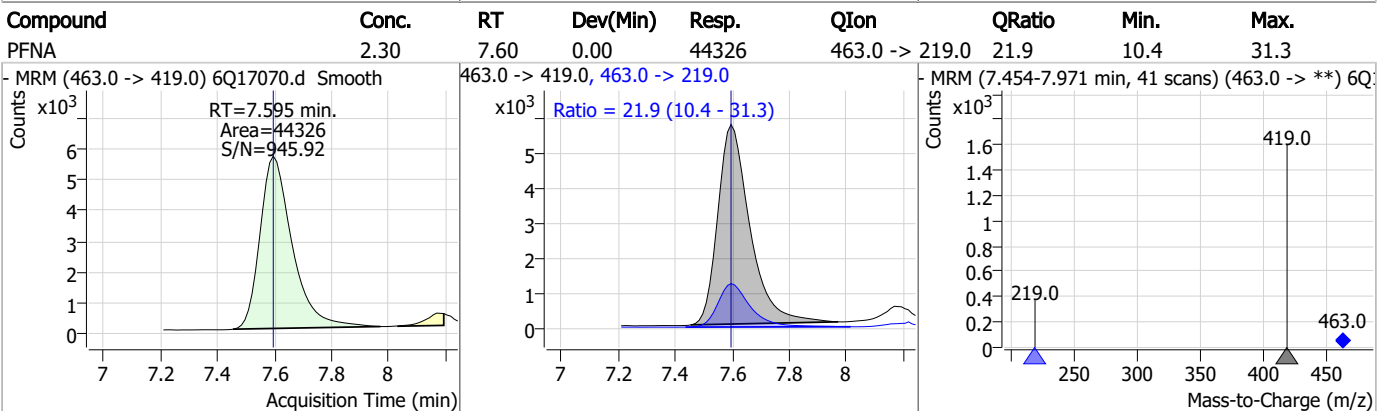
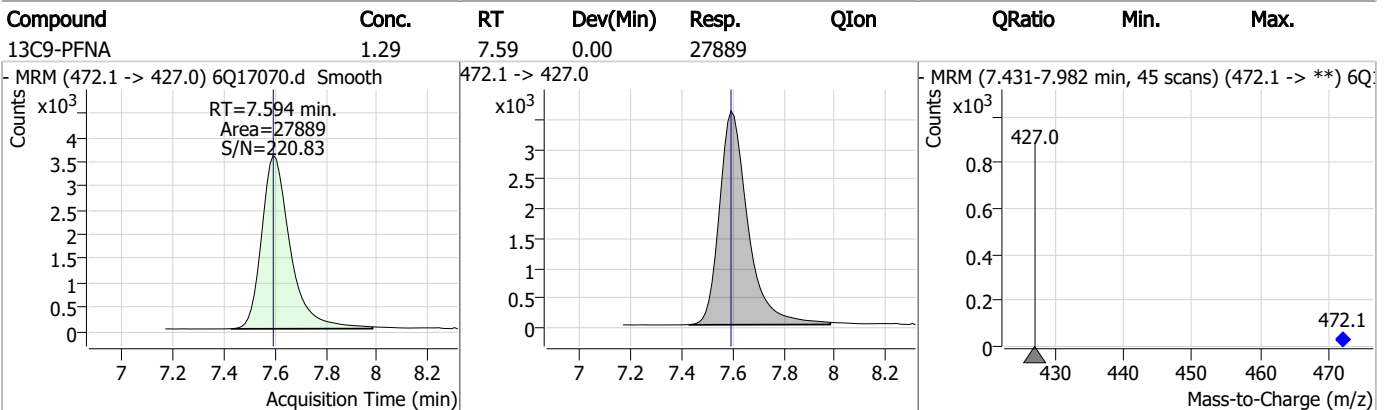
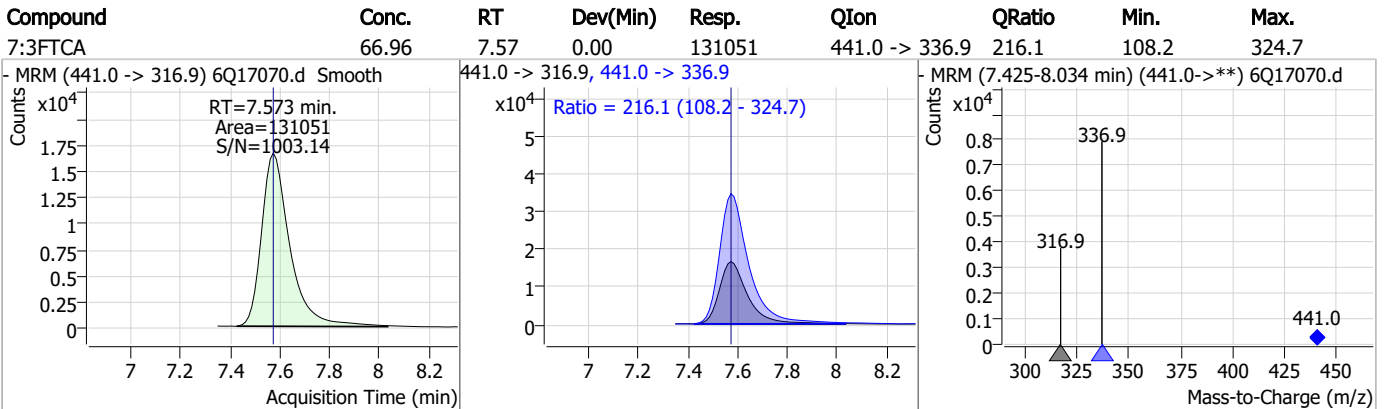
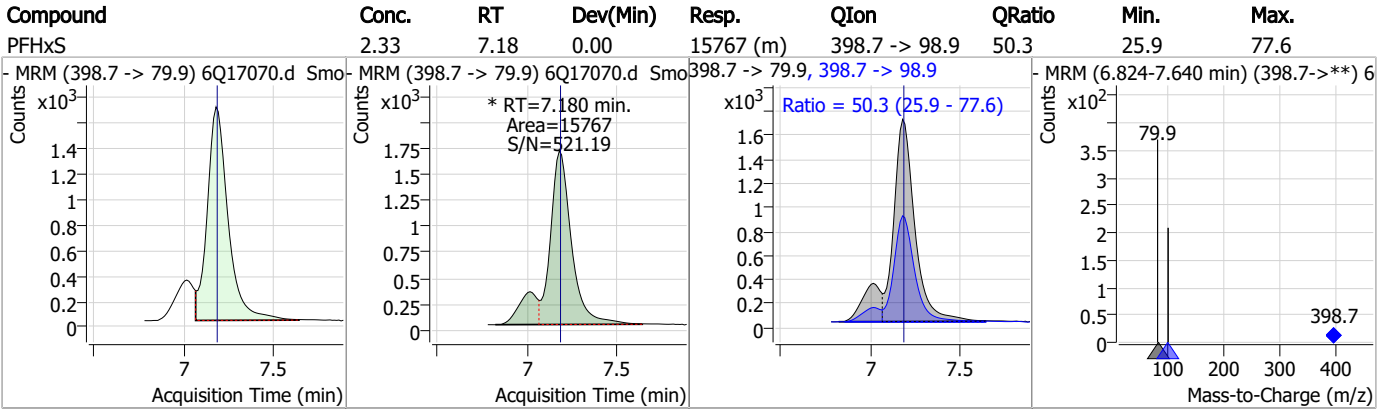
7.7.28
7

Perfluorinated Compounds by LC/MS/MS

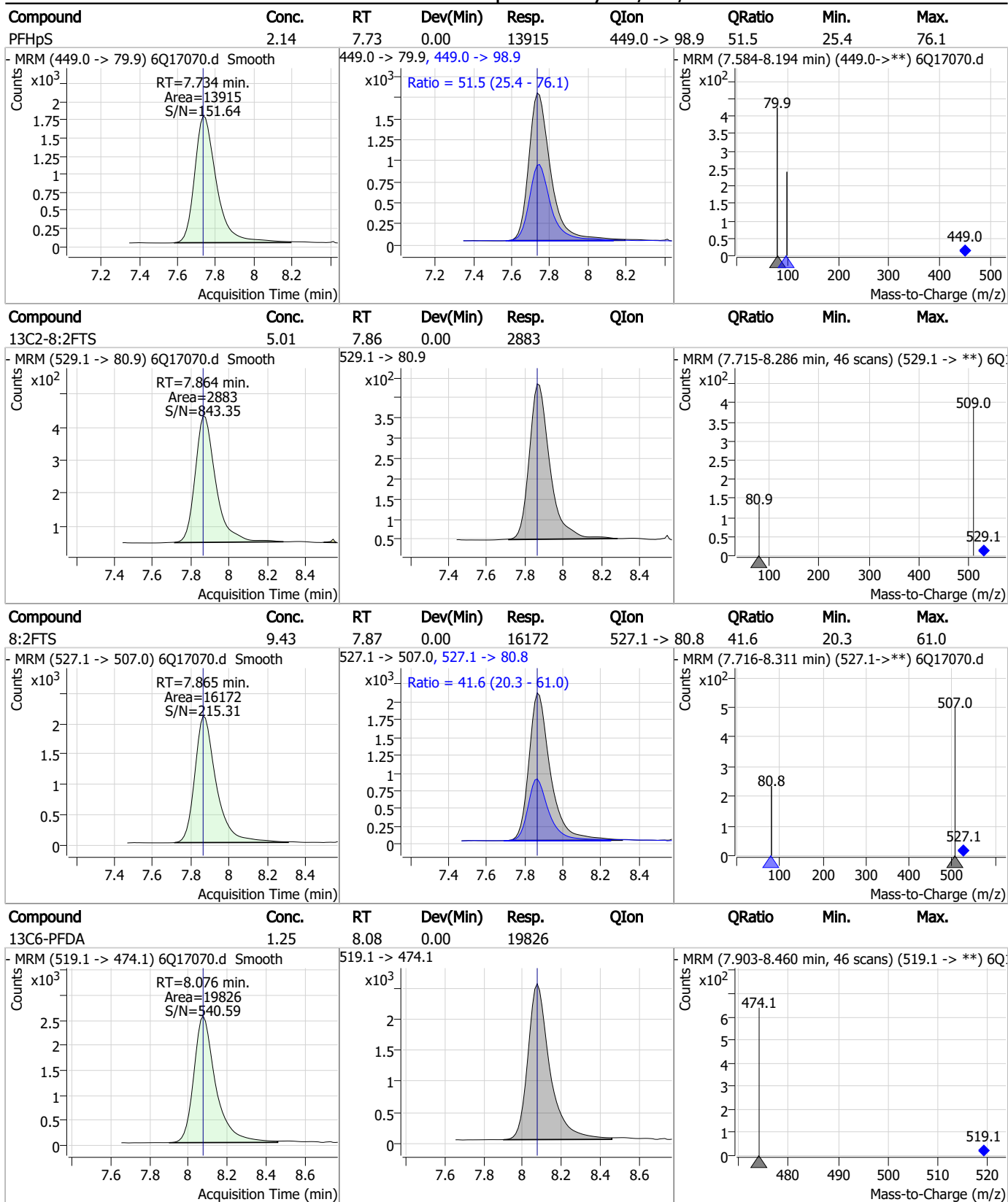


7.7.28
7

Perfluorinated Compounds by LC/MS/MS

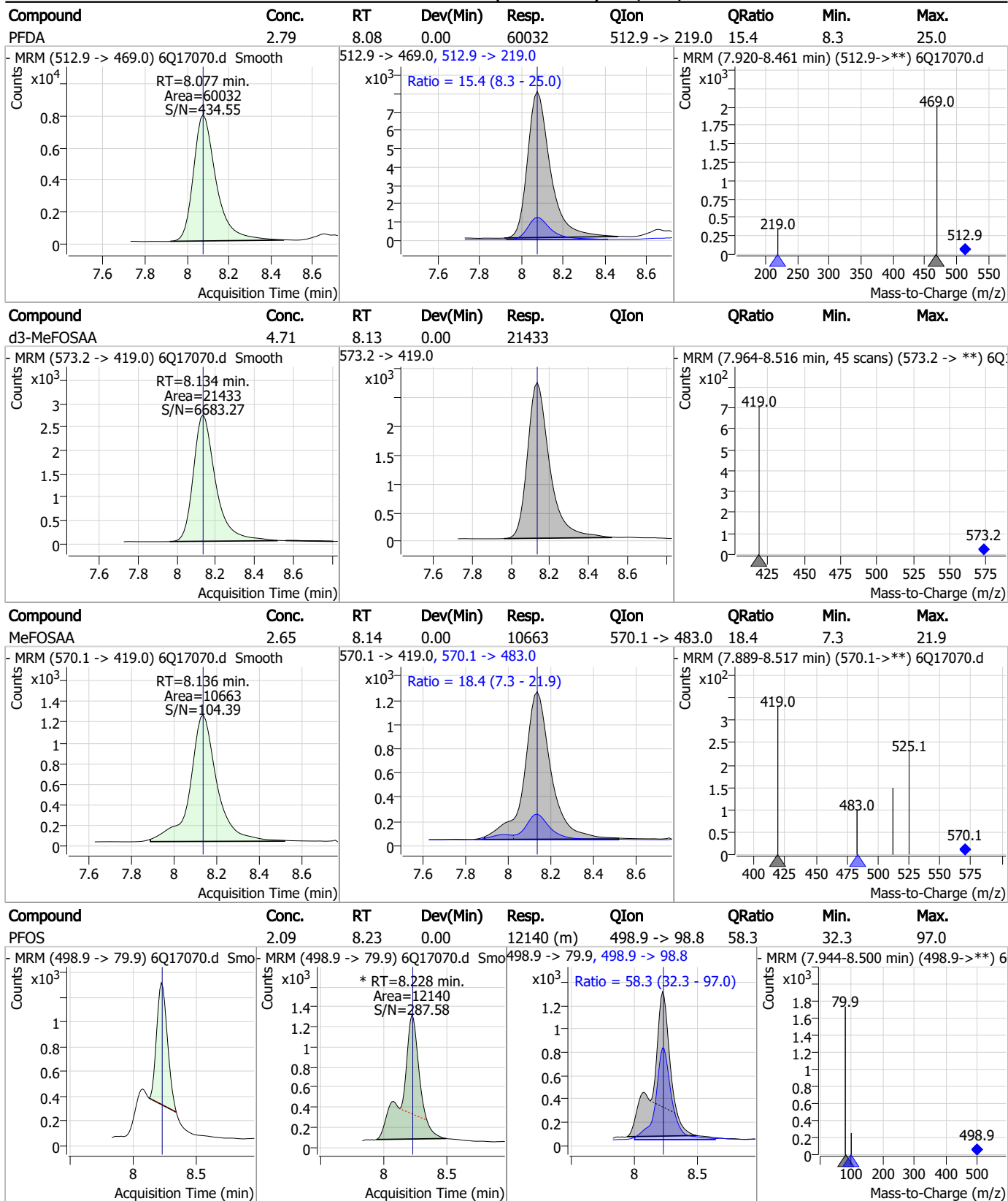


Perfluorinated Compounds by LC/MS/MS



7.7.28
7

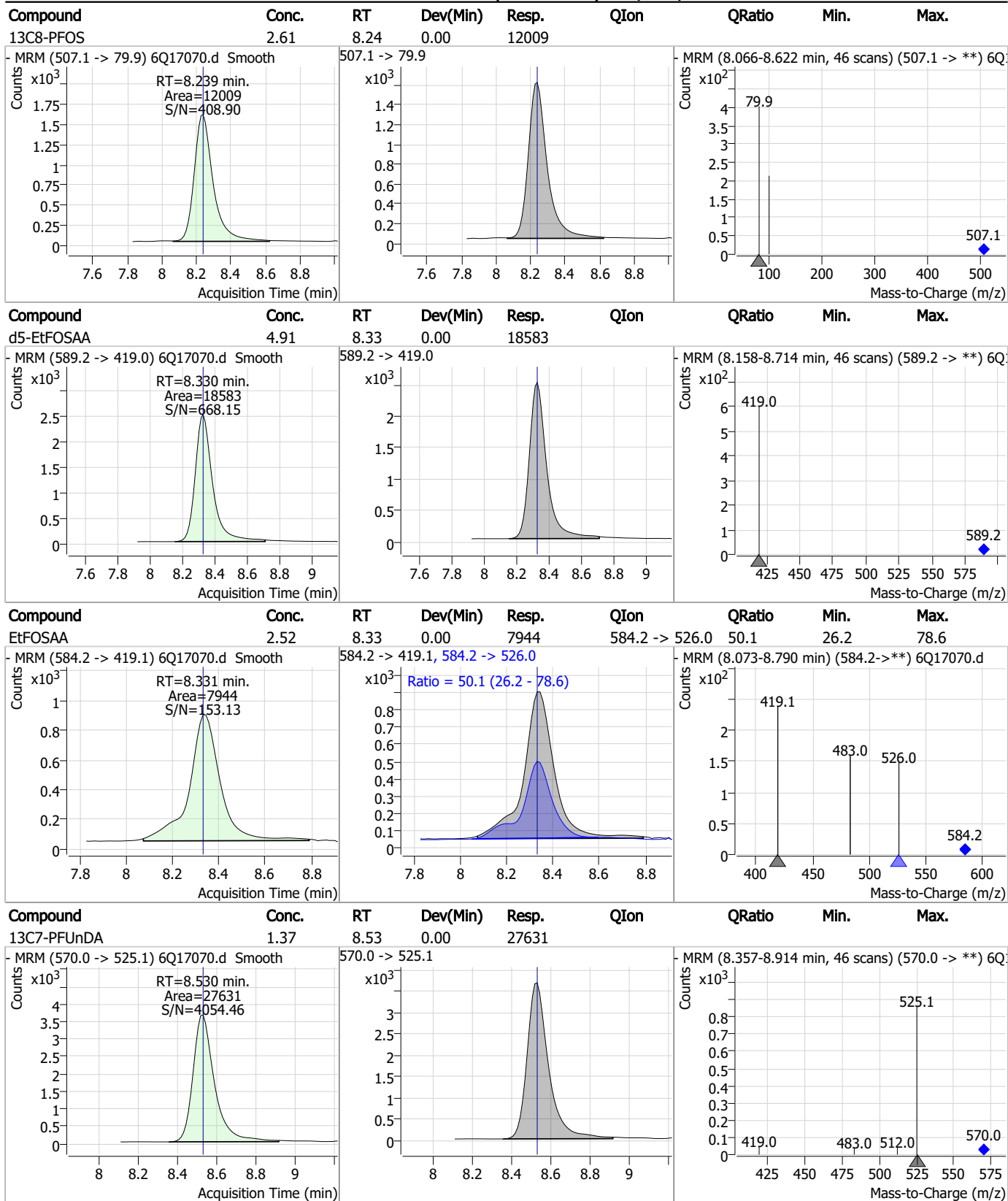
Perfluorinated Compounds by LC/MS/MS



7.7.28
7



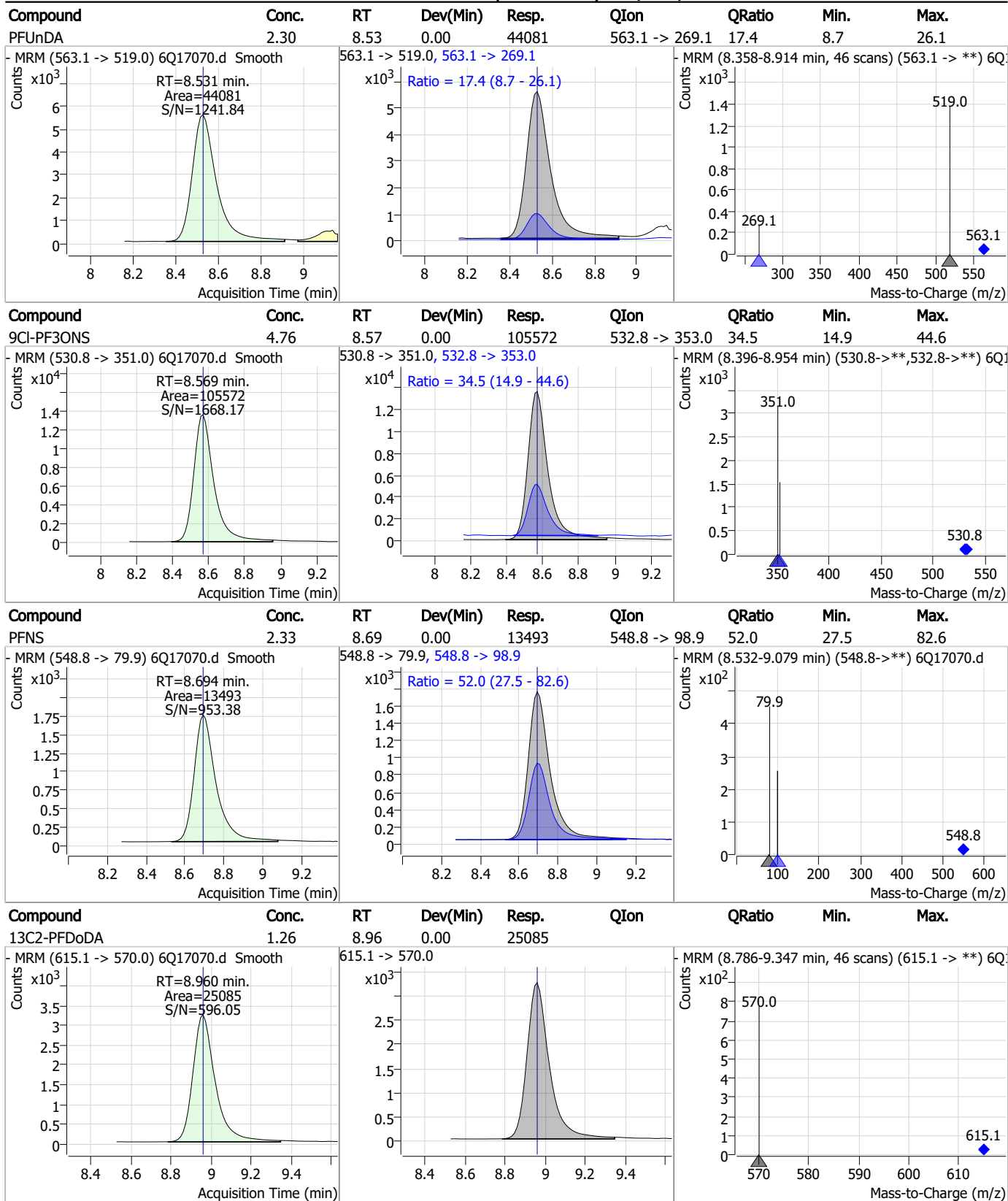
Perfluorinated Compounds by LC/MS/MS



7.7.28

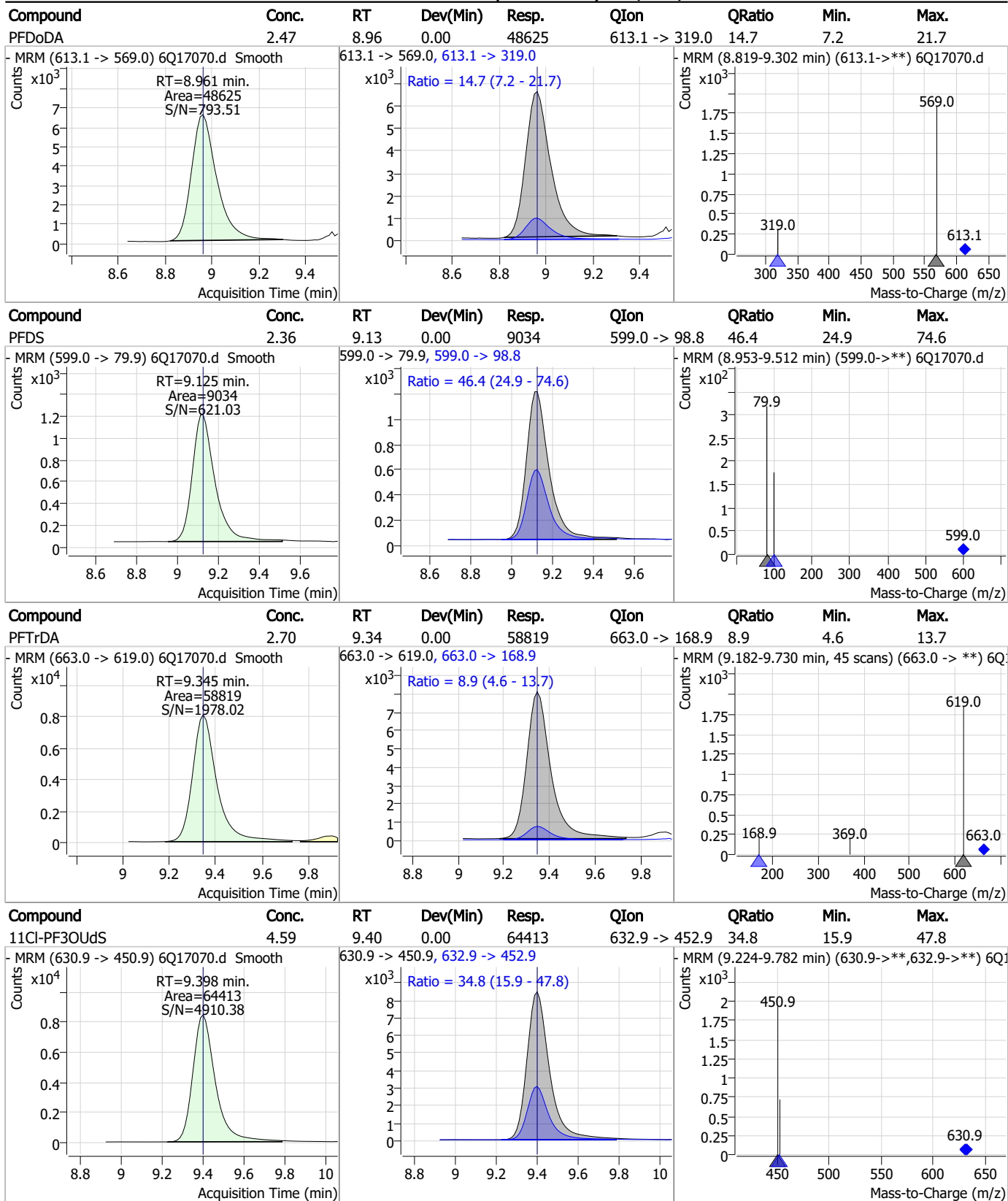
7

Perfluorinated Compounds by LC/MS/MS



7.7.28
7

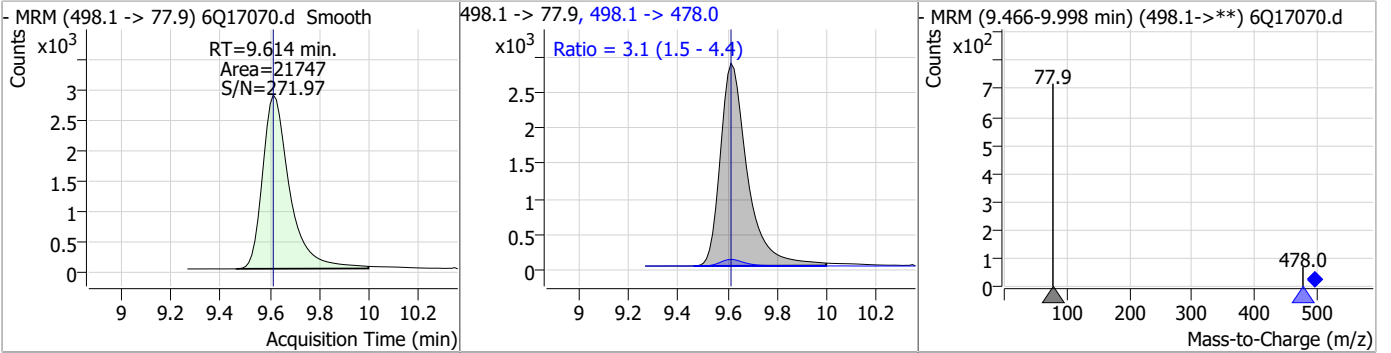
Perfluorinated Compounds by LC/MS/MS



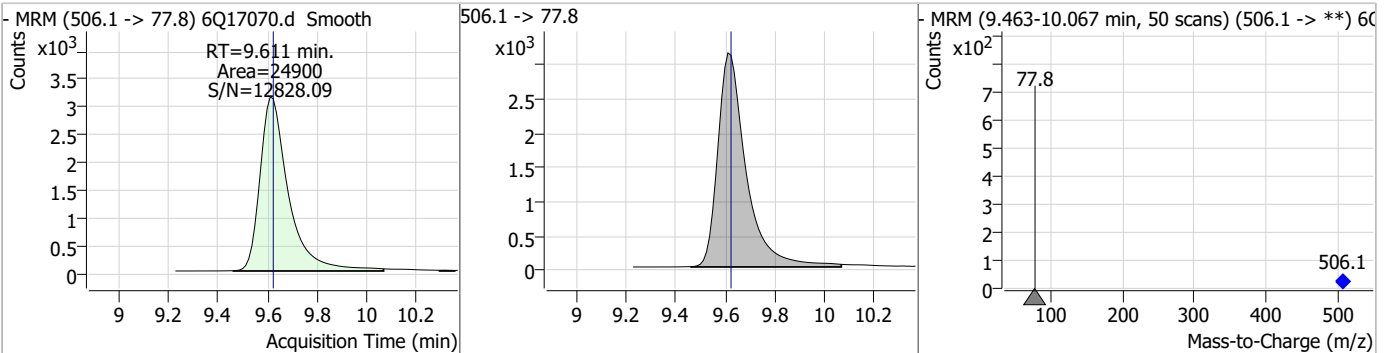
7.7.28
7

Perfluorinated Compounds by LC/MS/MS

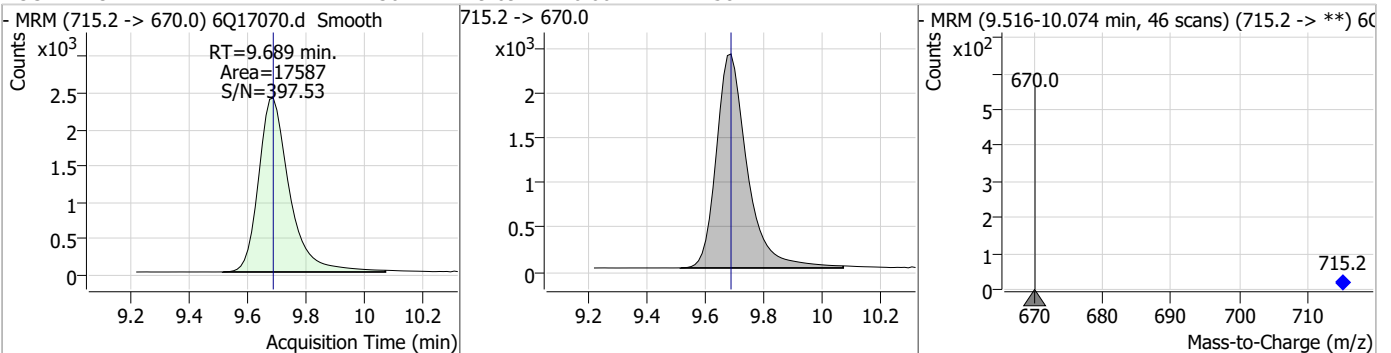
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.44	9.61	0.00	21747	498.1 -> 478.0	3.1	1.5	4.4



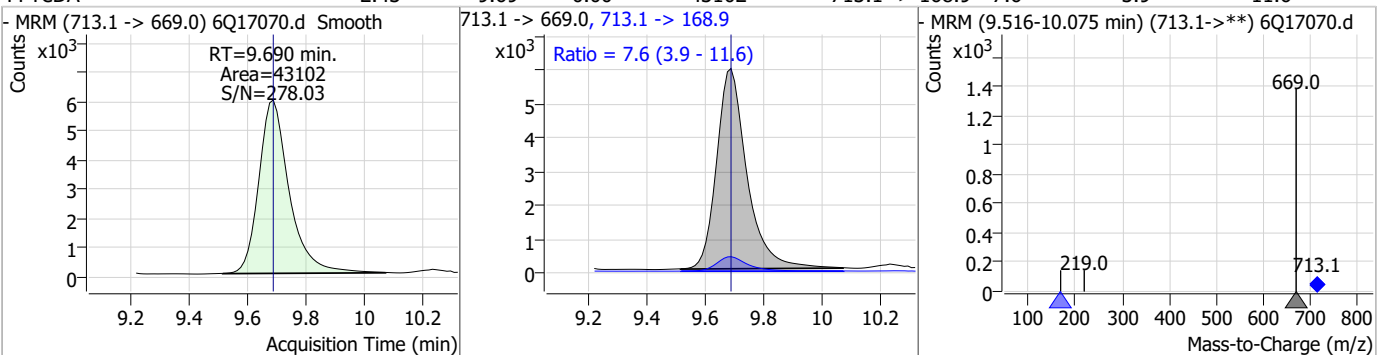
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.46	9.61	-0.01	24900				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.30	9.69	0.00	17587				

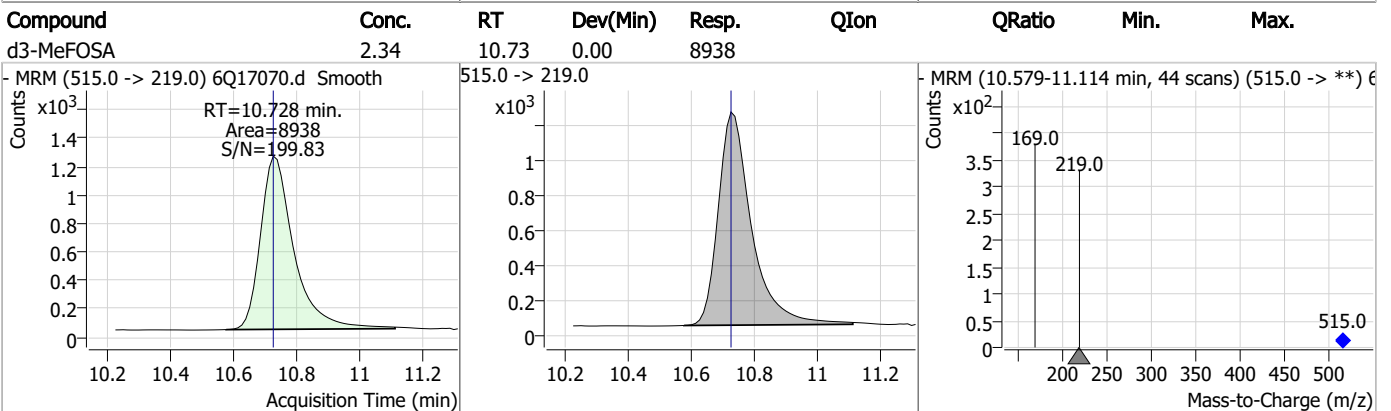
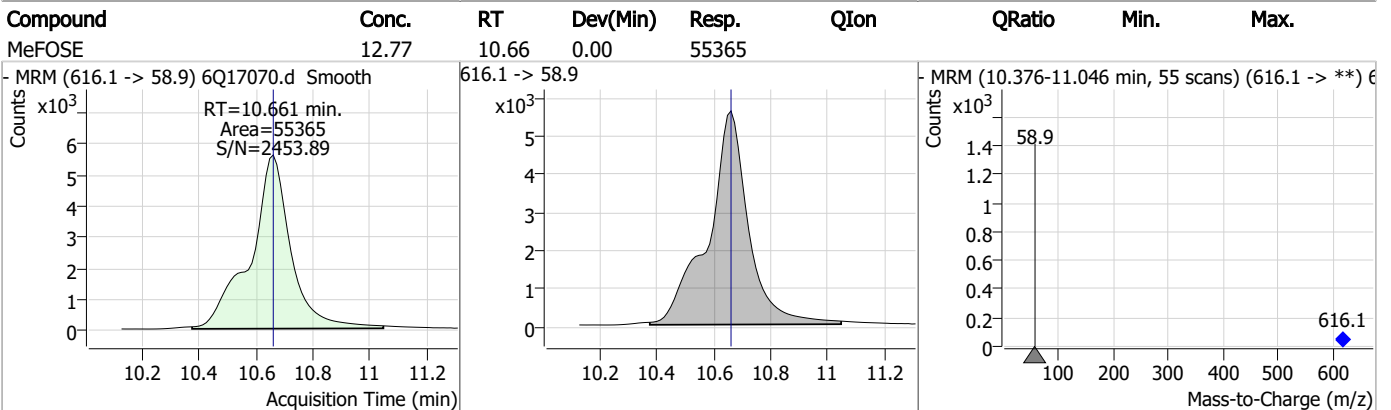
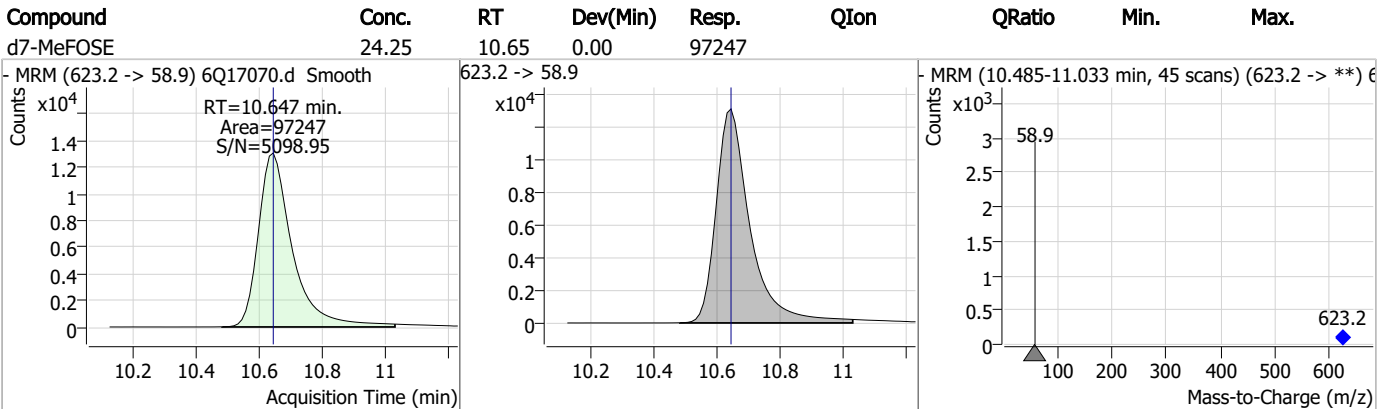
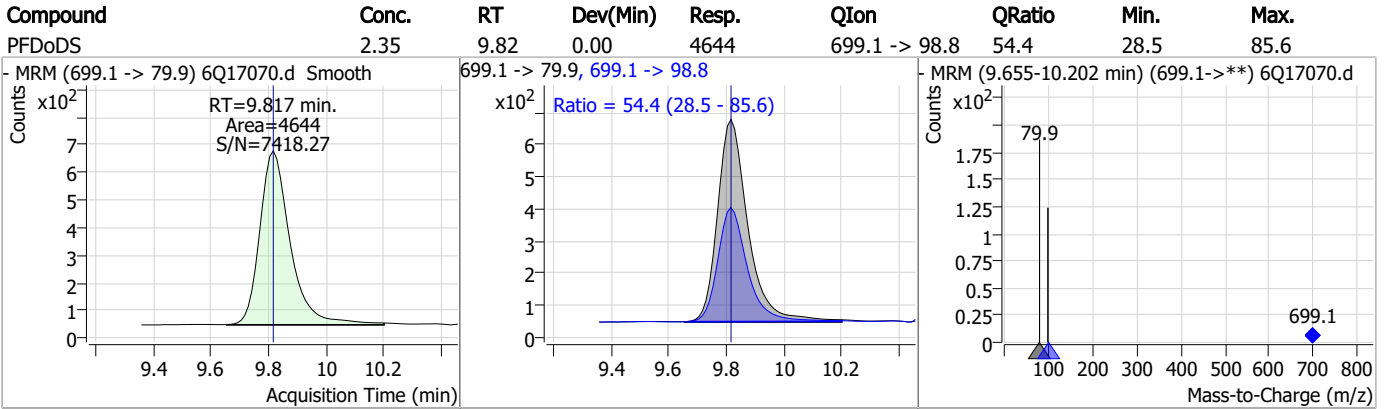


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.43	9.69	0.00	43102	713.1 -> 168.9	7.6	3.9	11.6



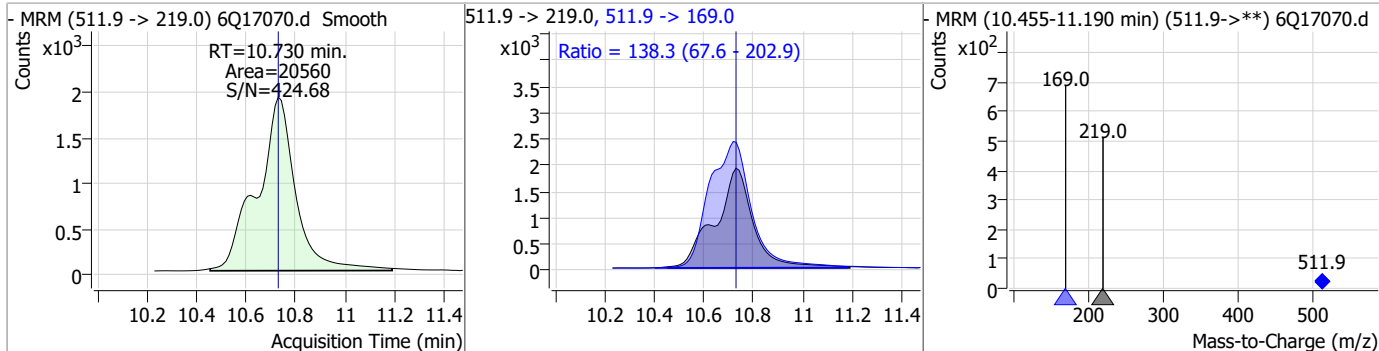
7.7.28
7

Perfluorinated Compounds by LC/MS/MS

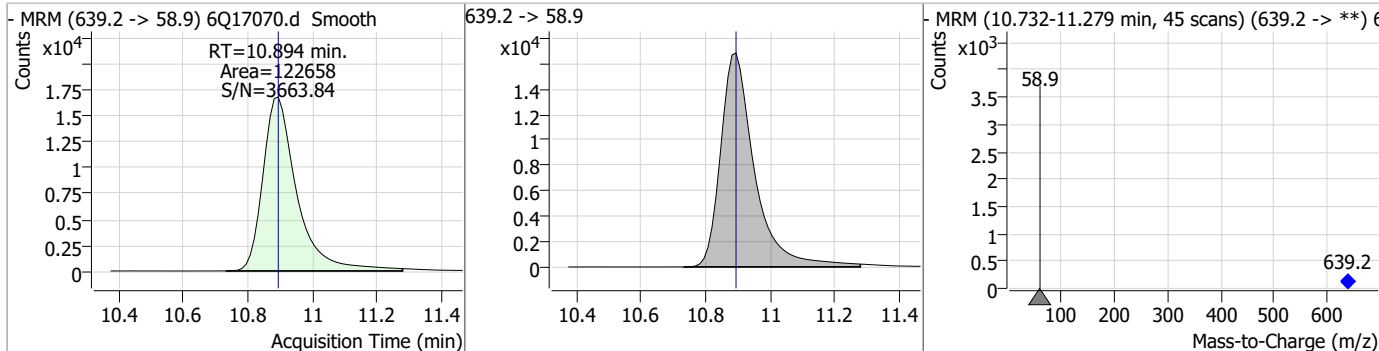


Perfluorinated Compounds by LC/MS/MS

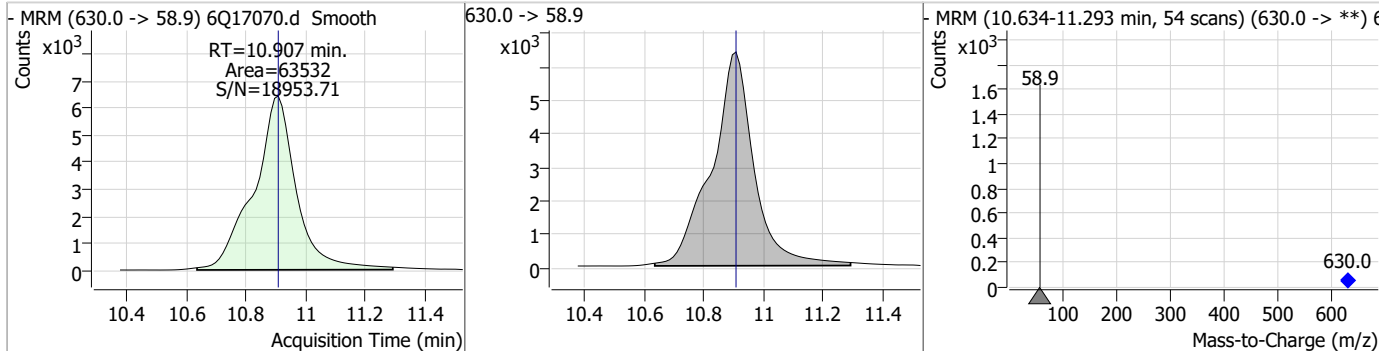
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOFA	5.11	10.73	0.00	20560	511.9 -> 169.0	138.3	67.6	202.9



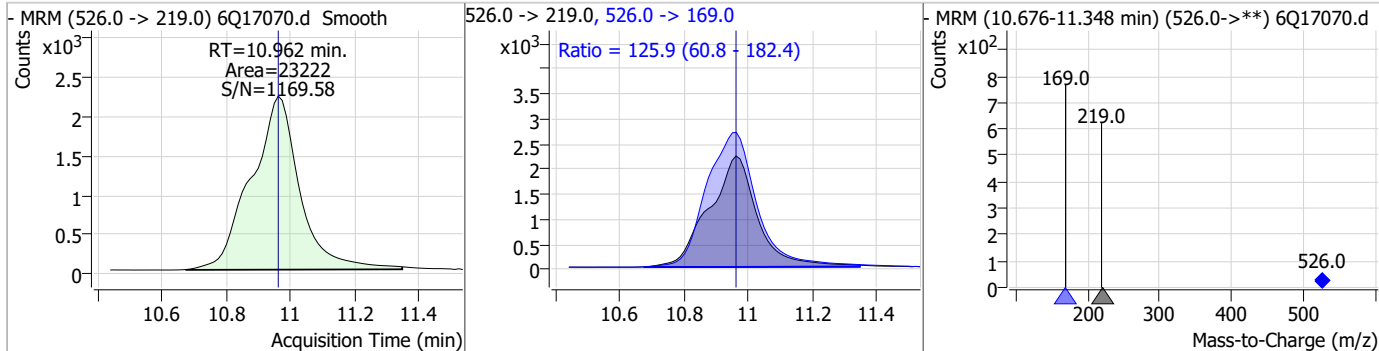
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	25.03	10.89	0.00	122658				



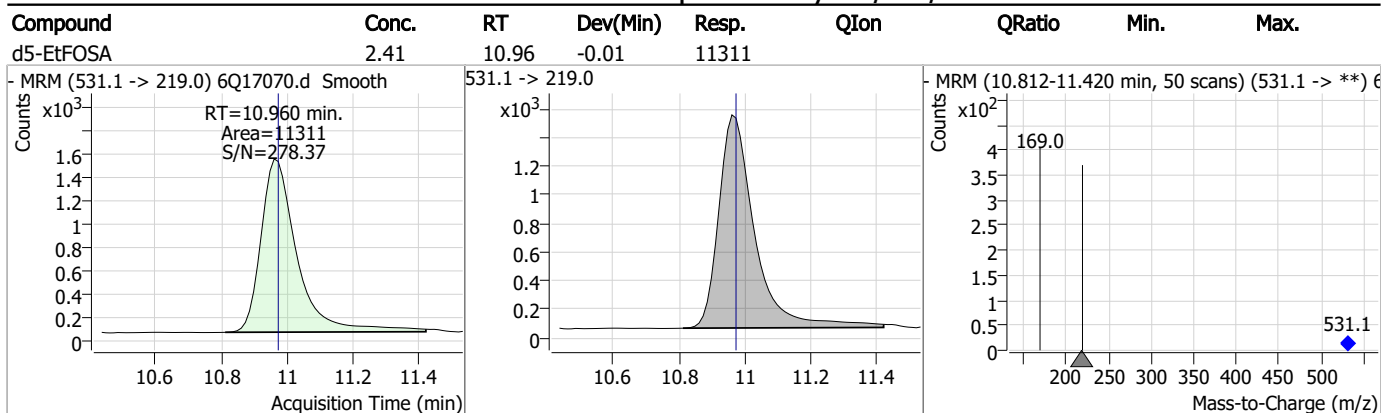
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.44	10.91	0.00	63532				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOFA	5.00	10.96	0.00	23222	526.0 -> 169.0	125.9	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.28
7

Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17070.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 17:25 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.28.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17082.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 8:19:22 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	183575	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65270	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69880	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	57624	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	84445	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27205	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	19964	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	24140	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25730	1.25 µg/L	0.000
M2-PFTeDA	9.677	715.2 -> 670.0	17189	1.25 µg/L	-0.012
M8-FOSA	9.611	506.1 -> 77.8	25081	2.50 µg/L	-0.012
M3-PFBS	5.398	302.1 -> 79.9	22476	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12660	2.50 µg/L	0.000
M8-PFOS	8.226	507.1 -> 79.9	10600	2.50 µg/L	-0.012
M2-4:2FTS	5.144	329.1 -> 80.9	2320	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2683	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3031	5.00 µg/L	0.000
M3-MeFOSAA	8.122	573.2 -> 419.0	24066	5.00 µg/L	-0.012
M3-HFPO-DA	5.845	286.9 -> 168.9	38516	10.00 µg/L	0.000
M5-EtFOSAA	8.330	589.2 -> 419.0	17984	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	98584	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	118196	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11127	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	9544	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	13645	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	79871	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9340	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	85885	2.50 µg/L	0.000
13C2-PFDA	8.064	515.1 -> 470.1	24997	1.25 µg/L	-0.012
13C5-PFNA	7.595	468.0 -> 423.0	29079	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	56521	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2320	5.40 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2683	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 102.9%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3031	5.41 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 108.1%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25730	1.24 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 99.0%		
13C2-PFTeDA	9.677	715.2 -> 670.0	17189	1.22 µg/L	-0.012
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 97.7%		
13C3-PFBS	5.398	302.1 -> 79.9	22476	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.3%		
13C3-PFHxS	7.179	402.1 -> 79.9	12660	2.55 µg/L	0.000

7.7.29
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 = 101.8%	
13C4-PFBA	2.910	216.8 -> 171.9	183575	9.95 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 99.5%	
13C4-PFHpA	6.419	367.1 -> 322.0	57624	2.49 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 99.7%	
13C5-PFHxA	5.468	318.0 -> 273.0	69880	2.56 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 102.5%	
13C5-PFPeA	4.270	268.3 -> 223.0	65270	5.17 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 103.4%	
13C6-PFDA	8.076	519.1 -> 474.1	19964	1.21 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 96.9%	
13C7-PFUnDA	8.530	570.0 -> 525.1	24140	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 91.5%	
13C8-FOSA	9.611	506.1 -> 77.8	25081	2.78 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 111.2%	
13C8-PFOA	7.062	421.1 -> 376.0	84445	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 101.9%	
13C8-PFOS	8.226	507.1 -> 79.9	10600	2.58 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 103.1%	
13C9-PFNA	7.594	472.1 -> 427.0	27205	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%			Recovery = 98.2%	
d3-MeFOSAA	8.122	573.2 -> 419.0	24066	5.92 µg/L	-0.012
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 118.4%	
13C3-HFPO-DA	5.845	286.9 -> 168.9	38516	9.63 µg/L	0.000
Spiked Amount: 10.00	Range: 50.0 - 150.0%			Recovery = 96.3%	
d3-MeFOSA	10.728	515.0 -> 219.0	9544	2.80 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 112.0%	
d5-EtFOSAA	8.330	589.2 -> 419.0	17984	5.32 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%			Recovery = 106.4%	
d7-MeFOSE	10.647	623.2 -> 58.9	98584	27.53 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 110.1%	
d9-EtFOSE	10.894	639.2 -> 58.9	118196	27.01 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%			Recovery = 108.0%	
d5-EtFOSA	10.960	531.1 -> 219.0	11127	2.66 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%			Recovery = 106.4%	
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	32041	9.13 µg/L	100
		327.1 -> 80.9	11768		
6:2FTS	6.839	427.1 -> 407.0	26817	9.09 µg/L	100
		427.1 -> 80.9	9530		
8:2FTS	7.865	527.1 -> 507.0	16795	9.31 µg/L	100
		527.1 -> 80.8	6859		
EtFOSAA	8.331	584.2 -> 419.1	8012	2.62 µg/L	98
		584.2 -> 526.0	4305		
FOSA	9.614	498.1 -> 77.9	21842	2.43 µg/L	99
		498.1 -> 478.0	678		
MeFOSAA	8.136	570.1 -> 419.0	10447	2.31 µg/L	87
		570.1 -> 483.0	2065		
PFBA	2.906	212.8 -> 168.9	62969	10.23 µg/L	100
PFBS	5.400	298.7 -> 79.9	23713	2.35 µg/L	96
		298.7 -> 98.8	9121		
PFDA	8.077	512.9 -> 469.0	59243	2.73 µg/L	98
		512.9 -> 219.0	9264		
PFDODA	8.961	613.1 -> 569.0	46935	2.33 µg/L	99
		613.1 -> 319.0	6546		
PFDS	9.125	599.0 -> 79.9	8709	2.58 µg/L	98

7.7.29

7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	4210	2.55	µg/L	96
		363.1 -> 319.0	72525			
PFHpS	7.734	363.1 -> 169.0	11898	2.45	µg/L	99
		449.0 -> 79.9	14070			
PFHxA	5.470	449.0 -> 98.9	7236	2.40	µg/L	100
		313.0 -> 269.0	66279			
PFHxS	7.180	313.0 -> 118.9	3068	2.31	µg/L	m
		398.7 -> 79.9	15933			
PFNA	7.595	398.7 -> 98.9	7771	2.40	µg/L	99
		463.0 -> 419.0	45204			
PFNS	8.694	463.0 -> 219.0	9631	2.56	µg/L	96
		548.8 -> 79.9	13118			
PFOA	7.063	548.8 -> 98.9	6825	2.39	µg/L	99
		413.0 -> 369.0	94757			
PFOS	8.228	413.0 -> 169.0	17176	2.45	µg/L	m
		498.9 -> 79.9	12532			
PFPeA	4.273	498.9 -> 98.8	6777	5.02	µg/L	100
		263.0 -> 219.0	89283			
PFPeS	6.472	349.1 -> 79.9	17830	2.47	µg/L	90
		349.1 -> 98.9	7441			
PFTeDA	9.690	713.1 -> 669.0	43854	2.52	µg/L	100
		713.1 -> 168.9	3388			
PFTrDA	9.345	663.0 -> 619.0	56230	2.52	µg/L	99
		663.0 -> 168.9	5292			
PFUnDA	8.531	563.1 -> 519.0	49506	2.96	µg/L	93
		563.1 -> 269.1	7113			
11CI-PF3OUdS	9.398	630.9 -> 450.9	66350	5.02	µg/L	100
		632.9 -> 452.9	21035			
9CI-PF3ONS	8.557	530.8 -> 351.0	110182	5.27	µg/L	96
		532.8 -> 353.0	35082			
ADONA	6.681	376.9 -> 250.9	300355	5.16	µg/L	99
		376.9 -> 84.8	76910			
HFPO-DA	5.846	284.9 -> 168.9	18202	4.99	µg/L	99
		284.9 -> 184.9	2593			
3:3FTCA	3.784	241.0 -> 177.0	13408	12.06	µg/L	98
		241.0 -> 117.0	1700			
5:3FTCA	6.160	341.0 -> 237.1	286006	63.96	µg/L	92
		341.0 -> 217.0	209688			
7:3FTCA	7.573	441.0 -> 316.9	129625	63.82	µg/L	95
		441.0 -> 336.9	291382			
EtFOSA	10.962	526.0 -> 219.0	23112	5.05	µg/L	97
		526.0 -> 169.0	28927			
EtFOSE	10.907	630.0 -> 58.9	62482	12.69	µg/L	100
		511.9 -> 219.0	20273			
MeFOSA	10.730	511.9 -> 169.0	28171	4.72	µg/L	m
		616.1 -> 58.9	53682			
MeFOSE	10.661	699.1 -> 79.9	4894	12.21	µg/L	100
		699.1 -> 98.8	2408			
PFDoDS	9.817	295.0 -> 201.0	14993	2.80	µg/L	89
		295.0 -> 84.9	3908			
NFDHA	5.350	279.0 -> 85.1	59575	5.01	µg/L	96
		229.0 -> 84.9	43954			
PFMBA	4.687	314.8 -> 134.9	153739	4.99	µg/L	100
PFMPA	3.438	314.8 -> 82.9	5416	4.94	µg/L	100
PFEESA	5.937			4.41	µg/L	99

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

7.7.29
7

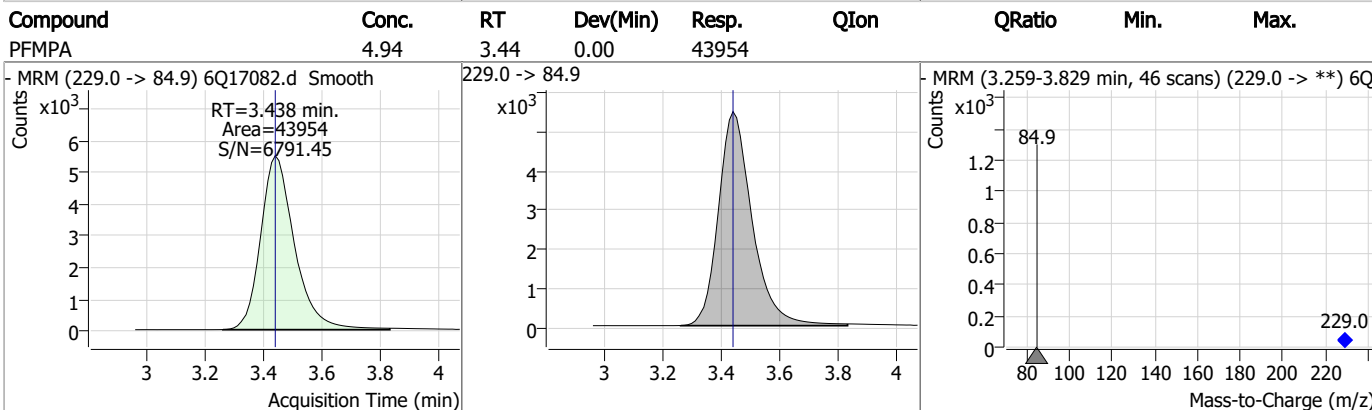
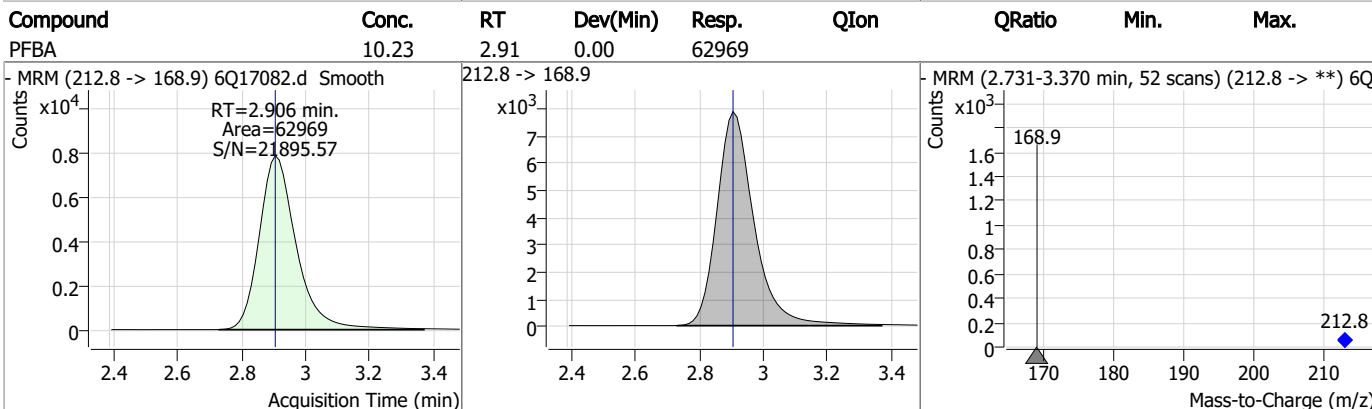
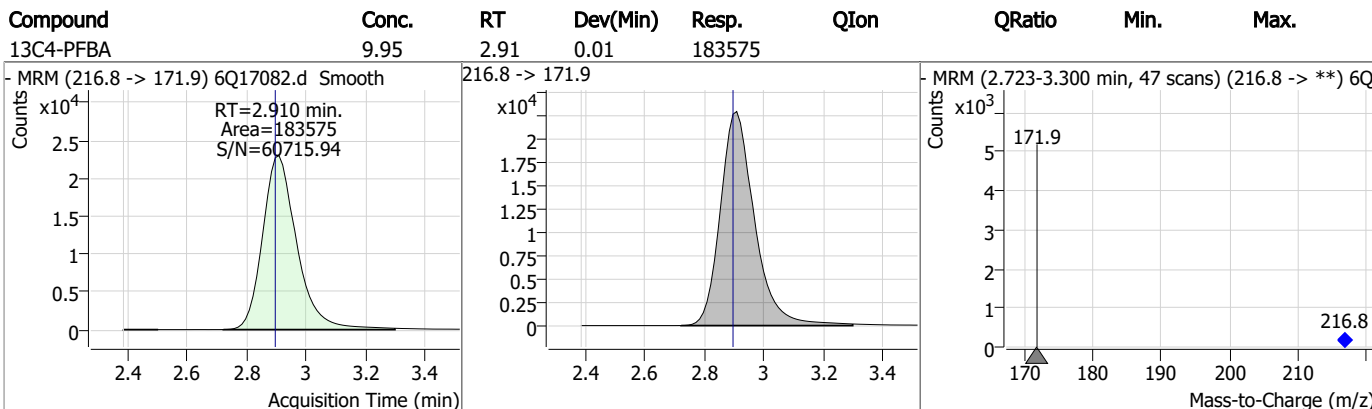
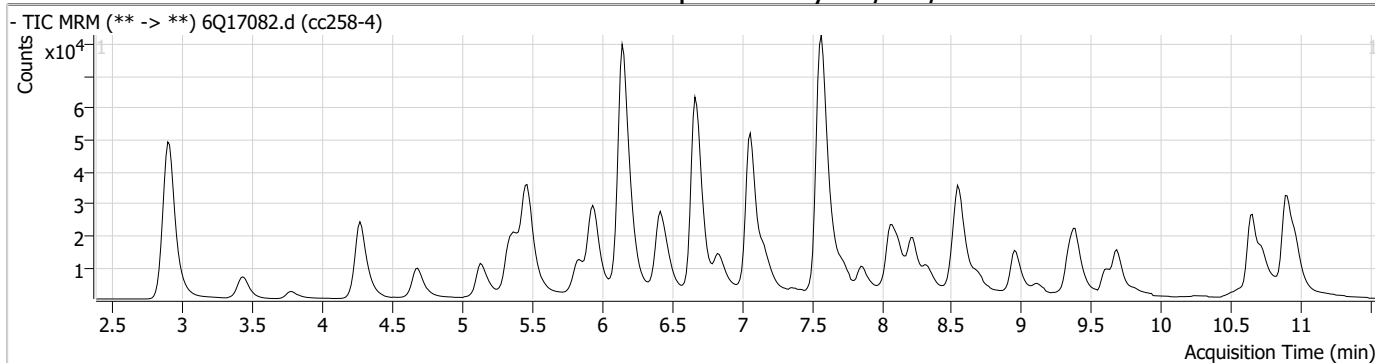
Perfluorinated Compounds by LC/MS/MS

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

7.7.29

7

Perfluorinated Compounds by LC/MS/MS



7.7.29
7

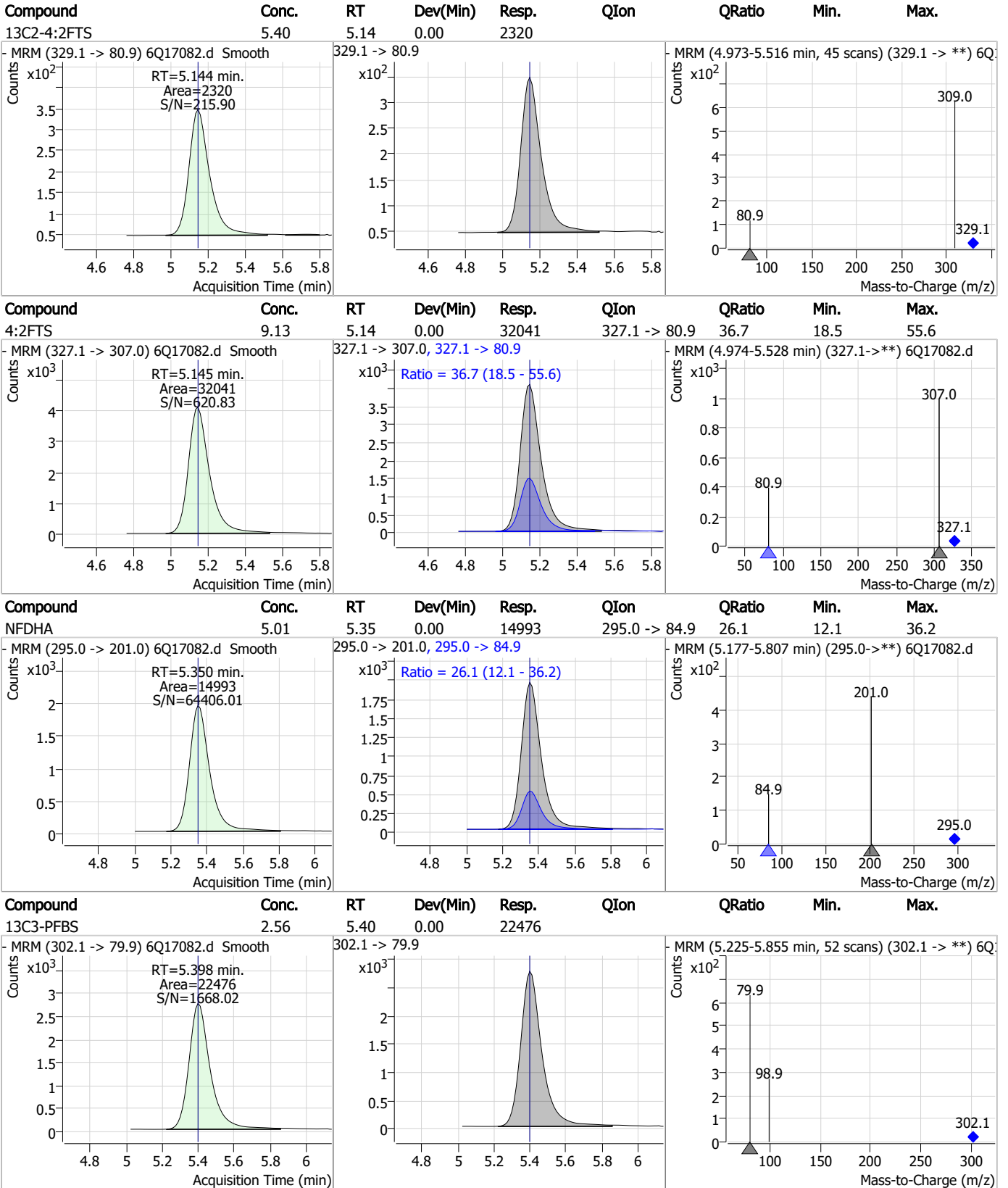
Perfluorinated Compounds by LC/MS/MS

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
3:3FTCA	12.06	3.78	0.00	13408	241.0 -> 117.0	12.7	6.7	20.0
13C5-PFPeA	5.17	4.27	0.00	65270	241.0 -> 117.0	12.7	6.7	20.0
PFPeA	5.02	4.27	0.00	89283	241.0 -> 117.0	12.7	6.7	20.0
PFMBA	4.99	4.69	0.00	59575	241.0 -> 117.0	12.7	6.7	20.0

7.7.29 7



Perfluorinated Compounds by LC/MS/MS

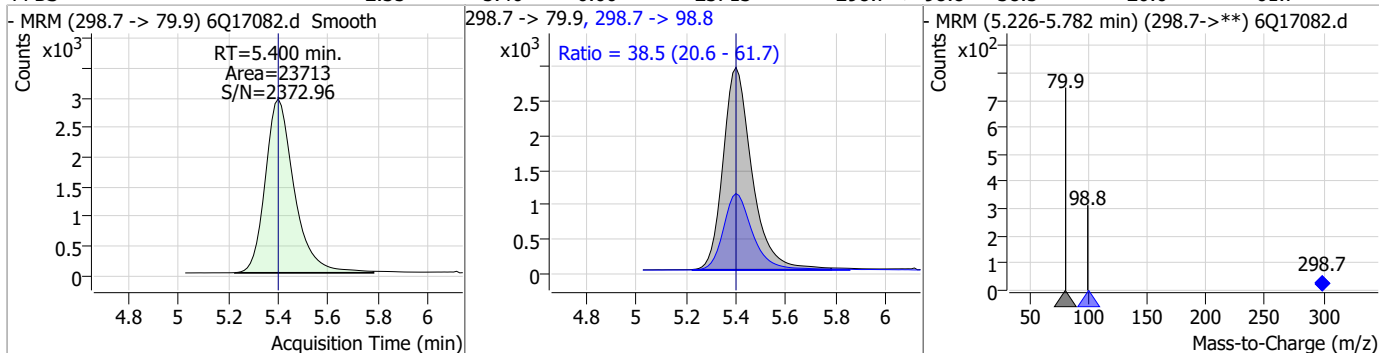


7.7.29
7

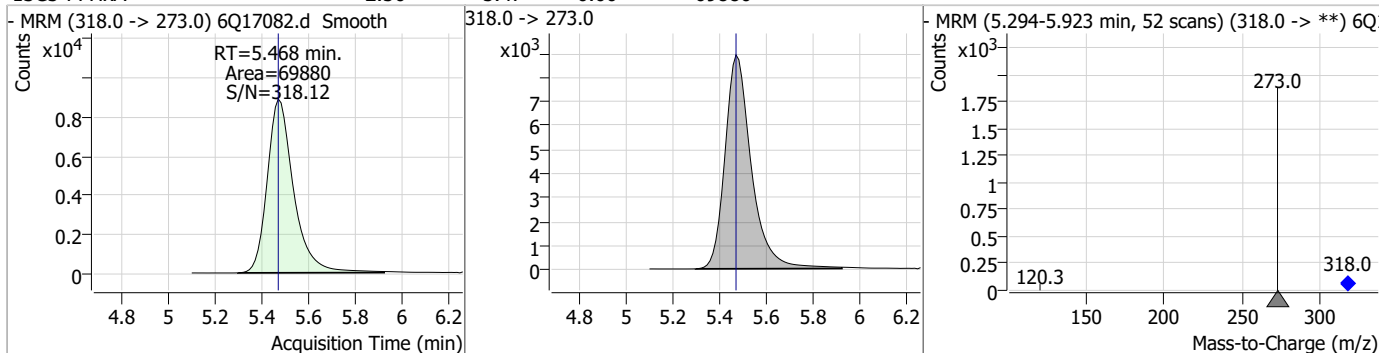


Perfluorinated Compounds by LC/MS/MS

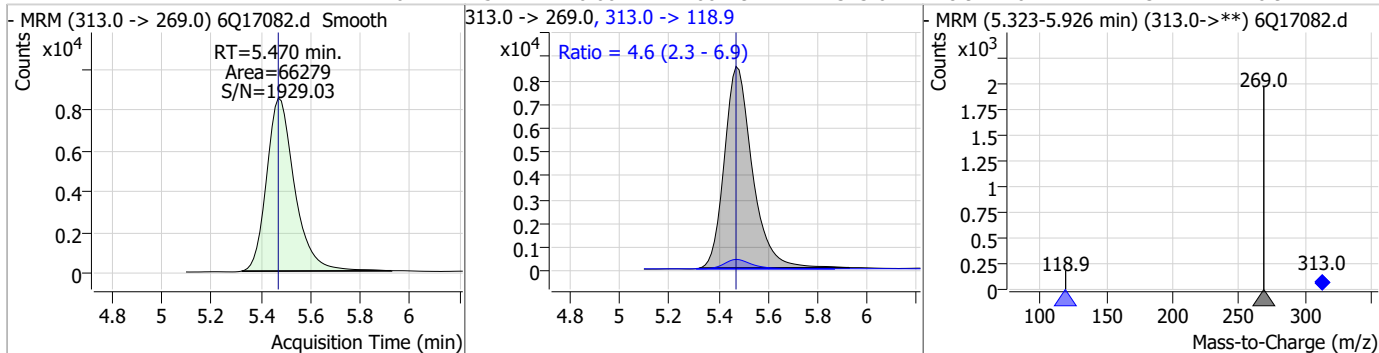
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.35	5.40	0.00	23713	298.7 -> 98.8	38.5	20.6	61.7



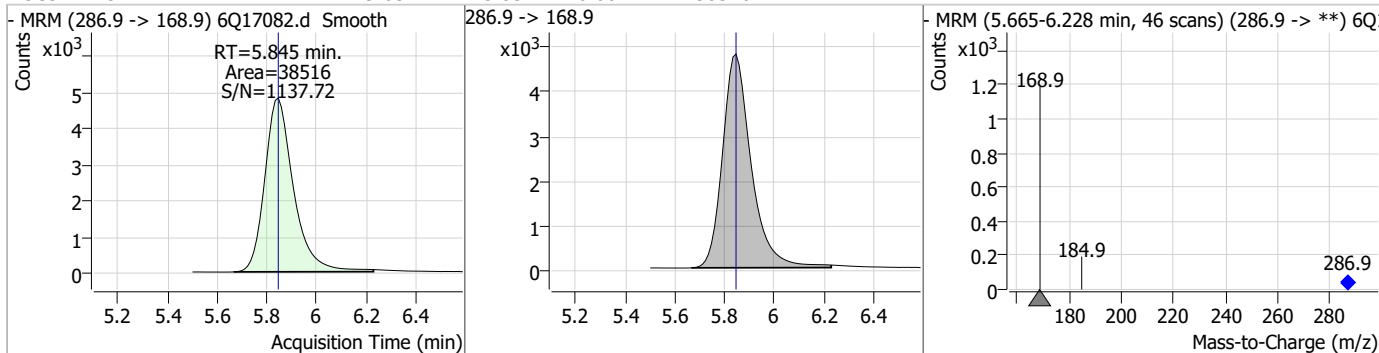
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.56	5.47	0.00	69880				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.40	5.47	0.00	66279	313.0 -> 118.9	4.6	2.3	6.9

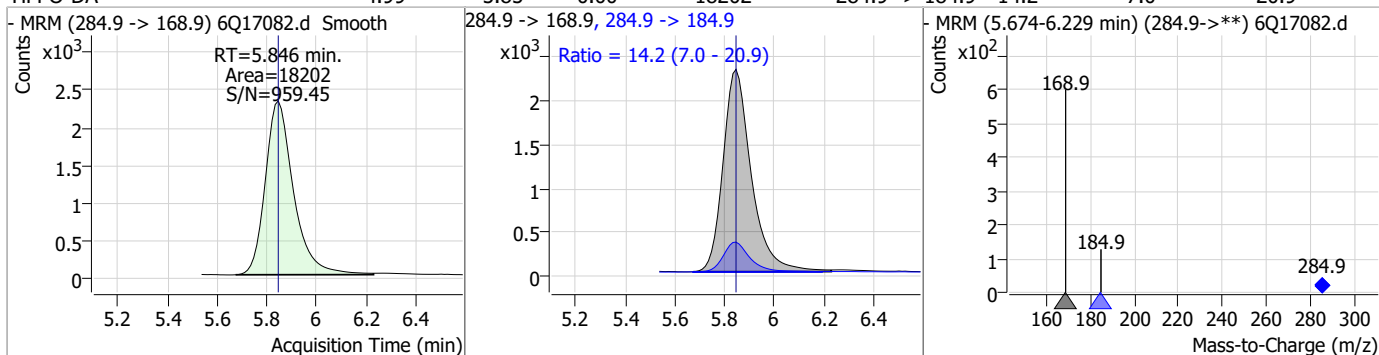


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.63	5.85	0.00	38516				

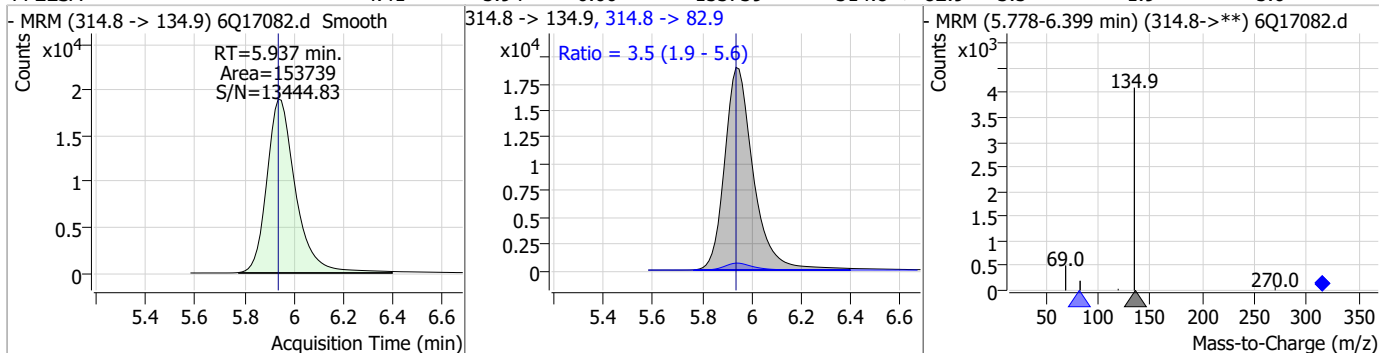


Perfluorinated Compounds by LC/MS/MS

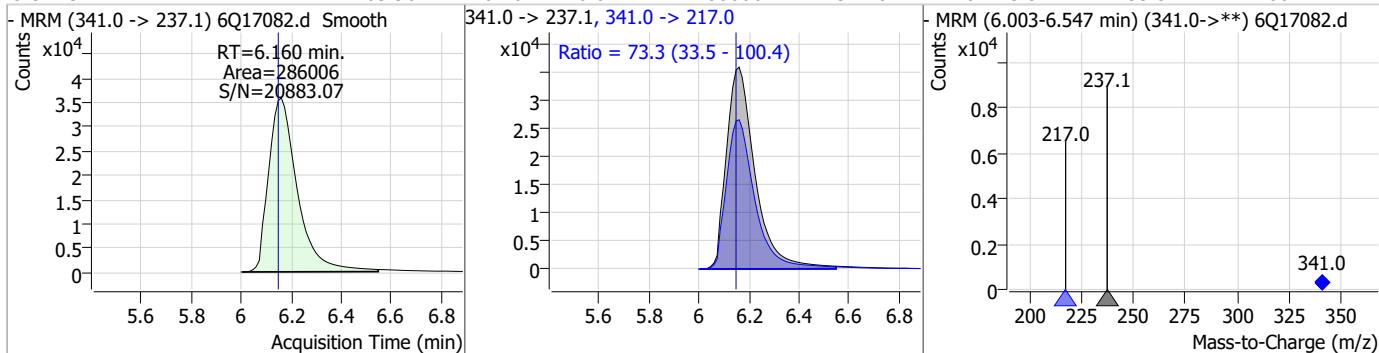
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.99	5.85	0.00	18202	284.9 -> 184.9	14.2	7.0	20.9



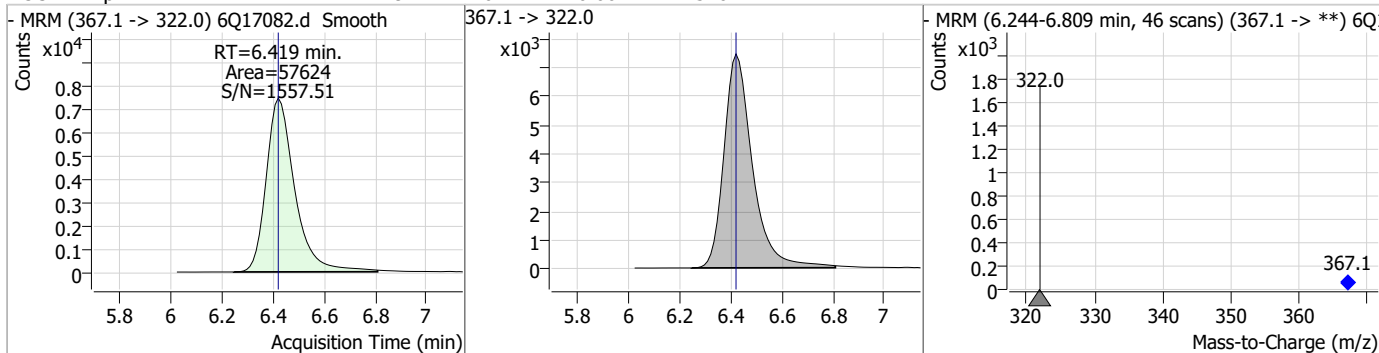
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.41	5.94	0.00	153739	314.8 -> 82.9	3.5	1.9	5.6



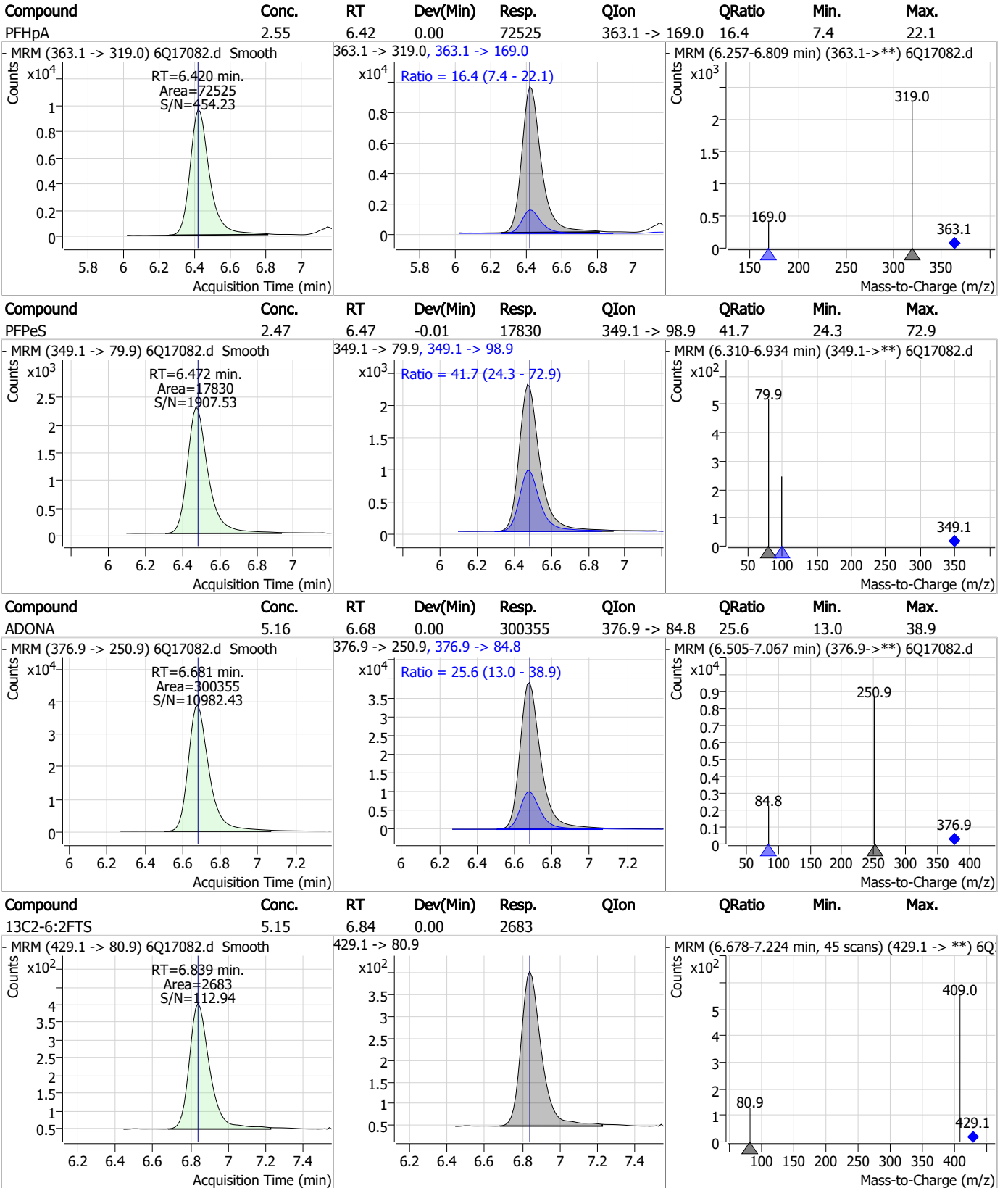
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	63.96	6.16	0.01	286006	341.0 -> 217.0	73.3	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpA	2.49	6.42	0.00	57624	367.1 -> 322.0			



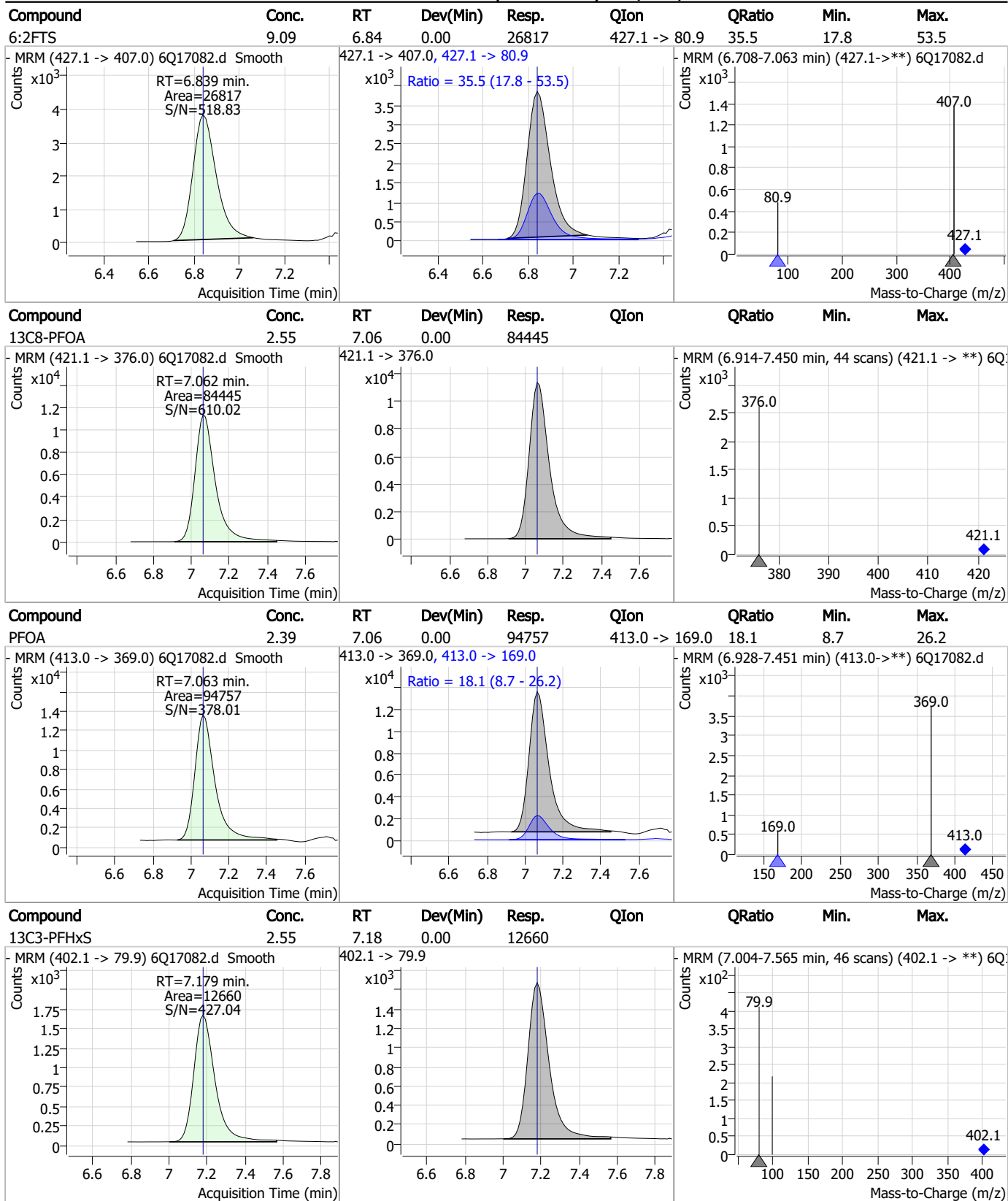
Perfluorinated Compounds by LC/MS/MS



7.7.29 7



Perfluorinated Compounds by LC/MS/MS



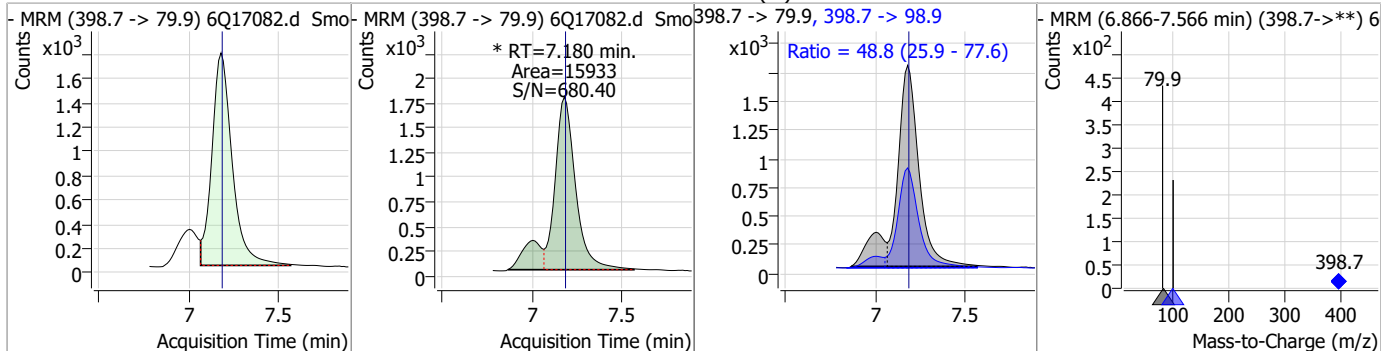
7.7.29

7

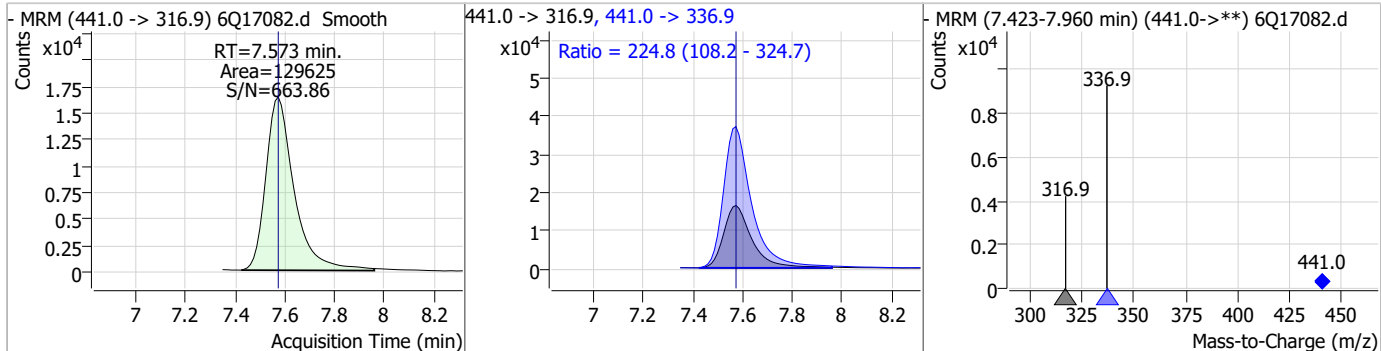


Perfluorinated Compounds by LC/MS/MS

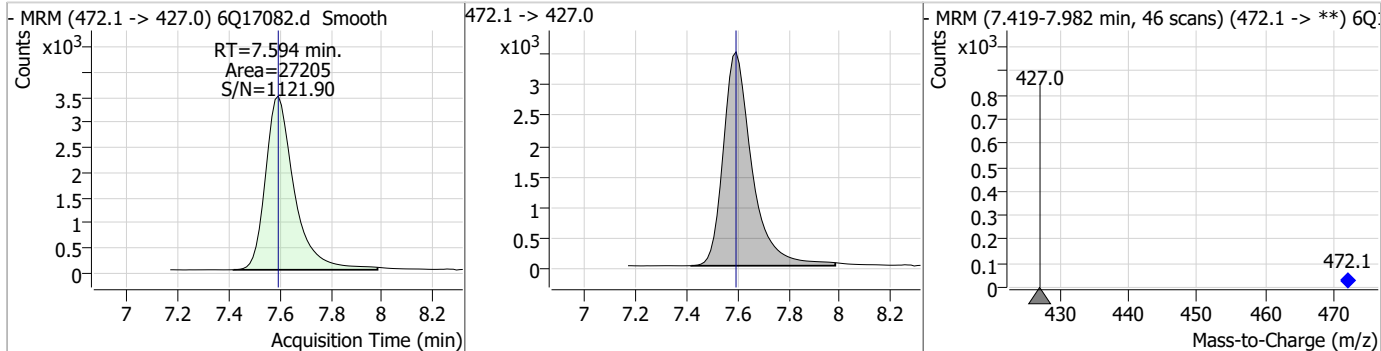
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxS	2.31	7.18	0.00	15933 (m)	398.7 -> 98.9	48.8	25.9	77.6



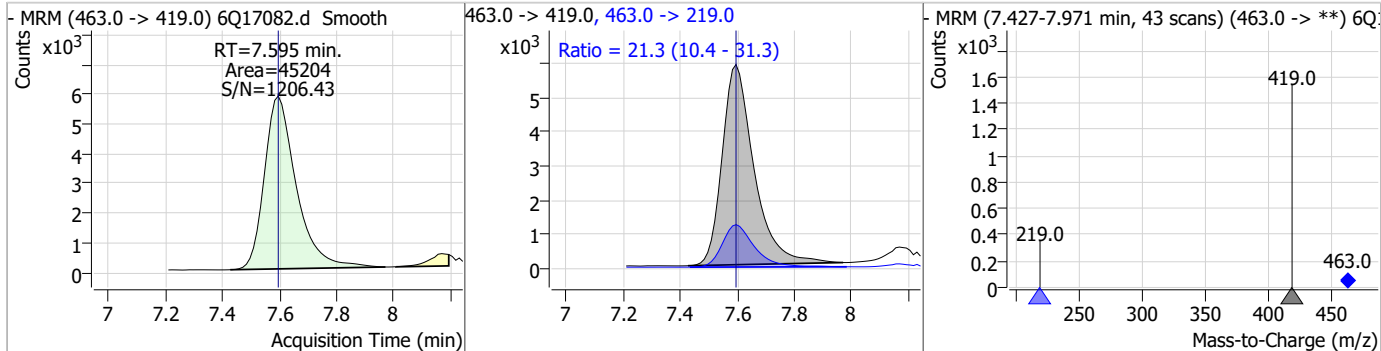
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
7:3FTCA	63.82	7.57	0.00	129625	441.0 -> 336.9	224.8	108.2	324.7



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C9-PFNA	1.23	7.59	0.00	27205	472.1 -> 427.0			

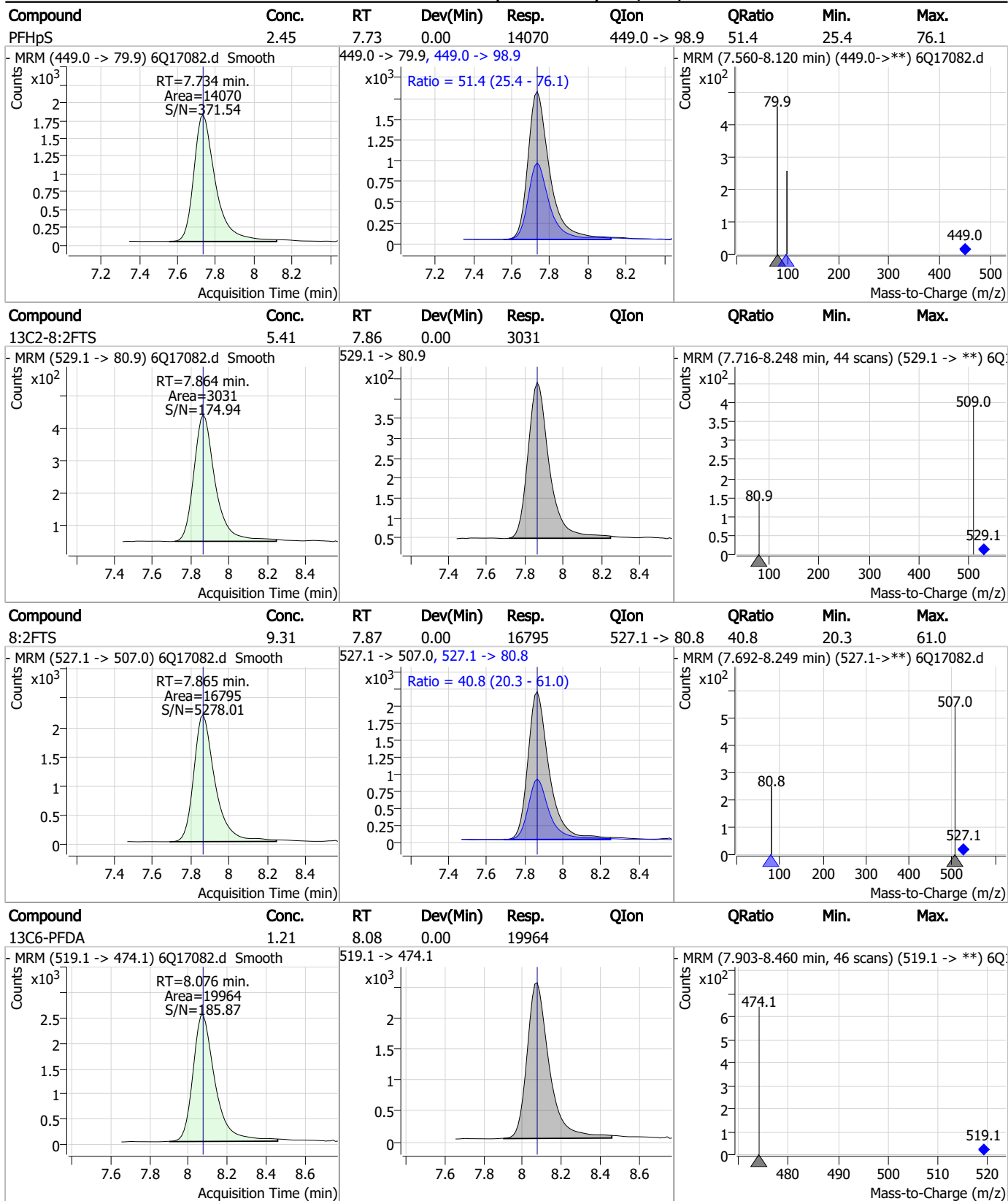


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNA	2.40	7.60	0.00	45204	463.0 -> 219.0	21.3	10.4	31.3



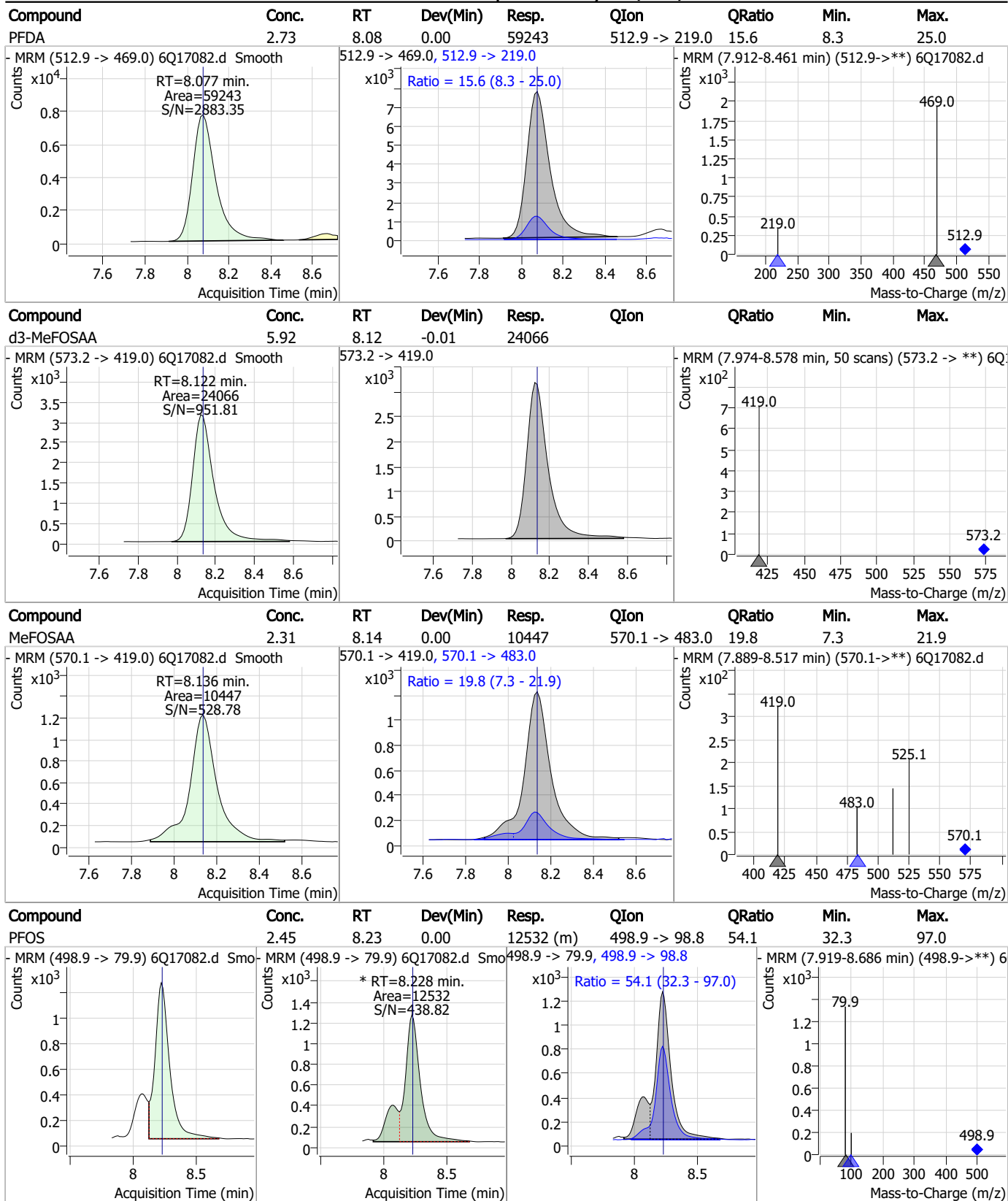
7.7.29
7

Perfluorinated Compounds by LC/MS/MS



7.7.29
7

Perfluorinated Compounds by LC/MS/MS

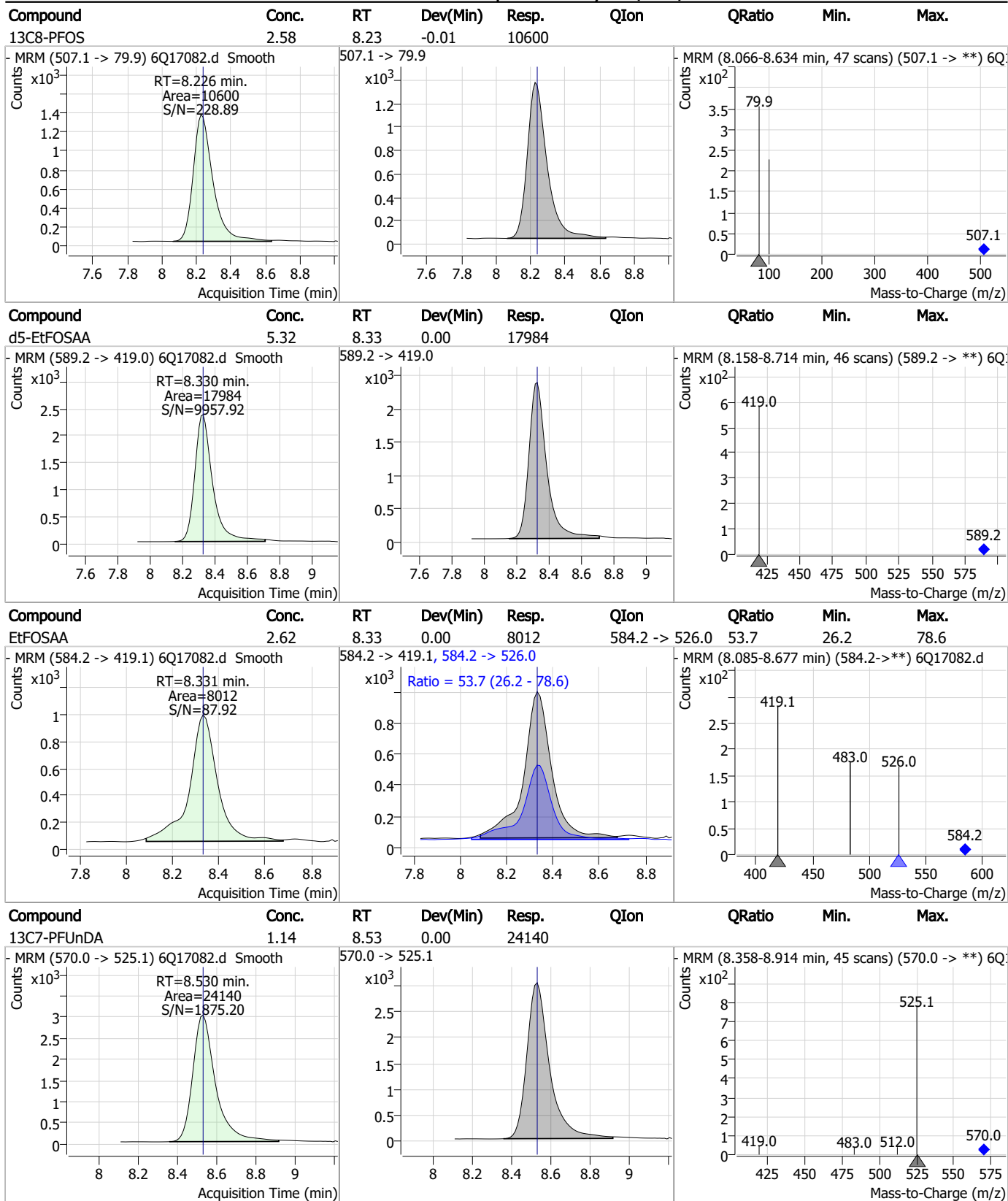


7.7.29

7



Perfluorinated Compounds by LC/MS/MS



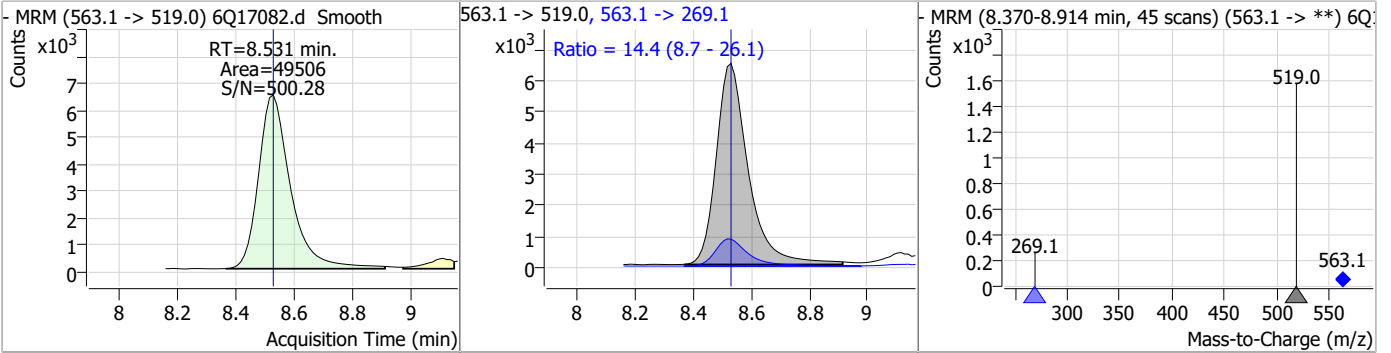
7.7.29

7

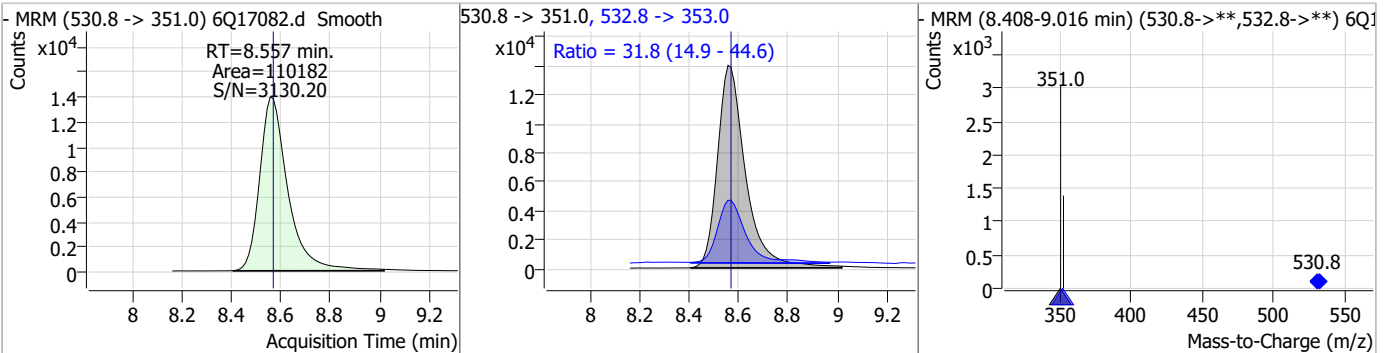


Perfluorinated Compounds by LC/MS/MS

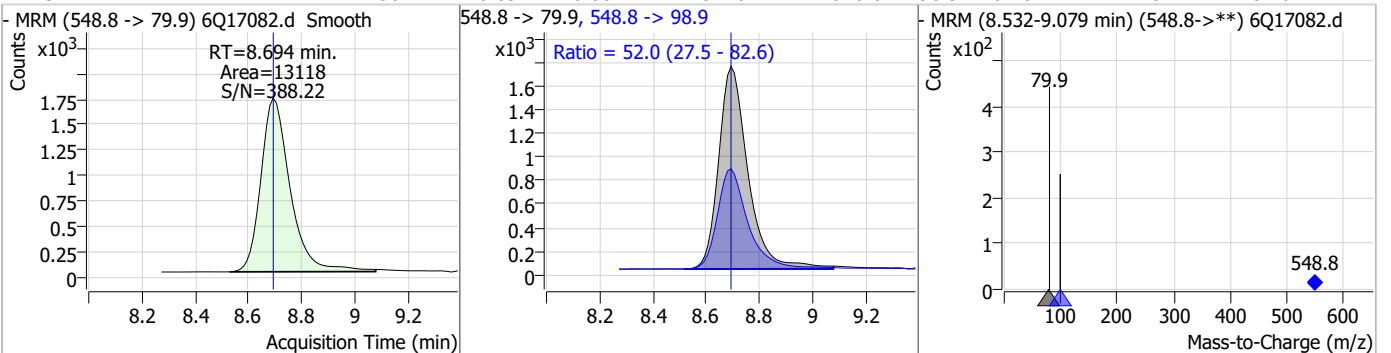
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFUnDA	2.96	8.53	0.00	49506	563.1 -> 269.1	14.4	8.7	26.1



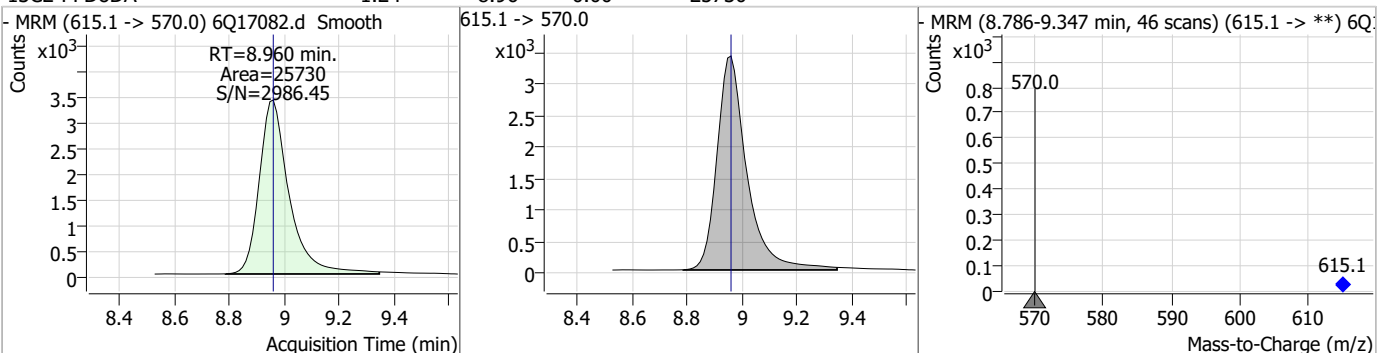
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
9Cl-PF3ONS	5.27	8.56	-0.01	110182	532.8 -> 353.0	31.8	14.9	44.6



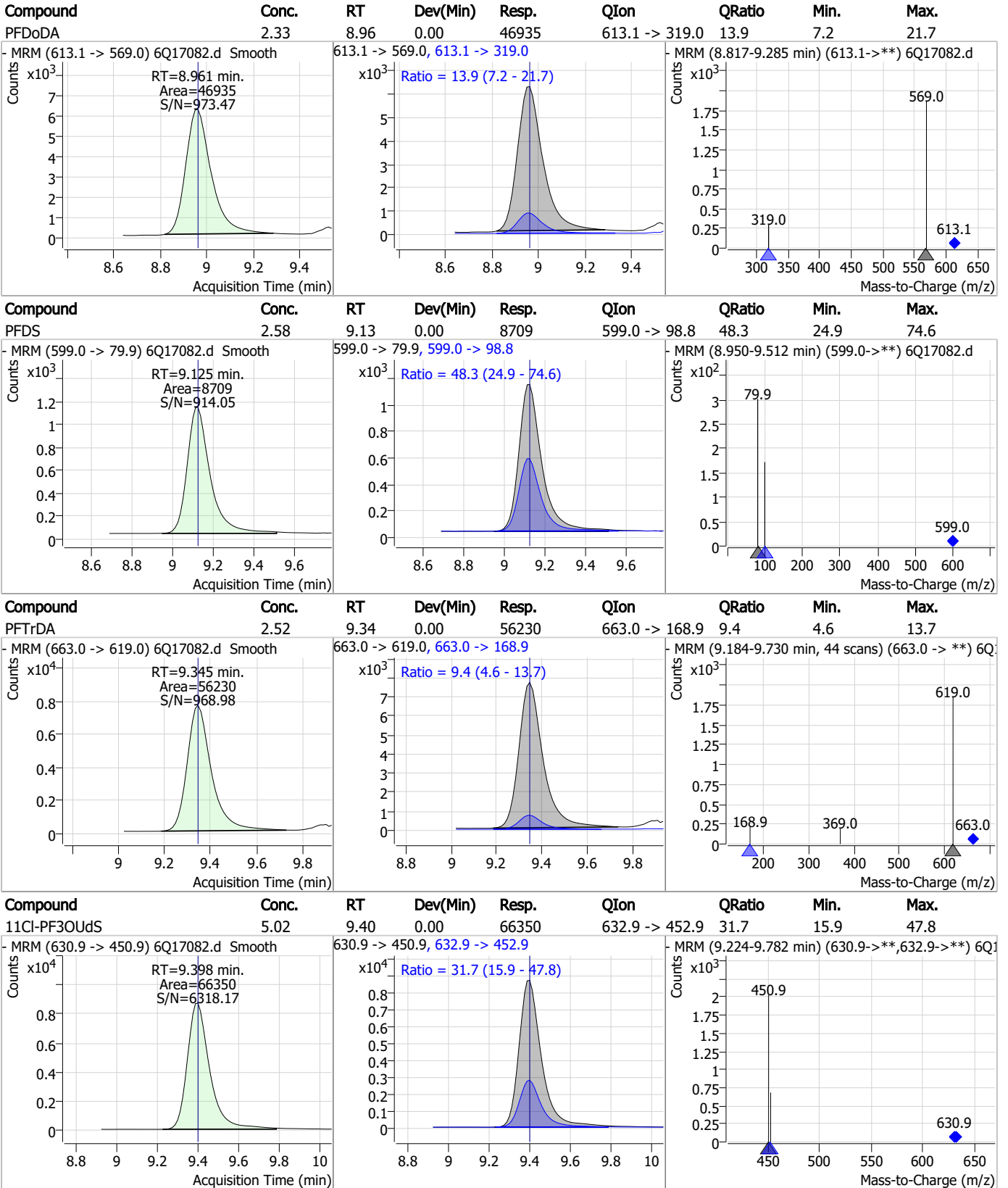
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFNS	2.56	8.69	0.00	13118	548.8 -> 98.9	52.0	27.5	82.6



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFDoDA	1.24	8.96	0.00	25730	615.1 -> 570.0	-	-	-



Perfluorinated Compounds by LC/MS/MS



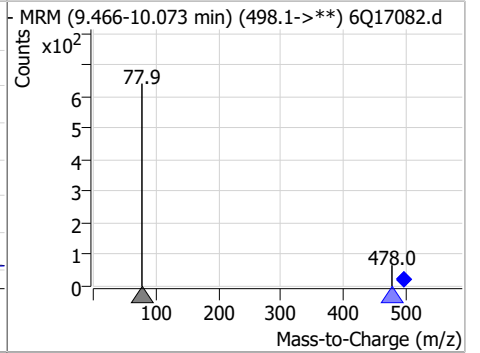
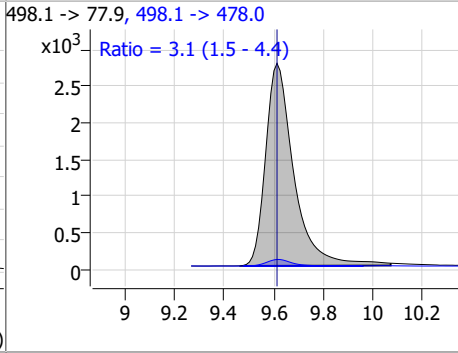
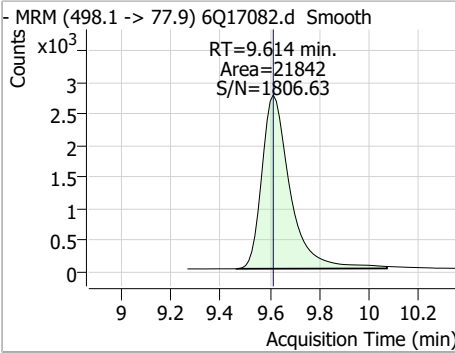
7.7.29

7

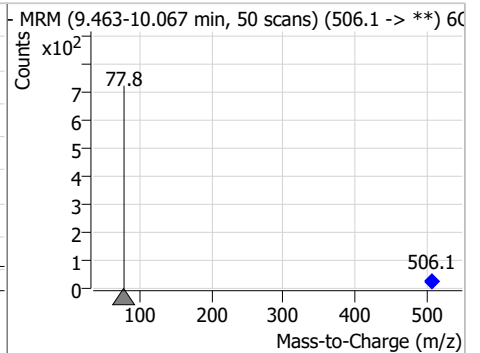
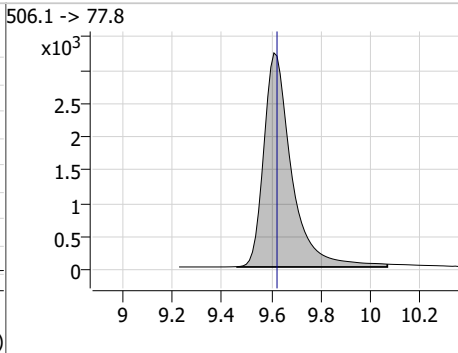
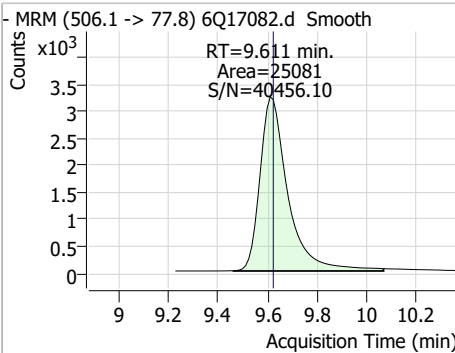


Perfluorinated Compounds by LC/MS/MS

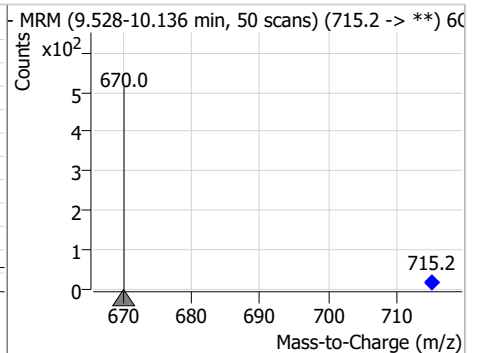
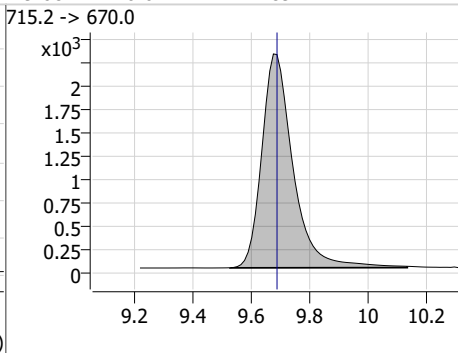
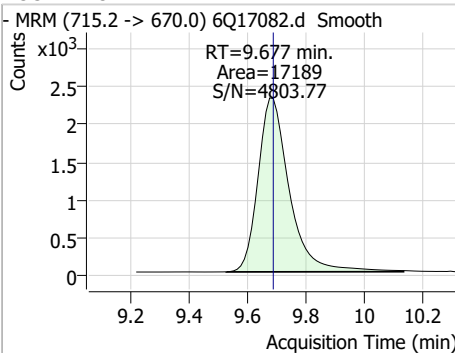
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.43	9.61	0.00	21842	498.1 -> 478.0	3.1	1.5	4.4



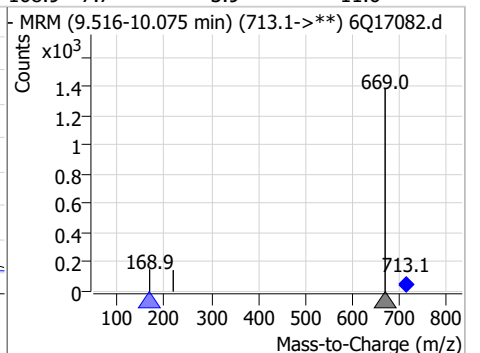
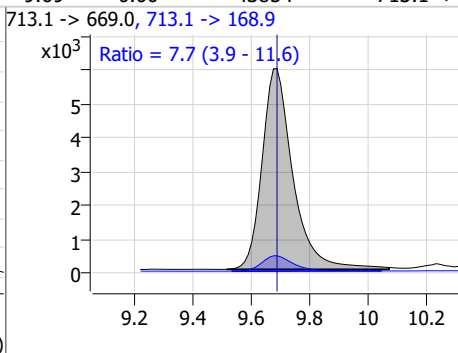
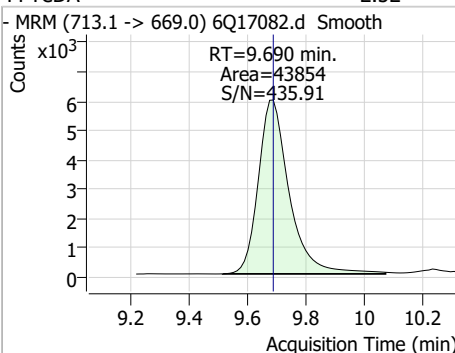
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.78	9.61	-0.01	25081				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.22	9.68	-0.01	17189				

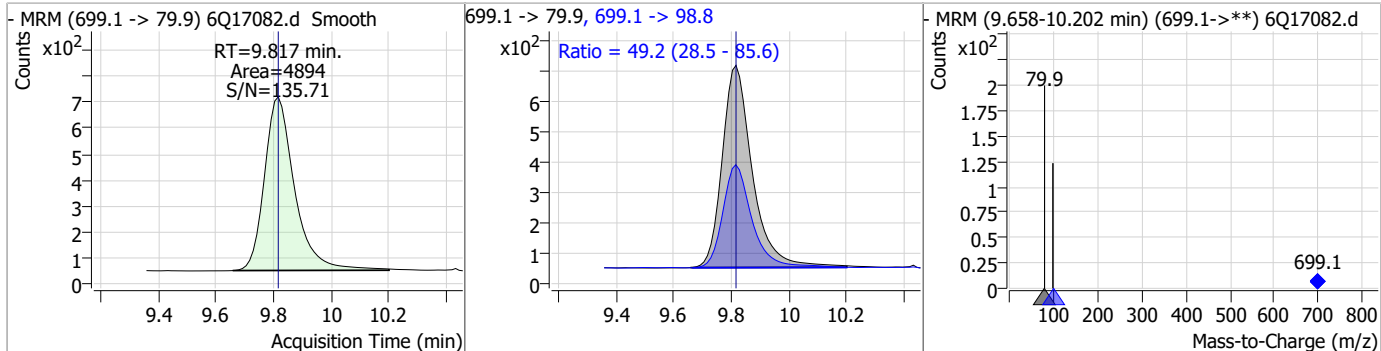


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.52	9.69	0.00	43854	713.1 -> 168.9	7.7	3.9	11.6

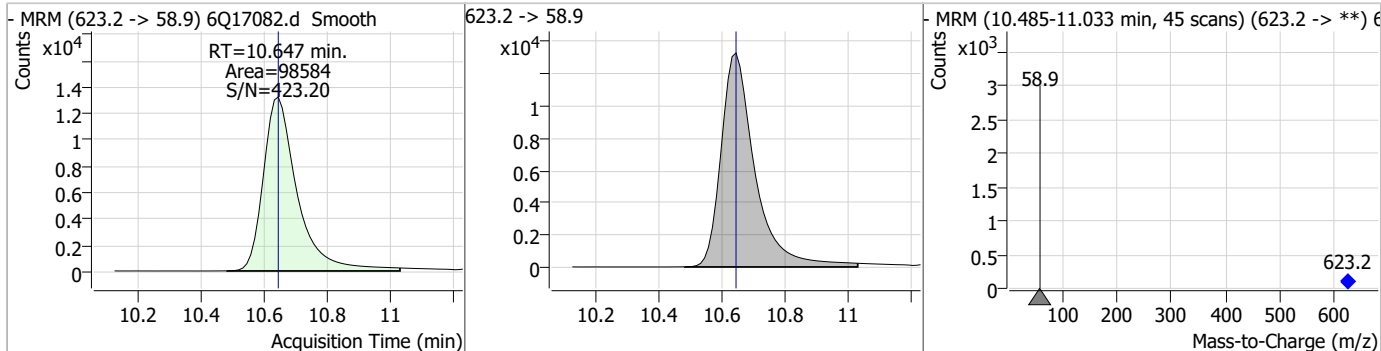


Perfluorinated Compounds by LC/MS/MS

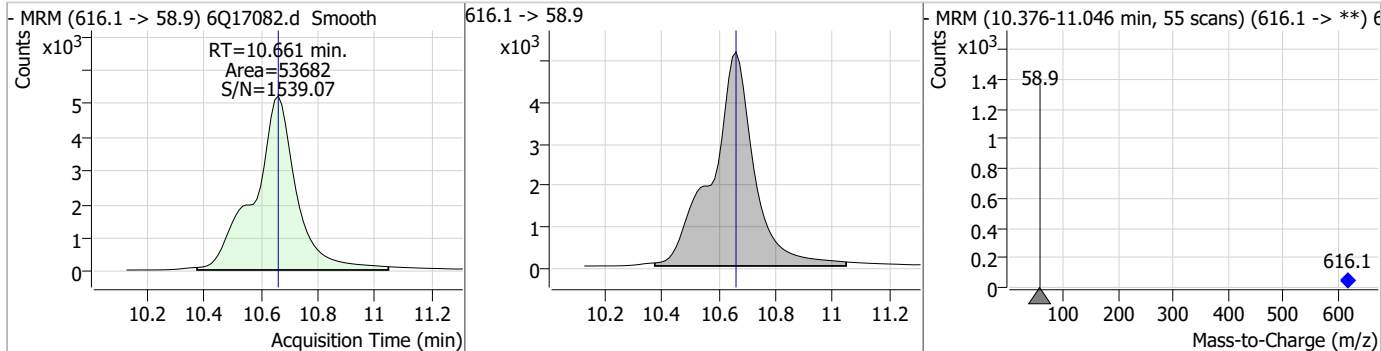
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.80	9.82	0.00	4894	699.1 -> 98.8	49.2	28.5	85.6



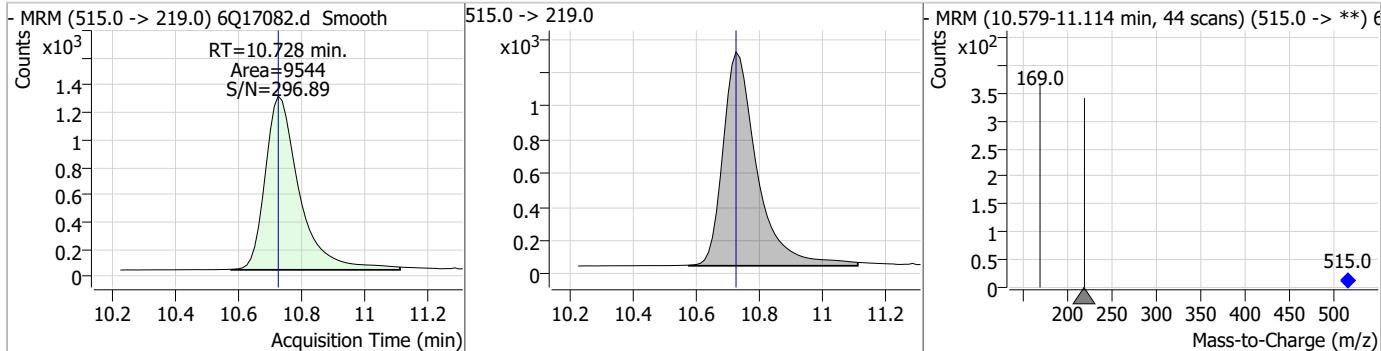
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	27.53	10.65	0.00	98584				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.21	10.66	0.00	53682				

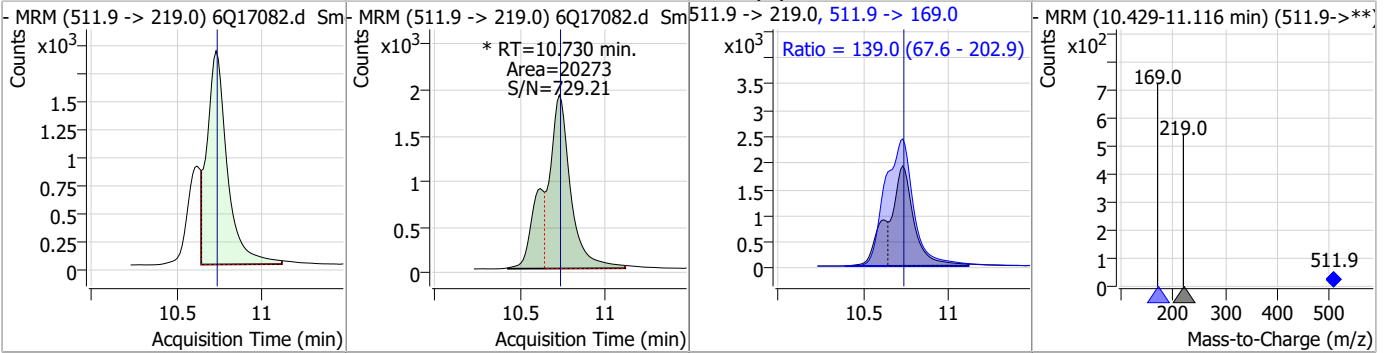


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.80	10.73	0.00	9544				

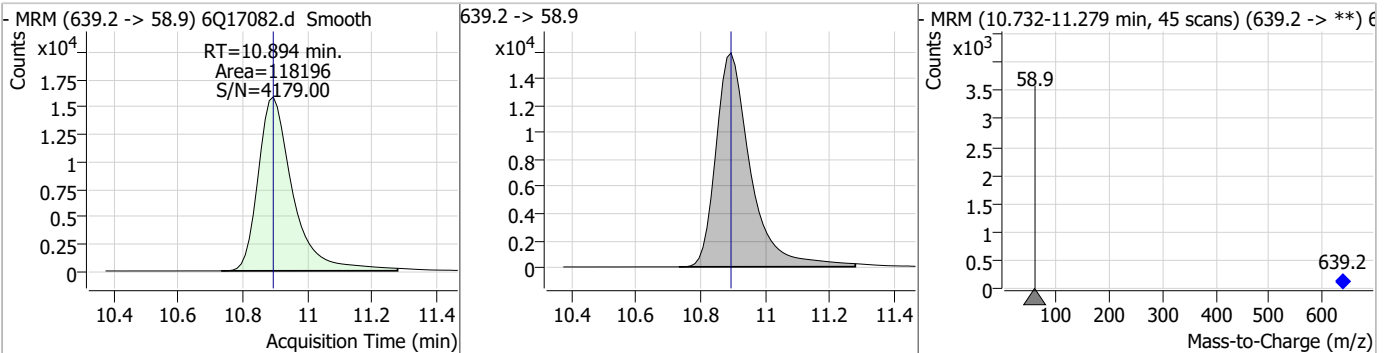


Perfluorinated Compounds by LC/MS/MS

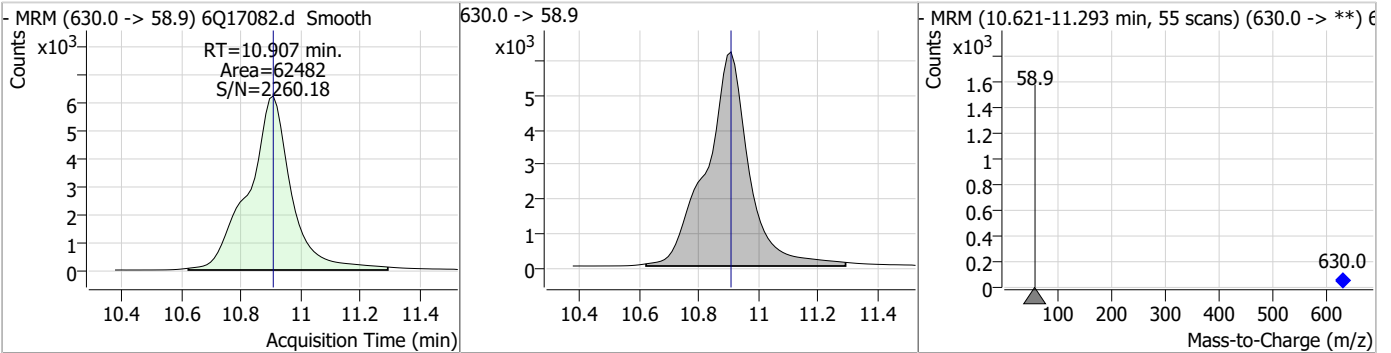
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	4.72	10.73	0.00	20273 (m)	511.9 -> 169.0	139.0	67.6	202.9



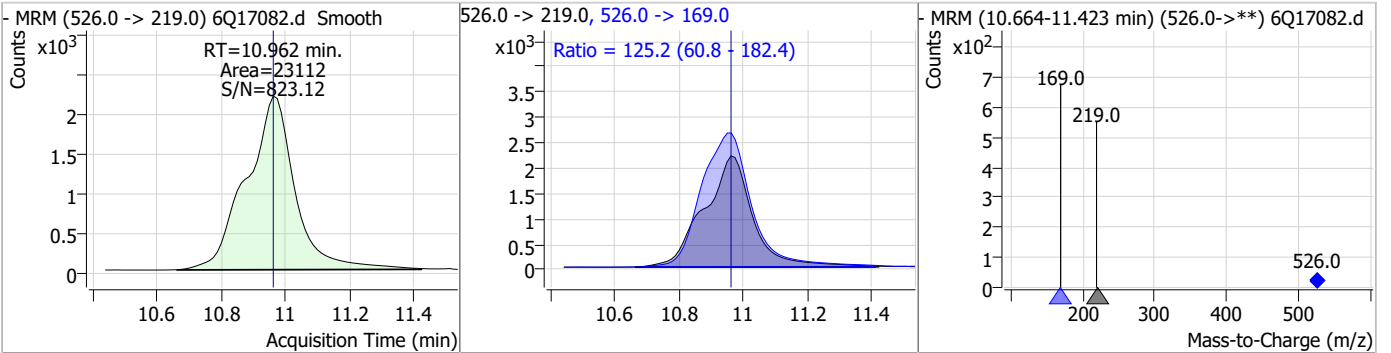
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	27.01	10.89	0.00	118196				



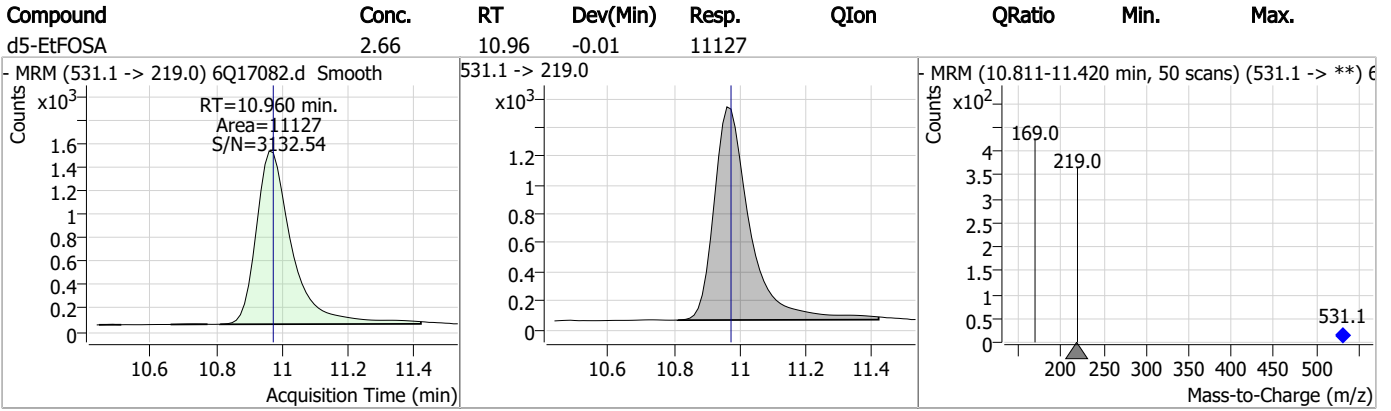
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	12.69	10.91	0.00	62482				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	5.05	10.96	0.00	23112	526.0 -> 169.0	125.2	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.29

7

Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17082.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 20:19 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak
MeFOSA	31506-32-8		10.73	Split peak

7.7.29.1

7

Perfluorinated Compounds by LC/MS/MS

Data File : 6Q17091.d
 Operator : marthav
 Acq. Method : 1633full.m
 Acq. Date-Time : 4/28/2023 10:29:45 PM
 Sample Name : cc258-4
 Vial : P1-A5
 DA Method File : 1633_042823_S6Q258.quantmethod.xml
 Batch Name : s6q258.batch.bin
 Sample Information : OP96301,S6Q258,500,,,5.0,1,water

Compound	RT	Transition	Response	Conc. Units	Dev(Min)
Internal Standards					
M4-PFBA	2.910	216.8 -> 171.9	185196	10.00 µg/L	0.012
M5-PFPeA	4.270	268.3 -> 223.0	65995	5.00 µg/L	0.000
M5-PFHxA	5.468	318.0 -> 273.0	69022	2.50 µg/L	0.000
M4-PFHpA	6.419	367.1 -> 322.0	61083	2.50 µg/L	0.000
M8-PFOA	7.062	421.1 -> 376.0	83505	2.50 µg/L	0.000
M9-PFNA	7.594	472.1 -> 427.0	27541	1.25 µg/L	0.000
M6-PFDA	8.076	519.1 -> 474.1	20249	1.25 µg/L	0.000
M7-PFUnDA	8.530	570.0 -> 525.1	25196	1.25 µg/L	0.000
M2-PFDoDA	8.960	615.1 -> 570.0	25736	1.25 µg/L	0.000
M2-PFTeDA	9.689	715.2 -> 670.0	17053	1.25 µg/L	0.000
M8-FOSA	9.623	506.1 -> 77.8	24947	2.50 µg/L	0.000
M3-PFBS	5.398	302.1 -> 79.9	22218	2.50 µg/L	0.000
M3-PFHxS	7.179	402.1 -> 79.9	12288	2.50 µg/L	0.000
M8-PFOS	8.239	507.1 -> 79.9	11842	2.50 µg/L	0.000
M2-4:2FTS	5.144	329.1 -> 80.9	2149	5.00 µg/L	0.000
M2-6:2FTS	6.839	429.1 -> 80.9	2959	5.00 µg/L	0.000
M2-8:2FTS	7.864	529.1 -> 80.9	3033	5.00 µg/L	0.000
M3-MeFOSAA	8.134	573.2 -> 419.0	22540	5.00 µg/L	0.000
M3-HFPO-DA	5.833	286.9 -> 168.9	39509	10.00 µg/L	-0.012
M5-EtFOSAA	8.330	589.2 -> 419.0	19382	5.00 µg/L	0.000
M7-MeFOSE	10.647	623.2 -> 58.9	99553	25.00 µg/L	0.000
M9-EtFOSE	10.894	639.2 -> 58.9	118518	25.00 µg/L	0.000
M5-EtFOSA	10.960	531.1 -> 219.0	11787	2.50 µg/L	-0.012
M3-MeFOSA	10.728	515.0 -> 219.0	8743	2.50 µg/L	0.000
13C4-PFOS	8.227	502.8 -> 79.9	15187	2.50 µg/L	-0.012
13C3-PFBA	2.902	216.0 -> 172.0	80467	5.00 µg/L	0.000
18O2-PFHxS	7.177	403.0 -> 83.9	9248	2.50 µg/L	0.000
13C4-PFOA	7.063	417.1 -> 372.0	92267	2.50 µg/L	0.000
13C2-PFDA	8.076	515.1 -> 470.1	27086	1.25 µg/L	0.000
13C5-PFNA	7.595	468.0 -> 423.0	29291	1.25 µg/L	0.000
13C2-PFHxA	5.469	315.1 -> 270.0	58684	2.50 µg/L	0.000
System Monitoring Compounds					
13C2-4:2FTS	5.144	329.1 -> 80.9	2149	5.05 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 101.1%		
13C2-6:2FTS	6.839	429.1 -> 80.9	2959	5.73 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 114.7%		
13C2-8:2FTS	7.864	529.1 -> 80.9	3033	5.46 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 109.3%		
13C2-PFDoDA	8.960	615.1 -> 570.0	25736	1.14 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 91.3%		
13C2-PFTeDA	9.689	715.2 -> 670.0	17053	1.12 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 89.5%		
13C3-PFBS	5.398	302.1 -> 79.9	22218	2.55 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 102.2%		
13C3-PFHxS	7.179	402.1 -> 79.9	12288	2.50 µg/L	0.000

7.7.30
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 = 99.8%		
13C4-PFBA	2.910	216.8 -> 171.9	185196	9.96 µg/L	0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C4-PFHpA	6.419	367.1 -> 322.0	61083	2.54 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.8%		
13C5-PFHxA	5.468	318.0 -> 273.0	69022	2.44 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 97.5%		
13C5-PFPeA	4.270	268.3 -> 223.0	65995	5.03 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 100.7%		
13C6-PFDA	8.076	519.1 -> 474.1	20249	1.13 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 90.7%		
13C7-PFUnDA	8.530	570.0 -> 525.1	25196	1.10 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 88.1%		
13C8-FOSA	9.623	506.1 -> 77.8	24947	2.48 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 99.4%		
13C8-PFOA	7.062	421.1 -> 376.0	83505	2.35 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 93.8%		
13C8-PFOS	8.239	507.1 -> 79.9	11842	2.59 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 103.5%		
13C9-PFNA	7.594	472.1 -> 427.0	27541	1.23 µg/L	0.000
Spiked Amount: 1.25	Range: 50.0 - 150.0%		Recovery = 98.7%		
d3-MeFOSAA	8.134	573.2 -> 419.0	22540	4.98 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 99.6%		
13C3-HFPO-DA	5.833	286.9 -> 168.9	39509	9.51 µg/L	-0.012
Spiked Amount: 10.00	Range: 50.0 - 150.0%		Recovery = 95.1%		
d3-MeFOSA	10.728	515.0 -> 219.0	8743	2.30 µg/L	0.000
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 92.2%		
d5-EtFOSAA	8.330	589.2 -> 419.0	19382	5.15 µg/L	0.000
Spiked Amount: 5.00	Range: 50.0 - 150.0%		Recovery = 103.0%		
d7-MeFOSE	10.647	623.2 -> 58.9	99553	24.98 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 99.9%		
d9-EtFOSE	10.894	639.2 -> 58.9	118518	24.33 µg/L	0.000
Spiked Amount: 25.00	Range: 50.0 - 150.0%		Recovery = 97.3%		
d5-EtFOSA	10.960	531.1 -> 219.0	11787	2.53 µg/L	-0.012
Spiked Amount: 2.50	Range: 50.0 - 150.0%		Recovery = 101.2%		
Target Compounds					QValue
4:2FTS	5.145	327.1 -> 307.0	33115	10.19 µg/L	98
		327.1 -> 80.9	12720		
6:2FTS	6.839	427.1 -> 407.0	30027	9.22 µg/L	94
		427.1 -> 80.9	9727		
8:2FTS	7.865	527.1 -> 507.0	17127	9.49 µg/L	95
		527.1 -> 80.8	7455		
EtFOSAA	8.331	584.2 -> 419.1	7419	2.25 µg/L	85
		584.2 -> 526.0	4678		
FOSA	9.614	498.1 -> 77.9	23244	2.60 µg/L	100
		498.1 -> 478.0	646		
MeFOSAA	8.136	570.1 -> 419.0	11379	2.69 µg/L	91
		570.1 -> 483.0	2065		
PFBA	2.906	212.8 -> 168.9	63491	10.22 µg/L	100
PFBS	5.400	298.7 -> 79.9	23773	2.38 µg/L	95
		298.7 -> 98.8	9112		
PFDA	8.077	512.9 -> 469.0	54140	2.46 µg/L	97
		512.9 -> 219.0	9580		
PFDoDA	8.961	613.1 -> 569.0	50020	2.48 µg/L	100
		613.1 -> 319.0	7282		
PFDS	9.125	599.0 -> 79.9	8734	2.31 µg/L	95

7.7.30
7



Perfluorinated Compounds by LC/MS/MS

Compound	RT	Transition	Response	Conc.	Units	Dev(Min)
PFHpA	6.420	599.0 -> 98.8	4643	2.42	µg/L	96
		363.1 -> 319.0	73035			
PFHpS	7.734	363.1 -> 169.0	11923	2.26	µg/L	97
		449.0 -> 79.9	14531			
PFHxA	5.470	449.0 -> 98.9	7052	2.52	µg/L	100
		313.0 -> 269.0	68717			
PFHxS	7.180	313.0 -> 118.9	3241	2.32	µg/L	m
		398.7 -> 79.9	15546			
PFNA	7.595	398.7 -> 98.9	7877	2.48	µg/L	100
		463.0 -> 419.0	47336			
PFNS	8.694	463.0 -> 219.0	9847	2.31	µg/L	97
		548.8 -> 79.9	13213			
PFOA	7.063	548.8 -> 98.9	6968	2.35	µg/L	97
		413.0 -> 369.0	92077			
PFOS	8.228	413.0 -> 169.0	17393	2.14	µg/L	m
		498.9 -> 79.9	12258			
PFPeA	4.273	498.9 -> 98.8	6904	5.04	µg/L	100
		263.0 -> 219.0	90596			
PFPeS	6.472	349.1 -> 79.9	17487	2.50	µg/L	98
		349.1 -> 98.9	8286			
PFTeDA	9.690	713.1 -> 669.0	42551	2.47	µg/L	99
		713.1 -> 168.9	3424			
PFTrDA	9.345	663.0 -> 619.0	57462	2.57	µg/L	99
		663.0 -> 168.9	5446			
PFUnDA	8.531	563.1 -> 519.0	45581	2.61	µg/L	98
		563.1 -> 269.1	7442			
11CI-PF3OUdS	9.398	630.9 -> 450.9	68238	5.03	µg/L	96
		632.9 -> 452.9	20422			
9CI-PF3ONS	8.569	530.8 -> 351.0	109453	5.11	µg/L	97
		532.8 -> 353.0	34419			
ADONA	6.681	376.9 -> 250.9	299889	5.02	µg/L	100
		376.9 -> 84.8	78409			
HFPO-DA	5.846	284.9 -> 168.9	18338	4.90	µg/L	99
		284.9 -> 184.9	2504			
3:3FTCA	3.784	241.0 -> 177.0	13846	12.32	µg/L	98
		241.0 -> 117.0	1730			
5:3FTCA	6.160	341.0 -> 237.1	287147	65.02	µg/L	88
		341.0 -> 217.0	218986			
7:3FTCA	7.573	441.0 -> 316.9	130156	64.87	µg/L	98
		441.0 -> 336.9	285359			
EtFOSA	10.962	526.0 -> 219.0	24127	4.98	µg/L	96
		526.0 -> 169.0	30373			
EtFOSE	10.907	630.0 -> 58.9	64189	13.01	µg/L	100
		511.9 -> 219.0	21416			
MeFOSA	10.730	511.9 -> 169.0	28718	5.44	µg/L	99
		616.1 -> 58.9	54629			
MeFOSE	10.661	699.1 -> 79.9	4586	12.30	µg/L	100
		699.1 -> 98.8	2610			
PFDoDS	9.817	295.0 -> 201.0	15369	2.35	µg/L	100
		295.0 -> 84.9	3805			
NFDHA	5.350	279.0 -> 85.1	61464	5.20	µg/L	99
		229.0 -> 84.9	44781			
PFMBA	4.687	314.8 -> 134.9	152118	4.98	µg/L	100
		314.8 -> 82.9	5858			
PFMPA	3.438			4.42	µg/L	100
PFEESA	5.937			4.42	µg/L	100

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

7.7.30
7

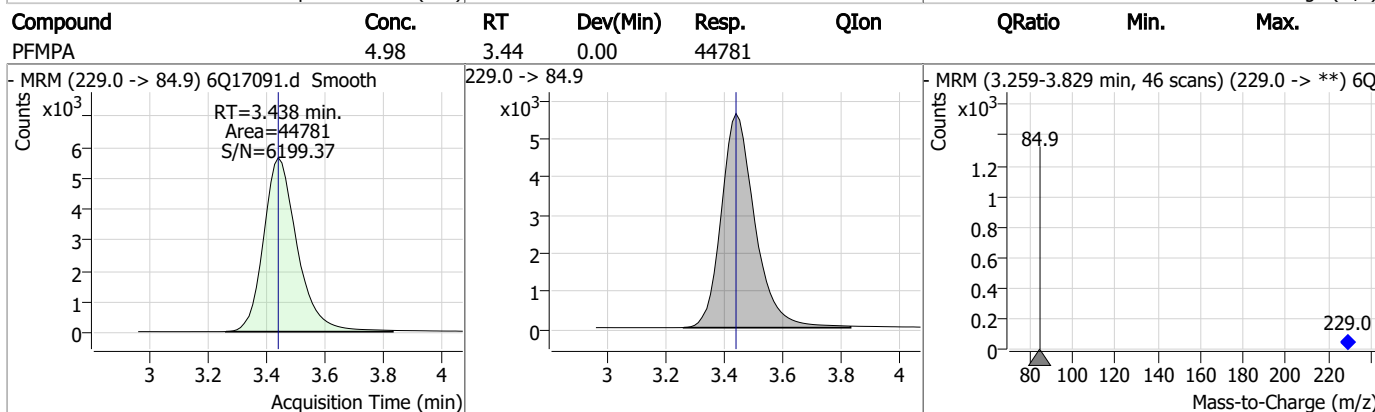
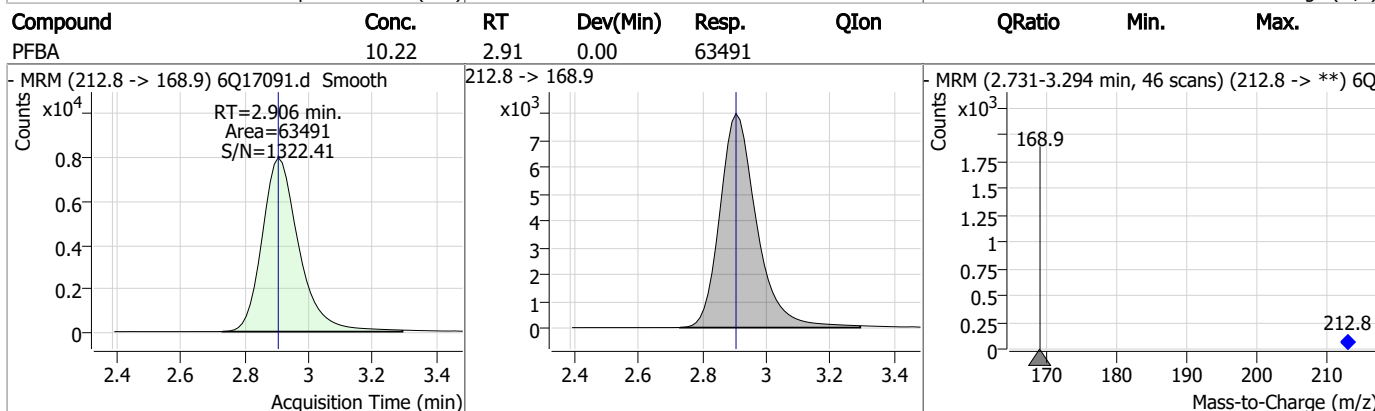
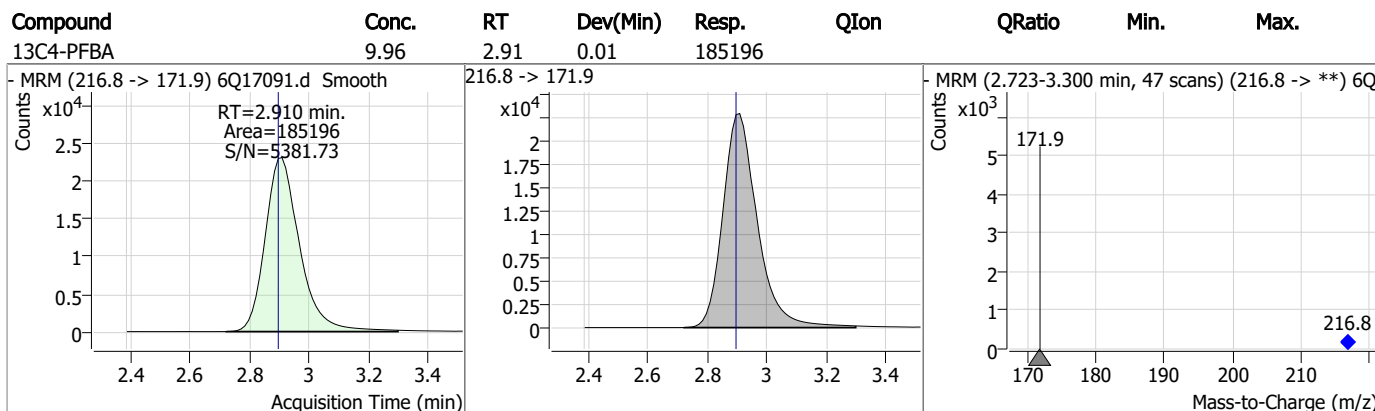
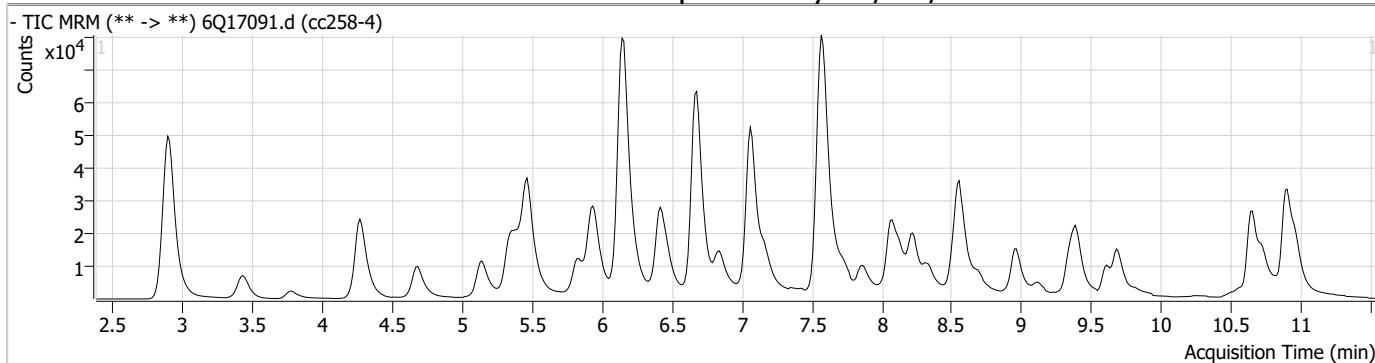
Perfluorinated Compounds by LC/MS/MS

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

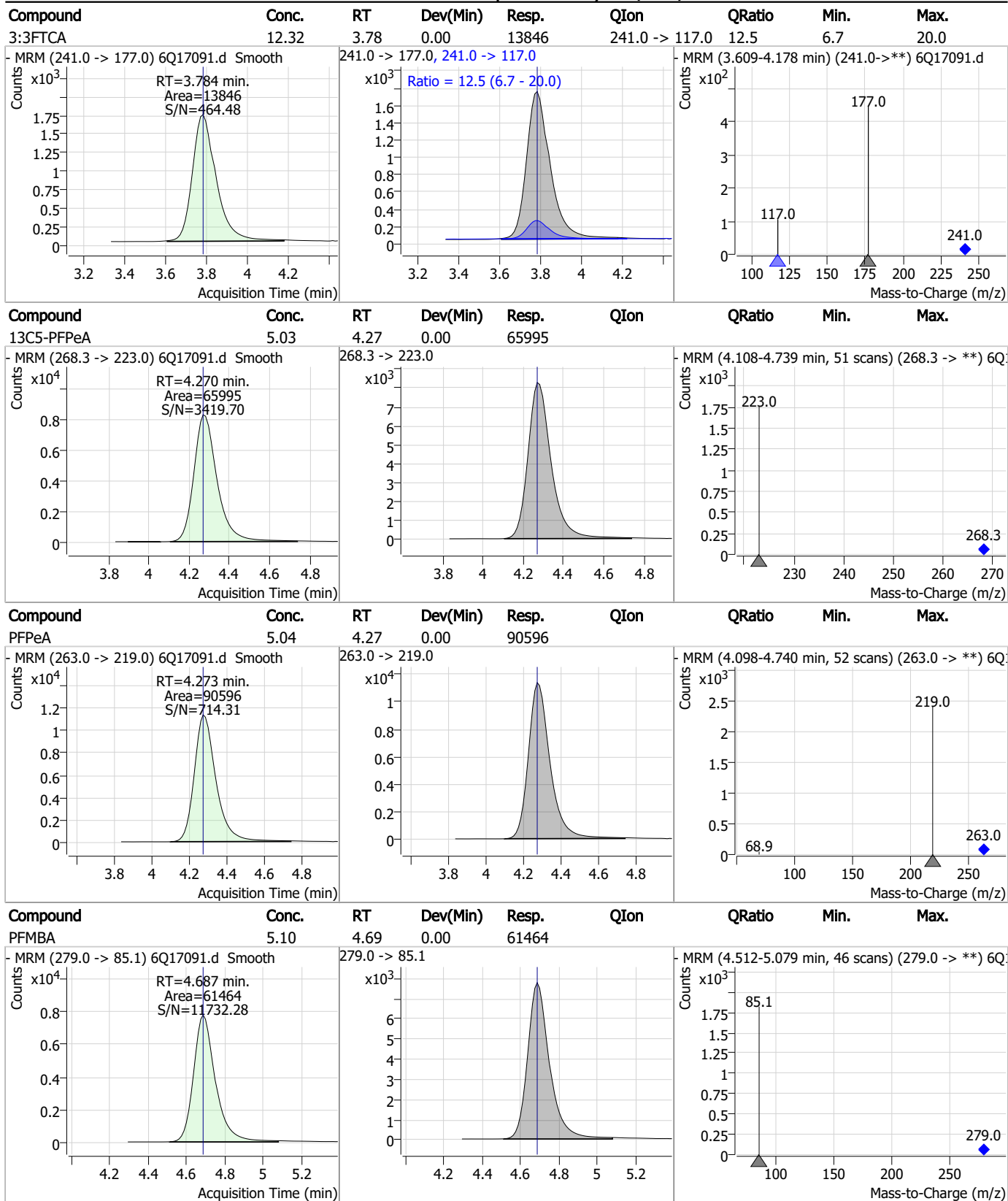
7.7.30

7

Perfluorinated Compounds by LC/MS/MS

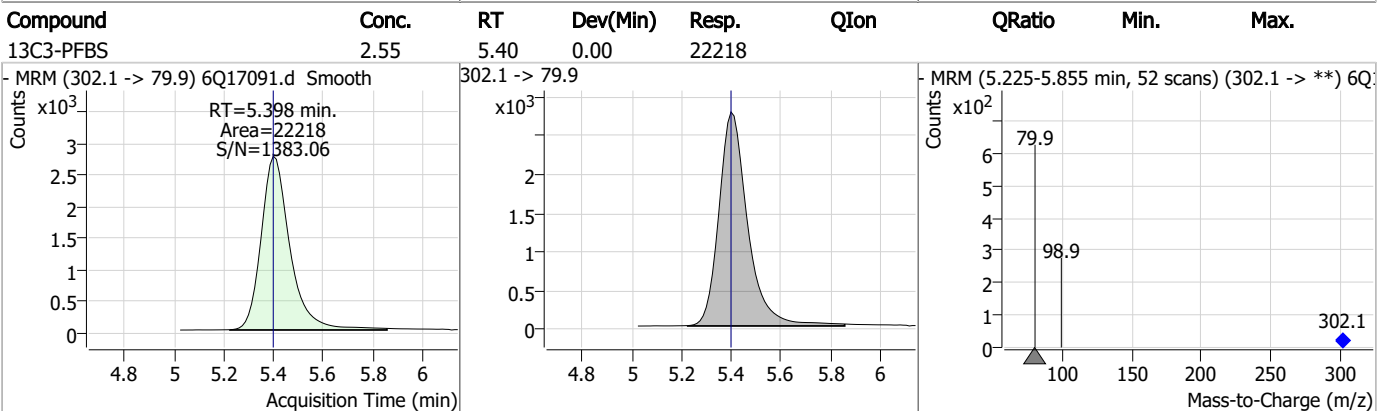
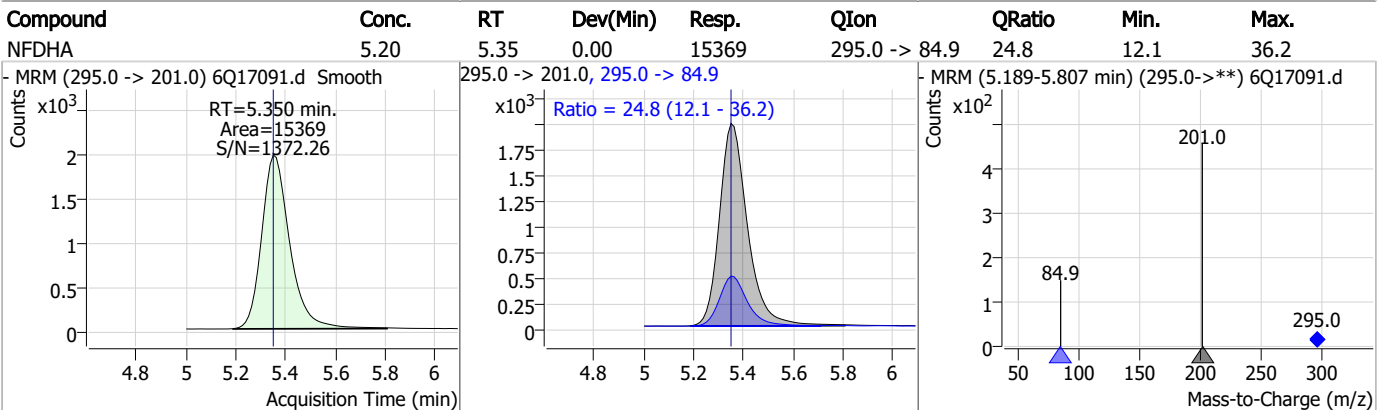
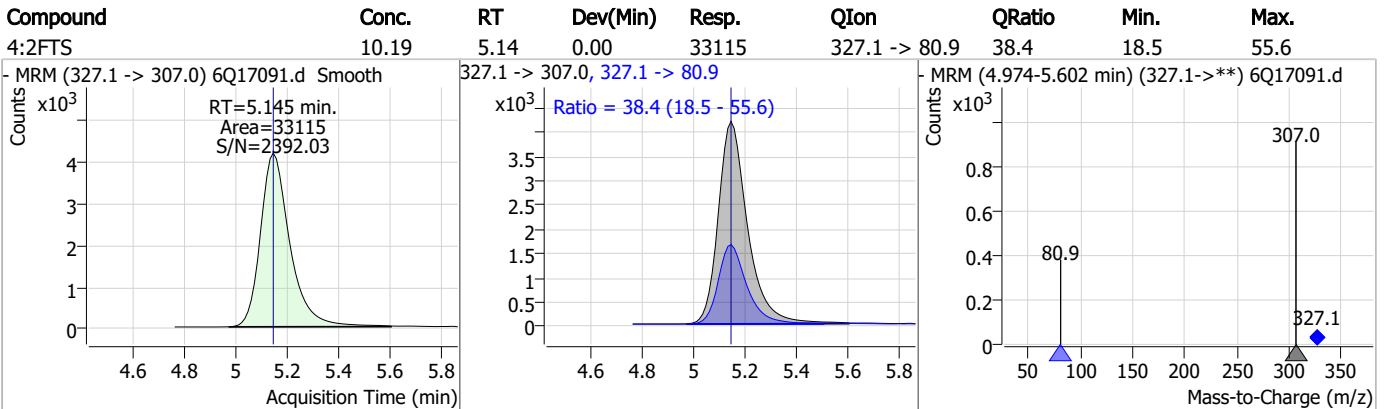
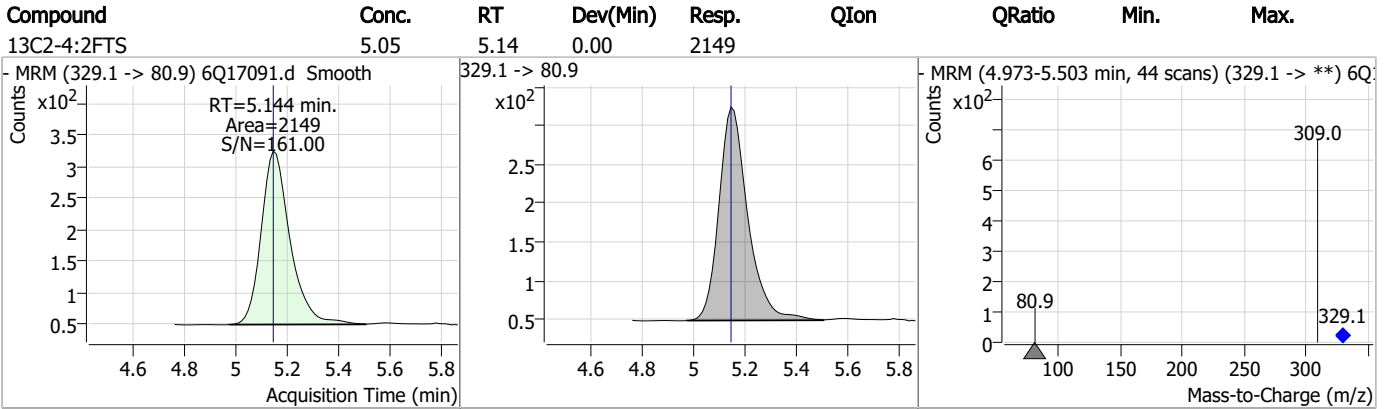


Perfluorinated Compounds by LC/MS/MS



7.7.30
7

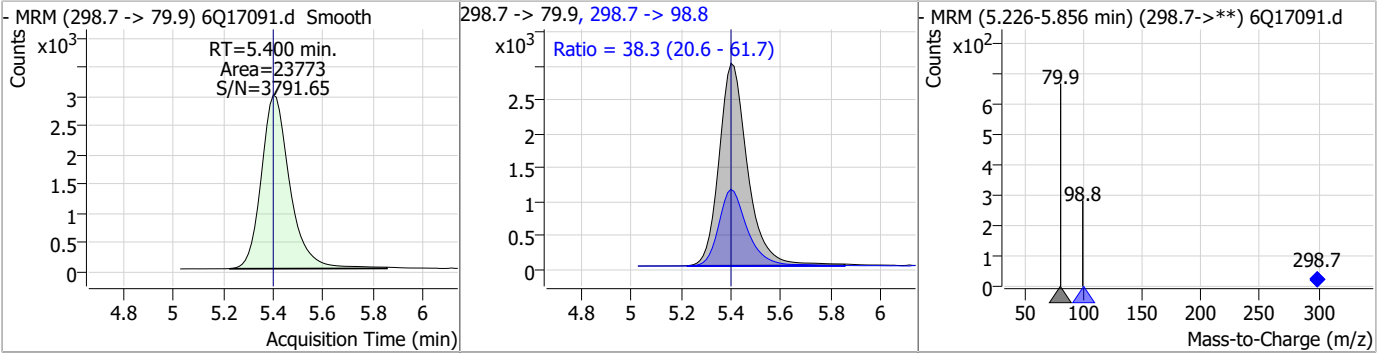
Perfluorinated Compounds by LC/MS/MS



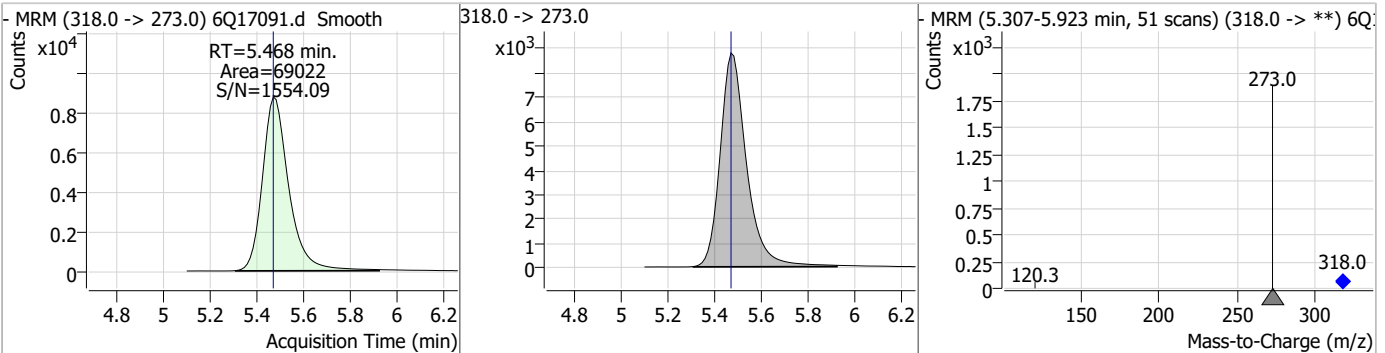
7.7.30
7

Perfluorinated Compounds by LC/MS/MS

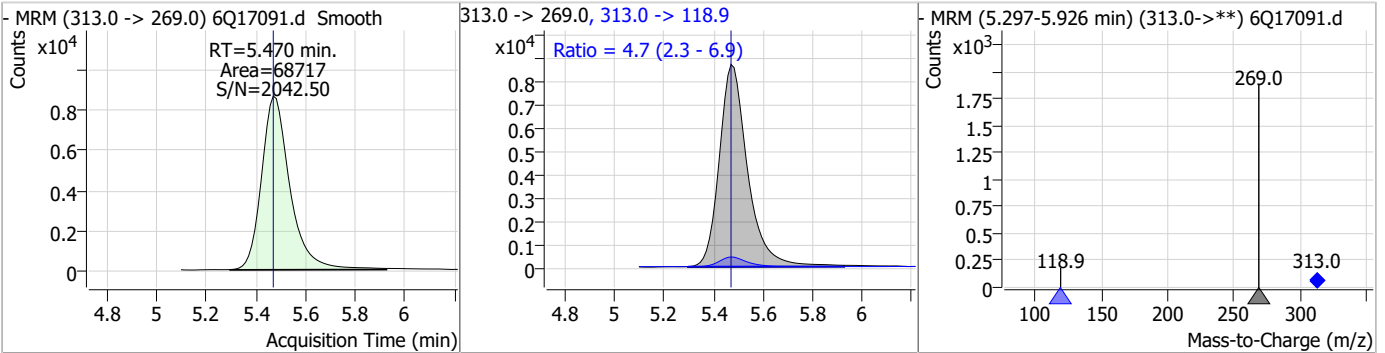
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFBS	2.38	5.40	0.00	23773	298.7 -> 98.8	38.3	20.6	61.7



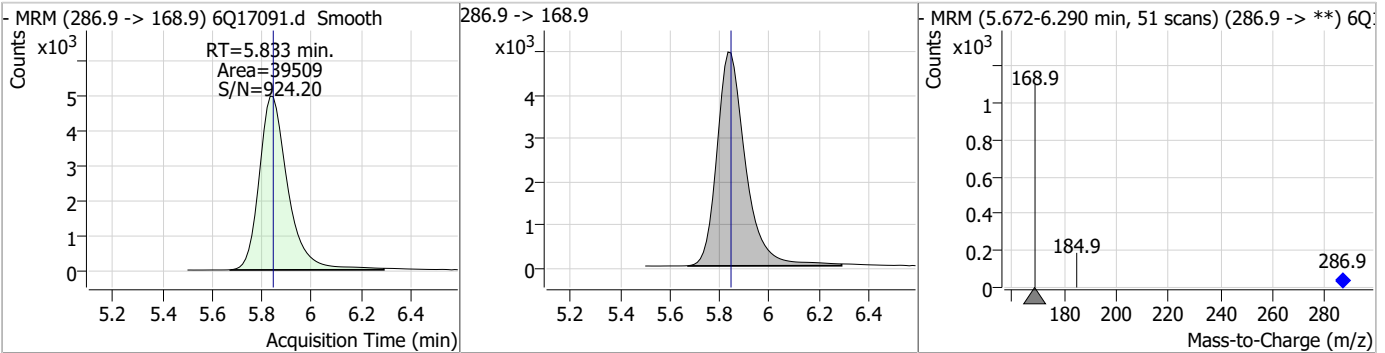
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C5-PFHxA	2.44	5.47	0.00	69022				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFHxA	2.52	5.47	0.00	68717	313.0 -> 118.9	4.7	2.3	6.9

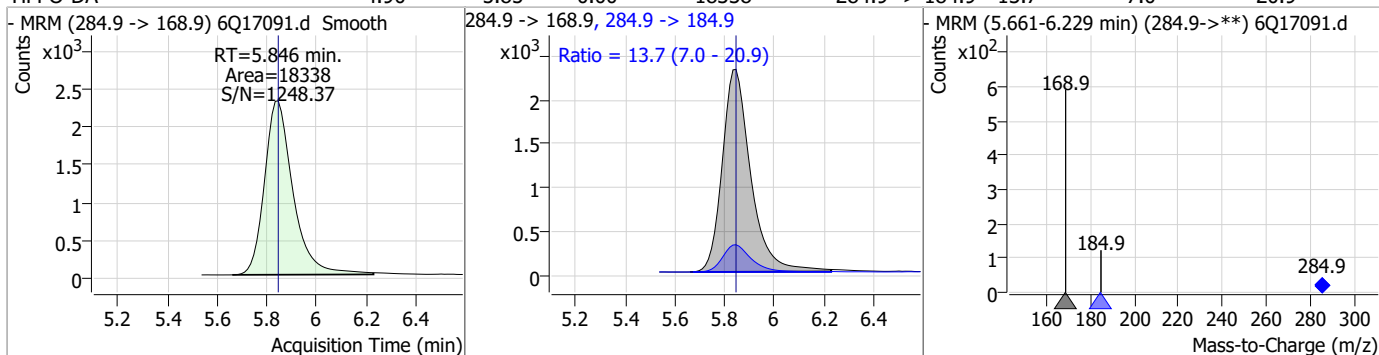


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C3-HFPO-DA	9.51	5.83	-0.01	39509				

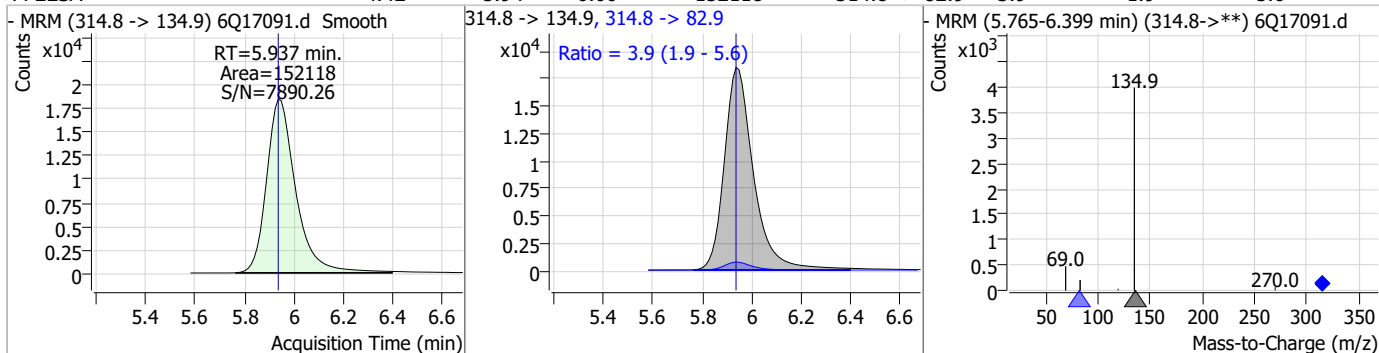


Perfluorinated Compounds by LC/MS/MS

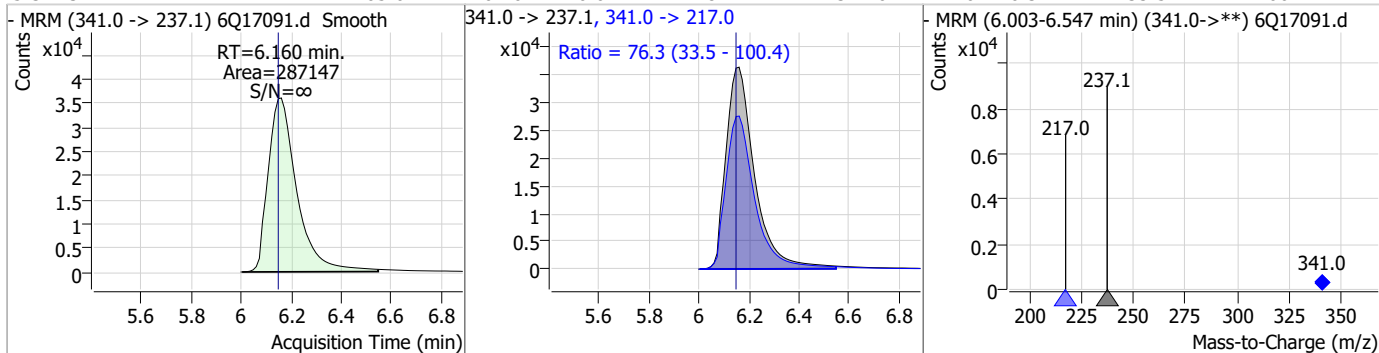
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
HFPO-DA	4.90	5.85	0.00	18338	284.9 -> 184.9	13.7	7.0	20.9



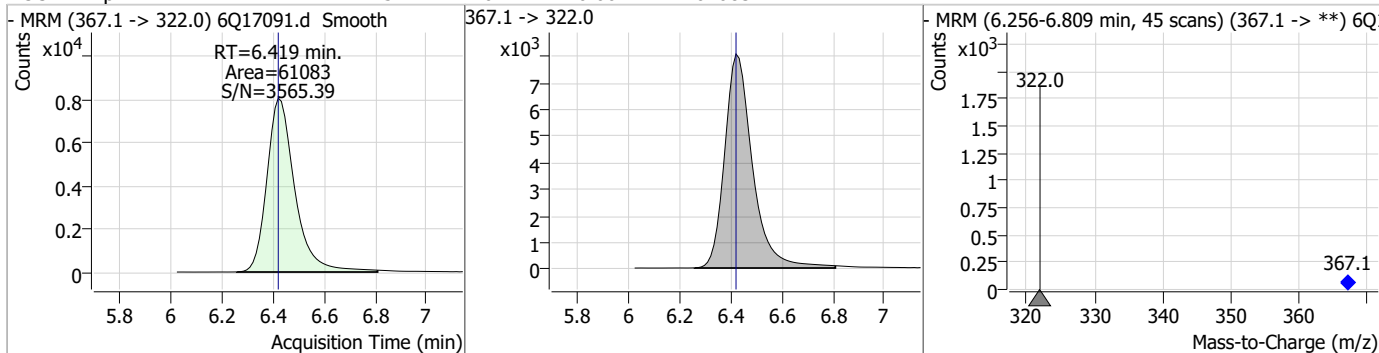
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFEESA	4.42	5.94	0.00	152118	314.8 -> 82.9	3.9	1.9	5.6



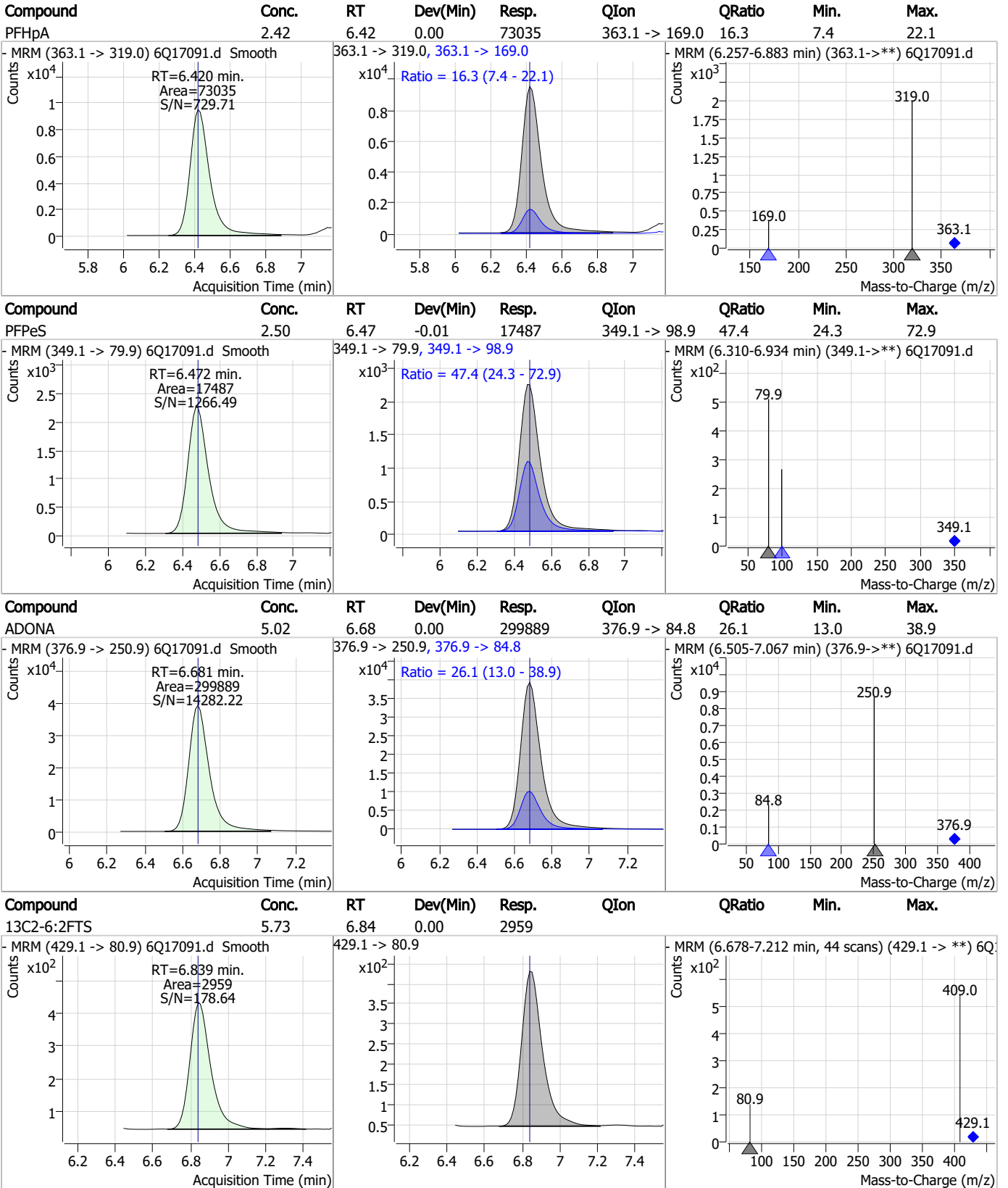
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
5:3FTCA	65.02	6.16	0.01	287147	341.0 -> 217.0	76.3	33.5	100.4



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C4-PFHpa	2.54	6.42	0.00	61083	367.1 -> 322.0			

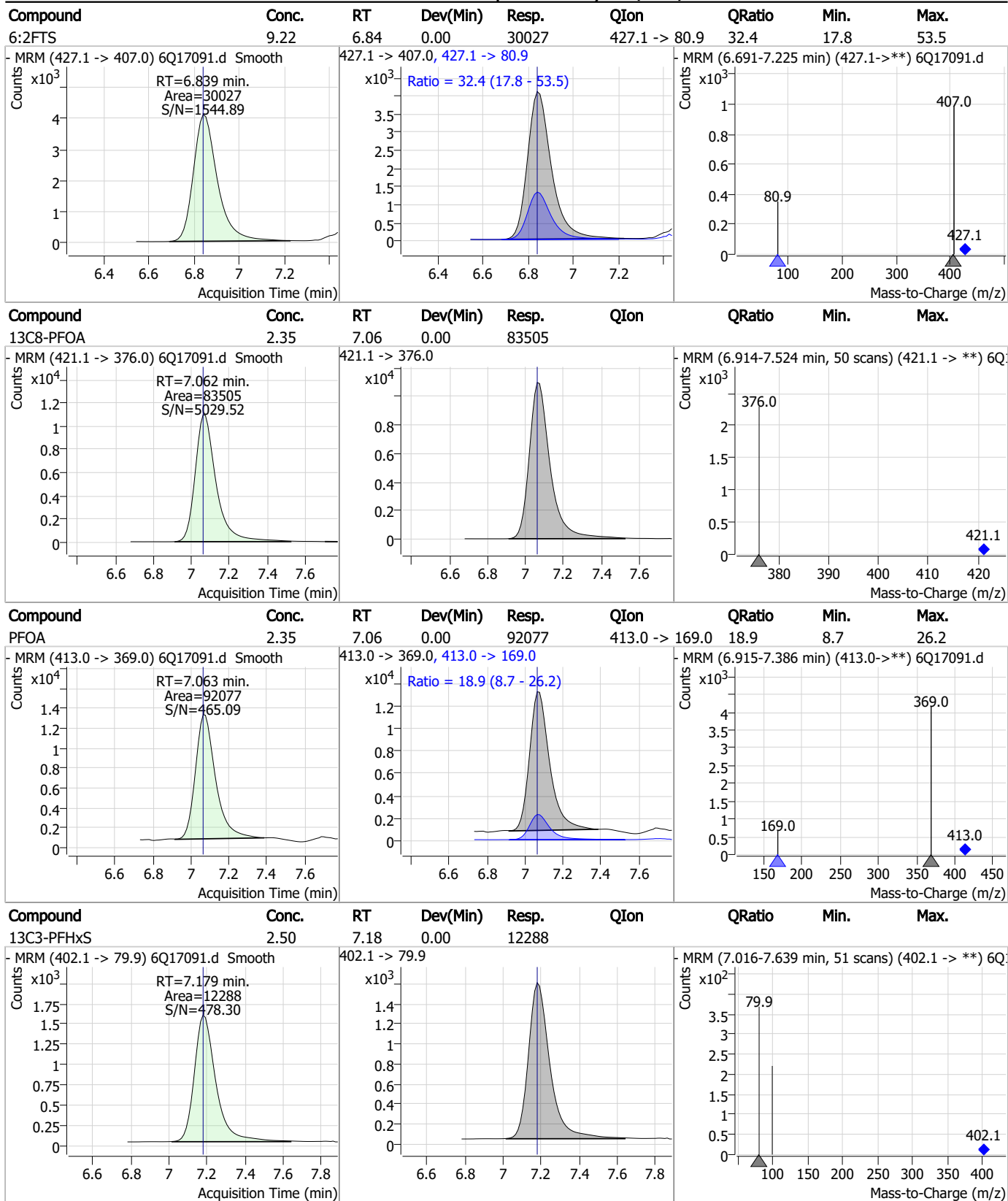


Perfluorinated Compounds by LC/MS/MS



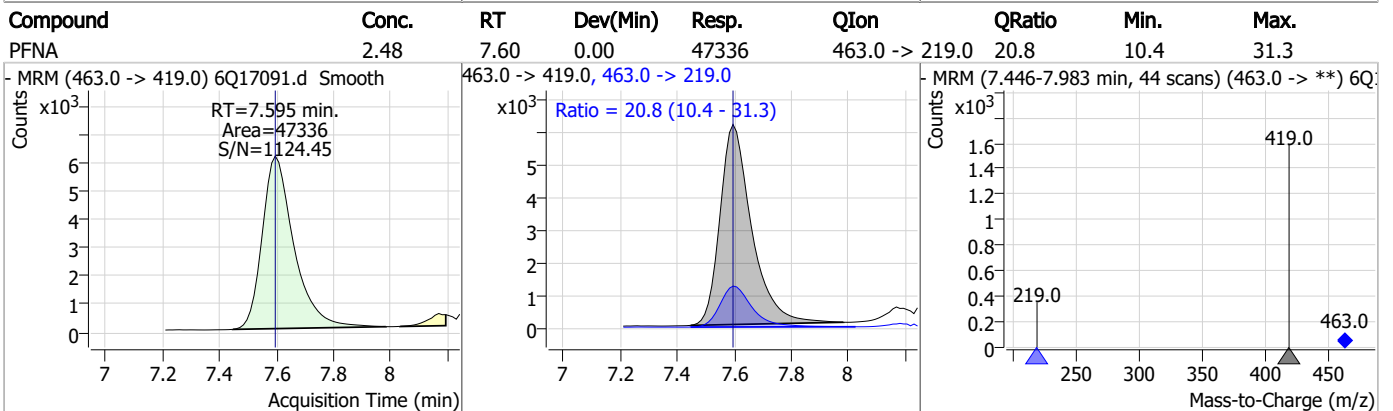
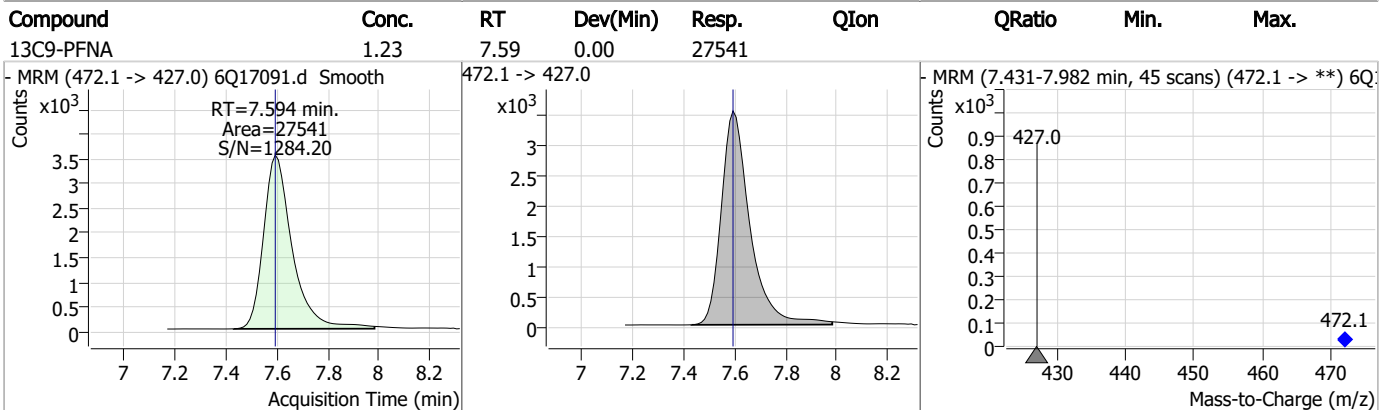
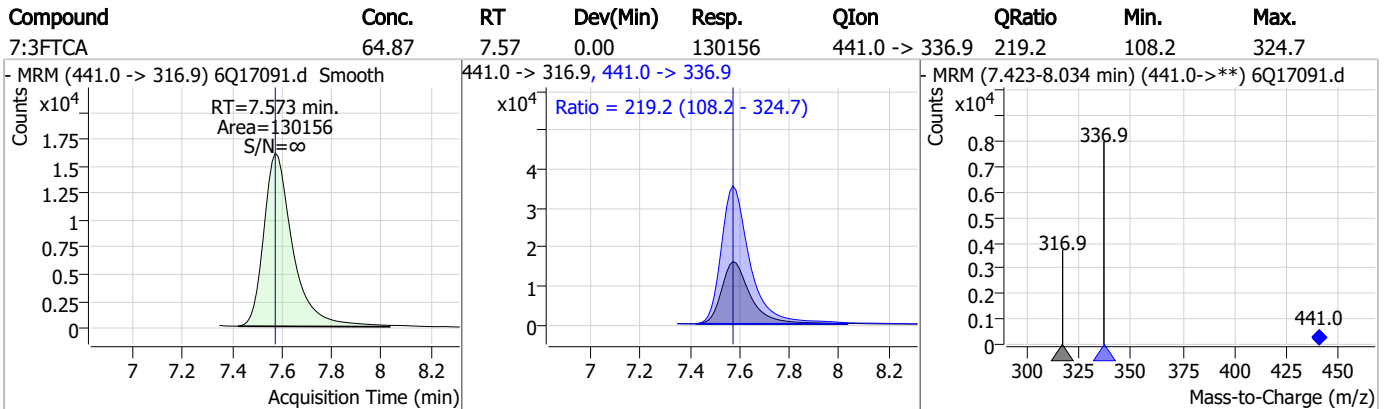
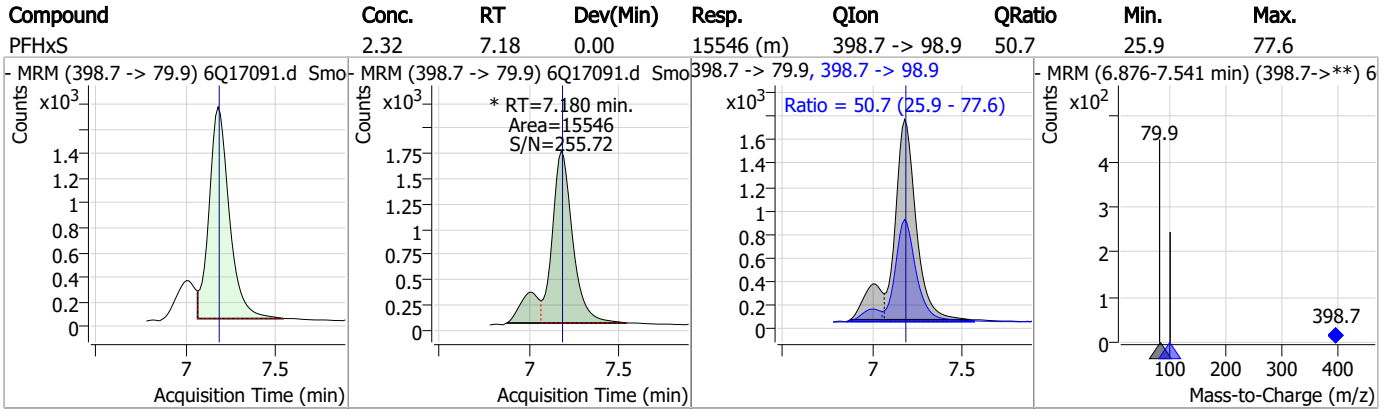
7.7.30 7

Perfluorinated Compounds by LC/MS/MS



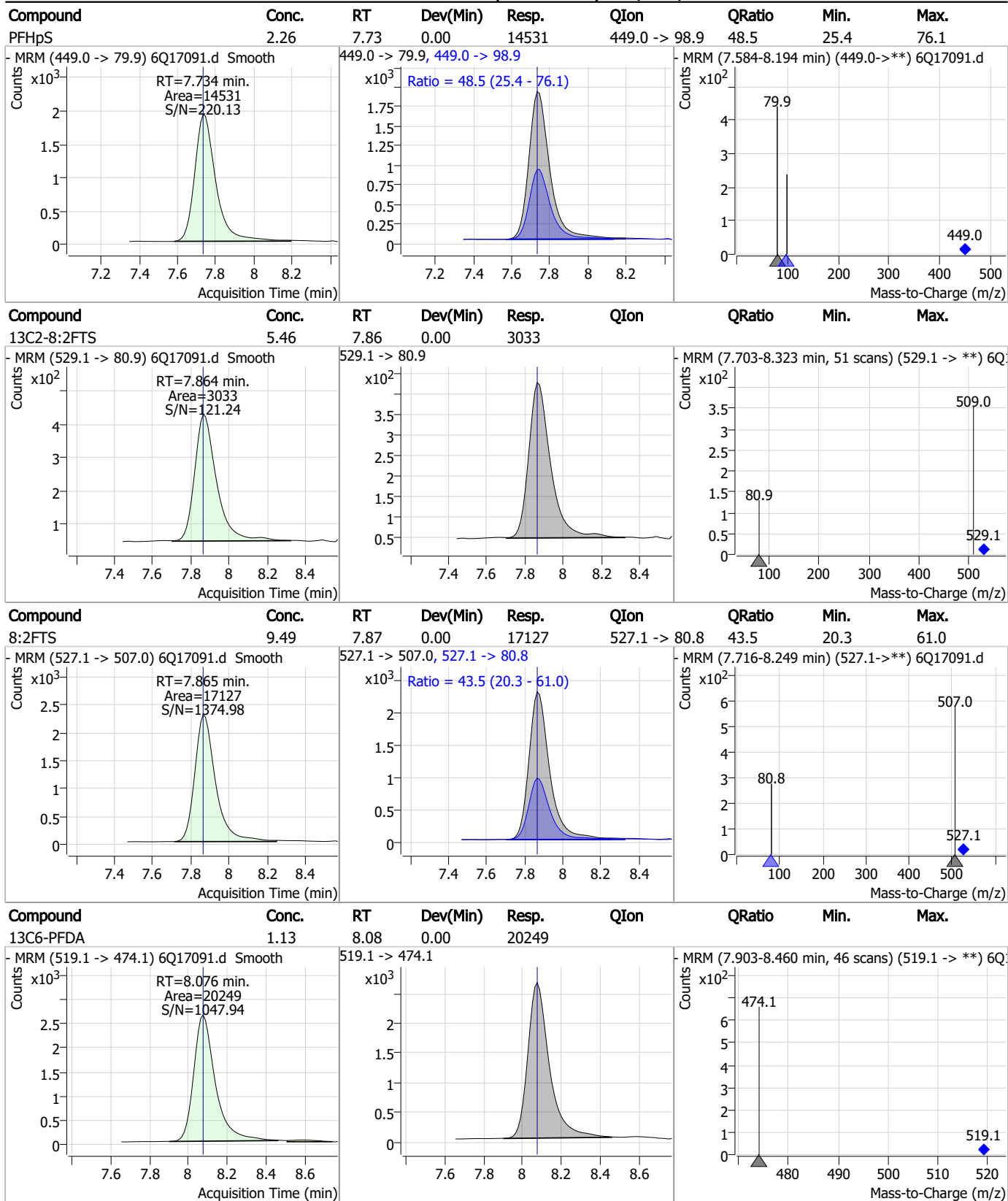
7.7.30
7

Perfluorinated Compounds by LC/MS/MS



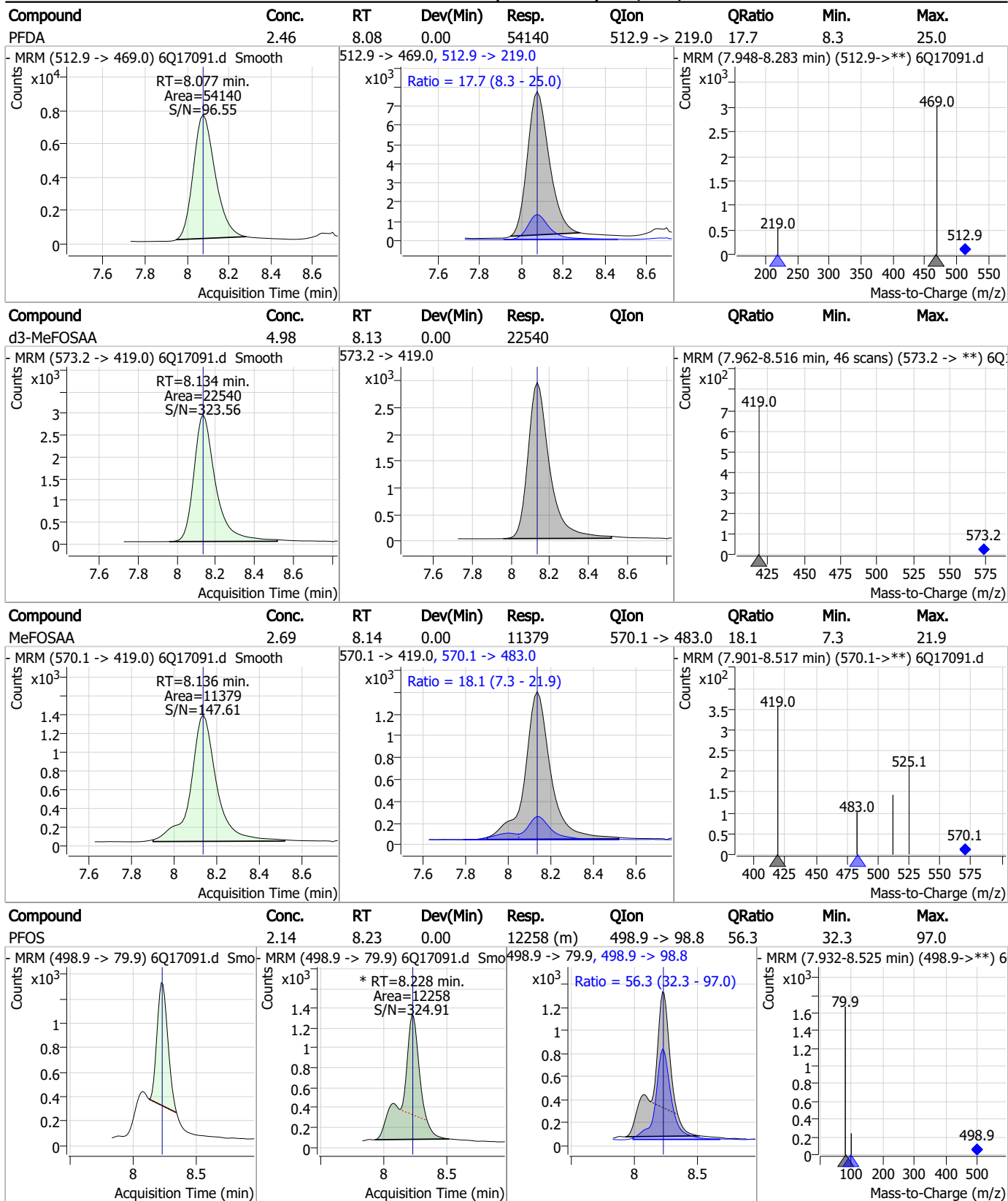
7.7.30
7

Perfluorinated Compounds by LC/MS/MS



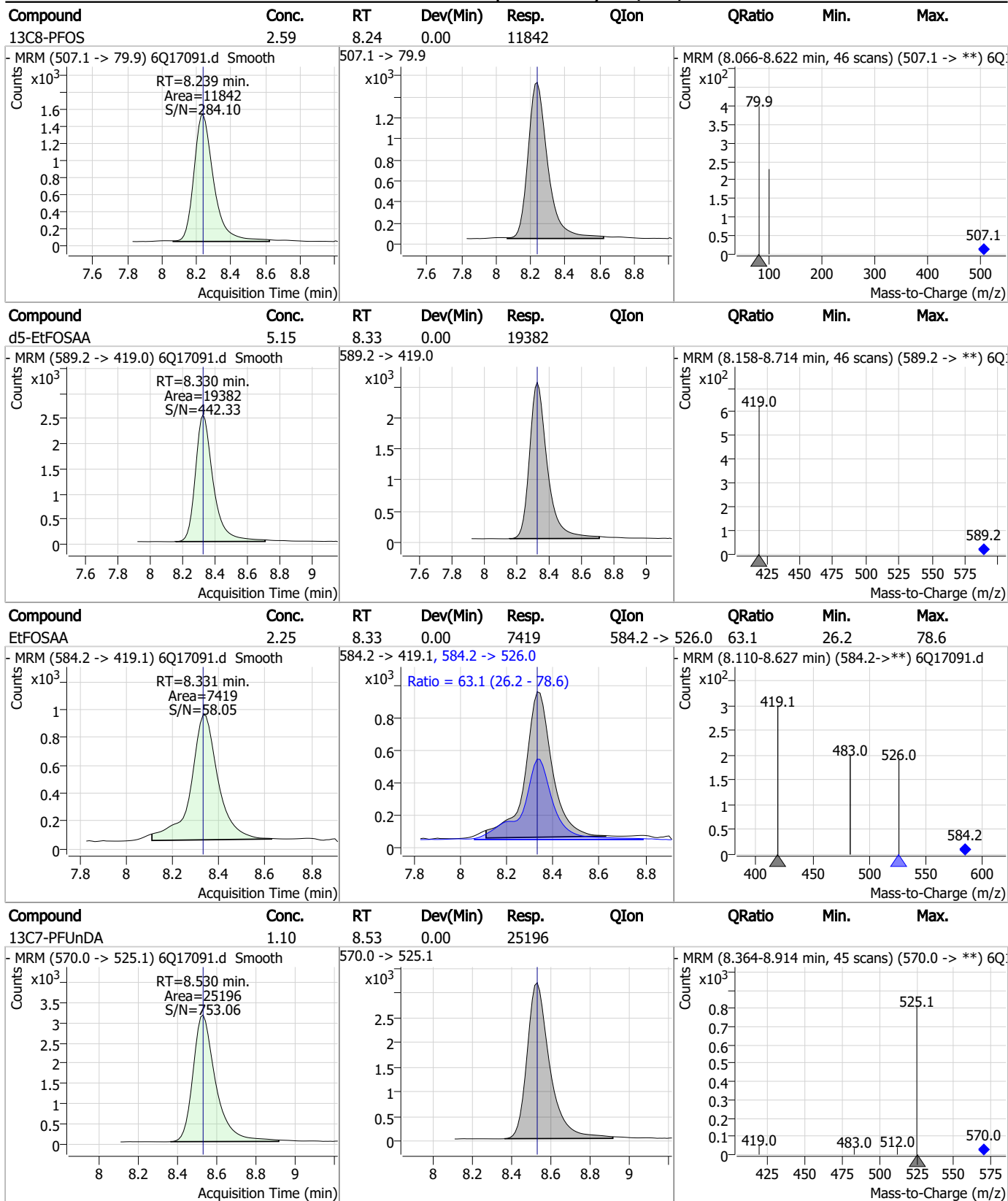
7.7.30
7

Perfluorinated Compounds by LC/MS/MS



7.7.30
7

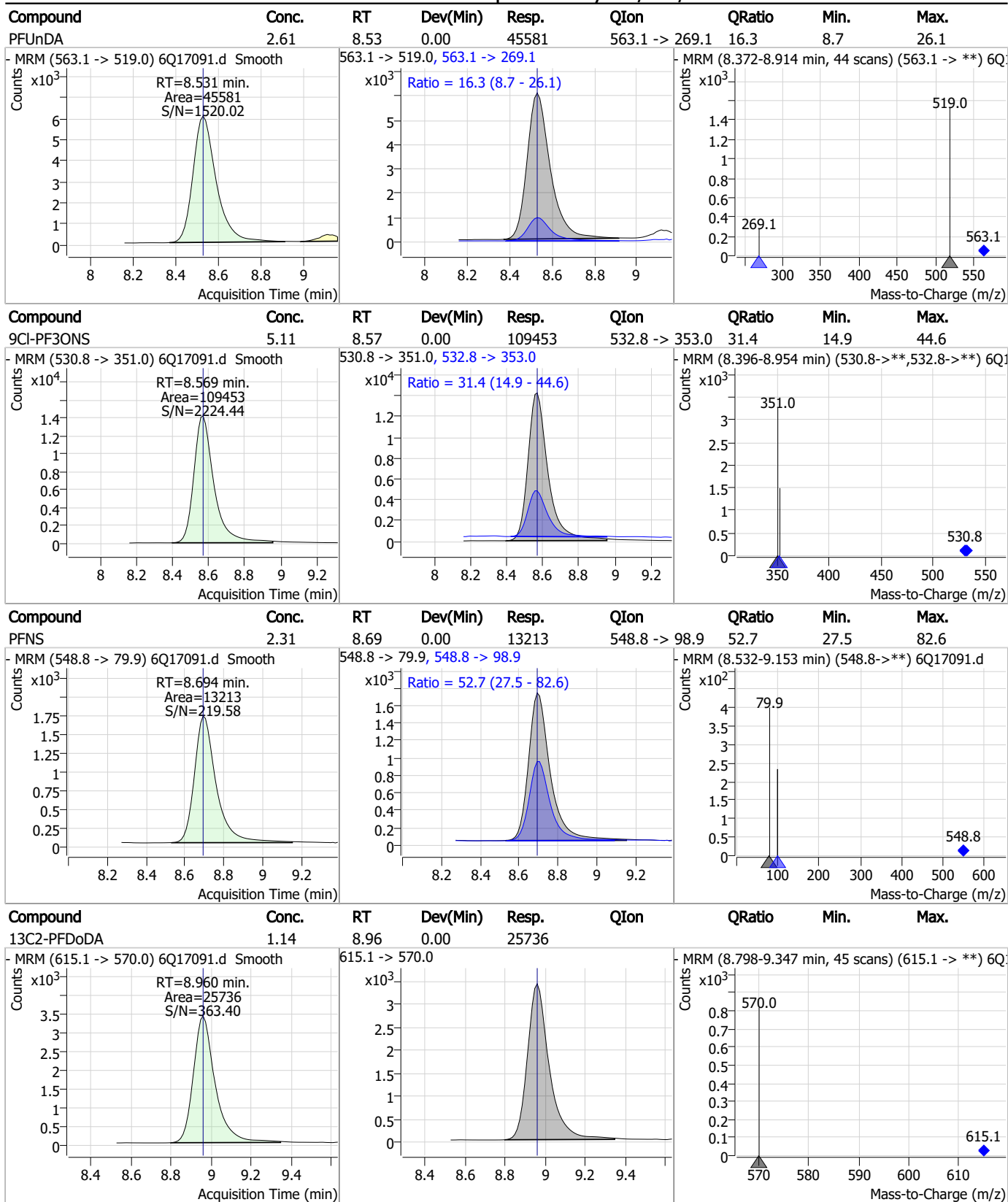
Perfluorinated Compounds by LC/MS/MS



7.7.30
7

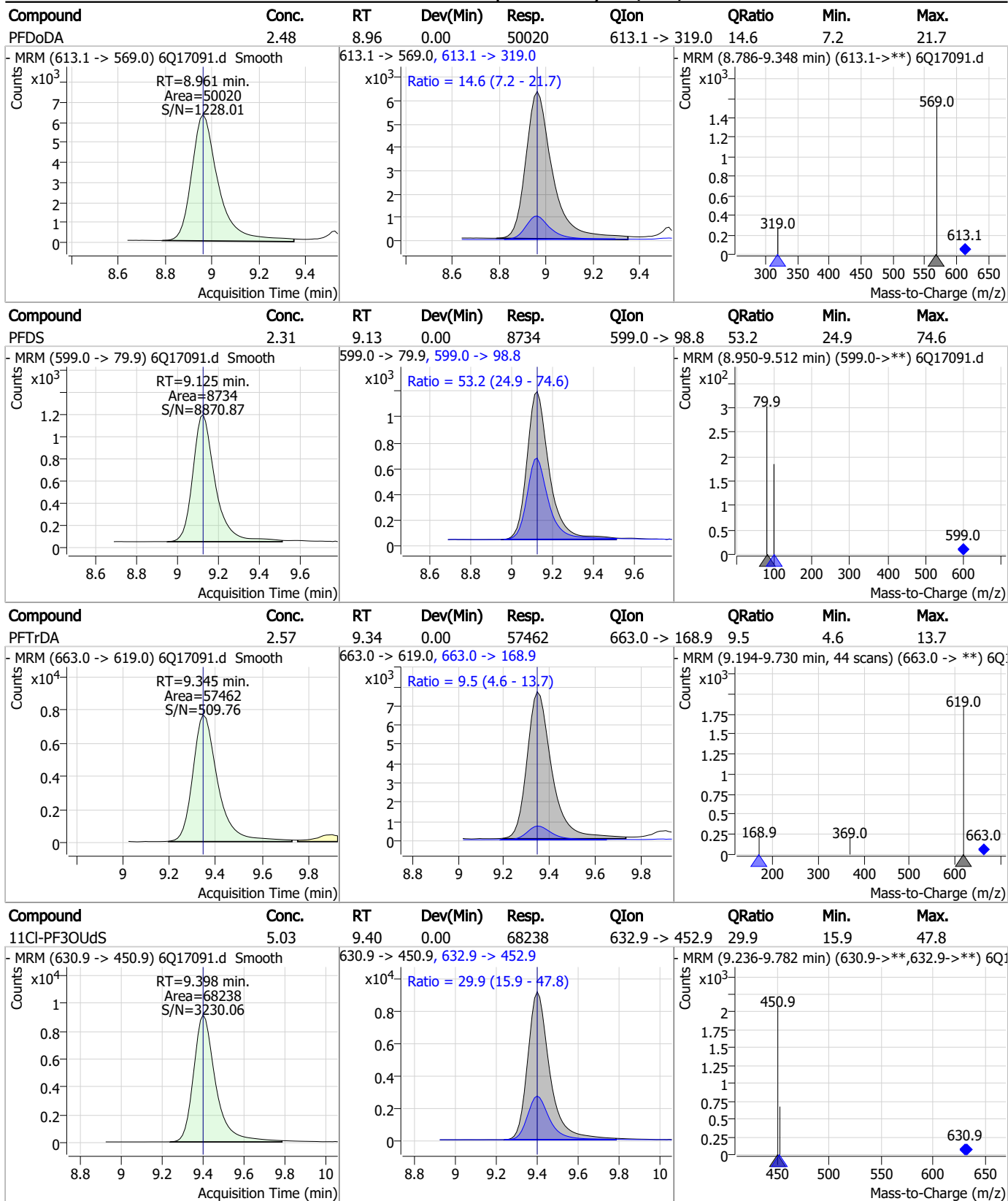


Perfluorinated Compounds by LC/MS/MS



7.7.30
7

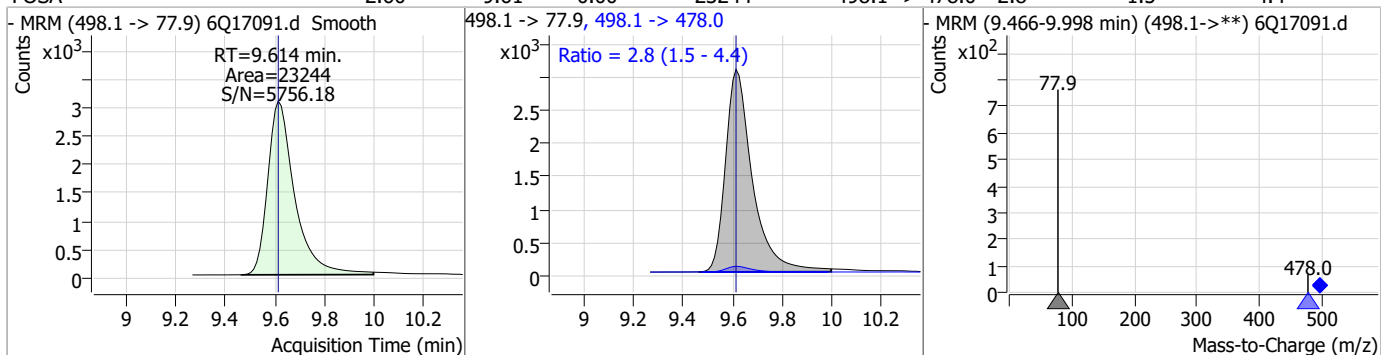
Perfluorinated Compounds by LC/MS/MS



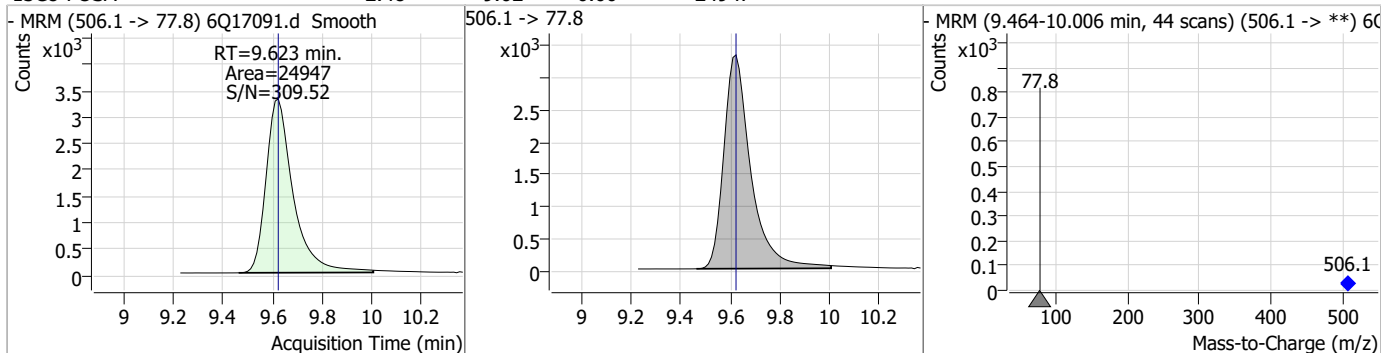
7.7.30
7

Perfluorinated Compounds by LC/MS/MS

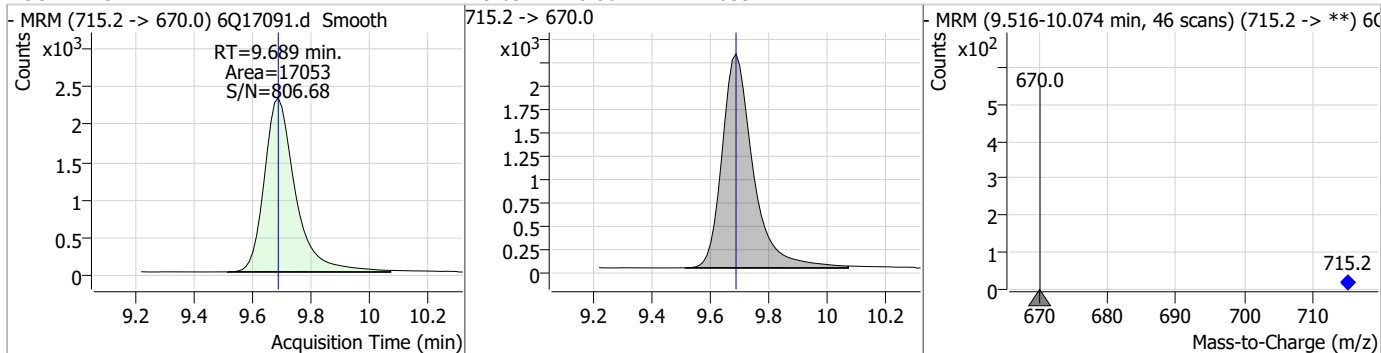
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
FOSA	2.60	9.61	0.00	23244	498.1 -> 478.0	2.8	1.5	4.4



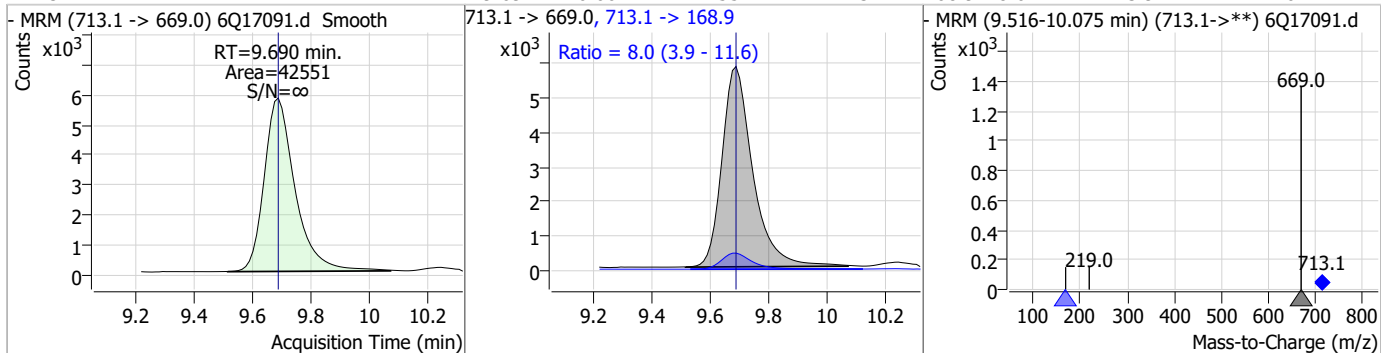
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C8-FOSA	2.48	9.62	0.00	24947				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
13C2-PFTeDA	1.12	9.69	0.00	17053				

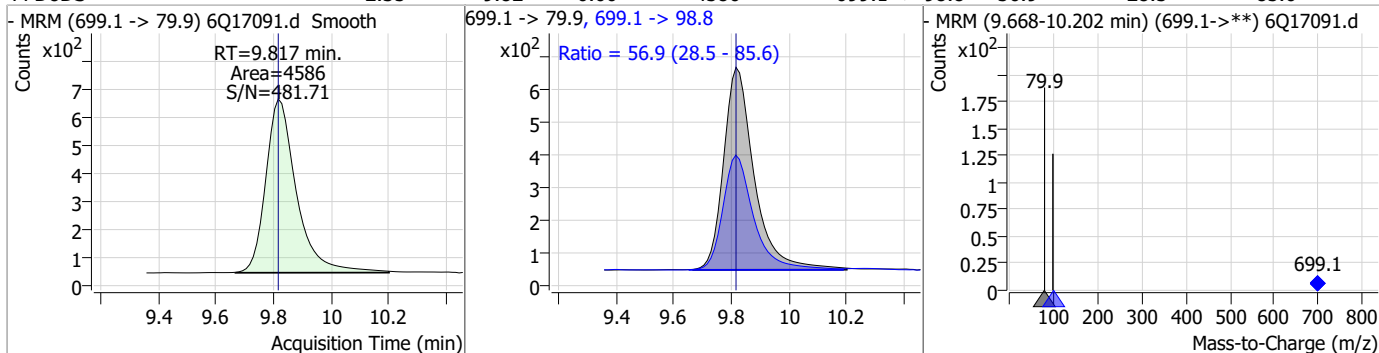


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFTeDA	2.47	9.69	0.00	42551	713.1 -> 168.9	8.0	3.9	11.6

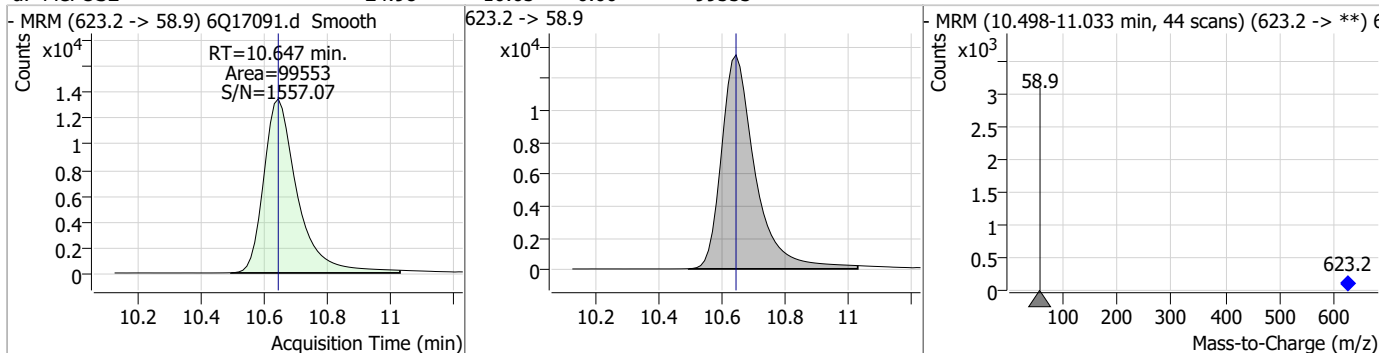


Perfluorinated Compounds by LC/MS/MS

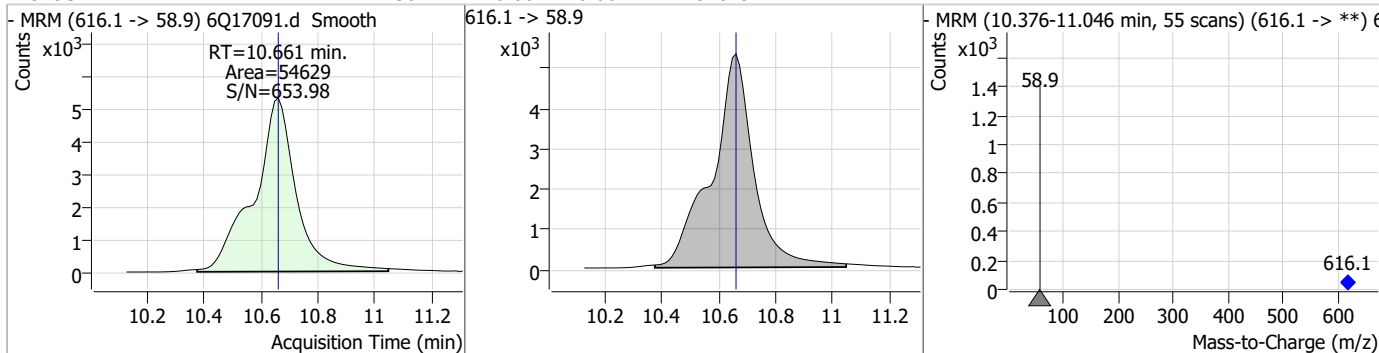
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
PFDoS	2.35	9.82	0.00	4586	699.1 -> 98.8	56.9	28.5	85.6



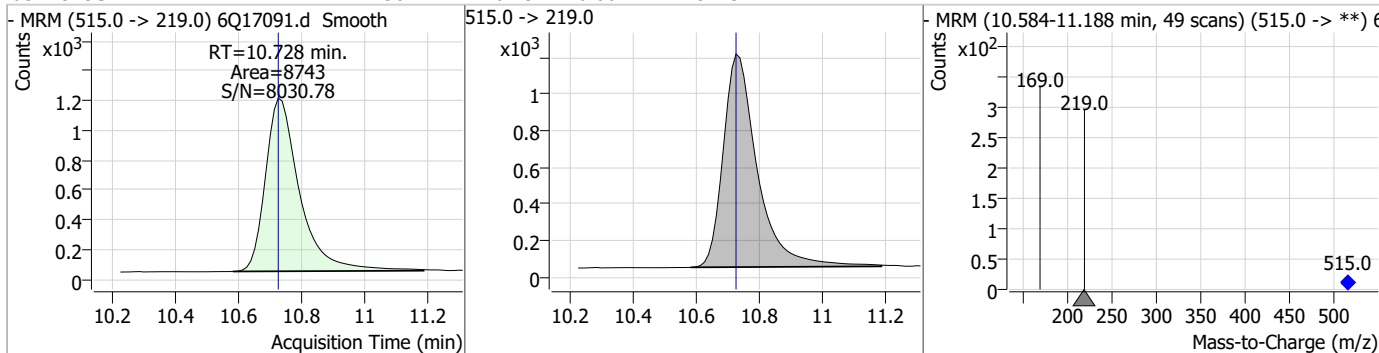
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d7-MeFOSE	24.98	10.65	0.00	99553				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSE	12.30	10.66	0.00	54629				

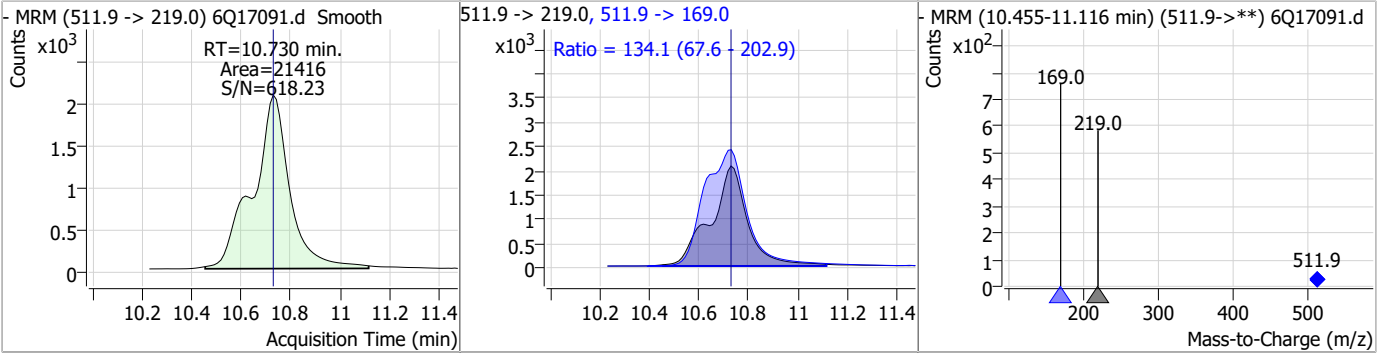


Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d3-MeFOSA	2.30	10.73	0.00	8743				

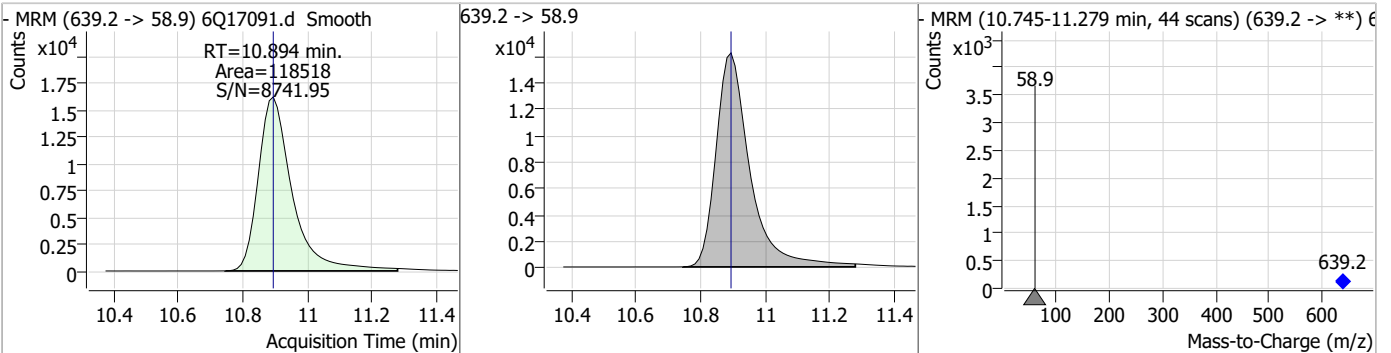


Perfluorinated Compounds by LC/MS/MS

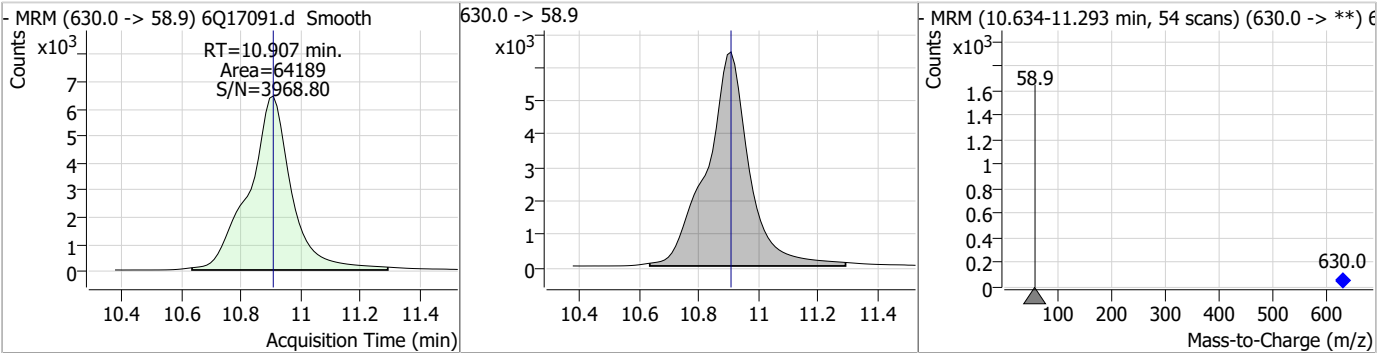
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
MeFOSA	5.44	10.73	0.00	21416	511.9 -> 169.0	134.1	67.6	202.9



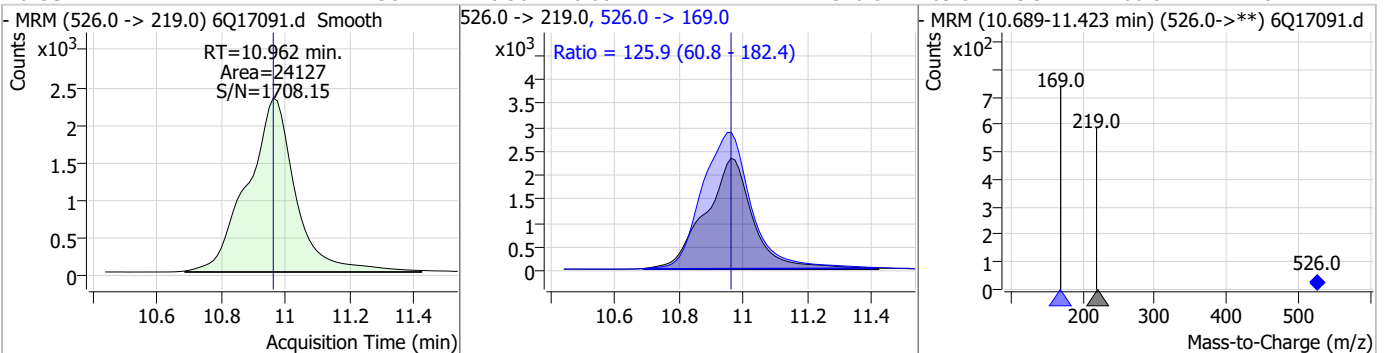
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
d9-EtFOSE	24.33	10.89	0.00	118518				



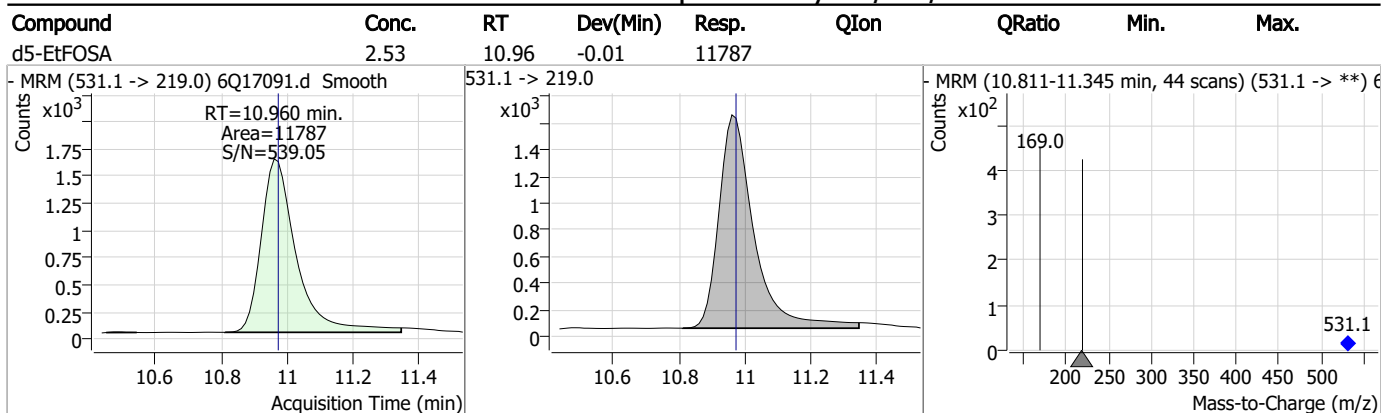
Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSE	13.01	10.91	0.00	64189				



Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
EtFOSA	4.98	10.96	0.00	24127	526.0 -> 169.0	125.9	60.8	182.4



Perfluorinated Compounds by LC/MS/MS



7.7.30
7



Manual Integration Approval Summary

Sample Number: S6Q258-CC258 Method: EPA DRAFT 1633
Lab FileID: 6Q17091.D Analyst approved: 04/30/23 23:33 Natasha Gumtie
Injection Time: 04/28/23 22:29 Supervisor approved: 04/30/23 23:52 Norman Farmer

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perfluorohexanesulfonic acid	355-46-4		7.18	Split peak
Perfluorooctanesulfonic acid	1763-23-1		8.23	Split peak

7.7.30.1

7

SGS ORLANDO

DATE:	05/03/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050323_S4Q634
CAL DATE:	05/03/23
ANALYST:	NG
RUN BATCH:	S4Q634

ELUENT A LOT #:	224863 W5%ACN 214785 2mMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/D STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43879.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
2	4Q43880.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
3	4Q43881.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	✓
4	4Q43882.d	P1-B2	RT br/h	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	✓
5	4Q43883.d	P1-A1	ic634-0	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	Check Tune File
6	4Q43884.d	P1-A2	ic634-1	1633full_4Q.m	Calibration	1.6/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
7	4Q43885.d	P1-A3	ic634-2	1633full_4Q.m	Calibration	3.2/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
8	4Q43886.d	P1-A4	ic634-3	1633full_4Q.m	Calibration	10/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
9	4Q43887.d	P1-A5	ic634-4	1633full_4Q.m	Calibration	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
10	4Q43888.d	P1-A6	ic634-5	1633full_4Q.m	Calibration	40/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
11	4Q43889.d	P1-A7	ic634-6	1633full_4Q.m	Calibration	100/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
12	4Q43890.d	P1-A8	ic634-7	1633full_4Q.m	Calibration	200/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
13	4Q43891.d	P1-A9	ic634-8	1633full_4Q.m	Calibration	1x	OP96548,S4Q634,500,,,5.0,1,water	PASS
14	4Q43892.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
15	4Q43893.d	P1-B3	icv634-4	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	wrong vial position, rerun icv
16	4Q43894.d	P1-B4	icv634-20	1633full_4Q.m	QC	100/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
17	4Q43895.d	P1-B3	icv634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
18	4Q43896.d	P1-A5	cc634-4	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	wrong vial position, (incorrect tray #)
19	4Q43897.d	P1-A2	cc634-1.0LL	1633full_4Q.m	QC	1.6/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
20	4Q43898.d	P1-B5	op96662-bs	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
21	4Q43899.d	P1-B6	op96662-llbs:3	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
22	4Q43900.d	P1-B7	op96662-mb	1633full_4Q.m	Sample		OP96662,S4Q634,500,,,5.0,1,water	✓
23	4Q43901.d	P1-B8	fc5652-1	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
24	4Q43902.d	P1-B9	fc5652-2	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
25	4Q43903.d	P1-C1	fc5685-1	1633full_4Q.m	Sample		OP96662,S4Q634,550,,,5.0,1,water	✓
26	4Q43904.d	P1-C2	fc5685-2	1633full_4Q.m	Sample		OP96662,S4Q634,530,,,5.0,1,water	✓
27	4Q43905.d	P1-C3	fc5685-3	1633full_4Q.m	Sample		OP96662,S4Q634,560,,,5.0,1,water	✓
28	4Q43906.d	P1-C4	op96662-ms	1633full_4Q.m	Sample		OP96662,S4Q634,520,,,5.0,1,water	✓
29	4Q43907.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
30	4Q43908.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
31	4Q43909.d	P1-C5	fc5685-4	1633full_4Q.m	Sample		OP96662,S4Q634,570,,,5.0,1,water	rr 5x high and low EIS
32	4Q43910.d	P1-C6	op96662-dup	1633full_4Q.m	Sample		OP96662,S4Q634,570,,,5.0,1,water	rr 5x high and low EIS
33	4Q43911.d	P1-C7	fc5685-5	1633full_4Q.m	Sample		OP96662,S4Q634,550,,,5.0,1,water	✓
34	4Q43912.d	P1-C8	op96659-bs	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
35	4Q43913.d	P1-C9	op96659-llbs:2	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓

Printed 5/4/2023 @ 2:21 PM



LCMS4-4Q ANALYSIS LOG

SGS ORLANDO

36	4Q43914.d	P1-D1	op96659-mb	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
37	4Q43915.d	P1-D2	jd63879-1	1633full_4Q.m	Sample		OP96659,S4Q634,60,,,5.0,1,water	✓
38	4Q43916.d	P1-D3	jd63879-1	1633full_4Q.m	Sample	50/500	OP96659,S4Q634,60,,,5.0,10,water	✓
39	4Q43917.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
40	4Q43918.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
41	4Q43919.d	P1-D4	fc5212-1	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
42	4Q43920.d	P1-D5	fc5212-1A	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
43	4Q43921.d	P1-D6	fc5214-1	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
44	4Q43922.d	P1-D7	fc5214-1A	1633full_4Q.m	Sample		OP96659,S4Q634,500,,,5.0,1,water	✓
45	4Q43923.d	P1-D8	op96657-bs	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	DoDS low rerun BS
46	4Q43924.d	P1-D9	op96657-llbs:3	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	DoDS low rerun LLBS
47	4Q43925.d	P1-E1	op96657-mb	1633full_4Q.m	Sample		OP96657,S4Q634,5.00,,,5.0,1,soil	✓
48	4Q43926.d	P1-E2	fc5371-10	1633full_4Q.m	Sample		OP96657,S4Q634,4.98,,,5.0,1,soil	✓
49	4Q43927.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
50	4Q43928.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
51	4Q43929.d	P1-E3	fc5371-11	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	✓
52	4Q43930.d	P1-E4	op96657-ms	1633full_4Q.m	Sample		OP96657,S4Q634,5.01,,,5.0,1,soil	✓
53	4Q43931.d	P1-E5	op96657-msd	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	✓
54	4Q43932.d	P1-E6	fc5371-12	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	✓
55	4Q43933.d	P1-E7	fc5371-13	1633full_4Q.m	Sample		OP96657,S4Q634,5.04,,,5.0,1,soil	rr 10x
56	4Q43934.d	P1-E8	fc5371-14	1633full_4Q.m	Sample		OP96657,S4Q634,5.02,,,5.0,1,soil	rr 1x c/o
57	4Q43935.d	P1-E9	fc5371-15	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
58	4Q43936.d	P1-F1	fc5371-16	1633full_4Q.m	Sample		OP96657,S4Q634,4.97,,,5.0,1,soil	rr 10x
59	4Q43937.d	P1-F2	fc5371-17	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	rr 1x c/o
60	4Q43938.d	P1-F3	fc5371-18	1633full_4Q.m	Sample		OP96657,S4Q634,5.03,,,5.0,1,soil	rr 10x
61	4Q43939.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
62	4Q43940.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND
63	4Q43941.d	P1-F4	fc5371-19	1633full_4Q.m	Sample		OP96657,S4Q634,4.96,,,5.0,1,soil	✓
64	4Q43942.d	P1-F5	fc5371-20	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
65	4Q43943.d	P1-F6	op96657-ms2	1633full_4Q.m	Sample		OP96657,S4Q634,4.96,,,5.0,1,soil	✓
66	4Q43944.d	P1-F7	op96657-msd2	1633full_4Q.m	Sample		OP96657,S4Q634,5.05,,,5.0,1,soil	✓
67	4Q43945.d	P1-F8	fc5371-21	1633full_4Q.m	Sample		OP96657,S4Q634,4.99,,,5.0,1,soil	✓
68	4Q43946.d	P1-A5	ecc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q634,500,,,5.0,1,water	PASS
69	4Q43947.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q634,500,,,5.0,1,water	ND

SGS ORLANDO

DATE:	05/04/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	6 ul
INSTRUMENT:	LCMS4-4Q

LCMS4-4Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_050323_S4Q634
CAL DATE:	05/03/23
ANALYST:	NG
RUN BATCH:	S4Q635

ELUENT A LOT #:	224863 W5%ACN 214785 2mMAMAC.11387
ELUENT B LOT #:	ACN 214785
IC/CC STD LOT #:	LCMS 2098
ICV STD LOT #:	LCMS 2098B/2100B
ISTD/ID STD LOT #:	11615/11636

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	4Q43948.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q635,500,,,5.0,1,water	ND
2	4Q43949.d	P1-A1	CCB	1633full_4Q.m	Sample		OP96548,S4Q635,500,,,5.0,1,water	ND
3	4Q43950.d	P1-B1	RT TDCA	1633full_4Q.m	Sample		OP96548,S4Q635,500,,,5.0,1,water	✓
4	4Q43951.d	P1-B2	RT br/h	1633full_4Q.m	Sample		OP96548,S4Q635,500,,,5.0,1,water	✓
5	4Q43952.d	P1-A9	high std	1633full_4Q.m	Sample		OP96548,S4Q635,500,,,5.0,1,water	✓
6	4Q43953.d	P1-A1	iblk	1633full_4Q.m	Sample		OP96548,S4Q635,500,,,5.0,1,water	ND
7	4Q43954.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q635,500,,,5.0,1,water	PASS
8	4Q43955.d	P1-A2	cc634-1.0LL	1633full_4Q.m	QC	1.6/500	OP96548,S4Q635,500,,,5.0,1,water	PASS
9	4Q43956.d	P2-A1	op96698-bs	1633full_4Q.m	Sample		OP96698,S4Q635,500,,,5.0,1,water	✓
10	4Q43957.d	P2-A2	op96698-llbs:3	1633full_4Q.m	Sample		OP96698,S4Q635,500,,,5.0,1,water	✓
11	4Q43958.d	P2-A3	op96698-imb	1633full_4Q.m	Sample		OP96698,S4Q635,500,,,5.0,1,water	✓
12	4Q43959.d	P2-A4	fc5578-1	1633full_4Q.m	Sample		OP96698,S4Q635,540,,,5.0,1,water	✓
13	4Q43960.d	P2-A5	fc5063-1	1633full_4Q.m	Sample		OP96698,S4Q635,565,,,5.0,1,water	✓
14	4Q43961.d	P2-A6	fc5063-2	1633full_4Q.m	Sample		OP96698,S4Q635,565,,,5.0,1,water	✓
15	4Q43962.d	P2-A7	fc5240-5	1633full_4Q.m	Sample		OP96698,S4Q635,60,,,5.0,1,water	✓
16	4Q43963.d	P2-A8	fc5240-5	1633full_4Q.m	Sample	50/500	OP96698,S4Q635,60,,,5.0,1,water	✓
17	4Q43964.d	P2-A9	fc5240-6	1633full_4Q.m	Sample		OP96698,S4Q635,60,,,5.0,1,water	✓
18	4Q43965.d	P2-B1	fc5240-6	1633full_4Q.m	Sample	50/500	OP96698,S4Q635,60,,,5.0,1,water	✓
19	4Q43966.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q635,500,,,5.0,1,water	PASS
20	4Q43967.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q635,500,,,5.0,1,water	ND
21	4Q43968.d	P2-B2	op96701-bs	1633full_4Q.m	Sample		OP96701,S4Q635,500,,,5.0,1,water	✓
22	4Q43969.d	P2-B3	op96701-llbs:3	1633full_4Q.m	Sample		OP96701,S4Q635,500,,,5.0,1,water	✓
23	4Q43970.d	P2-B4	op96701-imb	1633full_4Q.m	Sample		OP96701,S4Q635,500,,,5.0,1,water	✓
24	4Q43971.d	P2-B5	fc5726-1	1633full_4Q.m	Sample		OP96701,S4Q635,520,,,5.0,1,water	✓
25	4Q43972.d	P2-B6	fc5726-2	1633full_4Q.m	Sample		OP96701,S4Q635,520,,,5.0,1,water	✓
26	4Q43973.d	P2-B7	op96701-ms	1633full_4Q.m	Sample		OP96701,S4Q635,540,,,5.0,1,water	✓
27	4Q43974.d	P2-B8	fc5726-3	1633full_4Q.m	Sample		OP96701,S4Q635,560,,,5.0,1,water	✓
28	4Q43975.d	P2-B9	op96701-dup	1633full_4Q.m	Sample		OP96701,S4Q635,570,,,5.0,1,water	✓
29	4Q43976.d	P2-C1	fc5726-4	1633full_4Q.m	Sample		OP96701,S4Q635,570,,,5.0,1,water	✓
30	4Q43977.d	P2-C2	fc5726-5	1633full_4Q.m	Sample		OP96701,S4Q635,520,,,5.0,1,water	✓
31	4Q43978.d	P1-A5	cc634-4	1633full_4Q.m	QC	20/500	OP96548,S4Q635,500,,,5.0,1,water	PASS
32	4Q43979.d	P1-A1	iccb	1633full_4Q.m	Sample		OP96548,S4Q635,500,,,5.0,1,water	ND
33	4Q43980.d	P2-C3	fc5685-4	1633full_4Q.m	Sample	100/500	OP96662,S4Q635,570,,,5.0,5,water	✓
34	4Q43981.d	P2-C4	op96662-dup	1633full_4Q.m	Sample	100/500	OP96662,S4Q635,570,,,5.0,5,water	✓
35	4Q43982.d	P2-C5	op96657-bs	1633full_4Q.m	Sample		OP96657,S4Q635,500,,,5.0,1,soil	✓

SGS ORLANDO LCMS4-4Q ANALYSIS LOG

36	4Q43983.d	P2-C6	op96657.llbs:3	1633full_4Q.m	Sample	OP96657,S4Q635,5.00,,,5.0,1,soil	✓
37	4Q43984.d	P2-C7	fc5371-13	1633full_4Q.m	Sample	OP96657,S4Q635,5.04,,,5.0,10,soil	✓
38	4Q43985.d	P2-C8	fc5371-14	1633full_4Q.m	Sample	OP96657,S4Q635,5.02,,,5.0,1,soil	✓
39	4Q43986.d	P2-C9	fc5371-16	1633full_4Q.m	Sample	OP96657,S4Q635,4.97,,,5.0,10,soil	✓
40	4Q43987.d	P2-D1	fc5371-17	1633full_4Q.m	Sample	OP96657,S4Q635,5.03,,,5.0,1,soil	✓
41	4Q43988.d	P2-D2	fc5371-18	1633full_4Q.m	Sample	OP96657,S4Q635,5.03,,,5.0,10,soil	✓
42	4Q43989.d	P1-A5	ecc634-4	1633full_4Q.m	QC	OP96548,S4Q635,500,,,5.0,1,water	PASS
43	4Q43990.d	P1-A1	iccb	1633full_4Q.m	Sample	OP96548,S4Q635,500,,,5.0,1,water	ND

SGS ORLANDO

DATE:	04/28/23
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS6-6Q

LCMS6-6Q ANALYSIS LOG

METHODS:	1633
PROC. METH:	1633_042823_S6Q258
CAL DATE:	04/28/23
ANALYST:	M. Valls
RUN BATCH:	S6Q258

ELUENT A LOT #:	ACN 220228
ELUENT B LOT #:	HPLC WATER LOT: 224870 W5% ACN 220225 2mlM AMAC: 11387
IC/CC STD LOT #:	LCMS 2107C
ICV STD LOT #:	LCMS 2107C/2100B
ISTD/D STD LOT #:	11765/11764

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	6Q17046.d	P1-A1	CCB	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,,water	✓
2	6Q17047.d	P1-A1	CCB	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,,water	✓
3	6Q17048.d	P1-B3	RT TDCA	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,,water	✓
4	6Q17049.d	P1-B4	RT BR-LN	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,,water	✓
5	6Q17050.d	P1-A1	ic258-0	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,,water	✓
6	6Q17051.d	P1-A2	ic258-1	1633full.m	Calibration	1.6/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
7	6Q17052.d	P1-A3	ic258-2	1633full.m	Calibration	3.2/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
8	6Q17053.d	P1-A4	ic258-3	1633full.m	Calibration	10/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
9	6Q17054.d	P1-A5	icc258-4	1633full.m	Calibration	20/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
10	6Q17055.d	P1-A6	ic258-5	1633full.m	Calibration	40/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
11	6Q17056.d	P1-A7	ic258-6	1633full.m	Calibration	100/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
12	6Q17057.d	P1-A8	ic258-7	1633full.m	Calibration	200/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
13	6Q17058.d	P1-A9	ic258-8	1633full.m	Calibration	1x	OP96301,S6Q258,500,,,5.0,1,,water	✓
14	6Q17059.d	P1-A1	iblk	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,,water	✓
15	6Q17060.d	P1-B1	icv258-4	1633full.m	Sample	20/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
16	6Q17061.d	P1-B2	icv258-20	1633full.m	Sample	100/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
17	6Q17062.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
18	6Q17063.d	P1-A2	cc258-1,0LL	1633full.m	QC	1.6/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
19	6Q17064.d	P4-F1	op96604-bs	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,,water	✓
20	6Q17065.d	P4-F2	op96604-llbs:3	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,,water	✓
21	6Q17066.d	P4-F3	op96604-mb	1633full.m	Sample		OP96604,S6Q258,500,,,5.0,1,,water	✓
22	6Q17067.d	P4-F4	FC5144-9	1633full.m	Sample		OP96604,S6Q258,560,,,5.0,1,,water	✓
23	6Q17068.d	P4-F5	FC5144-10	1633full.m	Sample		OP96604,S6Q258,570,,,5.0,1,,water	✓
24	6Q17069.d	P4-F6	FC5144-11	1633full.m	Sample		OP96604,S6Q258,560,,,5.0,1,,water	✓
25	6Q17070.d	P1-A5	cc258-4	1633full.m	QC	20/500	OP96301,S6Q258,500,,,5.0,1,,water	✓
26	6Q17071.d	P1-A1	iccb	1633full.m	Sample		OP96301,S6Q258,500,,,5.0,1,,water	✓
27	6Q17072.d	P3-A1	op96603-bs	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,,water	✓
28	6Q17073.d	P3-A2	op96603-llbs:3	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,,water	✓
29	6Q17074.d	P3-A3	op96603-mb	1633full.m	Sample		OP96603,S6Q258,500,,,5.0,1,,water	✓
30	6Q17075.d	P3-A4	FC5514-1	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,,water	✓
31	6Q17076.d	P3-A5	FC5514-2	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,,water	✓
32	6Q17077.d	P3-A6	FC5514-3	1633full.m	Sample		OP96603,S6Q258,560,,,5.0,1,,water	✓
33	6Q17078.d	P3-A7	op96603-ms	1633full.m	Sample		OP96603,S6Q258,540,,,5.0,1,,water	✓
34	6Q17079.d	P3-A8	FC5514-4	1633full.m	Sample		OP96603,S6Q258,570,,,5.0,1,,water	✓
35	6Q17080.d	P3-A9	op96603-dup	1633full.m	Sample		OP96603,S6Q258,530,,,5.0,1,,water	✓



LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

36	6Q17081.d	P3-B1	FC5514-5	1633full.m	Sample	OP96603.S6Q258.520,,,5.0,1,water	✓
37	6Q17082.d	P1-A5	cc258-4	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
38	6Q17083.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
39	6Q17084.d	P3-B2	FC5522-1	1633full.m	Sample	OP96603.S6Q258.540,,,5.0,1,water	✓
40	6Q17085.d	P3-B3	FC5522-2	1633full.m	Sample	OP96603.S6Q258.570,,,5.0,1,water	✓
41	6Q17086.d	P3-B4	FC5522-3	1633full.m	Sample	OP96603.S6Q258.570,,,5.0,1,water	✓
42	6Q17087.d	P3-B5	FC5522-4	1633full.m	Sample	OP96603.S6Q258.540,,,5.0,1,water	✓
43	6Q17088.d	P3-B6	FC5522-5	1633full.m	Sample	OP96603.S6Q258.560,,,5.0,1,water	✓
44	6Q17089.d	P3-B7	FC5578-1	1633full.m	Sample	OP96603.S6Q258.540,,,5.0,1,water	mefose low. Rf5x
45	6Q17090.d	P3-B8	FC5578-2	1633full.m	Sample	OP96603.S6Q258.570,,,5.0,1,water	✓
46	6Q17091.d	P1-A5	cc258-4	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
47	6Q17092.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
48	6Q17093.d	P4-A1	op96579-bs	1633full.m	Sample	OP96579.S6Q258.500,,,5.0,1,water	✓
49	6Q17094.d	P4-A2	op96579-llbs:3	1633full.m	Sample	OP96579.S6Q258.500,,,5.0,1,water	✓
50	6Q17095.d	P4-A3	op96579-mb	1633full.m	Sample	OP96579.S6Q258.500,,,5.0,1,water	✓
51	6Q17096.d	P4-A4	FC5240-1	1633full.m	Sample	OP96579.S6Q258.540,,,5.0,1,water	✓
52	6Q17097.d	P4-A5	FC5240-2	1633full.m	Sample	OP96579.S6Q258.550,,,5.0,1,water	rr2x
53	6Q17098.d	P4-A6	FC5240-3	1633full.m	Sample	OP96579.S6Q258.540,,,5.0,1,water	rr1x co
54	6Q17099.d	P4-A7	FC5240-4	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	✓
55	6Q17100.d	P4-A8	FC5240-5	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	rr10x + redo lower volume
56	6Q17101.d	P4-A9	op96579-ms	1633full.m	Sample	OP96579.S6Q258.570,,,5.0,1,water	rr10x
57	6Q17102.d	P4-B1	op96579-msd	1633full.m	Sample	OP96579.S6Q258.530,,,5.0,1,water	rr10x
58	6Q17103.d	P1-A5	cc258-4	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
59	6Q17104.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
60	6Q17105.d	P4-B2	FC5240-6	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	rr10x + redo lower volume
61	6Q17106.d	P4-B3	FC5395-1	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	rr1x co
62	6Q17107.d	P4-B4	FC5395-2	1633full.m	Sample	OP96579.S6Q258.570,,,5.0,1,water	✓
63	6Q17108.d	P4-B5	FC5395-3	1633full.m	Sample	OP96579.S6Q258.570,,,5.0,1,water	✓
64	6Q17109.d	P4-B6	FC5395-4	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	✓
65	6Q17110.d	P4-B7	FC5395-5	1633full.m	Sample	OP96579.S6Q258.560,,,5.0,1,water	✓
66	6Q17111.d	P4-B8	FC5395-6	1633full.m	Sample	OP96579.S6Q258.520,,,5.0,1,water	✓
67	6Q17112.d	P4-B9	FC5395-7	1633full.m	Sample	OP96579.S6Q258.570,,,5.0,1,water	✓
68	6Q17113.d	P4-C1	FC5396-10	1633full.m	Sample	OP96579.S6Q258.540,,,5.0,1,water	✓
69	6Q17114.d	P4-C2	FC5487-1	1633full.m	Sample	OP96579.S6Q258.540,,,5.0,1,water	✓
70	6Q17115.d	P1-A5	cc258-4	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
71	6Q17116.d	P1-A2	cc258-1.0LL	1633full.m	QC	OP96301.S6Q258.500,,,5.0,1,water	✓
72	6Q17117.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
73	6Q17118.d	P4-C3	FC5092-9	1633full.m	Sample	OP96491.S6Q258.550,,,5.0,2,water	✓
74	6Q17119.d	P4-C4	op96566-bs	1633full.m	Sample	OP96566.S6Q258.500,,,5.0,1,water	✓
75	6Q17120.d	P4-C5	op96566-llbs:3	1633full.m	Sample	OP96566.S6Q258.500,,,5.0,1,water	✓
76	6Q17121.d	P4-C6	op96566-mb	1633full.m	Sample	OP96566.S6Q258.500,,,5.0,1,water	✓
77	6Q17122.d	P4-C7	FC5200-1	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
78	6Q17123.d	P4-C8	FC5200-2	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓



LCMS6-6Q ANALYSIS LOG

SGS ORLANDO

79	6Q17124.d	P4-C9	op96566-ms	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
80	6Q17125.d	P4-D1	op96566-msd	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
81	6Q17126.d	P4-D2	FC5200-3	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
82	6Q17127.d	P4-D3	FC5200-4	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
83	6Q17128.d	P1-A5	cc258-4	1633full.m	QC	20/500	✓
84	6Q17129.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
85	6Q17130.d	P4-D4	FC5200-5	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
86	6Q17131.d	P4-D5	FC5200-6	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
87	6Q17132.d	P4-D6	FC5200-7	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
88	6Q17133.d	P4-D7	FC5200-8	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
89	6Q17134.d	P4-D8	FC5200-9	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
90	6Q17135.d	P4-D9	FC5200-10	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
91	6Q17136.d	P4-E1	FC5200-11	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
92	6Q17137.d	P4-E2	FC5200-12	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
93	6Q17138.d	P4-E3	FC5200-13	1633full.m	Sample	OP96566.S6Q258.570,,,5.0,1,water	✓
94	6Q17139.d	P4-E4	FC5200-14	1633full.m	Sample	OP96566.S6Q258.550,,,5.0,1,water	✓
95	6Q17140.d	P1-A5	cc258-4	1633full.m	QC	20/500	✓
96	6Q17141.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓
97	6Q17142.d	P4-E5	FC5200-15	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
98	6Q17143.d	P4-E6	FC5200-16	1633full.m	Sample	OP96566.S6Q258.520,,,5.0,1,water	✓
99	6Q17144.d	P4-E7	FC5200-17	1633full.m	Sample	OP96566.S6Q258.560,,,5.0,1,water	✓
100	6Q17145.d	P4-E8	FC5200-18	1633full.m	Sample	OP96566.S6Q258.530,,,5.0,1,water	✓
101	6Q17146.d	P1-A5	ecc258-4	1633full.m	QC	20/500	✓
102	6Q17147.d	P1-A1	iccb	1633full.m	Sample	OP96301.S6Q258.500,,,5.0,1,water	✓

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 1.25 2.50ppb	1033 MIX	4/6/23	10/6/23	MW
		LCMS 2097	Br-In Et, Me	Sgs	9/4	10/28/23	2ppm	250uL		125ppb				
		11674B	PFAC MyF	Wellington	1/11/25	3/30/24	2ppm	250uL		312.5ppb				
		11675	PFAC MyG		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11642B	PFAC MyJ		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	04/06/23	06/15/23	NG
		10438A	Mw:2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10512B	d3-N-MSDSAA		10/22/25	05/15/23		160uL		2.0ppm				NG
		10498A	M:PFOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11069	M:PFDA		12/09/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (90) List 40 spike (500)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	75% MeOH 5% H2O	4/11/23	7/24/23	MW
		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		500ppb				
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

LCMS 2100 91B * tested & passed

* 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	MPFAC-2YES	Wellington Labs	01/15/23	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	05/11/23 57.425	03/28/23	09/26/23	NS
↓	↓	11585	M2HFO-DA	↓	11/08/23	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	d-N-METOSAN	↓	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-MxH	↓	11/1/25	3/23/29	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11674B	PFAC-MxH	↓	12/1/27	3/30/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	9/14/26	3/30/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
↓	↓	11642B	PFAC-MxJ	↓	10/28/23	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/16/23	10/28/23	MU
LCMS 2097A-B	BR-LN metet for 1033	11497	br-N metosa	Wellington Labs	08/23/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11498	br-N Effosa	↓	10/07/27	10/28/23	50ppm	200uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/28/23	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effosa	↓	10/17/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/6/24								

* tested on 3/29/24 10/27

** 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	2/8/23	3/21/23	MV
		10840	L ⁻ PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N ⁻ McFOSA		8/3/26	8/23/23								
		10837	N ⁻ 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 PFPAPA		2/3/27	2/8/24								
		10685A	5:3 FTCA PFPAPA		11/11/25	8/23/23								
		11116 A	7:3 FTCA FHPAPA		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 3.6-08PAPA		3/31/25	10/18/23								
					NS 02/10/23									

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-Icms std prep log.xls 030819

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 2077A-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	03/23/23	NG
↓	↓	10829	N-Me- FSA-M	Wellington Labs	08/23/26	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	FTECHS	↓	03/28/27	10/18/23	↓	↓	↓	↓	↓	↓	↓	NG
* 2075A-F LCMS 2076	(10 PPB) PFC ID SURC	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	11/08/25	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	11385	A-N- NFCOSAM	Wellington Labs	05/10/27	01/01/24	50ppm	48uL	↓	↓	↓	↓	↓	NG
↓	↓	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	Sigmall drich	—	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 21								

* 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	↓	11/1/25	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

<u>PRODUCT CODE:</u>	br-NMeFOSE
<u>LOT NUMBER:</u>	brNMeFOSE0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/02/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	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 ¹⁹F-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

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	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 ¹⁹F-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 ¹⁹F-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

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	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 ¹⁹F-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

<u>PRODUCT CODE:</u>	PFAC-MXJ
<u>LOT NUMBER:</u>	PFACMXJ0921
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/08/2021
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/14/2021
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	09/14/2026
<u>RECOMMENDED STORAGE:</u>	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

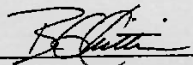
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

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

PRODUCT CODE: PFAC-MXH
LOT NUMBER: PFACMXH0822
SOLVENT(S): Methanol/Isopropanol (2%)/Water (<1%)
DATE PREPARED: (mm/dd/yyyy) 08/05/2022
LAST TESTED: (mm/dd/yyyy) 08/08/2022
EXPIRY DATE: (mm/dd/yyyy) 08/08/2027
RECOMMENDED STORAGE: Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₅, C₇, C₉, C₁₀ and C₁₂ linear; C₆ and C₈ 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

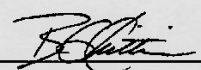
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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 ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^a	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-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexanesulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctanesulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	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-perfluorodecane sulfonate	8:2FTS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.
^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.
^c See Table D for percent composition of linear and branched PFHxSK isomers.
^d 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

PRODUCT CODE:	PFAC-MXF
LOT NUMBER:	PFACMXF0122
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2022
LAST TESTED: (mm/dd/yyyy)	01/11/2022
EXPIRY DATE: (mm/dd/yyyy)	01/11/2025
RECOMMENDED STORAGE:	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

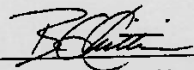
Table A:

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

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	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

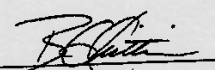
7.9.1
7

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

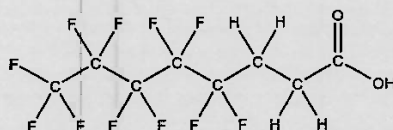
COMPOUND:

3-Perfluoropentyl propanoic acid

STRUCTURE:

CAS #:

914637-49-3



MOLECULAR FORMULA:

C₈H₅F₁₁O₂

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 (C₈H₃F₁₁O₂) as an impurity determined by ¹⁹F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

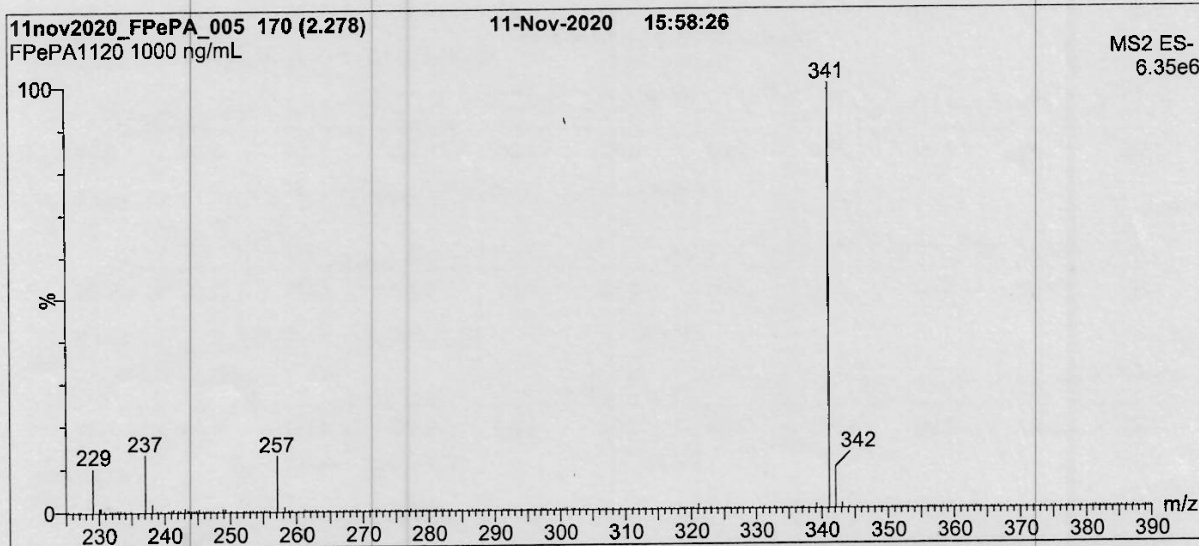
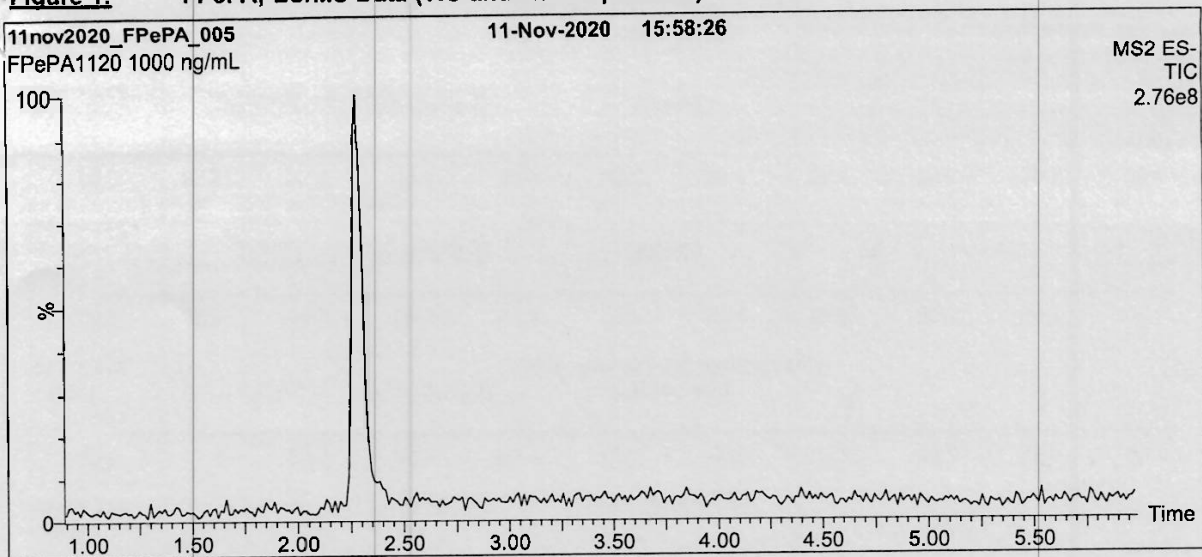
B.G. Chittim, General Manager

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_{1a}
1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc 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

10726 A

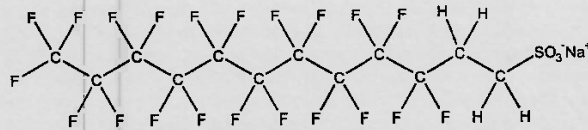


WELLINGTON LABORATORIES

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: C₁₂H₄F₂₁SO₃Na **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

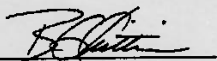
DOCUMENTATION/ DATA ATTACHED:

- 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
(mm/dd/yyyy)
B.G. Chittim, General Manager

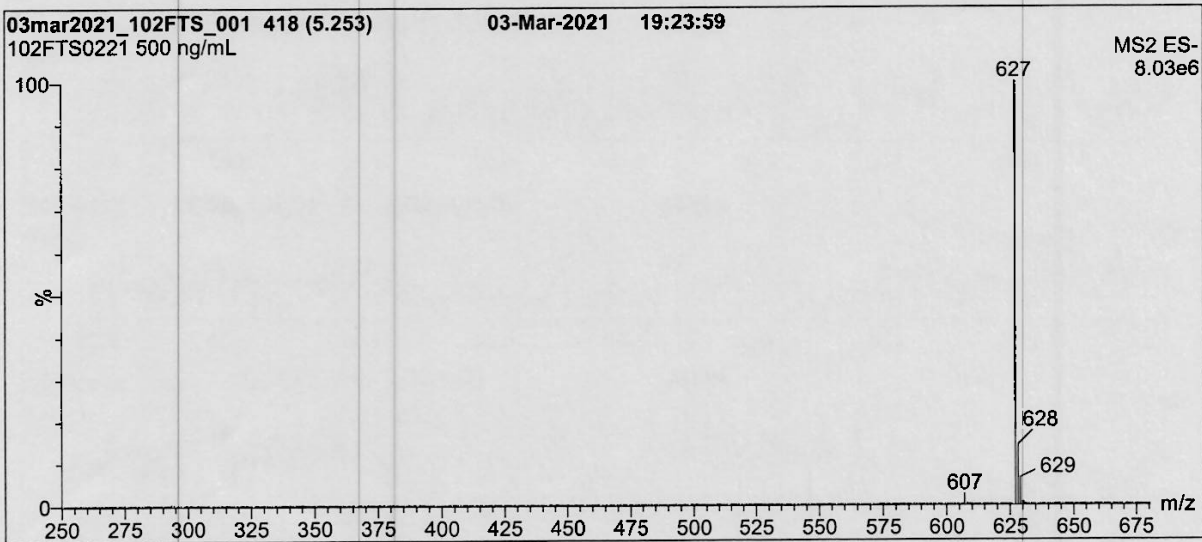
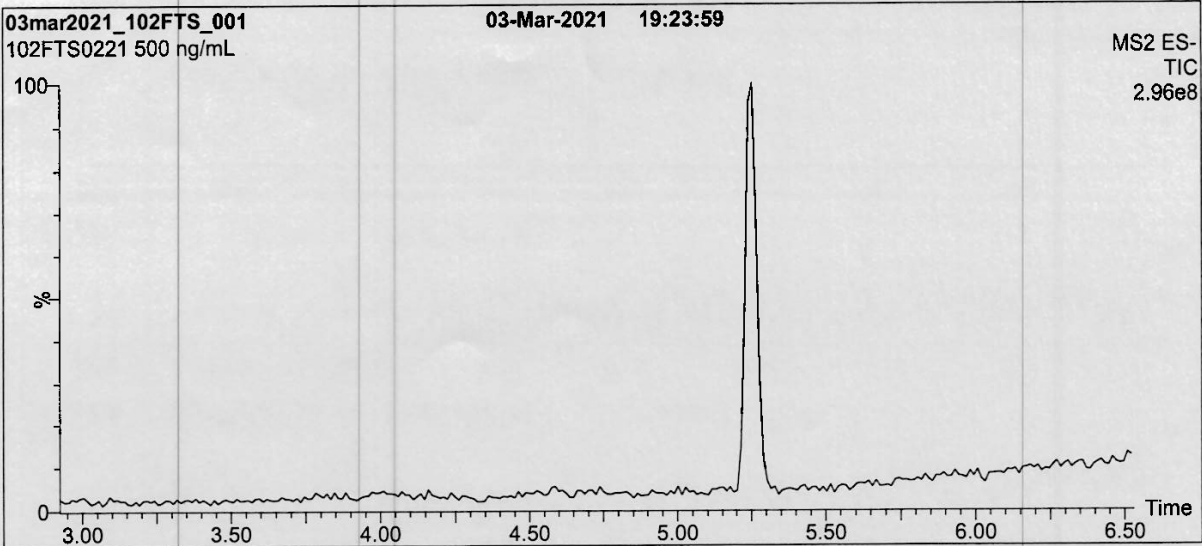
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10
Revision#: 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 RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 40% H₂O / 60% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc 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 μ 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



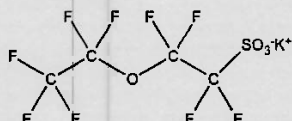
WELLINGTON LABORATORIES

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: C₄F₈SO₄K **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:

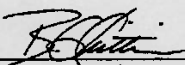
Figure 1: LC/MS Data (TIC and Mass Spectrum)

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

7.9.1

7

10763 A-B



WELLINGTON LABORATORIES

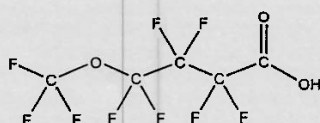
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₅HF₉O₃ **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

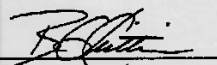
DOCUMENTATION/ DATA ATTACHED:

- 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: 
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

PF5OHxA0320 (1 of 4)
rev1

7.9.1
7

10764A-B



WELLINGTON LABORATORIES

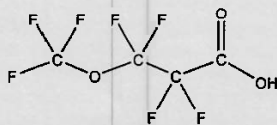
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₄HF₇O₃ **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

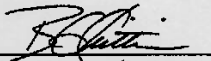
DOCUMENTATION/ DATA ATTACHED:

- 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

10765 A-13



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

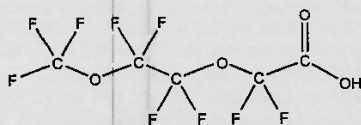
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

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

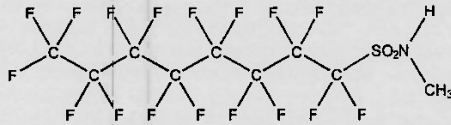
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₉H₄F₁₇NO₂S
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

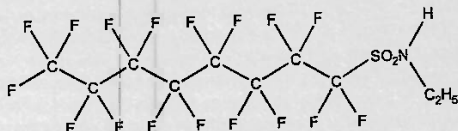
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

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)

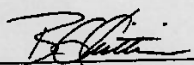
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

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



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

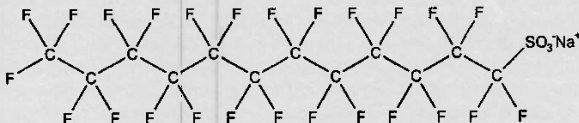
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
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

7.9.1
7



WELLINGTON
LABORATORIES

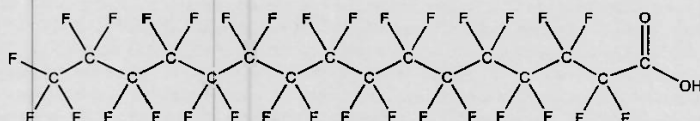
CERTIFICATE OF ANALYSIS
DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **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

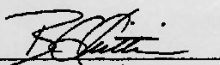
DOCUMENTATION/ DATA ATTACHED:

- 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:  **Date:** 05/25/2021
 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

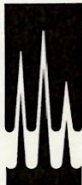
PFHxDA0421 (1 of 4)
 rev0

7.9.1

7

1116 A.B NW

1116B on the back NW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

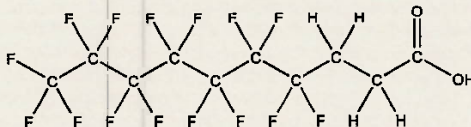
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

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

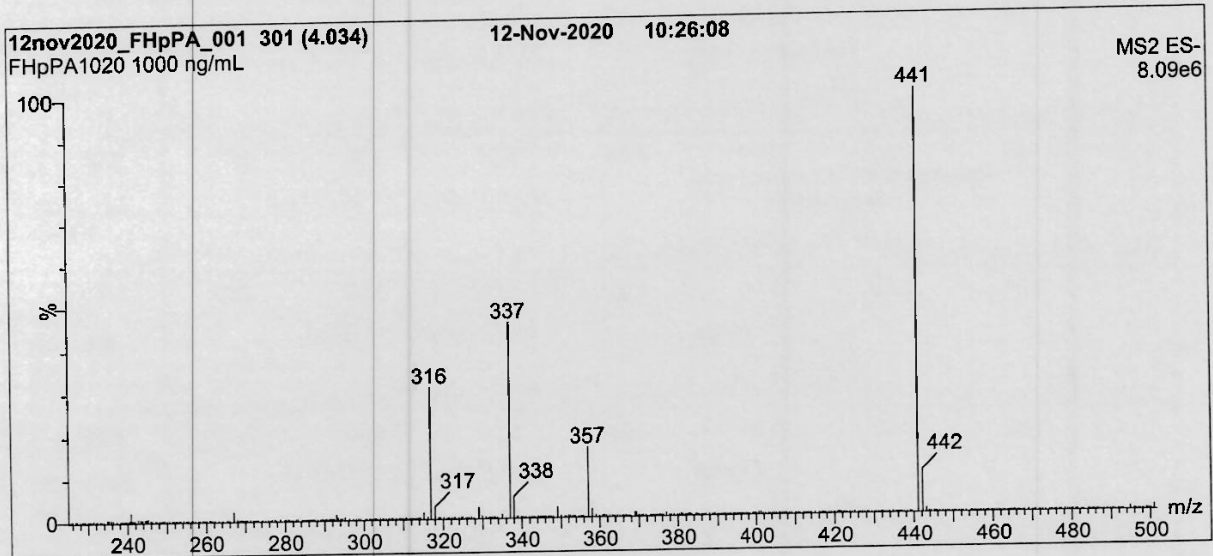
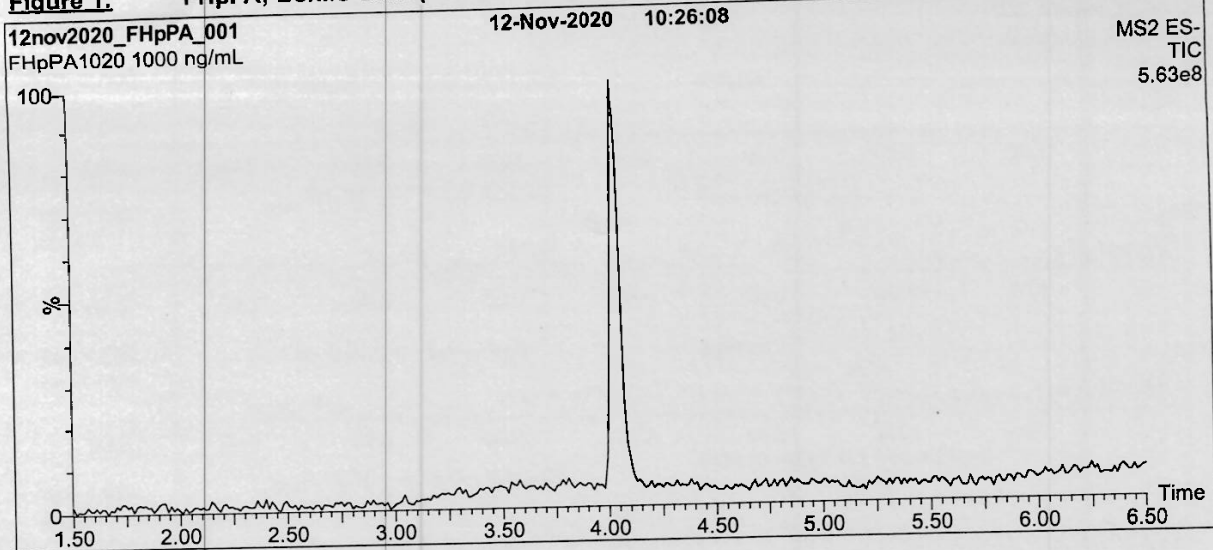
Date: 11/27/2020

(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 RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc 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 μ 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

FPPrPA(3:3FTCA) 1116 B



WELLINGTON
LABORATORIES

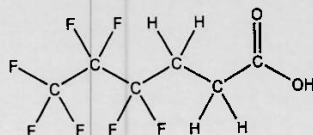
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/03/2022
EXPIRY DATE: (mm/dd/yyyy) 02/03/2027
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

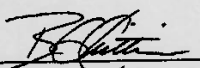
DOCUMENTATION/ DATA ATTACHED:

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 <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F 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

LOT NUMBER:

LPFPrS0721

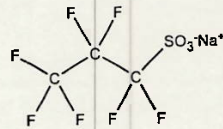
COMPOUND:

Sodium perfluoro-1-propanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

C₃F₇SO₃Na

MOLECULAR WEIGHT:

272.07

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)

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

11852 11249
7/1/22 KA



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

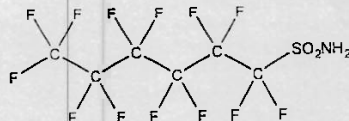
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

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:

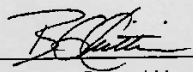
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

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

7.9.1
7

11250 Lx 7/1122



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FBSA-I

LOT NUMBER:

FBSA11211

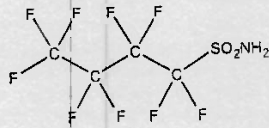
COMPOUND:

Perfluoro-1-butananesulfonamide

STRUCTURE:

CAS #:

30334-69-1



MOLECULAR FORMULA:

C₄H₂F₉NO₂S

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

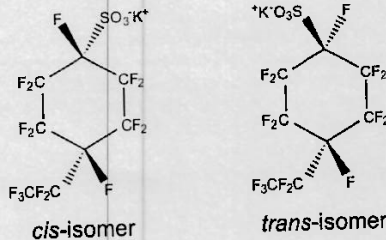
CERTIFICATE OF ANALYSIS DOCUMENTATION

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:

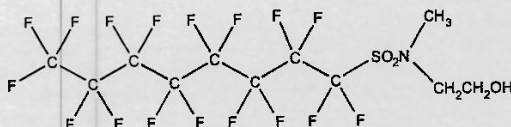
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>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 (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). 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 ≥99% per ¹³C or >94% per ¹⁸O.

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

MPFACHIFIS1122 (1 of 5)
rev0

7.9.1

7

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- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)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(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)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>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentas</i>	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	0.01	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 (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-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

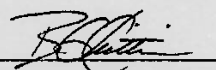
7.9.1

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-(¹³ C ₄)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₆)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₆)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	250		18
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	250		19
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₃ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₅ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)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- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)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)

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 2106A-B	PFC SPIKE	11653	PFOA-DOD (28 comps)	Absolute Wellington Labs	11/08/27	10/18/24	1.0ppm	2mL	5mL	400ppb	MS/MNH 5/14/20	01/18/23	10/18/23	NG
		11432	N-He-FOSA-m	Wellington Labs	02/18/27	03/13/24	50ppm	40uL						NG
		11513	FBSA-1		11/10/26	04/18/24								NG
		11514	FHSA-1		12/19/26	04/18/24								NG
		11332	PFERHS		03/18/27	10/18/24								NG
LCMS 2107A-C	1633-OPiKE Cal Std.	11734	PFAC MXH	Wellington	8/8/27	4/14/24	1-4 ppb	250uL	4mL	62.5 125 250ppb	1633 MIX	4/19/23	10/19/23	MV
		11736	PFAC MXF	Wellington	11/11/25	4/14/24	2ppm	250uL		125ppb	2688mL			
		11676	PFAC MXG		12/11/27	4/11/24	2ppm	250uL		125ppb				
		11689	PFAC MXJ		9/11/26	4/19/24	4-20 ppm	250uL		125ppb				
LCMS 2108A-O	10PPb PFC ID SURT	11763	MPFAC-24-ES	Wellington Labs	01/18/28	04/18/24	1.0ppm	2.4mL	~50mL	312uL	MS/MNH 5/14/20	04/24/23	10/18/23	NG
		11635A	M3HFO-DA		11/08/28	04/18/24	50ppm	48uL						NG
LCMS-2109	537.1 DW STD.	11653	PFOA-DOD (28 comps)	Absolute	11/09/27	04/18/24	1.0ug/mL	4mL	100ppb	90% MeOH 4/24/23 4% H2O		09/10/23	09/10/23	JR
		2080	DW SURT.		07/06/23		1.0/2.0 PPM	400uL	100/200 PPB					JR

* 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 20915A-E	(10ppb) PFC ID SURR	A-5 11669	PFAC-2YES	Wilmington Labs	01/16/28	03/28/24	1.0ppm	2.4mL	~50mL	0.5ppm	151mech 51.420	03/28/23	09/28/23	NS
↓	↓	11585	PFAC-DA	↓	11/08/25	01/26/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
↓	↓	11431	PFAC-D-N	↓	05/10/27	03/13/24	50ppm	48uL	↓	↓	↓	↓	↓	NS
LCMS 20916A-B	1033 spike Cal wtd.	11672	PFAC-MxH	Wilmington	8/8/27	3/23/24	1-4 ppm	250uL	4mL	0.25 125 250ppb	1033 MIX	3/30/23	9/30/23	MU
↓	↓	11686	PFAC-MxI	↓	2/27/28	3/30/24	1-10 ppm	250uL	↓	0.25 0.25ppb	↓	↓	↓	↓
↓	↓	11674A	PFAC-MxF	↓	1/11/25	3/23/24	2ppm	500uL	↓	250ppb	↓	↓	↓	↓
↓	↓	11675	PFAC-MxG	↓	12/1/27	3/16/24	2ppm	250uL	↓	125ppb	↓	↓	↓	↓
↓	↓	11672B	PFAC-MxJ	↓	9/14/26	3/23/24	4-20 ppm	312uL	↓	312/100 ppb	↓	↓	↓	↓
LCMS 2097A-B	BR-LN metal for 1033	11497	br-N metosa	Wilmington	08/23/27	10/28/23	50ppm	200uL	5mL	2ppm 5ppm	1033 MIX	4/6/23	10/28/23	MU
↓	↓	11498	br-N Effosa	↓	10/6/27	10/28/23	50ppm	200uL	↓	2ppm	↓	↓	↓	↓
↓	↓	11495	br-N metosa	↓	10/6/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓	11494	br-N Effosa	↓	10/7/27	10/28/23	50ppm	500uL	↓	5ppm	↓	↓	↓	↓
↓	↓					4/8 MU								

* tested & used on 3/30/27

* 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 2098A	1033 spike Cal std.	11672A	PFAC	Wellington	8/18/27	3/23/24	1-4 ppm	250uL	4mL	0.25 1.25 250ppb	1033 mix	4/6/23	10/6/23	MW
		LCMS 2097	Br-1n Et-Me	SGS Labo	NA	10/28/23	3ppm 5ppm	250uL		125ppb 312.5ppb				
		11674B	PFAC Mx F	Wellington	1/11/25	3/30/24	2ppm	250uL 500uL 750uL		125ppb				
		11675	PFAC Mx G		12/1/27	3/30/24	2ppm	250uL		125ppb				
		11672B	PFAC Mx J		9/14/26	3/23/24	4-20 ppm	312uL		312/100 ppb				
LCMS 2099	537.1 Du std. (Fumeral)	11670	M3P-PEA	Wellington Labs	07/08/25	04/06/24	50ppm	80uL	4mL	1.0ppm	0161168H 41. H2O	04/06/23	05/15/23	NG
		10436A	Mx 2 FTS		11/05/25	04/06/24		80uL		1.0ppm				NG
		10522B	d3-N-NEOSAA		10/22/25	08/15/23		160uL		2.0ppm				NG
		10498A	M1FOS		11/02/25	03/22/24		80uL		1.0ppm				NG
		11669	M2PFA		12/01/26	03/22/24		80uL		1.0ppm				NG
LCMS 2100	Full List (40)	11626	PFOR 28 Comp.	Absolute	11/19/27	4/11/24	1.0ppm	400uL	4.0mL	100ppb	45% MeOH 5% H2O (2,40021)	4/11/23	7/24/23	MW
		LCMS 2067	40 List ADD #1	SGS Add.		8/23/23	1.0ppm	400uL						
		LCMS 2070	40 List ADD #2			5/12/23	1.0ppm	400uL						
		LCMS 2054	FOSSE 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	45% MeOH 5% H2O	9/11/23	9/19/23	MW
		11338	N-me fose		5/13/27	9/19/23	50ppm	200uL						

* based on date opened as specified in each SGS - Orlando SOP. (1,600)

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

* recheck & tested on 10/23/23
are normal

LCMS 2100 91B
recheck & tested on 10/23/23

Organic Standards Preparation Log

SGS - Orlando Std. #	Parent 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	10720A	10:2 FTS	Wellington	3/3/26	3/21/23	50 ppm	80 uL	4.0 mL	1 ppm	95% MeOH 5% H2O	2/8/23	3/21/23 8/23/23	MV
		10840	L- PFDOS		7/9/26	10/18/23							8/23/23	
		10829	N- MCFOSA		8/3/26	8/23/23								
		10837	N- E-FOSA		8/3/26	8/23/23								
		10842	PFHxDA		9/3/26	10/18/23								
		10841	PFOA		5/7/26	10/18/23								
		11116B	3:3FTCA PFRPA		2/3/27	2/8/24								
		10685A	5:3FTCA PF2PA		11/1/25	8/23/23								
		11116A	7:3FTCA FHPA		11/2/25	2/8/24								
		11332	PFECHS		3/2/27	10/18/23								
		10762B	PFEESA		5/13/25	10/18/23								
		10763B	PFMBA		3/31/25	10/18/23								
		10764	PFMFA PF40eA		3/31/25	2/8/24								
		10765B	NFHDA 3.6-OPHdA		3/31/25	10/18/23								
					NG 02/10/23									

* based on date opened as specified in each SGS - Orlando SOP.

ORLD-QAC-0017-6-03-FORM-lcms std prep log.xls 030819

Organic Standards Preparation Log

SGS - Orlando Sid. #	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 2074 A-B	PFC SPIKE	11613	PROA-DOD CASCOMP	Absolute Wellington Labs	11/09/23	02/23/24	1.0ppm	2mL	5mL	400ppb	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		10829	N-Me-PBSA-M	Wellington Labs	08/23/26	08/23/23	50ppm	40uL						NG
		11250	PBSA-1		11/10/26	11/08/23								NG
		11249	PHSA-1		12/29/26	11/03/23								NG
		11322	PFCHS		02/28/27	10/18/23								NG
LCMS 2075A-F	(10 PPB) PFC ID SURF	11639	MPPAC-24ES	Wellington Labs	03/24/27	02/23/24	1.0ppm	2.4mL	~50 mL	0.5ppm	95% MeOH 5% H2O	02/23/23	05/23/23	NG
		11585	N2HFO-DA	Wellington Labs	11/08/26	01/26/24	50ppm	48uL						NG
		11385	DA-N-N	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	2/27/23	5/2/26	MW
		11249	FHSA-1		2/29/26	11/3/23	50ppm	80uL						
		11140	L-PFRG		7/12/26	5/26/23	50ppm	80uL						
LCMS 2077A-B	1633 Solvent B	11387	Ammonium Sulfate Acetate drich			1/25/24	99.9%	0.62g	4L	2mM	95% MeOH 5% H2O	2/28/23	4/28/23	MW
		224870	HPLC water	Fisher		2/28/23		3,800ml		95%				
		220225	Acetoni trile			2/20/24		200mL		5%				
						aka new 2/28/23								
						Continue next page #1								

* added 8/23/23
8/23/23
8/23/23
8/23/23
8/23/23

* added 8/23/23
8/23/23
8/23/23
8/23/23
8/23/23

* based on date opened as specified in each SGS - Orlando SOP. ORLD-QAC-0017-6-03-FORM-icms std prep log.xls 030819

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	221044 Lot:	MeOH	Fisher	—	1/4/24	99.9%	92 mL	100 mL	92%	N/A	1/19/23	2/19/23	MV
		219481 Lot:	NH4OH		—	9/19/23	100%	3.3 mL		1%				
		224863 Lot:	H2O		—	1/17/24	100%	1.7 mL		4%				
		224297 Lot:	Acetic Acid		—	6/24	99.7%	0.625 mL		.625%				
LCMS 2053	(spike) Full list std	11568	PFOA DOP 28 Calc	SGS Standards	11/9/27	11/10/24	1.0 ppm	400 nL	4.0 mL	100 ppb	95% MeOH 5% H2O	12/4/23	3/21/23	MV
		1987	LCMS 40 list ADON#1		—	3/21/23	1.0 ppm	400 nL						
		1986	LCMS 40 list Add on #2		—	4/18/23	1.0 ppm	400 nL						
		2054	LCMS Fose std.		—	7/7/23	5.0 ppm	400 nL		500 ppb				
LCMS 2054	Fose 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	2.50 nL	4 mL	62.5 125 250 ppb	1633 MIX	1/24/23	7/24/23	MV
		10853J	PFAC MXI		9/14/26	1/11/24	1-10 ppm	2.50 nL		62.5 125 250 ppb				
		11549B	PFAC MXF		11/1/25	1/11/24	2 ppm	500 nL		250 ppb				
		10854J	PFAC MXG		3/4/25	1/24/24	2 ppm	250 nL		125 ppb				
		11492	PFAC MXJ		9/14/26	1/11/24	4-20 ppm	312 nL		312/100 ppb				
		11603												

* based on date opened as specified in each SGS - Orlando SOP.

11494



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSE

2-(N-Methylperfluorooctanesulfonamido)ethanol Isomeric Mix

PRODUCT CODE:	br-NMeFOSE
LOT NUMBER:	brNMeFOSE0922
CONCENTRATION:	50.0 ± 2.5 µg/mL
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/02/2022
LAST TESTED: (mm/dd/yyyy)	09/07/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
EXPIRY DATE: (mm/dd/yyyy)	10/07/2027
RECOMMENDED STORAGE:	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 ¹⁹F-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

7.9.2

7

11495



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSE

**2-(N-Ethylperfluorooctanesulfonamido)ethanol
Isomeric Mix**

<u>PRODUCT CODE:</u>	br-NEtFOSE
<u>LOT NUMBER:</u>	brNEtFOSE1022
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	09/12/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	09/12/2022 (HRGC/LRMS) 10/07/2022 (LC/MS)
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	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 ¹⁹F-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

7.9.2

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 ¹⁹F-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

7.9.2

7

11498



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSA

N-Ethylperfluorooctanesulfonamide Isomeric Mix

<u>PRODUCT CODE:</u>	br-NEtFOSA
<u>LOT NUMBER:</u>	brNEtFOSA0922
<u>CONCENTRATION:</u>	50.0 ± 2.5 µg/mL
<u>SOLVENT(S):</u>	Methanol
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/23/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	10/07/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	10/07/2027
<u>RECOMMENDED STORAGE:</u>	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 ¹⁹F-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

7.9.2
7

11676
rec'd: 02/23/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	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

Table A: PFAC-MXJ; Components and Concentrations (µg/mL; ± 5% in methanol)

Compound	Acronym	Concentration (µg/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
(mm/dd/yyyy)

11688
rec'd 103/03/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXG

Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXG
<u>LOT NUMBER:</u>	PFACMXG1122
<u>SOLVENT(S):</u>	Methanol/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	11/30/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	12/01/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	12/01/2027
<u>RECOMMENDED STORAGE:</u>	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

Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

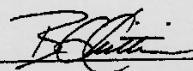
7.9.2

7

Table A: PFAC-MXG; 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-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: 
 B.G. Chittim, General Manager

Date: 12/09/2022
(mm/dd/yyyy)

7.9.2
7

11689
rec'd: 03/03/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXJ

Native X:3 Fluorotelomer Carboxylic
Acid Solution/Mixture

PRODUCT CODE:	PFAC-MXJ
LOT NUMBER:	PFACMXJ0921
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	09/08/2021
LAST TESTED: (mm/dd/yyyy)	09/14/2021
EXPIRY DATE: (mm/dd/yyyy)	09/14/2026
RECOMMENDED STORAGE:	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

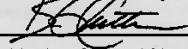
PFACMXJ0921 (1 of 5)
rev1

7.9.2

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
(mm/dd/yyyy)

11734
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXH

Native PFAS
Solution/Mixture

<u>PRODUCT CODE:</u>	PFAC-MXH
<u>LOT NUMBER:</u>	PFACMXH0822
<u>SOLVENT(S):</u>	Methanol/Isopropanol (2%)/Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	08/05/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	08/08/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	08/08/2027
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXH is a solution/mixture of 11 native linear perfluoroalkylcarboxylic acids (C₄-C₁₄), eight native perfluoroalkanesulfonates (C₄, C₆, C₇, C₈, C₁₀ and C₁₂ linear; C₆ and C₈ 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

PFACMXH3822 11 of 11
rev0

7.9.2
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	PFTrDA	1000		27
Perfluoro-n-tetradecanoic acid	PFTeDA	1000		29
Perfluoro-1-octanesulfonamide	FOSA	1000		23
N-methylperfluorooctanesulfonamidoacetic acid ^a	N-MeFOSAA: linear isomer	760		20
	N-MeFOSAA: ∑ branched isomers	240		17
N-ethylperfluorooctanesulfonamidoacetic acid ^b	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-butanedisulfonate	L-PFBS	1000	887	3
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	1000	941	6
Potassium perfluorohexadisulfonate ^c	PFHxSK: linear isomer	811	741	9
	PFHxSK: ∑ branched isomers	189	173	8
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	1000	953	12
Potassium perfluorooctadisulfonate ^d	PFOSK: linear isomer	788	732	15
	PFOSK: ∑ branched isomers	211	196	13
Sodium perfluoro-1-nonadisulfonate	L-PFNS	1000	962	19
Sodium perfluoro-1-decadisulfonate	L-PFDS	1000	965	25
Sodium perfluoro-1-dodecadisulfonate	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-perfluorodecane sulfonate	8:2FTS	4000	3840	16

^a See Table B for percent composition of linear and branched N-MeFOSAA isomers.

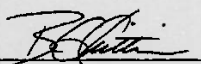
^b See Table C for percent composition of linear and branched N-EtFOSAA isomers.

^c See Table D for percent composition of linear and branched PFHxSK isomers.

^d 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)

11736
rec'd: 03/29/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PFAC-MXF

**Native Replacement PFAS
Solution/Mixture**

<u>PRODUCT CODE:</u>	PFAC-MXF
<u>LOT NUMBER:</u>	PFACMXF0122
<u>SOLVENT(S):</u>	Methanol / Water (<1%)
<u>DATE PREPARED:</u> (mm/dd/yyyy)	01/10/2022
<u>LAST TESTED:</u> (mm/dd/yyyy)	01/11/2022
<u>EXPIRY DATE:</u> (mm/dd/yyyy)	01/11/2025
<u>RECOMMENDED STORAGE:</u>	Refrigerate ampoule

DESCRIPTION:

PFAC-MXF is a solution/mixture of sodium dodecafluoro-3H-4,8-dioxanonoate (NaDONA), the major and minor components of F-53B (9Cl-PF3ONS and 11Cl-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**

Form# 13, Issued 2004-11-10
Revision# 3, Revised 2020-12-23

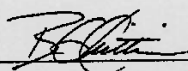
PFACMXF0122 (1 of 5)
rev0

7.9.2
7

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-dioxanonoate	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:  Date: 01/12/2022
(mm/dd/yyyy)
 B.G. Chittim, General Manager

7.9.2
 7

11737
rec'd: 03/29/23



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

Form# 13, Issued 2004-11-10
Revision# 9, Revised 2020-12-23

PFACMXG1122 (1 of 5)
rev0

7.9.2

7

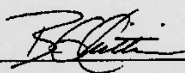
Table A:

PFAC-MXG; 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-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:



B.G. Chittim, General Manager

Date: 12/09/2022

(mm/dd/yyyy)

7.9.2
7

10726 A

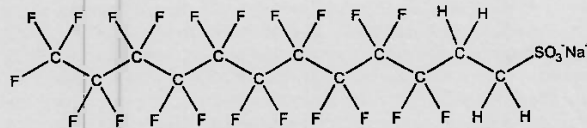


WELLINGTON LABORATORIES

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: C₁₂H₄F₂₁SO₃Na **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

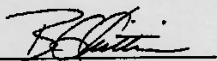
DOCUMENTATION/ DATA ATTACHED:

- 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
(mm/dd/yyyy)
B.G. Chittim, General Manager

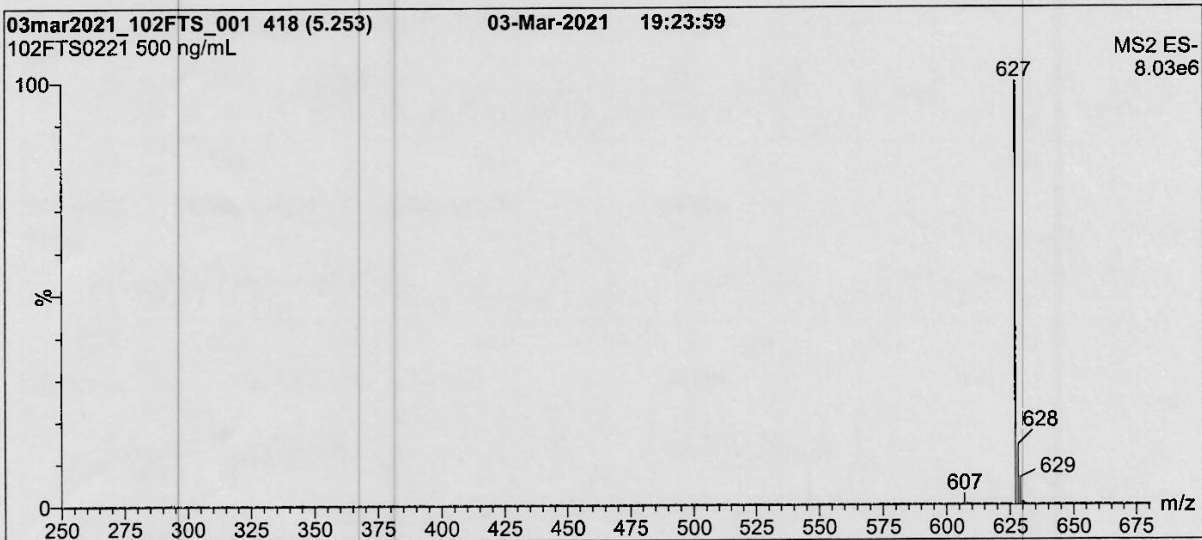
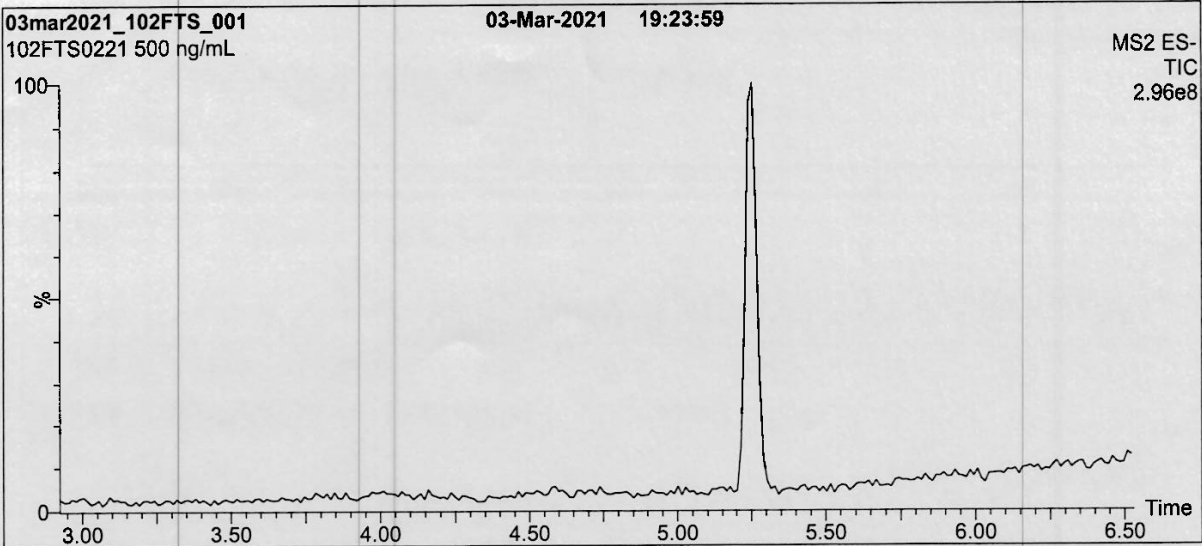
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Form#: 27, Issued 2004-11-10
Revision#: 9, Revised 2020-12-23

7.9.2

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 RP₁₈
 1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
 Start: 40% H₂O / 60% (80:20 MeOH:ACN)
 (both with 10 mM NH₄OAc 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 μ 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

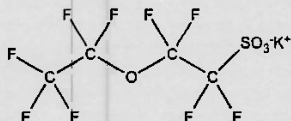


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFEESA *retd 8/20/21 WPH* **LOT NUMBER:** PFEESA0520
COMPOUND: Potassium perfluoro(2-ethoxyethane)sulfonate

STRUCTURE: **CAS #:** 117205-07-9



MOLECULAR FORMULA: C₄F₈SO₄K **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

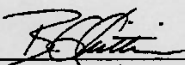
DOCUMENTATION/ DATA ATTACHED:

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
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#:7, Revised 2020-01-09

PFEESA0520 (1 of 4)
rev0

7.9.2
7

10763 A-B



WELLINGTON LABORATORIES

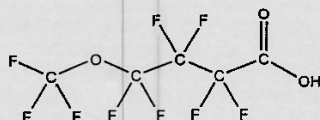
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₅HF₉O₃ **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

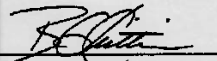
DOCUMENTATION/ DATA ATTACHED:

- 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: 
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

PF5OHxA0320 (1 of 4)
rev1

7.9.2
7

10764A-B



WELLINGTON LABORATORIES

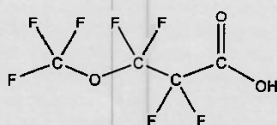
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₄HF₇O₃ **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

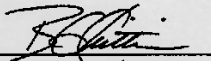
DOCUMENTATION/ DATA ATTACHED:

- 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

7.9.2

7

10765 A-13



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

3,6-OPFHpA

*rec'd
WPH
8/20/21*

LOT NUMBER:

36OPFHpA0320

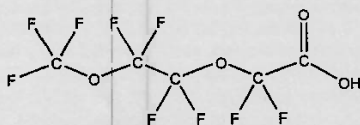
COMPOUND:

Perfluoro-3,6-dioxaheptanoic acid

STRUCTURE:

CAS #:

151772-58-6



MOLECULAR FORMULA:

C₆H₂F₉O₄

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

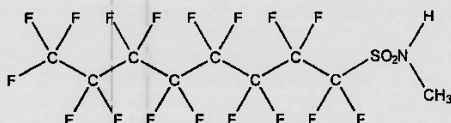
CERTIFICATE OF ANALYSIS DOCUMENTATION

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: C₉H₄F₁₇NO₂S
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

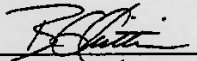
DOCUMENTATION/ DATA ATTACHED:

- 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

7.9.2

7



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-EtFOSA-M

10837

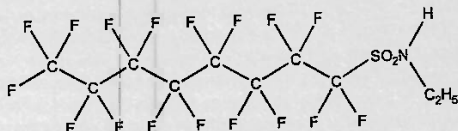
LOT NUMBER: NEtFOSA0821M

COMPOUND:

N-ethylperfluoro-1-octanesulfonamide

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:

C₁₀H₉F₁₇NO₂S

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

7.9.2
7

10



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

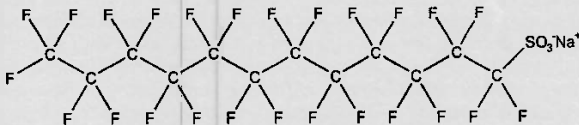
10840

PRODUCT CODE: L-PFDoS
COMPOUND: Sodium perfluoro-1-dodecanesulfonate

LOT NUMBER: LPFDoS0721

STRUCTURE:

CAS #: 1260224-54-1



MOLECULAR FORMULA: C₁₂F₂₅SO₃Na
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

7.9.2

7



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

PFODA

10847 NG 01/18/23

LOT NUMBER:

PFODA0821

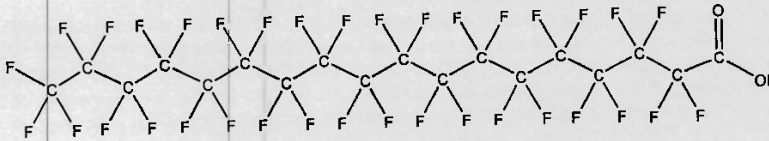
COMPOUND:

Perfluoro-n-octadecanoic acid

STRUCTURE:

CAS #:

16517-11-6



MOLECULAR FORMULA:

C₁₈H₃₅O₂

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



WELLINGTON LABORATORIES

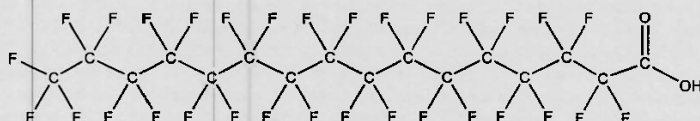
CERTIFICATE OF ANALYSIS DOCUMENTATION

10842 * NG 01/18/23

PRODUCT CODE: PFHxDA **LOT NUMBER:** PFHxDA0421

COMPOUND: Perfluoro-n-hexadecanoic acid

STRUCTURE: **CAS #:** 67905-19-5



MOLECULAR FORMULA: C₁₆HF₃₁O₂ **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

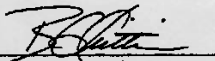
DOCUMENTATION/ DATA ATTACHED:

- 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:  **Date:** 05/25/2021
 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

PFHxDA0421 (1 of 4)
 rev0

7.9.2
7

1116 A.B NW

1116B on the back NW



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHpPA

LOT NUMBER:

FHpPA1020

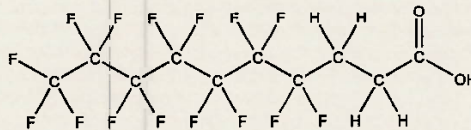
COMPOUND:

3-Perfluoroheptyl propanoic acid

STRUCTURE:

CAS #:

812-70-4



MOLECULAR FORMULA:

C₁₀H₅F₁₅O₂

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

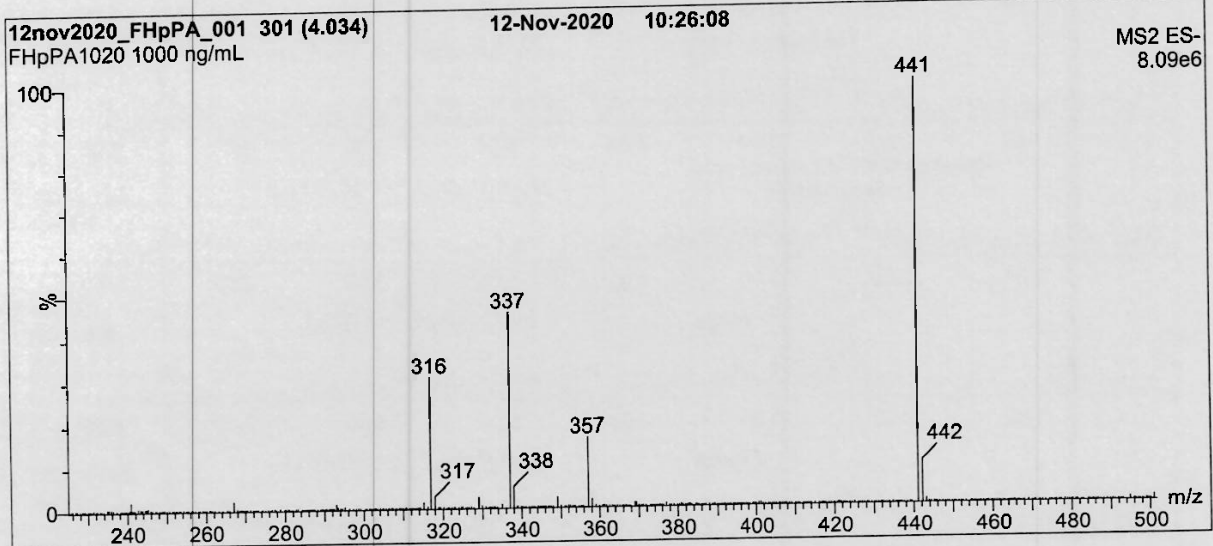
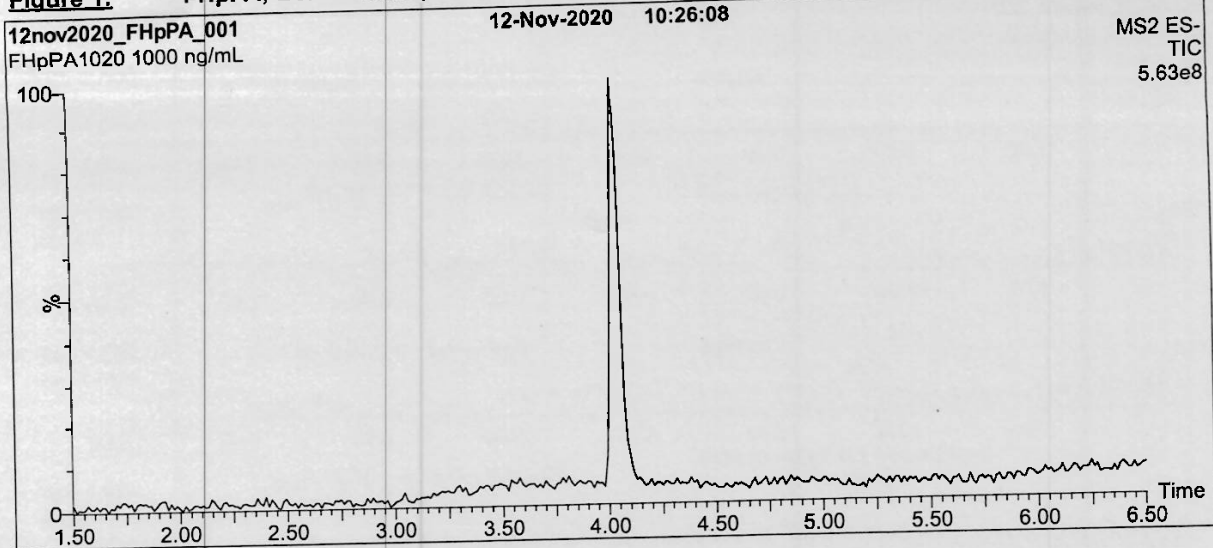
Date: 11/27/2020

(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 RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 45% H₂O / 55% (80:20 MeOH:ACN)
(both with 10 mM NH₄OAc 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 μ 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

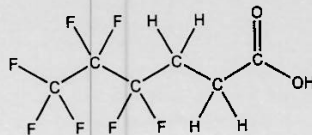
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: FPrPA
COMPOUND: 3-Perfluoropropyl propanoic acid

LOT NUMBER: FPrPA0122

STRUCTURE:

CAS #: 356-02-5



MOLECULAR FORMULA: C₆H₅F₇O₂
CONCENTRATION: 50.0 ± 2.5 µg/mL
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/03/2022
EXPIRY DATE: (mm/dd/yyyy) 02/03/2027
RECOMMENDED STORAGE: Refrigerate ampoule

MOLECULAR WEIGHT: 242.09
SOLVENT(S): Methanol

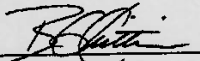
DOCUMENTATION/ DATA ATTACHED:

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 <1% of the unsaturated 3:3 telomer acid (C₆H₃F₇O₂) as an impurity determined by ¹⁹F 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

11332



WELLINGTON LABORATORIES

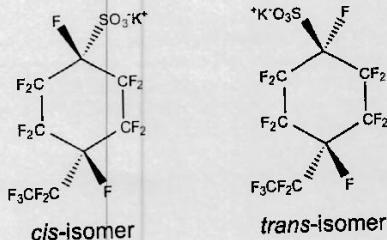
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

7.9.2
7



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>Prashant Chauhan</i>	110922
Reviewed By: <i>Pedro L. Rentas</i>	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	29187-87-2	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	756426-56-1	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).

7.9.2
7

11140



WELLINGTON LABORATORIES

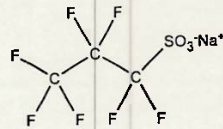
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFPrS
COMPOUND: Sodium perfluoro-1-propanesulfonate

LOT NUMBER: LPFPrS0721

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: C₃F₇SO₃Na
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

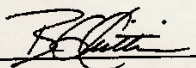
DOCUMENTATION/ DATA ATTACHED:

- 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

7.9.2

7

11252 11249
7/1/22 KA



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

FHxSA-I

LOT NUMBER:

FHxSA12211

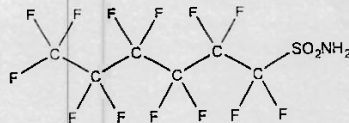
COMPOUND:

Perfluoro-1-hexanesulfonamide

STRUCTURE:

CAS #:

41997-13-1



MOLECULAR FORMULA:

C₆H₂F₁₃NO₂S

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:

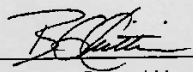
- Figure 1: LC/MS Data (Full Scan and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

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

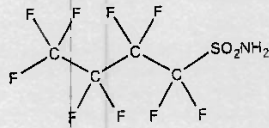
LOT NUMBER: FBSA11211

COMPOUND:

Perfluoro-1-butananesulfonamide

STRUCTURE:

CAS #: 30334-69-1



MOLECULAR FORMULA:

C₄H₂F₉NO₂S

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

11338



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

N-MeFOSE-M

LOT NUMBER:

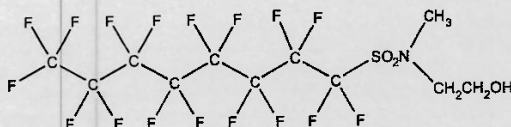
NMeFOSE0522M

COMPOUND:

2-(N-methylperfluoro-1-octanesulfonamido)ethanol

STRUCTURE:**CAS #:**

24448-09-7

**MOLECULAR FORMULA:**C₁₁H₈F₁₇NO₃S**MOLECULAR WEIGHT:**

557.22

CONCENTRATION:

50.0 ± 2.5 µg/mL

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>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

11764 A-5
rec'd: 04/20/23



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

MPFAC-HIF-IS

Mass-Labelled PFAS Injection
Standard Solution/Mixture

PRODUCT CODE: MPFAC-HIF-IS
LQT 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 (¹³C) perfluoroalkylcarboxylic acids (C₄, C₆, C₈-C₁₀) and two mass-labelled (¹⁸O and ¹³C) perfluoroalkanesulfonates (C₆ and C₈). 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 ≥99% per ¹³C or >94% per ¹⁸O.

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

MPFACHIFIS1122 (1 of 5)
rev0

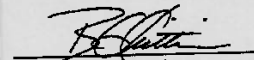
7.9.2

7

Table A: MPFAC-HIF-IS; Components and Concentrations (ng/mL, \pm 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- ¹³ C ₃)butanoic acid	M3PFBA	1000		1
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500		2
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500		4
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250		5
Perfluoro-n-(1,2- ¹³ C ₂)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(¹⁸ O ₂)sulfonate	MPFHxS	500	474	3
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500	479	6

* Concentrations have been rounded to three significant figures.

Certified By: 

R.G. Chittim, General Manager

Date: 12/05/2022
(mm/dd/yyyy)

11765 A-J
Rec'd: 04/20/23



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 (¹³C) perfluoroalkylcarboxylic acids (C₄-C₁₂, C₁₄), three mass-labelled (¹³C) perfluoroalkanesulfonates (C₄, C₆, and C₈), three mass-labelled (one ¹³C and two ²H) perfluoro-1-octanesulfonamides, three mass-labelled (¹³C) fluorotelomer sulfonates (4:2, 6:2, and 8:2), two mass-labelled (²H) perfluorooctanesulfonamidoacetic acids, two mass-labelled (²H) perfluorooctanesulfonamidoethanols, and mass-labelled (¹³C) hexafluoropropylene oxide dimer acid (GenX, M3HFPO-DA). The components and their concentrations are given in Table A.

The individual ¹³C-labelled components all have chemical purities >98% and isotopic purities of ≥99%. The individual ²H-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**

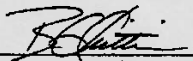
Form#:13, Issued 2004-11-10
Revision#:9, Revised 2020-12-23

MPFACHIFES1022 (1 of 7)
rev0

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-(¹³ C ₂)butanoic acid	MPFBA	2000		1
Perfluoro-n-(¹³ C ₃)pentanoic acid	M5PFPeA	1000		2
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500		5
Perfluoro-n-(1,2,3,4- ¹³ C ₅)heptanoic acid	M4PFHpA	500		7
Perfluoro-n-(¹³ C ₆)octanoic acid	M8PFOA	500		10
Perfluoro-n-(¹³ C ₇)nonanoic acid	M9PFNA	250		11
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₇)decanoic acid	M6PFDA	250		14
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₈)undecanoic acid	M7PFUDA	250		18
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFD _o A	250		19
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	250		22
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500		17
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500		21
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500		24
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000		15
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000		16
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d7-N-MeFOSE	5000		20
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₂ -ol	d9-N-EtFOSE	5000		23
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)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- ¹³ C ₃)butanesulfonate	M3PFBS	500	466	3
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500	474	8
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500	479	12
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000	938	4
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000	951	9
Sodium 1H,1H,2H,2H-perfluoro-(1,2- ¹³ C ₂)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 04/27/23 10:00
(mm/dd/yy 24:00)

Method: EPA 1633 Draft (QSM) List 40

Date/Time Finished 4/28/23 11:10
(mm/dd/yy 24:00)

Balance ID: _____

Batch# OP96603 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 96603 MB	/	520	7	N/A	25		5	E	
OP 96603 BS	/	600	7			200			
OP 96603 LLBS	/	600	7			60			
FC 5514-1	2	570	6						
	2	570							
	3	550							
	4	570							
	5	520							
FC 5522-1	2	540							
	2	570							V
	3	570							E
	4	540							F
	5	560							
FC 5578 -1	2	540			25		5		
	2	570	6	N/A	25		5		
	2	570			25		5		F
OP FC 5514-3 MIS	3	540	6	N/A	25	200	5	E	
OP MSD									
OP FC 5522-4 DUP	3	530	6	N/A	25		5	E	

Comments:

EIS (SURR) ID: 11765G-I Conc: 250-5000 ng/ml Exp. Date: 04/24/24 Inj. By: GH Ver. By: CM
 SPIKE 1 ID: LCMS 2104C Conc: VARIED Exp. Date: 10/14/23 Inj. By: GH Ver. By: CM
 SPIKE 2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 11776A-C Conc: 250-1000 ng/ml Exp. Date: 4/28/24 Inj. By: MV Ver. By: UV

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 PF374 SPE Lot# 614-0-05
 Water Lot# OP96255 0.3M Formic Acid PF368 Syringe filter Lot# _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF372 5% Formic Acid _____ Carbon Lot# 160898

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

Date: 04/27/23
Date: 4/28/23

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 05-03-23 14:00
Started (mm/dd/yy 24:00)

Method: EPA 1633 Draft QSM

Date/Time: 05/04/23 10:45
Finished (mm/dd/yy 24:00)

Balance ID: _____

Batch#: 0996698 Ext. By: DBL

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 46698 MB	n/a	500	7.0	n/a	25		5	A1	
OP 46698 BS						200			
OP 46698 LLBS						60			
FC5578-1 RE	3	540							
FC5063-1 RE	2	565							
F -2 RE	2	565							
FC5240-5 RE	1	60							
FC5240-6 RE	2	60							
DBL 05-03-23									
OP	MS								
OP	MSD								
OP	DUP								

Comments:

EIS (SURR) ID: 11777 D-F Conc: 250-5000 ng/ml Exp. Date: 05-01-24 Inj. By: DBL Ver. By: GH
 SPIKE.1 ID: LCMS 2107-A Conc: varied Exp. Date: 10-27-23 Inj. By: DBL Ver. By: GH
 SPIKE.2 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By: _____
 NIS (ISTD) ID: 117646-J Conc: 250-1000 ng/ml Exp. Date: 04/27/24 Inj. By: NG Ver. By: MU

TurboVap Temp (Therm ID): _____ N-Evap Temp (Therm ID): _____
 Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # 22421231 DM 05-03-23 1% NH4OH MeOH PF383 SPE Lot # 614-0-05
 Water Lot# 0996255 0.3M Formic Acid PF384 Syringe filter Lot # _____
 Acetic Acid# 194003 3% NH4OH Sol _____ pH paper Lot# 215322
 0.1M Formic PF382 5% Formic Acid _____ Carbon Lot# 160898

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

Date: 05-03-23
 Date: 05/04/23

1633 AQ extraction 042222.xls NF

7.102
7